HEBER CITY CORPORATION
75 North Main Street
Heber City, UT 84032
Heber City Council Meeting

September 17, 2024

4:00 p.m. Work Meeting
6:00 p.m. Regular Meeting

TIME AND ORDER OF ITEMS ARE APPROXIMATE AND MAY BE CHANGED AS TIME PERMITS

I. WORK MEETING - 4:00 P.M.

1. Wasatch Highlands (SITLA & Christensen Lands) and the Heber City Annexation Policy Plan (Tony Kohler, Community Development Director) - *45 min*
2. Crossings-Resort Annexation (Tony Kohler, Community Development Director) - *15 min*
3. Potential Development Agreement for Karl Malone Polaris Addition (Jamie Baron, Planning Manager) - *15 min*
4. Branding for Pedestrian Pathway, Bandshell, and Festival Street (Ryan Bunnell) - *30 min*

II. BREAK - 15 MIN

III. REGULAR MEETING - 6:00 P.M.

1. Call to Order
2. Pledge of Allegiance (Yvonne Barney, Council Member)
3. Prayer/Thought by Invitation (Mike Johnston, Council Member)

IV. AWARDS, RECOGNITION, and PROCLAMATIONS:

1. Mayor's Award

V. CONFLICT OF INTEREST DISCLOSURE:

VI. CONSENT AGENDA:

1. Approval of August 20, 2024, City Council Meeting Minutes and September 3, 2024, City Council Meeting Minutes (Trina Cooke, City Recorder)
2. Resolution 2024-17 Clarifying the street name for 920 East (Russ Funk, City Engineer)
3. Mayoral Nomination to POSTT Committee (Heidi Franco, Mayor)

VII. PUBLIC COMMENTS: (3 min per person/20 min max)

VIII. GENERAL BUSINESS ITEMS:

1. Branding for Pedestrian Pathway, Bandshell, and Festival Street (Ryan Bunnell) - *30 min*

2. Update on Code Enforcement Issues in the City and Public Safety Issues for the Month (Parker Sever, Chief of Police, Travis Price, Code Enforcement Officer) - *15 min*

IX. ACTION ITEMS: (Council can discuss; table; continue; or approve items)

1. Highlands Residential Subdivision Preliminary, located at the Intersection of US-40 and Commons Boulevard (Denna Woodbury, Planning Consultant) - *30 min*

X. COMMUNICATION:

XI. ADJOURNMENT:

Ordinance 2006-05 allows Heber City Council Members to participate in meetings via telecommunications media.

In accordance with the Americans with Disabilities Act, those needing special accommodations during this meeting or who are non-English speaking should contact Trina Cooke at the Heber City Offices 435.657.7886 at least eight hours prior to the meeting.

Posted on September 12, in the Heber City Municipal Building located at 75 North Main, the Heber City Website at www.heberut.gov, and on the Utah Public Notice Website at http://pmn.utah.gov. Notice provided to the Wasatch Wave.

Heber City Council Staff Report

MEETING DATE:	9/17/2024
SUBJECT:	Wasatch Highlands (SITLA & Christensen Lands) and the Heber City Annexation Policy Plan
RESPONSIBLE:	Tony Kohler
DEPARTMENT:	Planning
STRATEGIC RELEVANCE:	Community Development

SUMMARY

Utah State and Institutional Lands (SITLA) has contracted with PHILO to develop the SITLA property near Big Pole and Little Pole Canyons. The developer would like the City to consider annexation of the property, along with the Christensen properties, and develop these properties in the City. The City cannot entertain annexation of the properties because they are not shown on th City's Annexation Policy Plan. PHILO and the Christensen family are asking if the City would consider updating the Annexation Policy Plan to include these properties on the expansion area map.

Specifically, the policy question is:
Does Council support having the Planning Commission begin the process for amending the Annexation Policy Plan Expansion Area Map to include the SITLA and Christensen properties?

RECOMMENDATION

Staff recommends Council refer the matter to the Planning Commission for consideration of updating the Annexation Policy Plan to add the properties to the Expansion Area Map, and the petitioner work with staff to ensure the City's costs are covered by the developer for the update.

BACKGROUND

A City in Utah cannot annex properties until those properties are shown upon the municipality's Annexation Policy Plan Expansion Area Map. The process to adopt or update the plan involves: 1) a public meeting with the Planning Commission and Affected Entities; 2) a public hearing with the Planning Commission and Affected Entities; and 3) a public hearing with Council and Affected Entities. The process takes 3-4 months to complete. The City recently updated the plan to accommodate the Wellberg property just east of Red Ledges.

DISCUSSION

Amending the Annexation Policy Plan does not guarantee annexation of the properties. The property owners will still need to go through a separate annexation process and negotiate a development agreement (aka MDA) with the City regarding zoning, density, height, open space, parks, roads, etc.

FISCAL IMPACT

There isn't an application for updating the city's annexation policy plan. There will be costs associated with staff time and publications in preparing for public meetings. Its expected these costs would be fully covered by the applicant.

CONCLUSION

If Council is interested in further considering and investigating the proposed annexation, then it is recommended that the City's annexation policy plan be amended. If the Council, however, is not interested in considering the annexation of the SITLA and Christensen properties and entering into an MDA, then amending the City's annexation policy plan should not be supported at this time.

ALTERNATIVES

N/A

POTENTIAL MOTIONS

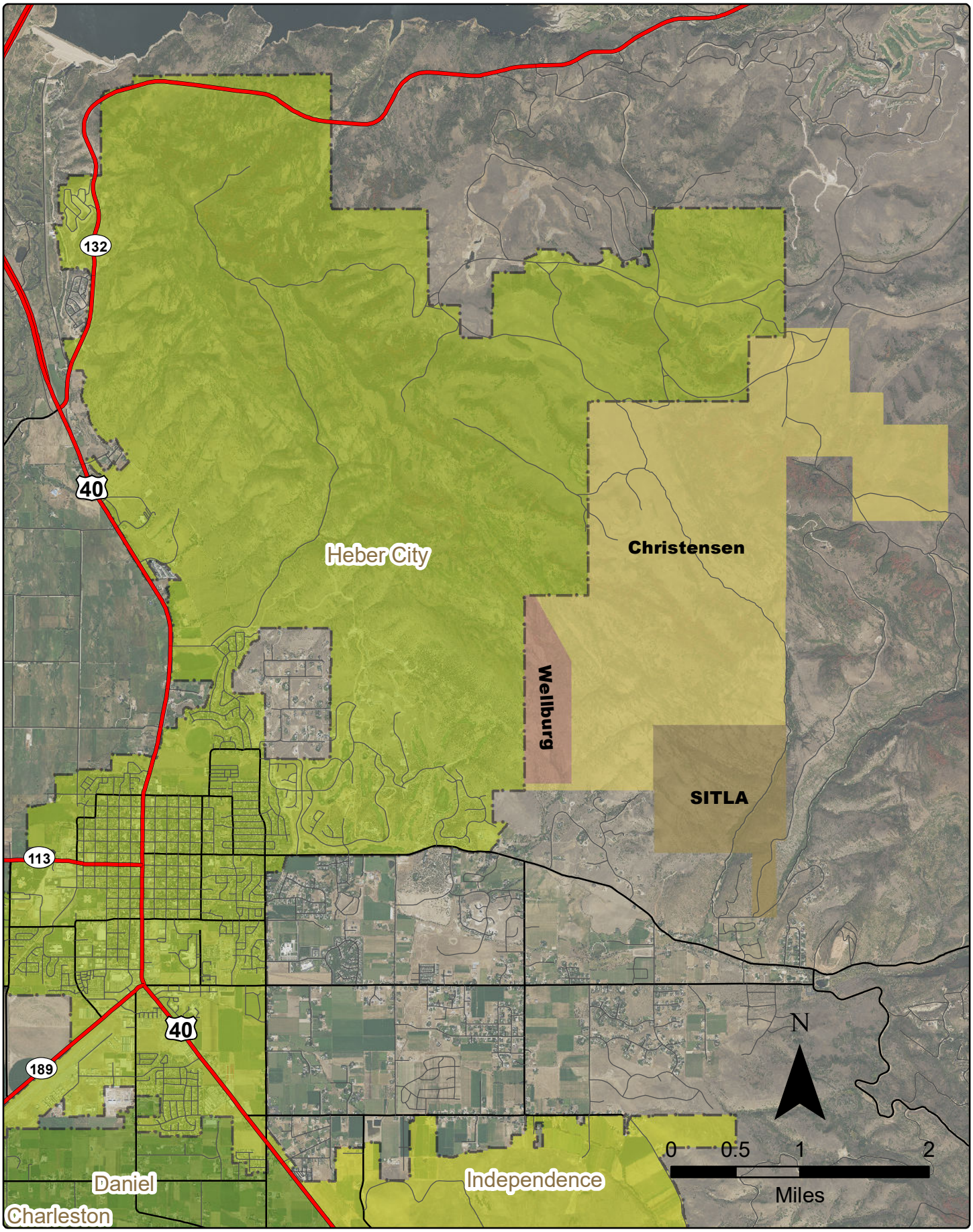
No motion is necessary. Staff is looking to see if a majority of Council supports updating the annexation policy plan.

ACCOUNTABILITY

Department: Planning
Staff member: Tony Kohler, Community Development Director

EXHIBITS

1. SITLA Properties
2. Annexation Policy Plan
3. Wasatch Highlands Annexation Policy Plan Exhibit 240911
4. Wasatch Highlands County Jurisdictional Areas Exhibit 240911
5. Wasatch Highlands Possible Amenities Exhibit 240911
6. Wasatch Highlands Preliminary Site Plan 240911
7. Wasatch Highlands Public Benefit Exhibit 240911



SITLA Property

April 10, 2024

Heber City
Annexation Policy Plan

Adopted: September 4, 2018 by Ordinance 2018-42
Amended: July 6, 2021 by Ordinance 2021-21
Amended: August 6, 2024 by Ordinance 2024-16

Heber City Corporation

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INTRODUCTION

In accordance with the provisions of 10-2-4, Utah Code Annotated, all municipalities within the State are required to adopt an Annexation Policy Plan. In this Annexation Policy Plan, cities are required to develop an expansion area map and plan for the future growth of the community for the next 20 years.

The Annexation Policy Plan is intended to guide decision making regarding future annexations. It also helps the City plan for future expansion in conjunction with neighboring political entities. Open communication between the City and other political entities, particularly the County, is a priority in the process of developing the Annexation Policy Plan.

Heber City adopted its first Annexation Policy Plan over a decade ago. In 2017, several property owners requested Heber City consider amending the expansion area map to include their properties. The process for adopting the amendment in 2017 illustrated the need for the City to dramatically overhaul its Annexation Policy Plan to incorporate informal policy into writing. Additionally, the City identified a need to update relevant portions of the General Plan that are out of date.

EXPANSION AREA MAP

As per Utah Code, Section 10-2-401.5 (4) and10-2-401.5 (3) (c), the City has considered the following six points in developing, considering, and adopting this Annexation Policy Plan as follows:

GAPS AND OVERLAPS

Heber City has attempted to avoid gaps between or overlaps with the expansion areas of other municipalities. However, overlaps do exist between Heber City and Charleston and between Heber City and Daniel Town.

Heber City has the municipal services that are necessary for industrial and retail development that both Charleston and Daniel Town lack. Heber City is desirous to attract industrial and retail development within its expansion area as designated on the General Plan and has therefore included these overlap areas within its Expansion Area Map. Additionally, these overlapping areas are near the Heber City Airport and/or are part of the HVSSD Sewer Fields, both of which Heber City has an interest in how they impact the City..

20 YEAR POPULATION PROJECTIONS

Heber City has considered population growth projections for the municipality and adjoining areas for the next 20 years. Population projections by Mountainland Association of Governments (MAG) show Heber City will grow from 15,723 persons in 2017 to 25,321 persons in 2037. The current 4.7% annual growth rate is projected to drop to 2.26% after 2021, and to 1.66% after 2031.

20 Year Population Projections

Year	Annual Growth Rate	Population	Population Change	Residential Units
2017	4.70%	15,723	706	211
2018	4.70%	16,462	739	221
2019	4.70%	17,236	774	231
2020	4.70%	18,046	810	242
2021	2.26%	18,454	408	122
2022	2.26%	18,871	417	124
2023	2.26%	19,297	426	127
2024	2.26%	19,733	436	130
2025	2.26%	20,179	446	133
2026	2.26%	20,635	456	136
2027	2.26%	21,102	466	139
2028	2.26%	21,579	477	142
2029	2.26%	22,066	488	146
2030	2.26%	22,565	499	149
2031	1.66%	22,939	375	112
2032	1.66%	23,320	381	114
2033	1.66%	23,707	387	116
2034	1.66%	24,101	394	117
2035	1.66%	24,501	400	119
2036	1.66%	24,908	407	121
2037	1.66%	25,321	413	123
	Total	**25,321**	**10,304**	**3076**

CURRENT AND PROJECTED COSTS OF INFRASTRUCTURE AND SERVICES

Heber City, the North Village Special Service District (NVSSD), the Jordanelle Special Service District (JSSD), and the Twin Creeks Special Service Districts (TCSSD) have adopted Capital Facilities Plans that consider current and projected costs of infrastructure, urban services, and public facilities necessary to facilitate full development of the area within their respective jurisdictions. These plans identify the necessary infrastructure, services, and facilities in the City's expansion area.

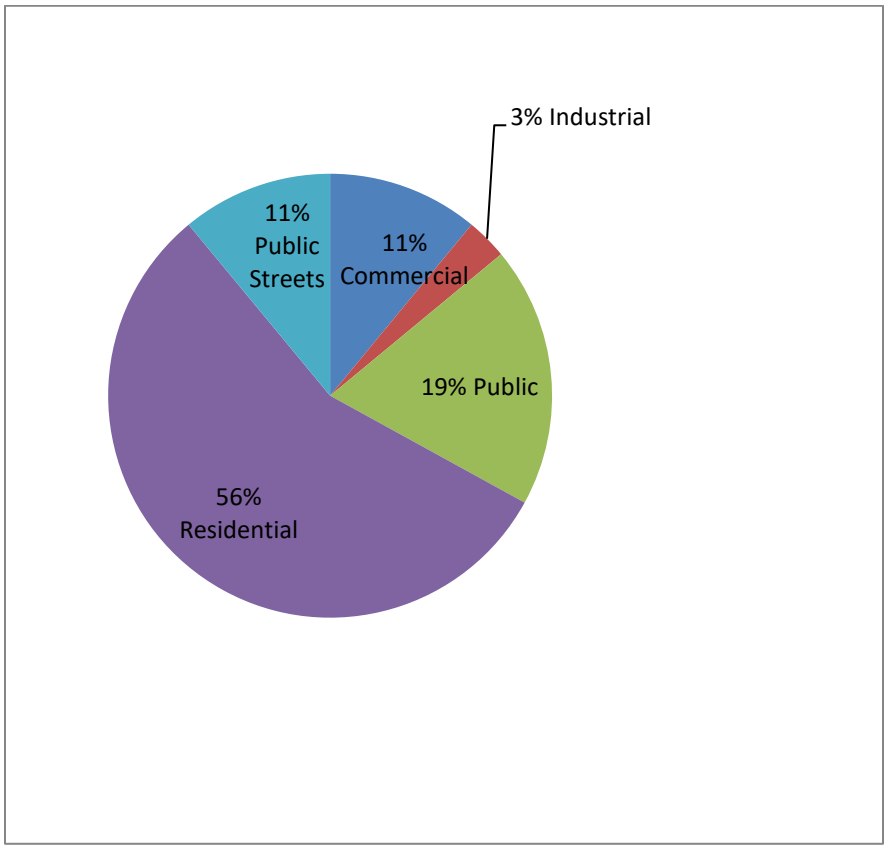
NEED FOR RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL LAND

Heber City has considered, in conjunction with its General Plan, the need over the next 20 years for additional land suitable for residential, commercial, and industrial development. As shown in the table below, the City needs an additional 3,449 acres (5.39 square miles) to accommodate growth for the next 20 years, based on the growth rates projected for the City. This area consists of 378 acres of Commercial Land, 112 acres of Industrial Land, 645 acres of Public Land, 1936 acres of Residential Land, and 378 acres for Public Streets.

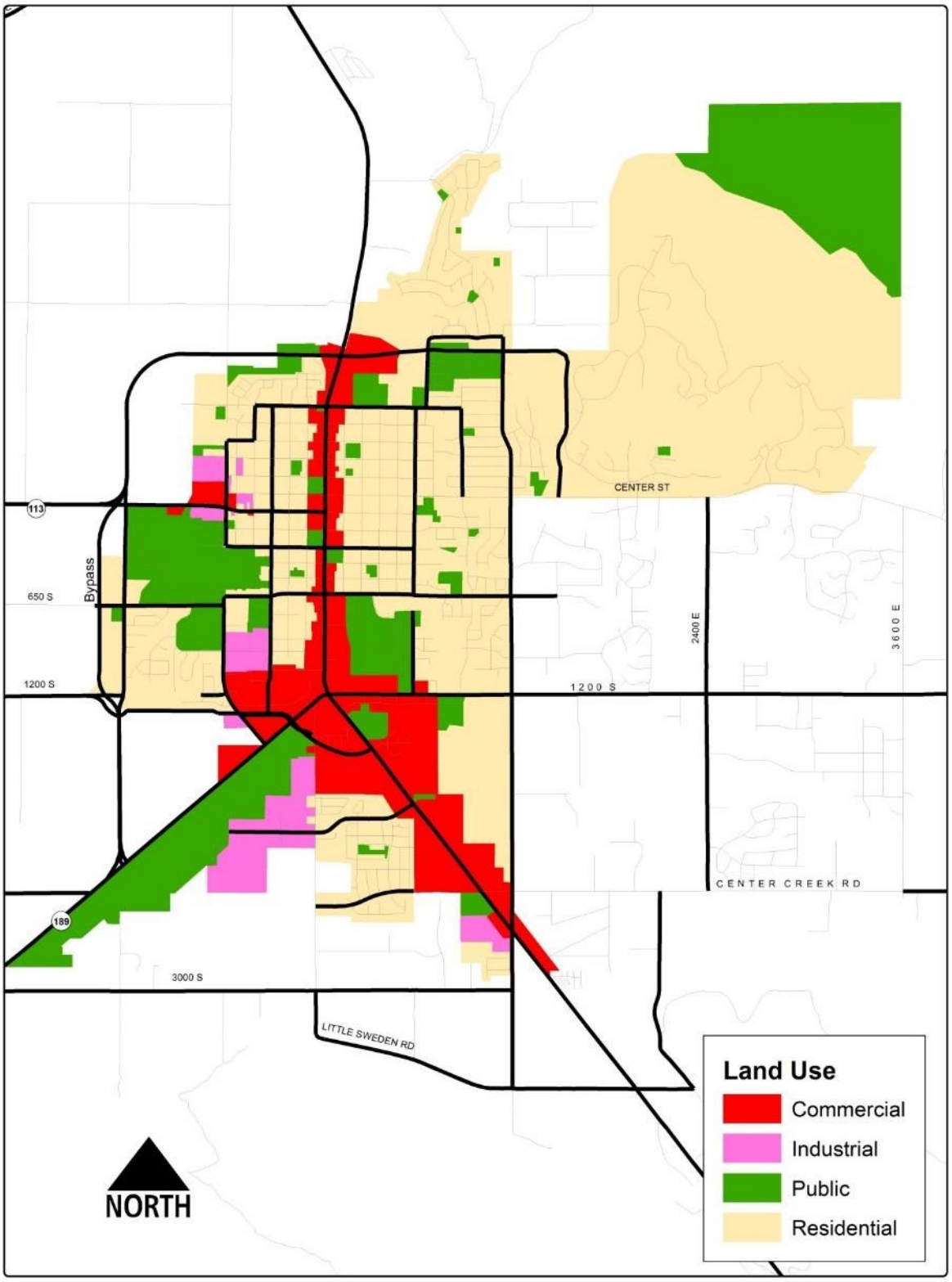
20 Year Land Needs

Land Use	2017 Area (sq. mi)	Additional 20 Year Land Need	Total 20 Year Land Need
Commercial	0.97 sq. mi. (11%)	0.59 sq. mi.	1.56 sq. mi.
Industrial	0.29 sq. mi. (3%)	0.16 sq. mi.	0.45 sq. mi.
Public	1.65 sq. mi. (19%)	1.01 sq. mi.	2.66 sq. mi.
Residential	4.95 sq. mi. (56%)	3.03 sq. mi.	7.98 sq. mi.
Public Streets	0.97 sq. mi. (11%)	0.59 sq. mi.	1.56 sq. mi.
Total	8.83 sq. mi.	5.38 sq. mi	14.21 sq. mi.

2017 Land Use Analysis



2017 Land Use Map Analysis



REASONS FOR INCLUDING SENSITIVE LANDS IN EXPANSION AREA

Heber City's expansion area includes some agricultural lands and forested areas. Recreational and wildlife management areas are not part of the City's expansion area.

The agricultural lands are located in the Twin Creeks area east of 1200 East. The City also included an agricultural area on the northwest corner of Heber City from current boundaries up to the future highway bypass because the bypass serves as the City boundary elsewhere. It is the intention of Heber City to maintain agricultural zoning or a conservation type subdivision development pattern in these areas that preserve agriculture and open space.

Forested areas are included within the City's expansion area. Wasatch County has zoning that permits higher density master planned communities in the forested area with open space requirements. Heber City envisions significant amounts of open space in that forested area with densities no more than that planned by Wasatch County. The Cooperative Wildlife Management Unit (CWMU) designation in the area will likely be dissolved, whether it is developed by Wasatch County or Heber City.

JUSTIFICATION FOR EXCLUDING AREAS FROM EXPANSION AREA WITHIN ½ MILE OF CURRENT BOUNDARY

North Fields

Consistent with the General Plan, Heber City will not annex properties in the North Fields. It is the intent of Heber City to promote the North Fields to remain as an agricultural area, and the City opposes the extension of any municipal services into the area. The Expansion Area Map utilizes the future Main Street Bypass as the future north and northwest municipal boundary adjoining the North Fields. The City will only entertain annexations of property up to and including the bypass upon condition of dedication of the requisite right of way for the bypass according to current UDOT requirements. Additionally, annexation in that area should include efforts to preserve agriculture in the North Fields, such as Transfer of Development Rights, Purchase of Development Rights, Large Lot Agricultural Zoning, and/or Conservation Developments that preserve natural and agricultural areas.

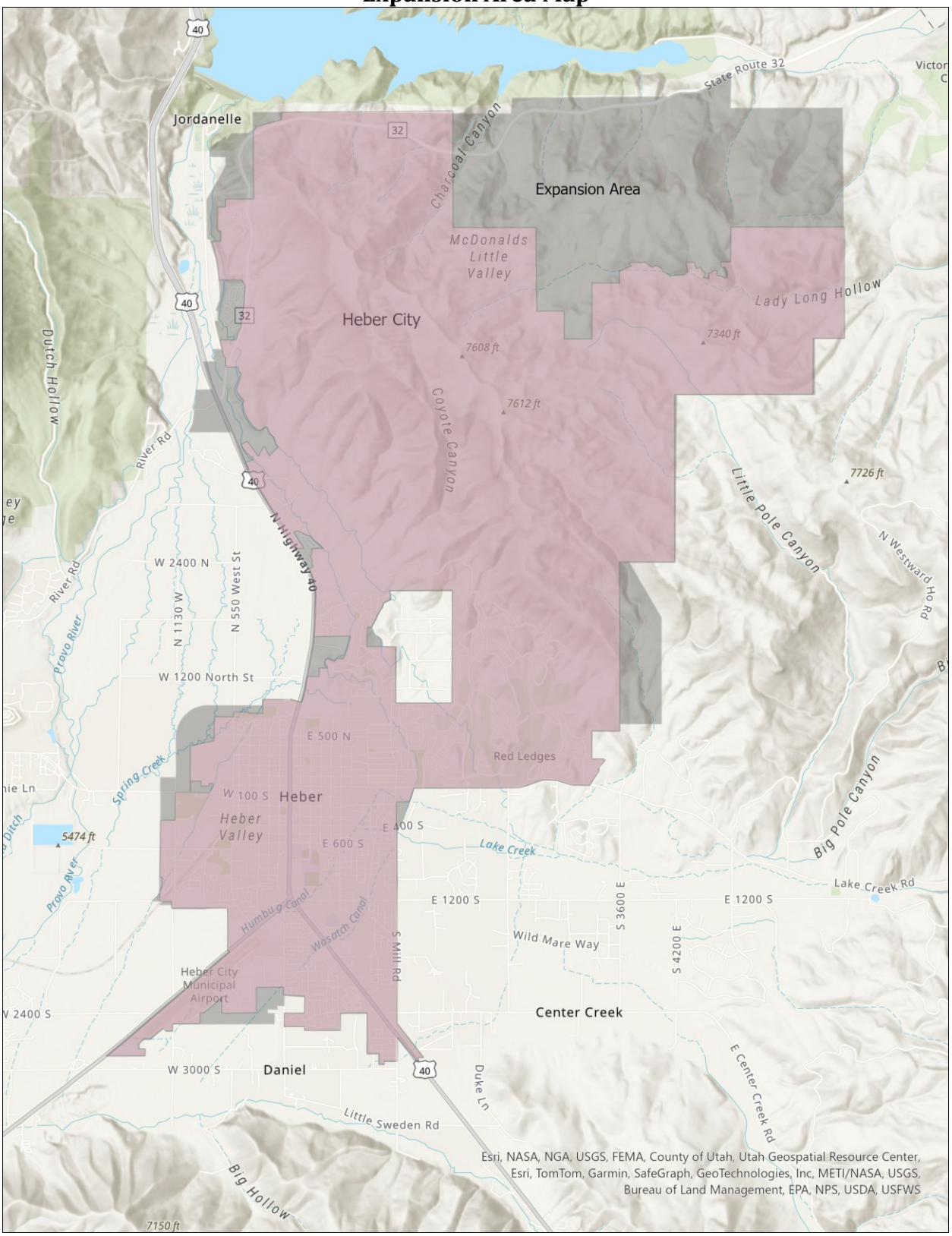
South Fields

Heber City desires a separation between itself and other municipalities with agricultural and/or open lands. The City supports keeping the land west of that canal as low density agricultural lands, either in Charleston Town or within the unincorporated area. The City opposes expansion of municipal services west of the canal.

Twin Creeks Area

The area between 1200 East 2400 East serves as a suburban transition zone to the lower agricultural densities envisioned east of 2400 East. A significant part of that area is contained within a master planned subdivision, the Crossings at Lake Creek. It is unlikely there would be any interest in annexing that area, as it is already developed. South of 1200 South, some large lot agricultural subdivisions exist that should remain as agricultural lots. East of the City's expansion area should remain as an agricultural area, decreasing in density as one travels away from the City. Greener Hills Subdivision exists to the east of Red Ledges and this area should remain at a lower density, as it has been developed. Much of the area east of 1200 East and North of 1200 South has already been developed in the unincorporated County at suburban style densities, and much of the area is therefore unlikely to be annexed into the City.

Expansion Area Map



CRITERIA FOR CONSIDERING ANNEXATIONS

The policy of the City Council is to ensure that proposals to annex territory to the City are based on compliance with Utah law, the General Plan, and the development policies as may be amended from time to time by the Council. The following criteria will be used to evaluate annexation proposals:

CONFORMANCE TO UTAH LAW AND LEGISLATIVE POLICY

1. A petition is to be submitted requesting annexation meeting the requirements established by the State Legislature.
2. The territory proposed for annexation shall be contiguous to corporate boundaries of Heber City and be a contiguous area.
3. The territory proposed for annexation will not leave or create an unincorporated island or unincorporated peninsula except as provided by Utah Code Subsection 10-2-418 (3) or unless the County and City have otherwise agreed.
4. The plat of the territory shall be drawn by a surveyor licensed to practice in the State of Utah.
5. Action to approve, approve with modifications, or deny an annexation shall be made in conformance with the provisions of Utah Code Title 10, Part 4.
6. The Council may add or delete territory from the annexation proposal to remove islands or unincorporated peninsulas created by the annexation.

CONFORMANCE TO CITY COUNCIL POLICY

The City Council establishes policies to ensure that annexations are added to the City in a systematic pattern that provides for logical expansion of City boundaries. The City Council recognizes that the Legislature from time to time may enact laws that are contrary to established practice and such laws shall supersede Council policy if conflict exists. Policies of the City Council follow:

1. The Council may accept territory proposed for annexation when the petitioned lands are located within a Township in order to protect the City's future growth options and programs.
2. Annexed territory shall be assessed to ensure that boundaries follow ownership, topography, natural features, and other readily defined boundaries.
3. To ensure efficient street and utility maintenance, the annexed area shall, whenever possible, include both sides of a street.
4. Arterial and collector roads should remain within one community for as great a distance as possible to ensure efficient street layout, control, and maintenance.
5. All major streets shall be as defined by the Heber City General Plan and Transportation Master Plan.
6. If practicable and feasible, the boundaries of an area proposed for annexation shall be drawn:

a. along the boundaries of existing local districts and special service districts for sewer, water, and other services, along the boundaries of school districts whose boundaries follow City boundaries or school districts adjacent to school districts whose boundaries follow City boundaries, and along the boundaries of other taxing entities;
b. to eliminate islands and peninsulas of territory that is not receiving municipal-type services;
c. to facilitate the consolidation of overlapping functions of local government;
d. to promote the efficient delivery of services; and
e. to encourage the equitable distribution of community resources and obligations.

7. The annexation shall be in conformance with the provisions of the Annexation Policy and any future Annexation Elements of the General Plan and the Annexation Policy Plan and Capital Facilities Plan.
8. The Council shall consider the fiscal impacts of development within the territory proposed for annexation, including both the cost of delivering services and the revenue stream generated by new development.
9. For large Annexations that exceed 500 acres, the City will analyze the need for regional facilities such as parks, trails, fire stations, police stations etc., and will consider the need to request dedications from annexation petitioners.
10. Annexation petitioners shall provide the following information:
    a. Accurate map showing the territory as proposed for annexation. The Council may direct the Administration to require additional mapping information with submittal of petitions for annexation.
    b. The Council shall require that a feasibility report be prepared by City staff when time and resources are available with costs paid by petitioners, or be submitted by a consultant of the City with costs paid by petitioner for the following:
        i. Existing and proposed population density;
        ii. Geology, geography, and topography of the area and its surroundings;
        iii. Determination of islands or peninsulas remaining in the unincorporated area;
        iv. Fiscal impact of the proposed annexation on the unincorporated area, other municipalities, other government entities, special districts, and school district;
        v. Current and five year projections of demographic and economic base for the proposed annexation area and surrounding unincorporated area;
        vi. Projected five year growth for the proposed annexation area and surrounding unincorporated area;
        vii. Current and five year projections of the cost of government services for the proposed annexation area;
        viii. Present and five year projection of revenue to be received by the City resulting from the annexation; and
        ix. Projected tax impact the annexation will have for the next five years on affected property owners.
11. The Council shall require an annexation agreement be recorded with the annexation plat, outlining specific circumstances relating to services, transportation corridors, zoning, and other issues identified by the City during the annexation process.

12. The Planning Commission shall review and provide a recommendation on each annexation petition received by the City.
13. Each Petition for Annexation shall include a concept plan. What is required in the concept plan at the time of filing the Petition for Annexation is limited to the best knowledge of the Petitioner at the time of said filing. This requirement to submit a concept plan with the petition, shall in no way limit or restrict changes, amendments, alterations or modifications to said concept plan throughout the annexation and development process as may be desired either by the Petitioner, Developer, Planning Commission or City Council.
14. Within Special Service Districts, the City could offer services or temporary services to areas that contain existing homes or in areas where it is infeasible for a Special Service District to provide sanitary water, sewer, or irrigation service. However, the City will need to carefully coordinate such effort with the district to ensure that financing for the district is not harmed by the City providing that service. It is generally understood that the primary utility provider for districts areas will be the districts.
15. Heber City prefers to not extend its services beyond its boundaries. The City Council may extend municipal services to the unincorporated areas if they find that such expansion is consistent with the overall Annexation Policy Plan and General Plan, will not present barriers for future annexation, and is acceptable to a Special Service District, if applicable. The petitioner will be charged an impact fee and be required to pay 1 1/2 times the monthly service fee. Additionally, the petitioner for services will be required to enter into an agreement to annex when the City reaches the property or to not oppose an annexation if one occurs.

CHARACTER OF THE COMMUNITY

Heber City is located about 45 miles from Salt Lake City, 20 miles from Park City and 27 miles from the Orem/Provo area. Heber is a high-amenity mountain valley community which provides an excellent location for individuals and families interested in an outdoor lifestyle surrounded by a scenic environment.

Heber City has been and will continue to be Heber Valley's center of commerce, industry, education, and government. The community has taken the initiative to provide the services for supportive land uses. In addition, the City has taken the lead in providing diversified housing to meet the needs of all people without regard for social or economic status. Housing development needs to be supported by adequate commercial and industrial development to allow a City revenue base that is broad and diverse. Future annexations should be considered from this perspective.

Agriculture and open spaces, especially on the community's periphery, are important community pursuits. Community separation that exists between communities is a tradition in Heber Valley. Heber City reserves the right to maintain agricultural land and/or open space between its self and other municipalities and to protect agricultural lands and lands containing natural hazards where it is in the best interest of the community. Annexations that can help preserve open space will be considered, as will annexations that can provide a developed setting that is consistent with community goals.

Heber City's development patterns are somewhat unique from smaller communities that are not part of a suburban environment but are separated from major population

centers. It is important that Heber City take a long-range view, at least 20 years, at its potential for expansion. At the same time, growth needs to be in areas where the City can efficiently extend municipal services and discourage leap frog and rural sprawl development which increases the costs and places a higher tax burden on the citizens.

The City has adopted a General Plan with Land Use, Open Space, Parks, and Transportation elements. This Plan identifies and defines community and neighborhood character. Heber City is a City of neighborhoods, and newly annexed areas are to be developed to either mesh with established neighborhoods or to create new neighborhoods.

It is the policy of the City to avoid development of wetlands, steep-slope, critical environmental habitat areas, shrink-swell soils or any other environmental conditions that threaten the integrity of the City infrastructure unless, in an annexation agreement, the developer can show how they will mitigate these issues in conformance with the City Ordinances, Code and Federal and State Regulations.

THE NEED FOR MUNICIPAL SERVICES IN DEVELOPED AND UNDEVELOPED UNINCORPORATED AREAS

In the past, Heber City has had limited extension of urban services in the unincorporated areas. A fundamental policy is that if someone desires urban services, they must be annexed into the City. In most of the residential areas, urban services have been extended. In the commercial area along Highway 40, there has been a limited amount of municipal services provided; however, full service needs to eventually be extended as the areas further develop and annexed.

SEWER

The valley's sewer treatment is addressed through two means. The Heber Valley Special Service District (HVSSD) provides waste water treatment to Heber City and Midway City. Those facilities are located near Midway on the west side of the Provo River. The district treats water through both mechanical means and through application of treated water to the Sewer Fields located along the north side of Highway 189.

Currently HVSSD also provides treatment for waste water from the Twin Creeks Special Service District (TCSSD), Jordanelle Special Service District (JSSD), and the North Village Special Service District (NVSSD). In the long term, these three SSD's intend to move some or all of their waste water treatment needs to the JSSD waste water treatment facility that is located along the old Highway 40 route, south of the Jordanelle Dam. This facility provides all of its treatment through mechanical means.

The County established a minimum five acre lot size many years ago for lots on septic tanks to protect the ground water in the valley. Any new lot less than five acres requires connection to a central sanitary sewer system. The City anticipates that all new growth occurring within the City will require central sewer service. Outside the City, sewer service availability and necessity depends upon location.

For the North Fields, an undeveloped area, County zoning requires 20 acres per lot. There is not a need for sanitary sewer service in that area, and there are no plans for the City or County to provide sewer in that area. Heber City has provided a handful of sewer connections to lots outside of the City that front Midway Lane in the North Fields, as the lots were within 300 feet of the sewer outfall line. There are numerous lots of record in the North Fields that are less than five acres in size that are near the City's sewer outfall line. The City should not provide additional sanitary sewer services to the North Fields area.

For the South Fields, an undeveloped area, County zoning requires 20 acre minimum lot sizes in part of the area and five acre minimum lot sizes near the western edge of the City. There is not a need for sewer services in the area. A few non-conforming lots and homes exist on lots that are smaller than five acres.

The Sewer Fields, north of the Highway 189, are currently undeveloped and the city wishes them to remain so to protect the rural environment, provide a buffer zone between the city and surrounding cities/ and support lower sewer rates. If the sewer fields are not needed in the future, the City should consider annexation of this area and provide sanitary sewer service to the area. On the south western portion of the City's annexation expansion area, there may be a need to provide sanitary sewer service.

East of Mill Road, the County has formed the Twin Creeks Special Service District to provide sanitary sewer service. The zoning in the unincorporated County in the area permits lots of 1 acre in size and larger. The area has a mixture of lot sizes and has some non-conforming lots less than five acres in size that are serviced with septic tanks and drain fields. Given availability of the Twin Creek's Special Service District (TCSSD) sewer system, Heber City will not need to provide sanitary sewer service for the area. The City is capable in servicing portions of the TCSSD. The City could offer service to areas that contain existing homes or in areas where it is infeasible for the TCSSD to provide sanitary sewer service. However, the City will need to carefully coordinate such effort with the TCSSD to ensure that financing for the district is not harmed by providing that service. It is generally understood that the primary sewer provider for this area will be the TCSSD.

North of Coyote Lane and north of existing City limits, Wasatch County has formed the North Village Special Service District (NVSSD), and Jordanelle Special Service District (JSSD) which will be capable of providing sanitary sewer service to the North Village and southern portion of the Jordanelle Planning Area. The area is planned to have densities that necessitate sanitary sewer service. Similar to the TCSSD area, the City is capable in servicing portions of the NVSSD. The City could offer services or temporary services to areas that contain existing homes or in areas where it is infeasible for the NVSSD to provide sanitary sewer service. However, the City will need to carefully coordinate such effort with the NVSSD to ensure that financing for the district is not harmed by the City providing that service. It is generally understood that the primary sanitary sewer provider for this area will be the NVSSD.

WATER

Residential Densities in the North Fields and South Fields are low enough that homes will not need access to a central water supply for culinary or fire protection uses. Most, if not all existing homes in the area are serviced with individual culinary wells. Heber City does not intend to provide, and opposes extension of culinary water into these areas.

The Sewer Fields are currently undeveloped and the city wishes them to remain so to protect the rural environment, provide a buffer zone between the city and surrounding cities, and support lower sewer rates. If the sewer fields are not needed in the future, the City should consider annexation of this area and provide central culinary water service to the area. On the south western portion of the City's annexation expansion area, there may be a more urgent need to provide water for culinary and fire protection purposes.

The TCSSD, JSSD, and NVSSD provide culinary water to the Twin Creeks area east of Mill Road, and much of the area north of Coyote Lane and the current City limits. The residential densities in the Twin Creeks area are about 1 unit per acre and generally require central culinary water. In the NVSSD and JSSD, densities exceed one unit per acre, and can approach 20 to 30 units per acre, necessitating culinary water service as well. The City is capable in servicing portions of the NVSSD, TCCSSD, and JSSD, but the overall demand and topography exceeds the City's ability to provide water service. The City could offer water services or temporary services to areas that contain existing homes or in areas where it is infeasible for the districts to provide culinary water service. However, the City will need to carefully coordinate such effort with the districts to ensure that financing for the district is not harmed by the City providing that service. It is generally understood that the primary culinary water provider for these areas will be the NVSSD, TCSSD, and the JSSD.

PRESSURIZED IRRIGATION

Pressurized irrigation is offered by Heber City, Special Service Districts, and the Central Utah Project (CUP) in many areas of the City's expansion area and unincorporated areas. In the unincorporated areas, irrigation is provided by a combination of canals, ditches and pressurized irrigation. In the North Fields, South Fields, TCSSD, NVSSD, and JVSSD, it is anticipated the CUP and/or Special Service Districts will provide irrigation water services. Heber City has its own pressurized irrigation system that relies on CUP facilities for access to irrigation water. Heber City will not offer irrigation services outside of its boundaries. As properties are annexed into the City, Heber City anticipates offering PI to properties as they develop, or having the Special Service District provide that service if the district provides that service. Consultation with districts, canal companies and the CUP will be necessary to determine how irrigation service will be provided.

POLICE AND ANIMAL SERVICES

Heber City has a Police Department that is responsible for police protection within its borders. Given Heber City's central location in the valley, Heber City Police often serve as the first responder outside of Heber City limits, particularly to higher density housing in the North Village and to commercial areas along Highway 40.

Heber City is unique in that many tourists pass through the City as they are enroute to nearby tourist destinations such as Strawberry Reservoir, Jordanelle Reservoir, Wasatch Mountain State Park, and Park City Ski Resorts. The primary transportation route from areas along the Wasatch Front to these destinations is Highway 40, which passes right through the middle of the City, and Heber City receives the tax benefits, as well as the crime and traffic that accompany the tourist visits.

Animal Services is provided by the Police Department. The Police Department also oversees various volunteer organizations such as CERT and VIPS that assist with emergency management and event management.

JUSTICE COURT.

Heber City provides a Justice Court that serves the needs for civil cases and non-felony crimes. Increases in population in and around the City, as well as increases to tourism in the valley, impact the Justice Court similar to the Police Department.

PARKS AND CEMETERY

Heber City's Parks and Cemetery Department provides maintenance services to City owned neighborhood parks, trails, cemetery, City buildings and grounds, downtown trees and planter strips, entrance features and other open spaces. Access to these facilities is open to the public, including residents of the unincorporated area. Heber City has a policy requiring at least 1.5 acres for any new City owned park. The City collects impact fees for parks and trails, based upon the Parks and Trails Component of the Heber City Capital Facilities Plan. As properties are annexed, the City should analyze the need for neighborhood parks in those areas, as well as the potential need for privately owned parks.

COMMUNITY DEVELOPMENT SERVICES

Heber City provides planning services through the staff of the Planning Department. The Building Department provides inspection to ensure compliance of all construction with the adopted International Building Code. The City's Engineer ensures compliance of new development with City Standards and Specifications.

PUBLIC WORKS

Heber City Public Works has responsibility for flood control, street, water, sewer, irrigation, storm drainage, street plowing and ditch and canal maintenance, excluding JSSD and NVSSD infrastructure.

PLANS FOR EXTENSION OF MUNICIPAL SERVICES

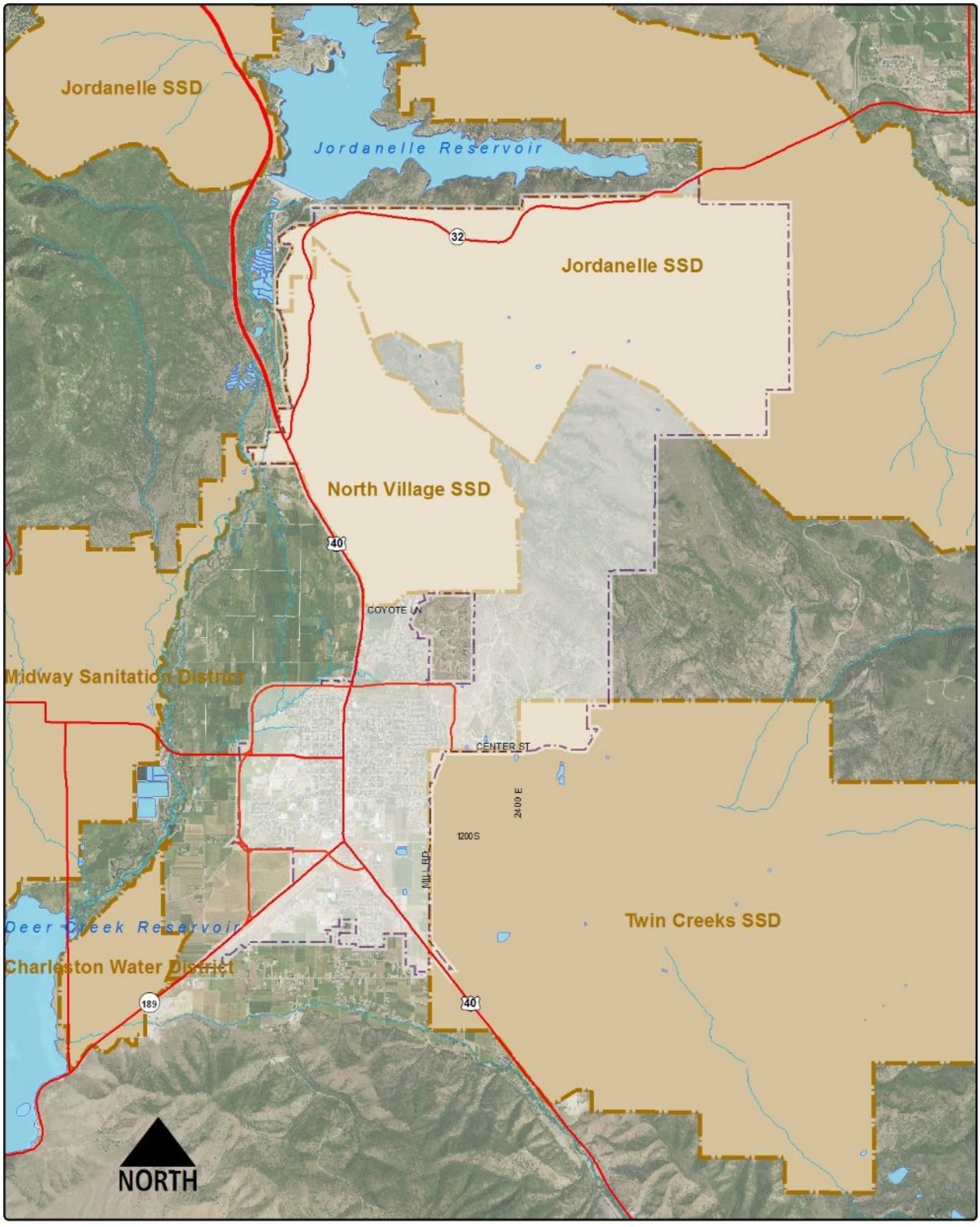
The plan for extension of municipal services is represented in the General Plan and the Capital Facilities Plan. This policy document is developed around the General Plan's Land Use Map. An important component of this extension of municipal services is the ability of the City to effectively serve these areas; therefore, development should be consistent with the General Plan, notwithstanding it may be amended from time to time. The Capital Facilities Plan is comprehensive in its analysis of utility needs, extension and financing of those facilities; therefore, a brief summary of its philosophy will suffice for the Annexation Policy Plan.

The City requires development to construct and dedicate all new public facilities needed for a new development. Heber City collects impact fees that upsize sewer, water,

irrigation, and street facilities to meet the needs of development. As a condition of annexation, developments may be required to extend streets, water and sewer, and other vital public facilities consistent with the Heber City Public Facilities Master Plan. It is the policy of Heber City to extend a high quality of municipal services delivered efficiently throughout the City, including areas of annexation. Such services may be provided directly by Heber City, through inter-local cooperative service agreements, or through creation of such special improvement districts as determined by Heber City to be in the best public interest of its citizens.

For areas located within a special service district, Heber City will rely upon the district to provide water, sewer, and irrigation services. The districts extend services when the services are needed or requested and do so in different ways. Developers often extend services, though the district has extended services as well.

Special Service District Locations



HOW MUNICIPAL SERVICES WILL BE FINANCED

Financing of services in the expansion area will be accomplished in the same manner as financing of infrastructure and services within the corporate limits. Infrastructure needed to service developed properties is installed at the expense of developers. Upon dedication to, and acceptance of the infrastructure by the City, maintenance is provided by the City with costs of operation and maintenance offset by a combination of property tax and sales tax revenues, class B and C road funds, and utility franchise fees. In addition the City will impose impact fees to offset the impact of offsite infrastructure systems needed for new development.

Heber City has adopted a Capital Facilities Plan that addresses future services for parks, trails, sewer, water, irrigation, and streets. The document identifies services that need to be addressed in order to accommodate growth areas at a level of service provided to current residents. This document serves as the basis for determining impact fee amounts and also the location and size of planned facilities such as streets, water, sewer and parks and trails. The Capital Facilities Plan is comprehensive in its analysis of utility needs and financing of those facilities; therefore, a brief summary of its philosophy will suffice for this Annexation Policy Plan.

New development is required to install the base sized facilities needed for their development. Impact fees are then used to upsize some of those facilities to accommodate new growth and development.

Upon an annexation petition, the City may require a developer to install offsite facilities as a condition of annexation. When a developer installs an offsite facility such as a road, waterline, or sewer line, the City, at the request of the developer, can put reimbursement agreements in place so that future development that benefits from those new services must pay their proportionate share back to the original developer.

The City requires all new development to provide water rights of the type and quantity as determined by the State Engineer that can be utilized for the City's culinary water supply and secondary irrigation system. Water rights are required to be conveyed to the City (or applicable Special Service District) prior to recording a subdivision plat, or prior to approval of a non-residential or multi-family residential building permit.

Another financing mechanism available to the City is the creation of a Special Improvement District or the creation of an Economic Development Area. The City should consider these options when a proposed development furthers the economic development or transportation goals of the City's General Plan, but these mechanisms should be used sparingly. A potential consideration could be an SID for 500 East between 1200 South and Highway 40, which provides a necessary transportation link in the City, but where the cooperation of several property owners is necessary to see that street constructed.

The Twin Creeks Special Service District, North Village Special Service District, and the Jordanelle Special Service District have plans for servicing their respective areas, separate from Heber City's water, irrigation, and sewer plans. The districts have adopted capital facility plans that specify necessary infrastructure to accommodate growth. The districts collect impact fees based on those plans to help pay for future infrastructure.

These impact fees are used to oversize facilities for future growth as well as pay for the extension of necessary infrastructure.

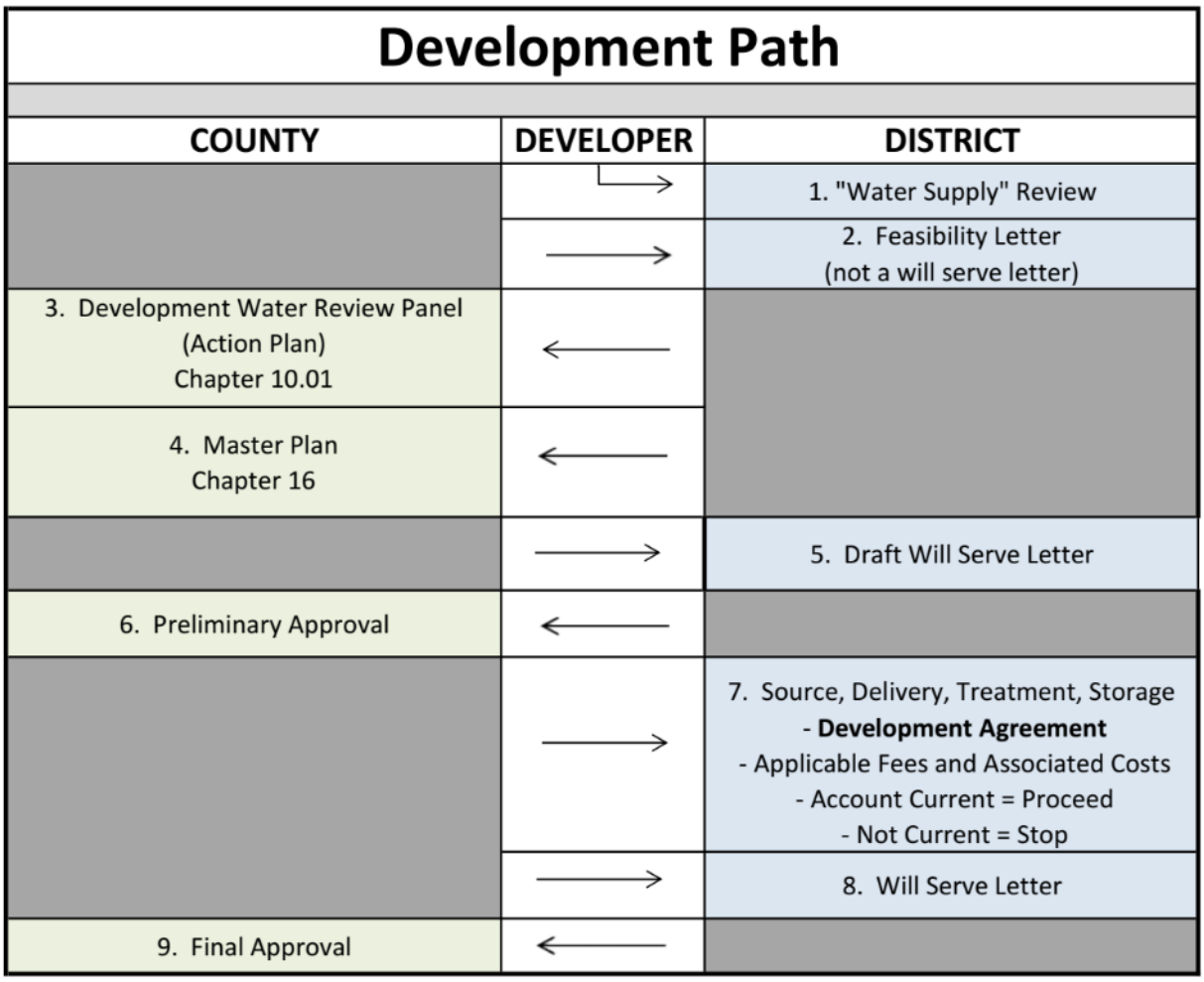
The districts have financed and extended infrastructure in various ways. In the past assessments on various properties were used to finance infrastructure. Currently the district relies more on impact fees. Developers usually install and dedicate the required infrastructure to the Special Service District, and the district can reimburse developers or put reimbursement agreements in place. Once constructed, the county Special Service Districts will operate and maintain such dedicated infrastructure. Developers can also prepay impact fees to move a planned Capital Facility Project forward sooner to accommodate a proposed development. If an area within a Special Service District is developed in the City, Heber City will need to ensure that impact fees are collected by the district prior to issuing a permit.

The Special Service Districts have limited capacities. Any development proposed within the City, within those respective districts, should closely consult with the SSDs to ensure service availability and available capacity to provide services. New developments should have a density near those planned for in the unincorporated area.

Between the three Special Service Districts, several different water rights may be used. The water rights and system is complex, and Wasatch County has established a Water Board to review water related issues for proposed developments. Wasatch County's water right process differs from Heber City's process in that the Water Board must review all developments prior to the developments receiving entitlements (see figure below). Heber City should establish a policy whereby City development located within a Special Service District should comply with established County Water Board processes. The City should consider requiring annexation petitioners to complete the first steps during the annexation process so the City can place conditions of annexation within an annexation agreement.

The Special Service Districts have differing definitions of Equivalent Residential Units (ERUs) for sewer versus water. Water right requirements vary between the various districts. Differences may exist between district and City water right and ERU definitions.

Wasatch County Water Board Process for Development



ESTIMATE OF TAX CONSEQUENCES TO RESIDENTS BOTH CURRENTLY WITHIN THE CITY AND IN THE EXPANSION AREA

Annexing into any municipality will increase the tax liability for property owners. Table 1 below illustrates the tax implications for primary homes, secondary homes, and businesses. Current state law levies taxes on the full property value for secondary homes and non-residential land. Property taxes on primary homes are levied against 55% of the assessed value. The added annual tax for the owner of a primary home in the City valued at $300,000 would be $220.28. The added annual tax for a business in the City valued at $500,000 would be $667.50.

Property Tax Consequences (2016)

Type	Value	Unincorporated Tax Amount (1.1460%)	Incorporated Tax Amount (1.2795%)	Difference
Primary Dwelling	$300,000	$1,890.90	$2,111.18	$220.28
Business or Secondary Dwelling	$500,000	$5,730	$6,397.50	$667.50

Heber City does not intend to raise property taxes for the City as a result of annexation of any specific properties within the proposed annexation area. In considering proposed annexations, Heber City will assess the existing capacity of services, along with the additional demand for services that will be required of the City as a result of the annexation. Additional service demands from unincorporated areas will be weighed against potential revenues and other benefits that can be expected to accrue to the City as a result of the proposed annexation. The potential revenue and benefits may include 1) Property tax; 2) Sales tax; 3) Utility hookup fees; 4) Utility Franchise Fees; 5) Impact fees; and 6) exaction or related fees based on rough proportionality to city and county costs; 7) Intangible benefits that accomplish a stated goal of the General Plan or other City planning document. The City Council will weigh these factors in determining whether or not to grant a petition for annexation.

INTERESTS OF AFFECTED ENTITIES

The affected entities are municipalities, the school district, special service districts and County government. It is important that the affected entities be involved during the annexation process

The school district should coordinate their future development and facility needs consistent with the growth plans for the City. The County should have growth policies that reinforce and are complementary to the City's growth policies so that a cooperative and coordinated development within the County and City occur.

The effect of annexation on the tax base of the County will be either neutral or positive. Annexed properties will continue to pay Wasatch County property tax assessments. It is likely that the value of these properties will increase when improved by municipal services resulting in a net increase in tax revenue to Wasatch County. Wasatch County also benefits from annexations by reduced cost of service to annexed properties.

The Wasatch County School District serves the entire County and benefits from annexation by receiving additional tax revenue as property values increase. New residential development obligates the District to educate new students. New commercial and industrial development will be a windfall increase in tax revenue to the District.

Heber Light & Power (HLP) is not an affected entity, but is impacted by Heber City annexations. HLP is required to provide power service within Heber City Limits. If an annexation includes customers being served by another power provider, Utah law would require HLP to reimburse the other power provider "for the value of each facility used to serve each electric customer within the annexed area . . .[and] dedicated to provide service to the annexed area." *Utah Code Ann*. §10-2-421(2). The "value" or purchase price is based on data and costs provided to HLP by the other power provider. The annexation agreement shall provide: (1) that the parties seeking annexation shall pay HLP for its cost of acquiring the other provider's facilities required to serve the customers in the annexed area and (2) that these costs not be borne by Heber City and its residents or by HLP and its customers.

STATEMENTS MADE BY AFFECTED ENTITIES AT APRIL 27, 2017 PUBLIC MEETING

On April 27, 2017, the Heber City Planning Commission hosted a public meeting with Affected Entities to receive comments on the proposed amendment to the City's Annexation Policy Plan. Ron Phillips, Director of the Special Service Districts, submitted a letter listing the concerns of the SSDs in relation to the City's potential adoption of an amended expansion that includes portions of the SSDs, shown below.

Subsequent to that meeting, Heber City and Wasatch County discussed various issues additional concerns pertaining to services, utilities, transportation and zoning that have illustrated the need to update the plan and the General Plan.

Jordanelle

Jordanelle Special Service District
P.O. Box 519
Heber City, UT 84032
OFFICE: (435) 654-9233
FAX: (435) 657-9582

May 8, 2017

Heber City Planning Commission
Attn: Keith Rawlings, Chairman
75 North Main Street
Heber City, UT 84032

RE: Comments on the Proposed Heber City Annexation Policy Plan

Mr. Rawlings:

Thank you for the opportunity to provide comments on Heber City's proposed amendment to its Annexation Policy Plan (the "Annexation Plan"). The Wasatch County Council, acting as the Governing Board of the Jordanelle Special Service District ("JSSD"), the North Village Special Service District ("NVSSD"), and the Twin Creeks Special Service District ("TCSSD"), has asked me to submit these comments as the Annexation Plan includes land within the existing boundaries of JSSD, NVSSD, and TCSSD. JSSD, NVSSD, and TCSSD are separate legal entities, but are managed in coordination with each other, sharing costs of staff and overhead to provide greater efficiency to the public. I serve as the General Manager of the three Districts, and submit these comments on behalf of the Governing Board each of the three Districts.

As an initial matter, it is important to comment on what is ***not*** in the Annexation Plan posted for public review in advance of the April 27, 2017 Planning Commission meeting. Utah law requires that each annexation policy plan include the following, along with a map of the expansion area:

- A statement of the specific criteria that will guide future decisions on annexation petitions, addressing:
  - The character of the community;
  - The need for municipal services in undeveloped and developed unincorporated areas;
  - The municipality's plans for extension of municipal services;
  - How the services will be financed;
  - An estimate of the tax consequences to residents already within the municipal boundaries and in the expansion area;
  - The interests of all affected entities, such as special service districts; and
- A justification for excluding from the expansion areas containing urban development within ½ mile of the municipality's boundary

Wasatch County's SSD Written Concerns (page 2 of 3)

As far as the Districts can tell from documents posted for public review, the Annexation Plan consists of an old Annexation Policy Plan, dated June 1, 2006 (the "2006 Plan"), coupled with a new map (the "2017 Map"). The 2006 Plan contains only very generalized statements regarding the criteria listed above, which do not provide the Districts — or the general public — with enough information to assess the ramifications of annexation of unincorporated areas. As just one example, in addressing the tax consequences of annexation for current and future residents, the 2006 Plan simply states that: "It is anticipated that areas annexed into the City will increase in value, and the tax assessment on newly developed areas, along with impact fees, development fees, and additional revenue assessments will generate revenue to help support the new services." 2006 Plan, at p. 7. The Districts find this statement to be unhelpfully vague. If revenues from annexed areas merely "*help* support" the new services, will current residents of Heber City need to fund the balance of the cost of services? Furthermore, it is not clear why the City believes that land will automatically increase in value upon annexation into the City, especially when the land already has access to water and sewer services from the Districts. In short, the Districts do not believe the general statements in the 2006 Plan — which are now over a decade out of date — adequately address the specific criteria required by Utah law.

Moreover, the 2017 Map encompasses large swaths of additional land that were not considered by the 2006 Plan. Nothing in the 2006 Plan addresses the factors listed above with respect to the area encompassed by the 2017 Map, which contemplates annexing areas far removed from the City's existing infrastructure, and already served by infrastructure owned and operated by the Districts. For instance, NVSSD owns extensive culinary water infrastructure in the proposed annexation area, as well as extensive water rights necessary to serve those areas. The City's Annexation Plan does not even acknowledge these facts, let alone explain why it is necessary or prudent, in the City's view, to annex areas that already have access to municipal services. The District believes that the City must address the factors listed above as they apply to the new areas proposed to be included in the new expansion areas.

In addition, Utah law requires the City to consider the following:

- Population growth projections for the city and adjoining areas for the next 20 years;
- Current and projected costs of infrastructure, urban services, and public facilities necessary to facilitate full development within the city and to expand infrastructure, services, and facilities into the expansion area;
- The need for additional land over the next 20 years for additional land for residential, commercial, and industrial development;
- The reasons for including agricultural lands, forests, recreational lands, and wildlife management areas in the municipality;

Again, the Annexation Plan put forward by Heber City consists solely of the 2017 Map showing new areas eligible for annexation, coupled with the 2006 Plan. Both the 2017 Map and the 2006 Plan are completely silent as to the four factors listed above. There are no population growth projections, no projected costs of infrastructure, and no explanation why the City needs the vast amount of land encompassed by the 2017 Map.

Wasatch County's SSD Written Concerns (page 3 of 3)

Finally, Utah law requires the Planning Commission to be guided by certain factors as it develops, considers, and adopts an annexation policy plan. Specifically, if practical and feasible, the boundaries of areas proposed for annexation must be drawn:

- Along the boundaries of existing special service districts;
- To eliminate islands and peninsulas of territory that are not receiving municipal-type services;
- To facilitate the consolidation of overlapping functions of local government;
- To promote the efficient delivery of services; and
- To encourage the equitable distribution of community resources and obligations.

The Annexation Plan is again silent on all of these matters. There is no explanation as to why it is not practical or feasible to draw the annexation area along the boundaries of the three Districts, rather than swallowing up large portions of all three. There is no analysis as to how annexing the areas within the expansion area will promote efficient delivery of services. Nor is there any discussion of how the City intends to encourage the equitable distribution of community resources and obligations.

Given all these omissions, the Districts object to the adoption of the Annexation Plan in its current form. Moreover, even if the City amends the Annexation Plan to address the omissions described above, the Districts are fundamentally concerned about annexation of any land within their defined service areas. The Districts acquired water rights and designed infrastructure based on anticipated densities in unincorporated areas. If the City annexes areas within the Districts' service areas and increases allowable densities, the Districts may not have enough water to serve the new residents, and existing infrastructure may not have the required capacities.

Finally, the TCSSD specifically objects to the annexation of areas east of Mill Road and the Wasatch/Humbug Canal. As Heber City staff acknowledged at the April 27, 2017 Planning Commission meeting, there has been a "gentlemen's agreement" between the City and Wasatch County that the City would not annex that area. TCSSD requests that the City honor that agreement and remove that area from its annexation expansion area.

Sincerely,

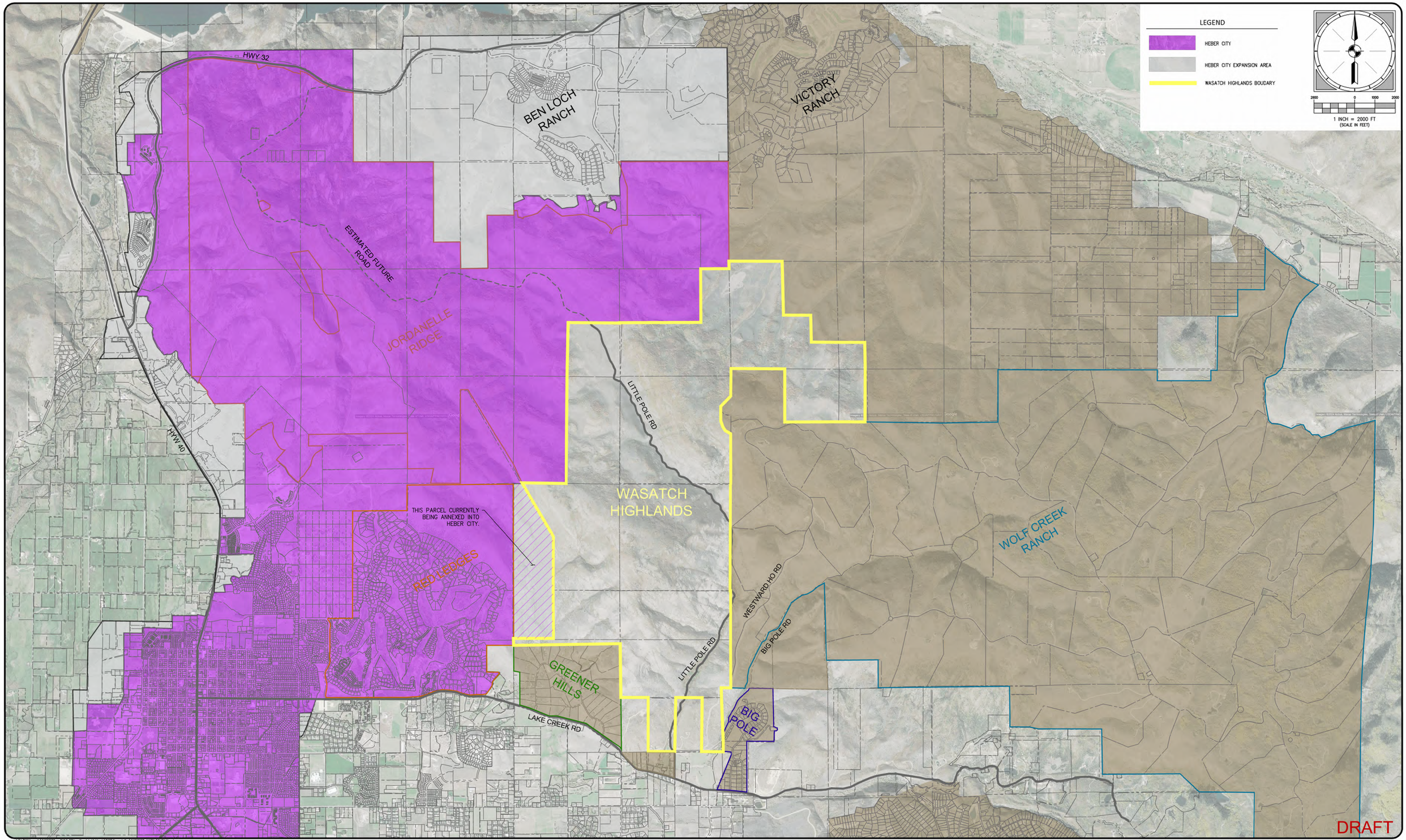
Ron Phillips

Ron Phillips
General Manager of JSSD, NVSSD, and TCSSD

cc: Mayor Alan McDonald
Mark Anderson, City Manager

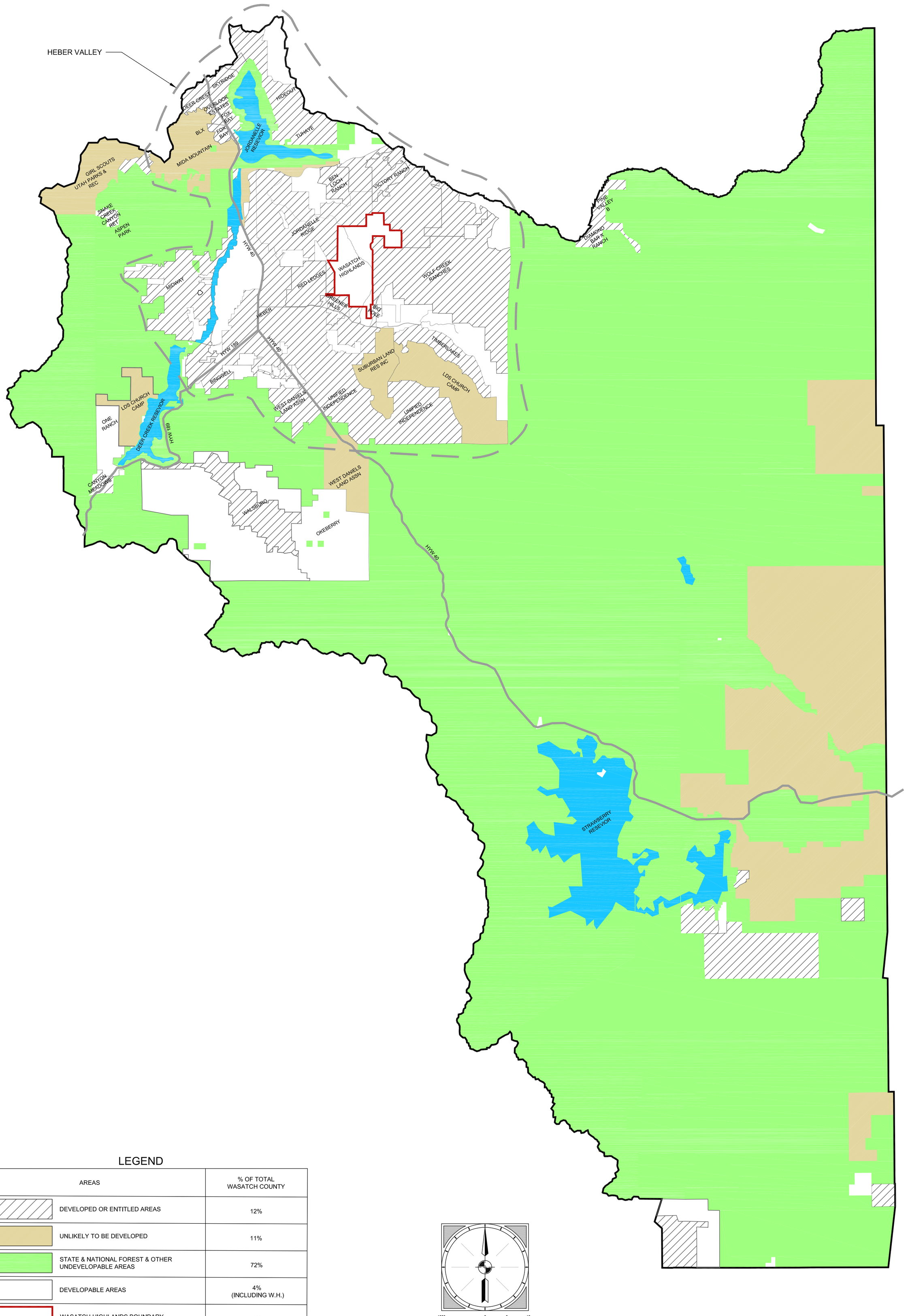
Responses to Special Service District May 8, 2017 Letter

Concern	Response
The draft Annexation Policy Plan lacks detail for the 8 points required by Utah Code, Section 10-2-401.5 (3)	The text of the draft Annexation Policy Plan has been modified to specifically address the required 8 points of Utah State Code, Section 10-2-401.5 (3) (b), and the 5 points of Utah State Code, Section 10-2-401.5 (4).
The draft Annexation Policy Plan lacks detail for the 5 points required by Utah Code, Section 10-2-401.5 (4)	
Why don't the annexation boundaries follow SSD Lines?	The map has been modified to follow JSSD and TCSSD boundaries.
The Districts are fundamentally concerned about annexation of any land within their defined service area. If the City annexes areas…and increases densities, the Districts may not have….capacities.	It is the intent of the City to establish land uses in the General Plan that have densities no more than envisioned by Wasatch County within the district areas so district capacity will not be an issue. A General Plan Amendment to the Land Use Plan will be adopted in conjunction with the Annexation Policy Plan that solidifies this commitment.
TCSSD…objects to the annexation of areas east of Mill Road and the Wasatch/Humbug Canal.	The area east of Mill Road has been removed from the expansion area map.
Utah law requires the [City] to be guided by certain factors…..the Annexation Plan is silent on all of these matters.	The Annexation Policy Plan incorporated the guidance of Utah Code, Section 10-2-403 (6) into the Annexation Policy Plan.
Why is it…necessary and prudent to annex areas that already have municipal services?	By state statute, the City as a normal course of business cannot annex properties on its own, annexations occur through petition of private property owners. The expansion area gives property owners the choice of services between Heber City or Wasatch County.



9/11/2024 K:\24000233 - PHILO DEV - Wasatch Highlands\PMC\Presentation\24000233 ANNEX POLICY Map.dwg

PROJECT 24000233	PREPARED FOR PHILO VENTURES	HEBER CITY ANNEXATION POLICY PLAN EXHIBIT	DRAWN BY: SFS	ATWELL 866.850.4200 www.atwell-group.com	COPYRIGHT © 2024 SUMMIT ENGINEERING GROUP, INC.
SHEET	PROJECT WASATCH HIGHLANDS		REVIEWED BY: SCD	55 WEST CENTER • P.O. BOX 176 HEBER CITY, UTAH 84032 P: 435-654-9229 • F: 435-654-9231	DRAWING ALTERATION IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF THE PROFESSIONAL LAND SURVEYOR, TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY. ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.
			SCALE: 1" = 2000' / ISSUE DATE 09/09/24		



LEGEND

AREAS	% OF TOTAL WASATCH COUNTY
DEVELOPED OR ENTITLED AREAS	12%
UNLIKELY TO BE DEVELOPED	11%
STATE & NATIONAL FOREST & OTHER UNDEVELOPABLE AREAS	72%
DEVELOPABLE AREAS	4% (INCLUDING W.H.)
WASATCH HIGHLANDS BOUNDARY	1%

1000 0 5 10

1 INCH = 10 FT
(SCALE IN FEET)

DRAFT

9/10/2024 K:\24000233 - PHILO DEV - Wasatch Highlands\DWG\Presentation\24000233 Developed Areas Exh.dwg

PROJECT 24000233	PREPARED FOR PHILO VENTURES	WASATCH COUNTY JURISTICTIONAL AREAS
SHEET	PROJECT WASATCH HIGHLANDS	

DRAWN BY: SFS
REVIEWED BY: SCD
SCALE: N.T.S.
ISSUE DATE: 9/10/24

ATWELL
866.850.4200 www.atwell-group.com
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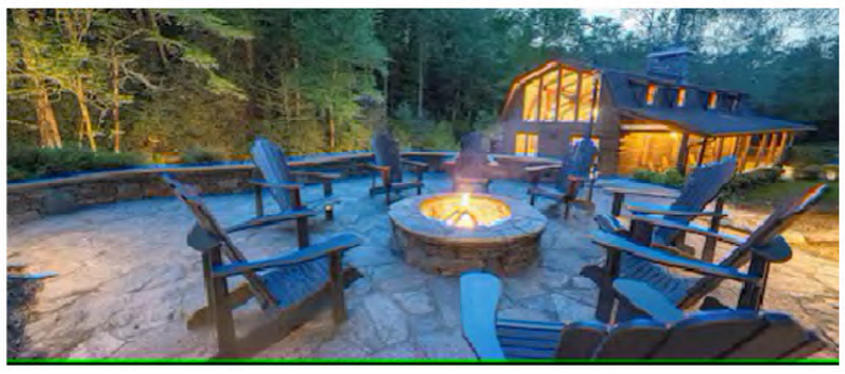











POTENTIAL AMENITIES

WATER:
- FISHING POND
- PADDLE BOARD
- CANOE / KAYAK
- BEACH / SWIMMING

TRAILS:
- MOUNTAIN BIKE TRAIL
- HIKING TRAILS
- EQUESTRIAN TRAILS
- CHAMPIONSHIP DOWNHILL MT. BIKE PARK

WINTER:
- ICE SKATING
- TUBING HILL
- CROSS COUNTRY SKI TRAIL
- BEGINNER SKI HILL / TOW ROPE

EXTREME SPORT:
- ALPINE SLIDE
- ZIP LINE
- ROPE / COPE COURSE

PUBLIC RECREATION:
- INDOOR POOL
- PUBLIC PARKS
- AMPHITHEATER
- EVENT CENTER
- KIDS CABIN
- GOLF PARK

VILLAGE CENTER:
- INDOOR SPA
- WORSHIP SITES
- FIRE PITS
- SPLASH PAD

COURT SPORTS:
- TENNIS COURTS
- PICKLEBALL COURTS

AGRICULTURE:
- AGRICULTURE CENTER
- "SHEEP" CENTER (AGRODOME)
- EQUESTRIAN CENTER
- COMMUNITY GREENHOUSE

9/11/2024 K:\24000233 - PHILO DEV - Wasatch Highlands\DWG\Presentation\Amenities Exhibit.dwg

PROJECT 24000233	PREPARED FOR PHILO VENTURES	POSSIBLE AMENITIES EXHIBIT	DRAWN BY: SFS	ATWELL 866.850.4200 www.atwell-group.com
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PHASE 9.3
279.8 AC

PHASE 8.4
51.7 AC

OS
5.9 AC

NATURE PARK
39.7 AC

OS

PHASE 10.2
36.7 AC

PHASE 5.6
26.9 AC

PHASE 8.3
44.4 AC

RESORT PHASE 9.1
20.7 AC

PHASE 9.2
156.6 AC

RESORT PHASE 11.1
49.3 AC

NATURE PARK
73.6 AC

PHASE 10.3
64.5 AC

PHASE 10.1 VILLAGE CENTER
22.1 AC

PHASE 5.5
28.3 AC

PHASE 8.2
267.9 AC

OS
49.5 AC

FIRE STATION, POLICE STATION, HEBER CITY MUNCIPAL BUILDINGS, PARKS/REC BUILDING

PHASE 5.1 VILLAGE CENTER
30.2 AC

OS

PHASE 8.1
21.8 AC

PHASE 11.2
273.5 AC

EMERGENCY ACCESS

PARK

PHASE 7.6
23.4 AC

RECREATION AREA
75.5 AC

LITTLE POLE RD

OS
14.5 AC

PHASE 7.1
54.9 AC

PHASE 5.4
28.3 AC

PHASE 7.6

PHASE 5.4

RESORT PHASE 7.2
13.2 AC

PHASE 7.4
68.4 AC

PHASE 7.5
83.9 AC

OS / MOUNTAIN BIKE COURSE
288.1 AC

PHASE 5.3
20.4 AC

OS

OS

PHASE 5.2
16.8 AC

PHASE 7.3
128.7 AC

PARK
2.7 AC

OS

PHASE 6
254.5 AC

PARK
4.5 AC

PARK
11.3 AC

STILA BOUNDARY

OS
777.3 AC

PARK
8.8 AC

PHASE 4
136.8 AC

PHASE 3.2
192.2 AC

OS

PHASE 3.3
13.1 AC

PHASE 3.1
28.9 AC

PHASE 2
262.8 AC

RIVER WALK PARK
38.9 AC

OS
73.0 AC

7.7 AC

OS

PARK
11.8 AC

6.4 AC

OS

PHASE 1.2
55.0 AC

PHASE 1.1
79.9 AC

PHASE 1.3
24.4 AC

WESTWARD HO RD

LITTLE POLE RD

WESTWARD HO RD

BIG POLE RD

LAKE CREEK RD

BIG POLE RD

LITTLE POLE RD

DRAFT

LEGEND

- MAJOR ROADS
- PARCEL LINE
- DEVELOPMENT AREAS
- PARKS
- PUBLIC OPEN SPACE
- AREA WHERE LOTS WILL INCLUDE PRIVATE OPEN SPACE

850 0 425 850

1 INCH = 850 FT
(SCALE IN FEET)

Open Space Table

Area (Ac)	Area (Ac)	% of Total Project Area	Notes
Total Project Area (Ac)	4,375.3	100.0%	
Public Open Space (Ac)	1,508.8	34.5%	Includes Parks, River Walk, Little Pole ROW, Public Open Space
Private Open Space (Ac)	811.3	18.5%	Area required to be undeveloped within a private lot
Total Open Space (Ac)	**2,320.1**	**53.0%**	

9/11/2024 K:\24000233 – PHILO DEV – Wasatch Highlands\DWG\Presentation\24000233 MP Exhibits.dwg

PROJECT 24000233	PREPARED FOR PHILO VENTURES	PRELIMINARY SITE PLAN	DRAWN BY: SFS
SHEET	PROJECT WASATCH HIGHLANDS		REVIEWED BY: SCD
			SCALE: N.T.S. / ISSUE DATE 9/11/24

ATWELL
866.850.4200 www.atwell-group.com
55 WEST CENTER • P.O. BOX 176 HEBER CITY, UTAH 84032
P: 435-654-9229 • F: 435-654-9231

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DRAWING ALTERATION

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FIRE STATION, POLICE STATION, HEBER CITY MUNCIPAL BUILDINGS, PARKS/REC BUILDING

LITTLE POLE RD

EMERGENCY ACCESS

WESTWARD HO RD

LITTLE POLE RD

WESTWARD HO RD

BIG POLE RD

LAKE CREEK RD

BIG POLE RD

LITTLE POLE RD

DRAFT

Open Space Table			
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LEGEND

- MAJOR ROADS
- PROPOSED DETACHED PAVED TRAIL
- PROPOSED PAVED TRAIL
- PROPOSED MUTIL-USE EARTHEN TRAIL
- PROPOSED RIVER WALK TRAIL
- BACK COUNTRY TRAIL
- PUBLIC OPEN SPACE
- PARKS
- AREA WHERE LOTS WILL INCLUDE PRIVATE OPEN SPACE

850 0 425 850

1 INCH = 850 FT
(SCALE IN FEET)

9/11/2024 K:\24000233 - PHILO DEV - Wasatch Highlands\DWG\Presentation\24000233 MP Exhibits.dwg

PROJECT 24000233

SHEET

PREPARED FOR PHILO VENTURES

PROJECT WASATCH HIGHLANDS

PRELIMINARY PUBLIC BENEFITS EXHIBIT

DRAWN BY: SFS

REVIEWED BY: SCD

SCALE: N.T.S.

ISSUE DATE 9/11/24

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Heber City Council Staff Report

MEETING DATE:	9/17/2024
SUBJECT:	Crossings-Resort Annexation
RESPONSIBLE:	Tony Kohler
DEPARTMENT:	Planning
STRATEGIC RELEVANCE:	Community Development

SUMMARY

The petitioners for the Crossings-Resort Annexation (aka Harvest Village), have provided an initial draft of a development agreement (aka MDA) for their project annexation. Legal staff has completed an initial review of the agreement, but seeks policy guidance on key agreement provisions from the Council to continue moving forward. Policy questions include the following

- Is Council ready for a September 17 public hearing?
- Should non-petitioners be removed from the annexation if so requested?
- Should Heiner's property be removed from the annexation?
- Does Council support the major tenets of the proposed agreements?

RECOMMENDATION

Staff recommends Council discuss the proposed agreements and provide feedback to Legal Counsel and Staff on the major policy questions addressed in more detail below.

BACKGROUND

The proposed Crossings-Resort Annexation has been working towards drafting development agreements in anticipation of moving forward with completing the proposed annexation. There are several property owners who are not petitioners that may express interest in being removed from the annexation at the upcoming public hearing scheduled for September 17. There are 3 petitioners, which include: 1. Crossings, 2. Resort (aka Harvest Village), and 3. Heiner. The Crossings and Harvest Village are both proposing development agreements as attached and are looking for feedback from Council on September 3. Both of these developments have existing development agreements with Wasatch County that exceed the densities permitted by both existing county and city zoning.

Much of the development agreement includes boilerplate language. The primary points of the development agreement that require additional review and input include Density, Affordable Housing, Impact Fee Waiver, Term of Agreement, UDOT Bypass, Open Space, North Fields Preservation Fee, Utilities, PIDs (Public Infrastructure Districts), and Building Heights, discussed in more detail below.

DISCUSSION

The following summarizes the primary policy issues proposed by the applicant(s) in the development agreement that requires additional vetting by the Council. Staff has taken the liberty to provide suggestions and feedback on the primary policy issues below.

- **3.1 Project Density**. The proposed density exceeds the county and city zoning standards. A development agreement was approved by the County years ago that includes a higher density. The proposed development reduces density from 370 ERUS as approved in the County's MDA to 314.72 ERUs (includes affordable units). Details of ERUS with units by type are attached for reference.
- **3.2 Intended Uses by Parcel and Densities**. The agreement allows for up to 7 contiguous townhomes (more than NVOZ) and the developer maintains discretion to determine parking amounts. The City has never granted this level of flexibility for parking requirements to a developer. Staff is uncomfortable with the concept of giving the developer full discretion on parking and suggests instead asking the development to meet city parking requirements unless the developer submits a parking study by a professional planner/engineer with experience in mixed use development, that illustrates a lessor amount of parking can suffice. The request for 7 townhomes is a minor design issue that staff is comfortable with.
- **3.6 Affordable Housing Requirements**. Includes significant new language in 3.6 and its subsections. The MDA proposes 33 affordable ERUs, in addition to the 271 market rate ERUs. The affordable housing is required to be averaged at 80% AMI. There is no proposed max number of rentals versus owner occupied units.
- **3.6.2 Geographic Waterfall**.This is a new proposed section that sets a priority for affordable housing applicants. This list differs from past priority lists, as it sets the first priority as employees within Harvest Village. The section also recognizes that fair housing rules could trump the priority list.
- **3.6.4 Off-site affordable housing**. The changes seem minor and staff doesn't have issue with this request.
- **3.6.5 Timing (Affordable Housing)**. Changes timing of when affordable housing must be built from previously negotiated MDAs. For example, Jordanelle Ridge must construct 144 affordable units for each 1,442 market rate housing units. The proposed Harvest Fields provision requires at least 50% of the required affordable units to be constructed no later than construction of 50% of market rate units.
- **3.6.6 Impact Fee Waiver.** Grants waivers to impact fees for affordable housing. Council has not agreed to impact fee waivers in previous MDAs. As such, staff recommends the developer be steered towards available state and federal funding tools/programs for affordable housing.
- **4.3 Term of Agreement**. Grants a 25-year agreement term. Jordanelle Ridge, in comparison, has 5,770 units, with a 30-year agreement. 25 years seems disproportionately long, given the smaller size of the development in comparison to Jordanelle Ridge. A 10 to 15 year time frame seems more appropriate based on the development size.

- **5.1 Phasing**. The council has asked in previous MDAs for the commercial portion of developments to be graded and have utilities extended prior to the first phase of development. Staff recommends the Council support a similar approach to encourage the commercial aspects of the development.
- **5.2 UDOT Bypass**. The agreement specifies a specific date to allow time for UDOT to tender a decision on the preferred corridor route by delaying the issuance of permits until April 1, 2025. This approach seems like a short time frame and may not preserve the bypass corridor in a manner that is supportive of UDOT's EIS process. Council has indicated in previous meetings that it wants to support UDOT in this effort, and this approach and timeline may not match UDOT's needed timeline.
- **6.2 Dedication of Open Space or Trails**. Significant changes are made to section 6. The development is simpler and smaller than Jordanelle Ridge and should be simpler for open space provisions. Council should provide guidance to the developer on exceptions for open space.
- **6.5 North Fields Preservation**. This section modifies language from previous MDAs, adding a collection time for the $2,500 preservation fee to when unit is sold instead of when a unit is built, with commercial units paying the preservation fee upon occupancy.
- **7.7 Utilities**. Commits city to provide water and sewer if available. It would be a stretch to provide city water and sewer in this area and is contrary to agreements with Wasatch County pertaining to special service districts.
- **7.11 Public Infrastructure Distric**t. Puts City on notice of project Public Improvement District (PID) creation. Staff suggests not guaranteeing PID creation in the MDA, but being open to it, and also referring to the City's PID application and policy.
- **8 Cable/FIber Optic Service.** Strikes this section. This seems contrary to previous Council direction on such services. Heber's current strategy is to ensure a fiber system is installed ubiquously in new developments by Strata and preserve the City's option to own the system in the future.
- **9 CCRs**. This section specifically permits short-term rentals in residential units. This is compatible with the development.
- **11.3 Building Heights**. Changes height from 3 stories to 5 stories or 70 feet from previous MDAs. Given the vested rights in the County MDA, this is likely a point that will need to be negotiated. If height exceptions are permitted, the City should consider requiring other standards to be met in the NVOZ, such as step backs, use of landscaping and berms to soften height. Also, it is unclear in the MDA if all buildings are permitted to be up to 70 feet, or just the hotel portion of the development? The NVOZ permits up to 4 stories for hospitality uses, and the NVOZ specifically calls out that an MDA may modify this requirement.

FISCAL IMPACT

N/A

CONCLUSION

N/A

ALTERNATIVES

N/A

POTENTIAL MOTIONS

N/A

ACCOUNTABILITY

Department: Planning
Staff member: Tony Kohler, Community Development Director

EXHIBITS

1. CC-09-03-24-Harvest Village-alk
2. Harvest Village Site Plan - Figures
3. Harvest Village MDA Draft for 9.3.2024 - 4885-2157-2318 - 1

HEART OF THE WASATCH BACK

HEBER CITY

EST 1889

Harvest Village (Crossings/Resort) Annexation

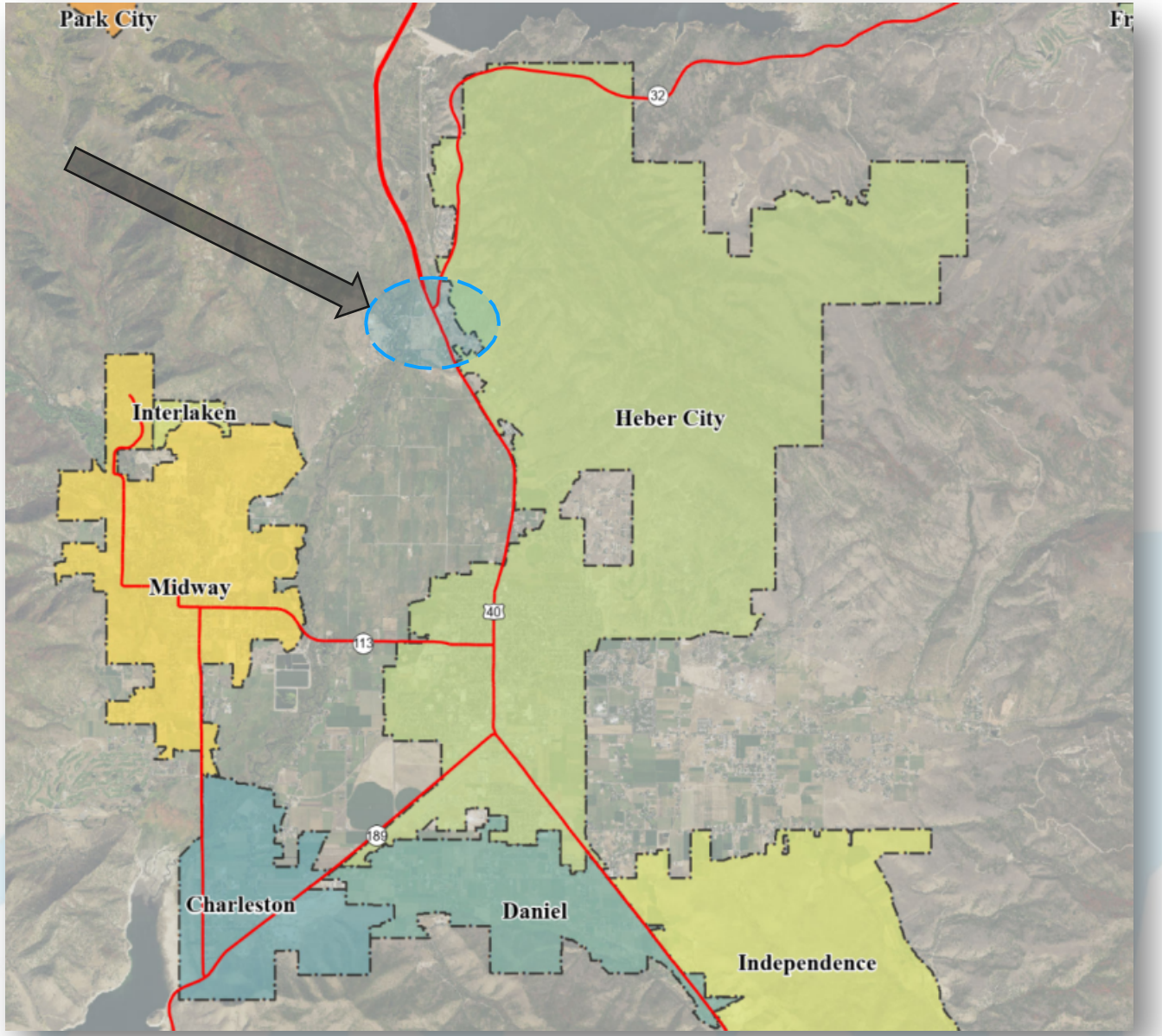
September 3, 2024

Policy Questions

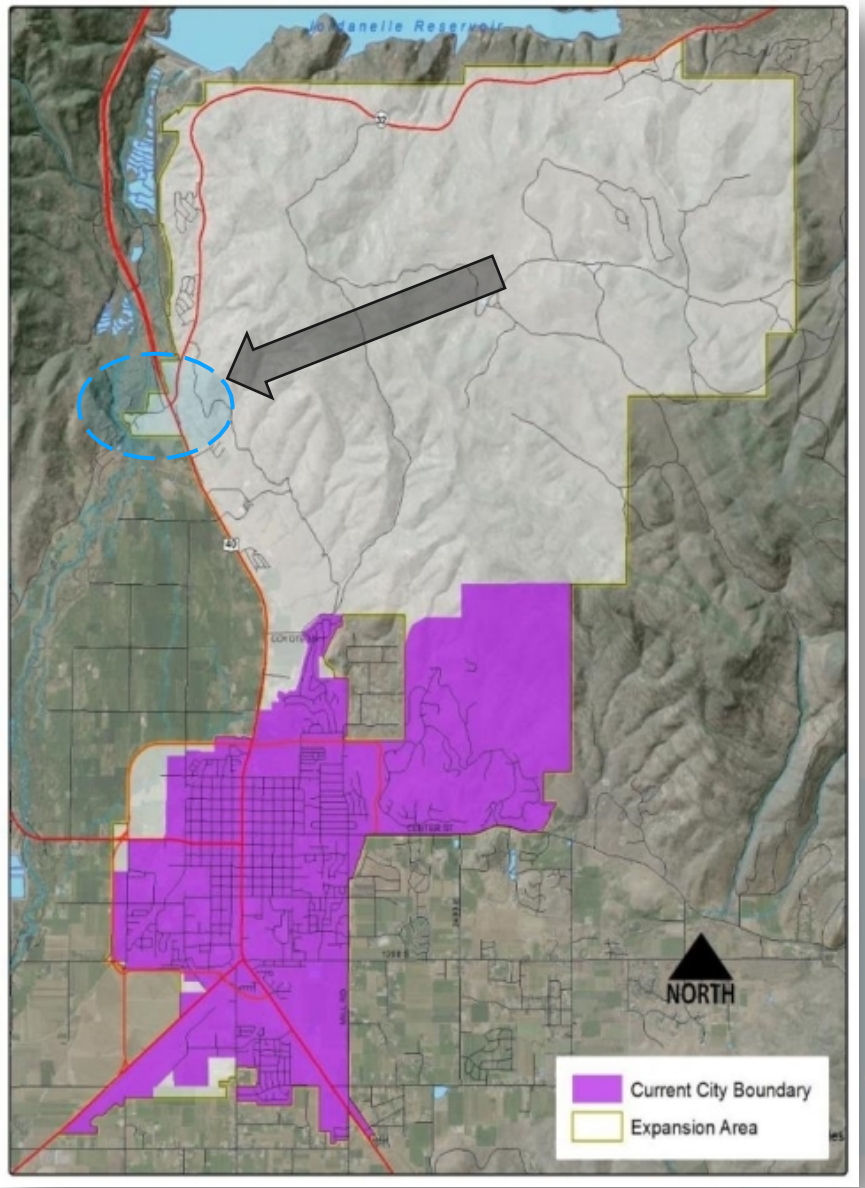
- Is Council ready for a September 17 public hearing?
- Should non-petitioners be removed from the annexation if so requested?
- Should Heiner's property be removed from the annexation?
- Does Council support the major tenets of the agreements?

Location

Vicinity Map

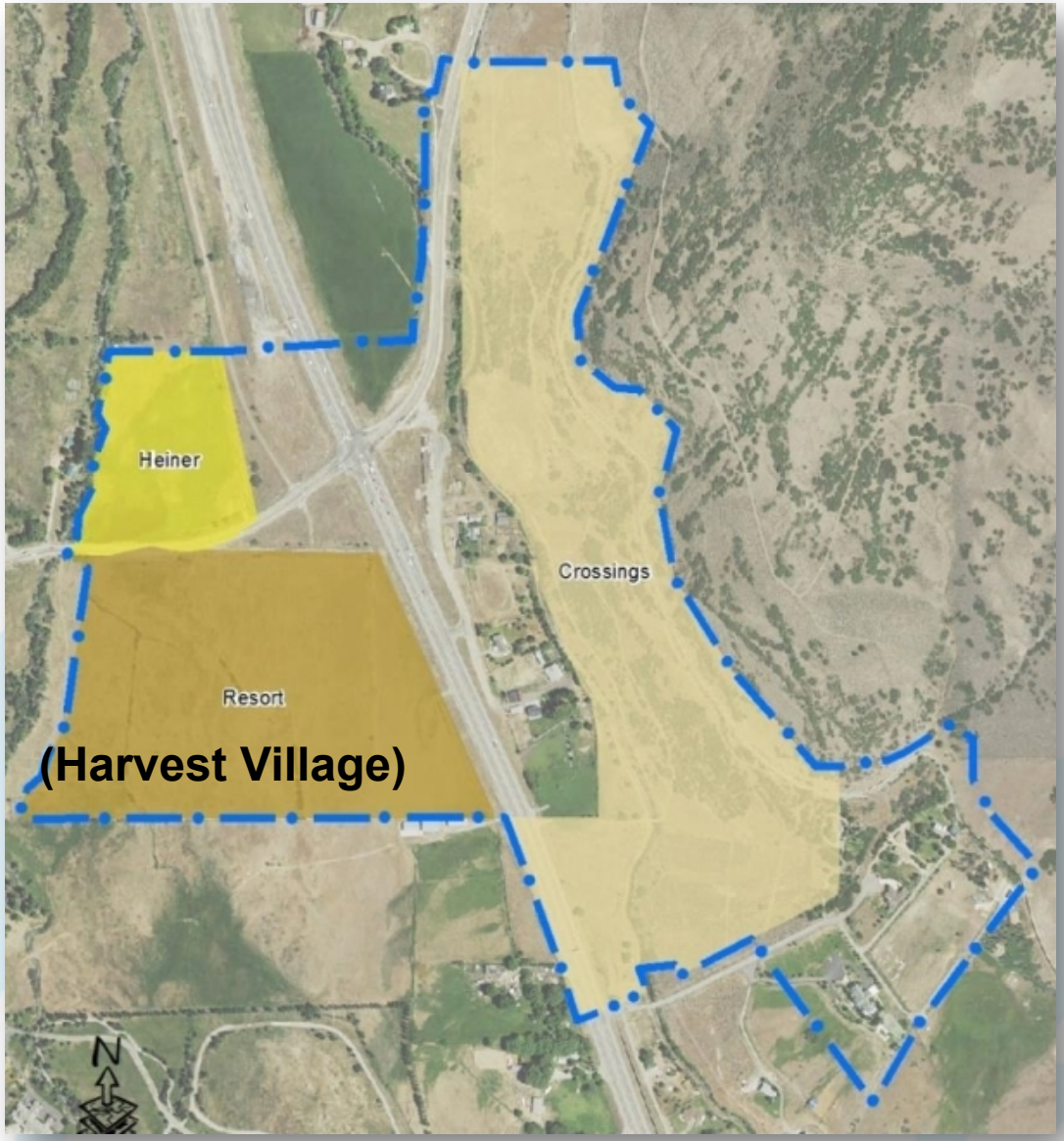


Annexation Policy Plan



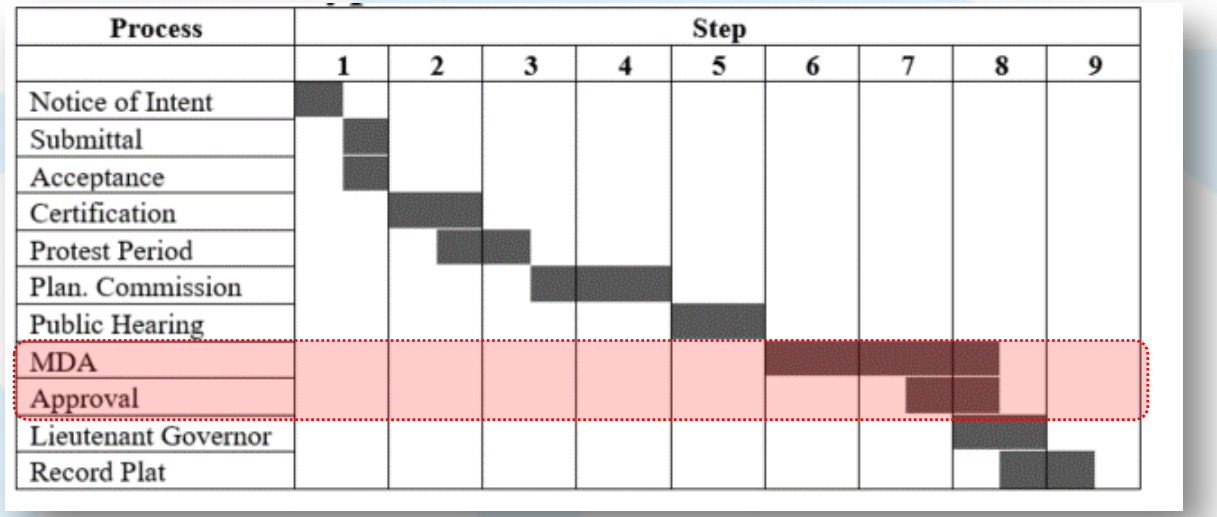
Crossing Annexation Boundaries



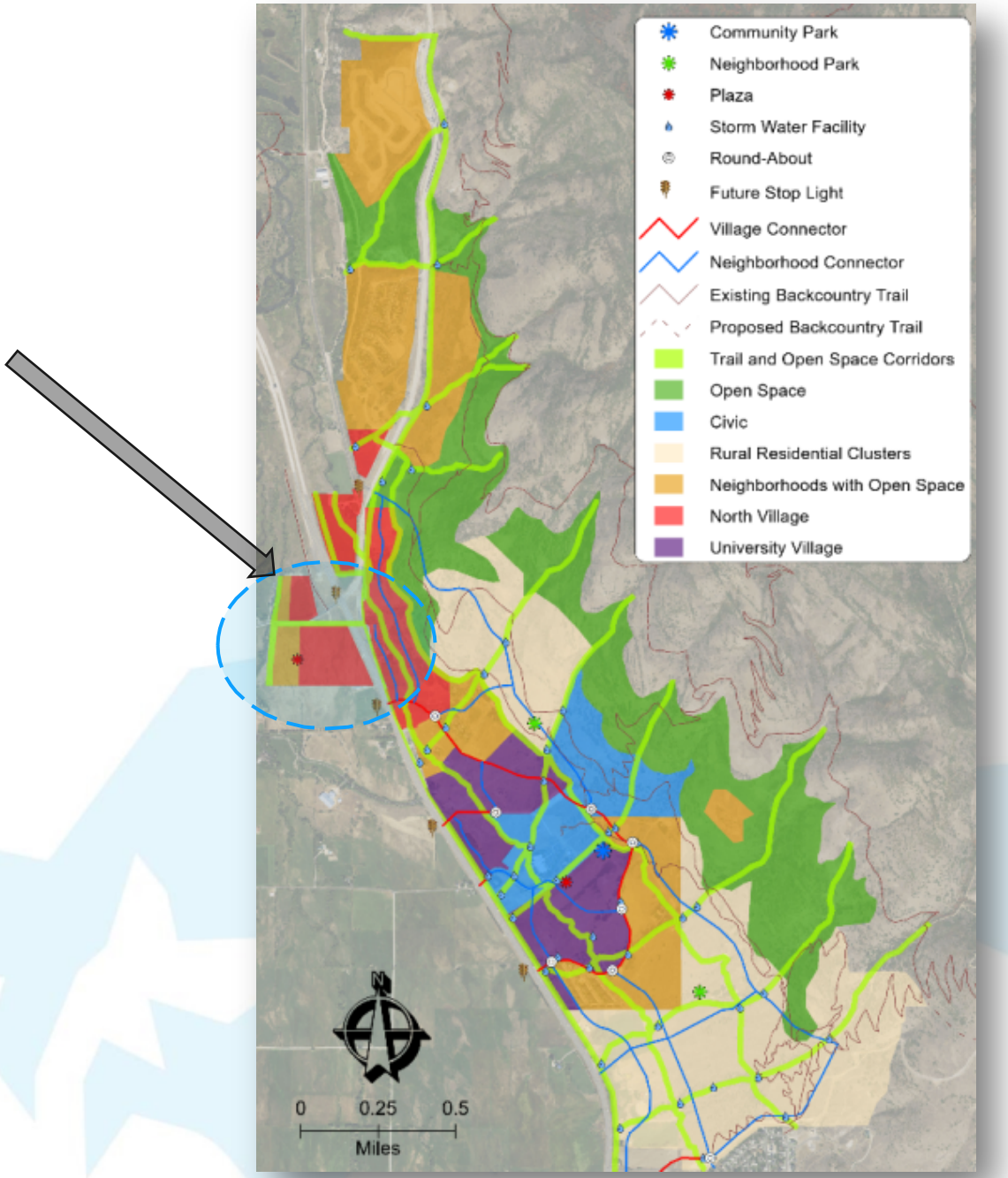


Annexation Background

Petition Submitted	3/16/2020
Petition Accepted	4/7/2020
Petition Certification	4/16/2020
End Protest Period	5/15/2020
Planning Commission Review	5/26/2020
City Council Review	June 2020 – Dec 2021



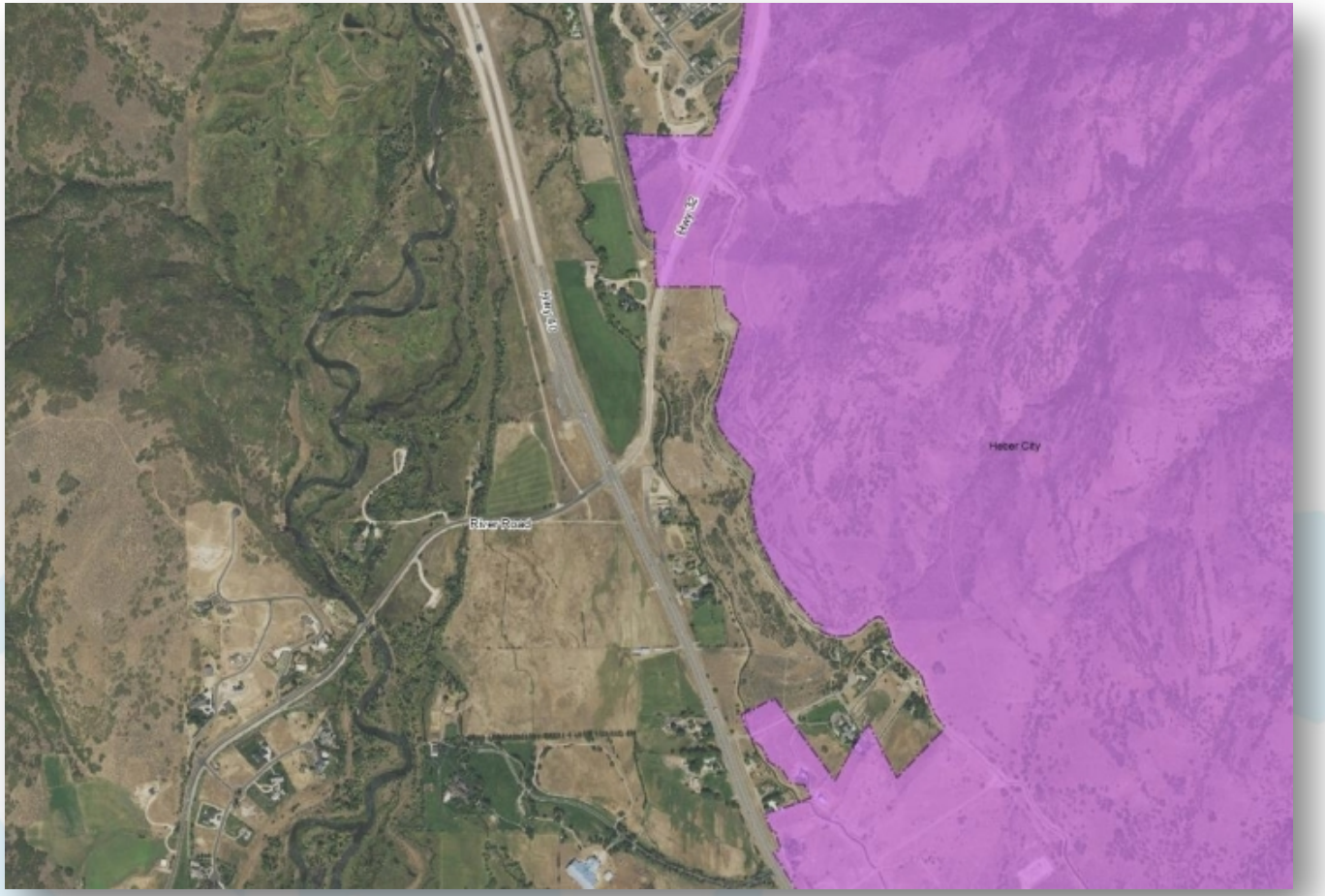
NVOZ Map


Community Park
Neighborhood Park
Plaza
Storm Water Facility
Round-About
Future Stop Light
Village Connector
Neighborhood Connector
Existing Backcountry Trail
Proposed Backcountry Trail
Trail and Open Space Corridors
Open Space
Civic
Rural Residential Clusters
Neighborhoods with Open Space
North Village
University Village
N
0
0.25
0.5
Miles

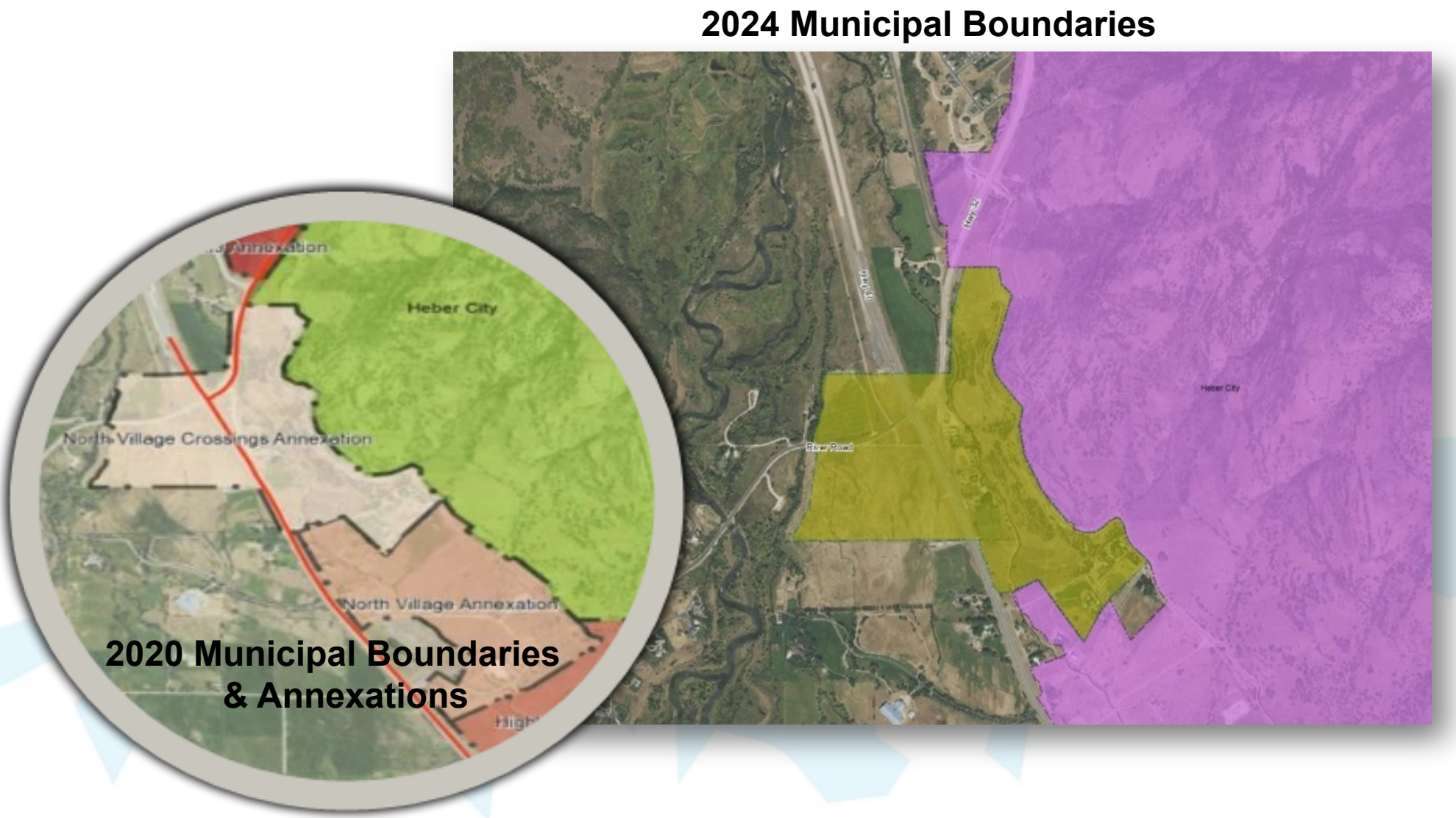
Development Information

Crossing Annexation	139.21 acres
Resort (Harvest Village) Area	38.93 acres
County MDA	370 ERUs (9.5/ERU)
Proposed ERUs	247 ERUs + 67 Workforce ERUs (314 total ERU) 6.34 ERU/acre (8.07 ERU/acre with Workforce)
City Zoning	NV (4.5 ERU/acre) 124.38 ERU NOS (3.5 ERU/acre) 39.51 ERU

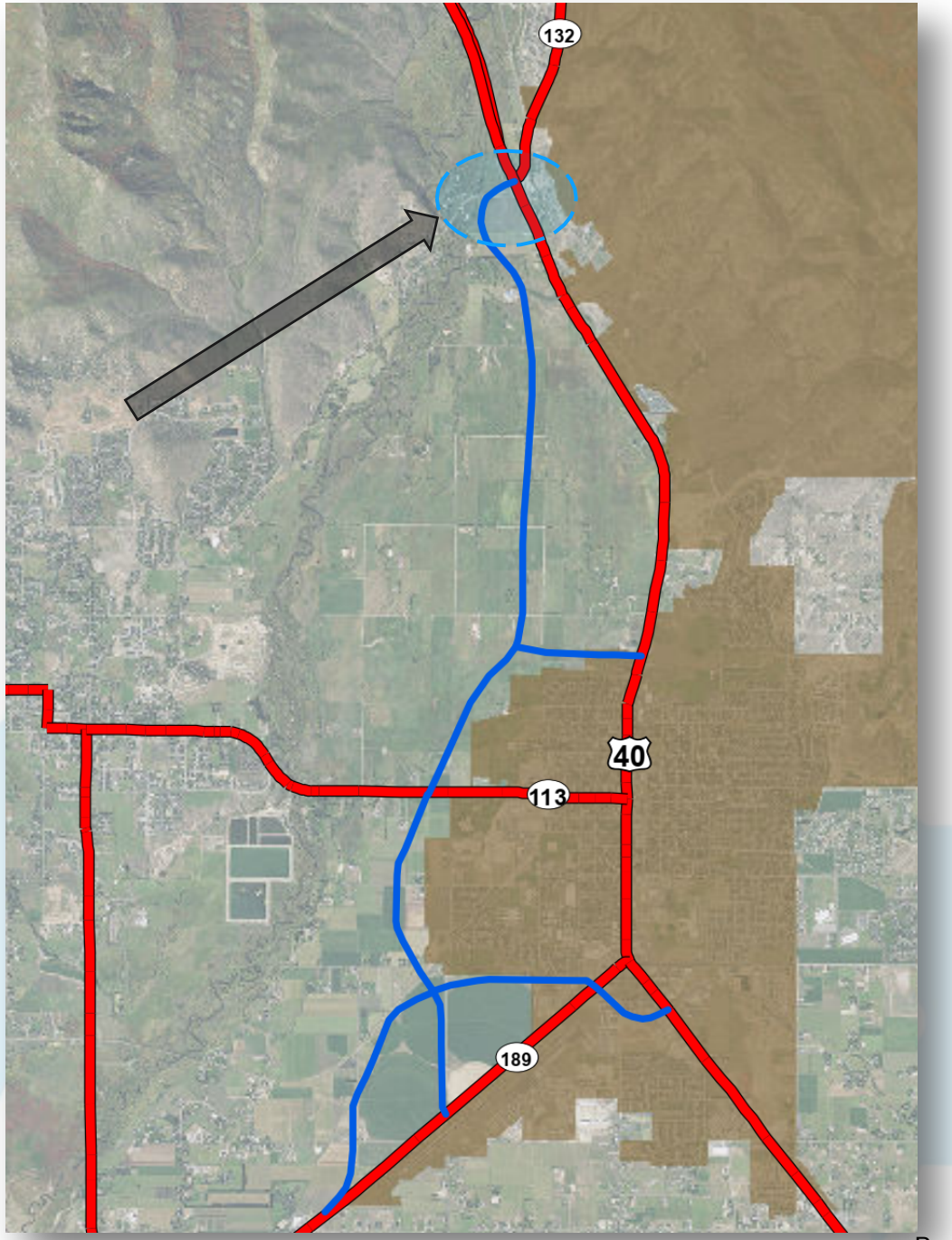
Current City Limits



Boundary of Crossings Annexation



5 Bypass Alternatives



MDA Issues for Discussion

- 3.1 Project Density
- 3.2 Uses (Parking)
- 3.6 Affordable Housing
- 3.6.2 AH Requirements (fair housing)
- 3.6.4 Offsite AH
- 3.6.5 AH Timing
- 3.6.6 Impact Fee Waiver
- 4.3 Term of Agreement
- 5.1 Phasing
- 5.2 UDOT Bypass
- 6.2 Open Space
- 6.5 North Fields Preservation
- 7.7 Water & Sewer Utilities
- 7.11 PID
- 9 CCRs
- 11.3 Building Height

	UNITS	SQ FT	ERU FACTOR	ERU	# OF FLOORS	NOTES
HOTEL						
- (H) Hotel Rooms (< 500 SF)	86	50,400.00	0.25	21.50	5	Kings & Queen/Queen on levels 2-4
- (H) Hotel Retail / Commercial / Office		16,400.00	0.86	7.05	5	First floor lobby, coffee, back office, tix box office & retail
- (H) Hotel F&B / Meeting Space		10,800.00	0.86	4.64	5	Rooftop restaurant & venue
	86	**77,600.00**		**33.20**		
CONDO						
- (B) Two Bedroom (1,250 SF gross / 1,000 SF net)	22	23,100.00	0.50	11.00	4	3 floors on top of garage
- (B) Three Bedroom (1,875 SF gross / 1,500 SF net)	14	29,800.00	0.75	10.16	4	3 floors on top of garage
- (B) Condo / Hotel Amenities		29,700.00			4	Pool, gym and spa located on second floor (total SF that is not in the B block)
- (M1) Two Bedroom (1,250 SF gross / 1,000 SF net)	18	16,500.00	0.50	9.00	2	2 floors on top of M1 commercial
- (M1) Three Bedroom (1,875 SF gross / 1,500 SF net)	8	21,500.00	0.75	6.20	2	2 floors on top of M1 commercial
	62	**120,600.00**		**36.36**		
TOWNHOMES						
- (T) Two Bedroom (1,200-1,599 SF)	40	63,960.00	0.75	30.00	2	T1-T20 blocks
- (T) Three Bedroom (1,600 SF)	100	220,000.00	1.00	100.00	3	T1-T20 blocks
- Townhome Clubhouse		4,000.00	0.86	1.72	1	Pool, gym and workspace
	140	**287,960.00**		**131.72**		
INCLUSIONARY / WORKFORCE						
- (I) Studio (588 SF gross / 470 SF net)	60	28,200.00	0.25	15.00	3	I1, I2, I3 & I4 blocks
- (I) One Bedroom (788 SF gross / 630 SF net)	115	72,450.00	0.33	37.95	3	I1, I2, I3 & I4 blocks
- (I) Two Bedroom (1,038 SF gross / 830 SF net)	30	24,900.00	0.50	15.00	3	I1, I2, I3 & I4 blocks
	205	**125,550.00**		**67.95**		
RETAIL / COMMERCIAL / OFFICE						
- Standalone Retail Blocks		17,300.00	0.86	7.44	1	R1, R2, R3 & R4 blocks (all one story except R4 contemplated as rock climbing gym)
- (M1) Commerical + Condo		19,500.00	0.86	8.39	3	M1 first floor retail space
- (M2) All Commercial		34,500.00	0.86	14.84	3	Three floors of commercial
- (M3) All Commercial		34,500.00	0.86	14.84	3	Three floors of commercial
		105,800.00		**45.49**		
AMENITIES						
- Sled Hill		22,000.00			4	Plaza / 39ft high
- Ice Skating Ribbon		12,000.00			0	Plaza / Temp structure
- Open Plaza Space		185,000.00			0	Includes paved, landscape, ice rink, sled hill and firepit areas (does not include buildings)
- Ponds		23,715.00			0	Located w/in Townhomes
- Surface Parking	524	183,168.00			0	Throughout site
- Covered Parking	145	45,095.00			1	Bottom of B block
- Walking / Biking Trails		35,500.00			0	Perimeter trail only (will add interior trails later)
. - Roads		196,060.00			0	Throughout site
- Green Space		125,000.00				Throughout townhome and around various buildings
. - Hwy 40 Buffer Area		250,000.00			0	Dedicated space
	669	**1,077,538.00**				
TOTALS	**493**	**1,795,048.00**		**314.72**		
				246.77		<-- ERU if workforce housing is not included

WHEN RECORDED, RETURN TO:

Heber City
Attention: City Recorder
75 North Main Street
Heber City, Utah 84032

Tax Parcel Nos.: XXX

(Space above for Recorder's use only.)

DEVELOPMENT AGREEMENT
FOR THE
HARVEST VILLAGE MIXED USE DEVELOPMENT

THIS DEVELOPMENT AGREEMENT FOR THE HARVEST VILLAGE MIXED USE DEVELOPMENT (this "**Agreement**") is made and entered into as of the _____ day of _____, 2024, by and between HEBER CITY, a political subdivision of the State of Utah (the "**City**"), and Angstrom Development Group LLC, a Utah limited liability company ("**ADG**"). Each of ADG and the City are hereinafter referred to individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

A. ADG is the owner of approximately 39 acres of undeveloped real property located on the Southwest intersection of Hwy 40 and River Road (Parcel Nos. XXX) in Wasatch County, State of Utah (the "**Property**"). A legal description of the Property is attached hereto as **Exhibit A**.

B. On _____, 2024, the City approved and adopted a Site Plan for the Project (the "**Site Plan**"), subject to the Parties entering into this Agreement and the City agreeing to annexation of the Property.

C. The Site Plan for the Property provides for a mixed-use development, including recreational and open space uses. All such uses shall be consistent with the permitted uses in the North Village Overlay Zone ("NVOZ") or as outlined within this Agreement.

D. This Agreement and the Site Plan meets the intent of, complies with, and is guided by, the Envision 2050 Heber General Plan.

E. The Parties now desire to enter into this Agreement to establish and set forth the rights and responsibilities of ADG and its successors in interest, including but not limited to, those developers, sub-developers and builders who will develop the Property as a mixed-use project in

accordance with the terms hereof, and to establish the rights and responsibilities of the City to annex the Property into the boundaries of Heber City and to authorize and regulate such development pursuant to the requirements of this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the City and ADG hereby agree to the following:

TERMS

1. **Incorporation of Recitals and Exhibits/ Definitions. Incorporation.** The foregoing Recitals and **Exhibits A** through **D** are hereby incorporated into this Agreement.

1.2 **Definitions** Any capitalized term or phrase used in this Agreement has the meaning given to it below or in the section where the definition of such term is given.

1.2.1 **Act** means the Municipal Land Use, Development, and Management Act, Utah Code Ann. §§ 10-9a-101, *et seq.* (2024), as amended.

1.2.2 **Administrative Action** means and includes any amendment to the Exhibits to this Agreement or other action that may be approved by the Administrator as provided in Section 17.

1.2.3 **Administrator** means the Person designated by the City as the Administrator of this Agreement.

1.2.4 **Affordable Housing** means a dwelling unit that will be offered for rent or sale exclusively to, and which shall be affordable to, lower income households as defined in Heber City Code Chapter 18.102.110.

1.2.5 **Agreement** has the meaning set forth in the preamble and includes all Exhibits attached hereto.

1.2.6 **Public Gathering Areas** means any publicly owned area or public park identified on the Site Plan that is intended to provide services to the community at large.

1.2.7 **Applicant** means a Person submitting a Development Application, a Modification Application or a request for an Administrative Action.

1.2.8 **Backbone Improvements** means those improvements shown as such in the Infrastructure Plan and which are, generally, infrastructure improvements that are intended to support the overall development of the Property and not merely a part of the development of any particular

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Subdivision. Backbone Improvements are generally considered to be in the nature of "System Improvements," as defined in Utah Code Ann. § 11-36a-101, *et seq.* (2024).

1.2.9 **Building Permit** means a permit issued by the City to allow construction, erection or structural alteration of any building, structure, private or public infrastructure, On-Site Infrastructure on any portion of the Project, or to construct any Off-Site Infrastructure.

1.2.10 **CC&Rs** means one or more declarations of conditions, covenants and restrictions regarding certain aspects of design and construction on the Property recorded or to be recorded with regard to the Property or any part thereof, as amended from time to time.

1.2.11 **Capital Facilities Plan** means a plan adopted or to be adopted by the City in the future to substantiate the collection of Impact Fees as required by State law.

1.2.12 **City** means the City of Heber, a political subdivision of the State of Utah.

1.2.13 **City Consultants** means those outside consultants employed by the City in various specialized disciplines such as traffic, hydrology or drainage to review certain aspects of the development of the Project.

1.2.14 **City Updated North Village Street Master Plan** shall mean the City's Street Master Plan and Street Capital Facilities Plan.

1.2.15 **City Updated North Village Stormwater Master Plan** shall have the meaning provided in Section 12.2.

1.2.16 **City's Future Laws** means the ordinances, policies, standards, and procedures of the City that will be in effect as of a particular time in the future when a Development Application is submitted for a part of the Project and that may, in accordance with the provisions of this Agreement, be applicable to the Development Application.

1.2.17 **City's Vested Laws** means the ordinances, policies, standards, and procedures of the City related to zoning, subdivisions, development, public improvements and other similar or related matters that are in effect as of the Effective Date.

1.2.18 **Council** means the elected City Council of the City.

1.2.19 **Default** shall have the meaning provided in Section 14.

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1.2.20 **Design Guidelines** means the design guidelines referenced in the North Village Overlay Zone.

1.2.21 **Developer** shall have the meaning provided in Section 22.

1.2.22 **Development Application** means an application to the City for development of a portion of the Project, a Building Permit, improvement plans or any other permit, certificate or other authorization from the City required for development of the Project.

1.2.23 **Development Property** shall have the meaning provided in Section 22.1.

1.2.24 **Development Report** means a report containing the information specified in Section 3.4 submitted to the City by ADG or any successor for the sale of any Parcel to a Developer, Sub-developer or Builder or the submittal of a Development Application by a Developer, Sub-developer or Builder pursuant to an assignment from ADG.

1.2.25 **Development Unit** means either a commercial or residential use of property with respect to which an ERU calculation can be applied in accordance with this Agreement.

1.2.26 **Effective Date** means the date on which the later of both the following shall have occurred: the Parties have executed this Agreement and the City's annexation of the Property has been completed and takes effect pursuant to Utah Code Ann. § 10-2-425.

1.2.27 **Development Entitlements** shall have the meaning provided in Section 3.1 of this Agreement.

1.2.28 **Equivalent Residential Unit (ERU)** means the residential density allocated to: (a) any given Residential Unit when measured against a single-family dwelling unit, which measure shall be determined pursuant to Section 18.21.020.2.2(2) of the City's Vested Laws; and (b) commercial ERUs will be calculated as provided in Section 18.21.020.2.2(2) of the City's Vested Laws. For purposes of clarity, the Parties agree that no ERUs shall be allocated to schools, churches, or Affordable Housing.

1.2.29 **Final Plat** means the recordable map or other graphical representation of land prepared in accordance with Utah Code Ann. § 10-9a-603, and approved by the City, effectuating a Subdivision of any portion of the Project.

1.2.30 **Highway 40** means a "state highway" type transportation corridor maintained by the Utah Department of Transportation and referred to as U.S. Highway 40, as that route may be changed from time-to-time.

1.2.31 **Homeowners' Association(s)** means one or more associations formed pursuant to Utah law to perform the functions of an association of property owners.

1.2.32 **Impact Fees** means those fees, assessments, exactions or payments of money imposed by the City as a condition on development activity as specified in Utah Code Ann. §§ 11-36a-101, *et seq.* (2023), as amended.

1.2.33 **Infrastructure Plan** means the conceptual infrastructure plan, including culinary water, secondary water, storm water, sanitary sewer and private roads, as amended from time to time.

1.2.34 **Intended Uses** means the use of all or portions of the Project for open space, parks, trails and other uses permitted in the Zoning Ordinance, Design Guidelines and as shown on the Site Plan.

1.2.35 **Market Rate units** means any non-Affordable Housing within the Project.

1.2.36 **Modification Application** means an application to amend this Agreement (but not including those changes which may be made by Administrative Action).

1.2.37 **Mortgage** means (1) any mortgage or deed of trust or other instrument or transaction in which the Property, or a portion thereof or a direct or indirect ownership or other interest therein, or any improvements thereon, is conveyed or pledged as security, or (2) a sale and leaseback arrangement in which the Property, or a portion thereof, or any improvements thereon, is sold and leased back concurrently therewith.

1.2.38 **Mortgagee** means any holder of a lender's beneficial or security interest (or the owner and landlord in the case of any sale and leaseback arrangement) under a Mortgage.

1.2.39 **Non-City Agency** means a governmental or quasi-governmental entity, other than those of the City, which has jurisdiction over the approval of an aspect of the Project.

1.2.40 **North Fields** means that certain real property located generally south of the Property and generally depicted on **Exhibit C** attached hereto.

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1.2.41 **Notice** means any notice to or from any Party to this Agreement that is either required or permitted to be given to another Party.

1.2.42 **Off-Site Infrastructure** means the off-site public or private infrastructure, such as roads and utilities, specified in the Infrastructure Plan that is necessary for development of the Property but is not located on the portion of the Property that is subject to a Development Application.

1.2.43 **On-Site Infrastructure** means the on-site public or private infrastructure, such as roads or utilities, specified in the Infrastructure Plan that is necessary for development of the Property and is located on that portion of the Property that is subject to a Development Application.

1.2.44 **On-Site Retention/Detention** shall mean a storm drain facility that is provided on-site upon private property within the development to handle on-site or off-site storm drain requirements.

1.2.45 **Open Space** means the following: all parks (regardless of size or type); pedestrian, bicycle, and equestrian trails and pathways; passive open spaces, water features, and natural habitat areas; parkways and commonly maintained natural or landscaped areas; sidewalks, street tree plantings and medians; ballfields and recreational spaces (including, without limitation, any such facilities provided by or upon a school or church site, excepting areas within building footprints other than community gardens); drains and detention basins and swells, canals, protected slope areas, and any other quasi-public area that the City determines to be Open Space as a part of the approval of a Development Application. Open Space includes, but is not limited to, those areas identified as Open Space in the Site Plan.

1.2.46 **Outsourcing** means the process of the City contracting with City Consultants or paying overtime to City employees to provide technical support in the review and approval of the various aspects of a Development Application, as is more fully set out in this Agreement.

1.2.47 **Parcel** means an area identified on the Site Plan with a specific land use designation that is intended to be further subdivided for future development.

1.2.48 **Person** means any natural person, corporation, Limited Liability Company, trust, joint venture, association, company, partnership, limited partnership, governmental authority or other entity.

1.2.49 **Phase** means the development of a portion of the Project.

1.2.50 **Planning Commission** means the City's Planning Commission.

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1.2.51 **Project** means the mixed-used Site Plan to be developed on the Property in accordance with this Agreement, including, without limitation, all associated public and private facilities, Intended Uses, Phases and all of the other aspects approved as part of this Agreement and the Site Plan.

1.2.52 **Property Owner or Property Owners** means ADG and any other successor-in-interest to ADG as an owner of the Property or any portion thereof, including but not limited to, Developers, Sub-developers and builders.

1.2.53 **Site Plan** means the Site Plan attached as **Exhibit B,** which Site Plan generally depicts the development plan for the Property.

1.2.54 **Sub-developer** means any Person that obtains title to a Parcel from a Developer for development.

1.2.55 **Subdivision** means the division of any portion of the Project into a subdivision pursuant to State Law and/or the Zoning Ordinance.

1.2.56 **System Improvement** means those elements of infrastructure that fall within the definition of System Improvements pursuant to Utah Code Ann. § 11-36a-102(21). System Improvements shall be defined as set out in the North Village Capital Facilities Plans and Master Plans.

1.2.57 **Zone** means the City's North Village Overlay District Zone.

1.2.58 **Zoning Ordinance** means the City's Land Use and Development Ordinance adopted pursuant to the Act that is in effect as of the Effective Date.

2. **Development of the Project.** Development of the Project shall be in accordance with this Agreement, the City's Vested Laws and the City's Future Laws as expressly set forth in this Agreement. The Parties acknowledge and agree that if there is a conflict with this Agreement and the City's Vested Laws or the City's Future Laws, then this Agreement shall supersede and take precedence.

3. **Vested Rights**.

3.1 **Vested Rights**. To the maximum extent permissible under the laws of Utah and the United States and at equity, the Parties intend that this Agreement grants to Developer all rights to develop the Project in fulfillment of this Agreement, the City's Vested Laws, and the zoning of the Property, except as specifically provided herein. The Parties specifically intend that this Agreement grant to Developer the "vested rights" identified herein as that term is construed in Utah's common law and pursuant to Utah Code Ann. § 10-9a-509 (2024).

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3.2 **Exceptions to Vested Rights**. The vested rights and the restrictions on the applicability of City's Future Laws as specified in Section 3.1 are subject to the following exceptions:

3.2.1 Master Developer Agreement. City's Future Laws or other regulations to which the Developer agrees in writing;

3.2.2 State and Federal Compliance. City's Future Laws or other regulations which are generally applicable to all properties in City and which are enacted or required to comply with State and Federal laws and regulations;

3.2.3 Codes. Any City's Future Laws that are updates or amendments to existing building, fire, plumbing, mechanical, electrical, dangerous buildings, drainage, or similar construction or safety related codes, such as the International Building Code, the APWA Specifications, AAHSTO Standards, the Manual of Uniform Traffic Control Devices or similar standards that are generated by a nationally or statewide recognized construction/safety organization, or by the State or Federal governments and are required to meet legitimate concerns related to public health, safety or welfare;

3.2.4 Taxes. Taxes, or modifications thereto, so long as such taxes are lawfully imposed and charged uniformly by the City to all properties, applications, persons and entities similarly situated;

3.2.5 Fees. Changes to the amounts of fees for the processing of Development Applications that are generally applicable to all development within the City (or a portion of the City as specified in the lawfully adopted fee schedule) and which are adopted pursuant to State law;

3.2.6 Impact Fees. Impact Fees or modifications thereto which are lawfully adopted, and imposed by the City pursuant to Utah Code Ann. Section 11-36a-101 (2024) et seq.;

3.2.7 Planning and Zoning Modifications. Changes by City to its planning principles and design standards such as architectural or design requirements, setbacks or similar items so long as such changes do not reduce the Density Entitlements, are generally applicable across the entire City, and do not materially and unreasonably increase the costs of development; or

3.2.8 Compelling, Countervailing Interest. Laws, rules or regulations that the City's land use authority finds, on the record, are necessary to avoid jeopardizing a compelling, countervailing public interest pursuant to Utah

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Code Ann. § 10-9a-509(1)(a)(ii)(A) (2024).

4. **Development of the Property in Compliance with the Site Plan.**

4.1 **Project Density.** Property Owners shall be entitled to and are vested with the right to develop and construct up to 34 hotel ERUs, up to 237 residential ERUs (split between for sale condos/townhomes and for rent multi-family), and up to 55 commercial ERUs on the Property consistent with the Intended Uses specified in the Zoning Ordinance and generally identified on the Site Plan (collectively, the "**Density Entitlements**"). Of the 237 residential ERU's, Property Owners shall ensure at least 33 of the residential ERUs are constructed as Affordable Housing as detailed in Section 3.6 of this Agreement. The Affordable Housing shall not count toward the overall density of the Project and it shall be eligible for a waiver of any otherwise applicable impact and permitting fees. If the Project requires, the City shall allow the Property Owners to transfer residential ERUs to commercial ERUs.

Commented [JC1]: Staff does not support waiving impact fees

4.2 **Intended Uses by Parcel and Densities.** Intended Uses and Densities currently contemplated for each Parcel are shown on the Site Plan for the Property, which plan has been prepared in compliance with the requirements of the Heber City ordinances set forth in Chapter 17.20 Plans of the City's Vested Laws. The general street configurations, building types and locations, and general layout shall comply with Site Plan. In the event of any conflict between this Agreement and the Site Plan and the City's ordinances, this Agreement and the Site Plan shall govern. This includes the City's acceptance of the following exceptions to NVOZ ordinances:

4.2.1 ADG shall be permitted to construct residential townhomes with up to seven (7) contiguous units.

4.2.2 At ADG's sole discretion, ADG shall construct enough parking stalls to support the Project.

4.3 **Accounting for Density for Parcels Sold to Sub-developers.** In connection with the sale of any Parcel sold by ADG to a Developer or Sub-developer, ADG shall provide the City with a written document specifying the identity of the Person to whom the Parcel is sold, the allocation, if any, of any Development ERUs associated with such Parcel, and the Open Space requirements and/or obligations associated with such Parcel. In connection with the recordation of a Final Plat or other document of conveyance for any Parcel sold to a Developer or Sub-developer, ADG shall provide the City Recorder with a development report (a "**Development Report**") identifying the Parcel(s) sold, the Residential Development ERU and/or other type of use or Development Unit allocated with the Parcel(s), the Development ERU remaining with ADG and any material effects of the sale on the Site Plan.

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4.3.1 Return of Unused Density. If a Developer or Sub-developer cannot or does not utilize all of the Development ERU allocated to it in connection with the transfer of one or more Parcels at the time the Developer or Sub-developer receives approval for the final Development Application for such transferred Parcel(s), the unused Development ERU shall automatically revert back to ADG. Such Development ERU shall be accounted for in any subsequent Development Report that ADG, or any of its successors in interest may be required to file with the City Recorder.

4.4 **Parcel Sales.** The City acknowledges that the precise location and details of the public improvements, lot layout and design and any other similar item regarding the development of a particular Parcel may not be known at the time of the sale of a Parcel.

4.5 **Affordable Housing Requirements.** Developer shall construct not less than 33 residential ERUs of Affordable Housing within the Development. Affordable Housing shall be sold or rented, as applicable, to individuals or families with an average income of Eighty percent (80%) or less of the average median income (AMI) in Wasatch County, Utah and the monthly cost shall not be more than Thirty percent (30%) of a household's income. Individual income limits for occupants of the Affordable Housing may be anywhere within the affordable housing AMI ranges, including up to 120% of AMI; however, the overall unit mix shall have an AMI averaged of no more than 80% AMI. ADG shall reasonably disperse the Affordable Housing throughout the Project. ADG shall also be entitled to allocate any such Affordable Housing requirements to Developers and/or Sub developers as ADG may elect. Developer and the City shall follow and comply with any deed restrictions as outlined in Chapter 18.102 of the City's Vested Laws. ADG may not pay a fee in lieu to fulfill the requirements of the Affordable Housing unless specifically agreed to by the City.

4.5.1 **Eligibility and Pricing**. A qualified third-party professional property management company shall manage the rental of all Affordable Housing. Eligibility for the affordable for-rent housing will be based on the AMI standards of for-rent affordable housing. ADG may enter into one or more master leases with local employers whereby local employers may lease a block of units to meet the housing needs of their qualifying employees.

4.5.2 **Geographic Waterfall**. In initially filling the Affordable Housing, and to the extent it is financially feasible for ADG to do so, ADG shall use reasonable and commercially feasible efforts to implement a geographic waterfall approach in selecting from affordable housing applicants, in the following priority: (1) qualifying applicants employed in the immediate Harvest Village community; (2) qualifying applicants employed within Heber City limits; and (3) qualifying applicants living in Wasatch County

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generally. There shall be no time limit required in selecting between orders of priority. Rather, when all qualifying applicants from a category have been exhausted, applicants from the next order of priority shall immediately be given priority. This waterfall provision shall only apply at the initial generation of any waitlist and selection for the Harvest Village Affordable Housing. From that point, all applications shall be made on a first-come-first-serve basis on the existing waitlist. If any of the geographic selection criteria are deemed to violate any federal or state rules and regulations, regarding the leasing practices of tax credit units, then the lease up priority waterfall will be allowed to shift to become in alignment with the governing rules.

4.6.3 Deed Restrictions Protecting the Affordability and Sustainability of the Affordable Homes.

a. Prior to transfer of ownership from Developer/ Owner of any Affordable Housing, Developer/ Owner shall record a **Deed Restrictions Covenant** (which shall be recorded with the Wasatch County Recorder) that in substantially the form attached hereto as Exhibit D, which shall serve as a Covenant Running With the Land to protect the affordability and sustainability of the Affordable Housing.

4.6.4 **Off-site Affordable Housing.** The Developer and City may enter into a separate agreement to allow some or all of the Affordable Housing to be constructed off site on property owned by the City, third parties or other entities.

4.6.5 **Timing.** At least 50% of the required Affordable Housing shall be constructed no later than the construction of the first 50% of the Market Rate units. The full Affordable Housing requirement shall be completed no later than construction of the first 90% of the Market Rate units.

4.6.6 **Impact and Permitting Fee Waiver.** The Developer shall receive a waiver of impact and permitting fees resulting from the development and construction of deed restricted affordable housing consistent with the requirements of this section.

Commented [JC2]: This is not supported by staff

5. **Zoning and Vested Rights.**

5.1 **Compliance with City Requirements and Standards.** Developer and Owners expressly acknowledge that nothing in this Agreement shall be deemed to relieve Developer or any Continuing or Successor Owner from its obligations to comply with all applicable requirements of the City necessary for approval and recordation of subdivision plats and site plans for the Project, which are in place at the time of a complete and approved application, including the payment of unpaid fees, the approval of subdivision plats and site plans, the approval of building

permits and construction permits, and compliance with all applicable ordinances, resolutions, policies and procedures of the City except as otherwise provided in this Agreement. Specifically, Developer and Owner acknowledge and agree that the Project must adhere to the City Updated North Village Storm Water and the North Village Street Master Plans.

5.2 **Current Zoning.** Concurrently with its execution of this Agreement, the City has annexed the Project to the City and zoned the Property under the North Village Overlay District Zone. The North Village Overlay District Zone (Section 18.21 of the Heber City Code) was approved by the Council on March 16, 2021.

5.3 **Term of Agreement.** The term of this Agreement shall commence on the Effective Date and continue either for a period of twenty-five (25) years, or the day upon which the final certificate of occupancy is approved and granted, whichever first occurs (the "**Term**"), unless it is terminated in accordance with Section 26. The Term may, at ADG's option, be extended for one (1) additional five (5) year period, provided ADG is not in material default of any provisions of this Agreement and after providing the City with written notice not less than six (6) months prior to the scheduled expiration date. Unless otherwise agreed between the Parties, ADG's vested rights and interests set forth in the Agreement shall expire at the end of the Term, or as the Term may be extended by mutual agreement of the Parties. Upon termination of this Agreement for any reason, the obligations of the Parties to each other created under this Agreement shall terminate, but none of the licenses, building permits, or certificates of occupancy granted prior to the expiration of the Term or termination of this Agreement shall be rescinded or limited in any manner, nor will any rights or obligations of Property Owners or the City intended to run with the land be terminated.

Commented [JC3]: Staff recommends a shorter term

5.4 **Parcel Sales.** The City acknowledges that the precise location and details of the public improvements, lot layout and design, and any other similar item regarding the development of a particular parcel may not be known at the time of the sale of a parcel. Developer may obtain approval of a subdivision that does not create any individually developable lots in the parcel without being subject to any requirement in the City's vested laws to complete or provide security for any public infrastructure at the time of such subdivision. The responsibility for completing and providing security for completion of any public infrastructure in the parcel shall be that of the developer or subdeveloper upon a subsequent re-subdivision of the parcel that creates individually developable lots, or any building permit application, whichever occurs first.

6. **Approval Processes for Development Applications.**

6.1 **Phasing.** The City acknowledges that ADG, Developers, and Sub-developers who have purchased Parcels of the Property may submit multiple

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applications from time to time to develop and/or construct portions of the Project in phases.

6.2 **UDOT Bypass.** The Utah Department of Transportation (UDOT) is currently in the process of developing a Heber Valley Corridor Environmental Impact Statement (EIS). As part of the EIS, UDOT has established five potential alternatives for a future bypass road. Two of the five alternatives established by UDOT, would potentially require UDOT to acquire some amount of the Property via eminent domain. Developer acknowledges the proposed bypass routes. Accordingly, Developer agrees to delay the receipt of any permits until April 1, 2025. To avoid doubt, the Parties acknowledge:

6.2.1 The City will still accept and process permit applications submitted by Developer on, or before April 1, 2025.

6.2.2 Developer's vested rights granted within this Agreement will not be impacted or in any way limited or impaired by any UDOT EIS report.

6.2.3 If UDOT selects a bypass route that impacts the Property the Property Owners will, in good faith, negotiate with UDOT regarding the condemnation of Property via eminent domain to facilitate the construction of the bypass road.

Commented [JC4]: Staff would like input from the City Council on this section

7. **Open Space, Improved Public Parks, and Trails Requirements**

7.1 **Development Timing: Open Space, Neighborhood Parks, and Trails**. For each Phase, neighborhood Parks and Trails shall be constructed and developed concurrently with the respective development within which said trails are located. Open space, parks and trails shall comply with the requirements of the NVOZ.

7.2 **Dedication of Open Space or Trails**. The Project contemplates the conservation of certain Open Space along with the dedication of Trails for public use. However, the City acknowledges that the Project is still in the planning stages and the exact location and description of the Open Space and Trails is not known at this time. ADG shall identify the location of all such Open Space and any Trails prior to recording of any plat for the Project. Dedication of Trails to the City shall be by plat recordation or by dedication by deed from the applicable Property Owner which shall be without any financial encumbrance or other encumbrance (including easements) which unreasonably interferes with the use of the property or Open Space and/or Trails. If trails are established solely for the internal use by Homeowners' Association, no public easement shall be granted by ADG or any other Property Owner. ADG or other applicable Property Owner shall in its discretion donate, dedicate, or otherwise conserve by way of conservation easement the Open Space and Trails contemplated under this Agreement at the time of plat recording.

Commented [JC5]: Staff would like to see specific public use trails for river access.

7.3 **Maintenance of Open Space/or Trails**. Except as otherwise specifically provided in this Agreement, upon acceptance by the City of Trails and after formal possession, the City shall be responsible for maintaining the Public Trail after final inspection and acceptance of the applicable improvements included therein, if any. If the Trails are dedicated to an entity other than the City, the dedication shall provide for the maintenance of the applicable Trails. Unless approved by, and dedicated to the City, any associated landscaping with such Trails shall be maintained by the respective property owner's association.

7.4 **Tax Benefits**. The City acknowledges that Property Owners may seek to qualify for certain tax benefits by reason of conveying, dedicating, gifting, granting or transferring Open Space and/or Trails to the City or to a charitable organization. Property Owners shall have the sole responsibility to claim and qualify for any tax benefits sought by Property Owners by reason of the foregoing. The City shall reasonably cooperate with Property Owners to the maximum extent allowable under law to allow Property Owners to take advantage of any such tax benefits.

7.5 **North Fields Preservation**. ADG, for itself and with respect to each subsequent Owner of the Property, agrees that upon the earlier of the sale or disposition of any residential unit or parcel housing a residential unit in the Project to an unaffiliated third party purchaser, the Owner of such residential unit shall pay to the City a one-time fee equal to $2,500 per ERU or such prorated amount on partial ERU attributable to such residential unit, as applicable (the "**North Fields Preservation Fee**"). ADG, for itself and with respect to each subsequent Owner of the Property, agrees that upon the issuance of a certificate of occupancy from the City for any commercial unit in the Project, the Owner of such commercial unit shall pay the North Fields Preservation Fee attributable to such commercial unit. The City shall utilize funds collected pursuant to the North Fields Preservation Fee solely for the purpose of preserving open space in the North Fields, including purchase of development rights. The City agrees that the North Fields Preservation Fee shall not be charged for Development Units constructed and operated as Affordable Housing.

8. **Public Improvements.**

8.1 **Utilities and On-Site Infrastructure.** ADG shall prepare an Infrastructure Plan (a/k/a Civil Drawings). The Parties acknowledge that there will be a Capital Facilities Plan for the Public Infrastructure approved and adopted by the City. The Property Owners shall have the responsibility and obligation, to construct and fund, or cause to be constructed and installed, in phases, the On-Site and Off-Site Infrastructure according to the Capital Facilities Plan that is necessary to support the development proposed within a specific Development Application. If any Property Owners elect to construct any On-Site Infrastructure or Off-Site Infrastructure required by the Capital Faculties Plan as a condition of approval of a

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Development Application, the Property Owner shall pay the cost thereof, subject to its reimbursement rights set forth in Section 7.2. The City shall comply with the statutory processes and all other applicable laws, rules, and regulations governing such work. Parties contemplate that each Phase will be served by sanitary sewer, culinary water and secondary irrigation systems provided by others.

8.2 **Excess Improvements/Upsizing.** Any infrastructure requested by the Developer or required by the Development shall be the responsibility of the Developer. The City and ADG acknowledge and agree that, as a part of the Capital Facilities Plan, certain portions of the infrastructure improvements shown on the Capital Facilities Plan (including both On and Off-site Infrastructure) may need to be enlarged, increased or otherwise "upsized" or upgraded (collectively, the "**Excess Improvements**") at the request of the City or other responsible Non-City Agency to serve, directly or indirectly, developments or future developments on land areas outside of the Project's boundaries or owned by parties other than Property Owners (collectively, the "**Benefitted Property**"). In recognition of the foregoing, and as a material inducement to the execution of this Agreement by ADG:

8.2.1 **Reimbursements**. The City agrees that it shall reimburse the applicable Property Owners for, or to the extent permissible under then-applicable law and as identified in the approved Capital Facilities Plan, costs incurred by the applicable Property Owners in the construction of Excess Improvements. Subject to the City's approval, Property Owners may, from time to time, oversize and/or install and construct portions of the infrastructure specified in the Infrastructure Plan that are System Improvements. The City shall ensure that Property Owners, as applicable, are reimbursed for actual costs from Impact Fees for oversizing. City shall also make available reimbursement/pioneering agreements to reimburse Property owners for installing Off-site System Improvements to serve their property as required by State law. Said pioneering agreements shall have a maximum duration of 25 years from the date of City's acceptance of associated improvements.

8.2.2 **Building Fee and Impact Fee Credits.** To the extent that any reimbursements paid to a Property Owner pursuant to the Reimbursement Procedures do not fully reimburse Property Owners for the amounts expended or costs incurred by the Property Owner in the construction of the Excess Improvements, City shall credit the applicable Property Owner up to the value of such deficiency against the Impact Fees applicable to the Project.

8.2.3 **Backbone Improvements.** Property Owners shall not be compensated for any "upsizing" of the Backbone Improvements that are

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not included as System Improvements in the approved Capital Facilities Plan.

7.3. **Variations between Infrastructure Plan, Capital Facilities Plan and any City's Future Capital Facilities Plan.** The Parties acknowledge that the City may adopt a new or amended Capital Facilities Plan. Additionally, the City may adopt new or amended Impact Fee ordinances as permitted by State Law for the collection of Impact Fees to pay for the construction of parts or all of the Backbone Improvements. The new Capital Facilities Plan shall in no way change any land uses or permitted uses of the Project; limit or control the rate, timing, phasing or sequencing of the approval, development or construction of all or any part of the Project in any manner so long as all applicable requirements of this Agreement and relevant sections of the Zoning Ordinance are satisfied. The Capital Facilities Plan and any future Capital Facilities Plan may differ from the Infrastructure Plan. As a part of the approval of a Development Application, the City may require Property Owners to build portions of the Backbone Improvements as shown on the Capital Facilities Plan (after it is adopted) instead of as shown on the Infrastructure Plan. Notwithstanding the above, nothing herein obligates the City to pay for the minimum backbone infrastructure needed for the Project.

7.6. **Modifications of Infrastructure Locations and the Boundaries of the Development Areas.** The City acknowledges that the exact locations of On and Off-Site Infrastructure and the boundaries of the Parcels are conceptual in nature and that additional surveying, engineering and similar studies are needed to finalize lot locations, road and utility alignments as well as road and utility sizing. Therefore, Parcel boundaries, road and utility alignments and, subject to the requirements of this Agreement, infrastructure sizing may be further modified and revised upon the City's approval of subsequent Development Applications in accordance with subsequent subarea infrastructure Site Plans that will be prepared by Developer for each Phase, and the City's Vested Laws, all subject to City final approval.

7.7 **Utilities Provided by the North Village Special Service District (NVSSD) and the Jordanelle Special Service District (JSSD).** The Parties acknowledge that the Project is currently served by the NVSSD and the JSSD for sewer and water, including secondary water. It is the intent by both Parties that the NVSSD and the JSSD shall continue to serve the project for these utilities through such service districts as long as they have capacity and are capable of serving. The Developer shall provide Commitment Letters from JSSD and NVSSD for the plat and/or phase being served before final approval for that particular plat is granted. Water for phases and all amenities shall be dedicated up front. If at any time it is deemed unfeasible to have JSSD or NVSSD serve the Project, the Developer shall secure other service providers. The City shall not be liable or responsible to provide such services However, if at any point City sewer and water, including secondary

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water is available in the area, the City agrees that Property Owner shall be able to obtain City services.

7.8. **Water Rights.** Developers shall be required to comply with the JSSD and NVSSD water policies generally applicable to all NVSSD customers.

7.9. **Streets.** Street frontage shall be improved in compliance with the City's Standards and Specifications and the NVOZ. In the event of any conflict between the City's Standards and Specifications and the NVOZ, Chapter 4 of the NVOZ shall govern.

7.10 **Off-Site Connectivity**. All trails, canals, ditches and roads shall connect with existing and internal trails, canals, ditches and roads located immediately adjacent to the Project such that there is consistent, smooth linkage and connectivity with any and all municipal systems.

7.11 **Public Infrastructure District.** City understands that ADG may request a Public Infrastructure District ("PID") pursuant to Utah Code § 17D-4-101 et seq. for the Property. The City shall review and reasonably consider ADG's petition to create the PID as an option to implement and facilitate the financing, construction, and operation of some or all of the Public Infrastructure for the Project.

Commented [JC6]: Staff would like input from Council on any conditions or use of funds related to a potential PID.

9. **CC&Rs.** As more fully set forth in the CC&Rs, Property Owners shall create and establish one or more Property Owners' Associations, which shall be responsible for the implementation and enforcement of the CC&Rs and the Design Guidelines, including but not limited to architectural reviews, water efficiency, wildfire education, open space, and private street and storm water system maintenance. The CC&R's shall contain a provision that regulates the nightly rental of any residential unit located on the Property. It is anticipated that nightly rental of residential units within the development shall be through the Property's hotel and within the hotel's brand standards. Recordation of the CC&Rs and creation of such Property Owners' Associations shall be required at the time of Final Plat review and approval. The City shall not be responsible for the implementation and/or enforcement of any such CC&Rs and Design Guidelines.

10. **Fees & Bonding.**

10.1 **General Requirement of Payment of Fees.** The City acknowledges its fees are subject to applicable State law. The City's impact fee requirements will be set forth in the City's approved Capital Facilities Plan for the Project area to be developed subsequent to this Agreement and incorporated herein.

10.2 **Bonding.** Property Owners, Developers or Sub-developers, as applicable, shall provide performance or warranty bonds, per the Heber City Code, for any on-site or off-site, publicly dedicated infrastructure or similar improvements for the Project (the "**Security**"), including, without limitation, roads, curb and gutter,

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storm drains, sewer, water, street lighting, signs, sidewalks, landscaping within public rights of way, public open space, public parks and trails.

11. **Construction Standards and Requirements.**

11.1 **Building Permits.** No buildings or other structures that require permits, shall be constructed within the Project without the Developer or Sub-developer first obtaining building permits in accordance with the City's Vested Laws. Developers and Sub-developers may apply for and obtain a grading permit following Preliminary Site Plan approval if the Developers or Sub-developers, as applicable, have submitted and received approval of a site-grading plan and SWPPP and subject to a Land Disturbance Permit issued pursuant to Section 12 below.

11.2 **City and Other Governmental Agency Permits.** Before commencement of construction or development of any buildings, structures or other work or improvements upon any portion of the Project, a Developer or Sub-developer shall, at their expense, secure, or cause to be secured, any and all permits which may be required by the City under the City's Vested Laws or any other governmental entity having jurisdiction over the work. The City shall reasonably cooperate with Developers Sub-developers in seeking to secure such permits from other governmental entities.

11.3 **Building Heights.** No structure in the Project shall exceed three stories along Highway 40 unless approved by the City Council. The maximum height of structures in the Project generally shall not exceed five stories or seventy (70) feet from final grade, excluding any underground parking. To qualify to construct to five stories the proposed structure must offset from Highway 40 by at least 150 feet to protect the views of surrounding properties and highway 40.

Commented [JC7]: Staff would like input from the City Council on building heights

12. **Grading, On-Site Processing of Natural Materials; Storm Water Management.**

12.1 **On-Site Processing of Natural Materials**. Property Owners may use the natural materials located on the Project, including, without limitation, sand, gravel and rock, and subject to City's Vested Laws, may process such natural materials into construction materials, including, without limitation, aggregate or topsoil, for use in the construction of On and Off-Site Infrastructure, commercial buildings, residential structures, or other buildings or improvements located in the Project and other locations outside the Project. Property Owner shall remediate any damage to trails, infrastructure, drainage or natural water features caused by such use. Notwithstanding this provision, this does not permit the construction of any subdivision or site-specific improvements prior to the requisite Final Plat review and approval for such improvements. Any such uses shall not be considered gravel pits.

12.2 **Storm Water Management**. The Parties acknowledge that the City has adopted a regional storm water master plan (as finalized and adopted by the City, the "**City Updated North Village Stormwater Master Plan**"). Concurrent with Provision 4.1 above, ADG shall be required to comply with the policies and standards of the North Village Stormwater Master Plan and associated Stormwater Design Manual, and all standards and requirements of any and all exhibits attached and incorporated into this Agreement, including but not limited to the Engineering Review Letter.

12.2.1 **Storm Water Retention/Detention from Off-Site Sources**. The Parties acknowledge that ADG will be providing On-Site Storm Water Retention/Detention on the Property for an adjacent development, which On-Site Storm Water Retention/Detention will be used to meet the adjacent development's storm water retention/detention requirements with the City.

12.2.2 As a condition of annexation, as outlined in the **City Updated North Village Storm water Master Plan**, Developer and Property Owner shall restore or replace the historic, natural drainage channels downstream of the existing irrigation canals, as outlined and contemplated in the above referenced Master Plan.

12.3. **Future Transportation Plan.** The Parties acknowledge that the City is presently contemplating a future Updated North Village Transportation Plan (as finalized and adopted by the City) (the "**City Updated North Village Transportation Plan**"). Concurrent with Provision 4.1 above, ADG shall be required to comply with all future policies and standards of the North Village Transportation Plan, yet to be adopted, and all standards and requirements of any and all exhibits attached and incorporated into this Agreement, including but not limited to the Engineering Review Letter. City agrees that it shall include the Project in any future plans for public transit connections associated with the North Village development area generally. As a NVOZ "Village Center", this Project is a priority for public mass transit optionality.

13. **Provision of Municipal Services.** Except for services provided by Districts, the City shall provide all City services to the Project that it provides from time to time to other residents and properties within the City including, but not limited to, development services and inspections, road and streetlight maintenance on public streets, police, and other emergency services. Such services shall be provided to the Project at the same levels of service, and on the same terms and rates as provided to other residents and properties in the City, unless such services are provided by other entities, or, because of the unique topography, location or other special or unique circumstances in the area covered by this Agreement, the cost to provide such services is higher than the like property rate throughout the City, and the City is able to demonstrate by empirical evidence, that such costs are a result of substantive additional or increased costs of municipal services, or financial burden

to the City, then such additional costs, including but not limited to those required for additional special fire or police services, may be passed on to the Property Owners by way of special municipal service zonal fees, or some other equivalent of such fees. The City may charge such increased rate fees to Property Owners with respect to the Project, Phase, or sections of a Phase proportionate to their share of the increased cost.

14. **Default.** Any failure by any party to perform any term or provision of this Agreement, which failure continues uncured for a period of ten (10) calendar days following the receipt of written notice of such failure from the other party shall constitute a **"Default"** under this Agreement.

14.1 **Notice**. Any notice of default (**"Default Notice"**) shall: (1) specify the claimed event of Default; (2) identify with particularity the provisions of any applicable law, rule, regulation or provision of this Agreement that is claimed to be in Default; (3) identify why the claimed Default is claimed to be material; and (4) specify the manner in which said failure may be satisfactorily cured.

14.2. **Cure.** Following receipt of a Default Notice, the defaulting Party shall have thirty (30) days in which to cure such claimed Default (the "**Cure Period**"). If more than 30 days is required for such cure, the defaulting Party shall have such additional time as is reasonably necessary under the circumstances in which to cure such Default so long as the defaulting Party commences such cure within the Cure Period and pursues such cure with reasonable diligence. City may, in City's sole discretion, withhold permits or approvals during any Cure Period.

14.3. **Developer's Remedies Upon Default**. Developer's sole and exclusive remedy under this Agreement shall be specific performance of the rights granted in this Agreement and City's obligations under this Agreement. IN NO EVENT SHALL HEBER CITY BE LIABLE TO DEVELOPER, ITS SUCCESSORS OR ASSIGNS, FOR ANY INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS, COSTS OF DELAY, OR LIABILITIES TO THIRD PARTIES

14.4 **City's Remedies Upon Default.** In addition to all other remedies available at law or in equity, City shall have the right to withhold all further reviews, approvals, licenses, building permits and other permits for development of the Property in the case of a Default by Developer, until the Default has been cured. City shall further have the right to draw on any security posted or provided in connection with the Property and relating to remedying of the particular Default.

15. **Notices.** All notices required or permitted under this Amended Development Agreement shall, in addition to any other means of transmission, be given in writing by certified mail and regular mail to the following address:

To the Property Owners:

Angstrom Development Group
Attn: Neil Goldman
1461 W Ursa Way
Heber City, UT 84032

To the City:

City of Heber
Attn: City Recorder
25 North Main Street
Heber, Utah 84032

15.1 **Effectiveness of Notice.** Except as otherwise provided in this Agreement, each Notice shall be effective and shall be deemed delivered on the earlier of:

15.1.1 **Physical Delivery.** Its actual receipt, if delivered personally, by courier service, or by facsimile, provided that a copy of the facsimile Notice is mailed or personally delivered as set forth herein on the same day and the sending Party has confirmation of transmission receipt of the Notice.

15.1.2 **Electronic Delivery.** Its actual receipt if delivered electronically by email, provided that a copy of the email is printed out in physical form and mailed or personally delivered as set forth herein on the same day and the sending Party has an electronic receipt of the delivery of the Notice.

15.1.3 **Mail Delivery.** On the day the Notice is postmarked for mailing, postage prepaid, by First Class or Certified United States Mail and actually deposited in or delivered to the United States Mail.

15.1.4 **Change of Notice Address.** Any Party may change its address for Notice under this Agreement by giving written Notice to the other Party in accordance with the provisions of this Section.

16. **Administrative Amendments.** 16.1 **Allowable Administrative Applications:** If allowed by Utah state law, the following modifications to this Agreement may be considered and approved by the Administrator.

16.1.1 **Infrastructure.** Modification of the location and/or sizing of the infrastructure for the Project that does not materially change the functionality of the infrastructure.

16.1.2 **Design Guidelines.** Modifications of the Design Guidelines.

16.1.3 **Development Unit Allocations.** Any allocation of Development Unit densities to be made by ADG or its successors and assigns.

16.1.4 **Minor Amendment.** Any other modifications deemed to be minor modifications by the Administrator.

16.2 **Application to Administrator.** Applications for Administrative Amendments shall be filed with the Administrator.

16.2.1 **Referral by Administrator.** If the Administrator determines for any reason that it would be inappropriate for the Administrator to determine any Administrative Amendment, the Administrator may require the Administrative Amendment to be processed as a Modification Application.

16.2.2 **Administrator's Review of Administrative Amendment.** The Administrator shall consider and decide upon the Administrative Amendment within a reasonable time not to exceed twenty-one (21) days from the date of submission of a complete application for an Administrative Amendment. Applicant must provide all documents in their completed form and pay any required fee in accordance with State law.

16.2.3 **Notification Regarding Application and Administrator's Approval.** Within ten (10) days of receiving a complete application for an Administrative Amendment, the Administrator shall notify the Council in writing. Unless the Administrator receives a notice pursuant to these Sections, requiring that the proposed Administrative Amendment be considered by the Council as a Modification Application, the Administrator shall review the application for an Administrative Amendment and approve or deny the same within the 45-day period set forth in Section 16.2.2. If the Administrator approves the Administrative Amendment, the Administrator shall notify the Council in writing of the proposed approval and such approval of the Administrative Amendment by the Administrator shall be conclusively deemed binding on the City. A notice of such approval shall be recorded against the applicable portion of the Property in the official City records.

16.2.4 **City Council Requirement of Modification Application Processing.** If the Council requires the proposed Administrative Amendment to be considered by the Council as a Modification Application, it shall, within two (2) business days after the first Council meeting following notification by the Administrator pursuant to Section 16.2.3 above, notify the Administrator that the Administrative Amendment must be processed as a Modification Application, and that the Council shall be the final determining body for any and all Modification Applications.

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16.2.5 **Appeal of Administrator's Denial of Administrative Amendment.** If the Administrator denies any proposed Administrative Amendment, the Applicant may process the proposed Administrative Amendment to the Council for final adjudication. The Council shall be the final determining body for any and all Modification Applications.

17. **Amendment.** Except for Administrative Amendments, any future amendments to this Agreement shall be considered as Modification Applications subject to the following processes:

17.1 **Submissions of Modification Applications.** Only the City or ADG or an assignee of ADG, approved in writing by the City, and one that succeeds to all of the rights and obligations of ADG under this Agreement may submit a Modification Application.

17.2 **Modification Application Contents.** Modification Applications shall include:

17.2.1 **Identification of Property.** Identify the property or properties affected by the Modification Application.

17.2.2 **Description of Effect.** Describe the effect of the Modification Application on the affected portions of the Project.

17.2.3 **Identification of Non-City Agencies.** Identify any Non-City agencies potentially having jurisdiction over the Modification Application.

17.2.4 **Map.** Provide a map of any affected property and all property within three hundred feet (300') showing the present or Intended Use and density of all such properties.

17.2.5 **Fee.** Modification Applications shall be accompanied by a fee in an amount reasonably estimated by the City to cover the costs of processing the Modification Application.

17.3. **Mutual Cooperation in Processing Modification Applications.** Both the City and Applicants shall cooperate reasonably in promptly and fairly processing Modification Applications.

17.4 **Planning Commission Review of Modification Applications.**

17.4.1 **Review.** All aspects of a Modification Application required by law to be reviewed by the Planning Commission shall be considered by the Planning Commission as soon as reasonably possible in accordance with the City's Vested Laws in light of the nature and complexity of the

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Modification Application. The City shall not be required to begin its review of any application unless and until the Applicant has submitted a complete application.

17.4.2 **Recommendation.** The Planning Commission's vote on the Modification Application, if required by law, shall be only a recommendation.

17.5 **Council Review of Modification Application.** After the Planning Commission, if required by law, has made or been deemed to have made its recommendation of the Modification Application, the Council shall consider the Modification Application.

17.6 **Council's Objections to Modification Applications.** If the Council objects to the Modification Application, the Council shall provide a written determination advising the Applicant of the reasons for denial, including specifying the reasons the City believes that the Modification Application is not consistent with the intent of this Agreement and/or the City's Vested Laws (or, only to the extent permissible under this Agreement, the City's Future Laws).

17.7 **Mediation of Council's Objections to Modification Applications.** If the Council and Property Owners are unable to resolve a dispute regarding a Modification Application, the Parties shall attempt within seven (7) days to appoint a mutually acceptable expert in land planning or such other discipline as may be appropriate. If the Parties are unable to agree on a single acceptable mediator, each shall, within seven (7) days, appoint its own individual appropriate expert. These two experts shall, between them, choose the single mediator. Property Owners shall pay the fees of the chosen mediator. The chosen mediator shall within fourteen (14) days, review the positions of the parties regarding the mediation issue and promptly attempt to mediate the issue between the parties.

17.8 **Amendments by ADG**. Notwithstanding any other provision in this Agreement to the contrary, ADG may propose and if approved by the City, execute any amendment or other modification of this Agreement or the Site Plan, without the consent of any Property Owner provided that such amendments, modifications, land uses and density allocations: (a) are consistent with the requirements of the City's Vested Laws; and (b) shall not alter the ERU density allocated to such Property Owner identified in a duly executed Development Report or assignment from ADG or otherwise affect any development rights associated with such Property Owner's Development Property set forth in a property specific development agreement with the City pertaining to such Development Property or a recorded Subdivision Plat specific to such Development Property and no other portion of the Project. For avoidance of doubt, neither the City nor ADG shall be required to obtain the consent of any Property Owner or any subsequent owner of

a portion of the Project in order to amend this Agreement pursuant to this Section 17.

18. **Estoppel Certificate**. Upon twenty (20) days prior written request by a Property Owner, the City will execute an estoppel certificate to any third party certifying that this Agreement has not been amended or altered (except as described in the certificate) and remains in full force and effect, and that such Property Owner is not in default of the terms of this Agreement (except as described in the certificate), and such other matters as may be reasonably requested by the Property Owner. The City acknowledges that a certificate hereunder may be relied upon by transferees and mortgagees.

19. **Entire Agreement.** Unless expressly provided herein, nothing in this Agreement shall be interpreted to conflict with, replace or waive any requirements, obligations, standards, duties, rights and enforcements afforded to the Parties, provided by and through the NVOZ Zone and Ordinance, and shall be interpreted and presumed by the Parties to be consistent, in harmony with, and incorporated herein with this Agreement. This Agreement and all Exhibits hereto, is the entire agreement between the Parties and may not be amended or modified except either as provided herein or by a subsequent written amendment signed by all Parties.

20. **Headings.** The captions used in this Agreement are for convenience only and are not intended to be substantive provisions or evidence of intent.

21. **No Third-Party Rights/No Joint Venture.** This Agreement does not create a joint venture relationship, partnership or agency relationship between the City and Property Owner. Further, the Parties do not intend this Agreement to create any third-party beneficiary rights. The Parties acknowledge that this Agreement refers to a private development and that the City has no interest in, responsibility for or duty to any third parties, including but not limited to JSSD or NVSSD, concerning any improvements to the Property unless the City has accepted the dedication of such improvements at which time all rights and responsibilities for the dedicated public improvement shall be the City's.

22. **Assignability.**

22.1 **Transfer to Developers and Sub-developers.** Notwithstanding anything to the contrary in this Agreement, ADG or its successor may sell any portion of the Property to one or more parties (each a "**Developer**" or "**Sub-developer**") at any time from and after the Effective Date. Each such transferred portion of the Property (each, a "**Development Property**") shall be developed by the Developer and/or Sub-developer in accordance with and subject to the terms hereof, including, without limitation, the following:

22.1.1 Developer or Sub-developer shall assume in writing for the benefit of the City and Property Owners all of the obligations and liabilities of Property Owners hereunder with respect to the Development Property.

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22.1.2 Developer and Sub-developer shall be afforded the rights of Property Owners granted hereunder in respect of the applicable Development Property only, including, without limitation, any rights of Property Owners in and the impact fee credits and/or reimbursements pertaining to such Development Property; provided, however, that unless ADG otherwise agrees in writing, Developer and/or Sub-developer shall not, in each case without the prior written consent of ADG, which may be granted or withheld in ADG's sole discretion:

(ii) submit any design guidelines to the City in respect to the Development Property and/or propose any amendments, modifications or other alterations to the Design Guidelines or any other design guidelines previously submitted by ADG Owners to the City in respect of the Development Property;

(iii) process any Final Plats, site plans or Development Applications for the Development Property and/or propose any amendments, modifications or other alterations of any approved Final Plats, site plans, and/or Development Applications procured by ADG for the Development Property; or

(iv) propose or oppose any amendments, modifications or other alterations to this Agreement.

22.1.3 The City agrees not to accept or process any of the foregoing matters from a Developer and/or Sub-developer unless the matter has been approved by the owner of the Development Property.

22.1.4 ADG shall not amend, modify or alter this Agreement or the Design Guidelines, or any Final Plats, Development Agreements and/or site plans approved for the Development Property in a manner that would materially interfere with Developer and/or Sub-developer's rights hereunder in respect of such Development Property, in each case without Developer and/or Sub-developer's prior written consent, which shall not be unreasonably withheld, conditioned or delayed.

23. **Effect of Breach.** Notwithstanding any other provision of this Agreement, no breach or default hereunder, by any Person succeeding to any portion of a Property Owner's obligations under this Agreement shall be attributed to Property Owner. Nor may a Property Owner's rights hereunder be canceled or diminished in any way by any breach or default by any such Person. No breach or default hereunder by a Property Owner shall be attributed to any Person succeeding to any portion of such Property Owner's rights or obligations under this Agreement, nor shall such transferee's rights be canceled or diminished in any way by any breach or default by such Property Owner. During the development of the Project, until final approval of and dedication to the City, Developer, Owners or Owners, and their assigns, transferees, and sub -

developers shall maintain the City as an additional named insured where reasonably possible, and without adding unreasonable cost, on any relevant or applicable liability insurance associated with the Project.

24. **Mortgagee Protection.** This Agreement shall be superior and senior to any lien placed upon the Property, or any portion thereof, including the lien of any Mortgage. Notwithstanding the foregoing, no breach of this Agreement shall defeat, render invalid, diminish or impair the lien of any such Mortgage made in good faith and for value, but all of the terms and conditions contained in this Agreement shall be binding upon and effective against any Person that acquires title to the Property, or any portion thereof, by foreclosure, trustee's sale, deed in lieu of foreclosure or otherwise. Notwithstanding the provisions of this Section, no Mortgagee shall have any obligation or duty under this Agreement to construct or complete the construction of improvements, or to guarantee such construction or completion. If the City receives a written notice from a Mortgagee requesting a copy of any notice of default given to a Property Owner or a Sub-developer and specifying the address for service thereof, then the City shall deliver to such Mortgagee, concurrently with service thereon to the Property Owner or a Sub-developer, as applicable, any notice of default or determination of noncompliance given to the Property Owner or such Sub-developer. Each Mortgagee shall have the right (but not the obligation) for a period of 90 days after the receipt of such notice from the City to cure or remedy the default claimed or the areas of noncompliance set forth in the City's notice. If such default or noncompliance is of a nature that it can only be cured or remedied by such a Mortgagee upon obtaining possession of the Property, then such Mortgagee may seek to obtain possession with diligence and continuity through a receiver or otherwise, and shall within 90 days after obtaining possession cure or remedy such default or noncompliance. If such default or noncompliance cannot with diligence be cured or remedied within either such 90 -day period, then such Mortgagee shall have such additional time as may be reasonably necessary to cure or remedy such default or noncompliance if such Mortgagee commences such cure or remedy during such 90 -day period and thereafter diligently pursues completion of such cure or remedy to the extent possible.

25. **Termination.**

25.1 This Agreement shall be terminated and of no further effect upon the occurrence of any of the following events:

(i) Expiration of the Term of this Agreement, unless extended as provided in Section 4.3;

(ii) Completion of the Project in accordance with the Development Entitlements and the City's issuance of all required occupancy permits and acceptance of all dedications and improvements required under the Development Entitlements and this Agreement;

(iii) Except for the payment of applicable fees and assessments, as for any specific residential dwelling or other structure within the

Project, this Agreement shall be terminated for such dwelling or other structure upon the issuance by City of a certificate of occupancy therefore;

(iv) Entry of final judgment (with no further right of appeal) or issuance of a final order (with no further right of appeal) directing City to set aside, withdraw, or abrogate City's approval of this Agreement,

(v) The effective date of a party's election to terminate the Agreement as specifically provided in this Agreement, or

(vi) in the event that Developer or the project are in default, or where material, contractual and developmental obligations are not met, or any deadlines and conditions of this Agreement, and relevant State and Federal Laws not fulfilled or are violated, after appropriate default notices and cure provisions of this Agreement.

25.2 **Notice of Termination.** City shall, upon written request made by Developer or Developer's successor(s) or assign(s) or any Owner to City's Planning Director, determine if the Agreement has terminated with respect to any parcel or lot at the Property, and shall not unreasonably withhold, condition, or delay termination as to that lot or parcel. Upon termination of this Agreement as to any lot or parcel, City shall upon Developer or Developer's successor(s) or assign(s) or any Owner's request record a notice of termination that the Agreement has been terminated. The aforesaid notice may specify, and Developer or Developer's successor(s) or assign(s) and Owners agree, that termination shall not affect in any manner any continuing obligation to pay any item specified by this Agreement. Termination of the Agreement as to any parcel or lot at the Property shall not affect Developer or Developer's successor(s) or assign(s) or any Owner's rights or obligations under any of the Development Entitlements and Subsequent Entitlements, including but not limited to, the General Plan, Specific Plan, Zoning Ordinance and all other City policies, regulations, and ordinances applicable to the Project at the Property. City may charge a reasonable fee for the preparation and recordation of any notice(s) of termination requested by Developer or Developer's successor(s) or assign(s) or any Owner.

25.3 **Partial Termination.** In the event of a termination of this Agreement with respect of any portion of the Property, any then-existing rights and obligations of the parties with respect to such portion of the Property shall automatically terminate and be of no further force, effect or operation. However, no termination of this Agreement with respect to any portion of the Property or the Project shall affect in any way the parties' rights and obligations hereunder with respect to any other portion of the Property or Project not subject to the termination. Subject to the provisions of the Default Paragraph 14, the expiration or termination of this

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Agreement shall not result in any expiration or termination of any Entitlement then in existence, without further action of City.

26. **Insurance and Indemnification.** Each Property Owner shall defend and hold the City and its officers, employees and consultants harmless for any and all claims, liability and damages arising out of the negligent actions or inactions of such Property Owner, its agents or employees pursuant to this Agreement, unless caused by the City's negligence or willful misconduct.

27. **Hazardous, Toxic, and/or Contaminating Materials.** Each Owner shall defend and hold the City and its elected and/or appointed boards, officers, agents, employees and consultants harmless from any and all claims, liabilities, costs, fines, penalties and/or charges of any kind whatsoever relating to the existence and removal, or caused by the introduction of hazardous, toxic and/or contaminating materials by such Property Owner on the Project or arising out of action or inactions of Developer, except where such claims, liability costs, fines, penalties and charges are due to the actions of the City or its elected or appointed boards, officers, agents, employees or consultants.

28. **Binding Effect.** If ADG or another Property Owner conveys any portion of the Property to one or more Sub-developers, the property so conveyed shall have the same rights, privileges, Intended Uses and configurations, and shall be subject to the same limitations and rights of the City, applicable to such property under this Agreement prior to such conveyance, without any required approval, review, or consent by the City, except as otherwise provided herein.

29. **No Waiver.** Failure of any Party hereto to exercise any right hereunder shall not be deemed a waiver of any such right and shall not affect the right of such Party to exercise at some future date any such right or any other right it may have.

30. **Severability.** If any provision of this Agreement is held by a court of competent jurisdiction to be invalid for any reason, the Parties consider and intend that this Agreement shall be deemed amended to the extent necessary to make it consistent with such decision and the balance of this Agreement shall remain in full force and affect.

31. **Force Majeure.** Any prevention, delay or stoppage of the performance of any obligation under this Agreement which is due to strikes, labor disputes, inability to obtain labor, materials, equipment or reasonable substitutes therefor; acts of nature, inclement weather, governmental restrictions, regulations or controls, judicial orders, enemy or hostile government actions, wars, civil commotions, fires or other casualties or other causes beyond the reasonable control of the Party obligated to perform hereunder shall excuse performance of the obligation by that Party for a period equal to the duration of that prevention, delay or stoppage.

32. **Time is of the Essence.** Time is of the essence to this Agreement and every right or responsibility shall be performed within the times specified.

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33. **Appointment of Representatives.** To further the commitment of the Parties to cooperate in the implementation of this Agreement, the City and ADG each shall designate and appoint a representative to act as a liaison between the City and its various departments and ADG. The initial representative for the City shall be City Manager, or his designee and the initial representatives for ADG shall be Spencer Wright. The Parties may change their designated representatives by Notice. The representatives shall be available at all reasonable times to discuss and review the performance of the Parties to this Agreement and the development of the Project.

34. **Mutual Drafting.** Each Party has participated in negotiating and drafting this Agreement and therefore no provision of this Agreement shall be construed for or against either Party based on which Party drafted any particular portion of this Agreement.

35. **Applicable Law.** This Agreement is entered into in the City in the State of Utah and shall be construed in accordance with the laws of the State of Utah irrespective of Utah's choice of law rules.

36. **Recordation and Running with the Land.** This Agreement shall be recorded in the office of the Wasatch County Recorder. Copies of the City's Vested Laws, **Exhibit D**, shall not be recorded. A secure copy of **Exhibit D** shall be filed with the City Recorder and each Party shall also have an identical copy. The provisions of this Agreement shall constitute real covenants, contract and property rights and equitable servitudes, which shall run with all of the land subject to this Agreement. The burdens and benefits hereof shall bind and inure to the benefit of each of the Parties hereto and all successors in interest to the Parties hereto. All successors in interest shall succeed only to those benefits and burdens of this Agreement which pertain to the portion of the Project Area to which the successor holds title. Such titleholder is not a third party beneficiary of the remainder of this Agreement or to zoning classifications and benefits relating to other portions of the Project Area. The obligations of Property Owners hereunder are enforceable by the City, and no other Person shall or may be a third party beneficiary of such obligations unless specifically provided herein.

37. **Authority.** The parties to this Agreement each warrant that they have all of the necessary authority to execute this Agreement. Specifically, on behalf of the City, the signature of the Mayor of the City is affixed to this Agreement lawfully binding the City pursuant to City Policy. This Agreement is approved as to form and is further certified as having been lawfully adopted by the City by the signature of the City Attorney.

38. **Covenant of Good Faith and Fair Dealing.** No party shall do anything which shall have the effect of injuring the right of another party to receive the benefits of this Agreement or do anything which would render its performance under his agreement impossible. Each party shall perform all acts contemplated by this Agreement to accomplish the objectives and purposes of this Agreement.

39. **Further Actions and Instruments.** The Parties agree to provide reasonable assistance to the other and cooperate to carry out the intent and fulfill the provisions of the

Agreement. Each of the parties shall promptly execute and deliver all documents and perform all acts as necessary to carry out the matters contemplated by this Agreement.

40. **Partial Invalidity Due to Governmental Action.** In the event state or federal laws or regulations enacted after the Execution Date of this Agreement, or formal action of any governmental jurisdiction other than City, prevent compliance with one or more provisions of this Agreement, or require changes in plans, maps or permits approved by City, the parties agree that the provisions of this Agreement shall be modified extended or suspended only to the minimum extent necessary to comply with such laws or regulations.

41. **Waiver of Rights Under Utah Code Section 10-9a-532**. The Parties have been represented by an attorney throughout this process. Developer acknowledges that this Agreement does not restrict any of Developer's rights under clearly established state law or that Developer has been advised in writing of any such rights being restricted. As an essential term of this Agreement, Developer hereby waives any claim that any term of this Agreement is void, illegal, invalid, or unenforceable as the result of any failure on the City's part to disclose in writing any rights being restricted by this Agreement.

[Signatures appear on the following two pages.]

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IN WITNESS WHEREOF, the Parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first herein above written.

PROPERTY OWNER

Angstrom Development Group
Utah limited liability company

By: _____
Name: Neil Goldman
Title: Manager

PROPERTY OWNER ACKNOWLEDGMENT

STATE OF UTAH)
:§.
CITY OF SALT LAKE)

On the _____ day of _____, 2023, personally appeared before me Spencer Wright, who being by me duly sworn, did say that he is the Manager of ADG HARVEST VILLAGE LLC, and that the foregoing instrument was duly authorized by the company at a lawful meeting held by authority of its operating agreement and signed in behalf of said company.

_____
NOTARY PUBLIC

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CITY

Heber City, a political subdivision of the State of Utah

By:_____
Name:
Its:_____

Approved as to form and legality:

City Attorney

By:_____

Attest:

City Recorder

By:_____

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EXHIBIT A

TO DEVELOPMENT AGREEMENT FOR HARVEST VILLAGE MIXED USE RESIDENTIAL DEVELOPMENT

Legal Description

BEGINNING AT A POINT LOCATED NORTH 00°30'00" WEST ALONG THE SECTION LINE 132.85 FEET AND WEST654.07 FEET FROM THE FOUND WASATCH COUNTY ALUMINUM CAP MARKING EH EAST 1/4 CORNER OF SECTION 19, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE NORTH 32°00'23" WEST1201.64 FEET TO THE HEBER CITY BOUNDARY AS SHOWN ON THE NORTH VILLAGE ANNEXATION PLAT; THENCE ALONG SAID HEBER CITY BOUNDARY AND THE NORTH VILLAGE ANNEXATION PLAT THE FOLLOWING 22 (TWENTY TWO) CALLS: 1. NORTH 42°02'19" EAST 253.96 FEET, 2. NORTH 89°51'56" EAST 493.00 FEET, 3. SOUTH 42°15'26"EAST 71.50 FEET, 4. ALONG THE ARC OF A 463.93 FOOT RADIUS CURVE TO THE LEFT 66.76 FEET (CHORD BEARS SOUTH 46°22'46" EAST 66.70 FEET), 5. SOUTH 50°30'06" EAST 70.63 FEET, 6. ALONG THE ARC OF A226.74 FOOT RADIUS CURVE TO THE RIGHT 97.65 FEET (CHORD BEARS SOUTH 38°09'48" EAST 96.90 FEET), 7.SOUTH 25°49'31" EAST 80.79 FEET, 8. ALONG THE ARC OF A 234.73 FOOT RADIUS CURVE TO THE LEFT 109.51FEET (CHORD BEARS SOUTH 39°1126" EAST 108.52 FEET), 9. SOUTH 52°33'20" EAST 46.06 FEET, 10. ALONG THEARC OF A 95.72 FOOT RADIUS CURVE TO THE RIGHT 27.55 FEET (CHORD BEARS SOUTH 44°18'34" EAST 27.46FEET), 11. SOUTH 36°03'49" EAST 17.11 FEET, 12. ALONG THE ARC OF A 84.88 FOOT RADIUS CURVE TO THELEFT 74.84 FEET (CHORD BEARS SOUTH 61°19'17" EAST 72.44 FEET), 13. SOUTH 86°34'45" EAST 55.03 FEET, 14.ALONG THE ARC OF A 70.00 FOOT RADIUS CURVE TO THE RIGHT 41.05 FEET (CHORD BEAR SOUTH 69°46'38"EAST 40.47 FEET), 15. NORTH 39°00'43" EAST 134.19 FEET, 16. SOUTH 00°28'04" EAST 215.78 FEET, 17. SOUTH22°22'27" WEST 568.62 FEET, 18. NORTH 50°59'17" WEST 229.73 FEET, 19. ALONG THE ARC OF A 138.00 FOOTRADIUS CURVE TO THE LEFT 109.61 FEET (CHORD BEARS SOUTH 61°40'19" WEST 106.75 FEET), 20. SOUTH39°00'43" WEST 127.93 FEET, 21. ALONG THE ARC OF A 248.00 FOOT RADIUS CURVE TO THE RIGHT 39.75 FEET(CHORD BEARS SOUTH 43°36'15" WEST 39.71 FEET), AND 22. SOUTH 48°11'46" WEST 70.25 FEET TO THE POINTOF BEGINNING. AREA = 20.35 ACRES

EXHIBIT B
TO DEVELOPMENT AGREEMENT FOR HARVEST VILLAGE MIXED USE RESIDENTIAL DEVELOPMENT
Site Plan



EXHIBIT C
TO DEVELOPMENT AGREEMENT FOR HARVEST VILLAGE MIXED USE RESIDENTIAL DEVELOPMENT
North Fields

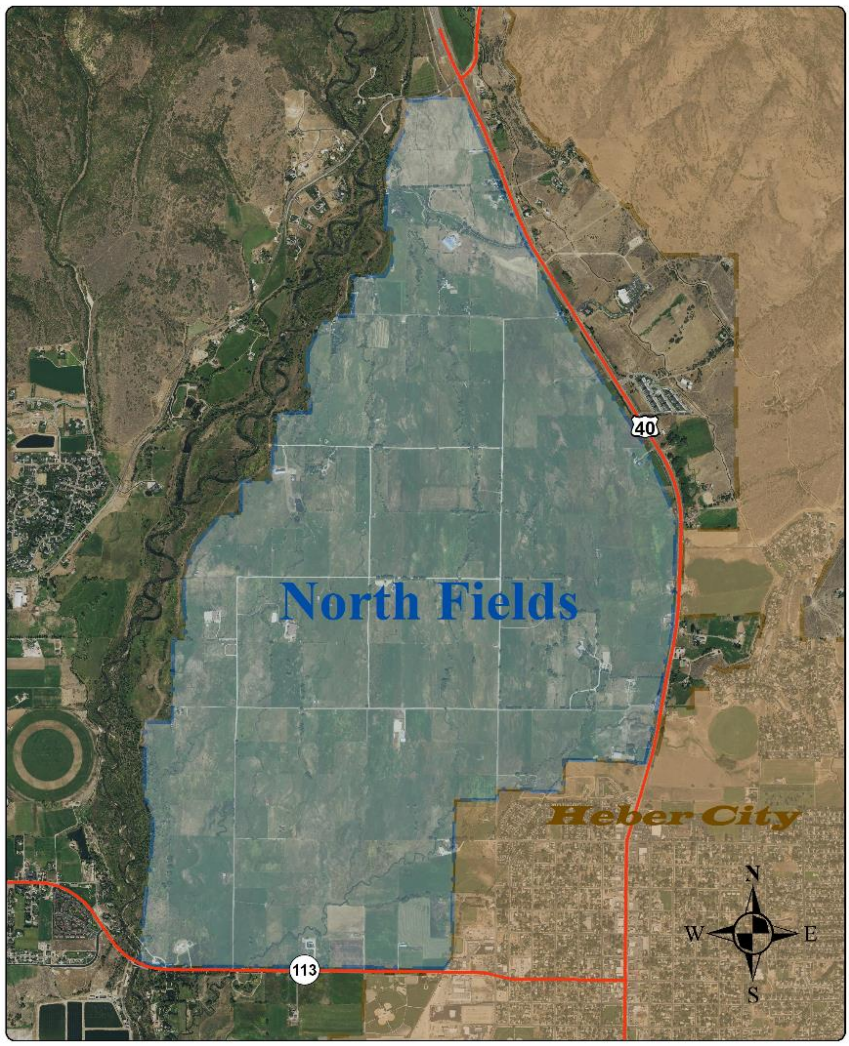


EXHIBIT D
TO DEVELOPMENT AGREEMENT FOR HARVEST VILLAGE MIXED USE RESIDENTIAL DEVELOPMENT

City's Vested Laws

For the City's Vested Laws, reference the North Village Overlay Zone (NVOZ), adopted by the City Council of Heber City, Utah, in Chapter 18.81 of Heber Municipal Code on March 16, 2021.

DRAFT

Heber City Council Staff Report

MEETING DATE:	9/17/2024
SUBJECT:	Potential Development Agreement for Karl Malone Polaris Addition
RESPONSIBLE:	Jamie Baron
DEPARTMENT:	Planning
STRATEGIC RELEVANCE:	Community and Economic Development

SUMMARY

Karl Malone Polaris, located at 900 S. Main, is proposing a Development Agreement to permit an addition to an existing sales office, which is considered a non-conforming building due to setback requirements. The Non-conforming code would require a whole new building to be built to meet the standards of the C-2 Code.

The Policy Questions are as follows:

1. Should the City enter into a Development Agreement to permit an addition to Karl Malone Polaris.

RECOMMENDATION

Staff is seeking council input on whether to begin the development agreement process.

BACKGROUND

The existing Karl Malone building was previously the site of Labrum Ford. When Labrum built the new Ford Dealership across the street, the property was purchased by Plaza Cycle, which was later sold to the Karl Malone group, KMAM. Since, KMAM has purchased the old equipment rental on 1000 South. The group is looking to consolidate and clean up the properties, with public frontale improvements, with an addition to the sales office. The Sales office is a non-conforming building due to setback a design. The main concern from KMAM is that of the setback as the current building is approximately 160 feet from Main Street. The code requires buildings to be setback a maximum of 40 feet from Main Street.



DISCUSSION

Setbacks
The C-2 Zone requires buildings to be setback a minimum of 20' and a maximum of 40', for projects located between 500 N and 1200 South. For projects outside of this area, the minimum setback is 30', with no maximum. The code does this as makes allowances for areas that are more auto oriented on the outside of town, while trying to encourage pedestrian scale on Main Street.

Non-Conforming Code
The non-conforming section of the code would require full compliance of the property with any modifications of square footage, which would require a new building along Main Street. KMAM is concerned with the site traffic circulation of their delivery trucks, as well as the cost of the new building vs the proposed addition.

A Development Agreement would be required to move forward with the proposed project.

Envision Heber 2050
The General Plan identifies this property as South Town, described as follows:

District Type	Uses	Density Range / Scale (gross acreage)	Key Characteristics
South Town Center (ST)	Primary: regional commercial/office uses, health services, light manufacturing and tech businesses Secondary: medium to high density residential	14 to 20 units per acre Up to 3 story heights	A mix of businesses catering to the regional larger scale needs of Wasatch County. Includes big box retail opportunities.

The Key Characteristics states "A mix of businesses catering to the regional larger scale... Includes big box retail". The power sports dealer, like auto dealers, are a regional business.

FISCAL IMPACT

N/A

CONCLUSION

Karl Malone Polaris is seeking a Development Agreement to permit the expansion of a non-conforming building. The proposed addition would not remedy the non-conformity as the setback would not be met. Staff and the applicant are seeking input from the Council on whether or not a development agreement process would be entertained.

ALTERNATIVES

Not An Action Item.

POTENTIAL MOTIONS

Not an Action Item.

ACCOUNTABILITY

Department: Planning
Staff member: Jamie Baron, Planning Manager

EXHIBITS

None

HEART OF THE WASATCH BACK

HEBER CITY

EST 1889

Heber City Brand Update

September, 2024

Today's Presentation Includes 3 Parts:

- Reinforce Heber City's Established Brand
- Further Definition of the Brand
- Present Naming of Downtown Elements

Slogan:

Heart of the Wasatch Back

The heart is associated with emotions and feelings like love, kindness, and compassion. It can also represent hope and joy—the feeling that comes when we remember our history and celebrate our future. The heart is the economic center, driving growth, vitality, and connection much like how a thriving downtown serves as the pulse of a city's prosperity and community life.



The **Wasatch Back** defines our immediate sphere of influence, our proximity to our neighbors on the west-side or back of the Wasatch Mountains, and what sets us apart.

Identity: Heber City is the Economic Center of the Heber Valley and the county seat of Wasatch County.



Mission Statement:

As stewards of Heber City, we are dedicated to being **fiscally responsible** and providing **exceptional services** that protects the quality of life for our community while honoring the past and planning for the future.

What is the future of Heber City's Brand?

Looking Forward:

The City Council is furthering and solidifying this brand by creating policies guided by the formally adopted General Plan and Brand Guidelines documents.

The current directives under discussion by the City Council relevant to this group and brand implementation involve:

- Downtown Architectural Guidelines
- Infill in the Central Neighborhoods
- Incentivizing the Preservation of Buildings with “Historic Charm”

Refining Our Identity Statement

- Old and New
- **History** is an identity
- **Geography** is an identity
- **Culture** is an identity. May include lifestyles, attitudes, language, ideas, beliefs, customs, codes, institutions, tools, techniques, works of art, rituals, and ceremonies.

Let's discuss Heber City's culture.

The Make-Up of Our Community



Heber City is a blend of long-term, generational residents and newer arrivals.

The generational residents, descendants of the original pioneer settlers who came to this mountain valley nearly 150 years ago, have shaped the city's culture. Their pioneer spirit—marked by grit, integrity, hard work, and a straightforward approach to life—continues to influence Heber City today.

Newer residents often move to Heber City for its natural beauty and lifestyle. They value the city's proximity to outdoor recreation and natural beauty, and appreciate the "micropolitan" life that offers conveniences unlike more rural areas.

Heber City's culture is a mix of its historical roots and its forward-thinking values, guiding the community as it looks to the future.

Furthering Our Identity

Heber City is The Heart of the Wasatch Back, the Economic Center of the Heber Valley and the county seat of Wasatch County.

Our City services, amenities, and events make Heber City a remarkable place to live, and we are the most genuine place to live and do business on the Wasatch Back.

As a late-blooming city we have a unique opportunity. A narrow Historic Main Street does not confine us. Embracing the contrast of ‘old and new’ together, will provide Heber City a unique chance to differentiate our identity from nearly every other, built-out city in the mountain west.

Questions to consider:

What does it mean to be the Economic Center of the Heber Valley?

How does that relate to our sphere of influence?

The Evolution of Heber City's Brand

Envision Heber 2050
2019

Envision Central Heber
2021

Heber City Rebrand
2023

Clarify Architectural Standards for Downtown
2024







Architectural Standards



Old Firehouse Building



Timberidge Custom Homes



Olde Town Center



100 South Block of Main Street



100 South Block of Main Street



100 South Block of Main Street



300 South Block of Main Street



500 South Block of Main Street



500 South Block of Main Street



Summit Sotheby’s Building – 300 North Block of Main Street





Old Town Residential Properties





Old Town Residential Properties





Old Town Residential Properties

Brick Buildings

Bricks are rich in symbolism and can represent various concepts.



1. Foundation and Stability:

Bricks are often seen as the building blocks of structures, symbolizing a strong foundation, stability, and durability. They suggest that something is built to last and can endure challenges over time.



2. Hard Work and Effort:

Bricks represent manual labor, effort, and the process of building something brick by brick. This can symbolize the value of hard work, persistence, and dedication in achieving goals.



3. Community and Collaboration:

In construction, bricks are often laid together to create a cohesive structure. This can symbolize teamwork, unity, and collaboration, highlighting how small, individual efforts combine to create something bigger.



4. Protection and Security:

Brick walls are often associated with strength and protection. They symbolize security, safety, and a barrier against external threats.



5. Transformation and Change: As bricks are part of the process of construction and building, they can also symbolize change, growth, and transformation—moving from a single brick to a complete structure.



6. Economic Development and Business Practices:

Bricks are inherently built on right angles and straight lines. These attributes illustrate exactness, integrity, and strength – visually reinforcing that this is an excellent place to do business.



8. History and Tradition:

Bricks have been used in construction for thousands of years, often symbolizing heritage, tradition, and the preservation of culture and history.



9. Brick is a Natural Material:

Brick is made of natural materials. Elements of nature are part of our identity.

Discussion

- Downtown Architectural Guidelines
- Infill in the Central Neighborhoods
- Incentivizing the Preservation of Buildings with “Historic Charm”

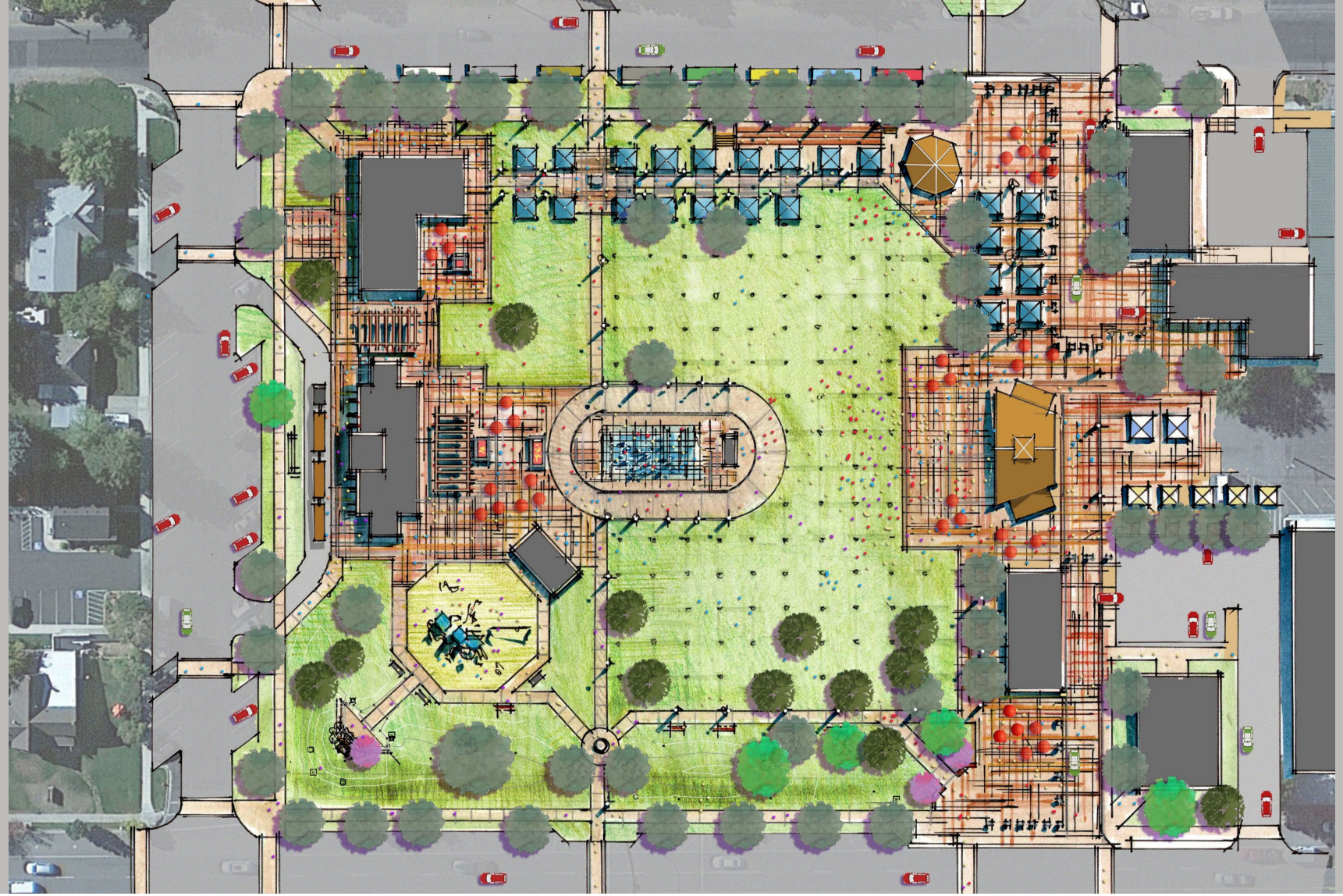
Naming of Downtown Park Elements



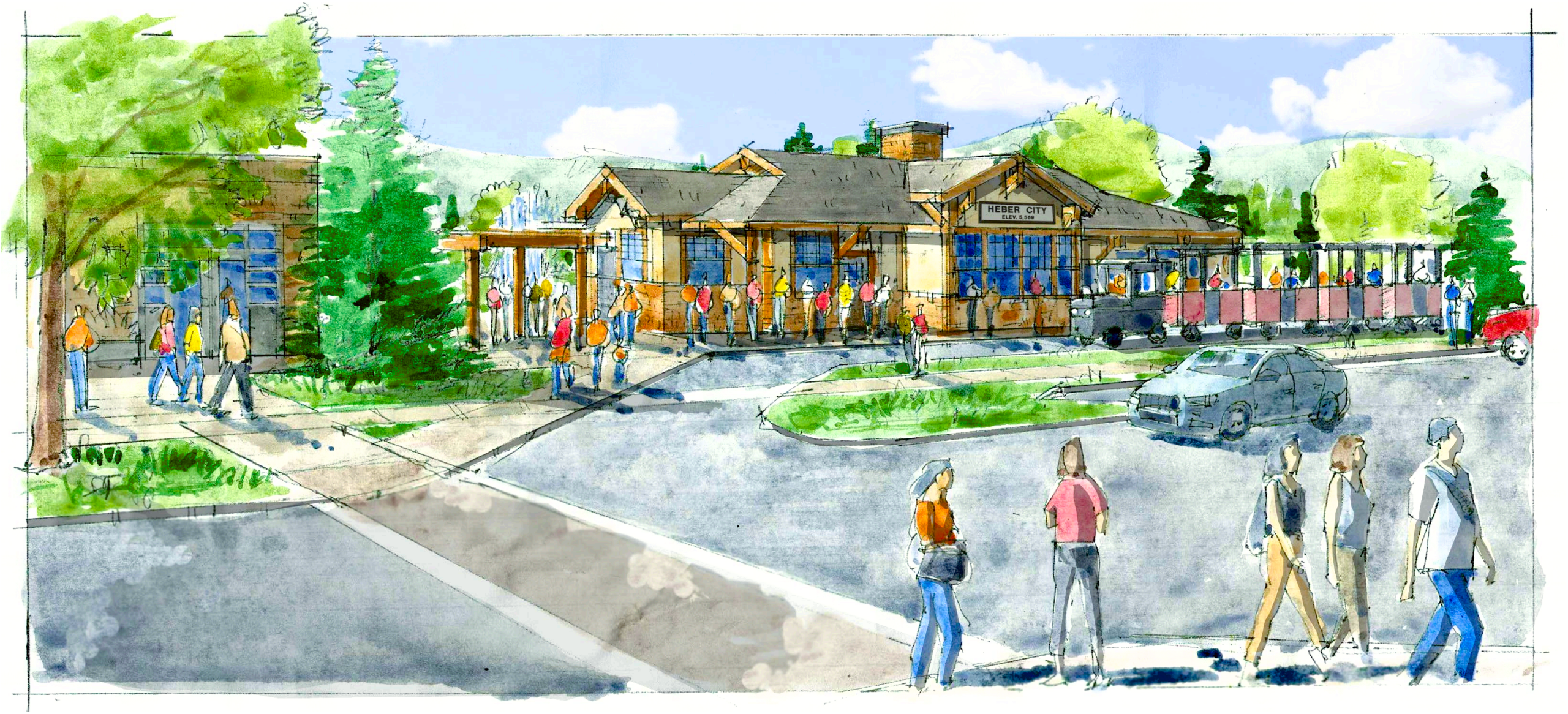
C Street

200 South Main

Heber C. Kimball – Heber City's namesake



C Street Plaza | currently Heber City Park



The Depot | railroad pickup/drop off

HEART OF THE WASATCH BACK

HEBER CITY

EST 1889

Thank you

Heber City Council



Dear Mayor Franco,

I would like to nominate Missy Luke and Candace Bufton for Mayor's Awards. They demonstrated exemplary customer service and de-escalation skills with a hostile individual at the Public Works office. Both Missy and Candace consistently exhibit an outstanding ability to handle challenging customer interactions with grace and professionalism. Their calm demeanor and composed approach add to their natural abilities to de-escalate tense situations. Miss and Candace support the entire Public Works team contributing to a positive work environment. Their dedication to continuous improvement and willingness to go above and beyond make them an invaluable asset to Heber City.

Sincerely,

Cherie Ashe
Human Resources Manager

HEBER CITY CORPORATION
75 North Main Street
Heber City, UT 84032
Heber City Council Meeting
August 20, 2024

DRAFT Minutes

4:00 p.m. Work Meeting
6:00 p.m. Regular Meeting

I. WORK MEETING - 4:00 P.M.

Mayor Franco called the meeting to order at 4:02 p.m. and welcomed everyone present.

City Council Present:	Mayor Heidi Franco Council Member Yvonne Barney - arrived 4:04 p.m. Council Member Scott Phillips - arrived remotely at 6:00 p.m. Council Member Aaron Cheatwood Council Member Mike Johnston Council Member Sid Ostergaard
Staff Present:	City Manager Matt Brower Planning Manager Jamie Baron City Engineer Russ Funk Finance Director Sara Jane Nagel Parks and Cemetery Director Mark Rounds City Attorney Jeremy Cook City Recorder Trina Cooke Deputy Chief of Police Branden Russell Police Lieutenant Blaine Rigby Police Sargeant Heath Harvey

Staff Participating Remotely: Assistant City Manager Mark Smedley, City Engineer Russ Funk, Public Works Director Matthew Kennard, Deputy Recorder Robin Bond, Engineer Ross Hansen, Engineering Administrative Assistant Desiree Muheim, Human Resources Director Cherie Ashe, and IT Director Anthon Beales.

Also Present: Larson Quick - Rage Development, Richard Breitenbeker, Linda L Middleton, Grace Doerfler, Carole Gallagher, Chuck Kelly, Annie McMullen, Jane Marsh, and others who did not sign in or whose handwriting was illegible.

Also Attending Remotely: (names are shown as signed-in online) Jami Hewlett, Andrea, Bingo, Dustin Grabau, Grace Doerfler KPCW, Guest, Kelli, Nick Lopez, and Shorty5.

1. Potential Telecommunications Code Amendment (Jamie Baron, Planning Manager) - *30 min*

Planning Manager Jamie Baron explained the request from the applicant to install a cell tower that exceeded the maximum height limit permitted by City Code. Larsen Quick, representing Rage Development, explained that a higher cell tower would offer a broader service radius which provided better range for cellular phone users. Consensus of Council majority was for Staff to proceed with negotiations for a text amendment to allow increased height for cell phone towers and include stealth requirements to camouflage the towers.

2. Animal Control Memorandum of Understanding (MOU) (Parker Sever, Chief of Police) - *20 min*

Chief of Police Parker Sever reviewed the Animal Control MOU (Memorandum of Understanding) as included in the attached Staff Report. The MOU was an agreement between Heber City, Midway, Wasatch County, and Hideout for the provision of animal control services. He clarified that, although there was an Animal Control Board, the Heber City Council was the decision-making entity. The MOU was on the Consent Agenda later in the meeting for approval.

3. Public Safety Report (Parker Sever, Chief of Police) - *20 min*

Chief Sever itemized a list of Police Response Reports from the month of July. The Police Department had a new motorcycle and would be deploying a motor officer that the Chief felt would improve response time for traffic incidents. Crimes of opportunity had gone up. There would be eight license plate cameras installed on loan from UDOT (Utah Department of Transportation) for a trial period. The system could assist with stolen vehicle recovery, Amber alerts and Silver alerts, and utilized a country-wide database. He further described the implementation of technologies to improve police response times and services. Customer surveys had been pushed out by the department and received five-star ratings on 98% of the responses returned.

Midway City Council had voted to contract with the Heber City Police Department for day-time police services between the hours of 7:00 a.m. and 7:00 p.m. daily.

4. Crossing Guard Update (Parker Sever, Chief of Police) - *15 min*

Chief Sever shared a PowerPoint presentation as included in the meeting materials. He reviewed what warranted a crossing guard as well as the process and requirements to install a crosswalk. He provided the number of crossing guards employed by the Police Department as well as where they were located. City Engineer Russ Funk explained that a crossing guard was not warranted at a four-way stop. Mayor Franco asked that striping be added for all four sides of the intersection. Chief Sever noted that the City had provided safe-walk-routes, but that the safe-walk-routes were not necessarily the most convenient walk-routes. Mr. Funk pointed out that the law required drivers to treat all intersections as cross-walks.

Council further discussed safety measures for students walking to and from school.

5. Contract Award for Construction of the Cemetery Section B Landscape Project (Russ Funk, City Engineer) - *20 min*

Mr. Funk described the intent of the discussion was to seek Council approval for the landscaping project contract for the Cemetery Section B of Heritage Farms Parkway. The item was also placed on the Consent Agenda for approval. He reviewed the three bids received as included in the attached Staff Report. All bids were more than was budgeted for the project. Mr. Funk reviewed budgeting options and stated that a budget amendment would be needed for project completion.

With the completion of the Work Meeting agenda discussions ending early, the meeting was moved forward to the Communication Items found at the end of the agenda.

II. BREAK - 15 MIN

III. REGULAR MEETING - 6:00 P.M.

1. Call to Order

Mayor Heidi Franco called the meeting to order at 6:03 p.m. and welcomed everyone present.

2. Pledge of Allegiance (Scott Phillips, Council Member)

Council Member Sid Ostergaard led the recitation of the Pledge of Allegiance.

3. Prayer/Thought by Invitation (Yvonne Barney, Council Member)

Council Member Yvonne Barney shared a prayer.

IV. CONFLICT OF INTEREST DISCLOSURE:

There were no conflicts of interest disclosed.

V. AWARDS, RECOGNITION, and PROCLAMATIONS:

1. Swearing in of Three New Police Officer Positions

Chief of Police Parker Sever shared the following promotions for three officers: Branden Russell was being promoted to Deputy Chief of Police; Blaine Rigby was being promoted to Lieutenant; and Heath Harvey was being promoted to Sargeant. Chief Sever shared the leadership qualities of each officer and introduced each of them and their families.

City Recorder Trina Cooke swore all three officers into their new positions. Their new badges were pinned to their uniforms by their wives. Mayor Franco thanked each of the officers for their service.

VI. CONSENT AGENDA:

Motion: Council Member Cheatwood moved to approve the Consent Agenda including the budget amendment and instruct Staff to return to Council with the budget amendment **Second:** Council Member Ostergaard made the second. **Voting Yes:** Council Members Phillips, Ostergaard, Cheatwood, Barney, and Johnston. **Voting No:** None. The **Motion Passed Unanimously, 5-0.**

1. Animal Control Memorandum of Understanding (MOU) (Parker Sever, Chief of Police)

2. Contract Award for Construction of the Cemetery Section B Landscape Project (Russ Funk, City Engineer)

VII. PUBLIC COMMENTS: (3 min per person/20 min max)

No one from the public came forward to comment.

VIII. ACTION ITEMS: (Council can discuss; table; continue; or approve items)

1. Wasatch County Annexation Petition (Jamie Baron, Planning Manager) - *20 min*

City Planner Jacob Roberts presented the information regarding the proposed annexation as included in the attached Staff Report. He summarized the annexation process. Richard Breitenbeker from the County Manager's office was present to answer questions. The County intended to build a new administration building on the proposed annexation land.

Council Member Johnston asked whether the County intended to work with UDOT (Utah Department of Transportation) to preserve the bypass corridor. Mr. Breitenbeker confirmed and stated the property had been purchased with Bypass Corridor Preservation funds. City Engineer Russ Funk shared that the County had worked with the City's Engineering Department for a street widening project, installing curb and gutter on the adjoining Southfield road. City Manager Matt Brower asked whether the County intended to allow the City to purchase the current building and land where their offices were currently located. Mr. Breitenbeker stated that would be a legislative decision but that he believed that was the County Council's intent.

Motion: Council Member Mike Johnston moved to accept the Wasatch County Annexation Petition for further study. **Second:** Council Member Cheatwood made the second. **Voting Yes:** Council Members Ostergaard, Cheatwood, Barney, and Johnston. **Voting No:** None. Council Member Phillips was absent. The **Motion Passed 4-0.**

IX. COMMUNICATION:

City Manager Matt Brower shared the following communication items:

- He provided an update on the Cemetery Admin Building Project progress. There had been trouble finding a desirable brick color that was still being manufactured. The color selection had been narrowed to three options. He asked the Council Members to stop by the Cemetery property to decide which of the three selections would be preferred. He shared the plan for Cemetery niche presales.
- He shared the progress of the Wasatch Vista Park construction and amenities. He had received requests from residents for additional amenities such as swings and more shade.
- Mr. Brower shared that the Engineering Department had secured a 25-year term water bond, at 0% interest, for approximately $3.6 million. Staff continued to work with the CIB (Community Impact Board) and the Sewer Board for bonding of the sewer and irrigation portions of the project.
- He had met with the Sitla/Christensen/Thompson group to further the conversation with Council regarding what the Council would like to see in their plans to consider amending the Annexation Policy Plan to include their joint lands. Mayor Franco shared that the development would need to submit a petition for services with HVSSD (Heber Valley Special Service District).
- The water feature had been incredibly successful and Mr. Brower wished to notify the Council that it would be closed on September 3rd for the season. Parks and Cemetery Director Mark Rounds agreed to look into the possible need to cover the pad to protect it from the winter elements.
- Estimated completion date for the bandshell was October 1st, 2024. Council discussed the tree lighting and the possibility of adding an ice-rink at the Main Street Park

Mayor Franco reminded everyone of the Utah League of Cities and Towns (ULCT) 2024 Annual Convention on Wednesday and Thursday, September 4 and 5, 2024. Dr. Courtney Flint would be attending the September 3rd, 2024, Council Meeting to share the results of the Heber City Wellbeing Study.

City Manager Matt Brower felt it was important for the public to understand the construction of section B of the bypass Heritage Farms Parkway. The road had needed to be repaved due to its failure to pass a compaction test. City Engineer Russ Funk further described the roadblocks encountered by the City with the asphalt being laid. The City had asked the contractor that had laid the asphalt to replace the section that was not meeting the standard. Council discussion continued regarding the newly constructed roundabouts and potential art installations.

Council Member Barney asked the status of the utility box art project. Mr. Brower explained the ongoing process.

X. ADJOURNMENT: 6:50 P.M.

Motion: Council Member Barney moved to adjourn. **Second:** Council Member Ostergaard made the second. The meeting was adjourned at 6:42 p.m.

_____

Trina Cooke, City Recorder

HEBER CITY CORPORATION
75 North Main Street
Heber City, UT 84032
Heber City Council Meeting
September 3, 2024

DRAFT Minutes

3:45 p.m. Work Meeting
6:00 p.m. Regular Meeting

I. WORK MEETING - 3:45 P.M.

Mayor Heidi Franco called the meeting to order at 3:54 p.m. and welcomed everyone present.

City Council Present:	Mayor Heidi Franco Council Member Yvonne Barney - online 4:09 p.m.; in person 4:35 p.m. Council Member Aaron Cheatwood Council Member Mike Johnston Council Member Sid Ostergaard Council Member Scott Phillips
Staff Present:	City Manager Matt Brower Community Development Director Tony Kohler Planning Manager Jamie Baron City Engineer Russ Funk City Attorney Jeremy Cook City Recorder Trina Cooke Deputy City Recorder Robin Bond IT Specialist Anthon Beales Chief of Police Parker Sever

Staff Participating Remotely: Assistant City Manager J. Mark Smedley, Human Resources Manager Cherie Ashe, Public Works Director Matthew Kennard, City Engineer Russ Funk, IT Specialist Anthon Beales, Finance Manager Sara Nagel, Planning Manager Jamie Baron, City Treasurer Mindy Kohler, Deputy City Recorder Robin Bond, Engineer Ross Hansen, Engineer Kyle Turnbow, and Accounting Technician Wendy Anderson.

Also Present: Mark Wilson, Marcus Keller, Cindy Delano, Lane Lythgoe, Mark Nelson, Tori Broughton, Scot Lythgoe, Wayne Bond, Alex Norr, Justin Keyes, Neil Goldberg, Andrew Dorobek, Rich Wolper, and others who did not sign in or whose handwriting was illegible.

Also Attending Remotely: (names are shown as signed-in online) Richard Breitenbeker, B, Bingo, Grace Doerfler KPCW, Jami Hewlett, Marian Crosby, RSkousen, S, Shorty5, and Trever Kreutzer - Crews & Associates.

1. Heber City Wellbeing Survey Results Presented by Dr. Courtney Flint, USU (Heidi Franco, Mayor) - *45 min*

Dr. Courtney Flint presented the findings in the Wellbeing Study for Heber City. The study had been conducted at no cost to Heber City through social media, the City website, and email. She reviewed the demographics of the survey respondents as well as the underrepresented groups who were less likely to respond to surveys. The results of the survey are included in the meeting materials and the meeting recording. Council provided feedback, asked questions, and further discussed the survey results.

2. Crossings-Resort Annexation (Tony Kohler, Community Development Director) - *60 min*

Community Development Director Tony Kohler provided an overview of the proposed Crossings Resort Annexation. City Attorney Jeremy Cook reviewed concerns with the potential bypass route through the proposed annexation land. He read the City's proposed language for the development agreement. Development representative Neil Goldman shared details of a conversation with UDOT (Utah Department of Transportation). The developers hoped to not be held up for an indefinite amount of time because of the intended bypass. Mr. Goldman felt the language proposed by the City was not a fair option for the developer. Mr. Cook noted it would be unlikely that UDOT would impose eminent domain on newly built townhomes for a bypass if the City were to allow development before the bypass route was finalized. City Engineer Russ Funk recognized the decision was legislative for the Council to make, but felt it was important to note what an beneficial impact the potential bypass would have for the community. He did not want the City to do anything to hinder UDOT's progress towards the construction of the bypass. He felt the County's conservation easement had placed a roadblock for UDOT. Landowner Alex Norr pointed out that if Heber did not approve the annexation, the City would lose the opportunity to have a seat at the table to determine what was developed. Council discussion proceeded regarding the language in the proposed development agreement and concern with making any decision without the results of UDOT's EIS (Environmental Impact Statement) study.

Mark Wilson, with the North Fields Irrigation Board, shared that the Board had not been contacted with regard to any UDOT or North Fields development projects. The roads located in the North Fields were historical livestock roads. He indicated his willingness and availability to discuss concerns and relevant issues at any time. He stated that he understood the need for a bypass based upon the traffic pressure on Heber City's Main Street.

Justin Keyes, representing the development, also served on the Wasatch County Open Lands Board (WOLB). He provided background from WOLB meetings with UDOT regarding the conservation easement established in the North Fields by Wasatch County. He claimed that UDOT had assured WOLB that the conservation easement would not postpone UDOT's EIS conclusion. He felt the City should proceed with the annexation negotiations.

Consensus of Council majority was to hold off making any decision without the results of UDOT's EIS (Environmental Impact Statement) study. City Manager Matt Brower agreed to arrange a meeting between the City and UDOT. The development representatives agreed to return to a future meeting with the City Council to continue the conversation.

II. BREAK - 15 MIN

III. REGULAR MEETING - 6:00 P.M.

1. Call to Order

Mayor Heidi Franco called the meeting to order at 6:13 p.m. and welcomed everyone present.

2. Pledge of Allegiance (Heidi Franco, Mayor)

Mayor Franco led the recitation of the Pledge of Allegiance.

3. Prayer/Thought by Invitation (Sid Ostergaard, Council Member)

Council Member Ostergaard shared an experience that provided perspective for the purpose of serving on the City Council. It was to serve Heber City and to make the decisions to benefit the City and community within.

IV. AWARDS, RECOGNITION, and PROCLAMATIONS:

1. Mayor's Awards

Mayor Franco read the nomination for Robin Bond to receive the Mayor's Award as included in the meeting materials, citing examples of her exemplary customer service.

V. CONFLICT OF INTEREST DISCLOSURE:

Council Member Phillips indicated he would recuse himself from the bond resolution discussions and votes.

VI. CONSENT AGENDA:

1. Approval of the August 6, 2024, City Council Meeting Minutes, and the August 20, 2024, Truth in Taxation Meeting Minutes (Trina Cooke, City Recorder)

2. Ordinance 2024-19 Amending Heber City Code, Sections 5.04.130 and 5.04.135 regarding Non-Profit Special Event Fee Waiver (Mindy Kohler, Treasurer) -

3. Cemetery Administration and Columbarium Project: Change Order One in the Amount of $294,840 and Ordinance 2024-20 Amending the City's Consolidated Fee Schedule to include New Cemetery Niche Pricing (Matt Brower, City Manager)

Council Member Cheatwood inquired why the contractor was placing an additional OH&P (Overhead and Profit) of $21,840.00 in the contract. He did not feel the contractor should charge such a large amount for the additional. Lane Lythgoe explained the additional cost projection for the second columbarium was based on the added administrative duties to coordinate and install.

Motion: Council Member Phillips moved to approve the Consent Agenda. **Second:** Council Member Ostergaard seconded the motion.

Discussion: Council Member Ostergaard stated that the additional administrative costs was standard practice. City Manager Matt Brower indicated he would circle back around with the contractor to see if the additional cost could be reduced.

Vote: Voting Yes: Council Members Phillips, and Ostergaard. **Voting No:** Council Member Cheatwood.

Discussion: Council Member Barney wished to have further clarification regarding Council Member Cheatwood's concerns. Council Member Cheatwood explained that he had voted no because he felt it was the Council's responsibility to save the taxpayer's money.

Amended Motion: Council Member Barney wished to amend the motion to approve the item with the addition to get clarity for the additional O&HP (Overhead and Profit) expense in the contract. **Second:** Council Member Cheatwood seconded the amended motion. **Voting Yes:** Council Members Phillips, Ostergaard, Cheatwood, Barney, and Johnston. **Voting No:** None. The Motion **Passed Unanimously, 5-0.**

Discussion: Council Member Ostergaard inquired whether Scott or Kevin Jardine were online to respond. The answer was no. Council Member Johnston requested to remove item three from the Consent agenda and proceed with the approval of items one and two.

Amended Motion: Council Member Phillips moved to remove item three from the Consent Agenda and approve items one and two. **Second:** Council Member Ostergaard made the second.

Amended Motion Withdrawn: Council Member Barney withdrew her amended motion.

Council Member Johnston explained that he felt the OH&P added into the contract was appropriate. Council member Cheatwood did not feel the increased work for the added columbarium could account for the added dollar amount. Council Member Barney expressed appreciation for Council Member Cheatwood's willingess to look out for the taxpayers. Council Member Phillips pointed out that it would be paid for by cemetery sales revenue.

Motion: Council Member Phillips moved to pass item three on the Consent Agenda as written. **Second:** Council Member Ostergaard made the second.

Discussion: Council Member Ostergaard stated that the added OH&P was industry standard and he trusted the contractor. City Manager Matt Brower indicated his intent to follow up with the contractor to discuss reducing the cost of the added OH&P.

Voting Yes: Council Members Phillips, Ostergaard, Barney, and Johnston. **Voting No:** Council Member Cheatwood. The **Motion Passed 4-1.**

VII. PUBLIC COMMENTS: (3 min per person/20 min max)

Cindy Delano, Heber City resident, thanked the Council for their service and the Police Department for their prompt response to complaints in her neighborhood. She wished to garner clarification of the City Code with regard to the maximum occupancy permitted in short-term rentals as well as the number of cars permitted in driveways. She said there were two houses on her street that had been converted into short-term rentals. She said the renters used them as party homes, and the neighbors had to endure loud music, smoking of cigarettes and marijuana, and cars lining the streets, limiting the traffic to one-way. She felt she was unable to enjoy her outdoors due to the noise from the party houses. Mayor Franco invited her to speak with the Police Chief. Police Chief Parker Sever asked that the police be contacted while the offenses were taking place for the purpose of better enforcement. City Attorney Jeremy Cook stated the code was under review and would be updated to allow for better enforcement.

VIII. GENERAL BUSINESS ITEMS:

1. Heber Valley Railroad: Overview, Update, and Future Plans (Mark Nelson, Executive Director Heber Valley Railroad) - *30 min*

Heber Valley Railroad Executive Director Mark Nelson shared a presentation offering a history of the Railroad, and providing an overview, update, and future plans for the Heber Valley Railroad, as included in the meeting materials. The Railroad was an independent agency of the State of Utah. He invited the Council to a celebration for the 125th anniversary for the Railroad on the 28th and 29th of September. Mr. Nelson shared that when the sign for the Rio Grande Train Station in downtown Salt Lake City had been replaced, the Heber Valley Rail Road had obtained the original sign. The Railroad had negotiated a renovation of the sign with the sign maker but the sign did not comply with the Heber City sign ordinance. He shared a projected platform extension and explained there was a question of who owned the land where the Railroad wished to place the extension. Council expressed support for the Railroad moving forward with project negotiations. Community Development Director Tony Kohler clarified the process for the sign exception that would require a zone change and questioned whether the sign would comply with the City's dark-sky regulations.

2. Monthly Development Report (Jamie Baron, Planning Manager) - *10 min*

Planning Manager Jamie Baron provided the presentation for development and project applications filed with the City in the previous month, as included in the meeting materials.

IX. ACTION ITEMS: (Council can discuss; table; continue; or approve items)

1. Resolution 2024-10 authorizing the Issuance and Sale of not more than $4,000,000 Aggregate Principal amount of Water Revenue Bonds, Series 2024; and Related Matters (Marcus Keller) - *10 min*

City Engineer Russ Funk explained the City was pursuing additional funding for the ongoing Central Heber water and sewer line replacements project. He shared that the City had received approval from the Board of Water Resources for a $3,032,000 bond to be repaid over a 25-year period, at a 0% interest rate, as outlined in the attached meeting materials. Marcus Keller, with Crews and Associates financial group, provided additional details as included in the attached meeting materials. He explained the bond was not yet formally approved but the three parameters resolutions before Council for approval that evening established the details of the contracts.

Motion: Council Member Cheatwood moved to approve 2024-10 authorizing the Water Parameters Resolution as updated. **Second:** Council Member Ostergaard made the second. **Voting Yes:** Council Members Ostergaard, Cheatwood, Barney, and Johnston. **Voting No:** None. Council Member Phillip had recused himself from the vote.

The **Motion Passed 4-0.**

2. Resolution 2024-15 authorizing the Issuance and Sale of not more than $6,500,000 Aggregate Principal amount of Sewer Revenue Bonds, Series 2024; and Related Matters (Marcus Keller) - *10 min*

Mr. Keller explained the bond was estimated to be at no higher than a 6% interest rate through the private market. He provided an overview of Parameters Resolution 2024-16 as included in the attached meeting materials. It was noted the high construction cost was due to inflation. Mr. Funk noted the actual cost was estimated to be lower but the dollar amount had been precautionarily inflated. Mayor Franco questioned why the associated public hearing was scheduled to be held after the approval of the Parameters Resolutions. Mr. Keller explained the Resolutions called for the Public Hearings.

Motion: Council Member Cheatwood moved to approve Parameters Resolution 2024-15 as updated. **Second:** Council Member Barney made the second. **Voting Yes:** Council Members Ostergaard, Cheatwood, Barney, and Johnston. **Voting No:** None. Council Member Phillip had recused himself from the vote. The **Motion Passed 4-0.**

3. Resolution 2024-16 Authorizing the Issuance and Sale of not more than $2,000,000 Aggregate Principal Amount of Irrigation Revenue Bonds, Series 2024B; and Related Matters (Marcus Keller, Russ Funk, City Engineer) - *10 min*

Mr. Keller explained the only real difference with this Parameters Resolution from the preceding two resolutions was that the year 2024 was followed by a "B" because there had been previous bonds issued that year in this category.

Motion: Council Member Cheatwood moved to approve Parameters Resolution 2024-16 as updated. **Second:** Council Member Ostergaard made the second. **Voting Yes:** Council Members Ostergaard, Cheatwood, Barney, and Johnston. **Voting No:** None. Council Member Phillip had recused himself from the vote. The **Motion Passed 4-0.**

4. Ordinance 2024-21 Wasatch County Courts Zone Change (1361 US-40) (Jacob Roberts, Planner) - *15 min*

Planner Jacob Roberts presented the request by Wasatch County to rezone the property of the Wasatch County Courthouse located at 1361 S US-40, Heber City, UT 84032. The current zone was C-2 Commercial. The applicant was requesting to change the zone to the Institutional and Public Facilities Zone (IPF) in order to be more conducive to the use and maintenance of the facility. He provided the information as included in the attached meeting materials.

Assistant County Manager Richard Britenbeker further explained the County's request. Mr. Roberts added that the Planning Commission had held the required Public Hearing and no one from the public had come forward to comment.

Motion: Council Member Phillips moved to approve Ordinance 2024-21 for the Wasatch County Courts zone change. **Second:** Council Member Cheatwood made the second.

Discussion: Council Member Ostergaard expressed support for the zone change but asked the County to begin considering reciprocal negotiations for possible combined Courts systems for the City and County. City Manager Matt Brower asked that the County consider continued discussions regarding a proposed combined Court System.

Vote: Voting Yes: Council Members Phillips, Ostergaard, Cheatwood, Barney, and Johnston. **Voting No:** None. The **Motion Passed Unanimously, 5-0.**

5. Central District Tour and Field Trip/Overlay Zone (Matt Brower, City Manager) - *15 min*

City Manager Matt Brower described the proposed tour and field trip for the purpose of furthering the dialogue and discussion of adopting the downtown overlay zone. Community Development Director Tony Kohler expanded upon the purpose of the intended field trip to help visualize the future for Heber City's downtown. There would be a walking tour of Heber City's downtown area, as well as a field trip to areas in Salt Lake that reflected the desired design concept. Council Member Cheatwood suggested including the Planning Commission as well as Rachel Kahler on the field trip. Council discussed historic preservation versus downtown revitalization, and maintaining the small-town, hometown feel of Heber. It was determined that an email survey to discover Council's availability would be distributed in order to establish a date and time for the proposed tours.

6. City Manager Agreement (Cherie Ashe, Human Resources Director, Scott Phillips, Council Member) - *15 min*

Human Resources Manager Cherie Ashe shared the request by Council Member Phillips to revisit the City Manager's contract. She shared a presentation reflecting the results of a wage study as included in the meeting materials. Included in the presentation was a graph indicating that Heber City's Manager was being paid approximately 5% less than the average of City Managers in the study. Council expressed appreciation for City Manager Matt Brower and Council majority supported raising his contracted wage. Council discussed whether to make the adjustment with a budget amendment or wait to make the change until the next fiscal year.

Mr. Brower proposed that half of his salary increase be distributed amongst his executive Staff.

Motion: Council Member Phillips moved to increase Mr. Brower's salary to the recommended amount of $208,293.00, with a maximum wage of $250,000.00, and allocate $6,000.00 between the Lead Team.

Discussion: Council Member Cheatwood asked if the higher maximum wage than listed was intentional. Council Member Phillips confirmed it was intentional and stated that Heber was a very expensive place to live. Mayor Franco asked who was on the Lead Team. Ms. Ashe said there were 15 employees on the Lead Team.

Amended Motion: Council Member Phillips amended his motion to increase the Lead Team allocation to $7,500. **Second:** Council Member Johnston seconded the motion.

Discussion: Council Member Cheatwood asked whether there should be language added that the employees must be in good standing. Ms. Ashe felt the raise would be merit-based and employees with warnings or performance-issues would not qualify.

Amended Motion: Council Member Phillips amended his motion to distribute the $7,500.00 to qualifying employees as determined by Ms. Ashe.

Discussion: Finance Director Sara Nagel asked that the increases be implemented the first full pay period in October.

Amended Motion: Council Member Phillips amended his motion to implement the increases the first full pay period in October. **Second:** Council Member Johnston's second stood.

Discussion: Mayor Franco asked to discover the difference between the highest-paid employee in the City versus the lowest-paid employee. Ms. Ashe indicated she would be able to discover the requested information.

Vote: Voting Yes: Council Members Phillips, Ostergaard, Cheatwood, Barney, and Johnston. **Voting No:** None. The **Motion Passed Unanimously, 5-0.**

X. COMMUNICATION:

Mr. Brower shared the following communication items:

- The entities involved in the interlocal agreement to send a unified letter of support to UDOT (Utah Department of Transportation) regarding the EIS (Environmental Impact Statement) for the bypass had decided to send individual letters from each entity rather than a joint letter, with Council's support.

- Heber City had successfully purchased two lots at the end of the Airport's runway four in the designated runway protection zone with the help of UDOT and the FAA. Mayor Franco asked for assurance that the lots would be designated as open space and requested to review the real estate contract. Mr. Brower indicated he would be able to provide that for the Mayor's review and noted there were two homes at the location. Council further discussed what could be done at the location and asked that the homes not be allowed to fall into disrepair and create an eyesore. Mr. Brower noted the limitation of uses due to the runway protection zone regulations.
- The CRA (Community Reinvestment Agency) discussion with School Board would take place at their regularly scheduled meeting at 5:00 p.m. on Tuesday, September 24, 2024. The School Board had requested additional community education information that would be provided at the meeting including informational videos.
- The ULCT (Utah League of Cities and Towns) 2024 Annual Convention was set for the following two days.

Council Member Cheatwood had looked up two current Air BNB ads indicating they could sleep more than 18 and could accommodate excessive parking, both in violation of City Code. He described the poor sound quality of recent meetings. City Recorder Trina Cooke commented on the continuing efforts being made to improve the sound quality of the meetings.

XI. ADJOURNMENT:

Motion: Council Member Phillips moved to adjourn. **Second:** Council Member Cheatwood made the second. The meeting adjourned at 9:00 p.m.

_____

Trina Cooke, City Recorder

Heber City Council Staff Report

MEETING DATE: 9/17/2024
SUBJECT: Resolution 2024-17 Clarifying the street name for 920 East
RESPONSIBLE: Russ Funk
DEPARTMENT: Engineering
STRATEGIC RELEVANCE: Community and Economic Development

SUMMARY

The purpose of this item is to clarify the street name of 920 East to correct errors on the Sawmill 5 Subdivision Plat.

RECOMMENDATION

Adopt Resolution 2024-17

BACKGROUND

The Sawmill 5 Subdivision Plat was recorded with the street name of 920 East, but the accompanying address table on the Plat incorrectly listed 930 East for 38 of the units. This error has resulted in inconsistencies in addresses used on recorded Certificates of Occupancy which can cause problems with loan closings, E911 addressing, etc.

It is recommended to use 920 East for the following reasons:

- Most of the recorded Certificates of Occupancy to date use 920 East.
- The existing signs say 920 East.
- The street is labeled as 920 East on the Recorded Plat.
- The address table is the only reference to 930 East.

Staff believes using 920 East will result in the fewest complications for residents and property owners.

DISCUSSION

Process
Utah State Code Section 10-8 outlines the Powers and Duties of Municipalities. Authority to name streets and change the names of streets is outlined in Section 10-8-32 as outlined below:

10-8-32. Naming streets and public places.
They may name streets, courts, parks, thoroughfares and other public places and change the names thereof.

FISCAL IMPACT

Unknown

CONCLUSION

Staff is recommending adoption of Resolution 2024-17 to clarify the name of 920 East.

ALTERNATIVES

1. Approve as proposed
2. Approve as amended
3. Continue
4. Deny

POTENTIAL MOTIONS

Alternative 1 - Approval - Staff Recommended Option

I move to **approve** Resolution 2024-17 as presented.

Alternative 2 - Approve as Amended

I move to **approve** the item as amended, as follows.

Alternative 3 - Continue
I move to **continue** the item to another meeting on , with direction to the applicant and/or Staff on information and / or changes needed to render a decision, as follows:
Alternative 4 - Denial
I move to **deny** the item with the following findings.

ACCOUNTABILITY

Department: Engineering
Staff member: Russ Funk, City Engineer

EXHIBITS

1. Resolution 2024-17
2. Sawmill 5 Plat

RESOLUTION NO. 2024-17

A RESOLUTION CLARIFYING THE NAME OF 920 EAST IN PHASE 5 OF THE SAWMILL SUBDIVISION.

BE IT RESOLVED by the City Council of Heber City, Utah, the official street name for the north/south public road in the Sawmill Subdivision Phase 5 Plat is 920 East. The purpose of this resolution is to clarify confusion between the street label and address table on the Sawmill Subdivision Phase 5 Plat.

This Resolution shall take effect and be in force from and after (a) its adoption, (b) a copy has been deposited in the office of the City Recorder.

ADOPTED and PASSED by the City Council of Heber City, Utah this _____ day of _____, 2024, by the following vote:

	AYE	NAY
Council Member Sid Ostergaard	_____	_____
Council Member Aaron Cheatwood	_____	_____
Council Member Mike Johnston	_____	_____
Council Member Yvonne Barney	_____	_____
Council Member Scott Philips	_____	_____

APPROVED:

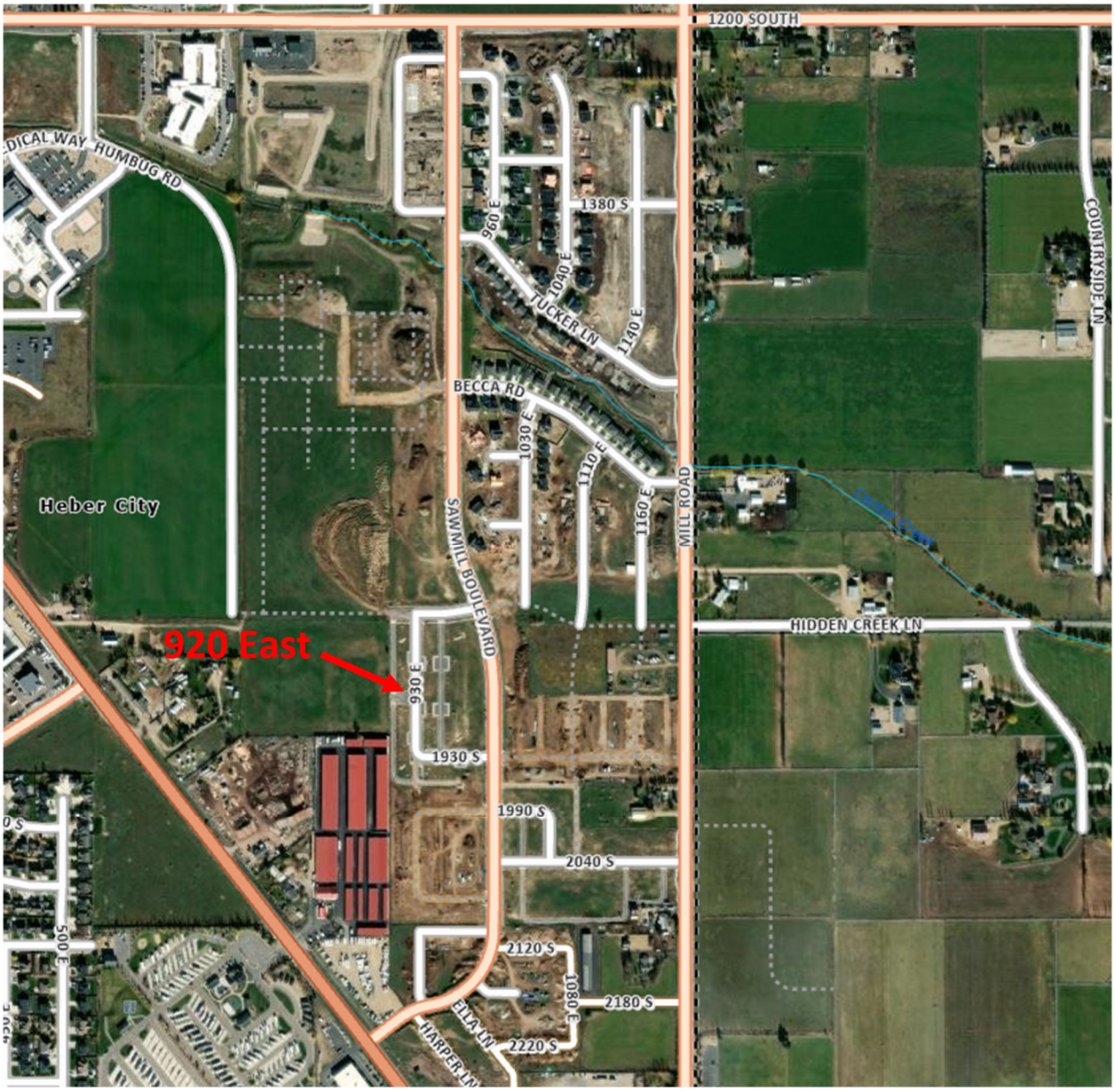
_____
Mayor Heidi Franco

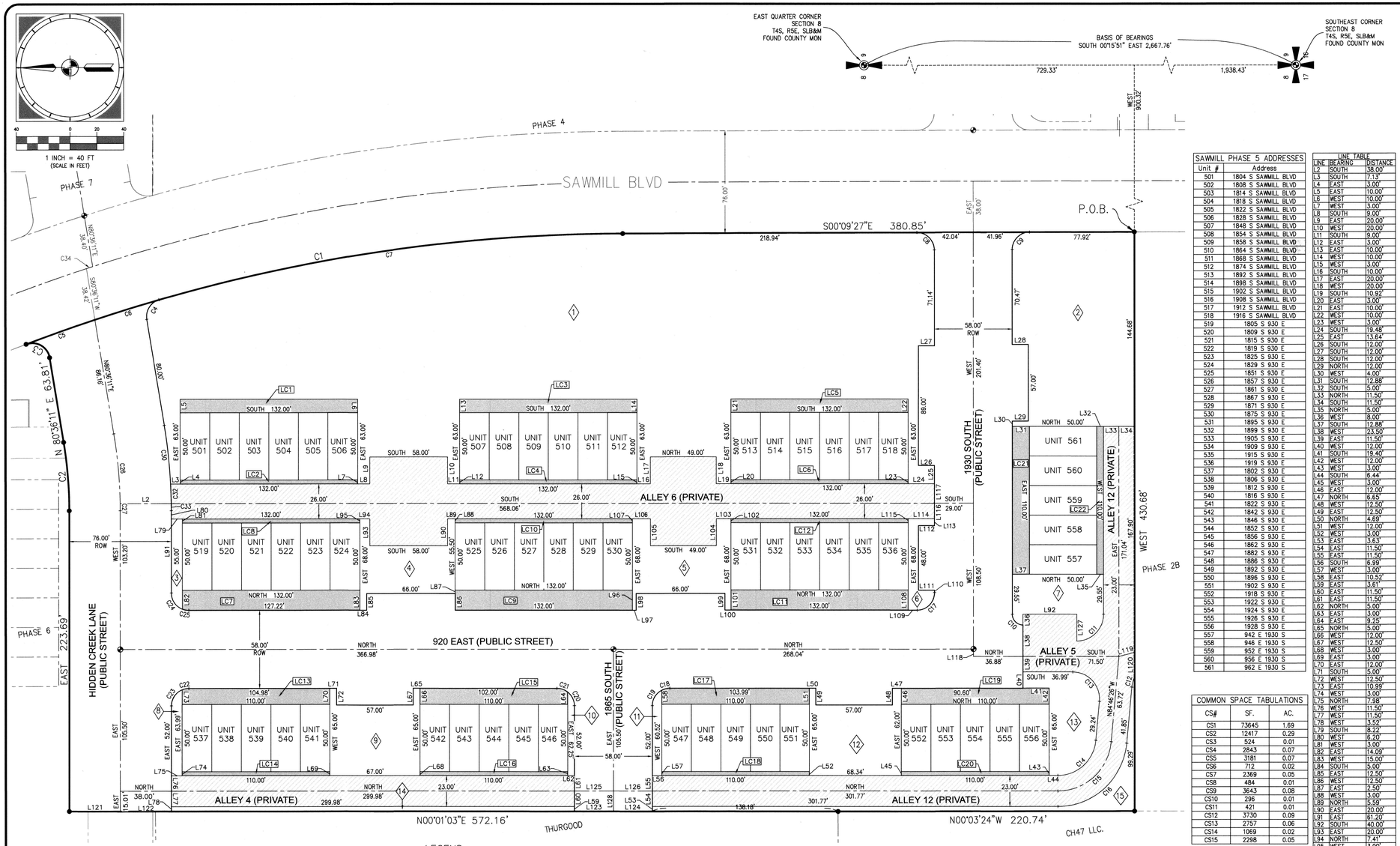
ATTEST:

_____ Date: _____
RECORDER

Date of First Recording: _____

Exhibit A


1200 SOUTH
HUMBUG RD
1380 S
1040 E
TUCKER LN
1140 E
BECCA RD
1030 E
1110 E
1160 E
MILL ROAD
COUNTRYSIDE LN
Heber City
SAWMILL BOULEVARD
Center Creek
HIDDEN CREEK LN
920 East
930 E
1930 S
1990 S
2040 S
500 E
2120 S
1080 E
2180 S
ELLA LN
2220 S
HARPER LN



SAWMILL PHASE 5 ADDRESSES	
Unit #	Address
501	1804 S SAWMILL BLVD
502	1808 S SAWMILL BLVD
503	1814 S SAWMILL BLVD
504	1818 S SAWMILL BLVD
505	1822 S SAWMILL BLVD
506	1828 S SAWMILL BLVD
507	1848 S SAWMILL BLVD
508	1854 S SAWMILL BLVD
509	1858 S SAWMILL BLVD
510	1864 S SAWMILL BLVD
511	1868 S SAWMILL BLVD
512	1874 S SAWMILL BLVD
513	1892 S SAWMILL BLVD
514	1898 S SAWMILL BLVD
515	1902 S SAWMILL BLVD
516	1908 S SAWMILL BLVD
517	1912 S SAWMILL BLVD
518	1916 S SAWMILL BLVD
519	1805 S 930 E
520	1809 S 930 E
521	1815 S 930 E
522	1819 S 930 E
523	1825 S 930 E
524	1829 S 930 E
525	1851 S 930 E
526	1857 S 930 E
527	1861 S 930 E
528	1867 S 930 E
529	1871 S 930 E
530	1875 S 930 E
531	1895 S 930 E
532	1899 S 930 E
533	1905 S 930 E
534	1909 S 930 E
535	1915 S 930 E
536	1919 S 930 E
537	1802 S 930 E
538	1806 S 930 E
539	1812 S 930 E
540	1816 S 930 E
541	1822 S 930 E
542	1842 S 930 E
543	1846 S 930 E
544	1852 S 930 E
545	1856 S 930 E
546	1862 S 930 E
547	1882 S 930 E
548	1886 S 930 E
549	1892 S 930 E
550	1896 S 930 E
551	1902 S 930 E
552	1918 S 930 E
553	1922 S 930 E
554	1924 S 930 E
555	1926 S 930 E
556	1928 S 930 E
557	942 E 1930 S
558	946 E 1930 S
559	952 E 1930 S
560	956 E 1930 S
561	962 E 1930 S

LINE TABLE		
LINE	BEARING	DISTANCE
L2	SOUTH	58.00'
L3	SOUTH	7.13'
L4	EAST	3.00'
L5	EAST	10.00'
L6	WEST	10.00'
L7	WEST	3.00'
L8	SOUTH	9.00'
L9	EAST	20.00'
L10	WEST	20.00'
L11	SOUTH	9.00'
L12	EAST	3.00'
L13	EAST	10.00'
L14	WEST	10.00'
L15	WEST	3.00'
L16	SOUTH	10.00'
L17	EAST	20.00'
L18	WEST	20.00'
L19	SOUTH	10.92'
L20	EAST	3.00'
L21	EAST	10.00'
L22	WEST	10.00'
L23	WEST	3.00'
L24	SOUTH	19.48'
L25	EAST	13.64'
L26	SOUTH	12.00'
L27	SOUTH	12.00'
L28	SOUTH	12.00'
L29	NORTH	12.00'
L30	WEST	4.00'
L31	SOUTH	12.88'
L32	SOUTH	5.00'
L33	NORTH	11.50'
L34	SOUTH	11.50'
L35	NORTH	5.00'
L36	WEST	8.00'
L37	SOUTH	12.88'
L38	WEST	23.50'
L39	EAST	11.50'
L40	WEST	12.00'
L41	SOUTH	19.40'
L42	WEST	12.00'
L43	WEST	3.00'
L44	SOUTH	6.44'
L45	WEST	3.00'
L46	EAST	12.00'
L47	NORTH	6.65'
L48	WEST	12.50'
L49	EAST	12.50'
L50	NORTH	4.69'
L51	WEST	12.00'
L52	WEST	3.00'
L53	EAST	3.63'
L54	EAST	11.50'
L55	EAST	11.50'
L56	SOUTH	6.99'
L57	WEST	3.00'
L58	EAST	10.52'
L59	EAST	3.61'
L60	EAST	11.50'
L61	EAST	11.50'
L62	NORTH	5.00'
L63	EAST	3.00'
L64	EAST	9.25'
L65	NORTH	5.00'
L66	WEST	12.00'
L67	WEST	12.50'
L68	WEST	3.00'
L69	EAST	3.00'
L70	EAST	12.00'
L71	SOUTH	5.00'
L72	WEST	12.50'
L73	EAST	10.99'
L74	WEST	3.00'
L75	NORTH	7.98'
L76	WEST	11.50'
L77	WEST	11.50'
L78	WEST	3.52'
L79	SOUTH	8.22'
L80	WEST	6.20'
L81	WEST	3.00'
L82	EAST	14.09'
L83	WEST	15.00'
L84	SOUTH	5.00'
L85	EAST	12.50'
L86	WEST	12.50'
L87	EAST	2.50'
L88	WEST	3.00'
L89	NORTH	5.59'
L90	EAST	20.00'
L91	EAST	61.20'
L92	SOUTH	40.00'
L93	EAST	20.00'
L94	NORTH	7.41'
L95	WEST	3.00'
L96	EAST	15.00'
L97	SOUTH	2.74'
L98	WEST	12.50'
L99	WEST	12.50'
L100	SOUTH	4.59'
L101	EAST	15.00'
L102	EAST	3.00'
L103	NORTH	10.92'
L104	WEST	20.00'
L105	EAST	20.00'
L106	NORTH	13.41'
L107	WEST	3.00'
L108	EAST	15.00'
L109	SOUTH	6.48'
L110	EAST	1.86'
L111	NORTH	12.00'
L112	SOUTH	12.00'
L113	WEST	5.14'
L114	NORTH	19.48'
L115	WEST	3.00'
L116	EAST	11.50'
L117	EAST	14.50'
L118	EAST	5.50'
L119	S15°18'01"E	11.92'
L120	EAST	18.80'
L121	S00°01'03"W	38.00'
L122	S00°01'03"W	38.00'
L123	S00°01'03"W	29.00'
L124	S00°01'03"W	29.00'
L125	SOUTH	29.00'
L126	SOUTH	29.00'
L127	EAST	20.00'
L128	WEST	15.12'

CURVE TABLE					
CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	CHORD LENGTH	CHORD BEARING
C1	1262.00'	454.05'	20°36'52"	451.61'	N10°27'53"W
C2	312.00'	51.17'	9°23'49"	51.11'	N85°18'05"E
C3	13.00'	23.03'	101°30'18"	20.13'	S29°58'51"W
C4	13.00'	18.91'	83°21'50"	17.29'	N57°42'54"W
C5	1262.00'	54.43'	2°28'14"	54.41'	S19°32'12"E
C6	1262.00'	49.96'	2°16'06"	49.96'	N17°10'02"W
C7	1262.00'	349.68'	15°52'32"	348.56'	N08°05'43"W
C8	13.00'	20.46'	90°09'27"	18.41'	S44°55'16"W
C9	13.00'	20.38'	89°50'33"	18.36'	N45°04'44"W
C10	8.00'	12.45'	89°08'34"	11.23'	S45°25'43"W
C11	20.00'	31.42'	90°00'00"	28.28'	S45°00'00"E
C12	20.00'	7.47'	21°23'46"	7.43'	S74°04'33"E
C13	20.00'	33.24'	95°13'34"	29.54'	S47°36'47"W
C14	28.50'	42.33'	85°05'44"	38.54'	N42°32'52"W
C15	40.00'	59.37'	85°02'44"	54.07'	N42°31'22"W
C16	51.50'	76.41'	85°00'48"	69.59'	S42°30'24"E
C17	13.00'	20.42'	90°00'00"	18.38'	S45°00'00"E
C18	13.00'	6.29'	27°43'38"	6.19'	S13°49'49"E
C19	13.00'	14.17'	62°28.22"	13.48'	S58°46'49"E
C20	13.00'	11.80'	52°01'12"	11.40'	S63°59'24"W
C21	13.00'	8.62'	37°58'48"	8.46'	S18°59'24"W
C22	13.00'	5.15'	22°42'11"	5.12'	N11°21'06"W
C23	13.00'	15.27'	67°17'49"	14.41'	S56°21'06"E
C24	13.00'	15.52'	68°25'24"	14.62'	N55°47'18"E
C25	13.00'	4.90'	21°34'56"	4.87'	N10°47'18"E
C26	350.00'	52.10'	8°31'45"	52.05'	N84°52'03"E
C27	350.00'	5.30'	0°52'04"	5.30'	N89°33'58"E
C28	312.00'	45.87'	8°25'25"	45.83'	N84°48'53"E
C29	312.00'	5.30'	0°58'25"	5.30'	N89°30'48"E
C30	388.00'	43.83'	6°28'18"	43.80'	S83°50'20"W
C32	388.00'	14.50'	2°08'33"	14.50'	N88°08'45"E
C33	388.00'	5.30'	0°46'58"	5.30'	N89°36'31"E
C34	1300.00'	4.91'	0°12'59"	4.91'	S17°55'51"E

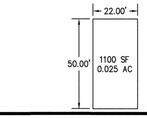
COMMON SPACE TABULATIONS		
CS#	SF.	AC.
CS1	73645	1.69
CS2	12417	0.29
CS3	524	0.01
CS4	2843	0.07
CS5	3181	0.07
CS6	712	0.02
CS7	2369	0.05
CS8	484	0.01
CS9	3643	0.08
CS10	296	0.01
CS11	421	0.01
CS12	3730	0.09
CS13	2757	0.06
CS14	1069	0.02
CS15	2298	0.05

LIMITED COMMON SPACE		
LC#	SF.	AC.
LC1	1320	0.03
LC2	396	0.01
LC3	1320	0.03
LC4	396	0.01
LC5	1320	0.03
LC6	396	0.01
LC7	1979	0.05
LC8	396	0.01
LC9	1980	0.05
LC10	396	0.01
LC11	1980	0.05
LC12	396	0.01
LC13	1318	0.03
LC14	330	0.01
LC15	1313	0.03
LC16	330	0.01
LC17	1317	0.03
LC18	330	0.01
LC19	1320	0.03
LC20	330	0.01
LC21	1417	0.03
LC22	550	0.01

LEGEND

- SECTION LINES
- ADJACENT PROPERTY LINES
- EXISTING STREET MONUMENT
- SET STREET MONUMENT
- BOUNDARY ANGLE POINT
- PRIVATE ALLEY ROW
- LIMITED USE COMMON AREA
- LC10 — LIMITED COMMON AREA SYMBOL SEE CHART FOR ACREAGE
- 10 — COMMON SPACE SYMBOL SEE CHART FOR ACREAGE

TYPICAL UNIT DIMENSIONS AND AREA



PLAT NOTES

1. NO DRIVEWAY ACCESS WILL BE ALLOWED OFF OF SAWMILL BLVD OR HIDDEN CREEK LANE.
2. ACTIVE FARMS AND KENNELS EXIST ON NEARBY PROPERTIES THAT MAY CREATE NOISE AND ODORS ASSOCIATED WITH THOSE USES.
3. ALL PARCELS LABELED AS COMMON AREA (LOTS CS1-CS15) OR PRIVATE ALLEYS, AS SHOWN ON THIS PLAT ARE PRIVATE, AND ARE TO BE OWNED AND MAINTAINED BY THE SAWMILL SUBDIVISION HOA.
4. ALL PARKING AREAS WITHIN THE PUBLIC RIGHT-OF-WAYS SHALL BE MAINTAINED BY SAWMILL COMMUNITY HOA, INCLUDING SNOW PLOWING AND ASPHALT PAVEMENT MAINTENANCE.

WATER NOTE

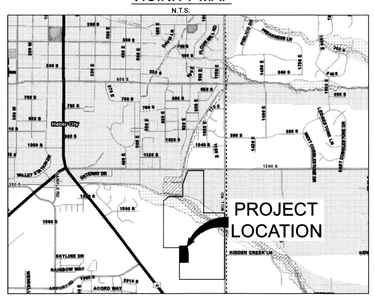
THE AREA WITHIN THIS PLAT IS LOCATED WITHIN THE TIMPANOGOS IRRIGATION SERVICE AREA, ALL MUNICIPAL AND OUTDOOR WATER USE IS SUBJECT TO ADDITIONAL MUNICIPAL USE FEE.

PUBLIC UTILITY EASEMENTS:

ALL COMMON AREAS AND PRIVATE ALLEYS ARE SUBJECT TO A BLANKET UTILITY EASEMENT DEDICATED TO HEBER CITY. HEBER CITY SHALL HAVE THE RIGHT TO INSTALL, MAINTAIN, AND OPERATE THEIR UTILITIES ABOVE AND BELOW GROUND AND ALL OTHER RELATED FACILITIES WITHIN THE DEDICATED EASEMENT IDENTIFIED ON THIS PLAT. OWNER AGREES IT WILL INDEMNIFY AND HOLD CITY HARMLESS FOR ANY DAMAGES TO THE PROPERTY WITHIN THE DEDICATED EASEMENT RESULTING FROM MAINTENANCE AND REPAIR OPERATIONS OF ITS FACILITIES.

VICINITY MAP

N.T.S.



PROJECT
C18-030
SHEET
1 OF 1
ISSUE DATE
03/18/2021

Summit Engineering Group Inc.
Structural • Civil • Surveying
55 WEST CENTER • P.O. BOX 176
HEBER CITY, UTAH 84032
P: 435-654-9229 • F: 435-654-9231

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SUMMIT ENGINEERING GROUP, INC.

DRAWING ALTERATION
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF THE PROFESSIONAL ENGINEER, TO ALTER THIS DRAWING OR DOCUMENT IN ANY WAY. ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.

SAWMILL SUBDIVISION PHASE 5

LOCATED IN THE SOUTHEAST 1/4 OF SECTION 8, TOWNSHIP 4 SOUTH, RANGE 5 EAST, SLB&M, HEBER CITY, WASATCH COUNTY, UTAH

BOUNDARY DESCRIPTION

BEGINNING AT A POINT LYING SOUTH 00°15'51" EAST ALONG THE SECTION LINE 729.33 FEET AND WEST 900.32 FEET FROM THE WASATCH COUNTY SURVEY MONUMENT FOR THE EAST QUARTER CORNER OF SECTION 8, TOWNSHIP 4 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, SAID POINT BEING COINCIDENT WITH THE WESTERLY RIGHT-OF-WAY LINE OF SAWMILL BOULEVARD;

AND RUNNING THENCE WEST 430.68 FEET; THENCE N00°03'24"W 220.74 FEET; THENCE N00°01'03"E 572.16 FEET; THENCE EAST 223.69 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE NORTH, HAVING A RADIUS OF 312.00 FEET; THENCE 51.17 FEET ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 09°23'49", WITH A CHORD BEARING AND DISTANCE OF N85°18'05"E 51.11 FEET; THENCE N80°36'11"E 63.81 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 13.00 FEET; THENCE 23.03 FEET ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 101°30'18", WITH A CHORD BEARING AND DISTANCE OF N29°58'51"E 20.13 FEET TO THE WESTERLY RIGHT-OF-WAY LINE OF SAWMILL BOULEVARD AND THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE WEST, HAVING A RADIUS OF 1,262.00 FEET AND TO WHICH POINT A RADIAL LINE BEARS S69°13'41"W; THENCE 454.05 FEET ALONG THE ARC OF SAID CURVE AND ALONG SAID WESTERLY RIGHT-OF-WAY LINE, THROUGH A CENTRAL ANGLE OF 20°36'52", WITH A CHORD BEARING AND DISTANCE OF S10°27'53"E 451.61 FEET; THENCE CONTINUING ALONG SAID WESTERLY RIGHT-OF-WAY LINE S00°09'27"E 380.85 FEET TO THE POINT OF BEGINNING.

PARCEL CONTAINS 7.630 ACRES, OR 332,369 SQUARE FEET

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY WAS ESTABLISHED AS SOUTH 00°15'51" EAST BETWEEN THE WASATCH COUNTY SURVEY MONUMENTS AT THE EAST ONE-QUARTER AND SOUTHEAST CORNERS OF SECTION 8, TOWNSHIP 4 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, IN CONFORMANCE WITH UTAH COORDINATE 1983 CENTRAL ZONE BEARINGS.

SURVEYOR'S CERTIFICATE

I, BRIAN BALLS, DO HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR, AND THAT I HOLD CERTIFICATE NO. 334532 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY BY AUTHORITY OF THE OWNERS, THAT I HAVE MADE A SURVEY OF THE TRACT OF LAND SHOWN ON THIS PLAT AND DESCRIBED HEREON, AND HAVE SUBDIVIDED SAID TRACT OF LAND INTO LOTS, BLOCKS, STREETS, AND EASEMENTS.

BRIAN BALLS

3/18/2021
DATE

REGISTERED PROFESSIONAL LAND SURVEYOR — No. 334532-2201 — BRIAN BALLS — 3/18/21 — STATE OF UTAH

OWNER'S DEDICATION

I(WE) THE UNDERSIGNED OWNER(S) OF THE TRACT(S) OF LAND SHOWN AND DESCRIBED ON THIS SUBDIVISION PLAT, HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, STREETS AND EASEMENTS TO BE HEREAFTER KNOWN AS THE SAWMILL PHASE 5 SUBDIVISION, DO HEREBY DEDICATE FOR THE PERPETUAL USE OF THE PUBLIC ALL PARCELS OF LAND SHOWN ON THIS PLAT AS INTENDED FOR PUBLIC USE.

IN WITNESS THEREOF, I HAVE HEREUNTO SET MY HAND THIS 18 DAY OF March, 20 21

MIKE STONE, MANAGER ROBBIN RED, LLC PRINTED NAME

ACKNOWLEDGMENT

STATE OF Utah
COUNTY OF Wasatch } S.S.

ON THIS 18 DAY OF March, 20 21, PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC, IN AND FOR SAID COUNTY OF Wasatch, IN SAID STATE OF Utah, THE SIGNER(S) OF THE ABOVE OWNER'S DEDICATION, WHO AFTER BEING DULY SWORN, ACKNOWLEDGED TO ME THAT HE(THEY) SIGNED THE OWNER'S DEDICATION FREELY AND VOLUNTARILY FOR AND IN BEHALF OF SAID CORPORATION FOR THE PURPOSES MENTIONED AND THAT SAID CORPORATION EXECUTED THE SAME.

NOTARY PUBLIC

WENDY MCKNIGHT
NOTARY PUBLIC-STATE OF UTAH
COMMISSION# 702232
COMM. EXP. 09-10-2022

ACCEPTANCE BY LEGISLATIVE BODY

THE CITY COUNCIL OF HEBER CITY, WASATCH COUNTY, UTAH, APPROVES THIS SUBDIVISION SUBJECT TO THE CONDITIONS AND RESTRICTIONS STATED HEREON, AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, EASEMENTS, AND OTHER PARCELS OF LAND INTENDED FOR PUBLIC PURPOSES FOR THE PERPETUAL USE OF THE PUBLIC THIS 29 DAY OF March, 20 21

MAYOR

CLERK-RECORDER

HEBER CITY CORPORATE Seal WASATCH COUNTY, UTAH

HEBER CITY ENGINEER APPROVAL

CITY ENGINEER

3-29-21
DATE

REGISTERED PROFESSIONAL ENGINEER — 3-29-21 — No. 169268 — Bart L. Mumford — CIVIL — STATE OF UTAH

HEBER CITY PLANNING COMMISSION

APPROVED THIS 29 DAY OF March, 20 21, BY THE PLANNING COMMISSION OF HEBER CITY.

CITY PLANNING COMMISSION CHAIRMAN

WASATCH COUNTY SURVEYOR

ROS # 3208

Approved - 3/19/2021

COUNTY SURVEYOR

WASATCH COUNTY RECORDER

ENTRY # 500083 BOOK 1355 PAGE 62
DATE 05/12/2021 TIME 1:37PM FEE $172.00
FOR ROBBIN RED LLC
BY AA WASATCH COUNTY RECORDER MARCY M MURRAY

HEBER CITY COUNCIL STAFF REPORT

MEETING DATE: 9/17/24

SUBJECT: **Mayor's Nomination for POSTT Committee**

RESPONSIBLE: Mayor Heidi Franco

STRATEGIC RELEVANCE: Necessary Administrative Item

RECOMMENDATION

Mayor is nominating Jolie Cardenas as a new POSTT Committee Member.

CONCLUSION

Recommend approval.

Information:

Name	**Joli Cardenas**
Email Address	**joli.cardenas@gmail.com**
Address	**2302 N. Canal View Ln**
City	**Heber City**
State	**UT**
Zip Code	**84032**

Background/Experience/Qualifications	**Work Experience:** **Active Duty Military, Intelligence (2001-2005)** **Federal Service, Operations and Analysis (2006-2018)** **Tesla, Intellectual Property Protection (2018-2019)** **SocialTrack, Environmental Consultant (2019-2021)** **Decarbonizing Supply Chain, (2022-present)** **Volunteer Experience:** **Historic Commission Volunteer, Redwood City, CA (2018-2019)** **Citizens Climate Lobby, Houston TX and Wasatch Back (2022 - present)** **Education:** **B.S. Environmental Management** **M.A. International Affairs, Diplomacy** **MBA Master of Business Administration**
Why I want to serve on the POST Committee	**I'd like to contribute my skills and education to help improve and maintain our parks, trails, and green spaces while balancing continued growth in Heber City. By leveraging my background in environmental management and community organizing, I aim to support the committee's efforts in creating sustainable, accessible, and vibrant public spaces. I believe that well-maintained parks and trails not only enrich our quality of life but also foster a sense of community and connection to**

	nature. I am eager to collaborate with fellow committee members and residents of Heber City to develop sustainable solutions and access to our local environment.
Electronic Signature Agreement	**I agree.**
Electronic Signature	**Joli Cardenas**

HEART OF THE WASATCH BACK

HEBER CITY

EST 1889

Heber City Brand Update

September, 2024

Today's Presentation Includes 3 Parts:

- Reinforce Heber City's Established Brand
- Further Definition of the Brand
- Present Naming of Downtown Elements

Slogan:

Heart of the Wasatch Back

The heart is associated with emotions and feelings like love, kindness, and compassion. It can also represent hope and joy—the feeling that comes when we remember our history and celebrate our future. The heart is the economic center, driving growth, vitality, and connection much like how a thriving downtown serves as the pulse of a city's prosperity and community life.



The **Wasatch Back** defines our immediate sphere of influence, our proximity to our neighbors on the west-side or back of the Wasatch Mountains, and what sets us apart.

Identity: Heber City is the Economic Center of the Heber Valley and the county seat of Wasatch County.



Mission Statement:

As stewards of Heber City, we are dedicated to being **fiscally responsible** and providing **exceptional services** that protects the quality of life for our community while honoring the past and planning for the future.

What is the future of Heber City's Brand?

Looking Forward:

The City Council is furthering and solidifying this brand by creating policies guided by the formally adopted General Plan and Brand Guidelines documents.

The current directives under discussion by the City Council relevant to this group and brand implementation involve:

- Downtown Architectural Guidelines
- Infill in the Central Neighborhoods
- Incentivizing the Preservation of Buildings with “Historic Charm”

Refining Our Identity Statement

- Old and New
- **History** is an identity
- **Geography** is an identity
- **Culture** is an identity. May include lifestyles, attitudes, language, ideas, beliefs, customs, codes, institutions, tools, techniques, works of art, rituals, and ceremonies.

Let's discuss Heber City's culture.

The Make-Up of Our Community



Heber City is a blend of long-term, generational residents and newer arrivals.

The generational residents, descendants of the original pioneer settlers who came to this mountain valley nearly 150 years ago, have shaped the city's culture. Their pioneer spirit—marked by grit, integrity, hard work, and a straightforward approach to life—continues to influence Heber City today.

Newer residents often move to Heber City for its natural beauty and lifestyle. They value the city's proximity to outdoor recreation and natural beauty, and appreciate the "micropolitan" life that offers conveniences unlike more rural areas.

Heber City's culture is a mix of its historical roots and its forward-thinking values, guiding the community as it looks to the future.

Furthering Our Identity

Heber City is The Heart of the Wasatch Back, the Economic Center of the Heber Valley and the county seat of Wasatch County.

Our City services, amenities, and events make Heber City a remarkable place to live, and we are the most genuine place to live and do business on the Wasatch Back.

As a late-blooming city we have a unique opportunity. A narrow Historic Main Street does not confine us. Embracing the contrast of ‘old and new’ together, will provide Heber City a unique chance to differentiate our identity from nearly every other, built-out city in the mountain west.

Questions to consider:

What does it mean to be the Economic Center of the Heber Valley?

How does that relate to our sphere of influence?

The Evolution of Heber City's Brand

Envision Heber 2050
2019

Envision Central Heber
2021

Heber City Rebrand
2023

Clarify Architectural Standards for Downtown
2024

Architectural Standards



Old Firehouse Building



Timberidge Custom Homes



Olde Town Center



100 South Block of Main Street



100 South Block of Main Street



100 South Block of Main Street



300 South Block of Main Street



500 South Block of Main Street



500 South Block of Main Street



Summit Sotheby’s Building – 300 North Block of Main Street





Old Town Residential Properties





Old Town Residential Properties





Old Town Residential Properties

Brick Buildings

Bricks are rich in symbolism and can represent various concepts.



1. Foundation and Stability:

Bricks are often seen as the building blocks of structures, symbolizing a strong foundation, stability, and durability. They suggest that something is built to last and can endure challenges over time.



2. Hard Work and Effort:

Bricks represent manual labor, effort, and the process of building something brick by brick. This can symbolize the value of hard work, persistence, and dedication in achieving goals.



3. Community and Collaboration:

In construction, bricks are often laid together to create a cohesive structure. This can symbolize teamwork, unity, and collaboration, highlighting how small, individual efforts combine to create something bigger.



4. Protection and Security:

Brick walls are often associated with strength and protection. They symbolize security, safety, and a barrier against external threats.



5. Transformation and Change: As bricks are part of the process of construction and building, they can also symbolize change, growth, and transformation—moving from a single brick to a complete structure.



6. Economic Development and Business Practices:

Bricks are inherently built on right angles and straight lines. These attributes illustrate exactness, integrity, and strength – visually reinforcing that this is an excellent place to do business.



8. History and Tradition:

Bricks have been used in construction for thousands of years, often symbolizing heritage, tradition, and the preservation of culture and history.



9. Brick is a Natural Material:

Brick is made of natural materials. Elements of nature are part of our identity.

Discussion

- Downtown Architectural Guidelines
- Infill in the Central Neighborhoods
- Incentivizing the Preservation of Buildings with “Historic Charm”

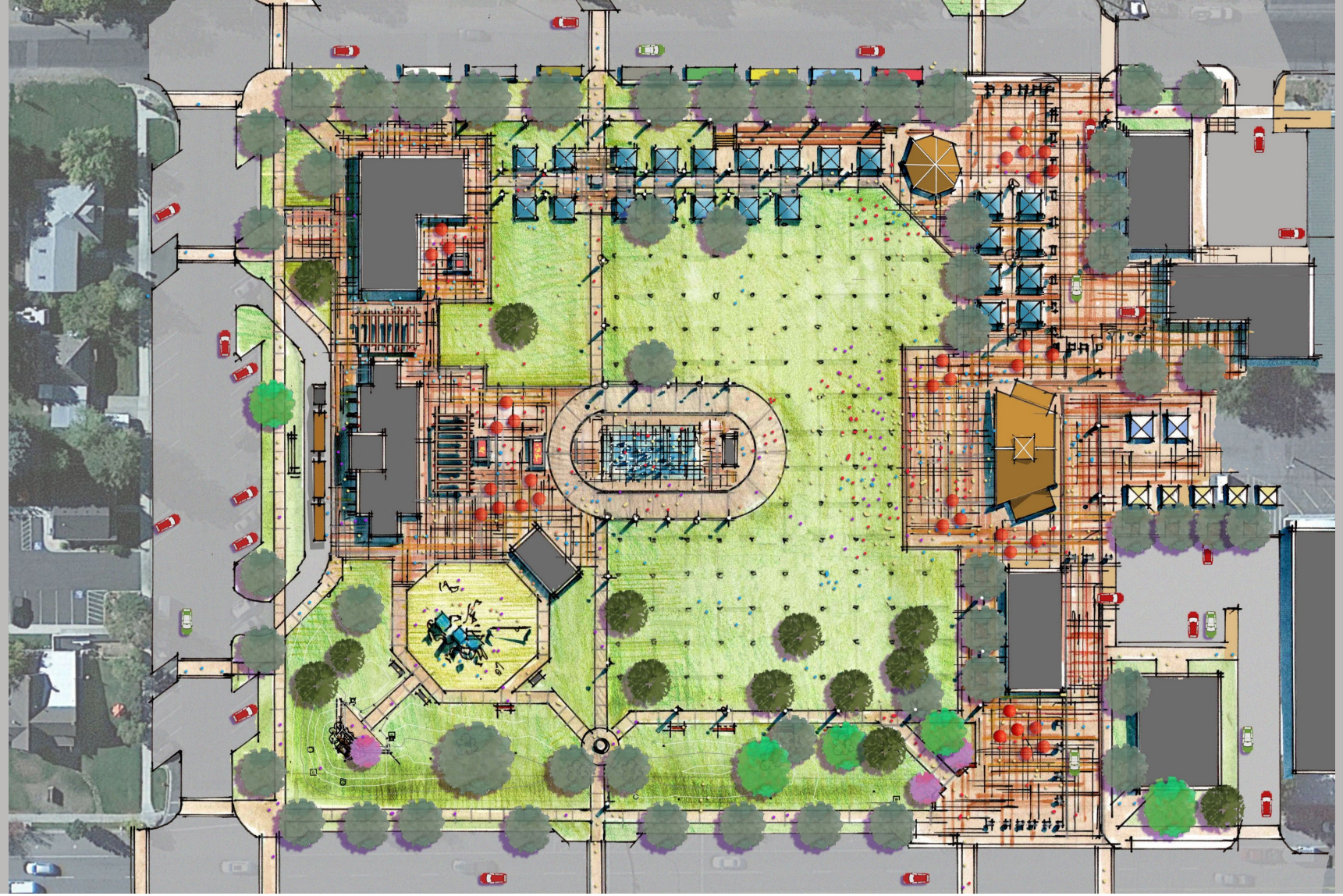
Naming of Downtown Park Elements



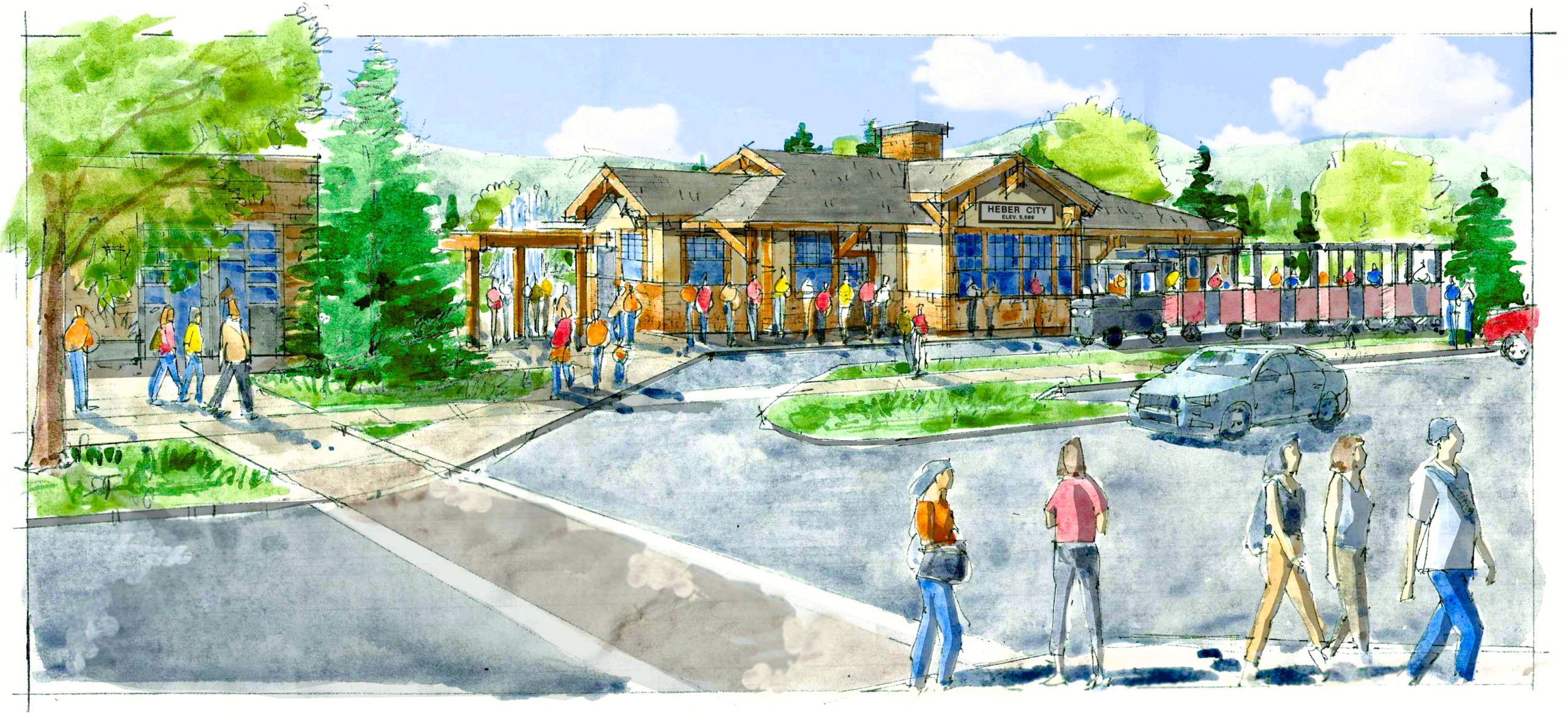
C Street

200 South Main

Heber C. Kimball – Heber City's namesake



C Street Plaza | currently Heber City Park



The Depot | railroad pickup/drop off

HEART OF THE WASATCH BACK

HEBER CITY

EST 1889

Thank you

Heber City Council

Heber City Council Staff Report

MEETING DATE: 9/17/2024

SUBJECT: Update on Code Enforcement Issues in the City and Public Safety Issues for the Month

RESPONSIBLE: Parker Sever, Travis Price, Code Enforcement Officer

DEPARTMENT: Police Department

STRATEGIC RELEVANCE:

SUMMARY

Presentation on code enforcement successes and challenges throughout the year and an update on public safety issues the police department is encountering.

RECOMMENDATION

BACKGROUND

City Council has requested an update on code enforcement success this last year and on any public safety issues that they have encountered in the last month.

DISCUSSION

This will be a PowerPoint presentation and discussion on code enforcement that will include the successes the officer has had and the challenges that he faces. The report will include statistics for the year and how complaints are handled. Some of the items discussed will be snow removals, short-term rentals, nuisance abatement, weed abatement and other community concerns. This will be followed by a brief update on public safety concerns for the last month.

FISCAL IMPACT

Not Applicable

CONCLUSION

Direction from council on

ALTERNATIVES

1. Approve as proposed
2. Approve as amended
3. Continue
4. Deny

POTENTIAL MOTIONS

Alternative 1 - Approval - Staff Recommended Option

I move to **approve** the item as presented, with the findings and conditions as presented in the conclusion above.

Alternative 2 - Approve as Amended

I move to **approve** the item as amended, as follows.

Alternative 3 - Continue
I move to **continue** the item to another meeting on , with direction to the applicant and/or Staff on information and / or changes needed to render a decision, as follows:

Alternative 4 - Denial
I move to **deny** the item with the following findings.

ACCOUNTABILITY

Department: Police Department
Staff member:

EXHIBITS

1. Code Enforcement PP

HEART OF THE WASATCH BACK

HEBER CITY
EST 1889

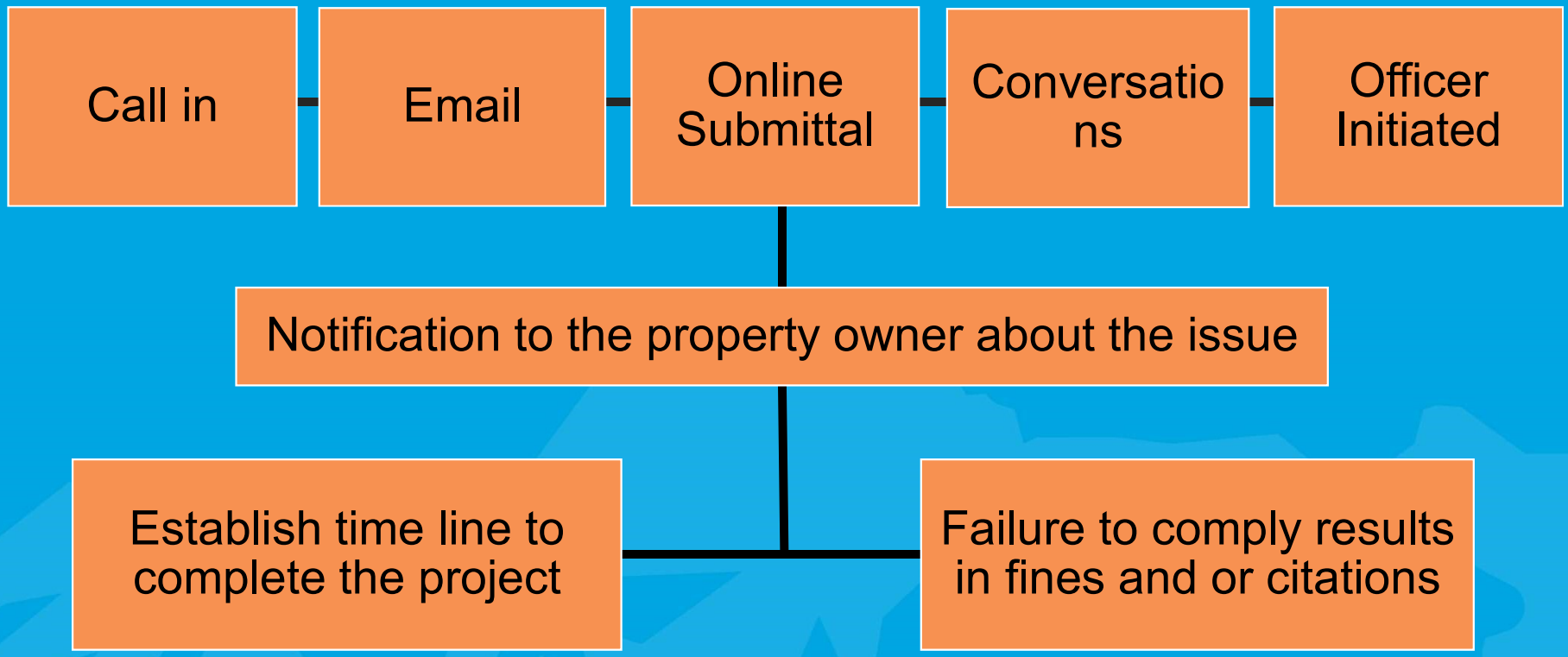
HEBER CITY
CODE ENFORCEMENT

Sgt. Josh Weishar, Senior Officer Travis Price

Stats: Call of Service: 1567, Citations: 124

- 911 Hang up – 4
- **Abandoned Vehicle – 130**
- Admin Detail – 72
- Agency Assist – 18
- Alarm, Motion – 4
- Alcohol Offense – 3
- Animal Problem – 4
- Assault – 5
- Bomb Threat – 1
- Burglary – 2
- **Business License Problem – 13**
- Child Abuse -1
- Citizen Assist – 100
- Civil Complaint – 2
- Criminal Mischief – 7
- Damaged Property – 4
- Death – 2
- Directed Patrol – 83
- Domestic Violence – 6
- Drugs – 4
- DUI – 10
- Fire – 1
- Brush Fire – 1
- Vehicle Fire – 2
- Utility Natural Gas – 2
- Fleeing – 1
- Found Property – 2
- Impound – 1
- Improper Dump – 3
- Intoxication – 2
- Juvenile Problem – 14
- Keep The Peace – 1
- Kidnapping-1
- Lockout – 11
- Medical Injury Accident – 6
- Medical – 3
- Medical Aid – 6
- Medical Aid Paramedic – 5
- Missing Person – 4
- Noise Complaint – 3
- Overdose – 1
- **Parking Problem – 431**
- Property Damage Traffic Accident – 15
- Personal Injury Traffic Accident – 6
- Protective Order – 3
- **Public Nuisance – 238**
- Radar Trailers- 4
- Recovered Vehicle(Stolen) – 2
- Run Away Child – 2
- Special Events – 30
- Suicidal Subject—2
- Suspicious – 23
- Theft – 5
- Threat – 1
- Traffic Hazard – 14
- Traffic Offense – 9
- Traffic Stop- 2
- Training- 41
- Trespassing – 3
- Utility Problem – 2
- Vin Inspection – 87
- Warrant Service – 14
- Welfare Check – 5
- Witness Tampering- 1

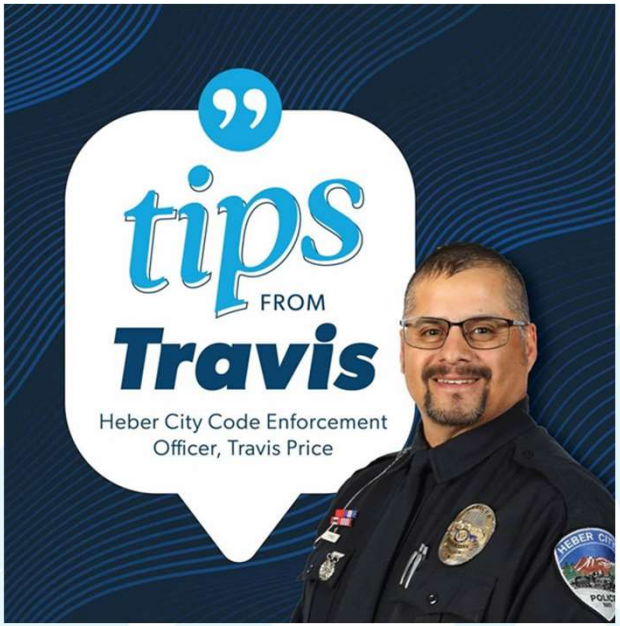
How Complaints Are Handled

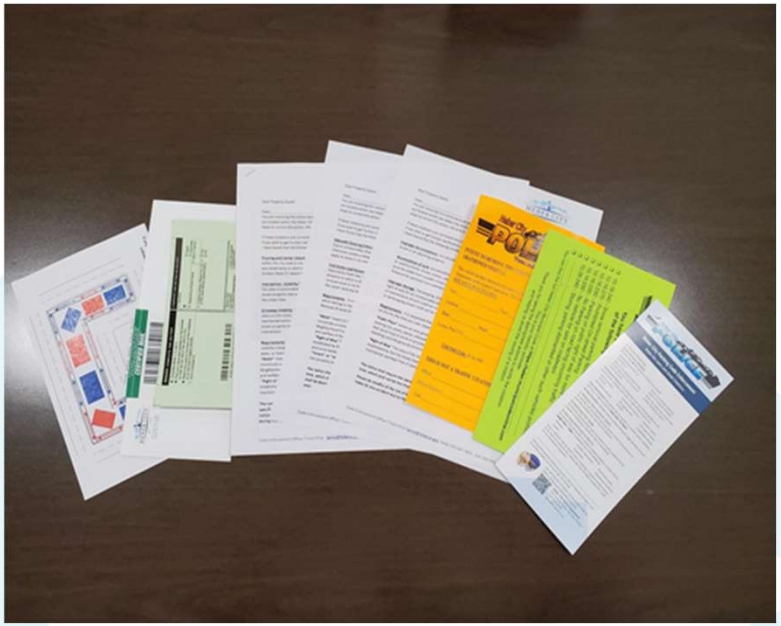


How to Report a Violation



Educating The Public





Enforcement Methods

Warning



Heber City POLICE

"Protect with Courage, Serve with Compassion"

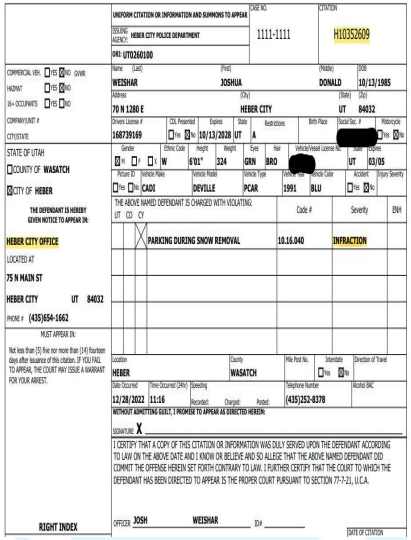
You have been found to be in violation of one of the following Heber City Parking Codes:

- ☐ 10.16.040 - Snow removal parking November 15 -April 1st.
- ☐ 10.16.070 - Prohibited On-street Parking
- ☐ 10.16.030 - Parking on public right of way for more than 72 hrs.
- ☐ 10.16.030 - No Parking on Sidewalks and/or Right of Way Landscaping
- ☐ 10.16.030 - No Vehicle for sale on roadways
- ☐ 10.26.040 - Storing, parking dismantled or other such vehicles prohibited

You can find the full Heber City Municipal Code at **https://heber.municipalcodeonline.com**

This is your friendly reminder.
Thank you for taking the appropriate actions to rectify the violation and helping us avoid the issuing of a citation.

Citation



UNIFORM CITATION OR INFORMATION AND SUMMONS TO APPEAR

CASE NO. 1111-1111

CITATION H10352609

ISSUING AGENCY: HEBER CITY POLICE DEPARTMENT

ORI: UT0260100

Name (Last): WEISHAR (First): JOSHUA (Middle): DONALD DOB: 10/13/1985

Address: 70 N 1280 E (City): HEBER CITY (State): UT (Zip): 84032

Driver License #: 168739169 CDL Presented: ☐Yes ☒No Expires: 10/13/2028 State: UT Restrictions: A Birth Place: [redacted] Social Sec. #: [redacted] Motorcycle: ☐Yes ☒No

COMMERCIAL VEH. ☐YES ☒NO CVIR: HAZMAT ☐YES ☒NO 16+ OCCUPANTS ☐YES ☐NO COMPANY/UNIT #: CITY/STATE:

Gender: ☒M ☐F Ethnic Code: ☐H ☐NH Height: W Weight: 6'01" Eyes: 324 Hair: GRN Vehicle/Vessel License No.: BRO [redacted] State: UT Expires: 03/05

Person ID: ☐Yes ☐No Vehicle Make: CADI Vehicle Model: DEVILLE Vehicle Type: PCAR Vehicle Year: 1991 Vehicle Color: BLU Accident: ☐Yes ☒No Injury Severity:

STATE OF UTAH
☐COUNTY OF WASATCH
☒CITY OF HEBER

THE DEFENDANT IS HEREBY GIVEN NOTICE TO APPEAR IN:

HEBER CITY OFFICE
LOCATED AT
75 N MAIN ST
HEBER CITY UT 84032
PHONE # (435)654-1662

MUST APPEAR IN: Not less than (5) five nor more than (14) fourteen days after issuance of this citation. IF YOU FAIL TO APPEAR, THE COURT MAY ISSUE A WARRANT FOR YOUR ARREST.

THE ABOVE NAMED DEFENDANT IS CHARGED WITH VIOLATING:

UT	CO	CY		Code #	Severity	ENH
		X	PARKING DURING SNOW REMOVAL	10.16.040	INFRACTION	

Location: HEBER County: WASATCH Mile Post No.: Interstate: ☐Yes ☒No Direction of Travel:

Date Occurred: 12/28/2022 Time Occurred (24hr): 11:16 Speeding: Recorded: Charged: Posted: Telephone Number: (435)252-0378 Alcohol/BAC:

WITHOUT ADMITTING GUILT, I PROMISE TO APPEAR AS DIRECTED HEREIN:

SIGNATURE X

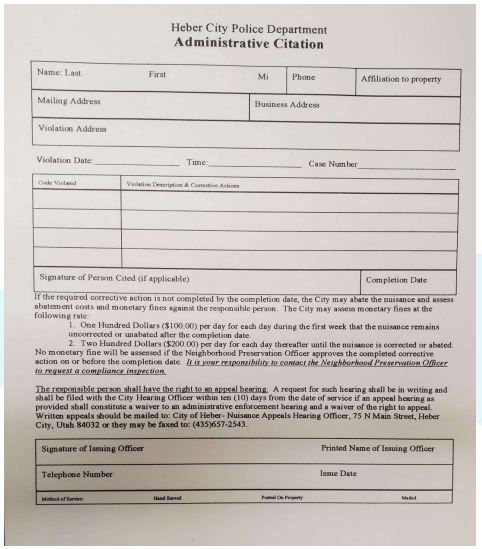
I CERTIFY THAT A COPY OF THIS CITATION OR INFORMATION WAS DULY SERVED UPON THE DEFENDANT ACCORDING TO LAW ON THE ABOVE DATE AND I KNOW OR BELIEVE AND SO ALLEGE THAT THE ABOVE NAMED DEFENDANT DID COMMIT THE OFFENSE HEREIN SET FORTH CONTRARY TO LAW. I FURTHER CERTIFY THAT THE COURT TO WHICH THE DEFENDANT HAS BEEN DIRECTED TO APPEAR, IS THE PROPER COURT PURSUANT TO SECTION 77-7-21, U.C.A.

OFFICER JOSH WEISHAR ID#

RIGHT INDEX

DATE OF CITATION

Admin Citation



Heber City Police Department
Administrative Citation

Name: Last	First	Mi	Phone	Affiliation to property
Mailing Address			Business Address	
Violation Address				

Violation Date:_____ Time:_____ Case Number_____

Code Violated	Violation Description & Corrective Actions

Signature of Person Cited (if applicable) | Completion Date

If the required corrective action is not completed by the completion date, the City may abate the nuisance and assess abatement costs and monetary fines against the responsible person. The City may assess monetary fines at the following rate:

1. One Hundred Dollars ($100.00) per day for each day during the first week that the nuisance remains uncorrected or unabated after the completion date.
2. Two Hundred Dollars ($200.00) per day for each day thereafter until the nuisance is corrected or abated.

No monetary fine will be assessed if the Neighborhood Preservation Officer approves the completed corrective action on or before the completion date. *It is your responsibility to contact the Neighborhood Preservation Officer to request a compliance inspection.*

The responsible person shall have the right to an appeal hearing. A request for such hearing shall be in writing and shall be filed with the City Hearing Officer within ten (10) days from the date of service if an appeal hearing as provided shall constitute a waiver to an administrative enforcement hearing and a waiver of the right to appeal. Written appeals should be mailed to: City of Heber- Nuisance Appeals Hearing Officer, 75 N Main Street, Heber City, Utah 84032 or they may be faxed to: (435)657-2543.

Signature of Issuing Officer	Printed Name of Issuing Officer
Telephone Number	Issue Date

Method of Service: Hand Served Posted On Property Mailed

Parking

- Parking too close to intersections.
- Parking in city easements, abandoned vehicles,
- Parking during the snow season. (Nov. 15 – April 1)

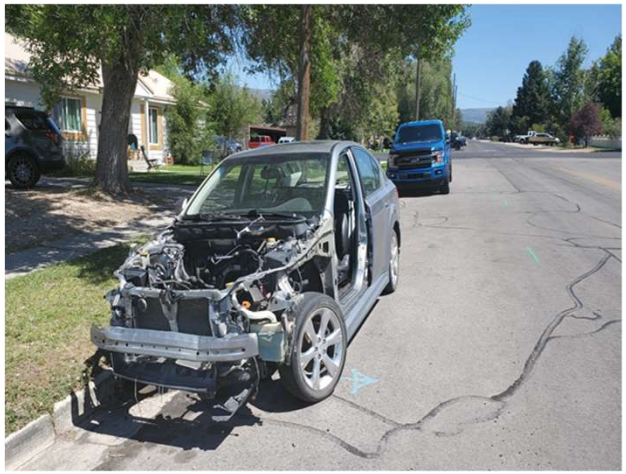






Parking

- Parking trailers and equipment on city streets, for storage
- Parking vehicles on the city streets, solely for listing them for sale.
- Just Parking Enforcement could be a full-time job.







Parking Attached/Unattached Trailers

10.16.080 Large Trucks In Residential Zones

Except as provided herein, it shall be unlawful to park on a public street in any residential zone in the City any vehicle or trailer having an overall length of twenty feet (20') or more or any combination of vehicles and trailers having an overall combined length of twenty feet (20') or more. This section shall not apply, however, under the following circumstances:

A. When the vehicle is a school bus and is parked solely for the purpose of loading or unloading passengers.

B. When the vehicle is being used to deliver or remove household furniture or accessories to or from a specific residence or building.

C. When the vehicle is actively involved in permitted construction, landscaping, or other work on a specific residence or building.

D. When the vehicle is a trailer being loaded or unloaded.

E. When there is an emergency requiring the parking of a vehicle at a particular location.

Business License

- We have many Mobile Venders throughout the city.
- Short-term vendor or seasonal sales all need a business license.

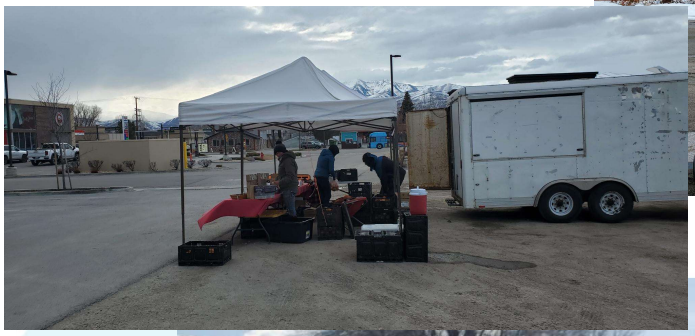




Business License

- Vendors must obtain business licenses through the city.
- If companies don't pay for their licenses they are told to stop doing business.







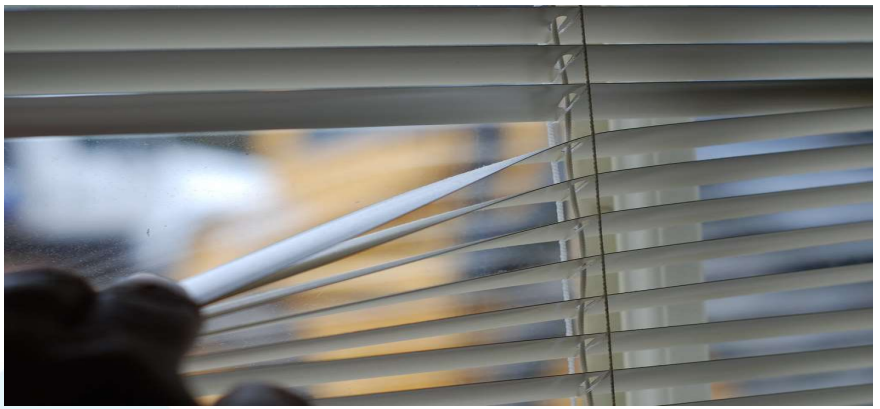
Short Term Rentals

Coming to a subdivision near you!!!

- Residents are able to rent out a portion of the entire home for up to 30 days.
- Parking, Parties, and Safety Concerns are top complaints among neighbors.
- This problem will only increase with the 2034 Olympics and Heber continuing to be a destination City.

Short Term Rental Issues

- Parking in the street is an issue.
- Noise is an issue, among these rentals.
- Concerned Neighbors worry about strangers, drugs, and other suspicious activity.
- Property Owners advertise homes to occupy more than code permits.



- Rules and regulations are not understood.
- Renters have trespassed on neighboring properties.

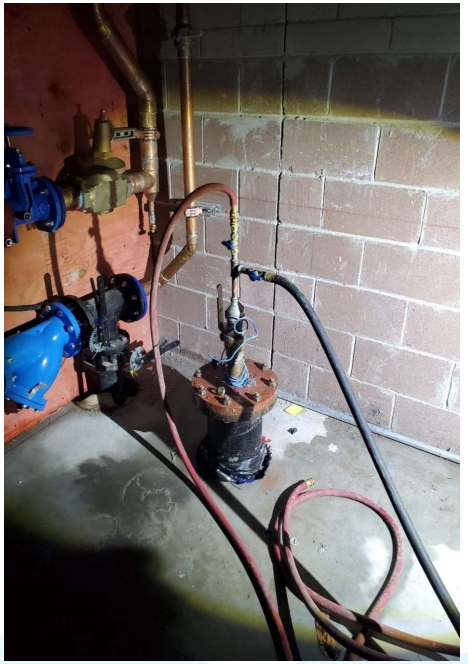
Issues with STR City Code that need Resolutions

- Violations of 5.26.030 Licenses Required
  - **Occupancy** 5.26.030(K)(1)
    - Only Family as defined in 18.08.200
    - 8 Individuals
  - On Street **Parking** 5.26.30(K)(2)
    - Lodgers shall not park on the street. All cars shall be located in a garage, driveway, or permitted parking area.
  - Amount of **Vehicles** cannot Exceed 4 5.26.030(K)(3)
    - Lodgers shall be limited to no more than 4 cars, based upon off street parking availability.
  - Vacation Rental Occupancy 5.26.030(L)
    - Occupancy
      - 1 Lodger per 200 Square Feet, Not to exceed 12 Lodgers
    - Parking
      - Lodgers shall not park on the street. Garages shall be clear and available to patrons for parking. All cars shall be located in a garage, driveway, or permitted parking area.
      - Lodgers shall be limited to no more than 4 cars, based upon off street parking availability.

Theft of Services

- Thousands of Gallons of water are stolen from the city.
- Water must be metered and accounted for.
- Theft of water is a Misdemeanor & violators are being cited.







Graffiti

- Many areas around the city have been tagged.
- Officers record information about graffiti to track gang activity.







Vacant/ Abandonment







Vacant/ Abandonment

Before and After









Safety Concerns

Keeping up with Snow Storms







Safety Concerns

Structural damage from storms





Dust/ Nuisance





Encroachment on Easement



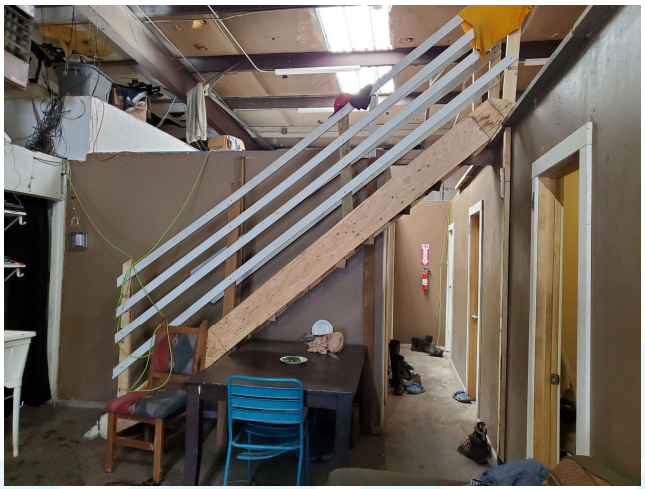


Not always as they seem



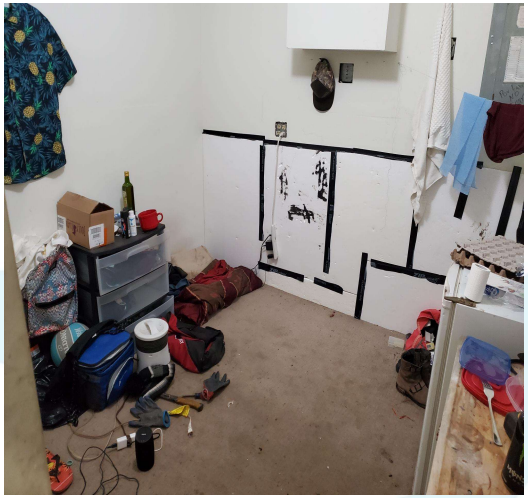


Not always as they seem

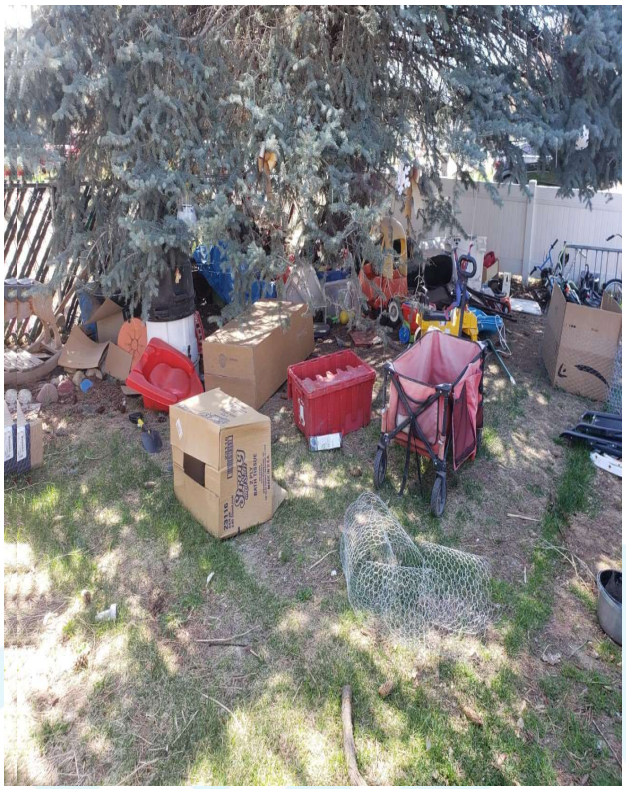






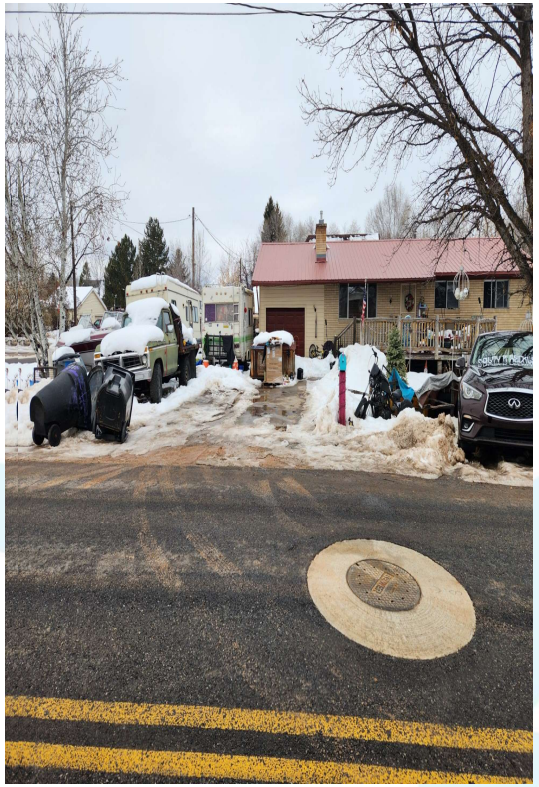


Accumulation









Accumulation





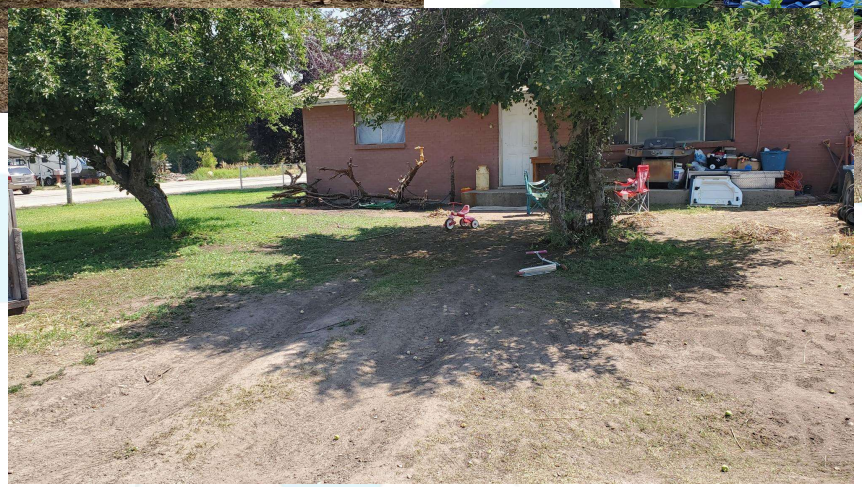


Accumulation

Before and After



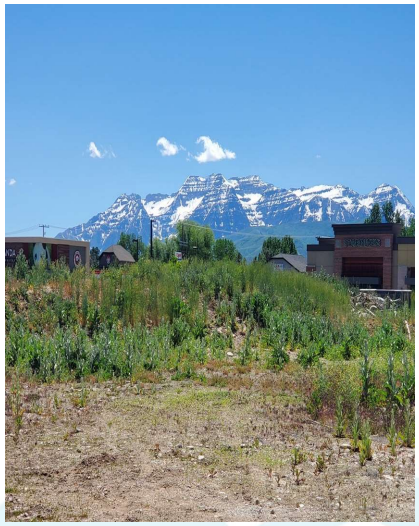


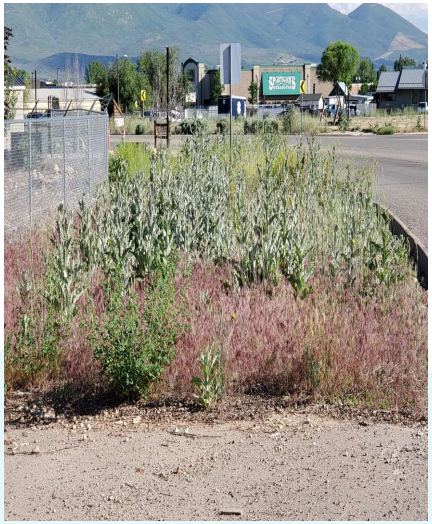


Noxious Weeds

- Find the owner of the property
- Send notification
- Wait for compliance
- Within 20 days, thistles can turn to a budding stage. (Spraying thistles at this stage is a waste of money, the bud can still spread the thistle seeds).
- Bonds for weed abatement to help along city easement
- Construction weed bonds, enforcement on developments.
- Does the City have enough property to hire seasonal employee to take care of easements? Would this be cheaper than hiring a company?
- The problem pops up overnight and cannot be fully identified until it does.
- Public information campaign ahead of weed season.

Noxious Weeds

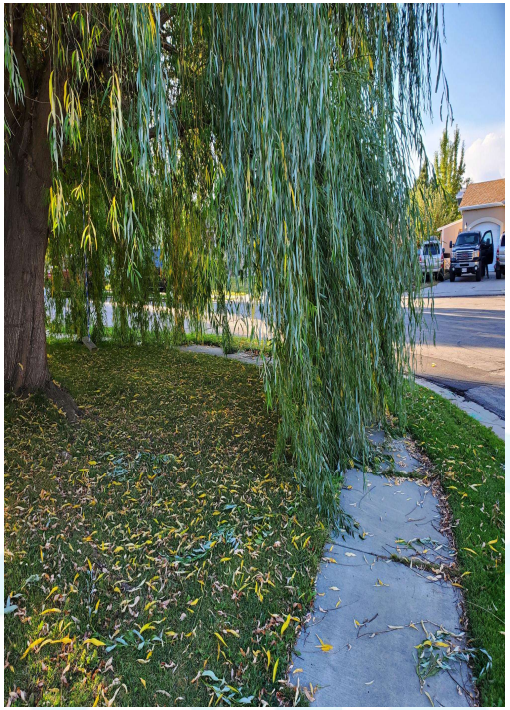




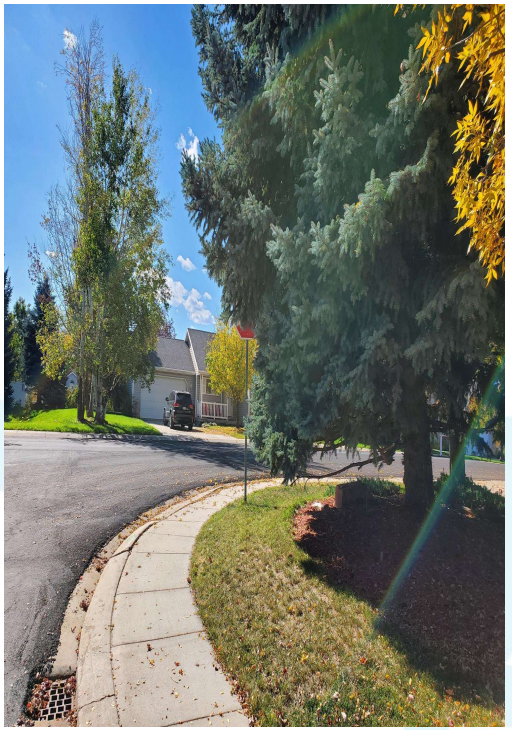


April, June, August

Tree Trimming

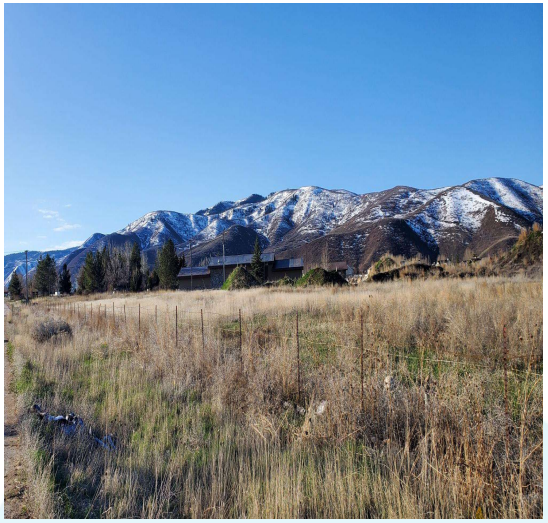






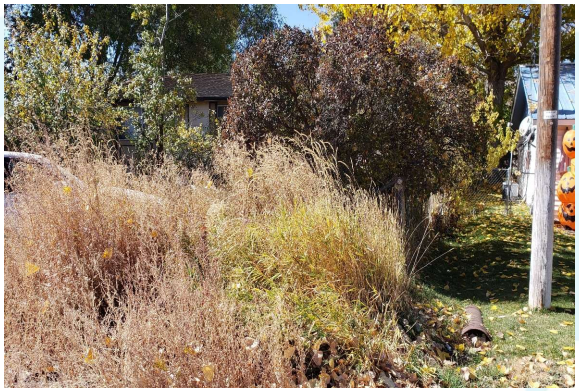
Fire Hazards











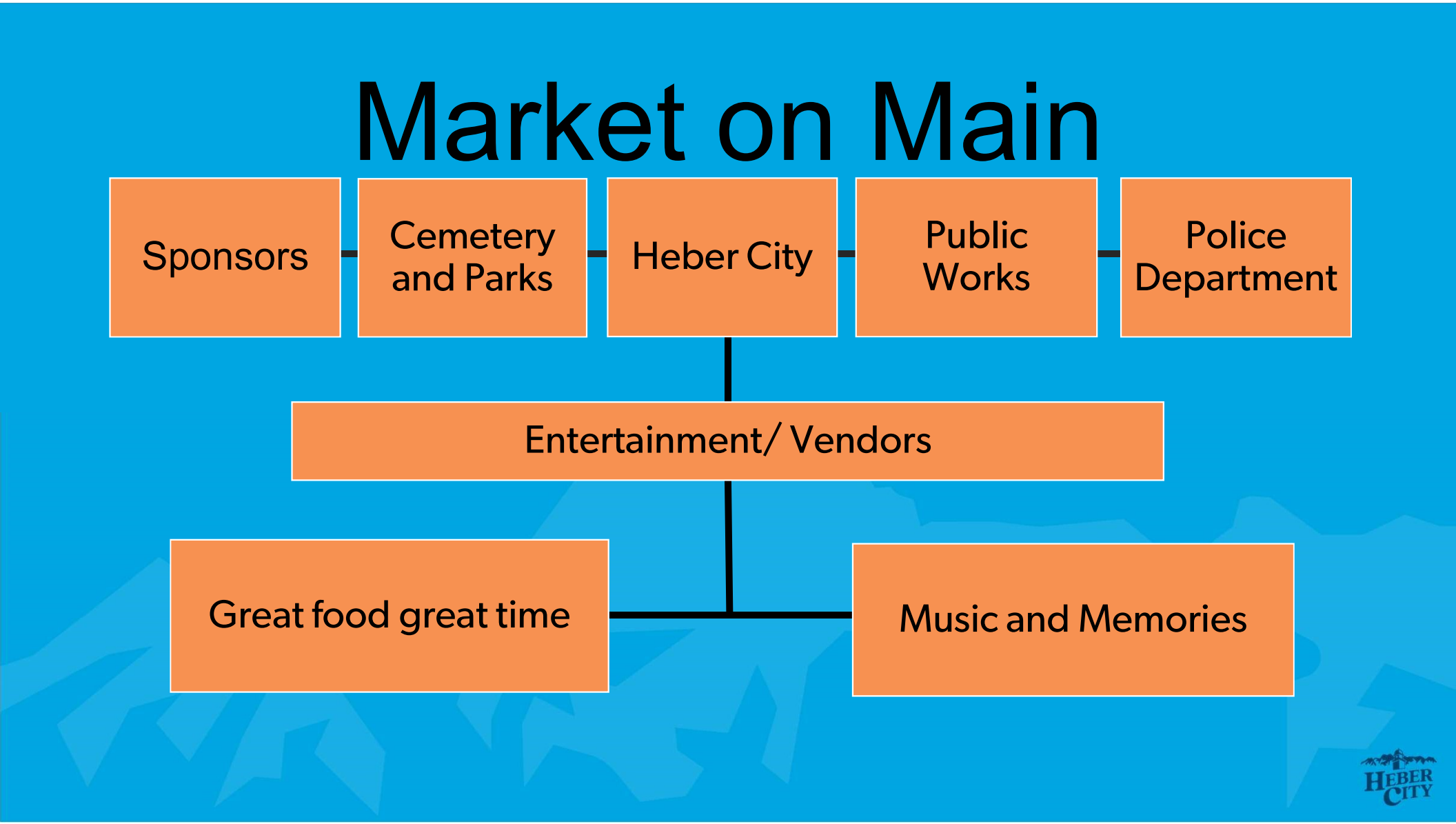
HEART OF THE WASATCH BACK

HEBER CITY

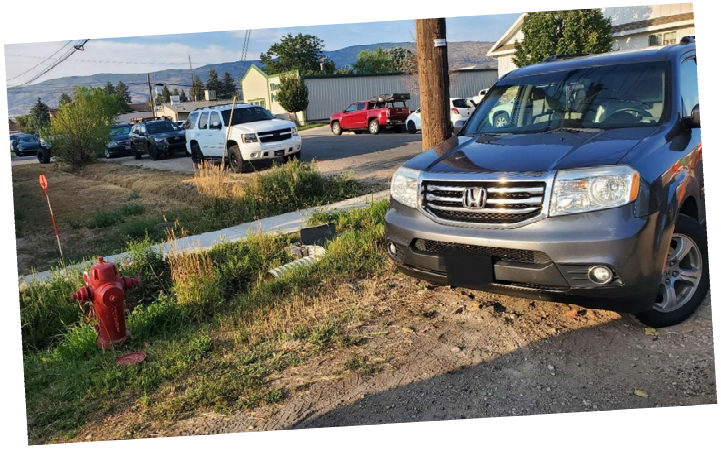
EST 1889

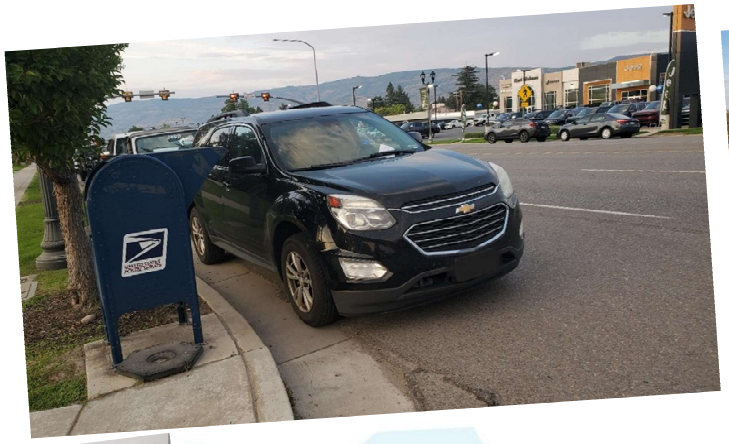
Heber City Market on Main

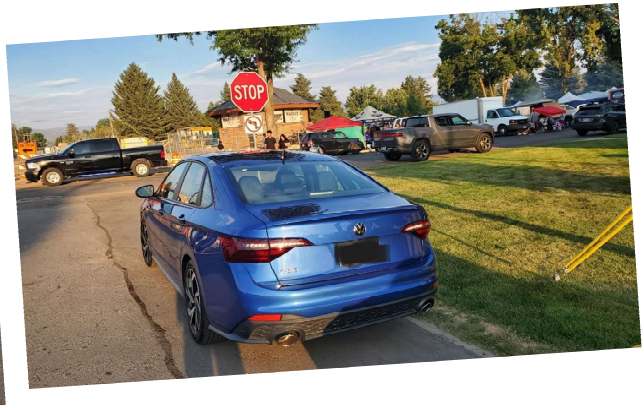



Market on Main
Sponsors
Cemetery and Parks
Heber City
Public Works
Police Department
Entertainment/ Vendors
Great food great time
Music and Memories
HEBER CITY

Parking Issues











Thursday Evenings

WHAT IS HAPPENING:

- ROADBLOCKS ON 100 W.
- VENDORS SET UP
- VENDORS AND WORKERS TAKE PARKING SPOTS
- VENDORS NEED ACCESS TO THE AREAS/ DOUBLE PARK



WHAT ISSUES ARE WE FACING:

- PARKING IN PRIVATELY OWNED DRIVEWAYS
- PARKING IN FRONT OF INTERSECTIONS
- PARKING IN FRONT OF FIRE HYDRANTS
- DOUBLE PARKING ALONG THE CITY STREETS
- NO ACCESS FOR THE EMERGENCY VEHICLES

HEBER CITY

Parking at Intersections

THERE ARE SEVERAL ISSUES WITH PARKING AT THE INTERSECTIONS

- BLOCKING THE VIEW OF THE INTERSECTION COULD CAUSE ACCIDENTS
- PEDESTRIANS ARE AT RISK OF GETTING INJURED
- STATE STATUTE: 30 FEET UPON THE APPROACH TO ANY FLASHING SIGNAL, STOP SIGN, YIELD SIGN, OR TRAFFIC-CONTROL SIGNAL LOCATED AT THE SIDE OF A ROADWAY.









Parking in front of Fire Hydrants

THE FIRE DEPARTMENT NEEDS TO HAVE ACCESS!!!

- THERE ARE SEVERAL ISSUES WITH PARKING IN FRONT OF FIRE HYDRANTS
- THIS BLOCKS ACCESS TO EMERGENCY EQUIPMENT.
- STATE STATUTE: NO PARKING WITHIN 15 FEET OF A FIRE HYDRANT





Suggestions/Solutions

- CITATIONS FOR VIOLATORS
- INSTALL CURB AND GUTTERS
- DROP OFF AREA
- PAINT THE CURB OR SMALL SECTION OF PAVEMENT UNTIL THE CURB AND GUTTER PROJECT IS COMPLETE.
- PASSES FOR VENDORS AS WELL AS HOMEOWNERS





Suggestions/Solutions

COST AND TIME:

- THE COST OF PAINT
- MAN HOURS TO PAINT
- UPKEEP THROUGH THE YEARS

VISUAL NOTIFICATION:

- MOST WILL NOT PARK IN NO-PARKING ZONES (PAINTED AREAS)
- A VISUAL REMINDER OF WHERE PARKING IS NOT ALLOWED
- EASY CITATION- WHEN PARKED WITHIN THE RED ZONE.

Options….

- CLOSE THE ROAD, ALLOWING ONLY SOME TO ACCESS CERTAIN ROADS.
- POLICE CLOSE ROADS FOR THE DURATION OF THE EVENT.
- THIS WOULD REQUIRE MORE MANPOWER
- MAKE ROADS ONE WAY ONLY FOR THE EVENT



Notification/Manpower

MEDIA POSTS/ SPREAD THE WORD

- MORE OFFICERS WILL NEED TO BE PRESENT
- SUPPORT FROM ALL ENTITIES
- FOLLOW THROUGH WITH VIOLATIONS



Just a Thought…

INCREASE VENDOR'S FEES AND PARKING FINES

- MONEY GENERATED COULD HELP PAY FOR EVENTS
- FEE FOR PARKING ENFORCEMENT
- RENT PARKING LOTS ON THURSDAY



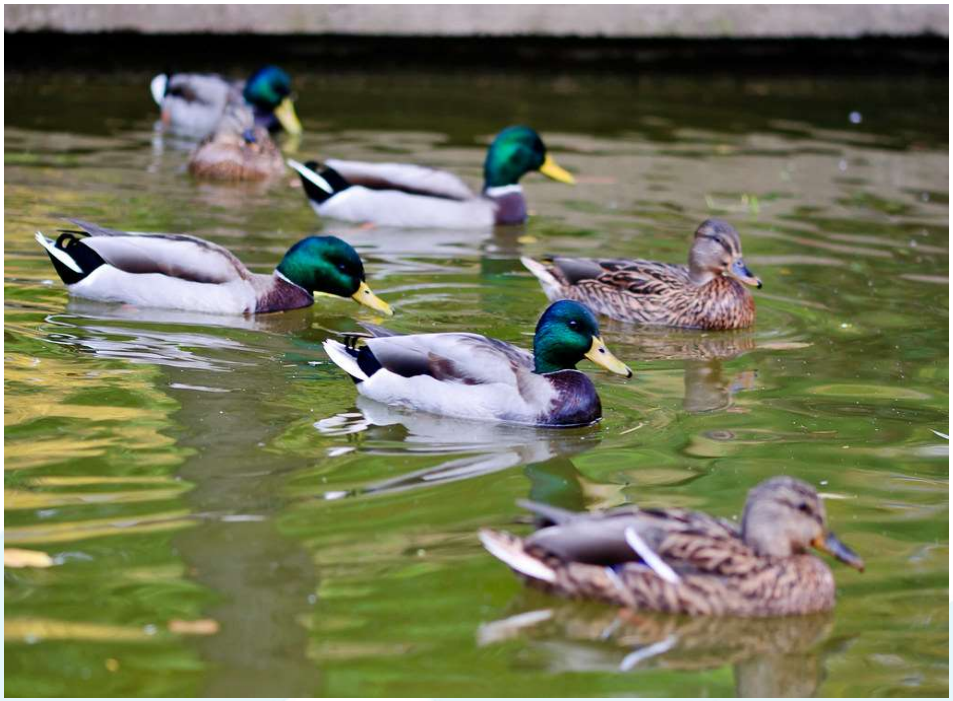


Working Together

- IT MAY GET WORSE BEFORE IT GETS BETTER WHILE WE AWAIT THE PARK PROJECT TO BE COMPLETED.
- WE NEED TO STAY UP TO DATE WITH OUR NEEDS AND NOT FALL BEHIND.
- HEBER HELPING HEBER
- IMPLEMENT, EDUCATE, AND ENFORCE.



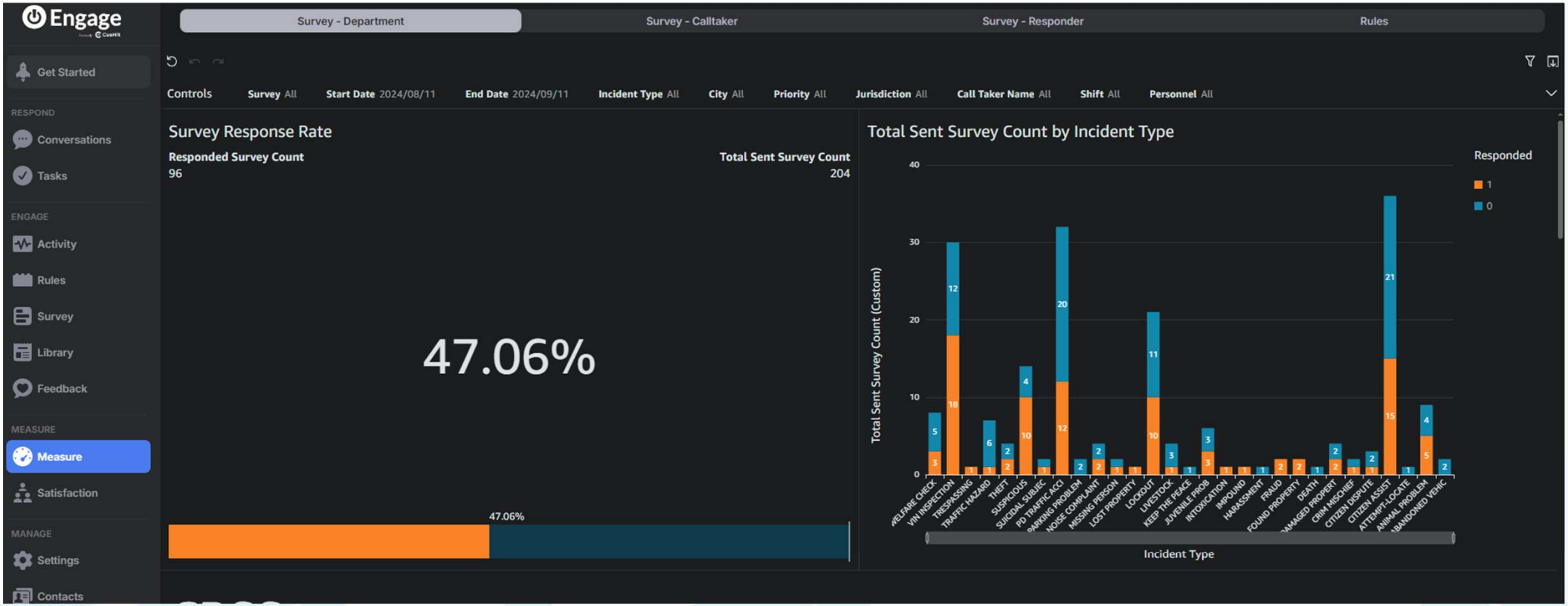
The duck analogy refers to the fact that while we appear to be doing well, like a duck gliding across a pond, in reality, the air of normality usually masks a hell of a lot of hard work behind the scenes or like the duck, paddling like fury to stay afloat.—Julie from Y.O.D.A.

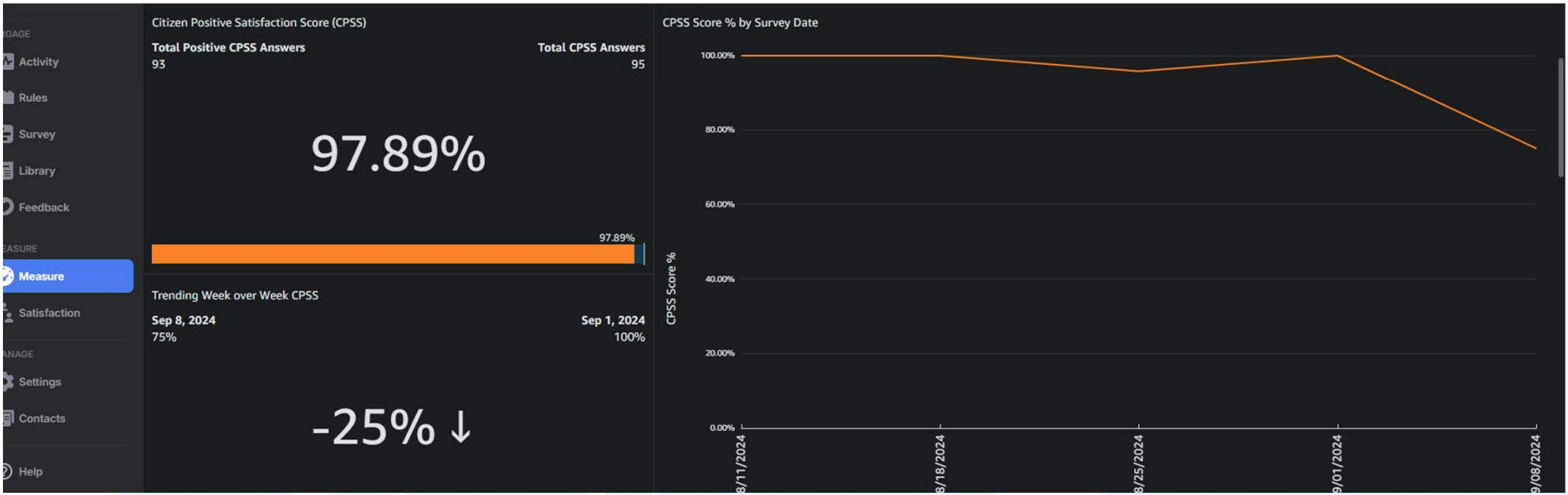


THANK YOU

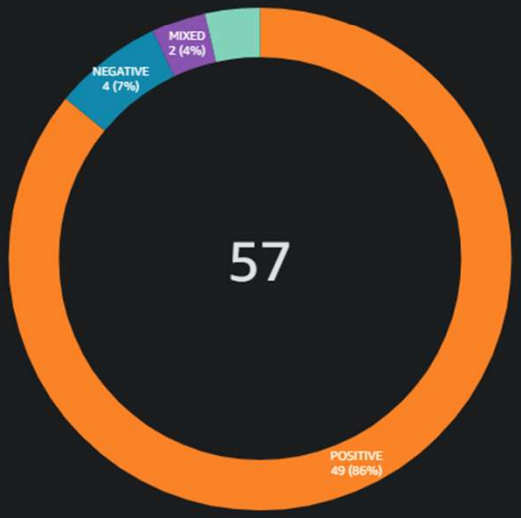
Heber City is a beautiful place, let's work together to keep it that way.




Engage
Survey - Department
Survey - Calltaker
Survey - Responder
Rules
Get Started
RESPOND
Conversations
Tasks
ENGAGE
Activity
Rules
Survey
Library
Feedback
MEASURE
Measure
Satisfaction
MANAGE
Settings
Contacts
Controls
Survey All
Start Date 2024/08/11
End Date 2024/09/11
Incident Type All
City All
Priority All
Jurisdiction All
Call Taker Name All
Shift All
Personnel All
Survey Response Rate
Responded Survey Count
96
Total Sent Survey Count
204
47.06%
47.06%
Total Sent Survey Count by Incident Type
Responded
1
0
Total Sent Survey Count (Custom)
Incident Type
WELFARE CHECK
VIN INSPECTION
TRESPASSING
TRAFFIC HAZARD
THEFT
SUSPICIOUS
SUICIDAL SUBJEC
PD TRAFFIC ACCI
PARKING PROBLEM
NOISE COMPLAINT
MISSING PERSON
LOST PROPERTY
LOCKOUT
LIVESTOCK
KEEP THE PEACE
JUVENILE PROB
INTOXICATION
IMPOUND
HARASSMENT
FRAUD
FOUND PROPERTY
DEATH
CRIM MISCHIEF
CITIZEN DISPUTE
CITIZEN ASSIST
ATTEMPT-LOCATE
ANIMAL PROBLEM
ABANDONED VEHIC


GAGE
Activity
Rules
Survey
Library
Feedback
EASURE
Measure
Satisfaction
ANAGE
Settings
Contacts
Help
Citizen Positive Satisfaction Score (CPSS)
Total Positive CPSS Answers
93
Total CPSS Answers
95
97.89%
97.89%
Trending Week over Week CPSS
Sep 8, 2024
75%
Sep 1, 2024
100%
-25% ↓
CPSS Score % by Survey Date
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
CPSS Score %
8/11/2024
8/18/2024
8/25/2024
9/01/2024
9/08/2024

Sentiment Summary



Group By: Sentiment
Size: Total Sentiment (Custom)

Sentiment Details

Answer	Incident Type	Incident Number	Encounter ID	Call Taker Name	Sentiment
The officer was very friendly and extremely helpful. We were very ...	LOST PROPERTY	2408-0628	A24-23141	Empty	POSITIVE
5- very satisfied ...	SUSPICIOUS	2408-0630	A24-23145	Empty	POSITIVE
Officer Armendaris was great really nice	FOUND PROPERTY	2408-0638	A24-23162	Empty	POSITIVE
The officer was very kind, patient and helpful.	CRIM MISCHIEF	2408-0757	A24-23359	Empty	POSITIVE
Thank you for being so patient while we waited for the other party.	PD TRAFFIC ACCI	2408-0833	A24-23462	Empty	POSITIVE
Thank you guys. I greatly appreciate your service	CITIZEN ASSIST	2408-0836	A24-23467	Empty	POSITIVE
Officer Sauer was very professional. He worked to get each detail correct	SUSPICIOUS	2408-0903	A24-23570	Empty	POSITIVE
Officer Maldonado was awesome - she was very helpful and patient.	PD TRAFFIC ACCI	2408-0906	A24-23575	Empty	POSITIVE
Very professional and well prepared for the task.	VIN INSPECTION	2408-0930	A24-23626	Empty	POSITIVE
Anel was considerate and went at length to research the ...	CITIZEN ASSIST	2408-0932	A24-23627	Empty	POSITIVE
He was great	VIN INSPECTION	2408-0952	A24-23656	Empty	POSITIVE
The call at 4am was handled very well and the receiver and officer acte...	SUSPICIOUS	2408-0997	A24-23721	Empty	NEUTRAL
He was very professional and awesome 😎 thank you so much	LOCKOUT	2408-1035	A24-23798	Empty	POSITIVE
He was quick, calm and polite	LOCKOUT	2408-1038	A24-23807	Empty	POSITIVE
Officer Chad was fantastic. Very helpful, very thoughtful. He gets a 10 ...	LOCKOUT	2408-1063	A24-23875	Empty	POSITIVE
I do not recall the officers name but he was very helpful in corralling t...	LIVESTOCK	2408-1111	A24-23972	Empty	POSITIVE
Officer responded quickly; was very courteous and efficient and resolv...	THEFT	2408-1133	A24-24003	Empty	POSITIVE
I just called it in	SUSPICIOUS	2408-1160	A24-24034	Empty	NEUTRAL
Officer that called me was incredibly nice and thorough. I appreciate h...	SUSPICIOUS	2408-1162	A24-24038	Empty	POSITIVE
Great attitude and all around good guy	VIN INSPECTION	2408-1214	A24-24113	Empty	POSITIVE
You are all amazing! Thank you for your help! It means a lot	WELFARE CHECK	2408-1232	A24-24143	Empty	POSITIVE
Thank you for responding!	ANIMAL PROBLEM	2408-1270	A24-24199	Empty	POSITIVE
The officer that assisted us was absolutely fantastic. Great to have suc...	VIN INSPECTION	2408-1423	A24-24461	Empty	POSITIVE

The office did a great job. Simple interaction for a business I work for

Very professional and nice

I had a great conversation and received answers to all my questions. I thought he said he was officer Thomas, but I could be wrong.

The lady who answered the call was professional and helpful, she listened to the situation and responded quickly. The officers also responded quickly and took the concern seriously. I appreciate their eagerness to resolve the situation

Thanks for coming to me for VIN inspection. You were quick, friendly, and helpful.

Officer Bell was very professional and did a great job of getting me an answer to my concerns about

The officer was so great and pleasant Thank you

Very quick to address my concerns.

I had dealt with a few different officers yesterday and it would be under my case file their names. Each one of them was very well mannered patient and seemed very personally involved in trying to diffuse and solve the situation. Heber city did a great job. Thank you so much!

Actually I read it wrong. I was very satisfied, #10.

This is the second time we have interacted with officer Honeycutt. He has been very respective and kind every time we have interacted with him He is a true asset to heber police department

The Officer Bell called me back 3 times. He also listened to my concerns and was empathetic to


Triage
a day ago
12 days ago
15 days ago
15 days ago
15 days ago
a month ago
In Progress
Done
released. We have to follows the rules of evidence handling, unless you own the footage to begin with it will almost always have to be booked into evidence first and you would have to request a copy through our evidence department.
Delivered
08/29/2024
Parker Sever
You can give him that info, he did tell me that he was driving the area trying to find the vehicle. but the video/photo may assist in determining make model and he should be able to give you a description of the car based on the images. If you have any other
Delivered
the vehicle.
Write a response...
Other
Parker Sever
Provider
Conversation Details
Workflow
Triage
Priority
None
Disposition
None
Opened
12 days ago
QR Code Label
Encounter Details
Type CITIZEN ASSIST
Incident # 2408-1657
Unit 2L24
Call Received 08/27/2024, 8:22:52 am
Location S DANIEL RD & E TURNER MILL RD, HEB, UT, 84032
Tasks
Add Task
Export
Download PDF
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Details
Notes

Heber City Council Staff Report

MEETING DATE:	9/17/2024
SUBJECT:	Highlands Residential Subdivision Preliminary, located at the Intersection of US-40 and Commons Boulevard
RESPONSIBLE:	Denna Woodbury
DEPARTMENT:	Planning
STRATEGIC RELEVANCE:	Community Development

SUMMARY

This item is an action item to consider the proposed Subdivision Preliminary for Highlands Residential located at the intersection of US-40 and Commons Boulevard.

The policy question includes the following:

- Should the Subdivision Preliminary be approved for Highlands Residential?

RECOMMENDATION

The Planning Commission approved the Subdivision Preliminary for Highlands Residential at their August 27, 2024, meeting. Staff recommends that the City Council approve the Subdivision Preliminary for Highlands Residential subject to findings and conditions.

BACKGROUND

G.C. Garcia, Inc. has reviewed the Subdivision Preliminary for Highlands Residential. The project is located at the intersection of US -40 and Commons Boulevard. The project is located in the NVOZ (North Village Overlay Zone) district.

The proposed project creates subdivisions for the residential portion of the Highlands Master Planned development. This application subdivides the land into residential parcels.

The Planning Commission approved the Subdivision Preliminary for Highlands Residential at their August 27, 2024, meeting.

DISCUSSION

The Preliminary Subdivision Plats create individual parcels for the single-family detached housing and for the townhomes. This application also creates parcels for the multifamily product to be developed. The plats also identify the open space areas located within the residential portion of the Highlands Master Plan.

The preliminary subdivision plats conform to the conceptual site plan that was approved with the amended development agreement approved by the City Council on January 2, 2024.

FISCAL IMPACT

None.

CONCLUSION

The proposed Subdivision Preliminary for the Highlands Residential meets the City Code and is recommended for approval.

Staff recommends that the Subdivision Preliminary for Highlands Residential be approved by the City Council with the following findings and conditions:

Findings:
1. The application is consistent with the Municipal Zoning Code.
2. The application is consistent with the General Plan.
3. The proposed Site Plan shall comply with City ordinances, Federal and State Law, as applicable to the site where the conditional use is located.

Conditions:
1. All requirements of the City Engineer shall be met.
2. All other Code Requirements shall be met.
3. Any other conditions or changes as articulated by the Planning Commission.

ALTERNATIVES

1. Approve as proposed
2. Approve as amended
3. Continue
4. Deny

POTENTIAL MOTIONS

Alternative 1 - Approval - Staff Recommended Option

I move to **approve** the Subdivision Preliminary for Highlands Residential as presented, with the findings and conditions as presented in the conclusion above.

Alternative 2 - Approve as Amended

I move to **approve** the Subdivision Preliminary for Highlands Residential as amended, as follows.

Alternative 3 - Continue

I move to **continue** the Subdivision Preliminary for Highlands Residential to another meeting on , with direction to the applicant and/or Staff on information and / or changes needed to render a decision, as follows:

Alternative 4 - Denial

I move to **deny** the Subdivision Preliminary for Highlands Residential with the following findings.

ACCOUNTABILITY

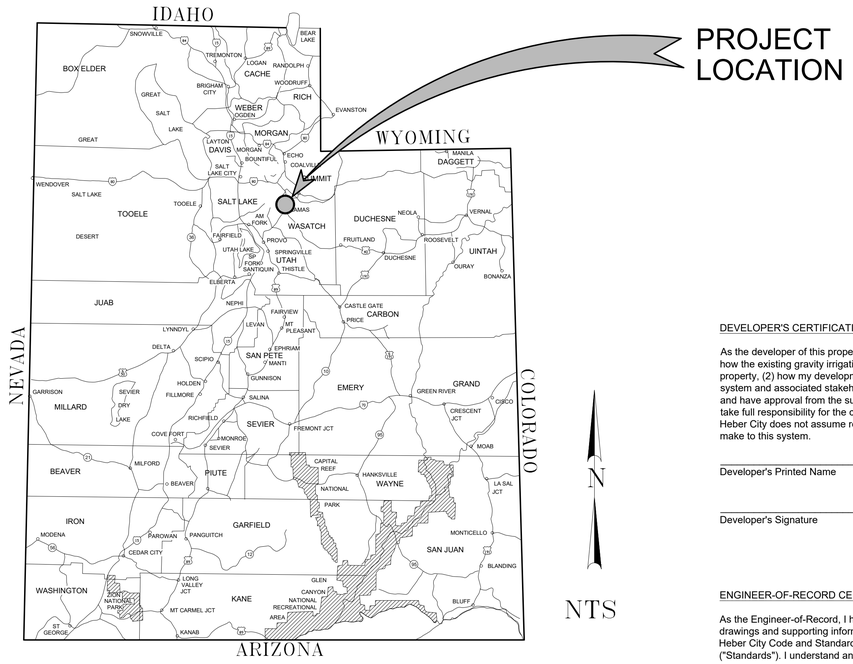
Department: Planning
Staff member: Denna Woodbury, Planning Consultant

EXHIBITS

1. Highlands Residential Development- 1 of 3
2. Highlands Residential Development- 2 of 3
3. Highlands Residential Development- 3 of 3
4. 2024 Highlands MDA 3rd Amendment Recorded
5. Proposed Base V11B-4-OVERALL MAP
6. Affordable Housing Exhibit
7. 2161-001-16 Geotech Study - Wasatch Commons
8. 02190-004 Geologic Review
9. 02190-004 Geotechnical Review
10. GSH- Slope Stability Report
11. -NVSSD Feasibility Letter 04-09-24
12. Heber Highlands TIS 20240625 Signed
13. -Preliminary Environmental Assessment
14. Drainage Report 08-06-24

HIGHLANDS RESIDENTIAL DEVELOPMENT

LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19 AND THE
WEST HALF OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
2632-2896 VICTORY HIGHWAY, HEBER CITY, UTAH 84032





LOCATION MAP
N.T.S.

DEVELOPER'S CERTIFICATION

As the developer of this property, I hereby certify that I understand: (1) how the existing gravity irrigation system works in the vicinity of this property, (2) how my development of this property will affect this system and associated stakeholders, (3) that I have coordinated with and have approval from the subject irrigation company(ies), (4) that I take full responsibility for the changes I am making to this system, (5) Heber City does not assume responsibility or liability for changes I make to this system.

_____
Developer's Printed Name

_____
Developer's Signature

ENGINEER-OF-RECORD CERTIFICATION

As the Engineer-of-Record, I hereby certify that these construction drawings and supporting information ("Plans") comply with the Heber City Code and Standard Specifications and Drawings ("Standards"). I understand and agree that:

1. The City's Acknowledgment of these plans shall not be construed to be a permit for, or and approval of, any variance from any of the provisions of the Standards, unless a separate written approval authorizing a specific deviation has been provided by the City Engineer.
2. The City's Acknowledgment of these Plans, or feedback from the City on whether the Plans meet the Standards, shall not prevent the City from requiring the correction of errors in the Plans at any time, including after construction of improvements.
3. The City's Acknowledgment of these Plans does not constitute a permit from the Federal or State Government or permission to deviate from Federal or State Laws or Regulations.
4. The City's Acknowledgment of these Plans does not grant permission to work on the properties of others.

CITY ENGINEER ACCEPTANCE

_____ _____
Signature Date

DEVELOPER / BUILDER:
DR HORTON
12351 S GATEWAY PARK PLACE
DRAPER, UT 84020
(801) 571-7101

ENGINEER / SURVEYOR:
WARD ENGINEERING GROUP
231 WEST 800 SOUTH SUITE A
SALT LAKE CITY, UTAH 84101
(801) 487-8040 PHONE
(801) 487-8668 FAX

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

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3 of 5	ALTA NSPS Land Title Survey
4 of 5	ALTA NSPS Land Title Survey
5 of 5	ALTA NSPS Land Title Survey

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PL-B	Preliminary Plat
PL-C	Preliminary Plat
PL-D	Preliminary Plat
P1-A	Preliminary Plat- Phase 1
P1-B	Preliminary Plat- Phase 1
P1-C	Preliminary Plat- Phase 1
P1-D	Preliminary Plat- Phase 1
P1-E	Preliminary Plat- Phase 1
P1-F	Preliminary Plat- Phase 1
P1-G	Preliminary Plat- Phase 1
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P4-E	Preliminary Plat- Phase 4
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GENERAL	
Sheet Number	Sheet Title
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NT-02	Symbols & Abbreviations
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PH-01	Phasing Plan
DM-01	Demolition Plan
DM-02	UVU Connection & LPG Relocation Plan
TS-01	Typical Roadway Sections
TS-02	Typical Roadway Sections
TS-03	Typical Roadway Sections
SA-00	Slope Analysis - Existing
SA-01	Slope Analysis - Design

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SP-02	Site Plan- Phase 1
SP-03	Site Plan- Phase 1
SP-04	Site Plan- Phase 1
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SP-06	Site Plan- Phase 1
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SP-09	Site Plan- Phase 1
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SP-20	Site Plan- Phase 4
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UP-02	Utility Plan- Phase 1
UP-03	Utility Plan- Phase 1
UP-04	Utility Plan- Phase 1
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UP-08	Utility Plan- Phase 1
UP-09	Utility Plan- Phase 1
UP-10	Utility Plan- Phase 1
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UP-12	Utility Plan- Phase 2
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SEC-6D	Residential Grading Sections
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SEC-7B	Residential Grading Sections
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SEC-13F	Residential Grading Sections
SEC-13G	Residential Grading Sections
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SEC-15B	Residential Grading Sections
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SEC-15D	Residential Grading Sections
SEC-16A	Residential Grading Sections
SEC-16B	Residential Grading Sections
SEC-17A	Residential Grading Sections
SEC-17B	Residential Grading Sections
SEC-17C	Residential Grading Sections
SEC-17D	Residential Grading Sections
SEC-17E	Residential Grading Sections

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PP-36	Roadway Plan & Profile- Road 3
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PP-39	Roadway Plan & Profile- Drive 3
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EC-02	WASATCH CANAL EXISTING CONDITIONS PLAN
EC-03	WASATCH CANAL EXISTING CONDITIONS PLAN
EC-04	WASATCH CANAL EXISTING CONDITIONS PHOTOS
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DT-04	RETAINING WALL SECTION

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EC-02	TIMPANOGOS CANAL EXISTING CONDITIONS PLAN
EC-03	TIMPANOGOS CANAL EXISTING CONDITIONS PLAN
EC-04	TIMPANOGOS CANAL EXISTING CONDITIONS PHOTOS
DM-01	TIMPANOGOS CANAL DEMOLITION PLAN
DM-02	TIMPANOGOS CANAL DEMOLITION PLAN
SP-01	TIMPANOGOS CANAL TYPICAL SECTIONS - PROPOSED
SP-02	TIMPANOGOS CANAL SITE PLAN
SP-03	TIMPANOGOS CANAL SITE PLAN
PP-01	TIMPANOGOS CANAL RD & TRAIL
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PP-03	TIMPANOGOS CANAL RD & TRAIL
PP-04	TIMPANOGOS CANAL RD & TRAIL
PP-05	TIMPANOGOS CANAL RD & TRAIL
PP-06	TIMPANOGOS CANAL RD & TRAIL
PP-07	TIMPANOGOS CANAL RD & TRAIL
PP-03-A	TIMPANOGOS CANAL RD & TRAIL
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S-03	Commons Blvd Typical Road Sections- Entrance
S-04	Commons Blvd Typical Road Sections- Entrance
S-05	Commons Blvd Typical Road Sections- Entrance
S-06	Commons Blvd Typical Road Sections- Entrance
S-07	Commons Blvd Typical Road Sections
S-08	Commons Blvd Typical Road Sections
S-09	Commons Blvd Typical Road Sections
S-10	Commons Blvd Typical Road Sections
S-11	Commons Blvd Typical Road Sections
S-12	Commons Blvd Typical Road Sections
S-13	Commons Blvd Typical Road Sections

COLLEGE WAY WIDENING (PRELIMINARY PLAN SET)	
Sheet Number	Sheet Title
College Way Widening	
CV-01	College Way Cover Sheet
NT-01	General Notes
NT-02	Symbols and Abbreviations
SP-01	College Way Site Plan
TS-01	College Way Typical Section 1
TS-02	College Way Typical Section 2
GP-01	College Way Grading Plan
College Way Widening: Road Sections	
S-00	College Way Typical Road Sections- Key Map
S-01	College Way Typical Road Sections
S-02	College Way Typical Road Sections
S-03	College Way Typical Road Sections
S-04	College Way Typical Road Sections
S-05	College Way Typical Road Sections
S-06	College Way Typical Road Sections

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SHEET INDEX

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: COVER SHEET.DWG
JOB No: 3891-DRH01-23
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REVISIONS
1 07/30/2024 GRADING REVISION

SATTAR N. TABRIZ
8/7/2024

SHEET
CV-04

HIGHLANDS RESIDENTIAL - ALTA/NSPS LAND TITLE SURVEY

LOCATED IN SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
HEBER CITY, WASATCH COUNTY, UTAH



LEGAL DESCRIPTION (PER TITLE COMMITMENT)

A PARCEL OF LAND LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19 AND THE WEST HALF OF SECTION 20 ALL IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD AND THE EASTERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 40 PROJECT NO. F-019-1(1), SAID INTERSECTION BEING EAST 214.59 FEET AND SOUTH 1260.57 FEET FROM THE 2006 WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) (SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS); THENCE ALONG SAID EASTERLY RIGHT-OF-WAY LINE NORTH 32°00'02" WEST 1,057.48 FEET TO THE SOUTHEASTERLY LINE OF PARCEL 2 AS DESCRIBED IN THAT WARRANTY DEED TO UTAH VALLEY STATE COLLEGE RECORDED AS ENTRY NO. 333087 OF SAID RECORDS AND ALSO DESCRIBED ON RECORD OF SURVEY NO. OWC-035-019-0-1157 AS FILED IN THE WASATCH COUNTY SURVEYORS OFFICE; THENCE ALONG SAID SOUTHEASTERLY LINE THE FOLLOWING TWO COURSES NORTH 58°09'22" EAST 1,112.69 FEET (NORTH 57°59'34" EAST 1,111.85 FEET BY RECORD); AND (2) NORTH 48°11'59" EAST 1,098.03 FEET (NORTH 48°11'11" EAST 1,097.66 FEET BY RECORD) TO THE CENTERLINE OF THE TIMPANOGOS CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID CENTERLINE THE FOLLOWING NINE COURSES: (1) NORTH 17°22'52" WEST 54.83 FEET (NORTH 17°22'52" WEST 54.71 FEET PER SAID PARCEL 2); (2) NORTHWESTERLY 62.66 FEET ALONG A 57.21 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 62°45'14" AND A LONG CHORD OF NORTH 48°45'29" WEST 59.57 FEET; (3) NORTH 80°08'06" WEST 50.43 FEET; (4) NORTHWESTERLY 80.09 FEET ALONG A 77.16 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 59°28'06" AND A LONG CHORD OF NORTH 50°24'03" WEST 76.54 FEET; (5) NORTH 20°40'00" WEST 67.54 FEET TO STA 212+38 OF SAID TIMPANOGOS CANAL WHICH STA 212+38 IS NORTH 1318.48 FEET AND EAST 1244.36 FEET FROM THE 1976 WASATCH COUNTY BRASS CAP MONUMENT FOR THE NORTHWEST CORNER OF SECTION 20 PER PARCEL NO. WCWEP-T-0584(P) OF SAID ENTRY NO. 212641; (6) CONTINUING NORTH 20°40'00" WEST 39.32 FEET; (7) NORTHWESTERLY 26.35 FEET ALONG A 73.32 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 20°35'35" AND A LONG CHORD OF NORTH 30°57'47" WEST 26.21 FEET; NORTH 41°15'35" WEST 114.29 FEET; AND (9) NORTHWESTERLY 11.22 FEET ALONG A 3,029.45 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 00°12'44" AND A LONG CHORD OF NORTH 41°09'13" WEST 11.22 FEET TO AN EXISTING FENCE; THENCE ALONG SAID EXISTING FENCE SOUTH 89°54'54" EAST 1,524.20 FEET TO THE NORTH-SOUTH CENTER SECTION LINE OF SAID SECTION 20; THENCE ALONG SAID NORTH-SOUTH CENTER SECTION LINE SOUTH 00°00'09" WEST 1,774.05 FEET TO THE CENTERLINE OF THE SAID TIMPANOGOS CANAL; THENCE ALONG SAID CENTERLINE THE FOLLOWING EIGHT COURSES: (1) NORTH 10°34'34" WEST 26.14 FEET; (2) NORTHERLY 18.66 FEET ALONG A 63.10 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 16°56'26" AND A LONG CHORD OF NORTH 19°02'47" WEST 18.59 FEET TO STA 236+55 OF SAID TIMPANOGOS CANAL WHICH STA 236+56 IS NORTH 2238.88 FEET AND WEST 10.76 FEET FROM THE 2005 WASATCH COUNTY ALUMINUM PIPE CAP MONUMENT FOR THE SOUTH QUARTER CORNER OF SECTION 20 PER SAID PARCEL NO. WCWEP-T-0584(P) OF SAID ENTRY NO. 212641; (3) CONTINUING NORTHWESTERLY 31.79 FEET ALONG SAID 63.10 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 28°51'57" AND A LONG CHORD OF NORTH 41°56'59" WEST 31.45 FEET; (4) NORTH 56°22'57" WEST 51.03 FEET; (5) NORTHWESTERLY 56.42 FEET ALONG A 130.89 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 24°41'49" AND A LONG CHORD OF NORTH 44°02'03" WEST 55.98 FEET; (6) NORTH 31°41'08" WEST 60.09 FEET; (7) NORTHWESTERLY 126.00 FEET ALONG A 664.07 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 10°52'18" AND A LONG CHORD OF NORTH 37°07'17" WEST 125.82 FEET; AND (8) NORTH 42°33'26" WEST 8.76 FEET TO THE NORTH LINE OF PARCEL 1 DESCRIBED IN A WARRANTY DEED RECORDED AS ENTRY NO. 462588 OF SAID RECORDS (WHICH SAID PARCEL 1 IS THE SAME AS PARCEL 4 AS DEPICTED ON A RECORD OF SURVEY MAP PREPARED BY EVERGREEN ENGINEERING FILED AS NO. OWC-035-020-0-881 IN THE WASATCH COUNTY SURVEYORS OFFICE, WHICH BEARINGS ARE ROTATED 0°00'48" CLOCKWISE TO AGREE WITH THE ABOVE DESCRIBED BASIS OF BEARINGS); THENCE ALONG SAID NORTH LINE NORTH 89°59'12" WEST 303.12 FEET (WEST BY DEED) TO THE NORTHWEST CORNER OF SAID PARCEL 1; THENCE ALONG THE WEST LINE OF SAID PARCEL 1 SOUTH 00°00'48" WEST 425.00 FEET (SOUTH BY DEED) TO AN EXISTING EVERGREEN ENGINEERING REBAR & CAP AND THE NORTHWEST CORNER OF PARCEL 2 OF SAID WARRANTY DEED (WHICH SAID PARCEL 2 IS THE SAME AS QUIT CLAIM #2 AS DEPICTED ON A RECORD OF SURVEY MAP PREPARED BY BUHLER ASSOCIATES FILED AS NO. 0001830 IN THE WASATCH COUNTY SURVEYORS OFFICE); THENCE ALONG THE WEST LINE OF SAID QUIT CLAIM #2 SOUTH 00°32'12" EAST 134.12 FEET (SOUTH BY DEED) TO AN EXISTING BUHLER ASSOCIATES REBAR & CAP; THENCE ALONG THE SOUTH LINE OF SAID QUIT CLAIM #2 NORTH 89°27'48" EAST 528.67 FEET (EAST BY DEED) EXTENDING THROUGH AN EXIST'NG BUHLER ASSOCIATES REBAR & CAP TO SAID NORTH-SOUTH CENTER SECTION LINE; THENCE ALONG SAID NORTH-SOUTH CENTER SECTION LINE SOUTH 00°00'09" WEST 1,263.25 FEET TO A BLNG CHRISTENSEN REBAR & CAP AS DEPICTED ON A RECORD OF SURVEY MAP PREPARED BY MCM ENGINEERING AND FILED AS NO. 1033 IN SAID WASATCH COUNTY SURVEYORS OFFICE; THENCE ALONG AN EXISTING FENCE NORTH 89°59'12" WEST 676.35 FEET TO STATION 154+09 ON THE CENTERLINE OF THE WASATCH CANAL AS DESCRIBED IN SAID CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS, SAID POINT BEING 676.32 FEET WEST AND 668.13 FEET NORTH OF THE SOUTH QUARTER CORNER OF SAID SECTION 20; THENCE CONTINUING NORTH 89°59'12" WEST 52.77 FEET TO THE WESTERLY LINE OF SAID WASATCH CANAL; THENCE ALONG SAID WESTERLY LINE THE FOLLOWING FOURTEEN COURSES: (1) NORTHWESTERLY 36.10 FEET ALONG A 180.84 FOOT RADIUS NON-TANGENT CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 11°26'10" AND A LONG CHORD OF NORTH 48°19'44" WEST 36.04 FEET; (2) NORTH 42°36'39" WEST 243.31 FEET; (3) NORTHWESTERLY 59.37 FEET ALONG A 244.36 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 13°55'16" AND A LONG CHORD OF NORTH 49°34'17" WEST 59.23 FEET; (4) NORTH 56°31'55" WEST 141.96 FEET; (5) NORTHWESTERLY 52.18 FEET ALONG A 139.48 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 21°26'10" AND A LONG CHORD OF NORTH 45°48'50" WEST 51.88 FEET; (6) NORTH 35°05'45" WEST 32.66 FEET; (7) NORTHWESTERLY 24.90 FEET ALONG A 52.16 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 27°21'17" AND A LONG CHORD OF NORTH 48°46'23" WEST 24.67 FEET; (8) NORTH 62°27'02" WEST 31.01 FEET; (9) NORTHWESTERLY 59.68 FEET ALONG A 100.00 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 34°11'34" AND A LONG CHORD OF NORTH 45°21'15" WEST 58.80 FEET; (10) NORTH 28°15'28" WEST 46.48 FEET; (11) NORTHWESTERLY 27.92 FEET ALONG A 75.00 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 21°19'55" AND A LONG CHORD OF NORTH 38°55'26" WEST 27.76 FEET; (12) NORTH 49°35'23" WEST 30.70 FEET; (13) NORTHWESTERLY 89.92 FEET ALONG A 200.95 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 25°38'22" AND A LONG CHORD OF NORTH 36°46'12" WEST 89.18 FEET; AND (14) NORTH 23°57'01" WEST 0.10 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD PER WASATCH COMMONS SUBDIVISION PHASE 1 RECORDED AS ENTRY NO. 362478 OF SAID RECORDS, WHICH SAID PHASE 1 BEARINGS ARE ROTATED 0°01'39" COUNTERCLOCKWISE TO AGREE WITH THE ABOVE DESCRIBED BASIS OF BEARINGS;

LEGAL DESCRIPTION (PER TITLE COMMITMENT) CONTINUED

THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE THE FOLLOWING TWO COURSES: (1) WESTERLY 252.73 FEET ALONG A 483.50 FOOT RADIUS NON-TANGENT CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 29°56'58" AND A LONG CHORD OF NORTH 75°05'36" WEST 249.86 FEET; AND (2) NORTH 60°07'07" WEST 29.46 FEET; THENCE NORTH 29°52'53" EAST 67.00 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF SAID COMMONS BOULEVARD; THENCE ALONG SAID NORTHERLY RIGHT-OF-WAY LINE THE FOLLOWING EIGHTEEN COURSES (1) NORTH 60°07'07" WEST 50.00 FEET; (2) NORTHWESTERLY 13.57 FEET ALONG A 17.50 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 44°24'55" AND A LONG CHORD OF NORTH 37°54'40" WEST 13.23 FEET; (3) NORTH 60°07'07" WEST 103.22 FEET; (4) WESTERLY 391.17 FEET ALONG A 488.50 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 45°52'49" AND A LONG CHORD OF NORTH 83°03'31" WEST 380.80 FEET; (5) WESTERLY 30.50 FEET ALONG A 35.50 FOOT RADIUS REVERSE CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 49°13'32" AND A LONG CHORD OF NORTH 81°23'10" WEST 29.57 FEET; (6) WESTERLY 50.41 FEET ALONG A 94.50 FOOT RADIUS REVERSE CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 30°33'53" AND A LONG CHORD OF NORTH 72°03'20" WEST 49.82 FEET; (7) NORTHWESTERLY 34.27 FEET ALONG A 35.50 FOOT RADIUS REVERSE CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 55°18'12" AND A LONG CHORD OF NORTH 59°41'11" WEST 32.95 FEET; (8) NORTH 32°02'05" WEST 11.88 FEET; (9) SOUTH 50°08'15" WEST 77.72 FEET; (10) SOUTH 32°02'05" EAST 1.29 FEET; (11) SOUTHERLY 34.27 FEET ALONG A 35.50 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 55°18'12" AND A LONG CHORD OF SOUTH 04°22'59" EAST 32.95 FEET; (12) SOUTHERLY 26.91 FEET ALONG A 94.50 FOOT RADIUS REVERSE CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 16°18'53" AND A LONG CHORD OF SOUTH 15°06'41" WEST 26.82 FEET; SOUTHWESTERLY 31.61 FEET ALONG A 35.50 FOOT RADIUS REVERSE CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 51°00'41" AND A LONG CHORD OF SOUTH 32°27'35" WEST 30.57 FEET; SOUTH 57°57'55" WEST 24.11 FEET; (15) SOUTHWESTERLY 21.44 FEET ALONG A 135.00 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 09°05'55" AND A LONG CHORD OF SOUTH 62°30'53" WEST 21.42 FEET; (16) SOUTH 67°03'50" WEST 52.01 FEET; (17) SOUTHWESTERLY 26.20 FEET ALONG A 165.00 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 09°05'55" AND A LONG CHORD OF SOUTH 62°30'53" WEST 26.17 FEET; AND (18) SOUTH 57°57'55" WEST 27.54 FEET TO THE POINT OF BEGINNING.

ALSO:
(PARCEL 1.)
A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 20, IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTH LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; SAID POINT BEING NORTH 00°29'50" WEST 1307.75 FEET ALONG THE SECTION LINE AND NORTH 89°30'10" EAST 1717.20 FEET FROM THE WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 [BOTH ALUMINUM PIPE CAP MONUMENTS] SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS); AND RUNNING THENCE NORTH 21°24'08" EAST 258.16 FEET; THENCE SOUTH 70°03'55" EAST 252.30 FEET; THENCE SOUTH 26°05'49" EAST 172.53 FEET TO A POINT ON THE NORTH LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; THENCE NORTH 89°54'54" WEST 407.29 FEET ALONG THE NORTH LINE OF SAID PROPOSED HIGHLANDS DEVELOPMENT TO THE POINT OF BEGINNING.

ALSO:
(PARCEL 3.)
A PARCEL OF LAND LOCATED IN THE EAST HALF OF SECTION 20, IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EAST LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; SAID POINT BEING NORTH 00°29'50" WEST 512.50 FEET ALONG THE SECTION LINE AND NORTH 89°30'10" EAST 2641.36 FEET FROM THE WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 [BOTH ALUMINUM PIPE CAP MONUMENTS] SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS); AND RUNNING THENCE SOUTH 50°47'07" EAST 630.14 FEET; THENCE SOUTH 39°12'53" WEST 160.00 FEET; THENCE SOUTH 48°47'41" WEST 209.84 FEET; THENCE SOUTH 47°21'15" WEST 58.64 FEET; THENCE SOUTH 11°49'56" EAST 40.21 FEET; THENCE SOUTH 49°46'59" WEST 126.86 FEET; THENCE SOUTH 59°43'42" WEST 112.86 FEET TO A POINT ON THE EAST LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; THENCE NORTH 0°09'09" EAST 878.48 FEET ALONG SAID EAST LINE TO THE POINT OF BEGINNING.

LEGAL DESCRIPTION (PER TITLE COMMITMENT) CONTINUED

LESS AND EXCEPTING THEREFROM THE FOLLOWING DESCRIBED REAL PROPERTY IN WASATCH COUNTY:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD AND THE EASTERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 40, SAID POINT ALSO BEING NORTH 00°06'58" WEST 1,407.18 FEET ALONG THE SECTION LINE AND EAST 212.70 FEET FROM THE SOUTHWEST CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE NORTH 32°00'26" WEST 1,057.02 FEET ALONG THE EASTERLY RIGHT-OF-WAY LINE OF SAID STATE HIGHWAY 40; THENCE NORTH 57°59'34" EAST 909.98 FEET TO THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 13.50 FEET ALONG THE ARC OF A 12.00 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 43°16'46" WEST AND THE CHORD BEARS SOUTH 14°28'51" EAST 12.80 FEET WITH A CENTRAL ANGLE OF 64°28'45") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 17°45'17" WEST 63.72 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 41.60 FEET ALONG THE ARC OF A 69.20 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 72°14'43" EAST AND THE CHORD BEARS SOUTH 02°22'27" EAST 40.75 FEET WITH A CENTRAL ANGLE OF 40°15'28") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 22°29'35" EAST 44.62 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHWESTERLY 4.17 FEET ALONG THE ARC OF A 4.35 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 67°30'25" WEST AND THE CHORD BEARS SOUTH 04°57'50" WEST 4.01 FEET WITH A CENTRAL ANGLE OF 54°54'51") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 32°25'20" WEST 61.85 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 79.97 FEET ALONG THE ARC OF A 65.40 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 57°34'40" EAST AND THE CHORD BEARS SOUTH 02°36'27" EAST 75.08 FEET WITH A CENTRAL ANGLE OF 70°03'35") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 37°38'04" EAST 20.28 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 61.74 FEET ALONG THE ARC OF A 273.10 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 52°21'56" WEST AND THE CHORD BEARS SOUTH 31°09'29" EAST 61.61 FEET WITH A CENTRAL ANGLE OF 12°57'09") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 24°40'52" EAST 30.12 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 99.61 FEET ALONG THE ARC OF A 133.72 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 65°19'08" EAST AND THE CHORD BEARS SOUTH 46°01'20" EAST 97.33 FEET WITH A CENTRAL ANGLE OF 42°40'55") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 67°21'45" EAST 30.51 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 43.52 FEET ALONG THE ARC OF A 64.31 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 22°38'15" WEST AND THE CHORD BEARS SOUTH 47°58'31" EAST 42.70 FEET WITH A CENTRAL ANGLE OF 38°46'28") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 28°35'28" EAST 39.08 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 61.02 FEET ALONG THE ARC OF A 138.66 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 61°24'32" EAST AND THE CHORD BEARS SOUTH 41°11'55" EAST 60.53 FEET WITH A CENTRAL ANGLE OF 25°12'54") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 54°48'18" EAST 38.81 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 51.43 FEET ALONG THE ARC OF A 124.93 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 36°11'42" EAST AND THE CHORD BEARS SOUTH 65°35'56" EAST 51.07 FEET WITH A CENTRAL ANGLE OF 23°35'17") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 77°23'47" EAST 41.08 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 50.29 FEET ALONG THE ARC OF A 340.23 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 12°36'13" WEST AND THE CHORD BEARS SOUTH 73°09'41" EAST 50.25 FEET WITH A CENTRAL ANGLE OF 08°28'11") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 68°55'35" EAST 27.75 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 4.32 FEET ALONG THE ARC OF A 3.28 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 21°04'25" WEST AND THE CHORD BEARS SOUTH 31°12'43" EAST 4.01 FEET WITH A CENTRAL ANGLE OF 75°25'43") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 06°29'59" WEST 49.88 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 91.09 FEET ALONG THE ARC OF A 98.34 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 83°30'01" EAST AND THE CHORD BEARS SOUTH 20°02'06" EAST 87.86 FEET WITH A CENTRAL ANGLE OF 53°04'09") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 46°36'04" EAST 16.21 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 45.58 FEET ALONG THE ARC OF A 162.73 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 43°25'56" EAST AND THE CHORD BEARS SOUTH 54°35'33" EAST 45.43 FEET WITH A CENTRAL ANGLE OF 16°02'58") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 32.56 FEET ALONG THE ARC OF A 99.98 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 27°22'58" WEST AND THE CHORD BEARS SOUTH 53°17'16" EAST 32.42 FEET WITH A CENTRAL ANGLE OF 18°39'31") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 43°57'28" EAST 25.44 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 126.92 FEET ALONG THE ARC OF A 109.54 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 46°02'32" EAST AND THE CHORD BEARS SOUTH 77°09'00" EAST 119.93 FEET WITH A CENTRAL ANGLE OF 66°23'03") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE NORTH 69°39'10" EAST 41.25 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 22.33 FEET ALONG THE ARC OF A 12.44 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 20°20'50" EAST AND THE CHORD BEARS SOUTH 58°54'45" EAST 19.45 FEET WITH A CENTRAL ANGLE OF 102°52'09") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 07°28'49" EAST 115.57 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 25.17 FEET ALONG THE ARC OF A 99.68 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 82°31'11" WEST AND THE CHORD BEARS SOUTH 00°14'49" EAST 25.10 FEET WITH A CENTRAL ANGLE OF 14°27'59") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 04°00'09" WEST 78.23 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 88.74 FEET ALONG THE ARC OF A 107.33 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 83°00'54" EAST AND THE CHORD BEARS SOUTH 16°42'03" EAST 86.23 FEET WITH A CENTRAL ANGLE OF 47°22'19") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 40°22'56" EAST 94.27 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 13.67 FEET ALONG THE ARC OF A 19.04 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 49°37'04" WEST AND THE CHORD BEARS SOUTH 19°48'25" EAST 13.38 FEET WITH A CENTRAL ANGLE OF 41°09'02") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 00°45'57" WEST 27.79 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 56.01 FEET ALONG THE ARC OF A 129.03 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 89°14'03" EAST AND THE CHORD BEARS SOUTH 11°40'13" EAST 55.57 FEET WITH A CENTRAL ANGLE OF 24°52'21") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 24°06'32" EAST 157.61 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL TO THE SOUTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 259.90 FEET ALONG THE ARC OF A 483.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 00°33'23" WEST AND THE CHORD BEARS NORTH 75°29'26" WEST 256.78 FEET WITH A CENTRAL ANGLE OF 30°47'55") ALONG THE SOUTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 60°05'28" WEST 29.46 FEET ALONG THE SOUTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 29°54'32" EAST 67.00 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 13.57 FEET ALONG THE ARC OF A 17.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 29°54'32" EAST AND THE CHORD BEARS NORTH 37°53'00" WEST 13.23 FEET WITH A CENTRAL ANGLE OF 44°24'55") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 60°05'28" WEST 103.22 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 391.17 FEET ALONG THE ARC OF A 488.50 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 29°54'32" WEST AND THE CHORD BEARS NORTH 83°01'52" WEST 380.80 FEET WITH A CENTRAL ANGLE OF 45°52'49") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 30.50 FEET ALONG THE ARC OF A 35.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 15°58'17" WEST AND THE CHORD BEARS NORTH 81°21'31" WEST 29.57 FEET WITH A CENTRAL ANGLE OF 49°13'32") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 50.41 FEET ALONG THE ARC OF A 94.50 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 33°15'16" WEST AND THE CHORD BEARS NORTH 72°01'41" WEST 49.82 FEET WITH A CENTRAL ANGLE OF 30°33'53") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 34.27 FEET ALONG THE ARC OF A 35.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 02°41'22" EAST AND THE CHORD BEARS NORTH 59°39'32" WEST 32.95 FEET WITH A CENTRAL ANGLE OF 55°18'12") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 32°00'26" WEST 11.87 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTH 50°09'54" WEST 77.72 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTH 32°00'26" EAST 1.29 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTHEASTERLY 34.27 FEET ALONG THE ARC OF A 35.50 FOOT RADIU

WASATCH COMMONS ALTA/NSPS LAND TITLE SURVEY

LOCATED IN SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
2632–2896 VICTORY HIGHWAY, HEBER CITY, UTAH 84032

SURVEYORS NARRATIVE:

THIS ALTA/NSPS LAND TITLE SURVEY WAS PREPARED AT THE REQUEST OF DR HORTON FOR THE PURPOSE OF RETRACING THE HEREON DESCRIBED PARCEL OF LAND AND EVALUATING SCHEDULE B SECTION 2 EXCEPTIONS TO COVERAGE LISTED IN THE COMMITMENT FOR TITLE INSURANCE.

THE BASIS OF BEARINGS DEVELOPED FOR THIS PROJECT IS BASED ON THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT AS DEPICTED ON THE SURVEY CONTROL SHEET, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS. THE SPECIFIC BASIS OF BEARINGS IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS). THE COORDINATES FOR SAID SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 ARE SHOWN ON SAID SURVEY CONTROL SHEET IN THE PROJECT CONTROL COORDINATE LISTING TABLE. A LOW DISTORTION PROJECTION (LDP) WAS DERIVED TO AGREE WITH SAID WASATCH COUNTY WATER EFFICIENCY PROJECT FOR THE WASATCH COMMONS PROJECT AND ARE DEPICTED HEREON.

THE VERTICAL DATUM FOR THIS SURVEY WAS ESTABLISHED FROM THE WEST 1/4 CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN. ELEVATION = 5697.65.

THE FOLLOWING IS A LIST OF RELEVANT DOCUMENTS UTILIZED DURING THE PREPARATION OF THIS SURVEY:

CANAL DOCUMENTS:
CONTRACT AND GRANT OF EASEMENT ENTRY NO. 212640,
CONTRACT AND GRANT OF EASEMENT ENTRY NO. 212641, &
SURVEY CONTROL SHEET, (DRAWING G-8) ENTRY NO. 259146 BOOK 630 PAGES 766-767
VESTING DOCUMENTS:
SPECIAL WARRANTY DEED ENTRY NO. 513163
VARIOUS ADJOINER DEEDS AS SHOWN HEREON.

TITLE COMMITMENT:

THIS SURVEY WAS PREPARED BASED UPON THE COMMITMENT FOR TITLE INSURANCE PREPARED BY FIRST AMERICAN TITLE COMPANY, AND COTTONWOOD TITLE INSURANCE AGENCY, INC. FILE NO. 158913-DMP, WITH AN EFFECTIVE DATE OF MARCH 27, 2024, AT 7:30 AM, VERSION 10. THE FOLLOWING NOTES PERTAIN TO SCHEDULE 'B' SECTION 2 EXCEPTIONS FROM COVERAGE LISTED IN SAID COMMITMENT:

EXCEPTIONS 1-9 ARE NOT PLOTTABLE, OR ADDRESSED BY THIS MAP.

10. THE HEREIN DESCRIBED LAND IS LOCATED WITHIN THE BOUNDARIES OF WASATCH COUNTY, WASATCH COUNTY FIRE PROTECTION SPECIAL SERVICE DISTRICT, WASATCH COUNTY PARK AND RECREATION SPECIAL SERVICE DISTRICT NO. 2, NORTH VILLAGE SPECIAL SERVICE DISTRICT, CENTRAL UTAH WATER CONSERVANCY DISTRICT, AND IS SUBJECT TO ANY AND ALL CHARGES AND ASSESSMENTS LEVIED THEREUNDER.

    THE HEREIN DESCRIBED LAND IS LOCATED WITHIN THE BOUNDARIES OF WASATCH COUNTY SCHOOL DISTRICT, CENTRAL UTAH WATER CONSERVANCY DISTRICT, JORDANELLE SPECIAL SERVICE DISTRICT, WASATCH COUNTY PARK AND RECREATION SPECIAL SERVICE DISTRICT NO. 2, WASATCH COUNTY FIRE PROTECTION SPECIAL SERVICE DISTRICT, MIDA GOLF AND EQUESTRIAN CENTER PUBLIC INFRASTRUCTURE DISTRICT, HEBER CITY, AND IS SUBJECT TO ANY AND ALL CHARGES AND ASSESSMENTS LEVIED THEREUNDER.

    (SURVEY FINDINGS: NO PLOTTABLE LEGAL DESCRIPTION PROVIDED)

11. MINERALS OF WHATSOEVER KIND, SUBSURFACE AND SURFACE SUBSTANCES, INCLUDING BUT NOT LIMITED TO COAL, LIGNITE, OIL, GAS, URANIUM, CLAY, ROCK, SAND AND GRAVEL IN, ON, UNDER AND THAT MAY BE PRODUCED FROM THE LAND, TOGETHER WITH ALL RIGHTS, PRIVILEGES, AND IMMUNITIES RELATING THERETO, WHETHER OR NOT APPEARING IN THE PUBLIC RECORDS OR LISTED HEREIN. THE COMPANY MAKES NO REPRESENTATION AS TO THE PRESENT OWNERSHIP OF ANY SUCH INTERESTS. THERE MAY BE LEASES, GRANTS, EXCEPTIONS OR RESERVATIONS OF INTERESTS THAT ARE NOT LISTED.
    (SURVEY FINDINGS: NO PLOTTABLE LEGAL DESCRIPTION PROVIDED)

12. CLAIM, RIGHT, TITLE OR INTEREST TO WATER OR WATER RIGHTS WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.
    (SURVEY FINDINGS: NO PLOTTABLE LEGAL DESCRIPTION PROVIDED)

13. RIGHT OF WAY AND EASEMENT GRANT, IN FAVOR OF MOUNTAIN FUEL SUPPLY COMPANY, TO LAY, MAINTAIN, OPERATE, REPAIR, INSPECT, PROTECT, REMOVE AND REPLACE PIPE LINES, VALVES, VALVE BOXES, AND OTHER GAS TRANSMISSION AND DISTRIBUTION FACILITIES AND INCIDENTAL PURPOSES, THROUGH AND ACROSS A PORTION OF THE SUBJECT LAND. SAID RIGHT OF WAY AND EASEMENT GRANT RECORDED DECEMBER 13, 1993, AS ENTRY NO. 169923, IN BOOK 270, AT PAGE 22.
    (SURVEY FINDINGS: AS SHOWN HEREON)

14. CONTRACT AND GRANT OF EASEMENT BETWEEN THE UNITED STATES OF AMERICA AND JAMES W. WINKLER AND BARBARA J. WINKLER, HUSBAND AND WIFE FOR A PERPETUAL EASEMENT INCLUDING THE RIGHT OF INGRESS AND EGRESS TO CONSTRUCT, RECONSTRUCT, REALIGN, ENLARGE, IMPROVE, RELOCATE, REPAIR, OPERATE, AND MAINTAIN THE TIMPANOGOS CANAL AND WASATCH CANAL AND APPURTENANT STRUCTURES AND INCIDENTAL PURPOSES, BY
    INSTRUMENT DATED AUGUST 3, 1998 AND RECORDED APRIL 1, 1999, AS ENTRY NO. 212641, IN BOOK 419, AT PAGE 74.
    (SURVEY FINDINGS: AS SHOWN HEREON)

    TERMINATION OF TEMPORARY EASEMENT, RECORDED MARCH 15, 2002 AS ENTRY NO. 242798 IN BOOK 550 AT PAGE 532.

15. NOTICE OF INTEREST WHEREIN WASATCH COUNTY SPECIAL SERVICE AREA NO. 1 HAS AN EASEMENT ACROSS SAID LAND BY VIRTUE OF AN EASEMENT AGREEMENT DATED SEPTEMBER 8, 1999. SAID NOTICE OF INTEREST RECORDED SEPTEMBER 28, 1999 AS ENTRY NO. 218182 IN BOOK 438 AT PAGE 443.
    (SURVEY FINDINGS: BLANKET ACROSS PARCEL; DOCUMENT STATES THAT FOLLOWING COMPLETION OF CONSTRUCTION, THE EXACT LOCATION OF THE EASEMENT ACROSS THE PROPERTY WILL BE DETERMINED AND THE APPROPRIATE DOCUMENTATION FILED WITH THE COUNTY RECORDER)

    PIPELINE EASEMENTS, RECORDED JUNE 13, 2003 AS ENTRY NO. 259146 IN BOOK 630 AT PAGE 752.
    (SURVEY FINDINGS: DOCUMENTS SHOW GRAPHICAL LOCATIONS OF IMPROVEMENTS, BUT NO LEGAL DESCRIPTIONS)

    NOTICE OF LOCATION OF EASEMENT, RECORDED AUGUST 19, 2005 AS ENTRY NO. 287390 IN BOOK 778 AT PAGE 402.
    (SURVEY FINDINGS: AS SHOWN HEREON)

    ASSIGNMENT OF NOTICE OF LOCATION OF EASEMENTS AND RELATED EASEMENTS AND RIGHTS-OF-WAY IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT, A BODY CORPORATE AND POLITIC OF THE STATE OF UTAH, RECORDED APRIL 28, 2015 AS ENTRY NO. 411327 IN BOOK 1128 AT PAGE 164.
    (SURVEY FINDINGS: WASATCH COUNTY SPECIAL SERVICE AREA NO. 1 ASSIGNS AND CONVEYS ITS RIGHTS IN THE EASEMENTS TO CENTRAL UTAH WATER CONSERVANCY DISTRICT)

16. AGREEMENT CONCERNING EASEMENTS BY AND BETWEEN JAMES W. WINKLER AND JAMES W. WINKLER, TRUSTEE, UNDER THE JAMES W. WINKLER FAMILY LIVING TRUST DATED JUNE 30, 1998 AND ANY AMENDMENTS THERETO AND INVESTMENT LODGING CORPORATION, A UTAH CORPORATION, DATED SEPTEMBER 6, 2005 AND RECORDED SEPTEMBER 12, 2005 AS ENTRY NO. 288575 IN BOOK 785 AT PAGE 278.
    (SURVEY FINDINGS: AS SHOWN HEREON)

17. RIGHT OF WAY FOR WASATCH CANAL, AND ANY FACILITIES APPURTENANT THERETO, INCLUDING BUT NOT LIMITED TO, WATER PIPELINES AND DITCHES, AS THE SAME MAY BE FOUND TO INTERSECT THE HEREIN DESCRIBED LAND, TOGETHER WITH ANY RIGHTS OR ASSERTED RIGHTS IN AND TO SAID CANAL OR PERTAINING TO THE USE AND MAINTENANCE OF SAID CANAL. THE COMPANY FURTHER EXCEPTS ANY ADVERSE CLAIM BASED ON (I) THE ASSERTION THAT SOME OF THE BOUNDARIES OF THE HEREIN DESCRIBED LAND HAVE BEEN AFFECTED BY A CHANGE IN THE COURSE OF SAID CANAL; (II) THE UNCERTAINTY OF THE BOUNDARIES OF SAID CANAL; AND (III) THE ASSERTION THAT THE LAND IS SUBJECT TO WATER RIGHTS, CLAIMS OR TITLE TO WATER AND TO ANY LAW OR GOVERNMENTAL REGULATION PERTAINING TO WETLANDS.
    (SURVEY FINDINGS: NO PLOTTABLE DESCRIPTION PROVIDED)

18. RIGHT OF WAY FOR TIMPANOGOS CANAL, AND ANY FACILITIES APPURTENANT THERETO, INCLUDING BUT NOT LIMITED TO, WATER PIPELINES AND DITCHES, AS THE SAME MAY BE FOUND TO INTERSECT THE HEREIN DESCRIBED LAND, TOGETHER WITH ANY RIGHTS OR ASSERTED RIGHTS IN AND TO SAID CANAL OR PERTAINING TO THE USE AND MAINTENANCE OF SAID CANAL. THE COMPANY FURTHER EXCEPTS ANY ADVERSE CLAIM BASED ON (I) THE ASSERTION THAT SOME OF THE BOUNDARIES OF THE HEREIN DESCRIBED LAND HAVE BEEN AFFECTED BY A CHANGE IN THE COURSE OF SAID CANAL; (II) THE UNCERTAINTY OF THE BOUNDARIES OF SAID CANAL; AND (III) THE ASSERTION THAT THE LAND IS SUBJECT TO WATER RIGHTS, CLAIMS OR TITLE TO WATER AND TO ANY LAW OR GOVERNMENTAL REGULATION PERTAINING TO WETLANDS.
    (SURVEY FINDINGS: NO PLOTTABLE DESCRIPTION PROVIDED)

19. WASATCH COMMONS SUPPLEMENTAL DEVELOPMENT AGREEMENT BY AND BETWEEN CARDINAL FUNDING, L.C., A UTAH LIMITED LIABILITY COMPANY AND WASATCH COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF UTAH, RECORDED SEPTEMBER 10, 2010 AS ENTRY NO. 362480 IN BOOK 1021 AT PAGE 247.
    (SURVEY FINDINGS: SUBJECT PROPERTY FALLS WITHIN THE BOUNDARY OF PARCEL DESCRIPTION CONTAINED WITHIN EXHIBIT A OF RECORD DOCUMENT)

    NOTICE OF COMPLIANCE WASATCH COMMONS SUPPLEMENTAL DEVELOPMENT AGREEMENT, RECORDED MARCH 26, 2015 AS ENTRY NO. 410361 IN BOOK 1125 AT PAGE 1783.

TITLE COMMITMENT (CONTINUED):

20. NOTICE OF APPROVAL OF RECONFIGURATION OF REAL PROPERTY PARCELS, RECORDED OCTOBER 1, 2013 AS ENTRY NO. 394389 IN BOOK 1091 AT PAGE 1005.
    (SURVEY FINDINGS: DOCUMENT ALLOWS THE OWNERS PARCELS OF LAND WITHIN THE DEVELOPMENT TO BE RECONFIGURED)

    CORRECTED NOTICE OF APPROVAL OF RECONFIGURATION OF REAL PROPERTY PARCELS, RECORDED DECEMBER 13, 2013 AS ENTRY NO. 396882 IN BOOK 1096 AT PAGE 729.

21. NORTH VILLAGE SPECIAL SERVICE DISTRICT CULINARY WATER AND SANITARY SEWER DEVELOPMENT AND SERVICE AGREEMENT BY AND BETWEEN NORTH VILLAGE SPECIAL SERVICE DISTRICT, A POLITICAL SUBDIVISION OF THE STATE OF UTAH AND CARDINAL FUNDING, L.C., A UTAH LIMITED LIABILITY COMPANY, DATED SEPTEMBER 11, 2017 AND RECORDED SEPTEMBER 13, 2017 AS ENTRY NO. 442686 IN BOOK 1201 AT PAGE 503.
    (SURVEY FINDINGS: WATER AND SEWER SERVICE AGREEMENT FOR SUBJECT PROPERTY)

22. ORDINANCE NO. 2021-38 APPROVING THE HIGHLANDS ANNEXATION LOCATED AT APPROXIMATELY 3000 NORTH HIGHWAY 40, RECORDED APRIL 14, 2022 AS ENTRY NO. 518203 IN BOOK 1405 AT PAGE 1517.
    (SURVEY FINDINGS: THE SUBJECT PROPERTY PARCELS ARE ANNEXED IN TO HEBER CITY)

    THIRD AMENDMENT TO DEVELOPMENT AGREEMENT FOR THE HIGHLANDS MASTER PLANNED COMMUNITY RECORDED MARCH 6, 2024 AS ENTRY NO. 542653 IN BOOK 1468 AT PAGE 234.
    (SURVEY FINDINGS: ADJUSTS MDA AGREEMENTS ON LAND EXCHANGE PARCELS.)
    ORDINANCE NO. 2024-01 APPROVING THE THIRD AMENDMENT TO DEVELOPMENT AGREEMENT FOR THE HIGHLANDS MASTER PLANNED COMMUNITY RECORDED MARCH 6, 2024 AS ENTRY NO. 542654 IN BOOK 1468 AT PAGE 287.
    (SURVEY FINDINGS: APPROVES ENTRY NO. 542653)

23. THERE IS CURRENTLY NO RECORDED MEANS OF ACCESS FROM A PUBLICLY DEDICATED ROADWAY TO SAID LAND, BUT IT IS ASSUMED THAT THERE EXISTS A VALID AND SUBSISTING EASEMENT OVER AND ACROSS ADJOINING LAND FOR THAT PURPOSE. THE COMPANY DOES NOT INSURE AGAINST ANY LOSS, DAMAGE, CLAIMS OR RIGHTS BASED ON A CONTRARY STATE OF FACTS.
    (SURVEY FINDINGS: NO PLOTTABLE DESCRIPTION PROVIDED)

24. INTENTIONALLY DELETED BY TITLE COMPANY.

25. RIGHTS OF TENANT(S) IN THE LAND, IF ANY, AND RIGHTS OF ALL PARTIES CLAIMING BY, THROUGH OR UNDER SAID TENANT(S).
    (SURVEY FINDINGS: NO PLOTTABLE DESCRIPTION PROVIDED)

26. ANY LIEN, OR RIGHT TO A LIEN, FOR SERVICES, LABOR OR MATERIAL HERETOFORE OR HEREAFTER FURNISHED, IMPOSED BY LAW AND NOT SHOWN BY THE PUBLIC RECORDS.
    (SURVEY FINDINGS: NO PLOTTABLE DESCRIPTION PROVIDED)

27. THE FOLLOWING MATTERS DISCLOSED ON THAT CERTAIN SURVEY PREPARED BY WARD ENGINEERING GROUP, HAVING BEEN CERTIFIED UNDER THE DATE OF FEBRUARY 27, 2023, AS JOB NO. 1305-CIT026-15, BY SATTAR N. TABRIZ, A PROFESSIONAL LAND SURVEYOR HOLDING LICENSE NO. 155100:
    A. WASATCH CANAL ALONG SOUTHWESTERLY BOUNDARY.
    B. TIMPANOGOS CANAL RUNNING THROUGH SAID LAND.
    C. EXISTING BRIDGE OVER TIMPANOGOS CANAL ON BOUNDARY COMMON TO VIEWPOINT HOLDINGS PARCEL NO. 00-0016-5311.
    D. EXISTING BRIDGE OVER TIMPANOGOS CANAL ON BOUNDARY COMMON TO UTAH VALLEY STATE COLLEGE PARCEL NO. 00-0020-1447.
    E. EXISTING BRIDGE AND EXISTING BRIDGE STRUCTURE AND UTILITY CROSSINGS OVER THE WASATCH CANAL.
    F. PAVED ACCESS ROAD FROM END OF DEDICATED ROADWAY SOUTHWESTERLY OF SUBJECT LAND, TRAVERSING SAID LAND TO VIEWPOINT HOLDINGS, LLC PARCELS.
    G. EXISTING BUILDING FOUNDATIONS.
    H. EXISTING A.C. LANDING STRIP.
    I. EXISTING A.C. SURFACE.
    J. VARIOUS UTILITY LINES AND/OR FACILITIES LYING OUTSIDE OF RECORDED EASEMENTS.
    K. FENCE LINES DO NOT COINCIDE WITH RECORD BOUNDARIES.
    NOTE: SAID SURVEY DOES NOT INCLUDE ALL LAND AS HEREIN DESCRIBED.

28. CERTIFICATE OF CREATION OF THE JORDANELLE RIDGE PUBLIC INFRASTRUCTURE DISTRICT NO. 2 RECORDED JUNE 28, 2022 AS ENTRY NO. 521437 IN BOOK 1414 AT PAGE 639.

    RESOLUTION 2022-03 PROVIDING FOR THE CREATION OF JORDANELLE RIDGE PUBLIC INFRASTRUCTURE DISTRICT NOS. 1, 2, 3, 4, AND 5 AS INDEPENDENT BODIES CORPORATE AND POLITIC RECORDED JUNE 28, 2022 AS ENTRY NO. 521438 IN BOOK 1414 AT PAGE 644.

    NOTICE OF PUBLIC INFRASTRUCTURE DISTRICT RECORDED JUNE 28, 2022 AS ENTRY NO. 521440 IN BOOK 1414 AT PAGE 677.
    (SURVEY FINDINGS: PORTIONS OF THE SURVEYED PROPERTY (EAST LAND SWAP PARCEL) ARE LOCATED WITHIN THE BOUNDARY OF THE DISTRICT)

29. NOTICE OF INTEREST WHEREIN WASATCH COUNTY SPECIAL SERVICE AREA NO. 1 HAS AN EASEMENT ACROSS SAID LAND BY VIRTUE OF AN EASEMENT AGREEMENT DATED OCTOBER 21, 1998. SAID NOTICE OF INTEREST RECORDED DECEMBER 2, 1998 AS ENTRY NO. 209136 IN BOOK 405 AT PAGE 276.
    (SURVEY FINDINGS: BLANKET ACROSS PARCEL; DOCUMENT STATES THAT FOLLOWING COMPLETION OF CONSTRUCTION, THE EXACT LOCATION OF THE EASEMENT ACROSS THE PROPERTY WILL BE DETERMINED AND THE APPROPRIATE DOCUMENTATION FILED WITH THE COUNTY RECORDER)

    PIPELINE EASEMENTS RECORDED JUNE 13, 2003 AS ENTRY NO. 259146 IN BOOK 630 AT PAGE 752.
    (SURVEY FINDINGS: DOCUMENTS SHOW GRAPHICAL LOCATIONS OF IMPROVEMENTS, BUT NO LEGAL DESCRIPTIONS)

    NOTICE OF LOCATION OF EASEMENT RECORDED JANUARY 12, 2006 AS ENTRY NO. 295150 IN BOOK 821 AT PAGE 443.

    ASSIGNMENT OF NOTICE OF LOCATION OF EASEMENTS AND RELATED EASEMENTS AND RIGHTS-OF-WAY RECORDED APRIL 28, 2015 AS ENTRY NO. 411327 IN BOOK 1128 AT PAGE 164.
    (SURVEY FINDINGS: PIPELINE EASEMENT IS FOR PORTION OF THE CANAL WATER PIPELINE T-D, SEE EASEMENT ENTRY #287390)

30. DEVELOPMENT AGREEMENT FOR JORDANELLE RIDGE AT NORTH VILLAGE BY AND BETWEEN WASATCH COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF UTAH, AND JLS PROPERTIES, L.L.C., A UTAH LIMITED LIABILITY COMPANY, AND JORDANELLE RIDGE, INC., A UTAH CORPORATION, DATED DECEMBER 6, 2006 AND RECORDED DECEMBER 26, 2006 AS ENTRY NO. 312667 IN BOOK 918 AT PAGE 234.
    (SURVEY FINDINGS: PORTIONS OF THE SURVEYED PROPERTY (LAND SWAP PARCEL) ARE LOCATED WITHIN THE BOUNDARY OF THE DEVELOPMENT AGREEMENT)

31. DEVELOPMENT AGREEMENT FOR THE UPPER JORDANELLE MASTER PLANNED COMMUNITY BY AND BETWEEN HEBER CITY, A POLITICAL SUBDIVISION OF THE STATE OF UTAH AND RE INVESTMENT HOLDINGS, L.L.C, A UTAH LIMITED LIABILITY COMPANY, DATED JUNE 24, 2020 AND RECORDED JULY 28, 2020 AS ENTRY NO. 481606 IN BOOK 1303 AT PAGE 1632.

    ASSIGNMENT OF DEVELOPMENT AGREEMENT FOR THE UPPER JORDANELLE MASTER PLANNED COMMUNITY RECORDED NOVEMBER 2, 2020 AS ENTRY NO. 487731 IN BOOK 1321 AT PAGE 1398.

    ASSIGNMENT AND ASSUMPTION OF DEVELOPER RIGHTS DEVELOPER AGREEMENT FOR THE UPPER JORDANELLE MASTER PLANNED COMMUNITY RECORDED DECEMBER 30, 2021 AS ENTRY NO. 513151 IN BOOK 1392 AT PAGE 869.

    FIRST AMENDMENT TO DEVELOPMENT AGREEMENT FOR THE UPPER JORDANELLE MASTER PLANNED COMMUNITY RECORDED FEBRUARY 21, 2023 AS ENTRY NO. 529703 IN BOOK 1434 AT PAGE 1626.

    (SURVEY FINDINGS: PORTIONS OF THE PROPERTY (LAND SWAP PARCELS) ARE LOCATED WITHIN THE BOUNDARY OF THE DEVELOPMENT AGREEMENT)

32. AMENDED AND RESTATED DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS AND RESERVATION OF EASEMENTS (INCLUDING ASSOCIATION BYLAWS) RECORDED APRIL 28, 2023 AS ENTRY NO. 531937 IN BOOK 1440 AT PAGE 1153.
    (SURVEY FINDINGS: PORTIONS OF THE PROPERTY (LAND SWAP PARCELS) ARE LOCATED WITHIN THE BOUNDARY)
33. INTENTIONALLY DELETED BY TITLE COMPANY.
34. THE EFFECT OF THE 1969 FARMLAND ASSESSMENT ACT, WHEREIN THERE IS A FIVE (5) YEAR ROLL-BACK PROVISION WITH REGARD TO ASSESSMENT AND TAXATION, BY REASON OF THAT CERTAIN APPLICATION FOR ASSESSMENT AND TAXATION OF AGRICULTURAL LAND, RECORDED JANUARY 9, 2023 AS ENTRY NO. 528471, IN BOOK 1432, AT PAGE 159. (AFFECTS THIS AND OTHER LAND)
    (SURVEY FINDINGS: NOT ADDRESSED BY THIS SURVEY)
35. NOTICE OF ROLL-BACK TAX IN THE AMOUNT OF $52,261.84 RECORDED JULY 12, 2023 AS ENTRY NO. 534437 IN BOOK 1447 AT PAGE 560.
    (SURVEY FINDINGS: NOT ADDRESSED BY THIS SURVEY)
36. NOTICE OF ROLL-BACK TAX IN THE AMOUNT OF $49,992.81 RECORDED DECEMBER 29, 2023 AS ENTRY NO. 540377 IN BOOK 1462 AT PAGE 1261. (SURVEY FINDINGS: NOT ADDRESSED BY THIS SURVEY)
37. DEED OF TRUST, ASSIGNMENT OF RENTS, SECURITY AGREEMENT AND FIXTURE FILING TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW, AND ANY OTHER OBLIGATIONS SECURED THEREBY: TRUSTOR: JORDANELLE REF ACQUISITION LLC, A DELAWARE LIMITED LIABILITY COMPANY; TRUSTEE: FIRST AMERICAN TITLE INSURANCE COMPANY; BENEFICIARY: RE INVESTMENT HOLDINGS, L.L.C., A UTAH LIMITED LIABILITY COMPANY; AMOUNT: $3,511,824.32; DATED: JANUARY 9, 2024; RECORDED: JANUARY 9, 2024 AS ENTRY NO. 540644 IN BOOK 1463 AT PAGE 457.
    (SURVEY FINDINGS: NOT ADDRESSED BY THIS SURVEY)
38. MINERAL RESERVATIONS AS CONTAINED IN THAT CERTAIN WARRANTY DEED RECORDED MARCH 14, 1986 AS ENTRY NO. 137983 IN BOOK 179 AT PAGE 262.
    AFFIDAVIT RECORDED MAY 5, 1986 AS ENTRY NO. 138419 IN BOOK 180 AT PAGE 295.
    (SURVEY FINDINGS: PORTIONS OF THE PROPERTY (LAND SWAP PARCELS) ARE CONTAINED WITHIN THE DESCRIPTIONS)
39. DECLARATION OF EASEMENT IN FAVOR OF WASATCH COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF UTAH FOR OPEN SPACE EASEMENT AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED DECEMBER 29, 2009, AS ENTRY NO. 355557, IN BOOK 1007, AT PAGE 639.
    (SURVEY FINDINGS: PORTIONS OF THE PROPERTY ARE CONTAINED WITHIN THE PERIMETER BOUNDARY DESCRIPTION)

LEGAL DESCRIPTION (AS SURVEYED)

A PARCEL OF LAND LOCATED IN SECTION 19, AND SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE WEST LINE OF THE WASATCH CANAL, AND THE SOUTH PROPERTY LINE OF THE UTAH VALLEY STATE COLLEGE PROPERTY AS DESCRIBED PER ENTRY NO. 333087, SAID INTERSECTION BEING NORTH 00°29'50" WEST 118.62 FEET ALONG THE SECTION LINE AND EAST 427.42 FEET FROM THE WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS);
RUNNING THENCE ALONG SAID SOUTH PROPERTY LINE NORTH 58°00'22" EAST 202.21 FEET; THENCE NORTH 48°11'59" EAST 1098.03 FEET TO THE CENTERLINE OF THE TIMPANOGOS CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID CENTERLINE OF SAID CANAL THE FOLLOWING NINE COURSES: (1) NORTH 17°22'52" WEST 54.83 FEET; (2) NORTHWESTERLY 62.66 FEET ALONG A 57.21 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 62°45'14" AND A LONG CHORD OF NORTH 48°45'29" WEST 59.57 FEET; (3) NORTH 80°08'06" WEST 50.43 FEET; (4) NORTHWESTERLY 80.09 FEET ALONG A 77.16 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 59°28'06" AND A LONG CHORD OF NORTH 50°24'03" WEST 76.54 FEET; (5) NORTH 20°40'00" WEST 67.54 FEET; (6) NORTH 20°40'00" WEST 39.32 FEET (7) NORTHWESTERLY 26.35 FEET ALONG A 73.32 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 20°35'35" AND A LONG CHORD OF NORTH 30°57'47" WEST 26.21 FEET; (8) NORTH 41°15'35" WEST 114.29 FEET; (9) NORTHWESTERLY 11.22 FEET ALONG A 3029.45 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 0°12'44" AND A LONG CHORD OF NORTH 41°09'13" WEST 11.22 FEET TO A POINT ON THE EXTENSION THEREOF OF THE SOUTH PROPERTY LINE OF REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE ALONG SOUTH PROPERTY LINE SOUTH 89°54'54" EAST 593.13 FEET; THENCE NORTH 21°24'08" EAST 258.16 FEET; THENCE SOUTH 70°03'55" EAST 252.30 FEET; THENCE SOUTH 26°05'49" EAST 172.53 FEET TO A POINT ON THE SOUTH PROPERTY LINE OF THE REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE SOUTH 89°54'54" EAST 87.44 FEET TO A POINT ON THE SOUTHWESTERLY RIGHT OF WAY LINE OF A PROPOSED COLLECTOR ROAD;
THENCE ALONG THE SOUTHWESTERLY RIGHT OF WAY LINE OF PROPOSED COLLECTOR ROAD THE FOLLOWING FIVE (5) COURSES & DISTANCES:
(1) SOUTH 19°59'55" EAST 438.90 FEET TO A POINT OF CURVATURE;
(2) SOUTHERLY 109.47 FEET ALONG THE ARC OF A 384.00 FOOT RADIUS CURVE TO THE LEFT; CHORD BEARS SOUTH 28°09'56" EAST 109.10 FEET;
(3) SOUTH 36°19'58" EAST 219.31 FEET TO A POINT OF CURVATURE;
(4) SOUTHEASTERLY 96.86 FEET ALONG THE ARC OF A 384.00 FOOT RADIUS CURVE TO THE LEFT; CHORD BEARS SOUTH 43°33'32" EAST 96.60 FEET;
(5) SOUTH 50°47'07" EAST 679.45 FEET;
THENCE SOUTH 39°12'53" WEST 160.00 FEET; THENCE SOUTH 48°47'41" WEST 209.84 FEET; THENCE SOUTH 47°21'15" WEST 58.64 FEET; THENCE SOUTH 11°49'56" EAST 40.21 FEET; THENCE SOUTH 49°46'59" WEST 126.86 FEET; THENCE SOUTH 59°43'42" WEST 112.86 FEET TO A POINT ON THE WEST PROPERTY LINE OF SAID REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE ALONG SAID WEST PROPERTY LINE SOUTH 0°00'09" WEST 109.74 FEET TO THE CENTERLINE OF THE TIMPANOGOS CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID CENTERLINE THE FOLLOWING EIGHT COURSES:
(1) NORTH 10°34'34" WEST 26.14 FEET; (2) NORTHWESTERLY 18.66 FEET ALONG A 63.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 16°56'26" AND A LONG CHORD OF NORTH 19°02'47" WEST 18.59 FEET;
(3) NORTHWESTERLY 31.79 FEET ALONG A 63.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 28°51'57" AND A LONG CHORD OF NORTH 41°56'59" WEST 31.45 FEET;
(4) NORTH 56°22'57" WEST 51.03 FEET; (5) NORTHWESTERLY 56.42 FEET ALONG A 130.89 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 24°41'49" AND A LONG CHORD OF NORTH 44°02'02" WEST 55.98 FEET;
(6) NORTH 31°41'08" WEST 60.09 FEET; (7) NORTHWESTERLY 126.00 FEET ALONG A 664.07 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 10°52'18" AND A LONG CHORD OF NORTH 37°07'17" WEST 125.82 FEET;
(8) NORTH 42°33'26" WEST 8.76 FEET TO THE NORTH PROPERTY LINE OF THE VIEWPOINT HOLDINGS, LLC, PARCEL 1, PER ENTRY NO. 490647; THENCE ALONG SAID NORTH PROPERTY LINE NORTH 89°59'12" WEST 303.12 FEET TO THE NORTHWEST PROPERTY CORNER OF SAID VIEWPOINT HOLDINGS, LLC PARCEL; THENCE ALONG THE WEST PROPERTY LINE SOUTH 0°00'48" WEST 425.00 FEET, THENCE SOUTH 0°32'12" EAST 134.12 FEET TO THE SOUTHWEST PROPERTY CORNER OF THE VIEWPOINT HOLDINGS, LLC, PARCEL 2, PER ENTRY NO. 490647; THENCE ALONG THE SOUTH PROPERTY LINE NORTH 89°49'38" EAST 528.67 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE SOUTH 0°00'09" WEST 1263.25 FEET TO THE NORTH PROPERTY LINE OF TRUDY F BISEL PARCEL PER ENTRY NO. 442517; THENCE ALONG NORTH PROPERTY LINE NORTH 89°59'12" WEST 676.35 FEET TO THE CENTERLINE OF THE WASATCH CANAL; THENCE NORTH 89°59'12" WEST 52.77 FEET TO A POINT ON THE WEST LINE OF WASATCH CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID WEST LINE OF THE WASATCH CANAL TH

HIGHLANDS RESIDENTIAL
ALTA/NSPS LAND TITLE SURVEY
LOCATED IN SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST,
SALT LAKE BASE & MERIDIAN.
HEBER CITY, WASATCH COUNTY, UTAH

DRAWN BY: FWH
FIELD CREW: BM
CHECKED BY: SNT
DATE: 04/10/24

CLIENT: DR HORTON
DWG: SURVEY BASE
JOB No: 3891-
DRAWING IS REDUCED IF LESS THAN 22"x34"
DIMENSIONS AND NOTES TAKE PREFERENCE OVER SCALE.

CONTROL SHEET:

THIS SHEET IS FOR LOCATION OF SITE WITH SECTION CONTROL AND BASIS OF BEARINGS SEE SHEET 4 OF 5 AND 5 OF 5 FOR SURVEY TOPOGRAPHIC FEATURES, EXISTING STRUCTURES, UTILITIES AND LABELS OF UTILITY STRUCTURES, EXISTING CONTOURING, EASEMENTS, AND BOUNDARY.

UTILITY LOCATIONS SHOWN HEREON ARE BASED UPON ABOVE GROUND STRUCTURES COMBINED WITH UTILITY MAPS PROVIDED BY THE UTILITY COMPANIES. THE LOCATIONS OF UNDER GROUND STRUCTURES MAY VARY FROM THE LOCATIONS SHOWN HEREON. BLUES STAKES OF UTAH SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION OF THE SITE

RECOVERED: 1976 WASATCH COUNTY ALUMINUM CAP IN CONCRETE NORTHWEST CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M.

RECOVERED: 2005 WASATCH COUNTY ALUMINUM CAP, NORTH QUARTER CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M.

RE INVESTMENT HOLDINGS, LLC
TAX ID: 00-021-7693
Entry #486400

Utah Valley University
TAX ID: 00-0017-2036
Entry #342354

Utah Valley University
TAX ID: 00-0017-1897
Entry #342351

Utah Valley State College
TAX ID: 00-0020-1447
Entry #333087

Utah Valley State College
TAX ID: 00-013-8359
Entry #333087

Utah Valley State College
TAX ID: 00-0020-1446
Entry #333087

JORDANELLE REF ACQUISITION, LLC
TAX ID: 00-0021-8351
Entry #528303

MARK POTTER
TAX ID: 00-0018-5311
Entry #544002

MARK POTTER
TAX ID: 00-0020-3355
Entry #544002

Wasatch Commons Apartments, LLC
TAX ID: 00-0021-1674
Entry #448827

Wasatch Commons Apartments, LLC
TAX ID: 00-0020-9341
Entry #410526

BLUESIGN TEAM. LLC
TAX ID:00-0020-8445
Entry #460783

JAFFA LYNCH
INVESTOR GROUP
TAX ID: 00-0007-8480
Entry #520690

JORDANELLE REF ACQUISITION LLC
TAX ID: 00-0021-2621
Entry #521074

JORDANELLE REF ACQUISITION, LLC
TAX ID: 00-0021-5308
Entry #487730

(LESS & EXCEPTING)
PARCEL PER TITLE REPORT

PARCEL PER TITLE REPORT

AS SURVEYED POINT OF BEGINNING

POINT OF BEGINNING, OVERALL PARCEL

N 00°29'50" W 2488.43'

S 00°08'37" E 2667.06'

N 29°09'04" W 3313.99'

Basis of Bearings
S 04°04'03" E 2857.85'

US Highway 40
Project No. F-019-1(1)

EXCEPTION #14
60' TIMPANOGOS CANAL EASEMENT
ENTRY #212641

EXCEPTION #15
20' WATER EFFICIENCY PIPELINE T-D EASEMENT
ENTRY #287390

EXCEPTION #15
20' WATER EFFICIENCY PIPELINE TW-C EASEMENT
ENTRY #287390

EXCEPTION #14
65' WASATCH CANAL EASEMENT
ENTRY #212641

EXCEPTION #16
12' ACCESS ROAD EASEMENT
ENTRY #288575
& #490647

EXCEPTION #13
16' GAS TRANSMISSION EASEMENT
ENTRY #169923

EXCEPTION #16
15' UTILITY EASEMENT
ENTRY #288575

EXCEPTION #14
25' OVERFLOW PIPELINE EASEMENT T-OW2
ENTRY #212641
&
EXCEPTION #16
ENTRY #288575

EXCEPTION #14
25' EASEMENT
ENTRY #212641
OVERFLOW PIPELINE
DESCRIPTION T-OW2

EXCEPTION #16
AIRCRAFT RUNWAY
ENTRY #288575

EXCEPTION #29
20' WATER EFFICIENCY PIPELINE T-D EASEMENT
ENTRY # 295150

RECOVERED: WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENT NO. 706 ALUMINUM PIPE CAP MONUMENT

RECOVERED: BUREAU OF RECLAMATION BRASS CAP MONUMENT T10 IN CONCRETE

RECOVERED: 2005 WASATCH COUNTY ALUMINUM CAP, WEST QUARTER CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M. ELEVATION= 5697.64

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 74.93' FROM CENTERLINE

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 75.00' FROM CENTERLINE

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 73.80' FROM CENTERLINE

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 75.52' FROM CENTERLINE

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 75.25' FROM CENTERLINE

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 74.72' FROM CENTERLINE

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 75.61' FROM CENTERLINE

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 75.00' FROM CENTERLINE

RECOVERED: STATE ROAD RIGHT OF WAY BRASS CAP 75.61' FROM CENTERLINE

RECOVERED: 1999 WASATCH COUNTY ALUMINUM CAP, SOUTHWEST CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M.

RECOVERED: 1976 WASATCH COUNTY BRASS CAP IN CONCRETE SOUTHWEST CORNER, SECTION 20, SAID 1976 BRASS CAP MONUMENT WAS FOUND SITUATE S00°47'30" W 121.86 FEET FROM SAID 1999 WASATCH COUNTY ALUMINUM CAP

RECOVERED: 2005 WASATCH COUNTY ALUMINUM CAP, SOUTH QUARTER CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST S.L.B.&M.

RECOVERED: WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENT NO. 708 ALUMINUM PIPE CAP MONUMENT

FOUND BAR AND CAP PL WARD

FOUND BAR AND CAP FND WARD RC

FOUND BAR AND CAP FND EVERGREEN RC

FOUND BAR AND CAP FND 164791 RC

FOUND EVERGREEN RC

FOUND RC 145796

EXISTING BRIDGE

EXISTING BUILDING

EXISTING BUILDING FOUNDATIONS

EXISTING BRIDGE STRUCTURE

WELL SITE

40' NVSSD SEWER COLLECTION EASEMENT

15' HIGHWAY EASEMENT

15' HIGHWAY EASEMENT

MAP LEGEND

- BOUNDARY LINE
- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- RADIAL LINE
- FENCE LINE (CHAINLINK)
- CONCRETE
- ASPHALT
- OVERHEAD POWER LINE (OHP)
- MONUMENT
- LEAD PLUG
- BOUNDARY CORNER
- POWER POLE
- LIGHT POLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- SEWER CLEANOUT
- GAS METER
- POWER METER

REVISIONS

No.	DATE	BY	REVISION

GRAPHIC SCALE
200 0 100 200 400 600
(IN FEET)
1 inch = 200 ft.

SHEET 3 OF 5

Ward Engineering Group
Planning • Engineering • Surveying
Salt Lake City Office tel (801) 487-8040
231 WEST 800 SOUTH fax (801) 487-8668
Salt Lake City, Utah 84101

HIGHLANDS RESIDENTIAL
ALTA/NSPS LAND TITLE SURVEY
LOCATED IN SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST,
SALT LAKE BASE & MERIDIAN.
HEBER CITY, WASATCH COUNTY, UTAH

O:\Highlands\Survey\ACAD\Survey Base.dwg Aug 07, 2024 - 5:00pm

HIGHLANDS RESIDENTIAL - ALTA/NSPS LAND TITLE SURVEY

LOCATED IN SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
HEBER CITY, WASATCH COUNTY, UTAH

Line Table		
Line #	Length	Direction
L1	54.83	N17° 22' 52"W
L2	50.43	N80° 08' 06"W
L3	67.54	N20° 40' 00"W
L4	39.32	N20° 40' 00"W
L5	114.29	N41° 15' 35"W
L6	26.14	N10° 34' 34"W
L7	51.03	N56° 22' 57"W
L8	60.09	N31° 41' 08"W
L9	8.76	N42° 33' 26"W

Line Table		
Line #	Length	Direction
L27	56.67	N17° 22' 52"W
L28	1.84	N17° 22' 52"W
L29	68.81	N38° 49' 19"W
L30	47.85	N73° 42' 15"W
L31	51.86	S59° 30' 08"W
L32	33.28	N63° 47' 56"W
L33	47.57	N79° 38' 49"W
L34	37.83	N16° 45' 36"W
L35	52.83	N22° 44' 49"E
L36	91.64	N12° 42' 25"W
L37	168.84	N44° 39' 47"W
L38	122.94	N30° 01' 06"W
L39	24.30	S42° 33' 26"E
L40	33.06	N42° 33' 26"W
L41	63.72	N17° 54' 48"E
L42	44.62	N22° 20' 04"W
L43	61.85	N32° 34' 51"E
L44	20.28	N37° 28' 33"W
L45	30.12	N24° 31' 21"W
L46	30.51	N67° 12' 14"W
L47	39.08	N28° 25' 57"W
L48	38.81	N53° 38' 47"W
L49	41.08	N77° 14' 16"W
L50	27.75	N68° 46' 04"W
L51	49.88	N6° 39' 30"E

MAP LEGEND

- BOUNDARY LINE
- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- RADIAL LINE
- FENCE LINE (CHAINLINK)
- CONCRETE
- ASPHALT
- OVERHEAD POWER LINE (OHP)
- MONUMENT
- LEAD PLUG
- BOUNDARY CORNER
- POWER POLE
- LIGHT POLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- SEWER CLEANOUT
- GAS METER
- POWER METER
- MAJOR CONTOUR
- MINOR CONTOUR

NOTE:
CONTOURS ARE SHOWN IN 2' INTERVALS

NOTE:
UTILITY LOCATIONS SHOWN HEREON ARE BASED UPON ABOVE GROUND STRUCTURES COMBINED WITH UTILITY MAPS PROVIDED BY THE UTILITY COMPANIES. THE LOCATION OF UNDERGROUND STRUCTURES MAY VARY FROM THE LOCATIONS SHOWN HEREON. BLUE STAKES OF UTAH SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION OF THE SITE.

18 / 19 / 17 / 20 — RECOVERED: 1976 WASATCH COUNTY ALUMINUM CAP IN CONCRETE NORTHWEST CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M.

RECOVERED: 2005 WASATCH COUNTY ALUMINUM CAP, NORTH QUARTER CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M.

FOUND BAR AND CAP WARD

S 89°54'54" E 593.13'

S 70°03'53" E 253.30'

S 27°24'08" E 258.16'

S 26°05'49" E 172.53'

S 89°54'54" E 87.44'

FOUND BAR AND CAP END WARD

S 00°00'09" W 5309.87' [BM=S 0°] (S)

EXCEPTION #14
PRIVATELY OWNED VEHICULAR BRIDGE
ENTRY NO. 212641 SUBJECT TO WRITTEN CONSENT FROM UNITED STATES, TYPICAL

EXCEPTION #14
60' TIMPANOGOS CANAL EASEMENT
ENTRY NO. 212641

EXCEPTION #15
20' WATER EFFICIENCY PIPELINE T-D EASEMENT
ENTRY NO. 287390

N 48° 11'59" E 1098.02'

EXIST. SSMH
RIM=5728.29
FLOW=5718.52

POINT OF BEGINNING
AS-SURVEYED PARCEL

EXIST. SDMH 24IN -15.3FT SE/SSMH 108.3 FEET NE / 24IN -15.3FT ENE 0"
FLOW=5723.01

N 90°00'00" E 427.42'

N 58°00'22" E 202.27'

N 00°29'50" W 2488.43'

N 0°00'00" E 214.59'

S 0°08'37" E 147.53'

N 58°00'22" E 910.48'

S 0°08'37" E 1261.10'

S 0°00'00" E 1260.57'

502.32'

RECOVERED: 2005 WASATCH COUNTY ALUMINUM CAP, WEST QUARTER CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M.
BENCHMARK: ELEVATION = 5697.65

AS-SURVEYED PARCEL
CONTAINS 116.26 ACRES

(LESS & EXCEPTING PARCEL)

EXCEPTION #14
65' WASATCH CANAL EASEMENT
ENTRY NO. 212641

EXCEPTION #15
20' WATER EFFICIENCY PIPELINE
TW-C EASEMENT
ENTRY NO. 287390

RECOVERED: WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENT NO. 706 ALUMINUM PIPE CAP MONUMENT

S 36°19'39" E 219.31'

S 0°00'09" W 664.31'

S 50°47'07" E 679.45'

S 39°12'53" W 160.00'

S 48°47'47" W 209.84'

S 11°49'56" E 40.21'

S 49°46'59" W 126.86'

S 59°43'42" W 112.86'

S 0°36'09" W 109.74'

FOUND BAR AND CAP FND WARD RC

N 89°59'12" W 303.12'

FOUND BAR AND CAP FND WARD RC

6" WELL HEAD, DEPTH = 392 FEET, ENTRY NO. 184692

S 0°00'48" W 425.00'

EXCEPTION #14
PRIVATELY OWNED VEHICULAR BRIDGE, ENTRY NO. 212641

OVERFLOW PIPE EASEMENT T-OW2 , ENTRY NO. 212641

FOUND BAR AND CAP FND EVERGREEN RC

Curve Table					
Curve #	Length	Radius	Delta	Bearing	Chord
C1	62.66	57.21	62°45'14"	N48° 45' 29"W	59.57
C2	80.09	77.16	59°28'06"	N50° 24' 03"W	76.54
C3	26.35	73.32	20°35'35"	N30° 57' 47"W	26.21
C4	11.22	3029.45	0°12'44"	N41° 09' 13"W	11.22
C5	18.66	63.10	16°56'26"	N19° 02' 47"W	18.59
C6	31.79	63.10	28°51'57"	N41° 56' 59"W	31.45
C7	56.42	130.89	24°41'49"	N44° 02' 02"W	55.98
C8	126.00	664.07	10°52'18"	N37° 07' 17"W	125.82

Curve Table					
Curve #	Length	Radius	Delta	Bearing	Chord
C27	73.73	197.03	21°26'27"	N28° 06' 06"W	73.30
C28	165.50	271.84	34°52'56"	N56° 15' 47"W	162.95
C29	118.51	145.11	46°47'37"	S82° 53' 56"W	115.25
C30	72.62	73.38	56°41'56"	S87° 51' 06"W	69.69
C31	22.95	82.98	15°50'53"	N71° 43' 23"W	22.88
C32	80.99	73.79	62°53'13"	N48° 12' 13"W	76.99
C33	79.05	406.33	11°08'48"	N22° 20' 00"W	78.93
C34	55.56	62.84	50°39'13"	N2° 34' 48"W	53.76
C35	121.65	196.59	35°27'14"	N5° 01' 12"E	119.72
C36	123.52	221.47	31°57'22"	N28° 41' 06"W	121.93
C37	31.09	121.62	14°38'41"	N37° 20' 26"W	31.00
C38	72.75	332.41	12°32'20"	N36° 17' 16"W	72.60
C39	6.30	12.00	30°03'44"	N2° 52' 56"E	6.22
C40	41.59	59.20	40°14'52"	N2° 12' 38"W	40.74
C41	4.17	4.35	54°54'55"	N5° 07' 24"E	4.01
C42	79.97	65.40	70°03'24"	N2° 26' 51"W	75.08
C43	61.74	273.10	12°57'12"	N30° 59' 57"W	61.61
C44	99.61	133.72	42°40'53"	N45° 51' 47"W	97.32
C45	43.52	64.31	38°46'17"	N47° 49' 05"W	42.69
C46	61.02	138.65	25°12'50"	N41° 02' 22"W	60.52
C47	51.44	124.93	23°35'29"	N65° 26' 31"W	51.08
C48	50.30	340.23	8°28'12"	N73° 00' 10"W	50.25
C49	4.32	3.28	75°25'34"	N31° 03' 17"W	4.01
C59	109.47	384.00	16°20'03"	S28° 09' 56"E	109.10
C60	96.86	384.00	14°27'08"	S43° 33' 32"E	96.60

GRAPHIC SCALE
100 0 50 100 200 300
(IN FEET)
1 inch = 100 ft.

MATCH LINE SEE SHEET 5 OF 5

DRAWN BY: FWH
FIELD CREW: BJM/TRJ
CHECKED BY: SNT
DATE: 04/10/24

CLIENT: DR HORTON
DWG: SURVEY BASE
JOB No: 3891-
DRAWING IS REDUCED IF LESS THAN 22"x34". DIMENSIONS AND NOTES TAKE PRECEDENCE OVER SCALE.

HIGHLANDS RESIDENTIAL
ALTA/NSPS LAND TITLE SURVEY
LOCATED IN SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN, HEBER CITY, WASATCH COUNTY, UTAH

REVISIONS

No.	DATE	BY	REVISION

Salt Lake City Office tel (801) 487-8040
231 WEST 800 SOUTH fax (801) 487-8668
Salt Lake City, Utah 84101

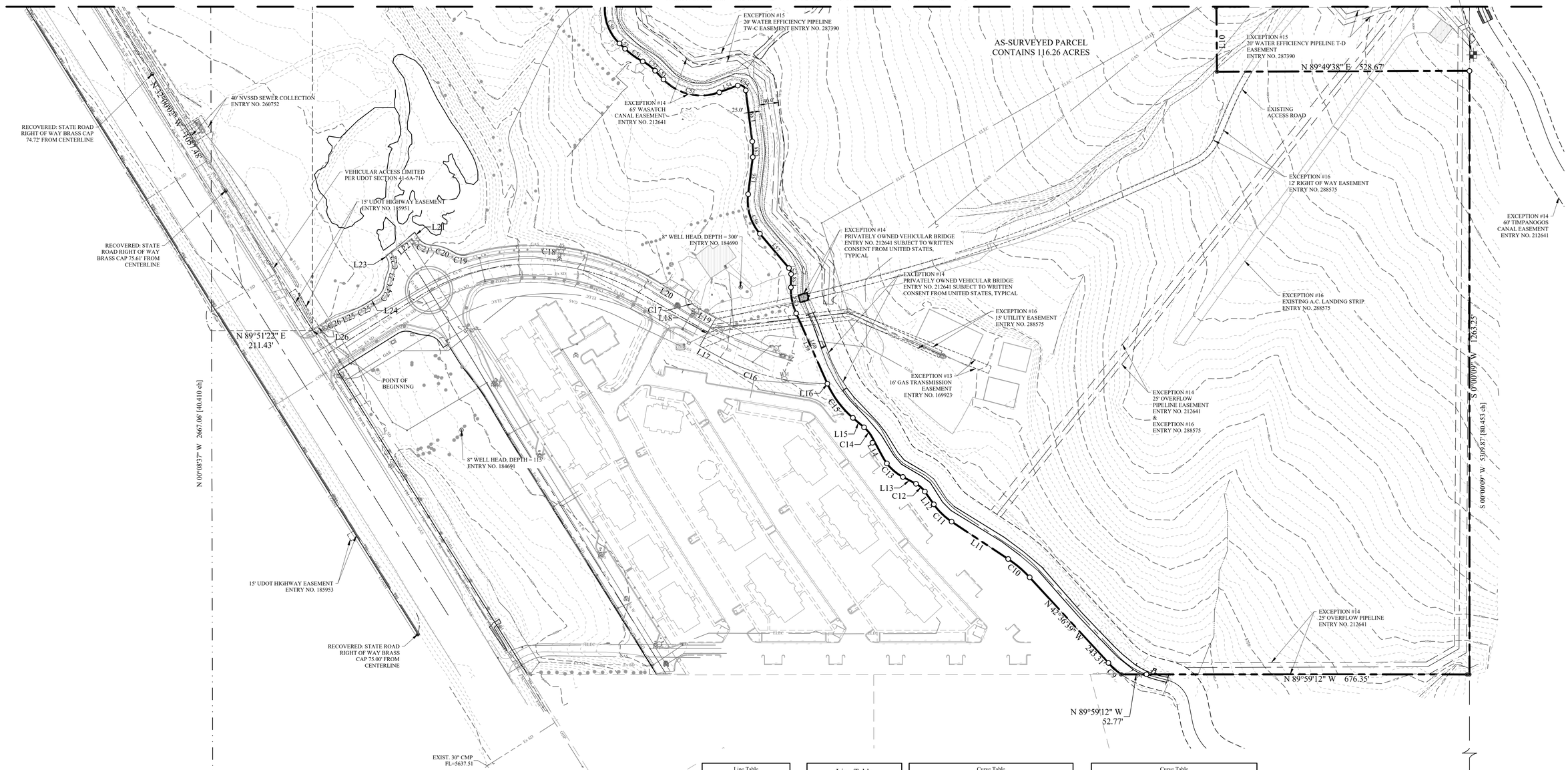
Ward Engineering Group
Planning • Engineering • Surveying

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HIGHLANDS RESIDENTIAL - ALTA/NSPS LAND TITLE SURVEY

LOCATED IN SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
HEBER CITY, WASATCH COUNTY, UTAH

MATCH LINE SEE SHEET 4 OF 5



MAP LEGEND

BOUNDARY LINE	MONUMENT
SECTION LINE	LEAD PLUG
QUARTER SECTION LINE	BOUNDARY CORNER
CENTERLINE	POWER POLE
RIGHT OF WAY	LIGHT POLE
LOT LINE	FIRE HYDRANT
DEED LINE	WATER VALVE
EASEMENT LINE	WATER METER
RADIAL LINE	SEWER CLEANOUT
FENCE LINE (CHAINLINK)	GAS METER
CONCRETE	POWER METER
ASPHALT	MAJOR CONTOUR
OVERHEAD POWER LINE	MINOR CONTOUR

NOTE:
CONTOURS ARE SHOWN IN 2' INTERVALS

Line Table		
Line #	Length	Direction
L10	134.12	S0° 32' 12"E
L11	141.96	N56° 31' 55"W
L12	32.66	N35° 05' 45"W
L13	31.01	N62° 27' 02"W
L14	46.48	N28° 15' 28"W
L15	30.70	N49° 35' 23"W
L16	0.10	N23° 57' 01"W
L17	29.46	N60° 07' 07"W
L18	67.00	N29° 52' 53"E
L19	50.00	N60° 07' 07"W
L20	103.22	N60° 07' 07"W
L21	11.88	N32° 02' 05"W
L22	77.72	S50° 08' 15"W
L23	1.29	S32° 02' 05"E
L24	24.11	S57° 57' 55"W
L25	52.01	S67° 03' 50"W
L26	27.54	S57° 57' 55"W

Line Table		
Line #	Length	Direction
L52	16.21	N46° 24' 33"W
L53	25.44	N43° 47' 57"W
L54	41.25	S69° 48' 41"W
L55	115.57	N7° 19' 18"W
L56	78.23	N7° 08' 37"E
L57	94.27	N40° 13' 25"W
L58	27.79	N0° 55' 28"E
L59	160.99	S23° 57' 01"E
L60	161.09	N23° 57' 01"W

Curve Table					
Curve #	Length	Radius	Delta	Bearing	Chord
C9	36.10	180.84	11°26'10"	N48°19'44"W	36.04
C10	59.37	244.36	13°55'16"	N49°34'17"W	59.23
C11	52.18	139.48	21°26'10"	N45°48'50"W	51.88
C12	24.90	52.16	27°21'17"	N48°46'23"W	24.67
C13	59.68	100.00	34°11'34"	N45°21'15"W	58.80
C14	27.92	75.00	21°19'55"	N38°55'26"W	27.76
C15	89.92	200.95	25°38'22"	N36°46'12"W	89.18
C16	252.73	483.50	29°56'58"	N75°05'36"W	249.86
C17	13.57	17.50	44°24'55"	N37°54'40"W	13.23
C18	391.17	488.50	45°52'49"	N83°03'31"W	380.80
C19	30.50	35.50	49°13'32"	N81°23'10"W	29.57
C20	50.41	94.50	30°33'53"	N72°03'20"W	49.82
C21	34.27	35.50	55°18'12"	N59°41'11"W	32.95
C22	34.27	35.50	55°18'12"	S4°22'59"E	32.95
C23	26.91	94.50	16°18'53"	S15°06'41"W	26.82
C24	31.61	35.50	51°00'41"	S32°27'35"W	30.57
C25	21.44	135.00	9°05'55"	S62°30'53"W	21.42
C26	26.20	165.00	9°05'55"	S62°30'53"W	26.17

Curve Table					
Curve #	Length	Radius	Delta	Bearing	Chord
C50	91.08	98.34	53°04'03"	N19°52'32"W	87.86
C51	45.58	162.73	16°02'54"	N54°26'00"W	45.43
C52	32.56	99.98	18°39'30"	N53°07'42"W	32.41
C53	126.93	109.54	66°23'22"	N76°59'38"W	119.94
C54	22.33	12.44	102°52'01"	N58°45'19"W	19.45
C55	25.17	99.68	14°27'55"	N0°05'21"W	25.10
C56	88.73	107.33	47°22'02"	N16°32'24"W	86.23
C57	13.67	19.04	41°08'53"	N19°38'58"W	13.38
C58	56.02	129.03	24°52'29"	N11°30'47"W	55.58

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

DRAWN BY: FWH
FIELD CREW: BJM/TRJ
CHECKED BY: SNT
DATE: 12/28/23

CLIENT: DR HORTON
DWG: SURVEY BASE
JOB No: 3891-
DRAWING IS REDUCED IF LESS THAN 22"x34". DIMENSIONS AND NOTES TAKE PRECEDENCE OVER SCALE.

HIGHLANDS RESIDENTIAL
ALTA/NSPS LAND TITLE SURVEY
LOCATED IN SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN, HEBER CITY, WASATCH COUNTY, UTAH

REVISIONS

No.	DATE	BY	REVISION

Ward Engineering Group
Planning • Engineering • Surveying
Salt Lake City Office tel (801) 487-8040
231 WEST 800 SOUTH fax (801) 487-8668
Salt Lake City, Utah 84101

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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



PLAT NOTES

1–PRIOR TO BUILDING PERMITS BEING ISSUED, SOIL AND/OR GEOTECHNICAL TESTING STUDIES MAY BE REQUIRED ON EACH LOT AS DETERMINED BY THE CITY BUILDING OFFICIAL.

2–BUILDING PERMITS WILL NOT BE ISSUED UNTIL ALL REQUIRED IMPROVEMENTS HAVE BEEN INSTALLED PER CITY STANDARDS AND ALL FEES INCLUDING IMPACT AND CONNECTION FEES ARE PAID.

3–NO CITY MAINTENANCE SHALL BE PROVIDED FOR STREETS AND IMPROVEMENTS DESIGNATED AS "PRIVATE" ON THIS PLAT.

4–ALL COMMON AND PARKING AREAS, AS APPLICABLE, AND PRIVATE STREETS, ARE DEDICATED AS CITY UTILITY EASEMENTS. HEBER CITY HAS THE RIGHT OF ACCESS THROUGH THESE EASEMENTS TO ACCESS, MAINTAIN, AND REPAIR CITY UTILITIES. NO CHANGES TO TOPOGRAPHY, STRUCTURES, ABOVE OR BELOW GROUND ARE ALLOWED IN EASEMENTS WITHIN 10 FEET OF CITY UTILITIES WITHOUT WRITTEN PERMISSION FROM THE HEBER CITY ENGINEER. ANY OBSTACLES ERECTED WITHIN THESE EASEMENTS WITHOUT WRITTEN PERMISSION WILL BE REMOVED AT THE CURRENT PROPERTY OWNER'S EXPENSE. ALL STORM DRAIN UTILITIES AND THEIR MAINTENANCE WITHIN PRIVATE PROPERTY SHALL BE THE RESPONSIBILITY OF PROPERTY OWNER. ALL SEWER LATERALS AND THEIR MAINTENANCE TO THE PUBLIC RIGHT–OF–WAY SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. ALL DRINKING WATER AND PRESSURIZED IRRIGATION SERVICES AND THEIR MAINTENANCE FROM THE WATER METER OR SERVICE VAULT SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.

5–A GEOTECHNICAL REPORT HAS BEEN COMPLETED BY GSH GEOTECHNICAL, LC, WHICH ADDRESSES SOIL AND GROUNDWATER CONDITIONS, PROVIDES ENGINEERING DESIGN CRITERIA, AND RECOMMENDS MITIGATION MEASURES IF PROBLEMATIC CONDITIONS WERE ENCOUNTERED. THE CITY ASSUMES NO LIABILITY OR RESPONSIBILITY FOR ANY RELIANCE ON THE INFORMATION OR LACK THEREOF IN THE REPORT.

6– AGRICULTURAL USES, OPERATIONS, AND RIGHTS ARE ADJACENT TO OR NEAR THE PLAT AND LOTS. THE LOTS IN THIS PLAT ARE SUBJECT TO THE SIGHTS, SOUNDS, ODORS, NUISANCES, AND ASPECTS ASSOCIATED WITH AGRICULTURAL OPERATIONS, USES, AND RIGHTS. THESE USES AND OPERATIONS MAY OCCUR AT ALL TIMES OF THE DAY AND NIGHT INCLUDING WEEKENDS AND HOLIDAYS. THE CITY IS NOT RESPONSIBLE OR LIABLE FOR THESE USES AND IMPACTS AND WILL NOT RESTRICT ANY GRANDFATHERED AGRICULTURAL USE FROM CONTINUING TO OCCUR LAWFULLY.

7– DRAINAGE ACROSS PROPERTY LINES SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON SITE OR DIRECTED TO AN APPROVED DRAINAGE FACILITY. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS, ACCORDING TO THE BUILDING CODE.

8–ALL OPEN SPACE, COMMON SPACE, AND TRAIL IMPROVEMENTS LOCATED HEREIN ARE TO BE INSTALLED BY OWNER AND MAINTAINED BY A HOMEOWNERS ASSOCIATION UNLESS SPECIFIED OTHERWISE ON EACH IMPROVEMENT.

9–LOTS/UNITS MAY BE SUBJECT TO ASSOCIATION BYLAWS, ARTICLES OF INCORPORATION AND CC&R'S."

10–PROPERTY IS LOCATED WITHIN THE FEMA ZONE "X"
MAP NUMBER: 49051C0116E
EFFECTIVE DATE: MARCH 15, 2012

NOTES TO PURCHASERS

1–NO RESIDENTIAL OR COMMERCIAL BUILDING IS TO BUILT ON ANY SLOPE EXCEEDING 30% NATURAL GRADE.

2–THIS PLAT IS SUBJECT TO THE CC&R'S RECORDED AS ENTRY NO. _____, RECORDED AND ON FILE IN THE OFFICE OF THE WASATCH COUNTY RECORDER.

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN SECTION 19, AND SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE WEST LINE OF THE WASATCH CANAL, AND THE SOUTH PROPERTY LINE OF THE UTAH VALLEY STATE COLLEGE PROPERTY AS DESCRIBED PER ENTRY NO. 333087, SAID INTERSECTION BEING NORTH 00°29'50" WEST 118.62 FEET ALONG THE SECTION LINE AND EAST 427.42 FEET FROM THE WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G–8 AS RECORDED IN BOOK 630 AT PAGES 766–767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS);
RUNNING THENCE ALONG SAID SOUTH PROPERTY LINE NORTH 58°00'22" EAST 202.21 FEET; THENCE NORTH 48°11'59" EAST 1098.03 FEET TO THE CENTERLINE OF THE TIMPANOGOS CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID CENTERLINE OF SAID CANAL THE FOLLOWING NINE COURSES: (1) NORTH 17°22'52" WEST 54.83 FEET; (2) NORTHWESTERLY 62.66 FEET ALONG A 57.21 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 62°45'14" AND A LONG CHORD OF NORTH 48°45'29" WEST 59.57 FEET; (3) NORTH 80°08'06" WEST 50.43 FEET; (4) NORTHWESTERLY 80.09 FEET ALONG A 77.16 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 59°28'06" AND A LONG CHORD OF NORTH 50°24'03" WEST 76.54 FEET; (5) NORTH 20°40'00" WEST 67.54 FEET; (6) NORTH 20°40'00" WEST 39.32 FEET (7) NORTHWESTERLY 26.35 FEET ALONG A 73.32 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 20°35'35" AND A LONG CHORD OF NORTH 30°57'47" WEST 26.21 FEET; (8) NORTH 41°15'35" WEST 114.29 FEET; (9) NORTHWESTERLY 11.22 FEET ALONG A 3029.45 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 0°12'44" AND A LONG CHORD OF NORTH 41°09'13" WEST 11.22 FEET TO A POINT ON THE EXTENSION THEREOF OF THE SOUTH PROPERTY LINE OF REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE ALONG SOUTH PROPERTY LINE SOUTH 89°54'54" EAST 593.13 FEET; THENCE NORTH 21°24'08" EAST 258.16 FEET; THENCE SOUTH 70°03'55" EAST 252.30 FEET; THENCE SOUTH 26°05'49" EAST 172.53 FEET TO A POINT ON THE SOUTH PROPERTY LINE OF THE REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE SOUTH 89°54'54" EAST 87.44 FEET TO A POINT ON THE SOUTHWESTERLY RIGHT OF WAY LINE OF A PROPOSED COLLECTOR ROAD;
THENCE ALONG THE SOUTHWESTERLY RIGHT OF WAY LINE OF PROPOSED COLLECTOR ROAD THE FOLLOWING FIVE (5) COURSES & DISTANCES:
(1) SOUTH 19°59'55" EAST 438.90 FEET TO A POINT OF CURVATURE;
(2) SOUTHERLY 109.47 FEET ALONG THE ARC OF A 384.00 FOOT RADIUS CURVE TO THE LEFT; CHORD BEARS SOUTH 28°09'56" EAST 109.10 FEET;
(3) SOUTH 36°19'58" EAST 219.31 FEET TO A POINT OF CURVATURE;
(4) SOUTHEASTERLY 96.86 FEET ALONG THE ARC OF A 384.00 FOOT RADIUS CURVE TO THE LEFT; CHORD BEARS SOUTH 43°33'32" EAST 96.60 FEET;
(5) SOUTH 50°47'07" EAST 679.45 FEET;
THENCE SOUTH 39°12'53" WEST 160.00 FEET; THENCE SOUTH 48°47'41" WEST 209.84 FEET; THENCE SOUTH 47°21'15" WEST 58.64 FEET; THENCE SOUTH 11°49'56" EAST 40.21 FEET; THENCE SOUTH 49°46'59" WEST 126.86 FEET; THENCE SOUTH 59°43'42" WEST 112.86 FEET TO A POINT ON THE WEST PROPERTY LINE OF SAID REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE ALONG SAID WEST PROPERTY LINE SOUTH 0°00'09" WEST 109.74 FEET TO THE CENTERLINE OF THE TIMPANOGOS CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID CENTERLINE THE FOLLOWING EIGHT COURSES:
(1) NORTH 10°34'34" WEST 26.14 FEET; (2) NORTHWESTERLY 18.66 FEET ALONG A 63.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 16°56'26" AND A LONG CHORD OF NORTH 19°02'47" WEST 18.59 FEET;
(3) NORTHWESTERLY 31.79 FEET ALONG A 63.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 28°51'57" AND A LONG CHORD OF NORTH 41°56'59" WEST 31.45 FEET;
(4) NORTH 56°22'57" WEST 51.03 FEET; (5) NORTHWESTERLY 56.42 FEET ALONG A 130.89 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 24°41'49" AND A LONG CHORD OF NORTH 44°02'02" WEST 55.98 FEET; (6) NORTH 31°41'08" WEST 60.09 FEET; (7) NORTHWESTERLY 126.00 FEET ALONG A 664.07 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 10°52'18" AND A LONG CHORD OF NORTH 37°07'17" WEST 125.82 FEET; (8) NORTH 42°33'26" WEST 8.76 FEET TO THE NORTH PROPERTY LINE OF THE VIEWPOINT HOLDINGS, LLC, PARCEL 1, PER ENTRY NO. 490647; THENCE ALONG SAID NORTH PROPERTY LINE NORTH 89°59'12" WEST 303.12 FEET TO THE NORTHWEST PROPERTY CORNER OF SAID VIEWPOINT HOLDINGS, LLC PARCEL; THENCE ALONG THE WEST PROPERTY LINE SOUTH 0°00'48" WEST 425.00 FEET, THENCE SOUTH 0°32'12" EAST 134.12 FEET TO THE SOUTHWEST PROPERTY CORNER OF THE VIEWPOINT HOLDINGS, LLC, PARCEL 2, PER ENTRY NO. 490647; THENCE ALONG THE SOUTH PROPERTY LINE NORTH 89°49'38" EAST 528.67 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE SOUTH 0°00'09" WEST 1263.25 FEET TO THE NORTH PROPERTY LINE OF TRUDY F BISEL PARCEL PER ENTRY NO. 442517; THENCE ALONG SAID NORTH PROPERTY LINE NORTH 89°59'12" WEST 76.35 FEET TO THE CENTERLINE OF THE WASATCH CANAL; THENCE NORTH 89°59'12" WEST 52.77 FEET TO A POINT ON THE WEST LINE OF WASATCH CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID WEST LINE OF THE WASATCH CANAL THE FOLLOWING FIFTY–TWO COURSES:
(1) NORTHWESTERLY 36.10 FEET ALONG A 180.84 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 11°26'10" AND A LONG CHORD OF NORTH 48°19'44" WEST 36.04 FEET; (2) NORTH 42°36'39" WEST 243.31 FEET; (3) NORTHWESTERLY 59.37 FEET ALONG A 244.36 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 13°55'16" AND A LONG CHORD OF NORTH 49°34'17" WEST 59.23 FEET; (4) NORTH 56°31'55" WEST 141.96 FEET; (5) NORTHWESTERLY 52.18 FEET ALONG A 139.48 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 21°26'10" AND A LONG CHORD OF NORTH 45°48'50" WEST 51.88 FEET; (6) NORTH 35°05'45" WEST 32.66 FEET; (7) NORTHWESTERLY 24.90 FEET ALONG A 52.16 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 27°21'17" AND A LONG CHORD OF NORTH 48°46'23" WEST 24.67 FEET; (8) NORTH 62°27'02" WEST 31.01 FEET; (9) NORTHWESTERLY 60.61 FEET ALONG A 71.10 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 48°50'40" AND A LONG CHORD OF NORTH 45°21'15" WEST 58.80 FEET; (10) NORTH 28°15'28" WEST 46.48 FEET; (11) NORTHWESTERLY 27.92 FEET ALONG A 75.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 21°19'55" AND A LONG CHORD OF NORTH 38°55'26" WEST 27.76 FEET; (12) NORTH 49°35'23" WEST 30.70 FEET; (13) NORTHWESTERLY 89.92 FEET ALONG A 200.95 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 25°38'22" AND A LONG CHORD OF NORTH 36°46'12" WEST 89.18 FEET; (14) NORTH 23°57'01" WEST 161.09 FEET; (15) NORTHERLY 56.02 FEET ALONG A 129.03 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 24°52'29" AND A LONG CHORD OF NORTH 11°30'47" WEST 55.58 FEET; (16) NORTH 0°55'28" EAST 27.79 FEET; (17) NORTHWESTERLY 13.67 FEET ALONG A 19.04 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 41°08'53" AND A LONG CHORD OF NORTH 19°38'58" WEST 13.38 FEET; (18) NORTH 40°13'25" WEST 94.27 FEET; (19) NORTHERLY 88.73 FEET ALONG A 107.33 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 47°22'02" AND A LONG CHORD OF NORTH 16°32'24" WEST 86.23 FEET; (20) NORTH 7°08'37" EAST 78.23 FEET; (21) NORTHERLY 25.17 FEET ALONG A 99.68 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 14°27'55" AND A LONG CHORD OF NORTH 0°05'21" WEST 25.10 FEET; (22) NORTH 7°19'18" WEST 115.57 FEET; (23) NORTHWESTERLY 22.33 FEET ALONG A 12.44 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 102°52'01" AND A LONG CHORD OF NORTH 58°45'19" WEST 19.45 FEET; (24) SOUTH 69°48'41" WEST 41.25 FEET; (25) NORTHWESTERLY 126.93 FEET ALONG A 109.54 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 66°23'22" AND A LONG CHORD OF NORTH 76°59'38" WEST 119.94 FEET; (26) NORTH 43°47'57" WEST 25.44 FEET; (27) NORTHWESTERLY 32.56 FEET ALONG A 99.98 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 18°39'30" AND A LONG CHORD OF NORTH 53°07'42" WEST 32.41 FEET; (28) NORTHWESTERLY 45.58 FEET ALONG A 162.73 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 16°02'54" AND A LONG CHORD OF NORTH 54°26'00" WEST 45.43 FEET; (29) NORTH 46°24'33" WEST 16.21 FEET; (30) NORTHERLY 91.08 FEET ALONG A 98.34 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 53°04'03" AND A LONG CHORD OF NORTH 19°52'32" WEST 87.86 FEET; (31) NORTH 6°39'30" EAST 49.88 FEET; (32) NORTHWESTERLY 4.32 FEET ALONG A 3.28 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 75°25'34" AND A LONG CHORD OF NORTH 31°03'17" WEST 4.01 FEET; (33) NORTH 68°46'04" WEST 27.75 FEET; (34) NORTHWESTERLY 50.30 FEET ALONG A 340.23 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 8°28'12" AND A LONG CHORD OF NORTH 73°00'10" WEST 50.25 FEET; (35) NORTH 77°14'16" WEST 41.08 FEET; (36) NORTHWESTERLY 51.44 FEET ALONG A 124.93 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 23°35'29" AND A LONG CHORD OF NORTH 65°26'31" WEST 51.08 FEET; (37) NORTH 53°38'47" WEST 38.81 FEET; (38) NORTHWESTERLY 61.02 FEET ALONG A 138.65 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 25°12'50" AND A LONG CHORD OF NORTH 41°02'22" WEST 60.52 FEET; (39) NORTH 28°25'57" WEST 39.08 FEET; (40) NORTHWESTERLY 43.52 FEET ALONG A 64.31 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 38°46'17" AND A LONG CHORD OF NORTH 47°49'05" WEST 42.69 FEET; (41) NORTH 67°12'14" WEST 30.51 FEET; (42) NORTHWESTERLY 99.61 FEET ALONG A 133.72 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 42°40'53" AND A LONG CHORD OF NORTH 45°51'47" WEST 97.32 FEET; (43) NORTH 24°31'21" WEST 30.12 FEET; (44) NORTHWESTERLY 61.74 FEET ALONG A 273.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 12°57'12" AND A LONG CHORD OF NORTH 30°59'57" WEST 61.61 FEET; (45) NORTH 37°28'33" WEST 20.28 FEET; (46) NORTHERLY 79.97 FEET ALONG A 65.40 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 70°03'24" AND A LONG CHORD OF NORTH 2°26'51" WEST 75.08 FEET; (47) NORTH 32°34'51" EAST 61.85 FEET; (48) NORTHERLY 4.17 FEET ALONG A 4.35 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 54°54'55" AND A LONG CHORD OF NORTH 5°07'24" EAST 4.01 FEET; (49) NORTH 22°20'04" WEST 44.62 FEET; (50) NORTHERLY 41.59 FEET ALONG A 59.20 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 40°14'52" AND A LONG CHORD OF NORTH 2°12'38" WEST 40.74 FEET; (51) NORTH 17°54'48" EAST 63.72 FEET; (52) NORTHERLY 6.30 FEET ALONG A 12.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 30°03'44" AND A LONG CHORD OF NORTH 2°52'56" EAST 6.22 FEET TO THE POINT OF BEGINNING.

CONTAINING 116.26 ACRES, 572 LOTS, 30 PARCELS.

SURVEYOR'S CERTIFICATE

I, SATTAR N. TABRIZ, DO HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR AND THAT I HOLD LICENSE 155100, IN ACCORDANCE WITH UTAH CODE TITLE 58, CHAPTER 22 OF THE PROFESSIONAL ENGINEERS AND LAND SURVEYORS LICENSING ACT. I FURTHER CERTIFY THAT, BY AUTHORITY OF THE OWNERS, I HAVE COMPLETED A SURVEY OF THE PROPERTY DESCRIBED ON THIS SUBDIVISION PLAT IN ACCORDANCE WITH SECTION 17–23–17, HAVE VERIFIED ALL MEASUREMENTS, HAVE SUBDIVIDED SAID TRACT OF LAND INTO LOTS, STREETS, TOGETHER WITH EASEMENTS, AND HAVE PLACED MONUMENTS ON THE GROUND AS REPRESENTED ON THE PLAT.

THE HIGHLANDS, RESIDENTIAL SUBDIVISION

AND THAT THE SAME HAS BEEN CORRECTLY SURVEYED AND MONUMENTED ON THE GROUND AS SHOWN ON THIS PLAT.

FOR REVIEW

_____ _____
SATTAR N. TABRIZ PLS, UTAH LICENSE NO. 155100 DATE:

PROFESSIONAL LAND SURVEYOR # 155100 SATTAR N. TABRIZ STATE OF UTAH

OWNER'S DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT THE UNDERSIGNED OWNER(S) OF THE HEREON–DESCRIBED TRACT OF LAND HAS/HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, PARCELS, AND STREETS, TOGETHER WITH EASEMENTS AND RIGHTS–OF–WAY, TO BE HEREAFTER KNOWN AS:

THE HIGHLANDS, RESIDENTIAL SUBDIVISION

AND DO HEREBY DEDICATE FOR THE PERPETUAL USE OF THE PUBLIC AND CITY ALL PARCELS, LOTS, STREETS, EASEMENTS, RIGHTS–OF–WAY, AND PUBLIC AMENITIES SHOWN ON THIS PLAT AS INTENDED FOR PUBLIC OR CITY USE. PURSUANT TO UTAH CODE 10–9A–604(D), THE OWNER(S) HEREBY CONVEYS THE COMMON AREA AND LIMITED COMMON AREA, AS INDICATED HEREON, TO THE _____ OWNERS ASSOCIATION, WITH A REGISTERED ADDRESS OF 12351 S. GATEWAY PARK PLACE, #D–100 DRAPER, UTAH 84020. THE UNDERSIGNED OWNER(S), AGENTS, SUCCESSORS, AND ASSIGNS SHALL VOLUNTARILY DEFEND, INDEMNIFY, AND SAVE HARMLESS THE CITY AGAINST ANY EASEMENTS OR OTHER ENCUMBRANCE ON A DEDICATED STREET EASEMENT, OR RIGHT–OF–WAY THAT WILL INTERFERE WITH THE CITY'S USE, MAINTENANCE, AND OPERATION OF THE STREET OR UTILITIES. THE UNDERSIGNED OWNER(S), AGENTS, SUCCESSORS, AND ASSIGNS ALSO HEREBY CONVEY ANY OTHER EASEMENTS, AS SHOWN AND/OR NOTED ON THIS PLAT, TO THE PARTIES INDICATED AND FOR THE PURPOSES SHOWN AND/OR NOTED HEREON. THE CITY ASSUMES NO LIABILITY WITH RESPECT TO THE CREATION OF THIS SUBDIVISION, THE ALTERATION OF THE GROUND SURFACE, VEGETATION, DRAINAGE, OR SURFACE OR SUB–SURFACE WATER FLOWS WITHIN THIS SUBDIVISION, AND THE DEVELOPMENT ACTIVITY WITHIN THIS SUBDIVISION BY THE UNDERSIGNED OWNERS(S), AGENTS, SUCCESSORS, AND ASSIGNS.

IN WITNESS WHEREOF I HAVE SET FORTH MY HAND

THIS _____DAY OF _____, 20_____.

ENTITY_____.

SIGNATURE:_____.

PRINT NAME:_____.

TITLE:_____.

ACKNOWLEDGEMENT

STATE OF UTAH }
S.S.
COUNTY OF UTAH }

ON THIS_____DAY OF _____, 20____, PERSONALLY APPEARED BEFORE ME, _____,
WHO BEING BY ME DULY SWORN, DID PROVE TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE/SHE/THEY EXECUTED THE SAME IN HIS/HER/THEIR AUTHORIZED CAPACITY(IES). AND THAT BY HIS/HER/THEIR SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S) OR THE ENTITY UPON BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THIS PLAT WITH FULL AUTHORITY OF THE OWNER(S).

I CERTIFY UNDER PENALTY OF PERJURY UNDER LAWS OF THE STATE OF UTAH THAT THE FOREGOING PARAGRAPH IS TRUE AND CORRECT.

WITNESS MY HAND AND OFFICIAL SEAL.

NOTARY PUBLIC SIGNATURE: _____.

PRINTED NAME AS COMMISSIONED: _____.

COMMISSION NUMBER:_____.

MY COMMISSION EXPIRES: _____.

A NOTARY PUBLIC COMMISSIONED IN UTAH

APPROVAL BY LEGISLATIVE BODY

THE CITY COUNCIL OF HEBER CITY, COUNTY OF WASATCH, APPROVES THIS SUBDIVISION SUBJECT TO THE CONDITIONS AND RESTRICTIONS STATED HEREON, AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, EASEMENTS, AND OTHER PARCELS OF LAND INTENDED FOR THE PUBLIC PURPOSE OF THE PERPETUAL USE OF THE PUBLIC.

_____ _____
MAYOR DATE RECORDER'S SEAL

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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

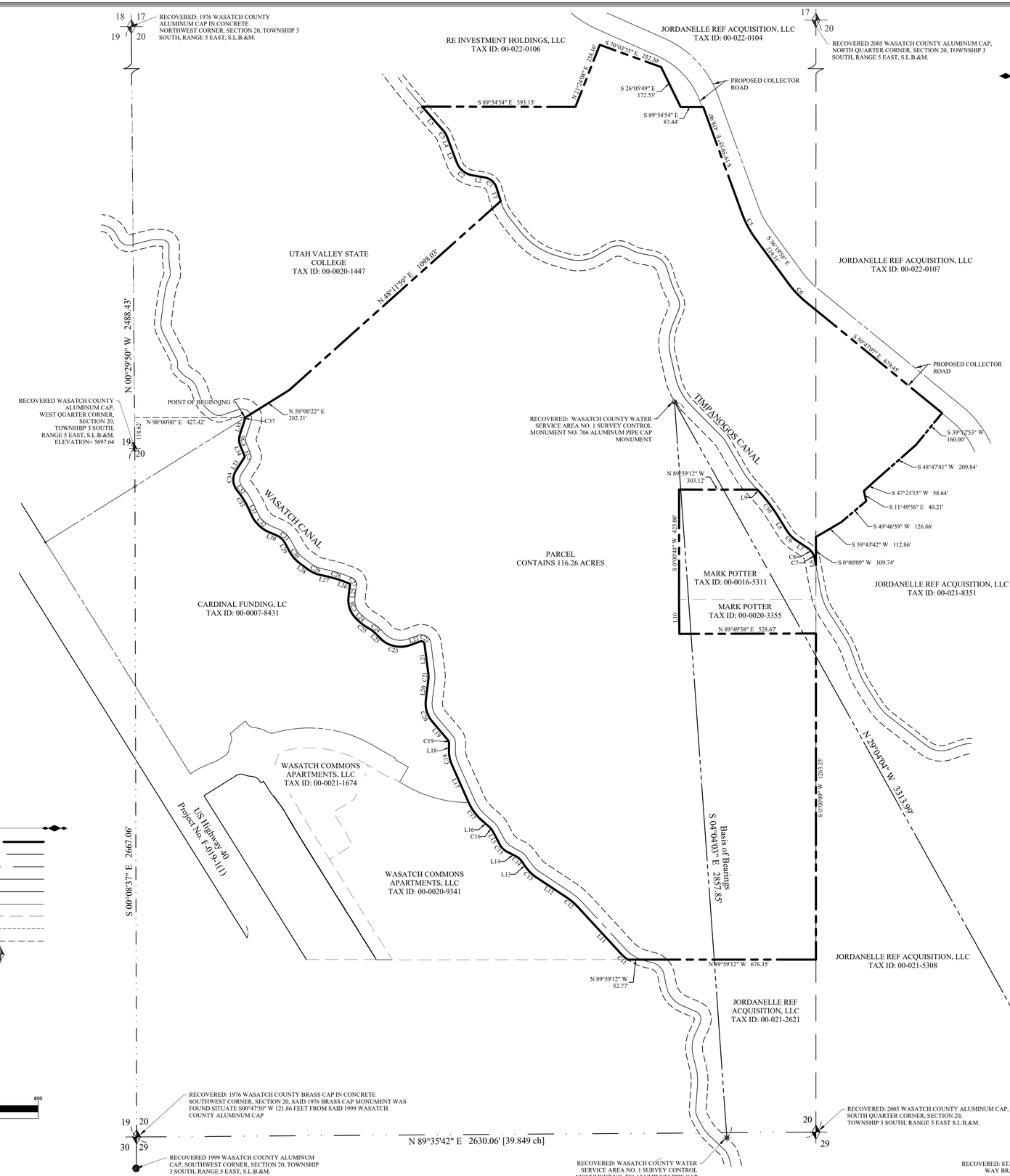
LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST,
SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

PLANNING MANAGER	***CITY ENGINEER***	***WASATCH CO. FIRE DISTRICT***	***CITY ATTORNEY***	***COUNTY SURVEYOR***	***COUNTY RECORDER***	***SHEET***
APPROVED THIS _____ DAY OF _____, A.D. 20____.	APPROVED THIS _____ DAY OF _____, A.D. 20____.	APPROVED THIS _____ DAY OF _____, A.D. 20____.	APPROVED THIS _____ DAY OF _____, A.D. 20____.	APPROVED THIS _____ DAY OF _____, A.D. 20____.	_____ RECORD NO. STATE OF UTAH, COUNTY OF WASATCH, RECORDED AND FILED AT THE REQUEST OF: _____ DATE_____TIME_____BOOK_____PAGE_____ FEES	PLAT PL–A
_____ PLANNING MANAGER	_____ CITY ENGINEER	_____ FIRE CHIEF	_____ CITY ATTORNEY	_____ COUNTY SURVEYOR		

THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



Curve Table					
Curve #	Length	Radius	Delta	Bearing	Chord
C1	62.66	57.21	62°45'14"	N48° 45' 29"W	59.57
C2	80.09	77.16	59°28'06"	N50° 24' 03"W	76.54
C3	26.35	73.32	20°35'35"	N30° 57' 47"W	26.21
C4	11.22	3029.45	0°12'44"	N41° 09' 13"W	11.22
C5	109.47	384.00	16°20'03"	S28° 09' 56"E	109.10
C6	96.86	384.00	14°27'08"	S43° 33' 32"E	96.60
C7	18.66	63.10	16°56'26"	N19° 02' 47"W	18.59
C8	31.79	63.10	28°51'57"	N41° 56' 59"W	31.45
C9	56.42	130.89	24°41'49"	N44° 02' 02"W	55.98
C10	126.00	664.07	10°52'18"	N37° 07' 17"W	125.82
C11	36.10	180.84	11°26'10"	N48° 19' 44"W	36.04
C12	59.37	244.36	13°55'16"	N49° 34' 17"W	59.23
C13	52.18	139.48	21°26'10"	N45° 48' 50"W	51.88
C14	24.90	52.16	27°21'17"	N48° 46' 23"W	24.67
C15	60.61	71.10	48°50'40"	N45° 21' 15"W	58.80
C16	27.92	75.00	21°19'55"	N38° 55' 26"W	27.76
C17	89.92	200.95	25°38'22"	N36° 46' 12"W	89.18
C18	56.02	129.03	24°52'29"	N11° 30' 47"W	55.58
C19	13.67	19.04	41°08'53"	N19° 38' 58"W	13.38
C20	88.73	107.33	47°22'02"	N16° 32' 24"W	86.23
C21	25.17	99.68	14°27'55"	N0° 05' 21"W	25.10
C22	22.33	12.44	102°52'01"	N58° 45' 19"W	19.45
C23	126.93	109.54	66°23'22"	N76° 59' 38"W	119.94
C24	32.56	99.98	18°39'30"	N53° 07' 42"W	32.41
C25	45.58	162.73	16°02'54"	N54° 26' 00"W	45.43
C26	91.08	98.34	53°04'03"	N19° 52' 32"W	87.86
C27	4.32	3.28	75°25'34"	N31° 03' 17"W	4.01
C28	50.30	340.23	8°28'12"	N73° 00' 10"W	50.25
C29	51.44	124.93	23°35'29"	N65° 26' 31"W	51.08
C30	61.02	138.65	25°12'50"	N41° 02' 22"W	60.52
C31	43.52	64.31	38°46'17"	N47° 49' 05"W	42.69
C32	99.61	133.72	42°40'53"	N45° 51' 47"W	97.32
C33	61.74	273.10	12°57'12"	N30° 59' 57"W	61.61
C34	79.97	65.40	70°03'24"	N2° 26' 51"W	75.08
C35	4.17	4.35	54°54'55"	N5° 07' 24"E	4.01
C36	41.59	59.20	40°14'52"	N2° 12' 38"W	40.74
C37	6.30	12.00	30°03'44"	N2° 52' 56"E	6.22

Line Table		
Line #	Length	Direction
L1	54.83	N17° 22' 52"W
L2	50.43	N80° 08' 06"W
L3	67.54	N20° 40' 00"W
L4	39.32	N20° 40' 00"W
L5	114.29	N41° 15' 35"W
L6	26.14	N10° 34' 34"W
L7	51.03	N56° 22' 57"W
L8	60.09	N31° 41' 08"W
L9	8.76	N42° 33' 26"W
L10	134.12	S0° 32' 12"E
L11	243.31	N42° 36' 39"W
L12	141.96	N56° 31' 55"W
L13	32.66	N35° 05' 45"W
L14	31.01	N62° 27' 02"W
L15	46.48	N28° 15' 28"W
L16	30.70	N49° 35' 23"W
L17	161.09	N23° 57' 01"W
L18	27.79	N0° 55' 28"E
L19	94.27	N40° 13' 25"W
L20	78.23	N7° 08' 37"E
L21	115.57	N7° 19' 18"W
L22	41.25	S69° 48' 41"W
L23	25.44	N43° 47' 57"W
L24	16.21	N46° 24' 33"W
L25	49.88	N6° 39' 30"E
L26	27.75	N68° 46' 04"W
L27	41.08	N77° 14' 16"W
L28	38.81	N53° 38' 47"W
L29	39.08	N28° 25' 57"W
L30	30.51	N67° 12' 14"W
L31	30.12	N24° 31' 21"W
L32	20.28	N37° 28' 33"W
L33	61.85	N32° 34' 51"E
L34	44.62	N22° 20' 04"W
L35	63.72	N17° 54' 48"E

MAP LEGEND

- BOUNDARY LINE
- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- RADIAL LINE
- MONUMENT
- LEAD PLUG

GRAPHIC SCALE

200 0 100 200 400 600

(IN FEET)
1 inch = 200 ft.

THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST,
SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

COUNTY RECORDER

RECORD NO.

STATE OF UTAH, COUNTY OF WASATCH, RECORDED AND FILED AT THE REQUEST OF: _____

DATE _____ TIME _____ BOOK _____ PAGE _____

FEES

SHEET

PLAT
PL-B

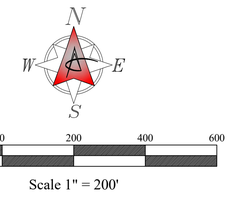
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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH





Scale 1" = 200'

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COUNTY RECORDER

WASATCH COUNTY RECORDER

RECORD NO.

STATE OF UTAH, COUNTY OF WASATCH, RECORDED AND FILED AT THE REQUEST OF: _____

DATE _____ TIME _____ BOOK _____ PAGE _____

FEES _____

PRINTED NAME OF COUNTY RECORDER

SHEET

PLAT

PL–C

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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

Curve Table

Curve #	Length	Radius	Delta	Bearing	Chord
C1	6.30	12.00	30.0622	N20° 52' 56"E	6.22
C2	41.59	59.20	40.2478	S2° 12' 38"E	40.74
C3	4.17	4.35	54.9153	N5° 07' 23"E	4.01
C4	79.97	65.40	70.0567	S2° 26' 51"E	75.08
C5	61.74	273.10	12.9533	N30° 59' 57"W	61.61
C6	99.61	133.72	42.6814	S45° 51' 47"E	97.32
C7	43.52	64.31	38.7714	N47° 49' 06"W	42.69
C8	61.02	138.65	25.2139	S41° 02' 22"E	60.52
C9	51.44	124.93	23.5914	S65° 26' 31"E	51.08
C10	50.30	340.23	8.4700	N73° 00' 10"W	50.25
C11	4.32	3.28	75.4261	N31° 03' 17"W	4.01
C12	91.08	98.34	53.0675	S19° 52' 32"E	87.86
C13	45.58	162.73	16.0483	S54° 26' 00"E	45.43
C14	32.56	99.98	18.6583	N53° 07' 42"W	32.41
C15	126.93	109.54	66.3894	S76° 59' 38"E	119.94
C16	22.33	12.44	102.8669	N58° 45' 19"W	19.45
C17	25.17	99.68	14.4653	N0° 05' 21"W	25.10
C18	88.73	107.33	47.3672	S16° 32' 24"E	86.23
C19	13.67	19.04	41.1481	N19° 38' 58"W	13.38
C20	56.02	129.03	24.8747	S11° 30' 47"E	55.58
C21	89.92	200.95	25.6394	S36° 46' 12"E	89.18
C22	27.92	75.00	21.3319	N38° 55' 26"W	27.76
C23	59.68	100.00	34.1928	S45° 21' 15"E	58.80
C24	24.90	52.16	27.3547	N48° 46' 23"W	24.67
C25	52.18	139.48	21.4361	S45° 48' 50"E	51.88
C26	59.37	244.36	13.9211	N49° 34' 17"W	59.23
C27	36.10	180.84	11.4361	S48° 19' 44"E	36.04
C28	126.00	664.07	10.8717	N37° 07' 17"W	125.82
C29	56.42	130.89	24.6969	S44° 02' 02"E	55.98
C30	31.79	63.10	28.8658	N41° 56' 59"W	31.45
C31	18.66	63.10	16.9406	N19° 02' 47"W	18.59
C32	42.41	27.00	90.0000	S45° 00' 00"E	38.18
C33	109.47	384.00	16.3342	S28° 09' 56"E	109.10
C34	11.22	3029.45	0.2122	S41° 09' 13"E	11.22
C35	26.35	73.32	20.5931	N30° 57' 47"W	26.21
C36	80.09	77.16	59.4683	S50° 24' 03"E	76.54
C37	62.66	57.21	62.7538	N48° 45' 29"W	59.57
C38	154.37	263.00	33.6311	S82° 43' 30"W	152.17
C39	282.74	300.00	53.9994	S87° 05' 27"E	272.39
C40	62.96	334.00	10.7999	N71° 18' 34"E	62.86
C41	15.71	10.00	90.0000	S20° 54' 34"W	14.14
C42	15.54	10.00	89.0216	N68° 36' 05"W	14.02
C43	370.94	400.00	53.1339	N39° 17' 56"E	357.79
C44	17.31	11.00	90.1824	S20° 18' 15"W	15.58
C45	17.18	11.00	89.4824	S69° 20' 58"E	15.49
C46	140.76	334.00	24.1464	S36° 40' 53"E	139.72
C47	129.14	300.00	24.6640	S36° 25' 22"E	128.15
C48	111.27	266.00	23.9677	S36° 46' 15"E	110.46
C49	25.13	16.00	90.0000	N86° 14' 43"E	22.63
C50	13.61	26.00	30.0000	S26° 14' 43"W	13.46
C51	40.84	26.00	90.0000	S86° 14' 43"W	36.77
C52	17.23	26.00	37.9799	N22° 15' 19"E	16.92
C53	398.91	434.00	52.6635	N39° 03' 49"E	385.02
C54	370.94	400.00	53.1339	N39° 17' 56"E	357.79
C56	7.84	26.00	17.2680	S81° 21' 58"W	7.81
C57	22.22	100.00	12.7320	N83° 38' 02"W	22.18
C59	365.20	600.00	34.8741	N4° 42' 18"W	359.59
C60	17.23	26.00	37.9799	N71° 00' 36"W	16.92
C61	40.84	26.00	90.0000	N45° 00' 00"E	36.77
C62	14.23	131.57	6.1964	N3° 14' 02"E	14.22

Curve Table

Curve #	Length	Radius	Delta	Bearing	Chord
C63	41.04	105.00	22.3941	N11° 11' 49"E	40.78
C64	75.59	105.00	41.2453	S20° 37' 22"W	73.96
C65	57.59	80.00	41.2453	S20° 37' 22"W	56.35
C66	56.24	80.00	40.2767	S20° 08' 20"W	55.09
C67	32.88	105.00	17.9398	N31° 21' 51"E	32.74
C68	1.35	80.00	0.9674	S40° 45' 42"W	1.35
C69	1.67	105.00	0.9113	N40° 47' 23"E	1.67
C70	40.84	26.00	90.0000	S42° 41' 00"W	36.77
C71	40.84	26.00	90.0000	S45° 00' 00"W	36.77
C72	24.45	26.00	53.8711	S26° 56' 08"E	23.56
C73	86.83	446.33	11.1467	S22° 20' 00"E	86.69
C74	86.38	120.00	41.2452	S69° 22' 38"E	84.53
C75	167.73	441.50	21.7676	N79° 07' 07"E	166.73
C76	353.07	634.00	31.9079	N6° 11' 17"W	348.53
C77	78.12	100.00	44.7571	S22° 22' 43"E	76.14
C78	40.84	26.00	90.0000	N45° 00' 00"E	36.77
C79	40.84	26.00	90.0000	S45° 00' 00"W	36.77
C80	40.84	26.00	90.0000	S45° 00' 00"E	36.77
C81	25.13	16.00	90.0000	S45° 00' 00"E	22.63
C82	17.23	26.00	37.9799	N18° 59' 24"E	16.92
C83	25.13	16.00	90.0000	N45° 00' 00"E	22.63
C84	17.23	26.00	37.9733	S18° 59' 24"E	16.92
C85	1.01	26.00	2.2155	N1° 06' 28"W	1.01
C86	38.29	85.00	25.8105	S12° 54' 19"E	37.97
C87	28.89	83.10	19.9161	N46° 25' 28"W	28.74
C88	7.87	200.00	2.2558	S88° 48' 40"W	7.87
C89	37.09	33.79	62.8869	S48° 12' 13"E	35.25
C90	7.28	185.00	2.2558	S88° 48' 40"W	7.28
C91	23.44	26.00	51.6555	N28° 02' 36"W	22.65
C92	321.33	777.50	23.6796	S11° 54' 03"E	319.05
C93	331.66	802.50	23.6796	N11° 54' 03"W	329.31
C94	17.23	26.00	37.9799	N45° 11' 59"E	16.92
C96	163.56	390.00	24.0296	S12° 04' 33"E	162.37
C97	153.08	365.00	24.0296	N12° 04' 33"W	151.96
C99	24.45	26.00	53.8711	S63° 07' 32"E	23.56
C100	24.45	26.00	53.8710	N63° 00' 12"E	23.56
C101	517.63	609.50	48.6593	S65° 40' 04"E	502.21
C102	20.42	13.00	90.0000	S44° 59' 51"E	18.38
C103	1.01	26.00	2.2148	N20° 16' 24"E	1.00
C104	42.68	180.47	13.5495	S60° 07' 34"W	42.58
C105	39.69	73.66	30.8692	N19° 02' 25"W	39.21
C106	56.64	37.44	86.6804	N42° 02' 21"W	51.39
C107	15.89	100.00	9.1040	N84° 44' 24"W	15.87
C108	17.78	100.00	10.1881	N75° 05' 39"W	17.76
C109	16.46	100.00	9.4303	N65° 17' 05"W	16.44
C110	28.96	100.00	16.5928	N52° 16' 24"W	28.86
C111	24.35	216.00	6.4588	S50° 22' 35"E	24.34
C112	192.59	509.50	21.6574	N79° 10' 26"E	191.44
C113	183.78	475.50	22.1446	S78° 55' 49"W	182.64
C114	106.64	124.89	48.9215	S24° 18' 58"E	103.43
C115	43.72	600.80	4.1692	S20° 10' 05"E	43.71
C116	15.07	10.00	86.3171	N25° 04' 35"E	13.68
C117	0.91	475.50	0.1102	N68° 17' 24"E	0.91
C118	3.13	475.50	0.3770	N68° 02' 47"E	3.13
C119	15.62	10.00	89.5128	S66° 53' 54"E	14.08
C120	47.80	110.89	24.6969	N44° 02' 03"W	47.43
C121	365.20	600.00	34.8741	N4° 42' 18"W	359.59
C122	40.84	26.00	90.0000	S8° 13' 57"E	36.77
C123	331.66	802.50	23.6796	N11° 54' 03"W	329.31
C124	214.66	518.00	23.7432	S11° 52' 09"E	213.12

Curve Table

Curve #	Length	Radius	Delta	Bearing	Chord
C125	203.05	490.00	23.7432	S11° 52' 09"E	201.60
C126	192.69	465.00	23.7432	N11° 52' 09"W	191.32
C127	400.91	637.00	36.0608	N0° 03' 07"W	394.33
C128	432.57	600.00	41.3078	N11° 29' 17"W	423.27
C129	408.06	566.00	41.3078	S1° 29' 17"E	399.28
C130	488.75	575.50	48.6593	N65° 40' 04"W	474.20
C131	15.48	10.34	85.7690	N46° 21' 08"E	14.08
C132	400.91	637.00	36.0608	S0° 03' 07"E	394.33
C133	432.57	600.00	41.3078	N1° 29' 17"W	423.27
C134	408.06	566.00	41.3078	S1° 29' 17"E	399.28
C135	46.25	216.00	12.2675	S47° 28' 19"E	46.16
C136	53.53	250.00	12.2675	S47° 28' 19"E	53.42
C137	41.14	26.00	90.6475	S46° 59' 25"E	36.98
C138	50.61	284.00	10.2100	S48° 30' 02"E	50.54
C139	44.55	250.00	10.2100	S48° 30' 02"E	44.49
C140	24.45	26.00	53.8711	N75° 08' 07"E	23.56
C141	17.23	26.00	37.9799	N71° 00' 36"W	16.92
C142	40.49	26.00	89.2078	S45° 23' 32"W	36.52
C143	10.77	26.00	23.7253	N78° 08' 01"E	10.69
C144	29.72	26.00	65.4825	S33° 31' 47"W	28.13
C145	40.59	121.75	19.1008	N9° 09' 46"W	40.40
C146	29.00	128.92	12.8878	S25° 07' 22"E	28.94
C147	37.06	124.89	17.0014	N40° 16' 34"W	36.92
C148	85.09	100.00	48.7547	N24° 22' 38"W	82.55
C149	66.40	85.00	44.7571	S22° 22' 43"E	64.72
C150	228.34	500.00	26.1657	S32° 14' 55"W	226.36
C151	60.78	85.00	40.9690	N69° 14' 21"W	59.49
C152	71.50	100.00	40.9690	N69° 14' 21"W	69.99
C153	89.38	125.00	40.9690	N69° 14' 21"W	87.49
C154	20.90	125.00	9.5792	N53° 32' 39"W	20.87
C155	27.21	125.00	12.4724	N64° 34' 12"W	27.16
C156	41.27	125.00	18.9174	N80° 15' 54"W	41.08
C157	25.16	16.00	90.0890	N44° 40' 45"W	22.64
C158	17.36	26.00	38.2529	S71° 09' 00"W	17.04
C159	3.44	4980.00	0.0396	N0° 01' 11"E	3.44
C160	3.44	4954.95	0.0398	N0° 01' 11"E	3.44
C161	3.44	4933.50	0.0399	N0° 01' 11"E	3.44
C162	32.02	5020.00	0.3654	S0° 10' 58"W	32.02
C163	28.58	5018.70	0.3262	N0° 12' 08"E	28.58
C164	31.92	5005.00	0.3654	N0° 10' 58"E	31.92
C165	7.78	1816.08	0.2455	N0° 21' 25"E	7.78
C166	17.23	26.00	37.9799	N71° 00' 36"W	16.92
C167	25.13	16.00	90.0000	N45° 00' 00"E	22.63
C168	25.13	537.00	2.6810	S20° 30' 22"W	25.12
C169	40.84	26.00	89.9975	S25° 50' 08"E	36.77
C170	48.25	26.00	106.3350	N72° 19' 51"E	41.62
C171	157.16	200.00	45.0238	N48° 19' 21"W	153.15
C172	149.87	225.00	38.1641	S44° 53' 33"E	147.11
C173	84.64	185.00	26.2128	S38° 55' 01"E	83.90
C174	49.78	618.00	4.6152	N37° 16' 25"W	49.77
C175	129.80	684.07	10.8717	N37° 07' 17"W	129.61
C176	17.42	62.98	15.8481	N71° 43' 23"W	17.36
C177	45.05	100.00	25.8105	N12° 54' 19"W	44.67
C178	56.31	125.00	25.8105	S12° 54' 19"E	55.83
C179	6.05	26.00	13.3424	N6° 40' 16"E	6.04
C180	31.78	26.00	70.0318	N48° 21' 30"E	29.84
C181	145.83	261.47	31.9561	S28° 41' 06"E	143.95
C182	24.45	26.00	53.8711	N26° 56' 08"W	23.56
C183	17.23	26.00	37.9799	N71° 00' 36"E	16.92
C184	24.45	26.00	53.8710	S26° 56' 08"W	23.56

Curve Table

Curve #	Length	Radius	Delta	Bearing	Chord
C185	24.44	26.00	53.8604	N26° 55' 49"W	23.55
C186	24.45	26.00	53.8803	N26° 55' 51"E	23.56
C187	40.84	26.00	90.0024	S45° 00' 00"E	36.77
C188	112.37	201.47	31.9561	N28° 41' 06"W	110.92
C189	36.20	141.62	14.6447	N37° 20' 26"W	36.10
C190	68.37	312.41	12.5389	N36° 17' 16"W	68.23
C191	17.23	26.00	37.9795	N38° 09' 21"E	16.92
C192	12.96	25.99	28.5624	N4° 53' 19"E	12.82
C193	40.84	26.00	90.0000	N25° 50' 02"W	36.77
C194	35.96	26.00	79.2480	N31° 12' 36"W	33.16
C195	39.85	26.04	87.6893	S65° 17' 22"W	36.07
C196	3.85	25.90	8.5224	N12° 39' 31"E	3.85
C197	37.98	93.38	23.3054	N75° 27' 06"W	37.72
C198	102.94	93.79	62.8869	N48° 12' 13"W	97.85
C199	75.16	386.33	11.1467	N22° 20' 00"W	75.04
C200	73.24	82.84	50.6537	N2° 34' 48"W	70.87
C201	109.27	176.59	35.4539	N5° 01' 12"E	107.54
C202	146.40	236.59	35.4539	S5° 01' 12"W	144.07
C203	11.98	33.32	20.5931	S30° 57' 47"E	11.91
C204	67.40	133.00	29.0341	N56° 19' 02"W	66.68
C205	57.26	113.00	29.0341	S56° 19' 02"E	56.65
C206	4.30	98.00	2.5167	S69° 34' 33"E	4.30
C207	28.13	97.16	16.5911	S50° 01' 36"E	28.04
C208	17.19	133.00	7.4040	S67° 07' 57"E	17.17
C209	57.26	113.00	29.0341	S56° 19' 02"E	56.65
C210	37.90	98.00	22.1568	N52° 52' 44"W	37.66
C211	67.40	133.00	29.0340	S56° 19' 02"E	66.68
C212	40.84	26.00	90.0000	S3° 11' 59"W	36.77
C213	40.85	25.98	90.0843	S86° 48' 01"E	36.77
C214	40.84	26.00	90.0000	N3° 11' 59"E	36.77
C215	121.60	117.16	59.4683	S50° 24' 03"E	116.22
C216	67.40	133.00	29.0340	S56° 19' 02"E	66.68
C217	20.88	133.00	8.9936	S46° 17' 49"E	20.86
C218	11.82	98.00	6.9128	S45° 15' 24"E	11.82
C219	7.05	133.00	3.0380	S46° 09' 32"E	7.05
C220	53.75	133.00	23.1563	S59° 15' 22"E	53.39
C221	6.60	133.00	2.8427	S43° 13' 07"E	6.60
C222	165.10	537.00	17.6152	N34° 23' 22"E	164.45
C223	359.56	500.00	41.2026	N39° 46' 01"E	351.86
C224	317.54	466.00	39.0418	S38° 41' 12"W	311.43
C225	25.74	16.00	92.1781	N75° 42' 12"W	23.05
C226	112.37	500.00	12.8762	S51° 46' 10"W	112.13
C227	13.63	26.00	30.0327	N14° 35' 53"W	13.47
C228	125.93	537.00	13.4363	S53° 39' 01"W	125.64
C229	53.13	316.00	9.6331	N65° 11' 05"W	53.07
C230	58.85	350.00	9.6331	N65° 11' 05"E	58.78
C231	20.42	13.00	89.9881	N64° 59' 55"W	18.38
C232	20.42	13.00	90.0000	S25° 00' 05"W	18.38
C233	65.07	387.00	9.6331	N65° 11' 05"E	64.99
C234	25.13	16.00	90.0000	S5° 47' 07"E	22.63
C235	17.23	26.00	37.9799	S69° 46' 30"E	16.92
C236	25.13	16.00	90.0000	N5° 47' 07"W	22.63
C237	17.23	26.00	37.9799	N58° 12' 17"E	16.92
C238	17.23	26.00	37.9799	S69° 46' 30"E	16.92
C239	12.40	26.00	27.3251	N37° 07' 21"W	12.28
C240	40.84	26.00	90.0000	S5° 47' 07"E	36.77
C241	24.42	185.00	7.5634	S42° 59' 48"W	24.40
C242	40.84	26.00	90.0000	S5° 47' 07"E	36.77
C243	26.40	200.00	7.5634	N42° 59' 48"E	26.38
C244	29.70	225.00	7.5634	N42° 59' 48"E	29.68

Curve Table

Curve #	Length	Radius	Delta	Bearing	Chord
C245	17.24	16.00	61.7411	S15° 54' 28"W	16.42
C246	6.68	16.00	23.9125	S26° 55' 09"E	6.63
C247	23.92	16.00	85.6536	N3° 57' 05"E	21.75
C248	56.02	485.00	6.6179	S37° 13' 21"E	55.99
C249	124.03	525.00	13.5357	S32° 06' 27"E	123.74
C250	37.93	500.00	4.3464	S41° 02' 55"E	37.92
C251	222.05	500.00	25.4454	S38° 03' 45"E	220.23
C252	51.27	485.00	6.0573	S43° 33' 36"E	51.25
C253	18.70	500.00	2.1429	S44° 17' 36"E	18.70
C254	15.76	26.00	34.7269	N64° 08' 30"E	15.52
C255	40.57	531.91	4.3704	N47° 35' 49"W	40.56
C256	8.98	525.00	0.9801	N50° 17' 42"W	8.98
C257	47.30	500.00	5.4204	S48° 04' 30"E	47.28
C258	35.52	485.00	4.1964	S48° 41' 13"E	35.51
C259	40.84	26.00	90.0000	N84° 12' 53"E	36.77
C260	17.23	26.00	37.9799	N31° 47' 43"W	16.92
C261	25.13	16.00	89.9994	S84° 12' 54"W	22.63
C262	14.62	26.23	31.9226	N25° 14' 34"E	14.43
C263	88.28	350.00	14.4524	N43° 33' 32"W	88.05
C264	10.46	385.00	1.5573	N50° 00' 13"W	10.46
C265	46.71	385.01	6.9512	N45° 44' 17"W	46.68
C266	96.86	384.00	14.4524	S43° 33' 32"E	96.60
C267	39.69	382.56	5.9438	N39° 17' 37"W	39.67
C268	40.56	525.00	4.4267	N32° 38' 57"W	40.55
C269	40.54	525.00	4.4244	N28° 13' 25"W	40.53
C270	6.16	525.00	0.6718	N25° 40' 32"W	6.16
C271	16.20	485.00	1.9143	S26° 17' 49"E	16.20
C272	56.37	485.00	6.6595	S30° 35' 02"E	56.34
C273	222.05	500.00	25.4454	S38° 03' 45"E	220.23
C274	48.86	618.00	4.5302	S32° 42' 04"E	48.85
C275	103.83	618.00	9.6263	S30° 09' 11"E	103.71
C276	47.72	618.00	4.4244	S28° 13' 25"E	47.71
C277	7.25	618.00	0.6718	S25° 40' 32"E	7.25
C278	19.76	381.28	2.9701	N34° 51' 33"W	19.76
C279	46.68	385.01	6.9463	N29° 54' 05"W	46.65
C280	43.03	384.17	6.4178	N23° 12' 32"W	43.01
C281	99.78	350.00	16.3342	N28° 09' 56"W	99.44
C282	35.44	475.00	4.2746	S27° 28' 37"E	35.43
C283	37.30	500.00	4.2746	S27° 28' 37"E	37.29
C284	22.80	515.00	2.5364	S28° 20' 46"E	22.80
C285	38.42	515.00	4.2746	S27° 28' 37"E	38.41
C286	15.62	515.00	1.7382	S26° 12' 32"E	15.62
C287	28.50	382.00	4.2746	S27° 28' 37"E	28.49
C288	7.17	120.00	3.4241	S64° 18' 25"E	7.17
C289	26.78	120.00	12.7863	S59° 37' 33"E	26.72
C290	19.61	120.00	9.3622	S57° 54' 49"E	19.59
C291	22.32	100.00	12.7863	S59° 37' 33"E	22.27
C292	10.44	57.46	10.4124	S62° 30' 09"E	10.43
C293	10.43	85.00	7.0329	S62° 30' 09"E	10.43
C294	8.54	85.00	5.7534	S56° 06' 33"E	8.53
C295	35.13	235.00	8.5640	S41° 02' 58"W	35.09
C296	37.37	250.00	8.5640	S41° 02' 58"W	37.33
C297	40.36	270.00	8.5640	S41° 02' 58"W	40.32
C298	12.86	270.00	2.7282	N38° 07' 53"E	12.85
C299	17.81	270.00	3.7802	S41° 23' 08"W	17.81
C300	9.69	75.58	7.3483	S44° 18' 13"W	9.69
C301	36.08	51.00	40.5293	S50° 46' 12"W	35.33
C302	33.54	93.32	20.5931	N30° 57' 47"W	33.36
C303	59.33	57.16	59.4683	N50° 24' 03"W	56.70
C304	84.57	77.21	62.7538	N48° 45' 29"W	80.40

Curve Table

Curve #	Length	Radius	Delta	Bearing	Chord
C305	84.57	77.21	62.7538	N48° 45' 29"W	80.40
C306	66.25	177.03	21.4408	N28° 06' 06"W	65.86
C307	153.32	251.84	34.8822	N56° 15' 47"W	150.97
C308	102.18	125.11	46.7936	S82° 53' 56"W	99.36
C309	40.84	26.00	90.0000	S0° 19' 53"W	36.77
C310	40.84	26.00	90.0000	N89° 40' 07"W	36.77
C311	309.03	384.00	46.1093	N43° 03' 12"W	300.76
C312	281.67	350.00	46.1093	N43° 03' 12"W	274.13
C313	254.30	316.00	46.1093	N43° 03' 12"W	247.50
C314	108.07	351.50	17.6151	S39° 56' 50"E	107.64
C315	108.11	351.50	17.6221	S39° 56' 37"E	107.68
C316	138.76	385.50	20.6234	N38° 26' 35"W	138.01
C317	168.98	419.50	23.0801	N37° 12' 52"W	167.84
C318	12.86	24.00	30.6927	N74° 39' 13"W	12.70
C319	15.72	46.50	19.3694	N68° 07' 51"W	15.65
C320	28.45	53.83	30.2888	S87° 02' 24"W	28.12
C321	32.08	51.00	36.0348	S12° 29' 16"W	31.55
C322	16.32	51.00	18.3382	S14° 41' 55"E	16.25
C323	10.15	24.00	24.2332	S11° 45' 04"E	10.08
C324	128.68	51.00	144.5605	S48° 24' 45"W	97.16
C325	129.85	83.00	89.6346	N45° 10' 58"E	117.00
C326	19.45	14.00	79.6018	N50° 11' 57"E	17.92
C327	76.52	61.00	71.8750	S46° 18' 44"W	71.60
C328	20.00	80.00	14.3205	N82° 50' 22"W	19.94
C329	37.59	80.00	26.9246	S62° 13' 01"E	37.25
C330	57.59	80.00	41.2452	S69° 22' 38"E	56.35
C331	75.59	105.00	41.2452	N69° 22' 38"W	73.96
C332	21.82	120.00	10.4174	N53° 57' 48"W	21.79
C333	28.16	120.00	13.4447	N65° 53' 40"W	28.09
C334	36.41	120.00	17.3830	N81° 18' 30"W	36.27
C335	28.16	18.00	89.6348	N45° 10' 58"E	25.37
C336	17.14	26.01	37.7547	N70° 32' 12"W	16.83
C337	28.16	18.00	89.6348	N45° 10' 58"E	25.37
C338	17.40	26.00	38.3451	S70° 49' 38"E	17.08
C339	13.87	70.00	11.3555	S54° 25' 57"E	13.85
C340	36.52	70.00	29.8896	S75° 03' 18"E	36.10
C341	50.39	70.00	41.2452	S69° 22' 38"W	49.31
C342	68.37	95.11	41.1896	N69° 22' 52"W	66.91
C343	79.16	110.11	41.1898	N69° 22' 58"W	77.47
C344	22.42	95.00	13.5246	S55° 31' 01"E	22.37
C345	40.84	26.00	90.0000	N86° 14' 43"E	36.77
C346	8.00	185.00	2.4784	S53° 15' 45"E	8.00
C347	18.85	17.21	62.7538	S48° 45' 29"E	17.92
C348	34.02	122.98	15.8481	S71° 43' 23"E	33.91
C349	342.68	563.00	34.8741	N4° 42' 18"W	337.41
C351	88.70	237.03	21.4408	S28° 06' 06"E	88.18
C352	25.72	27.00	54.5691	S27° 17' 04"W	24.75
C353	189.85	311.84	34.8822	S56° 15' 47"E	186.93
C354	149.87	225.00	38.1641	N44° 53' 33"W	147.11
C355	151.18	185.11	46.7936	N82° 53' 56"E	147.01
C356	24.45	26.00	53.8711	N63° 42' 11"E	23.56

Line Table

Line #	Length	Direction
L1	27.14	S62° 16' 46"E
L2	38.81	S53° 38' 47"E
L3	9.95	S0° 00' 09"W
L4	2.82	S87° 41' 00"W

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WASATCH COUNTY RECORDER

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SHEET

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PL–D

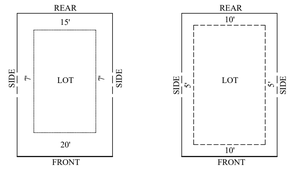
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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

SINGLE FAMILY LOTS



TYPICAL SETBACKS

TYPICAL PUBLIC UTILITY EASEMENTS

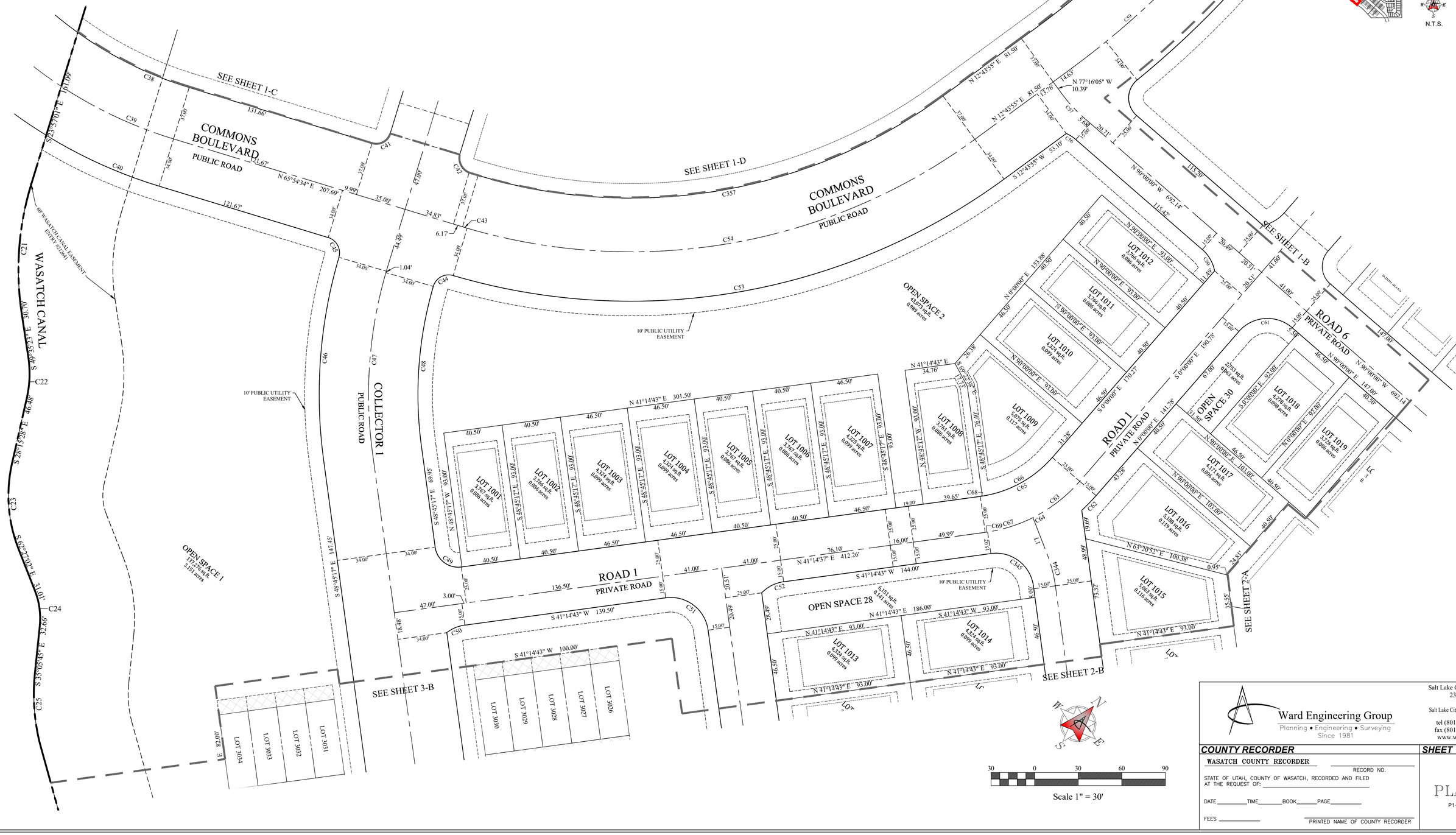
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KEY MAP



N.T.S.


SEE SHEET 1-C
SEE SHEET 1-D
SEE SHEET 1-E
SEE SHEET 1-B
SEE SHEET 2-A
SEE SHEET 2-B
SEE SHEET 3-B
COMMONS BOULEVARD
PUBLIC ROAD
WASATCH CANAL
COLLECTOR 1
PUBLIC ROAD
ROAD 1
PRIVATE ROAD
ROAD 6
PRIVATE ROAD
60' WASATCH CANAL EASEMENT ENTRY #212267
10' PUBLIC UTILITY EASEMENT
OPEN SPACE 1
127,276 sq.ft.
2.921 acres
OPEN SPACE 2
43,973 sq.ft.
1.009 acres
OPEN SPACE 28
6,151 sq.ft.
0.141 acres
OPEN SPACE 30
2,253 sq.ft.
0.052 acres
LOT 1001
3,767 sq.ft.
0.086 acres
LOT 1002
3,767 sq.ft.
0.086 acres
LOT 1003
4,324 sq.ft.
0.099 acres
LOT 1004
4,324 sq.ft.
0.099 acres
LOT 1005
3,767 sq.ft.
0.086 acres
LOT 1006
3,767 sq.ft.
0.086 acres
LOT 1007
4,324 sq.ft.
0.099 acres
LOT 1008
3,761 sq.ft.
0.086 acres
LOT 1009
5,075 sq.ft.
0.117 acres
LOT 1010
4,324 sq.ft.
0.099 acres
LOT 1011
3,766 sq.ft.
0.086 acres
LOT 1012
3,766 sq.ft.
0.086 acres
LOT 1013
4,324 sq.ft.
0.099 acres
LOT 1014
4,324 sq.ft.
0.099 acres
LOT 1015
5,063 sq.ft.
0.116 acres
LOT 1016
5,108 sq.ft.
0.117 acres
LOT 1017
4,141 sq.ft.
0.095 acres
LOT 1018
4,278 sq.ft.
0.098 acres
LOT 1019
3,826 sq.ft.
0.088 acres
LOT 3025
LOT 3026
LOT 3027
LOT 3028
LOT 3029
LOT 3030
LOT 3031
LOT 3032
LOT 3033
LOT 3034
S 28°15'28" E 46.48'
S 35°05'45" E 32.66'
S 28°15'28" E 10.09'
S 65°27'00" E 31.01'
S 35°05'45" E 30.00'
N 65°54'34" E 207.69'
N 12°43'55" E 81.50'
S 12°43'55" W 53.10'
N 77°16'05" W 10.39'
N 90°00'00" W 692.14'
N 63°20'52" E 100.58'
S 41°14'43" W 139.50'
S 41°14'43" W 100.00'
S 41°14'43" W 144.00'
N 41°14'43" E 301.50'
N 41°14'43" E 412.26'
N 41°14'43" E 186.00'
S 48°45'17" E 69.95'
N 48°45'17" W 93.00'
S 48°45'17" E 147.45'
N 0°00'00" E 153.88'
S 0°00'00" E 190.78'
S 0°00'00" E 170.27'
S 0°00'00" E 141.78'
N 41°14'43" E 34.76'
N 24°48'51" W 93.00'
S 24°48'51" E 76.90'
N 0°00'00" E 141.78'
N 90°00'00" E 147.00'
N 90°00'00" W 692.14'
N 90°00'00" E 93.00'
N 90°00'00" E 51.00'
N 90°00'00" E 102.00'
N 90°00'00" E 103.00'
S 90°00'00" E 52.00'
N 0°00'00" E 92.00'
S 41°14'43" W 93.00'
N 41°14'43" E 93.00'
S 48°45'17" E 93.00'
N 48°45'17" W 93.00'
121.67'
131.66'
207.69'
9.99'
35.00'
34.83'
6.17'
1.04'
76.10'
136.50'
47.00'
3.00'
18.48'
115.30'
115.42'
692.14'
147.00'
190.78'
153.88'
170.27'
141.78'
92.00'
102.00'
103.00'
52.00'
100.58'
144.00'
186.00'
301.50'
412.26'
69.95'
147.45'
93.00'
82.00'
39.65'
31.28'
43.28'
75.32'
35.55'
34.81'
0.95'
14.63'
15.70'
30.71'
20.49'
20.51'
41.00'
67.00'
46.50'
40.50'
31.50'
26.38'
34.76'
46.50'
40.50'
46.50'
40.50'
46.50'
40.50

THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

KEY MAP



MAP LEGEND

- BOUNDARY LINE
- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- SETBACK LINE
- RADIAL LINE
- LIMITED COMMON

SINGLE FAMILY LOTS

TYPICAL SETBACKS

TYPICAL PUBLIC UTILITY EASEMENTS

30 0 30 60 90

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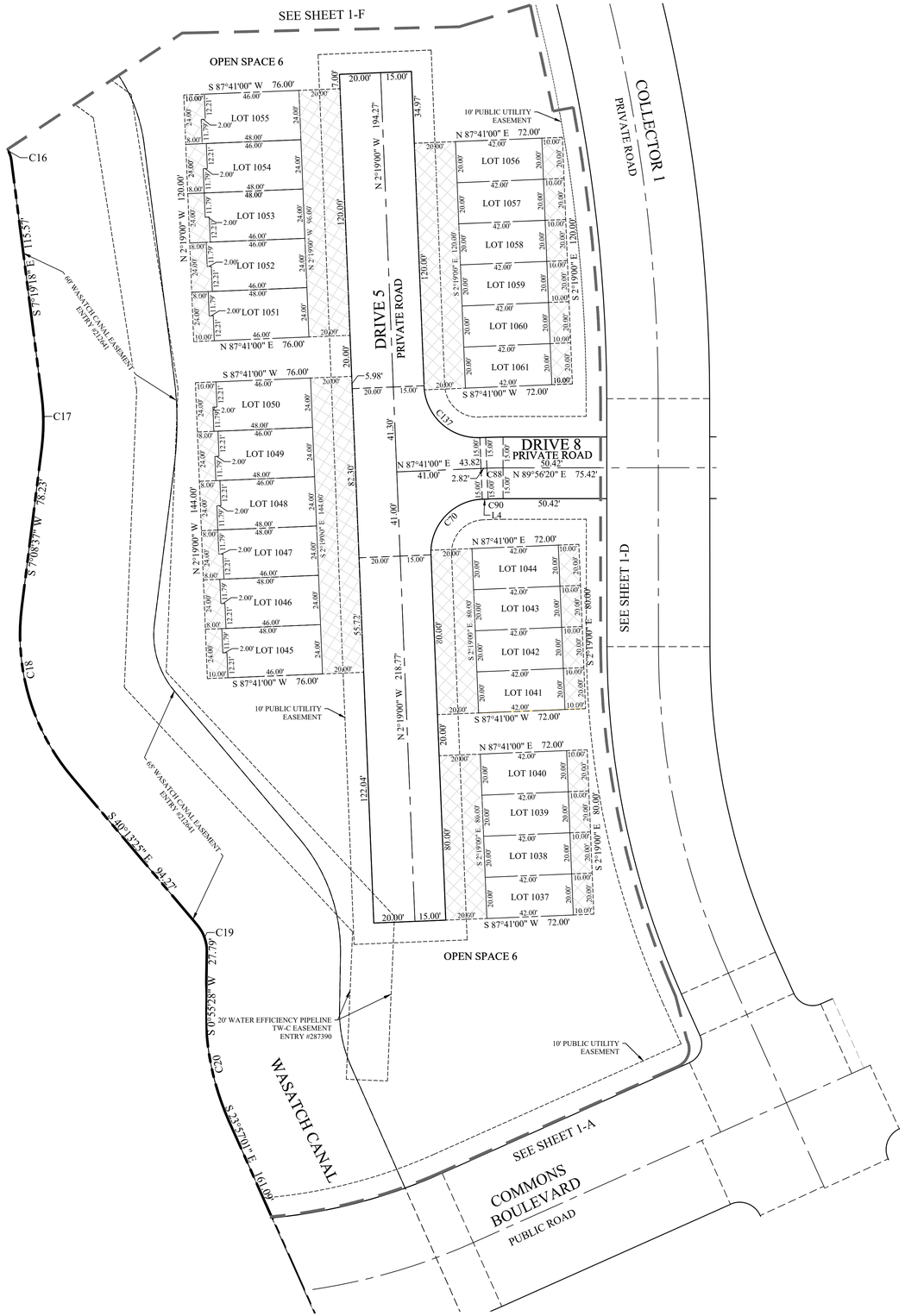
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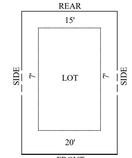


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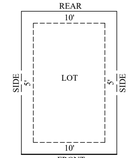
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SINGLE FAMILY LOTS

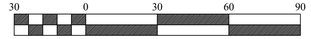


TYPICAL SETBACKS



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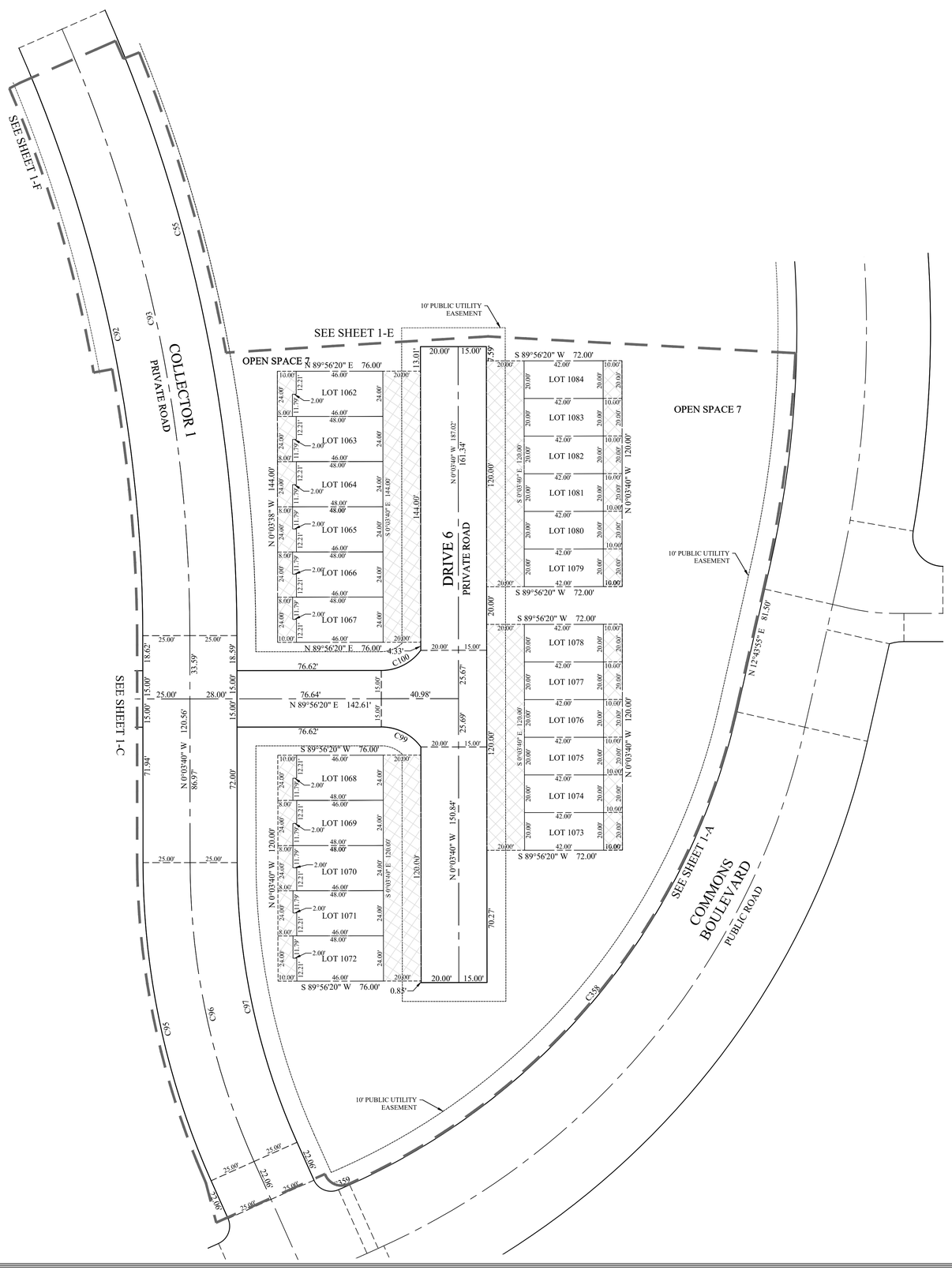
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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



KEY MAP

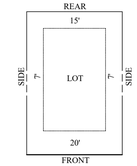


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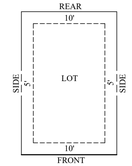
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SINGLE FAMILY LOTS

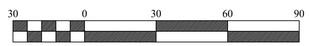


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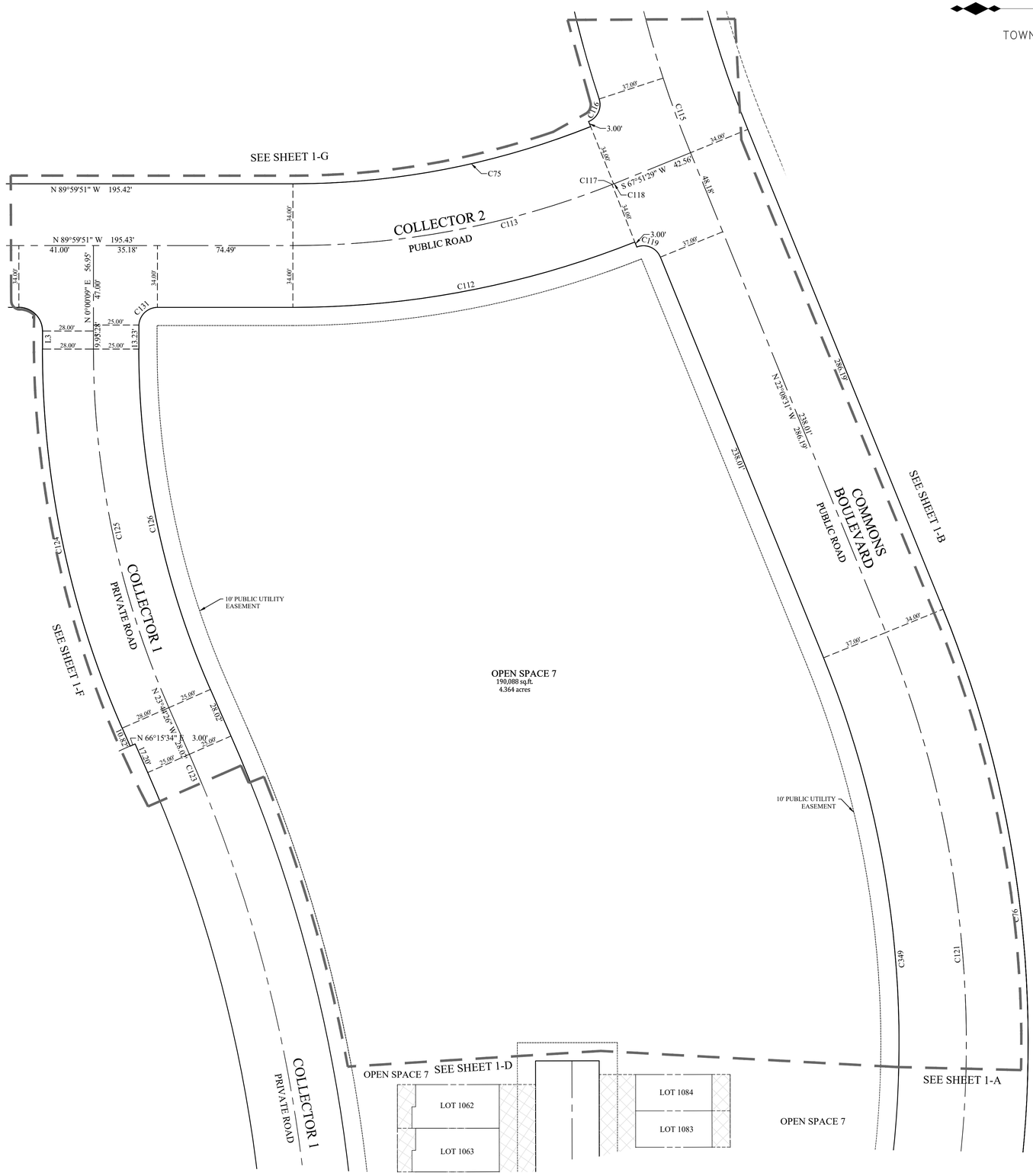
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HEBER CITY, WASATCH COUNTY, UTAH



KEY MAP

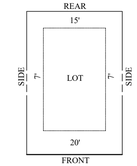


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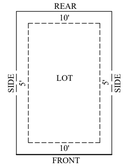
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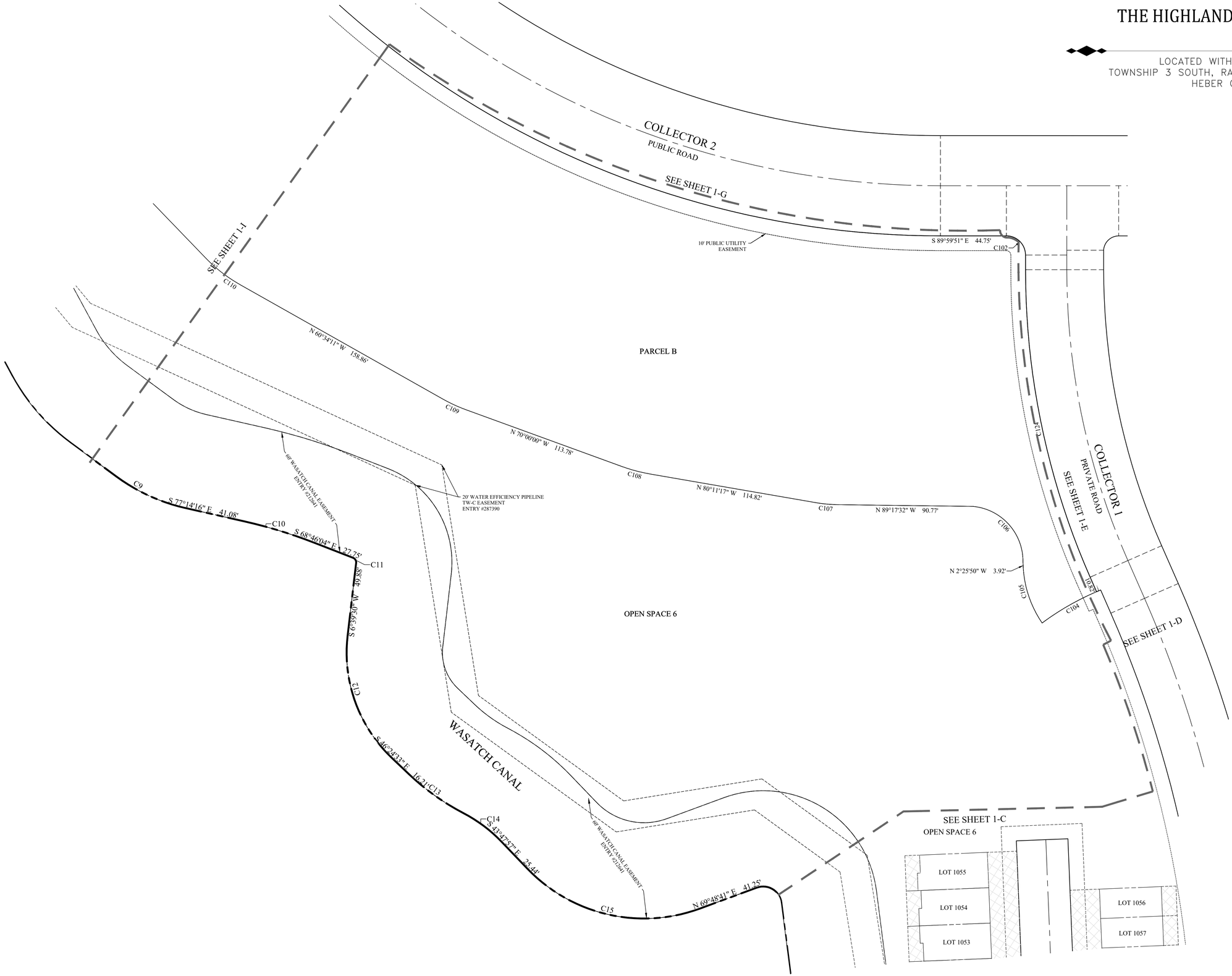
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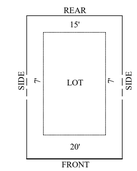


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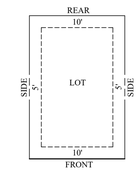
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SINGLE FAMILY LOTS

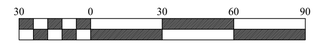


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TYPICAL PUBLIC UTILITY EASEMENTS





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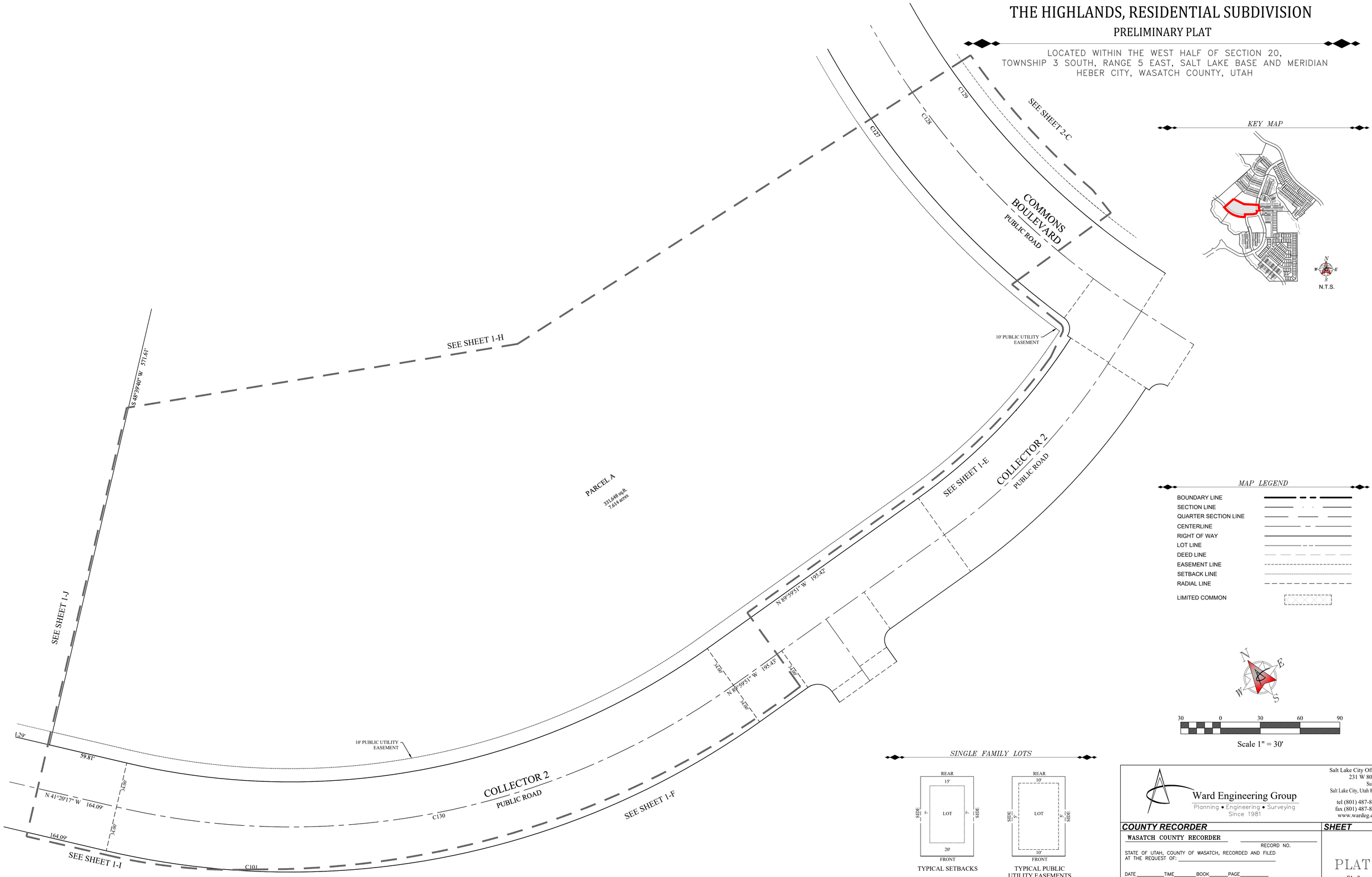
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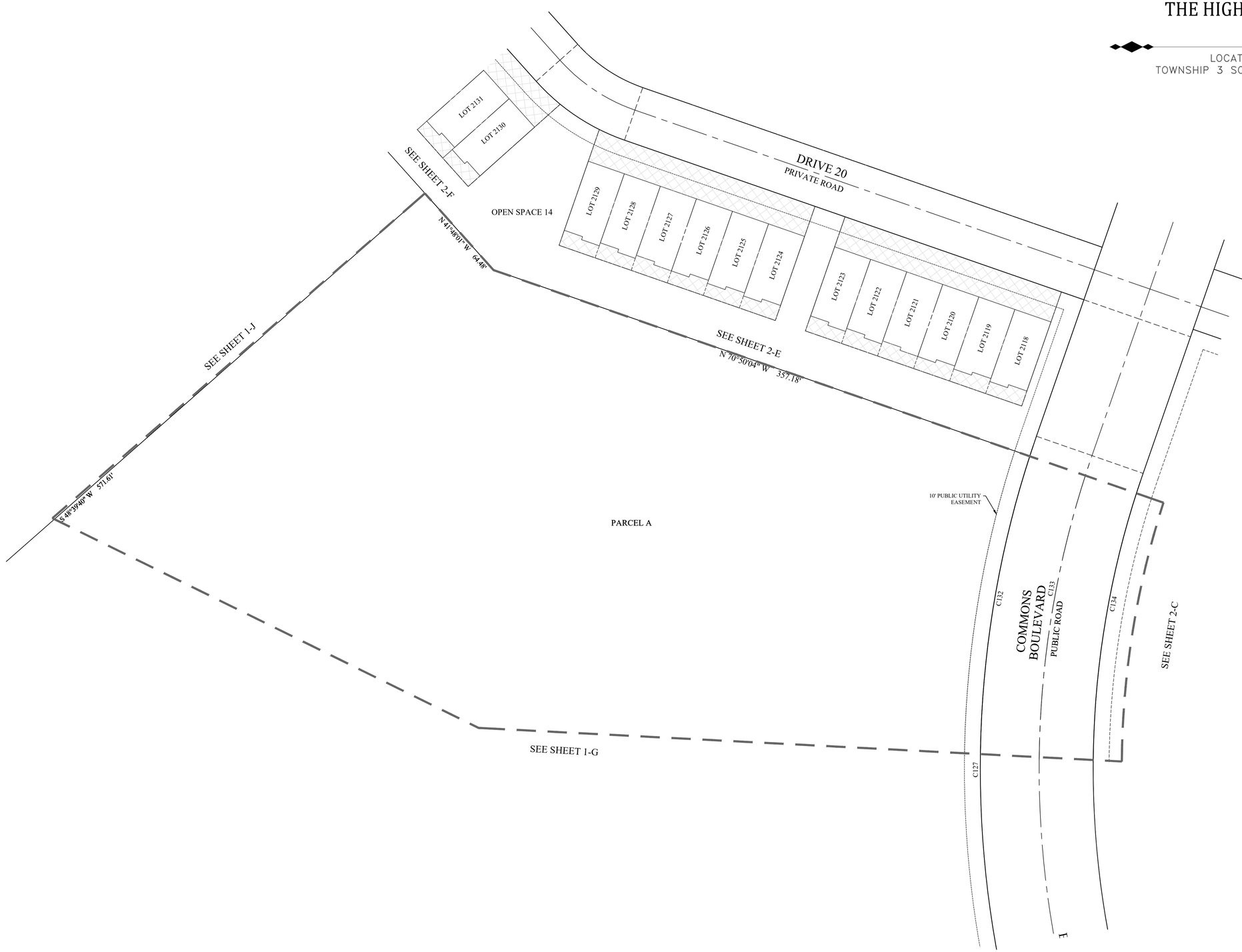
PLAT
P1-G

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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



KEY MAP

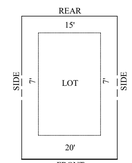


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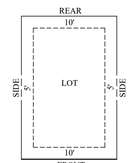
MAP LEGEND

- BOUNDARY LINE
- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- SETBACK LINE
- RADIAL LINE
- LIMITED COMMON

SINGLE FAMILY LOTS

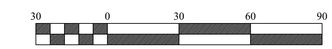


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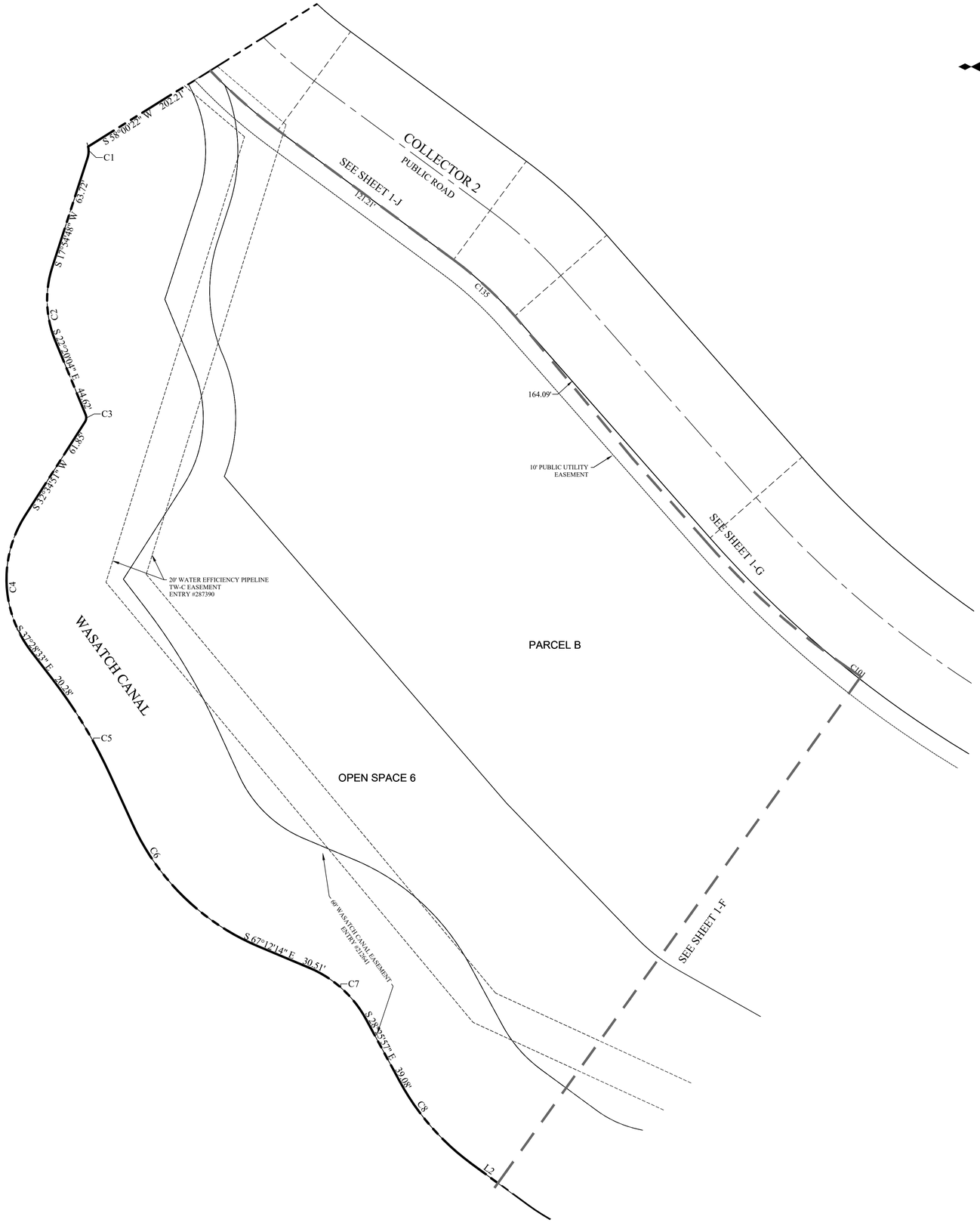
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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



KEY MAP

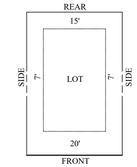


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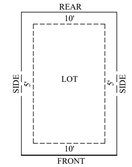
MAP LEGEND

BOUNDARY LINE	
SECTION LINE	
QUARTER SECTION LINE	
CENTERLINE	
RIGHT OF WAY	
LOT LINE	
DEED LINE	
EASEMENT LINE	
SETBACK LINE	
RADIAL LINE	
LIMITED COMMON	

SINGLE FAMILY LOTS

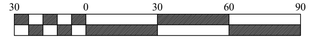


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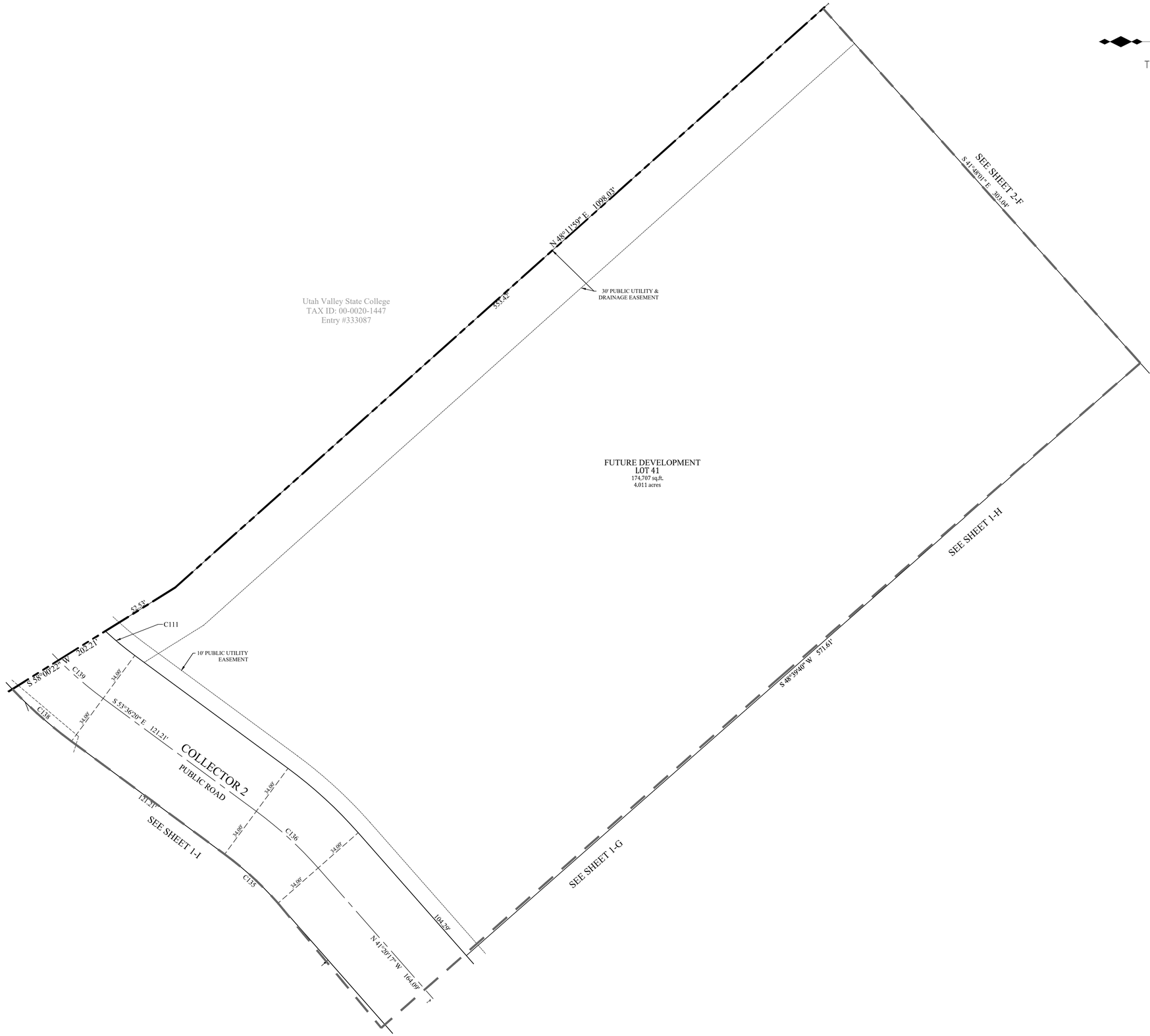
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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



KEY MAP

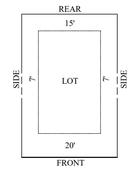


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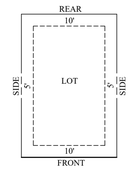
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SINGLE FAMILY LOTS

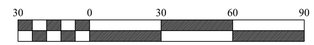


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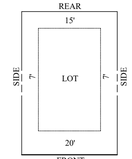


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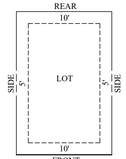
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SINGLE FAMILY LOTS



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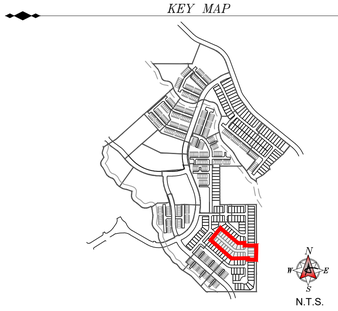
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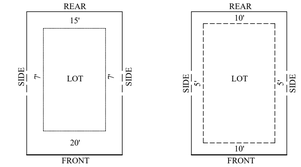


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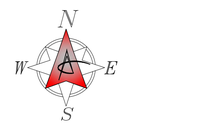
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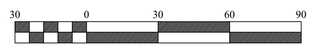
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TYPICAL SETBACKS

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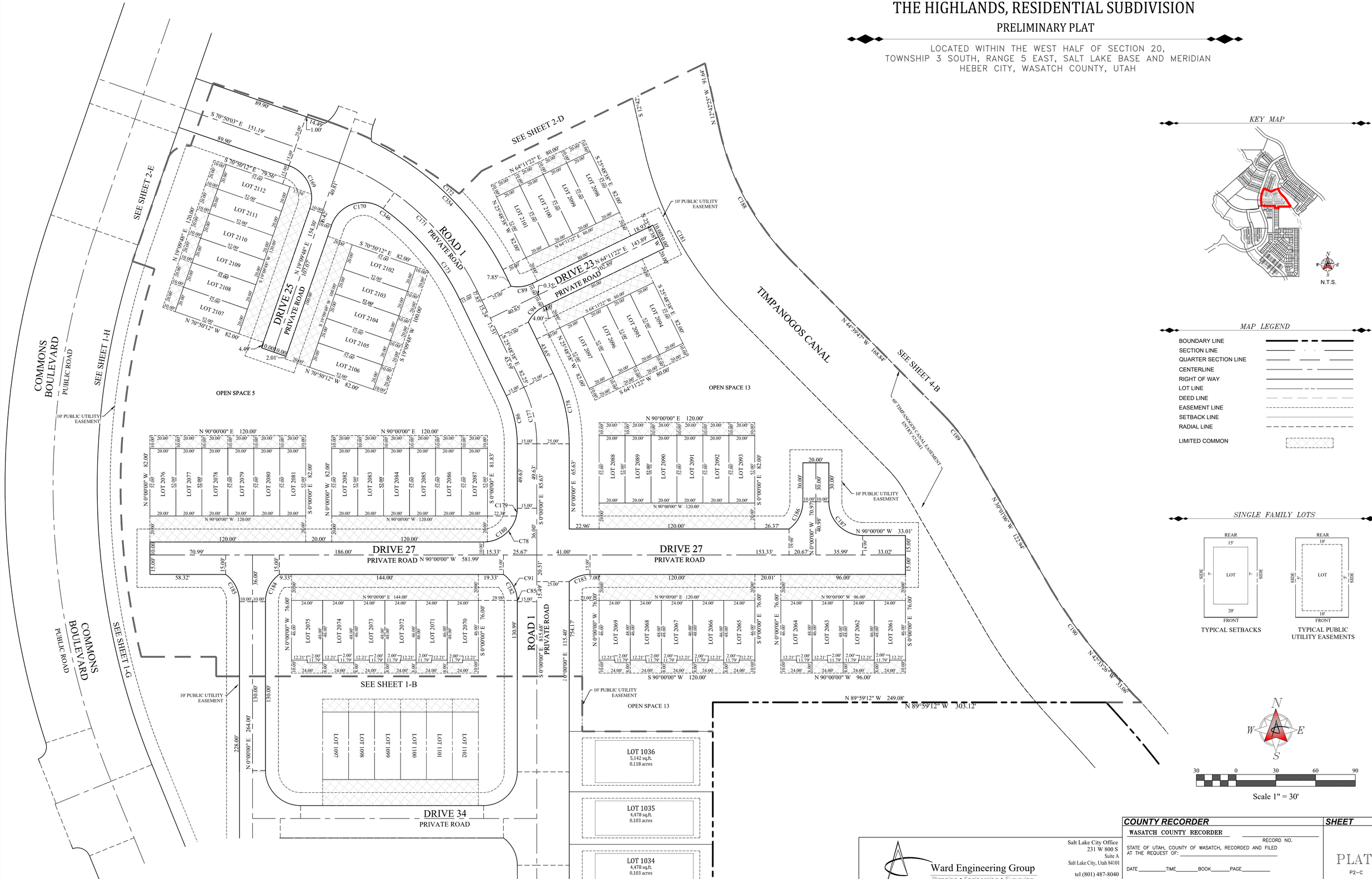
PLAT
P2-B

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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
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HEBER CITY, WASATCH COUNTY, UTAH



KEY MAP

N.T.S.

MAP LEGEND

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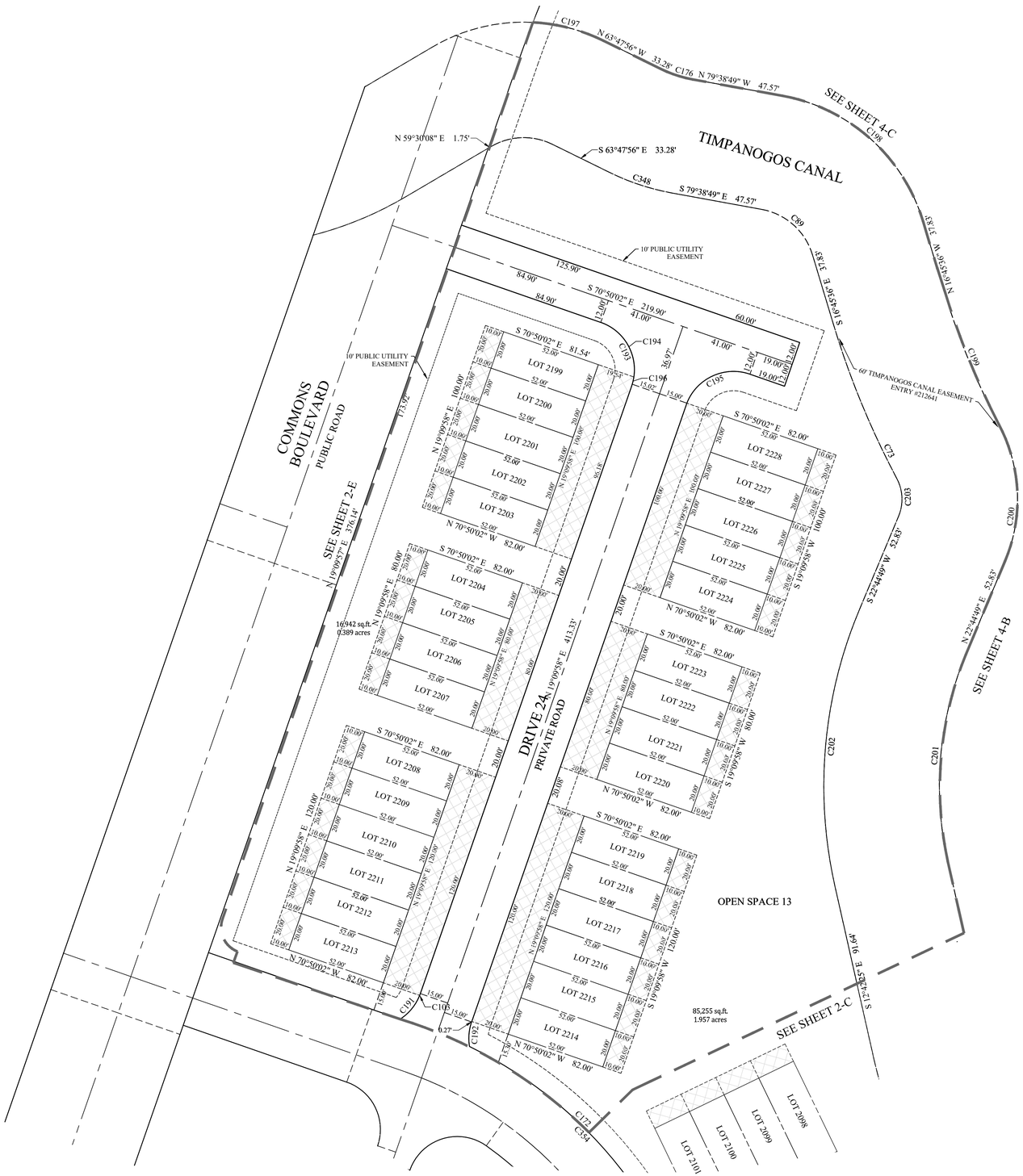
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PRELIMINARY PLAT

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KEY MAP

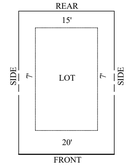


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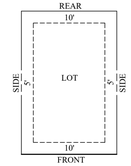
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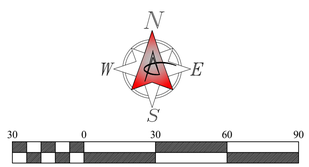
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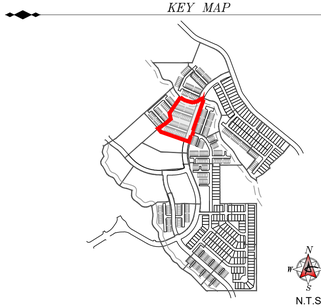
THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

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KEY MAP

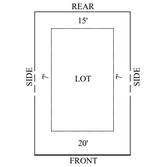


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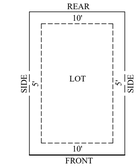
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SINGLE FAMILY LOTS

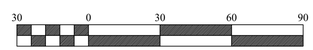


TYPICAL SETBACKS



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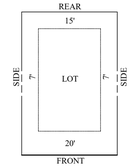


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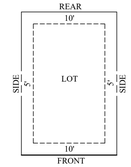
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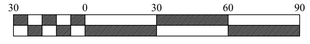


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PLAT
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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

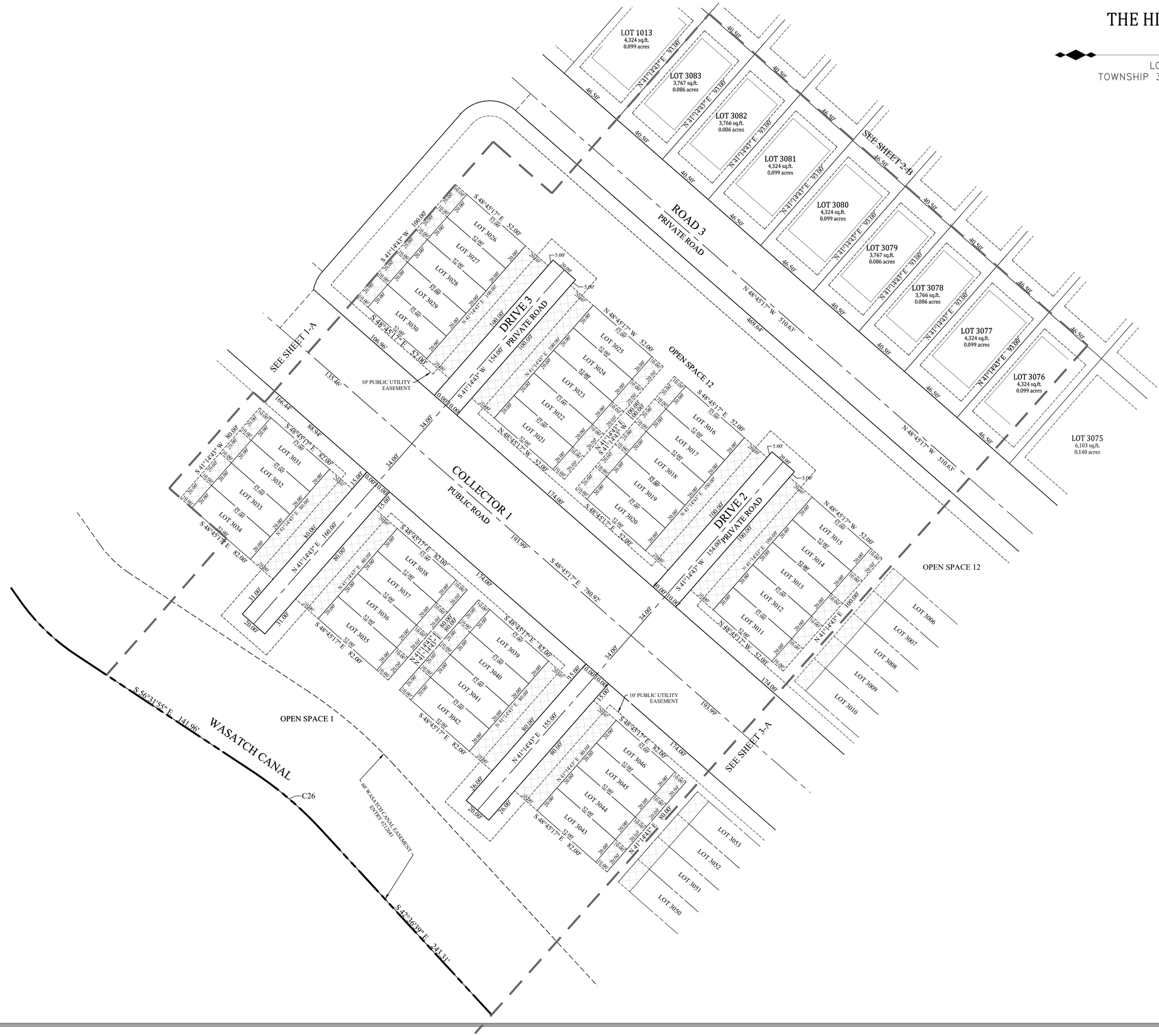
LOCATED WITHIN THE WEST HALF OF SECTION 20,
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LOT 3078
3,766 sq.ft.
0.086 acres
LOT 3077
4,324 sq.ft.
0.099 acres
LOT 3076
4,324 sq.ft.
0.099 acres
LOT 3075
6,103 sq.ft.
0.140 acres
LOT 3074
5,906 sq.ft.
0.136 acres
LOT 3073
4,325 sq.ft.
0.099 acres
LOT 3072
3,767 sq.ft.
0.086 acres
LOT 3071
3,767 sq.ft.
0.086 acres
LOT 2025
4,339 sq.ft.
0.100 acres
LOT 2024
4,939 sq.ft.
0.113 acres
LOT 2023
5,243 sq.ft.
0.120 acres
LOT 2022
3,767 sq.ft.
0.086 acres
LOT 2021
3,767 sq.ft.
0.086 acres
5,483 sq.ft.
0.126 acres
OPEN SPACE 32
OPEN SPACE 12
LOT 2019
4,325 sq.ft.
0.099 acres
LOT 2020
4,325 sq.ft.
0.099 acres
LOT 3070
3,766 sq.ft.
0.086 acres
LOT 3069
3,766 sq.ft.
0.086 acres
LOT 3068
4,324 sq.ft.
0.099 acres
LOT 3067
4,325 sq.ft.
0.099 acres
LOT 3066
3,767 sq.ft.
0.086 acres
LOT 3065
3,766 sq.ft.
0.086 acres
LOT 3064
4,151 sq.ft.
0.095 acres
LOT 3063
5,982 sq.ft.
0.137 acres
LOT 3062
5,247 sq.ft.
0.120 acres
LOT 3061
5,012 sq.ft.
0.115 acres
LOT 3060
4,237 sq.ft.
0.097 acres
LOT 3059
3,767 sq.ft.
0.086 acres
LOT 3058
3,766 sq.ft.
0.086 acres
LOT 3089
3,765 sq.ft.
0.086 acres
LOT 3088
4,323 sq.ft.
0.099 acres
LOT 3087
4,326 sq.ft.
0.099 acres
LOT 3086
4,326 sq.ft.
0.099 acres
LOT 3085
3,768 sq.ft.
0.086 acres
LOT 3084
3,768 sq.ft.
0.086 acres
OPEN SPACE 26
7,288 sq.ft.
0.167 acres
ROAD 2
PRIVATE ROAD
ROAD 3
PRIVATE ROAD
DRIVE 2
PRIVATE ROAD
DRIVE 1
PRIVATE ROAD
COLLECTOR 1
PUBLIC ROAD
OPEN SPACE 12
OPEN SPACE 1
SEE SHEET 2-B
SEE SHEET 3-B
10' PUBLIC UTILITY EASEMENT
25' OVERFLOW PIPELINE EASEMENT
DESCRIPTION T-OW2
ENTRY #212641
60' WASATCH CANAL EASEMENT
ENTRY #212641
WASATCH CANAL
LOT 3015
LOT 3014
LOT 3013
LOT 3012
LOT 3011
LOT 3010
LOT 3009
LOT 3008
LOT 3007
LOT 3006
LOT 3005
LOT 3004
LOT 3003
LOT 3002
LOT 3001
LOT 3046
LOT 3045
LOT 3044
LOT 3043
LOT 3053
LOT 3052
LOT 3051
LOT 3050
LOT 3054
LOT 3055
LOT 3056
LOT 3057
N 89°59'59" W 227.24'
S 89°59'12" E 52.77'
264.68'
S 89°59'12" E 676.35'
N 0°00'00" E 1263.25'
N 89°42'19" W 88.93'
N 90°00'00" W 81.00'
N 89°48'38" W 46.50'
N 90°00'00" W 65.75'
N 90°00'00" E 118.53'
S 48°45'17" E 52.00'
N 41°14'43" E 80.00'
S 41°14'43" W 154.00'
N 41°14'43" E 152.99'
S 48°45'17" E 82.00'
N 48°45'17" W 52.00'
S 48°45'17" E 136.53'
S 41°14'43" W 100.00'
N 41°14'43" E 100.00'
S 48°45'17" E 52.00'
S 41°14'43" W 154.00'
N 41°14'43" E 154.00'
S 48°45'17" E 82.00'
S 48°45'17" E 136.53'
N 41°14'43" E 80.00'
S 48°45'17" E 82.00'
S 48°45'17" E 52.00'
N 41°14'43" E 100.00'
S 48°45'17" E 52.00'
N 48°45'17" W 52.00'
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S 48°45'17" E 82.00'
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N 41°14'43" E 80.00'
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S 48°45'17" E 52.00'
N 41°14'43" E 100.00'
S 48°45'17" E 52.00'
N 48°45'17" W 52.00'
S 48°45'17" E 52.00'
S 41°14'43" W 154.00'
N 41°14'43" E 154.00'
S 48°45'17" E 82.00'
S 48°45'17" E 136.53

THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



KEY MAP

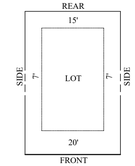


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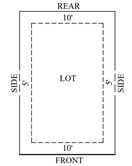
MAP LEGEND

- BOUNDARY LINE
- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- SETBACK LINE
- RADIAL LINE
- LIMITED COMMON

SINGLE FAMILY LOTS



TYPICAL SETBACKS



TYPICAL PUBLIC UTILITY EASEMENTS



Scale 1" = 30'

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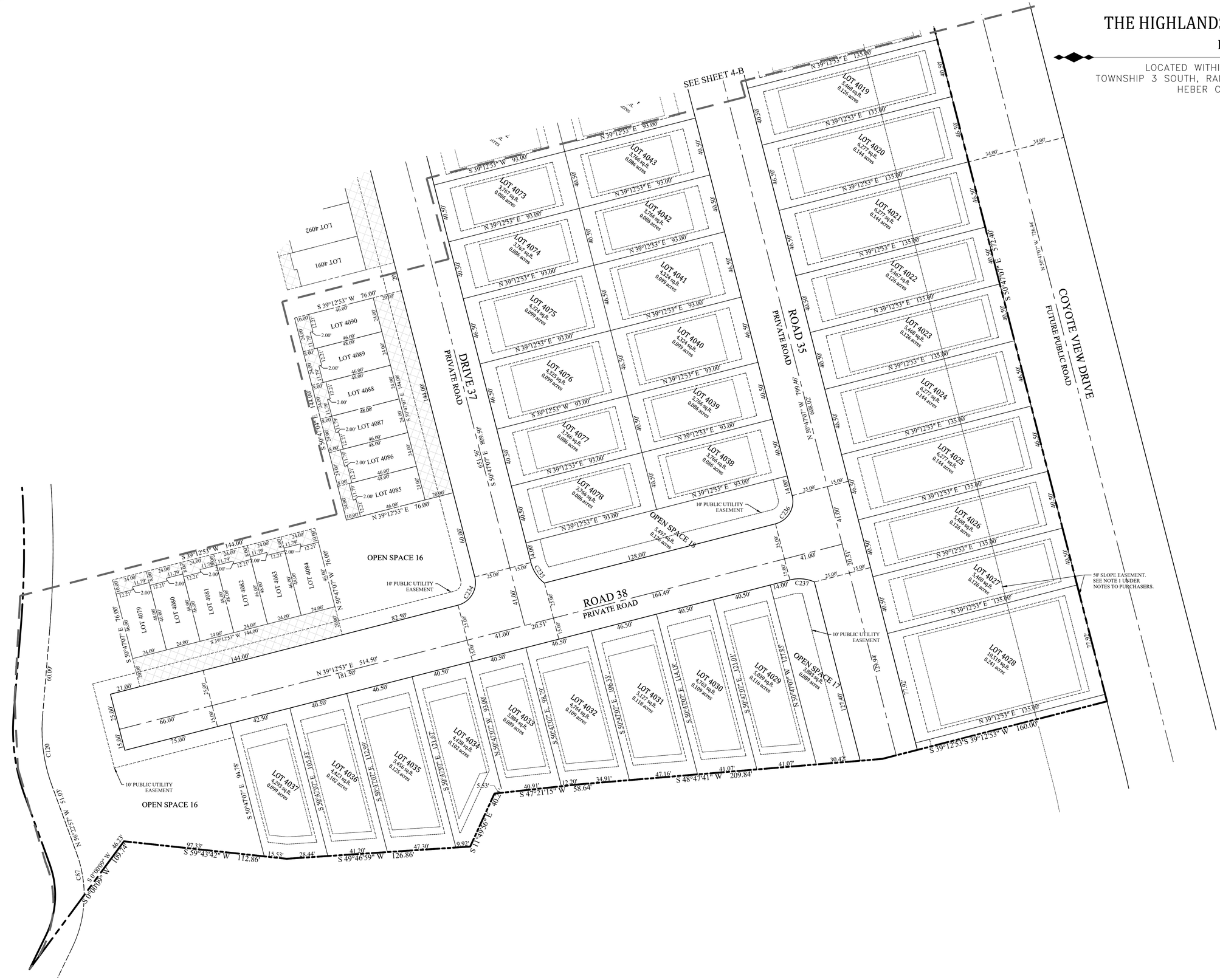
PLAT
P3-B

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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

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TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



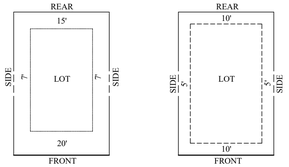
KEY MAP



MAP LEGEND

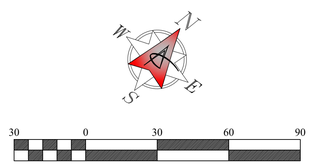
- BOUNDARY LINE
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SINGLE FAMILY LOTS



TYPICAL SETBACKS

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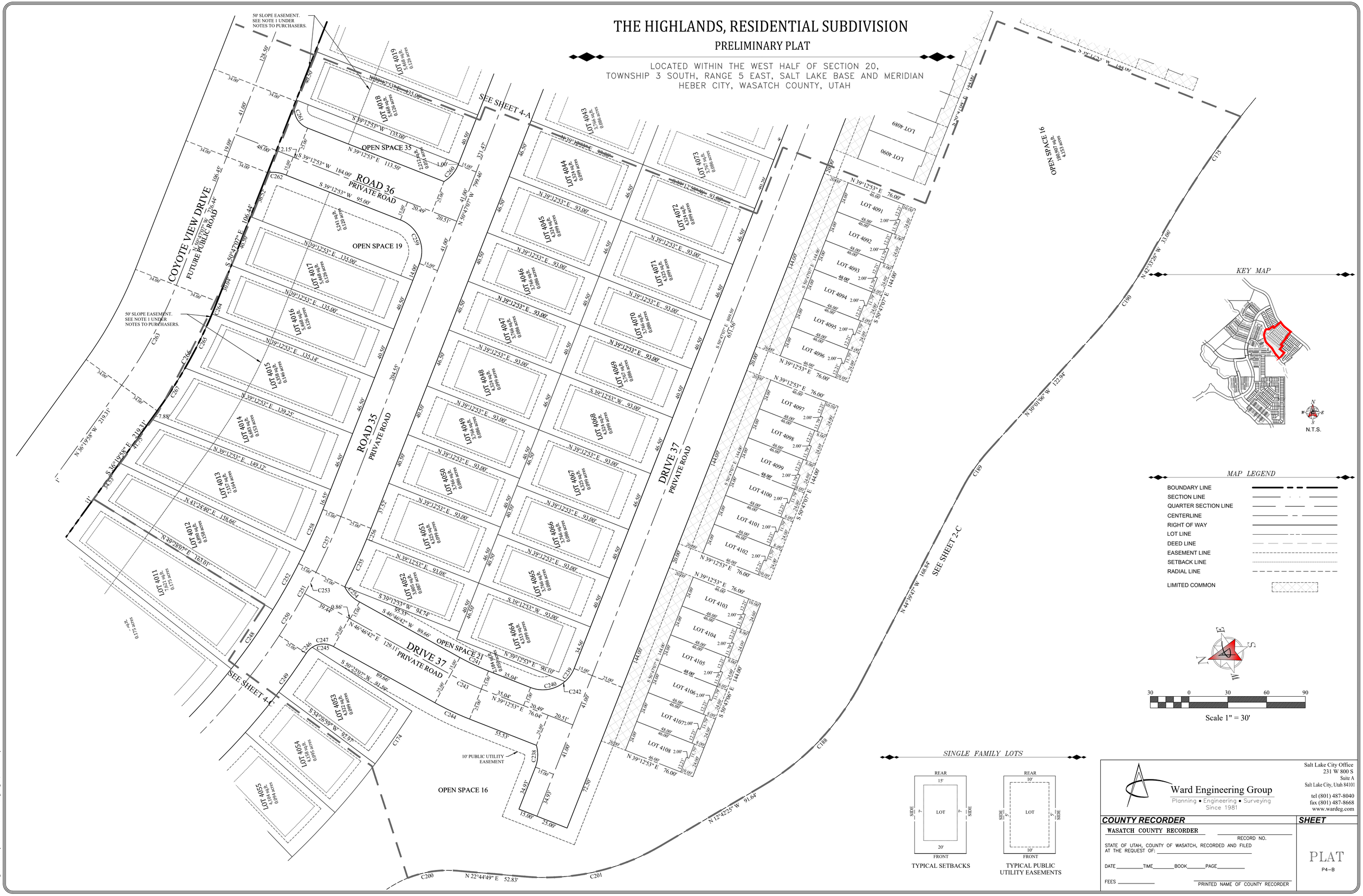
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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH


50' SLOPE EASEMENT. SEE NOTE 1 UNDER NOTES TO PURCHASERS.
SEE SHEET 4-A
COYOTE VIEW DRIVE
FUTURE PUBLIC ROAD
OPEN SPACE 35
OPEN SPACE 19
OPEN SPACE 16
OPEN SPACE 21
OPEN SPACE 16
ROAD 36
PRIVATE ROAD
ROAD 35
PRIVATE ROAD
DRIVE 37
PRIVATE ROAD
DRIVE 37
PRIVATE ROAD
SEE SHEET 4-C
SEE SHEET 2-C
10' PUBLIC UTILITY EASEMENT
LOT 4019
LOT 4018
LOT 4017
LOT 4016
LOT 4015
LOT 4014
LOT 4013
LOT 4012
LOT 4011
LOT 4043
LOT 4044
LOT 4045
LOT 4046
LOT 4047
LOT 4048
LOT 4049
LOT 4050
LOT 4051
LOT 4052
LOT 4053
LOT 4054
LOT 4055
LOT 4071
LOT 4072
LOT 4073
LOT 4065
LOT 4066
LOT 4067
LOT 4068
LOT 4069
LOT 4070
LOT 4064
LOT 4089
LOT 4090
LOT 4091
LOT 4092
LOT 4093
LOT 4094
LOT 4095
LOT 4096
LOT 4097
LOT 4098
LOT 4099
LOT 4100
LOT 4101
LOT 4102
LOT 4103
LOT 4104
LOT 4105
LOT 4106
LOT 4107
LOT 4108
OPEN SPACE 16
0.175 acres
0.128 acres
0.212 acres
0.097 acres
0.241 acres
0.146 acres
0.153 acres
0.169 acres
0.095 acres
0.054 acres
0.175 acres
0.128 acres
0.099 acres
0.086 acres
0.099 acres
0.086 acres
0.099 acres
0.086

THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



KEY MAP

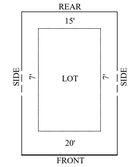


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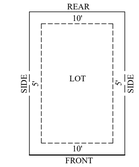
MAP LEGEND

- BOUNDARY LINE
- SECTION LINE
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- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- SETBACK LINE
- RADIAL LINE
- LIMITED COMMON

SINGLE FAMILY LOTS

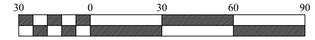


TYPICAL SETBACKS



TYPICAL PUBLIC UTILITY EASEMENTS





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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

S 89°54'54" E 566.52'

N 41°15'35" W 107.93'

C302 N 20°40'00" W 39.52' N 20°40'00" W 67.54'

C303 N 80°08'06" W 50.43'

C304 C305 N 17°25'25" W 516.07'

SEE SHEET 2-F

C306

N 38°09'19" W 698.81'

TIMPANOGOS CANAL

OPEN SPACE 24

C307

N 73°42'15" W 47.85'

SEE SHEET 2-E

TIMPANOGOS CANAL

C308

10' PUBLIC UTILITY EASEMENT

SEE SHEET 4-C

OPEN SPACE 24

OPEN SPACE 23
30,109 sq.ft.
0.691 acres

10' PUBLIC UTILITY EASEMENT

DRIVE 13
PRIVATE ROAD

DRIVE 14
PRIVATE ROAD

DRIVE 12
PRIVATE ROAD

SEE SHEET 4-E

SEE SHEET 3-E

LOT 4109 LOT 4110 LOT 4111 LOT 4112 LOT 4113 LOT 4114 LOT 4115 LOT 4116 LOT 4117 LOT 4118 LOT 4119 LOT 4120 LOT 4121 LOT 4122 LOT 4123 LOT 4124 LOT 4125 LOT 4126 LOT 4127 LOT 4128 LOT 4129 LOT 4130 LOT 4131 LOT 4132 LOT 4133 LOT 4134 LOT 4135 LOT 4136 LOT 4137 LOT 4138 LOT 4139 LOT 4140 LOT 4141 LOT 4142 LOT 4143 LOT 4144 LOT 4145 LOT 4146 LOT 4147 LOT 4148 LOT 4149 LOT 4150 LOT 4151 LOT 4152 LOT 4153 LOT 4154 LOT 4155 LOT 4156 LOT 4157 LOT 4158 LOT 4159 LOT 4160 LOT 4161 LOT 4162

KEY MAP

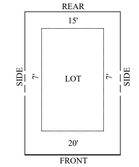


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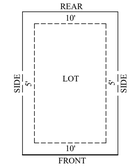
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SINGLE FAMILY LOTS



TYPICAL SETBACKS



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THE HIGHLANDS, RESIDENTIAL SUBDIVISION

PRELIMINARY PLAT

LOCATED WITHIN THE WEST HALF OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

KEY MAP

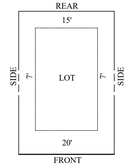


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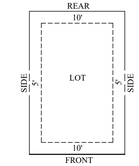
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SINGLE FAMILY LOTS

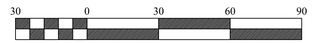


TYPICAL SETBACKS

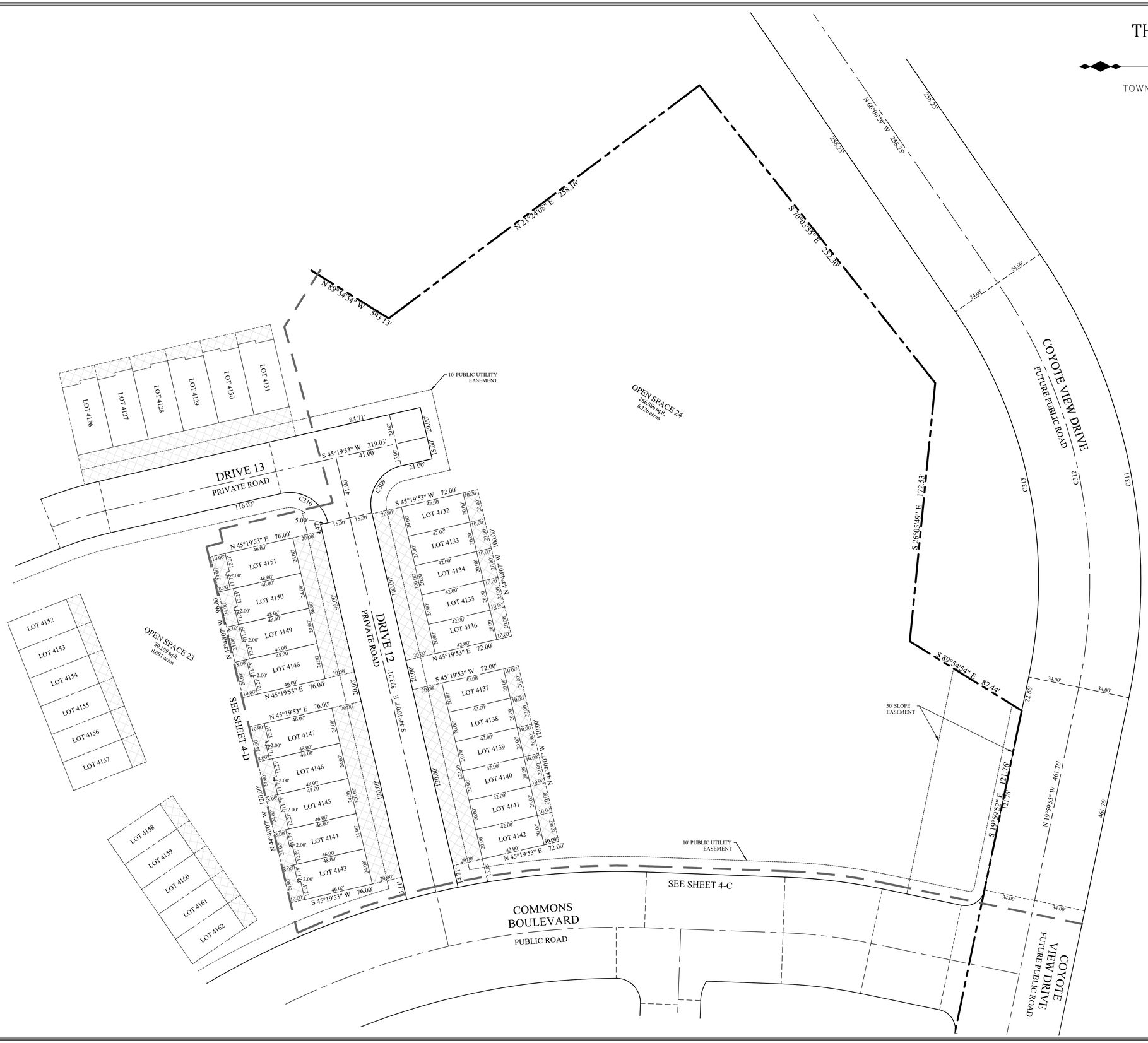


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PLAT
P4-E

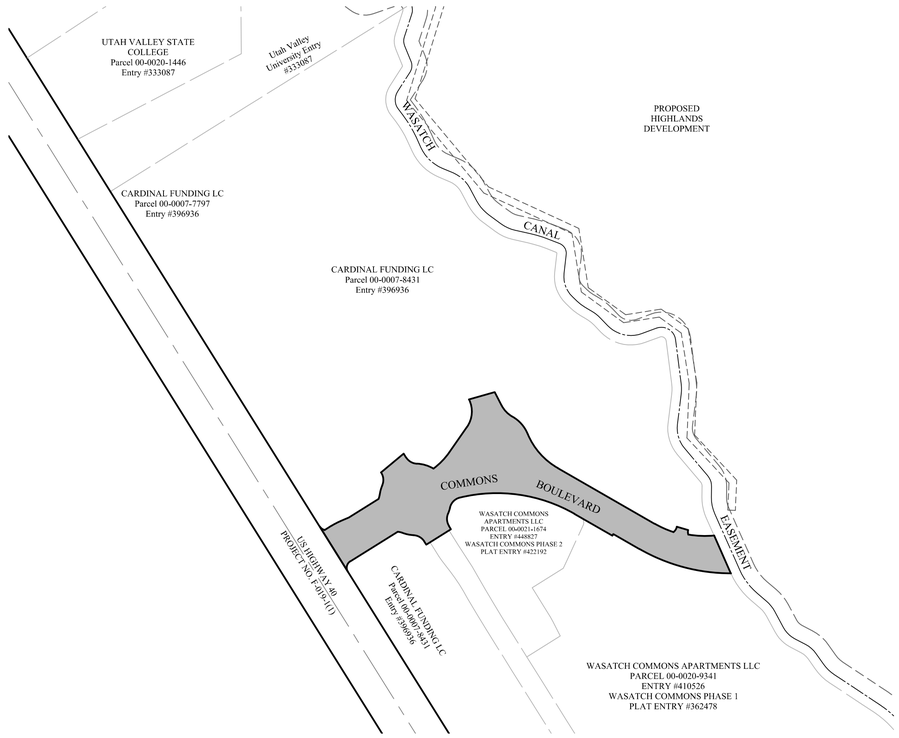
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COMMONS BOULEVARD

VACATION & DEDICATION PLAT

LOCATED WITHIN THE SOUTHWEST QUARTER OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

VICINITY MAP





GRAPHIC SCALE

200 0 100 200 400 600

(IN FEET)
1 inch = 200 ft.

ROAD DEDICATION BOUNDARY DESCRIPTION

A PARCEL OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY RIGHT OF WAY LINE OF US HIGHWAY 40; SAID POINT BEING SOUTH 0°08'37" EAST 1240.71 FEET AND NORTH 89°51'23" EAST 198.76 FEET FROM THE 2005 WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS);
AND RUNNING THENCE SOUTH 83°15'28" EAST 38.37 FEET TO A POINT OF CURVATURE WITH A 165.00 FOOT RADIUS NON-TANGENT CURVE TO THE RIGHT; THENCE NORTHERLY 23.82 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 62°55'42" EAST 23.80 FEET; THENCE NORTH 67°03'50" EAST 24.81 FEET; THENCE NORTH 57°57'55" EAST 133.27 FEET TO A POINT OF CURVATURE WITH A 13.00 FOOT RADIUS CURVE TO THE LEFT; THENCE NORTHERLY 20.41 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 12°58'57" EAST 18.38 FEET; THENCE NORTH 32°00'03" WEST 2.79 FEET; THENCE NORTH 57°59'57" EAST 53.00 FEET TO A POINT OF CURVATURE WITH A 13.00 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHERLY 20.29 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 76°43'12" EAST 18.29 FEET; THENCE NORTH 58°33'39" EAST 54.40 FEET TO A POINT OF CURVATURE WITH A 195.00 FOOT RADIUS CURVE TO THE LEFT; THENCE NORTHEASTERLY 80.71 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 46°42'11" EAST 80.14 FEET; THENCE NORTH 34°50'43" EAST 49.67 FEET TO A POINT OF CURVATURE WITH A 71.50 FOOT RADIUS CURVE TO THE LEFT; THENCE NORTHERLY 56.88 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 12°03'23" EAST 55.39 FEET; THENCE NORTH 10°43'57" WEST 19.63 FEET; THENCE NORTH 74°00'30" EAST 69.67 FEET TO A POINT OF CURVATURE WITH A 135.00 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHERLY 20.01 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 22°42'35" EAST 19.99 FEET; THENCE SOUTH 26°57'20" EAST 19.16 FEET TO A POINT OF CURVATURE WITH A 71.50 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHERLY 42.06 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 43°48'22" EAST 41.45 FEET; THENCE SOUTHERLY 61.53 FEET ALONG THE ARC OF A 92.00 FOOT RADIUS REVERSE CURVE TO THE RIGHT; CHORD TO SAID CURVE BEARS SOUTH 41°29'43" EAST 60.39 FEET; THENCE SOUTHERLY 123.20 FEET ALONG THE ARC OF A 185.00 FOOT RADIUS REVERSE CURVE TO THE LEFT; CHORD TO SAID CURVE BEARS SOUTH 41°24'46" EAST 120.94 FEET; THENCE SOUTH 60°05'25" EAST 294.47 FEET TO A POINT OF CURVATURE WITH A 266.00 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHEASTERLY 54.44 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 65°57'15" EAST 54.34 FEET; THENCE NORTHERLY 17.24 FEET ALONG THE ARC OF A 24.50 FOOT RADIUS NON-TANGENT CURVE TO THE LEFT; THE CENTER OF WHICH BEARS NORTH 37°30'18" WEST; THE CHORD TO SAID CURVE BEARS NORTH 32°20'25" EAST 16.88 FEET; THENCE SOUTH 73°59'10" EAST 31.07 FEET; THENCE SOUTHERLY 12.48 FEET ALONG THE ARC OF A 24.50 FOOT RADIUS NON-TANGENT CURVE TO THE LEFT; THE CENTER OF WHICH BEARS SOUTH 77°48'52" EAST; THE CHORD TO SAID CURVE BEARS SOUTH 02°24'44" EAST 12.35 FEET; THENCE EASTERLY 68.48 FEET ALONG THE ARC OF A 263.00 FOOT RADIUS NON-TANGENT CURVE TO THE LEFT; THE CENTER OF WHICH BEARS NORTH 06°32'26" EAST; THE CHORD TO SAID CURVE BEARS SOUTH 87°55'08" EAST 68.29 FEET TO A POINT ON THE WESTERLY LINE OF THE JOHANSEN FAMILY HOLDINGS II, LLC AND THACKERAY FAMILY HOLDINGS II, LLC PARCEL; THENCE SOUTH 23°57'01" EAST 109.12 FEET ALONG SAID WESTERLY PARCEL LINE; THENCE WESTERLY 252.73 FEET ALONG THE ARC OF A 483.50 FEET RADIUS NON-TANGENT CURVE TO THE RIGHT; THE CENTER OF WHICH BEARS NORTH 00°04'05" WEST; THE CHORD TO SAID CURVE BEARS NORTH 75°05'36" WEST 249.86 FEET; THENCE NORTH 60°07'07" WEST 79.46 FEET; THENCE SOUTH 29°52'53" WEST 5.00 FEET; THENCE NORTH 60°07'07" WEST 115.46 FEET; THENCE WESTERLY 313.04 FEET ALONG THE ARC OF A 411.50 FOOT RADIUS CURVE TO THE LEFT; THE CHORD TO SAID CURVE BEARS NORTH 81°54'44" WEST 305.55 FEET; THENCE SOUTHERLY 39.10 FEET ALONG THE ARC OF A 35.50 FOOT RADIUS CURVE TO THE LEFT; THE CHORD TO SAID CURVE BEARS SOUTH 44°44'32" WEST 37.15 FEET; THENCE SOUTHERLY 16.62 FEET ALONG THE ARC OF A 94.50 FOOT RADIUS CURVE TO THE RIGHT; THE CHORD TO SAID CURVE BEARS SOUTH 18°13'46" WEST 16.60 FEET; THENCE SOUTHERLY 34.27 FEET ALONG THE ARC OF A 35.50 FOOT RADIUS CURVE TO THE LEFT; THE CHORD TO SAID CURVE BEARS SOUTH 04°22'59" EAST 32.95 FEET; THENCE SOUTH 32°02'05" EAST 10.00 FEET; THENCE SOUTH 57°57'55" WEST 77.20 FEET; THENCE NORTH 32°00'03" WEST 42.17 FEET; THENCE WESTERLY 20.43 FEET ALONG THE ARC OF A 13.00 FOOT RADIUS CURVE TO THE LEFT; THE CHORD TO SAID CURVE BEARS NORTH 77°01'04" WEST 18.39 FEET; THENCE SOUTH 57°57'55" WEST 51.82 FEET; THENCE SOUTH 64°11'11" WEST 73.83 FEET; THENCE SOUTH 57°57'55" WEST 50.69 FEET; THENCE SOUTH 12°59'20" WEST 33.94 FEET; THENCE NORTH 32°00'02" WEST 160.00 FEET ALONG THE EASTERLY RIGHT OF WAY LINE OF US HIGHWAY 40 TO THE POINT OF BEGINNING.

CONTAINS: 3.23 ACRES.

RIGHT OF WAY VACATING BOUNDARY DESCRIPTION

COMMONS BOULEVARD, AS PER THE WASATCH COMMONS SUBDIVISION PLAT, RECORDED AS ENTRY NO. 362478 ON SEPTEMBER 10, 2010 IN THE OFFICE OF THE WASATCH COUNTY RECORDER;

BEING DESCRIBED AS A PARCEL OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT ON THE EASTERLY RIGHT OF WAY LINE OF US HIGHWAY 40; SAID POINT BEING SOUTH 0°08'37" EAST 1261.10 FEET AND NORTH 89°51'23" EAST 211.43 FEET FROM THE 2005 WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS);
AND RUNNING THENCE NORTH 57°59'54" EAST 29.93 FEET TO A POINT ON A 165.00 FOOT RADIUS CURVE TO THE RIGHT; THENCE NORTHEASTERLY 26.20 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 62°30'53" EAST 26.17 FEET; THENCE NORTH 67°03'50" EAST 52.01 FEET TO A POINT ON A 135.00 FOOT RADIUS CURVE TO THE LEFT; THENCE NORTHEASTERLY 21.44 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 62°30'53" EAST 21.42 FEET; THENCE NORTH 57°57'55" EAST 24.11 FEET TO A POINT ON A 35.50 FOOT RADIUS CURVE TO THE LEFT; THENCE NORTHEASTERLY 31.61 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 32°27'35" EAST 30.57 FEET; TO A POINT OF REVERSE CURVATURE WITH A 94.50 FOOT RADIUS CURVE TO THE RIGHT; CHORD TO SAID CURVE BEARS NORTH 15°06'41" EAST 26.82 FEET; TO A POINT OF REVERSE CURVATURE WITH A 35.50 FOOT RADIUS CURVE TO THE LEFT; CHORD TO SAID CURVE BEARS NORTH 04°22'59" WEST 32.95 FEET; THENCE NORTH 50°08'15" EAST 77.72 FEET; THENCE SOUTH 32°02'05" EAST 11.88 FEET TO A POINT ON A 35.50 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHEASTERLY 34.27 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 59°41'11" EAST 32.95 FEET; TO A POINT OF REVERSE CURVATURE WITH A 94.50 FOOT RADIUS CURVE TO THE RIGHT; THENCE SOUTHEASTERLY 50.41 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 72°03'20" EAST 49.82 FEET; TO A POINT OF REVERSE CURVATURE WITH A 35.50 FOOT RADIUS CURVE TO THE LEFT; THENCE EASTERLY 30.50 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 81°23'10" EAST 29.57 FEET; TO A POINT OF REVERSE CURVATURE WITH A 488.50 FOOT RADIUS CURVE TO THE RIGHT; THENCE EASTERLY 391.17 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 83°03'31" EAST 380.80 FEET; AND RUNNING THENCE SOUTH 60°07'07" EAST 103.22 FEET TO A POINT OF CURVATURE WITH A 17.50 FOOT RADIUS NON-TANGENT CURVE TO THE LEFT; THENCE SOUTHEASTERLY 13.57 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 37°54'40" EAST 13.23 FEET; THENCE SOUTH 60°07'07" EAST 50.00 FEET; THENCE SOUTH 29°52'53" WEST 67.00 FEET; THENCE NORTH 60°07'07" WEST 50.00 FEET; THENCE SOUTH 29°52'53" WEST 5.00 FEET; THENCE NORTH 60°07'07" WEST 115.46 FEET TO A POINT OF CURVATURE WITH A 411.50 FOOT RADIUS CURVE TO THE LEFT; THENCE WESTERLY 313.04 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 81°54'44" WEST 305.55 FEET; TO A POINT OF COMPOUND CURVATURE WITH A 35.50 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHWESTERLY 39.10 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 44°44'32" WEST 37.15 FEET; TO A POINT OF REVERSE CURVATURE WITH A 94.50 FOOT RADIUS CURVE TO THE RIGHT; THENCE SOUTHERLY 16.62 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 18°13'46" WEST 16.60 FEET; TO A POINT OF REVERSE CURVATURE WITH A 35.50 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHERLY 34.27 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 04°22'59" EAST 32.95 FEET; THENCE SOUTH 32°02'05" EAST 10.00 FEET; THENCE SOUTH 57°57'55" WEST 77.20 FEET; THENCE NORTH 32°02'05" WEST 10.00 FEET TO A POINT OF CURVATURE WITH A 35.50 FOOT RADIUS CURVE TO THE LEFT; THENCE NORTHWESTERLY 34.27 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 59°41'11" WEST 32.95 FEET; TO A POINT OF REVERSE CURVATURE WITH A 94.50 FOOT RADIUS CURVE TO THE RIGHT; THENCE NORTHWESTERLY 31.12 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS NORTH 77°54'14" WEST 30.98 FEET; TO A POINT OF REVERSE CURVATURE WITH A 35.50 FOOT RADIUS CURVE TO THE LEFT; THENCE WESTERLY 33.19 FEET ALONG THE ARC OF SAID CURVE; CHORD TO SAID CURVE BEARS SOUTH 84°44'39" WEST 32.00 FEET; THENCE SOUTH 57°57'55" WEST 146.97 FEET; THENCE NORTH 32°00'02" WEST 100.00 FEET TO THE POINT OF BEGINNING.

CONTAINS: 2.01 ACRES

SURVEYOR'S CERTIFICATE

I, SATTAR N. TABRIZ, DO HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR AND THAT I HOLD LICENSE 155100, IN ACCORDANCE WITH UTAH CODE TITLE 58, CHAPTER 22 OF THE PROFESSIONAL ENGINEERS AND LAND SURVEYORS LICENSING ACT. I FURTHER CERTIFY THAT, BY AUTHORITY OF THE OWNERS, I HAVE COMPLETED A SURVEY OF THE PROPERTY DESCRIBED ON THIS PLAT IN ACCORDANCE WITH SECTION 17–23–17, HAVE VERIFIED ALL MEASUREMENTS, HAVE SUBDIVIDED SAID TRACT OF LAND INTO A STREET, TOGETHER WITH EASEMENTS, AND HAVE PLACED MONUMENTS ON THE GROUND AS REPRESENTED ON THE PLAT.

COMMONS BOULEVARD VACATION & DEDICATION PLAT

AND THAT THE SAME HAS BEEN CORRECTLY SURVEYED AND MONUMENTED ON THE GROUND AS SHOWN ON THIS PLAT.

FOR REVIEW

PROFESSIONAL LAND SURVEYOR # 155100 SATTAR N. TABRIZ STATE OF UTAH

SATTAR N. TABRIZ PLS, UTAH LICENSE NO. 155100

DATE: _____

OWNER'S DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT THE UNDERSIGNED OWNER(S) OF THE HEREON–DESCRIBED TRACT OF LAND HAS/HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO STREETS, TOGETHER WITH EASEMENTS AND RIGHTS–OF–WAY, TO BE HEREAFTER KNOWN AS:

COMMONS BOULEVARD VACATION & DEDICATION PLAT

AND DO HEREBY DEDICATE FOR THE PERPETUAL USE OF THE PUBLIC AND CITY ALL PARCELS, LOTS, STREETS, EASEMENTS, RIGHTS–OF–WAY, AND PUBLIC AMENITIES SHOWN ON THIS PLAT AS INTENDED FOR PUBLIC OR CITY USE. THE UNDERSIGNED OWNER(S), AGENTS, SUCCESSORS, AND ASSIGNS SHALL VOLUNTARILY DEFEND, INDEMNIFY, AND SAVE HARMLESS THE CITY AGAINST ANY EASEMENTS OR OTHER ENCUMBRANCE ON A DEDICATED STREET EASEMENT, OR RIGHT–OF–WAY THAT WILL INTERFERE WITH THE CITY'S USE, MAINTENANCE, AND OPERATION OF THE STREET OR UTILITIES. THE UNDERSIGNED OWNER(S), AGENTS, SUCCESSORS, AND ASSIGNS ALSO HEREBY CONVEY ANY OTHER EASEMENTS, AS SHOWN AND/OR NOTED ON THIS PLAT, TO THE PARTIES INDICATED AND FOR THE PURPOSES SHOWN AND/OR NOTED HEREON. THE CITY ASSUMES NO LIABILITY WITH RESPECT TO THE CREATION OF THIS SUBDIVISION, THE ALTERATION OF THE GROUND SURFACE, VEGETATION, DRAINAGE, OR SURFACE OR SUB–SURFACE WATER FLOWS WITHIN THIS SUBDIVISION, AND THE DEVELOPMENT ACTIVITY WITHIN THIS SUBDIVISION BY THE UNDERSIGNED OWNERS(S), AGENTS, SUCCESSORS, AND ASSIGNS.

IN WITNESS WHEREOF I HAVE SET FORTH MY HAND

THIS _____DAY OF _____, 20_____.

ENTITY_____,

SIGNATURE:_____,

PRINT NAME:_____,

TITLE:_____,

ACKNOWLEDGEMENT

STATE OF: }
COUNTY OF: } S.S.

ON THIS_____DAY OF _____, 20____, PERSONALLY APPEARED BEFORE ME, _____
WHO BEING BY ME DULY SWORN, DID PROVE TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE THE PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE/SHE/THEY EXECUTED THE SAME IN HIS/HER/THEIR AUTHORIZED CAPACITY(IES).

WITNESS MY HAND AND OFFICIAL SEAL.

NOTARY PUBLIC FULL NAME: _____,

COMMISSION NUMBER:_____,

MY COMMISSION EXPIRES: _____,

A NOTARY PUBLIC COMMISSIONED IN UTAH

OWNERS PETITION TO VACATE AND DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT CARDINAL FUNDING, L.C., A UTAH LIMITED LIABILITY COMPANY, DOES HEREBY PETITION TO VACATE THAT PORTION OF COMMONS BOULEVARD SHOWN HEREON AND DESCRIBED AS "RIGHT–OF–WAY VACATING BOUNDARY DESCRIPTION" AND HEREBY DEDICATE TO HEBER CITY FOR THE PERPETUAL USE OF THE PUBLIC THAT PORTION OF COMMONS BOULEVARD SHOWN HEREON AND DESCRIBED AS "ROAD DEDICATION BOUNDARY DESCRIPTION".

DATED THIS _____DAY OF _____, 20____.

CARDINAL FUNDING, L.C., A UTAH LIMITED LIABILITY COMPANY

SIGNATURE:_____,

PRINT NAME:_____,

TITLE:_____,

VACATION & DEDICATION ACCEPTANCE BY LEGISLATIVE BODY

THE CITY COUNCIL OF HEBER, COUNTY OF WASATCH, DOES HEREBY VACATE AND ABANDON THAT PORTION OF COMMONS BOULEVARD SHOWN HEREON AND DESCRIBED AS "RIGHT–OF–WAY VACATING BOUNDARY DESCRIPTION", AND DOES HEREBY ACCEPT AS CONSIDERATION THEREFORE THE DEDICATION OF COMMONS BOULEVARD SHOWN HEREON AND DESCRIBED AS "ROAD DEDICATION BOUNDARY DESCRIPTION" FOR PERPETUAL USE OF THE PUBLIC AS A THOROUGHFARE THIS _____DAY OF _____, 20____.

_____, _____,
_____, _____,
_____, _____,

APPROVAL BY LEGISLATIVE BODY

THE CITY COUNCIL OF HEBER CITY, COUNTY OF WASATCH, APPROVES THIS PLAT SUBJECT TO THE CONDITIONS AND RESTRICTIONS STATED HEREON, AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, AND EASEMENTS INTENDED FOR THE PUBLIC PURPOSE OF THE PERPETUAL USE OF THE PUBLIC.

MAYOR _____ DATE _____ RECORDER'S SEAL

COMMONS BOULEVARD
VACATION & DEDICATION PLAT
LOCATED WITHIN THE SOUTHWEST QUARTER OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST,
SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH

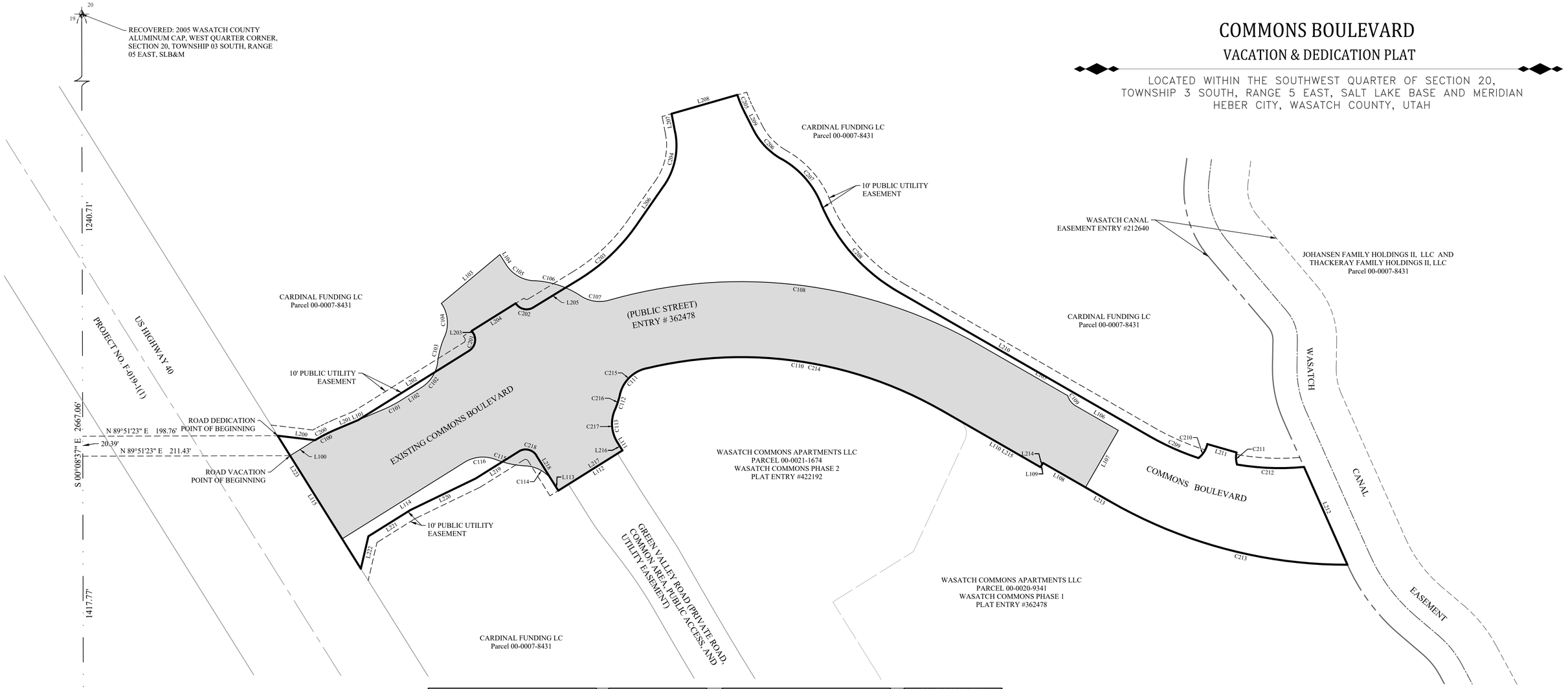
PLANNING MANAGER	*CITY ENGINEER*	*WASATCH CO. FIRE DISTRICT*	*CITY ATTORNEY*	*COUNTY SURVEYOR*	*COUNTY RECORDER*	*SHEET*
APPROVED THIS _____ DAY OF _____, A.D. 20___.	APPROVED THIS _____ DAY OF _____, A.D. 20___.	APPROVED THIS _____ DAY OF _____, A.D. 20___.	APPROVED THIS _____ DAY OF _____, A.D. 20___.	APPROVED THIS _____ DAY OF _____, A.D. 20___.	_____ RECORD NO. STATE OF UTAH, COUNTY OF WASATCH, RECORDED AND FILED AT THE REQUEST OF: _____ DATE_____TIME_____BOOK_____PAGE_____ FEES	1 OF 2
_____ PLANNING MANAGER	_____ CITY ENGINEER	_____ FIRE CHIEF	_____ CITY ATTORNEY	_____ COUNTY SURVEYOR		

O:\Highlands\Survey\ACAD Plat\RD-1 Ded plat Commons Blvd Cover.dwg Aug 06, 2024 - 6:59pm

COMMONS BOULEVARD

VACATION & DEDICATION PLAT

LOCATED WITHIN THE SOUTHWEST QUARTER OF SECTION 20,
TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
HEBER CITY, WASATCH COUNTY, UTAH



RIGHT-OF-WAY VACATION CURVE TABLE					
Curve #	Length	Radius	Delta	Bearing	Chord
C100	26.20	165.00	9°05'55"	S62°30'53"W	26.17
C101	21.44	135.00	9°05'55"	N62°30'53"E	21.42
C102	31.61	35.50	51°00'41"	N32°27'35"E	30.57
C103	26.91	94.50	16°18'53"	N15°06'41"E	26.82
C104	34.27	35.50	55°18'12"	N4°22'59"W	32.95
C105	34.27	35.50	55°18'12"	S59°41'11"E	32.95
C106	50.41	94.50	30°33'53"	S72°03'20"E	49.82
C107	30.50	35.50	49°13'32"	S81°23'10"E	29.57
C108	391.17	488.50	45°52'49"	S83°03'31"E	380.80
C109	13.57	17.50	44°24'55"	S37°54'40"E	13.23
C110	313.04	411.50	43°35'13"	N81°54'44"W	305.55
C111	39.10	35.50	63°06'14"	S44°44'32"W	37.15
C112	16.62	94.50	10°04'42"	S18°13'46"W	16.60
C113	34.27	35.50	55°18'13"	S4°22'59"E	32.95
C114	34.27	35.50	55°18'12"	N59°41'11"W	32.95
C115	31.12	94.50	18°52'06"	N77°54'14"W	30.98
C116	33.19	35.50	53°34'22"	S84°44'39"W	32.00

RIGHT-OF-WAY VACATION LINE TABLE		
Line #	Length	Direction
L100	29.93	N57° 59' 54"E
L101	52.01	N67° 03' 50"E
L102	24.11	N57° 57' 55"E
L103	77.72	N50° 08' 15"E
L104	11.88	S32° 02' 05"E
L105	103.22	S60° 07' 07"E
L106	50.00	S60° 07' 07"E
L107	67.00	S29° 52' 53"W
L108	50.00	N60° 07' 07"W
L109	5.00	S29° 52' 53"W
L110	115.46	N60° 07' 07"W
L111	10.00	S32° 02' 05"E
L112	77.20	S57° 57' 55"W
L113	10.00	N32° 02' 05"W
L114	146.97	S57° 57' 55"W
L115	100.00	N32° 00' 02"W

ROAD DEDICATION CURVE TABLE					
Curve #	Length	Radius	Delta	Bearing	Chord
C200	23.82	165.00	8°16'16"	N62°55'42"E	23.80
C201	20.41	13.00	89°57'56"	N12°58'57"E	18.38
C202	20.29	13.00	89°26'18"	S76°43'12"E	18.29
C203	80.71	195.00	23°42'57"	N46°42'11"E	80.14
C204	56.88	71.50	45°34'40"	N12°03'23"E	55.39
C205	20.01	135.00	8°29'30"	S22°42'35"E	19.99
C206	42.06	71.50	33°42'03"	S43°48'22"E	41.45
C207	61.53	92.00	38°19'20"	S41°29'43"E	60.39
C208	123.20	185.00	38°09'25"	S41°24'46"E	120.94
C209	54.44	266.00	11°43'33"	S65°57'15"E	54.34
C210	17.24	24.50	40°18'34"	N32°20'25"E	16.88
C211	12.48	24.50	29°11'43"	S2°24'44"E	12.35
C212	68.48	263.00	14°55'08"	S87°55'08"E	68.29
C213	252.73	483.50	29°56'58"	N75°05'36"W	249.86
C214	313.04	411.50	43°35'13"	N81°54'44"W	305.55
C215	39.10	35.50	63°06'14"	S44°44'32"W	37.15
C216	16.62	94.50	10°04'42"	S18°13'46"W	16.60
C217	34.27	35.50	55°18'13"	S4°22'59"E	32.95
C218	20.43	13.00	90°02'02"	N77°01'04"W	18.39

ROAD DEDICATION LINE TABLE		
Line #	Length	Direction
L200	38.37	S83° 15' 28"E
L201	24.81	N67° 03' 50"E
L202	133.27	N57° 57' 55"E
L203	2.79	N32° 00' 03"W
L204	53.00	N57° 59' 57"E
L205	54.40	N58° 33' 39"E
L206	49.67	N34° 50' 43"E
L207	19.63	N10° 43' 57"W
L208	69.67	N74° 00' 30"E
L209	19.16	S26° 57' 20"E
L210	294.47	S60° 05' 25"E
L211	31.07	S73° 59' 10"E
L212	109.12	S23° 57' 01"E
L213	79.46	N60° 07' 07"W
L214	5.00	S29° 52' 53"W
L215	115.46	N60° 07' 07"W
L216	10.00	S32° 02' 05"E
L217	77.20	S57° 57' 55"W
L218	42.17	N32° 00' 03"W
L219	51.82	S57° 57' 55"W
L220	73.83	S64° 11' 11"W
L221	50.69	S57° 57' 55"W
L222	33.94	S12° 59' 20"W
L223	160.00	N32° 00' 02"W

MAP LEGEND

- BOUNDARY LINE
- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- RADIAL LINE
- ROADWAY DEDICATION
- ROADWAY VACATION
- EXISTING COMMONS BOULEVARD DEDICATION TO BE VACATED

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GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

REVISIONS			
No.	DATE	BY	REVISION

Ward Engineering Group
Planning & Engineering & Surveying
231 WEST 800 SOUTH
Salt Lake City, Utah 84101
Phone: (801)487-8040 Fax: (801)487-8668

SHEET

2 OF 2

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HIGHLANDS RESIDENTIAL DEVELOPMENT: GENERAL

GENERAL	
Sheet Number	Sheet Title
--	Sub-Title Sheet- General
NT-01	General Notes
NT-02	Symbols & Abbreviations
MP-01	Highlands Residential Master Plan
PH-01	Phasing Plan
DM-01	Demolition Plan
DM-02	UVU Connection & LPG Relocation Plan
DM-03A	Demolition Details
DM-03B	Demolition Details
TS-01	Typical Roadway Sections
TS-01A	Typical Roadway Sections - Dry Utilities
TS-02	Typical Roadway Sections
TS-02A	Typical Roadway Sections - Dry Utilities
TS-03	Typical Roadway Sections
TS-03A	Typical Roadway Sections - Dry Utilities
SA-00	Slope Analysis - Existing
SA-01	Slope Analysis - Developed

SUB-TITLE SHEET

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SUB-TITLE SHEET- GENERAL

231 West 800 South Salt Lake City, Utah 84101
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CLIENT: D.R.HORTON
DWG: COVER SHEET DWG
JOB No: 3891-DRH01-23
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DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SATTAR N. TABRIZ
8/6/2024

SHEET

CIVIL PROJECT NOTES

CONTRACTOR SHALL PERFORM ALL WORK TO THE STANDARD PLANS, SPECIFICATIONS, AND REQUIREMENTS OF:
WATER: NORTH VILLAGE SPECIAL SERVICE DISTRICT (NVSSD)
SEWER: NORTH VILLAGE SPECIAL SERVICE DISTRICT (NVSSD)
STORM WATER: HEBER CITY
POWER: HEBER POWER AND LIGHT
GAS: DOMINION ENERGY
COUNTY: WASATCH COUNTY

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL AND CURRENT APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, OSHA REQUIREMENTS, STANDARDS AND SPECIFICATIONS WHETHER OR NOT ANY SPECIFIC REFERENCE IS MADE TO SUCH IN THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE PROPERLY LICENSED IN THE STATE OF UTAH TO PERFORM ALL OF THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS. SUCH LICENSING SHALL REMAIN IN EFFECT CONTINUOUSLY THROUGHOUT THE ENTIRETY OF THIS PROJECT INCLUDING FROM TIME OF BID SUBMISSION THROUGH PROJECT COMPLETION AND WARRANTY PERIOD. THE CONTRACTOR SHALL CARRY APPROPRIATE INSURANCE, PERFORMANCE AND PAYMENT BONDS AS REQUIRED.
2. ALL WORK SHALL CONFORM TO THESE PLANS AND TO THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. IN THE EVENT THAT ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING, AND THE ENGINEER, AT HIS SOLE DISCRETION, SHALL DETERMINE WHICH REQUIREMENTS GOVERN. THE CONTRACTOR SHALL KEEP ONE RECORD COPY OF ALL SPECIFICATIONS, DRAWINGS, ADDENDA, MODIFICATIONS, AND SHOP DRAWINGS AT THE SITE IN GOOD ORDER AND ANNOTATED TO SHOW ALL CHANGES MADE DURING THE CONSTRUCTION PROCESS. THESE SHALL BE AVAILABLE TO THE ENGINEER AND SHALL BE DELIVERED TO HIM FOR THE OWNER UPON COMPLETION OF THE PROJECT.
3. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THE PLANS AND DOCUMENTS, PERFORM A SITE VISIT TO SATISFY HIMSELF AS TO THE SITE CONDITIONS, ATTEND ALL PRECONSTRUCTION AND CONSTRUCTION MEETINGS, AND THOROUGHLY SATISFY HIMSELF AS TO THE TRUE MEANING AND INTENTION OF THIS CONTRACT. THE CONTRACTOR SHALL BE COMPETENT AND EXPERIENCED TO PERFORM ALL WORK REQUIRED. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ENGINEER AND THEIR AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES INCLUDING ATTORNEY'S FEES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK, PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS OR EXPENSES IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF) INCLUDING THE LOSS OF USE RESULTING THERE FROM; AND IS CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT IT IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER. IN ANY AND ALL CLAIMS AGAINST THE OWNER OR THE ENGINEER OR ANY OF THEIR AGENTS OR EMPLOYEES BY ANY EMPLOYEE OF THE CONTRACTOR, AND SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, SAID INDEMNIFICATION OBLIGATION SHALL NOT BE LIMITED IN ANY WAY BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR ANY SUBCONTRACTOR UNDER WORKMEN'S COMPENSATION ACTS, DISABILITY BENEFIT ACTS OR OTHER EMPLOYEE BENEFIT ACTS.
5. THE CONTRACTOR WARRANTS AND GUARANTEES TO THE OWNER AND ENGINEER THAT ALL MATERIAL AND EQUIPMENT USED IN THE PERFORMANCE OF THIS WORK SHALL BE NEW UNLESS OTHERWISE SPECIFIED AND THAT ALL WORK SHALL BE OF GOOD QUALITY AND FREE FROM FAULTS OR DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. IF REQUIRED BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT. ALL MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND CONDITIONED IN ACCORDANCE WITH THE INSTRUCTIONS OF THE APPLICABLE MANUFACTURER, FABRICATOR OR PROCESSOR, EXCEPT AS OTHERWISE PROVIDED IN THE PLANS AND DOCUMENTS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, LICENSES AND FEES REQUIRED FOR THE PERFORMANCE AND COMPLETION OF THE WORK AND SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SAID PERMITS AND LICENSES. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SIGNAGE, BARRICADING AND TRAFFIC CONTROL IN CONFORMANCE TO THE MOST RECENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, LABOR, TRANSPORTATION, CONSTRUCTION EQUIPMENT AND MACHINERY, TOOLS, APPLIANCES, FUEL, POWER, LIGHT, HEAT, TELEPHONE, WATER, SANITARY FACILITIES, AND ALL OTHER FACILITIES AND INCIDENTALS NECESSARY FOR THE EXECUTION, TESTING, INITIAL OPERATION AND COMPLETION OF THE WORK.
7. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR PROVIDING DUST, MUD, AND EROSION CONTROL, AND PROPER DRAINAGE. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY HANDLE AND DISPOSE OF ALL CONSTRUCTION WATER. THE CONTRACTOR SHALL LIMIT TRAVEL ON THE PROJECT SITE TO ROADWAYS ONLY, EXCEPT WHERE CONSTRUCTION SPECIFICALLY REQUIRES TRAVEL ELSEWHERE. ANY DAMAGE CAUSED BY SUCH UNAUTHORIZED TRAVEL SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIAL, RUBBISH AND OTHER DEBRIS RESULTING FROM THE WORK. EQUIPMENT AND CONSTRUCTION MATERIALS, ETC., SHALL BE STORED ONSITE ONLY AT THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL WHEREON THEY ARE STORED. AT THE COMPLETION OF THE WORK, ALL WASTE MATERIALS, RUBBISH AND DEBRIS SHALL BE REMOVED FROM THE PREMISES AS WELL AS ALL TOOLS, CONSTRUCTION EQUIPMENT AND MACHINERY, AND SURPLUS MATERIALS. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION THOSE PORTIONS OF THE SITE NOT DESIGNATED FOR ALTERATION BY THE PLANS AND DOCUMENT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING ALL REQUIRED TESTING AND INSPECTIONS A MINIMUM OF 48 HOURS IN ADVANCE. NEITHER OBSERVATIONS BY THE ENGINEER NOR INSPECTIONS, TESTS OR APPROVALS BY PERSONS OTHER THAN THE CONTRACTOR SHALL RELIEVE THE CONTRACTOR FROM HIS OBLIGATIONS TO PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND DOCUMENTS
9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE CONDITIONS THROUGHOUT THE PROJECT, INCLUDING SUBSURFACE CONDITIONS AND UTILITY LOCATION. WARD ENGINEERING GROUP ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS. ANY EXISTING UTILITIES OR OTHER IMPROVEMENTS SHOWN ON THE PLANS HAVE BEEN DERIVED FROM FIELD INVESTIGATIONS AND/OR AVAILABLE RECORD INFORMATION. THE CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY LOCATIONS AND INVERT ELEVATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTING ANY NEW UTILITY. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM HIS OPERATIONS, WHETHER OR NOT SUCH FACILITIES ARE SHOWN IN THESE PLANS. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION. NO EXCAVATION OF ANY NATURE SHALL BE PERFORMED WITHOUT FIRST CONTACTING "BLUE STAKES" AT LEAST 48 HOURS PRIOR TO SUCH EXCAVATION.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ASSURE SOUND EXCAVATION AND GRADING PRACTICES. FOR ALL EXCAVATIONS EXCEEDING A DEPTH OF 4 FEET, THE CONTRACTOR SHALL PROVIDE APPROPRIATE SHORING, BRACING, SLOPING OR OTHER APPROPRIATE PROVISIONS AS SPECIFIED BY OSHA THAT ARE NECESSARY TO PROTECT THE SAFETY OF THOSE AT THE SITE. ALL OPEN TRENCHES MUST BE PROPERLY COVERED AT THE END OF WORK EACH DAY. HARD HATS SHALL BE WORN BY ALL PERSONS AT THE SITE. ALL SPECIFICATIONS, DRAWINGS AND COPIES THEREOF FURNISHED BY THE ENGINEER SHALL REMAIN HIS PROPERTY. THEY SHALL NOT BE USED ON ANOTHER PROJECT AND, WITH EXCEPTION OF THOSE SETS WHICH HAVE BEEN SIGNED IN CONNECTION WITH THE EXECUTION OF THE AGREEMENT, SHALL BE RETURNED TO THE ENGINEER UPON REQUEST AT COMPLETION OF THE PROJECT.
11. CONTRACTOR SHALL UTILIZE "BEST MANAGEMENT" PRACTICES FOR STORM WATER POLLUTION PREVENTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPMENT AND COMPLIANCE TO AN APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

CONSTRUCTION NOTES

GENERAL REQUIREMENTS
1. CONTRACTOR SHALL STERILIZE THE SUBGRADE BENEATH PROPOSED NEW PAVING AND WALKWAYS. CONTRACTOR SHALL SUBMIT MEANS AND METHODS FOR APPROVAL PRIOR TO IMPLEMENTATION.
2. ALL UTILITY PIPING SHALL HAVE WARNING TAPE INSTALLED 12" MIN. ABOVE AND ALONG THE ENTIRE LENGTH, INCLUDING SERVICE LATERAL. TAPE SHALL BE LABELED ACCORDING TO UTILITY.
3. THE OPEN ENDS OF ALL PIPELINES UNDER CONSTRUCTION SHALL BE COVERED AND EFFECTIVELY SEALED AT THE END OF EACH DAY'S WORK.
4. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FIELD USING A 2" X 4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2" X 4" POST SHALL BE PAINTED USING GREEN PAINT FOR SEWER, BLUE PAINT FOR WATER, RED FOR POWER, YELLOW FOR GAS, AND ORANGE FOR COMMUNICATIONS. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE DIAGRAMMATIC ONLY, AND ALL UTILITIES MAY NOT BE SHOWN. THE CONTRACTOR SHALL CONTACT THE PROPER LOCAL AUTHORITIES OR UTILITY COMPANY TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE BEGINNING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
6. CAUTION & CARE SHOULD BE TAKEN DURING ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
7. EXCAVATION REQUIRED WITHIN CLOSE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE ONLY BY HAND. CONTRACTOR SHALL REPAIR AND REPLACE ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO OWNER.

CLEARING AND GRUBBING
1. REMOVE AND DISPOSE OF TREES, STUMPS, LOGS, LIMBS, STICKS, VEGETATION, DEBRIS, AND OTHER MATERIAL ON THE NATURAL GROUND SURFACE.
2. DISPOSE OF ALL MATERIAL OFF THE PROPERTY TO A FACILITY LICENSED TO ACCEPT THE MATERIAL TYPE.
3. CONTRACTOR SHALL REMOVE ALL TOP SOIL WITHIN THE AREA OF CONSTRUCTION. STOCKPILE OR REMOVE FROM SITE PER OWNER INSTRUCTIONS.
4. CONFORM TO PROJECT GEOTECHNICAL REPORT.

WATER IMPROVEMENT REQUIREMENTS
1. ALL WATER MAINS AND APPURTENANCES, SHALL BE DESIGNED, CONSTRUCTED, DISINFECTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH THIS PLAN, ALL APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF DRINKING WATER, AND THE LOCAL GOVERNING ENTITY.
2. ALL MATERIALS WHICH MAY CONTACT THE DRINKING WATER, INCLUDING PIPES, GASKETS, LUBRICANTS, AND O-RINGS SHALL BE ANSI CERTIFIED AS MEETING NSF STANDARD 61, DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS. TO PERMIT FIELD VERIFICATION OF THIS CERTIFICATION, ALL SUCH COMPONENTS SHALL BE APPROPRIATELY STAMPED WITH THE NSF LOGO.
3. ALL PIPES, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO NSF STANDARD 61 OR STANDARD 14, AND APPLICABLE SECTIONS OF ANSI/AWWA STANDARDS C104-A21.4-03 THROUGH C550-05 AND C900-07 THROUGH C950-07.
4. WATER MAINS SHALL BE PVC PIPE AND SHALL MEET ALL THE REQUIREMENTS FOR AWWA C900, PRESSURE CLASS 235, DR-18 PIPE, UNLESS CALLED OUT OTHERWISE. INSTALLATION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C605. DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651.
5. ALL BURIED DI (DUCTILE IRON) PIPES, VALVES AND FITTINGS SHALL BE POLY-WRAPPED AND THE NUTS GREASED IN ACCORDANCE WITH AWWA C105.
6. ALL WATER DI (DUCTILE IRON) PIPES, VALVES AND FITTINGS SHALL HAVE PORTLAND CEMENT MORTAR LINING, OR ENGINEER APPROVED EQUAL.
7. WATER LATERALS SHALL BE COPPER-TYPE K UP TO THE METER VAULTS UNLESS OTHERWISE INDICATED ON THE PLANS OR LOCAL AGENCY REQUIRES SOMETHING ELSE. INSTALLATION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA M55. DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651.
8. WATER MAINS AND LATERALS SHALL BE TESTED ACCORDING TO THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS; TO INCLUDE, PRESSURE TESTING AND DISINFECTION; AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL GOVERNMENT ENTITY, OSHA, AND THE UTAH DIVISION OF DRINKING WATER.
9. CONTRACTOR SHALL NOTIFY THE LOCAL GOVERNMENT ENTITY 48 HOURS IN ADVANCE OF MAKING ANY CONNECTIONS TO WATER LINES.
10. IF POOR SOILS WITH A BEARING CAPACITY OF LESS THAN 1,500 PSF ARE ENCOUNTERED WHERE A THRUST BLOCK IS REQUIRED, THEN THE THRUST BLOCK SHALL BE REDESIGNED BY THE ENGINEER. THE REDESIGNED THRUST BLOCK SHALL NOT BE PLACED UNTIL THE ENGINEER HAS APPROVED OF THE REDESIGN.
11. ANY PROPOSED CONNECTION TO EXISTING PIPELINES, OR ANY NON-FLANGED FITTING OR VALVE IS REQUIRED TO BE RESTRAINED OR THRUST BLOCKED.
12. ALL WATER LINES SHALL BE CONSTRUCTED TO A DEPTH SO AS TO MAINTAIN 48" MIN GROUND COVER. ALL SECONDARY WATER LINES SHALL BE CONSTRUCTED TO A DEPTH SO AS TO MAINTAIN 30" IN GROUND COVER.
13. PIPE BEDDING INSTALLATION AND BACKFILL SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. ALL BURIED WATER PIPELINES SHALL HAVE TRACER WIRE (12 GAUGE) DIRECTLY ABOVE PIPE WHICH SHALL BE TIED TO ALL VALVES REFER TO TRENCH DETAIL FOR COMPACTION DENSITY REQUIREMENTS.

SEWER IMPROVEMENT REQUIREMENTS
1. ALL SEWER MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND THE LOCAL GOVERNING ENTITY.
2. ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY SHALL COMPLY WITH REQUIREMENTS ESTABLISHED BY THE LOCAL GOVERNMENT ENTITY.
3. ANY FLUSHING INTO THE EXISTING SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
4. GRAVITY SEWER MAINS AND LATERALS SHALL BE PVC, SDR 35 PIPE WITH INTEGRAL BELL AND SPIGOT, AND GASKETED JOINTS.
5. SEWER FORCE MAINS SHALL BE PE (POLYETHYLENE) PIPE AND SHALL MEET THE REQUIREMENTS FOR AWWA C906/ PE3408, MINIMUM PRESSURE CLASS 150 (DR-11 MINIMUM). INSTALLATION SHALL BE PER ASTM D 2321 AND ASTM F 1668.
6. GRAVITY SEWER MAINS AND LATERALS SHALL BE TESTED ACCORDING TO LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS. TO INCLUDE, ALIGNMENT AND GRADE TESTING, OBSTRUCTIONS AND DEFLECTION TESTING, INFILTRATION TESTING OR GRAVITY PIPELINES, PRESSURE TESTING FOR PRESSURE PIPELINES, AND VIDEO INSPECTION. DEFLECTION TESTING SHALL BE PERFORMED NO SOONER THAN 30 DAYS AFTER THE FINAL BACKFILL HAS BEEN PLACED. TESTING SHALL BE PERFORMED USING A MANDREL WITH A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE.
7. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FILED USING A 2"X4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2"X4" POST SHALL BE PAINTED USING GREEN PAINT. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE. NO LATERALS SHALL BE DIRECTLY CONNECTED TO MANHOLES.
8. FOLLOWING PLACEMENT OF ASPHALT, ALL SEWER LINES SHALL BE FLUSHED, AND CLEANED, AND ALL MANHOLES LIDS ADJUSTED TO 3/8 INCH BELOW FINISHED GRADE AND IN ACCORDANCE WITH THE REQUIREMENTS HEREIN.

STORM DRAINAGE IMPROVEMENTS
1. ALL STORM DRAIN MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND THE GOVERNING ENTITY.
2. ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY SHALL COMPLY WITH LOCAL GOVERNMENT ENTITY.
3. ANY FLUSHING INTO THE EXISTING SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
4. GRAVITY STORM DRAIN LINES WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE RE-INFORCED CONCRETE PIPE (RCP) WITH INTEGRAL BELL AND SPIGOT, AND GASKETS JOINTS. ALL TEMPORARY CULVERT ARE TO BE ADS-N12 HDPE PIPE.
5. GRAVITY STORM DRAIN LINES SHALL BE TESTED ACCORDING TO THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS. TO INCLUDE, ALIGNMENT AND GRADE TESTING, OBSTRUCTIONS AND DEFLECTION TESTING, INFILTRATION TESTING OR GRAVITY PIPELINES, PRESSURE TESTING FOR PRESSURE PIPELINES, AND VIDEO INSPECTION. DEFLECTION TESTING SHALL BE PERFORMED NO SOONER THAN 30 DAYS AFTER THE FINAL BACKFILL HAS BEEN PLACED. TESTING SHALL BE PERFORMED USING A MANDREL WITH A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE.
6. FOLLOWING PLACEMENT OF ASPHALT, ALL STORM LINES SHALL BE FLUSHED, AND CLEANED, AND ALL MANHOLES LIDS ADJUSTED TO 3/8 INCH BELOW FINISHED GRADE AND IN ACCORDANCE WITH THE REQUIREMENTS HEREIN.
7. THE OWNER RESERVES THE RIGHT TO TELEVISE, AT THEIR EXPENSE, ANY OR ALL PORTIONS OF THIS WORK PRIOR TO PLACING SUCH FACILITIES IN SERVICE, AND THE CONTRACTOR SHALL GIVE THE OWNER SUFFICIENT ADVANCE NOTICE OF THEIR INTENT TO PLACE THESE FACILITIES IN SERVICE AS WILL ALLOW THE OWNER TO SCHEDULE SUCH FILLING

GRADING NOTES
1. THE CONTRACTOR SHALL BECOME FAMILIARIZED WITH THE RECOMMENDATIONS LISTED IN THE SOILS REPORT FOR THIS PROJECT. PREPARED BY GORDON GEOTECHNICAL ENGINEERING, INC, DATED MAY 21, 2021. LIQUEFACTION REVIEW PREPARED BY INTERMOUNTAIN GEOENVIROMENTAL SERVICES (IGES), DATED APRIL 25, 2022. SURFACE DRAINAGE TO BE ONE (1%) PERCENT MINIMUM TO APPROVED DRAINAGE FACILITIES, EXCEPT AS WAIVED BY THE BUILDING OFFICIAL, OR DIRECTED BY THE ENGINEER.
2. ALL FILL EXCEPT THAT UNDERNEATH PAVED SURFACES, WITHIN ROAD RIGHT OF WAY OR UNDERNEATH BUILDING SLABS, SIDEWALKS & FOOTINGS, SHALL BE COMPACTED TO A MINIMUM OF EIGHTY-FIVE (85%) PERCENT MAXIMUM DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 1557 AND CERTIFIED BY TESTS AND REPORTS FROM SOILS ENGINEER.
3. ALL FILL UNDERNEATH PATHWAYS AND CONCRETE SHALL BE CLASSIFICATION A/1-A THROUGH A/4 AS DEFINED BY ASHTO M 145 AND COMPACTED TO A MINIMUM OF NINETY-FIVE (95%) PERCENT MAXIMUM DRY DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS SPECIFIED BY ASTM D 1557. FOR ALL FILL UNDERNEATH BUILDING SLABS AND FOOTINGS, REFER TO STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
4. FILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING SIX (6) INCHES IN COMPACTED THICKNESS AND COMPACTED AT OPTIMUM MOISTURE CONTENT TO THE REQUIRED MAXIMUM DRY DENSITY.
5. ALL FILL AREAS TO BE CLEARED OF ALL VEGETATION AND OTHER UNSUITABLE MATERIALS AND THE AREA SCARIFIED TO A DEPTH OF SIX (6) INCHES, OR TO A DEPTH TO REMOVE TOP SOIL, REFER TO GEOTECHNICAL REPORT.
6. CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ORGANIC MATERIALS FROM STRUCTURALLY LOADED EMBANKMENTS AND BUILD FOOTPRINT LOCATION ACCORDING TO THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.

CONCRETE NOTES
1. ALL CONCRETE WORK SHALL BE NORMAL WEIGHT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST 4,000 PSI WITHIN 28 DAYS AFTER POURING. THE WATER CEMENT RATIO SHALL BE NO GREATER THAN 0.45 AND SLUMP SHALL BE 3.5" OR LESS. MINIMUM CEMENT CONTENT SHALL BE 6.5 SACKS PER CUBIC YARD. PROVIDE 5.5%-7.5% AIR ENTRAINMENT FOR CONCRETE OF THIS CLASS USED IN SLABS AND WALLS, PER REQUIREMENT LISTED IN THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS.
2. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION JOINTS SHALL BE KEYED WITH A KEY 1-1/2 IN. DEEP, A LENGTH 2 IN. LESS THAN THE MEMBER, AND A WIDTH 1/2 OF THE MEMBER. REINFORCING SHALL BE CONTINUOUS THROUGH THE JOINT.
3. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THE PROJECT AND APWA SPECIFICATIONS (03 30 10)
4. BEFORE CONCRETE IS POURED CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATIVE TO WORK.
5. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND FORMWORK.
6. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENT, CLIPS AND GROUNDS REQUIRED TO BE ENCASED IN CONCRETE SLAB AND SLAB FINISHES, COLOR, PATTERNS, AND DEPRESSIONS
7. REFER TO SLAB JOINT LAYOUT PLAN FOR CONTROL AND CONSTRUCTION JOINT LOCATIONS.
8. CONCRETE TESTING SHALL BE PER PROJECT SPECIFICATIONS AND APWA 03 30 05. TESTING SHALL COMPRISE OF TEMPERATURE, AIR, SLUMP AND STRENGTH TESTING. THE FOLLOWING TABLE SUMMARIZES REQUIRED TESTING FREQUENCY:

Rate of Placement (cy/day)	Temperature	Air	Slump	Strength
0-8	1	1	1	1
0-50	1	1	1	1
Each additional 50 cy or fraction thereof	1	1	1	1

CONCRETE REINFORCEMENT NOTES
1. ALL METAL REINFORCEMENT SHALL BE DEFORMED TYPE BARS (EXCEPT #2 BARS) AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS ASTM A615 GRADE 60.
2. ALL SPLICES IN CONTINUOUS CONCRETE REINFORCING BARS SHALL LAP 36 BAR DIAMETER OR PER THE LATEST EDITION OF ACI 318. ALL SUCH SPLICES SHALL BE MADE IN A REGION OF COMPRESSION UNLESS OTHERWISE SHOWN. ALL CONTINUOUS REINFORCEMENT SHALL TERMINATE WITH A 90° TURN OR A SEPARATE CORNER BAR.
3. ALL REINFORCEMENT BARS SHALL BE SECURELY ANCHORED AND HELD IN PLACE AND SHALL BE SPACED FROM ADJACENT SURFACES (UNLESS SHOWN OTHERWISE) AS FOLLOWS:
   A. FORMED SURFACES IN CONTACT WITH THE GROUND OR EXPOSED TO WEATHER, AND SLABS ON GRADE - 2 IN.
   B. UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH (BOTTOM AND SIDES OF FOOTINGS) -3 IN.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND SHALL HAVE A MINIMUM SIDE LAP OF 8 IN.
5. ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF ACI DETAILING MANUAL 315-77 AND ACI STANDARD 318.

ASPHALT NOTES
1. ALL ASPHALT SHALL BE PLACED AS DIRECTED BY THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATION.
2. BASE COURSE SHALL BE COMPACTED TO NOTHING LESS THAN 95% MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180.
3. SURFACES SHALL BE TRUE TO THE ESTABLISHED GRADE WITH A THICKNESS BEING NO LESS THAN ONE-FOURTH INCH FROM THE REQUIRED LAYER THICKNESS AND WITH THE SURFACE ELEVATION VARYING NO MORE THAN THREE-EIGHTHS INCH IN TEN FEET FROM THE TRUE PROFILE AND CROSS-SECTION.
4. THE SURFACE COURSE SHALL CONSIST OF A MINERAL AGGREGATE AND BINDER AS DIRECTED BY THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS.
5. THE CONTRACTOR SHALL ESTABLISH A MIX GRADATION AND THE AMOUNT OF BITUMINOUS MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER AND SHALL MEET THE REQUIREMENTS OF THE GRADATION SELECTED.
6. THE BITUMINOUS MATERIAL FOR THE SURFACE COURSE REFER TO LOCAL GOVERNMENT ENTITY CONFORMING TO THE REQUIREMENTS OF AASHTO M-226.
7. REGARDLESS OF BITUMINOUS CONTENT AND THERE SHALL NOT BE MORE THAN THREE PERCENT VOIDS IN THE AGGREGATE.
8. THE CONTRACTOR SHALL NOT INSTALL BITUMINOUS SEAL COAT UNLESS THE AIR TEMPERATURE IS 70 DEGREES FAHRENHEIT OR HIGHER. SEAL COAT IS NOT TO BE PLACED WITHIN TEN CALENDAR DAYS OF THE PLACEMENT OF NEW SURFACE COURSE. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LOCAL GOVERNMENT ENTITY STANDARD SPECIFICATIONS.
9. THE CONTRACTOR SHALL ENSURE THAT ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LOCAL GOVERNMENT ENTITY STANDARD SPECIFICATIONS.
10. NO BITUMINOUS SURFACE COURSE SHALL BE PLACED WHEN THE TEMPERATURE OF THE AIR OR ROAD BED IS 50 DEGREES FAHRENHEIT OR BELOW, DURING RAINY WEATHER, WHEN THE BASE IS WET OR DURING OTHER UNFAVORABLE WEATHER CONDITIONS AS APPROVED BY THE CITY ENGINEER. AIR TEMPERATURE IS TO BE MEASURED IN THE SHADE.
11. SEAL COATS SHALL BE APPLIED ONLY BETWEEN JUNE 01 AND SEPTEMBER 15.

APPLICABLE CODES AS ADOPTED BY THE LOCAL GOVERNEMT ENTITY

IBC (INTERNATION

CIVIL PROJECT NOTES

LINE TYPES

- BOUNDARY LINE
- PROPERTY LINE
- SECTION LINE
- RIGHT OF WAY
- CENTER LINE
- 8 W — PROPOSED WATER MAIN (SIZED AS INDICATED)
- 18 SD — PROPOSED STORM DRAIN (SIZED AS INDICATED)
- 8 SS — PROPOSED SANITARY SEWER (SIZED AS INDICATED)
- 8 IRR — PROPOSED IRRIGATION (SIZED AS INDICATED)
- COMM — PROPOSED COMMUNICATION/TELEPHONE LINE
- PROPOSED GAS LINE
- PROPOSED BURIED ELECTRICAL
- X — X — X — PROPOSED WIRE/BARBED FENCE
- EASEMENT
- OHP — OVERHEAD POWER LINE
- OPEN DITCH, CANAL FLOW LINE
- PROPERTY SET BACKS
- EXISTING RAILROAD TRACKS
- EXISTING EDGE OF PAVEMENT
- Ex W — EXISTING WATER MAIN (SIZED AS INDICATED)
- Ex 18 SD — EXISTING STORM DRAIN (SIZED AS INDICATED)
- Ex 8 SS — EXISTING SANITARY SEWER (SIZED AS INDICATED)
- Ex 8 IRR — EXISTING IRRIGATION (SIZED AS INDICATED)
- X — X — X — EXISTING FENCE CHAIN LINK

NOTE: ALL SYMBOLS, LINETYPES AND/OR ABBREVIATIONS MAY NOT BE SHOWN.

EXISTING SYMBOLS

- SECTION MONUMENT NOT FOUND
- EXISTING TREE/VEGATION
- EXISTING MONUMENT FOUND – NOTED
- EXISTING TRAFFIC SIGNAL BOX
- EXISTING MONUMENT FOUND – NOTED
- EXISTING BOLLARD
- EXISTING POWER POLE
- EXISTING GAS METER
- EXISTING SIGN
- EXISTING TELE J–BOX
- EXISTING STREET LIGHT
- EXISTING ELECTRIC TRANSFORMER
- EXISTING FIRE HYDRANT ASSEMBLY
- EXISTING WATER VALVE
- EXISTING WATER METER
- EXISTING WATER VALVE–BUTTERFLY
- EXISTING MANHOLES BY TYPE
- EXISTING CATCH BASIN
- EXISTING COMBINATION BOX

PROPOSED SYMBOLS

- SECTION MONUMENT FOUND
- SEWER FLOW ARROW
- MONUMENT – NOTED
- SEWER MANHOLE NUMBER
- PROPERTY CORNERS
- SEWER SERVICE LATERAL
- UTILITY POLE
- CATCH BASIN
- SIGN
- COMBINATION BOX
- STREET LIGHT
- STORM DRAIN MANHOLE NUMBER
- FIRE HYDRANT ASSEMBLY
- ROAD DRAINAGE ARROW
- WATER VALVE
- WATER METER
- IRRIGATION SERVICE LATERAL
- WATER VALVE BUTTERFLY
- AIR VAC
- WATER SERVICE LATERAL
- PROPOSED MANHOLE

ABBREVIATIONS

ABUT.	= ABUTMENT	MH	= MANHOLE
AGG.	= AGGREGATE	MIN.	= MINIMUM
APPROX.	= APPROXIMATE	N/NO.	= NORTH
A.S.	= AS SHOWN	NO./#	= NUMBER
AUX.	= AUXILIARY	N.T.S.	= NOT TO SCALE
AVG.	= AVERAGE	O.C.	= ON CENTER
BCR	= BEGIN OF CURB RETURN	O.D.	= OUTER DIAMETER
BOW	= BACK OF WALK	OHP	= OVER HEAD POWER
BRG.	= BEARING	PC	= POINT OF CURVATURE
℄/C.L.	= CONTROL LINE/CENTER LINE	PED	= PEDESTRIAN
CATV	= CABLE TELEVISION	PI/P.I.	= POINT OF INTERSECTION
CI	= CAST IRON	PIP	= PLASTIC IRRIGATION PIPE
CLR.	= CLEAR/CLEARANCE	PL	= PROPERTY LINE
CMP	= CORRUGATED METAL PIPE	POC	= POINT ON CURVE
COL	= COLUMN	PP	= POWER POLE
CONC.	= CONCRETE	PT	= POINT
CONN	= CONNECTION	PT	= POINT OF TANGENCY
CONST.	= CONSTRUCTION	PVC	= POLYVINYL CHLORIDE PLASTIC
CONT.	= CONTINUOUS	PVC	= POINT OF VERTICAL CURVATURE
COR.	= CORNER	PVT	= POINT OF VERTICAL TANGENCY
CP	= CONTROL POINT	PVI	= POINT OF VERTICAL INTERSECTION
C.F.	= CUBIC FEET	PVMNT	= PAVEMENT
DI	= DUCTILE IRON	PVRC	= POINT OF VERTICAL REVERSE CURVE
DIA./Ø	= DIAMETER	R/RAD.	= RADIUS
DIP	= DUCTILE IRON PIPE	R/C	= REBAR AND CAP
DIM.	= DIMENSION	Rd.	= ROAD
DR	= DIMENSION RATIO	RCP	= REINFORCED CONCRETE PIPE
DWG.	= DRAWING	R/W	= RIGHT OF WAY
E	= EAST	REINF.	= REINFORCING
EA	= EACH	REQ'D	= REQUIRED
ECR	= END OF CURB RETURN	RET.	= RETAINING
EG	= EXISTING GRADE	R.P.	= REFERENCE POST
EL./ELEV.	= ELEVATION	RT	= RIGHT
ELEC	= ELECTRIC	S	= SLOPE
EO	= EDGE OF OIL	S/SO.	= SOUTH
EST.	= ESTIMATED	SCH	= SCHEDULE
EXIST	= EXISTING	SD	= STORM DRAIN
F.F.	= FINISHED FLOOR	SDMH	= STORM DRAIN MANHOLE
F.G.	= FINISHED GRADE	SDR	= STANDARD DIMENSION RATIO
FL/FL	= FLOW LINE	SDWLK	= SIDEWALK
FT.	= FEET	SECT./SEC	= SECTION
FLG.	= FLANGE	SHLD	= SHOULDER
GA.	= GAUGE	SHT	= SHEET
G	= GALLON	SPA.	= SPACING/SPACES
GALV.	= GALVANIZED	SQ.	= SQUARE
GMH	= GAS MANHOLE	STA.	= STATION
GV	= GAS VALVE	STD.	= STANDARD
HA	= HECTARE	STD.	= STANDARD DRAWING
HDPE	= HIGH DENSITY POLYETHYLENE	STR.	= STRUCTURE
HGL	= HYDRAULIC GRADE LINE	SS	= SANITARY SEWER
HMA	= HOT MIX ASPHALT	SSMH	= SANITARY SEWER MANHOLE
HORIZ.	= HORIZONTAL	T	= TANGENT DISTANCE
HP	= HIGH PRESSURE/HIGH POINT	T.B.	= THRUST BLOCK
HWY	= HIGHWAY	TBC	= TOP BACK OF CURB
I.D.	= INSIDE DIAMETER	TBW	= TOP BACK OF WALK
INCL.	= INCLUDES	TEL	= TELEPHONE
INT	= INTERSECTION	TEMP	= TEMPORARY
INV	= INVERT	TMH	= TELEPHONE MANHOLE
IRRIG	= IRRIGATION	TOW	= TOP OF WALL
L	= LENGTH	TYP.	= TYPICAL
LIN. FT.	= LINEAR FEET	UG	= UNDERGROUND
LOC	= LIP OF CURB	UTIL.	= UTILITY
LOC.	= LOCATION	VC	= VERTICAL CURVE
LP	= LIGHT POLE/LOW POINT	VERT.	= VERTICAL
LT	= LEFT	W	= WEST
M.J.	= MECHANICAL JOINT FITTING	W/	= WITH
MISC.	= MISCELLANEOUS	WC	= WITNESS CORNER
MPa	= MEGAPASCAL	WMH	= WATER MANHOLE
MAX.	= MAXIMUM	WV	= WATER VALVE
MG	= MEGAGRAM	YD^2/YD2	= SQUARE YARD
		YD^3/YD3	= CUBIC YARD
		YD.	= YARD
		YR	= YEAR

NOTE: ALL SYMBOLS, LINETYPES AND/OR ABBREVIATIONS MAY NOT BE SHOWN.

CALL BEFORE YOU DIG. IT'S FREE & IT'S THE LAW (ONLY) 1–800–662–4111 208–2100 (ONLY LANE METRO) 148 EAST 13200 SOUTH DRAPER, UTAH 84020–1917

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Notes & Abreviations.dwg TAB: NT-02 SYMBOLS AND ABBREVIATIONS PLOT DATE AND TIME: 8/6/2024 3:51 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SYMBOLS & ABBREVIATIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: NOTES & ABREVIATIONS.DWG
JOB No: 3891-DRH01-23
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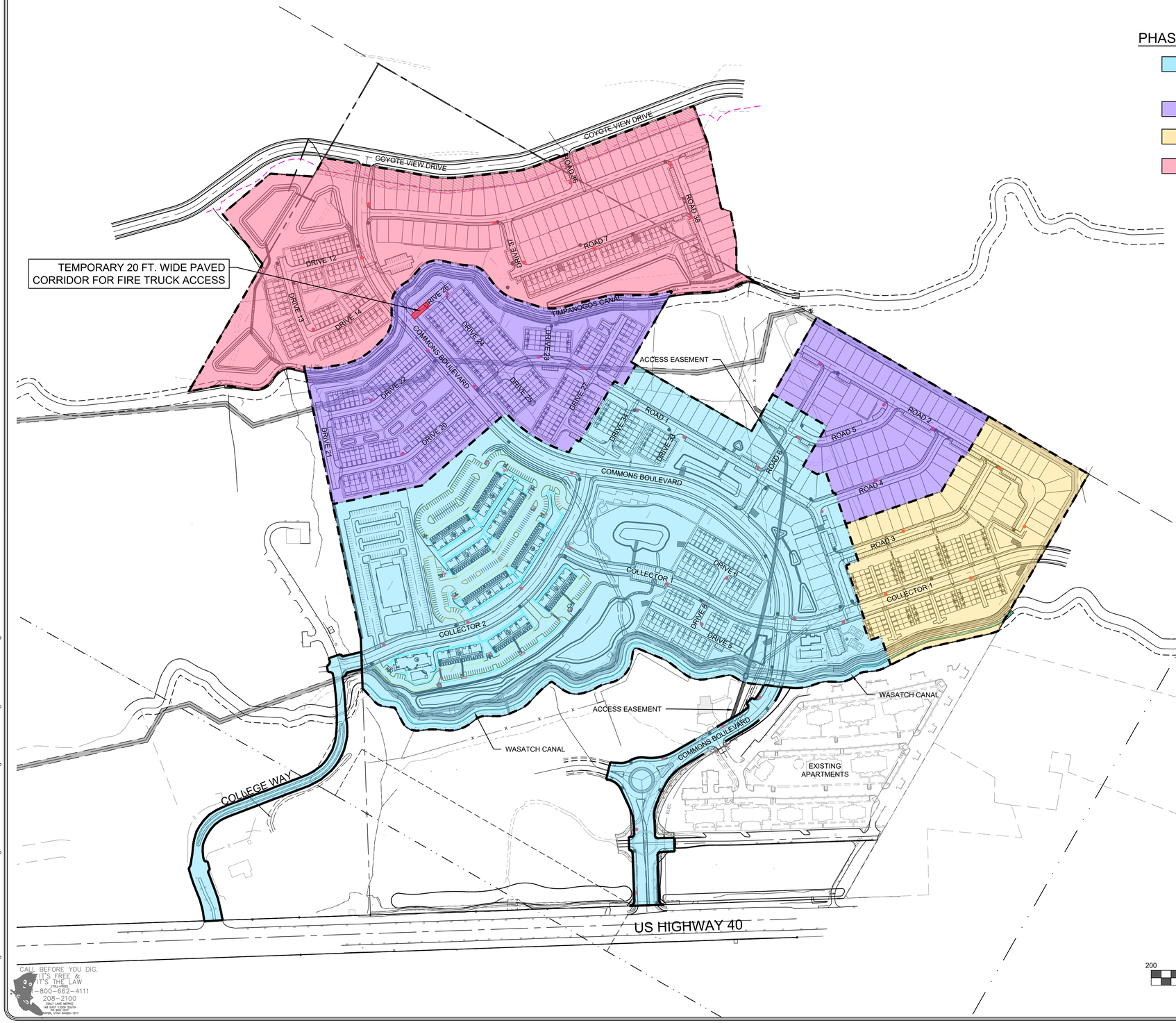
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DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER SATTAR N. TABRIZ 8/6/2024 STATE OF UTAH

SHEET
NT-02


ROADWAY GRADING DAYLIGHT LINE
THE HIGHLAND PROPOSED SLOPE EASEMENT
ROADWAY GRADING DAYLIGHT LINE
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25' OVERFLOW PIPELINE EASEMENT T-OW2
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PHASING LEGEND

- PHASE 1 = 48.71 A.C (ACREAGES OF COMMONS BOULEVARD AND COLLEGE WAY ARE NOT INCLUDED)
- PHASE 2 = 26.78 A.C
- PHASE 3 = 12.07 A.C
- PHASE 4 = 28.70 A.C

TOTAL= 116.26 A.C

- PROPOSED FIRE HYDRANT
- PROPOSED STREET LIGHT

Residential Unit Type	Phase 1 Units	Phase 2 Units	Phase 3 Units	Phase 4 Units	Total Units
Alta Lots	20	29	19	44	112
Cottage Lots	16	30	13	34	93
Stacked Flats	235	0	0	0	235
Tohnhomes - Oliver	26	41	0	22	89
Townhomes - Millbrook	28	55	0	62	145
Townhomes - Dalton	12	67	54	0	133
Phase Total Units	**337**	**222**	**86**	**162**	**807**

Residential Unit Type	ERU RATE	Phase 1 ERUs	Phase 2 ERUs	Phase 3 ERUs	Phase 4 ERUs	Total ERUs
Alta Lots	0.75	15.00	21.75	14.25	33.00	84.00
Cottage Lots	1.00	16.00	30.00	13.00	34.00	93.00
Stacked Flats	VARIES	104.60	0.00	0.00	0.00	104.60
Tohnhomes - Oliver	1.00	26.00	41.00	0.00	22.00	89.00
Townhomes - Millbrook	0.75	21.00	41.25	0.00	46.50	108.75
Townhomes - Dalton	0.75	9.00	50.25	40.50	0.00	99.75
Phase Total Units	1.00	**191.60**	**184.25**	**67.75**	**135.50**	**579.10**

STACKED FLATS SUMMARY			
SQ FT	Units	ERUs Rate	ERUs
<800	108	0.33	35.6
800-1200	105	0.50	52.5
1200-1600	22	0.75	16.5
>1600	0	1.00	0.0
GRAND TOTAL	235	0.445277	104.6

ERU Rates per the NVOZ	
Type/Area (sf)	ERUs
< 500	0.25
500 < 800	0.33
800 < 1,200	0.50
1,200 < 1,600	0.75
Single Family or 1,600 <	1.00

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HIGHLANDS RESIDENTIAL DEVELOPMENT HEBER CITY, UT PHASING PLAN

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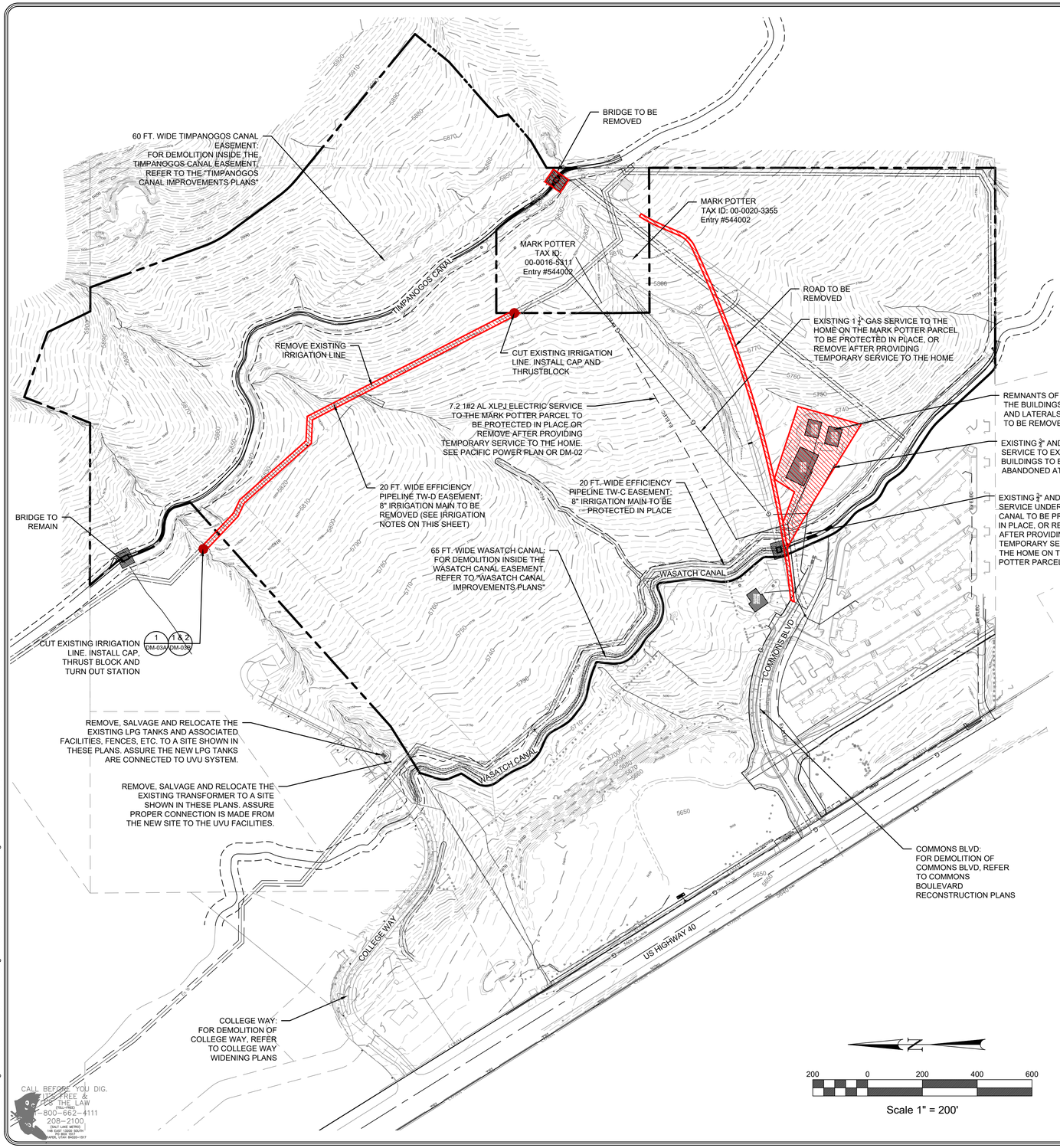
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GENERAL NOTES:

1. CONTRACTOR WILL INVESTIGATE EXISTING RECORDS, VISIT THE PROJECT SITE AND BECOME FAMILIAR WITH THE LOCATION AND CONDITION OF ALL EXISTING UTILITIES PROPOSED FOR ABANDONMENT / REMOVAL.
2. CONTRACTOR WILL PROTECT IN PLACE ALL EXISTING UTILITIES AND GROUND FEATURES INTENDED TO REMAIN IN USE. ALL DAMAGED UTILITIES AND IMPROVEMENTS DUE TO CONTRACTOR'S OPERATION WILL BE REPAIRED BY CONTRACTOR AT NO COST TO THE OWNER.
3. ALL UTILITY ABANDONMENT PROPOSED IN THIS PLAN SET, WILL BE DONE AFTER SECURING SERVICES TO THE BUILDINGS AND EXHIBITS PROVIDED BY THE UTILITY PROPOSED FOR ABANDONMENT.
4. CONTRACTOR WILL POTHOLE AND USE APPROPRIATE NON-DESTRUCTIVE METHODS TO LOCATE THE EXISTING UTILITIES PROPOSED FOR ABANDONMENT. ANY DAMAGE TO OTHER UTILITIES DURING ABANDONMENT OPERATION WILL BE REPAIRED BY CONTRACTOR AT NO COST TO THE OWNER. THE CONTRACTOR WILL PROVIDE HELP WITH LOCATING ALL EXISTING UNDERGROUND UTILITIES PRIOR TO THEIR ABANDONMENT, ACCORDING TO THE POLICIES AND REQUIREMENTS OF THE RESPECTIVE UTILITY AGENCIES AND COMPANIES.
5. THE CONTRACTOR IS RESPONSIBLE TO DISPOSE OF ALL REMOVED MATERIAL DURING ABANDONMENT OF UTILITIES TO A FACILITY LICENSED FOR DISPOSAL OF SUCH MATERIAL.
6. THE CONTRACTOR WILL PLACE COMPACTED IMPORTED GRANULAR FILL IN THE CONSTRUCTION AND EXCAVATION HOLES DUE TO THE REMOVAL OF THE EXISTING UNDERGROUND IMPROVEMENTS.
7. THE CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS TO THE MARK POTTER PARCEL DURING CONSTRUCTION ACTIVITIES.
8. ALL ONSITE IMPERVIOUS SURFACES (CONCRETE, ASPHALT, CURBS) ARE TO BE REMOVED AND DISPOSED OF AT A LICENSED FACILITY.
9. THE CONCRETE FLATWORK PROPOSED FOR REMOVAL IS TO BE REMOVED TO THE NEAREST CONSTRUCTION JOINT WHEN APPLICABLE.
10. THE CONTRACTOR IS RESPONSIBLE TO HAUL AWAY ALL DEMOLISHED AND REMOVED MATERIAL DESCRIBED IN THIS PLAN SET TO A FACILITY LICENSED FOR THE DISPOSAL OF SUCH MATERIAL.
11. THE CONTRACTOR WILL NOTIFY DOMINION ENERGY AND ROCKY MOUNTAIN POWER FOR ALL WORK AROUND GAS AND POWER UTILITIES.
12. THE EXISTING UTILITIES SHOWN ARE FROM RECORD DRAWINGS. THE ENGINEERS MAKE NO GUARANTEE AS TO THE ACCURACY OF THE ACTUAL LOCATIONS IN THE FIELD.
13. ALL ABANDONED PIPES BENEATH ROADWAYS AND PAVED SURFACES ARE TO BE FILLED WITH FLOWABLE FILL.

STORM DRAIN:

1. THE CONTRACTOR IS TO INSTALL GRAVEL BAG INLET PROTECTION ON ALL INLETS AND MANHOLES TO EXISTING STORM DRAIN SYSTEM TO PROTECT SOLIDS FROM ENTERING THE STORM DRAIN SYSTEM. CONTRACTOR SHALL LEAVE STORM DRAIN LINE OPERATIONAL UNTIL THE NEW LINE HAS BEEN INSTALLED AND TESTED.
2. ANY ABANDONED IN PLACE STORM DRAIN PIPES OR STRUCTURES TO BE FILLED WITH FLOWABLE FILL BY THE CONTRACTOR.

CULINARY WATER:

5. THE EXISTING WATER LINE SERVING MARK POTTER PARCEL WILL REMAIN IN SERVICE DURING CONSTRUCTION OPERATIONS AND WILL BE ABANDONED IN PLACE ONCE BUILDINGS AND FIXTURES ASSOCIATED WITH THIS LINE ARE ALL CONNECTED TO THE NEW WATER SYSTEM.
6. DISCONNECT BOTH ENDS OF THE ABANDONED WATER LINE FROM MAIN AND THE EXISTING BUILDING AND/OR FIXTURE, FILL WITH FLOWABLE FILL, INSTALL PLUGS ON ALL PIPE ENDS AND BACKFILL THE EXCAVATION HOLES WITH COMPACTED GRANULAR FILL PER THESE PLANS AND SPECIFICATIONS.
7. ANY EXISTING WATER METER TO REMAIN IN SERVICE UNTIL SUCH TIME THAT ALL AREAS SERVED ARE CONNECTED TO THE NEW WATER SYSTEM INSTALLED PER THESE PLANS AND SPECIFICATIONS. THE WATER METER WILL THEN BE ABANDONED AND REMOVED.
8. ANY WATER FACILITIES REMOVED INCLUDING FIRE HYDRANTS AND VALVES WILL BE CLEANED AND RETURNED TO THE OWNER.

SEWER:

9. ANY EXISTING SEWER MAIN FOUND DURING CONSTRUCTION WILL BE ABANDONED IN PLACE AFTER EXISTING BUILDINGS ASSOCIATED WITH THE MAIN HAVE BEEN DEMOLISHED.
10. ANY LEACHFIELD AND SEPTIC TANK ASSOCIATED WITH EXISTING BUILDINGS WILL BE REMOVED BY THE CONTRACTOR AND WILL BE DISPOSED OF IN A LICENSED LAND FILL WHICH CAN RECIE SUCH MATERIAL.
11. ANY EXISTING SEWER LATERAL TO THE EXISTING BUILDING PLANNED FOR DEMOLISION WILL BE ABANDONED IN PLACE AND FILLED WITH FLOWABLE FILL.
12. CONTRACTOR WILL INSTALL CONCRETE PLUGS AT EACH END OF THE ABANDONED SEWER MAIN AND IN EACH MANHOLE. CONTRACTOR WILL FILL THE ABANDONED IN PLACE SEWER LINE WITH FLOWABLE FILL.
13. CONTRACTOR TO REMOVE AND DISPOSE OF THE RING AND COVER AND AT MINIMUM THE CONE SECTION OF THE SEWER MANHOLE DESIGNATED FOR ABANDONMENT. THE CONTRACTOR WILL BACKFILL THE MANHOLE AND THE EXCAVATION HOLE WITH COMPACTED GRANULAR FILL PER THESE PLANS AND SPECIFICATIONS.

POWER/COMMUNICATION:

14. CONTRACTOR WILL COORDINATE AND NOTIFY LOCAL POWER COMPANY IN WRITING AND IN ADVANCE PRIOR TO ANY WORK ON THE PROJECT.
15. CONTRACTOR WILL ASSURE THE EXISTING POWER TO REMAIN UNINTERRUPTED TO MARK POTTER PARCEL.
16. THE CONTRACTOR IS TO REMOVE THE WIRE AND CAP BOTH ENDS OF THE CONDUIT TO BE ABANDONED IN PLACE AFTER NEW SERVICE IS PROVIDED TO THE MARK POTTER PARCEL.
17. REFER TO ELECTRICAL PLANS FOR DETAILED DESIGN OF ELECTRICAL FACILITIES PROPOSED IN THIS PROJECT.

NATURAL GAS NOTES:

18. CONTRACTOR IS TO CONTACT DOMINION ENERGY FOR ANY WORK AT OR NEAR EXISTING NATURAL GAS LINES.
19. THE EXISTING GAS LINE TO MARK POTTER PARCEL TO REMAIN IN SERVICE UNTIL THE SERVICES ASSOCIATED WITH THE GAS LINES ARE COMPLETELY RECONNECTED TO THE NEW GAS SYSTEM.

BUILDING:

20. TOTAL OF 3 REMAINING BUILDINGS AND ALL ASSOCIATED CONCRETE SLABS AND UTILITIES WILL BE REMOVED FROM THE SITE. PER OWNER'S INSTRUCTION, CONTRACTOR MAY STORE ITEMS AND PARTS FROM THE BUILDING AT THE SITE FOR USE BY THE OWNER.
21. THE EXISTING POWER, GAS, WATER AND SEWER TO THE EXISTING BUILDING WILL BE DISCONNECTED IN ACCORDANCE WITH THE OWNING UTILITY COMPANY REQUIREMENTS PRIOR TO ANY DEMOLITION OF THE BUILDING CAN BEGIN.
22. CONTRACTOR WILL SURVEY FOR ANY ASBESTOS CEMENT (AC) MATERIAL. THE AC MATERIAL IF IT EXISTS WILL BE REMOVED AND DISPOSED OF AT A LICENSED LANDFILL BEFORE ANY DEMOLITION CAN BEGIN.

SITE:

23. ALL FENCES AND ACCESS GATES IN THE PROPERTY WILL REMOVED BY THE CONTRACTOR AND DISPOSED OF IN AN APPRPRIATE LANDFILL CERTIFIED TO RECEIVE SUCH MATERIAL.
24. AC PAVEMENT AND ALL ASSOCIATED EXISTING ROADWAY IMPROVEMENTS WILL BE REMOVED BY CONTRACTOR AND DISPOSED OF IN AN APPRPRIATE LANDFILL CERTIFIED TO RECEIVE SUCH MATERIAL.
25. THE EXISTING STREET LIGHTS ALONG COLLEGE WAY WILL BE REMOVED BY CONTRACTOR SALVAGING THE STREET POLES FOR REUSE AND DISPOSING OF THE FOUNDATION AT A LAND FILL CERTIFIED TO RECEIVE SUCH MATERIAL.
26. REMOVE, SALVAGE AND RELOCATE THE LPG TANK AND REGULATOR STATION LOCATED APPROXIMATELY AT THE FUTURE INTERSECTION OF ROAD A AND COLLEGE WAY IN ACCORDANCE TO THE PLANS HEREIN. COORDINATE THE REMOVAL OPERATION WITH UVU MANAGEMENT.
27. REMOVE, SALVAGE AND RELOCATE THE POWER TRANSFORMER LOCATED APPROXIMATELY AT THE FUTURE INTERSECTION OF ROAD A AND COLLEGE WAY AS SHOWN IN THESE PLANS. COORDINATE THE REMOVAL OPERATION WITH UVU MANAGEMENT.

IRRIGATION:

28. PROTECT IN PLACE THE 8 INCH IRRIGATION MAIN AND THE ASSOCIATED APPURTENANCES ALONG THE WASATCH CANAL.
29. REMOVE THE EXISTING 8 INCH MAIN FEEDING THE MARK POTTER PARCEL PRIOR TO REMOVAL. THERE NEEDS TO BE A TEMPORARY CONNECTION TO THE MARK POTTER PROPERTY. THE LOCATION AND TYPE OF TEMPORARY CONNECTION WILL NEED TO BE COORDINATED WITH CENTRAL UTAH PROJECT OFFICE AND THE OWNER OF THE MARK POTTER PROPERTY. SCHEDULE AND COORDINATE ALL WORK WITH CUWCD PRIOR TO ANY DEMOLITION.

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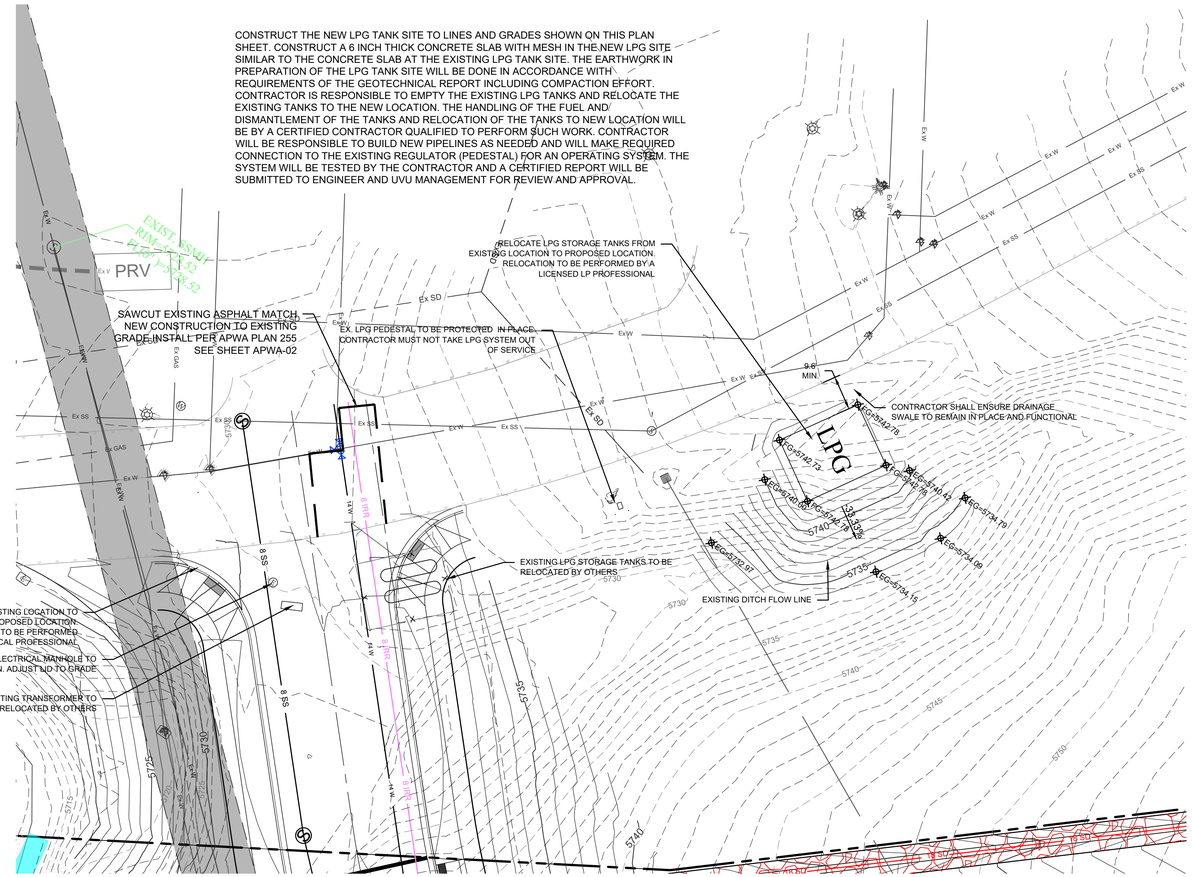
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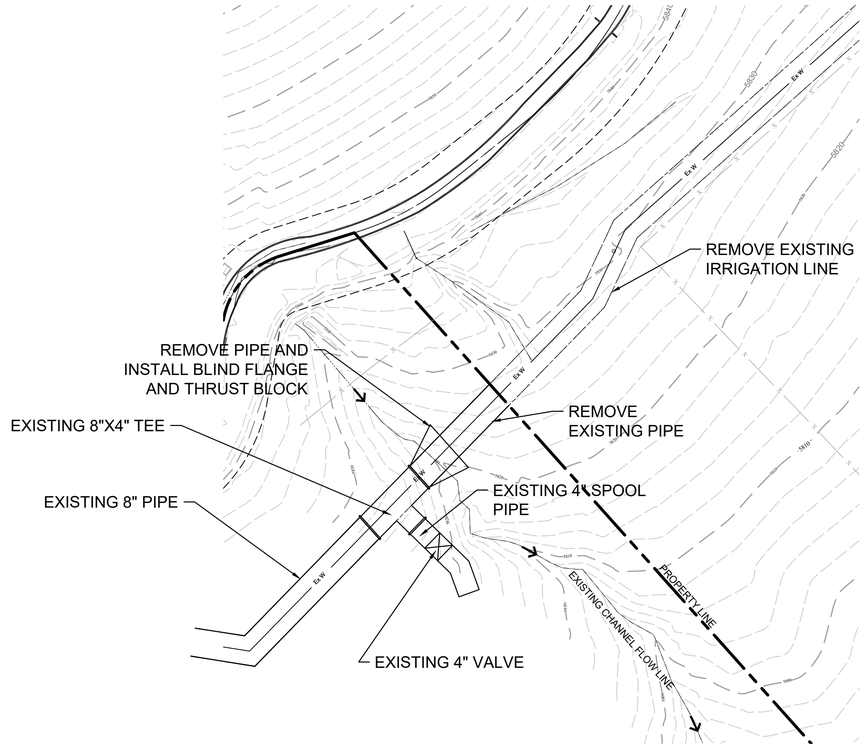
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CONSTRUCT THE NEW LPG TANK SITE TO LINES AND GRADES SHOWN ON THIS PLAN SHEET. CONSTRUCT A 6 INCH THICK CONCRETE SLAB WITH MESH IN THE NEW LPG SITE SIMILAR TO THE CONCRETE SLAB AT THE EXISTING LPG TANK SITE. THE EARTHWORK IN PREPARATION OF THE LPG TANK SITE WILL BE DONE IN ACCORDANCE WITH REQUIREMENTS OF THE GEOTECHNICAL REPORT INCLUDING COMPACTION EFFORT. CONTRACTOR IS RESPONSIBLE TO EMPTY THE EXISTING LPG TANKS AND RELOCATE THE EXISTING TANKS TO THE NEW LOCATION. THE HANDLING OF THE FUEL AND DISMANTLEMENT OF THE TANKS AND RELOCATION OF THE TANKS TO NEW LOCATION WILL BE BY A CERTIFIED CONTRACTOR QUALIFIED TO PERFORM SUCH WORK. CONTRACTOR WILL BE RESPONSIBLE TO BUILD NEW PIPELINES AS NEEDED AND WILL MAKE REQUIRED CONNECTION TO THE EXISTING REGULATOR (PEDESTAL) FOR AN OPERATING SYSTEM. THE SYSTEM WILL BE TESTED BY THE CONTRACTOR AND A CERTIFIED REPORT WILL BE SUBMITTED TO ENGINEER AND UVU MANAGEMENT FOR REVIEW AND APPROVAL.
RELOCATE LPG STORAGE TANKS FROM EXISTING LOCATION TO PROPOSED LOCATION. RELOCATION TO BE PERFORMED BY A LICENSED LP PROFESSIONAL
SAWCUT EXISTING ASPHALT MATCH, NEW CONSTRUCTION TO EXISTING GRADE. INSTALL PER APWA PLAN 255 SEE SHEET APWA-02
EX. LPG PEDESTAL TO BE PROTECTED IN PLACE. CONTRACTOR MUST NOT TAKE LPG SYSTEM OUT OF SERVICE
CONTRACTOR SHALL ENSURE DRAINAGE SWALE TO REMAIN IN PLACE AND FUNCTIONAL
EXISTING LPG STORAGE TANKS TO BE RELOCATED BY OTHERS
EXISTING DITCH FLOW LINE
RELOCATE POWER FROM EXISTING LOCATION TO PROPOSED LOCATION. RELOCATION AND RECONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICAL PROFESSIONAL
EX. ELECTRICAL MANHOLE TO REMAIN. ADJUST LID TO GRADE.
EXISTING TRANSFORMER TO BE RELOCATED BY OTHERS
EXIST. ESMT
RIM=5742
PRV
LPG
9.0' MIN.
Ex W
Ex SS
Ex SD
Ex GAS
Ex OHP
Ex SW
Ex SW
Ex SS
Ex W
8 SS
8 SW
8 SW
8 SW

OPTION A



1 EXISTING TURN OUT STATION (SCHEMATIC REPRESENTATION)
NTS

NOTES:

1. **A REPRESENTATIVE FROM CUWCD SHALL BE PRESENT DURING ANY WORK AT AND AROUND THE IRRIGATION MAIN AND BEFORE THE ABANDONMENT / REMOVAL OF THE IRRIGATION MAIN BEGINS.**
2. **THE FOLLOWING INDIVIDUALS AT CUWCD SHALL BE NOTIFIED:**
   a. **CHRIS YORK: 801-633-5894**
   b. **STEVEN BURDETTE: 801-319-9875**
3. **THE SECTION OF THE IRRIGATION MAIN INSIDE OF HIGHLANDS SHALL BE ISOLATED FROM THE IRRIGATION SOURCE VIA THE NEAREST IN-LINE ISOLATION VALVE ON THE IRRIGATION MAIN. IT IS RECOMMENDED THAT CUWCD WILL LOCATE THE NEAREST ISOLATION NEAR THE NORTH PROPERTY LINE OF HIGHLANDS PROPERTY LINE BEFORE WORK BEGINS.**
4. **CONTRACTOR WILL POTHOLE THE EXISTING TURNOUT STATION AT THE NORTH SIDE OF THE HIGHLANDS / UVU BOUNDARY AS DEPICTED IN THE OPTION A SCHEMATIC. THE CONDITION AND TYPE OF THE MAINLINE TEE AND THE TURNOUT VALVE WILL BE INSPECTED BY CUWCD, DEVELOPER AND THE CONTRACTOR. IT IS CRITICALLY IMPORTANT TO IDENTIFY THE TYPE OF THE EXISTING TEE ON THE MAIN LINE.**
   a. **IF THE EXISTING TEE IS FLANGED OR SIMILAR AND IS IN GOOD CONDITION AS CONFIRMED BY CUWCD , INSTALL A BLIND FLANGE AND THRUST BLOCK AS DEPICTED, COMMENCE WITH THE ABANDONMENT / REMOVAL OF MAIN IRRIGATION LINE.**
   b. **IF THE EXISTING TEE IS AN UNRESTRAINED, PUSH-ON OR SIMILAR, OR NOT IN SATISFACTORY CONDITION, REMOVE THE TEE, VALVE AND TURN-OUT ASSEMBLY AND INSTALL A NEW TURN OUT ASSEMBLY AS SPECIFIED ON SHEET DM-03B, AS OPTION B.**

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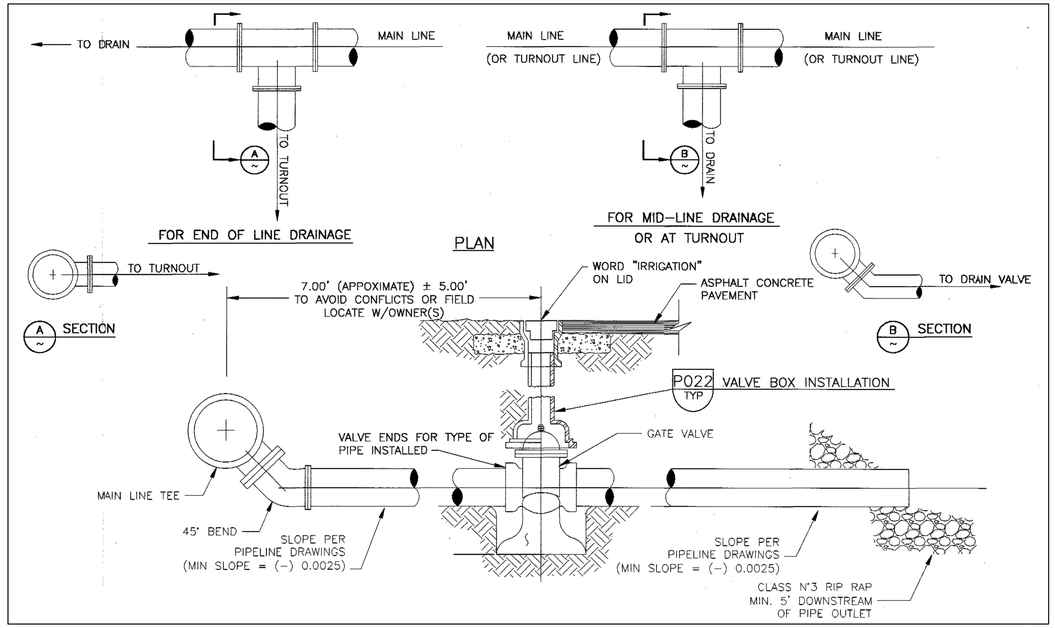
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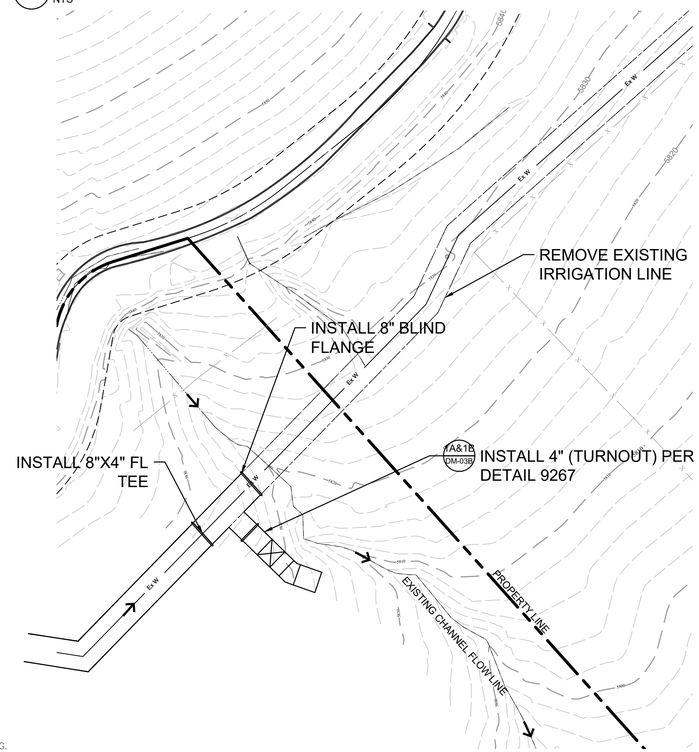
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SATTAR N. TABRIZ
8/6/2024

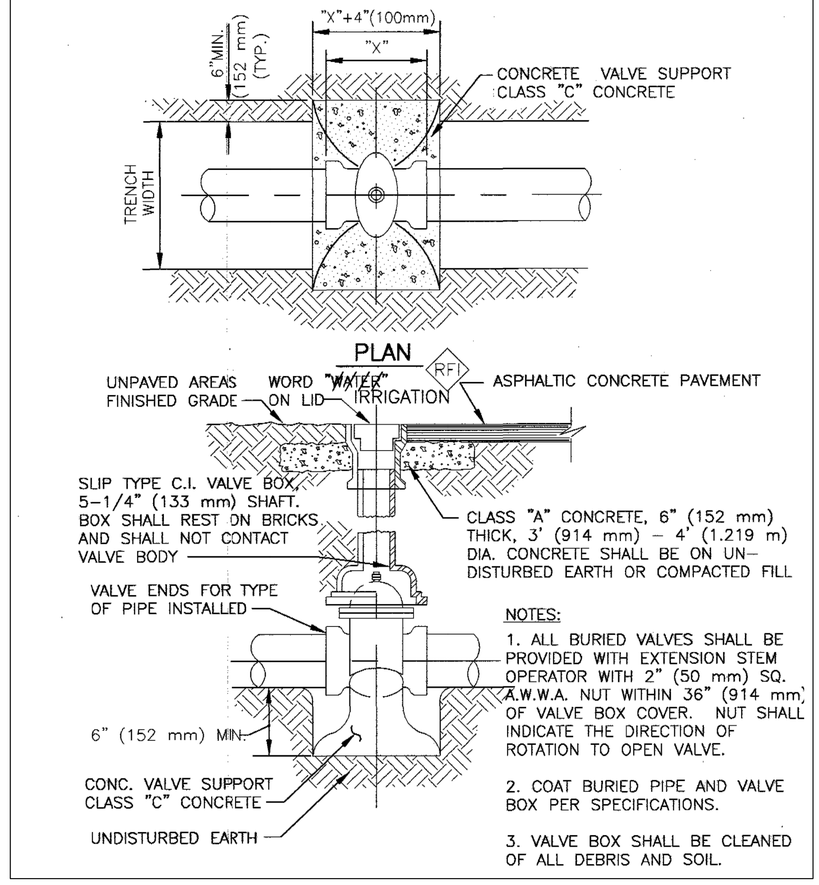
SHEET
DM-03A



1A NEW TURN OUT ASSEMBLY-DETAIL P267 DRAIN TO DAYLIGHT
NTS



2 TURN OUT DETAIL (SCHEMATIC REPRESENTATION)
NTS



NOTES:

1. ALL BURIED VALVES SHALL BE PROVIDED WITH EXTENSION STEM OPERATOR WITH 2" (50 mm) SQ. A.W.W.A. NUT WITHIN 36" (914 mm) OF VALVE BOX COVER. NUT SHALL INDICATE THE DIRECTION OF ROTATION TO OPEN VALVE.
2. COAT BURIED PIPE AND VALVE BOX PER SPECIFICATIONS.
3. VALVE BOX SHALL BE CLEANED OF ALL DEBRIS AND SOIL.

1B VALVE BOX INSTALLATION-DETAIL P022
NTS

NOTES:

1. **PRIOR TO INSTALLING OPTION B, REFER TO THE NOTES ASSOCIATED WITH OPTION A.**

OPTION B

HIGHLANDS RESIDENTIAL DEVELOPMENT
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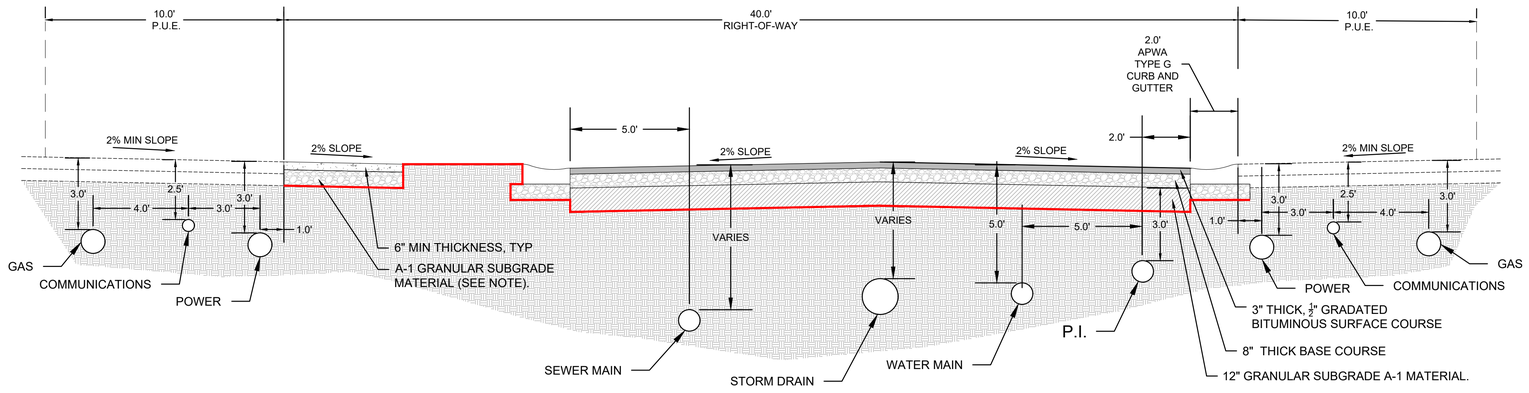
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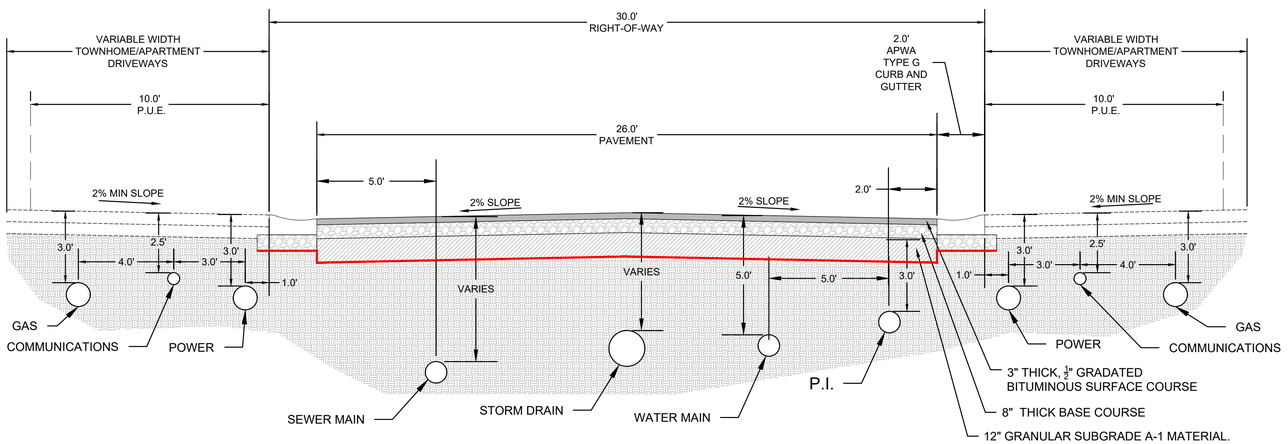
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3A Typical 40' Private Drive Section - W/ Sidewalk
NTS



3B Typical 30' Private Drive Section
NTS

SOIL CLASSIFICATION MATRIX FOR SUBGRADE

SOIL CLASSIFICATIONS	REQUIREMENT
A-1	The subgrade shall be scarified to a depth of 12" and the loosened material shall be moistened and compacted to the equivalent of 95% of maximum dry density as measured by AASHTO T-180.
A-2, A-3, A-4 or A-5	The subgrade shall be over-excavated a minimum of 12" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.
A-6 or A-7	The subgrade shall be over-excavated a minimum of 18" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.

GENERAL NOTES:
1. GEOTECHNICAL STUDY BY APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS INC (AGEC) JANUARY 15, 2007.
2. PARKING ALLOWED ON ONE SIDE OF THE STREET PENDING APPROVAL OF THE FIRE MARSHAL
3. UTILITIES SHOWN PER THE RECOMMENDATIONS FROM THE HEBER CITY STANDARD DRAWINGS. ALL UTILITIES SHOWN ARE NOT NOT REQUIRED IN ALL ROADS.
4. THIS PLAN IS FOR THE PURPOSE OF MASS GRADING. FINAL DECISION ON THE ROAD CROSS SECTIONS WILL BE MADE AFTER THE MASS GRADING IS COMPLETE. THIS DETERMINATION WILL BE MADE IN CONJUNCTION WITH THE CITY, THE GEOTECHNICAL ENGINEER, AND THE DEVELOPER/CONTRACTOR PRIOR TO FINAL CONSTRUCTION.
5. SUBGRADE SHALL BE A-1 GRANULAR MATERIAL PER HEBER CITY SPECIFICATIONS, SECTION 02225 (SEE TABLE ABOVE).
6. THE ACTUAL LOCATION OF DRY UTILITIES WILL BE DETERMINED BY THE UTILITY AGENCIES.
7. TYPICAL SHOWN ARE FOR REFERENCE DURING MASS GRADING OPERATION. THE ROAD SECTION IS NOT TO BE CONSTRUCTION AS PART OF MASS GRADING.

CALL BEFORE YOU DIG.
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IT'S THE LAW
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TYPICAL ROADWAY SECTIONS

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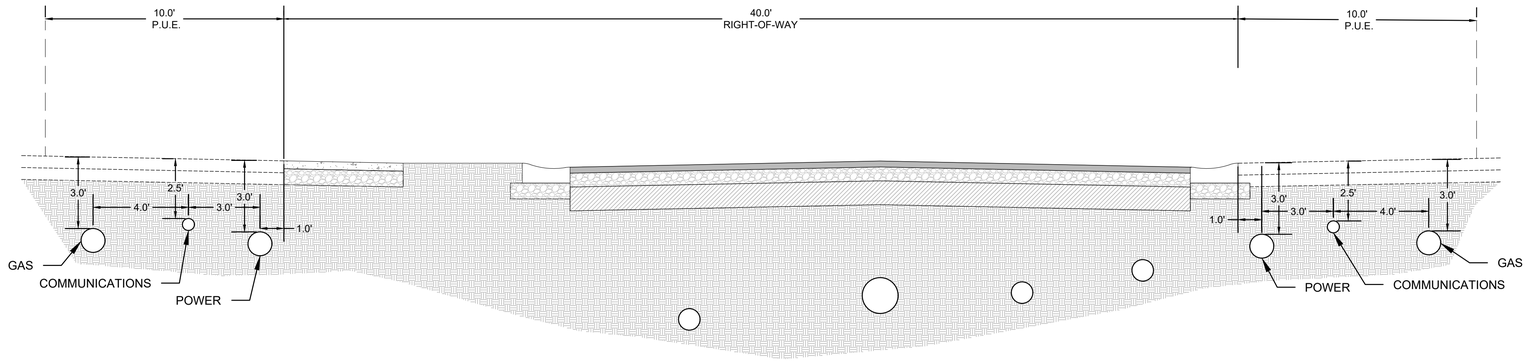
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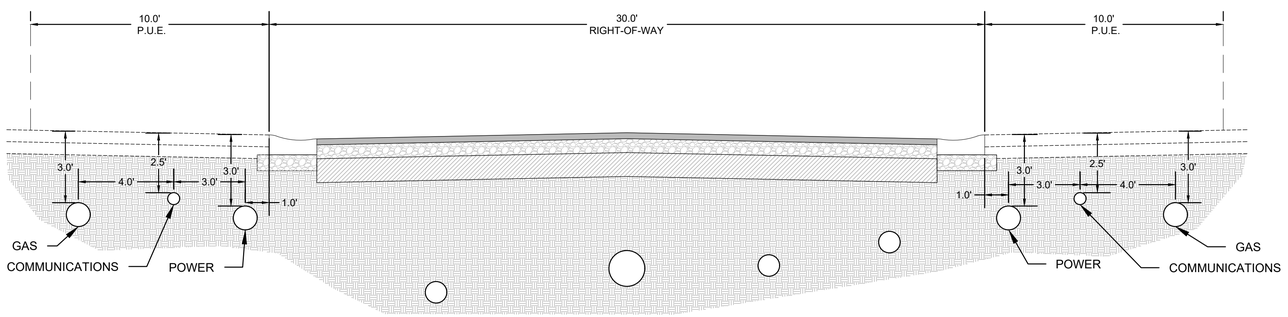
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3A Typical 40' Private Drive Section - W/ Sidewalk - Dry Utilities
NTS



3B Typical 30' Private Drive Section - Dry Utilities
NTS

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5. SUBGRADE SHALL BE A-1 GRANULAR MATERIAL PER HEBER CITY SPECIFICATIONS, SECTION 02225 (SEE TABLE ABOVE).
6. THE ACTUAL LOCATION OF DRY UTILITIES WILL BE DETERMINED BY THE UTILITY AGENCIES.

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PO BOX 5678
MIDVALE, UTAH 84020-1507

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Typical Sections.dwg TAB: TS-01 Dry Utilities PLOT DATE AND TIME: 8/6/2024 3:53 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TYPICAL ROADWAY SECTIONS - DRY UTILITIES

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

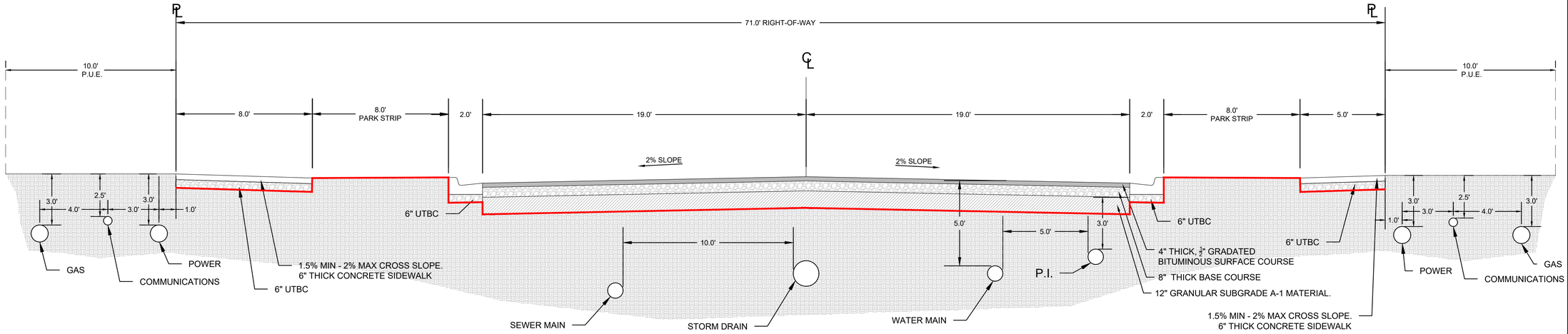
CLIENT: D.R.HORTON
DWG: TYPICAL SECTIONS.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 IN X 34 IN. USE DIMENSIONS AND NOTES TAKE PRECEDENCE

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DATE: 07/29/2024

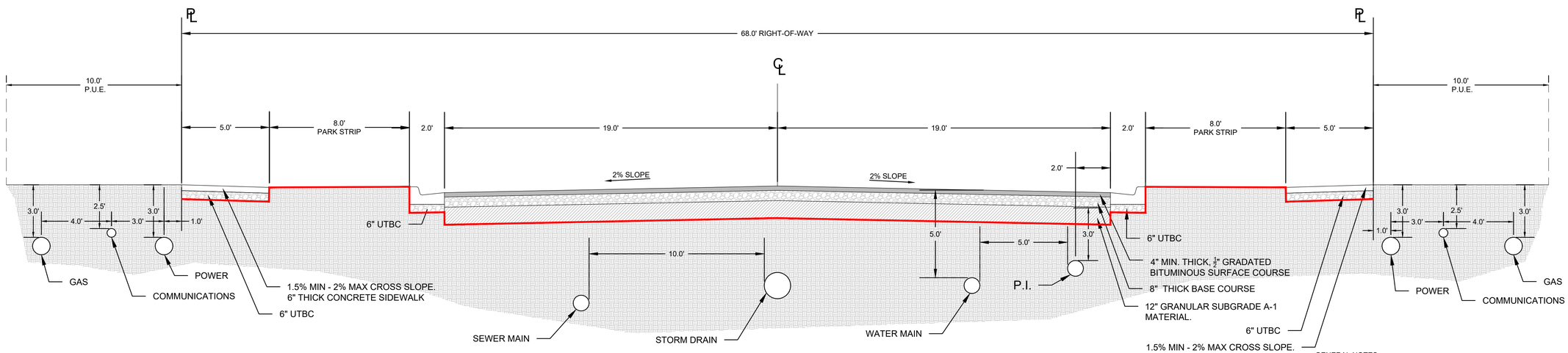
REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
ALI J.
SATTARI
No. 7804
TABRIZ
STATE OF UTAH
8/6/2024

SHEET
TS-01A



1 Typical 71' Minor Collector Road Section
NTS



2 Typical 68' Minor Collector Road Section
NTS

SOIL CLASSIFICATION MATRIX FOR SUBGRADE

SOIL CLASSIFICATIONS	REQUIREMENT
A-1	The subgrade shall be scarified to a depth of 12" and the loosened material shall be moistened and compacted to the equivalent of 95% of maximum dry density as measured by AASHTO T-180.
A-2, A-3, A-4 or A-5	The subgrade shall be over-excavated a minimum of 12" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.
A-6 or A-7	The subgrade shall be over-excavated a minimum of 18" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.

GENERAL NOTES:
1. GEOTECHNICAL STUDY BY APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS INC (AGEC) JANUARY 15, 2007.
2. PARKING ALLOWED ON ONE SIDE OF THE STREET PENDING APPROVAL OF THE FIRE MARSHAL
3. UTILITIES SHOWN PER THE RECOMMENDATIONS FROM THE HEBER CITY STANDARD DRAWINGS. ALL UTILITIES SHOWN ARE NOT NOT REQUIRED IN ALL ROADS.
4. THIS PLAN IS FOR THE PURPOSE OF MASS GRADING. FINAL DECISION ON THE ROAD CROSS SECTIONS WILL BE MADE AFTER THE MASS GRADING IS COMPLETE. THIS DETERMINATION WILL BE MADE IN CONJUNCTION WITH THE CITY, THE GEOTECHNICAL ENGINEER, AND THE DEVELOPER/CONTRACTOR PRIOR TO FINAL CONSTRUCTION.
5. SUBGRADE SHALL BE A-1 GRANULAR MATERIAL PER HEBER CITY SPECIFICATIONS, SECTION 02225 (SEE TABLE ON THE LEFT).
6. THE ACTUAL LOCATION OF DRY UTILITIES WILL BE DETERMINED BY THE UTILITY AGENCIES.
7. TYPICAL SHOWN ARE FOR REFERENCE DURING MASS GRADING OPERATION. THE ROAD SECTION IS NOT TO BE CONSTRUCTION AS PART OF MASS GRADING.

CALL BEFORE YOU DIG.
IT'S FREE & IT'S THE LAW
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1–800–662–4111
208–2100
UTAH LAW REQUIRES 48 HOURS NOTICE BEFORE YOU EXCAVATE
PO BOX 1910
ORANGE, CA 92856–1917

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TYPICAL ROADWAY SECTIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: TYPICAL SECTIONS.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 in x 34in. USE DIMENSIONS AND NOTES TAKE PRECEDENCE

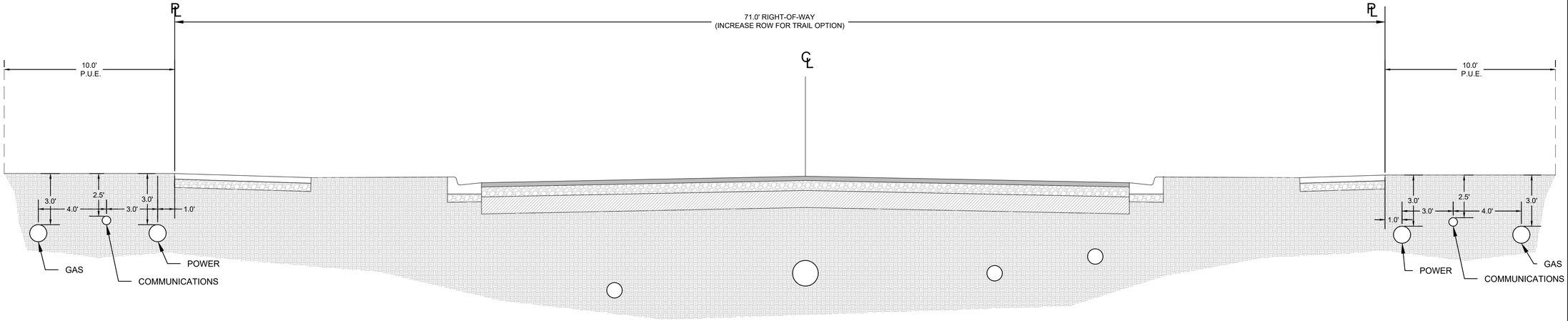
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

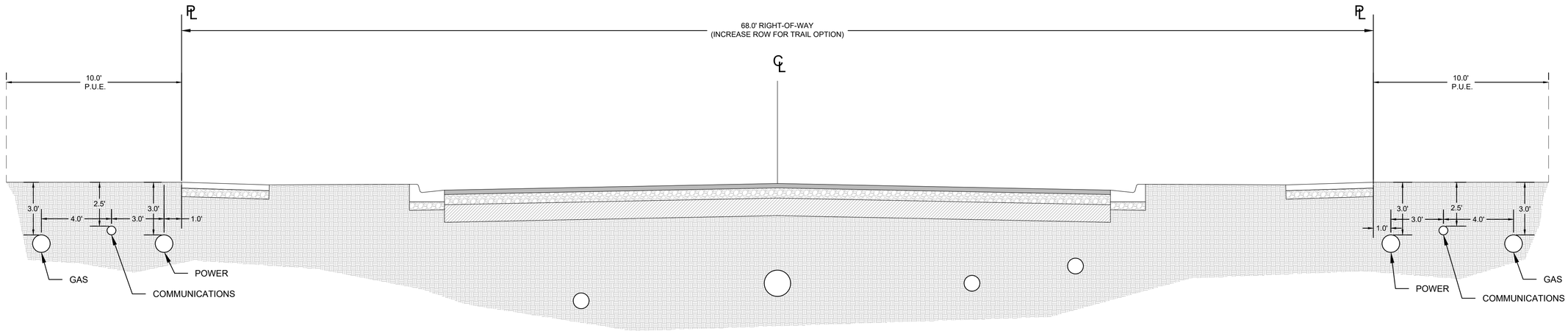
PROFESSIONAL ENGINEER
STATE OF UTAH
ARSHIA SATTAR N. TABRIZ
8/6/2024

SHEET
TS-02

PLOT DATE AND TIME: 8/6/2024 3:53 PM
TAB: TS-02
FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Typical Sections.dwg



1 Typical 71' Minor Collector Road Section - Dry Utilities
NTS



2 Typical 68' Minor Collector Road Section - Dry Utilities
NTS

GENERAL NOTES:
1. GEOTECHNICAL STUDY BY APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS INC (AGEC) JANUARY 15, 2007.
2. PARKING ALLOWED ON ONE SIDE OF THE STREET PENDING APPROVAL OF THE FIRE MARSHAL
3. UTILITIES SHOWN PER THE RECOMMENDATIONS FROM THE HEBER CITY STANDARD DRAWINGS. ALL UTILITIES SHOWN ARE NOT NOT REQUIRED IN ALL ROADS.
4. THIS PLAN IS FOR THE PURPOSE OF MASS GRADING. FINAL DECISION ON THE ROAD CROSS SECTIONS WILL BE MADE AFTER THE MASS GRADING IS COMPLETE. THIS DETERMINATION WILL BE MADE IN CONJUNCTION WITH THE CITY, THE GEOTECHNICAL ENGINEER, AND THE DEVELOPER/CONTRACTOR PRIOR TO FINAL CONSTRUCTION.
5. SUBGRADE SHALL BE A-1 GRANULAR MATERIAL PER HEBER CITY SPECIFICATIONS, SECTION 02225 (SEE TABLE ON THE LEFT).
6. THE ACTUAL LOCATION OF DRY UTILITIES WILL BE DETERMINED BY THE UTILITY AGENCIES.

CALL BEFORE YOU DIG.
IT'S FREE &
IT'S THE LAW
(TALL-FREE)
1-800-662-4111
208-2100
UTAH LOCATION
811 LOCATION
PO BOX 987
SANDY, UTAH 84091-0987

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Typical Sections.dwg TAB: TS-02 Dry Utilities PLOT DATE AND TIME: 8/6/2024 3:53 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TYPICAL ROADWAY SECTIONS - DRY UTILITIES

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

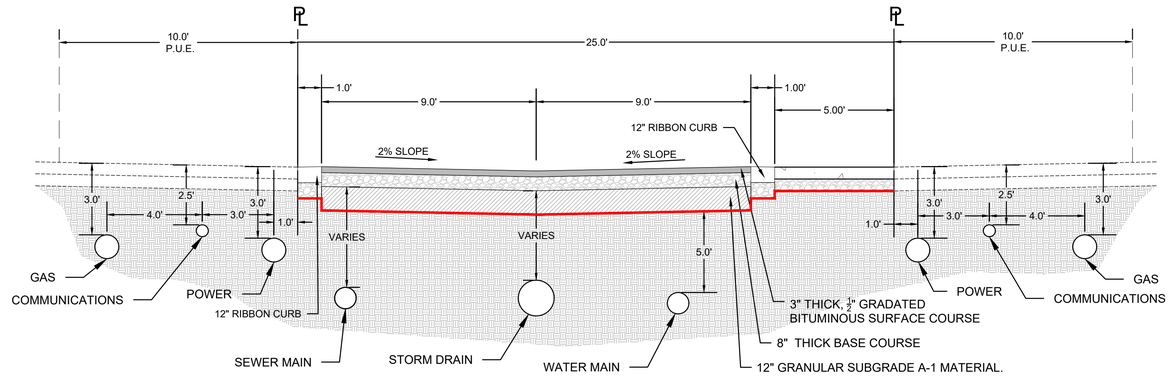
CLIENT: D.R.HORTON
DWG: TYPICAL SECTIONS.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 BY 34 IN. USE DIMENSIONS AND NOTES TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

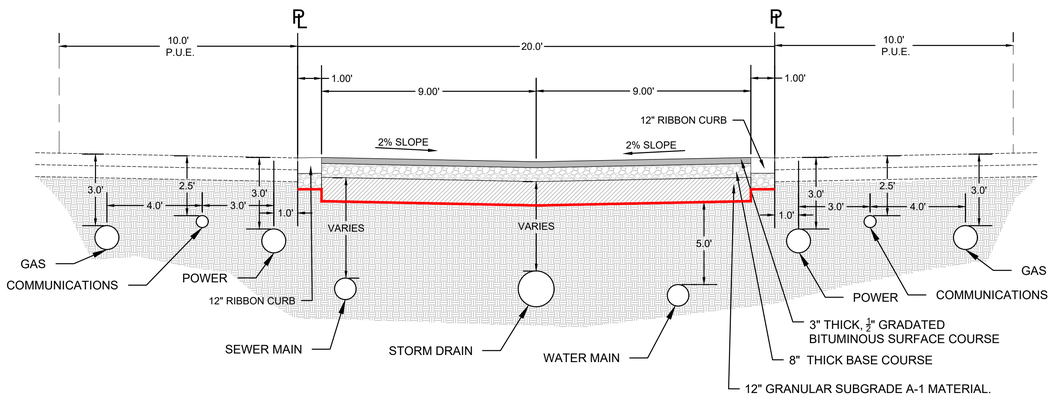
REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
ASSAD N. SATTAR
TABRIZ
STATE OF UTAH
8/6/2024

SHEET
TS-02A



1 Typical 25' Alley Section
NTS



2 Typical 20' Alley Section
NTS

SOIL CLASSIFICATION MATRIX FOR SUBGRADE

SOIL CLASSIFICATIONS	REQUIREMENT
A-1	The subgrade shall be scarified to a depth of 12" and the loosened material shall be moistened and compacted to the equivalent of 95% of maximum dry density as measured by AASHTO T-180.
A-2, A-3, A-4 or A-5	The subgrade shall be over-excavated a minimum of 12" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.
A-6 or A-7	The subgrade shall be over-excavated a minimum of 18" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.

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CALL BEFORE YOU DIG.
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(TOLL-FREE)
1-800-662-4111
208-2100
BLUE STAKES OF UTAH 811
PO BOX 1027
PROVO, UTAH 84603-1027

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TYPICAL ROADWAY SECTIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

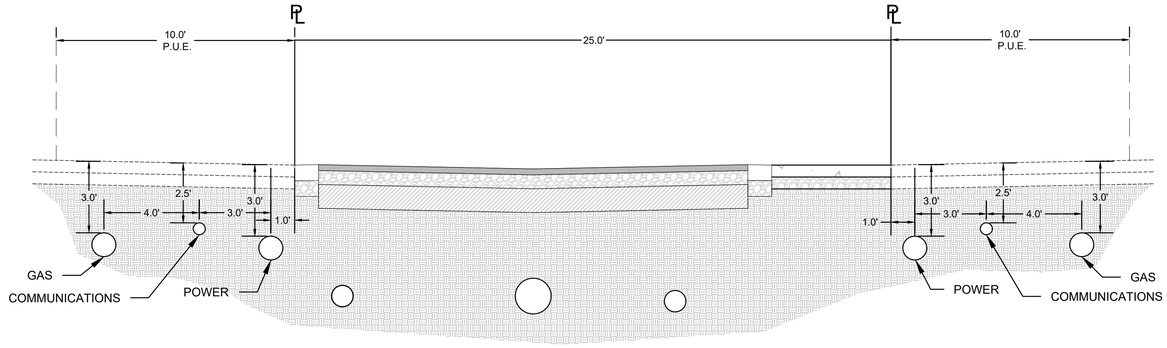
CLIENT: D.R.HORTON
DWG: TYPICAL SECTIONS.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 in x 34in. USE DIMENSIONS AND NOTES. TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

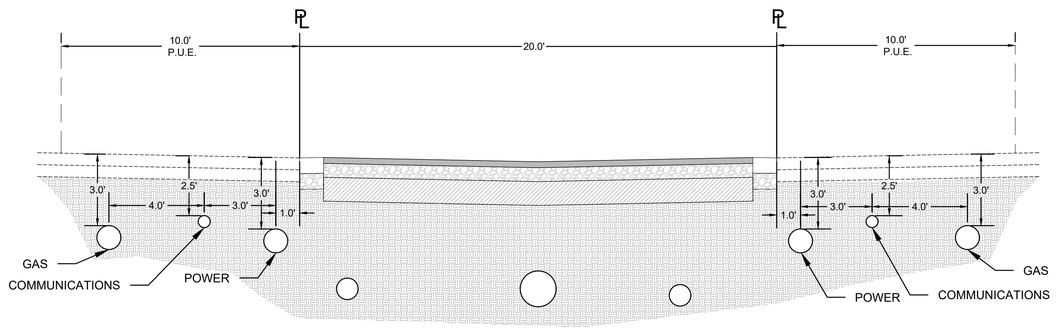
REVISIONS
1 07/30/2024 GRADING REVISION

UTAH LICENSED PROFESSIONAL ENGINEER
ALEXANDER J.
SATTAR No.
TABRIZ
8/6/2024
CERTIFICATE NUMBER

SHEET
TS-03



1 Typical 25' Alley Section - Dry Utilities
NTS



1 Typical 20' Alley Section - Dry Utilities
NTS

GENERAL NOTES:
1. GEOTECHNICAL STUDY BY APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS INC (AGEC) JANUARY 15, 2007.
2. PARKING ALLOWED ON ONE SIDE OF THE STREET PENDING APPROVAL OF THE FIRE MARSHAL.
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CALL BEFORE YOU DIG.
IT'S FREE &
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(TALL-FREE)
1-800-662-4111
208-2100
BLUE STAKES OF UTAH
PO BOX 5678
PROVO, UTAH 84605-1017

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Typical Sections.dwg TAB: TS-03 Dry Utilities PLOT DATE AND TIME: 8/6/2024 3:53 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TYPICAL ROADWAY SECTIONS - DRY UTILITIES

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: TYPICAL SECTIONS.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 BY 34 IN. USE DIMENSIONS AND NOTES TAKE PRECEDENCE

DRAWN BY WARD
DESIGN BY WARD
CHECKED BY AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

SHEET
TS-03A

SLOPE ANALYSIS FOR EXISTING CONDITIONS

	SLOPE
	0.00%-10.00%
	10.00%-33.00%
	33.00%-40.00%
	Over 40.00%

N

150 0 150 300 450

Scale 1" = 150'

CALL BEFORE YOU DIG.
IT'S FREE &
IT'S THE LAW
(TOLL-FREE)
1-800-662-4111
208-2100
BLUE STAKE, INC.(811)
140 EAST 12300, SOUTH
PO BOX 1917
DRAPER, UTAH 84020-1917

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SLOPE ANALYSIS - EXISTING

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: SLOPE ANALYSIS- EXISTING.DWG
JOB No. 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22"X34". PRINT SCALE IS NOT GUARANTEED. SEE DRAWING SCALE(S) AND NOTES THEREIN.

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1	07/30/2024	GRADING REVISION

ALISSA J. SATTAR N. TABRIZ
8/6/2024

SHEET
SA-00

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Slope Analysis- Existing.dwg TAB: SP-00 PLOT DATE AND TIME: 8/6/2024 3:54 PM

SLOPE ANALYSIS FOR PROPOSED DEVELOPED CONDITIONS

	SLOPE*
	0.00%-10.00%
	10.00%-33.00%
	33.00%-40.00%
	Over 40.00%

*SLOPE CRITERIA IS BASED UPON LETTER FROM GEOSTRATA REPORT DATED JUNE 12, 2024.

150 0 150 300 450

Scale 1" = 150'

CALL BEFORE YOU DIG.
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IT'S THE LAW
(TOLL-FREE)
1-800-662-4111
208-2100
BLUE STAKE, INC.(811)
140 EAST 12200 SOUTH
PO BOX 1811
DRAPER, UTAH 84020-1811

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SLOPE ANALYSIS - DEVELOPED

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: SLOPE ANALYSIS- DESIGN.DWG
JOB No. 3891-DRH01-23
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DESIGN BY: WARD
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ABDULSATTAR N. TABRIZ
8/6/2024

SHEET
SA-01

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Slope Analysis- Design.dwg TAB: SP-01 PLOT DATE AND TIME: 8/6/2024 3:54 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT:
SITE PLANS

SITE PLANS	
Sheet Number	Sheet Title
--	Sub-Title Sheet- Site Plans
SP-00	Site Plan
SP-01	Site Plan- Phase 1
SP-02	Site Plan- Phase 1
SP-03	Site Plan- Phase 1
SP-04	Site Plan- Phase 1
SP-05	Site Plan- Phase 1
SP-06	Site Plan- Phase 1
SP-07	Site Plan- Phase 1
SP-08	Site Plan- Phase 1
SP-09	Site Plan- Phase 1
SP-10	Site Plan- Phase 1
SP-11	Site Plan- Phase 2
SP-12	Site Plan - Phase 2
SP-13	Site Plan- Phase 2
SP-14	Site Plan- Phase 2
SP-15	Site Plan- Phase 2
SP-16	Site Plan- Phase 2
SP-17	Site Plan- Phase 3
SP-18	Site Plan- Phase 3
SP-19	Site Plan- Phase 4
SP-20	Site Plan- Phase 4
SP-21	Site Plan- Phase 4
SP-22	Site Plan- Phase 4
SP-23	Site Plan- Phase 4

SUB-TITLE SHEET

CALL BEFORE YOU DIG.
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IT'S THE LAW
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208-2100
(SALT LAKE METRO)
140 East 10200 South
Sandy, Utah 84070-1917

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Cover Sheet.dwg TAB: SITE PLANS.CV PLOT DATE AND TIME: 8/6/2024 4:07 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SUB-TITLE SHEET- SITE PLANS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: COVER SHEET.DWG
JOB No: 3891-DRH01-23
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SATTAR N. TABRIZ
8/6/2024

SHEET

SITE PLANS

NOTES:
1. A NOTICE TO PROCEED MUST BE OBTAINED FROM CITY ENGINEER PRIOR TO DOING ANY WORK ON THE PROJECT.
2. INSTALL REFERENCE PINS IN CURB IDENTIFYING LOCATIONS OF PROPERTY LINES.

LEGEND:

- PROPOSED BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- PROPOSED FIRE HYDRANT
- PROPOSED DUAL WATER MANHOLE
- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT

SHEET SP-19
SHEET SP-20
SHEET SP-21
SHEET SP-23
SHEET SP-22
SHEET SP-14
SHEET SP-15
SHEET SP-16
SHEET SP-10
SHEET SP-09
SHEET SP-08
SHEET SP-07
SHEET SP-06
SHEET SP-05
SHEET SP-04
SHEET SP-03
SHEET SP-02
SHEET SP-01
SHEET SP-11
SHEET SP-12
SHEET SP-17
SHEET SP-18
SHEET SP-13

COYOTE VIEW DRIVE
IMPANOGOS CANAL
COMMONS BOULEVARD
WASATCH CANAL
ROAD 1
ROAD 2
ROAD 3
ROAD 4
ROAD 5
ROAD 6
COLLECTOR 1
COLLECTOR 2
DRIVE 1
DRIVE 2
DRIVE 3
DRIVE 4
DRIVE 5
DRIVE 6
DRIVE 7
DRIVE 8
DRIVE 9
DRIVE 10
DRIVE 11
DRIVE 12
DRIVE 13
DRIVE 14
DRIVE 15
DRIVE 16
DRIVE 17
DRIVE 18
DRIVE 19
DRIVE 20
DRIVE 21
DRIVE 22
DRIVE 23
DRIVE 24
DRIVE 25
DRIVE 26
DRIVE 27
DRIVE 28

150 0 150 300 450
Scale 1" = 150'

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208-2100
BLUE STAKES OF UTAH
140 EAST 12300 SOUTH
PO BOX 1017
DRAPER, UTAH 84020-1017

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SITE PLAN

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: OVERALL SITE PLAN-V11B-3.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 24"x36". USE DIMENSIONS AND NOTES ONLY. DRAWING MAY NOT BE USED FOR CONSTRUCTION.

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DESIGN BY: WARD
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DATE: 07/29/2024

REVISIONS

1	07/30/2024	GRADING REVISION

PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
07/29/2024

SHEET
SP-00

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Site Plans\Overall Site Plan-V11B-3.dwg TAB: SP-00 PLOT DATE AND TIME: 8/6/2024 4:08 PM

LEGEND:

- PROPOSED BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
- PROPOSED FIRE HYDRANT
- PROPOSED DUAL WATER MANHOLE
- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
- PROPOSED POND

NOTE:
1) FOR ALL TYPICAL ROADWAY SECTIONS SEE SHEETS TS-01 THROUGH TS-03.

SEE SHEET SP-03
SEE SHEET SP-04
SEE SHEET SP-05
SEE SHEET SP-02
SEE SHEET SP-12
SEE SHEET SP-18

COMMONS BOULEVARD
WASATCH CANAL
OPEN SPACE 1
COLLECTOR 1
ROAD 1
ROAD 6
OPEN SPACE 2
OPEN SPACE 28
OPEN SPACE 30
POND 7
POND 8
POND 9
PICKLEBALL
PICKLEBALL
PICKLEBALL
LOT 1001
LOT 1002
LOT 1003
LOT 1004
LOT 1005
LOT 1006
LOT 1007
LOT 1008
LOT 1009
LOT 1010
LOT 1011
LOT 1012
LOT 1013
LOT 1014
LOT 1015
LOT 1016
LOT 4101
LOT 4110
LOT 4111

1 TS-02
2 TS-02
3A TS-01
3A TS-01

N

30 0 30 60 90
Scale 1" = 30'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SITE PLAN- PHASE 1

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: SITE PLANS - RESIDENTIAL- PHASE 1DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 2 SHT. DIMENSIONS AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SATTAR N. TABRIZ
8/6/2024

SHEET
SP-01

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Site Plans\Site Plans - Residential- Phase 1.dwg TAB: SP-01 PLOT DATE AND TIME: 8/6/2024 4:08 PM

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LEGEND:

- PROPOSED BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
- PROPOSED FIRE HYDRANT
- PROPOSED DUAL WATER MANHOLE
- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
- PROPOSED POND

NOTE:
1) FOR ALL TYPICAL ROADWAY SECTIONS SEE SHEETS TS-01 THROUGH TS-03.



BOUNDARY LINE

SEE SHEET SP-13

SEE SHEET SP-11

SEE SHEET SP-01

SEE SHEET SP-05

ROAD 1

ROAD 1

ROAD 5

ROAD 6

ROAD 6

DRIVE 34

DRIVE 33

COMMONS BOULEVARD

OPEN SPACE 4

OPEN SPACE 5

OPEN SPACE 33

POND 3

POND 4

LOT 1017

LOT 2030

LOT 1018

LOT 2031

LOT 1019

LOT 1020

LOT 1031

LOT 1030

LOT 1029

LOT 1028

LOT 1027

LOT 1026

LOT 1025

LOT 1024

LOT 1023

LOT 1022

LOT 1021

LOT 1032

LOT 1033

LOT 1034

LOT 1035

LOT 1036

LOT 1037

LOT 1038

LOT 1039

LOT 1040

LOT 1041

LOT 1042

LOT 1043

LOT 1049

LOT 1048

LOT 1047

LOT 1046

LOT 1045

LOT 1044

3A TS-01

1 TS-03

2 TS-03

7.85

7.85

30 0 30 60 90

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CLIENT: D.R.HORTON
DWG: SITE PLANS - RESIDENTIAL- PHASE 1
JOB No: 389-I-DRH01-23

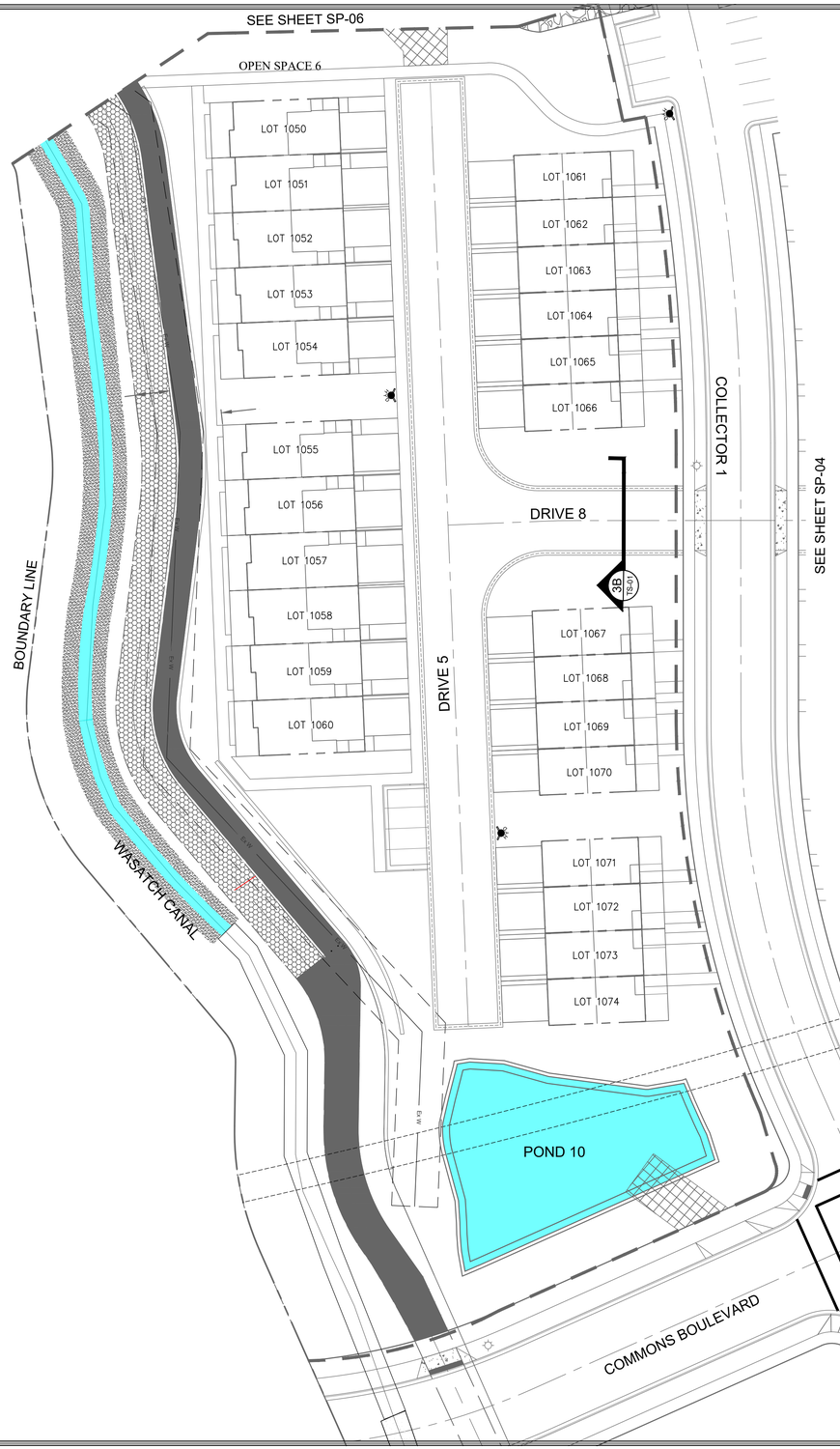
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8/6/2024

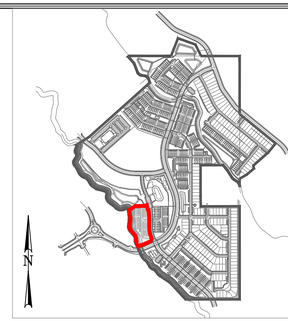
SHEET
SP-02

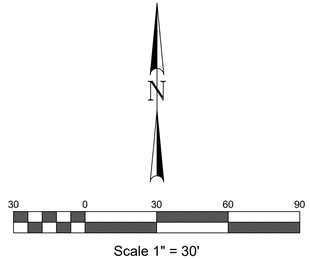


LEGEND:

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- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
- PROPOSED FIRE HYDRANT
- PROPOSED DUAL WATER MANHOLE
- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
- PROPOSED POND

NOTE:
1) FOR ALL TYPICAL ROADWAY SECTIONS SEE SHEETS TS-01 THROUGH TS-03.





Scale 1" = 30'

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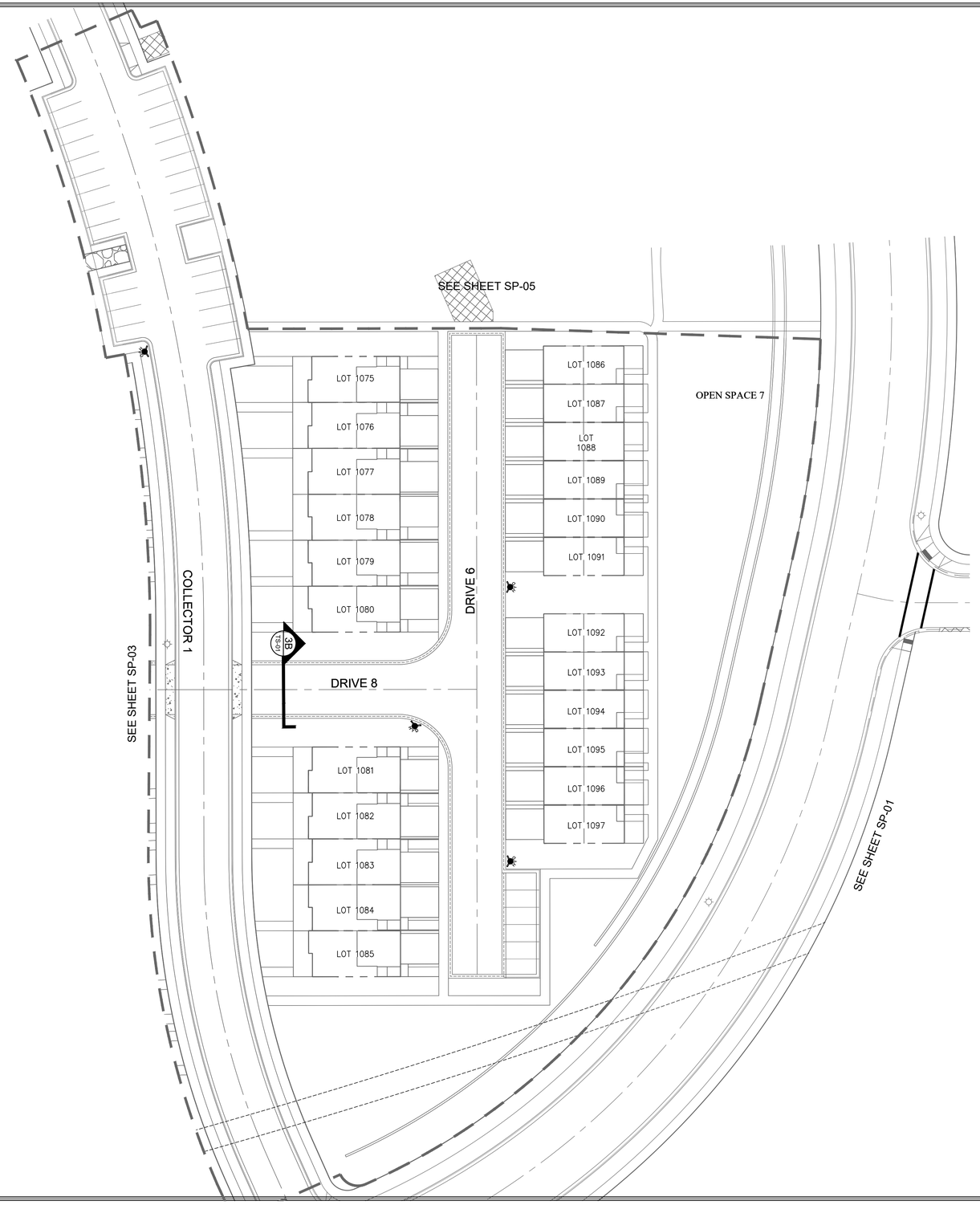
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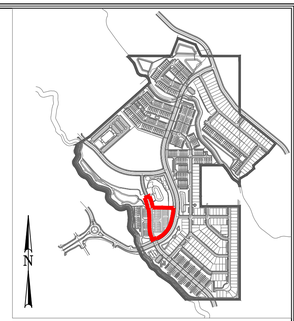
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SHEET
SP-03

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- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
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- PROPOSED STREET LIGHT
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NOTE:
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N

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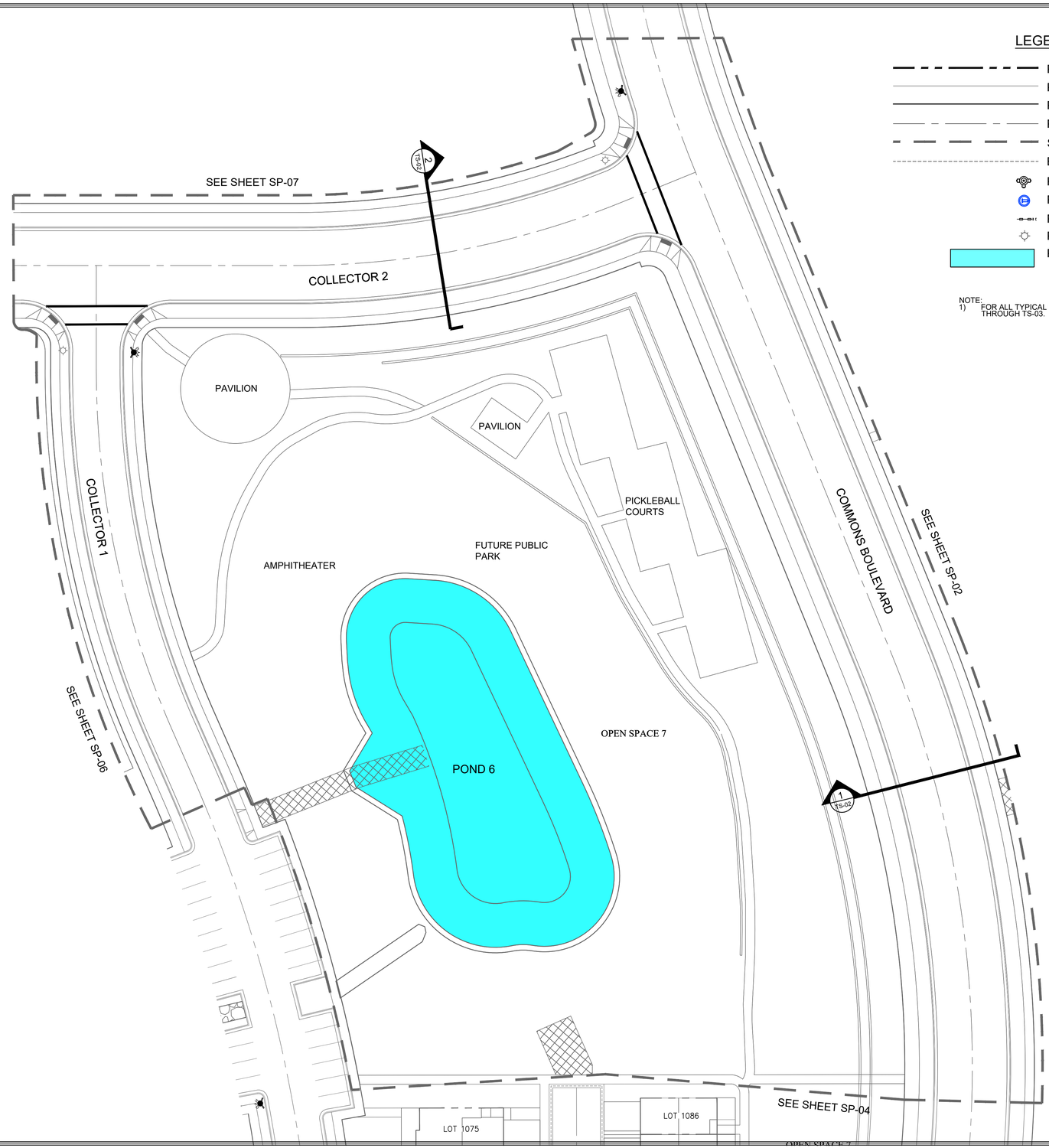
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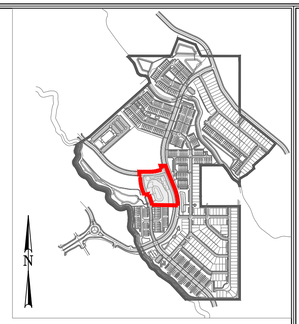
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- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
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- PROPOSED DUAL WATER MANHOLE
- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
- PROPOSED POND

NOTE:
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SHEET
SP-05

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SEE SHEET SP-07

COLLECTOR 2

SEE SHEET SP-09

SOUTH STACKED FLAT PARCEL

FUTURE STACKED FLAT DEVELOPMENT DESIGN BY OTHERS

COLLECTOR 1

SEE SHEET SP-05

Ex W

OPEN SPACE 6

POND 12

BOUNDARY LINE

WASATCH CANAL

SEE SHEET SP-03
OPEN SPACE 6

LOT 1050

LOT 1051

LOT 1052

LOT 1061

LOT 1062

LEGEND:

- PROPOSED BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
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NOTE:
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N

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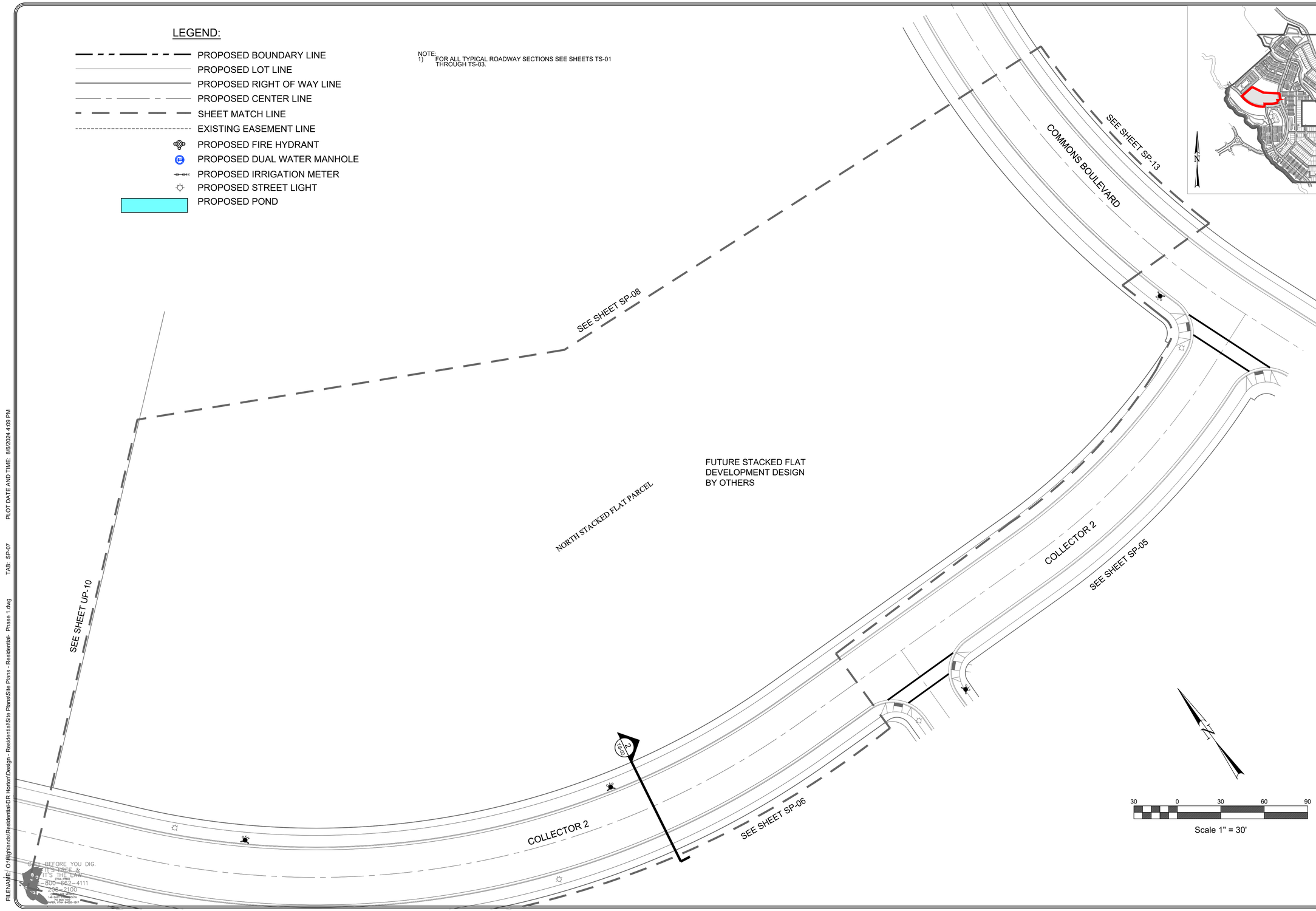
PROFESSIONAL ENGINEER
ANTHONY J. SATTARIANO
SATTARI N.
8/6/2024
STATE OF UTAH

SHEET
SP-06

LEGEND:

- PROPOSED BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
- PROPOSED FIRE HYDRANT
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- PROPOSED POND

NOTE:
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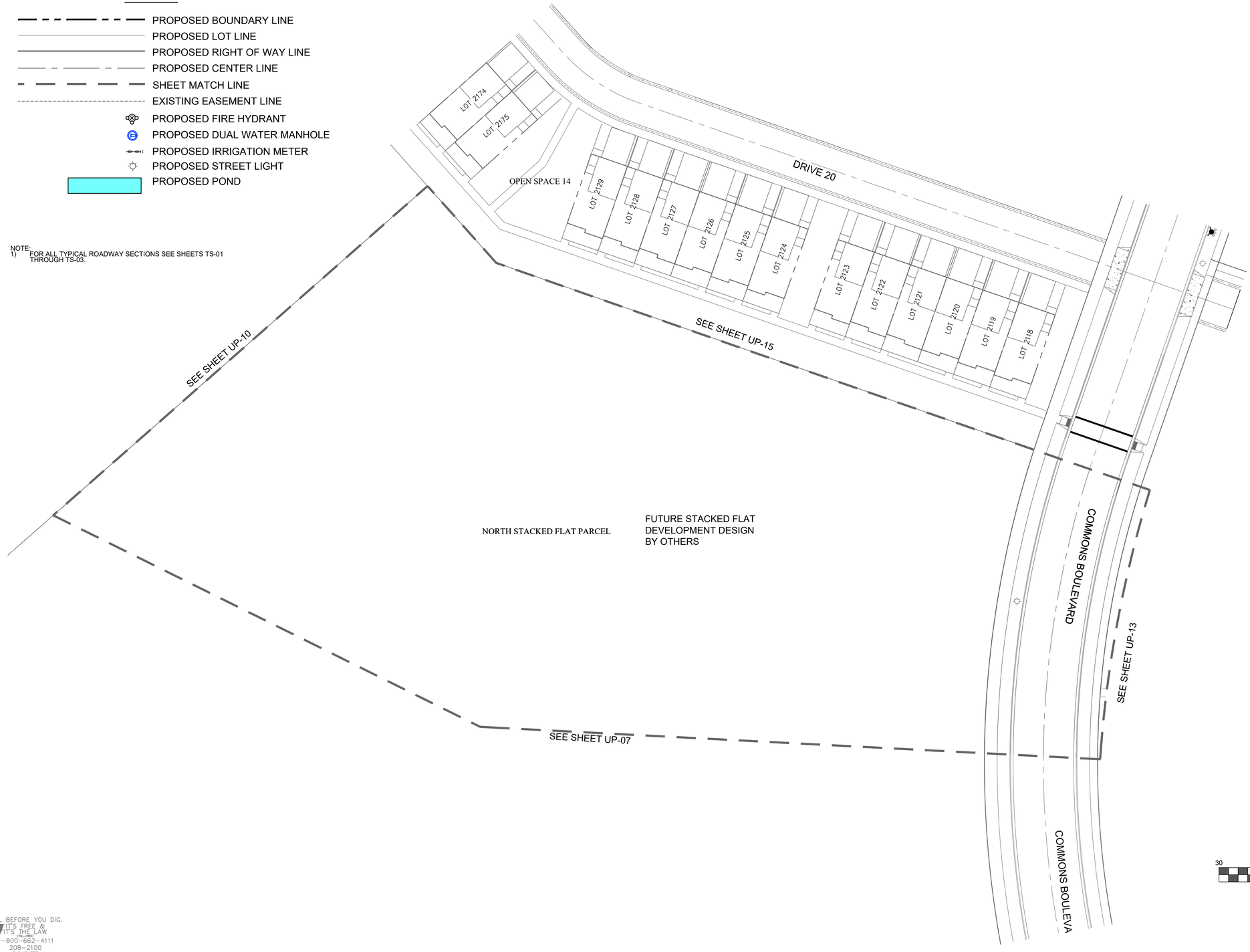
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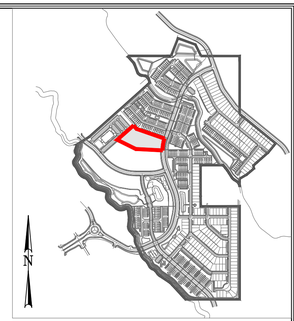
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- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
- PROPOSED POND

NOTE:
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N

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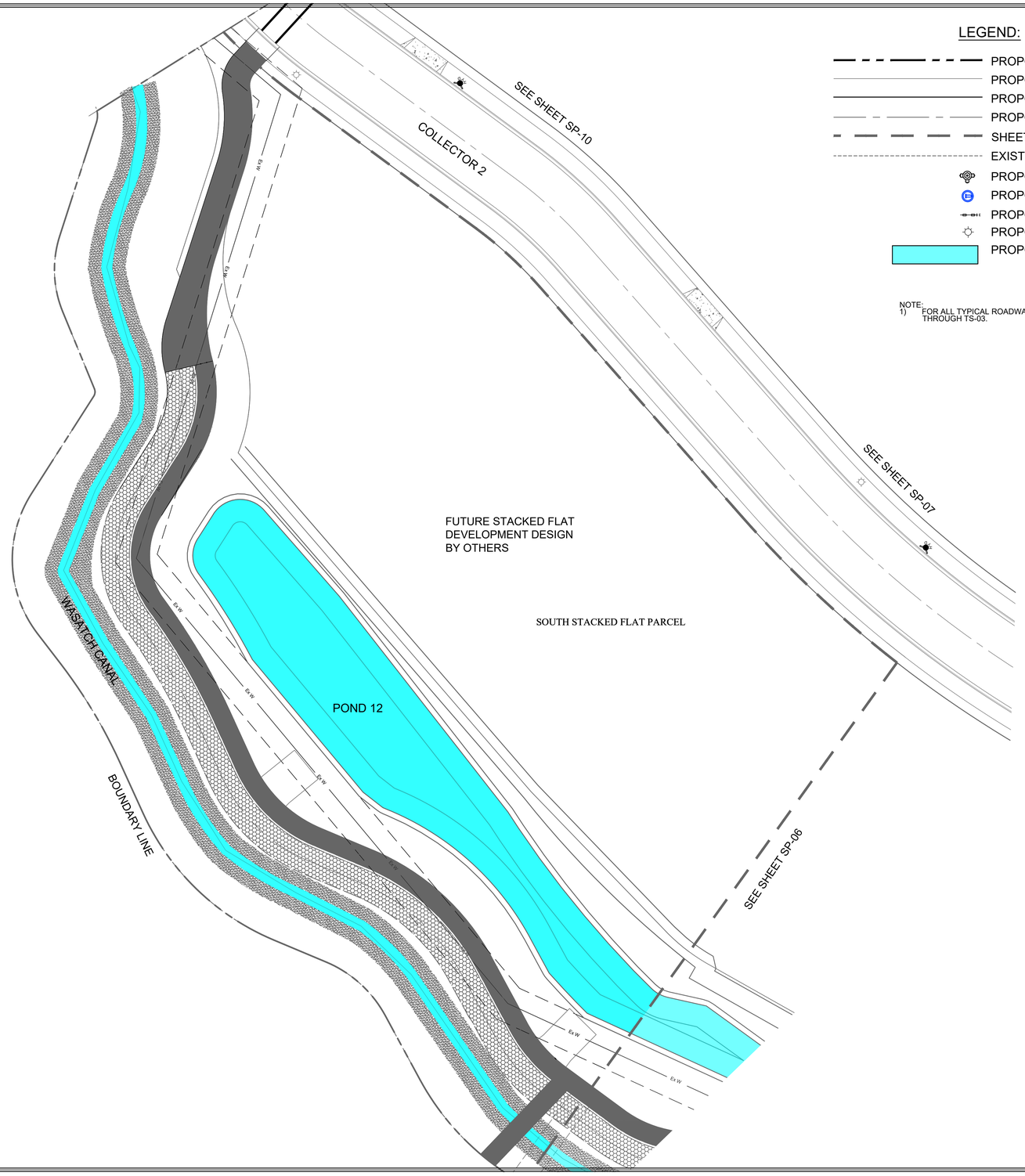
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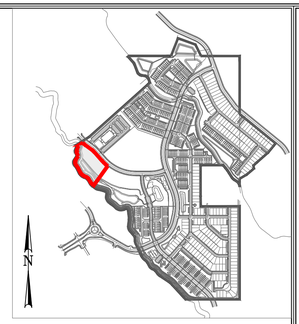
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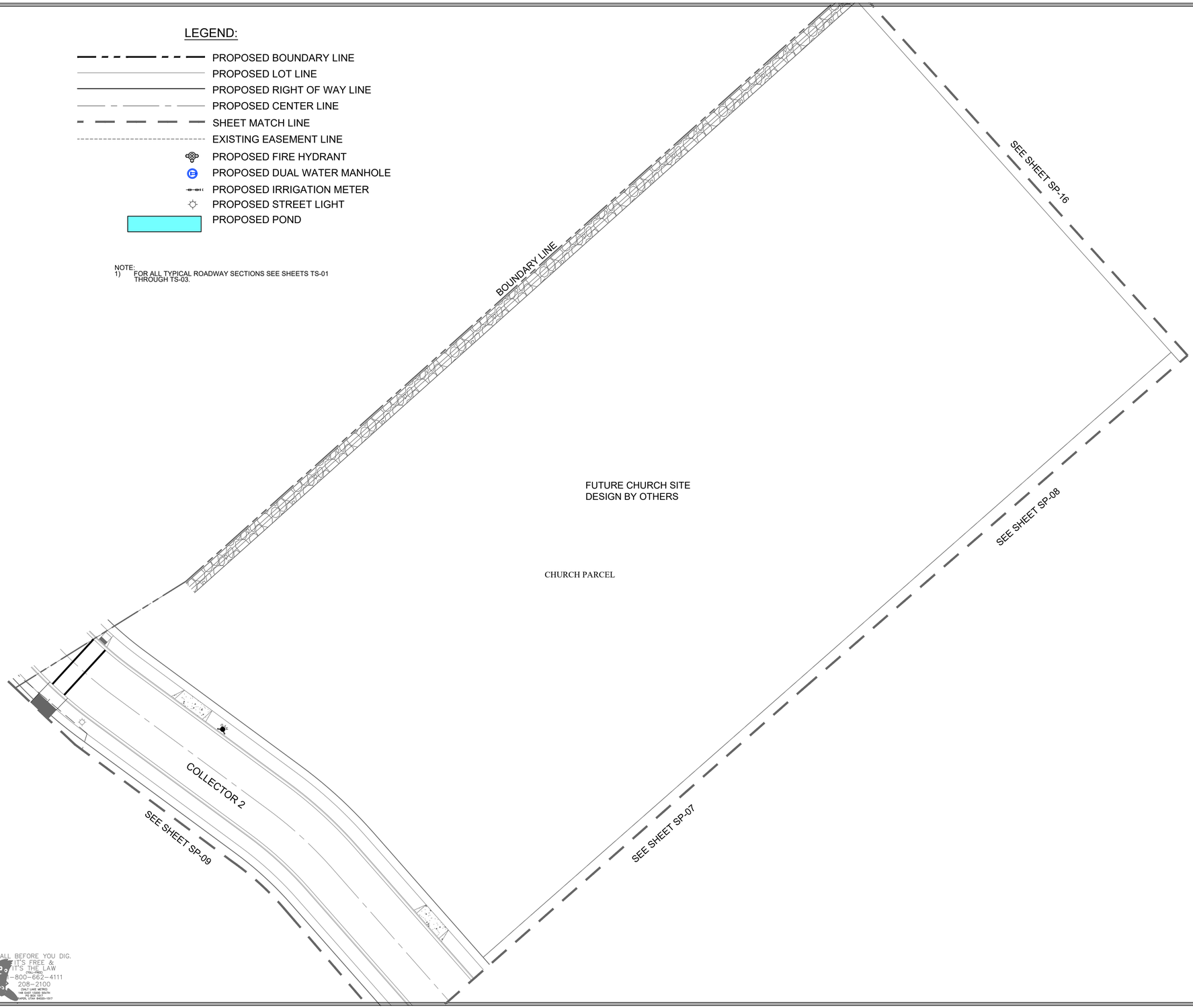
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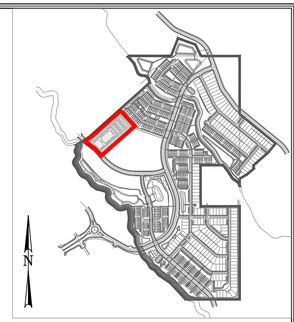
SHEET
SP-09

LEGEND:

- PROPOSED BOUNDARY LINE
- PROPOSED LOT LINE
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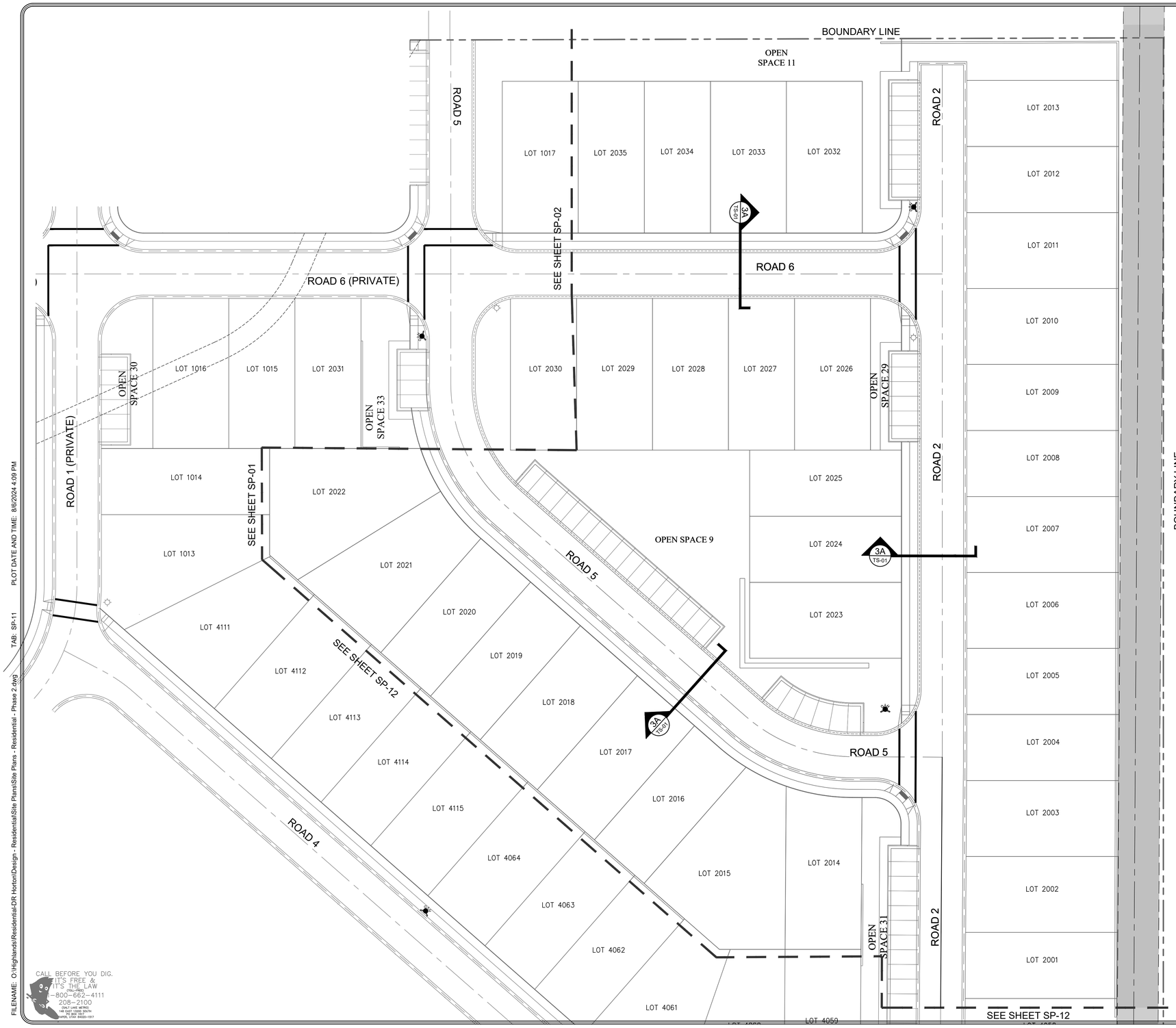
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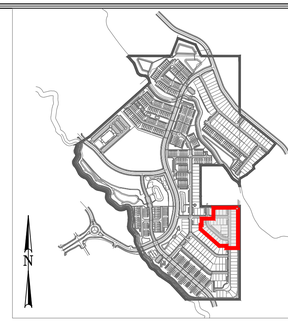
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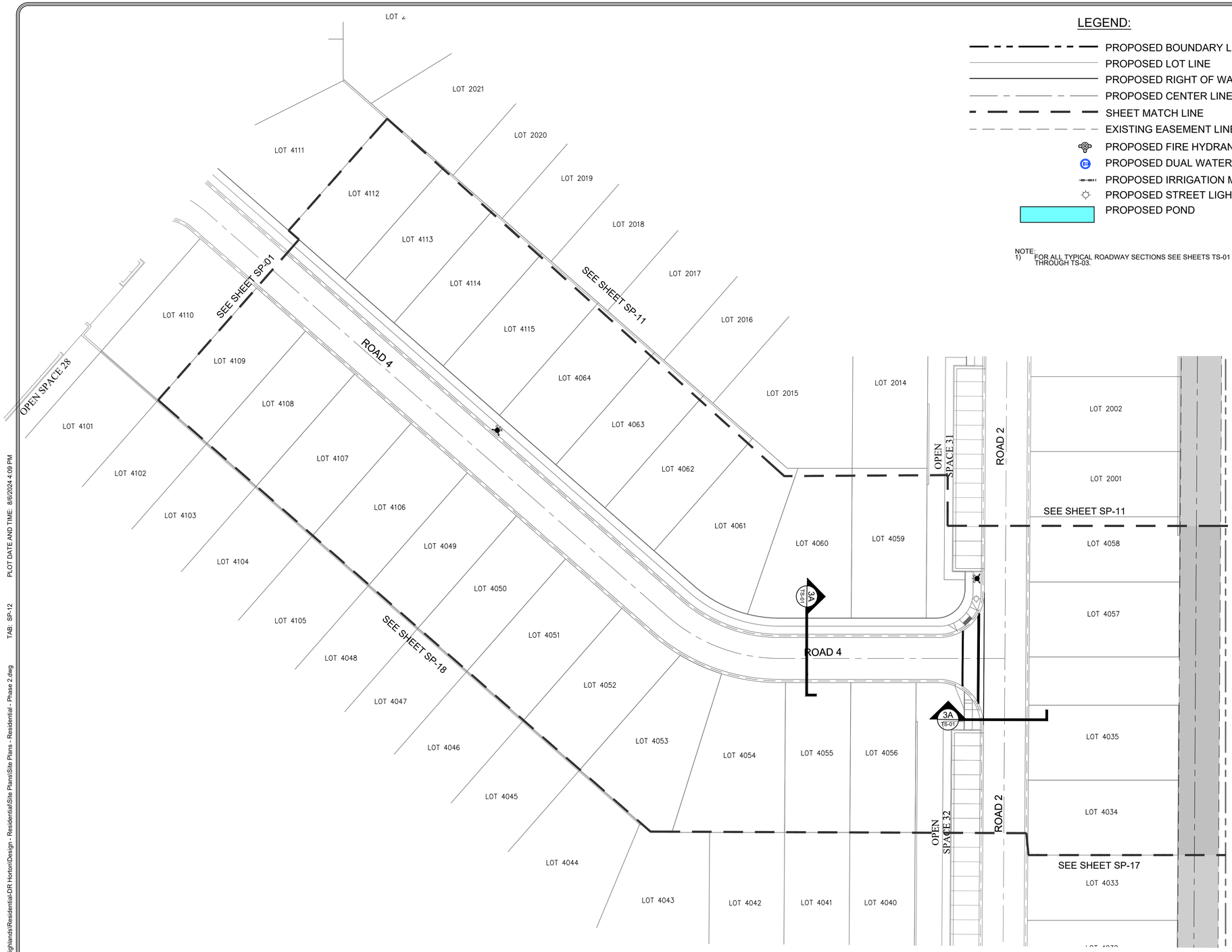
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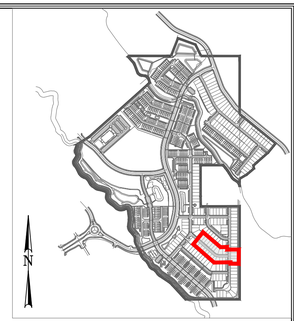
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LEGEND:

- PROPOSED BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
- PROPOSED FIRE HYDRANT
- PROPOSED DUAL WATER MANHOLE
- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
- PROPOSED POND

NOTE:
1) FOR ALL TYPICAL ROADWAY SECTIONS SEE SHEETS TS-01 THROUGH TS-03.



N

30 0 30 60 90

Scale 1" = 30'

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- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
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- PROPOSED DUAL WATER MANHOLE
- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
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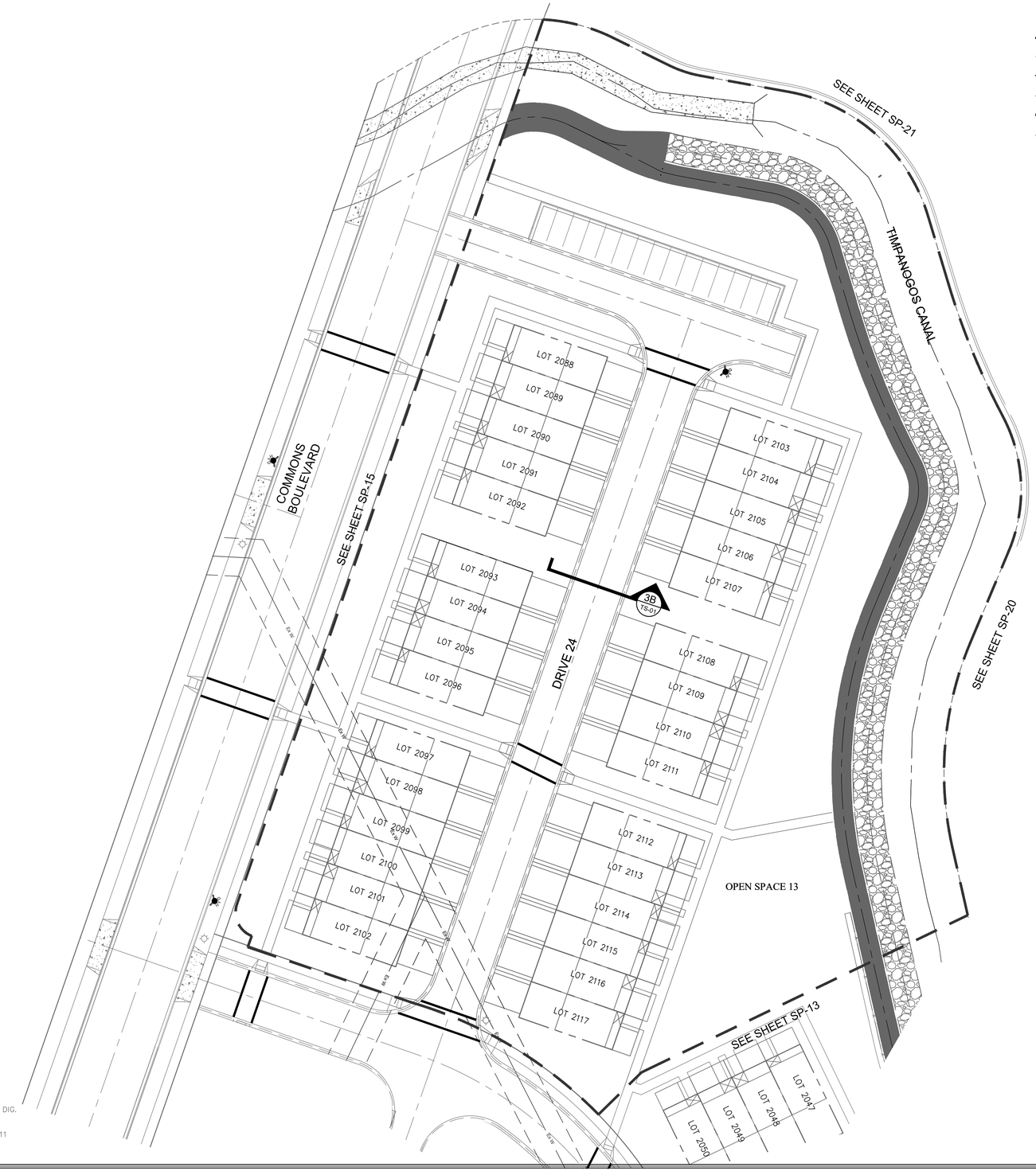
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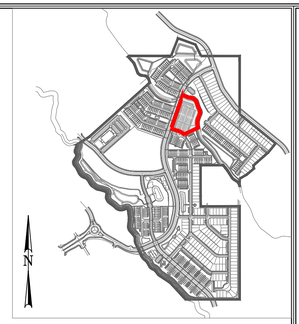
SEE SHEET SP-14
SEE SHEET SP-20
SEE SHEET SP-08
SEE SHEET SP-02
COMMONS BOULEVARD
ROAD 1
DRIVE 25
DRIVE 23
DRIVE 27(PRIVATE)
DRIVE 27 (PRIVATE)
DRIVE 34 (PRIVATE)
TIMPANOGOS CANAL
BOUNDARY LINE
OPEN SPACE 5
OPEN SPACE 13
LOT 2036
LOT 2037
LOT 2038
LOT 2039
LOT 2040
LOT 2041
LOT 2042
LOT 2043
LOT 2044
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LOT 1037
LOT 1036
LOT 1035
LOT 1034
LOT 1033
LOT 1032
LOT 1031
LOT 1030
67.01'
12.66'
Scale 1" = 30'
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- PROPOSED POND

NOTE:
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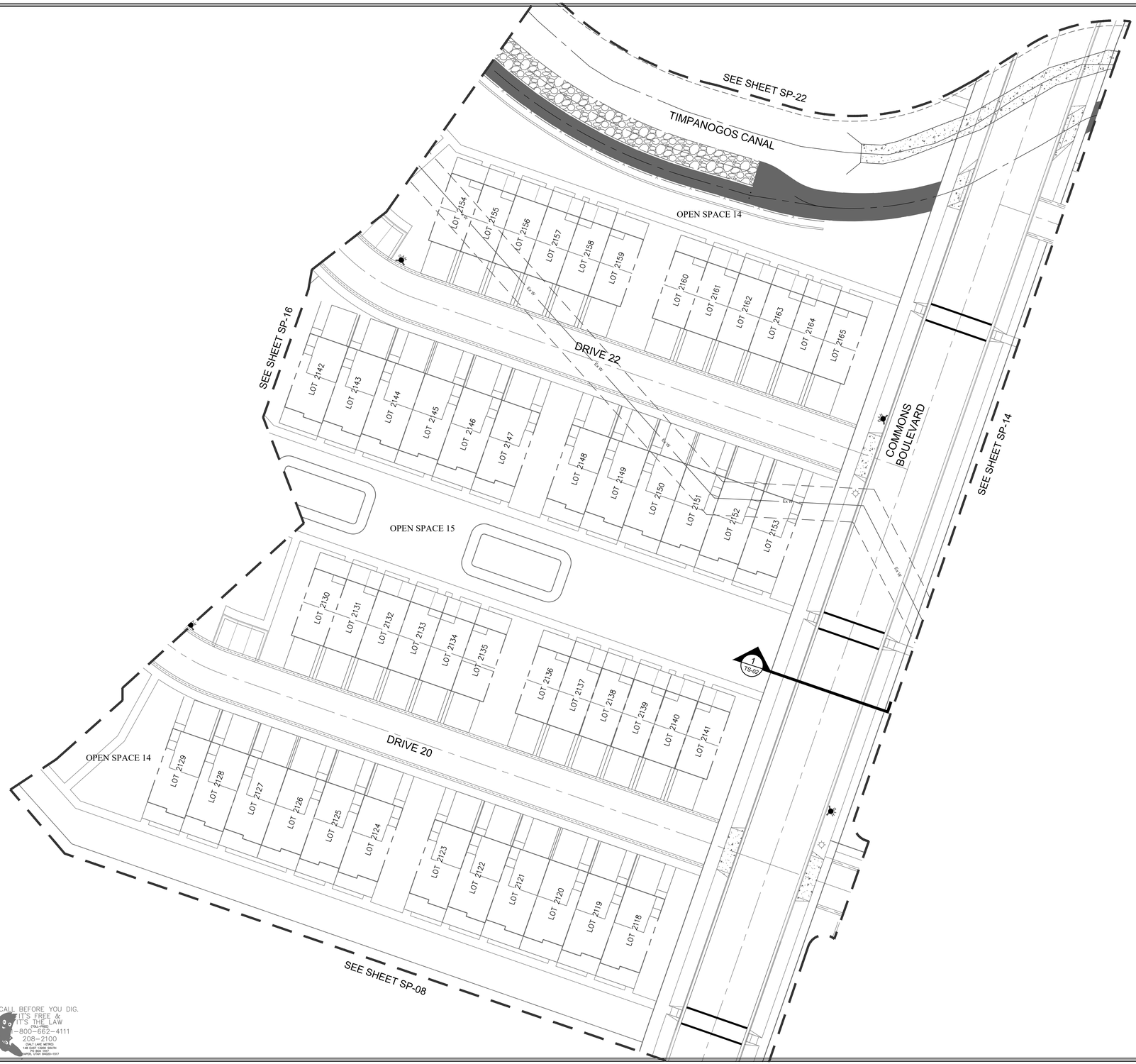
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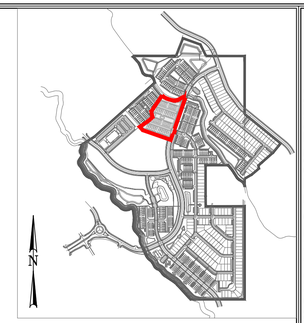
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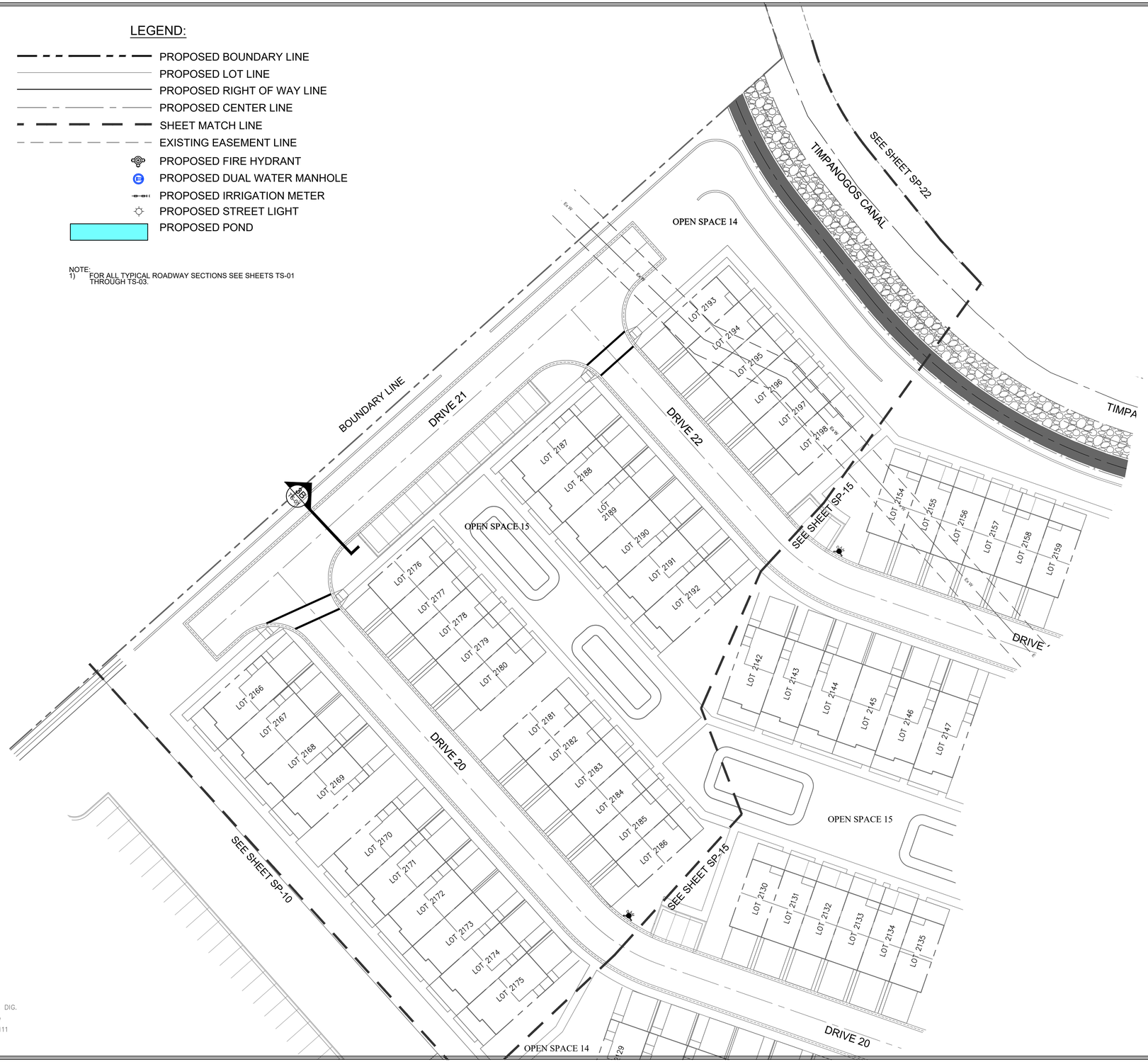
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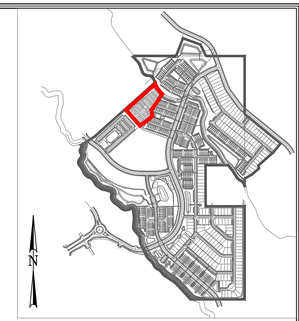
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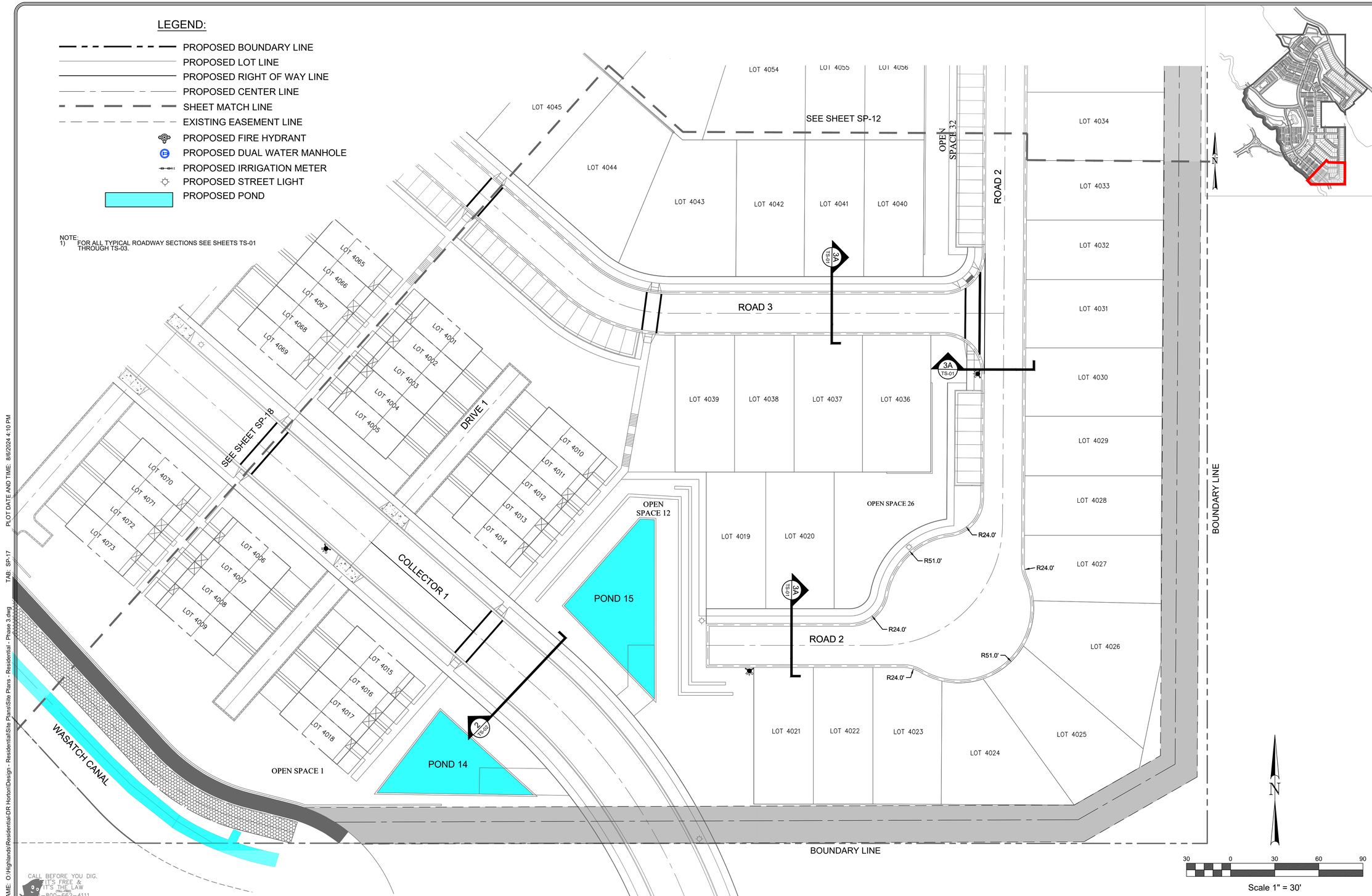
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- SHEET MATCH LINE
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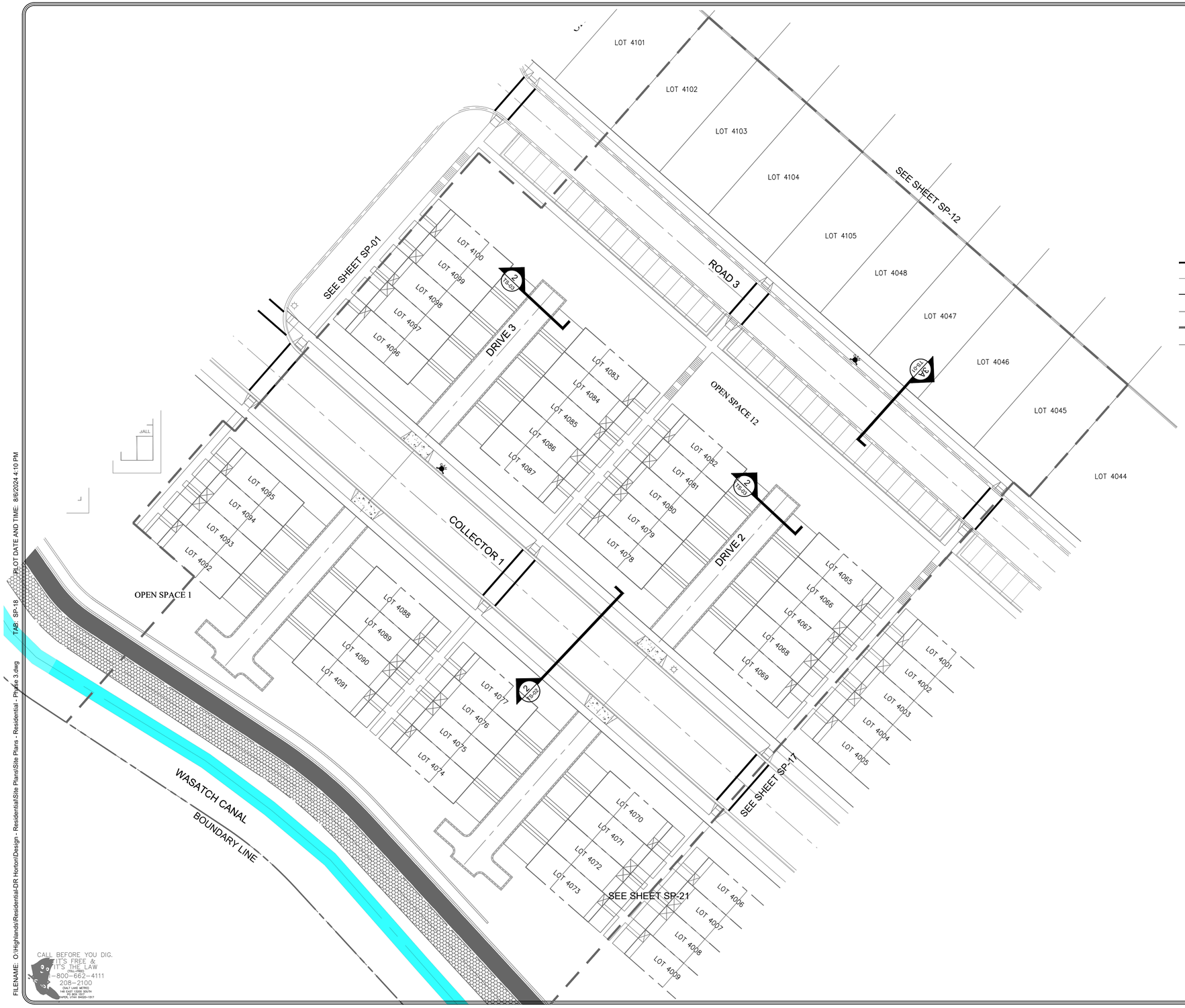
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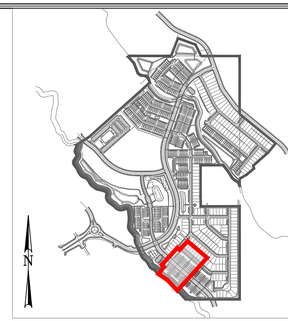
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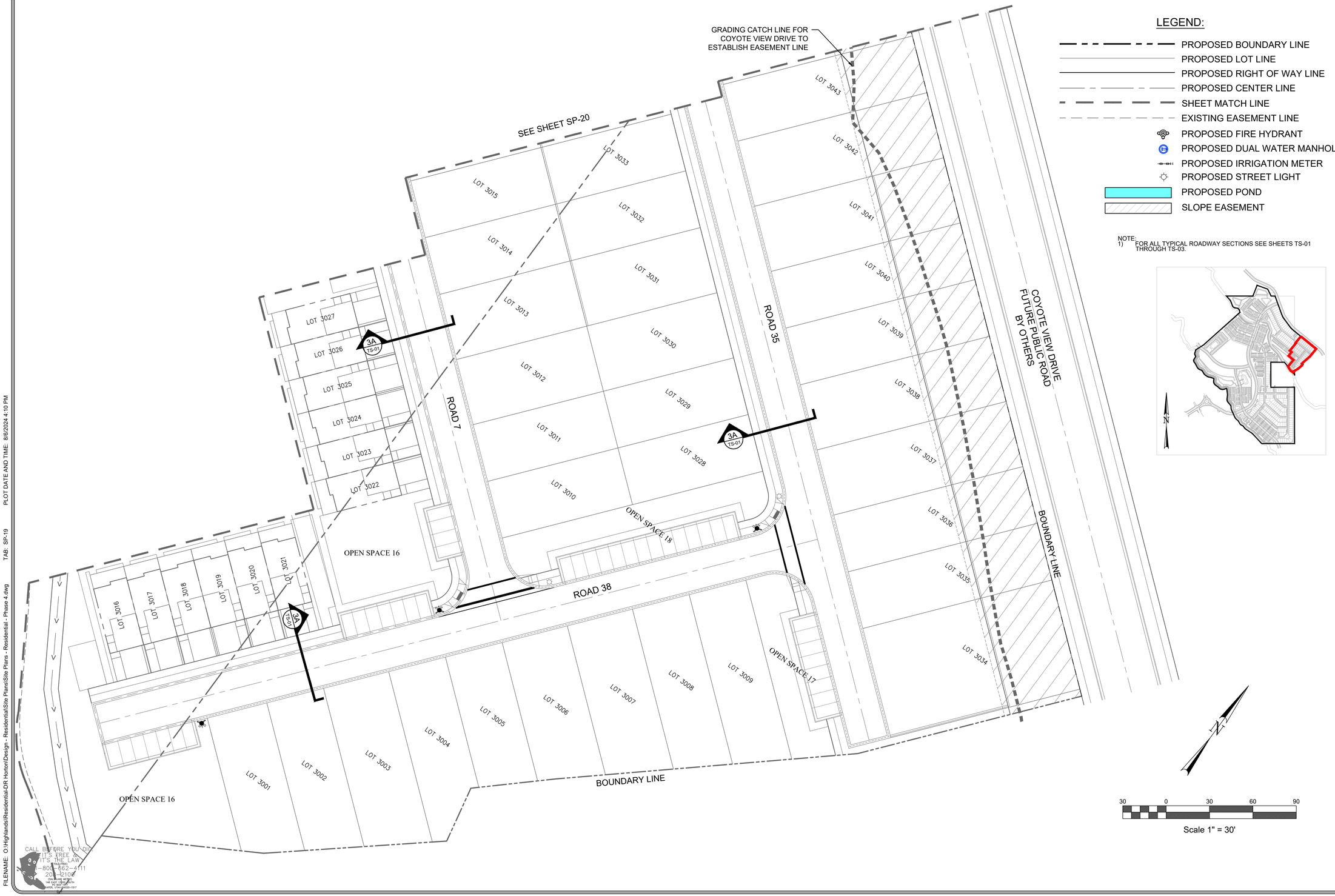
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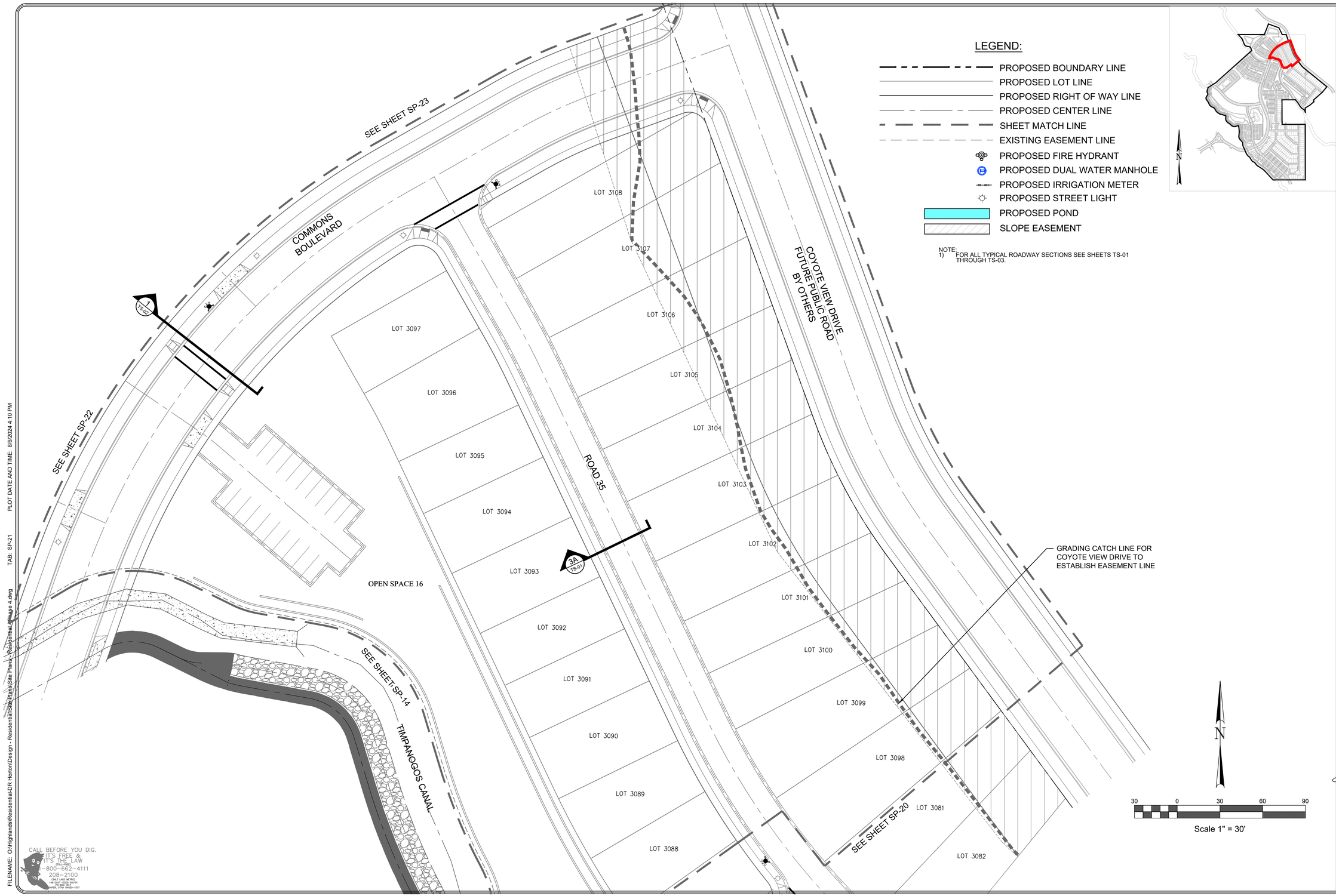
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SP-20



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- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
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- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
- PROPOSED POND
- SLOPE EASEMENT

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BOUNDARY LINE

OPEN SPACE 24

POND 1

BOUNDARY LINE

DRIVE 13

DRIVE 12

DRIVE 14

OPEN SPACE 23

OPEN SPACE 24

TIMPANOGOS CANAL

LOT 3109
LOT 3110
LOT 3111
LOT 3112
LOT 3113
LOT 3114
LOT 3115
LOT 3116
LOT 3117
LOT 3118
LOT 3119
LOT 3120
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LOT 3150
LOT 3151

SEE SHEET SP-16

SEE SHEET SP-23

SEE SHEET SP-21

SEE SHEET SP-15

TIMPANOGOS

N

LEGEND:

- PROPOSED BOUNDARY LINE
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208-2100
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148 EAST 13000 SOUTH
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DRAPER, UTAH 84020-1517

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HEBER CITY, UT
SITE PLAN- PHASE 4

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
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CLIENT: D.R.HORTON
DWG: SITE PLANS - RESIDENTIAL - PHASE 4.DWG
JOB No: 3891-DRH01-23

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PROFESSIONAL ENGINEER
ANDREW J. SATTAR N. TABRIZ
STATE OF UTAH
8/9/2024

SHEET
SP-22

LEGEND:

- PROPOSED BOUNDARY LINE
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED CENTER LINE
- SHEET MATCH LINE
- EXISTING EASEMENT LINE
- PROPOSED FIRE HYDRANT
- PROPOSED DUAL WATER MANHOLE
- PROPOSED IRRIGATION METER
- PROPOSED STREET LIGHT
- PROPOSED POND
- SLOPE EASEMENT

NOTE:
1) FOR ALL TYPICAL ROADWAY SECTIONS SEE SHEETS TS-01 THROUGH TS-03.

BOUNDARY LINE

COYOTE VIEW DRIVE
FUTURE PUBLIC ROAD
BY OTHERS

POND 2

GRADING CATCH LINE FOR COYOTE VIEW DRIVE TO ESTABLISH EASEMENT LINE

OPEN SPACE 24

DRIVE 13

LOT 3114
LOT 3113
LOT 3112
LOT 3111
LOT 3110
LOT 3109

LOT 3162
LOT 3161
LOT 3160
LOT 3159
LOT 3158

LOT 3143
LOT 3144
LOT 3145
LOT 3146

3A
TS-01

LOT 3142
LOT 3141
LOT 3140
LOT 3139
LOT 3138
LOT 3137

OPEN SPACE 23

SEE SHEET SP-22

DRIVE 12

LOT 3157
LOT 3156
LOT 3155
LOT 3154
LOT 3153
LOT 3152

LOT 3147
LOT 3148
LOT 3149
LOT 3150
LOT 3151

LOT 3136
LOT 3135
LOT 3134
LOT 3133
LOT 3132

EMERGENCY
OVERFLOW
POND 2B

BOUNDARY LINE

COYOTE VIEW DRIVE
FUTURE PUBLIC ROAD
BY OTHERS

SEE SHEET SP-21

COMMONS
BOULEVARD

N

30 0 30 60 90

Scale 1" = 30'

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SHEET
SP-23

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Site Plans\Site Plans - Residential - Phase 4.dwg TAB: SP-23 PLOT DATE AND TIME: 8/6/2024 4:11 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT:
UTILITY PLANS

UTILITY PLANS	
Sheet Number	Sheet Title
--	Sub-Title Sheet
UP-00	Utility Plan
UP-01	Utility Plan- Phase 1
UP-02	Utility Plan- Phase 1
UP-03	Utility Plan- Phase 1
UP-04	Utility Plan- Phase 1
UP-05	Utility Plan- Phase 1
UP-06	Utility Plan- Phase 1
UP-07	Utility Plan- Phase 1
UP-08	Utility Plan- Phase 1
UP-09	Utility Plan- Phase 1
UP-10	Utility Plan- Phase 1
UP-11	Utility Plan- Phase 2
UP-12	Utility Plan- Phase 2
UP-13	Utility Plan- Phase 2
UP-14	Utility Plan- Phase 2
UP-15	Utility Plan- Phase 2
UP-16	Utility Plan- Phase 2
UP-17	Utility Plan- Phase 3
UP-18	Utility Plan- Phase 3
UP-19	Utility Plan- Phase 4
UP-20	Utility Plan- Phase 4
UP-21	Utility Plan- Phase 4
UP-22	Utility Plan- Phase 4
UP-23	Utility Plan- Phase 4

SUB-TITLE SHEET

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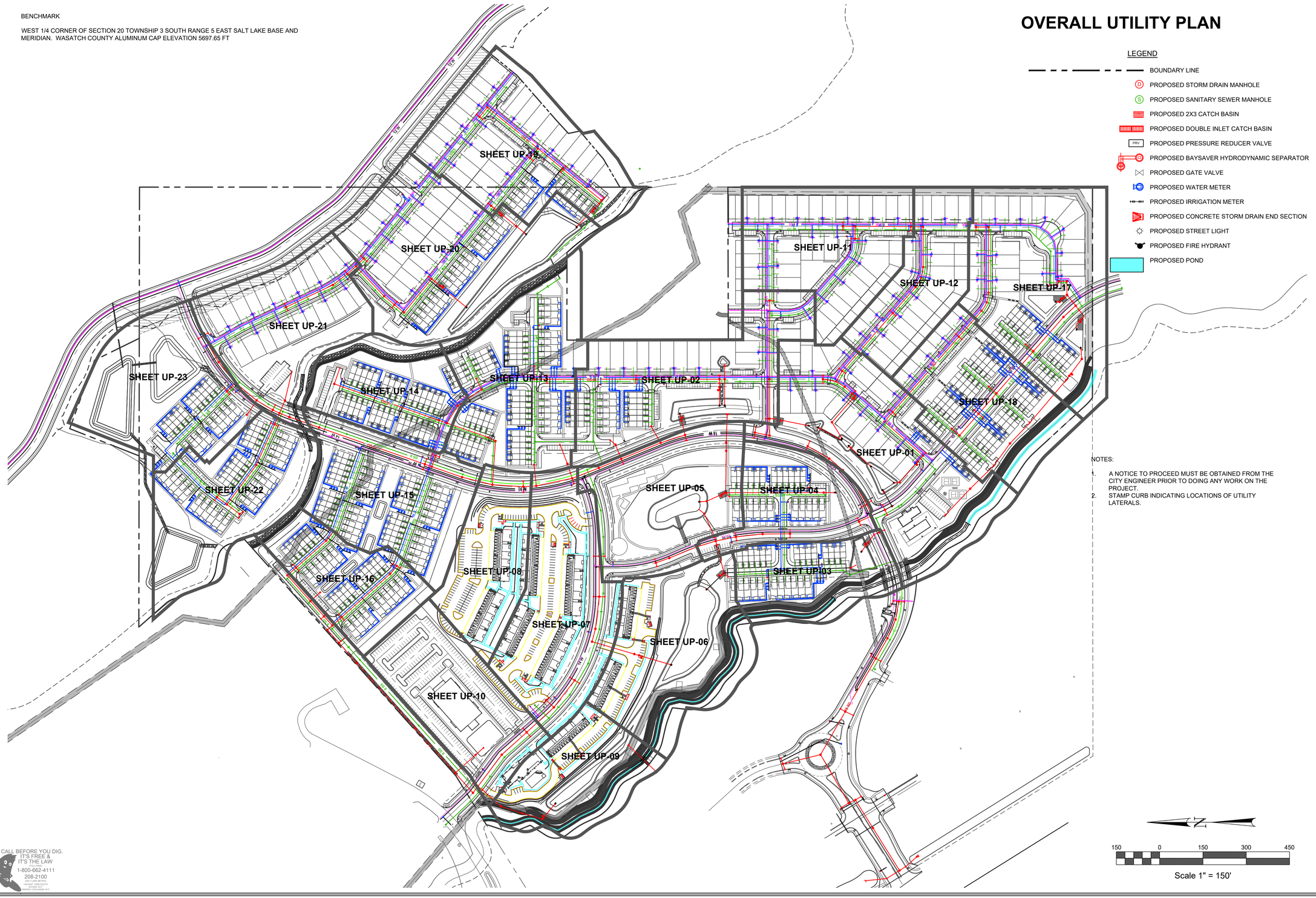
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SATTAR N. TABRIZ
8/6/2024
STATE OF UTAH

SHEET

BENCHMARK

WEST 1/4 CORNER OF SECTION 20 TOWNSHIP 3 SOUTH RANGE 5 EAST SALT LAKE BASE AND MERIDIAN. WASATCH COUNTY ALUMINUM CAP ELEVATION 5697.65 FT

OVERALL UTILITY PLAN



LEGEND

- BOUNDARY LINE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

NOTES:

1. A NOTICE TO PROCEED MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO DOING ANY WORK ON THE PROJECT.
2. STAMP CURB INDICATING LOCATIONS OF UTILITY LATERALS.

150 0 150 300 450

Scale 1" = 150'

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HIGHLANDS RESIDENTIAL DEVELOPMENT HEBER CITY, UT UTILITY PLAN

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CLIENT: D.R.HORTON
DWG: UTILITY PLANS KEY MAP.DWG
JOB No: 3691-DRH01-23
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8/6/2024

SHEET

UP-00

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Utility Plans\Utility Plans Key Map.dwg TAB: UP-00 PLOT DATE AND TIME: 8/7/2024 6:09 PM

LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

NOTE:
1) SEE PLAN AND PROFILE SHEETS FOR DETAILED DESIGN, LOCATION AND DESCRIPTION

PROPOSED 14" HDPE DR-7 PRESSURE ZONE 3 WATERLINE
SEE SHEET UP-03
PROPOSED 36" STORM DRAIN
PROPOSED 10" HDPE DR-11 PRESSURE ZONE 1 WATERLINE
PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE
PROPOSED 18" STORM DRAIN
EXISTING 12' ACCESS ROAD EASEMENT TO BE VACATED
PROPOSED 8" SANITARY SEWER LINE
PROPOSED 18" STORM DRAIN
PROPOSED RETAINING WALL SEE SHEET GP-01
WASATCH CANAL
COMMONS BOULEVARD
PROPOSED 30" STORM DRAIN.
PROPOSED 18" STORM DRAIN
PROPOSED 18" STORM DRAIN
PROPOSED 8" SANITARY SEWER LINE
POND #09
BTM ELEVATION 5742 FT.
HW ELEVATION 5745 FT.
VPROV.0.26 AC FT.
POND #08
BTM ELEVATION 5752 FT.
HW ELEVATION 5755 FT.
VPROV. 0.11 AC FT.
POND #07
BTM ELEVATION 5764 FT.
HW ELEVATION 5767 FT.
VPROV. 0.10 AC FT.
OPEN SPACE 2
PROPOSED 18" STORM DRAIN
PROPOSED 18" STORM DRAIN
PROPOSED 14" HDPE DR-11 PRESSURE ZONE 1 WATERLINE
PROPOSED 14" HDPE DR-7 PRESSURE ZONE 3 WATERLINE
SEE SHEET UP-05
PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE
PROPOSED 14" HDPE PRESSURE ZONE 1 WATERLINE
COMMONS BLVD
PROPOSED 12" PRESSURE ZONE 1 WATERLINE
PROPOSED 6" IRRIGATION LINE
INSTALL 1K BAYSAVER HYDRODYNAMIC SEPARATOR
PROPOSED 18" STORM DRAIN
ROAD 6
SEE SHEET UP-02
PROPOSED 18" STORM DRAIN
LOT 1012
LOT 1011
LOT 1010
OPEN SPACE 30
LOT 1009
LOT 1008
LOT 1016
LOT 1015
LOT 1014
LOT 1013
LOT 4111
LOT 4110
LOT 4101
PROPOSED RETAINING WALLS SEE SHEET GP-01
PROPOSED 18" STORM DRAIN
PROPOSED 8" SANITARY SEWER LINE
ROAD 1
PROPOSED 6" IRRIGATION LINE
PROPOSED 8" WATER LINE
INSTALL 3K BAYSAVER HYDRODYNAMIC SEPARATOR
PROPOSED 18" STORM DRAIN
OPEN SPACE 1
PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE
PROPOSED 10" HDPE DR-11 PRESSURE ZONE 1 WATERLINE
COLLECTOR 1
PROPOSED 18" STORM DRAIN
INSTALL 3K BAYSAVER HYDRODYNAMIC SEPARATOR
LOT 1001
LOT 1002
LOT 1003
LOT 1004
LOT 1005
LOT 1006
LOT 1007
PROPOSED 6" IRRIGATION LINE
PROPOSED 8" SANITARY SEWER LINE
PROPOSED 18" STORM DRAIN
PROPOSED 8" WATER LINE
OPEN SPACE 28
SEE SHEET UP-18
SEE SHEET UP-12
OPEN SPACE



30 0 30 60 90
Scale 1" = 30'

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ABU JAFFAR SATTAR N. TASNIZ
8/6/2024

SHEET
UP-01

NOTE:
1) SEE PLAN AND PROFILE SHEETS FOR DETAILED DESIGN, LOCATION AND DESCRIPTION

LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND



EXISTING 20' IRRIGATION EASEMENT TO BE VACATED

BOUNDARY LINE

SEE SHEET UP-13

SEE SHEET UP-11

SEE SHEET UP-01

SEE SHEET UP-05

LOT 1031 LOT 1030 LOT 1029 LOT 1028 LOT 1027 LOT 1026 LOT 1025 LOT 1024 LOT 1023 LOT 1022 LOT 1021

LOT 1032 LOT 1033 LOT 1034 LOT 1035 LOT 1036 LOT 1037

LOT 1038 LOT 1039 LOT 1040 LOT 1041 LOT 1042 LOT 1043

LOT 1049 LOT 1048 LOT 1047 LOT 1046 LOT 1045 LOT 1044

LOT 1017 LOT 1018 LOT 1019 LOT 1020

LOT 2030 LOT 2031

OPEN SPACE 4

OPEN SPACE 5

OPEN SPACE 33

ROAD 1

ROAD 5

ROAD 6

DRIVE 34

DRIVE 33

COMMONS BOULEVARD

PROPOSED 18" STORM DRAIN

PROPOSED 8" PRESSURE ZONE 1 WATERLINE

PROPOSED 6" IRRIGATION LINE

PROPOSED 8" SANITARY SEWER LINE

PROPOSED 18" STORM DRAIN

POND #03
BTM ELEVATION 5781 FT.
HW ELEVATION 5784 FT.
VPROV. 0.03 AC FT.

INSTALL 3K BAYSAVER HYDRODYNAMIC SEPARATOR

PROPOSED 36" STORM DRAIN

POND #04
BTM ELEVATION 5776 FT.
HW ELEVATION 5779 FT.
VPROV. 1.18 AC FT.

PROPOSED 24" STORM DRAIN

PROPOSED RETAINING WALLS SEE SHEET GP-02

EXISTING 12' ACCESS ROAD EASEMENT TO BE VACATED

PROPOSED 8" SANITARY SEWER LINE

PROPOSED RETAINING WALL SEE SHEET GP-02

PROPOSED 14" HDPE DR-11 PRESSURE ZONE 1 WATERLINE

PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE

PROPOSED 14" HDPE DR-7 PRESSURE ZONE 3 WATERLINE

3.86°

2.24°

30 0 30 60 90

Scale 1" = 30'

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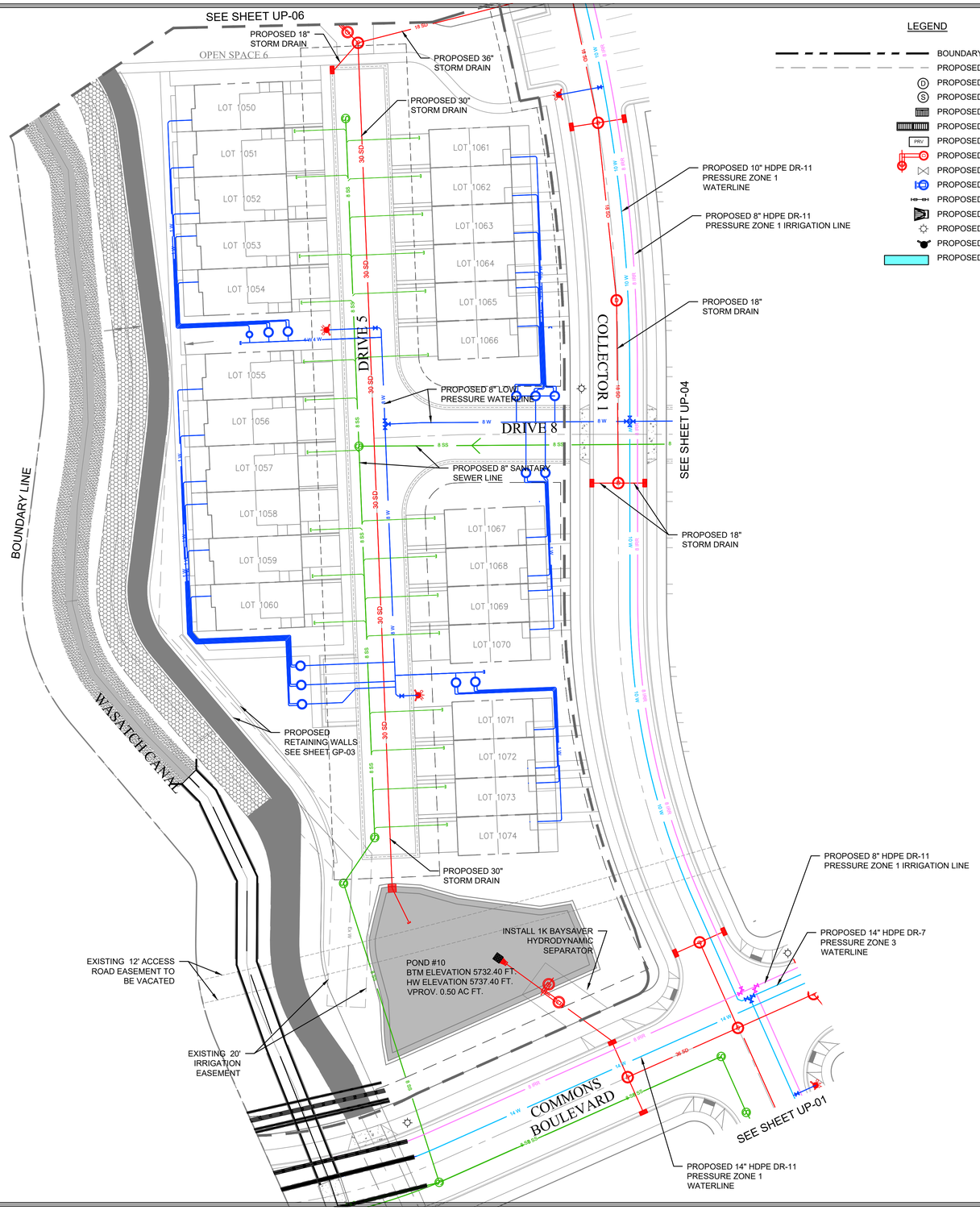
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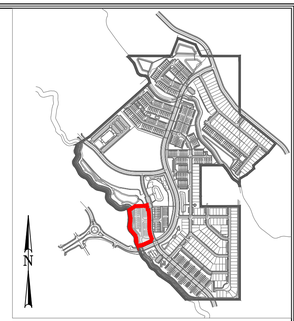
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ALISSICIMA SATTAR N. 7 TABMIZ
8/6/2024

SHEET
UP-02



LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND



N

30 0 30 60 90

Scale 1" = 30'

NOTE:
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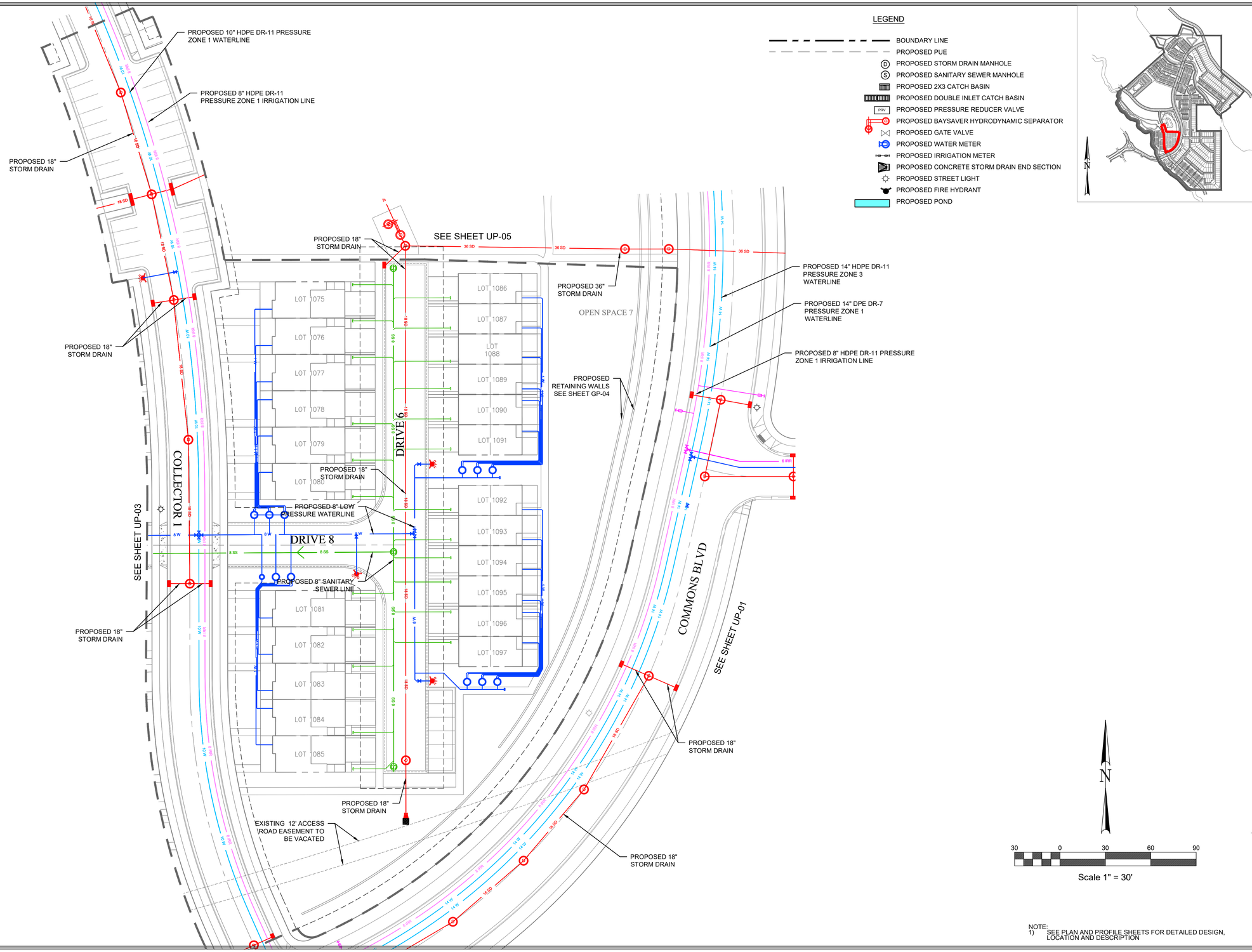
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8/6/2024

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UP-03



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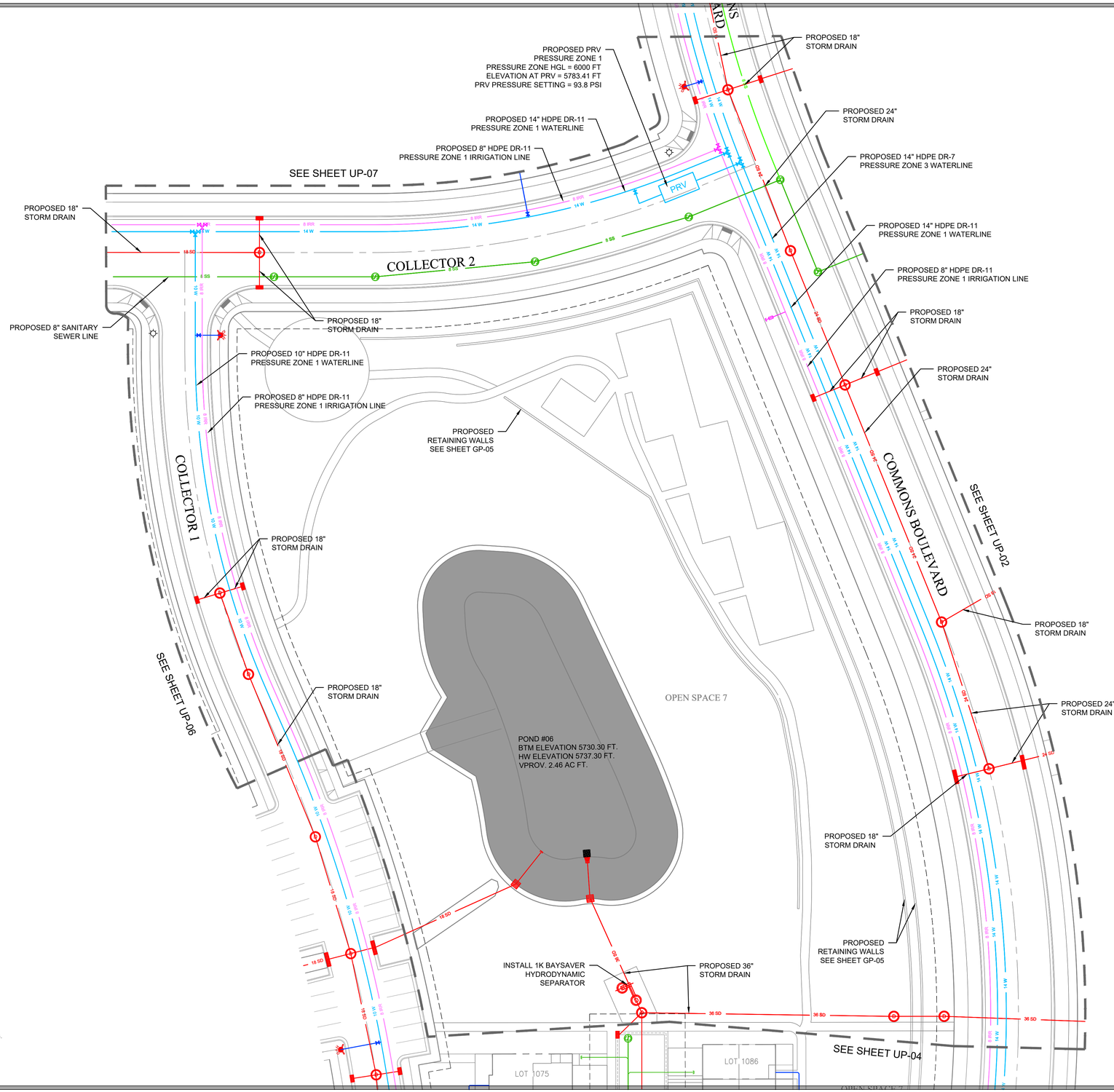
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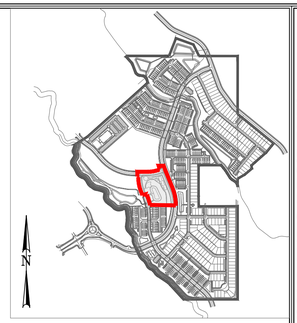
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SATTAR N. TABRIZ
8/7/2024

SHEET
UP-04





LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

N

30 0 30 60 90

Scale 1" = 30'

NOTE:
1) SEE PLAN AND PROFILE SHEETS FOR DETAILED DESIGN, LOCATION AND DESCRIPTION

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UTILITY PLAN- PHASE 1

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ARTHUR J. SATTAR N. TARMIZ
PROFESSIONAL ENGINEER
STATE OF UTAH
8/6/2024

SHEET
UP-05

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PROPOSED 14" HDPE DR-11
PRESSURE ZONE 1 WATERLINE

PROPOSED 8" HDPE DR-11
PRESSURE ZONE 1 IRRIGATION LINE

SEE SHEET UP-07

COLLECTOR 2

PROPOSED 18"
STORM DRAIN

PROPOSED 8" SANITARY
SEWER LINE

SEE SHEET UP-09

PROPOSED 18"
STORM DRAIN

SOUTH STACKED FLAT PARCEL

FUTURE STACKED FLAT
DEVELOPMENT DESIGN
BY OTHERS

POND #12
BTM ELEVATION 5714 FT.
HW ELEVATION 5719 FT.
VPROV. 3.97 AC FT.

INSTALL 1/2K BAYSAVER
HYDRODYNAMIC
SEPARATOR

EXISTING 20'
IRRIGATION
EASEMENT

OPEN SPACE 6

PROPOSED
RETAINING WALL
SEE SHEET GP-06

POND #12
BTM ELEVATION 5714 FT.
HW ELEVATION 5719 FT.
VPROV. 3.97 AC FT.

BOUNDARY LINE

WASATCH CANAL

PROPOSED 10" HDPE DR-11
PRESSURE ZONE 1 WATERLINE

PROPOSED 8" HDPE DR-11
PRESSURE ZONE 1IRRIGATION LINE

COLLECTOR 1

SEE SHEET UP-05

PROPOSED 18"
STORM DRAIN

PROPOSED 18"
STORM DRAIN

PROPOSED 30"
STORM DRAIN

INSTALL 1/2K BAYSAVER
HYDRODYNAMIC SEPARATOR

SEE SHEET UP-03

OPEN SPACE 6

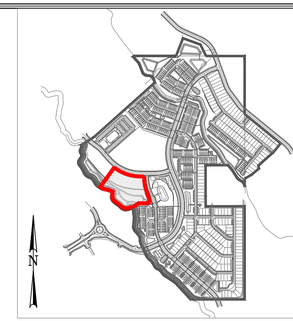
LOT 1050

LOT 1051

LOT 1052

LOT 1061

LOT 1062



LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

N

30 0 30 60 90

Scale 1" = 30'

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CLIENT: D.R.HORTON
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SATTAR N. TAEMIZ
8334604

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LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

SEE SHEET UP-08

SEE SHEET UP-10

NORTH STACKED FLAT PARCEL

FUTURE STACKED FLAT DEVELOPMENT DESIGN BY OTHERS

PROPOSED 8" HDPE DR-17 PRESSURE ZONE 1 SEWER LINE

PROPOSED 18" STORM DRAIN

SEE SHEET UP-13

COMMONS BOULEVARD

PROPOSED 18" STORM DRAIN

PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE

PROPOSED 14" HDPE DR-11 PRESSURE ZONE 1 WATERLINE

PROPOSED 14" HDPE DR-7 PRESSURE ZONE 3 WATERLINE

PRV

PROPOSED 14" HDPE DR-11 PRESSURE ZONE 1 WATERLINE

PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE

PROPOSED 18" STORM DRAIN

COLLECTOR 2

SEE SHEET UP-05

PROPOSED 18" STORM DRAIN

PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE

PROPOSED 10" HDPE DR 11 PRESSURE ZONE 1 WATERLINE

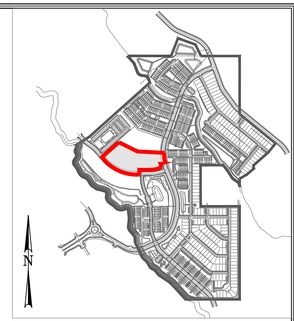
PROPOSED 18" STORM DRAIN

COLLECTOR 2

SEE SHEET UP-06

PROPOSED 8" SANITARY SEWER LINE

PROPOSED 18" STORM DRAIN



30 0 30 60 90

Scale 1" = 30'

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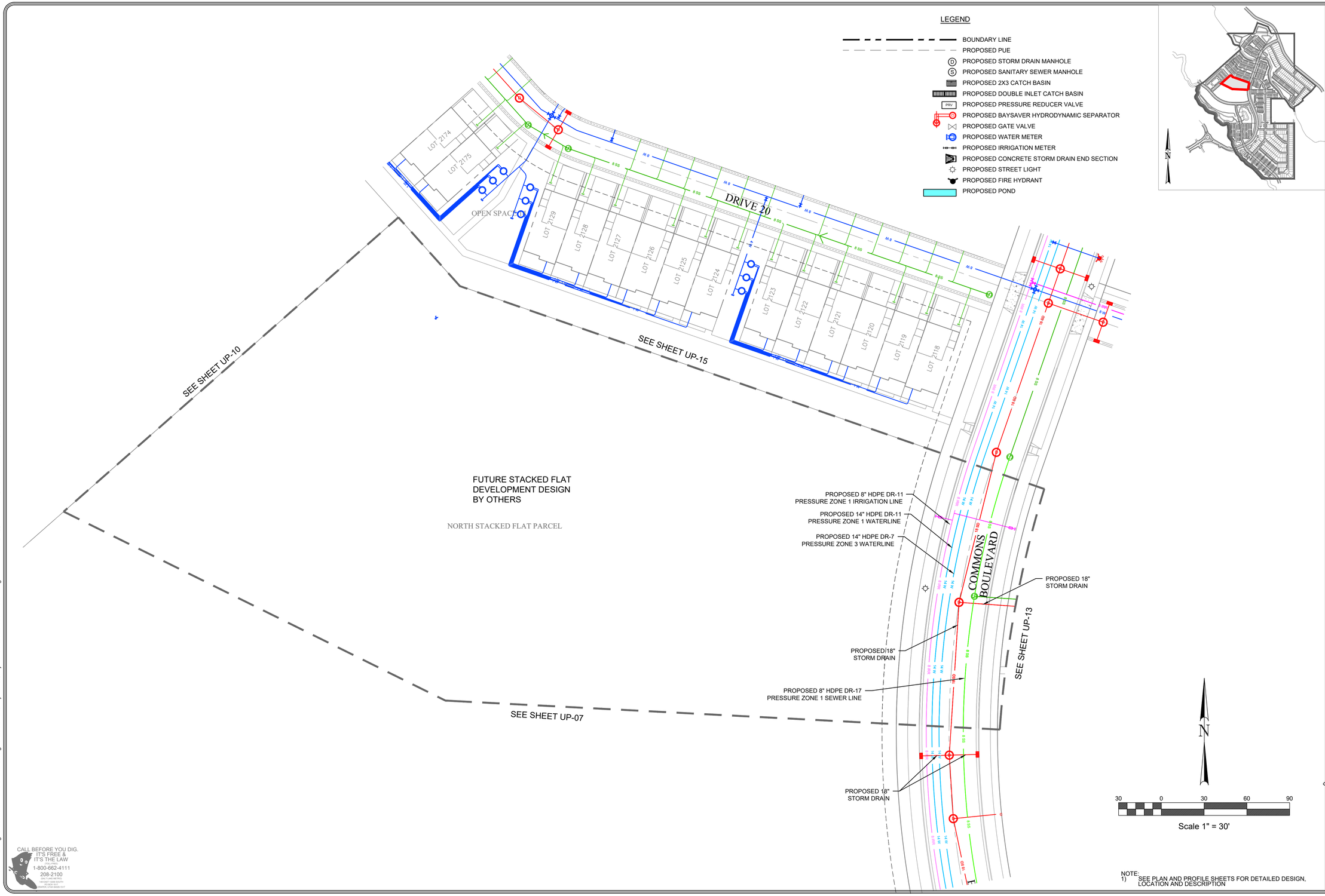
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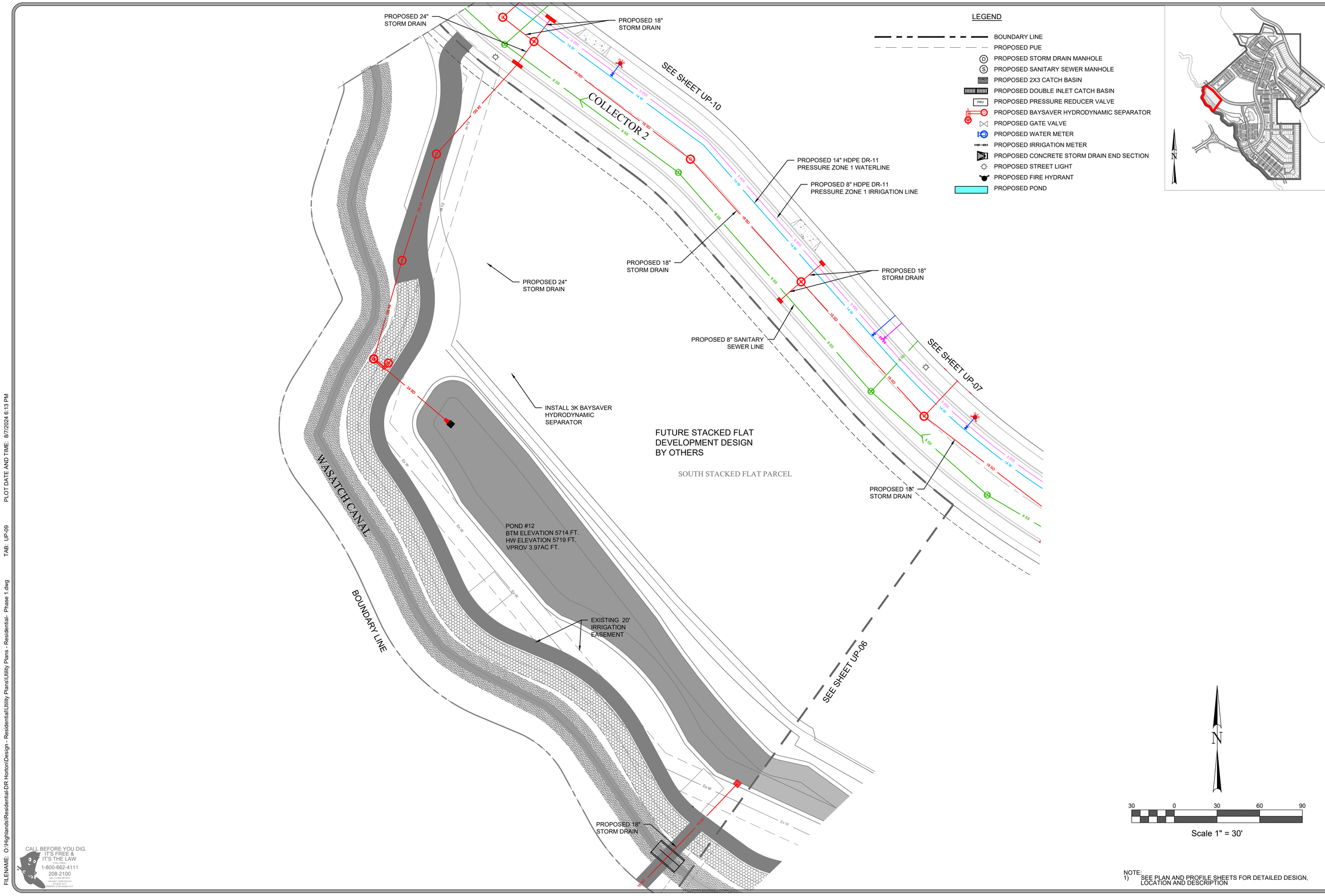
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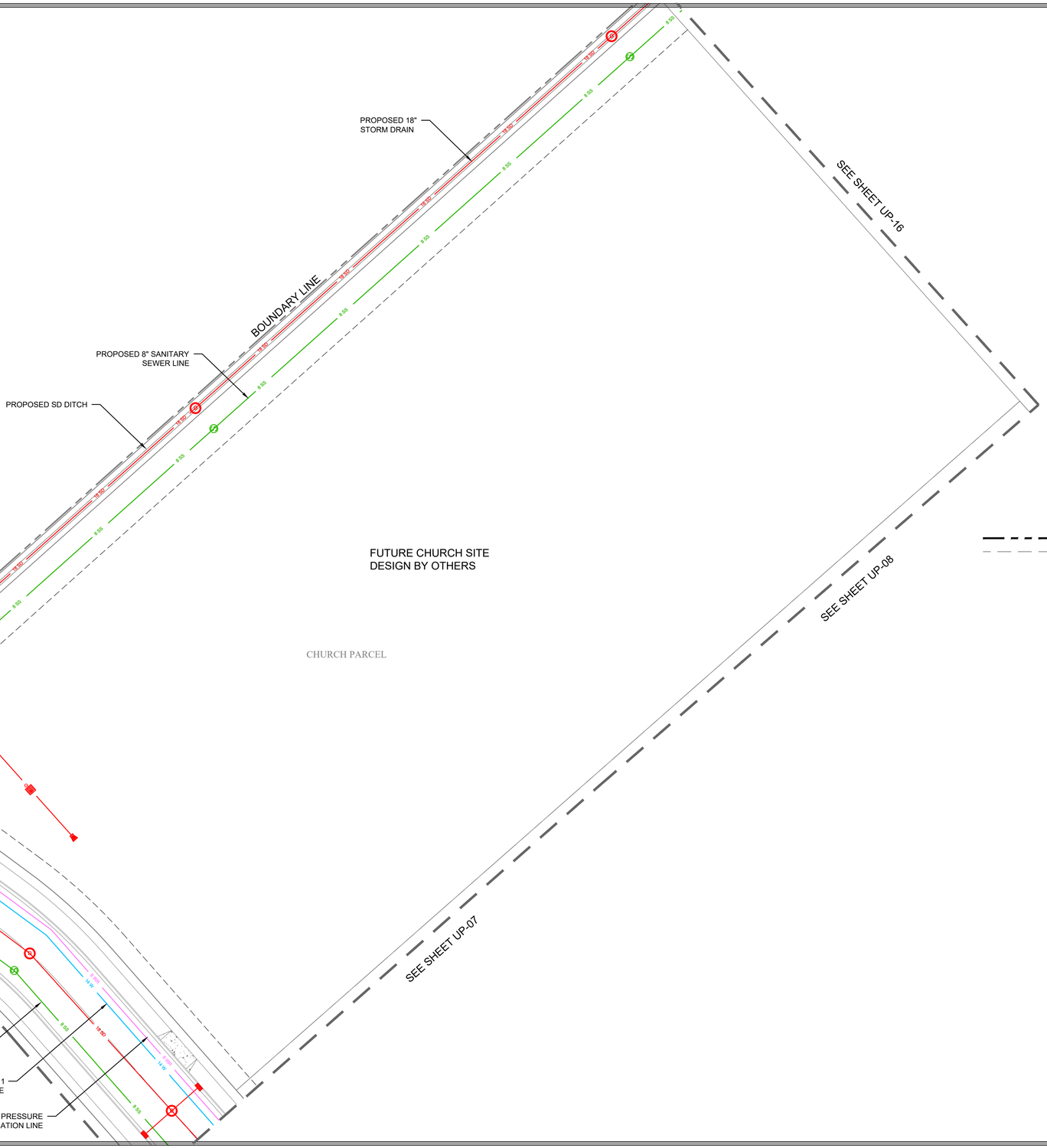
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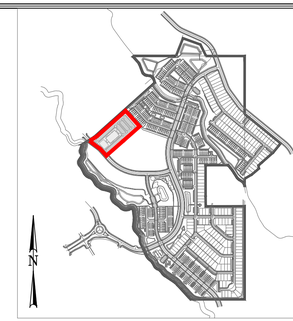
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LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
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- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND



N

30 0 30 60 90

Scale 1" = 30'

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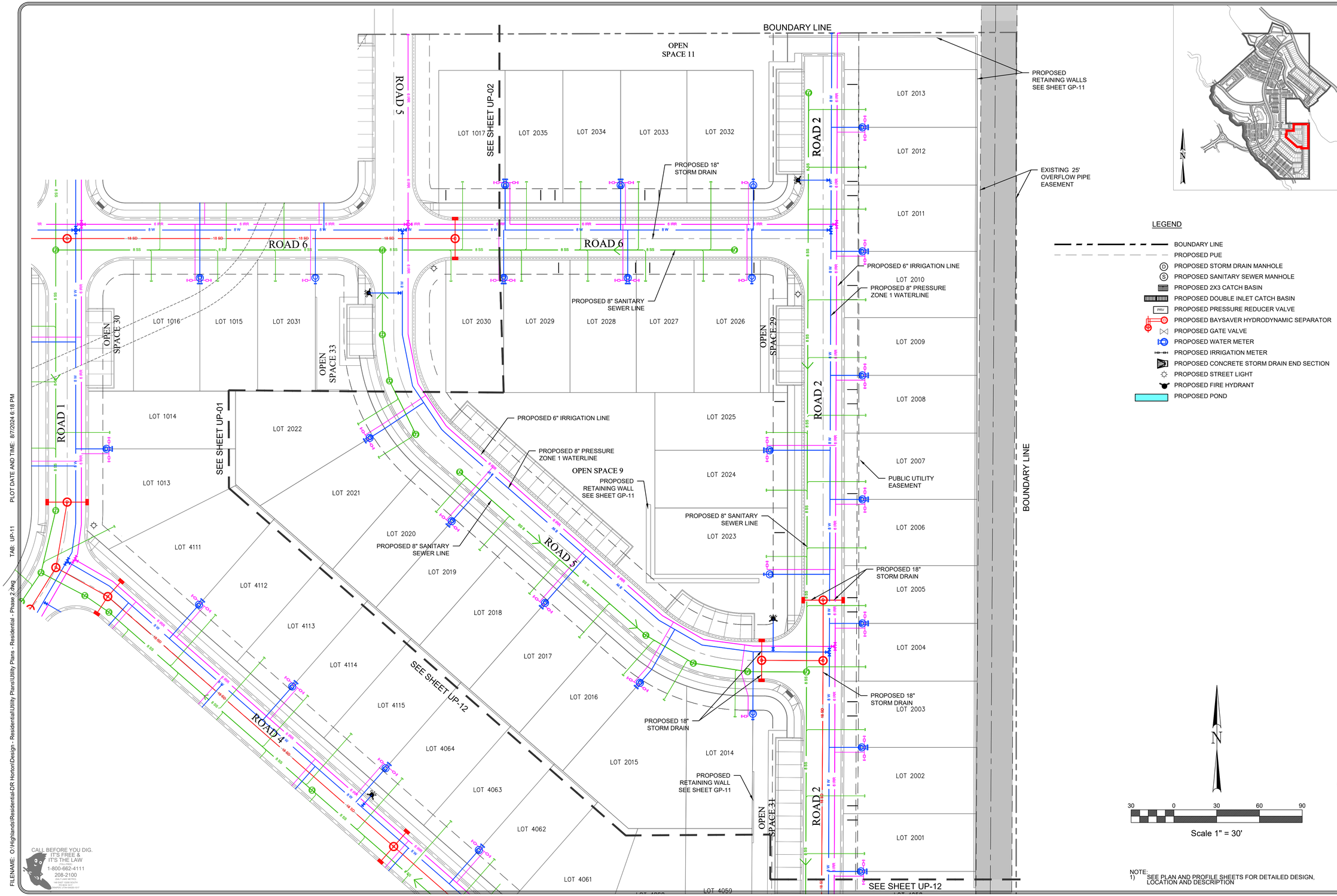
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LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
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- PROPOSED 2X3 CATCH BASIN
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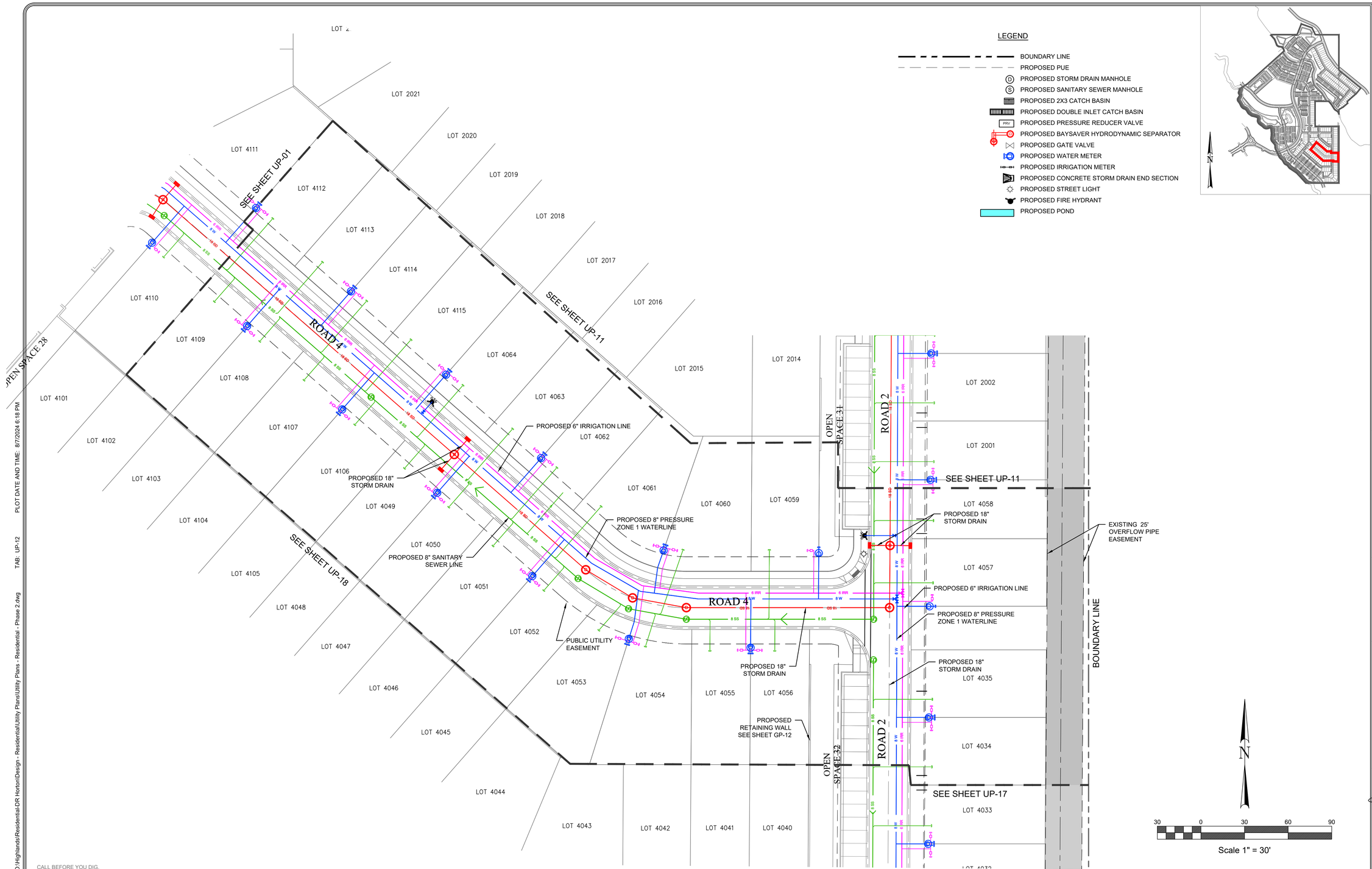
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UP-12

PROPOSED 8" PRESSURE ZONE 1 WATERLINE

PROPOSED 6" IRRIGATION LINE

PROPOSED 14" HDPE DR-11 PRESSURE ZONE 1 WATERLINE

PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE

PROPOSED 14" HDPE DR-7 PRESSURE ZONE 3 WATERLINE

PROPOSED 18" STORM DRAIN

SEE SHEET UP-14

ROAD 1

PROPOSED 18" STORM DRAIN

LOT 2036

LOT 2037

LOT 2038

LOT 2039

LOT 2040

LOT 2041

DRIVE 25

LOT 2042

LOT 2043

LOT 2044

LOT 2045

LOT 2046

COMMONS BOULEVARD

PROPOSED 8" SANITARY SEWER LINE

PROPOSED 18" STORM DRAIN

OPEN SPACE 5

LOT 2050

LOT 2049

LOT 2048

LOT 2047

DRIVE 23

LOT 2054

LOT 2053

LOT 2052

LOT 2051

PROPOSED RETAINING WALLS SEE SHEET GP-13

OPEN SPACE 13

TIMPANOGOS CANAL

SEE SHEET UP-20

SEE SHEET UP-05

LOT 2055

LOT 2056

LOT 2057

LOT 2058

LOT 2059

LOT 2060

LOT 2061

LOT 2062

LOT 2063

LOT 2064

LOT 2065

LOT 2066

LOT 2073

LOT 2074

LOT 2075

LOT 2076

LOT 2077

LOT 2078

DRIVE 27

DRIVE 27

67.01'

PROPOSED 8" SANITARY SEWER LINE

PROPOSED 8" HDPE DR-17 PRESSURE ZONE 3 WATERLINE

PROPOSED RETAINING WALL SEE SHEET GP-13

COMMONS BOULEVARD

LOT 2067

LOT 2068

LOT 2069

LOT 2070

LOT 2071

LOT 2072

ROAD 1

PROPOSED 18" STORM DRAIN

LOT 2079

LOT 2080

LOT 2081

LOT 2082

LOT 2083

LOT 2084

LOT 2085

LOT 2086

LOT 2087

SEE SHEET UP-02

PROPOSED 8" SANITARY SEWER LINE

BOUNDARY LINE

PROPOSED 18" STORM DRAIN

PUBLIC UTILITY EASEMENT

PROPOSED 8" HDPE DR-11 PRESSURE ZONE 1 IRRIGATION LINE

PROPOSED 14" HDPE DR-11 PRESSURE ZONE 1 WATERLINE

PROPOSED 14" HDPE DR-7 PRESSURE ZONE 3 WATERLINE

LOT 2037

LOT 2036

LOT 2035

LOT 2034

LOT 2033

LOT 2032

DRIVE 34

LOT 1031

LOT 1030

LOT 1029

EXISTING 20' IRRIGATION EASEMENT TO BE VACATED

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LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

N

30 0 30 60 90

Scale 1" = 30'

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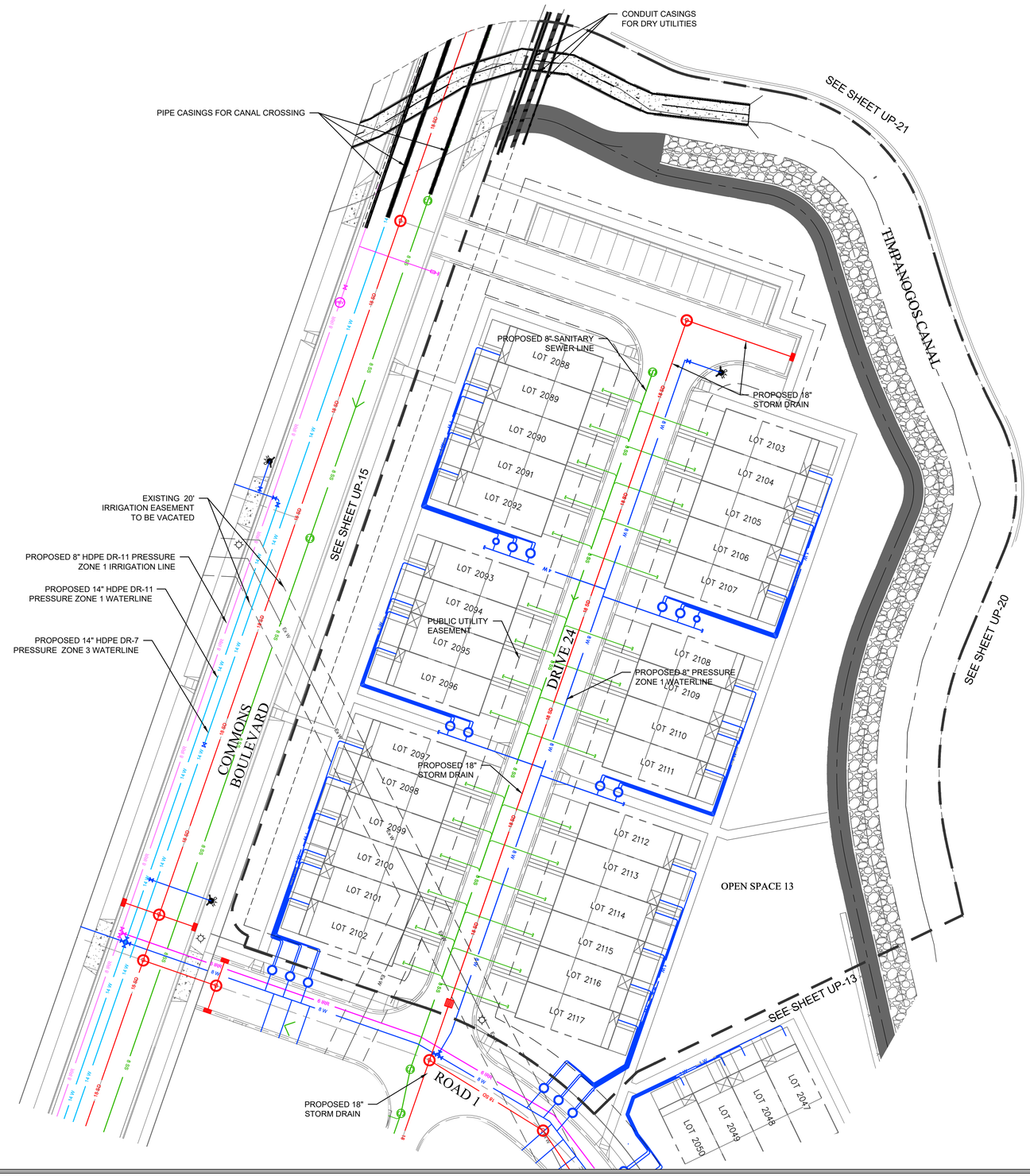
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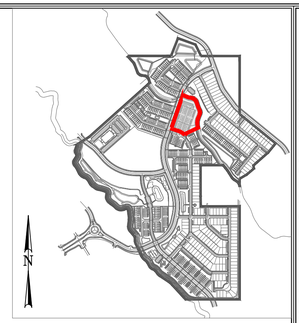
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LEGEND

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N

30 0 30 60 90

Scale 1" = 30'

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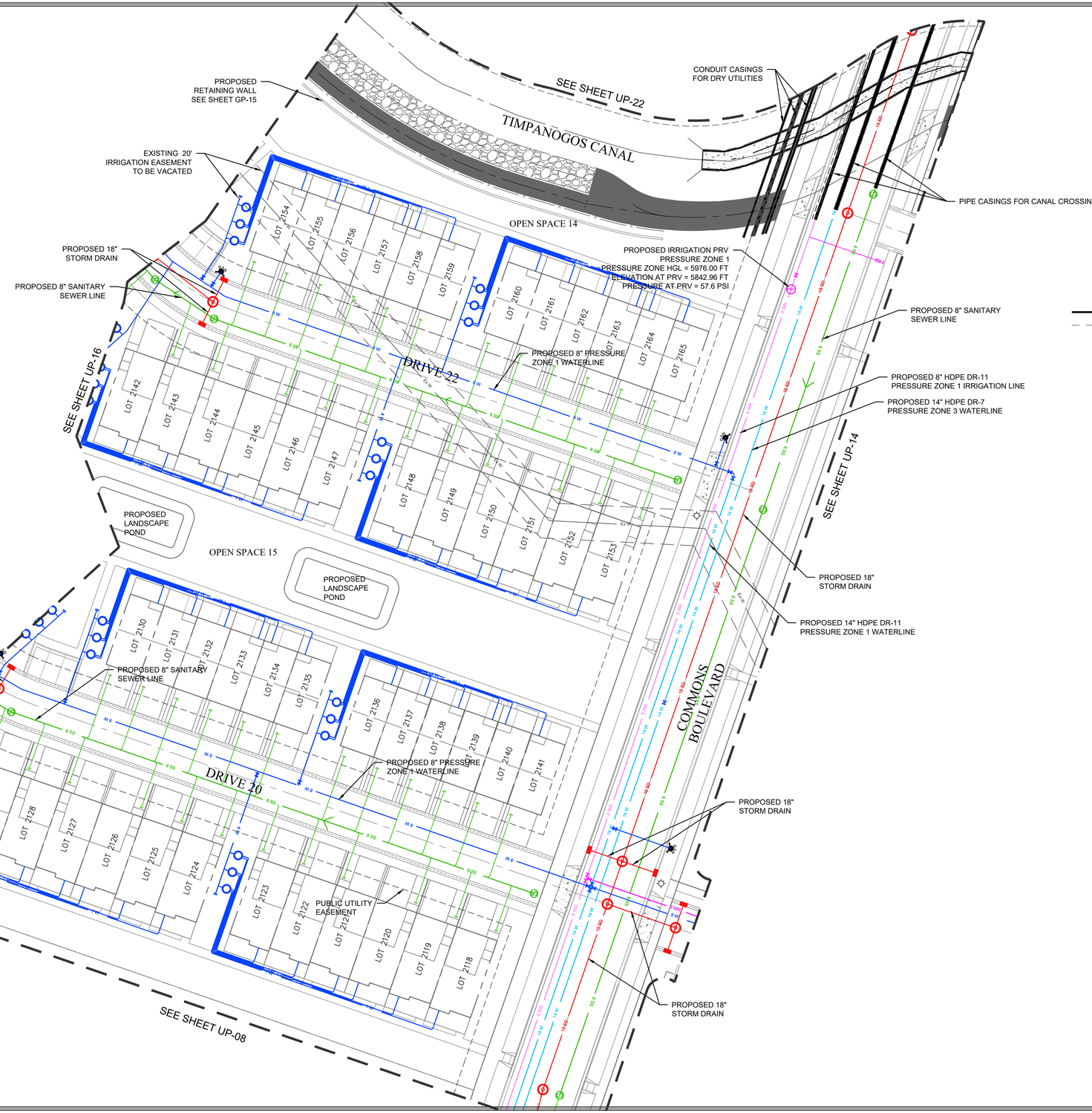
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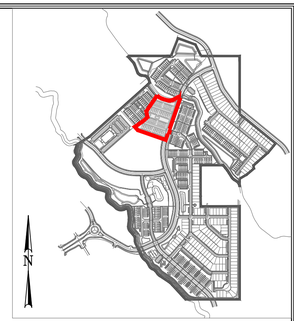
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- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
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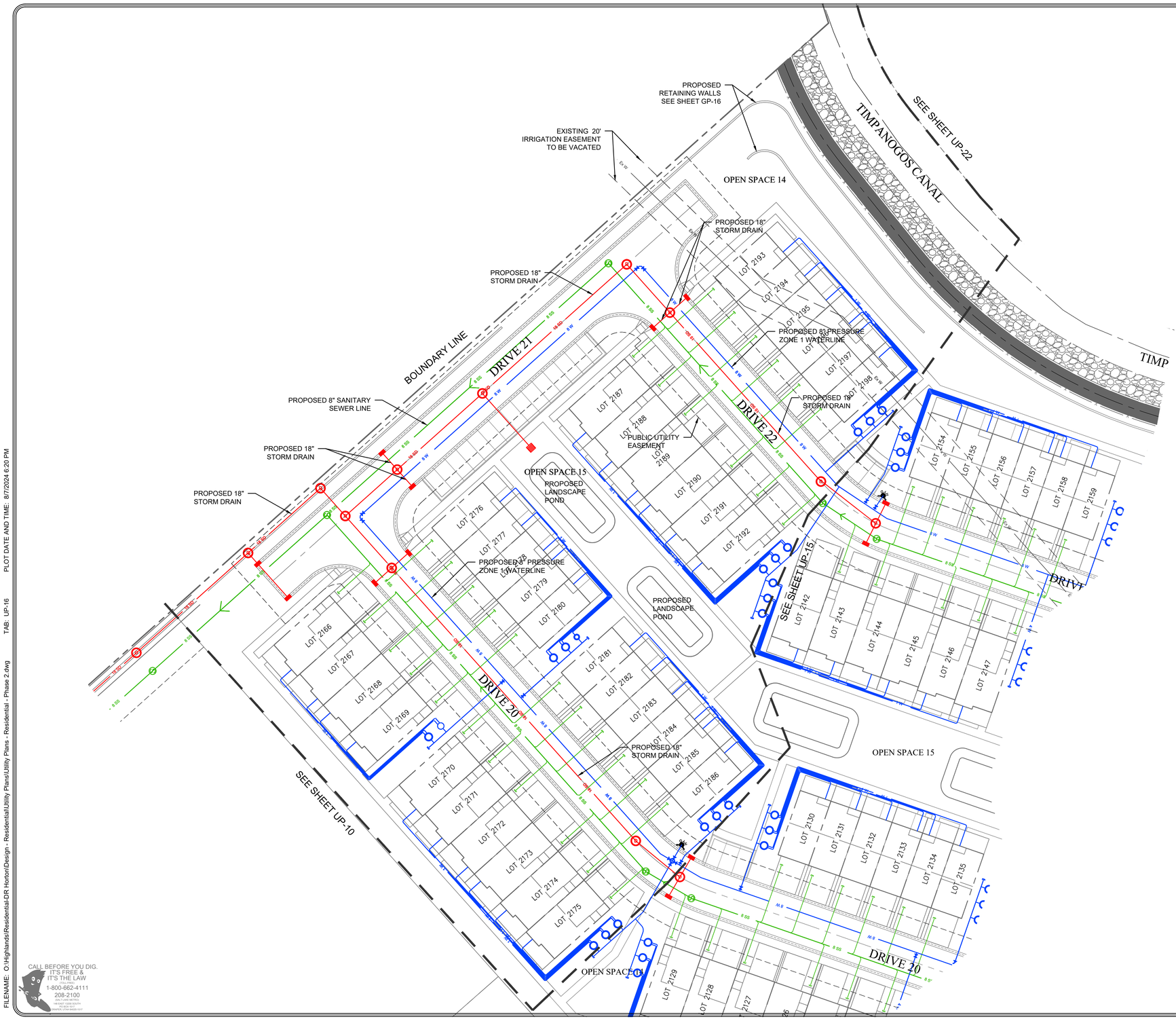
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PROFESSIONAL ENGINEER SATTAR N. TABRIZ 8/6/2024

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UP-15

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Utility Plans\Utility Plans - Residential - Phase 2.dwg TAB: UP-15 PLOT DATE AND TIME: 8/7/2024 6:19 PM



LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
- PROPOSED BAYSAVER HYDRODYNAMIC SEPARATOR
- PROPOSED GATE VALVE
- PROPOSED WATER METER
- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

N

30 0 30 60 90

Scale 1" = 30'

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UTILITY PLAN- PHASE 2

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Ward Engineering Group
Planning • Engineering • Surveying
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JOB No: 3891-DRH01-23
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1 07/30/2024 GRADING REVISION

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SATTAR N. TAEMIZ
8164824

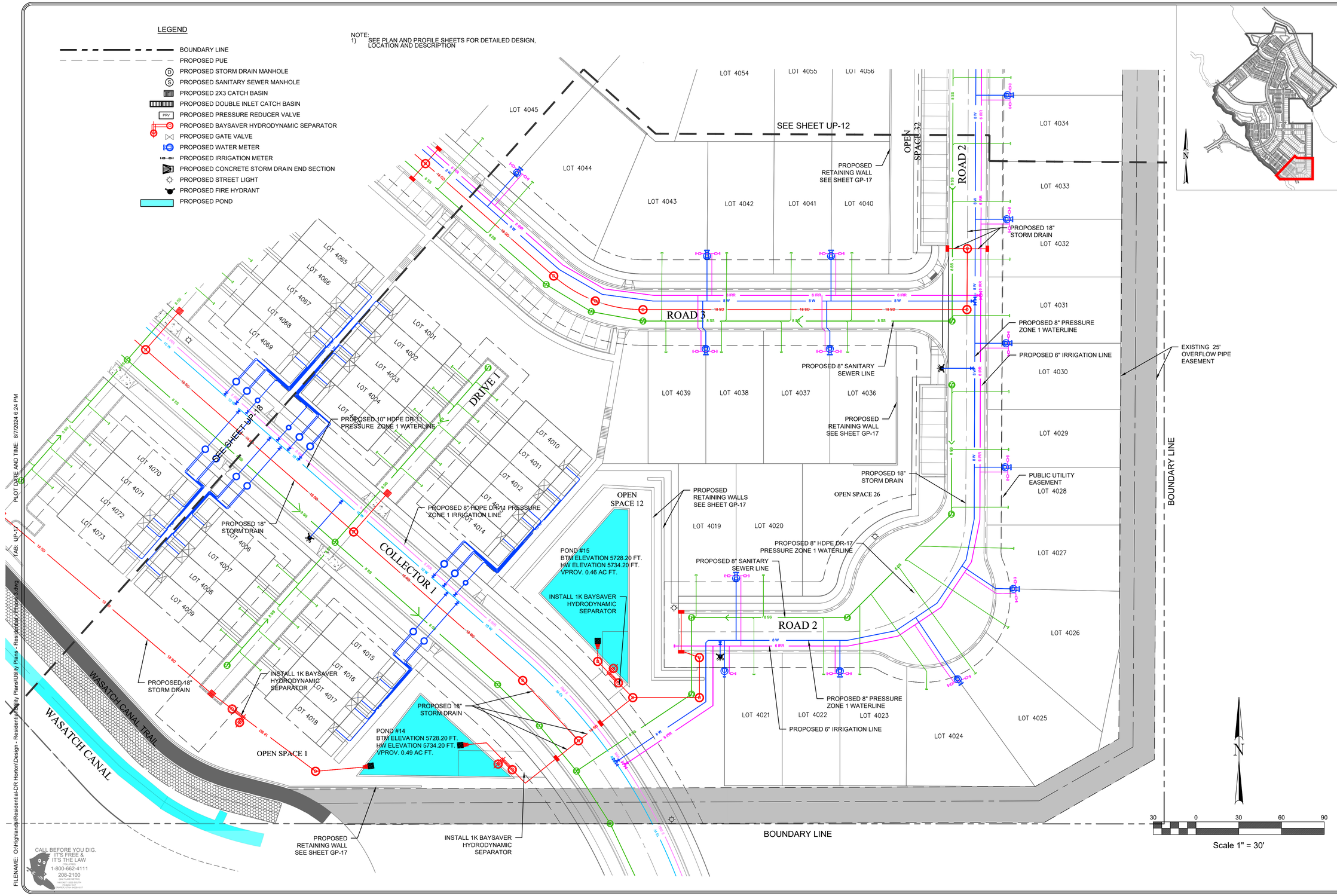
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UP-16

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Utility Plans\Utility Plans - Residential - Phase 2.dwg TAB: UP-16 PLOT DATE AND TIME: 8/7/2024 6:20 PM

LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
- PROPOSED PRESSURE REDUCER VALVE
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- PROPOSED FIRE HYDRANT
- PROPOSED POND

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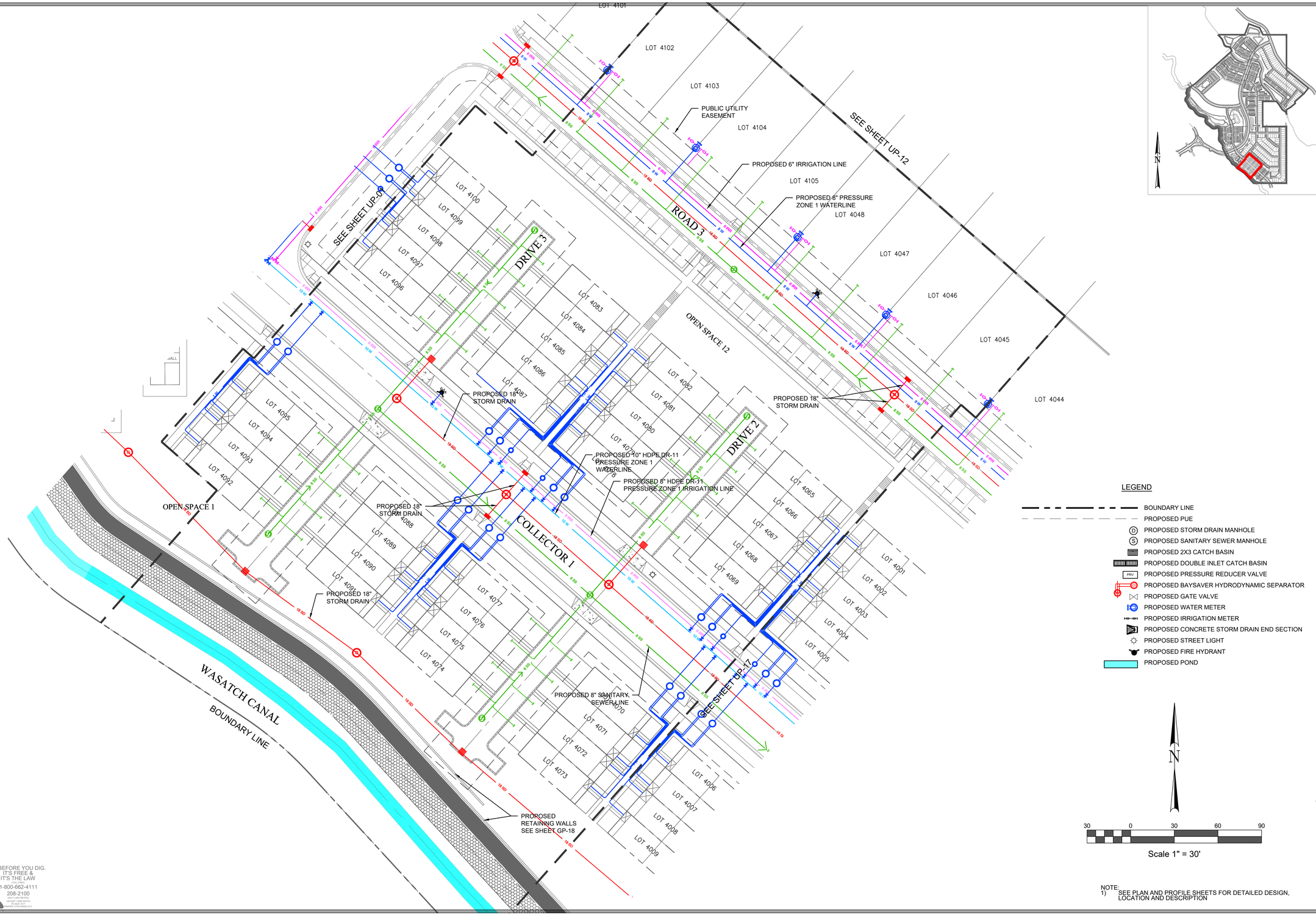
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STATE OF UTAH
8/6/2024

SHEET
UP-17



LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
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- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

N

30 0 30 60 90

Scale 1" = 30'

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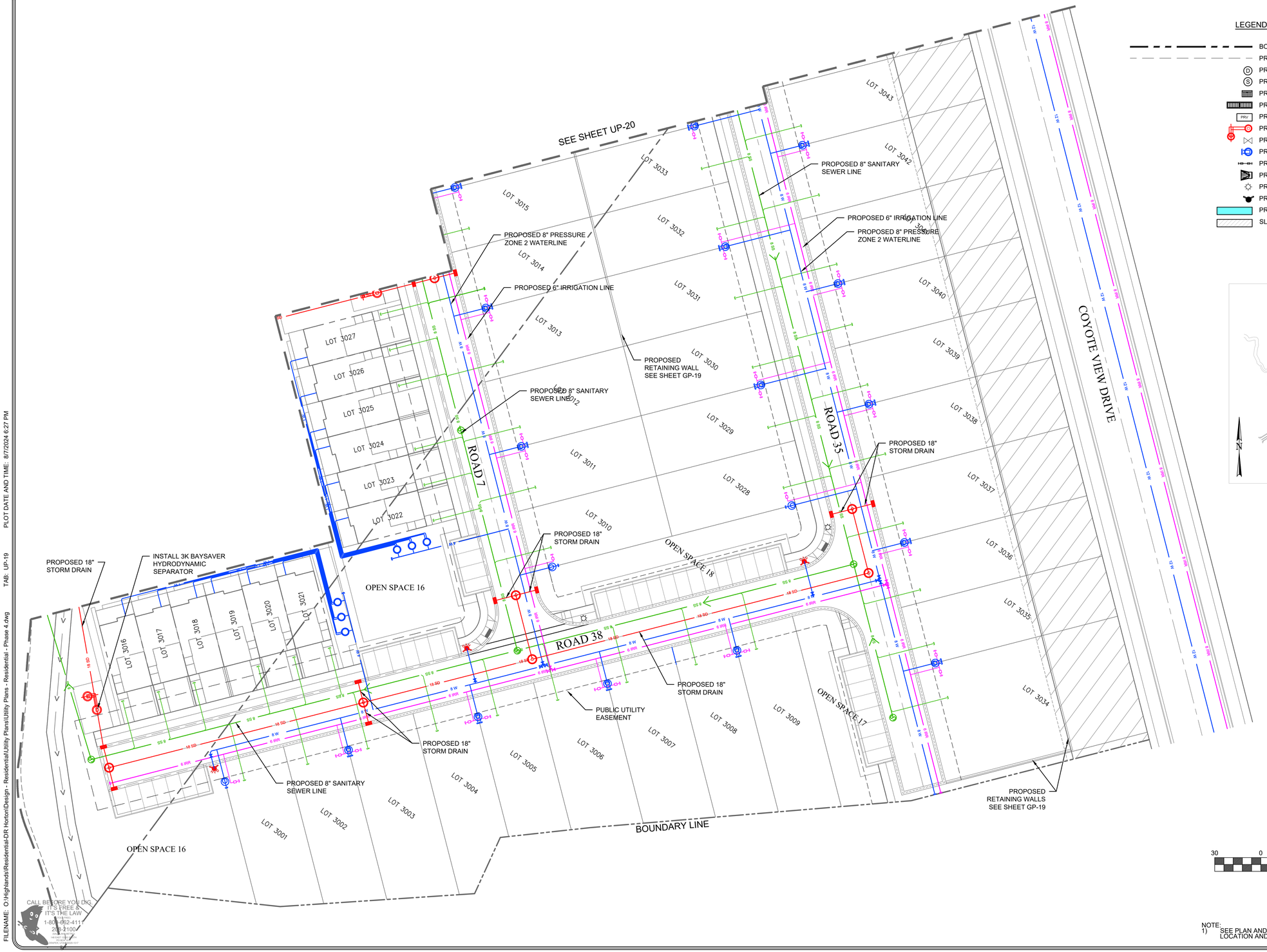
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SATTAR N. TABRIZ
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8162024

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UP-19

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SEE SHEET UP-19

BOUNDARY LINE

COYOTE VIEW DRIVE

ROAD 36

OPEN SPACE 19

PROPOSED RETAINING WALL SEE SHEET GP-20

PROPOSED 8" PRESSURE ZONE 2 WATERLINE

PROPOSED 6" IRRIGATION LINE

PROPOSED 8" SANITARY SEWER LINE

PUBLIC UTILITY EASEMENT

ROAD 35

ROAD 7

DRIVE 37

OPEN SPACE 21

OPEN SPACE 16

PROPOSED 18" STORM DRAIN

INSTALL 1K BAYSAVER HYDRODYNAMIC SEPARATOR

INSTALL 3K BAYSAVER HYDRODYNAMIC SEPARATOR

POND #13
BTM ELEVATION 5844 FT.
HW ELEVATION 5846 FT.
VPROV. 1.56 AC FT.

SEE SHEET UP-13

SEE SHEET UP-21

LOT 3044
LOT 3045
LOT 3046
LOT 3047
LOT 3048
LOT 3049
LOT 3050
LOT 3051
LOT 3052
LOT 3053
LOT 3054
LOT 3055
LOT 3056
LOT 3057
LOT 3058
LOT 3059
LOT 3060
LOT 3061

LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
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- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND
- SLOPE EASEMENT

30 0 30 60 90

Scale 1" = 30'

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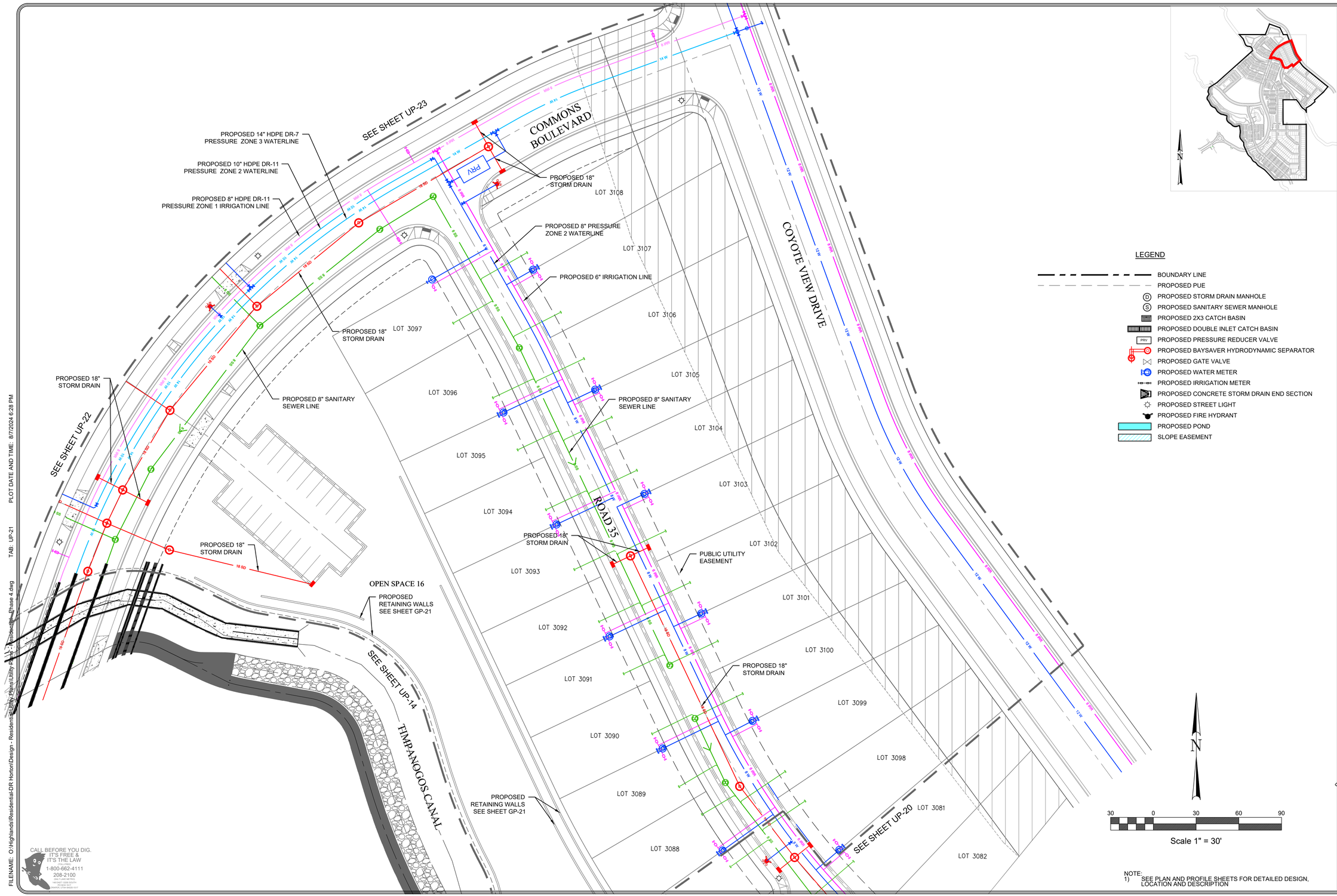
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LICENSED PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
UP-20



LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
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- PROPOSED POND
- SLOPE EASEMENT

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SATTAR N. TAOMIZ 8/6/2024

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UP-21

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LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
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- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND

NOTE:
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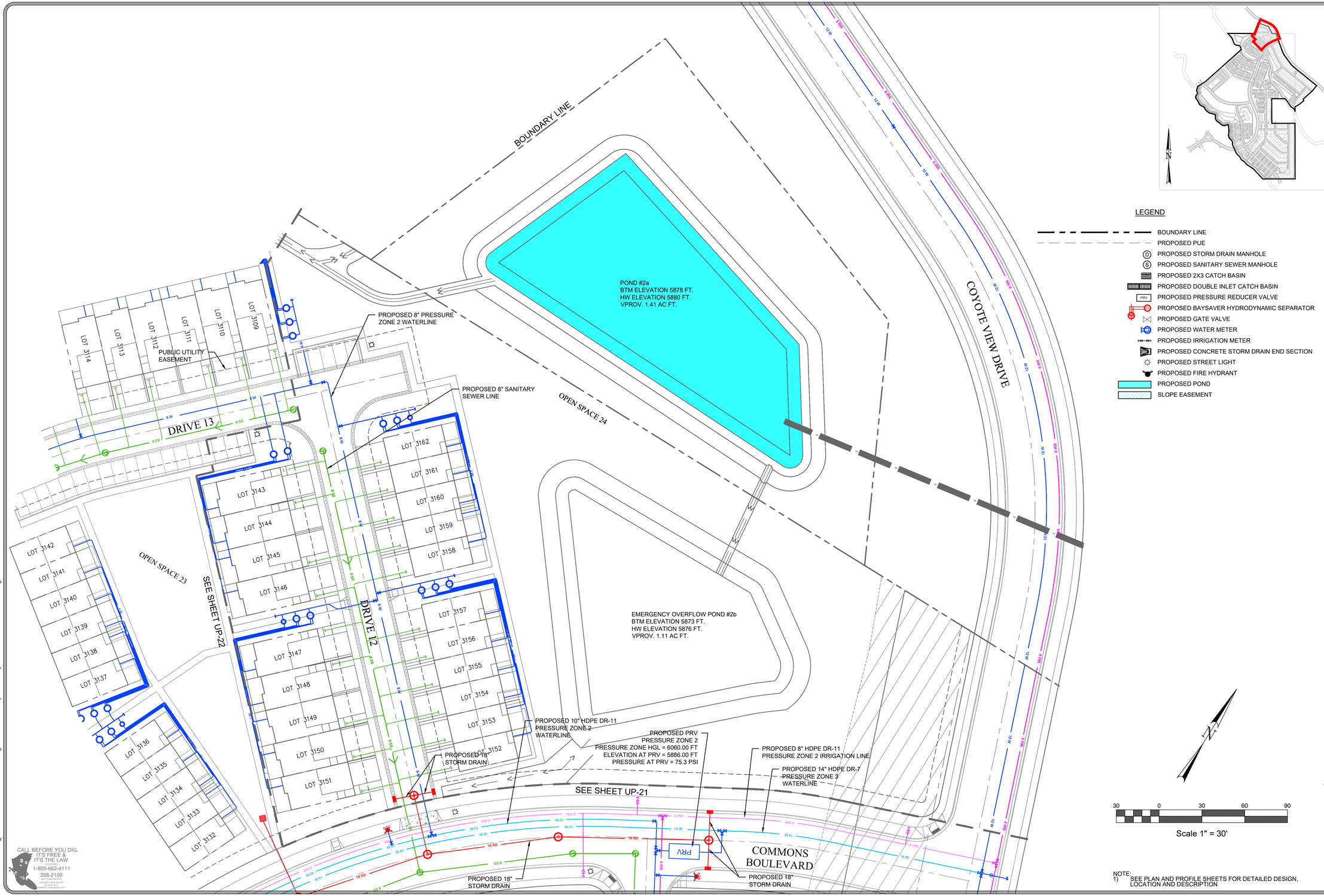
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LEGEND

- BOUNDARY LINE
- PROPOSED PUE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED 2X3 CATCH BASIN
- PROPOSED DOUBLE INLET CATCH BASIN
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- PROPOSED IRRIGATION METER
- PROPOSED CONCRETE STORM DRAIN END SECTION
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED POND
- SLOPE EASEMENT

Scale 1" = 30'

NOTE:
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8164804
PROFESSIONAL ENGINEER
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UP-23

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GRADING PLANS	
Sheet Number	Sheet Title
--	Sub-Title Sheet- Grading Plans
GP-00	Grading Plan
GP-01	Grading Plan- Phase 1
GP-02	Grading Plan- Phase 1
GP-03	Grading Plan- Phase 1
GP-04	Grading Plan- Phase 1
GP-05	Grading Plan- Phase 1
GP-06	Grading Plan- Phase 1
GP-07	Grading Plan- Phase 1
GP-08	Grading Plan- Phase 1
GP-09	Grading Plan- Phase 1
GP-10	Grading Plan- Phase 1
GP-11	Grading Plan- Phase 2
GP-12	Grading Plan- Phase 2
GP-13	Grading Plan- Phase 2
GP-14	Grading Plan- Phase 2
GP-15	Grading Plan- Phase 2
GP-16	Grading Plan- Phase 2
GP-17	Grading Plan- Phase 3
GP-18	Grading Plan- Phase 3
GP-19	Grading Plan- Phase 4
GP-20	Grading Plan- Phase 4
GP-21	Grading Plan- Phase 4
GP-22	Grading Plan- Phase 4
GP-23	Grading Plan- Phase 4

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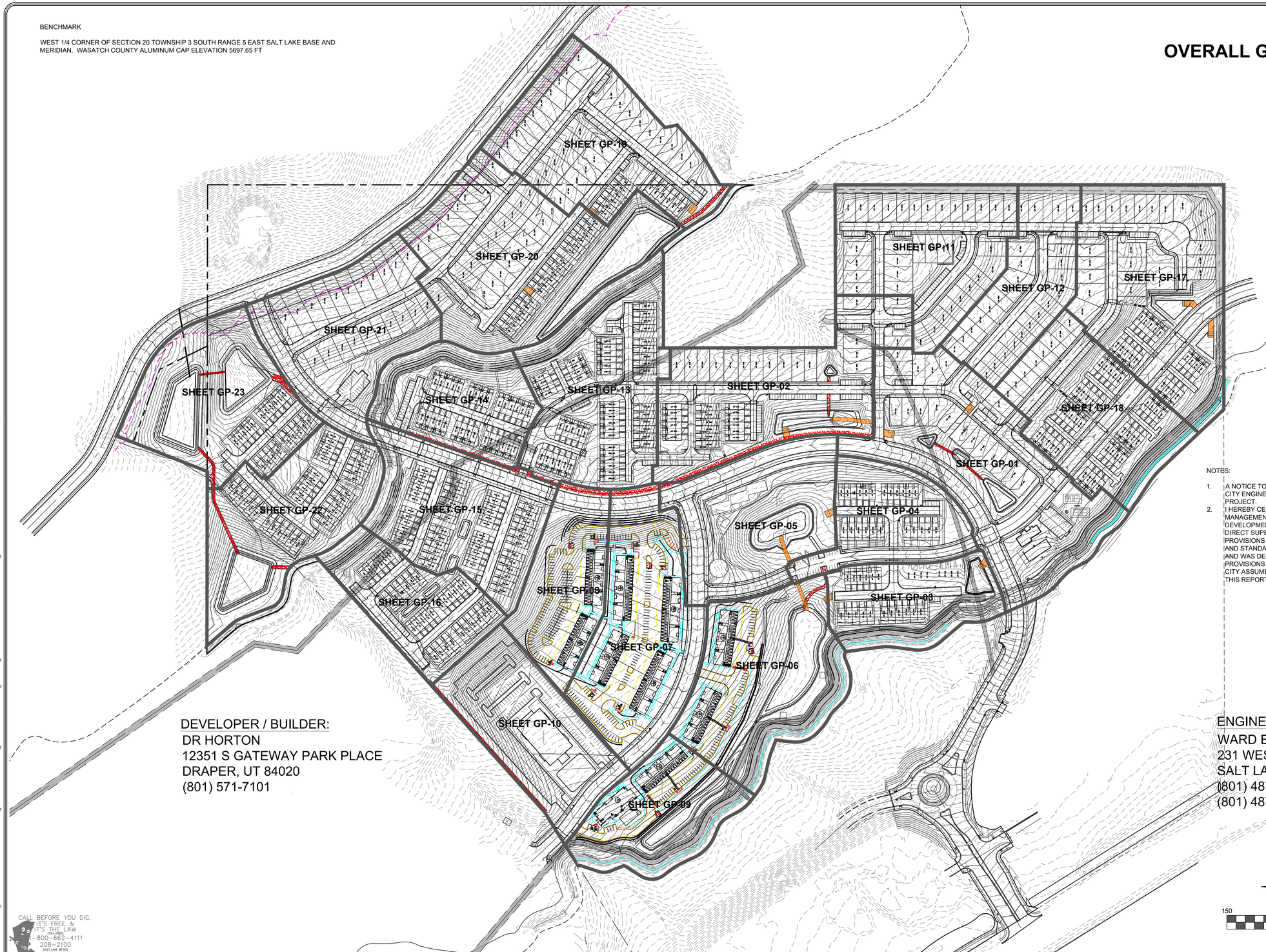
LICENSED PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET

BENCHMARK

WEST 1/4 CORNER OF SECTION 20 TOWNSHIP 3 SOUTH RANGE 5 EAST SALT LAKE BASE AND MERIDIAN. WASATCH COUNTY ALUMINUM CAP ELEVATION 5697.65 FT

OVERALL GRADING PLAN



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2. I HEREBY CERTIFY THAT THIS DESIGN FOR THE MANAGEMENT OF STORM WATER OF THIS DEVELOPMENT WAS PREPARED BY ME, OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE PROVISIONS OF HEBER CITY'S DRAINAGE MANUAL AND STANDARD SPECIFICATIONS AND DRAWINGS, AND WAS DESIGNED TO COMPLY WITH THE PROVISIONS THEREOF. I UNDERSTAND THAT THE CITY ASSUMES NO RESPONSIBILITY OR LIABILITY FOR THIS REPORT.

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DR HORTON
12351 S GATEWAY PARK PLACE
DRAPER, UT 84020
(801) 571-7101

ENGINEER/ SURVEYOR
WARD ENGINEERING GROUP
231 WEST 800 SOUTH SUITE A
SALT LAKE CITY, UTAH 84101
(801) 487-8040 PHONE
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150 0 150 300 450
Scale 1" = 150'

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TABRIZ
8/6/2024

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GP-00

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STATE OF UTAH
SATTAR N. TABRIZ
8166760
07/29/2024

SHEET
GP-01

Scale 1" = 30'

SEE SHEET GP-03
SEE SHEET GP-04
SEE SHEET GP-02
SEE SHEET GP-18
SEE SHEET GP-12

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SHEET
GP-02

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PROFESSIONAL ENGINEER
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STATE OF UTAH
8/6/2024

SHEET
GP-03

HIGHLANDS RESIDENTIAL DEVELOPMENT
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CLIENT: D.R.HORTON
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GP-04

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SHEET
GP-05

SEE SHEET GP-07

SEE SHEET GP-09

COLLECTOR 2

COLLECTOR 1

FUTURE STACKED FLAT
DEVELOPMENT DESIGN
BY OTHERS

PROPOSED POND
BTM=5718.0

PROPOSED POND
BTM=5718.0

BOUNDARY LINE

WASATCH CANAL

SEE SHEET GP-03

SEE SHEET GP-05

LOT 1050

LOT 1051

LOT 1052

LOT 1061

LOT 1062

N

30 0 30 60 90

Scale 1" = 30'

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DWG: GRADING PHASE 1.DWG
JOB No: 3891-DRH01-23
DRAWING: DRAWING IS REDUCED IF LESS THAN 24"x 36". USE SCALES AND NOTES AS PRE-DESIGNED
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SEE SHEET GP-08

SEE SHEET GP-10

SEE SHEET GP-13

SEE SHEET GP-05

SEE SHEET GP-06

COMMONS BOULEVARD

COLLECTOR 2

COLLECTOR 2

FUTURE STACKED FLAT DEVELOPMENT DESIGN BY OTHERS

TBC=5797.41
TBC=5798.47
TBC=5787.32
TBC=5787.71
TBC=5788.73
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TBC=5743.79
TBC=5745.75
TBC=5740.76
TBC=5741.82

5.69%
5.71%
4.24%
3.50%
3.36%

5745
5750
5755
5760
5765
5770
5775
5780
5785

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30 0 30 60 90

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JOB No: 3891-DRH01-23
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No. 9176604
STATE OF UTAH
8/6/2024

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GP-08

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8162684
8/6/2024

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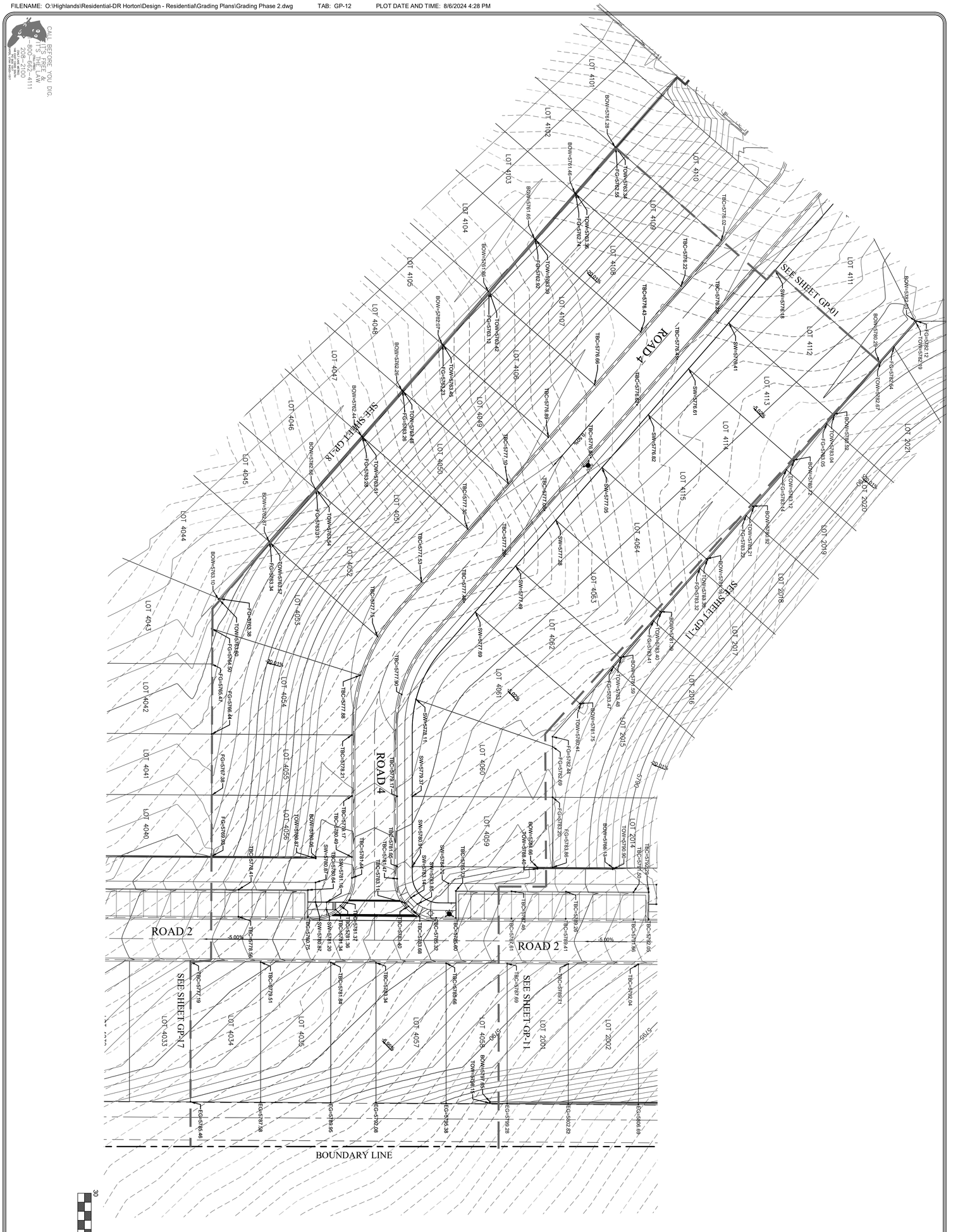
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GP-11

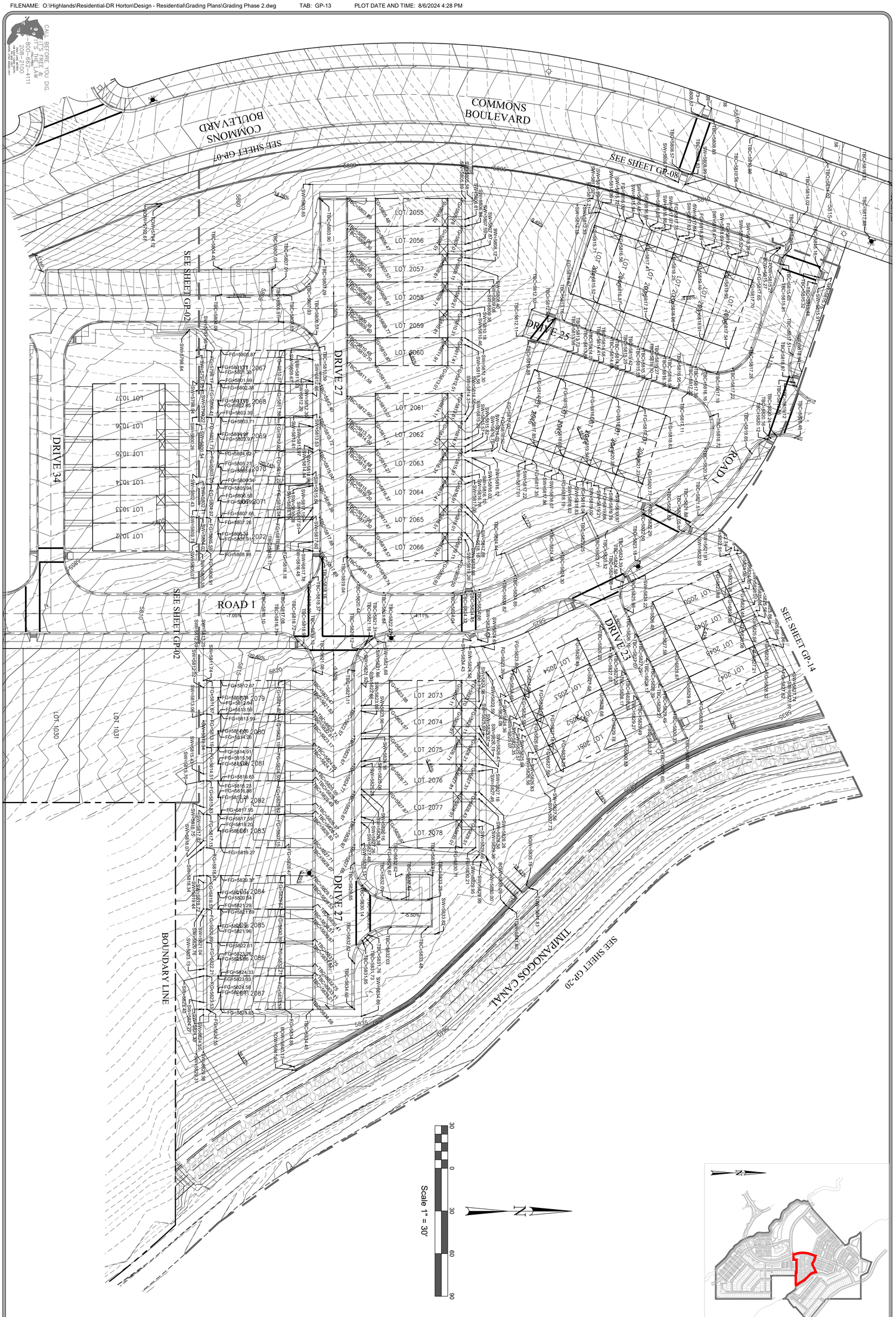
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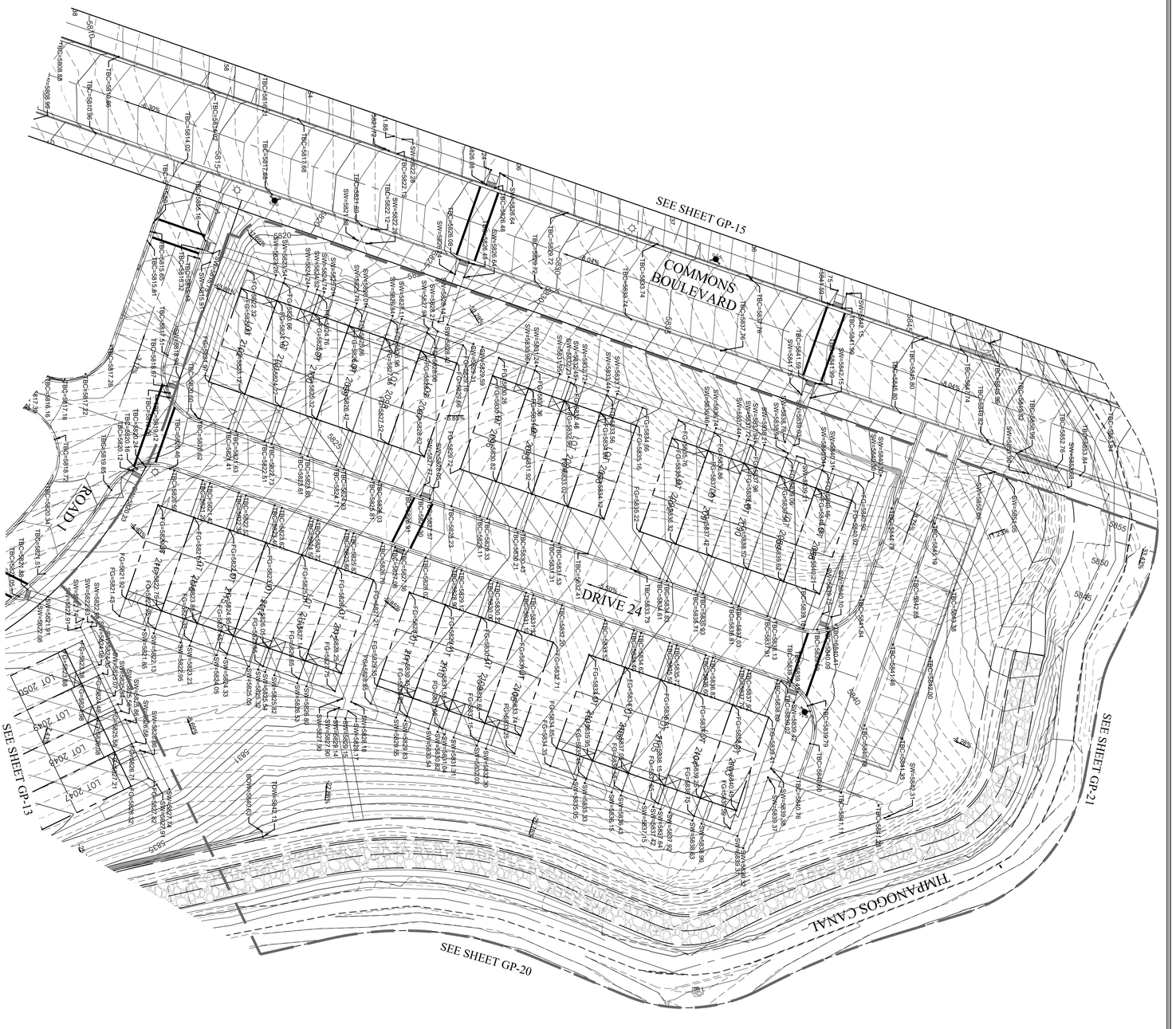

ROAD 4
ROAD 2
ROAD 2
SEE SHEET GP-01
SEE SHEET GP-1A
SEE SHEET GP-11
SEE SHEET GP-17
SEE SHEET GP-11
BOUNDARY LINE
LOT 4101
LOT 4102
LOT 4103
LOT 4104
LOT 4105
LOT 4106
LOT 4107
LOT 4108
LOT 4109
LOT 4110
LOT 4111
LOT 4112
LOT 4113
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LOT 4055
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LOT 4059
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LOT 2021
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LOT 2019
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LOT 2015
LOT 2014
LOT 2001
LOT 2002
5.00%
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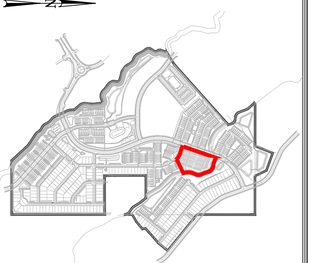
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GP-13	1 07/30/2024 GRADING REVISION	DESIGN BY: WARD	DWG: GRADING PHASE 2.DWG	Ward Engineering Group	GRADING PLAN- PHASE 2
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30 0 30 60 90



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GP-14	1	07/30/2024	GRADING REVISION

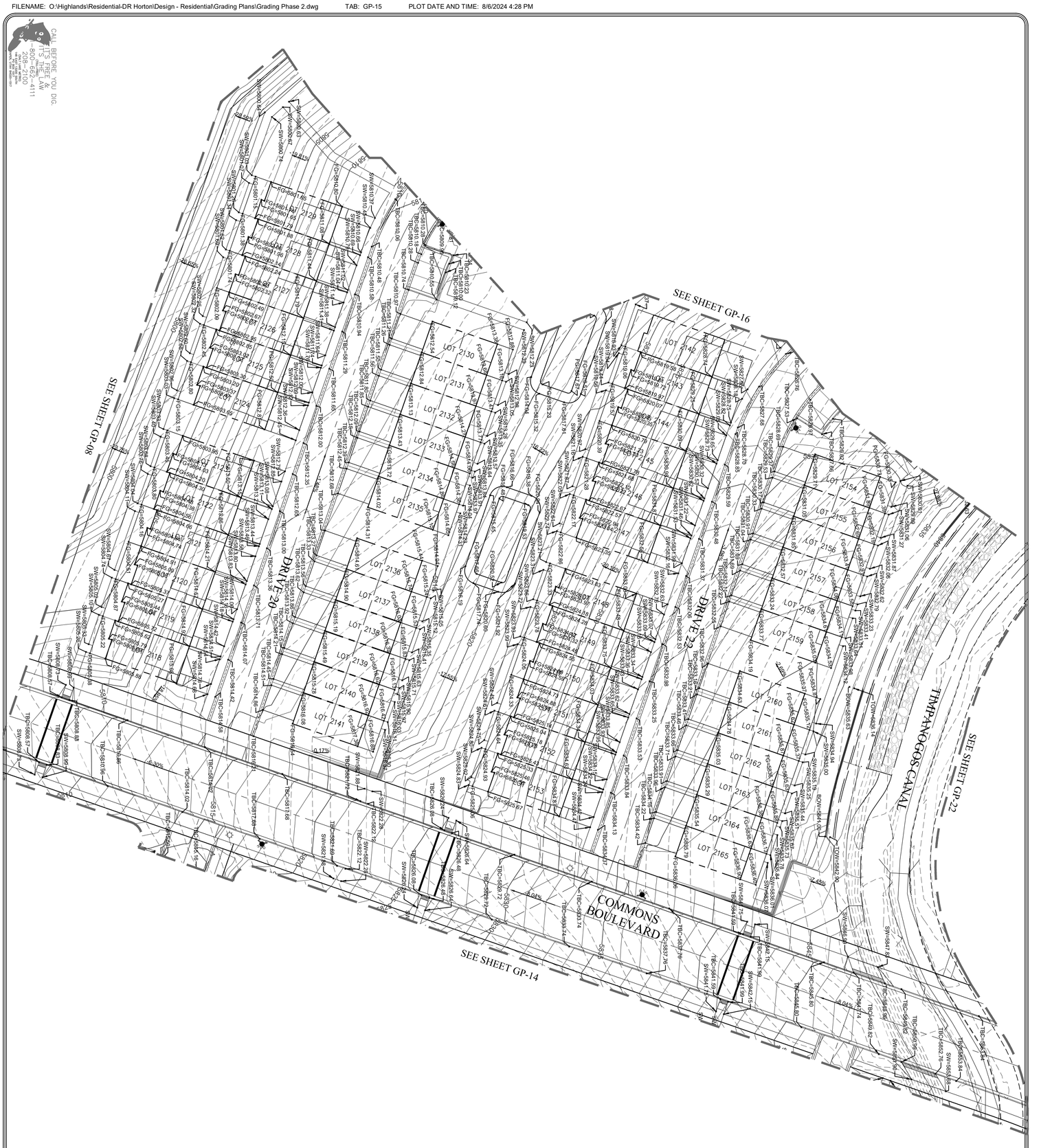
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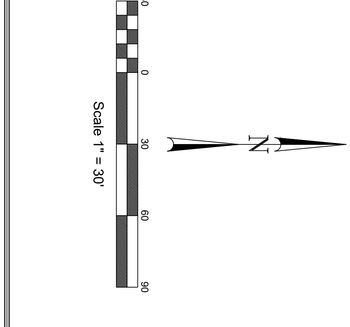
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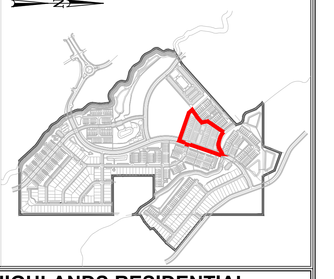
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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT

GRADING PLAN- PHASE 2

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DWG: GRADING PHASE 2.DWG
JOB No: 3891-DRH01-23
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SEE SHEET GP-18

PROPOSED POND
BTM=5728.20

PROPOSED POND
BTM=5728.0

ROAD 1

ROAD 2

ROAD 3

DRIVE 1

DRIVE 2

COLLECTOR 1

COLLECTOR 2

WASATCH CANAL

BOUNDARY LINE

LOT 4019 LOT 4020 LOT 4021 LOT 4022 LOT 4023 LOT 4024 LOT 4025 LOT 4026 LOT 4027 LOT 4028 LOT 4029 LOT 4030 LOT 4031 LOT 4032 LOT 4033 LOT 4034 LOT 4036 LOT 4037 LOT 4038 LOT 4039 LOT 4040 LOT 4041 LOT 4042 LOT 4043 LOT 4044 LOT 4045 LOT 4054 LOT 4055 LOT 4056

30 0 30 60 90

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GP-17

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HIGHLANDS RESIDENTIAL DEVELOPMENT HEBER CITY, UT

GRADING PLAN- PHASE 4

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
GRADING PLAN- PHASE 4

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CLIENT: D.R.HORTON
DWG: GRADING PHASE 4.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 24"x36". DIMENSIONS AND NOTES TAKE PRECEDENCE

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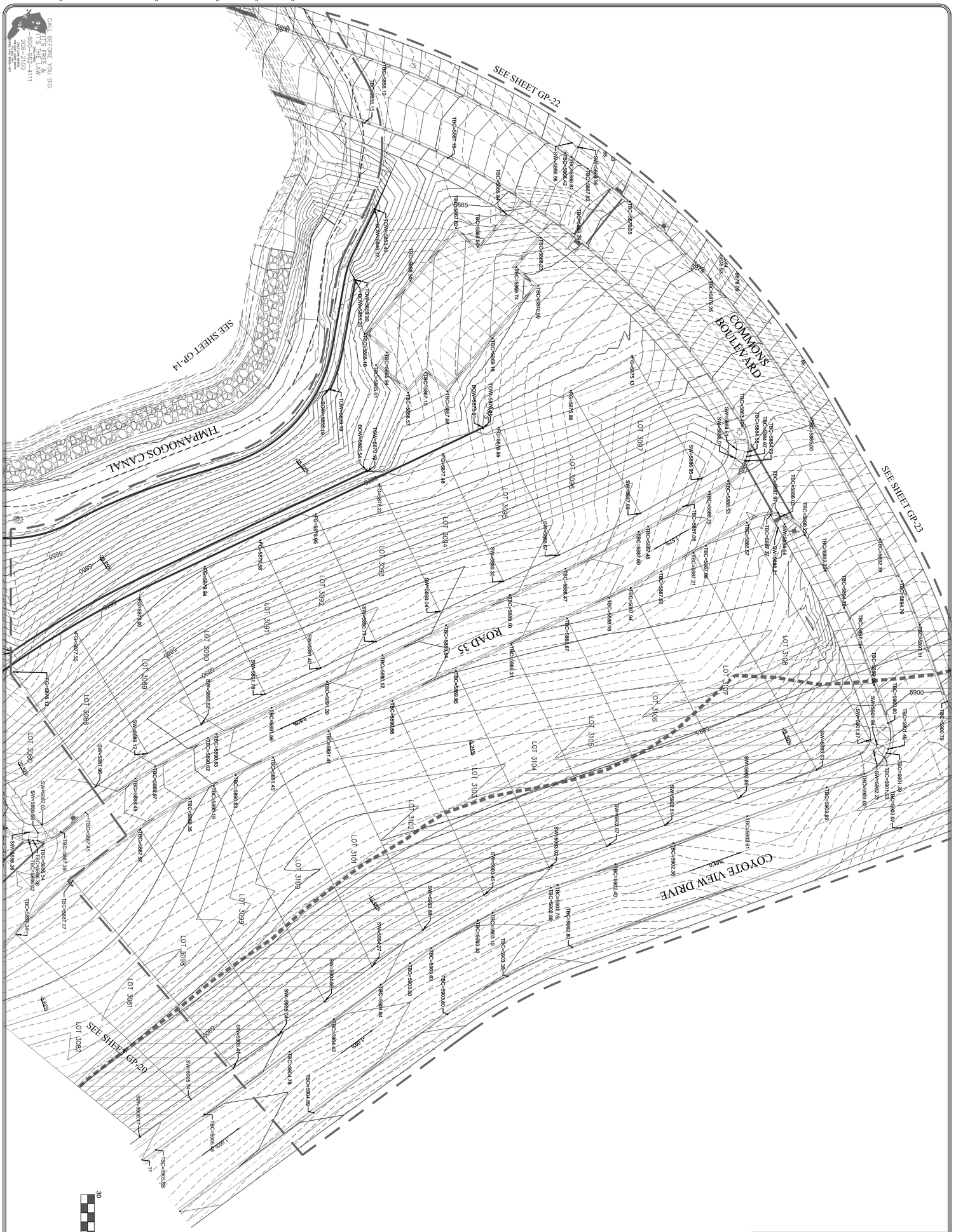
SHEET
GP-20

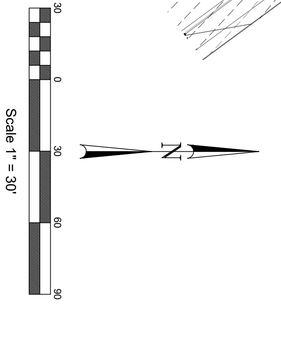
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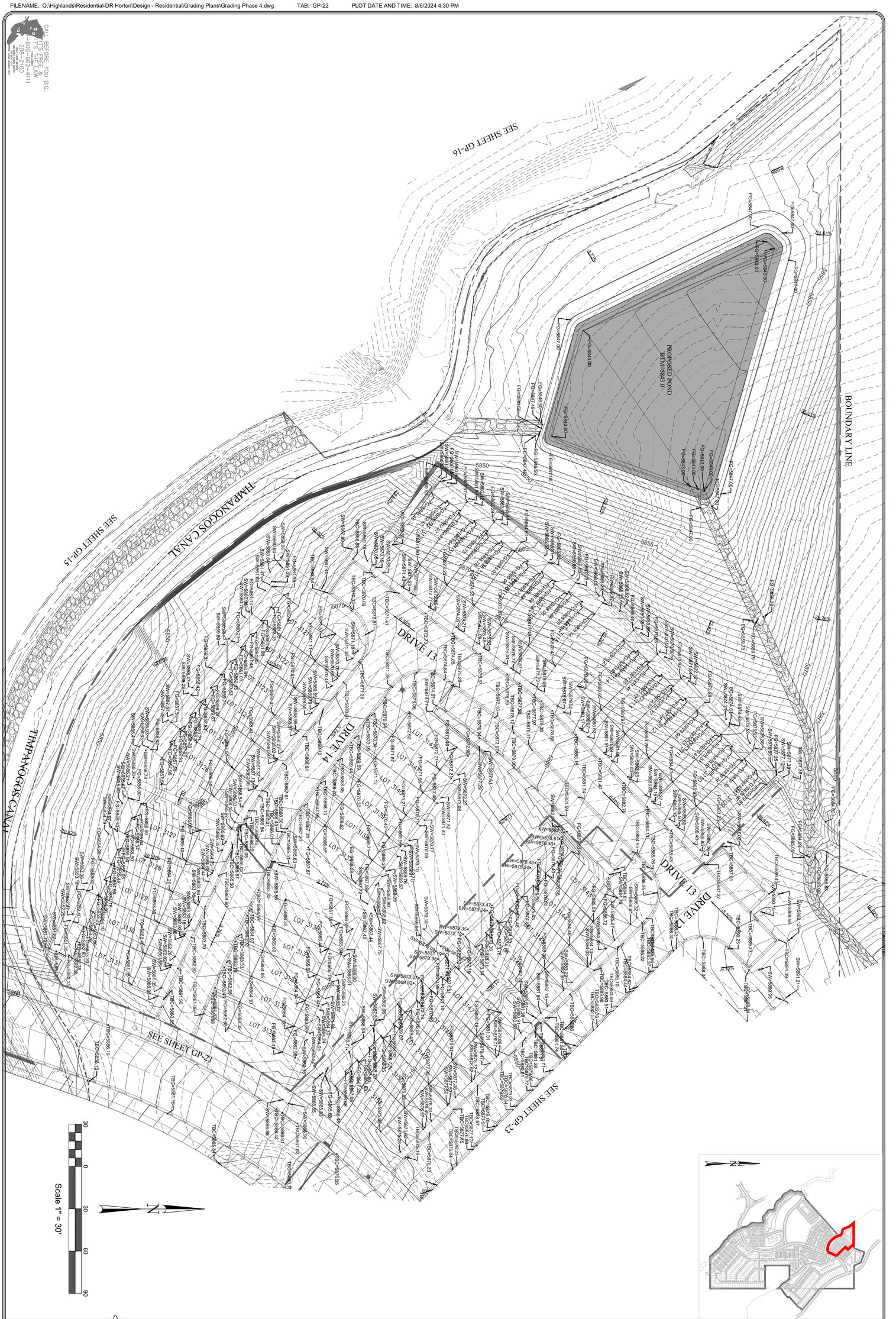
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GP-21	1	07/30/2024	GRADING REVISION	DESIGN BY: WARD	DWG: GRADING PHASE 4.DWG	Ward Engineering Group	GRADING PLAN- PHASE 4
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GP-22

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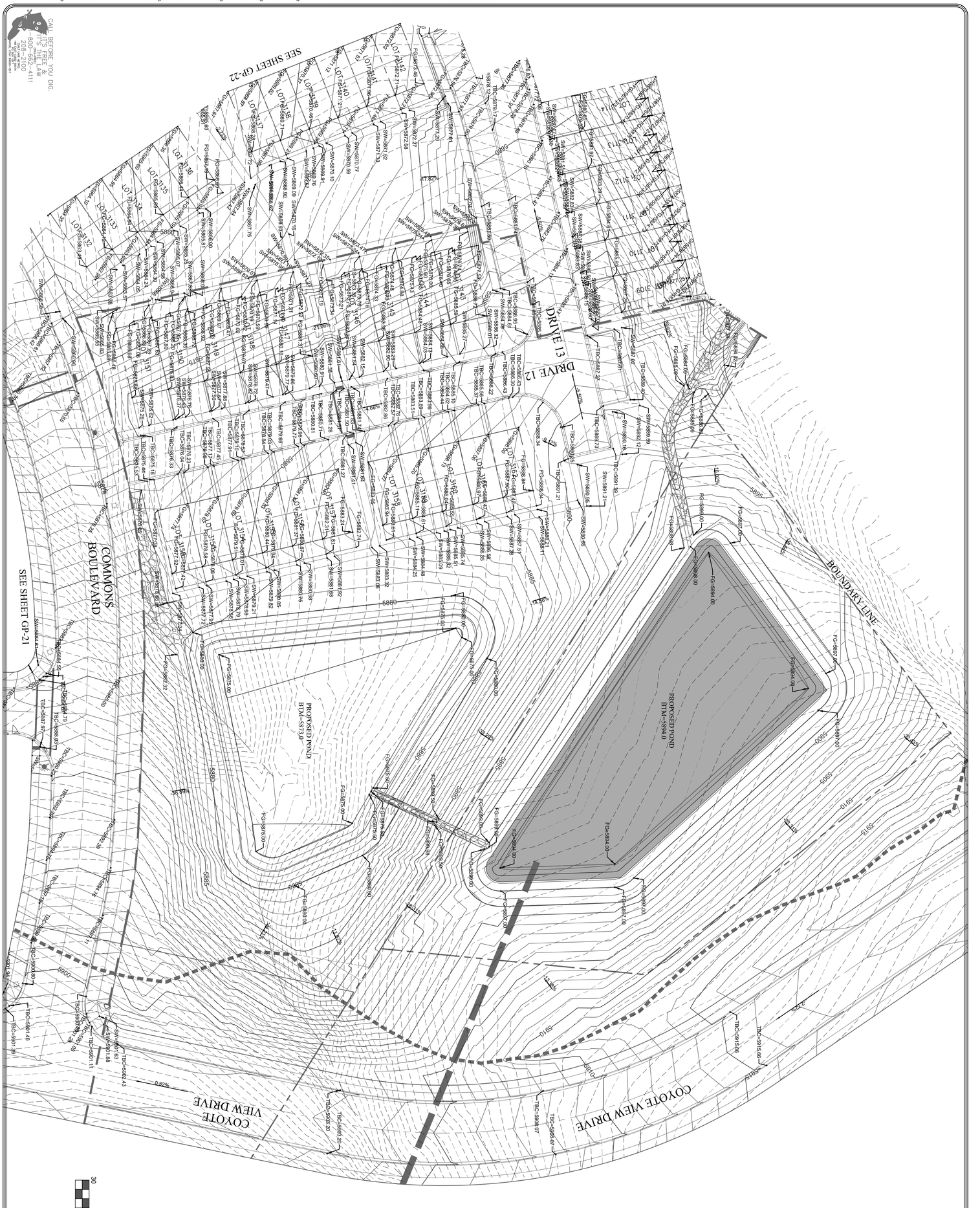
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DATE: 07/29/2024

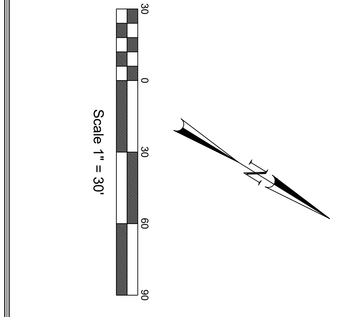
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JOB No: 3891-DRH01-23
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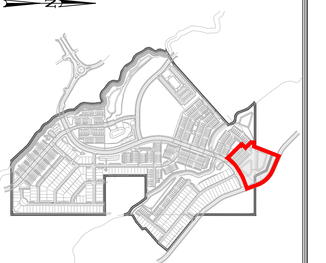
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GRADING PLAN- PHASE 4

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GP-23	1	07/30/2024	GRADING REVISION	DESIGN BY: WARD	DWG: GRADING PHASE 4.DWG	Ward Engineering Group	GRADING PLAN- PHASE 4
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MASS GRADING SECTIONS	
Sheet Number	Sheet Title
--	Sub-Title Sheet- Grading Sections
SEC-00	Grading Section
SEC-4A	Residential Grading Sections
SEC-4B	Residential Grading Sections
SEC-6A	Residential Grading Sections
SEC-6B	Residential Grading Sections
SEC-6C	Residential Grading Sections
SEC-6D	Residential Grading Sections
SEC-7A	Residential Grading Sections
SEC-13A	Residential Grading Sections
SEC-13B	Residential Grading Sections
SEC-13C	Residential Grading Sections
SEC-13D	Residential Grading Sections
SEC-13E	Residential Grading Sections
SEC-13F	Residential Grading Sections
SEC-13G	Residential Grading Sections
SEC-15A	Residential Grading Sections
SEC-15B	Residential Grading Sections
SEC-15C	Residential Grading Sections
SEC-15D	Residential Grading Sections
SEC-16A	Residential Grading Sections
SEC-16B	Residential Grading Sections
SEC-17A	Residential Grading Sections
SEC-17B	Residential Grading Sections
SEC-17C	Residential Grading Sections
SEC-17D	Residential Grading Sections
SEC-17E	Residential Grading Sections

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1 07/30/2024 GRADING REVISION

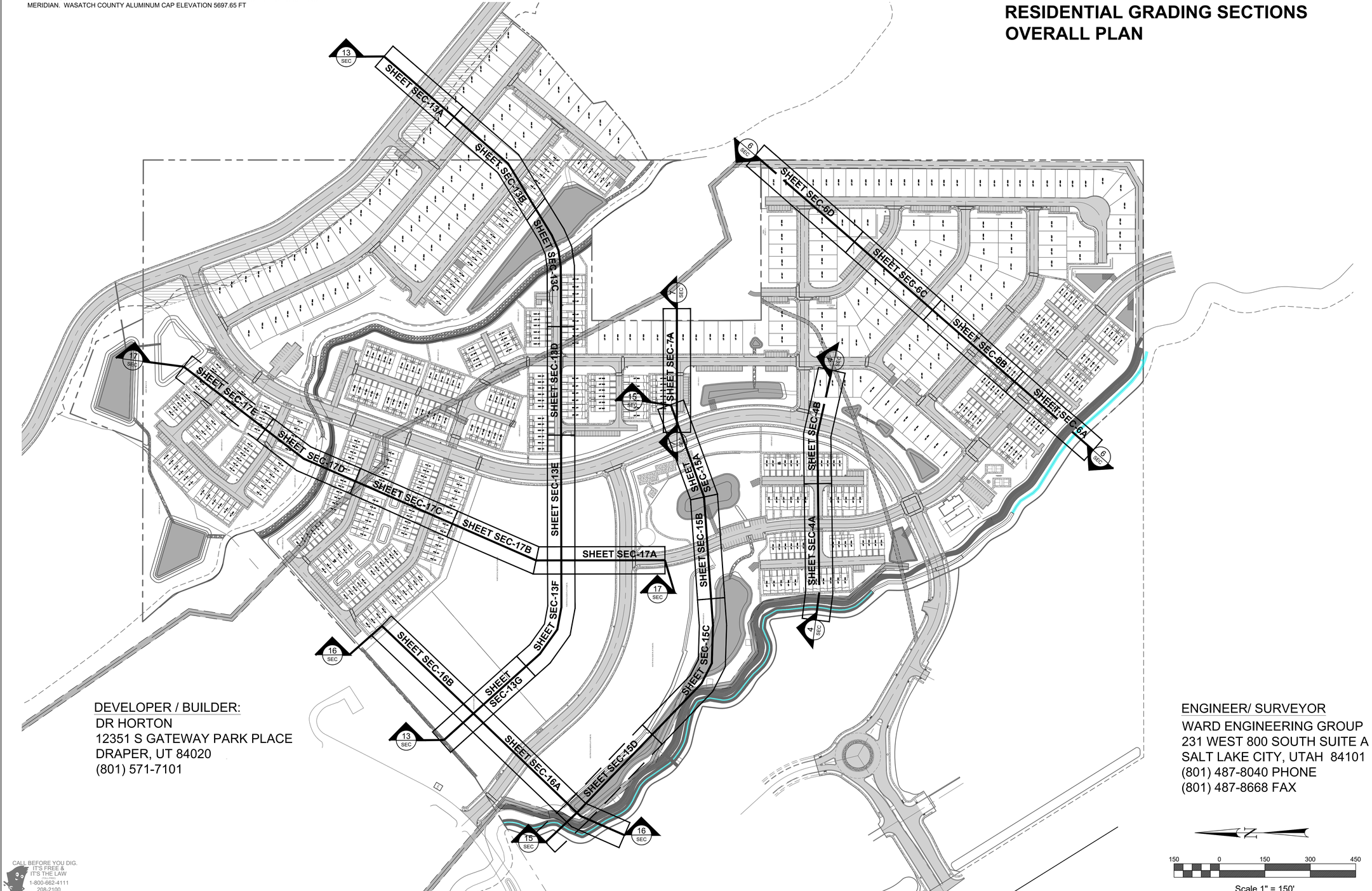
UTAH LICENSED PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8/6/2024

SHEET

BENCHMARK

WEST 1/4 CORNER OF SECTION 20 TOWNSHIP 3 SOUTH RANGE 5 EAST SALT LAKE BASE AND MERIDIAN. WASATCH COUNTY ALUMINUM CAP ELEVATION 5697.65 FT

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DRAPER, UT 84020
(801) 571-7101

ENGINEER/ SURVEYOR
WARD ENGINEERING GROUP
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SALT LAKE CITY, UTAH 84101
(801) 487-8040 PHONE
(801) 487-8668 FAX

150 0 150 300 450
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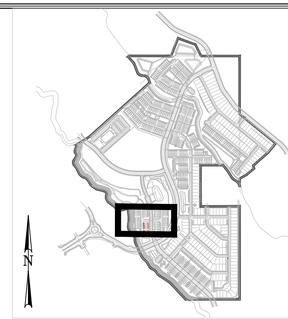
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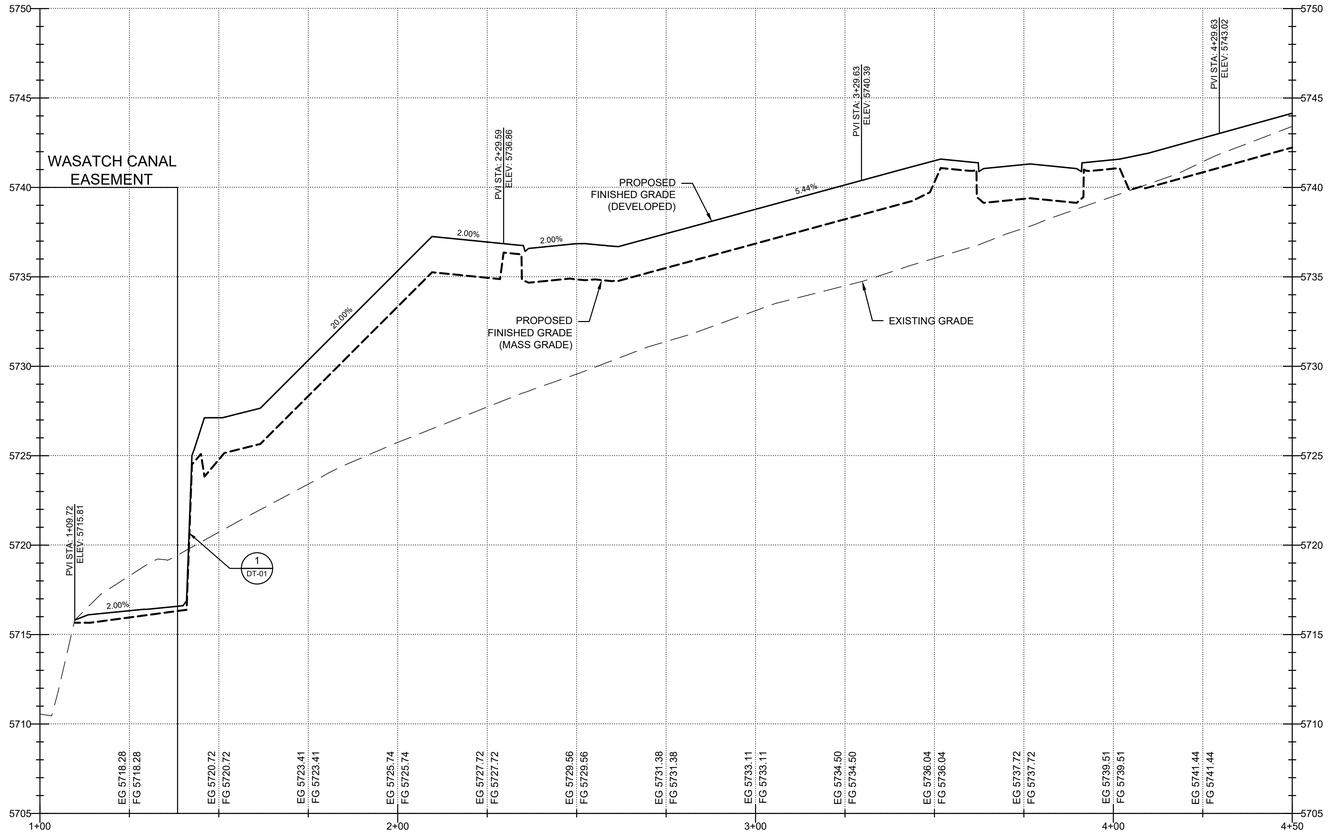
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SEC-00

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Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

N

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

NOTES:

1- THE SUBGRADE IN ROADWAY IS 23.0" LOWER THAN FINISH GRADE

2- THE SUBGRADE IN BUILDINGS/ LOT AREAS AND OPEN SPACE ADJACENT TO TOWNHOMES ARE 24" BELOW FINISHED GRADE.

3- SUBGRADE IN PARKS/ OPEN SPACE, INCLUDING PONDS AND SLOPES, ARE 6" BELOW FINISHED GRADE.

4- FILL UNDER PAVEMENT AREAS NEEDS TO BE DONE IN LAYERS OR LIFTS AND COMPACTION ACCOMPLISHED IN ACCORDANCE WITH SPECIFICATION 02250 OR THE GEOTHECNICAL ENGINEERING REPORT (WHICHEVER IS MORE STRINGENT).

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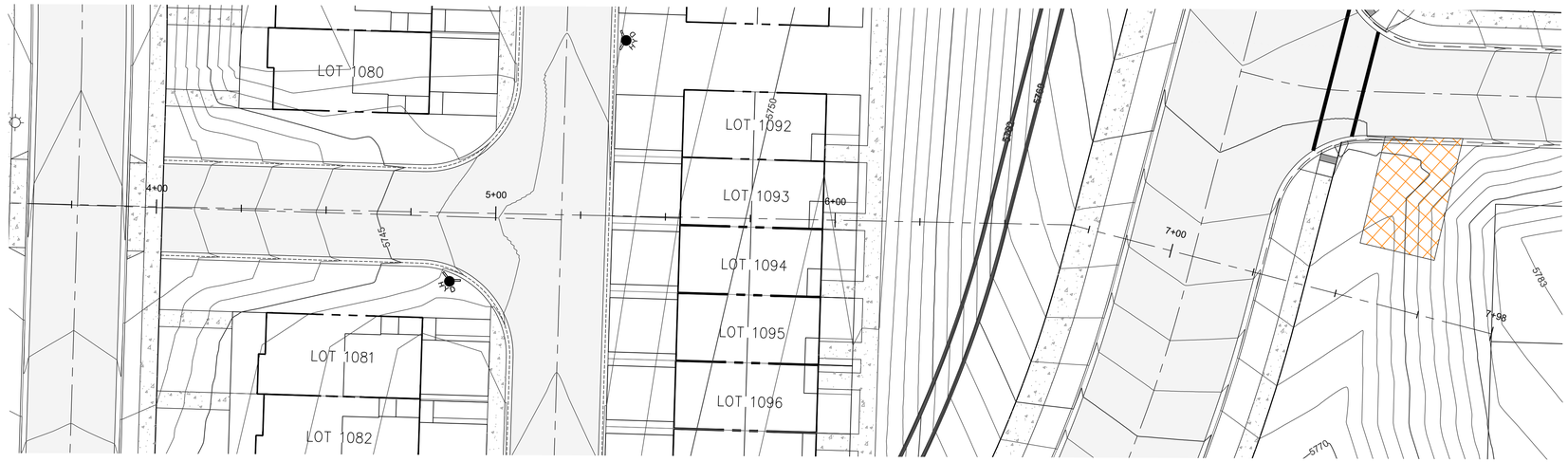
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SATTAR M. TABRIZ
8765604
REGISTERED PROFESSIONAL ENGINEER
STATE OF UTAH

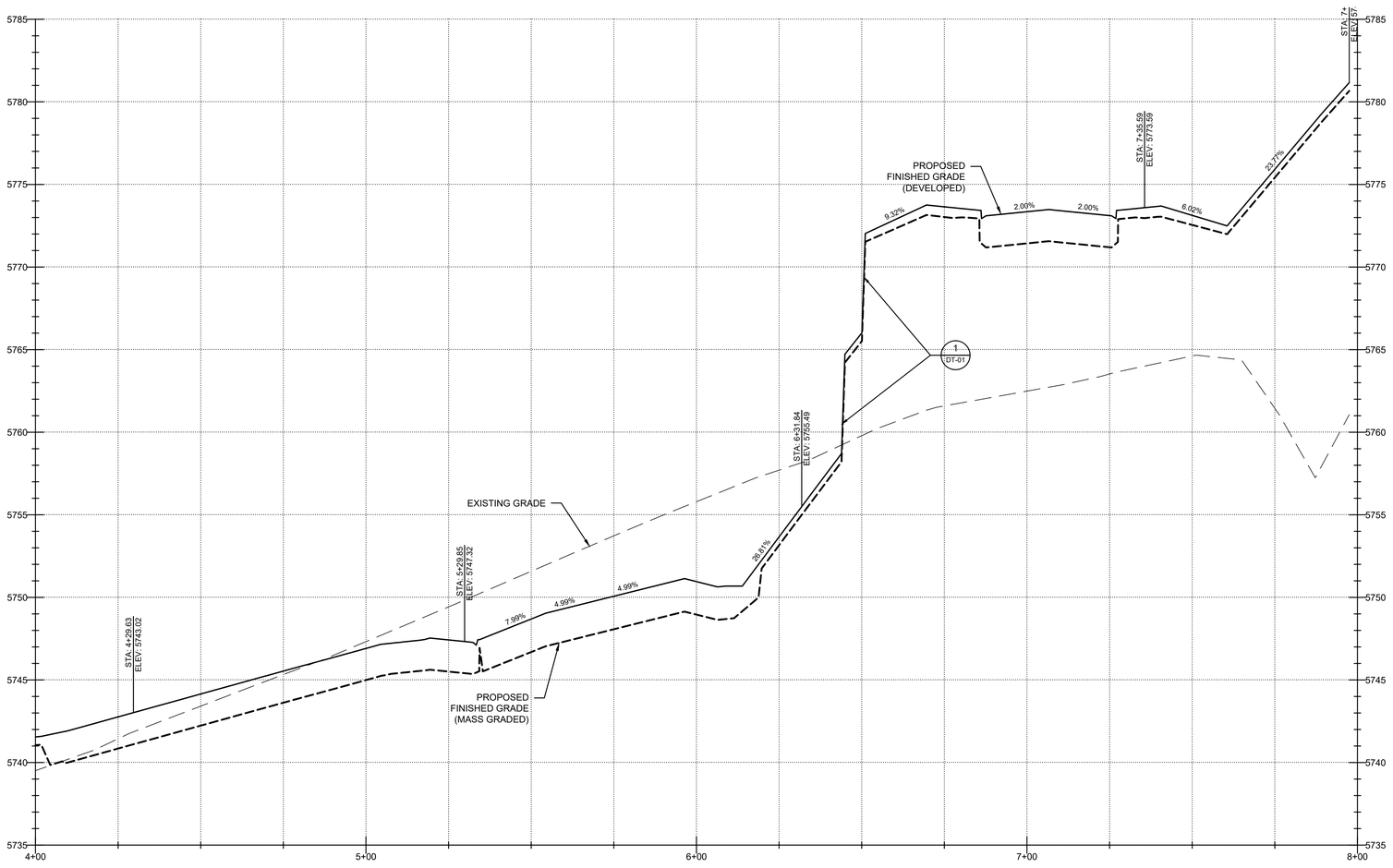
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20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

N

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

NOTES:
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JOB No: 3891-DRH01-23
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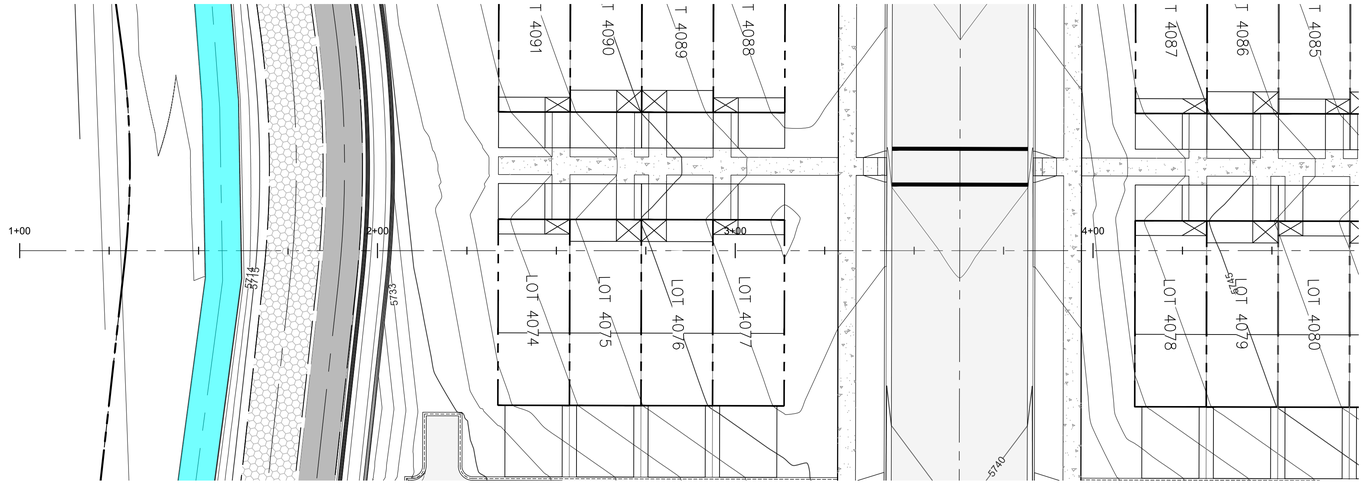
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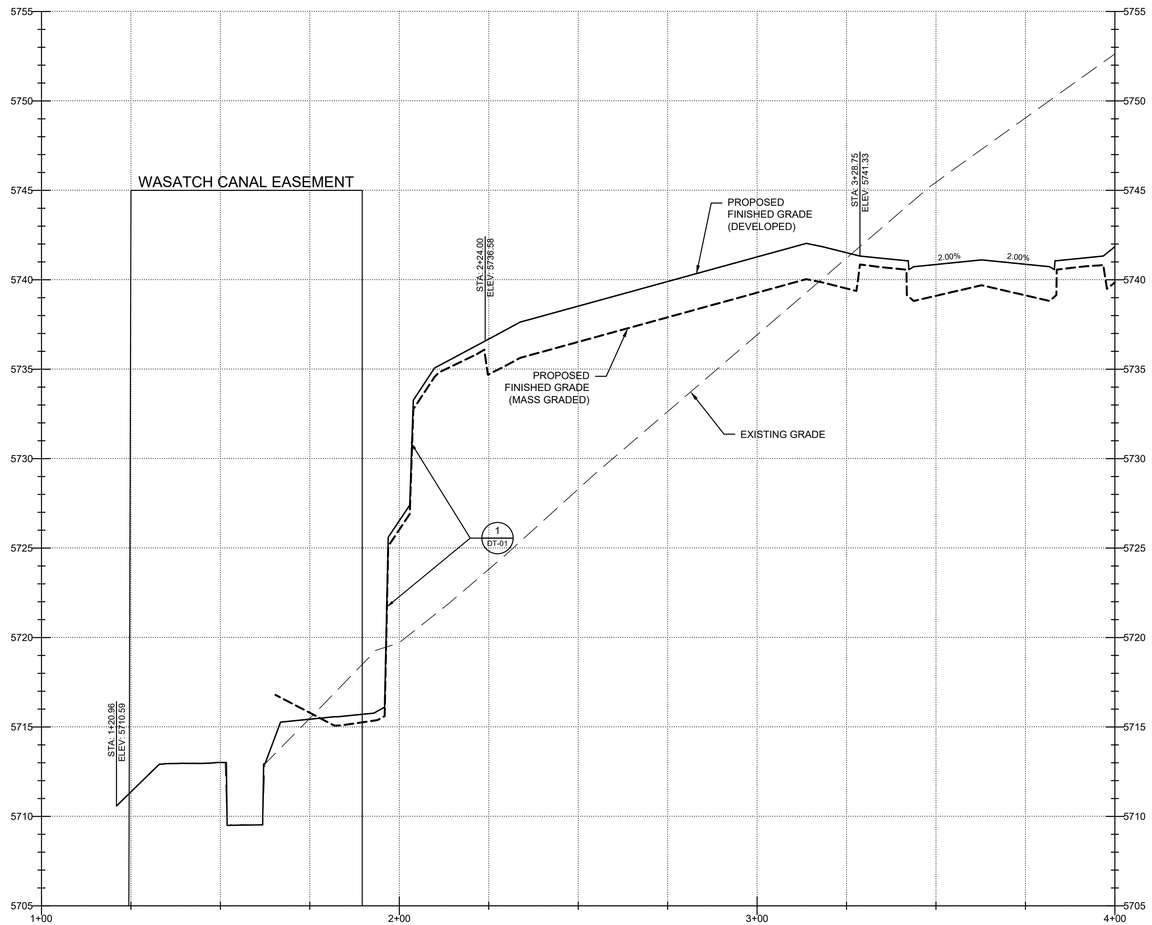
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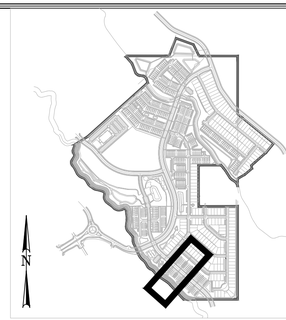
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20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

NOTES:
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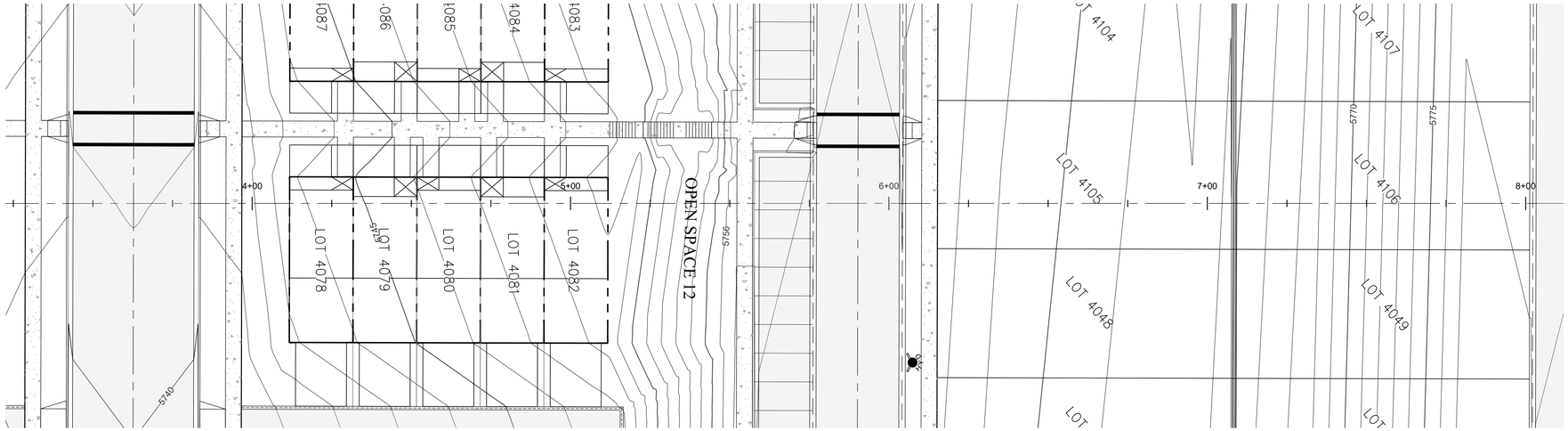
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1 07/30/2024 GRADING REVISION

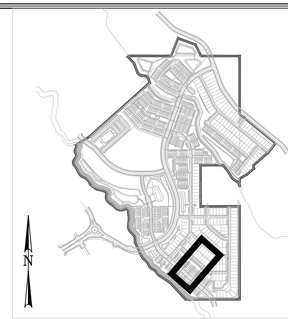
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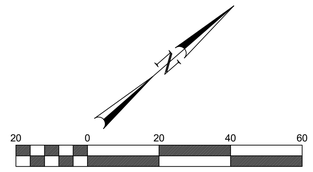
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SEC-6A

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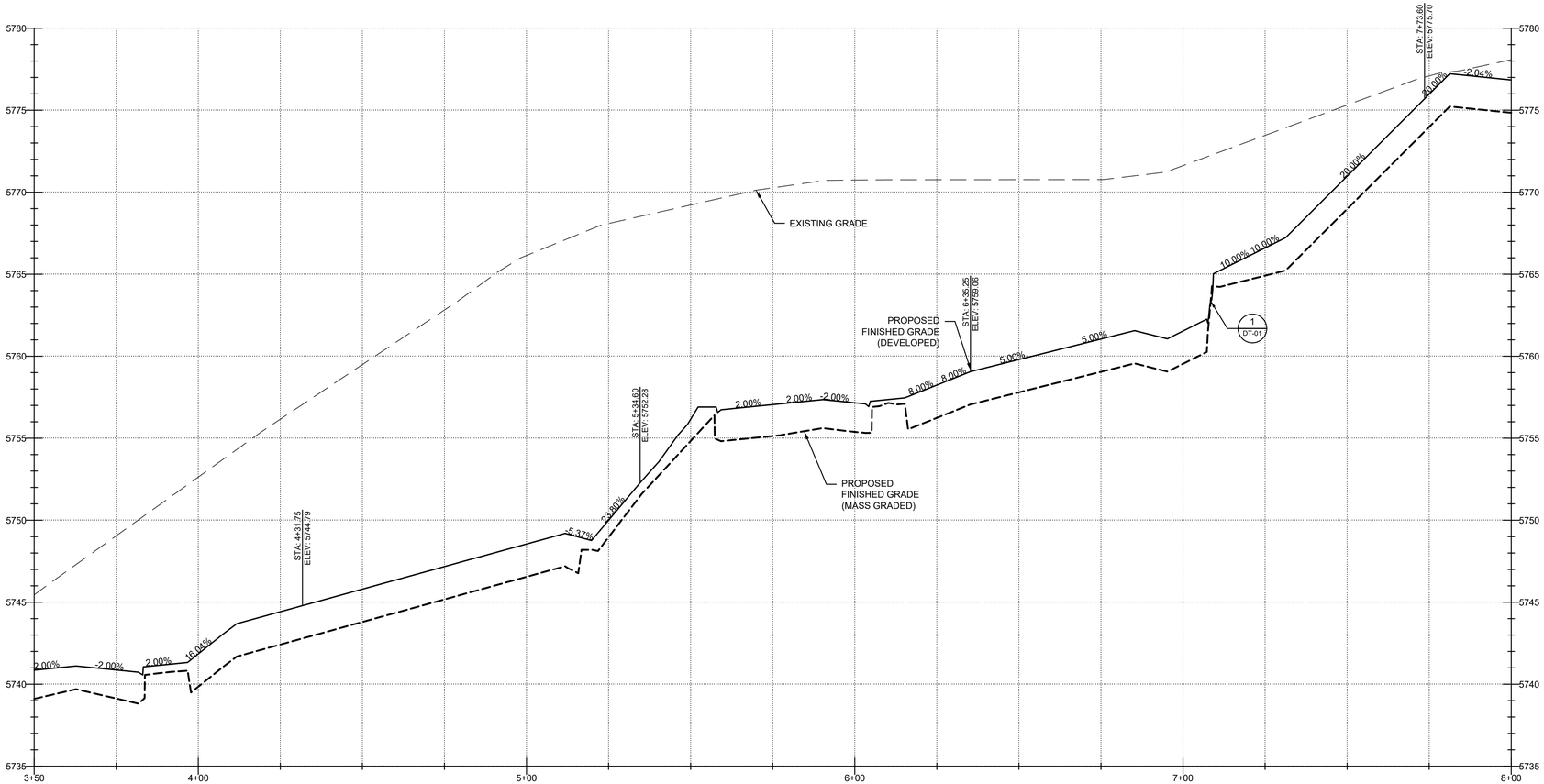






Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
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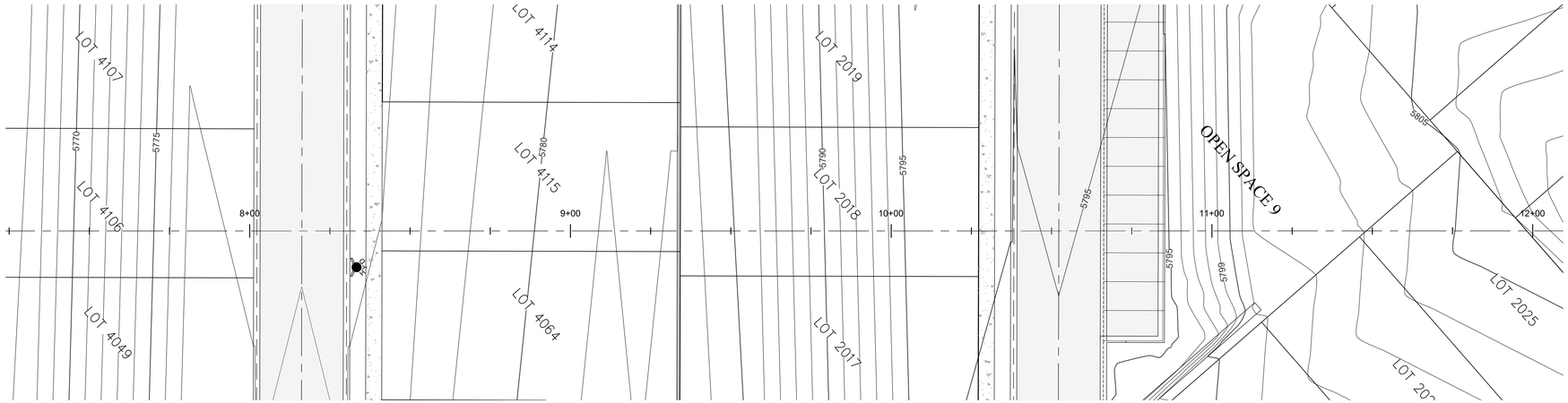
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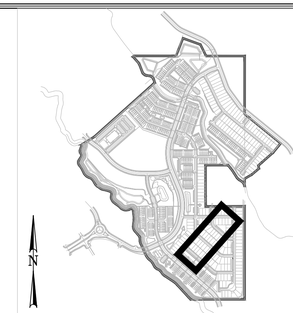
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TAB: SEC 6b

SHEET
SEC-6B



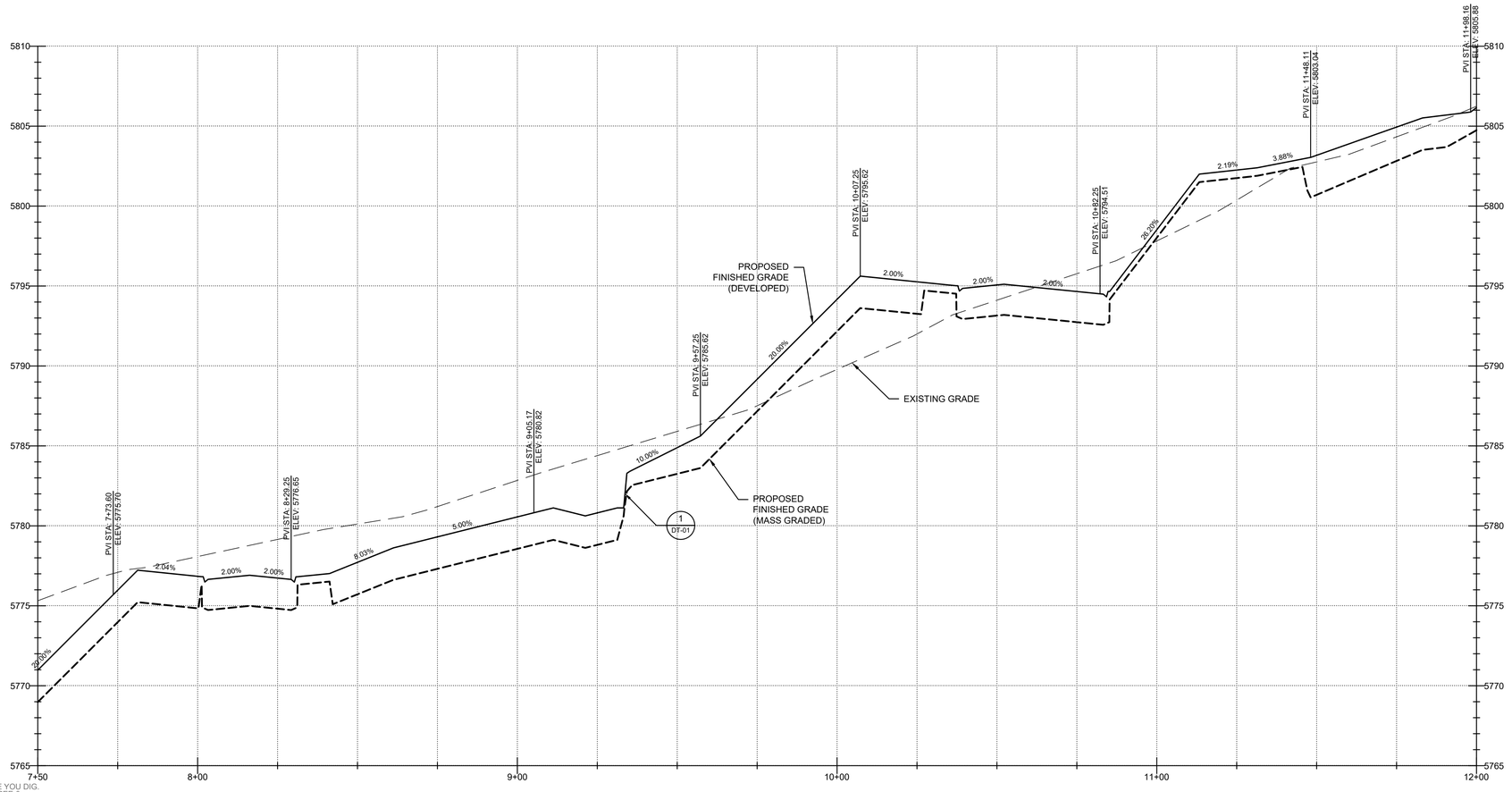


N

20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

NOTES:

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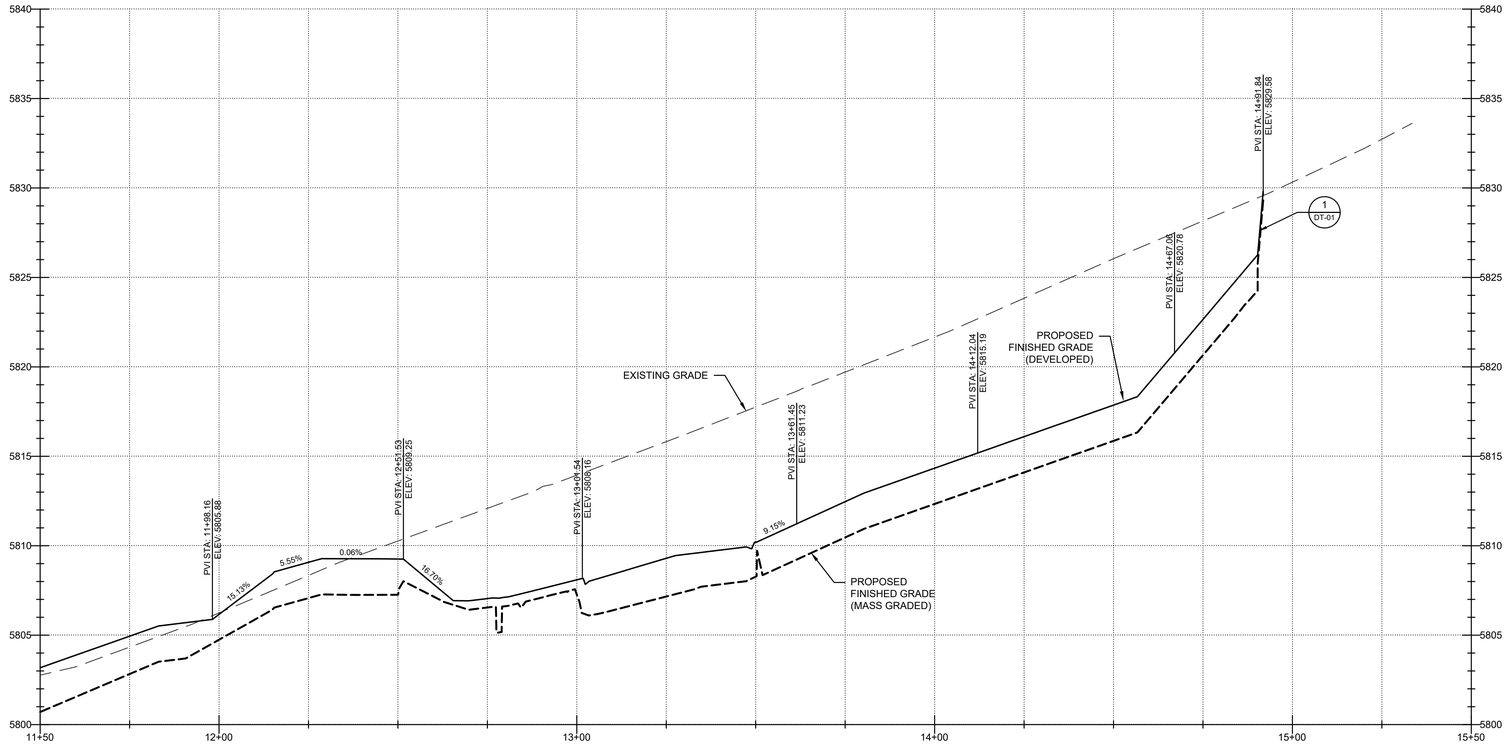
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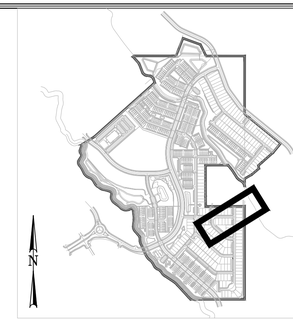
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Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

NOTES:

1- THE SUBGRADE IN ROADWAY IS 23.0" LOWER THAN FINISH GRADE

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3- SUBGRADE IN PARKS/ OPEN SPACE, INCLUDING PONDS AND SLOPES, ARE 6" BELOW FINISHED GRADE.

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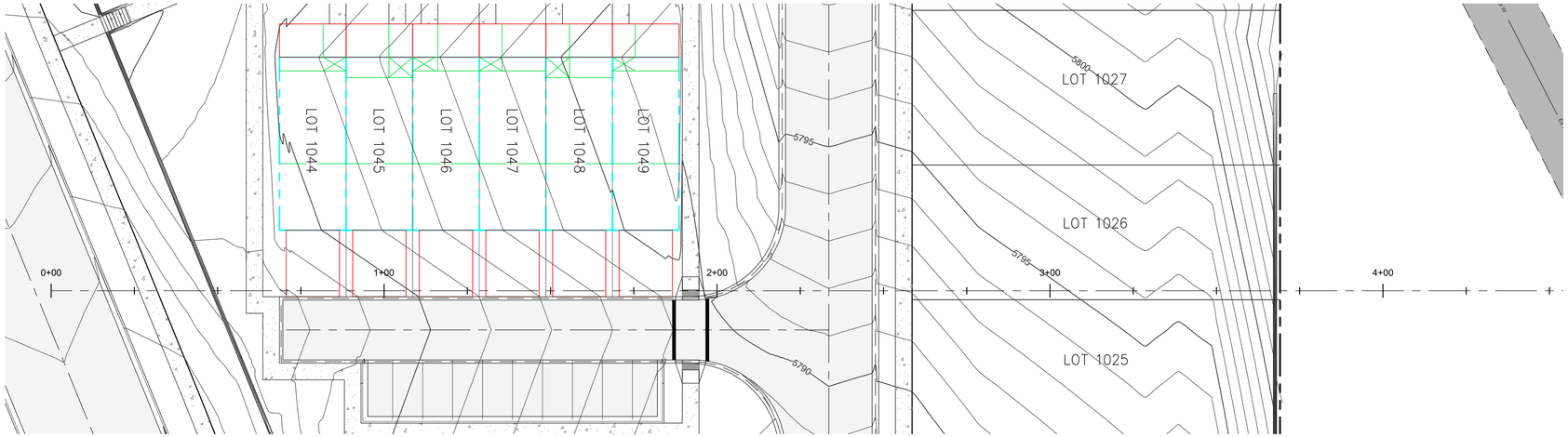
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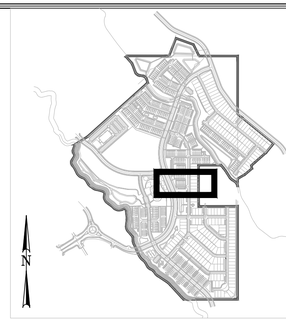


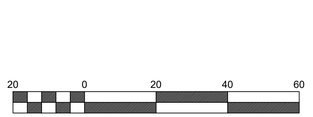
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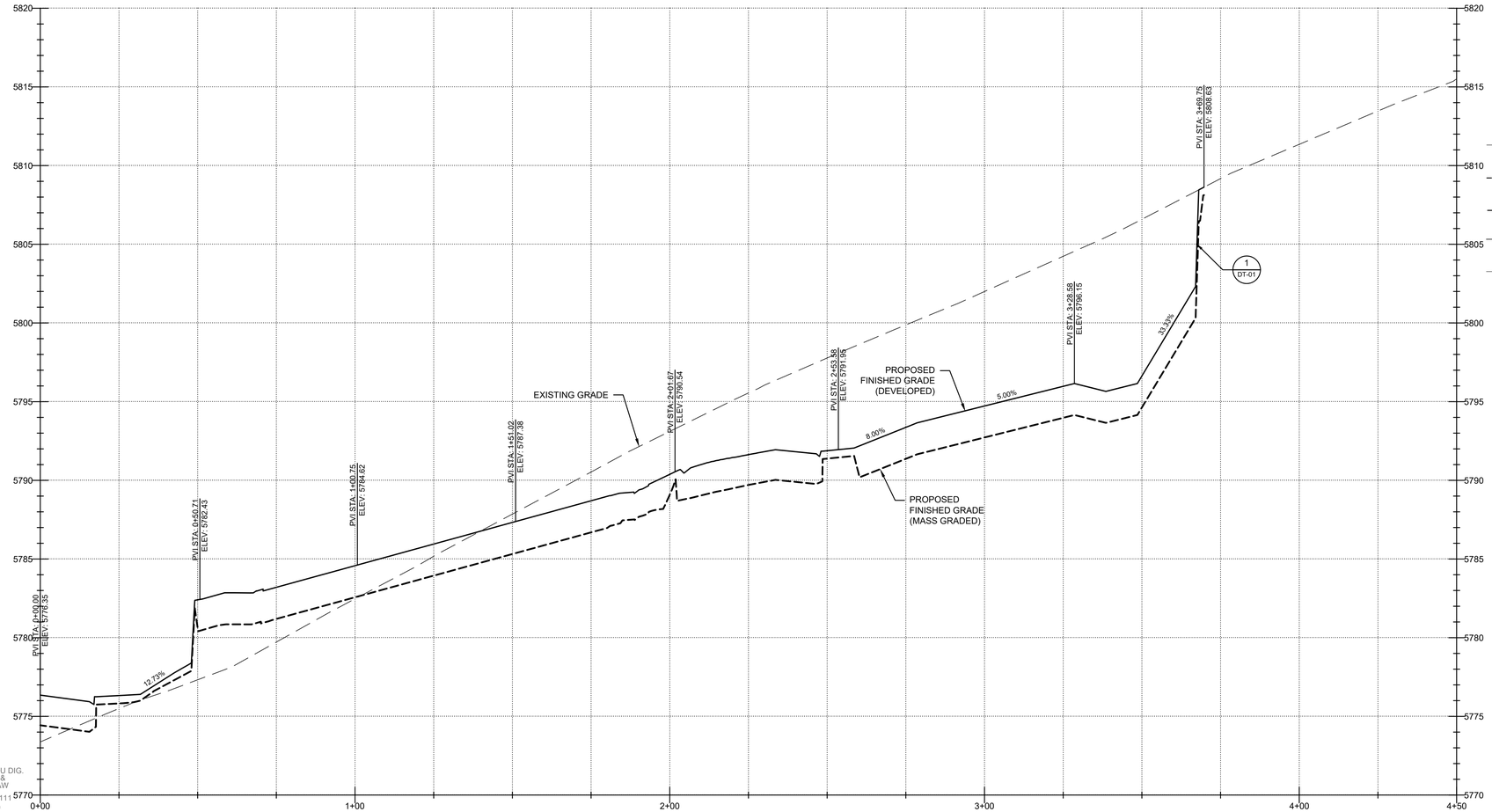
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LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

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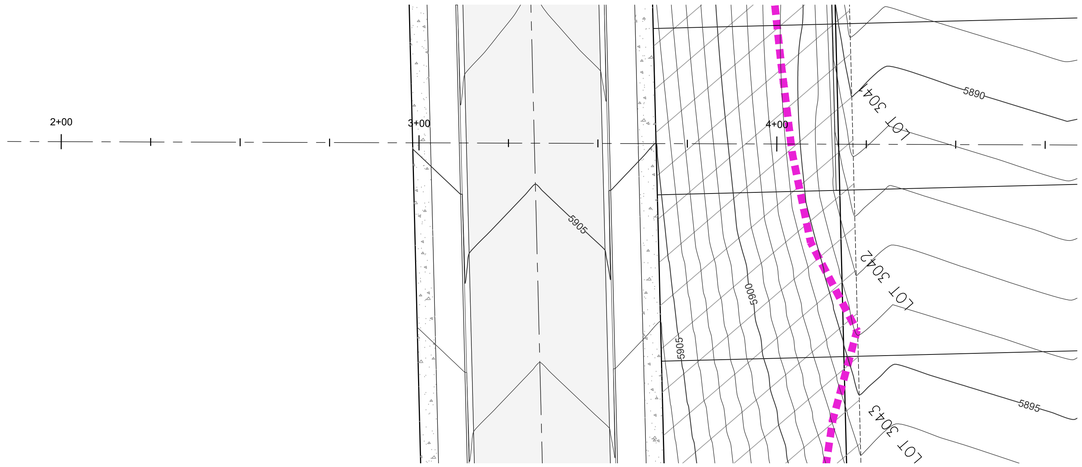
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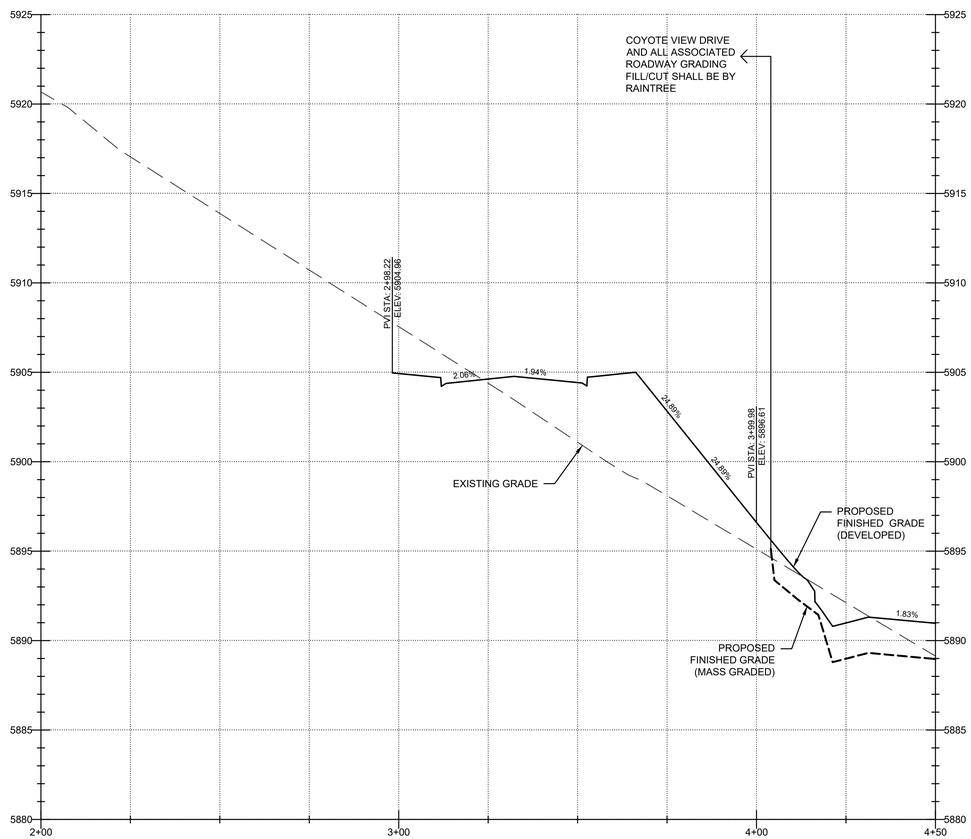
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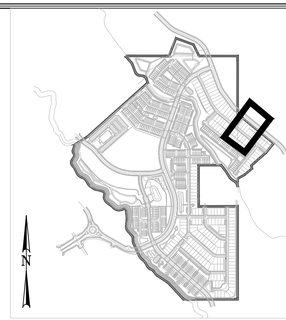
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PROFESSIONAL ENGINEER
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STATE OF UTAH
8/6/2024

SHEET
SEC-7A







N

20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
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DWG: CROSS SECTIONS OF MAJOR
PDEPS27.DWG
JOB No. 3891-DRH01-23
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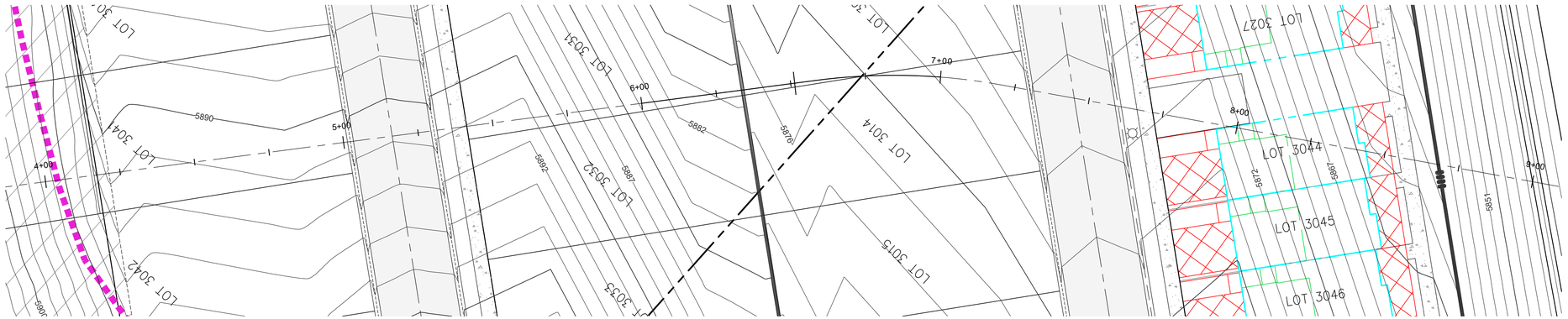
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1 07/30/2024 GRADING REVISION

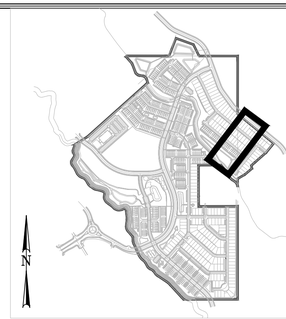
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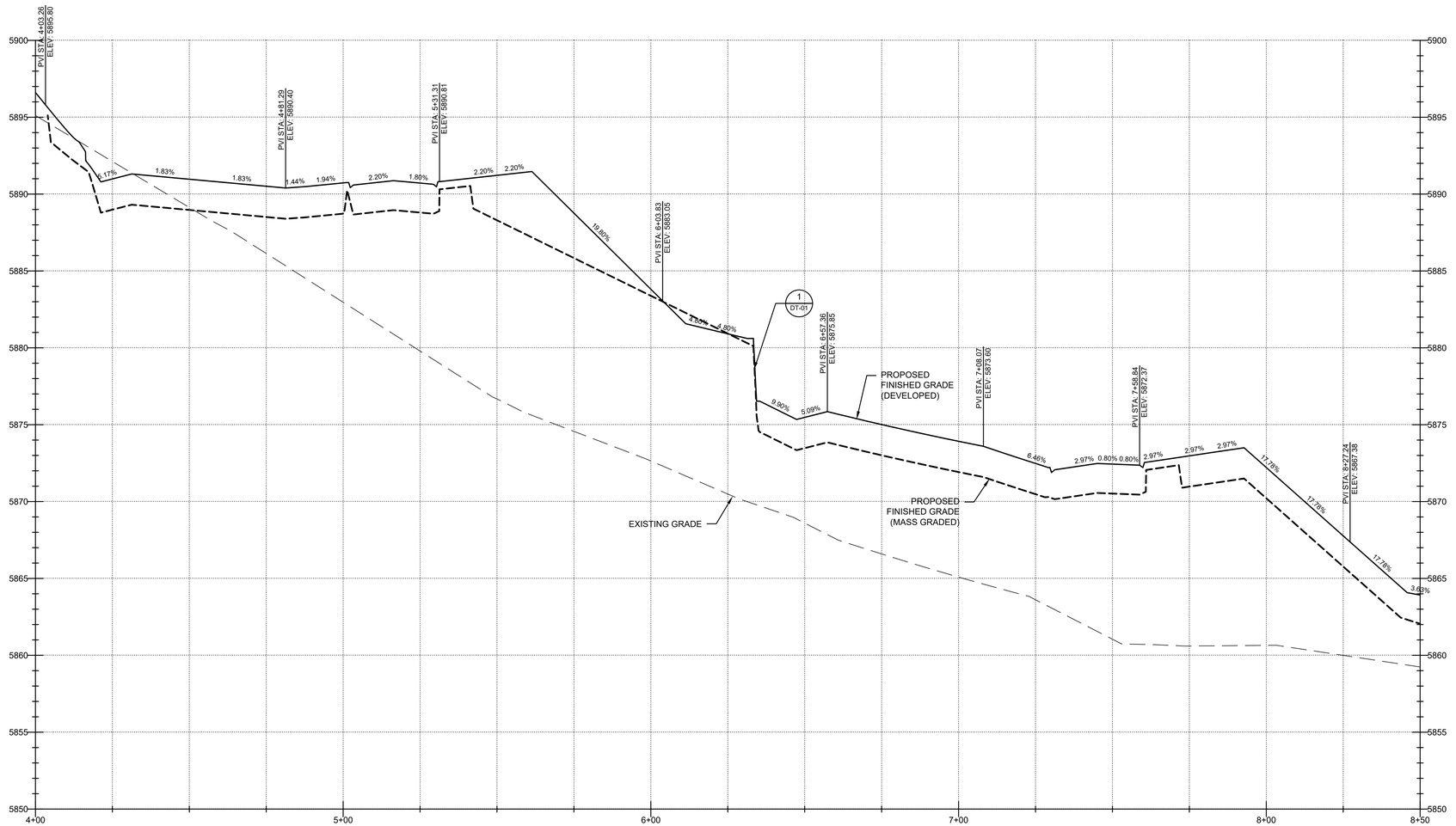
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Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
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CLIENT: D.R.HORTON
DWG: CROSS SECTIONS OF MAJOR AREAS21DWG
JOB No: 3891-DRH01-23

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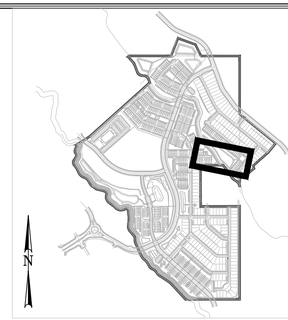
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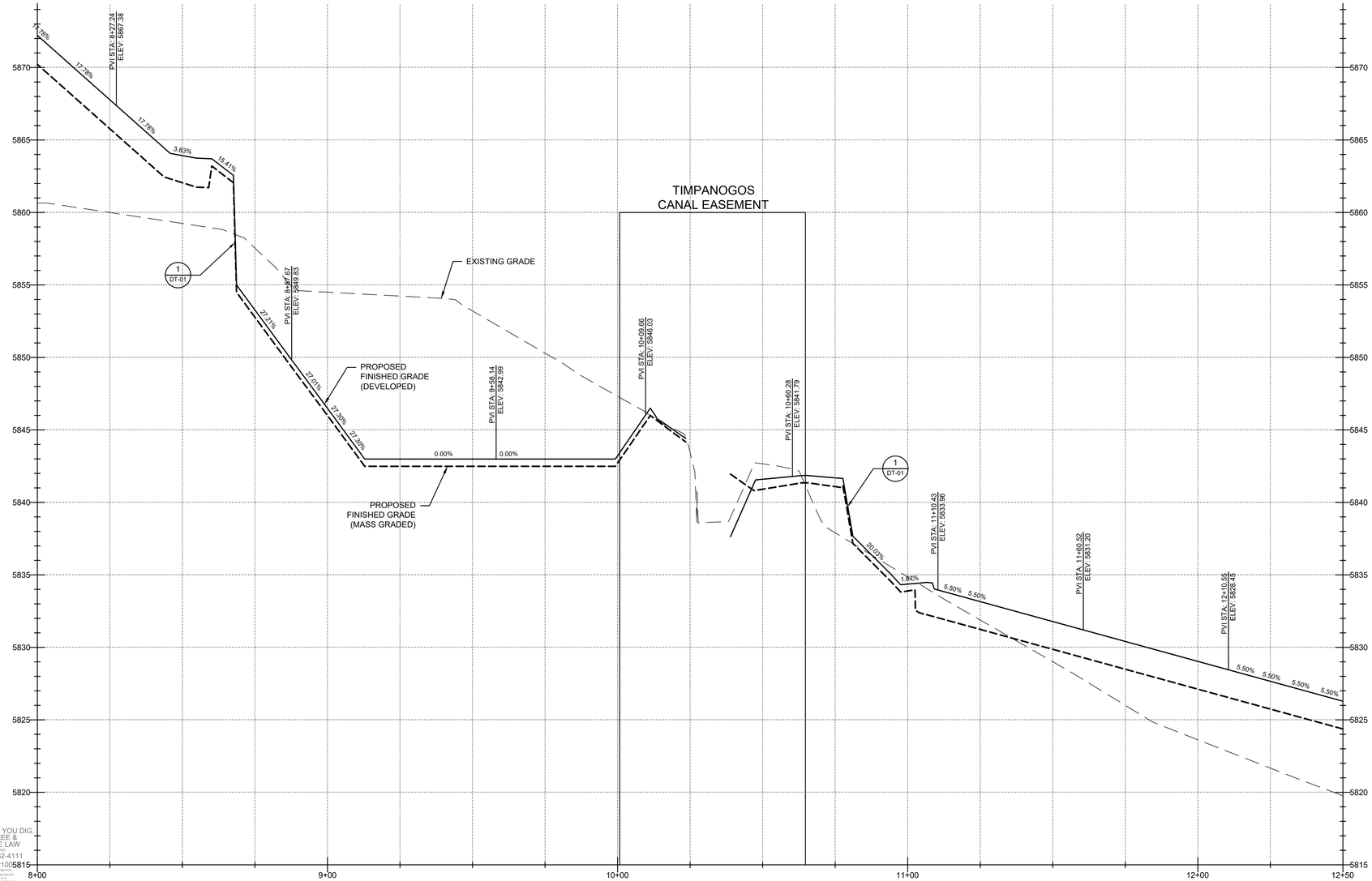
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ALI J.
SATTAR N.
TABRIZ
STATE OF UTAH
8/6/2024

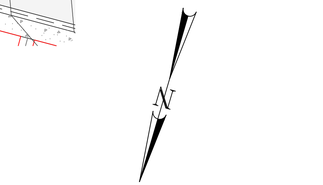
SHEET
SEC-13B





N





Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
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JOB No: 3891-DRH01-23
PROJECT LOCATION:
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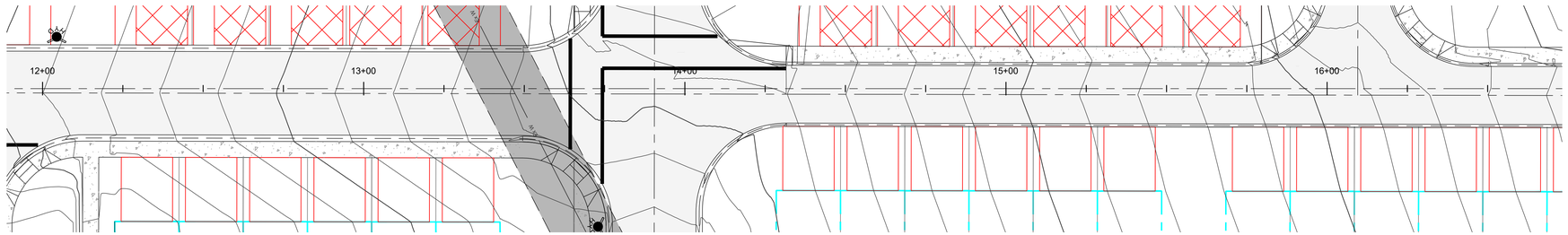
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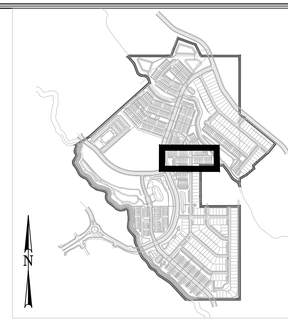
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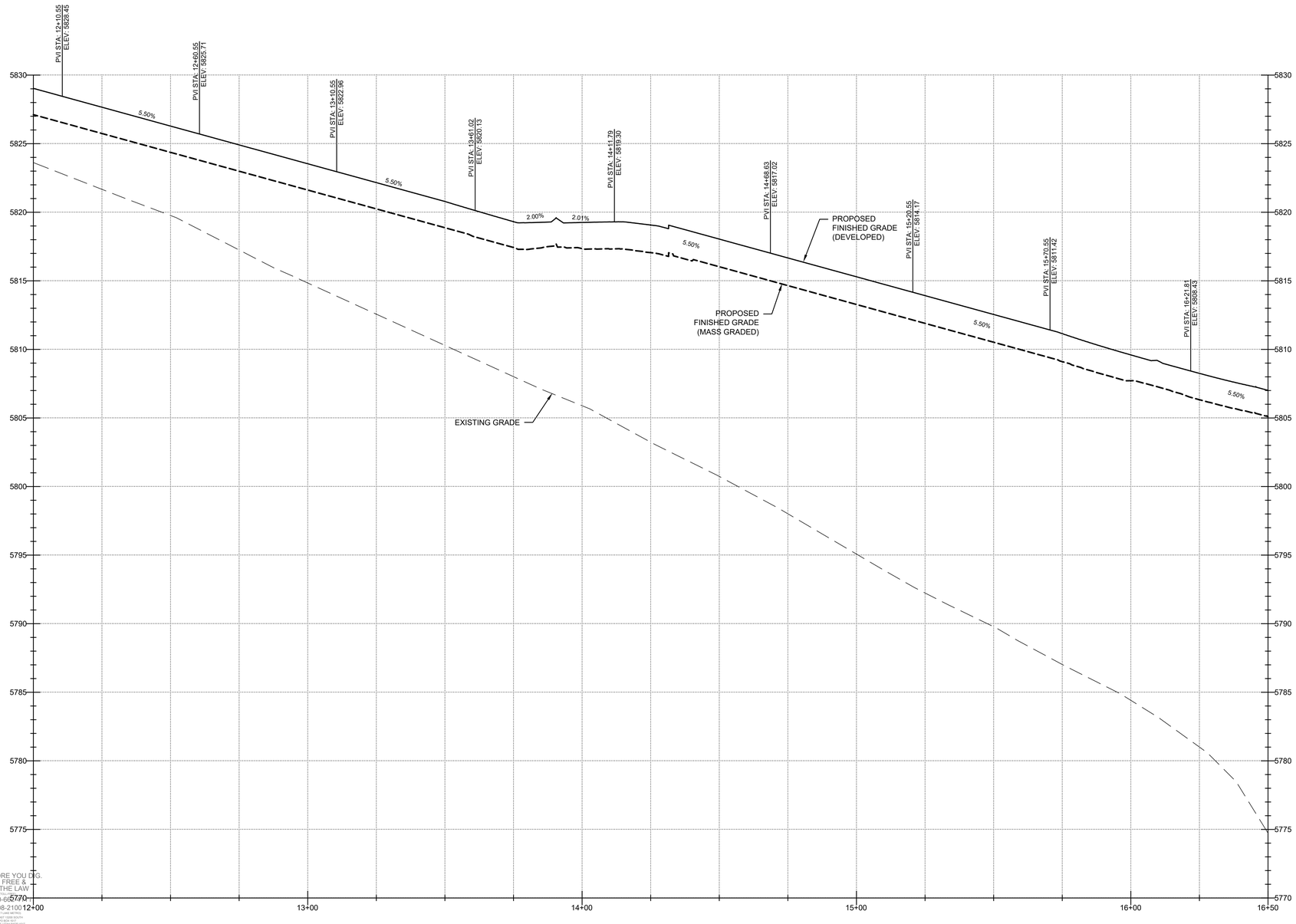
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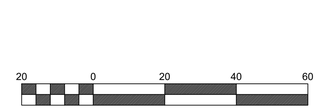
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LEGEND

- EXISTING GRADE
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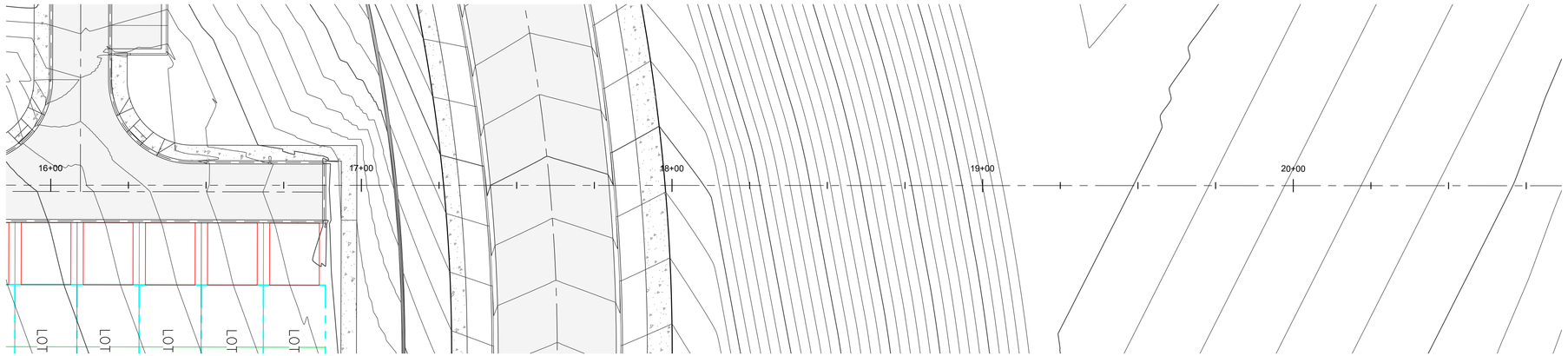
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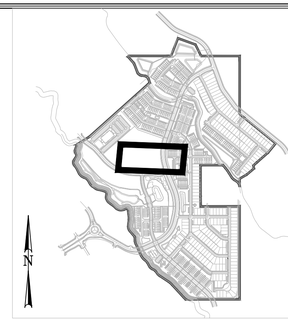
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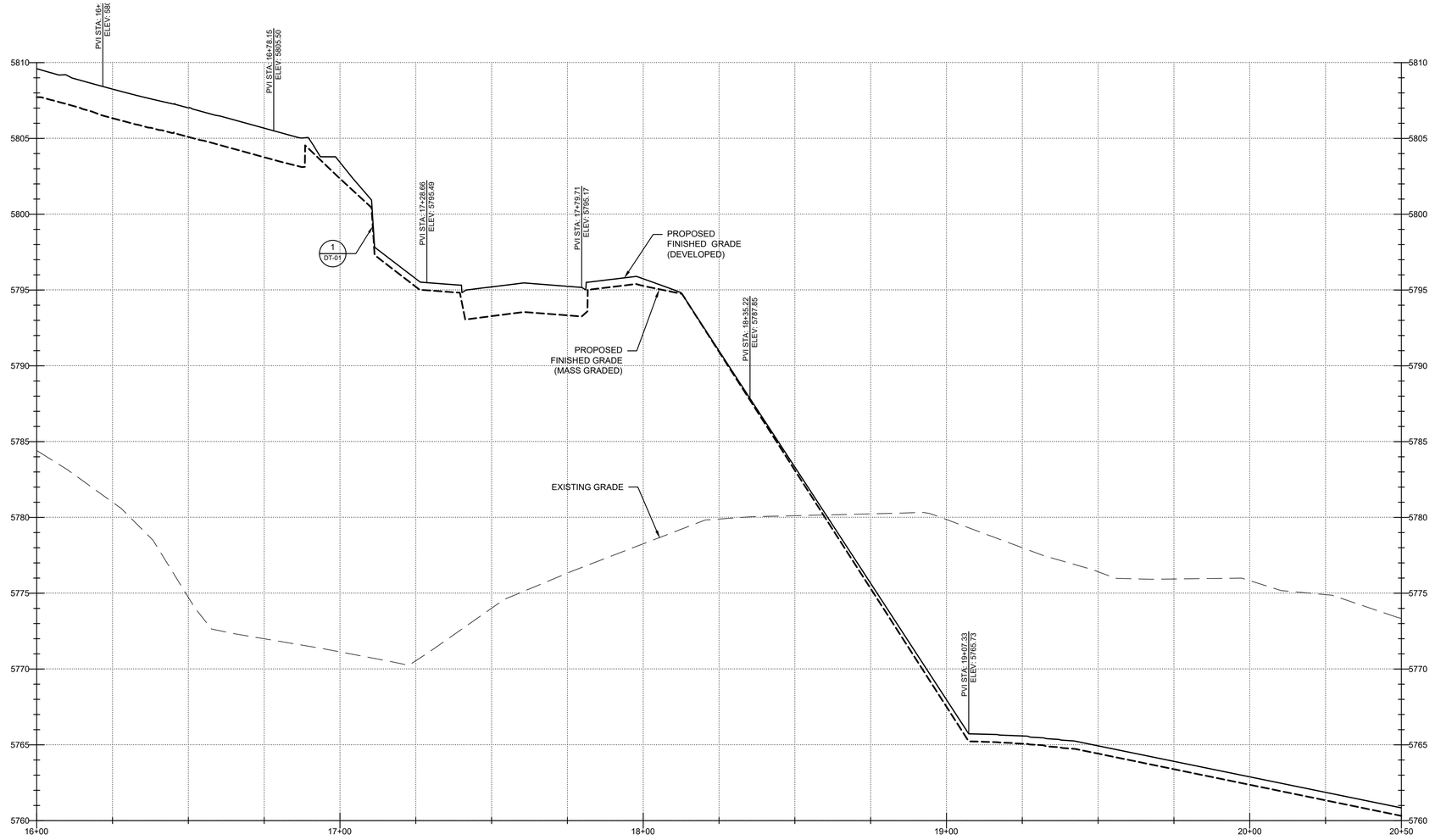


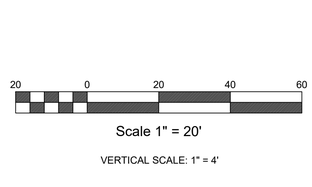
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LEGEND

- EXISTING GRADE
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CLIENT: D.R.HORTON
DWG: CROSS SECTIONS OF MAJOR *PRINTS(1).DWG*
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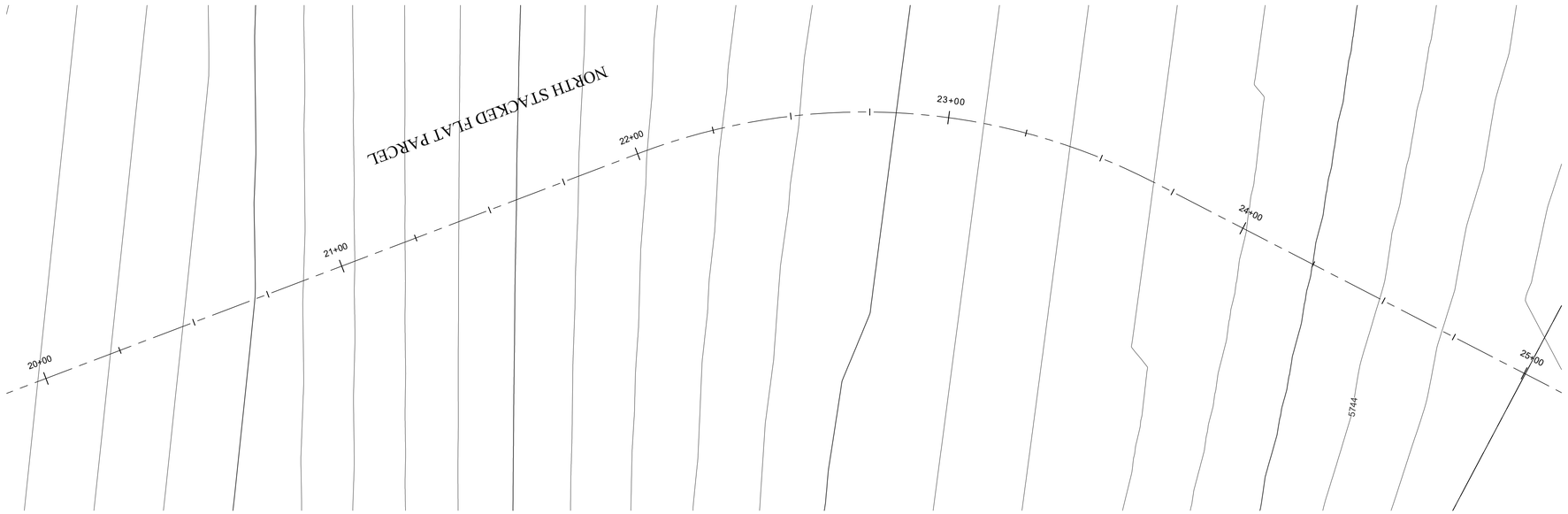
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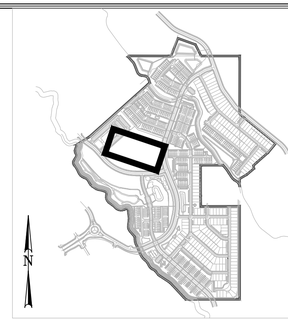
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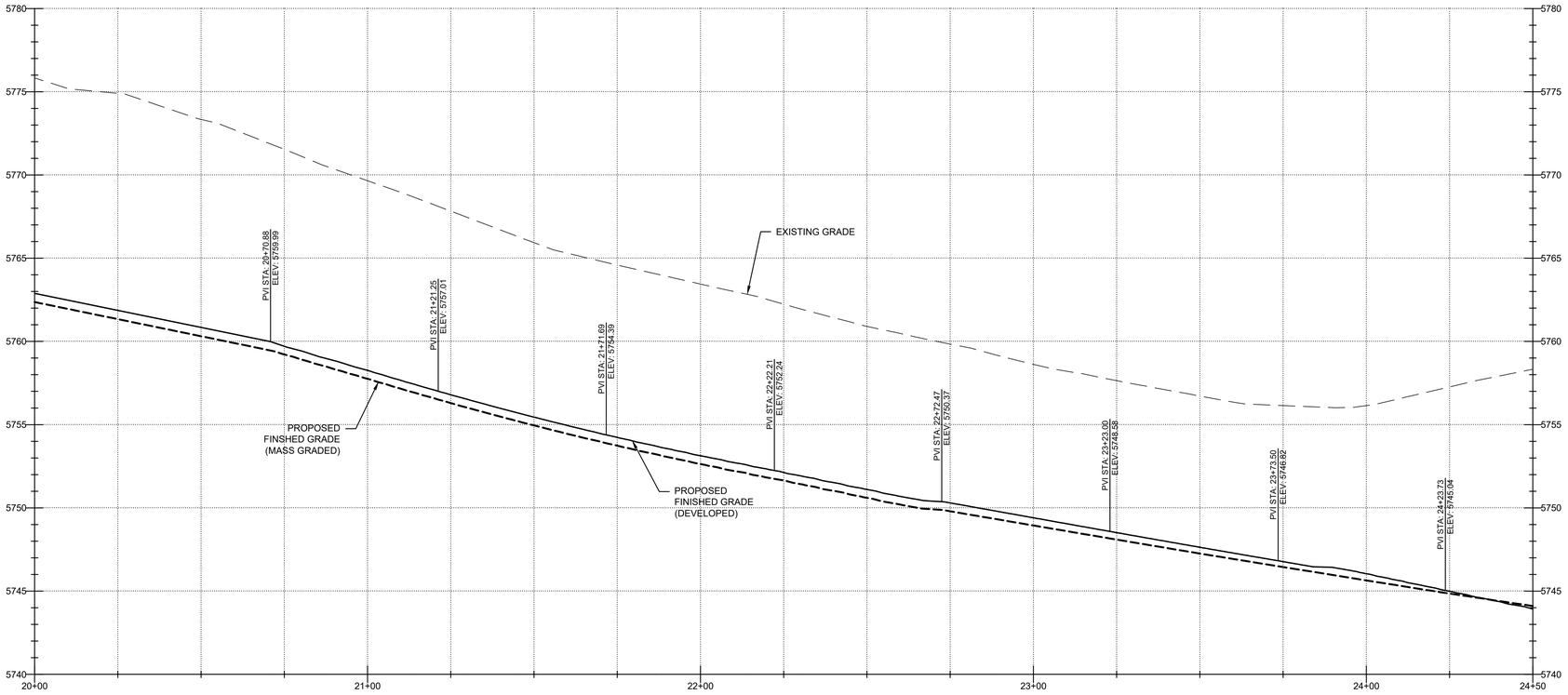




20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

NOTES:

1- THE SUBGRADE IN ROADWAY IS 23.0" LOWER THAN FINISH GRADE

2- THE SUBGRADE IN BUILDINGS/ LOT AREAS AND OPEN SPACE ADJACENT TO TOWNHOMES ARE 24" BELOW FINISHED GRADE.

3- SUBGRADE IN PARKS/ OPEN SPACE, INCLUDING PONDS AND SLOPES, ARE 6" BELOW FINISHED GRADE.

4- FILL UNDER PAVEMENT AREAS NEEDS TO BE DONE IN LAYERS OR LIFTS AND COMPACTION ACCOMPLISHED IN ACCORDANCE WITH SPECIFICATION 02250 OR THE GEOTHECNICAL ENGINEERING REPORT (WHICHEVER IS MORE STRINGENT).

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FILENAME: O:\Highlands\Exhibits\Cross Sections of Major Areas(2).dwg TAB: SEC13f PLOT DATE AND TIME: 8/7/2024 4:32 PM

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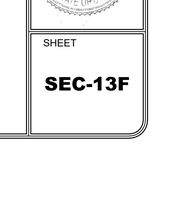
231 West 800 South Salt Lake City, Utah 84101
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PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: CROSS SECTIONS OF MAJOR AREAS(2).DWG
JOB No: 3891-DRH01-23

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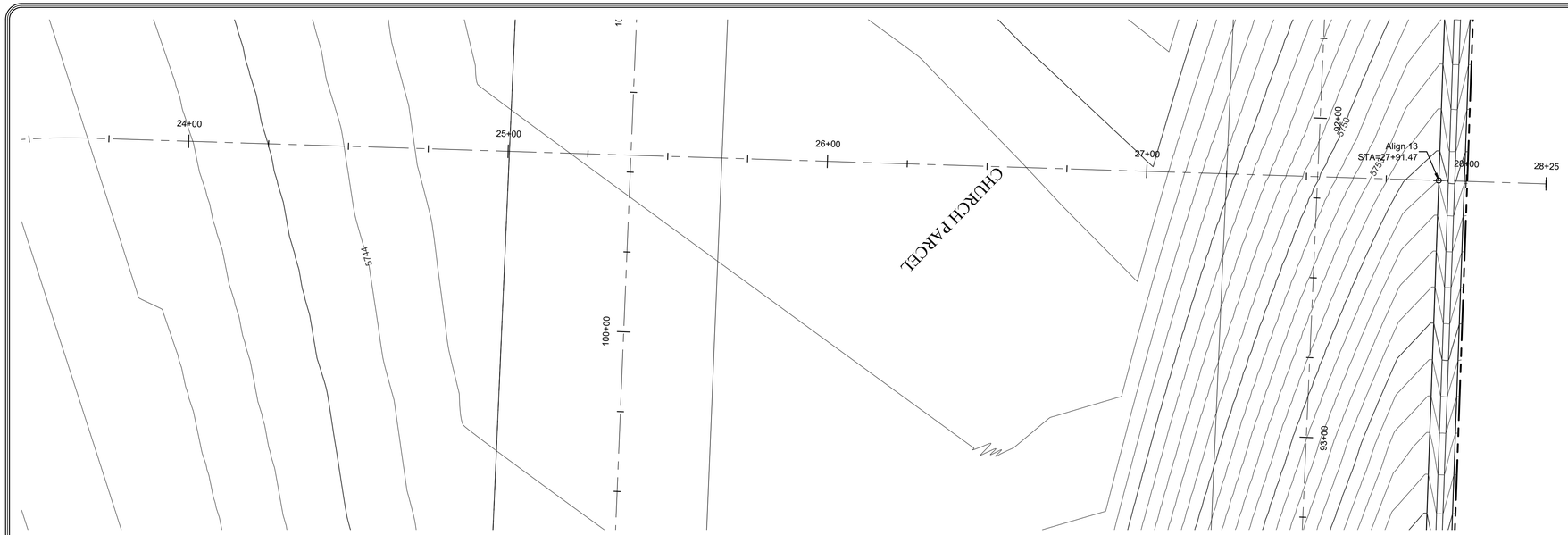
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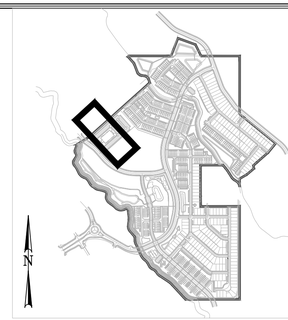
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1 07/30/2024 GRADING REVISION

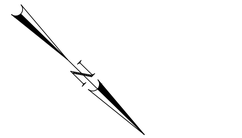


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SEC-13F



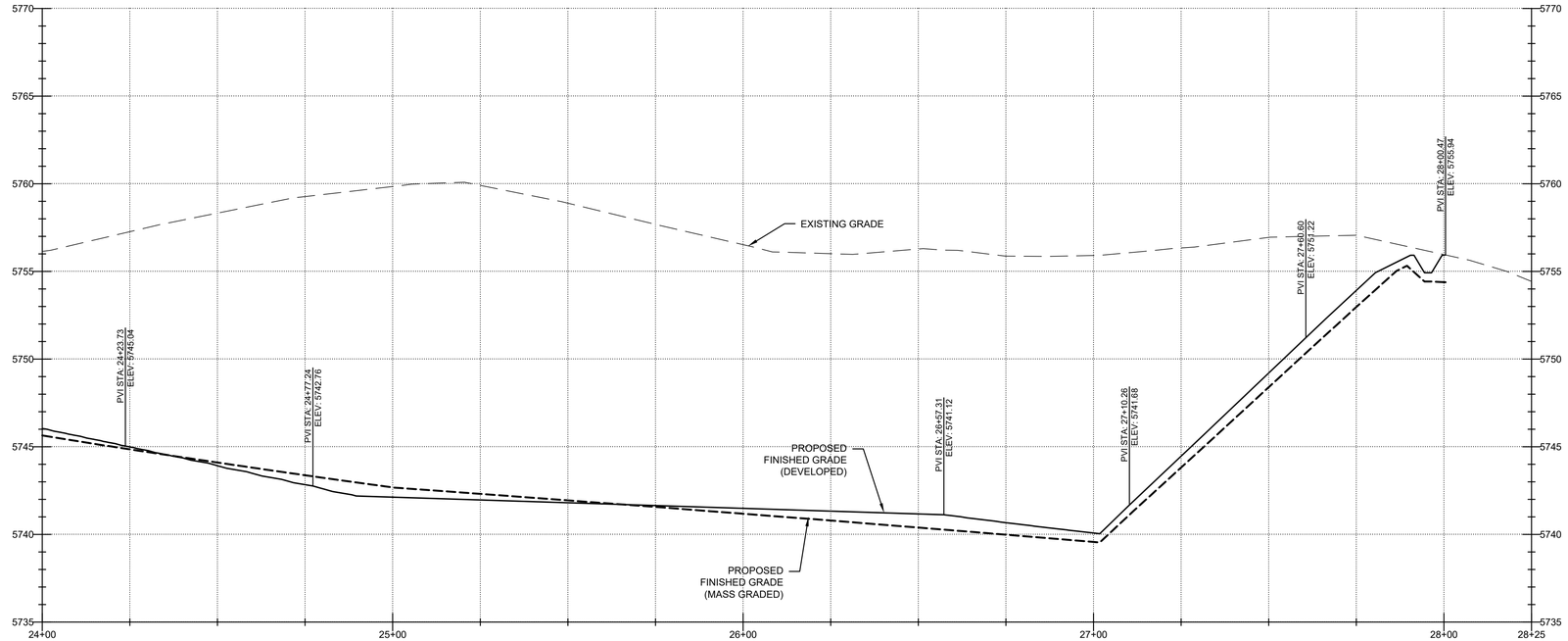




20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

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JOB No. 3691-DRH01-23
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N

N

20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
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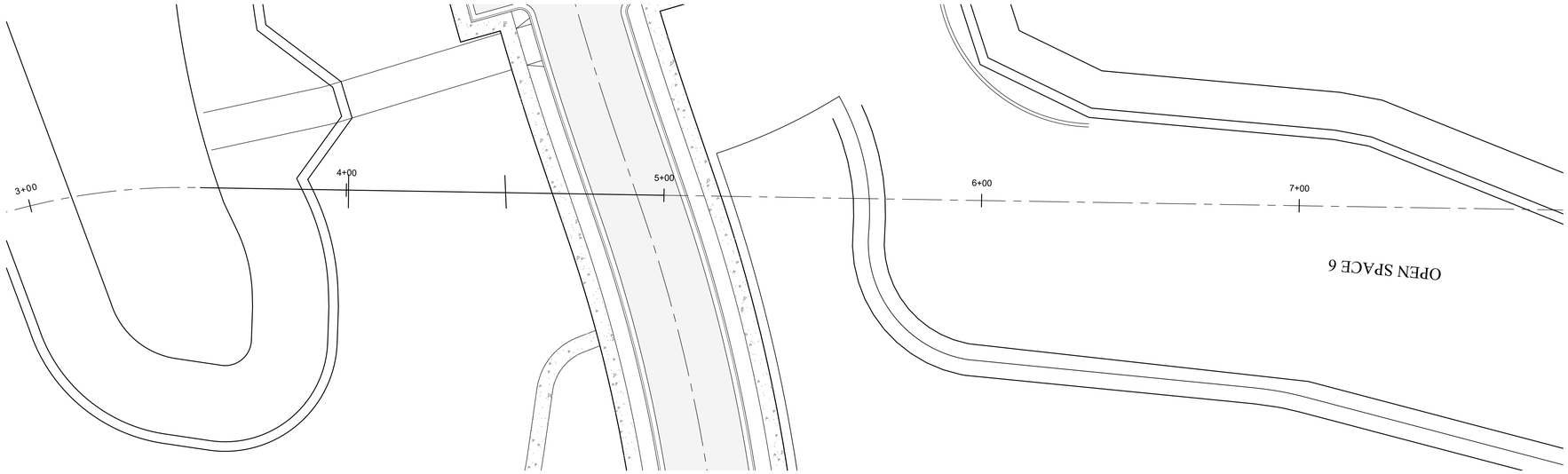
CLIENT: D.R.HORTON
DWG: CROSS SECTIONS OF MAJOR AREAS(3).DWG
JOB No: 3691-DRH01-23
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ALI R. SATTARI
SATTARI N. TASNIZ
07/29/2024
STATE OF UTAH

SHEET
SEC-15A



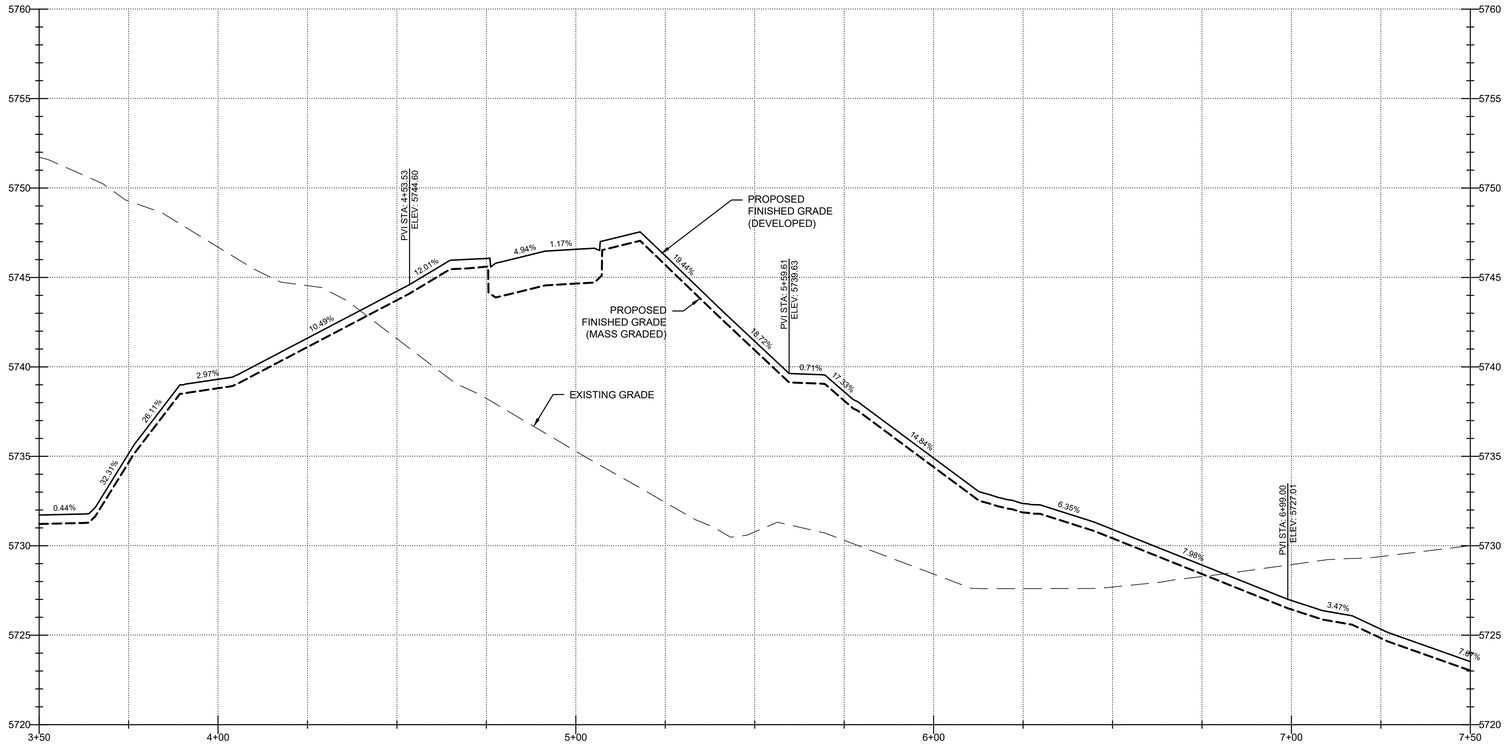


N

20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
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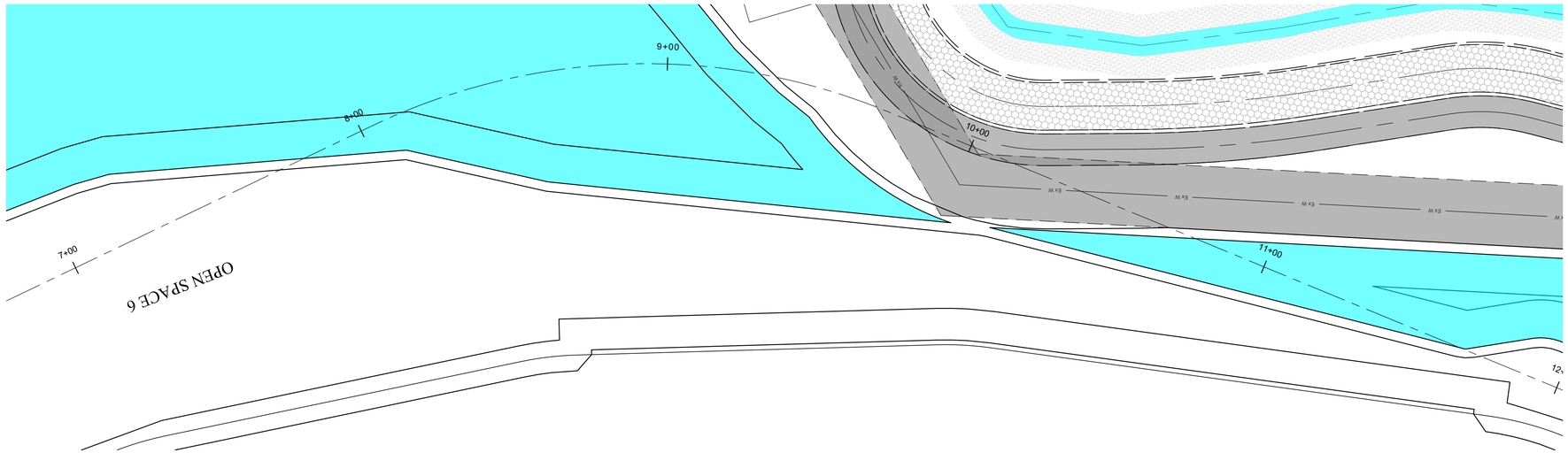
CLIENT: D.R HORTON
DWG: CROSS SECTIONS OF MAJOR AREAS(3).DWG
JOB No: 3691-DRHO1-23
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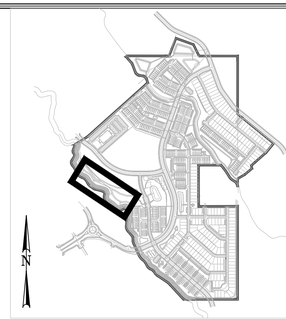
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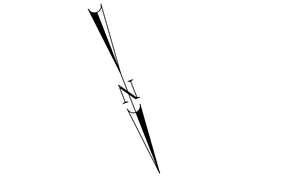
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SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

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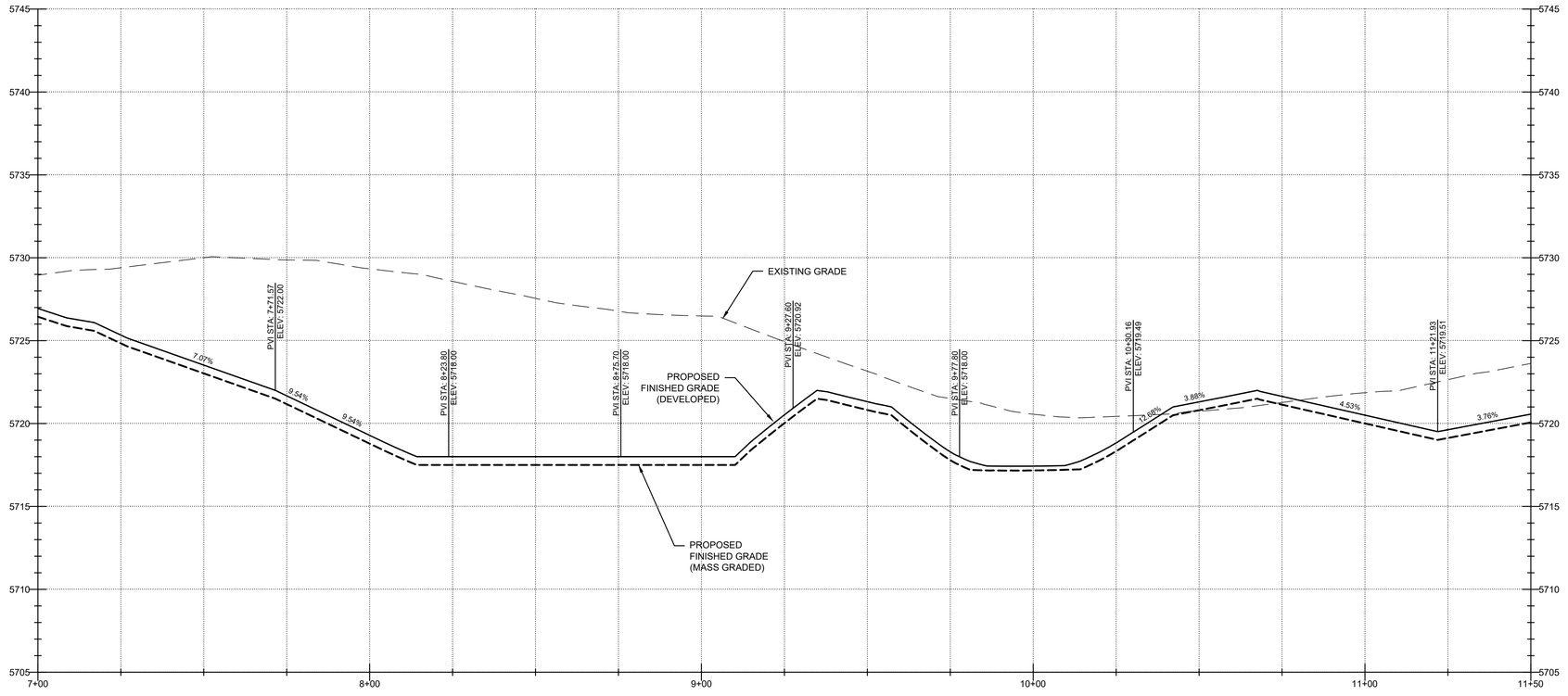




20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
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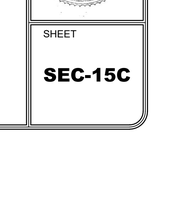
CLIENT: D.R.HORTON
DWG: CROSS SECTIONS OF MAJOR AREAS(3).DWG
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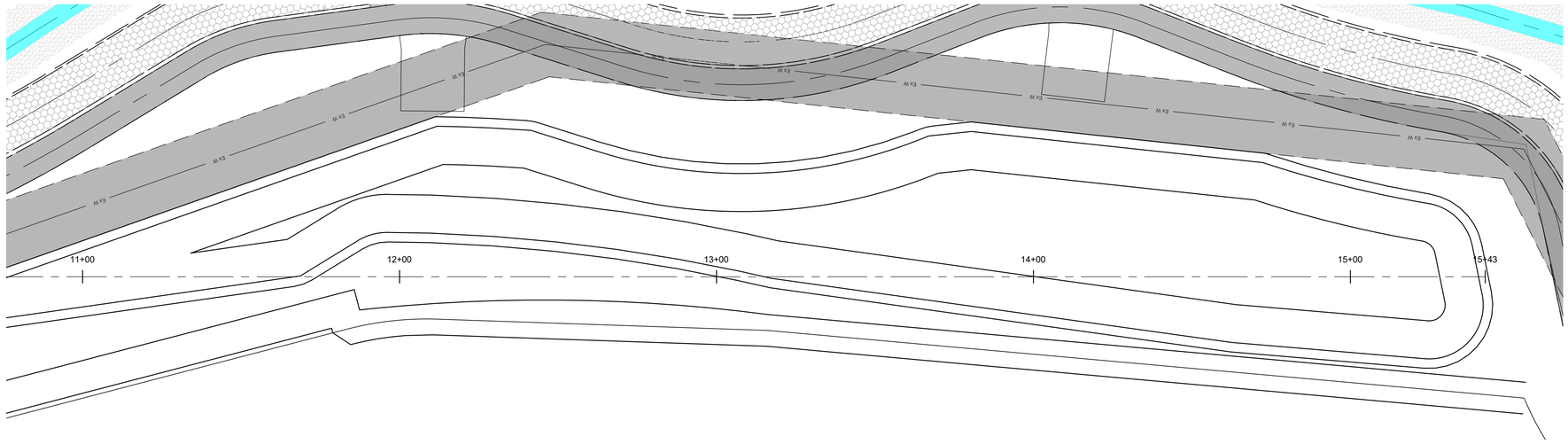
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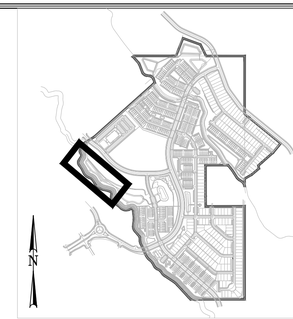
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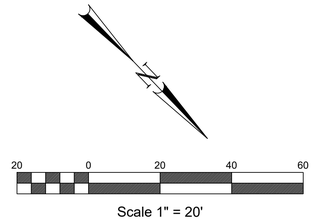


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SEC-15C

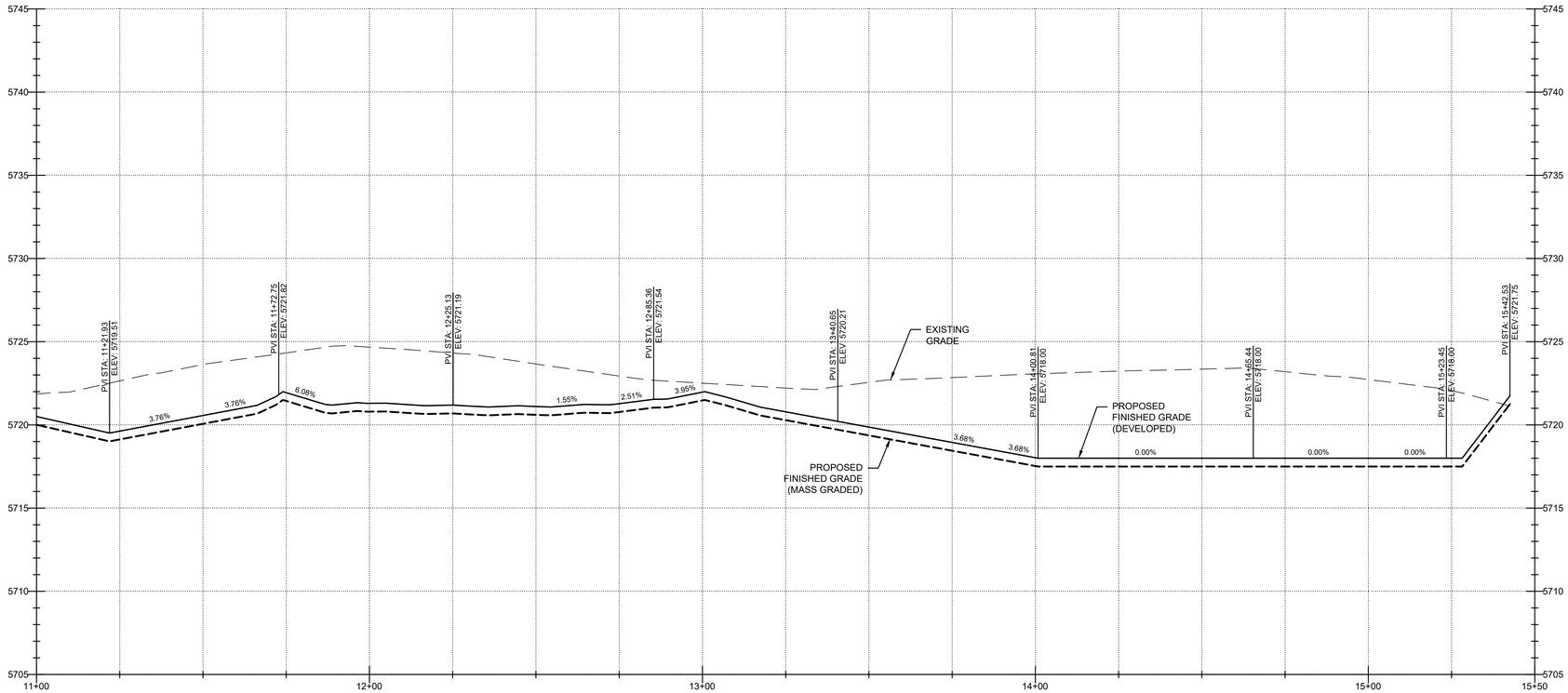






Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

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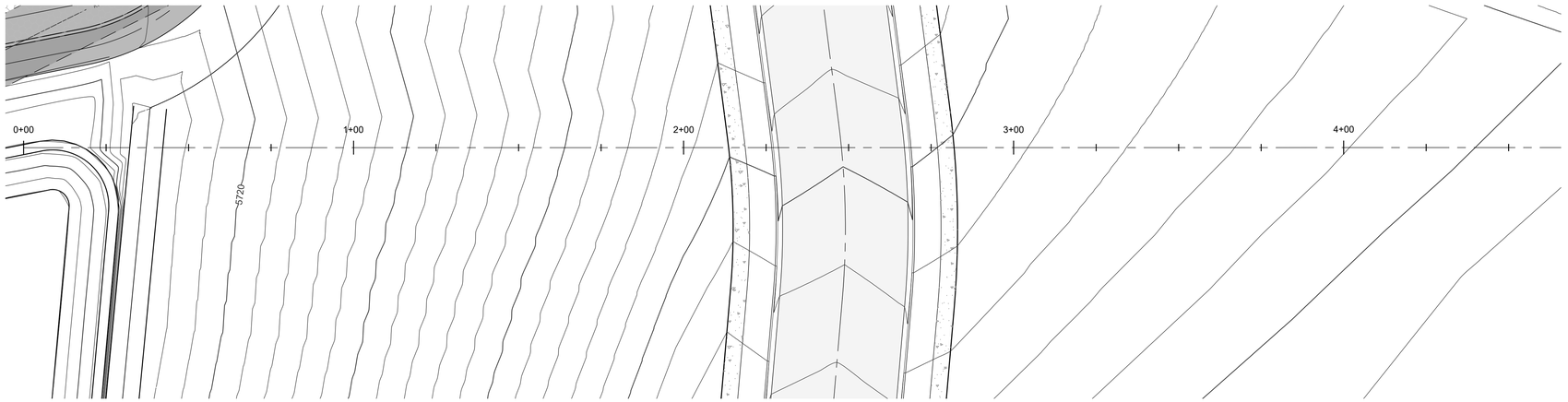
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JOB No. 3691-DRH01-23
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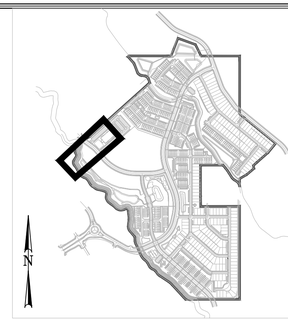
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PROFESSIONAL ENGINEER
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SATTAR N. TABRIZ
8160604
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SHEET
SEC-15D



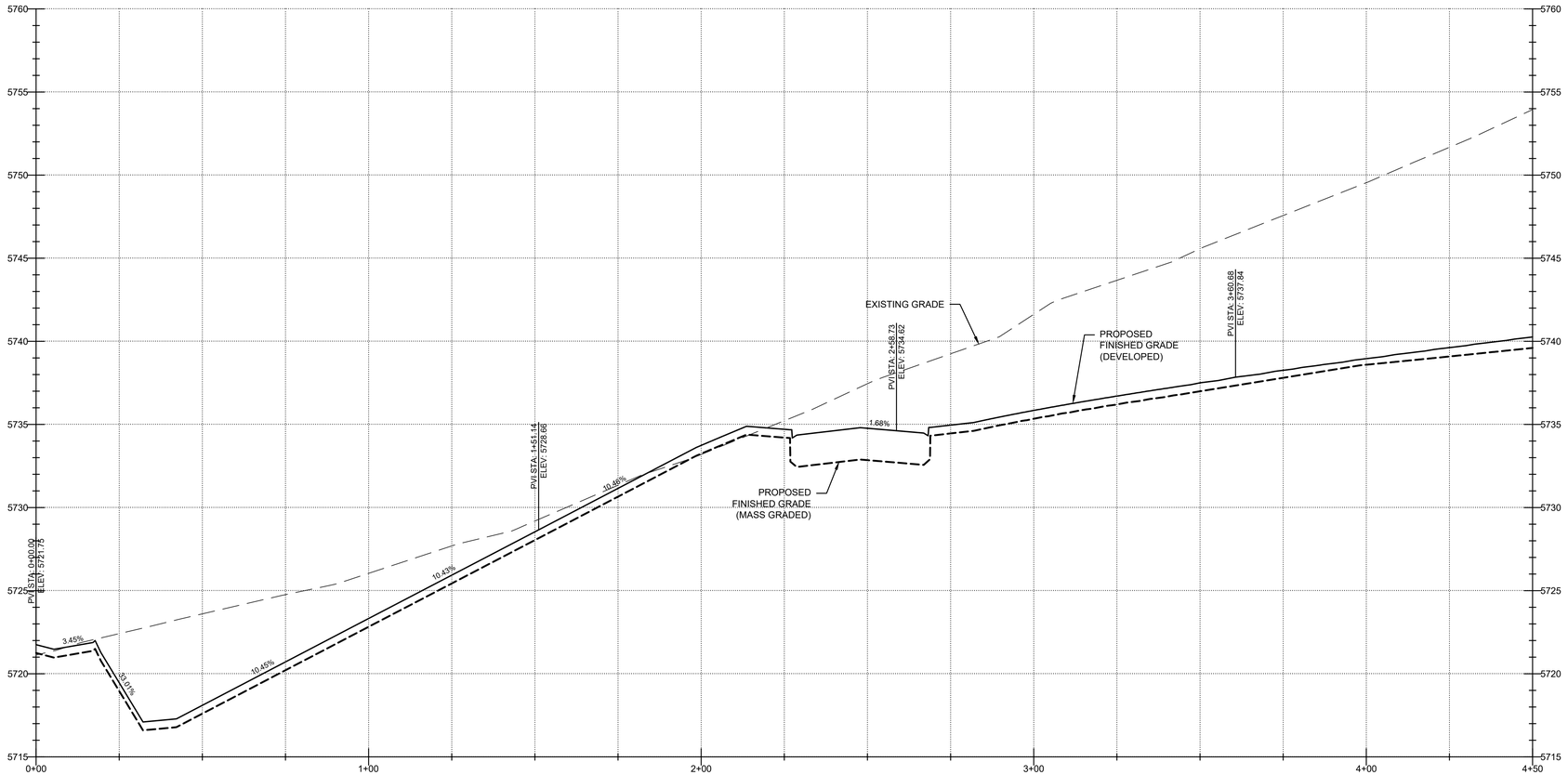




20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



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- EXISTING GRADE
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CLIENT: D.R.HORTON
DWG: CROSS SECTIONS OF MAJOR
PREPARATIONS
JOB No: 3891-DRH01-23
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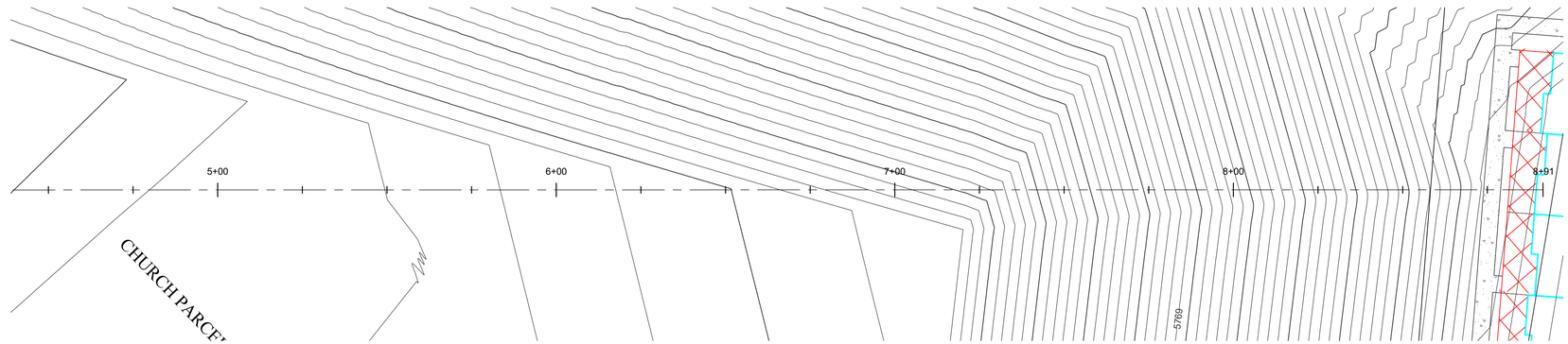
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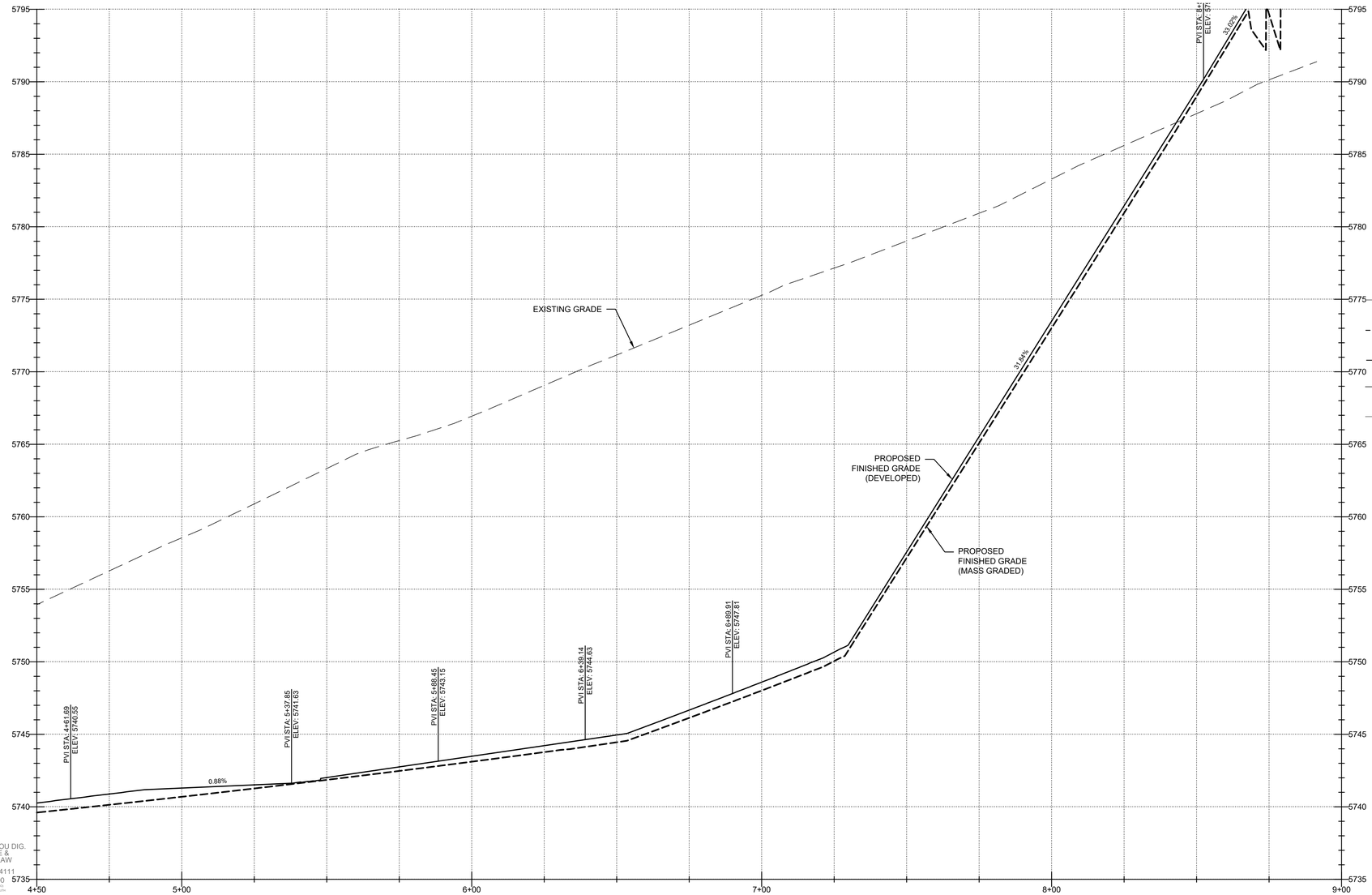
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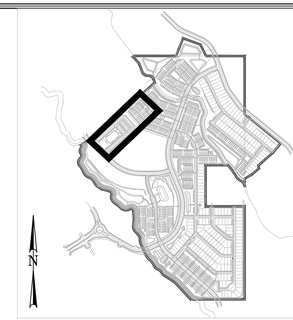
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8/6/2024

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VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
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CLIENT: D.R HORTON
DWG: CROSS SECTIONS OF MAJOR *PRERSPECTIVE*.DWG
JOB No. 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22 IN BY 34 IN IT IS NOT TO SCALE

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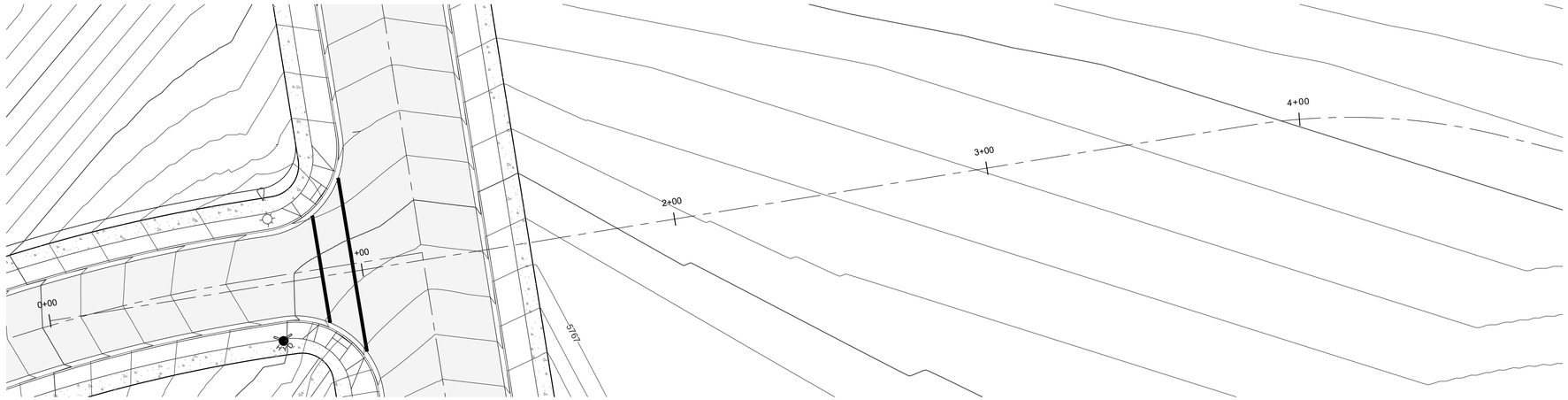
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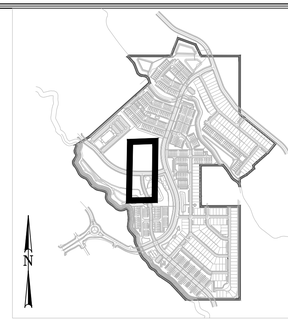
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SEC-16B

FILENAME: O:\Highlands\Exhibits\Cross Sections of Major Areas\4).dwg TAB: SEC16b PLOT DATE AND TIME: 8/7/2024 4:15 PM

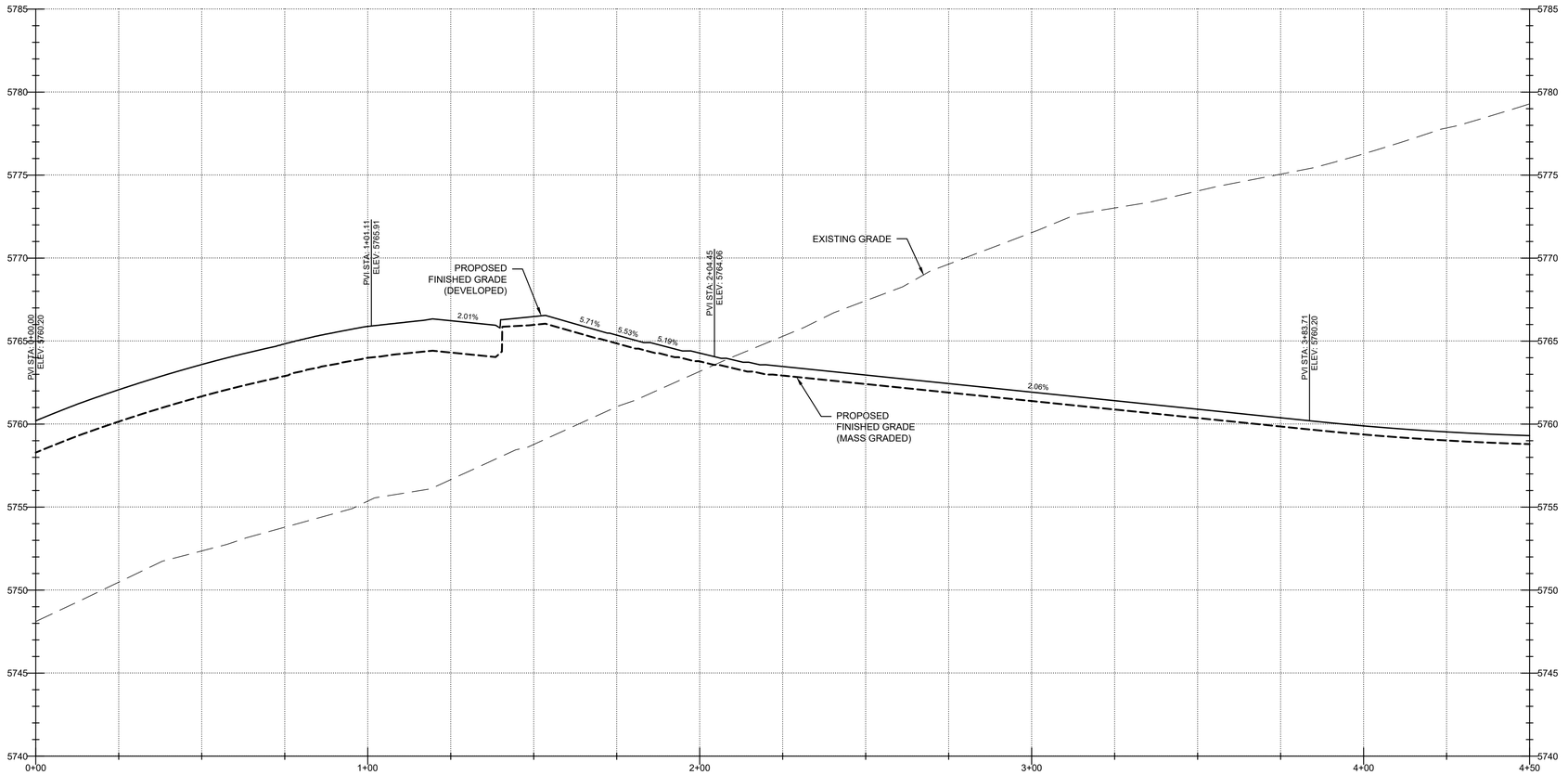






Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

NOTES:

1- THE SUBGRADE IN ROADWAY IS 23.0" LOWER THAN FINISH GRADE

2- THE SUBGRADE IN BUILDINGS/ LOT AREAS AND OPEN SPACE ADJACENT TO TOWNHOMES ARE 24" BELOW FINISHED GRADE.

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FILENAME: O:\Highlands\Exhibits\Cross Sections of Major Areas(4).dwg TAB: SEC17a PLOT DATE AND TIME: 8/7/2024 4:20 PM

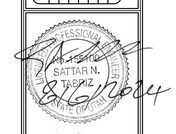
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CLIENT: D.R.HORTON
DWG: CROSS SECTIONS OF MAJOR AREAS(5).DWG
JOB No: 3891-DRH01-23
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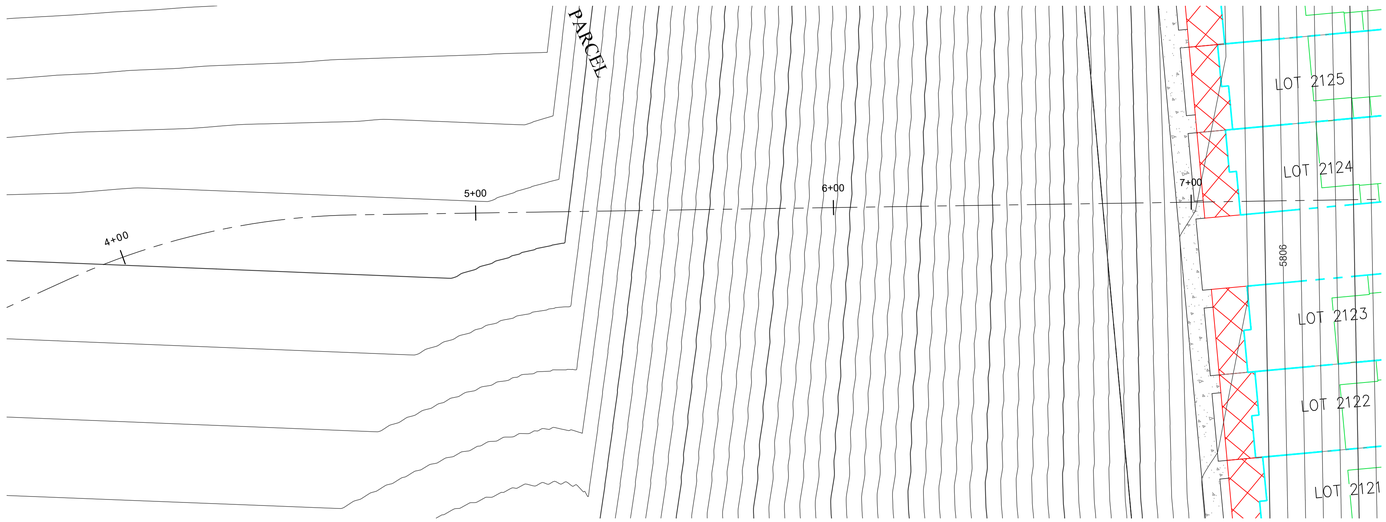
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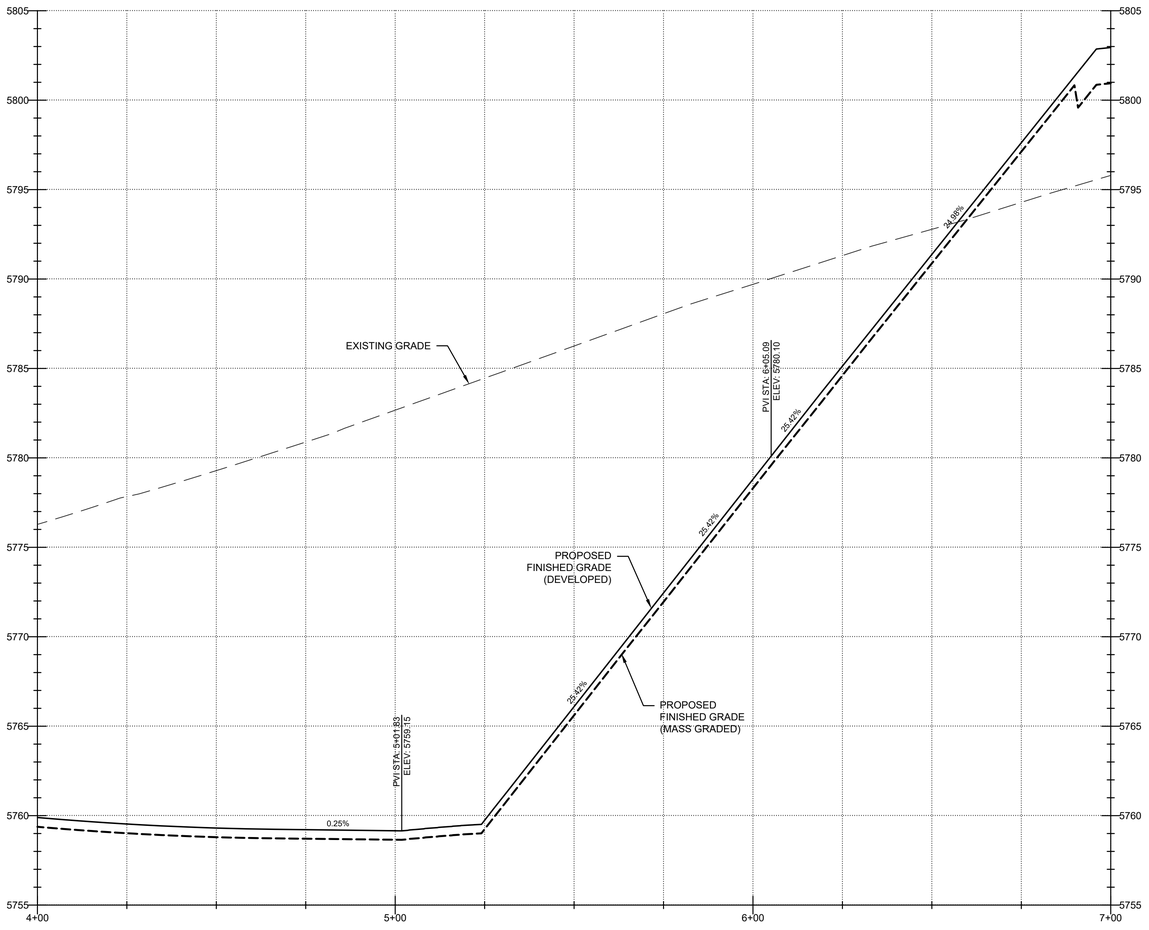
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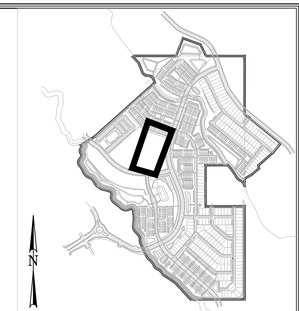


SHEET

SEC-17A









20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

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JOB No: 3891-DRH01-23
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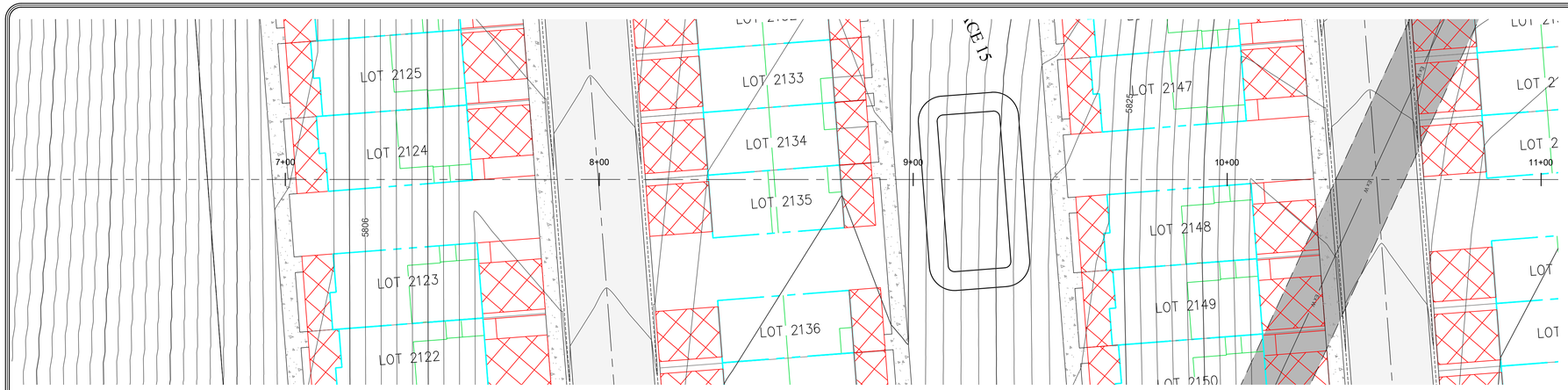
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1 07/30/2024 GRADING REVISION

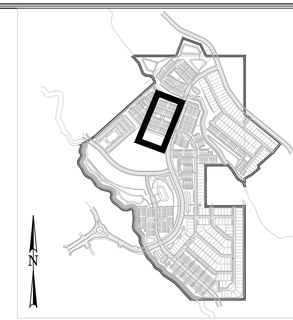
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STATE OF UTAH
8/6/2024

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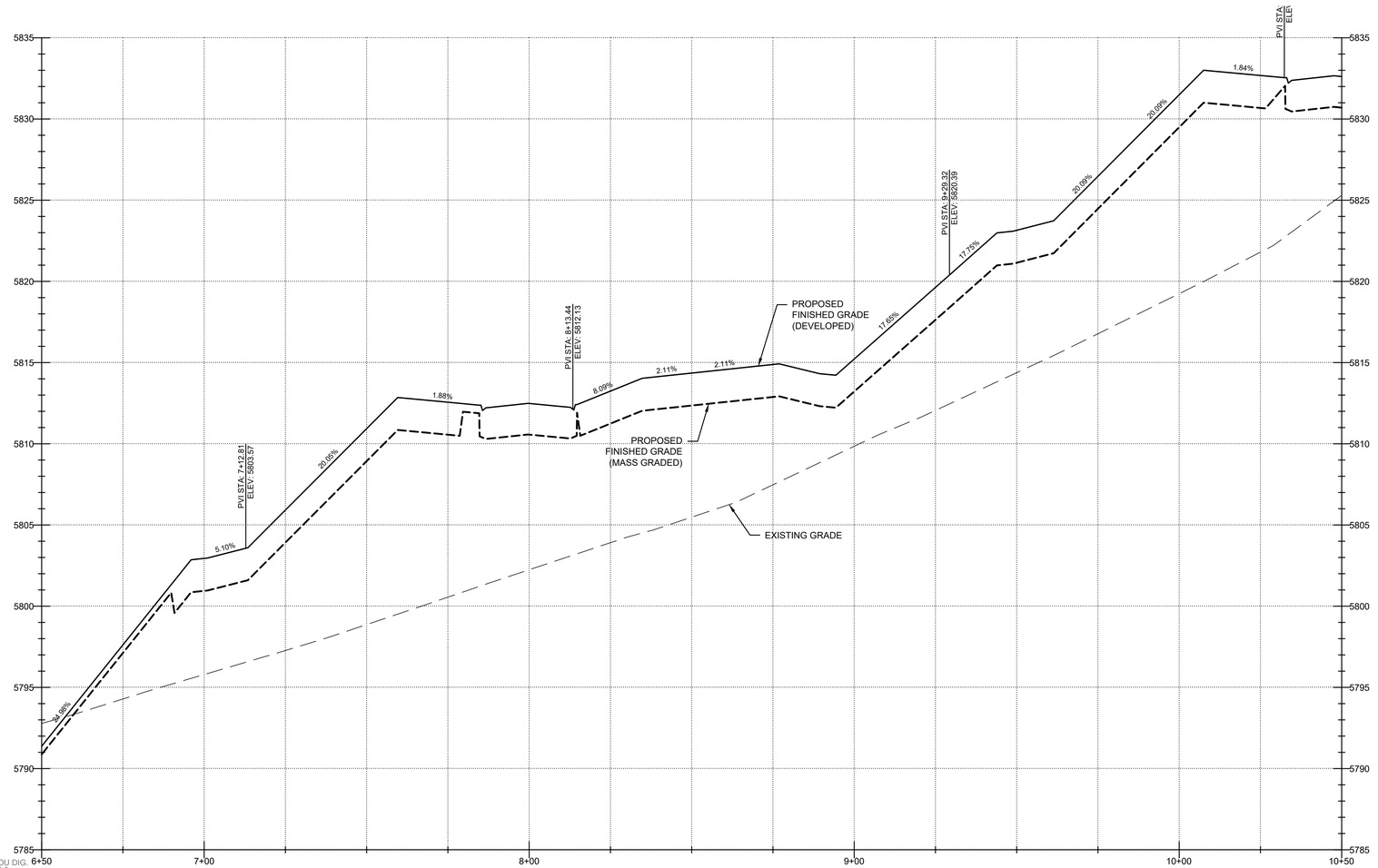




20 0 20 40 60

Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
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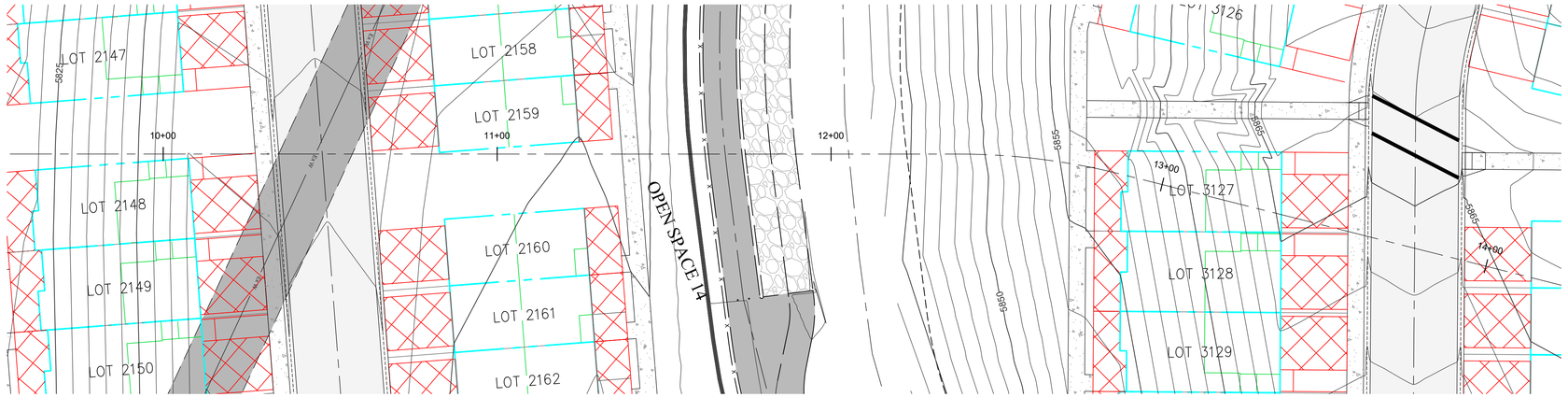
CLIENT: D.R.HORTON
DWG: CROSS SECTIONS OF MAJOR AREAS#17.DWG
JOB No: 3691-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in ! DIMENSIONS AND NOTES TAKE PRECEDENCE

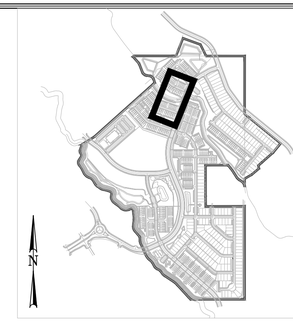
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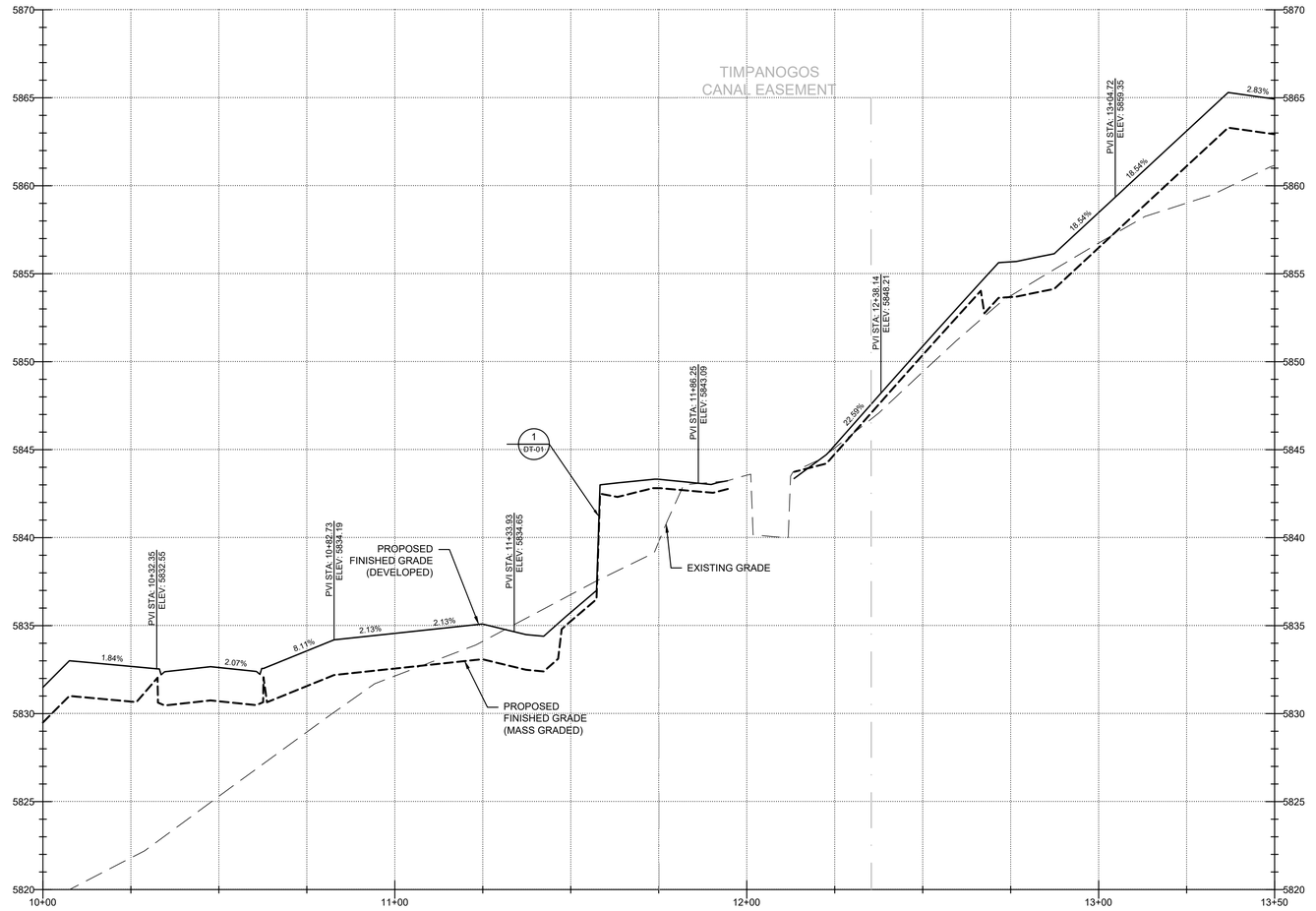
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PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8/6/2024

SHEET
SEC-17C









Scale 1" = 20'

VERTICAL SCALE: 1" = 4'

LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. PROPOSED MAJOR CONTOUR
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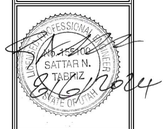
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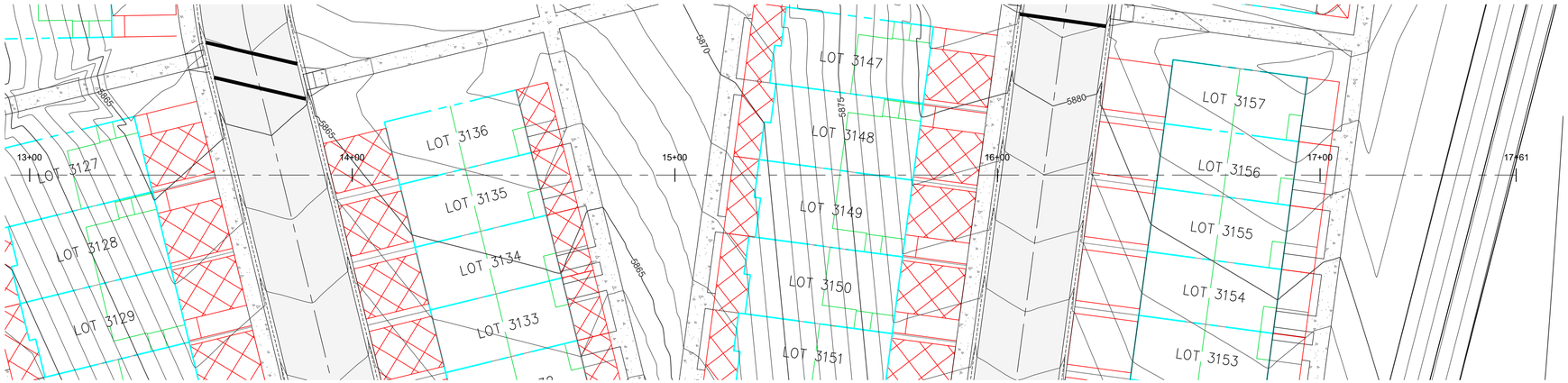


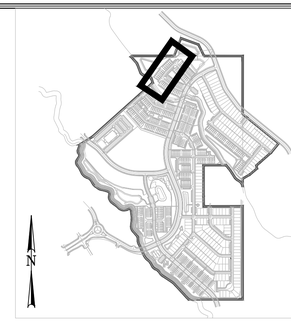
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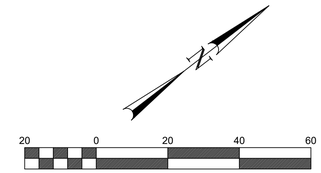
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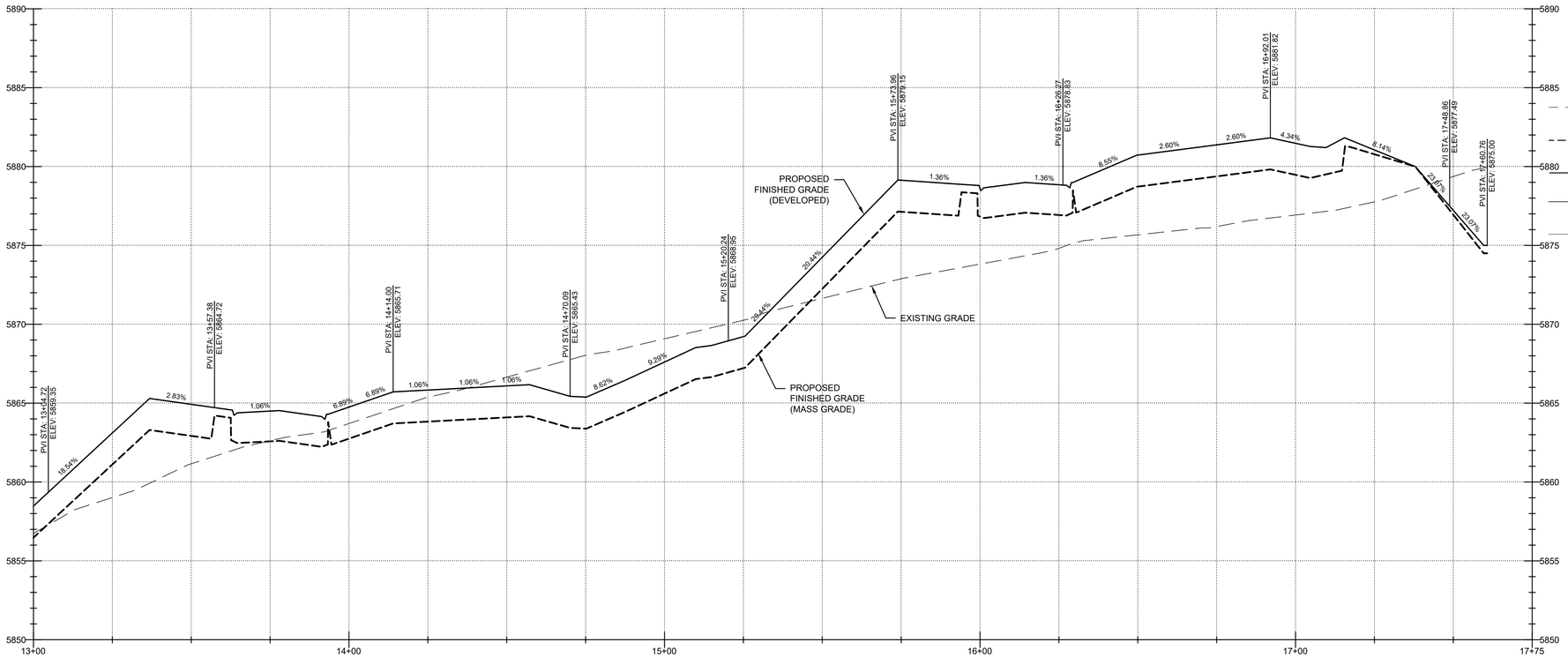






Scale 1" = 20'

VERTICAL SCALE: 1" = 4'



LEGEND

- EXISTING GRADE
- PROPOSED SUBGRADE
- PROPOSED FINISHED GRADE
- ELEV. — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

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SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
SEC-17E

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STRIPING & SIGNAGE PLANS

STRIPING & SIGNAGE PLANS	
Sheet Number	Sheet Title
--	Sub-Title Sheet- Striping & Signage Plans
SS-00	Striping and Signage Plan
SS-01	Striping and Signage Plan- Phase 1
SS-02	Striping and Signage Plan- Phase 1
SS-03	Striping and Signage Plan- Phase 1
SS-04	Striping and Signage Plan- Phase 1
SS-05	Striping and Signage Plan- Phase 1
SS-06	Striping and Signage Plan- Phase 1
SS-07	Striping and Signage Plan- Phase 1
SS-08	Striping and Signage Plan- Phase 1
SS-09	Striping and Signage Plan- Phase 1
SS-10	Striping and Signage Plan- Phase 1
SS-11	Striping and Signage Plan- Phase 2
SS-12	Striping and Signage Plan- Phase 2
SS-13	Striping and Signage Plan- Phase 2
SS-14	Striping and Signage Plan- Phase 2
SS-15	Striping and Signage Plan- Phase 2
SS-16	Striping and Signage Plan- Phase 2
SS-17	Striping and Signage Plan- Phase 3
SS-18	Striping and Signage Plan- Phase 3
SS-19	Striping and Signage Plan- Phase 4
SS-20	Striping and Signage Plan- Phase 4
SS-21	Striping and Signage Plan- Phase 4
SS-22	Striping and Signage Plan- Phase 4
SS-23	Striping and Signage Plan- Phase 4

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FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Cover Sheet.dwg TAB: STRIPING & SIGNAGE PLOT DATE AND TIME: 8/6/2024 4:43 PM

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(SALT LAKE METRO)
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SUB-TITLE SHEET- STRIPING & SIGNAGE PLANS

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JOB No: 3691-DRH01-23
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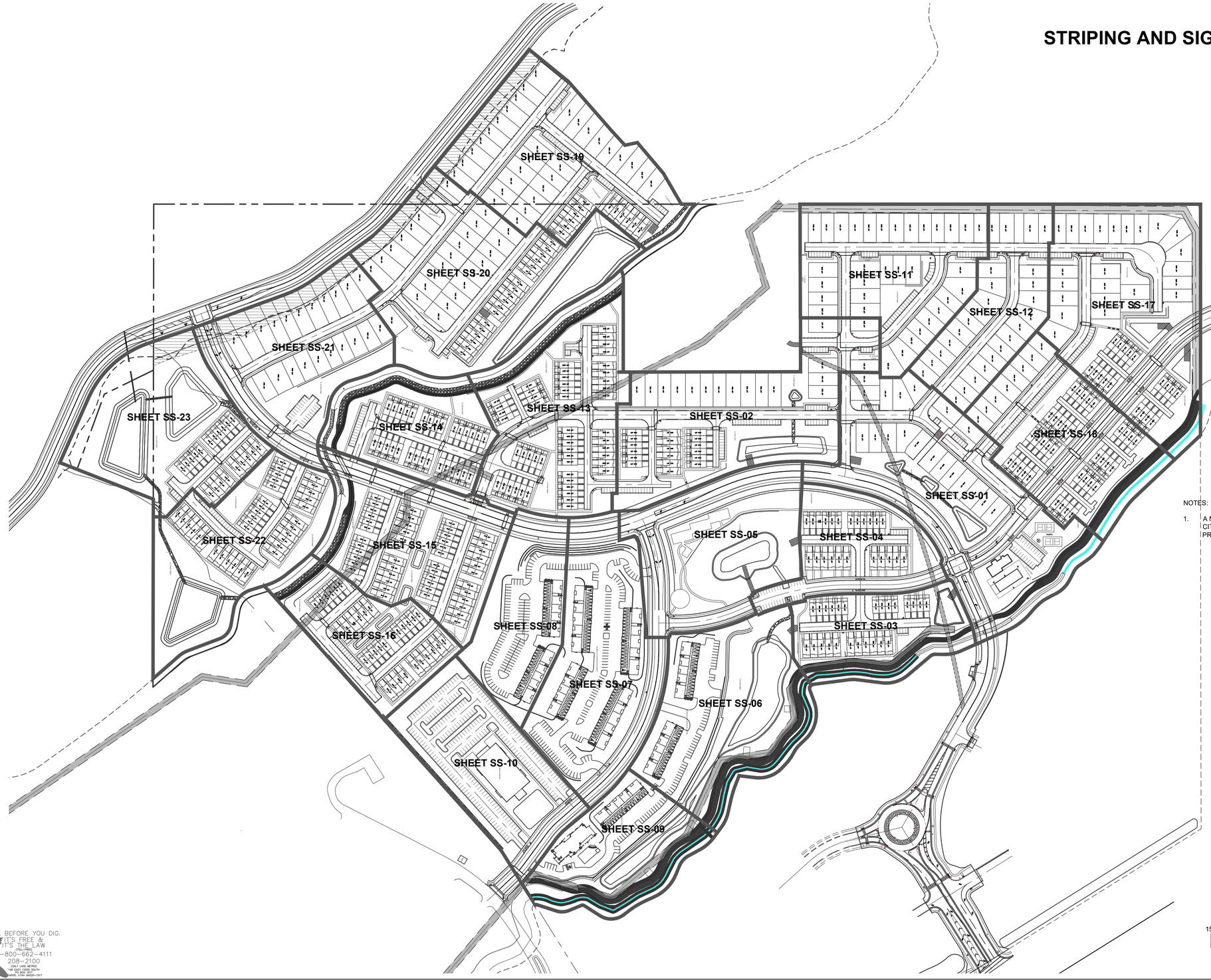
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PROFESSIONAL ENGINEER
SATTAR M. TABRIZ
STATE OF UTAH
8/6/2024

SHEET

STRIPING AND SIGNAGE PLAN



NOTES:

1. A NOTICE TO PROCEED MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO DOING ANY WORK ON THE PROJECT.

150 0 150 300 450

Scale 1" = 150'

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JOB No: 3891-DRH01-23
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DESIGN BY: WARD
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8/6/2024

SHEET
SS-00

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

INSTALL 12" SOLID WHITE PAINT
NO MOTOR VEHICLES R5-3
INSTALL LEFT TURN LANE MARKER PER MUTCD FIGURE 3B-21
COMMONS BLVD
COLLECTOR 1
R1-1 STOP
SEE SHEET SS-03
INSTALL 12" SOLID WHITE PAINT
INSTALL LEFT TURN LANE MARKER PER MUTCD FIGURE 3B-21
ADA ACCESS
INSTALL 4" SOLID WHITE PAINT
INSTALL 4" DOUBLE SOLID YELLOW PAINT
INSTALL 12" SOLID WHITE PAINT
INSTALL 4" SOLID WHITE PAINT
INSTALL 4" DOUBLE SOLID YELLOW PAINT
INSTALL LEFT TURN LANE MARKER PER MUTCD FIGURE 3B-21
INSTALL 4" SOLID WHITE PAINT
INSTALL 4" DOUBLE SOLID YELLOW PAINT
COMMONS BOULEVARD
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
SEE SHEET SS-05
R1-1 STOP COMMONS BLVD ROAD 6
INSTALL 12" SOLID WHITE PAINT
ROAD 6
10+00
11+00
12+00
SEE SHEET SS-02
WASATCH CANAL
OPEN SPACE 1
POND 9
POND 8
POND 7
OPEN SPACE 2
LOT 1012
LOT 1011
LOT 1010
LOT 1009
LOT 1008
LOT 1007
LOT 1006
LOT 1005
LOT 1004
LOT 1003
LOT 1002
LOT 1001
LOT 1016
LOT 1015
LOT 1014
LOT 1013
LOT 4111
LOT 4110
LOT 4101
OPEN SPACE 30
ROAD 5
ROAD 1
R1-1 STOP COMMONS BLVD COLLECTOR 1
R1-1 STOP ROAD 1 COLLECTOR 1
R1-1 STOP ROAD 1
R1-1 STOP ROAD 1 ROAD 4
R1-1 STOP ROAD 1 ROAD 3
OPEN SPACE 28
INSTALL (3) OM1-1 OBJECT MARKER SIGNS
ROAD 1
COLLECTOR 1
9+50
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
SEE SHEET SS-18
SEE SHEET SS-18
SEE SHEET SS-12
OPEN SPACE
BASKETBALL
SHELTER
PICKLEBALL
PICKLEBALL

30 0 30 60 90
Scale 1" = 30'

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208-2100
(SALT LAKE METRO)
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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 1

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D. R. HORTON
DWG: STRIPING AND SIGNAGE PHASE 1.DWG
JOB No: 3891-DRH01-24

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ASHTON SATTAR N. TABRIZ
8/6/2024

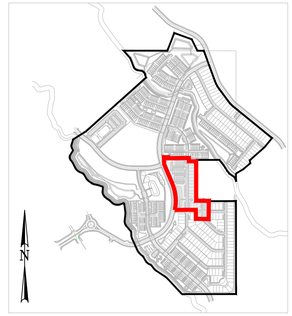
SHEET
SS-01

LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.



30 0 30 60 90

Scale 1" = 30'

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(TOLL-FREE)
1-800-662-4111
208-2100
SALT LAKE METRO
140 EAST 13000 SOUTH
DRAPER, UTAH 84020-1517

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 1

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 1DWG
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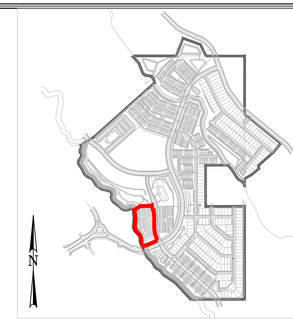
REVISIONS
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ABDUL J. SATTAR No. 7838822
STATE OF UTAH
8/6/2024

SHEET
SS-02

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

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2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

30 0 30 60 90

Scale 1" = 30'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN-PHASE 1

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: STRIPING AND SIGNAGE PHASE 1.DWG
JOB No: 3691-DRH01-23
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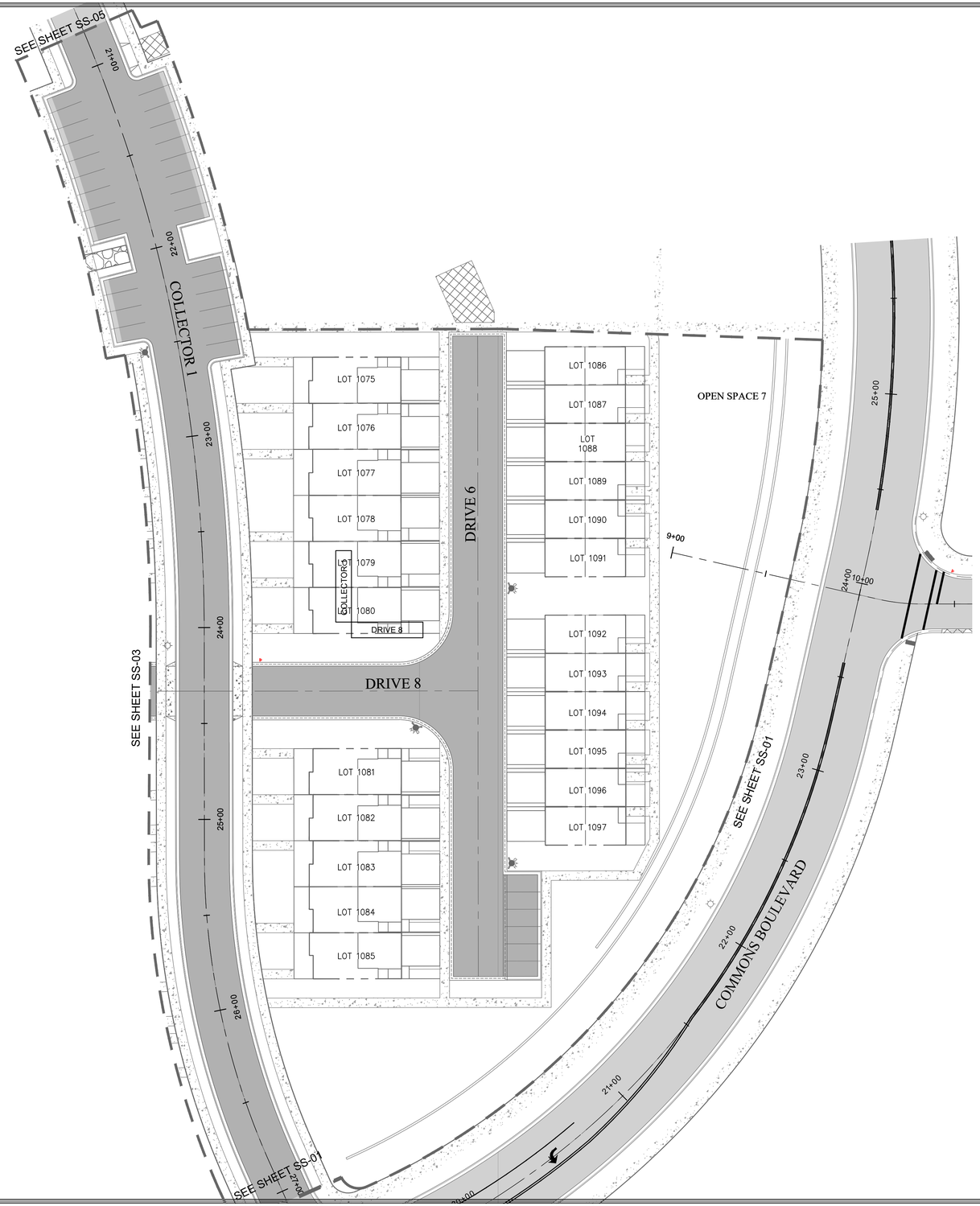
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PROFESSIONAL ENGINEER
ARSHIA N. SATTAR N. TABRIZ
8/6/2024

SHEET
SS-03

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN, STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

N

30 0 30 60 90

Scale 1" = 30'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 1

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PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 1 DRWG
JOB No. 3891-DRH01-23

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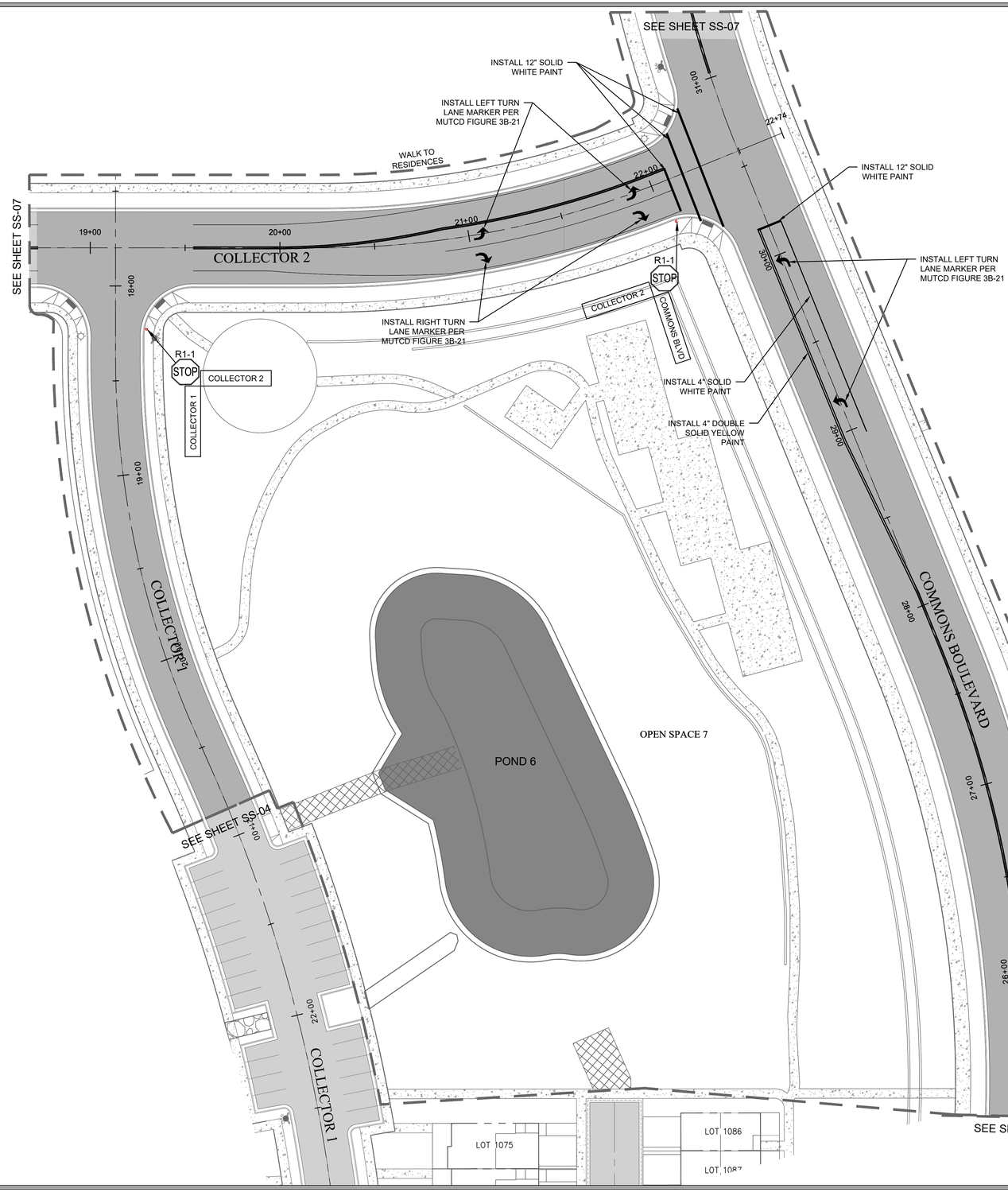
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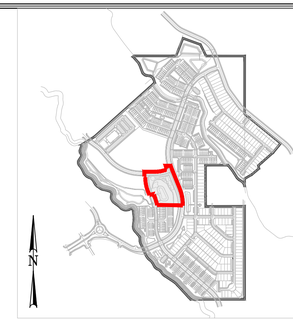
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ASSAD SATTAR N. TABRIZ
8/6/2024

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SS-04

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

N

30 0 30 60 90

Scale 1" = 30'

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Ward Engineering Group
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PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 1.DWG
JOB No: 3891-DRH01-23
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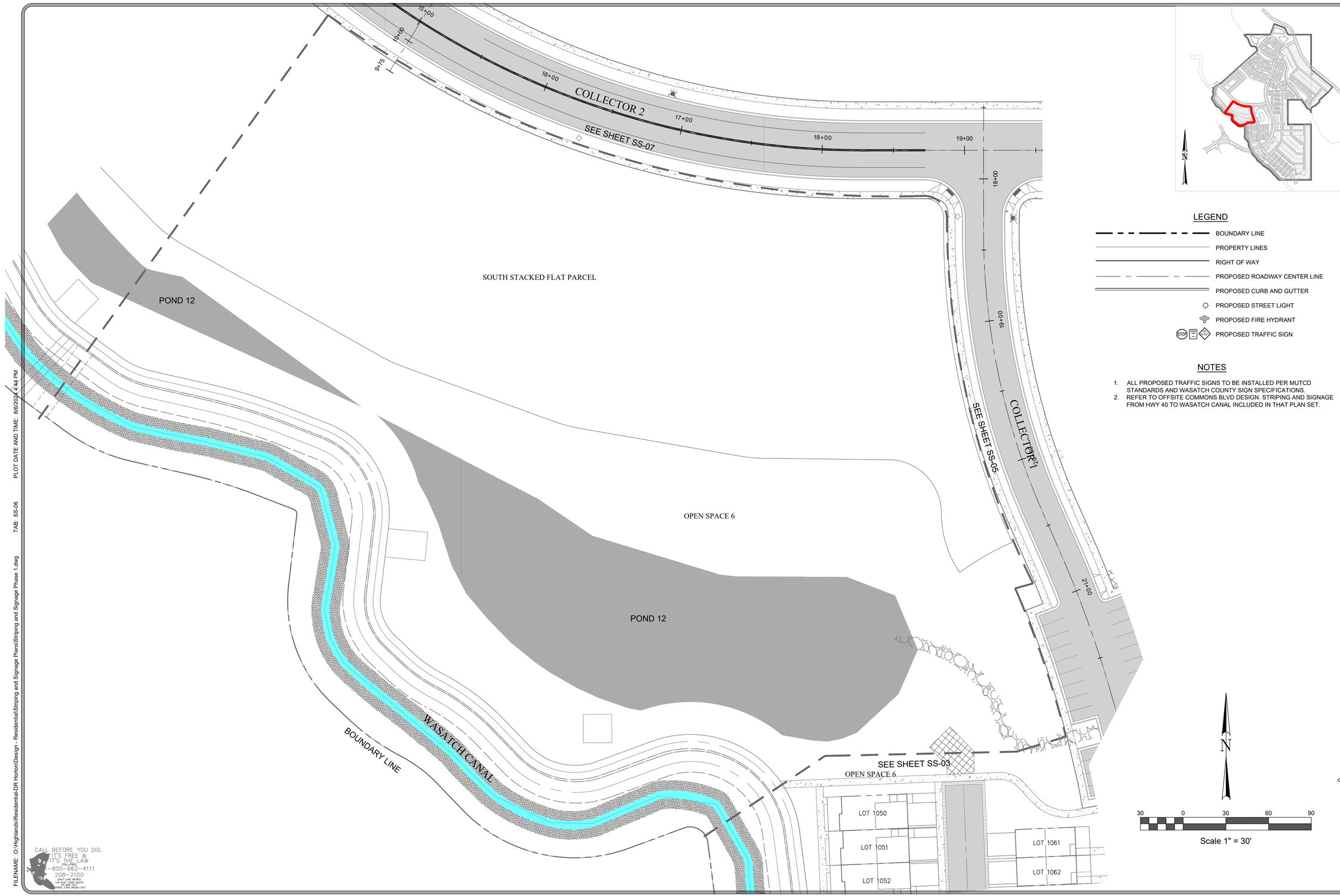
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LICENSED PROFESSIONAL ENGINEER SATTAR N. TABRIZ 8/6/2024

SHEET

SS-05



N

LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 1

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Planning • Engineering • Surveying
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CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 1.DWG
JOB No: 3891-DRH01-23
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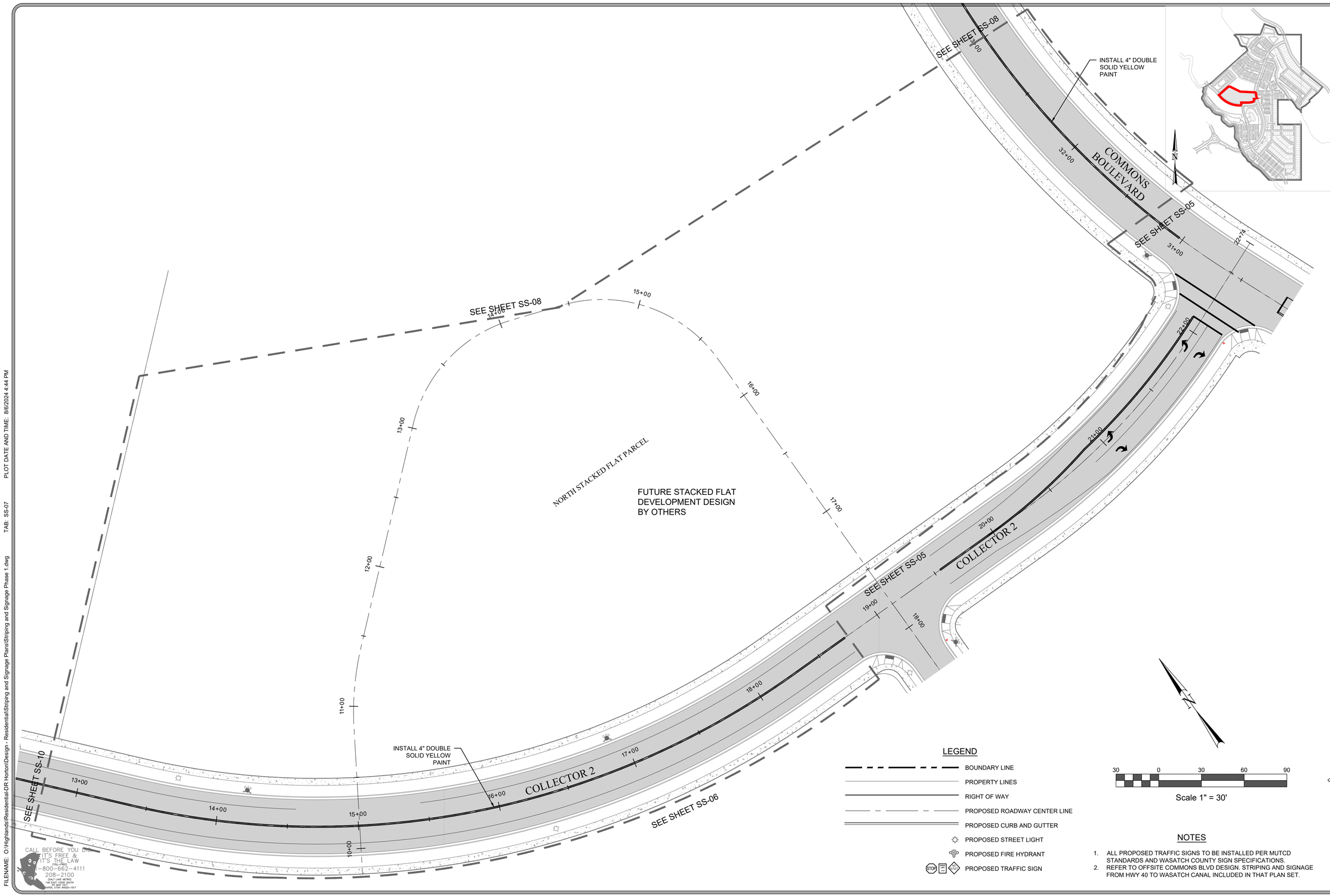
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UTAH PROFESSIONAL ENGINEER SATTAR N. TABRIZ
8/6/2024

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SS-06

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2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

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STRIPING AND SIGNAGE PLAN-PHASE 1

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PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 1DWG
JOB No: 3891-DRH01-23
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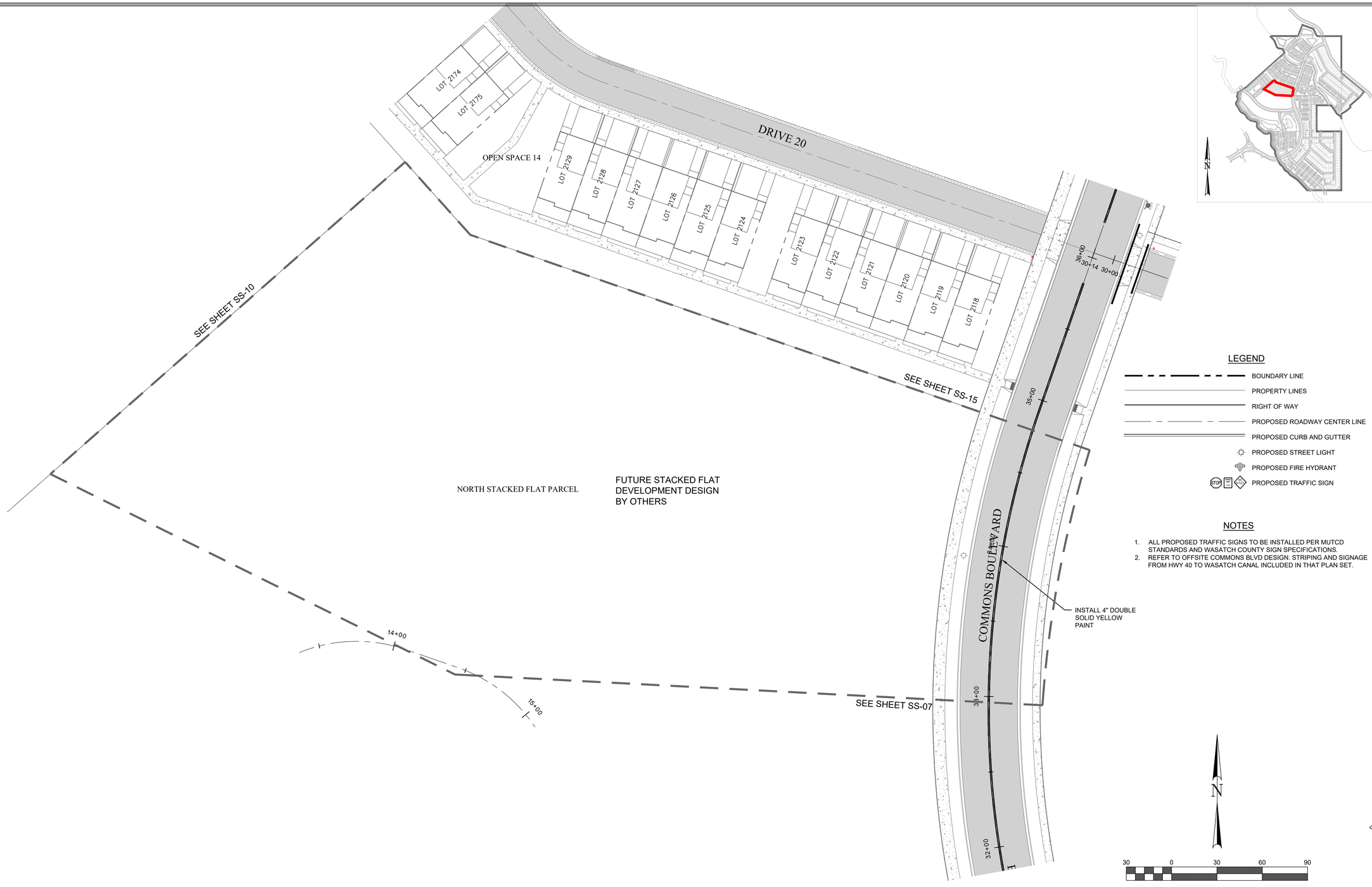
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LICENSED PROFESSIONAL ENGINEER SATTAR N. TABRIZ STATE OF UTAH
8/6/2024

SHEET
SS-07

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HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 1

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 1.DWG
JOB No: 3891-DRH01-23
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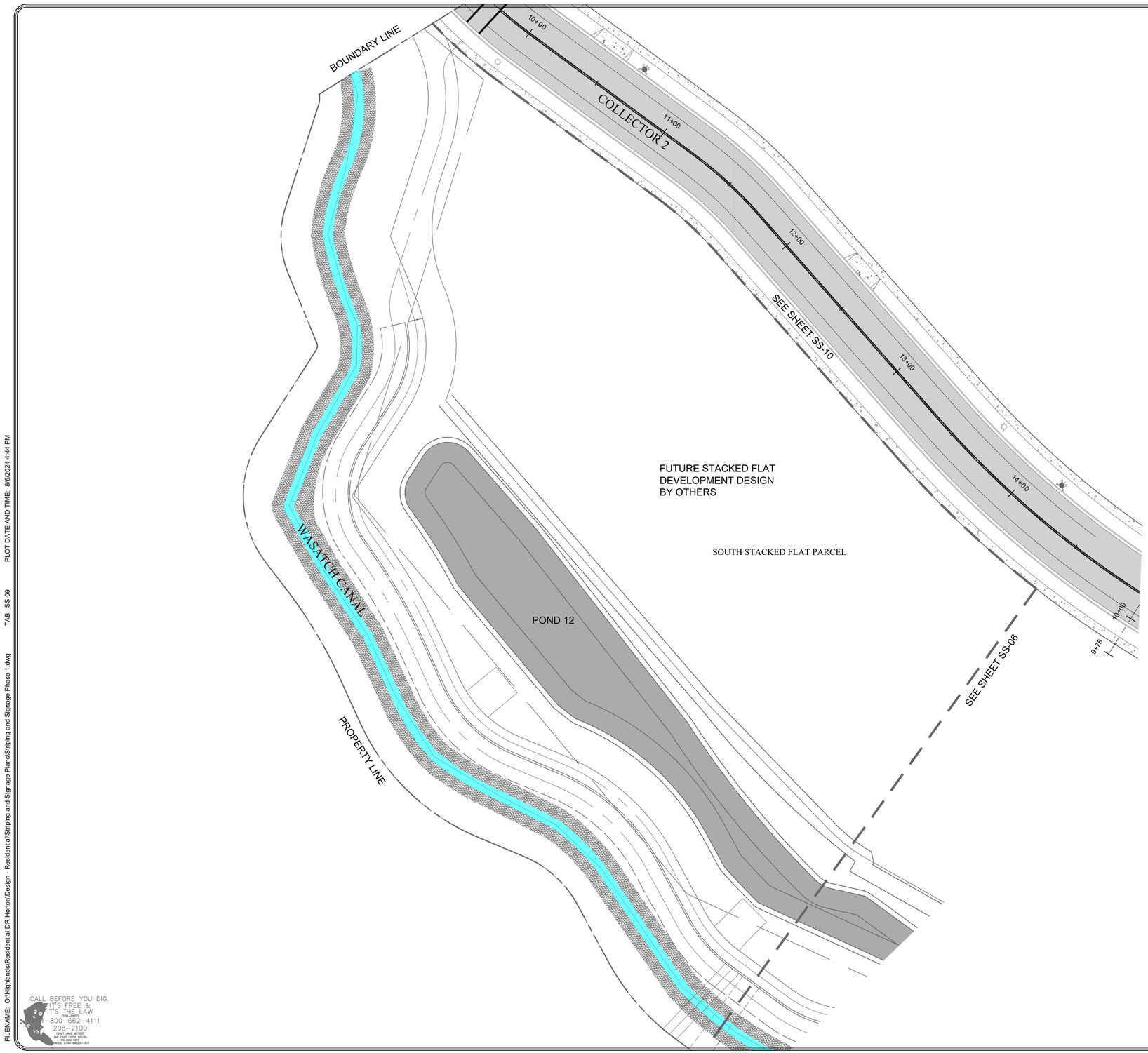
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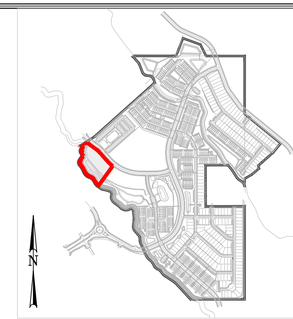
PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

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SS-08

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148 EAST 13000 SOUTH
PO BOX 1910
DRAPER, UTAH 84020-1917





LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

N

30 0 30 60 90

Scale 1" = 30'

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208-2100
BLUE STAKES OF UTAH
PO BOX 1027
PROVO, UTAH 84603-1027

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN-PHASE 1

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 1.DWG
JOB No: 3891-DRH01-23
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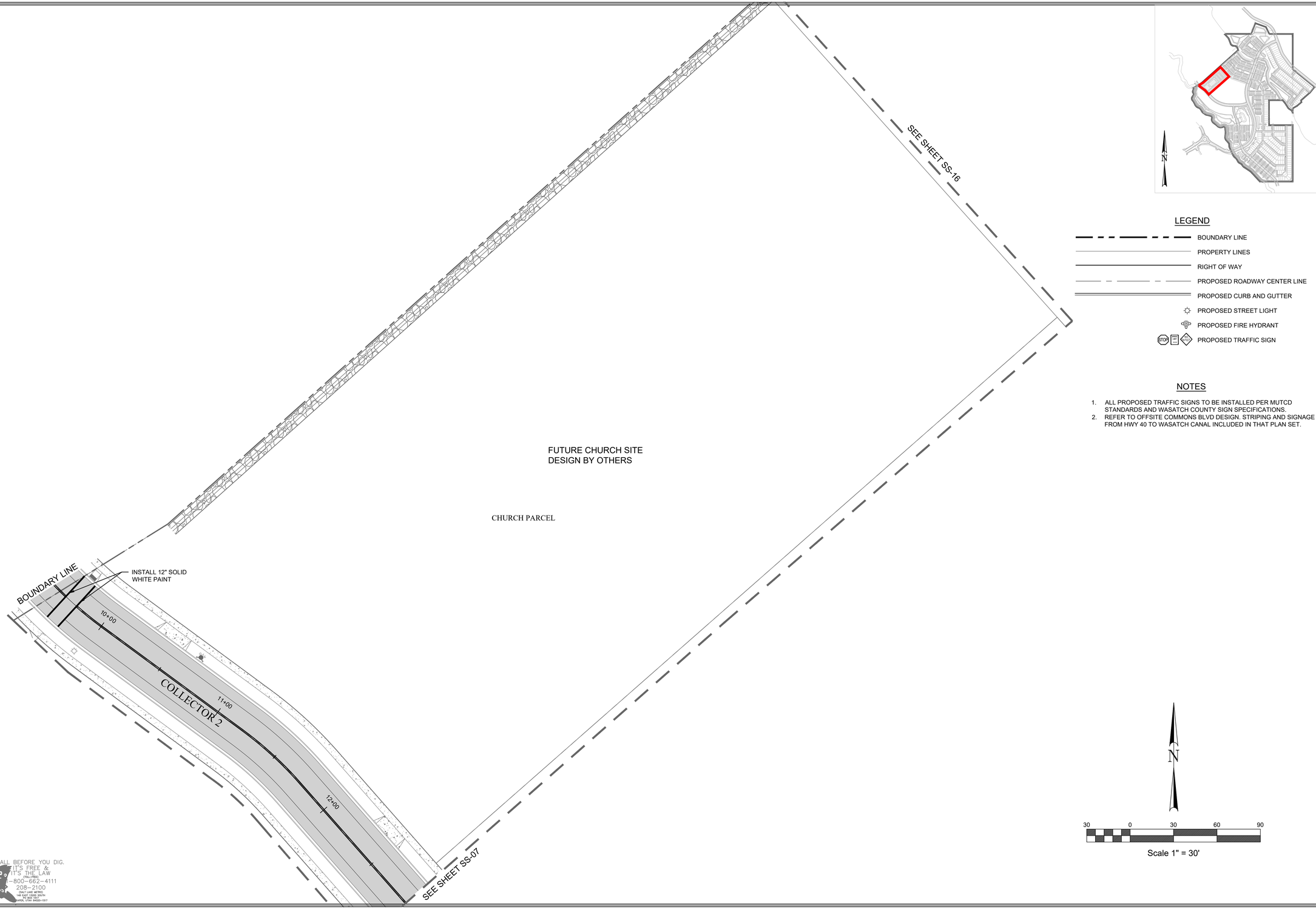
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ASSAD N. SATTAR
TABRIZ
STATE OF UTAH
8/6/2024

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SS-09

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

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CALL BEFORE YOU DIG.
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208-2100
(ONLY LWC METRO)
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DRAPER, UTAH 84020-1917

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HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 1

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Ward Engineering Group
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PH: 801 .487. 8040

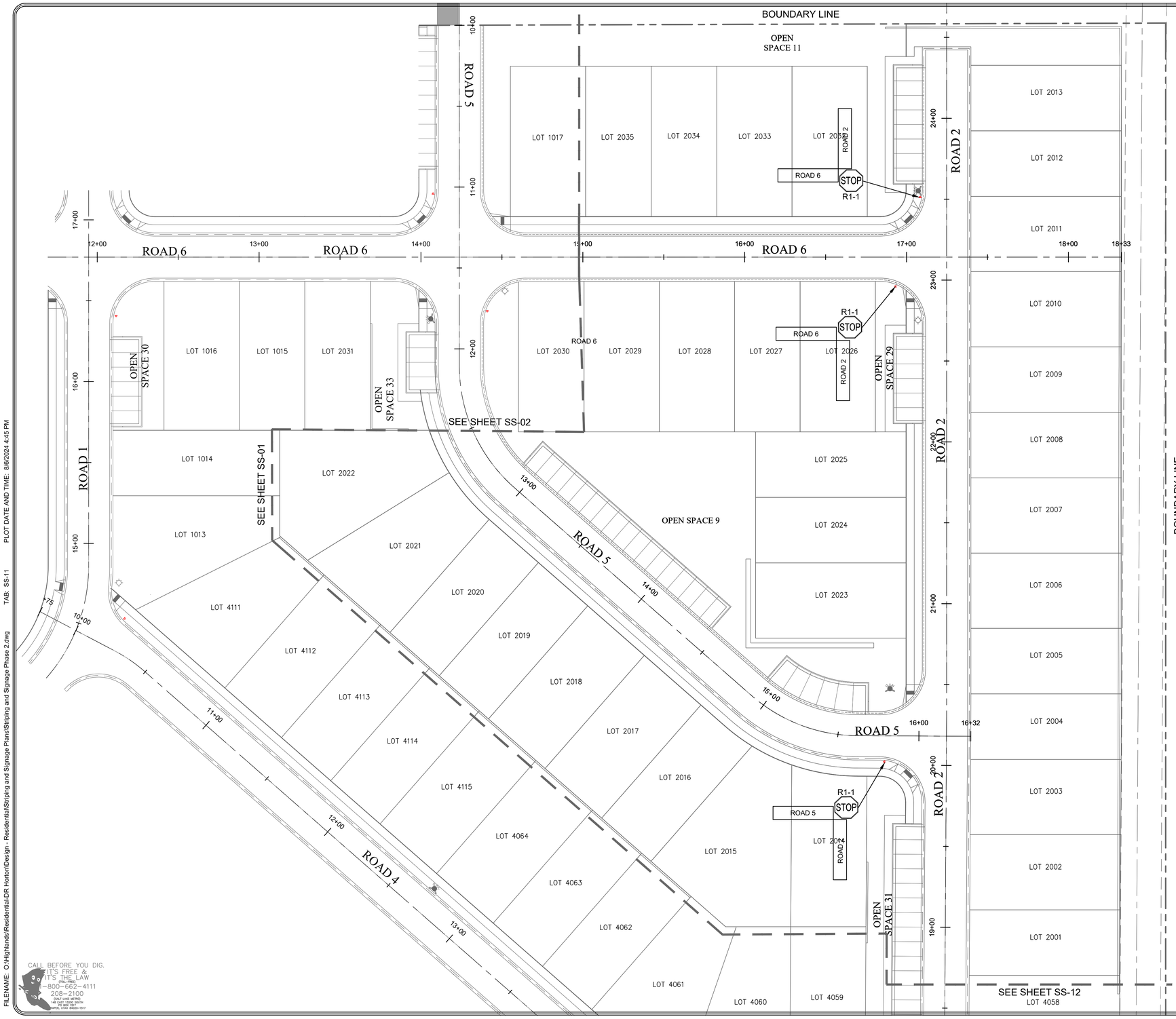
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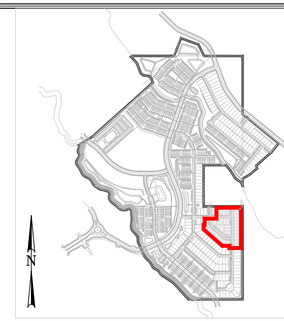
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PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

SHEET
SS-10





LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

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30 0 30 60 90

Scale 1" = 30'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 2

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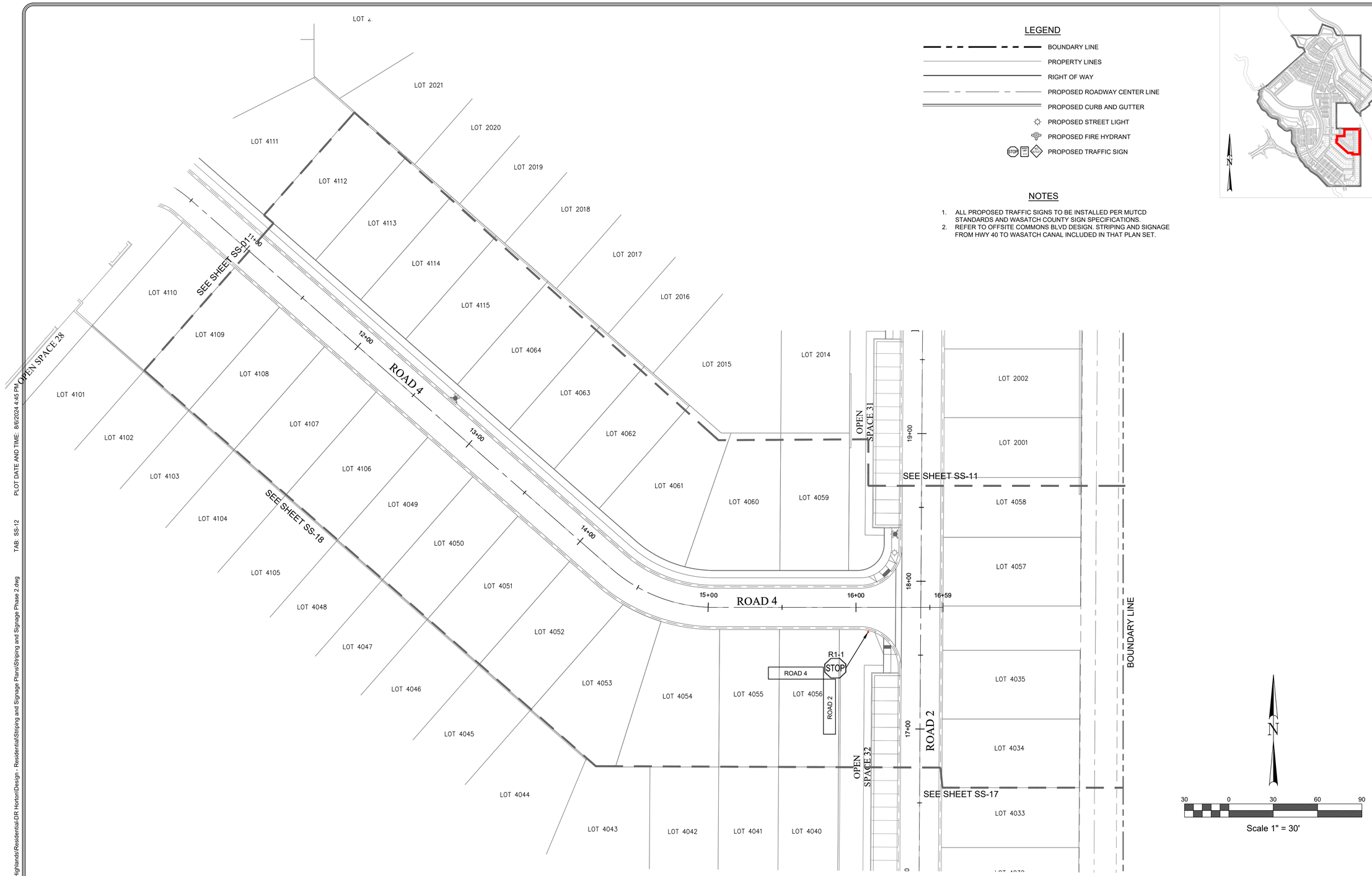
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8/6/2024

SHEET
SS-11

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Striping and Signage Plans\Striping and Signage Phase 2.dwg TAB: SS-11 PLOT DATE AND TIME: 8/6/2024 4:45 PM

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

Scale 1" = 30'

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208-2100
(SALT LAKE METRO)
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SUITE 100
SANDY, UTAH 84070-1917

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Striping and Signage Plans\Striping and Signage Phase 2.dwg TAB: SS-12 PLOT DATE AND TIME: 8/6/2024 4:45 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 2

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
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PH: 801 .487. 8040

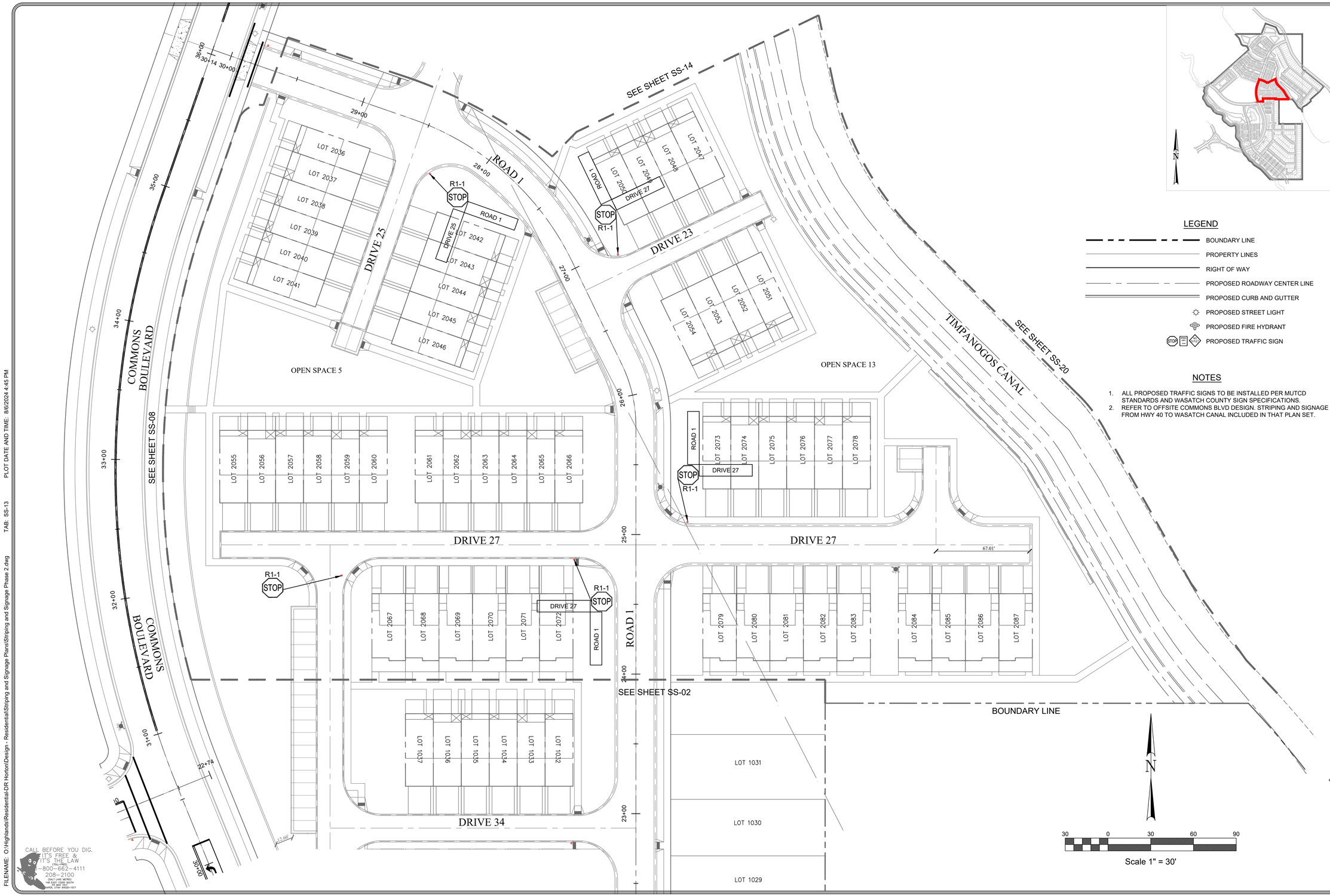
CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 2.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 BY 34. USE DIMENSIONS AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
SS-12



LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 2.DWG
JOB No: 3891-DRH01-23
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

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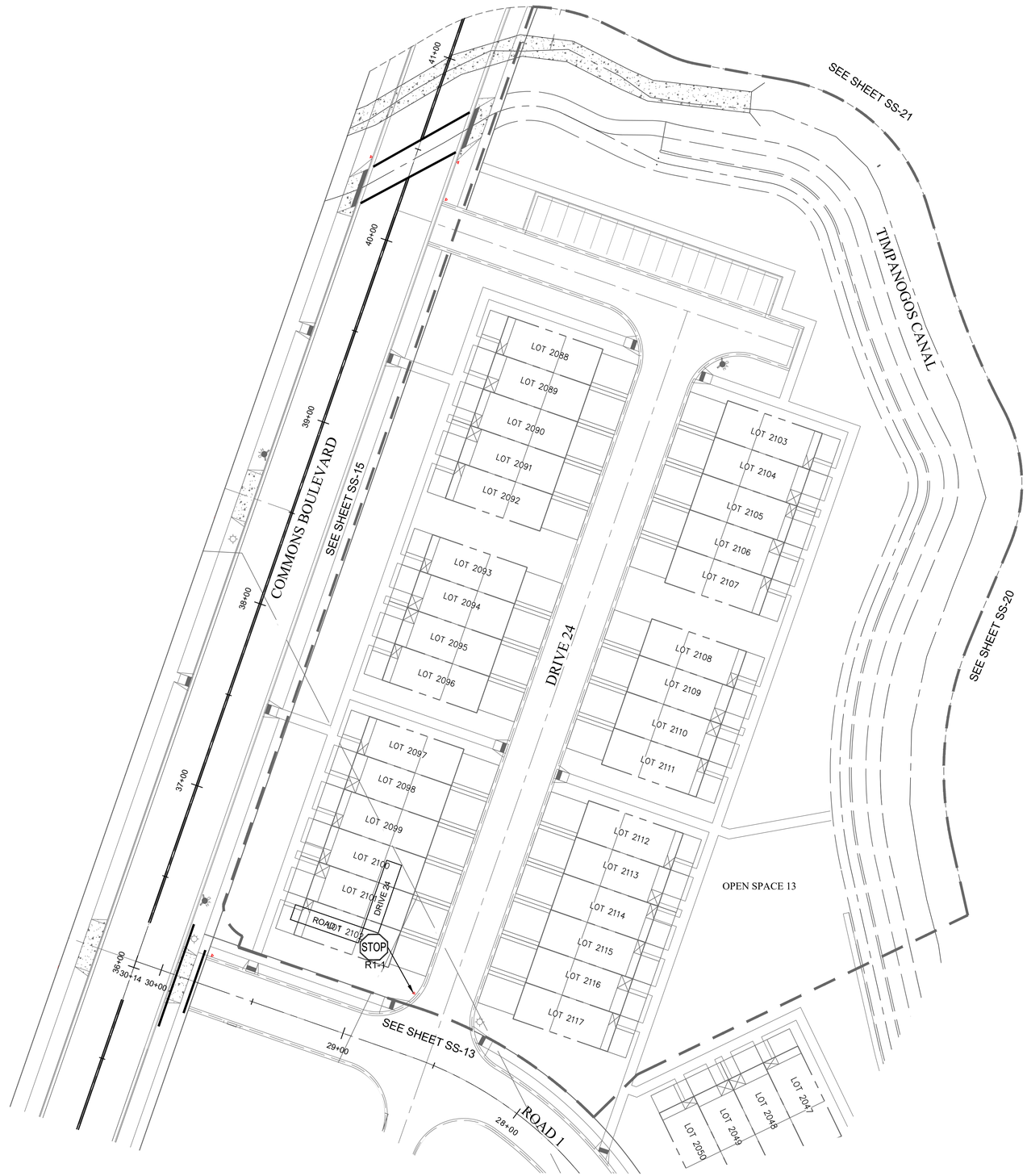
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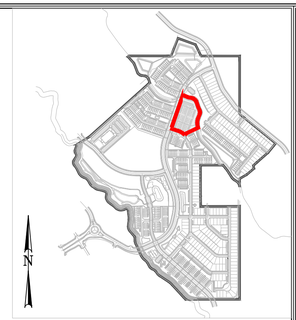
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SS-13

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

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N

30 0 30 60 90

Scale 1" = 30'

HIGHLANDS RESIDENTIAL DEVELOPMENT
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STRIPING AND SIGNAGE PLAN- PHASE 2

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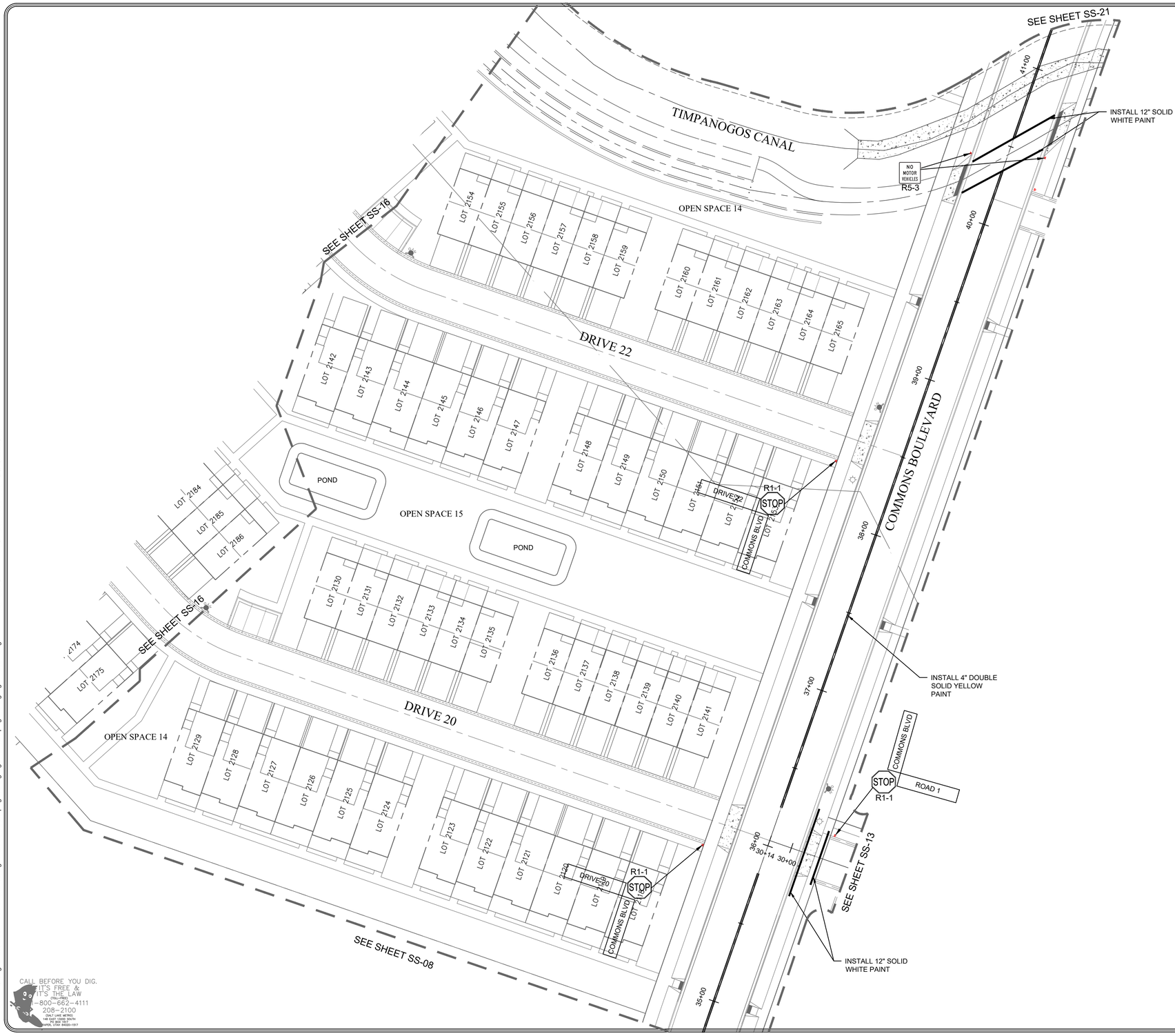
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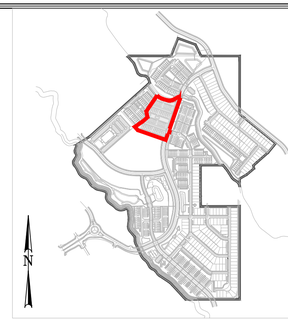
SATTAR N. TABRIZ — PROFESSIONAL ENGINEER — STATE OF UTAH
8/6/2024

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SS-14

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

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N

30 0 30 60 90

Scale 1" = 30'

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BLUE STAKES OF UTAH

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 2

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
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CLIENT: D.R HORTON
DWG: STRIPING AND SIGNAGE PHASE 2.DWG
JOB No: 3891-DRH01-23
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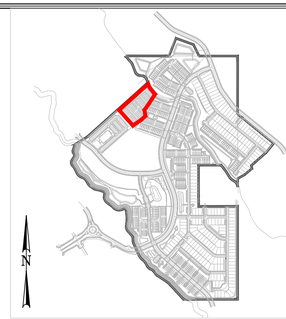
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PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
SS-15

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
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- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
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NOTES

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N

30 0 30 60 90

Scale 1" = 30'

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PROVO, UTAH 84603-1977

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HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 2

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 2.DWG
JOB No: 3891-DRH01-23
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SS-16

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
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- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

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2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

LOT 4045 LOT 4044 LOT 4043 LOT 4042 LOT 4041 LOT 4040 LOT 4054 LOT 4055 LOT 4056

SEE SHEET SS-18

14+00 15+00 16+00 17+00 18+00 18+21

ROAD 3

OPEN SPACE 32

ROAD 2

17+00 16+00 15+00 14+00 13+00 12+00 11+00 10+00

SEE SHEET SS-12

LOT 4034 LOT 4033 LOT 4032 LOT 4031 LOT 4030 LOT 4029 LOT 4028 LOT 4027 LOT 4026 LOT 4025

25' OVERFLOW LINE EASEMENT

BOUNDARY LINE

R1-1 STOP

W14-1

ROAD 3

ROAD 2

LOT 4039 LOT 4038 LOT 4037 LOT 4036

LOT 4065 LOT 4066 LOT 4067 LOT 4068 LOT 4069

LOT 4001 LOT 4002 LOT 4003 LOT 4004 LOT 4005

COLLECTOR 1

DRIVE 1

DRIVE 1

LOT 4010 LOT 4011 LOT 4012 LOT 4013 LOT 4014

34+00 35+00 36+00 37+00 38+00

SEE SHEET SS-18

INSTALL 12" SOLID WHITE PAINT

LOT 4070 LOT 4071 LOT 4072 LOT 4073

LOT 4006 LOT 4007 LOT 4008 LOT 4009

COLLECTOR 1

DRIVE 1

LOT 4015 LOT 4016 LOT 4017 LOT 4018

INSTALL 12" SOLID WHITE PAINT

INSTALL 4" DOUBLE SOLID YELLOW PAINT

OPEN SPACE 12

POND 15

POND 14

OPEN SPACE 1

OPEN SPACE 26

LOT 4019 LOT 4020 LOT 4021 LOT 4022 LOT 4023 LOT 4024

WASATCH CANAL

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30 0 30 60 90

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N

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STRIPING AND SIGNAGE PLAN- PHASE 3

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CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 3.DWG
JOB No: 3891-DRH01-23
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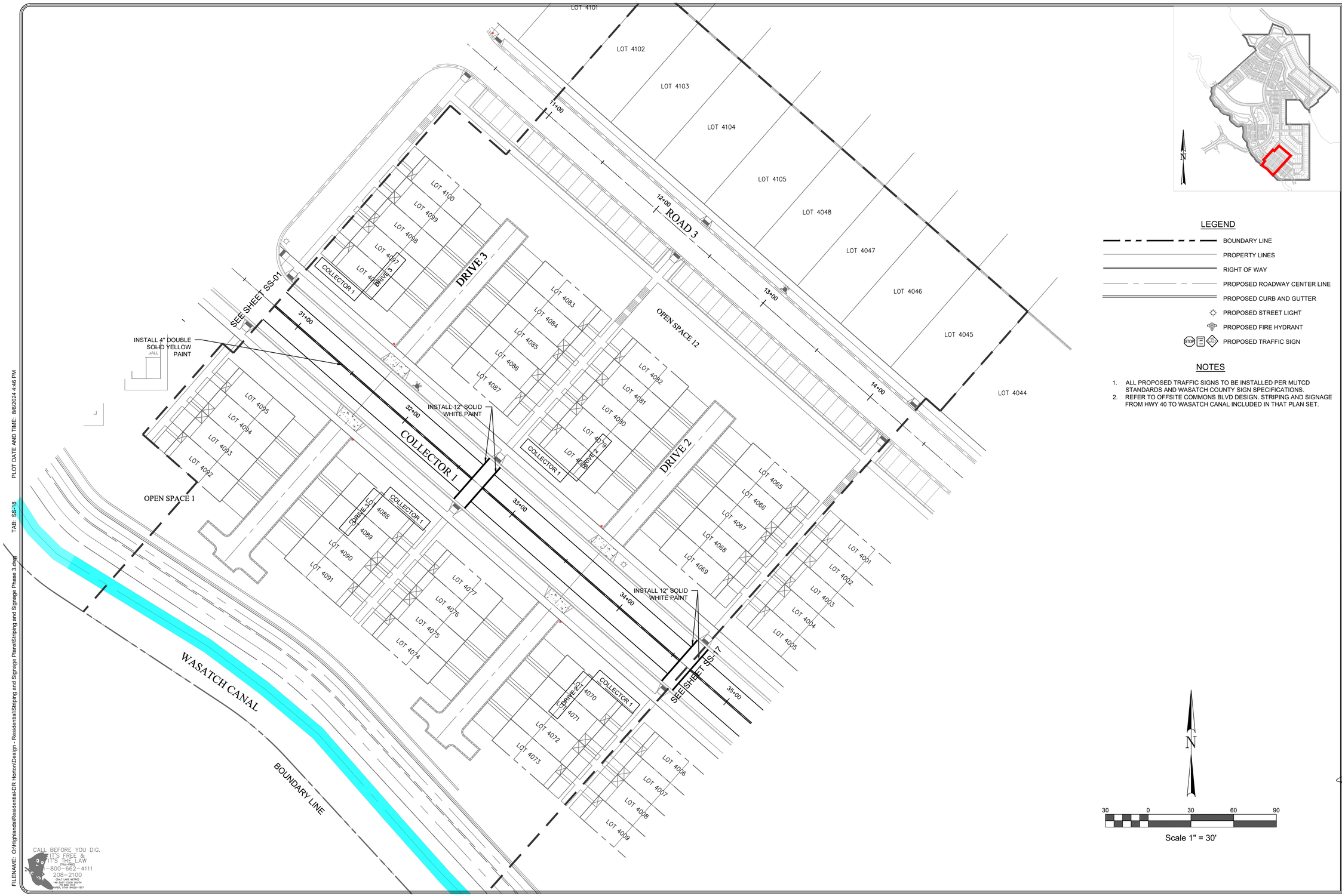
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SHEET
SS-17

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LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

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2. REFER TO OFFSITE COMMONS BLVD DESIGN, STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 3

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JOB No: 3691-DRH01-23
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SS-18

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TAB: SS-18
PLOT DATE AND TIME: 8/6/2024 4:46 PM



LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN
- SLOPE EASEMENT

NOTES

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 4

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 4 DWG
JOB No: 3891-DRH01-23
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WHEN 22"x34" DIMENSIONS AND NOTES MAY PRECEDENCE

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PROFESSIONAL ENGINEER
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8/6/2024

SHEET
SS-19

PLOT DATE AND TIME: 8/6/2024 4:46 PM
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INSTALL 12" SOLID WHITE PAINT

INSTALL 4" DOUBLE SOLID YELLOW PAINT

COYOTE VIEW DRIVE

ROAD 36

ROAD 35

ROAD 7

DRIVE 37

OPEN SPACE 19

OPEN SPACE 21

OPEN SPACE 16

POND 13

SEE SHEET SS-19

SEE SHEET SS-19

SEE SHEET SS-21

SEE SHEET SS-12

R1-1 STOP

61+00 62+00 63+00 356+00 357+00 358+00 359+00 10+00 11+00 12+00 13+00 14+00 15+00 9+75

LOT 3044 LOT 3045 LOT 3046 LOT 3047 LOT 3048 LOT 3049 LOT 3050 LOT 3051 LOT 3052 LOT 3053 LOT 3054 LOT 3055 LOT 3056 LOT 3057 LOT 3058 LOT 3059 LOT 3060 LOT 3061 LOT 3062 LOT 3063 LOT 3064 LOT 3065 LOT 3066 LOT 3067 LOT 3068 LOT 3069 LOT 3070 LOT 3071 LOT 3072 LOT 3073 LOT 3074 LOT 3075 LOT 3076 LOT 3077 LOT 3078 LOT 3079 LOT 3080 LOT 3081 LOT 3082 LOT 3083 LOT 3084 LOT 3085 LOT 3086 LOT 3087 LOT 3088 LOT 3089



LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN
- SLOPE EASEMENT

NOTES

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2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

30 0 30 60 90

Scale 1" = 30'

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 4

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 4.DWG
JOB No. 3891-DRH01-23

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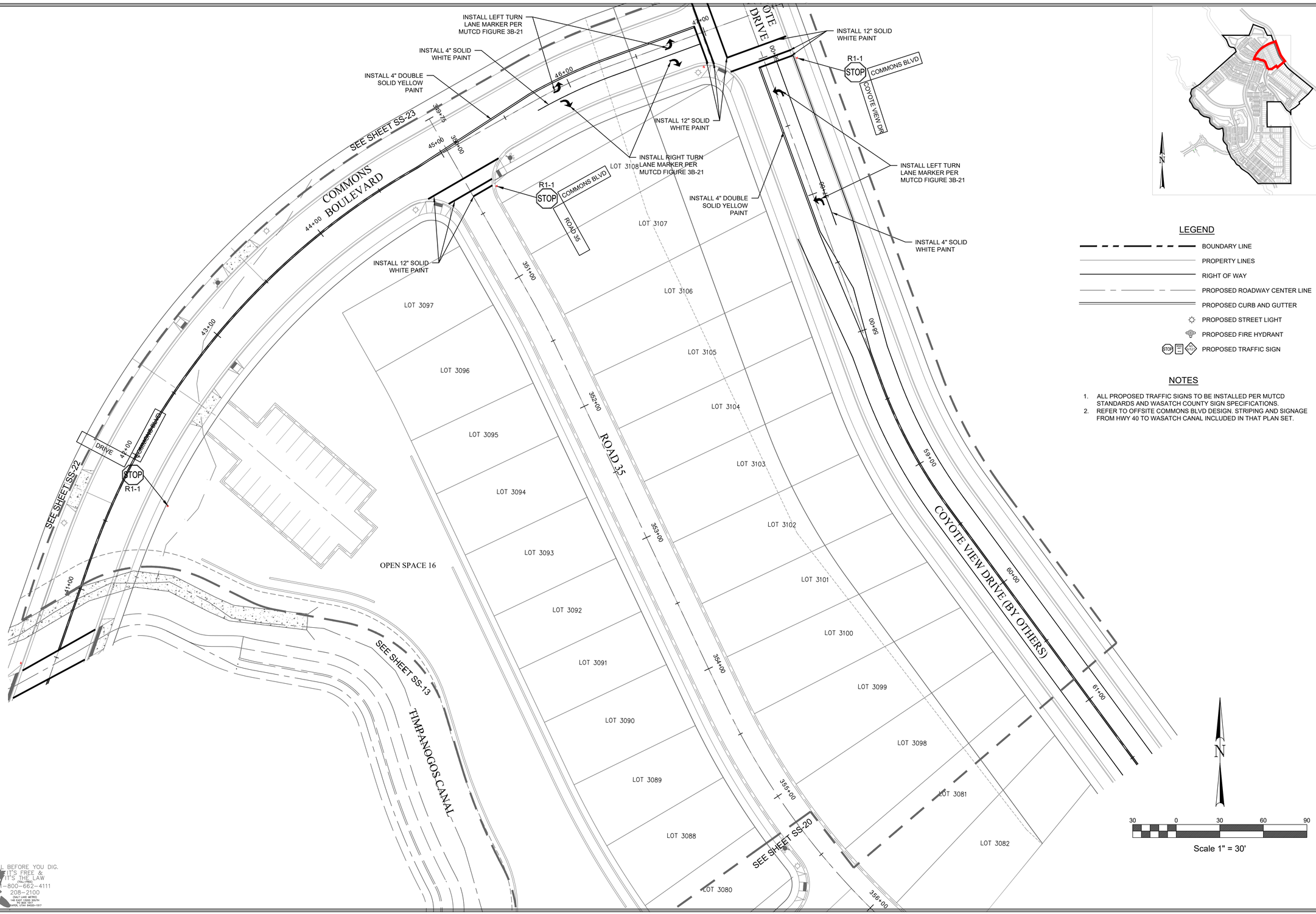
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1	07/30/2024	GRADING REVISION

PROFESSIONAL ENGINEER — ARSHAD SATTAR N. TABRIZ — UTAH — 8/6/2024

SHEET

SS-20



LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 4

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Ward Engineering Group
Planning • Engineering • Surveying
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CLIENT: D.R HORTON
DWG: STRIPING AND SIGNAGE PHASE 4.DWG
JOB No. 3891-DRH01-23
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PROFESSIONAL ENGINEER
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8169604
STATE OF UTAH

SHEET
SS-21

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PROPERTY LINE

OPEN SPACE 24

POND 1

DRIVE 13

SEE SHEET SS-23

DRIVE 12

OPEN SPACE 23

DRIVE 14

R1-1

STOP

LOT 3109
LOT 3110
LOT 3111
LOT 3112
LOT 3113
LOT 3114
LOT 3115
LOT 3116
LOT 3117
LOT 3118
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LOT 3148
LOT 3149
LOT 3150
LOT 3151

SEE SHEET SS-16

TIMPANOGOS CANAL

OPEN SPACE 24

SEE SHEET SS-21

43+00

42+00

41+00

SEE SHEET SS-15

TIMPANOGOS CANAL

LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

N

30 0 30 60 90

Scale 1" = 30'

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

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PO BOX 55
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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 4

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Ward Engineering Group
Planning • Engineering • Surveying
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CLIENT: D.R.HORTON
DWG: STRIPING AND SIGNAGE PHASE 4.DWG
JOB No: 3891-DRH01-23
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STATE OF UTAH
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8/6/2024

SHEET
SS-22

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Striping and Signage Plans\Striping and Signage Phase 4.dwg TAB: SS-22 PLOT DATE AND TIME: 8/6/2024 4:46 PM

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Striping and Signage Plans\Striping and Signage Phase 4.dwg TAB: SS-23 PLOT DATE AND TIME: 8/6/2024 4:46 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STRIPING AND SIGNAGE PLAN- PHASE 4



LEGEND

- BOUNDARY LINE
- PROPERTY LINES
- RIGHT OF WAY
- PROPOSED ROADWAY CENTER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED STREET LIGHT
- PROPOSED FIRE HYDRANT
- PROPOSED TRAFFIC SIGN

NOTES

1. ALL PROPOSED TRAFFIC SIGNS TO BE INSTALLED PER MUTCD STANDARDS AND WASATCH COUNTY SIGN SPECIFICATIONS.
2. REFER TO OFFSITE COMMONS BLVD DESIGN. STRIPING AND SIGNAGE FROM HWY 40 TO WASATCH CANAL INCLUDED IN THAT PLAN SET.

BOUNDARY LINE
POND 2
OPEN SPACE 24
OPEN SPACE 23
EMERGENCY OVERFLOW
DRIVE 13
DRIVE 12
COYOTE VIEW DRIVE
COMMONS BOULEVARD
COMMONS BLVD
COYOTE VIEW DR
STOP
R1-1
LOT 3109
LOT 3110
LOT 3111
LOT 3112
LOT 3113
LOT 3114
LOT 3132
LOT 3133
LOT 3134
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LOT 3158
LOT 3159
LOT 3160
LOT 3161
LOT 3162
43+00
44+00
45+00
46+00
47+00
47+57
48+00
49+00
50+00
51+00
52+00
53+00
54+00
55+00
349+75
350+00
SEE SHEET SS-22
SEE SHEET SS-21
INSTALL 4" DOUBLE SOLID YELLOW PAINT
INSTALL RIGHT TURN AND THROUGH LANE MARKER PER MUTCD FIGURE 3B-21
INSTALL 12" SOLID WHITE PAINT

30 0 30 60 90

Scale 1" = 30'

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SS-23

HIGHLANDS RESIDENTIAL DEVELOPMENT:
ROADWAY PLAN & PROFILES

ROADWAY PLAN & PROFILES	
Sheet Number	Sheet Title
--	Sub-Title Sheet- Roadway Plan & Profiles
PP-01	Roadway Plan & Profile- Commons Blvd
PP-02	Roadway Plan & Profile- Commons Blvd
PP-03	Roadway Plan & Profile- Commons Blvd
PP-04	Roadway Plan & Profile- Commons Blvd
PP-05	Roadway Plan & Profile- Commons Blvd
PP-06	Roadway Plan & Profile- Commons Blvd
PP-07	Roadway Plan & Profile- Commons Blvd
PP-08	Roadway Plan & Profile- Commons Blvd
PP-09	Roadway Plan & Profile- Collector 1
PP-10	Roadway Plan & Profile- Collector 1
PP-11	Roadway Plan & Profile- Collector 1
PP-12	Roadway Plan & Profile- Collector 1
PP-13	Roadway Plan & Profile- Collector 1
PP-14	Roadway Plan & Profile- Collector 1
PP-15	Roadway Plan & Profile- Collector 2
PP-16	Roadway Plan & Profile- Collector 2
PP-17	Roadway Plan & Profile- Collector 2
PP-18	Roadway Plan & Profile- Collector 2
PP-19	Roadway Plan & Profile- Road 1
PP-20	Roadway Plan & Profile- Road 1
PP-21	Roadway Plan & Profile- Road 1
PP-22	Roadway Plan & Profile- Road 1
PP-23	Roadway Plan & Profile- Road 1
PP-24	Roadway Plan & Profile- Road 6
PP-25	Roadway Plan & Profile- Road 6
PP-26	Roadway Plan & Profile- Road 2
PP-27	Roadway Plan & Profile- Road 2
PP-28	Roadway Plan & Profile- Road 2
PP-29	Roadway Plan & Profile- Road 2
PP-30	Roadway Plan & Profile- Road 2
PP-31	Roadway Plan & Profile- Road 5
PP-32	Roadway Plan & Profile- Road 5
PP-33	Roadway Plan & Profile- Road 4
PP-34	Roadway Plan & Profile- Road 4
PP-35	Roadway Plan & Profile- Road 3
PP-36	Roadway Plan & Profile- Road 3
PP-37	Roadway Plan & Profile- Drive 1
PP-38	Roadway Plan & Profile- Drive 2
PP-39	Roadway Plan & Profile- Drive 3
PP-40	Roadway Plan & Profile- Drive 33
PP-41	Roadway Plan & Profile- Drive 34
PP-42	Roadway Plan & Profile- Drive 27
PP-43	Roadway Plan & Profile- Drive 27
PP-44	Roadway Plan & Profile- Drive 28
PP-45	Roadway Plan & Profile- Drive 23
PP-46	Roadway Plan & Profile- Drive 24
PP-47	Roadway Plan & Profile- Drive 25
PP-48	Roadway Plan & Profile- Drive 26
PP-49	Roadway Plan & Profile- Drive 8
PP-50	Roadway Plan & Profile- Drive 6
PP-51	Roadway Plan & Profile- Drive 5
PP-52	Roadway Plan & Profile- Drive 9
PP-53	Roadway Plan & Profile- Drive 9
PP-54	Roadway Plan & Profile- Drive 20
PP-55	Roadway Plan & Profile- Drive 20
PP-56	Roadway Plan & Profile- Drive 21
PP-57	Roadway Plan & Profile- Drive 22
PP-58	Roadway Plan & Profile- Drive 22
PP-59	Roadway Plan & Profile- Drive 14
PP-60	Roadway Plan & Profile- Drive 15
PP-61	Roadway Plan & Profile- Drive 12
PP-62	Roadway Plan & Profile- Drive 35
PP-63	Roadway Plan & Profile- Drive 35
PP-64	Roadway Plan & Profile- Drive 35
PP-65	Roadway Plan & Profile- Drive 35
PP-66	Roadway Plan & Profile- Drive 36
PP-67	Roadway Plan & Profile- Drive 38
PP-68	Roadway Plan & Profile- Drive 38
PP-69	Roadway Plan & Profile- Road 7
PP-70	Roadway Plan & Profile- Road 7
PP-71	Roadway Plan & Profile- Drive 37

SUB-TITLE SHEET

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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SUB-TITLE SHEET- ROADWAY PLAN & PROFILES

CLIENT: D.R.HORTON
DWG: COVER SHEET P&P'S.DWG
JOB No: 3891-DRH01-23
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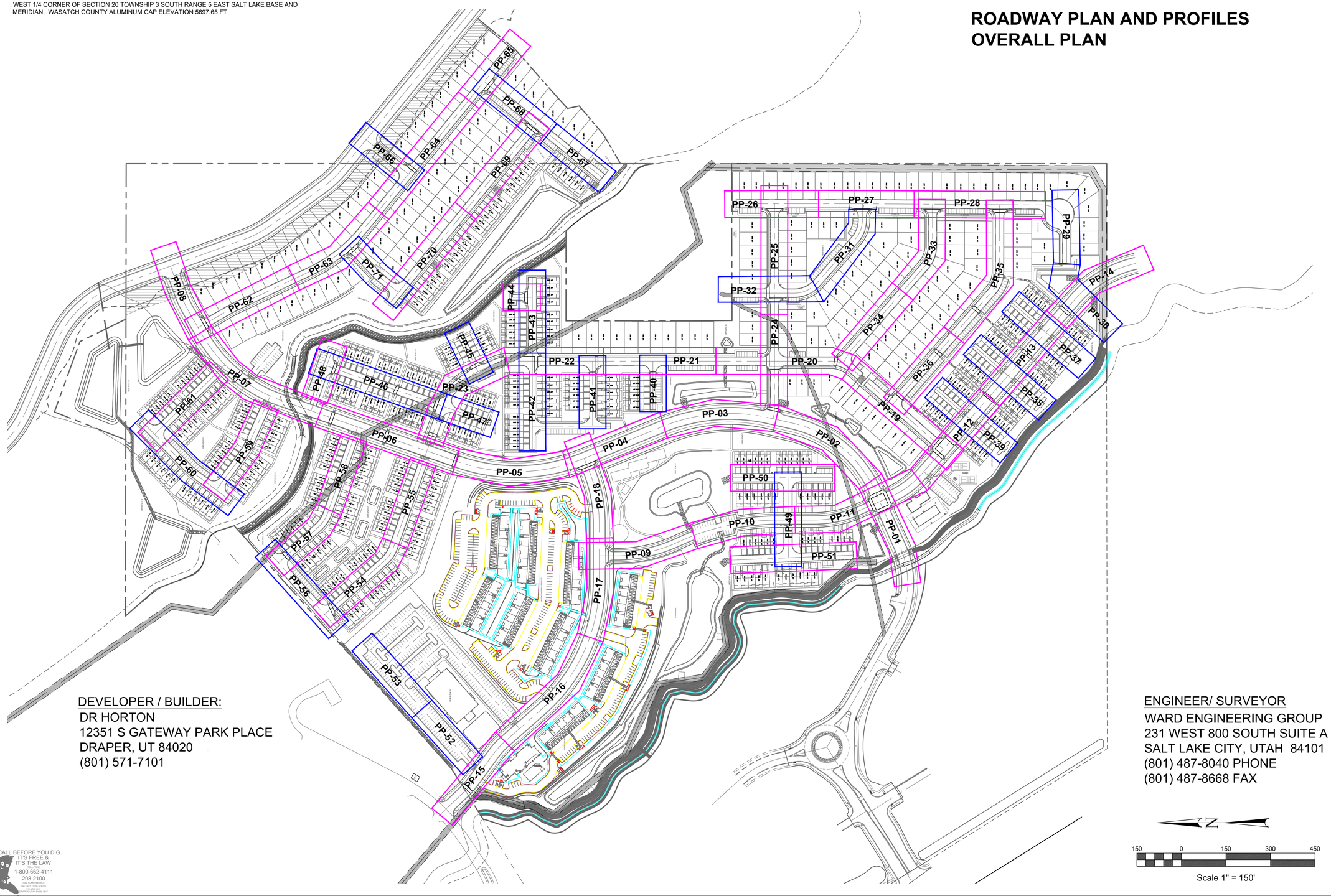
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BENCHMARK

WEST 1/4 CORNER OF SECTION 20 TOWNSHIP 3 SOUTH RANGE 5 EAST SALT LAKE BASE AND MERIDIAN. WASATCH COUNTY ALUMINUM CAP ELEVATION 5697.65 FT

ROADWAY PLAN AND PROFILES
OVERALL PLAN



DEVELOPER / BUILDER:
DR HORTON
12351 S GATEWAY PARK PLACE
DRAPER, UT 84020
(801) 571-7101

ENGINEER/ SURVEYOR
WARD ENGINEERING GROUP
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Scale 1" = 150'

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FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Plan & Profiles\Roadway Plan and Profiles Key Map.dwg TAB: 24x36 PLOT DATE AND TIME: 8/7/2024 1:57 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
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ROADWAY PLAN & PROFILES KEY MAP

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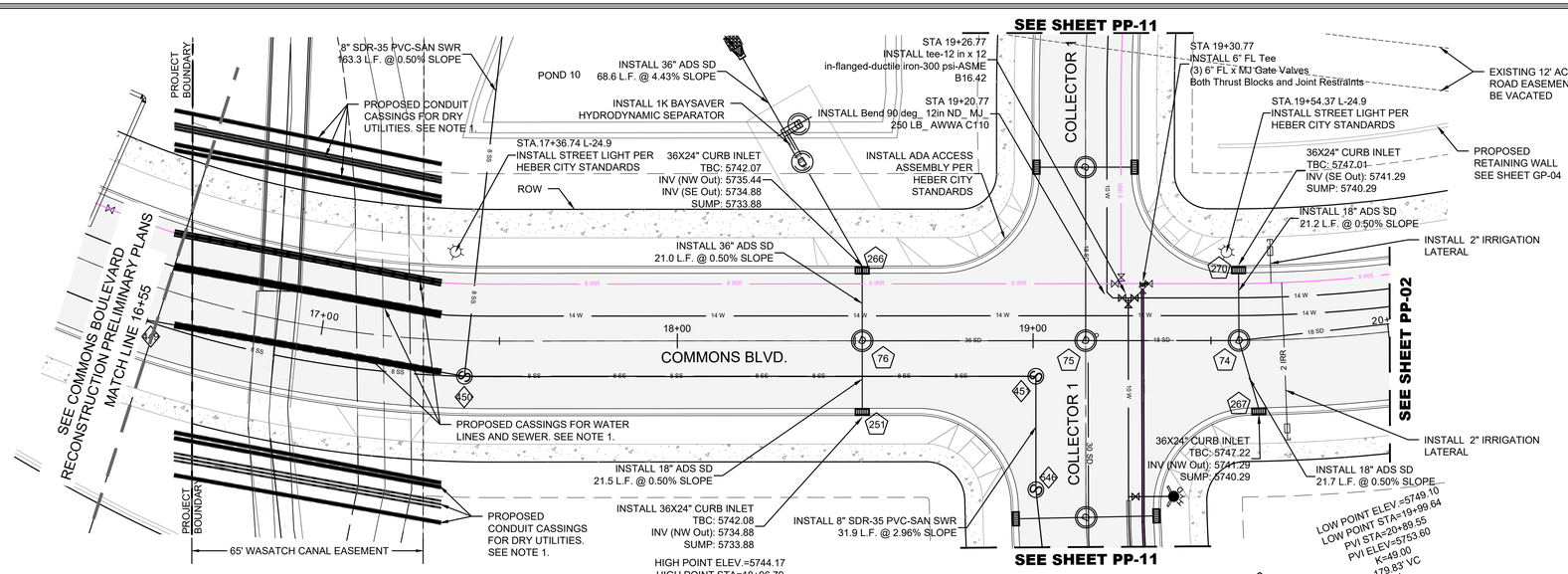
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DWG: ROADWAY PLAN AND PROFILES KEY MAP.DWG
JOB No: 3891-DRH01-23
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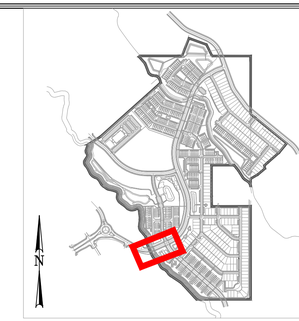
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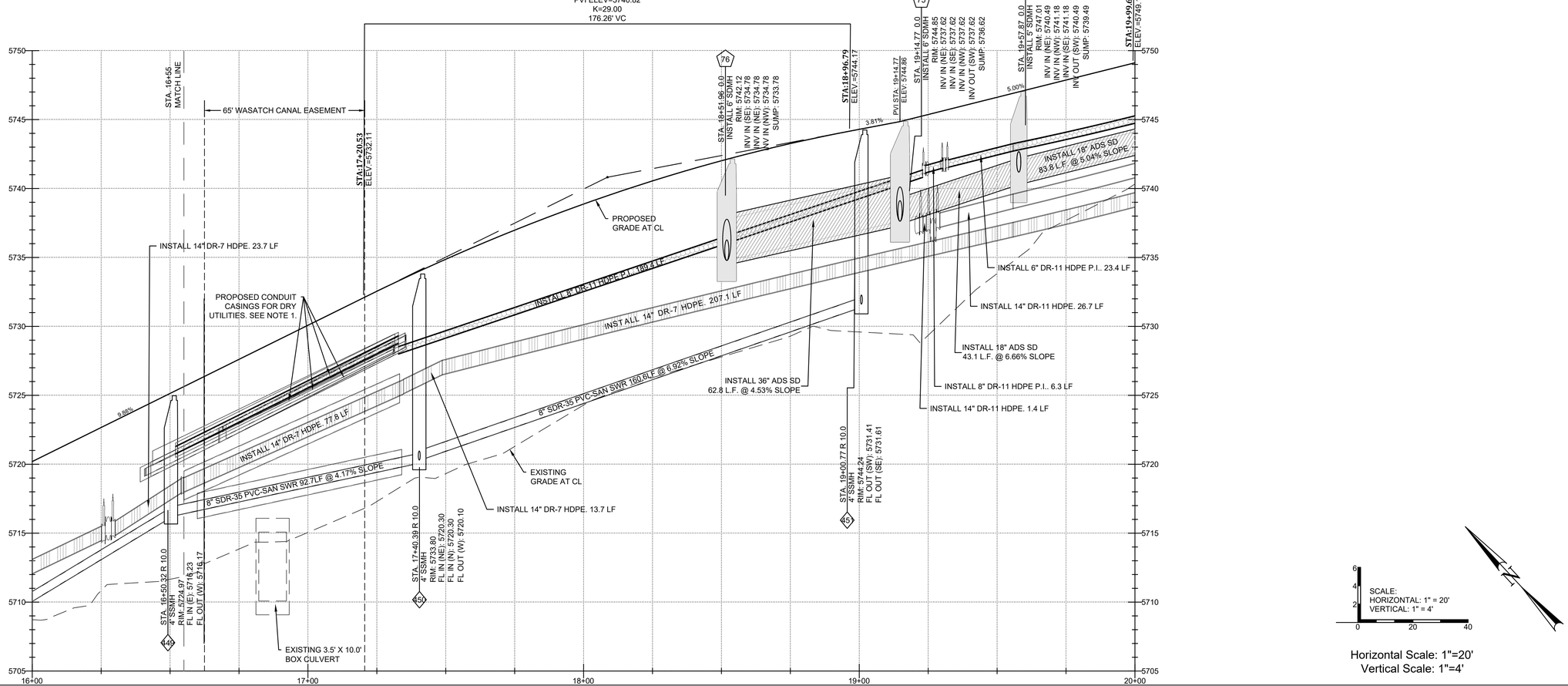
SATTAR N. TABRIZ
8/6/2024

SHEET
PP-00





NOTE:
1) REFER TO SHEETS PP-06A AND PP-06 B OF THE WASATCH CANAL IMPROVEMENT PLANS FOR CASING DETAILS.



SCALE:
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VERTICAL: 1" = 4'
0 20 40
6 4 2

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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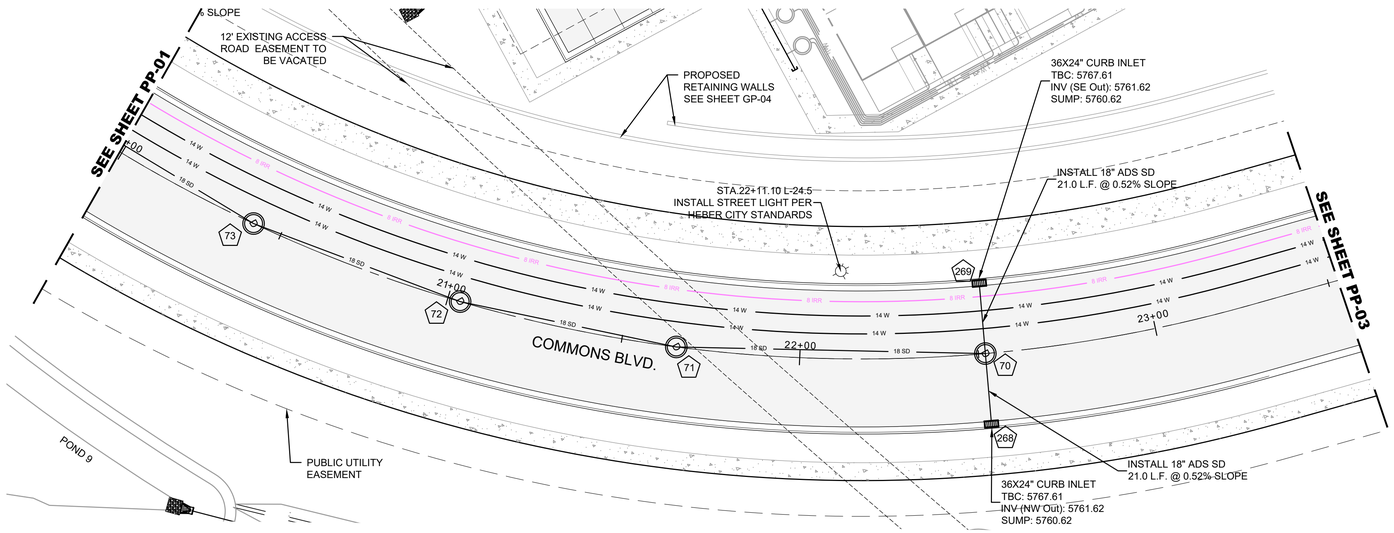
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JOB No: 3691-DRH01-23
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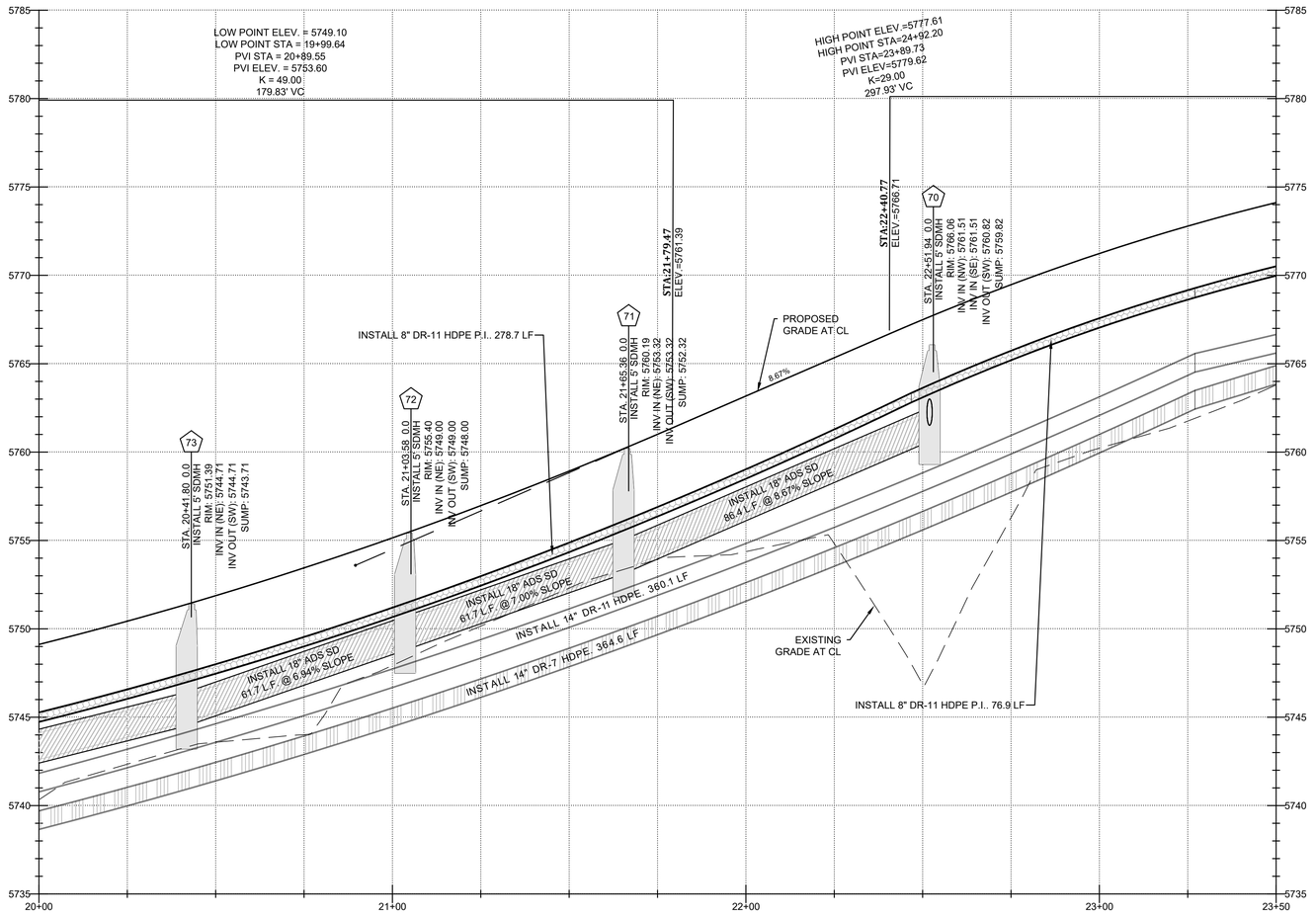
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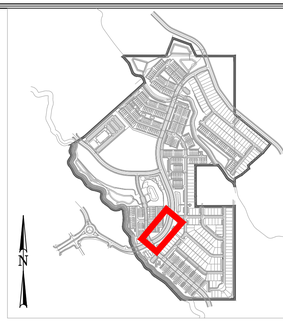
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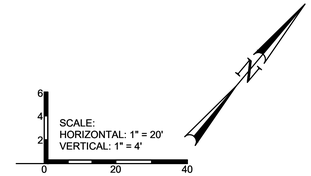
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PP-01









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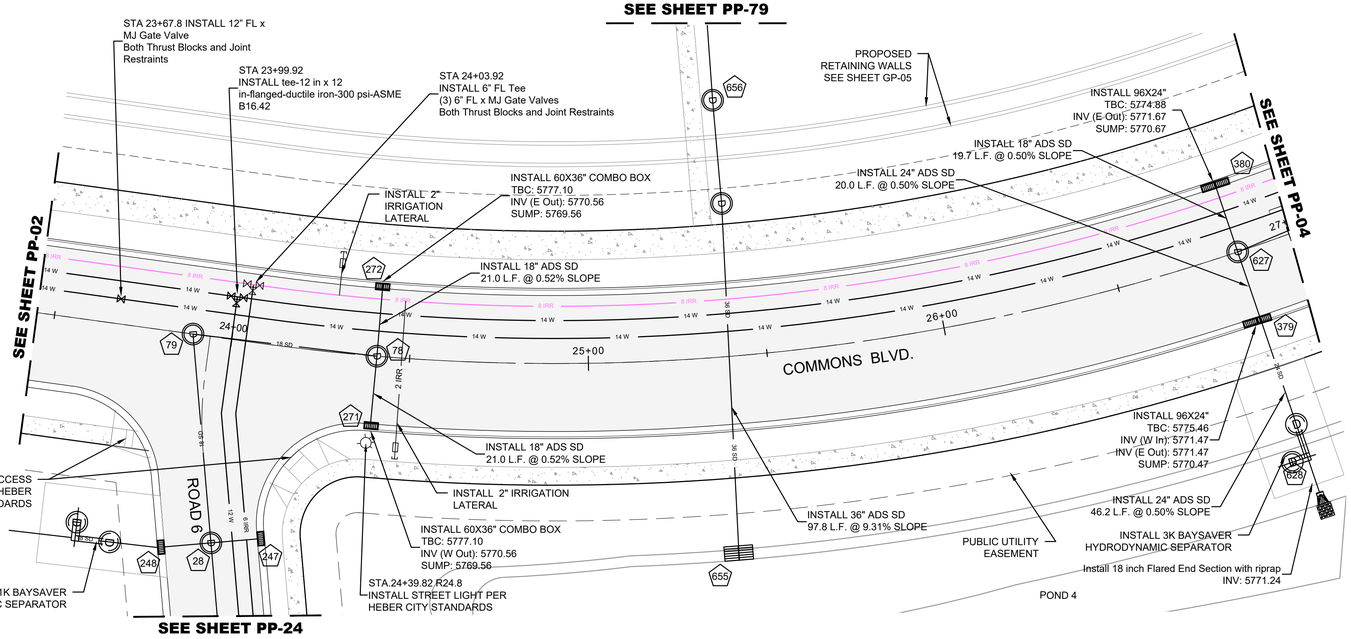
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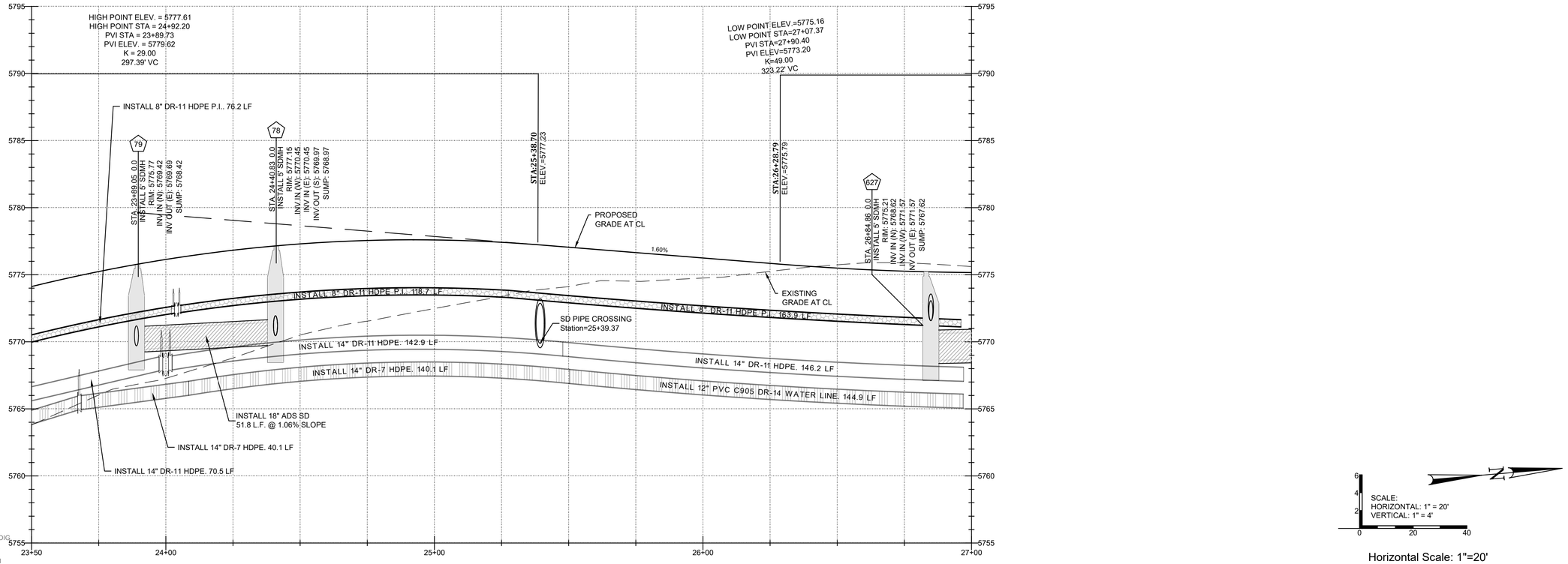


SHEET
PP-02

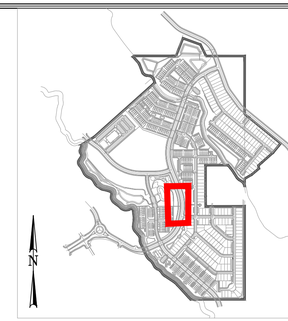
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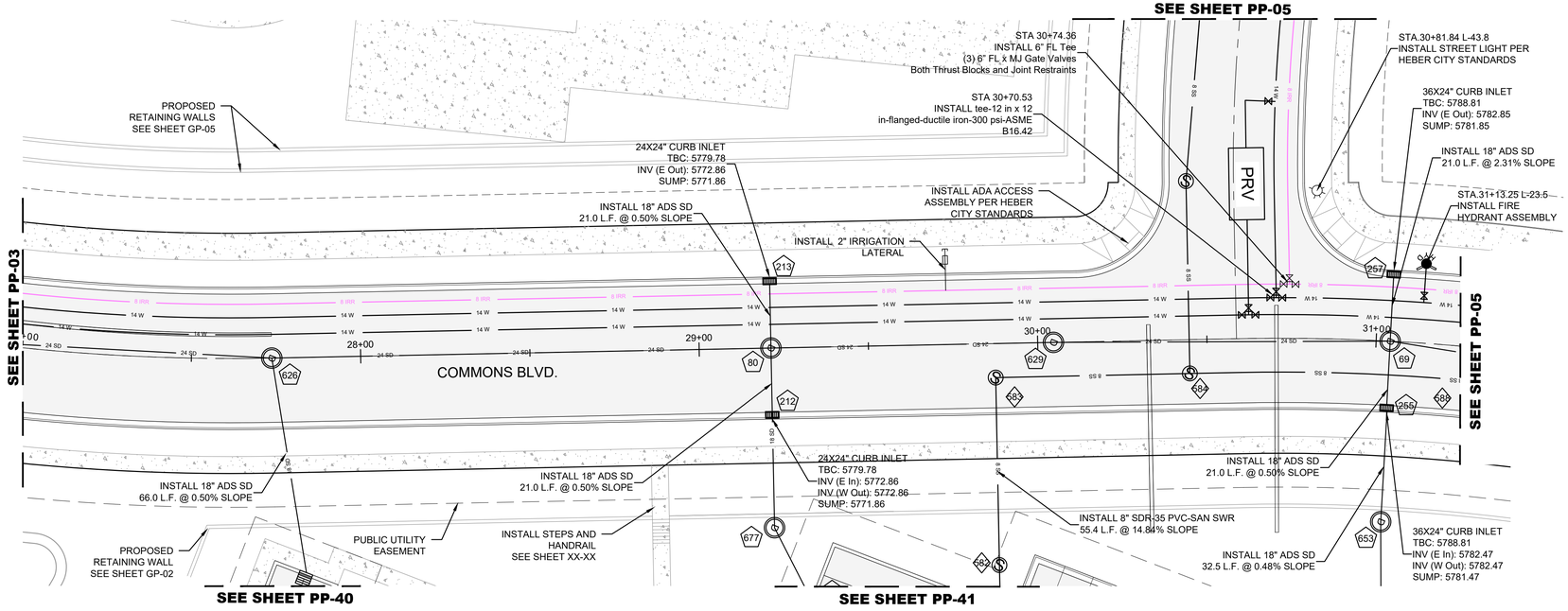
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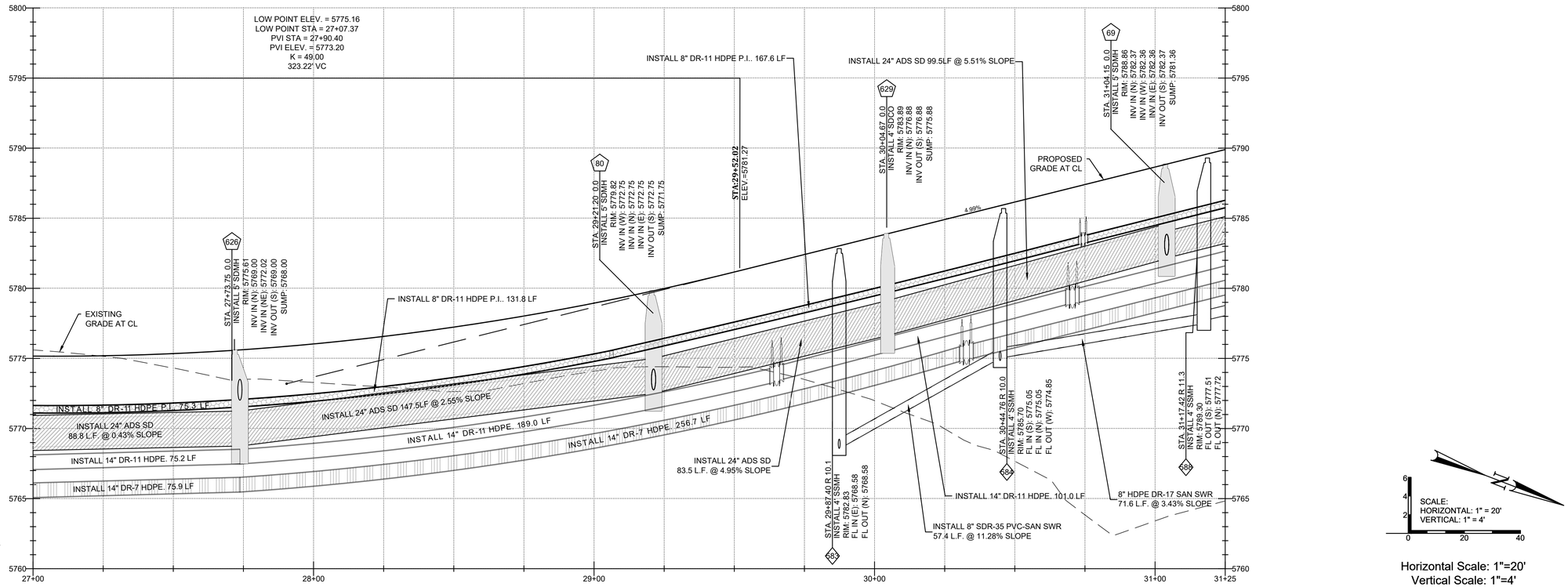
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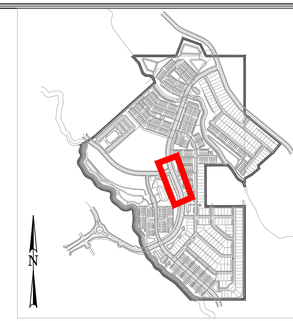
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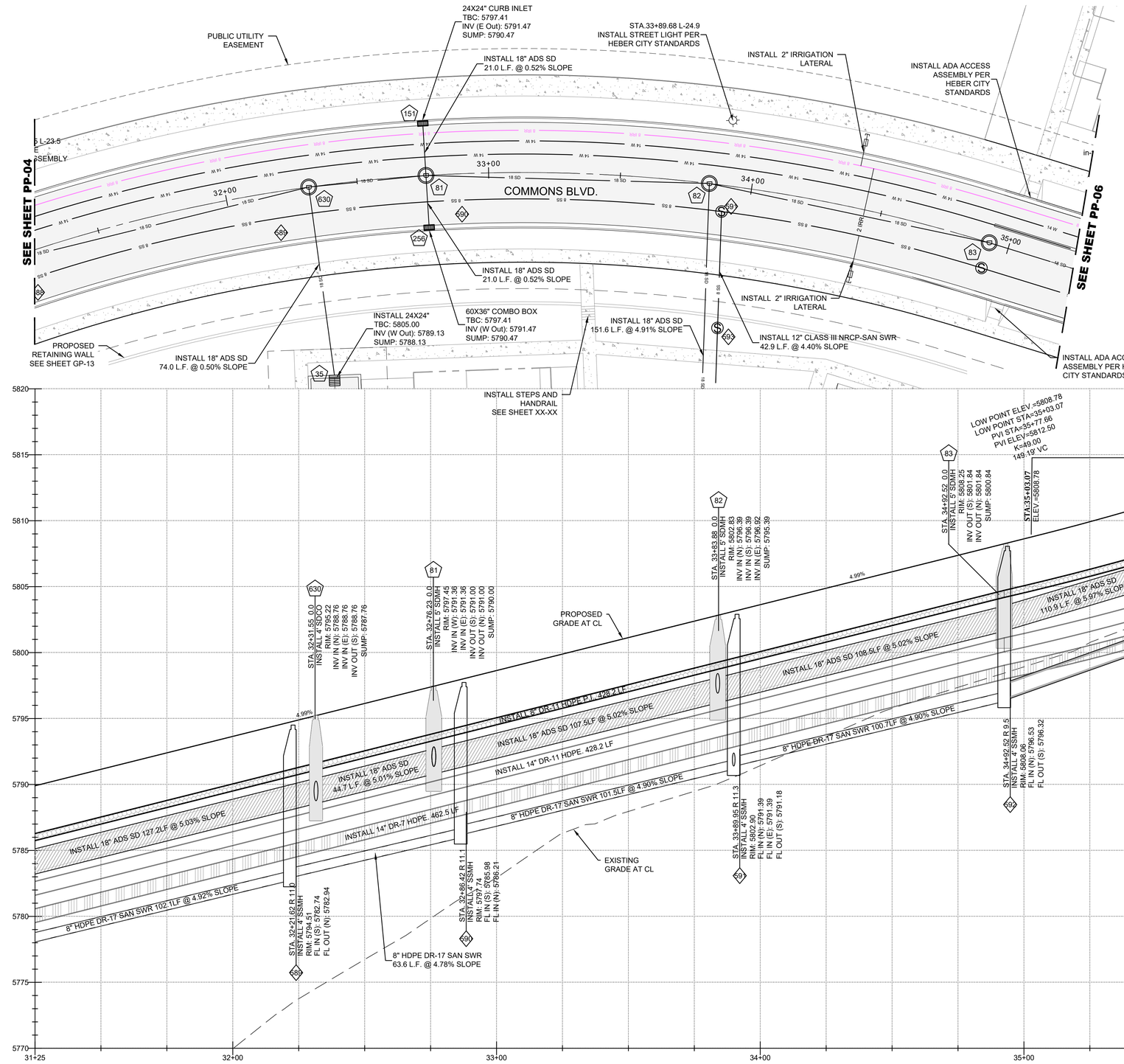
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1 07/30/2024 GRADING REVISION

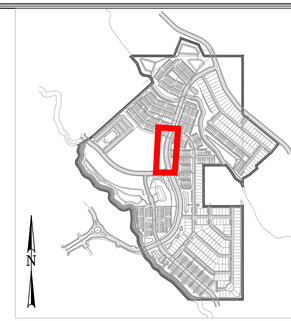
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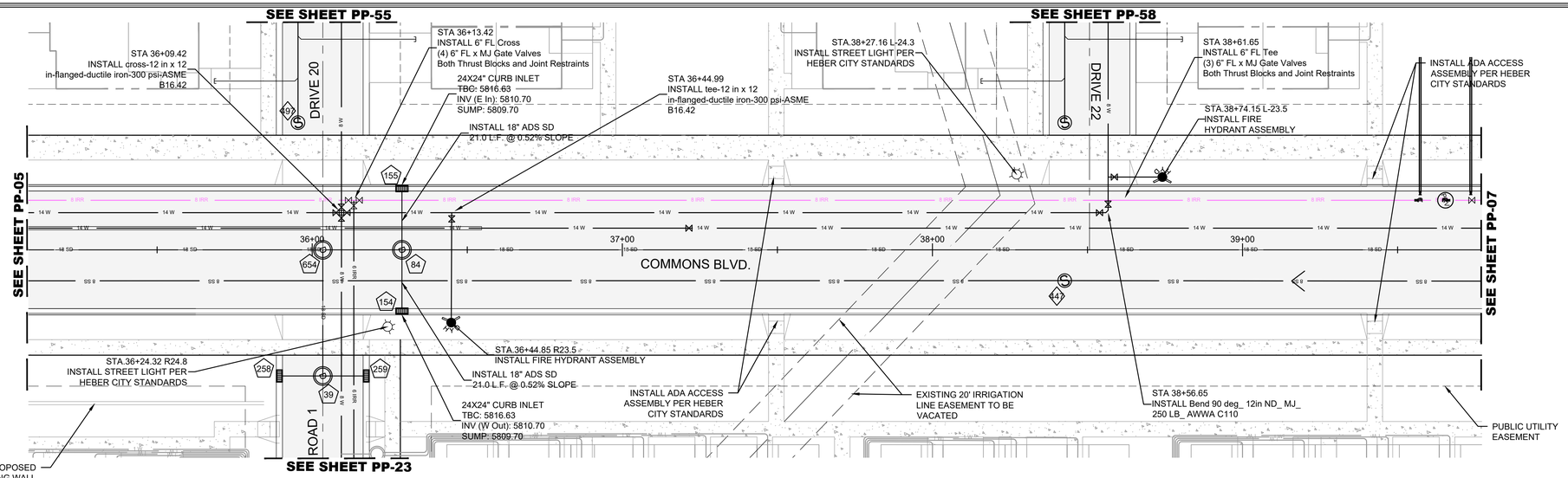
PP-05

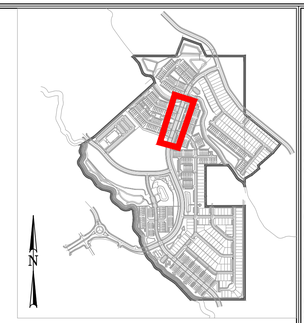
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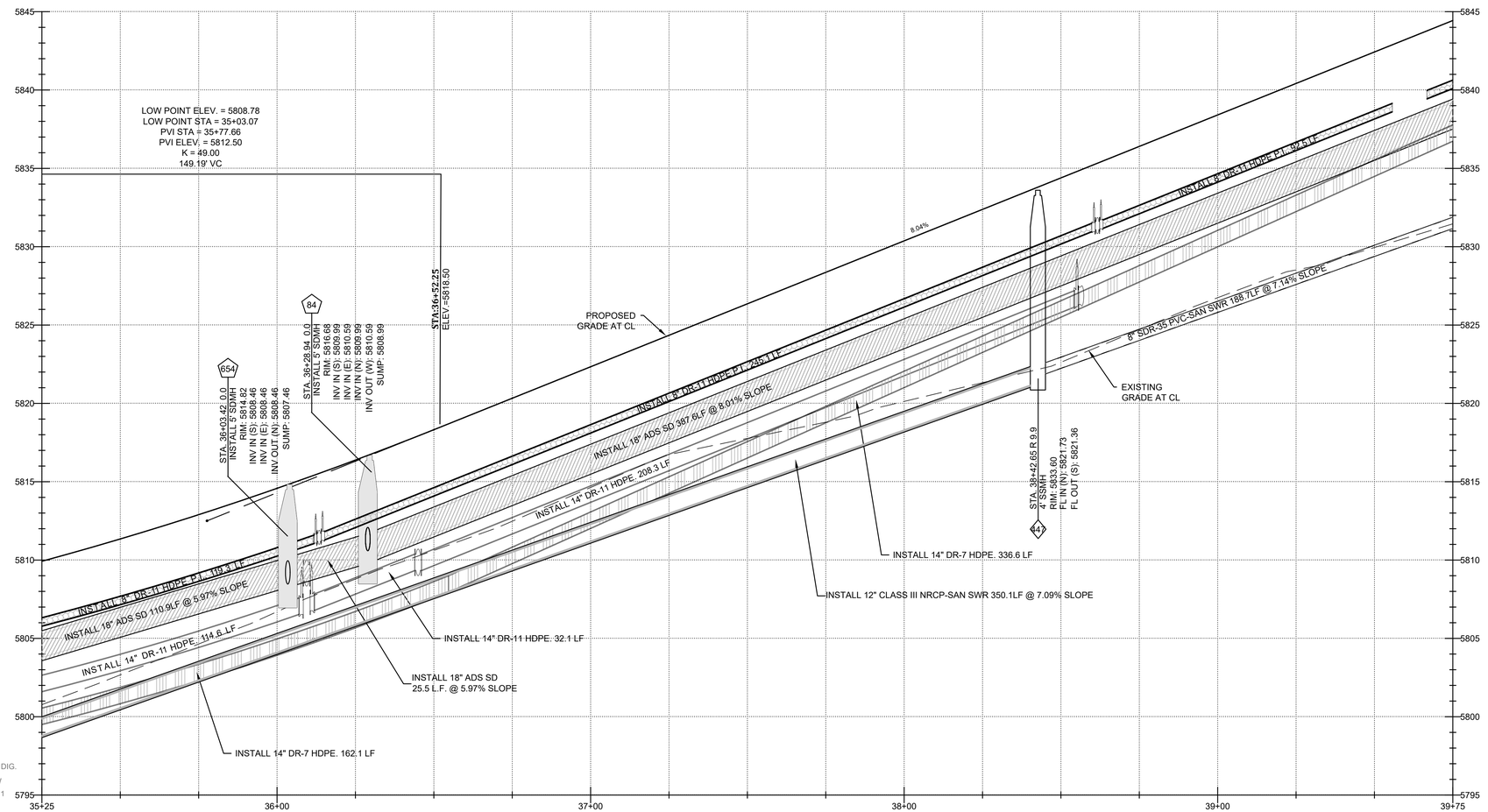
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VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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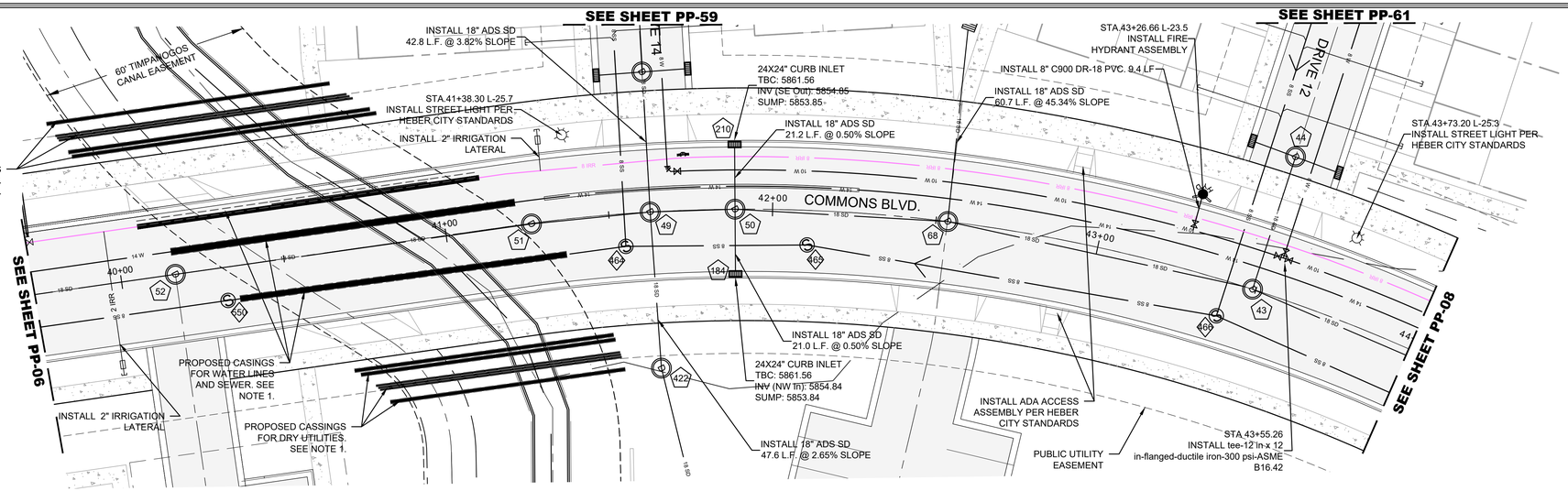
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JOB No: 3891-DRH01-23
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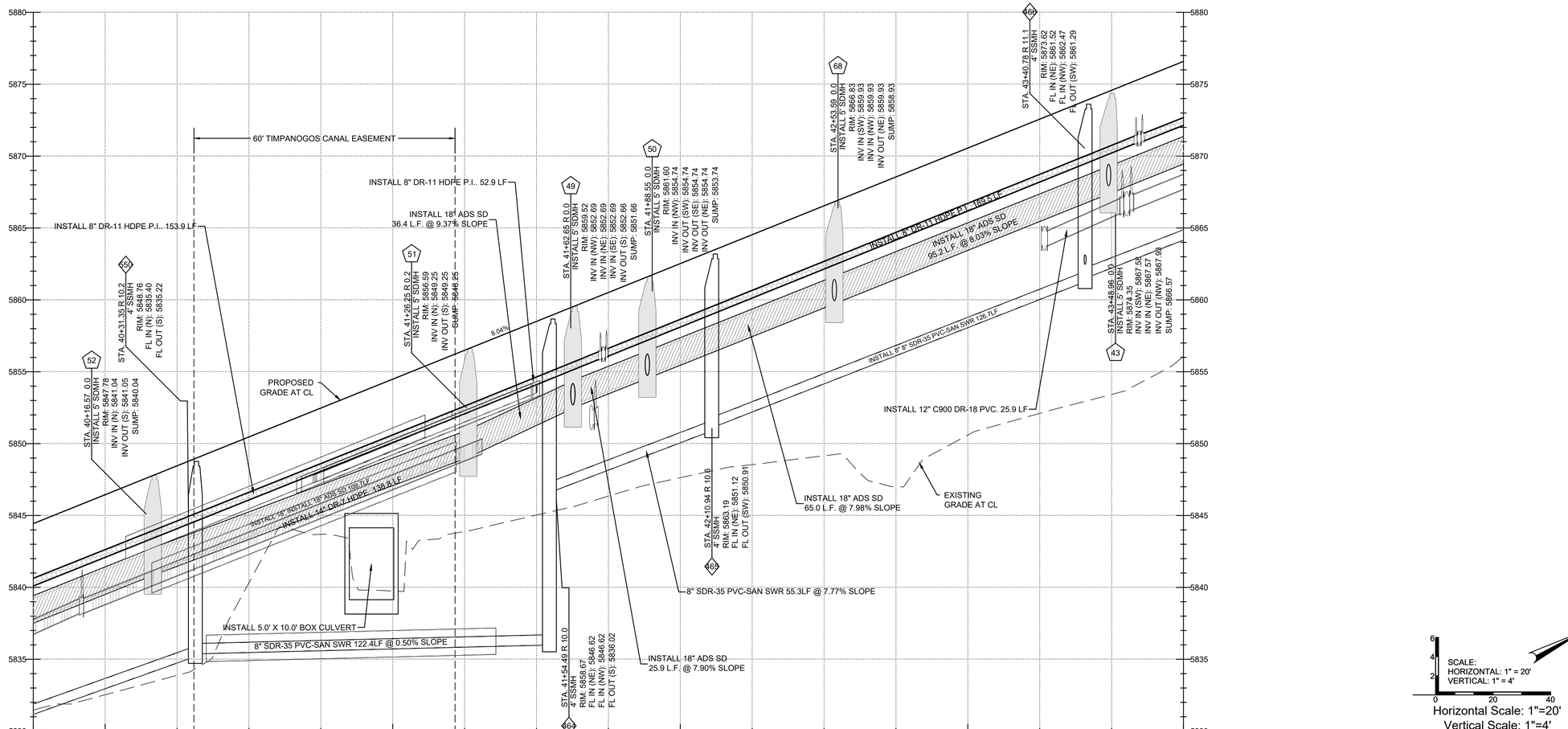
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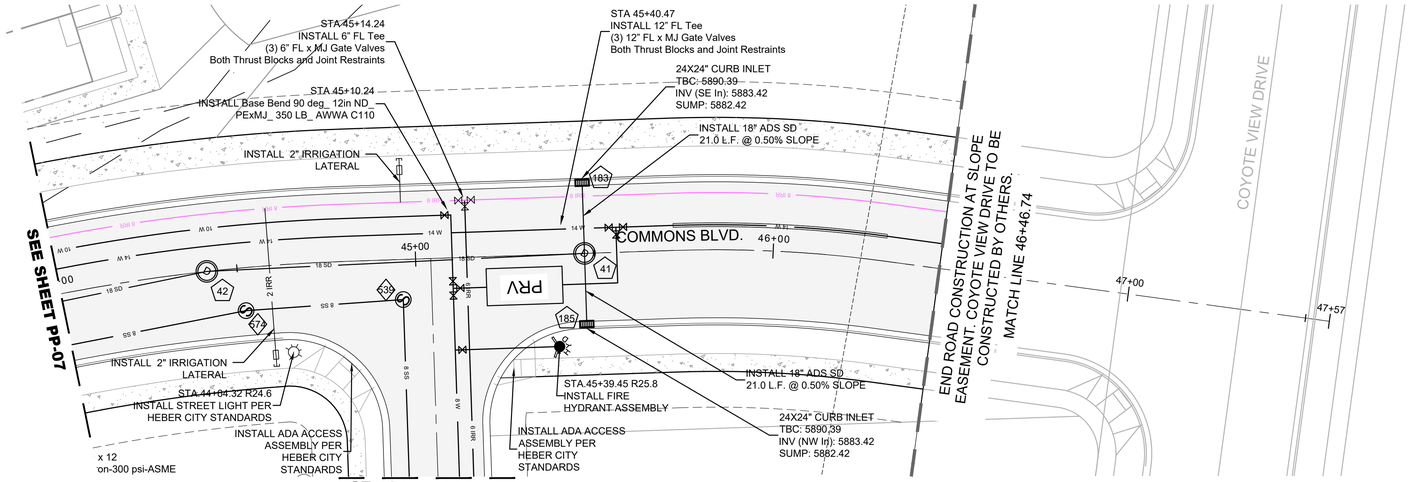
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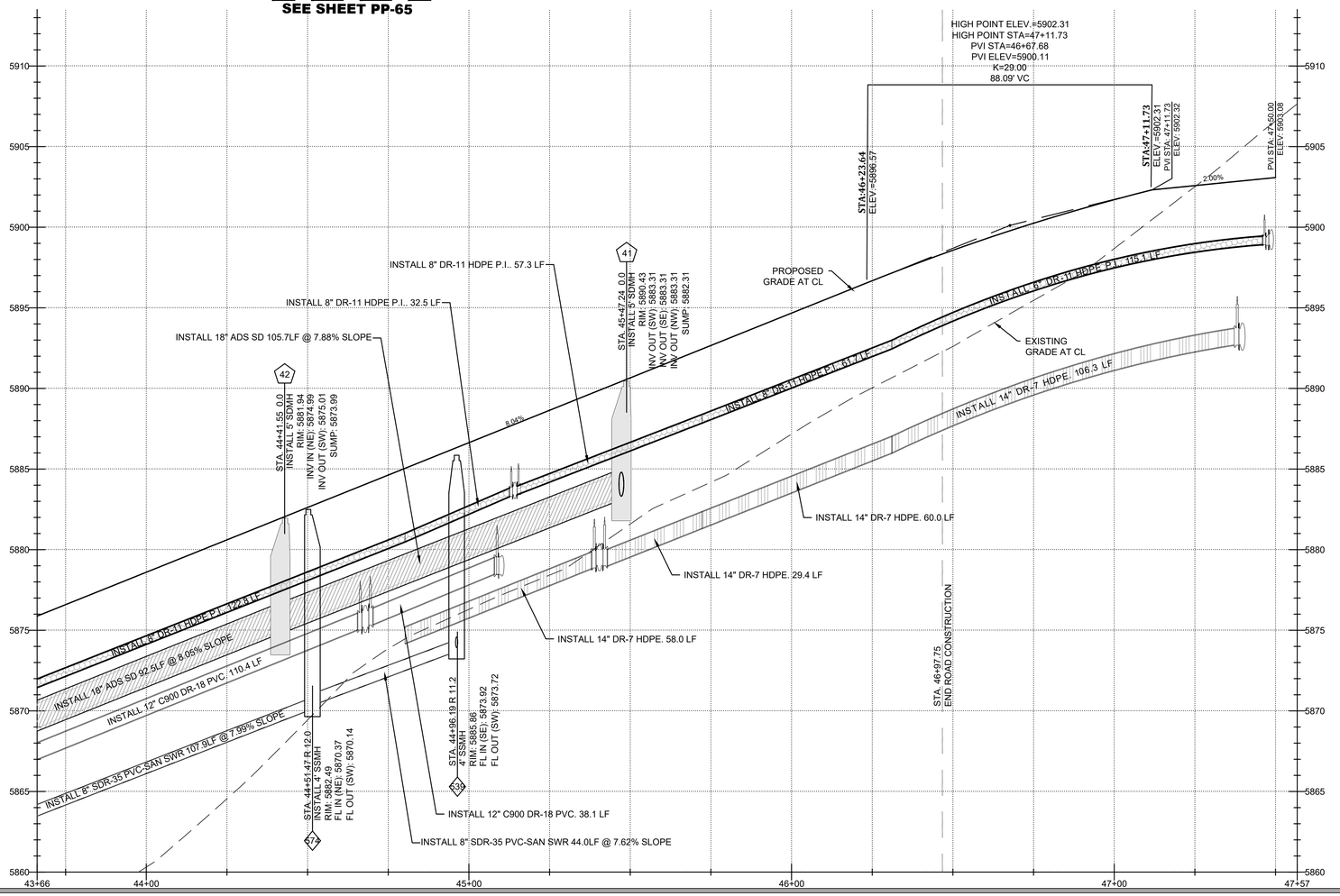
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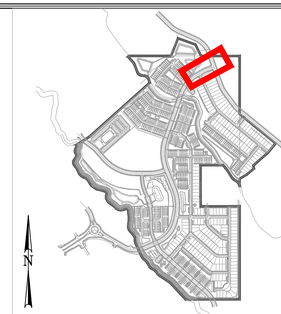
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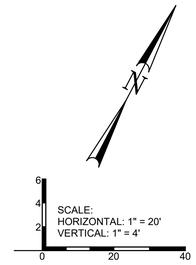
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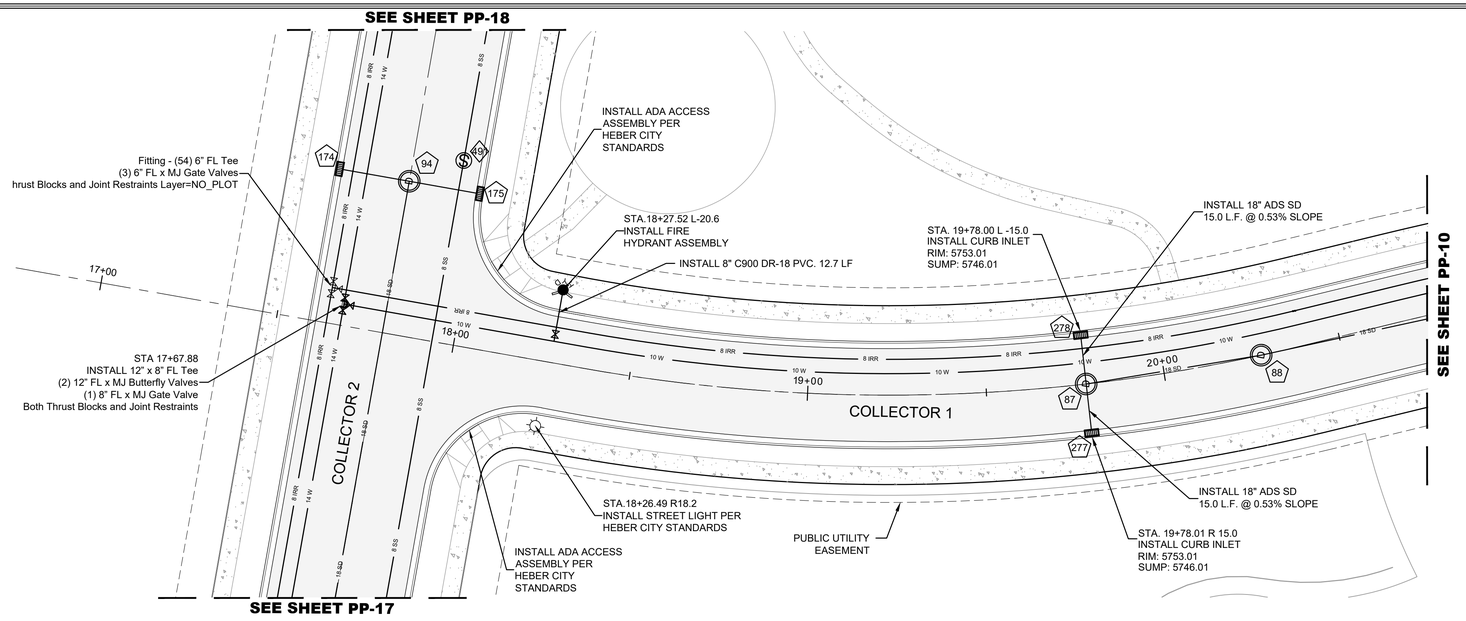
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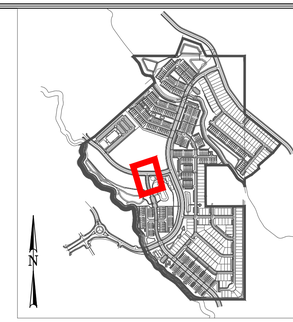
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1 07/30/2024 GRADING REVISION

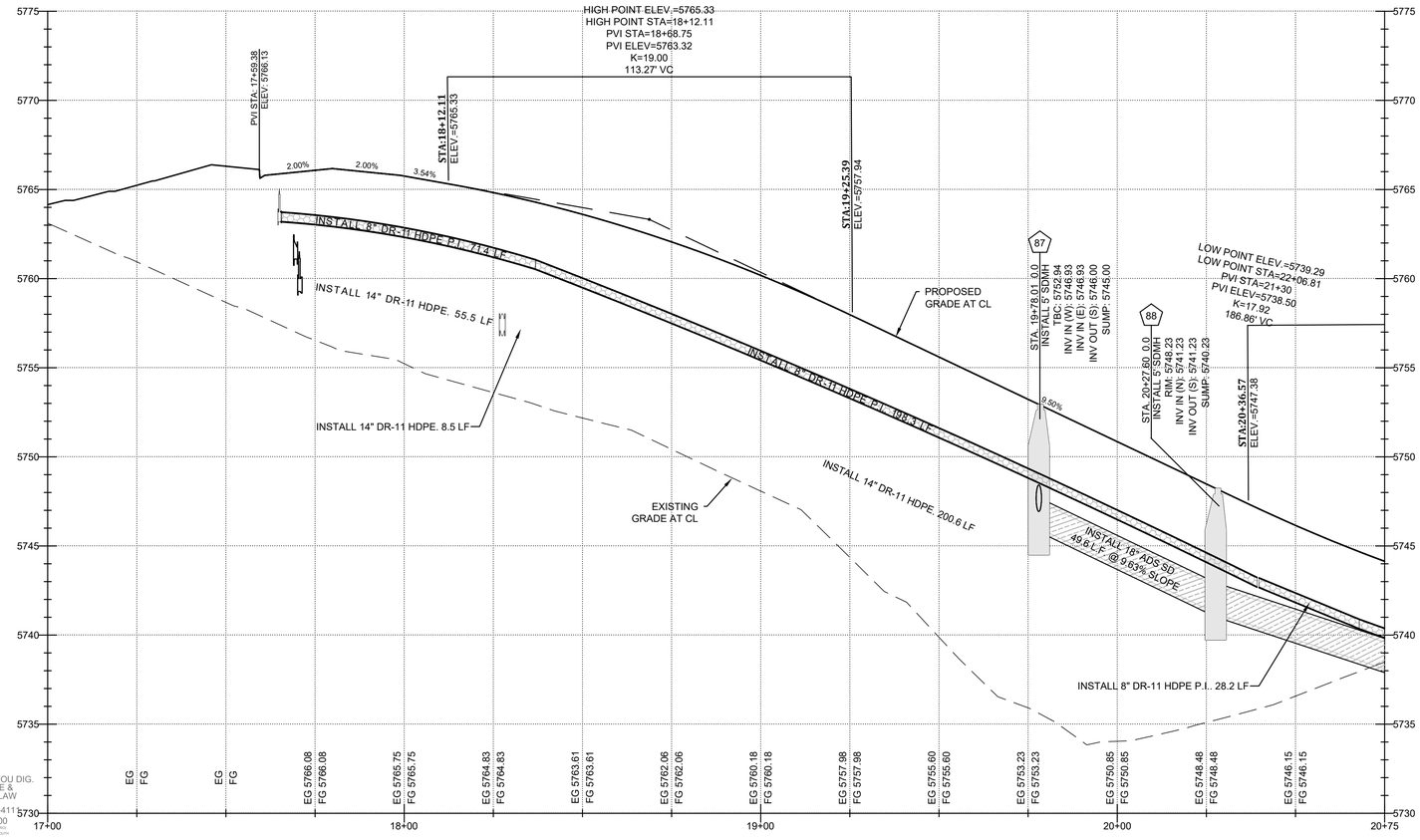
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PP-08

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SCALE:
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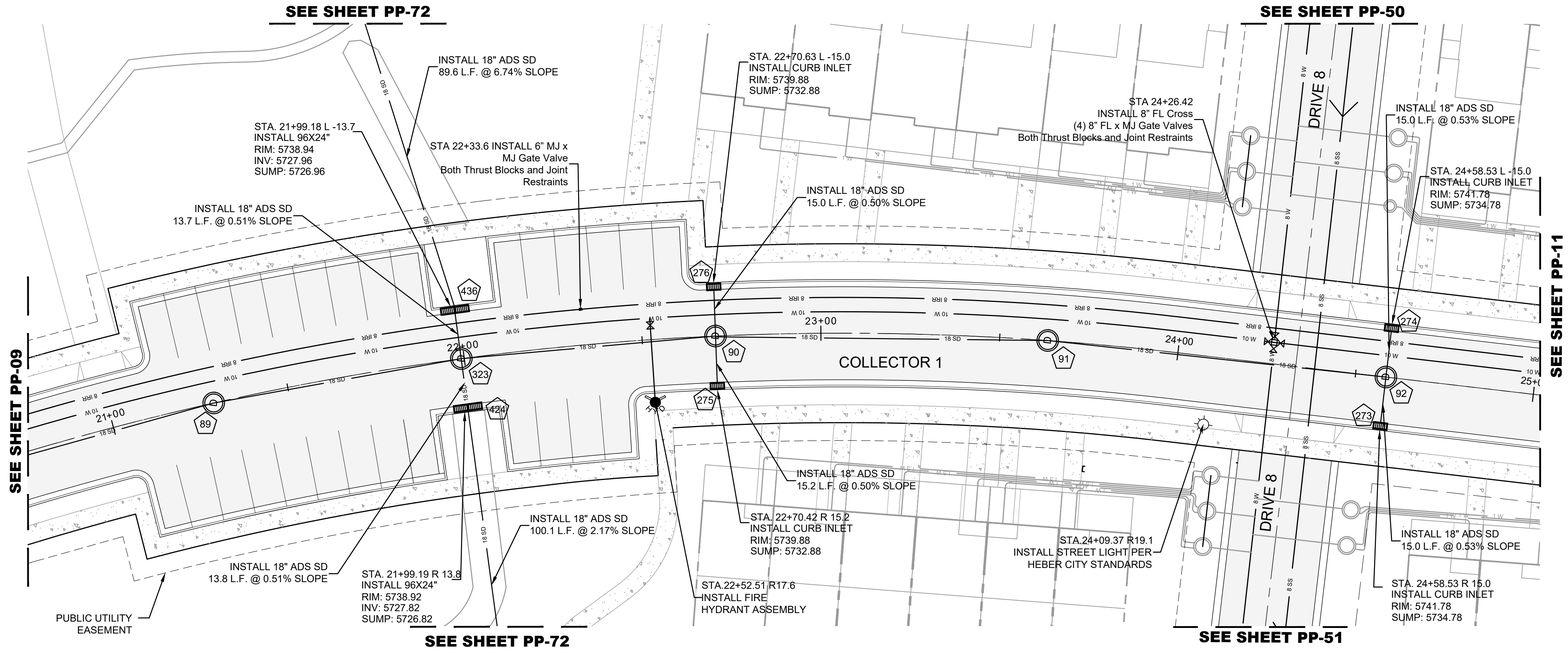
CLIENT: D.R.HORTON
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JOB No: 3891-DRH01-23
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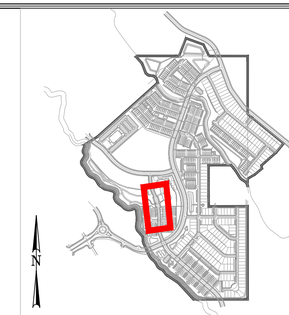
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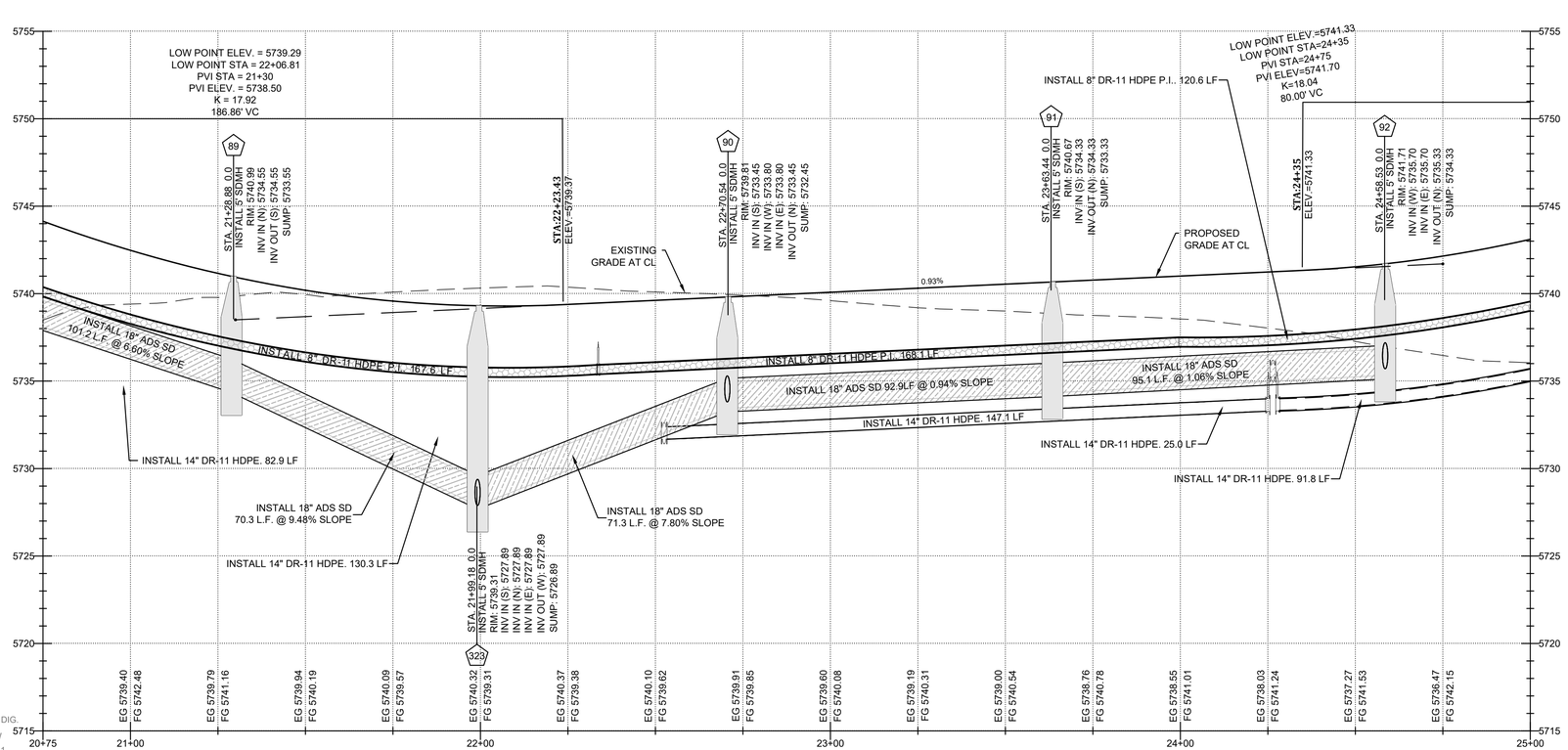
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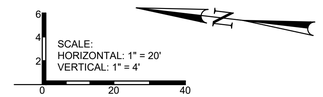
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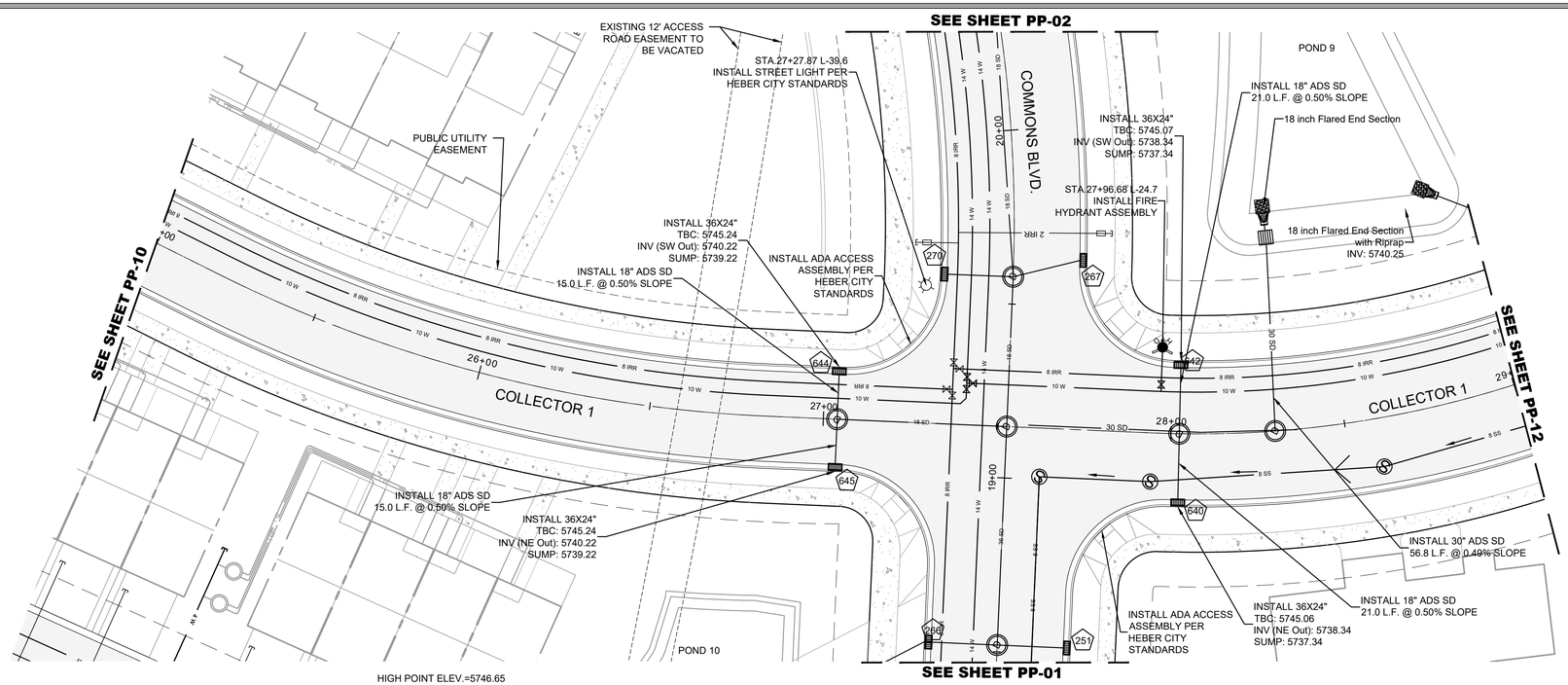
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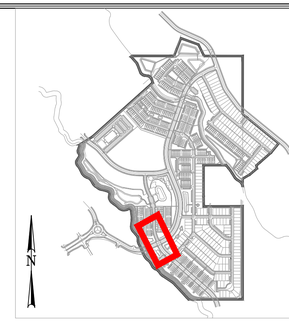
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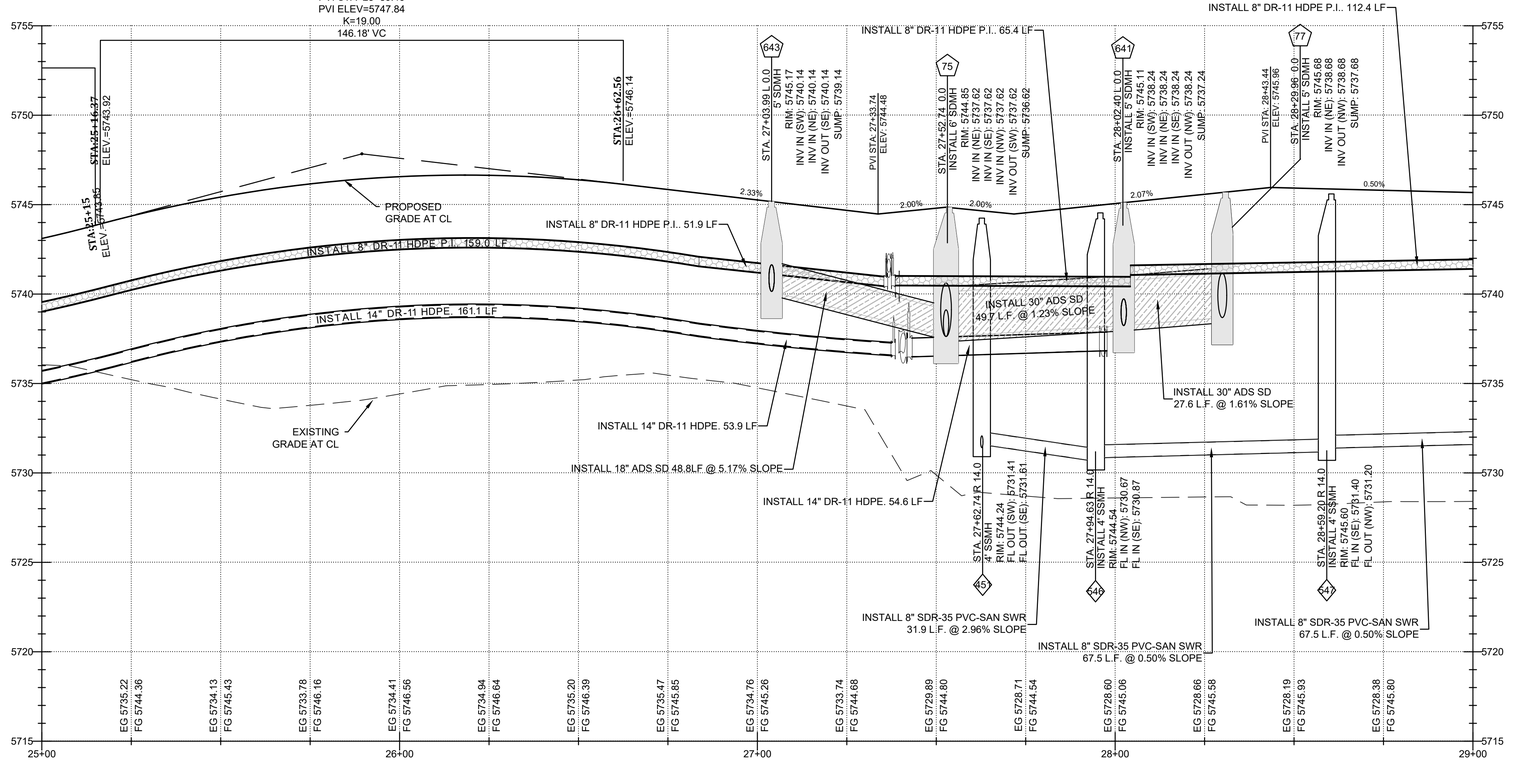
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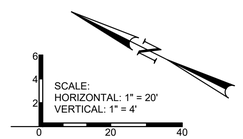
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HIGH POINT STA=26+18.25
PVI STA=25+89.46
PVI ELEV=5747.84
K=19.00
146.18' VC





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JOB No: 3891-DRH01-23
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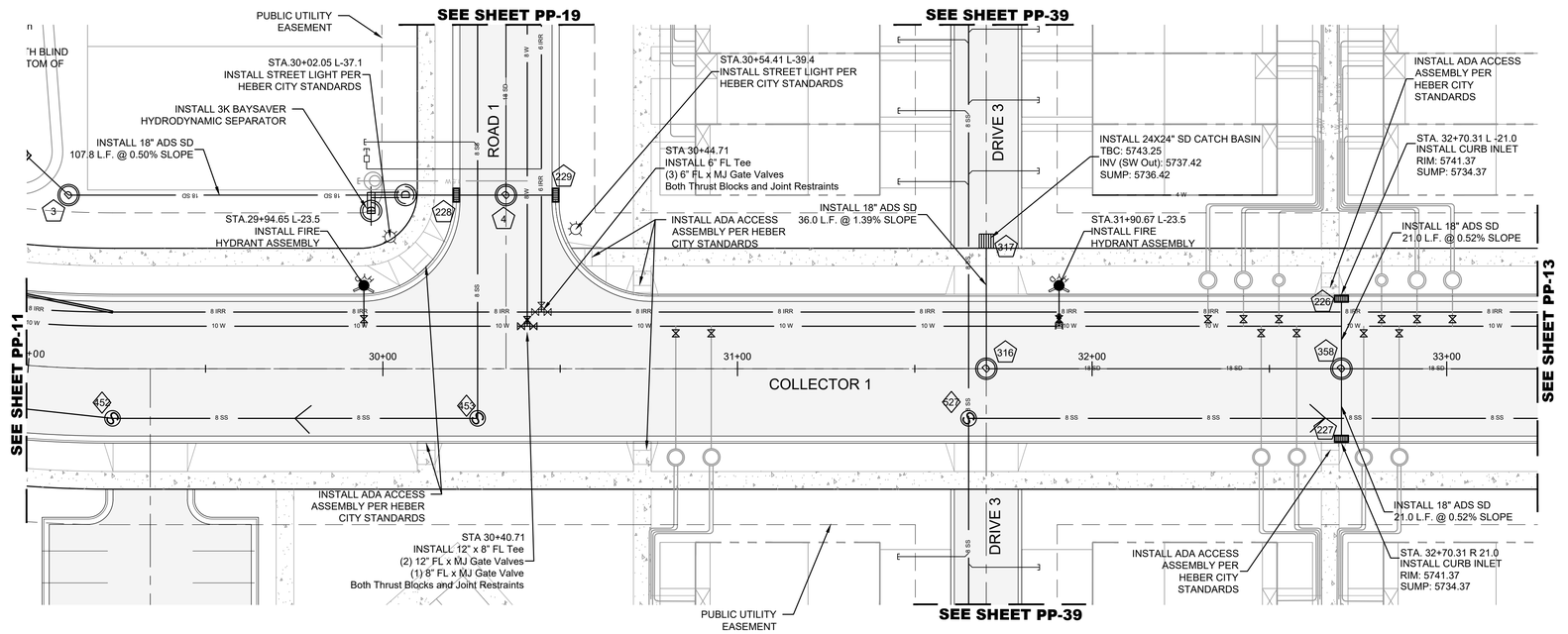
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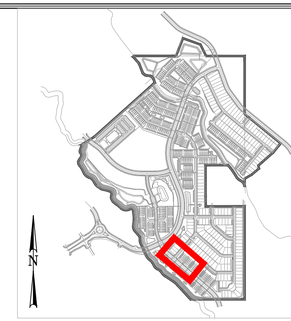
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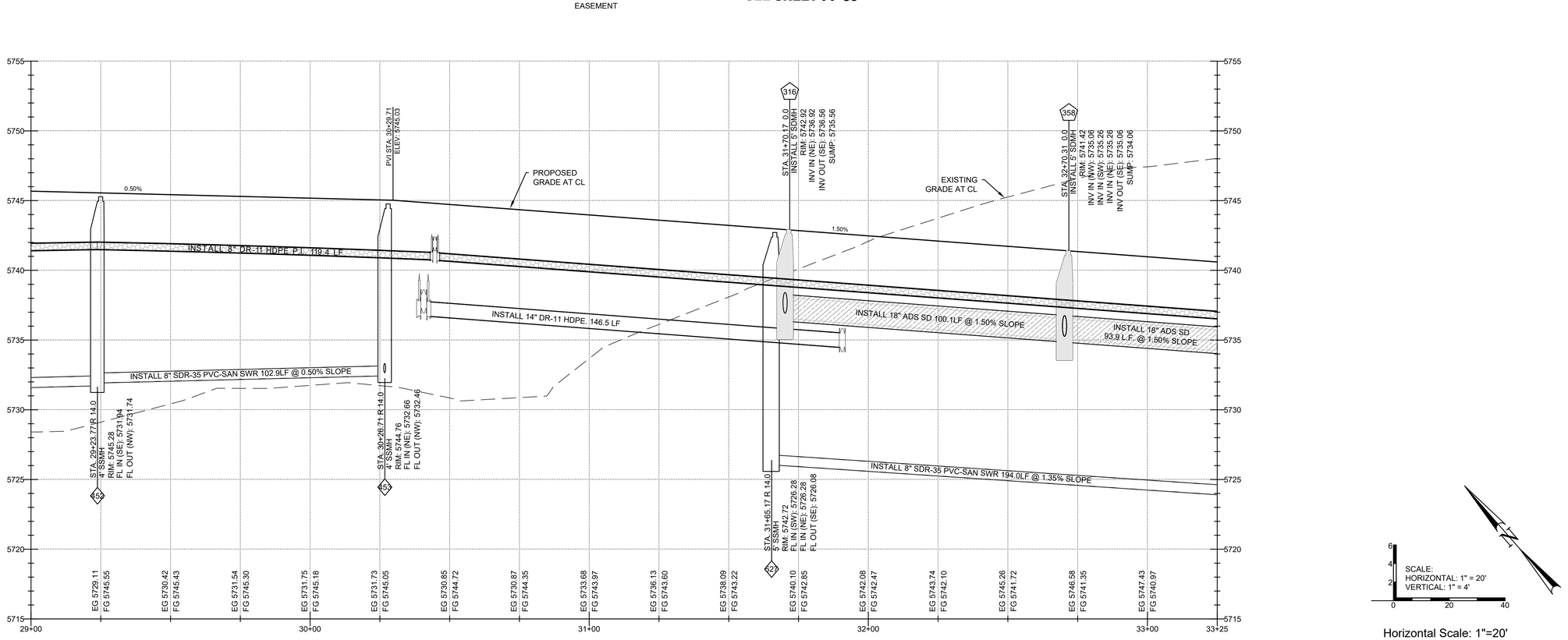
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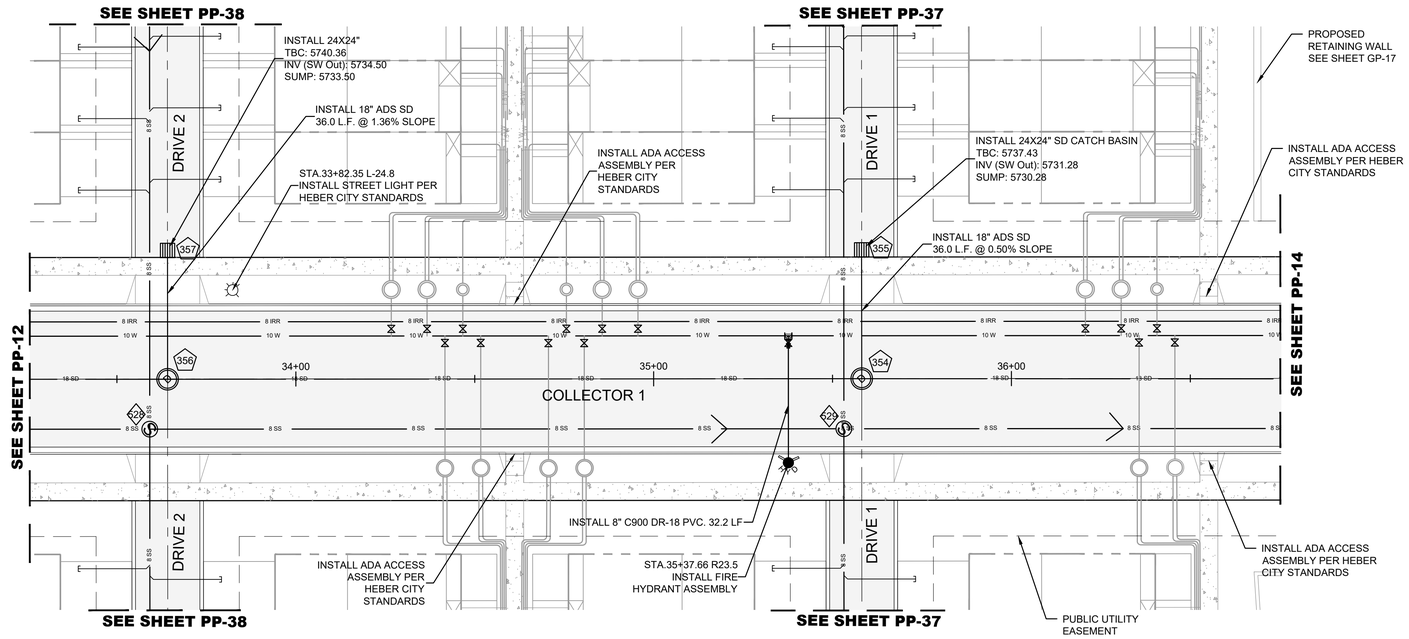
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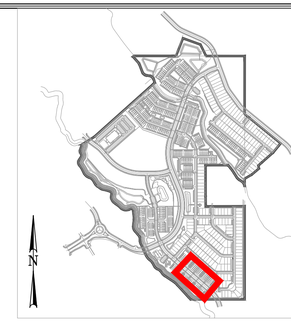
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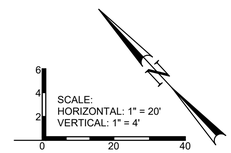
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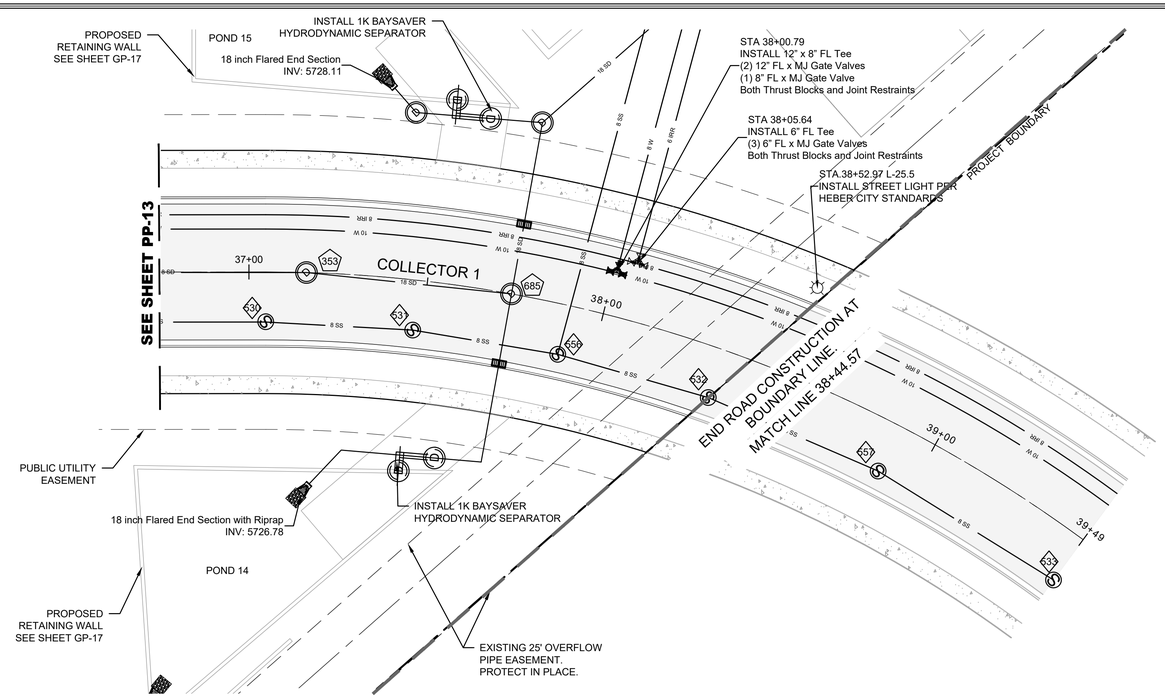
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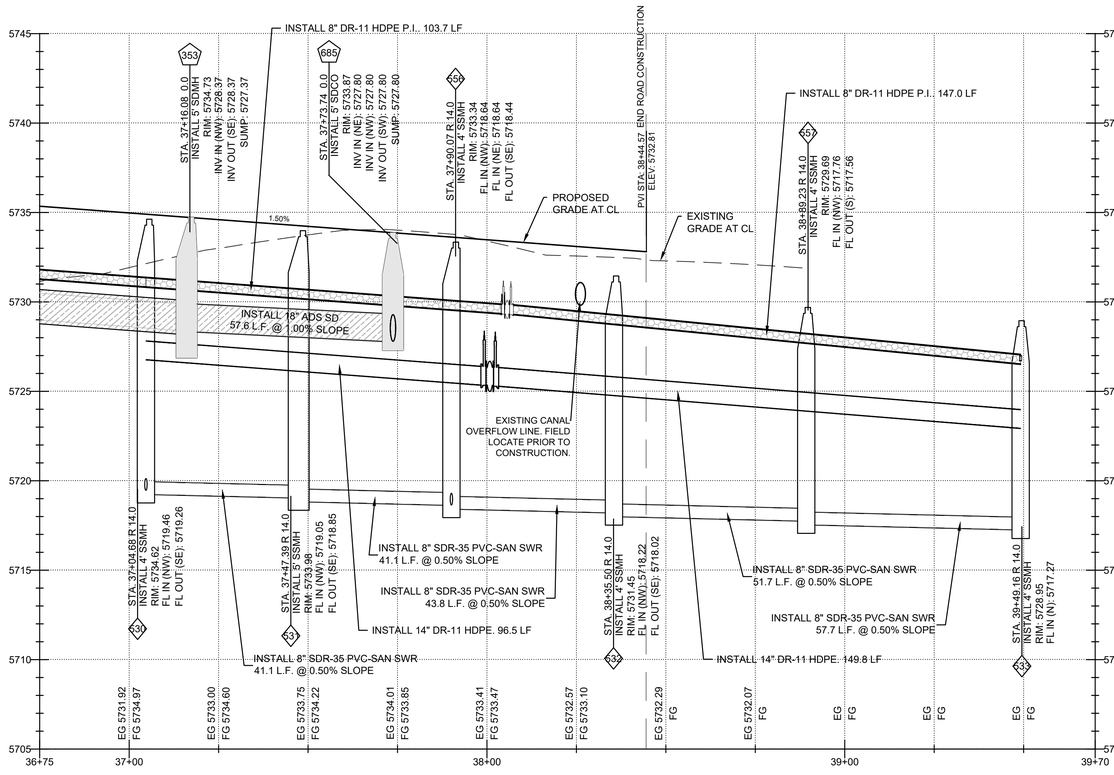
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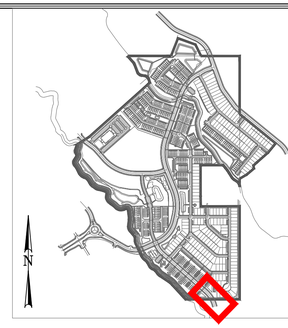
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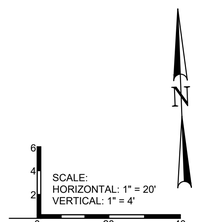
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DWG: COLLECTOR 1.DWG
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DESIGN BY: WARD
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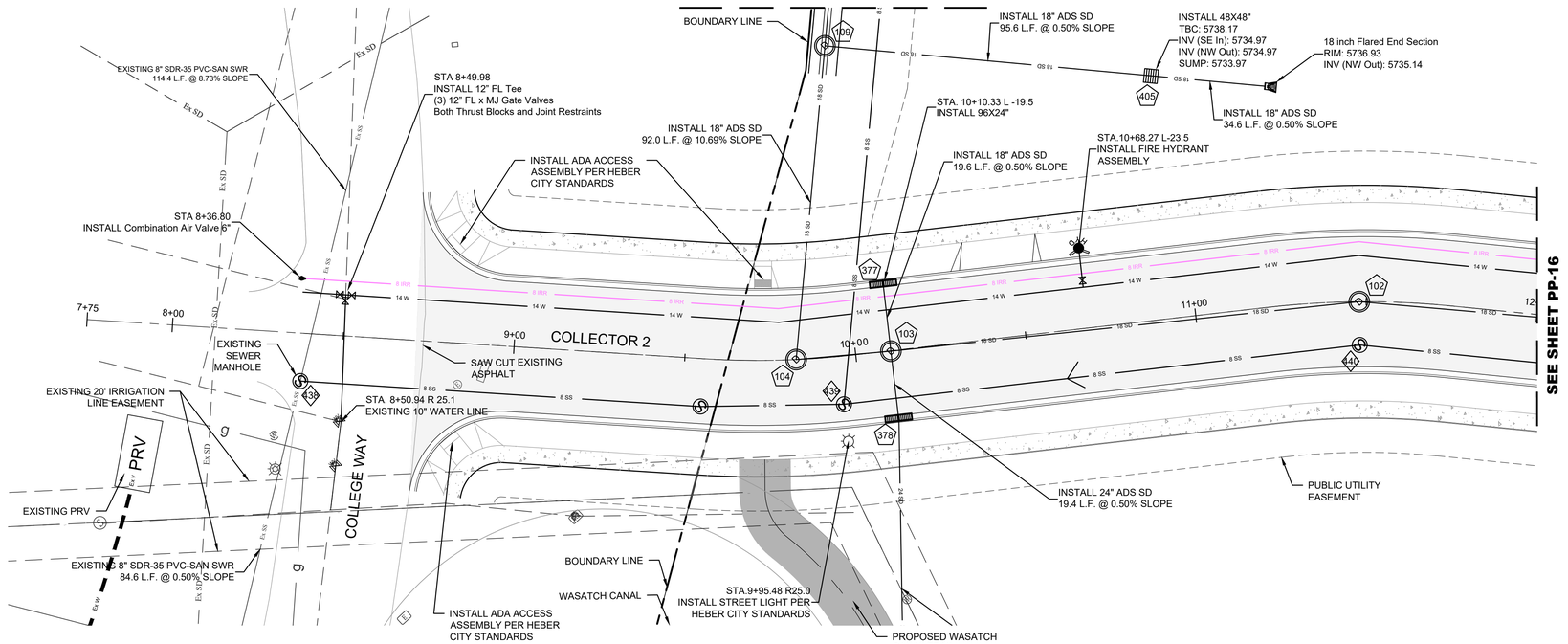
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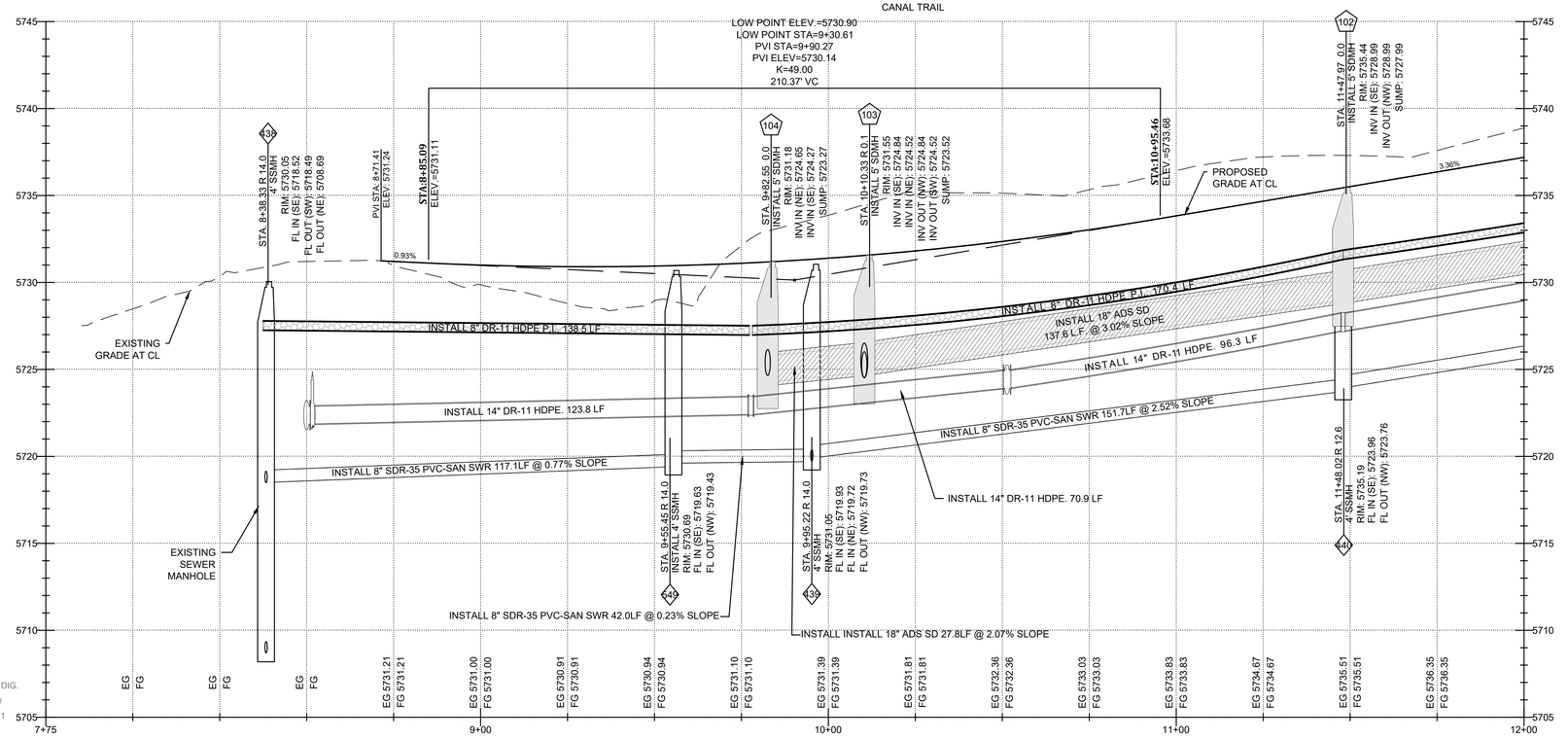
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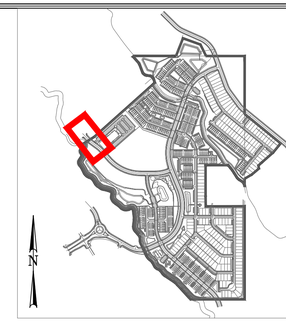
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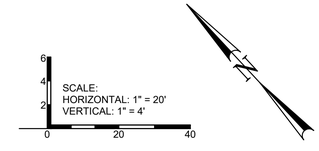
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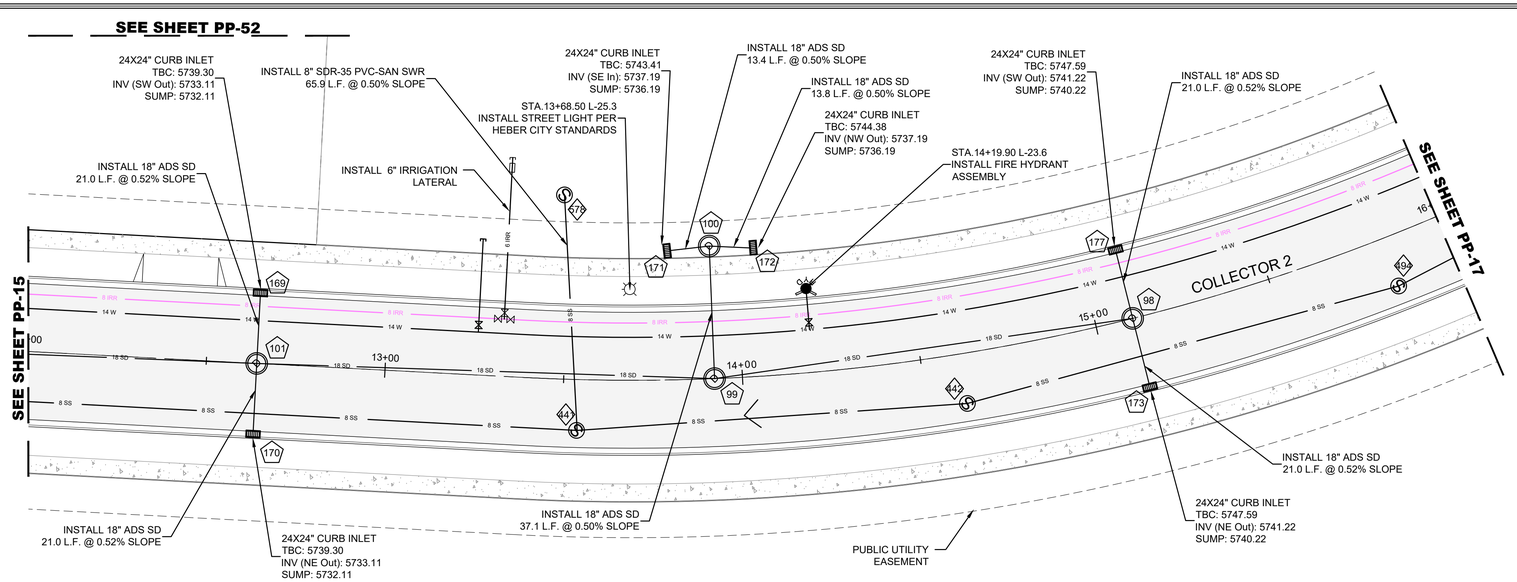
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JOB No. 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22x34 = 11x17 DIMENSIONS AND NOTES MAKE PROCEEDING

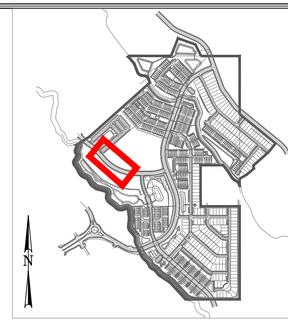
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DESIGN BY: WARD
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DATE: 07/30/2024

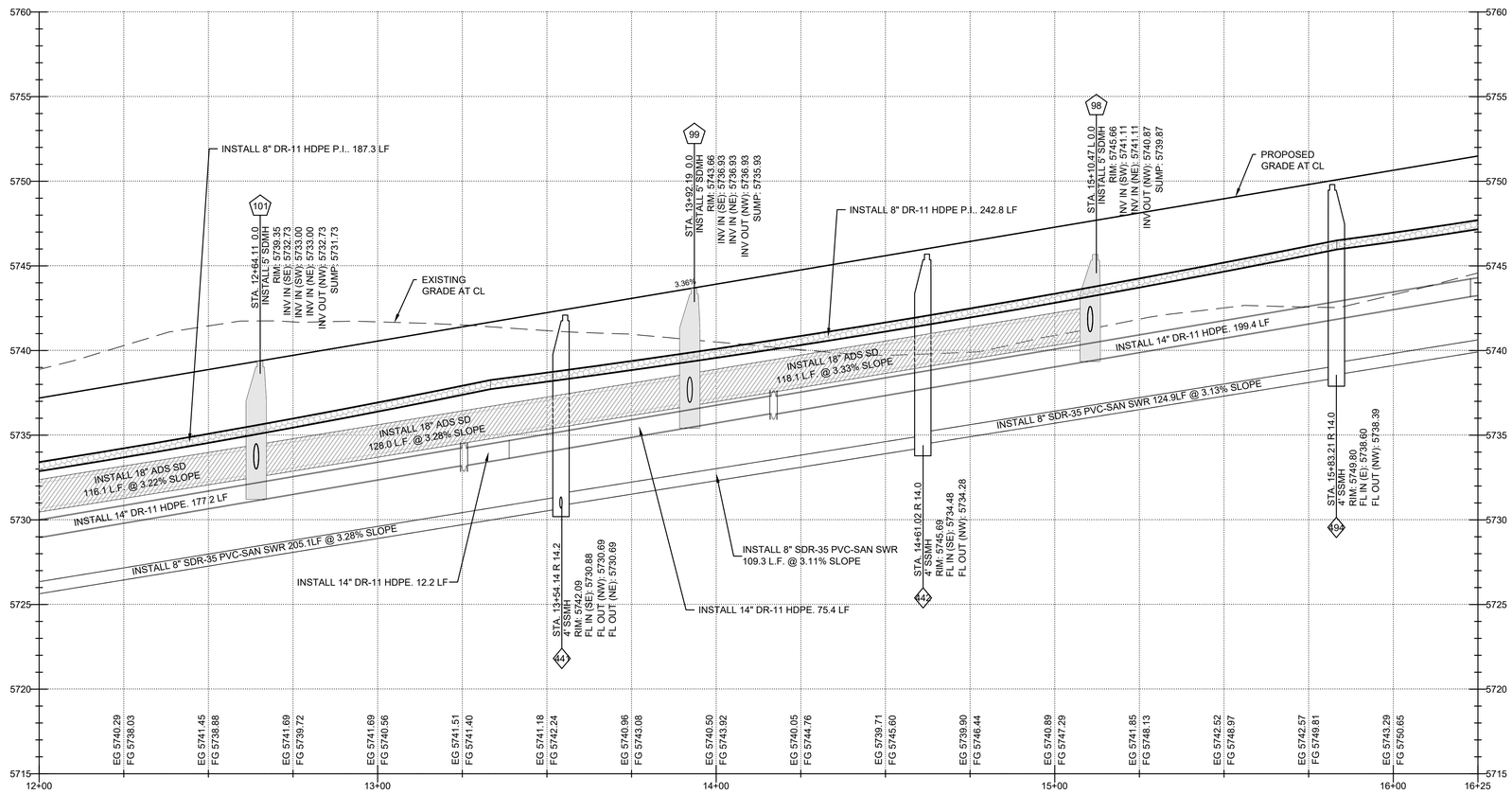
REVISIONS
1 07/30/2024 GRADING REVISION

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STATE OF UTAH
SATTAR N. TABRIZ
8162024

SHEET
PP-15







SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'
0 20 40
6 4 2

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Collector 2

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Ward Engineering Group
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PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: COLLECTOR 2.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22 IN X 34IN. DIMENSIONS AND NOTES TAKE PRECEDENCE

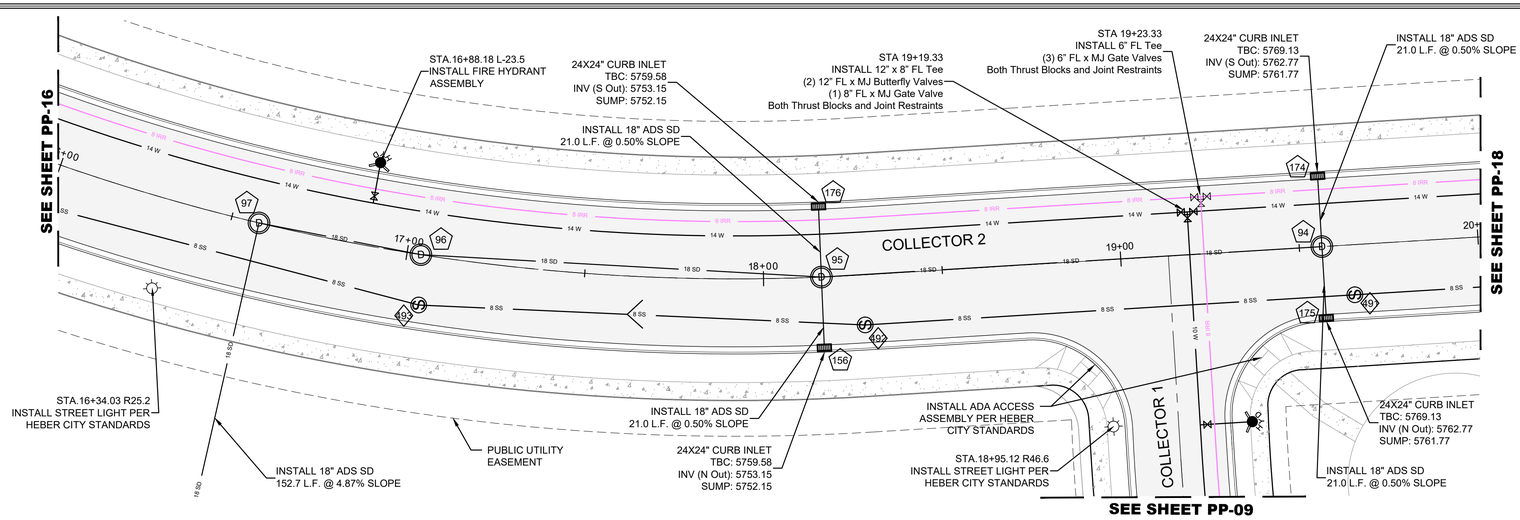
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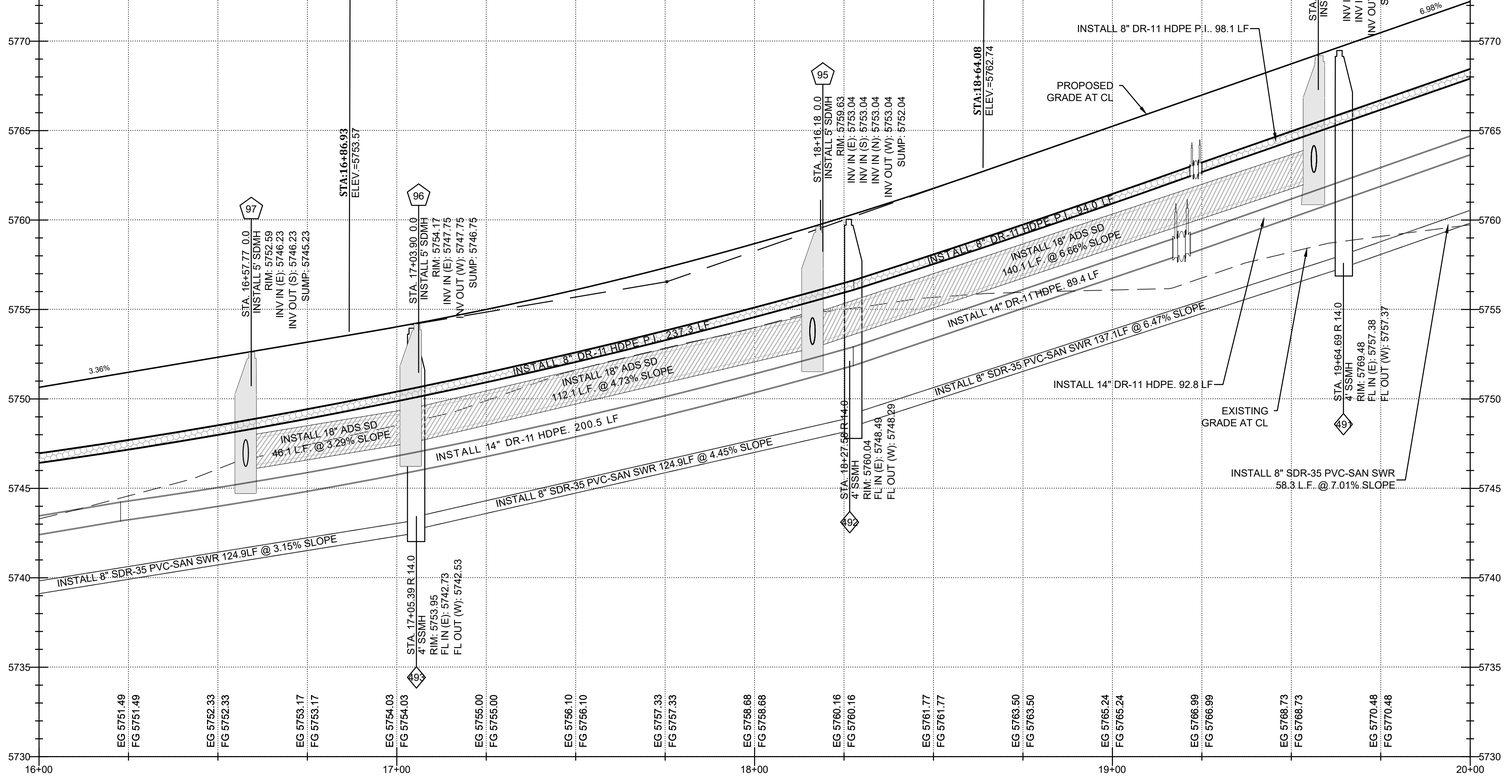
REVISIONS
1 07/30/2024 GRADING REVISION

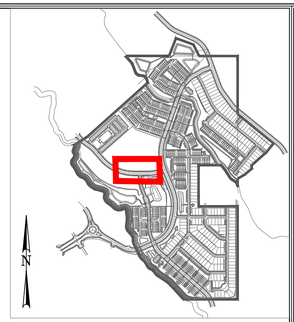
SHEET
PP-16

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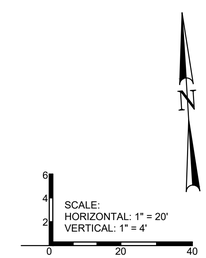
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Vertical Scale: 1"=4'



HIGHLANDS RESIDENTIAL DEVELOPMENT
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CLIENT: D.R.HORTON
DWG: COLLECTOR 2.DWG
JOB No: 389I-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 in x 34 in. DIMENSIONS AND NOTES TAKE PRECEDENCE

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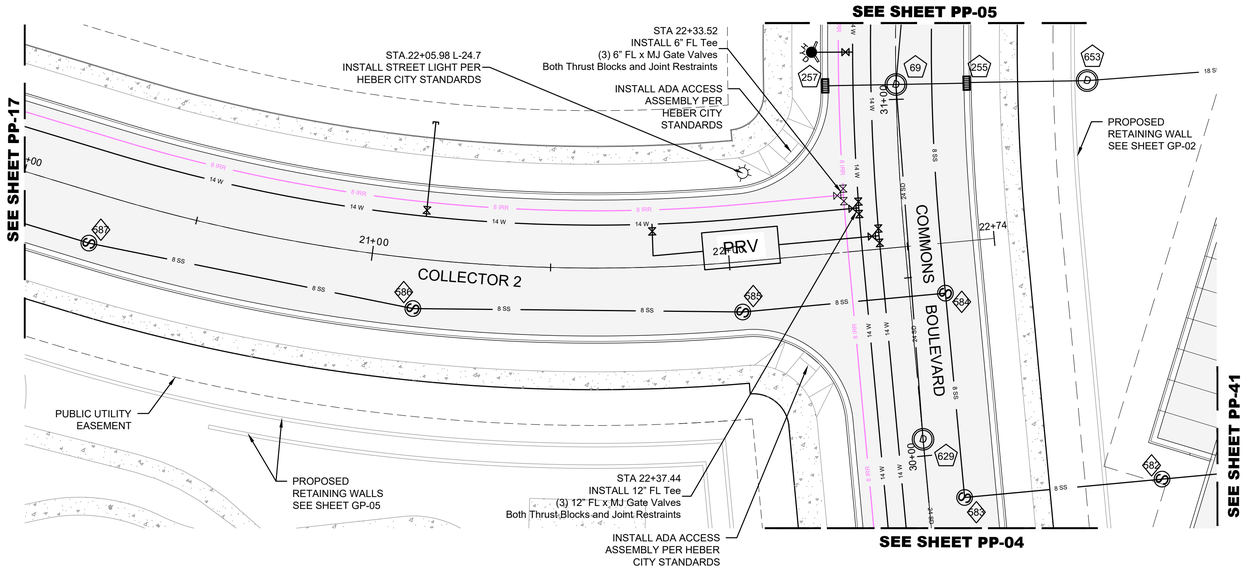
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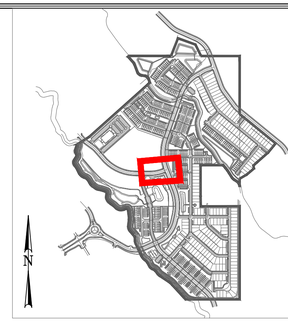
SATTAR N. TABRIZ
8166804

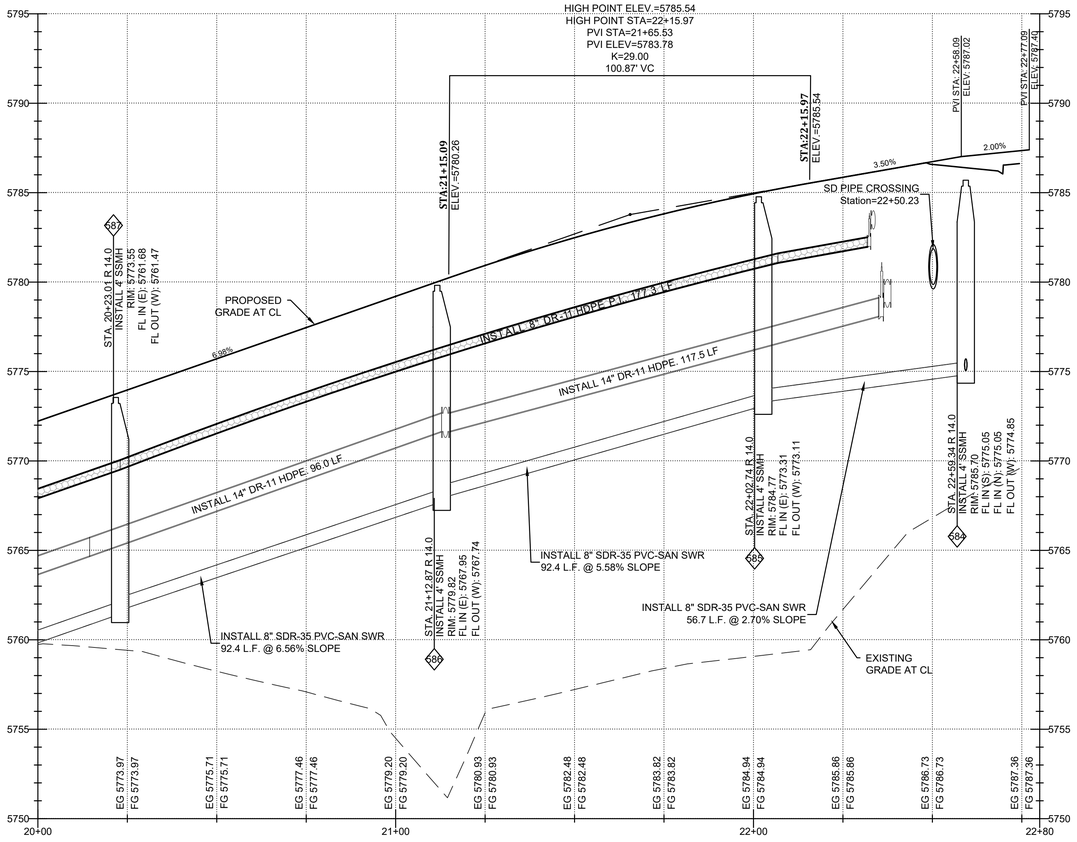
SHEET
PP-17

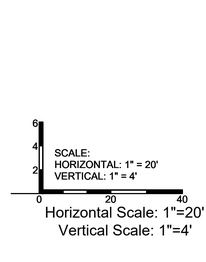
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SPANISH FORK 84660-1611

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Roadway Plan & Profile- Collector 2

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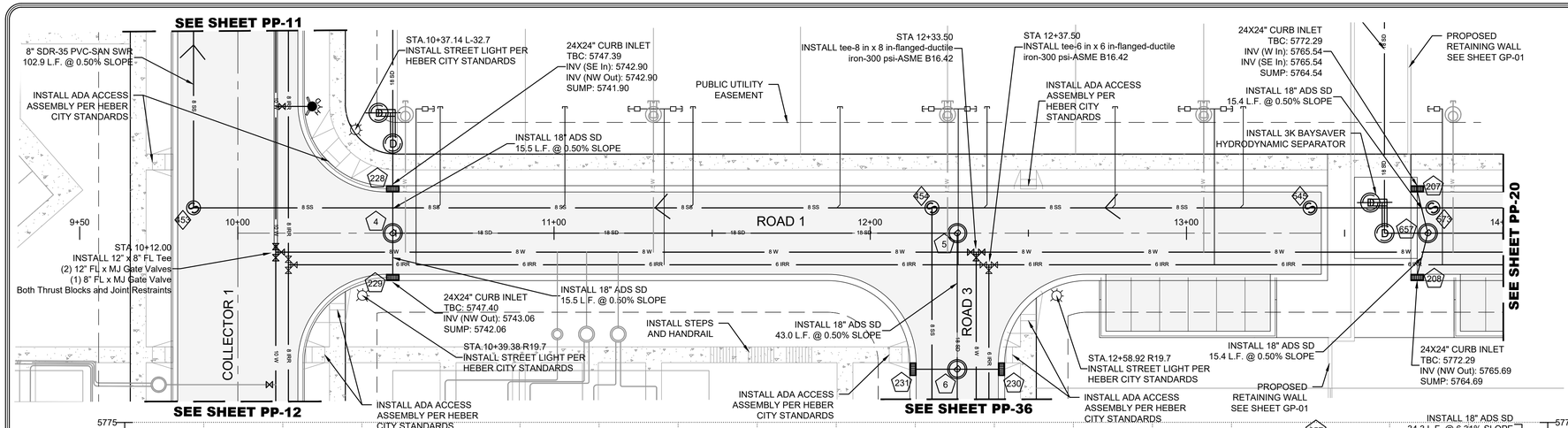
CLIENT: D.R.HORTON
DWG: COLLECTOR 2.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22"x 34" - USE SCALES AND NOTES TAKE PRECEDENCE

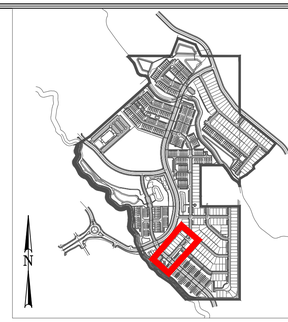
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CHECKED BY: AJS
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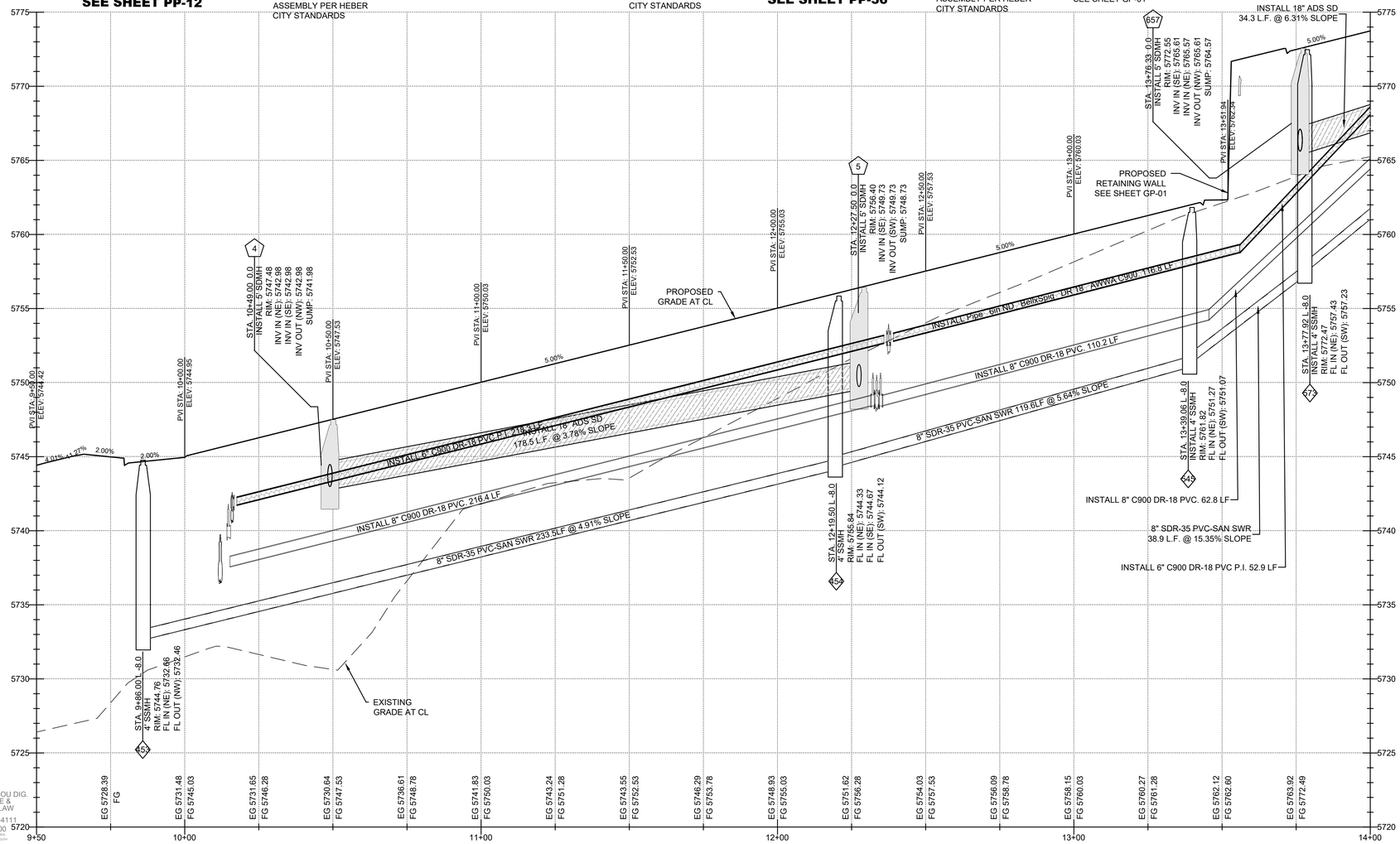
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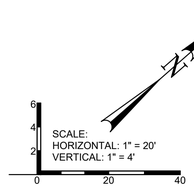
PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

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PP-18









Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Plan & Profiles\From Dev\Road 1.dwg TAB: PP-19 Road 1 PLOT DATE AND TIME: 8/6/2024 5:57 PM

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Roadway Plan & Profile- Road 1

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: ROAD 1.DWG
JOB No. 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in (ORIGINAL) AND NOTES MAY APPEAR SMALL

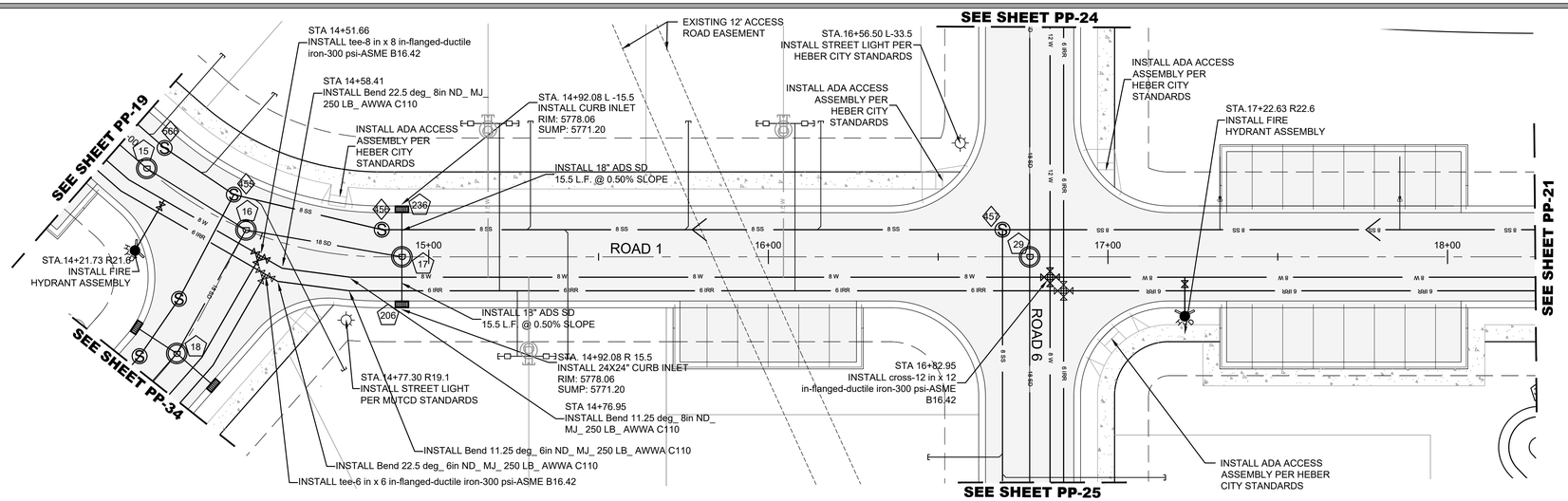
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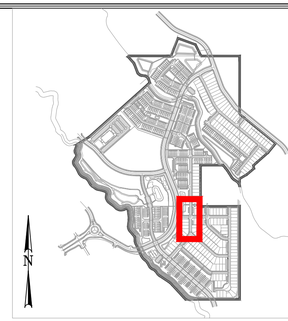
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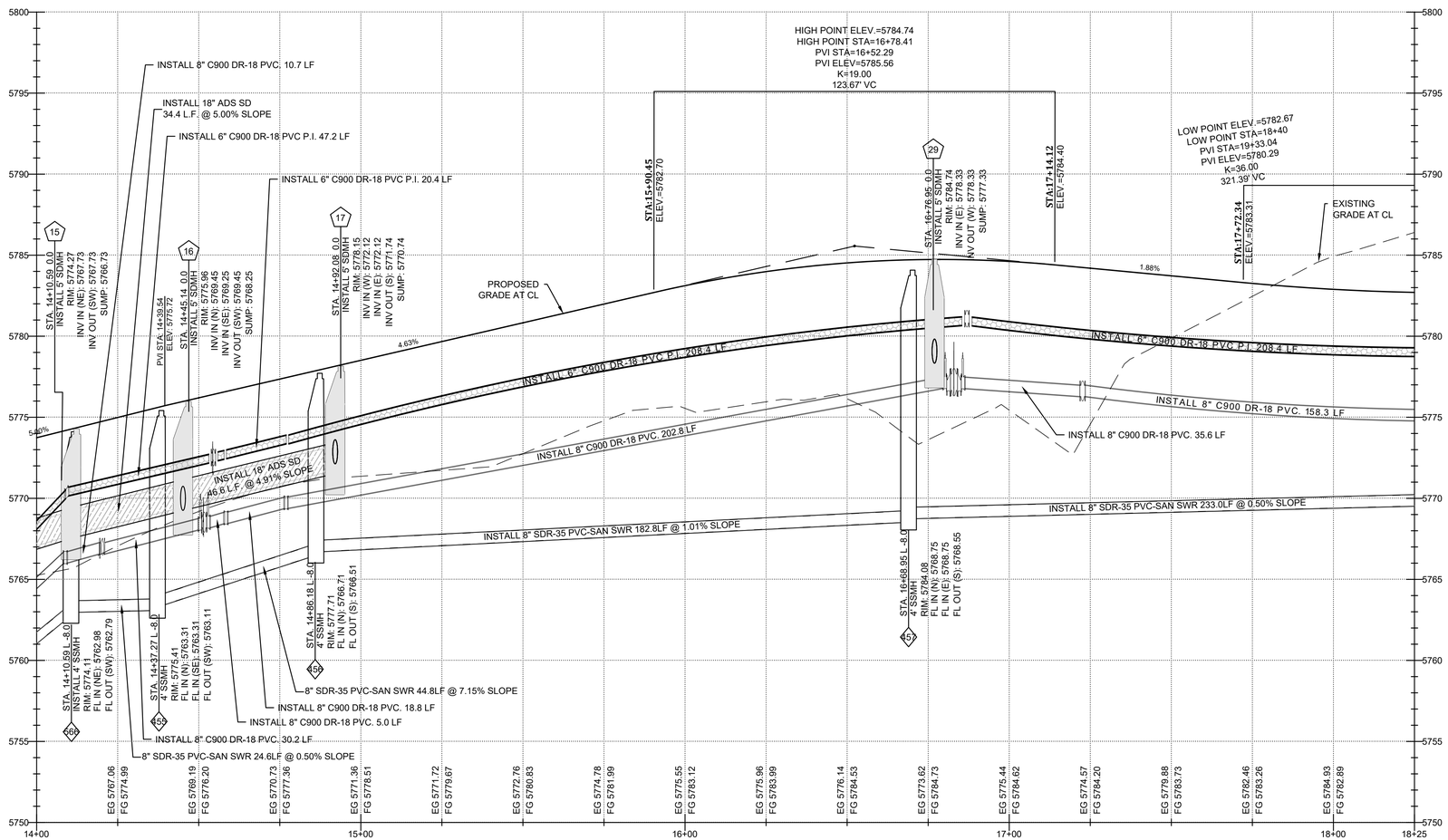
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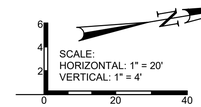
PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

SHEET
PP-19









SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT

Roadway Plan & Profile- Road 1

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: ROAD 1.DWG
JOB No. 3891-DR#01-23

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DATE: 07/29/2024

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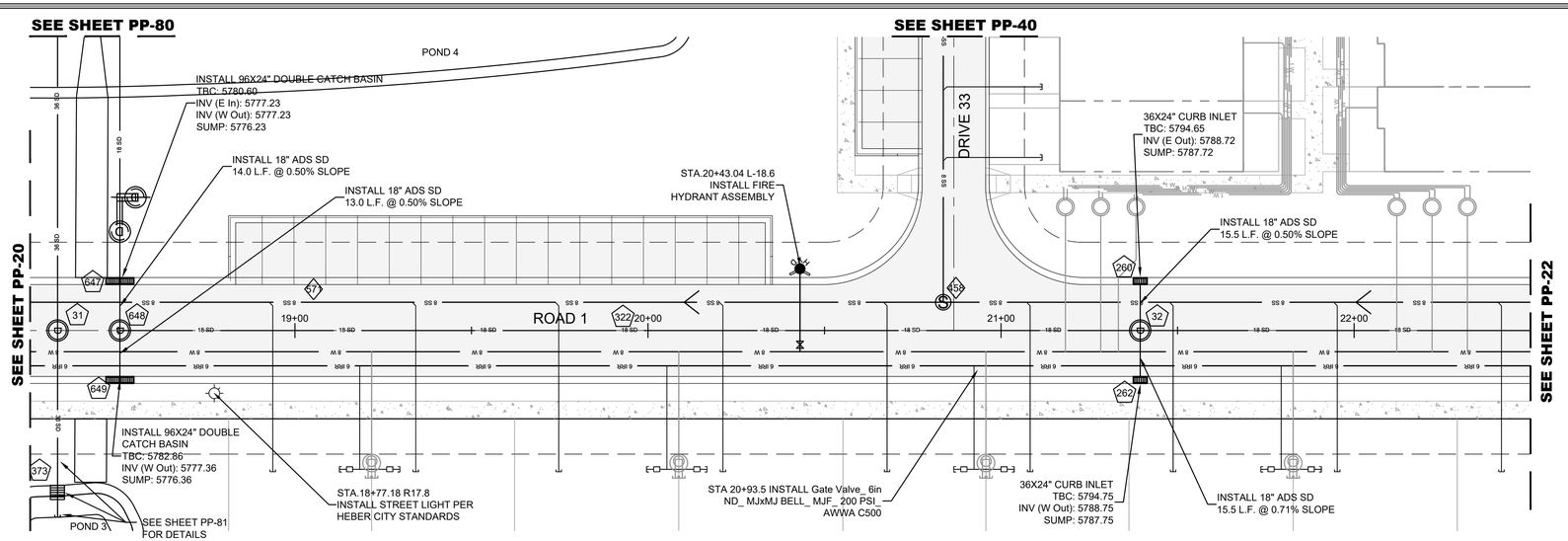
PROFESSIONAL ENGINEER
ABDUL-SATTAR N. ISTAIFO
STATE OF UTAH
9036804

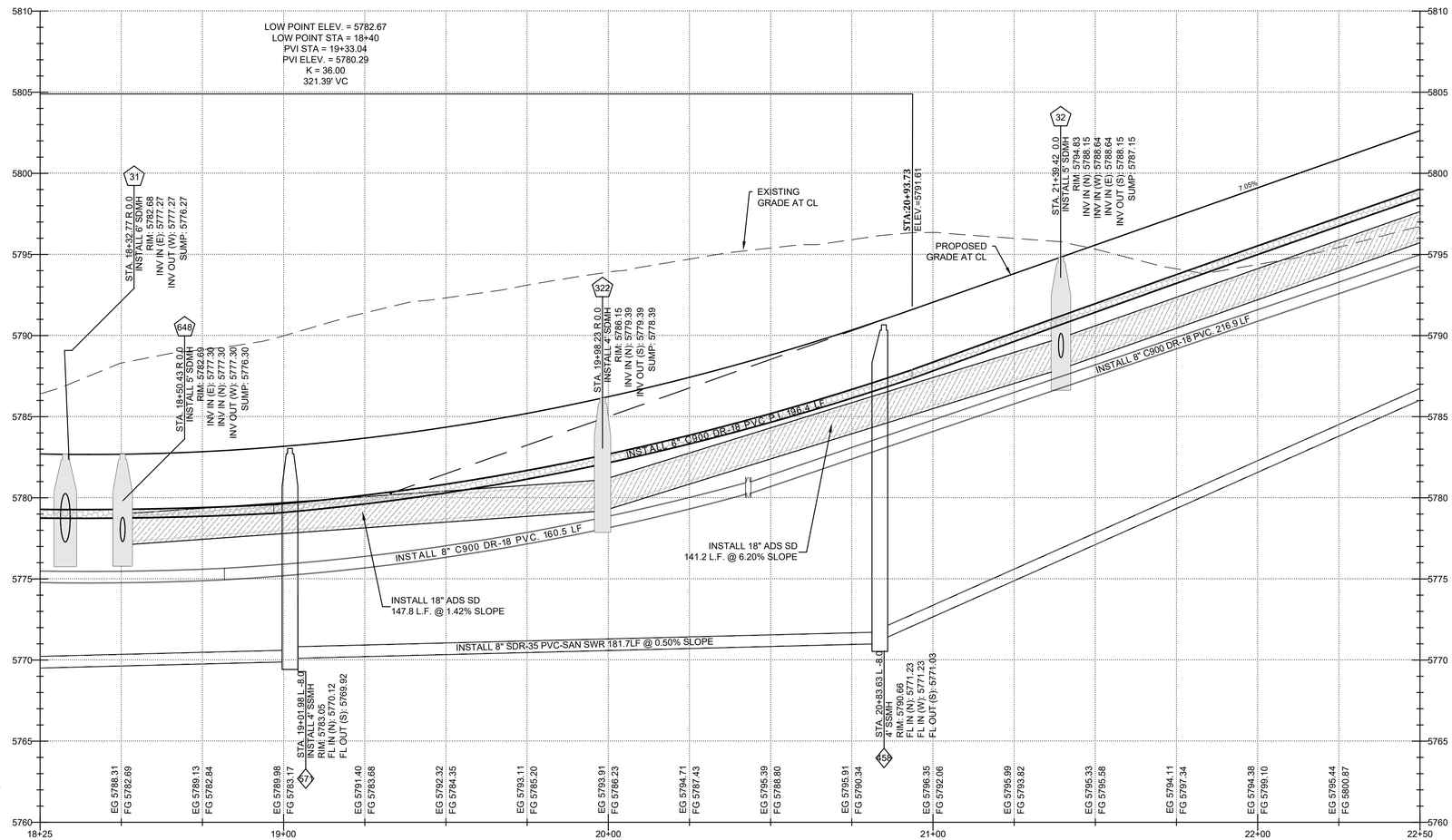
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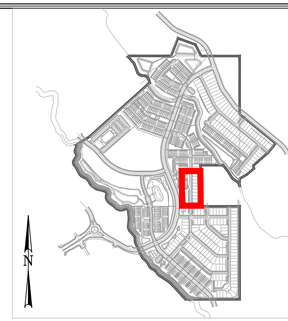
PP-20

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Vertical: 1"=4'

SCALE:
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VERTICAL: 1" = 4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT

Roadway Plan & Profile- Road 1

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CLIENT: D.R.HORTON
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REVISIONS

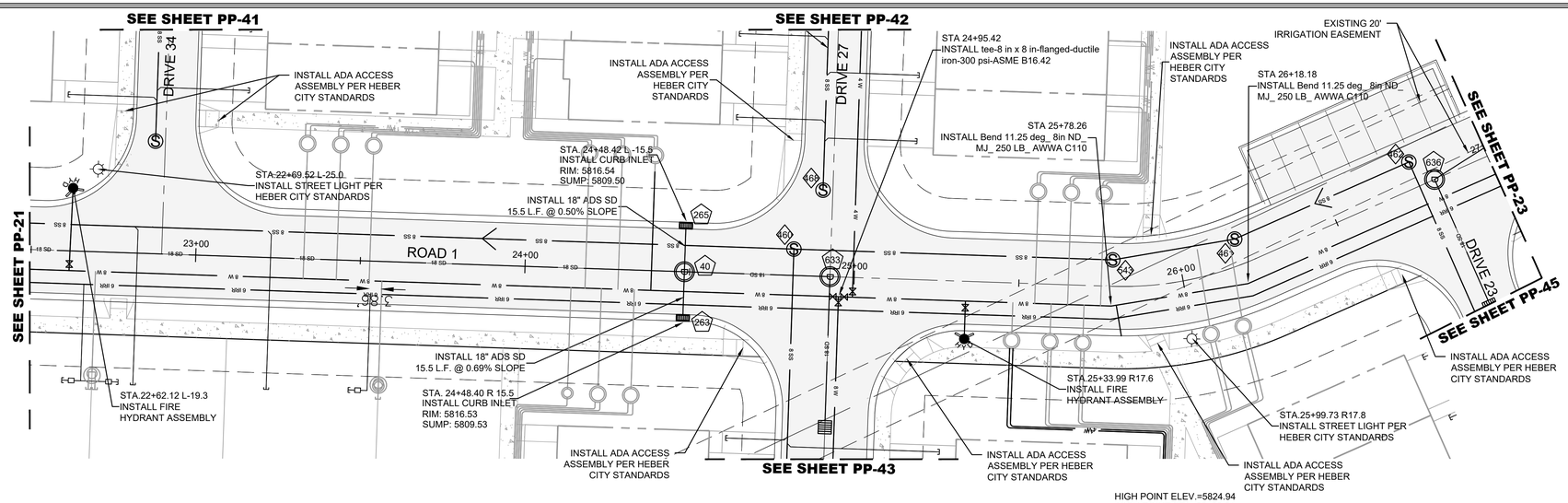
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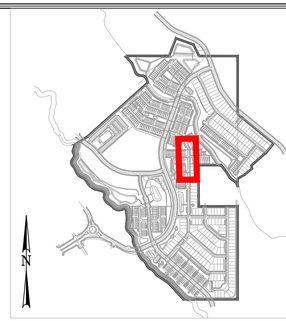
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STATE OF UTAH
SATTAR N. TABRIZ
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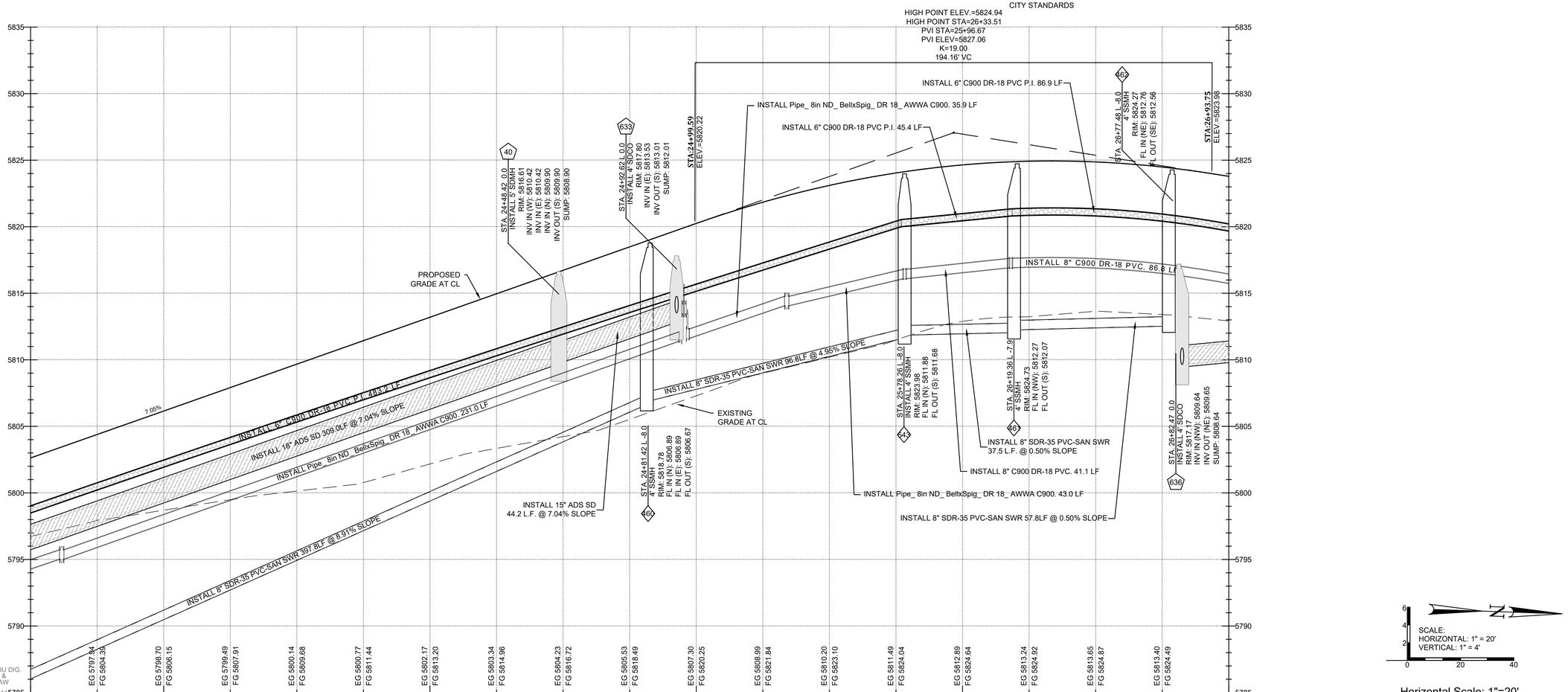
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PP-21

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Roadway Plan & Profile- Road 1

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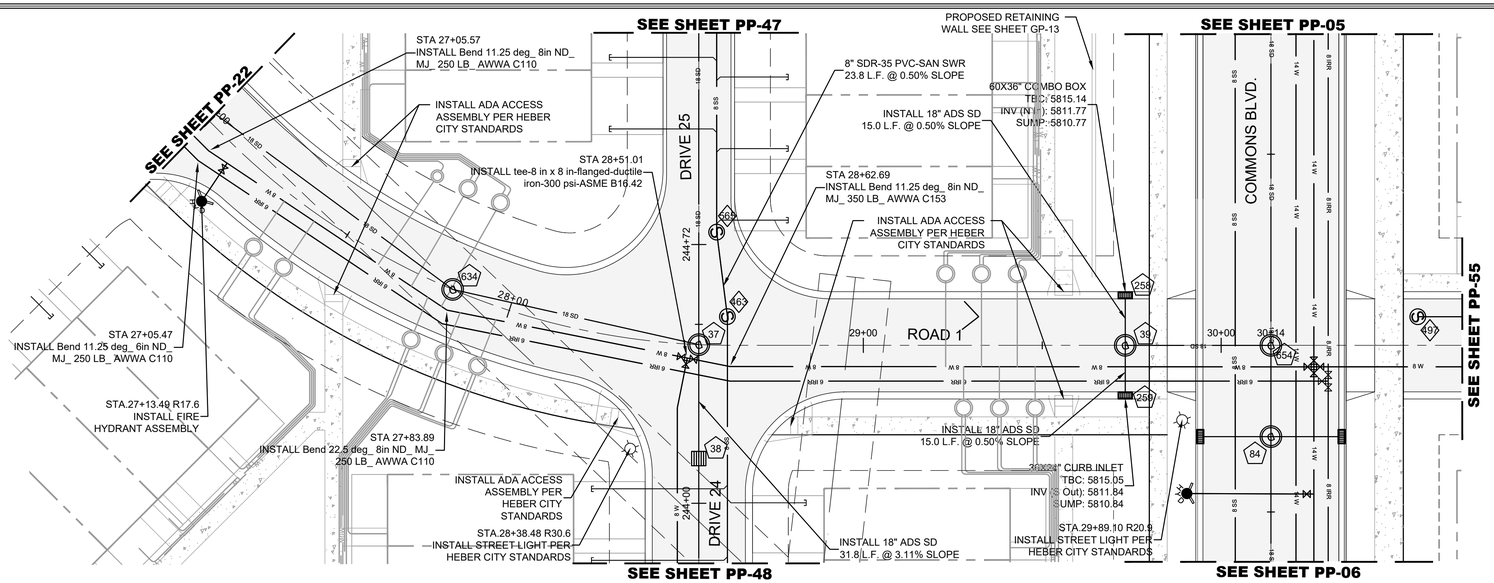
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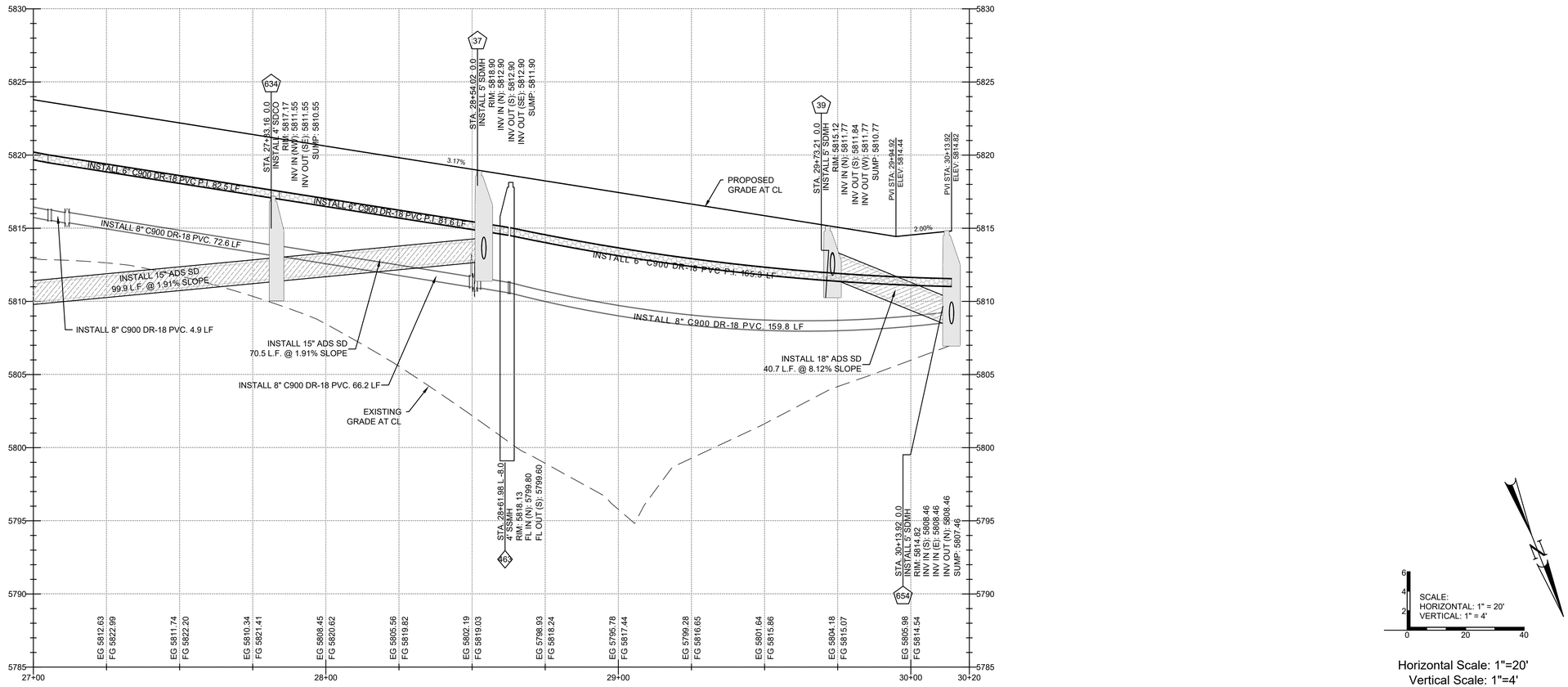
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ASHTON SATTAR N. TABRIZ
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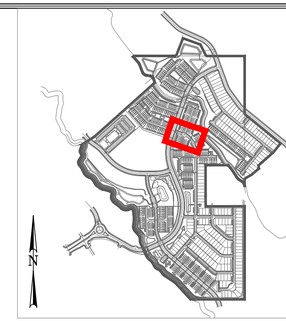
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PP-22

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SCALE:
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VERTICAL: 1" = 4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Road 1

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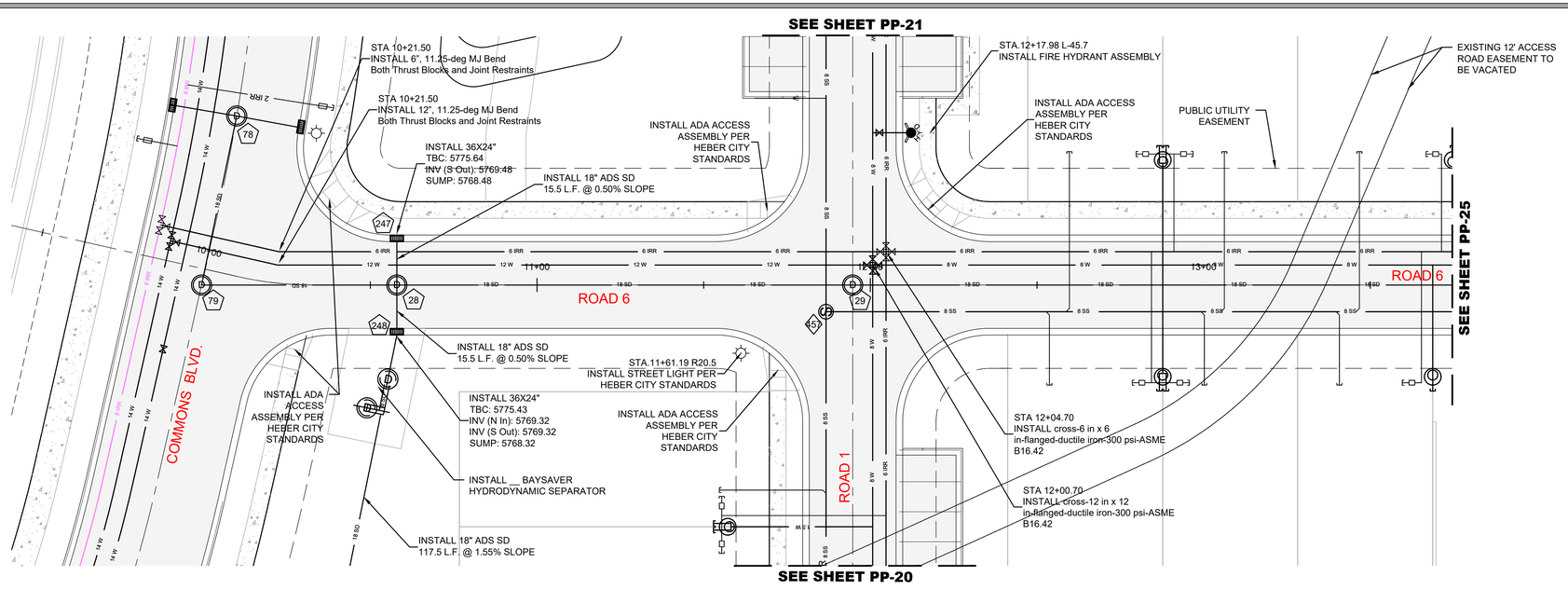
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1 07/30/2024 GRADING REVISION

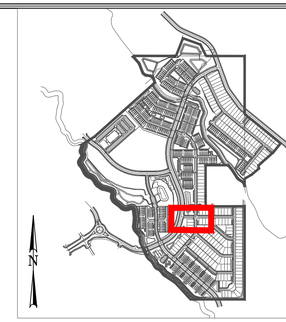
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8160604
STATE OF UTAH

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PP-23

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Roadway Plan & Profile- Road 6

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PH: 801. 487. 8040

CLIENT: D.R HORTON
DWG: ROAD 6.DWG
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1 07/30/2024 GRADING REVISION

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8/6/2024

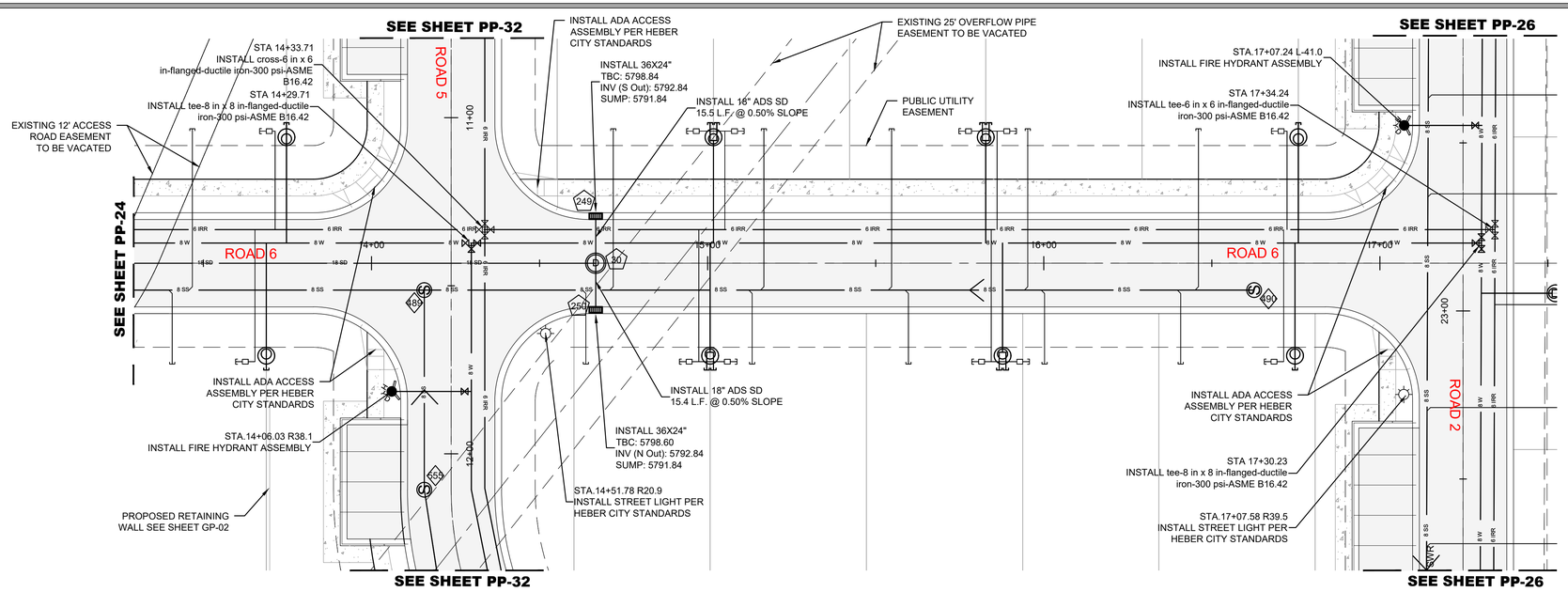
SHEET
PP-24

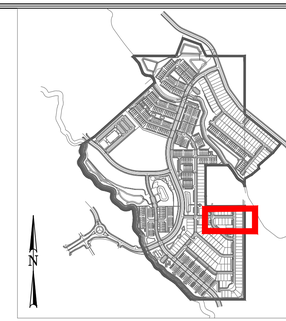
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HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

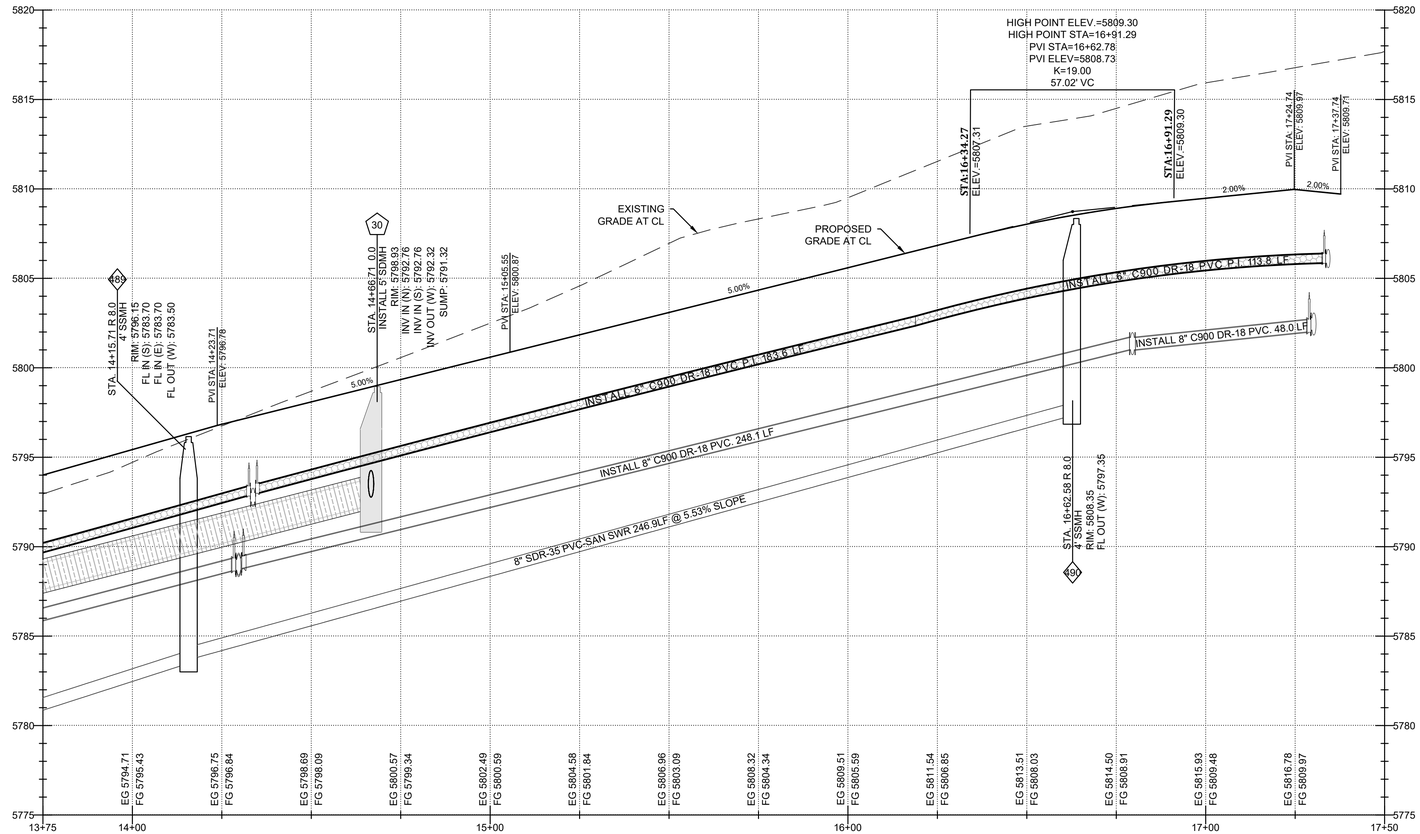
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SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Road 6

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: ROAD 6.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in (DIMENSIONS AND NOTES ARE PRESERVED)

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS

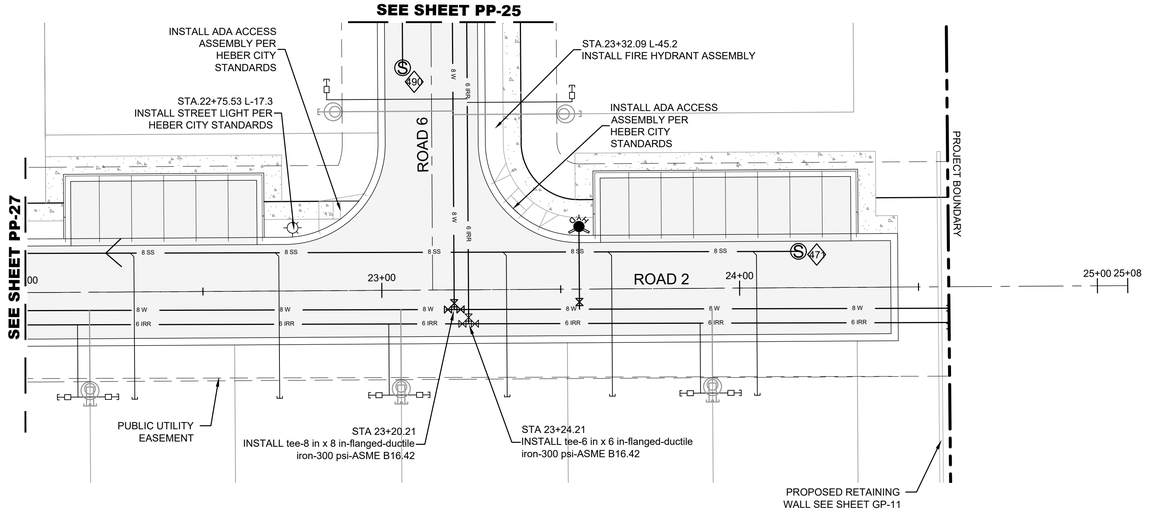
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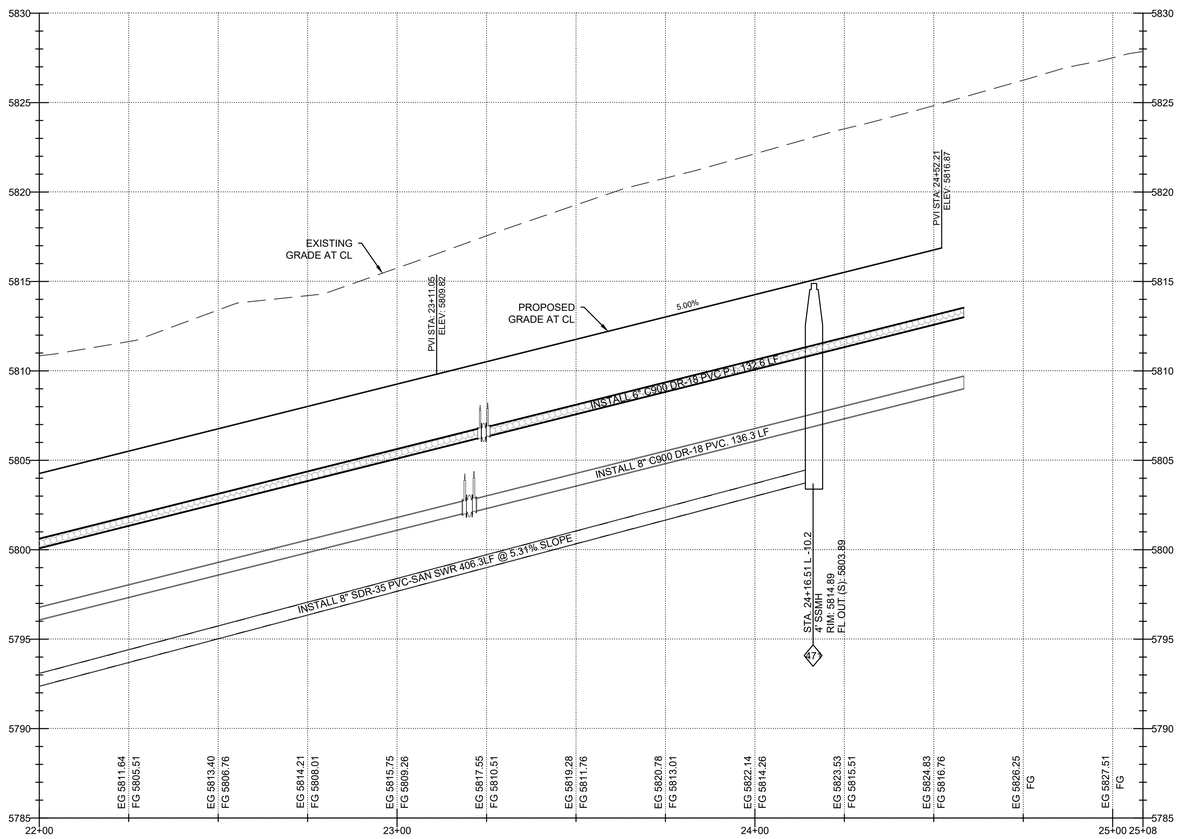
PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
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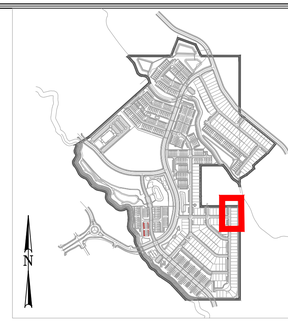
SHEET
PP-25

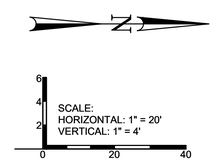
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Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 2

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: ROAD 2.DWG
JOB No: 3891-DRH01-23
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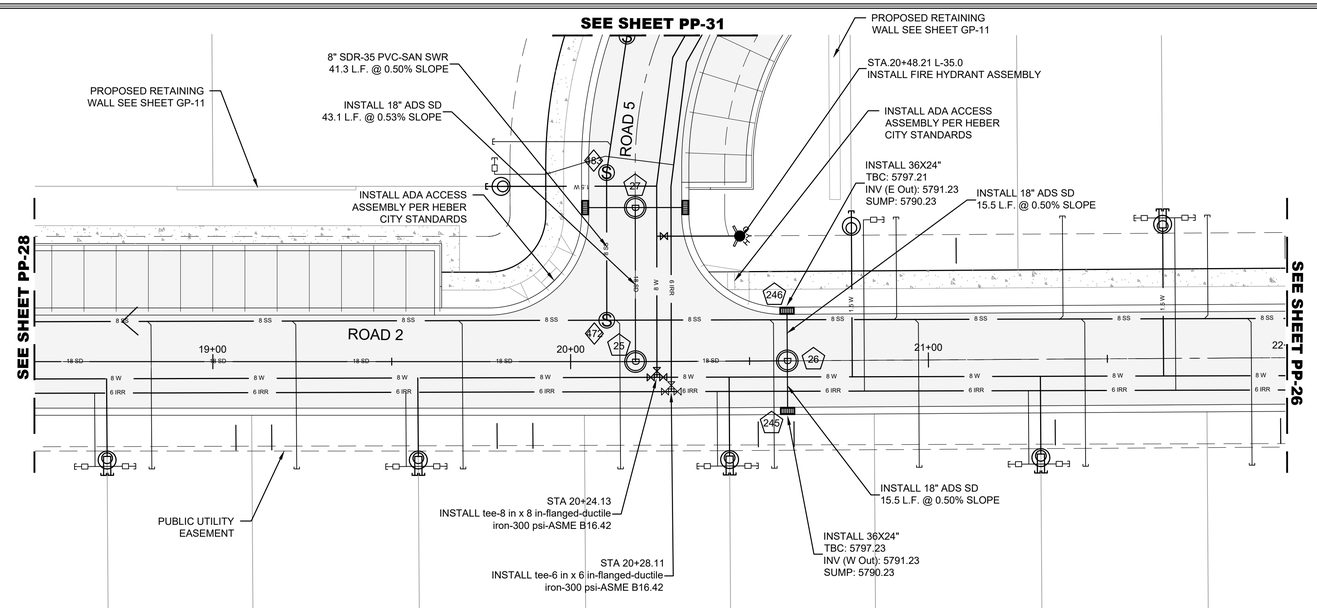
REVISIONS
1 07/30/2024 GRADING REVISION

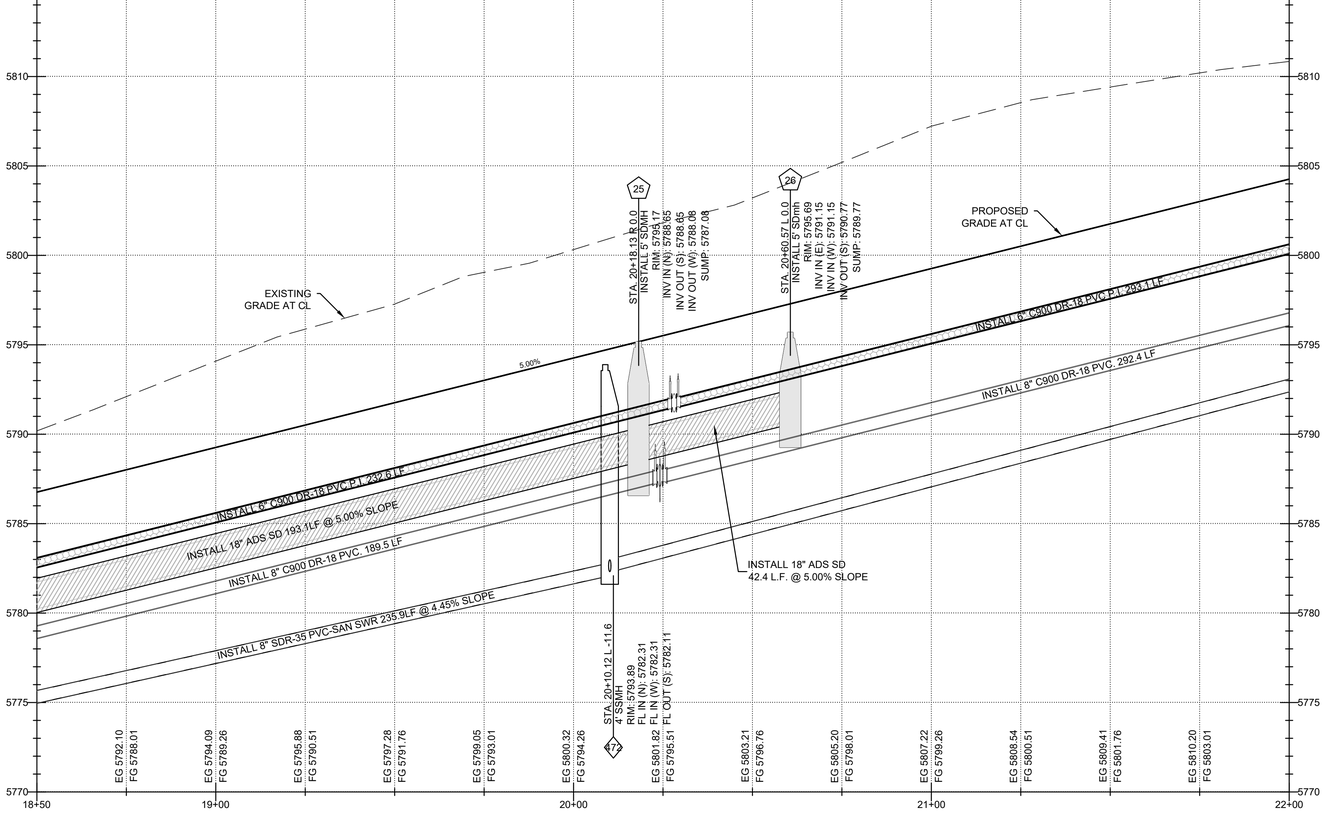
SATTAR N. TABRIZ
8/6/2024

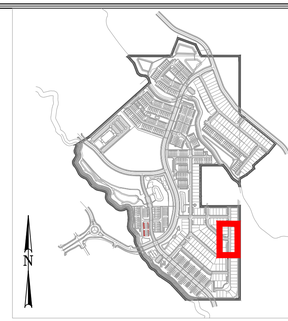
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208-2100
811
BLUE STAKES OF UTAH, INC.
PO BOX 1577
SANDY, UTAH 84091-1577







SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 2

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: ROAD 2.DWG
JOB No. 3691-DRH01-23
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CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
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SATTAR N. TABRIZ — 8160604 — STATE OF UTAH — PROFESSIONAL ENGINEER

SHEET
PP-27

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208-2100
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(OUTSIDE SALT LAKE METRO)
DRAPER, UTAH 84020-1577

SEE SHEET PP-35

SEE SHEET PP-33

SEE SHEET PP-29

SEE SHEET PP-27

PROPOSED RETAINING WALL SEE SHEET GP-17

INSTALL ADA ACCESS ASSEMBLY PER HEBER CITY STANDARDS

STA.15+14.73 L-17.7
STALL FIRE HYDRANT ASSEMBLY

INSTALL ADA ACCESS ASSEMBLY PER HEBER CITY STANDARDS

INSTALL 36X24"
TBC: 5774.11
INV (E Out): 5768.16
SUMP: 5767.16

INSTALL 15" ADS SD
15.5 L.F. @ 0.50% SLOPE

PROPOSED RETAINING WALL SEE SHEET GP-12

INSTALL ADA ACCESS ASSEMBLY PER HEBER CITY STANDARDS

STA.18+19.19 L-18.0
INSTALL STREET LIGHT PER HEBER CITY STANDARDS

INSTALL 36X24"
TBC: 5785.43
INV (E Out): 5779.46
SUMP: 5778.46

INSTALL 18" ADS SD
15.0 L.F. @ 0.50% SLOPE

STA.18+31.82 L-18.2
INSTALL FIRE HYDRANTASSEMBLY

ROAD 3

ROAD 4

ROAD 2

15+00

16+00

17+00

18+00

STA 15+62.36
INSTALL tee-8 in x 8 in-flanged-ductile iron-300 psi-ASME B16.42

STA 15+66.38
INSTALL tee-6 in x 6 in-flanged-ductile iron-300 psi-ASME B16.42

INSTALL 15" ADS SD
15.5 L.F. @ 0.50% SLOPE

INSTALL 36X24"
TBC: 5774.16
INV (W Out): 5768.16
SUMP: 5767.16

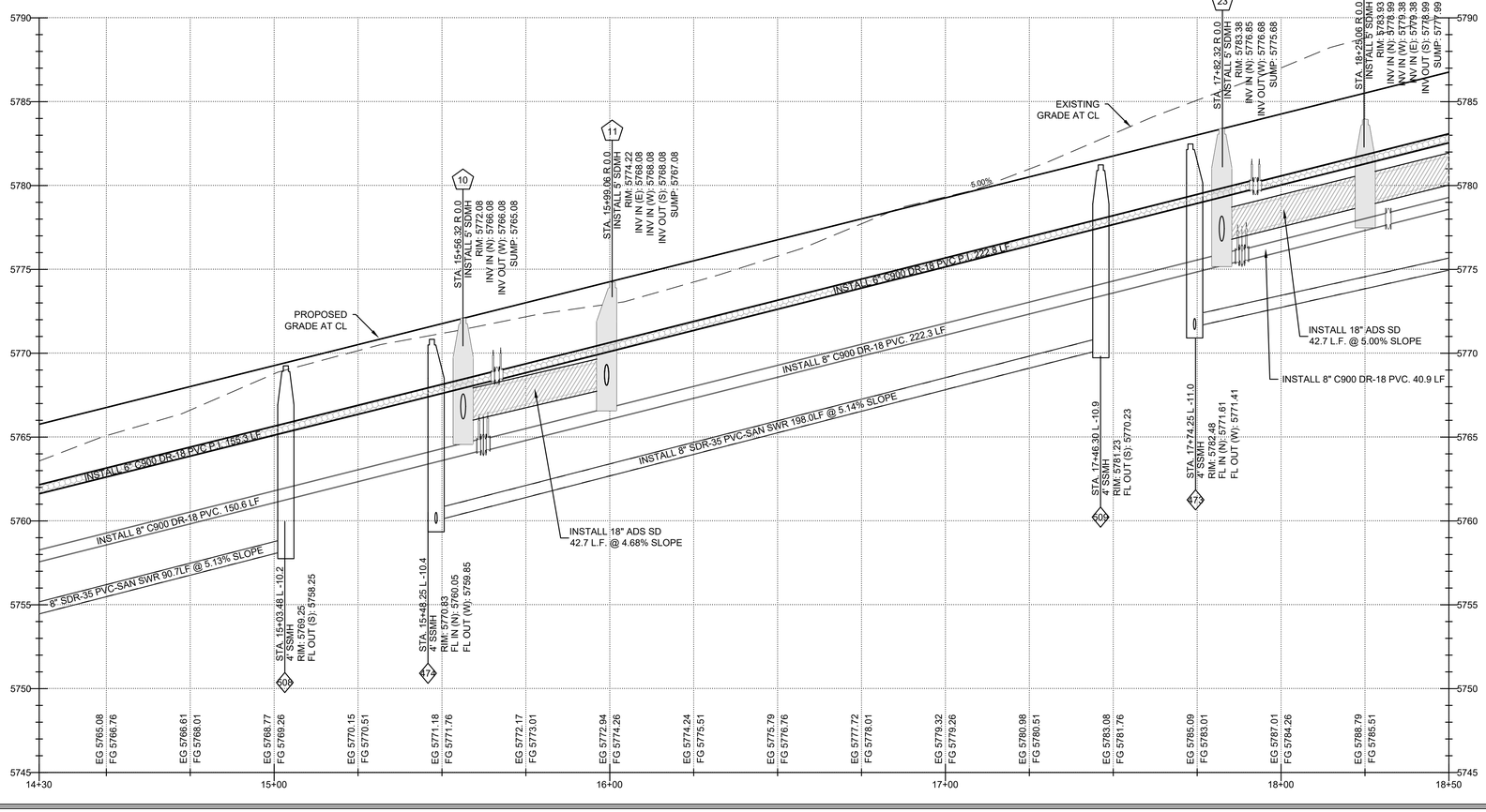
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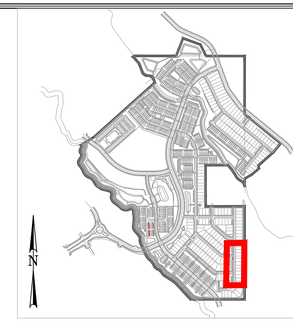
STA 17+88.36
INSTALL tee-8 in x 8 in-flanged-ductile iron-300 psi-ASME B16.42

STA 17+92.38
INSTALL tee-6 in x 6 in-flanged-ductile iron-300 psi-ASME B16.42

INSTALL 36X24"
TBC: 5785.46
INV (W Out): 5779.46
SUMP: 5778.46

INSTALL 18" ADS SD
15.5 L.F. @ 0.50% SLOPE





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT

Roadway Plan & Profile- Road 2

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: ROAD 2.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 24"x36" - DIMENSIONS AND NOTES TAKE PRECEDENCE

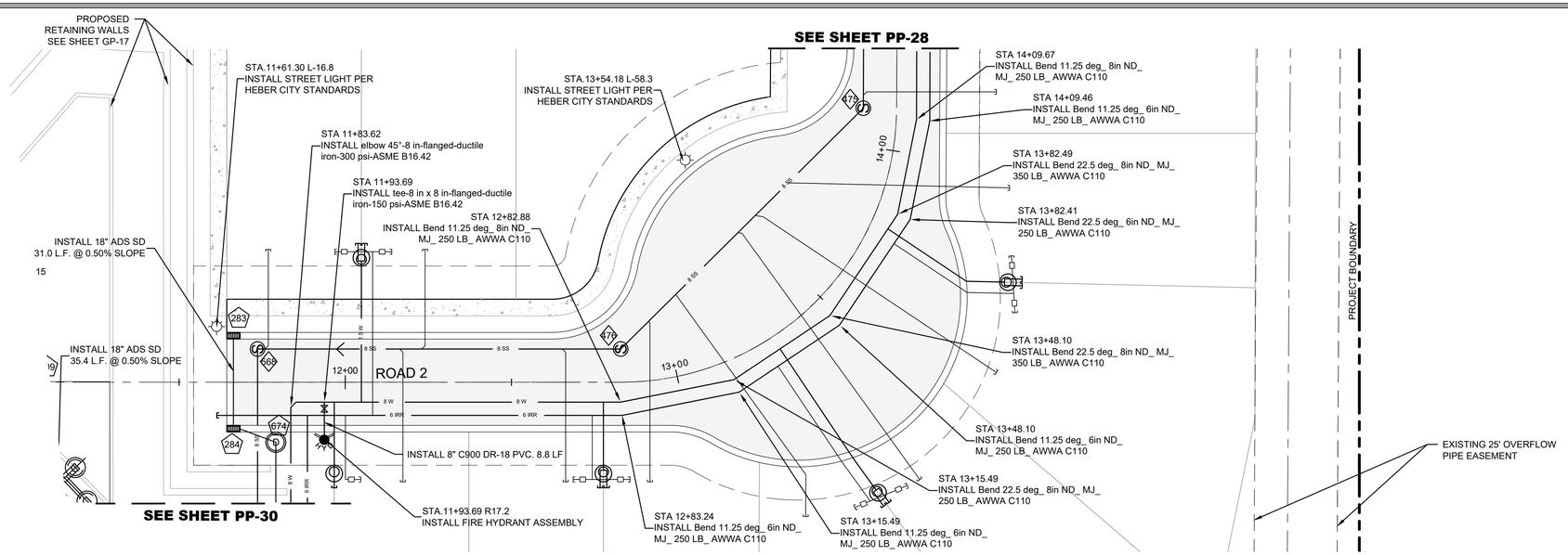
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

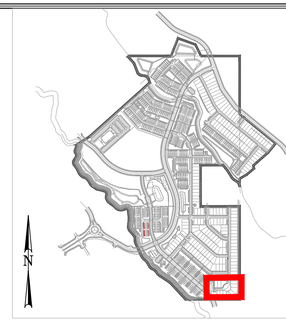
REVISIONS
1 07/30/2024 GRADING REVISION

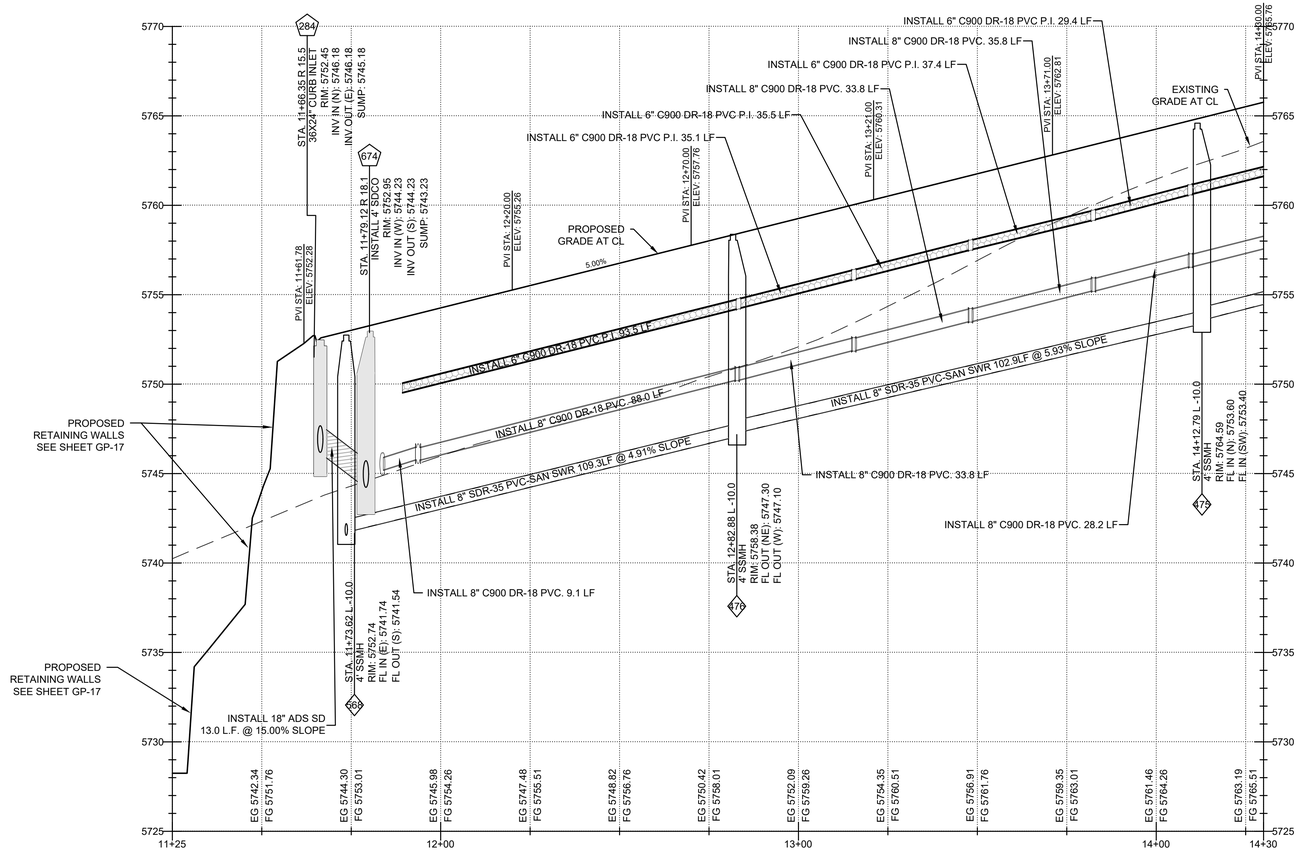
SHEET
PP-28

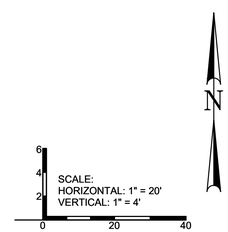
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208-2100
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DRAPER, UTAH 84020-1507









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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 2

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

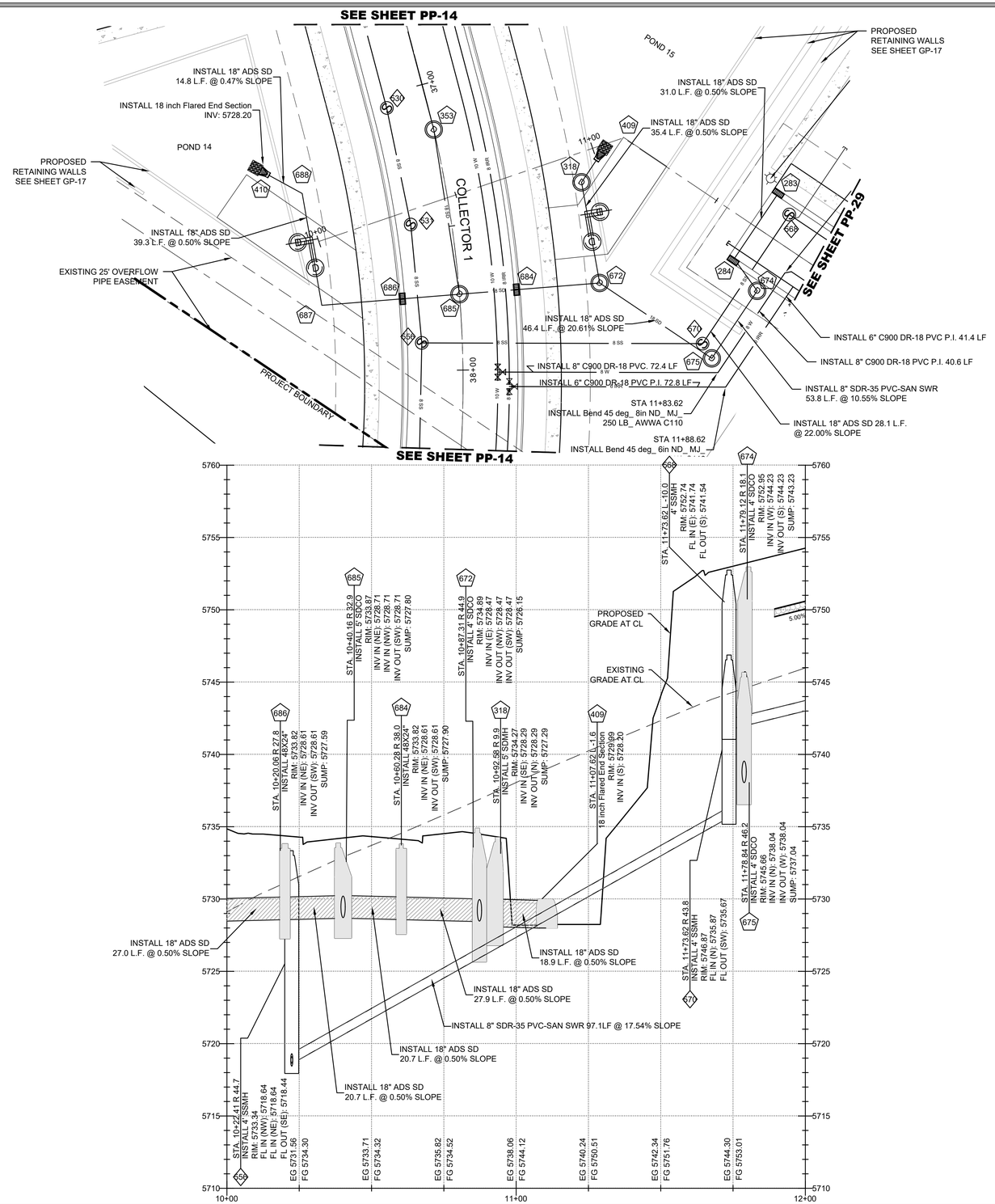
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DWG: ROAD 2 DWG
JOB No: 3891-DRH01-23
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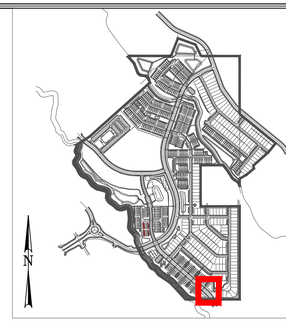
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1 07/30/2024 GRADING REVISION

ASHLEY SATTAR N. TABRIZ 8166768824

SHEET
PP-29





HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 2

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: ROAD 2 DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in (DIMENSIONS AND NOTES TAKE PRECEDENCE)

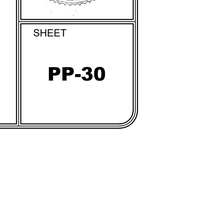
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DESIGN BY: WARD
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DATE: 07/29/2024

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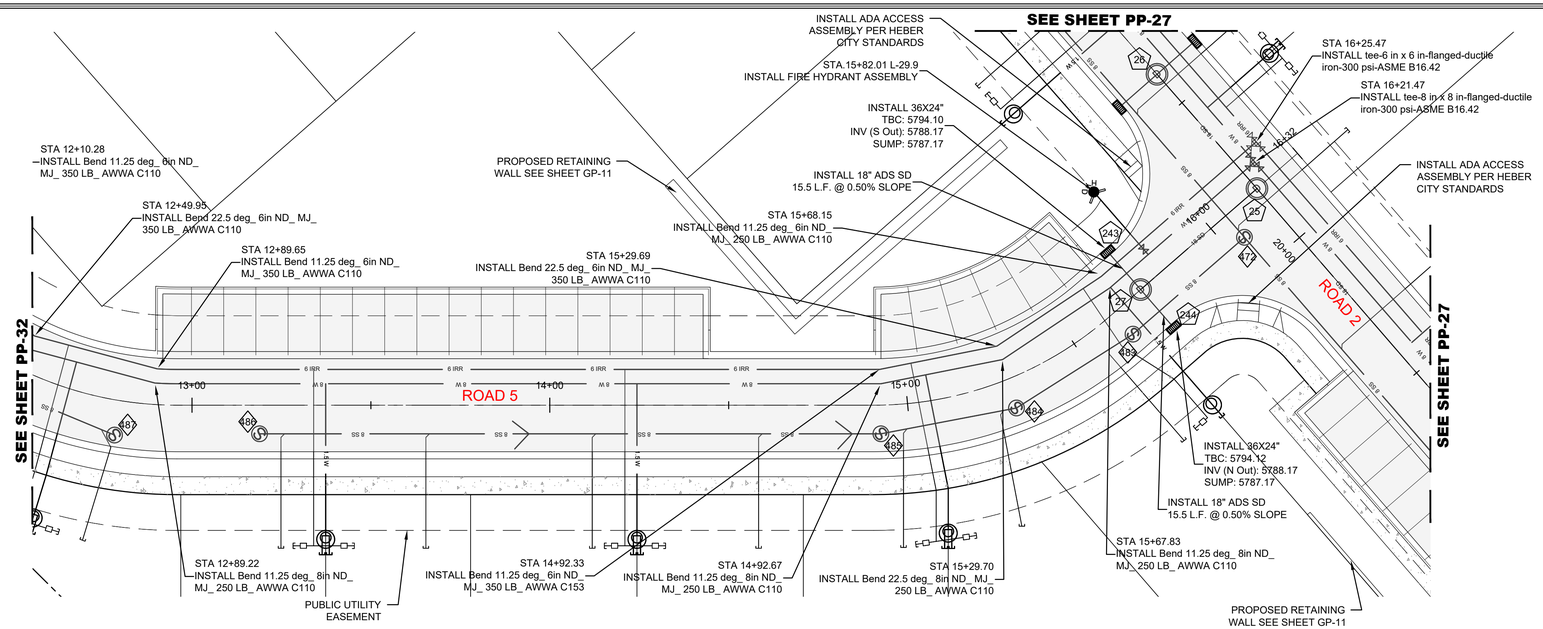
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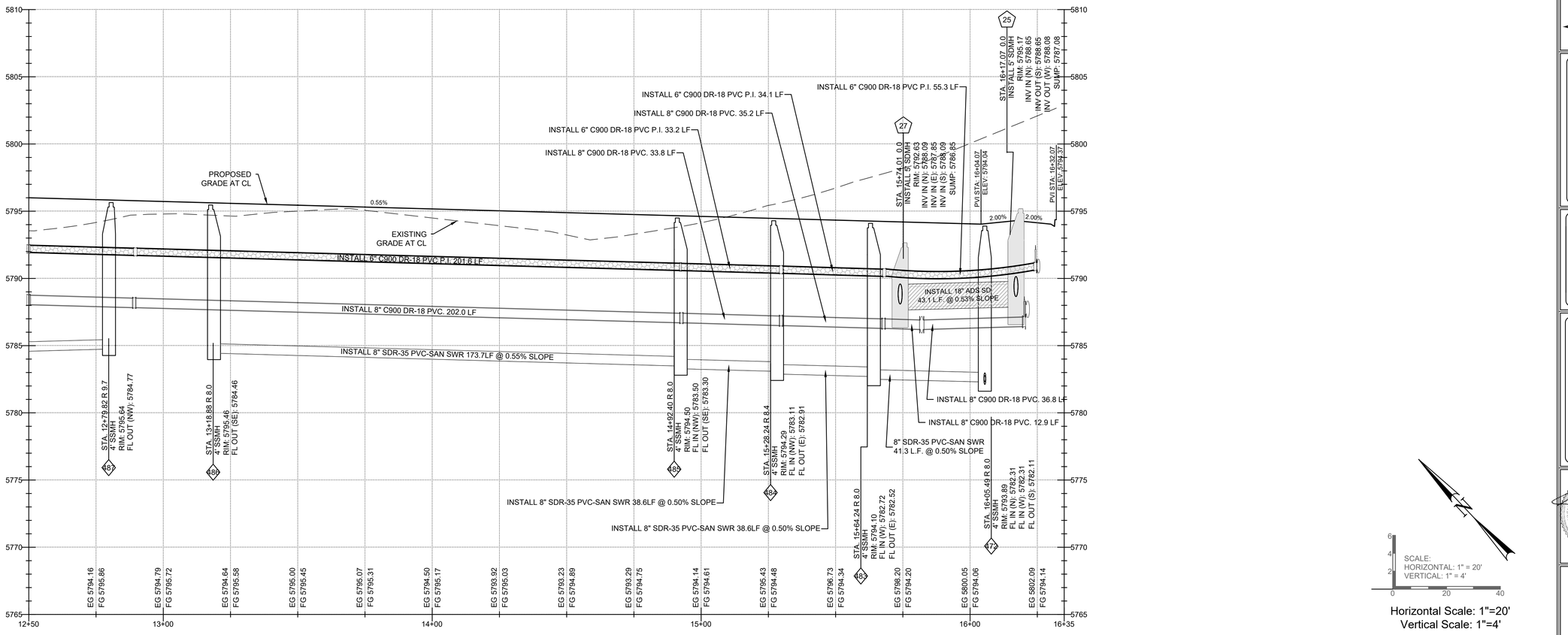


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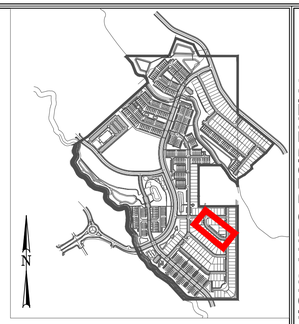
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Vertical Scale: 1"=4'



HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 5

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: ROAD 5.DWG
JOB No: 3891-DRH01-23
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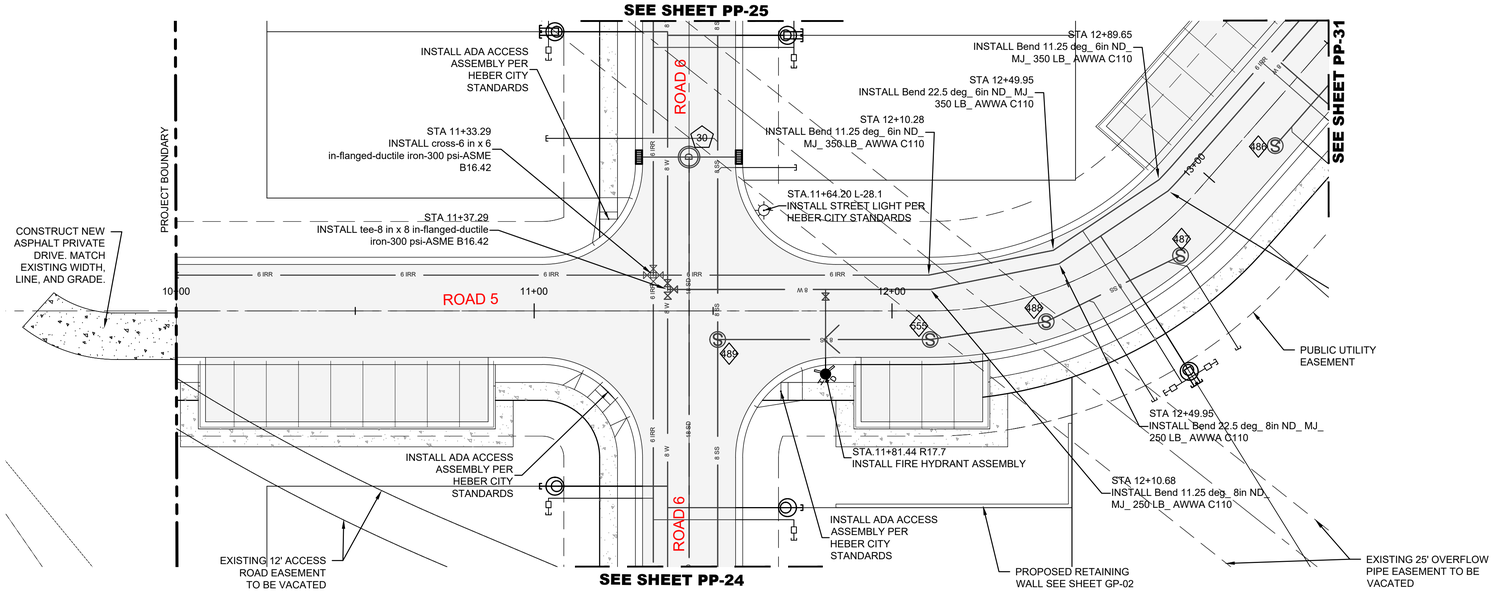
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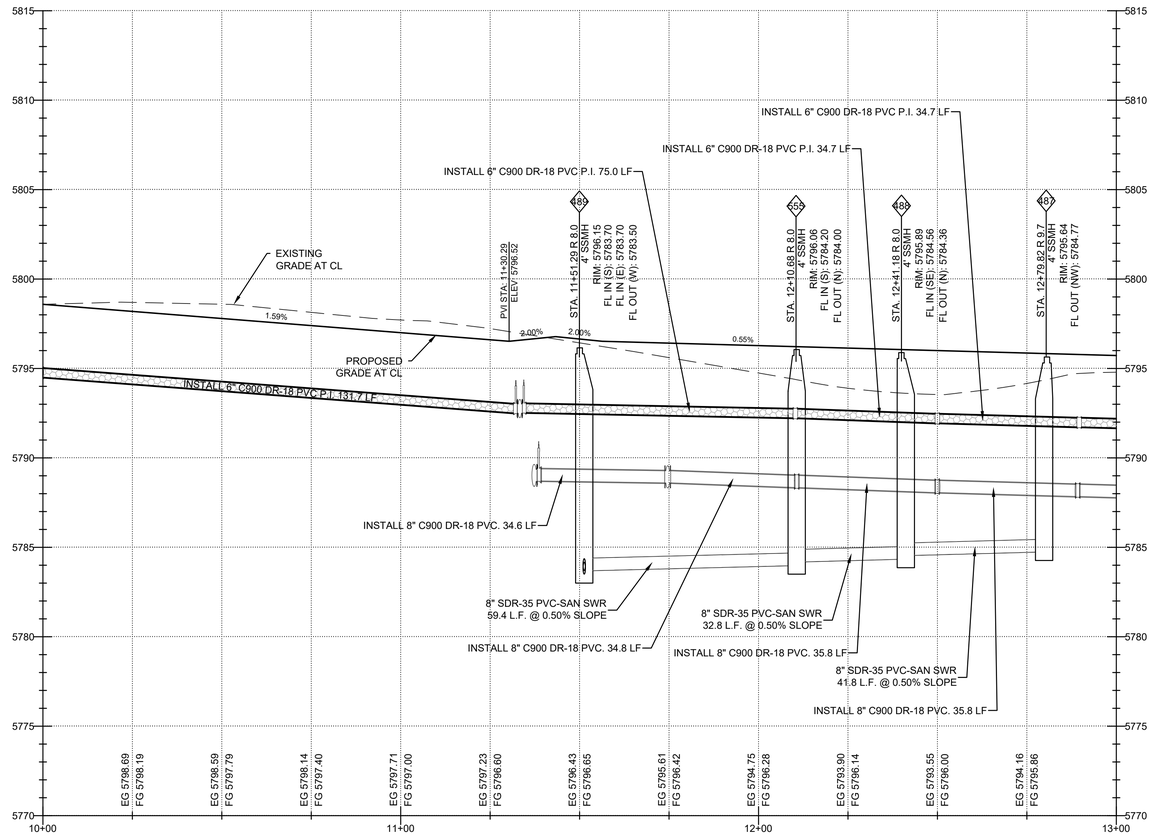
SATTAR N. TABRIZ
8/6/2024

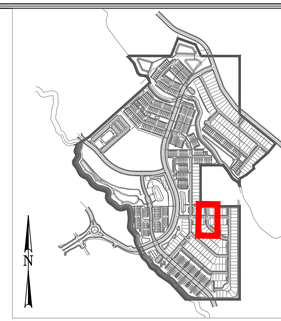
SHEET
PP-31

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 5

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R HORTON
DWG: ROAD 5.DWG
JOB No: 3891-DRH01-23
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REVISIONS
1	07/30/2024	GRADING REVISION

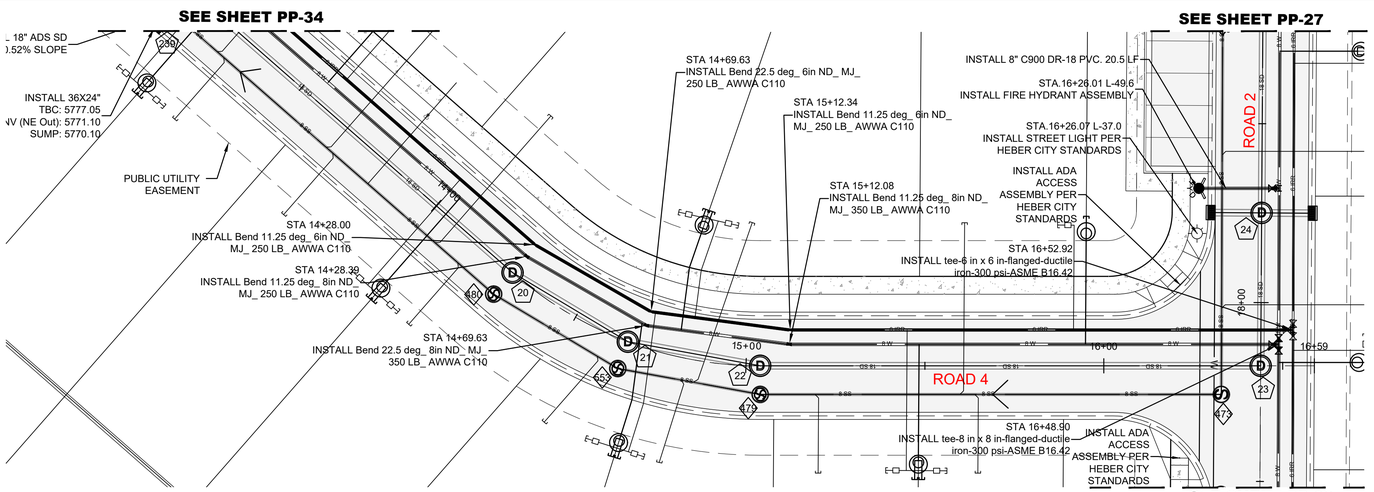
SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

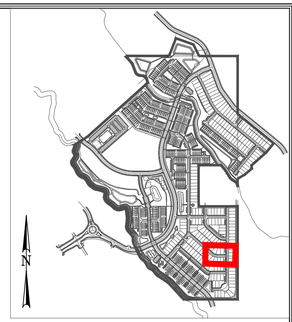
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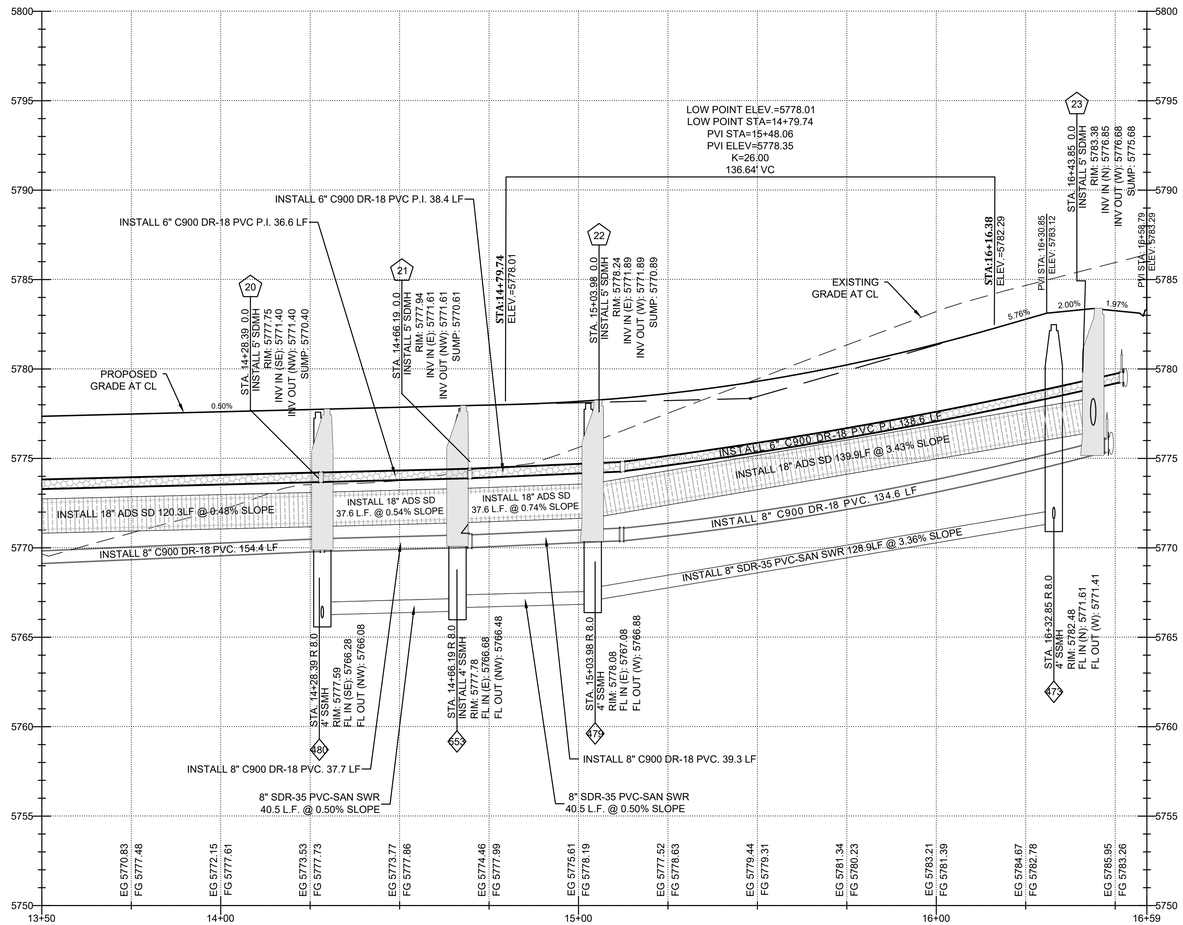
SHEET
PP-32

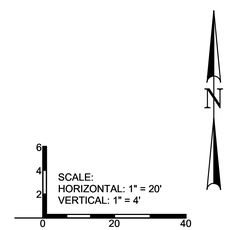
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208-2100
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OR (801) 536-6000
811 SOUTH 2760 WEST
SYRACUSE, UTAH 84075-1517

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Plan & Profiles\From Dev\Road 5.dwg TAB: PP-32 Road 5 PLOT DATE AND TIME: 8/6/2024 4:57 PM









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Vertical Scale: 1"=4'

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IT'S THE LAW
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1-800-662-4111
208-2100
(SALT LAKE METRO)
136 EAST 1000 SOUTH
PROVO, UTAH 84606
CHAPTER 1 UTAH RULES 10-17

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 4

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: ROAD 4.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 24"x36" - DIMENSIONS AND NOTES THAT PRECEDENCE

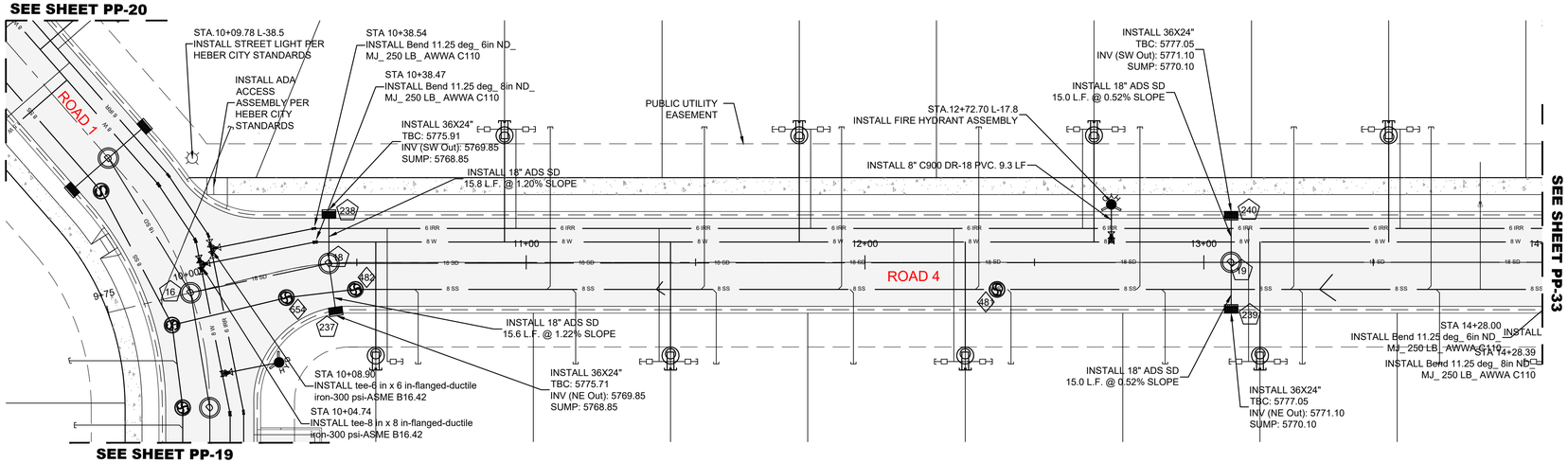
DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: A/S
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

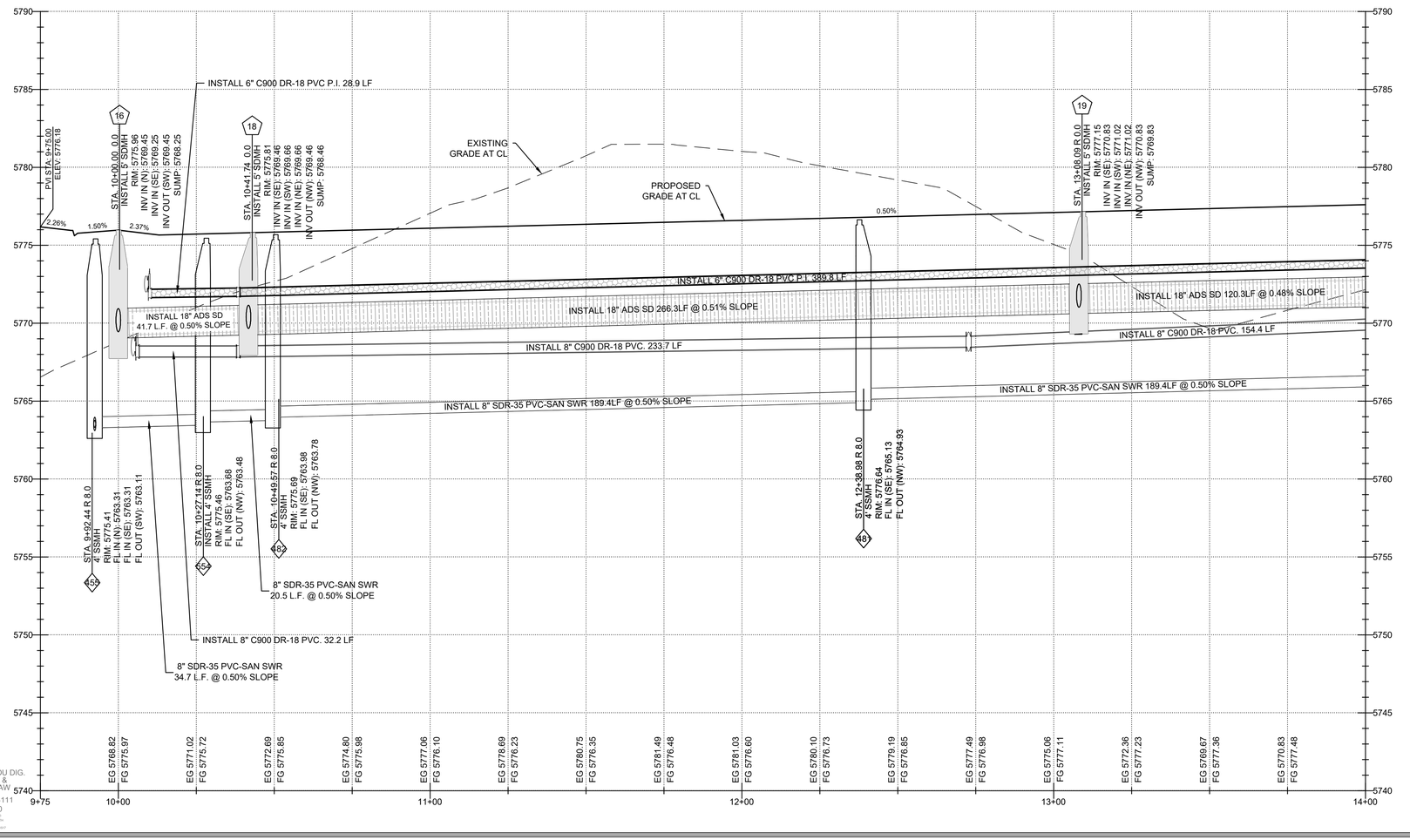
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PP-33

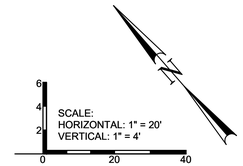
SEE SHEET PP-20



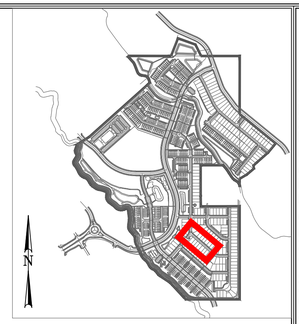
SEE SHEET PP-19

SEE SHEET PP-33





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'



HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT

Roadway Plan & Profile- Road 4

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: ROAD 4.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 24"x36". DIMENSIONS AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS

1	07/30/2024	GRADING REVISION

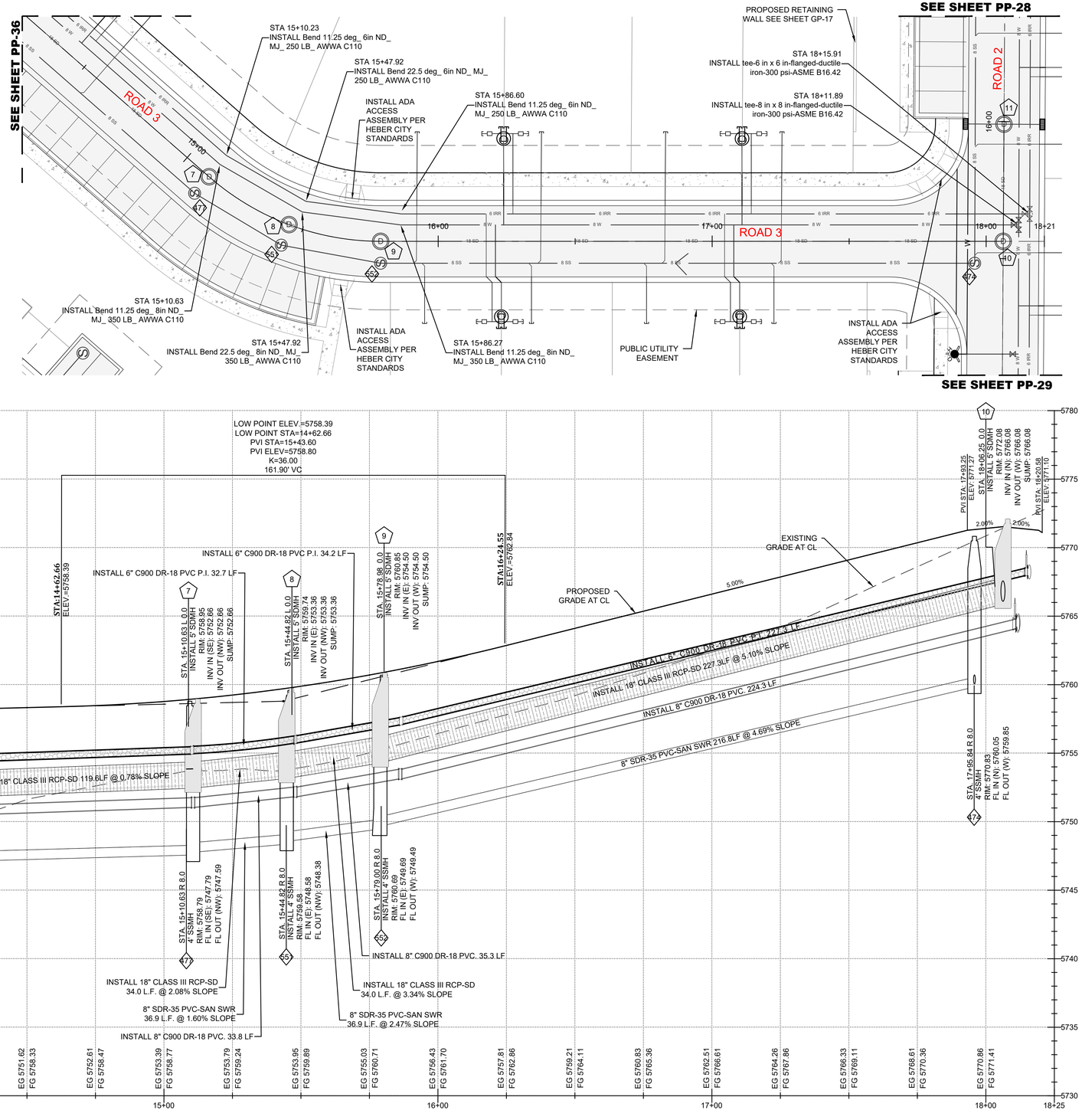


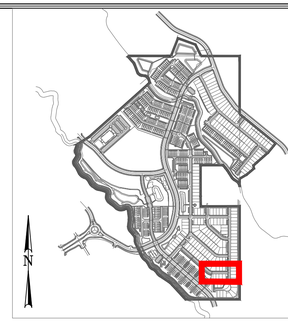
SHEET

PP-34

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SANDY, UTAH 84070

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Plan & Profiles\From Dev\Road 4.dwg TAB: PP-34 Road 4 PLOT DATE AND TIME: 8/7/2024 8:41 PM





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 3

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: ROAD 3.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 in x 34 in. DIMENSIONS AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: A/S
DATE: 07/29/2024

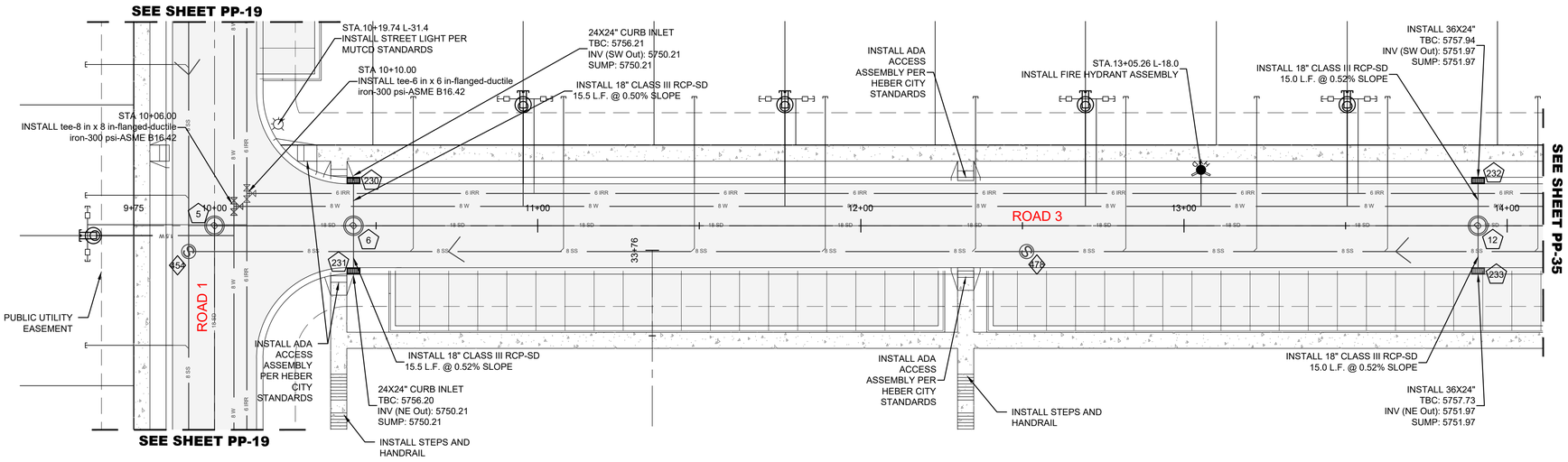
REVISIONS

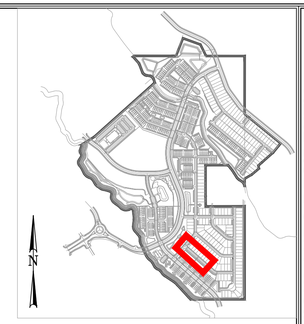
1	07/30/2024	GRADING REVISION

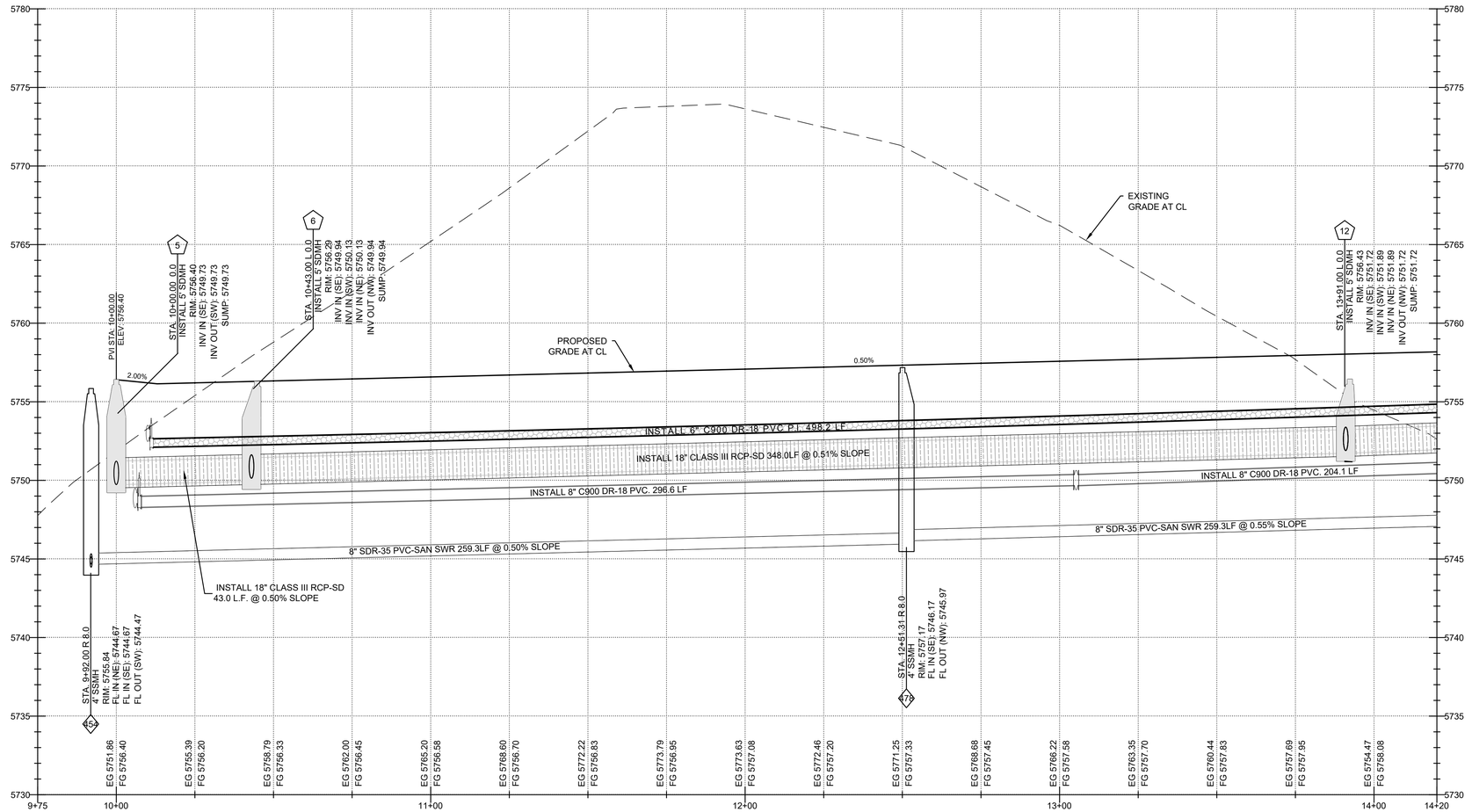
SHEET
PP-35

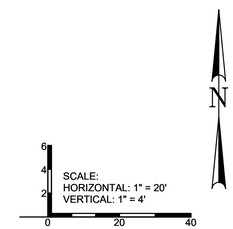
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Vertical Scale: 1"=4'



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OGDEN, UTAH 84402-6041

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT

Roadway Plan & Profile- Road 3

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: ROAD 3.DWG
JOB No: 3891-DRH01-23

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DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS

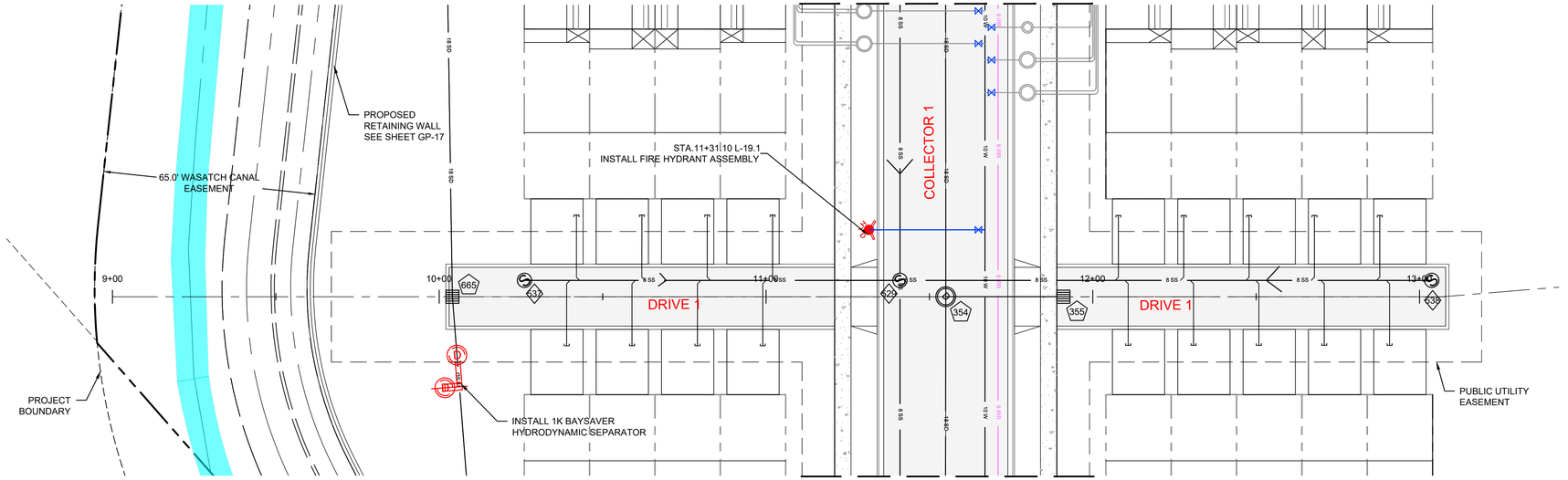
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ANTHONY J. SWEET
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

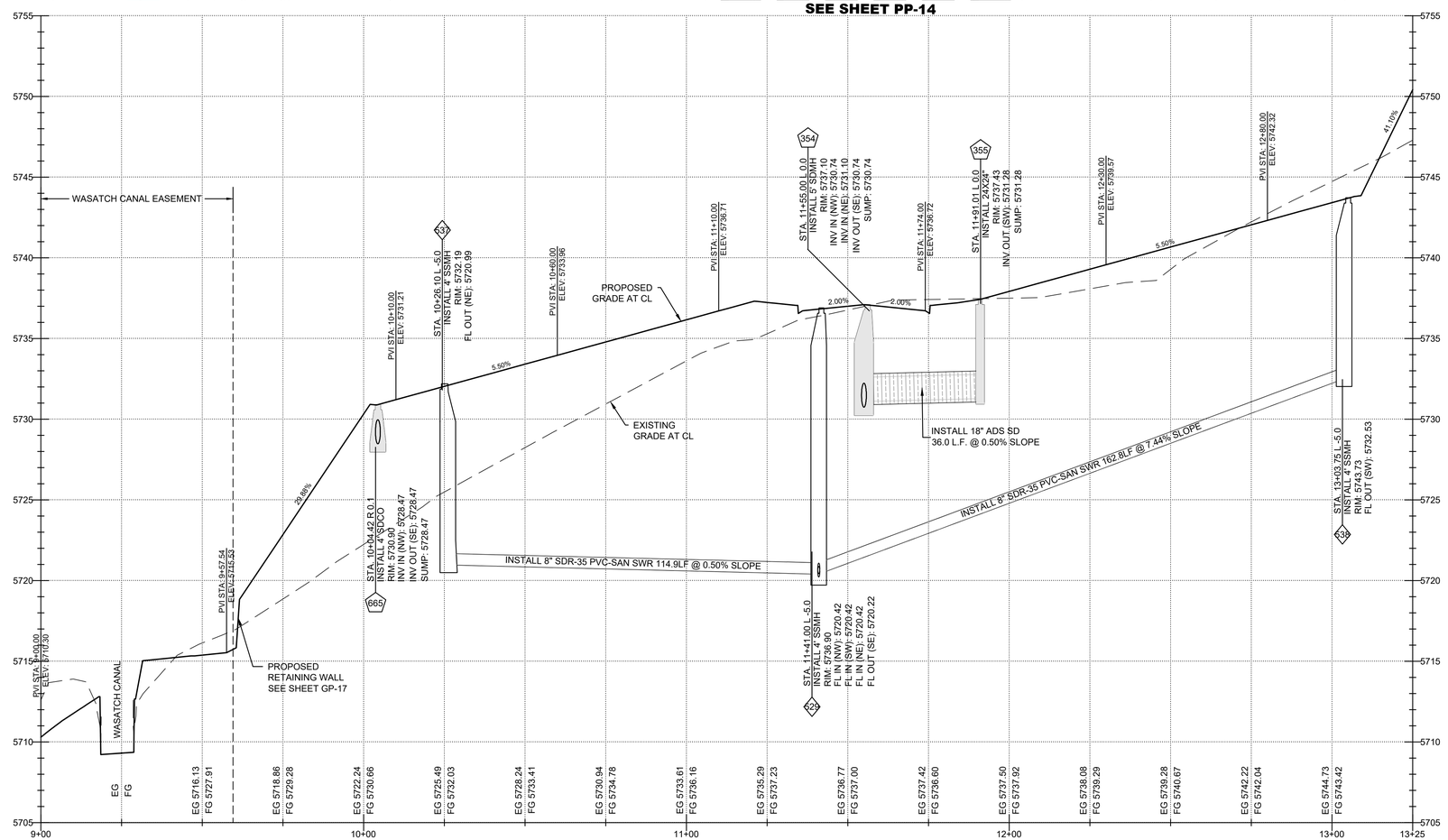
SHEET

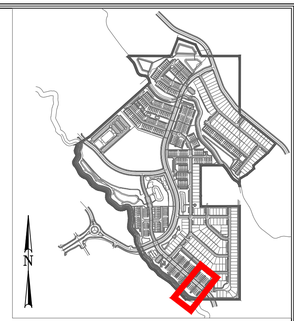
PP-36

SEE SHEET PP-13



SEE SHEET PP-14





HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 1

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: DRIVE 1.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in = 1/2SIZE(50%) AND NOTES TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

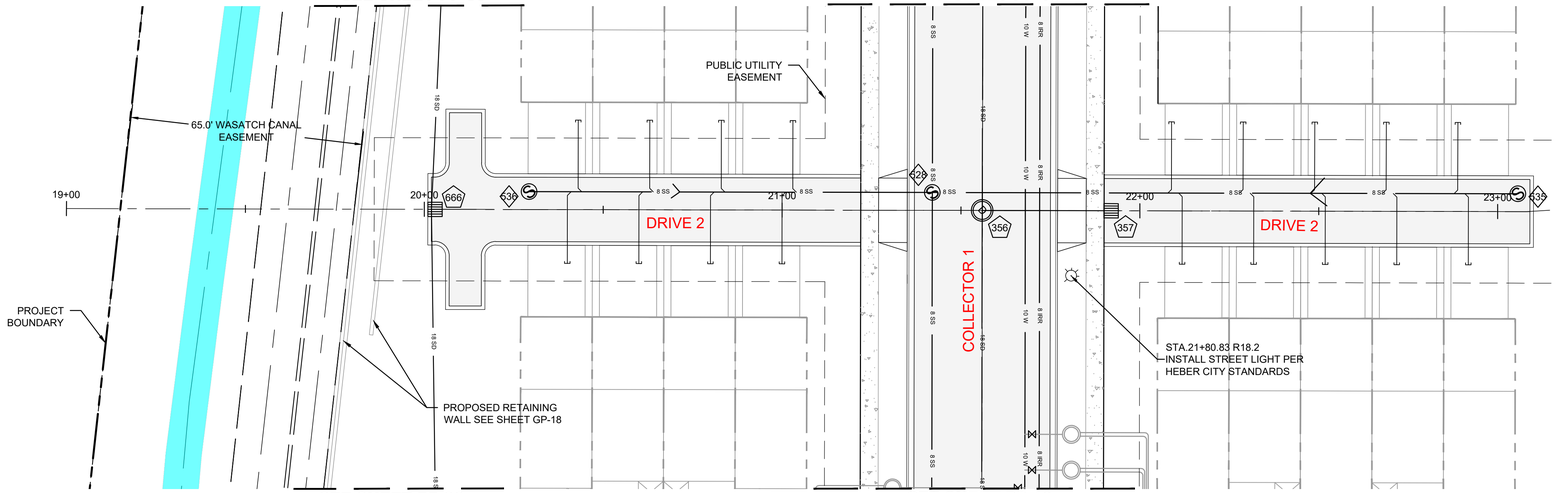
SHEET
PP-37

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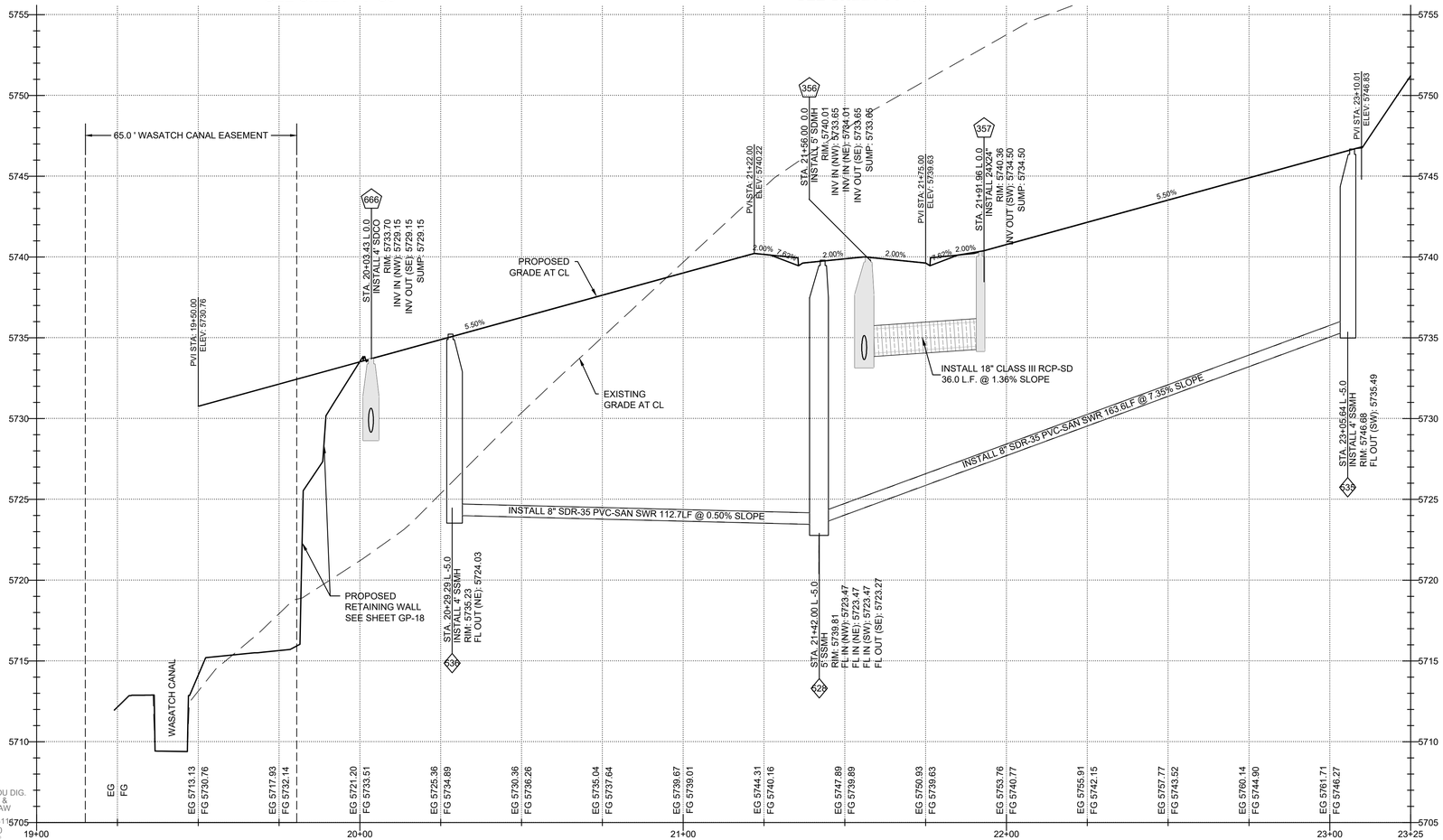
SEE SHEET PP-85

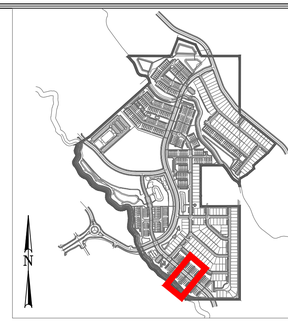
SEE SHEET PP-13



SEE SHEET PP-86

SEE SHEET PP-13





HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 2

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: DRIVE 2.DWG
JOB No. 3691-DRH01-23
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DESIGN BY: WARD
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REVISIONS

1	07/30/2024	GRADING REVISION

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

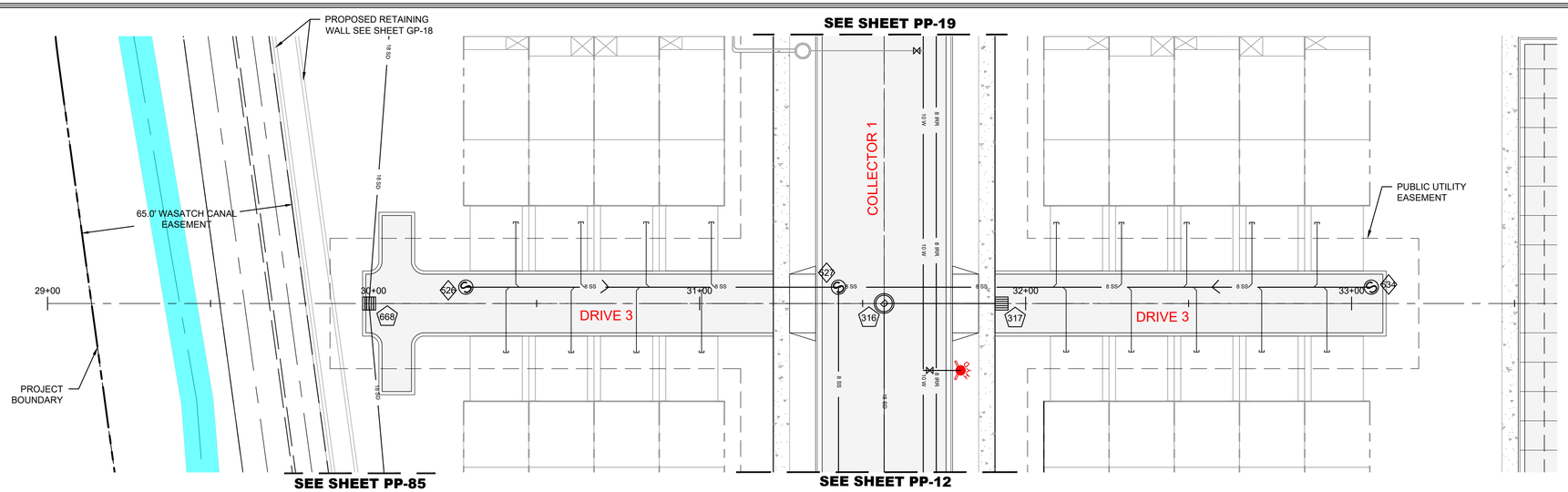
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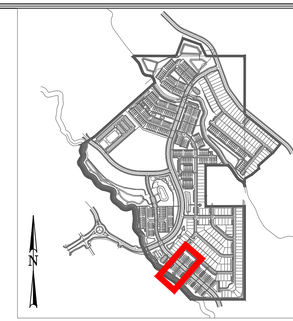
SATTAR N. TABRIZ
8/6/2024

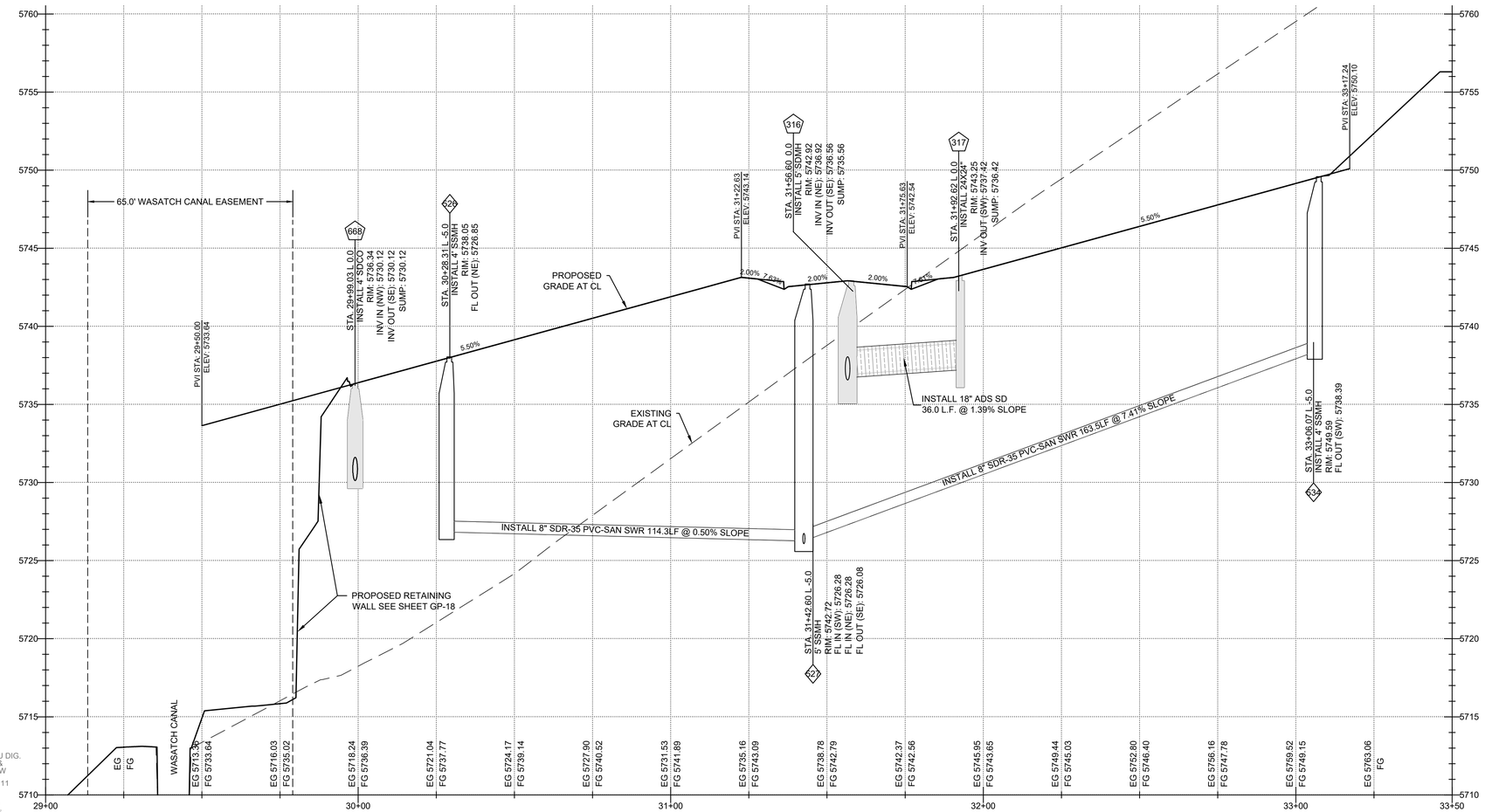
SHEET
PP-38

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SCALE:
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VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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CHAPIN, UTAH 84525-1017

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Plan & Profiles\From Dev\Drive 3.dwg TAB: PP-39 Drive 3 PLOT DATE AND TIME: 8/7/2024 9:56 AM

HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Drive 3

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

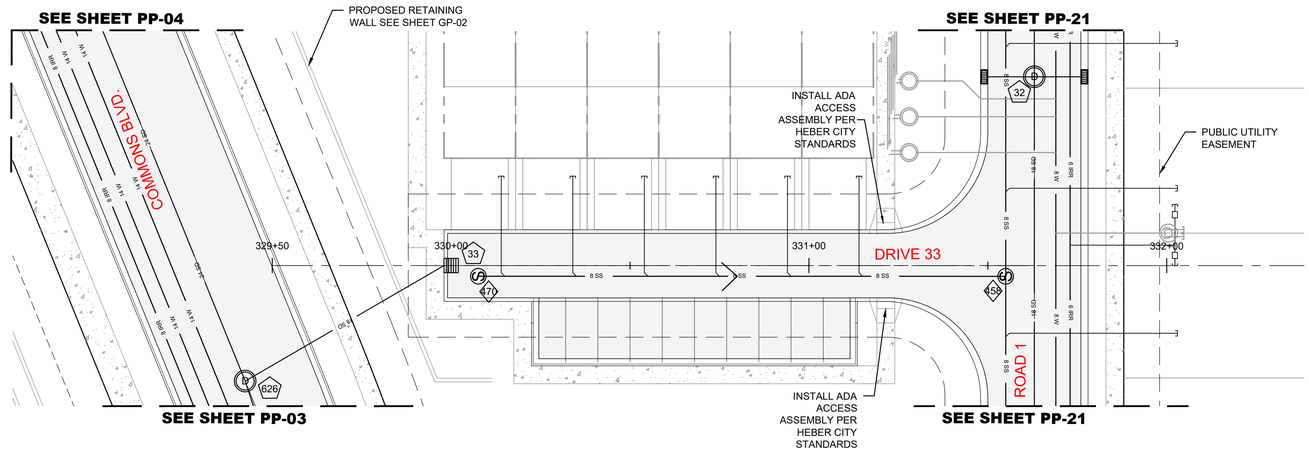
CLIENT: D.R.HORTON
DWG: DRIVE 3.DWG
JOB No. 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22 in x 34 in = 33MES/SCRN // ADD NOTES TAKE PRECEDENCE

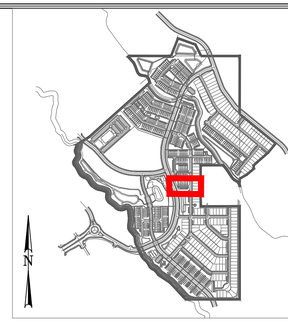
DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

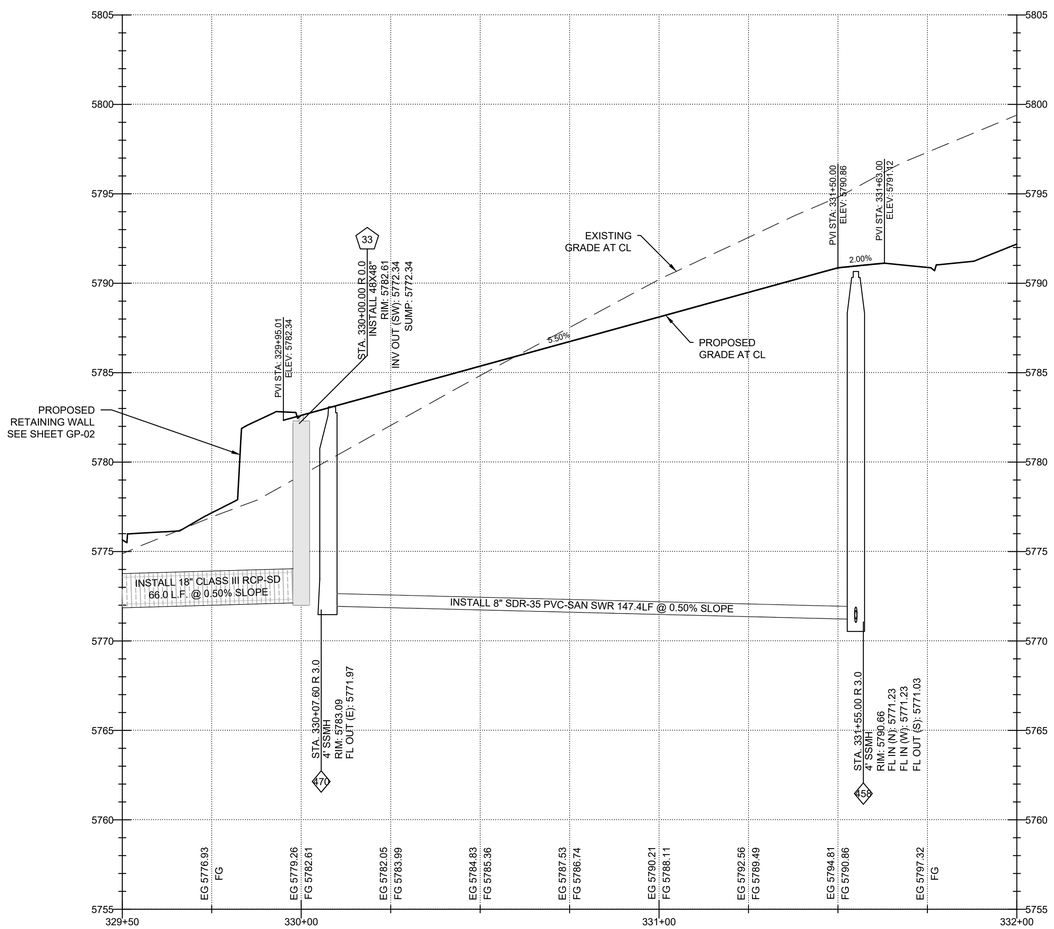
REVISIONS
1 07/30/2024 GRADING REVISION

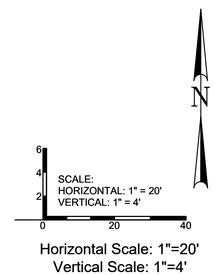


SHEET
PP-39









Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 33

231 West 800 South Salt Lake City, Utah 84101
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PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: DRIVE 33.DWG
JOB No: 3891-DRH01-23
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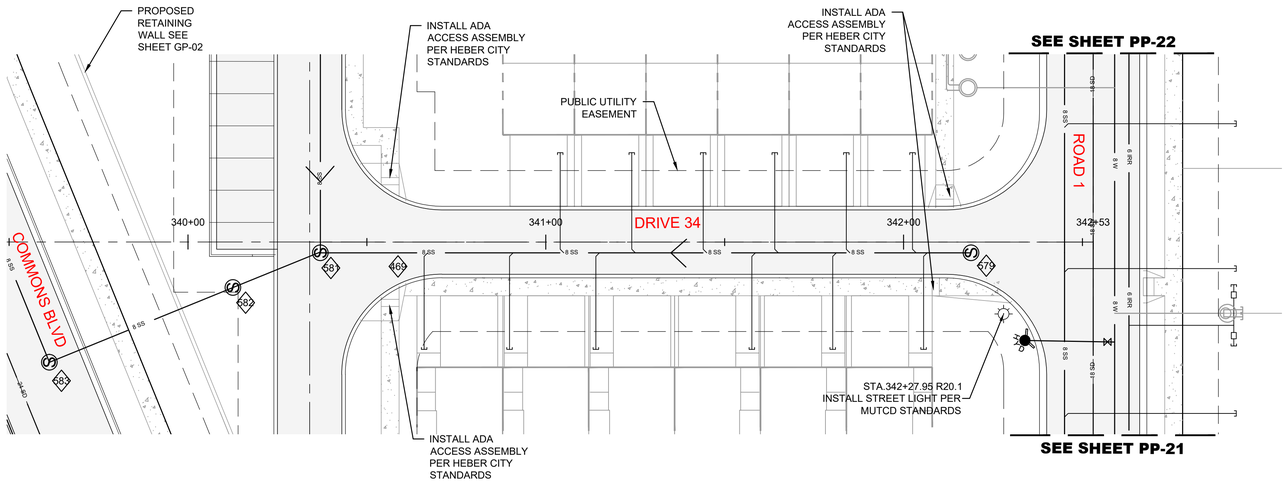
REVISIONS
1 07/30/2024 GRADING REVISION

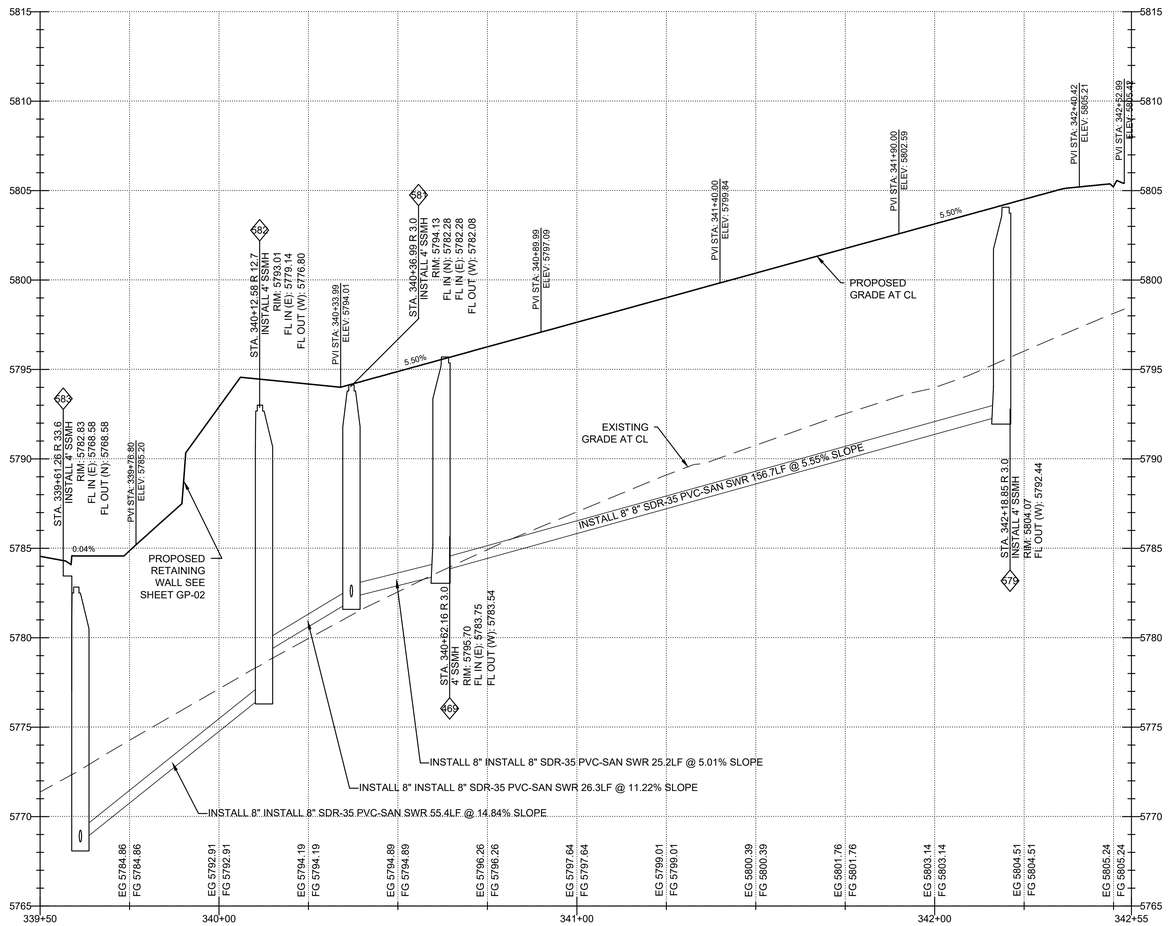
SATTAR N. TABRIZ
8/6/2024

SHEET
PP-40

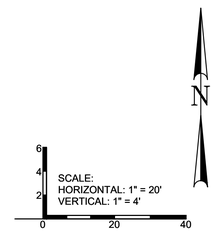
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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 34

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
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PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: DRIVE 34.DWG
JOB No: 3891-DRH01-23
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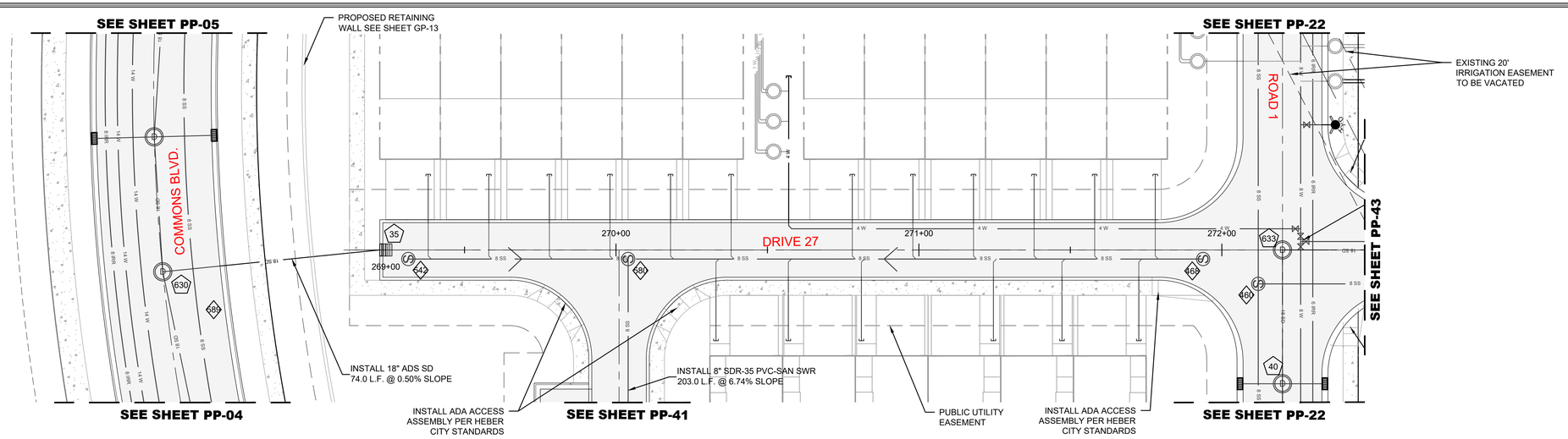
1	07/30/2024	GRADING REVISION

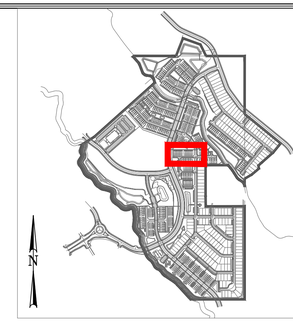
SATTAR N. TABRIZ
8196804
REGISTERED PROFESSIONAL ENGINEER
STATE OF UTAH
07/30/2024

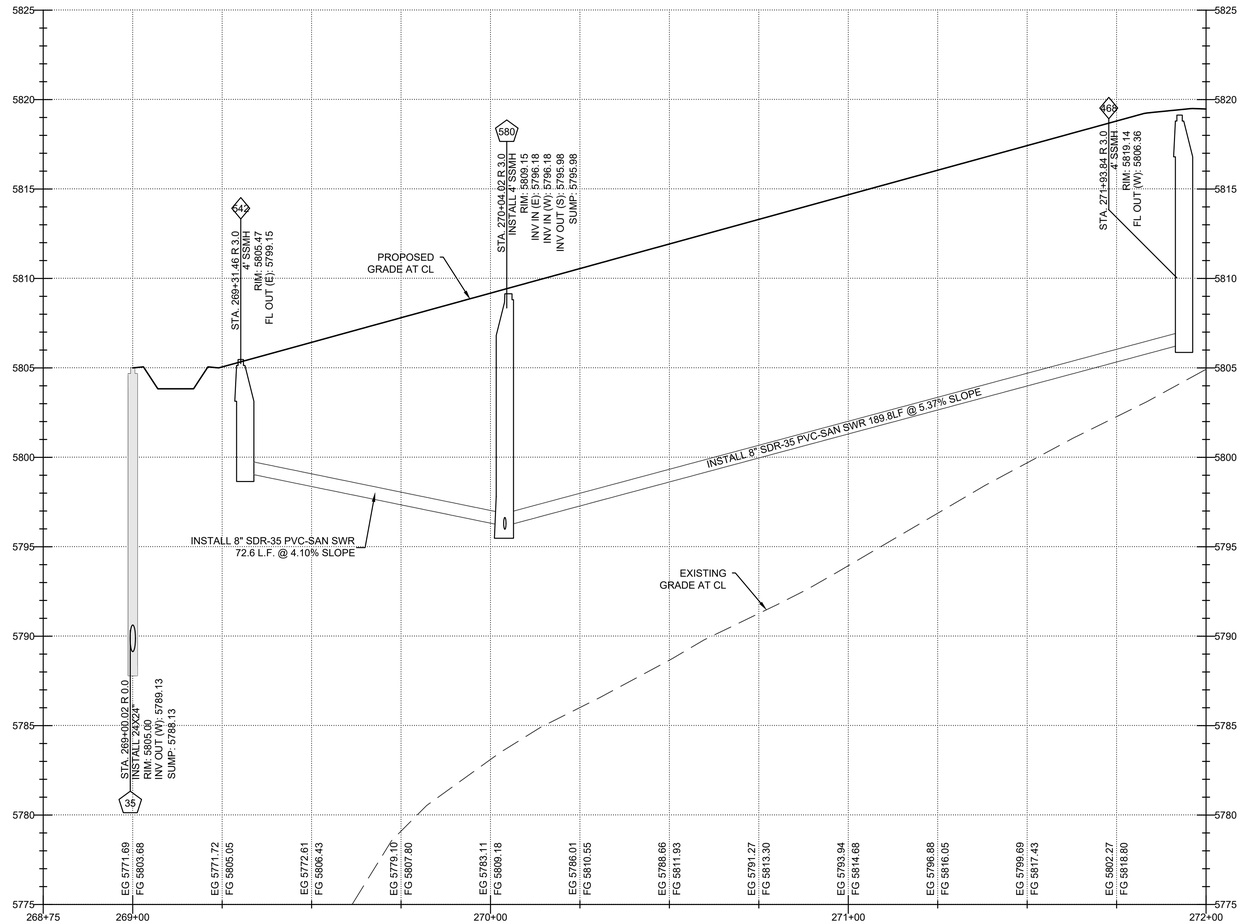
SHEET
PP-41

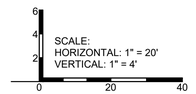
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COPPER, UTAH 84020-1017

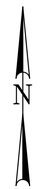








Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'



HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 27

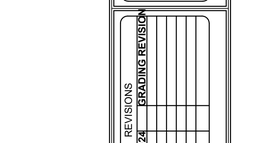
231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: DRIVE 27.DWG
JOB No: 3891-DRH01-23
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS

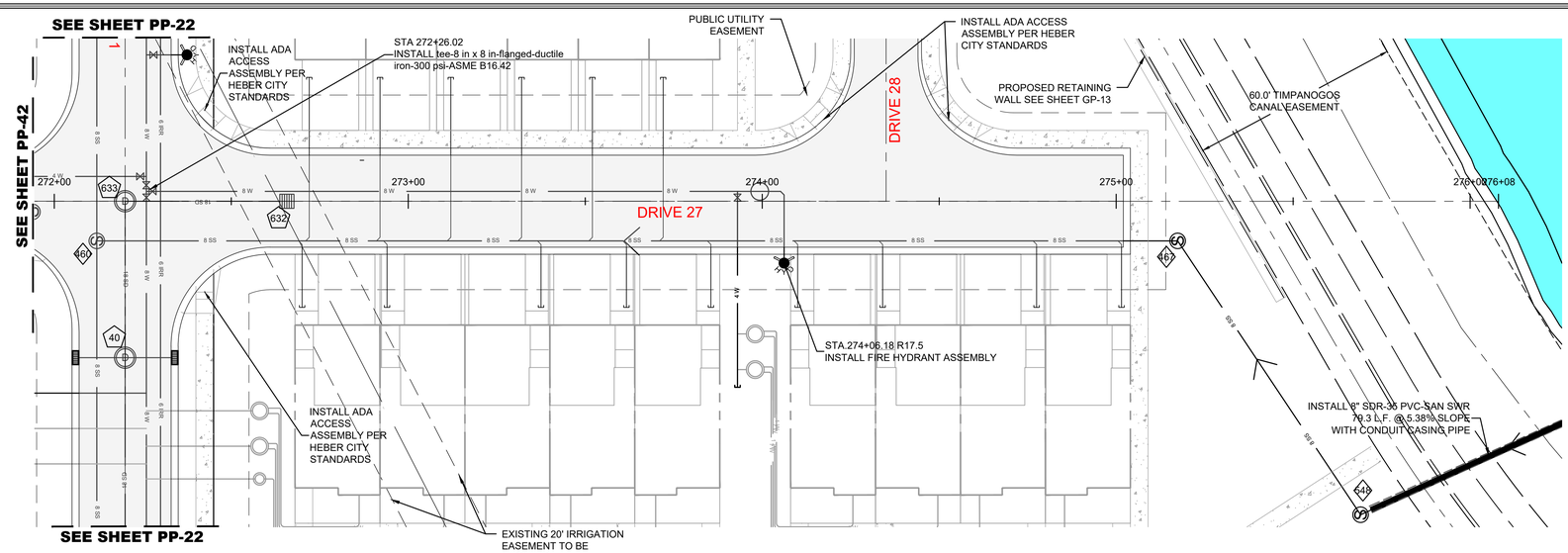
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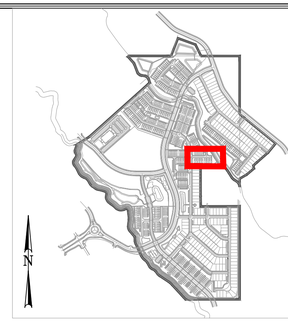


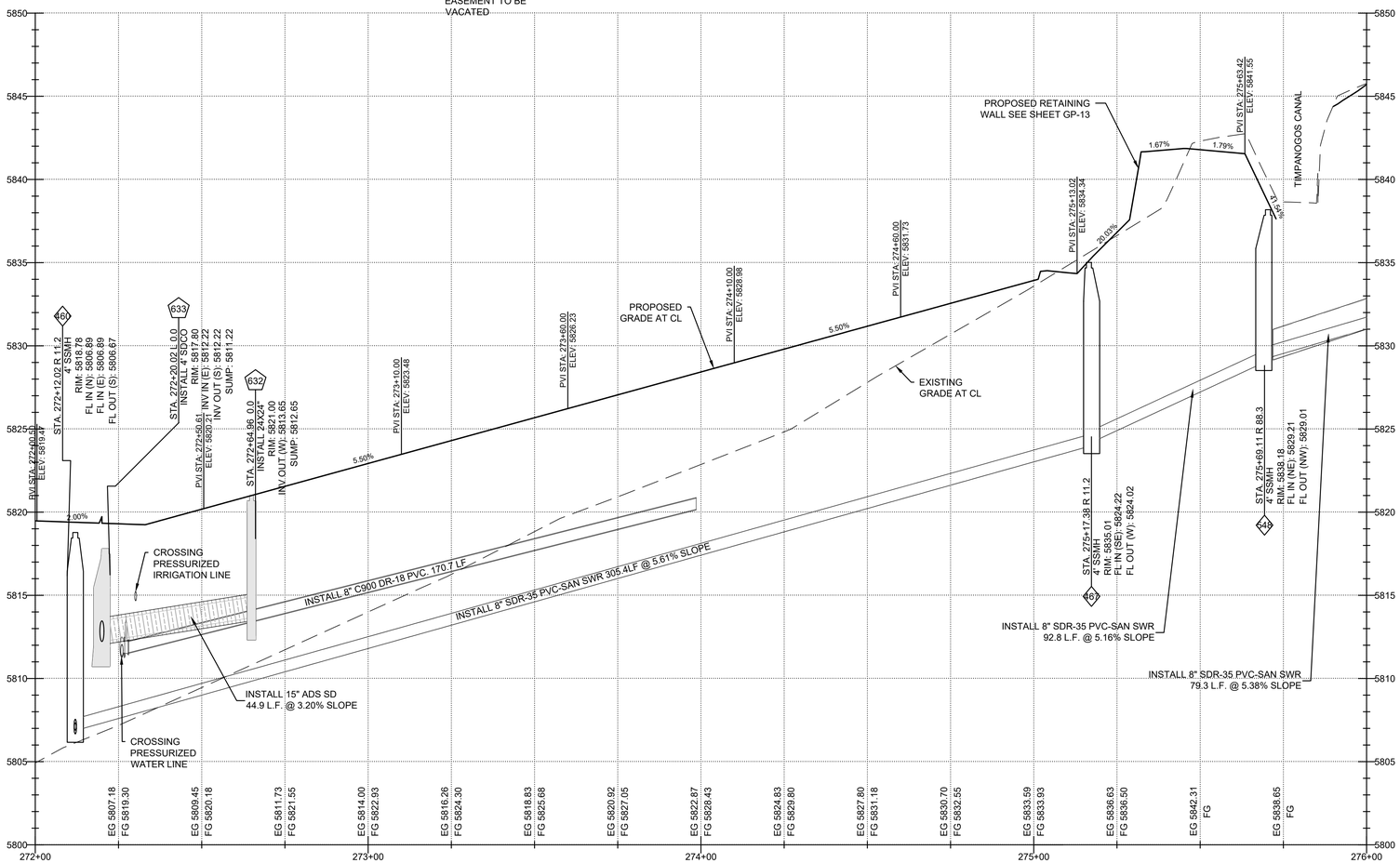
SHEET
PP-42

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Plan & Profiles\From Dev\Drive 27.dwg TAB: PP-42 Drive 27 PLOT DATE AND TIME: 8/7/2024 2:31 PM

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SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 27

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: DRIVE 27.DWG
JOB No: 3691-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in (1/2BS/ISO/ANSI) AND NOTES MAY PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

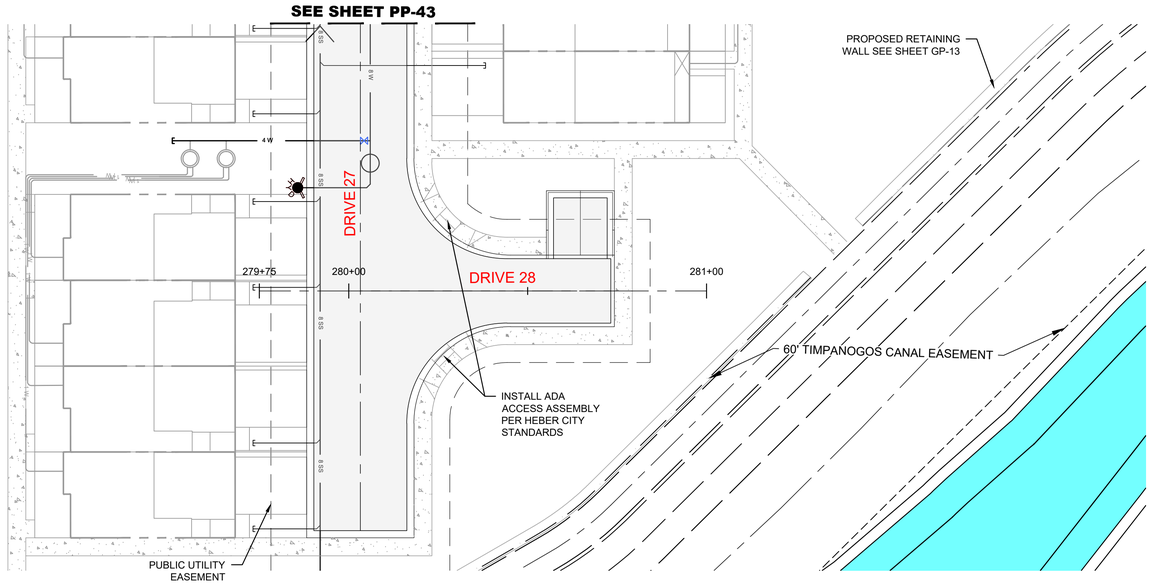
PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8164804
STATE OF UTAH

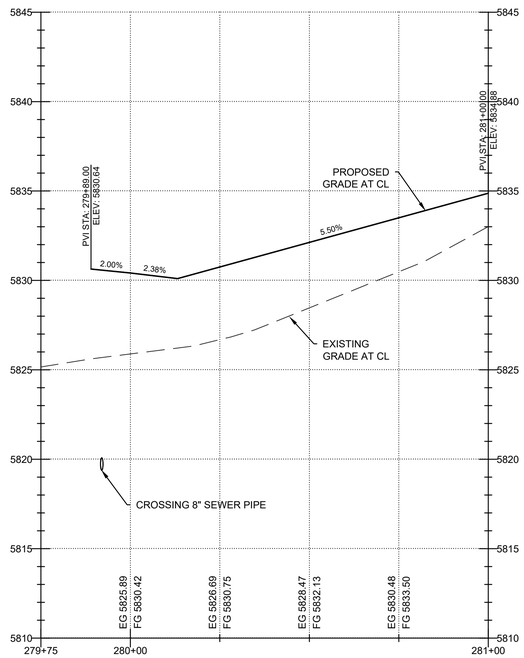
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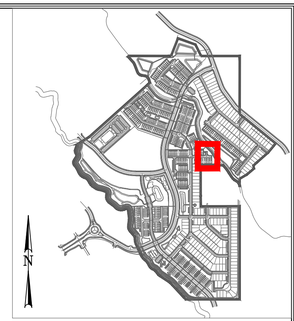
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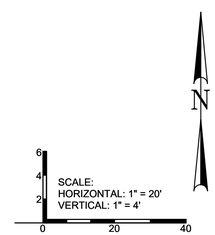
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Roadway Plan & Profile- Drive 28

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Ward Engineering Group
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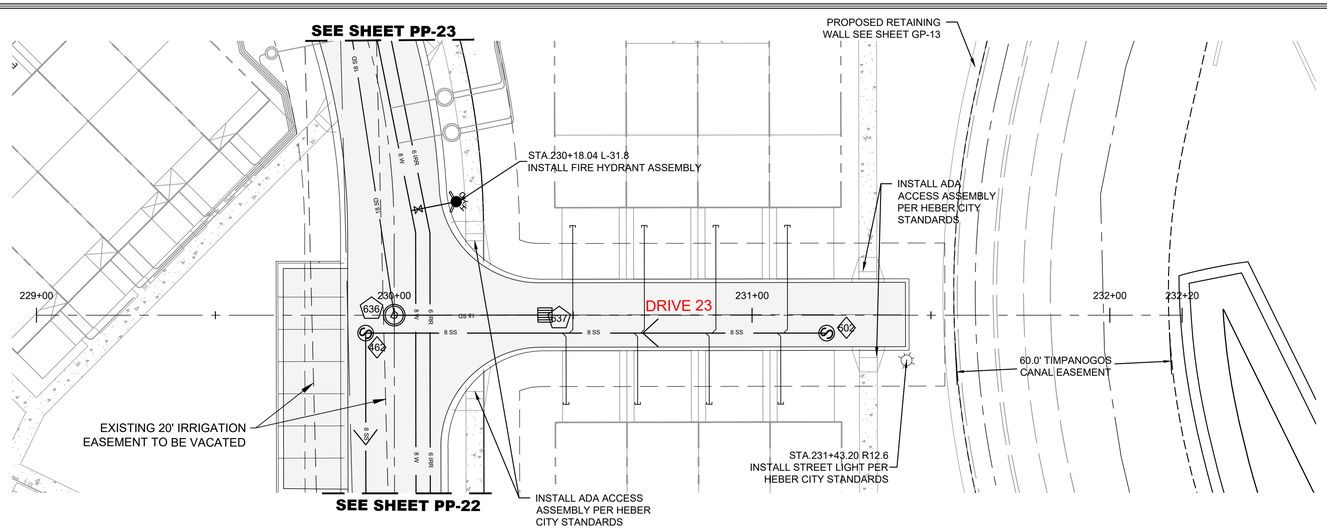
CLIENT: D.R.HORTON
DWG: DRIVE 28.DWG
JOB No: 3891-DRH01-23
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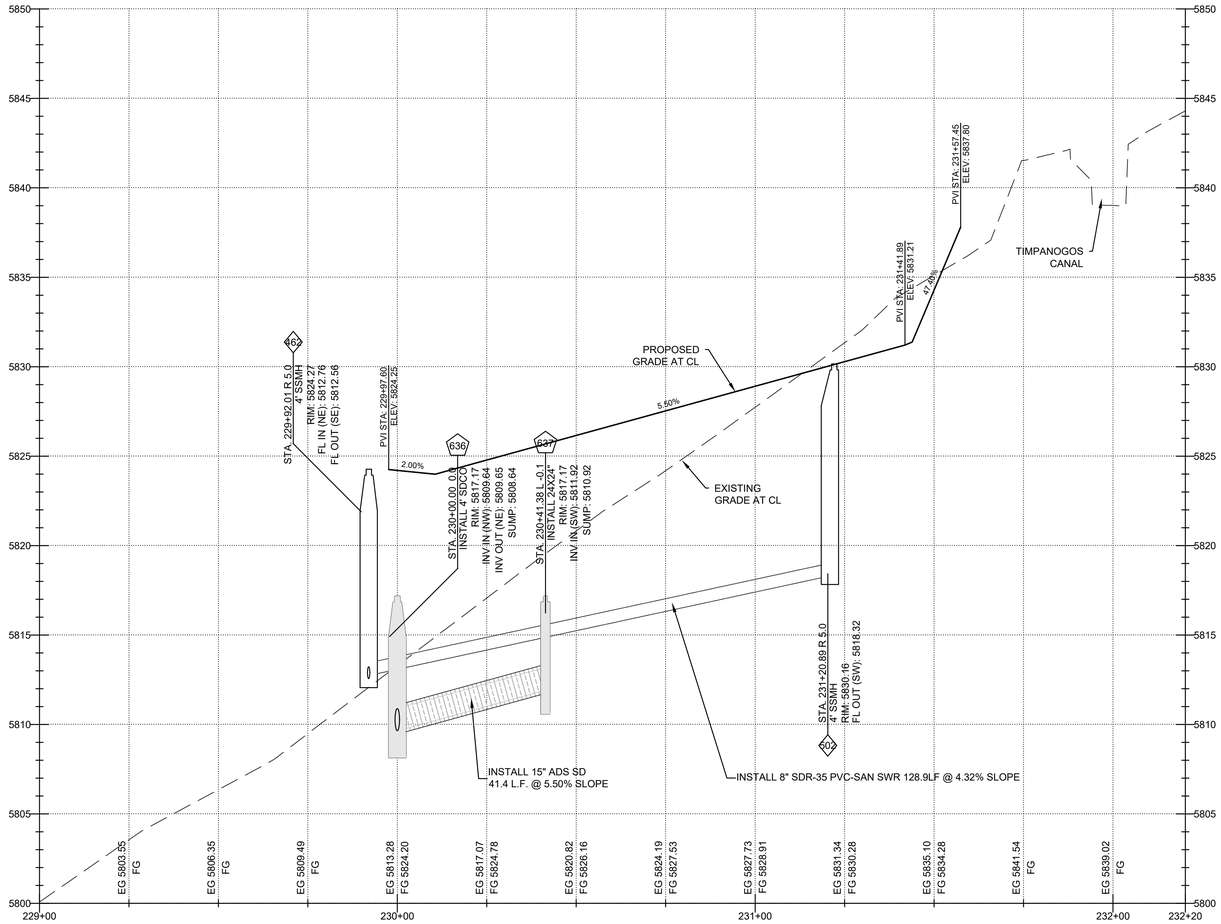
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DESIGN BY WARD
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DATE: 07/29/2024

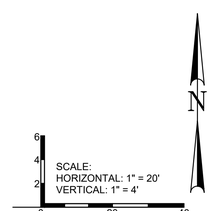
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1 07/30/2024 GRADING REVISION

SATTAR N. TABRIZ
8/6/2024

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Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'



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Roadway Plan & Profile- Drive 23

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CLIENT: D.R.HORTON
DWG: DRIVE 23.DWG
JOB No. 3891-DRH01-23
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DATE: 07/29/2024

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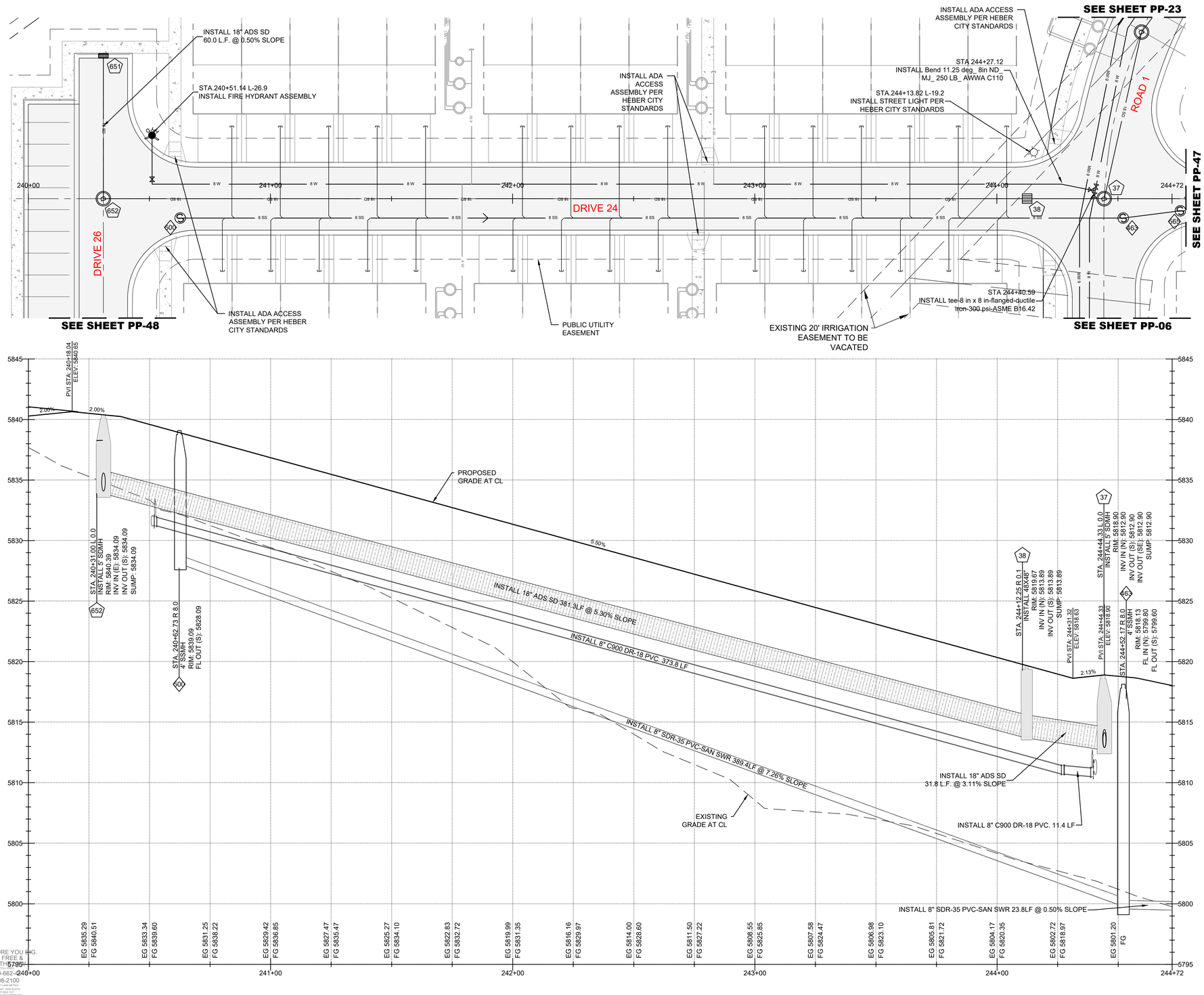
1	07/30/2024	GRADING REVISION

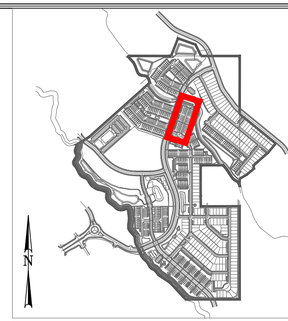


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PP-45

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Vertical Scale: 1"=4'

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Roadway Plan & Profile- Drive 24

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Ward Engineering Group
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CLIENT: D.R HORTON
DWG: DRIVE 24.DWG
JOB No: 3891-DRH01-23
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DATE: 07/29/2024

REVISIONS

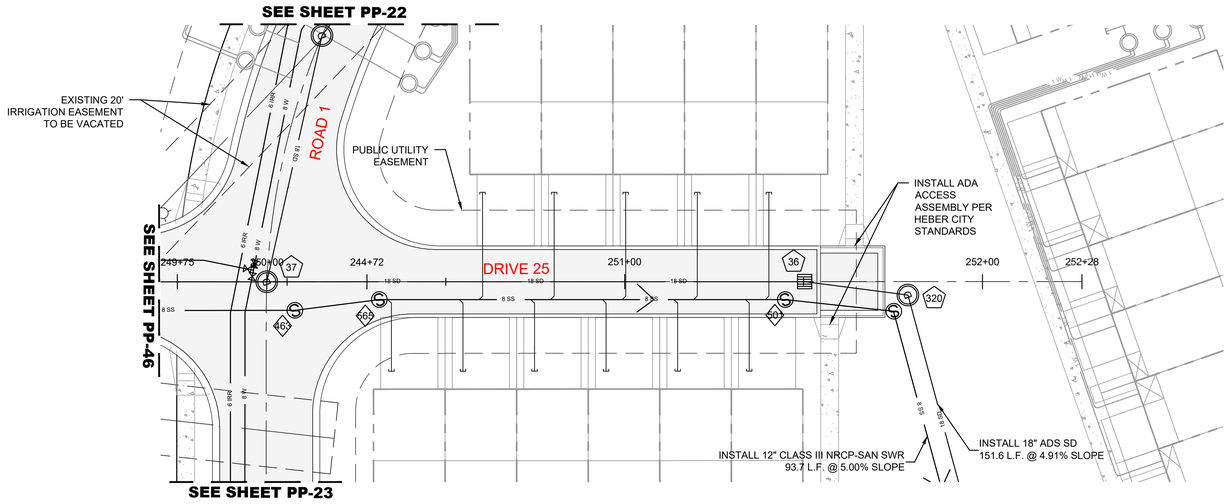
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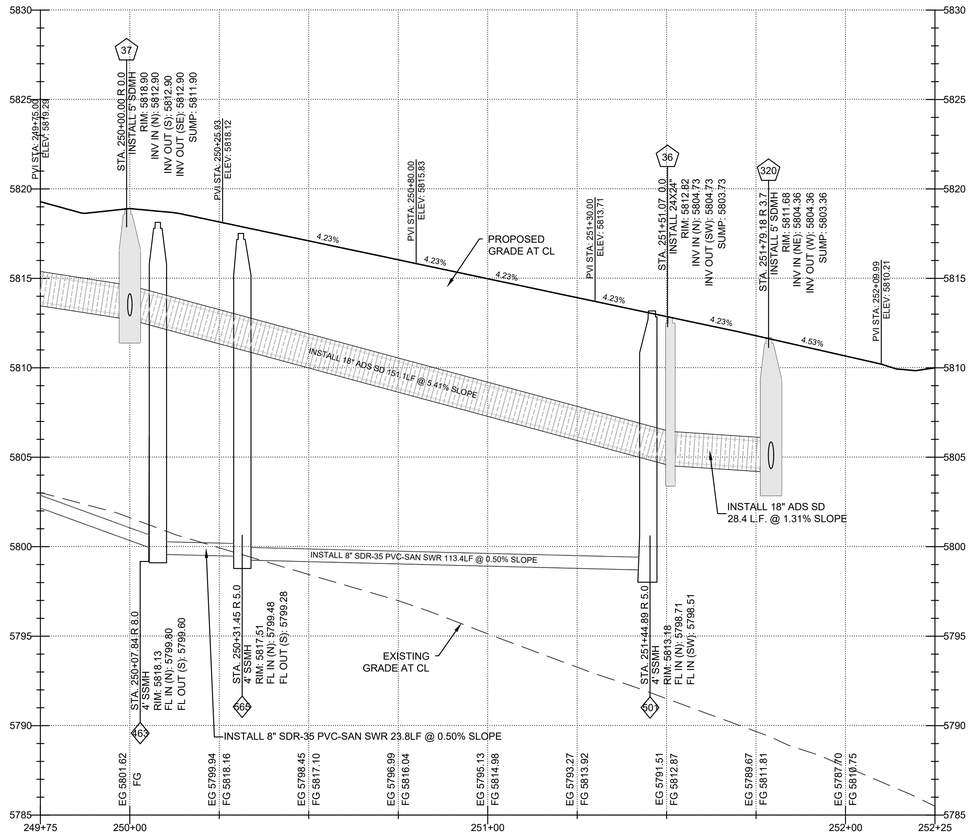
PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8160604
STATE OF UTAH

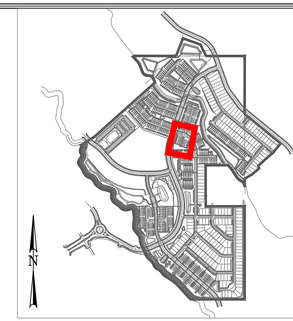
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PP-46

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Roadway Plan & Profile- Drive 25

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CLIENT: D.R.HORTON
DWG: DRIVE 25.DWG
JOB No: 3891-DRH01-23
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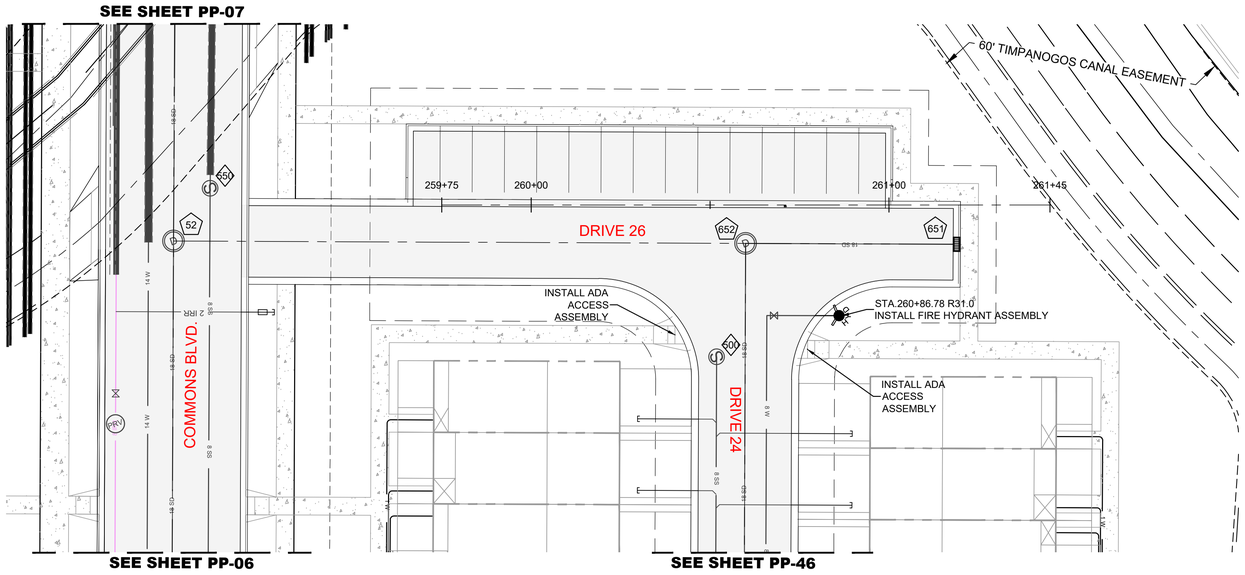
REVISIONS
1 07/30/2024 GRADING REVISION

STATE OF UTAH
SATTAR N. TABRIZ
8164804
PROFESSIONAL ENGINEER

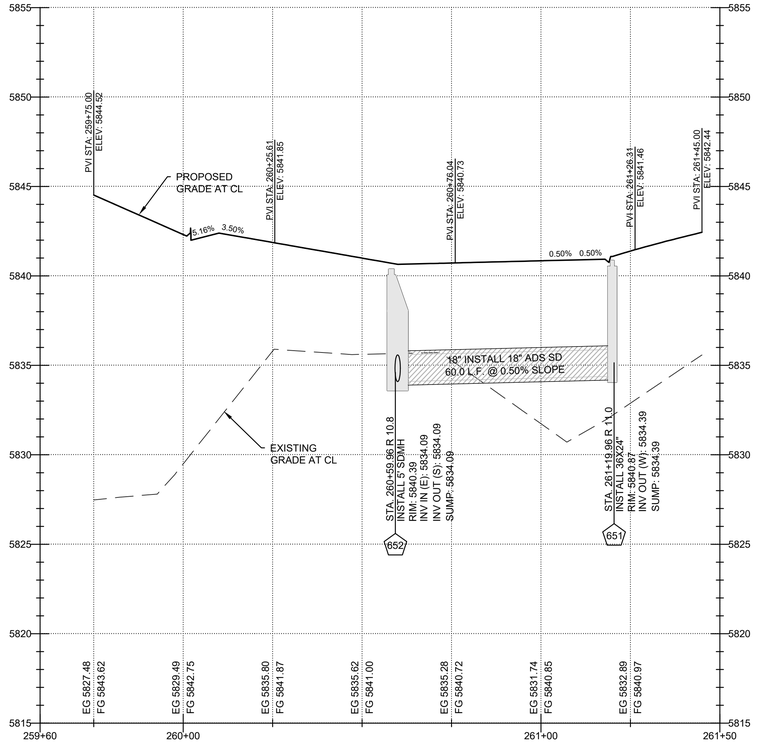
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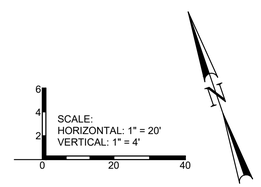
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Roadway Plan & Profile- Drive 26

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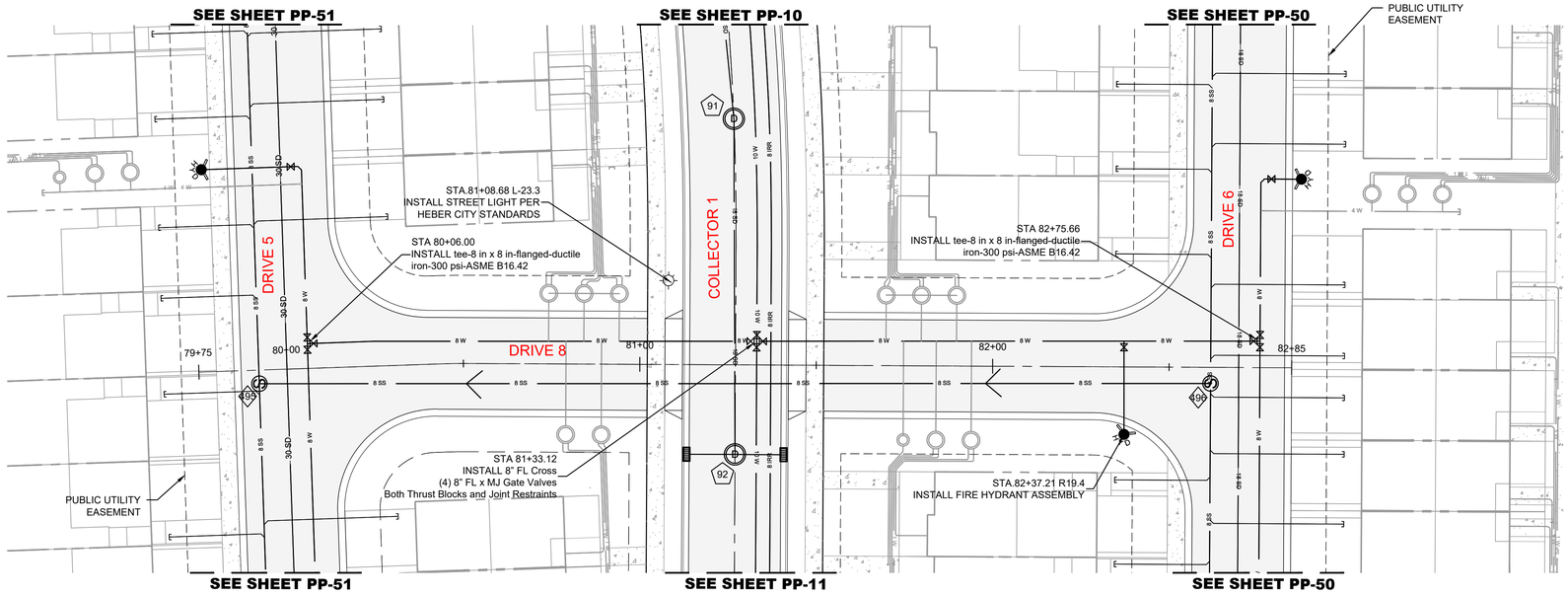
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DWG: DRIVE 26.DWG
JOB No. 3891-DRH01-23
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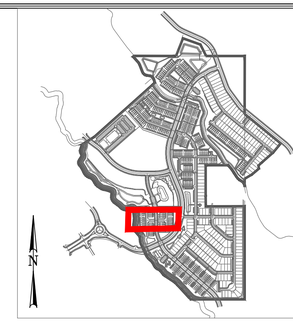
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CHECKED BY AJS
DATE: 07/29/2024

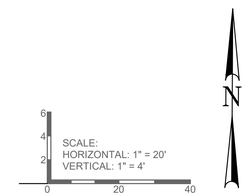
REVISIONS
1 07/30/2024 GRADING REVISION

ASHISH SATTAR N. TABRIZ
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SHEET
PP-48







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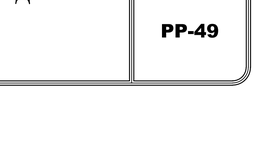
HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 8

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DWG: DRIVE 8.DWG
JOB No: 3891-DRH01-23
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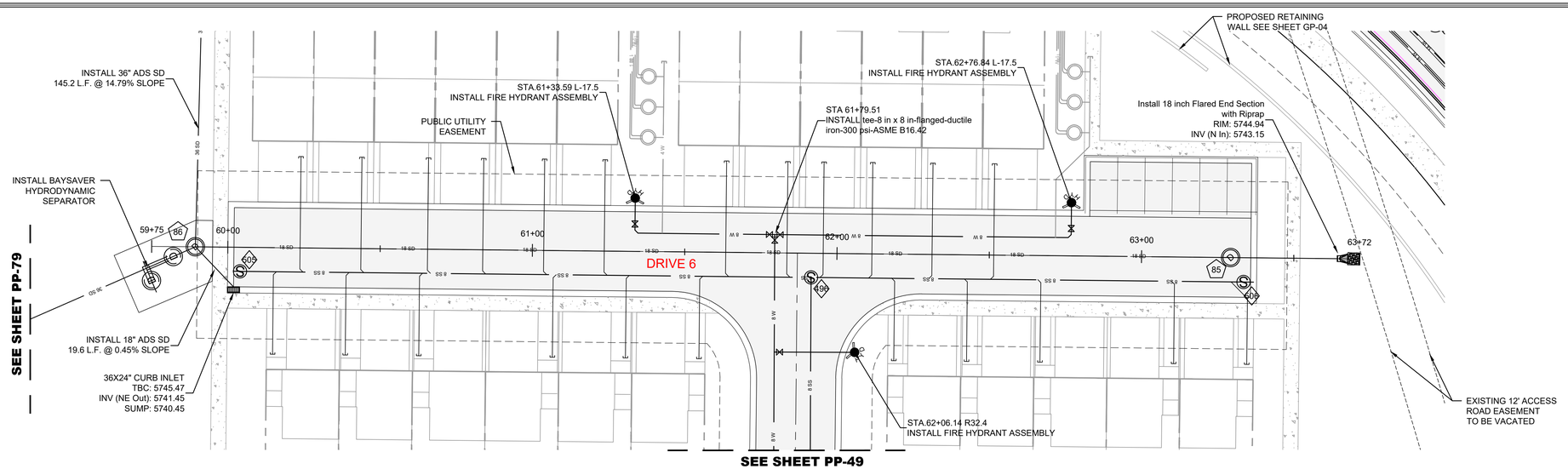
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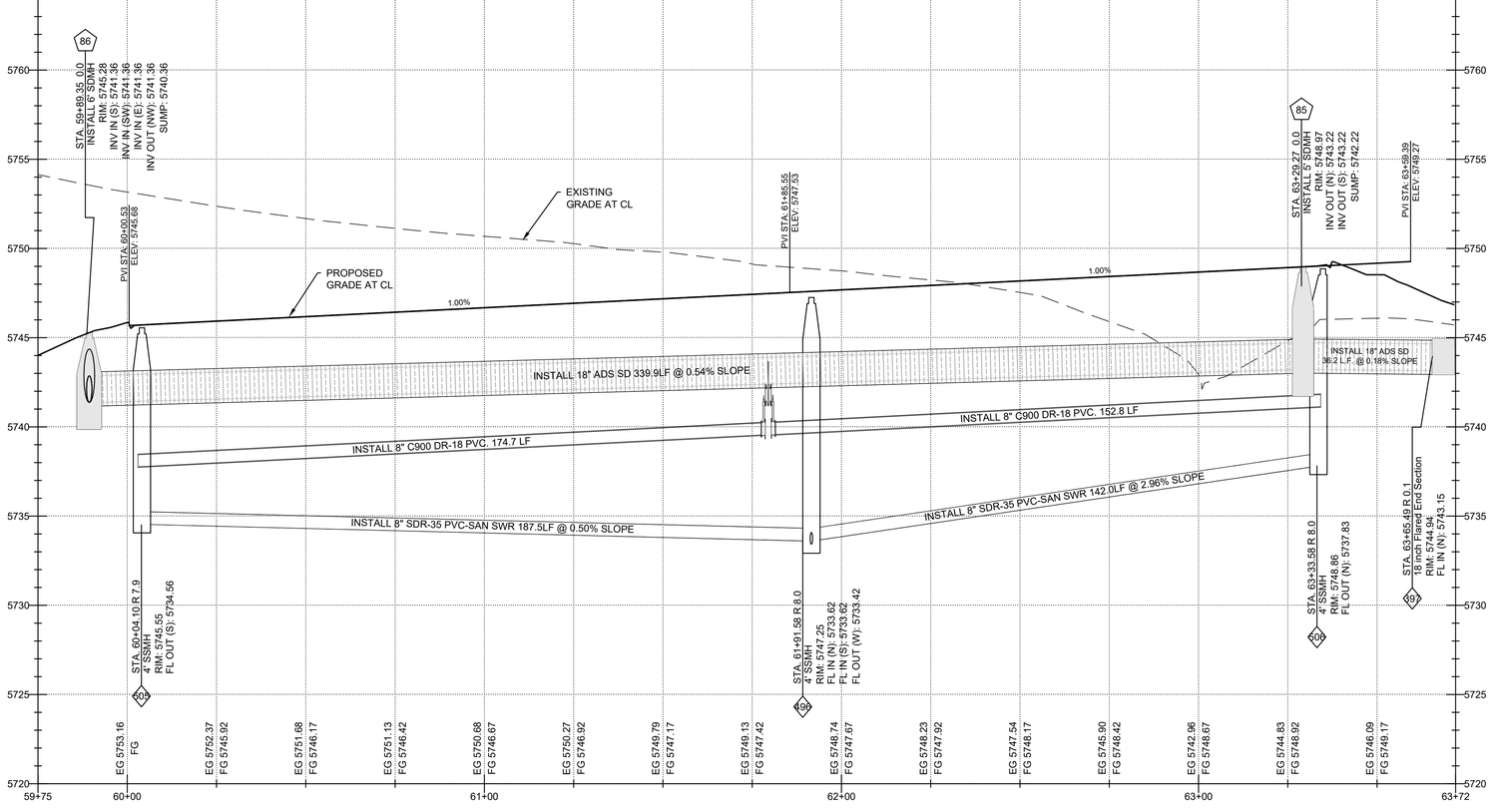


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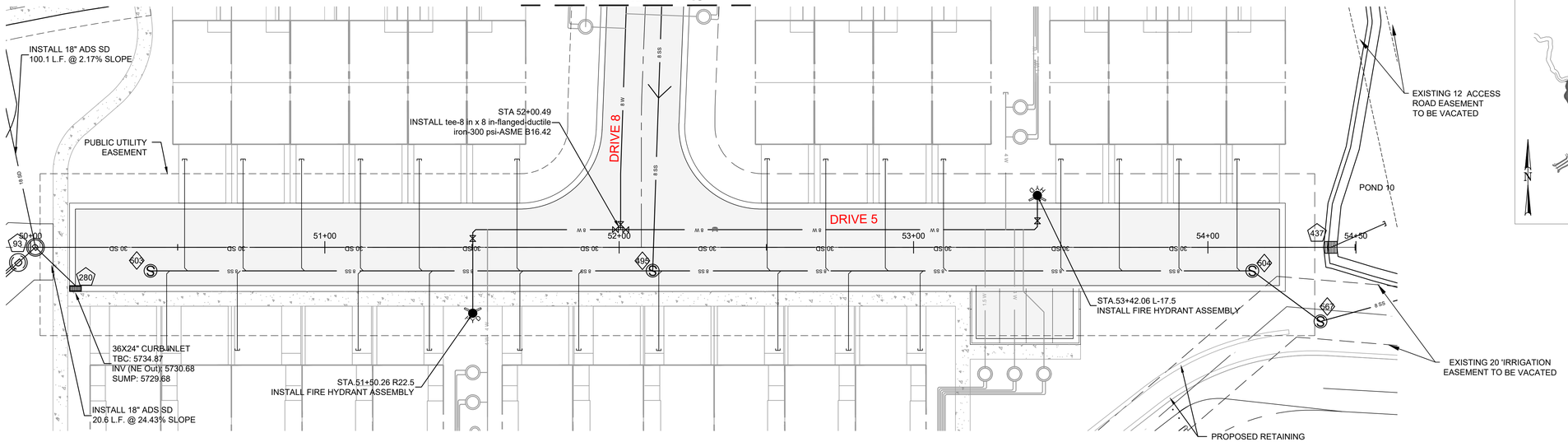
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DWG: DRIVE 6.DWG
JOB No: 3891-DRH01-23
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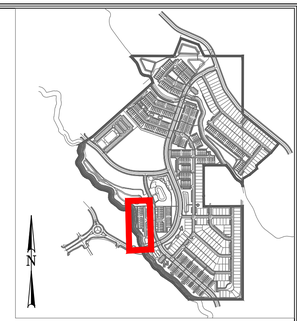
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

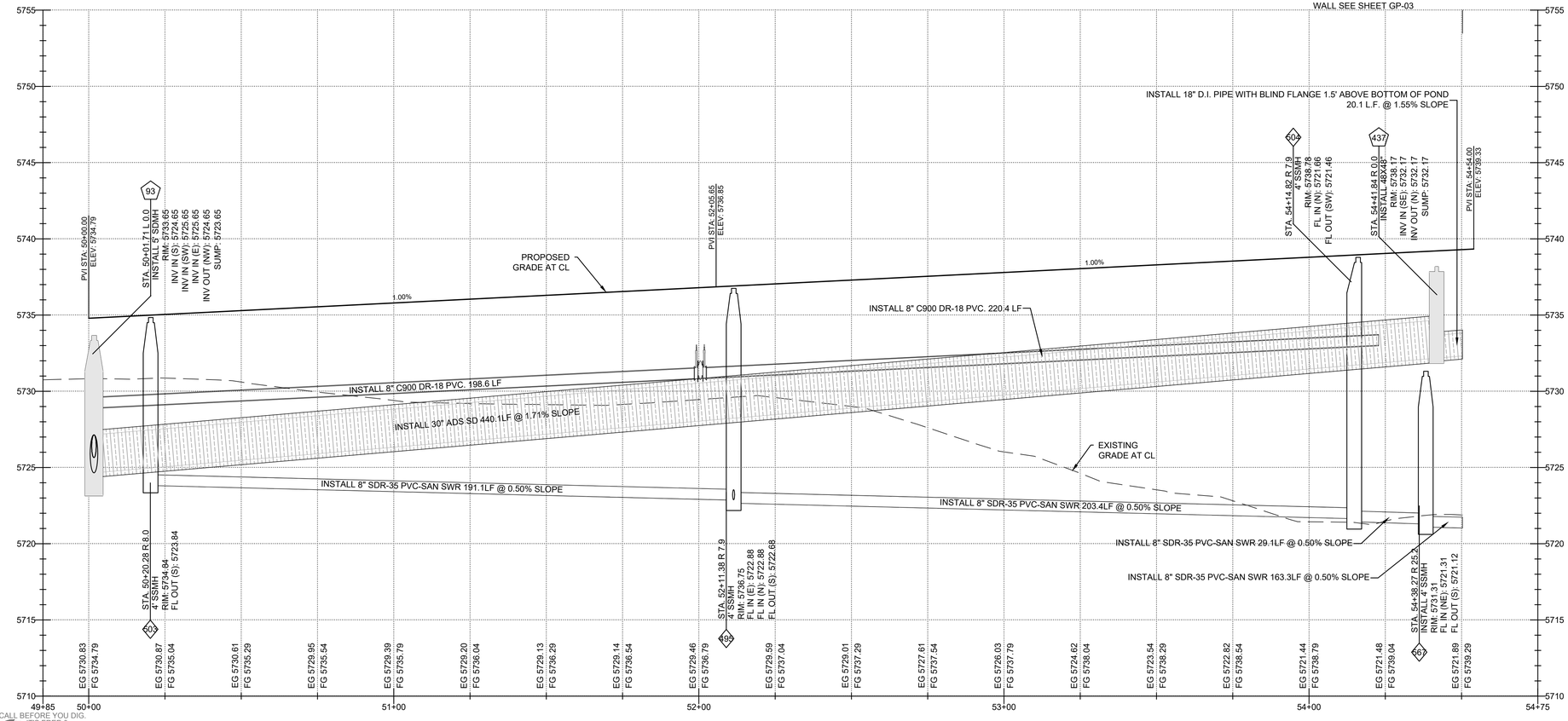
REVISIONS
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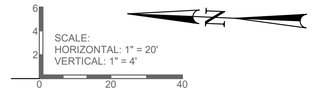
PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8164804

SHEET
PP-50









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FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Plan & Profiles\From Dev\Drive 5.dwg TAB: PP-51 Drive 5 PLOT DATE AND TIME: 8/7/2024 11:54 AM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 5

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
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PH: 801. 487. 8040

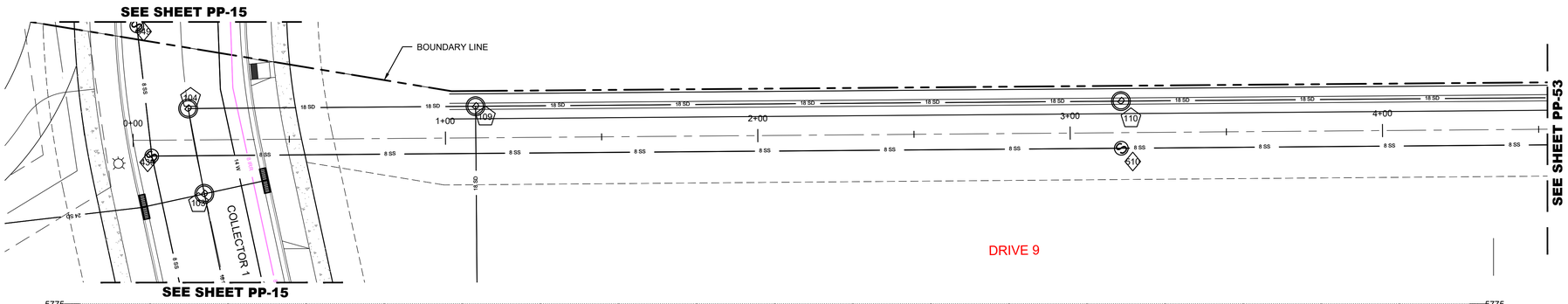
CLIENT: D.R.HORTON
DWG: DRIVE 5.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THESE DRAWINGS. DRAWING IS REDUCED IF LESS THAN 22 BY 34 INCH. DIMENSIONS AND NOTES TAKE PRECEDENCE

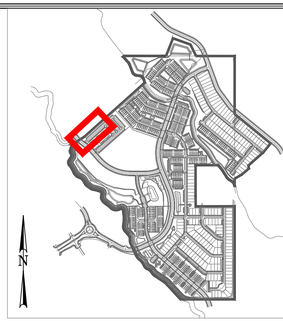
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

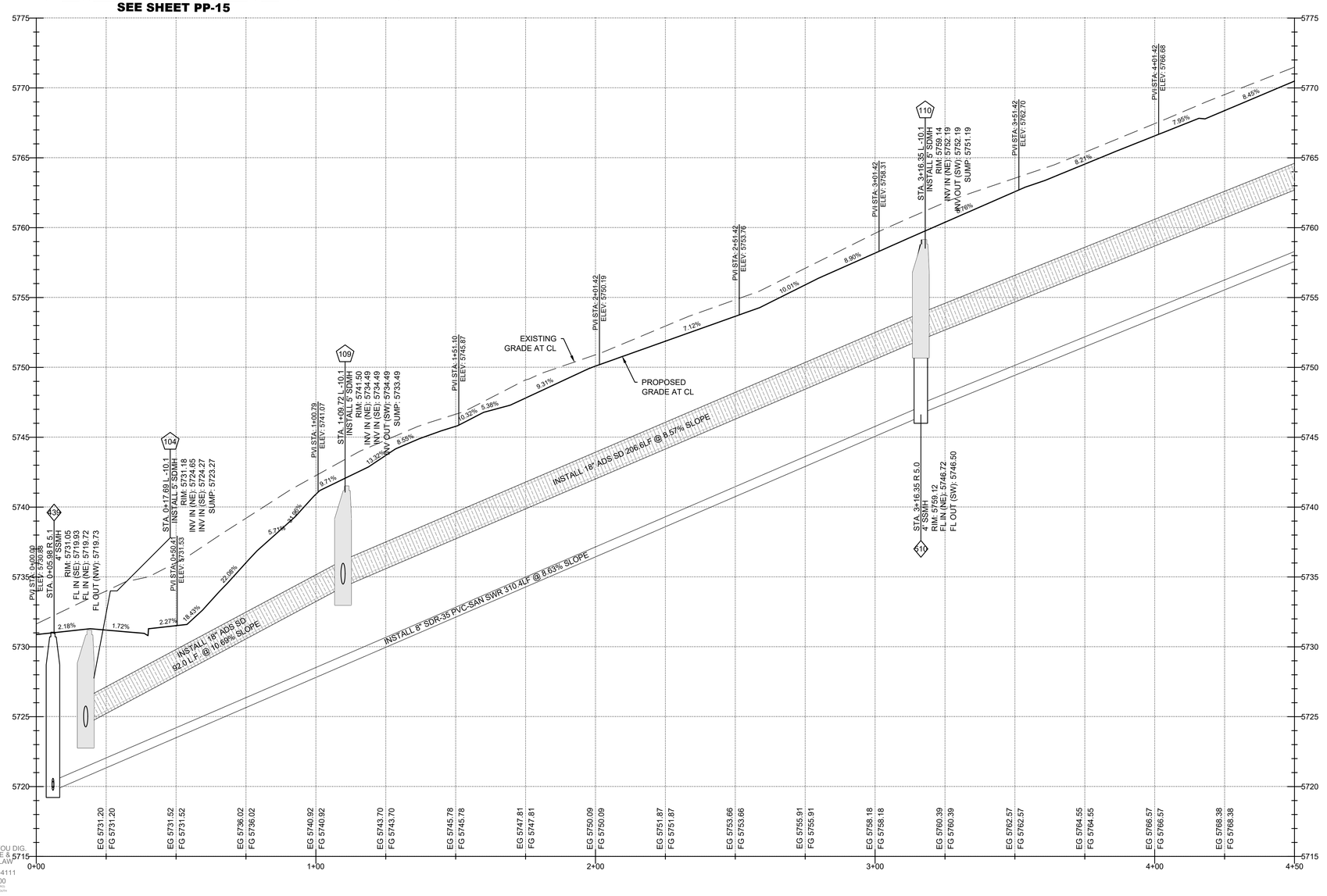
REVISIONS
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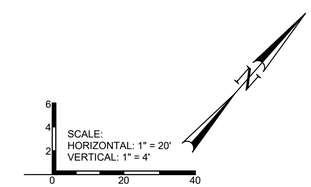
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PP-51

Page 492 of 1210









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Drive 9 Utilities (1)

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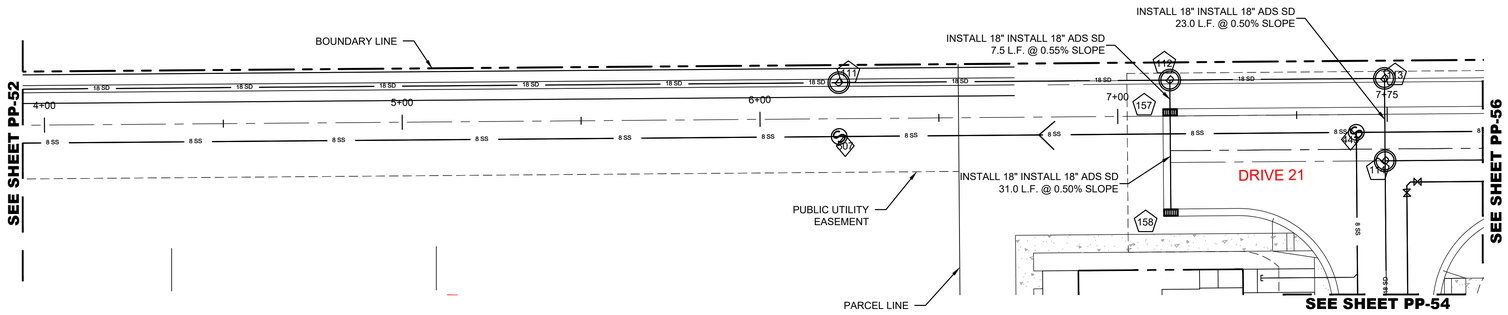
CLIENT: D.R.HORTON
DWG: DRIVE 9 UTILITIES.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22 IN X 34IN - DIMENSIONS AND NOTES TAKE PRECEDENCE

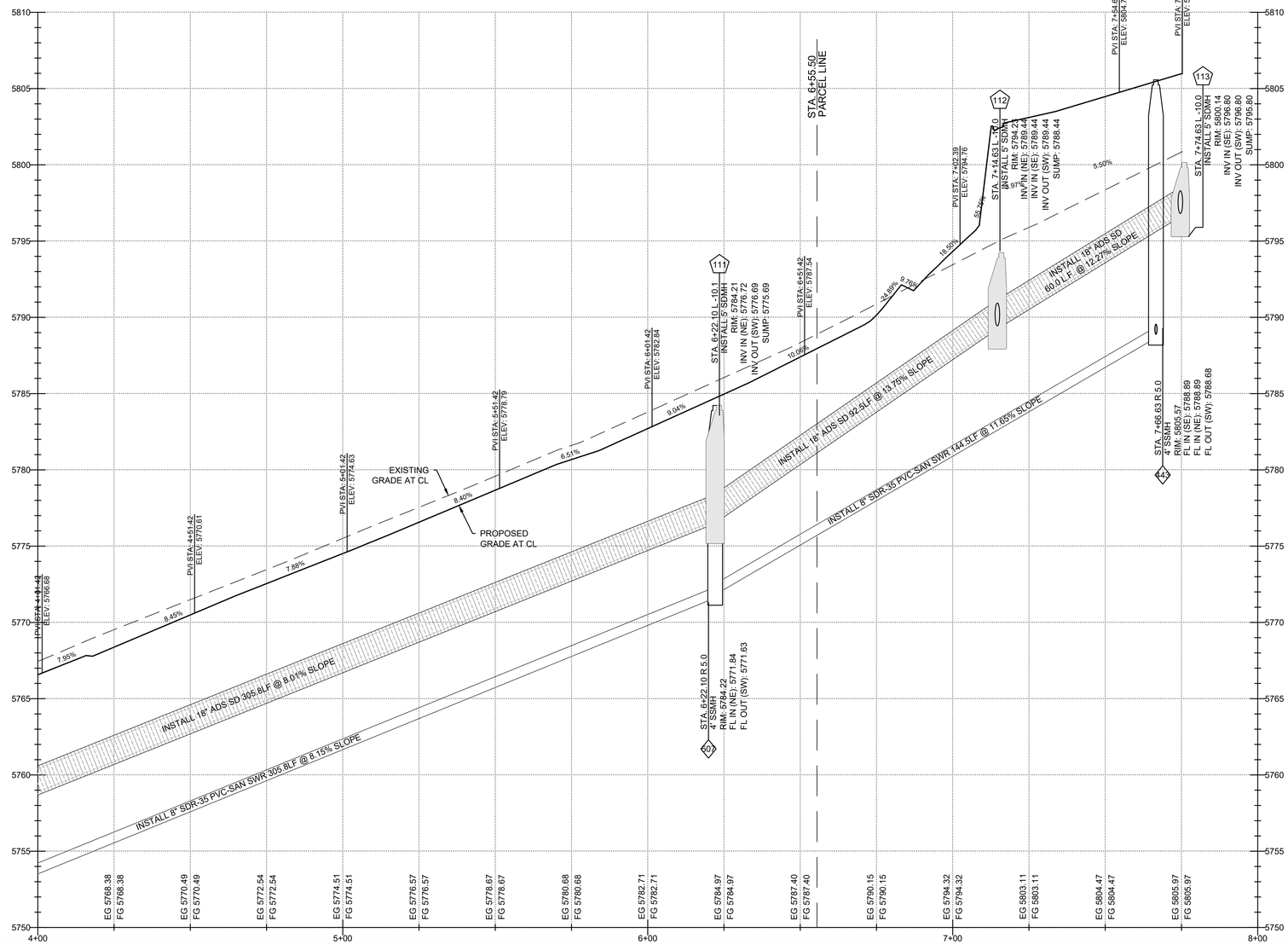
DRAWN BY: WARD
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DATE: 07/29/2024

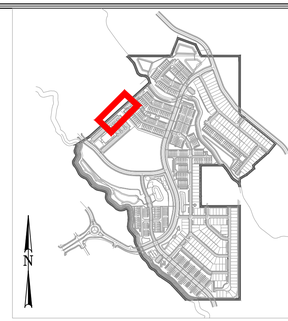
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PP-52







SCALE:
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VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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Drive 9 Utilities (2)

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: DRIVE 9 UTILITIES.DWG
JOB No: 3891-DRH01-23
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REVISIONS

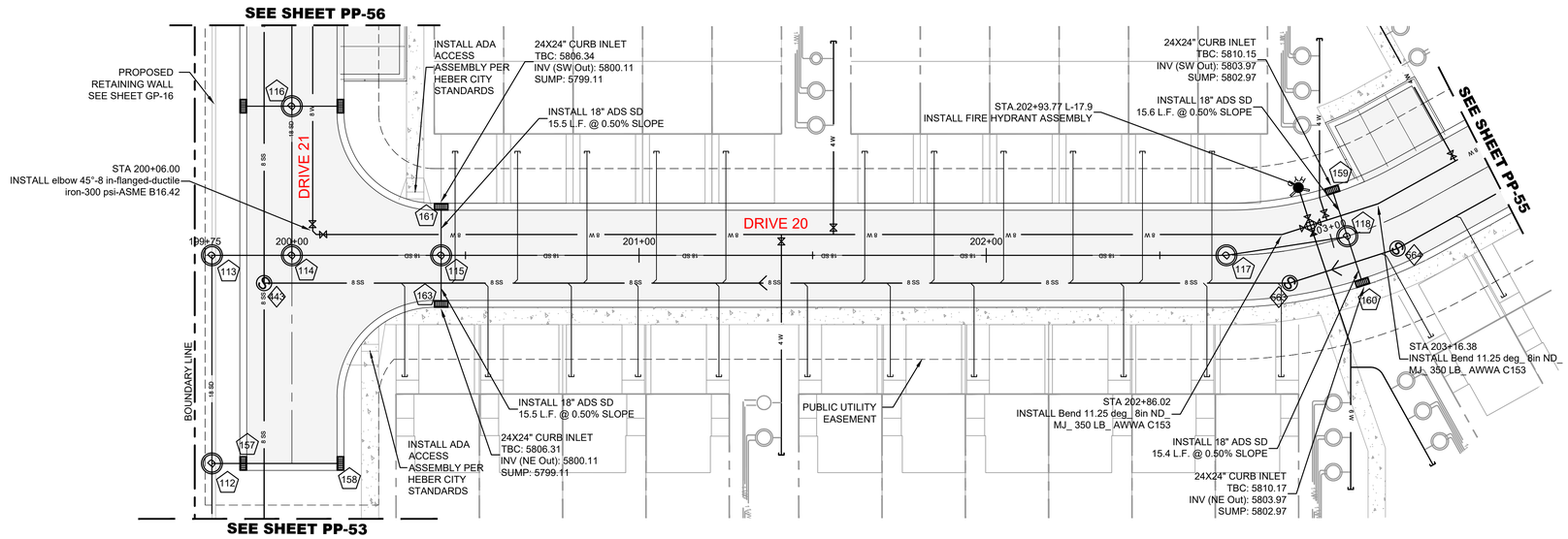
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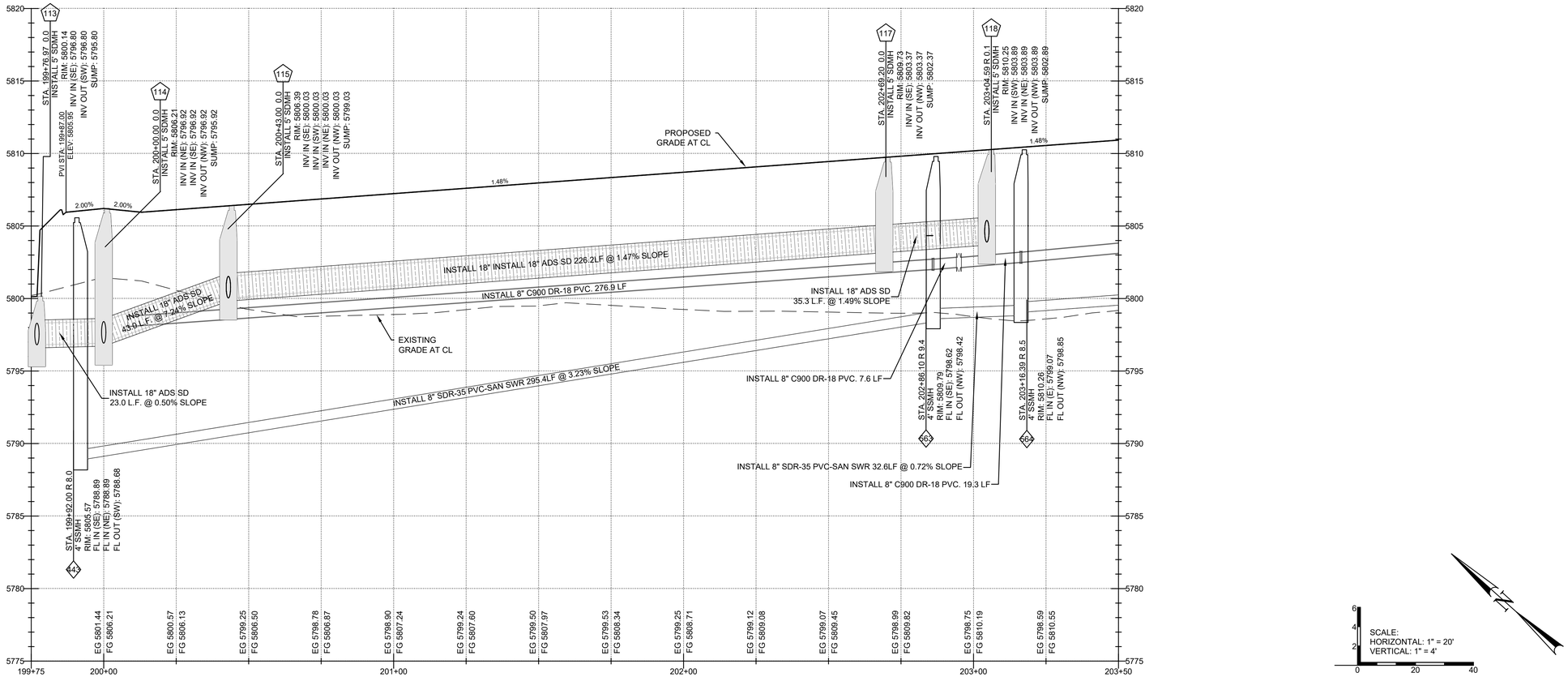
ARSHIA SATTAR N. TABRIZ
8/6/2024

SHEET
PP-53

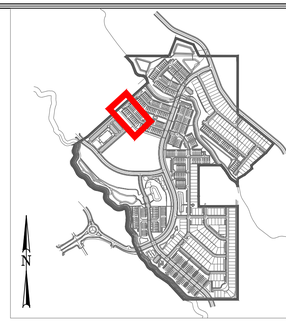
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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 20

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DWG: DRIVE 20.DWG
JOB No: 3891-DRH01-23
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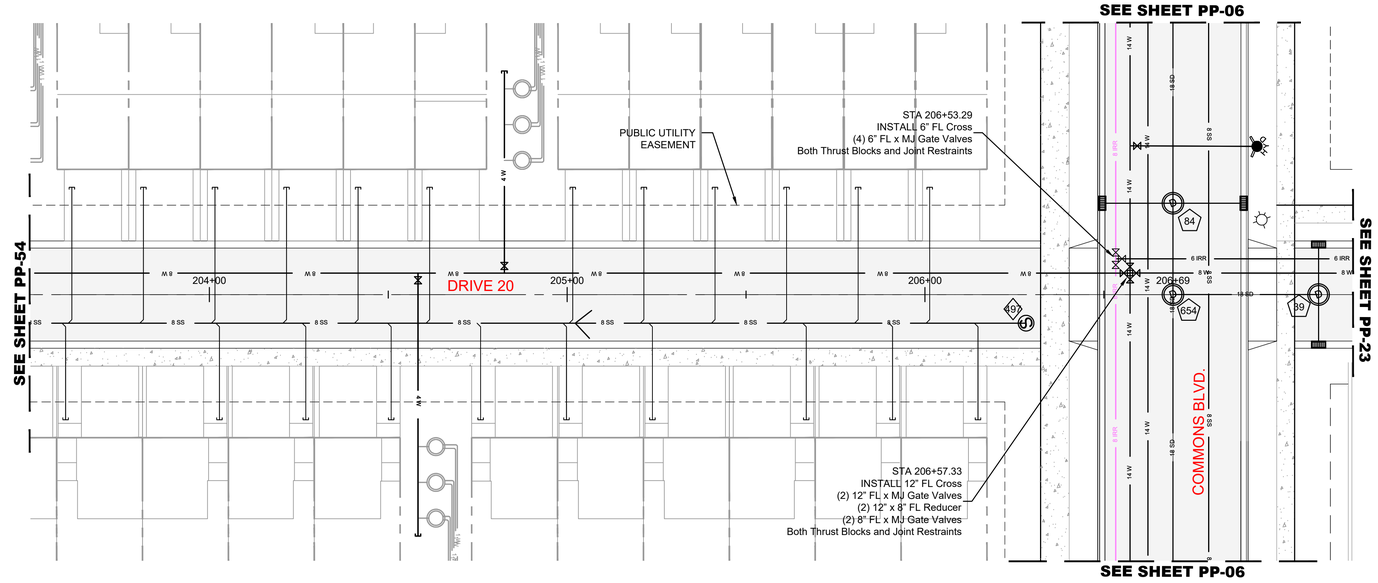
REVISIONS
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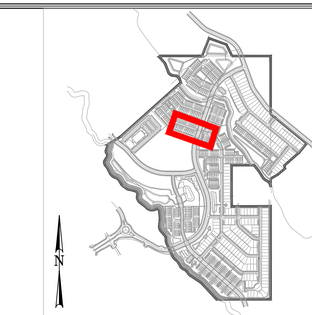


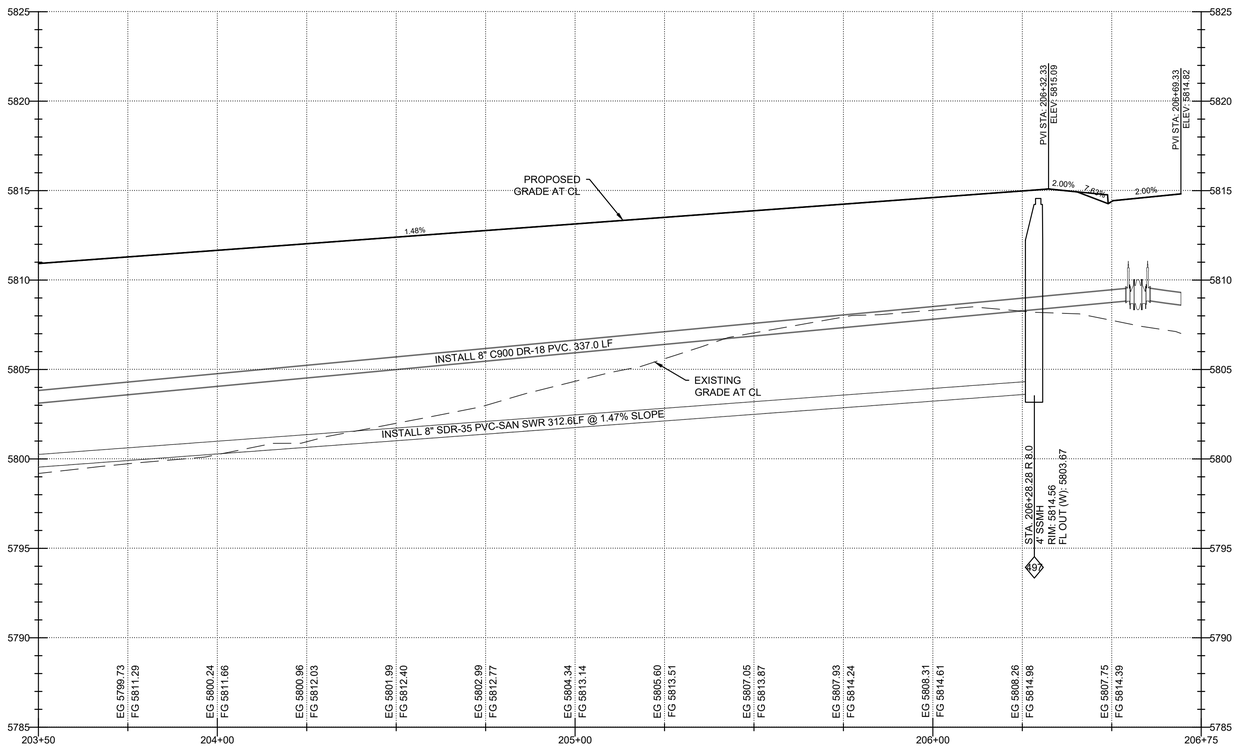
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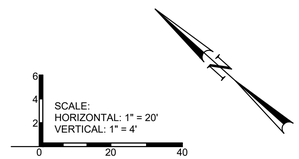
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HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Drive 20

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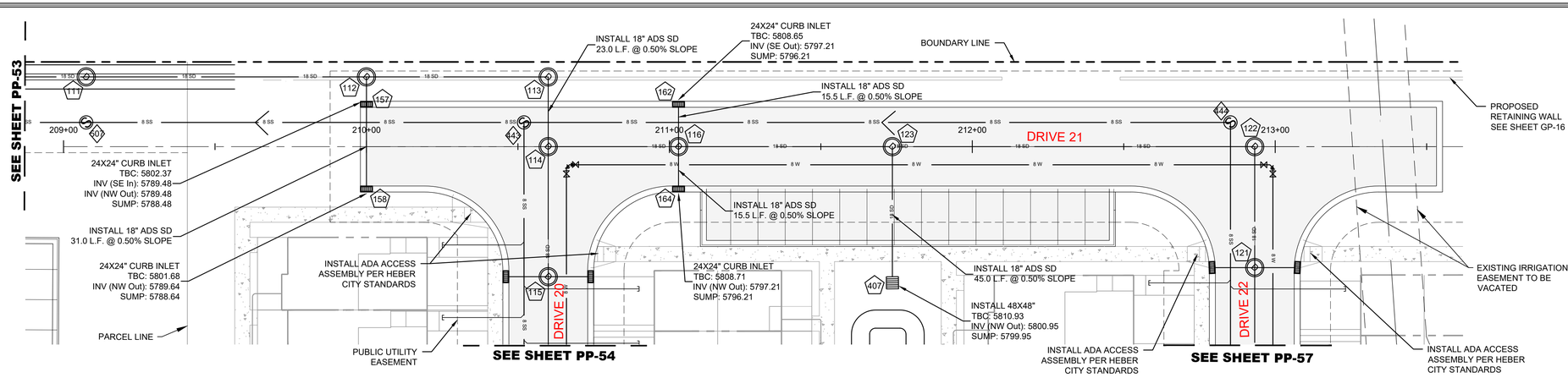
CLIENT: D.R.HORTON
DWG: DRIVE 20.DWG
JOB No: 3891-DRH01-23
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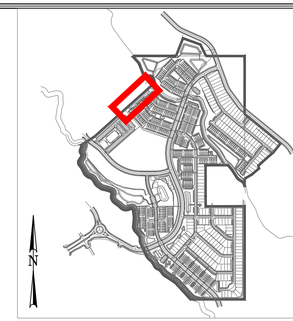
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

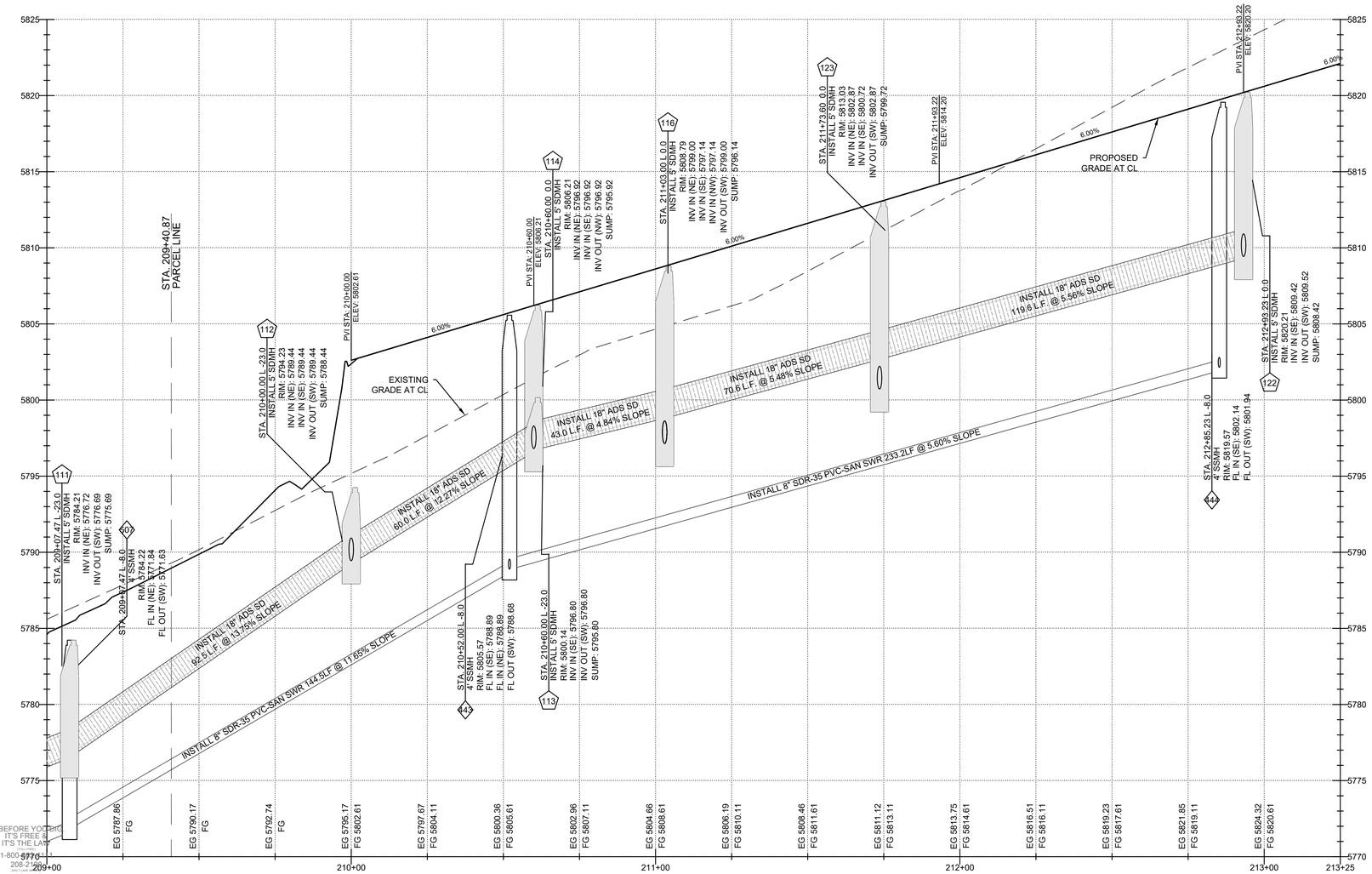
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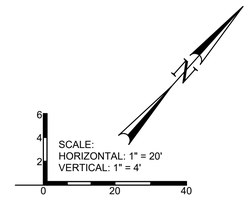
PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8/6/2024

SHEET
PP-55









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Roadway Plan & Profile- Drive 21

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Ward Engineering Group
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CLIENT: D.R.HORTON
DWG: DRIVE 21.DWG
JOB No: 3891-DRH01-23
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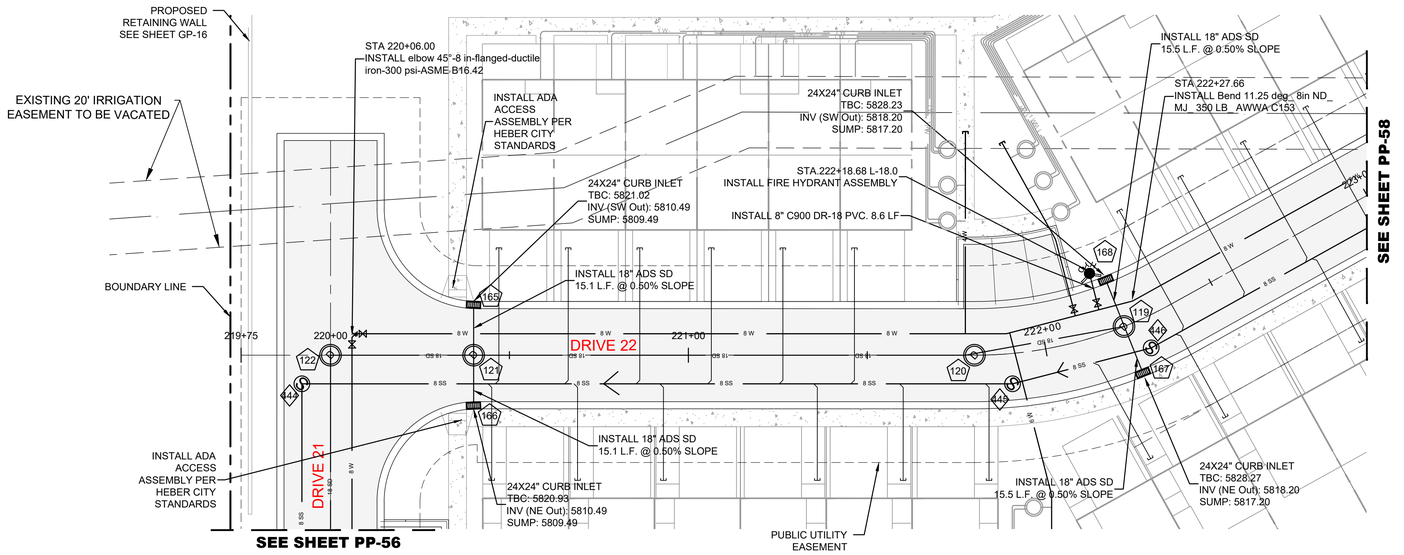
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CHECKED BY: AJS
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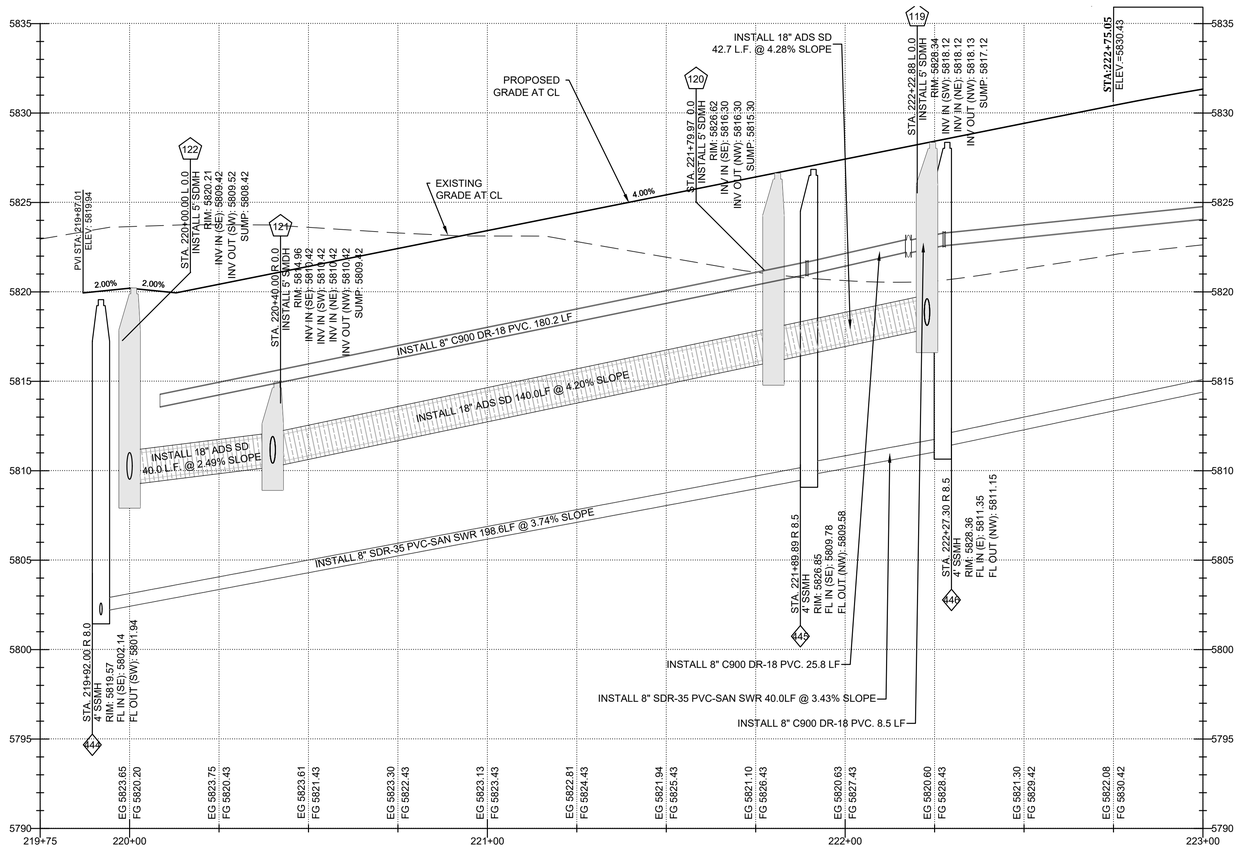
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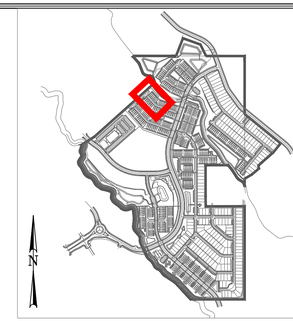
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PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Drive 22

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CLIENT: D.R HORTON
DWG: DRIVE 22.DWG
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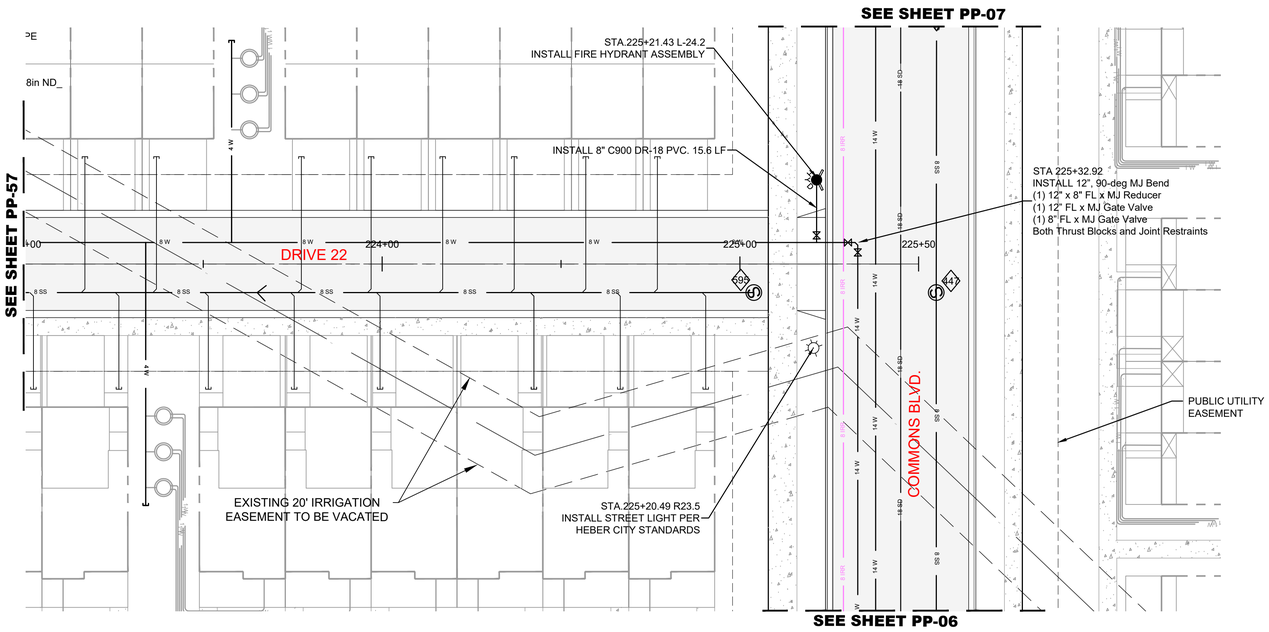
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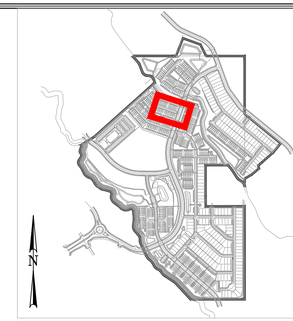
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VERTICAL: 1" = 4'

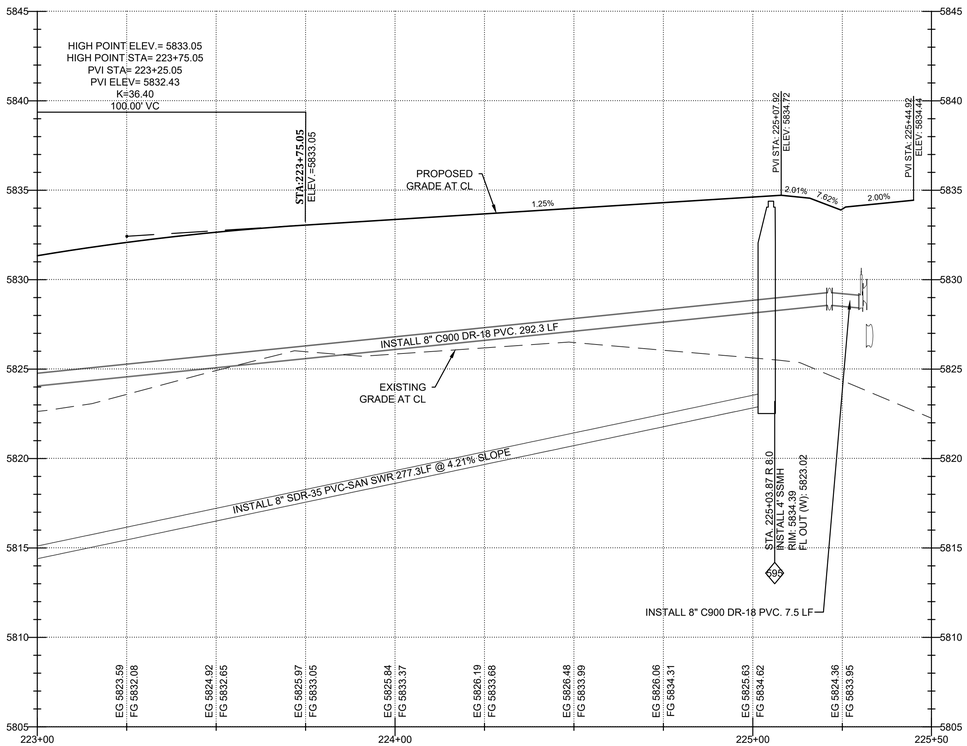
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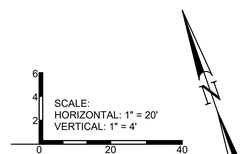
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Roadway Plan & Profile- Drive 22

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CLIENT: D.R HORTON
DWG: DRIVE 22.DWG
JOB No: 3691-DRH01-23
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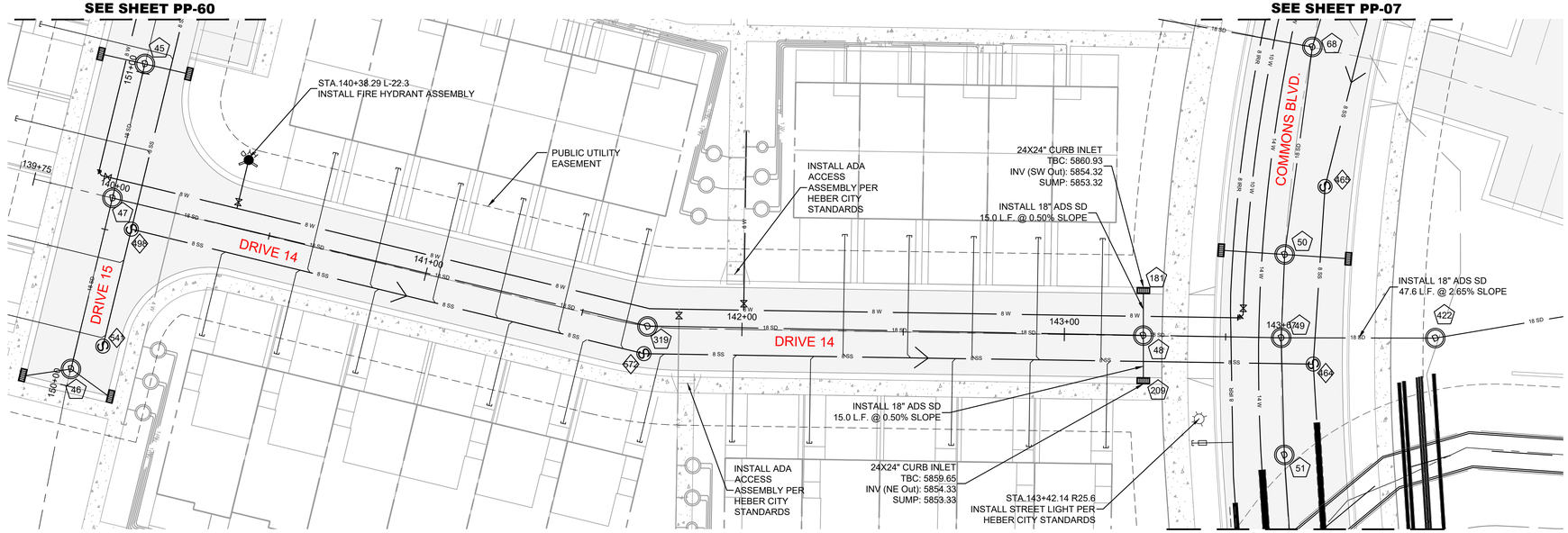
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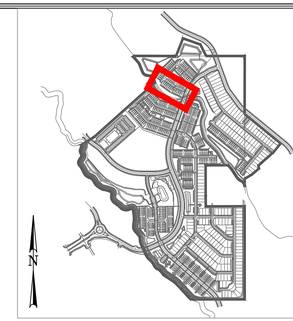
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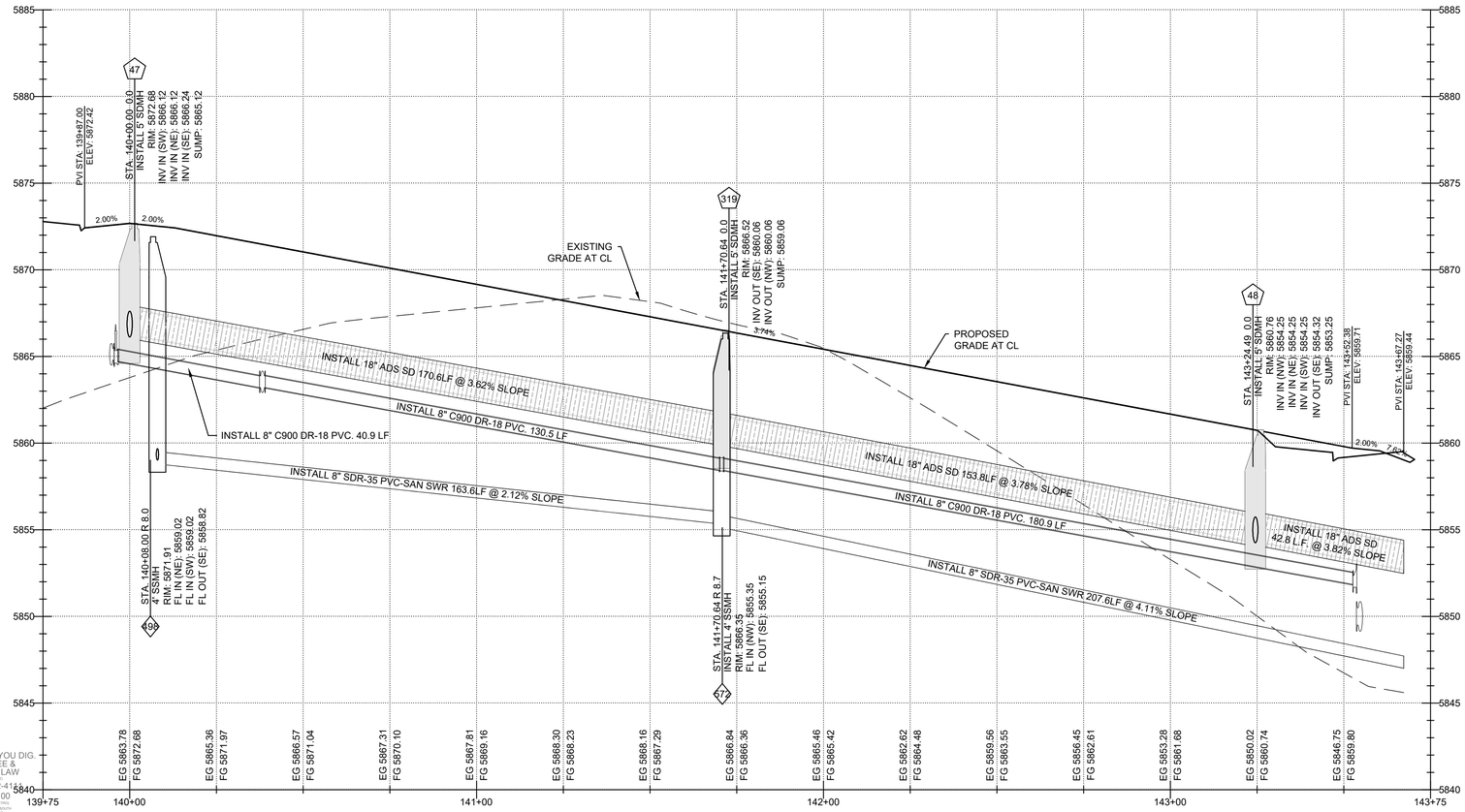
SEE SHEET PP-60

SEE SHEET PP-07

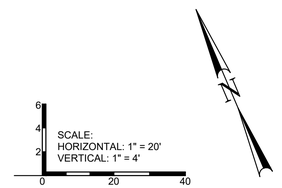


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Roadway Plan & Profile- Drive 14

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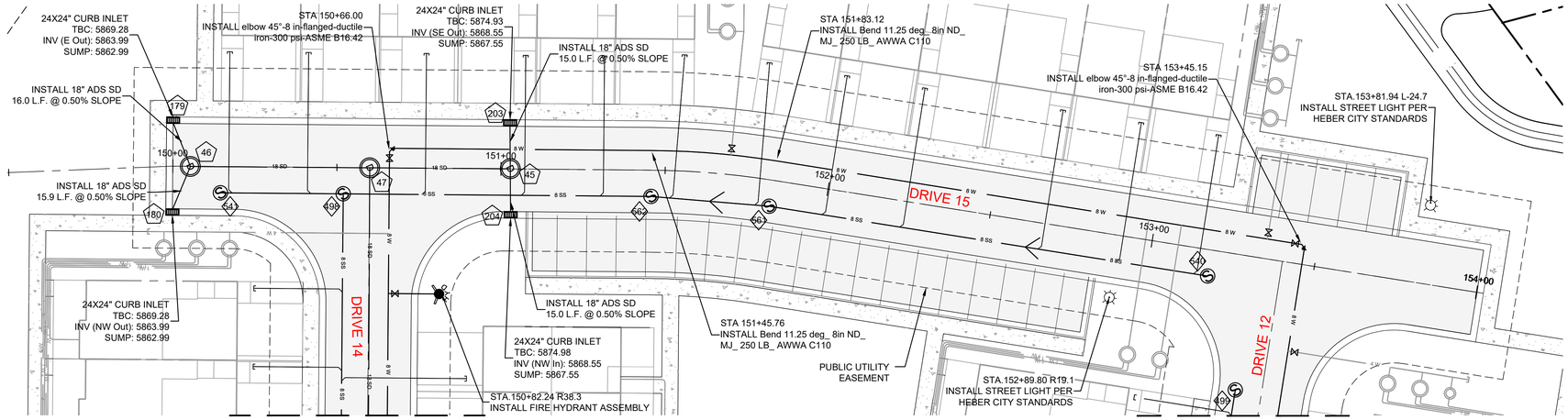
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JOB No: 3891-DRH01-23
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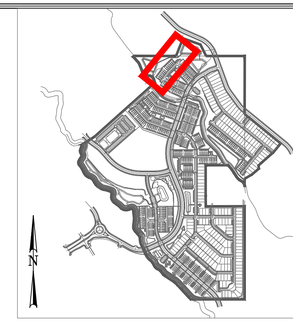
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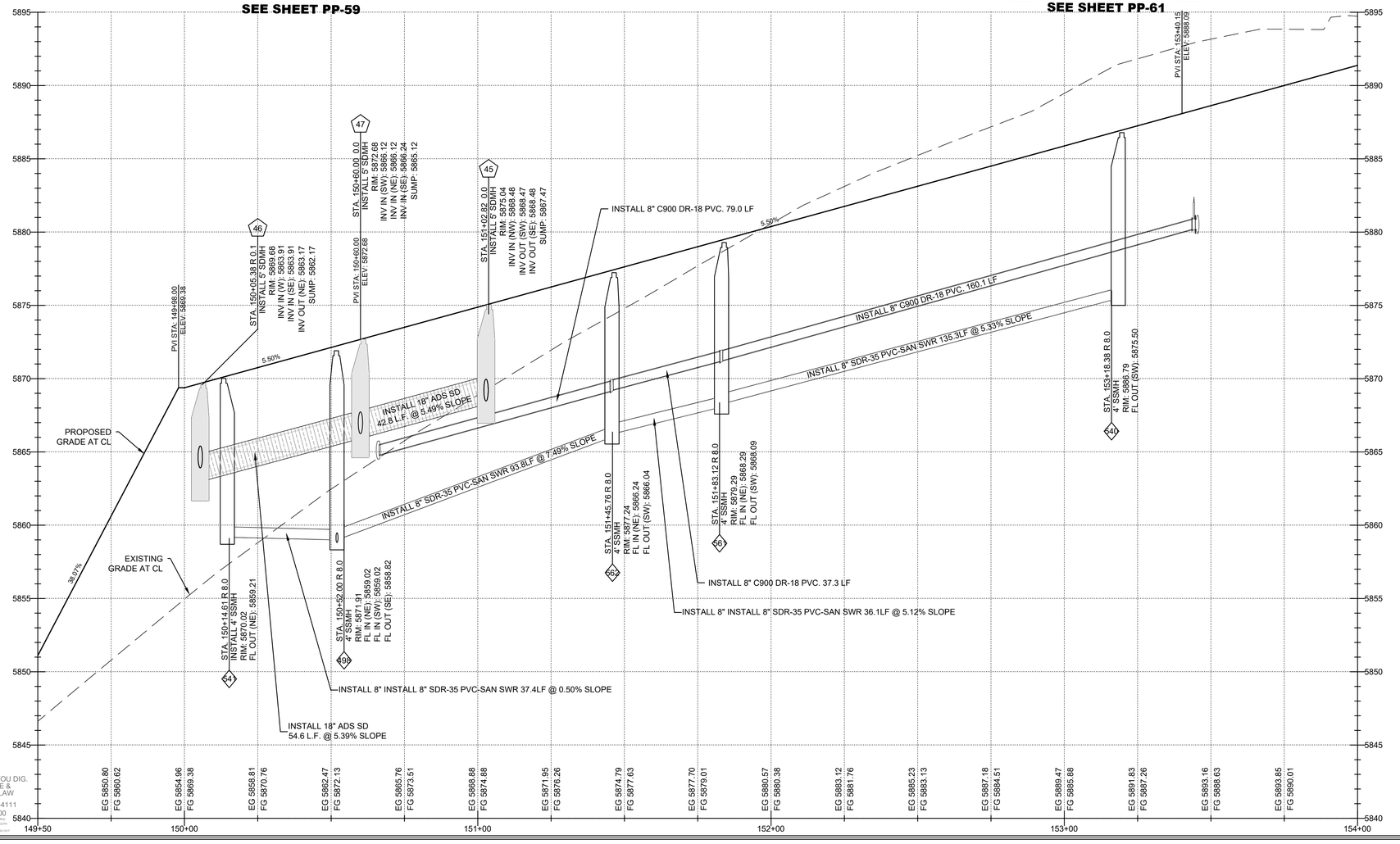
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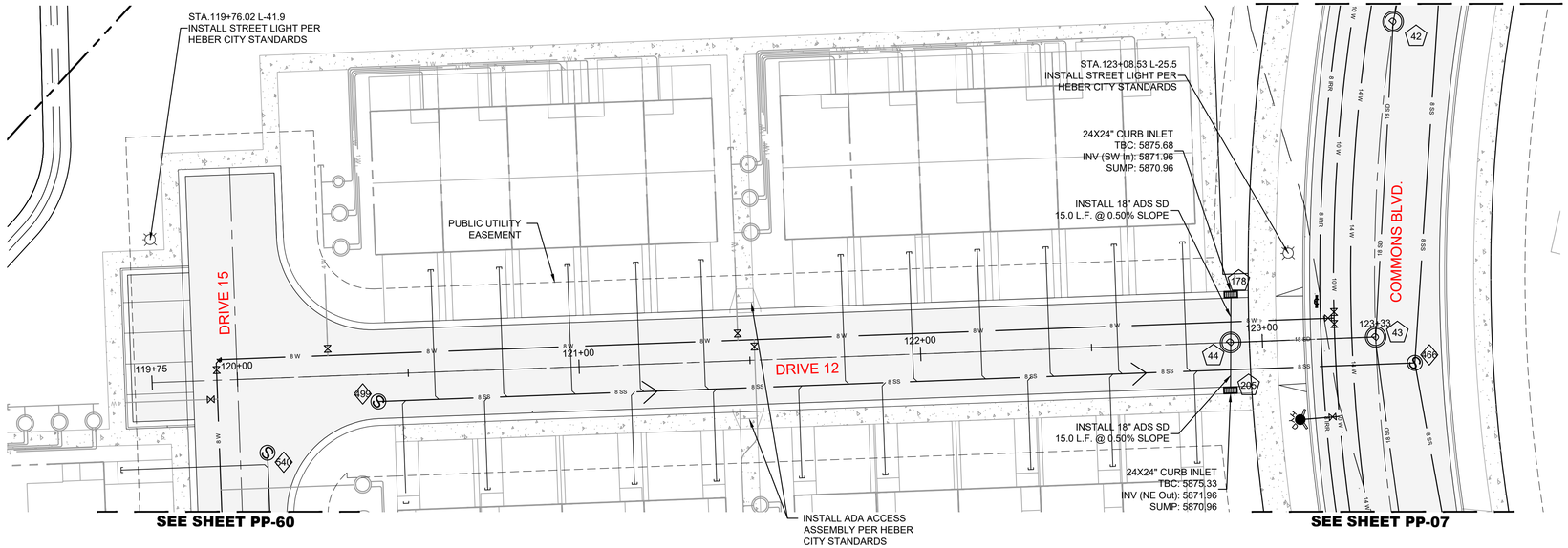
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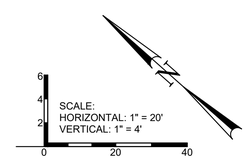
ANDREW J. SATTAR N. TARPIZ
8169804
PROFESSIONAL ENGINEER
STATE OF UTAH

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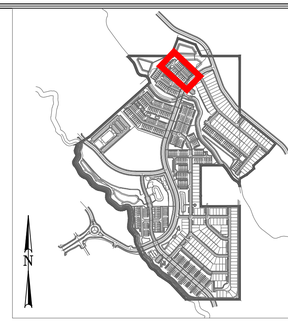
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DWG: DRIVE 12.DWG
JOB No: 3891-DRH01-23
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DATE: 07/29/2024

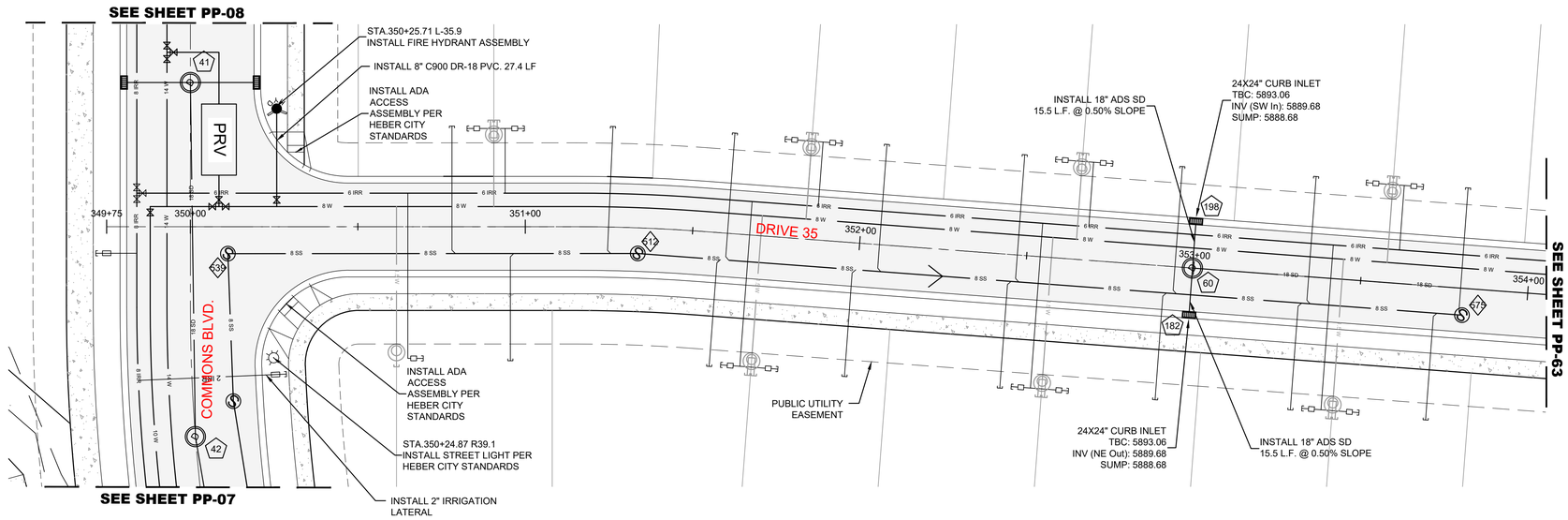
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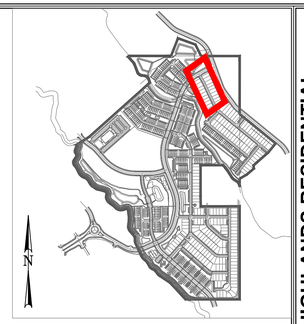
SATTAR N. TABRIZ
8/6/2024

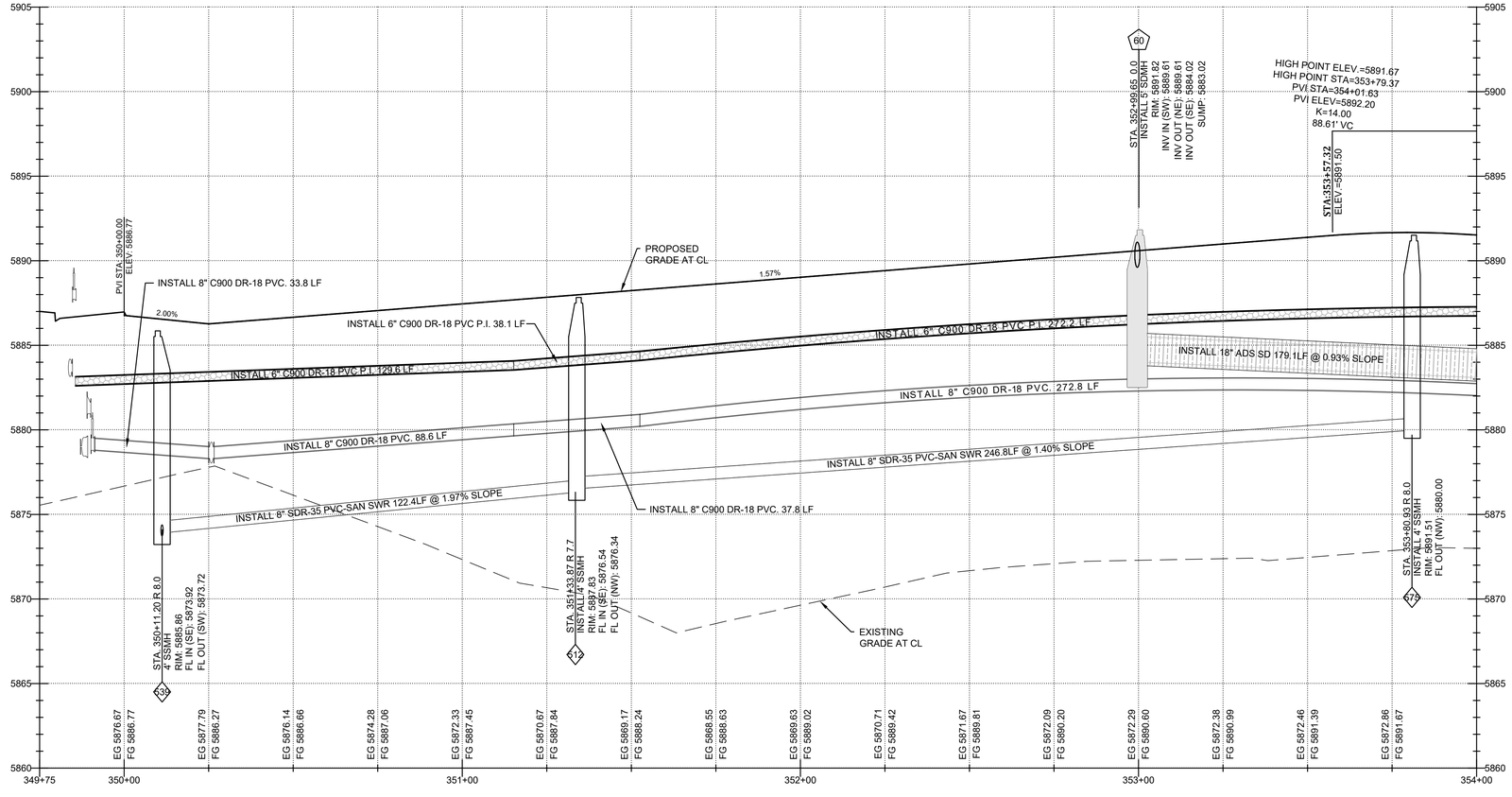
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PP-61

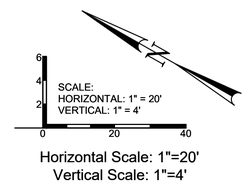
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HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Road 35

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
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PH: 801 .487. 8040

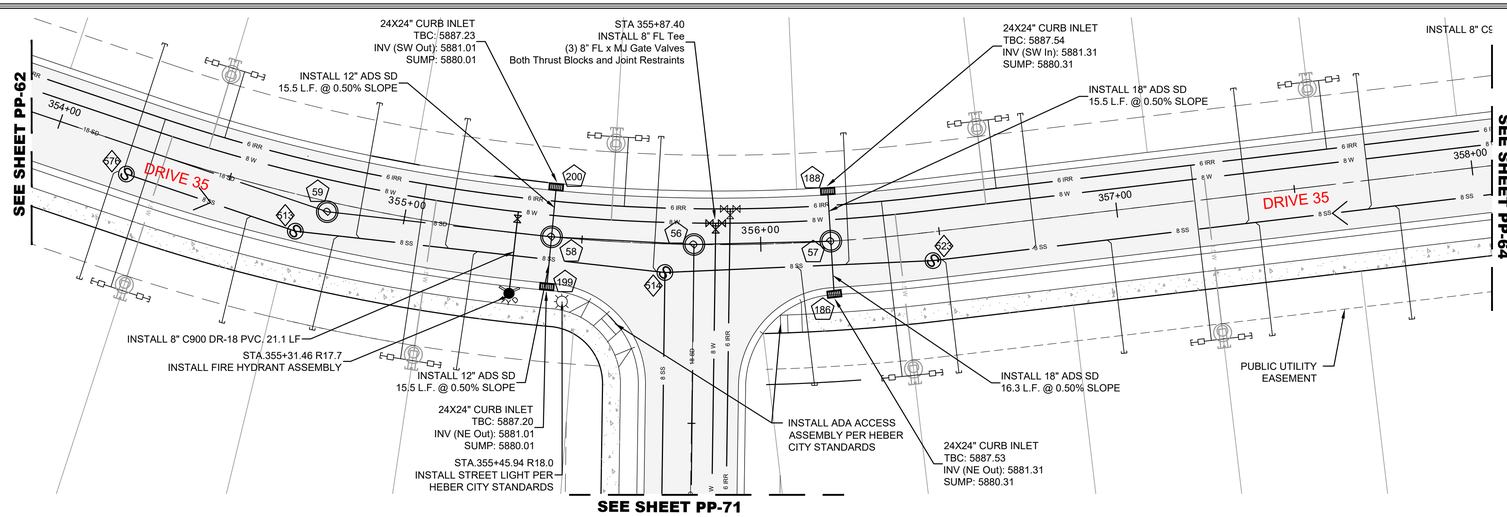
CLIENT: D.R.HORTON
DWG: DRIVE 35.DWG
JOB No: 3891-DRH01-23
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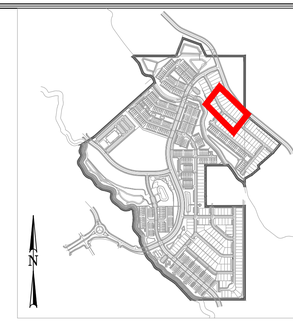
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

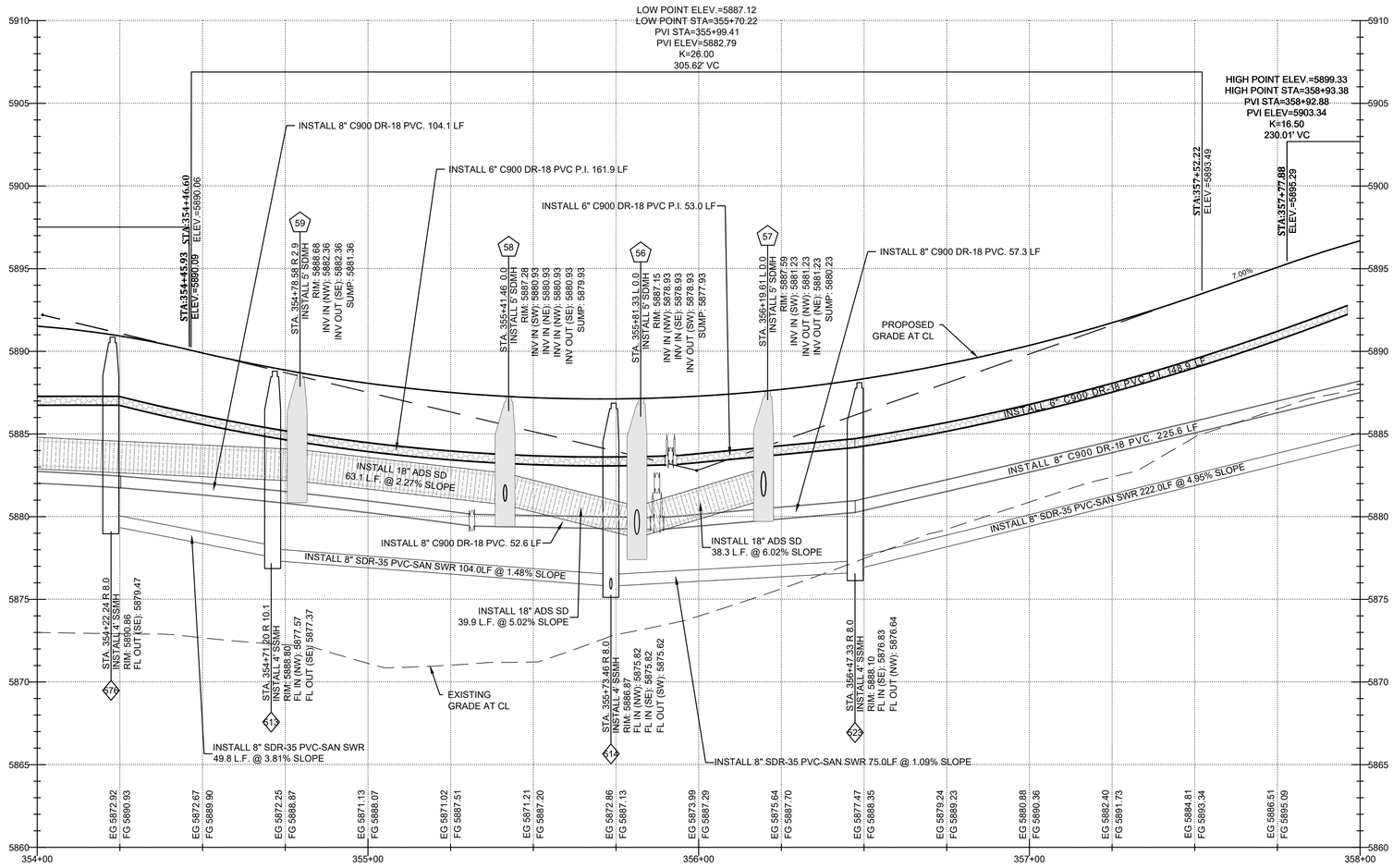
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1 07/30/2024 GRADING REVISION

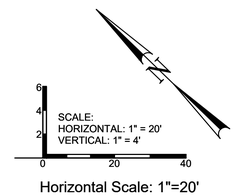
SATTAR N. TABRIZ
8/6/2024

SHEET
PP-62









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Vertical Scale: 1"=4'

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HEBER CITY, UT
Roadway Plan & Profile- Road 35

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: DRIVE 35.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in X 34in !! DIMENSIONS AND NOTES TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

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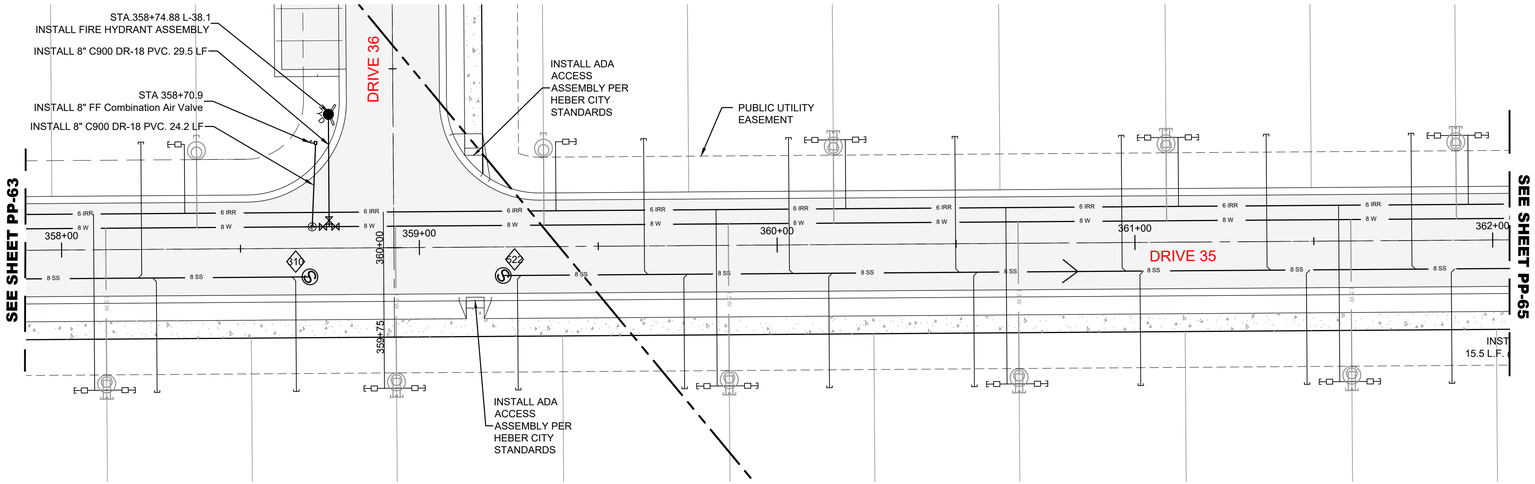
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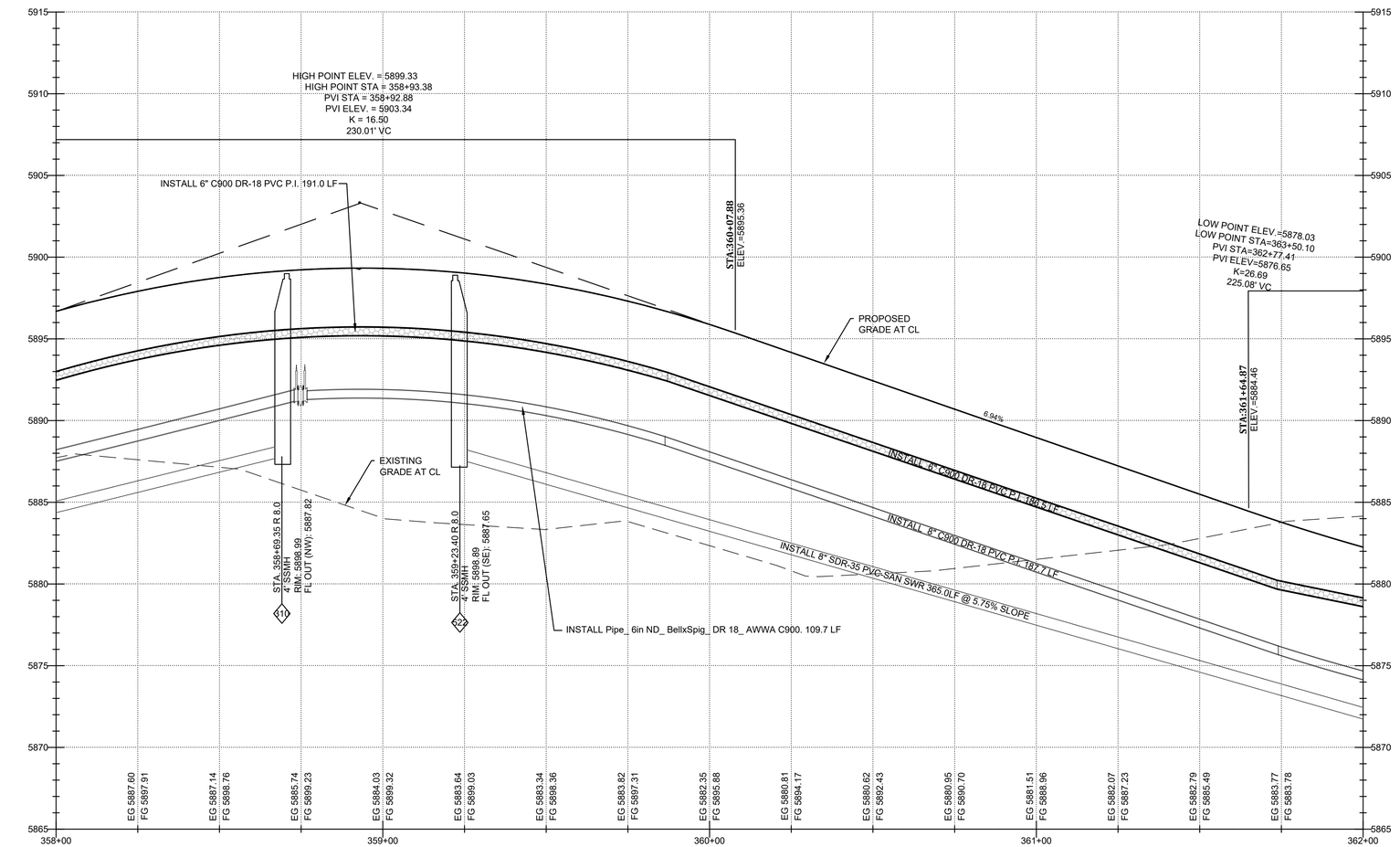
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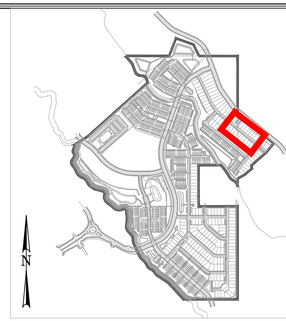
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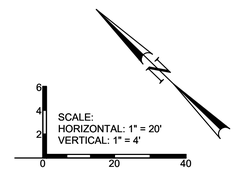
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SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 35

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: DRIVE 35.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22 IN X 34IN - DIMENSIONS AND NOTES TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

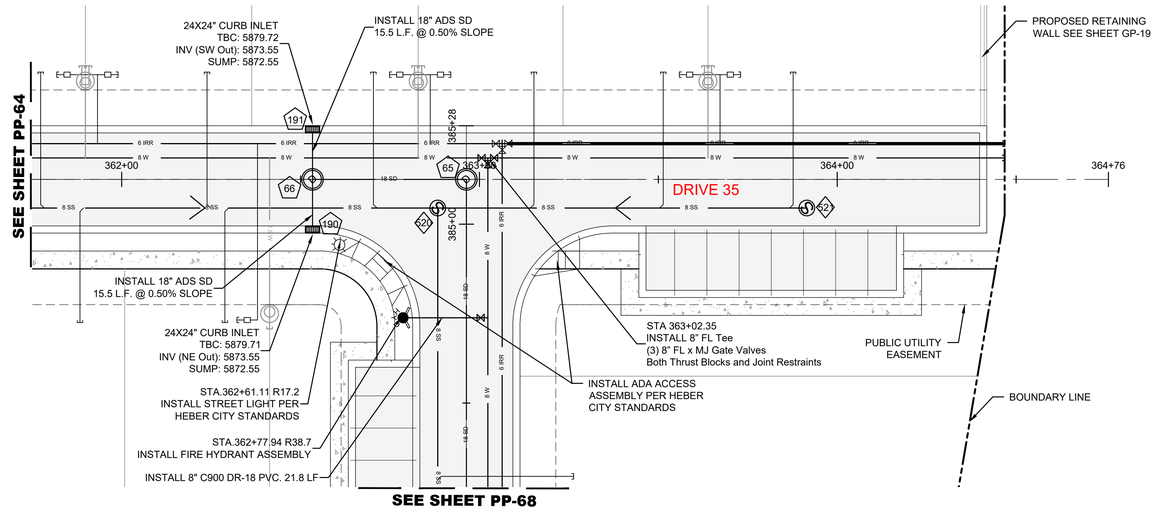
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1 07/30/2024 GRADING REVISION

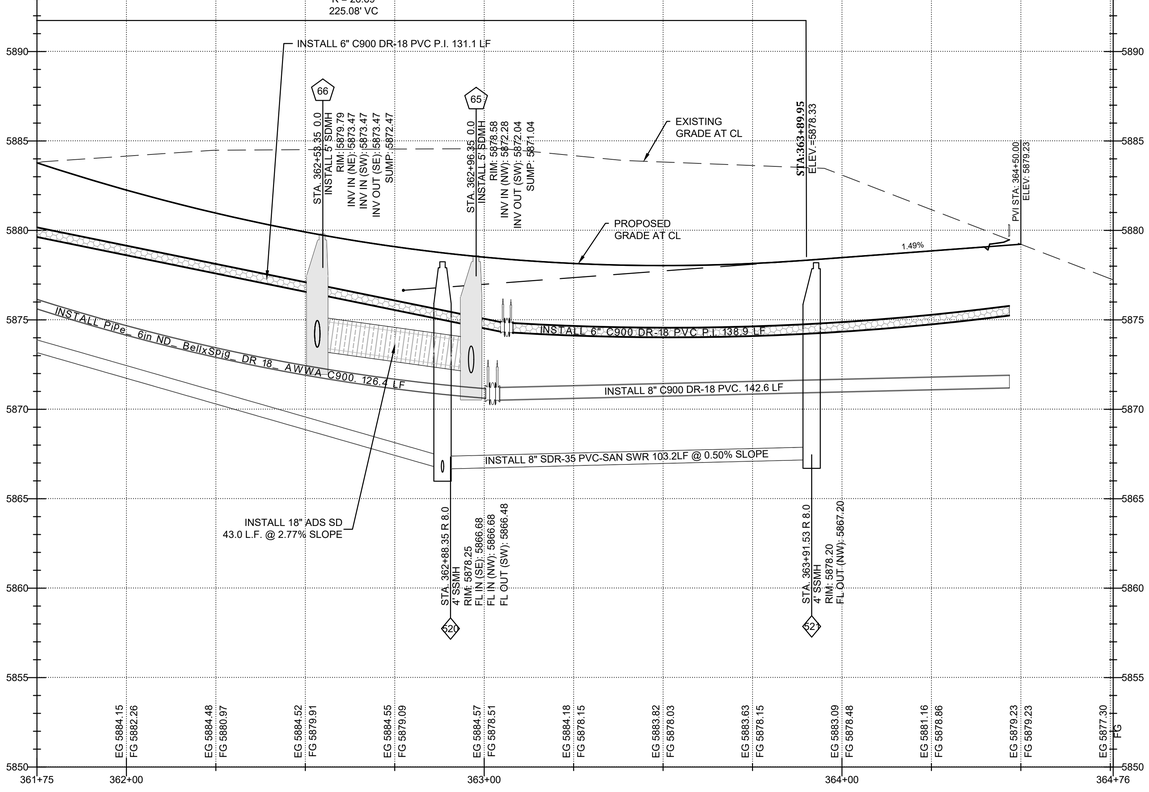
SATTAR N. TABRIZ
8/6/2024

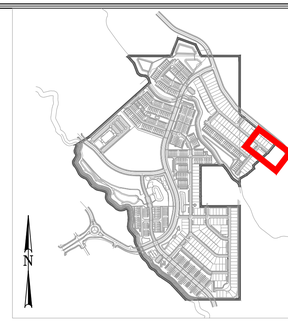
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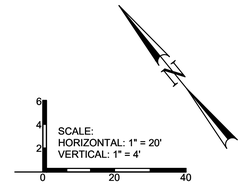
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Roadway Plan & Profile- Road 35

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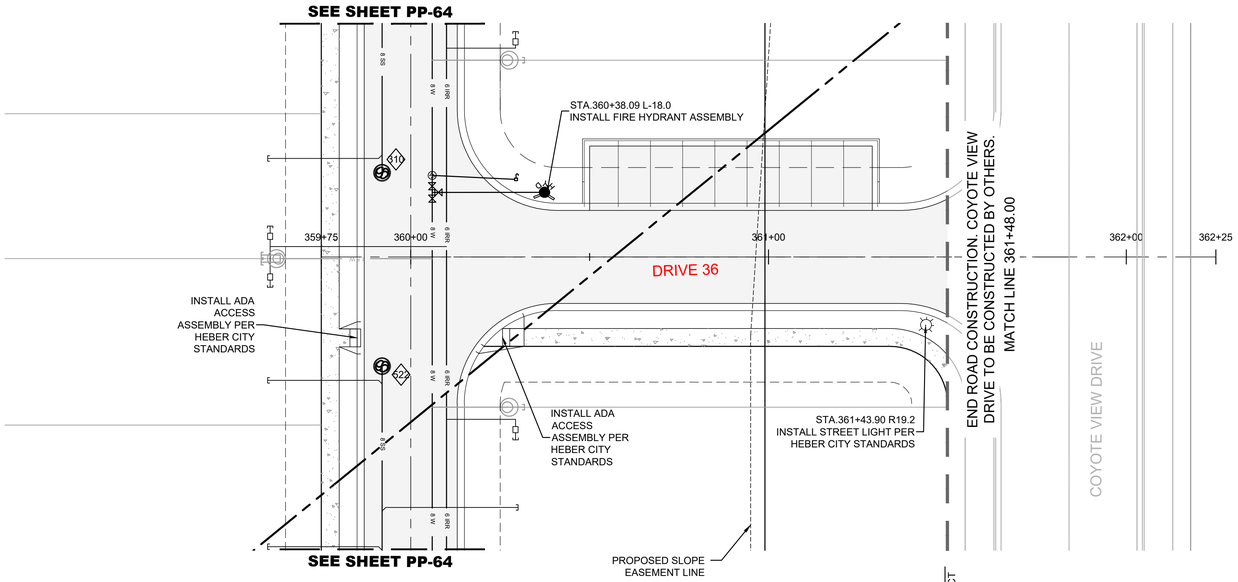
CLIENT: D.R.HORTON
DWG: DRIVE 35.DWG
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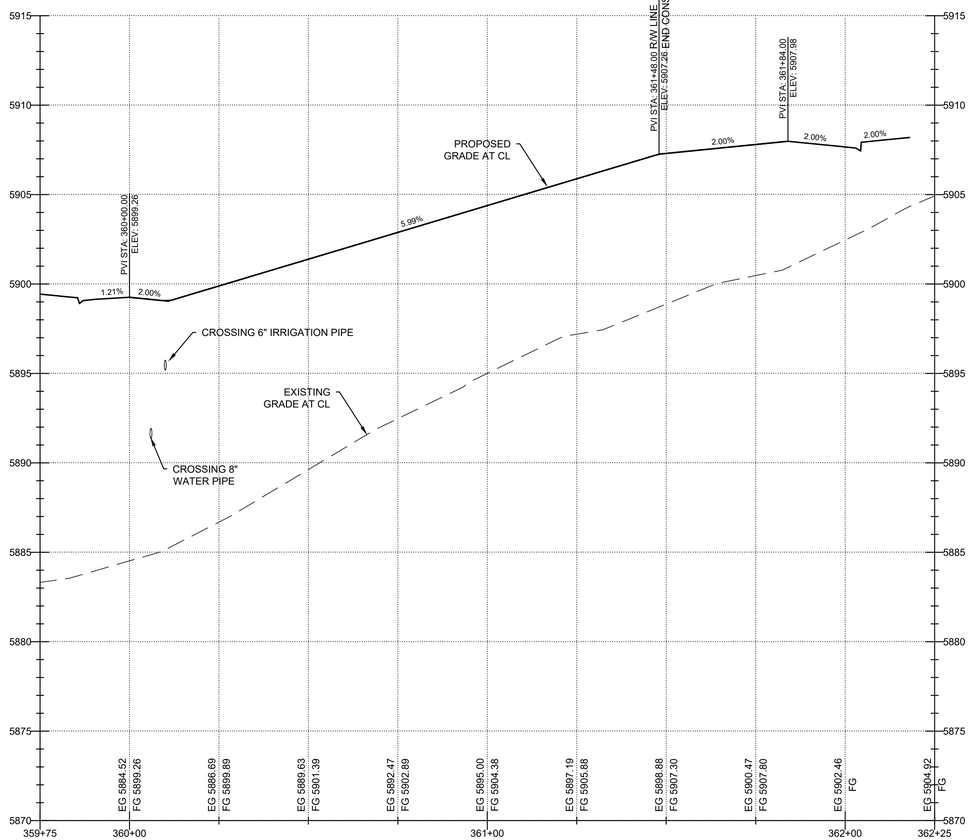
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DESIGN BY: WARD
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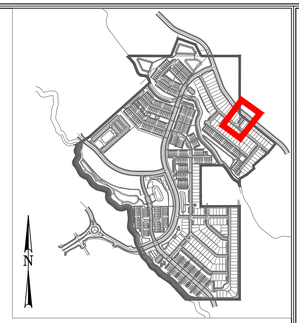
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PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TADMOR
8160804

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Road 36

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: DRIVE 36.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 in X 34in. USE DESIGN AND NOTES TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

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HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

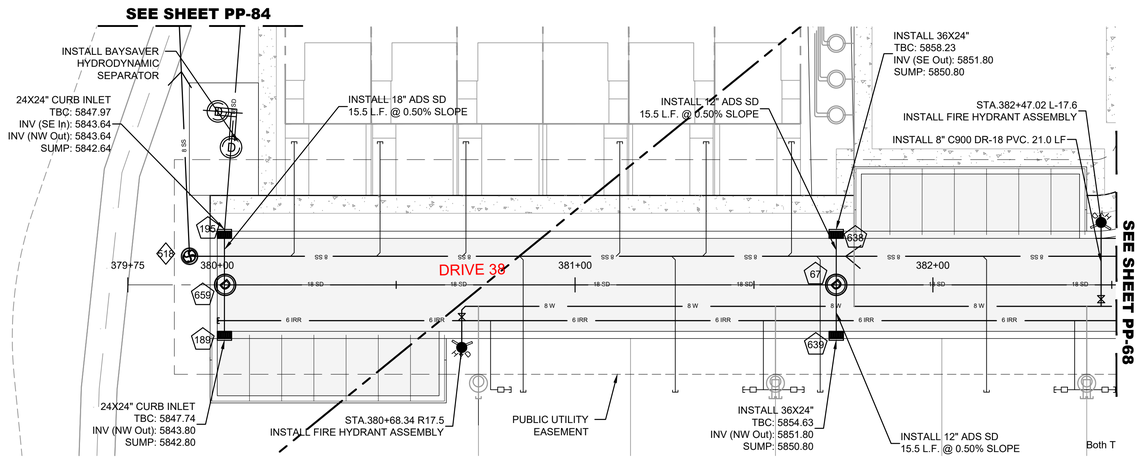
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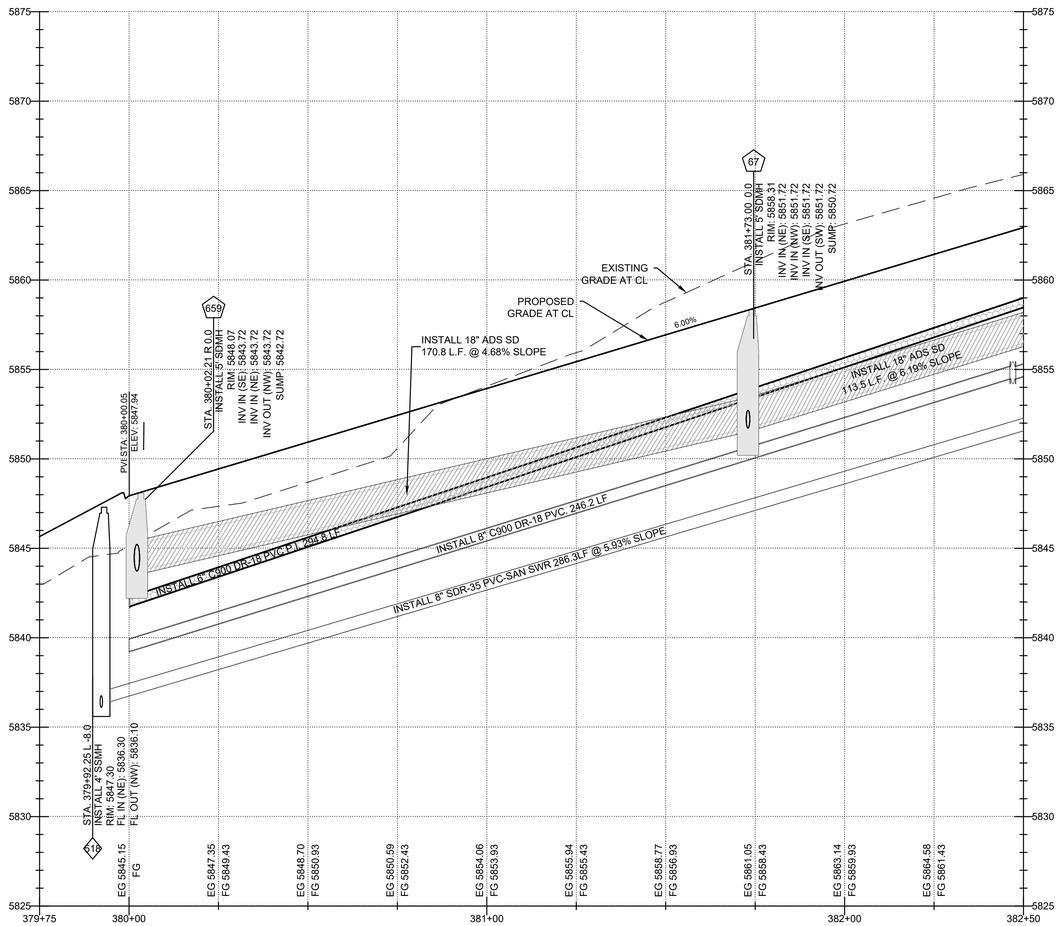


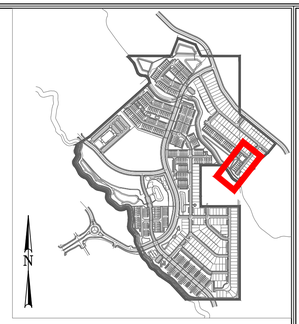
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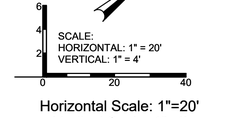
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VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 38

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: DRIVE 38.DWG
JOB No. 3891-DRH01-23
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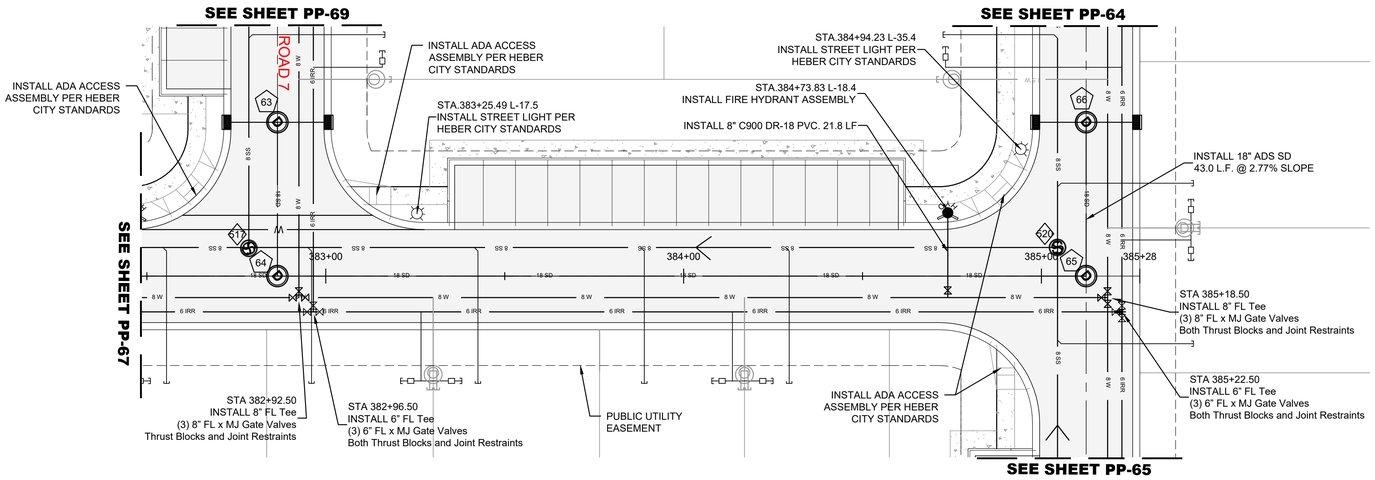
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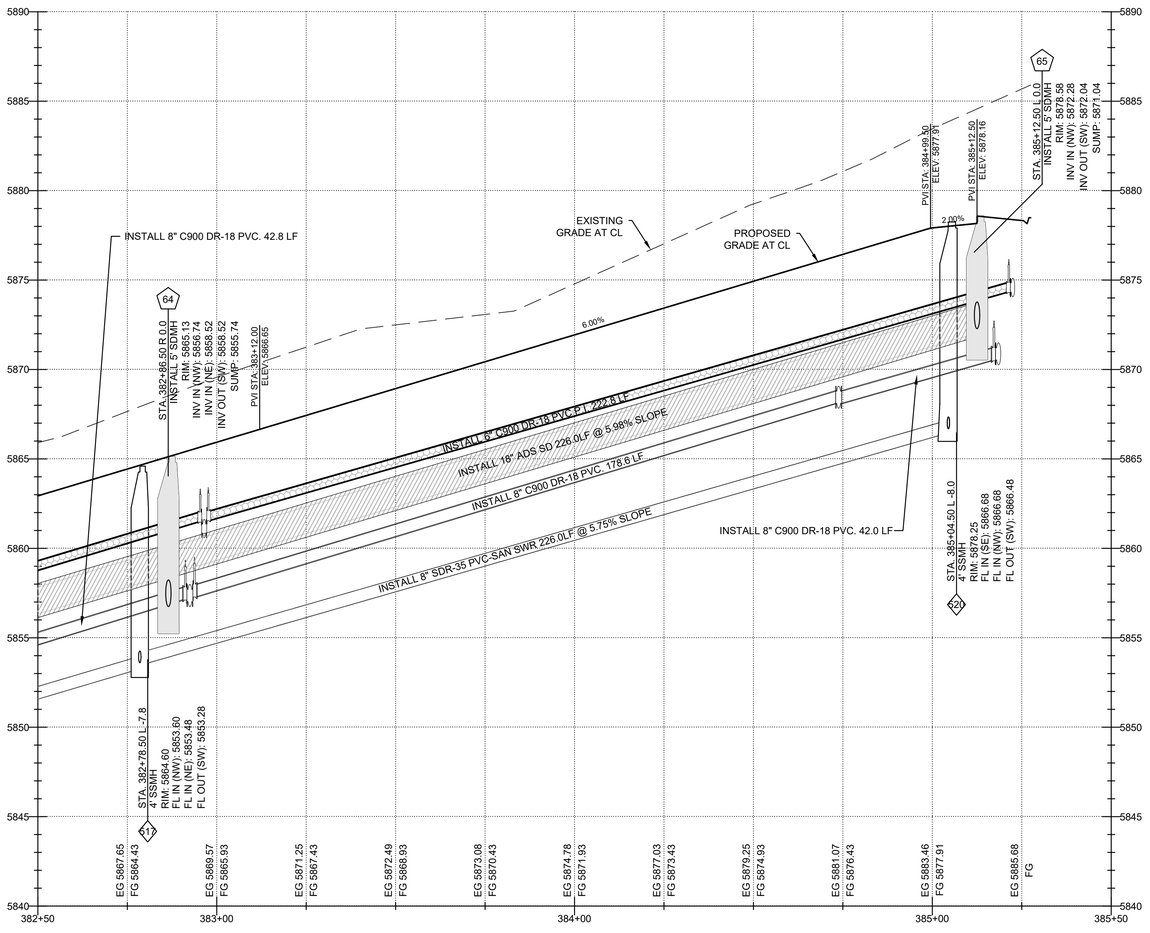
PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

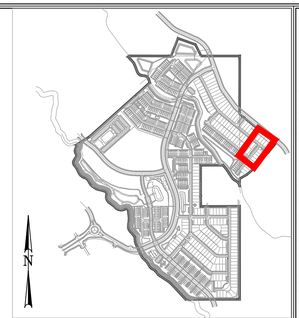
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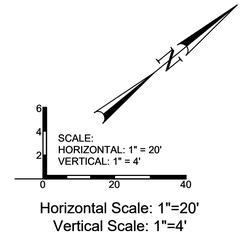
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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 38

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: DRIVE 38.DWG
JOB No: 3891-DRH01-23
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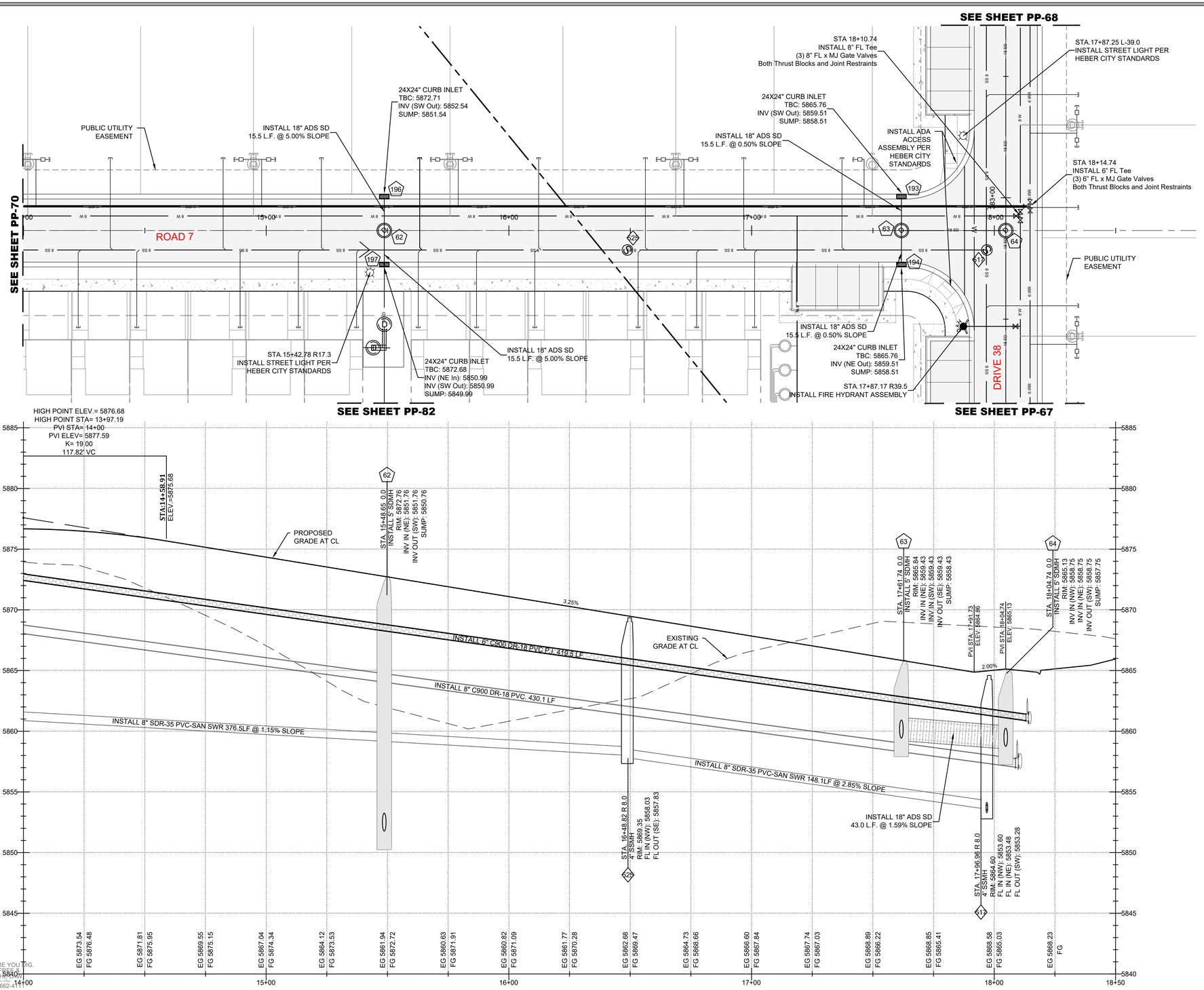
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PP-68

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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Roadway Plan & Profile- Road 7

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: ROAD 7.DWG
JOB No: 3891-DRH01-23
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DESIGN BY: WARD
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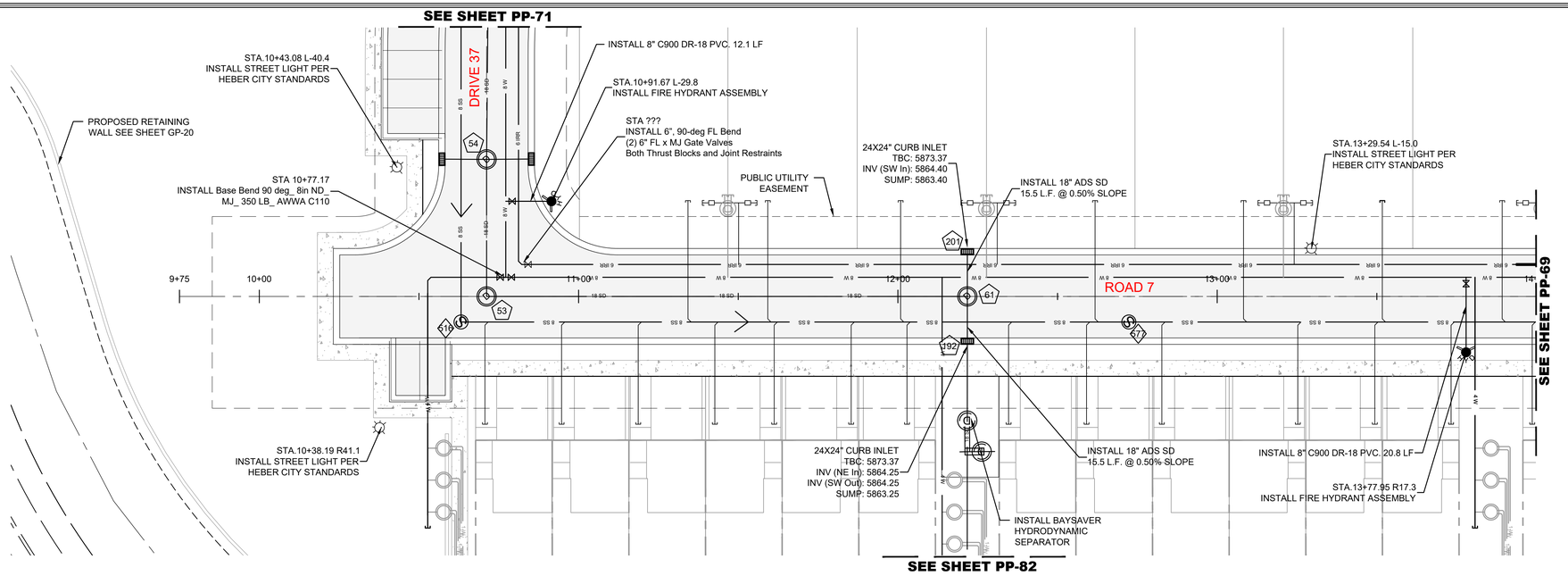
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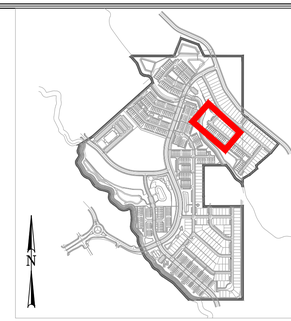
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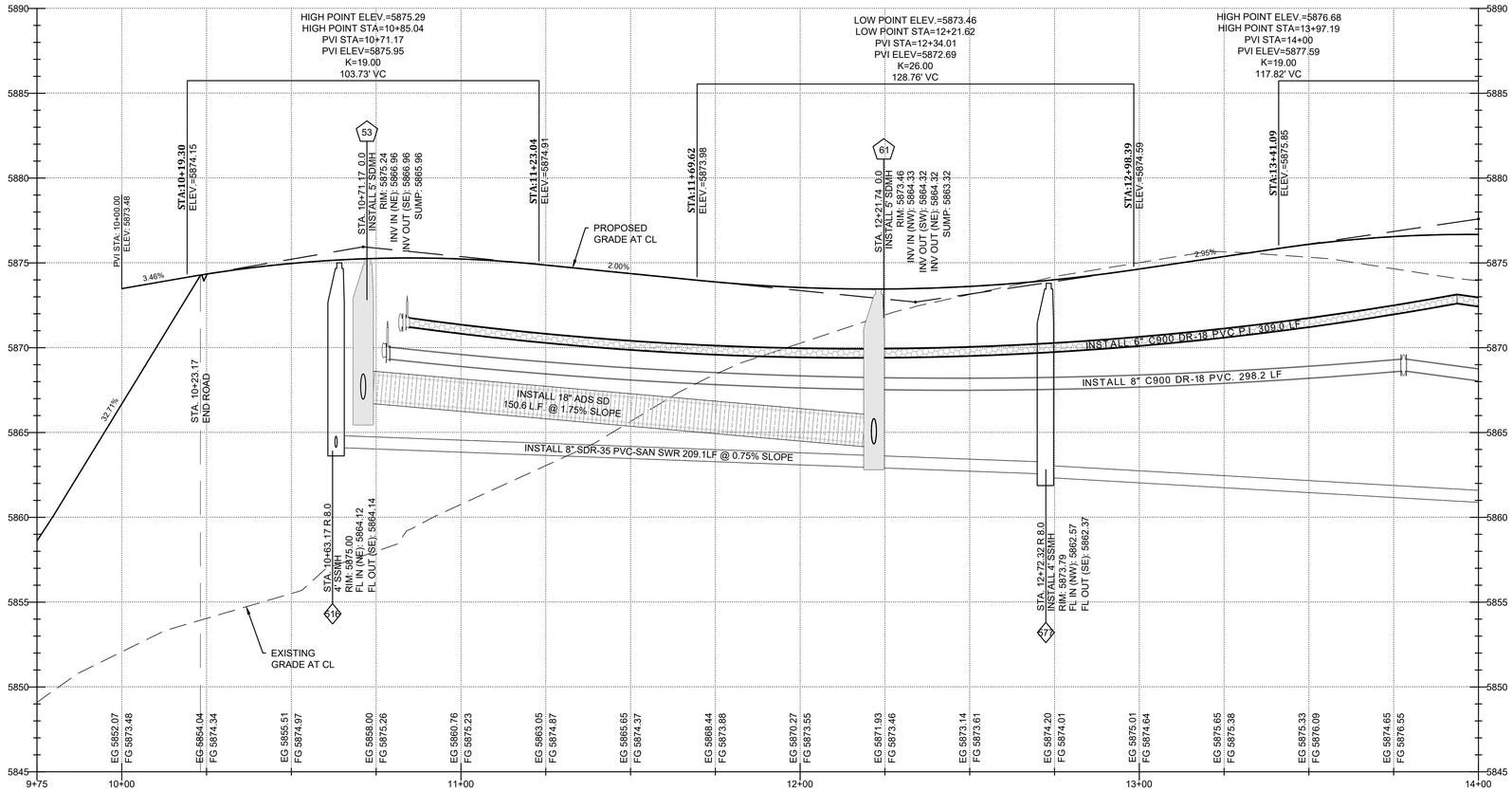
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PP-69

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Plan & Profiles\From Dev\Road 7.dwg TAB: PP-69 Roadway Plan & Profile- Road 7 PLOT DATE AND TIME: 8/7/2024 1:20 PM

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Vertical Scale: 1"=4'

SCALE:
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VERTICAL: 1" = 4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Road 7

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: ROAD 7.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in ! DIMENSIONS AND NOTES TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

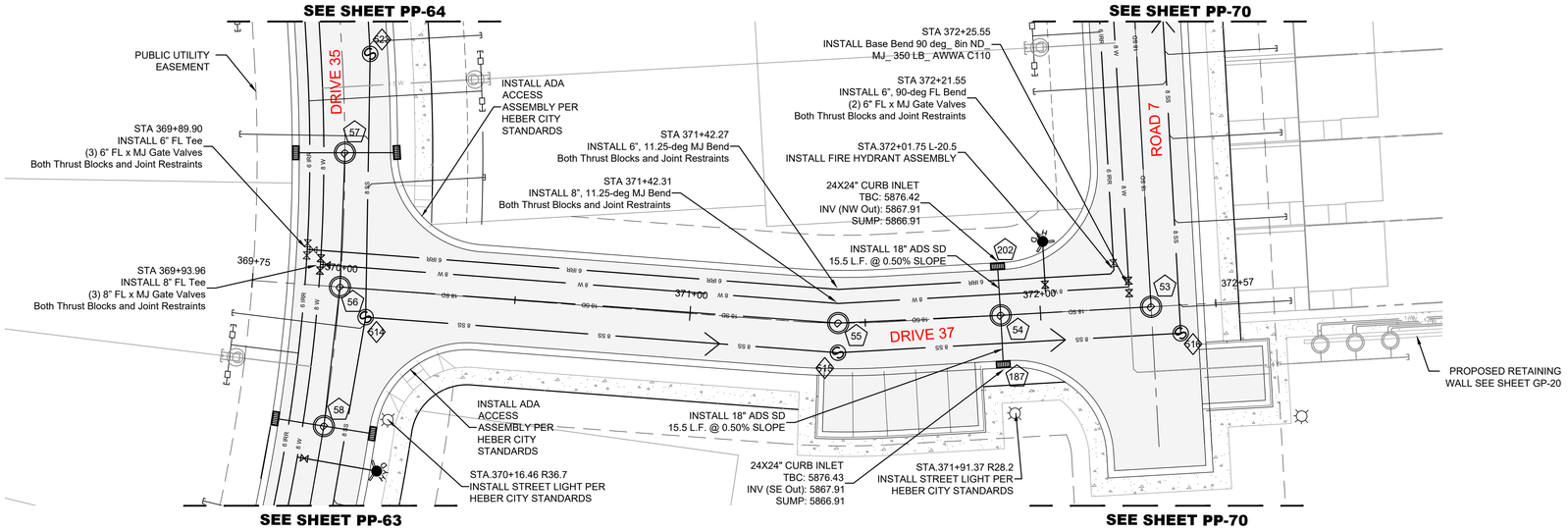
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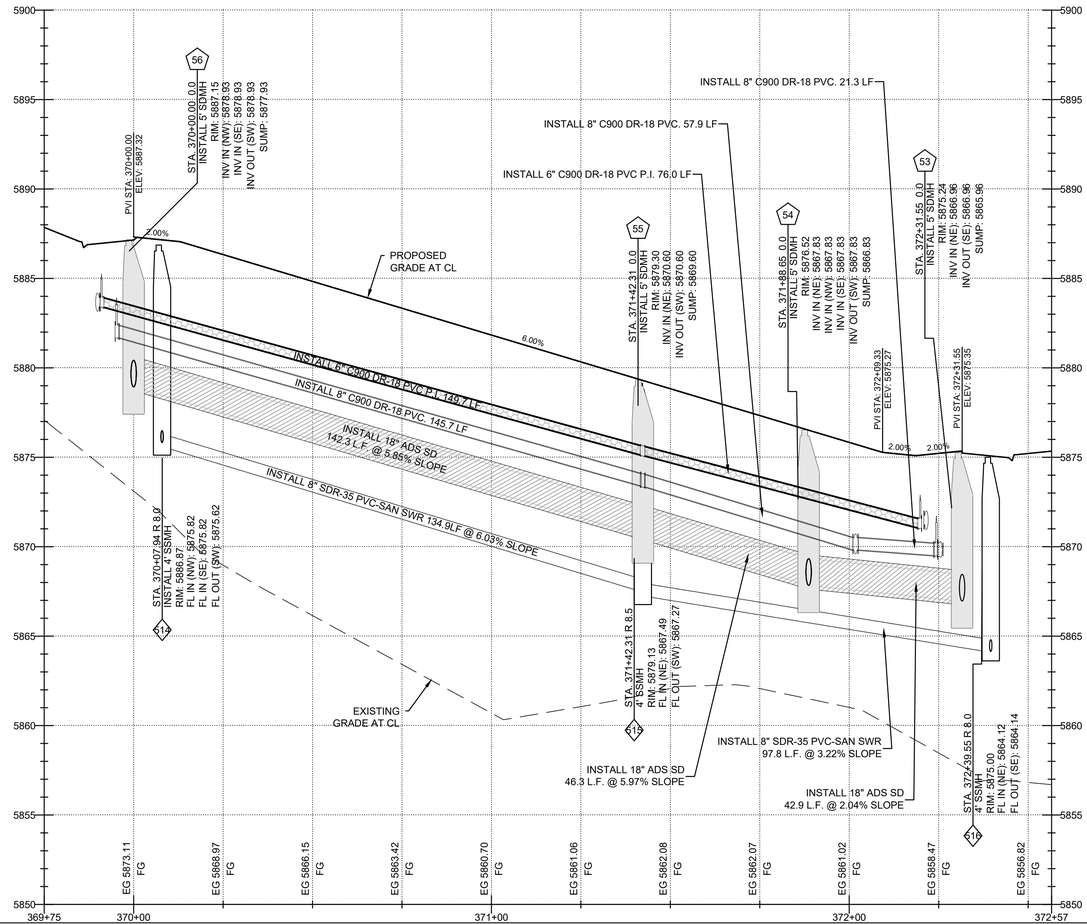
ARI J. SATTAR
SATTAR N. TABRIZ
8160684

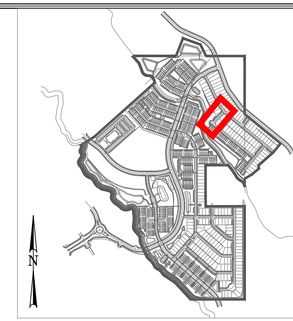
SHEET
PP-70

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Roadway Plan & Profile- Drive 37

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: DRIVE 37.DWG
JOB No: 3891-DRH01-23
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

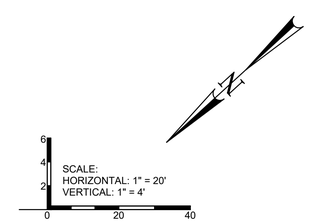
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PP-71



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STORM DRAIN PLAN & PROFILES

STORM DRAIN PLAN & PROFILES	
Sheet Number	Sheet Title
--	Sub-Title Sheet- Storm Drain Plan & Profiles
PP-000	Storm Drain Plan & Profiles Kep Map
PP-72	SD Plan & Profile- Pond 6
PP-73	SD Plan & Profile- Pond 8
PP-74	SD Plan & Profile- Pond 8 & 9
PP-75	SD Plan & Profile- Pond 7
PP-76	SD Plan & Profile- Pond 10
PP-77	SD Plan & Profile- Pond 12
PP-78	SD Plan & Profile- Pond 12
PP-79	SD Plan & Profile- Pond 6
PP-80	SD Plan & Profile- Pond 3 & 4
PP-81	SD Plan & Profile- Pond 3 & 4
PP-82	SD Plan & Profile- Pond 13
PP-83	SD Plan & Profile- Pond 13
PP-84	SD Plan & Profile- Pond 13
PP-85	SD Plan & Profile
PP-86	SD Plan & Profile
PP-87	SD Plan & Profile- Pond 14 & 15

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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SUB-TITLE SHEET- STORM DRAIN PLAN & PROFILES

231 West 800 South Salt Lake City, Utah 84101
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PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: COVER SHEET.DWG
JOB No: 3891-DRH01-23
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DATE: 07/29/2024

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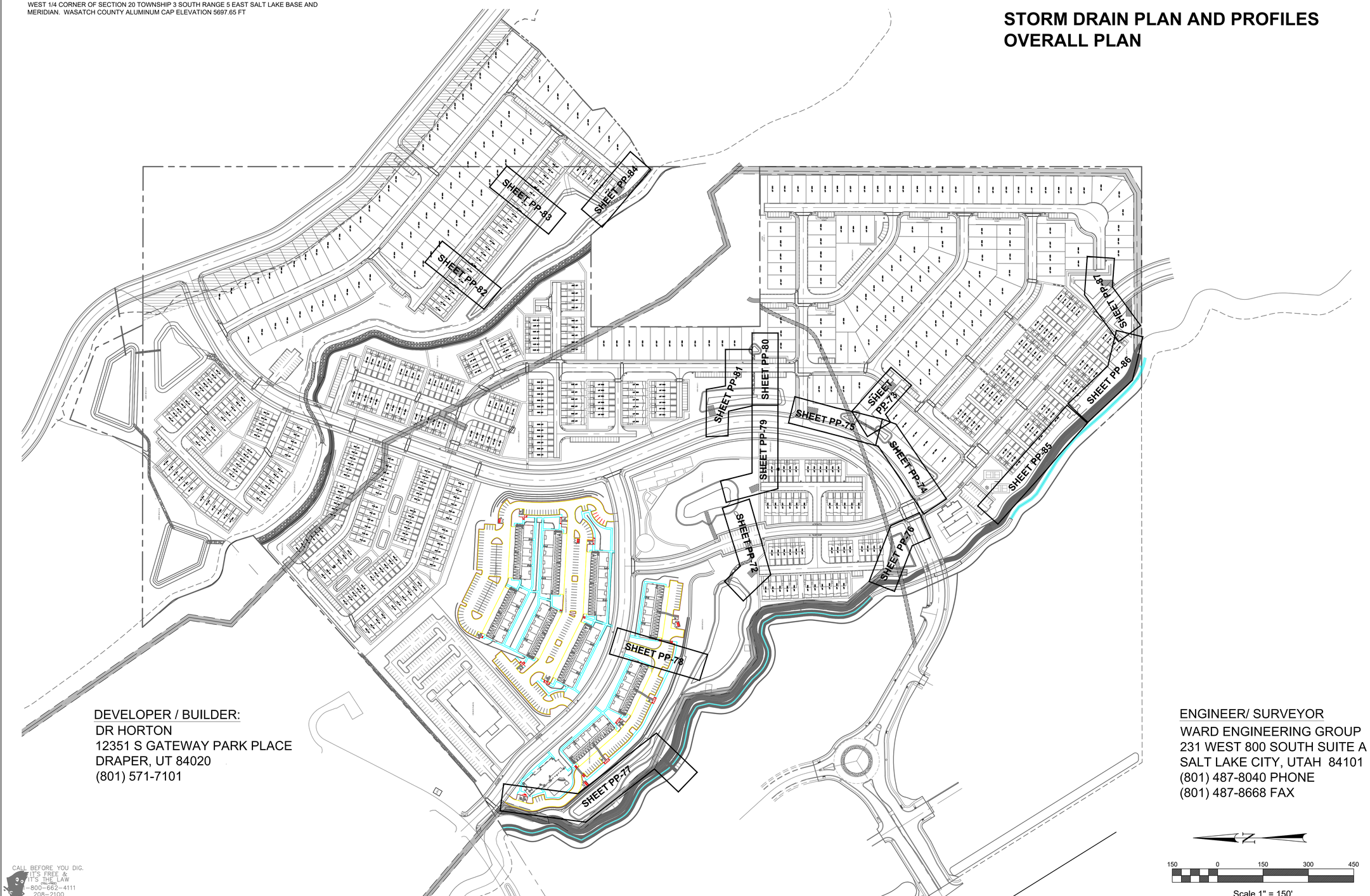
PROFESSIONAL ENGINEER
SATTAR N. TABMIZ
8/6/2024
STATE OF UTAH

SHEET

BENCHMARK

WEST 1/4 CORNER OF SECTION 20 TOWNSHIP 3 SOUTH RANGE 5 EAST SALT LAKE BASE AND MERIDIAN. WASATCH COUNTY ALUMINUM CAP ELEVATION 5697.65 FT

STORM DRAIN PLAN AND PROFILES
OVERALL PLAN



DEVELOPER / BUILDER:
DR HORTON
12351 S GATEWAY PARK PLACE
DRAPER, UT 84020
(801) 571-7101

ENGINEER/ SURVEYOR
WARD ENGINEERING GROUP
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SALT LAKE CITY, UTAH 84101
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(801) 487-8668 FAX

150 0 150 300 450
Scale 1" = 150'

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
STORM DRAIN PLAN & PROFILES
KEY MAP

231 West 800 South Salt Lake City, Utah 84101
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JOB No: 3891-DRH01-23
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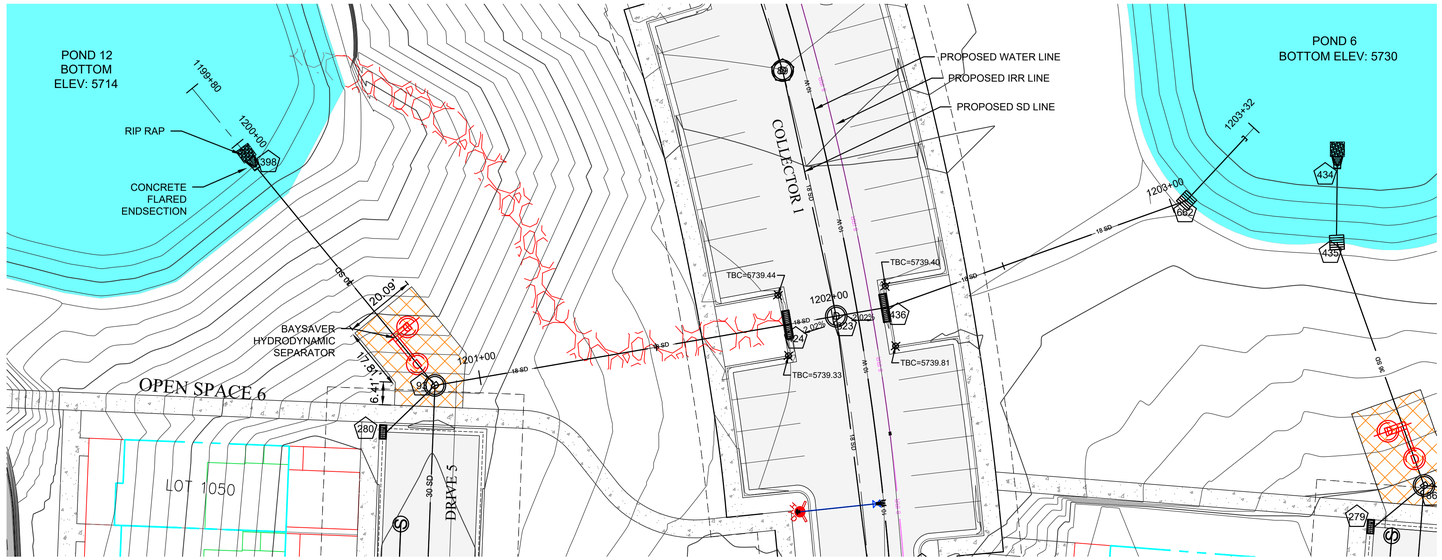
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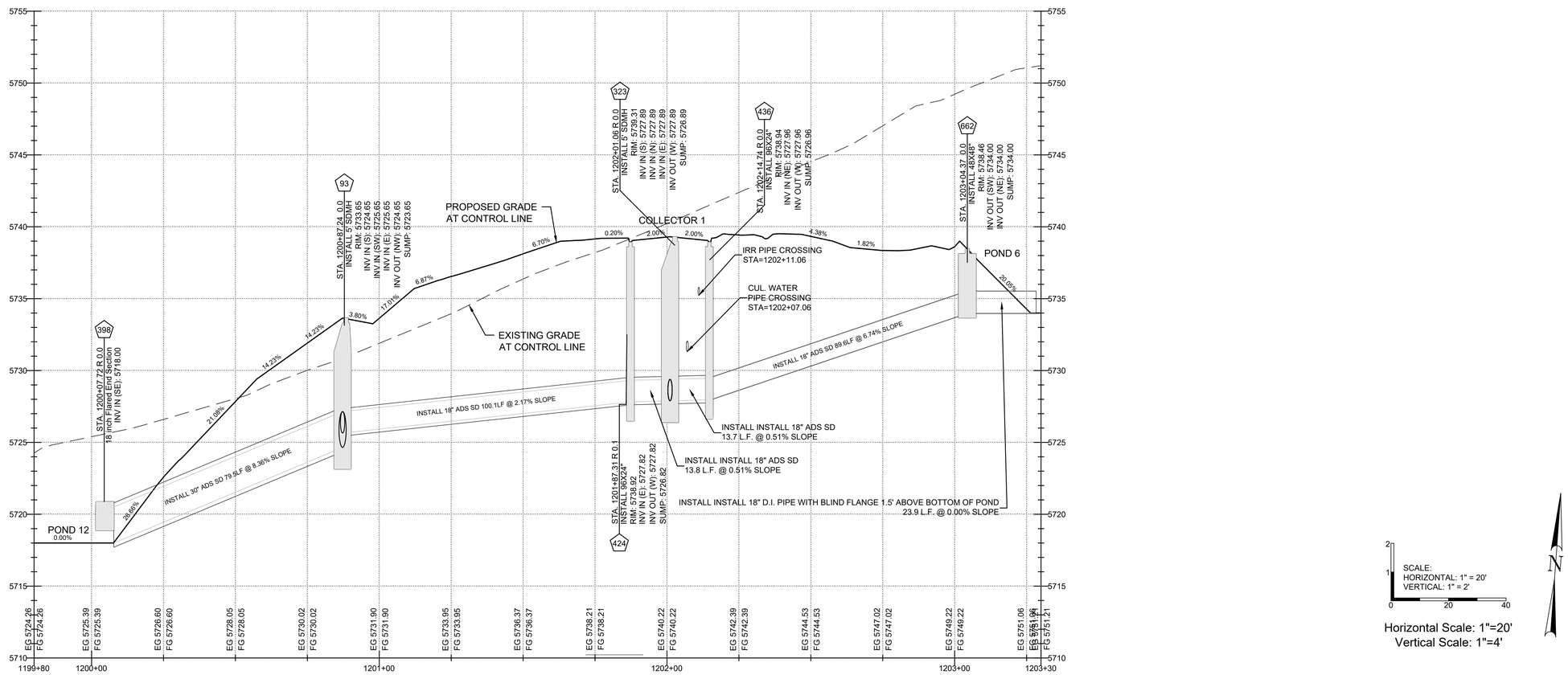


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MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER
6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

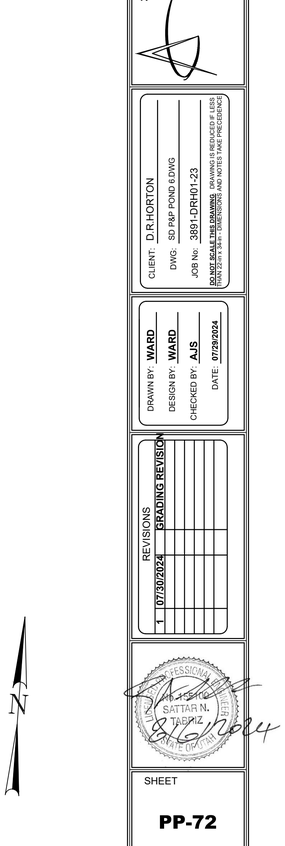
POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.



2
1
0
20
40
SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'



HIGHLANDS RESIDENTIAL DEVELOPMENT
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CLIENT: D.R HORTON
DWG: SD P&P POND 6.DWG
JOB No: 3891-DRH01-23
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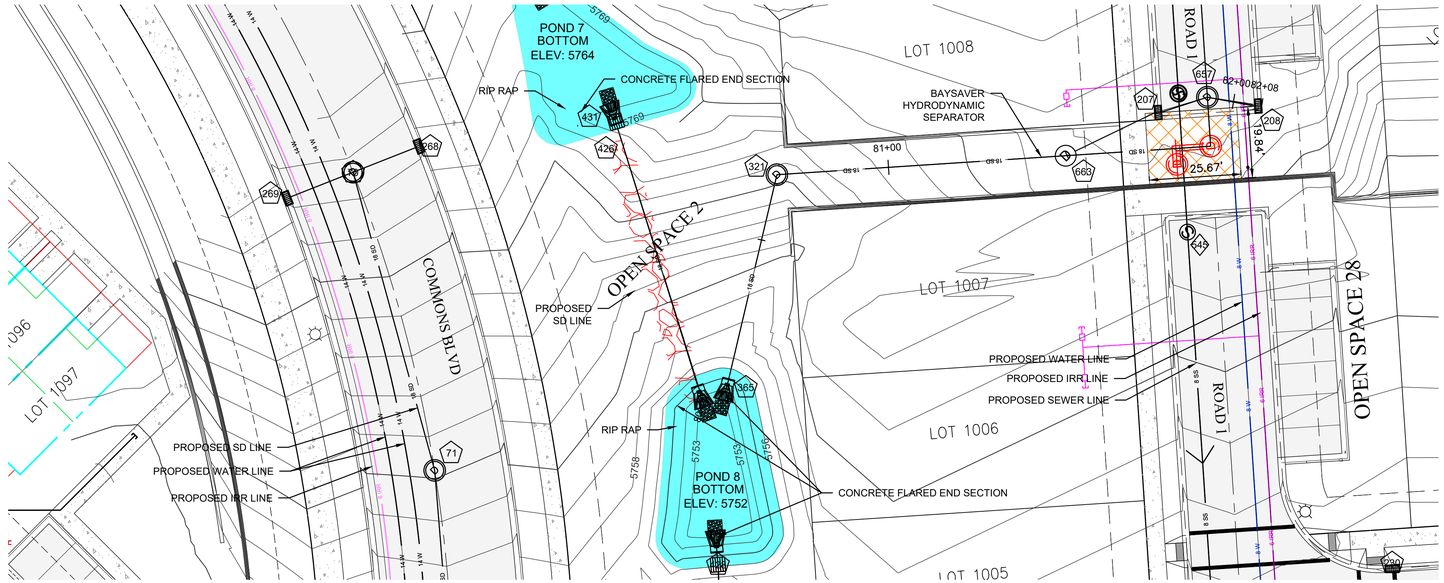
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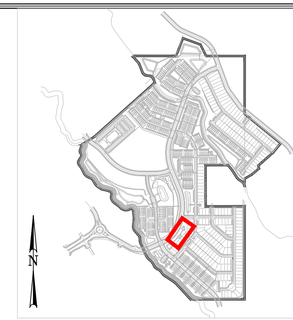
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PP-72

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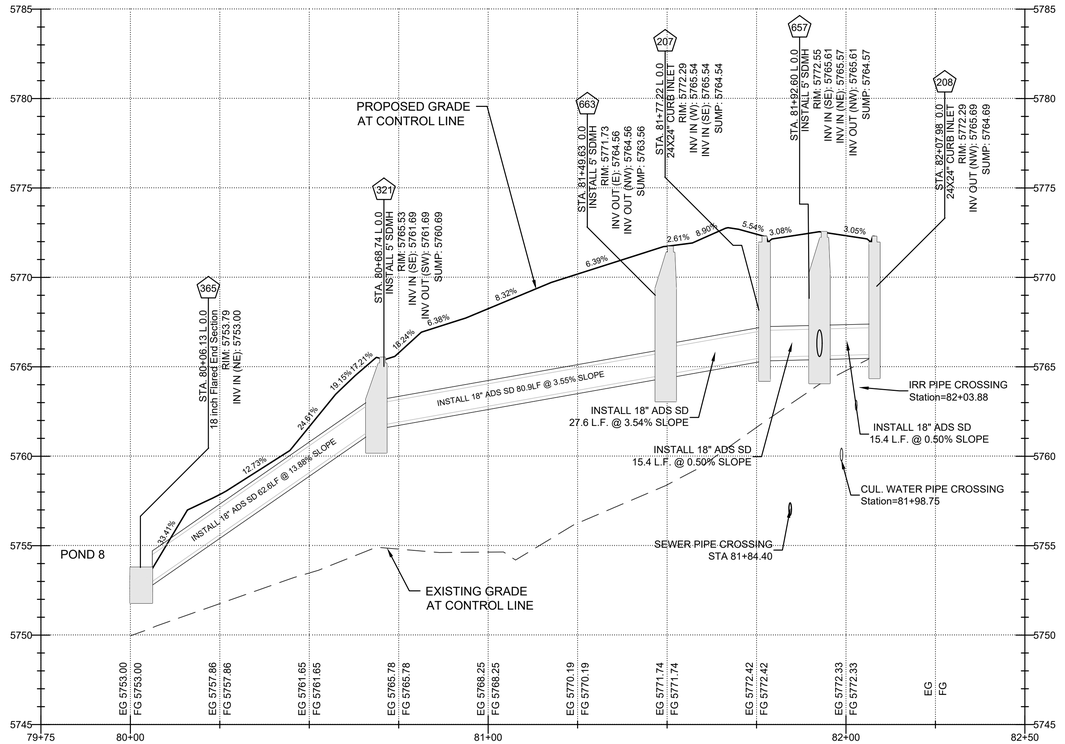


LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER
6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.



SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'
0 20 40

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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DWG: SD P&P POND 8.DWG
JOB No: 3891-DRH01-23
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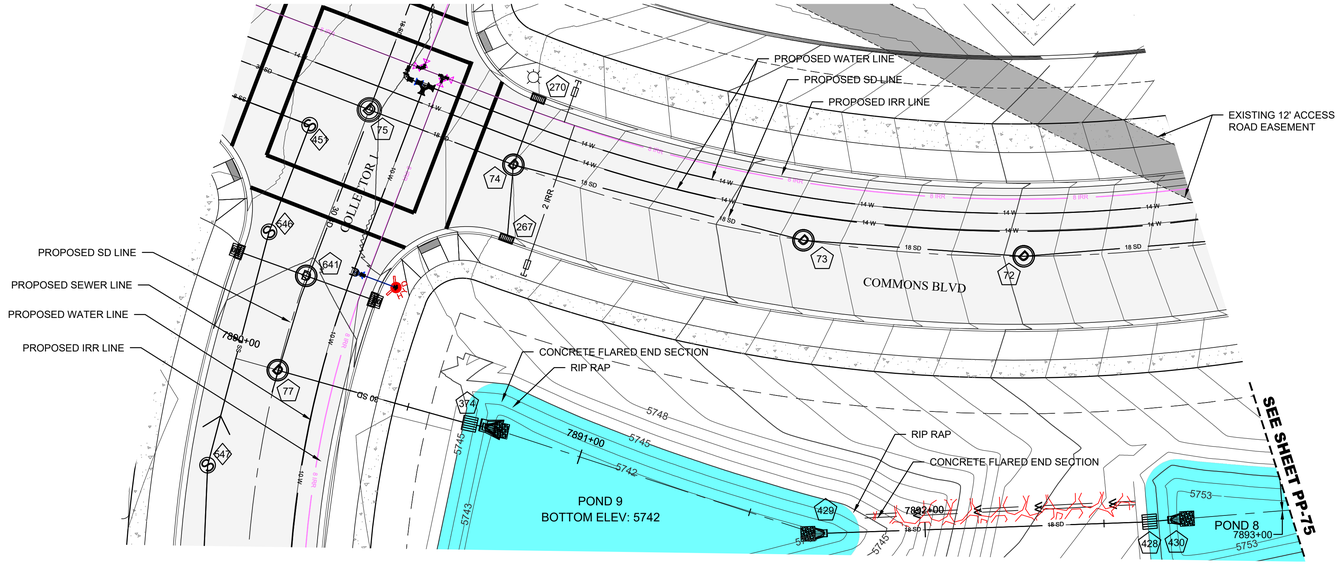
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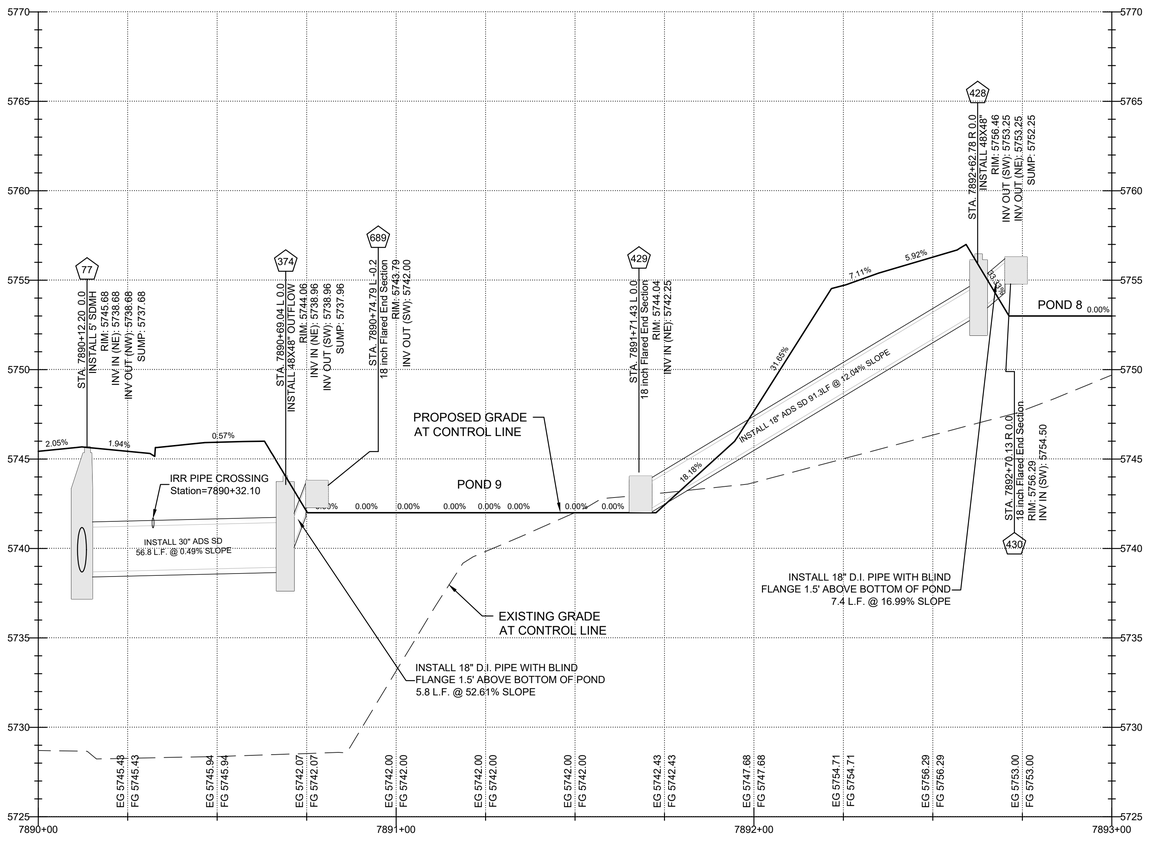
ARSHIA SATTAR N. 7867012
8/6/2024

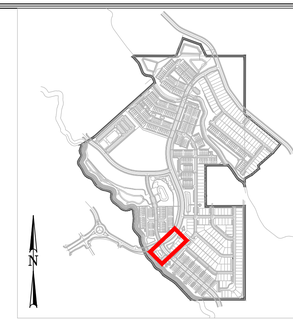
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PP-73

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LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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JOB No: 3891-DRH01-23
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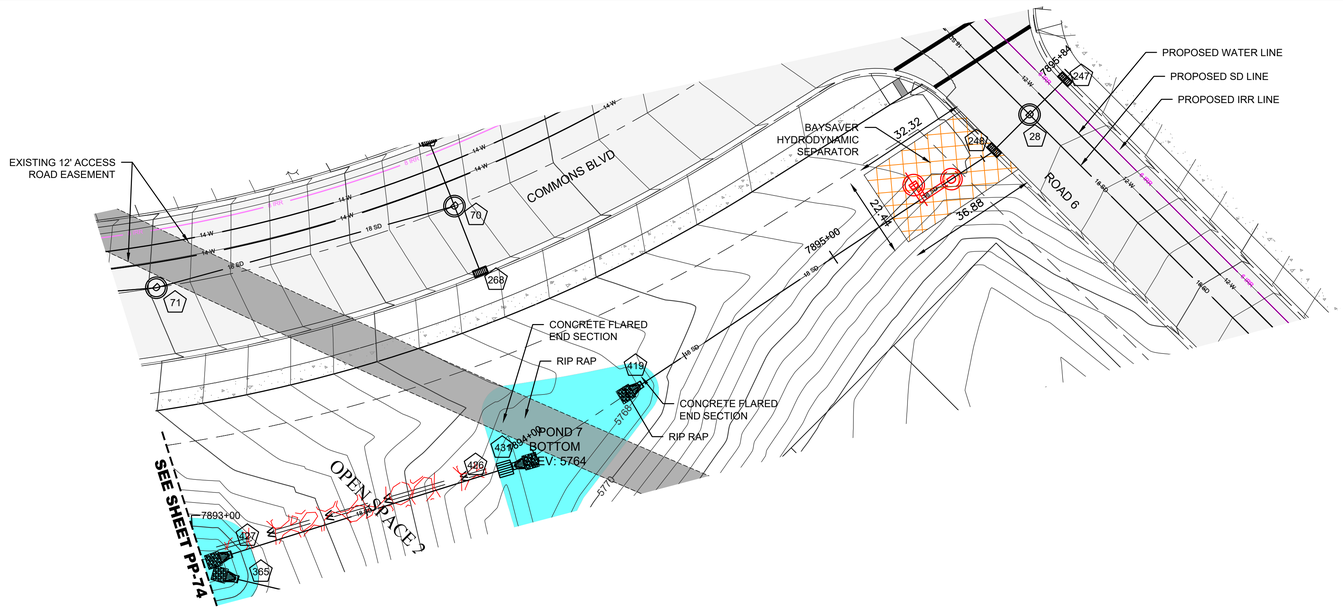
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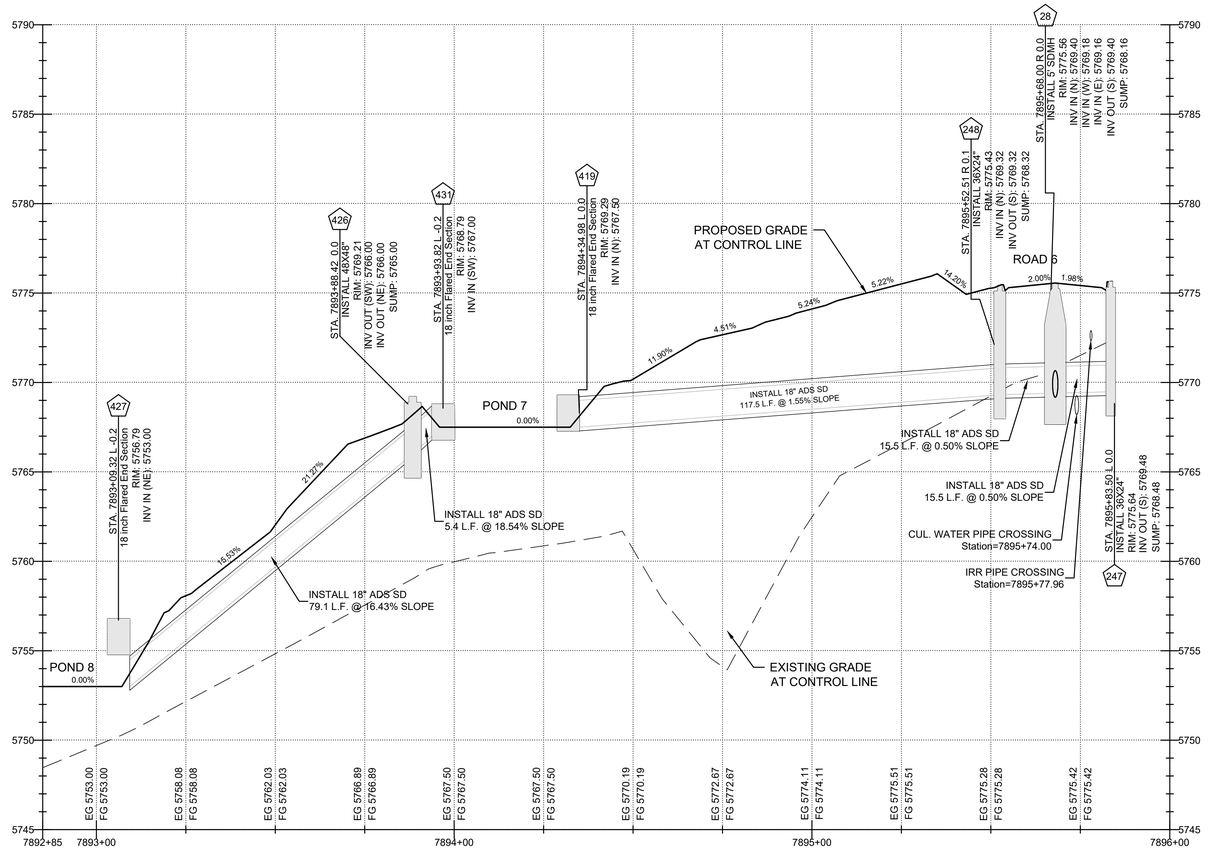
PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8/6/2024

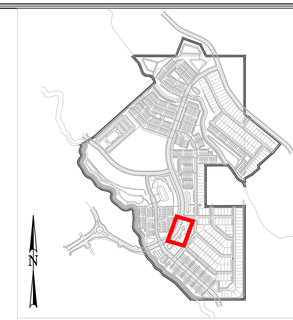
SHEET
PP-74

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LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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SD PLAN & PROFILE- POND 7

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DWG: SD P&P PONDS 789.DWG
JOB No: 3891-DRH01-23
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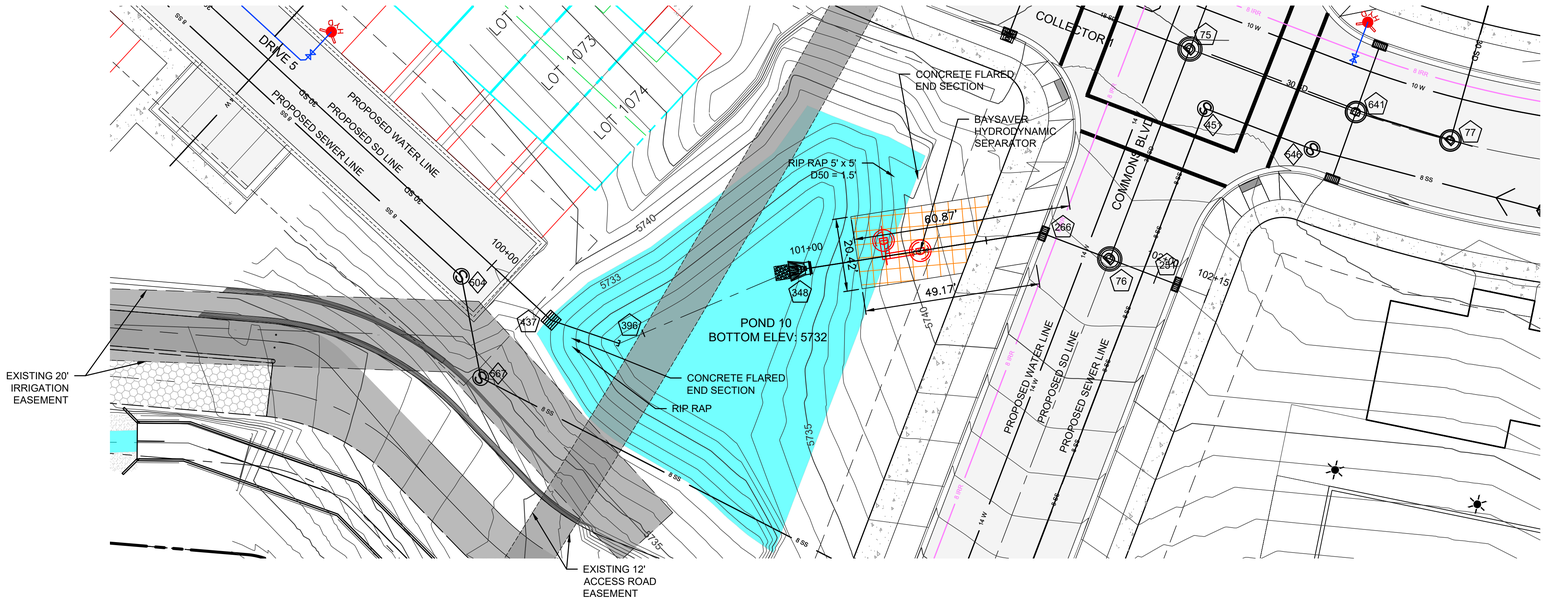
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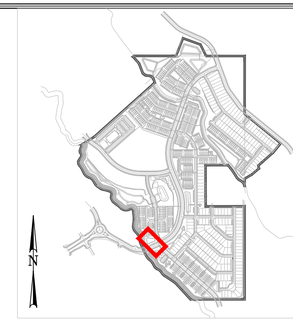
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ABDULHAKIM SATTAR N. TARMIZ
7838224
STATE OF UTAH

SHEET
PP-75

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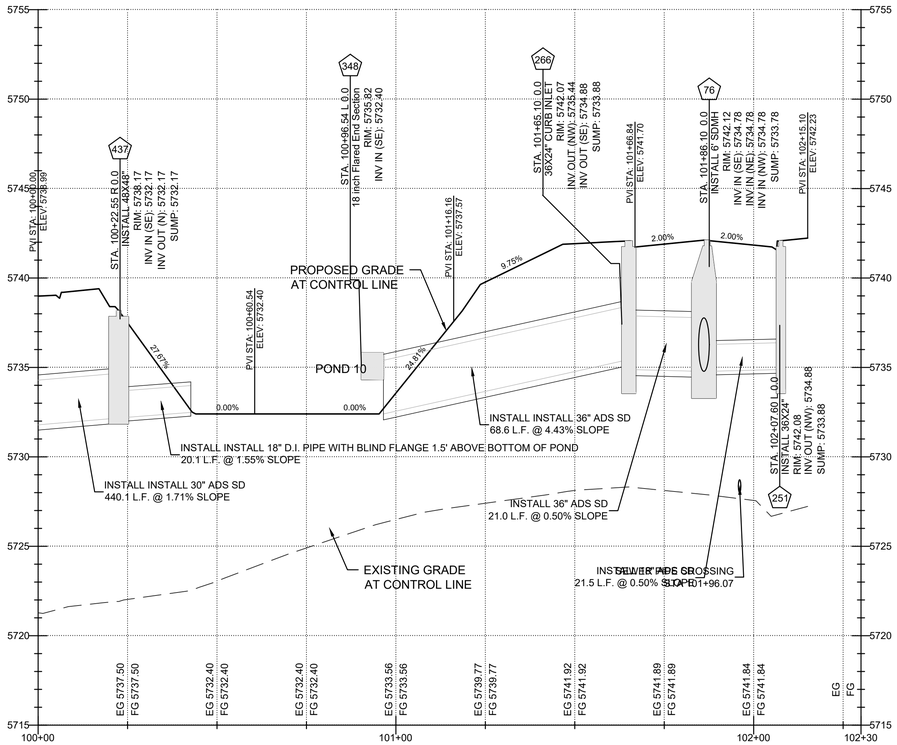


LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.



SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'
0 20 40
1 2

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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JOB No: 3891-DRH01-23
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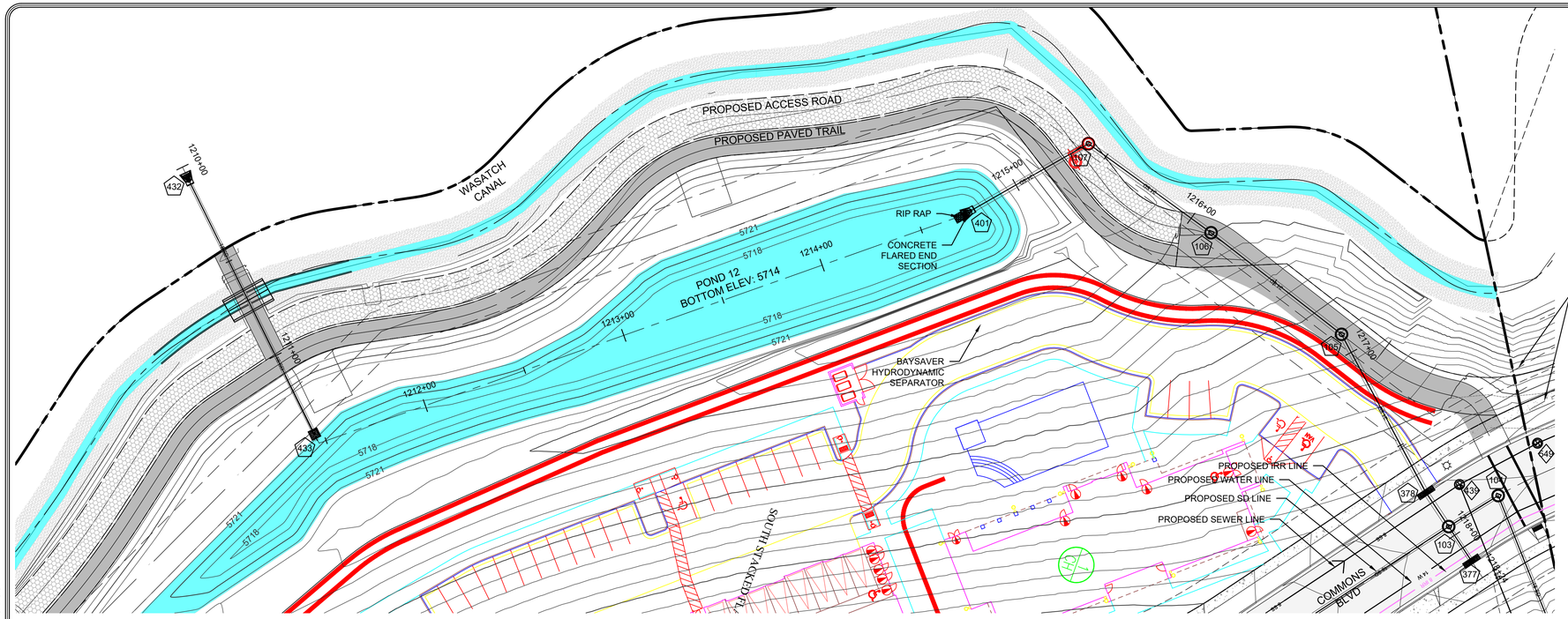
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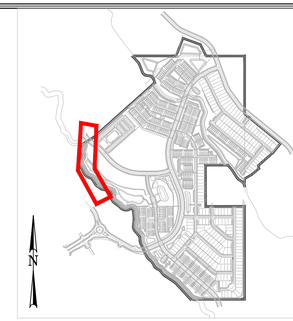
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ANDREW J. SATTAR N. TABMIZ
8/6/2024

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PP-76

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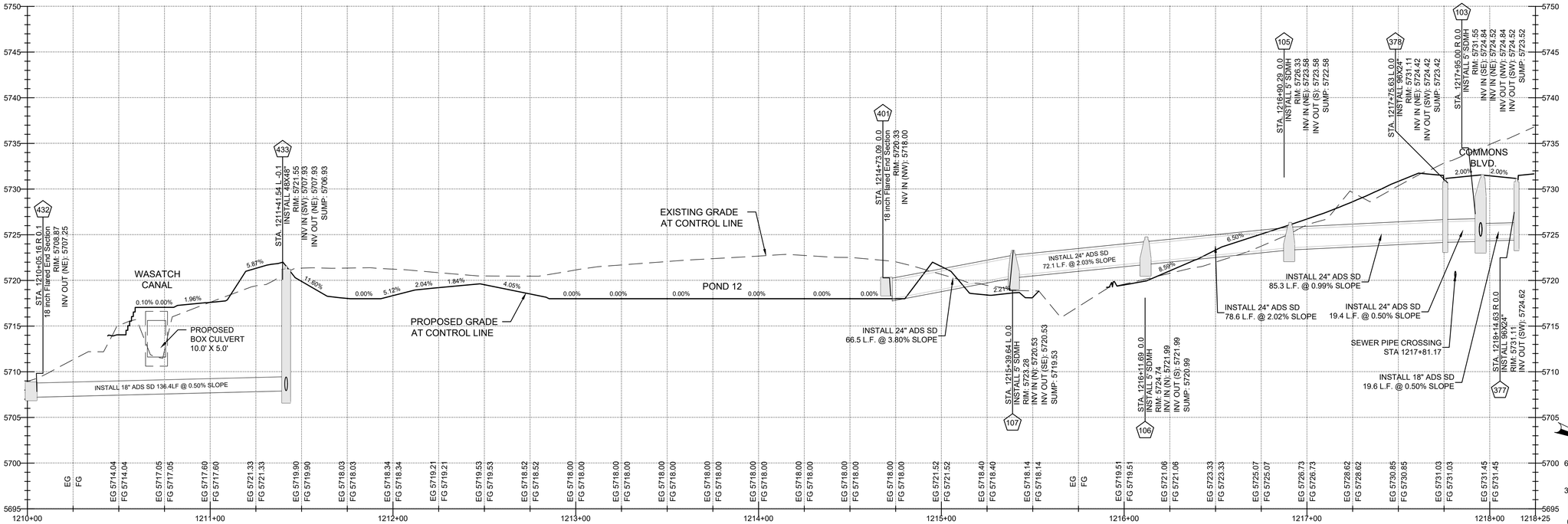


LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.



SCALE:
HORIZONTAL: 1" = 30'
VERTICAL: 1" = 6'
0 30 60
6 3 0

Horizontal Scale: 1"=30'
Vertical Scale: 1"=6'

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SD PLAN & PROFILE- POND 12

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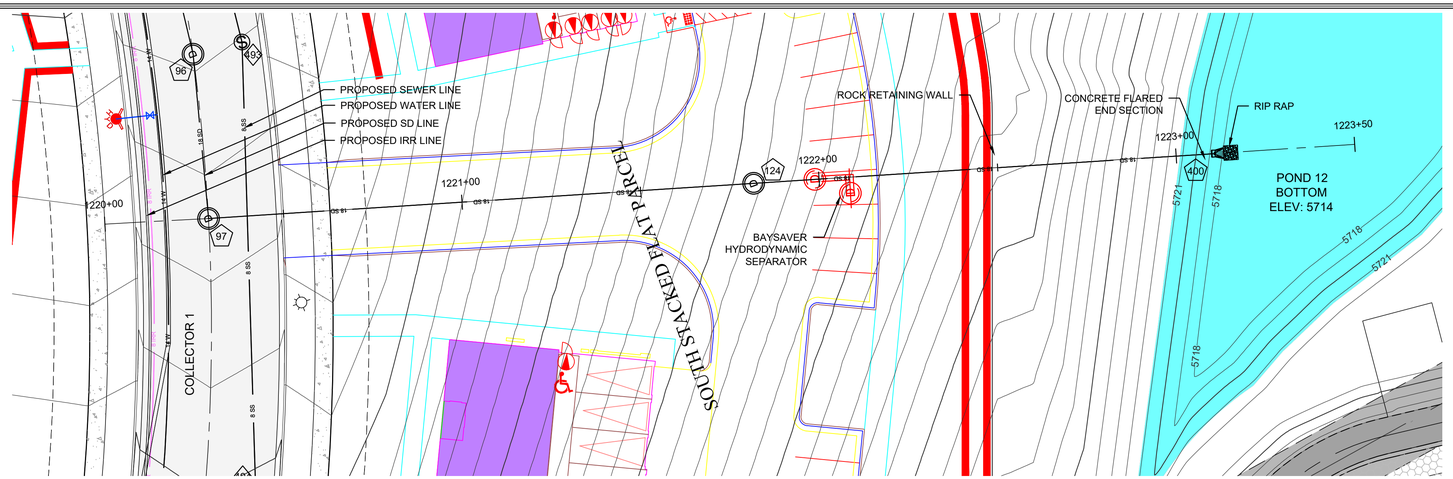
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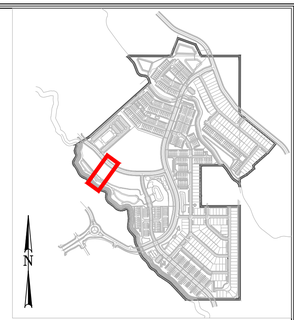
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8/6/2024

SHEET
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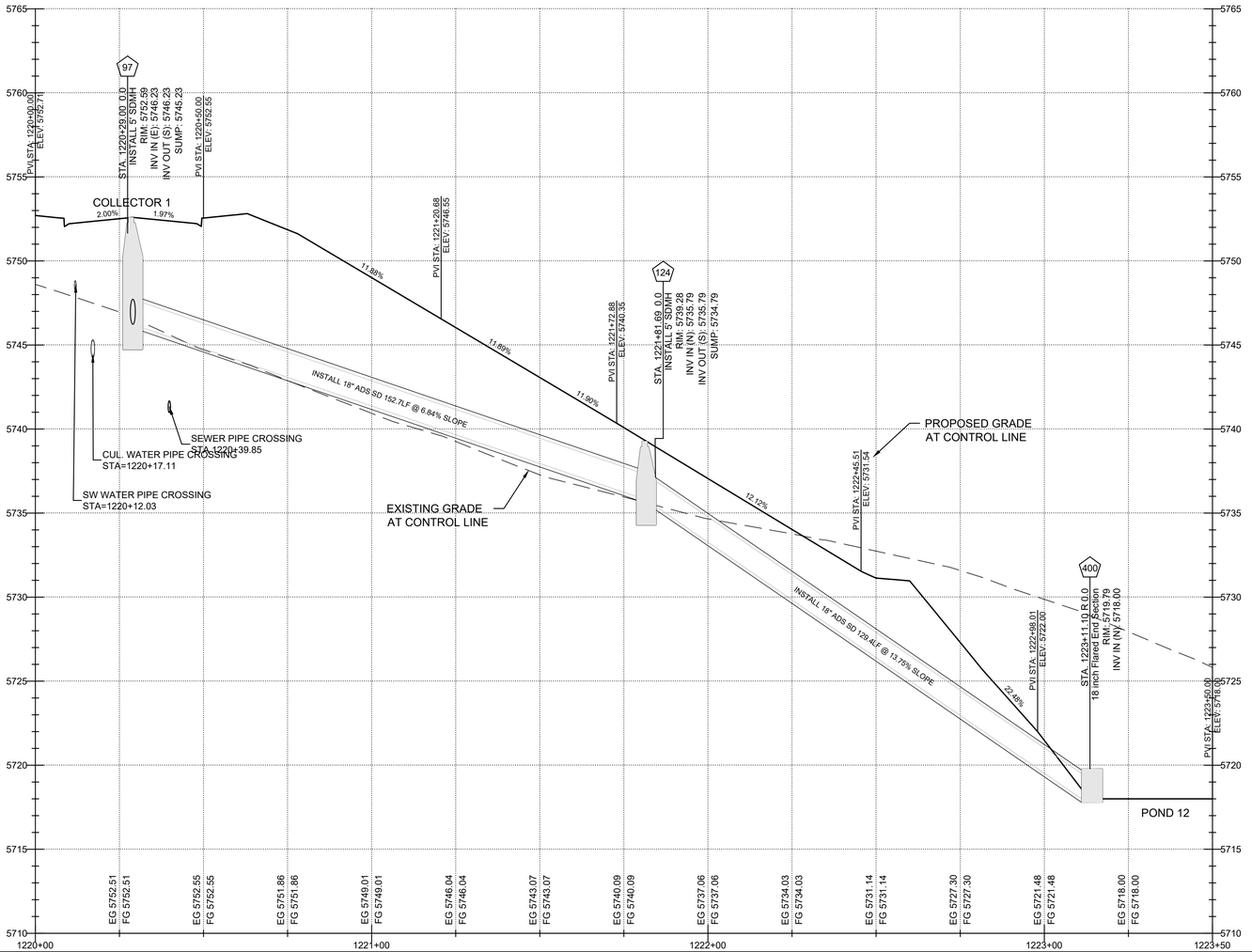


LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.



SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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JOB No: 3891-DRH01-23
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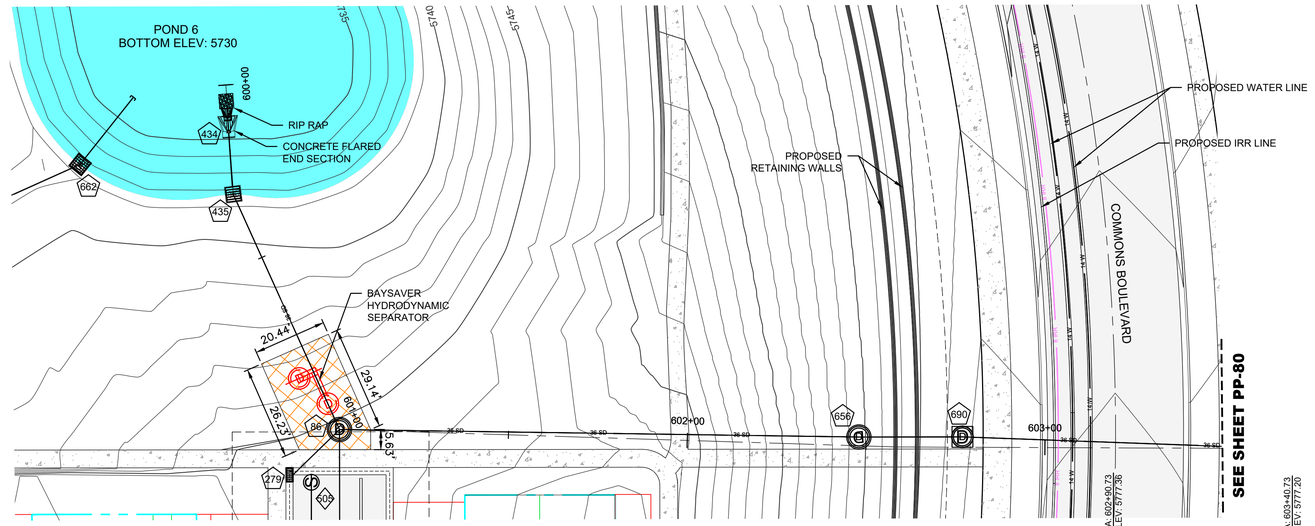
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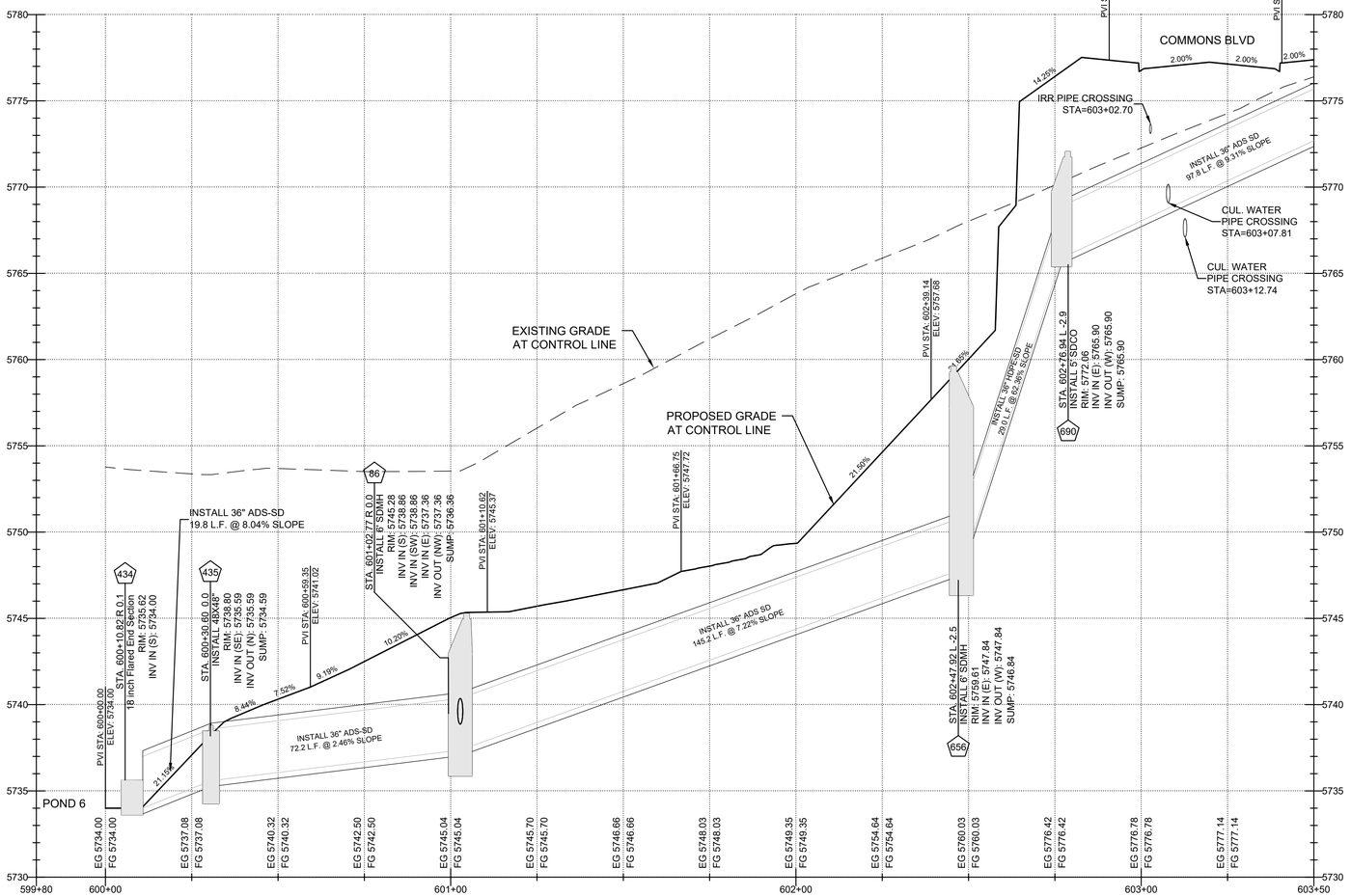
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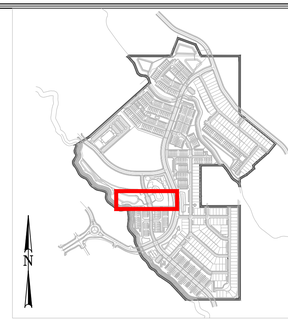
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SHEET
PP-78

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\SD LINES\SD P&P Pond 12-2.dwg TAB: PP-78 SD P&P Pond 12-2 - pond sd PLOT DATE AND TIME: 8/7/2024 9:21 PM







LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER
6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.

N

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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JOB No: 3891-DRH01-23
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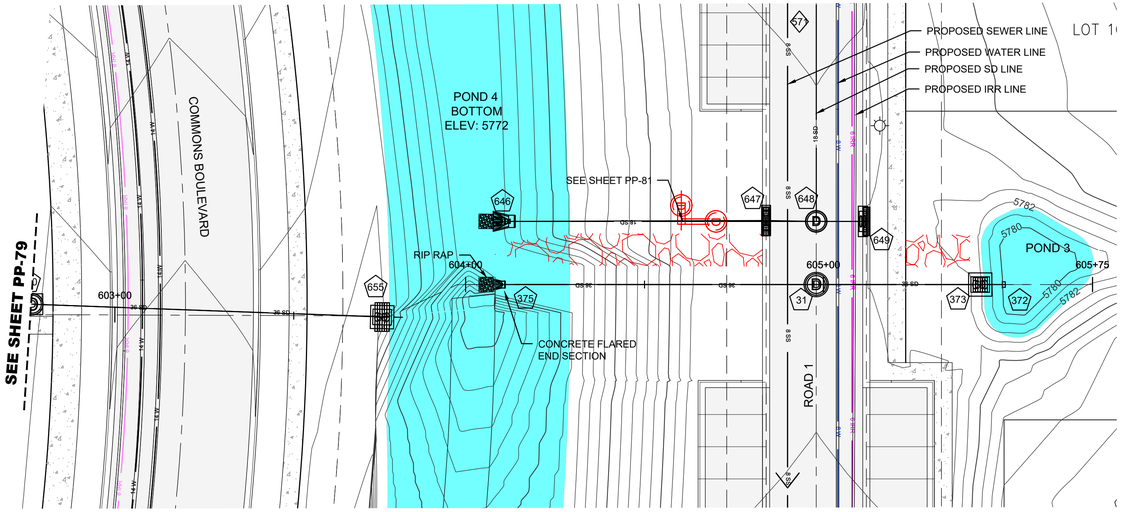
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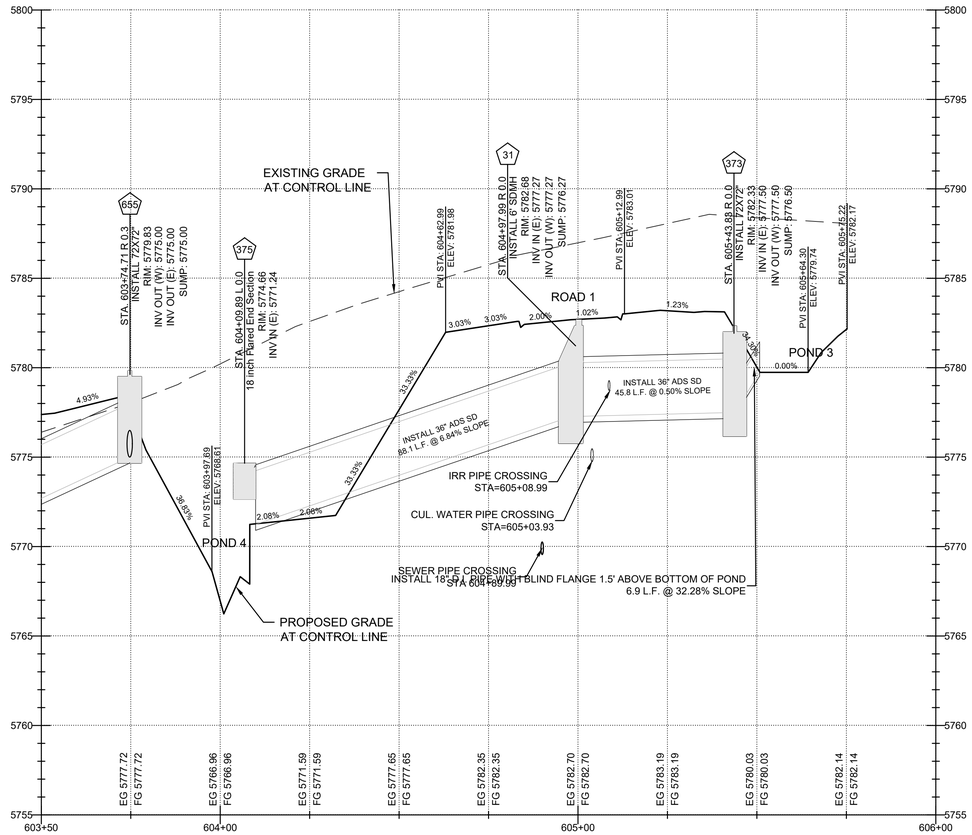
PROFESSIONAL ENGINEER
ALI J.
SATTARI N.
7186412
STATE OF UTAH

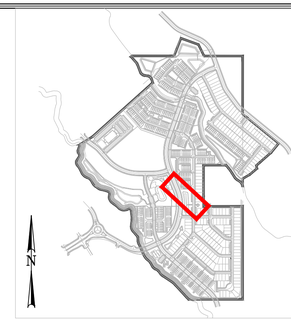
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PP-79

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\SD LINES\SD P&P Pond 12-3.dwg TAB: PP-79 SD P&P Pond 12-3 - POND12-6 PLOT DATE AND TIME: 8/7/2024 9:09 PM

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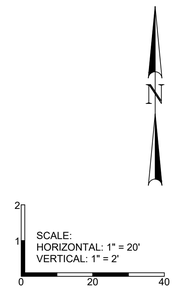


LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER
6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.



Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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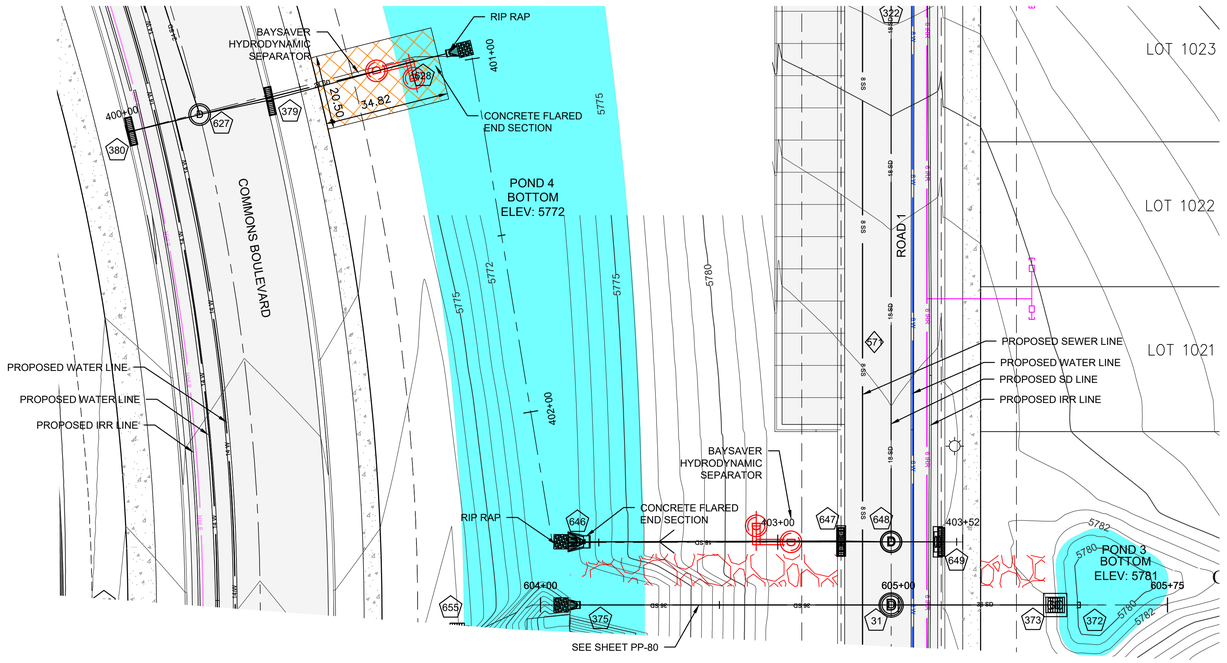
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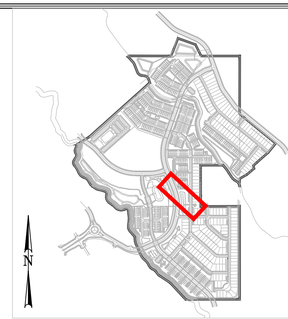
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8/16/2024

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PP-80

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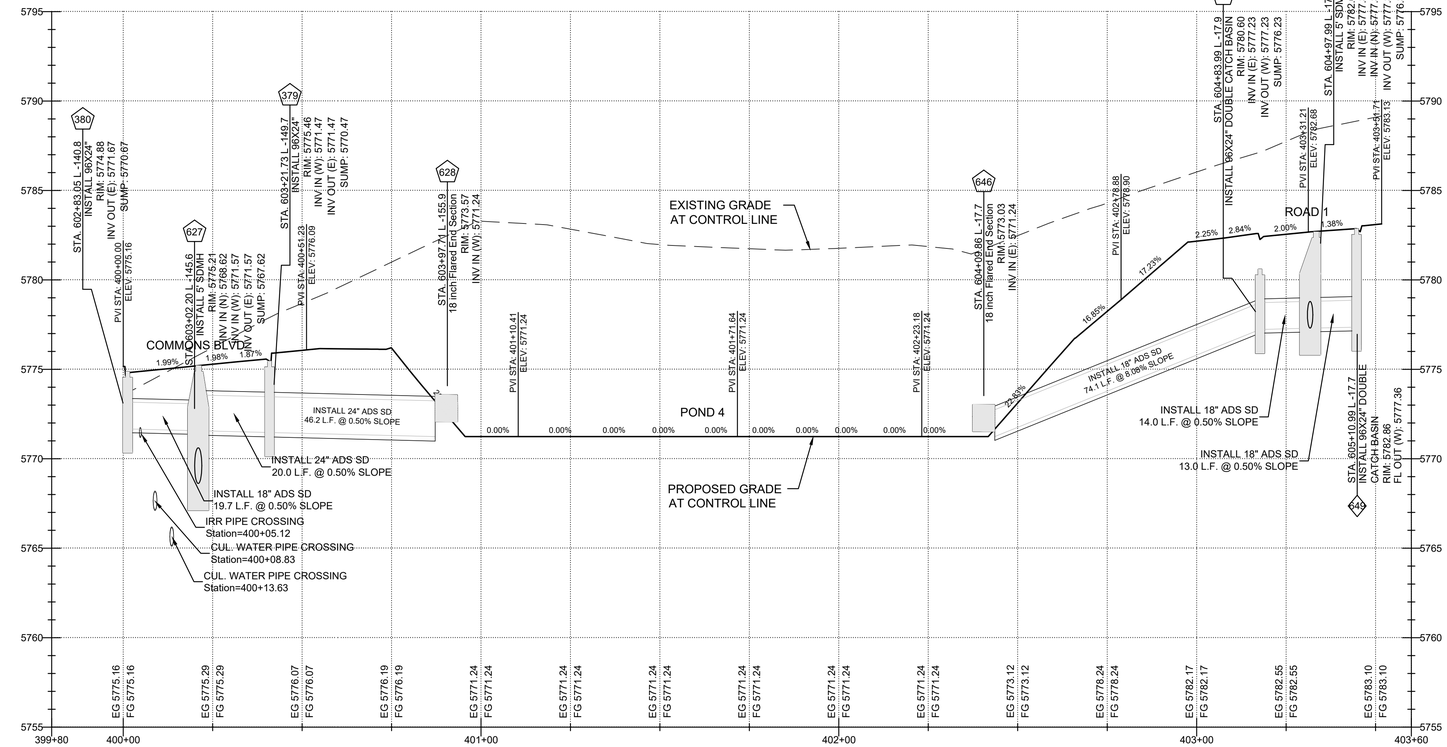


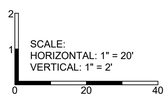
LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

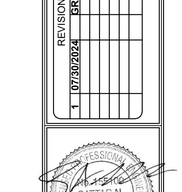
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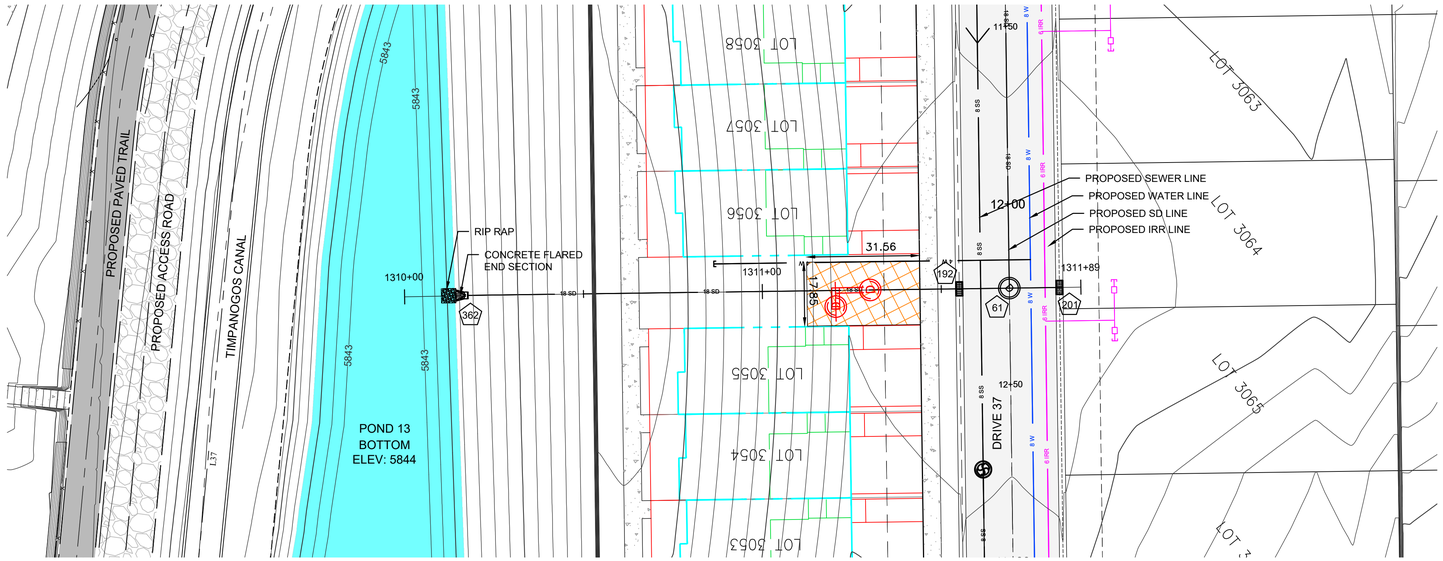
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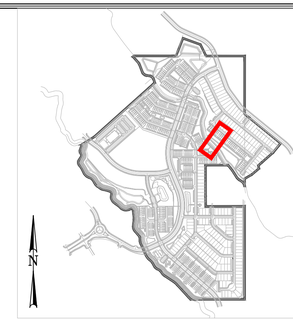


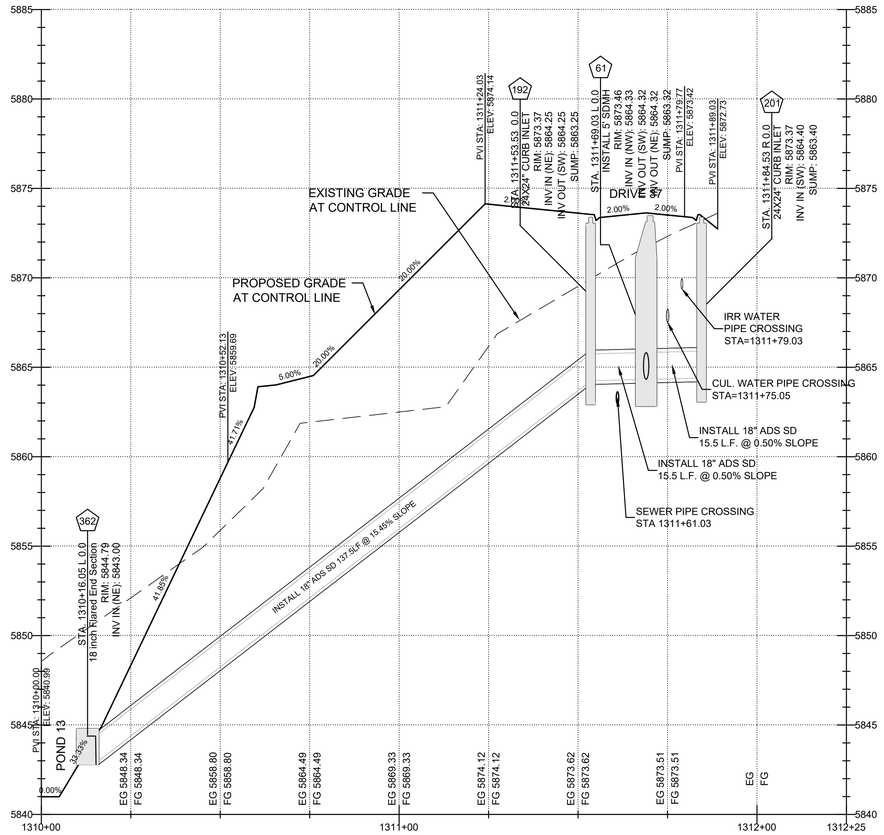
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PP-81

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MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER
6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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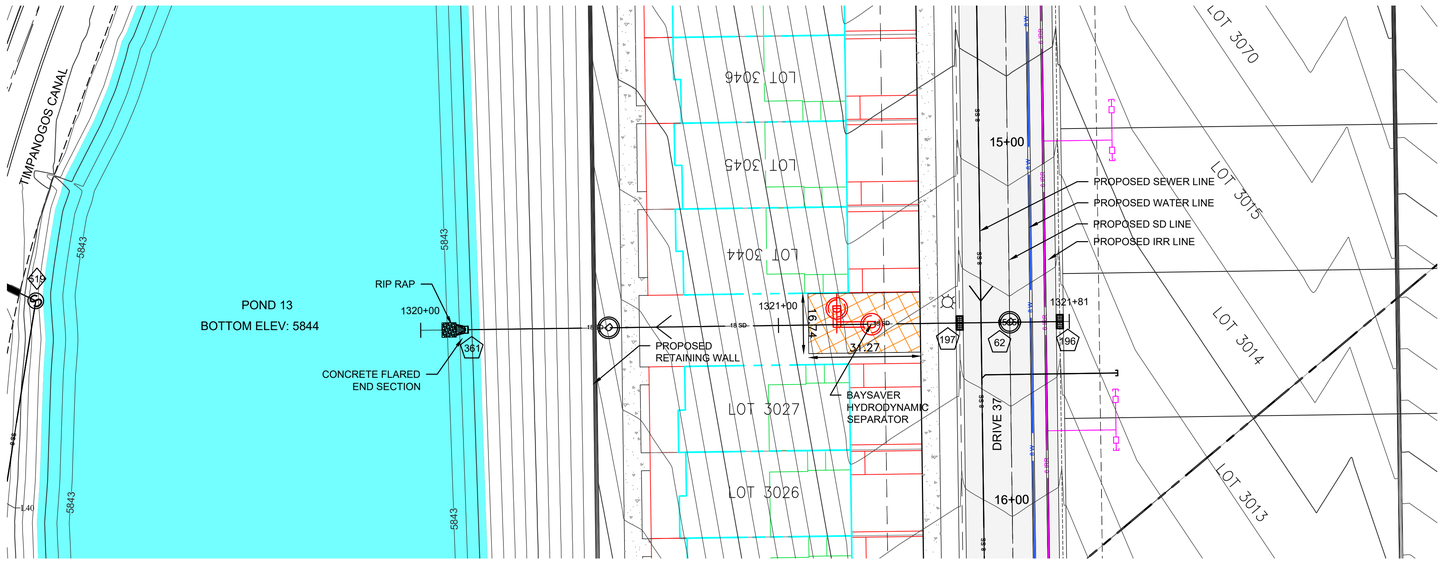
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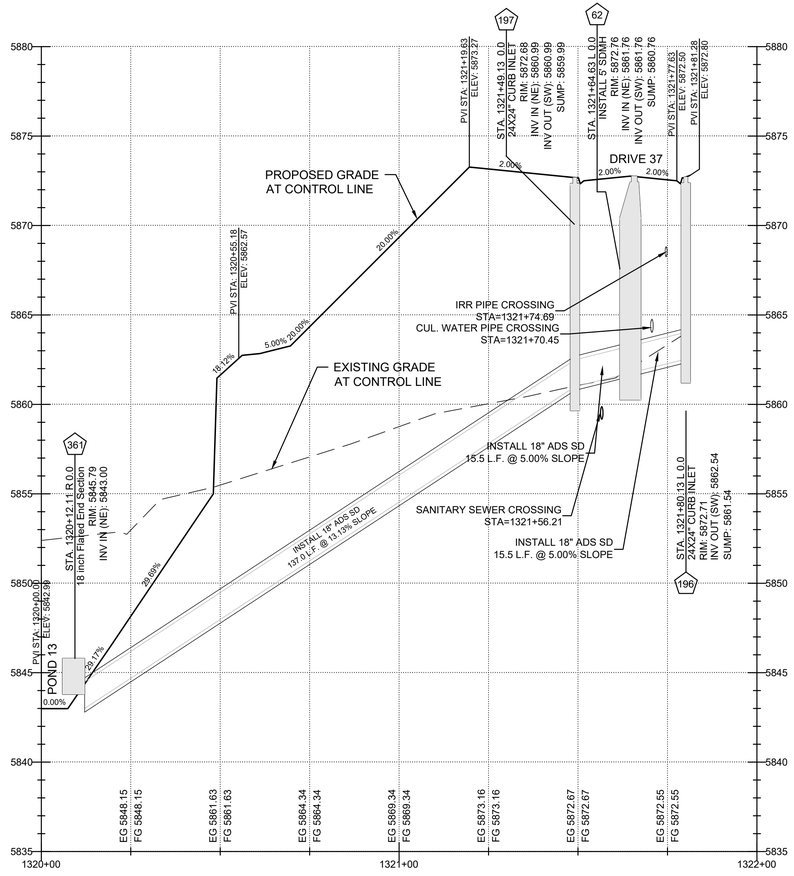
SATTAR N. TABRIZ
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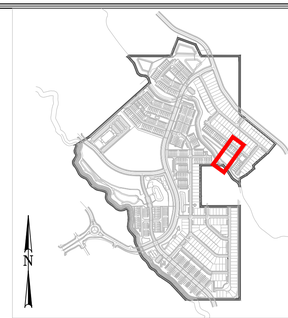
SHEET
PP-82

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LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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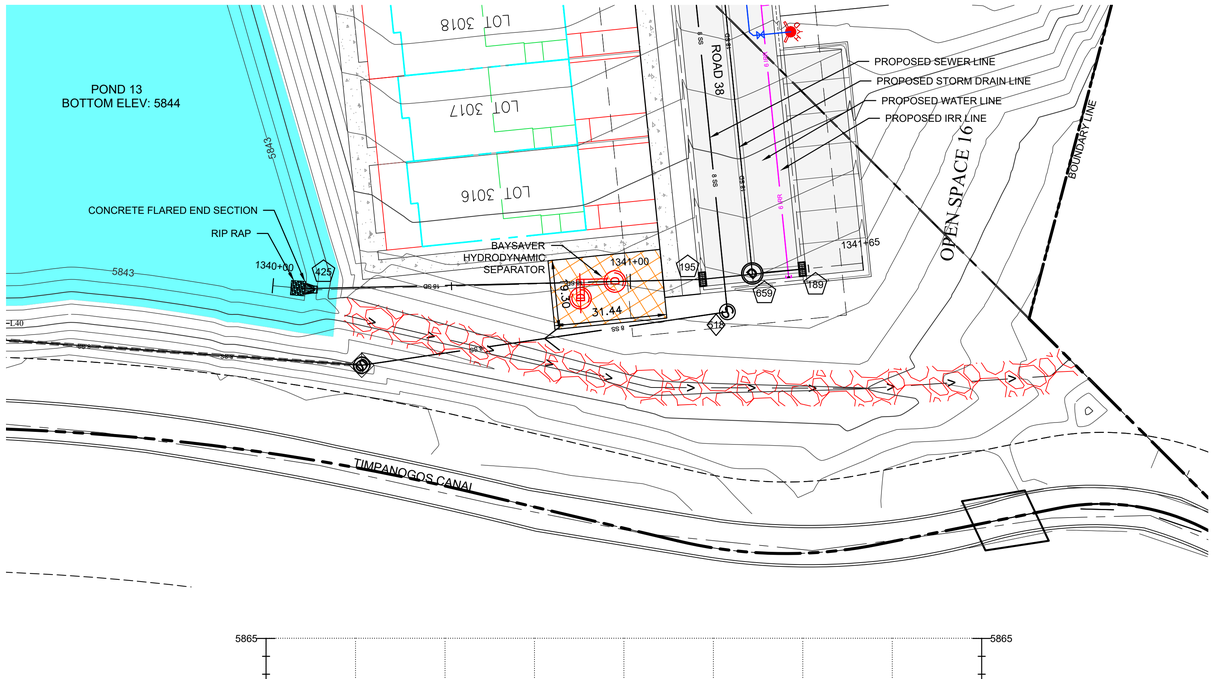
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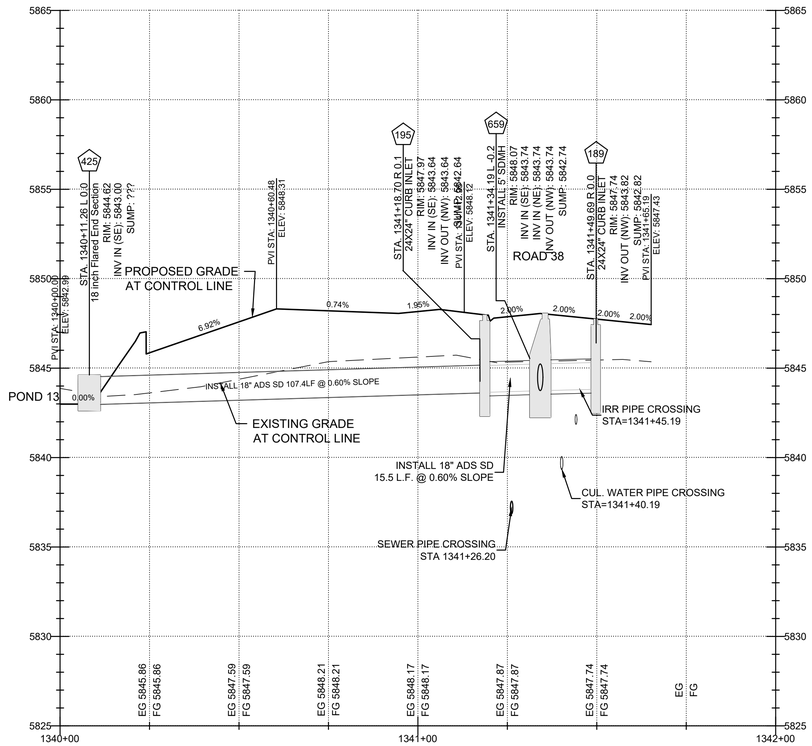
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ANDREW J. SATTAR N. 7 TABPIZ
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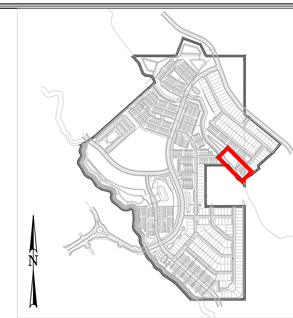
SHEET
PP-83

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LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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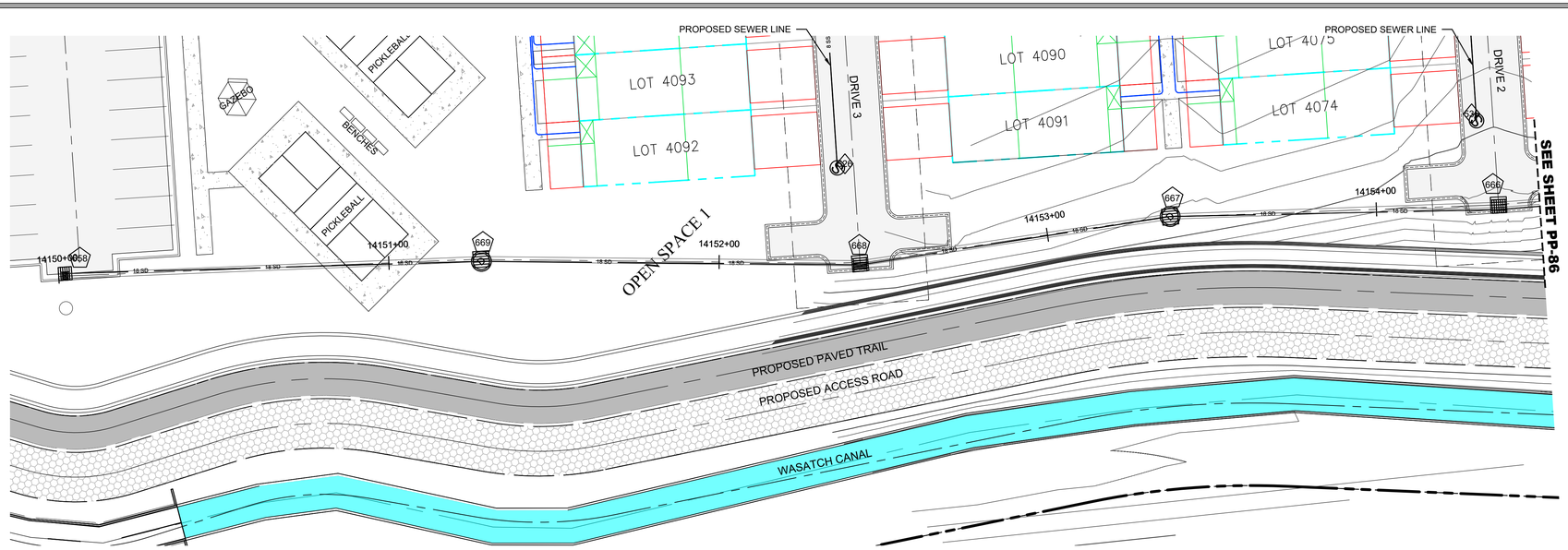
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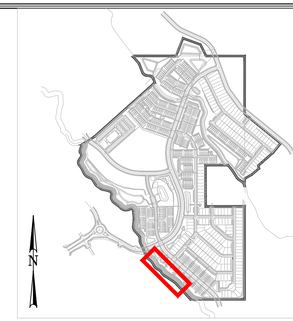
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SATTAR N. TABRIZ
8379804
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PP-84

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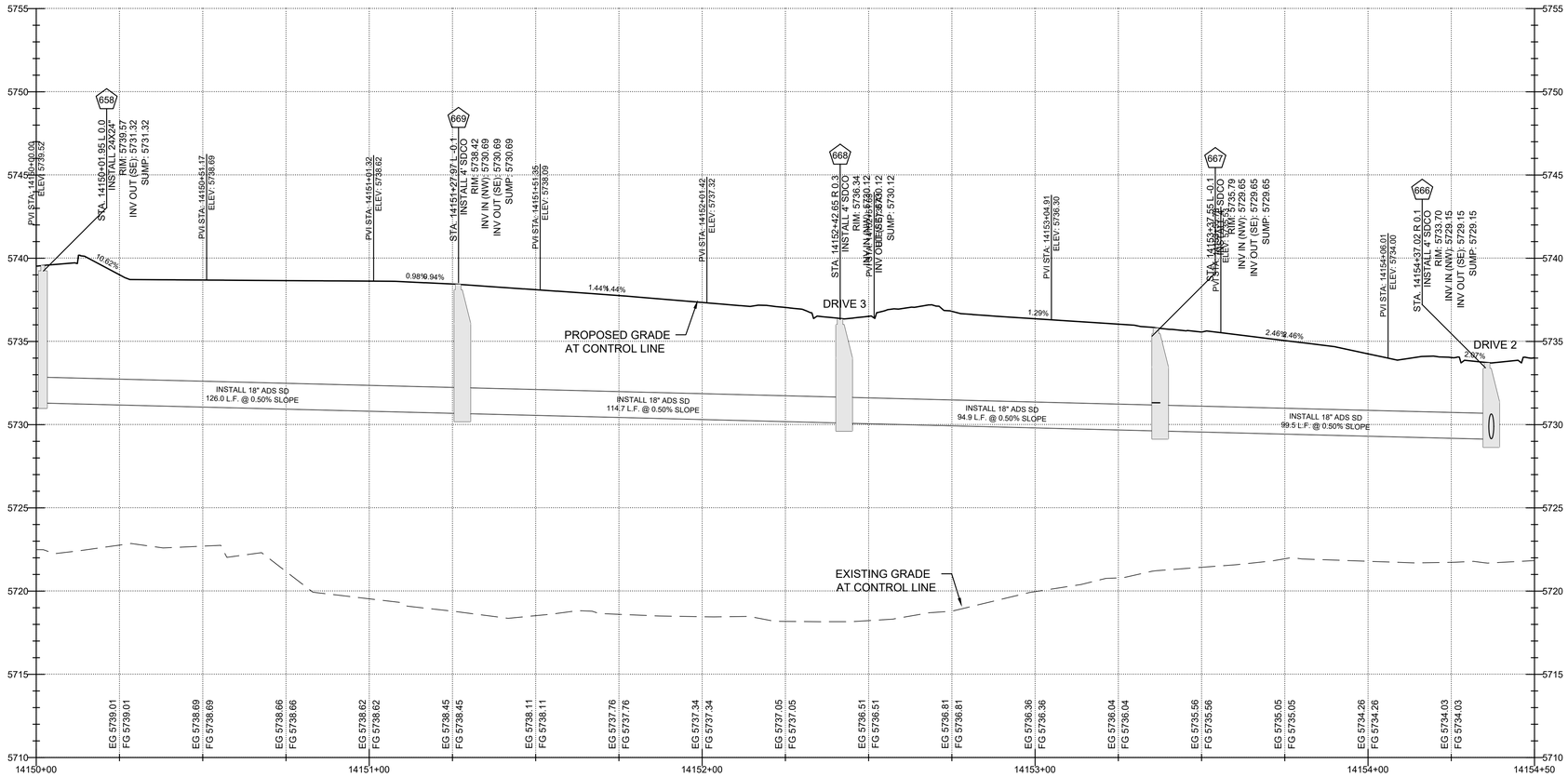


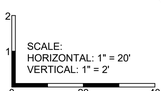
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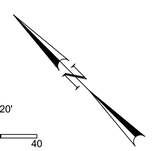
MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.







Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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DATE: 07/29/2024

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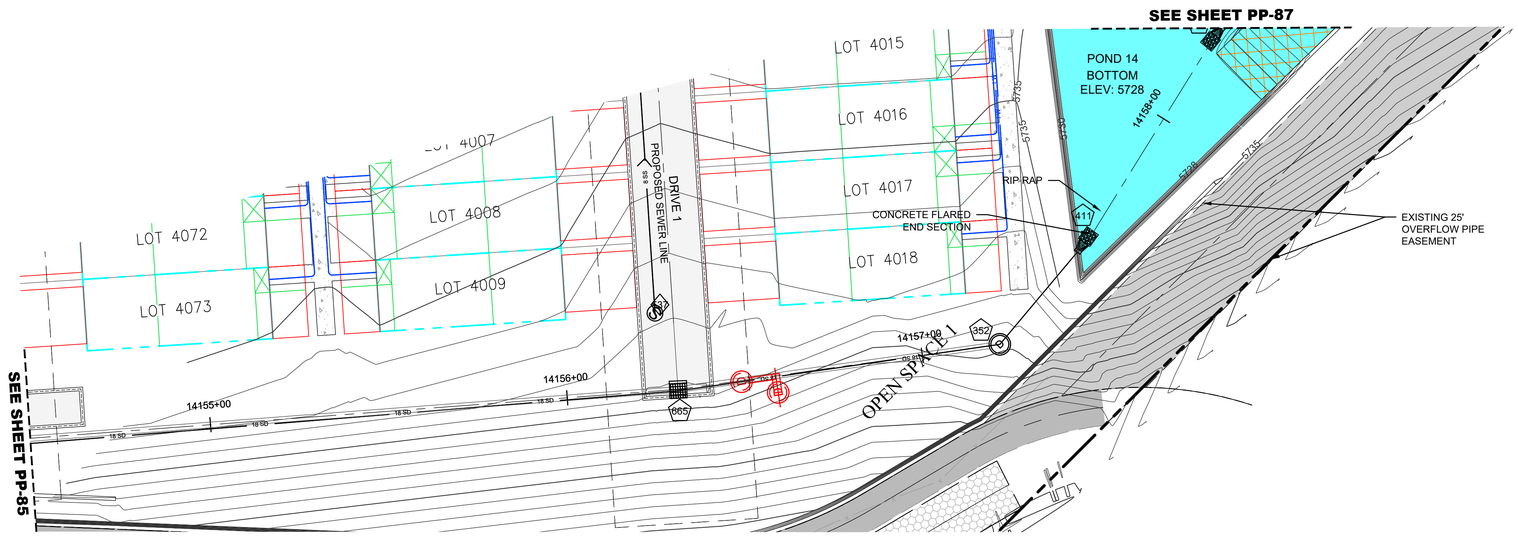
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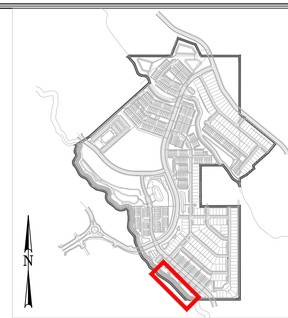
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PP-85

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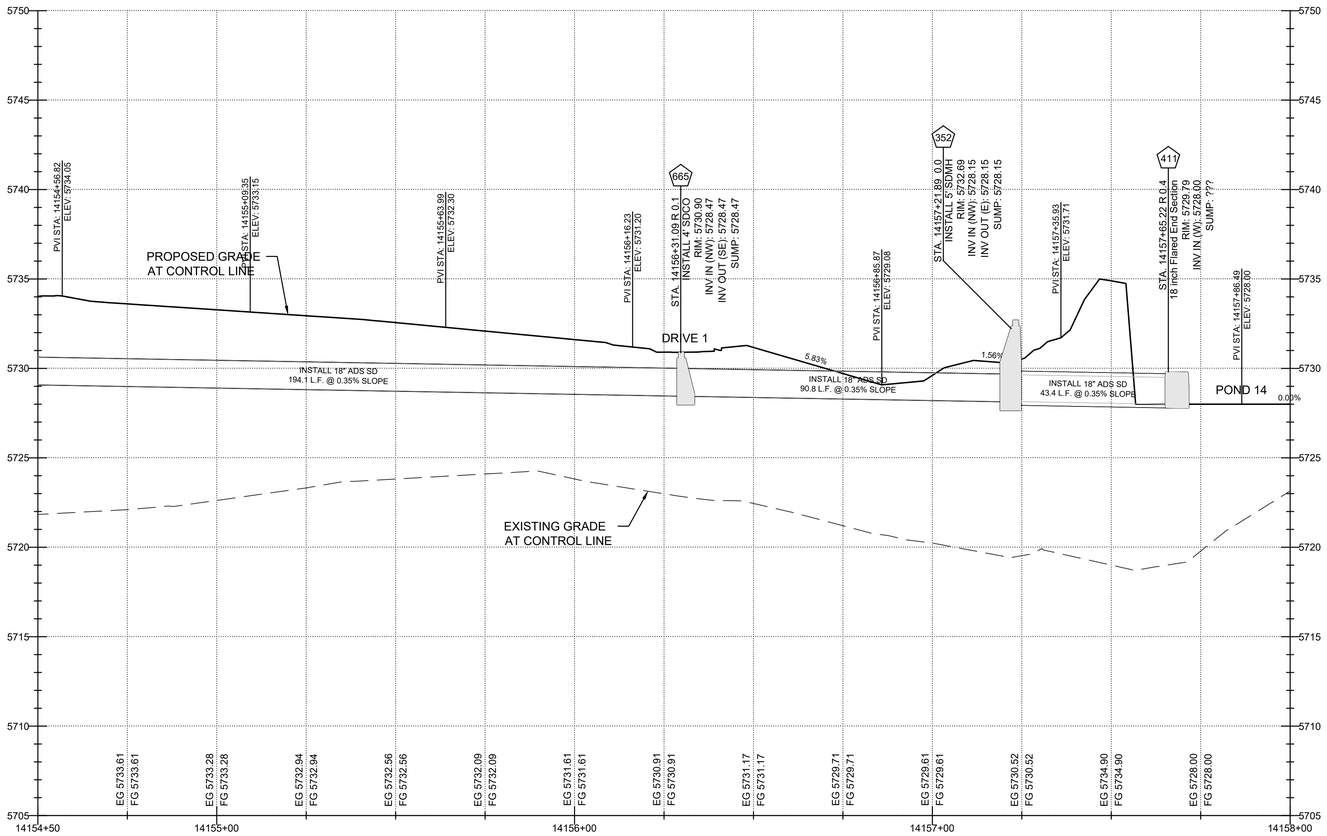


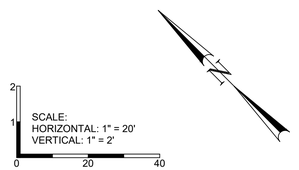
LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER
6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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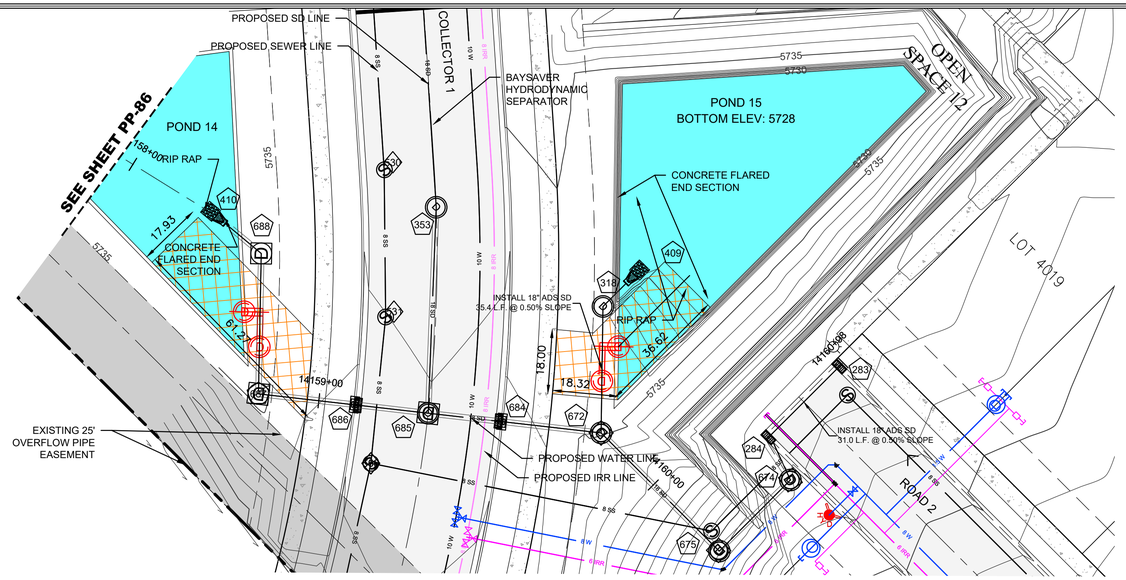
CLIENT: D.R.HORTON
DWG: SD P&P PONDS 14-15.DWG
JOB No: 3891-DRH01-23
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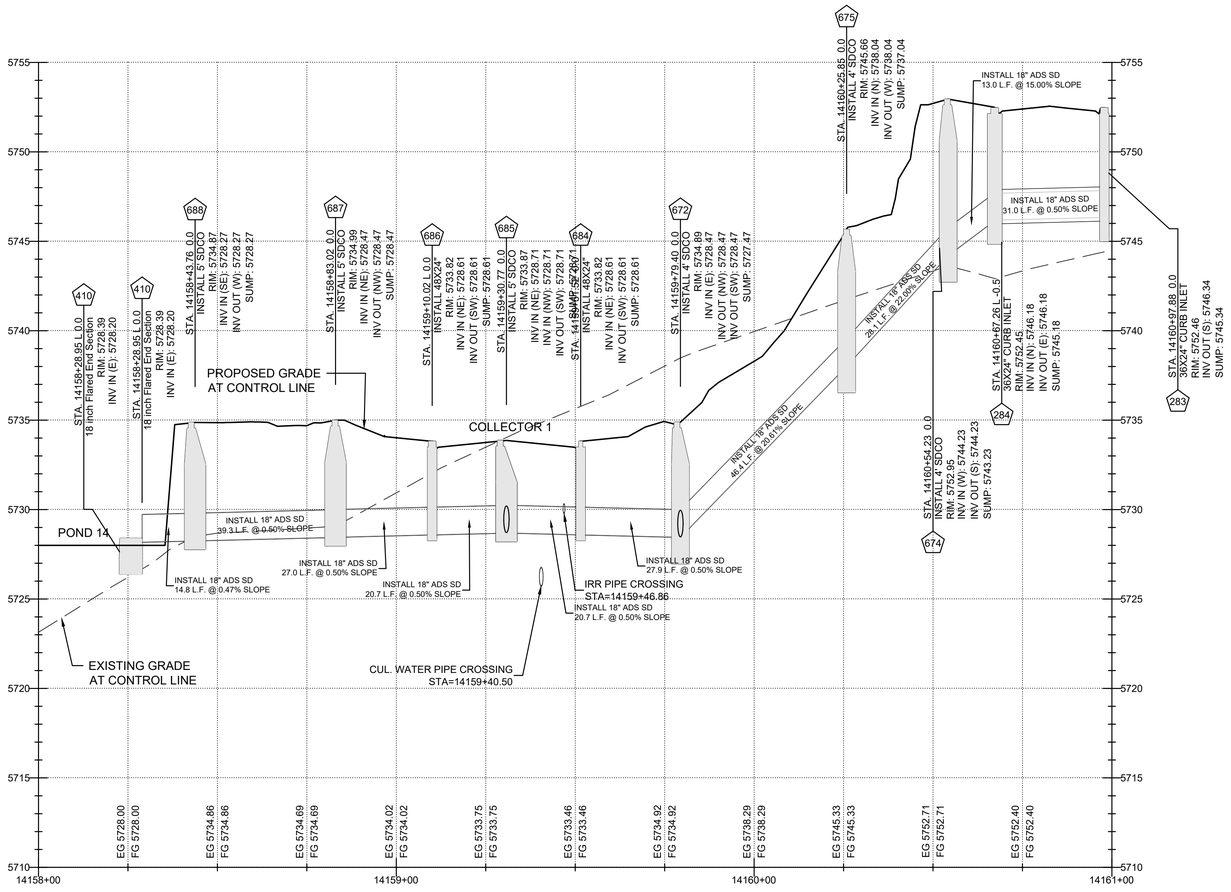
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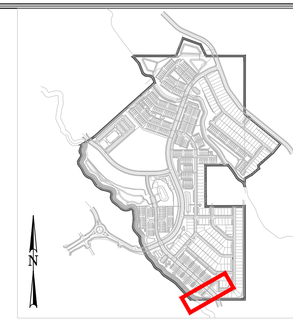
REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
PP-86







LEGEND

MAINTENANCE ACCESS ROAD
INSTALL 12" DECOMPOSED GRANITE FINES OVER 6" AGGREGATE BASE COURSE (SEE ALSO NOTE 1)

POND EMERGENCY OVERFLOW
INSTALL 8" DIAMETER RIP-RAP, 24" THICK.

NOTES
1. MAINTENANCE ACCESS ROAD FOR RETENTION PONDS ARE SHOWN ON THE SITE PLANS.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SD PLAN & PROFILE- POND 14 & 15

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: SD P&P PONDS 14-15.DWG
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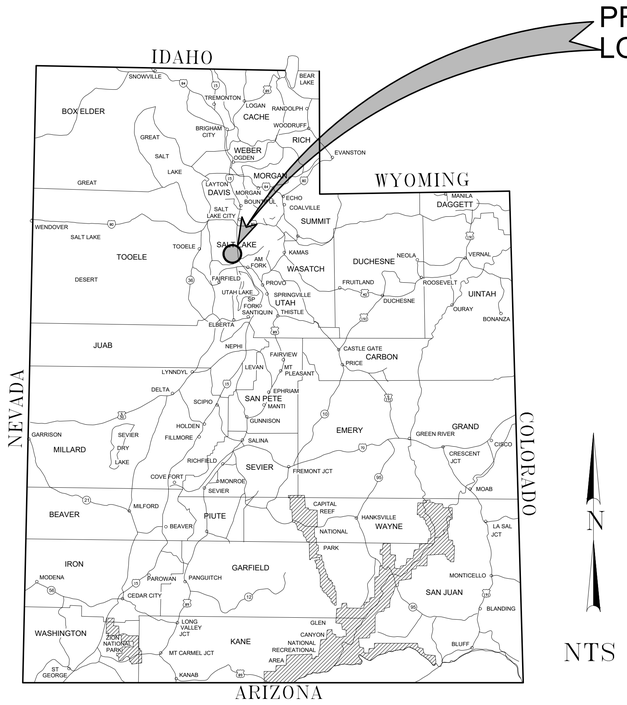


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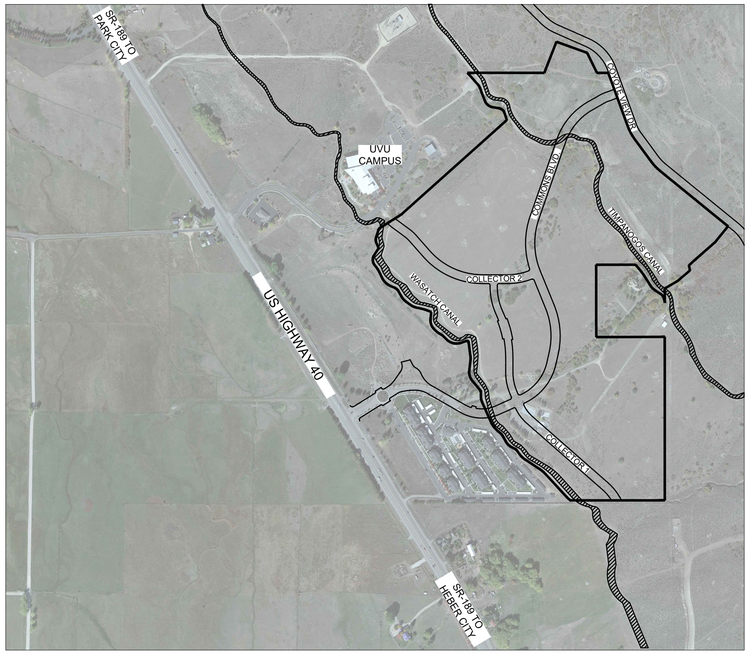
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HIGHLANDS RESIDENTIAL DEVELOPMENT:
WASATCH CANAL IMPROVEMENT

LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19 AND THE
WEST HALF OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
2632–2896 VICTORY HIGHWAY, HEBER CITY, UTAH 84032



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NT-02	SYMBOLS AND ABBREVIATIONS
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EC-02	WASATCH CANAL EXISTING CONDITIONS PLAN
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DT-01	WASATCH CANAL CULVERT DETAILS
DT-02	WASATCH CANAL CULVERT DETAILS
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DT-04	RETAINING WALL SECTION



LOCATION MAP
N.T.S.

DEVELOPER / BUILDER:
DR HORTON
12351 S GATEWAY PARK PLACE
DRAPER, UT 84020
(801) 571-7101

CONSTRUCTION PLANS

ENGINEER / SURVEYOR:
WARD ENGINEERING GROUP
231 WEST 800 SOUTH SUITE A
SALT LAKE CITY, UTAH 84101
(801) 487-8040 PHONE
(801) 487-8668 FAX

CALL BEFORE YOU DIG.
IT'S FREE & IT'S THE LAW
(TOLL-FREE)
1-800-662-4111
208-2100
(SALT LAKE METRO)
140 EAST 10000 SOUTH
SANDY, UTAH 84070-1917

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL IMPROVEMENT PLANS
COVER SHEET

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: COVER SHEET WASATCH CANAL.DWG
JOB No: 3891-DRH01-23
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REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
CV-01

FILENAME: O:\Highlands\Residential-DR Horton\Design - Wasatch Canal\Cover Sheet Wasatch Canal.dwg TAB: CV-01 Wasatch Canal Cover Sheet PLOT DATE AND TIME: 8/6/2024 5:29 PM

CIVIL PROJECT NOTES

CONTRACTOR SHALL PERFORM ALL WORK TO THE STANDARD PLANS, SPECIFICATIONS, AND REQUIREMENTS OF:
WATER: NORTH VILLAGE SPECIAL SERVICE DISTRICT
SEWER: NORTH VILLAGE SPECIAL SERVICE DISTRICT
STORM WATER: HEBER CITY
POWER: ROCKY MOUNTAIN POWER
GAS: DOMINION ENERGY
COUNTY: WASATCH COUNTY

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL AND CURRENT APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, OSHA REQUIREMENTS, STANDARDS AND SPECIFICATIONS WHETHER OR NOT ANY SPECIFIC REFERENCE IS MADE TO SUCH IN THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE PROPERLY LICENSED IN THE STATE OF UTAH TO PERFORM ALL OF THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS. SUCH LICENSING SHALL REMAIN IN EFFECT CONTINUOUSLY THROUGHOUT THE ENTIRETY OF THIS PROJECT INCLUDING FROM TIME OF BID SUBMISSION THROUGH PROJECT COMPLETION AND WARRANTY PERIOD. THE CONTRACTOR SHALL CARRY APPROPRIATE INSURANCE, PERFORMANCE AND PAYMENT BONDS AS REQUIRED.
2. ALL WORK SHALL CONFORM TO THESE PLANS AND TO THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. IN THE EVENT THAT ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING, AND THE ENGINEER, AT HIS SOLE DISCRETION, SHALL DETERMINE WHICH REQUIREMENTS GOVERN. THE CONTRACTOR SHALL KEEP ONE RECORD COPY OF ALL SPECIFICATIONS, DRAWINGS, ADDENDA, MODIFICATIONS, AND SHOP DRAWINGS AT THE SITE IN GOOD ORDER AND ANNOTATED TO SHOW ALL CHANGES MADE DURING THE CONSTRUCTION PROCESS. THESE SHALL BE AVAILABLE TO THE ENGINEER AND SHALL BE DELIVERED TO HIM FOR THE OWNER UPON COMPLETION OF THE PROJECT.
3. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THE PLANS AND DOCUMENTS, PERFORM A SITE VISIT TO SATISFY HIMSELF AS TO THE SITE CONDITIONS, ATTEND ALL PRECONSTRUCTION AND CONSTRUCTION MEETINGS, AND THOROUGHLY SATISFY HIMSELF AS TO THE TRUE MEANING AND INTENTION OF THIS CONTRACT. THE CONTRACTOR SHALL BE COMPETENT AND EXPERIENCED TO PERFORM ALL WORK REQUIRED. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ENGINEER AND THEIR AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES INCLUDING ATTORNEY'S FEES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK, PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS OR EXPENSES IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF) INCLUDING THE LOSS OF USE RESULTING THERE FROM; AND IS CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT IT IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER. IN ANY AND ALL CLAIMS AGAINST THE OWNER OR THE ENGINEER OR ANY OF THEIR AGENTS OR EMPLOYEES BY ANY EMPLOYEE OF THE CONTRACTOR, AND SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, SAID INDEMNIFICATION OBLIGATION SHALL NOT BE LIMITED IN ANY WAY BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR ANY SUBCONTRACTOR UNDER WORKMEN'S COMPENSATION ACTS, DISABILITY BENEFIT ACTS OR OTHER EMPLOYEE BENEFIT ACTS.
5. THE CONTRACTOR WARRANTS AND GUARANTEES TO THE OWNER AND ENGINEER THAT ALL MATERIAL AND EQUIPMENT USED IN THE PERFORMANCE OF THIS WORK SHALL BE NEW UNLESS OTHERWISE SPECIFIED AND THAT ALL WORK SHALL BE OF GOOD QUALITY AND FREE FROM FAULTS OR DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. IF REQUIRED BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT. ALL MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND CONDITIONED IN ACCORDANCE WITH THE INSTRUCTIONS OF THE APPLICABLE MANUFACTURER, FABRICATOR OR PROCESSOR, EXCEPT AS OTHERWISE PROVIDED IN THE PLANS AND DOCUMENTS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, LICENSES AND FEES REQUIRED FOR THE PERFORMANCE AND COMPLETION OF THE WORK AND SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SAID PERMITS AND LICENSES. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SIGNAGE, BARRICADING AND TRAFFIC CONTROL IN CONFORMANCE TO THE MOST RECENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, LABOR, TRANSPORTATION, CONSTRUCTION EQUIPMENT AND MACHINERY, TOOLS, APPLIANCES, FUEL, POWER, LIGHT, HEAT, TELEPHONE, WATER, SANITARY FACILITIES, AND ALL OTHER FACILITIES AND INCIDENTALS NECESSARY FOR THE EXECUTION, TESTING, INITIAL OPERATION AND COMPLETION OF THE WORK.
7. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR PROVIDING DUST, MUD, AND EROSION CONTROL, AND PROPER DRAINAGE. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY HANDLE AND DISPOSE OF ALL CONSTRUCTION WATER. THE CONTRACTOR SHALL LIMIT TRAVEL ON THE PROJECT SITE TO ROADWAYS ONLY, EXCEPT WHERE CONSTRUCTION SPECIFICALLY REQUIRES TRAVEL ELSEWHERE. ANY DAMAGE CAUSED BY SUCH UNAUTHORIZED TRAVEL SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIAL, RUBBISH AND OTHER DEBRIS RESULTING FROM THE WORK. EQUIPMENT AND CONSTRUCTION MATERIALS, ETC., SHALL BE STORED ONSITE ONLY AT THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL WHEREON THEY ARE STORED. AT THE COMPLETION OF THE WORK, ALL WASTE MATERIALS, RUBBISH AND DEBRIS SHALL BE REMOVED FROM THE PREMISES AS WELL AS ALL TOOLS, CONSTRUCTION EQUIPMENT AND MACHINERY, AND SURPLUS MATERIALS. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION THOSE PORTIONS OF THE SITE NOT DESIGNATED FOR ALTERATION BY THE PLANS AND DOCUMENT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING ALL REQUIRED TESTING AND INSPECTIONS A MINIMUM OF 48 HOURS IN ADVANCE. NEITHER OBSERVATIONS BY THE ENGINEER NOR INSPECTIONS, TESTS OR APPROVALS BY PERSONS OTHER THAN THE CONTRACTOR SHALL RELIEVE THE CONTRACTOR FROM HIS OBLIGATIONS TO PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND DOCUMENTS
9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE CONDITIONS THROUGHOUT THE PROJECT, INCLUDING SUBSURFACE CONDITIONS AND UTILITY LOCATION. WARD ENGINEERING GROUP ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS. ANY EXISTING UTILITIES OR OTHER IMPROVEMENTS SHOWN ON THE PLANS HAVE BEEN DERIVED FROM FIELD INVESTIGATIONS AND/OR AVAILABLE RECORD INFORMATION. THE CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY LOCATIONS AND INVERT ELEVATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTING ANY NEW UTILITY. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM HIS OPERATIONS, WHETHER OR NOT SUCH FACILITIES ARE SHOWN IN THESE PLANS. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION. NO EXCAVATION OF ANY NATURE SHALL BE PERFORMED WITHOUT FIRST CONTACTING "BLUE STAKES" AT LEAST 48 HOURS PRIOR TO SUCH EXCAVATION.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ASSURE SOUND EXCAVATION AND GRADING PRACTICES. FOR ALL EXCAVATIONS EXCEEDING A DEPTH OF 4 FEET, THE CONTRACTOR SHALL PROVIDE APPROPRIATE SHORING, BRACING, SLOPING OR OTHER APPROPRIATE PROVISIONS AS SPECIFIED BY OSHA THAT ARE NECESSARY TO PROTECT THE SAFETY OF THOSE AT THE SITE. ALL OPEN TRENCHES MUST BE PROPERLY COVERED AT THE END OF WORK EACH DAY. HARD HATS SHALL BE WORN BY ALL PERSONS AT THE SITE. ALL SPECIFICATIONS, DRAWINGS AND COPIES THEREOF FURNISHED BY THE ENGINEER SHALL REMAIN HIS PROPERTY. THEY SHALL NOT BE USED ON ANOTHER PROJECT AND, WITH EXCEPTION OF THOSE SETS WHICH HAVE BEEN SIGNED IN CONNECTION WITH THE EXECUTION OF THE AGREEMENT, SHALL BE RETURNED TO THE ENGINEER UPON REQUEST AT COMPLETION OF THE PROJECT.
11. CONTRACTOR SHALL UTILIZE "BEST MANAGEMENT" PRACTICES FOR STORM WATER POLLUTION PREVENTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPMENT AND COMPLIANCE TO AN APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

CONSTRUCTION NOTES

GENERAL REQUIREMENTS
1. CONTRACTOR SHALL STERILIZE THE SUBGRADE BENEATH PROPOSED NEW PAVING AND WALKWAYS. CONTRACTOR SHALL SUBMIT MEANS AND METHODS FOR APPROVAL PRIOR TO IMPLEMENTATION.
2. ALL UTILITY PIPING SHALL HAVE WARNING TAPE INSTALLED 12" MIN. ABOVE AND ALONG THE ENTIRE LENGTH, INCLUDING SERVICE LATERAL. TAPE SHALL BE LABELED ACCORDING TO UTILITY.
3. THE OPEN ENDS OF ALL PIPELINES UNDER CONSTRUCTION SHALL BE COVERED AND EFFECTIVELY SEALED AT THE END OF EACH DAYS WORK.
4. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FIELD USING A 2" X 4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2" X 4" POST SHALL BE PAINTED USING GREEN PAINT FOR SEWER, BLUE PAINT FOR WATER, RED FOR POWER, YELLOW FOR GAS, AND ORANGE FOR COMMUNICATIONS. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE DIAGRAMMATIC ONLY, AND ALL UTILITIES MAY NOT BE SHOWN. THE CONTRACTOR SHALL CONTACT THE PROPER LOCAL AUTHORITIES OR UTILITY COMPANY TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE BEGINNING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
6. CAUTION & CARE SHOULD BE TAKEN DURING ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
7. EXCAVATION REQUIRED WITHIN CLOSE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE ONLY BY HAND. CONTRACTOR SHALL REPAIR AND REPLACE ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO OWNER.

CLEARING AND GRUBBING
1. REMOVE AND DISPOSE OF TREES, STUMPS, LOGS, LIMBS, STICKS, VEGETATION, DEBRIS, AND OTHER MATERIAL ON THE NATURAL GROUND SURFACE.
2. DISPOSE OF ALL MATERIAL OFF THE PROPERTY TO A FACILITY LICENSED TO ACCEPT THE MATERIAL TYPE.
3. CONTRACTOR SHALL REMOVE ALL TOP SOIL WITHIN THE AREA OF CONSTRUCTION. STOCKPILE OR REMOVE FROM SITE PER OWNER INSTRUCTIONS.
4. CONFORM TO PROJECT GEOTECHNICAL REPORT.

WATER IMPROVEMENT REQUIREMENTS
1. ALL WATER MAINS AND APPURTENANCES, SHALL BE DESIGNED, CONSTRUCTED, DISINFECTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH THIS PLAN, ALL APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF DRINKING WATER, AND THE LOCAL GOVERNING ENTITY.
2. ALL MATERIALS WHICH MAY CONTACT THE DRINKING WATER, INCLUDING PIPES, GASKETS, LUBRICANTS, AND O-RINGS SHALL BE ANSI CERTIFIED AS MEETING NSF STANDARD 61, DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS. TO PERMIT FIELD VERIFICATION OF THIS CERTIFICATION, ALL SUCH COMPONENTS SHALL BE APPROPRIATELY STAMPED WITH THE NSF LOGO.
3. ALL PIPES, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO NSF STANDARD 61 OR STANDARD 14, AND APPLICABLE SECTIONS OF ANSI/AWWA STANDARDS C104-A21.4-03 THROUGH C550-05 AND C900-07 THROUGH C950-07.
4. WATER MAINS SHALL BE PVC PIPE AND SHALL MEET ALL THE REQUIREMENTS FOR AWWA C900, PRESSURE CLASS 235, DR-18 PIPE, UNLESS CALLED OUT OTHERWISE. INSTALLATION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C605. DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651.
5. ALL BURIED DI (DUCTILE IRON) PIPES, VALVES AND FITTINGS SHALL BE POLY-WRAPPED AND THE NUTS GREASED IN ACCORDANCE WITH AWWA C105.
6. ALL WATER DI (DUCTILE IRON) PIPES, VALVES AND FITTINGS SHALL HAVE PORTLAND CEMENT MORTAR LINING, OR ENGINEER APPROVED EQUAL.
7. WATER LATERALS SHALL BE COPPER-TYPE K UP TO THE METER VAULTS UNLESS OTHERWISE INDICATED ON THE PLANS OR LOCAL AGENCY REQUIRES SOMETHING ELSE. INSTALLATION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA M55. DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651.
8. WATER MAINS AND LATERALS SHALL BE TESTED ACCORDING TO THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS; TO INCLUDE, PRESSURE TESTING AND DISINFECTION; AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL GOVERNMENT ENTITY, OSHA, AND THE UTAH DIVISION OF DRINKING WATER.
9. CONTRACTOR SHALL NOTIFY THE LOCAL GOVERNMENT ENTITY 48 HOURS IN ADVANCE OF MAKING ANY CONNECTIONS TO WATER LINES.
10. IF POOR SOILS WITH A BEARING CAPACITY OF LESS THAN 1,500 PSF ARE ENCOUNTERED WHERE A THRUST BLOCK IS REQUIRED, THEN THE THRUST BLOCK SHALL BE REDESIGNED BY THE ENGINEER. THE REDESIGNED THRUST BLOCK SHALL NOT BE PLACED UNTIL THE ENGINEER HAS APPROVED OF THE REDESIGN.
11. ANY PROPOSED CONNECTION TO EXISTING PIPELINES, OR ANY NON-FLANGED FITTING OR VALVE IS REQUIRED TO BE RESTRAINED OR THRUST BLOCKED.
12. ALL WATER LINES SHALL BE CONSTRUCTED TO A DEPTH SO AS TO MAINTAIN 48" MIN GROUND COVER. ALL SECONDARY WATER LINES SHALL BE CONSTRUCTED TO A DEPTH SO AS TO MAINTAIN 30" IN GROUND COVER.
13. PIPE BEDDING INSTALLATION AND BACKFILL SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. ALL BURIED WATER PIPELINES SHALL HAVE TRACER WIRE (12 GAUGE) DIRECTLY ABOVE PIPE WHICH SHALL BE TIED TO ALL VALVES REFER TO TRENCH DETAIL FOR COMPACTION DENSITY REQUIREMENTS.

SEWER IMPROVEMENT REQUIREMENTS
1. ALL SEWER MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND THE LOCAL GOVERNING ENTITY.
2. ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY SHALL COMPLY WITH REQUIREMENTS ESTABLISHED BY THE LOCAL GOVERNMENT ENTITY.
3. ANY FLUSHING INTO THE EXISTING SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
4. GRAVITY SEWER MAINS AND LATERALS SHALL BE PVC, SDR 35 PIPE WITH INTEGRAL BELL AND SPIGOT, AND GASKETED JOINTS.
5. SEWER FORCE MAINS SHALL BE PE (POLYETHYLENE) PIPE AND SHALL MEET THE REQUIREMENTS FOR AWWA C906/ PE3408, MINIMUM PRESSURE CLASS 150 (DR-11 MINIMUM). INSTALLATION SHALL BE PER ASTM D 2321 AND ASTM F 1668.
6. GRAVITY SEWER MAINS AND LATERALS SHALL BE TESTED ACCORDING TO LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS. TO INCLUDE, ALIGNMENT AND GRADE TESTING, OBSTRUCTIONS AND DEFLECTION TESTING, INFILTRATION TESTING OR GRAVITY PIPELINES, PRESSURE TESTING FOR PRESSURE PIPELINES, AND VIDEO INSPECTION. DEFLECTION TESTING SHALL BE PERFORMED NO SOONER THAN 30 DAYS AFTER THE FINAL BACKFILL HAS BEEN PLACED. TESTING SHALL BE PERFORMED USING A MANDREL WITH A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE.
7. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FILED USING A 2"X4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2"X4" POST SHALL BE PAINTED USING GREEN PAINT. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE. NO LATERALS SHALL BE DIRECTLY CONNECTED TO MANHOLES.
8. FOLLOWING PLACEMENT OF ASPHALT, ALL SEWER LINES SHALL BE FLUSHED, AND CLEANED, AND ALL MANHOLES LIDS ADJUSTED TO 3/8 INCH BELOW FINISHED GRADE AND IN ACCORDANCE WITH THE REQUIREMENTS HEREIN.

STORM DRAINAGE IMPROVEMENTS
1. ALL STORM DRAIN MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND SL COUNTY FLOOD CONTROL.
2. ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY SHALL COMPLY WITH LOCAL GOVERNMENT ENTITY.
3. ANY FLUSHING INTO THE EXISTING SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
4. GRAVITY STORM DRAIN LINES WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE RE-INFORCED CONCRETE PIPE (RCP) WITH INTEGRAL BELL AND SPIGOT, AND GASKETS JOINTS. ALL TEMPORARY CULVERT ARE TO BE ADS-N12 HDPE PIPE.
5. GRAVITY STORM DRAIN LINES SHALL BE TESTED ACCORDING TO THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS. TO INCLUDE, ALIGNMENT AND GRADE TESTING, OBSTRUCTIONS AND DEFLECTION TESTING, INFILTRATION TESTING OR GRAVITY PIPELINES, PRESSURE TESTING FOR PRESSURE PIPELINES, AND VIDEO INSPECTION. DEFLECTION TESTING SHALL BE PERFORMED NO SOONER THAN 30 DAYS AFTER THE FINAL BACKFILL HAS BEEN PLACED. TESTING SHALL BE PERFORMED USING A MANDREL WITH A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE.
6. FOLLOWING PLACEMENT OF ASPHALT, ALL STORM LINES SHALL BE FLUSHED, AND CLEANED, AND ALL MANHOLES LIDS ADJUSTED TO 3/8 INCH BELOW FINISHED GRADE AND IN ACCORDANCE WITH THE REQUIREMENTS HEREIN.
7. THE OWNER RESERVES THE RIGHT TO TELEVISE, AT THEIR EXPENSE, ANY OR ALL PORTIONS OF THIS WORK PRIOR TO PLACING SUCH FACILITIES IN SERVICE, AND THE CONTRACTOR SHALL GIVE THE OWNER SUFFICIENT ADVANCE NOTICE OF THEIR INTENT TO PLACE THESE FACILITIES IN SERVICE AS WILL ALLOW THE OWNER TO SCHEDULE SUCH FILLING

GRADING NOTES
1. THE CONTRACTOR SHALL BECOME FAMILIARIZED WITH THE RECOMMENDATIONS LISTED IN THE SOILS REPORT FOR THIS PROJECT. PREPARED BY GSH GEOTECHNICAL, INC, DATED SEPTEMBER 21, 2016, SURFACE DRAINAGE TO BE ONE (1%) PERCENT MINIMUM TO APPROVED DRAINAGE FACILITIES, EXCEPT AS WAIVED BY THE BUILDING OFFICIAL, OR DIRECTED BY THE ENGINEER.
2. ALL FILL EXCEPT THAT UNDERNEATH PAVED SURFACES, WITHIN ROAD RIGHT OF WAY OR UNDERNEATH BUILDING SLABS, SIDEWALKS & FOOTINGS, SHALL BE COMPACTED TO A MINIMUM OF EIGHTY-FIVE (85%) PERCENT MAXIMUM DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 1557 AND CERTIFIED BY TESTS AND REPORTS FROM SOILS ENGINEER.
3. ALL FILL UNDERNEATH PATHWAYS AND CONCRETE SHALL BE CLASSIFICATION A/1-A THROUGH A/4 AS DEFINED BY ASHTO M 145 AND COMPACTED TO A MINIMUM OF NINETY-FIVE (95%) PERCENT MAXIMUM DRY DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS SPECIFIED BY ASTM D 1557. FOR ALL FILL UNDERNEATH BUILDING SLABS AND FOOTINGS, REFER TO STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
4. FILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING SIX (6) INCHES IN COMPACTED THICKNESS AND COMPACTED AT OPTIMUM MOISTURE CONTENT TO THE REQUIRED MAXIMUM DRY DENSITY.
5. ALL FILL AREAS TO BE CLEARED OF ALL VEGETATION AND OTHER UNSUITABLE MATERIALS AND THE AREA SCARIFIED TO A DEPTH OF SIX (6) INCHES, OR TO A DEPTH TO REMOVE TOP SOIL, REFER TO GEOTECHNICAL REPORT.
6. CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ORGANIC MATERIALS FROM STRUCTURALLY LOADED EMBANKMENTS AND BUILD FOOTPRINT LOCATION ACCORDING TO THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.

CONCRETE NOTES
1. ALL CONCRETE WORK SHALL BE NORMAL WEIGHT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST 4,000 PSI WITHIN 28 DAYS AFTER POURING. THE WATER CEMENT RATIO SHALL BE NO GREATER THAN 0.45 AND SLUMP SHALL BE 3.5" OR LESS. MINIMUM CEMENT CONTENT SHALL BE 6.5 SACKS PER CUBIC YARD. PROVIDE 5.5%-7.5% AIR ENTRAINMENT FOR CONCRETE OF THIS CLASS USED IN SLABS AND WALLS, PER REQUIREMENT LISTED IN THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS.
2. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION JOINTS SHALL BE KEYED WITH A KEY 1-1/2 IN. DEEP, A LENGTH 2 IN. LESS THAN THE MEMBER, AND A WIDTH 1/2 OF THE MEMBER. REINFORCING SHALL BE CONTINUOUS THROUGH THE JOINT.
3. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THE PROJECT AND APWA SPECIFICATIONS (03 30 10)
4. BEFORE CONCRETE IS POURED CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATIVE TO WORK.
5. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND FORMWORK.
6. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENT, CLIPS AND GROUNDS REQUIRED TO BE ENCASED IN CONCRETE SLAB AND SLAB FINISHES, COLOR, PATTERNS, AND DEPRESSIONS
7. REFER TO SLAB JOINT LAYOUT PLAN FOR CONTROL AND CONSTRUCTION JOINT LOCATIONS.
8. CONCRETE TESTING SHALL BE PER PROJECT SPECIFICATIONS AND APWA 03 30 05. TESTING SHALL COMPRISE OF TEMPERATURE, AIR, SLUMP AND STRENGTH TESTING. THE FOLLOWING TABLE SUMMARIZES REQUIRED TESTING FREQUENCY:

Rate of Placement (cy/day)	Temperature	Air	Slump	Strength
0-8	1	1	1	1
0-50	1	1	1	1
Each additional 50 cy or fraction thereof	1	1	1	1

CONCRETE REINFORCEMENT NOTES
1. ALL METAL REINFORCEMENT SHALL BE DEFORMED TYPE BARS (EXCEPT #2 BARS) AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS ASTM A615 GRADE 60.
2. ALL SPLICES IN CONTINUOUS CONCRETE REINFORCING BARS SHALL LAP 36 BAR DIAMETER OR PER THE LATEST EDITION OF ACI 318. ALL SUCH SPLICES SHALL BE MADE IN A REGION OF COMPRESSION UNLESS OTHERWISE SHOWN. ALL CONTINUOUS REINFORCEMENT SHALL TERMINATE WITH A 90° TURN OR A SEPARATE CORNER BAR.
3. ALL REINFORCEMENT BARS SHALL BE SECURELY ANCHORED AND HELD IN PLACE AND SHALL BE SPACED FROM ADJACENT SURFACES (UNLESS SHOWN OTHERWISE) AS FOLLOWS:
   A. FORMED SURFACES IN CONTACT WITH THE GROUND OR EXPOSED TO WEATHER, AND SLABS ON GRADE - 2 IN.
   B. UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH (BOTTOM AND SIDES OF FOOTINGS) -3 IN.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND SHALL HAVE A MINIMUM SIDE LAP OF 8 IN.
5. ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF ACI DETAILING MANUAL 315-77 AND ACI STANDARD 318.

ASPHALT NOTES
1. ALL ASPHALT SHALL BE PLACED AS DIRECTED BY THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATION.
2. BASE COURSE SHALL BE COMPACTED TO NOTHING LESS THAN 95% MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180.
3. SURFACES SHALL BE TRUE TO THE ESTABLISHED GRADE WITH A THICKNESS BEING NO LESS THAN ONE-FOURTH INCH FROM THE REQUIRED LAYER THICKNESS AND WITH THE SURFACE ELEVATION VARYING NO MORE THAN THREE-EIGHTHS INCH IN TEN FEET FROM THE TRUE PROFILE AND CROSS-SECTION.
4. THE SURFACE COURSE SHALL CONSIST OF A MINERAL AGGREGATE AND BINDER AS DIRECTED BY THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS.
5. THE CONTRACTOR SHALL ESTABLISH A MIX GRADATION AND THE AMOUNT OF BITUMINOUS MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER AND SHALL MEET THE REQUIREMENTS OF THE GRADATION SELECTED.
6. THE BITUMINOUS MATERIAL FOR THE SURFACE COURSE REFER TO LOCAL GOVERNMENT ENTITY CONFORMING TO THE REQUIREMENTS OF AASHTO M-226.
7. REGARDLESS OF BITUMINOUS CONTENT AND THERE SHALL NOT BE MORE THAN THREE PERCENT VOIDS IN THE AGGREGATE.
8. THE CONTRACTOR SHALL NOT INSTALL BITUMINOUS SEAL COAT UNLESS THE AIR TEMPERATURE IS 70 DEGREES FAHRENHEIT OR HIGHER. SEAL COAT IS NOT TO BE PLACED WITHIN TEN CALENDAR DAYS OF THE PLACEMENT OF NEW SURFACE COURSE. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LOCAL GOVERNMENT ENTITY STANDARD SPECIFICATIONS.
9. THE CONTRACTOR SHALL ENSURE THAT ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LOCAL GOVERNMENT ENTITY STANDARD SPECIFICATIONS.
10. NO BITUMINOUS SURFACE COURSE SHALL BE PLACED WHEN THE TEMPERATURE OF THE AIR OR ROAD BED IS 50 DEGREES FAHRENHEIT OR BELOW, DURING RAINY WEATHER, WHEN THE BASE IS WET OR DURING OTHER UNFAVORABLE WEATHER CONDITIONS AS APPROVED BY THE CITY ENGINEER. AIR TEMPERATURE IS TO BE MEASURED IN THE SHADE.
11. SEAL COATS SHALL BE APPLIED ONLY BETWEEN JUNE 01 AND SEPTEMBER 15.

APPLICABLE CODES AS ADOPTED BY THE LOCAL GOVERNEMT ENTITY

IBC (INTERNATIONAL BUILDING CODE)
IRC (INTERNATIONAL RESIDENTIAL CODE)
IWUIC (INTERNATIONAL WILDLAND-URBAN INTERFACE CODE)
NFPA

CIVIL PROJECT NOTES

LINE TYPES

- BOUNDARY LINE
- PROPERTY LINE
- SECTION LINE
- RIGHT OF WAY
- CENTER LINE
- 8 W — PROPOSED WATER MAIN (SIZED AS INDICATED)
- 18 SD — PROPOSED STORM DRAIN (SIZED AS INDICATED)
- 8 SS — PROPOSED SANITARY SEWER (SIZED AS INDICATED)
- 8 IRR — PROPOSED IRRIGATION (SIZED AS INDICATED)
- COMM — PROPOSED COMMUNICATION/TELEPHONE LINE
- PROPOSED GAS LINE
- PROPOSED BURIED ELECTRICAL
- X — X — X — PROPOSED WIRE/BARBED FENCE
- EASEMENT
- OHP — OVERHEAD POWER LINE
- OPEN DITCH, CANAL FLOW LINE
- PROPERTY SET BACKS
- EXISTING RAILROAD TRACKS
- EXISTING EDGE OF PAVEMENT
- Ex W — EXISTING WATER MAIN (SIZED AS INDICATED)
- Ex 18 SD — EXISTING STORM DRAIN (SIZED AS INDICATED)
- Ex 8 SS — EXISTING SANITARY SEWER (SIZED AS INDICATED)
- Ex 8 IRR — EXISTING IRRIGATION (SIZED AS INDICATED)
- X — X — X — EXISTING FENCE CHAIN LINK
- Ex GAS — EXISTING GAS LINE
- Ex COMM — EXISTING COMMUNICATION LINE
- Ex ELEC — EXISTING ELECTRICAL LINE

NOTE: ALL SYMBOLS, LINETYPES AND/OR ABBREVIATIONS MAY NOT BE SHOWN.

EXISTING SYMBOLS

- SECTION MONUMENT NOT FOUND
- EXISTING TREE/VEGATION
- EXISTING MONUMENT FOUND – NOTED
- EXISTING TRAFFIC SIGNAL BOX
- EXISTING MONUMENT FOUND – NOTED
- EXISTING BOLLARD
- EXISTING POWER POLE
- EXISTING GAS METER
- EXISTING SIGN
- EXISTING TELE J–BOX
- EXISTING STREET LIGHT
- TRFMR — EXISTING ELECTRIC TRANSFORMER
- EXISTING FIRE HYDRANT ASSEMBLY
- WV — EXISTING WATER VALVE
- WM — EXISTING WATER METER
- EXISTING WATER VALVE–BUTTERFLY
- CM D S W — EXISTING MANHOLES BY TYPE
- EXISTING CATCH BASIN
- EXISTING COMBINATION BOX

PROPOSED SYMBOLS

- SECTION MONUMENT FOUND
- SEWER FLOW ARROW
- MONUMENT – NOTED
- 7 — SEWER MANHOLE NUMBER
- PROPERTY CORNERS
- S — SEWER SERVICE LATERAL
- UTILITY POLE
- CATCH BASIN
- SIGN
- COMBINATION BOX
- STREET LIGHT
- 7 — STORM DRAIN MANHOLE NUMBER
- FIRE HYDRANT ASSEMBLY
- ROAD DRAINAGE ARROW
- WV — WATER VALVE
- WM — WATER METER
- I — IRRIGATION SERVICE LATERAL
- WATER VALVE BUTTERFLY
- AIR VAC
- W — WATER SERVICE LATERAL
- S D — PROPOSED MANHOLE

ABBREVIATIONS

ABUT.	= ABUTMENT	MH	= MANHOLE
AGG.	= AGGREGATE	MIN.	= MINIMUM
APPROX.	= APPROXIMATE	N/NO.	= NORTH
A.S.	= AS SHOWN	NO./#	= NUMBER
AUX.	= AUXILIARY	N.T.S.	= NOT TO SCALE
AVG.	= AVERAGE	O.C.	= ON CENTER
BCR	= BEGIN OF CURB RETURN	O.D.	= OUTER DIAMETER
BOW	= BACK OF WALK	OHP	= OVER HEAD POWER
BRG.	= BEARING	PC	= POINT OF CURVATURE
℄/C.L.	= CONTROL LINE/CENTER LINE	PED	= PEDESTRIAN
CATV	= CABLE TELEVISION	PI/P.I.	= POINT OF INTERSECTION
CI	= CAST IRON	PIP	= PLASTIC IRRIGATION PIPE
CLR.	= CLEAR/CLEARANCE	PL	= PROPERTY LINE
CMP	= CORRUGATED METAL PIPE	POC	= POINT ON CURVE
COL	= COLUMN	PP	= POWER POLE
CONC.	= CONCRETE	PT	= POINT
CONN	= CONNECTION	PT	= POINT OF TANGENCY
CONST.	= CONSTRUCTION	PVC	= POLYVINYL CHLORIDE PLASTIC
CONT.	= CONTINUOUS	PVC	= POINT OF VERTICAL CURVATURE
COR.	= CORNER	PVT	= POINT OF VERTICAL TANGENCY
CP	= CONTROL POINT	PVI	= POINT OF VERTICAL INTERSECTION
C.F.	= CUBIC FEET	PVMNT	= PAVEMENT
DI	= DUCTILE IRON	PVRC	= POINT OF VERTICAL REVERSE CURVE
DIA./Ø	= DIAMETER	R/RAD.	= RADIUS
DIP	= DUCTILE IRON PIPE	R/C	= REBAR AND CAP
DIM.	= DIMENSION	Rd.	= ROAD
DR	= DIMENSION RATIO	RCP	= REINFORCED CONCRETE PIPE
DWG.	= DRAWING	R/W	= RIGHT OF WAY
E	= EAST	REINF.	= REINFORCING
EA	= EACH	REQ'D	= REQUIRED
ECR	= END OF CURB RETURN	RET.	= RETAINING
EG	= EXISTING GRADE	R.P.	= REFERENCE POST
EL./ELEV.	= ELEVATION	RT	= RIGHT
ELEC	= ELECTRIC	S	= SLOPE
EO	= EDGE OF OIL	S/SO.	= SOUTH
EST.	= ESTIMATED	SCH	= SCHEDULE
EXIST	= EXISTING	SD	= STORM DRAIN
F.F.	= FINISHED FLOOR	SDMH	= STORM DRAIN MANHOLE
F.G.	= FINISHED GRADE	SDR	= STANDARD DIMENSION RATIO
FL/FL	= FLOW LINE	SDWLK	= SIDEWALK
FT.	= FEET	SECT./SEC	= SECTION
FLG.	= FLANGE	SHLD	= SHOULDER
GA.	= GAUGE	SHT	= SHEET
G	= GALLON	SPA.	= SPACING/SPACES
GALV.	= GALVANIZED	SQ.	= SQUARE
GMH	= GAS MANHOLE	STA.	= STATION
GV	= GAS VALVE	STD.	= STANDARD
HA	= HECTARE	STD.	= STANDARD DRAWING
HDPE	= HIGH DENSITY POLYETHYLENE	STR.	= STRUCTURE
HGL	= HYDRAULIC GRADE LINE	SS	= SANITARY SEWER
HMA	= HOT MIX ASPHALT	SSMH	= SANITARY SEWER MANHOLE
HORIZ.	= HORIZONTAL	T	= TANGENT DISTANCE
HP	= HIGH PRESSURE/HIGH POINT	T.B.	= THRUST BLOCK
HWY	= HIGHWAY	TBC	= TOP BACK OF CURB
I.D.	= INSIDE DIAMETER	TBW	= TOP BACK OF WALK
INCL.	= INCLUDES	TEL	= TELEPHONE
INT	= INTERSECTION	TEMP	= TEMPORARY
INV	= INVERT	TMH	= TELEPHONE MANHOLE
IRRIG	= IRRIGATION	TOW	= TOP OF WALL
L	= LENGTH	TYP.	= TYPICAL
LIN. FT.	= LINEAR FEET	UG	= UNDERGROUND
LOC	= LIP OF CURB	UTIL.	= UTILITY
LOC.	= LOCATION	VC	= VERTICAL CURVE
LP	= LIGHT POLE/LOW POINT	VERT.	= VERTICAL
LT	= LEFT	W	= WEST
M.J.	= MECHANICAL JOINT FITTING	W/	= WITH
MISC.	= MISCELLANEOUS	WC	= WITNESS CORNER
MPa	= MEGAPASCAL	WMH	= WATER MANHOLE
MAX.	= MAXIMUM	WV	= WATER VALVE
MG	= MEGAGRAM	YD^2/YD2	= SQUARE YARD
		YD^3/YD3	= CUBIC YARD
		YD.	= YARD
		YR	= YEAR

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL IMPROVEMENT PLANS
SYMBOLS AND ABBREVIATIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
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DWG: NOTES & ABREVIATIONS WASATCH CANAL.DWG
JOB No: 3691-DR01-23
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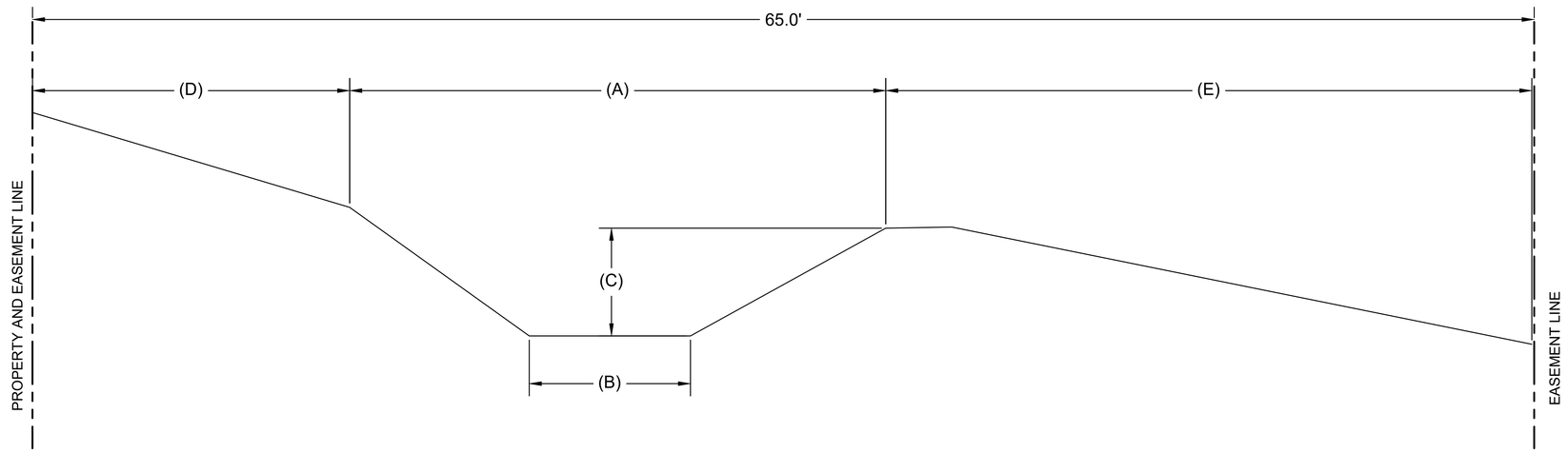
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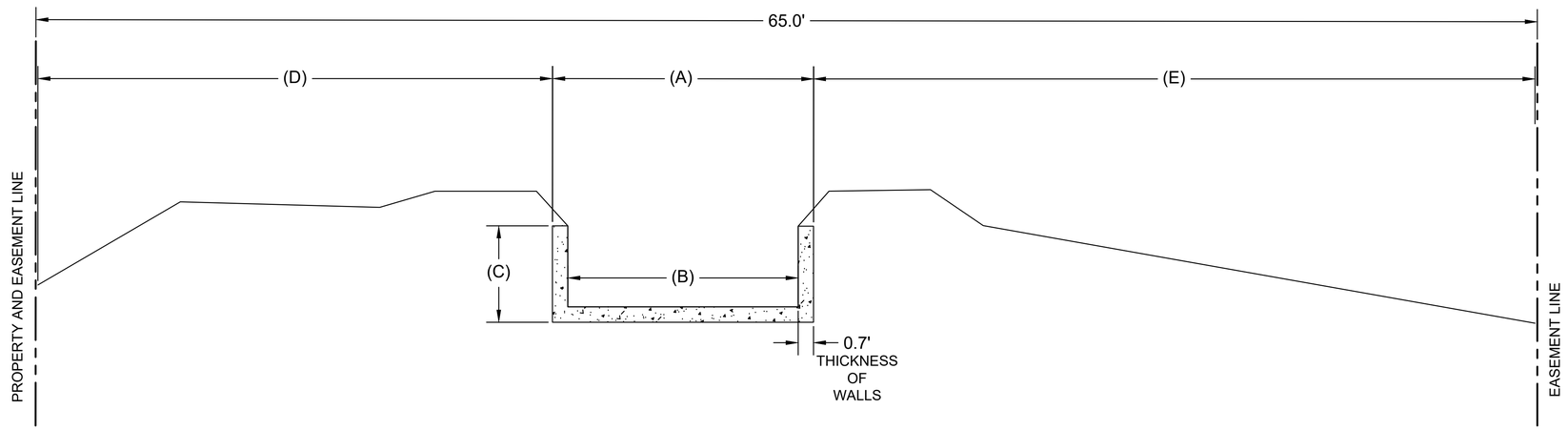
SHEET
NT-02



1 EXISTING WASATCH CANAL SECTION - EARTHEN

NTS

(A) VARIES FROM 14.8 FT. TO 27.6 FT.
(B) VARIES FROM 3.4 FT. TO 11.3 FT.
(C) VARIES FROM 2.0 FT. TO 6.9 FT.
(D) VARIES FROM 7.2 FT. TO 21.1 FT.
(E) VARIES FROM 23.7 FT. TO 35.9 FT.



2 EXISTING WASATCH CANAL SECTION - CONCRETE LINED

NTS

(A) 11.4 FT.
(B) 10 FT.
(C) 3.5 FT.
(D) VARIES FROM 15.8 FT. TO 22.6 FT.
(E) VARIES FROM 30.8 FT TO 37.2 FT

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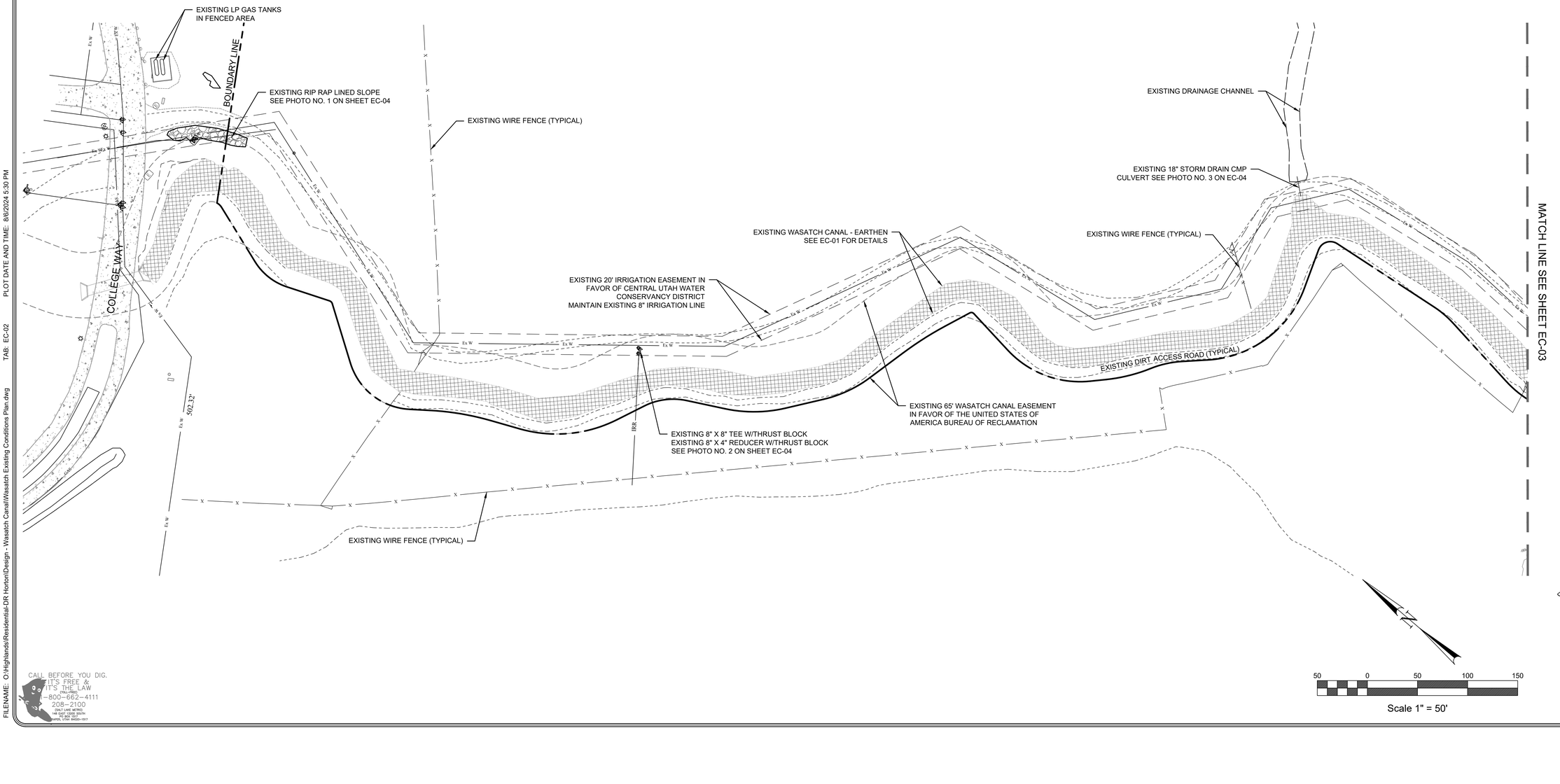
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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL IMPROVEMENT PLANS
EXISTING CONDITIONS PLAN

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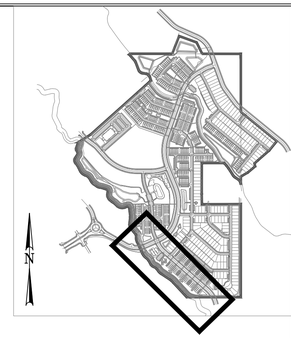
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LEGEND

- BOUNDARY LINE
- NATURAL CANAL
- CONCRETE LINED CANAL



MATCH LINE SEE SHEET EC-02

EXISTING WIRE FENCE (TYPICAL)

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT MAINTAIN EXISTING 8" IRRIGATION LINE

EXISTING 12' ACCESS ROAD EASEMENT IN FAVOR OF PHTEXAS LLC

EXISTING CONCRETE SLAB REMINISCE OF 3 INDUSTRIAL BUILDINGS

EXISTING 15' UTILITY EASEMENT IN FAVOR OF JOHANSEN FAMILY HOLDINGS II LLC AND THACKERAY FAMILY HOLDINGS II LLC

EXISTING 25' OVERFLOW PIPELINE EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION

EXISTING BEND W/THRUST BLOCK END OF PIPELINE

EXISTING 16' GAS TRANSMISSION LINE EASEMENT IN FAVOR OF DOMINION ENERGY

EXISTING DIRT ACCESS ROAD (TYPICAL)

EXISTING 98 LF BOX CULVERT BRIDGE (10.0' X 3.5')

EXISTING PRIVATE VEHICULAR BRIDGE ATTN: CONTAINS ABOVE GROUND UTILITY CONDUITS ATTACHED SEE PHOTO NO. 4 ON SHEET EC-04

EXISTING BUILDING

EXISTING PRIVATE DRIVE

EXISTING 75 LF WASATCH CANAL - CONCRETE LINED (10.0' X 3.5') SEE EC-01 FOR DETAILS

EXISTING HEADWALL AT THE END OF EXISTING 10.0' X 3.5' CONCRETE LINED CANAL SEE PHOTO NO. 5 ON SHEET EC-04

EXISTING WIRE FENCE (TYPICAL)

EXISTING 25' OVERFLOW PIPELINE EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION

EXISTING 30" OVERFLOW PIPE

EXISTING DISCHARGE STRUCTURE SEE PHOTO NO. 7 ON SHEET EC-04

EXISTING METAL GATES

BOUNDARY LINE

EXISTING 65' WASATCH CANAL EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION

EXISTING DIRT ACCESS ROAD (TYPICAL)

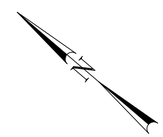
EXISTING 6" DIP OVERFLOW PIPE SEE PHOTO NO. 6 ON SHEET EC-04

EXISTING WASATCH CANAL - CONCRETE LINED (10.0' X 3.5') SEE EC-01 FOR DETAILS

EXISTING HEADWALL AT THE END OF EXISTING 10.0' X 3.5' CONCRETE LINED CANAL

EXISTING 4" BLACK PVC PIPE WITH METAL TOP

EXISTING 2" WHITE PVC PIPE WITH METAL TOP



50 0 50 100 150

Scale 1" = 50'

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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EXISTING CONDITIONS PLAN

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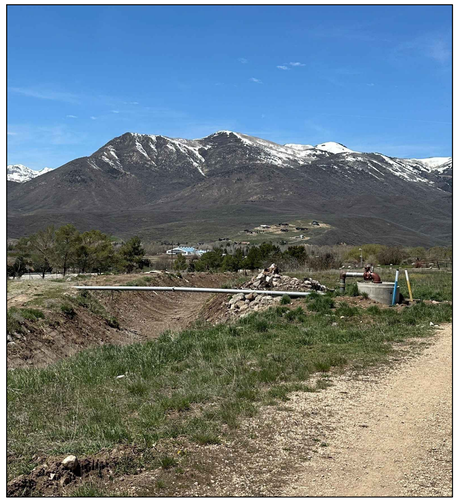
PROFESSIONAL ENGINEER SATTAR N. TABRIZ 8/6/2024

SHEET

EC-03



1 EXISTING RIP RAP LINED SLOPE
(SEE EC-02 FOR LOCATION)



2 EXISTING 8"X8" TEE AND 8"X4" REDUCER
(SEE EC-02 FOR LOCATION)



3 EXISTING 18" CMP CULVERT
(SEE EC-02 FOR LOCATION)



4 EXISTING PRIVATE VEHICULAR BRIDGE
(SEE EC-03 FOR LOCATION)



5 EXISTING HEADWALL
(SEE EC-03 FOR LOCATION)



6 EXISTING 6" OVERFLOW PIPE
(SEE EC-03 FOR LOCATION)



7 EXISTING DISCHARGE STRUCTURE
(SEE EC-03 FOR LOCATION)

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HIGHLANDS RESIDENTIAL
DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL IMPROVEMENT PLANS
EXISTING CONDITIONS PHOTOS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R. HORTON
DWG: CANAL SECTIONS FOR EXISTING CONDITIONS PLAN.DWG
JOB No: 3691-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 24"x36". ALL DIMENSIONS AND NOTES HAVE PRECEDENCE

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8/7/2024

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EC-04

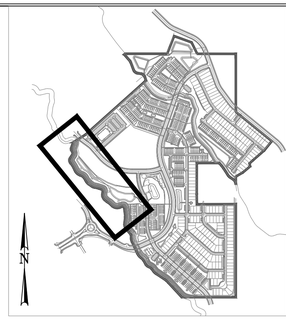
FILENAME: O:\Highlands\Residential-DR Horton\Design - Wasatch Canal\Canal Sections for Existing Conditions Plan.dwg TAB: EC-04 PLOT DATE AND TIME: 8/6/2024 5:30 PM

LEGEND

- BOUNDARY LINE
- NATURAL CANAL
- CONCRETE LINED CANAL

NOTES:

1) CULVERTS SHALL REMAIN IN OPERATION UNTIL THE PROPOSED STORM DRAIN SYSTEM AND RETENTION PONDS ARE CONSTRUCTED.



EXISTING LP GAS TANKS IN FENCED AREA TO BE RELOCATED BY OTHERS

BOUNDARY LINE

EXISTING RIP RAP LINED SLOPE (PROTECT AND MAINTAIN IN PLACE)

EXISTING WIRE FENCE (TYPICAL)

EXISTING WASATCH CANAL - EARTHEN SEE EC-01 FOR DETAILS

EXISTING 20' IRRIGATION EASEMENT
EXISTING 8" IRRIGATION LINE (PROTECT IN PLACE)

REMOVE EXISTING FENCE AND GATE, NORTH SIDE OF CANAL TO NORTH EASEMENT LINE

EXISTING DRAINAGE CHANNEL

REMOVE EXISTING 18" STORM DRAIN CMP CULVERT (SEE NOTE)

REMOVE EXISTING FENCE AND GATE, NORTH SIDE OF CANAL TO NORTH EASEMENT LINE

EXISTING DIRT ACCESS ROAD (TYPICAL)

EXISTING 65' WASATCH CANAL EASEMENT

EXISTING 8" X 8" TEE W/THRUST BLOCK
EXISTING 8" X 4" REDUCER W/THRUST BLOCK
(PROTECT IN PLACE)
ANY ALTERATION TO THIS SHALL BE IN COORDINATION
WITH CENTRAL UTAH PROJECT (CUP) STAFF

EXISTING WIRE FENCE (TYPICAL)

COLLEGE WAY

502.32'

MATCH LINE SEE SHEET DM-02

50 0 50 100 150

Scale 1" = 50'

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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WASATCH CANAL IMPROVEMENT PLANS
DEMOLITION PLAN

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Ward Engineering Group
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PH: 801 487. 8040

CLIENT: D.R.HORTON
DWG: WASATCH DEMOLITION PLAN.DWG
JOB No: 3691-DRH01-23
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SHEET
DM-01

FILENAME: O:\Highlands\Residential-DR Horton\Design - Wasatch Canal\Wasatch Demolition Plain.dwg TAB: DM-01 PLOT DATE AND TIME: 8/6/2024 5:31 PM

NOTES:
1) ANY UTILITY SERVICES TO AN EXISTING HOME IN A 6AC. LAND (SEE KEY MAP ON THIS SHEET) SHALL BE KEPT IN SERVICE UNTIL PERMANENT SERVICES ARE PROVIDED TO THE SUBJECT HOME. ALSO, PROVIDE VEHICULAR ACCESS TO THE SUBJECT HOME OVER EXISTING BOX CULVERT.
2) AT THE DISCRETION OF CENTRAL UTAH WATER CONSERVANCY DISTRICT (CUWCD), THE EXISTING CULVERT MUST BE REMOVED AND REPLACED, OR UPON APPROVAL BY CUWCD, IT MAY BE RETROFITTED TO A 5 FOOT HEIGHT STANDARD AS REVISED BY SHEET DT-01, DETAIL 1.

LEGEND

BOUNDARY LINE

NATURAL CANAL

CONCRETE LINED CANAL



MATCH LINE SEE SHEET DM-01

EXISTING 20' IRRIGATION EASEMENT
EXISTING 8" IRRIGATION LINE
(PROTECT IN PLACE)

EXISTING WIRE FENCE (TYPICAL)

EXISTING BEND W/THRUST BLOCK END OF PIPELINE
(PROTECT IN PLACE)
ANY ALTERATION TO THIS SHALL BE IN COORDINATION
WITH CENTRAL UTAH PROJECT (CUP) STAFF

EXISTING 12' ACCESS ROAD EASEMENT IN FAVOR OF PHTEXAS LLC

EXISTING CONCRETE SLAB REMINISCE OF 3 INDUSTRIAL BUILDINGS

EXISTING 15' UTILITY EASEMENT IN FAVOR OF JOHANSEN FAMILY HOLDINGS II LLC AND THACKERAY FAMILY HOLDINGS II LLC

EXISTING 16' GAS TRANSMISSION LINE EASEMENT IN FAVOR OF DOMINION ENERGY

EXISTING 25' OVERFLOW PIPELINE EASEMENT TO BE VACATED

EXISTING 25' OVERFLOW PIPELINE EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION

EXISTING 30" OVERFLOW PIPE (PROTECT IN PLACE)

REMOVE EXISTING FENCE NORTH SIDE OF CANAL TO NORTH EASEMENT LINE

DEMOLISH AND REMOVE EXISTING ASPHALT INSIDE THE EASEMENT

REMOVE EXISTING FENCE FOR DOUBLE GATE

EXISTING DISCHARGE STRUCTURE

EXISTING METAL GATE

BOUNDARY LINE

EXISTING 65' WASATCH CANAL EASEMENT

EXISTING DIRT ACCESS ROAD (TYPICAL)

EXISTING 98 LF BOX CULVERT BRIDGE 10.0' X 3.5' (SEE NOTE 2)

REMOVE EXISTING PRIVATE VEHICULAR BRIDGE ATTN: CONTAINS ABOVE GROUND UTILITY CONDUITS ATTACHED (SEE NOTE)

EXISTING BUILDING

EXISTING PRIVATE DRIVE

EXISTING HEADWALL AT THE END OF EXISTING 10.0' X 3.5' CONCRETE LINED CANAL

EXISTING 6" DIP OVERFLOW PIPE

EXISTING 4" BLACK PVC PIPE WITH METAL TOP

EXISTING 2" WHITE PVC PIPE WITH METAL TOP

EXISTING WASATCH CANAL - CONCRETE LINED (10.0' X 3.5') SEE EC-01 FOR DETAILS

SAW CUT AND REMOVE 75' OF CONCRETE LINED CANAL (10.0' X 3.5')

SAW CUT AND REMOVE 221' OF CONCRETE LINED CANAL (10.0' X 3.5')

REMOVE EXISTING HEADWALL AT THE END OF EXISTING 10.0' X 3.5' CONCRETE LINED CANAL

ABANDON EXISTING OVERHEAD POWER AND GAS SERVICES WHICH SERVED 3 INDUSTRIAL BUILDINGS

N

50 0 50 100 150

Scale 1" = 50'

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HEBER CITY, UT
WASATCH CANAL IMPROVEMENT PLANS
DEMOLITION PLAN

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JOB No: 3891-DRH01-23
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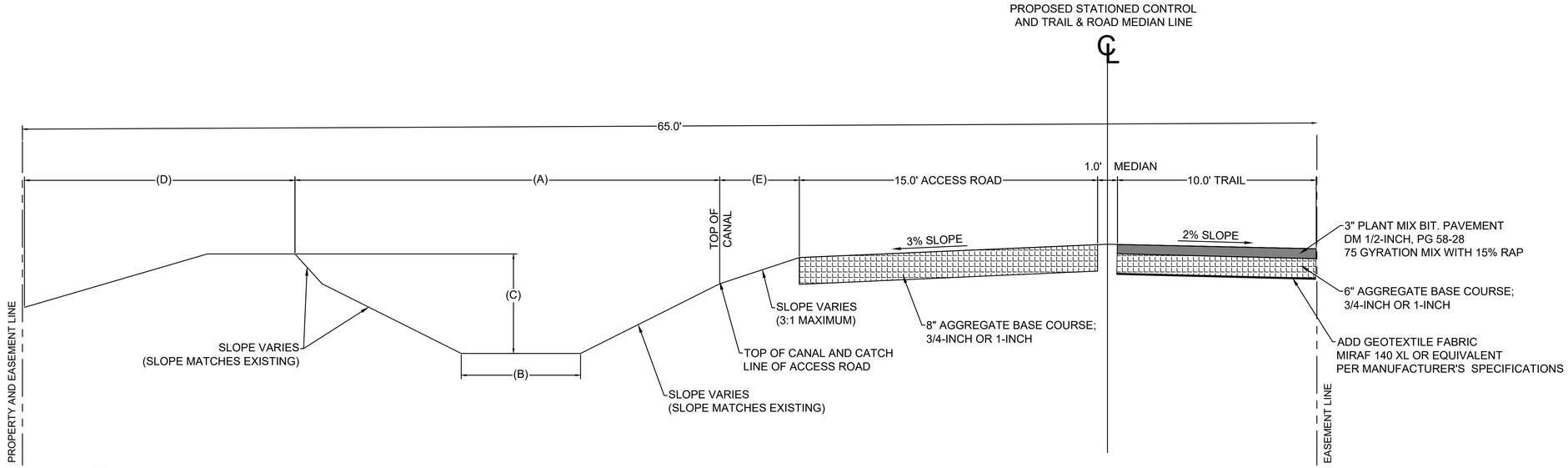
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8/6/2024

SHEET
DM-02

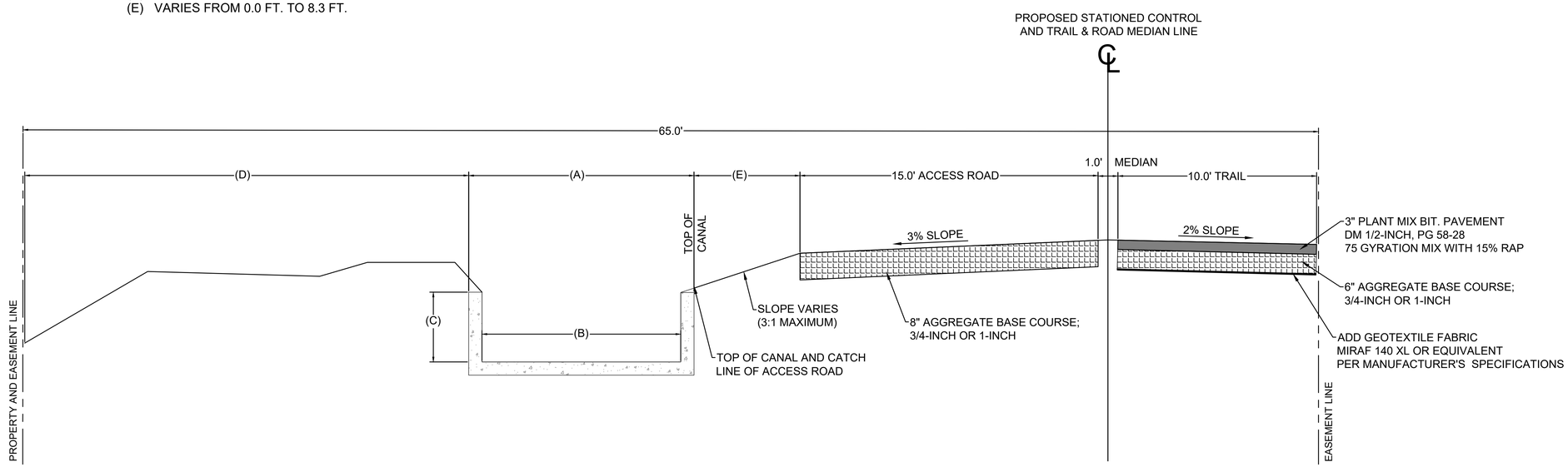
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1 PROPOSED WASATCH CANAL SECTION - EARTHEN

NTS

(A) VARIES FROM 19 FT. TO 25.0 FT.
(B) VARIES FROM 6.0 FT TO 10 FT.
(C) VARIES FROM 2.5 FT TO 5.5 FT.
(D) VARIES FROM 12.0 FT TO 20.0 FT.
(E) VARIES FROM 0.0 FT. TO 8.3 FT.



2 PROPOSED WASATCH CANAL SECTION - LINED

NTS

(A) 11.4 FT.
(B) 10 FT.
(C) 3.5 FT.
(D) VARIES FROM 14.5 FT. TO 23.5 FT.
(E) VARIES FROM 4.0 FT. TO 10.0 FT.

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FILENAME: O:\Highlands\Residential\DR Horton\Design - Wasatch Canal\Typical Sections Wasatch.dwg TAB: TYPICAL SECTIONS PLOT DATE AND TIME: 8/6/2024 5:31 PM

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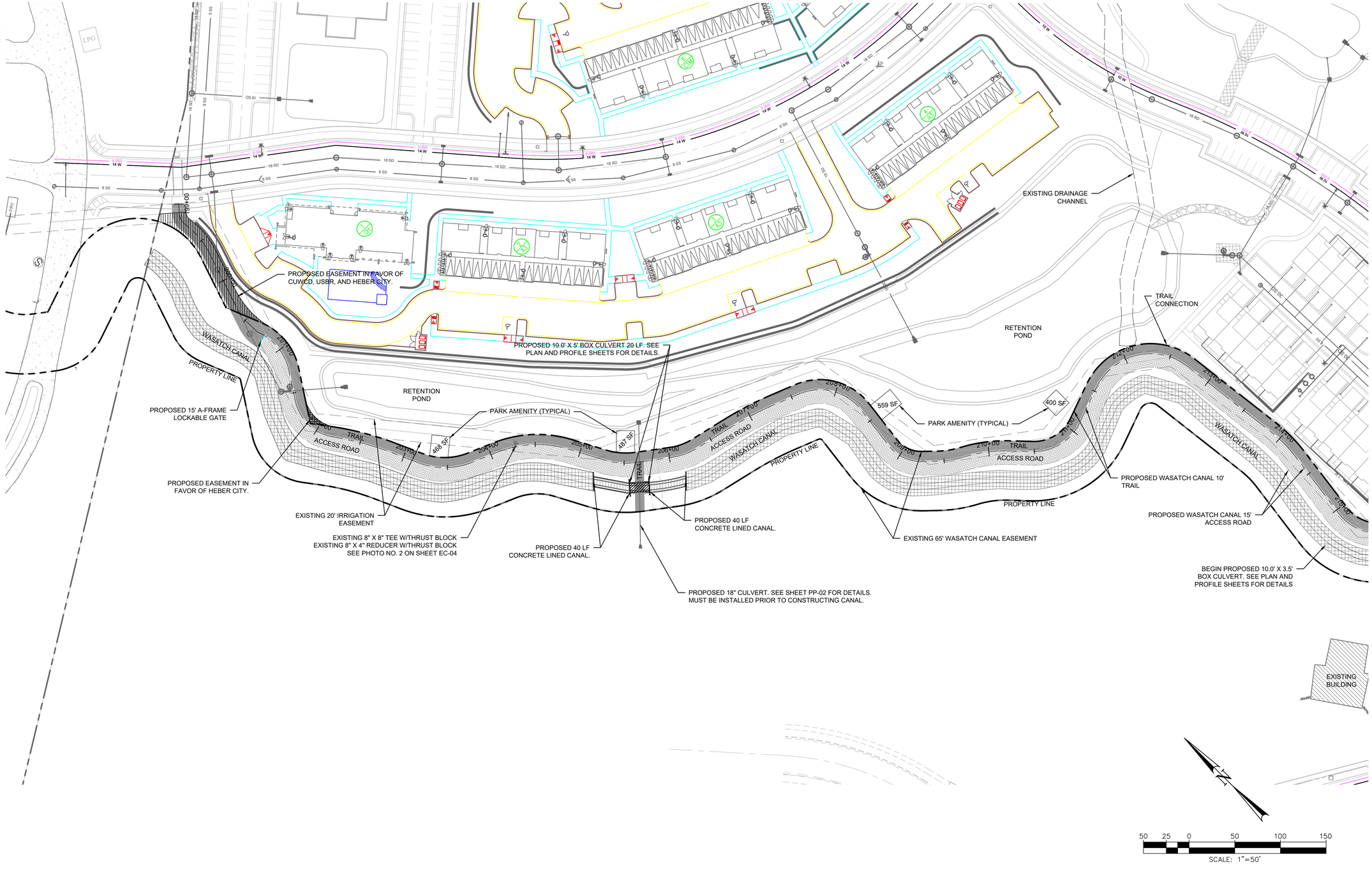
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DWG: TYPICAL SECTIONS WASATCH.DWG
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8/6/2024

SHEET
SP-01



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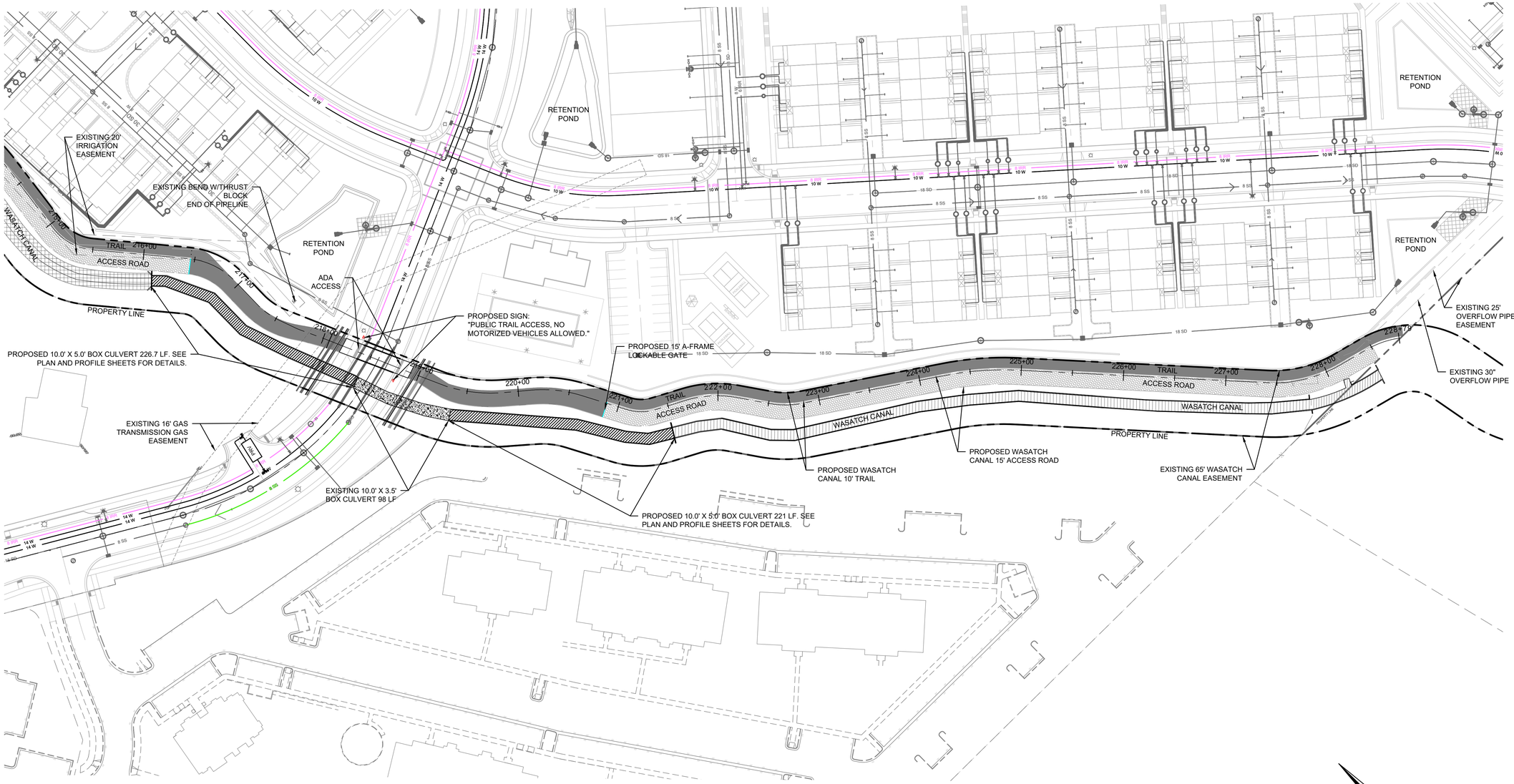
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STATE OF UTAH
8169684

SHEET
SP-02

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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WASATCH CANAL SITE PLAN



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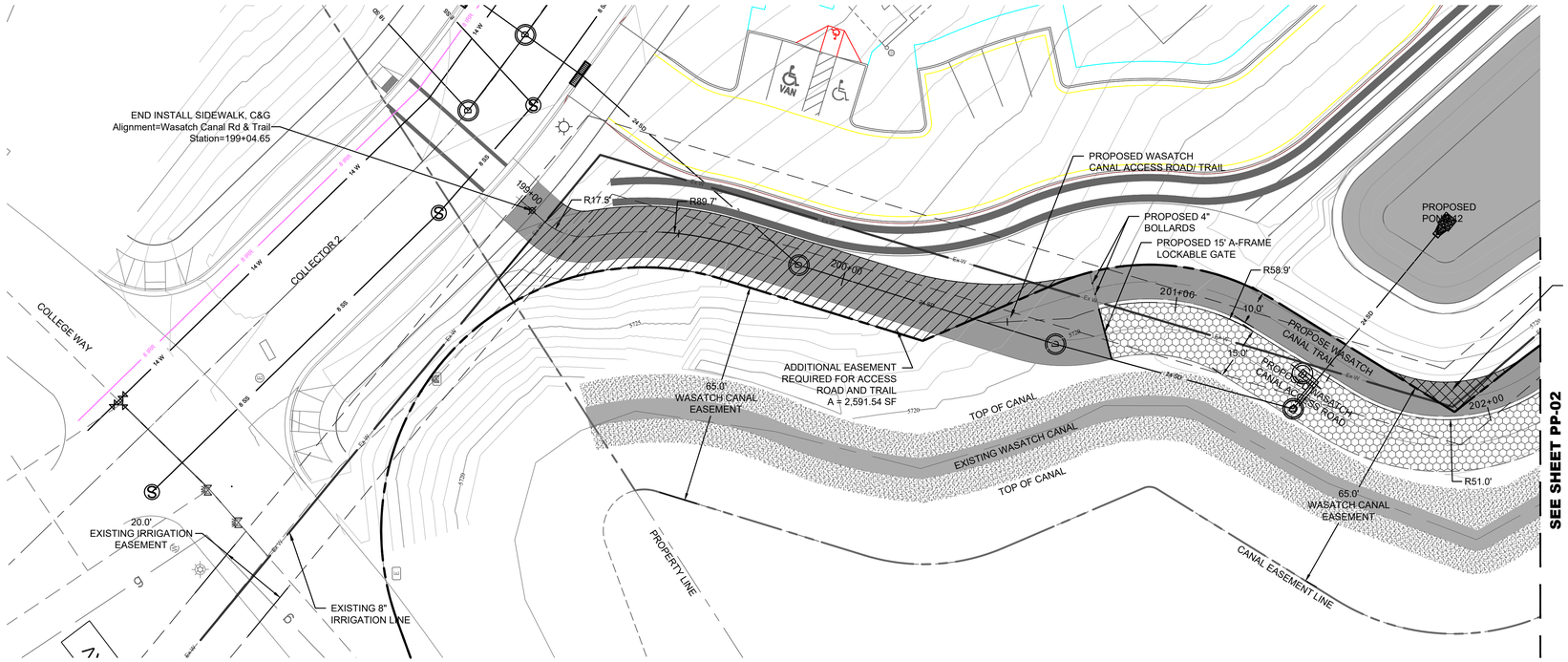
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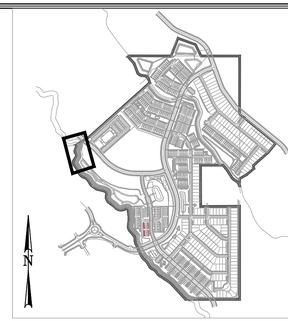
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PROFESSIONAL ENGINEER — STATE OF UTAH — SATTAR N. TABRIZ — 8/6/2024

SHEET
SP-03

FILENAME: O:\Highlands\Residential-DR Horton\Design - Wasatch Canal\WASATCH CANAL.dwg TAB: SP-03 PLOT DATE AND TIME: 8/6/2024 5:32 PM

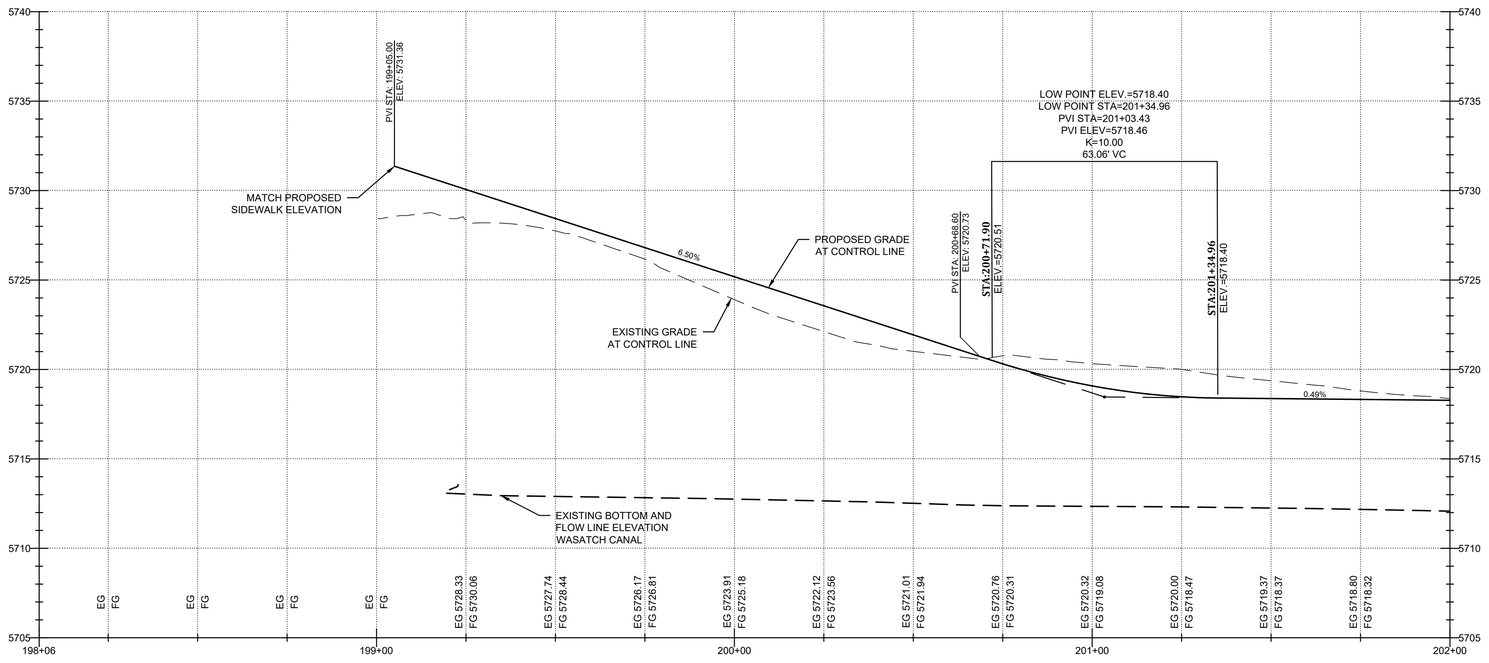




KEY MAP

LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- EXISTING 8-INCH IRRIGATION LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING EARTHEN WASATCH CANAL
- PROPOSED EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT (CUWCD), THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION, AND HEBER CITY FOR TRAIL AND MAINTENANCE ROAD ACCESS.
- PROPOSED EASEMENT IN FAVOR OF HEBER CITY FOR TRAIL ACCESS.



SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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DWG: WASATCH CANAL RD & TRAIL.DWG
JOB No: 3891-DRH01-23
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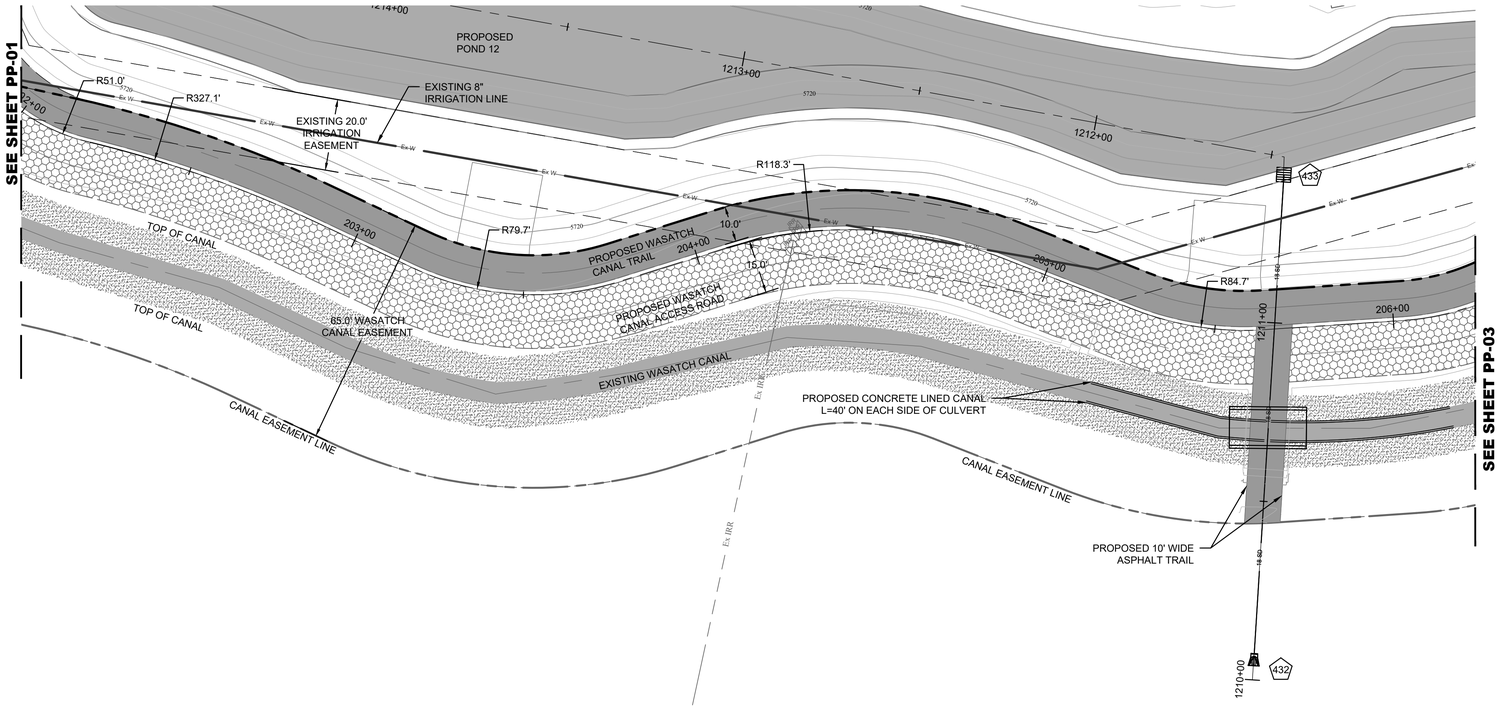
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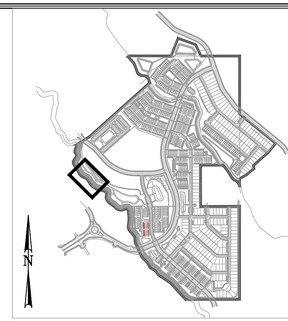
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SHEET

PP-01



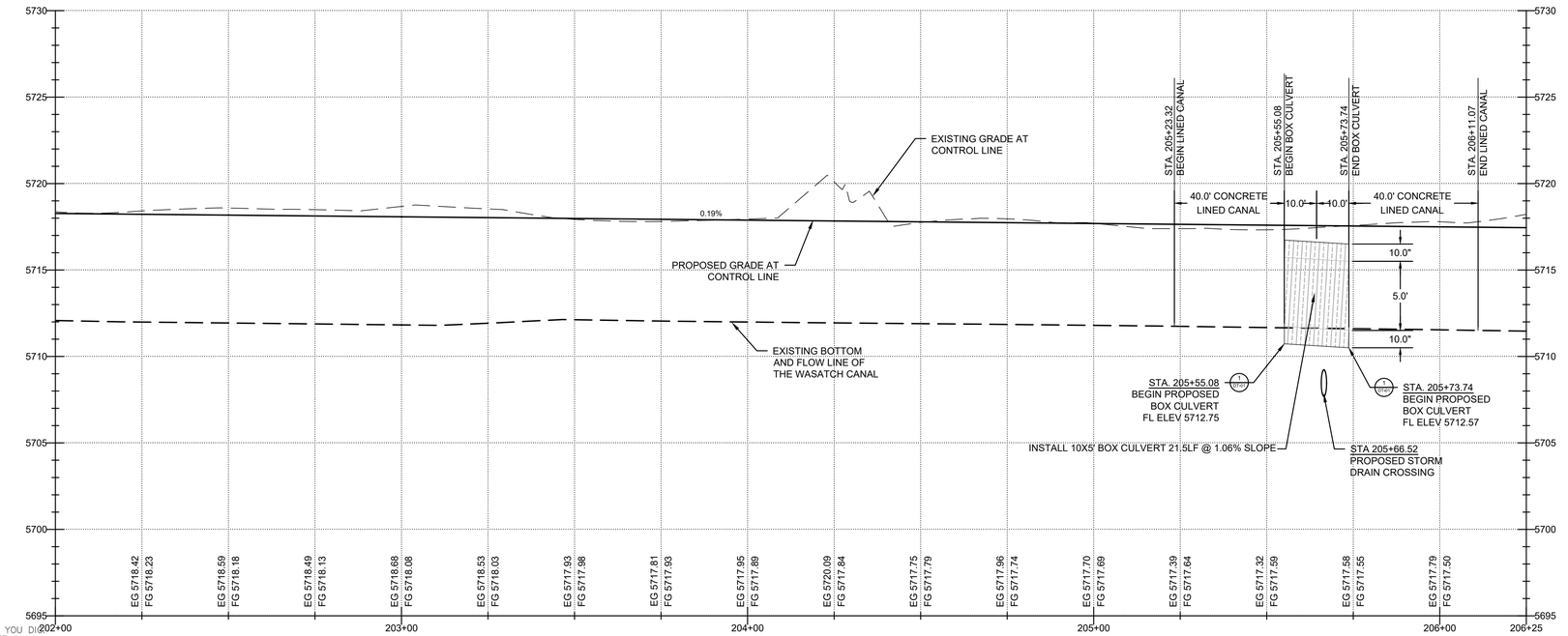


KEY MAP

LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- Ex W — EXISTING 8-INCH IRRIGATION LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING EARTHEN WASATCH CANAL
- PROPOSED CONCRETE LINED CANAL

NOTE:
1) TO SEE A PERPENDICULAR PROFILE OF THIS SHEET SHOWING STRUCTURES 432 AND 433, SEE SHEET PP-09.
2) THE PROPOSED 18" CULVERT MUST BE INSTALLED PRIOR TO CONSTRUCTING CANAL.



Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'
0 20 40
2 4

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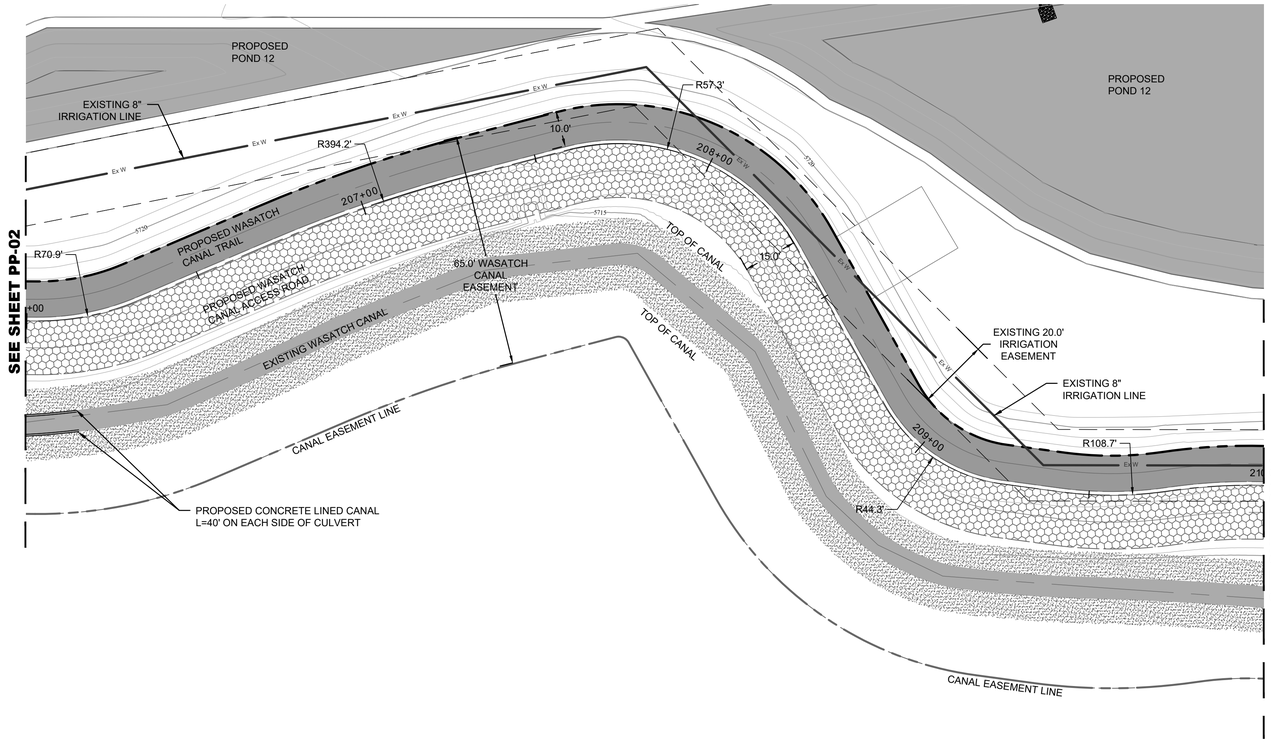
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SHEET
PP-02

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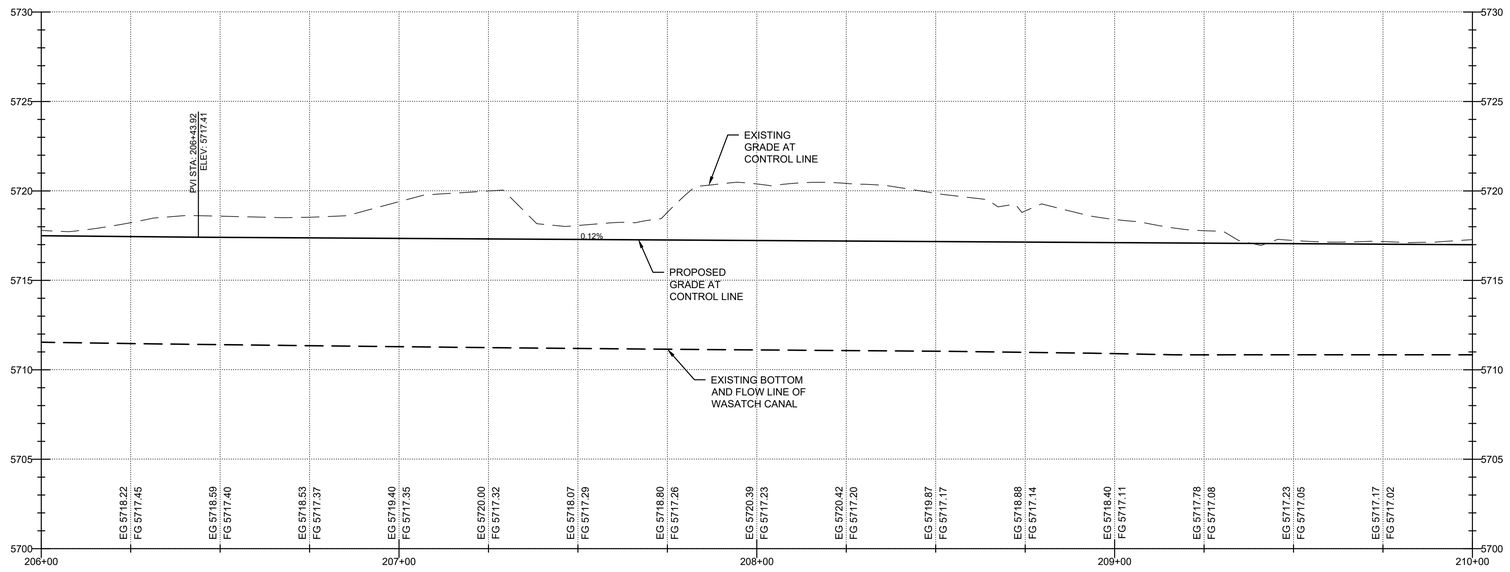


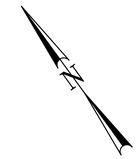


KEY MAP

LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- EXISTING 8-INCH IRRIGATION LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING EARTHEN WASATCH CANAL
- PROPOSED CONCRETE LINED CANAL





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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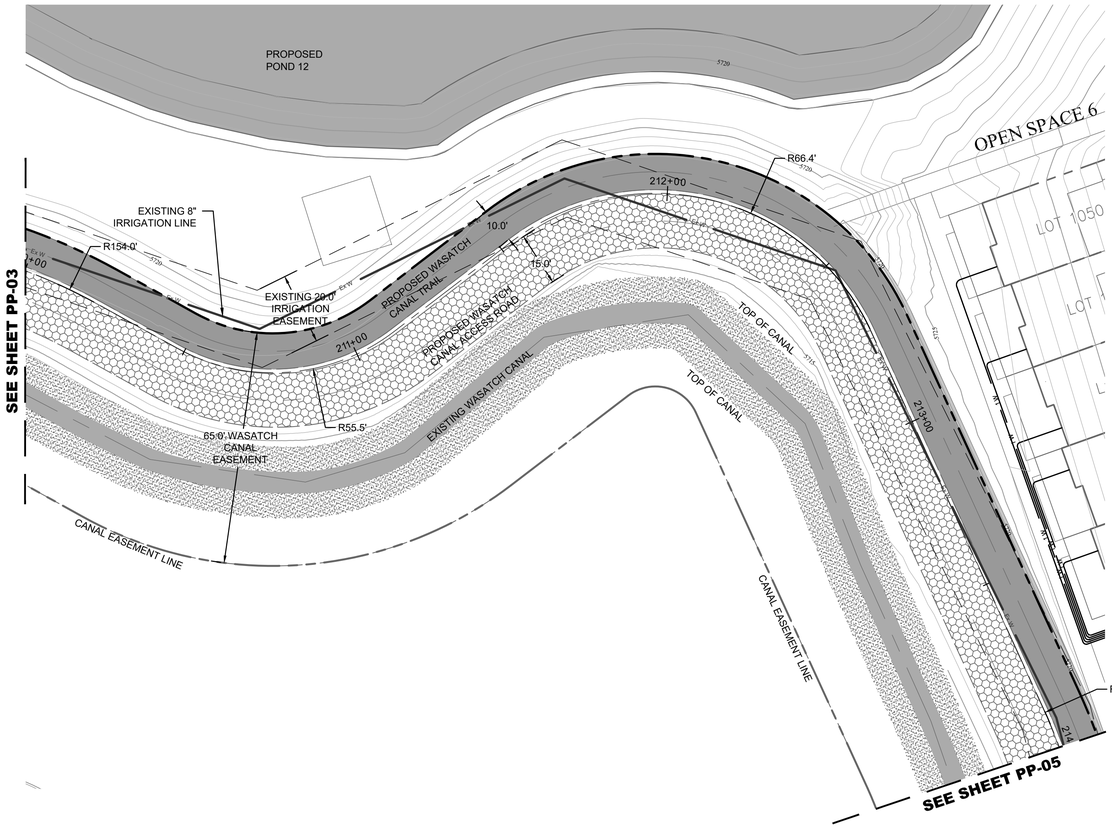
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8160804
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PP-03

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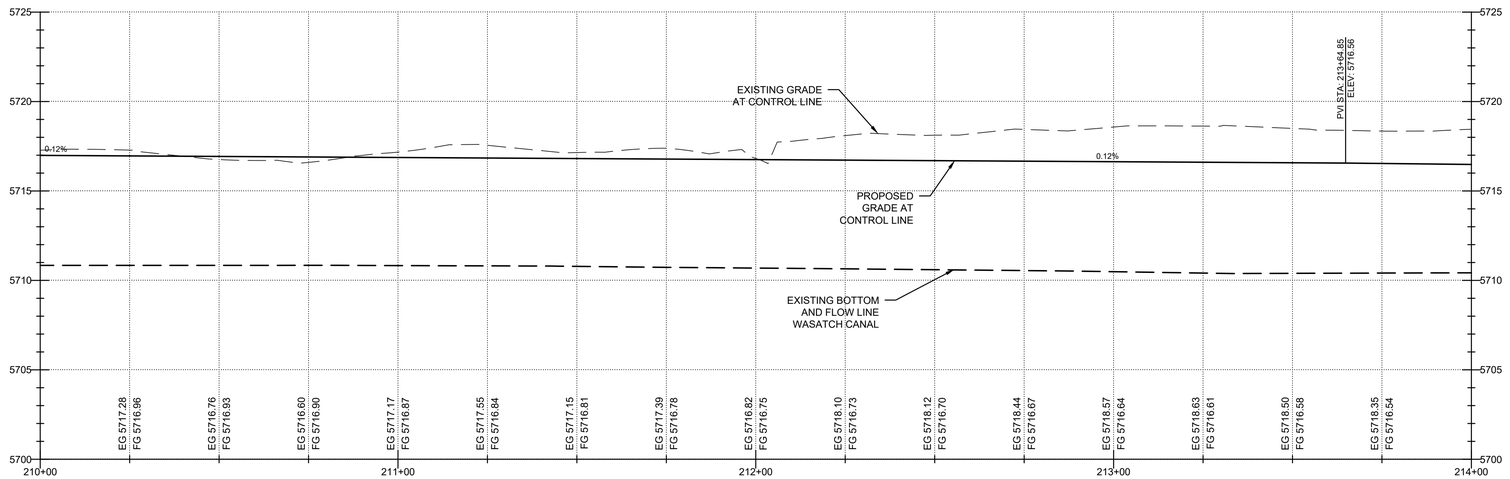


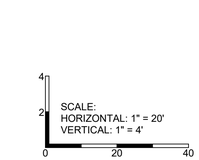


KEY MAP

LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- EXISTING 8-INCH IRRIGATION LINE (Ex W)
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING EARTHEN WASATCH CANAL





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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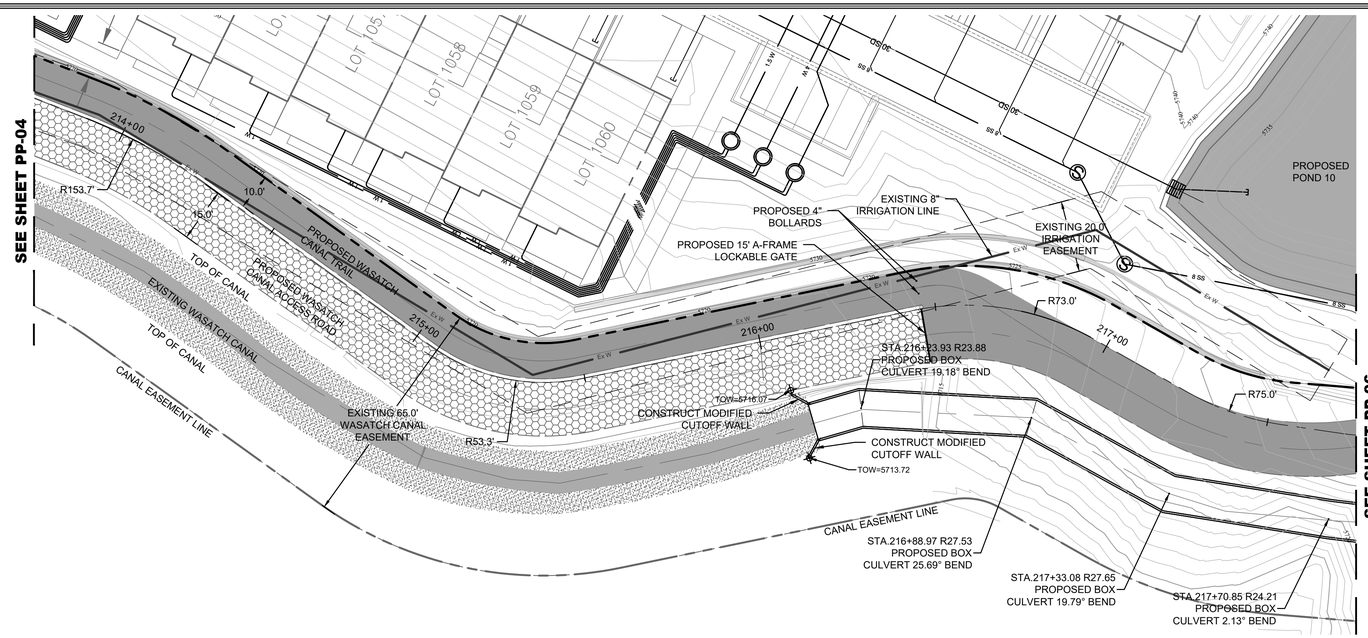
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PROFESSIONAL ENGINEER
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8164804

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PP-04

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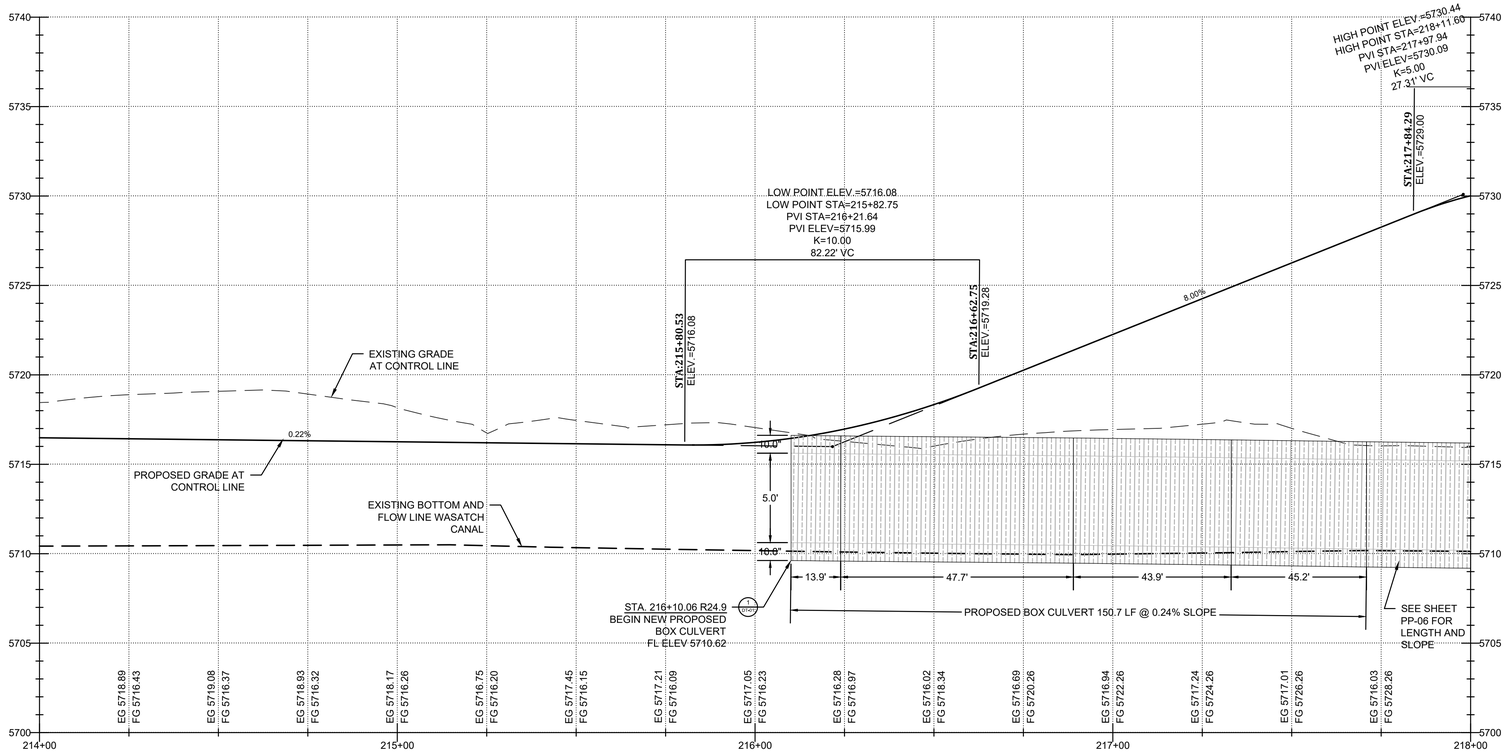
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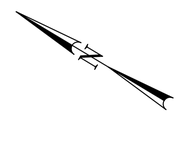


LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- Ex W — EXISTING 8-INCH IRRIGATION LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING EARTHEN WASATCH CANAL



Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'



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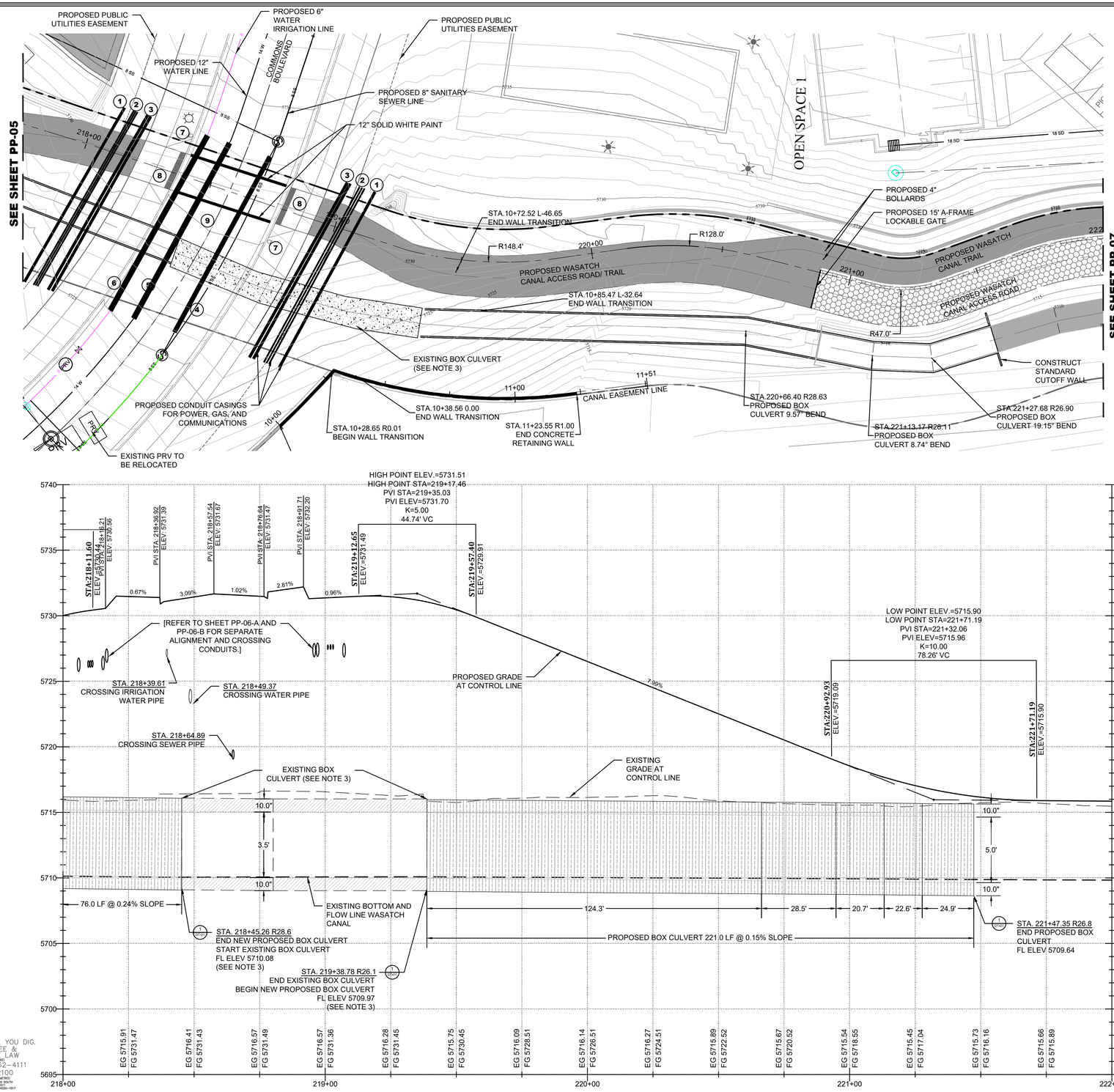
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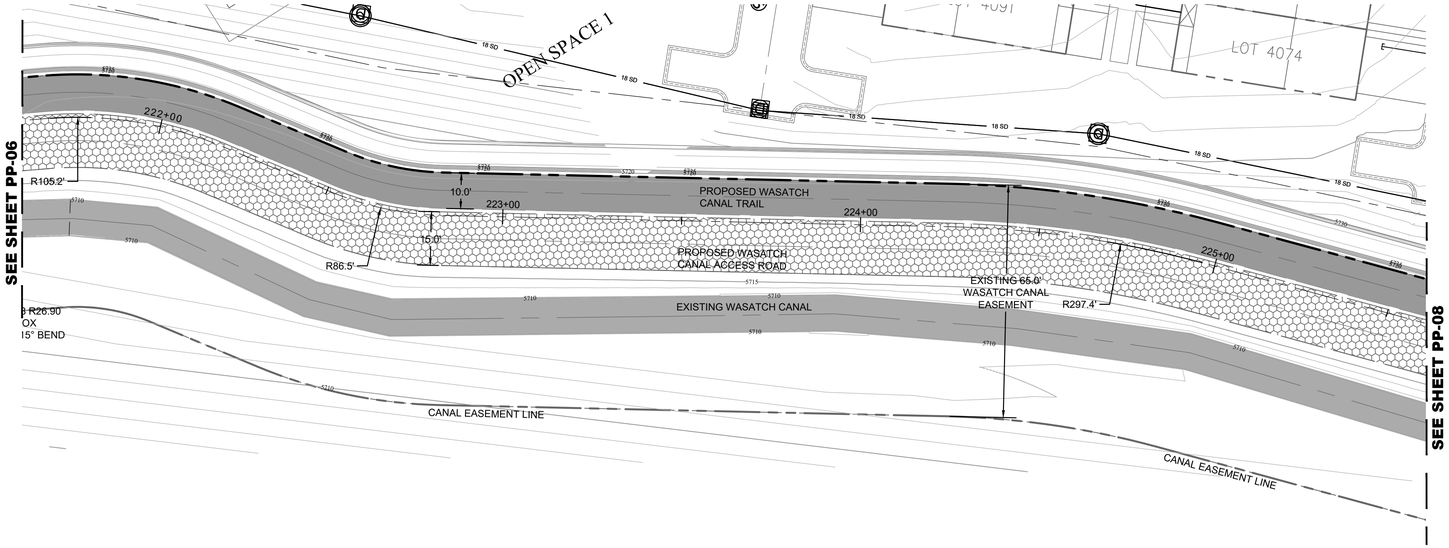
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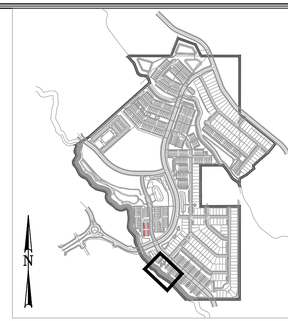
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SHEET
PP-05


PROPOSED PUBLIC UTILITIES EASEMENT
PROPOSED 6" WATER IRRIGATION LINE
PROPOSED PUBLIC UTILITIES EASEMENT
PROPOSED 12" WATER LINE
COMMONS BOULEVARD
PROPOSED 8" SANITARY SEWER LINE
12" SOLID WHITE PAINT
SEE SHEET PP-05
OPEN SPACE 1
SEE SHEET PP-07
STA.10+72.52 L-46.65
END WALL TRANSITION
R148.4'
R128.0'
220+00
221+00
PROPOSED WASATCH CANAL ACCESS ROAD/ TRAIL
PROPOSED WASATCH CANAL TRAIL
PROPOSED WASATCH CANAL ACCESS ROAD
PROPOSED 4" BOLLARDS
PROPOSED 15' A-FRAME LOCKABLE GATE
STA.10+85.47 L-32.64
END WALL TRANSITION
R47.0'
CONSTRUCT STANDARD CUTOFF WALL
EXISTING BOX CULVERT (SEE NOTE 3)
PROPOSED CONDUIT CASINGS FOR POWER, GAS, AND COMMUNICATIONS
STA.10+28.65 R0.01
BEGIN WALL TRANSITION
STA.10+38.56 0.00
END WALL TRANSITION
STA.11+23.55 R1.00
END CONCRETE-RETAINING WALL
CANAL EASEMENT LINE
STA.220+66.40 R28.63
PROPOSED BOX CULVERT 9.57° BEND
STA.221+13.17 R26.11
PROPOSED BOX CULVERT 8.74° BEND
STA.221+27.68 R26.90
PROPOSED BOX CULVERT 19.15° BEND
EXISTING PRV TO BE RELOCATED
PRV
4.0%
4.0%
4.0%

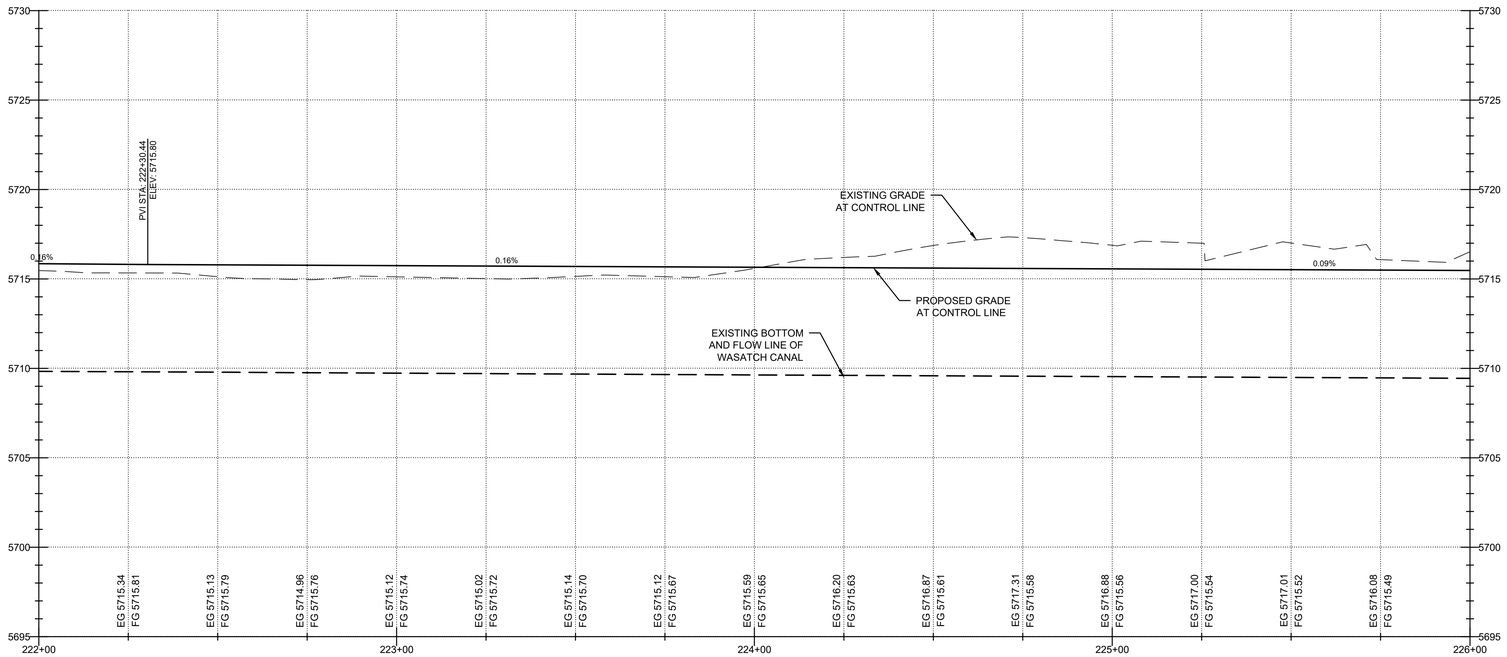


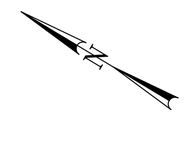


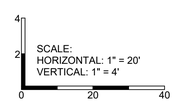
KEY MAP

LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED WASATCH CANAL







SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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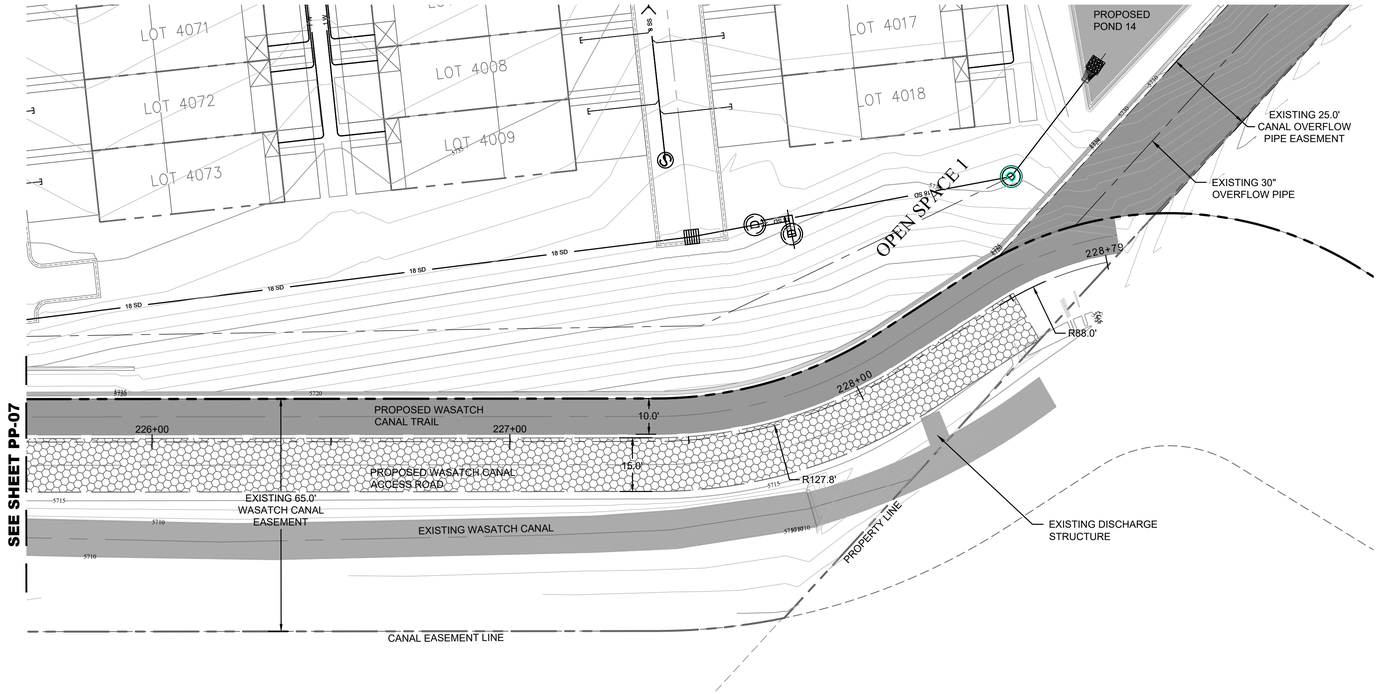
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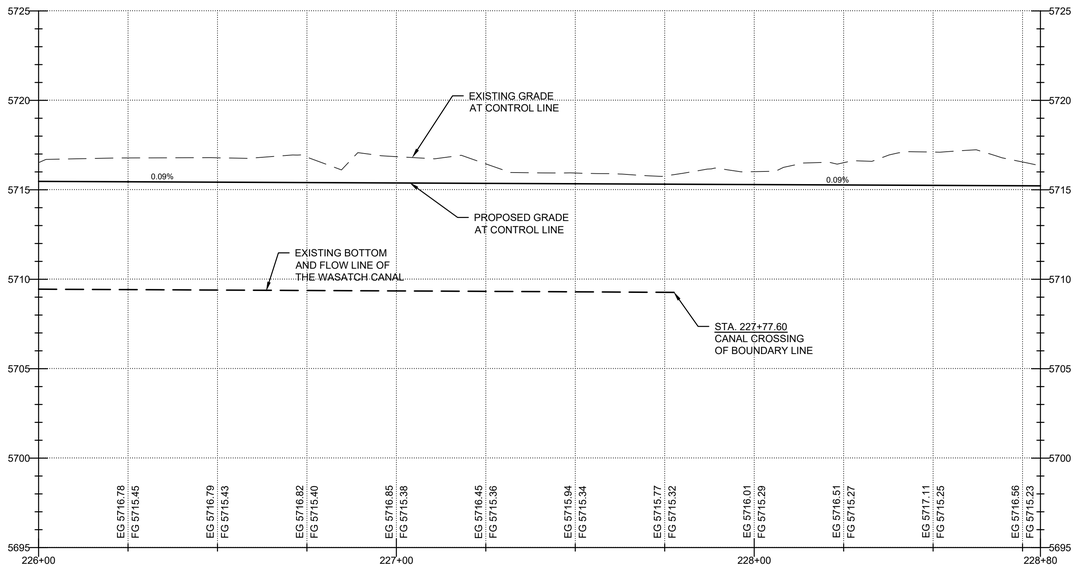
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8179026
STATE OF UTAH

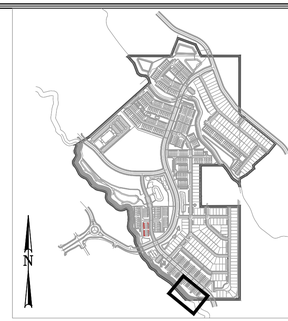
SHEET
PP-07

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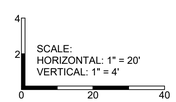


KEY MAP

LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- EXISTING 30-INCH OVERFLOW PIPE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED WASATCH CANAL





SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
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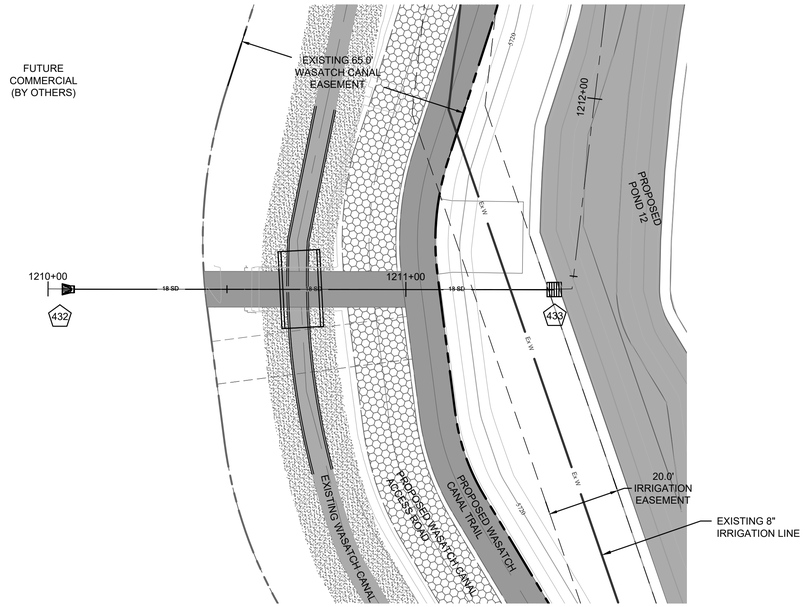
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8/6/2024

SHEET
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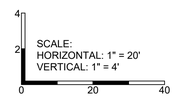




LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- EXISTING 8-INCH IRRIGATION LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING EARTHEN WASATCH CANAL
- PROPOSED CONCRETE LINED CANAL

NOTE:
1) THE PROPOSED 18" CULVERT MUST BE INSTALLED PRIOR TO CONSTRUCTING CANAL.



Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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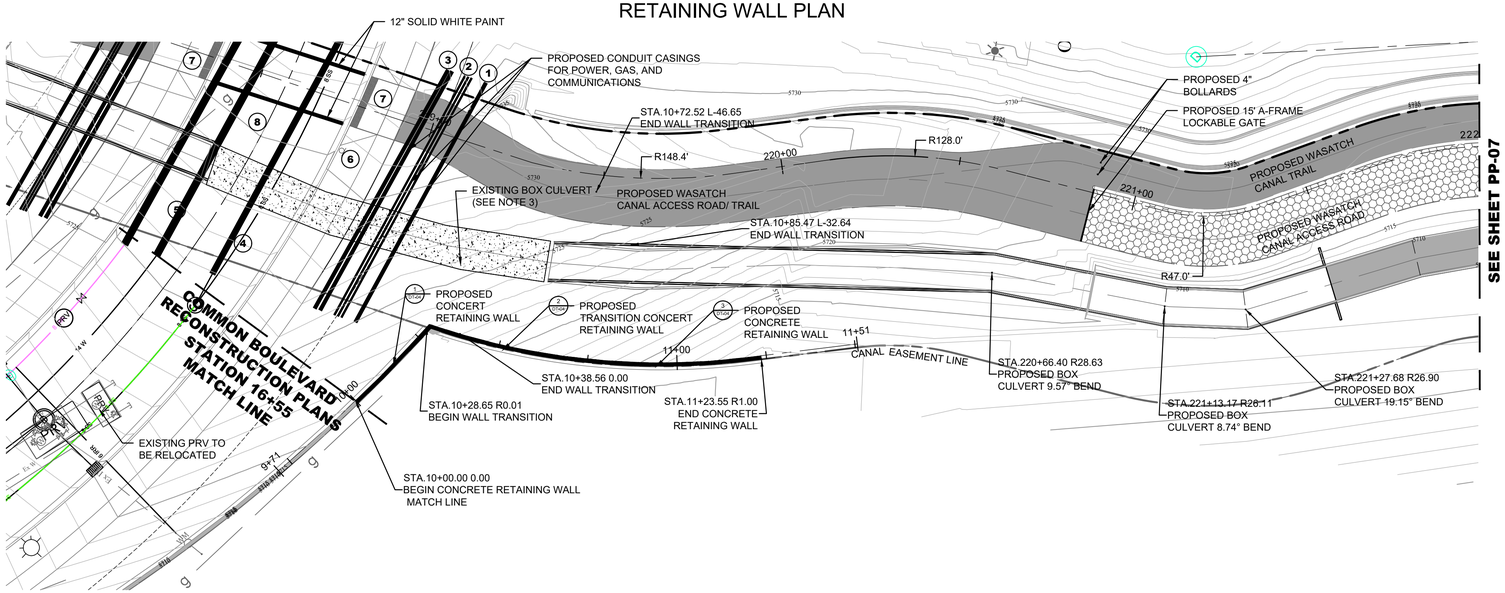
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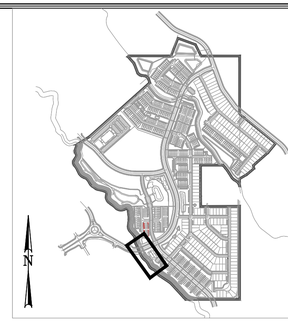
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PP-09

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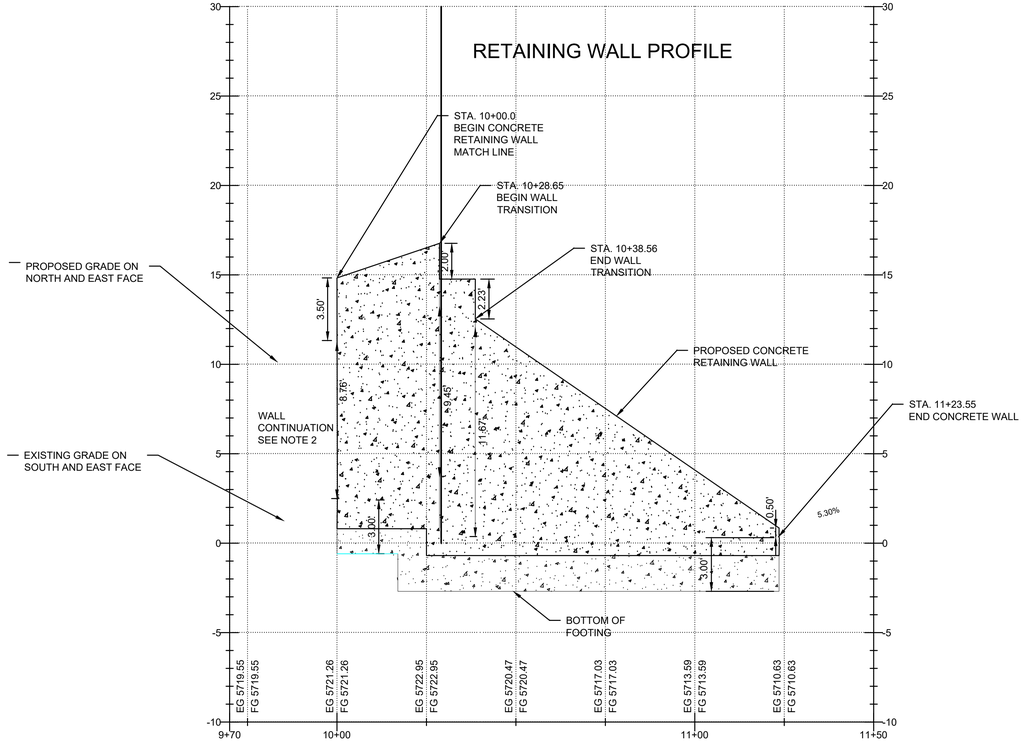
RETAINING WALL PLAN





KEY MAP

RETAINING WALL PROFILE



NOTES:
1) FOOTINGS LOCATION DEPTHS AND STEPS ARE SHOWN IN APPROXIMATE LOCATION. CONSIDER MAY STEP FOOTINGS MORE OR LESS THAN SHOWN COMPARING WITH REQUIRED MINIMUM FROST DEPTH OS 36 INCHES PER HEBER CITY.
2) SEE COMMONS BOULEVARD RECONSTRUCTION PLANS FOR RETAINING WALL CONTINUATION.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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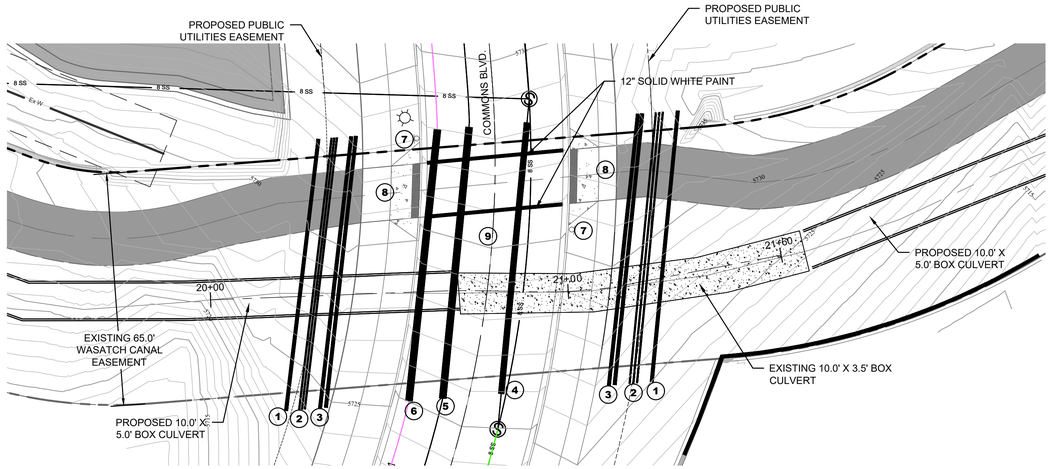
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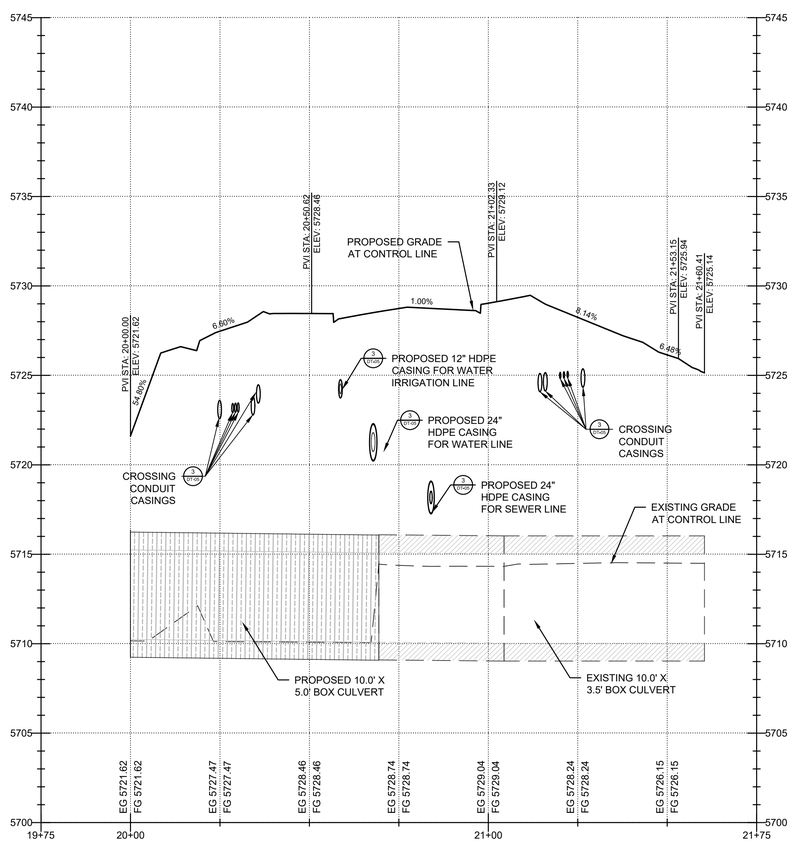
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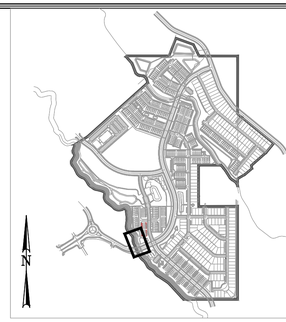
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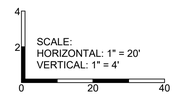
KEY MAP

LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- Ex W — EXISTING 8-INCH IRRIGATION LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING EARTHEN WASATCH CANAL
- EXISTING CONCRETE-LINED WASATCH CANAL
- EXISTING CANAL BOX CULVERT TO REMAIN: CONNECT TO AND MATCH FLOW LINES.

NOTE:
1) EXTEND ALL HDPE CASINGS 5' BEYOND BOTH SIDES OF THE CANAL EASEMENT.
2) AT THE DISCRETION OF CENTRAL UTAH WATER CONSERVANCY DISTRICT (CUWCD), THE EXISTING CULVERT MUST BE REMOVED AND REPLACED, OR UPON APPROVAL BY CUWCD, IT MAY BE RETROFITTED TO A 5 FOOT INSIDE HEIGHT AS REQUIRED.

NUMBERED ITEMS ON PLAN	
1	(1) PROPOSED 12-INCH HDPE CASING FOR GAS UTILITIES
2	(3) PROPOSED 6-INCH HDPE CASINGS FOR COMMUNICATION UTILITIES
3	(2) PROPOSED 12-INCH HDPE CASINGS FOR POWER UTILITIES
4	(1) PROPOSED 24-INCH HDPE CASING FOR SEWER UTILITIES
5	(1) PROPSED 24-INCH HDPE CASING FOR WATER UTILITIES
6	(1) PROPSED 12-INCH HDPE CASING FOR IRRIGATION WATER UTILITIES
7	PROPOSED SIGN: "PUBLIC TRAIL ACCESS. NO MOTORIZED VEHICLES ALLOWED".
8	PROPOSED DRIVEWAY AND ADA ACCESS WITH TRUNCATED DOME.
9	PROPOSED PUBLIC ROAD. SEE SHEET PP-06-C.



Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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8/6/2024

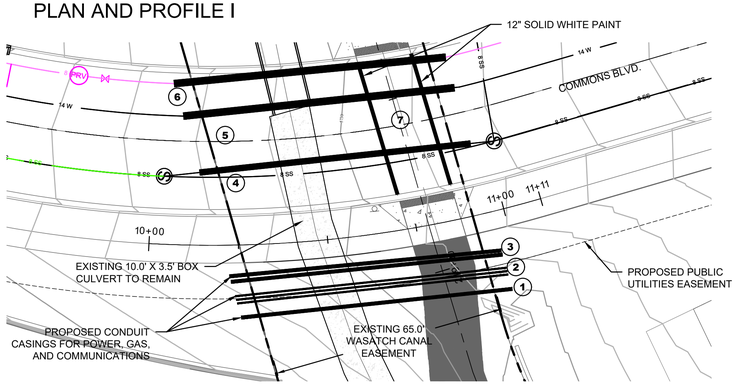
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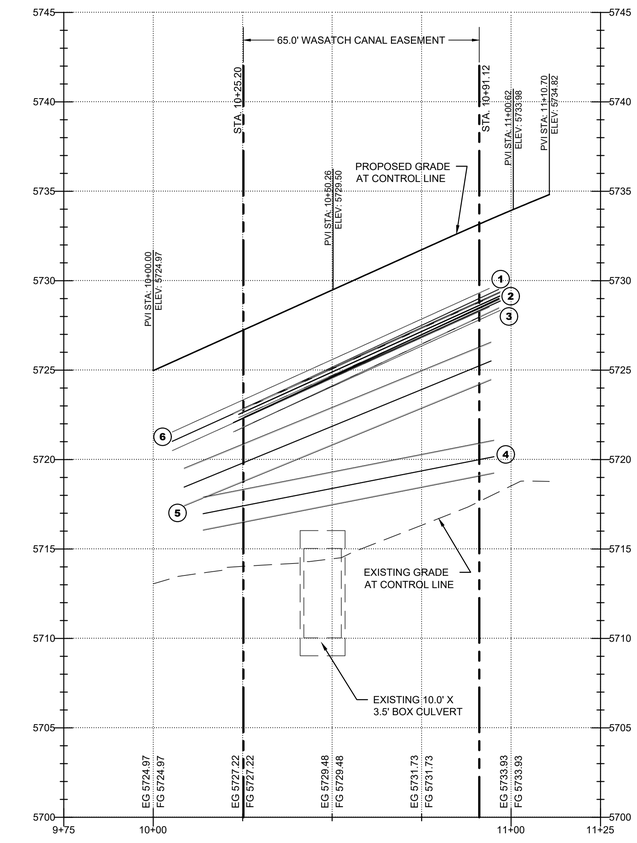
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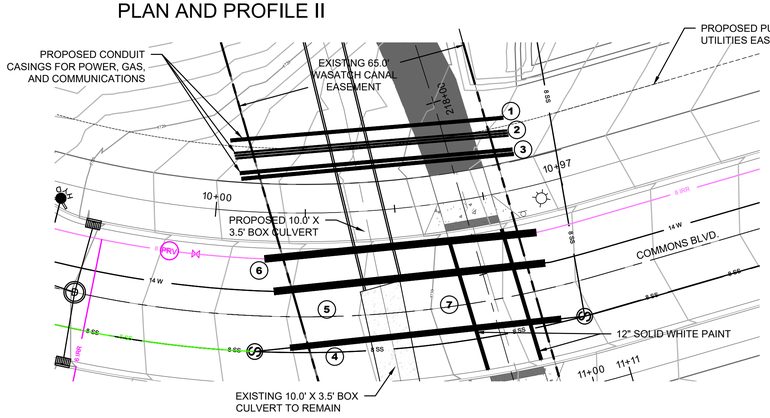
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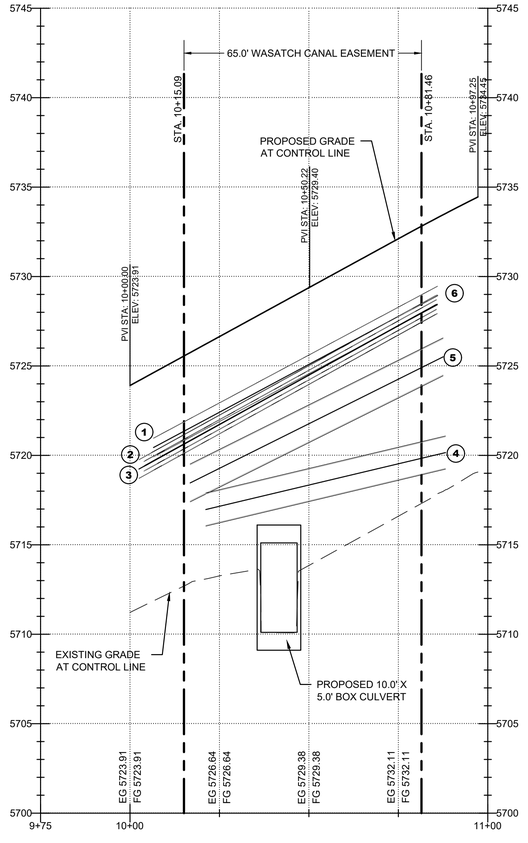
PLAN AND PROFILE I

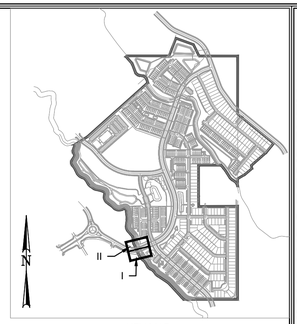




PLAN AND PROFILE II







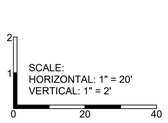
KEY MAP

LEGEND

- WASATCH CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING EARTHEN WASATCH CANAL
- EXISTING CONCRETE-LINED WASATCH CANAL

NUMBERED ITEMS ON PLAN

1	(1) PROPOSED 12-INCH HDPE CASING FOR GAS UTILITIES
2	(3) PROPOSED 6-INCH HDPE CASINGS FOR COMMUNICATION UTILITIES
3	(2) PROPOSED 12-INCH HDPE CASINGS FOR POWER UTILITIES
4	(1) PROPOSED 24-INCH HDPE CASING FOR SEWER UTILITIES
5	(1) PROPSED 24-INCH HDPE CASING FOR WATER UTILITIES
6	(1) PROPSED 12-INCH HDPE CASING FOR IRRIGATION WATER UTILITIES
7	PROPOSED PUBLIC ROAD. SEE SHEET PP-06-C.





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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(TOLL-FREE)
1-800-662-4111
208-2100
(SALT LAKE METRO)
UTAH PROTECTION CENTER, INC.
148 EAST 13200 SOUTH
DRAPER, UTAH 84020-1917

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL RD & TRAIL

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: WASATCH CANAL RD & TRAIL - PROFILE FOR CULVERT
JOB No: 3897-PRELIM-PP26
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 24"x36". DIMENSIONS AND NOTES MAKE PRECEDENCE

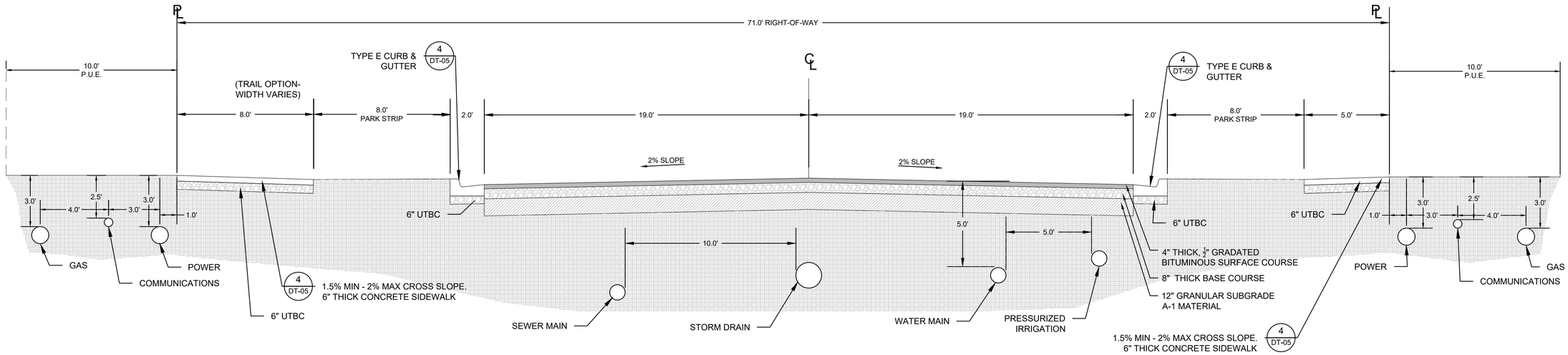
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION



SHEET
PP-06-B

PROPOSED PUBLIC ROADWAY SECTION WITHIN CANAL EASEMENT



1 Typical 71' Minor Collector Road Section
NTS

SOIL CLASSIFICATION MATRIX FOR SUBGRADE

SOIL CLASSIFICATIONS	REQUIREMENT
A-1	The subgrade shall be scarified to a depth of 12" and the loosened material shall be moistened and compacted to the equivalent of 95% of maximum dry density as measured by AASHTO T-180.
A-2, A-3, A-4 or A-5	The subgrade shall be over-excavated a minimum of 12" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.
A-6 or A-7	The subgrade shall be over-excavated a minimum of 18" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.

GENERAL NOTES:
1. GEOTECHNICAL STUDY BY APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS INC (AGEC) JANUARY 15, 2007.
2. PARKING ALLOWED ON ONE SIDE OF THE STREET PENDING APPROVAL OF THE FIRE MARSHAL
3. UTILITIES SHOWN PER THE RECOMMENDATIONS FROM THE HEBER CITY STANDARD DRAWINGS. ALL UTILITIES SHOWN ARE NOT NOT REQUIRED IN ALL ROADS.
4. THIS PLAN IS FOR THE PURPOSE OF MASS GRADING. FINAL DECISION ON THE ROAD CROSS SECTIONS WILL BE MADE AFTER THE MASS GRADING IS COMPLETE. THIS DETERMINATION WILL BE MADE IN CONJUNCTION WITH THE CITY, THE GEOTECHNICAL ENGINEER, AND THE DEVELOPER/CONTRACTOR PRIOR TO FINAL CONSTRUCTION.
5. SUBGRADE SHALL BE A-1 GRANULAR MATERIAL PER HEBER CITY SPECIFICATIONS, SECTION 02225 (SEE TABLE ON THE LEFT).
6. THE ACTUAL LOCATION OF DRY UTILITIES WILL BE DETERMINED BY THE UTILITY AGENCIES.

CALL BEFORE YOU DIG. IT'S FREE & IT'S THE LAW (TOLL-FREE) 1-800-662-4111 208-2100
BLUE STAKES OF UTAH 811 PO BOX 1577 DRAPER, UTAH 84020-1577

FILENAME: O:\Highlands\Residential-DR Horton\Design - Wasatch Canal\WASATCH CANAL RD & TRAIL.dwg TAB: PP-06-C ROADWAY CROSS SECTION FROM TS-02 PLOT DATE AND TIME: 8/6/2024 5:44 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL ROADWAY CROSS SECTION

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: WASATCH CANAL RD & TRAIL.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 BY 34 IN. USE DIMENSIONS AND NOTES TAKE PRECEDENCE

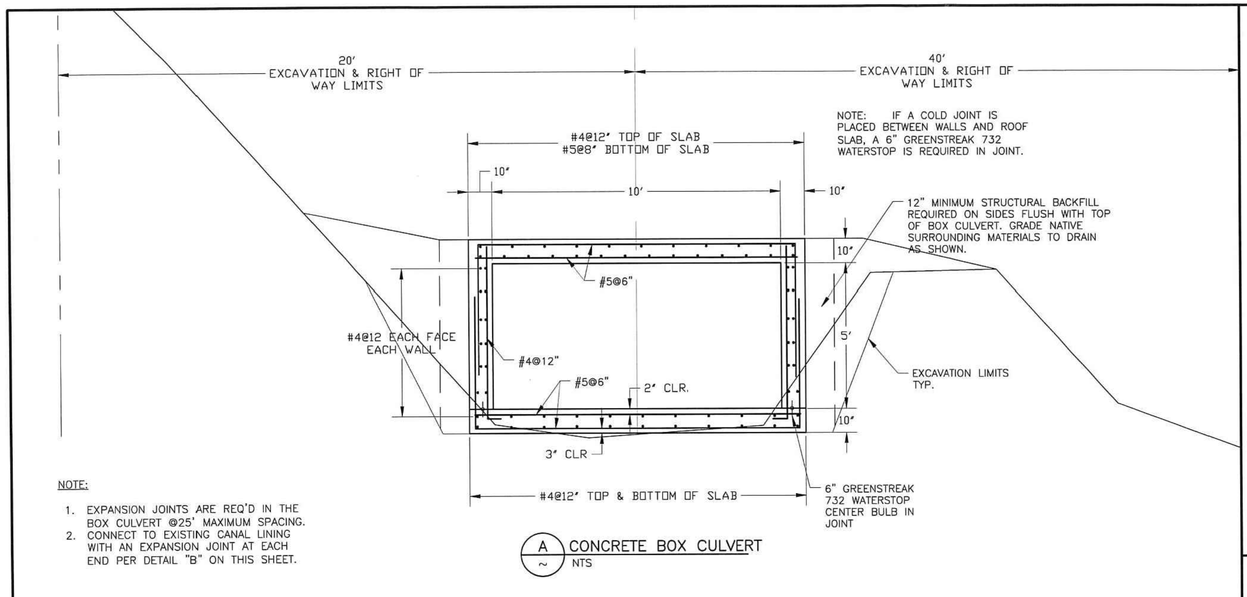
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS

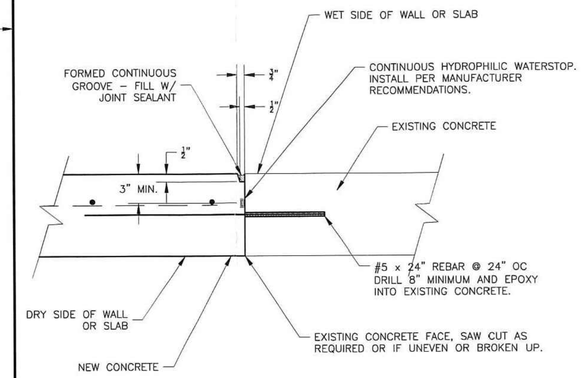
1	07/30/2024	GRADING REVISION



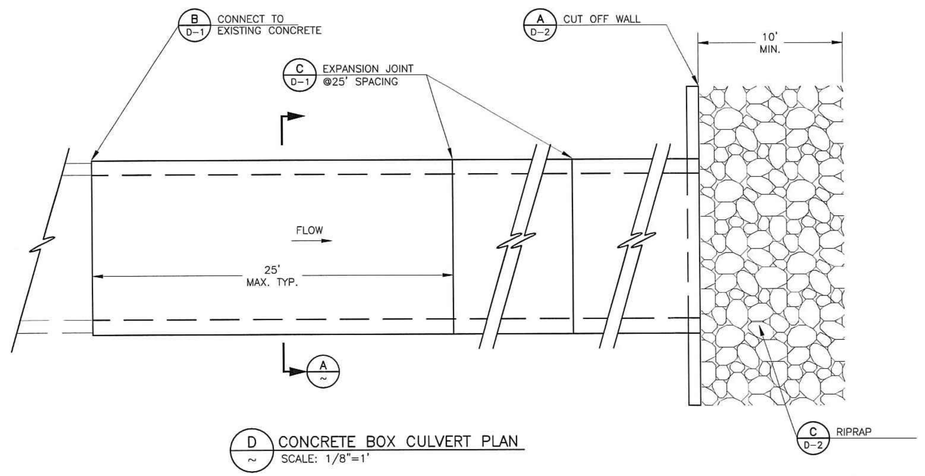
SHEET
PP-06-C



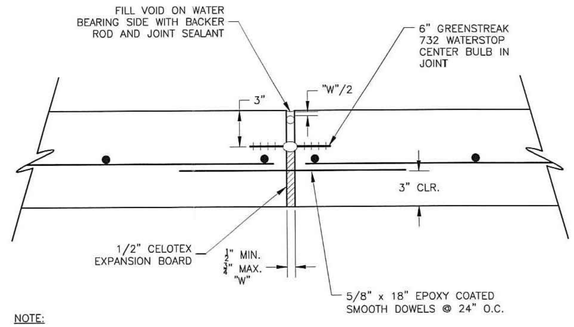
A ~ CONCRETE BOX CULVERT
NTS



B D–1 CONSTRUCTION JOINT EXISTING CONCRETE
NTS



D ~ CONCRETE BOX CULVERT PLAN
SCALE: 1/8"=1'



NOTE:
EXPANSION JOINTS ARE REQ'D IN SLABS & WALLS @25' MAXIMUM SPACING

C D–1 EXPANSION JOINT DETAIL
SCALE: 1/8"=1'

REV	DATE	BY	DESCRIPTION
REVISIONS			

SCALE: AS SHOWN
CONTOUR INTERVAL: NA
INTERMEDIATE : NA

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED KDB DATE AUG 2016
DRAWN KDB DATE AUG 2016
CHECKED RP DATE AUG 2016

LICENSED PROFESSIONAL ENGINEER No. 189312 KIRK D. BEECHER STATE OF UTAH

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT
Wasatch County Water Efficiency Project
TIMPANOGOS CANAL LINING
JORDANLLE DAM TO HIGHWAY 32 – REACH 1
TYPICAL DETAILS

CONTRACT NO.
DATE AUGUST 2016
DRAWING NO. D–1
SHEET NO. 8 of 9

1 CUWCD CULVERT DETAILS - ORIGINAL
NTS (SEE DT-02 FOR ADDITIONAL CULVERT DETAILS)

CALL BEFORE YOU DIG. IT'S FREE & IT'S THE LAW (ONLY FREE) 1-800-662-4111 208-2100 (SALT LAKE METRO) 140 EAST 1300S SOUTH PO BOX 1910 PROVO, UTAH 84603-1910

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL CULVERT DETAILS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801.487.8040

CLIENT: D.R.HORTON
DWG: WASATCH CANAL RD & TRAIL DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in = DIMENSIONS AND NOTES TAKE PRECEDENCE

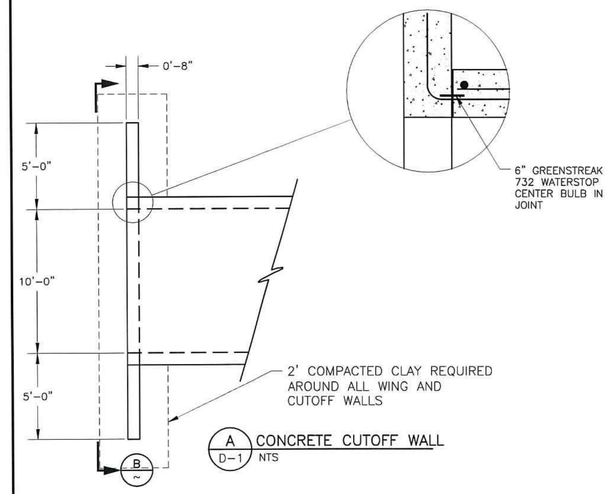
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

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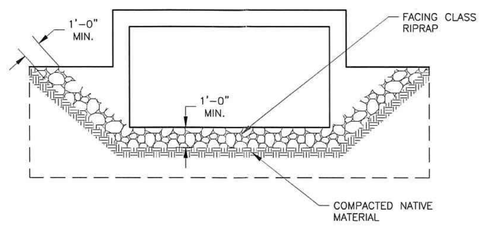
LICENSED PROFESSIONAL ENGINEER SATTAR N. TABRIZ STATE OF UTAH 8/6/2024

SHEET
DT-01

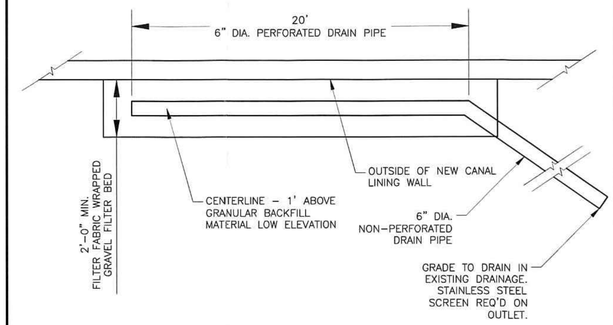
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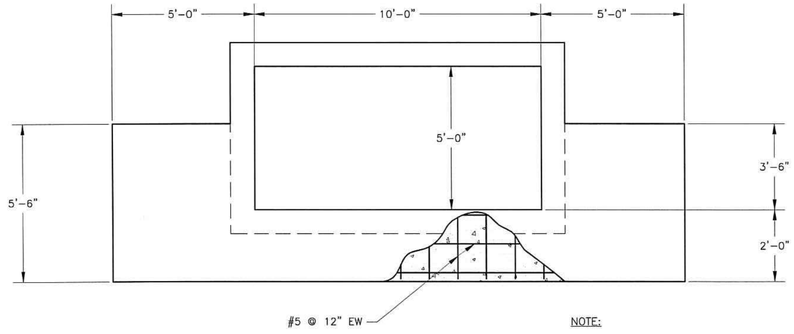
A D-1 CONCRETE CUTOFF WALL
NTS



C D-1 RIPRAP DETAIL
NTS



D CR-2 CONCRETE LINING TOE DRAIN
NTS



NOTE:

CUTOFF REQ'D AT OUTLET END OF NEW BOX CULVERT.

B D-1 CONCRETE CUTOFF WALL
NTS

REV	DATE	BY	DESCRIPTION

REVISIONS

SCALE: AS SHOWN

CONTOUR INTERVAL: NA
INTERMEDIATE : NA

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED KDB DATE AUG 2016
DRAWN KDB DATE AUG 2016
CHECKED RP DATE AUG 2016

LICENSED PROFESSIONAL ENGINEER
No. 189312
KIRK D. BEECHER
STATE OF UTAH

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT
Wasatch County Water Efficiency Project
TIMPANOGOS CANAL LINING
JORDANELLE DAM TO HIGHWAY 32 - REACH 1
TYPICAL DETAILS

CONTRACT NO.
DATE AUGUST 2016
DRAWING NO. D-2
SHEET NO. 9 of 9

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(SALT LAKE METRO)
140 EAST 12300 SOUTH
DRAPER, UTAH 84020-1517

1 CUWCD CULVERT DETAILS - ORIGINAL
NTS

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL CULVERT DETAILS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801.487.8040

CLIENT: D.R.HORTON
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JOB No: 3891-LDRH01-23
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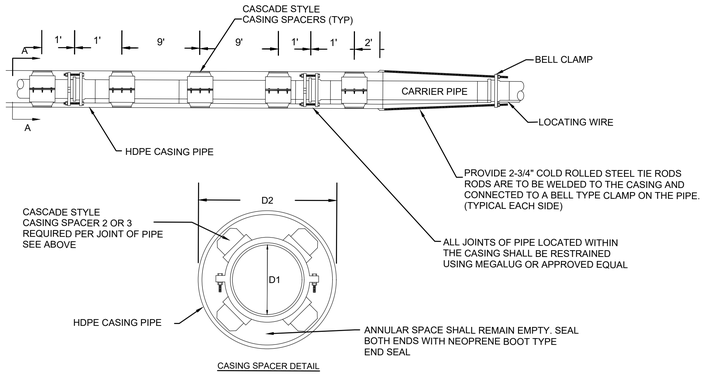
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DATE: 07/29/2024

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SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
DT-02

FILENAME: O:\Highlands\Residential-DR Horton\Design - Wasatch Canal\WASATCH CANAL RD & TRAIL.dwg TAB: DT-02 Wasatch Canal Details PLOT DATE AND TIME: 8/6/2024 5:44 PM



CASING SPACER DETAIL

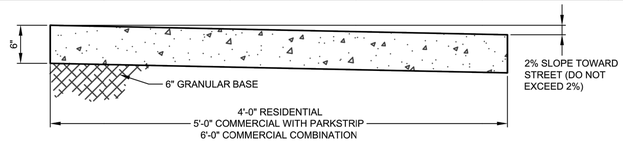
CARRIER PIPE AND CASING PIPE SIZES (MIN.) IN INCHES												
CARRIER PIPE NOM. DIA., (D1)	4	6	8	10	12	14	16	18	20	24	30	36
CASING PIPE NOM. DIA., (D2)	4.5	6.625	8.625	10.75	12.75	14	16	18	20	24	30	36
WALL THICKNESS-DOT	0.409	0.602	0.784	0.977	1.159	1.273	1.455	1.636	1.818	2.182	2.727	3.273

NOTES:

1. MIN. COVER TO TOP OF CASING TO BE 5'-0", INSTALL TO GRADE ON PLAN.
2. THE INSIDE DIAMETER OF THE CASING PIPE SHALL BE A MINIMUM OF 4 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE CARRIER PIPE BELL OR COUPLING.
3. ALL JOINTS WITHIN CARRIER PIPE SHALL BE MECHANICALLY RESTRAINED JOINTS.
4. CASING THICKNESS TO BE DETERMINED ACCORDING TO UPRR STANDARDS.
5. FOR CARRIER PIPES THAT ARE BIGGER THAN 36", USE STEEL CASING.

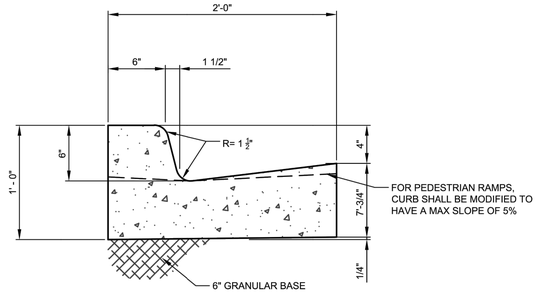
3 HIGH DENSITY POLYETHYLENE (HDPE) CASING PIPE

NTS



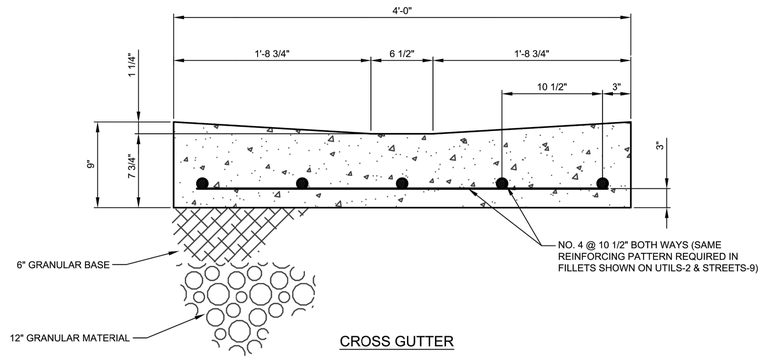
NOTE: WHEN REPLACING SIDEWALK, THICKNESS MAY BE REDUCED TO 4" WITH CITY ENGINEER APPROVAL.

SIDEWALK



NOTES:THE TOP BACK OF CURB SHALL BE STAMPED ACCORDING TO SECTION 700 - 1.02 - L.

HIGH BACK CURB & GUTTER



CROSS GUTTER

SIDEWALK, HIGH BACK CURB & GUTTER, CROSS GUTTERS

HORROCKS ENGINEERS
728 WEST 100 SOUTH #2
HEBER CITY, UTAH 84032
(435) 654-2226

DATE: FEBRUARY 2019
SCALE: N.T.S.

75 NORTH MAIN STREET
HEBER CITY, UTAH 84032
(435) 654-0757

HEBER CITY
HEART OF THE WASATCH BACK

HEBER CITY
STANDARD DRAWING

STREETS-4

4 SIDEWALK AND CURB & GUTTER DETAILS

NTS

V:\ENGR\Stds\StdSpec\StdSpec 2019\Dwg Files\STREETS-4.dwg - Sidewalk Curb - 2/06/2019 11:44am, rfunk

FILENAME: O:\Highlands\Residential-DR Horton\Design - Wasatch Canal\WASATCH CANAL RD & TRAIL.dwg TAB: DT-03 Details PLOT DATE AND TIME: 8/6/2024 5:44 PM

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DIAL 811 OR 800-662-4111
OR 208-2100
BLUE STAKES OF UTAH
PO BOX 1577
PROVO, UTAH 84603-1577

HIGHLANDS RESIDENTIAL
DEVELOPMENT
HEBER CITY, UT
WASATCH CANAL DETAILS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

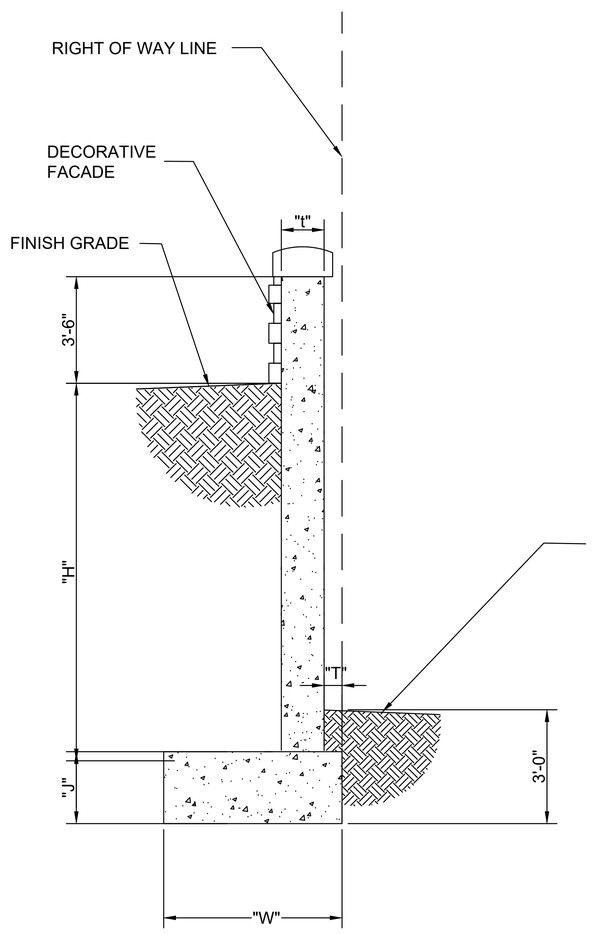
CLIENT: D.R.HORTON
DWG: WASATCH CANAL RD & TRAIL.DWG
JOB No: 3891-DRH01-23
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

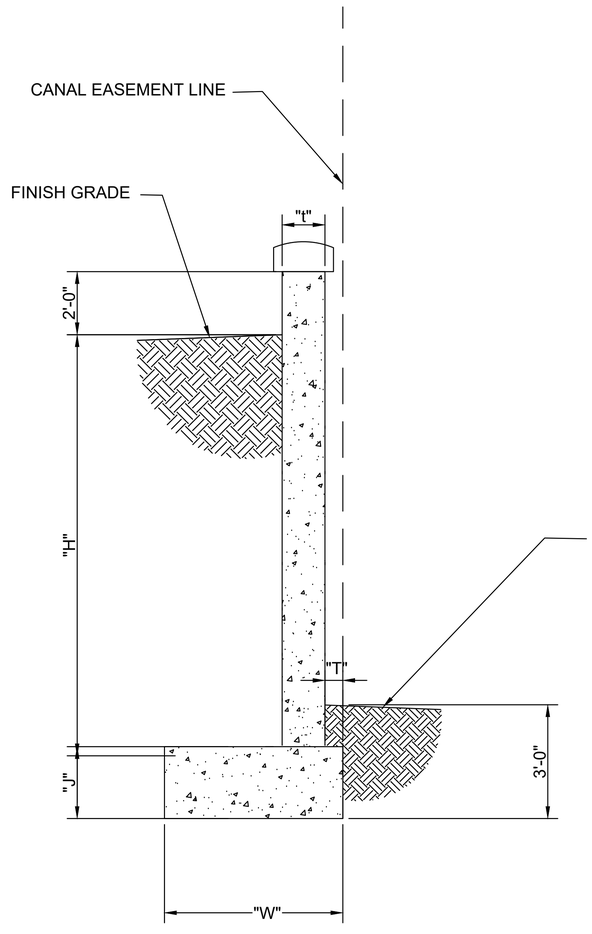
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SATTAR N. TABRIZ
8/6/2024

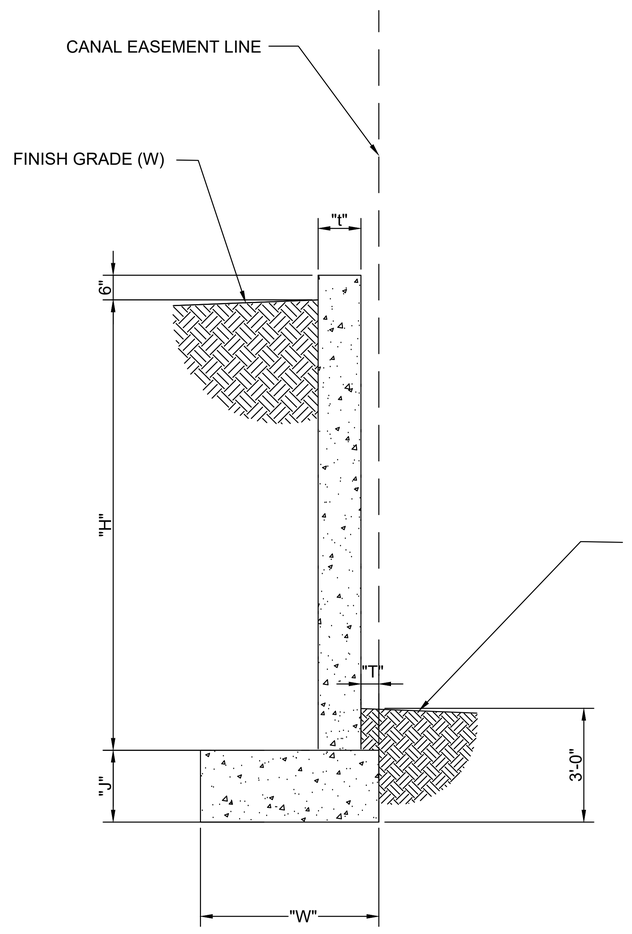
SHEET
DT-03



1 CONCRETE RETAINING WALL
NTS



2 CONCRETE RETAINING WALL / TRANSITION
NTS



3 CONCRETE RETAINING WALL
NTS

NOTES:
1) PRIOR TO CONSTRUCTION A BUILDING PERMIT IS REQUIRED BY HEBER CITY. ALL STRUCTURAL DESIGN, GEOGRAPHICAL RECOMMENDATIONS, SHORING, STRUCTURAL DETAILS, AND CALCULATIONS ARE REQUIRED AS PART OF THE BUILDING PERMIT.
2) CUWCD SHALL ALSO REVIEW AND APPROVE BUILDING PERMIT PLANS AND DOCUMENTS.
3) DIMENSIONS SHOWN SHALL BE CALCULATED WITH THE STRUCTURE ENGINEERING AND BUILDING PERMIT APPLICATION.

CALL BEFORE YOU DIG.
IT'S FREE &
IT'S THE LAW
(TOLL-FREE)
1-800-662-4111
208-2100
(ONLY LINE WITHIN)
148 EAST 12000 SOUTH
SUITE 100
DRAPER, UTAH 84020-1817

FILENAME: O:\Highlands\Residential-DR Horton\Design - Wasatch Canal\WASATCH CANAL RD & TRAIL.dwg TAB: DT-04 PLOT DATE AND TIME: 8/6/2024 5:45 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
RETAINING WALL SECTION

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R. HORTON
DWG: WASATCH CANAL RTB-6.DWG
TRAIL DWG
JOB No: 3691-DRH01-23
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS

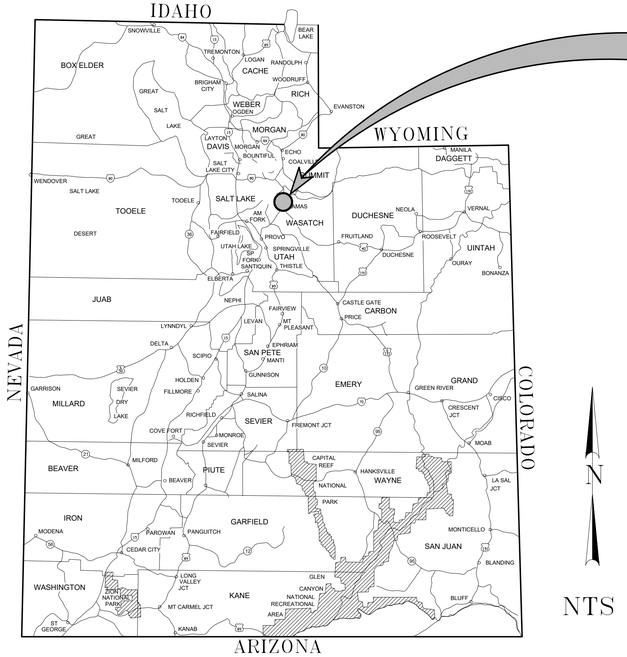
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SATTAR N. TABRIZ
8/7/2024

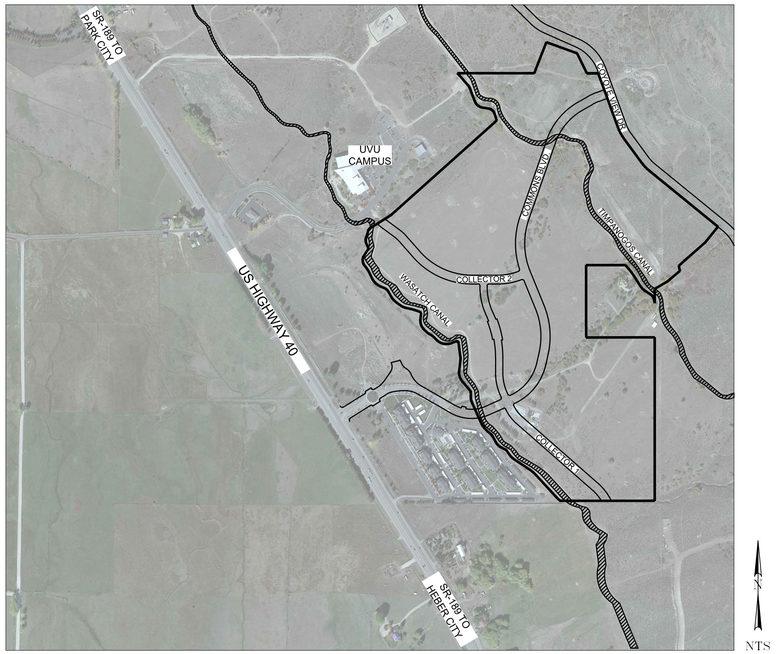
SHEET
DT-04

HIGHLANDS RESIDENTIAL DEVELOPMENT:
TIMPANOGOS CANAL IMPROVEMENT PLANS

LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19 AND THE
WEST HALF OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
2632–2896 VICTORY HIGHWAY, HEBER CITY, UTAH 84032



Sheet List Table	
Sheet Number	Sheet Title
CV-01	COVER SHEET
NT-01	GENERAL NOTES
NT-02	SYMBOLS AND ABBREVIATIONS
EC-01	TIMPANOGOS CANAL TYPICAL SECTIONS - EXISTING
EC-02	TIMPANOGOS CANAL EXISTING CONDITIONS PLAN
EC-03	TIMPANOGOS CANAL EXISTING CONDITIONS PLAN
EC-04	TIMPANOGOS CANAL EXISTING CONDITIONS PHOTOS
DM-01	TIMPANOGOS CANAL DEMOLITION PLAN
DM-02	TIMPANOGOS CANAL DEMOLITION PLAN
SP-01	TIMPANOGOS CANAL TYPICAL SECTIONS - PROPOSED
SP-02	TIMPANOGOS CANAL SITE PLAN
SP-03	TIMPANOGOS CANAL SITE PLAN
PP-01	TIMPANOGOS CANAL RD & TRAIL
PP-02	TIMPANOGOS CANAL RD & TRAIL
PP-03	TIMPANOGOS CANAL RD & TRAIL
PP-04	TIMPANOGOS CANAL RD & TRAIL
PP-05	TIMPANOGOS CANAL RD & TRAIL
PP-06	TIMPANOGOS CANAL RD & TRAIL
PP-07	TIMPANOGOS CANAL RD & TRAIL
PP-03-A	TIMPANOGOS CANAL RD & TRAIL
PP-03-B	TIMPANOGOS CANAL RD & TRAIL
PP-03-C	TIMPANOGOS ROADWAY CROSS SECTION
DT-01	TIMPANOGOS CANAL CULVERT DETAILS
DT-02	TIMPANOGOS CANAL CULVERT DETAILS
DT-03	TIMPANOGOS CANAL DETAILS



LOCATION MAP
N.T.S.

DEVELOPER / BUILDER:
DR HORTON
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PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

SHEET
CV-01

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CIVIL PROJECT NOTES

CONTRACTOR SHALL PERFORM ALL WORK TO THE STANDARD PLANS, SPECIFICATIONS, AND REQUIREMENTS OF:
WATER: NORTH VILLAGE SPECIAL SERVICE DISTRICT
SEWER: NORTH VILLAGE SPECIAL SERVICE DISTRICT
STORM WATER: HEBER CITY
POWER: ROCKY MOUNTAIN POWER
GAS: DOMINION ENERGY
COUNTY: WASATCH COUNTY

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL AND CURRENT APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, OSHA REQUIREMENTS, STANDARDS AND SPECIFICATIONS WHETHER OR NOT ANY SPECIFIC REFERENCE IS MADE TO SUCH IN THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE PROPERLY LICENSED IN THE STATE OF UTAH TO PERFORM ALL OF THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS. SUCH LICENSING SHALL REMAIN IN EFFECT CONTINUOUSLY THROUGHOUT THE ENTIRETY OF THIS PROJECT INCLUDING FROM TIME OF BID SUBMISSION THROUGH PROJECT COMPLETION AND WARRANTY PERIOD. THE CONTRACTOR SHALL CARRY APPROPRIATE INSURANCE, PERFORMANCE AND PAYMENT BONDS AS REQUIRED.
2. ALL WORK SHALL CONFORM TO THESE PLANS AND TO THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. IN THE EVENT THAT ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING, AND THE ENGINEER, AT HIS SOLE DISCRETION, SHALL DETERMINE WHICH REQUIREMENTS GOVERN. THE CONTRACTOR SHALL KEEP ONE RECORD COPY OF ALL SPECIFICATIONS, DRAWINGS, ADDENDA, MODIFICATIONS, AND SHOP DRAWINGS AT THE SITE IN GOOD ORDER AND ANNOTATED TO SHOW ALL CHANGES MADE DURING THE CONSTRUCTION PROCESS. THESE SHALL BE AVAILABLE TO THE ENGINEER AND SHALL BE DELIVERED TO HIM FOR THE OWNER UPON COMPLETION OF THE PROJECT.
3. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THE PLANS AND DOCUMENTS, PERFORM A SITE VISIT TO SATISFY HIMSELF AS TO THE SITE CONDITIONS, ATTEND ALL PRECONSTRUCTION AND CONSTRUCTION MEETINGS, AND THOROUGHLY SATISFY HIMSELF AS TO THE TRUE MEANING AND INTENTION OF THIS CONTRACT. THE CONTRACTOR SHALL BE COMPETENT AND EXPERIENCED TO PERFORM ALL WORK REQUIRED. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ENGINEER AND THEIR AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES INCLUDING ATTORNEY'S FEES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK, PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS OR EXPENSES IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF) INCLUDING THE LOSS OF USE RESULTING THERE FROM; AND IS CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT IT IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER. IN ANY AND ALL CLAIMS AGAINST THE OWNER OR THE ENGINEER OR ANY OF THEIR AGENTS OR EMPLOYEES BY ANY EMPLOYEE OF THE CONTRACTOR, AND SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, SAID INDEMNIFICATION OBLIGATION SHALL NOT BE LIMITED IN ANY WAY BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR ANY SUBCONTRACTOR UNDER WORKMEN'S COMPENSATION ACTS, DISABILITY BENEFIT ACTS OR OTHER EMPLOYEE BENEFIT ACTS.
5. THE CONTRACTOR WARRANTS AND GUARANTEES TO THE OWNER AND ENGINEER THAT ALL MATERIAL AND EQUIPMENT USED IN THE PERFORMANCE OF THIS WORK SHALL BE NEW UNLESS OTHERWISE SPECIFIED AND THAT ALL WORK SHALL BE OF GOOD QUALITY AND FREE FROM FAULTS OR DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. IF REQUIRED BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT. ALL MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND CONDITIONED IN ACCORDANCE WITH THE INSTRUCTIONS OF THE APPLICABLE MANUFACTURER, FABRICATOR OR PROCESSOR, EXCEPT AS OTHERWISE PROVIDED IN THE PLANS AND DOCUMENTS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, LICENSES AND FEES REQUIRED FOR THE PERFORMANCE AND COMPLETION OF THE WORK AND SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SAID PERMITS AND LICENSES. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SIGNAGE, BARRICADING AND TRAFFIC CONTROL IN CONFORMANCE TO THE MOST RECENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, LABOR, TRANSPORTATION, CONSTRUCTION EQUIPMENT AND MACHINERY, TOOLS, APPLIANCES, FUEL, POWER, LIGHT, HEAT, TELEPHONE, WATER, SANITARY FACILITIES, AND ALL OTHER FACILITIES AND INCIDENTALS NECESSARY FOR THE EXECUTION, TESTING, INITIAL OPERATION AND COMPLETION OF THE WORK.
7. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR PROVIDING DUST, MUD, AND EROSION CONTROL, AND PROPER DRAINAGE. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY HANDLE AND DISPOSE OF ALL CONSTRUCTION WATER. THE CONTRACTOR SHALL LIMIT TRAVEL ON THE PROJECT SITE TO ROADWAYS ONLY, EXCEPT WHERE CONSTRUCTION SPECIFICALLY REQUIRES TRAVEL ELSEWHERE. ANY DAMAGE CAUSED BY SUCH UNAUTHORIZED TRAVEL SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIAL, RUBBISH AND OTHER DEBRIS RESULTING FROM THE WORK. EQUIPMENT AND CONSTRUCTION MATERIALS, ETC., SHALL BE STORED ONSITE ONLY AT THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL WHEREON THEY ARE STORED. AT THE COMPLETION OF THE WORK, ALL WASTE MATERIALS, RUBBISH AND DEBRIS SHALL BE REMOVED FROM THE PREMISES AS WELL AS ALL TOOLS, CONSTRUCTION EQUIPMENT AND MACHINERY, AND SURPLUS MATERIALS. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION THOSE PORTIONS OF THE SITE NOT DESIGNATED FOR ALTERATION BY THE PLANS AND DOCUMENT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING ALL REQUIRED TESTING AND INSPECTIONS A MINIMUM OF 48 HOURS IN ADVANCE. NEITHER OBSERVATIONS BY THE ENGINEER NOR INSPECTIONS, TESTS OR APPROVALS BY PERSONS OTHER THAN THE CONTRACTOR SHALL RELIEVE THE CONTRACTOR FROM HIS OBLIGATIONS TO PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND DOCUMENTS
9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE CONDITIONS THROUGHOUT THE PROJECT, INCLUDING SUBSURFACE CONDITIONS AND UTILITY LOCATION. WARD ENGINEERING GROUP ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS. ANY EXISTING UTILITIES OR OTHER IMPROVEMENTS SHOWN ON THE PLANS HAVE BEEN DERIVED FROM FIELD INVESTIGATIONS AND/OR AVAILABLE RECORD INFORMATION. THE CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY LOCATIONS AND INVERT ELEVATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTING ANY NEW UTILITY. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM HIS OPERATIONS, WHETHER OR NOT SUCH FACILITIES ARE SHOWN IN THESE PLANS. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION. NO EXCAVATION OF ANY NATURE SHALL BE PERFORMED WITHOUT FIRST CONTACTING "BLUE STAKES" AT LEAST 48 HOURS PRIOR TO SUCH EXCAVATION.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ASSURE SOUND EXCAVATION AND GRADING PRACTICES. FOR ALL EXCAVATIONS EXCEEDING A DEPTH OF 4 FEET, THE CONTRACTOR SHALL PROVIDE APPROPRIATE SHORING, BRACING, SLOPING OR OTHER APPROPRIATE PROVISIONS AS SPECIFIED BY OSHA THAT ARE NECESSARY TO PROTECT THE SAFETY OF THOSE AT THE SITE. ALL OPEN TRENCHES MUST BE PROPERLY COVERED AT THE END OF WORK EACH DAY. HARD HATS SHALL BE WORN BY ALL PERSONS AT THE SITE. ALL SPECIFICATIONS, DRAWINGS AND COPIES THEREOF FURNISHED BY THE ENGINEER SHALL REMAIN HIS PROPERTY. THEY SHALL NOT BE USED ON ANOTHER PROJECT AND, WITH EXCEPTION OF THOSE SETS WHICH HAVE BEEN SIGNED IN CONNECTION WITH THE EXECUTION OF THE AGREEMENT, SHALL BE RETURNED TO THE ENGINEER UPON REQUEST AT COMPLETION OF THE PROJECT.
11. CONTRACTOR SHALL UTILIZE "BEST MANAGEMENT" PRACTICES FOR STORM WATER POLLUTION PREVENTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPMENT AND COMPLIANCE TO AN APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

CONSTRUCTION NOTES

GENERAL REQUIREMENTS
1. CONTRACTOR SHALL STERILIZE THE SUBGRADE BENEATH PROPOSED NEW PAVING AND WALKWAYS. CONTRACTOR SHALL SUBMIT MEANS AND METHODS FOR APPROVAL PRIOR TO IMPLEMENTATION.
2. ALL UTILITY PIPING SHALL HAVE WARNING TAPE INSTALLED 12" MIN. ABOVE AND ALONG THE ENTIRE LENGTH, INCLUDING SERVICE LATERAL. TAPE SHALL BE LABELED ACCORDING TO UTILITY.
3. THE OPEN ENDS OF ALL PIPELINES UNDER CONSTRUCTION SHALL BE COVERED AND EFFECTIVELY SEALED AT THE END OF EACH DAYS WORK.
4. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FIELD USING A 2" X 4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2" X 4" POST SHALL BE PAINTED USING GREEN PAINT FOR SEWER, BLUE PAINT FOR WATER, RED FOR POWER, YELLOW FOR GAS, AND ORANGE FOR COMMUNICATIONS. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE DIAGRAMMATIC ONLY, AND ALL UTILITIES MAY NOT BE SHOWN. THE CONTRACTOR SHALL CONTACT THE PROPER LOCAL AUTHORITIES OR UTILITY COMPANY TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE BEGINNING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
6. CAUTION & CARE SHOULD BE TAKEN DURING ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
7. EXCAVATION REQUIRED WITHIN CLOSE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE ONLY BY HAND. CONTRACTOR SHALL REPAIR AND REPLACE ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO OWNER.

CLEARING AND GRUBBING
1. REMOVE AND DISPOSE OF TREES, STUMPS, LOGS, LIMBS, STICKS, VEGETATION, DEBRIS, AND OTHER MATERIAL ON THE NATURAL GROUND SURFACE.
2. DISPOSE OF ALL MATERIAL OFF THE PROPERTY TO A FACILITY LICENSED TO ACCEPT THE MATERIAL TYPE.
3. CONTRACTOR SHALL REMOVE ALL TOP SOIL WITHIN THE AREA OF CONSTRUCTION. STOCKPILE OR REMOVE FROM SITE PER OWNER INSTRUCTIONS.
4. CONFORM TO PROJECT GEOTECHNICAL REPORT.

WATER IMPROVEMENT REQUIREMENTS
1. ALL WATER MAINS AND APPURTENANCES, SHALL BE DESIGNED, CONSTRUCTED, DISINFECTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH THIS PLAN, ALL APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF DRINKING WATER, AND THE LOCAL GOVERNING ENTITY.
2. ALL MATERIALS WHICH MAY CONTACT THE DRINKING WATER, INCLUDING PIPES, GASKETS, LUBRICANTS, AND O-RINGS SHALL BE ANSI CERTIFIED AS MEETING NSF STANDARD 61, DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS. TO PERMIT FIELD VERIFICATION OF THIS CERTIFICATION, ALL SUCH COMPONENTS SHALL BE APPROPRIATELY STAMPED WITH THE NSF LOGO.
3. ALL PIPES, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO NSF STANDARD 61 OR STANDARD 14, AND APPLICABLE SECTIONS OF ANSI/AWWA STANDARDS C104-A21.4-03 THROUGH C550-05 AND C900-07 THROUGH C950-07.
4. WATER MAINS SHALL BE PVC PIPE AND SHALL MEET ALL THE REQUIREMENTS FOR AWWA C900, PRESSURE CLASS 235, DR-18 PIPE, UNLESS CALLED OUT OTHERWISE. INSTALLATION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C605. DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651.
5. ALL BURIED DI (DUCTILE IRON) PIPES, VALVES AND FITTINGS SHALL BE POLY-WRAPPED AND THE NUTS GREASED IN ACCORDANCE WITH AWWA C105.
6. ALL WATER DI (DUCTILE IRON) PIPES, VALVES AND FITTINGS SHALL HAVE PORTLAND CEMENT MORTAR LINING, OR ENGINEER APPROVED EQUAL.
7. WATER LATERALS SHALL BE COPPER-TYPE K UP TO THE METER VAULTS UNLESS OTHERWISE INDICATED ON THE PLANS OR LOCAL AGENCY REQUIRES SOMETHING ELSE. INSTALLATION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA M55. DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651.
8. WATER MAINS AND LATERALS SHALL BE TESTED ACCORDING TO THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS; TO INCLUDE, PRESSURE TESTING AND DISINFECTION; AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL GOVERNMENT ENTITY, OSHA, AND THE UTAH DIVISION OF DRINKING WATER.
9. CONTRACTOR SHALL NOTIFY THE LOCAL GOVERNMENT ENTITY 48 HOURS IN ADVANCE OF MAKING ANY CONNECTIONS TO WATER LINES.
10. IF POOR SOILS WITH A BEARING CAPACITY OF LESS THAN 1,500 PSF ARE ENCOUNTERED WHERE A THRUST BLOCK IS REQUIRED, THEN THE THRUST BLOCK SHALL BE REDESIGNED BY THE ENGINEER. THE REDESIGNED THRUST BLOCK SHALL NOT BE PLACED UNTIL THE ENGINEER HAS APPROVED OF THE REDESIGN.
11. ANY PROPOSED CONNECTION TO EXISTING PIPELINES, OR ANY NON-FLANGED FITTING OR VALVE IS REQUIRED TO BE RESTRAINED OR THRUST BLOCKED.
12. ALL WATER LINES SHALL BE CONSTRUCTED TO A DEPTH SO AS TO MAINTAIN 48" MIN GROUND COVER. ALL SECONDARY WATER LINES SHALL BE CONSTRUCTED TO A DEPTH SO AS TO MAINTAIN 30" IN GROUND COVER.
13. PIPE BEDDING INSTALLATION AND BACKFILL SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. ALL BURIED WATER PIPELINES SHALL HAVE TRACER WIRE (12 GAUGE) DIRECTLY ABOVE PIPE WHICH SHALL BE TIED TO ALL VALVES REFER TO TRENCH DETAIL FOR COMPACTION DENSITY REQUIREMENTS.

SEWER IMPROVEMENT REQUIREMENTS
1. ALL SEWER MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND THE LOCAL GOVERNING ENTITY.
2. ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY SHALL COMPLY WITH REQUIREMENTS ESTABLISHED BY THE LOCAL GOVERNMENT ENTITY.
3. ANY FLUSHING INTO THE EXISTING SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
4. GRAVITY SEWER MAINS AND LATERALS SHALL BE PVC, SDR 35 PIPE WITH INTEGRAL BELL AND SPIGOT, AND GASKETED JOINTS.
5. SEWER FORCE MAINS SHALL BE PE (POLYETHYLENE) PIPE AND SHALL MEET THE REQUIREMENTS FOR AWWA C906/ PE3408, MINIMUM PRESSURE CLASS 150 (DR-11 MINIMUM). INSTALLATION SHALL BE PER ASTM D 2321 AND ASTM F 1668.
6. GRAVITY SEWER MAINS AND LATERALS SHALL BE TESTED ACCORDING TO LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS. TO INCLUDE, ALIGNMENT AND GRADE TESTING, OBSTRUCTIONS AND DEFLECTION TESTING, INFILTRATION TESTING OR GRAVITY PIPELINES, PRESSURE TESTING FOR PRESSURE PIPELINES, AND VIDEO INSPECTION. DEFLECTION TESTING SHALL BE PERFORMED NO SOONER THAN 30 DAYS AFTER THE FINAL BACKFILL HAS BEEN PLACED. TESTING SHALL BE PERFORMED USING A MANDREL WITH A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE.
7. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FILED USING A 2"X4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2"X4" POST SHALL BE PAINTED USING GREEN PAINT. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE. NO LATERALS SHALL BE DIRECTLY CONNECTED TO MANHOLES.
8. FOLLOWING PLACEMENT OF ASPHALT, ALL SEWER LINES SHALL BE FLUSHED, AND CLEANED, AND ALL MANHOLES LIDS ADJUSTED TO 3/8 INCH BELOW FINISHED GRADE AND IN ACCORDANCE WITH THE REQUIREMENTS HEREIN.

STORM DRAINAGE IMPROVEMENTS
1. ALL STORM DRAIN MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND SL COUNTY FLOOD CONTROL.
2. ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY SHALL COMPLY WITH LOCAL GOVERNMENT ENTITY.
3. ANY FLUSHING INTO THE EXISTING SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
4. GRAVITY STORM DRAIN LINES WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE RE-INFORCED CONCRETE PIPE (RCP) WITH INTEGRAL BELL AND SPIGOT, AND GASKETS JOINTS. ALL TEMPORARY CULVERT ARE TO BE ADS-N12 HDPE PIPE.
5. GRAVITY STORM DRAIN LINES SHALL BE TESTED ACCORDING TO THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS. TO INCLUDE, ALIGNMENT AND GRADE TESTING, OBSTRUCTIONS AND DEFLECTION TESTING, INFILTRATION TESTING OR GRAVITY PIPELINES, PRESSURE TESTING FOR PRESSURE PIPELINES, AND VIDEO INSPECTION. DEFLECTION TESTING SHALL BE PERFORMED NO SOONER THAN 30 DAYS AFTER THE FINAL BACKFILL HAS BEEN PLACED. TESTING SHALL BE PERFORMED USING A MANDREL WITH A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE.
6. FOLLOWING PLACEMENT OF ASPHALT, ALL STORM LINES SHALL BE FLUSHED, AND CLEANED, AND ALL MANHOLES LIDS ADJUSTED TO 3/8 INCH BELOW FINISHED GRADE AND IN ACCORDANCE WITH THE REQUIREMENTS HEREIN.
7. THE OWNER RESERVES THE RIGHT TO TELEVISE, AT THEIR EXPENSE, ANY OR ALL PORTIONS OF THIS WORK PRIOR TO PLACING SUCH FACILITIES IN SERVICE, AND THE CONTRACTOR SHALL GIVE THE OWNER SUFFICIENT ADVANCE NOTICE OF THEIR INTENT TO PLACE THESE FACILITIES IN SERVICE AS WILL ALLOW THE OWNER TO SCHEDULE SUCH FILLING

GRADING NOTES
1. THE CONTRACTOR SHALL BECOME FAMILIARIZED WITH THE RECOMMENDATIONS LISTED IN THE SOILS REPORT FOR THIS PROJECT. PREPARED BY GSH GEOTECHNICAL, INC, DATED SEPTEMBER 21, 2016, SURFACE DRAINAGE TO BE ONE (1%) PERCENT MINIMUM TO APPROVED DRAINAGE FACILITIES, EXCEPT AS WAIVED BY THE BUILDING OFFICIAL, OR DIRECTED BY THE ENGINEER.
2. ALL FILL EXCEPT THAT UNDERNEATH PAVED SURFACES, WITHIN ROAD RIGHT OF WAY OR UNDERNEATH BUILDING SLABS, SIDEWALKS & FOOTINGS, SHALL BE COMPACTED TO A MINIMUM OF EIGHTY-FIVE (85%) PERCENT MAXIMUM DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 1557 AND CERTIFIED BY TESTS AND REPORTS FROM SOILS ENGINEER.
3. ALL FILL UNDERNEATH PATHWAYS AND CONCRETE SHALL BE CLASSIFICATION A/1-A THROUGH A/4 AS DEFINED BY ASHTO M 145 AND COMPACTED TO A MINIMUM OF NINETY-FIVE (95%) PERCENT MAXIMUM DRY DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS SPECIFIED BY ASTM D 1557. FOR ALL FILL UNDERNEATH BUILDING SLABS AND FOOTINGS, REFER TO STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
4. FILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING SIX (6) INCHES IN COMPACTED THICKNESS AND COMPACTED AT OPTIMUM MOISTURE CONTENT TO THE REQUIRED MAXIMUM DRY DENSITY.
5. ALL FILL AREAS TO BE CLEARED OF ALL VEGETATION AND OTHER UNSUITABLE MATERIALS AND THE AREA SCARIFIED TO A DEPTH OF SIX (6) INCHES, OR TO A DEPTH TO REMOVE TOP SOIL, REFER TO GEOTECHNICAL REPORT.
6. CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ORGANIC MATERIALS FROM STRUCTURALLY LOADED EMBANKMENTS AND BUILD FOOTPRINT LOCATION ACCORDING TO THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.

CONCRETE NOTES
1. ALL CONCRETE WORK SHALL BE NORMAL WEIGHT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST 4,000 PSI WITHIN 28 DAYS AFTER POURING. THE WATER CEMENT RATIO SHALL BE NO GREATER THAN 0.45 AND SLUMP SHALL BE 3.5" OR LESS. MINIMUM CEMENT CONTENT SHALL BE 6.5 SACKS PER CUBIC YARD. PROVIDE 5.5%-7.5% AIR ENTRAINMENT FOR CONCRETE OF THIS CLASS USED IN SLABS AND WALLS, PER REQUIREMENT LISTED IN THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS.
2. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION JOINTS SHALL BE KEYED WITH A KEY 1-1/2 IN. DEEP, A LENGTH 2 IN. LESS THAN THE MEMBER, AND A WIDTH 1/2 OF THE MEMBER. REINFORCING SHALL BE CONTINUOUS THROUGH THE JOINT.
3. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THE PROJECT AND APWA SPECIFICATIONS (03 30 10)
4. BEFORE CONCRETE IS POURED CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATIVE TO WORK.
5. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND FORMWORK.
6. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENT, CLIPS AND GROUNDS REQUIRED TO BE ENCASED IN CONCRETE SLAB AND SLAB FINISHES, COLOR, PATTERNS, AND DEPRESSIONS
7. REFER TO SLAB JOINT LAYOUT PLAN FOR CONTROL AND CONSTRUCTION JOINT LOCATIONS.
8. CONCRETE TESTING SHALL BE PER PROJECT SPECIFICATIONS AND APWA 03 30 05. TESTING SHALL COMPRISE OF TEMPERATURE, AIR, SLUMP AND STRENGTH TESTING. THE FOLLOWING TABLE SUMMARIZES REQUIRED TESTING FREQUENCY:

Rate of Placement (cy/day)	Temperature	Air	Slump	Strength
0-8	1	1	1	1
0-50	1	1	1	1
Each additional 50 cy or fraction thereof	1	1	1	1

CONCRETE REINFORCEMENT NOTES
1. ALL METAL REINFORCEMENT SHALL BE DEFORMED TYPE BARS (EXCEPT #2 BARS) AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS ASTM A615 GRADE 60.
2. ALL SPLICES IN CONTINUOUS CONCRETE REINFORCING BARS SHALL LAP 36 BAR DIAMETER OR PER THE LATEST EDITION OF ACI 318. ALL SUCH SPLICES SHALL BE MADE IN A REGION OF COMPRESSION UNLESS OTHERWISE SHOWN. ALL CONTINUOUS REINFORCEMENT SHALL TERMINATE WITH A 90° TURN OR A SEPARATE CORNER BAR.
3. ALL REINFORCEMENT BARS SHALL BE SECURELY ANCHORED AND HELD IN PLACE AND SHALL BE SPACED FROM ADJACENT SURFACES (UNLESS SHOWN OTHERWISE) AS FOLLOWS:
   A. FORMED SURFACES IN CONTACT WITH THE GROUND OR EXPOSED TO WEATHER, AND SLABS ON GRADE - 2 IN.
   B. UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH (BOTTOM AND SIDES OF FOOTINGS) -3 IN.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND SHALL HAVE A MINIMUM SIDE LAP OF 8 IN.
5. ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF ACI DETAILING MANUAL 315-77 AND ACI STANDARD 318.

ASPHALT NOTES
1. ALL ASPHALT SHALL BE PLACED AS DIRECTED BY THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATION.
2. BASE COURSE SHALL BE COMPACTED TO NOTHING LESS THAN 95% MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180.
3. SURFACES SHALL BE TRUE TO THE ESTABLISHED GRADE WITH A THICKNESS BEING NO LESS THAN ONE-FOURTH INCH FROM THE REQUIRED LAYER THICKNESS AND WITH THE SURFACE ELEVATION VARYING NO MORE THAN THREE-EIGHTHS INCH IN TEN FEET FROM THE TRUE PROFILE AND CROSS-SECTION.
4. THE SURFACE COURSE SHALL CONSIST OF A MINERAL AGGREGATE AND BINDER AS DIRECTED BY THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS.
5. THE CONTRACTOR SHALL ESTABLISH A MIX GRADATION AND THE AMOUNT OF BITUMINOUS MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER AND SHALL MEET THE REQUIREMENTS OF THE GRADATION SELECTED.
6. THE BITUMINOUS MATERIAL FOR THE SURFACE COURSE REFER TO LOCAL GOVERNMENT ENTITY CONFORMING TO THE REQUIREMENTS OF AASHTO M-226.
7. REGARDLESS OF BITUMINOUS CONTENT AND THERE SHALL NOT BE MORE THAN THREE PERCENT VOIDS IN THE AGGREGATE.
8. THE CONTRACTOR SHALL NOT INSTALL BITUMINOUS SEAL COAT UNLESS THE AIR TEMPERATURE IS 70 DEGREES FAHRENHEIT OR HIGHER. SEAL COAT IS NOT TO BE PLACED WITHIN TEN CALENDAR DAYS OF THE PLACEMENT OF NEW SURFACE COURSE. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LOCAL GOVERNMENT ENTITY STANDARD SPECIFICATIONS.
9. THE CONTRACTOR SHALL ENSURE THAT ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LOCAL GOVERNMENT ENTITY STANDARD SPECIFICATIONS.
10. NO BITUMINOUS SURFACE COURSE SHALL BE PLACED WHEN THE TEMPERATURE OF THE AIR OR ROAD BED IS 50 DEGREES FAHRENHEIT OR BELOW, DURING RAINY WEATHER, WHEN THE BASE IS WET OR DURING OTHER UNFAVORABLE WEATHER CONDITIONS AS APPROVED BY THE CITY ENGINEER. AIR TEMPERATURE IS TO BE MEASURED IN THE SHADE.
11. SEAL COATS SHALL BE APPLIED ONLY BETWEEN JUNE 01 AND SEPTEMBER 15.

APPLICABLE CODES AS ADOPTED BY THE LOCAL GOVERNEMT ENTITY

IBC (INTERNATIONAL BUILDING CODE)
IRC (INTERNATIONAL RESIDENTIAL CODE)
IWUIC (INTERNATIONAL WILDLAND-URBAN INTERFACE CODE)
NFPA

CIVIL PROJECT NOTES

LINE TYPES

- BOUNDARY LINE
- PROPERTY LINE
- SECTION LINE
- RIGHT OF WAY
- CENTER LINE
- 8 W — PROPOSED WATER MAIN (SIZED AS INDICATED)
- 18 SD — PROPOSED STORM DRAIN (SIZED AS INDICATED)
- 8 SS — PROPOSED SANITARY SEWER (SIZED AS INDICATED)
- 8 IRR — PROPOSED IRRIGATION (SIZED AS INDICATED)
- COMM — PROPOSED COMMUNICATION/TELEPHONE LINE
- PROPOSED GAS LINE
- PROPOSED BURIED ELECTRICAL
- X — X — X — PROPOSED WIRE/BARBED FENCE
- EASEMENT
- OHP — OVERHEAD POWER LINE
- OPEN DITCH, CANAL FLOW LINE
- PROPERTY SET BACKS
- EXISTING RAILROAD TRACKS
- EXISTING EDGE OF PAVEMENT
- Ex W — EXISTING WATER MAIN (SIZED AS INDICATED)
- Ex 18 SD — EXISTING STORM DRAIN (SIZED AS INDICATED)
- Ex 8 SS — EXISTING SANITARY SEWER (SIZED AS INDICATED)
- Ex 8 IRR — EXISTING IRRIGATION (SIZED AS INDICATED)
- X — X — X — EXISTING FENCE CHAIN LINK
- Ex GAS — EXISTING GAS LINE
- Ex COMM — EXISTING COMMUNICATION LINE
- Ex ELEC — EXISTING ELECTRICAL LINE

NOTE: ALL SYMBOLS, LINETYPES AND/OR ABBREVIATIONS MAY NOT BE SHOWN.

EXISTING SYMBOLS

- SECTION MONUMENT NOT FOUND
- EXISTING TREE/VEGATION
- EXISTING MONUMENT FOUND – NOTED
- EXISTING TRAFFIC SIGNAL BOX
- EXISTING MONUMENT FOUND – NOTED
- EXISTING BOLLARD
- EXISTING POWER POLE
- EXISTING GAS METER
- EXISTING SIGN
- EXISTING TELE J–BOX
- EXISTING STREET LIGHT
- TRFMR — EXISTING ELECTRIC TRANSFORMER
- EXISTING FIRE HYDRANT ASSEMBLY
- WV — EXISTING WATER VALVE
- WM — EXISTING WATER METER
- EXISTING WATER VALVE–BUTTERFLY
- CM D S W — EXISTING MANHOLES BY TYPE
- EXISTING CATCH BASIN
- EXISTING COMBINATION BOX

PROPOSED SYMBOLS

- SECTION MONUMENT FOUND
- SEWER FLOW ARROW
- MONUMENT – NOTED
- 7 — SEWER MANHOLE NUMBER
- PROPERTY CORNERS
- S — SEWER SERVICE LATERAL
- UTILITY POLE
- CATCH BASIN
- SIGN
- COMBINATION BOX
- STREET LIGHT
- 7 — STORM DRAIN MANHOLE NUMBER
- FIRE HYDRANT ASSEMBLY
- ROAD DRAINAGE ARROW
- WV — WATER VALVE
- WM — WATER METER
- 1 — IRRIGATION SERVICE LATERAL
- WATER VALVE BUTTERFLY
- AIR VAC
- W — WATER SERVICE LATERAL
- S D — PROPOSED MANHOLE

ABBREVIATIONS

ABUT.	= ABUTMENT	MH	= MANHOLE
AGG.	= AGGREGATE	MIN.	= MINIMUM
APPROX.	= APPROXIMATE	N/NO.	= NORTH
A.S.	= AS SHOWN	NO./#	= NUMBER
AUX.	= AUXILIARY	N.T.S.	= NOT TO SCALE
AVG.	= AVERAGE	O.C.	= ON CENTER
BCR	= BEGIN OF CURB RETURN	O.D.	= OUTER DIAMETER
BOW	= BACK OF WALK	OHP	= OVER HEAD POWER
BRG.	= BEARING	PC	= POINT OF CURVATURE
℄/C.L.	= CONTROL LINE/CENTER LINE	PED	= PEDESTRIAN
CATV	= CABLE TELEVISION	PI/P.I.	= POINT OF INTERSECTION
CI	= CAST IRON	PIP	= PLASTIC IRRIGATION PIPE
CLR.	= CLEAR/CLEARANCE	PL	= PROPERTY LINE
CMP	= CORRUGATED METAL PIPE	POC	= POINT ON CURVE
COL	= COLUMN	PP	= POWER POLE
CONC.	= CONCRETE	PT	= POINT
CONN	= CONNECTION	PT	= POINT OF TANGENCY
CONST.	= CONSTRUCTION	PVC	= POLYVINYL CHLORIDE PLASTIC
CONT.	= CONTINUOUS	PVC	= POINT OF VERTICAL CURVATURE
COR.	= CORNER	PVT	= POINT OF VERTICAL TANGENCY
CP	= CONTROL POINT	PVI	= POINT OF VERTICAL INTERSECTION
C.F.	= CUBIC FEET	PVMNT	= PAVEMENT
DI	= DUCTILE IRON	PVRC	= POINT OF VERTICAL REVERSE CURVE
DIA./Ø	= DIAMETER	R/RAD.	= RADIUS
DIP	= DUCTILE IRON PIPE	R/C	= REBAR AND CAP
DIM.	= DIMENSION	Rd.	= ROAD
DR	= DIMENSION RATIO	RCP	= REINFORCED CONCRETE PIPE
DWG.	= DRAWING	R/W	= RIGHT OF WAY
E	= EAST	REINF.	= REINFORCING
EA	= EACH	REQ'D	= REQUIRED
ECR	= END OF CURB RETURN	RET.	= RETAINING
EG	= EXISTING GRADE	R.P.	= REFERENCE POST
EL./ELEV.	= ELEVATION	RT	= RIGHT
ELEC	= ELECTRIC	S	= SLOPE
EO	= EDGE OF OIL	S/SO.	= SOUTH
EST.	= ESTIMATED	SCH	= SCHEDULE
EXIST	= EXISTING	SD	= STORM DRAIN
F.F.	= FINISHED FLOOR	SDMH	= STORM DRAIN MANHOLE
F.G.	= FINISHED GRADE	SDR	= STANDARD DIMENSION RATIO
FL/FL	= FLOW LINE	SDWLK	= SIDEWALK
FT.	= FEET	SECT./SEC	= SECTION
FLG.	= FLANGE	SHLD	= SHOULDER
GA.	= GAUGE	SHT	= SHEET
G	= GALLON	SPA.	= SPACING/SPACES
GALV.	= GALVANIZED	SQ.	= SQUARE
GMH	= GAS MANHOLE	STA.	= STATION
GV	= GAS VALVE	STD.	= STANDARD
HA	= HECTARE	STD.	= STANDARD DRAWING
HDPE	= HIGH DENSITY POLYETHYLENE	STR.	= STRUCTURE
HGL	= HYDRAULIC GRADE LINE	SS	= SANITARY SEWER
HMA	= HOT MIX ASPHALT	SSMH	= SANITARY SEWER MANHOLE
HORIZ.	= HORIZONTAL	T	= TANGENT DISTANCE
HP	= HIGH PRESSURE/HIGH POINT	T.B.	= THRUST BLOCK
HWY	= HIGHWAY	TBC	= TOP BACK OF CURB
I.D.	= INSIDE DIAMETER	TBW	= TOP BACK OF WALK
INCL.	= INCLUDES	TEL	= TELEPHONE
INT	= INTERSECTION	TEMP	= TEMPORARY
INV	= INVERT	TMH	= TELEPHONE MANHOLE
IRRIG	= IRRIGATION	TOW	= TOP OF WALL
L	= LENGTH	TYP.	= TYPICAL
LIN. FT.	= LINEAR FEET	UG	= UNDERGROUND
LOC	= LIP OF CURB	UTIL.	= UTILITY
LOC.	= LOCATION	VC	= VERTICAL CURVE
LP	= LIGHT POLE/LOW POINT	VERT.	= VERTICAL
LT	= LEFT	W	= WEST
M.J.	= MECHANICAL JOINT FITTING	W/	= WITH
MISC.	= MISCELLANEOUS	WC	= WITNESS CORNER
MPa	= MEGAPASCAL	WMH	= WATER MANHOLE
MAX.	= MAXIMUM	WV	= WATER VALVE
MG	= MEGAGRAM	YD^2/YD2	= SQUARE YARD
		YD^3/YD3	= CUBIC YARD
		YD.	= YARD
		YR	= YEAR

NOTE: ALL SYMBOLS, LINETYPES AND/OR ABBREVIATIONS MAY NOT BE SHOWN.

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TAB: NT-02 Symbols and Abbreviations

FILENAME: O:\Highlands\Residential-DR Horton\Design - Timpanogos Canal\Notes & Abreviations Timp Canal.dwg

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TIMPANOGOS CANAL IMPROVEMENT
PLANS SYMBOLS AND ABBREVIATIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 487 8040

CLIENT: D.R.HORTON
DWG: NOTES & ABREVIATIONS TIMP CANAL.DWG
JOB No: 3691-DR01-23
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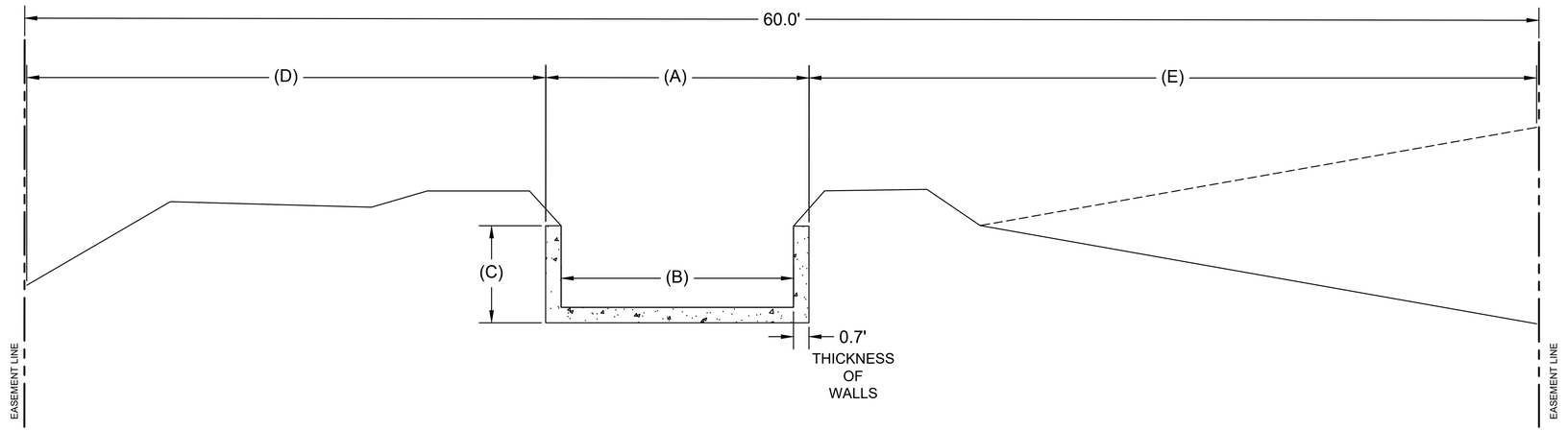
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SATTAR N. TABRIZ — 8/6/2024

SHEET
NT-02



1 EXISTING TIMPANOGOS CANAL SECTION - CONCRETE LINED

NTS

(A) 11.4 FT.
(B) 10 FT.
(C) 3.5 FT.
(D) VARIES FROM 29.2 FT. TO 40.2 FT.
(E) VARIES FROM 8.0 FT. TO 18.8 FT.

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TYPICAL CANAL SECTION - EXISTING

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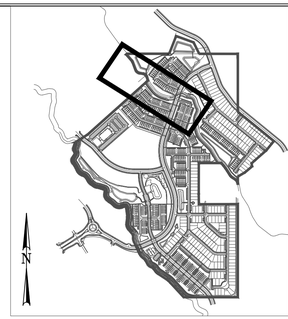
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LEGEND

BOUNDARY LINE

NATURAL CANAL

CONCRETE LINED CANAL



EXISTING WIRE FENCE (TYPICAL)

BOUNDARY LINE

EXISTING DIRT ROAD (TYPICAL)

FOUND BAR AND CAP FND WARD RC

EXISTING PRIVATE VEHICULAR BRIDGE

EXISTING 30" STORM DRAIN CULVERT

EXISTING 27" STORM DRAIN CULVERT

POTENTIAL EXISTING BURIED PIPE

EXISTING 60' TIMPANOGOS CANAL EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION

EXISTING TIMPANOGOS CANAL - CONCRETE LINED (10.0' X 3.5') SEE EC-01 FOR DETAILS

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

EXISTING WIRE FENCE (TYPICAL)

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

MATCH LINE SEE SHEET EC-03

50 0 50 100 150

Scale 1" = 50'

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TIMPANOGOS CANAL IMPROVEMENT PLANS
EXISTING CONDITIONS PLAN

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PH: 801 487 8040

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JOB No: 3691-DRH01-23

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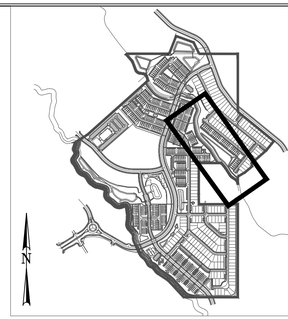
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LEGEND

BOUNDARY LINE

NATURAL CANAL

CONCRETE LINED CANAL



MATCH LINE SEE SHEET EC-02

EXISTING DIRT ACCESS ROAD (TYPICAL)

EXISTING 60' TIMPANOGOS CANAL EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION

EXISTING WIRE FENCE (TYPICAL)

EXISTING SURVEY CONTROL MONUMENT SEE PHOTO NO. 1 ON SHEET EC-04.

EXISTING TIMPANOGOS CANAL - CONCRETE LINED (10.0' X 3.5') SEE EC-01 FOR DETAILS

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

BOUNDARY LINE

FOUND BAR AND CAP FND WARD RC

EXISTING 6" WELL HEAD, DEPTH = 392 FEET

EXISTING WIRE FENCE (TYPICAL)

TPOST

EXISTING 25' OVERFLOW PIPELINE EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION TO BE VACATED

EXISTING WIRE FENCE (TYPICAL)

BOUNDARY LINE

EXISTING RIPRAP AROUND CONCRETE BOX. SEE PHOTO NO. 2 ON SHEET EC-04.

EXISTING 42" STORM DRAIN CULVERT. SEE PHOTO NO. 3 ON SHEET EC-04.

EXISTING CANAL OVERFLOW STRUCTURE. SEE PHOTO NO. 4 ON SHEET EC-04.

EXISTING 30" OVERFLOW PIPE

EXISTING BUILDING

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

EXISTING 25' OVERFLOW PIPELINE EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION

50 0 50 100 150

Scale 1" = 50'

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EXISTING CONDITIONS PLAN

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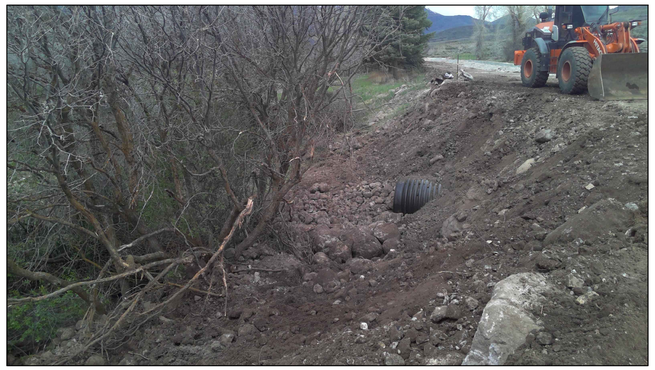
SHEET
EC-03



1 EXISTING SURVEY CONTROL MONUMENT
(SEE EC-03 FOR LOCATION)



2 EXISTING RIP RAP AROUND CONCRETE BOX
(SEE EC-03 FOR LOCATION)



3 EXISTING 42" STORM DRAIN CULVERT
(SEE EC-03 FOR LOCATION)



4 EXISTING CANAL OVERFLOW STRUCTURE
(SEE EC-03 FOR LOCATION)

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HEBER CITY, UT
WASATCH CANAL IMPROVEMENT PLANS
EXISTING CONDITIONS PHOTOS

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STATE OF UTAH
8/6/2024

SHEET
EC-04

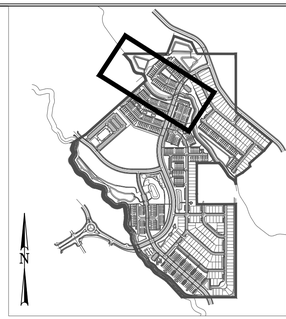
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LEGEND

BOUNDARY LINE

NATURAL CANAL

CONCRETE LINED CANAL



EXISTING WIRE FENCE (TYPICAL)

BOUNDARY LINE

EXISTING DIRT ROAD (TYPICAL)

FOUND BAR AND CAP FND WARD RC (PROTECT IN PLACE)

REMOVE EXISTING PRIVATE VEHICULAR BRIDGE

EXISTING 30" STORM DRAIN CULVERT (PROTECT IN PLACE)

EXISTING 60' TIMPANOGOS CANAL EASEMENT

SAW CUT AND REMOVE 285' OF CONCRETE LINED CANAL (10.0' X 3.5')

POTENTIAL EXISTING BURIED PIPE (PROTECT IN PLACE)

ABANDON EXISTING 27" STORM DRAIN CULVERT

EXISTING TIMPANOGOS CANAL - CONCRETE LINED (10.0' X 3.5') SEE EC-01 FOR DETAILS

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

EXISTING WIRE FENCE (TYPICAL)

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

MATCH LINE SEE SHEET DM-02

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
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DEMOLITION PLAN

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DWG: TIMPANOGOS DEMOLITION PLAN.DWG
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DM-01

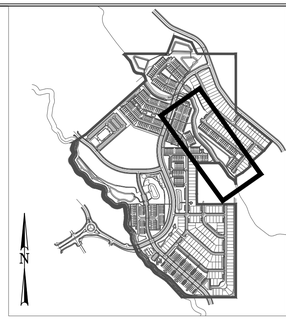
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LEGEND

BOUNDARY LINE

NATURAL CANAL

CONCRETE LINED CANAL



MATCH LINE SEE SHEET DM-01

EXISTING DIRT ACCESS ROAD (TYPICAL)

EXISTING 60' TIMPANOGOS CANAL EASEMENT

EXISTING TIMPANOGOS CANAL - CONCRETE LINED (10.0' X 3.5') SEE EC-01 FOR DETAILS

EXISTING WIRE FENCE (TYPICAL)

EXISTING SURVEY CONTROL MONUMENT (PROTECT IN PLACE)

REMOVE EXISTING FENCE AND GATE, SOUTH SIDE OF CANAL TO SOUTH EASEMENT LINE

FOUND BAR AND CAP FND WARD RC (PROTECT IN PLACE)

TPOST

EXISTING 6" WELL HEAD, DEPTH = 392 FEET

EXISTING WIRE FENCE (TYPICAL)

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

BOUNDARY LINE

EXISTING RIPRAP AROUND CONCRETE BOX (PROTECT IN PLACE)

EXISTING 42" STORM DRAIN CULVERT (PROTECT IN PLACE)

DEMOLISH AND REMOVE EXISTING ASPHALT INSIDE THE EASEMENT

EXISTING CANAL OVERFLOW STRUCTURE

EXISTING 25' OVERFLOW PIPELINE EASEMENT TO BE VACATED

EXISTING 30" OVERFLOW PIPE (PROTECT IN PLACE)

EXISTING BUILDING

EXISTING 25' OVERFLOW PIPELINE EASEMENT IN FAVOR OF THE UNITED STATES OF AMERICA BUREAU OF RECLAMATION

EXISTING 20' IRRIGATION EASEMENT IN FAVOR OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

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Scale 1" = 50'

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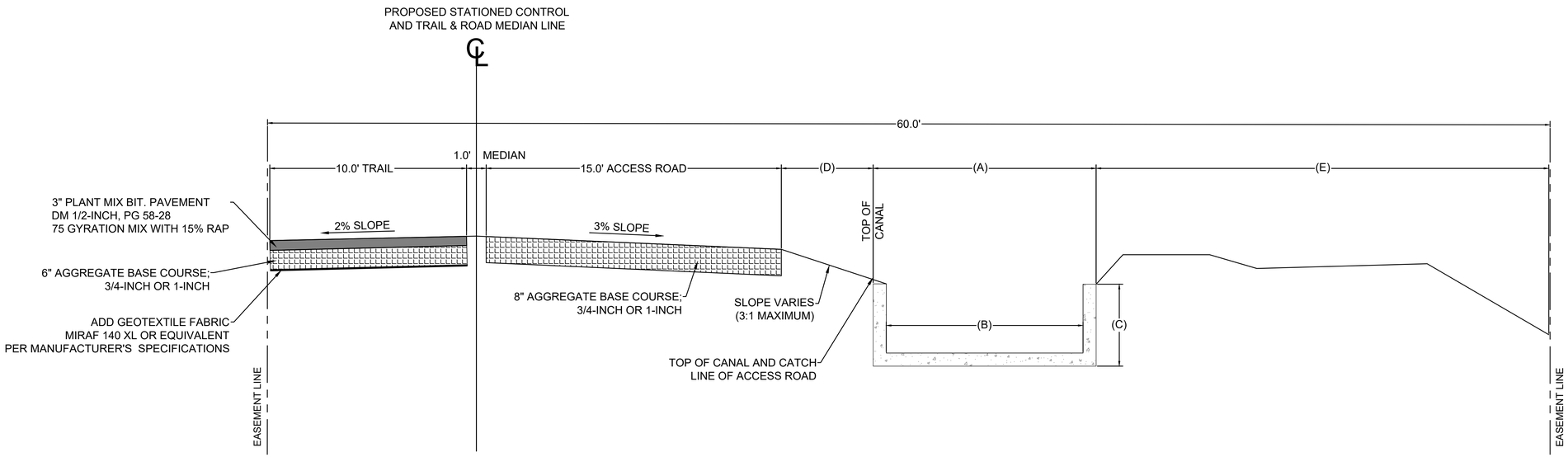
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JOB No: 3891-DRH01-23
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DM-02



1 PROPOSED TIMPANOGOS CANAL SECTION - LINED

NTS

(A) 11.4 FT.
(B) 10 FT.
(C) 3.5 FT.
(D) VARIES FROM 5.6 FT. TO 18.7 FT.
(E) VARIES FROM 8.0 FT. TO 18.8 FT.

FILENAME: O:\Highlands\Residential-DR Horton\Design - Timpanogos Canal\Typical Sections Timpanogos.dwg TAB: SP-01 TYPICAL SECTIONS PLOT DATE AND TIME: 8/6/2024 5:51 PM

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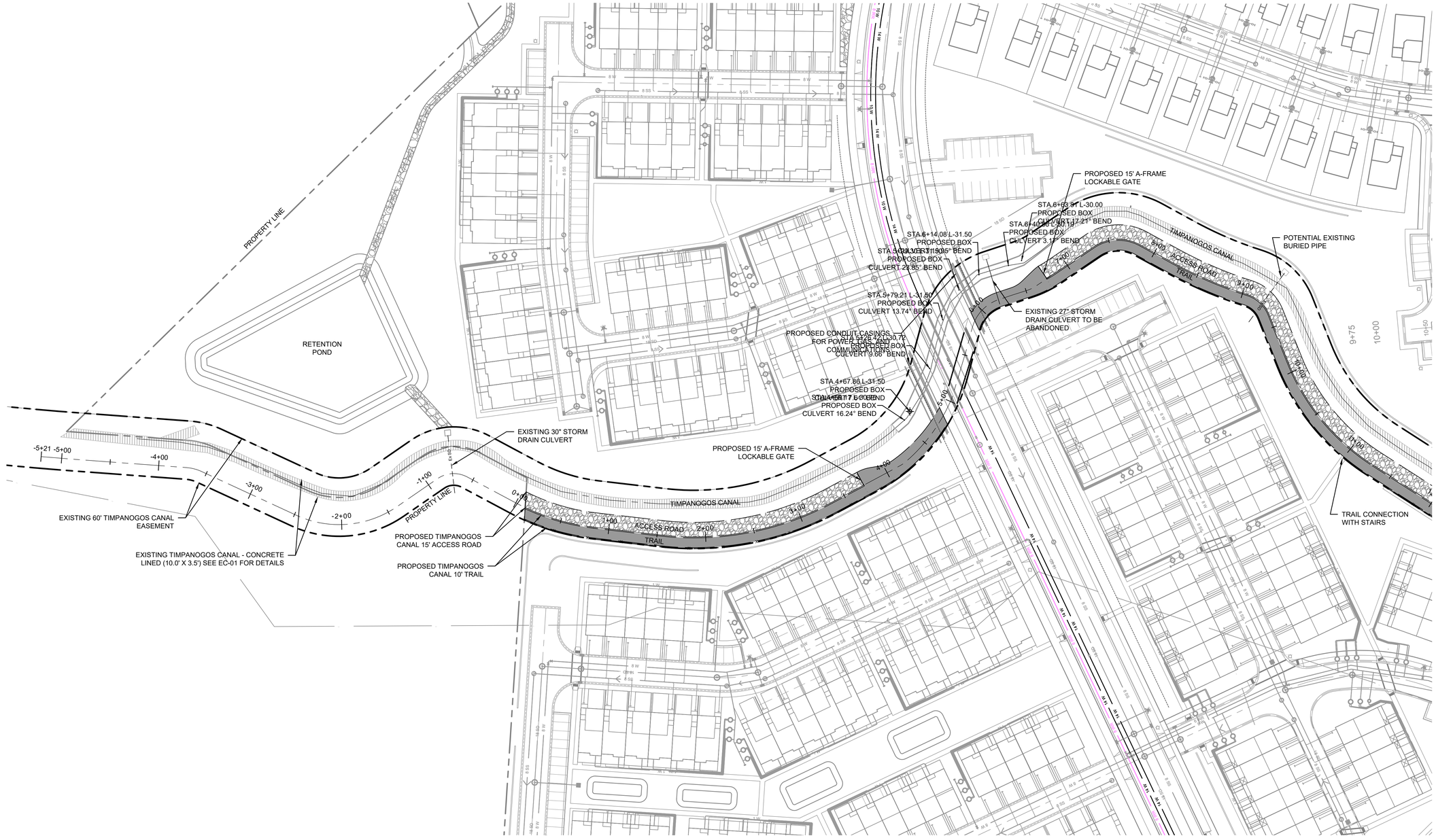
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DWG: TYPICAL SECTIONS TIMPANOGOS.DWG
JOB No: 3691-DRH01-23
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SITE PLAN

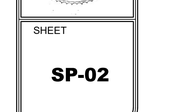
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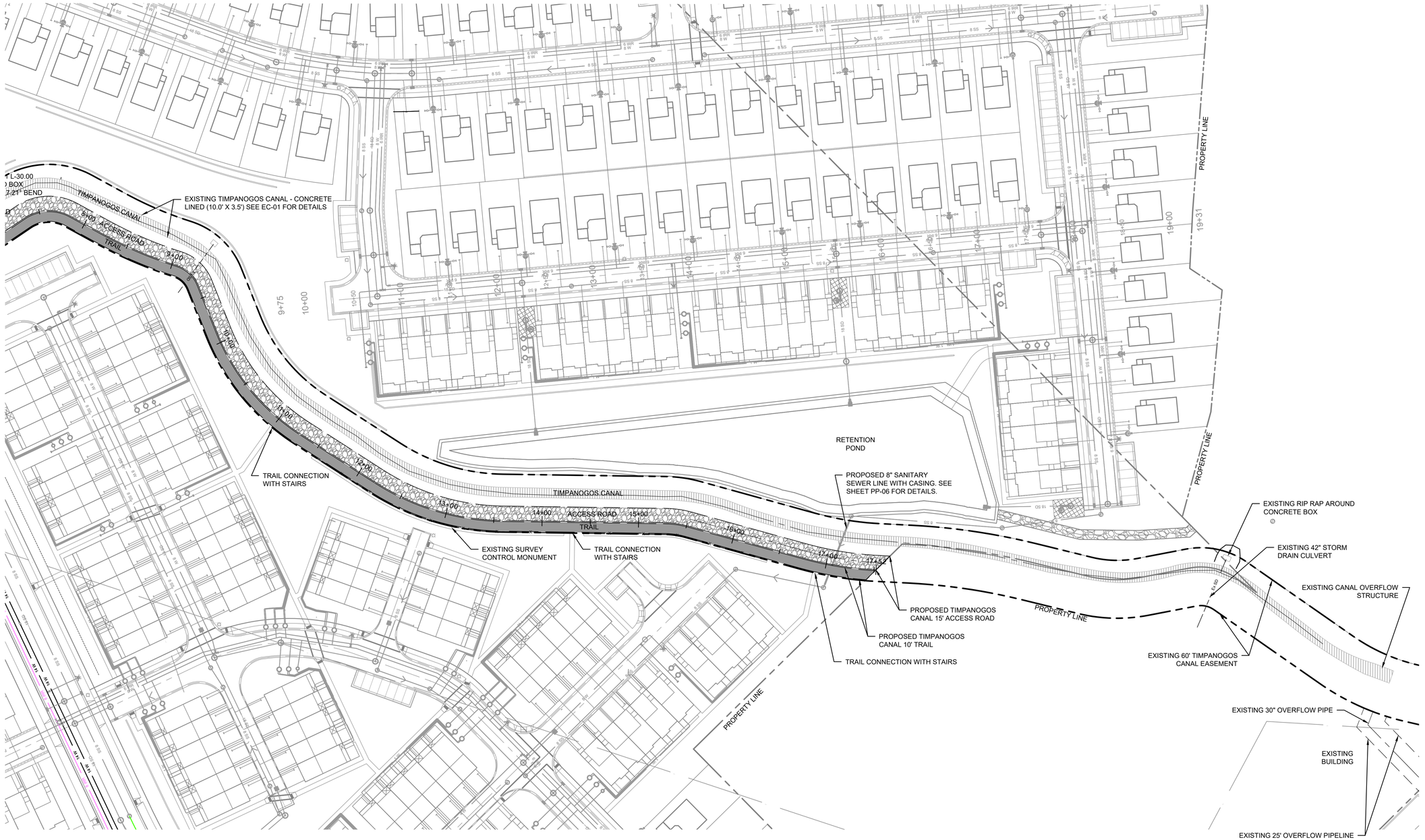
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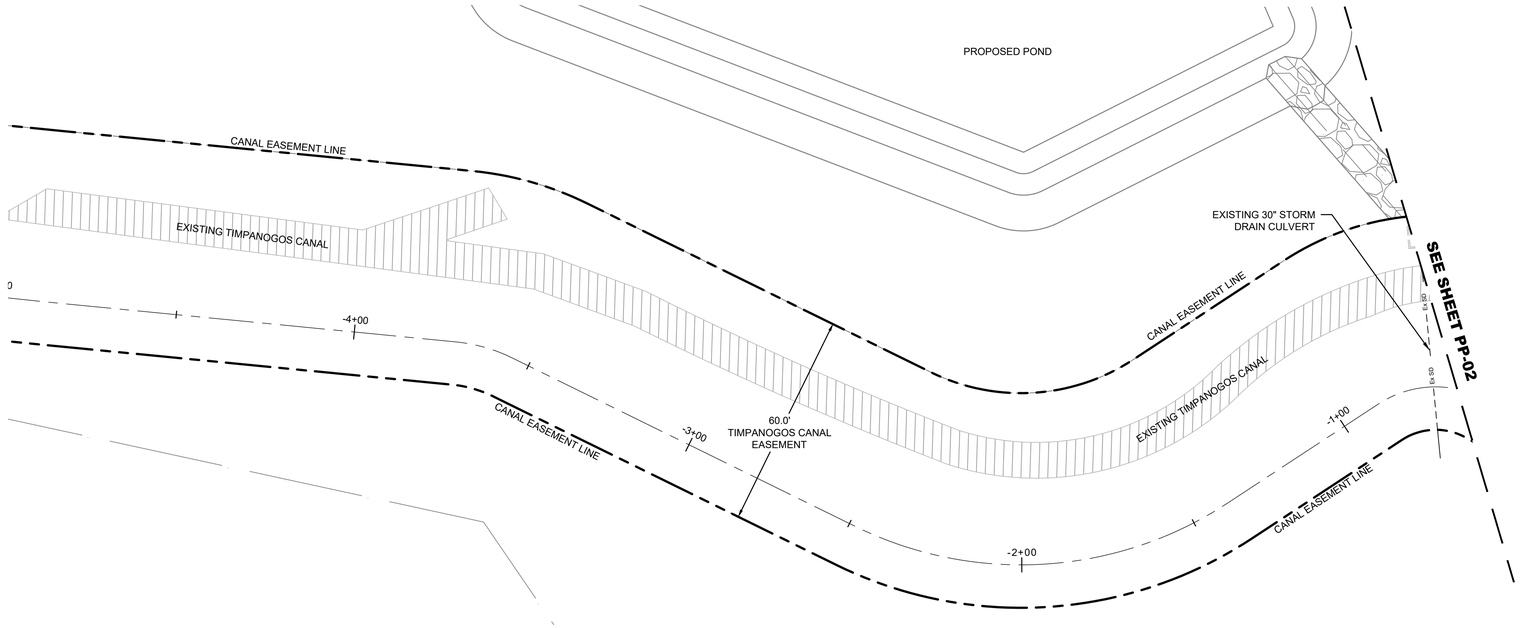
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SP-03

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LEGEND

- TIMPANOGOS CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

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DWG: TIMANOGUS CANAL TRAIL.DWG
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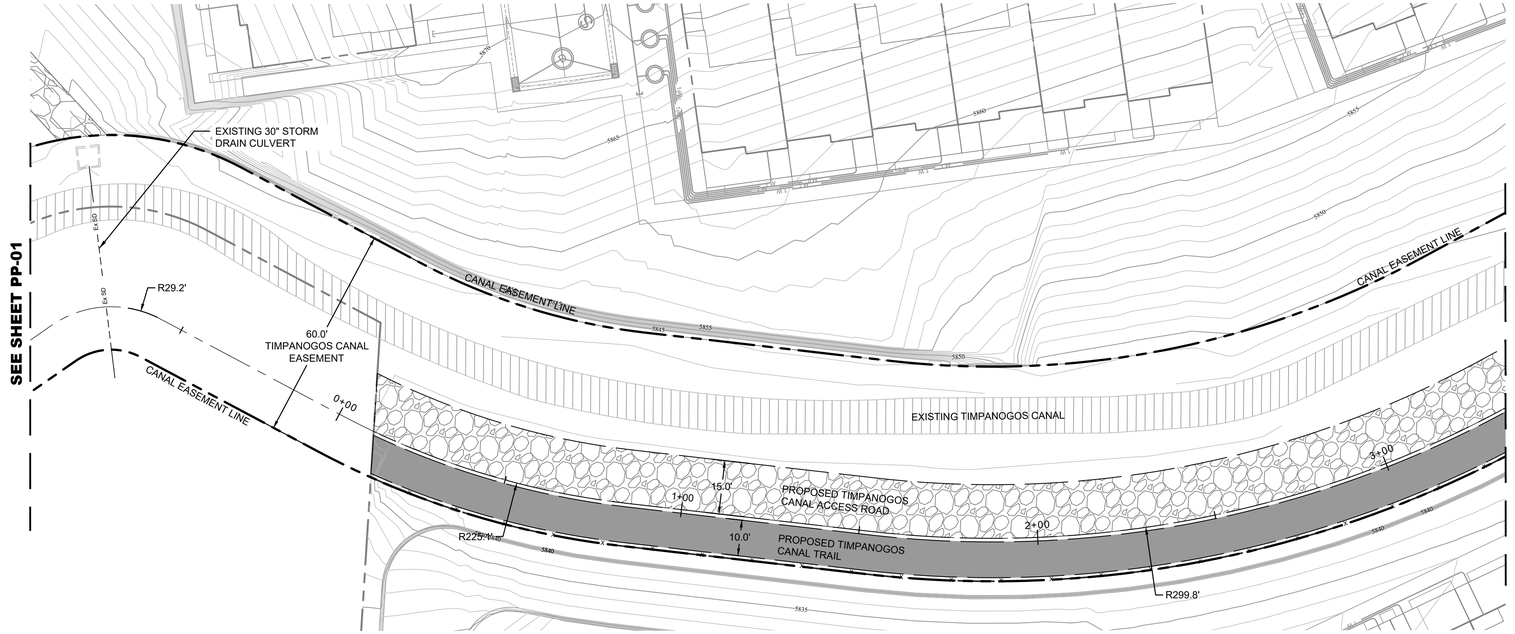
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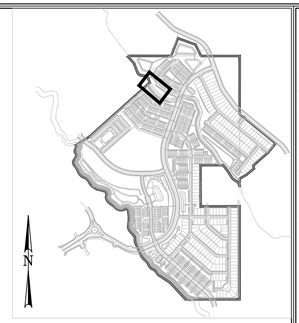
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PP-01

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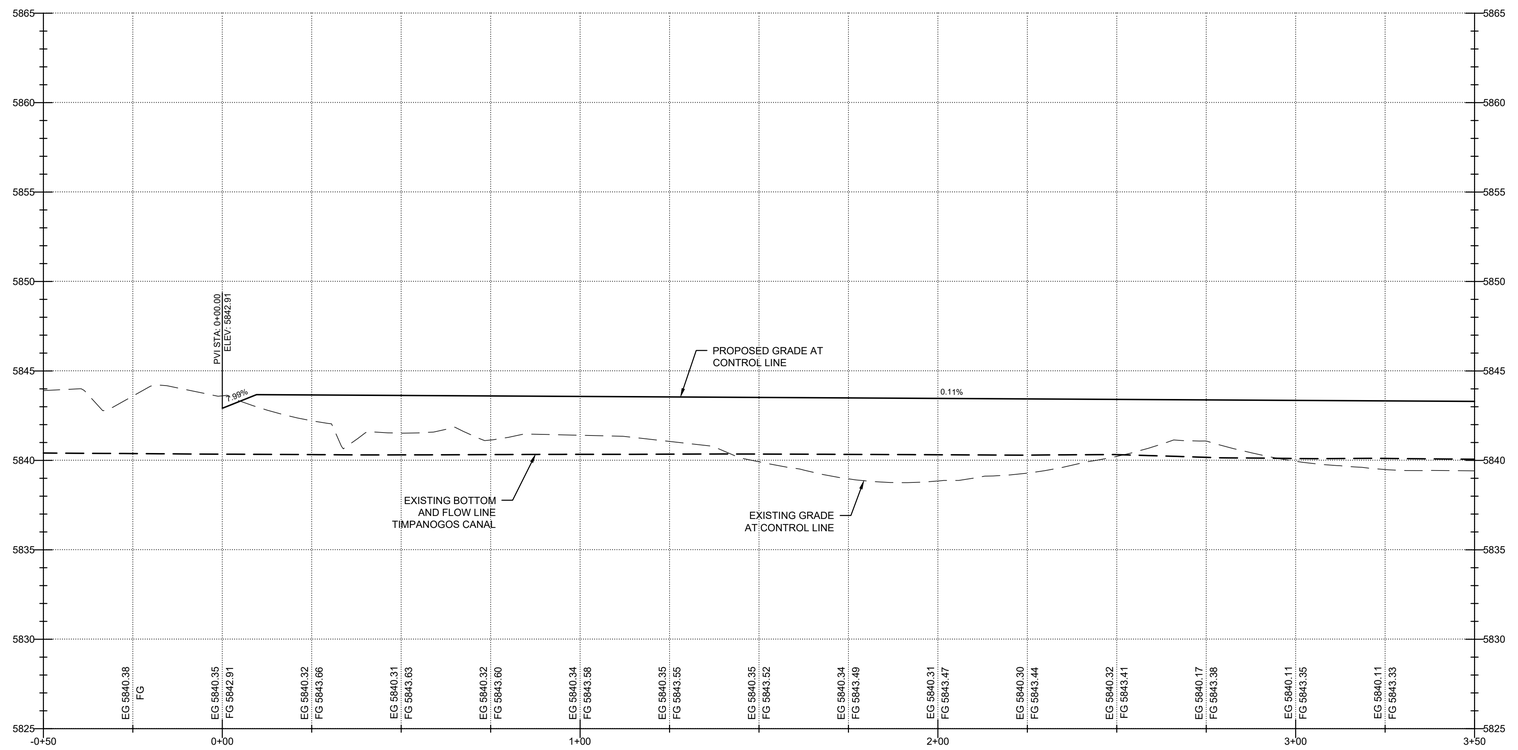
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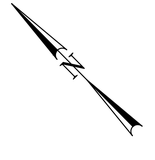




LEGEND

- TIMPANOGOS CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL
- PROPOSED 42-INCH VINYL COATED CHAIN LINK FENCE, TO BE INSTALLED AT THE TOP OF RETAINING WALL (ALONG SOUTH CANAL EASEMENT LINE)





Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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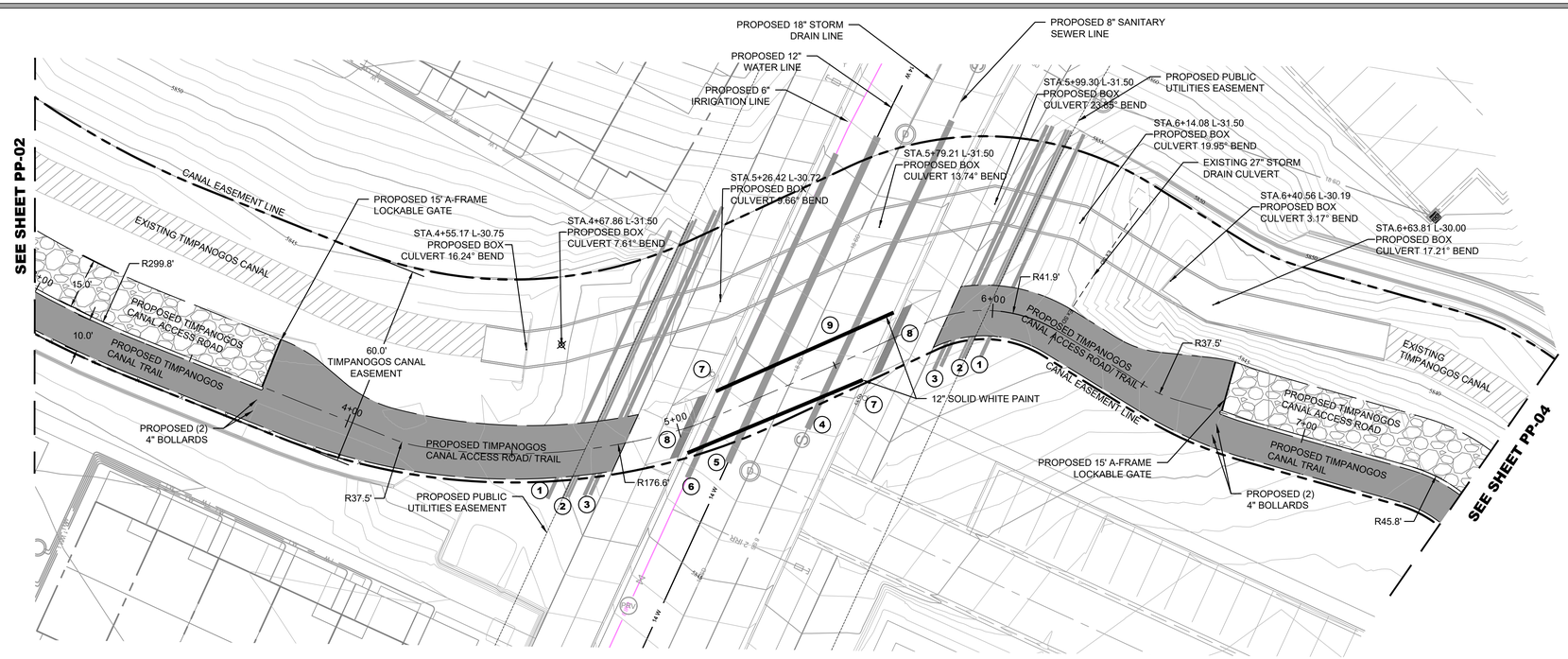
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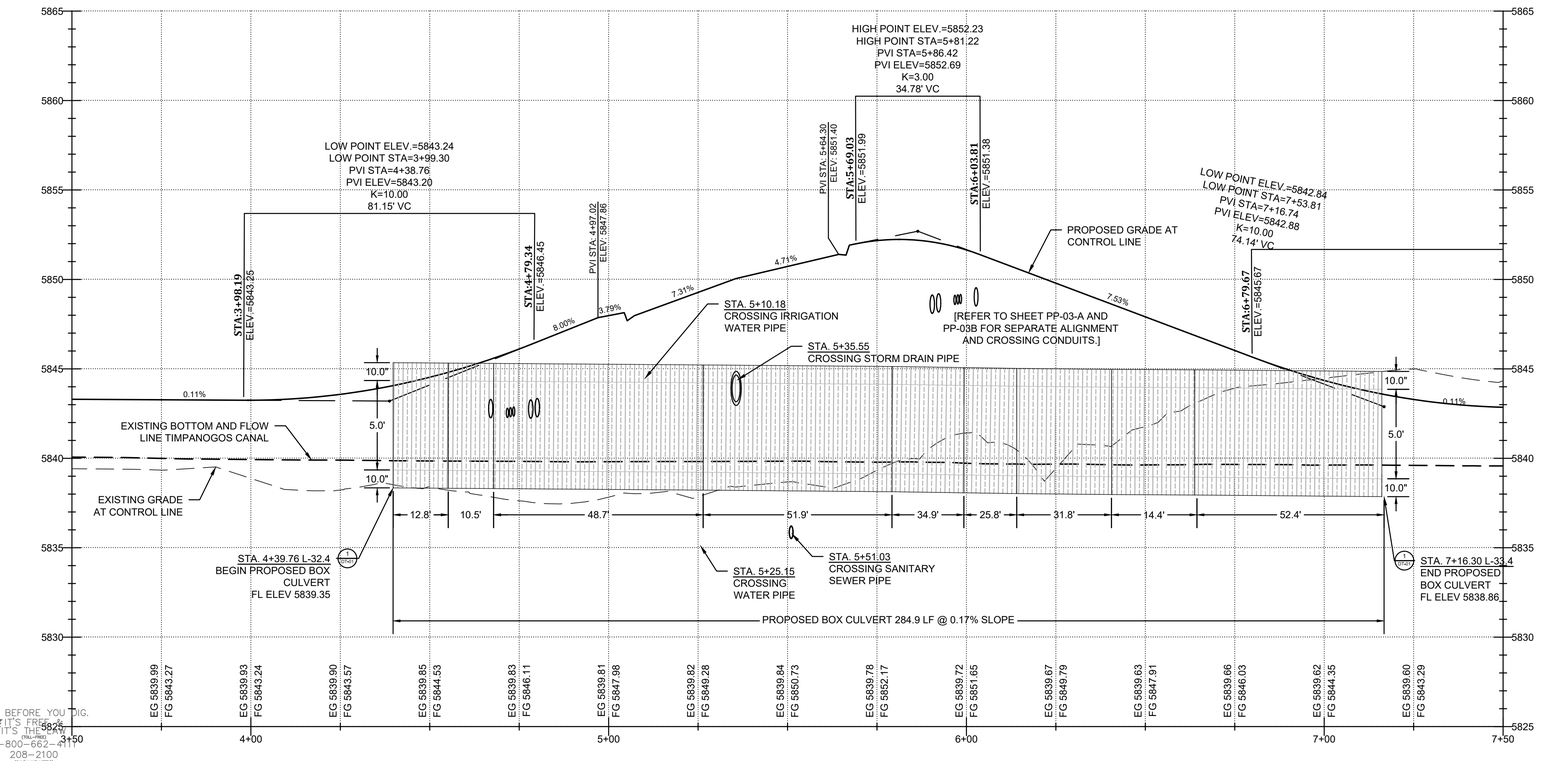
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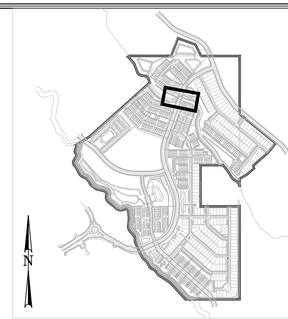
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PP-02

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LEGEND

- TIMPANOGOS CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL
- PROPOSED 42-INCH VINYL COATED CHAIN LINK FENCE, TO BE INSTALLED AT THE TOP OF RETAINING WALL (ALONG SOUTH CANAL EASEMENT LINE)

NOTE:
1) TO SEE A PERPENDICULAR PROFILE OF THIS SHEET SEE SHEET PP-03-A AND PP-03-B.
2) EXTEND ALL HDPE CASINGS 5' BEYOND BOTH SIDES OF THE CANAL EASEMENT.

NUMBERED ITEMS ON PLAN	
1	(1) PROPOSED 12-INCH HDPE CASING FOR GAS UTILITIES
2	(3) PROPOSED 6-INCH HDPE CASINGS FOR COMMUNICATION UTILITIES
3	(2) PROPOSED 12-INCH HDPE CASINGS FOR POWER UTILITIES
4	(1) PROPOSED 24-INCH HDPE CASING FOR SEWER UTILITIES
5	(1) PROPOSED 24-INCH HDPE CASING FOR WATER UTILITIES
6	(1) PROPOSED 24-INCH HDPE CASING FOR IRRIGATION LINE
7	PROPOSED SIGN: "PUBLIC TRAIL ACCESS. NO MOTORIZED VEHICLES ALLOWED".
8	PROPOSED DRIVEWAY AND ADA ACCESS WITH TRUNCATED DOME.
9	PROPOSED PUBLIC ROAD. SEE SHEET PP-03-C.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'
0 20 40

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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JOB No: 3891-DRH01-23
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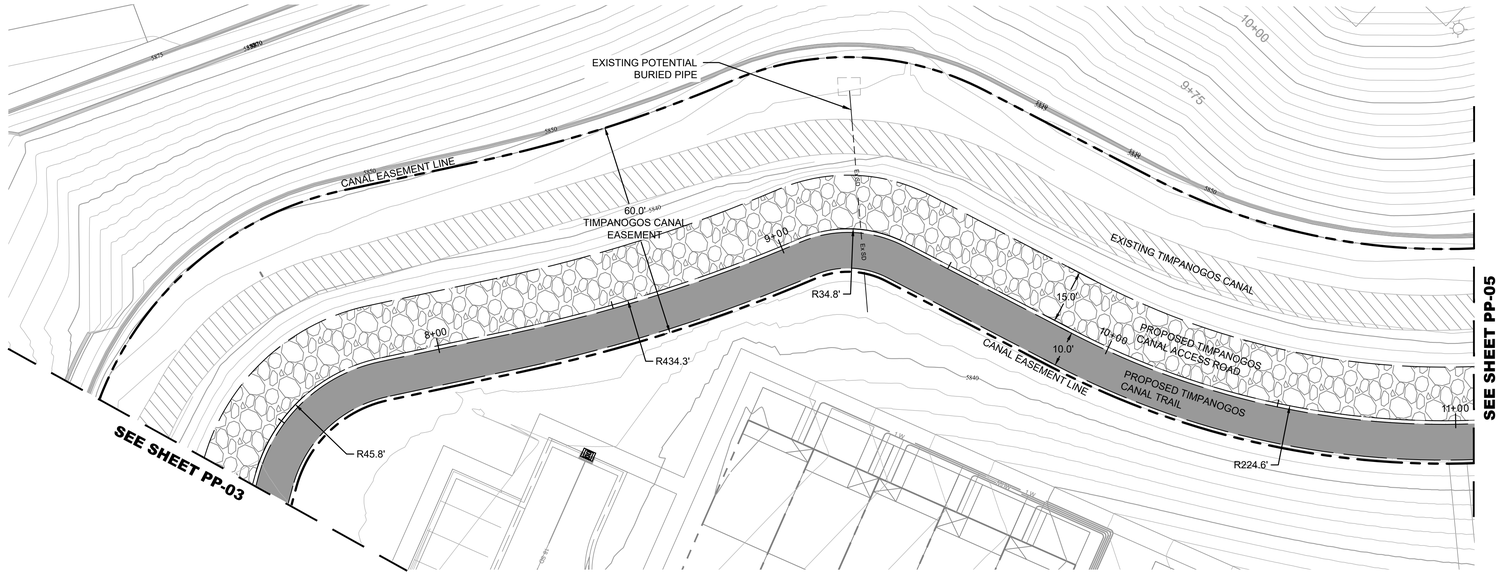
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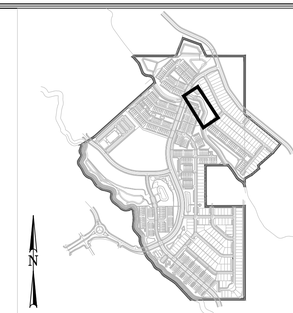
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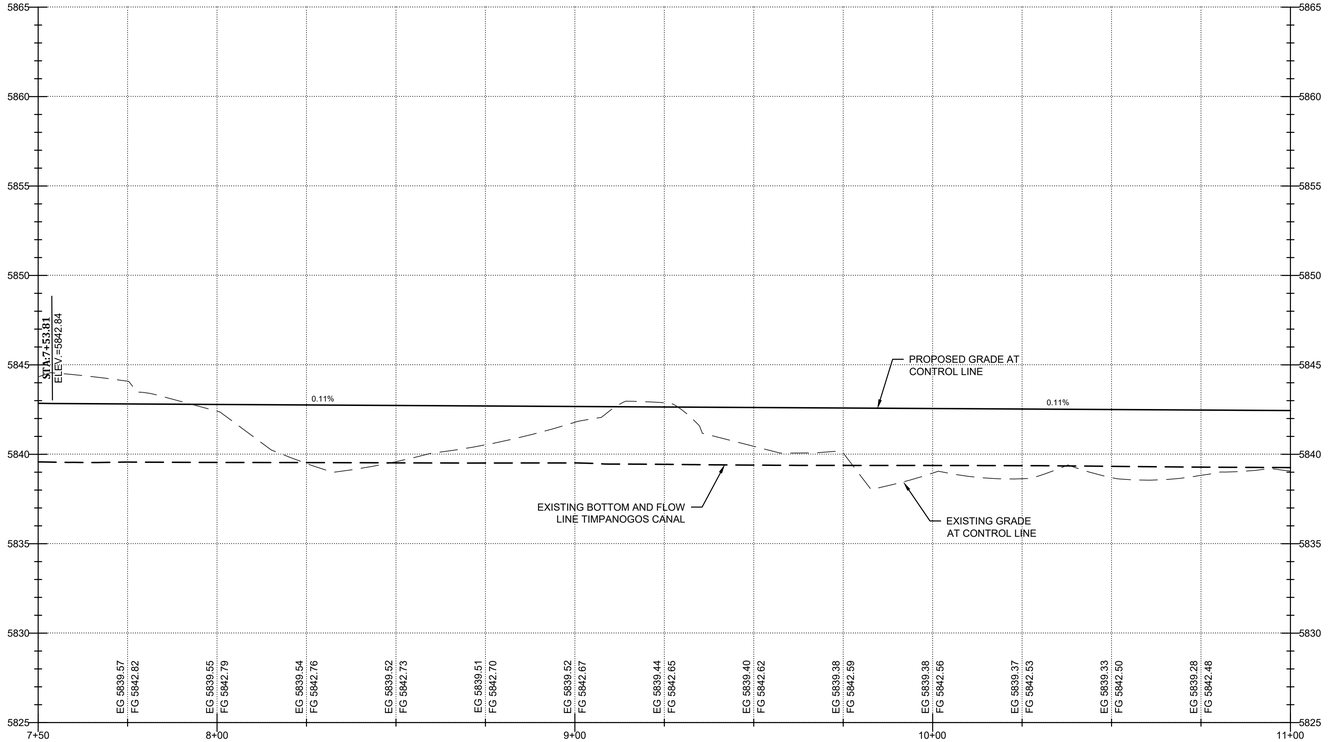
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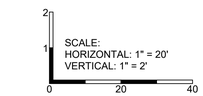




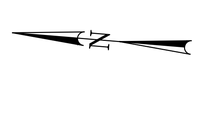
LEGEND

- TIMPANOGOS CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL





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Vertical Scale: 1"=4'



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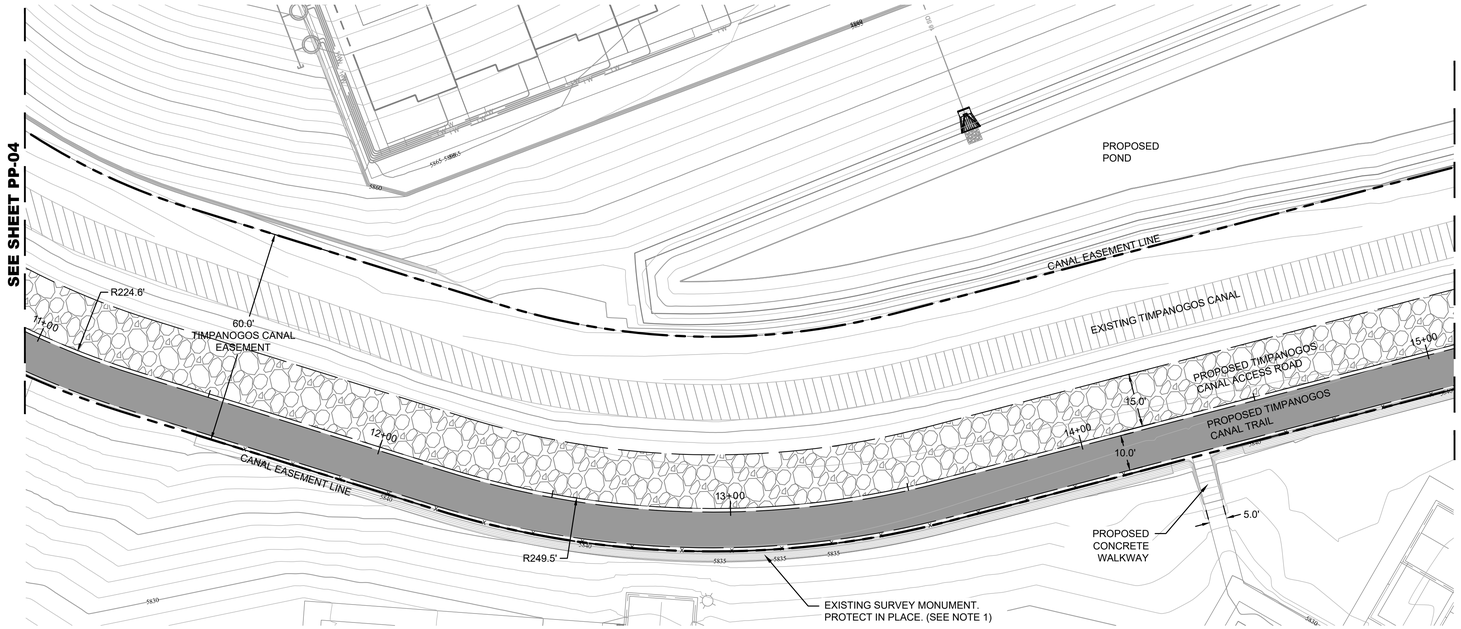
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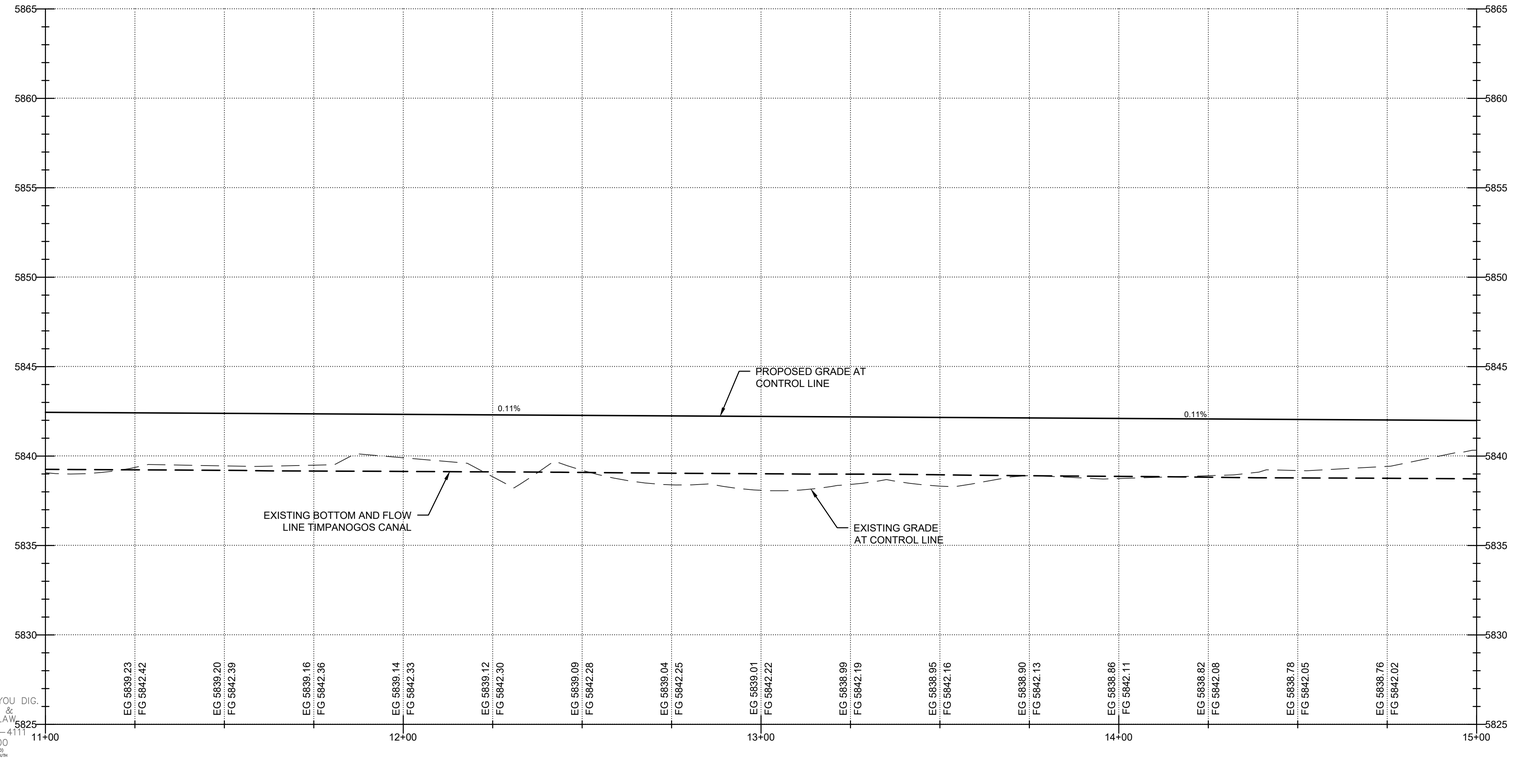
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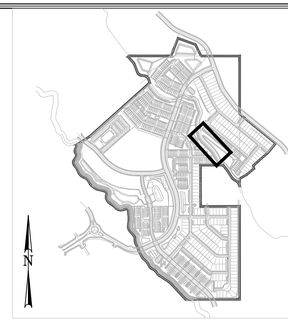
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- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL
- PROPOSED 42-INCH VINYL COATED CHAIN LINK FENCE, TO BE INSTALLED AT THE TOP OF RETAINING WALL (ALONG SOUTH CANAL EASEMENT LINE)

NOTE:
1) WASATCH COUNTY WATER SERVICE AREA NO. 1, SURVEY CONTROL MONUMENT NO. 706 (ALUMINUM PIPE CAP). DO NOT DISTURB, PROTECT IN PLACE. COVER WITH 4-FOOT DIAMETER CONCRETE MANHOLE SECTION WITH ACCESSIBLE FLAT LID. ADJUST TO FINISHED GRADE OF PROPOSED TRAIL.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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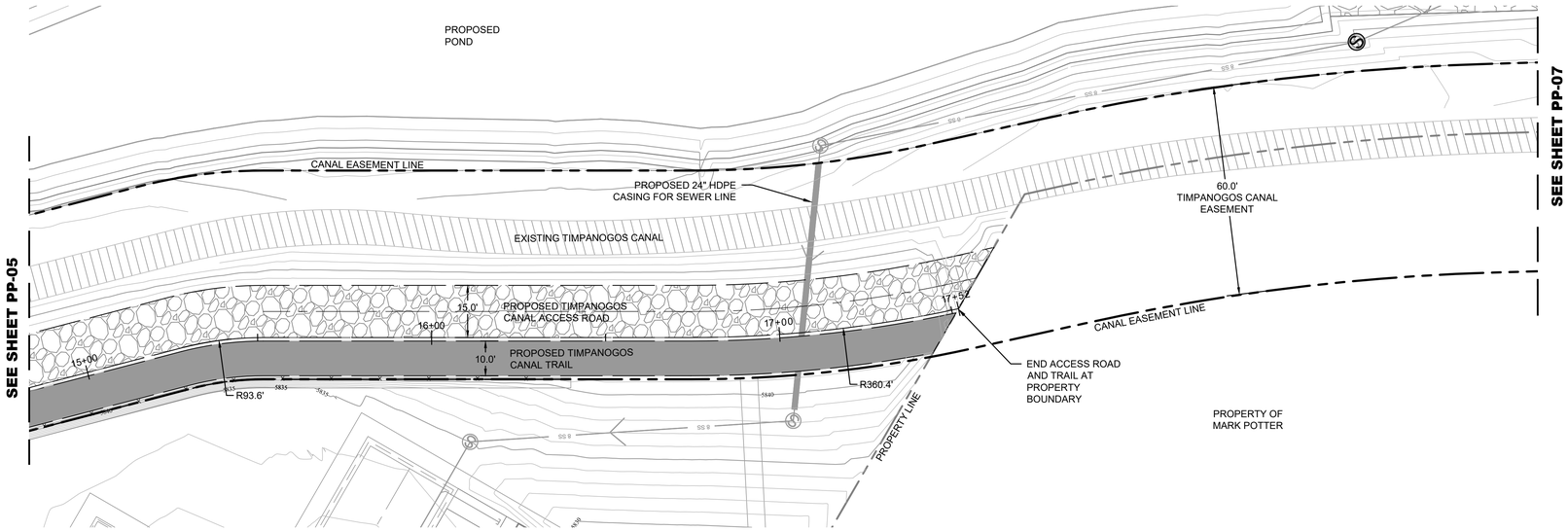
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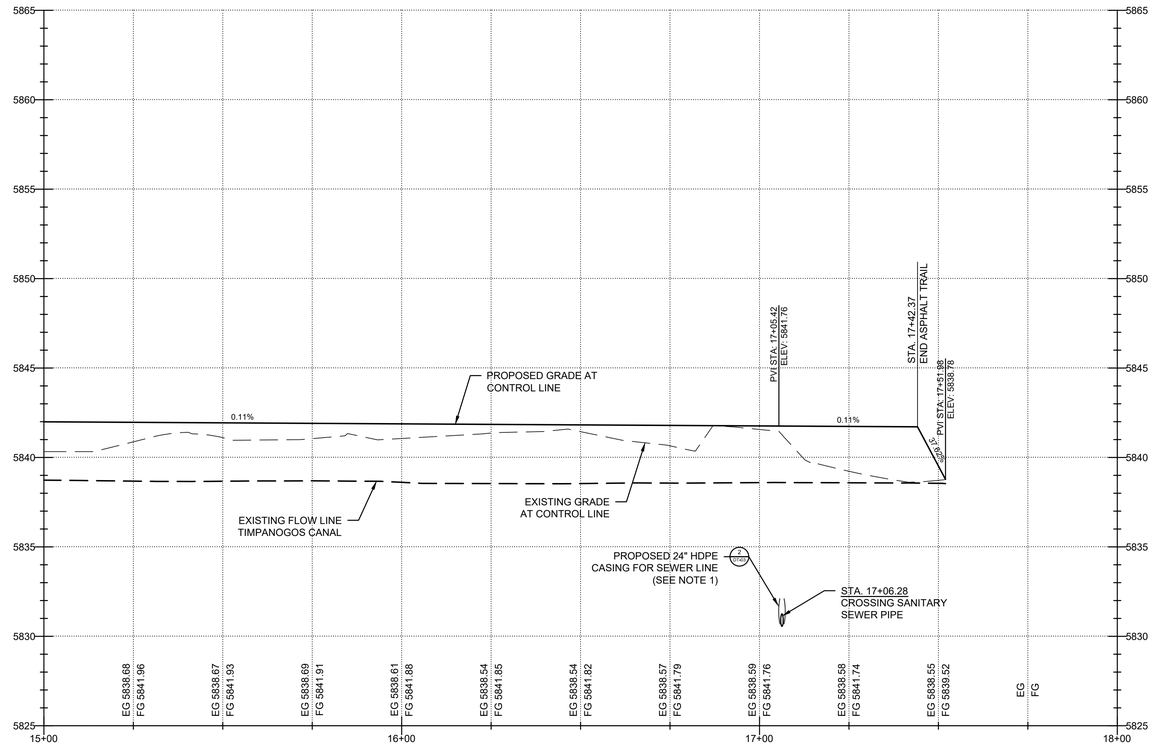
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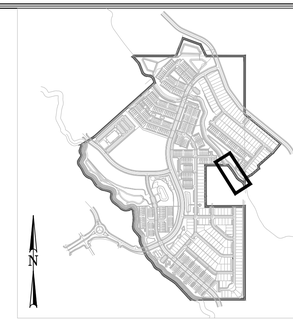
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LEGEND

- TIMPANOGOS CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL
- PROPOSED 42-INCH VINYL COATED CHAIN LINK FENCE, TO BE INSTALLED AT THE TOP OF RETAINING WALL (ALONG SOUTH CANAL EASEMENT LINE)

NOTE:
1) CONTRACTOR SHALL BORE OR DIRECTIONAL DRILL SEWER CASINGS - NO OPEN CUT PERMITTED.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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CLIENT: D.R.HORTON
DWG: TIMANOGUS CANAL TRAIL.DWG
JOB No: 3891-DRH01-23
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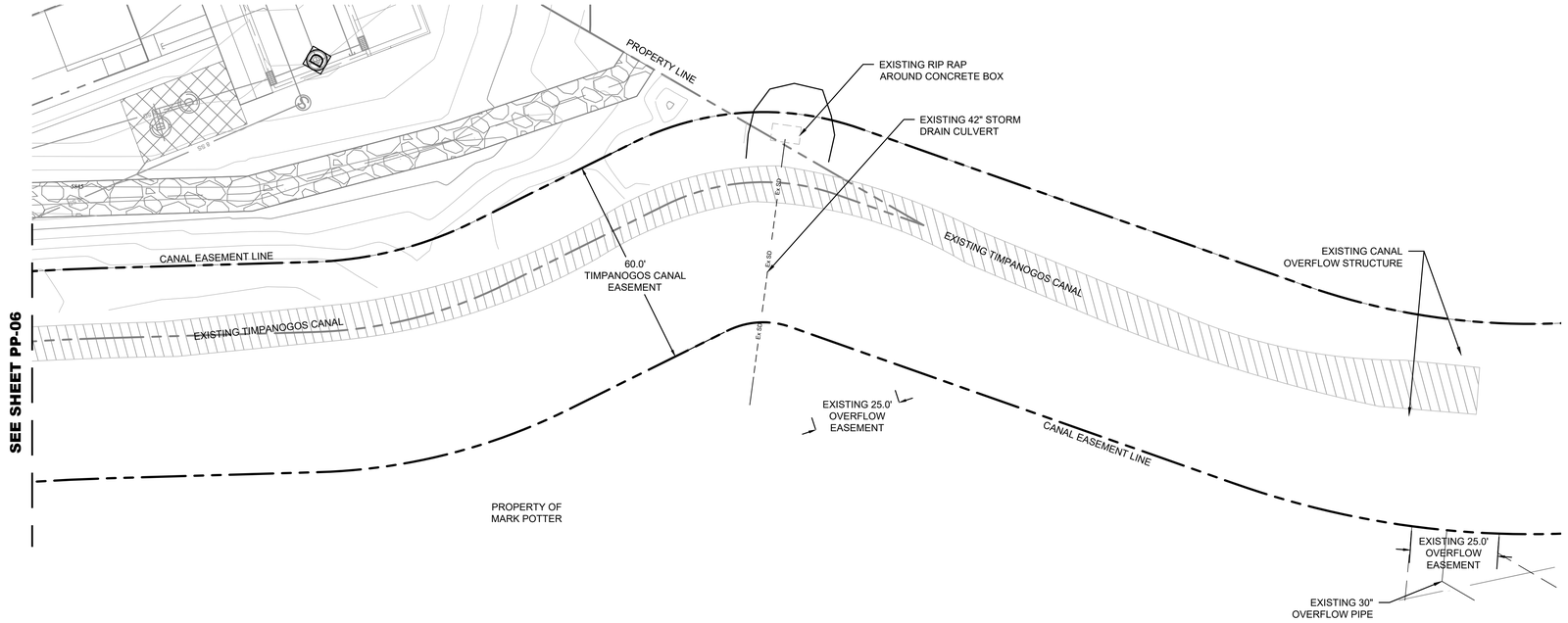
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SHEET
PP-06

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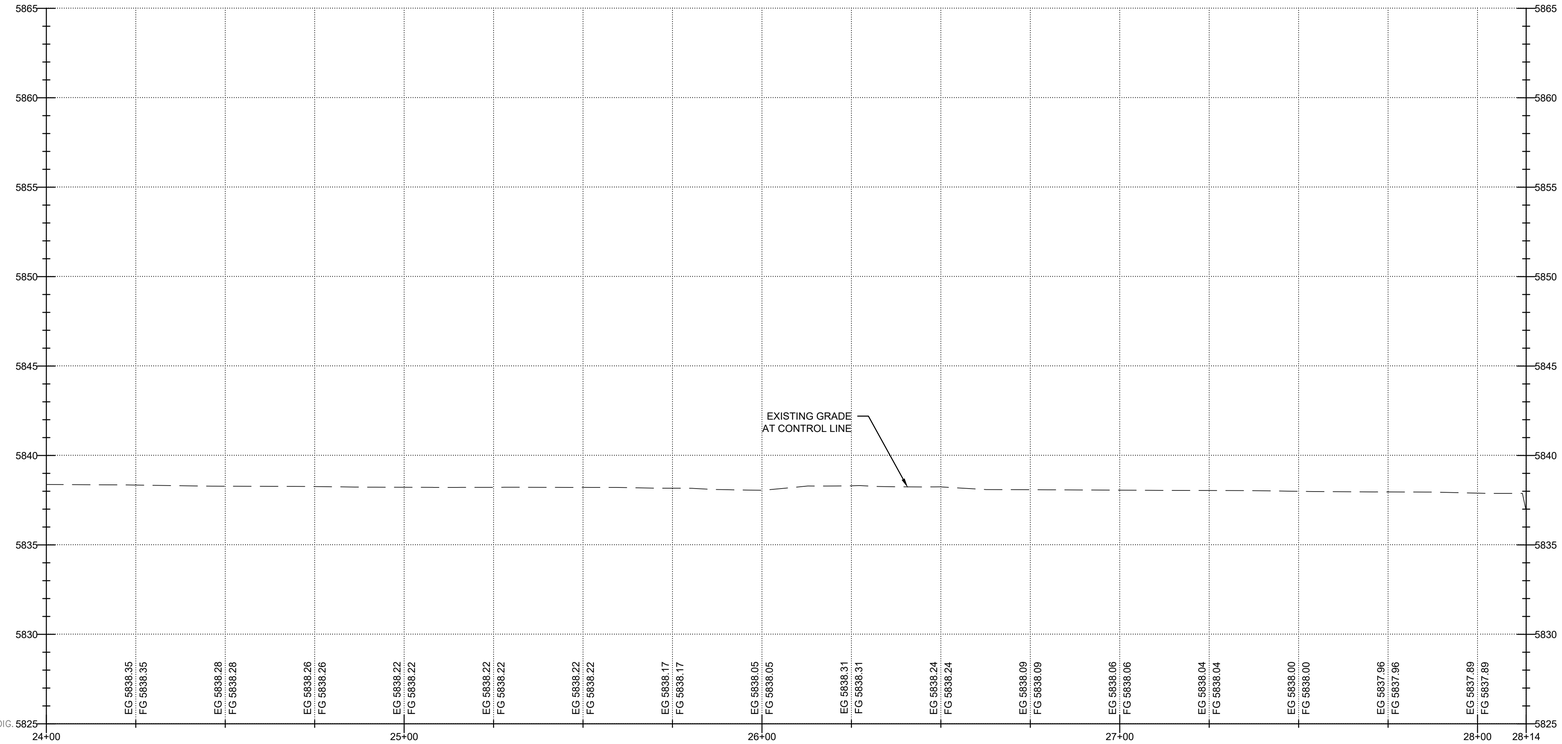
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(TOLL-FREE)
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208-2100
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140 EAST 10000 SOUTH
SANDY, UTAH 84070-1917



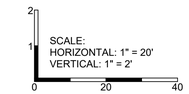


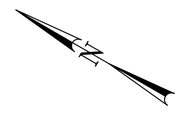
LEGEND

- TIMPANOGOS CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL



Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'





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FILENAME: O:\Highlands\Residential\DR Horton\Design - Timpanogos Canal\TIMANOGUS CANAL TRAIL.dwg TAB: PP-07 TIMP CANAL TRAIL PLOT DATE AND TIME: 8/6/2024 5:53 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TIMPANOGOS CANAL RD & TRAIL

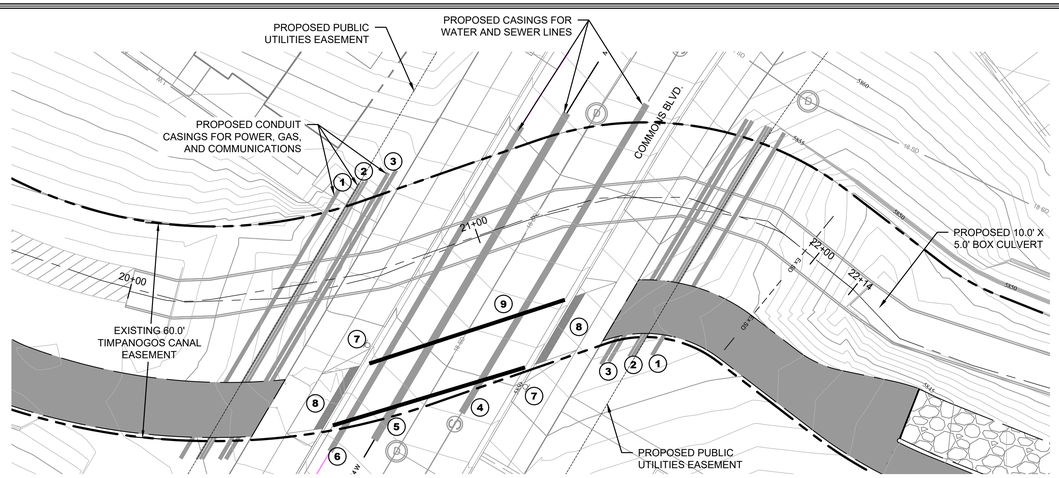
231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

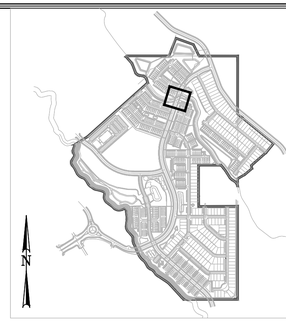
CLIENT: D.R.HORTON
DWG: TIMANOGUS CANAL TRAIL.DWG
JOB No: 3891-DRH01-23
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SHEET
PP-07

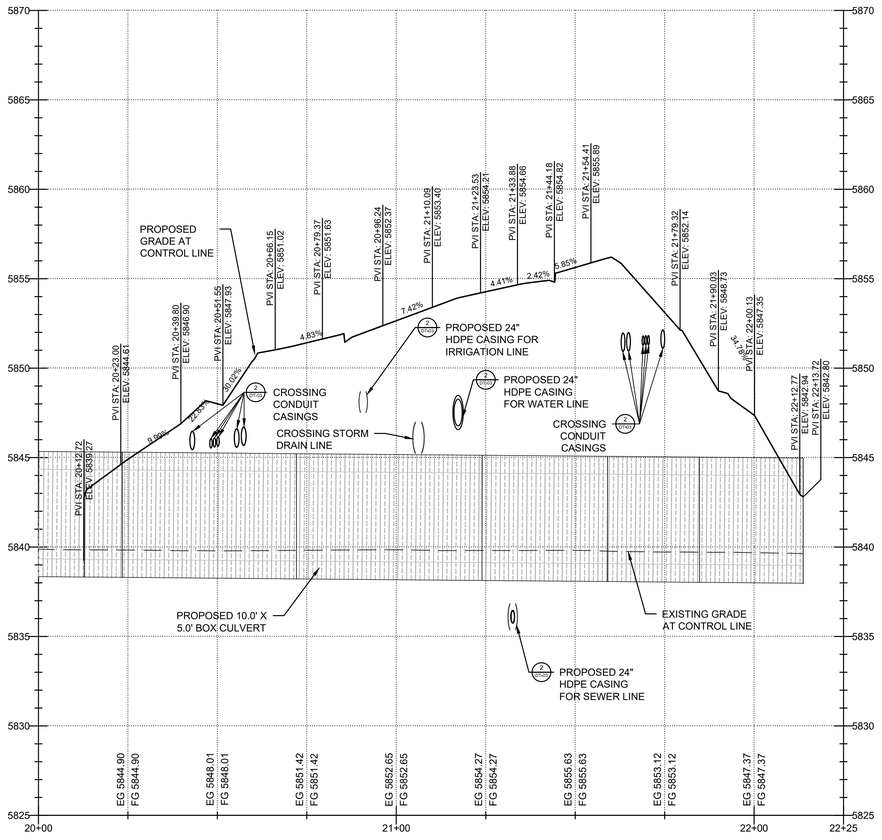




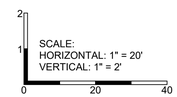
KEY MAP

LEGEND

- TIMPANOGOS CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL



NUMBERED ITEMS ON PLAN	
1	(1) PROPOSED 12-INCH HDPE CASING FOR GAS UTILITIES
2	(3) PROPOSED 6-INCH HDPE CASINGS FOR COMMUNICATION UTILITIES
3	(2) PROPOSED 12-INCH HDPE CASINGS FOR POWER UTILITIES
4	(1) PROPOSED 24-INCH HDPE CASING FOR SEWER UTILITIES
5	(1) PROPOSED 24-INCH HDPE CASING FOR WATER UTILITIES
6	(1) PROPOSED 24-INCH HDPE CASING FOR IRRIGATION LINE
7	PROPOSED SIGN: "PUBLIC TRAIL ACCESS. NO MOTORIZED VEHICLES ALLOWED".
8	PROPOSED DRIVEWAY AND ADA ACCESS WITH TRUNCATED DOME.
9	PROPOSED PUBLIC ROAD. SEE SHEET PP-03-C.



Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'



HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TIMPANOGOS CANAL RD & TRAIL

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DWG: TIMANOGUS CANAL TRAIL.DWG
JOB No: 3891-DRH01-23
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PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

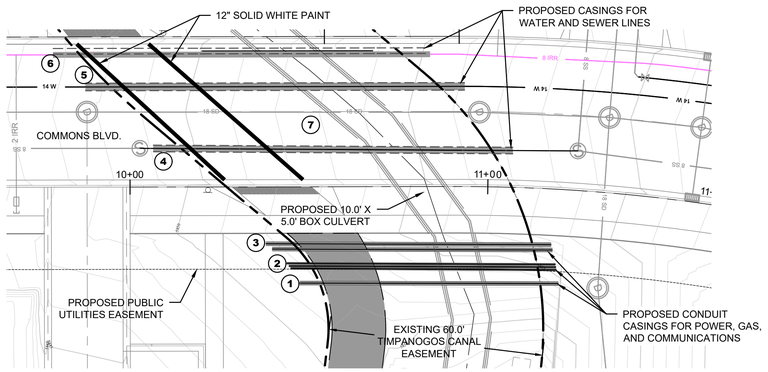
SHEET
PP-03-A

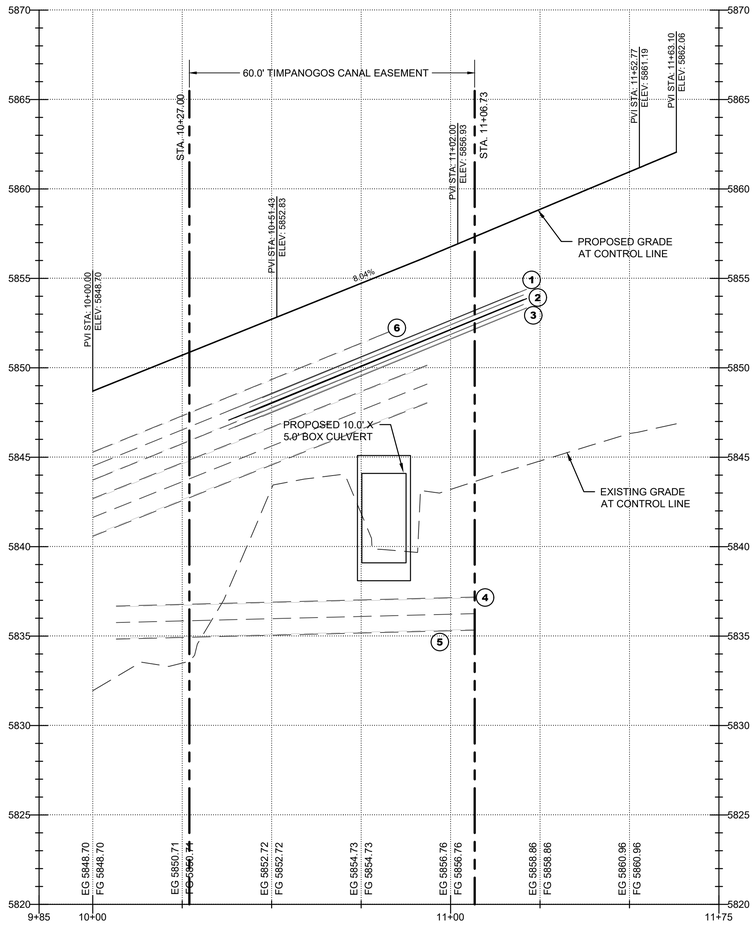
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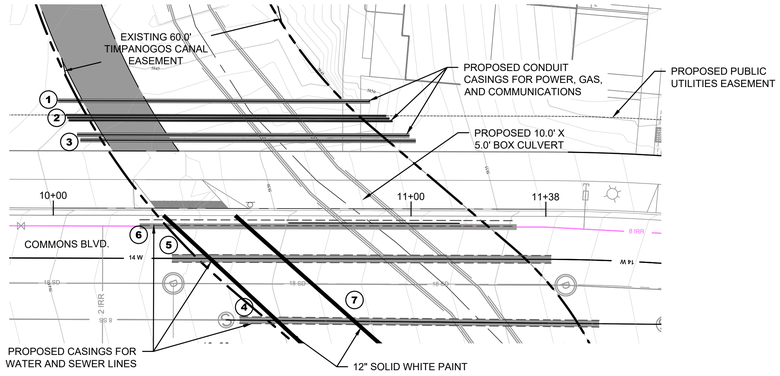
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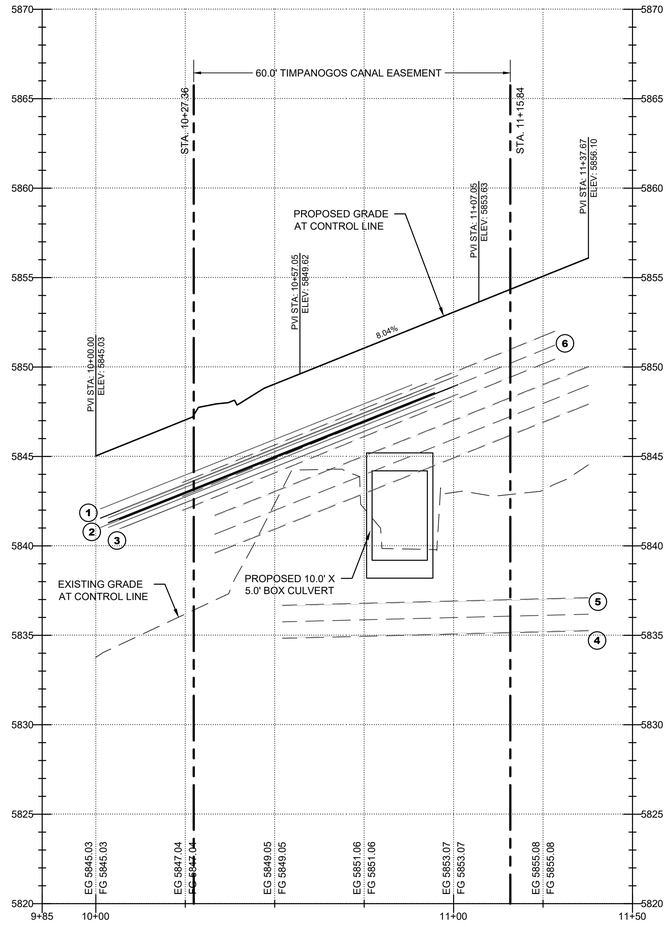
PLAN AND PROFILE I

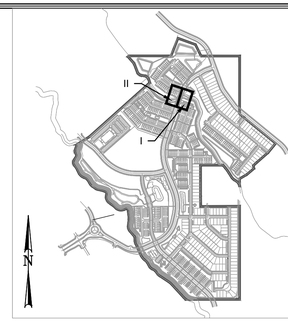




PLAN AND PROFILE II







KEY MAP

LEGEND

- TIMPANOGOS CANAL EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- PROPOSED CANAL ASPHALT TRAIL
- PROPOSED CANAL AGGREGATE BASE COURSE ACCESS ROAD
- EXISTING CONCRETE-LINED TIMPANOGOS CANAL

NUMBERED ITEMS ON PLAN AND PROFILES

1	(1) PROPOSED 12-INCH HDPE CASING FOR GAS UTILITIES
2	(3) PROPOSED 6-INCH HDPE CASINGS FOR COMMUNICATION UTILITIES
3	(2) PROPOSED 12-INCH HDPE CASINGS FOR POWER UTILITIES
4	(1) PROPOSED 24-INCH HDPE CASING FOR SEWER UTILITIES
5	(1) PROPOSED 24-INCH HDPE CASING FOR WATER UTILITIES
6	(1) PROPOSED 24-INCH HDPE CASING FOR IRRIGATION LINE
7	PROPOSED PUBLIC ROAD. SEE SHEET PP-03-C.

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

HIGHLANDS RESIDENTIAL DEVELOPMENT HEBER CITY, UT
TIMPANOGOS CANAL RD & TRAIL

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Ward Engineering Group
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CLIENT: D.R.HORTON
DWG: TIMANOGUS CANAL TRAIL - PROFILE FOR CASINGS.DWG
JOB No: 3891-DRH01-23
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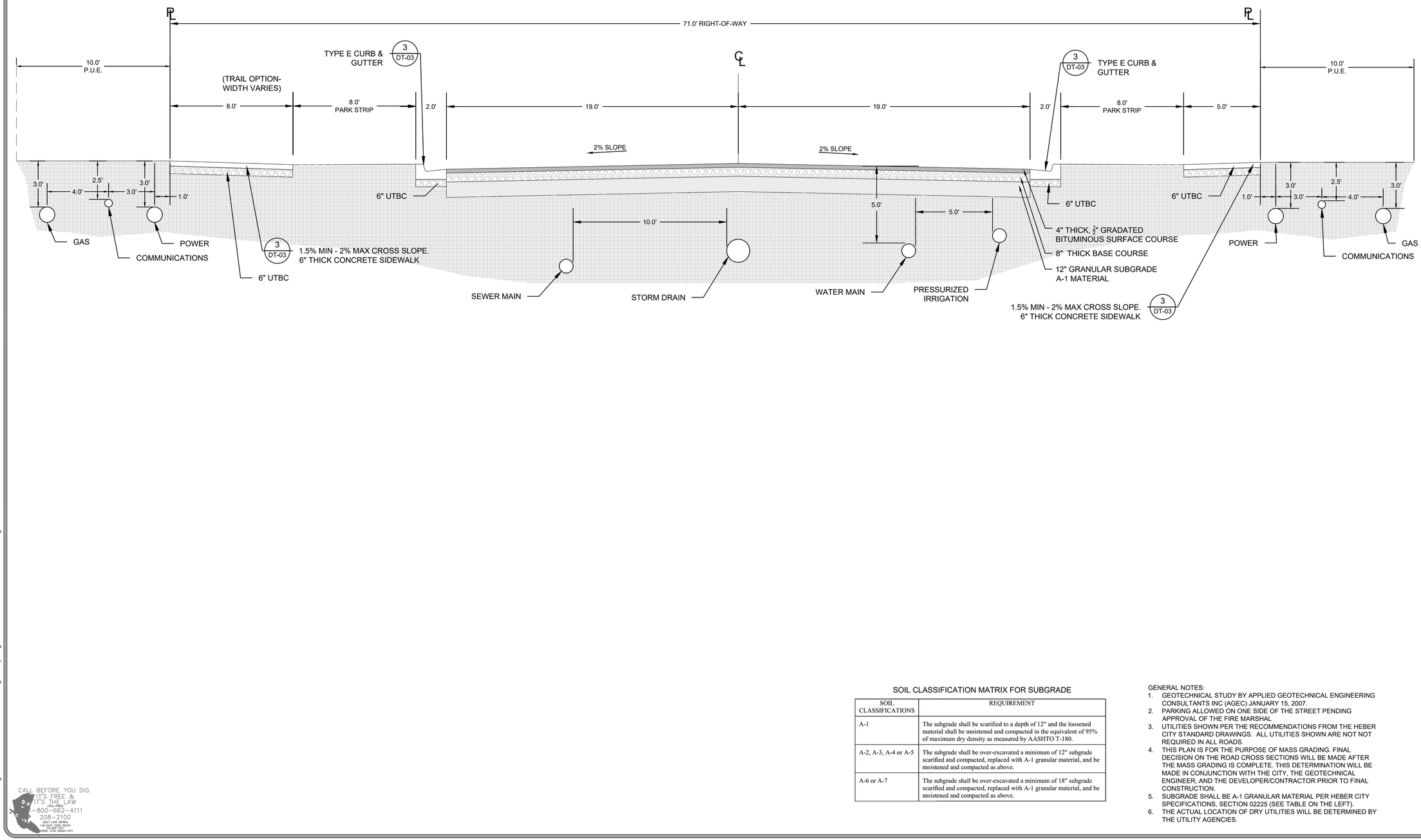
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DATE: 07/29/2024

REVISIONS
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SHEET
PP-03-B

PROPOSED PUBLIC ROADWAY SECTION WITHIN CANAL EASEMENT



SOIL CLASSIFICATION MATRIX FOR SUBGRADE

SOIL CLASSIFICATIONS	REQUIREMENT
A-1	The subgrade shall be scarified to a depth of 12" and the loosened material shall be moistened and compacted to the equivalent of 95% of maximum dry density as measured by AASHTO T-180.
A-2, A-3, A-4 or A-5	The subgrade shall be over-excavated a minimum of 12" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.
A-6 or A-7	The subgrade shall be over-excavated a minimum of 18" subgrade scarified and compacted, replaced with A-1 granular material, and be moistened and compacted as above.

GENERAL NOTES:

1. GEOTECHNICAL STUDY BY APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS INC (AGEC) JANUARY 15, 2007.
2. PARKING ALLOWED ON ONE SIDE OF THE STREET PENDING APPROVAL OF THE FIRE MARSHAL.
3. UTILITIES SHOWN PER THE RECOMMENDATIONS FROM THE HEBER CITY STANDARD DRAWINGS. ALL UTILITIES SHOWN ARE NOT NOT REQUIRED IN ALL ROADS.
4. THIS PLAN IS FOR THE PURPOSE OF MASS GRADING. FINAL DECISION ON THE ROAD CROSS SECTIONS WILL BE MADE AFTER THE MASS GRADING IS COMPLETE. THIS DETERMINATION WILL BE MADE IN CONJUNCTION WITH THE CITY, THE GEOTECHNICAL ENGINEER, AND THE DEVELOPER/CONTRACTOR PRIOR TO FINAL CONSTRUCTION.
5. SUBGRADE SHALL BE A-1 GRANULAR MATERIAL PER HEBER CITY SPECIFICATIONS, SECTION 02225 (SEE TABLE ON THE LEFT).
6. THE ACTUAL LOCATION OF DRY UTILITIES WILL BE DETERMINED BY THE UTILITY AGENCIES.

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TIMPANOGOS ROADWAY CROSS SECTION

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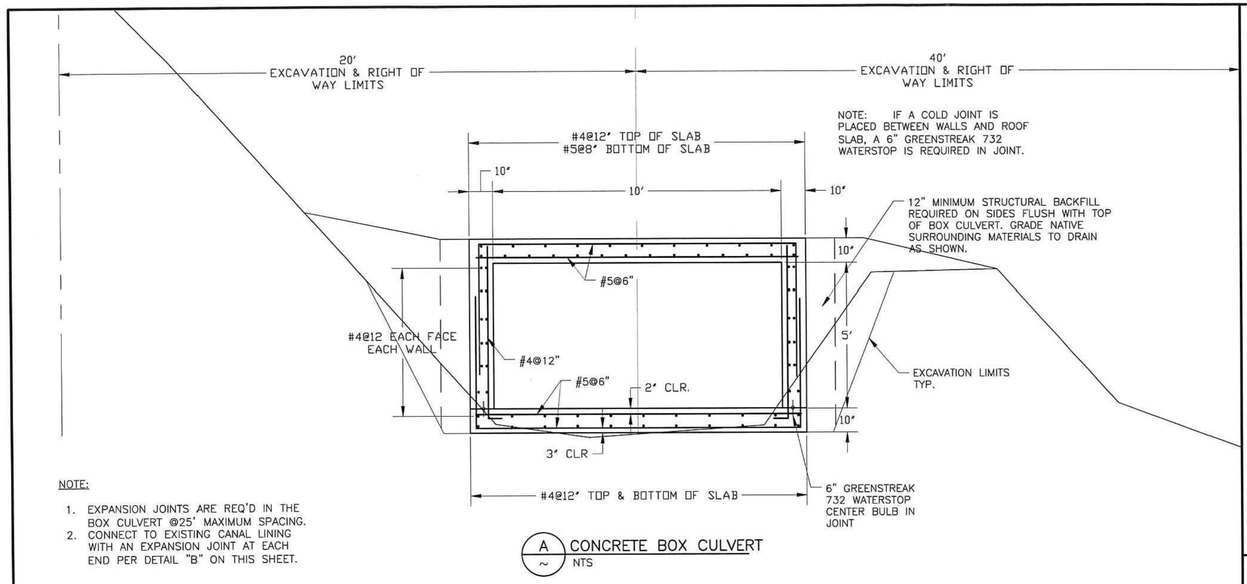
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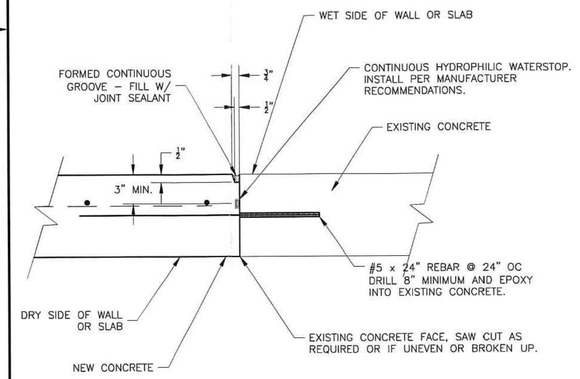
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PP-03-C

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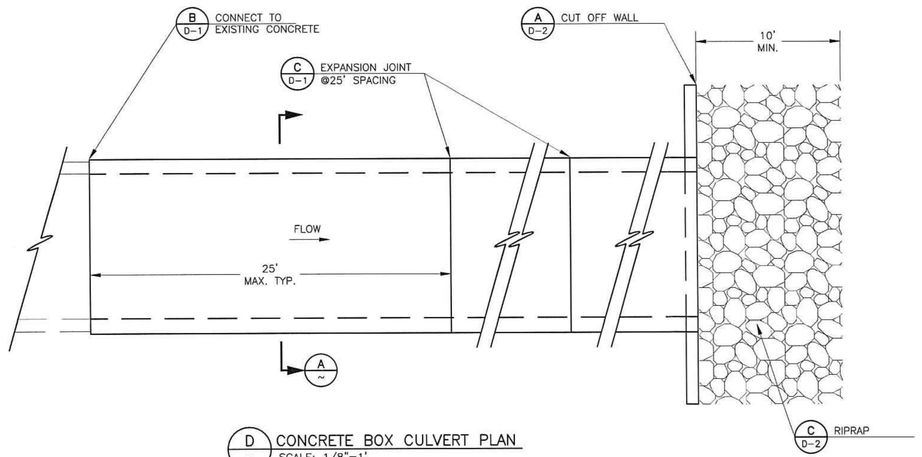
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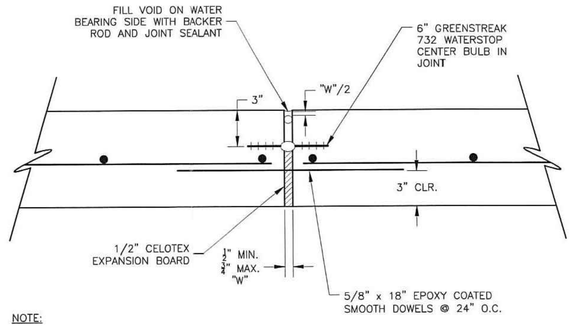
A ~ CONCRETE BOX CULVERT
NTS



B D–1 CONSTRUCTION JOINT EXISTING CONCRETE
NTS



D ~ CONCRETE BOX CULVERT PLAN
SCALE: 1/8"=1'



NOTE:
EXPANSION JOINTS ARE REQ'D IN SLABS & WALLS @25' MAXIMUM SPACING

C D–1 EXPANSION JOINT DETAIL
SCALE: 1/8"=1'

REV	DATE	BY	DESCRIPTION
			REVISIONS

SCALE: AS SHOWN
CONTOUR INTERVAL: NA
INTERMEDIATE : NA

WARNING
0 1/2 1
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DESIGNED KDB DATE AUG 2016
DRAWN KDB DATE AUG 2016
CHECKED RP DATE AUG 2016

LICENSED PROFESSIONAL ENGINEER No. 189312 KIRK D. BEECHER STATE OF UTAH

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT
Wasatch County Water Efficiency Project
TIMPANOGOS CANAL LINING
JORDANLLE DAM TO HIGHWAY 32 – REACH 1
TYPICAL DETAILS

CONTRACT NO.
DATE AUGUST 2016
DRAWING NO. D–1
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1 CUWCD CULVERT DETAILS - ORIGINAL
NTS (SEE DT-02 FOR ADDITIONAL CULVERT DETAILS)

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
TIMPANOGOS CANAL CULVERT DETAILS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
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CLIENT: D.R.HORTON
DWG: TIMANOGUS CANAL TRAIL.DWG
JOB No: 3891-DRH01-23
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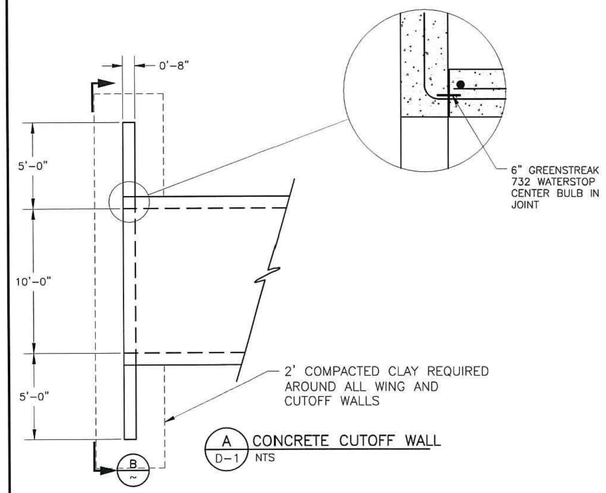
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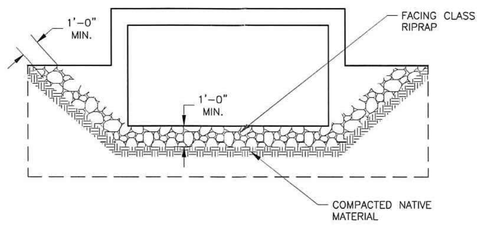
LICENSED PROFESSIONAL ENGINEER SATTAR N. TABRIZ STATE OF UTAH
8/6/2024

SHEET
DT-01

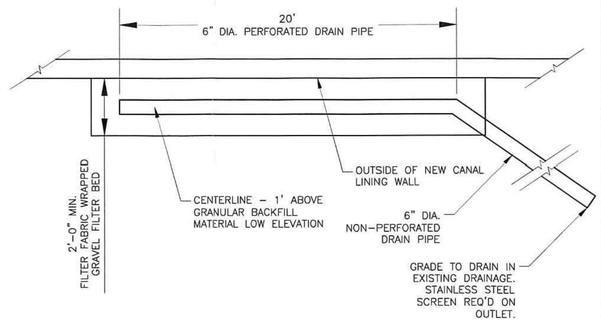
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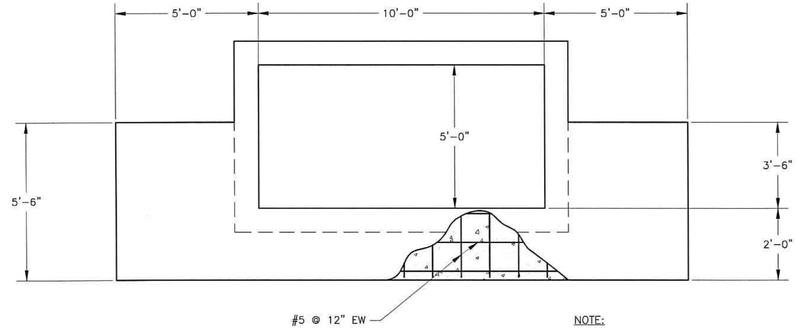
A D-1 CONCRETE CUTOFF WALL
NTS



C D-1 RIPRAP DETAIL
NTS



D CR-2 CONCRETE LINING TOE DRAIN
NTS



NOTE:

CUTOFF REQ'D AT OUTLET END OF NEW BOX CULVERT.

B D-1 CONCRETE CUTOFF WALL
NTS

REV	DATE	BY	DESCRIPTION
REVISIONS			

SCALE: AS SHOWN

CONTOUR INTERVAL: NA
INTERMEDIATE : NA

WARNING
0 1/2 1
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LICENSED PROFESSIONAL ENGINEER No. 189312 KIRK D. BEECHER STATE OF UTAH

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT
Wasatch County Water Efficiency Project
TIMPANOGOS CANAL LINING
JORDANELLE DAM TO HIGHWAY 32 – REACH 1
TYPICAL DETAILS

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DATE: AUGUST 2016
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SHEET NO. 9 of 9

1 CUWCD CULVERT DETAILS - ORIGINAL
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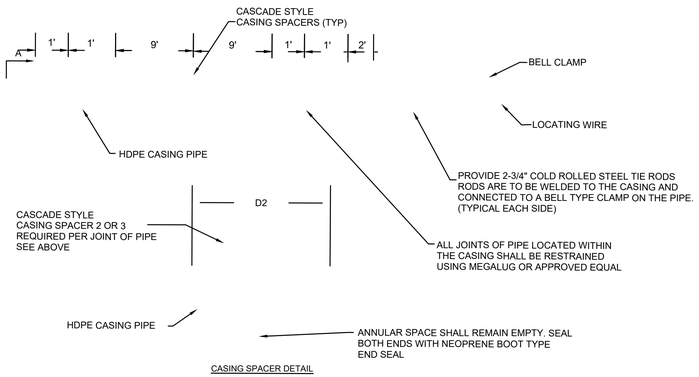
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SATTAR N. TABRIZ — 8/6/2024

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DT-02

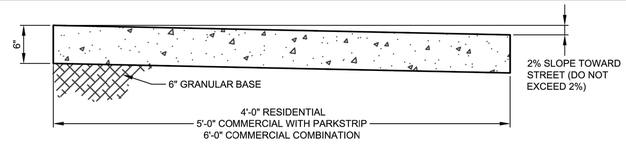


CASING SPACER DETAIL

CARRIER PIPE AND CASING PIPE SIZES (MIN.) IN INCHES												
CARRIER PIPE NOM. DIA., (D1)	4	6	8	10	12	14	16	18	20	24	30	36
CASING PIPE NOM. DIA., (D2)	4.5	6.625	8.625	10.75	12.75	14	16	18	20	24	30	36
WALL THICKNESS-DOT	0.409	0.602	0.784	0.977	1.159	1.273	1.455	1.636	1.818	2.182	2.727	3.273

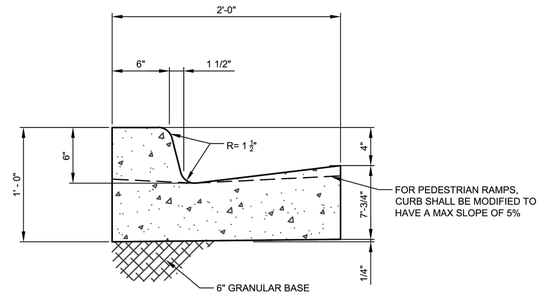
NOTES:
1. MIN. COVER TO TOP OF CASING TO BE 5'-0", INSTALL TO GRADE ON PLAN.
2. THE INSIDE DIAMETER OF THE CASING PIPE SHALL BE A MINIMUM OF 4 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE CARRIER PIPE BELL OR COUPLING.
3. ALL JOINTS WITHIN CARRIER PIPE SHALL BE MECHANICALLY RESTRAINED JOINTS.
4. CASING THICKNESS TO BE DETERMINED ACCORDING TO UPRR STANDARDS.
5. FOR CARRIER PIPES THAT ARE BIGGER THAN 36", USE STEEL CASING.

2 HIGH DENSITY POLYETHYLEN (HDPE) CASING PIPE
NTS



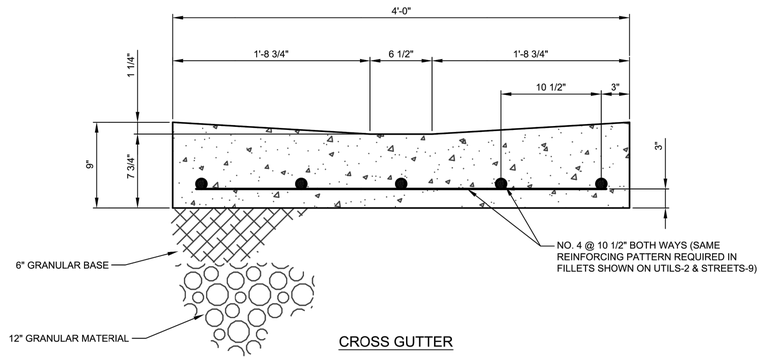
NOTE: WHEN REPLACING SIDEWALK, THICKNESS MAY BE REDUCED TO 4" WITH CITY ENGINEER APPROVAL.

SIDEWALK



NOTES:THE TOP BACK OF CURB SHALL BE STAMPED ACCORDING TO SECTION 700 - 1.02 - L.

HIGH BACK CURB & GUTTER



CROSS GUTTER

SIDEWALK, HIGH BACK CURB & GUTTER, CROSS GUTTERS

HORROCKS ENGINEERS
728 WEST 100 SOUTH #2
HEBER CITY, UTAH 84032
(435) 654-2226

DATE: FEBRUARY 2019
SCALE: N.T.S.

75 NORTH MAIN STREET
HEBER CITY, UTAH 84032
(435) 654-0757

HEBER CITY
HEART OF THE WASATCH BACK

HEBER CITY
STANDARD DRAWING

STREETS-4

3 SIDEWALK AND CURB & GUTTER DETAILS
NTS

HIGHLANDS RESIDENTIAL
DEVELOPMENT
HEBER CITY, UT
TIMPANOGOS CANAL DETAILS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: TIMANOGUS CANAL TRAIL.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22"x34". USE DIMENSIONS AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SATTAR N. TABRIZ
8/6/2024

SHEET
DT-03

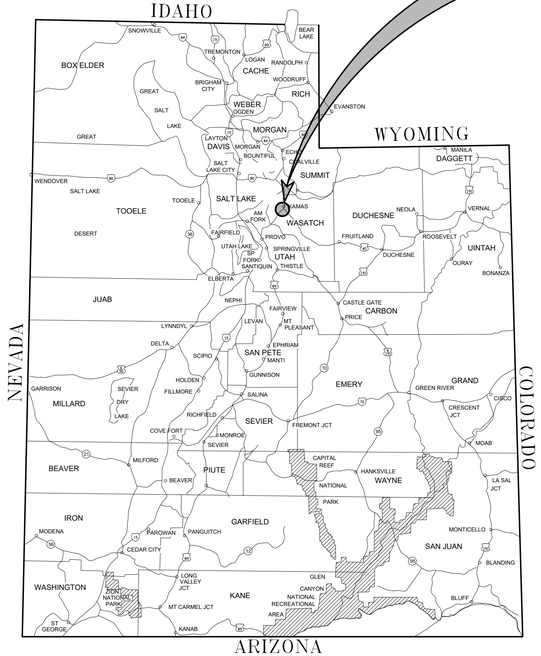
CALL BEFORE YOU DIG.
IT'S FREE &
IT'S THE LAW
(TOLL-FREE)
1-800-662-4111
208-2100
(BAY LANE AREAS)
UTAH LAW 54-8-4(2)
140 EAST 12300 SOUTH
PO BOX 901515
SANDY, UTAH 84070-1515

FILENAME: O:\Highlands\Residential\DR Horton\Design - Timpanogos Canal\TIMANOGUS CANAL TRAIL.dwg TAB: DT-03 Details PLOT DATE AND TIME: 8/6/2024 5:54 PM
V:\ENGR\Stds\Std Spec\Std Spec 2019\Dwg Files\STREETS-4.dwg - Sidewalk Curb - 2/06/2019 11:44am, rfunk

HIGHLANDS RESIDENTIAL DEVELOPMENT:
COMMONS BOULEVARD RECONSTRUCTION

LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19 AND THE WEST HALF OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
2632–2896 VICTORY HIGHWAY, HEBER CITY, UTAH 84032

PROJECT LOCATION



Sheet List Table	
Sheet Number	Sheet Title
Commons Boulevard Reconstruction	
CV-01	Commons Blvd Cover Sheet
NT-01	General Notes
NT-02	Symbols and Abbreviations
PL-01	Common Blvd Dedication Plat
PL-02	Common Blvd Dedication Plat
PL-03	Commons Blvd Access Right of Way & Utility Easement
EX-01	Commons Blvd Existing Conditions
DP-01	Commons Blvd Demolition Plan
SP-01A	Commons Blvd Site Plan
SP-01B	Commons Blvd Site & Striping Plan
TS-01	Commons Blvd Typical Sections
TS-02	Commons Blvd Typical Sections
TS-03	Commons Blvd Typical Sections
SS-01	Commons Blvd Signage Plan
SS-02	Commons Blvd Striping Plan
UT-01	Commons Blvd Utility Plan
SD-01	Commons Blvd Storm Drain
PP-01	Commons Blvd Plan & Profile- Entry
PP-02	Commons Blvd Plan & Profile- Entry
PP-03	Commons Blvd Plan & Profile- Entry
PP-04	Commons Blvd Plan & Profile- Entry
PP-05	Commons Blvd Plan & Profile- Commercial Road
PP-06	Commons Blvd Plan & Profile- Commercial Road
PP-07	Commons Blvd Plan & Profile- Apartments
PP-08	Commons Blvd Plan & Profile- Apartments
Commons Boulevard Reconstruction: Road Sections	
S-01	Grading Plan - Section Key Map
S-02	Commons Blvd Typical Road Sections- Entrance
S-03	Commons Blvd Typical Road Sections- Entrance
S-04	Commons Blvd Typical Road Sections- Entrance
S-05	Commons Blvd Typical Road Sections- Entrance
S-06	Commons Blvd Typical Road Sections- Entrance
S-07	Commons Blvd Typical Road Sections
S-08	Commons Blvd Typical Road Sections
S-09	Commons Blvd Typical Road Sections
S-10	Commons Blvd Typical Road Sections
S-11	Commons Blvd Typical Road Sections
S-12	Commons Blvd Typical Road Sections
S-13	Commons Blvd Typical Road Sections

PROJECT SITE



LOCATION MAP
N.T.S.

PRELIMINARY PLANS

DEVELOPER / BUILDER:
DR HORTON
12351 S GATEWAY PARK PLACE
DRAPER, UT 84020
(801) 571-7101

PLANS PREPARED BY:
WARD ENGINEERING GROUP
231 WEST 800 SOUTH SUITE A
SALT LAKE CITY, UTAH 84101
(801) 487-8040 PHONE
(801) 487-8668 FAX

CALL BEFORE YOU DIG.
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(TOLL FREE)
1-800-662-4111
208-2100
(SALT LAKE METRO)
140 EAST 12300 SOUTH
DRAPER, UTAH 84020-1517

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COMMONS BLVD COVER SHEET

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R HORTON
DWG: COVER SHEET COMMONS.DWG
JOB No: 3691-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF USE3 PRINT 22in x 34in !! (SEE SCALE) AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8169084
8/6/2024

SHEET
CV-01

FILENAME: O:\Highlands\Residential-DR Horton\Design - Commons Blvd\Cover Sheet Commons.dwg TAB: CV-01 Commons Blvd Cover Sheet PLOT DATE AND TIME: 8/6/2024 6:30 PM

CIVIL PROJECT NOTES

CONTRACTOR SHALL PERFORM ALL WORK TO THE STANDARD PLANS, SPECIFICATIONS, AND REQUIREMENTS OF:
WATER: NORTH VILLAGE SPECIAL SERVICE DISTRICT
SEWER: NORTH VILLAGE SPECIAL SERVICE DISTRICT
STORM WATER: HEBER CITY
POWER: ROCKY MOUNTAIN POWER
GAS: DOMINION ENERGY
COUNTY: WASATCH COUNTY

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL AND CURRENT APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, OSHA REQUIREMENTS, STANDARDS AND SPECIFICATIONS WHETHER OR NOT ANY SPECIFIC REFERENCE IS MADE TO SUCH IN THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE PROPERLY LICENSED IN THE STATE OF UTAH TO PERFORM ALL OF THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS. SUCH LICENSING SHALL REMAIN IN EFFECT CONTINUOUSLY THROUGHOUT THE ENTIRETY OF THIS PROJECT INCLUDING FROM TIME OF BID SUBMISSION THROUGH PROJECT COMPLETION AND WARRANTY PERIOD. THE CONTRACTOR SHALL CARRY APPROPRIATE INSURANCE, PERFORMANCE AND PAYMENT BONDS AS REQUIRED.
2. ALL WORK SHALL CONFORM TO THESE PLANS AND TO THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. IN THE EVENT THAT ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING, AND THE ENGINEER, AT HIS SOLE DISCRETION, SHALL DETERMINE WHICH REQUIREMENTS GOVERN. THE CONTRACTOR SHALL KEEP ONE RECORD COPY OF ALL SPECIFICATIONS, DRAWINGS, ADDENDA, MODIFICATIONS, AND SHOP DRAWINGS AT THE SITE IN GOOD ORDER AND ANNOTATED TO SHOW ALL CHANGES MADE DURING THE CONSTRUCTION PROCESS. THESE SHALL BE AVAILABLE TO THE ENGINEER AND SHALL BE DELIVERED TO HIM FOR THE OWNER UPON COMPLETION OF THE PROJECT.
3. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THE PLANS AND DOCUMENTS, PERFORM A SITE VISIT TO SATISFY HIMSELF AS TO THE SITE CONDITIONS, ATTEND ALL PRECONSTRUCTION AND CONSTRUCTION MEETINGS, AND THOROUGHLY SATISFY HIMSELF AS TO THE TRUE MEANING AND INTENTION OF THIS CONTRACT. THE CONTRACTOR SHALL BE COMPETENT AND EXPERIENCED TO PERFORM ALL WORK REQUIRED. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ENGINEER AND THEIR AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES INCLUDING ATTORNEY'S FEES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK, PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS OR EXPENSES IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF) INCLUDING THE LOSS OF USE RESULTING THERE FROM; AND IS CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT IT IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER. IN ANY AND ALL CLAIMS AGAINST THE OWNER OR THE ENGINEER OR ANY OF THEIR AGENTS OR EMPLOYEES BY ANY EMPLOYEE OF THE CONTRACTOR, AND SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, SAID INDEMNIFICATION OBLIGATION SHALL NOT BE LIMITED IN ANY WAY BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR ANY SUBCONTRACTOR UNDER WORKMEN'S COMPENSATION ACTS, DISABILITY BENEFIT ACTS OR OTHER EMPLOYEE BENEFIT ACTS.
5. THE CONTRACTOR WARRANTS AND GUARANTEES TO THE OWNER AND ENGINEER THAT ALL MATERIAL AND EQUIPMENT USED IN THE PERFORMANCE OF THIS WORK SHALL BE NEW UNLESS OTHERWISE SPECIFIED AND THAT ALL WORK SHALL BE OF GOOD QUALITY AND FREE FROM FAULTS OR DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. IF REQUIRED BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT. ALL MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND CONDITIONED IN ACCORDANCE WITH THE INSTRUCTIONS OF THE APPLICABLE MANUFACTURER, FABRICATOR OR PROCESSOR, EXCEPT AS OTHERWISE PROVIDED IN THE PLANS AND DOCUMENTS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, LICENSES AND FEES REQUIRED FOR THE PERFORMANCE AND COMPLETION OF THE WORK AND SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SAID PERMITS AND LICENSES. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SIGNAGE, BARRICADING AND TRAFFIC CONTROL IN CONFORMANCE TO THE MOST RECENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, LABOR, TRANSPORTATION, CONSTRUCTION EQUIPMENT AND MACHINERY, TOOLS, APPLIANCES, FUEL, POWER, LIGHT, HEAT, TELEPHONE, WATER, SANITARY FACILITIES, AND ALL OTHER FACILITIES AND INCIDENTALS NECESSARY FOR THE EXECUTION, TESTING, INITIAL OPERATION AND COMPLETION OF THE WORK.
7. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR PROVIDING DUST, MUD, AND EROSION CONTROL, AND PROPER DRAINAGE. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY HANDLE AND DISPOSE OF ALL CONSTRUCTION WATER. THE CONTRACTOR SHALL LIMIT TRAVEL ON THE PROJECT SITE TO ROADWAYS ONLY, EXCEPT WHERE CONSTRUCTION SPECIFICALLY REQUIRES TRAVEL ELSEWHERE. ANY DAMAGE CAUSED BY SUCH UNAUTHORIZED TRAVEL SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIAL, RUBBISH AND OTHER DEBRIS RESULTING FROM THE WORK. EQUIPMENT AND CONSTRUCTION MATERIALS, ETC., SHALL BE STORED ONSITE ONLY AT THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL WHEREON THEY ARE STORED. AT THE COMPLETION OF THE WORK, ALL WASTE MATERIALS, RUBBISH AND DEBRIS SHALL BE REMOVED FROM THE PREMISES AS WELL AS ALL TOOLS, CONSTRUCTION EQUIPMENT AND MACHINERY, AND SURPLUS MATERIALS. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION THOSE PORTIONS OF THE SITE NOT DESIGNATED FOR ALTERATION BY THE PLANS AND DOCUMENT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING ALL REQUIRED TESTING AND INSPECTIONS A MINIMUM OF 48 HOURS IN ADVANCE. NEITHER OBSERVATIONS BY THE ENGINEER NOR INSPECTIONS, TESTS OR APPROVALS BY PERSONS OTHER THAN THE CONTRACTOR SHALL RELIEVE THE CONTRACTOR FROM HIS OBLIGATIONS TO PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND DOCUMENTS
9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE CONDITIONS THROUGHOUT THE PROJECT, INCLUDING SUBSURFACE CONDITIONS AND UTILITY LOCATION. WARD ENGINEERING GROUP ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS. ANY EXISTING UTILITIES OR OTHER IMPROVEMENTS SHOWN ON THE PLANS HAVE BEEN DERIVED FROM FIELD INVESTIGATIONS AND/OR AVAILABLE RECORD INFORMATION. THE CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY LOCATIONS AND INVERT ELEVATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTING ANY NEW UTILITY. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM HIS OPERATIONS, WHETHER OR NOT SUCH FACILITIES ARE SHOWN IN THESE PLANS. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION. NO EXCAVATION OF ANY NATURE SHALL BE PERFORMED WITHOUT FIRST CONTACTING "BLUE STAKES" AT LEAST 48 HOURS PRIOR TO SUCH EXCAVATION.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ASSURE SOUND EXCAVATION AND GRADING PRACTICES. FOR ALL EXCAVATIONS EXCEEDING A DEPTH OF 4 FEET, THE CONTRACTOR SHALL PROVIDE APPROPRIATE SHORING, BRACING, SLOPING OR OTHER APPROPRIATE PROVISIONS AS SPECIFIED BY OSHA THAT ARE NECESSARY TO PROTECT THE SAFETY OF THOSE AT THE SITE. ALL OPEN TRENCHES MUST BE PROPERLY COVERED AT THE END OF WORK EACH DAY. HARD HATS SHALL BE WORN BY ALL PERSONS AT THE SITE. ALL SPECIFICATIONS, DRAWINGS AND COPIES THEREOF FURNISHED BY THE ENGINEER SHALL REMAIN HIS PROPERTY. THEY SHALL NOT BE USED ON ANOTHER PROJECT AND, WITH EXCEPTION OF THOSE SETS WHICH HAVE BEEN SIGNED IN CONNECTION WITH THE EXECUTION OF THE AGREEMENT, SHALL BE RETURNED TO THE ENGINEER UPON REQUEST AT COMPLETION OF THE PROJECT.
11. CONTRACTOR SHALL UTILIZE "BEST MANAGEMENT" PRACTICES FOR STORM WATER POLLUTION PREVENTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPMENT AND COMPLIANCE TO AN APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

CONSTRUCTION NOTES

GENERAL REQUIREMENTS
1. CONTRACTOR SHALL STERILIZE THE SUBGRADE BENEATH PROPOSED NEW PAVING AND WALKWAYS. CONTRACTOR SHALL SUBMIT MEANS AND METHODS FOR APPROVAL PRIOR TO IMPLEMENTATION.
2. ALL UTILITY PIPING SHALL HAVE WARNING TAPE INSTALLED 12" MIN. ABOVE AND ALONG THE ENTIRE LENGTH, INCLUDING SERVICE LATERAL. TAPE SHALL BE LABELED ACCORDING TO UTILITY.
3. THE OPEN ENDS OF ALL PIPELINES UNDER CONSTRUCTION SHALL BE COVERED AND EFFECTIVELY SEALED AT THE END OF EACH DAYS WORK.
4. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FIELD USING A 2" X 4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2" X 4" POST SHALL BE PAINTED USING GREEN PAINT FOR SEWER, BLUE PAINT FOR WATER, RED FOR POWER, YELLOW FOR GAS, AND ORANGE FOR COMMUNICATIONS. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE DIAGRAMMATIC ONLY, AND ALL UTILITIES MAY NOT BE SHOWN. THE CONTRACTOR SHALL CONTACT THE PROPER LOCAL AUTHORITIES OR UTILITY COMPANY TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE BEGINNING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
6. CAUTION & CARE SHOULD BE TAKEN DURING ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
7. EXCAVATION REQUIRED WITHIN CLOSE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE ONLY BY HAND. CONTRACTOR SHALL REPAIR AND REPLACE ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO OWNER.

CLEARING AND GRUBBING
1. REMOVE AND DISPOSE OF TREES, STUMPS, LOGS, LIMBS, STICKS, VEGETATION, DEBRIS, AND OTHER MATERIAL ON THE NATURAL GROUND SURFACE.
2. DISPOSE OF ALL MATERIAL OFF THE PROPERTY TO A FACILITY LICENSED TO ACCEPT THE MATERIAL TYPE.
3. CONTRACTOR SHALL REMOVE ALL TOP SOIL WITHIN THE AREA OF CONSTRUCTION. STOCKPILE OR REMOVE FROM SITE PER OWNER INSTRUCTIONS.
4. CONFORM TO PROJECT GEOTECHNICAL REPORT.

WATER IMPROVEMENT REQUIREMENTS
1. ALL WATER MAINS AND APPURTENANCES, SHALL BE DESIGNED, CONSTRUCTED, DISINFECTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH THIS PLAN, ALL APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF DRINKING WATER, AND THE LOCAL GOVERNING ENTITY.
2. ALL MATERIALS WHICH MAY CONTACT THE DRINKING WATER, INCLUDING PIPES, GASKETS, LUBRICANTS, AND O-RINGS SHALL BE ANSI CERTIFIED AS MEETING NSF STANDARD 61, DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS. TO PERMIT FIELD VERIFICATION OF THIS CERTIFICATION, ALL SUCH COMPONENTS SHALL BE APPROPRIATELY STAMPED WITH THE NSF LOGO.
3. ALL PIPES, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO NSF STANDARD 61 OR STANDARD 14, AND APPLICABLE SECTIONS OF ANSI/AWWA STANDARDS C104-A21.4-03 THROUGH C550-05 AND C900-07 THROUGH C950-07.
4. WATER MAINS SHALL BE PVC PIPE AND SHALL MEET ALL THE REQUIREMENTS FOR AWWA C900, PRESSURE CLASS 235, DR-18 PIPE, UNLESS CALLED OUT OTHERWISE. INSTALLATION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C605. DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651.
5. ALL BURIED DI (DUCTILE IRON) PIPES, VALVES AND FITTINGS SHALL BE POLY-WRAPPED AND THE NUTS GREASED IN ACCORDANCE WITH AWWA C105.
6. ALL WATER DI (DUCTILE IRON) PIPES, VALVES AND FITTINGS SHALL HAVE PORTLAND CEMENT MORTAR LINING, OR ENGINEER APPROVED EQUAL.
7. WATER LATERALS SHALL BE COPPER-TYPE K UP TO THE METER VAULTS UNLESS OTHERWISE INDICATED ON THE PLANS OR LOCAL AGENCY REQUIRES SOMETHING ELSE. INSTALLATION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA M55. DISINFECTION SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C651.
8. WATER MAINS AND LATERALS SHALL BE TESTED ACCORDING TO THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS; TO INCLUDE, PRESSURE TESTING AND DISINFECTION; AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL GOVERNMENT ENTITY, OSHA, AND THE UTAH DIVISION OF DRINKING WATER.
9. CONTRACTOR SHALL NOTIFY THE LOCAL GOVERNMENT ENTITY 48 HOURS IN ADVANCE OF MAKING ANY CONNECTIONS TO WATER LINES.
10. IF POOR SOILS WITH A BEARING CAPACITY OF LESS THAN 1,500 PSF ARE ENCOUNTERED WHERE A THRUST BLOCK IS REQUIRED, THEN THE THRUST BLOCK SHALL BE REDESIGNED BY THE ENGINEER. THE REDESIGNED THRUST BLOCK SHALL NOT BE PLACED UNTIL THE ENGINEER HAS APPROVED OF THE REDESIGN.
11. ANY PROPOSED CONNECTION TO EXISTING PIPELINES, OR ANY NON-FLANGED FITTING OR VALVE IS REQUIRED TO BE RESTRAINED OR THRUST BLOCKED.
12. ALL WATER LINES SHALL BE CONSTRUCTED TO A DEPTH SO AS TO MAINTAIN 48" MIN GROUND COVER. ALL SECONDARY WATER LINES SHALL BE CONSTRUCTED TO A DEPTH SO AS TO MAINTAIN 30" IN GROUND COVER.
13. PIPE BEDDING INSTALLATION AND BACKFILL SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. ALL BURIED WATER PIPELINES SHALL HAVE TRACER WIRE (12 GAUGE) DIRECTLY ABOVE PIPE WHICH SHALL BE TIED TO ALL VALVES REFER TO TRENCH DETAIL FOR COMPACTION DENSITY REQUIREMENTS.

SEWER IMPROVEMENT REQUIREMENTS
1. ALL SEWER MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND THE LOCAL GOVERNING ENTITY.
2. ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY SHALL COMPLY WITH REQUIREMENTS ESTABLISHED BY THE LOCAL GOVERNMENT ENTITY.
3. ANY FLUSHING INTO THE EXISTING SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
4. GRAVITY SEWER MAINS AND LATERALS SHALL BE PVC, SDR 35 PIPE WITH INTEGRAL BELL AND SPIGOT, AND GASKETED JOINTS.
5. SEWER FORCE MAINS SHALL BE PE (POLYETHYLENE) PIPE AND SHALL MEET THE REQUIREMENTS FOR AWWA C906/ PE3408, MINIMUM PRESSURE CLASS 150 (DR-11 MINIMUM). INSTALLATION SHALL BE PER ASTM D 2321 AND ASTM F 1668.
6. GRAVITY SEWER MAINS AND LATERALS SHALL BE TESTED ACCORDING TO LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS. TO INCLUDE, ALIGNMENT AND GRADE TESTING, OBSTRUCTIONS AND DEFLECTION TESTING, INFILTRATION TESTING OR GRAVITY PIPELINES, PRESSURE TESTING FOR PRESSURE PIPELINES, AND VIDEO INSPECTION . DEFLECTION TESTING SHALL BE PERFORMED NO SOONER THAN 30 DAYS AFTER THE FINAL BACKFILL HAS BEEN PLACED. TESTING SHALL BE PERFORMED USING A MANDREL WITH A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE.
7. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FILED USING A 2"X4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2"X4" POST SHALL BE PAINTED USING GREEN PAINT. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE. NO LATERALS SHALL BE DIRECTLY CONNECTED TO MANHOLES.
8. FOLLOWING PLACEMENT OF ASPHALT, ALL SEWER LINES SHALL BE FLUSHED, AND CLEANED, AND ALL MANHOLES LIDS ADJUSTED TO 3/8 INCH BELOW FINISHED GRADE AND IN ACCORDANCE WITH THE REQUIREMENTS HEREIN.

STORM DRAINAGE IMPROVEMENTS
1. ALL STORM DRAIN MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND SL COUNTY FLOOD CONTROL.
2. ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY SHALL COMPLY WITH LOCAL GOVERNMENT ENTITY.
3. ANY FLUSHING INTO THE EXISTING SANITARY SEWER SYSTEM IS STRICTLY PROHIBITED.
4. GRAVITY STORM DRAIN LINES WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE RE-INFORCED CONCRETE PIPE (RCP) WITH INTEGRAL BELL AND SPIGOT, AND GASKETS JOINTS. ALL TEMPORARY CULVERT ARE TO BE ADS-N12 HDPE PIPE.
5. GRAVITY STORM DRAIN LINES SHALL BE TESTED ACCORDING TO THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS. TO INCLUDE, ALIGNMENT AND GRADE TESTING, OBSTRUCTIONS AND DEFLECTION TESTING, INFILTRATION TESTING OR GRAVITY PIPELINES, PRESSURE TESTING FOR PRESSURE PIPELINES, AND VIDEO INSPECTION. DEFLECTION TESTING SHALL BE PERFORMED NO SOONER THAN 30 DAYS AFTER THE FINAL BACKFILL HAS BEEN PLACED. TESTING SHALL BE PERFORMED USING A MANDREL WITH A DIAMETER EQUAL TO 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE.
6. FOLLOWING PLACEMENT OF ASPHALT, ALL STORM LINES SHALL BE FLUSHED, AND CLEANED, AND ALL MANHOLES LIDS ADJUSTED TO 3/8 INCH BELOW FINISHED GRADE AND IN ACCORDANCE WITH THE REQUIREMENTS HEREIN.
7. THE OWNER RESERVES THE RIGHT TO TELEVISE, AT THEIR EXPENSE, ANY OR ALL PORTIONS OF THIS WORK PRIOR TO PLACING SUCH FACILITIES IN SERVICE, AND THE CONTRACTOR SHALL GIVE THE OWNER SUFFICIENT ADVANCE NOTICE OF THEIR INTENT TO PLACE THESE FACILITIES IN SERVICE AS WILL ALLOW THE OWNER TO SCHEDULE SUCH FILLING

GRADING NOTES
1. THE CONTRACTOR SHALL BECOME FAMILIARIZED WITH THE RECOMMENDATIONS LISTED IN THE SOILS REPORT FOR THIS PROJECT. PREPARED BY GSH GEOTECHNICAL, INC, DATED SEPTEMBER 21, 2016, SURFACE DRAINAGE TO BE ONE (1%) PERCENT MINIMUM TO APPROVED DRAINAGE FACILITIES, EXCEPT AS WAIVED BY THE BUILDING OFFICIAL, OR DIRECTED BY THE ENGINEER.
2. ALL FILL EXCEPT THAT UNDERNEATH PAVED SURFACES, WITHIN ROAD RIGHT OF WAY OR UNDERNEATH BUILDING SLABS, SIDEWALKS & FOOTINGS, SHALL BE COMPACTED TO A MINIMUM OF EIGHTY-FIVE (85%) PERCENT MAXIMUM DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 1557 AND CERTIFIED BY TESTS AND REPORTS FROM SOILS ENGINEER.
3. ALL FILL UNDERNEATH PATHWAYS AND CONCRETE SHALL BE CLASSIFICATION A/1-A THROUGH A/4 AS DEFINED BY ASHTO M 145 AND COMPACTED TO A MINIMUM OF NINETY-FIVE (95%) PERCENT MAXIMUM DRY DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS SPECIFIED BY ASTM D 1557. FOR ALL FILL UNDERNEATH BUILDING SLABS AND FOOTINGS, REFER TO STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
4. FILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING SIX (6) INCHES IN COMPACTED THICKNESS AND COMPACTED AT OPTIMUM MOISTURE CONTENT TO THE REQUIRED MAXIMUM DRY DENSITY.
5. ALL FILL AREAS TO BE CLEARED OF ALL VEGETATION AND OTHER UNSUITABLE MATERIALS AND THE AREA SCARIFIED TO A DEPTH OF SIX (6) INCHES, OR TO A DEPTH TO REMOVE TOP SOIL, REFER TO GEOTECHNICAL REPORT.
6. CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ORGANIC MATERIALS FROM STRUCTURALLY LOADED EMBANKMENTS AND BUILD FOOTPRINT LOCATION ACCORDING TO THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.

CONCRETE NOTES
1. ALL CONCRETE WORK SHALL BE NORMAL WEIGHT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST 4,000 PSI WITHIN 28 DAYS AFTER POURING. THE WATER CEMENT RATIO SHALL BE NO GREATER THAN 0.45 AND SLUMP SHALL BE 3.5" OR LESS. MINIMUM CEMENT CONTENT SHALL BE 6.5 SACKS PER CUBIC YARD. PROVIDE 5.5%-7.5% AIR ENTRAINMENT FOR CONCRETE OF THIS CLASS USED IN SLABS AND WALLS, PER REQUIREMENT LISTED IN THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS.
2. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION JOINTS SHALL BE KEYED WITH A KEY 1-1/2 IN. DEEP, A LENGTH 2 IN. LESS THAN THE MEMBER, AND A WIDTH 1/2 OF THE MEMBER. REINFORCING SHALL BE CONTINUOUS THROUGH THE JOINT.
3. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THE PROJECT AND APWA SPECIFICATIONS (03 30 10)
4. BEFORE CONCRETE IS POURED CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATIVE TO WORK.
5. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND FORMWORK.
6. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENT, CLIPS AND GROUNDS REQUIRED TO BE ENCASED IN CONCRETE SLAB AND SLAB FINISHES, COLOR, PATTERNS, AND DEPRESSIONS
7. REFER TO SLAB JOINT LAYOUT PLAN FOR CONTROL AND CONSTRUCTION JOINT LOCATIONS.
8. CONCRETE TESTING SHALL BE PER PROJECT SPECIFICATIONS AND APWA 03 30 05. TESTING SHALL COMPRISE OF TEMPERATURE, AIR, SLUMP AND STRENGTH TESTING. THE FOLLOWING TABLE SUMMARIZES REQUIRED TESTING FREQUENCY:

Rate of Placement (cy/day)	Temperature	Air	Slump	Strength
0-8	1	1	1	1
0-50	1	1	1	1
Each additional 50 cy or fraction thereof	1	1	1	1

CONCRETE REINFORCEMENT NOTES
1. ALL METAL REINFORCEMENT SHALL BE DEFORMED TYPE BARS (EXCEPT #2 BARS) AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS ASTM A615 GRADE 60.
2. ALL SPLICES IN CONTINUOUS CONCRETE REINFORCING BARS SHALL LAP 36 BAR DIAMETER OR PER THE LATEST EDITION OF ACI 318. ALL SUCH SPLICES SHALL BE MADE IN A REGION OF COMPRESSION UNLESS OTHERWISE SHOWN. ALL CONTINUOUS REINFORCEMENT SHALL TERMINATE WITH A 90° TURN OR A SEPARATE CORNER BAR.
3. ALL REINFORCEMENT BARS SHALL BE SECURELY ANCHORED AND HELD IN PLACE AND SHALL BE SPACED FROM ADJACENT SURFACES (UNLESS SHOWN OTHERWISE) AS FOLLOWS:
   A. FORMED SURFACES IN CONTACT WITH THE GROUND OR EXPOSED TO WEATHER, AND SLABS ON GRADE - 2 IN.
   B. UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH (BOTTOM AND SIDES OF FOOTINGS) -3 IN.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND SHALL HAVE A MINIMUM SIDE LAP OF 8 IN.
5. ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF ACI DETAILING MANUAL 315-77 AND ACI STANDARD 318.

ASPHALT NOTES
1. ALL ASPHALT SHALL BE PLACED AS DIRECTED BY THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATION.
2. BASE COURSE SHALL BE COMPACTED TO NOTHING LESS THAN 95% MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180.
3. SURFACES SHALL BE TRUE TO THE ESTABLISHED GRADE WITH A THICKNESS BEING NO LESS THAN ONE-FOURTH INCH FROM THE REQUIRED LAYER THICKNESS AND WITH THE SURFACE ELEVATION VARYING NO MORE THAN THREE-EIGHTHS INCH IN TEN FEET FROM THE TRUE PROFILE AND CROSS-SECTION.
4. THE SURFACE COURSE SHALL CONSIST OF A MINERAL AGGREGATE AND BINDER AS DIRECTED BY THE LOCAL GOVERNMENT ENTITY STANDARDS AND SPECIFICATIONS.
5. THE CONTRACTOR SHALL ESTABLISH A MIX GRADATION AND THE AMOUNT OF BITUMINOUS MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER AND SHALL MEET THE REQUIREMENTS OF THE GRADATION SELECTED.
6. THE BITUMINOUS MATERIAL FOR THE SURFACE COURSE REFER TO LOCAL GOVERNMENT ENTITY CONFORMING TO THE REQUIREMENTS OF AASHTO M-226.
7. REGARDLESS OF BITUMINOUS CONTENT AND THERE SHALL NOT BE MORE THAN THREE PERCENT VOIDS IN THE AGGREGATE.
8. THE CONTRACTOR SHALL NOT INSTALL BITUMINOUS SEAL COAT UNLESS THE AIR TEMPERATURE IS 70 DEGREES FAHRENHEIT OR HIGHER. SEAL COAT IS NOT TO BE PLACED WITHIN TEN CALENDAR DAYS OF THE PLACEMENT OF NEW SURFACE COURSE. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LOCAL GOVERNMENT ENTITY STANDARD SPECIFICATIONS.
9. THE CONTRACTOR SHALL ENSURE THAT ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LOCAL GOVERNMENT ENTITY STANDARD SPECIFICATIONS.
10. NO BITUMINOUS SURFACE COURSE SHALL BE PLACED WHEN THE TEMPERATURE OF THE AIR OR ROAD BED IS 50 DEGREES FAHRENHEIT OR BELOW, DURING RAINY WEATHER, WHEN THE BASE IS WET OR DURING OTHER UNFAVORABLE WEATHER CONDITIONS AS APPROVED BY THE CITY ENGINEER. AIR TEMPERATURE IS TO BE MEASURED IN THE SHADE.
11. SEAL COATS SHALL BE APPLIED ONLY BETWEEN JUNE 01 AND SEPTEMBER 15.

APPLICABLE CODES AS ADOPTED BY THE LOCAL GOVERNEMT ENTITY

IBC (INTERNATIONAL BUILDING CODE)
IRC (INTERNATIONAL RESIDENTIAL CODE)
IWUIC (INTERNATIONAL WILDLAND-URBAN INTERFACE CODE)
NFPA

CIVIL PROJECT NOTES

LINE TYPES

- BOUNDARY LINE
- PROPERTY LINE
- SECTION LINE
- RIGHT OF WAY
- CENTER LINE
- 8 W — PROPOSED WATER MAIN (SIZED AS INDICATED)
- 18 SD — PROPOSED STORM DRAIN (SIZED AS INDICATED)
- 8 SS — PROPOSED SANITARY SEWER (SIZED AS INDICATED)
- 8 IRR — PROPOSED IRRIGATION (SIZED AS INDICATED)
- COMM — PROPOSED COMMUNICATION/TELEPHONE LINE
- PROPOSED GAS LINE
- PROPOSED BURIED ELECTRICAL
- X — X — X — PROPOSED WIRE/BARBED FENCE
- EASEMENT
- OHP — OVERHEAD POWER LINE
- OPEN DITCH, CANAL FLOW LINE
- PROPERTY SET BACKS
- EXISTING RAILROAD TRACKS
- EXISTING EDGE OF PAVEMENT
- Ex W — EXISTING WATER MAIN (SIZED AS INDICATED)
- Ex 18 SD — EXISTING STORM DRAIN (SIZED AS INDICATED)
- Ex 8 SS — EXISTING SANITARY SEWER (SIZED AS INDICATED)
- Ex 8 IRR — EXISTING IRRIGATION (SIZED AS INDICATED)
- X — X — X — EXISTING FENCE CHAIN LINK
- Ex GAS — EXISTING GAS LINE
- Ex COMM — EXISTING COMMUNICATION LINE
- Ex ELEC — EXISTING ELECTRICAL LINE

NOTE: ALL SYMBOLS, LINETYPES AND/OR ABBREVIATIONS MAY NOT BE SHOWN.

EXISTING SYMBOLS

- SECTION MONUMENT NOT FOUND
- EXISTING TREE/VEGATION
- EXISTING MONUMENT FOUND – NOTED
- EXISTING TRAFFIC SIGNAL BOX
- EXISTING MONUMENT FOUND – NOTED
- EXISTING BOLLARD
- EXISTING POWER POLE
- EXISTING GAS METER
- EXISTING SIGN
- EXISTING TELE J–BOX
- EXISTING STREET LIGHT
- TRFMR — EXISTING ELECTRIC TRANSFORMER
- EXISTING FIRE HYDRANT ASSEMBLY
- WV — EXISTING WATER VALVE
- WM — EXISTING WATER METER
- EXISTING WATER VALVE–BUTTERFLY
- CM D S W — EXISTING MANHOLES BY TYPE
- EXISTING CATCH BASIN
- EXISTING COMBINATION BOX

PROPOSED SYMBOLS

- SECTION MONUMENT FOUND
- SEWER FLOW ARROW
- MONUMENT – NOTED
- 7 — SEWER MANHOLE NUMBER
- PROPERTY CORNERS
- S — SEWER SERVICE LATERAL
- UTILITY POLE
- CATCH BASIN
- SIGN
- COMBINATION BOX
- 7 — STORM DRAIN MANHOLE NUMBER
- STREET LIGHT
- ROAD DRAINAGE ARROW
- FIRE HYDRANT ASSEMBLY
- WV — WATER VALVE
- WM — WATER METER
- I — IRRIGATION SERVICE LATERAL
- WATER VALVE BUTTERFLY
- AIR VAC
- W — WATER SERVICE LATERAL
- S D — PROPOSED MANHOLE

ABBREVIATIONS

ABUT.	= ABUTMENT
AGG.	= AGGREGATE
APPROX.	= APPROXIMATE
A.S.	= AS SHOWN
AUX.	= AUXILIARY
AVG.	= AVERAGE
BCR	= BEGIN OF CURB RETURN
BOW	= BACK OF WALK
BRG.	= BEARING
℄/C.L.	= CONTROL LINE/CENTER LINE
CATV	= CABLE TELEVISION
CI	= CAST IRON
CLR.	= CLEAR/CLEARANCE
CMP	= CORRUGATED METAL PIPE
COL	= COLUMN
CONC.	= CONCRETE
CONN	= CONNECTION
CONST.	= CONSTRUCTION
CONT.	= CONTINUOUS
COR.	= CORNER
CP	= CONTROL POINT
C.F.	= CUBIC FEET
DI	= DUCTILE IRON
DIA./Ø	= DIAMETER
DIP	= DUCTILE IRON PIPE
DIM.	= DIMENSION
DR	= DIMENSION RATIO
DWG.	= DRAWING
E	= EAST
EA	= EACH
ECR	= END OF CURB RETURN
EG	= EXISTING GRADE
EL./ELEV.	= ELEVATION
ELEC	= ELECTRIC
EO	= EDGE OF OIL
EST.	= ESTIMATED
EXIST	= EXISTING
F.F.	= FINISHED FLOOR
F.G.	= FINISHED GRADE
FL/FL	= FLOW LINE
FT.	= FEET
FLG.	= FLANGE
GA.	= GAUGE
G	= GALLON
GALV.	= GALVANIZED
GMH	= GAS MANHOLE
GV	= GAS VALVE
HA	= HECTARE
HDPE	= HIGH DENSITY POLYETHYLENE
HGL	= HYDRAULIC GRADE LINE
HMA	= HOT MIX ASPHALT
HORIZ.	= HORIZONTAL
HP	= HIGH PRESSURE/HIGH POINT
HWY	= HIGHWAY
I.D.	= INSIDE DIAMETER
INCL.	= INCLUDES
INT	= INTERSECTION
INV	= INVERT
IRRIG	= IRRIGATION
L	= LENGTH
LIN. FT.	= LINEAR FEET
LOC	= LIP OF CURB
LOC.	= LOCATION
LP	= LIGHT POLE/LOW POINT
LT	= LEFT
M.J.	= MECHANICAL JOINT FITTING
MISC.	= MISCELLANEOUS
MPa	= MEGAPASCAL
MAX.	= MAXIMUM
MG	= MEGAGRAM
MH	= MANHOLE
MIN.	= MINIMUM
N/NO.	= NORTH
NO./#	= NUMBER
N.T.S.	= NOT TO SCALE
O.C.	= ON CENTER
O.D.	= OUTER DIAMETER
OHP	= OVER HEAD POWER
PC	= POINT OF CURVATURE
PED	= PEDESTRIAN
PI/P.I.	= POINT OF INTERSECTION
PIP	= PLASTIC IRRIGATION PIPE
PL	= PROPERTY LINE
POC	= POINT ON CURVE
PP	= POWER POLE
PT	= POINT
PT	= POINT OF TANGENCY
PVC	= POLYVINYL CHLORIDE PLASTIC
PVC	= POINT OF VERTICAL CURVATURE
PVT	= POINT OF VERTICAL TANGENCY
PVI	= POINT OF VERTICAL INTERSECTION
PVMNT	= PAVEMENT
PVRC	= POINT OF VERTICAL REVERSE CURVE
R/RAD.	= RADIUS
R/C	= REBAR AND CAP
Rd.	= ROAD
RCP	= REINFORCED CONCRETE PIPE
R/W	= RIGHT OF WAY
REINF.	= REINFORCING
REQ'D	= REQUIRED
RET.	= RETAINING
R.P.	= REFERENCE POST
RT	= RIGHT
S	= SLOPE
S/SO.	= SOUTH
SCH	= SCHEDULE
SD	= STORM DRAIN
SDMH	= STORM DRAIN MANHOLE
SDR	= STANDARD DIMENSION RATIO
SDWLK	= SIDEWALK
SECT./SEC	= SECTION
SHLD	= SHOULDER
SHT	= SHEET
SPA.	= SPACING/SPACES
SQ.	= SQUARE
STA.	= STATION
STD.	= STANDARD
STD.	= STANDARD DRAWING
STR.	= STRUCTURE
SS	= SANITARY SEWER
SSMH	= SANITARY SEWER MANHOLE
T	= TANGENT DISTANCE
T.B.	= THRUST BLOCK
TBC	= TOP BACK OF CURB
TBW	= TOP BACK OF WALK
TEL	= TELEPHONE
TEMP	= TEMPORARY
TMH	= TELEPHONE MANHOLE
TOW	= TOP OF WALL
TYP.	= TYPICAL
UG	= UNDERGROUND
UTIL.	= UTILITY
VC	= VERTICAL CURVE
VERT.	= VERTICAL
W	= WEST
W/	= WITH
WC	= WITNESS CORNER
WMH	= WATER MANHOLE
WV	= WATER VALVE
YD^2/YD2	= SQUARE YARD
YD^3/YD3	= CUBIC YARD
YD.	= YARD
YR	= YEAR

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NT-02

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FUTURE HIGHLANDS COMMERCIAL TOWN CENTER

WASATCH CANAL

COMMONS BLVD

EXISTING ACCESS ROAD

COMMONS BLVD

MULTIPLE COMM LINES AND FENCE LINE

US-40

FUTURE HIGHLANDS COMMERCIAL TOWN CENTER

EXISTING WASATCH COMMONS APARTMENTS

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FUTURE HIGHLANDS COMMERCIAL TOWN CENTER

FUTURE HIGHLANDS COMMERCIAL TOWN CENTER

COMMONS ENTRY

COMMONS BLVD

WASATCH CANAL

MULTIPLE COMM LINES AND FENCE LINE

SR-189

FUTURE HIGHLANDS COMMERCIAL TOWN CENTER

WASATCH COMMONS APARTMENTS

MATCH LINE 16+55
SEE HIGHLANDS RESIDENTIAL PRELIMINARY SUBDIVISION PLANS

DEMOLITION SCHEDULE

KEYNOTE	DESCRIPTION	QUANTITY	
1	8" SDR-35 PVC SS PIPE	309	LF
2	5' SSMH	1	EACH
3	SD Catch Basin	11	EACH
4	36" RCP SD PIPE	1,000	LF
5	5' SDMH	7	EACH
6	ASPHALT CONCRETE	59,896	SQ-FT
7	5' WIDE CONCRETE SIDEWALK	9,040	SQ-FT
8	CONCRETE CURB AND GUTTER	2,562	LF
9	LANDSCAPE AREA IN ISLAND	6,324	SQ-FT
10	POWER POLES	2	EACH
11	REMOVE OR RELOCATE HYDRANT	5	EACH
12	REMOVE & RELOCATE EXISTING PRESSURE REDUCING VALVE & VAULTS	2	EACH

N

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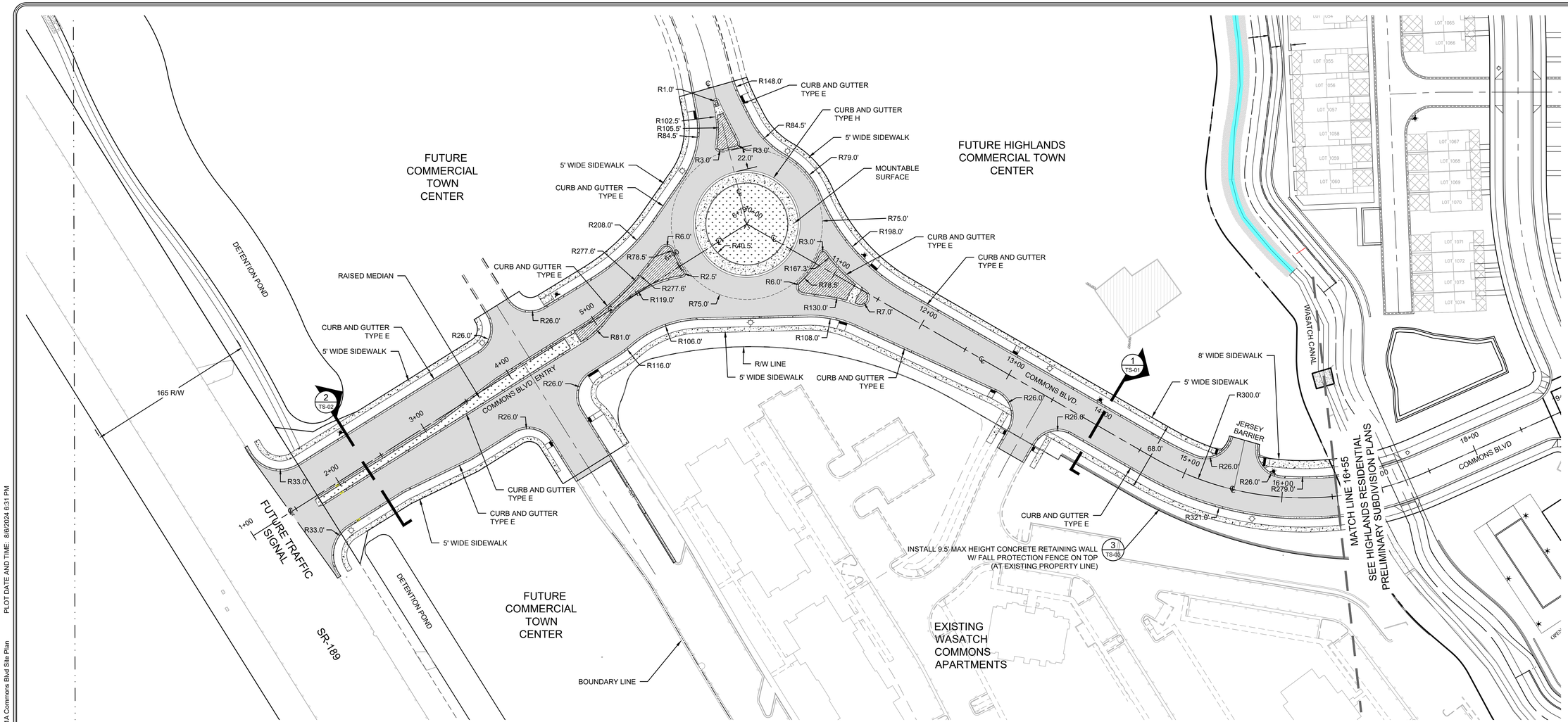
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PROFESSIONAL ENGINEER
8/6/2024

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LEGEND

- PROPOSED ASPHALT
- PROPOSED CONCRETE
- PROPOSED HARD SURFACE
- PROPOSED LANDSCAPE
- EXISTING RIGHT OF WAY

N

50 0 50 100 150

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FUTURE COMMERCIAL TOWN CENTER

FUTURE HIGHLANDS COMMERCIAL TOWN CENTER

DETENTION POND

SR-189

FUTURE COMMERCIAL TOWN CENTER

EXISTING WASATCH COMMONS APARTMENTS

WASATCH CANAL

R/W LINE

COMMONS BLVD. ENTRY

COMMONS BLVD.

1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

MATCH LINE 16+55
SEE HIGHLANDS RESIDENTIAL PRELIMINARY SUBDIVISION PLANS

LEGEND

- PROPOSED ASPHALT
- PROPOSED CONCRETE
- PROPOSED HARD SURFACE
- PROPOSED LANDSCAPE
- EXISTING RIGHT OF WAY

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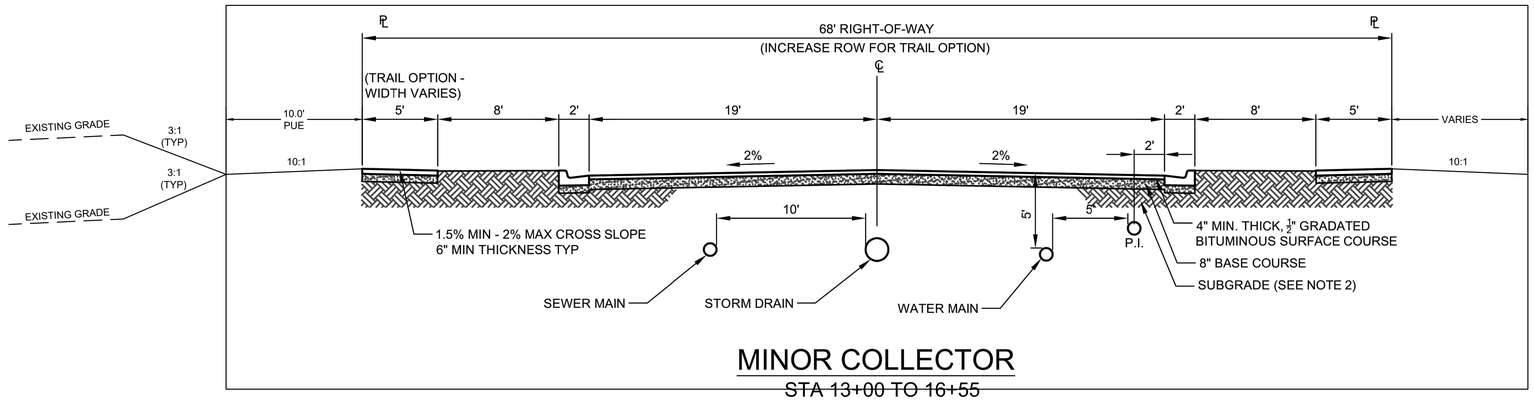
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PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
SP-01B

FILENAME: O:\Highlands\Residential-DR Horton\Design - Commons Blvd\Site Plan.dwg TAB: SP-01B Commons Blvd Site Plan PLOT DATE AND TIME: 8/6/2024 6:31 PM



MINOR COLLECTOR

~~STA 13+00 TO 16+55~~

NOTES FOR COLLECTOR STREETS:

1. MAJOR COLLECTOR ROADS INCLUDE EITHER LANDSCAPED MEDIANS OR CENTER TURN LANES. RESIDENTIAL DRIVEWAYS ARE PROHIBITED. LANDSCAPED MEDIANS ASSUME NO PARKING. ASPHALT WIDTHS MAY BE REDUCED TO 48' WITH PARKING OR 38' WITHOUT PARKING WHEN LANDSCAPED MEDIANS ARE OMITTED.
2. SUBGRADE SHALL BE A-1 GRANULAR MATERIAL PER SECTION 02225.
3. COMMERCIAL SIDEWALK TO BE FIVE FEET WIDE MINIMUM.
4. MAXIMUM ROAD GRADE IS 8% WITHOUT CITY ENGINEER'S APPROVAL.
5. PARK STRIPS TO BE FILLED TO WITHIN ONE INCH OF T.B.C. AND TOP OF SIDEWALK.
6. WHERE HEBER CITY APPROVES INSTALLING A TRAIL OR SIDEWALK ON ONLY ONE SIDE, THE FULL RIGHT-OF-WAY DEDICATION IS STILL REQUIRED TO ALLOW FOR FUTURE INSTALLATION OF SIDEWALK.
7. TRAIL AND SIDEWALK OPTIONS ARE DETERMINED BY HEBER CITY ACCORDING TO THE CURRENT TRAILS MASTER PLAN.

1 Typical Minor Collector Road (Heber City)
NTS

HEBER CITY
STANDARD DRAWING
STREETS-2A

DATE: JUNE 2020
SCALE: N.T.S.

75 NORTH MAIN STREET
HEBER CITY, UTAH 84032
(435) 654-0757

HEBER CITY
HEART OF THE WASATCH BACK

CALL BEFORE YOU DIG.
IT'S FREE &
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(TOLL-FREE)
1-800-662-4111
OR
208-2100
(SALT LAKE METRO)
UTAH LAW 13000 350TH
PO BOX 587
PAYSON, UTAH 84600-1517

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COMMONS BLVD TYPICAL SECTIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801. 487. 8040

CLIENT: D.R.HORTON
DWG: ROADWAY SECTIONS.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22"x 34" THEREFORE AND NOTES MAY PRECEDENCE

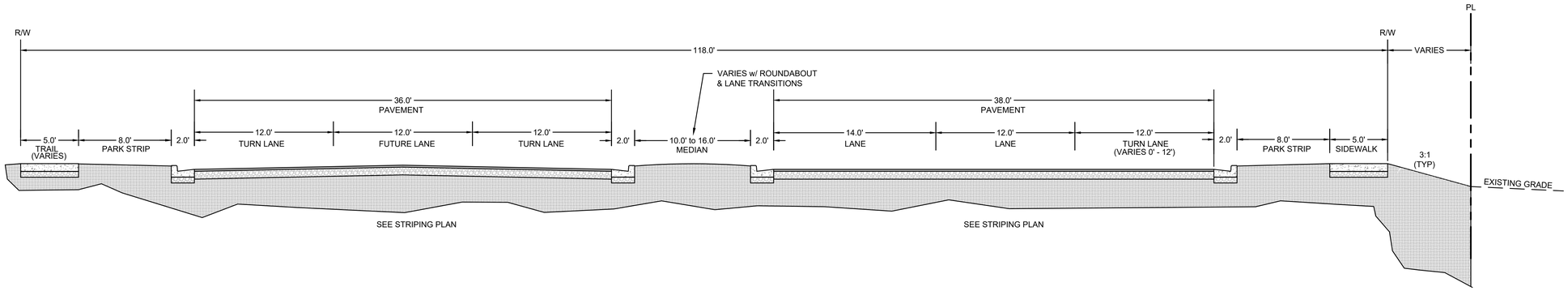
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DESIGN BY: WARD
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DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8/6/2024

SHEET
TS-01

PLOT DATE AND TIME: 8/6/2024 6:32 PM
TAB : TS-01 Commons Blvd Typical Sections
FILENAME: O:\Highlands\residential-dr horton\design - commons blvd\Roadway Sections.dwg



2 Commons BLVD. @ Entry Intersection Sta 0+00 to 6+00
NTS

FILENAME: O:\Highlands\residential-dr horton\design - commons blvd\Roadway Sections.dwg TAB: TS-02 Commons Blvd Typical Sections PLOT DATE AND TIME: 8/6/2024 6:32 PM

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208-2100
(SALT LAKE METRO)
UNDERGROUND UTILITY PROTECTION CENTER
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Sandy, Utah 84070-1917

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COMMONS BLVD TYPICAL SECTIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: ROADWAY SECTIONS.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 IN'S. USE DIMENSIONS AND NOTES TAKE PRECEDENCE

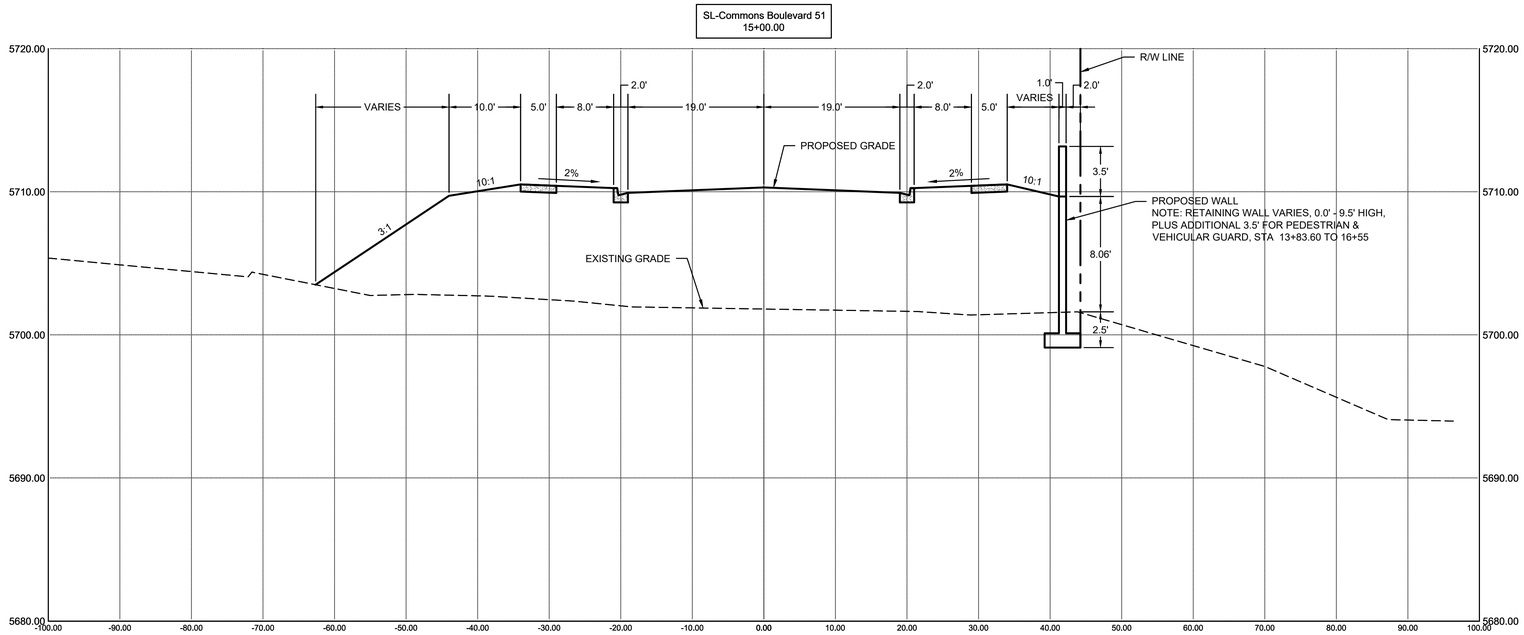
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DATE: 07/29/2024

REVISIONS

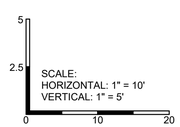
1	07/30/2024	GRADING REVISION

PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8/6/2024

SHEET
TS-02



3 DETAILED SECTION
NTS



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BLUE STAKES OF UTAH
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PROVO, UTAH 84603-1027

FILENAME: O:\Highlands\Residential-DR Horton\Design - Commons Blvd\Roadway Sections.dwg TAB: TS-03 Commons Blvd Typical Sections PLOT DATE AND TIME: 8/6/2024 6:32 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COMMONS BLVD TYPICAL SECTIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: ROADWAY SECTIONS.DWG
JOB No: 3891-DRH01-23
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1 07/30/2024 GRADING REVISION

UTAH LICENSED PROFESSIONAL ENGINEER
ARSHAD SATTAR N. TABRIZ
8/6/2024

SHEET
TS-03

FILENAME: O:\Highlands\residential-dr horton\Design - Residential\Striping Plan.dwg TAB: SS-01 Commons Blvd Signage Plan PLOT DATE AND TIME: 8/6/2024 6:32 PM

ROUNDABOUT DIRECTIONAL & SPEED LIMIT SIGN
APPROXIMATELY 250 ft AHEAD OF THE CROSSWALK
YIELD SIGN R1-2
DIRECTIONAL STREET SIGN
YIELD SIGN R1-2
ONE WAY SIGN R6-2R
YIELD SIGN R1-2
R/W LINE
R/W LINE
YIELD SIGN R1-2
YIELD SIGN R1-2
ONE WAY SIGN R6-2R
DIRECTIONAL STREET SIGN
ONE WAY
SIGN R6-4a
YIELD SIGN R1-2
ONE WAY SIGN R6-2R
YIELD SIGN R1-2
ROUNDABOUT DIRECTIONAL & SPEED LIMIT SIGN
APPROXIMATELY 250 ft AHEAD OF THE CROSSWALK
NO LEFT TURN
MUTCD R3-2
R/W LINE
R75.0'
DIRECTIONAL
STREET SIGN
YIELD SIGN R1-2
R/W LINE
R/W LINE
R/W LINE
YIELD SIGN R1-2
NO LEFT TURN
MUTCD R3-2
R/W LINE
R/W LINE
COMMONS BLVD
COMMONS BLVD
R/W LINE
N 89°51'22" E
211.43'
10.0'
BEGIN RIGHT
TURN LANE
MUTCD R3-20R
R/W LINE
SR-189
MATCH LINE 16+55
SEE HIGHLANDS RESIDENTIAL
PRELIMINARY SUBDIVISION PLANS
CS1
LS8
CS5
N
50 0 50 100 150
Scale 1" = 50'

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(SALT LAKE METRO)
140 EAST 10000 SOUTH
SANDY, UTAH 84070-1917

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COMMONS BLVD SIGNAGE PLAN

CLIENT: D.R.HORTON
DWG: STRIPING PLAN.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22 IN X 34IN - DIMENSIONS ARE NOTED TAKE PRECEDENCE

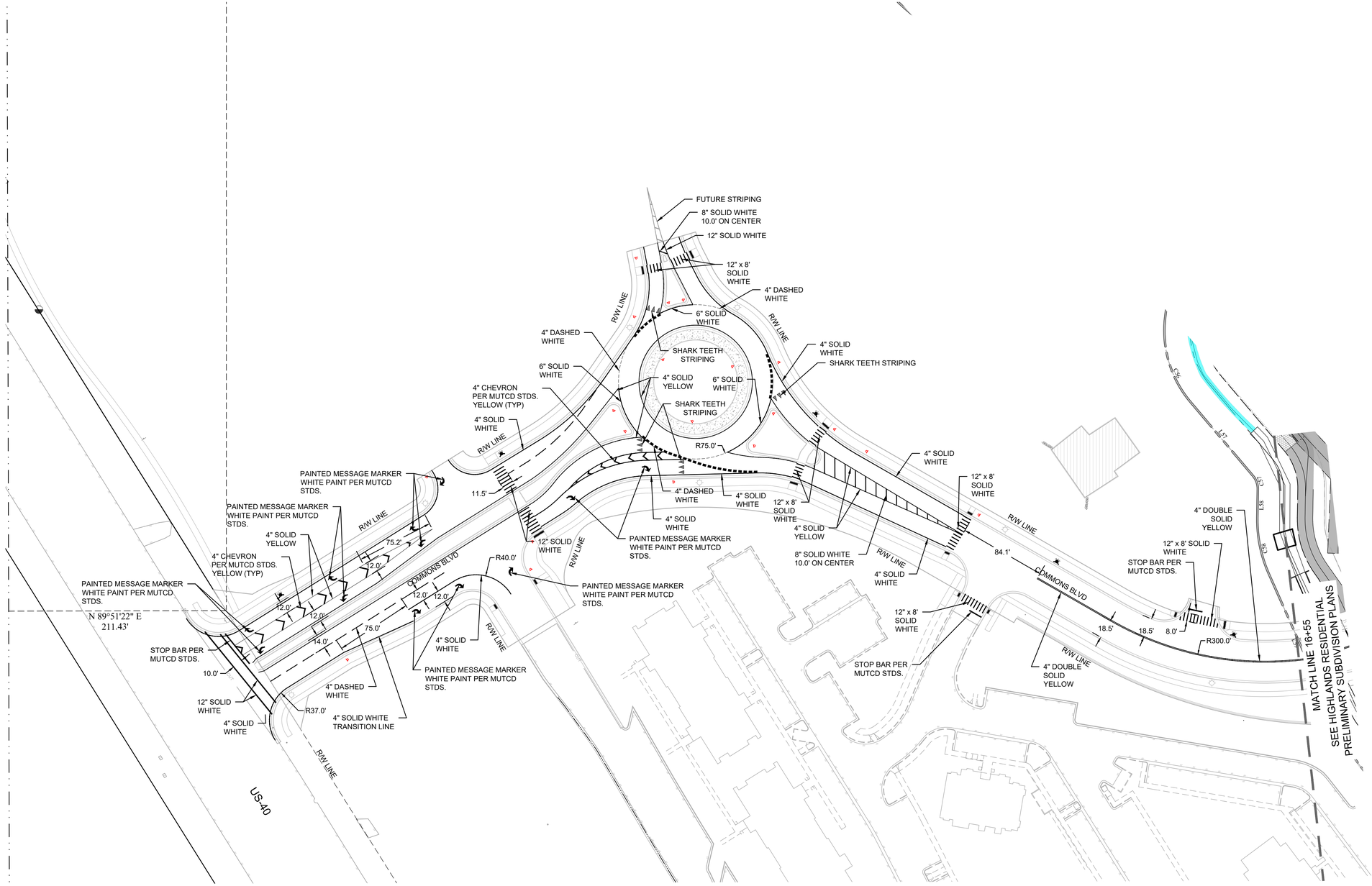
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

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PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
8/6/2024

SHEET
SS-01

FILENAME: O:\Highlands\residential-dr horton\Design - Residential\Striping Plan.dwg TAB: SS-02 Commons Blvd Striping Plan PLOT DATE AND TIME: 8/6/2024 6:32 PM



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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COMMONS BLVD STRIPING PLAN

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R HORTON
DWG: STRIPING PLAN.DWG
JOB No: 3691-DRH01-23
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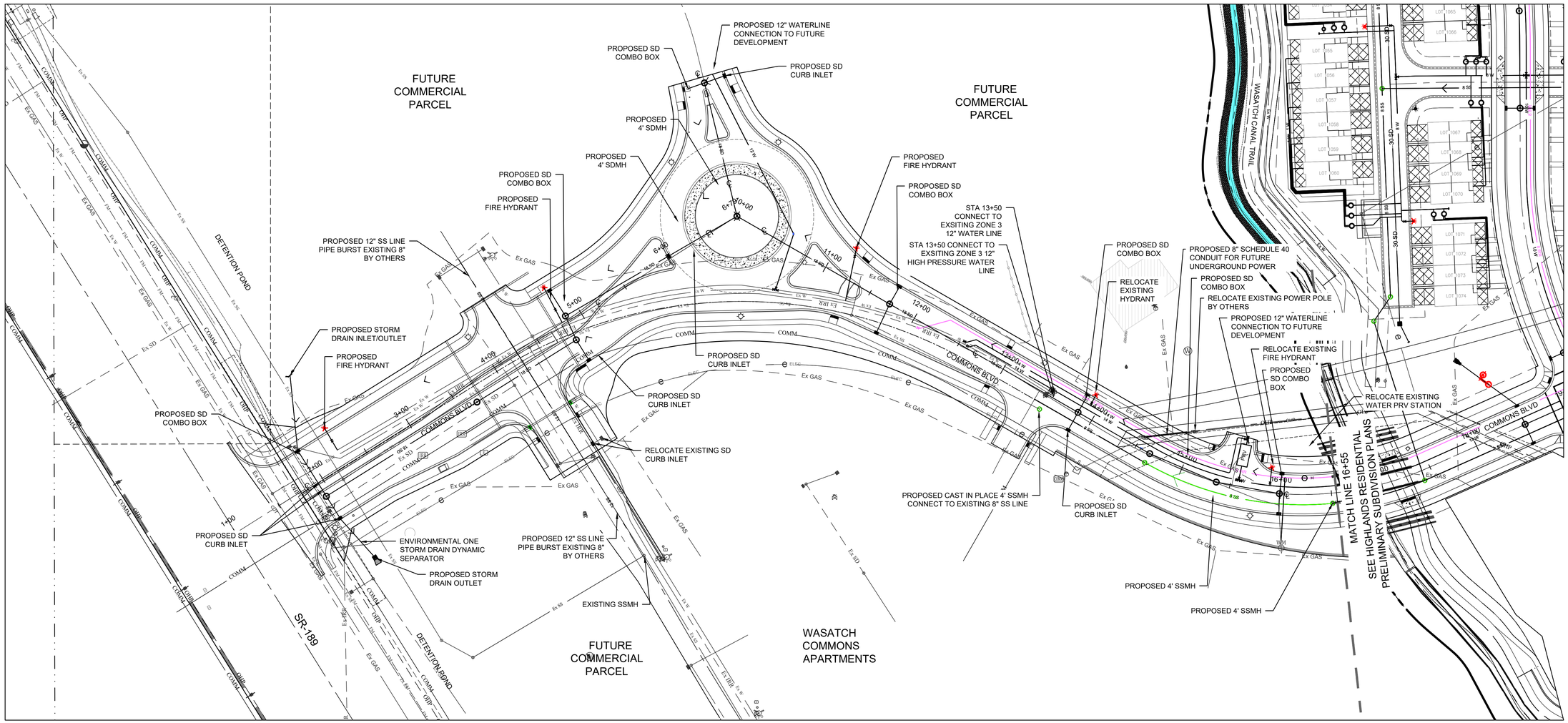
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REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
ABDUL SATTAR N. TABRIZ
8/6/2024

SHEET
SS-02

FILENAME: O:\Highlands\residential-dr horton\design - commons blvd\Utility Plan.dwg TAB: UT-01 Commons Blvd Utility Plan PLOT DATE AND TIME: 8/6/2024 6:33 PM



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208-2100
(Salt Lake Metro)
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Draper, Utah 84020-1917

N

50 0 50 100 150

Scale 1" = 50'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COMMONS BLVD UTILITY PLAN

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Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: UTILITY PLAN.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 24"x36". USE GRAPHIC SCALE OR DIMENSIONS AND NOTES TAKE PRECEDENCE

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DATE: 07/29/2024

REVISIONS

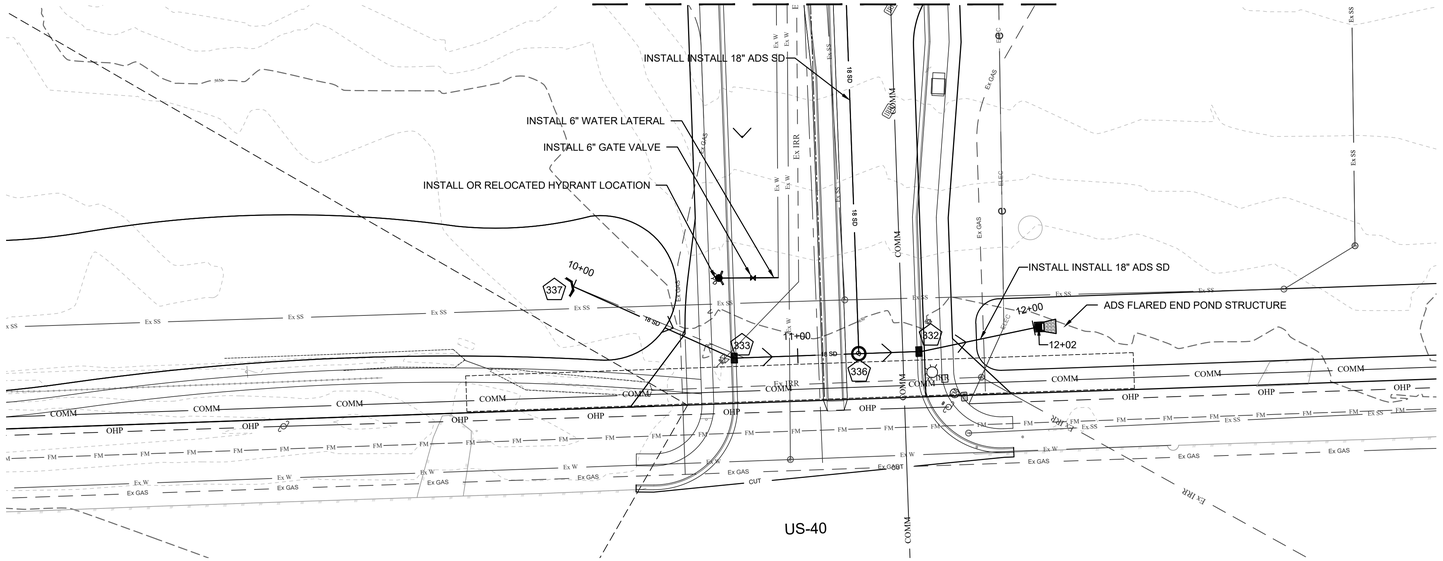
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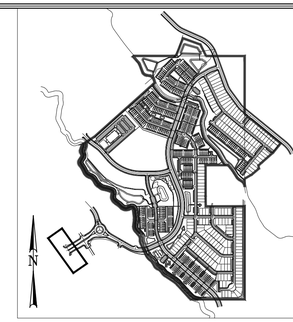
PROFESSIONAL ENGINEER
SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

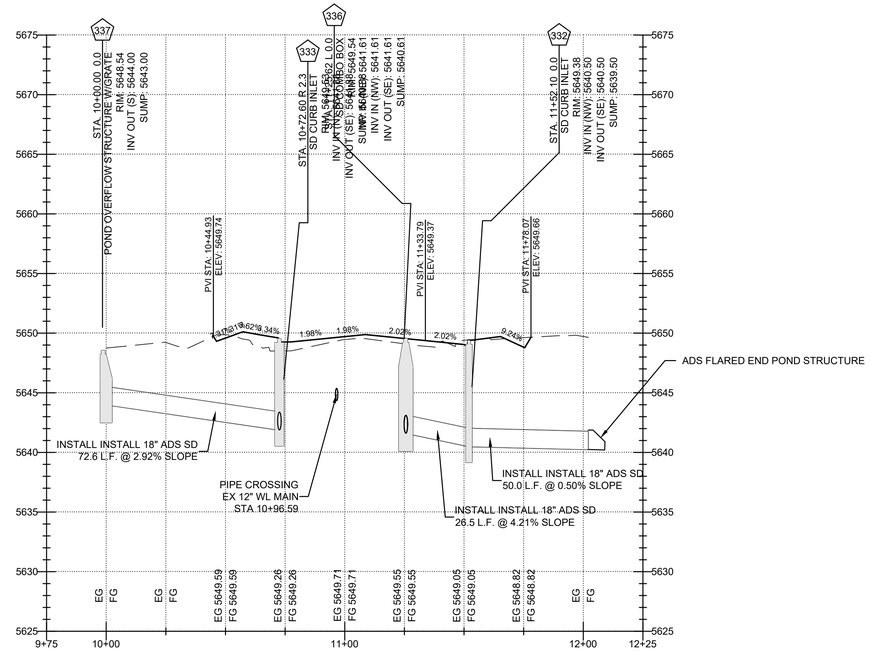
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SEE SHEET PP-01







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208-2100
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PROVO, UTAH 84603-1857

SCALE:
HORIZONTAL: 1" = 30'
VERTICAL: 1" = 3'

Scale 1" = 30'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COMMONS BLVD STORM DRAIN

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: SD P&P ENTRY.DWG
JOB No: 3891-DRH01-23
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SHEET
SD-01

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Commons Blvd Plan & Profile- Entry

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CLIENT: D.R.HORTON
DWG: COMMONS ENTRY.DWG
JOB No: 3891-DRH01-23
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REVISIONS

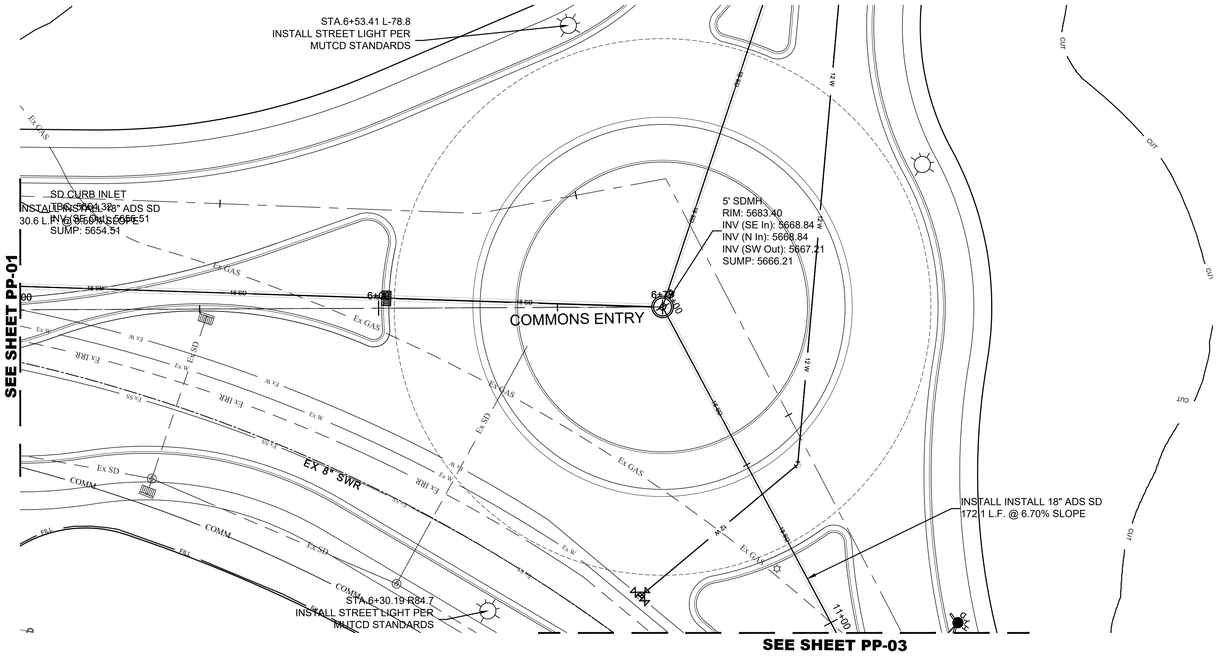
1	07/30/2024	GRADING REVISION

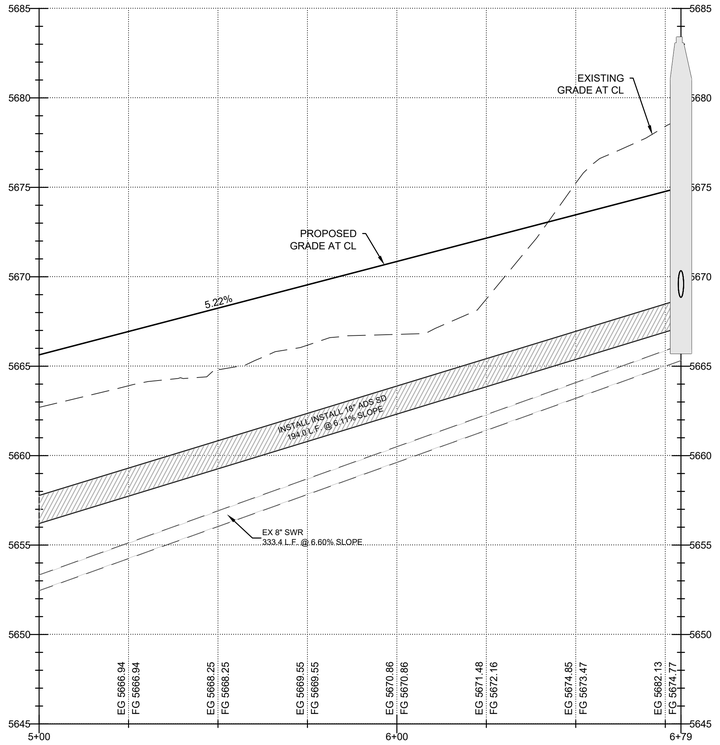
PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

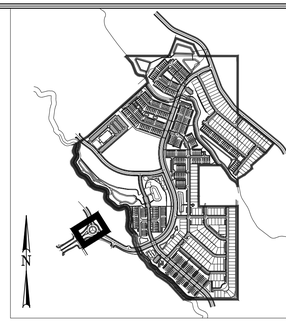
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PP-01

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Commons Blvd Plan & Profile- Entry

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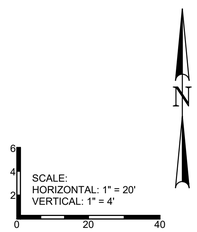
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DWG: COMMONS ENTRY.DWG
JOB No: 3691-DRH01-23
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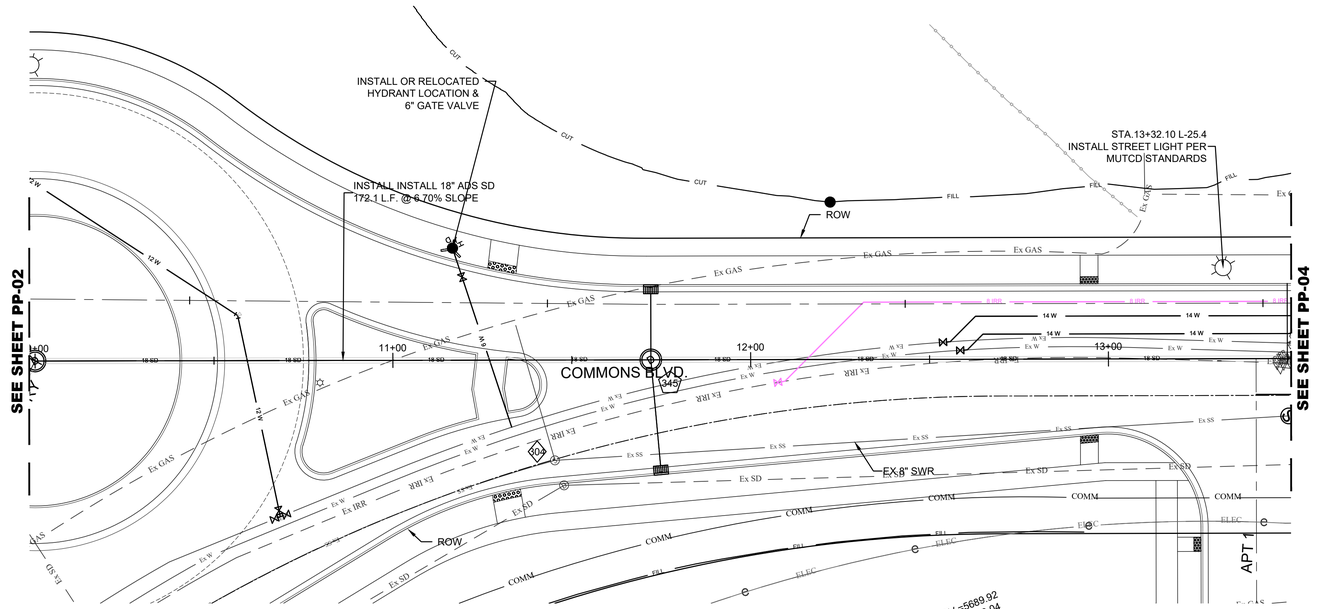
SHEET
PP-02

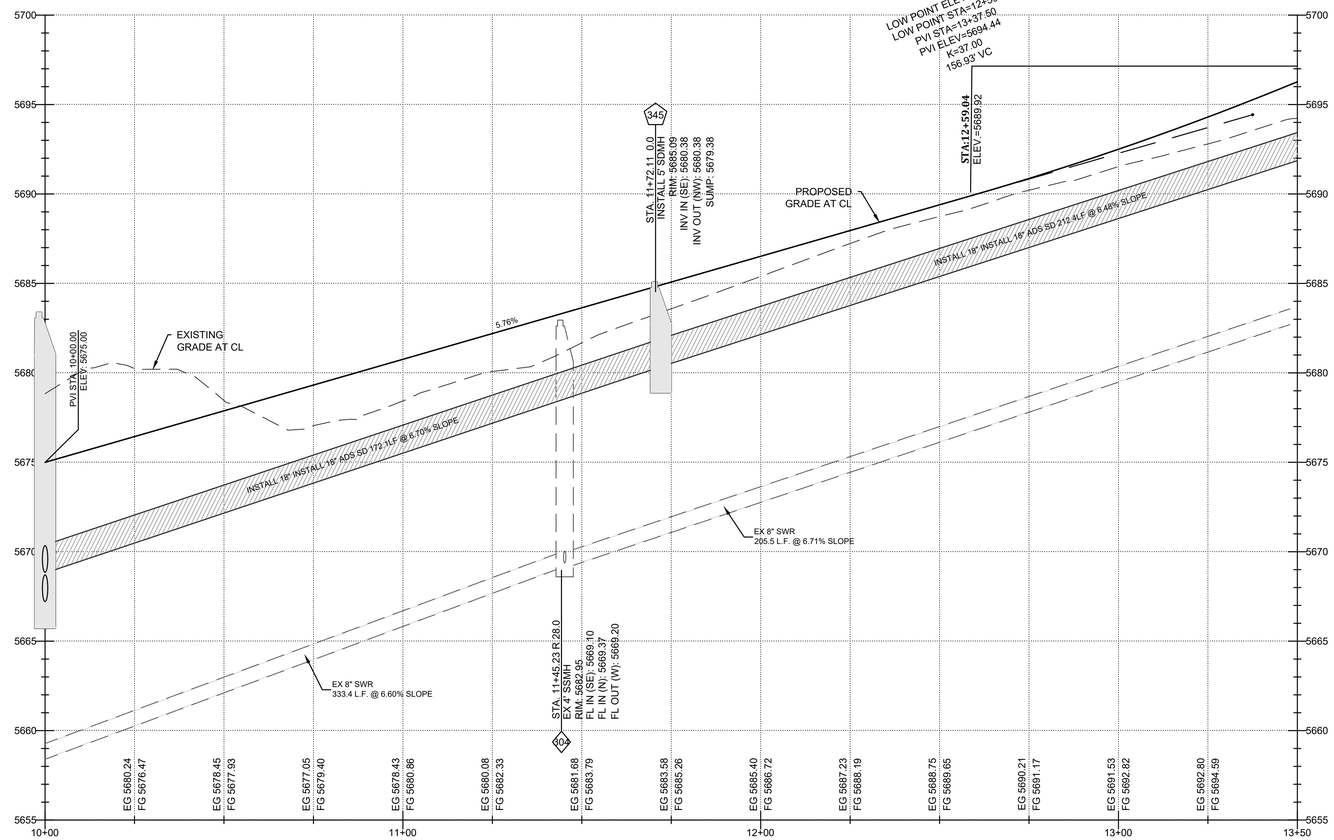


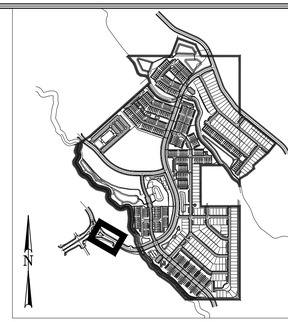
Horizontal Scale: 1"=20'
Vertical Scale: 1"=4'

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N

SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'

0 20 40
2 4 6

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BLUE STAKES OF UTAH
PO BOX 1921
PROVO, UTAH 84603-1921

FILENAME: O:\Highlands\Residential-DR Horton\Design - Commons Blvd\P&PS\Commons Entry.dwg TAB: PP-03 Commons Entry PLOT DATE AND TIME: 8/6/2024 6:37 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Commons Blvd Plan & Profile- Entry

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

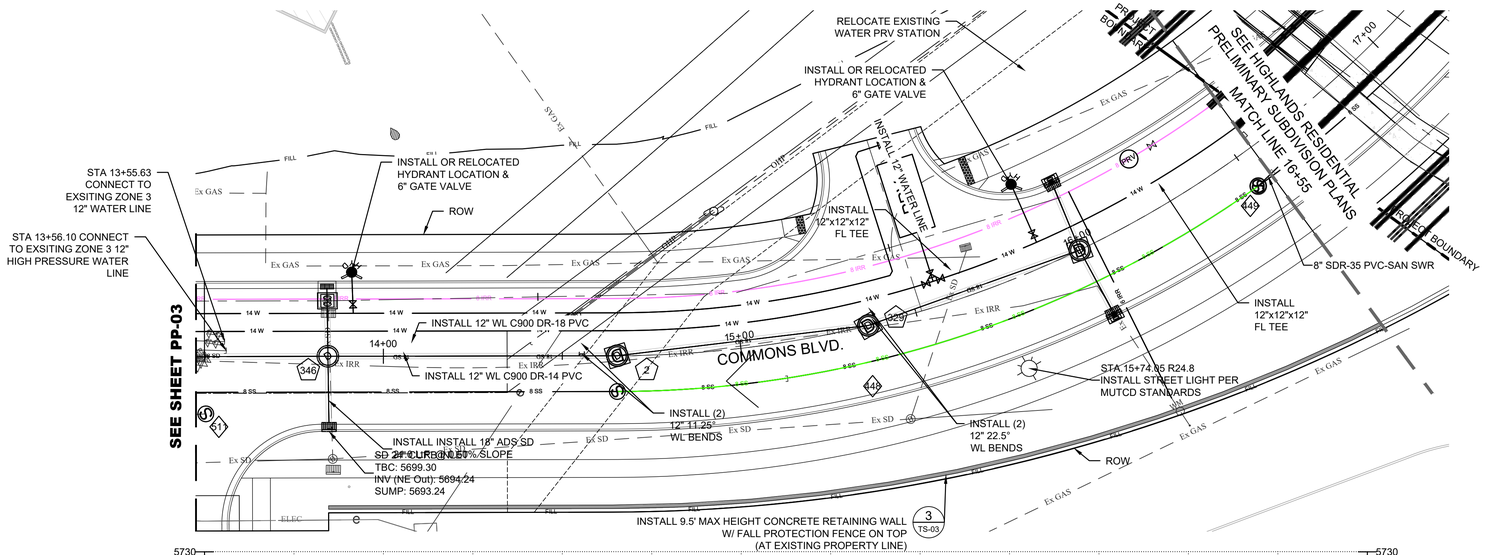
CLIENT: D.R.HORTON
DWG: COMMONS ENTRY.DWG
JOB No: 3891-DRH01-23
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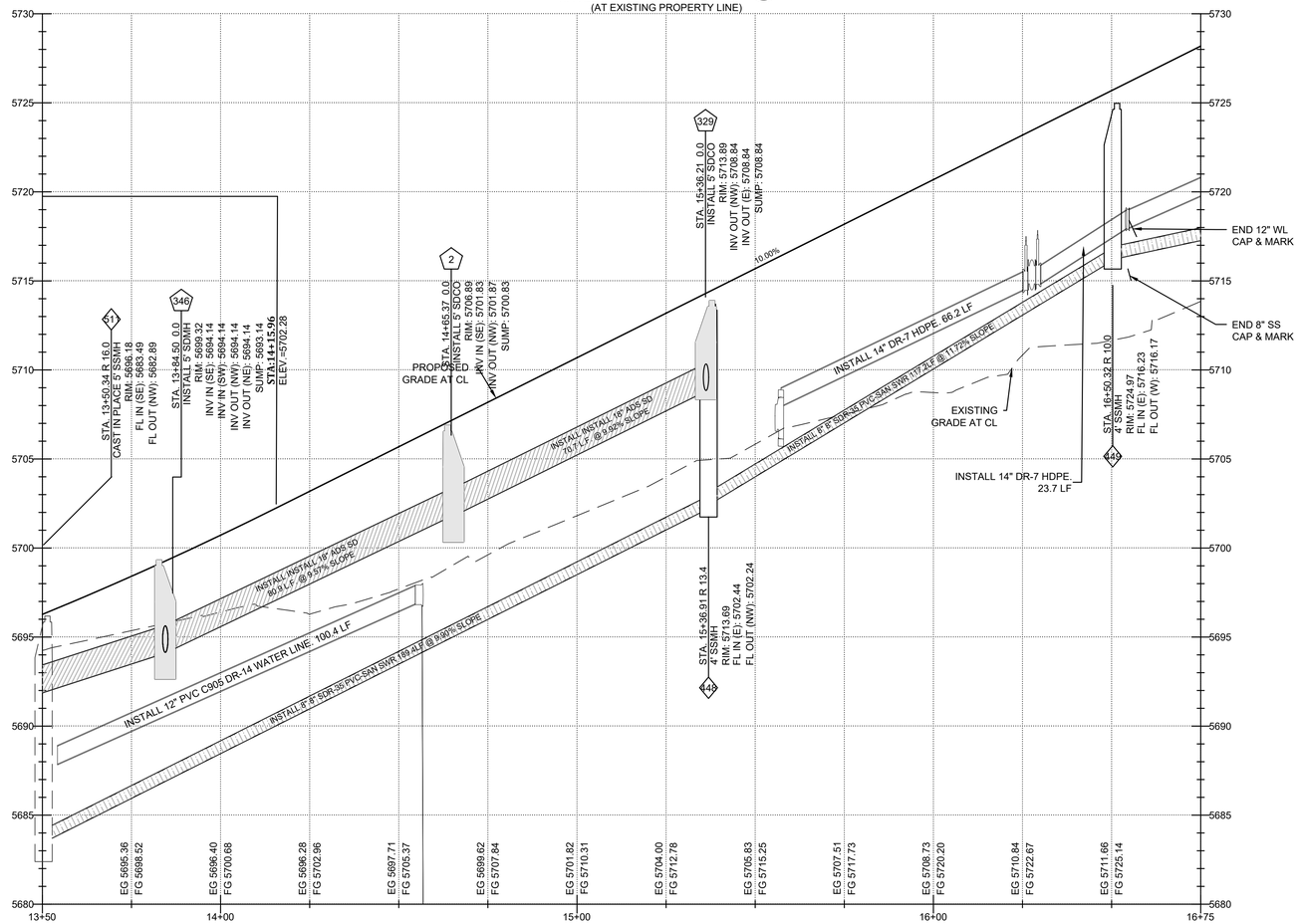
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DATE: 07/29/2024

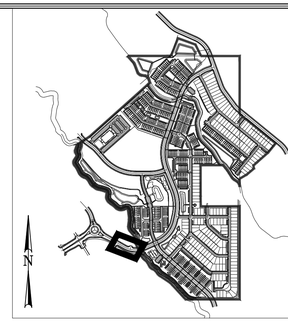
REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER
STATE OF UTAH
SATTAR N. TABRIZ
8/6/2024

SHEET
PP-03







HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
Commons Blvd Plan & Profile- Entry

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: COMMONS ENTRY.DWG
JOB No: 3891-DRH01-23
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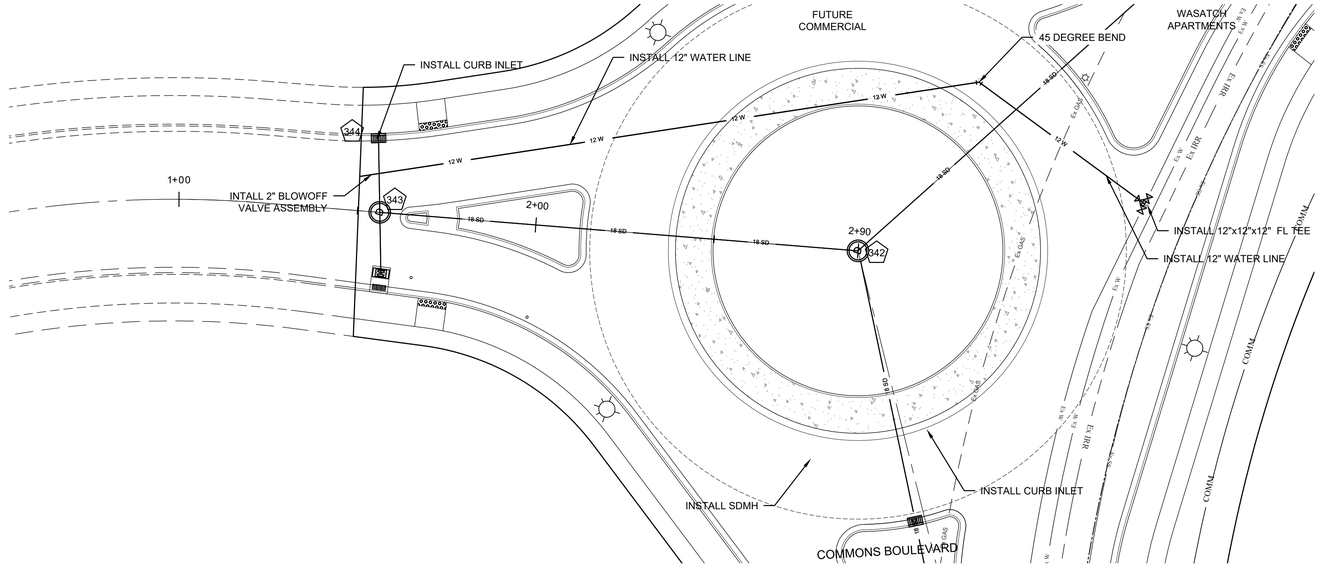
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1 07/30/2024 GRADING REVISION

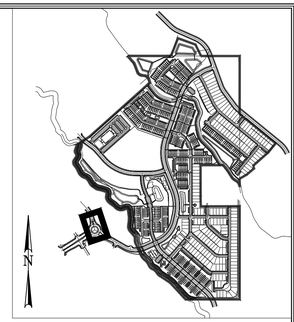
SCALE:
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 4'
0 20 40
6 4 2

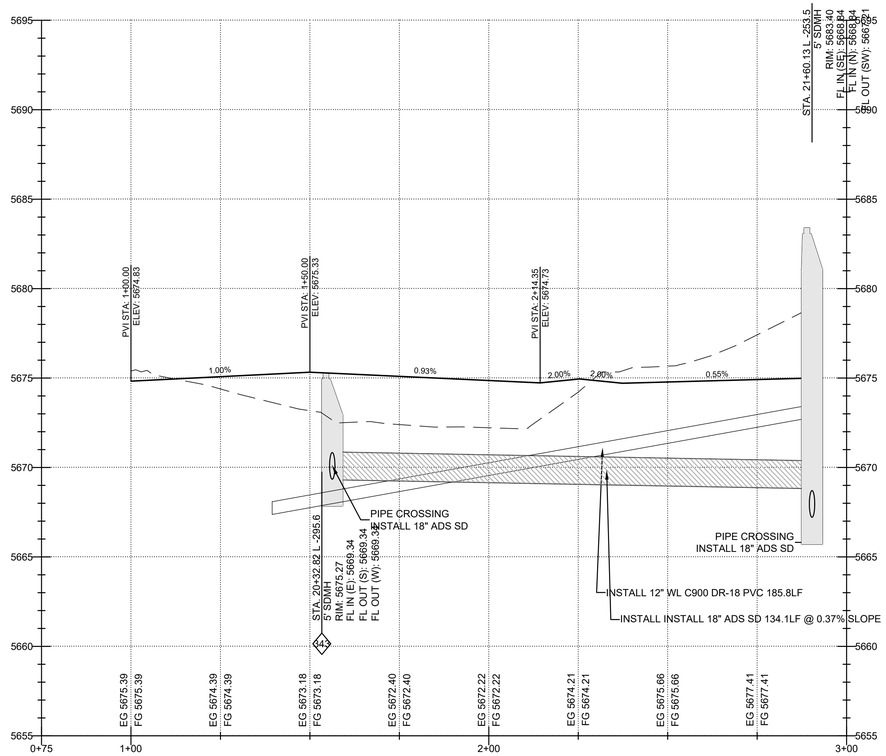
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PP-04

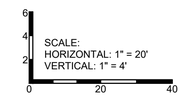
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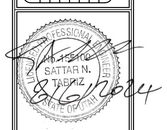












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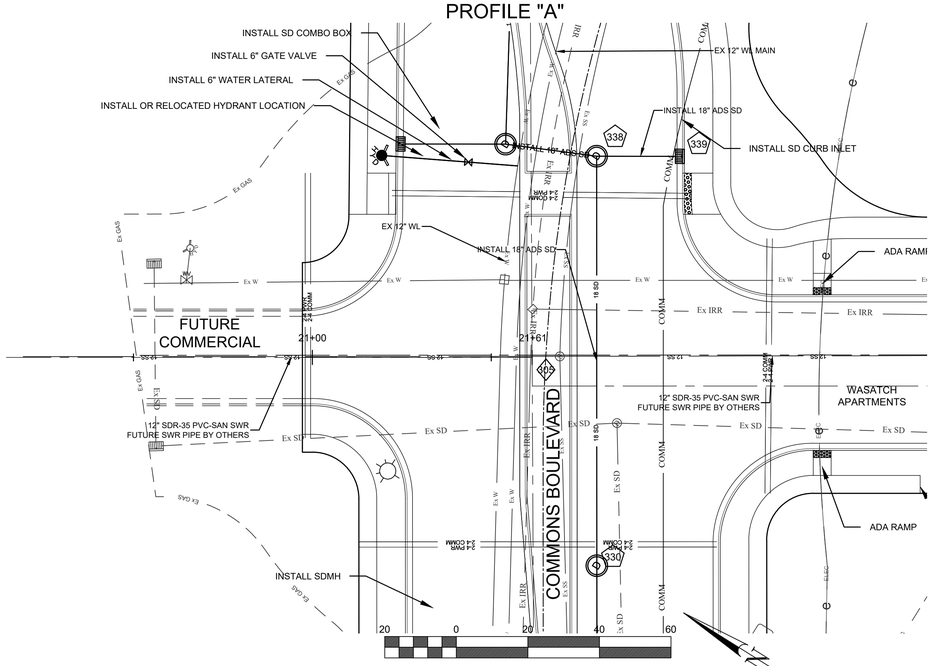
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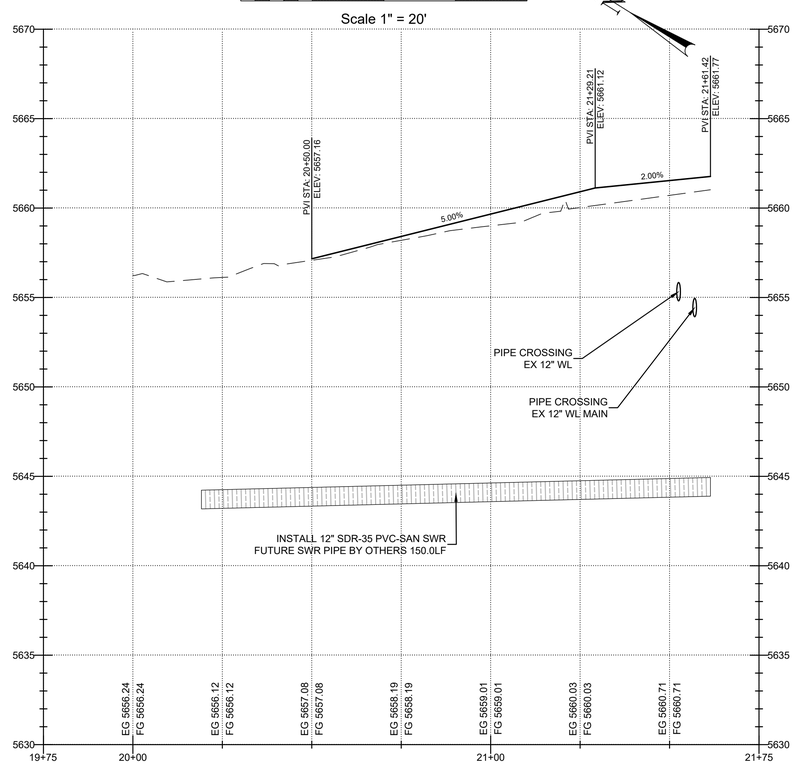
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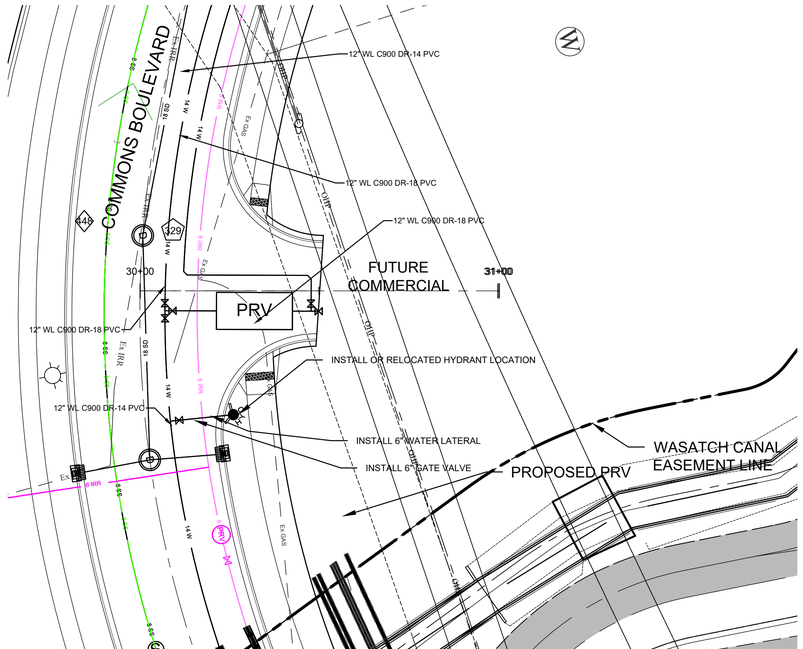
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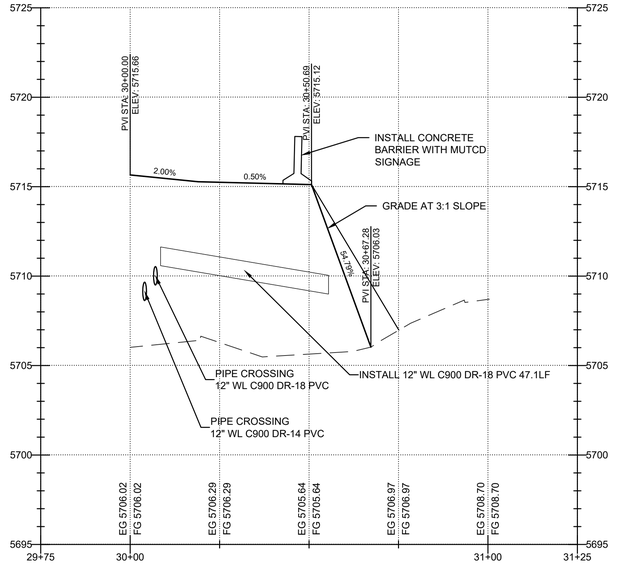
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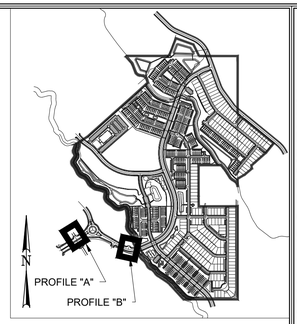




PROFILE "B"







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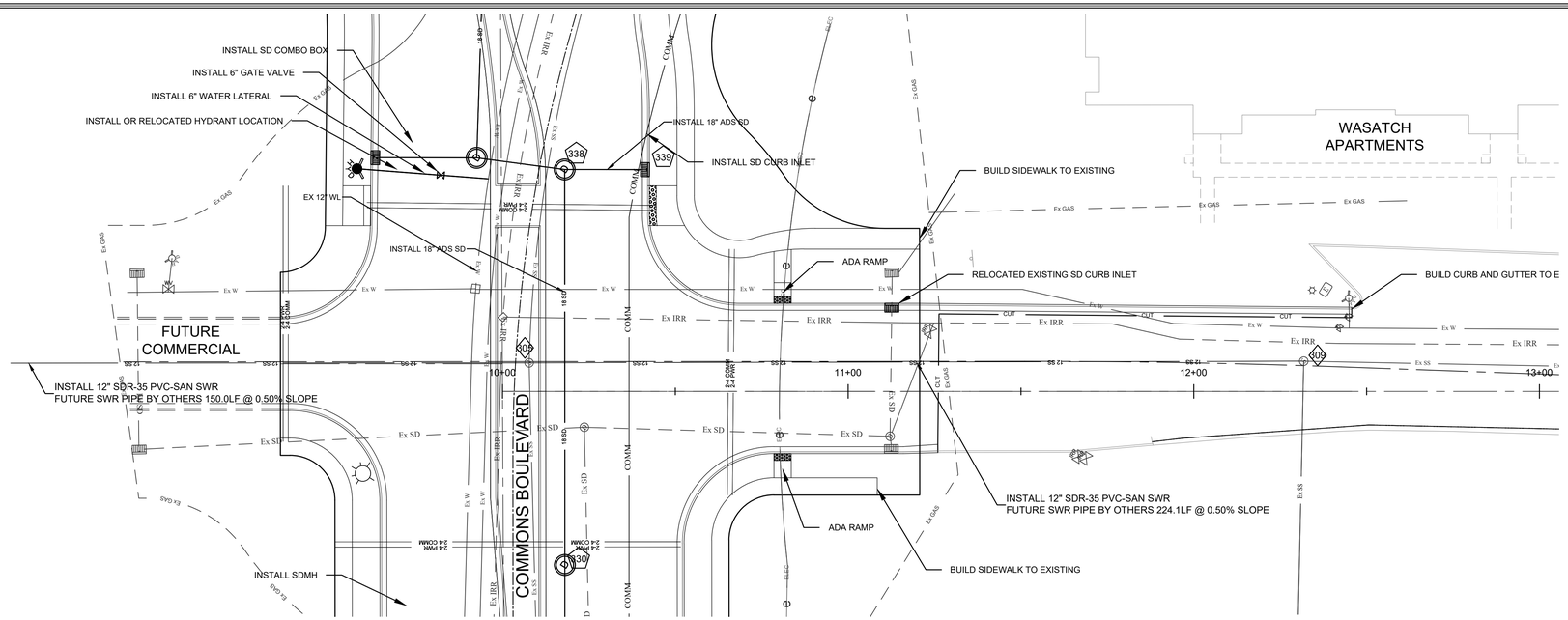
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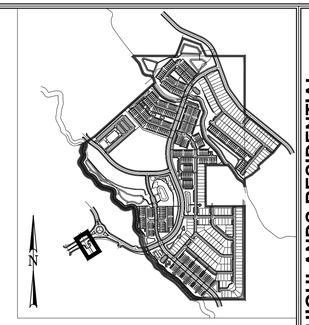
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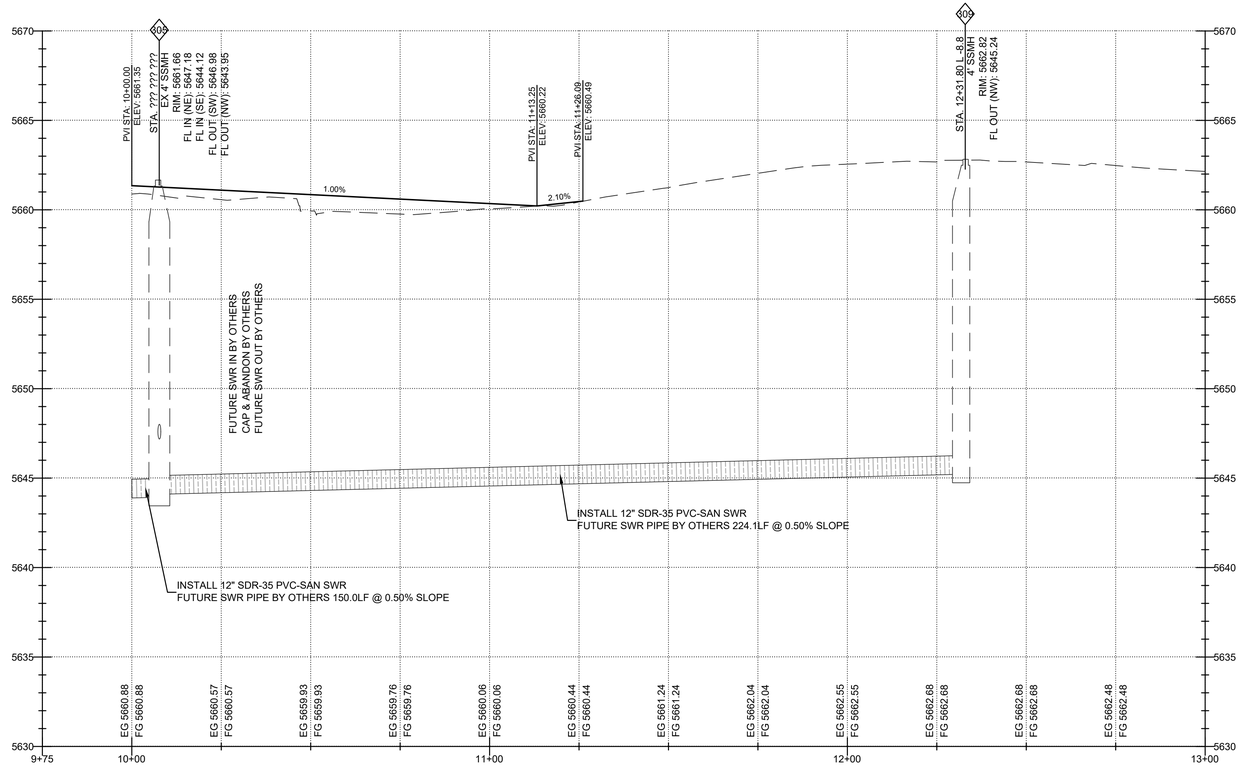
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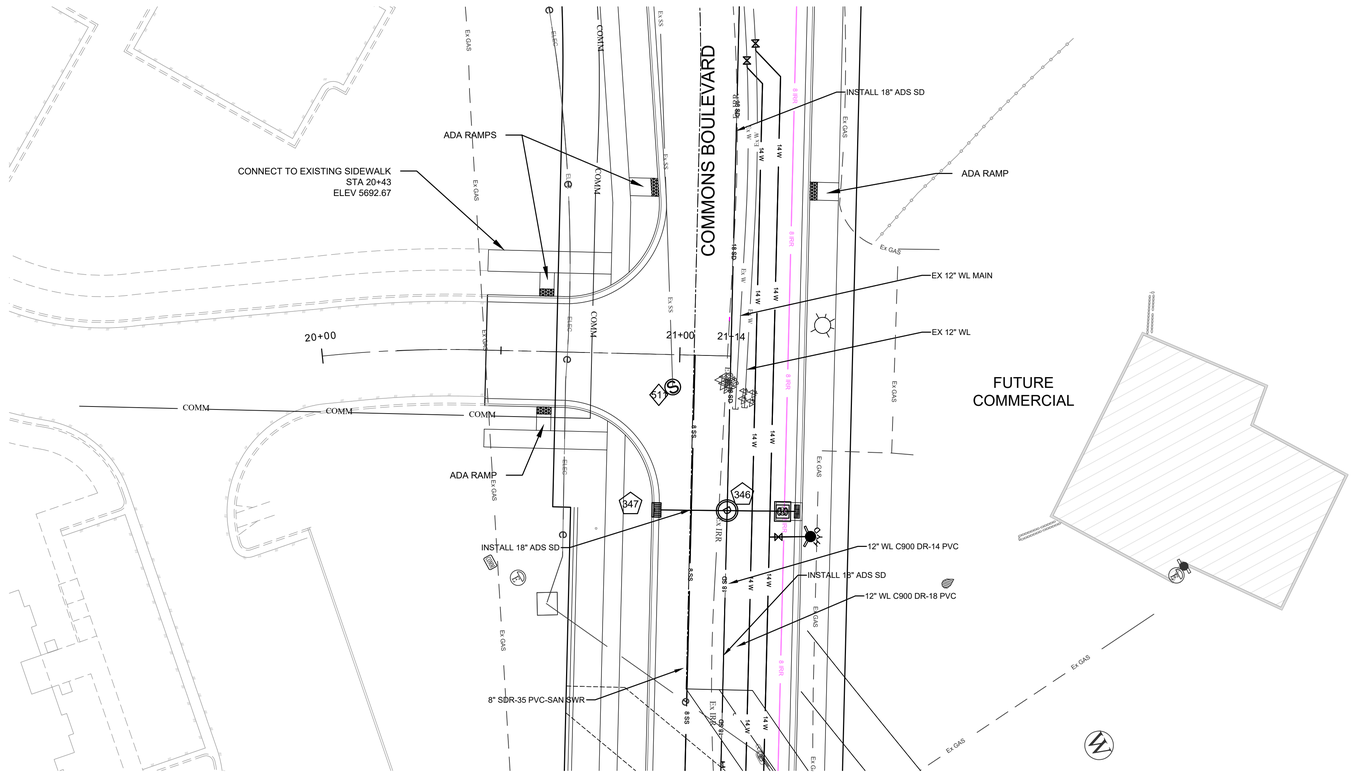
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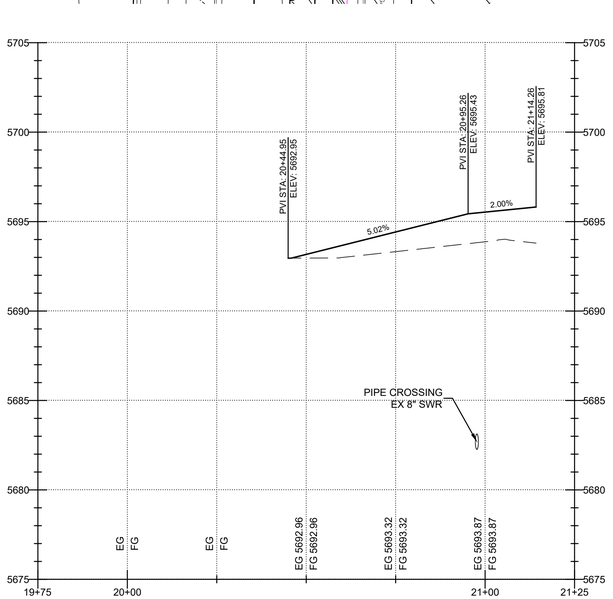
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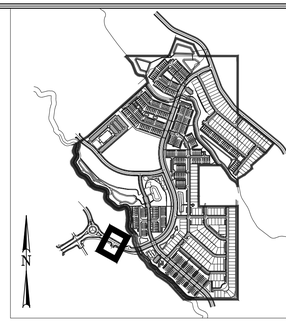
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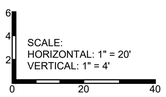
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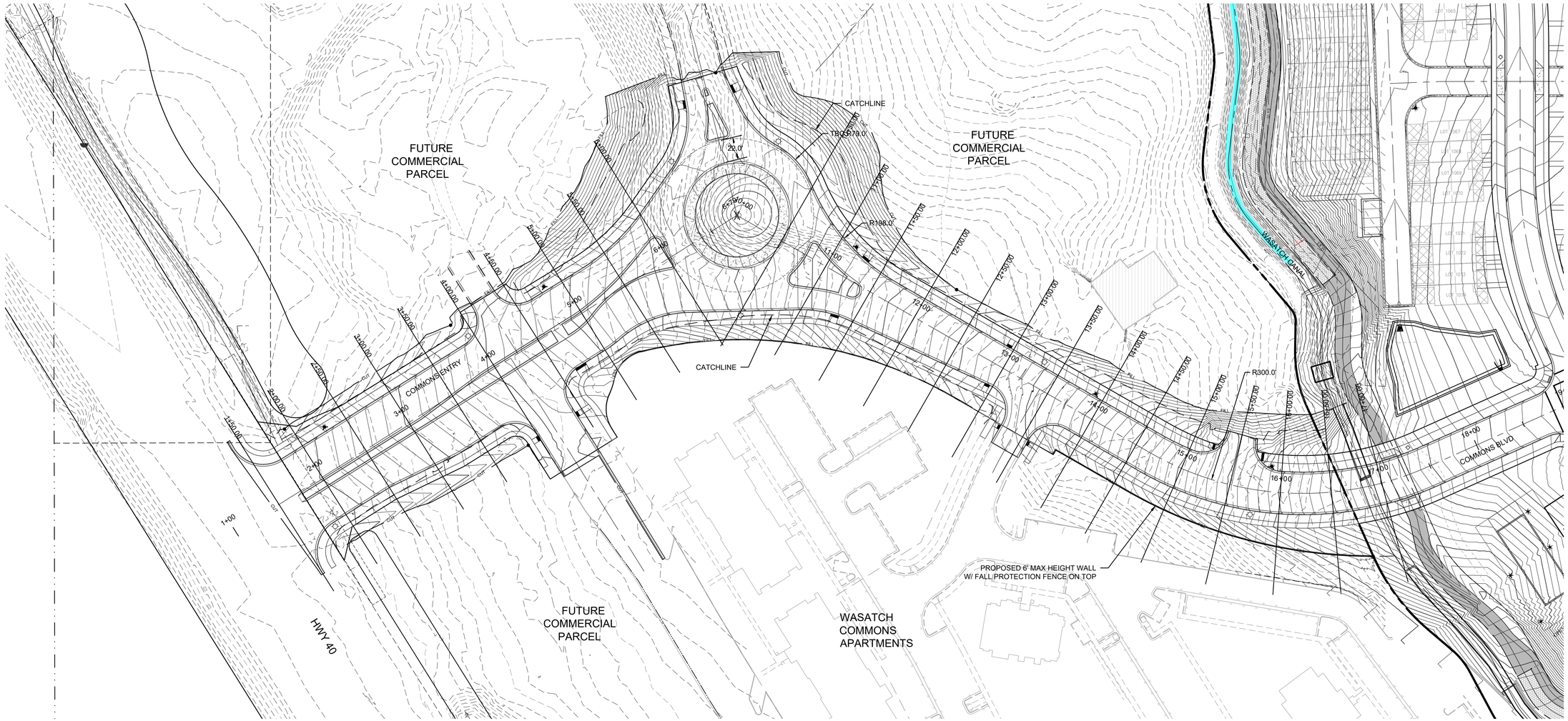
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5
2.5
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0
10
20

10 0 10 20 30

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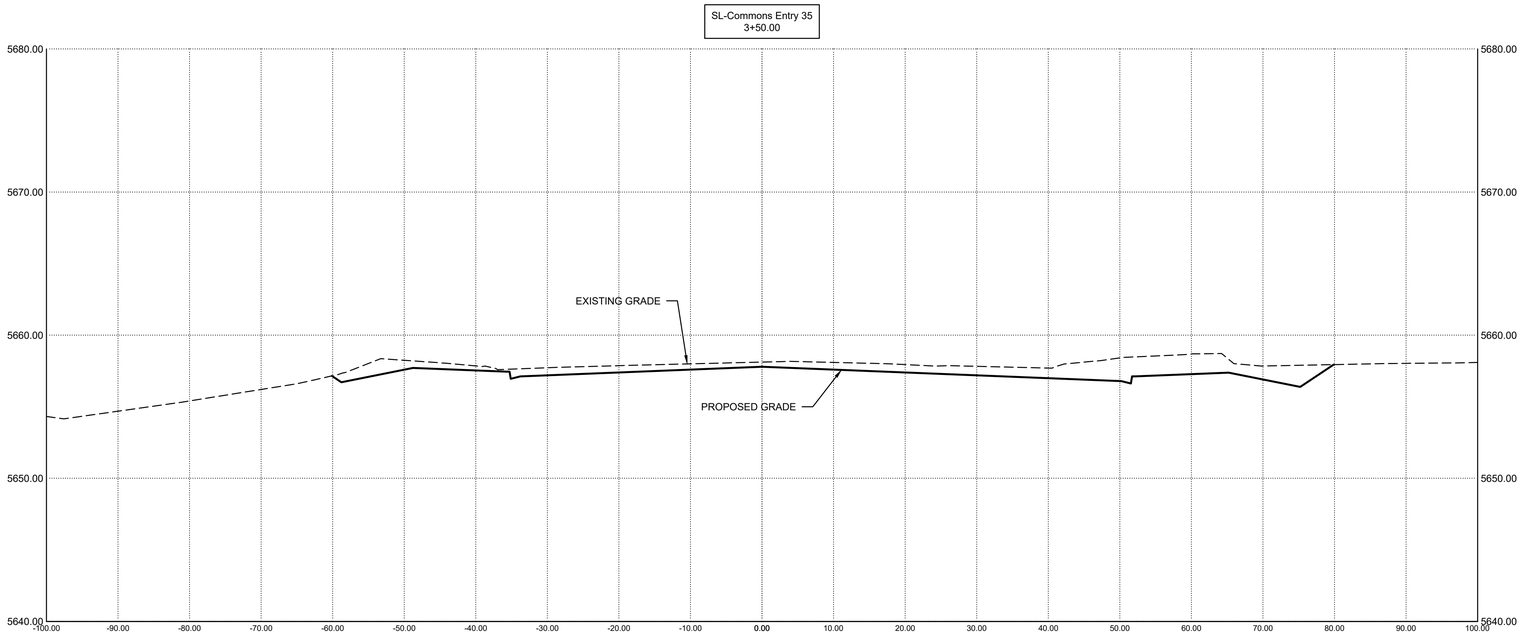
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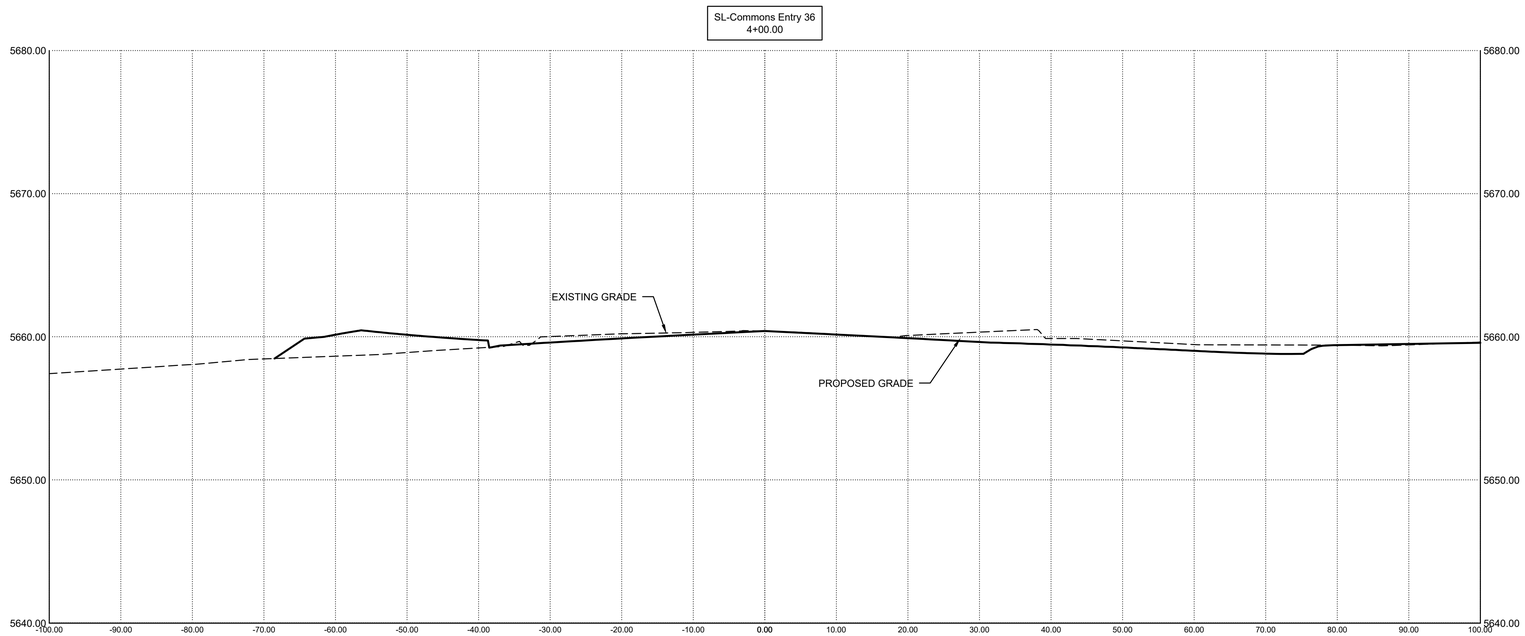
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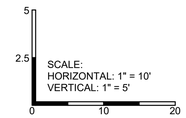
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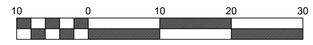
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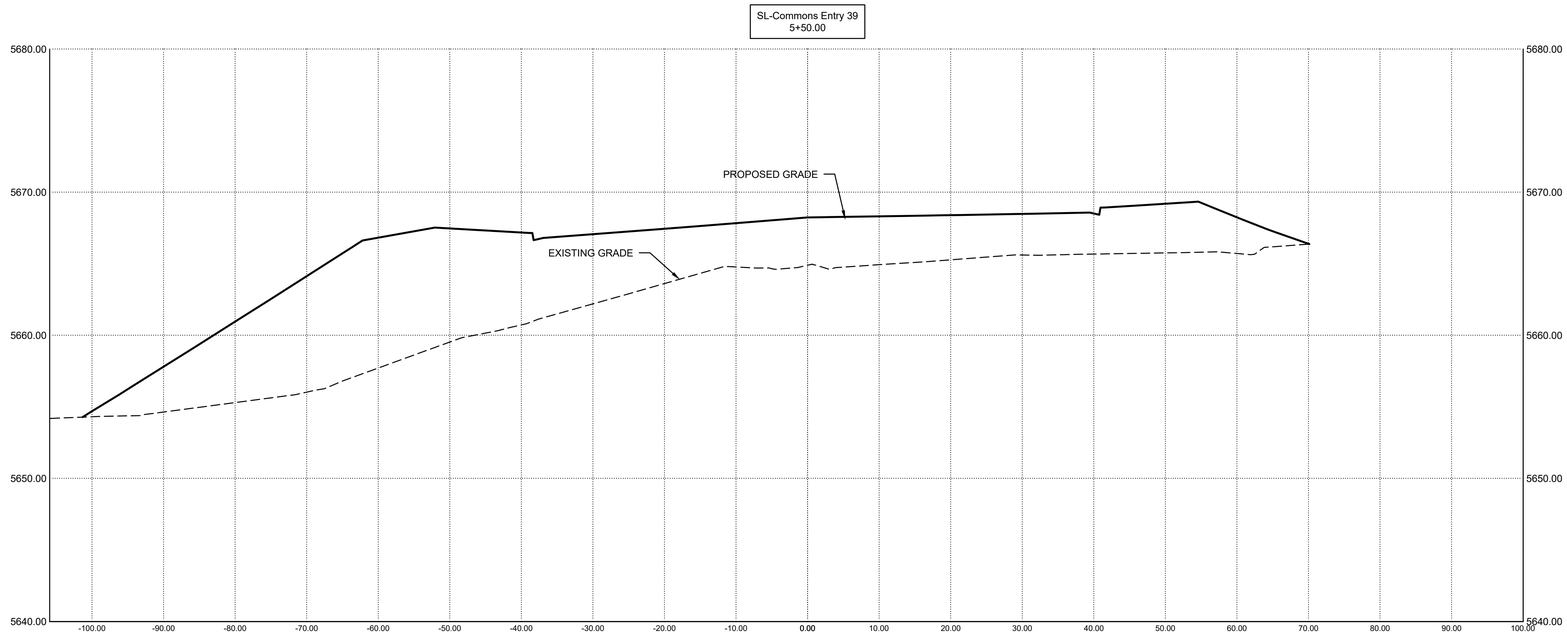
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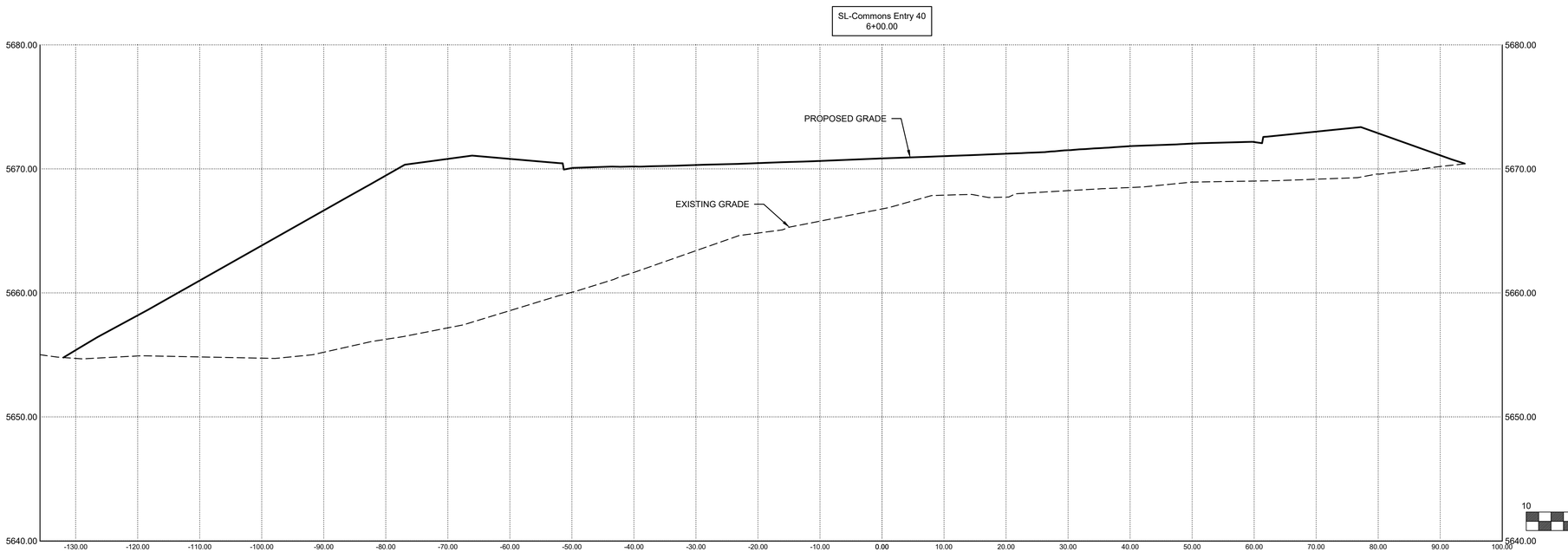
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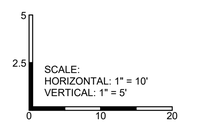
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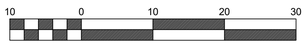
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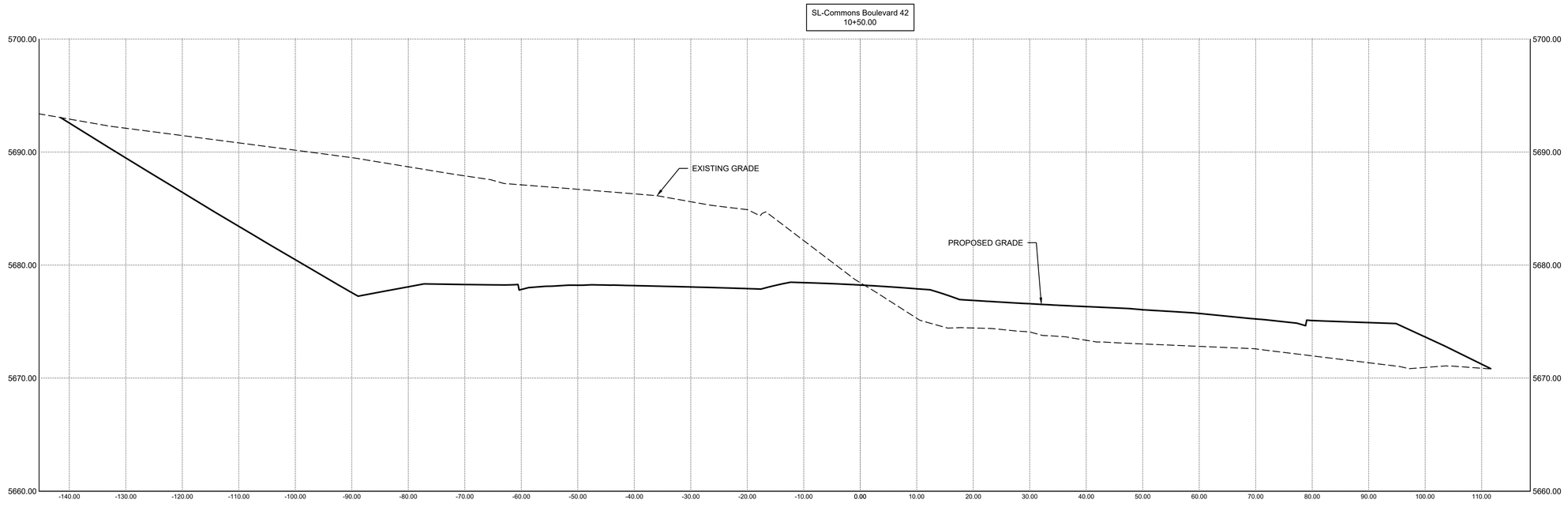
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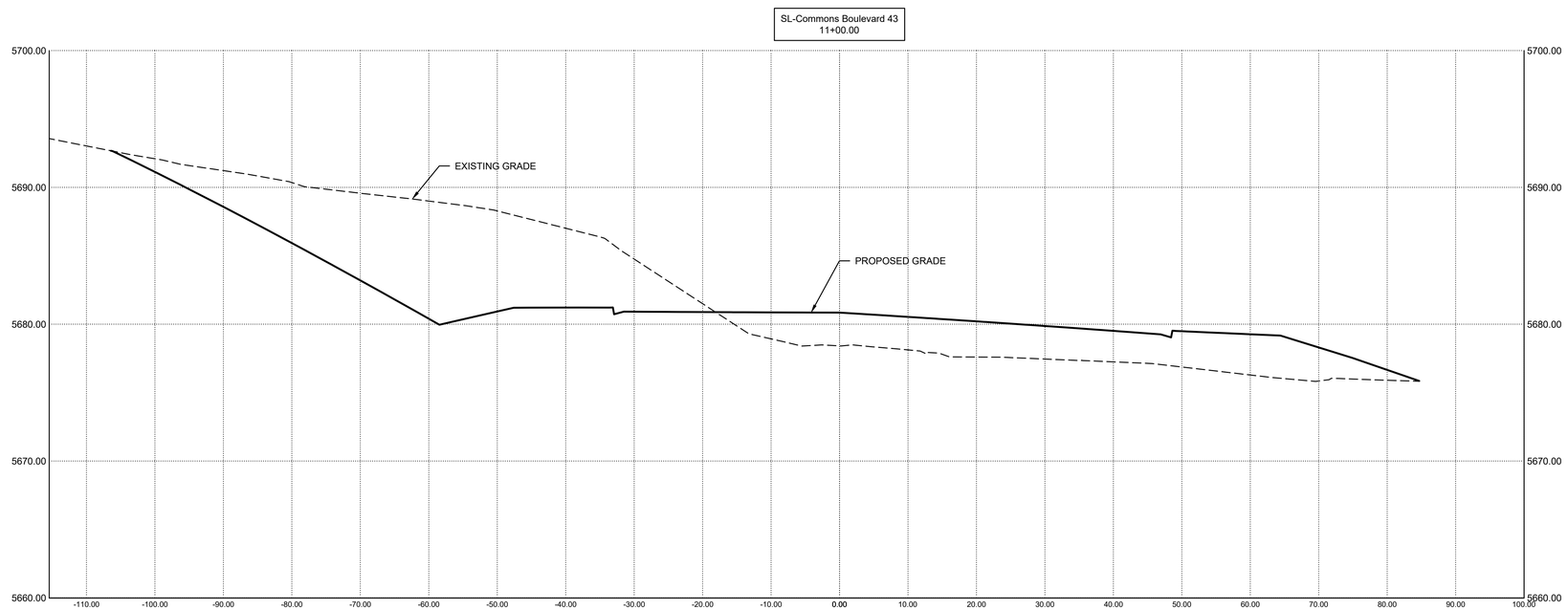
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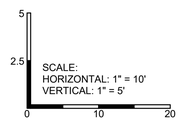
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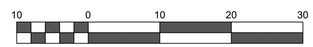
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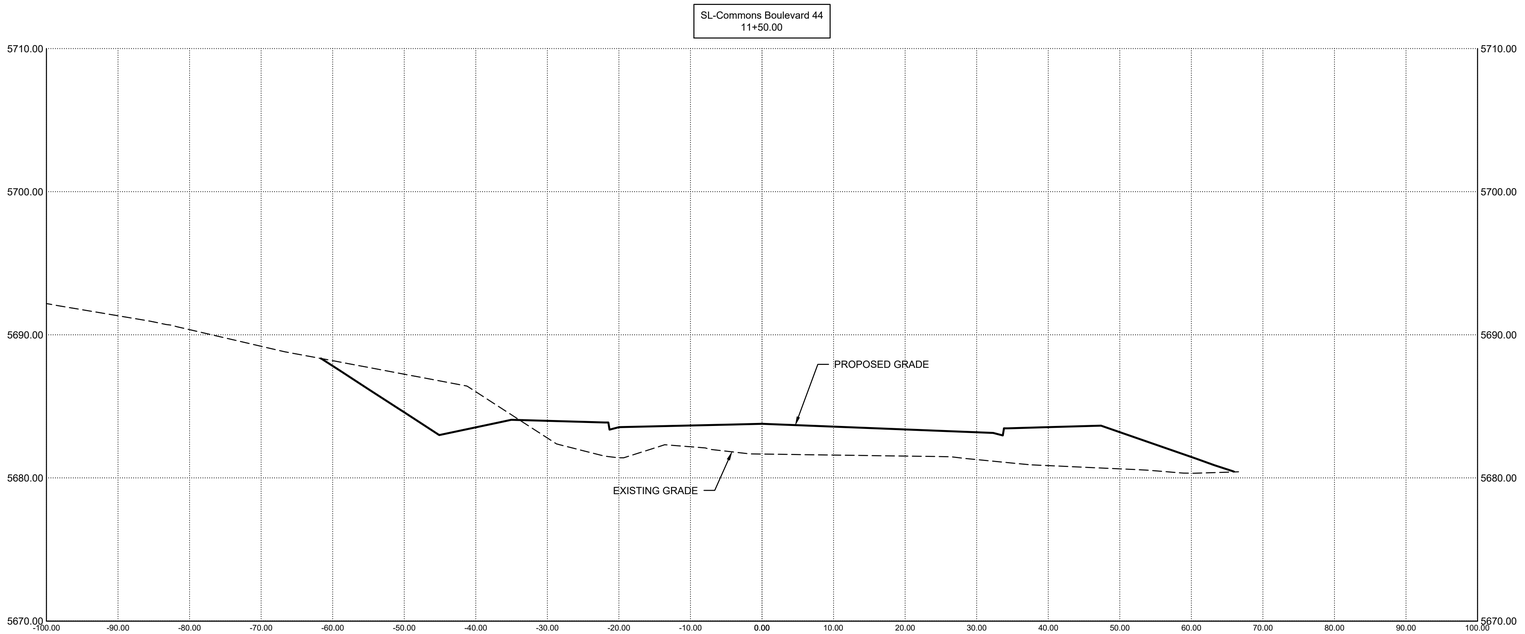
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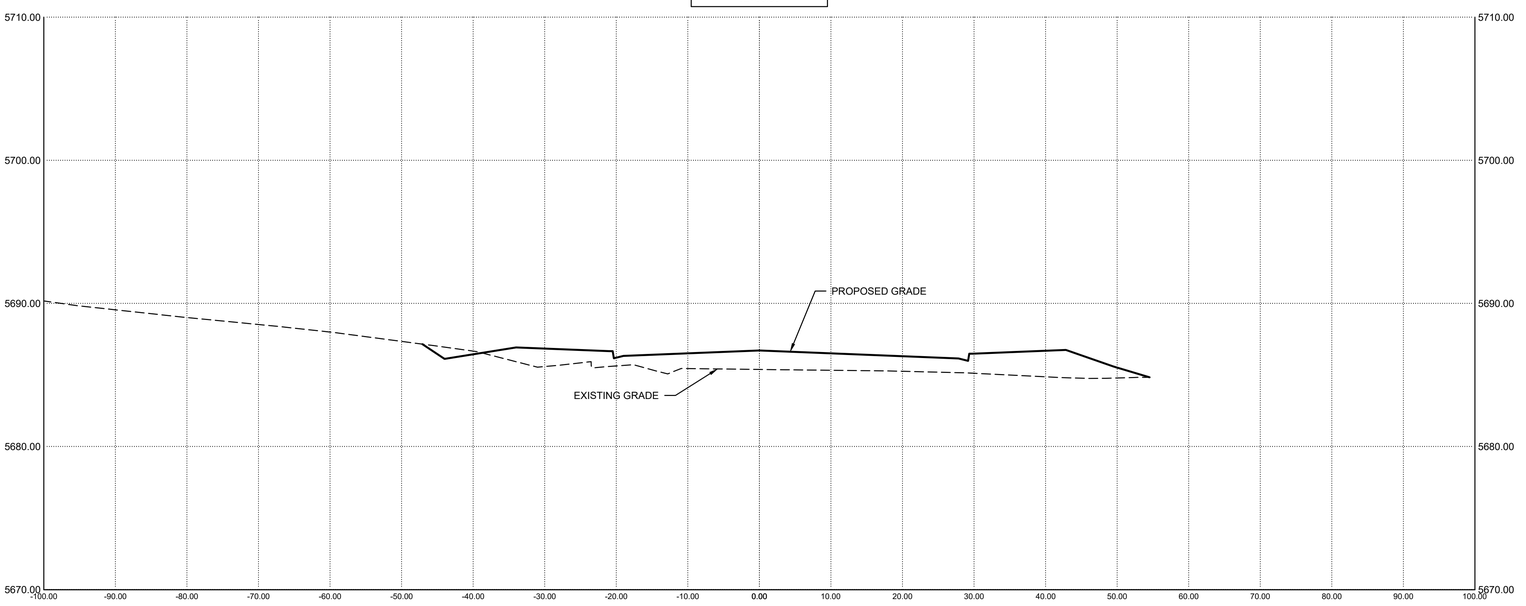
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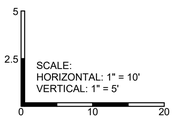


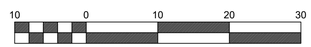
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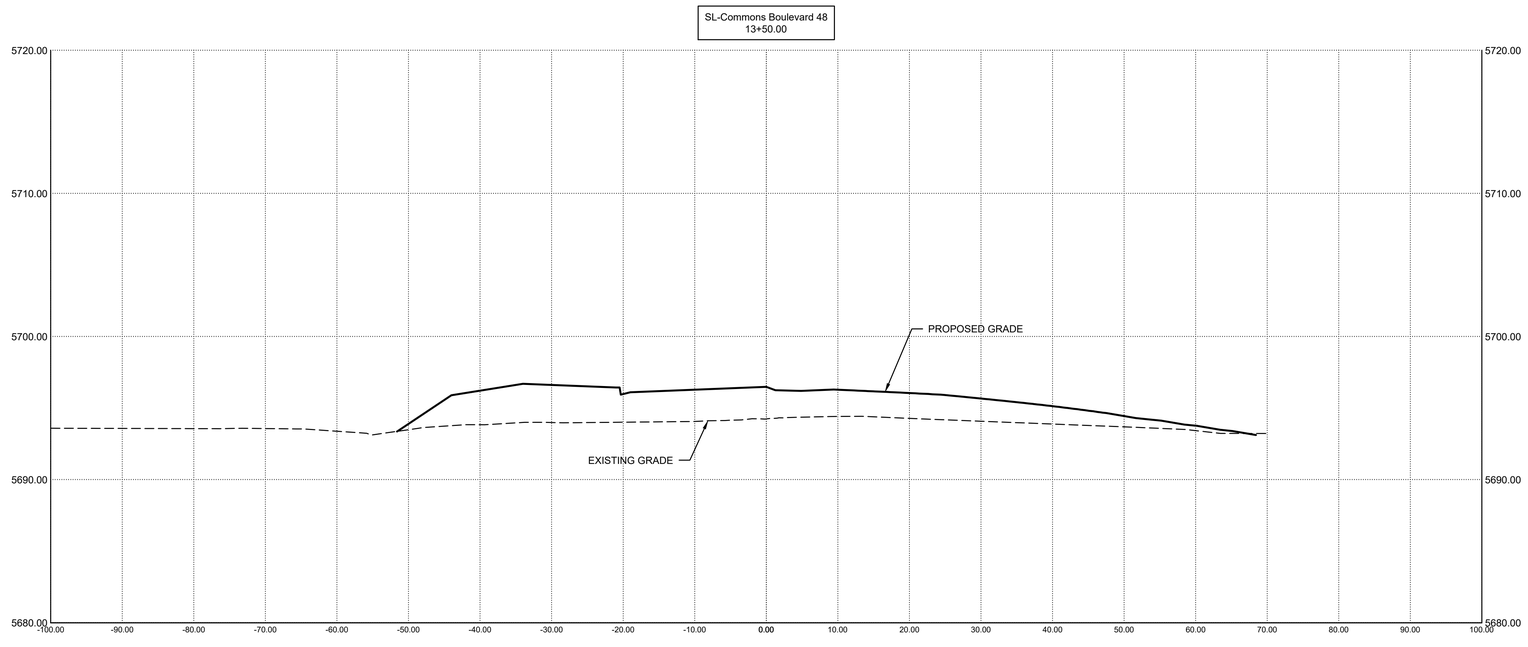
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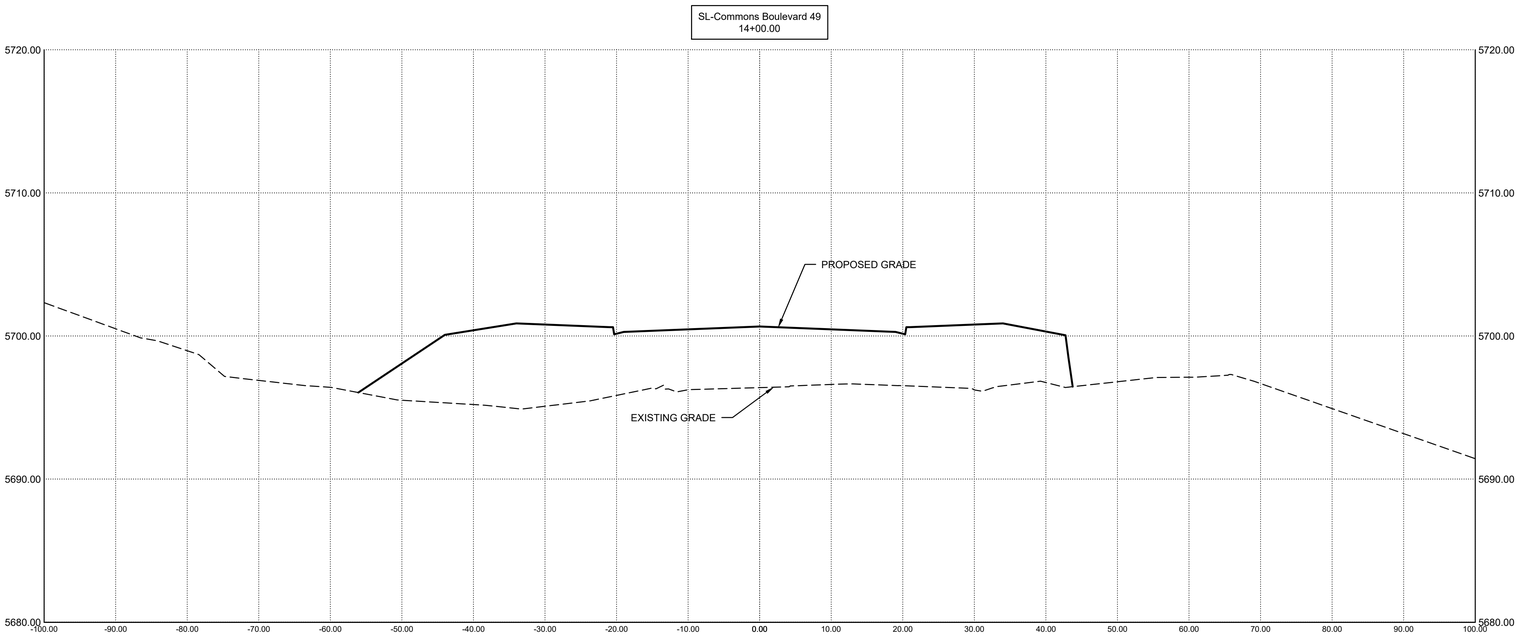
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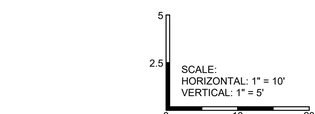
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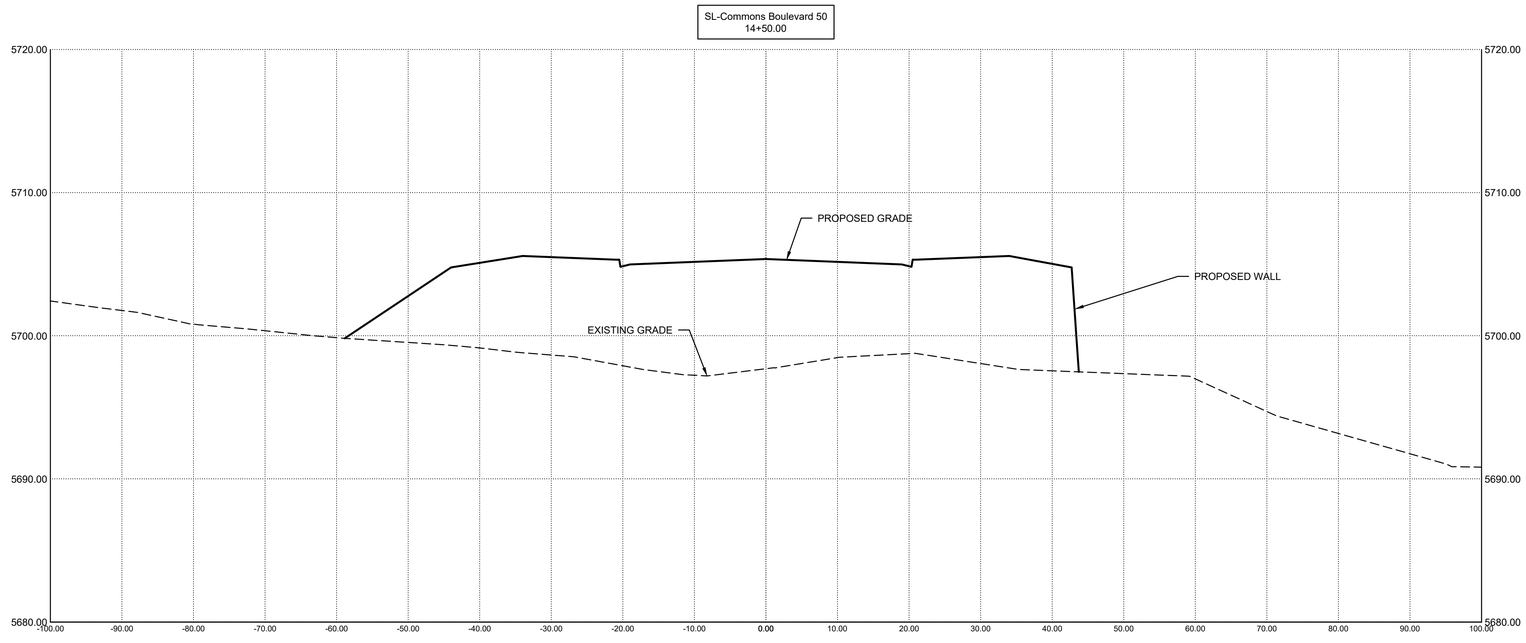
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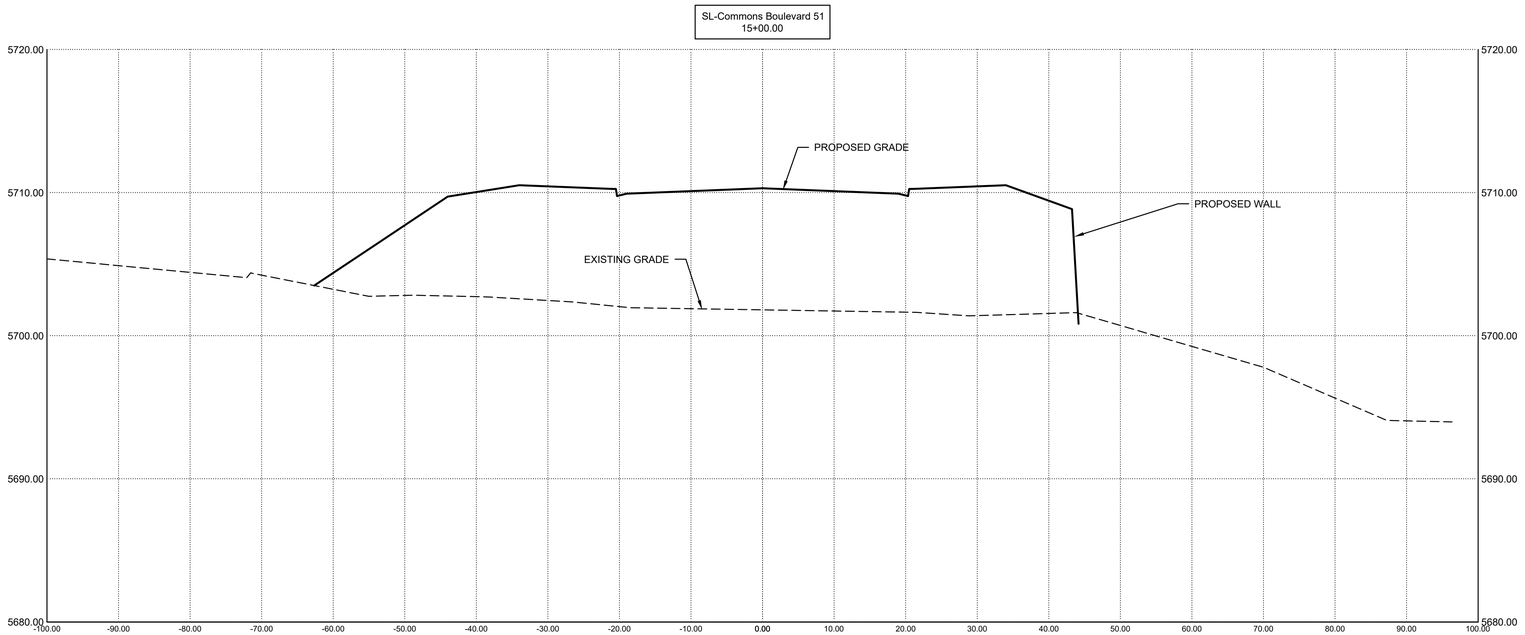
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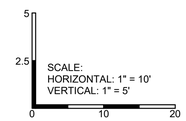
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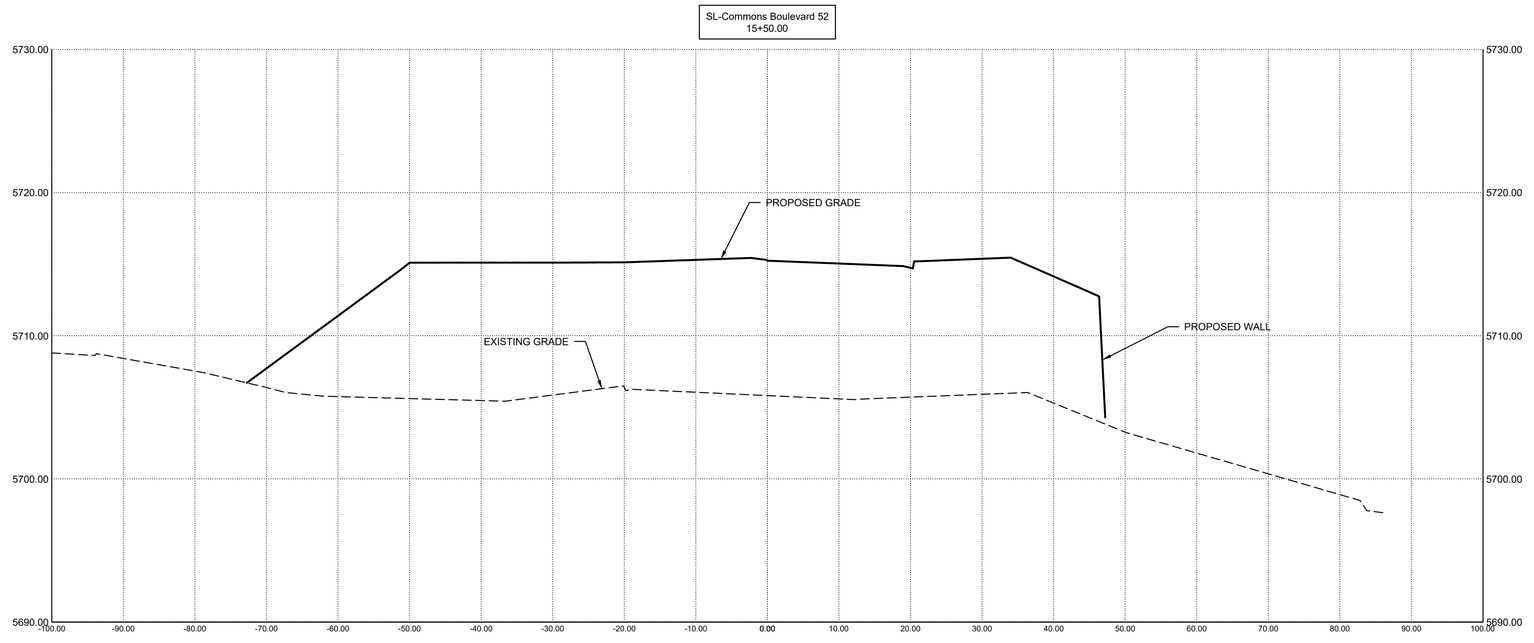
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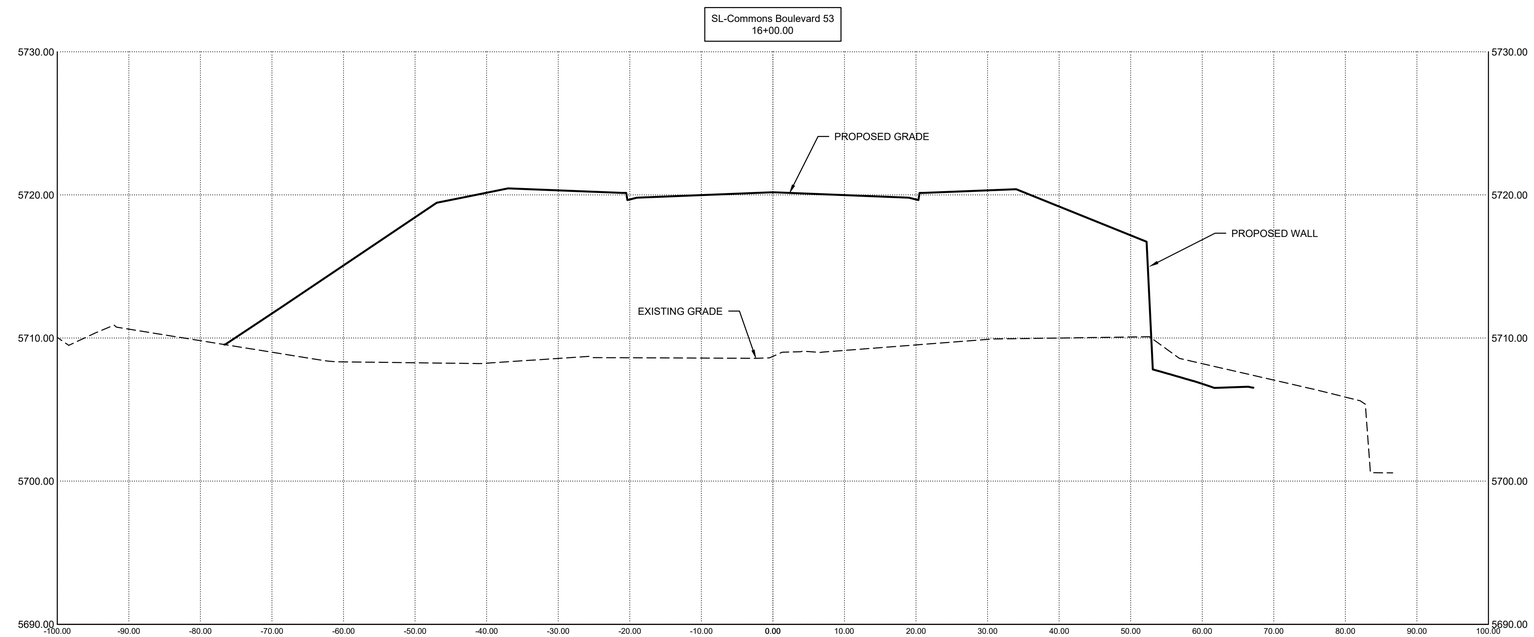
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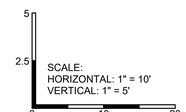
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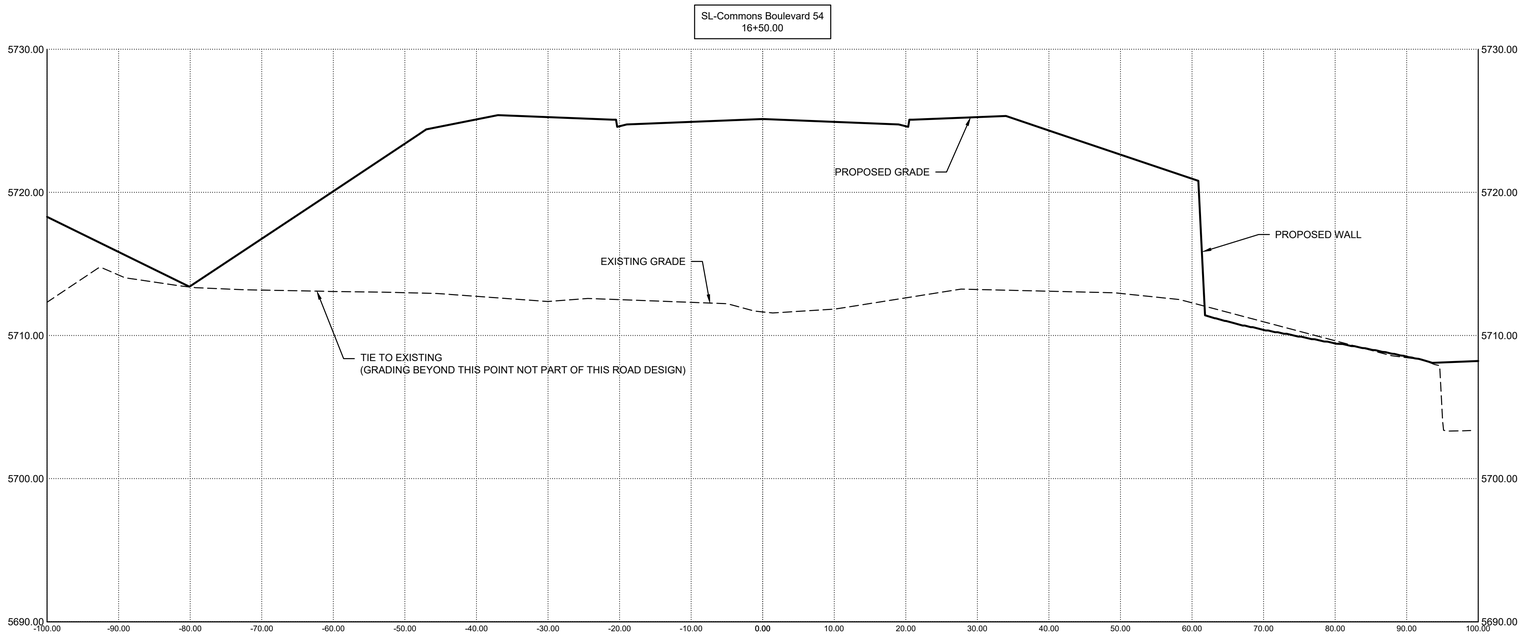
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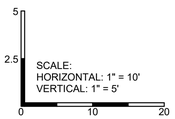


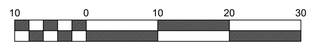
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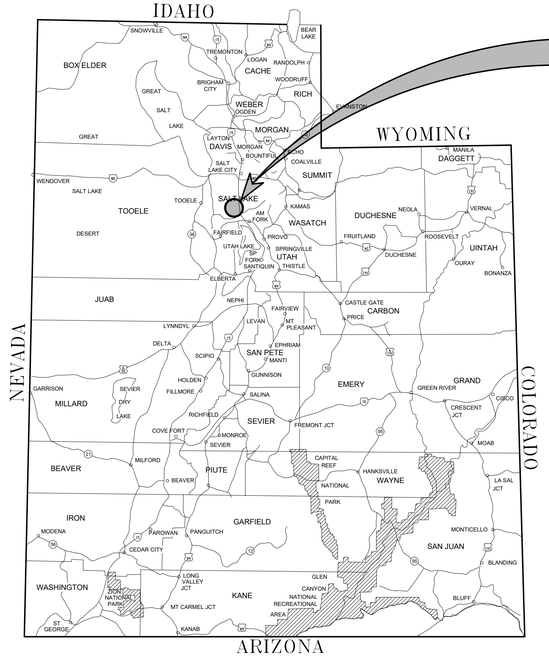


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S-13

HIGHLANDS RESIDENTIAL DEVELOPMENT:
COLLEGE WAY WIDENING

LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19 AND THE WEST HALF OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.
2632–2896 VICTORY HIGHWAY, HEBER CITY, UTAH 84032



N

NTS

Sheet List Table	
Sheet Number	Sheet Title
College Way Widening	
CV-01	College Way Cover Sheet
NT-01	General Notes
NT-02	Symbols and Abbreviations
SP-01	College Way Site Plan
TS-01	College Way Typical Section 1
TS-02	College Way Typical Section 2
GP-01	College Way Grading Plan
College Way Widening: Road Sections	
S-00	College Way Typical Road Sections-Key Map
S-01	College Way Typical Road Sections
S-02	College Way Typical Road Sections
S-03	College Way Typical Road Sections
S-04	College Way Typical Road Sections
S-05	College Way Typical Road Sections
S-06	College Way Typical Road Sections

PROJECT SITE



LOCATION MAP
N.T.S.

DEVELOPER / BUILDER:
DR HORTON
12351 S GATEWAY PARK PLACE
DRAPER, UT 84020
(801) 571-7101

PRELIMINARY PLANS

PLANS PREPARED BY:
WARD ENGINEERING GROUP
231 WEST 800 SOUTH SUITE A
SALT LAKE CITY, UTAH 84101
(801) 487-8040 PHONE
(801) 487-8668 FAX

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COLLEGE WAY COVER SHEET

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CV-01

CIVIL PROJECT NOTES

CONTRACTOR SHALL PERFORM ALL WORK TO THE STANDARD PLANS, SPECIFICATIONS, AND REQUIREMENTS OF:
WATER: NORTH VILLAGE SPECIAL SERVICE DISTRICT
SEWER: NORTH VILLAGE SPECIAL SERVICE DISTRICT
STORM WATER: HEBER CITY
POWER: ROCKY MOUNTAIN POWER
GAS: DOMINION ENERGY
CITY: HEBER CITY

1. ALL MATERIALS AND CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL CURRENT AND APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, OSHA REQUIREMENTS, STANDARDS AND SPECIFICATIONS WHETHER OR NOT ANY SPECIFIC REFERENCE IS MADE TO SUCH IN THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE PROPERLY LICENSED IN THE STATE OF UTAH TO PERFORM ALL OF THE WORK DESCRIBED IN THESE CONTRACT DOCUMENTS. SUCH LICENSING SHALL REMAIN IN EFFECT CONTINUOUSLY THROUGHOUT THE ENTIRETY OF THIS PROJECT INCLUDING FROM TIME OF BID SUBMISSION THROUGH PROJECT COMPLETION AND WARRANTY PERIOD. THE CONTRACTOR SHALL CARRY APPROPRIATE INSURANCE, PERFORMANCE AND PAYMENT BONDS AS REQUIRED.
2. ALL WORK SHALL CONFORM TO THESE PLANS AND TO THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. IN THE EVENT THAT ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING, AND THE ENGINEER, AT HIS SOLE DISCRETION, SHALL DETERMINE WHICH REQUIREMENTS GOVERN. THE CONTRACTOR SHALL KEEP ONE RECORD COPY OF ALL SPECIFICATIONS, DRAWINGS, ADDENDA, MODIFICATIONS, AND SHOP DRAWINGS AT THE SITE IN GOOD ORDER AND ANNOTATED TO SHOW ALL CHANGES MADE DURING THE CONSTRUCTION PROCESS. THESE SHALL BE AVAILABLE TO THE ENGINEER AND SHALL BE DELIVERED TO HIM FOR THE OWNER UPON COMPLETION OF THE PROJECT.
3. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THE PLANS AND DOCUMENTS, PERFORM A SITE VISIT TO SATISFY HIMSELF AS TO THE SITE CONDITIONS, ATTEND ALL PRECONSTRUCTION AND CONSTRUCTION MEETINGS, AND THOROUGHLY SATISFY HIMSELF AS TO THE TRUE MEANING AND INTENTION OF THIS CONTRACT. THE CONTRACTOR SHALL BE COMPETENT AND EXPERIENCED TO PERFORM ALL WORK REQUIRED. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
4. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ENGINEER AND THEIR AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES INCLUDING ATTORNEY'S FEES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK, PROVIDED THAT ANY SUCH CLAIM, DAMAGE, LOSS OR EXPENSES IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN THE WORK ITSELF) INCLUDING THE LOSS OF USE RESULTING THERE FROM; AND IS CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT IT IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER. IN ANY AND ALL CLAIMS AGAINST THE OWNER OR THE ENGINEER OR ANY OF THEIR AGENTS OR EMPLOYEES BY ANY EMPLOYEE OF THE CONTRACTOR, AND SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, SAID INDEMNIFICATION OBLIGATION SHALL NOT BE LIMITED IN ANY WAY BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR ANY SUBCONTRACTOR UNDER WORKMEN'S COMPENSATION ACTS, DISABILITY BENEFIT ACTS OR OTHER EMPLOYEE BENEFIT ACTS.
5. THE CONTRACTOR WARRANTS AND GUARANTEES TO THE OWNER AND ENGINEER THAT ALL MATERIAL AND EQUIPMENT USED IN THE PERFORMANCE OF THIS WORK SHALL BE NEW UNLESS OTHERWISE SPECIFIED AND THAT ALL WORK SHALL BE OF GOOD QUALITY AND FREE FROM FAULTS OR DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. IF REQUIRED BY THE ENGINEER, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT. ALL MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND CONDITIONED IN ACCORDANCE WITH THE INSTRUCTIONS OF THE APPLICABLE MANUFACTURER, FABRICATOR OR PROCESSOR, EXCEPT AS OTHERWISE PROVIDED IN THE PLANS AND DOCUMENTS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, LICENSES AND FEES REQUIRED FOR THE PERFORMANCE AND COMPLETION OF THE WORK AND SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SAID PERMITS AND LICENSES. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION SIGNAGE, BARRICADING AND TRAFFIC CONTROL IN CONFORMANCE TO THE UTAH DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL STANDARDS AND TO THE MOST RECENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, LABOR, TRANSPORTATION, CONSTRUCTION EQUIPMENT AND MACHINERY, TOOLS, APPLIANCES, FUEL, POWER, LIGHT, HEAT, TELEPHONE, WATER, SANITARY FACILITIES, AND ALL OTHER FACILITIES AND INCIDENTALS NECESSARY FOR THE EXECUTION, TESTING, INITIAL OPERATION AND COMPLETION OF THE WORK.
7. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR PROVIDING DUST, MUD, AND EROSION CONTROL, AND PROPER DRAINAGE. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY HANDLE AND DISPOSE OF ALL CONSTRUCTION WATER. THE CONTRACTOR SHALL LIMIT TRAVEL ON THE PROJECT SITE TO ROADWAYS ONLY, EXCEPT WHERE CONSTRUCTION SPECIFICALLY REQUIRES TRAVEL ELSEWHERE. ANY DAMAGE CAUSED BY SUCH UNAUTHORIZED TRAVEL SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIAL, RUBBISH AND OTHER DEBRIS RESULTING FROM THE WORK. EQUIPMENT AND CONSTRUCTION MATERIALS, ETC., SHALL BE STORED ONSITE ONLY AT THE SATISFACTION OF THE OWNER OF THE PROPERTY PARCEL WHEREON THEY ARE STORED. AT THE COMPLETION OF THE WORK, ALL WASTE MATERIALS, RUBBISH AND DEBRIS SHALL BE REMOVED FROM THE PREMISES AS WELL AS ALL TOOLS, CONSTRUCTION EQUIPMENT AND MACHINERY, AND SURPLUS MATERIALS. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION THOSE PORTIONS OF THE SITE NOT DESIGNATED FOR ALTERATION BY THE PLANS AND DOCUMENT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING ALL REQUIRED TESTING AND INSPECTIONS A MINIMUM OF 48 HOURS IN ADVANCE. IN THE EVENT THAT TESTING AND INSPECTION SERVICES ARE FURNISHED BY THE OWNER, SUCH SERVICES SHALL BE PAID FOR BY THE OWNER; HOWEVER, ANY RETESTING/REINSPECTION THAT IS REQUIRED AS A RESULT OF INSUFFICIENT OR DEFECTIVE WORK SHALL BE CONDUCTED AT THE CONTRACTOR'S EXPENSE. NEITHER OBSERVATIONS BY THE ENGINEER NOR INSPECTIONS, TESTS OR APPROVALS BY PERSONS OTHER THAN THE CONTRACTOR SHALL RELIEVE THE CONTRACTOR FROM HIS OBLIGATIONS TO PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND DOCUMENTS
9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE CONDITIONS THROUGHOUT THE PROJECT, INCLUDING SUBSURFACE CONDITIONS AND UTILITY LOCATION. WARD ENGINEERING GROUP ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS. ANY EXISTING UTILITIES OR OTHER IMPROVEMENTS SHOWN ON THE PLANS HAVE BEEN DERIVED FROM FIELD INVESTIGATIONS AND/OR AVAILABLE RECORD INFORMATION. THE CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITY LOCATIONS AND INVERT ELEVATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTING ANY NEW UTILITY. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING FACILITIES RESULTING DIRECTLY OR INDIRECTLY FROM HIS OPERATIONS, WHETHER OR NOT SUCH FACILITIES ARE SHOWN IN THESE PLANS. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION. NO EXCAVATION OF ANY NATURE SHALL BE PERFORMED WITHOUT FIRST CONTACTING "BLUE STAKES" AT LEAST 48 HOURS PRIOR TO SUCH EXCAVATION.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ASSURE SOUND EXCAVATION AND GRADING PRACTICES. FOR ALL EXCAVATIONS EXCEEDING A DEPTH OF 4 FEET, THE CONTRACTOR SHALL PROVIDE APPROPRIATE SHORING, BRACING, SLOPING OR OTHER APPROPRIATE PROVISIONS AS SPECIFIED BY OSHA THAT ARE NECESSARY TO PROTECT THE SAFETY OF THOSE AT THE SITE. ALL OPEN TRENCHES MUST BE PROPERLY COVERED AT THE END OF WORK EACH DAY. HARD HATS SHALL BE WORN BY ALL PERSONS AT THE SITE. ALL SPECIFICATIONS, DRAWINGS AND COPIES THEREOF FURNISHED BY THE ENGINEER SHALL REMAIN HIS PROPERTY. THEY SHALL NOT BE USED ON ANOTHER PROJECT AND, WITH EXCEPTION OF THOSE SETS WHICH HAVE BEEN SIGNED IN CONNECTION WITH THE EXECUTION OF THE AGREEMENT, SHALL BE RETURNED TO THE ENGINEER UPON REQUEST AT COMPLETION OF THE PROJECT.
11. CONTRACTOR SHALL UTILIZE "BEST MANAGEMENT" PRACTICES FOR STORM WATER POLLUTION PREVENTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPMENT AND COMPLIANCE TO AN APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

CONSTRUCTION NOTES

1. CONTRACTOR SHALL STERILIZE THE SUBGRADE BENEATH PROPOSED NEW PAVING AND WALKWAYS. CONTRACTOR SHALL SUBMIT MEANS AND METHODS FOR APPROVAL PRIOR TO IMPLEMENTATION.
2. THE CONTRACTOR IS RESPONSIBLE FOR INDEPENDENT QUALITY CONTROL TESTING OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL RETAIN THE SERVICES OF AN INDEPENDENT QUALITY CONTROL AGENCY FOR ALL TESTING AS REQUIRED IN THESE PLANS. THE NUMBER AND TYPE OF TESTS SHALL BE PER THESE DRAWINGS, THE PROJECT SPECIFICATIONS. THE OWNER RESERVES THE RIGHT TO CONDUCT ADDITIONAL TESTING FOR QUALITY ASSURANCE OF THE INFRASTRUCTURE INSTALLED.
3. ALL UTILITY PIPING SHALL HAVE WARNING TAPE INSTALLED 12" MIN. ABOVE AND ALONG THE ENTIRE LENGTH, INCLUDING SERVICE LATERAL. TAPE SHALL BE LABELED ACCORDING TO UTILITY.
4. THE OPEN ENDS OF ALL PIPELINES UNDER CONSTRUCTION SHALL BE COVERED AND EFFECTIVELY SEALED AT THE END OF EACH DAY'S WORK.
5. THE LOCATION OF THE STUB ENDS OF ALL LATERALS SHALL BE MARKED IN THE FIELD USING A 2" X 4" POST EXTENDING FROM THE END OF THE LATERAL TO A MINIMUM OF THREE FEET ABOVE THE GROUND SURFACE. THE 2" X 4" POST SHALL BE PAINTED USING GREEN PAINT FOR SEWER, BLUE PAINT FOR WATER, RED FOR POWER, YELLOW FOR GAS, AND ORANGE FOR COMMUNICATIONS. RECORD DRAWINGS SHALL BE MAINTAINED AT THE PROJECT SITE SHOWING ACCURATE LOCATIONS OF ALL LATERAL CONNECTIONS MEASURED FROM THE NEAREST MANHOLE AND ALL LATERAL STUBS MEASURED FROM THE NEAREST PROPERTY LINE.
6. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE DIAGRAMMATIC ONLY, AND ALL UTILITIES MAY NOT BE SHOWN. THE CONTRACTOR SHALL CONTACT THE PROPER LOCAL AUTHORITIES OR UTILITY COMPANY TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE BEGINNING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
7. CAUTION & CARE SHOULD BE TAKEN DURING ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.

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PROVO, UTAH 84603-1617

GENERAL REQUIREMENTS (CONT'D)

8. EXCAVATION REQUIRED WITHIN CLOSE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE ONLY BY HAND. CONTRACTOR SHALL REPAIR AND REPLACE ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO OWNER.
9. ANY EXISTING WATER LINE TO BE REMOVED MUST BE REMOVED AT THE MAIN.
10. ANY ABANDONED SANITARY SEWER OR STORM DRAIN PIPES OR STRUCTURES MUST BE FILLED WITH FLOWABLE FILL BY THE CONTRACTOR.

QC AND MATERIALS TESTING

1. CONTRACTOR SHALL RETAIN AT CONTRACTORS EXPENSE, A QUALIFIED QUALITY CONTROL AND MATERIALS TESTING "AGENCY" OR AGENCIES, WHICH ARE INDEPENDENT FROM THE CONTRACTOR, AND APPROVED BY OWNER(S). THE AGENCY SHALL BE QUALIFIED TO OBSERVE, TEST, AND CERTIFY THAT ALL OF THE CONSTRUCTION MATERIALS ARE INSTALLED PER ALL ACCEPTANCE CRITERIA DEFINED IN THE PROJECT SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH AND SCHEDULE THE AGENCY FOR ALL REQUIRED TESTS & INSPECTIONS & SAMPLES FOR EACH COMPONENT OF THE SITE WORK, AND ACCORDING TO THE REQUIRED TESTING INTERVALS AND FREQUENCIES.

CLEARING AND GRUBBING

1. REMOVE AND DISPOSE OF TREES, STUMPS, LOGS, LIMBS, STICKS, VEGETATION, DEBRIS, AND OTHER MATERIAL ON THE NATURAL GROUND SURFACE.
2. DISPOSE OF ALL MATERIAL OFF THE PROPERTY TO A FACILITY LICENSED TO ACCEPT THE MATERIAL TYPE.
2. REFER TO "GEOTECHNICAL ENGINEERING STUDY HEBER SUBDIVISION 1200 SOUTH 2400 EAST, HEBER CITY, UTAH" COMPILED BY CMT ENGENEERING LABORATORIES, DATED MAY 26, 2021.

WATER IMPROVEMENT REQUIREMENTS

1. ALL WATER MAINS AND APPURTENANCES, SHALL BE DESIGNED, CONSTRUCTED, DISINFECTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH THIS PLAN, ALL APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF DRINKING WATER, AND LOCAL MUNICIPAL AUTHORITY.
2. FOLLOW ALL STANDARD PLANS & SPECIFICATIONS OF THE TCSSD.

SEWER IMPROVEMENT REQUIREMENTS

1. ALL SEWER MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND LOCAL MUNICIPAL AUTHORITY.
2. FOLLOW ALL STANDARD PLANS & SPECIFICATIONS OF THE TCSSD.

STORM DRAINAGE IMPROVEMENTS

1. ALL STORM DRAIN MAINS AND APPURTENANCES SHALL BE DESIGNED, CONSTRUCTED, TESTED, AND PLACED IN SERVICE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES, REGULATIONS, ORDINANCES, AND REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, THE REQUIREMENTS OF OSHA, THE STATE DIVISION OF WATER QUALITY, AND LOCAL MUNICIPAL AUTHORITY.
2. FOLLOW ALL STANDARD PLANS & SPECIFICATIONS OF WASATCH COUNTY

GRADING AND EARTHWORK

1. REFER TO GRADING SHEETS (GP SHEETS) FOR DESIGN OF THE GRADING FOR THIS PROJECT.
2. REFER TO "GEOTECHNICAL ENGINEERING STUDY HEBER SUBDIVISION 1200 SOUTH 2400 EAST, HEBER CITY, UTAH" COMPILED BY CMT ENGENEERING LABORATORIES, DATED MAY 26, 2021.

UTBC & ASPHALT NOTES

1. THE ASPHALT MIX DESIGN AND PLACEMENT SHALL BE IN ACCORDANCE WITH WASATCH COUNTY REQUIREMENTS.
2. REFER TO TYPICAL DETAIL SHEETS (TD SHEETS) FOR PAVEMENT DESIGN IN THIS PROJECT.

GRADING NOTES

1. THE CONTRACTOR SHALL BECOME FAMILIARIZED WITH THE RECOMMENDATIONS LISTED IN THE SOILS REPORT FOR THIS PROJECT. PREPARED BY GSH GEOTECHNICAL, INC. DATED SEPTEMBER 21, 2016, SURFACE DRAINAGE TO BE ONE (1%) PERCENT MINIMUM TO APPROVED DRAINAGE FACILITIES, EXCEPT AS WAIVED BY THE BUILDING OFFICIAL, OR DIRECTED BY THE ENGINEER.
2. ALL FILL EXCEPT THAT UNDERNEATH PAVED SURFACES, WITHIN ROAD RIGHT OF WAY OR UNDERNEATH BUILDING SLABS, SIDEWALKS & FOOTINGS, SHALL BE COMPACTED TO A MINIMUM OF EIGHTY-FIVE (85%) PERCENT MAXIMUM DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 1557 AND CERTIFIED BY TESTS AND REPORTS FROM SOILS ENGINEER.
3. ALL FILL UNDERNEATH PATHWAYS AND CONCRETE SHALL BE CLASSIFICATION A/1-A THROUGH A/4 AS DEFINED BY ASHTO M 145 AND COMPACTED TO A MINIMUM OF NINETY-FIVE (95%) PERCENT MAXIMUM DRY DENSITY AND ± 2% OPTIMUM MOISTURE CONTENT AS SPECIFIED BY ASTM D 1557. FOR ALL FILL UNDERNEATH BUILDING SLABS AND FOOTINGS, REFER TO STRUCTURAL PLANS AND GEOTECHNICAL REPORT.
4. FILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING SIX (6) INCHES IN COMPACTED THICKNESS AND COMPACTED AT OPTIMUM MOISTURE CONTENT TO THE REQUIRED MAXIMUM DRY DENSITY.
5. ALL FILL AREAS TO BE CLEARED OF ALL VEGETATION AND OTHER UNSUITABLE MATERIALS AND THE AREA SCARIFIED TO A DEPTH OF SIX (6) INCHES, OR TO A DEPTH TO REMOVE TOP SOIL, REFER TO GEOTECHNICAL REPORT.
6. CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ORGANIC MATERIALS FROM STRUCTURALLY LOADED EMBANKMENTS AND BUILD FOOTPRINT LOCATION ACCORDING TO THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.

APPLICABLE CODES AS ADOPTED BY THE LOCAL GOVERNEMT ENTITY

IBC (INTERNATIONAL BUILDING CODE)
IRC (INTERNATIONAL RESIDENTIAL CODE)
IWUIC (INTERNATIONAL WILDLAND-URBAN INTERFACE CODE)
NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
AWWA (AMERICAN WATER WORKS ASSOCIATION
ANSI (AMERICAN NATIONAL STANDARDS INTITUTE)
MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES)
APWA (AMERICAN PUBLIC WORKS ASSOCIATION)
ADA STANDARDS FOR ACCESSIBLE DESIGN
ADAAG (A GUIDE TO THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES)

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GENERAL NOTES

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DESIGN BY WARD
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REVISIONS
1 07/30/2024 GRADING REVISION

PROFESSIONAL ENGINEER ANTHONY SATTAR N. TASMIZ 8166024 STATE OF UTAH
8/6/2024

SHEET
NT-01

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CIVIL PROJECT NOTES

LINE TYPES

- BOUNDARY LINE
- PROPERTY LINE
- SECTION LINE
- RIGHT OF WAY
- CENTER LINE
- 8 W — PROPOSED WATER MAIN (SIZED AS INDICATED)
- 18 SD — PROPOSED STORM DRAIN (SIZED AS INDICATED)
- 8 SS — PROPOSED SANITARY SEWER (SIZED AS INDICATED)
- 8 IRR — PROPOSED IRRIGATION (SIZED AS INDICATED)
- COMM — PROPOSED COMMUNICATION/TELEPHONE LINE
- PROPOSED GAS LINE
- PROPOSED BURIED ELECTRICAL
- X — X — X — PROPOSED WIRE/BARBED FENCE
- EASEMENT
- OHP — OVERHEAD POWER LINE
- OPEN DITCH, CANAL FLOW LINE
- PROPERTY SET BACKS
- EXISTING RAILROAD TRACKS
- EXISTING EDGE OF PAVEMENT
- Ex W — EXISTING WATER MAIN (SIZED AS INDICATED)
- Ex 18 SD — EXISTING STORM DRAIN (SIZED AS INDICATED)
- Ex 8 SS — EXISTING SANITARY SEWER (SIZED AS INDICATED)
- Ex 8 IRR — EXISTING IRRIGATION (SIZED AS INDICATED)
- X — X — X — EXISTING FENCE CHAIN LINK

NOTE: ALL SYMBOLS, LINETYPES AND/OR ABBREVIATIONS MAY NOT BE SHOWN.

EXISTING SYMBOLS

- SECTION MONUMENT NOT FOUND
- EXISTING TREE/VEGATION
- EXISTING MONUMENT FOUND – NOTED
- EXISTING TRAFFIC SIGNAL BOX
- EXISTING MONUMENT FOUND – NOTED
- EXISTING BOLLARD
- EXISTING POWER POLE
- EXISTING GAS METER
- EXISTING SIGN
- EXISTING TELE J–BOX
- EXISTING STREET LIGHT
- EXISTING ELECTRIC TRANSFORMER
- EXISTING FIRE HYDRANT ASSEMBLY
- EXISTING WATER VALVE
- EXISTING WATER METER
- EXISTING WATER VALVE–BUTTERFLY
- EXISTING MANHOLES BY TYPE (CM, D, S, W)
- EXISTING CATCH BASIN
- EXISTING COMBINATION BOX

PROPOSED SYMBOLS

- SECTION MONUMENT FOUND
- SEWER FLOW ARROW
- MONUMENT – NOTED
- SEWER MANHOLE NUMBER
- PROPERTY CORNERS
- SEWER SERVICE LATERAL
- UTILITY POLE
- CATCH BASIN
- SIGN
- COMBINATION BOX
- STREET LIGHT
- STORM DRAIN MANHOLE NUMBER
- ROAD DRAINAGE ARROW
- FIRE HYDRANT ASSEMBLY
- WATER VALVE
- WATER METER
- IRRIGATION SERVICE LATERAL
- WATER VALVE BUTTERFLY
- AIR VAC
- WATER SERVICE LATERAL
- PROPOSED MANHOLE (S, D)

ABBREVIATIONS

ABUT.	= ABUTMENT
AGG.	= AGGREGATE
APPROX.	= APPROXIMATE
A.S.	= AS SHOWN
AUX.	= AUXILIARY
AVG.	= AVERAGE
BCR	= BEGIN OF CURB RETURN
BOW	= BACK OF WALK
BRG.	= BEARING
℄/C.L.	= CONTROL LINE/CENTER LINE
CATV	= CABLE TELEVISION
CI	= CAST IRON
CLR.	= CLEAR/CLEARANCE
CMP	= CORRUGATED METAL PIPE
COL	= COLUMN
CONC.	= CONCRETE
CONN	= CONNECTION
CONST.	= CONSTRUCTION
CONT.	= CONTINUOUS
COR.	= CORNER
CP	= CONTROL POINT
C.F.	= CUBIC FEET
DI	= DUCTILE IRON
DIA./Ø	= DIAMETER
DIP	= DUCTILE IRON PIPE
DIM.	= DIMENSION
DR	= DIMENSION RATIO
DWG.	= DRAWING
E	= EAST
EA	= EACH
ECR	= END OF CURB RETURN
EG	= EXISTING GRADE
EL./ELEV.	= ELEVATION
ELEC	= ELECTRIC
EO	= EDGE OF OIL
EST.	= ESTIMATED
EXIST	= EXISTING
F.F.	= FINISHED FLOOR
F.G.	= FINISHED GRADE
FL/FL	= FLOW LINE
FT.	= FEET
FLG.	= FLANGE
GA.	= GAUGE
G	= GALLON
GALV.	= GALVANIZED
GMH	= GAS MANHOLE
GV	= GAS VALVE
HA	= HECTARE
HDPE	= HIGH DENSITY POLYETHYLENE
HGL	= HYDRAULIC GRADE LINE
HMA	= HOT MIX ASPHALT
HORIZ.	= HORIZONTAL
HP	= HIGH PRESSURE/HIGH POINT
HWY	= HIGHWAY
I.D.	= INSIDE DIAMETER
INCL.	= INCLUDES
INT	= INTERSECTION
INV	= INVERT
IRRIG	= IRRIGATION
L	= LENGTH
LIN. FT.	= LINEAR FEET
LOC	= LIP OF CURB
LOC.	= LOCATION
LP	= LIGHT POLE/LOW POINT
LT	= LEFT
M.J.	= MECHANICAL JOINT FITTING
MISC.	= MISCELLANEOUS
MPa	= MEGAPASCAL
MAX.	= MAXIMUM
MG	= MEGAGRAM
MH	= MANHOLE
MIN.	= MINIMUM
N/NO.	= NORTH
NO./#	= NUMBER
N.T.S.	= NOT TO SCALE
O.C.	= ON CENTER
O.D.	= OUTER DIAMETER
OHP	= OVER HEAD POWER
PC	= POINT OF CURVATURE
PED	= PEDESTRIAN
PI/P.I.	= POINT OF INTERSECTION
PIP	= PLASTIC IRRIGATION PIPE
PL	= PROPERTY LINE
POC	= POINT ON CURVE
PP	= POWER POLE
PT	= POINT
PT	= POINT OF TANGENCY
PVC	= POLYVINYL CHLORIDE PLASTIC
PVC	= POINT OF VERTICAL CURVATURE
PVT	= POINT OF VERTICAL TANGENCY
PVI	= POINT OF VERTICAL INTERSECTION
PVMNT	= PAVEMENT
PVRC	= POINT OF VERTICAL REVERSE CURVE
R/RAD.	= RADIUS
R/C	= REBAR AND CAP
Rd.	= ROAD
RCP	= REINFORCED CONCRETE PIPE
R/W	= RIGHT OF WAY
REINF.	= REINFORCING
REQ'D	= REQUIRED
RET.	= RETAINING
R.P.	= REFERENCE POST
RT	= RIGHT
S	= SLOPE
S/SO.	= SOUTH
SCH	= SCHEDULE
SD	= STORM DRAIN
SDMH	= STORM DRAIN MANHOLE
SDR	= STANDARD DIMENSION RATIO
SDWLK	= SIDEWALK
SECT./SEC	= SECTION
SHLD	= SHOULDER
SHT	= SHEET
SPA.	= SPACING/SPACES
SQ.	= SQUARE
STA.	= STATION
STD.	= STANDARD
STD.	= STANDARD DRAWING
STR.	= STRUCTURE
SS	= SANITARY SEWER
SSMH	= SANITARY SEWER MANHOLE
T	= TANGENT DISTANCE
T.B.	= THRUST BLOCK
TBC	= TOP BACK OF CURB
TBW	= TOP BACK OF WALK
TEL	= TELEPHONE
TEMP	= TEMPORARY
TMH	= TELEPHONE MANHOLE
TOW	= TOP OF WALL
TYP.	= TYPICAL
UG	= UNDERGROUND
UTIL.	= UTILITY
VC	= VERTICAL CURVE
VERT.	= VERTICAL
W	= WEST
W/	= WITH
WC	= WITNESS CORNER
WMH	= WATER MANHOLE
WV	= WATER VALVE
YD^2/YD2	= SQUARE YARD
YD^3/YD3	= CUBIC YARD
YD.	= YARD
YR	= YEAR

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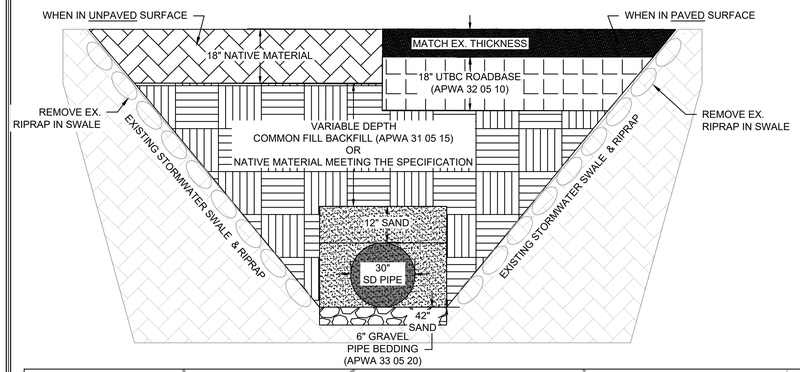
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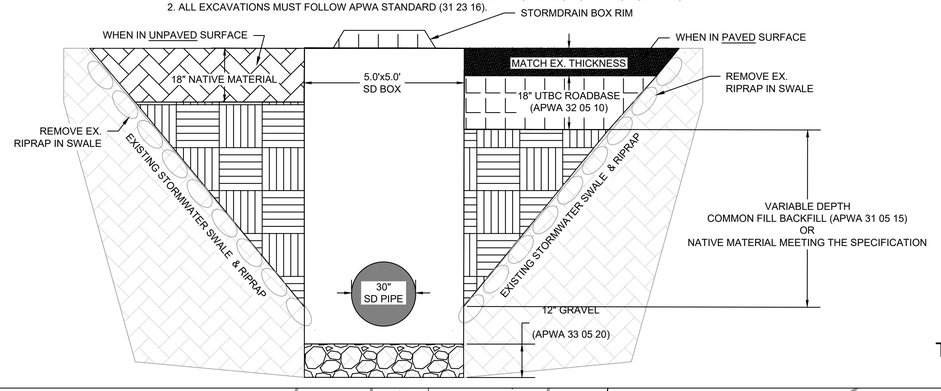
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NTS

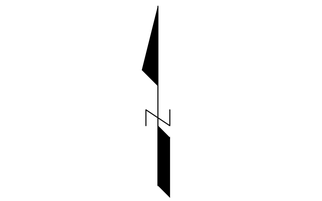
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2. ALL EXCAVATIONS MUST FOLLOW APWA STANDARD (31 23 16).



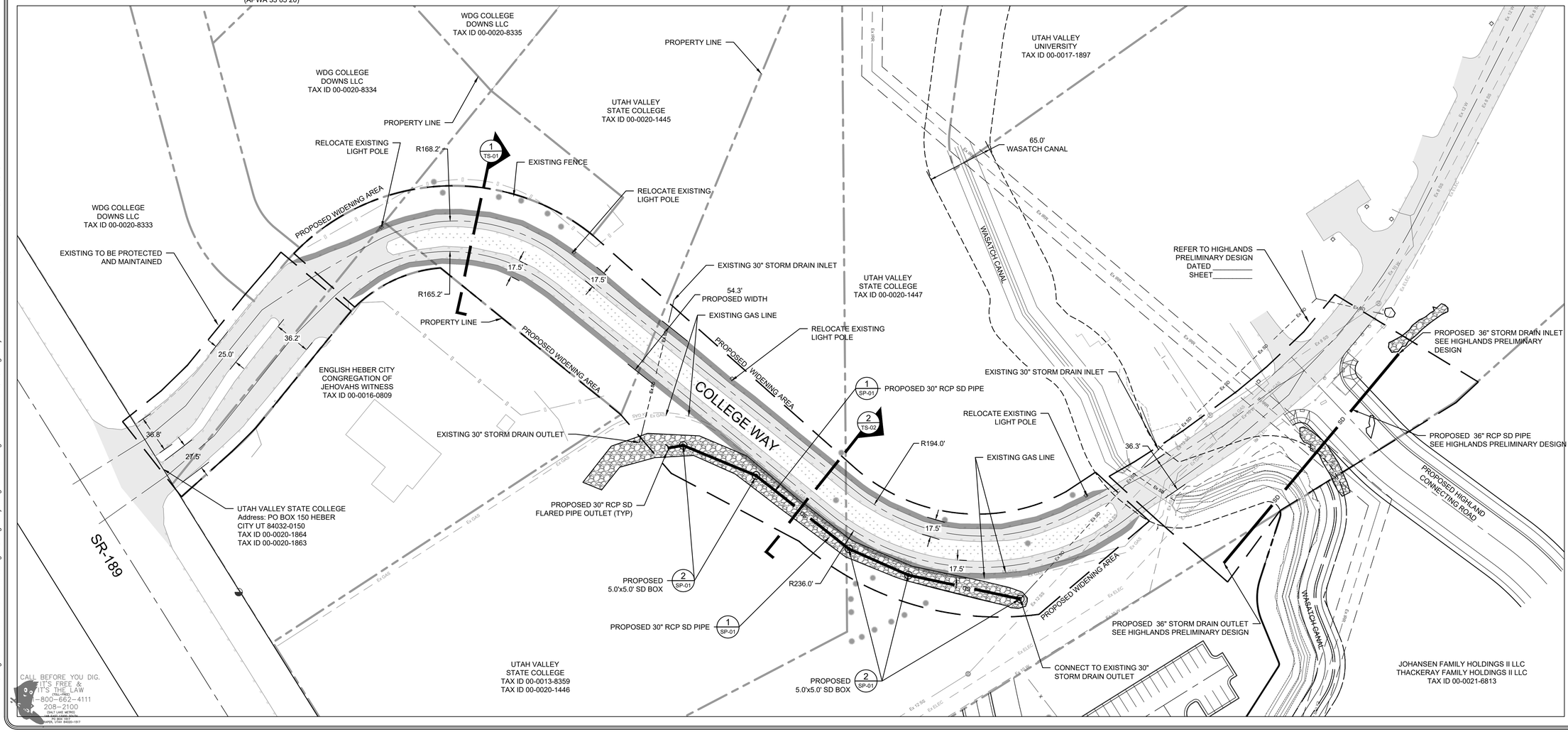
2 STORM DRAIN STRUCTURE DETAIL
NTS

NOTES:
1. BACKFILL OF ALL TYPES MUST BE COMPACTED TO APWA STANDARD (31 23 26) & (31 23 23) & (33 05 20).
2. ALL EXCAVATIONS MUST FOLLOW APWA STANDARD (31 23 16).





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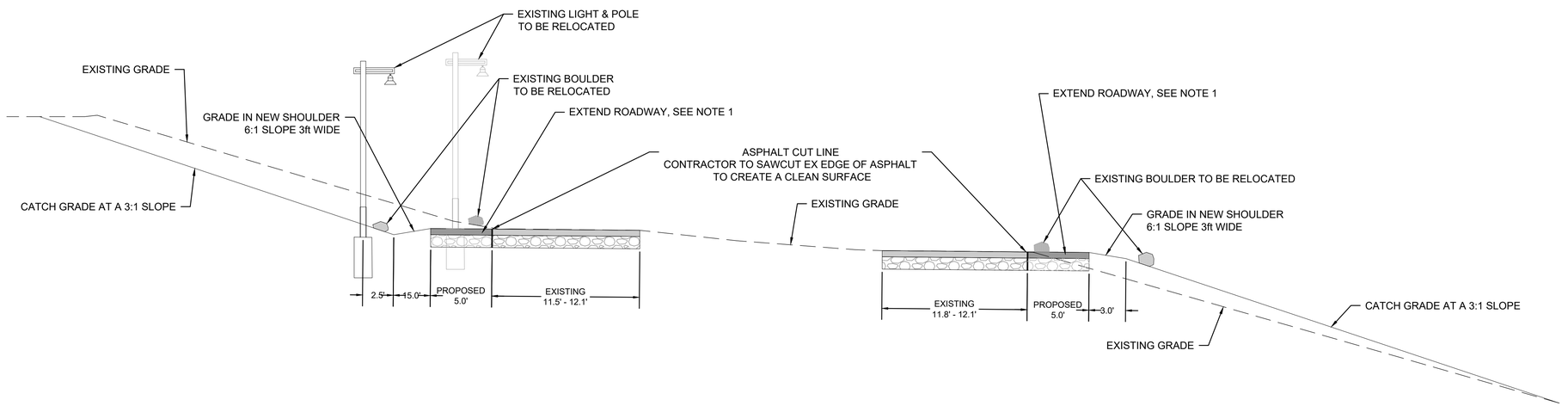
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NOTES:
1 - ROADWAY SHALL BE 4"ASPHALT/ 8" AGGREGATE BASE COURSE. SCARIFIED AND COMPACTED SUBGRADE, CONSISTING OF EXISTING OR IMPORTED A-1 MATERIAL 12" THICK MIN, PER SECTION 02775.

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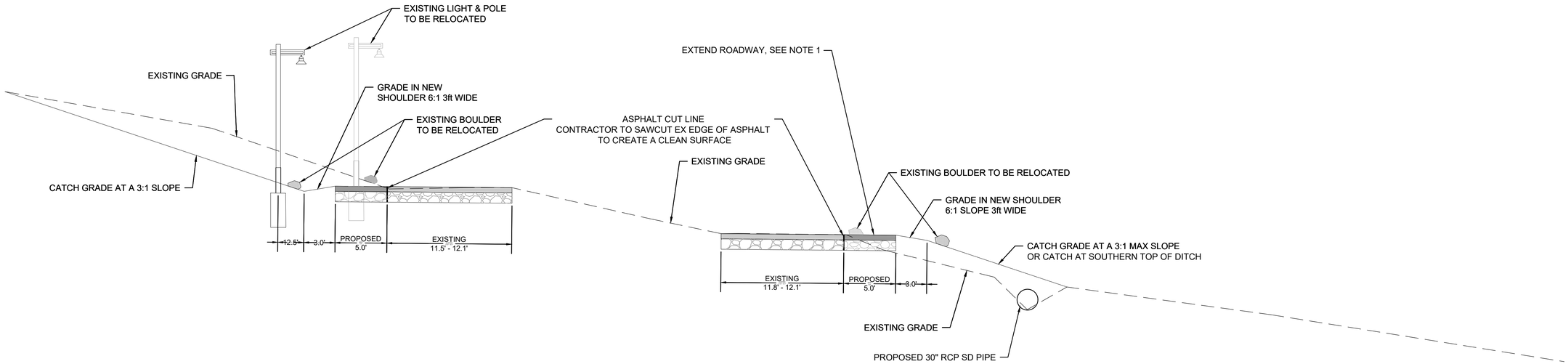
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SATTAR N. TABRIZ
STATE OF UTAH
8/6/2024

SHEET
TS-01

NOTES:
1 - ROADWAY SHALL BE 4"ASPHALT/ 8" AGGREGATE BASE COURSE. SCARIFIED AND COMPACTED SUBGRADE, CONSISTING OF EXISTING OR IMPORTED A-1 MATERIAL 12" THICK MIN, PER SECTION 02775.

UPPER AREA
HIGHLANDS
COLLEGE WAY TYP SECTION 2



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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COLLEGE WAY TYPICAL SECTION 2

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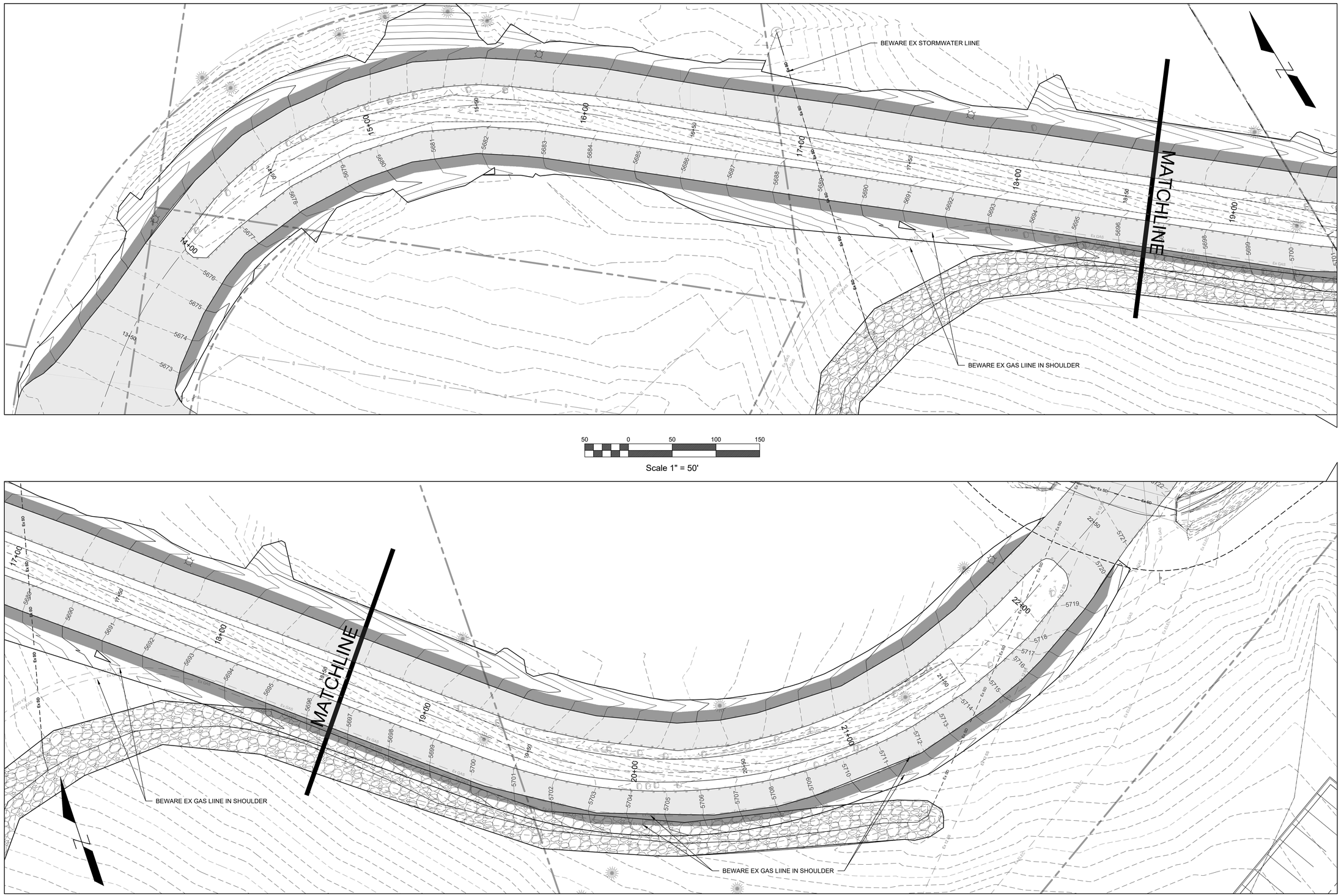
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STATE OF UTAH
8/6/2024

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HIGHLANDS RESIDENTIAL DEVELOPMENT
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COLLEGE WAY GRADING PLAN

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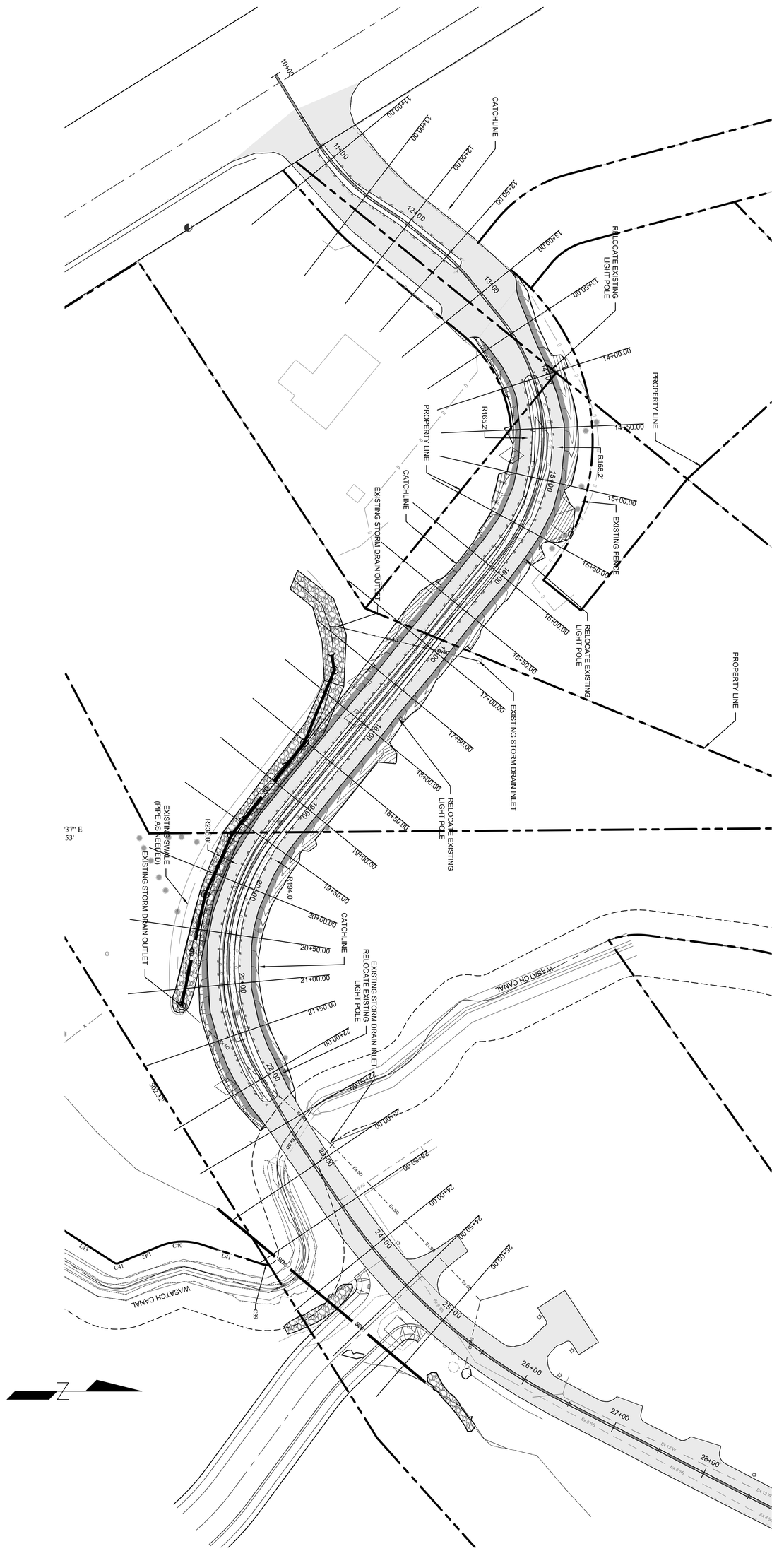
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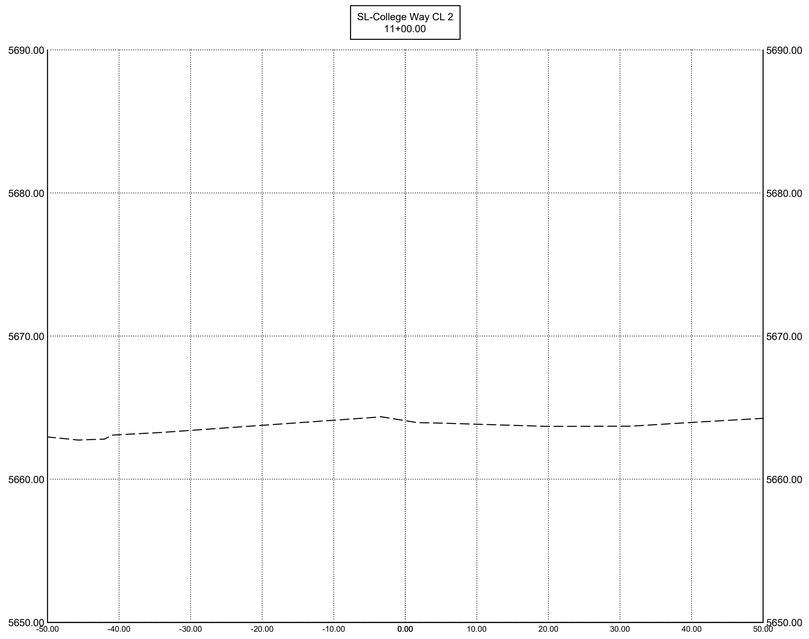
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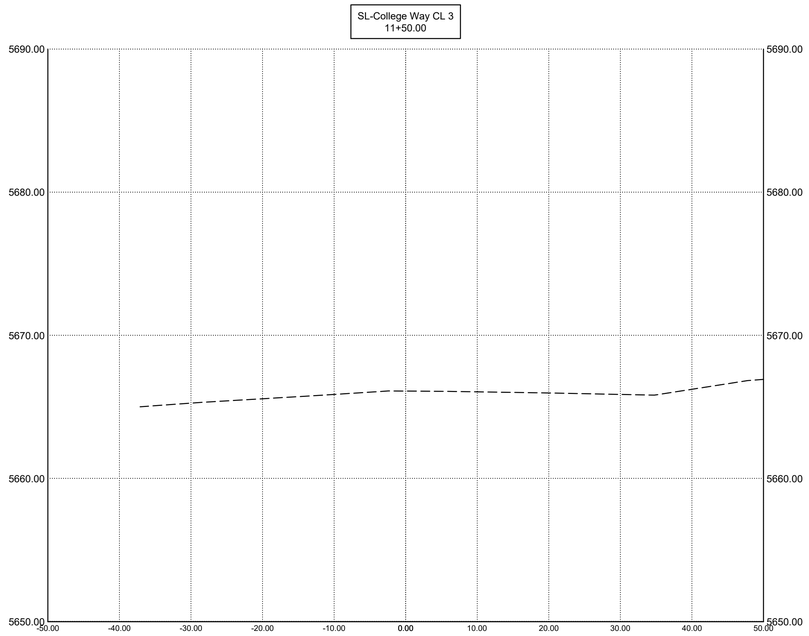
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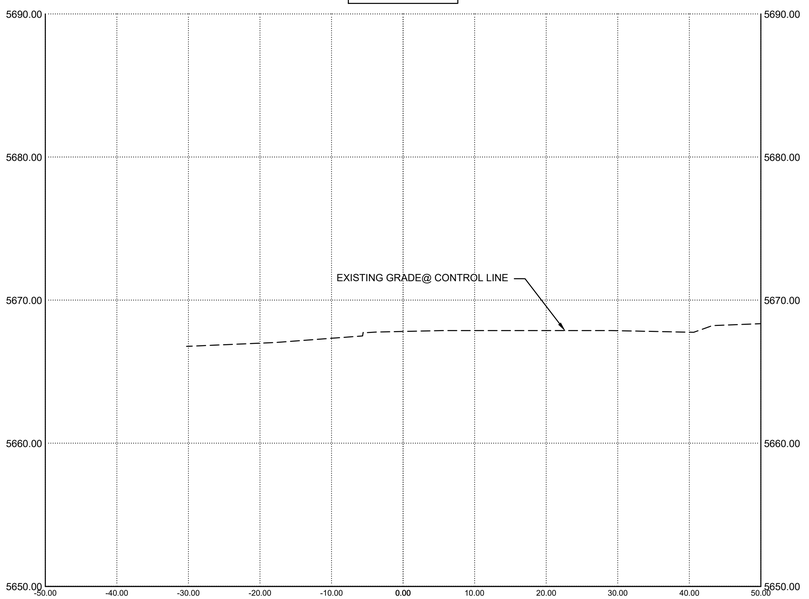
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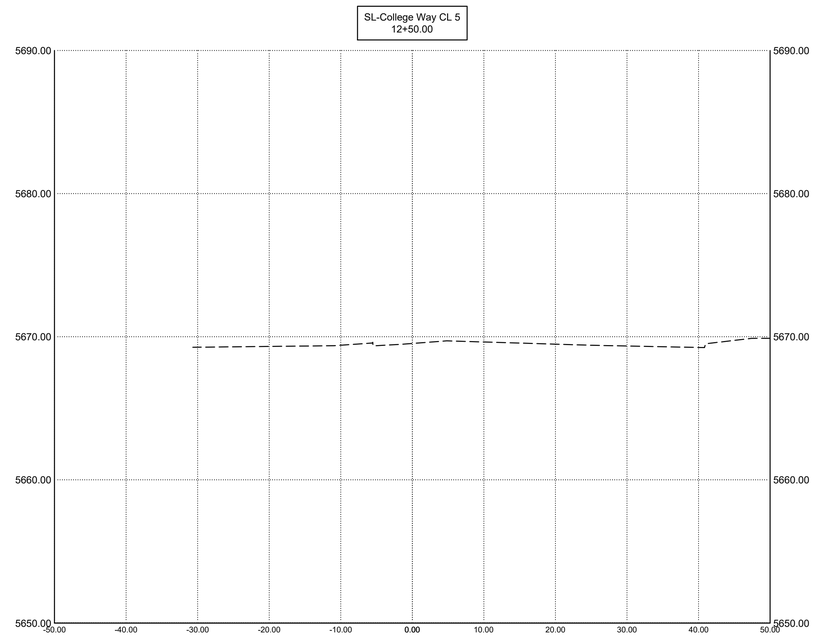


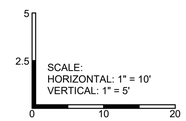
SHEET	REVISIONS			DRAWN BY: WARD	CLIENT: D.R.HORTON	231 West 800 South Salt Lake City, Utah 84101	HIGHLANDS RESIDENTIAL DEVELOPMENT HEBER CITY, UT COLLEGE WAY TYPICAL ROAD SECTIONS- KEY MAP
S-00	1	07/30/2024	GRADING REVISION	DESIGN BY: WARD	DWG: COLLEGE WAY GRADING BASE V02.DWG	Ward Engineering Group	
				CHECKED BY: AJS	JOB No: 3891-DRH01-23	Planning • Engineering • Surveying	
				DATE: 07/29/2024	DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22 in X 34 in - DIMENSIONS AND NOTES TAKE PRECEDENCE	PH: 801 . 487 . 8040	













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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
COLLEGE WAY TYPICAL ROAD SECTIONS

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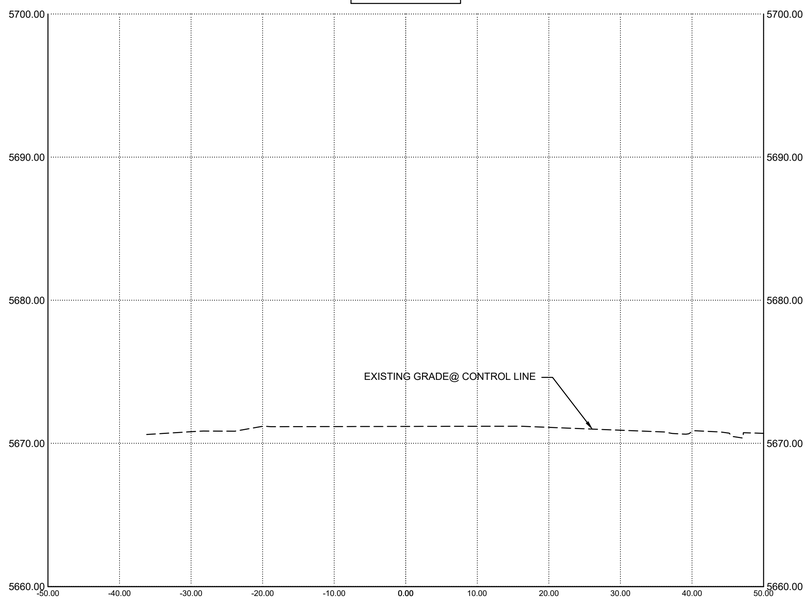
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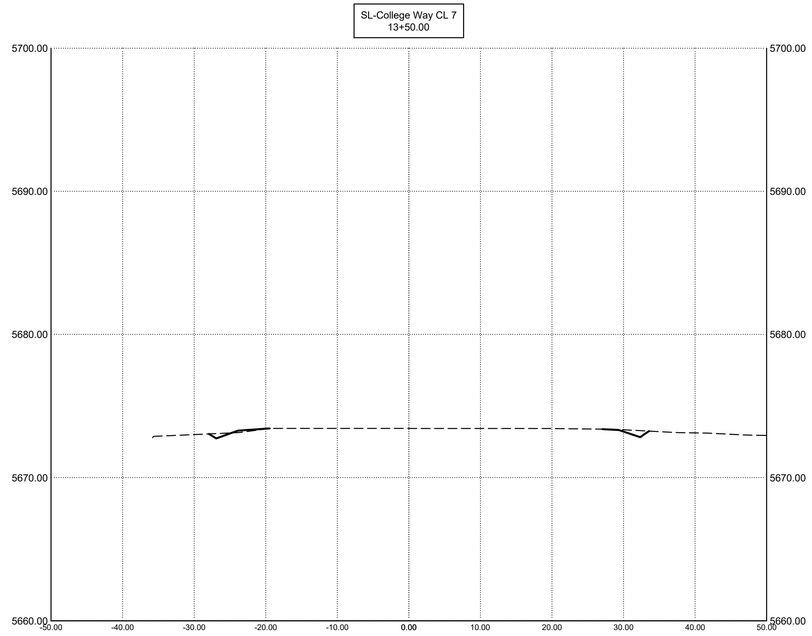
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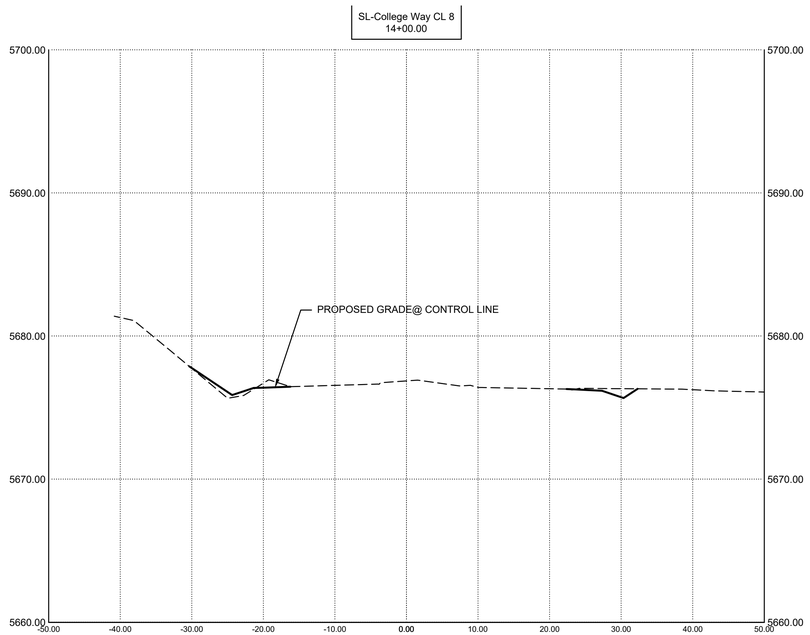
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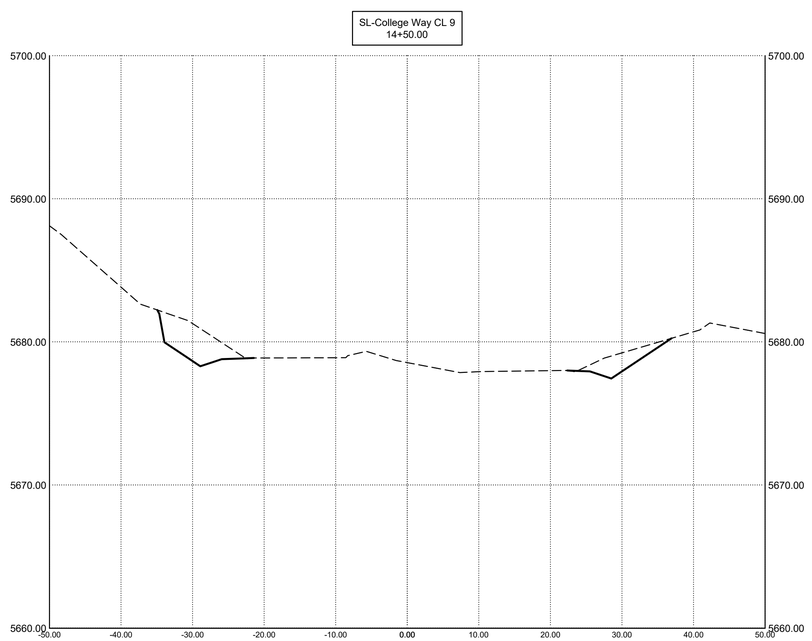
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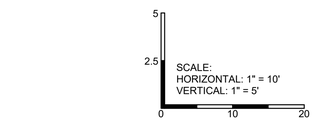
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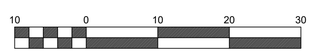












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HIGHLANDS RESIDENTIAL DEVELOPMENT
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COLLEGE WAY TYPICAL ROAD SECTIONS

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Fee: $40.00 Check Filed By: CO
MARCY M MURRAY, Recorder
WASATCH COUNTY CORPORATION
For: JOHANSEN ARMAND D

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Heber City
Attention: City Recorder
75 North Main Street
Heber City, Utah 84032
Tax Parcel Nos.: 00-0021-6813, 00-0007-8431, 00-0007-7797

(Space above for Recorder's use only.)

THIRD AMENDMENT TO DEVELOPMENT AGREEMENT FOR THE HIGHLANDS MASTER PLANNED COMMUNITY

THIS THIRD AMENDMENT TO DEVELOPMENT AGREEMENT FOR THE HIGHLANDS MASTER PLANNED COMMUNITY (this "**Amendment**") is entered into this ____ day of January, 2024, by and between HEBER CITY, a political subdivision of the State of Utah (the "**City**"), and CARDINAL FUNDING, LLC, a Utah limited liability company ("**Cardinal Funding**"). Each of Cardinal Funding and the City are hereinafter referred to individually as a "**Party**" and collectively as the "**Parties**"

RECITALS:

A. This Amendment amends that certain Development Agreement for the Highlands Master Planned Community (the "**Original Agreement**"), which Original Agreement is dated December 7, 2021 and was recorded in the official records of the Wasatch County Recorder on April 14, 2021 as Entry No. 518203 in Book 1405 at Page 1517-1607 (as such Original Agreement has been modified or amended prior to the date hereof and by this Amendment, the "**Agreement**"). Capitalized terms not otherwise defined in this Amendment shall have the meaning ascribed to them in the Original Agreement.

B. The Original Agreement was entered into by and among the City and Cardinal Funding with respect to that certain real property (the "**Property**") described therein and described on Exhibit A attached hereto, which Property is presently owned by Thackeray Family Holdings II, LLC, a Utah limited liability company ("**TFHII**") and Johansen Family Holdings II, LLC, a Utah limited liability company ("**JFHII**" and together with TFHII, the "**Landowners**"), which are executing this Amendment as owners of the Property.

C. The Original Agreement incorporated certain Design Guidelines, which Design Guidelines "are the approved guidelines for certain aspects of the design and construction of the development of the Property, including setbacks, building sizes, open space, height limitations, parking and signage, and, the design and construction standards for buildings, roadways and infrastructure, as set forth in and adopted as part of [the Original Agreement.]"

D. The Design Guidelines are applied in the context of the Zone, as the Zone is interpreted, clarified and/or modified by the City pursuant to this Agreement, and Cardinal Funding has sought certain interpretive guidance and clarification and certain amendments or other modifications from the City with respect to the Zone.

E. The Original Agreement was previously modified through an Administrative Amendment approved by Staff and recognized by the City Council on July 19, 2022 for the Highlands Conceptual Master Plan V6 (dated January 31, 2022) (the "**First Amendment**"). Staff approved the First Amendment on July 27, 2022. The First Amendment revised the general layout of the residential portion of the development, including a revision of the number of stacked flats, decreasing the total number of dwelling units and increasing the number of owner-occupied units. This Amendment entirely replaces and supersedes the First Amendment.

F. The Original Agreement was previously modified through an Administrative Amendment approved by Staff and recognized by the City Council on September 20, 2022 (the "**Second Amendment**"). Staff approved the Second Amendment on October 18, 2022. The Second Amendment modified the layout of the development to accommodate the City's Storm Water Master Plan. Such modifications included relocation of the clubhouse, the addition of several detention basins to be located throughout the development area and modifications to the Community Park, including the addition of a water feature planned to traverse through the Community Park and Town Center. Additionally, the commercial storage building was moved to the southern end of the development, and the size of the hotel was increased. The changes approved pursuant to the Second Amendment resulted in a decrease of 45 housing units and a decrease of ERU's by 0.74. This Amendment replaces and supersedes the Second Amendment, except for the Water Feature Amenity details, which are retained pursuant to the Third Amendment as shown in Exhibit O attached hereto.

G. The City's planning staff and Planning Commission have reviewed the proposed clarifications, modifications and amendments in one or more public hearings and provided a recommendation to the City Council based upon the unique and challenging topography of the Property but also seeking to maintain the overall intent of the required zoning design elements. On January 2, 2024, the City Council approved this Amendment as an Administrative Amendment pursuant to the requirements of the Original Agreement.

H. The upper road, Coyote View Drive, is a major reason for this Amendment, as the City and the adjoining Jordanelle Ridge Development desire to relocate Coyote View Drive to a location that differs from that shown in the Original Highlands Master Plan. This road relocation was done to facilitate a better design of the Arts District to the North of the Property.

I. At the request of the City, Cardinal Funding or its affiliates have exchanged real property (the "**Property Exchange**") along the eastern boundary of the Property with RE Investment Holdings, L.L.C. ("**REIH**").

J. The property owned by REIH prior to the Property Exchange was subject to that certain Development Agreement for the Upper Jordanelle Master Planned Community, recorded in the office of the Wasatch County Recorder on November 2, 2020 as Entry No. 487731 in Book 1321 at Page 1398 (as amended, supplemented or otherwise modified, the "**Upper Jordanelle Development Agreement**").

K. Cardinal Funding and the City desire to amend the Original Agreement so as to recognize the effect of the Property Exchange and to provide for the application of this Agreement to the property received by Cardinal Funding or its affiliates in the Property Exchange.

L. Pursuant to the requirements of Sections 17 and 18 of the Original Agreement, Cardinal Funding and the City are authorized and have the right to amend the Original Agreement and now desire to amend the Original Agreement as more fully set forth below.

AGREEMENT:

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants made herein and in the Original Agreement, the receipt and sufficiency of which are hereby acknowledged, the parties to this Amendment agree as follows:

1. Amendment of Section 1.2.69. Section 1.2.69 of the Agreement is hereby amended and restated in its entirety as follows:

> 1.2.69 **Zone** means the City's North Village Overlay District Zone, as interpreted, clarified, amended or modified by the "NVOZ Specific Application Standards—Highlands Master Planned Community" attached to this Agreement as **Exhibit L**.

2. Amendment of Section 3.1. Section 3.1 of the Agreement is hereby amended such that the Base Density Entitlements (670 ERUs) are increased to 691 ERUs by reason of the property exchange and resulting additional property area described in Section 5 of this Amendment; provided, however, the twenty-one (21) additional ERUs shall not be used in the calculation of Bonus Density Entitlements under the Original Agreement and the Parties acknowledge and agree that the 691 ERUs set forth above do not include the 67 affordable housing units included in the Bonus Density Entitlements, which affordable housing units are unaffected by this Amendment for a total of 758 ERUs.

3. References to "NVOZ" or "NVOZ Zone and Ordinance". All references to the terms "NVOZ" and "NVOZ Zone and Ordinance" included in the Original Agreement are hereby changed to "Zone."

4. Exhibits. Exhibit D to the Original Agreement (i.e. the Master Plan) is hereby replaced with Exhibit D attached to this Amendment (i.e. the A&R Master Plan, dated October 19, 2023).

5. Addition/Removal of Property. In recognition of the Property Exchange and from and after the date of this Amendment, the Parties agree that: (a) the real property described on Exhibit M attached hereto shall no longer be subject to the Upper Jordanelle Development Agreement and shall be subject to and governed by the Agreement; and (b) the real property described on Exhibit N attached hereto shall no longer be subject to the Agreement and shall be subject to and governed by the Upper Jordanelle Development Agreement. Taking into account the foregoing adjustments, the Property subject to the Original Agreement, as amended, is the real property described on Exhibit P attached hereto.

6. **Conflicts.** In the event of any conflict between the terms and conditions set forth in this Amendment and those set forth in the Original Agreement, the terms and conditions of this Amendment shall control.

7. **Ratification.** Except as expressly set forth in this Amendment, the Agreement is ratified and confirmed as written.

[Signatures appear on the following pages]

IN WITNESS WHEREOF, this Amendment has been entered into by and among the City and Cardinal Funding with the consent and agreement of the Landowners as of the date and year first above written.

CARDINAL FUNDING:

CARDINAL FUNDING, LLC, a
Utah limited liability company

By: _____
Name: John R. Thackeray
Title: Manager

CARDINAL FUNDING ACKNOWLEDGMENT

STATE OF UTAH)
:§.
CITY OF Utah)

On the 5 day of February, 2024, personally appeared before me John R. Thackeray, who being by me duly sworn, did say that he is the Manager of Cardinal Funding, LLC, and that the foregoing instrument was duly authorized by the company at a lawful meeting held by authority of its operating agreement and signed in behalf of said company.

Gaylynn Hart
NOTARY PUBLIC

GAYLYNN HART
NOTARY PUBLIC - STATE OF UTAH
My Comm. Exp. 11/05/2024
Commission # 715019

4862-5893-5178, v. 13

CITY:

Heber City, a political subdivision of the State of Utah

Heidi Franco

Heidi Franco, Mayor

HEBER CITY CORPORATE Seal WASATCH COUNTY, UTAH

Approved as to form and legality:

City Attorney

By: _____

Attest:

City Recorder

By: Trina N Cooke

CITY ACKNOWLEDGMENT

STATE OF UTAH)
:§.
CITY OF HEBER)

On the 4th day of March, 2024, personally appeared before me Heidi Franco, who being by me duly sworn, did say that she is the Mayor of City of Heber, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the City by authority of its governing body.

Trina N Cooke

NOTARY PUBLIC

TRINA N COOKE
NOTARY PUBLIC • STATE OF UTAH
COMMISSION# 725852
COMM. EXP. 08-21-2026

4862-5893-5178, v. 13

CONSENT AND ACKNOWLEDGMENT OF LANDOWNERS

Each of the undersigned Landowners hereby: (a) confirms and acknowledges such Landowner's receipt of this Amendment and confirms that the Agreement, as amended by this Amendment, is in full force and effect with respect to the to the properties owned by such Landowner and located within the Property; and (b) consents and agrees to abide by the terms and conditions of the Agreement, as amended pursuant to this Amendment, each to the extent applicable to the properties owned by such Landowner.

LANDOWNERS:

Thackeray Family Holdings II, LLC, a Utah limited liability company

By: _____
Name: John R. Thackeray
Title: Manager

Date of Execution: 2/5, 2024

STATE OF UTAH)
:§.
CITY OF Utah)

On the 5 day of February, 2024, personally appeared before me John R. Thackeray, who being by me duly sworn, did say that he is the Manager of Thackeray Family Holdings II, LLC, and that the foregoing instrument was duly authorized by the company at a lawful meeting held by authority of its operating agreement and signed in behalf of said company.

Gaylynn Hart
NOTARY PUBLIC

GAYLYNN HART
NOTARY PUBLIC - STATE OF UTAH
My Comm. Exp. 11/05/2024
Commission # 715019

Johansen Family Holdings II, LLC, a Utah limited liability company

By: Armand D. Johansen
Name: Armand D. Johansen
Title: Manager

Date of Execution: Feb. 5, 2024

STATE OF UTAH)
:§.
CITY OF Utah)

On the 5 day of February 2024, personally appeared before me Armand D Johansen who being by me duly sworn, did say that he is the Manager of Johansen Family Holdings II, LLC, and that the foregoing instrument was duly authorized by the company at a lawful meeting held by authority of its operating agreement and signed in behalf of said company.

Gaylynn Hart
NOTARY PUBLIC

GAYLYNN HART
NOTARY PUBLIC - STATE OF UTAH
My Comm. Exp. 11/05/2024
Commission # 715019

Exhibit A
to
Third Amendment
to
Development Agreement for Highlands Master Planned Community

(Description of Property)

[See attached.]

NORTH PARCEL:

A PARCEL OF LAND LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19 AND THE WEST HALF OF SECTION 20 ALL IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD AND THE EASTERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 40 PROJECT NO. F-019-1(1), SAID INTERSECTION BEING EAST 214.59 FEET AND SOUTH 1260.57 FEET FROM THE 2005 WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS); THENCE ALONG SAID EASTERLY RIGHT-OF-WAY LINE NORTH 32°00'02" WEST 1,057.48 FEET TO THE SOUTHEASTERLY LINE OF PARCEL 2 AS DESCRIBED IN THAT WARRANTY DEED TO UTAH VALLEY STATE COLLEGE RECORDED AS ENTRY NO. 333087 OF SAID RECORDS AND ALSO DESCRIBED ON RECORD OF SURVEY NO. OWC-035-019-0-1157 AS FILED IN THE WASATCH COUNTY SURVEYORS OFFICE; THENCE ALONG SAID SOUTHEASTERLY LINE THE FOLLOWING TWO COURSES (1) NORTH 58°00'22" EAST 1,112.69 FEET (NORTH 57°59'34" EAST 1,111.85 FEET BY RECORD); AND (2) NORTH 48°11'59" EAST 1,098.03 FEET (NORTH 48°11'11" EAST 1,097.66 FEET BY RECORD) TO THE CENTERLINE OF THE TIMPANOGOS CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID CENTERLINE THE FOLLOWING NINE COURSES: (1) NORTH 17°22'52" WEST 54.83 FEET (NORTH 17°22'52" WEST 54.71 FEET PER SAID PARCEL 2); (2) NORTHWESTERLY 62.66 FEET ALONG A 57.21 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 62°45'14" AND A LONG CHORD OF NORTH 48°45'29" WEST 59.57 FEET; (3) NORTH 80°08'06" WEST 50.43 FEET; (4) NORTHWESTERLY 80.09 FEET ALONG A 77.16 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 59°28'06" AND A LONG CHORD OF NORTH 50°24'03" WEST 76.54 FEET; (5) NORTH 20°40'00" WEST 67.54 FEET TO STA 212+38 OF SAID TIMPANOGOS CANAL WHICH STA 212+38 IS SOUTH 1318.48 FEET AND EAST 1244.36 FEET FROM THE 1976 WASATCH COUNTY BRASS CAP MONUMENT FOR THE NORTHWEST CORNER OF SECTION 20 PER PARCEL NO. WCWEP-T-0584(P) OF SAID ENTRY NO. 212641; (6) CONTINUING NORTH 20°40'00" WEST 39.32 FEET; (7) NORTHWESTERLY 26.35 FEET ALONG A 73.32 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 20°35'35" AND A LONG CHORD OF NORTH 30°57'47" WEST 26.21 FEET; (8) NORTH 41°15'35" WEST 114.29 FEET; AND (9) NORTHWESTERLY 11.22 FEET ALONG A 3,029.45 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 00°12'44" AND A LONG CHORD OF NORTH 41°09'13" WEST 11.22 FEET TO AN EXISTING FENCE; THENCE ALONG SAID EXISTING FENCE SOUTH 89°54'54" EAST 1,524.20 FEET TO THE NORTH-SOUTH CENTER SECTION LINE OF SAID SECTION 20; THENCE ALONG SAID NORTH-SOUTH CENTER SECTION LINE SOUTH 00°00'09" WEST 1,774.05 FEET TO THE

CENTERLINE OF THE SAID TIMPANOGOS CANAL; THENCE ALONG SAID CENTERLINE THE FOLLOWING EIGHT COURSES: (1) NORTH 10°34'34" WEST 26.14 FEET; (2) NORTHERLY 18.66 FEET ALONG A 63.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 16°56'26" AND A LONG CHORD OF NORTH 19°02'47" WEST 18.59 FEET TO STA 236+55 OF SAID TIMPANOGOS CANAL WHICH STA 236+55 IS NORTH 2238.88 FEET AND WEST 10.76 FEET FROM THE 2005 WASATCH COUNTY ALUMINUM PIPE CAP MONUMENT FOR THE SOUTH QUARTER CORNER OF SECTION 20 PER SAID PARCEL NO. WCWEP-T-0584(P) OF SAID ENTRY NO. 212641; (3) CONTINUING NORTHWESTERLY 31.79 FEET ALONG SAID 63.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 28°51'57" AND A LONG CHORD OF NORTH 41°56'59" WEST 31.45 FEET; (4) NORTH 56°22'57" WEST 51.03 FEET; (5) NORTHWESTERLY 56.42 FEET ALONG A 130.89 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 24°41'49" AND A LONG CHORD OF NORTH 44°02'03" WEST 55.98 FEET; (6) NORTH 31°41'08" WEST 60.09 FEET; (7) NORTHWESTERLY 126.00 FEET ALONG A 664.07 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 10°52'18" AND A LONG CHORD OF NORTH 37°07'17" WEST 125.82 FEET; AND (8) NORTH 42°33'26" WEST 8.76 FEET TO THE NORTH LINE OF PARCEL 1 DESCRIBED IN A WARRANTY DEED RECORDED AS ENTRY NO. 462588 OF SAID RECORDS (WHICH SAID PARCEL 1 IS THE SAME AS PARCEL 4 AS DEPICTED ON A RECORD OF SURVEY MAP PREPARED BY EVERGREEN ENGINEERING FILED AS NO. OWC-035-020-0-881 IN THE WASATCH COUNTY SURVEYORS OFFICE, WHICH BEARINGS ARE ROTATED 0°00'48" CLOCKWISE TO AGREE WITH THE ABOVE DESCRIBED BASIS OF BEARINGS); THENCE ALONG SAID NORTH LINE NORTH 89°59'12" WEST 303.12 FEET (WEST BY DEED) TO THE NORTHWEST CORNER OF SAID PARCEL 1; THENCE ALONG THE WEST LINE OF SAID PARCEL 1 SOUTH 00°00'48" WEST 425.00 FEET (SOUTH BY DEED) TO AN EXISTING EVERGREEN ENGINEERING REBAR & CAP AND THE NORTHWEST CORNER OF PARCEL 2 OF SAID WARRANTY DEED (WHICH SAID PARCEL 2 IS THE SAME AS QUIT CLAIM #2 AS DEPICTED ON A RECORD OF SURVEY MAP PREPARED BY BUHLER ASSOCIATES FILED AS NO. 0001830 IN THE WASATCH COUNTY SURVEYORS OFFICE); THENCE ALONG THE WEST LINE OF SAID QUIT CLAIM #2 SOUTH 00°32'12" EAST 134.12 FEET (SOUTH BY DEED) TO AN EXISTING BUHLER ASSOCIATES REBAR & CAP; THENCE ALONG THE SOUTH LINE OF SAID QUIT CLAIM #2 NORTH 89°49'38" EAST 528.67 FEET (EAST BY DEED) EXTENDING THROUGH AN EXISTING BUHLER ASSOCIATES REBAR & CAP TO SAID NORTH-SOUTH CENTER SECTION LINE; THENCE ALONG SAID NORTH-SOUTH CENTER SECTION LINE SOUTH 00°00'09" WEST 1,263.25 FEET TO A BING CHRISTENSEN REBAR & CAP AS DEPICTED ON A RECORD OF SURVEY MAP PREPARED BY MCM ENGINEERING AND FILED AS NO. 1033 IN SAID WASATCH COUNTY SURVEYOR'S OFFICE; THENCE ALONG AN EXISTING FENCE NORTH 89°59'12" WEST 676.35 FEET TO STATION 154+09 ON THE CENTERLINE OF THE WASATCH CANAL AS DESCRIBED IN SAID CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS, SAID POINT BEING 676.32 FEET WEST AND 668.13 FEET NORTH OF THE SOUTH QUARTER CORNER OF SAID SECTION 20; THENCE CONTINUING NORTH 89°59'12" WEST 52.77 FEET TO THE WESTERLY LINE OF SAID WASATCH CANAL; THENCE ALONG SAID WESTERLY LINE THE FOLLOWING FOURTEEN COURSES: (1) NORTHWESTERLY 36.10 FEET ALONG A 180.84 FEET RADIUS NON-TANGENT CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 11°26'10" AND A LONG CHORD OF NORTH 48°19'44" WEST 36.04 FEET; (2) NORTH 42°36'39" WEST 243.31 FEET; (3) NORTHWESTERLY 59.37 FEET ALONG A 244.36 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 13°55'16"

AND A LONG CHORD OF NORTH 49°34'17" WEST 59.23 FEET; (4) NORTH 56°31'55" WEST 141.96 FEET; (5) NORTHWESTERLY 52.18 FEET ALONG A 139.48 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 21°26'10" AND A LONG CHORD OF NORTH 45°48'50" WEST 51.88 FEET; (6) NORTH 35°05'45" WEST 32.66 FEET; (7) NORTHWESTERLY 24.90 FEET ALONG A 52.16 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 27°21'17" AND A LONG CHORD OF NORTH 48°46'23" WEST 24.67 FEET; (8) NORTH 62°27'02" WEST 31.01 FEET; (9) NORTHWESTERLY 59.68 FEET ALONG A 100.00 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 34°11'34" AND A LONG CHORD OF NORTH 45°21'15" WEST 58.80 FEET; (10) NORTH 28°15'28" WEST 46.48 FEET; (11) NORTHWESTERLY 27.92 FEET ALONG A 75.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 21°19'55" AND A LONG CHORD OF NORTH 38°55'26" WEST 27.76 FEET; (12) NORTH 49°35'23" WEST 30.70 FEET; (13) NORTHWESTERLY 89.92 FEET ALONG A 200.95 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 25°38'22" AND A LONG CHORD OF NORTH 36°46'12" WEST 89.18 FEET; AND (14) NORTH 23°57'01" WEST 0.10 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD PER WASATCH COMMONS SUBDIVISION PHASE 1 RECORDED AS ENTRY NO. 362478 OF SAID RECORDS, WHICH SAID PHASE 1 BEARINGS ARE ROTATED 0°01'39" COUNTERCLOCKWISE TO AGREE WITH THE ABOVE DESCRIBED BASIS OF BEARINGS; THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE THE FOLLOWING TWO COURSES: (1) WESTERLY 252.73 FEET ALONG A 483.50 FEET RADIUS NON-TANGENT CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 29°56'58" AND A LONG CHORD OF NORTH 75°05'36" WEST 249.86 FEET; AND (2) NORTH 60°07'07" WEST 29.46 FEET; THENCE NORTH 29°52'53" EAST 67.00 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF SAID COMMONS BOULEVARD; THENCE ALONG SAID NORTHERLY RIGHT-OF-WAY LINE THE FOLLOWING EIGHTEEN COURSES (1) NORTH 60°07'07" WEST 50.00 FEET; (2) NORTHWESTERLY 13.57 FEET ALONG A 17.50 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 44°24'55" AND A LONG CHORD OF NORTH 37°54'40" WEST 13.23 FEET; (3) NORTH 60°07'07" WEST 103.22 FEET; (4) WESTERLY 391.17 FEET ALONG A 488.50 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 45°52'49" AND A LONG CHORD OF NORTH 83°03'31" WEST 380.80 FEET; (5) WESTERLY 30.50 FEET ALONG A 35.50 FEET RADIUS REVERSE CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 49°13'32" AND A LONG CHORD OF NORTH 81°23'10" WEST 29.57 FEET; (6) WESTERLY 50.41 FEET ALONG A 94.50 FEET RADIUS REVERSE CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 30°33'53" AND A LONG CHORD OF NORTH 72°03'20" WEST 49.82 FEET; (7) NORTHWESTERLY 34.27 FEET ALONG A 35.50 FEET RADIUS REVERSE CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 55°18'12" AND A LONG CHORD OF NORTH 59°41'11" WEST 32.95 FEET; (8) NORTH 32°02'05" WEST 11.88 FEET; (9) SOUTH 50°08'15" WEST 77.72 FEET; (10) SOUTH 32°02'05" EAST 1.29 FEET; (11) SOUTHERLY 34.27 FEET ALONG A 35.50 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 55°18'12" AND A LONG CHORD OF SOUTH 04°22'59" EAST 32.95 FEET; (12) SOUTHERLY 26.91 FEET ALONG A 94.50 FEET RADIUS REVERSE CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 16°18'53" AND A LONG CHORD OF SOUTH 15°06'41" WEST 26.82 FEET; (13) SOUTHWESTERLY 31.61 FEET ALONG A 35.50 FEET RADIUS REVERSE CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 51°00'41" AND A LONG CHORD OF SOUTH 32°27'35" WEST 30.57 FEET; (14) SOUTH 57°57'55" WEST 24.11 FEET; (15) SOUTHWESTERLY 21.44 FEET ALONG A 135.00 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 09°05'55" AND A LONG CHORD OF SOUTH 62°30'53" WEST 21.42 FEET; (16) SOUTH 67°03'50" WEST

52.01 FEET; (17) SOUTHWESTERLY 26.20 FEET ALONG A 165.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 09°05'55" AND A LONG CHORD OF SOUTH 62°30'53" WEST 26.17 FEET; AND (18) SOUTH 57°57'55" WEST 27.54 FEET TO THE POINT OF BEGINNING.

CONTAINING 6,038,681 SQUARE FEET OR 138.629 ACRES.

SOUTH PARCEL:

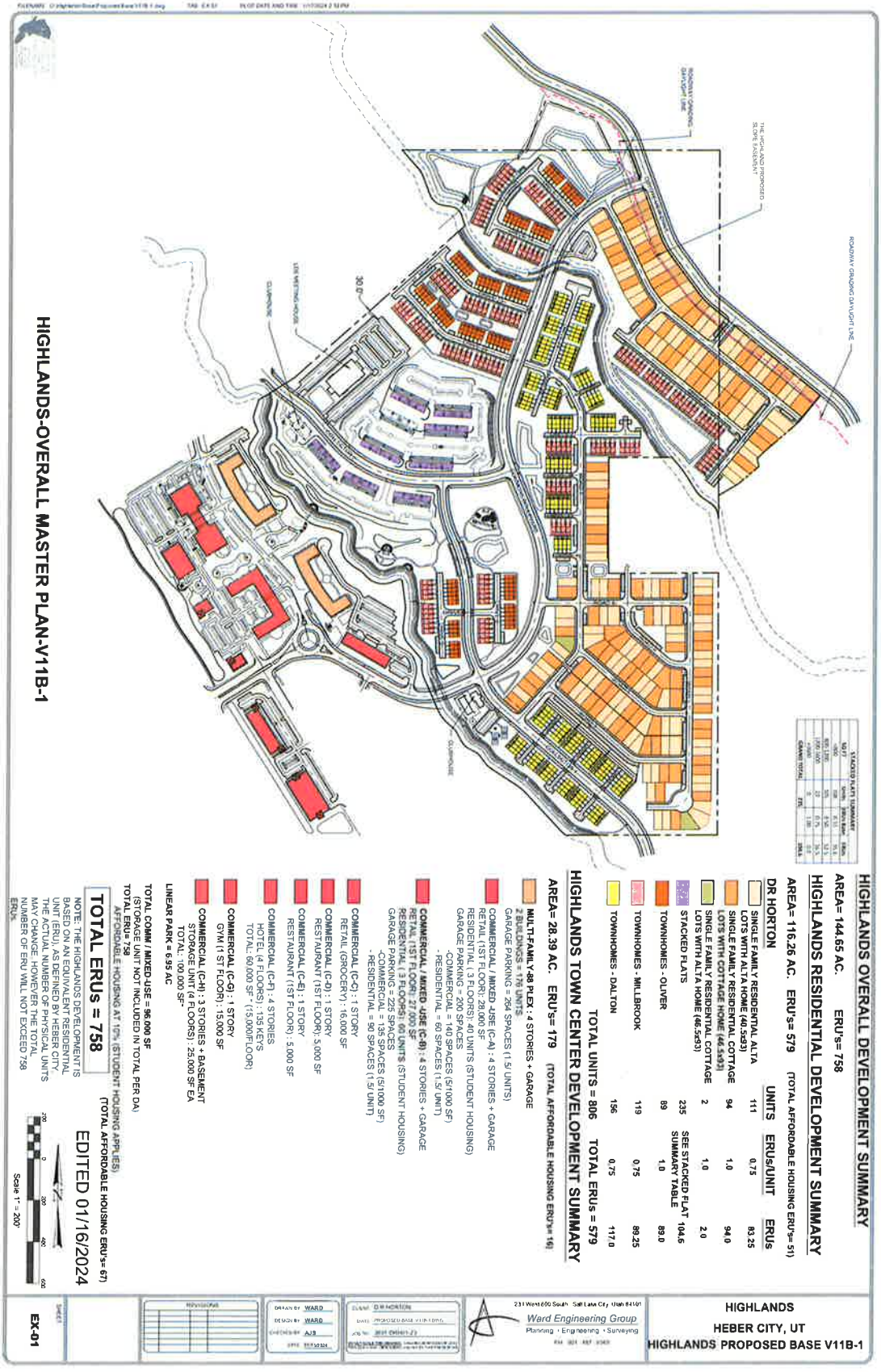
A PARCEL OF LAND LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 20 ALL IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 40 PROJECT NO. F-019-1(1), SAID POINT BEING NORTH 0°08'37" WEST 687.06 FEET ALONG THE SECTION LINE AND EAST 659.19 FEET FROM THE 1999 WASATCH COUNTY SURVEY ALUMINUM CAP MONUMENT MARKING THE SOUTHWEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS); THE PARCEL 2 DESCRIPTION AS RECORED AS ENTRY NO. 396936 OF SAID RECORDS, WHICH SAID PARCEL 2 BEARINGS ARE ROTATED 0°01'39" COUNTERCLOCKWISE TO AGREE WITH THE ABOVE DESCRIBED BASIS OF BEARINGS; THENCE ALONG SAID EASTERLY RIGHT OF WAY LINE NORTH 32°00'02" WEST 748.34 FEET ALONG THE EASTERLY RIGHT OF WAY LINE OF SAID STATE HIGHWAY 40 TO THE BOUNDARY LINE OF WASATCH COMMONS SUBDIVISION, SAID BOUNDARY ALSO BEING THE SOUTH RIGHT OF WAY LINE FOR COMMONS BOULEVARD; THENCE ALONG THE SAID SOUTH RIGHT OF WAY LINE AND BOUNDARY LINE NORTH 57°57'55" EAST 146.97 FEET; THENCE NORTHEASTERLY 33.19 FEET ALONG A 35.50 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 53°33'54" AND A LONG CHORD OF NORTH 84°44'52" EAST 31.99 FEET; THENCE SOUTHEASTERLY 31.12 FEET ALONG A 94.50 FEET RADIUS REVERSE CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 18°52'06" AND A LONG CHORD OF SOUTH 77°54'14" EAST 30.98 FEET; THENCE SOUTHEASTERLY 34.27 FEET ALONG A 35.50 FEET RADIUS REVERSE CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 55°18'12" AND A LONG CHORD OF SOUTH 59°41'11" EAST 32.95 FEET TO A POINT ON THE WEST RIGHT OF WAY LINE FOR GREEN VALLEY ROAD; THENCE ALONG SAID RIGHT OF WAY LINE AND SAID BOUNDARY LINE SOUTH 32°02'05" EAST 10.00 FEET; THENCE NORTH 57°57'55" EAST 12.00 FEET; THENCE SOUTH 32°02'05" EAST 44.05 FEET; THENCE SOUTHEASTERLY 14.86 FEET ALONG A 153.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 5°33'55" AND A LONG CHORD OF SOUTH 34°49'02" EAST 14.86 FEET; THENCE SOUTH 37°36'00" EAST 36.75 FEET; THENCE SOUTHEASTERLY 59.80 FEET ALONG A 447.00 FEET RADIUS CURVE TO THE

RIGHT THROUGH A CENTRAL ANGLE OF 7°39'55" AND A LONG CHORD OF SOUTH 33°46'03" EAST 59.76 FEET; THENCE SOUTH 29°56'05" EAST 24.60 FEET; THENCE SOUTHEASTERLY 92.27 FEET ALONG A 2517.50 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 2°06'00" AND A LONG CHORD OF SOUTH 30°59'05" EAST 92.26 FEET; THENCE SOUTH 32°02'05" EAST 544.50 FEET; THENCE NORTH 89°59'12" WEST 270.18 FEET TO THE POINT OF BEGINNING.

CONTAINS 185,067 SQUARE FEET OR 4.249 ACRES

Exhibit D to Third Amendment to Development Agreement for Highlands Master Planned Community (Master Plan)



4862-5893-5178, v. 13

Exhibit L
to
Third Amendment
to
Development Agreement for Highlands Master Planned Community

(NVOZ Specific Application Standards—Highlands Master Planned Community)

Article and Section references are to the General Provisions of the North Village Overlay District Code referenced in the 18.21.010 of the Zone:

Article 3.0 Buildings, Section 3.2, Explanation of Building Standards, 4 Street Façade Requirements, is hereby amended to eliminate the last phrase of the first sentence (i.e., "including a parking lot") and the second sentence in the introductory paragraph (i.e. 360-degree architecture is not required), provided, however, all facades facing a public or private right-of-way shall satisfy the "Blank Wall Limitations" set forth in sub-party (2) of sub-paragraph 4 (see Exhibit L.1).

Article 3.0 Buildings, Section 3.2, Explanation of Building Standards, 5 Unique Architecture, is hereby amended to reduce the 400-foot distance to 120 feet for lots that are less than a quarter acre in size so long as there are at least 6 different building facades within such 120-foot distance on both sides of the street. A plan for such will be submitted at preliminary approval.

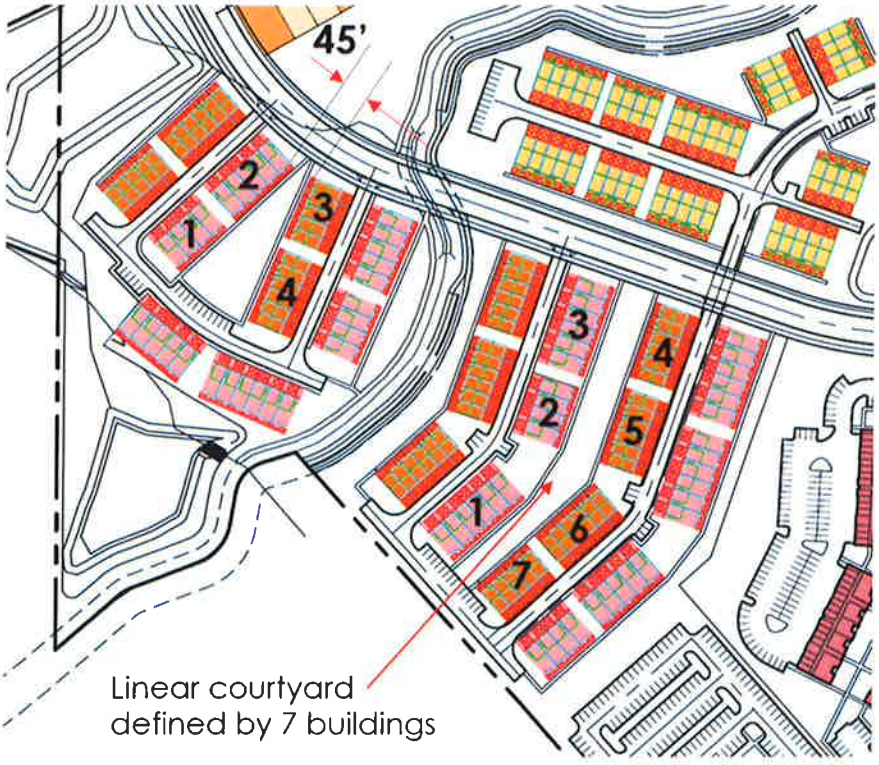
Article 3.0 Buildings, Section 3.2, Explanation of Building Standards, 2 Building Height, Sub-paragraph 2(d), is hereby amended to provide that the stated requirements only apply to adjacent buildings on the same side of the street and facing a public street and to indicate that the height variation requirements do not apply if the natural topography of the site enables a perceived height variation between adjacent buildings. 3 / 4 split buildings shall be treated as 3-story buildings with respect to height variation requirements (see Exhibit L.1).

Exhibit L.1



Article 3.0 Buildings, Section 3.6 Townhouse Building, Sub-paragraph 2, Footnote 2, is hereby amended to eliminate the 3-building requirement and to impose a 50-foot average courtyard width requirement where the courtyard is non-linear; provided, in no event shall a non-linear courtyard be less than 30 feet in width at any location (See Exhibit L.2).

Exhibit L.2.

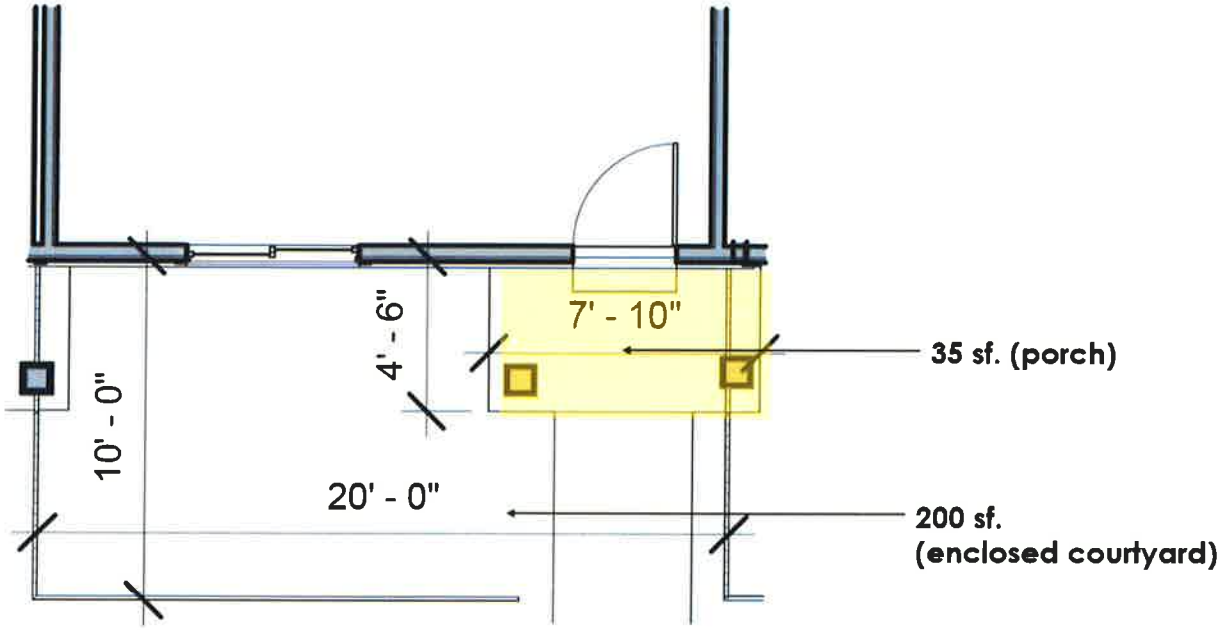


Article 3.0 Buildings, Section 3.9 Craftsman, Sub-paragraph 9, is hereby amended to allow for Front Porches of varying sizes to promote a variation in facades; provided, an exception to the minimum 60 square-foot requirement shall be satisfied by providing a private enclosed courtyard of at least the same size (See Exhibit L.3).

Article 3.0 Buildings, Section 3.10 Farmhouse, Sub-paragraph 7, is hereby amended to allow for Front Porches of varying sizes to promote a variation in facades; provided, an exception to the minimum 60 square-foot requirement shall be satisfied by providing a private enclosed courtyard of at least the same size (See Exhibit L.3).

Article 3.0 Buildings, Section 3.11 Mountain Modern, Sub-paragraph 7, is hereby amended to allow for Front Porches of varying sizes to promote a variation in facades; provided, an exception to the minimum 60 square-foot requirement shall be satisfied by providing a private enclosed courtyard of at least the same size (See Exhibit L.3).

Exhibit L.3



Article 3.0 Buildings, Section 3.6 Townhouse Building, Figure 3.6 (5), is hereby amended to require Townhouses facing common greens to have three-

sided architecture with windows (but not a wrap-around porch), provided, where a townhouse faces another row of townhouses, the façade shall include architectural elements approved by the City planning staff that present a pleasing facade to the facing properties (See Exhibit L.4).

Exhibit L.4

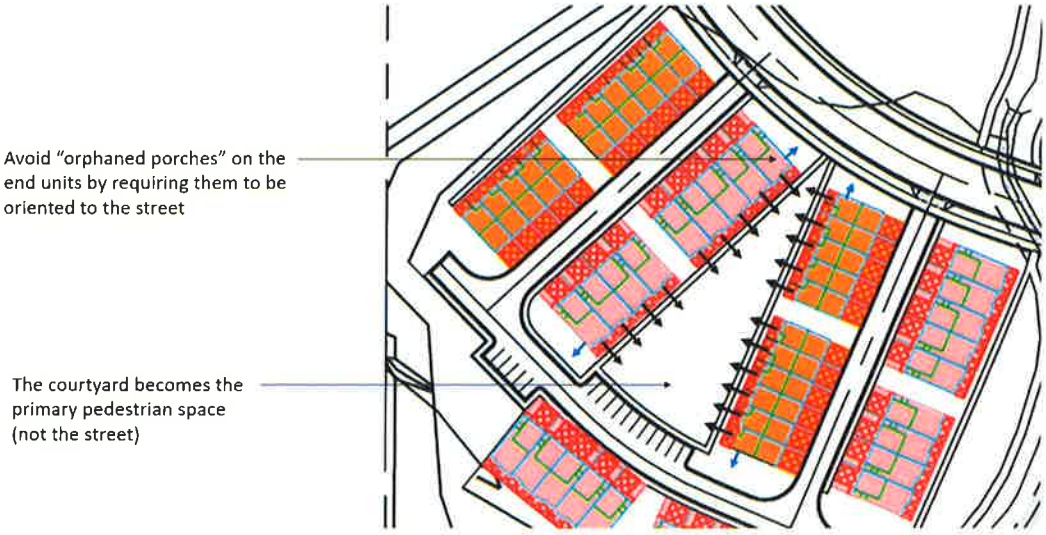


Table 3.4(1), Line a, is hereby amended to allow the City planning staff to reduce the "Front Property Line Coverage" percentage to accommodate site topography and to provide that access drives shall be excluded from the "Front Property Line Coverage" calculation (See Exhibit L.5).

Exhibit L.5

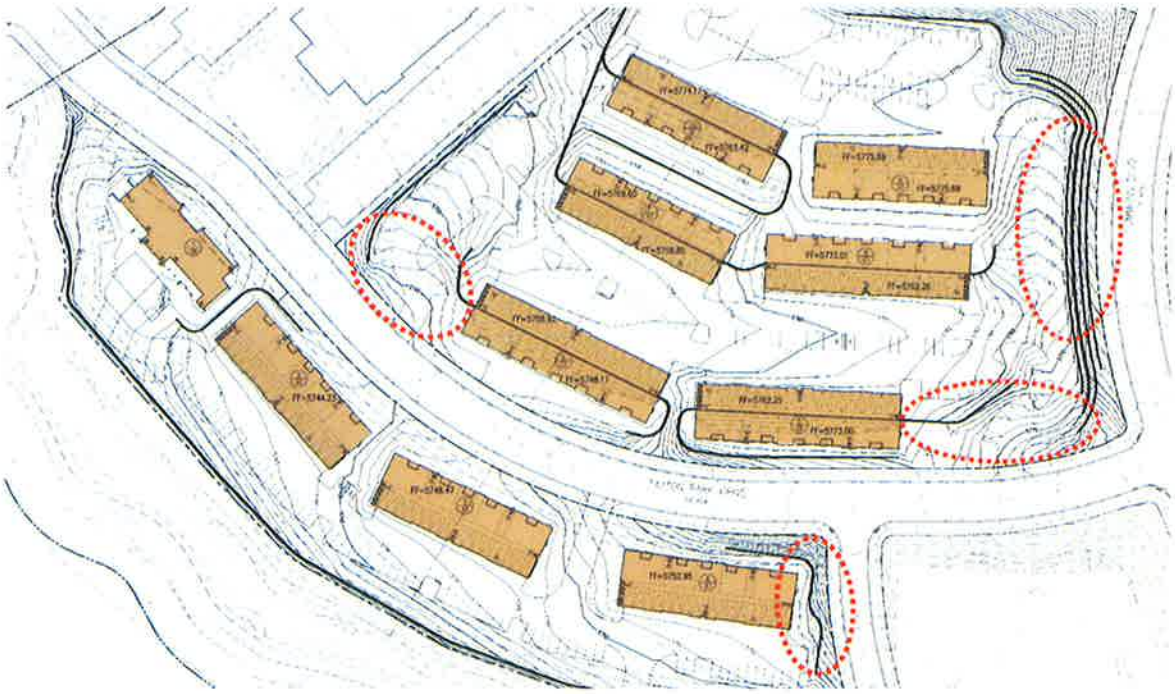


Table 3.4(1), Line b, is hereby amended to allow the City planning staff to increase the "Front Build-to-Zone" requirements to accommodate topography or when the front property line curves such that a 10'-20' front build-to-zone is not reasonably achievable (See Exhibit L.6).

Exhibit L.6

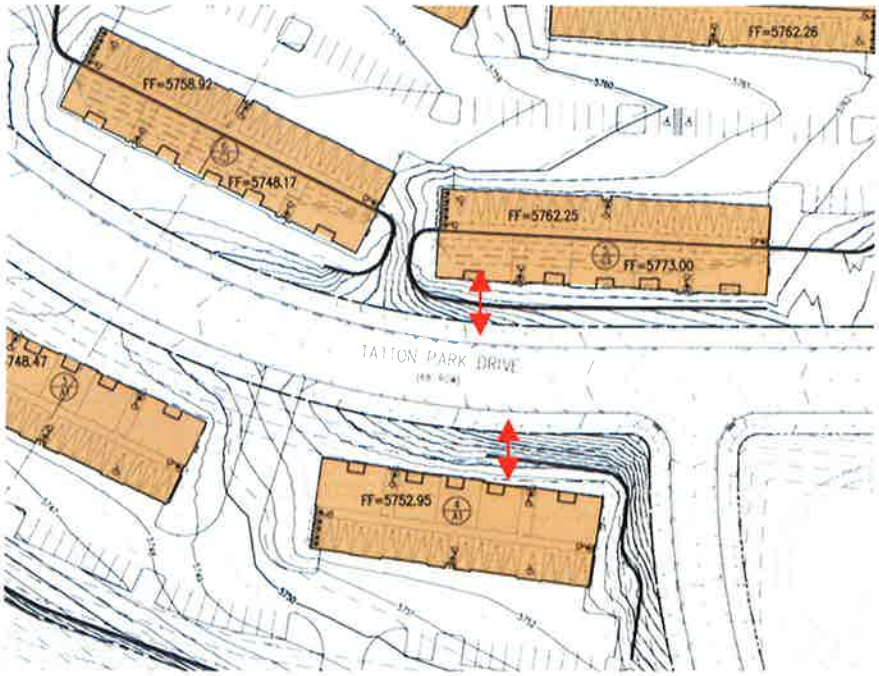


Table 3.7(1), Line I, together with footnote 5, are hereby amended to allow the garage to be set back from the building Façade not less than 2 feet, measured from any floor of the building where one or more of the following design elements are incorporated into the design of the building or street face to reduce visual impact of the garage[s], as approved by the City's planning department (See examples Exhibit L.7):

1. Utilize private streets for any dwelling with front loaded garages to minimize City burden of plowing and parking enforcement.
2. Require multiple wall planes along the front face of each building Façade.
3. Require a window in each projecting wall plane of the building Façade.
4. Require a 2-foot projection beyond the garage face on the second story of the building.
5. Require alternating (a.k.a. flipped) floor plans from lot to lot to maximize on-street parking. A plan for such will be submitted at preliminary approval.
6. Require differing lot sizes to maximize on-street parking and enhance the feel or architectural mix.
7. Require front door to face the street.
8. Require a covered porch.
9. Require supportive pillars in front of the garage face.
10. Garage doors shall be of varied architectural styles, material and colors and shall include windows, which windows may reasonably vary from home to home in location, size and window type (top, side, clear, opaque, etc.) consistent with the architectural style of the building.

Exhibit L.7









Table 4.2(1), Line I, Maximum Block Perimeter, together with footnote 1, are hereby amended to indicate that block perimeters may be increased by the City's planning department by more than 20% to accommodate the topography of the site, and to allow for increased maximum block perimeters where internal parking lots, and private access drives are proposed to achieve vehicular connectivity and sidewalks, trails or paths are proposed to achieve pedestrian connectivity (See Exhibit L.8).

Exhibit L.8

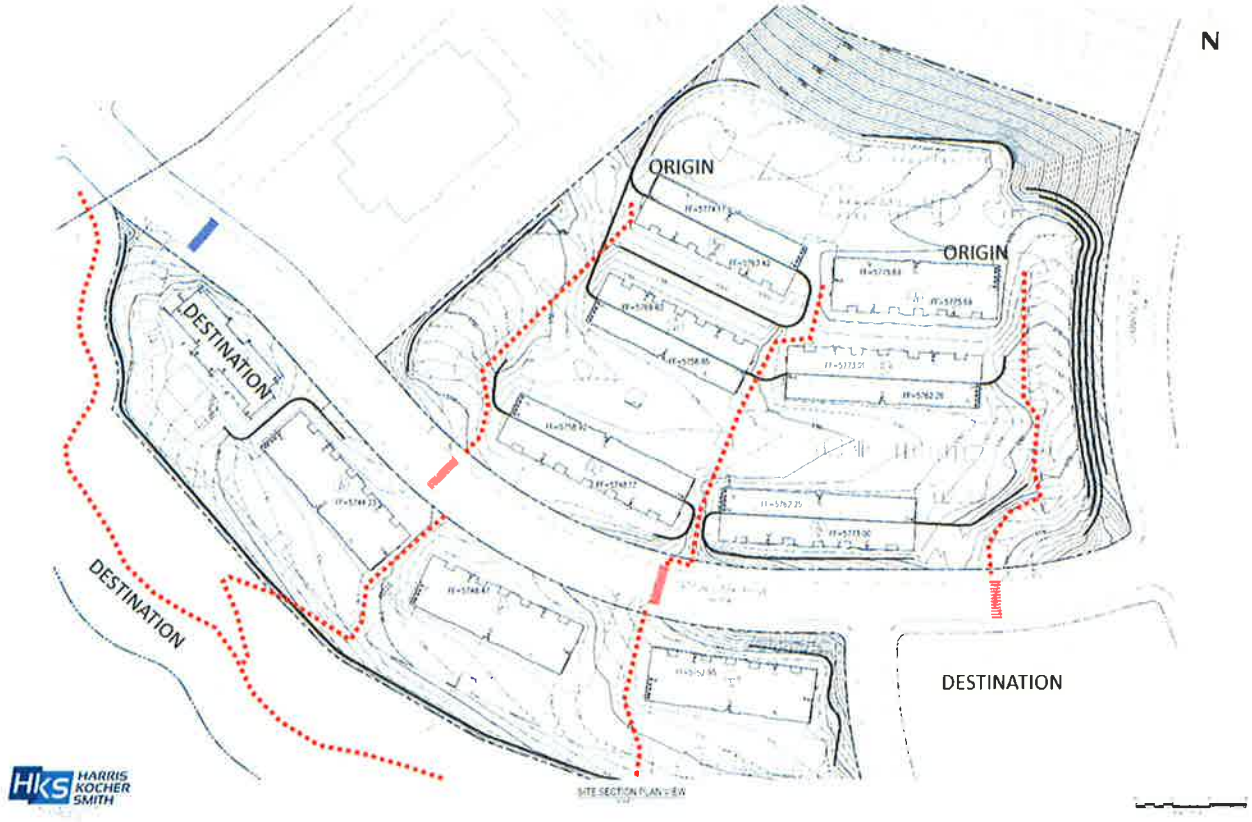


Exhibit M
to
Third Amendment
to
Development Agreement for Highlands Master Planned Community

Parcel 1:

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 20, IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTH LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; SAID POINT BEING NORTH 00°29'50" WEST 1307.75 FEET ALONG THE SECTION LINE AND NORTH 89°30'10" EAST 1717.20 FEET FROM THE WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) (SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS);
AND RUNNING THENCE NORTH 21°24'08" EAST 258.16 FEET; THENCE SOUTH 70°03'55" EAST 252.30 FEET; THENCE SOUTH 26°05'49" EAST 172.53 FEET TO A POINT ON THE NORTH LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; THENCE NORTH 89°54'54" WEST 407.29 FEET ALONG THE NORTH LINE OF SAID PROPOSED HIGHLANDS DEVELOPMENT TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED PARCEL CONTAINS: 64,087 SQUARE FEET, OR 1.471 ACRES

Parcel 3:

A PARCEL OF LAND LOCATED IN THE EAST HALF OF SECTION 20, IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EAST LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; SAID POINT BEING NORTH 00°29'50" WEST 512.50 FEET ALONG THE SECTION LINE AND NORTH 89°30'10" EAST 2641.36 FEET FROM THE WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) (SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS);
AND RUNNING THENCE SOUTH 50°47'07" EAST 630.14 FEET; THENCE SOUTH 39°12'53" WEST 160.00 FEET; THENCE SOUTH 48°47'41" WEST 209.84 FEET;

THENCE SOUTH 47°21'15" WEST 58.64 FEET; THENCE SOUTH 11°49'56" EAST 40.21 FEET; THENCE SOUTH 49°46'59" WEST 126.86 FEET; THENCE SOUTH 59°43'42" WEST 112.86 FEET TO A POINT ON THE EAST LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; THENCE NORTH 0°0'09" EAST 878.48 FEET ALONG SAID EAST LINE TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED PARCEL CONTAINS: 224,569 SQUARE FEET, OR 5.155 ACRE

Note: The above-referenced Parcels 1 and 3 are depicted on Highlands Residential Land Swap Exhibit, a copy of which is attached to Exhibit N.

Exhibit N
to
Third Amendment
to
Development Agreement for Highlands Master Planned Community

PARCEL 2:

A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 20, IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EAST LINE OF THE PROPOSED HIGHLANDS DEVELOPMENT; SAID POINT BEING NORTH 00°29'50" WEST 512.50 FEET ALONG THE SECTION LINE AND NORTH 89°30'10" EAST 2641.36 FEET FROM THE WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) (SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS);
SAID POINT OF BEGINNING ALSO BEING ON THE SOUTHERLY RIGHT OF WAY LINE OF A PROPOSED COLLECTOR ROAD; AND RUNNING THENCE NORTHERLY ALONG SAID SOUTHERLY RIGHT OF WAY LINE THE FOLLOWING FIVE (5) COURSES & DISTANCES;
(1) NORTH 50°47'07" WEST 49.30 FEET TO A POINT OF CURVATURE;
(2) NORTHWESTERLY 96.86 FEET ALONG THE ARC OF A 384.00 FOOT RADIUS CURVE TO THE RIGHT; CHORD BEARS NORTH 43°33'32" WEST 96.60 FEET;
(3) NORTH 36°19'58" WEST 219.31 FEET TO A POINT OF CURVATURE;
(4) NORTHWESTERLY 109.47 FEET ALONG THE ARC OF A 384.00 FOOT RADIUS CURVE TO THE RIGHT; CHORD BEARS NORTH 28°09'56" WEST 109.10 FEET;
(5) NORTH 19°59'55" WEST 438.90 FEET;
THENCE SOUTH 89°54'54" EAST 436.34 FEET; THENCE SOUTH 00°00'09" WEST 785.83 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED PARCEL CONTAINS: 209,989 SQUARE FEET, OR 4.820 ACRES

Note: The above-referenced Parcels 2 is depicted on Highlands Residential Land Swap Exhibit, a copy of which is attached to this Exhibit N.

Exhibit O
to
Third Amendment
to
Development Agreement for Highlands Master Planned Community

Water Feature Details

[See attached.]

Ent 542653 Bk 1468 Pg 261



HIGHLANDS

CREEKSIDE AT HIGHLANDS

Master Plan Amendment

DATE: Tuesday September 20, 2022

Highlands
HEBER CITY • UTAH

LAI DESIGN GROUP
Design for when it Matters

Ent 542653 Bk 1468 Pg 262

HIGHLANDS
ONSITE DRAINAGE PLAN



LEGEND:

- ON SITE RETENTION POND
- OFF SITE RETENTION POND
- MIXED ONSITE / OFFSITE
- DETENTION POND FOR EXISTING ON SITE APARTMENTS

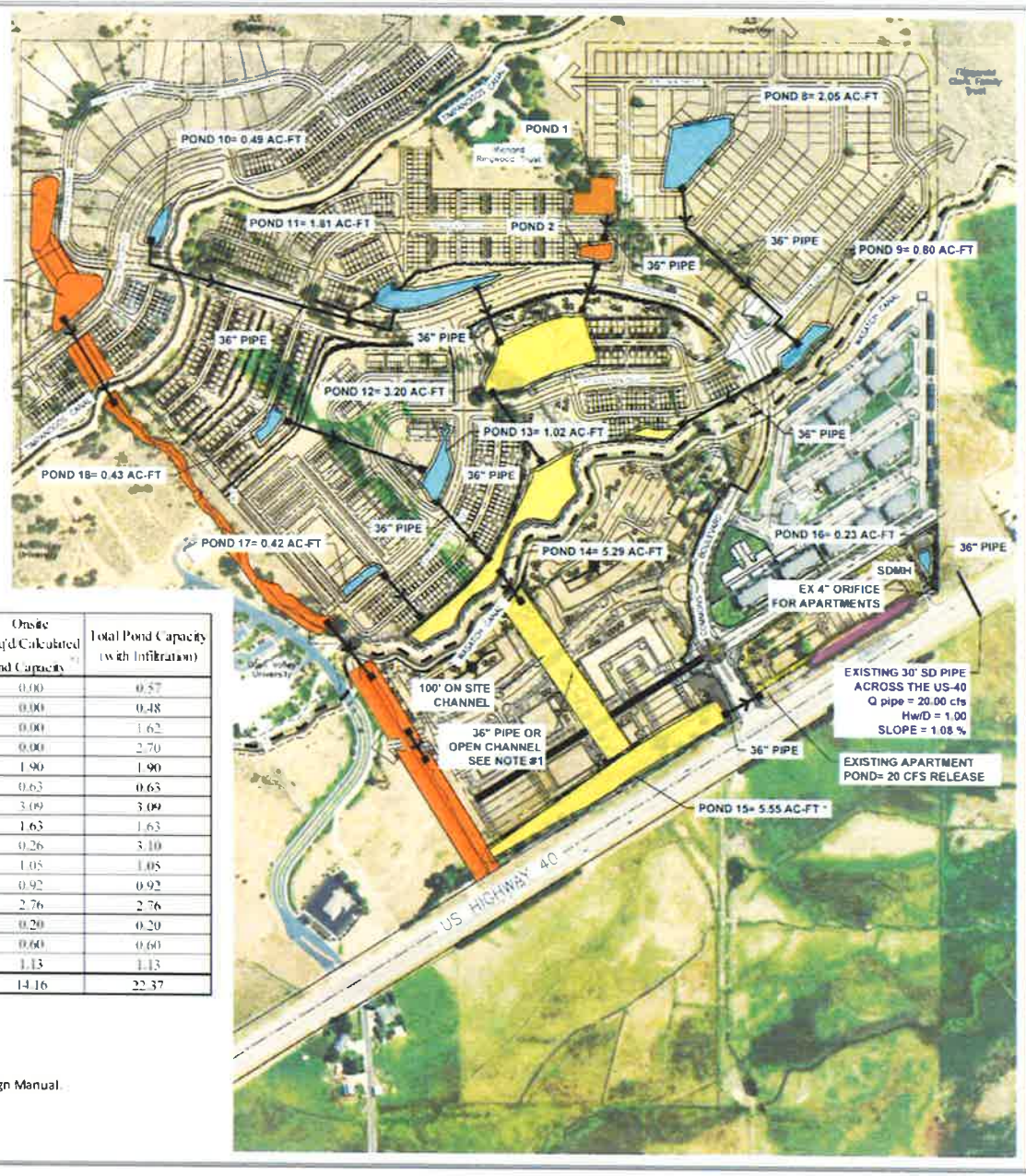
GENERAL NOTES:

1. THE PIPELINE SHOWN THROUGH THE TOWN CENTER CAN BE EITHER 36" PIPE OR AN OPEN CHANNEL TO BE DETERMINED THROUGH THE TOWN CENTER PLANNING ANALYSIS.

TABLE 1: POND ANALYSIS

Pond	Flow Criteria	Designed Pond Capacity (ACFT) *2	On-site Off-site Total Pond Capacity (No Infiltration) *1	Infiltration Rate (in/hr)	Pond Infiltration (CFS)	Off-site Req'd Pond Capacity *4	Onsite Req'd Calculated Pond Capacity *3	Total Pond Capacity (with Infiltration)
1	OFF-SITE	0.57	0.57	2.00	0.79	0.57	0.00	0.57
2	OFF-SITE	0.48	0.48	2.00	0.29	0.48	0.00	0.48
6	OFF-SITE	1.62	1.62	2.00	0.75	1.62	0.00	1.62
7	OFF-SITE	2.70	2.70	2.00	1.16	2.70	0.00	2.70
8	ON-SITE	2.05	2.70	2.00	1.33	0.00	1.90	1.90
9	ON-SITE	0.80	0.86	2.00	0.50	0.00	0.63	0.63
10	ON-SITE	0.49	3.11	2.00	0.27	0.00	3.09	3.09
11	ON-SITE	1.81	2.14	2.00	1.12	0.00	1.63	1.63
12	MIXED	3.20	0.74	2.00	2.10	2.84	0.26	3.10
13	ON-SITE	1.02	1.34	2.00	0.63	0.00	1.05	1.05
14	MIXED	5.29	1.68	2.00	3.08	0.00	0.92	0.92
15	MIXED	5.55	4.08	2.00	3.58	0.00	2.76	2.76
16	ON-SITE	0.23	0.66	2.00	0.14	0.00	0.20	0.20
17	ON-SITE	0.42	0.72	2.00	0.25	0.00	0.60	0.60
18	ON-SITE	0.43	1.22	2.00	0.26	0.00	1.13	1.13
TOTAL		26.66	24.61		16.26	8.21	14.16	22.37

*1. On-site required pond capacity calculated with an infiltration rate of 2 in/hr.
*2. This is based on preliminary grading of Highlands.
*3. This is the required/calculated capacity of the pond based on a 100 year - 24 hour storm event.
*4. This is the off-site pond capacity required per the Heber City Master Plan North Village Storm Water Design Manual.



HIGHLANDS
WASATCH COUNTY, UTAH
ON SITE RETENTION

Ward Engineering Group

EX-01B

Ent 542653 Bk 1468 Pg 263

HIGHLANDS
PARK MASTER PLAN



Linear Park = 6.95 AC

Original Park= 4.85 AC

HIGHLANDS
LINEAR PARK RENDERING

HIGHLANDS
LINEAR PARK ENLARGEMENT

Ent 542653 Bk 1468 Pg 265



Ent 542653 Bk 1468 Pg 266

HIGHLANDS
LINEAR PARK – 5 PARK ELEMENTS

Linear Park
- **6.95 acres of the required 43.47** acres per the Master Development Agreement. Original Neighborhood Park = 4.85 acres
- Pursuant to the standards outlined in *Section 5.0 Parks, Trails & Natural Lands Preservation* of the NVOZ
- **Exact layout of following elements is subject to change.**

Highlands Park
- Adventure Park (6-10 years old)
- Tot Lot (2-6 years old)
- Active Lawn Play
- Restrooms
- Pavilions
- Wildflower, Butterfly, & Hummingbird Basins
- Overlooks with Interpretive/Informational Signage
- Trailhead

Wasatch Greenway
- Trailhead(s)
- Water Filling Stations
- Crusher Fines Trail
- Arbors
- Reading Nooks
- Sensory/Music Gardens
- Pavilion

Brookside Park
- Water Wall
- Pedestrian Bridge
- Shade Shelter
- Cascading Water Feature w/ Check Dams
- Overlook Platform
- Sculptures
- Passive Lawn Area
- Landscape Steps
- Specialty Paving

Creekside Plaza
- Cascading Water Features w/ Check Dams
- Overlook Platform
- Specialty Paving
- Sculptures
- Pedestrian Bridges
- Plaza
- Ample Seating and Gathering Space

Ceremony Plaza
- Flagpoles
- Monument Signs
- Cascading Water Features w/ Check Dams
- Overlook Platform
- Specialty Paving
- Sculptures
- Pedestrian Bridges
- Plaza
- Waterfall

Note: For illustrative purposes only. Final design is subject to change.

Ent 542653 Bk 1468 Pg 267

HIGHLANDS
NVOZ BASIC AMENITY LIST

PARK AND OPEN SPACE AMENITIES

BASIC AMENITY	REQUIREMENTS
Park Bench	1 per 1/4 mile of paved or gravel trail. 4 per first 1/2 acre and 2 additional per acre for Urban Gathering Places, Local, and larger parks
Water Stations	Minimum 1 per Urban Gathering Places. 1 per park amenity node(pavillions, bathrooms, etc.) for larger parks
Pavilion	Minimum one per Plaza, Square, Local Parks (15 person size), 2 per 3 acres of park for Neighborhood/Community Parks (30 person)
Playground	Minimum one per Local and 1 per 10 acres for larger parks
Picnic Area	Minimum 1 per Local and larger parks. Minimum 4 tables, 2 barbeques, shade, hard surfacing
Restrooms	1 per Neighborhood and larger parks (interior &exterior lighting)
Amenity Options	
Baseball Field	1 baseball field
Softball Field	1 softball field
Passive Lawn	Well graded 1/2 acre of turf grass lawn with 5-10 large park trees per acre
Sports field	1 multi sport field (soccer lacrosse, rugby, etc)
Tennis courts	2 Tennis Courts
Pickleball courts	4 Pickleball Courts
Outdoor Basketball	1 Outdoor Concrete Basketball Court
Outdoor Pool	1 Outdoor Pool
Rec Center	1 Recreation Center
Community Center	1 Community Center
Trail Options	See Parks and Trails Master Plan for standards
Trail Head	1 Trailhead Sign and 10 Parking Stalls. 1 water station to include equestrian water access.
Fitness system nodes	1 per 1/4 mile includes a combination of physical/active stations and activity signs
On Trail Sign	Trail directional sign at all trail intersections

Note: For illustrative purposes only. Final design is subject to change.

Table 5.1 (1). Area Park Open Space Requirements by Sub-District

Qualifying Uses for Parks and Open Space

Use	Meets Park Requirements	Meets Open Space Requirements
Trails within Parks	Yes	Yes
Trails in Open Space	No	Yes
Ball Courts	Yes	Yes
Farm or Agricultural Lands	No	Yes
Stormwater for Parks [a]	Yes	Yes
Stormwater for Development [a]	No	Yes
Stormwater in Common Areas [a]	No	Yes
Parking for Parks	Yes	Yes
Plazas, Courtyard, Park	Yes	Yes
Pocket Park,Community Park	Yes	Yes
Landscape around Private Buildings	No	Yes See #14
Recreation Center Buildings	Yes	Yes
Agriculture Buildings	No	No
Rooftop Gardens [b]	Partial	Partial
Playgrounds	Yes	Yes
Common Areas for Developments	Yes	Yes
Amphitheater	Yes	Yes
Sports fields	Yes	Yes
Community pools & pool areas	Yes	Yes
Sensitive Lands Preserved [c]	Yes	Yes
Recreation Center	Yes	Yes

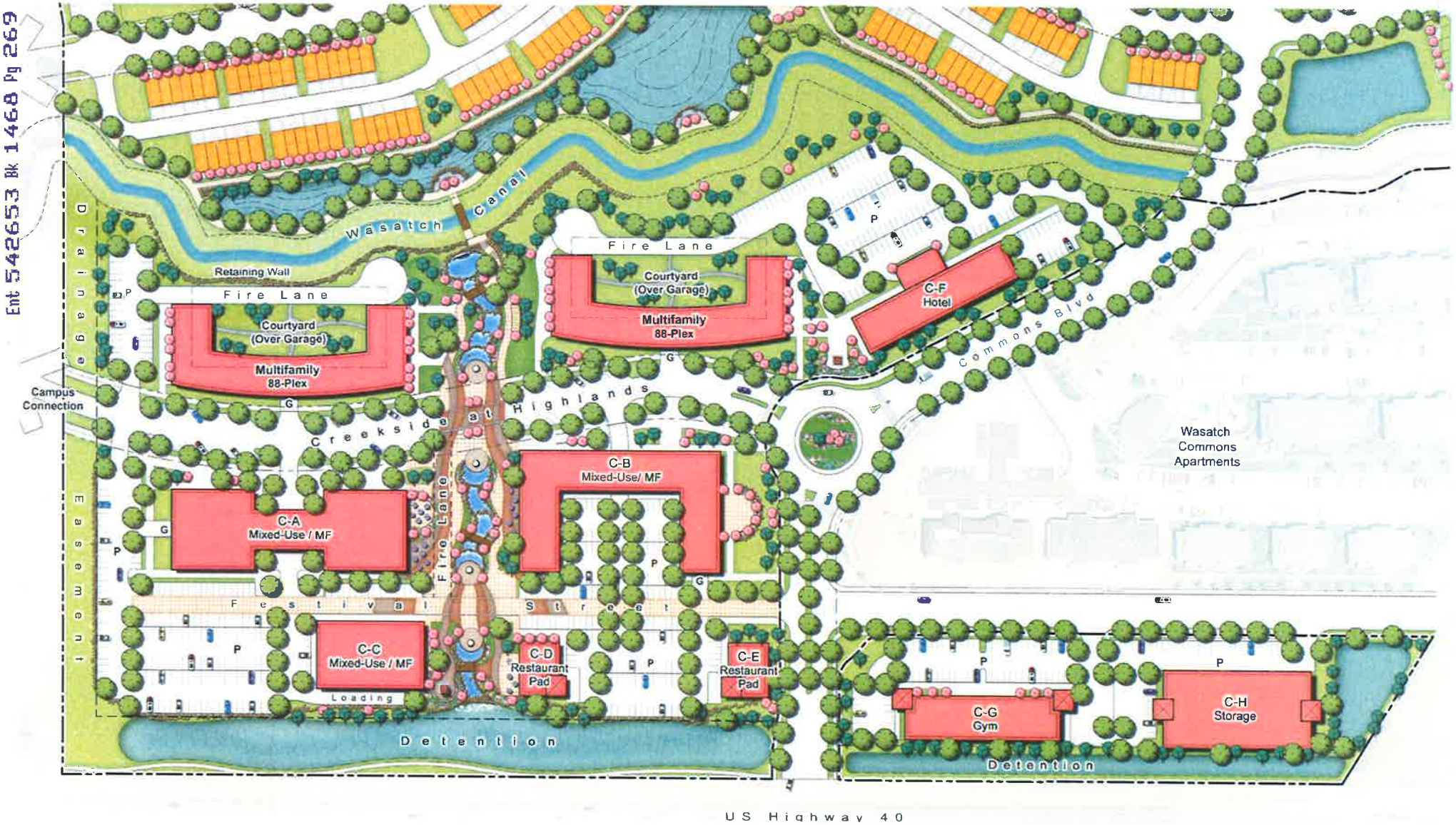
Ent 542653 Bk 1468 Pg 268

HIGHLANDS
CREEKSIDE ENLARGEMENT



Ent 542653 Bk 1468 Pg 269

HIGHLANDS
TOWN CENTER ENLARGEMENT



HIGHLANDS
TOWN CENTER SECTION



Ent 542653 Bk 1468 Pg 271

HIGHLANDS
PEDESTRIAN PLAZAS









Ent 542653 Bk 1468 Pg 272

HIGHLANDS
PARKS & SHELTERS









Ent 542653 Bk 1468 Pg 273

HIGHLANDS
PARK FEATURES









HIGHLANDS
PUBLIC ART

Ent 542653 Bk 1468 Pg 275

HIGHLANDS
NATIVE LANDSCAPE PLANTINGS









Ent 542653 Bk 1468 Pg 276



LAI DESIGN GROUP
Design for when it Matters

88 Inverness Circle East Building J, Suite 101 - Englewood, CO 80012
T: 303.734.1777
E: info@LAIdesigngroup.com

Architecture ▪ Planning & Entitlements ▪ Visual Media ▪ Landscape Architecture ▪ Real Estate Advisory

Exhibit P
to
Third Amendment
to
Development Agreement for Highlands Master Planned Community

Legal Description of Property on a Post-Adjustment Basis

HIGHLANDS RESIDENTIAL LEGAL DESCRIPTION:

A PARCEL OF LAND LOCATED IN SECTION 19, AND SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE WEST LINE OF THE WASATCH CANAL, AND THE SOUTH PROPERTY LINE OF THE UTAH VALLEY STATE COLLEGE PROPERTY AS DESCRIBED PER ENTRY NO. 333087, SAID INTERSECTION BEING NORTH 00°29'50" WEST 118.62 FEET ALONG THE SECTION LINE AND EAST 427.42 FEET FROM THE WASATCH COUNTY SURVEY ALUMINUM PIPE CAP MONUMENT MARKING THE WEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS);

RUNNING THENCE ALONG SAID SOUTH PROPERTY LINE NORTH 58°00'22" EAST 202.21 FEET; THENCE NORTH 48°11'59" EAST 1098.03 FEET TO THE CENTERLINE OF THE TIMPANOGOS CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID CENTERLINE OF SAID CANAL THE FOLLOWING NINE COURSES: (1) NORTH 17°22'52" WEST 54.83 FEET; (2) NORTHWESTERLY 62.66 FEET ALONG A 57.21 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 62°45'14" AND A LONG CHORD OF NORTH 48°45'29" WEST 59.57 FEET; (3) NORTH 80°08'06" WEST 50.43 FEET; (4) NORTHWESTERLY 80.09 FEET ALONG A 77.16 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 59°28'06" AND A LONG CHORD OF NORTH 50°24'03" WEST 76.54 FEET; (5) NORTH 20°40'00" WEST 67.54 FEET; (6) NORTH 20°40'00" WEST 39.32 FEET (7) NORTHWESTERLY 26.35 FEET ALONG A 73.32 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 20°35'35" AND A LONG CHORD OF NORTH 30°57'47" WEST 26.21 FEET; (8)

NORTH 41°15'35" WEST 114.29 FEET; (9) NORTHWESTERLY 11.22 FEET ALONG A 3029.45 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 0°12'44" AND A LONG CHORD OF NORTH 41°09'13" WEST 11.22 FEET TO A POINT ON THE EXTENSION THEREOF OF THE SOUTH PROPERTY LINE OF REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE ALONG SOUTH PROPERTY LINE SOUTH 89°54'54" EAST 593.13 FEET; THENCE NORTH 21°24'08" EAST 258.16 FEET; THENCE SOUTH 70°03'55" EAST 252.30 FEET; THENCE SOUTH 26°05'49" EAST 172.53 FEET TO A POINT ON THE SOUTH PROPERTY LINE OF THE REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE SOUTH 89°54'54" EAST 87.44 FEET TO A POINT ON THE SOUTHWESTERLY RIGHT OF WAY LINE OF A PROPOSED COLLECTOR ROAD;

THENCE ALONG THE SOUTHWESTERLY RIGHT OF WAY LINE OF PROPOSED COLLECTOR ROAD THE FOLLOWING FIVE (5) COURSES & DISTANCES:

(1) SOUTH 19°59'55" EAST 438.90 FEET TO A POINT OF CURVATURE;

(2) SOUTHERLY 109.47 FEET ALONG THE ARC OF A 384.00 FOOT RADIUS CURVE TO THE LEFT; CHORD BEARS SOUTH 28°09'56" EAST 109.10 FEET;

(3) SOUTH 36°19'58" EAST 219.31 FEET TO A POINT OF CURVATURE;

(4) SOUTHEASTERLY 96.86 FEET ALONG THE ARC OF A 384.00 FOOT RADIUS CURVE TO THE LEFT; CHORD BEARS SOUTH 43°33'32" EAST 96.60 FEET;

(5) SOUTH 50°47'07" EAST 679.45 FEET;

THENCE SOUTH 39°12'53" WEST 160.00 FEET; THENCE SOUTH 48°47'41" WEST 209.84 FEET; THENCE SOUTH 47°21'15" WEST 58.64 FEET; THENCE SOUTH 11°49'56" EAST 40.21 FEET; THENCE SOUTH 49°46'59" WEST 126.86 FEET; THENCE SOUTH 59°43'42" WEST 112.86 FEET TO A POINT ON THE WEST PROPERTY LINE OF SAID REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE ALONG SAID WEST PROPERTY LINE SOUTH 0°00'09" WEST 109.74 FEET TO THE CENTERLINE OF THE TIMPANOGOS CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID CENTERLINE THE FOLLOWING EIGHT COURSES:

(1) NORTH 10°34'34" WEST 26.14 FEET; (2) NORTHWESTERLY 18.66 FEET ALONG A 63.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 16°56'26" AND A LONG CHORD OF NORTH 19°02'47" WEST 18.59 FEET;

(3) NORTHWESTERLY 31.79 FEET ALONG A 63.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 28°51'57" AND A LONG CHORD OF NORTH 41°56'59" WEST 31.45 FEET;

(4) NORTH 56°22'57" WEST 51.03 FEET; (5) NORTHWESTERLY 56.42 FEET ALONG A 130.89 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 24°41'49" AND A LONG CHORD OF NORTH 44°02'02" WEST 55.98 FEET; (6) NORTH 31°41'08" WEST 60.09 FEET; (7) NORTHWESTERLY 126.00 FEET ALONG A 664.07 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 10°52'18" AND A LONG CHORD OF NORTH 37°07'17" WEST 125.82

FEET; (8) NORTH 42°33'26" WEST 8.76 FEET TO THE NORTH PROPERTY LINE OF THE VIEWPOINT HOLDINGS, LLC, PARCEL 1, PER ENTRY NO. 490647; THENCE ALONG SAID NORTH PROPERTY LINE NORTH 89°59'12" WEST 303.12 FEET TO THE NORTHWEST PROPERTY CORNER OF SAID VIEWPOINT HOLDINGS, LLC PARCEL; THENCE ALONG THE WEST PROPERTY LINE SOUTH 0°00'48" WEST 425.00 FEET, THENCE SOUTH 0°32'12" EAST 134.12 FEET TO THE SOUTHWEST PROPERTY CORNER OF THE VIEWPOINT HOLDINGS, LLC, PARCEL 2, PER ENTRY NO. 490647; THENCE ALONG THE SOUTH PROPERTY LINE NORTH 89°49'38" EAST 528.67 FEET TO A POINT ON THE WEST PROPERTY LINE OF THE REINVESTMENT HOLDINGS PARCEL PER ENTRY NO. 371165; THENCE SOUTH 0°00'09" WEST 1263.25 FEET TO THE NORTH PROPERTY LINE OF TRUDY F BISEL PARCEL PER ENTRY NO. 442517; THENCE ALONG SAID NORTH PROPERTY LINE NORTH 89°59'12" WEST 676.35 FEET TO THE CENTERLINE OF THE WASATCH CANAL; THENCE NORTH 89°59'12" WEST 52.77 FEET TO A POINT ON THE WEST LINE OF WASATCH CANAL AS DESCRIBED IN THAT CONTRACT AND GRANT OF EASEMENT RECORDED AS ENTRY NO. 212641 OF SAID RECORDS; THENCE ALONG SAID WEST LINE OF THE WASATCH CANAL THE FOLLOWING FIFTY-TWO COURSES:

(1) NORTHWESTERLY 36.10 FEET ALONG A 180.84 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 11°26'10" AND A LONG CHORD OF NORTH 48°19'44" WEST 36.04 FEET; (2) NORTH 42°36'39" WEST 243.31 FEET; (3) NORTHWESTERLY 59.37 FEET ALONG A 244.36 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 13°55'16" AND A LONG CHORD OF NORTH 49°34'17" WEST 59.23 FEET; (4) NORTH 56°31'55" WEST 141.96 FEET; (5) NORTHWESTERLY 52.18 FEET ALONG A 139.48 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 21°26'10" AND A LONG CHORD OF NORTH 45°48'50" WEST 51.88 FEET; (6) NORTH 35°05'45" WEST 32.66 FEET; (7) NORTHWESTERLY 24.90 FEET ALONG A 52.16 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 27°21'17" AND A LONG CHORD OF NORTH 48°46'23" WEST 24.67 FEET; (8) NORTH 62°27'02" WEST 31.01 FEET; (9) NORTHWESTERLY 60.61 FEET ALONG A 71.10 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 48°50'40" AND A LONG CHORD OF NORTH 45°21'15" WEST 58.80 FEET; (10) NORTH 28°15'28" WEST 46.48 FEET; (11) NORTHWESTERLY 27.92 FEET ALONG A 75.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 21°19'55" AND A LONG CHORD OF NORTH 38°55'26" WEST 27.76 FEET; (12) NORTH 49°35'23" WEST 30.70 FEET; (13) NORTHWESTERLY 89.92 FEET ALONG A 200.95 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 25°38'22" AND A LONG CHORD OF NORTH 36°46'12" WEST 89.18 FEET; (14) NORTH 23°57'01" WEST 161.09 FEET; (15) NORTHERLY 56.02 FEET ALONG A 129.03 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 24°52'29" AND A LONG CHORD OF NORTH 11°30'47" WEST 55.58 FEET; (16) NORTH 0°55'28" EAST 27.79 FEET; (17) NORTHWESTERLY 13.67 FEET ALONG A 19.04 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 41°08'53" AND A LONG CHORD OF NORTH 19°38'58" WEST 13.38 FEET; (18) NORTH 40°13'25" WEST 94.27 FEET; (19) NORTHERLY 88.73 FEET ALONG A 107.33 FEET RADIUS CURVE TO THE RIGHT

THROUGH A CENTRAL ANGLE OF 47°22'02" AND A LONG CHORD OF NORTH 16°32'24" WEST 86.23 FEET; (20) NORTH 7°08'37" EAST 78.23 FEET; (21) NORTHERLY 25.17 FEET ALONG A 99.68 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 14°27'55" AND A LONG CHORD OF NORTH 0°05'21" WEST 25.10 FEET; (22) NORTH 7°19'18" WEST 115.57 FEET; (23) NORTHWESTERLY 22.33 FEET ALONG A 12.44 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 102°52'01" AND A LONG CHORD OF NORTH 58°45'19" WEST 19.45 FEET; (24) SOUTH 69°48'41" WEST 41.25 FEET; (25) NORTHWESTERLY 126.93 FEET ALONG A 109.54 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 66°23'22" AND A LONG CHORD OF NORTH 76°59'38" WEST 119.94 FEET; (26) NORTH 43°47'57" WEST 25.44 FEET; (27) NORTHWESTERLY 32.56 FEET ALONG A 99.98 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 18°39'30" AND A LONG CHORD OF NORTH 53°07'42" WEST 32.41 FEET; (28) NORTHWESTERLY 45.58 FEET ALONG A 162.73 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 16°02'54" AND A LONG CHORD OF NORTH 54°26'00" WEST 45.43 FEET; (29) NORTH 46°24'33" WEST 16.21 FEET; (30) NORTHERLY 91.08 FEET ALONG A 98.34 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 53°04'03" AND A LONG CHORD OF NORTH 19°52'32" WEST 87.86 FEET; (31) NORTH 6°39'30" EAST 49.88 FEET; (32) NORTHWESTERLY 4.32 FEET ALONG A 3.28 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 75°25'34" AND A LONG CHORD OF NORTH 31°03'17" WEST 4.01 FEET; (33) NORTH 68°46'04" WEST 27.75 FEET; (34) NORTHWESTERLY 50.30 FEET ALONG A 340.23 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 8°28'12" AND A LONG CHORD OF NORTH 73°00'10" WEST 50.25 FEET; (35) NORTH 77°14'16" WEST 41.08 FEET; (36) NORTHWESTERLY 51.44 FEET ALONG A 124.93 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 23°35'29" AND A LONG CHORD OF NORTH 65°26'31" WEST 51.08 FEET; (37) NORTH 53°38'47" WEST 38.81 FEET; (38) NORTHWESTERLY 61.02 FEET ALONG A 138.65 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 25°12'50" AND A LONG CHORD OF NORTH 41°02'22" WEST 60.52 FEET; (39) NORTH 28°25'57" WEST 39.08 FEET; (40) NORTHWESTERLY 43.52 FEET ALONG A 64.31 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 38°46'17" AND A LONG CHORD OF NORTH 47°49'05" WEST 42.69 FEET; (41) NORTH 67°12'14" WEST 30.51 FEET; (42) NORTHWESTERLY 99.61 FEET ALONG A 133.72 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 42°40'53" AND A LONG CHORD OF NORTH 45°51'47" WEST 97.32 FEET; (43) NORTH 24°31'21" WEST 30.12 FEET; (44) NORTHWESTERLY 61.74 FEET ALONG A 273.10 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 12°57'12" AND A LONG CHORD OF NORTH 30°59'57" WEST 61.61 FEET; (45) NORTH 37°28'33" WEST 20.28 FEET; (46) NORTHERLY 79.97 FEET ALONG A 65.40 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 70°03'24" AND A LONG CHORD OF NORTH 2°26'51" WEST 75.08 FEET; (47) NORTH 32°34'51" EAST 61.85 FEET; (48) NORTHERLY 4.17 FEET ALONG A 4.35 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 54°54'55" AND A LONG CHORD OF NORTH 5°07'24" EAST 4.01 FEET; (49) NORTH 22°20'04" WEST 44.62 FEET; (50)

NORTHERLY 41.59 FEET ALONG A 59.20 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 40°14'52" AND A LONG CHORD OF NORTH 2°12'38" WEST 40.74 FEET; (51) NORTH 17°54'48" EAST 63.72 FEET; (52) NORTHERLY 6.30 FEET ALONG A 12.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 30°03'44" AND A LONG CHORD OF NORTH 2°52'56" EAST 6.22 FEET TO THE POINT OF BEGINNING.

CONTAINING 116.26 ACRES.

COMMERCIAL PARCELS:

NORTH PARCEL:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD AND THE EASTERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 40, SAID POINT ALSO BEING NORTH 00°06'58" WEST 1,407.18 FEET ALONG THE SECTION LINE AND EAST 212.70 FEET FROM THE SOUTHWEST CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE NORTH 32°00'26" WEST 1,057.02 FEET ALONG THE EASTERLY RIGHT-OF-WAY LINE OF SAID STATE HIGHWAY 40; THENCE NORTH 57°59'34" EAST 909.98 FEET TO THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 13.50 FEET ALONG THE ARC OF A 12.00 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 43°16'46" WEST AND THE CHORD BEARS SOUTH 14°28'51" EAST 12.80 FEET WITH A CENTRAL ANGLE OF 64°28'45") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 17°45'17" WEST 63.72 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 41.60 FEET ALONG THE ARC OF A 59.20 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 72°14'43" EAST AND THE CHORD BEARS SOUTH 02°22'27" EAST 40.75 FEET WITH A CENTRAL ANGLE OF 40°15'28") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 22°29'35" EAST 44.62 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHWESTERLY 4.17 FEET ALONG THE ARC OF A 4.35 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 67°30'25" WEST AND THE CHORD BEARS SOUTH 04°57'50" WEST 4.01 FEET WITH A CENTRAL ANGLE OF 54°54'51") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 32°25'20" WEST 61.85 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 79.97 FEET ALONG THE ARC OF A 65.40 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 57°34'40" EAST AND THE CHORD BEARS SOUTH 02°36'27" EAST 75.08 FEET WITH A CENTRAL ANGLE OF 70°03'35") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 37°38'04" EAST 20.28 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 61.74 FEET ALONG THE ARC OF A 273.10 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 52°21'56" WEST AND THE CHORD BEARS SOUTH 31°09'29" EAST 61.61 FEET WITH A CENTRAL ANGLE OF 12°57'09") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 24°40'52" EAST 30.12 FEET ALONG THE WESTERLY LINE

OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 99.61 FEET ALONG THE ARC OF A 133.72 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 65°19'08" EAST AND THE CHORD BEARS SOUTH 46°01'20" EAST 97.33 FEET WITH A CENTRAL ANGLE OF 42°40'55") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 67°21'45" EAST 30.51 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 43.52 FEET ALONG THE ARC OF A 64.31 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 22°38'15" WEST AND THE CHORD BEARS SOUTH 47°58'31" EAST 42.70 FEET WITH A CENTRAL ANGLE OF 38°46'28") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 28°35'28" EAST 39.08 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 61.02 FEET ALONG THE ARC OF A 138.66 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 61°24'32" EAST AND THE CHORD BEARS SOUTH 41°11'55" EAST 60.53 FEET WITH A CENTRAL ANGLE OF 25°12'54") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 53°48'18" EAST 38.81 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 51.43 FEET ALONG THE ARC OF A 124.93 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 36°11'42" EAST AND THE CHORD BEARS SOUTH 65°35'56" EAST 51.07 FEET WITH A CENTRAL ANGLE OF 23°35'17") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 77°23'47" EAST 41.08 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 50.29 FEET ALONG THE ARC OF A 340.23 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 12°36'13" WEST AND THE CHORD BEARS SOUTH 73°09'41" EAST 50.25 FEET WITH A CENTRAL ANGLE OF 08°28'11") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 68°55'35" EAST 27.75 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 4.32 FEET ALONG THE ARC OF A 3.28 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 21°04'25" WEST AND THE CHORD BEARS SOUTH 31°12'43" EAST 4.01 FEET WITH A CENTRAL ANGLE OF 75°25'43") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 06°29'59" WEST 49.88 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 91.09 FEET ALONG THE ARC OF A 98.34 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 83°30'01" EAST AND THE CHORD BEARS SOUTH 20°02'06" EAST 87.86 FEET WITH A CENTRAL ANGLE OF 53°04'09") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 46°34'04" EAST 16.21 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 45.58 FEET ALONG THE ARC OF A 162.73 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 43°25'56" EAST AND THE CHORD BEARS SOUTH 54°35'33" EAST 45.43 FEET WITH A CENTRAL ANGLE OF 16°02'58") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 32.56 FEET ALONG THE ARC OF A 99.98 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 27°22'58" WEST AND THE CHORD BEARS SOUTH 53°17'16" EAST 32.42 FEET WITH A CENTRAL ANGLE OF 18°39'31") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 43°57'28" EAST 25.44 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 126.92 FEET ALONG THE ARC OF A 109.54 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS NORTH 46°02'32"

EAST AND THE CHORD BEARS SOUTH 77°09'00" EAST 119.93 FEET WITH A CENTRAL ANGLE OF 66°23'03") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE NORTH 69°39'10" EAST 41.25 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 22.33 FEET ALONG THE ARC OF A 12.44 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 20°20'50" EAST AND THE CHORD BEARS SOUTH 58°54'45" EAST 19.45 FEET WITH A CENTRAL ANGLE OF 102°52'09") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 07°28'49" EAST 115.57 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 25.17 FEET ALONG THE ARC OF A 99.68 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 82°31"11" WEST AND THE CHORD BEARS SOUTH 00°14'49" EAST 25.10 FEET WITH A CENTRAL ANGLE OF 14°27'59") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 06°59'06" WEST 78.23 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 88.74 FEET ALONG THE ARC OF A 107.33 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 83°00'54" EAST AND THE CHORD BEARS SOUTH 16°42'03" EAST 86.23 FEET WITH A CENTRAL ANGLE OF 47°22'19") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 40°22'56" EAST 94.27 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 13.67 FEET ALONG THE ARC OF A 19.04 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 49°37'04" WEST AND THE CHORD BEARS SOUTH 19°48'25" EAST 13.38 FEET WITH A CENTRAL ANGLE OF 41°09'02") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 00°45'57" WEST 27.79 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTHEASTERLY 56.01 FEET ALONG THE ARC OF A 129.03 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 89°14'03" EAST AND THE CHORD SOUTH 11 °40'13" EAST 55.57 FEET WITH A CENTRAL ANGLE OF 24°52'21") ALONG THE WESTERLY LINE OF THE WASATCH CANAL; THENCE SOUTH 24°06'32" EAST 157.61 FEET ALONG THE WESTERLY LINE OF THE WASATCH CANAL TO THE SOUTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 259.90 FEET ALONG THE ARC OF A 483.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 00°53'23" WEST AND THE CHORD BEARS NORTH 75°29'26" WEST 256.78 FEET WITH A CENTRAL ANGLE OF 30°47'55") ALONG THE SOUTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 60°05'28" WEST 29.46 FEET ALONG THE SOUTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 29°54'32" EAST 67.00 FEET TO THE NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 60°05'28" WEST 50.00 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 13.57 FEET ALONG THE ARC OF A 17.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 29°54'32" EAST AND THE CHORD BEARS NORTH 37°53'00" WEST 13.23 FEET WITH A CENTRAL ANGLE OF 44°24'55") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 60°05'28" WEST 103.22 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 391.17 FEET ALONG THE ARC OF A 488.50 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 29°54'32" WEST AND THE CHORD

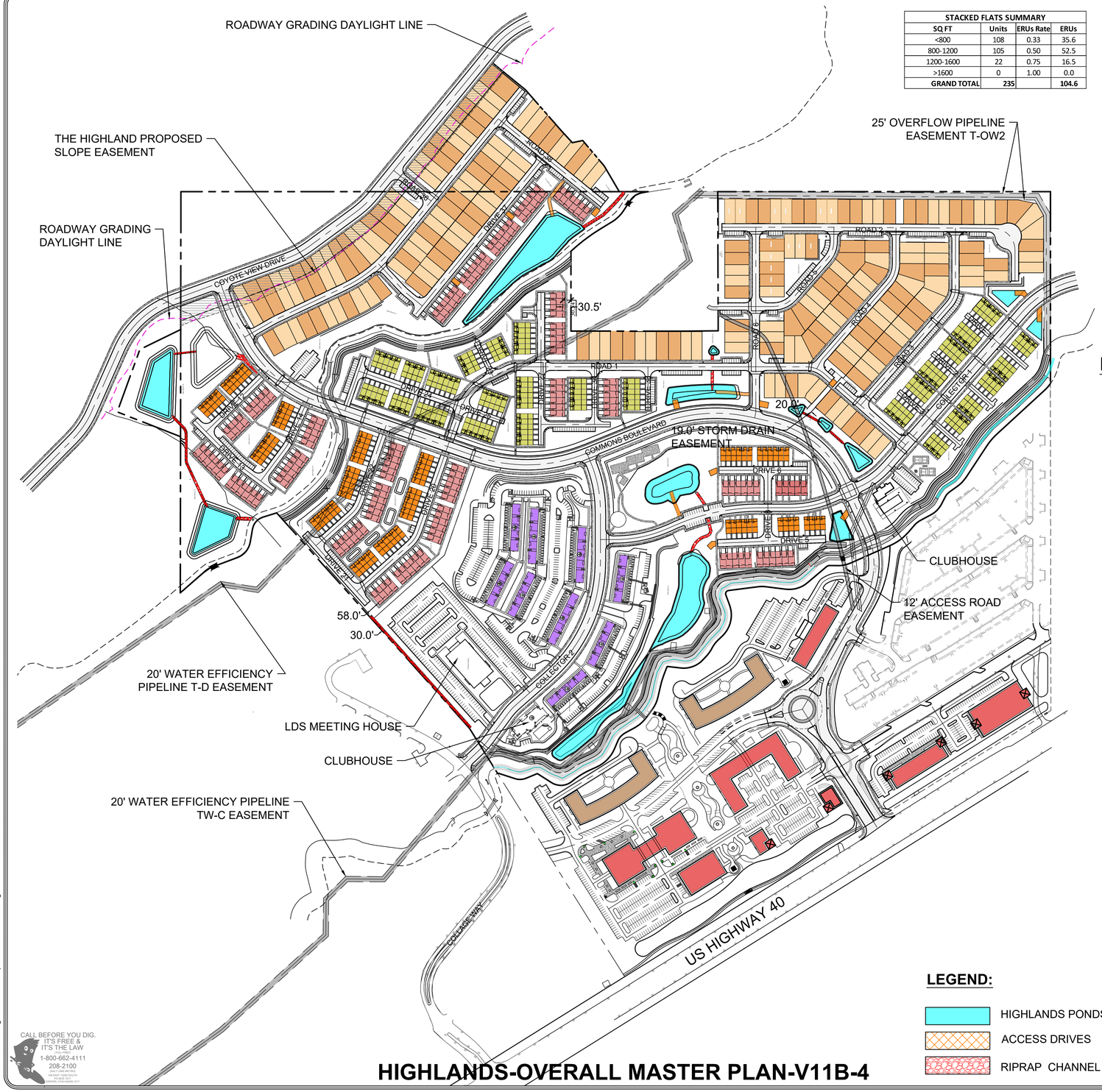
BEARS NORTH 83°01'52" WEST 380.80 FEET WITH A CENTRAL ANGLE OF 45°52'49") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 30.50 FEET ALONG THE ARC OF A 35.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 15°58'17" WEST AND THE CHORD BEARS NORTH 81°21'31" WEST 29.57 FEET WITH A CENTRAL ANGLE OF 49°13'32") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 50.41 FEET ALONG THE ARC OF A 94.50 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 33°15'16" WEST AND THE CHORD BEARS NORTH 72°01'41" WEST 49.82 FEET WITH A CENTRAL ANGLE OF 30°33'53") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTHWESTERLY 34.27 FEET ALONG THE ARC OF A 35.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 02°41'22" EAST AND THE CHORD BEARS NORTH 59°39'32" WEST 32.95 FEET WITH A CENTRAL ANGLE OF 55°18'12") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE NORTH 32°00'26" WEST 11.87 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTH 50°09'54" WEST 77.72 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTH 32°00'26" EAST 1.29 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTHEASTERLY 34.27 FEET ALONG THE ARC OF A 35.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS SOUTH 57°59'34" WEST AND THE CHORD BEARS SOUTH 04°21'20" EAST 32.95 FEET WITH A CENTRAL ANGLE OF 55°18'12") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTHWESTERLY 26.91 FEET ALONG THE ARC OF A 94.50 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 66°42'14" EAST AND THE CHORD BEARS SOUTH 15°08'20" WEST 26.82 FEET WITH A CENTRAL ANGLE OF 16°18'53") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTHWESTERLY 31.61 FEET ALONG THE ARC OF A 35.50 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 83°01'07" WEST AND THE CHORD BEARS SOUTH 32°29'14" WEST 30.57 FEET WITH A CENTRAL ANGLE OF 51°00'41") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTH 57°59'34" WEST 24.11 FEET; THENCE SOUTHWESTERLY 21.44 FEET ALONG THE ARC OF A 135.00 FOOT RADIUS CURVE TO THE RIGHT (CENTER BEARS NORTH 32°00"26" WEST AND THE CHORD BEARS SOUTH 62°32'31" WEST 21.42 FEET WITH A CENTRAL ANGLE OF 09°05'55") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTH 67°05'29" WEST 52.01 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTHWESTERLY 26.20 FEET ALONG THE ARC OF A 165.00 FOOT RADIUS CURVE TO THE LEFT (CENTER BEARS SOUTH 22°54'31" EAST AND THE CHORD BEARS SOUTH 62°32'32" WEST 26.17 FEET WITH A CENTRAL ANGLE OF 09°05'55") ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD; THENCE SOUTH 57°59'34" WEST 26.05 FEET ALONG SAID NORTHERLY RIGHT-OF-WAY LINE OF COMMONS BOULEVARD TO THE POINT OF BEGINNING.

SOUTH PARCEL:

A PARCEL OF LAND LOCATED IN THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 20 ALL IN TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, WASATCH COUNTY, UTAH DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 40 PROJECT NO. F-019-1(1), SAID POINT BEING NORTH 0°08'37" WEST 687.06 FEET ALONG THE SECTION LINE AND EAST 659.19 FEET FROM THE 1999 WASATCH COUNTY SURVEY ALUMINUM CAP MONUMENT MARKING THE SOUTHWEST QUARTER CORNER OF SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN (BASIS OF BEARINGS FOR THIS DESCRIPTION IS SOUTH 04°04'03" EAST 2857.85 FEET ALONG A LINE DEFINED BY WASATCH COUNTY WATER SERVICE AREA NO. 1 SURVEY CONTROL MONUMENTS NO. 706 AND NO. 708 (BOTH ALUMINUM PIPE CAP MONUMENTS) SEE THE SURVEY CONTROL SHEET FOR THE CENTRAL UTAH WATER CONSERVANCY DISTRICT, WASATCH COUNTY WATER EFFICIENCY PROJECT, DRAWING NO. G-8 AS RECORDED IN BOOK 630 AT PAGES 766-767 AND AS ENTRY NO. 259146 OF THE WASATCH COUNTY RECORDS); THE PARCEL 2 DESCRIPTION AS RECORED AS ENTRY NO. 396936 OF SAID RECORDS, WHICH SAID PARCEL 2 BEARINGS ARE ROTATED 0°01'39" COUNTERCLOCKWISE TO AGREE WITH THE ABOVE DESCRIBED BASIS OF BEARINGS; THENCE ALONG SAID EASTERLY RIGHT OF WAY LINE NORTH 32°00'02" WEST 748.34 FEET ALONG THE EASTERLY RIGHT OF WAY LINE OF SAID STATE HIGHWAY 40 TO THE BOUNDARY LINE OF WASATCH COMMONS SUBDIVISION, SAID BOUNDARY ALSO BEING THE SOUTH RIGHT OF WAY LINE FOR COMMONS BOULEVARD; THENCE ALONG THE SAID SOUTH RIGHT OF WAY LINE AND BOUNDARY LINE NORTH 57°57'55" EAST 146.97 FEET; THENCE NORTHEASTERLY 33.19 FEET ALONG A 35.50 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 53°33'54" AND A LONG CHORD OF NORTH 84°44'52" EAST 31.99 FEET; THENCE SOUTHEASTERLY 31.12 FEET ALONG A 94.50 FEET RADIUS REVERSE CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 18°52'06" AND A LONG CHORD OF SOUTH 77°54'14" EAST 30.98 FEET; THENCE SOUTHEASTERLY 34.27 FEET ALONG A 35.50 FEET RADIUS REVERSE CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 55°18'12" AND A LONG CHORD OF SOUTH 59°41'11" EAST 32.95 FEET TO A POINT ON THE WEST RIGHT OF WAY LINE FOR GREEN VALLEY ROAD; THENCE ALONG SAID RIGHT OF WAY LINE AND SAID BOUNDARY LINE SOUTH 32°02'05" EAST 10.00 FEET; THENCE NORTH 57°57'55" EAST 12.00 FEET; THENCE SOUTH 32°02'05" EAST 44.05 FEET; THENCE SOUTHEASTERLY 14.86 FEET ALONG A 153.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 5°33'55" AND A LONG CHORD OF SOUTH 34°49'02" EAST 14.86 FEET; THENCE SOUTH 37°36'00" EAST 36.75 FEET; THENCE SOUTHEASTERLY 59.80 FEET ALONG A 447.00 FEET RADIUS CURVE TO

THE RIGHT THROUGH A CENTRAL ANGLE OF 7°39'55" AND A LONG CHORD OF SOUTH 33°46'03" EAST 59.76 FEET; THENCE SOUTH 29°56'05" EAST 24.60 FEET; THENCE SOUTHEASTERLY 92.27 FEET ALONG A 2517.50 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 2°06'00" AND A LONG CHORD OF SOUTH 30°59'05" EAST 92.26 FEET; THENCE SOUTH 32°02'05" EAST 544.50 FEET; THENCE NORTH 89°59'12" WEST 270.18 FEET TO THE POINT OF BEGINNING.



STACKED FLATS SUMMARY			
SQ FT	Units	ERUs Rate	ERUs
<800	108	0.33	35.6
800-1200	105	0.50	52.5
1200-1600	22	0.75	16.5
>1600	0	1.00	0.0
GRAND TOTAL	235		104.6

HIGHLANDS OVERALL DEVELOPMENT SUMMARY

AREA= 144.65 AC. **ERU's= 758**

HIGHLANDS RESIDENTIAL DEVELOPMENT SUMMARY

AREA= 116.26 AC. ERU's= 579 (TOTAL AFFORDABLE HOUSING ERU's= 51)

DR HORTON	UNITS	ERUs/UNIT	ERUs
SINGLE FAMILY RESIDENTIAL ALTA LOTS WITH ALTA HOME (40.5x93)	112	0.75	84.0
SINGLE FAMILY RESIDENTIAL COTTAGE LOTS WITH COTTAGE HOME (46.5x93)	93	1.0	93.0
STACKED FLATS	235	SEE STACKED FLAT SUMMARY TABLE	104.6
TOWNHOMES - OLIVER	89	1.0	89.0
TOWNHOMES - MILLBROOK	145	0.75	108.75
TOWNHOMES - DALTON	133	0.75	99.75

TOTAL UNITS = 807 **TOTAL ERUs = 579**

HIGHLANDS TOWN CENTER DEVELOPMENT SUMMARY

AREA= 28.39 AC. ERU's= 179 (TOTAL AFFORDABLE HOUSING ERU's= 16)

MULTI-FAMILY-88 PLEX : 4 STORIES + GARAGE
2 BUILDINGS = 176 UNITS
GARAGE PARKING = 264 SPACES (1.5/ UNITS)

COMMERCIAL / MIXED -USE (C-A) : 4 STORIES + GARAGE
RETAIL (1ST FLOOR): 28,000 SF
RESIDENTIAL (3 FLOORS): 40 UNITS (STUDENT HOUSING)
GARAGE PARKING = 200 SPACES
-COMMERCIAL = 140 SPACES (5/1000 SF)
- RESIDENTIAL = 60 SPACES (1.5/ UNIT)

COMMERCIAL / MIXED -USE (C-B) : 4 STORIES + GARAGE
RETAIL (1ST FLOOR): 27,000 SF
RESIDENTIAL (3 FLOORS): 60 UNITS (STUDENT HOUSING)
GARAGE PARKING = 225 SPACES
-COMMERCIAL = 135 SPACES (5/1000 SF)
- RESIDENTIAL = 90 SPACES (1.5/ UNIT)

COMMERCIAL (C-C) : 1 STORY
RETAIL (GROCERY) : 16,000 SF

COMMERCIAL (C-D) : 1 STORY
RESTAURANT (1ST FLOOR): 5,000 SF

COMMERCIAL (C-E) : 1 STORY
RESTAURANT (1ST FLOOR) : 5,000 SF

COMMERCIAL (C-F) : 4 STORIES
HOTEL (4 FLOORS) : 135 KEYS
TOTAL: 60,000 SF * (15,000/FLOOR)

COMMERCIAL (C-G) : 1 STORY
GYM (1 ST FLOOR) : 15,000 SF

COMMERCIAL (C-H) : 3 STORIES + BASEMENT
STORAGE UNIT (4 FLOORS) : 25,000 SF EA
TOTAL: 100,000 SF*

LINEAR PARK = 6.95 AC

TOTAL COMM / MIXED-USE = 96,000 SF
(STORAGE UNIT NOT INCLUDED IN TOTAL PER DA)
TOTAL ERU= 758
AFFORDABLE HOUSING AT 10% (STUDENT HOUSING APPLIES)

TOTAL ERUs = 758

NOTE: THE HIGHLANDS DEVELOPMENT IS BASED ON AN EQUIVALENT RESIDENTIAL UNIT (ERU), AS DEFINED BY HEBER CITY. THE ACTUAL NUMBER OF PHYSICAL UNITS MAY CHANGE. HOWEVER THE TOTAL NUMBER OF ERU WILL NOT EXCEED 758 ERUs.

LEGEND:

- HIGHLANDS PONDS
- ACCESS DRIVES
- RIPRAP CHANNEL

EDITED 07/31/2024

200 0 200 400 600

Scale 1" = 200'

HIGHLANDS-OVERALL MASTER PLAN-V11B-4

CALL BEFORE YOU DIG. IT'S FREE & IT'S THE LAW 1-800-662-4111 208-2100

FILENAME: O:\Highlands\Base\Proposed Base V11B-4.dwg TAB: OVERALL MAP PLOT DATE AND TIME: 8/22/2024 1:38 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
HIGHLANDS PROPOSED BASE V11B-4

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 487 8040

CLIENT: D.R.HORTON
DWG: PROPOSED BASE V11B-4.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 24"x36" DIMENSIONS AND SITE FUNCTIONS MAY BE INCORRECT

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SHEET
EX-01



HIGHLANDS RESIDENTIAL DEVELOPMENT SUMMARY

AREA= 116.26 AC. **ERU's= 579** (TOTAL AFFORDABLE HOUSING ERU's= 51)

DR HORTON	UNITS	ERUs/UNIT	ERUs
SINGLE FAMILY RESIDENTIAL ALTA LOTS WITH ALTA HOME (40.5x93)	112	0.75	84.0
SINGLE FAMILY RESIDENTIAL COTTAGE LOTS WITH COTTAGE HOME (46.5x93)	93	1.0	93.0
STACKED FLATS	235	SEE STACKED FLAT SUMMARY TABLE	104.6
TOWNHOMES - OLIVER	89	1.0	89.0
TOWNHOMES - MILLBROOK	145	0.75	108.75
TOWNHOMES - DALTON	133	0.75	99.75
	TOTAL UNITS = 807		TOTAL ERUs = 579

STACKED FLATS SUMMARY			
SQ FT	Units	ERUs Rate	ERUs
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800-1200	105	0.50	52.5
1200-1600	22	0.75	16.5
>1600	0	1.00	0.0
GRAND TOTAL	235		104.6

AFFORDABLE HOUSING SUMMARY	
NUMBER OF ERUs	51

NOTE: LOT AND UNIT LOCATIONS TO BE CALCULATED AND DETERMINED AT FINAL PLAT APPROVAL.

N

200 0 200 400 600

Scale 1" = 200'

CALL BEFORE YOU DIG.
IT'S FREE &
IT'S THE LAW
(UTAH ONLY)
1-800-662-4111
208-2100
(SALT LAKE METRO)
811 WEST 1000 SOUTH
SUITE 101
SANDY, UTAH 84070-3017

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Exhibit\Affordable Housing Exhibit.dwg TAB: AFFORDABLE HOUSING EX-01 PLOT DATE AND TIME: 4/24/2024 4:08 PM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
AFFORDABLE HOUSING EXHIBIT

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: AFFORDABLE HOUSING EXHIBIT.DWG
JOB No: 3891-LORH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 24" X 36". DIMENSIONS MAY NEED ADJUSTMENT

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 04/24/2024

REVISIONS

SHEET
EX-01

REPORT
GEOTECHNICAL STUDY
WASATCH COMMONS
EAST OF THE INTERSECTION OF 3000 NORTH
AND U.S. HIGHWAY 40,
HEBER CITY, UTAH

Submitted To:

Cardinal Funding, LC
1165 East Wilmington Avenue
Salt Lake City, UT 84106

Submitted By:

GSH Geotechnical, Inc.
473 West 4800 South
Salt Lake City, Utah 84123

September 21, 2016

Job No. 2161-001-16

September 21, 2016
Job No. 2161-001-16

Mr. Mark Garza
Cardinal Funding, LC
1165 East Wilmington Avenue
Salt Lake City, UT 84106

Mr. Garza:

Re: Report
Geotechnical Study
Wasatch Commons
East of the Intersection of 3000 North
and U.S. Highway 40,
Heber City, Utah

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical study performed at the site of the proposed Wasatch Commons, located east of the intersection of 3000 North and U.S. Highway 40, in Heber City, Utah. The general location of the site with respect to major topographic features and existing facilities, as of 2016, is presented on Figure 1, Vicinity Map. A preliminary layout of the overall Wasatch Commons Development, including the approximate locations of roadways and residential lots in relation to proposed and existing roads, is presented on Figure 2, Site Plan. The approximate locations of the 33 test pits excavated in conjunction with this study are also presented on Figure 2.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of our study were planned in discussions between Mr. Mark Garza of Cardinal Funding, LC, and Mr. Alan Spilker of GSH Geotechnical, Inc. (GSH).

In general, the objectives of this study were to:

1. Define and evaluate the subsurface soil and groundwater conditions across the site.

2. Provide appropriate foundation, earthwork, geoseismic, pavement, and site drainage recommendations to be utilized in the design and construction of the proposed development.

In accomplishing these objectives, our scope has included the following:

1. A field program consisting of the excavation, logging, and sampling of 33 exploration test pits.

2. A laboratory testing program.

3. An office program consisting of the correlation of available data, engineering analysis, and the preparation of this summary report.

1.3 AUTHORIZATION

Authorization was provided by returning a signed copy of our Professional Services Agreement No. 16-0543 dated May 17, 2016, and executed on June 14, 2016.

1.4 PROFESSIONAL STATEMENTS

Supporting data upon which our recommendations are based are presented in subsequent sections of this report. Recommendations presented herein are governed by the physical properties of the soils encountered in the explorations, projected groundwater conditions, and the layout and design data discussed in Section 2, Proposed Construction, of this report. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, GSH must be informed so that our recommendations can be reviewed and amended, if necessary.

Our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time.

2. PROPOSED CONSTRUCTION

The proposed development is 114 acres and will include apartment complexes, duplex units, and single-family residential structures. Structures are anticipated to be 1 to 3 levels in height and anticipated to be constructed slab on grade with the potential for full- or partial-depth basements. Below grade, the structures will be of reinforced concrete construction. Above grade, structures will likely consist of wood-frame construction with stone, brick, stucco, or similar type veneer.

Structural loads will be transmitted through bearing walls and isolated columns. We project that the maximum real wall and column loads will be on the order of 2 to 4 kips per lineal foot and 20 to 40 kips, respectively. Floor slab loads will be light.

Projected traffic over the primary roadways will consist of a moderate volume of automobiles and light trucks and occasional medium- and heavyweight trucks. However, during build-out, the traffic will consist of a much higher percentage and higher volume of medium- and heavyweight trucks.

Site development will require a very extensive amount of earthwork in the form of cutting and filling for the roadways and building pads. At this time, we project that maximum cuts and fills will be generally in the range of 5 to 10 feet; however, in certain specific areas, cuts and fills could approach 15 to 20 feet.

3. SITE INVESTIGATIONS

3.1 FIELD PROGRAM

In order to evaluate subsurface soil and groundwater conditions across the site, 33 test pits were excavated to depths ranging from 0.5 to 15.0 feet with a small rubber tire-mounted backhoe. Locations of these test pits are presented on Figure 2, Site Plan.

Excavation refusal was encountered in 32 of the 33 test pits utilizing a CAT 430D rubber-tired backhoe. Subsequently, the client utilizing a track-hoe extended 14 of the test pit locations to deeper depths. The depth of track-hoe refusal is shown on Figure 2. The test pits encountering refusal, the depths excavated, and subsurface soil and bedrock conditions are summarized in Section 4.2, Subsurface Soil and Bedrock.

The field portion of our study was under the direct control and continual supervision of an experienced member of our geotechnical staff. During the course of the excavation operations, a continuous log of the subsurface conditions encountered was maintained. The soils and bedrock encountered were classified in the field based upon visual and textural examination. These classifications were later supplemented by subsequent inspection and testing in our laboratory. Detailed graphical representation of the subsurface conditions encountered is presented on Figures 3A through 3AG, Log of Test Pits. Soils have been classified in accordance with the nomenclature presented on Figure 4, Key to Test Pit (USCS). Bedrock was classified in accordance with nomenclature presented on Figure 5, Rock Description Terminology.

Following completion of excavating and logging, each test pit was backfilled with excavated materials. Although an effort was made to compact the backfill with the backhoe, backfill was

not placed in uniform lifts and compacted to a specific density. Consequently, settlement of the backfill with time is likely to occur.

Prior to backfilling the test pits, 1.25-inch diameter slotted PVC pipe was installed in Test Pits TP-23, TP-31, and TP-33 in order to provide a means of monitoring groundwater fluctuations.

3.2 LABORATORY TESTING

3.2.1 General

In order to provide data necessary for our engineering analyses, a laboratory testing program was performed. The program included moisture and density, partial gradation, Atterberg limits, consolidation, and chemical tests. The following paragraphs describe the tests and summarize the test data.

3.2.2 Moisture and Density Tests

To provide index parameters and to correlate other test data, moisture and density tests were performed on selected undisturbed samples. The results of these tests are presented on the test pit logs.

3.2.3 Partial Gradation Tests

To aid in classifying the soils and to provide general index parameters, partial gradation tests were performed on representative samples of the soils encountered in the explorations. The results of the partial gradation tests are shown on the test pit logs and are tabulated on the following table:

Test Pit No.	Depth (feet)	Percent Passing No. 200 Sieve	Moisture Content (%)	Soil Classification
TP-1	0.5	23.7	8.3	SM-GM
TP-2	1.5	1.4	8.0	SP-GP
TP-9	3.0	64.3	11.1	CL
TP-13	1.5	9.7	7.2	GP-GC
TP-15	6.0	13.0	12.8	SM-SC
TP-17	5.0	7.7	6.8	SM-GM
TP-21	4.0	31.1	13.4	SM

Test Pit No.	Depth (feet)	Percent Passing No. 200 Sieve	Moisture Content (%)	Soil Classification
TP-23	8.5	30.9	17.4	SC-GC
TP-23	12.5	36.1	29.4	SM
TP-26	2.5	18.5	19.3	SM
TP-31	3.0	11.4	11.1	SC
TP-31	8.0	21.9	12.5	SC
TP-33	5.5	34.9	7.1	SC

3.2.4 Atterberg Limits Test

To aid in classifying the soils and to help correlate other test data, an Atterberg limits test was performed upon a select sample. Results of the test are tabulated below:

Boring No.	Depth (feet)	Liquid Limit (percent)	Plastic Limit (percent)	Plasticity Index (percent)	Soil Classification
TP-7	1.0	37	25	12	ML

3.2.5 Consolidation Tests

To provide data necessary for our settlement analyses, a consolidation test was performed on each of 2 representative samples of the natural fine-grained soils encountered in the exploration test pits.

Test results indicate that the natural soils are moderately to highly over-consolidated and will exhibit moderate strength and compressibility characteristics under the projected design loading. Detailed results of the tests are maintained within our files and can be transmitted to you, upon your request.

3.2.6 Chemical Tests

To determine if the site soils will react detrimentally with concrete, chemical tests were performed on a representative sample of the near-surface soils encountered at the site. The results of the chemical tests are tabulated on the table on the following page.

Test Pit No.	Depth (feet)	Soil Classification	pH	Total Water Soluble Sulfate (mg/kg-dry)
TP-16	1.5	SM	8.2	BRL

BRL – Below reporting limit

4. SITE CONDITIONS

4.1 SURFACE

The site of the proposed development is a 114-acre parcel, generally used for farming and grazing. The site surface slopes down to the southwest with about 170 feet of relief. Surface topography includes broad meadow areas divided by slight ridges and southwest to south trending drainage swells. The Timpanogos and Wasatch Irrigation Canals contour across the upper and lower portions of the property from northwest to southeast.

Vegetation at the site consists predominately of grasses with pockets of trees and shrubbery along drainages. The site is bound by Utah Valley University Wasatch Campus to the northwest, by apartment buildings and similar undeveloped property to the south and west, and by steeper undeveloped hillside to the east.

4.2 SUBSURFACE SOIL AND BEDROCK

The subsurface soil conditions encountered in the test pits varied across the site but consisted predominately of granular soils, including silty sands and gravels, clayey sands and gravels, and clayey cobbles except in Test Pits TP-5 through TP-9 and TP-20, which found silty and sandy clays. The granular soils were brown, generally dense to very dense, and will exhibit high strength and low compressibility characteristics. The silty clays, sandy clays, and clayey silts were brown, generally stiff to very stiff, moderately to highly over-consolidated, and will exhibit moderately high strength and moderately low compressibility under the anticipated loads.

Bedrock and dense gravels, cobbles, boulders, and cemented soils limited the depth of excavation and resulted in excavation refusal in each of the test pits except TP-23, which extended to a depth of 15 feet below existing grade. The client returned to the site with a track-hoe and excavated 14 test pit locations further. Bedrock materials in the area consist of gray, moderately hard, moderately weathered volcanic breccia, which will exhibit high strength and low compressibility characteristics within the anticipated loading range.

Fill soils, considered to be non-engineered fills, were encountered in Test Pits TP-28, TP-29, and TP-32 to depths of 2.5, 1.0, and 1.0, respectively consisting of silty sands and gravels. Non-engineered fill soils will exhibit generally poor engineering characteristics and are not suitable for support of structures.

The subsurface soil conditions and excavation refusal depths encountered in the test pits are summarized in the table below:

Test Pit No.	Soil Type – Depth (feet)			Refusal – Depth (feet)		
	SM/GM , GM/GP GC, GM	SM, SC	CL-ML	Soil	Bedrock	Track-hoe
TP-1		0.0 to 1.0			1.0 to 1.5	
TP-2		0.0 to 1.0			1.0 to 1.5	
TP-3	0.0 to 1.0				1.0 to 1.5	
TP-4		0.0 to 0.5			0.5 to 1.0	
TP-5			0.0 to 3.0		3.0 to 3.5	
TP-6			0.0 to 0.5		0.5 to 1.0	
TP-7			0.0 to 2.0		2.0 to 2.5	
TP-8			0.0 to 1.0		1.0 to 1.5	
TP-9			0.0 to 3.0		3.0	8.0
TP-10	0.0 to 1.0				1.0 to 1.5	6.0
TP-11	0.0 to 1.0				1.0 to 1.5	
TP-12	0.0 to 1.5				1.5 to 2.0	10.0
TP-13	0.0 to 1.5				1.5 to 2.0	
TP-14	0.0 to 3.0	3.0 to 8.5		dense cobbles at 8.5		
TP-15	8.0 to 12.0	1.5 to 8.0	0.0 to 1.5	dense gravel/cobbles at 12.0		
TP-16	0.0 to 1.0	1.0 to 3.0		dense gravel/cobbles at 3.0		8.0
TP-17	0.0 to 6.0			dense gravel/cobbles at 6.0		
TP-18	0.0 to 3.0			dense cobbles/boulders at 3.0		10.0
TP-19		0.0 to 4.0		dense cobbles/boulders at 4.0		13.0
TP-20			0.0 to 3.0	dense cobbles/boulders at 3.0		8.0
TP-21		0.0 to 6.0		dense cobbles/boulders at 6.0		10.0
TP-22	0.0 to 1.5				1.5 to 2.0	10.0
TP-23	0.0 to 5.0	5.0 to 15.0		NA	NA	
TP-24	0.0 to 1.0	1.0 to 3.0		moderately cemented at 3.0		

Test Pit No.	Soil Type – Depth (feet)			Refusal – Depth (feet)		
	SM/GM , GM/GP GC, GM	SM, SC	CL-ML	Soil	Bedrock	Track-hoe
TP-25	0.0 to 4.0	4.0 to 6.0		dense cobbles at 6.0		8.0
TP-26		0.0 to 7.0		dense sands at 7.0		
TP-27		0.0 to 3.5		moderately cemented at 3.5		10.0
TP-28	0.0 to 2.5 (fill)	2.5 to 6.0		dense cobbles/boulders at 6.0		
TP-29	0.0 to 1.0 (fill) 1.0 to 4.0			dense cobbles/boulders at 4.0		8.0
TP-30	0.0 to 2.0			moderately cemented cobbles and boulders at 2.0		8.0
TP-31		0.0 to 10.0		moderately cemented at 10.0		
TP-32	0.0 to 1.0 (fill) 1.0 to 3.0			dense cobbles at 3.0		10.0
TP-33		2.5 to 10.0	0.0 to 2.5	dense gravel/cobbles at 10.0		

The lines designating the interface between soil and bedrock types on the test pit logs generally represent approximate boundaries. In situ, the transition between soil and bedrock types may be gradual.

4.3 GROUNDWATER

No groundwater was encountered during excavation of test pits. However, it has been our experience in the area that "perched" groundwater conditions can occur during the year, most typically during the late spring and early summer months.

5. DISCUSSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

The results of this study indicate that the site is suitable for the proposed development. The most significant geotechnical aspects of the site are:

1. Shallow depth to bedrock or dense granular soils encountered across the site resulting in refusal.
2. The presence of fine-grained soils and non-engineered fills in a few locations.
3. The potential for random "perched" water table.

Due to the shallow depth to bedrock or dense granular soils, excavation of the subgrade portions of the proposed structures may require heavy machinery, chipping, or blasting.

Rigid pavements and exterior flatwork placed on fine-grained clayey soils which are subjected to the full affects of frost should be underlain by a minimum of 18 inches of non-frost susceptible granular fill to reduce frost heave.

Non-engineered fills were encountered in 3 test pits to depths of 2.5 feet. The non-engineered fills are not suitable for the support of foundations but may be left in place below floor slabs and pavements provided they are determined to be suitable and are properly prepared. GSH must be contacted to observe that any fill soils either have been removed to suitable natural soils or are properly prepared.

Because of the possibility of "perched" groundwater conditions, perimeter foundation/chimney subdrains will be required along the perimeter of any proposed structures with subgrade levels. Subdrains are discussed in Section 5.7, Subdrains.

Detailed discussions pertaining to earthwork, foundation, subdrains, and the geoseismic setting of the site are discussed in the following sections.

5.2 EARTHWORK

5.2.1 Site Preparation

Preparation of the site must consist of the removal of surface vegetation, topsoil, root bulbs, sod, rubbish, construction debris, and any other deleterious materials from areas extending at least 3 feet beyond the perimeter of all structures. Vegetation and other deleterious materials should be removed from the site. Stripped topsoil will be unsuitable for backfill, but may be stockpiled for subsequent landscaping purposes.

Subsequent to stripping and prior to the placement of foundation or structural fill, the exposed subgrade must be proof rolled by passing moderate-weight rubber tire-mounted construction equipment over the surface at least twice. If any soft or otherwise unsuitable soils zones are encountered, they must be removed to a maximum depth of 2 feet and replaced with compacted granular fill.

5.2.2 Temporary Excavations

We anticipate that temporary trench excavations will be required for installation of utilities. Temporary construction excavations in soils/bedrock, not exceeding 4 feet in depth, may be constructed with near-vertical side slopes. Excavations up to 8 feet in natural fine-grained soils (when encountered) or decomposed bedrock should be constructed no steeper than one-half horizontal to one vertical. Excavations up to 8 feet in massive bedrock may be constructed with near-vertical sideslopes. In granular soils, the slope should be flattened to one horizontal to one vertical. Deeper excavations are not anticipated.

"Perched" groundwater can be expected during the spring and winter months. In areas where saturated coarse-grained soils are encountered, flatter slopes and dewatering may be necessary. Within temporary excavations, seepage water can be collected in perimeter ditches constructed at the toe of the excavation slope face and directed to sumps or settling areas established within down-gradient portions of the mass excavation.

All excavations must be inspected periodically by qualified personnel. If any signs of instability are noted, immediate remedial action must be initiated.

5.2.3 Structural Fill

Structural fill will be required as site grading fill, backfill over foundations and utilities, and possibly as replacement fill below footings. All structural fill must be free of sod, rubbish, frozen soil, and other deleterious materials.

The maximum particle size within structural site grading fill should generally not exceed 4 inches, although occasional particles of up to 6 to 8 inches may be incorporated provided that they do not result in "honeycombing" or preclude the obtainment of the desired degree of compaction. Structural site grading fill is defined as fill placed over fairly large open areas to raise overall site grade. Maximum particle size of granular soils within confined areas should generally not exceed 2.5 inches.

Excavated bedrock and on-site granular soils may be utilized as structural site grading fill if they meet the requirements of such. On-site fine-grained soils are not recommended for utilization as structural site grading fill. The clayey soils will require extremely close moisture control during placement and compaction. This will be difficult during warm and dry periods of the year and very difficult, if not impossible, during wet and cold periods of the year. Only cleaner granular soils should be used in confined areas, such as beneath footings and in utility trenches.

5.2.4 Fill Placement and Compaction

All structural fill should initially be placed in lifts not exceeding 8 inches in loose thickness. Structural fills placed within an area extending out at least 3 feet from the perimeter of the proposed structures and not exceeding 10 feet in depth must be compacted to at least 95 percent of the maximum dry density as determined by the AASHTO T-180 (ASTM D-1557) compaction criteria. For thicker fill sequences, the degree of compaction should be increased to 97 percent. In roadway and outside flatwork areas, fills not exceeding 5 feet in depth should be compacted to at least 90 percent of the above-defined criteria. For thicker fills, the criteria should be increased to 92 percent.

Coarse gravel and cobble mixtures, if utilized, should be end-dumped, spread to a maximum loose lift thickness of 15 inches, and compacted by dropping a backhoe bucket onto the surface continuously at least twice. As an alternative, the fill may be compacted by passing moderately heavy construction equipment or large self-propelled compaction equipment at least twice.

Subsequent fill material placed over the coarse gravels and cobbles should be adequately compacted so that the "fines" are "worked into" the voids in the underlying coarser gravels and cobbles.

Prior to the placement of the structural fill, subgrade should be prepared as discussed in Section 5.2.1, Site Preparation, of this report. In confined areas, subgrade preparation should consist of the removal of all loose and disturbed soils.

5.2.5 Final Cut and Fill Slopes

Generally, final cut and fill slopes in soil should be no steeper than 2.5 horizontal to 1.0 vertical. For cuts in volcanic bedrock areas, we recommend that all final cut slopes be constructed no steeper than 1.0 horizontal to 1.0 vertical. GSH must review the final grading plan and provide additional recommendations as needed.

If more rapid grade transitions are required, retaining structure should be utilized.

5.2.6 Utility Trenches

All utility trench backfill below structurally loaded facilities (flatwork, floor slabs, roads, etc.) must be placed at the same density requirements established for structural fill. If the surface of the backfill becomes disturbed during the course of construction, the backfill should be proof rolled and/or properly compacted prior to the construction of any exterior flatwork over a backfilled trench. Proof rolling may be performed by passing moderately loaded rubber tire-mounted construction equipment uniformly over the surface at least twice. If excessively loose or soft areas are encountered during proof rolling, they should be removed to a maximum depth of 2 feet below design finish grade and replaced with structural fill.

Most utility companies and City-County governments are now requiring that Type A-1 or A-1a (AASHTO Designation – basically granular soils with limited fines) soils be used as backfill over utilities. These organizations are also requiring that in public roadways the backfill over major utilities be compacted over the full depth of fill to at least 96 percent of the maximum dry density as determined by the AASHTO T-180 (ASTM D-1557) method of compaction. We recommend that as the major utilities continue onto the site that these compaction specifications are followed.

The natural fine-grained cohesive soils are not recommended for use as trench backfill. Granular backfill should meet the requirements presented in Section 5.2.3, Structural Fill.

5.3 SPREAD AND CONTINUOUS WALL FOUNDATIONS

5.3.1 Design Data

The proposed structures may be supported upon conventional spread and continuous wall foundations established upon suitable undisturbed natural soils/bedrock and/or upon structural fill extending to suitable soils/bedrock. For design, the following parameters are recommended:

Minimum Recommended Depth of Embedment for Frost Protection	- 42 inches*
Minimum Recommended Depth of Embedment for Non-frost Conditions	- 15 inches*
Recommended Minimum Width for Continuous Wall Footings	- 18 inches
Minimum Recommended Width for Isolated Spread Footings	- 24 inches
Recommended Net Bearing Pressure for Real Load Conditions	
Bedrock/Dense Granular Soils and/or Structural Fill Extending to Bedrock/Dense Granular Soils	- 3,500 pounds per square foot
Natural Undisturbed Clay and Silt Soils and/or Structural Fill Extending to Natural Undisturbed Clay and Silt Soils	- 2,000 pounds per square foot
Bearing Pressure Increase for Seismic Loading Footing Established on Natural Fine-Grained Soil	- 50 percent
Bearing Pressure Increase for Seismic Loading Footing Established on Bedrock	- 100 percent

* No specific minimum depth of embedment will be required for footings established upon massive bedrock; although, the footings must be appropriately "tied" to the underlying bedrock to provide appropriate lateral resistance.

The term "net bearing pressure" refers to the pressure imposed by the portion of the structures located above lowest adjacent final grade. Therefore, the weight of the footing and backfill up to lowest adjacent final grade need not be considered. Real loads are defined as the total of all dead

plus frequently applied live loads. Total loads include all dead and live loads, including seismic and wind.

5.3.2 Installation

Under no circumstances should the footings be installed upon loose or disturbed soil, sod, rubbish, construction debris, topsoil, frozen soil, non-engineered fill, other deleterious materials, or within ponded water. If unsuitable soils are encountered, they must be totally removed and replaced with compacted granular structural fill. If granular soils become loose or disturbed, they must be properly recompacted before the footings are poured.

The width of replacement fill below footings should be equal to the width of the footing plus one foot for each foot of fill thickness. For example, if the width of the footing is 2 feet and the thickness of the structural fill beneath the footing is 2 feet, the width of the structural fill at the base of the footing excavation would be a total of 4 feet.

5.3.3 Settlements

Settlement of foundations designed and installed in accordance with the above recommendations, supporting maximum loads as discussed in Section 2, Proposed Construction, should not exceed one inch. Settlements will occur rapidly, with approximately 40 to 60 percent of the quoted settlements occurring during construction.

5.4 LATERAL RESISTANCE

Lateral loads imposed upon foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the footings and the supporting soils. In determining frictional resistance, a coefficient of 0.40 should be utilized for fine-grained soils, 0.45 for granular soils, or 0.50 for bedrock.

Passive resistance provided by properly placed and compacted granular structural fill above the water table may be considered equivalent to a fluid with a density of 300 pounds per cubic foot.

A combination of passive earth resistance and friction may be utilized provided that the friction component of the total is divided by 1.5.

5.5 LATERAL PRESSURES

The lateral pressure parameters, as presented within this section, assume that the backfill will consist of a drained granular soil with a friction angle of 34 degrees and unit weight of 125 pounds per cubic foot, placed and compacted in accordance with the recommendations presented herein. The lateral pressures imposed upon subgrade facilities will, therefore, be basically dependent upon the relative rigidity and movement of the backfilled structure. For

active walls, such as retaining walls which can move outward (away from the backfill), granular backfill may be considered equivalent to a fluid with a density of 35 pounds per cubic foot in computing lateral pressures. For semi-rigid moderately yielding walls (at-rest conditions), granular backfill should be considered equivalent to a fluid with a density of at least 45 pounds per cubic foot. For very rigid non-yielding walls (at-rest conditions), granular backfill should be considered equivalent to a fluid with a density of at least 55 pounds per cubic foot.

For seismic loading of retaining walls/below-grade walls, the uniform lateral pressures on the table below, in pounds per square foot (psf), should be added based on wall depth and wall case:

Uniform Lateral Pressures*			
Wall Height (Feet)	**Active Pressure Case (psf)**	**Moderately Yielding Case (psf)**	**At Rest/Non-Yielding Case (psf)**
4	10	25	40
8	15	50	85
12	25	75	125

* Linear interpolation may be applied between depths

5.6 FLOOR SLABS

Lightly loaded at-grade floor slabs may be established on suitable natural soil, bedrock, and/or structural fill extending to suitable natural soils or bedrock. Under no circumstance should floor slabs be established upon loose or disturbed soils, sod, rubbish, construction debris, non-engineered fill, other deleterious materials, expansive soils, frozen soils, or within ponded water. To facilitate construction and to provide a capillary moisture break, we recommend that all at-grade slabs be immediately underlain by a minimum of 4 inches of “free-draining” granular material, such as “pea” gravel, or three-quarter to one-inch minus clean gap-graded gravel.

Settlements of floor slabs established on the suitable natural soils/bedrock and/or structural fill extending to suitable natural soils/bedrock should be negligible.

5.7 SUBDRAINS

5.7.1 General

Shallow groundwater was not encountered at this site, but given the relatively shallow depths of bedrock observed, we recommend that perimeter foundation subdrains be designed and constructed wherever floor slabs will be placed below bedrock due to the potential for seepage on top of or through the bedrock. Recommendations for subdrains are provided in the next subsection.

5.7.2 Foundation Subdrains

Foundation subdrains should consist of a 4-inch diameter perforated or slotted plastic or PVC pipe enclosed in clean gravel. The invert of a subdrain should be at least 2 feet below the top of the lowest adjacent floor slab. The gravel portion of the drain should extend 2 inches laterally and below the perforated pipe and at least 1 foot above the top of the lowest adjacent floor slab. The gravel zone must be installed immediately adjacent to the perimeter footings and the foundation walls. To reduce the possibility of plugging, a geotextile, such as Mirafi 140N or equivalent, must be placed between the clean gravel and adjacent backfill soils. Prior to the installation of the footing subdrain, the below-grade walls should be damp proofed. The slope of the subdrain should be at least 0.3 percent. The gravel placed around the drain pipe should consist of clean, 0.75-inch to 1.0-inch minus gap-graded gravel and/or "pea" gravel. The foundation subdrains can be discharged into storm drains, a local sump, or other suitable down-gradient location.

5.8 PAVEMENTS

The natural silty/sandy clay soils will exhibit poor pavement support characteristics when saturated or nearly saturated. Considering the silty clays as the design subgrade soils and the projected traffic conditions, the following pavement sections are recommended:

Flexible Pavements (Asphalt Concrete):

Residential Streets
(Moderate Volume of Automobiles and Light Trucks
with Occasional Medium and Heavy Trucks)
[5 equivalent 18-kip axle loads per day]

3 inches	Asphalt concrete
9 inches	Aggregate base course
Over	Properly prepared subgrade soils (see Section 5.2.1)

Utilization of a filter fabric, such as Mirafi 500X or equivalent, over soft subgrade may also be advantageous.

Asphalt concrete and base course components should meet the requirements and be placed in accordance with the Utah Department of Transportation specifications.

Road base specifications shall be in accordance with Wasatch County's requirements.

5.9 GEOSEISMIC SETTING

5.9.1 General

Utah municipalities have adopted the International Building Code (IBC) 2015 and International Residential Code for One- to Two-Family Dwellings 2015. The IBC 2015 code determines the seismic hazard for a site based upon 2008 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points).

5.9.2 Faulting

Based upon our review of available literature, no active faults are known to pass through or immediately adjacent to the site. The nearest active fault is the Wasatch Fault, located more than 18 miles west of the site. The Wasatch Fault Zone is considered capable of generating earthquakes as large as magnitude 7.3[1].

5.9.3 Soil Class

For dynamic structural analysis, the Site Class C – Very Dense Soil and Soft Rock Profile as defined in Chapter 20 of ASCE 7 (per Section 1613.3.2, Site Class Definitions, of IBC 2015) can be utilized.

5.9.4 Ground Motions

The IBC 2015 code is based on the 2008 USGS mapping, which provides values of short and long period accelerations for the Site Class B boundary for the Maximum Considered Earthquake (MCE). This Site Class B boundary represents average bedrock values for the Western United States and must be corrected for local soil conditions. The table on the following page summarizes the peak ground and short and long period accelerations for the MCE event and incorporates the appropriate soil amplification factor for a Site Class D soil profile. Based on the site latitude and longitude (40.543438 degrees north and 111.408962 degrees west, respectively), the values for this site are tabulated on the table on the following page.

[1] Arabasz, W.J., Pechmann, J.C., and Brown, E.D., 1992, Observational seismology and the evaluation of earthquake hazards and risk in the Wasatch Front area, Utah, in Gori, P.L., and Hays, W.W., eds., Assessment of regional earthquake hazards and risk along the Wasatch Front, Utah: U.S. Geological Survey Professional Paper 1500-D, 36 p.

Spectral Acceleration Value, T	Site Class B Boundary [mapped values] (% g)	Site Coefficient	Site Class C [adjusted for site class effects] (% g)	Design Values (% g)
Peak Ground Acceleration	24.2	F_a = 1.158	28.0	18.7
0.2 Seconds (Short Period Acceleration)	S_S = 60.5	F_a = 1.158	S_{MS} = 70.1	S_{DS} = 46.7
1.0 Second (Long Period Acceleration)	S_1 = 20.0	F_v = 1.600	S_{M1} = 32	S_{D1} = 21.3

5.9.5 Liquefaction

Liquefaction is defined as the condition when saturated, loose, non-cohesive soils lose their support capabilities because of excessive pore water pressure which develops during a seismic event. Clayey soils and bedrock, even if saturated, will not liquefy during a major seismic event.

Due to the lack of a shallow groundwater table and the shallow depth to bedrock, the probability of liquefaction at the site during the design seismic event is low.

If you have any questions or would like to discuss these items further, please feel free to contact us at 801.685.9190.

Respectfully submitted,

GSH Geotechnical, Inc.

Matthew C. Gallegos
Senior Engineer/Geologist

Reviewed by:

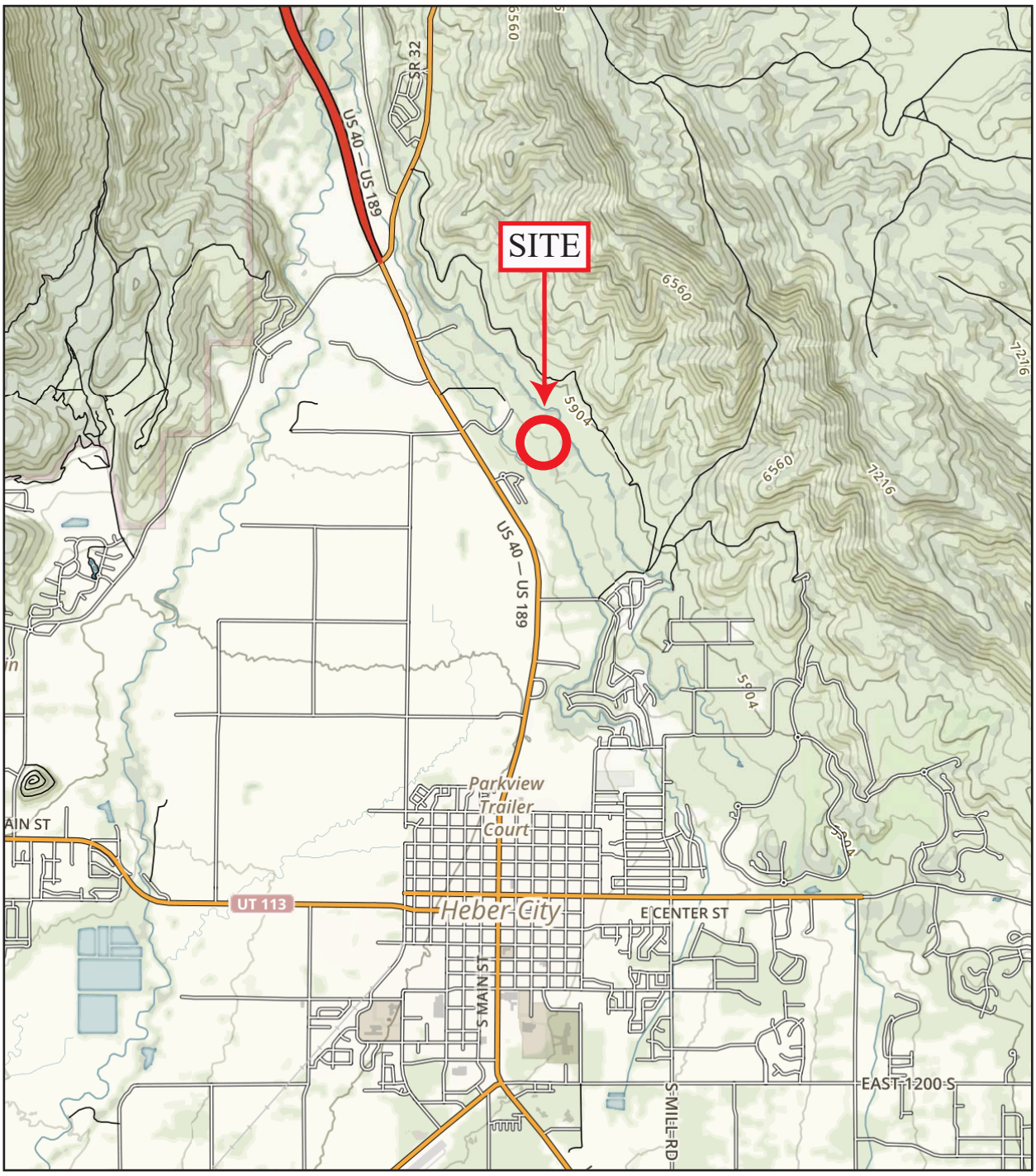
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Encl. Figure 1, Vicinity Map
Figure 2 Site Plan
Figures 3A, through 3AG, Log of Test Pits
Figure 4, Key to Test Pit (USCS)
Figure 5, Rock Description Terminology

CARDINAL FUNDING, LC
JOB NO. 2161-001-16



1 0 1 2 3 4 KM 5

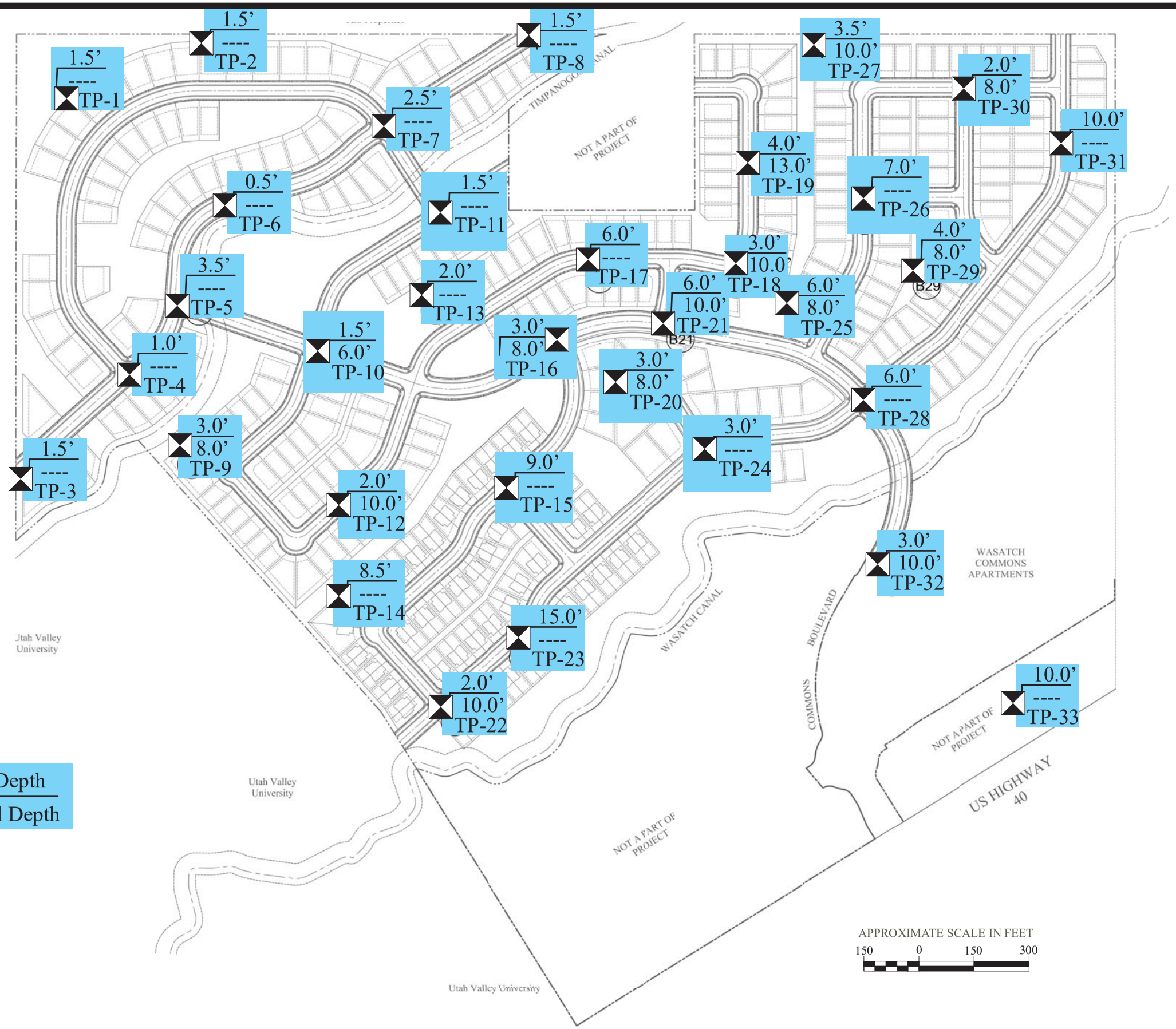
1 0 1 MI 2

FIGURE 1
VICINITY MAP

REFERENCE:
ALL TRAILS - NATIONAL GEOGRAPHIC TERRAIN
DATED 2016

GSH

CARDINAL FUNDING, LC
JOB NO. 2161-001-16



KEY:

GSH Backhoe Refusal Depth
/Client Trackhoe Refusal Depth

APPROXIMATE SCALE IN FEET
150 0 150 300

REFERENCE:
ADAPTED FROM DRAWING ENTITLED
“WASATCH COMMONS, SHEET SP-01”
BY WARD ENGINEERING GROUP
DATED 07/08/2016

FIGURE 2
SITE PLAN

GSH

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-1

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SM	SILTY FINE TO COARSE SAND with fine gravel, major roots (topsoil) to 1"; brown/gray			8.3		23.7			loose to 3" to 6" slightly moist medium dense
	BR	BEDROCK moderately hard, moderately weathered, close fractures; brown								
		Excavation refusal at 1.5'								
		No groundwater encountered at time of excavation.								
			5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3A

GSH — TEST PIT LOG

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TEST PIT: TP-2

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SM	SILTY FINE TO COARSE SAND with fine and coarse gravel, numerous cobbles, major roots (topsoil) to 2"; brown								loose to 3" to 6" slightly moist
					8.0		1.4			medium dense slightly moist
	BR	BEDROCK moderately hard, moderately weathered, moderately close fractured, thickly bedded								dense
		Excavation refusal on bedrock at 1.5'								
		No groundwater encountered at time of excavation.								
			5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3B

GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-3

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SM/GM	SILTY FINE TO COARSE SAND with fine and coarse gravel, occasional cobbles, major roots (topsoil) to 3"; brown								loose to 3" to 6" slightly moist medium dense slightly moist dense
	BR	BEDROCK moderately hard, moderately weathered, moderately thickly bedded; gray								
		Excavation refusal on bedrock at 1.5'								
		No groundwater encountered at time of excavation.								
			5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3C

GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-4

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SM	SILTY FINE TO COARSE SAND with fine and coarse gravel, occasional cobbles; brown								loose to 3" slightly moist
	BR	BEDROCK moderately hard, moderately weathered, moderately close fractured; gray								medium dense dense
		Excavation refusal on bedrock at 1.0'								
		No groundwater encountered at time of excavation.								
			5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3D

GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-5

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine to coarse sand, occasional fine and coarse gravel, occasional cobbles, blocky structure; brown								loose to 3" slightly moist moist very stiff
	BR	BEDROCK moderately weathered, moderately hard, moderately close fractured, thickly bedded; gray								moist dense
		Excavation refusal on bedrock at 3.5' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3E

GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-6

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	FINE SANDY CLAY with some silt and fine gravel; major roots (topsoil) to 2"; brown								loose to 3" slightly moist
	BR	BEDROCK moderately hard, moderately weathered, closely fractured, thickly bedded; gray								stiff slightly moist
		Excavation refusal on bedrock at 1.0'								dense
		No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3F

GSH — TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-7

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	ML	CLAYEY SILT with some fine sand, occasional fine and coarse gravel, occasional cobbles, major roots (topsoil) to 3": brown								loose to 3" slightly moist
								37	12	stiff
	BR	BEDROCK moderately hard, moderately weathered, thickly bedded; gray								slightly moist dense
		Excavation refusal on bedrock at 2.5' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3G

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-8

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SM	SILTY FINE TO COARSE SAND with fine and coarse gravel, occasional cobbles, major roots (topsoil) to 3"; brown								loose to 3" slightly moist medium dense
	BR	BEDROCK moderately hard, moderately close fractured, thickly bedded, moderately weathered; gray								1
		Excavation refusal on bedrock at 1.5' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3H

GSH — TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-9

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand, occasional fine and coarse gravel; occasional cobbles, blocky structure, major roots (topsoil) to 3": brown								loose to 3" slightly moist stiff
										very stiff
		grades fine sandy clay with light cementation; brown with mottling								
		Excavation refusal on bedrock at 3.0' No groundwater encountered at time of excavation.			11.1		64.3			
			5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3I

GSH — TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-10

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY COBBLES with fine and coarse gravel, some fine to coarse sand, trace organics, major roots (topsoil) to 3"; brown								loose to 3" slightly moist
	BR	BEDROCK moderately hard, moderately weathered, modersately close fractured, medium thickly bedded; gray								dense slightly moist dense
		Excavation refusal on bedrock at 1.5'								
		No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3J

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-11

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GM	SILTY FINE AND COARSE GRAVEL with fine to coarse sand, major roots (topsoil) to 3"; brown								loose to 3" slightly moist
	BR	BEDROCK modersately hard, closely fractured; gray								dense
		Excavation refusal on bedrock at 1.5' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3K

GSH

TEST PIT LOG

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TEST PIT: TP-12

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY FINE AND COARSE GRAVEL with fine to coarse sand, numerous cobbles, occasional boulders, major roots (topsoil) to 3"; brown								loose to 3" slightly moist
	BR	BEDROCK moderately weathered, moderately hard, moderately close fractured, medium thickly bedded; gray								medium dense slightly moist
		Excavation refusal on bedrock at 2.0'								dense
		No groundwater encountered at time of excavation.								
			5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3L

GSH

TEST PIT LOG

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TEST PIT: TP-13

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY FINE AND COARSE GRAVEL with fine to coarse sand, numberous cobbles, occasional boulders, major roots (topsoil) to 3"; brown								loose to 3" slightly moist
					7.2		9.7			medium dense
	BR	BEDROCK moderately weathered, moderately hard, moderately close fractured; gray								slightly moist dense
		Excavation refusal on bedrock at 2.0'								
		No groundwater encountered at time of excavation.								
			5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3M

GSH — TEST PIT LOG

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TEST PIT: TP-14

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GM	SILTY FINE AND COARSE GRAVEL with fine to coarse sand, numerous cobbles, occasional boulders, major roots (topsoil) to 3"; brown								loose to 3" slightly moist medium dense
	SM/SC	SILTY/CLAYEY FINE SAND light cementation; light brown	5							slightly moist medium dense
	SM	SILTY FINE TO COARSE SAND with fine and coarse gravel, numerous cobbles; brown								moist dense very dense
		Excavation refusal at 8.5' No groundwater encountered at time of excavation.	10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3N

GSH — TEST PIT LOG

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TEST PIT: TP-15

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	FINE SANDY CLAY with occasional fine gravel, major roots (topsoil) to 3"; brown								loose to 3" slightly moist
					35.1	62.5				very stiff
	SC/SM	CLAYEY/SILTY FINE TO MEDIUM SAND with occasional fine and coarse gravel; brown								moist dense
			5							
		grades with occasional cobbles			12.8		13.0			
	GM	SILTY FINE AND COARSE GRAVEL with fine to coarse sand, occasional to numerous cobbles; brown								moist dense
			10							
		Excavation refusal at 12.0' No groundwater encountered at time of excavation.								
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3O

GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-16

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY FINE AND COARSE GRAVEL with fine to coarse sand, numerous cobbles, major roots (topsoil) to 3"; brown								loose to 3" slightly moist
	SM	SILTY FINE TO COARSE SAND with some fine and coarse gravel, well cemented, numerous cobbles; light brown								dense slightly moist dense very dense
		Excavation refusal at 3.0' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3P

GSH — TEST PIT LOG

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TEST PIT: TP-17

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY FINE AND COARSE GRAVEL with fine to coarse sand, numerous cobbles, occasional boulders, light cementation, major roots (topsoil) to 3"; brown								loose to 3" slightly moist dense
	GP/GM	SILTY FINE AND COARSE GRAVEL with some fine to coarse sand; brown	5		6.8		7.7			moist dense
		Excavation refusal at 6.0' No groundwater encountered at time of excavation.	10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3Q

GSH — TEST PIT LOG

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TEST PIT: TP-18

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY COBBLES AND BOULDERS with fine and coarse gravel, fine to coarse sand, major roots (topsoil) to 2"; brown								loose to 3" slightly moist dense
		Excavation refusal at 3.0' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3R

GSH

TEST PIT LOG

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TEST PIT: TP-19

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SC	CLAYEY FINE TO MEDIUM SAND with trace organics, trace fine and coarse gravel, numerous cobbles and boulders, major roots (topsoil) to 3"; brown								loose to 3" slightly moist medium dense
		Excavation refusal at 4.0' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3S

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-20

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand and fine sandy clay, blocky structure, trace fine and coarse gravel, occasional cobbles and boulders; major roots (topsoil) to 3"; brown								loose to 3" slightly moist stiff
		Excavation refusal at 3.0' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3T

GSH — TEST PIT LOG

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TEST PIT: TP-21

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SM	SILTY FINE SAND with light to moderate cementation, trace fine and coarse gravel, major roots (topsoil) to 3"; brown								loose to 3" slightly moist moist dense
		grades with occasional cobbles and boulders	5		13.4		31.1			
		Excavation refusal at 6.0' No groundwater encountered at time of excavation.	10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3U

GSH

TEST PIT LOG

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TEST PIT: TP-22

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY FINE AND COARSE GRAVEL with some fine to coarse sand, numerous cobbles, major roots (topsoil) to 3"; brown								loose to 3" slightly moist
	BR	BEDROCK moderately hard, moderately weathered, close fractured; gray								medium dense slightly moist
		Excavation refusal on bedrock at 2.0'								dense
		No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3V

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-23

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY COBBLES with fine and coarse gravel, fine to coarse sand, occasional boulders, major roots (topsoil) to 3"; brown								loose to 3" moist medium dense
	GM	SILTY FINE AND COARSE GRAVEL with fine to coarse sand, numerous cobbles; brown								moist medium dense
	SM/SC	SILTY/CLAYEY FINE SAND with occasional fine gravel; brown with mottling	5							moist medium dense
		grades with occasional cobbles			17.4		30.9			
		grades with some fine and coarse gravel	10							
		grades silty/clayey fine to medium sand, light cementation; light brown and brown			29.4		36.1			very moist
		End of Exploration at 15.0' No groundwater encountered at time of excavation. Installed 1.25" diameter slotted PVC pipe to 15.0'.	15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3W

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-24

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY FINE AND COARSE GRAVEL with fine to coarse sand, major roots (topsoil) to 3"; dark brown								loose to 3" slightly moist
	SM	SILTY FINE TO COARSE SAND with occasional fine and coarse gravel, moderately cemented; light brown								slightly moist very dense
		Excavation refusal at 3.0' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3X

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-25

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GM	SILTY COBBLES with fine and coarse gravel, some fine to coarse sand, occasional boulders, major roots (topsoil) to 2"; brown								loose to 3" slightly moist medium dense
	SM	SILTY FINE SAND with numerous cobbles and occasional boulders; brown	5							moist dense
		Excavation refusal at 6.0' No groundwater encountered at time of excavation.	10 15 20 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3Y

GSH — TEST PIT LOG

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TEST PIT: TP-26

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SC	CLAYEY FINE SAND gray								loose to 3" slightly moist
	SM	SILTY FINE SAND gray			19.7					slightly moist dense
					19.3		18.5			moist
			5		16.9					very dense
		Excavation refusal at 7.0' No groundwater encountered at time of excavation.	10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3Z

GSH — TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-27

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SM/SC	SILTY CLAYEY/FINE TO COARSE SAND with some fine and coarse gravel, numerous boulders, occasional cobbles, light to moderate cementation, major roots (topsoil) to 3"; light brown								loose to 3" slightly moist dense very dense
		Excavation refusal at 3.5' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AA

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-28

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GM FILL	SILTY FINE AND COARSE GRAVEL, FILL with fine to coarse sand, occasional cobbles, occasional boulders; major roots (topsoil) to 3"; brown								loose to 3" slightly moist medium dense
	SM	SILTY FINE TO COARSE SAND with fine and coarse gravel, numerous cobbles, occasional boulders; brown	5							slightly moist medium dense
		Excavation refusal at 6.0' No groundwater encountered at time of excavation.	10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AB

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-29

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GM/ SM FILL	SILTY FINE AND COARSE GRAVEL, FILL with fine to coarse sand, major roots (topsoil) to 2"; brown								loose to 3" slightly moist
	GM	SILTY FINE AND COARSE GRAVEL with fine to coarse sand and numerous cobbles and occasional boulders; brown								dense
		Excavation refusal at 4.0' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AC

GSH	TEST PIT LOG Page: 1 of 1	TEST PIT: TP-30

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GC	CLAYEY BOULDERS AND COBBLES with some fine and coarse gravel, some fine to coarse sand, moderate cementation, major roots (topsoil) to 5"; brown								loose to 3" slightly moist very dense
		Excavation refusal at 2.0' No groundwater encountered at time of excavation.								
			5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AD

GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-31

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	SC	CLAYEY COBBLES with some fine and coarse gravel, some fine to coarse sand, major roots (topsoil) to 4"; cemented; brown			21.6	93.8				loose to 3" slightly moist moist medium dense
		grades clayey fine to coarse sand with occasional fine gravel; light brown			11.1		11.4			very dense
		grades light brown and brown mottling	5							
					12.5		21.4			
		Excavation refusal at 10.0' No groundwater encountered at time of excavation. Installed 1.25" diameter slotted PVC pipe to 10.0'.	10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AE

GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-32

CLIENT: Cardinal Funding LC | PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons | DATE STARTED: 8/10/16 | DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah | GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) | ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	GM FILL	SILTY FINE AND COARSE GRAVEL, FILL with fine to coarse sand; light brown								loose to 3" slightly moist
	GM	SILTY COBBLES with some fine to coarse sand; brown								slightly moist dense
		Excavation refusal at 3.0' No groundwater encountered at time of excavation.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AF

GSH — TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-33

CLIENT: Cardinal Funding LC — PROJECT NUMBER: 2161-001-16

PROJECT: Wasatch Commons — DATE STARTED: 8/10/16 — DATE FINISHED: 8/10/16

LOCATION: East of the Intersection of 3000 North and U.S. Highway 40, Heber City, Utah — GSH FIELD REP.: RG

EXCAVATING METHOD/EQUIPMENT: CAT 430 D - Backhoe

GROUNDWATER DEPTH: Not Encountered (8/10/16) — ELEVATION: ---

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand, fine sandy clay, blocky structure, major roots (topsoil) to 3"; brown								loose to 3" to 6" slightly moist
										stiff
	SC	CLAYEY FINE SAND with occasional fine gravel, occasional cobbles; brown								slightly moist medium dense
	SM	SILTY FINE SAND with light cementation; brown and light brown	5		7.1		34.9			slightly moist medium dense
		grades with occasional fine and coarse gravel, occasional cobbles; light brown								
		Excavation refusal at 10.0 No groundwater encountered at time of excavation. Installed 1.25" diameter slotted PVC pipe to 10.0'.	10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AG

CLIENT: Cardinal Funding LC
PROJECT: Wasatch Commons
PROJECT NUMBER: 2161-001-16

KEY TO TEST PIT LOG

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

COLUMN DESCRIPTIONS

① **Water Level:** Depth to measured groundwater table. See symbol below.

② **USCS:** (Unified Soil Classification System) Description of soils encountered; typical symbols are explained below.

③ **Description:** Description of material encountered; may include color, moisture, grain size, density/consistency,

④ **Depth (ft.):** Depth in feet below the ground surface.

⑤ **Sample Symbol:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.

⑥ **Moisture (%):** Water content of soil sample measured in laboratory; expressed as percentage of dryweight of

⑦ **Dry Density (pcf):** The density of a soil measured in laboratory; expressed in pounds per cubic foot.

⑧ **% Passing 200:** Fines content of soils sample passing a No. 200 sieve; expressed as a percentage.

⑨ **Liquid Limit (%):** Water content at which a soil changes from plastic to liquid behavior.

⑩ **Plasticity Index (%):** Range of water content at which a soil exhibits plastic properties.

⑪ **Remarks:** Comments and observations regarding drilling or sampling made by driller or field personnel. May include other field and laboratory test results using the following abbreviations:

CEMENTATION:

Weakly: Crumbles or breaks with handling or slight finger pressure.

Moderately: Crumbles or breaks with considerable finger pressure.

Strongly: Will not crumble or break with finger pressure.

MODIFIERS:

Trace <5%
Some 5-12%
With > 12%

MOISTURE CONTENT (FIELD TEST):

Dry: Absence of moisture, dusty, dry to the touch.

Moist: Damp but no visible water.

Saturated: Visible water, usually soil below water table.

Descriptions and stratum lines are interpretive; field descriptions may have been modified to reflect lab test results. Descriptions on the logs apply only at the specific boring locations and at the time the borings were advanced; they are not warranted to be representative of subsurface conditions at other locations or times.

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			USCS SYMBOLS	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS More than 50% of material is larger than No. 200 sieve size.	GRAVELS More than 50% of coarse fraction retained on No. 4 sieve.	CLEAN GRAVELS (little or no fines)	GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines
			GP	Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines
		GRAVELS WITH FINES (appreciable amount of fines)	GM	Silty Gravels, Gravel-Sand-Silt Mixtures
			GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	SANDS More than 50% of coarse fraction passing through No. 4 sieve.	CLEAN SANDS (little or no fines)	SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
			SP	Poorly-Graded Sands, Gravelly Sands, Little or No Fines
		SANDS WITH FINES (appreciable amount of fines)	SM	Silty Sands, Sand-Silt Mixtures
			SC	Clayey Sands, Sand-Clay Mixtures
FINE-GRAINED SOILS More than 50% of material is smaller than No. 200 sieve size.	SILTS AND CLAYS Liquid Limit less than 50%		ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
			CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
			OL	Organic Silts and Organic Silty Clays o f Low Plasticity
	SILTS AND CLAYS Liquid Limit greater than 50%		MH	Inorganic Silts, Micacious or Diatomacious Fine Sand or Silty Soils
			CH	Inorganic Clays of High Plasticity, Fat Clays
			OH	Organic Silts and Organic Clays of Medium to High Plasticity
HIGHLY ORGANIC SOILS			PT	Peat, Humus, Swamp Soils with High Organic Contents

Note: Dual Symbols are used to indicate borderline soil classifications.

STRATIFICATION:

DESCRIPTION	THICKNESS
Seam	up to 1/8"
Layer	1/8" to 12"

Occasional: One or less per 6" of thickness

Numerous; More than one per 6" of thickness

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Bulk/Bag Sample
- Standard Penetration Split Spoon Sampler
- Rock Core
- No Recovery
- 3.25" OD, 2.42" ID D&M Sampler
- 3.0" OD, 2.42" ID D&M Sampler
- California Sampler
- Thin Wall

WATER SYMBOL

- Water Level

FIGURE 4

GSH

ROCK DESCRIPTION TERMINOLOGY

ROCK QUALITY DESIGNATION (RQD):

Percentage of rock core per core run which is relatively south and unfractured and which is longer than 4 inches in length. Rock which is soft or weathered, closely jointed, or rock from which the core recovery is low, will have poor to fair RQD.

ROCK DEFECT SPACING:

Spacing	Qualifier for Joints Faults & Fractures	Qualifier for Bedding
Less than 2 inches	very close	very thin
2 inches to 1 foot	close	thin
1 foot to 3 feet	moderately close	medium
3 feet to 10 feet	wide	thick
greater than 10 feet	very wide	very thick

DEGREE OF WEATHERING

Symbol	Descriptive Term	Properties
Dec	Decomposed	Generally soil-like, can be crumbled by hand pressure
HiW	Highly weathered	Generally rock-like, can be broken easily, but crumbles with difficulty by hand
MdW	Moderately weathered	Fabric stained rusty brown, can be indented by steel nail, breaks only with difficulty
SlW	Slightly weathered	Open discontinuities are weathered, coated, but only slight weathering of rock mass, generally no indented by steel nail
UnW Ex Jts	Unweathered except joints	Weathering limited to the surface of discontinuities; fabric is fresh throughout but most joints shown rusty stain and/or soil filling material
UnW Inc Jts	Unweathered including joints	Rock mass and discontinuities are unweathered; only occasional joints show rusty stain, practically no soil filling

HARDNESS

Descriptive Term	Properties
Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. Gouges or grooves to 1/4 inch deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Moderately soft	Can be grooved or gouges 1/16 inch deep by firm pressure on knife of pick point. Can be excavated in small chips to pieces about 1 inch maximum size by hard blows of the point of a geologist's pick.
Soft	Can be grooved or gouges readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1 inch or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

FIGURE 5

Intermountain GeoEnvironmental Services, Inc.
4153 Commerce Drive, Salt Lake City, Utah 84107
Ph: 801-270-9400 Fax: 801-270-9401

12429 South 300 East, Suite 100, Draper, Utah 84020
Ph: 801-748-4044 Fax 801-748-4045

March 13, 2017

Wasatch County Planning Office
55 South 500 East
Heber City, Utah 84032
Attn: Luke Robinson, Planner 1

IGES Project No. 02190-004

RE: Engineering Geology Review
Proposed Green Valley Ranch Development (Wasatch Commons)
Approximately 3000 North Highway 40
Heber City, Utah

Submittal: Applied Geotechnical Engineering Consultants (AGEC), 2007a, Geotechnical Investigation, Proposed Green Valley Ranch Development, Approximately 3000 North Highway 40, Heber City, Utah, AGEC Project No. 1061437, dated January 15, 2007.

Review Conclusion: Geologic Submittal Incomplete

Mr. Robinson,

At your request, IGES has reviewed the referenced geotechnical report and associated documentation prepared to support the design and construction of the Wasatch Commons residential development located south of Jordanelle Reservoir, adjacent to Highway 40 approximately two miles north of Heber City in Wasatch County, Utah. The purposes of our review were to:

1) Assess previously performed field and laboratory investigations of surface and subsurface conditions at the site for conformance to the Wasatch County Geologic Hazards Overlay Zone (GHOZ) ordinance as it pertains to geologic hazards;

2) Evaluate the reports with respect to public life, health, safety, and welfare; and

3) Assess whether the reports were performed in accordance with industry standard-of-care.

Background

AGEC's January 15, 2007 geotechnical report was intended to assess soils and subsurface conditions across the Wasatch Commons property. A review of the report pertaining to geologic hazards was initially performed by Barry Solomon of the UGS (Solomon, 2007), which highlighted the need for site-specific alluvial fan-flooding and shallow groundwater geologic studies if development downslope of the Wasatch Canal was planned, in a letter dated March 6, 2007. AGEC retained the services of MLDS to perform a debris-flow

hazard evaluation of the subject property, which was submitted to AGEC as a letter report dated April 13, 2007, and subsequently submitted to Wasatch County with an accompanying AGEC letter dated April 18, 2007. Because lots E-20 and E-21 of the development are on slopes in excess of 25%, a site-specific geotechnical investigation and slope stability analysis was required by Wasatch County for these lots. This investigation was performed by AGEC and documented in a letter report dated April 13, 2007. Each of these documents were reviewed in turn by IGES; review comments stemming from the documents are presented in the following paragraphs.

Comments and Recommendations

The subject property is located within the Wasatch County GHOZ, in an area containing and adjacent to known debris-flow, stream flooding, alluvial fan-flooding, and shallow groundwater hazards. As such, an engineering geology report in conformance with Chapter 16.17 of the Wasatch County Code is required for the property. According to the GHOZ 16.17.08.F.13, "A geologic hazards assessment and all recommendations and requirements given therein, shall remain valid for seven (7) years from the date of completion, unless a shorter period is specified in the report by the preparer." As such, per the Code, none of the assessments produced for the property are currently considered valid, as they were all completed in the year 2007 and are now at or rapidly approaching being 10 years old. However, given the nature of geologic data and that it does not change quickly, and given that conditions at the site are not believed to have been significantly modified since the time the assessments were completed, IGES recommends that the assessments be accepted as valid by the County with the understanding that AGEC will update the reports to comply with the current standard of care and address the comments contained herein. Wasatch County should consider the geologic hazards assessment for the property to be incomplete until the report is updated and the following items are appropriately addressed:

AGEC Geotechnical Report dated January 15, 2007

This report was specifically titled and written as a geotechnical report, and did not contain an assessment of geologic conditions or geologic hazards except in a limited manner with respect to faults and liquefaction. Though the subsequent MLDS debris-flow report does address this specific hazard, it does not assess other hazards or provide the background geologic information for the property. The geotechnical engineering aspects of this report have been reviewed by IGES, the results of which are presented in a separate submittal (IGES, 2017).

IGES recommends the following items be addressed by AGEC in conformance with Wasatch County GHOZ 16.17.08.F:

1) A description of the geologic setting for the property, including a local geology map (at an appropriate scale) with the subject property overlain.

2) A description of site geologic conditions, as determined from surficial and subsurface observations. This should include a description of the nature of the bedrock materials encountered.

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3) A qualitative assessment of the geologic hazards for the property, including recommendations for additional geologic studies (if necessary).

4) A list of geologic references cited, including geologic maps (e.g. Bromfield et al., 1970; Bryant, 1990), aerial photos, and other literature sources. Given that the report is 10 years old, as part of the report update, newer published literature should be reviewed that addresses geologic hazards for the area, including but not limited to Elliott and Harty (2010), Christensen and Shaw (2008), and Google Earth imagery.

5) The report is to be signed and stamped by a professional geologist licensed in the state of Utah.

On page 6 of the report, under *Recommendations/A./Site Grading*, AGEC states: "We anticipate that some areas of the subdivision will require significant amounts of cut and fill."

6) IGES recommends AGEC assess how the anticipated cuts and fills are to impact the existing geologic conditions. This may include slope stability analysis; if slope stability analysis is performed, geologic cross-section(s) at an appropriate scale should be prepared to support the slope stability analysis.

Barry Solomon Review Letter dated March 6, 2007

Mr. Solomon noted that "the potential for flooding from canal failure should be considered in site design."

7) IGES recommends that AGEC recommend that the Developer and/or Civil designer should take into consideration flooding from canal failure in site grading and drainage design.

MLDS Letter dated April 13, 2007

This report was written as a site-specific debris-flow evaluation, and as such needs to appropriately conform to Wasatch County GHOZ 16.17.08.B standards for debris-flow evaluations. IGES recommends AGEC address the following items with regard to this report:

8) Given that the report is almost 10 years old, as part of the report update, newer published literature should be reviewed that address geologic hazards for the area, including but not limited to Elliott and Harty (2010), Christenson and Shaw (2008), and Google Earth imagery. This can be incorporated into an AGEC updated document or MLDS can provide a revised report.

9) Though the study involved the excavation of one test pit, the report does not provide the test pit log or additional data used for the interpretation of the debris-flow hazard, including site or test pit photos. IGES recommends the test pit log and test pit and site photos (if available) be provided as a part of the updated report.

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10) Using data collected from the test pit, MLDS concluded that one debris-flow event was present, sandwiched between two units denoted as "stream alluvium." IGES recommends AGEC provide the data that supports the one small event interpretation, as opposed to the interpretation of a single large, multi-phased event, or three smaller individual events.

11) Only one test pit was excavated in one drainage, though there are two drainages on the property. IGES recommends AGEC conduct site-specific subsurface exploration to evaluate both drainages (at least one test pit per drainage), or provide justification for the use of one excavation to assess two separate drainages.

12) IGES recommends AGEC provide a volume estimate of a debris-flow event that could potentially impact the development.

13) On page 2 of the report, under *Debris Flow Evaluation*, MLDS states that "The only area where modern fan deposition appears to be occurring is in the southwestern corner of the proposed development; a debris basin is already planned in this area." IGES recommends AGEC confirm that a debris basin is currently planned in that area, and provide the data to establish that the debris basin has been appropriately sized. A professionally licensed engineer should be involved in these computations. This can be part of the "Grading Plan Review" as recommended by IGES in the geotechnical review letter (IGES, 2017).

14) On page 3 of the report, under *Site Plan Evaluation*, MLDS states "Probably the only outstanding issue is sizing of culverts to accommodate small amounts of debris." IGES recommends that AGEC recommend that the Developer and/or Civil designer take into consideration potential obstructions from debris-flow in site drainage design.

15) On page 3 of the report, under *Future Development Considerations*, MLDS states "It appears that the area below the lower canal is also planned for development. If so, this area should be evaluated for alluvial fan flooding and debris flow hazards." The Solomon (2007) letter also added the need for an assessment for shallow groundwater in this area. IGES recommends AGEC confirm if the development in the area below the lower canal is to be associated with the Wasatch Commons Development, and if so, confirm that the aforementioned additional geologic studies have taken place for this area. If these additional studies have not taken place, this work should be completed as a part of any updated report(s).

AGEC Letter Report dated April 13, 2007

16) Though the letter report states that a test pit was excavated and slope stability calculations performed, none of this data was included in the letter report. IGES recommends AGEC provide a site map at an appropriate scale showing a) the location of the test pit and b) the location of the cross-section analyzed. The updated letter report should also include the test pit log, a geologic cross-section, the

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laboratory results from the soil samples collected, and the slope stability calculations with supporting data to justify the stability model.

Closure

This review has been completed based solely on the data presented in the referenced document, which is considered to be accurate and honest in its presentation. IGES has not performed an independent geologic hazard assessment for the site. The responsibility of the findings, conclusions and recommendations provided in the report are the sole responsibility of the consulting company who performed the work. Comments and recommendations contained in this letter are intended to assist Wasatch County in protecting public life, health, safety, and welfare from potential geologic hazards. There is no other warranty, either express or implied.

Respectfully Submitted,



Peter E. Doumit, P.G., C.P.G.
Senior Geologist
IGES, Inc.

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References:

AGEC, 2007b, Lot Specific Geotechnical Investigation, Lots E-20 and E-21, Wasatch Common Development, Approximately 3000 North Highway 40, Heber City, Utah: submitted to JT Wasatch Commons, LC, AGEC Project No. 1061437, dated April 13, 2007.

Bromfield, C.S., Baker, A.A., and Crittenden, Jr., M.D., 1970, Geologic Map of the Heber Quadrangle, Wasatch and Summit Counties, Utah: USGS GQ-864, Scale 1:24,000, 1 Plate.

Bryant, B., 1990, Geologic Map of the Salt Lake City 30' X 60' Quadrangle, North-Central Utah and Uinta County, Wyoming: USGS Map I-1944, Scale 1:100,000, 2 Plates.

Christenson, G.E., and Shaw, L.M., 2008c, Debris-Flow/Alluvial Fan Special Study Areas, Wasatch Front and Nearby Areas, Utah: Utah Geological Survey Supplement Map to Utah Geological Survey Circular 106, 1 Plate, Scale 1:200,000.

Elliott, A.H., and Harty, K.M., 2010, Landslide Maps of Utah, Salt Lake City 30' X 60'Quadrangle: Utah Geological Survey Map 246DM, Plate 9, Scale 1:100,000.

IGES, Inc., 2017, Geotechnical Review, Geotechnical Investigation, Proposed Green Valley Ranch Development (Wasatch Commons), Approximately 3000 North Highway 40, Heber City, Utah, Project No. 02190-004, dated March 2, 2017 (a review of AGEC, 2007a).

Mountain Land Development Services (MLDS), 2007, Wasatch Commons Debris Flow Evaluation Study, performed for AGEC, dated April 13, 2007.

Solomon, B., 2007, Review of "Geotechnical investigation, proposed Green Valley Ranch development, approximately 3000 North Highway 40, Heber City, Utah, Wasatch County": Letter from the Utah Geological Survey (UGS) to Doug Smith at Wasatch County Planning and Zoning Department, dated March 6, 2007.

Wasatch County, 2015 "Wasatch County Municipal Code" https://wasatch.municipalcodeonline.com/

Wasatch County, 2002, Geologic Hazards Overlay Zone (GHOZ), Chapter 16.17 of Ordinance 2-11, adopted on August 8, 2002.

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4153 Commerce Drive, Salt Lake City, Utah 84107
T: (801) 270-9400 ~ F: (801) 270-9401

March 2, 2017

Wasatch County Planning Office
55 South 500 East
Heber, Utah 84032
Attn: Mr. Luke Robinson

IGES Project No. 02190-004

RE: Geotechnical Review
Geotechnical Investigation
Proposed Green Valley Ranch Development (Wasatch Commons)
Approximately 3000 North Highway 40
Heber City, Utah

Submittal: AGEC, Inc., 2007a, Geotechnical Investigation, Proposed Green Valley Ranch Development, Approximately 3000 North Highway 40, Heber City, Utah, AGEC Project No. 1061437, dated January 15, 2007.

Reference: AGEC, Inc., 2007b, Debris Flow Hazard Evaluation, Wasatch Commons Development, Heber City, Utah, AGEC Project No. 1070367, dated April 18, 2007.

Review Conclusion: Geotechnical Submittal Incomplete

Mr. Robinson:

As requested, IGES has reviewed the referenced submittal for compliance with Wasatch County Ordinances and to assess whether AGEC has reasonably complied with the professional standard of practice for geotechnical investigations in the area.

Background

The original geologic and geotechnical report was submitted in 2007; this report is the subject of this review. The subject report is for the 160-acre Wasatch Commons development, which in early 2007 was named the Green Valley Ranch development. Later in that same year, AGEC completed a debris flow hazard evaluation (AGEC, 2007b); the geology and the debris flow hazard report will be reviewed in a separate submittal.

Comments and Recommendations

1. The report was completed in 2007; IGES recommends that AGEC review this report and update as necessary to meet the current industry standard of care and AGEC's current standards, for example, provide spectral accelerations and seismic lateral earth pressures in accordance with IBC 2015. If there are few or no changes warranted, a 'reliance letter' or addendum may be appropriate. However, an updated report may be preferable if a significant number of changes are made.

2. Page 3, *Subsurface Conditions*: within this section, and elsewhere in the report, there is an indication that 'bedrock' was encountered. However, there is no description of bedrock in the text of the report, nor is there bedrock indicated on the test pit logs. IGES recommends that AGEC clarify this apparent discrepancy; if bedrock was encountered, the geologic and engineering characteristics should be clearly described in the text of the report, and depth to the bedrock (where encountered) should be identified on the test pit logs.

3. Page 9, Section A(5), *Site Grading – Materials*. The report indicates "*The clay and silt are not recommended for use as structural fill but may be used as site grading fill, utility trench backfill, and retaining wall backfill if the organics, topsoil and other deleterious materials are removed*." It should be pointed out that the use of clayey soils as retaining wall backfill may not be advisable in some instances, since clayey soils often drain poorly, and in some cases may swell upon wetting, thereby inducing high lateral pressure on walls. IGES recommends AGEC consider revising the foregoing recommendation and/or address the potential for clayey soils adversely impacting retaining walls should the soils become wetted.

4. As a part of this review, IGES had the opportunity to conduct a review of the civil plans (prepared by Ward Engineering, dated July 8, 2016). Based on our cursory review, it appears that there will be fill sections of up to 20 feet deep under some roadways, and cut sections up to 15 feet deep; also, there will be several engineered slopes, with the maximum height being on the order of 40 feet high. Furthermore, several detention ponds are shown.

   IGES recommends that AGEC conduct a *Grading Plan Review* once a final grading plan is available to assess compatibility with their recommendations; slope stability analysis should be performed for engineered slopes, as needed. AGEC should address any and all issues pertaining to engineered slopes (cut slopes, fill slopes) and any fill sections, including but not necessarily limited to:

   - Static and seismic stability of representative cut and fill slopes,
   - Keyways, benching, and grading of slopes,
   - Both surface drainage and subsurface drainage of slopes or deep fill sections (especially canyon fills, if any), and
   - Settlement of deep fill sections, which may include estimated time to primary settlement, estimated total settlement, and settlement monitoring/settlement monuments, if deemed appropriate.

   If bedrock is present, representative geologic cross-sections should be presented to support the slope stability analysis.

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Closure

This review has been completed based solely on the data presented in the referenced document, which is considered to be accurate and honest in its presentation. IGES has not performed testing, calculations or other analyses to verify the accuracy of the information presented. The responsibility of the findings, conclusions and recommendations provided in the report are the sole responsibility of the consulting company who performed the work.

Respectfully Submitted,
IGES, Inc.





David A. Glass, P.E.
Senior Geotechnical Engineer

Kent A. Hartley, P.E.
Principal

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September 28, 2018
Job No. 2161-001-16

Mr. Mark Garza
Cardinal Funding, LC
1165 East Wilmington Avenue
Salt Lake City, Utah 84106

Mr. Garza:

Re: Letter
Slope Stability
Wasatch Commons
East of Intersection of 3000 North
and U.S. Highway 40
Heber City, Utah

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our slope stability study performed at the site of the proposed Wasatch Commons Development to be constructed east of the intersection 3000 North and U.S. Highway 40, Heber City, Utah. The general location of the site with respect to existing roadways, as of 2018, is presented on Figure 1, Vicinity Map. A more detailed layout of the site showing proposed slope stability sections and test pits excavated in conjunction with this study is presented on Figure 2, Site Plan.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of the study were planned in discussions between Mr. Mark Garza of Cardinal Funding, LC and Mr. Alan Spilker of GSH Geotechnical, Inc. (GSH).

In general, the objectives of this study were to:

1. Define and evaluate the subsurface soil and groundwater conditions across the site.
2. Provide appropriate slope stability analysis at 4 cross-sections throughout the site that represent the worse case scenarios for slopes.

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473 West 4800 South
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In accomplishing these objectives, our scope has included the following:

1. An office program consisting of the review of pertinent test pits and geological data associated with the slope stability cross-section.
2. A laboratory testing program.
3. An office program consisting of the correlation of available data, engineering analysis, and the preparation of this summary report.

1.3 AUTHORIZATION

Authorization was provided by returning a signed copy of the Professional Services Agreement No. 18-0133.rev1 dated February 26, 2018 and signed March 2, 2018.

1.4 PROFESSIONAL STATEMENTS

Supporting data upon which our recommendations are based are presented in subsequent sections of this report. Recommendations presented herein are governed by the physical properties of the soils encountered in the exploration test pits, projected groundwater conditions, and the layout and design data proposed for the project. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, GSH must be informed so that our recommendations can be reviewed and amended, if necessary.

Slope stability cross-section locations were reviewed and approved by Mr. Greg Schlenker, P.G. of GSH for geological considerations.

Our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time.

1.5 LABORATORY TESTING

1.5.1 General

In order to provide data necessary for our engineering analysis, a laboratory testing program was performed. This program included laboratory direct-shear test. The following paragraphs describe the tests and summarize the test data.

1.5.2 Laboratory Direct Shear Tests

To determine the apparent cohesion and friction angle of the fill soils encountered at the site, a direct shear test was performed on near-surface soils collected concurrent with additional test pits performed for the geological reconnaissance. Soils tested were a remolded sample of the native soils considered **Qafo**-Old fan alluvium (upper to middle Pleistocene) – Poorly to moderately sorted, weakly to non-stratified, clay- to boulder-size sediment deposited principally as debris

flows and debris floods. Direct shear testing results are included in the Appendix. The results of the tests are tabulated below:

Test Pit No.	Depth (feet)	Soil Type	Dry Density (pcf)	Apparent Cohesion (psf)	Internal Fiction Angle (degrees)
TP-2	3.0	SC/GC	98	270	43

1.6 GEOSEISMIC SETTING

1.6.1 General

Utah municipalities have adopted the International Building Code (IBC) 2015 and International Residential Code for One- to Two-Family Dwellings 2015. The IBC 2015 code determines the seismic hazard for a site based upon 2008 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points).

1.6.2 Faulting

Based upon our review of available literature, no active faults are known to pass through or immediately adjacent to the site. The nearest active fault is the Wasatch Fault, located more than 18 miles west of the site. The Wasatch Fault Zone is considered capable of generating earthquakes as large as magnitude 7.3[1].

1.6.3 Soil Class

For dynamic structural analysis, the Site Class C – Very Dense Soil and Soft Rock Profile as defined in Chapter 20 of ASCE 7 (per Section 1613.3.2, Site Class Definitions, of IBC 2015) can be utilized.

1.6.4 Ground Motions

The IBC 2015 code is based on the 2008 USGS mapping, which provides values of short and long period accelerations for the Site Class B boundary for the Maximum Considered Earthquake (MCE). This Site Class B boundary represents average bedrock values for the Western United States and must be corrected for local soil conditions. The table on the following page summarizes the peak ground and short and long period accelerations for the MCE event and incorporates the

[1] Arabasz, W.J., Pechmann, J.C., and Brown, E.D., 1992, Observational seismology and the evaluation of earthquake hazards and risk in the Wasatch Front area, Utah, in Gori, P.L., and Hays, W.W., eds., Assessment of regional earthquake hazards and risk along the Wasatch Front, Utah: U.S. Geological Survey Professional Paper 1500-D, 36 p.

appropriate soil amplification factor for a Site Class C soil profile. Based on the site latitude and longitude (40.543438 degrees north and 111.408962 degrees west, respectively), the values for this site are tabulated on the table on the following table:

Spectral Acceleration Value, T	Site Class B Boundary [mapped values] (% g)	Site Coefficient	Site Class C [adjusted for site class effects] (% g)	Design Values (% g)
Peak Ground Acceleration	24.2	F_a = 1.158	28.0	18.7
0.2 Seconds (Short Period Acceleration)	S_S = 60.5	F_a = 1.158	S_{MS} = 70.1	S_{DS} = 46.7
1.0 Second (Long Period Acceleration)	S_1 = 20.0	F_v = 1.600	S_{M1} = 32	S_{D1} = 21.3

Based on the IBC 2015 code, a design seismic event used in the determination of the following pseudostatic slope stability would be 50 percent of the PGA (Pseudostaic Design Acceleration - 0.14g).

2. GLOBAL SLOPE STABILITY AND GEOLOGICAL SETTING

Site development will require some earthwork in the form of constructing cut and fill slopes. Four areas were identified throughout the overall site that would best represent worst case scenarios for slope stability. In the following paragraphs, GSH presents the soil parameters utilized within the slope stability models and discusses the safety factors obtained with the models. Attached at the end of the report are the cross-sections that were studied, as well as all results provided by the slope stability model. It was recommended that GSH provide block failure results when failure planes are generally contained within bedrock. The safety factors when evaluating block failure planes are a trial by inputting graphical block failure planes to obtain the lowest factor of safety for that system.

Bedrock strength values presented in the table on the following page were extracted from a Review of Geotechnical Aspects of the Jordanelle Damsite, Heber, Utah (Department of the Interior, U.S. Geological Survey, Open-File Report 91-398, 1991, page 28 included in the Appendix). The values presented in the review indicate that Keetley Volcanics range between 700 to 8,000 psi (unconfined compressive test). A conservative value of 5,000 psf was used in the design. Defining the geological formations, we refer to Figure 6, Engineering Geology, from our March 23, 2018 report, which defines soils encountered across the site. **Qafo** - Old fan alluvium (upper to middle Pleistocene) – Poorly to moderately sorted, weakly to non-stratified, clay- to boulder-size sediment deposited principally as debris flows and debris floods; for the rock, refer to: **Tkb** - Keetley Volcanics (Oligocene and Eocene?) - Intrusive and flow rock, breccia, lahar, and tuff, as well as volcaniclastic and nonvolcanic sandstone that was locally mapped as light gray to gray lahar, flow

breccia, and tuff. Geologically, the 8MPA is conservative for the Keetley Volcanics. Due to the unknown source of potential structural fill, a conservative value for structural fill was utilized.

Based on available data and laboratory data obtained from soils sampled at the site, the following soil parameters were utilized in the slope stability models:

Soil Type	Apparent Cohesion (lbs/ft^2)	Friction Angle (Degrees)	Unit Weight (lbs/ft^3)
Clayey Sand/Gravel **Qafo**	270	43	130
Keetley Bedrock **Tkb**	5000	0	140
Structural Fill	0	38	135

GSH completed static long-term and pseudostatic (seismic) short-term evaluations at each of the 4 locations. The cross-sections are attached. The results of the stability analysis are tabulated below:

Location	Model	Factor of Safety	Required Factor of Safety
S1	Long-Term Static Slope Stability with Groundwater	17.6	1.5
S1	Short-Term Pseudostatic	14.6	1.0
S2	Long-Term Static Slope Stability with Groundwater	1.8	1.5
S2	Short-Term Pseudostatic	1.5	1.0
S3	Long-Term Static Slope Stability with Groundwater	6.4	1.5
S3	Short-Term Pseudostatic	4.5	1.0
S4	Long-Term Static Slope Stability with Groundwater	3.1	1.5
S4	Short-Term Pseudostatic	1.8	1.5

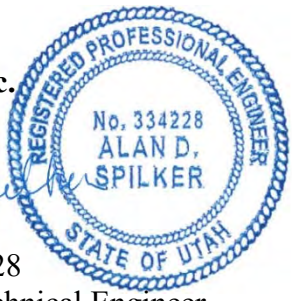
The slope stability results indicate that in general, the cut and fill slopes will be suitable in their proposed final cut/fill configurations. The steepest slope gradients used in the grading plan is 2 horizontal to 1 vertical. Construction of fill slopes must include 5-foot benching into the exposed soil/bedrock. All other constructed slopes must be in accordance with our recommendations.

3. CLOSURE

If you have any questions or would like to discuss these items further, please feel free to contact us at (801) 685-9190.

Respectfully submitted,

GSH Geotechnical, Inc.



Alan D. Spilker, P.E.
State of Utah No. 334228
President/Senior Geotechnical Engineer



Gregory Schlenker PhD, P.G.
State of Utah No. 5224720
Senior Geologist

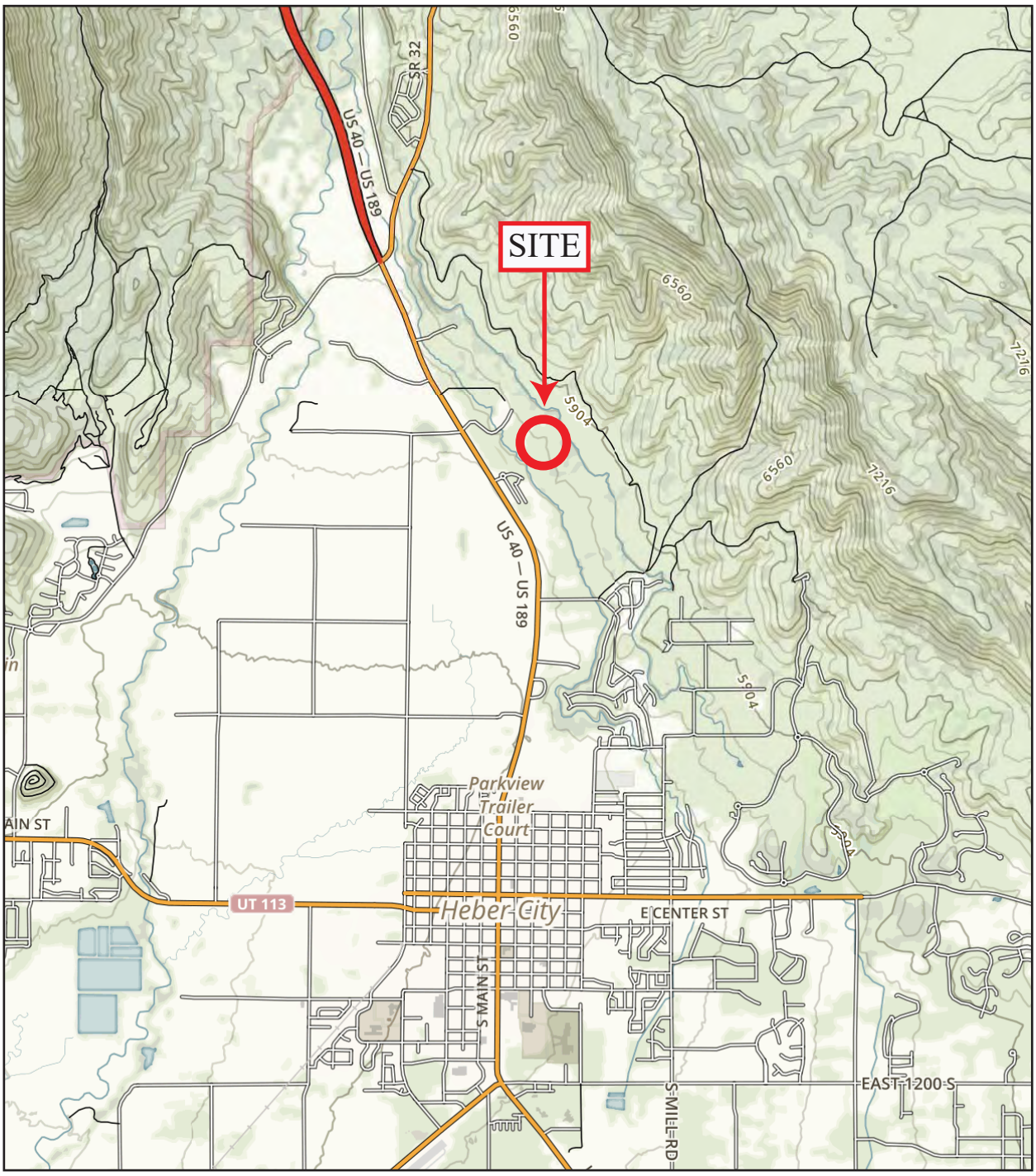
ADS/GCS:jlh

Addressee (email)

Encl. Figure 1, Vicinity Map
Figure 2, Site Plan
Figures 3 through 6, Stability Results
Figures 7 and 8, Geologic Cross Slopes
Appendix Direct Shear/Stability Results

Addressee (email)

CARDINAL FUNDING, LC
JOB NO. 2161-001-16



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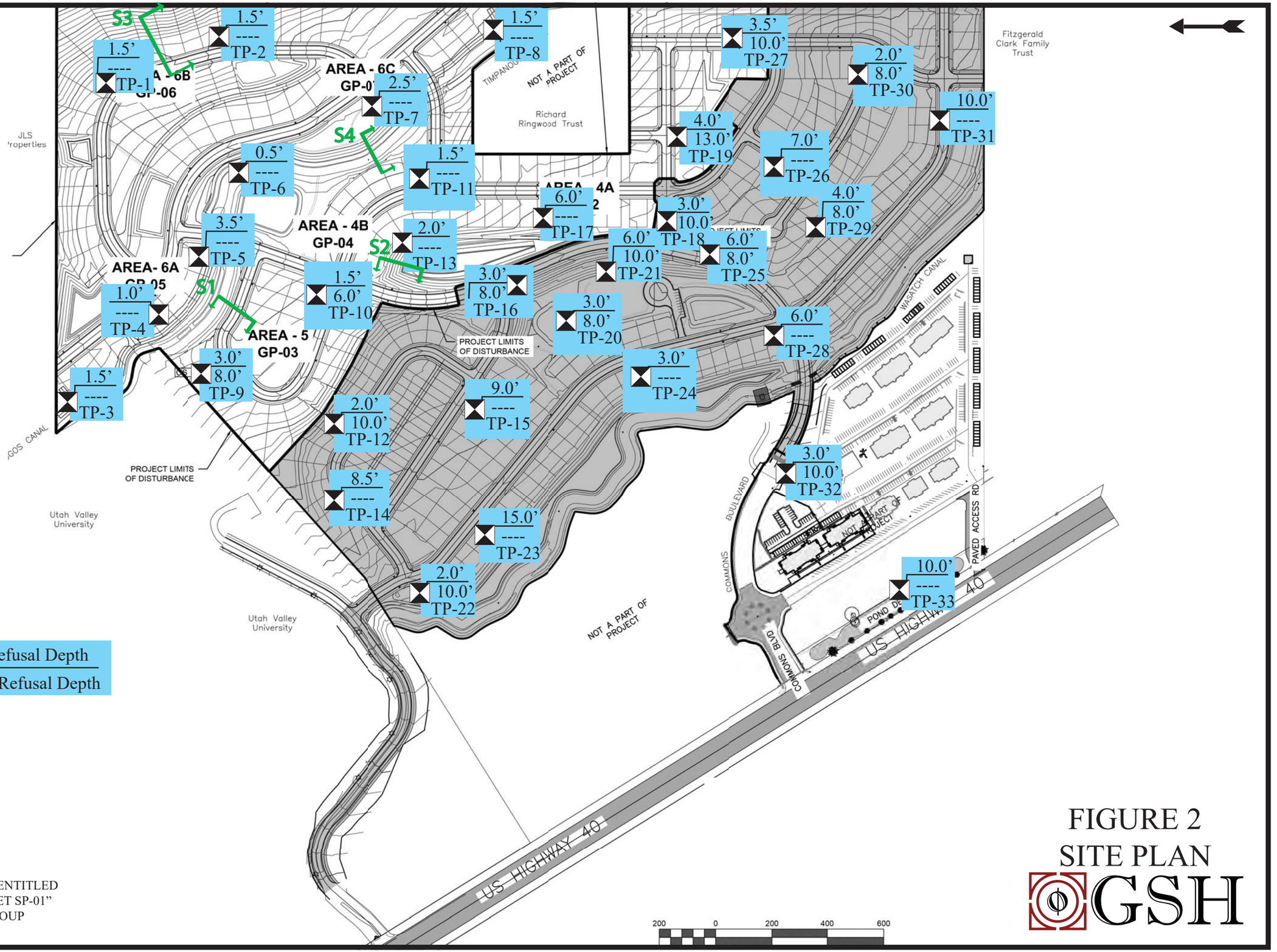
1 0 1 MI 2

FIGURE 1
VICINITY MAP

REFERENCE:
ALL TRAILS - NATIONAL GEOGRAPHIC TERRAIN
DATED 2016

GSH

CARDINAL FUNDING, LC
JOB NO. 2161-001-16



KEY:

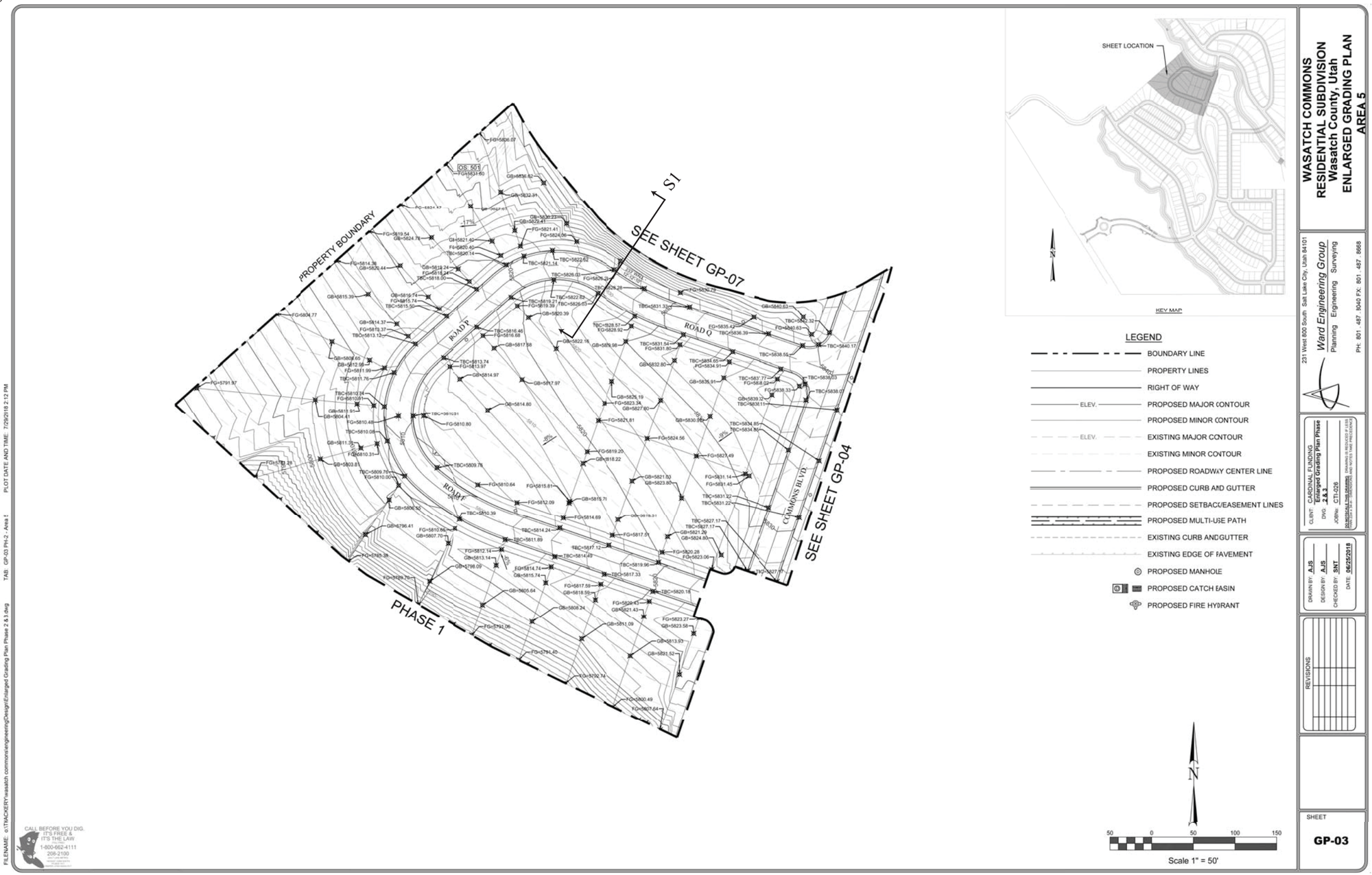
GSH Backhoe Refusal Depth
/ Client Trackhoe Refusal Depth

REFERENCE:
ADAPTED FROM DRAWING ENTITLED
“WASATCH COMMONS, SHEET SP-01”
BY WARD ENGINEERING GROUP
DATED 07/08/2016

FIGURE 2
SITE PLAN

GSH

CARDINAL FUNDING, LC
JOB NO. 2161-001-16



WASATCH COMMONS
RESIDENTIAL SUBDIVISION
Wasatch County, Utah
ENLARGED GRADING PLAN
AREA 5

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning Engineering Surveying
PH: 801 . 487 . 9040 FX: 801 . 487 . 8868

CLIENT: CARDINAL FUNDING
Enlarged Grading Plan Phase 2 & 3
DWG: CTI-026
JOB No: CTI-026
DRAWN BY: AJS
DESIGN BY: AJS
CHECKED BY: SNT
DATE: 06/25/2018
REVISIONS
SHEET
GP-03

FILENAME: o:\TRACKERY\wasatch commons\engineering\Design\Enlarged Grading Plan Phase 2 & 3.dwg TAB: GP-03 PH-2 - Area 5 PLOT DATE AND TIME: 7/29/2018 2:12 PM

CALL BEFORE YOU DIG.
IT'S FREE &
IT'S THE LAW
1-800-662-4111
208-2100

FIGURE 3
CROSS-SECTION S1

GSH

CARDINAL FUNDING, LC
JOB NO. 2161-001-16

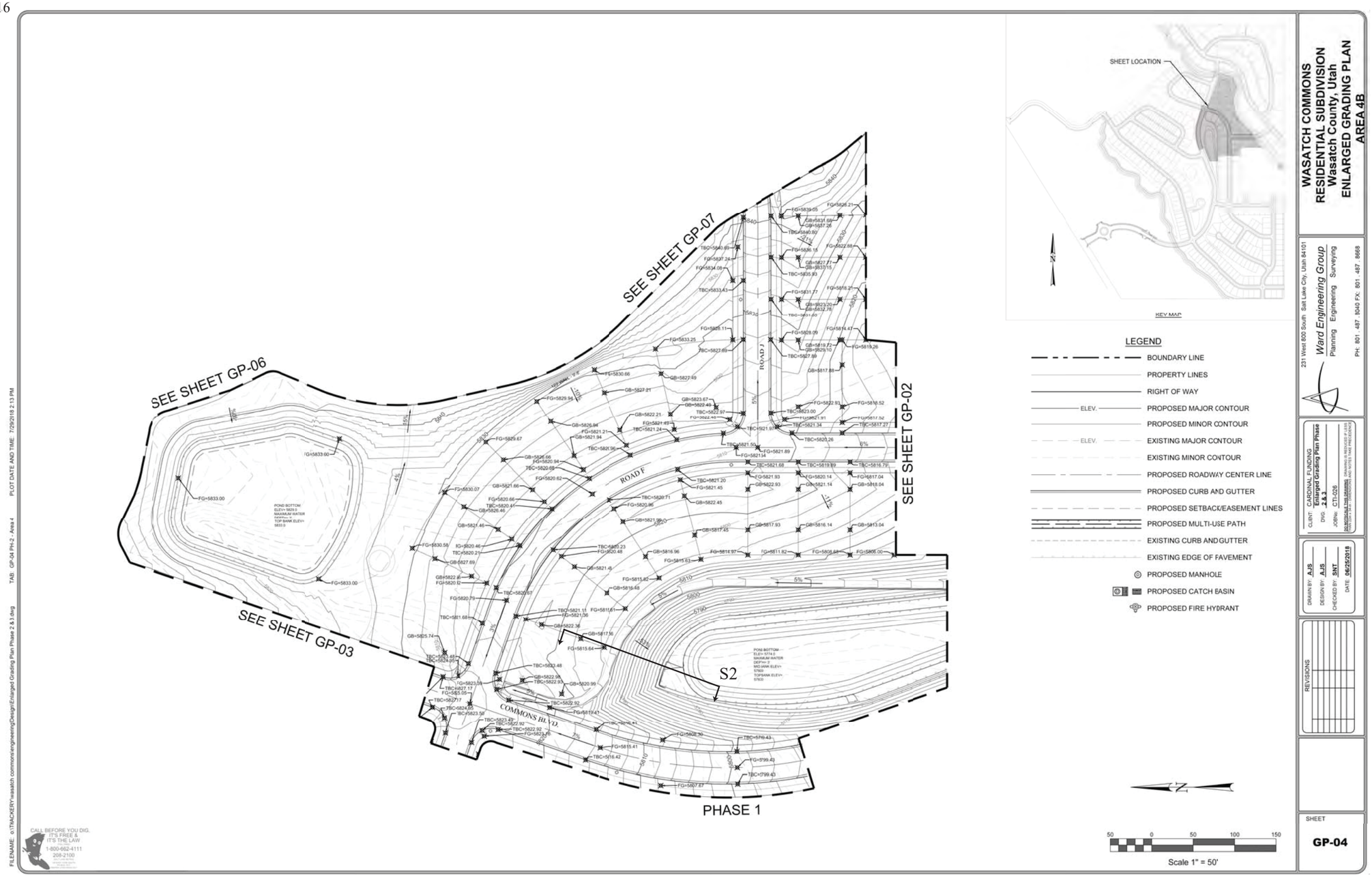
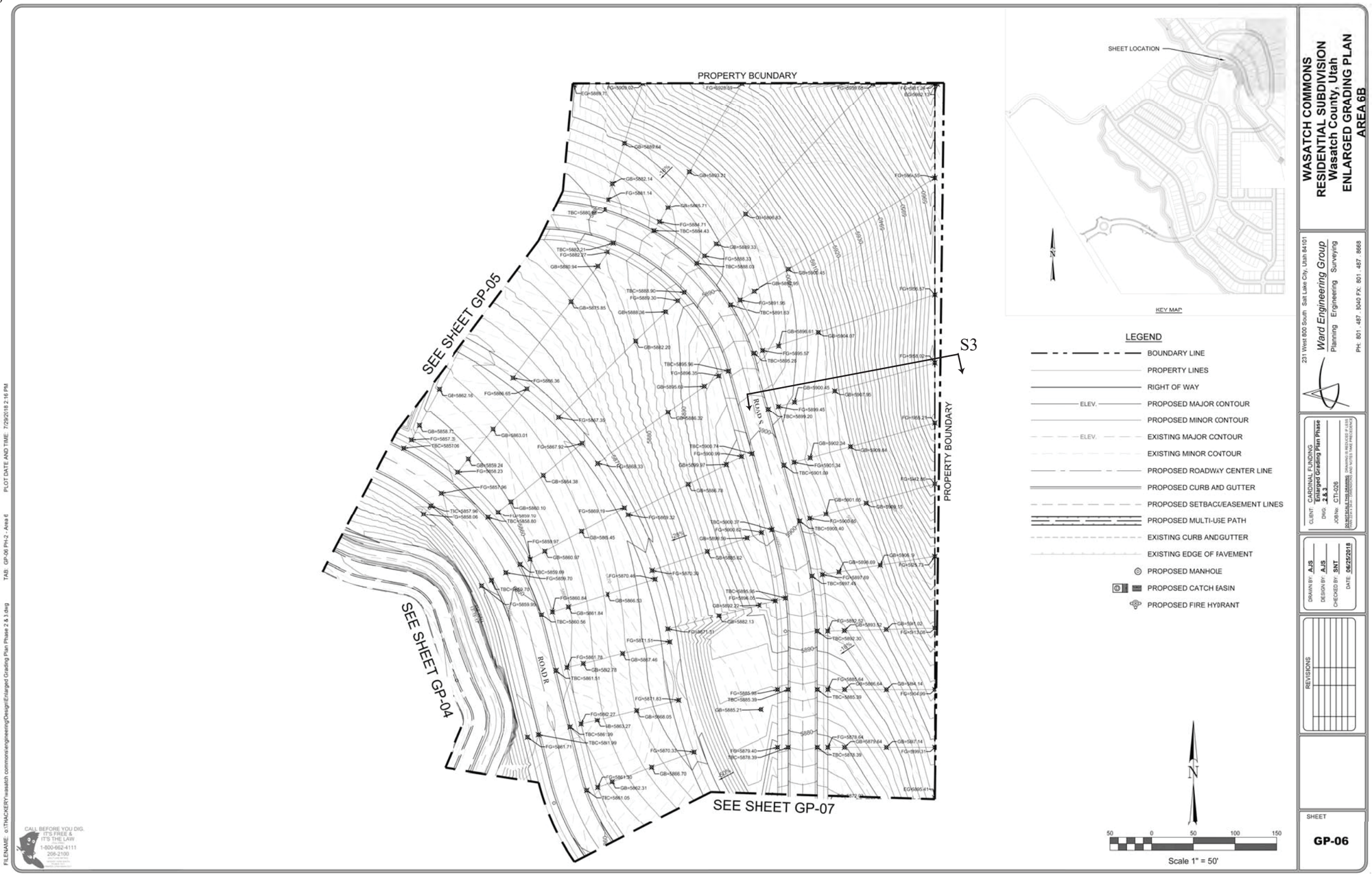


FIGURE 4
CROSS-SECTION S2

GSH

CARDINAL FUNDING, LC
JOB NO. 2161-001-16



WASATCH COMMONS
RESIDENTIAL SUBDIVISION
Wasatch County, Utah
ENLARGED GRADING PLAN
AREA 6B

Ward Engineering Group
Planning Engineering Surveying
231 West 800 South Salt Lake City, Utah 84101
PH: 801 - 487 - 9040 FX: 801 - 487 - 8668

CLIENT: CARDINAL FUNDING
DWG: Enlarged Grading Plan Phase 2 & 3
JOB No: CTI-026
DRAWN BY: AJS
DESIGN BY: AJS
CHECKED BY: SNT
DATE: 06/25/2019
REVISIONS

SHEET
GP-06

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FIGURE 5
CROSS-SECTION S3

GSH

CARDINAL FUNDING, LC
JOB NO. 2161-001-16

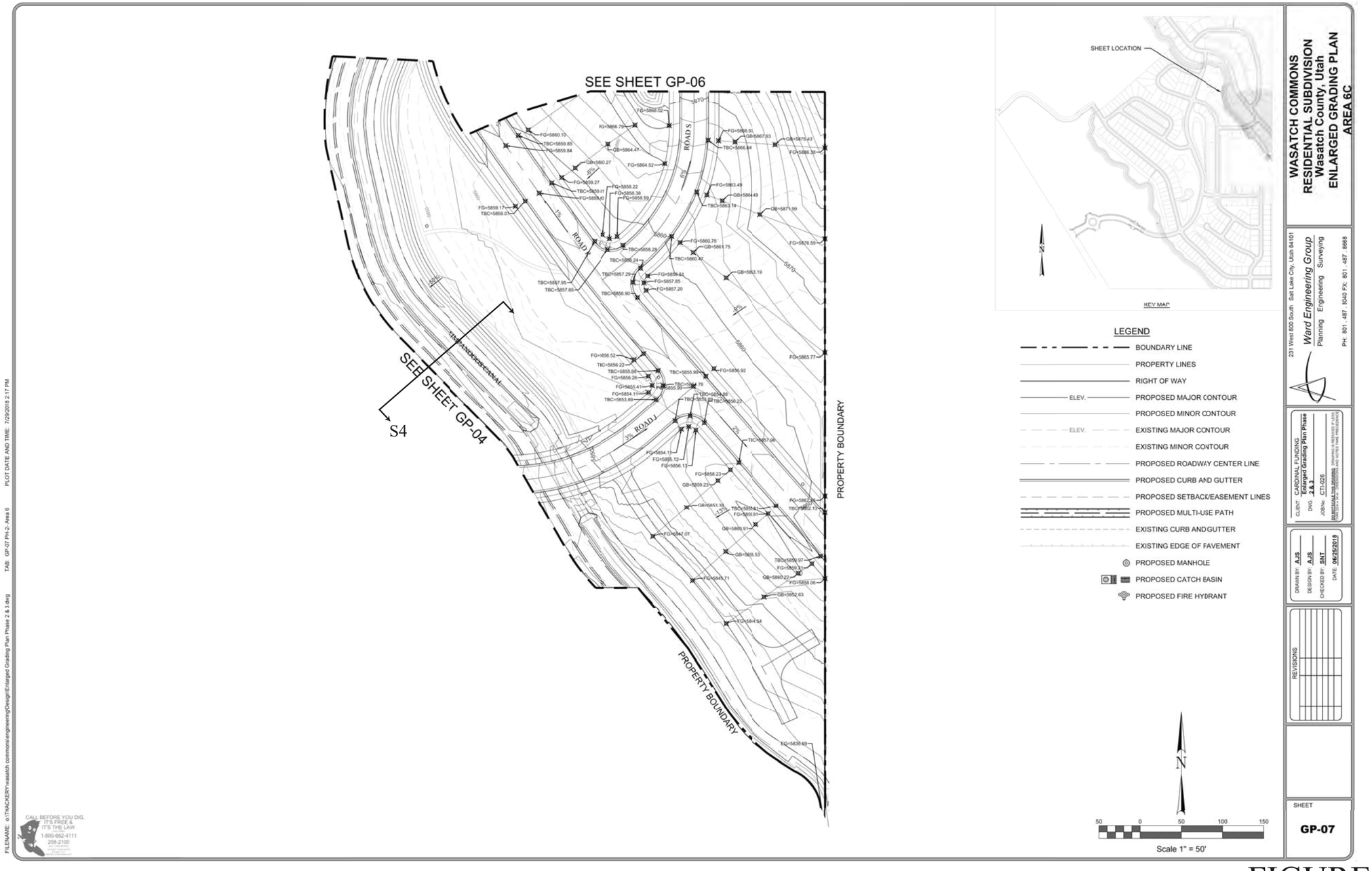
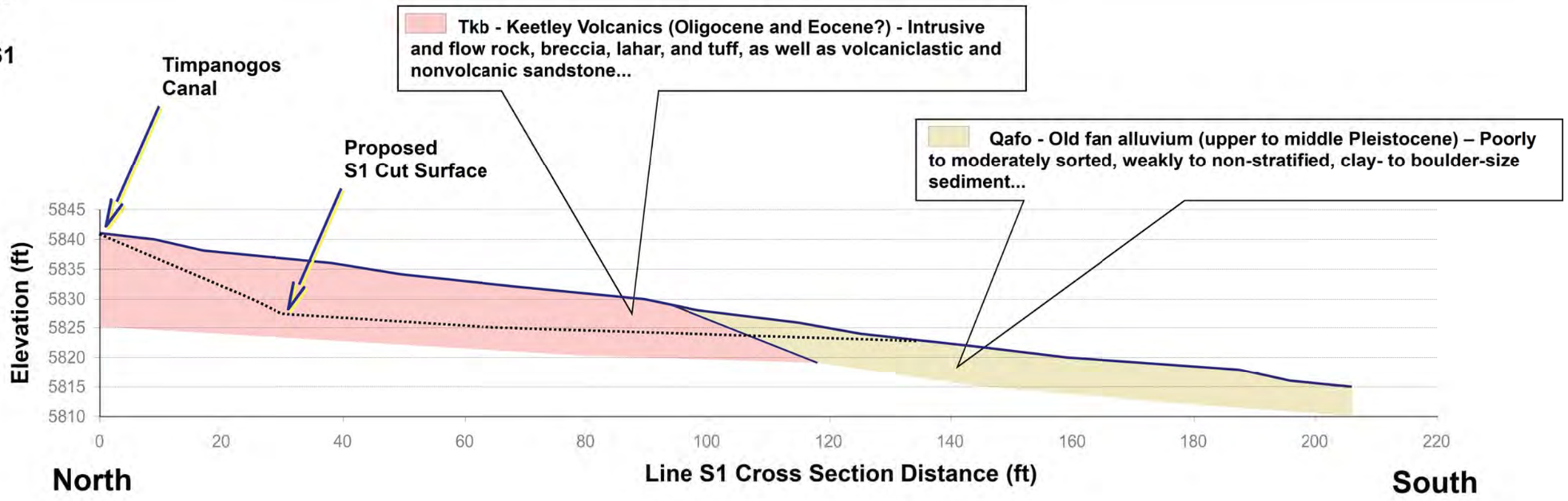


FIGURE 6
CROSS-SECTION S4

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CARDINAL FUNDING, LC
Job No. 2161-001-16

SLOPE S1



SLOPE S2

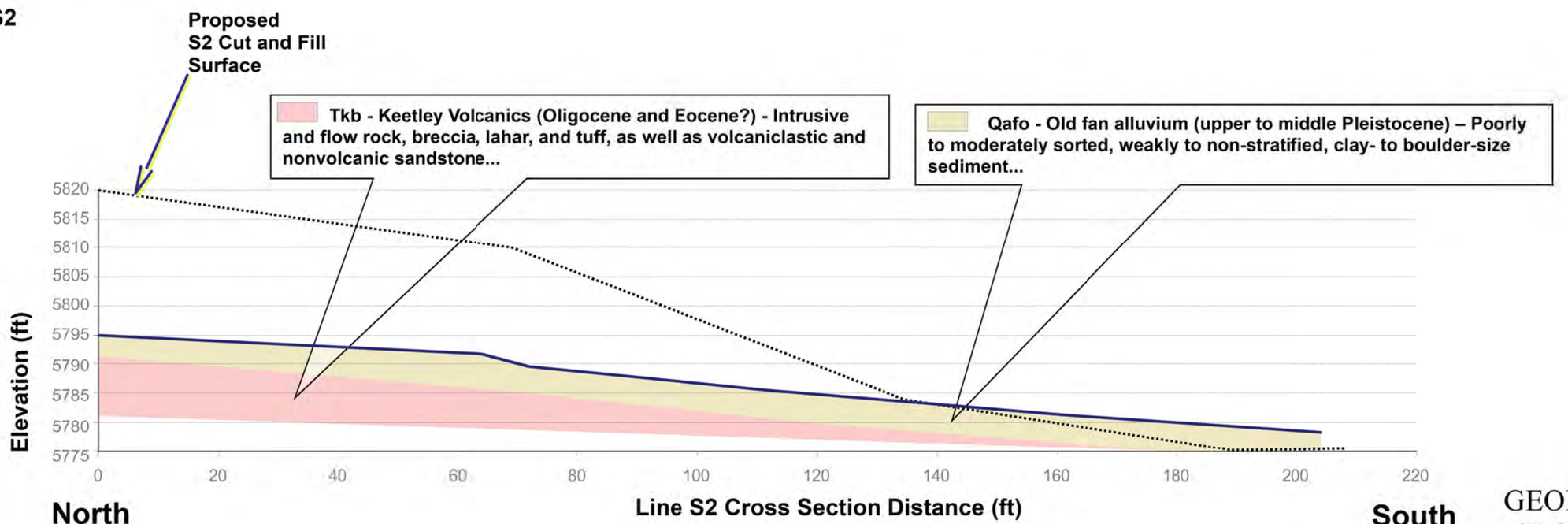


FIGURE 7
GEOLOGIC CROSS SLOPE S1 AND S2

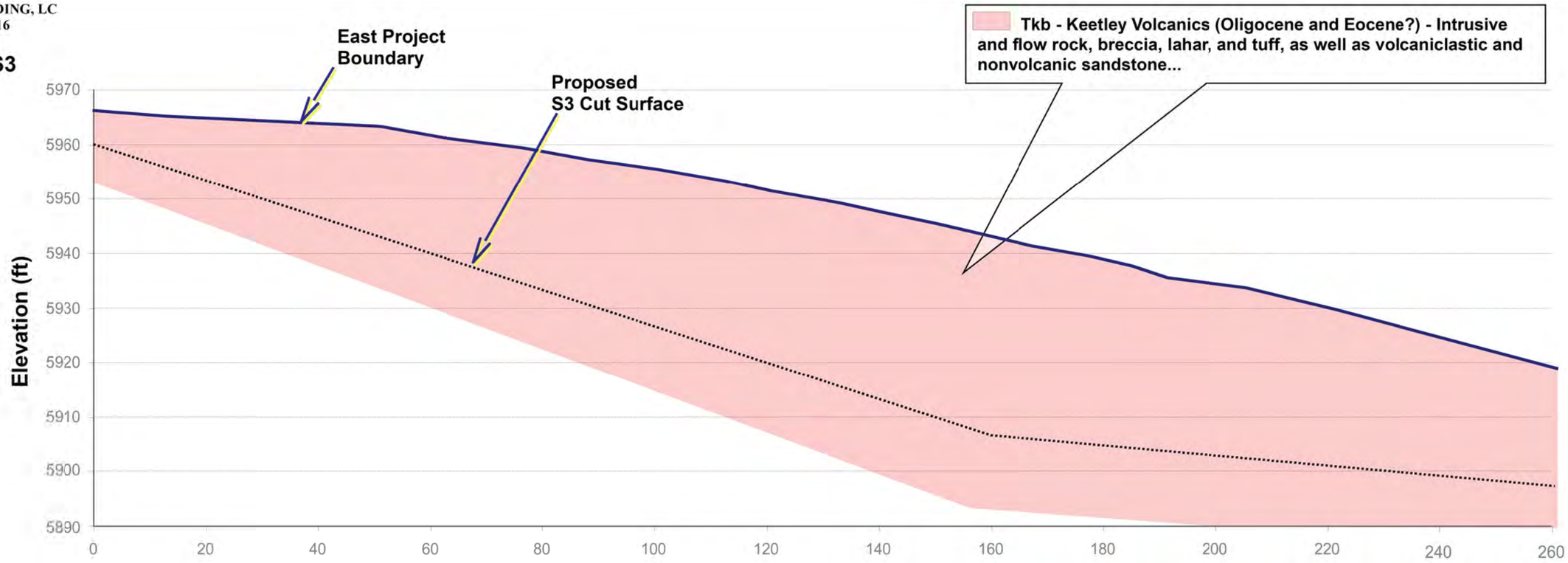
ANALYSIS BY: GCS | CHECKED BY AS | DATE 10/3/18

(Geology from Figure 6, Engineering Geology, from March 23, 2018 GSH Report)

GSH

CARDINAL FUNDING, LC
Job No. 2161-001-16

SLOPE S3



SLOPE S4

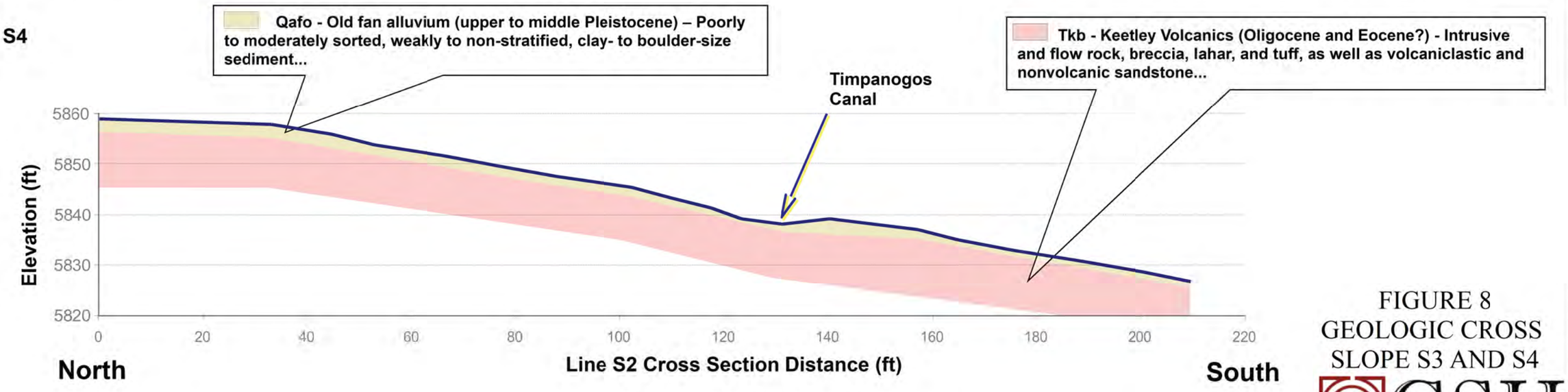


FIGURE 8
GEOLOGIC CROSS
SLOPE S3 AND S4

GSH

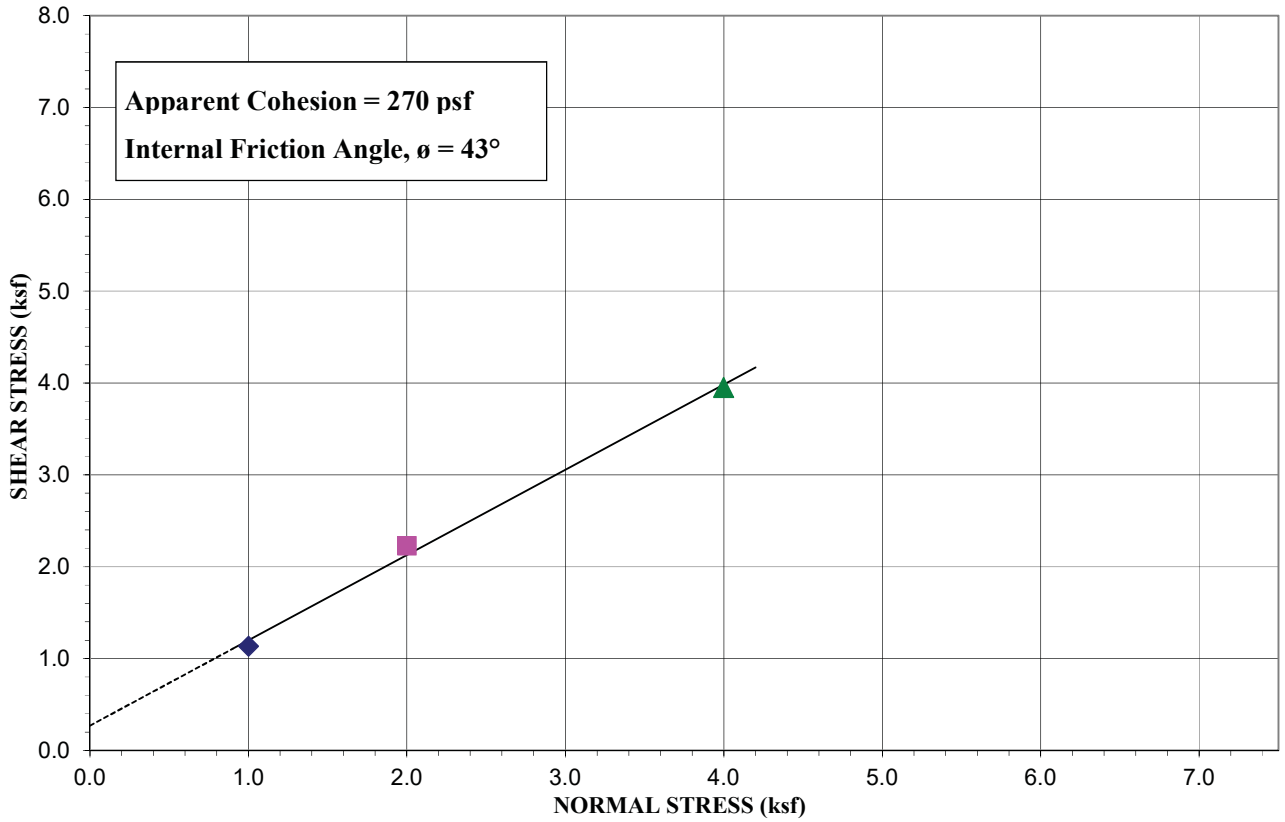
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(Geology from Figure 6, Engineering Geology, from March 23, 2018 GSH Report)

APPENDIX

Direct Shear/Stability Results

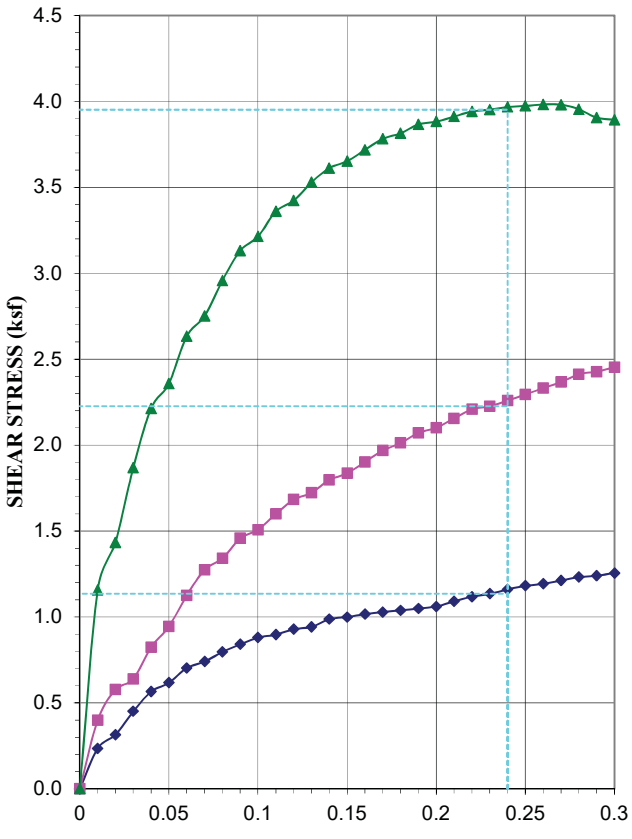
DIRECT SHEAR TEST



Source: TP2	Depth: 3.0 ft		
Type of Test:	Consolidated - Drained		
Test No. (Symbol)	1 (◆)	2 (■)	3 (▲)
Sample Type	Remolded		
Initial Height, in.	1.10	1.10	1.10
Diameter, in.	2.45	2.45	2.45
Dry Density Before, pcf	97.8	98.9	98.1
Dry Density After, pcf	102.2	103.4	100.9
Moisture % Before	7.5	7.1	7.9
Moisture % After	13.7	16.4	14.0
Saturation % Before	26.2	25.2	27.6
Saturation % After	52.9	65.0	52.3
Normal Load, ksf	1.0	2.0	4.0
Shear Stress, ksf	1.14	2.23	3.95
Strain Rate	0.005 in/min		

Sample Properties	
Cohesion, psf	270
Friction Angle, ϕ	43
Liquid Limit, %	---
Plasticity Index, %	---
Percent Gravel	---
Percent Sand	---
Percent Passing No. 200 sieve	
Classification	SC/GC

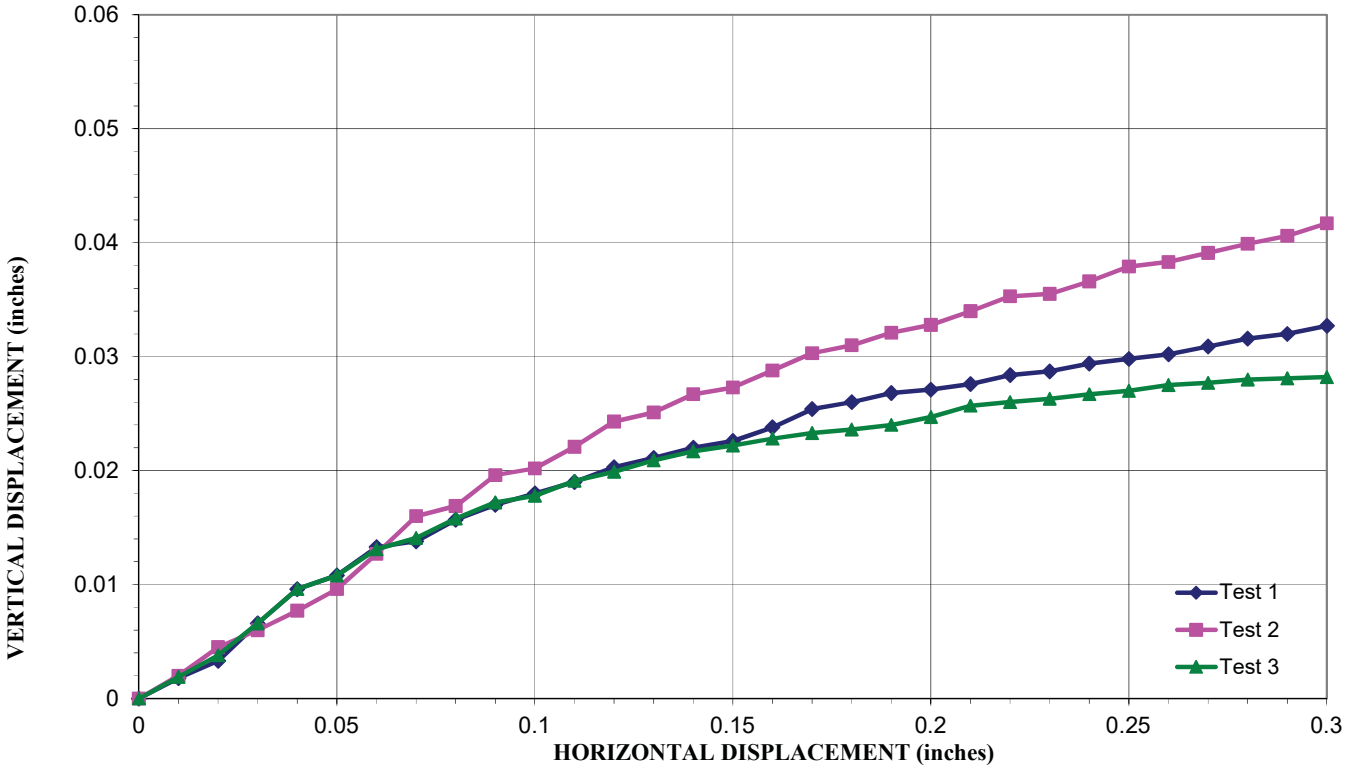
Testing Laboratory: GSH

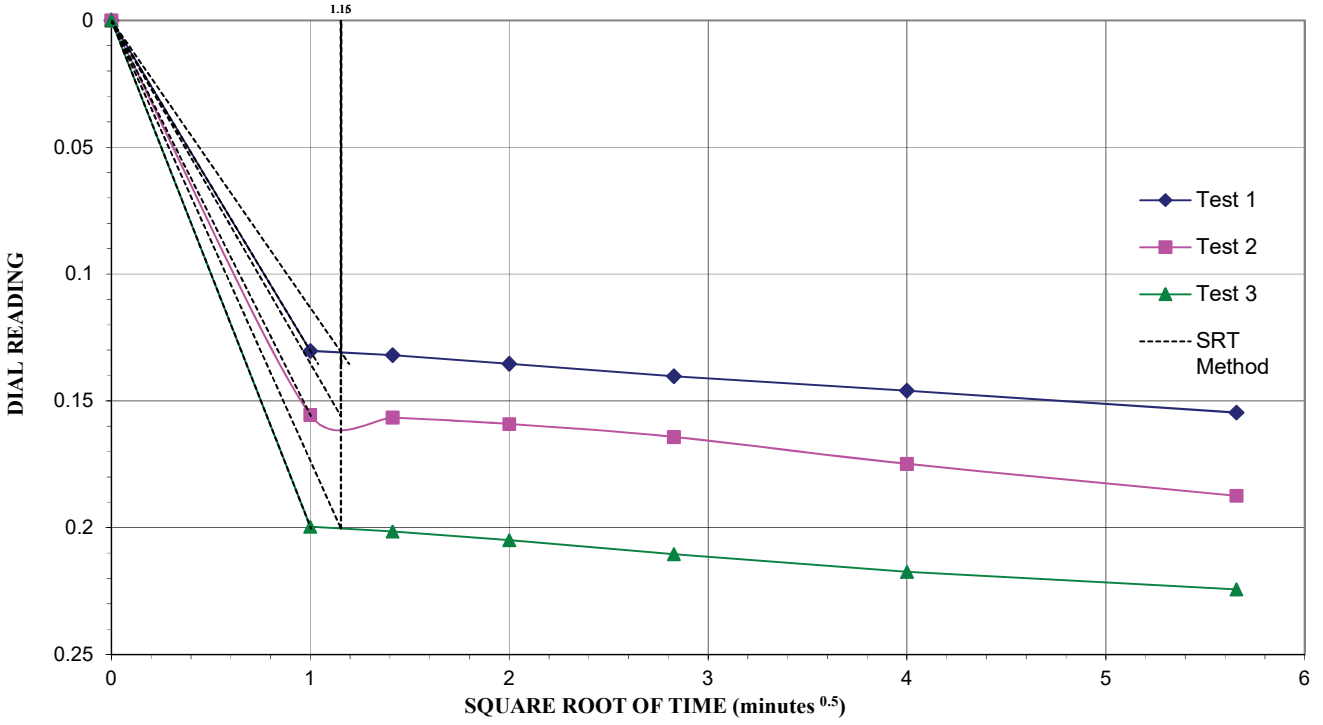


PROJECT: Wasatch Commons

PROJECT NO.: 2161-001-18	GSH	Attachment A

DIRECT SHEAR TEST





Test No. (Symbol)	1 (◆)	2 (■)	3 (▲)
t_{90} (from sq-root time)	1.34	1.33	1.33
$t_r = 50\ t_{90} / 4.28$	15.7	15.5	15.5
max. $d_r = 0.5 / t_f$	0.0319	0.0322	0.0322
selected d_r (in./min)	0.0050	0.0050	0.0050

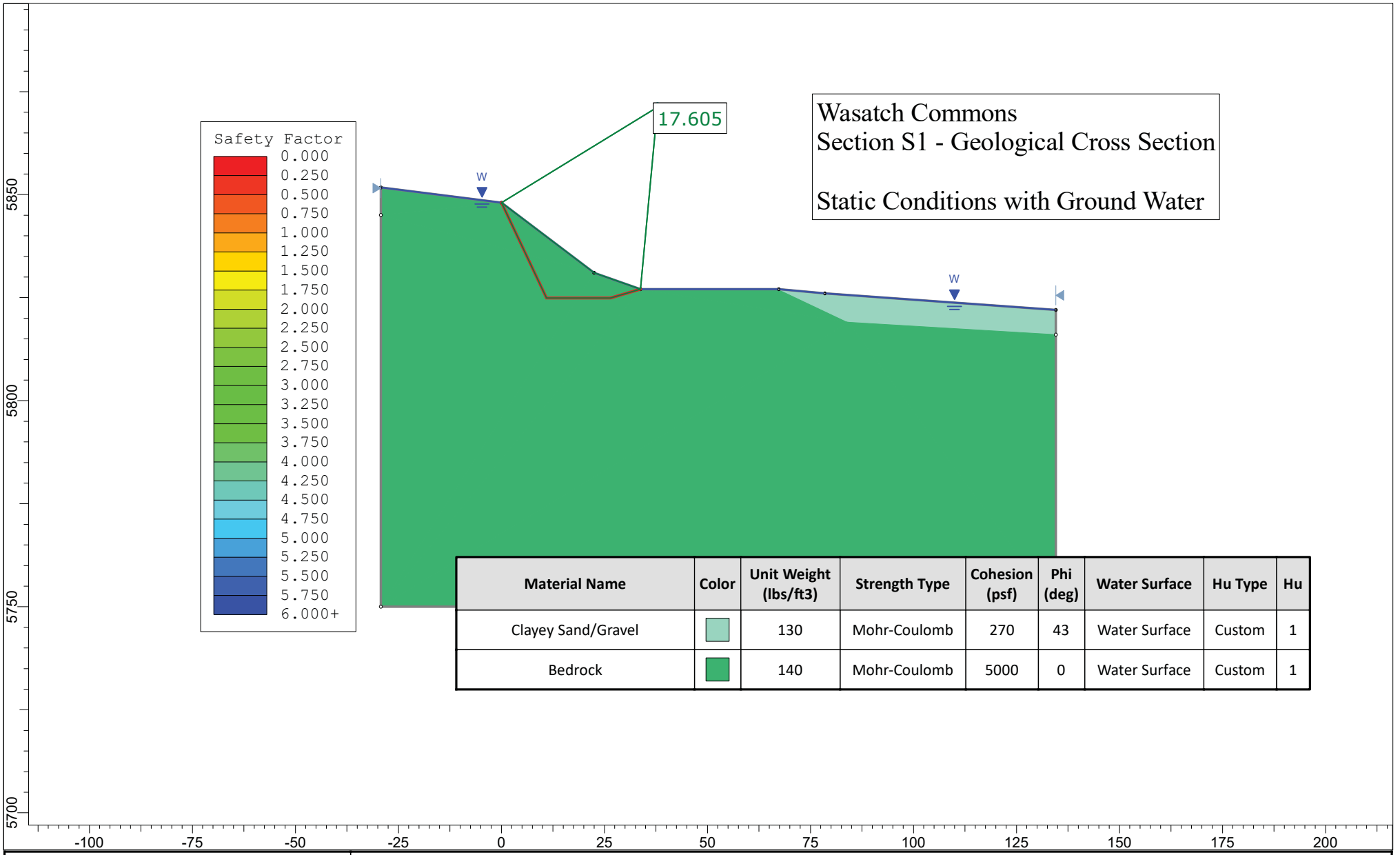
PROJECT: Wasatch Commons

ROJECT NO 2161-001-18	GSH	**FIGURE NO.:** #####

at fault intersections. Shear fabrics in these masses are commonly discordant to the boundary shears, indicating rotation. Also, some shears internal to the masses of fault-damaged rock are truncated at the boundary shears. These features indicate a protracted displacement history, the youngest elements of which are the through-going shears that traverse the excavations. The fault-damaged rock is progressively weaker (less resistant to excavation) toward the center of discrete shear zones. In no fault or fault zone that we observed is the fault-damaged rock likely to be weaker than the embankment materials or weak enough to collapse or seriously compress under the influence of the embankment. Concerns over the strength of fault-damaged rock should be relieved by the results of index texts of the strength of foundation rock (USBR, 1986). These tests, which include tests on fault-damaged rock, show a wide range of values (965-35,300 psi; 7-243 MPa), but with an aggregate average strength of 13,900 psi (96 MPa). Such strength values characterize the foundation as strong, solid, and capable of supporting the weight of the embankment dam.

Leon Hansen has repeatedly characterized the volcanigenic sedimentary rocks of the Keetley Volcanics as "mud-ash deposits" and inferred that they are inherently unsuitable as foundation materials. The USBR conducted 60 point-load strength tests and 20 unconfined compressive strength tests on rocks of the Keetley Volcanics (including andesite autobreccia, lapilli tuff, lapilli breccia, and sedimentary breccia) at Jordanelle (USBR, 1986, v. II, Engineering Geology, p. 54). The specific range of variability for the Keetley Volcanics is 678-21,300 psi from point-load tests and 700-8,000 psi for unconfined compressive tests. The range of average values for the four separate rock types that make up most of the Keetley Volcanics is 3,600-6,300 psi for point-load tests and 3,800-5,1000 psi for unconfined compressive tests. These results show that, as a group and as separate map units, the rocks collectively referred to as "mud-ash deposits" and which comprise only a small percentage of the foundation of the dam have adequate strength to support an embankment dam.

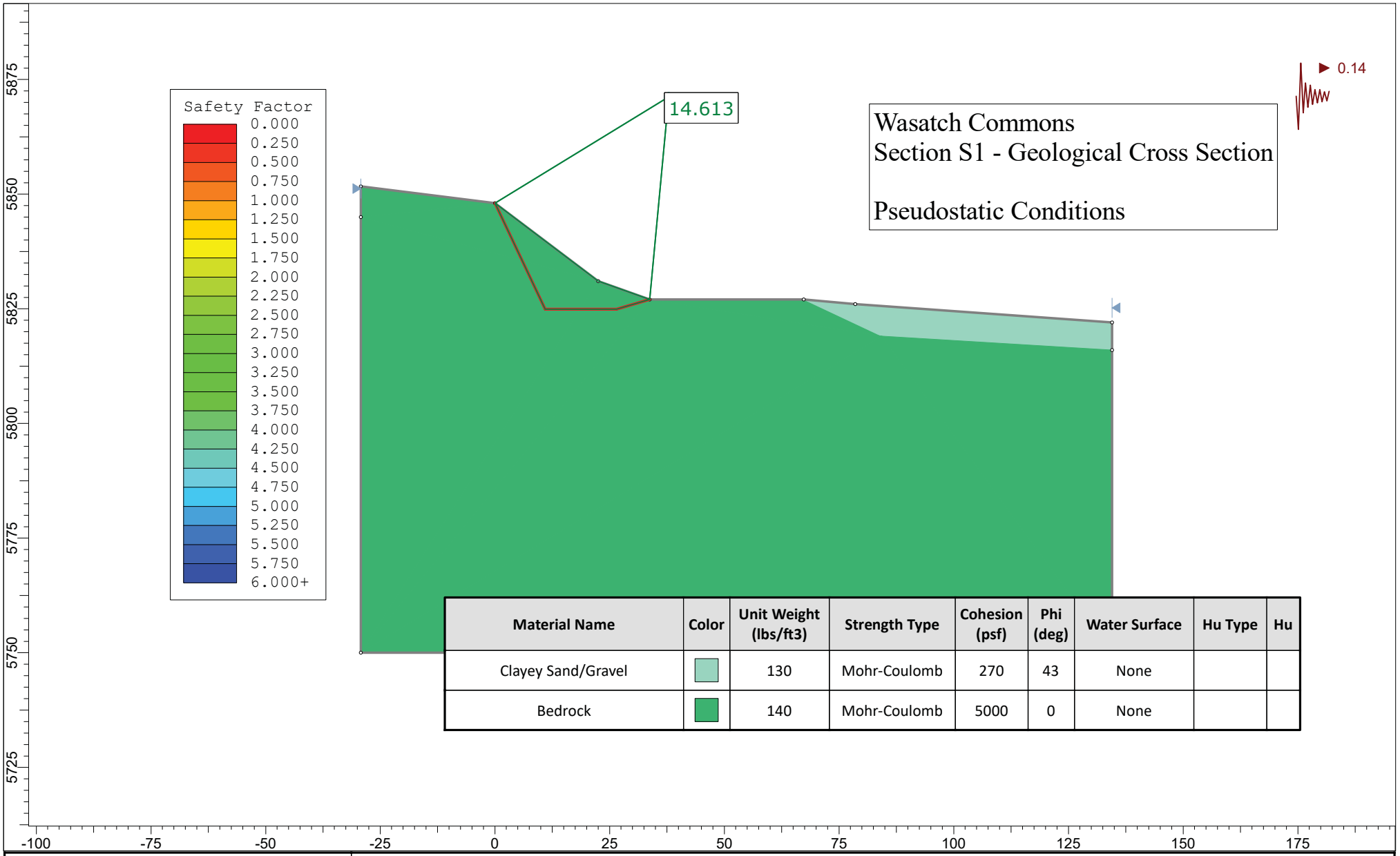
Concern has been expressed over the allegedly high permeability of the foundation rock of the Jordanelle Dam and whether treatment of permeable zones in the foundation has been adequate. With respect to the Teton Dam failure, these points are of concern to both the local populace and the scientific and engineering community. During our two visits to the damsite, members of the Panel inspected a number of fault, shear, and alteration zones, mainly in the abutments of the dam (the base of the foundation was largely covered). We observed no fault-damaged rocks with openings that could serve as conduits for the kind of rapid fluid flow that would compromise the integrity of the



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Clayey Sand/Gravel		130	Mohr-Coulomb	270	43	Water Surface	Custom	1
Bedrock		140	Mohr-Coulomb	5000	0	Water Surface	Custom	1

SLIDEINTERPRET 7.024

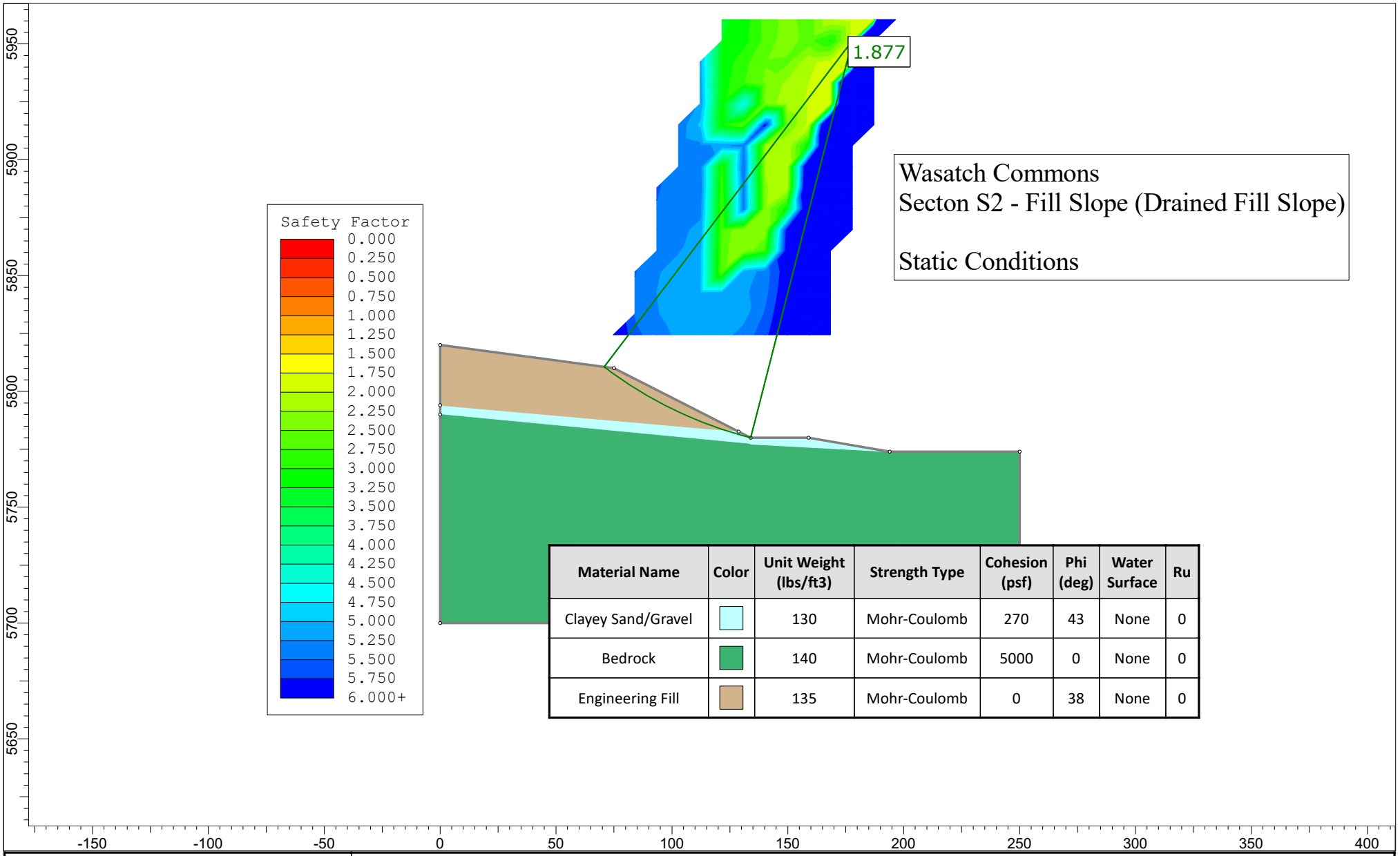
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Analysis Description			
Drawn By		Scale 1:385	Company
Date	8/17/2018, 3:08:55 PM		File Name Section S1 Pseudostatic.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Clayey Sand/Gravel		130	Mohr-Coulomb	270	43	None		
Bedrock		140	Mohr-Coulomb	5000	0	None		

rocscience	Project: SLIDE - An Interactive Slope Stability Program		
	Analysis Description:		
	Drawn By:	Scale: 1:347	Company:
	Date: 8/17/2018, 3:08:55 PM		File Name: Section S1 Pseudostatic.slim

SLIDEINTERPRET 7.024



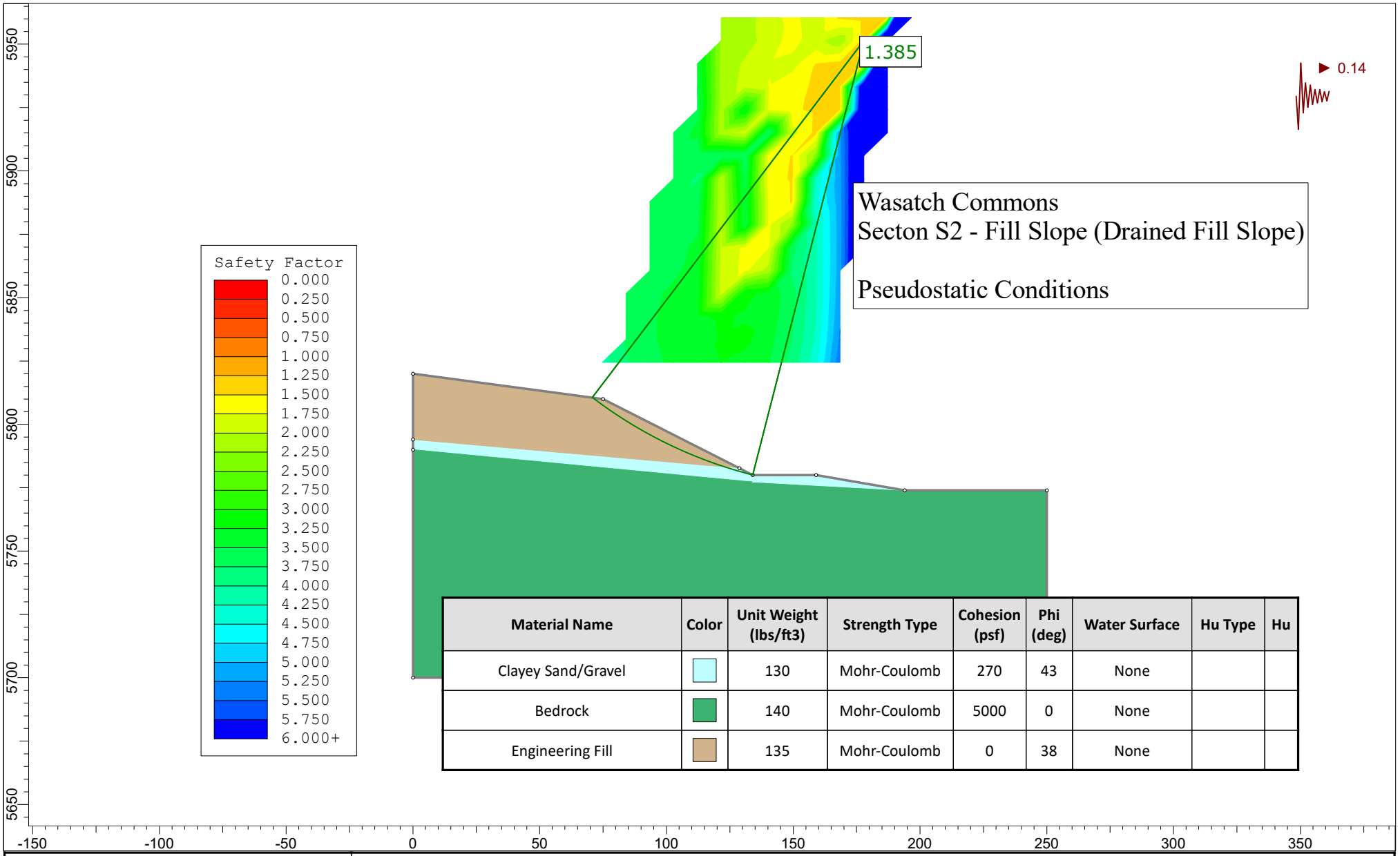
Wasatch Commons
Secton S2 - Fill Slope (Drained Fill Slope)

Static Conditions

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Clayey Sand/Gravel		130	Mohr-Coulomb	270	43	None	0
Bedrock		140	Mohr-Coulomb	5000	0	None	0
Engineering Fill		135	Mohr-Coulomb	0	38	None	0

SLIDEINTERPRET 7.024

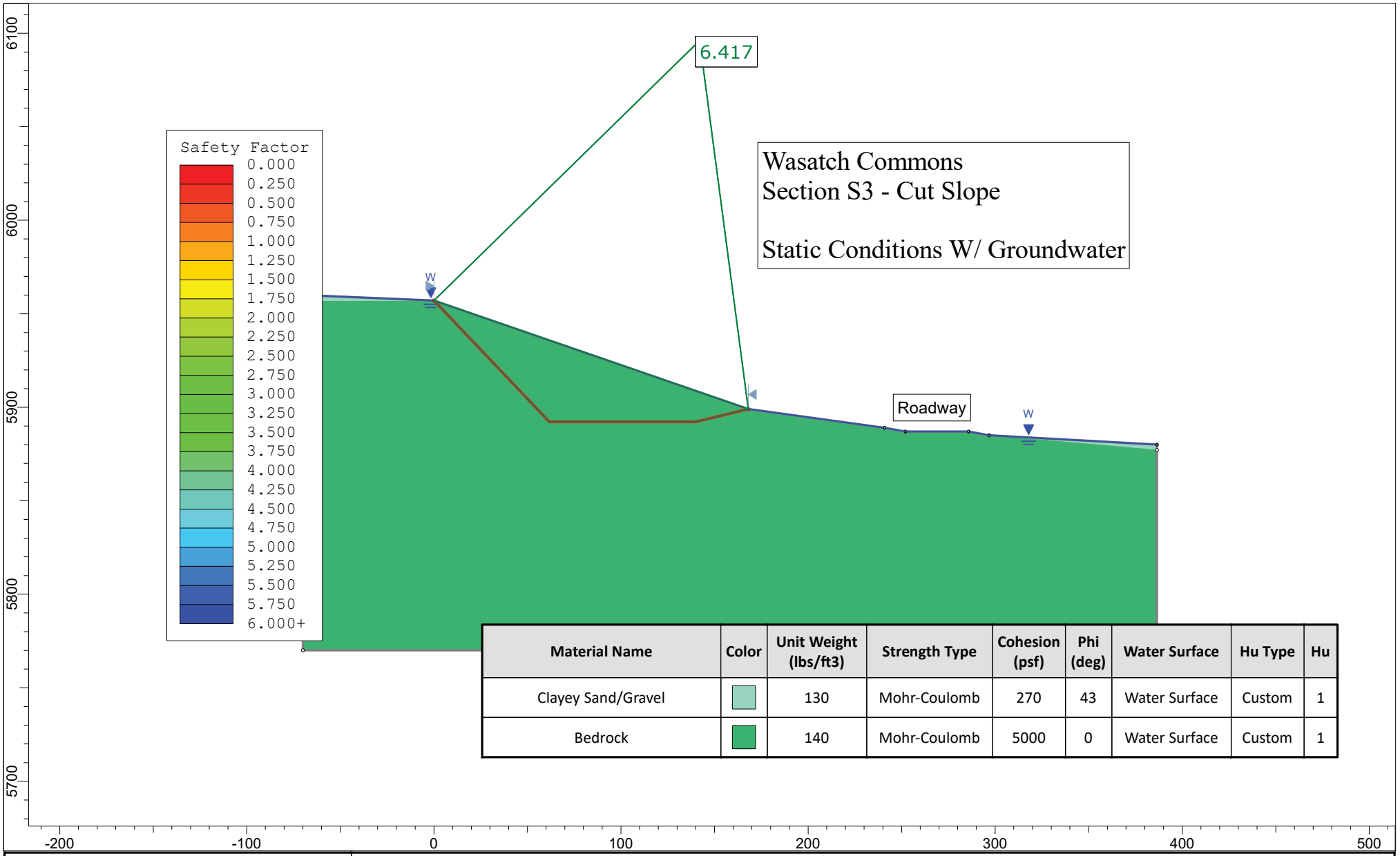
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Analysis Description			
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Date	8/29/2018, 3:13:40 PM		File Name Section S2 Static GW.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Clayey Sand/Gravel		130	Mohr-Coulomb	270	43	None		
Bedrock		140	Mohr-Coulomb	5000	0	None		
Engineering Fill		135	Mohr-Coulomb	0	38	None		

SLIDEINTERPRET 7.024

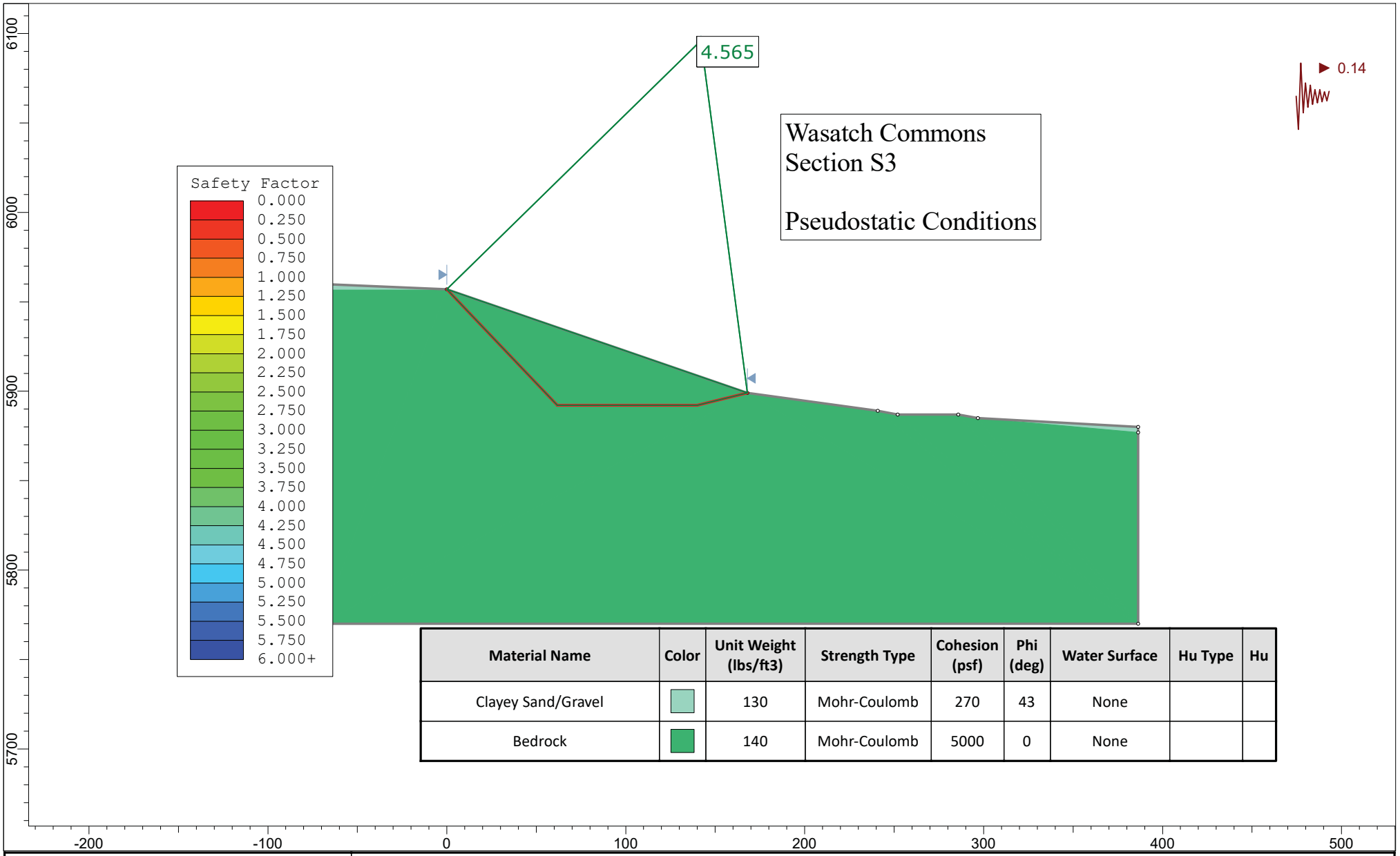
Project	SLIDE - An Interactive Slope Stability Program		
Analysis Description			
Drawn By		Scale 1:628	Company
Date	8/29/2018, 3:13:40 PM		File Name Section S2 Pseudostatic NG.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Clayey Sand/Gravel		130	Mohr-Coulomb	270	43	Water Surface	Custom	1
Bedrock		140	Mohr-Coulomb	5000	0	Water Surface	Custom	1

SLIDEINTERPRET 7.024

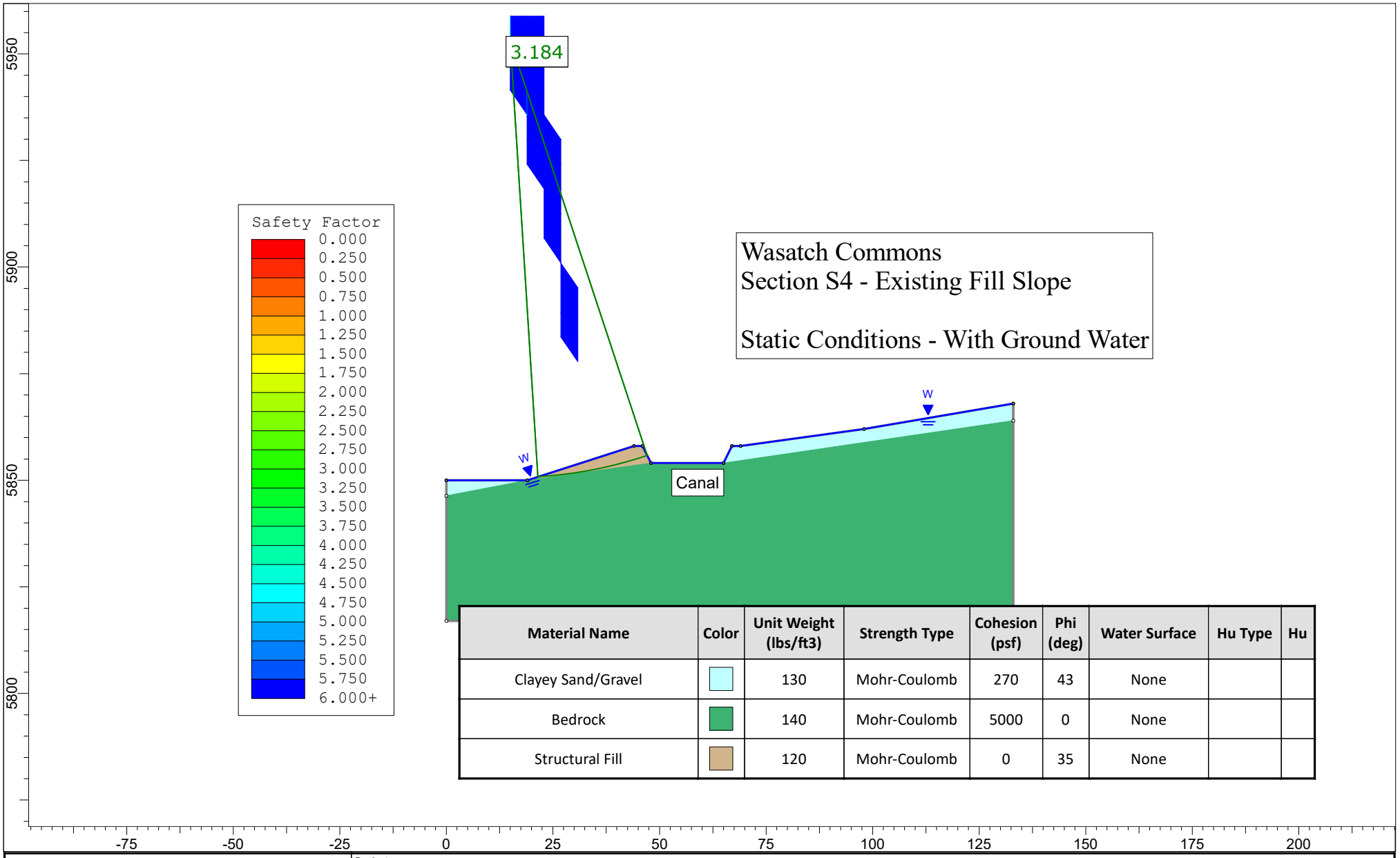
Project	SLIDE - An Interactive Slope Stability Program		
Analysis Description			
Drawn By		Scale 1:851	Company
Date	8/17/2018, 3:49:31 PM		File Name Section S3 Static GW2.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Clayey Sand/Gravel		130	Mohr-Coulomb	270	43	None		
Bedrock		140	Mohr-Coulomb	5000	0	None		

SLIDEINTERPRET 7.024

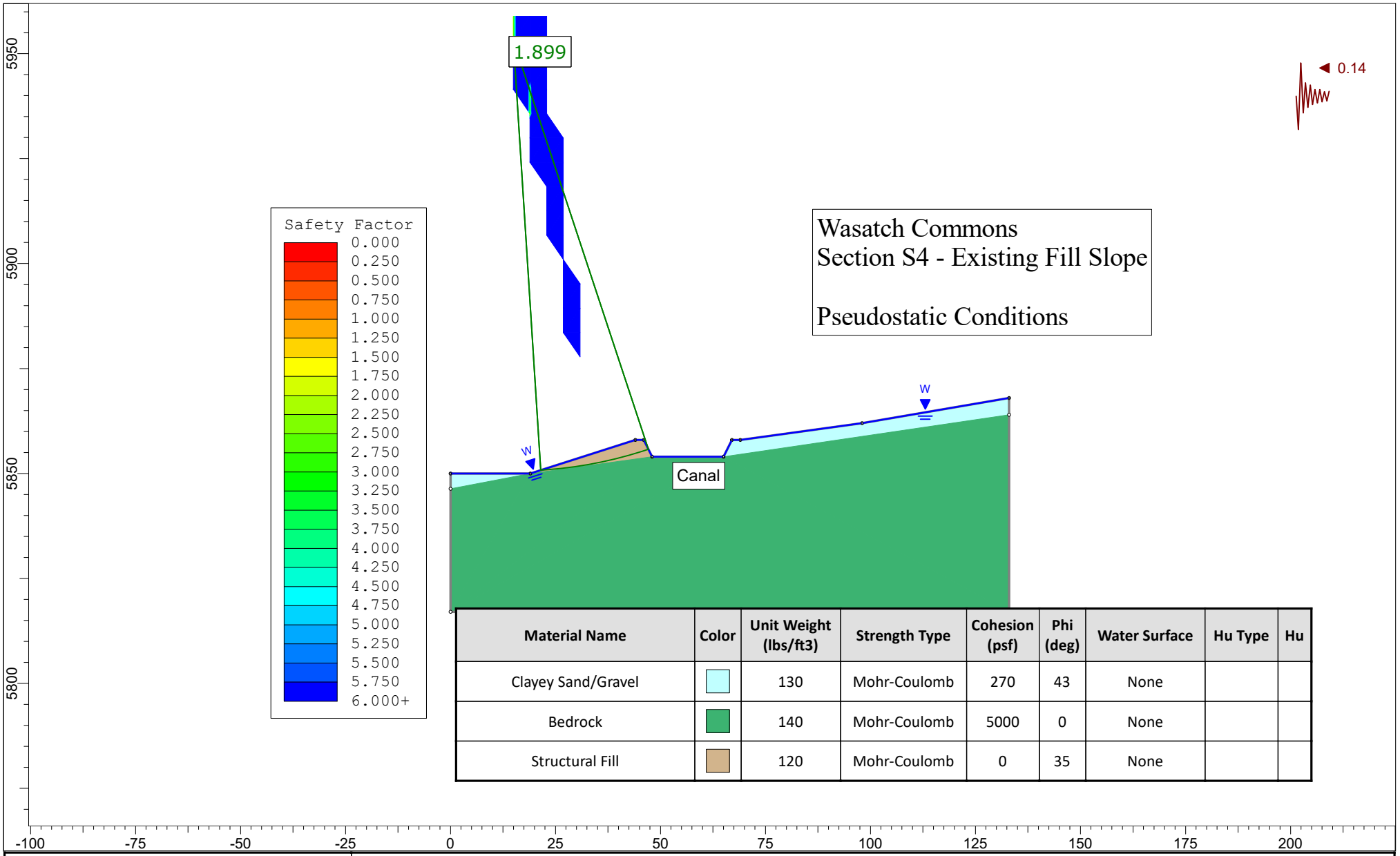
Project	SLIDE - An Interactive Slope Stability Program		
Analysis Description			
Drawn By		Scale 1:889	Company
Date	8/17/2018, 3:49:31 PM		File Name Section S3 Pseudostatic2.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Clayey Sand/Gravel		130	Mohr-Coulomb	270	43	None		
Bedrock		140	Mohr-Coulomb	5000	0	None		
Structural Fill		120	Mohr-Coulomb	0	35	None		

SLIDEINTERPRET 7.024

Project	SLIDE - An Interactive Slope Stability Program		
Analysis Description			
Drawn By		Scale 1:373	Company
Date	8/30/2018, 8:08:12 PM		File Name Section S4 Static GW.slim



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Clayey Sand/Gravel		130	Mohr-Coulomb	270	43	None		
Bedrock		140	Mohr-Coulomb	5000	0	None		
Structural Fill		120	Mohr-Coulomb	0	35	None		

SLIDEINTERPRET 7.024

Project	SLIDE - An Interactive Slope Stability Program		
Analysis Description			
Drawn By		Scale 1:379	Company
Date	8/30/2018, 8:08:12 PM		File Name Section S4 Pseudostatic.slim

NORTH VILLAGE SPECIAL SERVICE DISTRICT
PO BOX 519
HEBER CITY, UTAH 84032
(435) 657-3244 FAX (435) 657-9582

WATER, SEWER, AND SECONDARY WATER FEASIBILITY LETTER

April 9, 2024

Terry Diehl
By Email: terry@svgllc.net

Subject: Feasibility and Preliminary Improvements Review – Highlands Above Wasatch Canal

This Feasibility Letter is to allow your development within the North Village Special Service District (NVSSD) to proceed through the initial portions of the Heber City planning process. This letter is based on the current information you have provided to NVSSD.

This letter supersedes all previous feasibility, draft will serve, and final will serve letters. We have reviewed the preliminary submittal for the referenced project and provide the comments below.

This letter reflects a change in calculations removing the low use/native irrigable areas from water rights and secondary water impact fee calculations below. This is because the developer has described these areas as temporarily irrigated. Final calculations will be adjusted to add back in these low use/native areas if the following requirements are not met:

- These areas must be irrigated using above ground infrastructure only (i.e. no below ground sprinkler/drip systems).
- These areas must be irrigated through connections which will be permanent (e.g. the nearest building's meter, not a separate irrigation meter for the temporarily irrigated area).

It should be noted that Heber City conducts its own calculation of equivalent residential units (ERUs) for land use purposes. Nothing contained in this letter should be construed as an interpretation of Heber City land use ERUs.

A spreadsheet of supporting calculations has been attached.

Development Demand Calculation and Water Rights

Based on the concept submitted, development water demand was evaluated. The development's indoor water use will require 345.01 acre-feet of 100% consumptive municipal water rights. Water shares or rights provided for indoor use must be acceptable to the District and provide year-round supply. One water share in the area which meets this need is the Timpanogos Class D Share. It should be noted that Timpanogos Class D Shares are not 100% consumptive and, therefore, more than a nominal 345.01 acre-feet of Timpanogos Class D

shares would be required to meet the 100% consumptive requirement for the development's indoor use[1].

The development's outdoor water use will require 42.90 acre-ft of irrigation water rights, which will allow for up to a maximum of 23.41 irrigated acres. If the development desires to irrigate more than this, additional water will be required.

It is our understanding that this phase of development will include up to 17.22 acres which are to be irrigated for the first year only to establish a planting of native vegetation. The calculations supporting this letter have included neither a water rights requirement nor an impact fee assessment for this irrigable area due to its description as "temporarily irrigated area". To maintain the status of temporary irrigated area, the following requirements must be met:

- These areas must be irrigated using above ground infrastructure only (i.e. no below ground sprinkler/drip systems).
- These areas must be irrigated through connections which will be permanent (e.g. the nearest building's meter, not a separate irrigation meter for the temporarily irrigated area).
- These areas may only be irrigated for up to two irrigation seasons and then the temporary, above-ground systems must be decommissioned.

If these requirements are not met, the calculations underlying this letter will need to be adjusted to include a water rights requirement and impact fee assessment for this irrigated area.

Water rights used to satisfy both indoor and outdoor demands must meet the requirements for each type of use as outlined in District water dedication policy.

It should be noted that M&I type shares such as Timpanogos Class D shares (and other types of shares which carry higher than usual water delivery assessments) are subject to the District's equalization fee.

All water dedications to NVSSD require a change application to be approved by the State Engineer in accordance with the District Water Dedication Policy. It is recommended that the Developer investigate the water dedication policy requirements early to avoid unexpected delays in obtaining approvals.

Required water rights to satisfy these demands will depend on the nature of the water rights and location of use. Determination of required water rights is left for calculation by the North Village Water Board.

Preliminary Improvements Discussion

With the limited information available, we have prepared a preliminary review of the proposed development relative to the system master plans. The intent of this review is not to provide any

[1] NVSSD is currently working with the State Engineer's Office to set the conversion from Timpanogos Class D Shares to 100% Consumptive Water Rights. With that said, we estimate that the Developer would need 500.02 acre-feet of Timpanogos Class D shares to meet this development's 100% consumptive water requirement.

final direction regarding required improvements, but to give the developer a general idea of what items may need to be considered through the next phases of review.

Basis of Right to Infrastructure Capacity

1. Water System Capacity: Use of water system capacity is dependent on the type of use proposed for the development. Based on the preliminary concept, we have estimated that the proposed development will use the following amount of capacity in the water system (based on capacity units as defined in the District's master plan):

   Water Capacity Units = 307.6

   This will be the basis of calculation of water impact fees.

2. Sewer System Capacity: Use of sewer system capacity is dependent on the type of use proposed for the development. Based on the preliminary concept, we have estimated that the proposed development will use the following amount of capacity in the sewer system (based on capacity units as defined in the District's master plan):

   Sewer Capacity Units = 766.7

   This will be the basis of calculation of sewer impact fees.

3. Secondary Water System Capacity: Use of secondary water system capacity is dependent on the type of use proposed for the development. Based on the submitted concept, we have calculated that the proposed development will use the following amount of capacity in the secondary water system (based on units as defined in the District's master plan):

   Irrigable Acres = 23.4

   This will be the basis of calculation of secondary water impact fees.

Water System Preliminary Review

1. Source Improvements: Provided that District reservation water is used for this development's culinary system demands, no source improvements have been identified outside of payment of required impact fees.
2. Treatment Improvements: Provided that District reservation water is used for this development's culinary system demands, no treatment improvements have been identified outside of payment of required impact fees.
3. Storage Improvements: No system improvements have been identified outside of payment of required impact fees.
4. Delivery Improvements: The following should be noted:

a. The District has identified a system level project that would extend a high-pressure transmission line along the bench on the east side of the Timpanogos Canal to provide a second feed to the developments along HWY 40 (like Highlands Above Wasatch Canal). With this in mind, a 12-inch high-pressure main through the development (up Commons Blvd and along Foothill Blvd) must be included as part of the initial development infrastructure. Since this is a system level improvement, it will be eligible for a credit against the developer's impact fee liability.

b. The provided submittal did not provide a water system concept, which is acceptable at this stage of review. The developer should be aware as they lay out the water system that recent planning has optimized planned NVSSD pressure zones, which has changed from the previous master plan. The new planning sets pressure zones based on the canals as the pressure zone boundaries in an effort to minimize the number of PRVs and amount of piping the developers need to install.

c. This development requires two feeds. We expect these to be accomplished by connections at Commons Boulevard and College Way.

d. The developer is required to submit a water master plan and model to the District for review prior to receiving a draft will serve letter and preliminary plat approval.

e. Outside of the system level pipeline discussed above (built by the developer but eligible for impact fee credit), the developer will be fully responsible for construction of all other improvements relative to connecting to the system and delivering water through the development (project level improvements).

Sewer System Preliminary Review

1. Treatment Improvements: No system improvements have been identified outside of payment of required impact fees.
2. Conveyance Improvements: Several items should be noted:
    a. The developer will be required to construct all project level improvements relative to connecting to the system and collecting wastewater within the development.
    b. Also, the District is aware of another development (Red Ledges) that will need to convey sewer down through the lower portions of the Highlands Above Wasatch Canal development. To avoid future construction disruptions in Highlands Above Wasatch Canal, we recommend that Highlands Above Wasatch Canal work with Red Ledges to construct an upsized sewer trunkline now through the development and stub it out to the east side of the Highlands Above Wasatch Canal property for this purpose.

Secondary Water System Infrastructure Review

The secondary water system in NVSSD is largely not constructed. The District has adopted a capital facilities plan (CFP) to provide guidance to developments with respect to the planned secondary system. The CFP is available at the District office.

1. Source Improvements: The following should be noted.
    a. The planned source for the secondary water system is a new diversion from the Timpanogos Canal near Coyote Lane. The developer will have the option of waiting until this diversion is constructed or constructing it himself.
    b. If the new diversion is constructed by the developer, the District is willing to consider entering into a pioneering agreement which would provide to the developer reimbursement overtime out of impact fees collected from connections served by the system-level project.
2. Storage Improvements: The following should be noted.
    a. Secondary service to this development requires one secondary water tank to be constructed above Coyote Lane. The tank location and elevations should be coordinated with the District Engineer. The developer will have the option of waiting until this tank is constructed or constructing it himself.
    b. If the tank is constructed by the developer, the attitude of the District respecting reimbursement is the same as for the new diversion.
3. Delivery Improvements: The following should be noted.
    a. Secondary service to this development is dependent upon system level improvement based on the CFP: one pump station, transmission lines up to the tank, and a transmission line connecting the Development to the system. The developer has the option of waiting until these improvements are constructed or constructing them himself.
    b. If these system-level projects are constructed by the developer, the attitude of the District respecting reimbursement is the same as for the new diversion.
    c. The District is aware of another development which needs most of the system level improvements described above. This is Jordanelle Ridge Village 2 Pod 20 & 21. The developer may find advantage in partnering to construct these system level improvements.
    d. All other secondary system improvements are project level. The developer will be required to construct all project level improvements relative to connecting to the system and delivering water through the development.
        i. The existing secondary distribution, project level waterline, which parallels the Wasatch Canal, should be relocated into this Development's roadway. This relocated pipeline is the point of connection for secondary service to this Development for the areas below the Wasatch Canal.
    e. This development will be required to participate in the construction of some system level improvements via prepayment of impact fees for each plat until the proportionate share of capacity in those system level improvements is paid.

Miscellaneous Feasibility Matters

The items discussed in this letter will be better defined as the project proceeds. However, if sufficient water rights are not provided prior to seeking preliminary approval from the City Council, or at any point it appears that the water requirement exceeds available water due to changes to the plan of the development, this Feasibility Letter will be rescinded in writing.

After proceeding through Heber City planning process, but before preliminary plat approval with Heber City Planning Department, you will need to come back to the District for the following:

Begin negotiating a Development Agreement with the District which includes resolution of the following:

- Water Source for Development
- Water Treatment Requirements
- Water Transmission Infrastructure Requirements
- Water Storage Requirement
- Sewer Infrastructure and Treatment Requirements
- Secondary Water Source for Development
- Secondary Water Transmission Infrastructure Requirements
- Secondary Water Storage Requirement
- Process for dedicating any required water rights to NVSSD

After any outstanding fees are paid, a DRAFT Will Serve letter will then be issued by NVSSD. It should be noted that the Development Agreement is not required to receive a Draft Will Serve Letter (which letter is required to seek preliminary plat approval), but the process should be started by that time. An executed Development Agreement is required to receive an official Will Serve Letter (which letter is required to seek final plat approval).

Sincerely,

North Village Special Service District

Dave Fuller
Assistant General Manager

THIS LETTER IS **NOT A WILL SERVE LETTER**

NORTH VILLAGE SPECIAL SERVICE DISTRICT

Highlands Above Wasatch Canal		Indoor								Outdoor								Total		
Proposed Development	District Water Use Category	Base Indoor Unit	Quantity of Base Units	Average Water Demand (gpd)	Peak Day Water Demand (gpm)	Peak Hour Sewer Loading (gpm)	Water Right Req. (AF)[1,3]	Water System Cap. Req. (WCU)[4]	Sewer System Cap. Req. (SCU)[5]	Total Gross Area (acres)	Secondary System ?	Secondary System? (Default)	Total Irr. Area (acres)	Peak Water Demand (gpm)	Water Right Req. (AF)[2,3]	Water System Cap. Req. (WCU)[4]	Secondary Water System Cap. Req. (IA)	Water System Cap. Req. (WCU)[4]	Sewer System Cap. Req. (SCU)[5]	Secondary Water System Cap. Req. (IA)
Single Family	Single Family	Dwelling	205	66,625	102.82	115.67	92.25	82.3	205.0			Y		0.00	0.00	0.0	0.0	82.3	205.0	0.0
Townhomes	Townhomes	Dwelling	367	119,275	184.07	207.07	165.15	147.3	367.0			Y		0.00	0.00	0.0	0.0	147.3	367.0	0.0
Stacked Flats	Apartments	Dwelling	235	61,100	94.29	106.08	84.60	75.4	188.0			Y		0.00	0.00	0.0	0.0	75.4	188.0	0.0
Church	Church	Each	1	855	1.32	1.48	1.18	1.1	2.6			Y		0.00	0.00	0.0	0.0	1.1	2.6	0.0
Clubhouse	Clubhouse with Pool	KSF	10	1,320	2.04	2.29	1.83	1.6	4.1			Y		0.00	0.00	0.0	0.0	1.6	4.1	0.0
Standard Dedication Irrigation	Irrigated Land			0	0.00	0.00	0.00	0.0	0.0			Y	3.89	19.41	11.67	0.0	3.9	0.0	0.0	
Water Wise Dedication Irrigation	Irrigated Land			0	0.00	0.00	0.00	0.0	0.0			Y	19.52	51.95	31.23	0.0	19.5	0.0	0.0	
Temporary Irrigation				0	0.00	0.00	0.00	0.0	0.0			Y	17.22	0.00	0.00	0.0	0.0	0.0	0.0	0.0
Totals				**249,175**	**384.53**	**432.60**	**345.01**	**307.6**	**766.7**	0.0			**40.6**	**71.36**	**42.90**	0.0	**23.4**	**307.6**	**766.7**	**23.4**

Notes:

1. Indoor required 100% consumptive municipal water rights are based on 0.45 AF for typical indoor water use of a single family residence.
2. Outdoor required irrigation water rights are based on 3.00 AF per Irrigated Acre.
3. Official determination of required water rights is left to the jurisdiction of the Water Board.
4. A water system capacity unit is equivalent to 1.25 gpm of peak day system water use.
5. A sewer system capacity unit is equivalent to 0.564 gpm of peak hour indoor water use.

Definitions:

AF = Acre-foot. This is the measure of required water rights.
WCU = Water Capacity Unit. This is the measure of peak demand on the water system relative to a typical single family residence and principally affects impact fees.
SCU = Sewer Capacity Unit. This is the measure of peak loading on the sewer system relative to a typical single family residence and principally affects impact fees.
IA = Irrigable Acres. This is a measure of secondary system demand and principally affects Secondary Water System impact fees.
KSF = 1,000 square feet (SF) of floor space.



HIGHLANDS RESIDENTIAL DEVELOPMENT			
AREA DESIGNATION	AREA (SF)	AREA (AC)	WATER RIGHT REQUIREMENT
STANDARD DEDICATION	169,776.32 SF	3.89 AC	3.0 AC.FT/AC
WATER WISE DEDICATION	824,787.78 SF	18.93 AC	1.6 AC.FT/AC
TEMPORARY OR NON USE DEDICATION	750,499.50 SF	17.22 AC	0.0 AC.FT/AC
TOTAL	1,754,063.6SF	40.04 AC	-

OFF SITE COMMONS BOULEVARD			
AREA DESIGNATION	AREA (SF)	AREA (AC)	WATER RIGHT REQUIREMENT
STANDARD DEDICATION	0 SF	0 SF	0.0 AC.FT/AC
WATER WISE DEDICATION	26,112 SF	0.59 AC	0.0 AC.FT/AC
TEMPORARY OR NON USE DEDICATION	0 SF	0 AC	0.0 AC.FT/AC
TOTAL	26,112 SF	0.59 AC	-

LAND USE TABLE	
SINGLE FAMILY TYPE	**NUMBER OF UNITS**
ALTA LOTS	112
COTTAGE LOTS	93
SUB TOTAL SINGLE FAMILY UNITS	**205**
TOWNHOMES TYPE	**NUMBER OF UNITS**
OLIVER	89
MILLBROOK	143
DALTON	135
SUB TOTAL TOWNHOMES UNITS	**367**
MULTI FAMILY TYPE	**NUMBER OF UNITS**
STACKED FLTAS	235
SUB TOTAL MULTI FAMILY	**235**
TOTAL UNITS	**807**

SINGLE FAMILY LOTS		
TYPE	LOT SIZE (SF)	IRRIGABLE AREA (SF)
ALTA LOTS	3000-4000 SF	1,000 SF
COTTAGE LOTS	4000-5000 SF	1,000 SF

200 0 200 400 600

Scale 1" = 200'

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FILENAME: O:\Highlands\Documents\Water Rights\Overall Irrigation Demands\2024-03-20 FROM DR HORTON\Highlands Landscape type-With Legends.dwg TAB: EX-01 PLOT DATE AND TIME: 3/26/2024 9:13 AM

HIGHLANDS
HEBER CITY, UT
PRELIMINARY IRRIGATION DEMAND

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: HIGHLANDS LANDSCAPE TYPE-WITH LEGENDS.DWG
JOB No. 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 in x 34in. USE DESIGN AND NOTES AS PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 03/26/2024

REVISIONS

SHEET
EX-01

HALES ENGINEERING
innovative transportation solutions

Heber Highlands

Traffic Impact Study



Heber, Utah

June 25, 2024

UT23-2532

LICENSED PROFESSIONAL ENGINEER
NO. 12890754
Jordi J. Berrett
06/25/2024
STATE OF UTAH

1220 North 500 West, Ste. 202 Lehi, UT 84043 p 801.766.4343
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EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed Heber Highlands development located in Heber, Utah. The development is located on the east side of U.S.40 and covers the area around the Commons Boulevard / U.S. 40 intersection.

The purpose of this traffic impact study is to analyze traffic operations at key intersections for existing (2023), future (2028), and future (2040) conditions with and without the proposed project and to recommend mitigation measures as needed. The evening peak hour level of service (LOS) results are shown in Table ES-1. Recommended storage lengths are shown in Table ES-2. An exhibit of the proposed mitigated roadway network is shown in Figure ES-1. A site plan of the project is provided in Appendix A.

Table ES-1: Evening Peak Hour Level of Service Results

	Intersection	Level of Service								
		Existing (2023)		Future (2028)				Future (2040)		
		BG	+P	BG	BG MIT	PP	+P MIT	BG	+P	+P MIT
1	Coyote Lane / U.S. 40	B	B	B	B	C	B	B	B	B
2	Commons Boulevard / U.S. 40	f	B	f	B	D	C	C	D	C
3	College Way / U.S. 40	f	f	f	f	f	f	f	f	f
4	Creekside at Highlands / Commons Boulevard	-	-	-	-	A	A	-	A	A
5	Festival Street / Commons Boulevard	-	A	-	-	c	c	-	f	b
6	MF Access / Commons Boulevard	-	a	-	-	a	a	-	a	a
7	Collector 1 / Commons Boulevard	-	a	-	-	a	a	-	a	b
8	Road 6 / Commons Boulevard	-	a	-	-	a	a	-	a	a
9	Collector 2 / Commons Boulevard	-	a	-	-	a	a	-	a	a
10	Drive 20 & Road 1 / Commons Boulevard	-	a	-	-	a	a	-	b	b
11	Road 35 / Commons Boulevard	-	-	-	-	a	a	-	a	a
12	Coyote View Drive / Commons Boulevard	-	-	-	-	a	a	-	a	a
13	Wasatch Commons / Commons Boulevard	-	a	-	-	b	a	-	c	c

1. Intersection LOS values represent the overall intersection average for roundabout, signalized, and all-way stop-controlled (AWSC) intersections (uppercase letter) and the worst movement for all other unsignalized intersections (lowercase letter)
2. BG = Background (without project traffic), +P = Plus Project (with project traffic), MIT = Mitigated Scenario

Source: Hales Engineering, June 2024

Table ES-2: Recommended Storage Length

	Intersection	Recommended Storage Lengths (feet)															
		Northbound				Southbound				Eastbound				Westbound			
		LT		RT		LT		RT		LT		RT		LT		RT	
		E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
1	Coyote Lane / U.S. 40	-	-	450	-	100	200	-	-	-	-	-	-	65	375	-	-
2	Commons Boulevard / U.S. 40	-	-	300	375	80	300	-	-	-	-	-	-	-	250	-	175

1. Storage lengths are based on 2040 95th percentile queue lengths and do not include required deceleration / taper distances
2. E = Existing storage length (approximate), if applicable; P = proposed storage length for new turn lanes or changes to existing turn lanes, if applicable

Source: Hales Engineering, June 2024

SUMMARY OF KEY FINDINGS & RECOMMENDATIONS

Project Conditions

- The development will consist of multiple land uses, including single-family homes, condo and townhome units, multi-family apartment units, retail space, restaurant space, storage facilities, a hotel, and a gym.
- The project is anticipated to generate approximately 12,902 new weekday daily trips, including 839 new trips in the morning peak hour, and 1,128 new trips in the evening peak hour.
- Based on UDOT R930-6 requirements and the existing SB LT volumes, Hales Engineering recommends a SB LT deceleration lane be striped in the existing two-way left-turn lane on U.S. 40 at the College Way / U.S. 40 intersection.

2023	Background	Plus Project
Assumptions	• Projected trips from several North Village Properties added to 2023 background volumes based on timelines given by Heber City staff	• Highlands Early Phasing completed (DR Horton phases 1 and 2, no town center land uses) • **Commons Blvd / U.S. 40**: Traffic signal warranted with construction of approximately 225 dwelling units.

Findings	• Poor LOS:
	  ○ College Way / U.S. 40
	  ○ Commons Boulevard / U.S. 40
		• Poor LOS at College Way / U.S. 40

Mitigations	• None, signal warrants are not met. Install signal at Commons Blvd when warrants are met per the UDOT corridor agreement.	• Install traffic signal at the Commons Blvd / U.S. 40 intersection before completion of phase 1 of the residential units • None, it is anticipated that WBLT traffic at College Way / U.S. 40 will reroute or utilize the two-way left-turn lane to create a two-stage gap

2028	Background	Plus Project
Assumptions	• Projected trips from several North Village Properties added to 2028 background volumes based on timelines given by Heber City staff	• Highlands additional phasing completed (DR Horton full-build and partial build of town center land uses) • **Creekside at Highlands / Commons Blvd**: roundabout at Festival Street / Commons Boulevard moved to the northeast based on preliminary sensitivity analysis showing the need to relocate the roundabout by 2026
Findings	• Poor LOS: ○ College Way / U.S. 40 ○ Commons Boulevard / U.S. 40	• Poor LOS at: ○ College Way / U.S. 40
Mitigations	• **Commons Blvd / U.S. 40**: Install traffic signal	• **Commons Blvd / U.S. 40**: Install WB dual left-turn lanes.
2040	**Background**	**Plus Project**
Assumptions	• Projected trips from the North Village Properties added to 2040 background volumes based on timelines given by Heber City staff • U.S. 40 widened to 7-lane cross section to accommodate future volumes • Cut-through trips from neighboring projects added to Commons Boulevard	• Highlands project fully built out • It is estimated that up to approximately 28% of total traffic on Commons Boulevard will be cut-thru from adjacent developments
Findings	• Poor LOS: ○ College Way / U.S. 40 ○ Commons Boulevard / U.S. 40	• Poor LOS: ○ College Way / U.S. 40 ○ Commons Boulevard / U.S. 40 ○ Creekside at Highlands / Commons Blvd ○ Festival Street / Commons Boulevard • Significant WB queue at Commons Blvd / U.S. 40
Mitigations	• None	• **Commons Blvd / U.S. 40:** install SB dual left-turn lanes and adjust signal phasing • **Creekside at Highlands / Commons Blvd:** add an EB RT bypass lane

Heber Highlands TIS
Mitigated Roadway Network

Evening Peak Hour
Figure ES-1



Hales Engineering
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I. INTRODUCTION

A. Purpose

This study addresses the traffic impacts associated with the proposed Heber Highlands development located in Heber, Utah. The proposed project is located on the east side of U.S. 40 and covers the area around the Commons Boulevard / U.S. 40 intersection. Figure 1 shows a vicinity map of the proposed development.

The purpose of this traffic impact study is to analyze traffic operations at key intersections for existing (2023), future (2028), and future (2040) conditions with and without the proposed project and to recommend mitigation measures as needed.

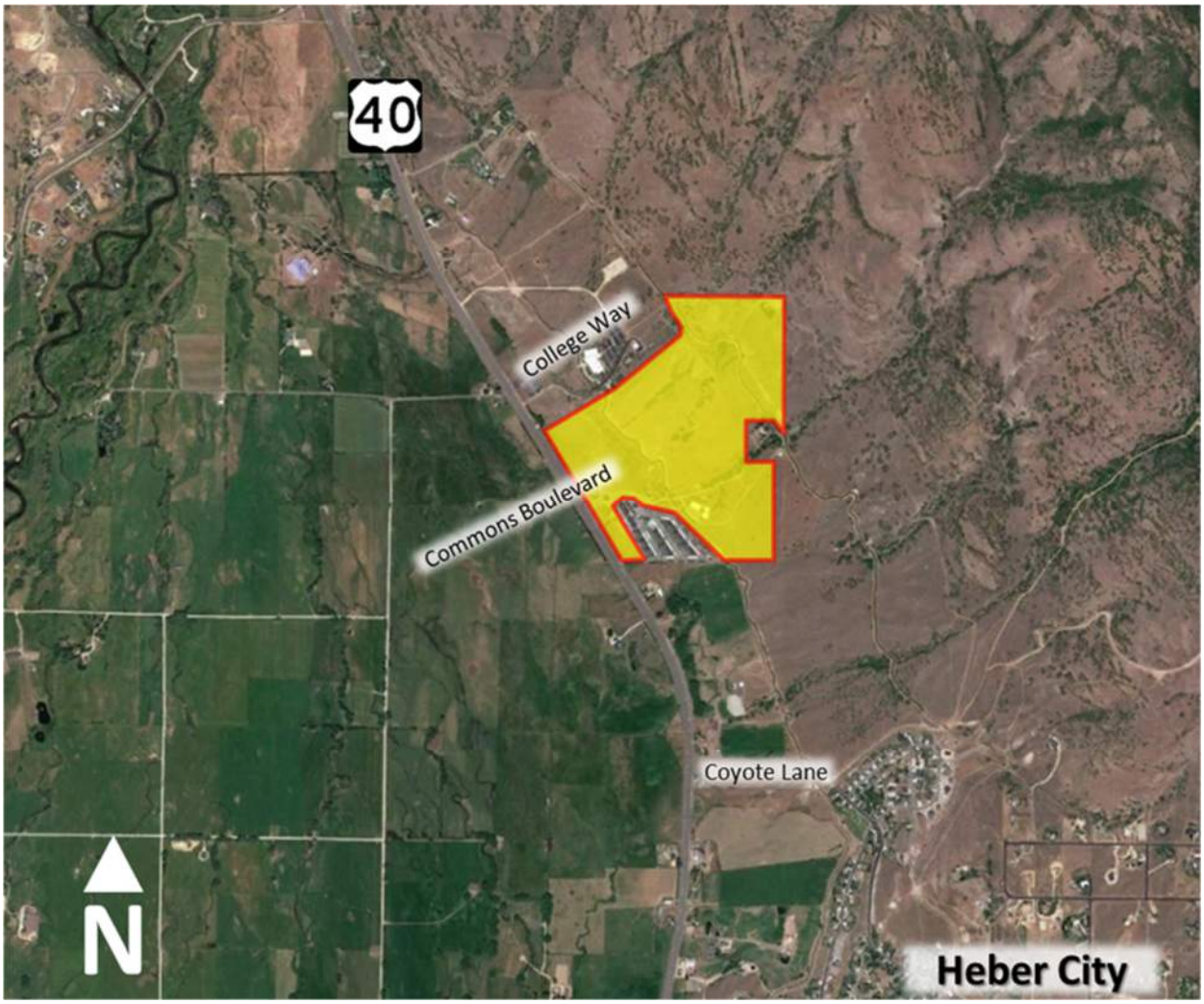


Figure 1: Vicinity map showing the project location in Heber, Utah

B. Scope

The study area was defined based on conversations with the development team. This study was scoped to evaluate the traffic operational performance impacts of the project on the following intersections:

- College Way / U.S. 40
- Commons Boulevard / U.S. 40
- Coyote Lane / U.S. 40
- Festival Street / Commons Boulevard
- Creekside at Highlands / Commons Boulevard
- Wasatch Commons Access / Commons Boulevard
- Multifamily Housing Access / Commons Boulevard
- Collector 1 / Commons Boulevard
- Road 6 / Commons Boulevard
- Collector 2 / Commons Boulevard
- Road 1 & Drive 20 / Commons Boulevard
- Road 35 / Commons Boulevard
- Coyote View Drive / Commons Boulevard

C. Analysis Methodology

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Table 1 provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM), 7th Edition, 2022 methodology was used in this study to remain consistent with "state-of-the-practice" professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized, roundabout, and all-way stop-controlled (AWSC) intersections, the LOS is provided for the overall intersection (weighted average of all approach delays). For all other unsignalized intersections, LOS is reported based on the worst movement.

Using Synchro/SimTraffic software, which follow the HCM methodology, the peak hour LOS was computed for each study intersection. Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. The detailed LOS reports are provided in Appendix C. Hales Engineering also calculated the 95th percentile queue lengths for the study intersections using SimTraffic. The detailed queue length reports are provided in Appendix D.

Many of the figures in this report are printouts of the Synchro model. These figures are not meant to be a design exhibit for exact lane striping and design, due to the limitations of the Synchro software. Instead, the purpose of these figures is to show assumed peak hour turning movement volumes and the conceptual travel lane configuration of the study roadway network.

D. Level of Service Standards

For the purposes of this study, a minimum acceptable intersection performance for each of the study intersections was set at LOS D. If levels of service E or F conditions exist, an explanation and/or mitigation measures will be presented. A LOS D threshold is consistent with "state-of-the-practice" traffic engineering principles for urbanized areas.

Table 1: Level of Service Description

LOS		Description of Traffic Conditions	Average Delay (seconds/vehicle)	
			Signalized Intersections	Unsignalized Intersections
A		Free Flow / Insignificant Delay	≤ 10	≤ 10
B		Stable Operations / Minimum Delays	> 10 to 20	> 10 to 15
C		Stable Operations / Acceptable Delays	> 20 to 35	> 15 to 25
D		Approaching Unstable Flows / Tolerable Delays	> 35 to 55	> 25 to 35
E		Unstable Operations / Significant Delays	> 55 to 80	> 35 to 50
F		Forced Flows / Unpredictable Flows / Excessive Delays	> 80	> 50

Source: Hales Engineering Descriptions, based on the *Highway Capacity Manual* (HCM), 7th Edition, 2022 Methodology (Transportation Research Board)

II. EXISTING (2023) BACKGROUND CONDITIONS

A. Purpose

The purpose of the background analysis is to study the intersections and roadways during the peak travel periods of the day with background traffic and geometric conditions. Through this analysis, background traffic operational deficiencies can be identified, and potential mitigation measures recommended. This analysis provides a baseline condition that may be compared to the build conditions to identify the impacts of the development.

B. Roadway System

The primary roadways that will provide access to the project site are described below:

U.S. 40 – is a state-maintained roadway (classified by UDOT access management standards as a "Regional Priority-urban Importance" facility, or access category 5 roadway). U.S. 40 has two travel lanes in each direction with left-turn lanes at intersections. North- and southbound traffic are separated by a two way left-turn lane (TWLTL), allowing mid-block left-turn movements. As identified and controlled by UDOT, a "Regional Priority-urban Importance" access classification identifies minimum signalized intersection spacing of one-half mile (2,640 feet), minimum unsignalized street spacing of 660 feet, and minimum driveway spacing of 350 feet. The posted speed limit on U.S. 40 is 55 mph.

Commons Boulevard – is a city-maintained roadway which is classified by the North Village Master Plan (September 2022) as a "Major collector." The roadway currently has one travel lane in each direction with no median.

C. Traffic Volumes

Weekday morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak period traffic counts were performed at the following intersections:

- Coyote Lane / U.S. 40
- Commons Boulevard / U.S. 40
- College Way / U.S. 40

The counts were performed at the Commons Boulevard / U.S. 40 and the College Way / U.S. 40 intersections on Thursday, May 25, 2023. The counts at the Coyote Lane / U.S. 40 intersection were performed on Tuesday June 28, 2022. The volumes at the Coyote Lane / U.S. 40 intersection were grown to a 2023 level in the existing (2023) background scenario. The morning peak hour was determined to be between 8:00 and 9:00 a.m., and the evening peak hour was determined to be between 5:00 and 6:00 p.m. The evening peak hour volumes were approximately 70% higher than the morning peak hour volumes. Therefore, the evening peak hour volumes were used in the analysis to represent the worst-case conditions. Detailed count data are included in Appendix B.

Hales Engineering made seasonal adjustments to the observed traffic volumes. Monthly traffic volume data were obtained from a nearby UDOT automatic traffic recorder (ATR) on U.S. 40 (ATR #509). In recent years, traffic volumes in May have been equal to approximately 98% of average traffic volumes. The observed traffic volumes, collected in May 2023, were adjusted accordingly to determine average turning movement counts at the study intersections.

Anticipated traffic volumes from the North Village Properties, Jordanelle Ridge Village 2, Ivory Coyote Ridge, and Springs at Coyote Ridge developments were accounted for and added to the 2023, 2028, and 2040 background traffic volumes based on timelines given by Heber City. Figure 2 shows the existing evening peak hour volumes as well as intersection geometry at the study intersections.

D. Level of Service Analysis

Hales Engineering determined that both the College Way / U.S. 40 and Commons Boulevard / U.S. 40 intersections are anticipated to operate at poor levels of service during the evening peak hour in existing (2023) background conditions with background project traffic included, as shown in Table 2. The Coyote Lane / U.S. 40 is planned to be signalized with the completion of other projects and is anticipated to operate at a good level of service in these conditions.

E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. No significant queueing was observed during the evening peak hour.

F. Mitigation Measures

No mitigation measures are recommended. Volumes at both the College Way / U.S. 40 and Commons Boulevard / U.S. 40 intersections do not meet signal warrants based on existing (2023) background traffic volumes. However, the U.S. 40 corridor agreement identifies the Commons Boulevard / U.S. 40 intersection as a future signalized intersection. It is recommended that a signal be installed at this intersection when warrants are met. The College Way / U.S. 40 intersection is not listed as a location for a future signal. It is anticipated that vehicles at this intersection will reroute or utilize the center TWLTL to create a two-stage gap for left-turn movements to avoid delays during the evening peak hour.

Table 2: Existing (2023) Background Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	12.6	B
Commons Boulevard / U.S. 40	WB Stop	WBL	>50	f
College Way / U.S. 40	NE/SW Stop	SWL	>50	f

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023


College Way
3000 North
US-40
Commons Boulevard
US-40
Coyote Lane
20
1917
6
3
9
11
6
1297
1
0
3
12
18
21
1908
36
1302
1824
102
66
164
1272
182

III. PROJECT CONDITIONS

A. Purpose

The project conditions discussion explains the type and intensity of development. This provides the basis for trip generation, distribution, and assignment of project trips to the surrounding study intersections defined in Chapter I.

B. Project Description

The proposed Heber Highlands development is located on the east side of U.S. 40 and covers the area around the Commons Boulevard / U.S. 40 intersection. The development will consist of single-family homes, condos, townhomes, multi-family units, commercial/retail space, storage space, and a hotel. A concept plan for the proposed development is provided in Appendix A. The proposed land use for the development has been identified in Table 3. Due to its size, it was assumed that the development will be completed over the course of several years in phases. Partial build was assumed for the existing (2023) plus project analysis, additional units were added for the future (2028) plus project analysis, and full build was assumed for the existing (2040) plus project analysis. The buildout phasing was assumed based on conversations with the development team.

Table 3: Project Land Uses

Land Use	2023 Intensity	2028 Intensity	2040 Intensity
Single-family detached housing	94 Units	213 Units	213 Units
Single-family attached housing	460 Units	588 Units	588 Units
Multifamily Housing (Low-Rise)		276 Units	276 Units
Hotel		135 Rooms	135 Rooms
Commercial / Retail		55 KSF	71 KSF
Gym			15 KSF
Restaurant			10 KSF
Storage Units			100 KSF

C. Trip Generation

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 11th Edition, 2021. Full-build Trip generation for the proposed project is included in Table 5. Reductions in site-generated trips were made due to mixed-use internal capture as well as pass-by trips on U.S. 40. Details on the ITE

NCHRP 684 Internal Capture Estimation tool used for this development can be found in Appendix E of this report.

The total trip generation for the development is as follows:

- Daily Trips: 12,902 (+1,016 pass-by)
- Morning Peak Hour Trips: 839 (+33 pass-by)
- Evening Peak Hour Trips: 1,128 (+116 pass-by)
- Trip Distribution and Assignment

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provide helpful guidance to establishing these distribution percentages, especially near the site. The resulting distribution of project generated trips during the evening peak hour is shown in Table 4.

Table 4: Trip Distribution

Year	Direction	% To/From Project
2023, 2028	North	40%
	South	60%
2040	North	35%
	South	55%
	East	10%

Additionally, pass-by trips were assumed to be split along S.R. 32. During the evening park hour, pass-by trips were split 60% northbound / 40% southbound based on existing traffic volumes on U.S. 40. These trip distribution assumptions were used to assign the evening peak hour trip generation at the study intersections to create trip assignment for the proposed development. Trip assignment for the development is shown in Figure 3.

Table 5: Trip Generation

Trip Generation Heber Highlands TIS													
Lot Type	Land Use[1]	# of Units	Unit Type	Trip Generation					Reductions		New Trips		
				Total	% In	% Out	In	Out	Internal Capture	Pass-by	In	Out	Total
Weekday Daily													
Estate	Single-Family Detached Housing (210)	44	DU	476	50%	50%	238	238	8%	0%	219	219	438
Alta	Single-Family Detached Housing (210)	101	DU	1,020	50%	50%	510	510	8%	0%	469	469	938
Cottage	Single-Family Detached Housing (210)	68	DU	708	50%	50%	354	354	8%	0%	325	326	651
Stacked Flats	Single-Family Attached Housing (215)	235	DU	1,742	50%	50%	871	871	8%	0%	802	801	1,603
TH - Oliver	Single-Family Attached Housing (215)	89	DU	628	50%	50%	314	314	8%	0%	289	289	578
TH - Millbrook	Single-Family Attached Housing (215)	106	DU	758	50%	50%	379	379	8%	0%	348	349	697
TH - Dalton	Single-Family Attached Housing (215)	158	DU	1,154	50%	50%	577	577	8%	0%	531	531	1,062
MF 88-Plex	Multifamily Housing (Low-Rise) (220)	176	DU	1,204	50%	50%	602	602	8%	0%	554	554	1,108
C-A	Strip Retail Plaza, <40k (822)	28	KSF	1,526	50%	50%	763	763	8%	15%	596	597	1,193
C-A	Multifamily Housing (Low-Rise) (220)	40	DU	332	50%	50%	166	166	8%	15%	130	130	260
C-B	Strip Retail Plaza, <40k (822)	27	KSF	1,472	50%	50%	736	736	8%	15%	575	576	1,151
C-B	Multifamily Housing (Low-Rise) (220)	60	DU	460	50%	50%	230	230	8%	0%	211	212	423
C-C	Strip Retail Plaza, <40k (822)	16	KSF	872	50%	50%	436	436	8%	15%	341	341	682
C-D	Fast Casual Restaurant (930)	5	KSF	486	50%	50%	243	243	8%	40%	134	134	268
C-E	Fast Casual Restaurant (930)	5	KSF	486	50%	50%	243	243	8%	40%	134	134	268
C-F	Hotel (310)	135	Rooms	1,080	50%	50%	540	540	8%	0%	497	497	994
C-G	Health/Fitness Club (492)	15	KSF	494	50%	50%	247	247	8%	0%	227	227	454
C-H	Mini-Warehouse (151)	100	KSF	146	50%	50%	73	73	8%	0%	67	67	134
TOTAL				**15,044**			**7,522**	**7,522**			**6,449**	**6,453**	**12,902**
AM Peak Hour													
Estate	Single-Family Detached Housing (210)	44	DU	36	26%	74%	9	27	2%	0%	9	26	35
Alta	Single-Family Detached Housing (210)	101	DU	76	26%	74%	20	56	2%	0%	19	55	74
Cottage	Single-Family Detached Housing (210)	68	DU	54	26%	74%	14	40	2%	0%	14	39	53
Stacked Flats	Single-Family Attached Housing (215)	235	DU	118	31%	69%	37	81	2%	0%	37	79	116
TH - Oliver	Single-Family Attached Housing (215)	89	DU	42	31%	69%	13	29	2%	0%	13	28	41
TH - Millbrook	Single-Family Attached Housing (215)	106	DU	50	31%	69%	16	34	2%	0%	16	33	49
TH - Dalton	Single-Family Attached Housing (215)	158	DU	78	31%	69%	24	54	2%	0%	23	53	76
MF 88-Plex	Multifamily Housing (Low-Rise) (220)	176	DU	78	24%	76%	19	59	2%	0%	18	58	76
C-A	Strip Retail Plaza, <40k (822)	28	KSF	68	60%	40%	41	27	2%	15%	35	22	57
C-A	Multifamily Housing (Low-Rise) (220)	40	DU	36	24%	76%	9	27	2%	0%	9	26	35
C-B	Strip Retail Plaza, <40k (822)	27	KSF	64	60%	40%	38	26	2%	15%	31	22	53
C-B	Multifamily Housing (Low-Rise) (220)	60	DU	42	24%	76%	10	32	2%	0%	10	31	41
C-C	Strip Retail Plaza, <40k (822)	16	KSF	38	60%	40%	23	15	2%	15%	20	12	32
C-D	Fast Casual Restaurant (930)	5	KSF	8	50%	50%	4	4	2%	40%	3	2	5
C-E	Fast Casual Restaurant (930)	5	KSF	8	50%	50%	4	4	2%	40%	3	2	5
C-F	Hotel (310)	135	Rooms	62	56%	44%	35	27	2%	0%	35	26	61
C-G	Health/Fitness Club (492)	15	KSF	20	51%	49%	10	10	2%	0%	10	10	20
C-H	Mini-Warehouse (151)	100	KSF	10	59%	41%	6	4	2%	0%	6	4	10
TOTAL				**888**			**332**	**556**			**311**	**528**	**839**
PM Peak Hour													
Estate	Single-Family Detached Housing (210)	44	DU	46	63%	37%	29	17	15%	0%	25	14	39
Alta	Single-Family Detached Housing (210)	101	DU	102	63%	37%	64	38	15%	0%	55	32	87
Cottage	Single-Family Detached Housing (210)	68	DU	70	63%	37%	44	26	15%	0%	38	22	60
Stacked Flats	Single-Family Attached Housing (215)	235	DU	138	57%	43%	79	59	15%	0%	67	50	117
TH - Oliver	Single-Family Attached Housing (215)	89	DU	50	57%	43%	29	21	15%	0%	25	18	43
TH - Millbrook	Single-Family Attached Housing (215)	106	DU	60	57%	43%	34	26	15%	0%	29	22	51
TH - Dalton	Single-Family Attached Housing (215)	158	DU	92	57%	43%	52	40	15%	0%	44	34	78
MF 88-Plex	Multifamily Housing (Low-Rise) (220)	176	DU	98	63%	37%	62	36	15%	0%	52	31	83
C-A	Strip Retail Plaza, <40k (822)	28	KSF	162	50%	50%	81	81	15%	15%	58	59	117
C-A	Multifamily Housing (Low-Rise) (220)	40	DU	38	63%	37%	24	14	15%	0%	20	12	32
C-B	Strip Retail Plaza, <40k (822)	27	KSF	158	50%	50%	79	79	15%	15%	57	57	114
C-B	Multifamily Housing (Low-Rise) (220)	60	DU	48	63%	37%	30	18	15%	0%	26	15	41
C-C	Strip Retail Plaza, <40k (822)	16	KSF	110	50%	50%	55	55	15%	15%	39	40	79
C-D	Fast Casual Restaurant (930)	5	KSF	64	55%	45%	35	29	15%	40%	18	15	33
C-E	Fast Casual Restaurant (930)	5	KSF	64	55%	45%	35	29	15%	40%	18	15	33
C-F	Hotel (310)	135	Rooms	74	51%	49%	38	36	15%	0%	32	31	63
C-G	Health/Fitness Club (492)	15	KSF	52	57%	43%	30	22	15%	0%	25	19	44
C-H	Mini-Warehouse (151)	100	KSF	16	47%	53%	8	8	15%	0%	7	7	14
TOTAL				**1,442**			**808**	**634**			**635**	**493**	**1,128**

1. Land Use Code from the Institute of Transportation Engineers (ITE) *Trip Generation*, 11th Edition, 2021.

SOURCE: Hales Engineering, July 2023

Heber Highlands TIS
Trip Assignment (2023)

Evening Peak Hour
Figure 3a



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Heber Highlands TIS
Trip Assignment (2028)

Evening Peak Hour
Figure 3b



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Heber Highlands TIS
Trip Assignment (2040)

Evening Peak Hour
Figure 3c



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D. Access

The proposed access for the site will be gained at the following locations:

Commons Boulevard

- The project will access Commons Boulevard at multiple locations and will involve an extension of the existing roadway east from the roundabout. It is anticipated that the Commons Boulevard / U.S. 40 intersection will be signalized per the UDOT U.S. 40 corridor agreement. Commons Boulevard is also planned to provide access into the future Jordanelle Ridge Village II development.
- Based on preliminary analysis and discussions with the developer, it is assumed that the Creekside at Highlands / Commons Boulevard roundabout is relocated further to the east of U.S. 40 to allow for increased storage capacity at the Commons Boulevard / U.S. 40 intersection.

College Way:

- The project is anticipated to have internal roadways that will connect with U.S. 40 via the existing College Way intersection. approximately 15% of the project trips to and from the north were assigned to enter the project through College Way in the full build scenario.

E. Auxiliary Lanes

Auxiliary lanes are deceleration (ingress) or acceleration (egress) turn lanes that provide for safe turning movements that have less impact on through traffic. These lanes are sometimes needed at accesses or roadway intersections if right- or left-turn volumes are high enough.

UDOT Administrative Rule R930-6 outlines minimum peak hour turn volumes to warrant auxiliary lanes on UDOT roadways. The following are the minimum requirements for these lanes on U.S. 40:

- Left-turn Deceleration (Ingress): 10 left-turn vehicles per hour
- Left-turn Acceleration (Egress): Is there a safety benefit?
- Right-turn Deceleration (Ingress): 25 right-turn vehicles per hour
- Right-turn Acceleration (Egress): 50 right-turn vehicles per hour

Based on these guidelines, existing auxiliary lanes, and the anticipated project traffic, it is recommended that a southbound left-turn deceleration lane be striped at the College Way / U.S. 40 intersection.

It is not anticipated that acceleration lanes will be needed at any of the U.S. 40 intersections since Coyote Lane, and Commons Boulevard are both on the UDOT corridor agreement as locations for signalized intersections. A striped westbound to southbound acceleration lane is not recommended at the College Way / U.S. 40 intersection due to conflicts with potential northbound left-turning vehicles. It is anticipated that westbound left-turning vehicles from College Way will

route to the adjacent signalized intersections or utilize the center TWLTL during peak traffic conditions when no opposing northbound left-turning vehicles are present.

IV. EXISTING (2023) PLUS PROJECT CONDITIONS

A. Purpose

The purpose of the existing (2023) plus project analysis is to study the intersections and roadways during the peak travel periods of the day for existing background traffic and geometric conditions plus the net trips generated by the proposed development. This scenario provides valuable insight into the potential impacts of the proposed project on background traffic conditions.

B. Traffic Volumes

Hales Engineering added the project trips discussed in Chapter III to the existing (2023) background traffic volumes to predict turning movement volumes for existing (2023) plus project conditions. Existing (2023) plus project evening peak hour turning movement volumes are shown in Figure 4. Based on the anticipated traffic volumes, it is anticipated that a traffic signal will be warranted at the Commons Boulevard / U.S. 40 intersection with completion of approximately 225 dwelling units, before phase one of the DR Horton development is completed. Since this location is on the corridor agreement as a signalized intersection, it was assumed that the signal had been installed sometime before the completion of opening day conditions.

C. Level of Service Analysis

Hales Engineering determined that the College Way / U.S. 40 intersection is anticipated to operate at a poor LOS during the evening peak hour in existing (2023) plus project conditions. All other intersections are anticipated to operate at acceptable levels of service during the evening peak hour with project traffic added, as shown in Table 6.

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. No significant queueing is anticipated during the evening peak hour. 150 feet of westbound queuing is anticipated at the Commons Boulevard / U.S. 40 intersection with approximately 180 feet available between U.S. 40 and the existing roundabout, it is not anticipated that the westbound queue will back into the roundabout.

E. Mitigation Measures

No mitigation measures are recommended. According to the UDOT U.S. 40 corridor agreement, The University Avenue / U.S. 40 intersection to the north of the study area has been identified as a location for a future signal along with the Commons Boulevard / U.S. 40 intersection. To avoid delays at the College Way / U.S. 40 intersection, it is anticipated that traffic will reroute to those signals.


3000 North
College Way
Commons Boulevard
Drive 20
Road 1
Collector 2
Collector 1
Road 6
Mill Access
Commons Boulevard
Collector 1
Forestdale Drive
Cowabunga Lane

Table 6: Existing (2023) Plus Project Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	14.3	B
Commons Boulevard / U.S. 40	Signal	-	10.5	B
College Way / U.S. 40	NE/SW Stop	SWL	>50	f
Festival Street / Commons Boulevard	Roundabout	-	2.2	A
MF Access / Commons Boulevard	SB Stop	WBT	0.2	a
Collector 1 / Commons Boulevard	SB Stop	NBL	4.8	a
Road 6 / Commons Boulevard	NB/SB Stop	WBL	4.6	a
Collector 2 / Commons Boulevard	WB Stop	EBL	4.5	a
Drive 20 & Road 1 / Commons Boulevard	EB Stop	WBL	3.9	a
Wasatch Commons / Commons Boulevard	NB Stop	NBL	5.7	a

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023

V. FUTURE (2028) BACKGROUND CONDITIONS

A. Purpose

The purpose of the future (2028) background analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions. Through this analysis, future background traffic operational deficiencies can be identified, and potential mitigation measures recommended.

B. Roadway Network

According to the Wasatch Rural Planning Organization (WRPO) Regional Transportation Plan (RTP), there are no projects planned before 2028 in the study area. Therefore, no changes were made to the roadway network for the future (2028) analysis.

C. Traffic Volumes

Hales Engineering obtained future (2028) forecasted volumes from the Summit / Wasatch County travel demand model. Peak period turning movement counts were estimated using National Cooperative Highway Research Program (NCHRP) 255 methodologies which utilize existing peak period turn volumes and future average weekday daily traffic (AWDT) volumes to project the future turn volumes at the major intersections. As mentioned in Chapter II, anticipated 2028 traffic volumes from several other projects in the area that are currently under development were added to the forecasted future (2028) background traffic volumes. Future (2028) evening peak hour turning movement volumes are shown in Figure 5.

D. Level of Service Analysis

Hales Engineering determined that the Commons Boulevard / U.S. 40 and College Way / U.S. 40 intersections are anticipated to operate at poor levels of service during the evening peak hour in future (2028) background conditions, as shown in Table 7.

E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. Significant 95th percentile queue lengths during the evening peak hour are summarized as follows:

- College Way & 3000 North / U.S. 40:
  - Southwest-bound: 950 feet
- Commons Boulevard / U.S. 40:
  - Southwest-bound: 850 feet

Table 7: Future (2028) Background Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	15.8	B
Commons Boulevard / U.S. 40	WB Stop	WBL	>50	f
College Way / U.S. 40	NE/SW Stop	SWL	>50	f

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023

F. Mitigation Measures

It is anticipated that signal warrants will be met at the Commons Boulevard / U.S. 40 intersection in future (2028) background conditions. Therefore, it is recommended that this intersection be signalized. No additional mitigation measures are recommended, it is anticipated that southwest-bound traffic at the College Way / U.S. 40 intersection may reroute to the proposed signal or utilize the existing TWLTL to create a two-stage gap to avoid delays.

G. Mitigated Scenario

Hales engineering ran a mitigated scenario assuming the recommended signal had been installed at the Commons Boulevard / U.S. 40 intersection. As a result, the Commons Boulevard / U.S. 40 intersection is anticipated to operate at an acceptable level of service as shown in Table 8. Westbound queuing at this intersection is also anticipated to improve and reduce to approximately 150 feet.

Table 8: Future (2028) Mitigated Background Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	15.6	B
Commons Boulevard / U.S. 40	WB Stop	-	11.0	B
College Way / U.S. 40	NE/SW Stop	SWL	>50	f

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023


College Way
3000 North
US-40
Commons Boulevard
US-40
Coyote Lane
20
2045
10
5
0
60
80
1425
10
5
0
5
25
20
40
2070
45
1490
1985
105
75
205
1460
235

VI. FUTURE (2028) PLUS PROJECT CONDITIONS

A. Purpose

The purpose of the future (2028) plus project analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions plus the net trips generated by the proposed development. This scenario provides valuable insight into the potential impacts of the proposed project on future background traffic conditions.

B. Traffic Volumes

Hales Engineering added the project trips discussed in Chapter III to the future (2028) background traffic volumes to predict turning movement volumes for future (2028) plus project conditions. Future (2028) plus project evening peak hour turning movement volumes are shown in Figure 6.

A preliminary sensitivity analysis of the Commons Boulevard / U.S. 40 intersection and the existing roundabout showed the need to relocate the roundabout to the proposed project location by year 2026 to allow for sufficient spacing between the roundabout and the future signal at Commons Boulevard. Therefore, it was assumed that the existing roundabout on Commons Boulevard is relocated to the future Creekside at Highlands / Commons Boulevard intersection for the future (2028) plus project conditions.

C. Level of Service Analysis

Hales Engineering determined that the College Way / U.S. 40 intersection is anticipated to operate at a poor level of service during the evening peak hour in future (2028) plus project conditions, as shown in Table 9.

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. Significant 95th percentile queue lengths during the evening peak hour are summarized as follows:

- Coyote Lane / U.S. 40:
  - Westbound: 325 feet
- College Way & 3000 North / U.S. 40:
  - Southwest-bound: 1,000 feet
- Commons Boulevard / U.S. 40:
  - Northbound: 475 feet
  - Southbound: 650 feet
  - Westbound: 525 feet (past the relocated roundabout)

E. Mitigation Measures

Based on the number of anticipated westbound left-turns at the Commons Boulevard / U.S. 40 intersection, it is anticipated that dual left-turn lanes will be warranted. Since the westbound queue is anticipated to back past the relocated roundabout, it is recommended that westbound dual left-

turn lanes be installed at this intersection. No mitigation measures are recommended at the College Way / U.S. 40 intersection. It is anticipated that vehicles attempting to make a left turn onto U.S. 40 will reroute to a signalized intersection or utilize the center TWLTL to create a two-stage gap.

Table 9: Future (2028) Plus Project Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	20.5	C
Commons Boulevard / U.S. 40	Signal	-	36.1	D
College Way / U.S. 40	NE/SW Stop	SWL	>50	f
Creekside at Highlands / Commons Boulevard	Roundabout	-	10.0	A
Festival Street / Commons Boulevard	NB Stop	NBR	22.3	c
MF Access / Commons Boulevard	SB Stop	SBR	4.5	a
Collector 1 / Commons Boulevard	NB/SB Stop	NBL	7.9	a
Road 6 / Commons Boulevard	WB Stop	WBL	6.7	a
Collector 2 / Commons Boulevard	EB Stop	EBL	6.6	a
Drive 20 & Road 1 / Commons Boulevard	EB/WB Stop	WBL	5.9	a
Road 35 / Commons Boulevard	NB Stop	NBL	5.4	a
Coyote View Drive / Commons Boulevard	EB Stop	EBL	4.8	a
Wasatch Commons / Commons Boulevard	NB Stop	NBL	14.1	b

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023

F. Mitigated Scenario

Hales Engineering ran a mitigated scenario assuming the recommended westbound dual left-turn lanes had been installed. As a result, all study intersections, except for the College Way / U.S. 40 intersection, are anticipated to operate at an acceptable level of service as shown in Table 10. It is also anticipated that westbound queueing can be reduced to approximately 225 feet and southbound queuing can also be reduced to 325 feet at the Commons Boulevard / U.S. 40 intersection.

Table 10: Future (2028) Mitigated Plus Project Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	19.0	B
Commons Boulevard / U.S. 40	Signal	-	24.4	C
College Way / U.S. 40	NE/SW Stop	SWL	>50	f
Creekside at Highlands / Commons Boulevard	Roundabout	-	3.0	A
Festival Street / Commons Boulevard	NB Stop	NBR	17.0	c
MF Access / Commons Boulevard	SB Stop	SBR	3.9	a
Collector 1 / Commons Boulevard	NB/SB Stop	NBL	7.5	a
Road 6 / Commons Boulevard	WB Stop	WBL	6.7	a
Collector 2 / Commons Boulevard	EB Stop	EBL	6.3	a
Drive 20 & Road 1 / Commons Boulevard	EB/WB Stop	WBL	5.6	a
Road 35 / Commons Boulevard	NB Stop	NBL	5.3	a
Coyote View Drive / Commons Boulevard	EB Stop	EBL	5.2	a
Wasatch Commons / Commons Boulevard	NB Stop	NBL	10.0	a

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023


3000 North
College Way
Collector 2
Collector 1
Road 6
Drive 20
Common Boulevard
Circle View Drive
Road 5
Road 3
MF Access
Commons Boulevard
Collector 1
Farmers Market
Gorgas Lane
US-40

VII. FUTURE (2040) BACKGROUND CONDITIONS

A. Purpose

The purpose of the future (2040) background analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions. Through this analysis, future background traffic operational deficiencies can be identified, and potential mitigation measures recommended.

B. Roadway Network

According to the WRPO RTP, there is a new project planned before 2040 in the study area. A new 3-lane roadway is planned to be completed that will run parallel with U.S. 40 and connect with the project site at the Collector 2 / Commons Boulevard intersection with the buildout of the Heber Highlands project in plus-project conditions.

U.S. 40 currently has a 5-lane cross section. A 5-lane cross-section will typically handle 15,000 – 35,000 ADT. U.S. 40 is anticipated to have an ADT exceeding these thresholds and it is anticipated that this roadway will be over capacity by 2040. Hales Engineering performed this analysis under the assumption that U.S. 40 will be widened to a 7-lane cross section for future (2040) background conditions based on projected traffic volumes.

C. Traffic Volumes

Hales Engineering obtained future (2040) forecasted volumes from the Summit / Wasatch County travel demand model. Peak period turning movement counts were estimated using National Cooperative Highway Research Program (NCHRP) 255 methodologies which utilize existing peak period turn volumes and future average weekday daily traffic (AWDT) volumes to project the future turn volumes at the major intersections. As mentioned in Chapter II, anticipated 2040 traffic volumes from several other projects in the area that are currently under development were added to the forecasted future (2040) background traffic volumes. Future (2040) background evening peak hour turning movement volumes are shown in Figure 7.

D. Level of Service Analysis

Hales Engineering determined that the College Way / U.S. 40 intersection is anticipated to operate at a poor level of service during the evening peak hour in future (2040) background conditions, as shown in Table 11. These results serve as a baseline condition for the impact analysis of the proposed development for future (2040) conditions.

Table 11: Future (2040) Background Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	19.3	B
Commons Boulevard / U.S. 40	WB Stop	-	21.4	C
College Way / U.S. 40	NE/SW Stop	SWL	>50	f

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023

E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. Significant 95th percentile queue lengths during the evening peak hour are summarized as follows:

- College Way / U.S. 40:
  - Southwest-bound: >1,000 feet
- Commons Boulevard / U.S. 40:
  - Westbound: 275 feet
  - Northbound: 400 feet

F. Mitigation Measures

No additional mitigation measures are recommended. It is anticipated that westbound traffic at the College Way / U.S. 40 intersection may utilize the existing TWLTL to create a two-stage gap for westbound left-turn movements or reroute to a signalized intersection to avoid delays.


College Way
3000 North
US-40
Commons Boulevard
US-40
Coyote Lane
25
2880
15
25
15
65
90
1990
15
10
5
10
30
25
60
2895
50
2065
2795
125
80
210
2035
240

VIII. FUTURE (2040) PLUS PROJECT CONDITIONS

A. Purpose

The purpose of the future (2040) plus project analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions plus the net trips generated by the proposed development. This scenario provides valuable insight into the potential impacts of the proposed project on future background traffic conditions.

B. Traffic Volumes

Hales Engineering added the project trips discussed in Chapter III to the future (2040) background traffic volumes to predict turning movement volumes for future (2040) plus project conditions. It is anticipated that traffic from other nearby developments will cut through the project's roadways to access the signal at the Commons Boulevard / U.S. 40 intersection. In its current state, it is anticipated that cut through traffic would account for approximately 9% of the turning volumes at the Commons Boulevard / U.S. 40 intersection. However, as volumes increase on U.S. 40, left turns could one day be restricted with a center median along U.S. 40. Restricting left turns would force more cut-through traffic to Commons Boulevard. In this case it is anticipated that up to 28% of the traffic volumes at the Commons Boulevard signal would be cut-through traffic. As a conservative measure, a cut-through percentage equal to 28% of overall turning volumes at the Commons Boulevard signal was added assuming restriction of left-turns out of non-signalized intersections on U.S. 40 due to excessive delays or a potential raised median. Future (2040) plus project evening peak hour turning movement volumes are shown in Figure 8.

C. Level of Service Analysis

Hales Engineering determined the College Way / U.S. 40 and Festival Street / Commons Boulevard intersections are anticipated to operate at poor levels of service during the evening peak hour in future (2040) plus project conditions, as shown in Table 12.

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. No significant queueing is anticipated during the evening peak hour. Significant 95th percentile queue lengths during the evening peak hour are summarized as follows:

- Coyote Lane / U.S. 40:
  - Westbound: 325 feet
- College Way / U.S. 40:
  - Eastbound: 325 feet
  - Southwest-bound: 825 feet
- Commons Boulevard / U.S. 40:
  - Northbound: 450 feet
  - Southbound: >1,000 feet
  - Westbound: 275 feet


3000 North
College Way
Drive 20
Road J
Collector 2
Collector 1
Road 6
Commons Boulevard
Coyote View Drive
Coyote Lane
Crossside at Highlands
Fieldstone Homes
Fieldstone Homes
MF Access
Vermont Commons
Kettlehill Street
Clubhouse
Pool
Park
Park
Park

Table 12: Future (2040) Plus Project Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	18.8	B
Commons Boulevard / U.S. 40	Signal	-	38.6	D
College Way / U.S. 40	NE/SW Stop	SWL	>50	f
Creekside at Highlands / Commons Boulevard	Roundabout	-	4.9	A
Festival Street / Commons Boulevard	NB Stop	NBR	>50	f
MF Access / Commons Boulevard	SB Stop	SBL	5.4	a
Collector 1 / Commons Boulevard	NB/SB Stop	NBL	10.0	a
Road 6 / Commons Boulevard	WB Stop	WBL	8.8	a
Collector 2 / Commons Boulevard	EB Stop	EBL	9.3	a
Drive 20 & Road 1 / Commons Boulevard	EB/WB Stop	WBT	10.5	b
Road 35 / Commons Boulevard	NB Stop	NBL	9.6	a
Coyote View Drive / Commons Boulevard	EB Stop	EBL	8.7	a
Wasatch Commons / Commons Boulevard	NB Stop	NBL	19.4	c

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023

E. Mitigation Measures

Hales Engineering recommends installing dual southbound left-turn lanes at the Commons Boulevard / U.S. 40 intersection as well as making appropriate phasing adjustments at the future signal. It is also recommended that an eastbound right-turn bypass lane be added to the roundabout at the Creekside at Highlands / Commons Boulevard intersection to increase the roundabout's capacity.

F. Mitigated Scenario

A mitigated scenario was analyzed assuming that the recommended mitigation measures had been implemented. As a result, the College Way / U.S. 40 intersection is anticipated to continue to operate at a poor level of service. All other intersections are anticipated to operate at acceptable

levels of service as shown in Table 13. 95th percentile queue lengths of approximately 225 feet westbound are anticipated at the Commons Boulevard / U.S. 40 intersection. 95th percentile queue lengths of approximately 50 feet eastbound and 150 feet northwest-bound are anticipated at the Creekside at Highlands / Commons Boulevard roundabout. With these mitigation measures, queues are not anticipated to back from U.S. 40 to the Roundabout or from the Roundabout to adjacent accesses on Commons Boulevard.

Table 13: Future (2040) Mitigated Plus Project Evening Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement[1]	Aver. Delay (Sec. / Veh.)	LOS[2]
Coyote Lane / U.S. 40	Signal	-	18.9	B
Commons Boulevard / U.S. 40	Signal	-	28.2	C
College Way / U.S. 40	NE/SW Stop	SWL	>50	f
Creekside at Highlands / Commons Boulevard	Roundabout	-	4.0	A
Festival Street / Commons Boulevard	NB Stop	NBR	14.5	b
MF Access / Commons Boulevard	SB Stop	SBR	4.9	a
Collector 1 / Commons Boulevard	NB/SB Stop	NBT	10.5	b
Road 6 / Commons Boulevard	WB Stop	WBL	8.8	a
Collector 2 / Commons Boulevard	EB Stop	EBL	8.9	a
Drive 20 & Road 1 / Commons Boulevard	EB/WB Stop	WBT	10.6	b
Road 35 / Commons Boulevard	NB Stop	NBL	7.5	a
Coyote View Drive / Commons Boulevard	EB Stop	EBL	8.2	a
Wasatch Commons / Commons Boulevard	NB Stop	NBL	16.7	c

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, June 2023

G. Recommended Storage Lengths

Hales Engineering determined recommended storage lengths based on the 95th percentile queue lengths given in the future (2040) plus project scenario. These storage lengths do not include the taper length. Recommended storage lengths for the study intersections are shown in Table 14.

Intersections shown in Table 14 include new intersections and existing intersections that have recommended storage length changes.

Table 14: Recommended Storage Lengths

	Intersection	Recommended Storage Lengths (feet)															
		Northbound				Southbound				Eastbound				Westbound			
		LT		RT		LT		RT		LT		RT		LT		RT	
		E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
1	Coyote Lane / U.S. 40	-	-	450	-	100	**200**	-	-	-	-	-	-	65	**375**	-	-
2	Commons Boulevard / U.S. 40	-	-	300	**375**	80	**300**	-	-	-	-	-	-	-	**250**	-	**175**

1. Storage lengths are based on 2040 95th percentile queue lengths and do not include required deceleration / taper distances
2. E = Existing storage length (approximate), if applicable; P = proposed storage length for new turn lanes or changes to existing turn lanes, if applicable

Source: Hales Engineering, June 2024

APPENDIX A

Site Plan


LOCAL ROAD (56' ROW)
LOCAL ROAD (56' ROW)
48" culvert
COYOTE VIEW DRIVE
ROAD 35
ROAD 36
DRIVE 31
PRIVATE DRIVE
48" culvert
ROAD 2
ROAD 1
ROAD 4
ROAD 3
DRIVE 1
DRIVE 2
DRIVE 3
DRIVE 4
DRIVE 23
DRIVE 24
DRIVE 25
DRIVE 26
DRIVE 27
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DRIVE 1883
DRIVE 1884
DRIVE 1885

APPENDIX B

Turning Movement Counts

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

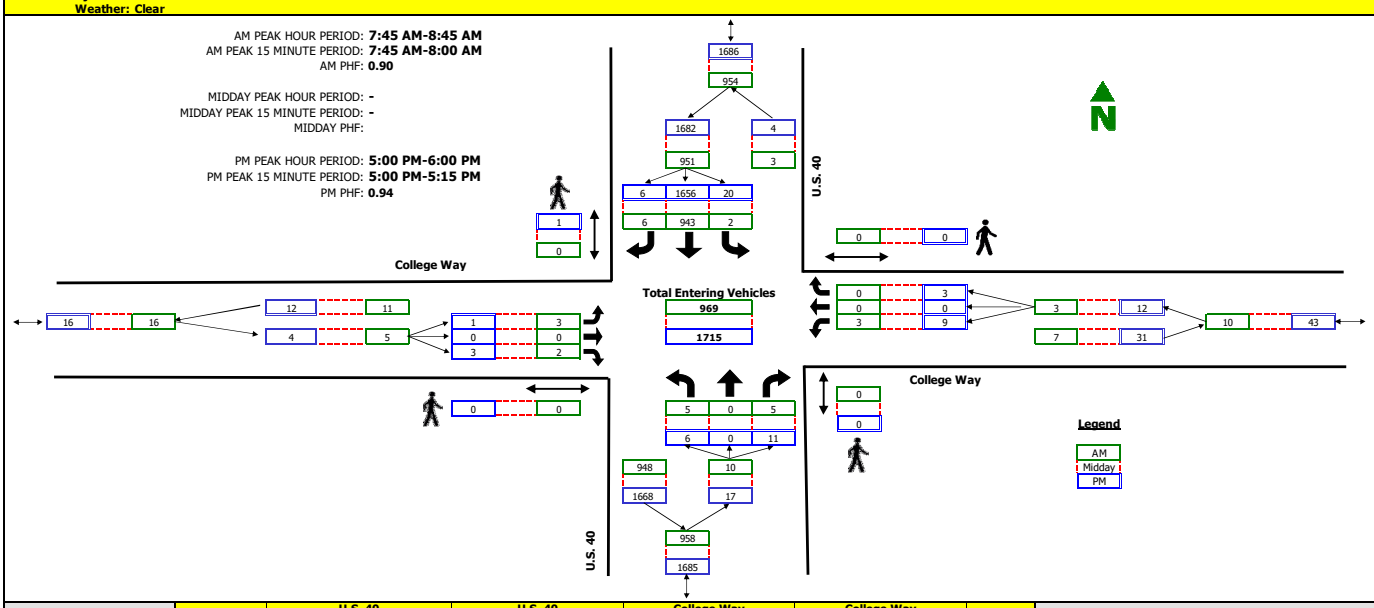
Intersection: U.S. 40 / College Way
North/South: U.S. 40
East/West: College Way
Jurisdiction: Heber
Project Title: Highlands TIS
Project No: UT20-1733
Weather: Clear

Date: 5-25-23, Thu
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 98.2%
Adjustment Station #: 509

AM PEAK HOUR PERIOD: **7:45 AM-8:45 AM**
AM PEAK 15 MINUTE PERIOD: **7:45 AM-8:00 AM**
AM PHF: **0.90**

MIDDAY PEAK HOUR PERIOD: **-**
MIDDAY PEAK 15 MINUTE PERIOD: **-**
MIDDAY PHF:

PM PEAK HOUR PERIOD: **5:00 PM-6:00 PM**
PM PEAK 15 MINUTE PERIOD: **5:00 PM-5:15 PM**
PM PHF: **0.94**



RAW COUNT SUMMARIES	U.S. 40 Northbound				U.S. 40 Southbound				College Way Eastbound				College Way Westbound				TOTAL
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PEAK PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00 - 7:15	0	0	1	0	0	154	0	1	0	0	0	0	0	0	0	0	155
7:15 - 7:30	0	0	1	0	0	172	0	0	1	0	3	0	0	0	0	0	177
7:30 - 7:45	0	0	1	0	0	185	1	0	2	0	0	0	0	0	0	0	189
7:45 - 8:00	1	0	0	0	0	264	2	0	0	0	0	0	3	0	0	0	270
8:00 - 8:15	0	0	2	0	0	207	2	0	1	0	0	0	0	0	0	0	212
8:15 - 8:30	3	0	2	0	1	245	1	0	1	0	0	0	0	0	0	0	253
8:30 - 8:45	1	0	1	0	1	227	1	0	1	0	2	0	0	0	0	0	234
8:45 - 9:00	2	0	3	0	2	262	0	0	0	0	0	0	1	0	0	0	270

MIDDAY PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 - 14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00 - 16:15	1	0	6	0	3	411	0	0	0	0	1	0	1	0	0	0	423
16:15 - 16:30	0	0	4	0	1	410	2	0	0	0	0	0	1	0	2	0	420
16:30 - 16:45	1	0	2	0	2	363	3	1	0	0	0	0	1	0	2	0	374
16:45 - 17:00	1	0	1	0	0	403	0	0	0	0	1	0	2	0	4	0	412
17:00 - 17:15	1	0	4	0	1	441	1	0	0	0	1	0	4	0	1	0	454
17:15 - 17:30	3	0	2	0	0	389	2	0	1	0	0	0	1	0	0	0	398
17:30 - 17:45	2	0	3	0	2	404	3	0	0	0	1	0	1	0	0	0	416
17:45 - 18:00	0	0	2	0	17	422	0	1	0	0	1	0	3	0	2	0	447

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

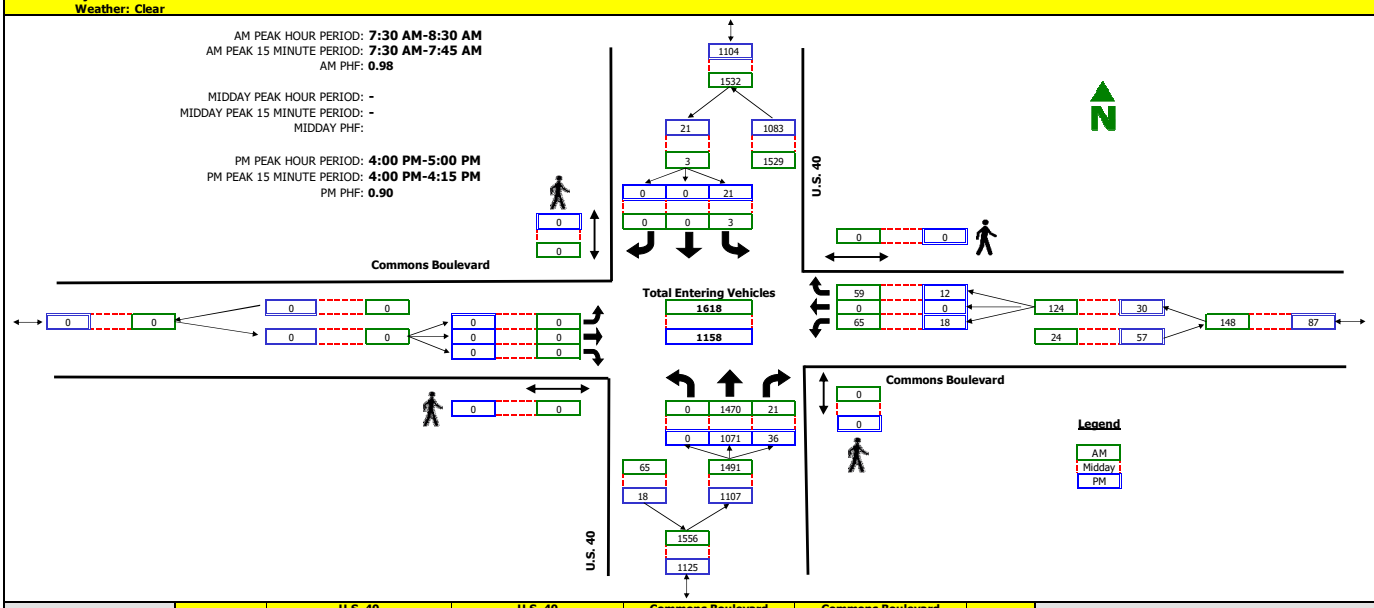
Intersection: U.S. 40 / Commons Boulevard
North/South: U.S. 40
East/West: Commons Boulevard
Jurisdiction: Heber
Project Title: Highlands TIS
Project No: UT23-2532
Weather: Clear

Date: 5-25-23, Thu
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 98.2%
Adjustment Station #: 509

AM PEAK HOUR PERIOD: **7:30 AM-8:30 AM**
AM PEAK 15 MINUTE PERIOD: **7:30 AM-7:45 AM**
AM PHF: **0.98**

MIDDAY PEAK HOUR PERIOD: **-**
MIDDAY PEAK 15 MINUTE PERIOD: **-**
MIDDAY PHF:

PM PEAK HOUR PERIOD: **4:00 PM-5:00 PM**
PM PEAK 15 MINUTE PERIOD: **4:00 PM-4:15 PM**
PM PHF: **0.90**



RAW COUNT SUMMARIES	U.S. 40 Northbound				U.S. 40 Southbound				Commons Boulevard Eastbound				Commons Boulevard Westbound				TOTAL
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PEAK PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00 - 7:15	0	325	3	0	0	0	0	0	0	0	0	0	8	0	22	0	358
7:15 - 7:30	0	371	5	0	2	0	0	0	0	0	0	0	7	0	16	0	401
7:30 - 7:45	0	372	6	0	1	0	0	0	0	0	0	0	12	0	22	0	413
7:45 - 8:00	0	364	4	0	1	0	0	0	0	0	0	0	13	0	18	0	400
8:00 - 8:15	0	352	8	0	0	0	0	0	0	0	0	0	23	0	9	0	392
8:15 - 8:30	0	382	3	0	1	0	0	0	0	0	0	0	17	0	10	0	413
8:30 - 8:45	0	363	4	0	6	0	0	0	0	0	0	0	16	0	7	0	396
8:45 - 9:00	0	335	7	1	2	0	0	0	0	0	0	0	9	0	2	0	355

MIDDAY PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 - 14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00 - 16:15	0	295	10	0	6	0	0	0	0	0	0	0	4	0	6	0	321
16:15 - 16:30	0	268	5	0	3	0	0	0	0	0	0	0	6	0	0	0	282
16:30 - 16:45	0	244	16	0	7	0	0	0	0	0	0	0	4	0	6	0	277
16:45 - 17:00	0	264	5	0	5	0	0	0	0	0	0	0	4	0	0	0	278
17:00 - 17:15	0	266	7	0	11	0	0	0	0	0	0	0	7	0	6	0	297
17:15 - 17:30	0	252	15	0	7	0	0	0	0	0	0	0	11	0	6	0	291
17:30 - 17:45	0	253	14	0	4	0	0	0	0	0	0	0	12	0	2	0	285
17:45 - 18:00	0	233	11	0	10	0	0	0	0	0	0	0	8	0	4	0	266

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

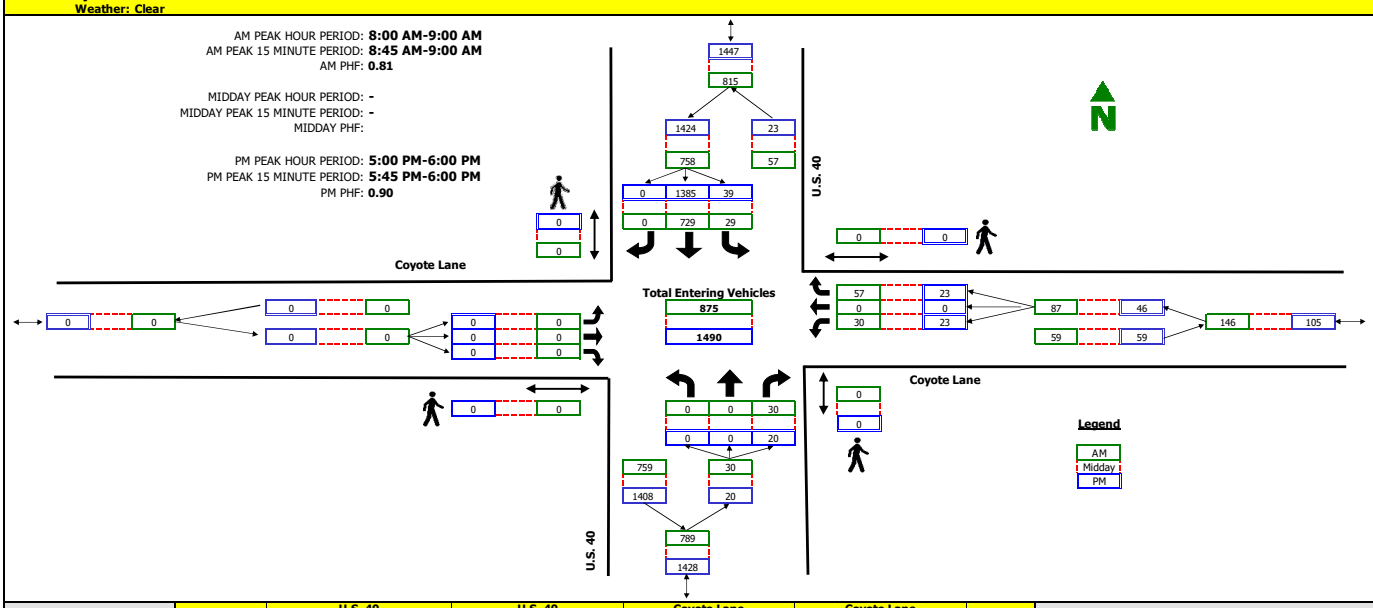
Intersection: U.S. 40 / Coyote Lane
North/South: U.S. 40
East/West: Coyote Lane
Jurisdiction: Heber
Project Title: Highlands TIS
Project No: UT23-2532
Weather: Clear

Date: 6-28-22, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 100.0%
Adjustment Station #: 509

AM PEAK HOUR PERIOD: **8:00 AM-9:00 AM**
AM PEAK 15 MINUTE PERIOD: **8:45 AM-9:00 AM**
AM PHF: **0.81**

MIDDAY PEAK HOUR PERIOD: **-**
MIDDAY PEAK 15 MINUTE PERIOD: **-**
MIDDAY PHF:

PM PEAK HOUR PERIOD: **5:00 PM-6:00 PM**
PM PEAK 15 MINUTE PERIOD: **5:45 PM-6:00 PM**
PM PHF: **0.90**



RAW COUNT SUMMARIES	U.S. 40 Northbound				U.S. 40 Southbound				Coyote Lane Eastbound				Coyote Lane Westbound				TOTAL
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	

AM PEAK PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00 - 7:15	0	0	2	0	5	144	0	0	0	0	0	0	3	0	4	0	158
7:15 - 7:30	0	0	11	0	3	143	0	0	0	0	0	0	0	0	12	0	169
7:30 - 7:45	0	0	2	0	3	139	0	0	0	0	0	0	5	0	15	0	164
7:45 - 8:00	0	0	5	0	7	203	0	0	0	0	0	0	7	0	15	0	237
8:00 - 8:15	0	0	6	0	8	159	0	0	0	0	0	0	8	0	12	0	193
8:15 - 8:30	0	0	8	0	6	151	0	0	0	0	0	0	7	0	19	0	191
8:30 - 8:45	0	0	11	0	8	181	0	0	0	0	0	0	7	0	14	0	221
8:45 - 9:00	0	0	5	0	7	238	0	0	0	0	0	0	8	0	12	0	270

MIDDAY PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 - 14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00 - 16:15	0	0	7	0	9	306	0	0	0	0	0	0	9	0	8	0	339
16:15 - 16:30	0	0	6	0	6	328	0	0	0	0	0	0	7	0	8	0	355
16:30 - 16:45	0	0	4	0	6	335	0	0	0	0	0	0	9	0	9	0	363
16:45 - 17:00	0	0	5	0	10	289	0	0	0	0	0	0	4	0	6	0	314
17:00 - 17:15	0	0	6	0	5	312	0	0	0	0	0	0	6	0	7	0	336
17:15 - 17:30	0	0	2	0	13	340	0	0	0	0	0	0	7	0	4	0	366
17:30 - 17:45	0	0	8	0	9	343	0	0	0	0	0	0	7	0	6	0	373
17:45 - 18:00	0	0	4	0	12	390	0	0	0	0	0	0	3	0	6	0	415

APPENDIX C

LOS Results

SimTraffic LOS Report

Project: Heber - Highlands TIS
Analysis Period: *Existing (2023) Background*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,253	1,265	101	8.1	*A*
	R	182	179	98	2.7	*A*
	Subtotal	1,435	1,444	101	7.4	*A*
SB	L	102	100	98	34.3	*C*
	T	1,824	1,830	100	12.1	*B*
	Subtotal	1,926	1,930	100	13.3	*B*
WB	L	164	161	98	37.1	*D*
	R	66	67	101	9.0	*A*
	Subtotal	230	228	99	28.8	*C*
Total		3,591	3,602	100	11.9	*B*

Intersection: US-40 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,302	1,313	101	7.1	*A*
	R	36	41	113	6.7	*A*
	Subtotal	1,338	1,354	101	7.1	*A*
SB	L	21	21	101	10.7	*B*
	T	1,908	1,917	100	2.4	*A*
	Subtotal	1,929	1,938	100	2.5	*A*
WB	***L***	***18***	***15***	***85***	***155.7***	***F***
	R	12	13	106	9.3	*A*
	Subtotal	30	28	93	87.7	*F*
Total		3,298	3,320	101	5.1	*A*

SimTraffic LOS Report

Project: Heber - Highlands TIS
Analysis Period: *Existing (2023) Background*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	6	6	96	13.9	*B*
	T	1,298	1,305	101	1.8	*A*
	R	11	12	107	1.0	*A*
	Subtotal	1,315	1,323	101	1.8	*A*
SB	L	20	18	91	9.4	*A*
	T	1,917	1,926	100	2.1	*A*
	R	6	6	96	1.4	*A*
	Subtotal	1,943	1,950	100	2.2	*A*
NE	L	1	0	0	88.0	*F*
	R	3	3	100	26.4	*D*
	Subtotal	4	3	75	26.4	*D*
SW	***L***	***9***	***8***	***86***	***362.8***	***F***
	R	3	3	100	5.8	*A*
	Subtotal	12	11	92	265.4	*F*
Total		3,274	3,287	100	3.1	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Existing (2023) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,401	1,403	100	6.3	*A*
	R	182	188	103	2.5	*A*
	Subtotal	1,583	1,591	101	5.9	*A*
SB	L	102	96	94	46.7	*D*
	T	1,915	1,920	100	15.7	*B*
	Subtotal	2,017	2,016	100	17.2	*B*
WB	L	164	157	96	61.6	*E*
	R	66	66	100	13.1	*B*
	Subtotal	230	223	97	47.2	*D*
Total		3,830	3,830	100	14.3	*B*

Intersection: US-40 & Commons Boulevard
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,312	1,309	100	11.3	*B*
	R	156	158	101	9.2	*A*
	Subtotal	1,468	1,467	100	11.1	*B*
SB	L	77	71	92	24.2	*C*
	T	1,910	1,910	100	8.0	*A*
	Subtotal	1,987	1,981	100	8.6	*A*
WB	L	107	101	94	38.8	*D*
	R	48	45	94	11.2	*B*
	Subtotal	155	146	94	30.3	*C*
Total		3,610	3,594	100	10.5	*B*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Existing (2023) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	6	6	96	28.4	*D*
	T	1,333	1,326	99	4.1	*A*
	R	20	20	101	3.8	*A*
	Subtotal	1,359	1,352	99	4.2	*A*
SB	L	50	51	102	14.2	*B*
	T	1,973	1,970	100	1.5	*A*
	R	6	7	112	0.4	*A*
	Subtotal	2,029	2,028	100	1.8	*A*
NE	L	1	1	100	229.1	*F*
	R	3	3	100	20.4	*C*
	Subtotal	4	4	100	72.6	*F*
SW	***L***	***11***	***7***	***62***	***472.2***	***F***
	R	27	29	107	10.2	*B*
	Subtotal	38	36	95	100.0	*F*
Total		3,431	3,420	100	4.2	*A*

Intersection: Festival Street & Commons Boulevard
Type: Roundabout

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	18	18	101	2.3	*A*
	Subtotal	18	18	100	2.3	*A*
EB	T	208	201	97	2.0	*A*
	R	25	27	108	1.8	*A*
	Subtotal	233	228	98	2.0	*A*
WB	T	137	128	93	2.5	*A*
	Subtotal	137	128	93	2.5	*A*
Total		388	374	97	2.2	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Existing (2023) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Commons Boulevard & MF Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
EB	T	176	169	96	0.1	*A*
	Subtotal	176	169	96	0.1	*A*
WB	***T***	***126***	***117***	***93***	***0.2***	***A***
	Subtotal	126	117	93	0.2	*A*
Total		301	286	95	0.1	*A*

Intersection: Collector 1 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***25***	***23***	***92***	***4.8***	***A***
	Subtotal	25	23	92	4.8	*A*
SB	R	12	12	98	2.8	*A*
	Subtotal	12	12	100	2.8	*A*
EB	L	24	23	96	1.7	*A*
	T	117	112	96	0.3	*A*
	R	35	35	99	0.1	*A*
	Subtotal	176	170	97	0.4	*A*
WB	T	88	82	93	0.3	*A*
	Subtotal	88	82	93	0.3	*A*
Total		302	287	95	0.8	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Existing (2023) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Commons Boulevard & Road 6
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	84	80	95	0.3	*A*
	R	33	32	96	0.2	*A*
	Subtotal	117	112	96	0.3	*A*
SB	T	60	55	91	0.2	*A*
	Subtotal	60	55	92	0.2	*A*
WB	***L***	***28***	***28***	***100***	***4.6***	***A***
	Subtotal	28	28	100	4.6	*A*
Total		206	195	95	0.9	*A*

Intersection: Commons Boulevard & Collector 2
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	42	38	91	1.8	*A*
	T	43	42	98	0.3	*A*
	Subtotal	85	80	94	1.0	*A*
SB	T	28	27	96	0.3	*A*
	Subtotal	28	27	96	0.3	*A*
EB	***L***	***5***	***5***	***95***	***4.5***	***A***
	R	33	30	90	2.9	*A*
	Subtotal	38	35	92	3.1	*A*
Total		151	142	94	1.4	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Existing (2023) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Commons Boulevard & Drive 20/Road 1
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	12	10	82	1.6	*A*
	T	12	12	102	0.3	*A*
	R	24	24	100	0.2	*A*
	Subtotal	48	46	96	0.5	*A*
SB	T	8	9	109	0.0	*A*
	Subtotal	8	9	113	0.0	*A*
EB	R	10	9	88	2.8	*A*
	Subtotal	10	9	90	2.8	*A*
WB	***L***	***9***	***8***	***86***	***3.9***	***A***
	Subtotal	9	8	89	3.9	*A*
Total		76	72	95	1.2	*A*

Intersection: Wasatch Commons & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***12***	***12***	***98***	***5.7***	***A***
	Subtotal	12	12	100	5.7	*A*
EB	T	176	169	96	0.2	*A*
	R	32	32	99	0.1	*A*
	Subtotal	208	201	97	0.2	*A*
WB	T	125	116	93	0.0	*A*
	Subtotal	125	116	93	0.0	*A*
Total		345	329	95	0.4	*A*

SimTraffic LOS Report

Project: Heber - Highlands TIS
Analysis Period: *Future (2028) Background*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,248	1,241	99	8.8	*A*
	R	235	234	100	3.4	*A*
	Subtotal	1,483	1,475	99	7.9	*A*
SB	L	105	97	92	36.3	*D*
	T	1,858	1,785	96	13.4	*B*
	Subtotal	1,963	1,882	96	14.6	*B*
WB	L	205	204	100	40.5	*D*
	R	75	76	102	9.5	*A*
	Subtotal	280	280	100	32.1	*C*
Total		3,725	3,637	98	13.2	*B*

Intersection: US-40 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,230	1,222	99	7.8	*A*
	R	93	95	102	7.4	*A*
	Subtotal	1,323	1,317	100	7.8	*A*
SB	L	140	136	97	18.5	*C*
	T	1,880	1,843	98	3.3	*A*
	Subtotal	2,020	1,979	98	4.3	*A*
WB	***L***	***82***	***34***	***41***	***1306.9***	***F***
	R	48	23	48	759.8	*F*
	Subtotal	130	57	44	1086.1	*F*
Total		3,474	3,353	97	33.8	*D*

SimTraffic LOS Report

Project: Heber - Highlands TIS
Analysis Period: *Future (2028) Background*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	10	10	98	24.8	*C*
	T	1,188	1,156	97	1.9	*A*
	R	80	81	101	1.5	*A*
	Subtotal	1,278	1,247	98	2.1	*A*
SB	L	20	18	91	10.4	*B*
	T	1,955	1,956	100	2.4	*A*
	R	10	10	98	1.5	*A*
	Subtotal	1,985	1,984	100	2.5	*A*
NE	L	5	4	76	421.0	*F*
	R	5	5	95	16.0	*C*
	Subtotal	10	9	90	196.0	*F*
SW	***L***	***60***	***19***	***32***	***1818.0***	***F***
	R	5	2	38	1395.4	*F*
	Subtotal	65	21	32	1777.8	*F*
Total		3,340	3,261	98	31.9	*D*

SimTraffic LOS Report

Project: Heber - Highlands TIS
Analysis Period: *Future (2028) Mitigated Background*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,248	1,248	100	8.9	*A*
	R	235	232	99	3.5	*A*
	Subtotal	1,483	1,480	100	8.1	*A*
SB	L	105	99	94	41.4	*D*
	T	1,858	1,836	99	17.6	*B*
	Subtotal	1,963	1,935	99	18.8	*B*
WB	L	205	207	101	40.1	*D*
	R	75	78	104	10.3	*B*
	Subtotal	280	285	102	31.9	*C*
Total		3,725	3,700	99	15.6	*B*

Intersection: US-40 & Commons Boulevard
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,230	1,232	100	11.5	*B*
	R	93	91	98	8.9	*A*
	Subtotal	1,323	1,323	100	11.3	*B*
SB	L	140	137	98	22.7	*C*
	T	1,880	1,850	98	6.9	*A*
	Subtotal	2,020	1,987	98	8.0	*A*
WB	L	82	82	100	79.0	*E*
	R	48	49	103	13.1	*B*
	Subtotal	130	131	101	54.4	*D*
Total		3,474	3,441	99	11.0	*B*

SimTraffic LOS Report

Project: Heber - Highlands TIS
Analysis Period: *Future (2028) Mitigated Background*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	10	8	78	20.1	*C*
	T	1,188	1,196	101	3.4	*A*
	R	80	79	99	3.1	*A*
	Subtotal	1,278	1,283	100	3.5	*A*
SB	L	20	16	81	11.0	*B*
	T	1,955	1,964	100	2.5	*A*
	R	10	11	107	1.1	*A*
	Subtotal	1,985	1,991	100	2.6	*A*
NE	L	5	4	76	187.8	*F*
	R	5	6	114	22.1	*C*
	Subtotal	10	10	100	88.4	*F*
SW	***L***	***60***	***19***	***32***	***1675.7***	***F***
	R	5	2	38	915.6	*F*
	Subtotal	65	21	32	1603.3	*F*
Total		3,340	3,305	99	29.4	*D*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,587	1,600	101	12.6	*B*
	R	235	235	100	5.1	*A*
	Subtotal	1,822	1,835	101	11.6	*B*
SB	L	105	109	104	56.4	*E*
	T	2,108	2,040	97	19.7	*B*
	Subtotal	2,213	2,149	97	21.6	*C*
WB	L	205	210	103	83.5	*F*
	R	75	70	94	27.6	*C*
	Subtotal	280	280	100	69.5	*E*
Total		4,314	4,264	99	20.5	*C*

Intersection: US-40 & Commons Boulevard
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,250	1,244	100	37.6	*D*
	R	412	426	103	28.7	*C*
	Subtotal	1,662	1,670	100	35.3	*D*
SB	L	344	336	98	82.2	*F*
	T	1,872	1,816	97	24.3	*C*
	Subtotal	2,216	2,152	97	33.3	*C*
WB	L	342	335	98	66.1	*E*
	R	195	195	100	21.5	*C*
	Subtotal	537	530	99	49.7	*D*
Total		4,416	4,352	99	36.1	*D*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	10	7	68	94.4	*F*
	T	1,326	1,318	99	8.8	*A*
	R	110	113	103	9.0	*A*
	Subtotal	1,446	1,438	99	9.2	*A*
SB	L	54	54	100	19.1	*C*
	T	2,145	2,141	100	2.9	*A*
	R	10	10	98	0.9	*A*
	Subtotal	2,209	2,205	100	3.3	*A*
NE	L	5	4	76	624.1	*F*
	R	5	6	114	45.0	*E*
	Subtotal	10	10	100	276.6	*F*
SW	***L***	***65***	***9***	***14***	***2363.2***	***F***
	R	35	6	17	1746.7	*F*
	Subtotal	100	15	15	2116.6	*F*
Total		3,766	3,668	97	35.2	*E*

Intersection: Commons Boulevard & Creekside at Highlands
Type: Roundabout

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	R	193	195	101	29.7	*D*
	Subtotal	193	195	101	29.7	*D*
EB	L	222	226	102	4.7	*A*
	T	494	500	101	5.3	*A*
	Subtotal	716	726	101	5.1	*A*
WB	T	324	318	98	9.0	*A*
	Subtotal	324	318	98	9.0	*A*
Total		1,254	1,257	100	10.0	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Festival Street & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***R***	***20***	***21***	***106***	***22.3***	***C***
	Subtotal	20	21	105	22.3	*C*
EB	T	716	721	101	2.0	*A*
	R	40	42	104	1.2	*A*
	Subtotal	756	763	101	2.0	*A*
WB	T	537	531	99	15.0	*B*
	Subtotal	537	531	99	15.0	*B*
Total		1,313	1,315	100	7.6	*A*

Intersection: Commons Boulevard & MF Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	***R***	***44***	***40***	***91***	***4.5***	***A***
	Subtotal	44	40	91	4.5	*A*
EB	L	64	61	95	2.3	*A*
	T	385	393	102	0.1	*A*
	Subtotal	449	454	101	0.4	*A*
WB	T	256	256	100	0.7	*A*
	Subtotal	256	256	100	0.7	*A*
Total		749	750	100	0.7	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Collector 1 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***36***	***37***	***102***	***7.9***	***A***
	Subtotal	36	37	103	7.9	*A*
SB	R	16	14	89	3.6	*A*
	Subtotal	16	14	88	3.6	*A*
EB	L	25	24	96	2.3	*A*
	T	298	303	102	0.5	*A*
	R	62	66	106	0.3	*A*
	Subtotal	385	393	102	0.6	*A*
WB	T	204	206	101	0.4	*A*
	Subtotal	204	206	101	0.4	*A*
Total		641	650	101	1.0	*A*

Intersection: Commons Boulevard & Road 6
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	247	251	102	0.6	*A*
	R	52	52	100	0.3	*A*
	Subtotal	299	303	101	0.5	*A*
SB	T	175	177	101	0.4	*A*
	Subtotal	175	177	101	0.4	*A*
WB	***L***	***28***	***29***	***104***	***6.7***	***A***
	Subtotal	28	29	104	6.7	*A*
Total		502	509	101	0.9	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Commons Boulevard & Collector 2
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	42	40	96	2.5	*A*
	T	204	211	103	0.6	*A*
	Subtotal	246	251	102	0.9	*A*
SB	T	154	152	99	0.5	*A*
	R	16	16	102	0.4	*A*
	Subtotal	170	168	99	0.5	*A*
EB	***L***	***51***	***49***	***96***	***6.6***	***A***
	R	22	25	115	3.9	*A*
	Subtotal	73	74	101	5.7	*A*
Total		488	493	101	1.5	*A*

Intersection: Commons Boulevard & Drive 20/Road 1
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	24	23	96	2.3	*A*
	T	208	213	102	0.6	*A*
	R	23	24	104	0.4	*A*
	Subtotal	255	260	102	0.7	*A*
SB	T	132	132	100	0.5	*A*
	Subtotal	132	132	100	0.5	*A*
EB	R	10	9	88	3.4	*A*
	Subtotal	10	9	90	3.4	*A*
WB	***L***	***27***	***27***	***100***	***5.9***	***A***
	Subtotal	27	27	100	5.9	*A*
Total		425	428	101	1.0	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Road 35 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***20***	***18***	***91***	***5.4***	***A***
	Subtotal	20	18	90	5.4	*A*
EB	T	170	175	103	0.9	*A*
	R	38	39	102	0.6	*A*
	Subtotal	208	214	103	0.8	*A*
WB	T	112	115	102	0.1	*A*
	Subtotal	112	115	103	0.1	*A*
Total		340	347	102	0.9	*A*

Intersection: Coyote View Drive & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	98	102	104	1.9	*A*
	Subtotal	98	102	104	1.9	*A*
SB	R	14	12	87	0.0	*A*
	Subtotal	14	12	86	0.0	*A*
EB	***L***	***10***	***11***	***107***	***4.8***	***A***
	T	1	1	133	0.4	*A*
	R	160	164	102	3.4	*A*
	Subtotal	171	176	103	3.5	*A*
Total		282	290	103	2.8	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Wasatch Commons & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***25***	***23***	***92***	***14.1***	***B***
	Subtotal	25	23	92	14.1	*B*
EB	T	450	455	101	1.0	*A*
	R	45	45	101	0.7	*A*
	Subtotal	495	500	101	1.0	*A*
WB	T	299	296	99	1.0	*A*
	Subtotal	299	296	99	1.0	*A*
Total		818	819	100	1.3	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,587	1,583	100	10.5	*B*
	R	235	232	99	4.4	*A*
	Subtotal	1,822	1,815	100	9.7	*A*
SB	L	105	101	96	57.8	*E*
	T	2,108	2,072	98	18.5	*B*
	Subtotal	2,213	2,173	98	20.3	*C*
WB	L	205	202	99	82.6	*F*
	R	75	79	106	25.8	*C*
	Subtotal	280	281	100	66.6	*E*
Total		4,314	4,269	99	19.0	*B*

Intersection: US-40 & Commons Boulevard
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,250	1,239	99	30.4	*C*
	R	412	419	102	24.0	*C*
	Subtotal	1,662	1,658	100	28.8	*C*
SB	L	344	337	98	46.4	*D*
	T	1,872	1,830	98	11.5	*B*
	Subtotal	2,216	2,167	98	16.9	*B*
WB	L	342	342	100	52.7	*D*
	R	195	190	97	19.7	*B*
	Subtotal	537	532	99	40.9	*D*
Total		4,416	4,357	99	24.4	*C*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	10	9	88	70.2	*F*
	T	1,326	1,311	99	7.9	*A*
	R	110	111	101	8.1	*A*
	Subtotal	1,446	1,431	99	8.3	*A*
SB	L	54	56	104	19.7	*C*
	T	2,145	2,153	100	2.6	*A*
	R	10	11	107	0.9	*A*
	Subtotal	2,209	2,220	100	3.0	*A*
NE	L	5	4	76	911.2	*F*
	R	5	6	114	40.8	*E*
	Subtotal	10	10	100	389.0	*F*
SW	***L***	***65***	***8***	***12***	***2619.6***	***F***
	R	35	4	11	2193.8	*F*
	Subtotal	100	12	12	2477.7	*F*
Total		3,766	3,673	98	36.9	*E*

Intersection: Commons Boulevard & Creekside at Highlands
Type: Roundabout

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	R	193	197	102	3.5	*A*
	Subtotal	193	197	102	3.5	*A*
EB	L	222	219	99	2.6	*A*
	T	0	0	0		
	R	494	498	101	2.5	*A*
	Subtotal	716	717	100	2.5	*A*
NW	L	324	317	98	3.7	*A*
	Subtotal	324	317	98	3.7	*A*
Total		1,254	1,249	100	3.0	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Festival Street & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***R***	***20***	***22***	***111***	***17.0***	***C***
	Subtotal	20	22	110	17.0	*C*
EB	T	716	713	100	1.5	*A*
	R	40	44	109	0.8	*A*
	Subtotal	756	757	100	1.5	*A*
WB	T	537	532	99	1.1	*A*
	Subtotal	537	532	99	1.1	*A*
Total		1,313	1,311	100	1.6	*A*

Intersection: Commons Boulevard & MF Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	***R***	***44***	***44***	***101***	***3.9***	***A***
	Subtotal	44	44	100	3.9	*A*
EB	L	64	63	98	2.2	*A*
	T	385	385	100	0.1	*A*
	Subtotal	449	448	100	0.4	*A*
WB	T	256	252	99	0.4	*A*
	Subtotal	256	252	98	0.4	*A*
Total		749	744	99	0.6	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Collector 1 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***36***	***36***	***99***	***7.5***	***A***
	Subtotal	36	36	100	7.5	*A*
SB	R	16	16	102	3.4	*A*
	Subtotal	16	16	100	3.4	*A*
EB	L	25	24	96	2.0	*A*
	T	298	302	101	0.5	*A*
	R	62	61	98	0.3	*A*
	Subtotal	385	387	101	0.6	*A*
WB	T	204	200	98	0.5	*A*
	Subtotal	204	200	98	0.5	*A*
Total		641	639	100	1.0	*A*

Intersection: Commons Boulevard & Road 6
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	247	245	99	0.7	*A*
	R	52	58	112	0.4	*A*
	Subtotal	299	303	101	0.6	*A*
SB	T	175	172	98	0.4	*A*
	Subtotal	175	172	98	0.4	*A*
WB	***L***	***28***	***28***	***100***	***6.7***	***A***
	Subtotal	28	28	100	6.7	*A*
Total		502	503	100	0.9	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Commons Boulevard & Collector 2
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	42	43	103	2.5	*A*
	T	204	203	99	0.6	*A*
	Subtotal	246	246	100	0.9	*A*
SB	T	154	150	98	0.5	*A*
	R	16	16	102	0.3	*A*
	Subtotal	170	166	98	0.5	*A*
EB	***L***	***51***	***53***	***104***	***6.3***	***A***
	R	22	22	101	4.2	*A*
	Subtotal	73	75	103	5.7	*A*
Total		488	487	100	1.5	*A*

Intersection: Commons Boulevard & Drive 20/Road 1
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	24	24	100	2.2	*A*
	T	208	209	100	0.6	*A*
	R	23	24	104	0.4	*A*
	Subtotal	255	257	101	0.7	*A*
SB	T	132	129	98	0.5	*A*
	Subtotal	132	129	98	0.5	*A*
EB	R	10	11	107	3.5	*A*
	Subtotal	10	11	110	3.5	*A*
WB	***L***	***27***	***27***	***100***	***5.6***	***A***
	Subtotal	27	27	100	5.6	*A*
Total		425	424	100	1.1	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Road 35 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***20***	***18***	***91***	***5.3***	***A***
	Subtotal	20	18	90	5.3	*A*
EB	T	170	169	99	0.8	*A*
	R	38	40	105	0.5	*A*
	Subtotal	208	209	100	0.7	*A*
WB	T	112	110	98	0.2	*A*
	Subtotal	112	110	98	0.2	*A*
Total		340	337	99	0.8	*A*

Intersection: Coyote View Drive & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	98	96	98	1.9	*A*
	Subtotal	98	96	98	1.9	*A*
SB	R	14	13	95	0.1	*A*
	Subtotal	14	13	93	0.1	*A*
EB	***L***	***10***	***10***	***98***	***5.2***	***A***
	T	1	1	133	1.4	*A*
	R	160	159	99	3.4	*A*
	Subtotal	171	170	99	3.5	*A*
Total		282	279	99	2.8	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2028) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Wasatch Commons & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***25***	***23***	***92***	***10.0***	***A***
	Subtotal	25	23	92	10.0	*A*
EB	T	450	450	100	0.4	*A*
	R	45	49	109	0.2	*A*
	Subtotal	495	499	101	0.4	*A*
WB	T	299	295	99	0.2	*A*
	Subtotal	299	295	99	0.2	*A*
Total		818	817	100	0.6	*A*

SimTraffic LOS Report

Project: Heber - Highlands TIS
Analysis Period: *Future (2040) Background*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,755	1,768	101	11.1	*B*
	R	240	238	99	3.7	*A*
	Subtotal	1,995	2,006	101	10.2	*B*
SB	L	125	122	98	58.4	*E*
	T	2,646	2,590	98	21.9	*C*
	Subtotal	2,771	2,712	98	23.5	*C*
WB	L	210	213	102	53.0	*D*
	R	80	83	104	9.6	*A*
	Subtotal	290	296	102	40.8	*D*
Total		5,055	5,014	99	19.3	*B*

Intersection: US-40 & Commons Boulevard
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,610	1,633	101	29.7	*C*
	R	225	220	98	18.1	*B*
	Subtotal	1,835	1,853	101	28.3	*C*
SB	L	285	275	97	41.0	*D*
	T	2,560	2,502	98	11.0	*B*
	Subtotal	2,845	2,777	98	14.0	*B*
WB	L	210	204	97	59.3	*E*
	R	129	124	96	20.5	*C*
	Subtotal	339	328	97	44.6	*D*
Total		5,020	4,958	99	21.4	*C*

SimTraffic LOS Report

Project: Heber - Highlands TIS
Analysis Period: *Future (2040) Background*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	15	16	108	176.3	*F*
	T	1,634	1,654	101	6.3	*A*
	R	90	88	98	6.8	*A*
	Subtotal	1,739	1,758	101	7.9	*A*
SB	L	25	24	96	20.4	*C*
	T	2,770	2,766	100	2.7	*A*
	R	15	15	102	1.5	*A*
	Subtotal	2,810	2,805	100	2.8	*A*
NE	L	10	3	29	1618.0	*F*
	R	10	9	88	368.5	*F*
	Subtotal	20	12	60	680.9	*F*
SW	***L***	***65***	***4***	***6***	***2708.8***	***F***
	R	25	2	8	2471.9	*F*
	Subtotal	90	6	7	2629.8	*F*
Total		4,660	4,581	98	44.1	*E*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	2,116	2,119	100	13.1	*B*
	R	240	237	99	7.5	*A*
	Subtotal	2,356	2,356	100	12.5	*B*
SB	L	125	123	99	62.1	*E*
	T	2,926	2,842	97	18.2	*B*
	Subtotal	3,051	2,965	97	20.0	*B*
WB	L	210	214	102	68.9	*E*
	R	80	81	101	19.3	*B*
	Subtotal	290	295	102	55.3	*E*
Total		5,696	5,616	99	18.8	*B*

Intersection: US-40 & Commons Boulevard
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,650	1,654	100	39.9	*D*
	R	546	546	100	46.8	*D*
	Subtotal	2,196	2,200	100	41.6	*D*
SB	L	479	458	96	125.3	*F*
	T	2,571	2,496	97	18.9	*B*
	Subtotal	3,050	2,954	97	35.4	*D*
WB	L	480	475	99	51.8	*D*
	R	280	277	99	20.6	*C*
	Subtotal	760	752	99	40.3	*D*
Total		6,006	5,906	98	38.6	*D*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	15	11	75	463.9	*F*
	T	1,786	1,787	100	8.6	*A*
	R	130	129	99	9.2	*A*
	Subtotal	1,931	1,927	100	11.2	*B*
SB	L	73	72	99	30.5	*D*
	T	2,964	2,970	100	6.5	*A*
	R	15	16	108	3.0	*A*
	Subtotal	3,052	3,058	100	7.0	*A*
NE	L	10	1	10	1862.0	*F*
	R	10	8	78	400.8	*F*
	Subtotal	20	9	45	563.2	*F*
SW	***L***	***75***	***1***	***1***	***3335.8***	***F***
	R	62	1	2	3057.1	*F*
	Subtotal	137	2	1	3196.5	*F*
Total		5,139	4,996	97	36.9	*E*

Intersection: Commons Boulevard & Creekside at Highlands
Type: Roundabout

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	5	5	95	4.2	*A*
	R	272	276	101	5.5	*A*
	Subtotal	277	281	101	5.5	*A*
EB	L	298	296	99	3.9	*A*
	T	0	0	0		
	R	635	619	98	3.9	*A*
	Subtotal	933	915	98	3.9	*A*
NW	L	437	427	98	7.0	*A*
	T	1	1	133	1.3	*A*
	R	7	8	110	7.3	*A*
	Subtotal	445	436	98	7.0	*A*
Total		1,706	1,682	99	4.9	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Festival Street & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***R***	***51***	***52***	***102***	***80.9***	***F***
	Subtotal	51	52	102	80.9	*F*
EB	T	933	914	98	2.5	*A*
	R	92	91	99	1.4	*A*
	Subtotal	1,025	1,005	98	2.4	*A*
WB	T	761	753	99	1.8	*A*
	Subtotal	761	753	99	1.8	*A*
Total		1,837	1,810	99	4.5	*A*

Intersection: Commons Boulevard & MF Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	***L***	***1***	***1***	***100***	***5.4***	***A***
	R	53	50	94	5.0	*A*
	Subtotal	54	51	94	5.0	*A*
EB	L	74	70	95	2.8	*A*
	T	522	510	98	0.2	*A*
	Subtotal	596	580	97	0.5	*A*
WB	T	362	358	99	0.6	*A*
	R	1	2	200	0.4	*A*
	Subtotal	363	360	99	0.6	*A*
Total		1,012	991	98	0.8	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Collector 1 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***39***	***37***	***94***	***10.0***	***A***
	T	1	1	100	4.8	*A*
	R	1	1	100	7.5	*A*
	Subtotal	41	39	95	9.8	*A*
SB	L	1	0	0		
	T	2	2	100	7.9	*A*
	R	15	16	108	4.7	*A*
	Subtotal	18	18	100	5.1	*A*
EB	L	15	12	81	2.6	*A*
	T	441	430	97	0.6	*A*
	R	67	68	101	0.3	*A*
	Subtotal	523	510	98	0.6	*A*
WB	L	1	1	100	3.3	*A*
	T	308	307	100	0.6	*A*
	R	1	1	100	0.3	*A*
	Subtotal	310	309	100	0.6	*A*
Total		892	876	98	1.1	*A*

Intersection: Commons Boulevard & Road 6
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	408	395	97	0.6	*A*
	R	35	36	102	0.4	*A*
	Subtotal	443	431	97	0.6	*A*
SB	L	4	4	100	4.3	*A*
	T	279	279	100	0.6	*A*
	Subtotal	283	283	100	0.7	*A*
WB	***L***	***31***	***31***	***100***	***8.8***	***A***
	R	1	1	100	3.4	*A*
	Subtotal	32	32	100	8.6	*A*
Total		758	746	98	1.0	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Commons Boulevard & Collector 2
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	37	36	97	3.1	*A*
	T	372	359	97	0.7	*A*
	Subtotal	409	395	97	0.9	*A*
SB	T	272	271	100	0.6	*A*
	R	22	22	101	0.4	*A*
	Subtotal	294	293	100	0.6	*A*
EB	***L***	***63***	***68***	***108***	***9.3***	***A***
	R	12	14	114	4.5	*A*
	Subtotal	75	82	109	8.5	*A*
Total		778	770	99	1.6	*A*

Intersection: Commons Boulevard & Drive 20/Road 1
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	15	14	95	2.4	*A*
	T	388	381	98	0.8	*A*
	R	31	31	100	0.7	*A*
	Subtotal	434	426	98	0.8	*A*
SB	L	1	0	0		
	T	254	254	100	0.5	*A*
	R	1	1	100	0.5	*A*
	Subtotal	256	255	100	0.5	*A*
EB	L	1	1	100	7.3	*A*
	T	1	1	100	6.7	*A*
	R	10	10	98	3.9	*A*
	Subtotal	12	12	100	4.4	*A*
WB	L	30	30	100	7.7	*A*
	T	***1***	***1***	***100***	***10.5***	***B***
	R	1	2	200	2.8	*A*
	Subtotal	32	33	103	7.5	*A*
Total		734	726	99	1.1	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Road 35 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***6***	***5***	***80***	***9.6***	***A***
	R	5	7	133	4.6	*A*
	Subtotal	11	12	109	6.7	*A*
EB	T	354	344	97	1.3	*A*
	R	36	38	105	1.0	*A*
	Subtotal	390	382	98	1.3	*A*
WB	L	7	8	110	2.9	*A*
	T	249	250	100	0.2	*A*
	Subtotal	256	258	101	0.3	*A*
Total		658	652	99	1.0	*A*

Intersection: Coyote View Drive & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	225	226	100	1.9	*A*
	T	1	2	200	0.3	*A*
	Subtotal	226	228	101	1.9	*A*
SB	T	1	0	0		
	R	31	31	100	0.2	*A*
	Subtotal	32	31	97	0.2	*A*
EB	***L***	***24***	***24***	***100***	***8.7***	***A***
	T	1	1	133	1.0	*A*
	R	335	326	97	4.8	*A*
	Subtotal	360	351	98	5.1	*A*
Total		618	610	99	3.6	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Wasatch Commons & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***30***	***30***	***100***	***19.4***	***C***
	R	5	6	114	8.4	*A*
	Subtotal	35	36	103	17.6	*C*
EB	T	590	575	97	0.6	*A*
	R	50	49	98	0.4	*A*
	Subtotal	640	624	98	0.6	*A*
WB	T	414	407	98	0.4	*A*
	Subtotal	414	407	98	0.4	*A*
Total		1,090	1,067	98	1.1	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: US-40 & Coyote Lane
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	2,116	2,116	100	12.3	*B*
	R	240	244	102	7.4	*A*
	Subtotal	2,356	2,360	100	11.8	*B*
SB	L	125	127	102	74.0	*E*
	T	2,959	2,890	98	16.8	*B*
	Subtotal	3,084	3,017	98	19.2	*B*
WB	L	210	207	99	92.9	*F*
	R	80	83	104	20.4	*C*
	Subtotal	290	290	100	72.2	*E*
Total		5,730	5,667	99	18.9	*B*

Intersection: US-40 & Commons Boulevard
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	1,688	1,701	101	40.6	*D*
	R	546	546	100	39.7	*D*
	Subtotal	2,234	2,247	101	40.4	*D*
SB	L	479	461	96	43.1	*D*
	T	2,580	2,520	98	12.5	*B*
	Subtotal	3,059	2,981	97	17.2	*B*
WB	L	480	470	98	45.1	*D*
	T	53	46	87	7.3	*A*
	R	280	271	97	19.5	*B*
	Subtotal	813	787	97	34.1	*C*
Total		6,107	6,015	98	28.2	*C*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: 3000 North/College Way & US-40
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	15	14	95	351.8	*F*
	T	1,806	1,805	100	8.6	*A*
	R	130	131	101	9.2	*A*
	Subtotal	1,951	1,950	100	11.1	*B*
SB	L	73	68	93	31.9	*D*
	T	2,964	2,960	100	5.6	*A*
	R	15	17	115	2.6	*A*
	Subtotal	3,052	3,045	100	6.2	*A*
NE	L	10	1	10	1976.6	*F*
	R	10	3	29	864.8	*F*
	Subtotal	20	4	20	1142.8	*F*
SW	***L***	***75***	***3***	***4***	***3211.2***	***F***
	R	62	4	6	2763.6	*F*
	Subtotal	137	7	5	2955.4	*F*
Total		5,159	5,006	97	37.2	*E*

Intersection: Commons Boulevard & Creekside at Highlands
Type: Roundabout

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	5	6	114	4.0	*A*
	R	272	265	97	4.8	*A*
	Subtotal	277	271	98	4.8	*A*
EB	L	298	293	98	2.2	*A*
	T	0	0	0		
	R	635	624	98	2.1	*A*
	Subtotal	933	917	98	2.1	*A*
NW	L	437	420	96	7.8	*A*
	T	1	1	133	1.0	*A*
	R	7	9	124	8.6	*A*
	Subtotal	445	430	97	7.8	*A*
Total		1,706	1,673	98	4.0	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Festival Street & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***R***	***51***	***55***	***108***	***14.5***	***B***
	Subtotal	51	55	108	14.5	*B*
EB	T	980	962	98	1.3	*A*
	R	92	95	103	0.9	*A*
	Subtotal	1,072	1,057	99	1.3	*A*
WB	T	761	740	97	1.7	*A*
	Subtotal	761	740	97	1.7	*A*
Total		1,885	1,852	98	1.8	*A*

Intersection: Commons Boulevard & MF Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	1	0	0		
	R	***53***	***56***	***106***	***4.9***	***A***
	Subtotal	54	56	104	4.9	*A*
EB	L	74	71	96	2.8	*A*
	T	522	510	98	0.2	*A*
	Subtotal	596	581	97	0.5	*A*
WB	T	362	348	96	0.6	*A*
	R	1	2	200	0.2	*A*
	Subtotal	363	350	96	0.6	*A*
Total		1,012	987	97	0.8	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Collector 1 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	39	34	87	10.1	*B*
	T	***1***	***1***	***100***	***10.5***	***B***
	R	1	2	200	3.9	*A*
	Subtotal	41	37	90	9.8	*A*
SB	L	1	0	0		
	T	2	3	150	7.6	*A*
	R	15	14	95	4.4	*A*
	Subtotal	18	17	94	5.0	*A*
EB	L	15	13	88	2.6	*A*
	T	441	431	98	0.7	*A*
	R	67	67	100	0.3	*A*
	Subtotal	523	511	98	0.7	*A*
WB	L	1	1	100	2.3	*A*
	T	308	302	98	0.6	*A*
	R	1	1	100	0.6	*A*
	Subtotal	310	304	98	0.6	*A*
Total		892	869	97	1.1	*A*

Intersection: Commons Boulevard & Road 6
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	T	408	392	96	0.8	*A*
	R	35	40	113	0.4	*A*
	Subtotal	443	432	98	0.8	*A*
SB	L	4	4	100	3.0	*A*
	T	279	270	97	0.6	*A*
	Subtotal	283	274	97	0.6	*A*
WB	***L***	***31***	***33***	***106***	***8.8***	***A***
	R	1	2	200	3.0	*A*
	Subtotal	32	35	109	8.5	*A*
Total		758	741	98	1.1	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Commons Boulevard & Collector 2
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	37	35	94	3.2	*A*
	T	372	359	97	0.7	*A*
	Subtotal	409	394	96	0.9	*A*
SB	T	272	261	96	0.6	*A*
	R	22	23	106	0.4	*A*
	Subtotal	294	284	97	0.6	*A*
EB	***L***	***63***	***65***	***103***	***8.9***	***A***
	R	12	14	114	5.1	*A*
	Subtotal	75	79	105	8.2	*A*
Total		778	757	97	1.6	*A*

Intersection: Commons Boulevard & Drive 20/Road 1
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	15	13	88	2.5	*A*
	T	388	376	97	0.9	*A*
	R	31	33	106	0.5	*A*
	Subtotal	434	422	97	0.9	*A*
SB	L	1	0	0		
	T	254	246	97	0.4	*A*
	R	1	2	200	0.1	*A*
	Subtotal	256	248	97	0.4	*A*
EB	L	1	0	0		
	T	1	1	100	7.0	*A*
	R	10	10	98	3.6	*A*
	Subtotal	12	11	92	3.9	*A*
WB	L	30	28	93	9.4	*A*
	T	***1***	***1***	***100***	***10.6***	***B***
	R	1	2	200	2.9	*A*
	Subtotal	32	31	97	9.0	*A*
Total		734	712	97	1.1	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Road 35 & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***6***	***6***	***96***	***7.5***	***A***
	R	5	5	95	4.9	*A*
	Subtotal	11	11	100	6.3	*A*
EB	T	354	339	96	1.4	*A*
	R	36	38	105	1.0	*A*
	Subtotal	390	377	97	1.4	*A*
WB	L	7	6	83	3.1	*A*
	T	249	242	97	0.2	*A*
	Subtotal	256	248	97	0.3	*A*
Total		658	636	97	1.0	*A*

Intersection: Coyote View Drive & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	225	216	96	1.9	*A*
	T	1	1	100	0.5	*A*
	Subtotal	226	217	96	1.9	*A*
SB	T	1	1	100	0.1	*A*
	R	31	31	100	0.2	*A*
	Subtotal	32	32	100	0.2	*A*
EB	***L***	***24***	***24***	***100***	***8.2***	***A***
	T	1	1	133	1.2	*A*
	R	335	319	95	4.7	*A*
	Subtotal	360	344	96	4.9	*A*
Total		618	593	96	3.6	*A*

SimTraffic LOS Report

Project: Heber Highlands TIS
Analysis Period: *Future (2040) Mitigated Plus Project*
Time Period: *Evening Peak Hour* **Project #:** *UT23-2532*

Intersection: Wasatch Commons & Commons Boulevard
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	***L***	***30***	***27***	***90***	***16.7***	***C***
	R	5	6	114	7.1	*A*
	Subtotal	35	33	94	15.0	*B*
EB	T	590	575	97	0.5	*A*
	R	50	54	108	0.3	*A*
	Subtotal	640	629	98	0.5	*A*
WB	T	414	403	97	0.5	*A*
	Subtotal	414	403	97	0.5	*A*
Total		1,090	1,065	98	0.9	*A*

APPENDIX D

95th Percentile Queue Length Reports

SimTraffic Queueing Report

Project: Heber - Highlands TIS

Analysis: Existing (2023) Background

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB			NE	SB		SW		WB	
	L	R	T	LTR	L	T	LT	R	L	R
01: US-40 & Coyote Lane		75	225		125	225			200	75
02: US-40 & Commons Boulevard					50				75	50
03: 3000 North/College Way & US-40							100			

SimTraffic Queueing Report

Project: Heber Highlands TIS

Analysis: Existing (2023) Plus Project

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB					NE		SB			SW		EB				WB				
	L	LR	LTR	R	T	L	TR	L	LTR	T	L	R	L	LR	LTR	TR	L	LR	LT	LTR	R
01: US-40 & Coyote Lane				75	200			125		225							175				75
02: US-40 & Commons Boulevard				75	175			100		200							150				75
03: 3000 North/College Way & US-40								75			100	75									
04: Festival Street & Commons Boulevard																			50		
06: Collector 1 & Commons Boulevard			50						50												
07: Commons Boulevard & Road 6																		50			
08: Commons Boulevard & Collector 2														75							
09: Commons Boulevard & Drive 20/Road 1															50					50	
10: Wasatch Commons & Commons Boulevard		50																			

SimTraffic Queueing Report

Project: Heber - Highlands TIS

Analysis: Future (2028) Background

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB			NE		SB			SW		WB	
	L	R	T	L	R	L	T	TR	L	R	L	R
01: US-40 & Coyote Lane		75	225			125	250				225	125
02: US-40 & Commons Boulevard						125	50				250	850
03: 3000 North/College Way & US-40				50		50			275	950		

SimTraffic Queueing Report

Project: Heber - Highlands TIS

Analysis: Future (2028) Mitigated Background

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB			NE		SB		SW		WB	
	L	R	T	L	R	L	T	L	R	L	R
01: US-40 & Coyote Lane		75	225			125	275			225	125
02: US-40 & Commons Boulevard		75	200			125	225			150	100
03: 3000 North/College Way & US-40				50	25			275	975		

SimTraffic Queueing Report

Project: Heber Highlands TIS

Analysis: Future (2028) Plus Project

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB					NE		SB					SW		EB							WB					
	L	LR	LTR	R	T	L	R	L	LR	LTR	T	TR	L	R	L	LR	LTR	R	T	TR	UL	L	LR	LTR	R	T	TR
01: US-40 & Coyote Lane				150	350			150			250											300			325		
02: US-40 & Commons Boulevard				325	475			475			650											325			200		
03: 3000 North/College Way & US-40	50					75	50	75					275	1,000													
04: Commons Boulevard & Creekside at Highlands									250										150		100						150
05: Festival Street & Commons Boulevard				75																75						200	
06: Commons Boulevard & MF Access									75						50												
07: Collector 1 & Commons Boulevard			75							50					50												
08: Commons Boulevard & Road 6																							75				
09: Commons Boulevard & Collector 2	50															75											
10: Commons Boulevard & Drive 20/Road 1																	50							50			
11: Road 35 & Commons Boulevard		50																									
12: Coyote View Drive & Commons Boulevard															50			100									
13: Wasatch Commons & Commons Boulevard		50																								50	

SimTraffic Queueing Report

Project: Heber Highlands TIS

Analysis: Future (2028) Mitigated Plus Project

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB					NE		NW	SB					SW		EB						WB				
	L	LR	LTR	R	T	L	R	LR	L	LR	LTR	T	TR	L	R	L	LR	LTR	R	TR	ULR	L	LR	LTR	R	T
01: US-40 & Coyote Lane				125	275				150			275										300			300	
02: US-40 & Commons Boulevard				325	425				325			250										225			150	
03: 3000 North/College Way & US-40	50					100	50		75			75	75	275	950											
04: Commons Boulevard & Creekside at Highlands								100		75											75					
05: Festival Street & Commons Boulevard				75																						50
06: Commons Boulevard & MF Access										75						50										
07: Collector 1 & Commons Boulevard			50								50															
08: Commons Boulevard & Road 6																							50			
09: Commons Boulevard & Collector 2	50																75									
10: Commons Boulevard & Drive 20/Road 1																		50						50		
11: Road 35 & Commons Boulevard		50																								
12: Coyote View Drive & Commons Boulevard																50			100							
13: Wasatch Commons & Commons Boulevard		50																								

SimTraffic Queueing Report

Project: Heber - Highlands TIS

Analysis: Future (2040) Background

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB			NE		SB			SW		WB	
	L	R	T	L	R	L	T	TR	L	R	L	R
01: US-40 & Coyote Lane		75	325			175	325				275	75
02: US-40 & Commons Boulevard		250	400			250	275				225	275
03: 3000 North/College Way & US-40	75		175	375	100	50	225	225	275	1,550		

SimTraffic Queueing Report

Project: Heber Highlands TIS

Analysis: Future (2040) Plus Project

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB					NE		NW	SB					SW		EB					WB					
	L	LR	LTR	R	T	L	R	LR	L	LR	LTR	T	TR	L	R	L	LR	LTR	TR	ULR	L	LR	LTR	R	T	TR
01: US-40 & Coyote Lane				125	300				175			275									325			125		
02: US-40 & Commons Boulevard				375	450				875			1,075									275			225		
03: 3000 North/College Way & US-40	150				200	325	75		100			100	100	250	825											
04: Commons Boulevard & Creekside at Highlands								150		125										150						
05: Festival Street & Commons Boulevard				150															75						50	
06: Commons Boulevard & MF Access										75						75										
07: Collector 1 & Commons Boulevard			75								50															
08: Commons Boulevard & Road 6																						75				
09: Commons Boulevard & Collector 2	50																75									
10: Commons Boulevard & Drive 20/Road 1																		50					50			
11: Road 35 & Commons Boulevard		50																								
12: Coyote View Drive & Commons Boulevard	50																125									
13: Wasatch Commons & Commons Boulevard		75																							50	

SimTraffic Queueing Report

Project: Heber Highlands TIS

Analysis: Future (2040) Mitigated Plus Project

Time Period: Evening Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES ENGINEERING
innovative transportation solutions

Project #: UT23-2532

Intersection	NB					NE		NW	SB					SW		EB							WB					
	L	LR	LTR	R	T	L	R	LR	L	LR	LTR	T	TR	L	R	L	LR	LTR	R	T	TR	UL	L	LR	LTR	R	T	TR
01: US-40 & Coyote Lane				100	275				200			250											375			175		
02: US-40 & Commons Boulevard				375	425				300			275											250			175		
03: 3000 North/College Way & US-40	100					475	50		100			100	100	250	850													
04: Commons Boulevard & Creekside at Highlands								150		100									25			50						
05: Festival Street & Commons Boulevard				100																	50							
06: Commons Boulevard & MF Access										75						75												
07: Collector 1 & Commons Boulevard			75								50																	
08: Commons Boulevard & Road 6																								75				
09: Commons Boulevard & Collector 2	50																75											
10: Commons Boulevard & Drive 20/Road 1																		50							75			
11: Road 35 & Commons Boulevard		50																										
12: Coyote View Drive & Commons Boulevard	50																125											
13: Wasatch Commons & Commons Boulevard		75																									50	

APPENDIX E

ITE Internal Capture

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Heber - Highlands TIS	**Organization:**	Hales Engineering
Project Location:	Heber City, UT	**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:	2028	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office			1,000 SF	0		
Retail		55	1,000 SF	320	160	160
Restaurant			1,000 SF	0		
Cinema/Entertainment				0		
Residential		1,077	Units	742	447	295
Hotel		135	Rooms	74	38	36
All Other Land Uses[2]				0		
				1,136	645	491

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.11	0%	0%	1.11	0%	0%
Retail	1.21	0%	0%	1.21	0%	0%
Restaurant	1.39	0%	0%	1.39	0%	0%
Cinema/Entertainment						
Residential	1.15	0%	0%	1.15	0%	0%
Hotel	1.30	0%	0%	1.30	0%	0%
All Other Land Uses[2]	1.15	0%	0%	1.15	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					800	
Restaurant						
Cinema/Entertainment						
Residential		800				
Hotel					1100	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	50	8
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	16	0	0		6
Hotel	0	4	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,337	757	580
Internal Capture Percentage	13%	11%	14%
External Vehicle-Trips[5]	995	574	421
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	10%	30%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	10%	6%
Hotel	29%	9%

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Heber - Highlands TIS	**Organization:**	Hales Engineering
Project Location:	Heber City, UT	**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:	2040	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office			1,000 SF	0		
Retail		196	1,000 SF	558	285	273
Restaurant			1,000 SF	0		
Cinema/Entertainment				0		
Residential		1,077	Units	742	447	295
Hotel		135	Rooms	74	38	36
All Other Land Uses[2]				0		
				1,374	770	604

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.11	0%	0%	1.11	0%	0%
Retail	1.21	0%	0%	1.21	0%	0%
Restaurant	1.39	0%	0%	1.39	0%	0%
Cinema/Entertainment						
Residential	1.15	0%	0%	1.15	0%	0%
Hotel	1.30	0%	0%	1.30	0%	0%
All Other Land Uses[2]	1.15	0%	0%	1.15	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					800	
Restaurant						
Cinema/Entertainment						
Residential		800				
Hotel					1100	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	85	8
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	28	0	0		6
Hotel	0	7	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,624	908	716
Internal Capture Percentage	17%	15%	19%
External Vehicle-Trips[5]	1,148	656	492
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	10%	28%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	17%	10%
Hotel	29%	15%

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT

CONTENTS

1) Preliminary Environmental Impact Assessment – Epic Engineering
    a. Cultural Resources
    b. Water Quality
    c. Air Quality
    d. Historical Properties
    e. Wetlands
    f. Vegetation and Natural Features
    g. Rivers and Streams
2) Flood Plain – Ward Engineering Group
3) Slopes and Erosion Control – Ward Engineering Group
4) View Shed Analysis – Ward Engineering Group
5) Hazardous Materials and Operations – Not Applicable

April 6, 2023

Ward Engineering Group
231 W 800 S, Suite A
Salt Lake City, Utah 84101

RE: Preliminary Environmental Impact Assessment - ADDENDUM
The Highlands – Jordanelle Village
Heber City, UT
EPIC PROJECT #: 23SM5147

To Whom It May Concern,

This letter summarizes Epic Engineering's requested summary of missing items to the Preliminary Environmental Impact Assessment as requested by Heber City under code 17.20.020.N.3(h), (i), (j), and (g) as outlined below for the Highlands project located in Heber City, Utah. Epic Engineering's scope of work for this letter consisted only of the preliminary summary of the aforementioned sections and summarizes the findings only and does not address any other geotechnical or environmental aspects of this site or surrounding areas. Epic Engineering has reviewed a Geotechnical and Geologic Hazards Report (GSH, 2016), Phase I Environmental Site Assessment, and Biological Inventory for the subdivision (see attached).

(h) Cultural Resources

No issues regarding cultural resources were identified during the project scoping process. To ensure compliance with the National Historic Preservation Act (NHPA) Epic completed a records search through the Utah Division of State History. No historical or cultural resources were identified through this search. Additionally, nothing was noted during the extensive geotechnical investigation and biological inventory walks of the property. If through the development process a historical or cultural property were to be identified, it shall immediately be reported and assessed as to its historical and cultural significance.

(i) Water Quality

Water quality issues from the proposed development typically arise from stormwater runoff events. Stormwater mitigation control for detention ponds and basins have been designed into the community to capture stormwater runoff and allow water to infiltrate to the ground. Groundwater is estimated to be greater than 10-feet deep and no springs are located on the property where development is to occur. Geologically, 10-feet of silty SAND and GRAVEL soils (as noted in the geotechnical report) is more than adequate to filter issues arising from residential runoff to the stormwater ponds. The entire development is proposed to be connected to Heber City sanitary sewer system and water with no septic systems planned for the community.

(j) Air Quality

No issues regarding air quality were identified during the project scoping process. Operation of construction equipment could temporarily reduce local air quality. After construction, vehicle emissions were identified as the main contributor to air quality.

(g) Historical Properties

In conducting the Phase I Environmental Site Assessment and original title search, no habitable historical structures were identified in either report. The property has been largely undeveloped and utilized by local hiking and mountain biking trails and open space. Historical structures identified on the property include the Timpanogos and Wasatch Canals that run through and/or border the proposed development. Sections throughout the years have been lined with concrete-box-canal, while other sections remain earthen. Currently, there are abandoned residential structures and garages on the south side of the property. All structures are scheduled for demolition and removal. No historical or cultural resources were identified through this search.

Additionally, nothing was noted during the extensive geotechnical investigation and biological inventory walks of the property. If through the development process a historical or cultural property were to be identified, it shall immediately be reported and assessed as to its historical and cultural significance.

Epic Engineering's scope of work for this letter consisted only of the summary of the addendum items requested by Heber City. Other site grading activities being completed were not observed as part of this assessment; they are outside of the scope of work and are not addressed in this letter. The findings and recommendations presented in this letter were conducted within the limits prescribed by our client. No other warranty or representation, either expressed or implied, is intended in our proposals, contracts, reports, or letters.

This letter concludes the addendum items required by Heber City for the Preliminary Environmental Impact Assessment services for Ward Engineering Group for the proposed development of The Highlands - Jordanelle Village, Heber City, Utah. Please contact Epic Engineering at (435) 654-6600 if you would like to discuss the results of this report or have other questions.

Sincerely,
Epic Engineering, P.C.
Not Official Unless Stamped and Dated



Torrey Copfer, P.G.
Environmental Geologist

Supplemental Biological Inventory Report for Highlands at Jordanelle Proposed Development

Heber City, Utah



.

Prepared for:

Epic Engineering, PC
50 E 100 S
Heber City, UT 84032
www.epiceng.net

April 6, 2023

April 6, 2023

Heber City
Planning & Zoning Department
75 N Main Street
Heber City, Utah 84032

Re: Supplemental Biological Inventory Report-Highlands at Jordanelle

To whom it may concern,

Please find the attached Biological Inventory Report for the Highlands at Jordanelle proposed development, located in Heber City, Utah. The purpose of this assessment is to satisfy the requirements of the City code in regard to environmental impacts; and is not meant to replace more detailed and stringent surveys.

The attached report documents the following:

- Interpretation of historical and public information
- Subsequent investigations
- Interpretation of findings

In April 2023, Rimrock Engineering completed a Biological Inventory Report for the proposed +/- 113.86-acre development located adjacent to Highway 40 at approximately 2750 North, approximately 2.5 miles North of Heber City. Due to record level snow falls, field work for the inventory was supplemented with existing reports surrounding the development, overlapping field work and existing knowledge of the area. The proposed development is located along the east side of US-40, with the majority of the property falling between the Timpanogos and the Wasatch Canal. The project area is roughly bordered on the north by College Way and the south by Commons Blvd. The proposed development lies in Section 20, Township 3 South, Range 5 East, Salt Lake Base and Meridian. The study area consists of undeveloped land that has had historical livestock grazing and farmland that slopes west towards US-40. Please see Table 2 of Section 4.2 in the attached report for our findings and recommendations.

If you have any questions or concerns regarding the information enclosed herein, please feel free to contact me.

Respectfully,

Joshua Call
Staff Biologist/GIS Technician
Rimrock Engineering and Development
jcall@re-n-d.com

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1.0 Introduction and Background

Rimrock Engineering is conducting this Biological Inventory as a supplement to the Biological Inventory report prepared by Ronald J. Kass, Ph.D. of Intermountain Ecosystems. The original report was prepared for the Sorenson Development for Stuart Lamb. Subsequent supplemental reports have been prepared from this report by Epic Engineering, P.C. including the Jordanelle Village Biological Inventory and the Jordanelle Ridge Fitzgerald Annexation Biological Inventory. These reports identified the wildlife resources believed to inhabit the project area. Biological inventory objectives were as follows: (1) conduct a literature search for the occurrence of federal threatened and endangered species, U. S. Forest Service sensitive species, and state of Utah sensitive species, (2) conduct a field or aerial imagery analysis inventory for Waters of the U.S. and jurisdictional wetlands, (3) conduct a field or aerial imagery analysis inventory for sensitive plant and animal species and provide an ecological description of each habitat, (4) conduct a general biological inventory of plant communities, big game, and other high interest species, (5) summarize inventory results into a comprehensive report, and (6) assess impacts and recommend mitigation. Sensitive animals from the original report are shown in this report in Table 1, species specific to this proposed development are shown in Table 2.

Our Biological Inventory Report for the Highlands at Jordanelle looks at the flora and fauna presented in Table 1 and seeks to identify the potential for occurrence of the species identified in the table. To ensure accuracy, Table 1 was compared to the current list of Threatened and Endangered Species listed in the area (IPaC Report, Appendix C), summarized in Table 2. As shown, Table 1 contains species no longer to be believed of concern or of potentially occupying the project location. To ensure accuracy, we matched the methods and objectives listed above by (1) conducting a literature search for the occurrence of federal threatened and endangered species, U. S. Forest Service sensitive species, and state of Utah sensitive species, (2) reviewing field inventories for Waters of the U.S. and jurisdictional wetlands, (3) reviewing field inventories for sensitive plant and animal species and provide an ecological description of each habitat, (4) conducting a general biological inventory of plant communities, big game, and other high interest species, (5) summarizing inventory results into a comprehensive report, and (6) assess impacts and recommend mitigation.

Due to the record levels of snow fall received in the Heber Valley, the proposed project area was under 3-5’ of snow at the scheduled time of field work, therefor much of this analysis was completed by reviewing and referencing previously completed Biological Inventories in the immediate vicinity, and a thorough aerial imagery analysis (AGRC) and literature review. The adjacent inventories were conducted on homogenous areas and the results of those neighboring studies are applicable to this area. To ensure a thorough review, our team reviewed source materials including vegetation studies/maps and wildlife habitat data prepared by the Utah Division of Wildlife Resources and the U.S. Fish and Wildlife Service for the proposed project area.

2.0 Project Area and Site Description

The Highlands at Jordanelle is a +/- 113.86-acre development located adjacent to Highway 40 at approximately 2750 North, approximately 2.5 miles North of Heber City. The proposed development is located along the east side of US-40, with the majority of the property falling between the Timpanogos and the Wasatch Canal. The project area is roughly bordered on the north by College Way and the south by Commons Blvd. The proposed development lies in Section 20, Township 3 South, Range 5 East, Salt Lake Base and Meridian. The study area consists of undeveloped land that has had historical livestock grazing and mowing and farmland that slopes west towards US-40.

The project area is split into two fairly homogenous areas, with existing ephemeral drainages. The area above the canal is existing native sagebrush, while the land below the canal is irrigated farmland/pasture. Closer to the drainages are large cottonwood and willow trees. The historic drainage patterns of the land to the east have been changed due to the Tipanogos and Wasatch Canals that run generally north to south across the property, as well as historic flood irrigation. The site drains towards the west. The majority of the project area is made up of westerly facing aspects of grasslands, trees and sagebrush. As mentioned above, large cottonwood and willow trees and irrigated crops, exist below the canal. See Figure 1, 2, 3 and 6 and Appendix B- Photos.



Figure 1- Snow Covered Study Site



Figure 2- View of Typical Vegetation above Timpanogos Canal in Project Area, taken Summer 2022

During the literature and data review, the dominant vegetation map maintained by the Utah Division of Wildlife Resources was examined (UDWR 2023). According to the map, the site is located in the Cultivated Land category with Maple Dominant, Oak and Sagebrush sub dominant community, see Appendix A. From geotechnical site visits, prior knowledge of the site, and aerial imagery analysis, it was determined that the predominant vegetation present is sage brush (*Artemesia tridentata*), cheatgrass (*Bromus tectorum*) and native wheatgrasses (*Pascopyrum spp.*) above the Timpanogos canal and cultivated land and Fremont cottonwood trees (*Populus fremonti*) below the Timpanogos canal. The discrepancy between the dominant vegetation and actual site conditions is expected due to the data for the dominant vegetation map being generalized and derived from 1:24,000 scale orthophoto quadrangles, 1:40,000 scale aerial photos and high-level field mapping. This data is also subject to change as the site has been historically grazed. Imagery analysis shows that cultivation on the property began in the 1990's between 1993 and 1997, see Appendix A.

3.0 Sensitive Species from Original Sorenson Report

As explained in section 1 above, the original Biological Inventory for the Sorensen Development was analyzed in the scope of this study. The following Table 1 (next page) is from the original Biological Inventory Report for the Sorensen Development. This Table is shown and was analyzed and updated with the 2023 U.S. Fish and Wildlife's list of threatened and endangered species located in the Highlands at Jordanelle project area. This can be seen in Table 2 in section 4.2.

Table 1. Sensitive Species Analyzed on the Sorensen Development

Common Name	Scientific Name	Status	Habitat	Occurrence in Sorenson Area	Occurrence in Highlands Area
MAMMALS					
Wolverine	*Gulo gulo*	USFS & Utah Threatened	coniferous forest	low potential	Does not appear in 2023 IPAC Species list
Fisher	*Martes pennanti*	USFS & Utah sensitive	coniferous forest	low potential, probably extirpated	Does not appear in 2023 IPAC Species list
Spotted bat	*Euderma maculatum*	USFS & Utah sensitive	caves/mines/rocky crevices	Moderate potential	Does not appear in 2023 IPAC Species list
Townsend's big-eared bat	*Plecotus townsendii*	USFS & Utah sensitive	caves/mine/rocky crevices	low potential	Does not appear in 2023 IPAC Species list
Brazilian free tailedbat	*Tadarida brasiliensis*	Utah sensitive	caves/mines/rocky crevices	low potential	Does not appear in 2023 IPAC Species list
BIRDS					
Bald eagle	*Haliaeetus leucocephalus*	USFWS & Utah threatened	riparian, and open waters	moderate potential may roost locally during winter just outside project area.	Appears in 2023 IPAC Species list
Goshawk	*Accipiter gentilis*	USFS & Utah sensitive	aspen/conifer	low potential	Does not appear in 2023 IPAC Species list
Boreal owl	*Aegolius funereus*	USFS sensitive	mature old growth spruce-fir and snags	No habitat	Does not appear in 2023 IPAC Species list
Short-eared owl	*Asio flammeus*	Utah sensitive	marshes and open field	low potential, may occur in wetlands adjacent to project area	Does not appear in 2023 IPAC Species list
Burrowing owl	*Athene cunicularia*	Utah sensitive	sagebrush, grasslands	low potential	Does not appear in 2023 IPAC Species list
Flammulated owl	*Otus flammeolus*	USFS sensitive	aspen/conifer and snags	high potential	Does not appear in 2023 IPAC Species list
Great gray owl	*Strix nebulosa*	USFS sensitive	coniferous forest	Low potential	Does not appear in 2023 IPAC Species list
Sage grouse	*Centrocerus urophasianus*	Utah sensitive	sagebrush	Low potential	Does not appear in 2023 IPAC Species list

Long-billed curlew	*Numenius americanus*	Utah sensitive	wet & upland meadows	low potential, may occur in adjacent wetlands	Does not appear in 2023 IPAC Species list
Three-toed woodpecker	*Picoides tridactylus*	USFS & Utah sensitive	mature/old growth conifer and snags	No habitat	Does not appear in 2023 IPAC Species list

4.0 Field Work Summary

Due to record levels of snowfall in the Heber Valley, field work for this project was not feasible, therefor the field work from the adjacent Biological Inventories was reviewed and analyzed. This field work for wildlife and wetlands on neighboring properties was conducted in October 2021 and in August 2022 by Joshua Call (Staff Biologist-BS Wildlife and Wildlands Conservation, Brigham Young University). To inventory the proposed development for potential Waters of the United States, the ephemeral drainages and ponds were identified and located, utilizing gospatial data and aerial imagery analysis. Notes were taken on dominant plant species, presence/absence of water and channel characteristics.



Figure 3- Typical Cultivated Vegetation Below Timpanogos Canal, Picture Taken 2022

In addition to reviewing existing biological inventories, aerial imagery was analyzed for the project site for wildlife and vegetation indicators. Imagery was obtained from as early as 1993 through 2022 (AGRC). Table 2 is a summary of all the sensitive/endangered species analyzed on the Highlands at Jordanelle Development.

4.1 Findings Summary

Field notes and data sheets were reviewed from each transect and observation point from the existing reports. Office work consisted of reviewing each of the transects and observation points, and running NDVI (Normalized difference vegetation index) analysis on National Agricultural Imagery Program (NAIP) imagery with the available infrared banding. Due to the vegetation differences visible in the analysis and from prior field work, results were divided to the area above the canal and the area below the canal.

Above Canal
The common dominant vegetation observed was sage brush, less dominant, smaller, but numerous in number included the invasive cheatgrass and Stork's bill (*Erodium cicutarium*).

Notable wildlife observed/anticipated on and around the site included mule deer (*Odocoileus hemionus*), White-tailed Jackrabbit (*Lepus townsendii*), Cottontail Rabbit (*Lepus sylvaticus*), and sign for Coyote (*Canis latrans*) was present. Bird species observed included Black Billed Magpie (*Pica hudsonia*), Red-Tailed Hawk (*Buteo jamaicensis*), Western Scrub Jay (*Aphelocoma californica*), and American Robin (*Turdus migratorius*). The proposed development area has the potential to provide critical winter habitat for several species according to literature and map research of elk, mule deer and sage grouse habitat. This data was obtained from the Utah Division of Wildlife Resources and matches scat and other field gathered data and observations. Development in these areas is not uncommon and we encourage planning of open space and migration corridors be considered when laying out the site. Landscaping with native and wildlife friendly plants must also be considered to mitigate some of the effects of development.



Figure 4- Mule Deer (Observed above Subject Property)

Below Canal

The common dominant vegetation observed/anticipated below the canal consisted of alfalfa and sweet clover (*Medicago spp.*), Dandelion (*Taraxacum officinale*), Timothy (*Phleum alpinum*), Chicory (*Cichorium intybus*), and Western Yarrow (*Achillea millefolium*). At the time of visit, sprinkler irrigation lines were running and areas of the site showed plant detritus indicative of a recent mowing. It is our understanding that the site has been historically mowed and disturbed.

Notable wildlife observed/anticipated on the site included White-tailed Jackrabbit (*Lepus townsendii*), and Cottontail Rabbit (*Lepus sylvaticus*). Bird species observed included Black Billed Magpie (*Pica hudsonia*), Red-Tailed Hawk (*Buteo jamaicensis*), Western Scrub Jay (*Aphelocoma californica*), and American Robin (*Turdus migratorius*). The proposed development area has the potential to provide winter habitat for several species according to literature and map research of elk, mule deer and sage grouse habitat. This data was obtained from the Utah Division of Wildlife Resources and matches scat and other field gathered data and observations. Development in these areas is not uncommon and it is our understanding that consideration of open space and migration corridors has been considered when laying out the site. Landscaping with native and wildlife friendly plants can also mitigate some of the effects of development.

Mountain biking and hiking trails are located near the property, introducing an increased human presence as compared to similar areas without such trails. Mountain bike specific research, examining the environmental impacts of mountain biking and wildlife found that wildlife have a similar flee response to hikers and animals can avoid these areas. (Marion and Wimpey, 2021).



Figure 5- Mule Deer Tracks in Snow

4.2 Sensitive Species for Proposed Development

Table 2. Additional Sensitive Species Analyzed on the Highlands at Jordanelle Development

Common Name	Scientific Name	Status	Habitat	Occurrence in Project Area
MAMMALS				
Canada Lynx	*Lynx canadensis*	USFS & Utah Threatened	coniferous forest	No Final Critical Habitat located in project area.
INSECTS				
Monarch Butterfly	*Danaus plexippus*	Candidate	Areas with milkweed	low potential, may occur in the agricultural areas below canal

Table 2 above summarizes the current 2023 list of threatened or endangered species with the potential to occur on or near the proposed development per the Information for Planning and Consultation (IPAC) tool provided by the U.S. Fish and Wildlife for scoping on sensitive species.

During all field visits, no sensitive species were identified, observed, or documented. The scope of this report does not seek to definitively state that a species will or will not be found in the project area, rather it seeks to understand to potential for species occurrence.

It is the opinion of Rimrock Engineering and Development, that the potential for presence of sensitive species is as explained in Table 2 above and that the guidance and mitigation recommendations from the original Biological Inventory Report (Appendix D) are appropriate for this proposed development and should be followed. In addition to the Federally required action explained below in section 4.3.

4.3 Action Required if Sensitive Species Are Observed

Please note that all work is required to halt and contact any potentially affected federally recognized concerns within forty-eight (48) hours of discovery (pursuant to the protocol established at 36 C.F.R. Part 800, Section 800.13(b) (3)) should any threatened or endangered species that fall under the purview under the Endangered Species Act 16 U. S. C. 1531 et seq). The Utah Division of Wildlife Resources should also be contacted within forty-eight (48) hours of discovery to allow for collaboration and coordination.

5.0 Wetlands and Waters of the United States

During the course of the field visits, drainage channels were observed and compared to the U.S. Fish and Wildlife Wetlands Mapper. Several minor ephemeral drainages were identified in the project area. The drainages exhibited potential for all three wetland indicators (vegetation, hydrology and soils). In Figure 6 below, Cottonwood Trees are present, these plants are found in wetter areas.

Wetland delineation is outside of the scope of this report; however, under current definitions of Waters of the U.S., it is the opinion of Rimrock Engineering, that some of these drainages may be delineated as Waters of the U.S. if a United States Army Corps of Engineers Wetland Delineation and Jurisdictional Determination were performed. Please see map in Appendix A. Disturbance to these drainage channels, should be avoided. In the event of work in these areas, coordination with the Army Corps of Engineers is recommended and likely required by law.



Figure 6-Cottonwood Trees in Drainage Areas

A portion of the Timpanogos Canal is partially lined with concrete, however, the majority of the canal that bisects the development property is unlined. This canal is owned and operated by the Timpanogos Canal Company. The Wasatch Canal bisects the lower portion of the property, the figure below shows the typical water elevation and flow in the summer time for both canals.



Figure 7- Timpanogos Canal Near Development

Waters of the U.S. is a collective term for all areas subject to regulations by the Army Corps of Engineers. These waters include intermittent and ephemeral drainages, special aquatic sites (i.e., springs), and wetlands. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the ephemeral stream and runoff from rainfall is the primary source of water. An ephemeral stream is a water of the United States provided it has a bed, bank, and ordinary high-water mark (OHWM).

6.0 Limit of Liability

The procedures used attempted to establish a balance between the competing goals of limiting investigative and reporting costs and time and reducing the uncertainty about unknown conditions. Therefore, because the findings of this document were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental liabilities have been identified and fully evaluated. Where sample collection and testing have been performed, Rimrock Engineering's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. Rimrock Engineering assumes no responsibility for omissions or errors resulting from inaccurate information, or data, provided by sources outside Rimrock Engineering or from errors or omissions in public records. Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since Rimrock Engineering is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

7.0 References

Bureau of Land Management (BLM). 2017. Measuring and Monitoring Plant Populations. http://www.blm.gov/nstc/library/pdf/MeasAndMon.pdf. Accessed March 20, 2017.

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United States Geological Survey (USGS) 2017. Field Methods for Vegetation Mapping. https://www1.usgs.gov/vip/standards/fieldmethodsrpt.pdf. Accessed March 20, 2017.

Utah Division of Wildlife Resources (UDWR) 2017. Dominant Vegetation Map. https://gis.utah.gov/data/bioscience-overview/dominant-vegetation/. Accessed March 20, 2017.

Interagency Forage and Conservation (IFC) 1994. Planting Guide for Utah. http://extension.usu.edu/files/publications/publication/AG-433.pdf. Accessed March 19, 2017

Utah Automated Geographic Reference (AGRC) 2023. https://gis.utah.gov/

Appendix A-Maps



Heber City

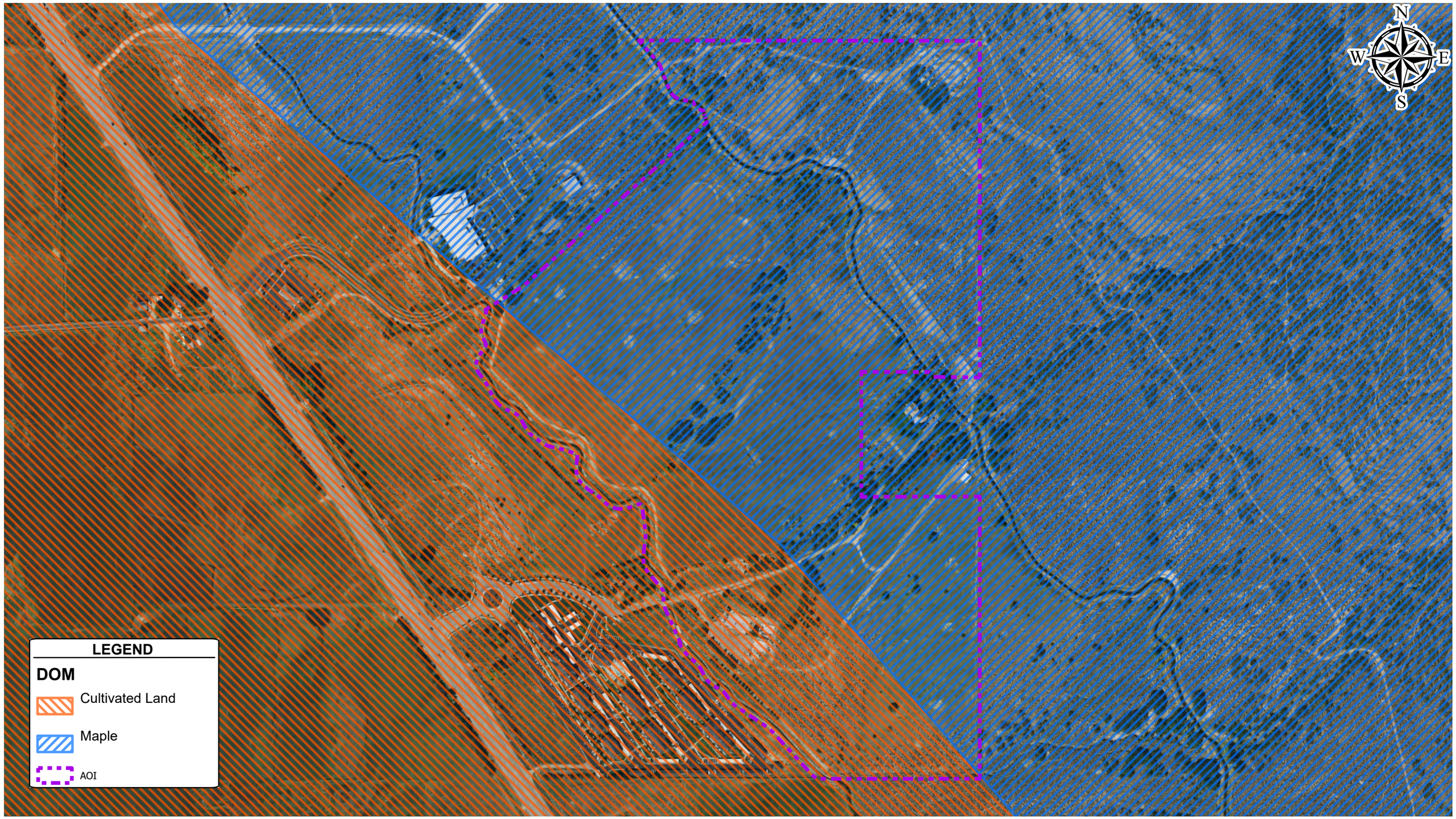
Wasatch County, Utah
April 2023

Highlands at Jordanelle Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"
1"=400'

Map:1



Heber City

Wasatch County, Utah
April 2023

Highlands at Jordanelle Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"
1"=400'

Map:2



Heber City

Wasatch County, Utah
April 2023

Highlands at Jordanelle Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=400'

Map: 3



Heber City

Wasatch County, Utah
April 2023

Highlands at Jordanelle Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=400'

Map: 4



Heber City

Wasatch County, Utah
April 2023

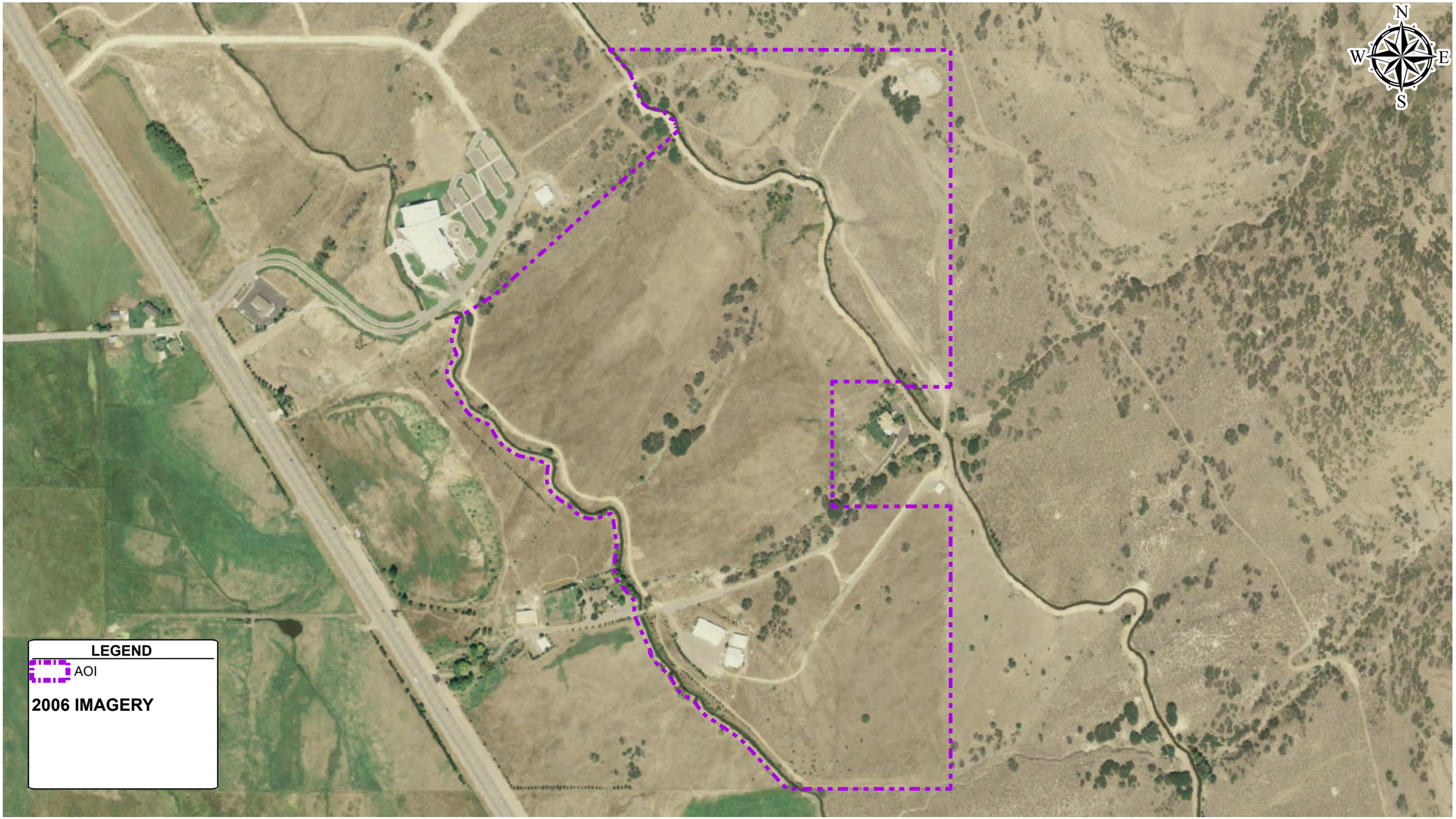
Highlands at Jordanelle Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

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1"=400'

Map: 5



Heber City

Wasatch County, Utah
April 2023

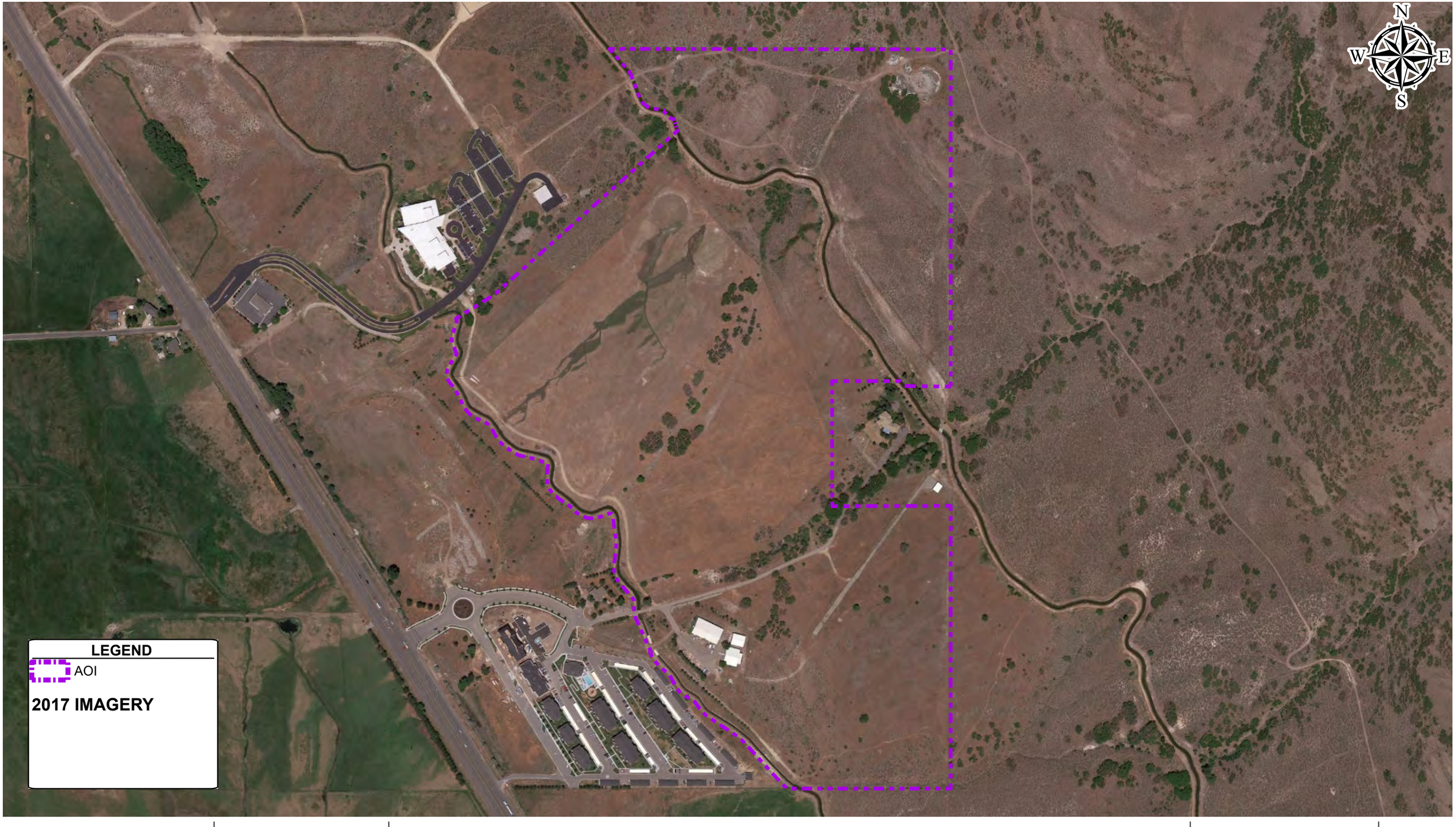
Highlands at Jordanelle Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=400'

Map: 6



Heber City

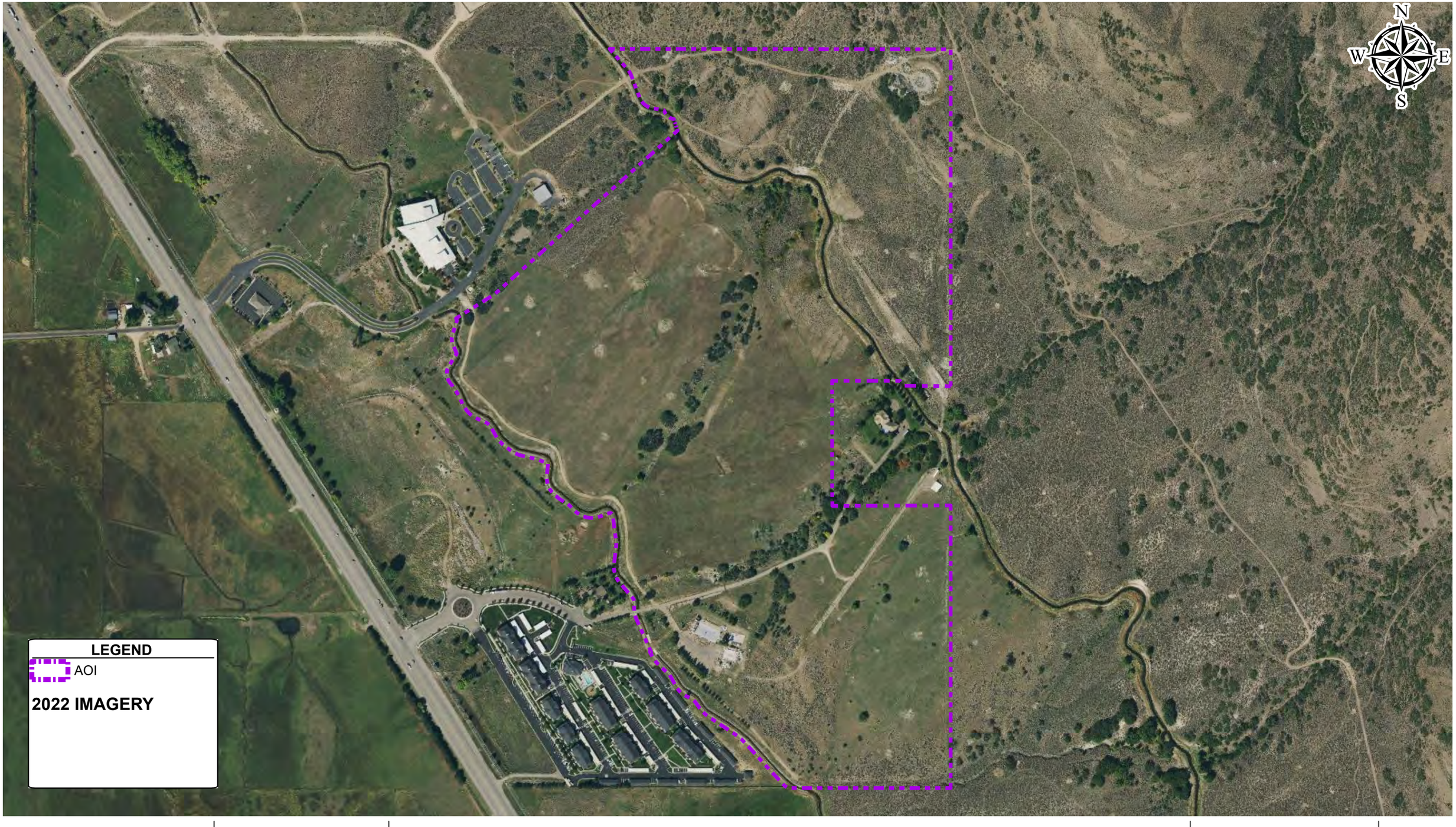
Wasatch County, Utah
April 2023

Highlands at Jordanelle Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"
1"=400'

Map: 7



Heber City

Wasatch County, Utah
April 2023

Highlands at Jordanelle Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=400'

Map: 8

Appendix B-Photos



Photo 1: Canal



Photo 2: Ephemeral Drainage (above development, 2022 study)



Photo 3: Looking West



Photo 4: Typical Minor Vegetation on Site (snow melted area)



Photo 5: Ephmeral Drainage



Photo 6: Mule Deer Tracks



Photo 7: Abandoned Home on Property



Photo 8: Cottonwood Trees



Photo 9: Anticipated Habitat Above the Canal



Photo 10: Looking Northeast

Appendix C-IPaC Report

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Highlands at Jordanelle

LOCATION

Wasatch County, Utah



DESCRIPTION

Some(Single family residential development)

Local office

Utah Ecological Services Field Office

(801) 975-3330
(801) 975-3331

2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Canada Lynx Lynx canadensis There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3652	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

NOT FOR CONSULTATION

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

NOT FOR CONSULTATION

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

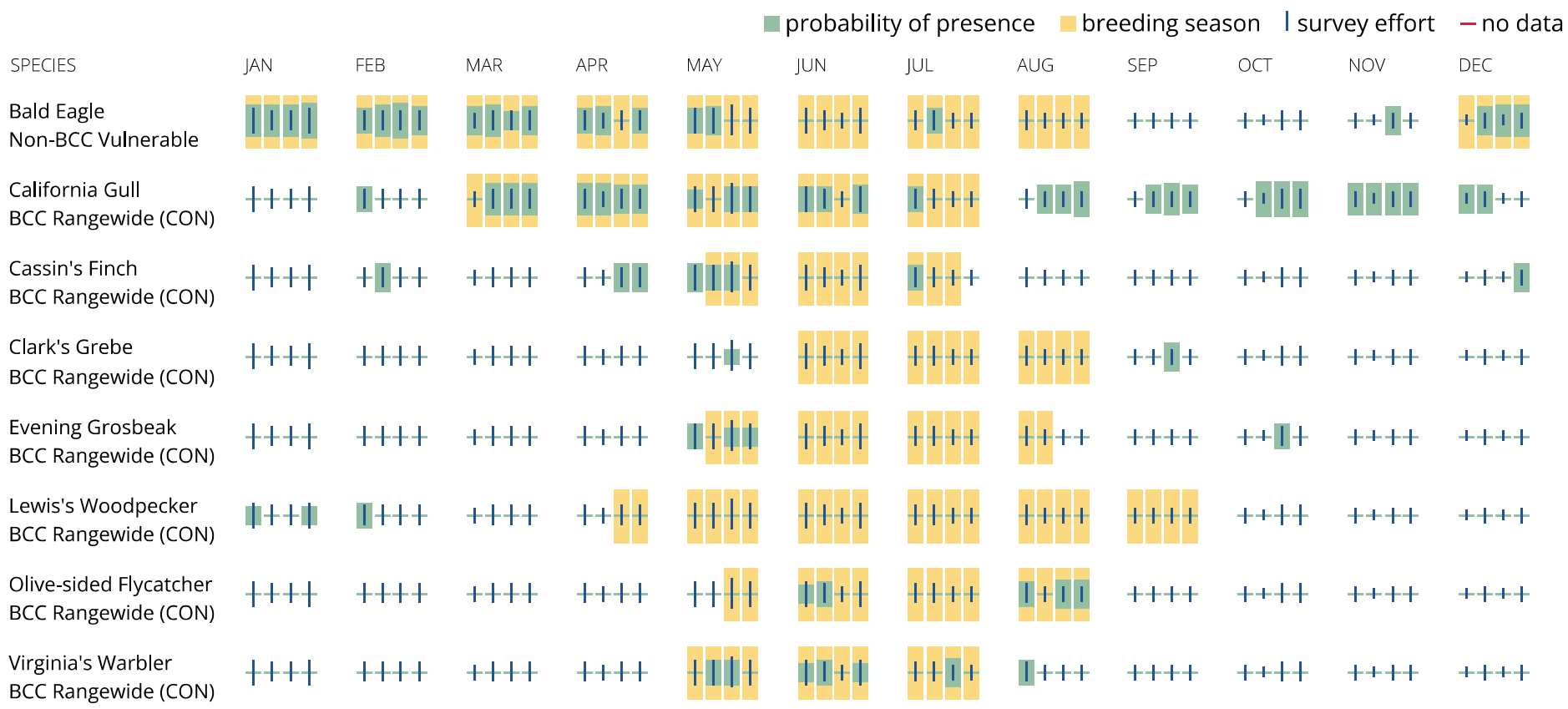
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

NOT FOR CONSULTATION

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBCx

R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

NOT FOR CONSULTATION

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Appendix D-Original Biological Inventory Report, Jordanelle Ridge Fitzgerald Annexation Biological Inventory Report and Jordanelle Village Biological Inventory Report

Mr. Stuart Lamb
Sorenson Development
2511 South West Temple
Salt Lake City, Utah 84115

RE: Biological Inventory for Heber Development

Dear Mr. Lamb:

Included is a following draft summary of the work I completed to date on the above project. This biological inventory was prepared by Intermountain Ecosystems, LLC. at the request of Sorenson Development for planning purposes associated with the proposed development located just north of Heber City. Please consider this as preliminary subject to additional date at final report time.

The report identifies the wildlife resources believed to inhabit the project area. Biological inventory objectives were as follows: (1) conduct a literature search for the occurrence of federal threatened and endangered species, U. S. Forest Service sensitive species, and state of Utah sensitive species, (2) conduct a field inventory for Waters of the U.S. and jurisdictional wetlands, (3) conduct a field inventory for sensitive plant and animal species and provide an ecological description of each habitat, (4) conduct a general biological inventory of plant communities, big game, and other high interest species, (5) summarize inventory results into a comprehensive report, and (6) assess impacts and recommend mitigation. Sensitive animals addressed in this report are included as Table 1.

Table 1. Sensitive Species Analyzed on the Sorensen Development

Common Name	Scientific Name	Status	Habitat	Occurrence in Project Area
MAMMALS				
Wolverine	*Gulo gulo*	USFS & Utah Threatened	coniferous forest	low potential
Fisher	*Martes pennanti*	USFS & Utah sensitive	coniferous forest	low potential, probably extirpated
Spotted bat	*Euderma maculatum*	USFS & Utah sensitive	caves/mines/rocky crevices	Moderate potential
Townsend's big-eared bat	*Plecotus townsendii*	USFS & Utah sensitive	caves/mine/rocky crevices	low potential

Common Name	Scientific Name	Status	Habitat	Occurrence in Project Area
Brazilian free tailed bat	*Tadarida brasiliensis*	Utah sensitive	caves/mines/rocky crevices	low potential
BIRDS				
Bald eagle	*Haliaeetus leucocephalus*	USFWS & Utah threatened	riparian, and open waters	moderate potential may roost locally during winter just outside project area.
Goshawk	*Accipiter gentilis*	USFS & Utah sensitive	aspen/conifer	low potential
Boreal owl	*Aegolius funereus*	USFS sensitive	mature old growth spruce-fir and snags	No habitat
Short-eared owl	*Asio flammeus*	Utah sensitive	marshes and open field	low potential, may occur in wetlands adjacent to project area
Burrowing owl	*Athene cunicularia*	Utah sensitive	sagebrush, grasslands	low potential
Flammulated owl	*Otus flammeolus*	USFS sensitive	aspen/conifer and snags	high potential
Great gray owl	*Strix nebulosa*	USFS sensitive	coniferous forest	Low potential
Sage grouse	*Centrocerus urophasianus*	Utah sensitive	sagebrush	Low potential
Long-billed curlew	*Numenius americanus*	Utah sensitive	wet & upland meadows	low potential, may occur in adjacent wetlands
Three-toed woodpecker	*Picoides tridactylus*	USFS & Utah sensitive	mature/old growth conifer and snags	No habitat

2. 0 METHODS

2.1 Literature Search

Utah sensitive species list was provided by the Utah Natural Heritage Program. The purpose of the Utah sensitive species list is to identify those species in the state that are most vulnerable to population or habitat loss (UDWR 1997). Unita National Forest was also consulted and a list of forest service sensitive species was provided. Utah Division of Wildlife Resources (UDWR) biologists were consulted concerning current and historic information on animal species occurrence in the project area.

2.2 Field Inventory

Field inventory for wildlife and wetlands was conducted in May and June by Ronald J. Kass, Ph.D. (Plant ecologist) and Paul Dawson, Ph.D. (Animal ecologist). Field inventory for Waters of the United States were conducted by walking all ephemeral drainages and noting plant species composition, bed and bank characteristics, and mapping potential sites on USGS 7.5 quads. Inventory for wetlands included delineating wetland polygons and flagging boundaries and using Hale Engineering services for GPS boundaries and preparing maps.

Field inventory for sensitive and high interest vertebrate species consisted of driving where possible and searching for potential habitat. When potential habitat was located, linear transects were walked until the field personnel were convinced that no target taxa occurred in that particular area. If target taxa were located, field personnel recorded occurrence data on a Population-Habitat Data Form, recorded a GPS location, marked the occurrence and population boundary on a USGS 7.5 quad.

Draft Preliminary Results

3.1 Wetlands and Waters of the United States

Waters of the U.S. is a collective term for all areas subject to regulations by the Army Corps of Engineers. These waters include intermittent and ephemeral drainages, special aquatic sites (i.e. springs), and wetlands. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the ephemeral stream and runoff from rainfall is the primary source of water. An ephemeral stream is a water of the United States provided it has a bed, bank, and ordinary high water mark (OHWM).

Several head water springs and some minor ephemeral drainages were identified in the project area Furthermore, jurisdictional wetlands were delineated (i.e wet meadows), and will be subject to further consideration with the USACOE.

3.2 Sensitive Animals Species

Sensitive animal species include those considered either federally or state threatened or endangered or those species experiencing a decline in populations numbers, loss of habitat or those species limited by small ranges. The following section includes a species description, potential impacts associated with construction, and recommended mitigation for those species that have a moderate to high potential of occurring in the project area.

Bald Eagle (*Haliaeetus leucocephalus*) is federally threatened and could possibly occur in the project area during the winter months around Jordanelle Reservoir (Nov- March).

IMPACTS: Project development proximal to roosting sites could result in disturbance.

MITIGATION: Construction will be avoided during the winter month if eagles roost in the project area.

Fisher (*Martes penanti*) is both USFS and Utah sensitive and prefers extensive, old growth spruce-fir forests with high canopy closure. Fishers are believed to be extirpated from Utah, therefore, the fisher has a low potential for occurrence in the project area (UDWR 1997).

IMPACTS: No impacts are anticipated because of the species low potential occurrence.

Wolverine (*Gulo gulo*) is Utah and USFS sensitive and last seen in Utah in 1924. It occurs in coniferous forests and has a low potential for occurrence in the project area.

IMPACTS: No impacts are anticipated because of the species low potential occurrence.

Spotted bat (*Euderma maculatum*) is Utah and USFS sensitive and occurs in a variety of habitats and is usually found roosting alone in rock crevices high up on cliff faces (Barbour and Davis 1969). Some minor rock outcrops were found in the project area. Spotted bats may forage in the project area but diurnal roosts are limited.

IMPACTS: No impacts are anticipated because of the species low potential occurrence.

Townsend's big-eared bat (*Plecotus townsendii*) is Utah and USFS sensitive and occurs in a variety of habitats. It roosts in caves, mine shafts, and rocky outcrops. Some minor rock outcrops were found in the project area. Townsend's bats may forage in the project area but diurnal roosts are limited.

IMPACTS: No impacts are anticipated because of the species low potential occurrence.

Brazilian free-tailed bat (*Tadarida brasiliensis*) is USFS and Utah sensitive. It roosts in caves, mine shafts, and rocky outcrops. Some minor or rock outcrops were found in the project area. Brazilian free-tailed bats may forage in the project area but diurnal roosts are limited.

IMPACTS: No impacts are anticipated because of the species low potential occurrence.

Goshawk (*Accipter gentilis*) is both USFS and Utah sensitive because of declining populations. We did not observe any goshawks in the project area but they probably use the project area for foraging and as part of their home range.

IMPACTS: Destruction of woodland habitat would impact this species especially during nesting season (See Appendix A). Goshawks occur in low density populations and are particularly susceptible to habitat loss and human disturbance.

MITIGATION: Destruction of native vegetation will be limited to the development footprint and adjacent woodland habitat will be maintained during construction of homesites. If goshawks are present, construction of roads and buildings will avoid nest sites.

Boreal owl (*Aegolius funereus*) is USFS sensitive and occurs in high elevation spruce-fir forests with a high density of large tress, open understory, and multi-layered canopy. Highest elevation in the project area is approximately 7700 ft. and alpine spruce-fir communities are absent. The distribution of the boreal owl is limited to northern Utah (Johnsgard 1988).

IMPACTS: No impacts are anticipated because of the species low potential occurrence.

Short-eared owl (*Asio flammeus*) is Utah sensitive and has been recorded in the recent past in the project area. It prefers wet meadows and open fields and is a ground nesting species. There are some wet meadows within the project boundaries. The owl has a low potential to occur within the project boundaries and a higher potential to occur in surrounding wetlands around Jordanelle Reservoir.

IMPACTS: No impacts are anticipated for this species because it is limited to wetlands and no wetlands will be impacted.

Flammulated owl (*Otus flammeolus*) is USFS sensitive and can be found in mixed pine forests at lower elevation to mixed pines with spruce-fir at higher elevations. It can also be found in aspen stands but prefers ponderosa pine forests. These owls are fairly common in the Wasatch Mts. and have a low potential occurrence in the project area. Flammulated owls are migratory and move south in the fall to central Mexico and Central American (Johnsgard 1988).

IMPACTS: Destruction of woodland habitat and human disturbance would represent an impact to this species.

MITIGATION: Destruction of native vegetation will be limited to the development footprint and adjacent woodland habitat will be maintained during construction of homesites. If flammulated owls are present, construction of roads and buildings will avoid nest sites.

Burrowing owl (*Athene cunicularia*) is a summer resident and Utah sensitive because populations are declining range wide. It occurs in grasslands and open areas at lower elevation and is commonly associated with prairie dog towns. There are some sparsely vegetated sagebrush areas in the project area where owls could possibly occur. We did not observe any ground nesting areas but a low potential exists for owl occurrence in the project area.

IMPACTS: no anticipated impacts because of species low potential occurrence.

Great gray owl (*Strix nebulosa*) is USFS sensitive and found bordering small openings in mixed conifer forests. They often forage along edges of clearcuts and meadows. Great gray owls have a low potential of occurrence in the project area.

IMPACTS: Any construction or operational activities near nesting period would

represent an impact. Destruction of woodland habitat and human disturbance would impact this species.

MITIGATION: Destruction of native vegetation will be limited to the development footprint and adjacent woodland habitat will be maintained during construction of homesites. If great gray owls are present, construction of roads and buildings will avoid nest sites.

Sage grouse (*Centrocerus urophasianus*) is Utah sensitive because of declining population and loss of habitat. The closest known breeding areas (leks) are found north at the Soldier Creek Recreation area of Strawberry Reservoir. This species has not been sighted in the project area.

IMPACTS: Sage grouse are particularly sensitive to human disturbance and loss of sagebrush habitat would represent an impact.

Long-billed curlew (*Numenius americanus*) is Utah sensitive because of declining population and loss of habitat. This neotropical migrant nests in upland meadows and forages in moist meadows and can probably be found outside the project area during its summer residence.

IMPACTS: no impacts anticipated because species is associated with wetlands and no wetlands will be impacted.

.
Three-toed woodpecker (*Picoides tridactylus*) is Utah and USFS sensitive because of its low numbers and limited distribution. This species nests and winters in the coniferous forest communities and is closely associated with pine bark beetle infestations. It has a very low potential of occurring in the project area because of lack of habitat.

IMPACTS: This species is negatively affected by forest management practices such as clearcuttting and fire suppression (UDWR 1997). Destruction of coniferous woodland habitat and human disturbance would impact this species.

MITIGATION: Destruction of native vegetation will be limited to the development footprint and adjacent woodland habitat will be maintained during construction of homesites. If three-toed woodpeckers are present, construction of roads and buildings

will avoid nest sites.

3.3 High Interest Species

High interest species are defined as any economically important species that is protected for its value as big game, small game and furbearing.

Mule Deer (*Odocoileus hemionus*) is a yearlong resident in the project area and was found throughout the project area in all habitats. Most of the project area is considered as moderate to good habitat.

IMPACTS: Construction of both homesites and roads could reduce deer summer range. Human & pet disturbance during fawning and foraging would impact this species.

MITIGATION: Livestock (cattle and sheep) grazing will be discontinued which would improve forage availability in the project area. Destruction of native vegetation will be limited to development footprint. Adjacent woodland habitat will be maintained and pet activity will be controlled by restrictive covenants. Hunting will also be restricted within the project area thereby providing some sanctuary for big game.

Moose (Alces alces) is a native inhabitant of the project area and was observed on two occasions. Consultation with the UDWR indicated that critical calving areas are not presently known in the project area.

IMPACTS: Construction of both homesites and roads could reduce elk summer & winter range. Human and pet disturbance during calving and foraging would be an impact.

MITIGATION: Livestock grazing(cattle and sheep) will be discontinued from the project area which would improve forage availability. Destruction of native vegetation will be limited to development footprint. Adjacent woodland habitat will be maintained and pet activity would be controlled by restrictive covenants. Hunting will also be restricted within the project area thereby providing some sanctuary for big game.

Beaver (*Castor canadensis*) is a native inhabitant of the project area. Developed riparian habitats are absent from the project area but beaver activity was observed outside of the project area.

IMPACTS: Accidental spills, sediment and other environmental contaminations that enter the Strawberry Reservoir ecosystem.

MITIGATION: Effective erosion and sedimentation control will be implemented across the project area. Silt-fences of geo-textile fabric stapled to well placed stakes will be installed between the construction and undisturbed areas.

Bear (*Ursus americanus*) is native inhabitant of the project are and is probably an infrequent visitor to the project area.

IMPACTS: Bears are known to habituate to people and feed in garbage. Human-bear confrontations are possible.

MITIGATION: Proper garbage management and bear-proofed containers are recommended.

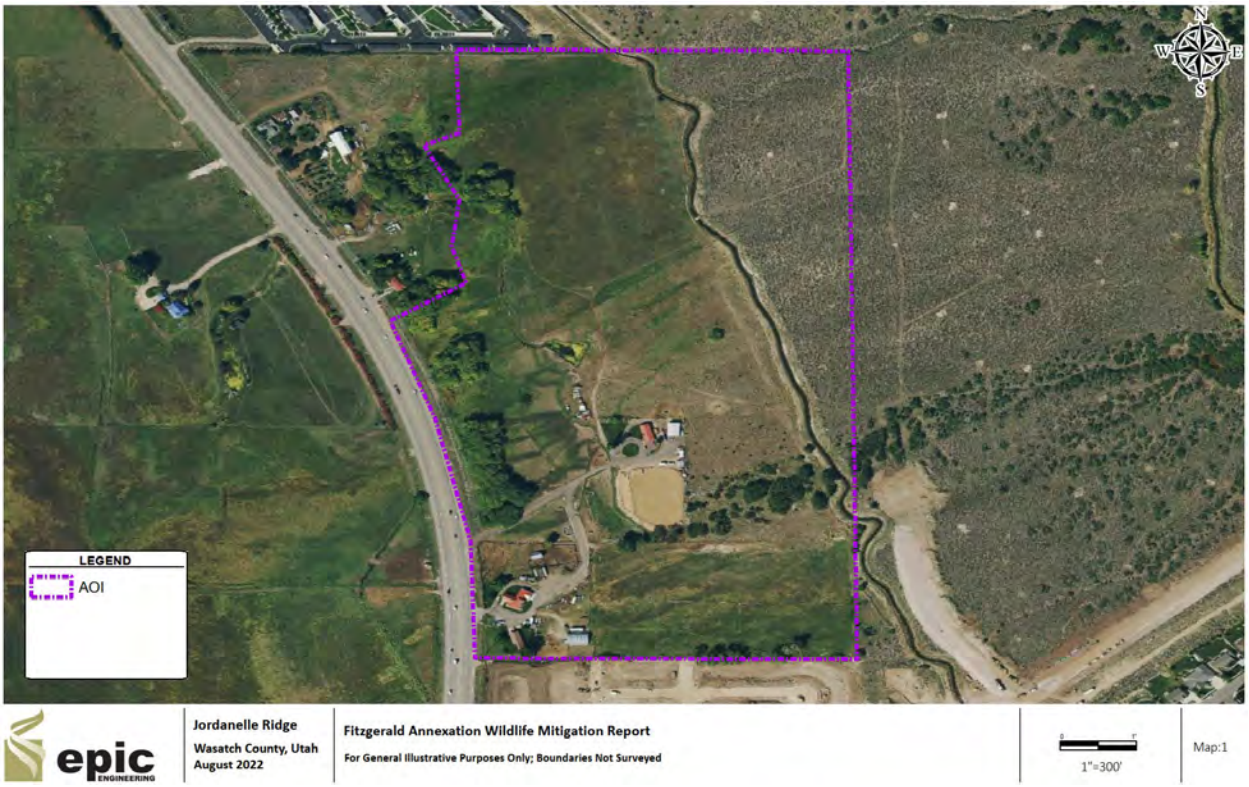
Sincerely:

Ronald J. Kass, Ph.D
Intermountain Ecosystems

Supplemental Biological Inventory Report for Jordanelle Ridge Fitzgerald Annexation Proposed Development

Heber City, Utah

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Prepared by:

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August 10, 2022

August 10, 2022

Heber City
Planning & Zoning Department
75 N Main Street
Heber City, Utah 84032

Re: Supplemental Biological Inventory Report-Jordanelle Ridge Fitzgerald Annexation

To whom it may concern,

Please find the attached Biological Inventory Report for the Fitzgerald Annexation of the Jordanelle Ridge proposed development, located in Heber City, Utah. The purpose of this assessment is to satisfy the requirements of the city code in regard to environmental impacts; and is not meant to replace more detailed and stringent surveys.

The attached report documents the following:

- Interpretation of historical and public information
- Subsequent field investigations
- Interpretation of findings

In August 2022, Epic Engineering, PC, completed a Biological Inventory Report for the proposed +/- 65.76-acre development located adjacent to Highway 40 at approximately 3390 North, approximately 2.5 miles North of Heber City. The proposed development is located along the east side of US-40, between the Highway and the Wasatch Canal, in Sections 20 and 29, Township 3 South, Range 5 East, Salt Lake Base and Meridian. The study area consists of undeveloped land that has had historical livestock grazing and farmland that slopes west towards US-40.

Please see Table 2 of Section 4.2 in the attached report for our findings and recommendations.

If you have any questions or concerns regarding the information enclosed herein, please feel free to contact me.

Respectfully,

Joshua Call
Staff Biologist/GIS Technician
Epic Engineering, P.C.
435-654-6600 ext. 129
JCall@epiceng.net

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1.0 Introduction and Background

Epic Engineering, PC is conducting this Biological Inventory as a supplement to the Biological Inventory report prepared by Ronald J. Kass, Ph.D. of Intermountain Ecosystems. The original report was prepared for the Sorenson Development for Stuart Lamb. The report identified the wildlife resources believed to inhabit the project area. Biological inventory objectives were as follows: (1) conduct a literature search for the occurrence of federal threatened and endangered species, U. S. Forest Service sensitive species, and state of Utah sensitive species, (2) conduct a field inventory for Waters of the U.S. and jurisdictional wetlands, (3) conduct a field inventory for sensitive plant and animal species and provide an ecological description of each habitat, (4) conduct a general biological inventory of plant communities, big game, and other high interest species, (5) summarize inventory results into a comprehensive report, and (6) assess impacts and recommend mitigation. Sensitive animals addressed in this report were included in what is now known as Table 1.

Our Biological Inventory Report for Jordanelle Ridge Fitzgerald Annexation looks at the flora and fauna presented in Table 1 and seeks to identify the potential for occurrence of the species identified in the table. To ensure accuracy, Table 1 was compared to the current list of Threatened and Endangered Species listed in the area (IPaC Report, Appendix C). As shown, Table 1 contains species no longer to be believed of concern or of potentially occupying the project location. To ensure accuracy, we matched the methods and objectives listed above by (1) conducting a literature search for the occurrence of federal threatened and endangered species, U. S. Forest Service sensitive species, and state of Utah sensitive species, (2) conducting a field inventory for Waters of the U.S. and jurisdictional wetlands, (3) conducting a field inventory for sensitive plant and animal species and provide an ecological description of each habitat, (4) conducting a general biological inventory of plant communities, big game, and other high interest species, (5) summarizing inventory results into a comprehensive report, and (6) assess impacts and recommend mitigation.

2.0 Project Area and Site Description

Project is located adjacent to Highway 40 at approximately 3390 North, approximately 2.5 miles North of Heber City. The proposed development is located along the east side of US-40, between the Highway and the Wasatch Canal, including some land above the canal, in Sections 20 and 29, Township 3 South, Range 5 East, Salt Lake Base and Meridian. The study area consists of undeveloped land that has had historical livestock grazing and farmland that slopes west towards US-40.

The project area is split into two fairly homogenous areas, with a existing ephemeral drainages and ponds. The area above the canal is existing native sagebrush, while the land below the canal is irrigated farmland. Closer to the existing homes are large cottonwood and willow trees. The historic drainage patterns of the land to the east have been changed due to the Wasatch Canal

that runs north to south across the property, as well as historic flood irrigation. The site drains towards the west. The majority of the project area is made up of westerly facing aspects of grasslands, trees and sagebrush. As mentioned above, large cottonwood and willow trees and irrigated crops, exist below the canal. See Figure 1 and 2 and Appendix B- Photos.



Figure 1- Typical Vegetation below Canal



Figure 2- Typical Vegetation above Canal

Prior to the field survey, the dominant vegetation map maintained by the Utah Division of Wildlife Resources was examined (UDWR 2017). According to the map, the site is located in the Cultivated Land category next to the Maple Dominant, Oak and Sagebrush sub dominant community, see Appendix A. From geotechnical site visits, prior knowledge of the site, and aerial imagery analysis, it was determined that the predominant vegetation present is sage brush (*Artemesia tridentata*), cheatgrass (*Bromus tectorum*) and native wheatgrasses (*Pascopyrum spp.*) above the canal and cultivated land and Fremont cottonwood trees (*Populus fremonti*) below the canal. The discrepancy between the dominant vegetation and actual site conditions is expected due to the data for the dominant vegetation map being generalized and derived from 1:24,000 scale orthophoto quadrangles, 1:40,000 scale aerial photos and high-level field mapping.

3.0 Sensitive Species from Original Report

As discussed above, Table 1 (below) from the original Biological Inventory Report was analyzed and updated with the 2021 U.S. Fish and Wildlife's list of threatened and endangered species, see Table 2. For reference, Table 1 is provided below.

Table 1. Sensitive Species Analyzed on the Sorensen Development

Common Name	Scientific Name	Status	Habitat	Occurrence in Project Area
MAMMALS				
Wolverine	*Gulo gulo*	USFS & Utah Threatened	coniferous forest	low potential
Fisher	*Martes pennanti*	USFS & Utah sensitive	coniferous forest	low potential, probably extirpated
Spotted bat	*Euderma maculatum*	USFS & Utah sensitive	caves/mines/rocky crevices	Moderate potential
Townsend's big-eared bat	*Plecotus townsendii*	USFS & Utah sensitive	caves/mine/rocky crevices	low potential
Brazilian free tailedbat	*Tadarida brasiliensis*	Utah sensitive	caves/mines/rocky crevices	low potential
BIRDS				
Bald eagle	*Haliaeetus leucocephalus*	USFWS & Utah threatened	riparian, and open waters	moderate potential may roost locally during winter just outside project area.

Goshawk	*Accipiter gentilis*	USFS & Utah sensitive	aspen/conifer	low potential
Boreal owl	*Aegolius funereus*	USFS sensitive	mature old growth spruce-fir and snags	No habitat
Short-eared owl	*Asio flammeus*	Utah sensitive	marshes and open field	low potential, may occur in wetlands adjacent to project area
Burrowing owl	*Athene cunicularia*	Utah sensitive	sagebrush, grasslands	low potential
Flammulated owl	*Otus flammeolus*	USFS sensitive	aspen/conifer and snags	high potential
Great gray owl	*Strix nebulosa*	USFS sensitive	coniferous forest	Low potential
Sage grouse	*Centrocerus urophasianus*	Utah sensitive	sagebrush	Low potential
Long-billed curlew	*Numenius americanus*	Utah sensitive	wet & upland meadows	low potential, may occur in adjacent wetlands
Three-toed woodpecker	*Picoides tridactylus*	USFS & Utah sensitive	mature/old growth conifer and snags	No habitat

4.0 Field Work Summary

Field work for wildlife and wetlands was conducted in August 2022 by Joshua Call (Staff Biologist-BS Wildlife and Wildlands Conservation, Brigham Young University). To field inventory the proposed development for potential Waters of the United States, the ephemeral drainages and ponds were identified and located, with each drainage walked. Notes were taken on dominant plant species, presence/absence of water and channel characteristics. The field inventory for sensitive and high interest plant and wildlife species consisted of walking 3 transects and observing all species present for 30 minutes from 4 locations around the site, see Appendix A, Field Work Map. To ensure data accuracy, integrity, and to eliminate bias, the start of the walking transects, and the 4 observation points were randomly determined utilizing the Create Random Points tool in ArcMap, developed by ESRI, Inc. Upon reaching each predetermined plot location, a GPS point was logged. All points fell within 1 meter of the randomly selected point.



Figure 3- Start of Transect 1

In addition to these randomly selected points, wildlife and vegetation was observed while traveling to each location on foot. Table 2 is a summary of all the sensitive species analyzed on the Jordanelle Ridge Fitzgerald Annexation Development.

4.1 Findings Summary

Field notes and data sheets were taken at each transect and observation point. Office work consisted of reviewing each of the transects and observation points. Due to the vegetation differences on the site, results were divided to the area above the canal and the area below the canal.

Above Canal
The common dominant vegetation observed was sage brush, less dominant, smaller, but numerous in number included the invasive cheatgrass and Stork's bill (*Erodium cicutarium*).

Notable wildlife observed on the site included mule deer (*Odocoileus hemionus*), White-tailed Jackrabbit (*Lepus townsendii*), Cottontail Rabbit (*Lepus sylvaticus*), and sign for Coyote (*Canis latrans*) was present. Bird species observed included Black Billed Magpie (*Pica hudsonia*), Red-Tailed Hawk (*Buteo jamaicensis*), Western Scrub Jay (*Aphelocoma californica*), and American Robin (*Turdus migratorius*). The proposed development area has the potential to provide winter habitat for several species according to literature and map research of elk, mule deer and sage grouse habitat. This data was obtained from the Utah Division of Wildlife Resources and matches scat and other field gathered data and observations. Development in these areas is not uncommon and it is our understanding that consideration of open space and migration corridors has been considered when laying out the site. Landscaping with native and wildlife friendly plants can also mitigate some of the effects of development.



Figure 4- Mule Deer (Observed above Subject Property)

Below Canal
The common dominant vegetation observed below the canal consisted of alfalfa and sweet clover (*Medicago spp.*), Dandelion (*Taraxacum officinale*), Timothy (*Phleum alpinum*), Chicory (*Cichorium intybus*), and Western Yarrow (*Achillea millefolium*). At the time of visit, sprinkler irrigation lines were running and areas of the site showed plant detritus indicative of a recent mowing. It is our understanding that the site has been historically mowed and disturbed.

Notable wildlife observed on the site included White-tailed Jackrabbit (*Lepus townsendii*), and Cottontail Rabbit (*Lepus sylvaticus*). Bird species observed included Black Billed

Magpie (*Pica hudsonia*), Red-Tailed Hawk (*Buteo jamaicensis*), Western Scrub Jay (*Aphelocoma californica*), and American Robin (*Turdus migratorius*). The proposed development area has the potential to provide winter habitat for several species according to literature and map research of elk, mule deer and sage grouse habitat. This data was obtained from the Utah Division of Wildlife Resources and matches scat and other field gathered data and observations. Development in these areas is not uncommon and it is our understanding that consideration of open space and migration corridors has been considered when laying out the site. Landscaping with native and wildlife friendly plants can also mitigate some of the effects of development.

Mountain biking and hiking trails are located near the property, introducing a fairly heavy human presence as compared to similar areas without such trails. Mountain bike specific research, examining the environmental impacts of mountain biking and wildlife found that wildlife have a similar flee response to hikers and animals can avoid these areas. (Marion and Wimpey, 2021).



Figure 5- Mule Deer Tracks

4.2 Sensitive Species for Proposed Development

Table 2. Sensitive Species Analyzed on the Jordanelle Ridge Fitzgerald Annexation Development

Common Name	Scientific Name	Status	Habitat	Occurrence in Project Area
MAMMALS				
Wolverine	*Gulo gulo*	USFS & Utah Threatened	coniferous forest	NOT LISTED ON IPAC CONSULTATION
Canada Lynx	*Lynx canadensis*	USFS & Utah Threatened	coniferous forest	No habitat, very low potential
Fisher	*Martes pennanti*	USFS & Utah sensitive	coniferous forest	NOT LISTED ON IPAC CONSULTATION
Spotted bat	*Euderma maculatum*	USFS & Utah sensitive	caves/mines/rocky crevices	NOT LISTED ON IPAC CONSULTATION
Townsend's big-eared bat	*Plecotus townsendii*	USFS & Utah sensitive	caves/mine/rocky crevices	NOT LISTED ON IPAC CONSULTATION
Brazilian free tailedbat	*Tadarida brasiliensis*	Utah sensitive	caves/mines/rocky crevices	NOT LISTED ON IPAC CONSULTATION
INSECTS				
Monarch Butterfly	*Danaus plexippus*	Candidate	Areas with milkweed	low potential may occur in the agricultural areas below canal

During all field visits, no sensitive species were identified, observed, or documented. The scope of this report does not seek to definitively state that a species will or will not be found in the project area, rather it seeks to understand to potential for species occurrence.

It is the opinion of Epic Engineering, P.C., that the potential for presence of sensitive species is as explained in Table 2 above and that the guidance and mitigation recommendations from the original Biological Inventory Report (Appendix D) are appropriate for this proposed development and should be followed. In addition to the Federally required action explained below in section 4.3.

4.3 Action Required if Sensitive Species Are Observed

Please note that all work is required to halt and contact any potentially affected federally recognized concerns within forty-eight (48) hours of discovery (pursuant to the protocol established at 36 C.F.R. Part 800, Section 800.13(b) (3)) should any threatened or endangered species that fall under the purview under the Endangered Species Act 16 U. S. C. 1531 et seq).

The Utah Division of Wildlife Resources should also be contacted within forty-eight (48) hours of discovery to allow for collaboration and coordination.

5.0 Wetlands and Waters of the United States

During the course of the field visits, drainage channels were observed and compared to the U.S. Fish and Wildlife Wetlands Mapper. Several minor ephemeral drainages were identified in the project area along with a pond, creek and marshland. The potential wetland areas exhibited all three wetland indicators (vegetation, hydrology and soils). In Figure 6 below, Cattails (*Typha spp.*) are present, these plants are wetland obligate species. Wetland delineation is outside of the scope of this report; however, it is the opinion of Epic Engineering, P.C. that some of these areas would be delineated as jurisdictional wetlands if a United States Army Corps of Engineers Wetland Delineation and Jurisdictional Determination were performed. Please see map in Appendix A. Disturbance to these drainage channels, pond and wetland areas should be avoided. In the event of work in these areas, coordination with the Army Corps of Engineers is recommended and likely required by law.



Figure 6-Marsh Area

A partially lined concrete canal bisects the development property. This canal is owned and operated by the Timpanogos Canal Company. The approximate northern half being concrete and the southern half open bank. See Figure below:



Figure 7- Timpanogos Canal

Waters of the U.S. is a collective term for all areas subject to regulations by the Army Corps of Engineers. These waters include intermittent and ephemeral drainages, special aquatic sites (i.e., springs), and wetlands. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the ephemeral stream and runoff from rainfall is the primary source of water. An ephemeral stream is a water of the United States provided it has a bed, bank, and ordinary high-water mark (OHWM).

6.0 Limit of Liability

The procedures used attempted to establish a balance between the competing goals of limiting investigative and reporting costs and time and reducing the uncertainty about unknown conditions. Therefore, because the findings of this document were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental liabilities have been identified and fully evaluated. Where sample collection and testing have been performed, Epic Engineering's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. Epic Engineering assumes no responsibility for omissions or errors resulting from inaccurate information, or data, provided by sources outside Epic Engineering or from errors or omissions in public records. Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since Epic Engineering is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

6.0 References

Bureau of Land Management (BLM). 2017. Measuring and Monitoring Plant Populations. http://www.blm.gov/nstc/library/pdf/MeasAndMon.pdf. Accessed March 20, 2017.

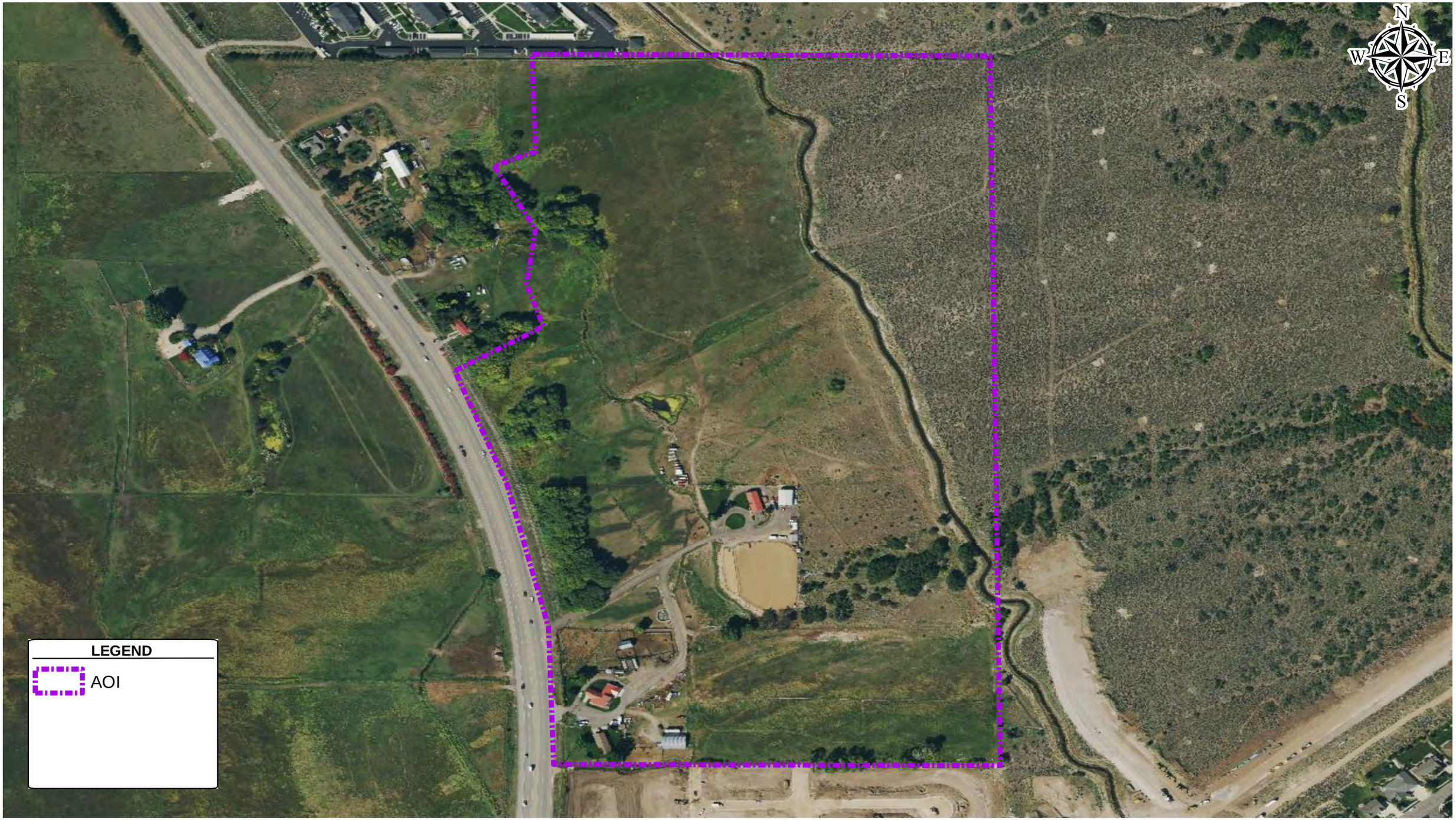
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Appendix A-Maps



epic ENGINEERING

Jordanelle Ridge

Wasatch County, Utah
August 2022

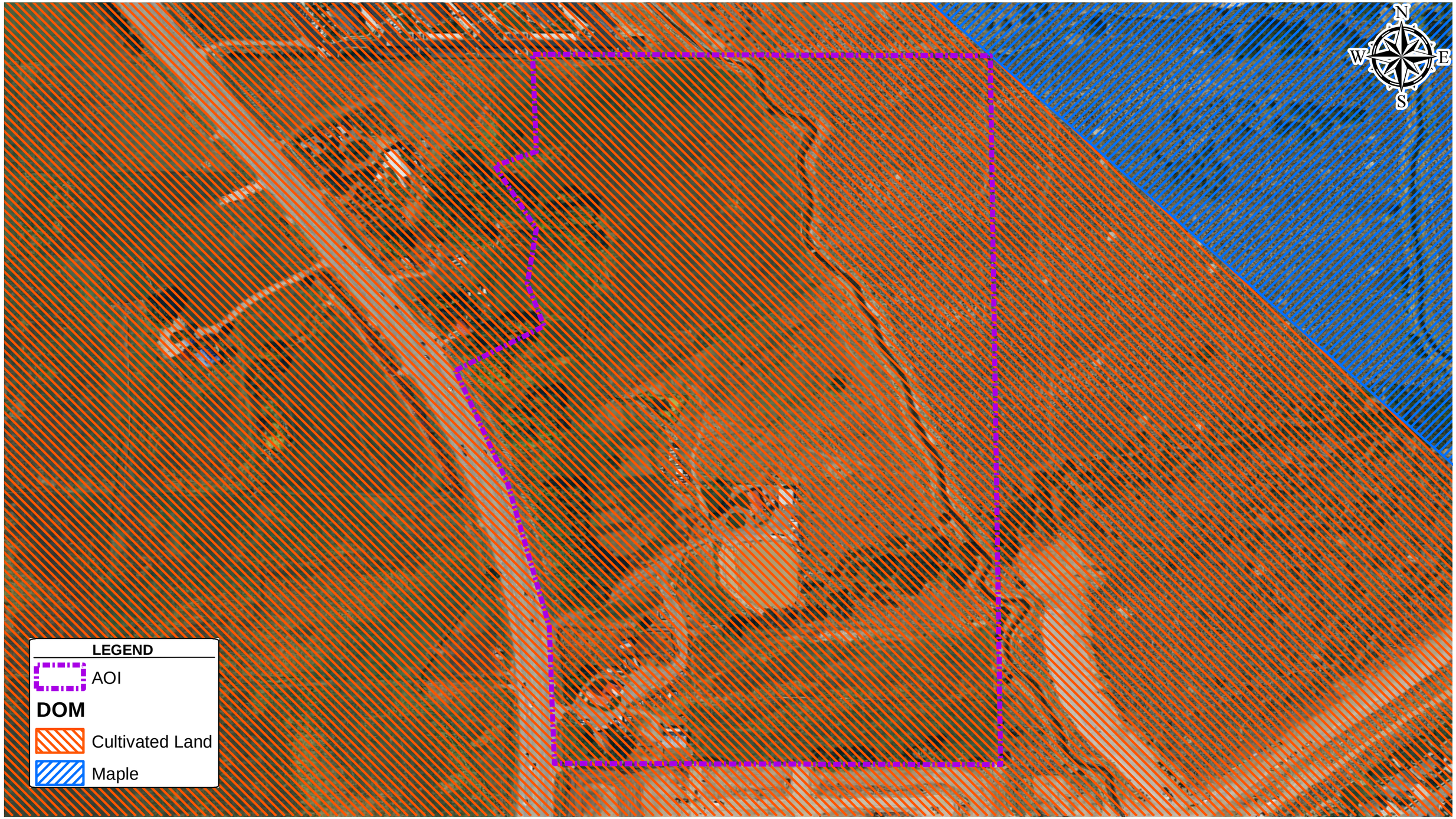
Fitzgerald Annexation Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=300'

Map:1



epic ENGINEERING

Jordanelle Ridge

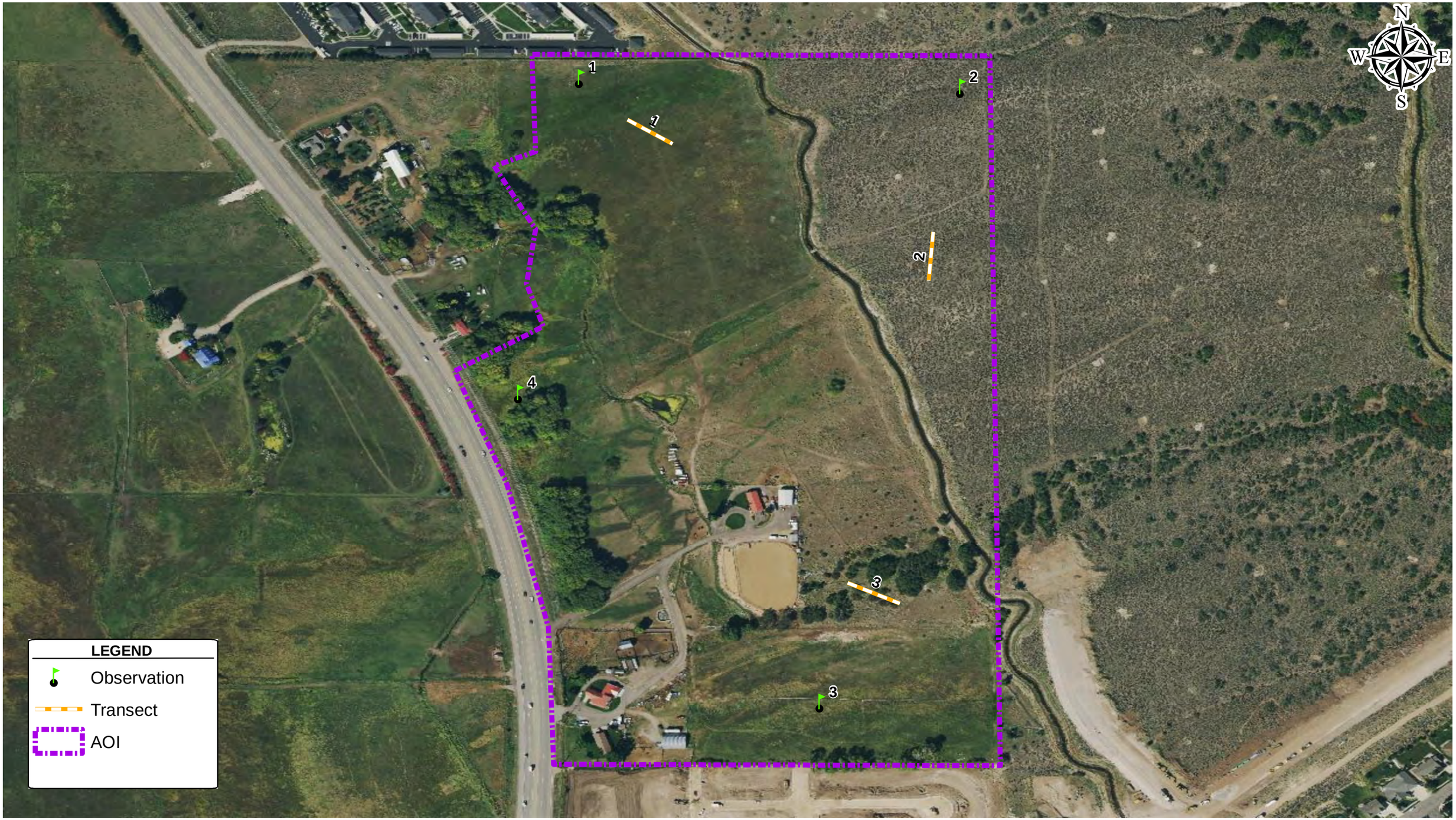
Wasatch County, Utah
August 2022

Fitzgerald Annexation Dominant Vegetation Map

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"
1"=300'

Map:2



epic ENGINEERING

Jordanelle Ridge

Wasatch County, Utah
August 2022

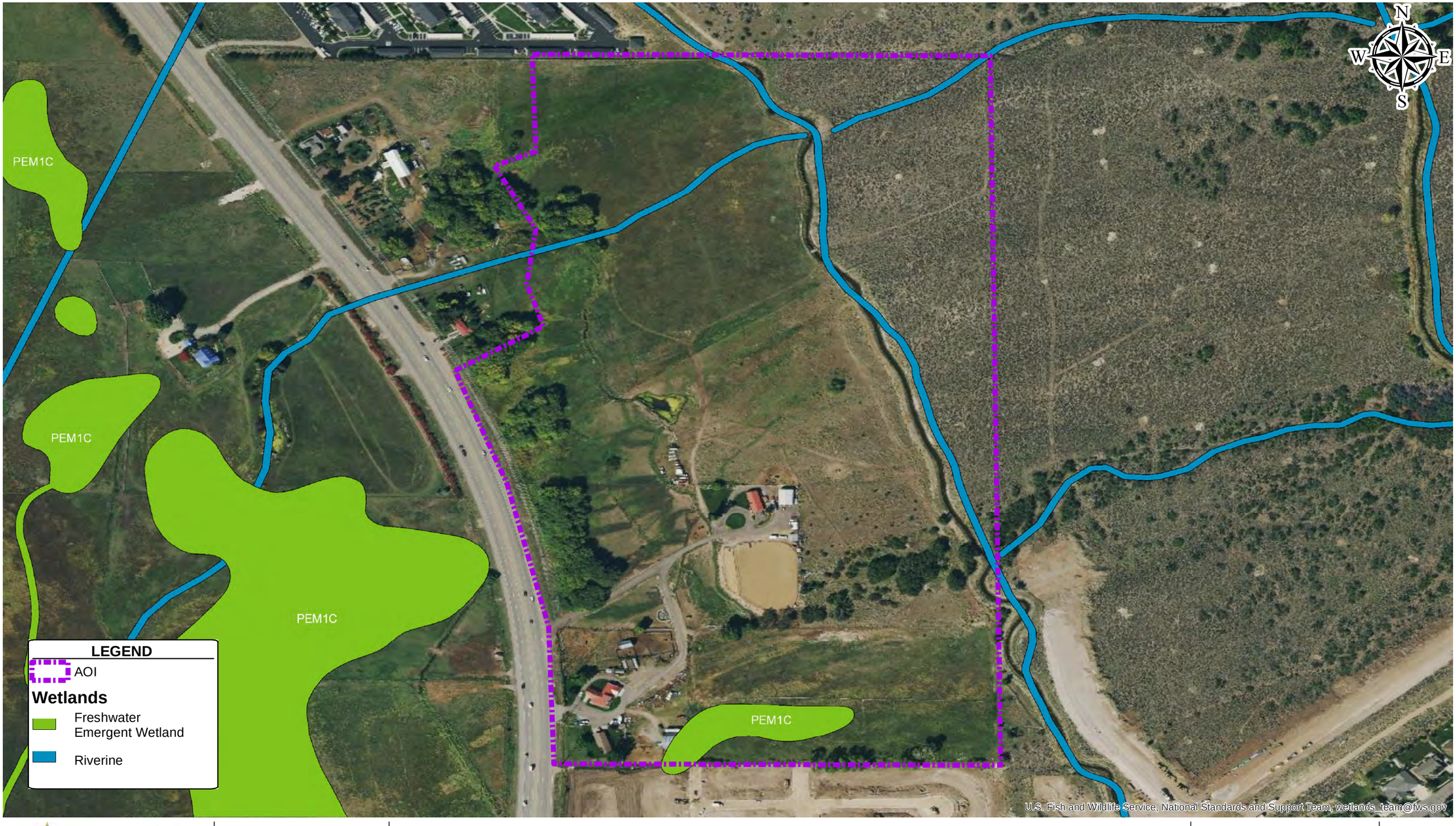
Fitzgerald Annexation Field Work Map

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=300'

Map:3



epic ENGINEERING

Jordanelle Ridge

Wasatch County, Utah
August 2022

Fitzgerald Annexation Wetlands Map

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=300'

Map:4

Appendix B-Photos



Photo 1: Canal



Photo 2: Ephemeral Drainage (above development)



Photo 3: Observation Point 2



Photo 4: Typical Minor Vegetation on Site



Photo 5: Start of Transect



Photo 6: Mule Deer Tracks



Photo 7: Sprinkler Irrigation



Photo 8: Cottonwood Trees



Photo 9: Habitat Above the Canal



Photo 10: Marsh Area

Appendix C-IPaC Report

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Wasatch County, Utah



Local office

Utah Ecological Services Field Office

(801) 975-3330
(801) 975-3331

2369 West Orton Circle, Suite 50

West Valley City, UT 84119-7603

https://fws.gov/office/utah-ecological-services

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

NOT FOR CONSULTATION

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Canada Lynx Lynx canadensis There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3652	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NOT FOR CONSULTATION

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus — Breeds Dec 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Cassin's Finch Carpodacus cassinii — Breeds May 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9462

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Evening Grosbeak Coccothraustes vespertinus — Breeds May 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Virginia's Warbler Vermivora virginiae — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9441

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Probability of Presence Summary

NOT FOR CONSULTATION

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

NOT FOR CONSULTATION

A week is marked as having no data if there were no survey events for that week.

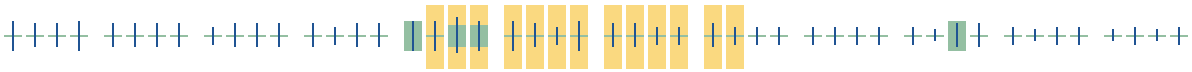
Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

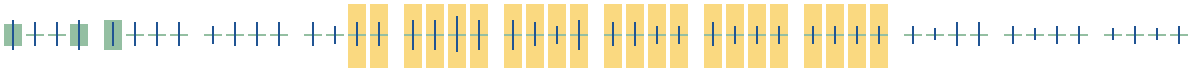


NOT FOR CONSULTATION

Evening Grosbeak BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Lewis's Woodpecker BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Olive-sided Flycatcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

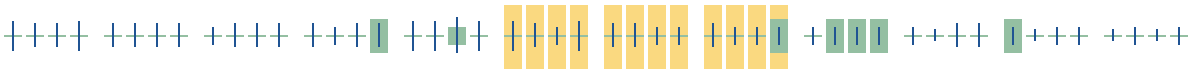


Virginia's Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



NOT FOR CONSULTATION

Western Grebe BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

NOT FOR CONSULTATION

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

NOT FOR CONSULTATION

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

THERE ARE NO KNOWN COASTAL BARRIERS AT THIS LOCATION.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be

subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

NOT FOR CONSULTATION

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

Palustrine

RIVERINE

Riverine

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

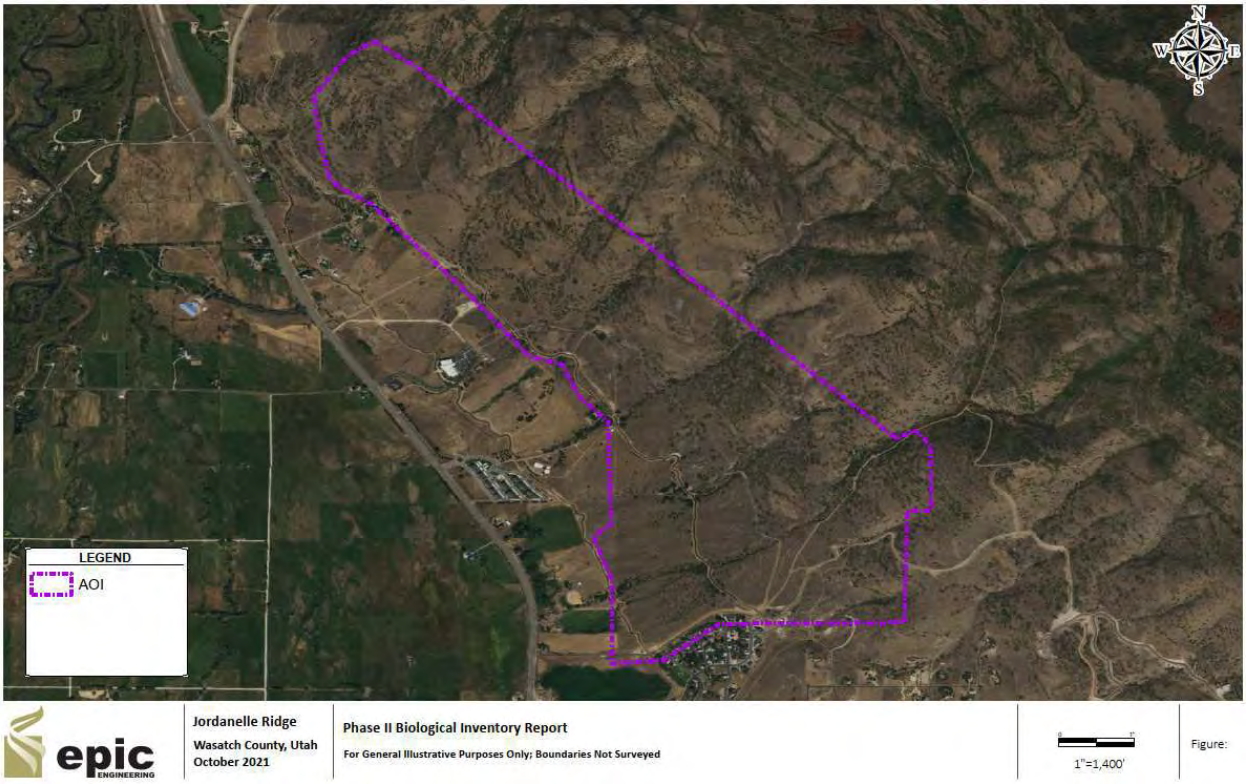
Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Supplemental Biological Inventory Report for Jordanelle Ridge Village II Proposed Development

Heber City, Utah



Prepared by:

Epic Engineering, PC
50 E 100 S
Heber City, UT 84032
www.epiceng.net

November 18, 2021

October 21, 2021

Heber City
Planning & Zoning Department
75 N Main Street
Heber City, Utah 84032

Re: Supplemental Biological Inventory Report-Jordanelle Ridge Village II

To whom it may concern,

Please find the attached Biological Inventory Report for Village II of the Jordanelle Ridge proposed development, located in Heber City, Utah. The purpose of this assessment is to satisfy the requirements of the city code in regard to environmental impacts; and is not meant to replace more detailed and stringent surveys.

The attached report documents the following:

- Interpretation of historical and public information
- Subsequent field investigations
- Interpretation of findings

In October 2021, Epic Engineering, PC, completed a Biological Inventory Report for the proposed +/- 820-acre development located adjacent to Highway 40 at approximately 3390 North, approximately 2.5 miles North of Heber City. The proposed development is located along the east side of US-40, between the Highway and the Wasatch Canal, in Sections 17, 18, 20, 21, 28 and 29, Township 3 South, Range 5 East, Salt Lake Base and Meridian. The study area consists of undeveloped land that has had historical livestock grazing and some dry farmland that slopes west towards US-40.

Please see Table 2 of Section 4.2 in the attached report for our findings and recommendations.

If you have any questions or concerns regarding the information enclosed herein, please feel free to contact me.

Respectfully,

Joshua Call
Staff Biologist/GIS Technician
Epic Engineering, P.C.
435-654-6600 ext. 129
JCall@epiceng.net

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Appendix C-IPaC Report C
Appendix D-Original Biological Inventory Report ..... D

1.0 Introduction and Background

Epic Engineering, PC is conducting this Biological Inventory as a supplement to the Biological Inventory report prepared by Ronald J. Kass, Ph.D. of Intermountain Ecosystems. The original report was prepared for the Sorenson Development for Stuart Lamb. The report identified the wildlife resources believed to inhabit the project area. Biological inventory objectives were as follows: (1) conduct a literature search for the occurrence of federal threatened and endangered species, U. S. Forest Service sensitive species, and state of Utah sensitive species, (2) conduct a field inventory for Waters of the U.S. and jurisdictional wetlands, (3) conduct a field inventory for sensitive plant and animal species and provide an ecological description of each habitat, (4) conduct a general biological inventory of plant communities, big game, and other high interest species, (5) summarize inventory results into a comprehensive report, and (6) assess impacts and recommend mitigation. Sensitive animals addressed in this report were included in what is now known as Table 1.

Our Biological Inventory Report for Jordanelle Ridge Village II looks at the flora and fauna presented in Table 1 and seeks to identify the potential for occurrence of the species identified in the table. To ensure accuracy, Table 1 was compared to the current list of Threatened and Endangered Species listed in the area (IPaC Report, Appendix C). As shown, Table 1 contains species no longer to be believed of concern or of potentially occupying the project location. To ensure accuracy, we matched the methods and objectives listed above by (1) conducting a literature search for the occurrence of federal threatened and endangered species, U. S. Forest Service sensitive species, and state of Utah sensitive species, (2) conducting a field inventory for Waters of the U.S. and jurisdictional wetlands, (3) conducting a field inventory for sensitive plant and animal species and provide an ecological description of each habitat, (4) conducting a general biological inventory of plant communities, big game, and other high interest species, (5) summarizing inventory results into a comprehensive report, and (6) assess impacts and recommend mitigation.

2.0 Project Area and Site Description

Project is located adjacent to Highway 40 at approximately 3390 North, approximately 2.5 miles North of Heber City. The proposed development is located along the east side of US-40, between the Highway and the Wasatch Canal, in Sections 17, 18, 20, 21, 28 and 29, Township 3 South, Range 5 East, Salt Lake Base and Meridian. The study area consists of undeveloped land that has had historical livestock grazing and some dry farmland that slopes west towards US-40.

The project area is homogenous, made up of several ephemeral drainages that drain towards the west. The majority of the project area is made up of westerly facing aspects of sage brush, scrub oak and grasslands, see Figure 1 and Appendix B- Photos.

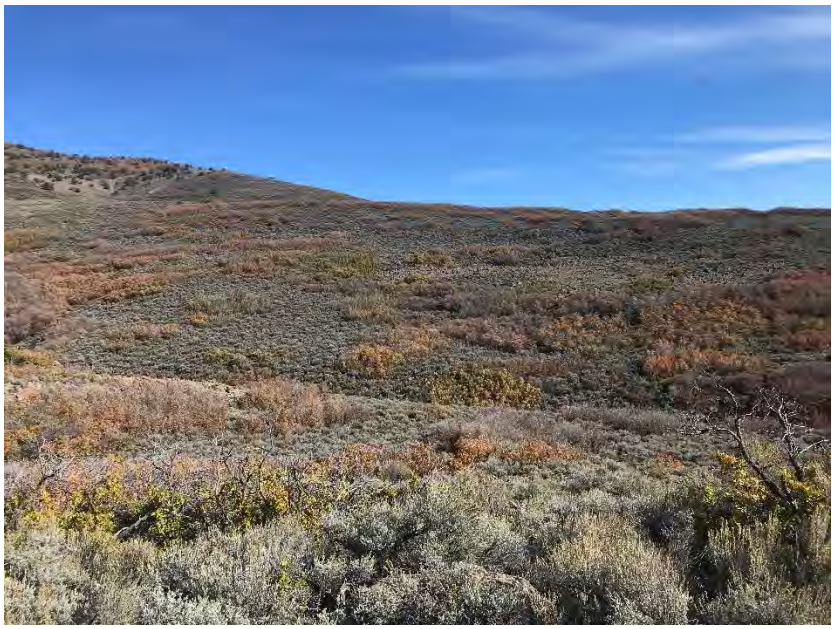


Figure 1- Typical Vegetation

Prior to the field survey, the dominant vegetation map maintained by the Utah Division of Wildlife Resources was examined (UDWR 2017). According to the map, the site is located in a Maple Dominant, Oak and Sagebrush sub dominant community, see Appendix A. From geotechnical site visits, prior knowledge of the site, and aerial imagery analysis, it was determined that the predominant vegetation present is Gambel oak (*Quercus gambelli*), also known as scrub oak, sage brush (*Artemesia tridentata*), native wheatgrasses (*Pascopyrum spp.*), and cheatgrass (*Bromus tectorum*). The discrepancy between the dominant vegetation and actual site conditions is expected due to the data for the dominant vegetation map being generalized and derived from 1:24,000 scale orthophoto quadrangles, 1:40,000 scale aerial photos and field mapping.

3.0 Sensitive Species from Original Report

As discussed above, Table 1 (below) from the original Biological Inventory Report was analyzed and updated with the 2021 U.S. Fish and Wildlife's list of threatened and endangered species, see Table 2. For reference, Table 1 is provided below.

Table 1. Sensitive Species Analyzed on the Sorensen Development

Common Name	Scientific Name	Status	Habitat	Occurrence in Project Area
MAMMALS				
Wolverine	*Gulo gulo*	USFS & Utah Threatened	coniferous forest	low potential

Fisher	*Martes pennanti*	USFS & Utah sensitive	coniferous forest	low potential, probably extirpated
Spotted bat	*Euderma maculatum*	USFS & Utah sensitive	caves/mines/rocky crevices	Moderate potential
Townsend's big-eared bat	*Plecotus townsendii*	USFS & Utah sensitive	caves/mine/rocky crevices	low potential
Brazilian free tailedbat	*Tadarida brasiliensis*	Utah sensitive	caves/mines/rocky crevices	low potential
BIRDS				
Bald eagle	*Haliaeetus leucocephalus*	USFWS & Utah threatened	riparian, and open waters	moderate potential may roost locally during winter just outside project area.
Goshawk	*Accipiter gentilis*	USFS & Utah sensitive	aspen/conifer	low potential
Boreal owl	*Aegolius funereus*	USFS sensitive	mature old growth spruce-fir and snags	No habitat
Short-eared owl	*Asio flammeus*	Utah sensitive	marshes and open field	low potential, may occur in wetlands adjacent to project area
Burrowing owl	*Athene cunicularia*	Utah sensitive	sagebrush, grasslands	low potential
Flammulated owl	*Otus flammeolus*	USFS sensitive	aspen/conifer and snags	high potential
Great gray owl	*Strix nebulosa*	USFS sensitive	coniferous forest	Low potential
Sage grouse	*Centrocerus urophasianus*	Utah sensitive	sagebrush	Low potential
Long-billed curlew	*Numenius americanus*	Utah sensitive	wet & upland meadows	low potential, may occur in adjacent wetlands
Three-toed woodpecker	*Picoides tridactylus*	USFS & Utah sensitive	mature/old growth conifer and snags	No habitat

4.0 Field Work Summary

Field work for wildlife and wetlands was conducted in October 2021 by Joshua Call (Staff Biologist-BS Wildlife and Wildlands Conservation, Brigham Young University). To field inventory the proposed development for Waters of the United States, the ephemeral drainages were identified and located, with each drainage walked. Notes were taken on dominant plant species, presence/absence of water and channel characteristics. The field inventory for sensitive and high interest plant and wildlife species consisted of walking 5 transects and observing all species present for 30 minutes from 5 locations around the site, see Appendix A. To ensure data accuracy, integrity, and to eliminate bias, the start of the walking transects, and the 5 observation points were randomly determined utilizing the Create Random Points tool in ArcMap, developed by ESRI, Inc. Upon reaching each predetermined plot location, a GPS point was logged. All points fell within 1 meter of the randomly selected point.



Figure 2- Start of Transect

In addition to these randomly selected points, wildlife and vegetation was observed while traveling to each location on foot. Table 2 is a summary of all the sensitive species analyzed on the Jordanelle Ridge Village II Development.

4.1 Findings Summary

Field notes and data sheets were taken at each transect and observation point. Office work consisted of reviewing each of the transects and observation points. The common dominant vegetation observed was sage brush and scrub oak, less dominant, smaller, but numerous in number included the invasive cheatgrass and Stork's bill (*Erodium cicutarium*). Some Juniper (*Juniperus osteosperma*) and Bitterbrush (*Purshia tridentata*) was observed on the site but did not fall within a transect.

Notable wildlife observed on the site included mule deer (*Odocoileus hemionus*), White-tailed Jackrabbit (*Lepus townsendii*), Cottontail Rabbit (*Lepus sylvaticus*), and Coyote (*Canis latrans*). Bird species observed included Black Billed Magpie (*Pica hudsonia*), Red-Tailed Hawk (*Buteo jamaicensis*), Western Scrub Jay (*Aphelocoma californica*), and American Robin (*Turdus migratorius*). Evidence for Elk (*Cervus canadensis*) was observed in the form of scat and tracks. The proposed development area has the potential to provide winter habitat for several species according to literature and map research of elk, mule deer and sage grouse habitat. This data was obtained from the Utah Division of Wildlife Resources and matches scat and other field gathered data and observations. Development in these areas is not uncommon and it is our understanding that consideration of open space and migration corridors has been considered when laying out the site. Landscaping with native and wildlife friendly plants can also mitigate some of the effects of development.



Figure 3- Mule Deer

Mountain biking and hiking trails are located on the property, introducing a fairly heavy human presence as compared to similar areas without such trails. Mountain bike specific research, examining the environmental impacts of mountain biking and wildlife found that wildlife have a similar flee response to hikers and animals can avoid these areas. (Marion and Wimpey, 2021).

4.2 Sensitive Species for Proposed Development

Table 2. Sensitive Species Analyzed on the Jordanelle Ridge Village II Development

Common Name	Scientific Name	Status	Habitat	Occurrence in Project Area
MAMMALS				
Wolverine	*Gulo gulo*	USFS & Utah Threatened	coniferous forest	No habitat, very low potential
Canada Lynx	*Lynx canadensis*	USFS & Utah Threatened	coniferous forest	No habitat, very low potential
Fisher	*Martes pennanti*	USFS & Utah sensitive	coniferous forest	No habitat, very low potential
Spotted bat	*Euderma maculatum*	USFS & Utah sensitive	caves/mines/rocky crevices	Low potential
Townsend's big-eared bat	*Plecotus townsendii*	USFS & Utah sensitive	caves/mine/rocky crevices	Low potential
Brazilian free tailedbat	*Tadarida brasiliensis*	Utah sensitive	caves/mines/rocky crevices	Low potential
BIRDS				
Bald eagle	*Haliaeetus leucocephalus*	Recovered	riparian, and open waters	moderate potential may roost along Provo River during winter just outside project area.
Yellow-billed Cuckoo	*Coccyzus americanus*	USFWS & Utah threatened	Riparian	No habitat, low potential
Goshawk	*Accipiter gentilis*	USFS & Utah sensitive	aspen/conifer	No habitat, very low potential
Boreal owl	*Aegolius funereus*	USFS sensitive	mature old growth spruce-fir and snags	No habitat
Short-eared owl	*Asio flammeus*	Utah sensitive	marshes and open field	moderate potential may occur around Provo River just outside project area.

Burrowing owl	*Athene cunicularia*	Utah sensitive	sagebrush, grasslands	low potential
Flammulated owl	*Otus flammeolus*	USFS sensitive	aspen/conifer and snags	No habitat, low potential
Great gray owl	*Strix nebulosa*	USFS sensitive	coniferous forest	No habitat, low potential
Sage grouse	*Centrocerus urophasianus*	Utah sensitive	sagebrush	Moderate/High potential
Long-billed curlew	*Numenius americanus*	Utah sensitive	wet & upland meadows	low potential, may occur in adjacent wetlands
Three-toed woodpecker	*Picoides tridactylus*	USFS & Utah sensitive	mature/old growth conifer and snags	No habitat, low potential

During all field visits, no sensitive species were identified, observed, or documented. The scope of this report does not seek to definitively state that a species will or will not be found in the project area, rather it seeks to understand to potential for species occurrence.

It is the opinion of Epic Engineering, P.C., that the potential for presence of sensitive species is as explained in Table 2 above and that the guidance and mitigation recommendations from the original Biological Inventory Report (Appendix D) are appropriate for this proposed development and should be followed. In addition to the Federally required action explained below in section 4.3.

4.3 Action Required if Sensitive Species Are Observed

Please note that all work is required to halt and contact any potentially affected federally recognized concerns within forty-eight (48) hours of discovery (pursuant to the protocol established at 36 C.F.R. Part 800, Section 800.13(b) (3)) should any threatened or endangered species that fall under the purview under the Endangered Species Act 16 U. S. C. 1531 et seq). The Utah Division of Wildlife Resources should also be contacted within forty-eight (48) hours of discovery to allow for collaboration and coordination.

5.0 Wetlands and Waters of the United States

During the course of the field visits, drainage channels were observed and compared to the U.S. Fish and Wildlife Wetlands Mapper. Several minor ephemeral drainages were identified in the project area; however, no other jurisdictional wetlands were delineated (i.e. wet meadows, bogs, wetlands, etc.) Please see map in Appendix A. Disturbance to these drainage channels should be avoided. In the event of work in these natural channels, coordination with the Army Corps of Engineers may be necessary.



Figure 4-Ephemeral Channel

A partially lined concrete canal bisects the development property. This canal is owned and operated by the Timpanogos Canal Company. The approximate northern half being concrete and the southern half open bank. See Figure below:



Figure 5-Concrete Lined Timpanogos Canal

Waters of the U.S. is a collective term for all areas subject to regulations by the Army Corps of Engineers. These waters include intermittent and ephemeral drainages, special aquatic sites (i.e., springs), and wetlands. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the ephemeral stream and runoff from rainfall is the primary source of water. An ephemeral stream is a water of the United States provided it

has a bed, bank, and ordinary high-water mark (OHWM).

6.0 Limit of Liability

The procedures used attempted to establish a balance between the competing goals of limiting investigative and reporting costs and time and reducing the uncertainty about unknown conditions. Therefore, because the findings of this document were derived from the scope, costs, time, and other limitations, the conclusions should not be construed as a guarantee that all environmental liabilities have been identified and fully evaluated. Where sample collection and testing have been performed, Epic Engineering's professional opinions are based in part on the interpretation of data from discrete sampling locations that may not represent conditions at non-sampled locations. Epic Engineering assumes no responsibility for omissions or errors resulting from inaccurate information, or data, provided by sources outside Epic Engineering or from errors or omissions in public records. Furthermore, it is emphasized that the final decision on how much risk to accept always remains with the client since Epic Engineering is not in a position to fully understand all of the client's needs. Clients with a greater aversion to risk may want to take additional actions while others, with less aversion to risk, may want to take no further action.

6.0 References

Bureau of Land Management (BLM). 2017. Measuring and Monitoring Plant Populations. http://www.blm.gov/nstc/library/pdf/MeasAndMon.pdf. Accessed March 20, 2017.

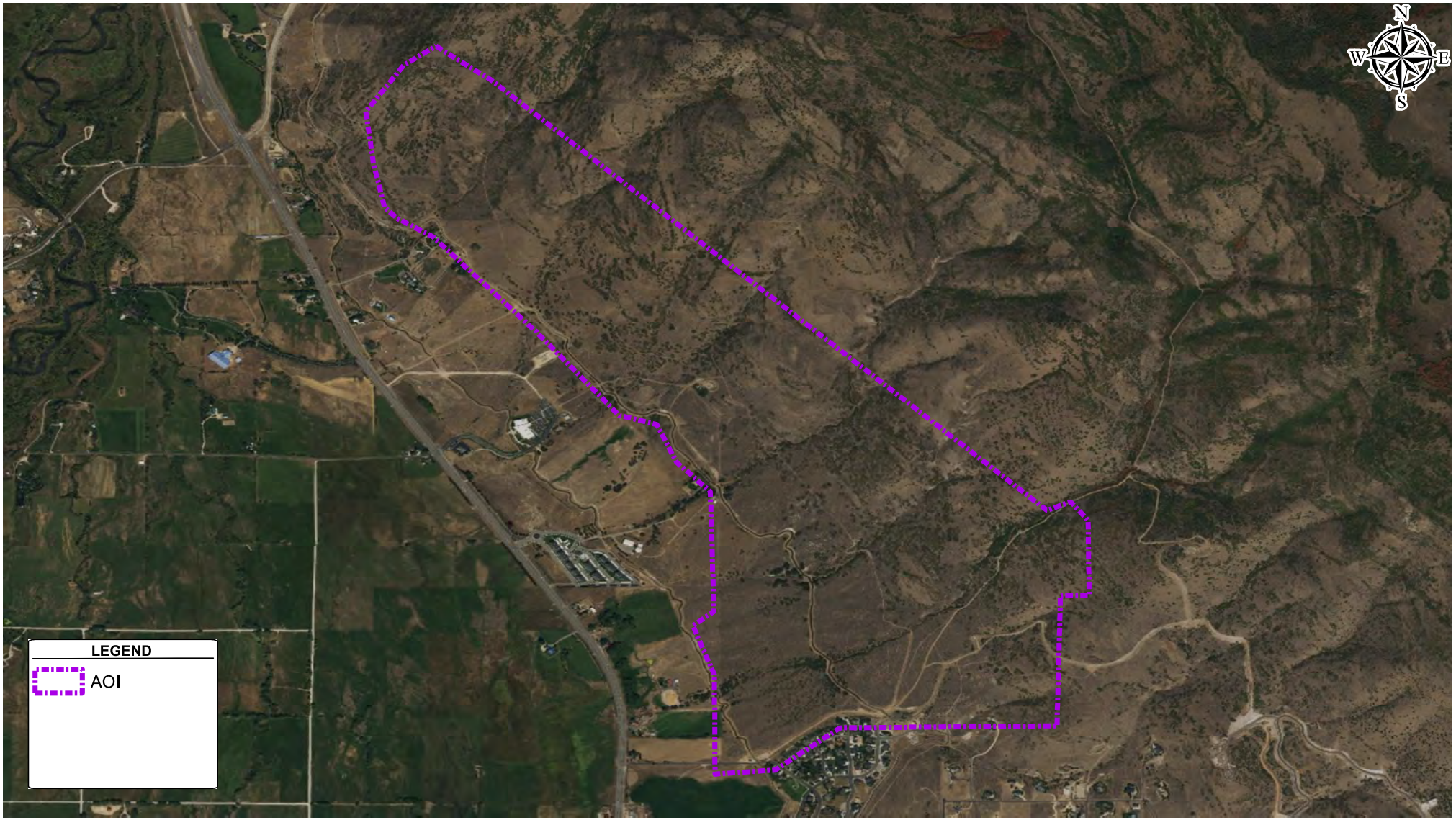
Environmental Impacts of Mountain Biking: Science Review and Best Practices. (Marion and Wimpey). 2021. https://www.vvmta.org/2016/07/impacts-wildlife-mountain-biking-specific-research/

United States Geological Survey (USGS) 2017. Field Methods for Vegetation Mapping. https://www1.usgs.gov/vip/standards/fieldmethodsrpt.pdf. Accessed March 20, 2017.

Utah Division of Wildlife Resources (UDWR) 2017. Dominant Vegetation Map. https://gis.utah.gov/data/bioscience-overview/dominant-vegetation/. Accessed March 20, 2017.

Interagency Forage and Conservation (IFC) 1994. Planting Guide for Utah. http://extension.usu.edu/files/publications/publication/AG-433.pdf. Accessed March 19, 2017

Appendix A-Maps



epic ENGINEERING

Jordanelle Ridge

Wasatch County, Utah
October 2021

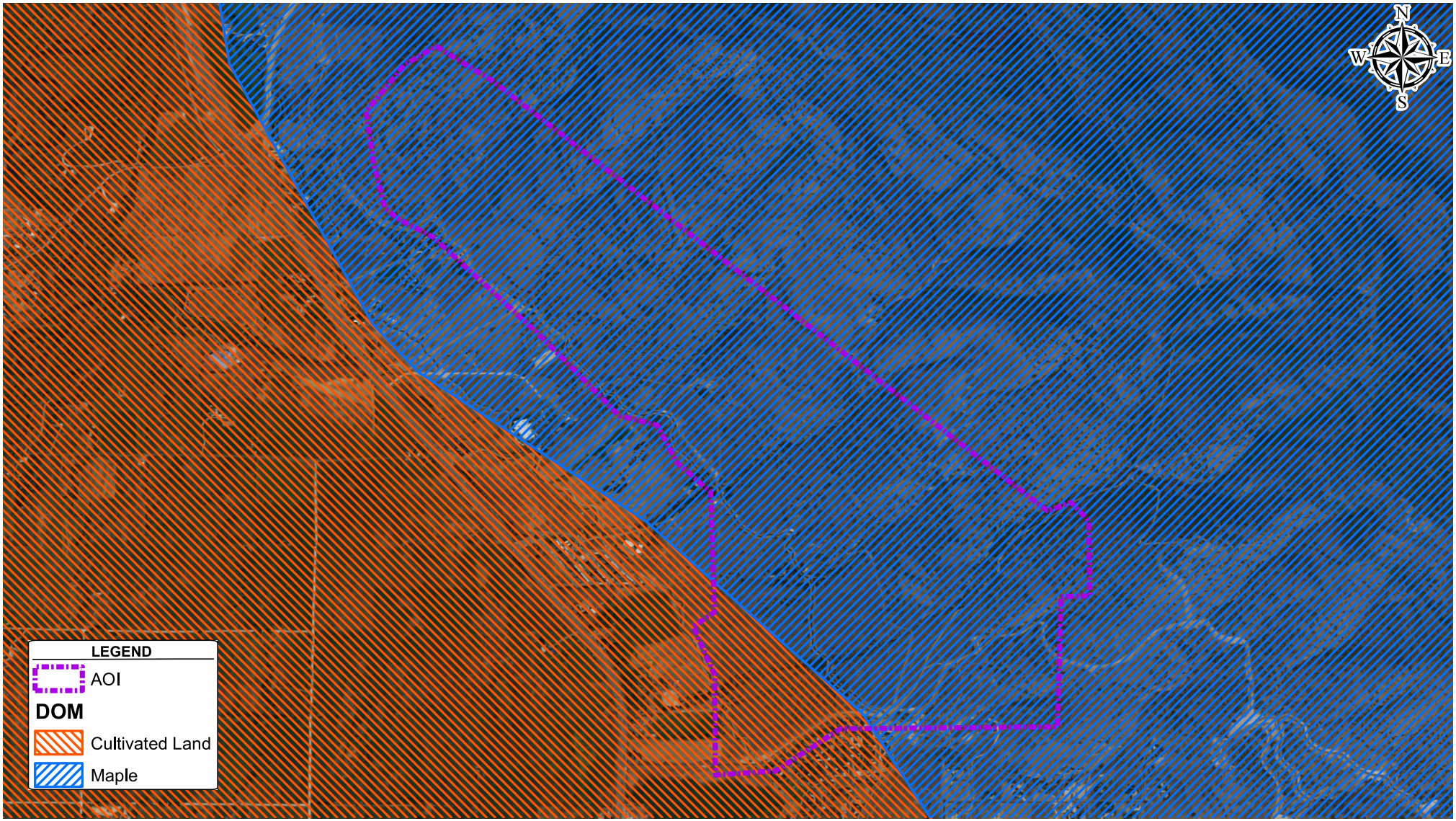
Village II Wildlife Mitigation Report

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=1,400'

Map:1



epic ENGINEERING

Jordanelle Ridge

Wasatch County, Utah
October 2021

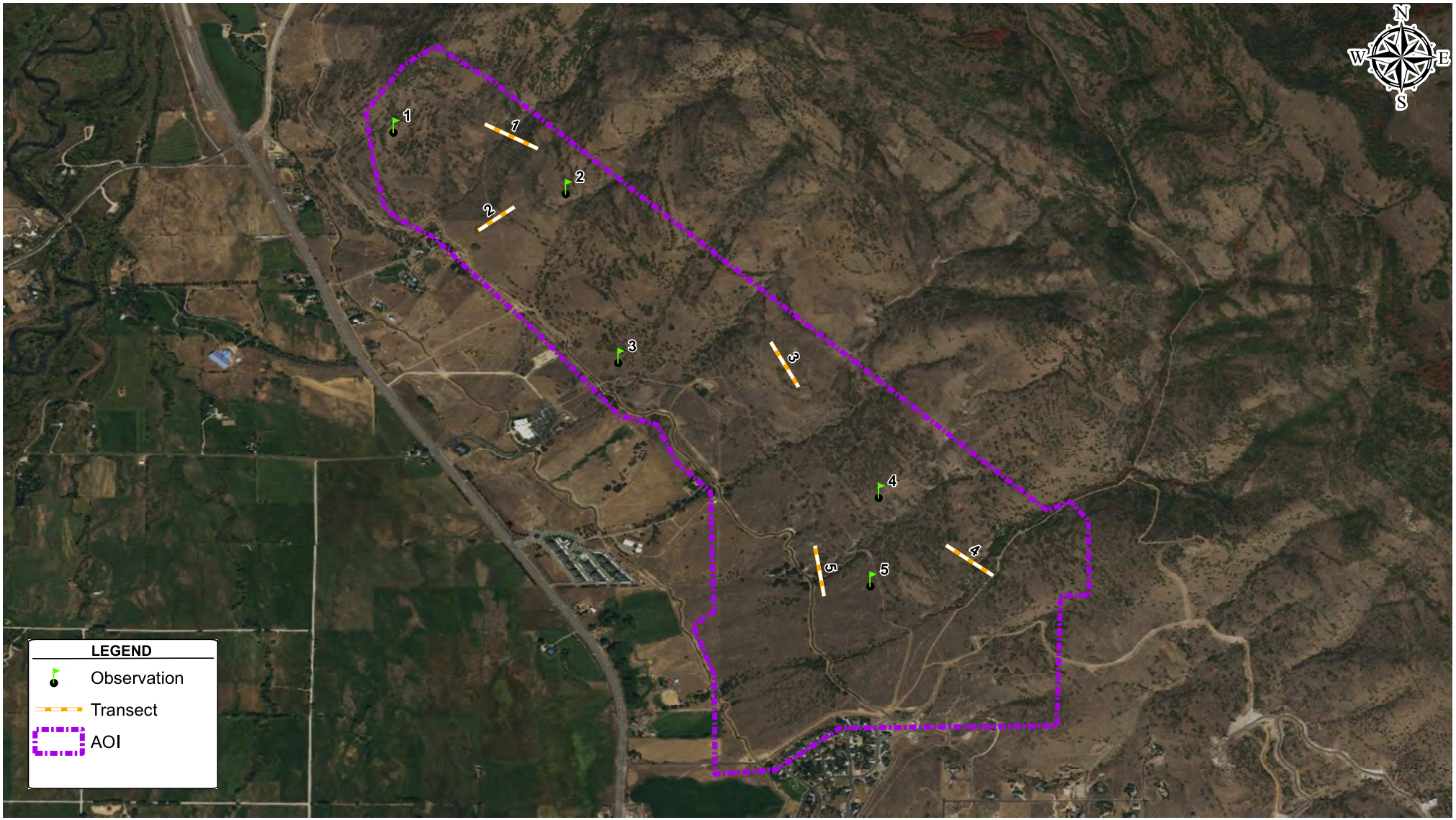
Dominant Vegetation Map

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=1,400'

Map:2



epic ENGINEERING

Jordanelle Ridge

Wasatch County, Utah
October 2021

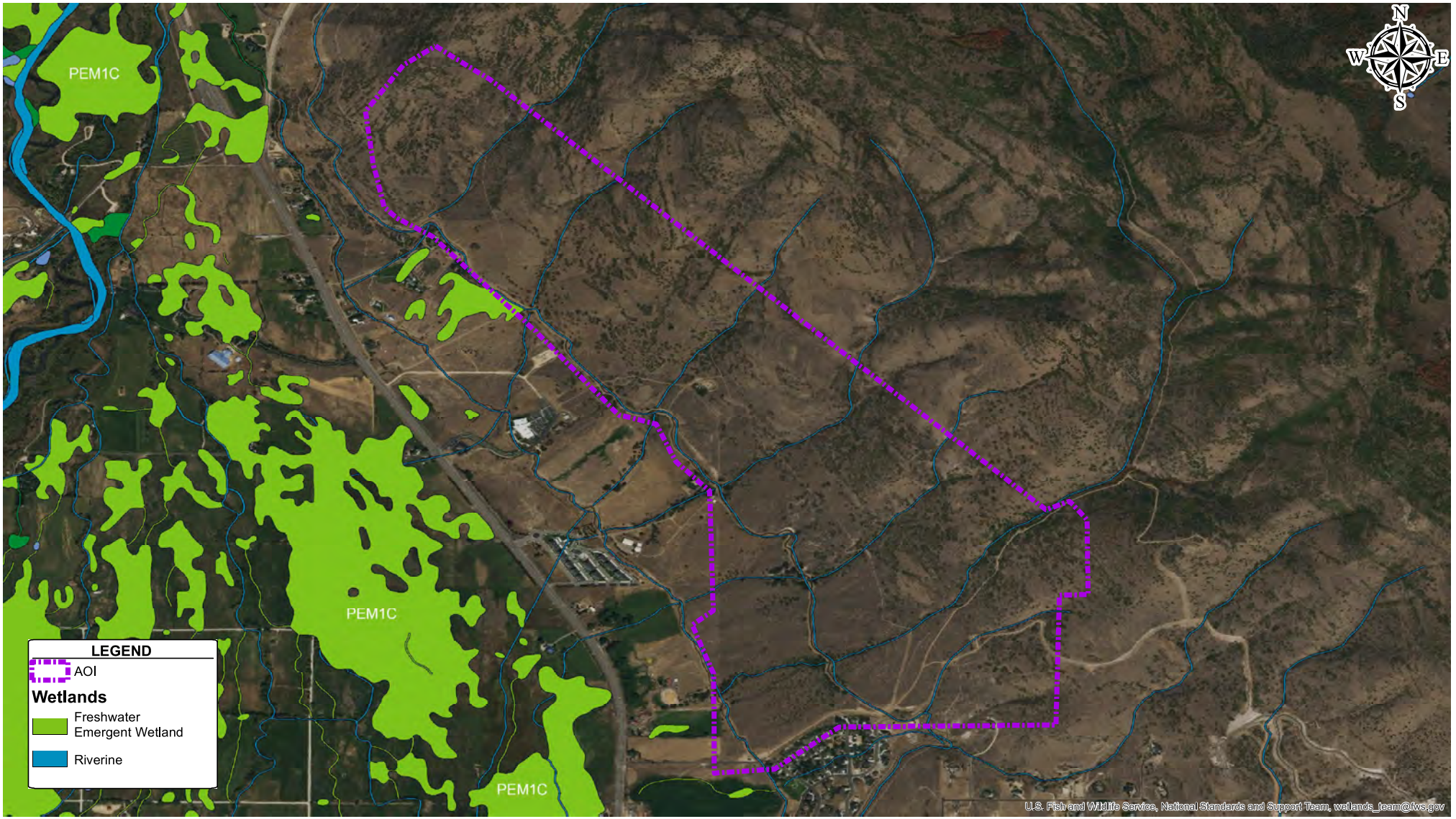
Field Work Map

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"

1"=1,400'

Map:3



epic ENGINEERING

Jordanelle Ridge

Wasatch County, Utah
October 2021

Wetlands Map

For General Illustrative Purposes Only; Boundaries Not Surveyed

0 1"
1"=1,400'

Map:4

Appendix B-Photos



Photo 1: Concrete Lined Canal



Photo 2: Ephemeral Drainage



Photo 3: Observation Point 2



Photo 4: Typical Minor Vegetation on Site



Photo 5: Start of Transect



Photo 6: Mule Deer Tracks



Photo 7: Coyote Den



Photo 8: End of Transect



Photo 9: Mule Deer and Jackrabbit Scat



Photo 10: Trail Looking North



Photo 11: Site Viewed from UVU Campus



Photo 12: Village II

Appendix C-IPaC Report

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Wasatch County, Utah



Local office

Utah Ecological Services Field Office

(801) 975-3330
(801) 975-3331

2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603

http://www.fws.gov
http://www.fws.gov/utahfieldoffice/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

NOT FOR CONSULTATION

Canada Lynx Lynx canadensis There is **final** critical habitat for this species. The location of the critical habitat is not available. http://ecos.fws.gov/ecp/species/3652	Threatened

Birds

NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. The location of the critical habitat is not available. http://ecos.fws.gov/ecp/species/3911	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php

- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NOT FOR CONSULTATION

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. http://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Cassin's Finch Carpodacus cassinii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker Melanerpes lewis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Virginia's Warbler Vermivora virginiae This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For

example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

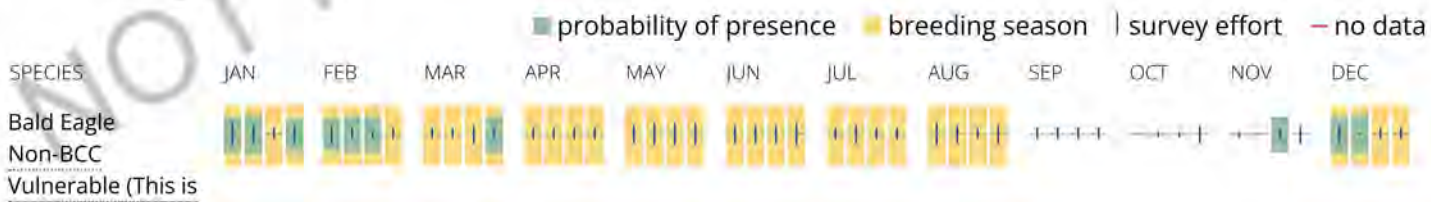
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

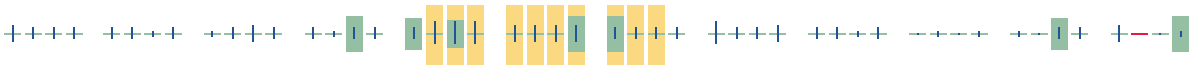
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

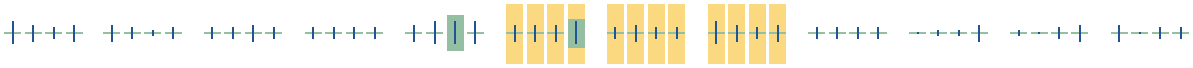
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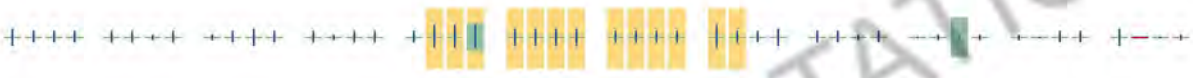
Cassin's Finch BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Clark's Grebe BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



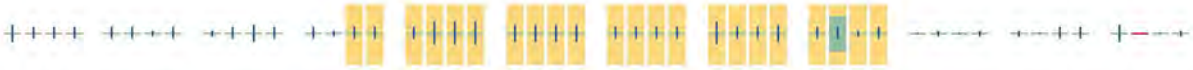
Evening Grosbeak BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Lesser Yellowlegs BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

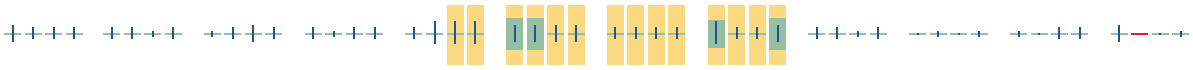


Lewis's Woodpecker BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

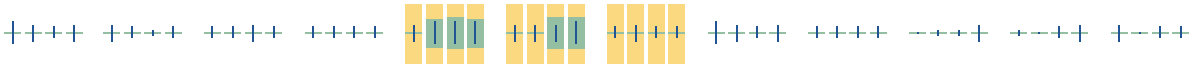


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Olive-sided Flycatcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Virginia's Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at

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the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

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Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

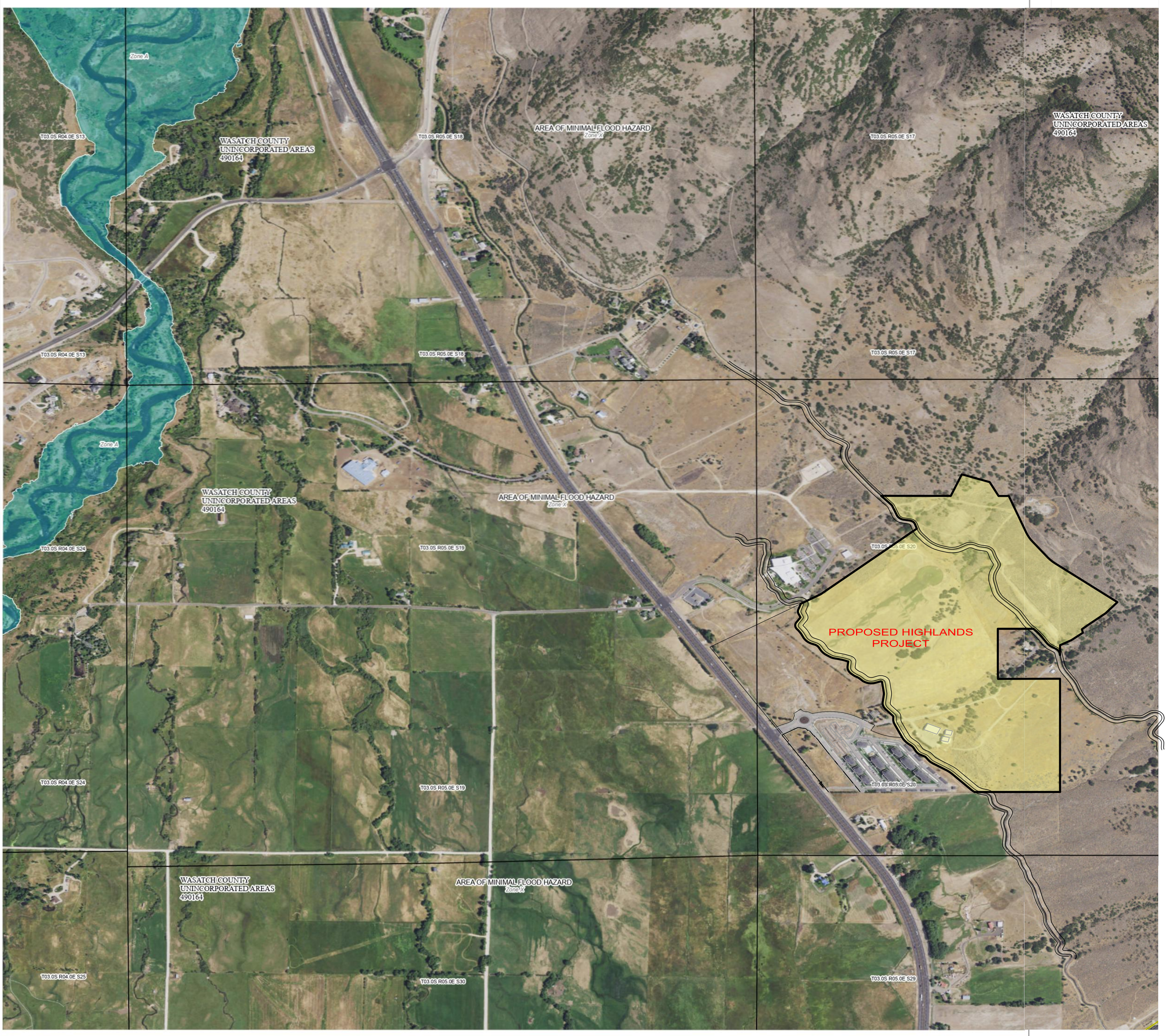
Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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111°26'15.47"W 40°33'51.61"N



111°24'22.11"W 40°31'45.94"N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was derived from NAIP, dated April 11, 2018.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on 3/29/2024 12:14 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

SCALE

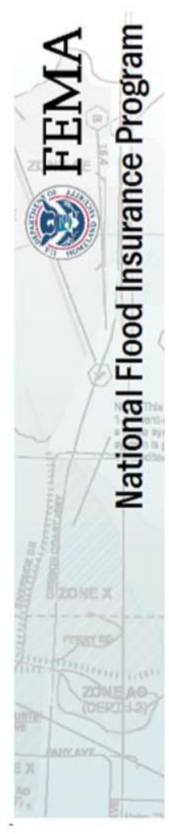
Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: No elevation features on this FIRM
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

N

1 inch = 500 feet 1:6,000

0 250 500 1,000 1,500 2,000 Feet

0 50 100 200 300 400 Meters



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

PANEL 116 OF 750

Panel Contains:

COMMUNITY	NUMBER	PANEL
WASATCH COUNTY	490164	0116

MAP NUMBER
49051C0116E
EFFECTIVE DATE
March 15, 2012

GeoStrata 14425 S. Center Point Way, Bluffdale, Utah 84065
T: (801) 501-0583 ~ info@geostrata-llc.com

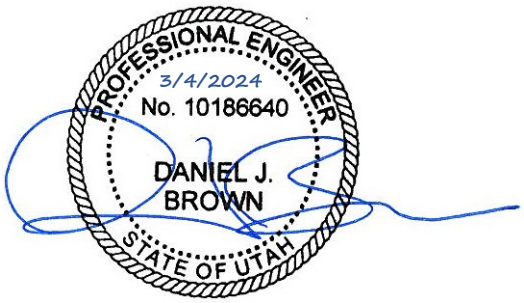
MEMORANDUM

To: **D.R. Horton**
Attention: Mr. Dave Martin
12351 South Gateway Park Place
Draper, Utah, 84020

From: **Daniel J. Brown, P.E.**
Associate Principal Engineer

Date: **March 4, 2024**

Subject: **Erosion Control & Slope Stability**
Heber Highlands
Heber, Utah
GeoStrata Job No. 589-173



GeoStrata has completed this memorandum to summarize our review of the provided grading plans and geotechnical report for the proposed Heber Highlands development to be located in Heber, Utah. A site plan prepared by Ward Engineering Group titled "Highlands, Heber City, UT, Mass Grade Cut/Fill" and dated February 6, 2024 was provided for our review as well as a geotechnical report prepared by GSH Geotechnical, Inc. (GSH) titled "Report, Geotechnical Study, Wasatch Commons, East of the Intersection of 300 North and US Highway 40, Heber City, Utah" dated September 21, 2016. Additional test pits were also completed by GSH which are summarized in a report titled "Letter, Additional Test Pits, Wasatch Commons, East of the Intersection of 3000 North and US Highway 40, Heber City, Utah".

Based on our review of the provided documents, we understand that cuts of 545,821 CY and fills of 741,126 CY are planned for the proposed development. Prior to starting cut and fill activities, vegetation should be cleared and grubbed from the existing site grades. Topsoil should be stripped and may be stockpiled for use in landscape areas. All undocumented fill should be removed prior to placement of mass grading fills. Mass grading fill should be placed and compacted as structural fill as recommended in Section 5.2.3, Structural Fill, of the September 2016 GSH geotechnical report such that all roads and structures that bear on documented, compacted mass grading fill/structural fill.

Section 5.2.5, Final Cut and Fill Slopes, of the September 2016 GSH geotechnical report states, "Generally, final cut and fill slopes in soil should be no steeper than 2.5 horizontal to 1.0 vertical. For cuts in volcanic bedrock areas, we recommend that all final cut slopes be constructed no steeper than 1.0 horizontal to 1.0 vertical." Unless additional slope stability analysis is completed for the proposed cuts and fills, we recommend that cut and fill slopes be no steeper than 2.5H:1V (horizontal to vertical) where slopes consist of soil. Where the proposed slopes expose bedrock, cuts may be steepened to 1H:1V.

Erosion control measures should be implemented following completion of final cuts and fills. Erosion control should consist of vegetating slopes with native broadcast seeding, seeded straw blankets, and/or placement of straw wattles. The table below provides our recommendations for

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erosion control based on final slope steepness.

Slope Steepness	Recommended Erosion Control Measures
10% or less	Broadcast seeding
>10% and <30%	Seeded straw blankets
30% or greater	Seeded straw blankets and straw wattles

Where straw wattles are used, spacing of wattles should be based on the following table.

Slope Steepness	Spacing (ft)
10% to 20%	60
20% to 50%	30
>50%	10

This memorandum was written for the exclusive use of DR Horton Development and only for the proposed project described herein. It is the Client's responsibility to see that all parties to the project including the Designer, Contractor, Subcontractors, etc. are made aware of this memorandum in its entirety. We are not responsible for the technical interpretations by others of the information described or documented in this memorandum.

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NOTES:
1. BROADCAST NATIVE SEED WITHIN 30 DAYS OF "ALL " DISTURBED GROUND.
2. RECOMMENDATION FOR EROSION CONTROL FROM "EROSION CONTROL & SLOPE STABILITY" MEMO BY GEOSTRATA DATED MARCH 4, 2024.

CALL BEFORE YOU DIG.
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208-2100
(SALT LAKE METRO)
UNDERGROUND UTILITY PROTECTION
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COPPER, UTAH 84020-1917

HIGHLANDS
HEBER CITY, UT
EROSION CONTROL PLAN

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

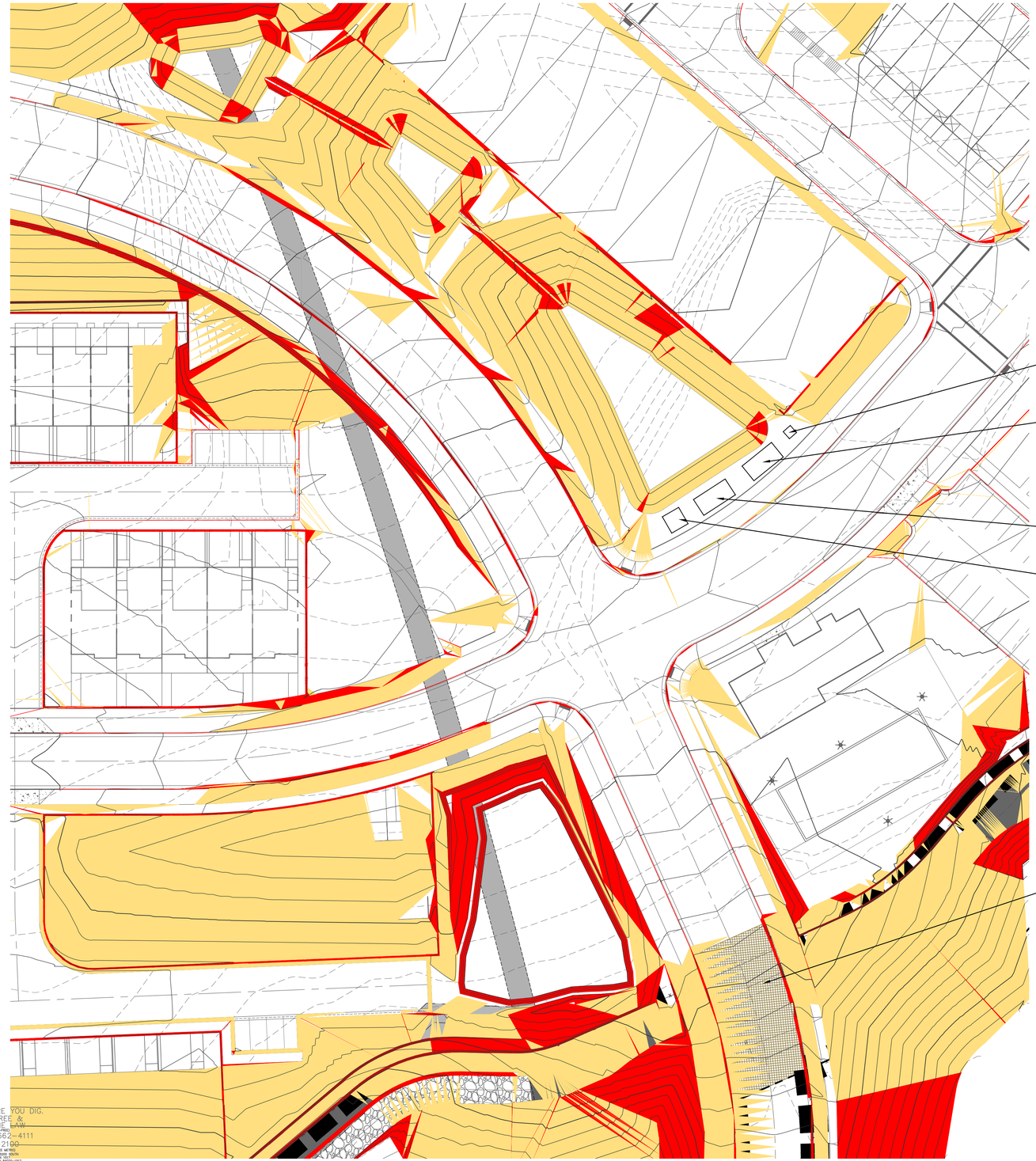
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DWG: EROSION CONTROL PLAN.DWG
JOB No. 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in = SMALLER SCALE AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 03/11/2024

REVISIONS

SHEET
EC-01

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LEGEND

- BOUNDARY LINE
- GRAVEL BAG INLET PROTECTION
- SILT FENCE
- CONSTRUCTION FENCE
- STRAW WATTLE CHECK DAM
- BROADCAST SEEDING SEE NOTE 1 (0-10% SLOPE)
- SEEDED STRAW BLANKETS 10-33.5% (3:1) SLOPE
- SEEDED STRAW BLANKETS AND STRAW WADDLES >33.5% (3:1) SLOPES
- STRAW BALE INLET PROTECTION

NOTES:
1. BROADCAST NATIVE SEED WITHIN 30 DAYS OF "ALL " DISTURBED GROUND.
2. RECOMMENDATION FOR EROSION CONTROL FROM "EROSION CONTROL & SLOPE STABILITY" MEMO BY GEOSTRATA DATED MARCH 4, 2024.

30 0 30 60 90

Scale 1" = 30'

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DRAPER, UTAH 84020-1917

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231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
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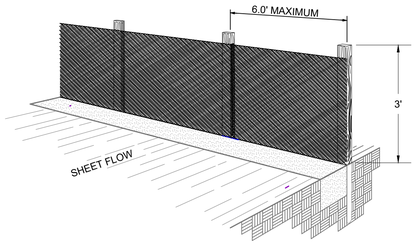
CLIENT: D.R.HORTON
DWG: EROSION CONTROL PLAN.DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in - DIMENSIONS AND NOTES TAKE PRECEDENCE

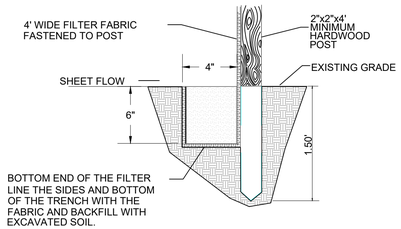
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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 03/11/2024

REVISIONS

SHEET
EC-02

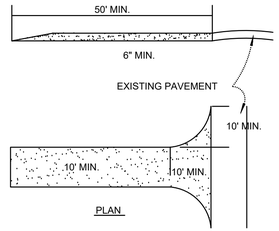
FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Erosion Control Plan.dwg TAB: EC-02 Erosion Control Plan PLOT DATE AND TIME: 3/11/2024 2:26 PM





1. WHERE POSSIBLE, LAYOUT THE SILT FENCE 5.0' TO 10.0' BEYOND THE TOE OF SLOPE.
2. ALIGN THE FENCE ALONG THE CONTOUR AS CLOSE AS POSSIBLE.
3. WHEN EXCAVATING THE TRENCH, USE MACHINERY THAT WILL PRODUCE NO MORE THAN THE DESIRED DIMENSIONS.
4. EXTEND THE BOTTOM 3" OF FILTER FABRIC TO LINE ALL THREE SIDES OF THE TRENCH.
5. TO AVOID EXCESSIVE PONDING OF WATER AT LOW POINTS ALONGTHE FENCE, PROVIDE AN OPENING IN THE SILT FENCE AND INSTALLA CHECK DAM.
6. AVOID USING JOINTS ALONG THE FENCE AS MUCH AS POSSIBLE. IF A JOINT IS NECESSARY, SPLICE THE FILTER FABRIC AT A POST WITH A 0.50' OVERLAPS AND SECURELY FASTEN BOTH ENDS TO THE POST.
7. MAINTAIN A PROPERLY FUNCTIONING SILT FENCE THROUGHOUT THE DURATION OF THE PROJECT OR UNTIL DISTURBED AREAS HAVE BEEN VEGETATED.

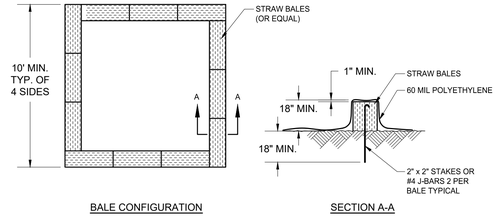
1 Silt Fence
NTS



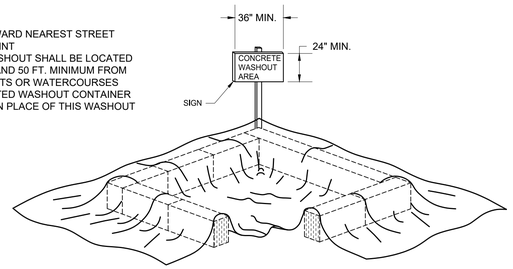
STABILIZED CONSTRUCTION ENTRANCE NOTES:

1. STONE SIZE - USE 4" STONE, OR RECLAIMED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET
3. THICKNESS - NOT LESS THAN EIGHT (8) INCHES.
4. WIDTH - TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OF EGRESS OCCURS.
5. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SIDE SLOPES WILL BE PERMITTED.
6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS MUST BE REMOVED IMMEDIATELY.
7. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL.

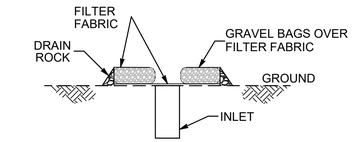
2 Stabilized Construction Entrance
NTS

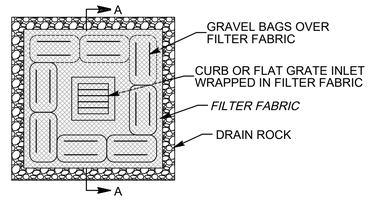


NOTES:
1. FACE SIGN TOWARD NEAREST STREET OR ACCESS POINT
2. CONCRETE WASHOUT SHALL BE LOCATED BEHIND CURB AND 50 FT. MINIMUM FROM DRAINAGE INLETS OR WATERCOURSES
3. A PREFABRICATED WASHOUT CONTAINER MAY BE USED IN PLACE OF THIS WASHOUT DESIGN

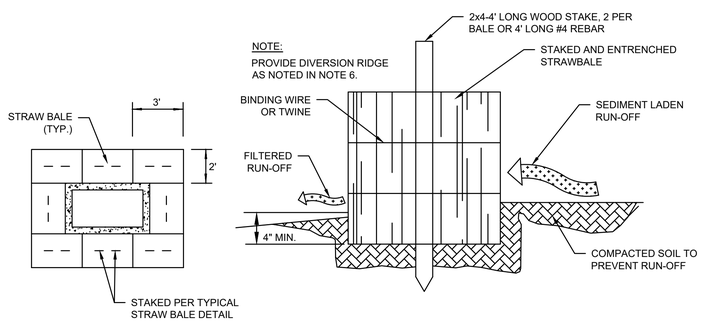


3 Concrete Washout Detail
NTS

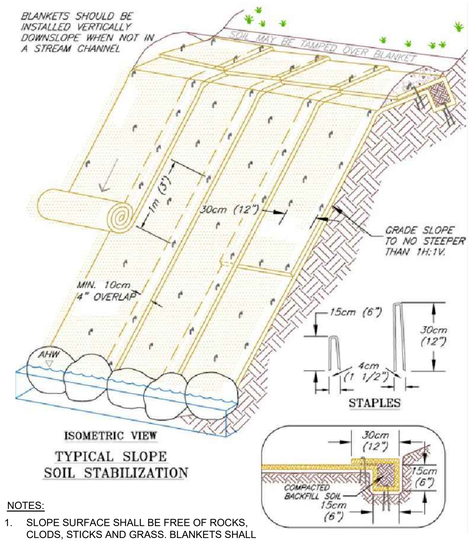




4 Gravel Bag Inlet Protection
NTS

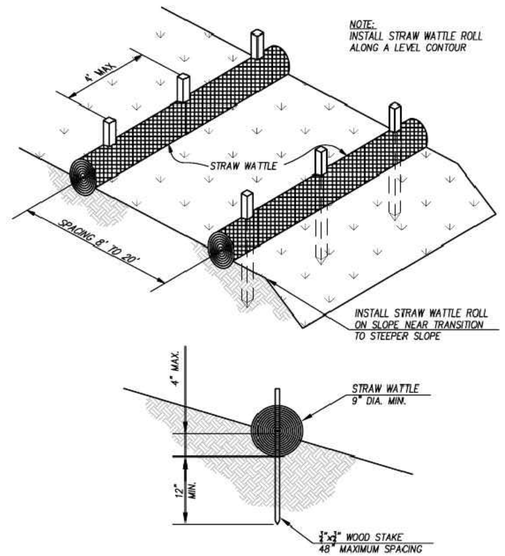


5 Straw Bale Inlet Protection
NTS



NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. CAN ALSO USE FASCINES IN LIEU OF POINT ATTACHMENTS FOR BETTER CONTACT (SEE DESIGN GUIDELINES).

6 Erosion Control Blanket Slope Installation
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7 Straw Wattle Roll Installation
NTS

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HEBER CITY, UT
EROSION CONTROL DETAILS

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Ward Engineering Group
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DWG: EROSION CONTROL PLAN.DWG
JOB No: 3691-DRH01-23
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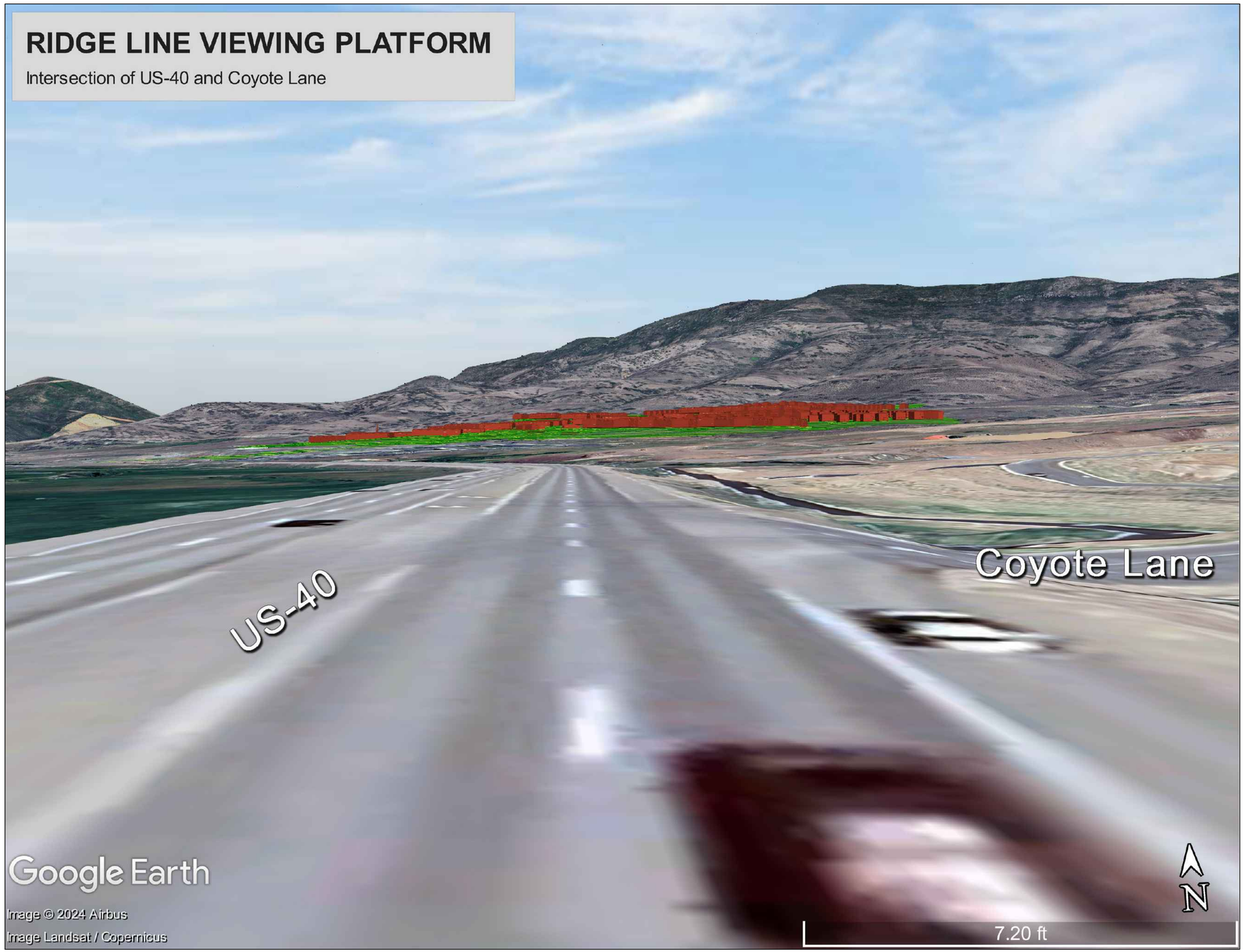
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EC-03

RIDGE LINE VIEWING PLATFORM

Intersection of US-40 and Coyote Lane



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VIEWSHED ANALYSIS

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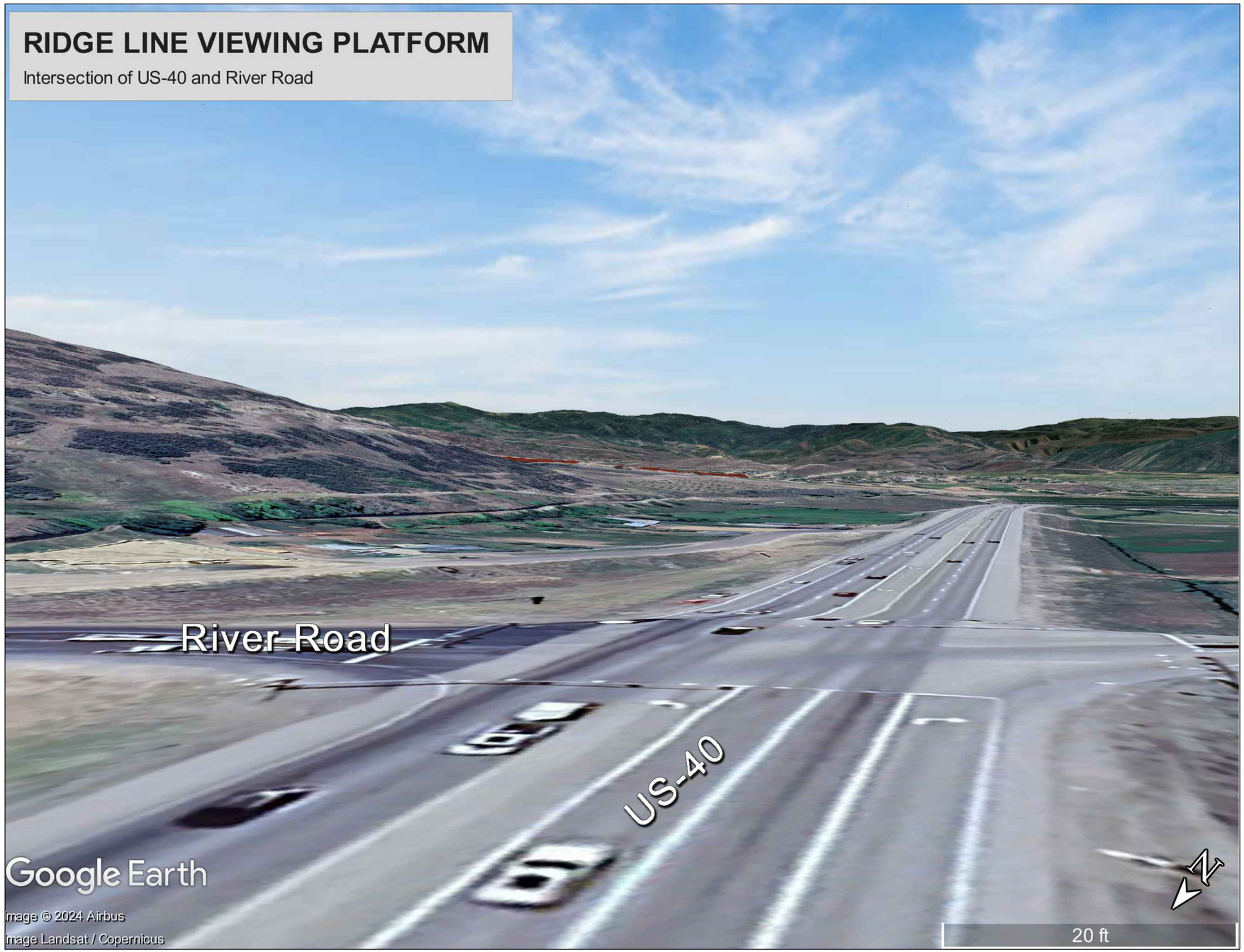
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RIDGE LINE VIEWING PLATFORM

Intersection of US-40 and River Road



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Ward Engineering Group
Planning • Engineering • Surveying
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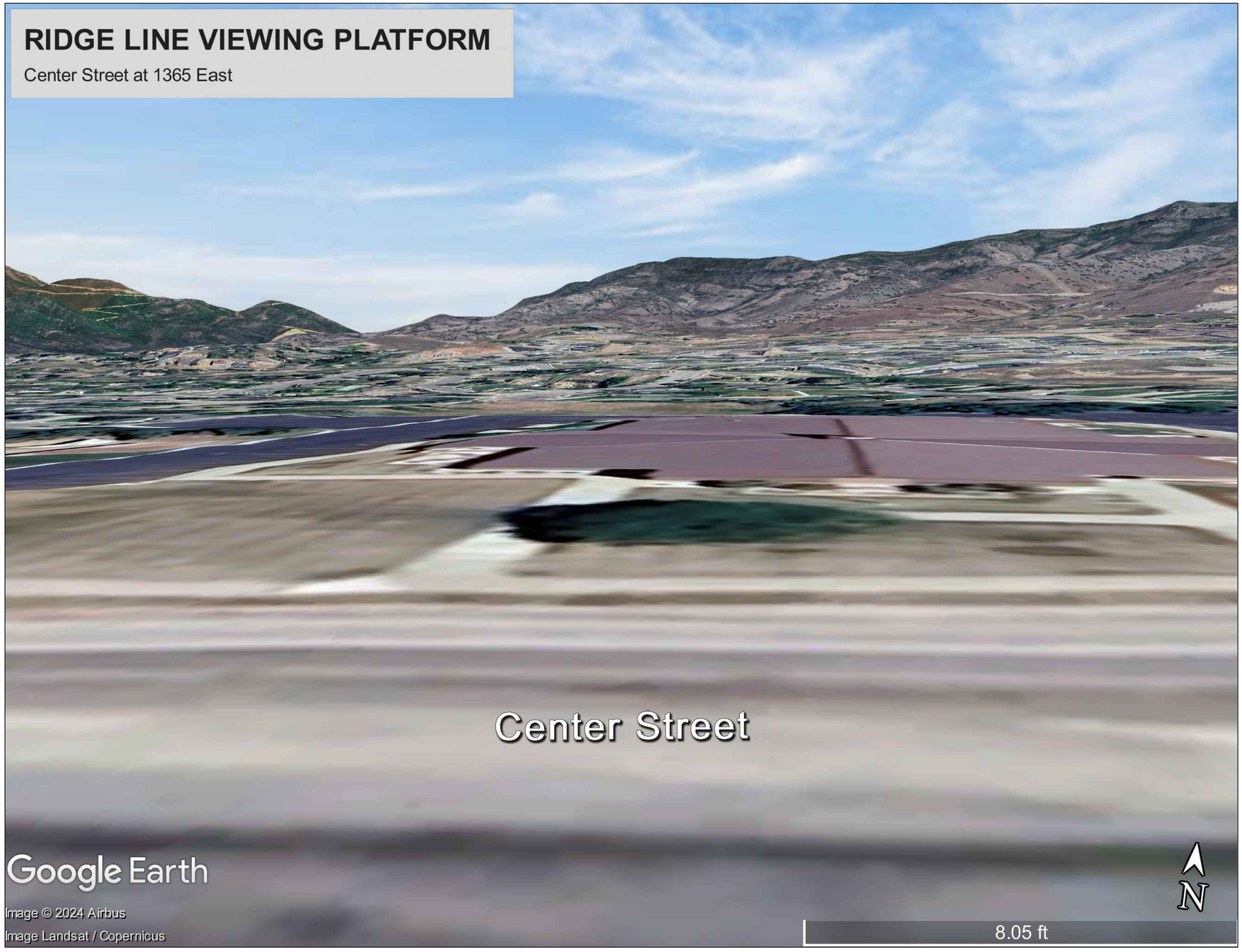
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EX-02

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RIDGE LINE VIEWING PLATFORM

Center Street at 1365 East



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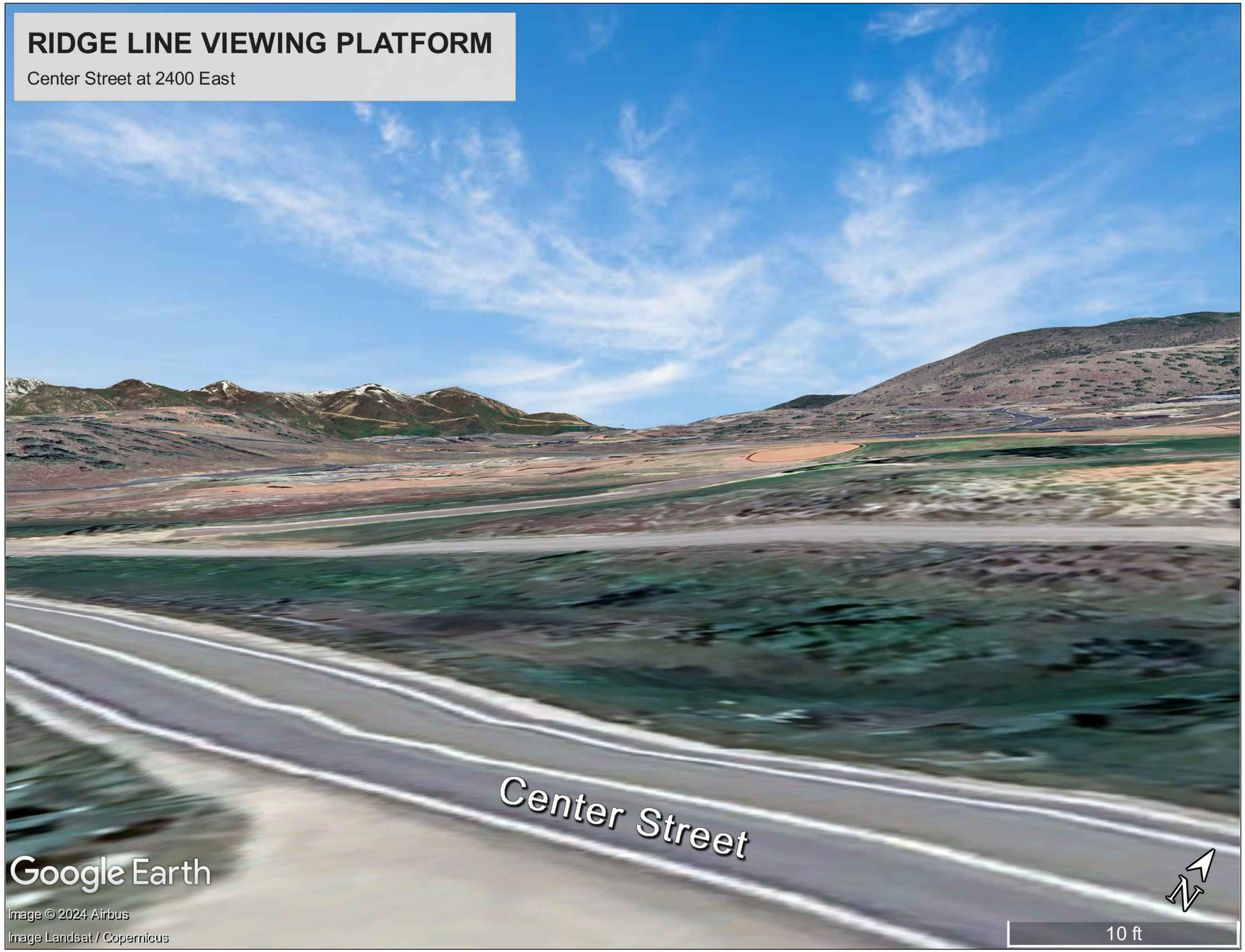
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RIDGE LINE VIEWING PLATFORM

Center Street at 2400 East



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EX-05

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HIGHLANDS RESIDENTIAL DEVELOPMENT

HEBER CITY, UT

Drainage Report

August 2024

WARD ENGINEERING GROUP
Planning • Engineering • Surveying

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1.0 Introduction

Highlands Development consists of 144.65 acres of both residential and commercial developments as depicted in the Exhibit EX-01. The Highlands residential parcel with an area of 116.26 acres is being developed by DR Horton, a national home building company. The future Highlands commercial parcel with an area of 28.39 acres is being developed by Cardinal Funding, a Utah commercial property development company. Refer to Exhibit EX-02 for the map of Highlands Development and the property configuration of the Highlands residential and commercial development parcels. In pursuance of 116.26 acres of residential development, DR Horton has retained professional services of the Ward Engineering Group (Ward) to compile the subdivision engineering for the Highlands residential development. The subdivision engineering for Highlands Residential Development includes compilation of the engineering reports, engineering plans, subdivision plat as well as a drainage report per Heber City drainage master plan and drainage design manual.

The Highland Residential Development contains 205 single family detached, 367 townhomes and 235 stacked flats for a total of 807 residential dwellings. The Highlands development contains more than 20% open space in the form of parks, ponds, and native landscaped buffer areas. See Exhibit EX-04 for the site plan of Highlands Residential Development.

Future Highlands Commercial Development will consist of Hotels, Apartments, offices, and retail establishments. The concept plan for the Highlands Commercial Developments is not complete at this point and as such any storm water generation from the commercial parcels based on developed conditions is deferred to development of commercial parcel.

2.0 Project Scope

The scope of the work to compile a drainage report for Highlands Development, includes:

A- the analysis of the off-site storm water flows impacting the Highlands Development. The calculation of the off-site storm water flows for Highlands Development will be based on Heber City Drainage Master Plan as shown in Exhibit EX-04.

B- the analysis of the on-site storm water flows from both residential and commercial developments in Highlands Development. The calculation of the on-site storm water flows for Highlands Development will be based on developed condition for the 116.26 acres of Highlands residential and the undeveloped condition for the 28.39 acres of the commercial developments in Highlands, for the sole purpose of determining the volumes of the retention ponds and to calculate the size of the interconnecting pipes between ponds, under canals, and in the roadways. The analysis of the on-site storm water flow from the 28.39 acres of commercial parcel based on developed conditions will be responsibility of the Cardinal Funding during development of the commercial parcel. Additional storm water managements infrastructure will be recommended to help manage storm water flows from the commercial parcel under developed condition.

Off-Site Storm Water- North Village Undeveloped Drainage Master Plan (Drainage Master Plan) dated July 19, 2022 provides the off-site flows in Jordanelle Canyons as shown in the Exhibit EX-04. Highlands Development resides in Heber city's drainage basins 2, 3, 4 and 5 as depicted in the attached Exhibit EX-05. As shown in Exhibit EX-05, the storm water flows from basins 3, 4 and 5 flow through Highlands Development, and as such the flows need to be managed safely through Highlands Development. The undeveloped storm water flows from basin 2 do not enter the Highland Development property. In fact, the

storm water from approximately 11-acres of Highlands Development property flow out to drainage basin 2 as shown in the off-site drainage basin Exhibit EX-05 and on-site drainage basin Exhibit EX-06.

There are other developments/ properties which sit fully or partially in the Heber city drainage basins 2, 3,4 and 5. The RE Investment Holdings, LLC and Jordanelle REF Acquisition, LLC own the property at higher reaches of Heber City drainage basins 2, 3,4 and 5. The undeveloped off-site storm water flows from drainage basin 3 passes through RE Investment Holdings, LLC and Jordanelle REF Acquisition, LLC properties first, and enters Mark Potter's 6.0-acre parcel, and from there it enters the Highlands Development property. The undeveloped off-site storm water flows from drainage basins 4 and 5 pass through RE Investment Holdings, LLC and Jordanelle REF Acquisition, LLC first, and enter the Highlands Development property as shown in the Exhibit Ex-01 and EX-05.

On- Site Storm Water- The criteria for compilation of the drainage report for the on-site storm water flows in Highlands Development is in accordance with Heber City storm water design manual (Drainage Design Manual) dated September 5, 2023. The Soil Conservation Services (SCS) drainage analysis method was used to calculate the storm water flows from Highlands on-site development. The 100-year, 10-year, and 2-year, 24-hour rainfall events were used to calculate the on-site flows in Highlands.

1- Together with storm water flows from 100-year, 24-hour rainfall event from off-site basins 3, 4 and 5; the storm water flows generated on-site Highlands Development were used to design the storm water ponds and interconnecting pipes and overflow structures between the storm water ponds.

2- The storm water flows generated in Highlands Development based on 10-year and 24-hour rainfall event were used to design the storm water collection pipes and inlets in the roads and within open spaces. The road system in Highlands Development will be designed to carry the storm water flows generated in Highlands from rainfall events in excess of the 10-year storm up to the 100-year storm.

3- The storm water flows generated in Highlands Development based on 2-year, 24-hour rainfall event were used to design the hydrodynamic treatment units. The manhole structures housing the treatment systems will be designed to overflow storm water in excess of 2-year storm up to 10-year storm.

Recommended Infrastructure- The collection system in these reports is designed based on peak flows. The retention ponds are designed based on accumulative flows. In addition, the recommended infrastructure in this drainage report for Highlands Development will be based on:

A- Storm water flows from 100-year, 24 hours rainfall event based on **undeveloped** off-site land in basins 3, 4 and 5 at higher elevations from Highlands Development.

B- Storm water flows from 100-year, 24-hour rainfall event based on **developed** on-site land in Highland Residential Development. The land-use plan for Highlands Residential Development utilized in this drainage report is in accordance with the Highlands Residential land use plan Version 11B-4. See Exhibit EX-04

C- Storm water flows from 100-year, 24-hours rainfall event based on **undeveloped** on-site land in Highlands Commercial Development. Cardinal Funding is responsible for analysis of the drainage based on developed on-site land-use in Highlands Commercial Development. See Exhibit EX-07.

It is assumed that there will be cooperation among the developers and land owners described above to construct the drainage infrastructure needed to manage the off-site storm water impacting the developments.

In addition; there will be a cost sharing agreement in place among city and impacted land owners for the cost of the improvements needed to manage the off-site storm water flows.

If needed, the ponds in the commercial parcel will be designed and constructed by DR Horton, the developer of the residential parcel.

3.0 Project Location

Refer to Exhibit EX-01and Exhibit EX-02 for the location of the Highlands Residential and Commercial Developments and the surrounding/adjoining property owners. The property owners adjacent to Highlands Development property are Utah Valley State College and RE Investment Holdings, LLC to north and west; Jordanelle REF Acquisition, LLC to north, east and south; Mark Potters 6-acre property to east and south; Jaffa Lynch Investor Group, LLC and Blue Sign Team, LLC to south and US Highway 40 to south and west.

4.0 Description of Existing Conditions

The watershed for Highlands consists of four major drainage basins designated as basins 2, 3, 4 and 5 in city's Drainage Master Plan. Majority of the storm water flows from Highlands are generated in Drainage Basins 3, 4 and 5. A smaller portion of the land at Highlands Residential at its southeast corner flows to Drainage Basin 2, which bypasses Highlands Development. Refer to EX-05 for the map of Highlands Development superimposed on the off-site drainage basins 2, 3, 4 and 5.

The Highlands development sits on a hillside and changes in elevation from approximately 5648 Ft. at US Highway 40, 5717 Ft. at Wasatch Canal, 5840 ft at Timpanogos canal and 5898 Ft. at the Coyote View Drive, which is the highest point of the project.

There are two irrigation canals, namely Timpanogos and Wasatch canals, which cross Highlands Development in a northwest/southeast direction as shown in EX-01, EX-02 and EX-03. The irrigation canals both were constructed by the United States Bureau of Reclamation as part of the Central Utah Project (CUP). For years the storm water flows in basins 3 and 4 have been intercepted by the Timpanogos canal. The flows in basin 5 on the other hand, cross under Timpanogos canal in a 30-inch culvert and discharges to a drainage way along the south property line of the UVU campus, in the campus property. Refer to Detention/ Retention Pond Exhibit EX-08 for a depiction of the off-site flows through Highlands Development. The CUP during recent months (2024) has installed culverts under Timpanogos canal in basins 3 and 4 at locations as illustrated in Exhibit EX-02. With the recent improvements by CUP, the storm water flows from drainage basins 3, 4 and 5, cross under Timpanogos canal and flow through Highlands Development and UVU campus properties. There are no culvert crossings under Wasatch Canal for drainage basins 3, 4 and 5. The storm water flows from higher elevations in basins 3, 4 and 5 may now flow un-interrupted to Highlands Residential Development, and overflow to Wasatch Canal during snow melt and flooding events. We are not aware of any crossings under the Wasatch Canal in basin 2.

There are several culvert crossings under US Highway 40 which have historically conveyed storm water from east to west under US Highway 40. The nearest and most available culvert for Highlands Development is a 30-inch CMP just south of Wasatch Commons apartments. See Ex-07 and EX-08 for the location of the 30-inch culvert under US Highway 40.

Wasatch Commons Apartments is an existing apartment complex in Wasatch County, with several buildings. This apartment complex has not annexed into Heber city at this point. The storm water flows from Wasatch Commons Apartments discharge to a detention pond with an approximate capacity of 1.2 AF located in the south commercial parcel owned by Cardinal Funding. The flows from Wasatch Commons

Apartments are released to a swale along US Highway 40 through an orifice in a manhole near the south property line of the commercial parcel. The flows from the roadside swale at US Highway 40 enter the 30-inch CMP on the east side of US Highway 40, and then flow to the west side of US Highway 40.

5.0 Drainage Design Criteria

This drainage report is compiled based on the available storm water data in Heber City Drainage Master Plan. Refer to Heber City Drainage Master Plan in Exhibit EX-04 for the storm water flows and required pond capacities in all Jordanelle Canyons in Wasatch County. **Table 1** summarizes the pond volumes for the off-site sedimentation ponds, as wells as the volumes required for Roads/Trails, and East Highway 40 pond in basins 3, 4 and 5 of the Heber City Drainage Master Plan.

1- A required volume for a "Sedimentation Pond" and approximate location of a Sedimentation Pond has been identified in the city's master plan (EX-04), for each of the basins 3 through 5. The letter "A" in city's Master Plan and as designated in **Table 1,** is used to identify the sedimentation pond capacity. Three sedimentation ponds will be constructed at the higher elevations above Highlands in drainage basins 3, 4 and 5 as designated in Heber City Drainage Master Plan.

2- A required volume for storage referred to in the master plan as "Roads/ Trails" is provided for each one of the basins 3 through 5. The letter "B" in city's Master Plan and as designated in **Table 1,** is used to identify the Roads and Trails Pond capacity.

3- A required volume for a pond adjacent to US Highway 40 referred to in Heber City's Master Plan as "East Highway 40" is provided in the city's Master Plan. The letter "C" in city's Master Plan and as designated in **Table 1,** is used to identify the East Highway 40 pond capacity

Heber City's Drainage Design Manual provides guidelines to manage on-site storm water flows in the city. The following guidelines are contained in Heber City's Drainage Design Manual:

4- There will be zero discharge south and west of US Highway 40 for both off-site storm water flow which enter Highlands Development and the on-site storm water flows which are generated from Highlands Development.

5- The storm water infrastructure in Highlands Development will include detention and retention ponds with internal inlet and outlet structures, as well as overflow structures and storm drain pipes with a minimum 18-inches in diameter.

6- No more than ½ of the driving lane in private roads; and no more than the shoulder plus 3 Ft of driving lane in minor collector roads, will be inundated under 100-year, 24-hour rainfall event.

7- The Soil Conservation (SCS) drainage analysis method was used to estimate the on-site storm water flows in Highlands. In the analysis of the on-site storm water, local precipitation data obtained from the NOAA Precipitation Frequency Data Server was incorporated and used. The precipitation data is summarized in **Tables 2 and 3**. Also refer to **Appendix A**: Local Precipitation Data.

8- In order to estimate the runoff coefficient for the on-site property in Highlands Development, the soil types were obtained from the NRCS Soil Survey. The **Table 4** summarizes the applicable soil group classification and the percentage of the area of each soil type. Also refer to **Appendix B**: NRCS Soil Classification Data. The soil types of each basin are identified in the Analysis summary tables. The majority of the site is classified as type B soil. The Hydraulic Soil Type B CN Values were used in this analysis.

9- The storm water flows generated on-site will be treated to remove debris and oil before the storm water flows can enter to a detention and and/or retention pond system. Hydrodynamic Separators will be used and sized to treat the storm water. Detailed description and general location of the hydrodynamic separators are included in the **Section 10 -Water Quality Features** of this report.

10- The final design of the storm water ponds including required capacities will take place after mass grading of Highlands Development is complete. At completion of the mass grading for Highlands Residential Development, infiltration capacity of the ground under the ponds will be measured throughout development where storm ponds are planned.

11- Double ring infiltrometer tests will be used to measure the infiltration capacity of the ground at the storm water ponds. The measured infiltration rate at completion of the mass grading of residential parcel will be used in calculating final volume of the ponds required in Highlands. Similarly, strategy to determine infiltration of the sedimentation ponds will be adopted and applied to calculate the infiltration of capacity of the ground at the sedimentation ponds.

Table 1: Pond volumes per Heber City Master Plan

STORAGE / LID MEASURE		INFIL. (IN/HR)	STOR (AF)	INFIL (AF)	STOR+INFIL (AF)
3A	Sediment Basin	3.75	8	4.8	12.8
3B	Road/Trails	2	2.33	1.49	3.82
3C	East Highway 40	2	1.56	1.03	2.59
4A	Sediment Basin	1	2.38	0.36	2.74
4B	Road/Trails	1	0.42	1.01	1.43
4C	East Highway 40	1	0.5	0.01	0.51
5A	Sediment Basin	2.5	0.89	0.55	1.44
5B	Road/Trails	2	0.15	1.64	1.79
5C	East Highway 40	2	0.5	0.01	0.51

Table 2: Precipitation Depth

Precipitation Depth (in)		
Duration	**Storm Frequency (yrs.)**	
	10	**100**
5-min:	0.275	0.541
10-min:	0.419	0.823
15-min:	0.520	1.02
30-min:	0.700	1.37
60-min:	0.866	1.70
2-hr:	1.01	1.91
3-hr:	1.10	1.96
6-hr:	1.35	2.14
12-hr:	1.68	2.56
24-hr:	2.04	3.00

Table 3: Precipitation Intensity

Precipitation Intensity (in/hr)		
Duration	**Storm Frequency (yrs.)**	
	10	**100**
5-min:	3.30	6.49
10-min:	2.51	4.94
15-min:	2.08	4.08
30-min:	1.40	2.75
60-min:	0.866	1.70
2-hr:	0.504	0.957
3-hr:	0.366	0.652
6-hr:	0.225	0.357
12-hr:	0.139	0.212
24-hr:	0.085	0.125

Table 4 : NRCS Soil Classification

Soil Unit Name	Soil Group Classification	Percent of Area (%)
Bezzant Cobbly Loam, 10 to 20 percent slopes, eroded	B	16.5%
Bezzant Very Cobbly Loam, 6 to 10 percent slopes	B	38.7%
Crooked Creek Clay loam, 1 to 3 percent slopes	C/D	5.9%
Kovich Loam	B/D	3.3%
Rasband Coarse Sandy loam, 3 to 6 percent slopes	B	14.0%
Watkins Ridge-Clegg complex, 6 to 15 percent slopes	C	20.4%
Watkins Ridge-Clegg complex, 15 to 25 percent slopes	C	1.2%

6.0 Off- Site Watershed Drainage and Hydrology

(Not Used) This section was combined with On-site Area Drainage and Hydrology and Hydraulics and is now in "Section 9- Detention and/ retention features" of the drainage report.

6.1 Preliminary Upstream/ Down Stream Flood Analysis

(Not used) see above

6.2 Preliminary Hazards & Debris-Flow Analysis

Ward Engineering Group recognizes the need and requirement for a flood and debris flow report. For preliminary consideration, a report by GSH, dated October 15, 2018, is provided in Appendix "C". The report was prepared for this property in conformance with a prior development application named Highlands, prior to annexation with Heber City. The locations and of the flood control and debris flow are substantially the same, with valid assumptions and analysis that pertain to the proposed Highlands Development (See Appendix "D" for Debris Basin Volume Calculations and Location Plans). We appreciate your review and acceptance of this report in conjunction with the preliminary subdivision application.

7.0 On-Site Area Drainage and Hydrology and Hydraulics

(Not Used) This section was combined with Off-site Watershed Drainage and Hydrology and is in "Section 9 Detention and/ retention features" of the drainage report.

8.0 LID Features

Treatment of the on-site run-off before it enters a pond is a requirement in the Heber City Storm Water Design Manual. A discussion of the Stormwater Treatment and LID can be found in **Section 10.0 – Water Quality Features**.

9.0 Detention and/ or retention Features (In addition to Detention and or Retention Features, this section of the drainage report also contains the drainage analysis for the off-site and on-site flows as was stated in Sections 6.0 and 7.0)

In compilation of this drainage report, we determined that it is not practical to separate report sections for the analysis of the on-site storm water flows and another section for the analysis of the off-site storm water flows as outlined in Heber City Drainage Design Manual. In order to present the information efficiently and seamless, we propose to combine the analysis of the off-site and the on-site storm water flows in this section. In our opinion, the report section titled "Section 9- Detention and/ Retention Features" as shown in the Heber City Drainage Design Manual is most appropriate section of the report to add the analysis of the off-site and on-site drainages as well as storm water retention and detention ponds.

Refer to Ex-04 "Heber City Drainage Master Plan" for the results of the undeveloped storm water flow and storm water pond requirements for the off-site drainage area. The storm water flows from drainage basins 3, 4 and 5 as shown in the Heber City Drainage Master Plan enter Highlands Development at points as illustrated in Exhibit EX-05 "Off-site Drainage Basin Exhibit"

Exhibit EX-06 illustrates the on-site drainage basins in Highlands Development. There are 10 basins inside of Highlands Development Boundary as shown in the Exhibit-06. The SCS drainage analysis method was used to estimate the storm water generation for each on-site drainage basin in the Highlands Development and therefore from the entire Highlands Development. As stated earlier, the storm water generation for the Highlands Residential Development is based on developed condition at the residential parcel and the storm water generation from commercial development is based on undeveloped condition at the commercial parcels.

Refer to **Table 6** for the results of the on-site drainage analysis. Refer to Appendix "E" for the summary of the results of the analysis.

Table 5: Hydrology Results – Onsite Basins

Basin - Onsite	Area (AC)	CN	Peak Flow – 2 Year (CFS)	Peak Flow – 10 year (CFS)	Peak Flow – 100 year (CFS)	Required Retention Volume – 100 yr (Ac-Ft)
4	22.25	86	11.97	23.48	44.83	3.05
6	5.80	78	1.22	3.62	8.68	0.55
7	3.47	85	2.00	4.01	7.79	0.45
8	7.76	86	4.70	9.15	17.41	1.08
9	5.88	87	3.92	7.42	6.88	0.45
10	1.54	88	1.67	2.96	5.28	0.22
11	4.01	87	3.78	6.99	12.74	0.60
12	26.53	78	6.03	17.57	41.73	2.46
13	17.23	85	11.47	22.77	43.85	2.28
14/15	10.03	80	3.93	9.66	21.04	1.02

Refer to Exhibit EX-08 for the map of the storm water detention and retention ponds in the Highlands Development. The EX-08 presents three categories of ponds; off-site ponds receiving off-site storm water flows, on-site ponds receiving on-site storm water flows and mixed ponds receiving both on-site and off-site storm water flows. Applying zero discharge policy from the Highlands Development, the ponds in Highlands together will retain the entire on-site and off-site storm water flows.

Pond 2B with a 1.2 AF volume was not considered in any volume capacity calculations as required for Basin-4 stormwater retention. Pond 2B, was rather an important consideration in overflow, safe passage from pond 2A, which provides full retention for basin-4. Refer to Exhibit-08A for a map of the north edge of the Highlands Residential Development. Emergency overflow has been designed for pond 2A to flow to Pond 1. However, because Pond 2A will be constructed at a higher elevation than road 12 and 13, as well as residential development accesses from these roads, a secondary emergency overflow to pond 2B has been designed to consider safe passage of flow attributed from offsite basin 4, which is designed to continue on down Commons Blvd from Pond 2B in the event of a catastrophic event. Pond 2B is therefore not required for retention volume.

Heber City' Drainage Master Plan (EX-03) uses infiltration rate values varying from 1 to 2.75 IN/HR in analyzing and estimating pond volumes for the undeveloped off-site storm water flows. The infiltration values shown in the Heber City Drainage Master Plan are summarized in **Table 5** below.

Table 6: Infiltration Rates.

Location	Infiltration Value
Basin 3 – Offsite	2.0 in/hr
Basin 3 – Onsite	2.0 in/hr
Basin 4 – Offsite	1.0 in/hr
Basin 4 – Onsite	1.0 in/hr
Basin 5 – Offsite	2.75 in/hr
Basin 5 – Onste	2.0 in/hr

It is not clear how the infiltration values shown above were established. The fact remains that the infiltration rate at each storm water pond in Highlands Development may be different from what is listed in the Heber City's storm water master plan. The values maybe high or low, but most likely the infiltration values at each constructed storm water pond will vary from the values in **Table 5**. The infiltration rates depend on the location and elevation of the bottom of the storm water ponds, and the composition of the material underlying the ponds as well as geological conditions such as existence of bedrock and geotechnical conditions and compaction and gradation of the material underlying the storm water ponds.

Prior to phase-1 development, the Highlands Residential parcel will be entirely mass graded, including construction of the storm water ponds. With this being case; we recommend measuring the infiltration rate at each storm water pond at the completion of the on-site mass grading operation. Double ring infiltrometer falling head percolation tests will be the used to establish the infiltration value at each storm water pond location.

Based on the above discussion, we are proposing two alternative ways to investigate and estimate the storm water pond volume required. Both alternatives in this analysis are based on zero storm water discharge from Highlands Development west and south of US Highway 40. Alternative-1 considers infiltration in the pond

system the same as the infiltration rates established in Heber City Drainage Master Plan (Exhibit EX-04). Alternative-2 considers zero infiltration from the storm water pond system in Highlands Development. Obviously, the alternative 2 with zero infiltration will result in larger pond volumes.

The detention and retention ponds shown and designed in the preliminary plans are based on nearly zero infiltration. Therefore, the storm water ponds included in the preliminary plat application are likely larger than needed. We have designed larger pond foot print in the preliminary plat strategically, and we intend to modify the volumes during final engineering design to reflect the required pond volumes once the actual infiltration rates are measured. We believe it is easier to reduce the size of the ponds at later times as there will not be a need to modify Highlands' site plan. Conversely; It is not very convenient to enlarge the capacity of any pond in the development without modification made to the site plan.

The results of the Alternative-1 are shown in Exhibit 9 "Flow Chart of Drainage Pattern with infiltration" (EX-09) and Exhibit-10 "The Pond Volume Calculation with Infiltration" (EX-10). As stated above, Alternative-1 considers the same infiltration numbers used in Heber City Master Plan as shown in **Table 5**. As illustrated in the Ex-09 and 10, using the infiltration rates from Heber City Drainage Master Plan results in excessive volume in pond 12, by nearly 6.60 AF. Ponds 14 and 15 combined have an extra volume of 0.53 AF. Pond 1 has an excess volume of 1.81 AF. There is also excessive volume in pond 2 by nearly 1.44 AF. In Alternative 1, a pond volume of 0.91 AF is needed adjacent to US Highway 40. This volume will handle the on-site flows from undeveloped Highlands Commercial development. The developed flows from the commercial development will be sized and constructed with the design of the commercial development.

The results of the Alternative-2 are shown in Exhibit-11 "Flow Chart of Drainage Pattern with infiltration" (EX-11) and Exhibit-10 "The Pond Volume Calculation with Infiltration" (EX-12). The Alternative-2 considers zero infiltration in the storm ponds. As illustrated in Ex-11 and 12, with zero infiltration, there is shortage of 3.88 AF of pond volume in pond 12, meaning additional pond volume would be required at the pond adjacent US Highway 40. In alternative -2 there is adequate volume in ponds 14 and 15 for 11 acre developed area in Highlands Development. Emergency storm water flows in excess of 100-year, 24-hour rainfall event will flow in the roads system toward Jordanelle Ridges as shown in Ex-04 and 05. Pond-1 has slightly more volume (0.12 AF) than needed for basin-5. Pond-2 has nearly 0.51 AF extra volume to handle storm water flows from Basin-4. In Alternative-2, a pond volume of 4.79 AF is needed adjacent to US Highway 40. This volume will handle flows from pond 12 and on-site flows from undeveloped Highlands Commercial development. Similar to Alternative-1, the developed flows from Highlands commercial development will be managed during design of the commercial development in Alternative-2.

The minimum storm drain pipeline used is 18- inches in diameter. The alignment of the pipelines for storm drain follows Heber City design requirements which is generally located at the center line of the streets. We are proposing to use ADS HP storm drain pipe offers a manning's coefficient of 0.010 we are using a manning's coefficient for concrete if 0.013 in case pipe material needs to be changed. The minimum slope on a storm drain line used in Highlands is 0.5%. Hydraulic Calculations for the storm water collection system in Highlands Development as well as the culverts connection ponds can be found in the Appendix "C". A graphical representation showing the location of pipe sizes can be found on Exhibit 13 (EX-13)

The storm water generated from the 11 acres of Highlands Residential Development (EX-05 and EX-06) will flow towards Jordanelle Ridge Development in Collector-1 (Valley Hill Blvd). The storm water flows from the 11 acres will be retained in Highlands Residential Development property, in ponds 14 and 15 as shown in Exhibit EX-08. Valley Hill Blvd. will allow for the safe passage of storm water flows in excess of flows generated from a 100 year and 24 hours storm event.

The Results of the analysis in Alternative 1 and 2 above indicate that adequate storm water volume is provided throughout the Highlands Residential and Commercial Developments. There may in fact be excess

volume capacity throughout. We recommended to move forward with development of the infrastructure based on the current grading plan and the volumes assigned. It is recommended that infiltration tests at each pond be carried out after mass grading is completed. A well-informed decision will be made at that time to reduce the pond volumes or accept the volumes as they are shown in the preliminary plat application.

10.0 Water Quality Features (LID, HDS, Pretreatment, Etc.)

The treatment of the on-site run-off before it enters a pond is requirement in Heber City Storm Water Design Manual. The following criteria for locating and sizing treatment systems is utilized:

1- "….Treatment systems shall be sized at minimum, to treat the 2-year storm event at the duration that produces the highest flow rate." This development size requires that the SCS method is used for storm water calculations. As such the 2-year 24-hour storm event is used for sizing the treatment systems.
2- "All development are required to install an appropriately sized hydrodynamic separator (HDS) prior to discharging to the retention/detention storage facility that captures the 25-year to 100-year storm events…"

The treatment for the project has been designed to minimize the size of the treatment devices (See Exhibit 13). This project is proposing to use the Baysaver Technologies "BaySeparator Stormwater Treatment System" as a way of removing debris and oil from the stormwater. This project is looking at using the following models

Table 7: Treatment System Capacities

Model	Maximum Treatment Rate (cfs)	Maximum Hydraulic Rate (cfs)
½ K	1.1 cfs	8.5 cfs
1K	2.4 cfs	10 cfs
3K	7.8 cfs	30 cfs
5K	11.1 cfs	50 cfs

Each of the ponds also act as treatment per the "Low Impact Design" (LID) for this development.

11.0 Major Stream Crossings

The off-site storm water flows passing through or being generated on-site in Highlands Development do not cross any major streams.

12.0 Non-Pressurized Irrigation Systems

Wasatch and Timpanogos canals cross Highlands Development in a northwest/ southeast direction as shown in nearly all exhibits in this report. Both irrigation canals are non-pressurized. The Timpanogos canal in Highlands Development is concrete and the off-site flows cross under the canal in culverts. Wasatch Canal is concrete lined south of Commons Blvd. and it has an earthen cross section north side of Wasatch Canal. There are no culverts existing under Wasatch Canal at this point.

Appendix A – NOAA Precipitation Intensity and Depth Data

NOAA Atlas 14, Volume 1, Version 5
Location name: Heber City, Utah, USA*
Latitude: 40.5405°, Longitude: -111.4094°
Elevation: 5728 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.127 (0.110-0.149)	0.161 (0.140-0.189)	0.221 (0.191-0.258)	0.275 (0.237-0.323)	0.363 (0.303-0.429)	0.445 (0.362-0.529)	0.541 (0.425-0.650)	0.653 (0.494-0.798)	0.836 (0.599-1.04)	1.00 (0.687-1.28)
10-min	0.193 (0.168-0.226)	0.245 (0.213-0.287)	0.336 (0.291-0.393)	0.419 (0.360-0.491)	0.552 (0.462-0.652)	0.678 (0.550-0.806)	0.823 (0.647-0.990)	0.995 (0.752-1.21)	1.27 (0.911-1.59)	1.52 (1.04-1.95)
15-min	0.239 (0.208-0.280)	0.304 (0.265-0.356)	0.416 (0.361-0.487)	0.520 (0.446-0.609)	0.685 (0.572-0.809)	0.840 (0.682-0.999)	1.02 (0.802-1.23)	1.23 (0.932-1.51)	1.58 (1.13-1.97)	1.89 (1.30-2.42)
30-min	0.322 (0.280-0.377)	0.409 (0.356-0.479)	0.561 (0.486-0.656)	0.700 (0.601-0.820)	0.922 (0.771-1.09)	1.13 (0.919-1.34)	1.37 (1.08-1.65)	1.66 (1.26-2.03)	2.12 (1.52-2.65)	2.54 (1.74-3.25)
60-min	0.398 (0.347-0.467)	0.506 (0.441-0.593)	0.694 (0.602-0.812)	0.866 (0.744-1.02)	1.14 (0.954-1.35)	1.40 (1.14-1.66)	1.70 (1.34-2.04)	2.06 (1.55-2.51)	2.63 (1.88-3.28)	3.15 (2.16-4.03)
2-hr	0.504 (0.450-0.579)	0.628 (0.559-0.719)	0.825 (0.730-0.946)	1.01 (0.883-1.16)	1.31 (1.12-1.51)	1.58 (1.32-1.84)	1.91 (1.54-2.26)	2.30 (1.78-2.77)	2.94 (2.15-3.63)	3.52 (2.46-4.44)
3-hr	0.581 (0.523-0.657)	0.721 (0.648-0.814)	0.917 (0.819-1.04)	1.10 (0.974-1.24)	1.39 (1.20-1.58)	1.65 (1.40-1.89)	1.96 (1.61-2.28)	2.32 (1.85-2.80)	2.94 (2.23-3.66)	3.55 (2.55-4.49)
6-hr	0.765 (0.699-0.847)	0.942 (0.860-1.05)	1.16 (1.05-1.29)	1.35 (1.22-1.50)	1.63 (1.46-1.82)	1.87 (1.64-2.10)	2.14 (1.84-2.44)	2.45 (2.05-2.82)	3.02 (2.44-3.70)	3.59 (2.78-4.53)
12-hr	0.974 (0.892-1.07)	1.19 (1.09-1.32)	1.45 (1.32-1.60)	1.68 (1.52-1.85)	2.00 (1.79-2.22)	2.27 (2.00-2.54)	2.56 (2.21-2.90)	2.87 (2.44-3.30)	3.35 (2.75-3.93)	3.76 (3.02-4.58)
24-hr	1.19 (1.10-1.29)	1.46 (1.36-1.59)	1.78 (1.65-1.93)	2.04 (1.89-2.21)	2.41 (2.22-2.61)	2.70 (2.48-2.92)	3.00 (2.74-3.25)	3.32 (3.00-3.59)	3.75 (3.36-4.07)	4.09 (3.63-4.62)
2-day	1.38 (1.28-1.49)	1.70 (1.58-1.85)	2.06 (1.91-2.23)	2.36 (2.18-2.54)	2.76 (2.55-2.98)	3.08 (2.83-3.33)	3.41 (3.11-3.69)	3.74 (3.39-4.06)	4.19 (3.76-4.56)	4.54 (4.04-4.96)
3-day	1.54 (1.42-1.66)	1.89 (1.76-2.05)	2.29 (2.12-2.48)	2.62 (2.42-2.83)	3.07 (2.83-3.32)	3.42 (3.14-3.70)	3.78 (3.46-4.09)	4.14 (3.77-4.50)	4.64 (4.18-5.06)	5.02 (4.49-5.49)
4-day	1.69 (1.57-1.83)	2.08 (1.93-2.26)	2.52 (2.34-2.73)	2.88 (2.67-3.11)	3.37 (3.12-3.64)	3.76 (3.45-4.06)	4.15 (3.80-4.50)	4.55 (4.15-4.94)	5.09 (4.60-5.55)	5.51 (4.94-6.03)
7-day	2.03 (1.88-2.22)	2.50 (2.30-2.72)	3.01 (2.77-3.28)	3.43 (3.16-3.73)	4.00 (3.67-4.35)	4.44 (4.06-4.84)	4.89 (4.46-5.33)	5.35 (4.84-5.84)	5.95 (5.34-6.52)	6.41 (5.72-7.05)
10-day	2.31 (2.14-2.51)	2.85 (2.63-3.09)	3.42 (3.16-3.71)	3.88 (3.58-4.20)	4.49 (4.13-4.86)	4.94 (4.54-5.35)	5.40 (4.94-5.85)	5.84 (5.33-6.34)	6.42 (5.82-6.99)	6.84 (6.18-7.48)
20-day	3.05 (2.83-3.30)	3.76 (3.49-4.07)	4.50 (4.17-4.85)	5.06 (4.70-5.46)	5.80 (5.37-6.25)	6.33 (5.86-6.83)	6.85 (6.32-7.40)	7.36 (6.77-7.95)	7.98 (7.31-8.64)	8.42 (7.69-9.14)
30-day	3.71 (3.45-3.98)	4.56 (4.25-4.89)	5.41 (5.04-5.79)	6.06 (5.64-6.48)	6.89 (6.42-7.37)	7.49 (6.96-8.02)	8.07 (7.49-8.66)	8.62 (7.98-9.26)	9.30 (8.57-10.0)	9.78 (8.98-10.5)
45-day	4.65 (4.34-5.00)	5.71 (5.32-6.15)	6.76 (6.30-7.27)	7.55 (7.04-8.11)	8.56 (7.96-9.19)	9.27 (8.62-9.95)	9.95 (9.23-10.7)	10.6 (9.79-11.4)	11.3 (10.5-12.2)	11.8 (10.9-12.7)
60-day	5.53 (5.16-5.93)	6.79 (6.34-7.29)	8.00 (7.48-8.57)	8.90 (8.32-9.52)	10.0 (9.35-10.7)	10.8 (10.1-11.5)	11.5 (10.7-12.3)	12.2 (11.3-13.1)	13.0 (12.0-13.9)	13.5 (12.5-14.5)

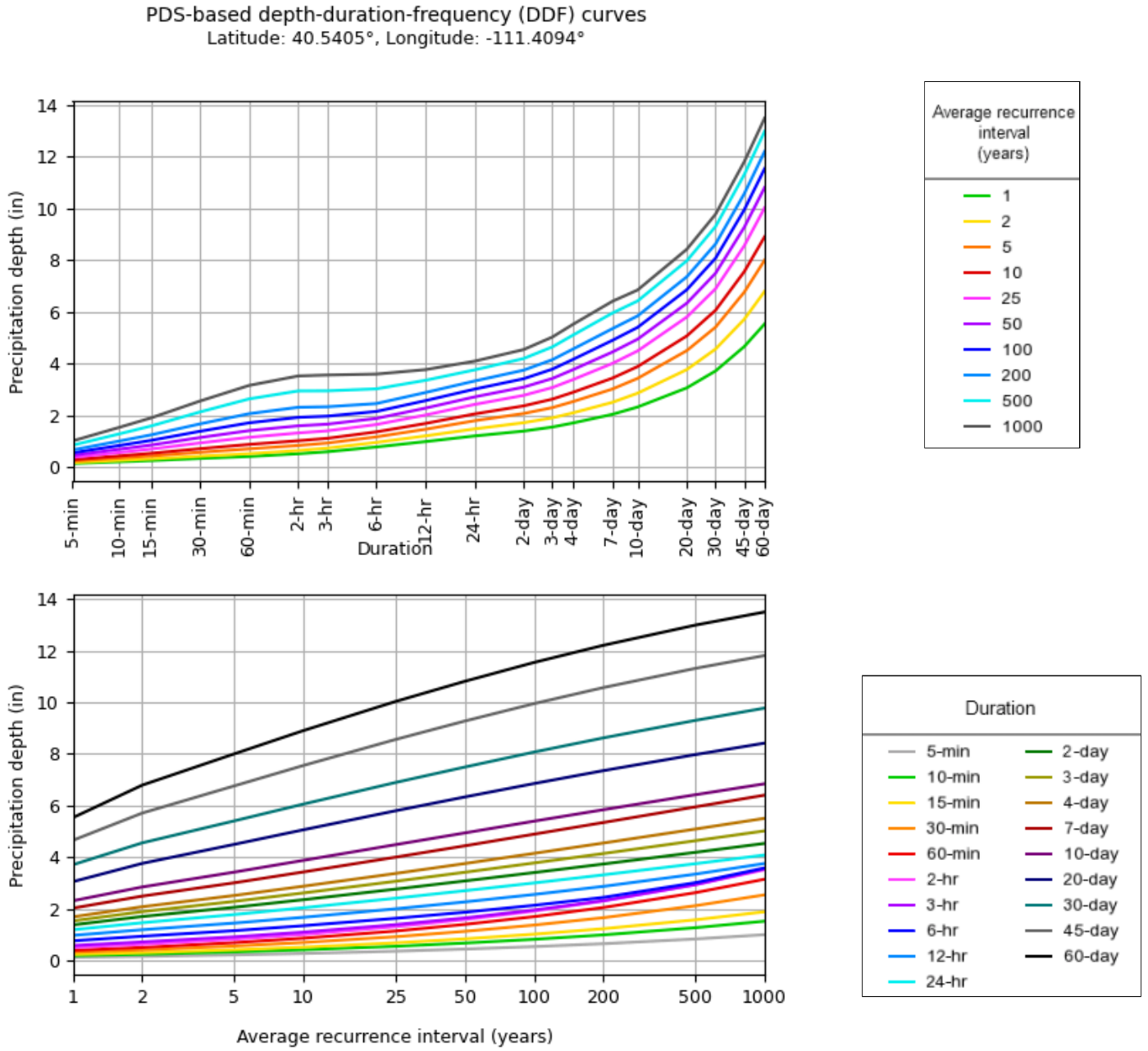
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical



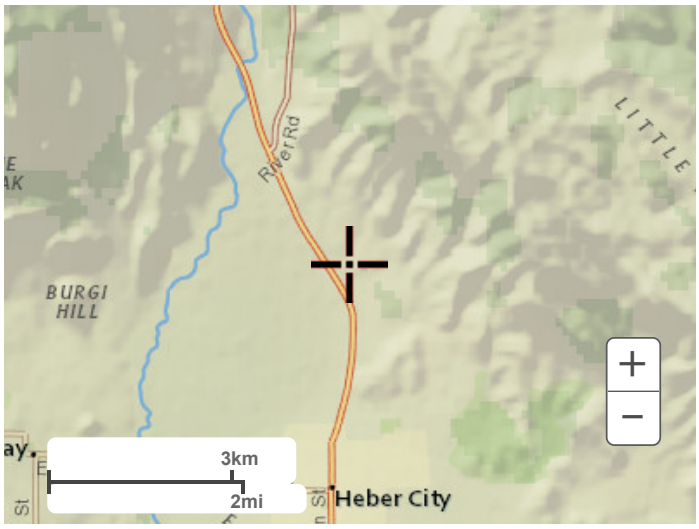
NOAA Atlas 14, Volume 1, Version 5

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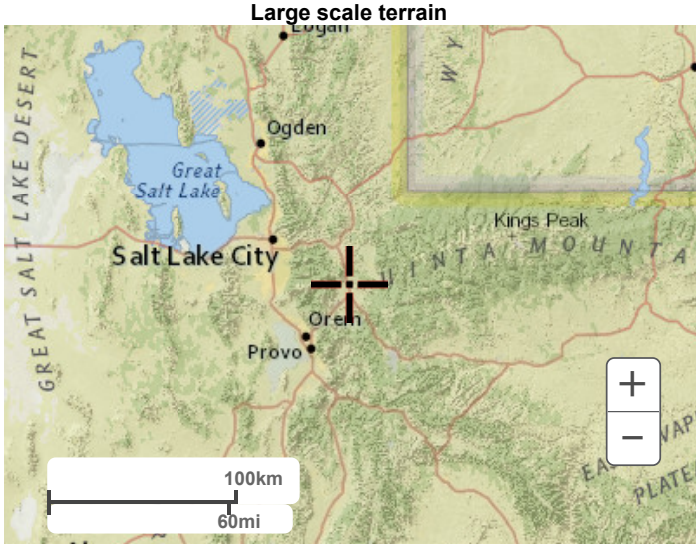
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Maps & aerials

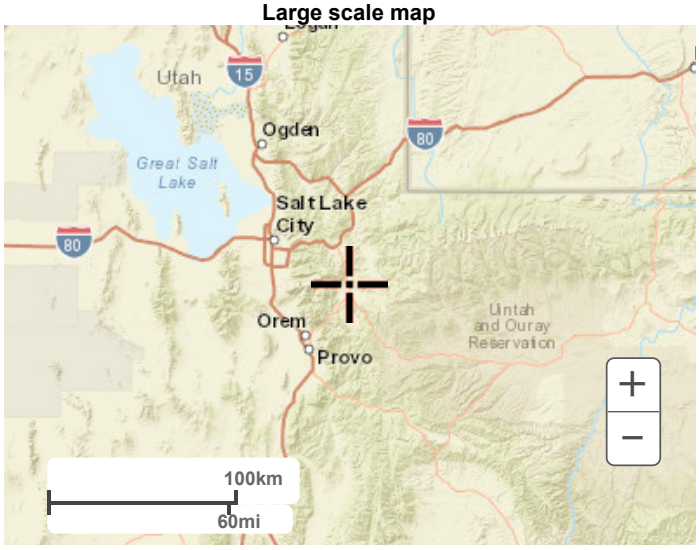
Small scale terrain



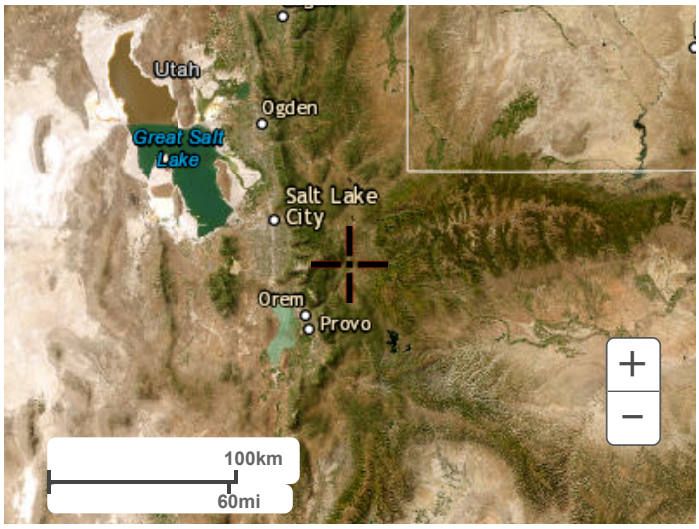
Large scale terrain



Large scale map



Large scale aerial



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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 1, Version 5
Location name: Heber City, Utah, USA*
Latitude: 40.5405°, Longitude: -111.4094°
Elevation: 5728 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.52** (1.32-1.79)	**1.93** (1.68-2.27)	**2.65** (2.29-3.10)	**3.30** (2.84-3.88)	**4.36** (3.64-5.15)	**5.34** (4.34-6.35)	**6.49** (5.10-7.80)	**7.84** (5.93-9.58)	**10.0** (7.19-12.5)	**12.0** (8.24-15.4)
10-min	**1.16** (1.01-1.36)	**1.47** (1.28-1.72)	**2.02** (1.75-2.36)	**2.51** (2.16-2.95)	**3.31** (2.77-3.91)	**4.07** (3.30-4.84)	**4.94** (3.88-5.94)	**5.97** (4.51-7.28)	**7.63** (5.47-9.53)	**9.15** (6.27-11.7)
15-min	**0.956** (0.832-1.12)	**1.22** (1.06-1.42)	**1.66** (1.44-1.95)	**2.08** (1.78-2.44)	**2.74** (2.29-3.24)	**3.36** (2.73-4.00)	**4.08** (3.21-4.91)	**4.93** (3.73-6.02)	**6.31** (4.52-7.88)	**7.56** (5.18-9.66)
30-min	**0.644** (0.560-0.754)	**0.818** (0.712-0.958)	**1.12** (0.972-1.31)	**1.40** (1.20-1.64)	**1.84** (1.54-2.18)	**2.26** (1.84-2.69)	**2.75** (2.16-3.30)	**3.32** (2.51-4.06)	**4.25** (3.04-5.31)	**5.09** (3.49-6.51)
60-min	**0.398** (0.347-0.467)	**0.506** (0.441-0.593)	**0.694** (0.602-0.812)	**0.866** (0.744-1.02)	**1.14** (0.954-1.35)	**1.40** (1.14-1.66)	**1.70** (1.34-2.04)	**2.06** (1.55-2.51)	**2.63** (1.88-3.28)	**3.15** (2.16-4.03)
2-hr	**0.252** (0.225-0.289)	**0.314** (0.279-0.359)	**0.412** (0.365-0.473)	**0.504** (0.441-0.579)	**0.654** (0.559-0.756)	**0.792** (0.659-0.922)	**0.957** (0.769-1.13)	**1.15** (0.890-1.39)	**1.47** (1.07-1.81)	**1.76** (1.23-2.22)
3-hr	**0.193** (0.174-0.218)	**0.240** (0.215-0.271)	**0.305** (0.272-0.344)	**0.366** (0.324-0.413)	**0.462** (0.401-0.525)	**0.549** (0.464-0.629)	**0.652** (0.536-0.758)	**0.773** (0.615-0.932)	**0.979** (0.742-1.22)	**1.18** (0.849-1.49)
6-hr	**0.127** (0.116-0.141)	**0.157** (0.143-0.174)	**0.193** (0.175-0.215)	**0.225** (0.204-0.251)	**0.272** (0.242-0.304)	**0.312** (0.273-0.351)	**0.357** (0.306-0.406)	**0.408** (0.342-0.471)	**0.503** (0.408-0.618)	**0.599** (0.464-0.757)
12-hr	**0.080** (0.074-0.088)	**0.099** (0.090-0.109)	**0.120** (0.109-0.132)	**0.139** (0.126-0.153)	**0.166** (0.148-0.184)	**0.188** (0.165-0.210)	**0.212** (0.183-0.240)	**0.238** (0.202-0.273)	**0.277** (0.228-0.326)	**0.312** (0.250-0.380)
24-hr	**0.049** (0.045-0.053)	**0.061** (0.056-0.066)	**0.074** (0.068-0.080)	**0.085** (0.078-0.092)	**0.100** (0.092-0.108)	**0.112** (0.103-0.121)	**0.125** (0.114-0.135)	**0.138** (0.125-0.149)	**0.156** (0.140-0.169)	**0.170** (0.151-0.192)
2-day	**0.028** (0.026-0.031)	**0.035** (0.032-0.038)	**0.042** (0.039-0.046)	**0.049** (0.045-0.053)	**0.057** (0.053-0.062)	**0.064** (0.058-0.069)	**0.070** (0.064-0.076)	**0.077** (0.070-0.084)	**0.087** (0.078-0.095)	**0.094** (0.084-0.103)
3-day	**0.021** (0.019-0.023)	**0.026** (0.024-0.028)	**0.031** (0.029-0.034)	**0.036** (0.033-0.039)	**0.042** (0.039-0.046)	**0.047** (0.043-0.051)	**0.052** (0.048-0.056)	**0.057** (0.052-0.062)	**0.064** (0.058-0.070)	**0.069** (0.062-0.076)
4-day	**0.017** (0.016-0.019)	**0.021** (0.020-0.023)	**0.026** (0.024-0.028)	**0.029** (0.027-0.032)	**0.035** (0.032-0.037)	**0.039** (0.035-0.042)	**0.043** (0.039-0.046)	**0.047** (0.043-0.051)	**0.053** (0.047-0.057)	**0.057** (0.051-0.062)
7-day	**0.012** (0.011-0.013)	**0.014** (0.013-0.016)	**0.017** (0.016-0.019)	**0.020** (0.018-0.022)	**0.023** (0.021-0.025)	**0.026** (0.024-0.028)	**0.029** (0.026-0.031)	**0.031** (0.028-0.034)	**0.035** (0.031-0.038)	**0.038** (0.034-0.041)
10-day	**0.009** (0.008-0.010)	**0.011** (0.010-0.012)	**0.014** (0.013-0.015)	**0.016** (0.014-0.017)	**0.018** (0.017-0.020)	**0.020** (0.018-0.022)	**0.022** (0.020-0.024)	**0.024** (0.022-0.026)	**0.026** (0.024-0.029)	**0.028** (0.025-0.031)
20-day	**0.006** (0.005-0.006)	**0.007** (0.007-0.008)	**0.009** (0.008-0.010)	**0.010** (0.009-0.011)	**0.012** (0.011-0.013)	**0.013** (0.012-0.014)	**0.014** (0.013-0.015)	**0.015** (0.014-0.016)	**0.016** (0.015-0.017)	**0.017** (0.016-0.019)
30-day	**0.005** (0.004-0.005)	**0.006** (0.005-0.006)	**0.007** (0.006-0.008)	**0.008** (0.007-0.008)	**0.009** (0.008-0.010)	**0.010** (0.009-0.011)	**0.011** (0.010-0.012)	**0.011** (0.011-0.012)	**0.012** (0.011-0.013)	**0.013** (0.012-0.014)
45-day	**0.004** (0.004-0.004)	**0.005** (0.004-0.005)	**0.006** (0.005-0.006)	**0.006** (0.006-0.007)	**0.007** (0.007-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.009)	**0.009** (0.009-0.010)	**0.010** (0.009-0.011)	**0.010** (0.010-0.011)
60-day	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.005-0.005)	**0.006** (0.005-0.006)	**0.006** (0.006-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.009)	**0.009** (0.008-0.010)

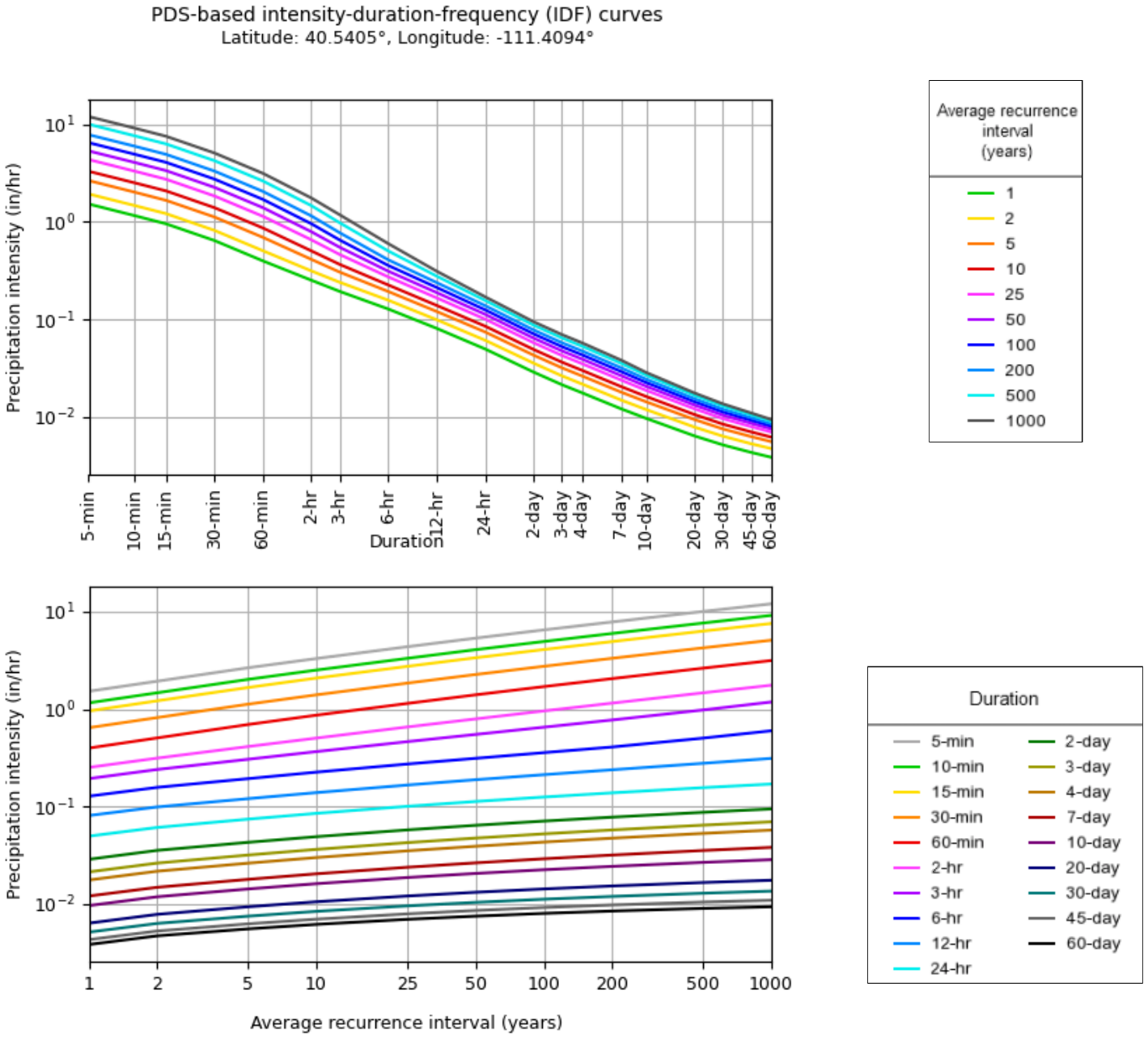
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical



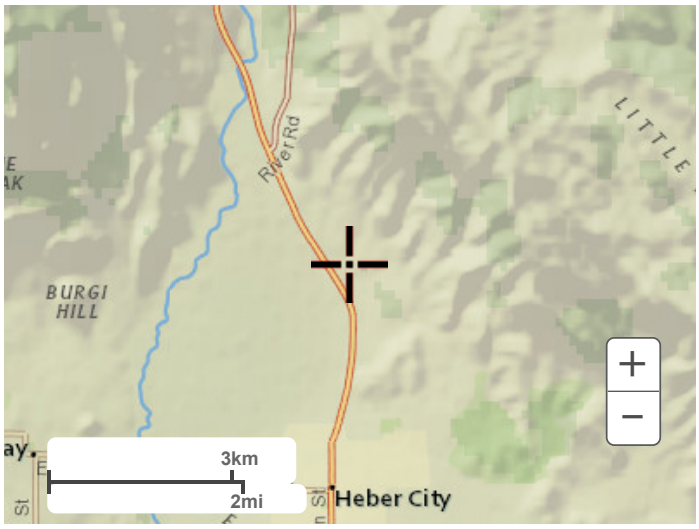
NOAA Atlas 14, Volume 1, Version 5

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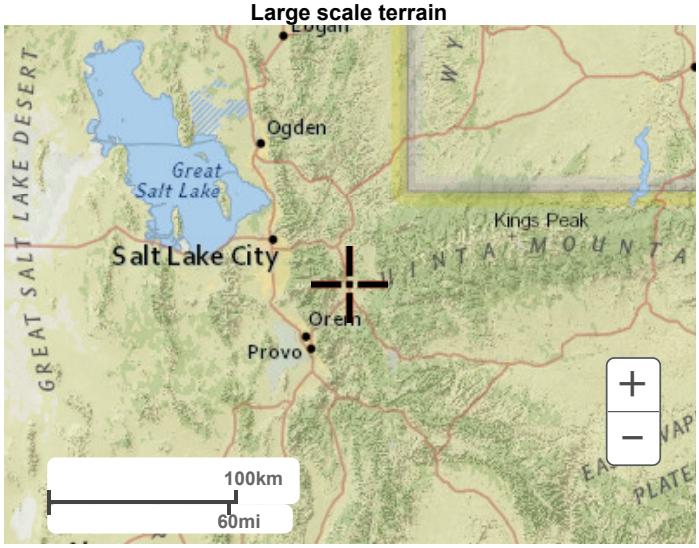
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Maps & aerials

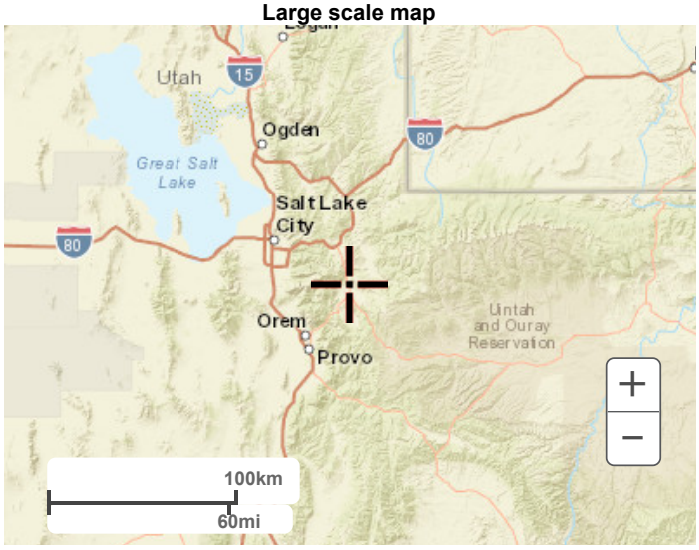
Small scale terrain



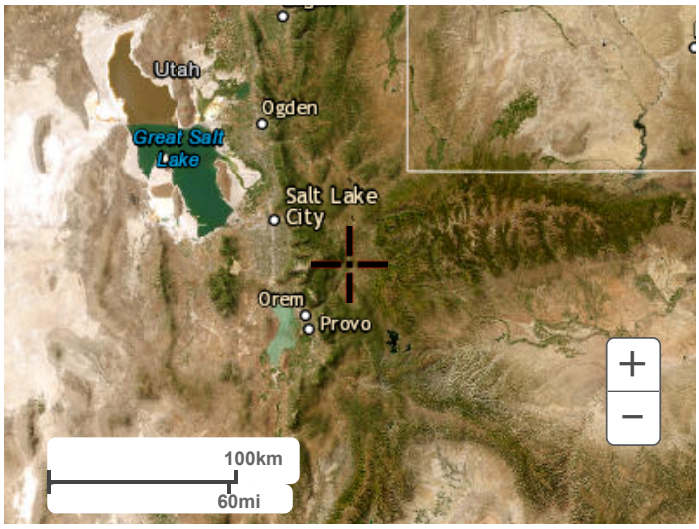
Large scale terrain



Large scale map



Large scale aerial

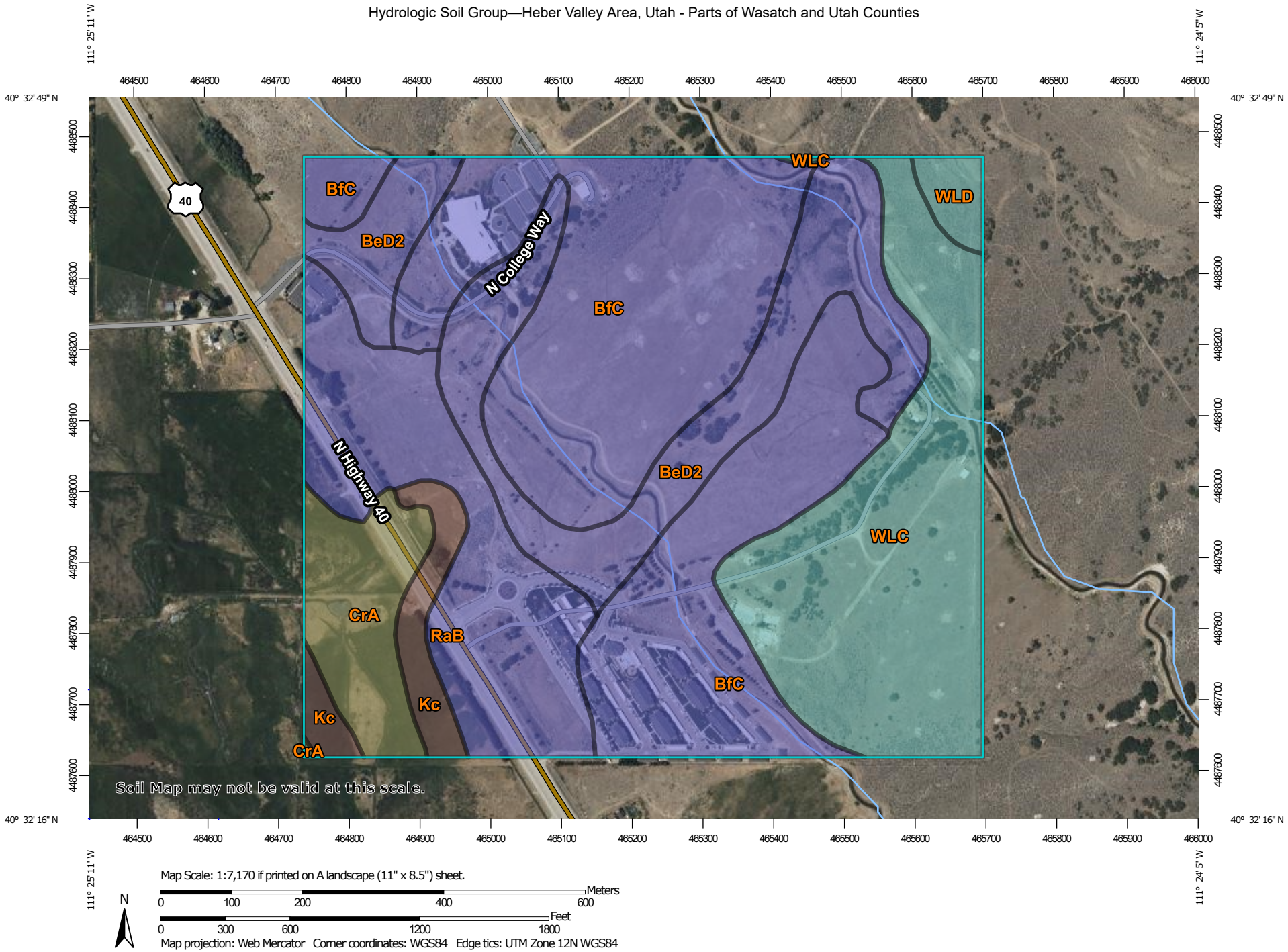


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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Appendix B – NRCS Soil Survey Data



Map Scale: 1:7,170 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Heber Valley Area, Utah - Parts of Wasatch and Utah Counties
Survey Area Data: Version 14, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 20, 2021—Jun 21, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BeD2	Bezzant cobbly loam, 10 to 20 percent slopes, eroded	B	33.2	16.5%
BfC	Bezzant very cobbly loam, 6 to 10 percent slopes	B	77.9	38.7%
CrA	Crooked Creek clay loam, 1 to 3 percent slopes	C/D	11.9	5.9%
Kc	Kovich loam	B/D	6.6	3.3%
RaB	Rasband coarse sandy loam, 3 to 6 percent slopes	B	28.3	14.0%
WLC	Watkins Ridge-Clegg complex, 6 to 15 percent slopes	C	41.1	20.4%
WLD	Watkins Ridge-Clegg complex, 15 to 25 percent slopes	C	2.5	1.2%
Totals for Area of Interest			**201.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C – Flood and Debris Flow Hazard Analysis Report prepared by GSH Geotechnical Engineering, Oct 15, 2018

October 15, 2018
Job No. 2153-001-16

Mr. Mark Garza
Cardinal Funding, LC
1165 East Wilmington Avenue
Salt Lake City, UT 84106

Mr. Garza:

RE: Addendum Debris Flow Analysis

In Support of

Engineering Geology Reconnaissance and Hazard Assessment
Proposed Wasatch Commons 114.45-Acre Residential Development
East of the Intersection of Commons Boulevard and U.S. Highway 40
Including Parts of Section 20, Township 3 South, Range 5 East, SLBM
Wasatch County, Utah

1. Introduction

It is our understanding that Geological and Geotechnical Engineering reviewers for Wasatch County, Intermountain GeoEnvironmental Services Inc professionals (IGES) are requesting that a debris flow evaluation be conducted of the proposed Wasatch Commons development. Because debris flow hazard areas were identified, and recommended for avoidance in our 2018 geological study for the development (GSH, 2018), this present analysis and evaluation is for the design of storm drain and retention systems for the development under preparation by Ward Engineering Group. The scope of work for this assessment was developed during an un-transcribed meeting between Alan Spilker of GSH, and the IGES reviewers on July 20, 2018. A previous version of this addendum assessment was prepared and submitted August 27, 2018, however because of questions and clarifications between the GSH preparers and the IGES reviewers, a follow-up scoping and design meeting was held at the IGES office on 25 September 2018, and this reporting is being re-issued herein. The following individuals were present at the 25 September meeting:

Peter Doumit, PG	IGES
David Glass, PE	IGES
Andy Dahmen	Wasatch County
Sattar Tabriz, PE	Ward Engineering Group
Mark Garza	Wasatch Commons
Terry Diehl	Wastach Commons
Alan D. Spilker, PE	GSH Geotechnical
Gregory Schlenker, PG	GSH Geotechnical

GSH Geotechnical, Inc.
473 West 4800 South
Salt Lake City, Utah 84123
Tel: 801.685.9190 Fax: 801.685.2990
www.gshgeo.com

During the September 25 meeting, clarifications regarding debris flow hazards and exposure to Wasatch Commons, and remedial treatments, and items to be addressed pertaining to the Geologic Hazard Ordinance Zone (GHOZ) stipulations for this reporting were discussed.

This study is prepared to support as an addendum to our previous 2018 geological reporting submitted March 23, 2018.

For debris-flow hazards the Wasatch County GHOZ specifies:

> *If the engineering geology report described in this section indicates a potential for debris flow, a debris flow evaluation and report shall include test pits or trench logs (scaled 1 inch to 5 feet, or larger), include estimates of the number and frequency of past events and their thicknesses and volume; and include estimates of the recurrence, depth and impact forces anticipated in future events…*

Because debris flow problem at the proposed development is for the evaluation of debris volumes for the Wasatch Commons storm drain and retention systems, and not for structures (dwellings?) to withstand as implied by the GHOZ requirements, a Precipitation-Event Volume Analysis (fire-related) method for the drainage basins upslope of the development was selected as the analysis methodology for the evaluation of potential future debris-flow volumes, based upon conversations held during the July 20, 2018 meeting. The analytical methods for the Precipitation-Event Volume analysis are outlined and discussed in Utah Geological Survey (UGS) guidelines (Giraud, 2005; 2016), that have been published since the 2002 adoption of debris flow evaluation specifics to the Wasatch County GHOZ. The dynamic analysis of debris flows using hydrologic, hydraulic, and other engineering methods to design site- or structure-specific risk-reduction measures is not addressed by this geologic evaluation. The dynamic forces ("*impact forces"*) can be projected and estimated from our geological results by civil and structural engineering professionals that have the appropriate design training in this area, and particular structural designs to evaluate.

In addition to the Precipitation-Event Volume Analysis, two geological test pits were excavated within the two gullied drainages mapped as **Qac** (Alluvium and colluvium) on the site to evaluate and characterize debris flow sedimentation on the site. The locations of the two test pits are shown on Figure 7, Debris-Flow Analysis.

2 Precipitation-Event Volume Analysis Methodology

Debris-flow hazards involve the rapid downslope movement of hyper-concentrated sediments in response to intense rainfall and/or snowmelt events. The debris-flow sediments typically originate in steep drainage basins and move downslope as a concentrated and confined flow. After the flow passes through the originating canyon mouth, beyond the steep and confining limits of the drainage basin onto an open valley floor, the flow will slow and come to a rest, forming an alluvial fan deposit (Giraud, 2005, 2016). Over time successive debris-flow -alluvial fan events will construct significantly large alluvial fan systems at the mouths of the contributing canyons or drainage basins. The debris-flow process environment for the Wasatch Commons setting includes the upland debris source areas to the northeast of the site, shown as Basin 1 and Basin 2 on Figure 7,

Debris-flow Analysis. Downslope of the basins, the alluvium and debris are transported across the site within two gullied drainages mapped as **Qac**, and coalescing as alluvial fan deposits **Qafy** (Young and middle fan alluvium) downslope of the site as mapped on Figure 6 of our March 23, 2018 report, and shown on Figure 7 as Deposition Area.

To evaluate debris-flow hazard exposure of the site we assessed the area and slope characteristics of the two upland basins to the northeast of the site and estimated the volume of debris that may be delivered to the gullied drainages and alluvial fan areas on and downslope of the site. For our analyses we used empirical and/or physical methods developed or used by previous researchers (Gartner and others 2008, Giraud and Castleton, 2009; Cannon and others, 2010) which are precipitation-event driven models, that involves estimating (predicting) debris-flow event volumes on the basis of basin size and slope conditions, post wildfire burn conditions and scaled precipitation events.

The Precipitation-Event Volume Analysis was previously demonstrated by UGS geologists (Giraud and Castleton, 2009) using regression modeling from Gartner and others (2008), however updated regression modeling by USGS scientist Cannon and others (2010) has since been adopted. The two regression equations are provided below:

Gartner and others (2008)

$$\ln V = 0.59(\ln S) + 0.65(B)1/2 + 0.18(R)1/2 + 7.21$$

Cannon and others (2010)

$$\ln V = 7.2 + 0.6(\ln A) + 0.7(B)1/2 + 0.2(T)1/2 + 0.3$$

where:

V = volume (cubic meters),
S or A = basin area with slopes greater than or equal to 30% (square kilometers),
B = basin area burned at moderate and high severity (square kilometers), and
R or T = total storm rainfall (millimeters).*

**For our analysis we assume a 50- and 100-percent burn area. We also use the 60-minute/five-year storm event for probabilistic design parameter, and the 60-minute/100-year storm event for deterministic comparison. The 60-minute/five-year storm corresponds more closely to the probable storm occurring within a few years following a wildfire event (Cannon, 2010). Reviewers Johansen and Doumit believed that the 50-percent burn area with the 60-minute/100-year storm event was most consistent with other flood hazard frequencies used by Wasatch County, and requested these conditions be included for our hazard design comparisons and specifications.*

Upon comparison the two regression equations appear nearly identical, however the Cannon and others (2010) includes a 0.3 coefficient that results in greater predicted debris volumes than

Gartner and others (2008), and produces a statistically tighter result in the regression analyses (Susan Cannon, personal communication, January 6, 2016).

For analysis both models (Gartner and others, 2008; and Cannon and others, 2010) were run for comparison and to cross-check values, but for design we recommend that the Cannon and others, 2010 equation for the 100-percent burn area with the 60-minute/10-year storm event be used. At the request of reviewers Dahmen and Doumit, the results of both methods (Gartner and others, 2008; and Cannon and others, 2010) using the 50-percent burn area with the 60-minute/100-year storm event were also calculated for comparison.

This analysis included the two upland catchment basins above Timpanogos Canal as evaluated by the 2017 Ward Engineering Report (1-A and 2-A), herein referred as Basin 1 and Basin 2. For the areal spatial analysis of the source basins we used the QGIS® GIS platform to geoprocess 2006 2.0 Meter DEM data. Using the r.basin, r.slope and r.aspect GRASS® (Geographic Resources Analysis Support System) modules, basin and drainage and fan areas were delineated and slope, area and drainage parameters for the basins were calculated.

For precipitation (R) inputs we used site specific Point Precipitation Frequency Estimates provided by NOAA (2016), using the l0-year 60-minute interval estimate of 21.99mm (0.866 inches), and the 100-year 60-minute interval estimate of 43.18 mm (1.70 inches), as shown on Appendix A of the Ward (2017) Storm Drain Report. For consistency and comparison issues, the metric system is used for our inputs and calculations, with final results provided in both metric and imperial conventions.

3 Precipitation-Event Volume Analysis Results

The results of our precipitation-event volumes for the two source basins using Gartner and others (2008) are tabulated on Table 1 below:

TABLE 1
Estimated Precipitation-Event Debris Volumes
(Gartner and others 2008)

Basin	Area (acres)	Area (km)	Area Slopes >30 % (km)	Estimated Precipitation-Event Debris Volume					
				10yr 100% Burn (P = 21.99 mm)		100yr 50% Burn (P = 43.18 mm)		100yr 50% Burn (P = 43.18 mm)	
				(cu. m.)	(cu. ft.)	(cu. m.)	(cu. ft.)	(cu. m.)	(cu. ft.)
Basin 1	101.3	0.41	0.21	1923.7	67,934.8	2388.4	84,346.0	2699.3	95,324.9
Basin 2	385.5	1.56.	1.11	7554.6	266,788.2	8354.1	295,023.1	10,600.3	374,346.1

The results of our precipitation-event volumes for the 2 source basins using Cannon and others (2010) are tabulated on Table 2 below:

TABLE 2
Estimated Precipitation-Event Debris Volume
(Cannon and others 2010)

Basin	Area (acres)	Area (km)	Area Slopes >30 % (km)	Estimated Precipitation-Event Debris Volume					
				10yr 100% Burn (P = 21.99 mm)		100yr 50% Burn (P = 43.18 mm)		100yr 100% Burn (P = 43.18 mm)	
				(cu. m.)	(cu. ft.)	(cu. m.)	(cu. ft.)	(cu. m.)	(cu. ft.)
Basin 1	101.3	0.41	0.21	2771.3	101,398.1	3666.9	129,496.1	4192.4	148,052.3
Basin 2	385.5	1.56.	1.11	11,817.1	417,317.4	13,322.6	470,484.6	17,261.1	609,569.2

Highlighted in yellow in Table 2 are the recommended estimated debris volumes using the l0-year 60-minute interval estimate of 21.99mm (0.866 inches) with the Cannon and others (2010) regression values. The square-root of these values would compute to an area approximately 320 by 320 feet by 1 foot thick for Basin 1 and an area approximately 648 by 648 feet by 1 foot thick for Basin 2.

4. Geological Test Pits Evaluation

Two additional test pits were excavated and logged in a geological context, in the **Qac** deposits on the two gullied drainages mapped crossing the site as shown on Figure 7. The two additional test pits were excavated on September 4, 2018. The test pits were excavated and logged to assess and interpret sedimentary structure or pedogenic indications relevant for establishing past frequency and thickness of sedimentary and/or debris flow events. The geological logs of the two test pits are shown on Figure 8, Debris-Flow Analysis Test Pits.

For Test Pit 1 we interpret two debris -flow events from the sediments exposed on the basis of textural, color, and fabric characteristics. The lower debris flow unit consists of a wedge exposure with a maximum observed vertical dimension (thickness) of approximately 2.5 feet, and maximum observed clast size of approximately 8.0 to 12.0 inches. This unit is shown as a dark brown Silty Gravel GM with Sand, Cobbles and Boulders, that overlies the basal Indurated Volcanic Breccia (Eocene Age?), and less coarse alluvial deposits. The upper debris flow unit consists of a surficial Cobble/Boulder Levee deposit that appears to be resting on the contemporary Soil A-B Horizon surface. The upper debris-flow unit displayed a maximum observed vertical dimension approximately 2.7 feet, and maximum observed clast size of approximately 10.0 to 12.0 inches. The two debris-flow deposits in Test Pit 1 are subjectively interpreted to be Holocene age on the basis of stratigraphic location, and the dark brown (illuviate-enriched) color of the lower debris-flow unit matrix.

For Test Pit 2, excluding the surficial 1.5 feet of fill deposits, the entire sequence of natural sediments exposed to the depth of 10 feet (stopped depth) appeared to consist of an Alluvial-Debris-Flow processes deposits, but lacking significant stratigraphic breaks to not rule out alluvial reworking of the exposed deposits. We believe the exposed sediments are Holocene in age. The coarse alluvium-debris-flow unit exposed in Test Pit 2, was normally graded with a maximum observed vertical dimension approximately 8.5 feet, and maximum observed clast size of approximately 2.5 feet in long-axis diameter. Pinholes observed in the Test Pit 2 unit matrix suggest that collapsible conditions may be present in this soil unit.

5. Conclusions

For hazard remediation design, we recommend estimated debris volumes using the l0-year 60-minute interval estimate of 21.99mm (0.866 inches) of precipitation, and assuming 100-percent burn area using the Cannon and others (2010) regression values, is calculated to be 101,398.1 cubic feet for Basin 1, and 417,317.4 cubic feet for Basin 2. The square-root of these values would compute to an area approximately 320 by 320 feet by 1 foot thick for Basin 1, and an area approximately 648 by 648 feet by 1 foot thick for Basin 2.

The exposures in the two test pits revealed, that a minimum of two Holocene age debris-flow events have occurred in the two gullied drainages mapped as **Qac** that cross the site, and that clast size as great as 2.5 diameter have been deposited on the site during these past events.

On the basis of a subjective comparison of the two basins evaluated in this study, with the basins studied in the Cannon and others (2010) Hot Creek fire case study, we would assign a “Low” hazard ranking for Basin 1, and a “Moderate’ hazard ranking for Basin 2 of this study.

Should the remediation debris-basin sizing from our recommended estimated debris volumes be determined unfeasible by the client, GSH should be consulted for the consideration alternative remediations including hazard avoidance as outlined in our 2018, Engineering Geology Reconnaissance and Hazard Assessment for the development.

6. CLOSURE

If you have any questions or would like to discuss these items further, please feel free to contact us at (801) 685-9190.

Respectfully submitted,
GSH Geotechnical, Inc (GSH)

LICENSED PROFESSIONAL GEOLOGIST
10/15/18
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State of Utah No. 334228
President/Senior Geotechnical Engineer

Encl. Figure 7, Debris-Flow Analysis
Figure 8, Debris-Flow Analysis Test Pits

References

Cannon, S.H., Gartner, J.E., Rupert, M.G., Michael, J.A., Rea, A.H., and Parrett, C., 2010, Predicting the probability and volume of post wildfire debris flows in the intermountain western United States: Geological Society of America Bulletin, v. 122, p. 127−144.

Gartner, J.E., Cannon, S.H., Santi, P.M., and deWolfe, V.G., 2008, Empirical models to predict the volumes of debris flows generated by recently burned basins in the western U.S.: Geomorphology, v. 96, p. 339–354.

Giraud, R.E., 2005, Guidelines for the geologic evaluation of debris-flow hazards on alluvial fans in Utah: Utah Geological Survey Miscellaneous Publication 05-6, 16 p.

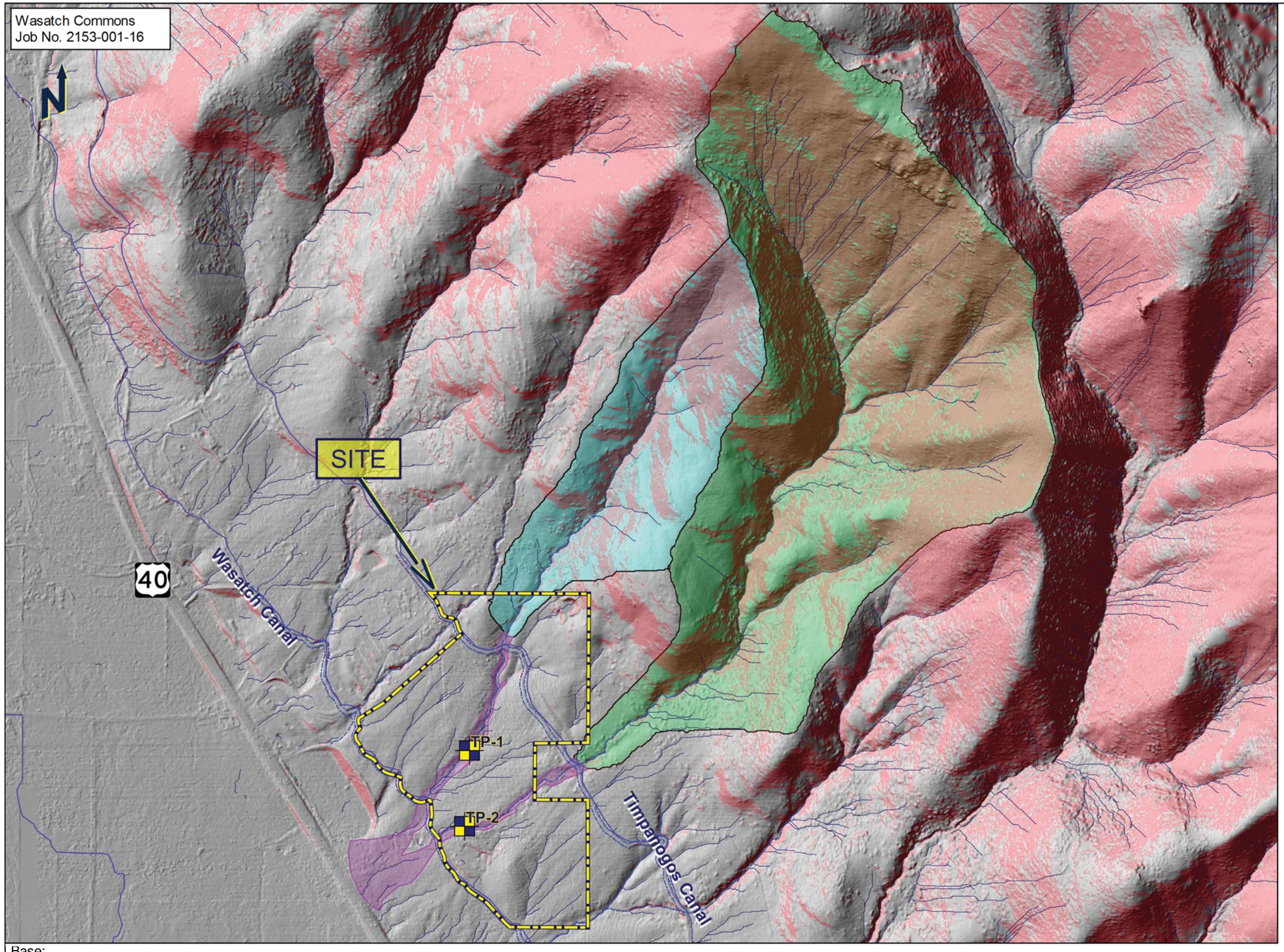
Giraud, R.E., 2016, Guidelines for the geologic investigation of debris-flow hazards on alluvial fans in Utah, *in* Bowman, S.D., and Lund, W.R., editors, Guidelines for investigating geologic hazards and preparing engineering-geology reports, with a suggested approach to geologic-hazard ordinances in Utah: Utah Geological Survey Circular 122, p. 75–91.

Giraud, R.E. and Castleton, J.J., 2009, Estimation of Potential Debris-Flow Volumes for Centerville Canyon, Davis County, Utah: Utah Geological Survey Report of Investigation 267, 14 p., Appendices.

GSH, 2018, Engineering Geology Reconnaissance and Hazard Assessment, Proposed Wasatch Commons 114.45-Acre Residential Development, East of Intersection of Commons Boulevard and U.S. Highway 40, Including Parts of Section 20 Township 3 South, Range 5 East, SLBM, Wasatch County, Utah: submitted to Capital Funding, L.C., GSH Project No. 2153-001-16, dated March 23, 2018.

Ward Engineering Group, 2017, Storm Drain Report, Wasatch Commons, dated September 2017, 73p.
.

Wasatch Commons
Job No. 2153-001-16



Base:
2006 2.0 Meter Auto-Correlated DEM from
25cm GSD Orthophotography
from Utah AGRC; http://gis.utah.gov/

0 1000 2000 ft

1:12,000

Explanation

- Project Boundary
- Greater than 30-Percent Slope Areas
- Basin 1 Source Area
- Basin 2 Source Area
- Deposition Area
- Supplemental Test Pits

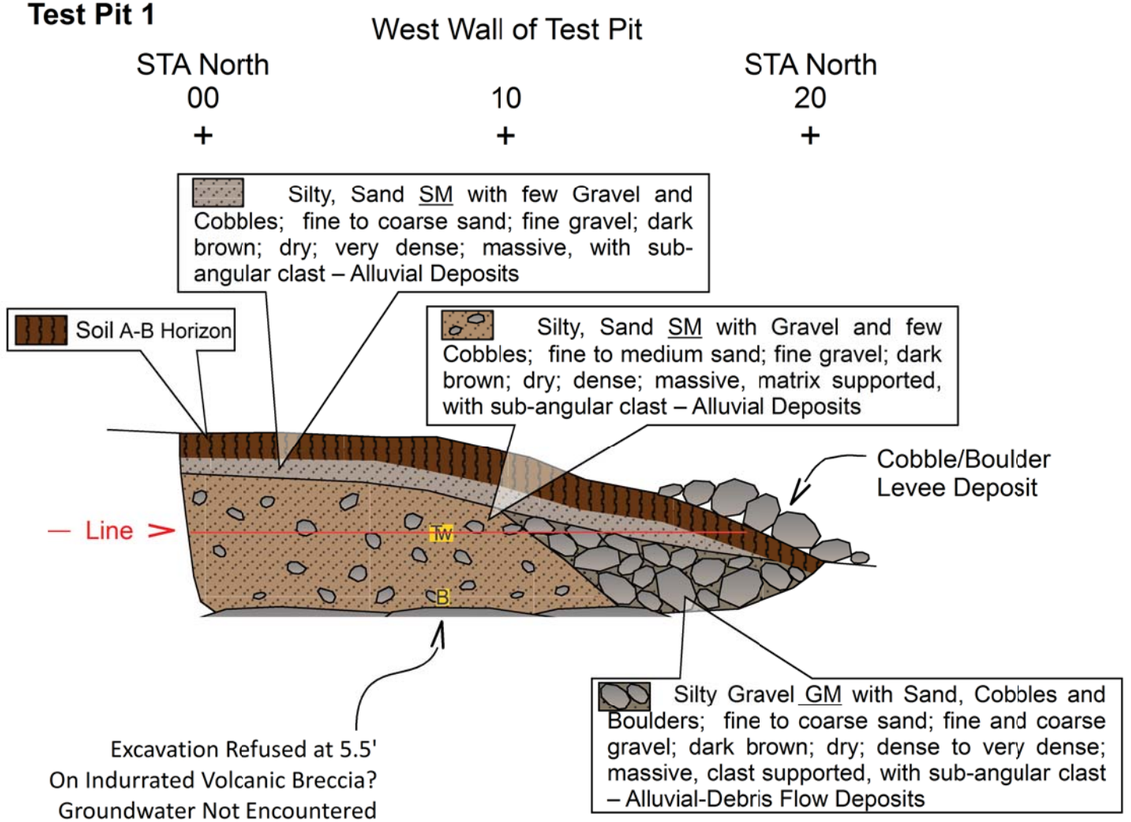
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2	TP-2	465341	4487902

FIGURE 7
DEBRIS-FLOW ANALYSIS

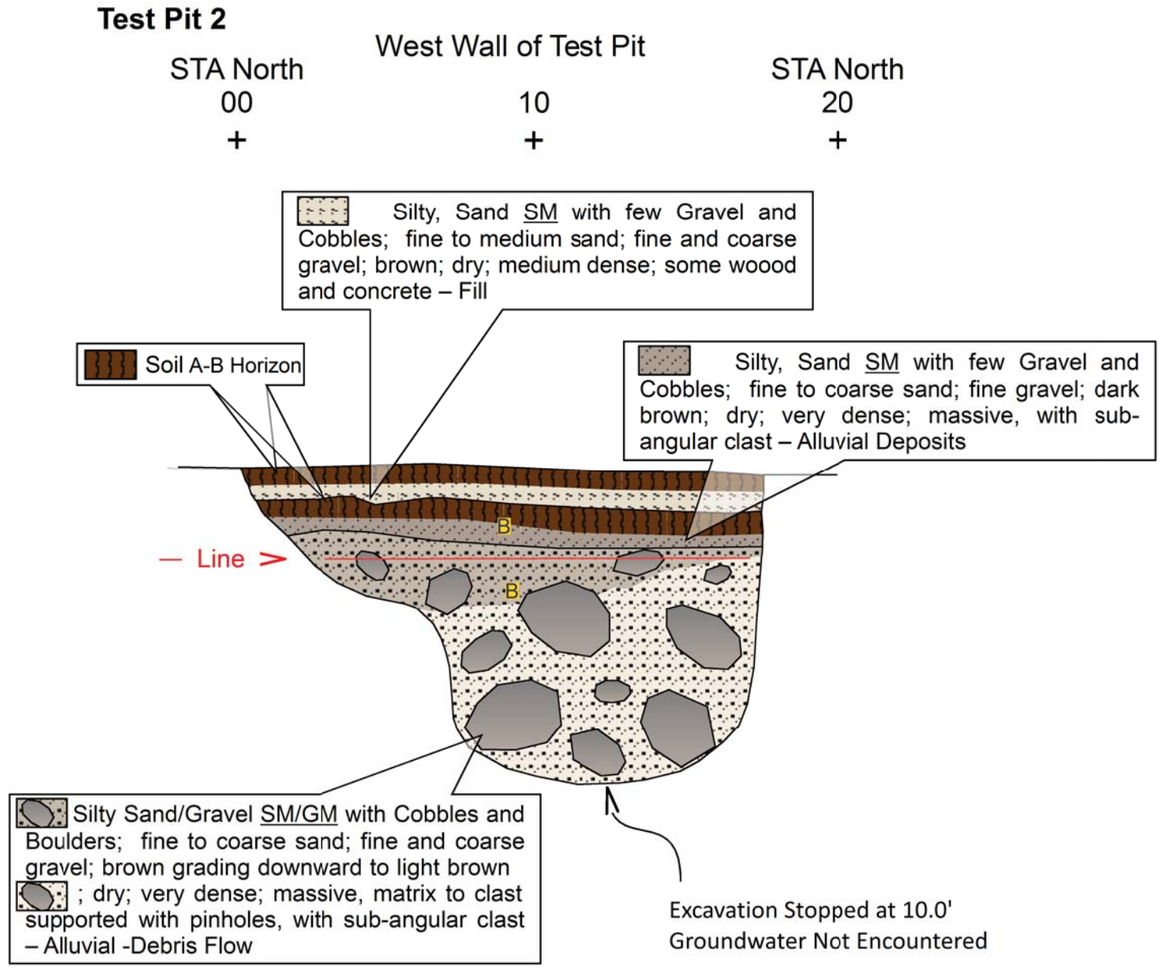
GSH

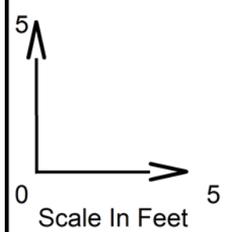
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Job No. 2153-001-16

Test Pit 1



Test Pit 2





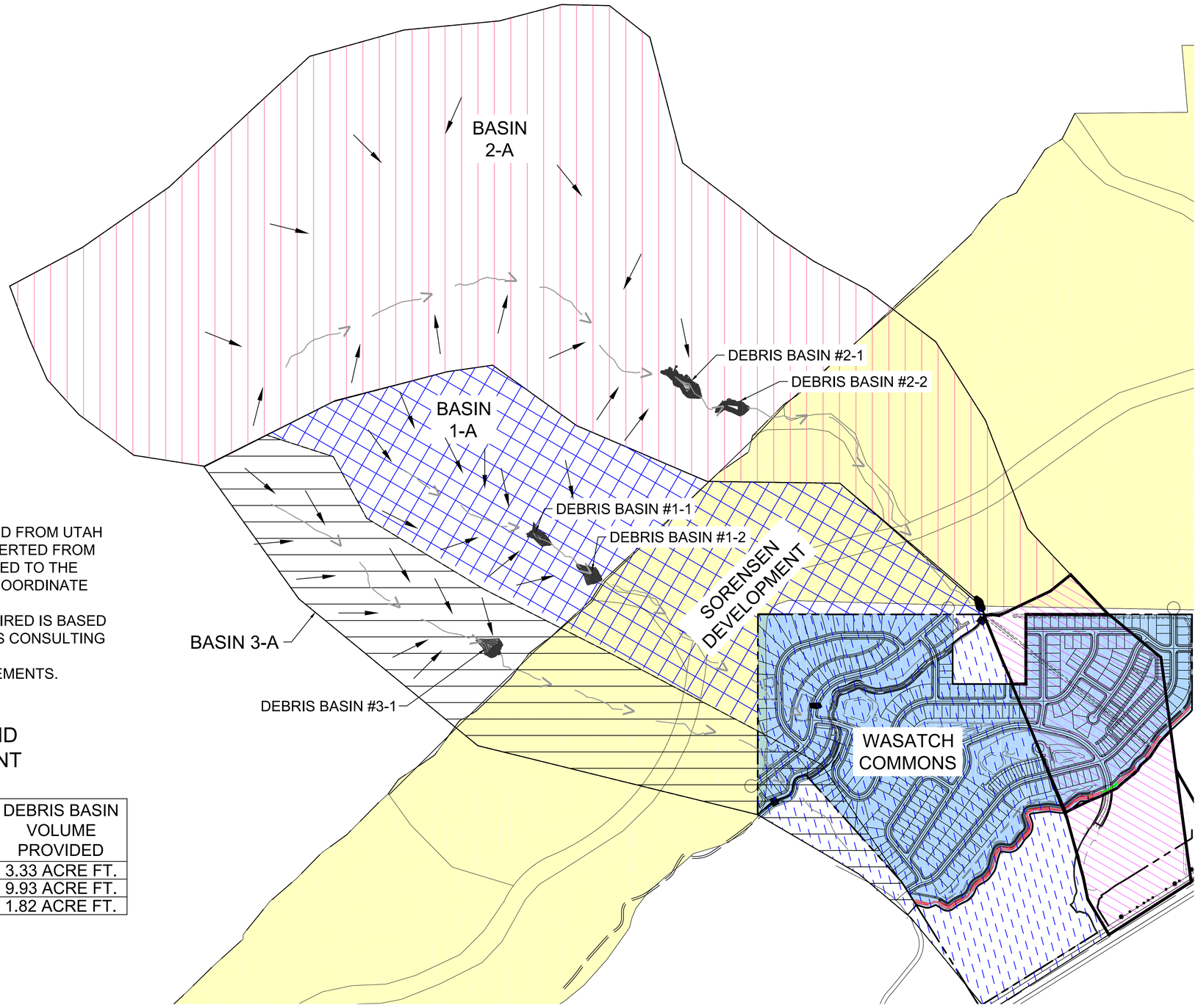
ANALYSIS BY: GCS: 9/17/18

Sample Locations
Tw Thin Wall Sample
B Bulk Sample

FIGURE 8
DEBRIS-FLOW ANALYSIS TEST PITS

GSH

Appendix D - Debris Basin Volume Calculation and location Plans by Ward Engineering group, October 25, 2018



NOTE:

1. ALL SURFACE DATA WAS OBTAINED FROM UTAH AGRC. 2M DEM FILES WERE CONVERTED FROM METRIC TO IMPERIAL AND ADJUSTED TO THE CURRENT PROJECT DATUM AND COORDINATE SYSTEM.
2. THE DEBRIS BASIN VOLUME REQUIRED IS BASED ON A DEBRIS FLOW STUDY BY GHS CONSULTING DATED
3. CONTOURING SHOWN IN 25' INCREMENTS.

WASATCH COMMONS AND SORENSEN DEVELOPMENT DEBRIS BASINS

AREA	AREA OUTSIDE PROPOSED DEVELOPMENT	DEBRIS BASIN VOLUME REQUIRED	DEBRIS BASIN VOLUME PROVIDED
1-A	76.65 ACRES	2.82 ACRE FT.	3.33 ACRE FT.
2-A	327.67 ACRES	9.93 ACRE FT.	9.93 ACRE FT.
3-A	52.94 ACRES	1.72 ACRE FT.	1.82 ACRE FT.

N

400 0 400 800 1200

Scale 1" = 400'

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Wasatch County, Utah

OVERALL DEBRIS BASIN PLAN

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning Engineering Surveying
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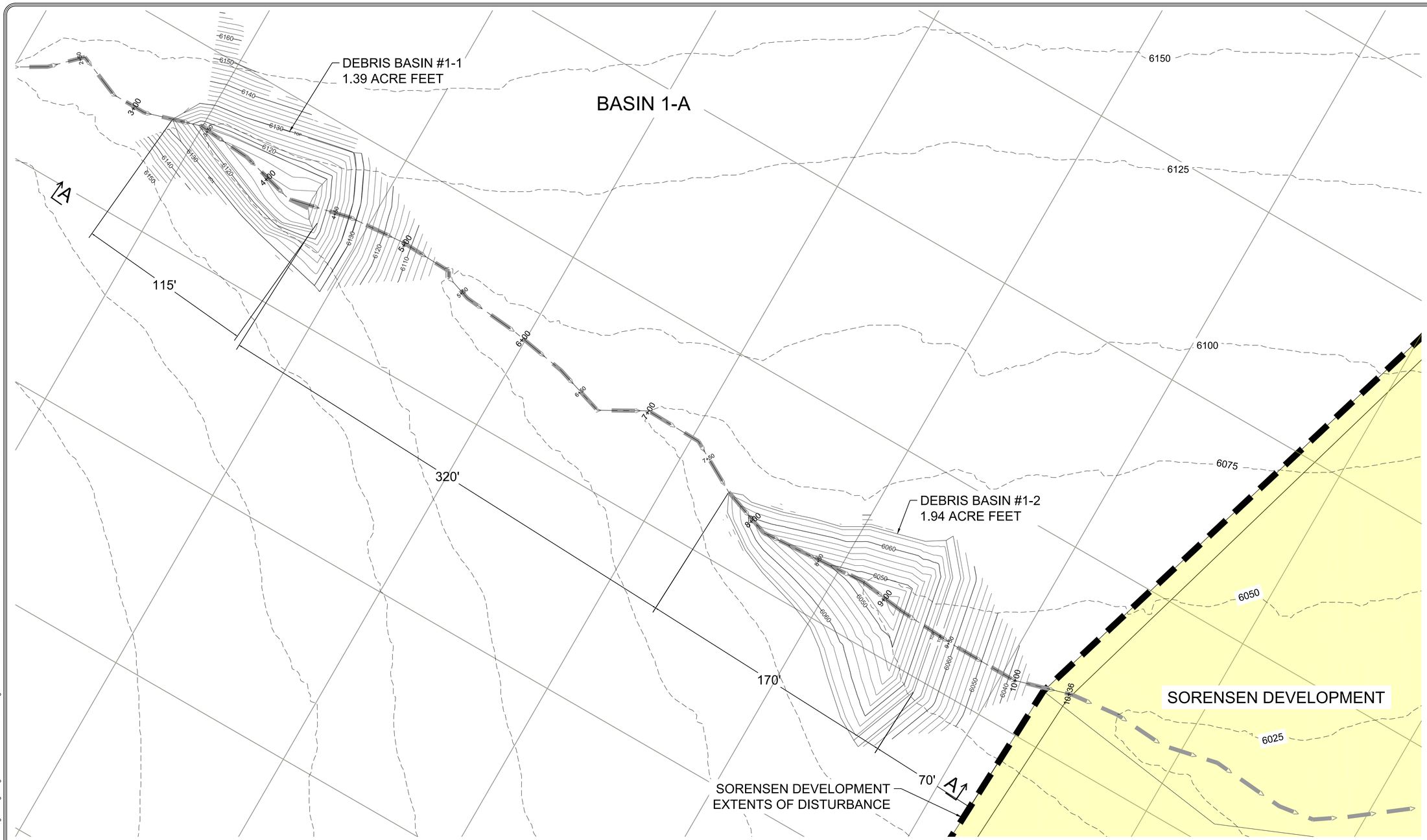
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DWG: Overall Debris Basins
JOB No: 3891-OAKWOOD-18
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DRAWN BY:
DESIGN BY:
CHECKED BY: SNT
DATE: 10/25/2018

REVISIONS

SHEET
DB-01

FILENAME: O:\THACKERY\Wasatch Commons\Engineering\Design\Overall Debris Basins.dwg TAB: 24x36 PLOT DATE AND TIME: 11/28/2018 4:11 PM



NOTE:
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NOTE:
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Scale 1" = 30'

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Wasatch County, Utah

DEBRIS BASINS AREA 1-A

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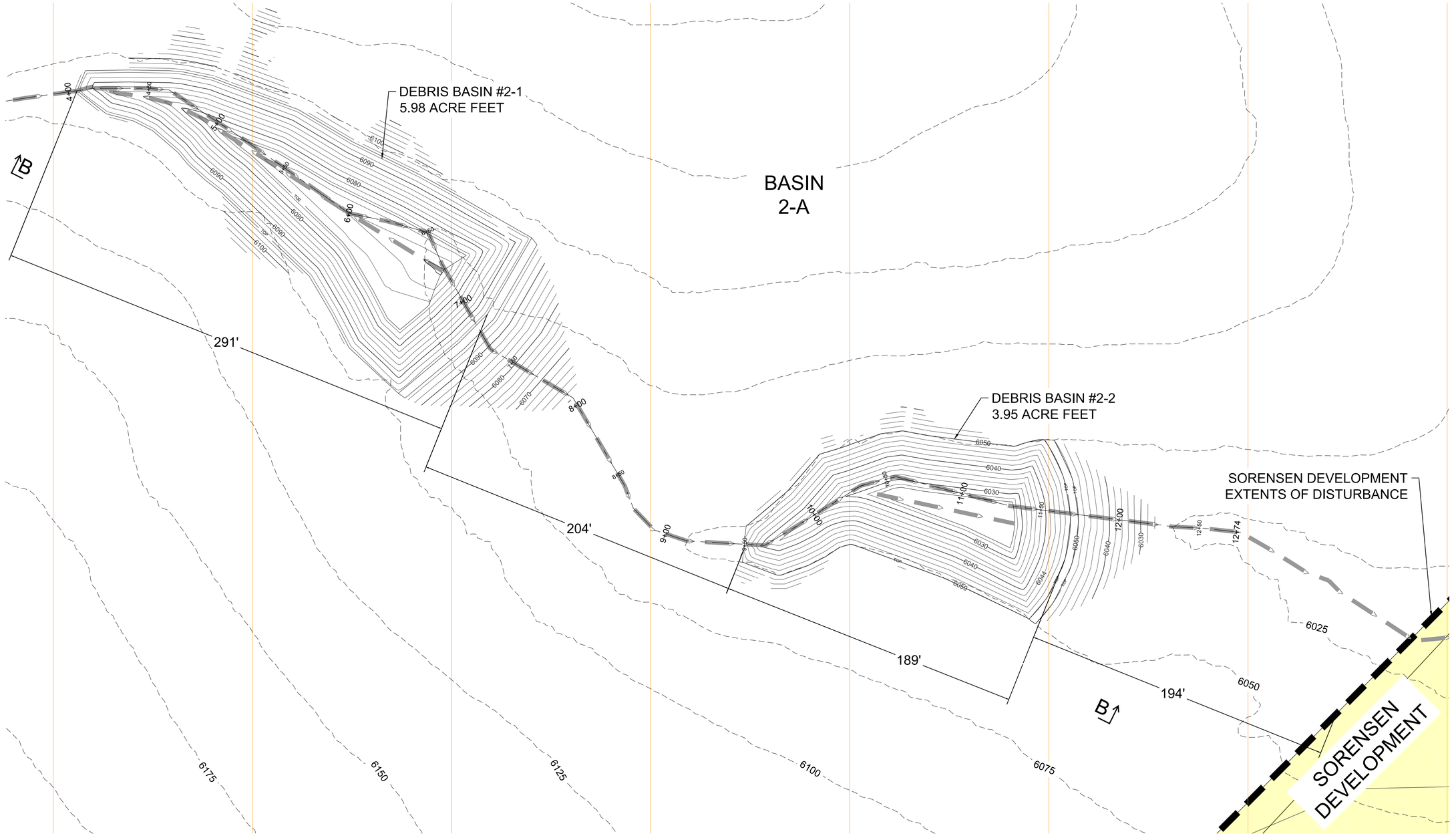
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DWG: **Debris Basins Area Plans**
JOB No: 3891-OAKWOOD-18
DO NOT SCALE THIS DRAWING — DRAWING IS REDUCED IF LESS THAN 22in x 34in — DIMENSIONS AND NOTES TAKE PRECEDENCE

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Scale 1" = 30'

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DEBRIS BASINS AREA 2-A

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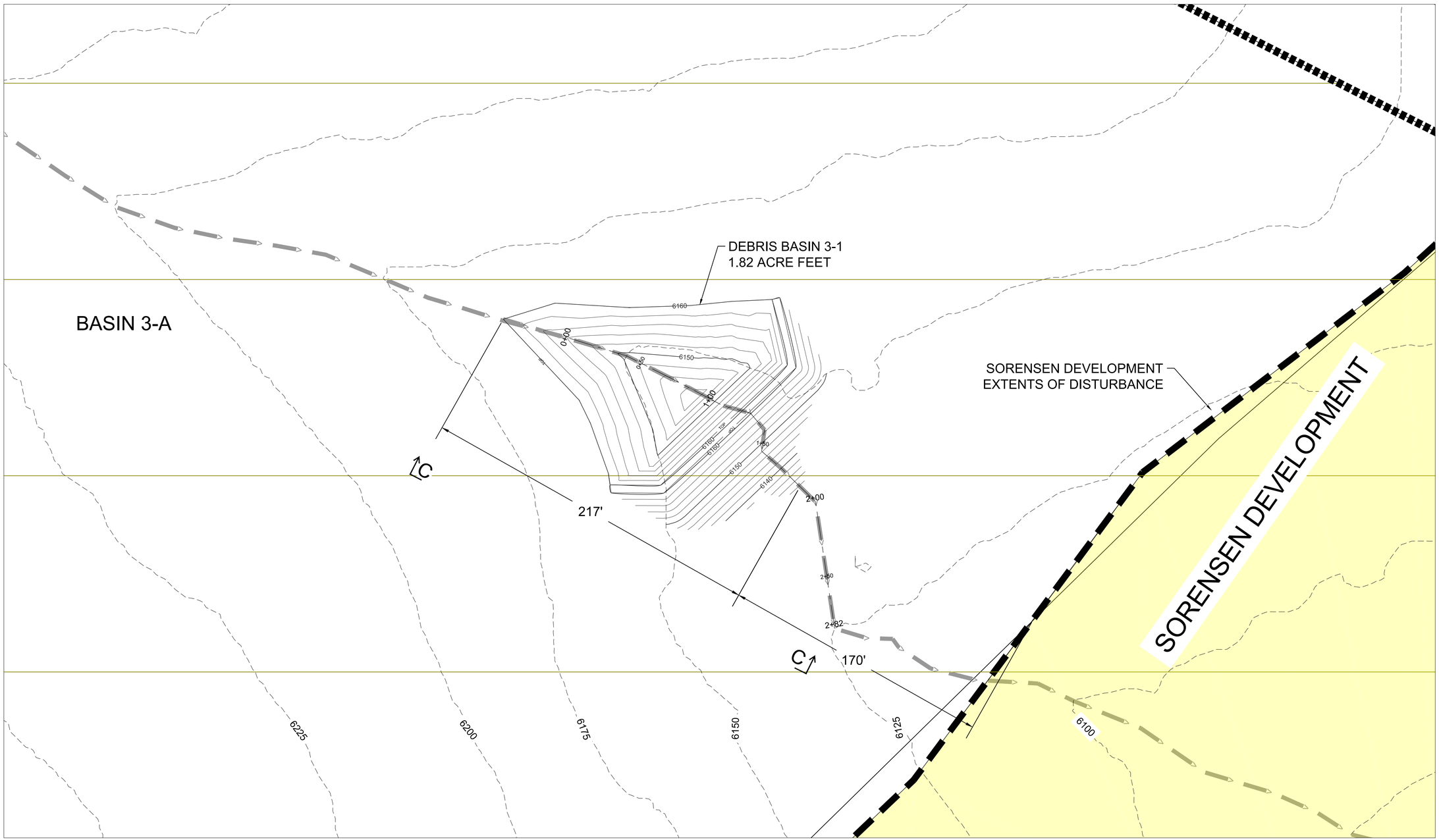
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30 0 30 60 90

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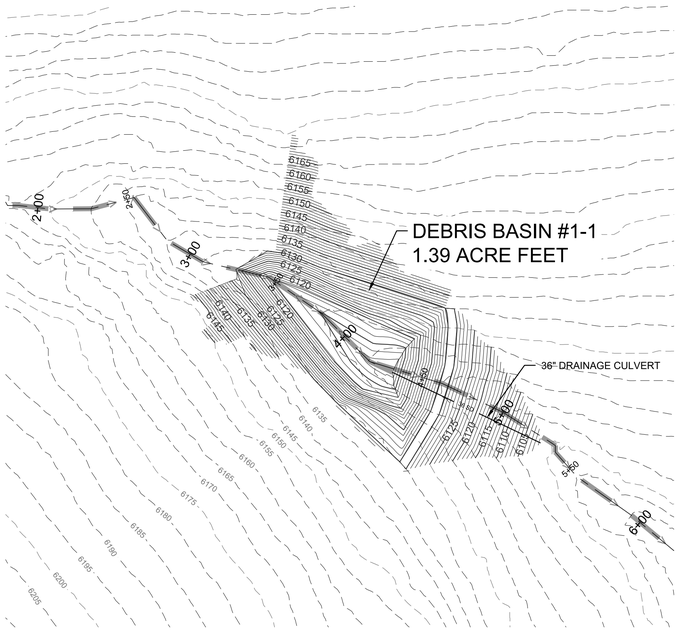
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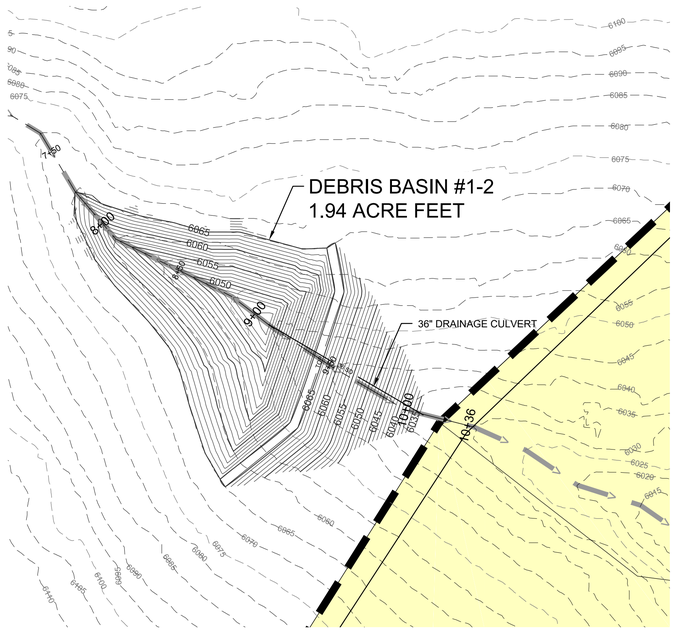
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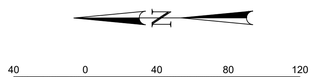
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BASIN 1-A

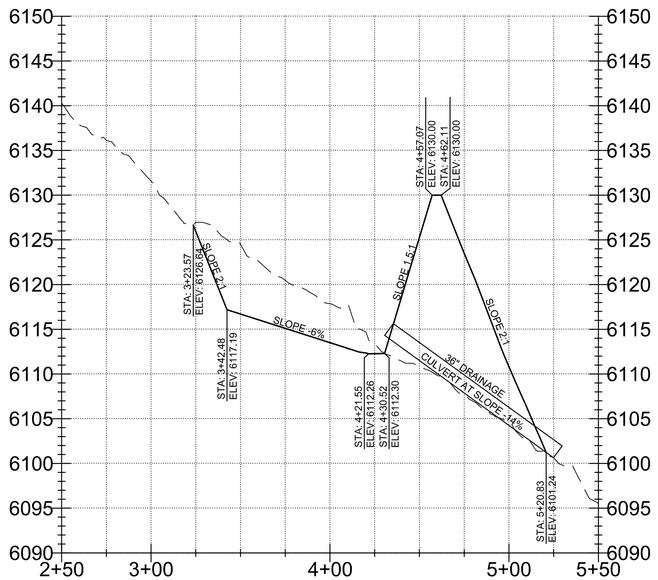


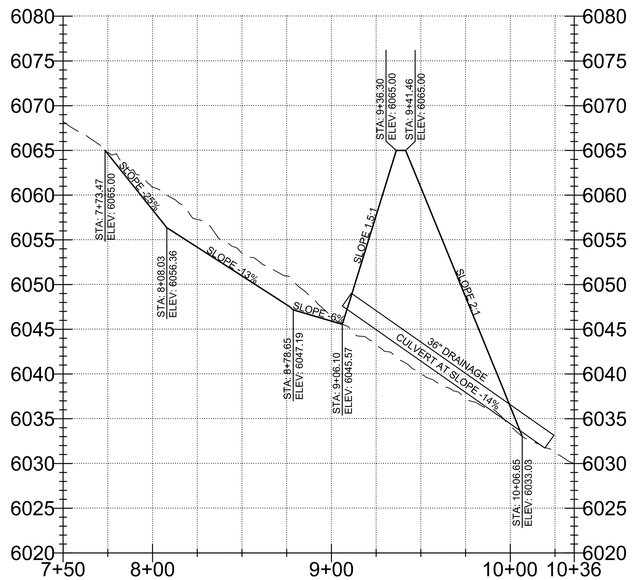




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Scale 1" = 40'





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Wasatch County, Utah

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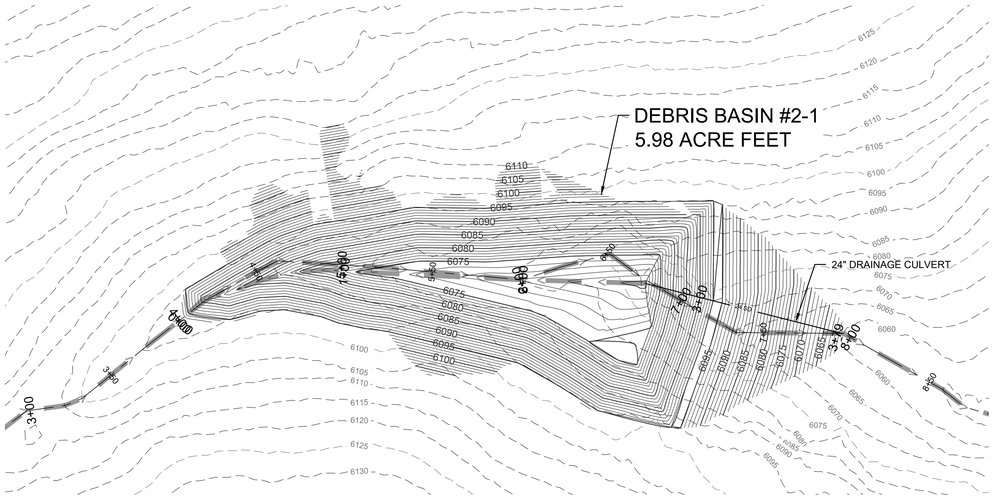
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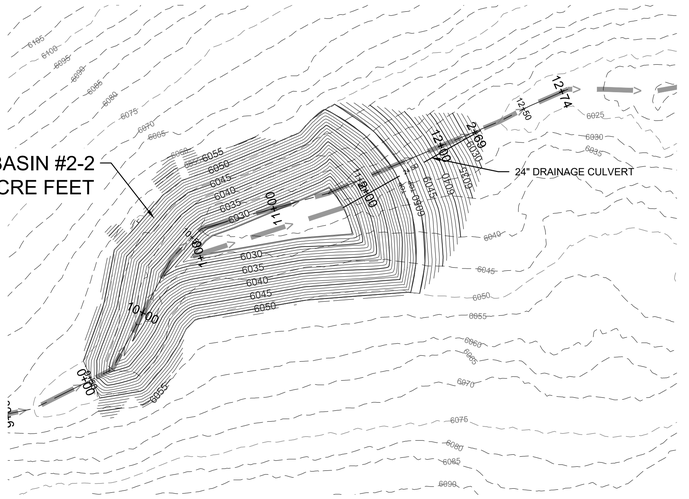
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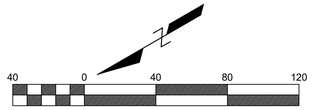
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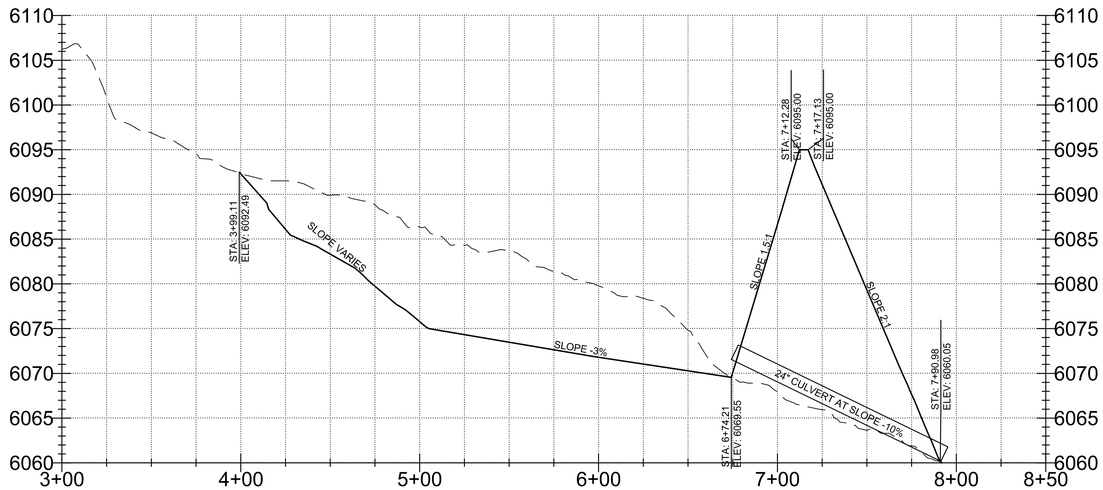


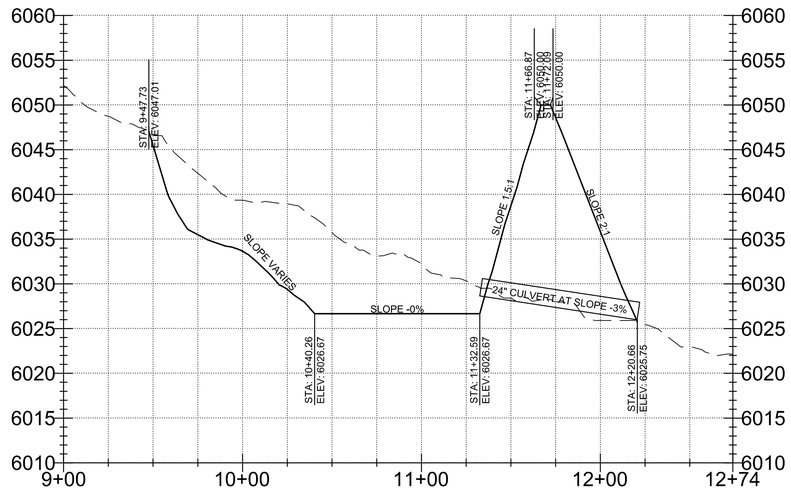
BASIN 2-A





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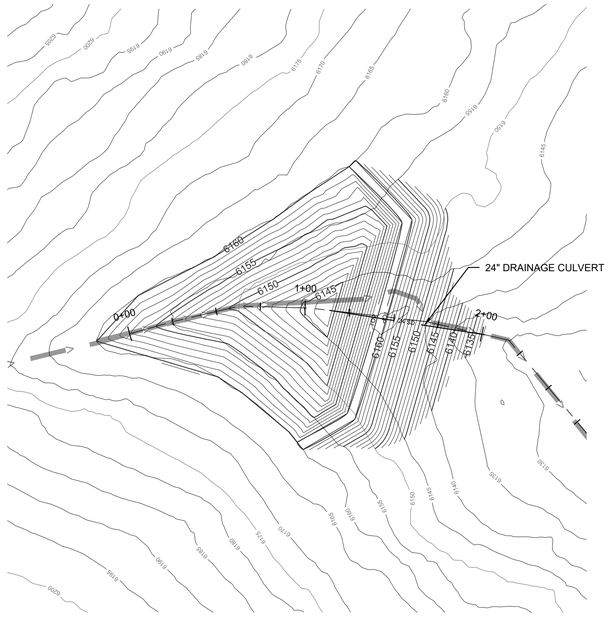
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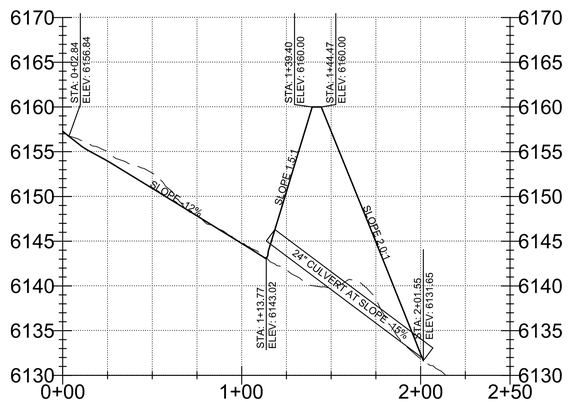
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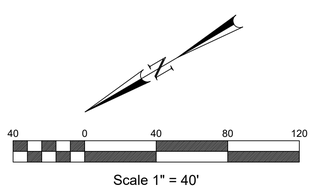
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DEBRIS BASIN 3-1
1.82 ACRE FEET





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Scale 1" = 40'

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Wasatch County, Utah

DEBRIS BASIN AREA 3-A PROFILE

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DWG: **Debris Basins Area 3-A**
JOB No: **3891-OAKWOOD-18**
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DESIGN BY:
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Appendix E – Modeling Results and Calculations
Basin Hydrographs
Pipe Sizing
Treatment

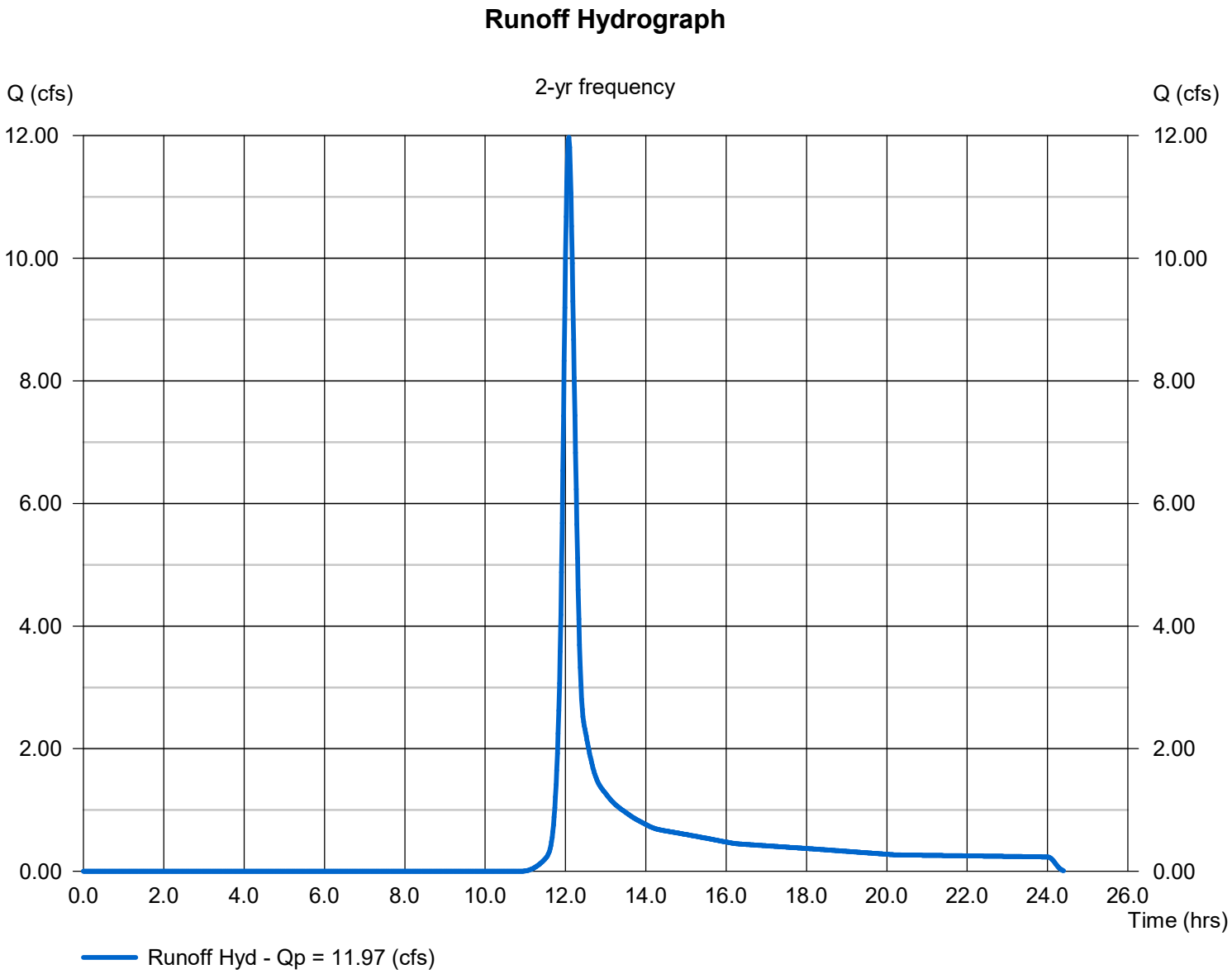
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Mar 25 2024

Basin 4 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 11.97
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 22.250	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 17
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 37,200 (cuft); 0.854 (acft)



TR55 Tc Worksheet

SCS

Basin 4 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	86.63		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	299.5		1593.2		0.0		
Travel Time (min)	**=**	**0.614808**	**+**	**7.283270**	**+**	**0**	**=**	**7.90**

Total Travel Time, Tc ..... 17.00 min

Hydrology Report

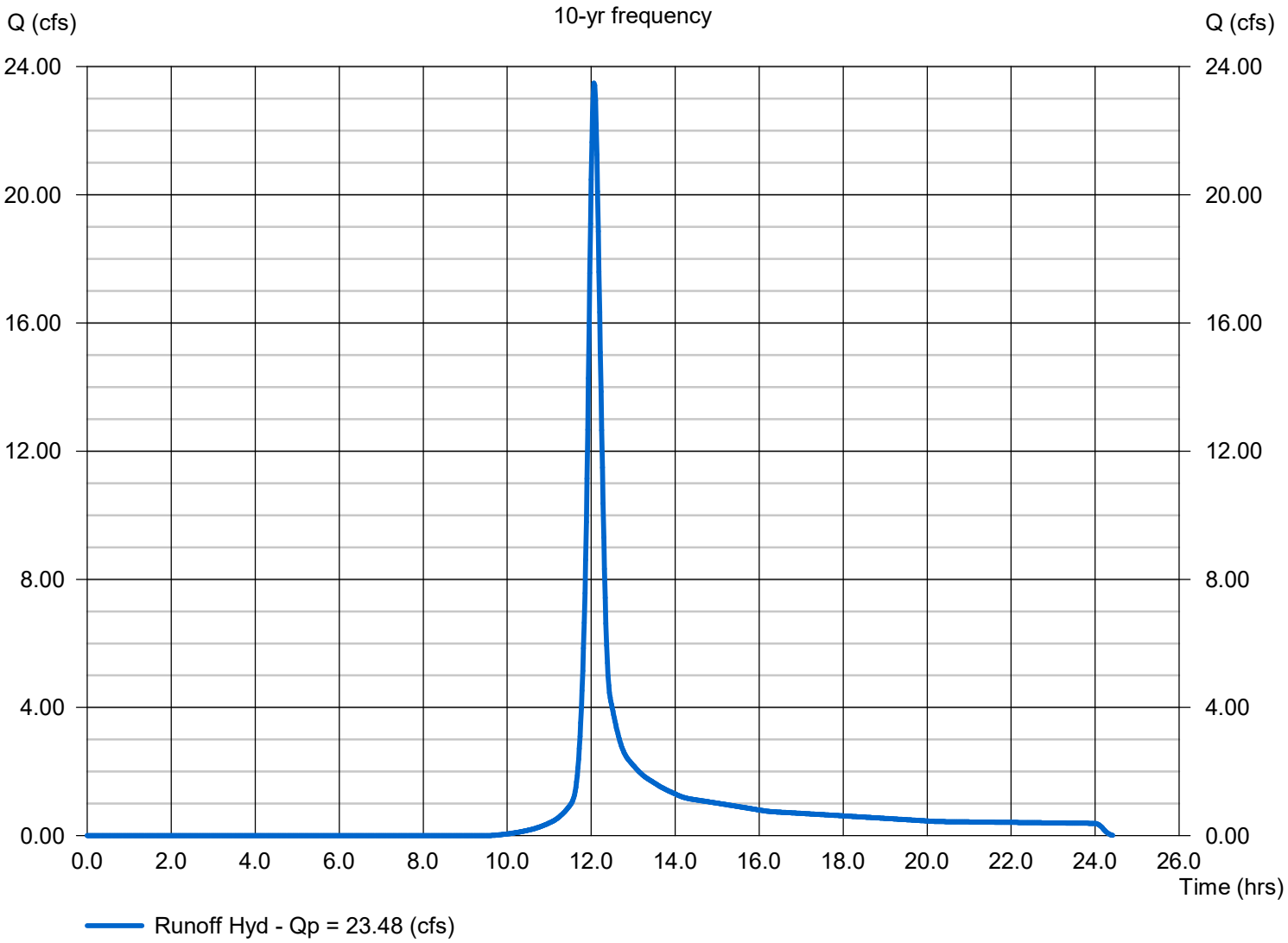
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 20 2024

Basin 4 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 23.48
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 22.250	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 17
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 70,219 (cuft); 1.612 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 4 - 10 yr

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 50.0	0.0	0.0	
Two-year 24-hr precip. ((in))	= 1.47	0.00	0.00	
Land slope (%)	= 5.00	0.00	0.00	
Travel Time (min)	**= 8.38**	**+ 0.00**	**+ 0.00**	**= 8.38**
Shallow Concentrated Flow				
Flow length (ft)	= 86.63	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 0.40**	**+ 0.00**	**+ 0.00**	**= 0.40**
Channel Flow				
X sectional flow area ((sqft))	= 1.12	1.77	0.00	
Wetted perimeter ((ft))	= 5.03	4.71	0.00	
Channel slope (%)	= 5.00	0.50	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 8.12	3.65	0.00	
Flow length (ft)	= 299.5	1593.2	0.0	
Travel Time (min)	**= 0.614808**	**+ 7.283270**	**+ 0.00**	**= 7.90**

Total Travel Time, Tc ..... 17.00 min

Hydrology Report

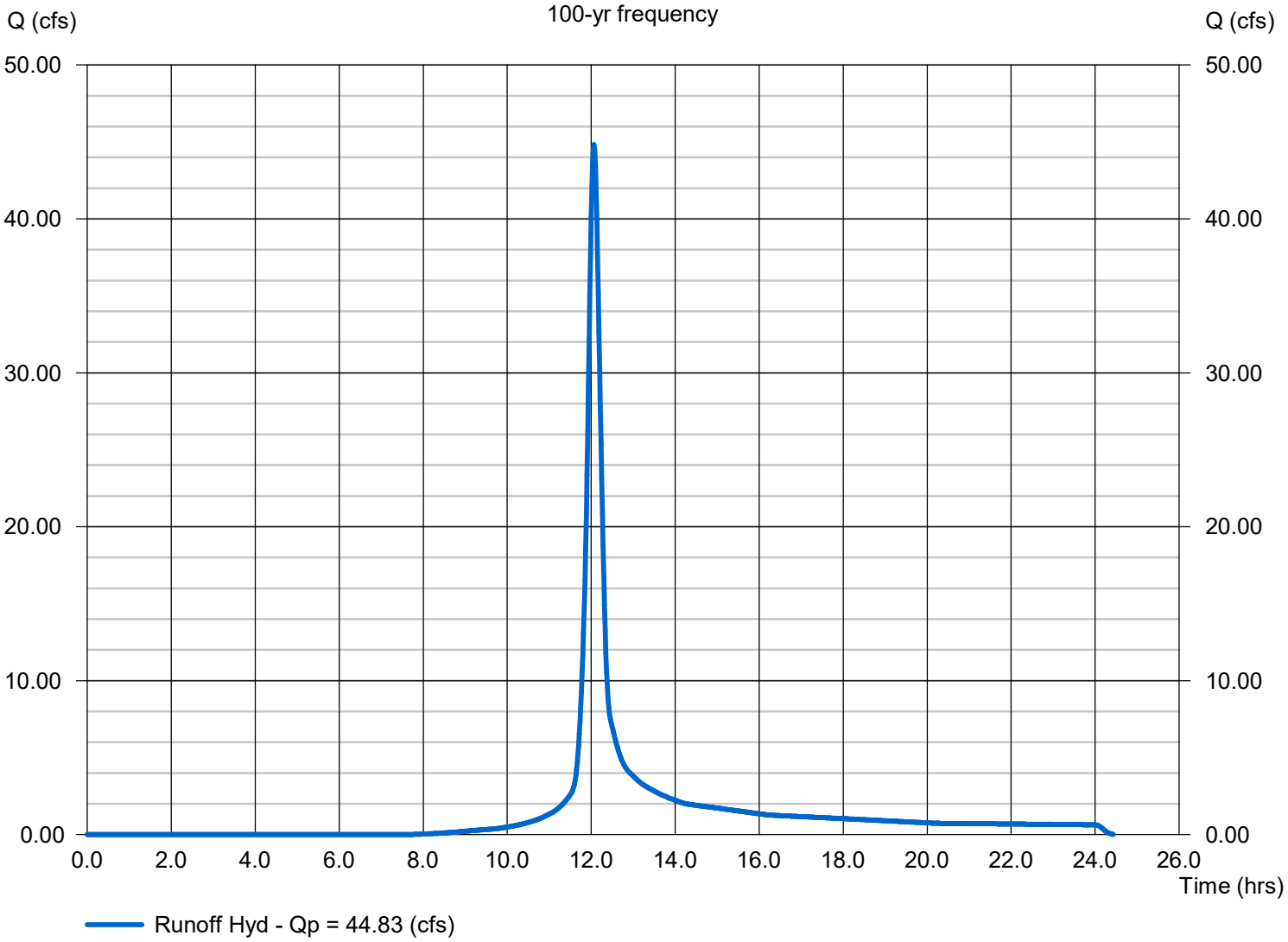
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 20 2024

Basin 4 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 44.83
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 22.250	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 17
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 132,748 (cuft); 3.047 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 4 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	86.63		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	299.5		1593.2		0.0		
Travel Time (min)	**=**	**0.614808**	**+**	**7.283270**	**+**	**0**	**=**	**7.90**

Total Travel Time, Tc ..... 17.00 min

Hydrology Report

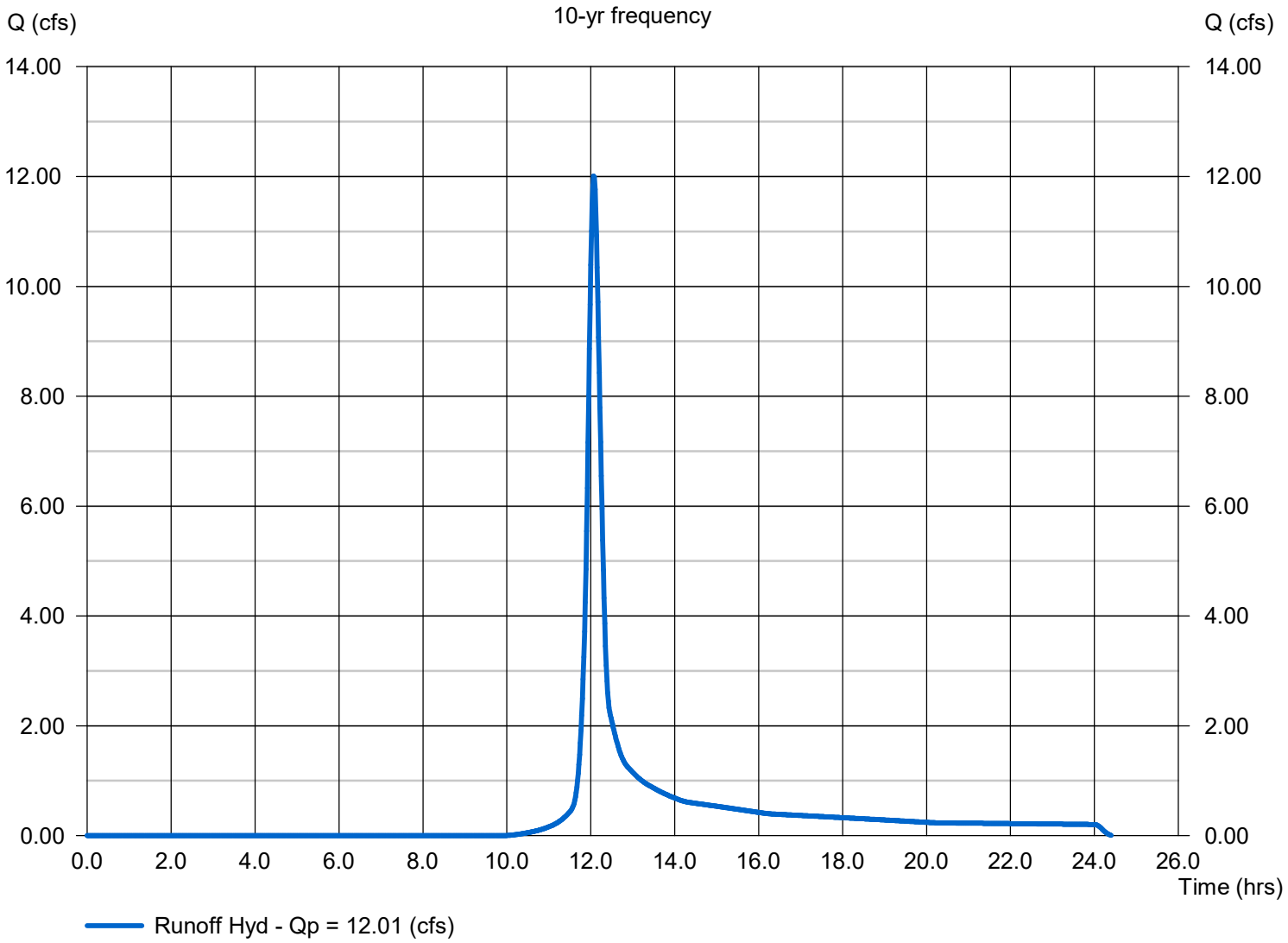
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 6 2024

Basin 4 Subbasin 1 (Common Blvd Discharge to pond 4) - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 12.01
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 12.210	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 17
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 36,131 (cuft); 0.829 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 4 Subbasin 1 (Common Blvd Discharge to pond 4) - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	86.63		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	299.5		1593.2		0.0		
Travel Time (min)	**=**	**0.614808**	**+**	**7.283270**	**+**	**0**	**=**	**7.90**

Total Travel Time, Tc ..... 17.00 min

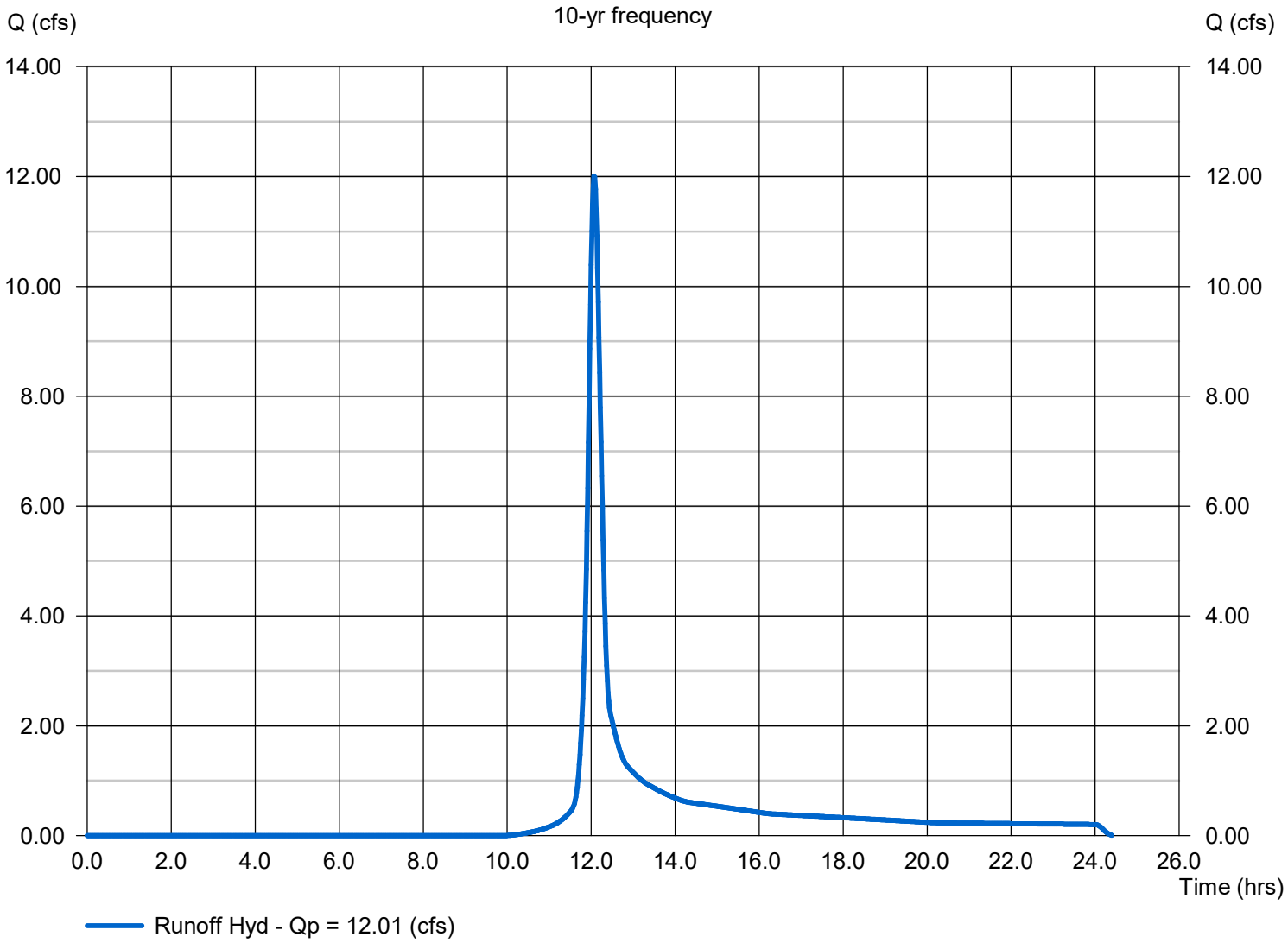
Hydrology Report

Basin 4.1 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 12.01
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 12.210	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 17
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 36,131 (cuft); 0.829 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 4.1 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	86.63		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	299.5		1593.2		0.0		
Travel Time (min)	**=**	**0.614808**	**+**	**7.283270**	**+**	**0**	**=**	**7.90**

Total Travel Time, Tc ..... 17.00 min

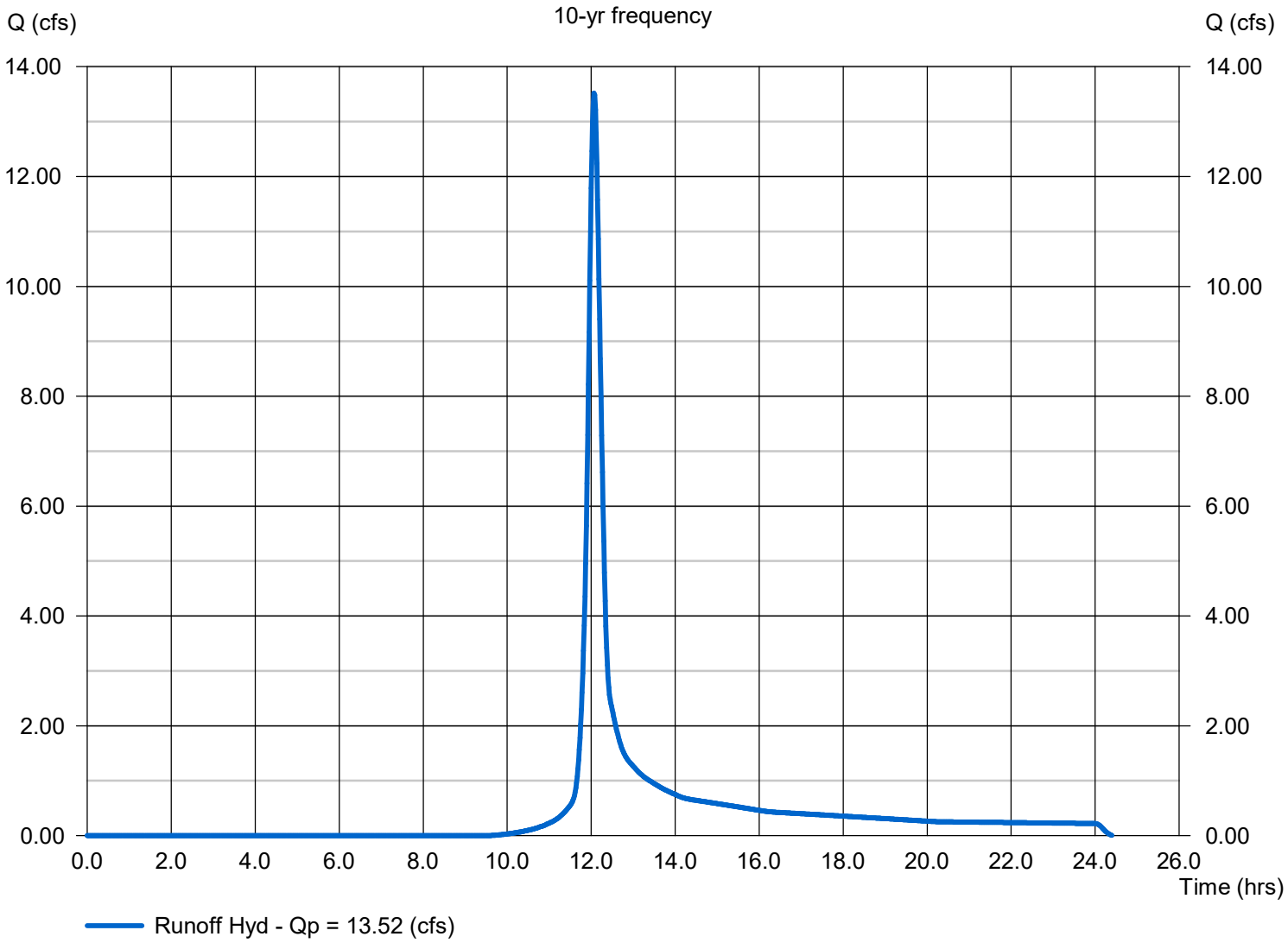
Hydrology Report

Basin 4.1 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 13.52
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 12.810	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 17
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 40,428 (cuft); 0.928 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 4.1 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	86.63		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	299.5		1593.2		0.0		
Travel Time (min)	**=**	**0.614808**	**+**	**7.283270**	**+**	**0**	**=**	**7.90**

Total Travel Time, Tc ..... 17.00 min

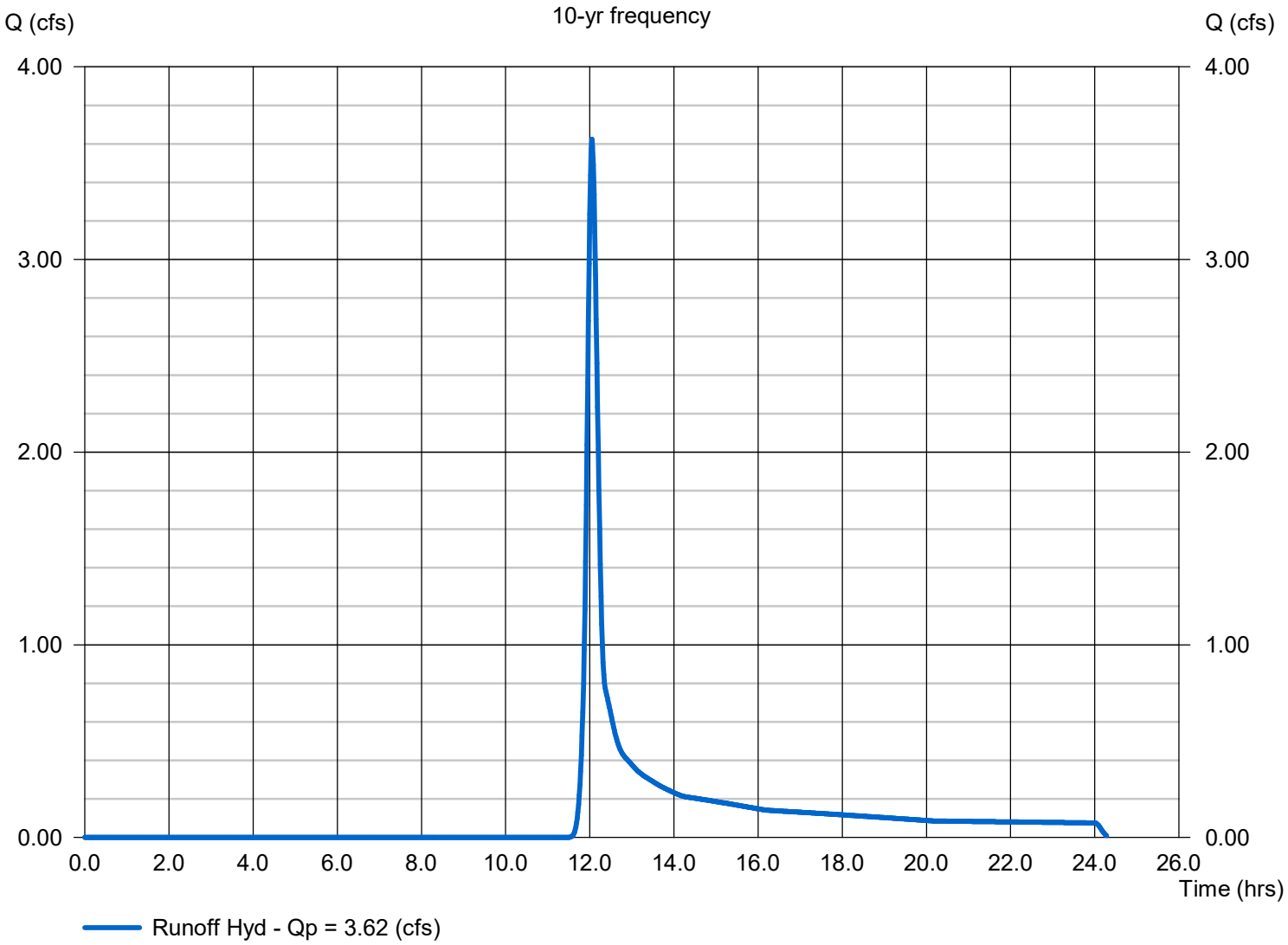
Hydrology Report

Basin 6 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 3.624
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 5.800	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 15
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 10,674 (cuft); 0.245 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 6 - 10 yr

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	= 1.47		0.00		0.00		
Land slope (%)	= 2.00		0.00		0.00		
Travel Time (min)	**= 12.09**	**+**	**0.00**	**+**	**0.00**	**=**	**12.09**
Shallow Concentrated Flow							
Flow length (ft)	= 440.60		0.00		0.00		
Watercourse slope (%)	= 2.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 2.28		0.00		0.00		
Travel Time (min)	**= 3.22**	**+**	**0.00**	**+**	**0.00**	**=**	**3.22**
Channel Flow							
X sectional flow area ((sqft))	= 1.12		1.77		0.00		
Wetted perimeter ((ft))	= 5.03		4.71		0.00		
Channel slope (%)	= 5.00		0.50		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 8.12		3.65		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0**	**+**	**0**	**+**	**0**	**=**	**0.00**

Total Travel Time, Tc ..... 15.00 min

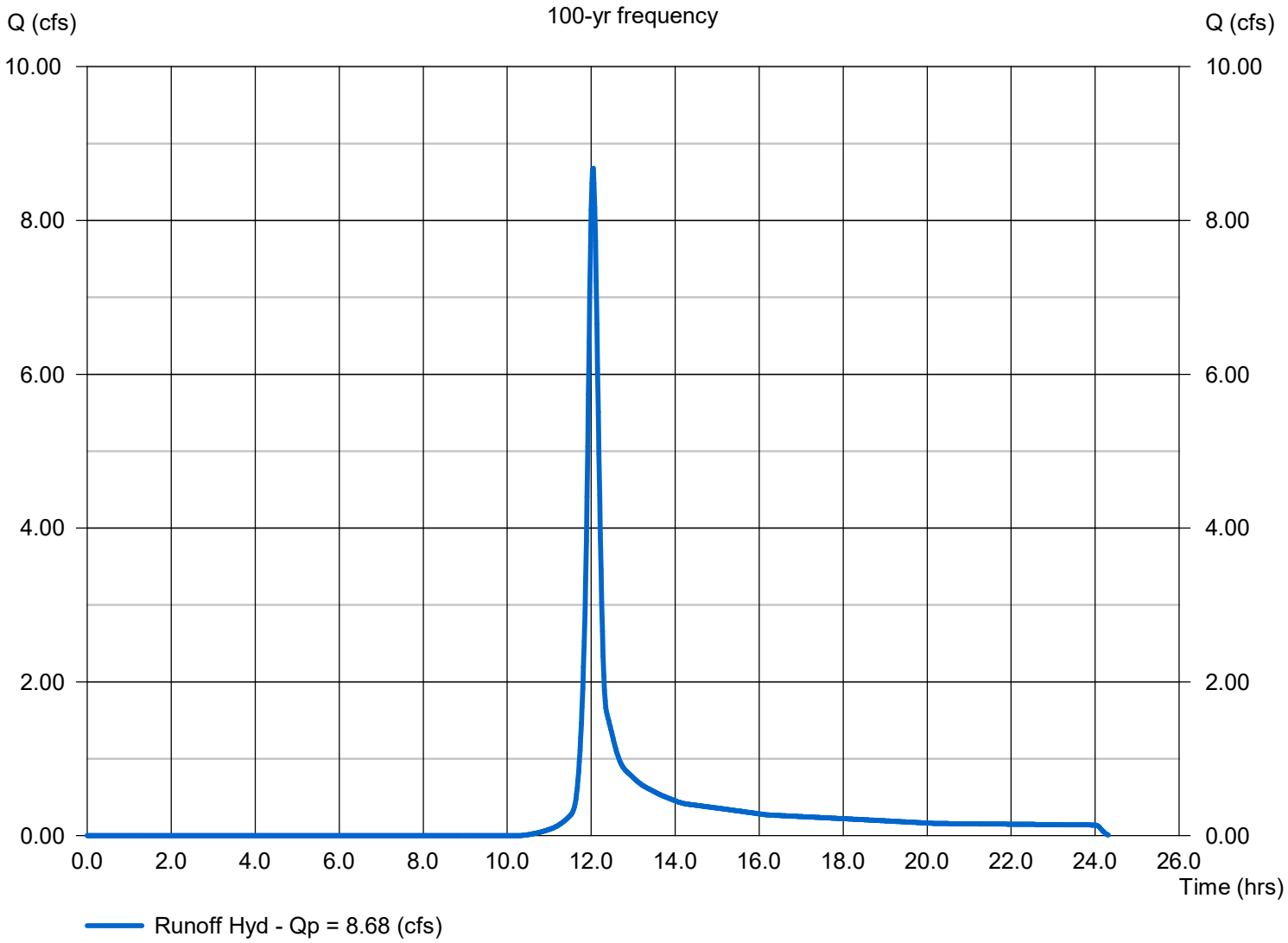
Hydrology Report

Basin 6 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 8.678
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 5.800	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 15
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 23,766 (cuft); 0.546 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 6 - 100 yr

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	= 1.47		0.00		0.00		
Land slope (%)	= 2.00		0.00		0.00		
Travel Time (min)	**= 12.09**	**+**	**0.00**	**+**	**0.00**	**=**	**12.09**
Shallow Concentrated Flow							
Flow length (ft)	= 440.60		0.00		0.00		
Watercourse slope (%)	= 2.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 2.28		0.00		0.00		
Travel Time (min)	**= 3.22**	**+**	**0.00**	**+**	**0.00**	**=**	**3.22**
Channel Flow							
X sectional flow area ((sqft))	= 1.12		1.77		0.00		
Wetted perimeter ((ft))	= 5.03		4.71		0.00		
Channel slope (%)	= 5.00		0.50		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 8.12		3.65		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0**	**+**	**0**	**+**	**0**	**=**	**0.00**

Total Travel Time, Tc ..... 15.00 min

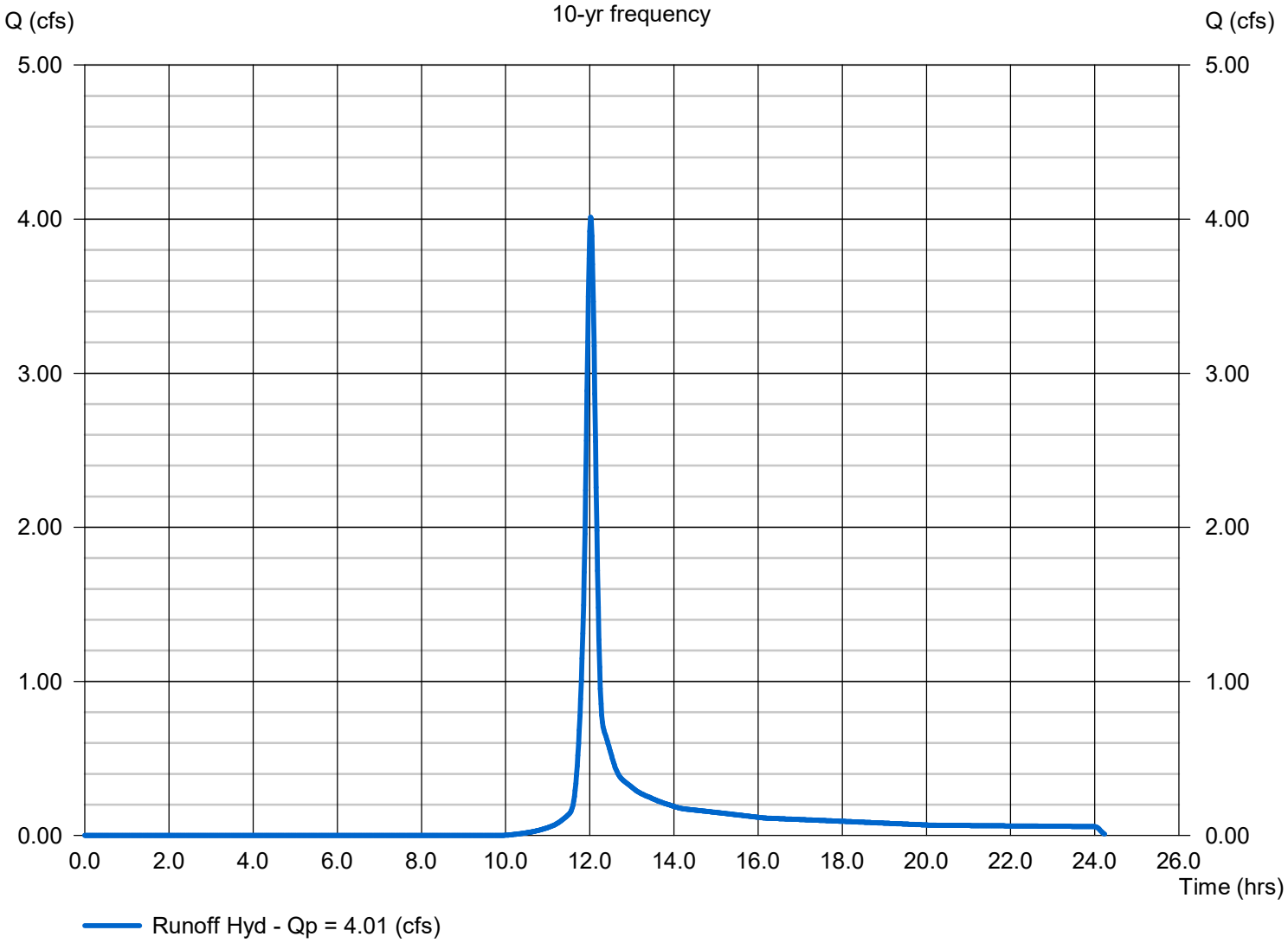
Hydrology Report

Basin 7 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 4.012
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 3.470	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 10,224 (cuft); 0.235 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 7 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	82.10		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.38**	**+**	**0.00**	**+**	**0.00**	**=**	**0.38**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	209.0		556.6		0.0		
Travel Time (min)	**=**	**0.42907299**	**+**	**2.54449500**	**+**	**0.00 0**	**=**	**2.97**

Total Travel Time, Tc ..... 12.00 min

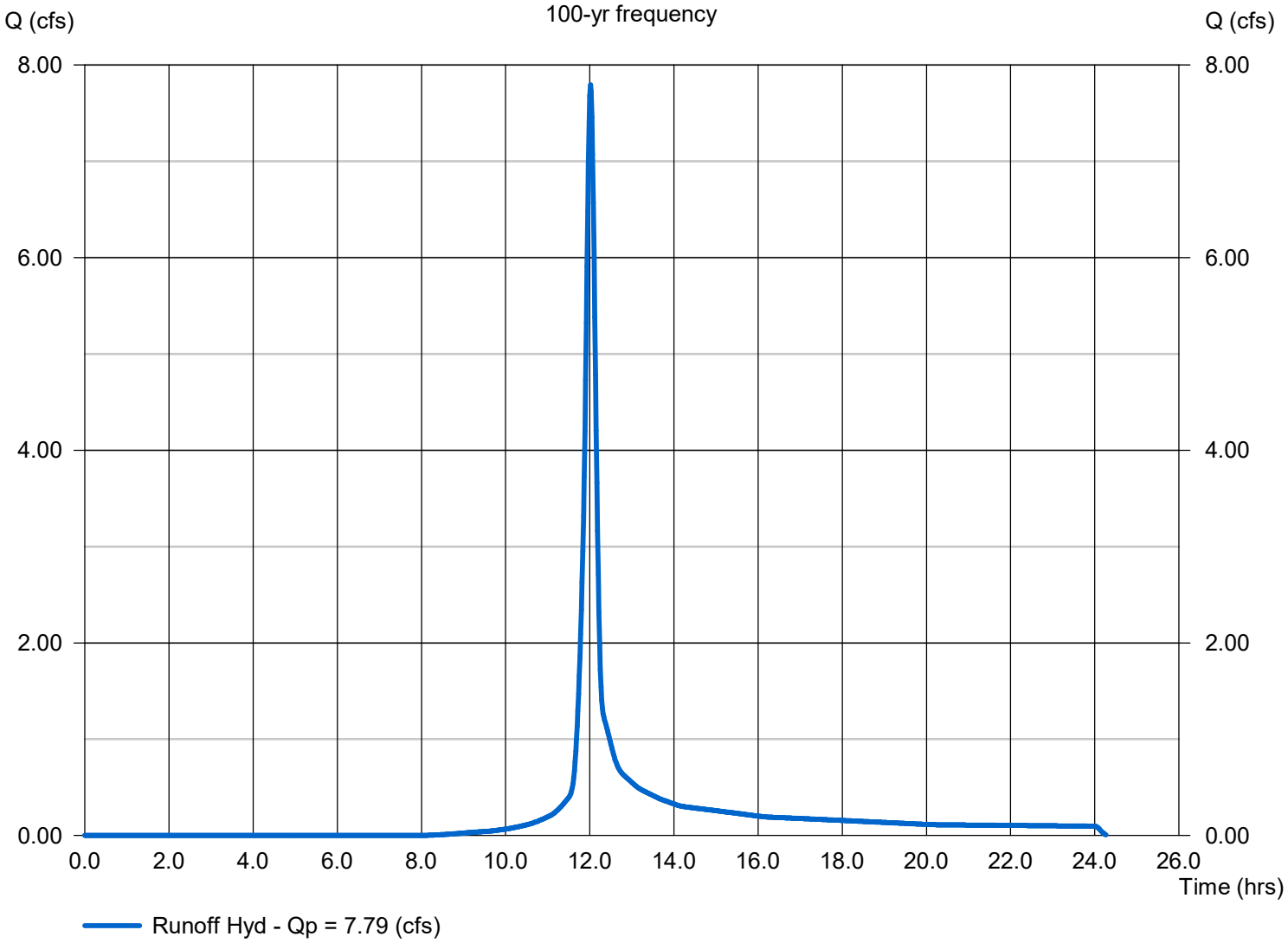
Hydrology Report

Basin 7 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 7.794
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 3.470	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 19,693 (cuft); 0.452 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 7 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	82.10		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.38**	**+**	**0.00**	**+**	**0.00**	**=**	**0.38**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	209.0		556.6		0.0		
Travel Time (min)	**=**	**0.42907290.00**		**2.5444950.00**		**0**	**=**	**2.97**

Total Travel Time, Tc ..... 12.00 min

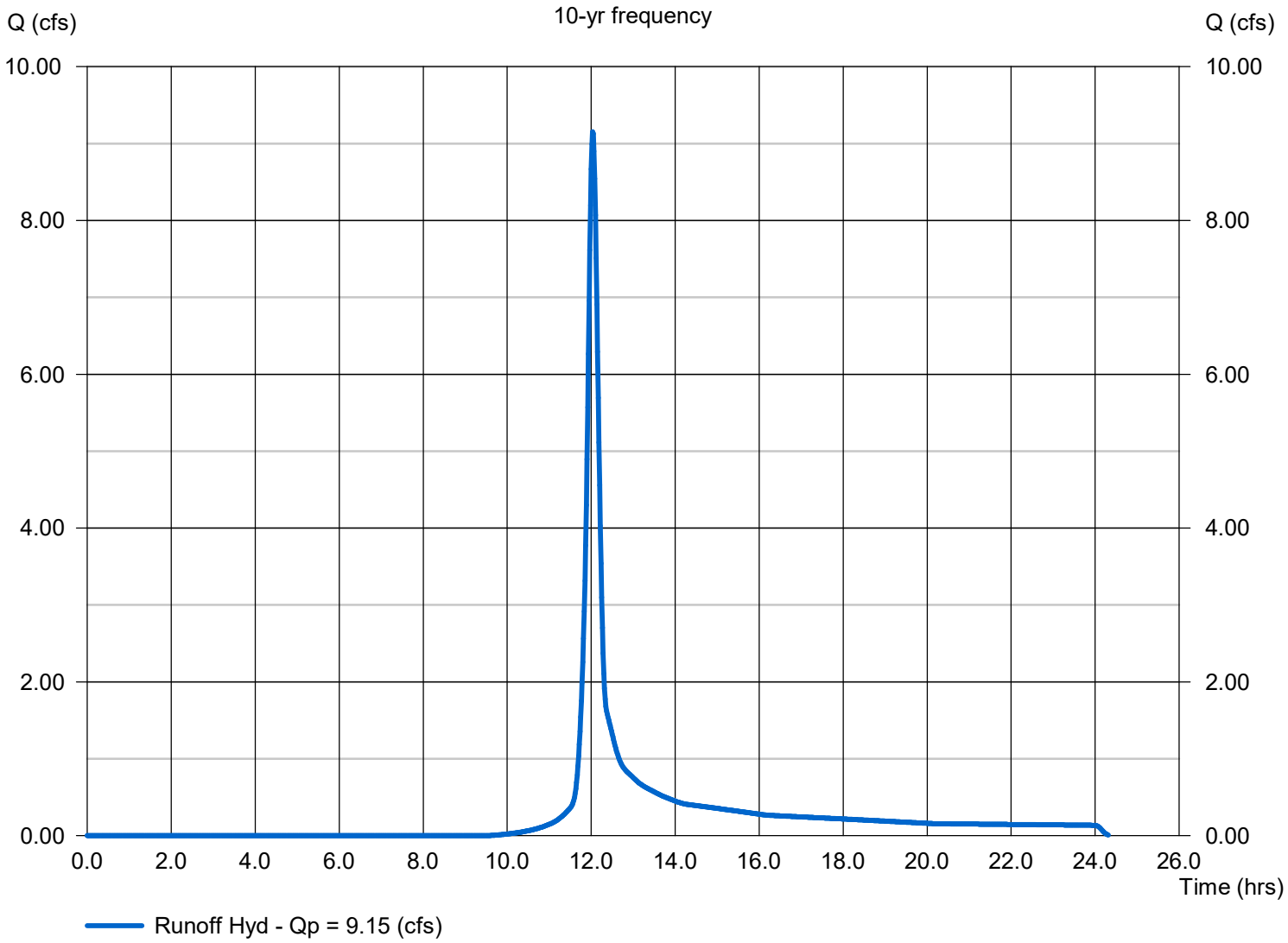
Hydrology Report

Basin 8 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 9.153
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 7.760	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 15
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 24,772 (cuft); 0.569 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 8 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	73.50		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.34**	**+**	**0.00**	**+**	**0.00**	**=**	**0.34**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	381.7		1203.4		0.0		
Travel Time (min)	**=**	**0.78354750.00**		**5.5012410.00**		**0**	**=**	**6.28**

Total Travel Time, Tc ..... 15.00 min

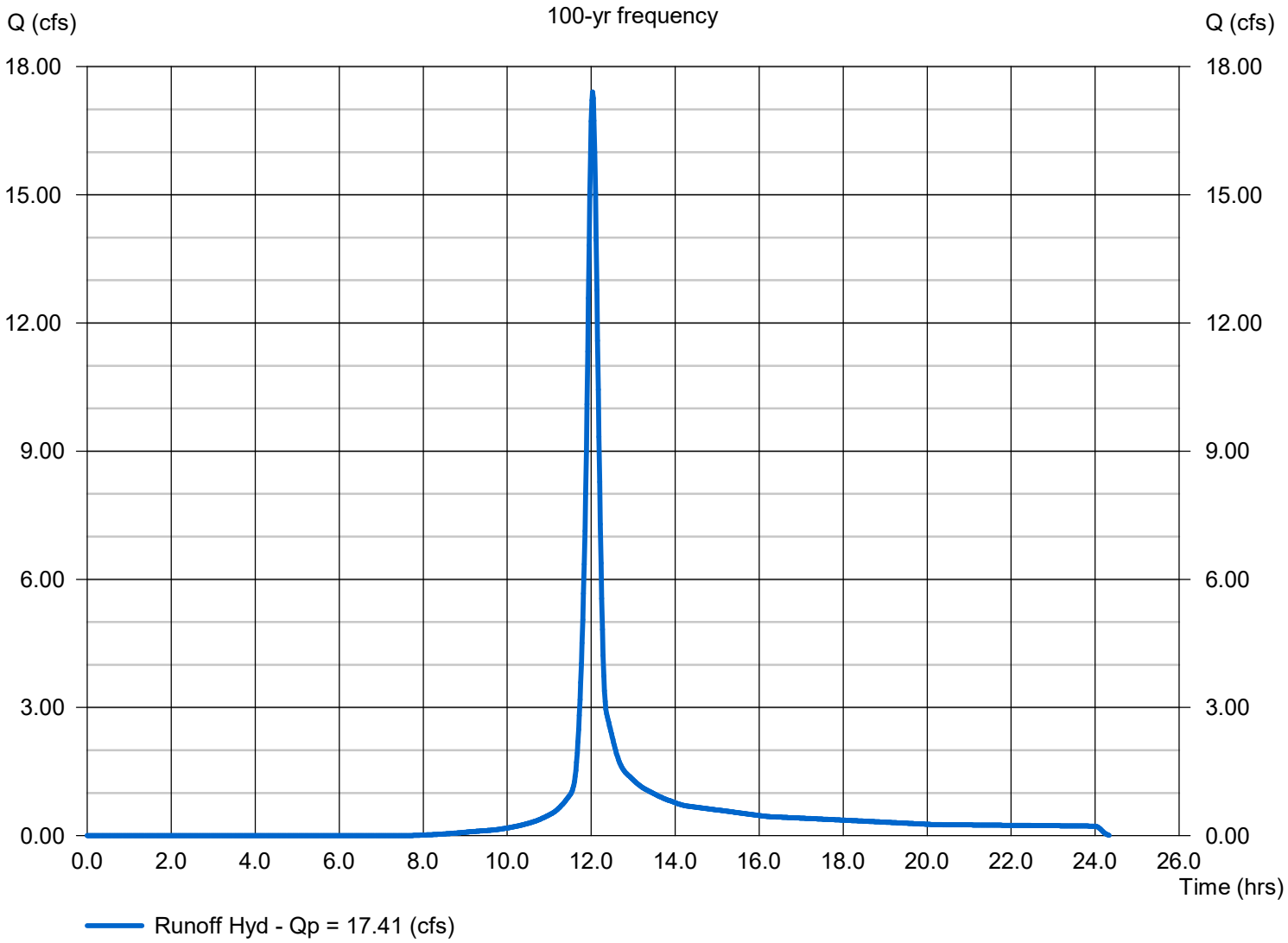
Hydrology Report

Basin 8 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 17.41
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 7.760	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 15
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 46,830 (cuft); 1.075 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 8 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	73.50		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.34**	**+**	**0.00**	**+**	**0.00**	**=**	**0.34**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	381.7		1203.4		0.0		
Travel Time (min)	**=**	**0.78354750.00**		**5.5012410.00**		**0**	**=**	**6.28**

Total Travel Time, Tc ..... 15.00 min

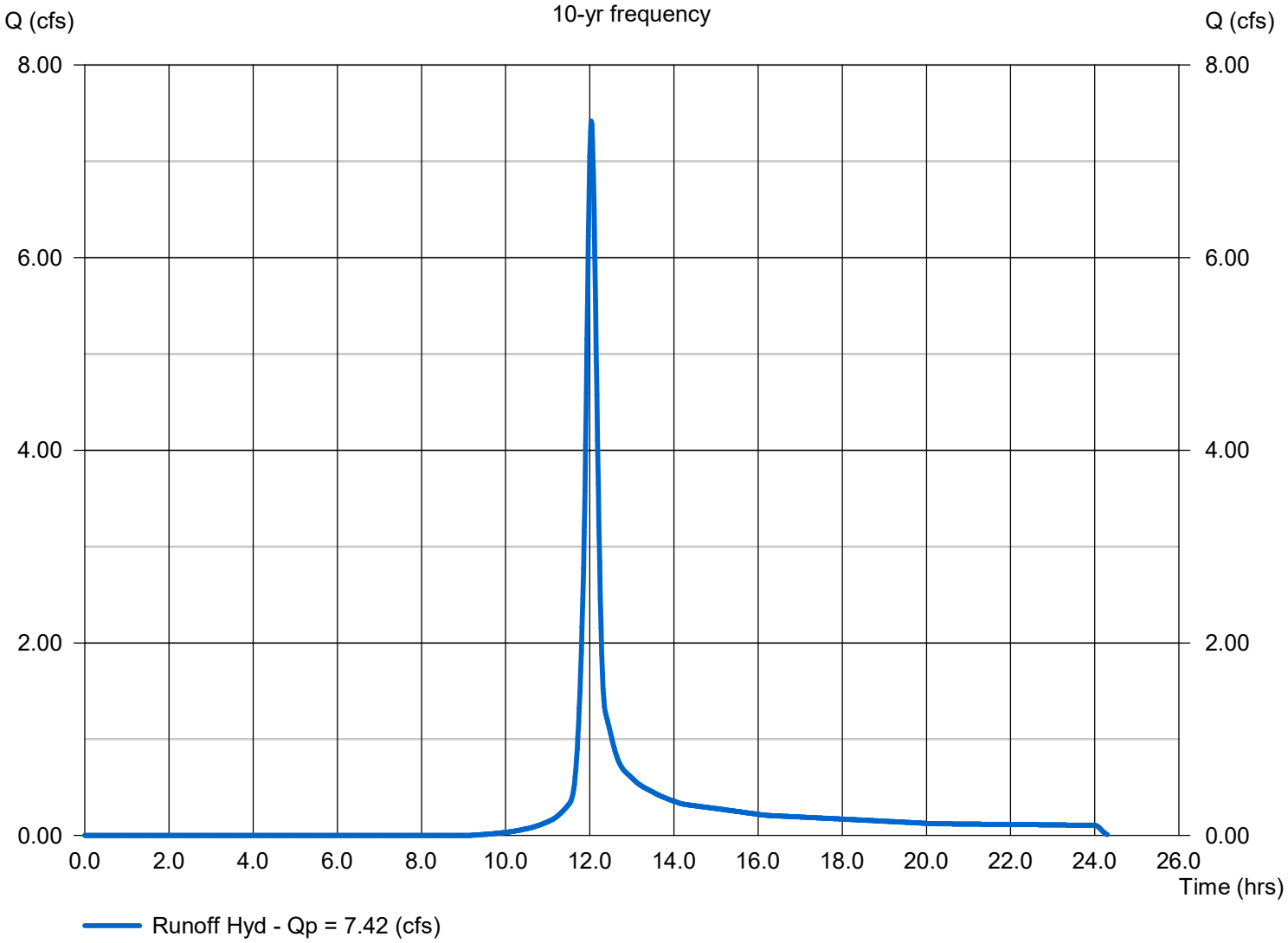
Hydrology Report

Basin 9 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 7.418
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 5.880	Curve number (CN)	= 87
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 14
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 20,000 (cuft); 0.459 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 9 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	62.00		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.29**	**+**	**0.00**	**+**	**0.00**	**=**	**0.29**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	136.3		1183.1		0.0		
Travel Time (min)	**=**	**0.27979**	**+**	**5.40857**	**+**	**0.00**	**=**	**5.69**

Total Travel Time, Tc ..... 14.00 min

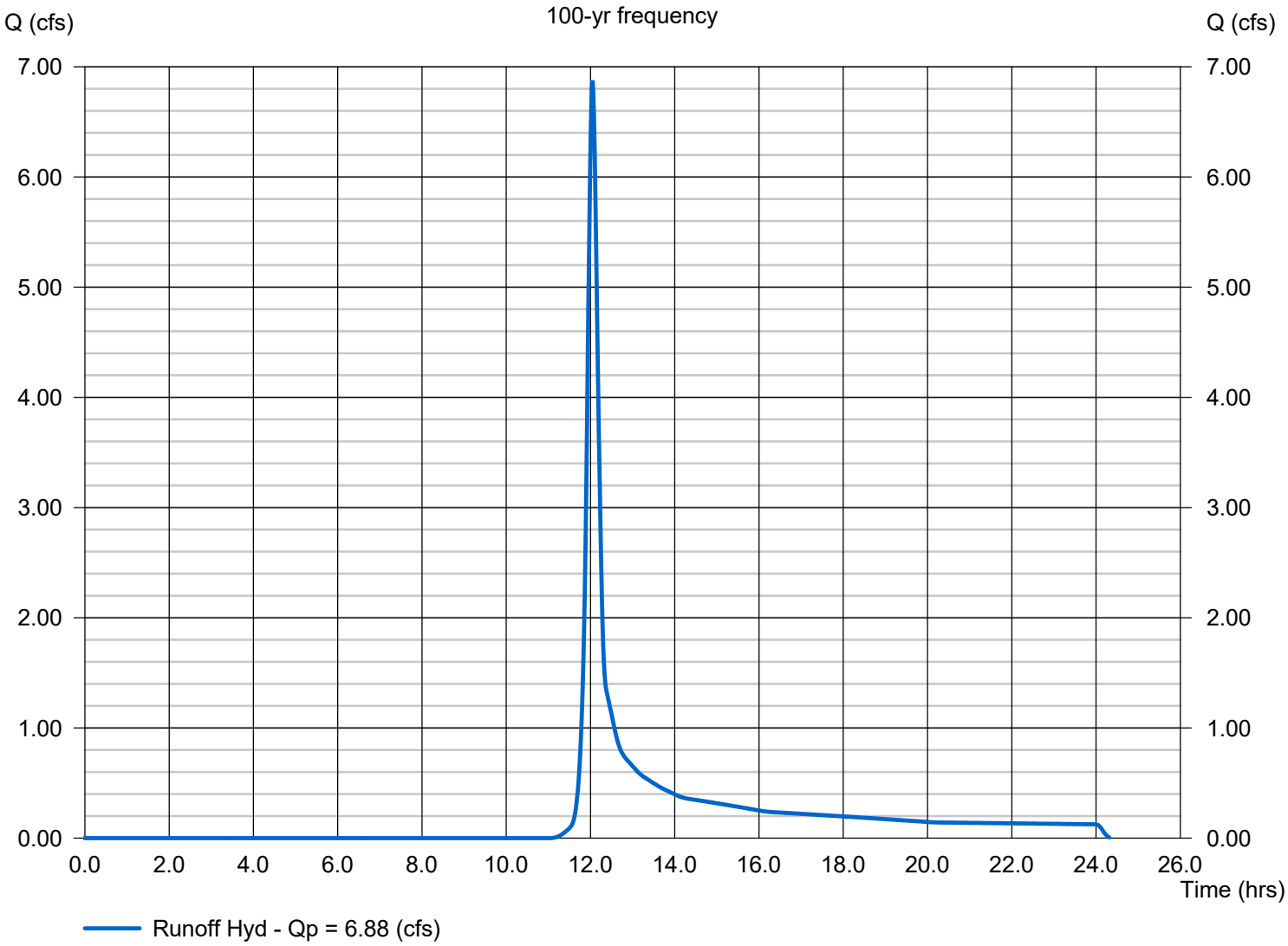
Hydrology Report

Basin 9 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 6.877
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 5.880	Curve number (CN)	= 74
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 14
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 19,386 (cuft); 0.445 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 9 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	62.00		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.29**	**+**	**0.00**	**+**	**0.00**	**=**	**0.29**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	136.3		1183.1		0.0		
Travel Time (min)	**=**	**0.27979440.00**		**5.4085780.00**		**0**	**=**	**5.69**

Total Travel Time, Tc ..... 14.00 min

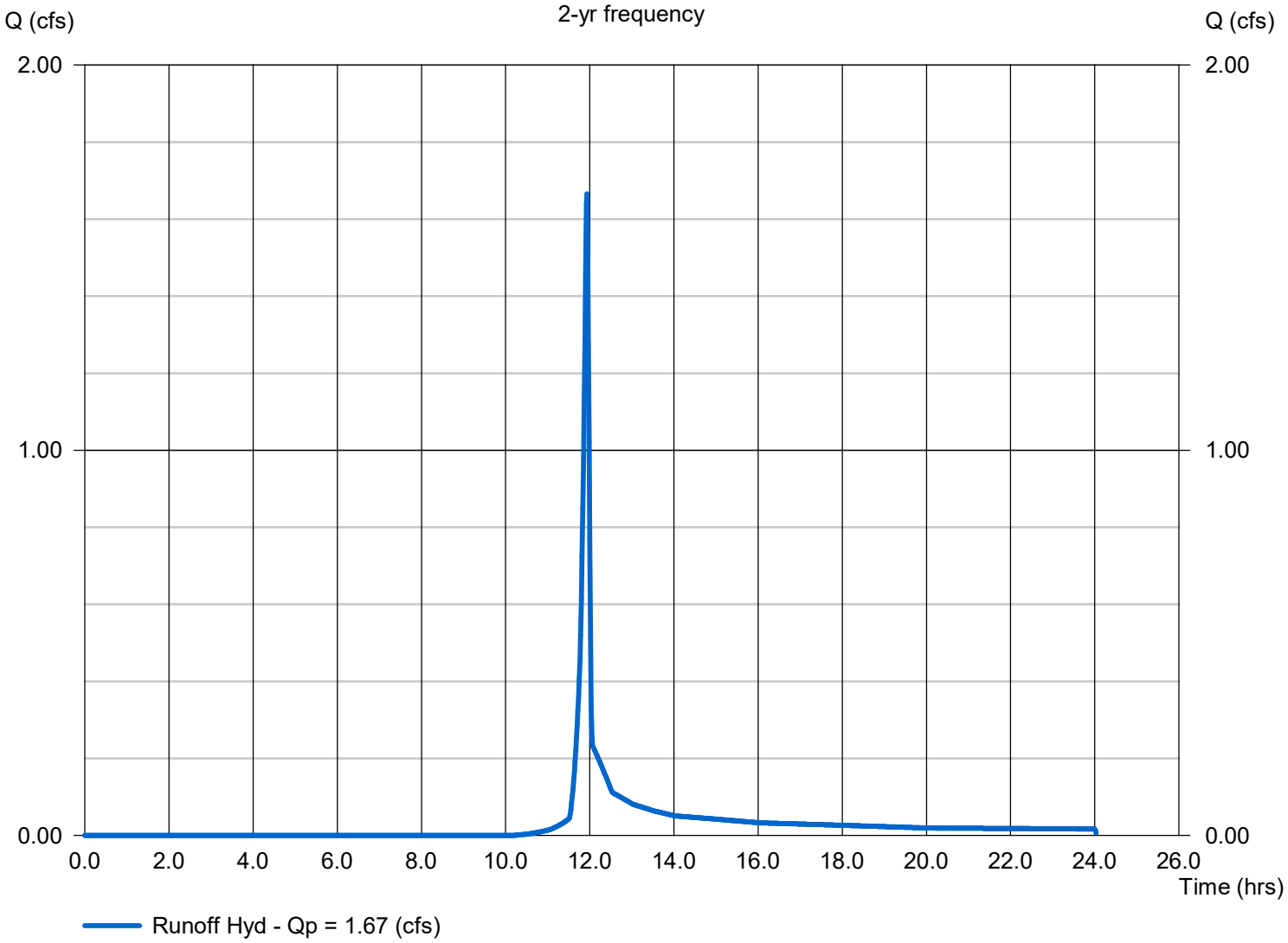
Hydrology Report

Basin 10 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 1.665
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 1.540	Curve number (CN)	= 88
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 3
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 2,896 (cuft); 0.066 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 10 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	0.0		15.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	5.00		2.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.39**	**+**	**0.00**	**=**	**0.39**
Shallow Concentrated Flow								
Flow length (ft)	=	0.00		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	168.8		475.0		0.0		
Travel Time (min)	**=**	**0.34646880.00**		**2.17142200.00**		**0**	**=**	**2.52**

Total Travel Time, Tc ..... 3.00 min

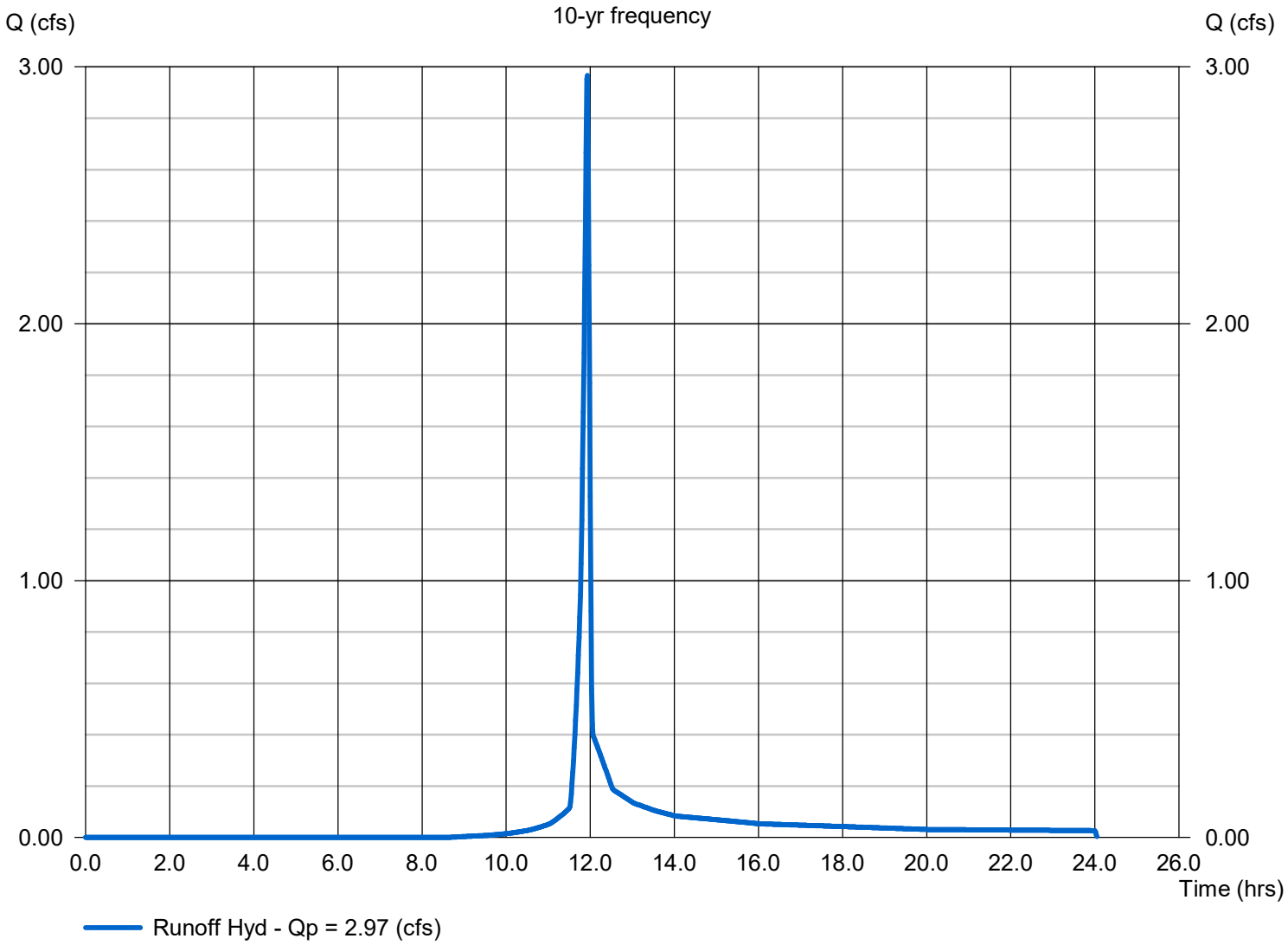
Hydrology Report

Basin 10 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 2.966
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 1.540	Curve number (CN)	= 88
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 3
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 5,228 (cuft); 0.120 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 10 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	0.0		15.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	5.00		2.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.39**	**+**	**0.00**	**=**	**0.39**
Shallow Concentrated Flow								
Flow length (ft)	=	0.00		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	168.8		475.0		0.0		
Travel Time (min)	**=**	**0.34646880.00**		**2.17142200.00**		**0**	**=**	**2.52**

Total Travel Time, Tc ..... 3.00 min

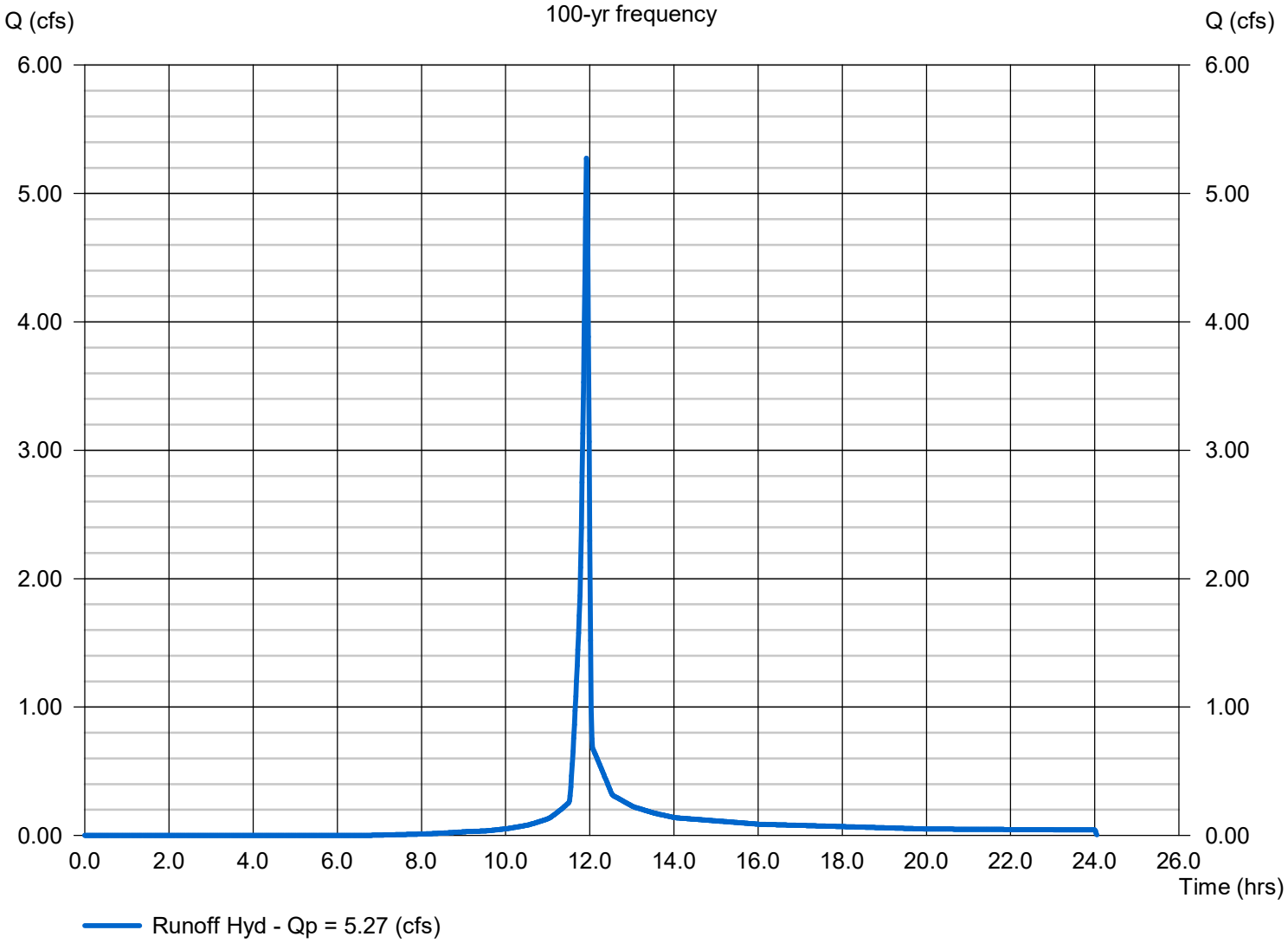
Hydrology Report

Basin 10 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 5.275
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 1.540	Curve number (CN)	= 88
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 3
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 9,529 (cuft); 0.219 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 10 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	0.0		15.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	5.00		2.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.39**	**+**	**0.00**	**=**	**0.39**
Shallow Concentrated Flow								
Flow length (ft)	=	0.00		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	168.8		475.0		0.0		
Travel Time (min)	**=**	**0.34646880.00**		**2.17142200.00**		**0**	**=**	**2.52**

Total Travel Time, Tc ..... 3.00 min

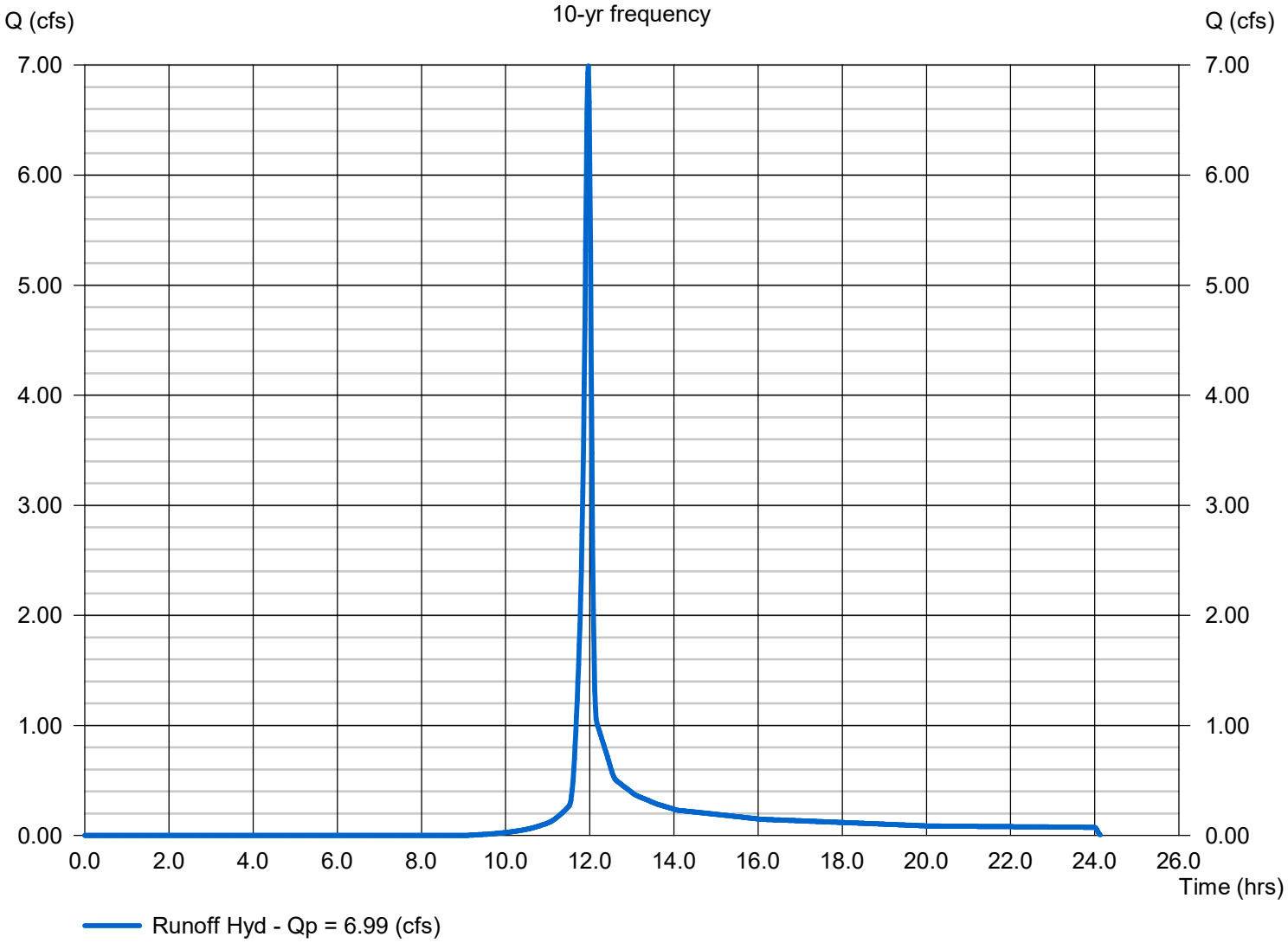
Hydrology Report

Basin 11 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 6.992
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 4.010	Curve number (CN)	= 87
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 6
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 14,066 (cuft); 0.323 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 11 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	45.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.62**	**+**	**0.00**	**+**	**0.00**	**=**	**3.62**
Shallow Concentrated Flow								
Flow length (ft)	=	0.00		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	300.0		427.0		0.0		
Travel Time (min)	**=**	**0.61583540.00**		**1.9519940.00**		**0**	**=**	**2.57**

Total Travel Time, Tc ..... 6.00 min

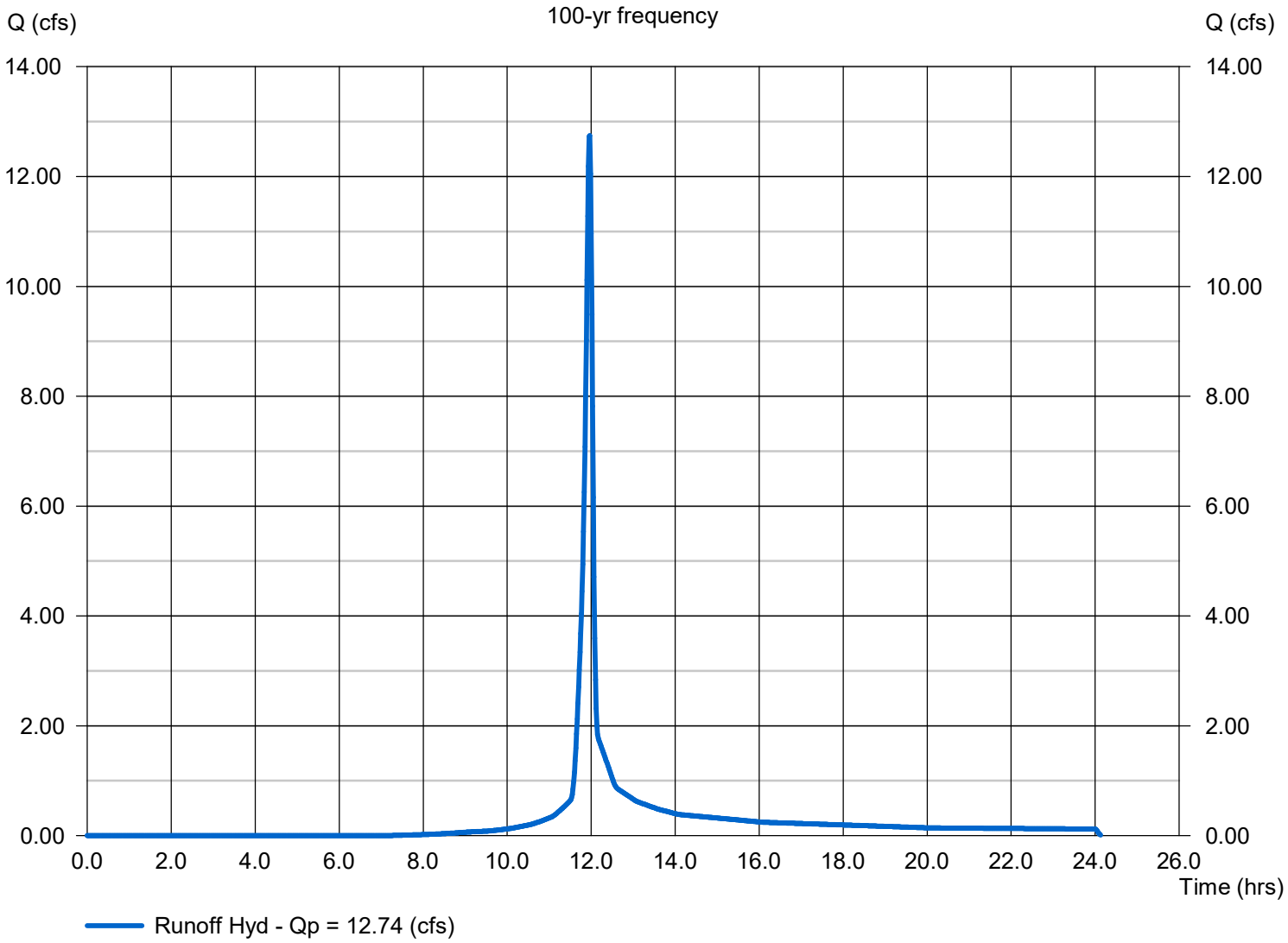
Hydrology Report

Basin 11 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 12.74
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 4.010	Curve number (CN)	= 87
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 6
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 26,106 (cuft); 0.599 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 11 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	45.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.62**	**+**	**0.00**	**+**	**0.00**	**=**	**3.62**
Shallow Concentrated Flow								
Flow length (ft)	=	0.00		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	300.0		427.0		0.0		
Travel Time (min)	**=**	**0.61583540.00**		**1.9519940.00**		**0**	**=**	**2.57**

Total Travel Time, Tc ..... 6.00 min

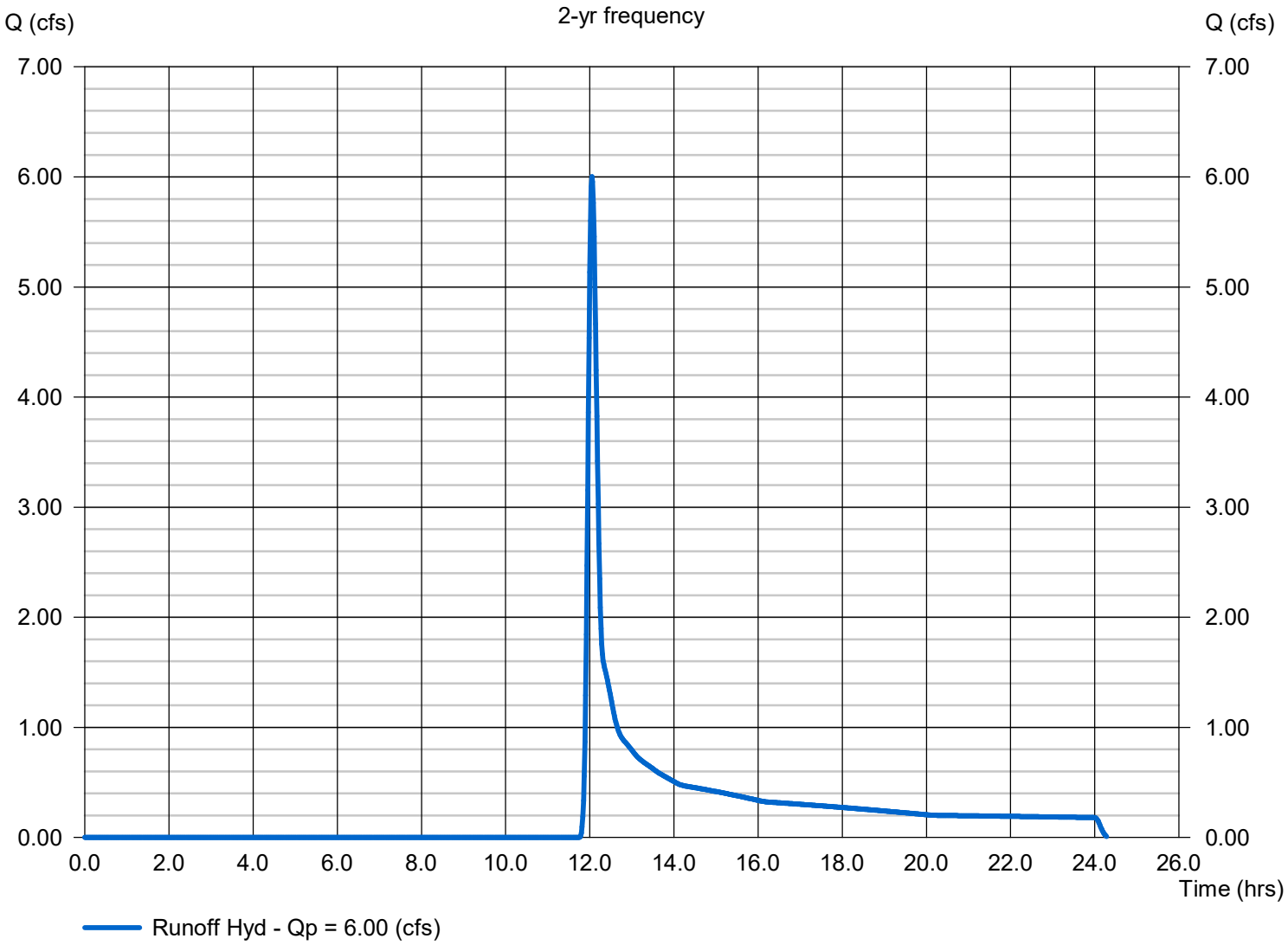
Hydrology Report

Basin 12 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 6.003
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 26.530	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 20,474 (cuft); 0.470 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 12 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	86.90		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.9		1567.8		0.0		
Travel Time (min)	**=**	**0.54788790.00**		**7.16706500.00**		**0**	**=**	**7.71**

Total Travel Time, Tc ..... 12.00 min

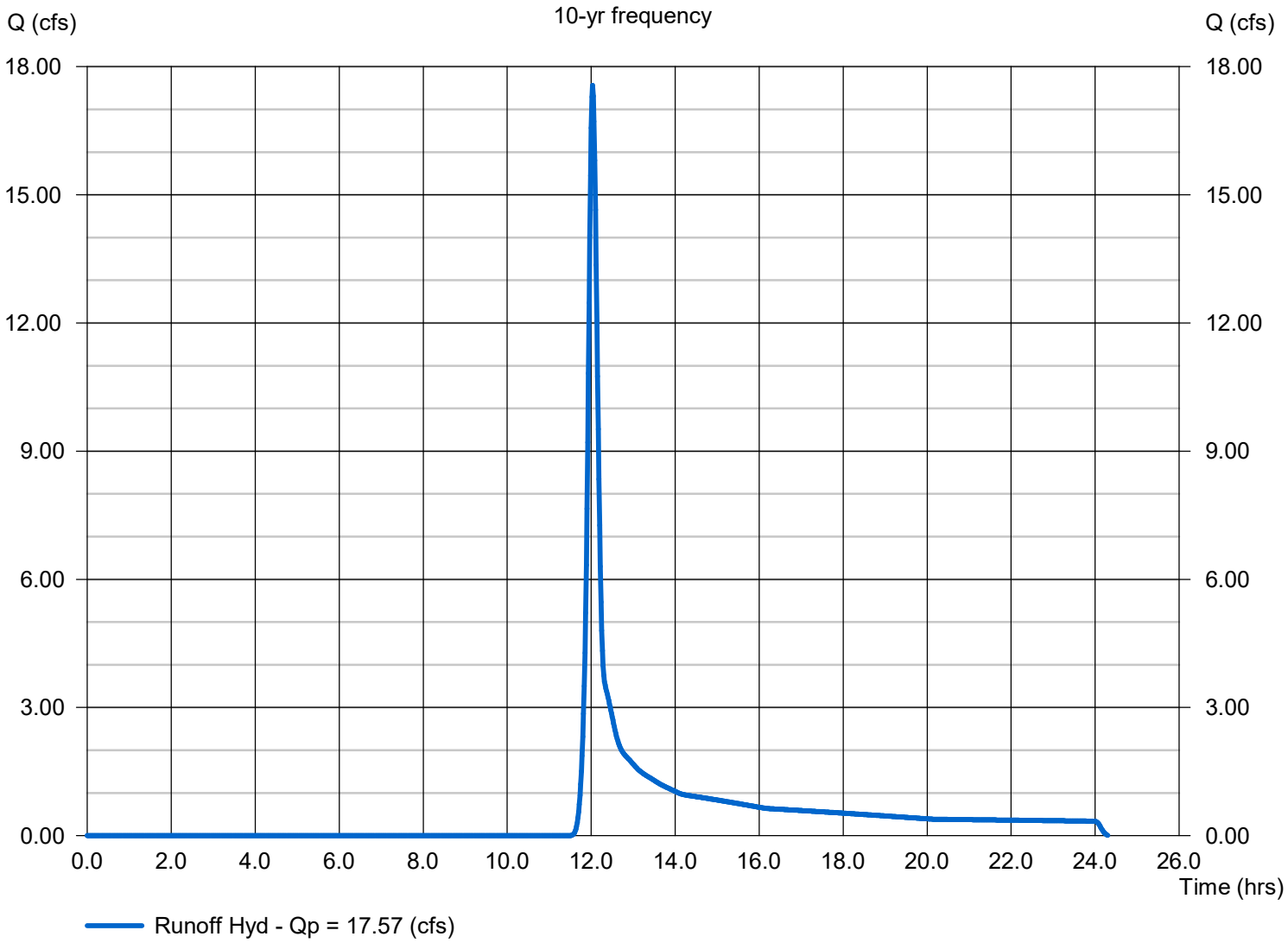
Hydrology Report

Basin 12 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 17.57
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 26.530	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 48,063 (cuft); 1.103 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 12 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	86.90		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.9		1567.8		0.0		
Travel Time (min)	**=**	**0.54788790.00**		**7.16706500.00**		**0**	**=**	**7.71**

Total Travel Time, Tc ..... 12.00 min

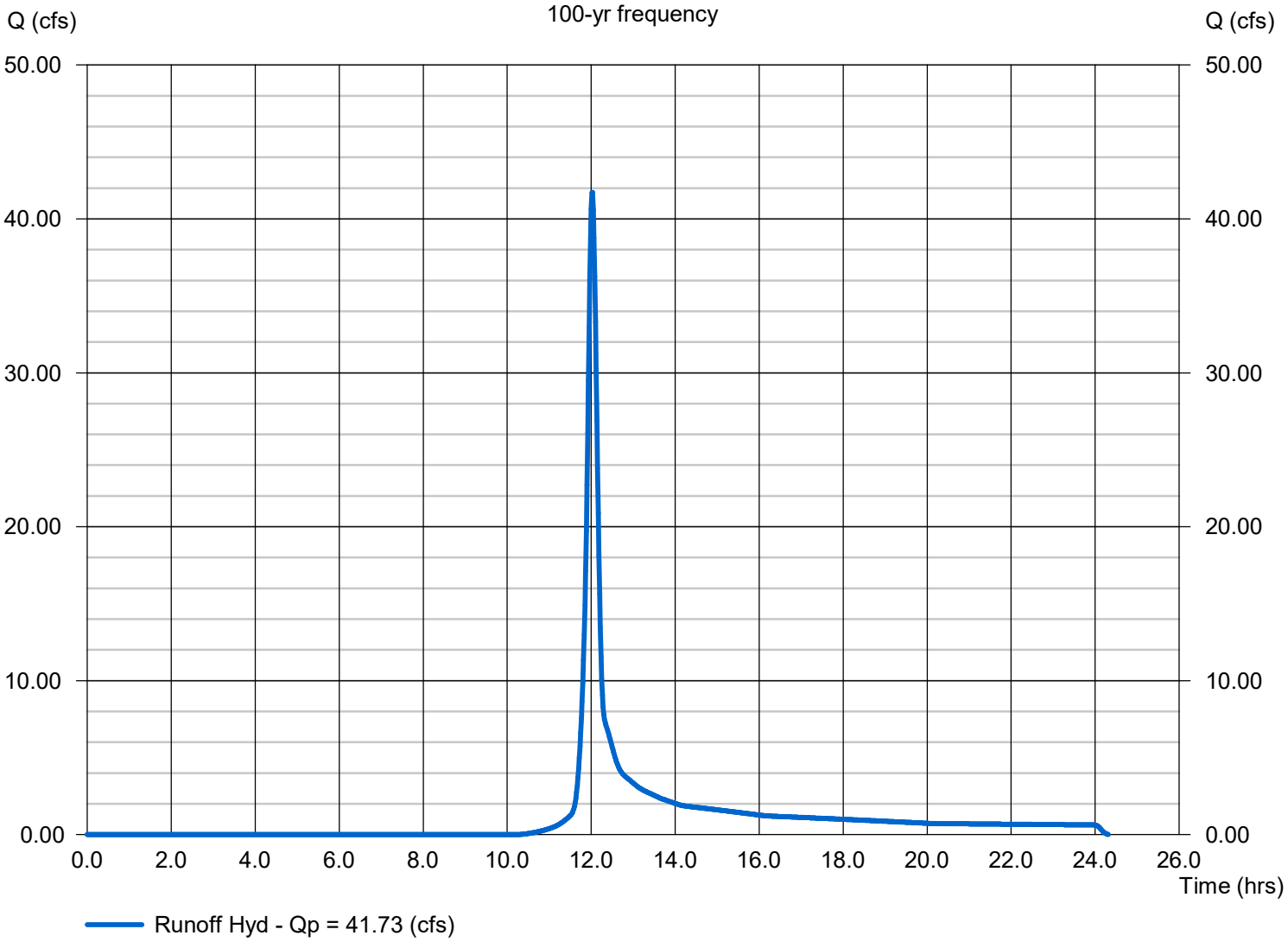
Hydrology Report

Basin 12 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 41.73
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 26.530	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 107,012 (cuft); 2.457 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 12 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	86.90		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.9		1567.8		0.0		
Travel Time (min)	**=**	**0.54788790.007.1670650.00 0**					**=**	**7.71**

Total Travel Time, Tc ..... 12.00 min

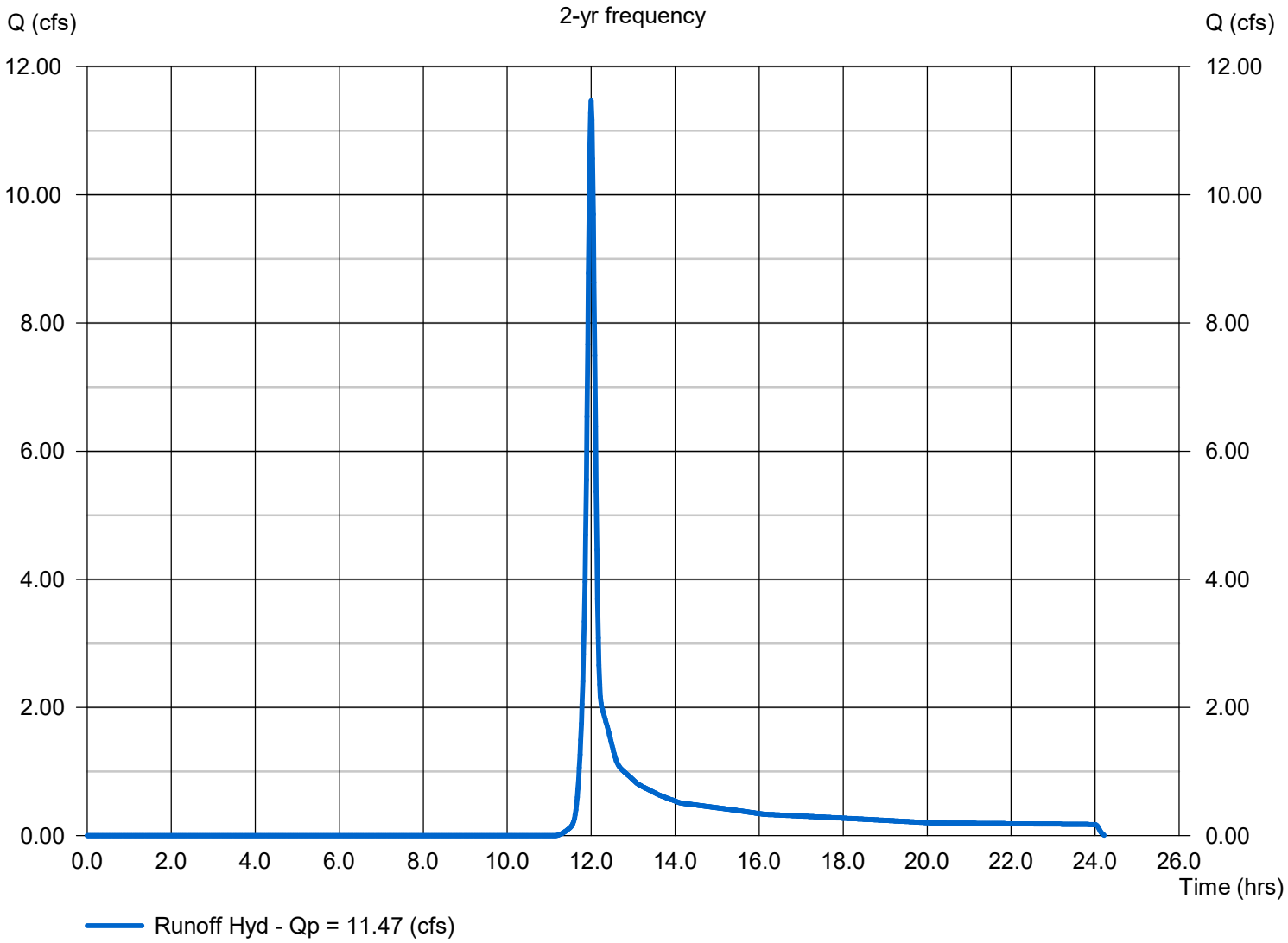
Hydrology Report

Basin 13 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 11.47
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 17.230	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 26,692 (cuft); 0.613 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	121.70		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.56**	**+**	**0.00**	**+**	**0.00**	**=**	**0.56**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.6		828.5		0.0		
Travel Time (min)	**=**	**0.54727240.00**		**3.7874170.00**		**0**	**=**	**4.33**

Total Travel Time, Tc ..... 9.00 min

Hydrology Report

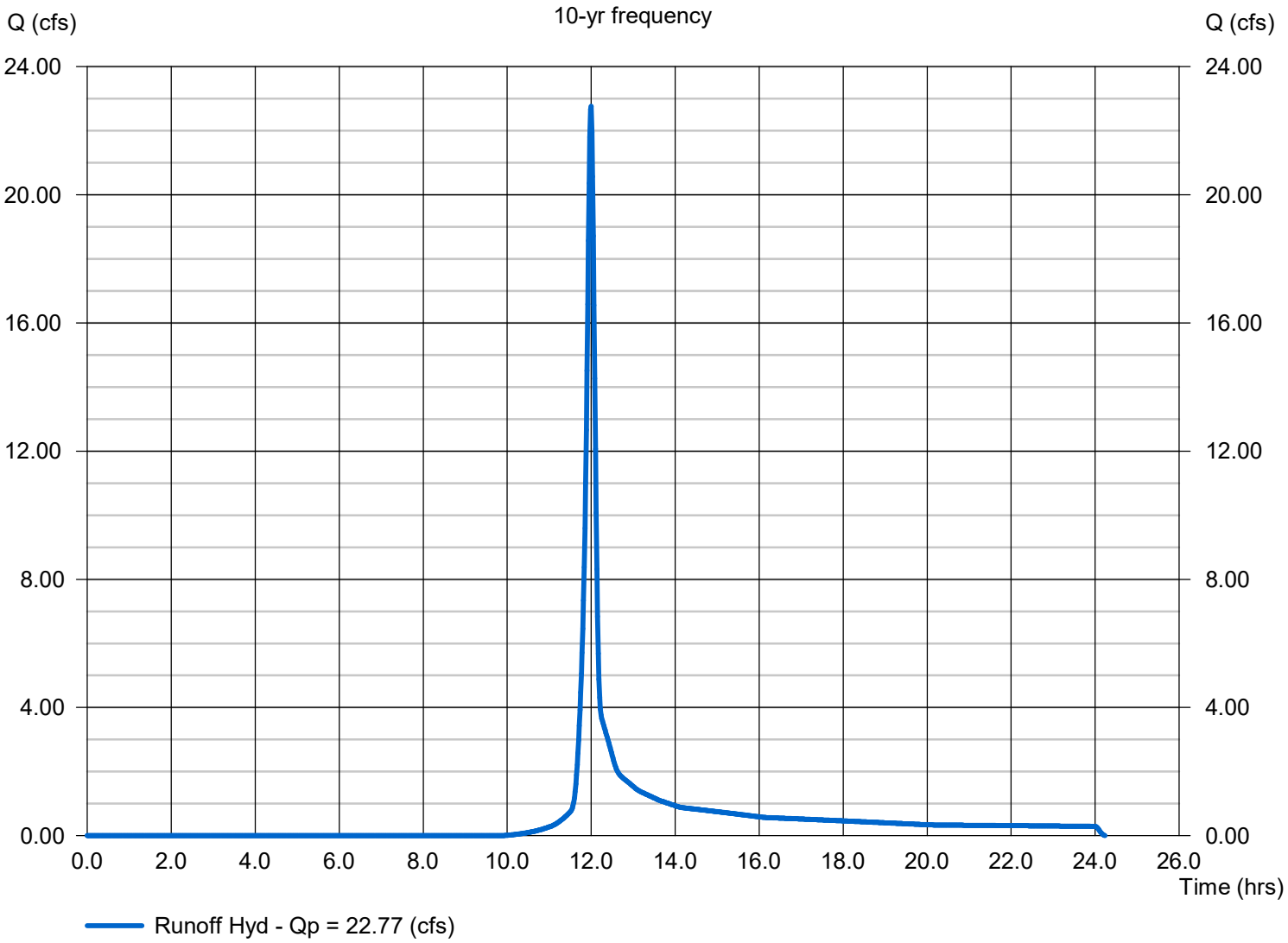
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 20 2024

Basin 13 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 22.77
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 17.230	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 51,572 (cuft); 1.184 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	121.70		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.56**	**+**	**0.00**	**+**	**0.00**	**=**	**0.56**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.6		828.5		0.0		
Travel Time (min)	**=**	**0.54727240.00**		**3.7874170.00**		**0**	**=**	**4.33**

Total Travel Time, Tc ..... 9.00 min

Hydrology Report

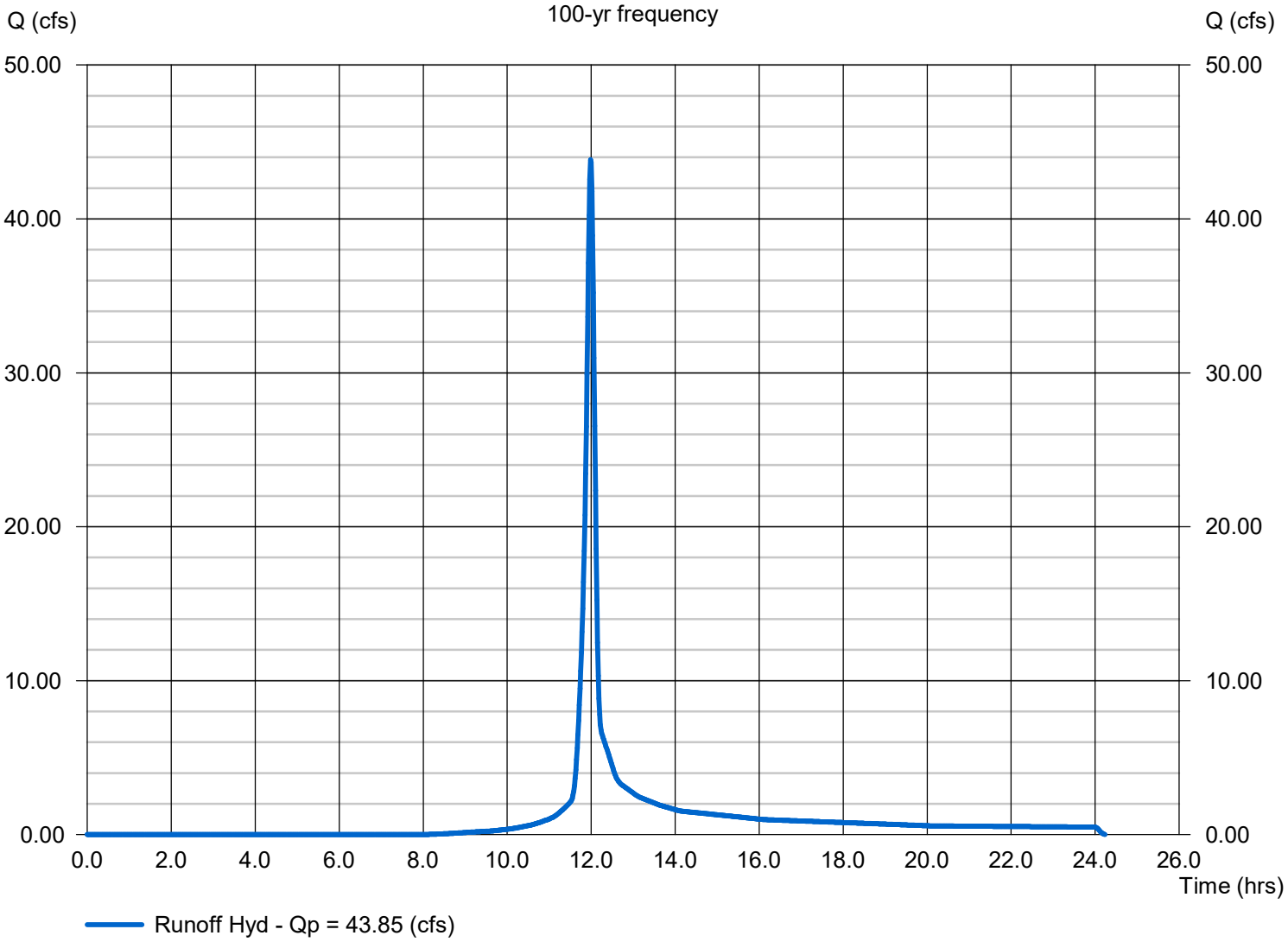
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 20 2024

Basin 13 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 43.85
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 17.230	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 99,336 (cuft); 2.280 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	121.70		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.56**	**+**	**0.00**	**+**	**0.00**	**=**	**0.56**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.6		828.5		0.0		
Travel Time (min)	**=**	**0.54727240.00**		**3.7874170.00**		**0**	**=**	**4.33**

Total Travel Time, Tc ..... 9.00 min

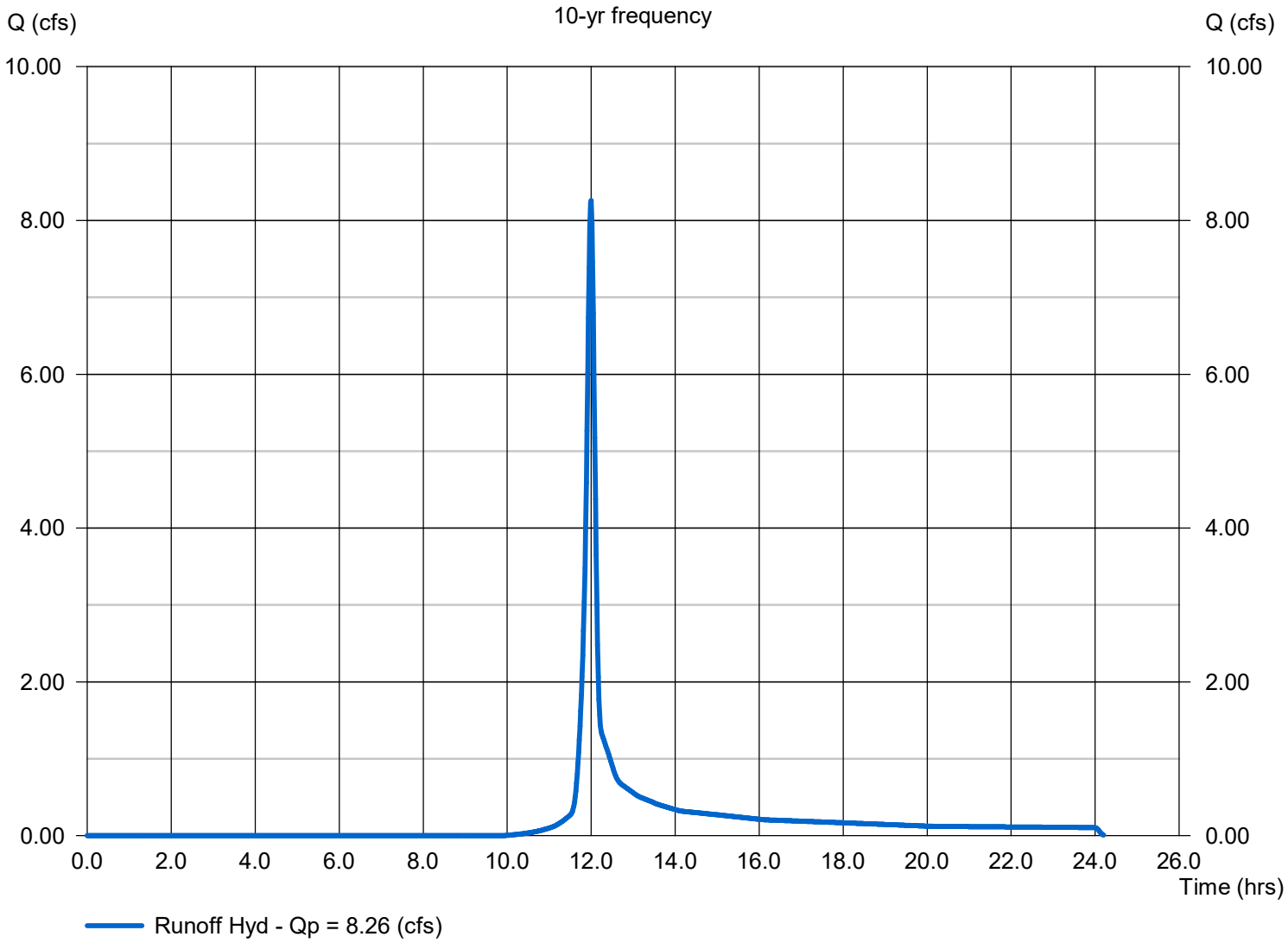
Hydrology Report

Basin 13 - Pond 13 East Discharge - 10yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 8.258
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 6.250	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 18,707 (cuft); 0.429 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - Pond 13 East Discharge - 10yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	121.70		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.56**	**+**	**0.00**	**+**	**0.00**	**=**	**0.56**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.6		828.5		0.0		
Travel Time (min)	**=**	**0.54727240.00**		**3.7874170.00**		**0**	**=**	**4.33**

Total Travel Time, Tc ..... 9.00 min

Hydrology Report

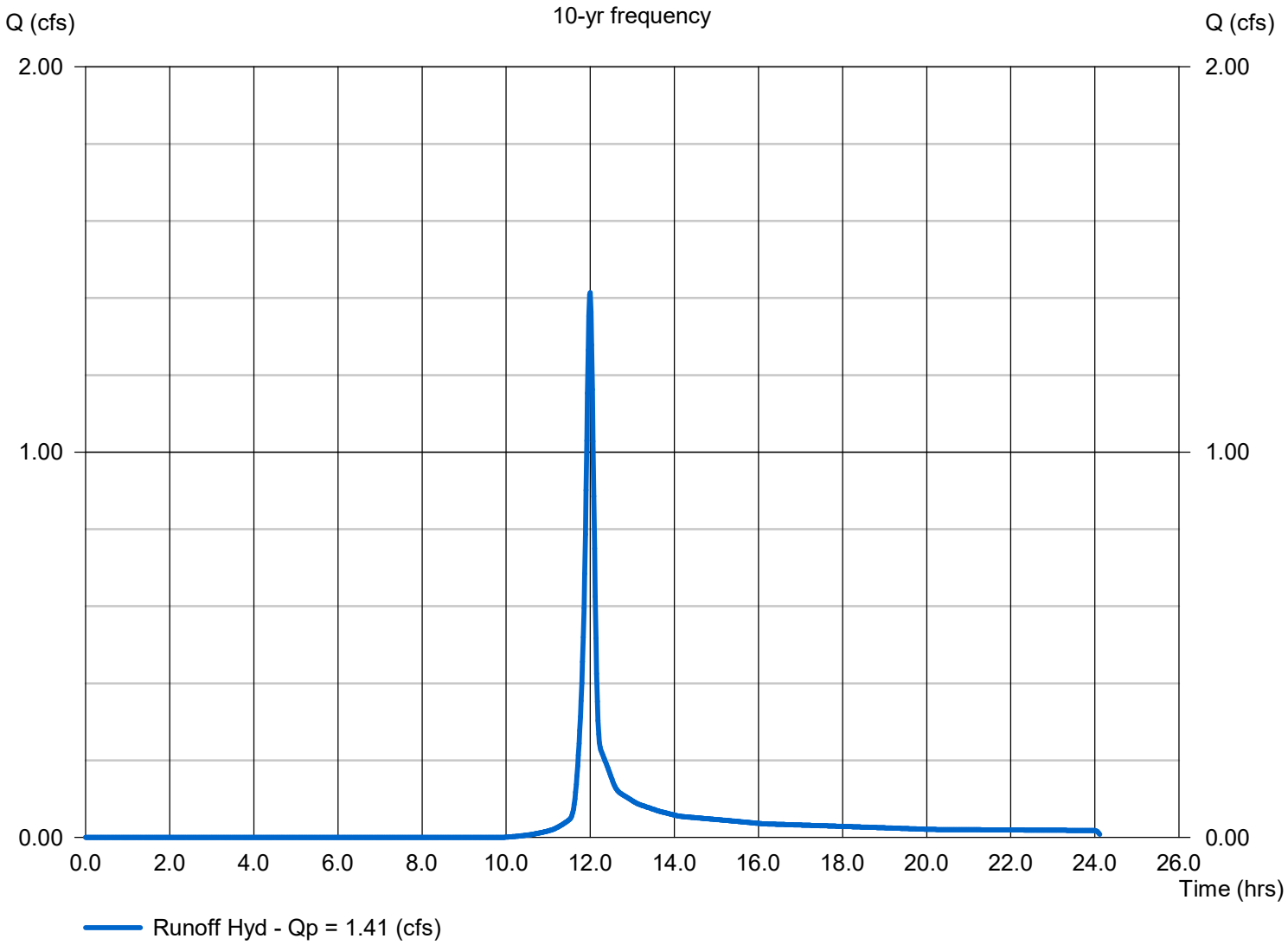
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 6 2024

Basin 13 - Pond 13 Middle Discharge

Hydrograph type	= SCS	Peak discharge (cfs)	= 1.414
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 1.070	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 3,203 (cuft); 0.074 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - Pond 13 Middle Discharge

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 50.0	0.0	0.0	
Two-year 24-hr precip. ((in))	= 1.47	1.46	0.00	
Land slope (%)	= 33.00	2.00	0.00	
Travel Time (min)	**= 3.94**	**+ 0.00**	**+ 0.00**	**= 3.94**
Shallow Concentrated Flow				
Flow length (ft)	= 121.70	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 0.56**	**+ 0.00**	**+ 0.00**	**= 0.56**
Channel Flow				
X sectional flow area ((sqft))	= 1.12	1.77	0.00	
Wetted perimeter ((ft))	= 5.03	4.71	0.00	
Channel slope (%)	= 5.00	0.50	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 8.12	3.65	0.00	
Flow length (ft)	= 266.6	828.5	0.0	
Travel Time (min)	**= 0.54727240.00**	**3.7874170.00**	**0**	**= 4.33**

Total Travel Time, Tc ..... 9.00 min

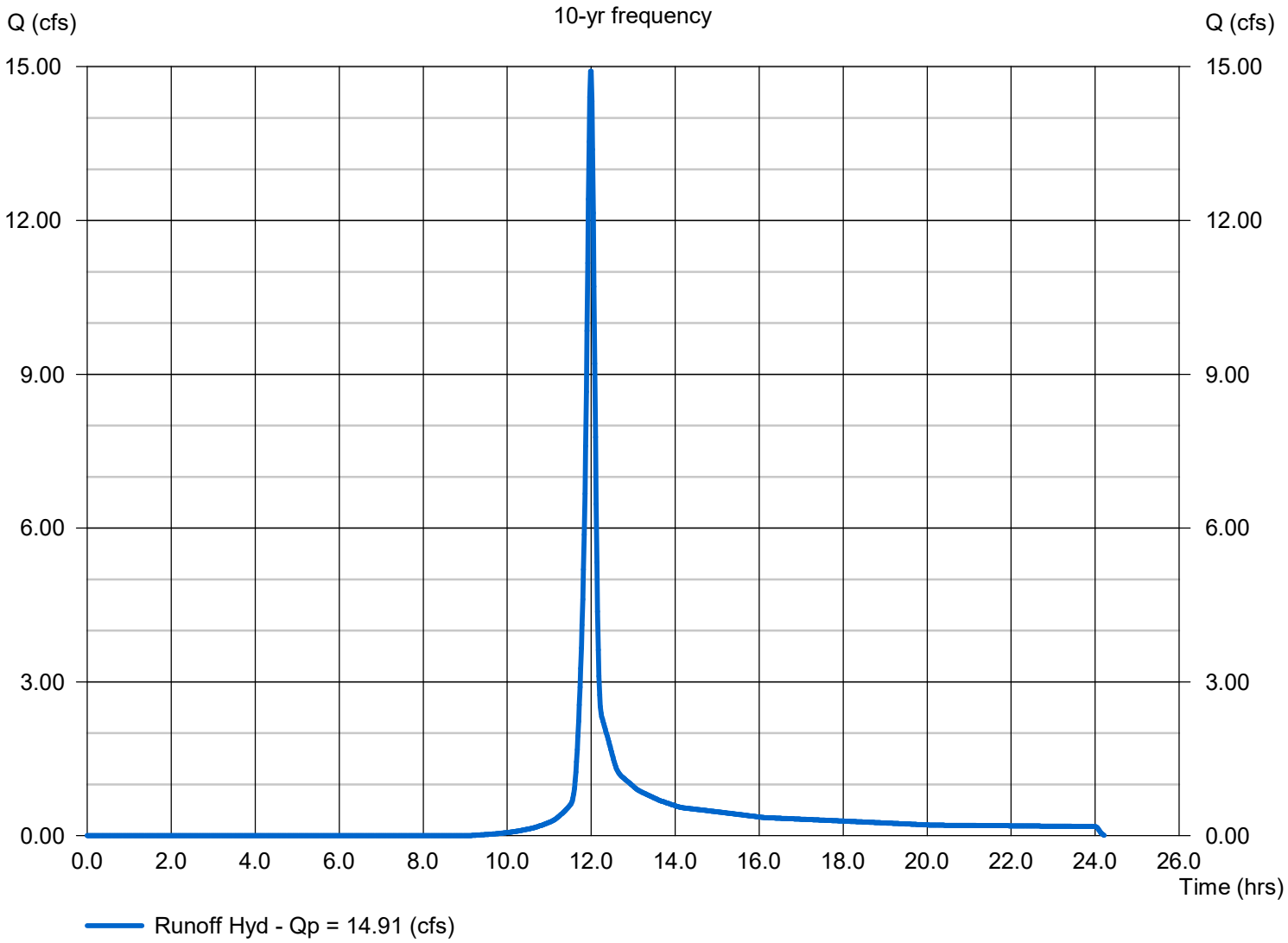
Hydrology Report

Basin 13 - Pond 13 West Discharge 10yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 14.91
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 9.920	Curve number (CN)	= 87
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 33,741 (cuft); 0.775 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - Pond 13 West Discharge 10yr

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	= 1.47		1.46		0.00		
Land slope (%)	= 33.00		2.00		0.00		
Travel Time (min)	**= 3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow							
Flow length (ft)	= 121.70		0.00		0.00		
Watercourse slope (%)	= 5.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 3.61		0.00		0.00		
Travel Time (min)	**= 0.56**	**+**	**0.00**	**+**	**0.00**	**=**	**0.56**
Channel Flow							
X sectional flow area ((sqft))	= 1.12		1.77		0.00		
Wetted perimeter ((ft))	= 5.03		4.71		0.00		
Channel slope (%)	= 5.00		0.50		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 8.12		3.65		0.00		
Flow length (ft)	= 266.6		828.5		0.0		
Travel Time (min)	**= 0.54727240.00**		**3.7874170.00**		**0**	**=**	**4.33**

Total Travel Time, Tc ..... 9.00 min

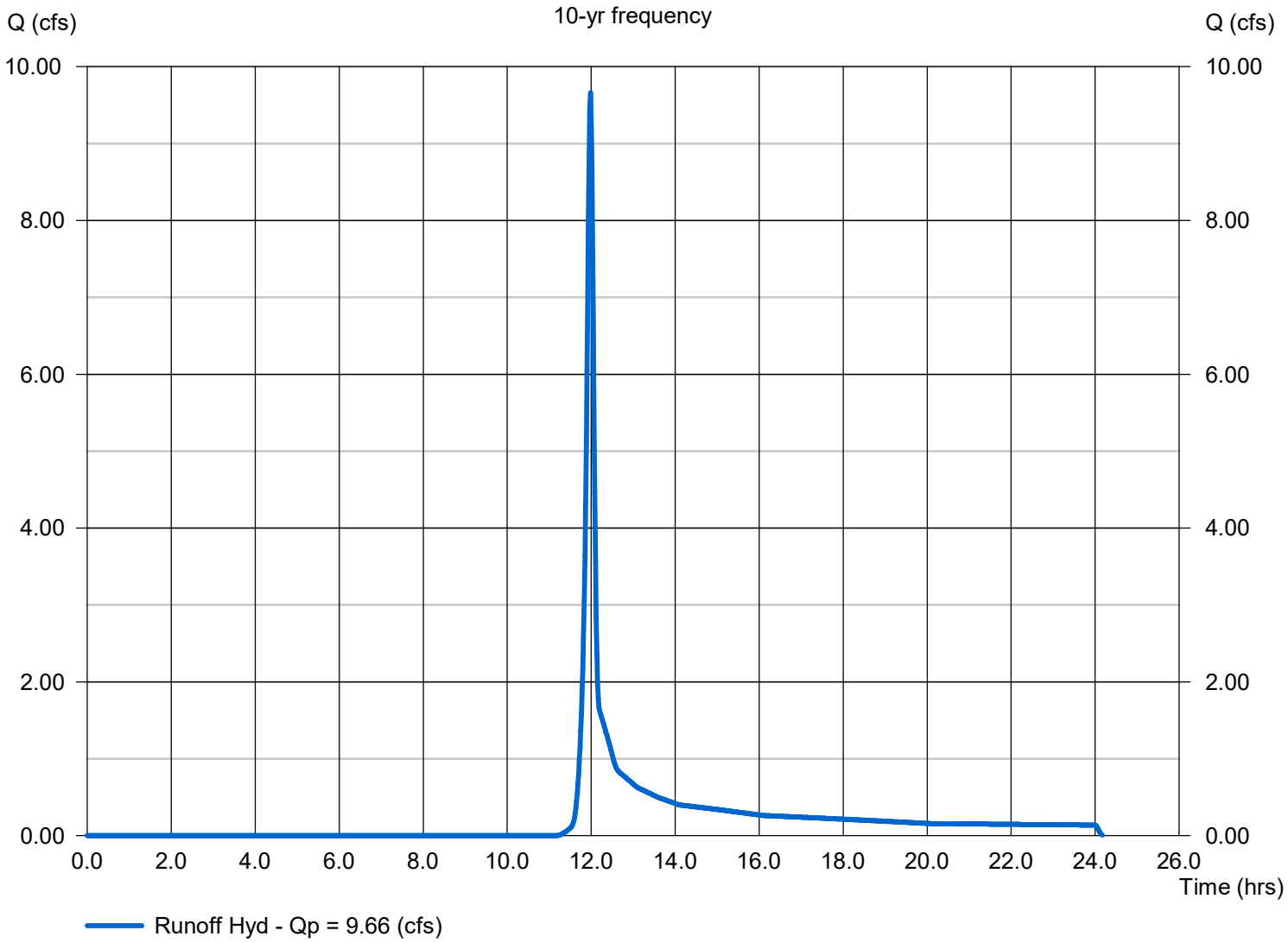
Hydrology Report

Basin 14/15 - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 9.660
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 10.030	Curve number (CN)	= 80
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 8
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 20,839 (cuft); 0.478 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 14/15 - 10 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	33.70		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.16**	**+**	**0.00**	**+**	**0.00**	**=**	**0.16**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	50.0		799.1		0.0		
Travel Time (min)	**=**	**0.10**	**+**	**3.65**	**+**	**0.00**	**=**	**3.76**

Total Travel Time, Tc ..... 8.00 min

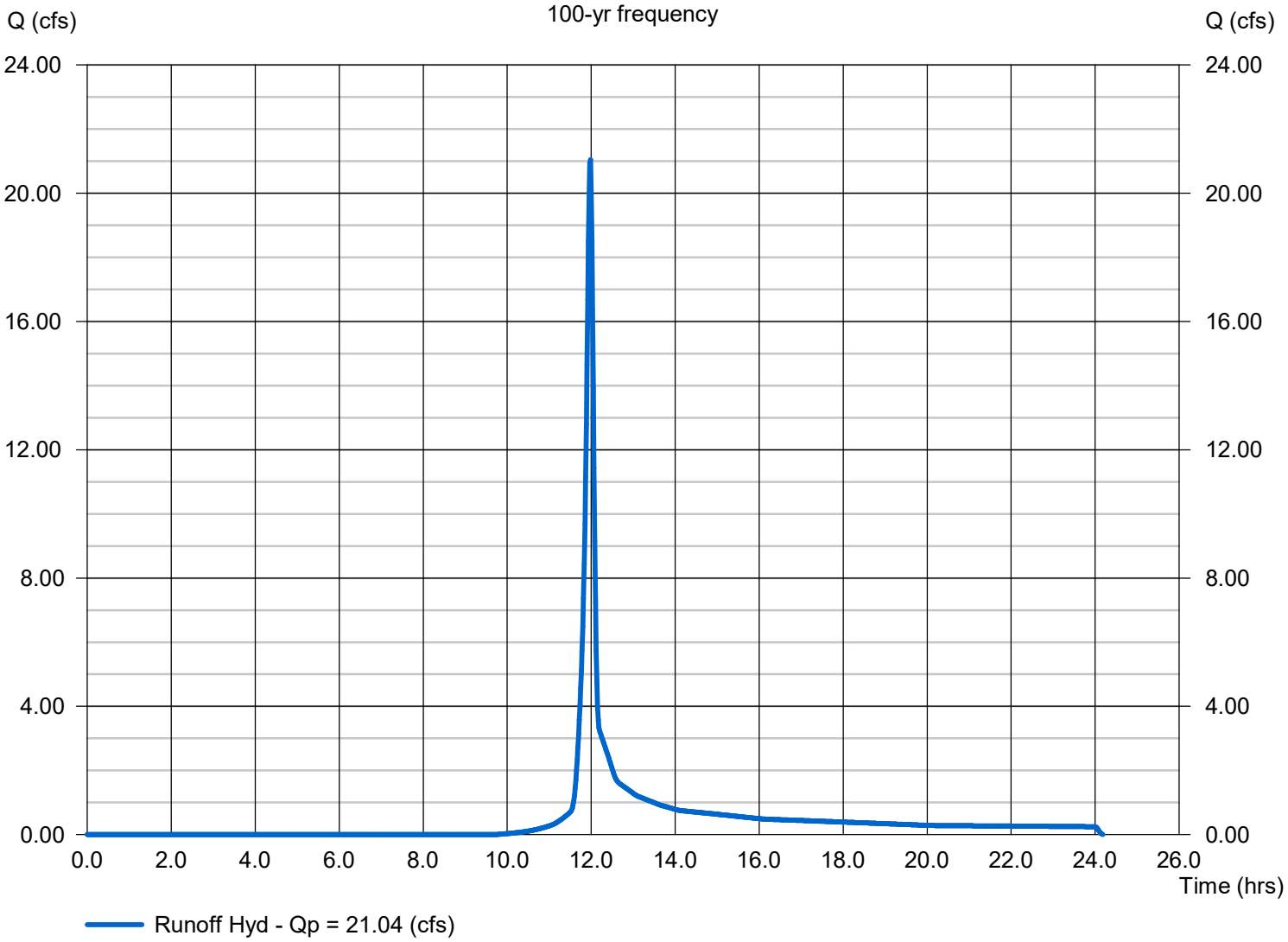
Hydrology Report

Basin 14/15 - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 21.04
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 10.030	Curve number (CN)	= 80
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 8
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 44,373 (cuft); 1.019 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 14/15 - 100 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	33.70		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.16**	**+**	**0.00**	**+**	**0.00**	**=**	**0.16**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	50.0		799.1		0.0		
Travel Time (min)	**=**	**0.10263920.00**		**3.6530180.00**		**0**	**=**	**3.76**

Total Travel Time, Tc ..... 8.00 min

Hydrology Report

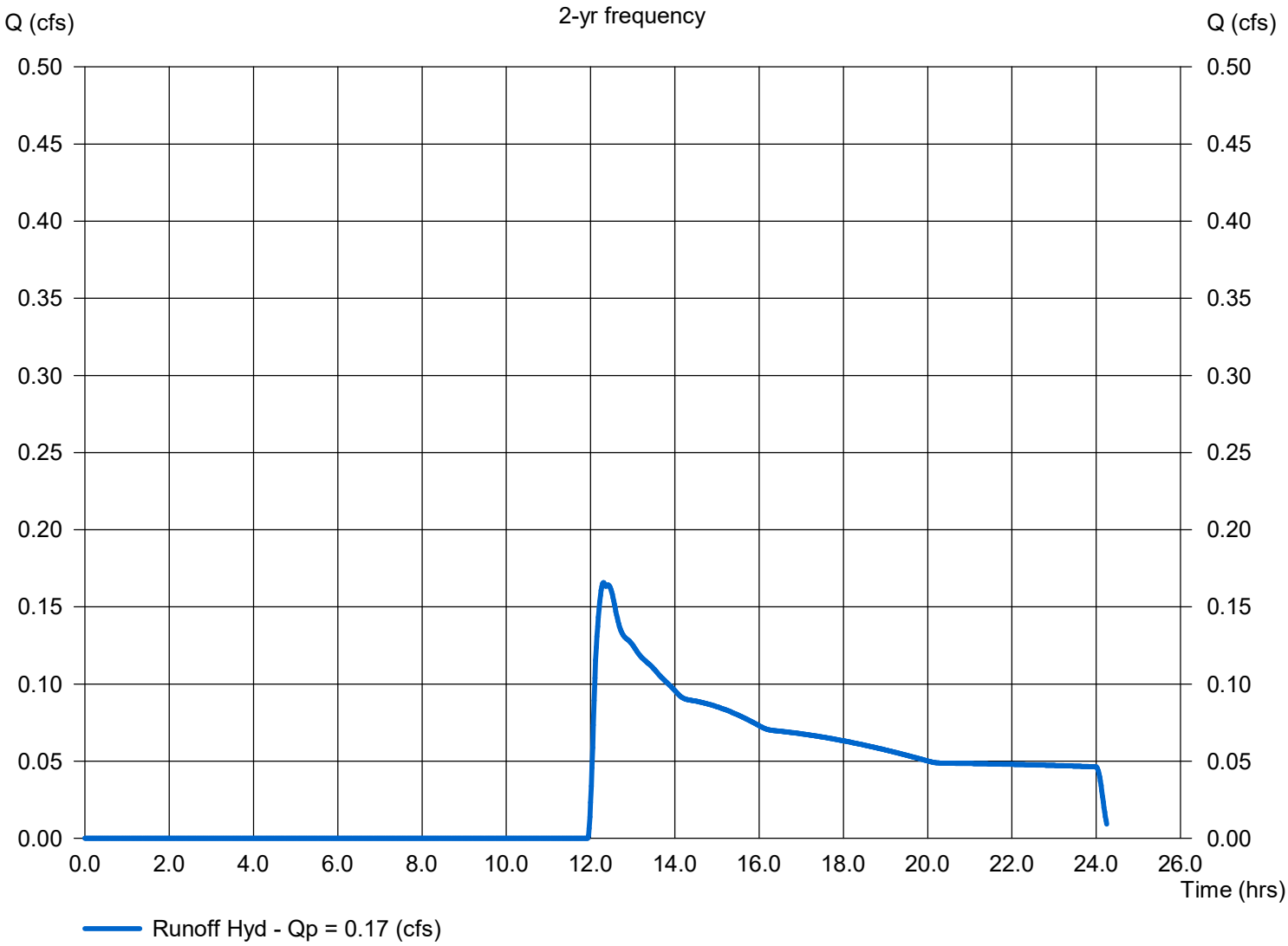
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Apr 26 2024

Commercial North Undeveloped - 2yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 0.166
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 13.290	Curve number (CN)	= 69
Basin Slope (%)	= n/a	Hydraulic length (ft)	= n/a
Tc method	= User	Time of conc. (min)	= 15
Total precip. (in)	= 1.47	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 3,110 (cuft); 0.071 (acft)

Runoff Hydrograph



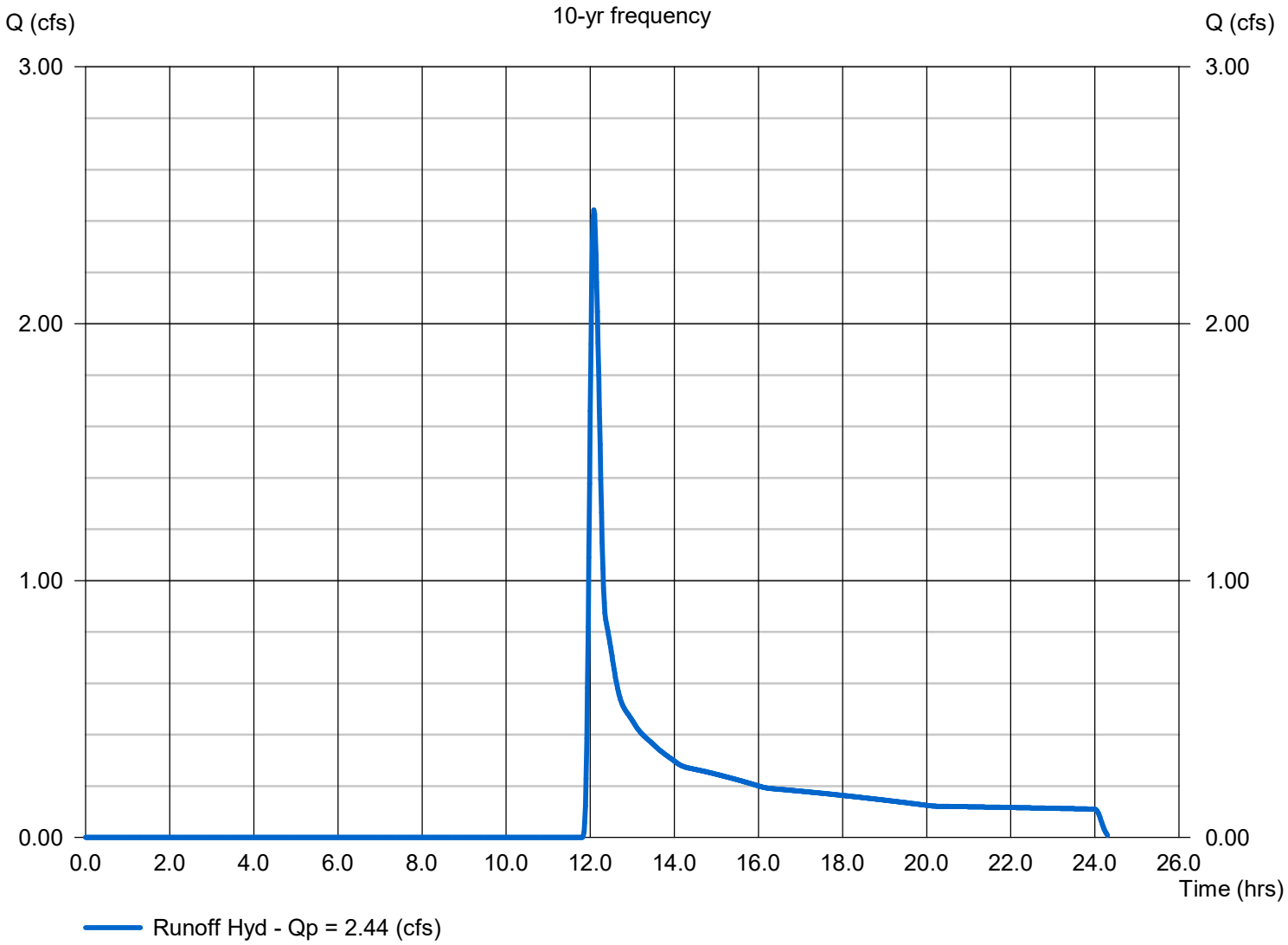
Hydrology Report

Commercial North Undeveloped - 10 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 2.443
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 13.290	Curve number (CN)	= 69
Basin Slope (%)	= n/a	Hydraulic length (ft)	= n/a
Tc method	= User	Time of conc. (min)	= 15
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 11,153 (cuft); 0.256 (acft)

Runoff Hydrograph



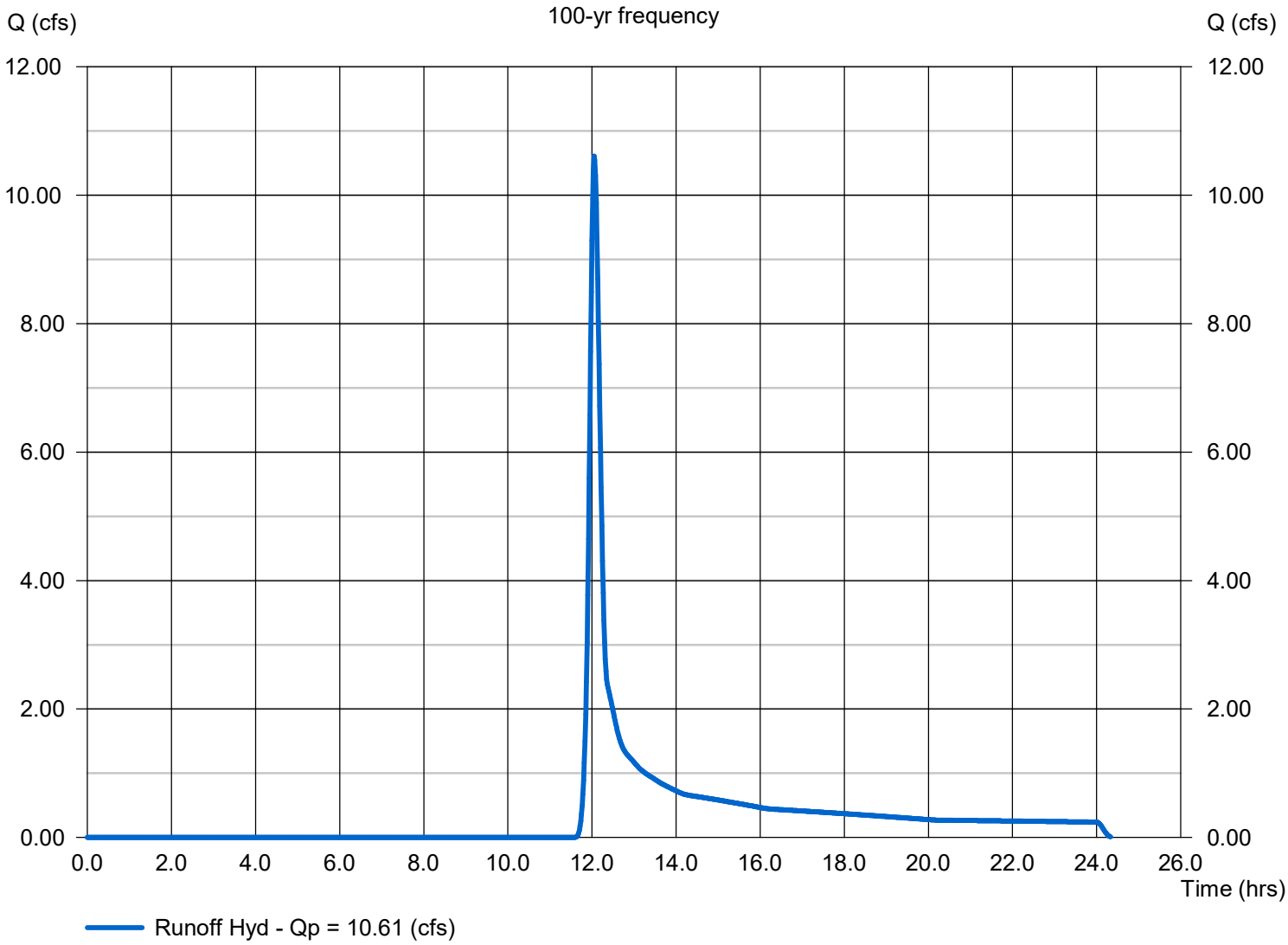
Hydrology Report

Commercial North Undeveloped - 100 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 10.61
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 13.290	Curve number (CN)	= 69
Basin Slope (%)	= n/a	Hydraulic length (ft)	= n/a
Tc method	= User	Time of conc. (min)	= 15
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 32,308 (cuft); 0.742 (acft)

Runoff Hydrograph



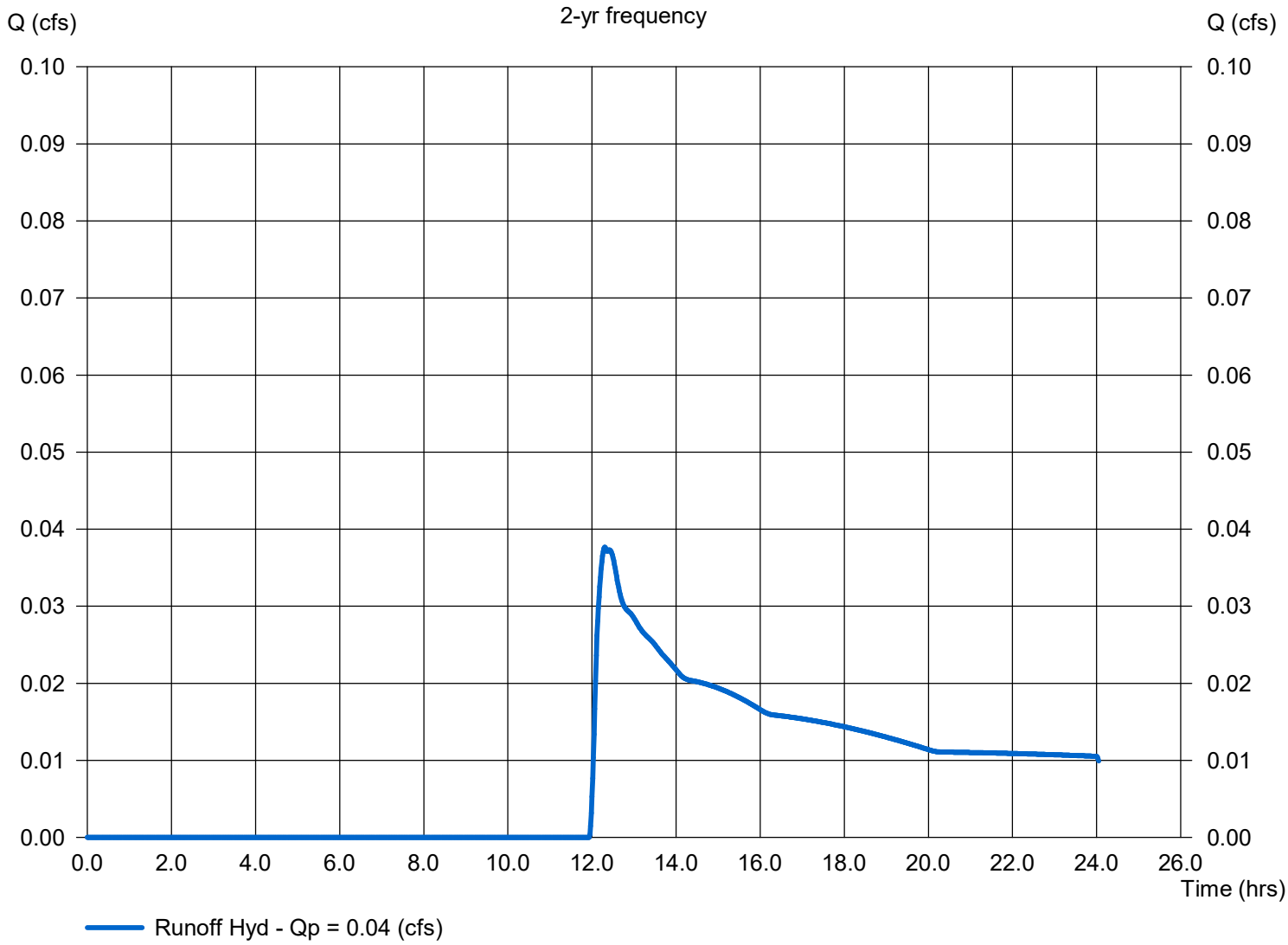
Hydrology Report

Highlands -South Commercial Undeveloped - 2 year

Hydrograph type	= SCS	Peak discharge (cfs)	= 0.038
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 3.020	Curve number (CN)	= 69
Basin Slope (%)	= n/a	Hydraulic length (ft)	= n/a
Tc method	= User	Time of conc. (min)	= 15
Total precip. (in)	= 1.47	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 707 (cuft); 0.016 (acft)

Runoff Hydrograph



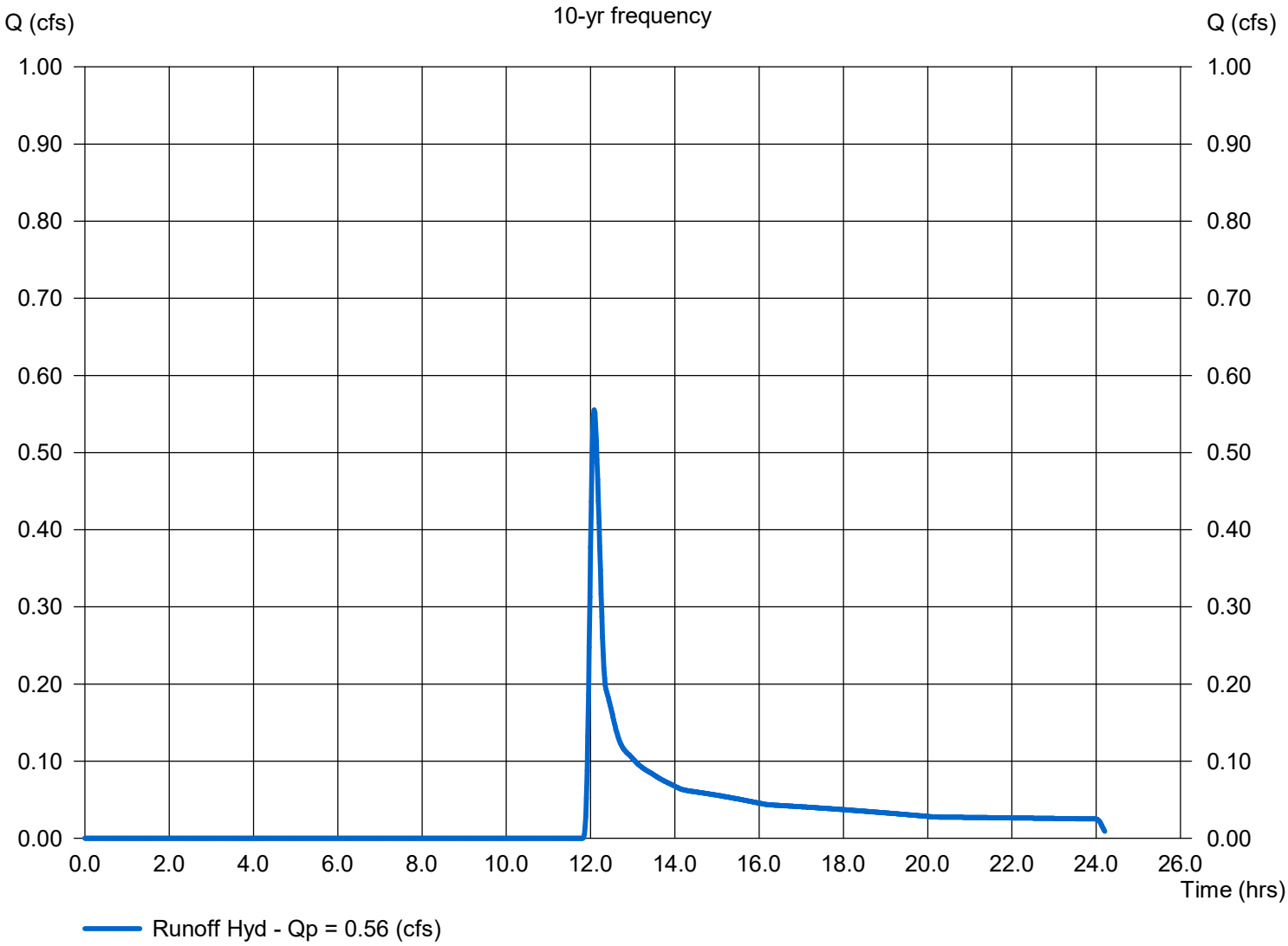
Hydrology Report

Highlands -South Commercial Undeveloped - 10 year

Hydrograph type	= SCS	Peak discharge (cfs)	= 0.555
Storm frequency (yrs)	= 10	Time interval (min)	= 1
Drainage area (ac)	= 3.020	Curve number (CN)	= 69
Basin Slope (%)	= n/a	Hydraulic length (ft)	= n/a
Tc method	= User	Time of conc. (min)	= 15
Total precip. (in)	= 2.04	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 2,534 (cuft); 0.058 (acft)

Runoff Hydrograph



Hydrology Report

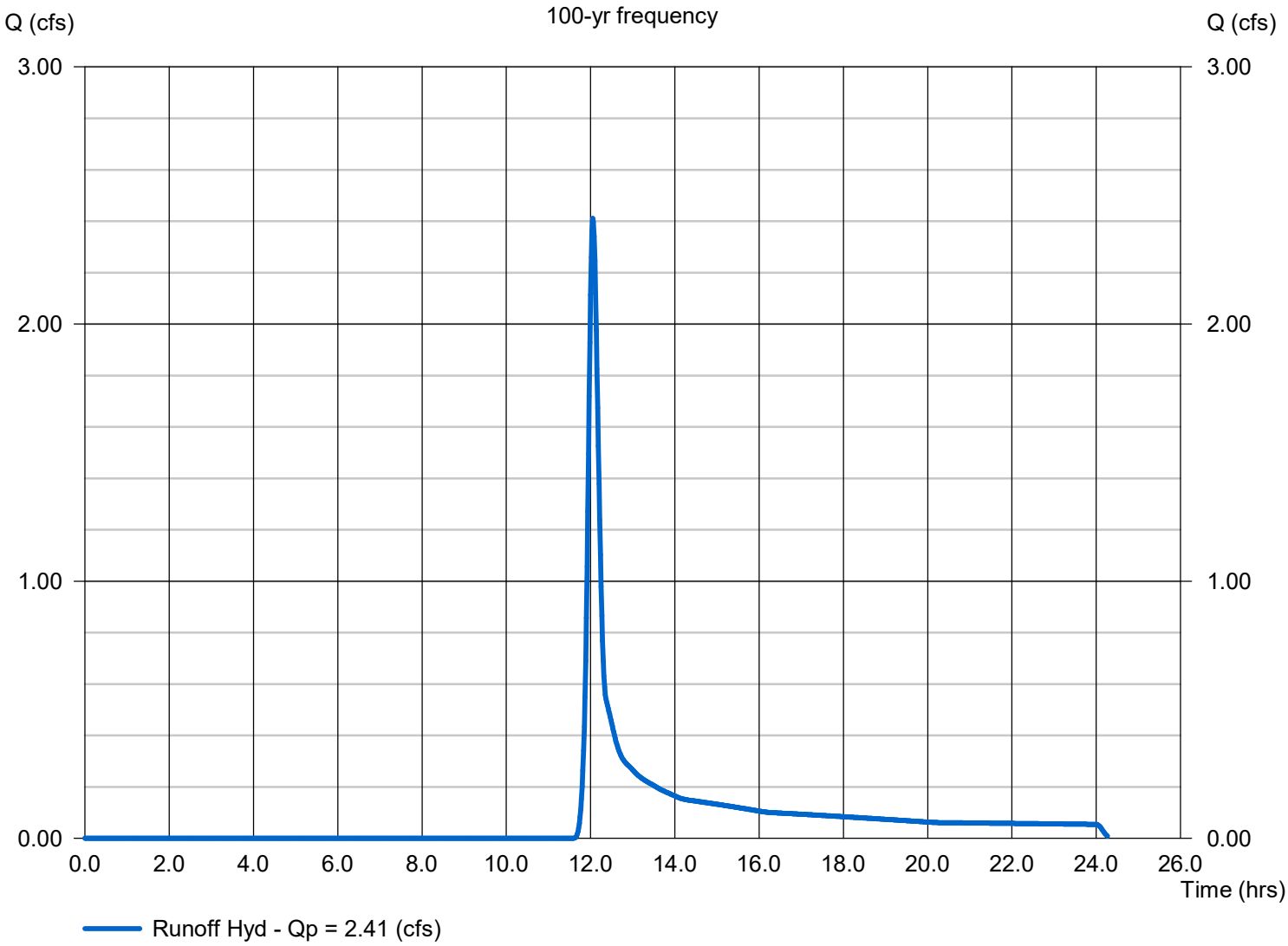
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Apr 26 2024

Highlands -South Commercial Undeveloped - 100 year

Hydrograph type	= SCS	Peak discharge (cfs)	= 2.411
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 3.020	Curve number (CN)	= 69
Basin Slope (%)	= n/a	Hydraulic length (ft)	= n/a
Tc method	= User	Time of conc. (min)	= 15
Total precip. (in)	= 3.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 7,342 (cuft); 0.169 (acft)

Runoff Hydrograph



Channel Report

Basin 4 - Commons from Collector 2 to Pond 4

Circular

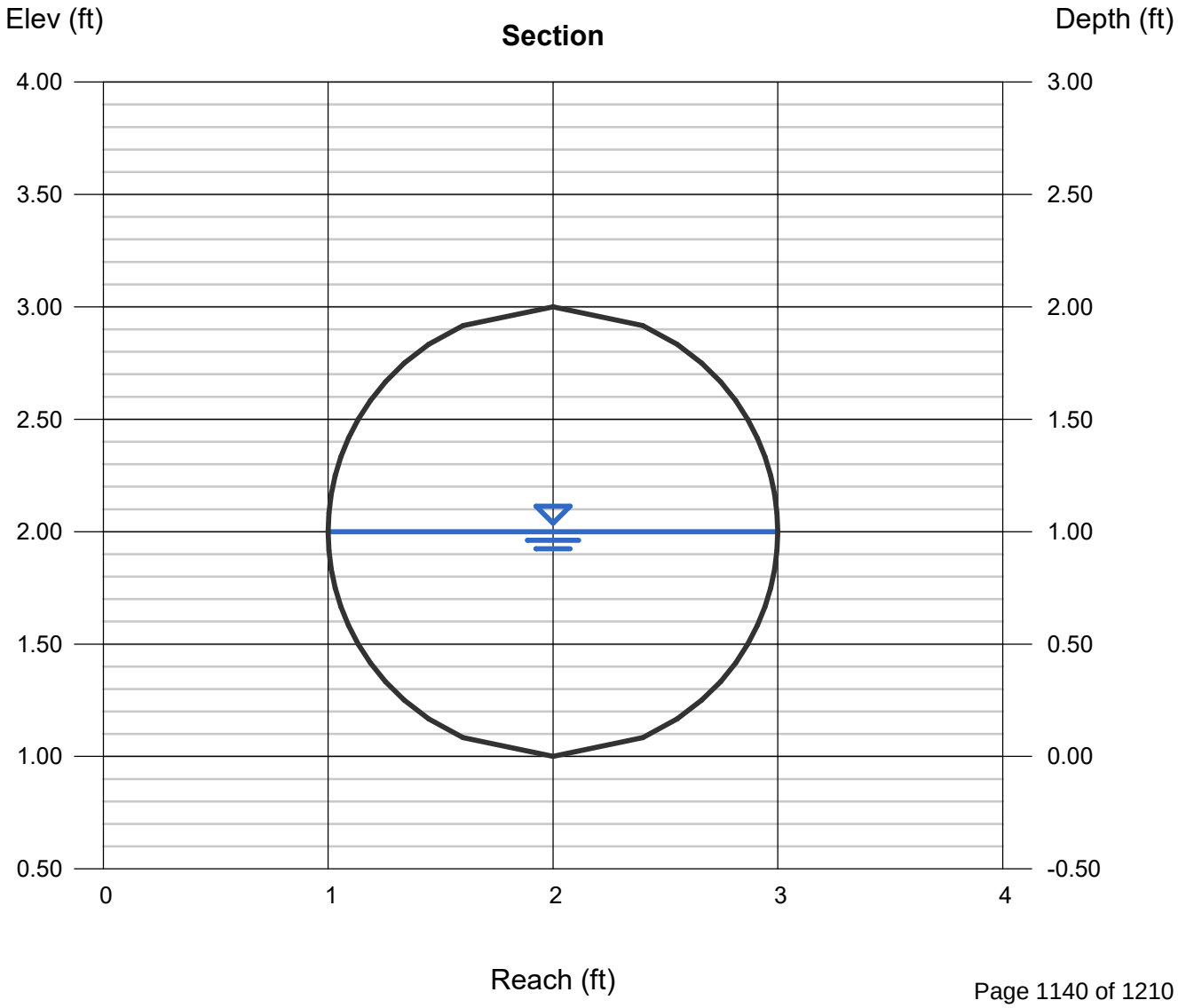
Diameter (ft)	= 2.00
Invert Elev (ft)	= 1.00
Slope (%)	= 1.42
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 13.52

Highlighted

Depth (ft)	= 1.00
Q (cfs)	= 13.52
Area (sqft)	= 1.58
Velocity (ft/s)	= 8.56
Wetted Perim (ft)	= 3.15
Crit Depth, Yc (ft)	= 1.33
Top Width (ft)	= 2.00
EGL (ft)	= 2.14



Channel Report

Basin 4 - Commons Upstream from Collector 2

Circular

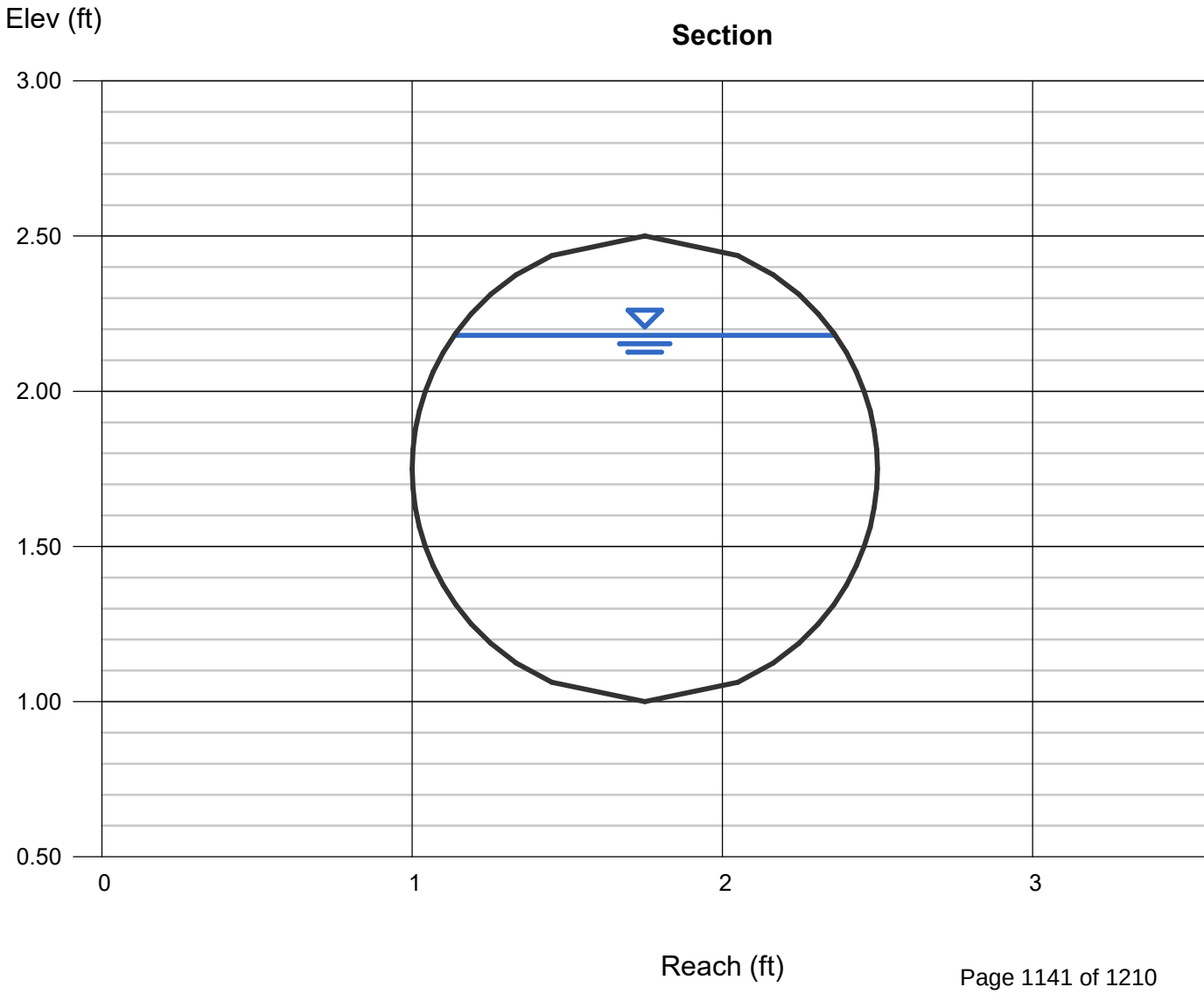
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 1.42
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 12.01

Highlighted

Depth (ft)	= 1.18
Q (cfs)	= 12.01
Area (sqft)	= 1.49
Velocity (ft/s)	= 8.04
Wetted Perim (ft)	= 3.28
Crit Depth, Yc (ft)	= 1.32
Top Width (ft)	= 1.23
EGL (ft)	= 2.18



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 6 2024

Basin 4 - Road 1 to Pond 4

Circular

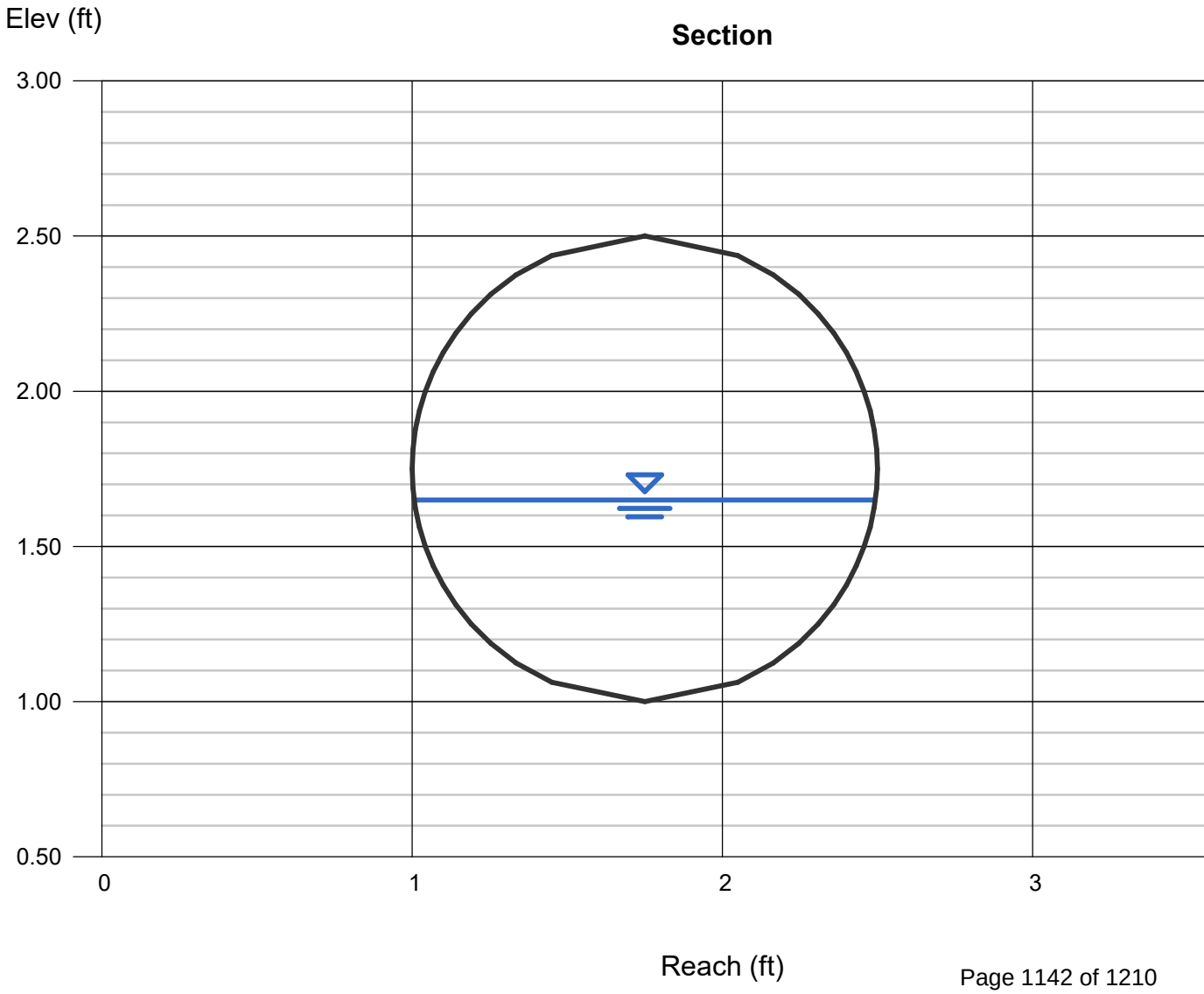
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 1.42
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 4.78

Highlighted

Depth (ft)	= 0.65
Q (cfs)	= 4.780
Area (sqft)	= 0.74
Velocity (ft/s)	= 6.48
Wetted Perim (ft)	= 2.16
Crit Depth, Yc (ft)	= 0.84
Top Width (ft)	= 1.49
EGL (ft)	= 1.30



Channel Report

Basin 6 - Drive 6 to Pond 6

Circular

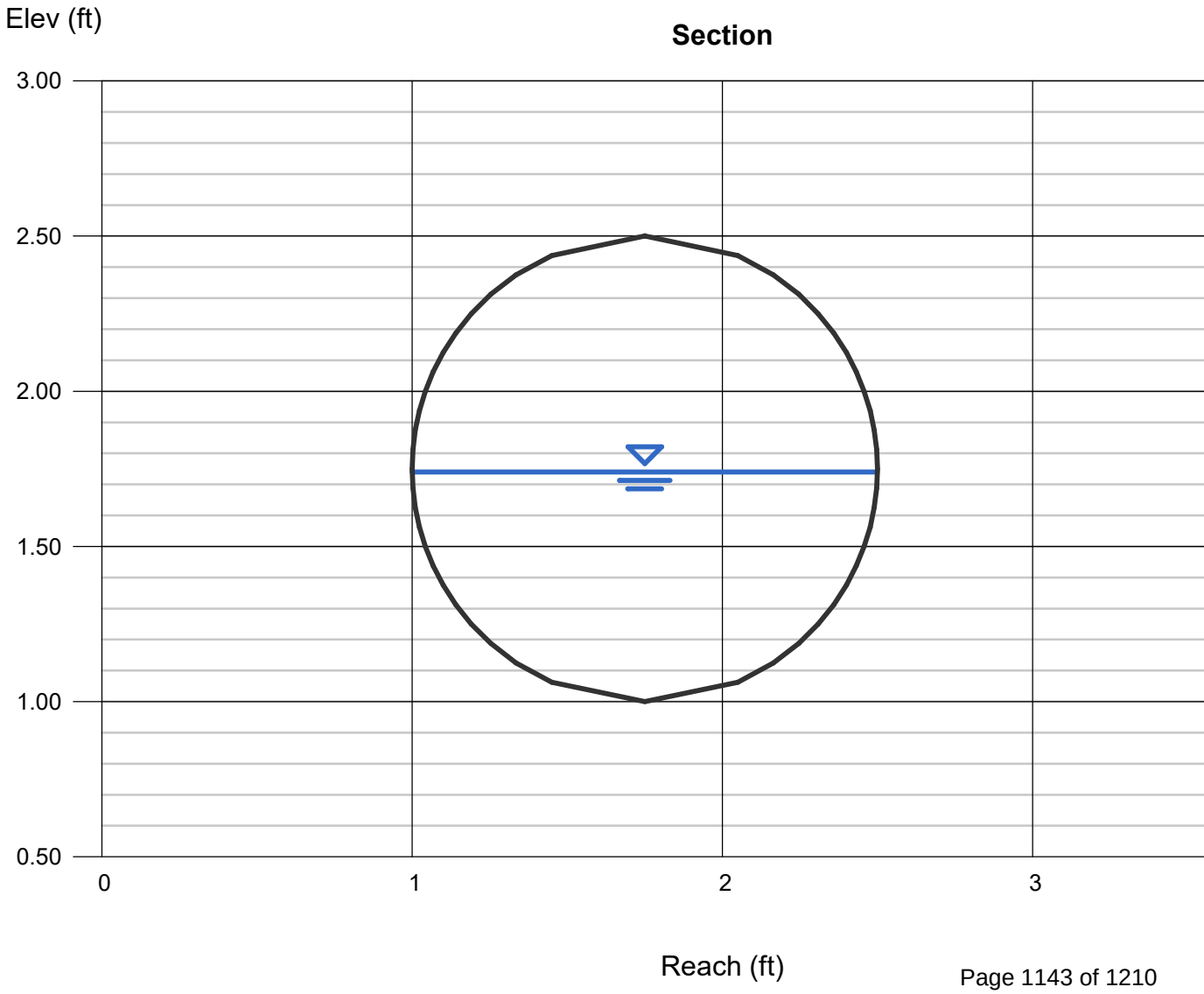
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 3.62

Highlighted

Depth (ft)	= 0.74
Q (cfs)	= 3.620
Area (sqft)	= 0.87
Velocity (ft/s)	= 4.15
Wetted Perim (ft)	= 2.34
Crit Depth, Yc (ft)	= 0.73
Top Width (ft)	= 1.50
EGL (ft)	= 1.01



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 6 2024

Basin 6 - Pond 4 to Pond 6 Interconnection

Circular

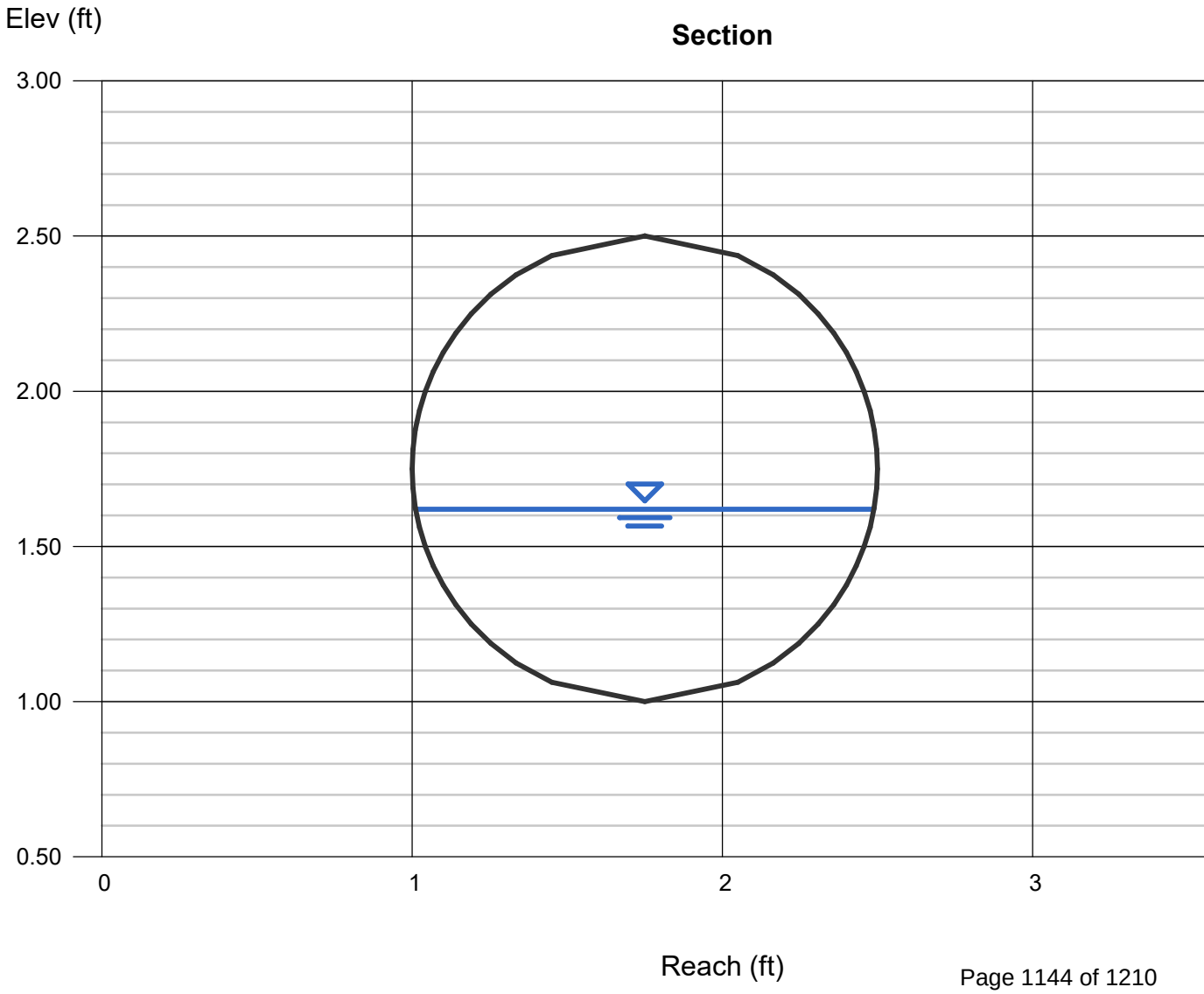
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.67

Highlighted

Depth (ft)	= 0.62
Q (cfs)	= 2.670
Area (sqft)	= 0.69
Velocity (ft/s)	= 3.85
Wetted Perim (ft)	= 2.10
Crit Depth, Yc (ft)	= 0.62
Top Width (ft)	= 1.48
EGL (ft)	= 0.85



Channel Report

Basin 6

Circular

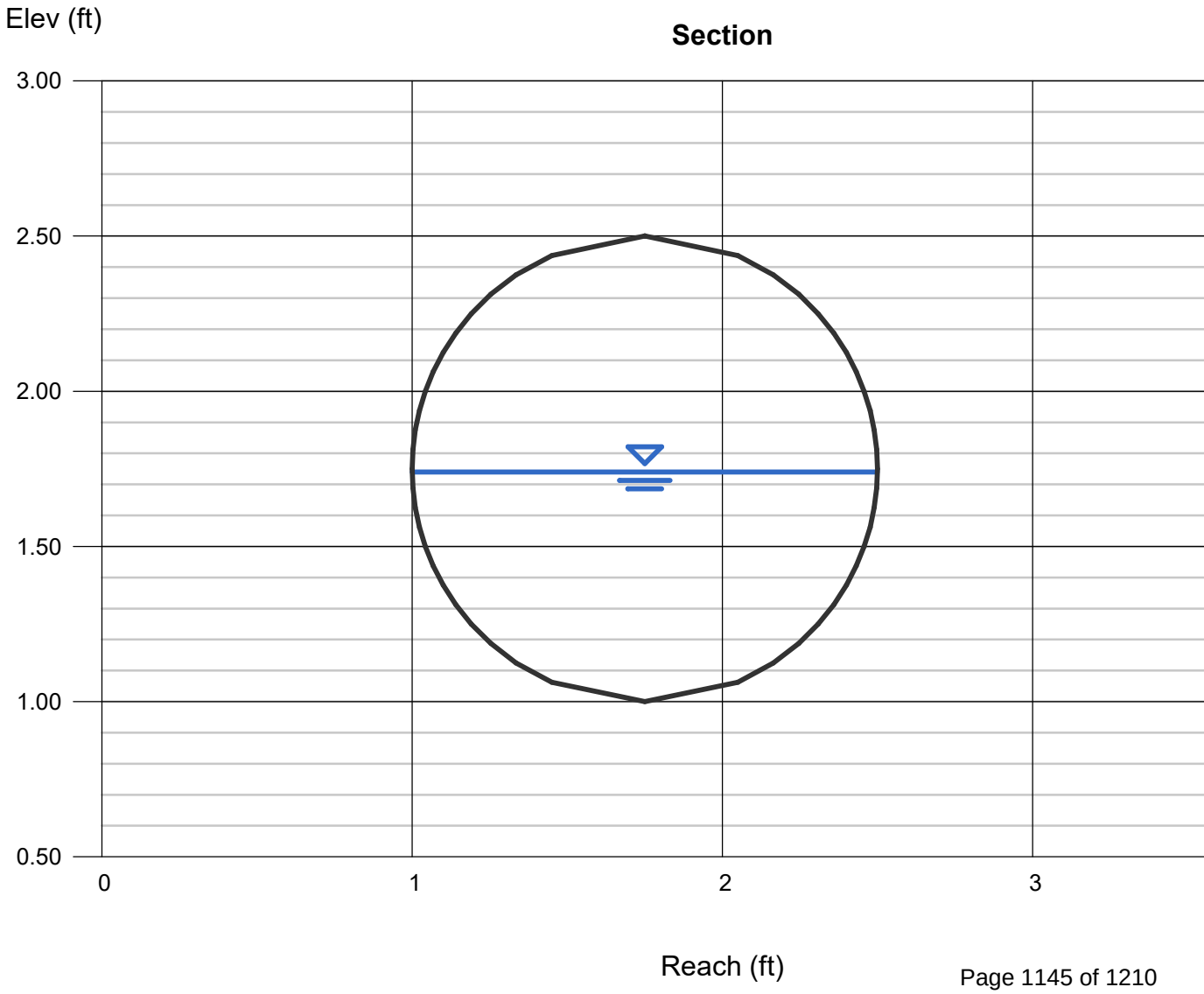
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 3.62

Highlighted

Depth (ft)	= 0.74
Q (cfs)	= 3.620
Area (sqft)	= 0.87
Velocity (ft/s)	= 4.15
Wetted Perim (ft)	= 2.34
Crit Depth, Yc (ft)	= 0.73
Top Width (ft)	= 1.50
EGL (ft)	= 1.01



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 6 2024

Basin 7 - Pond 7 to Pond 8 Interconnect

Circular

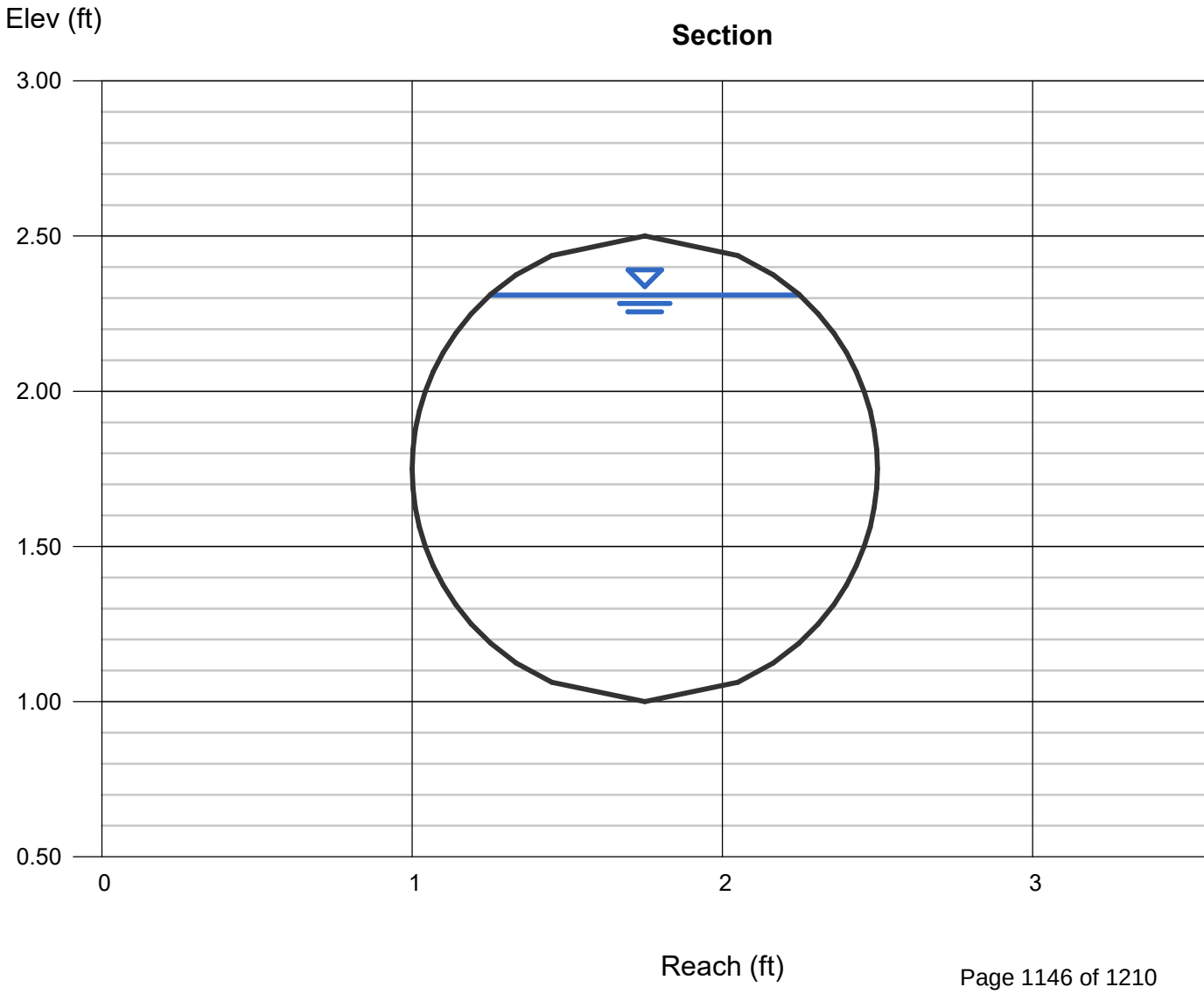
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 7.79

Highlighted

Depth (ft)	= 1.31
Q (cfs)	= 7.790
Area (sqft)	= 1.64
Velocity (ft/s)	= 4.76
Wetted Perim (ft)	= 3.62
Crit Depth, Yc (ft)	= 1.08
Top Width (ft)	= 1.00
EGL (ft)	= 1.66



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 6 2024

Basin 7 - Road 6 to Pond 7

Circular

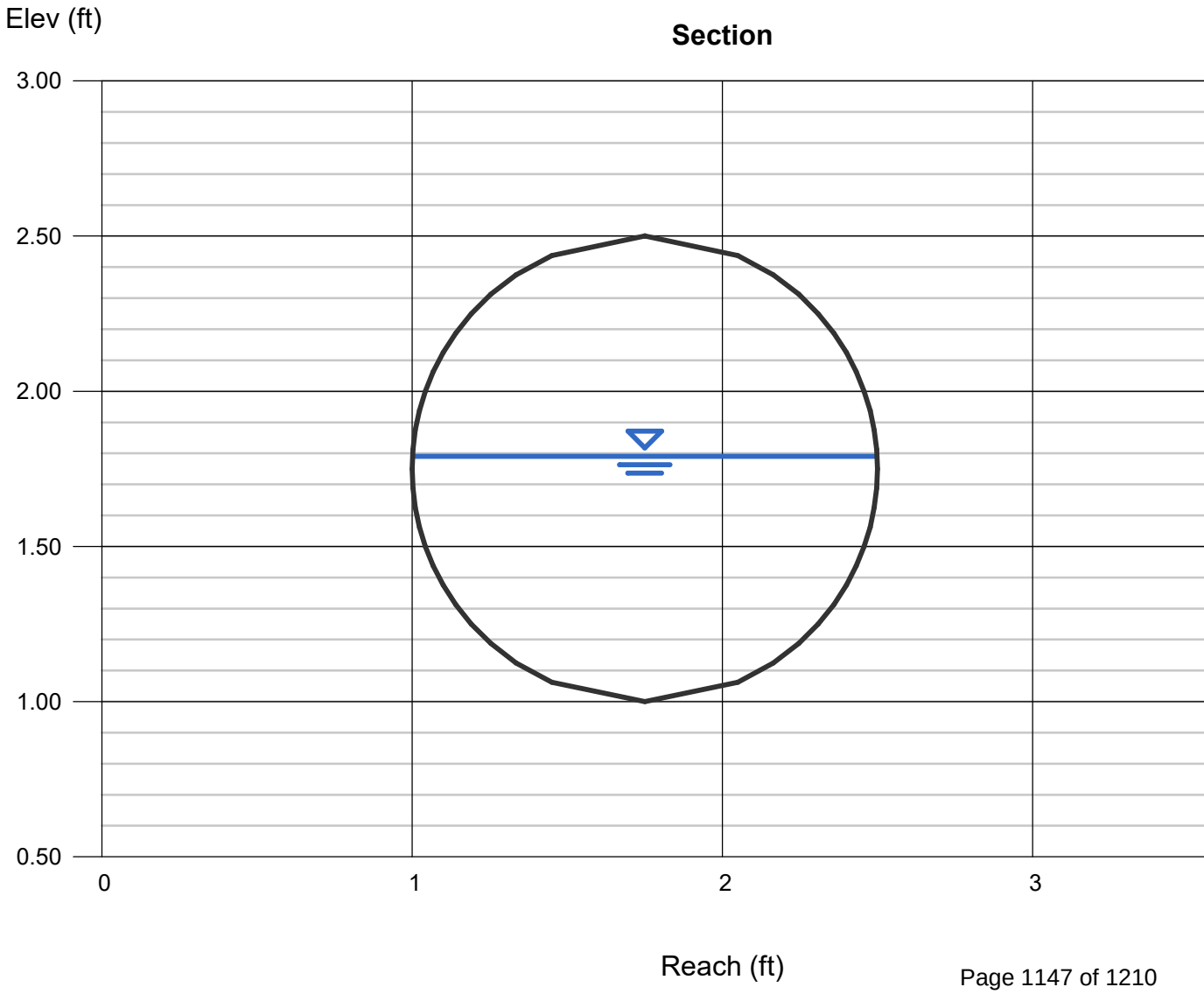
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 4.01

Highlighted

Depth (ft)	= 0.79
Q (cfs)	= 4.010
Area (sqft)	= 0.94
Velocity (ft/s)	= 4.25
Wetted Perim (ft)	= 2.44
Crit Depth, Yc (ft)	= 0.77
Top Width (ft)	= 1.50
EGL (ft)	= 1.07



Channel Report

Basin 8 - Pond 8 to Pond 9 Interconnect

Circular

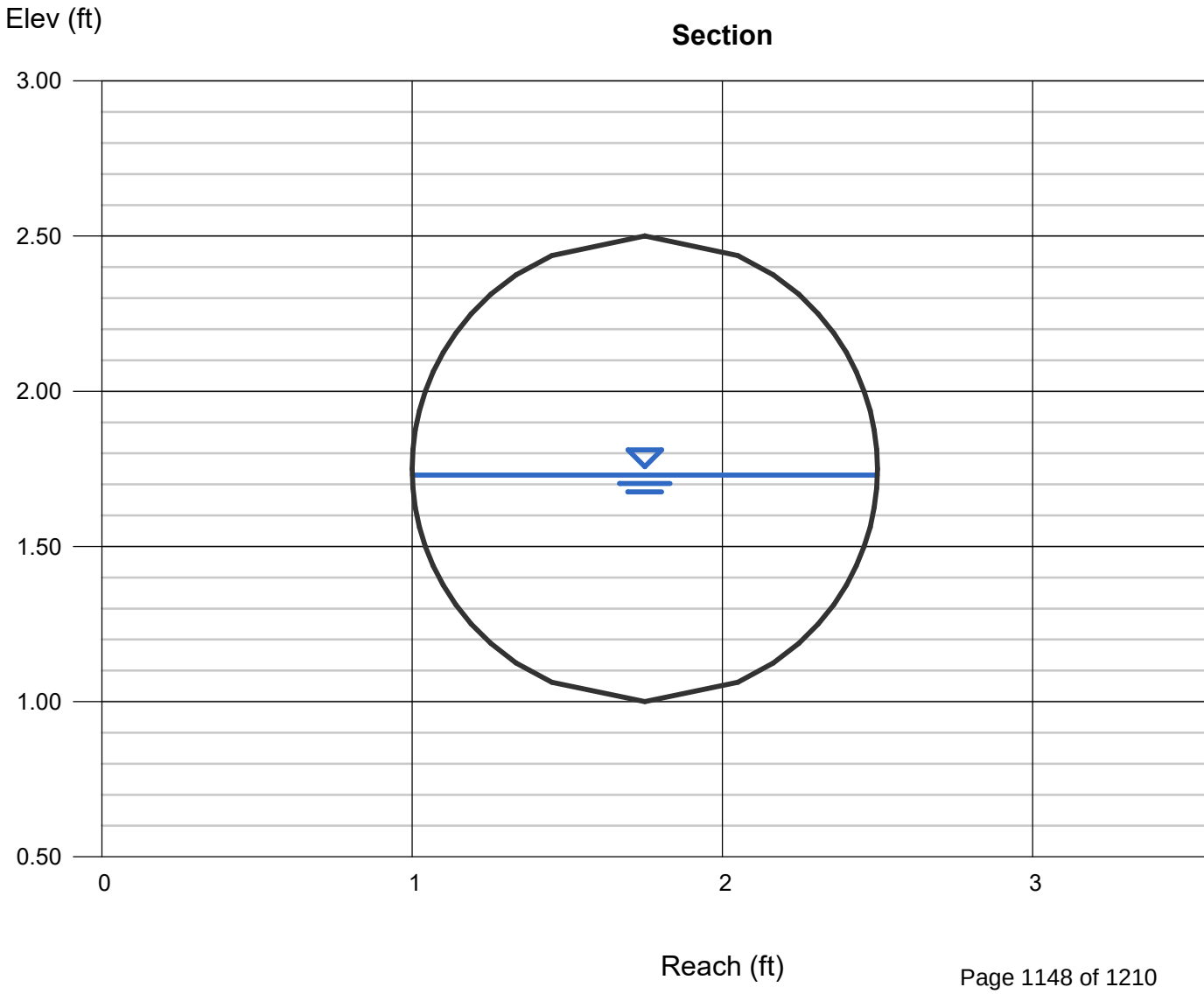
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 25.75
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 25.20

Highlighted

Depth (ft)	= 0.73
Q (cfs)	= 25.20
Area (sqft)	= 0.85
Velocity (ft/s)	= 29.49
Wetted Perim (ft)	= 2.32
Crit Depth, Yc (ft)	= 1.49
Top Width (ft)	= 1.50
EGL (ft)	= 14.25



Channel Report

Basin 8 Roads 2,4 ,5

Circular

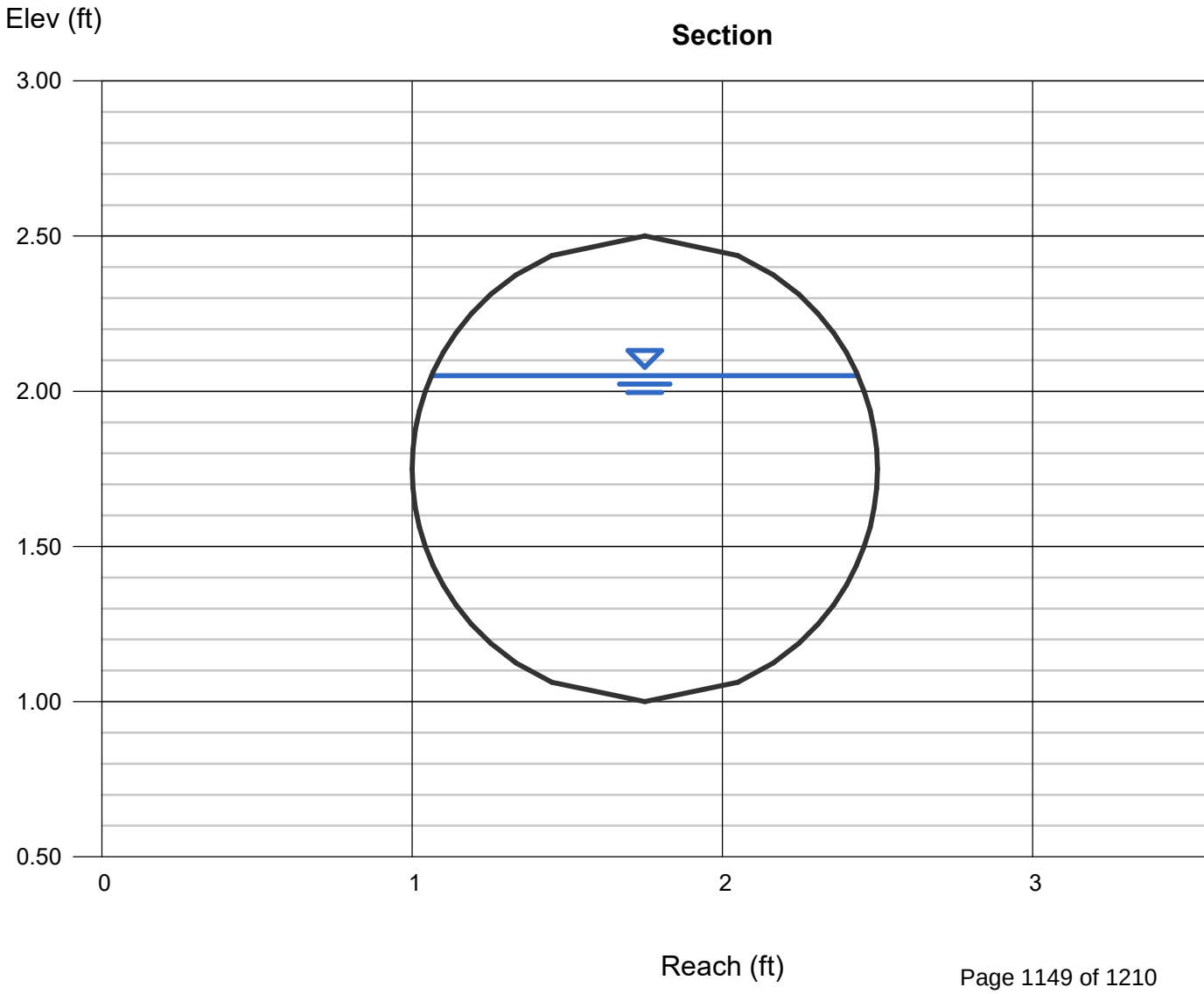
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 1.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 8.71

Highlighted

Depth (ft)	= 1.05
Q (cfs)	= 8.710
Area (sqft)	= 1.32
Velocity (ft/s)	= 6.58
Wetted Perim (ft)	= 2.98
Crit Depth, Yc (ft)	= 1.15
Top Width (ft)	= 1.37
EGL (ft)	= 1.72



Channel Report

Basin 8 Discharge to Pond 8

Circular

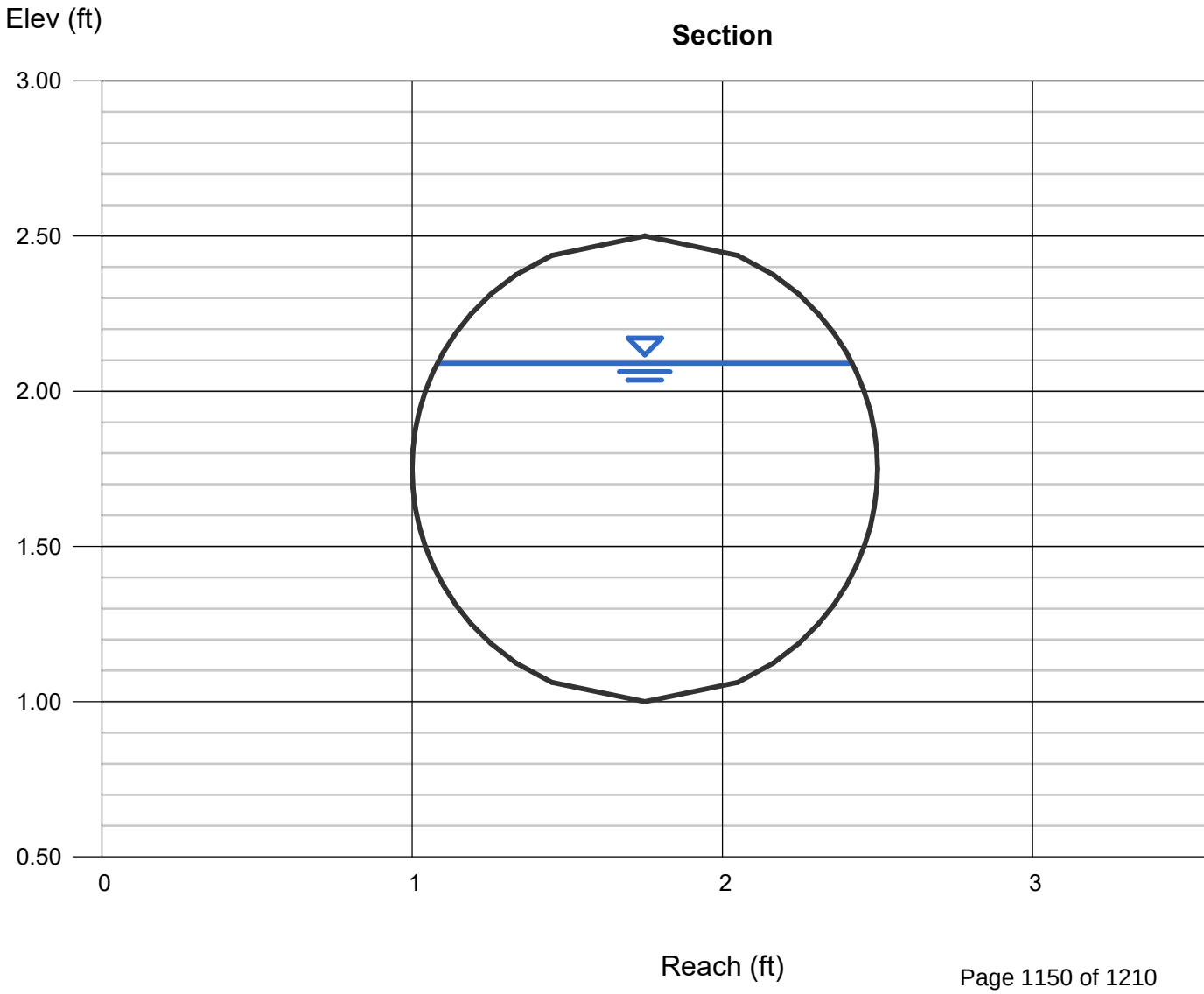
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 1.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 9.15

Highlighted

Depth (ft)	= 1.09
Q (cfs)	= 9.150
Area (sqft)	= 1.38
Velocity (ft/s)	= 6.64
Wetted Perim (ft)	= 3.07
Crit Depth, Yc (ft)	= 1.17
Top Width (ft)	= 1.33
EGL (ft)	= 1.77



Channel Report

Basin 9 Discharge to Pond 9

Circular

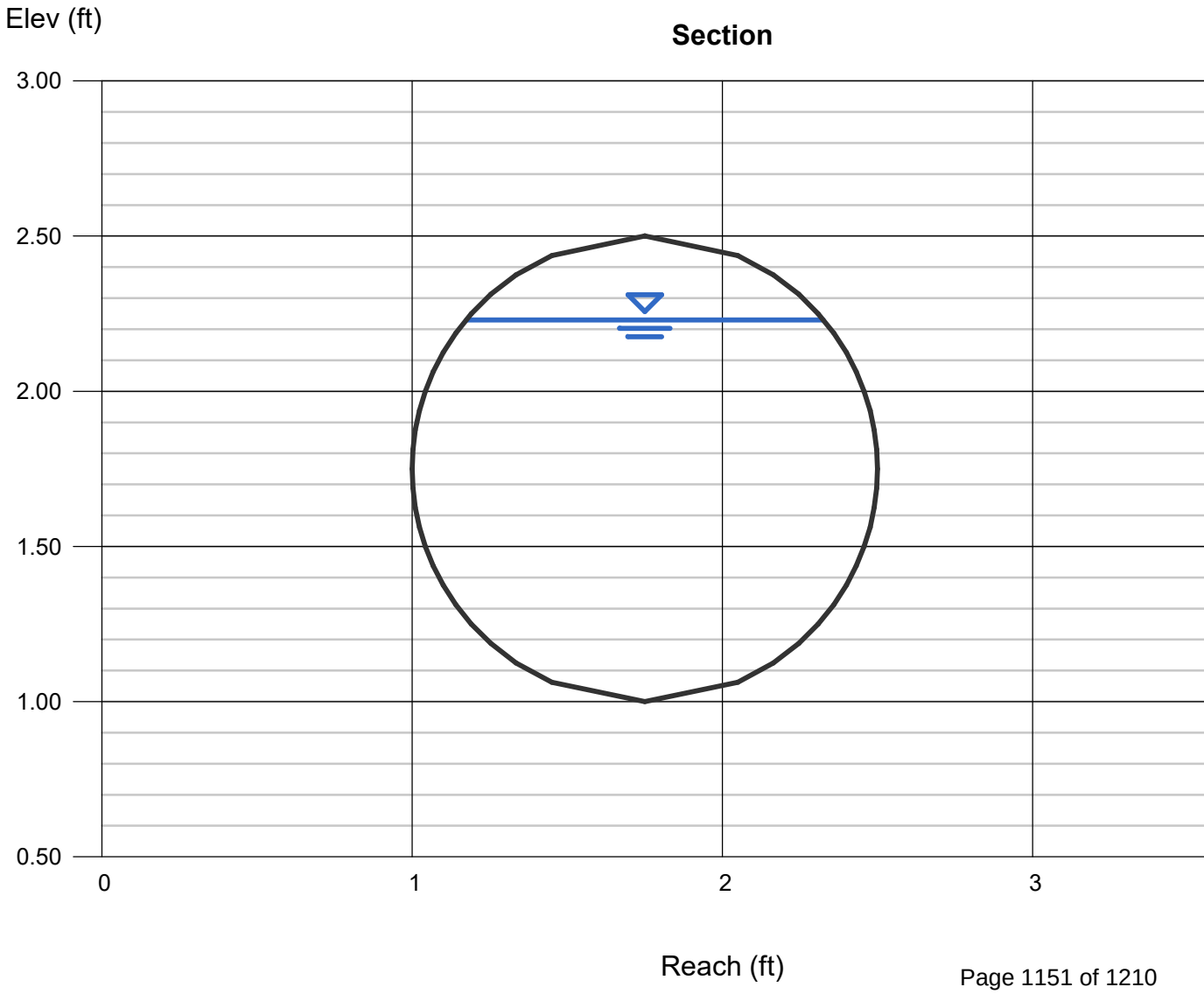
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 7.42

Highlighted

Depth (ft)	= 1.23
Q (cfs)	= 7.420
Area (sqft)	= 1.55
Velocity (ft/s)	= 4.77
Wetted Perim (ft)	= 3.41
Crit Depth, Yc (ft)	= 1.06
Top Width (ft)	= 1.15
EGL (ft)	= 1.58



Channel Report

Pond 9/10 Interconnect South of Commons

Circular

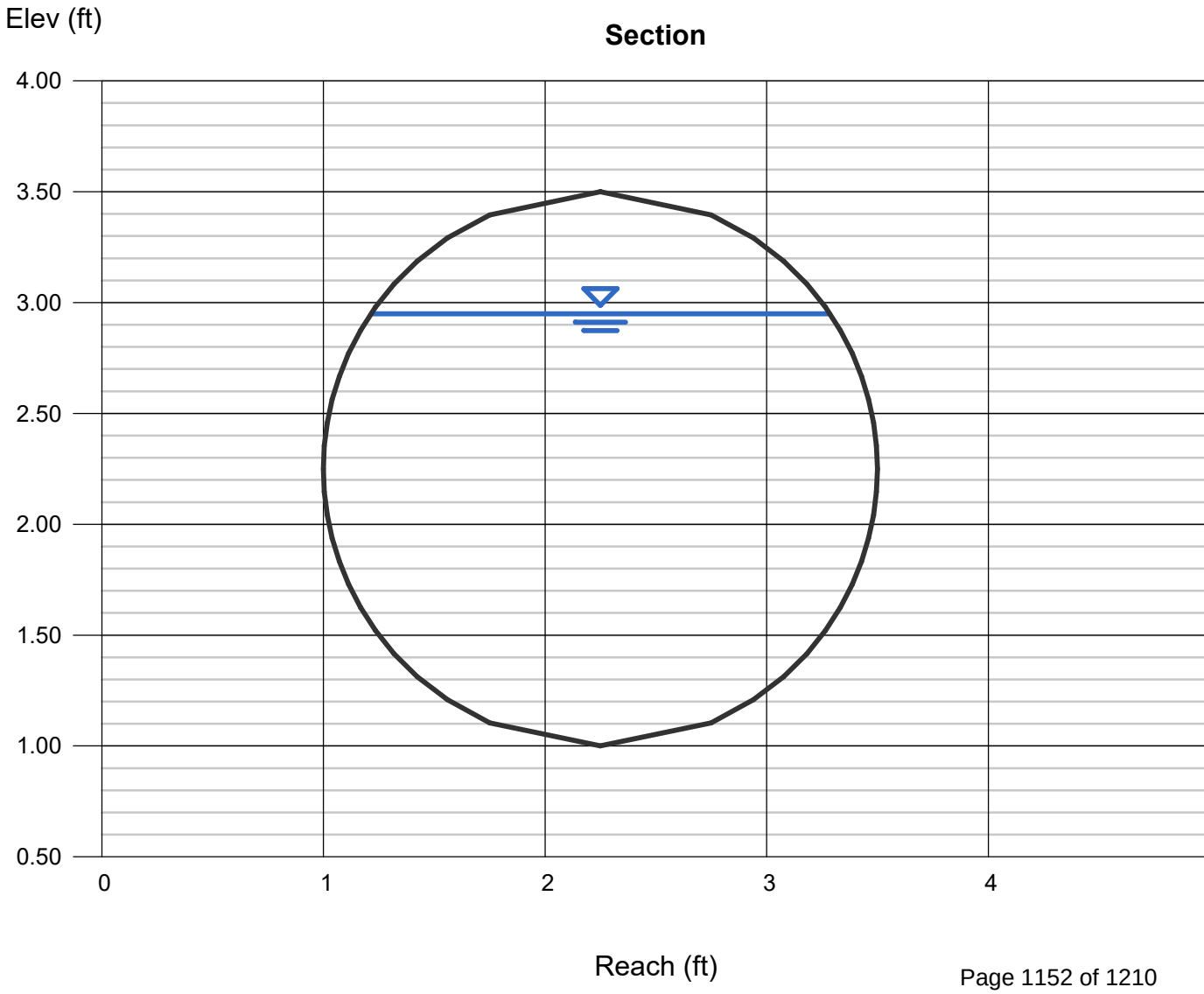
Diameter (ft)	= 2.50
Invert Elev (ft)	= 1.00
Slope (%)	= 1.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 38.99

Highlighted

Depth (ft)	= 1.95
Q (cfs)	= 38.99
Area (sqft)	= 4.12
Velocity (ft/s)	= 9.47
Wetted Perim (ft)	= 5.43
Crit Depth, Yc (ft)	= 2.11
Top Width (ft)	= 2.06
EGL (ft)	= 3.34



Channel Report

Basin 10 - Commons Blvd to Collector 1

Circular

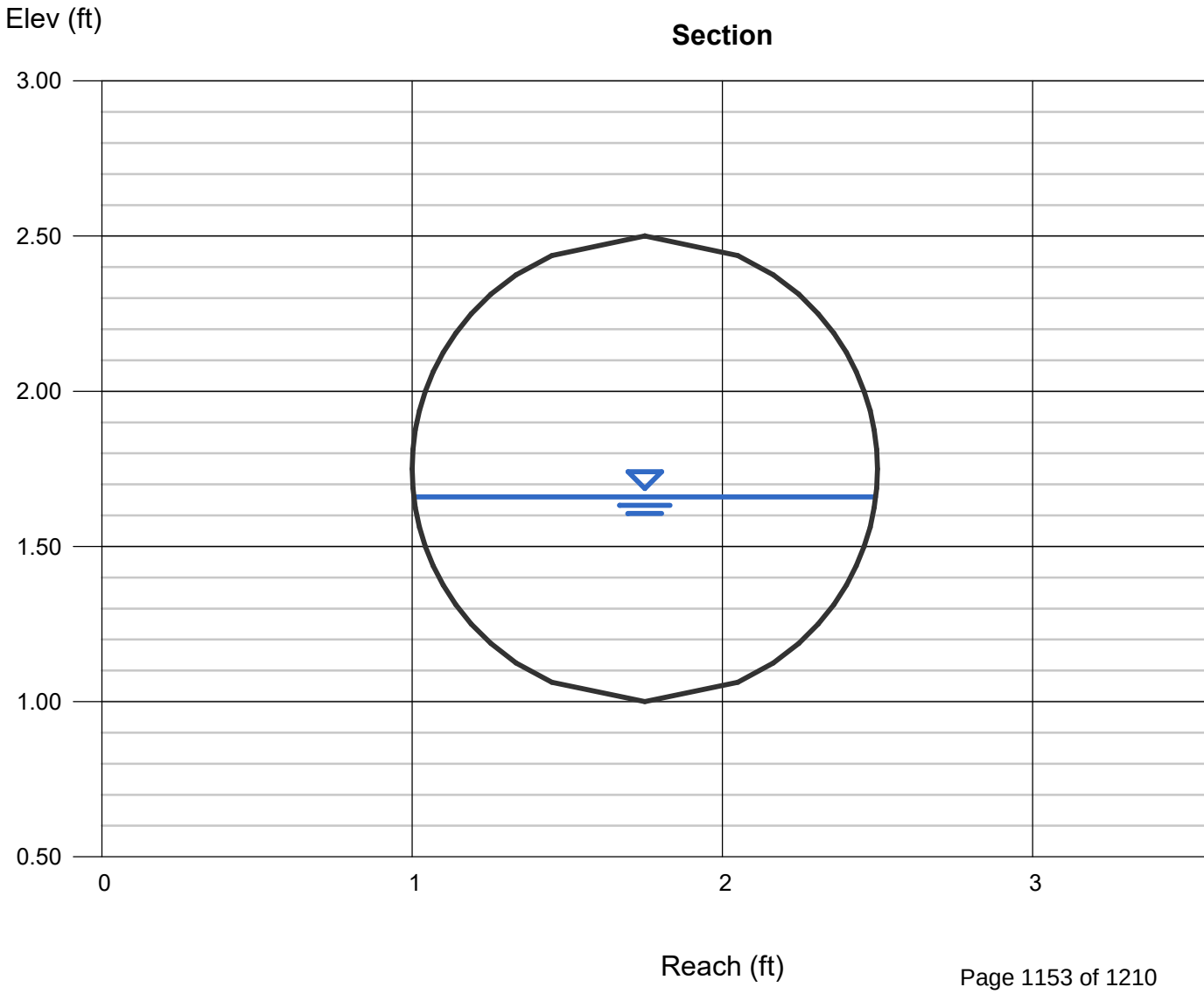
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.97

Highlighted

Depth (ft)	= 0.66
Q (cfs)	= 2.970
Area (sqft)	= 0.75
Velocity (ft/s)	= 3.94
Wetted Perim (ft)	= 2.18
Crit Depth, Yc (ft)	= 0.66
Top Width (ft)	= 1.49
EGL (ft)	= 0.90



Channel Report

Basin 10 Inlet with Pond 9 Interconnect

Circular

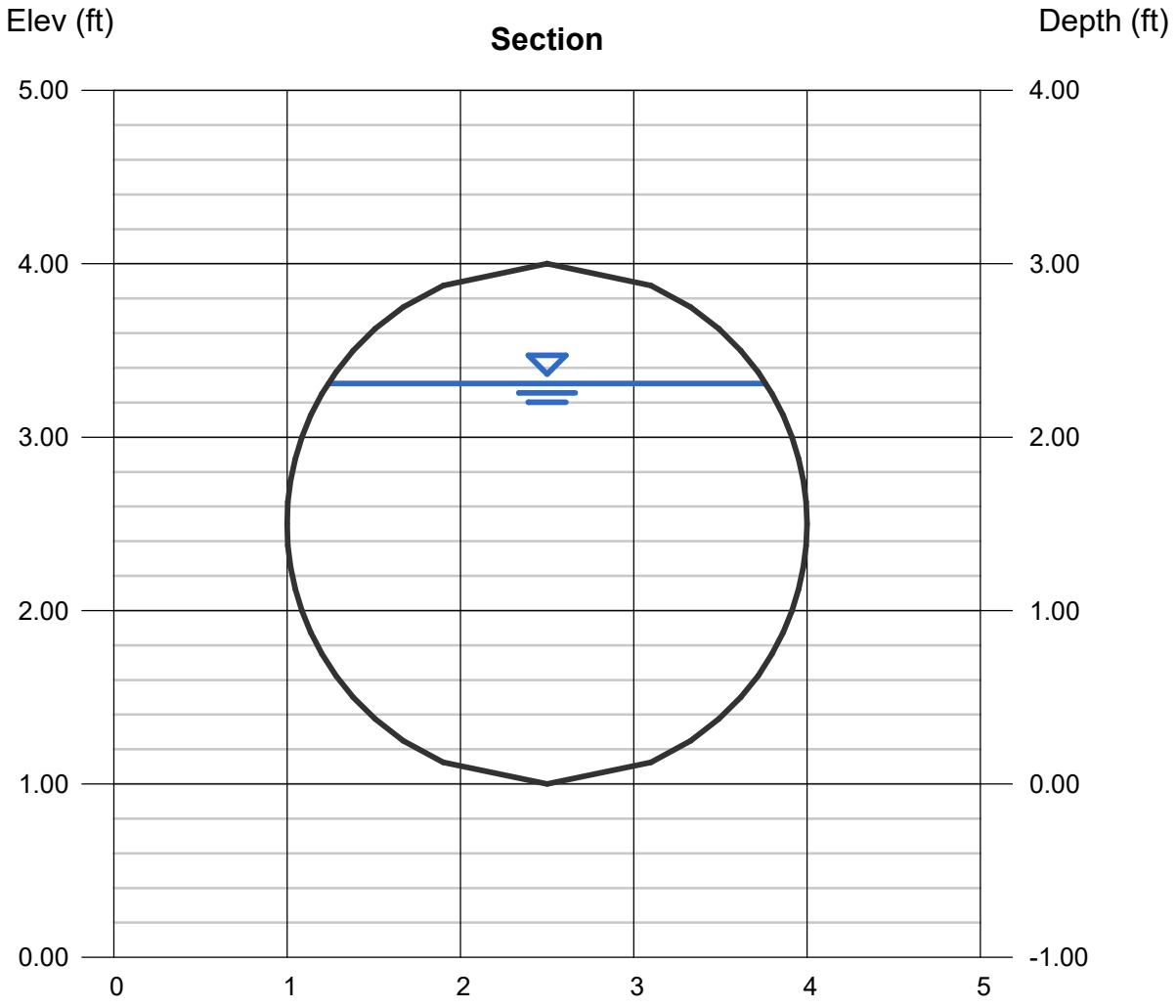
Diameter (ft)	= 3.00
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 44.26

Highlighted

Depth (ft)	= 2.31
Q (cfs)	= 44.26
Area (sqft)	= 5.85
Velocity (ft/s)	= 7.56
Wetted Perim (ft)	= 6.44
Crit Depth, Yc (ft)	= 2.17
Top Width (ft)	= 2.52
EGL (ft)	= 3.20



Channel Report

Basin 12 - Collector 2 to Pond 12 - DHI

Circular

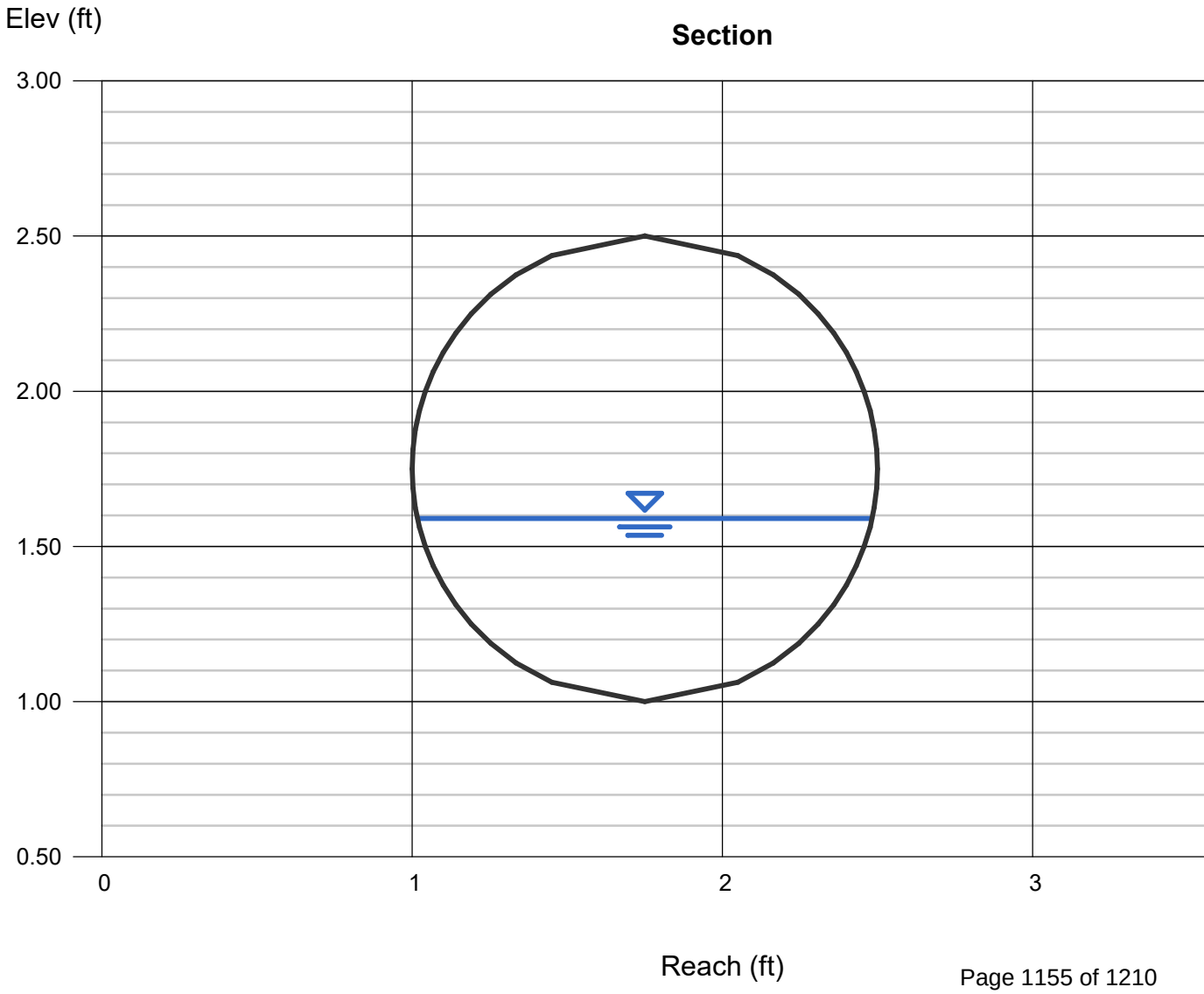
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.42

Highlighted

Depth (ft)	= 0.59
Q (cfs)	= 2.420
Area (sqft)	= 0.65
Velocity (ft/s)	= 3.72
Wetted Perim (ft)	= 2.04
Crit Depth, Yc (ft)	= 0.59
Top Width (ft)	= 1.47
EGL (ft)	= 0.81



Channel Report

Basin 12 - Drive 5 to Pond 12

Circular

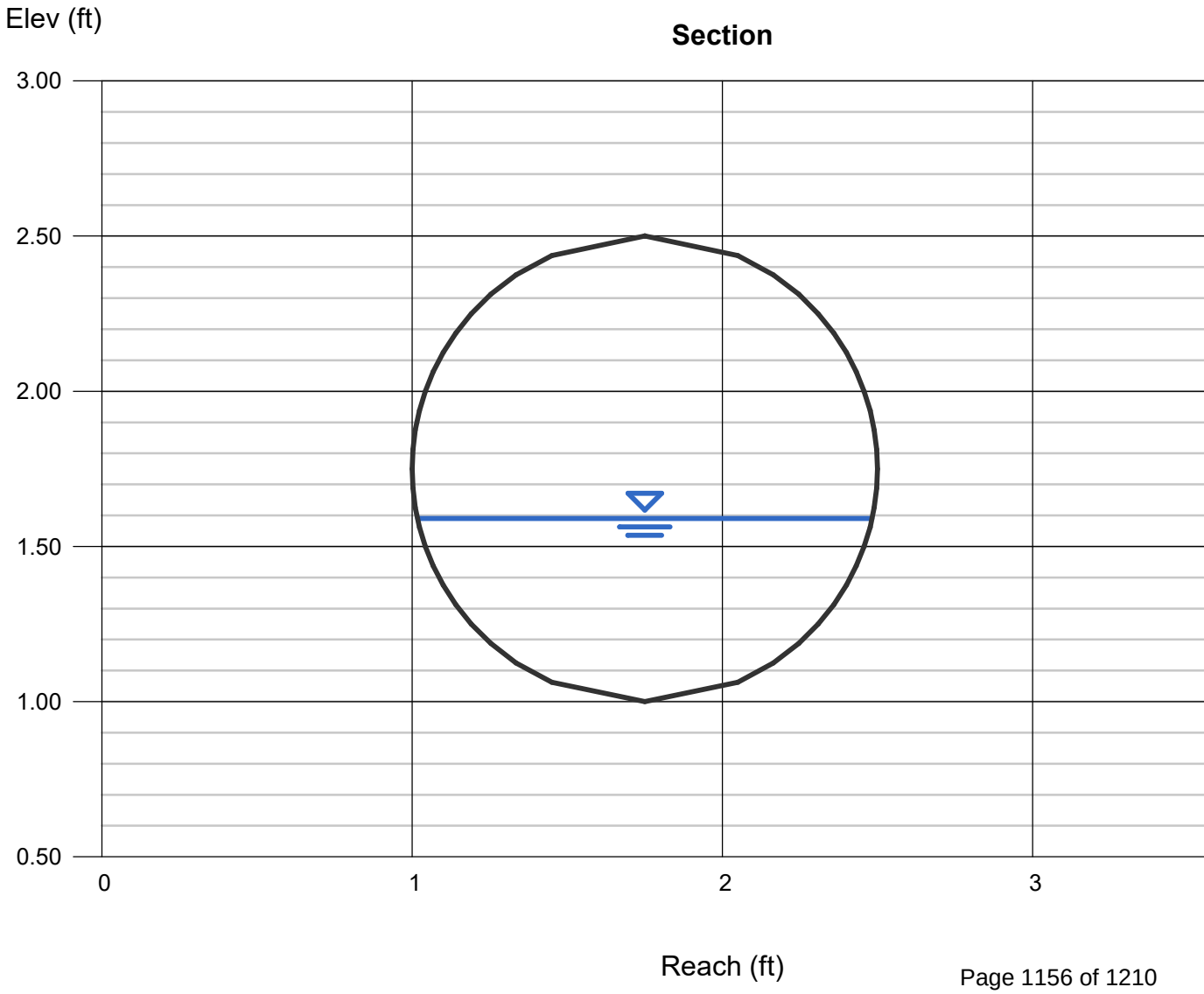
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.42

Highlighted

Depth (ft)	= 0.59
Q (cfs)	= 2.420
Area (sqft)	= 0.65
Velocity (ft/s)	= 3.72
Wetted Perim (ft)	= 2.04
Crit Depth, Yc (ft)	= 0.59
Top Width (ft)	= 1.47
EGL (ft)	= 0.81



Channel Report

Basin 12 - North of Collector 2

Circular

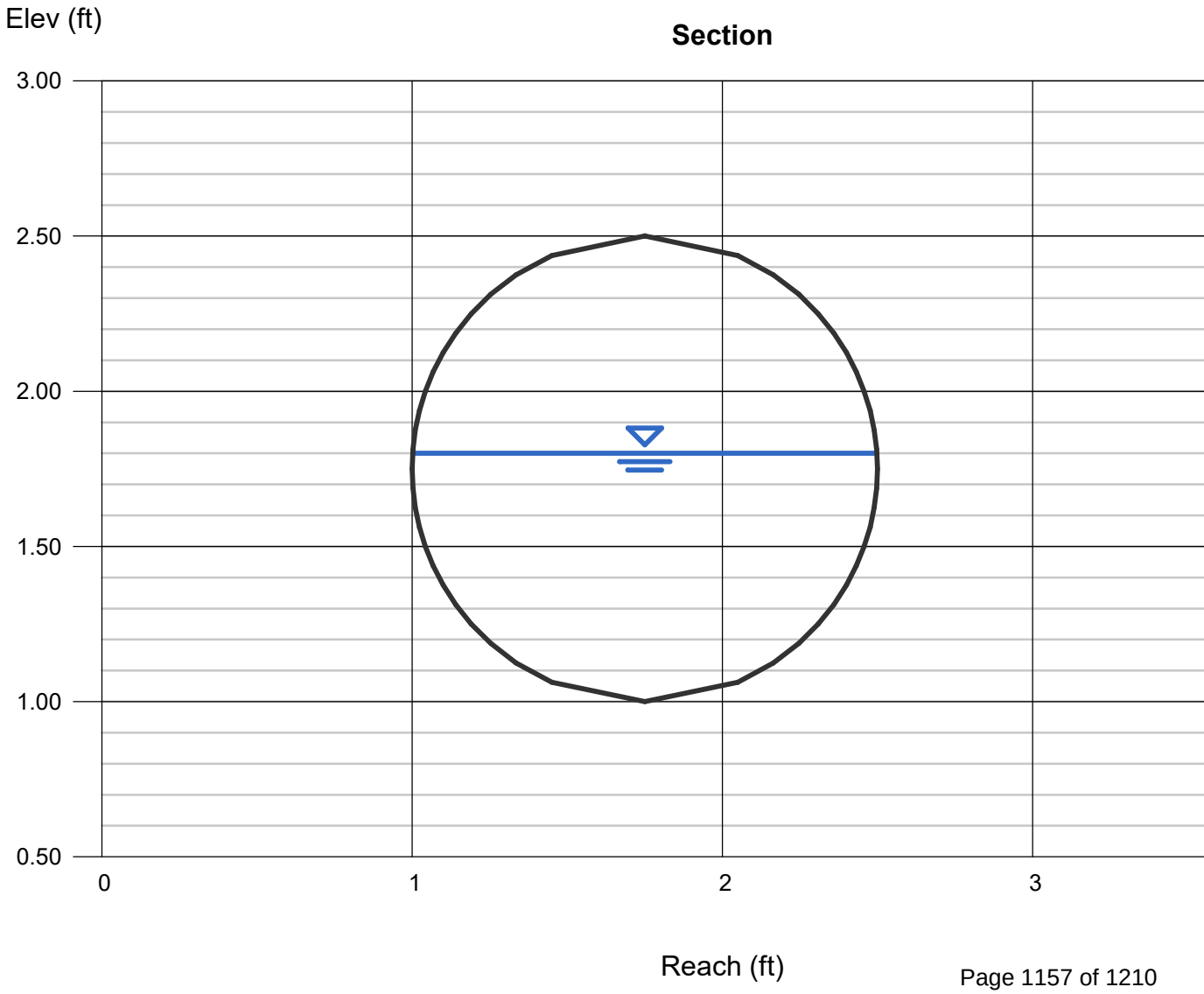
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 3.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 10.15

Highlighted

Depth (ft)	= 0.80
Q (cfs)	= 10.15
Area (sqft)	= 0.96
Velocity (ft/s)	= 10.56
Wetted Perim (ft)	= 2.46
Crit Depth, Yc (ft)	= 1.23
Top Width (ft)	= 1.50
EGL (ft)	= 2.53



Channel Report

Basin 12 -West Discharge South of Collector 2 to Pond 12

Circular

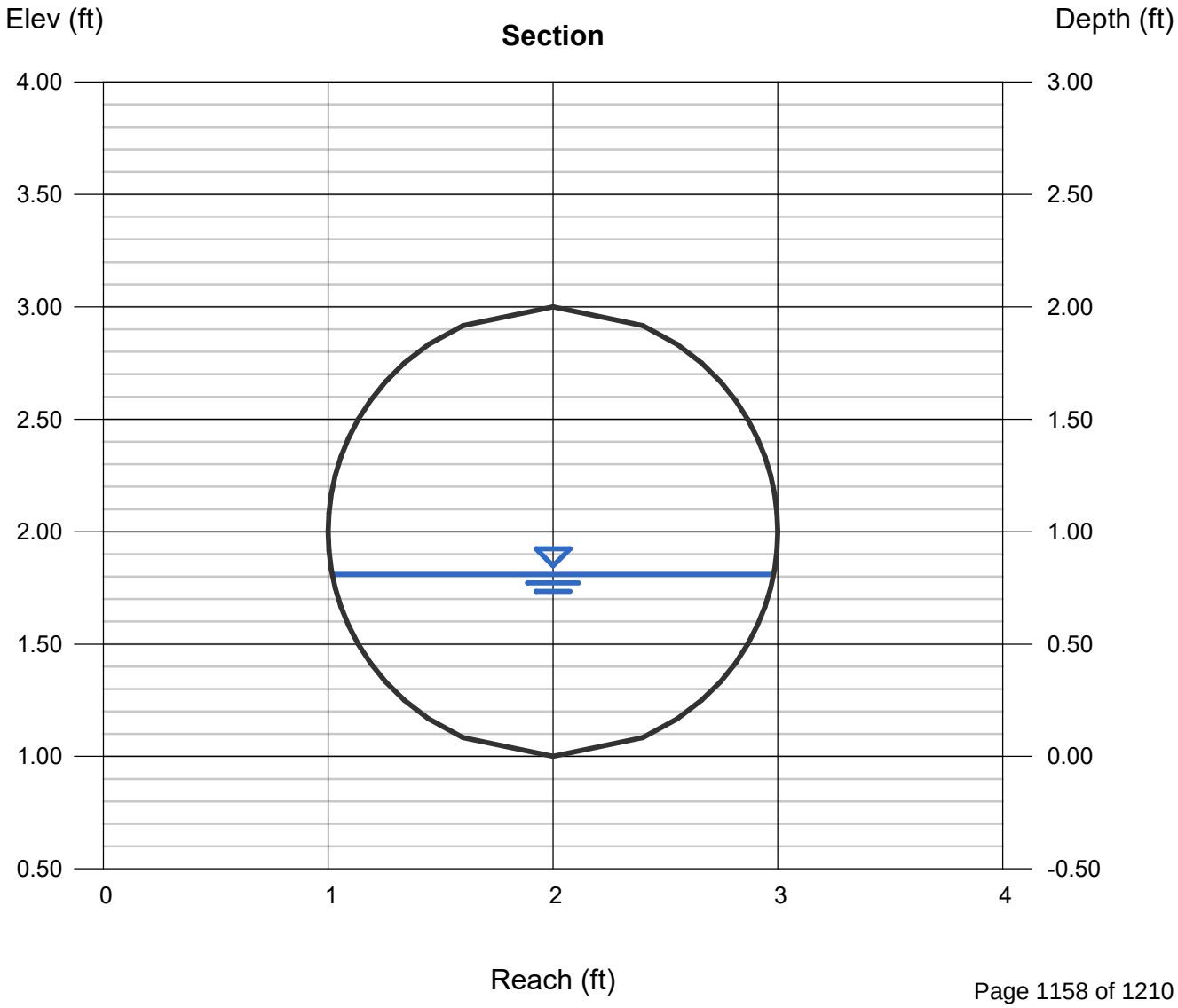
Diameter (ft)	= 2.00
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 5.41

Highlighted

Depth (ft)	= 0.81
Q (cfs)	= 5.410
Area (sqft)	= 1.19
Velocity (ft/s)	= 4.53
Wetted Perim (ft)	= 2.76
Crit Depth, Yc (ft)	= 0.83
Top Width (ft)	= 1.96
EGL (ft)	= 1.13



Channel Report

Basin 13 - Pond 13 East Discharge

Circular

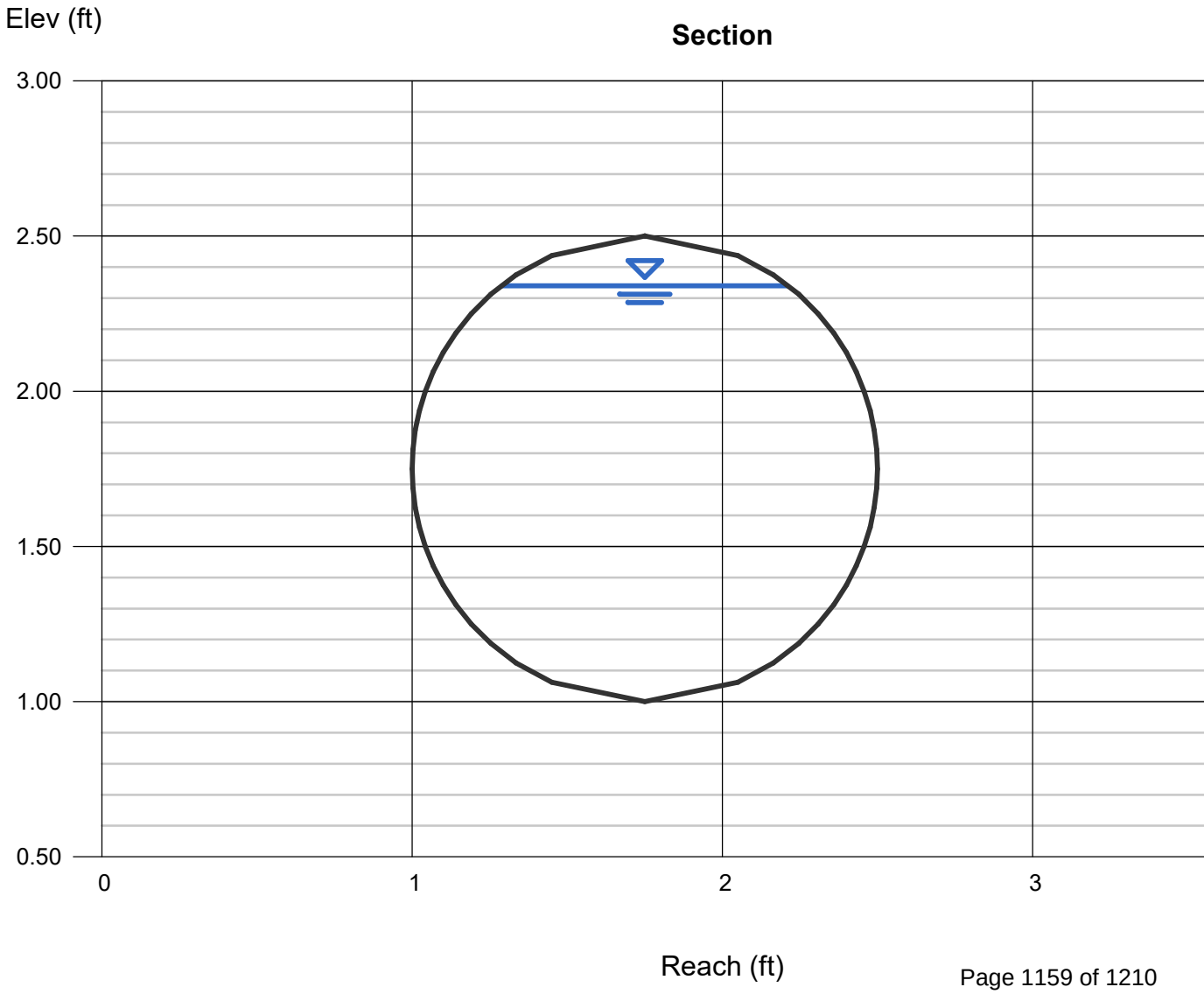
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.55
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 8.26

Highlighted

Depth (ft)	= 1.34
Q (cfs)	= 8.260
Area (sqft)	= 1.67
Velocity (ft/s)	= 4.95
Wetted Perim (ft)	= 3.72
Crit Depth, Yc (ft)	= 1.12
Top Width (ft)	= 0.92
EGL (ft)	= 1.72



Channel Report

Basin 13 - Pond 13 Middle Discharge

Circular

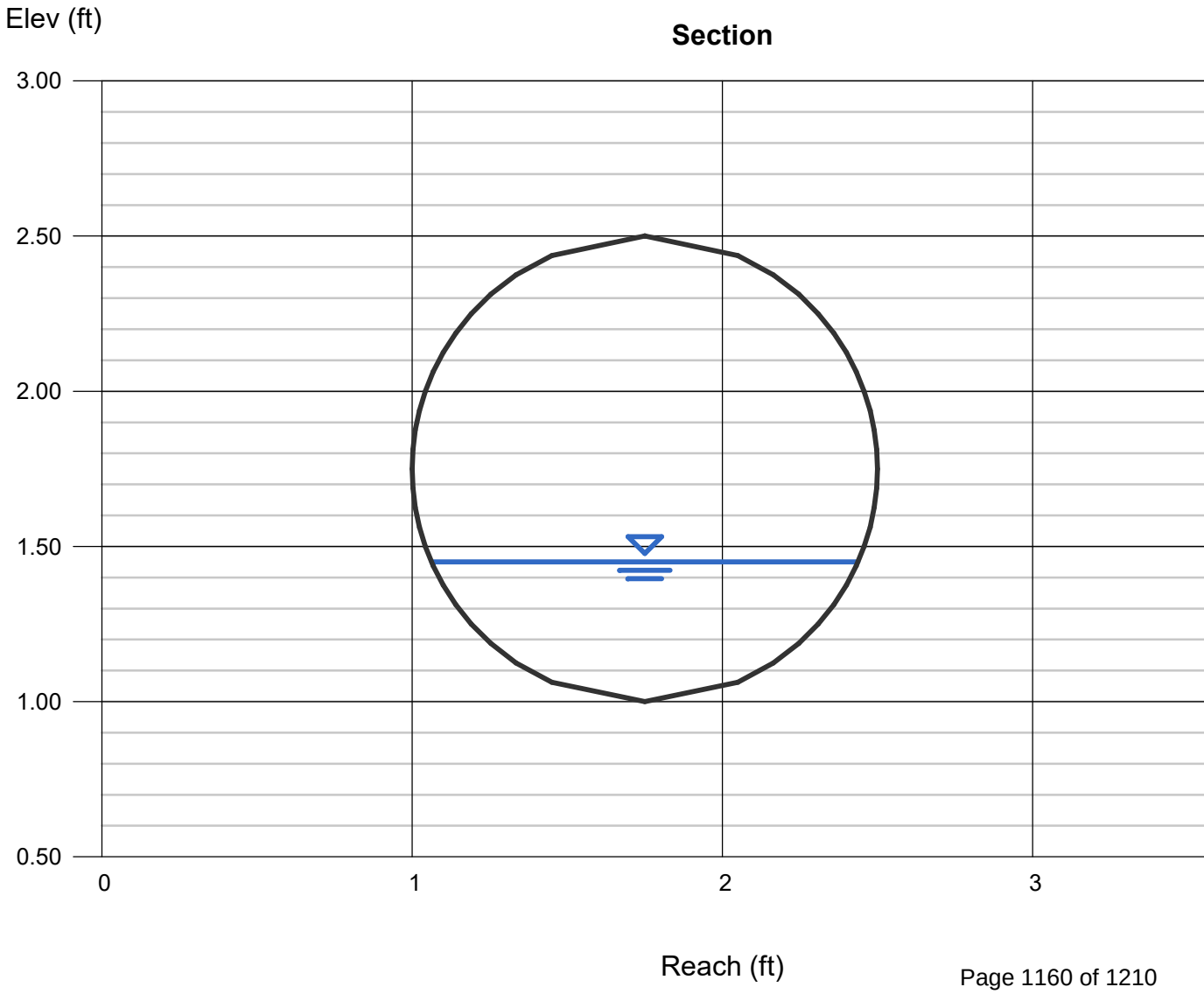
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.41

Highlighted

Depth (ft)	= 0.45
Q (cfs)	= 1.410
Area (sqft)	= 0.45
Velocity (ft/s)	= 3.16
Wetted Perim (ft)	= 1.74
Crit Depth, Yc (ft)	= 0.45
Top Width (ft)	= 1.38
EGL (ft)	= 0.61



Channel Report

Basin 13 - Pond 13 West Discharge

Circular

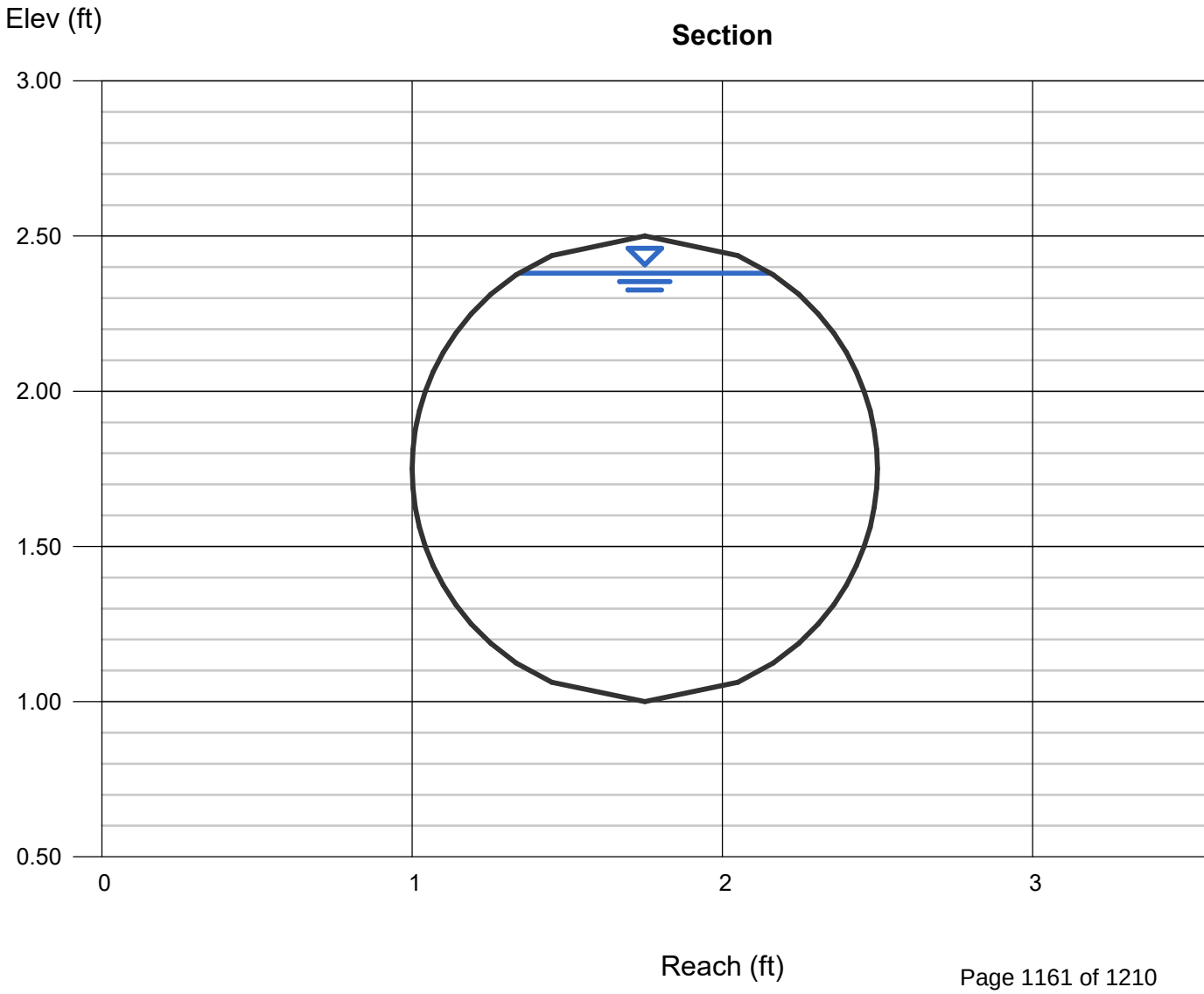
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 1.75
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 14.91

Highlighted

Depth (ft)	= 1.38
Q (cfs)	= 14.91
Area (sqft)	= 1.70
Velocity (ft/s)	= 8.76
Wetted Perim (ft)	= 3.86
Crit Depth, Yc (ft)	= 1.41
Top Width (ft)	= 0.81
EGL (ft)	= 2.57



Channel Report

Basin 3 Mixed

Circular

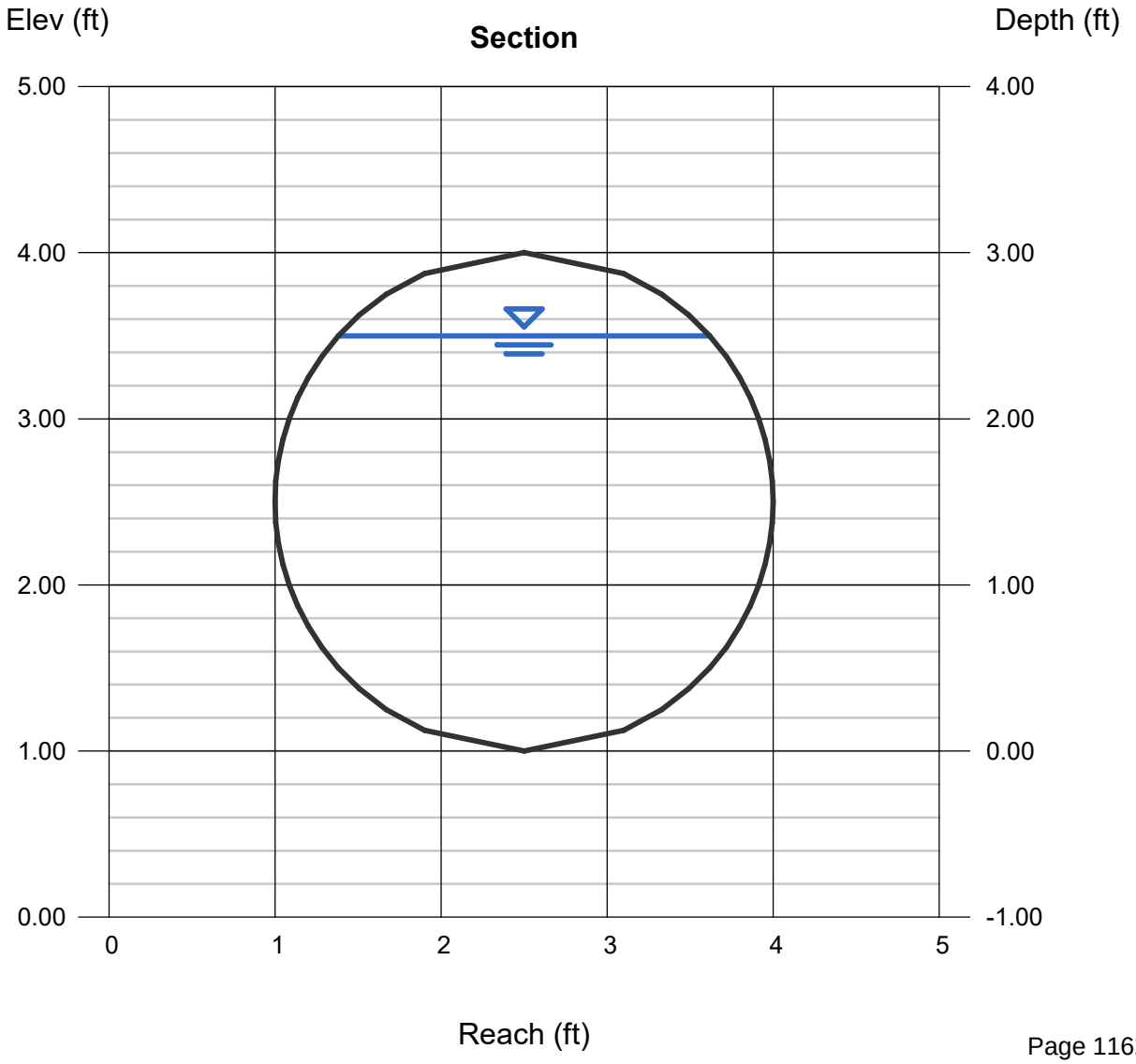
Diameter (ft)	= 3.00
Invert Elev (ft)	= 1.00
Slope (%)	= 0.50
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 47.90

Highlighted

Depth (ft)	= 2.50
Q (cfs)	= 47.90
Area (sqft)	= 6.31
Velocity (ft/s)	= 7.60
Wetted Perim (ft)	= 6.92
Crit Depth, Yc (ft)	= 2.26
Top Width (ft)	= 2.23
EGL (ft)	= 3.40



Channel Report

Pond 6/10 to 12 Connection

Circular

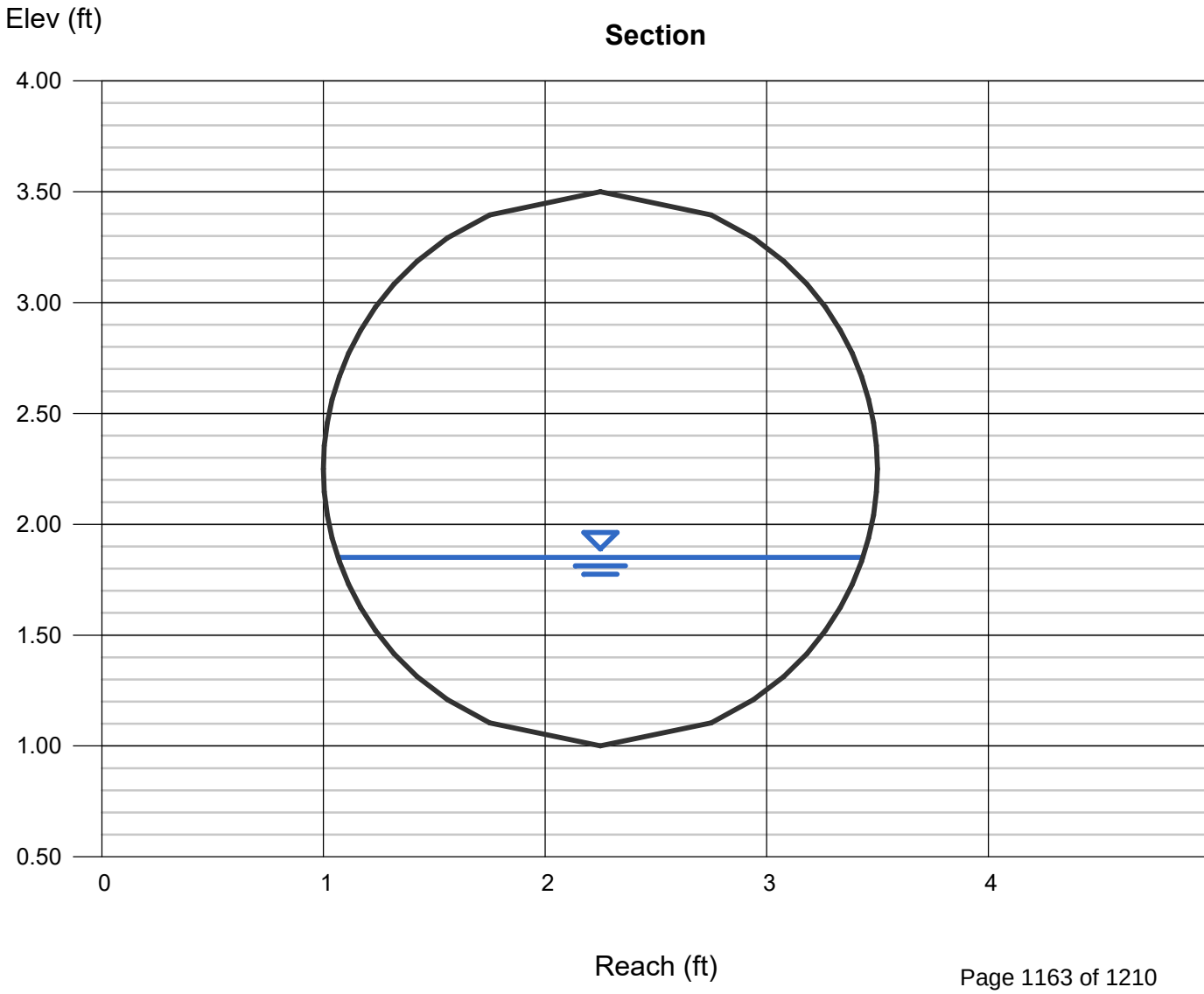
Diameter (ft)	= 2.50
Invert Elev (ft)	= 1.00
Slope (%)	= 15.49
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 40.33

Highlighted

Depth (ft)	= 0.85
Q (cfs)	= 40.33
Area (sqft)	= 1.49
Velocity (ft/s)	= 27.15
Wetted Perim (ft)	= 3.12
Crit Depth, Yc (ft)	= 2.14
Top Width (ft)	= 2.37
EGL (ft)	= 12.31



Channel Report

Pond 8/9 Interconnect

Circular

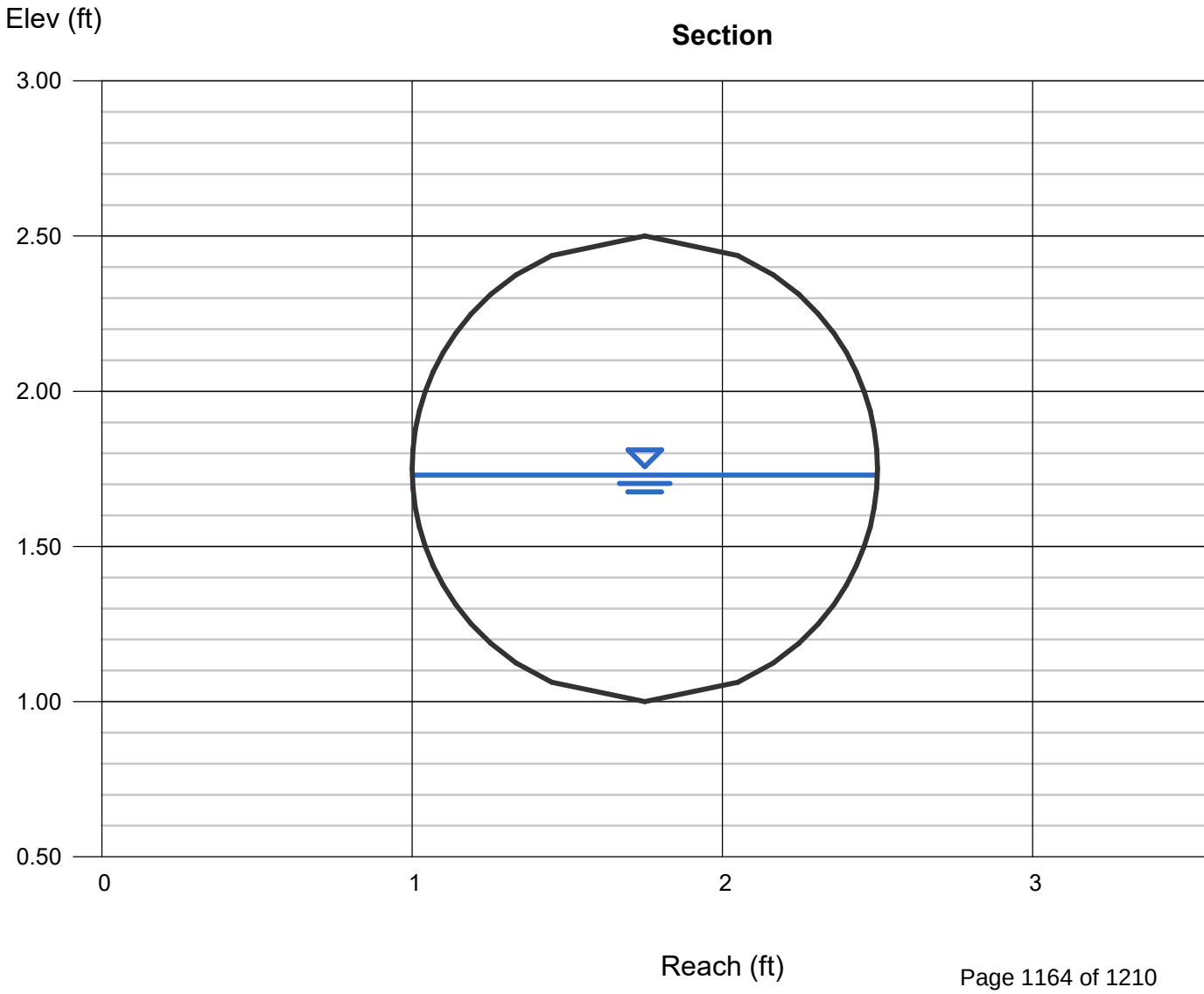
Diameter (ft)	= 1.50
Invert Elev (ft)	= 1.00
Slope (%)	= 25.75
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 25.20

Highlighted

Depth (ft)	= 0.73
Q (cfs)	= 25.20
Area (sqft)	= 0.85
Velocity (ft/s)	= 29.49
Wetted Perim (ft)	= 2.32
Crit Depth, Yc (ft)	= 1.49
Top Width (ft)	= 1.50
EGL (ft)	= 14.25



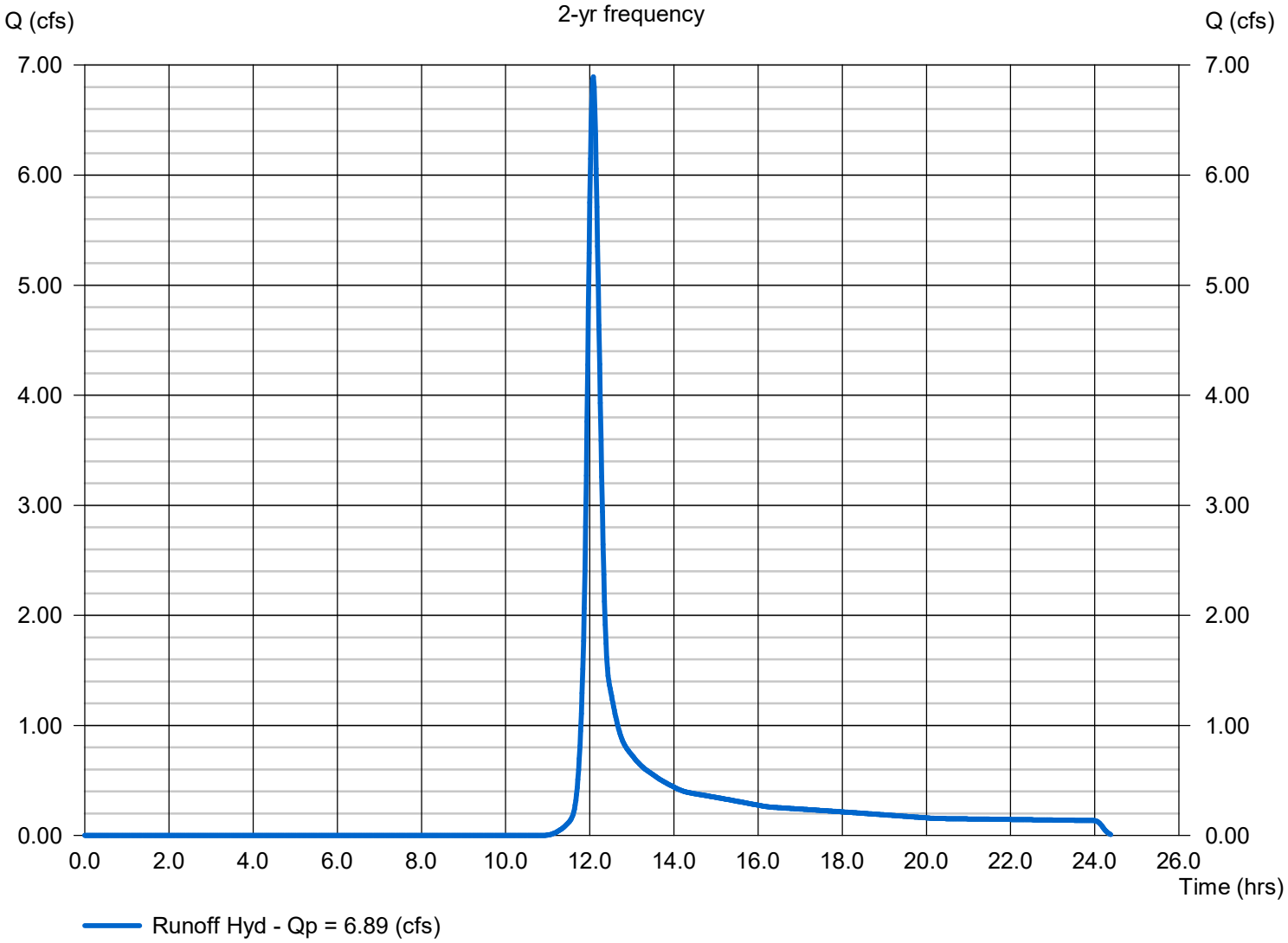
Hydrology Report

Basin 4.1 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 6.894
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 12.810	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 17
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 21,417 (cuft); 0.492 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 4.1 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	86.63		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	299.5		1593.2		0.0		
Travel Time (min)	**=**	**0.614808**	**+**	**7.283270**	**+**	**0**	**=**	**7.90**

Total Travel Time, Tc ..... 17.00 min

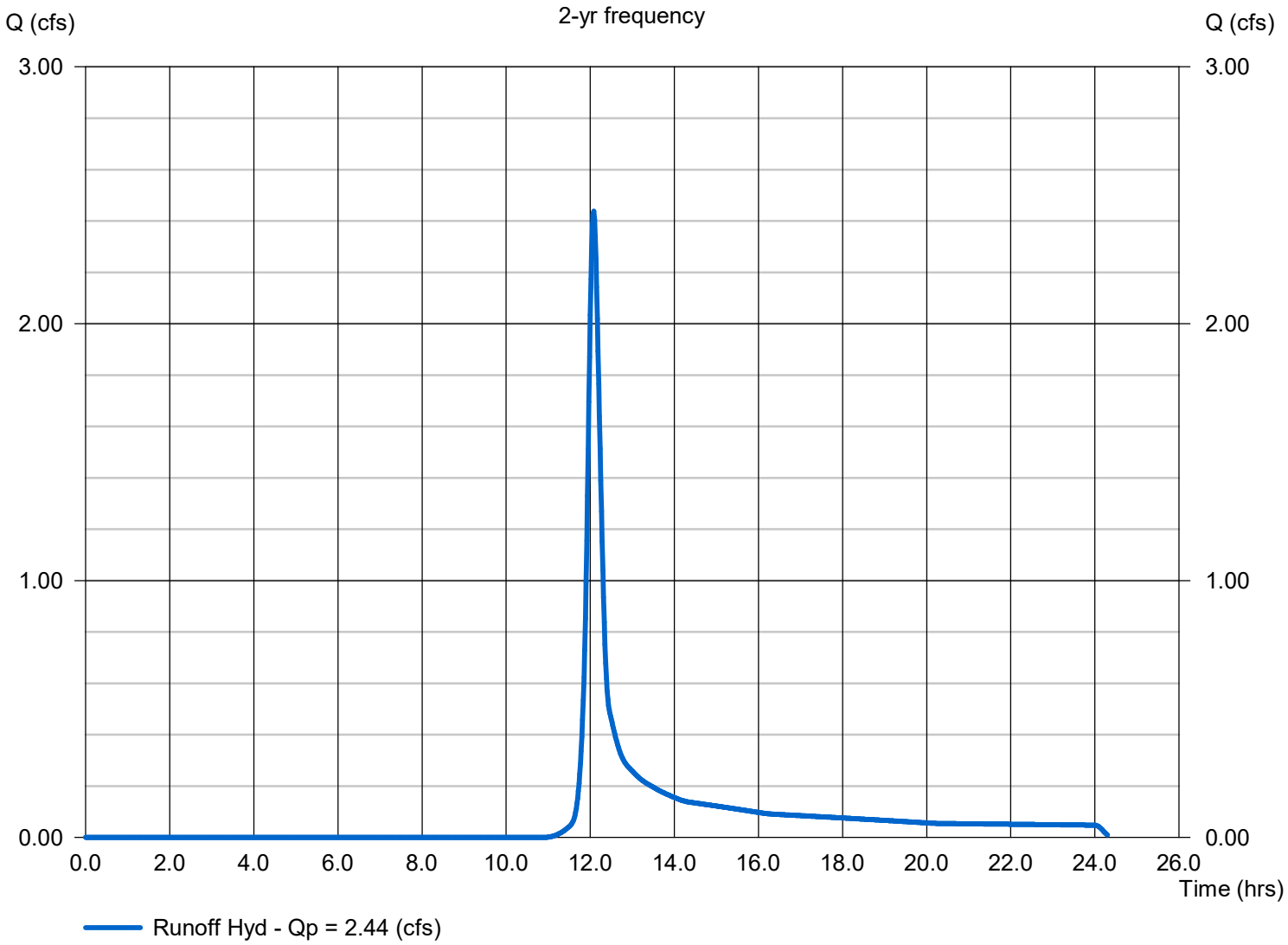
Hydrology Report

Basin 4.2 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 2.438
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 4.530	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 17
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 7,574 (cuft); 0.174 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 4.2 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	86.63		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	299.5		1593.2		0.0		
Travel Time (min)	**=**	**0.614808**	**+**	**7.283270**	**+**	**0**	**=**	**7.90**

Total Travel Time, Tc ..... 17.00 min

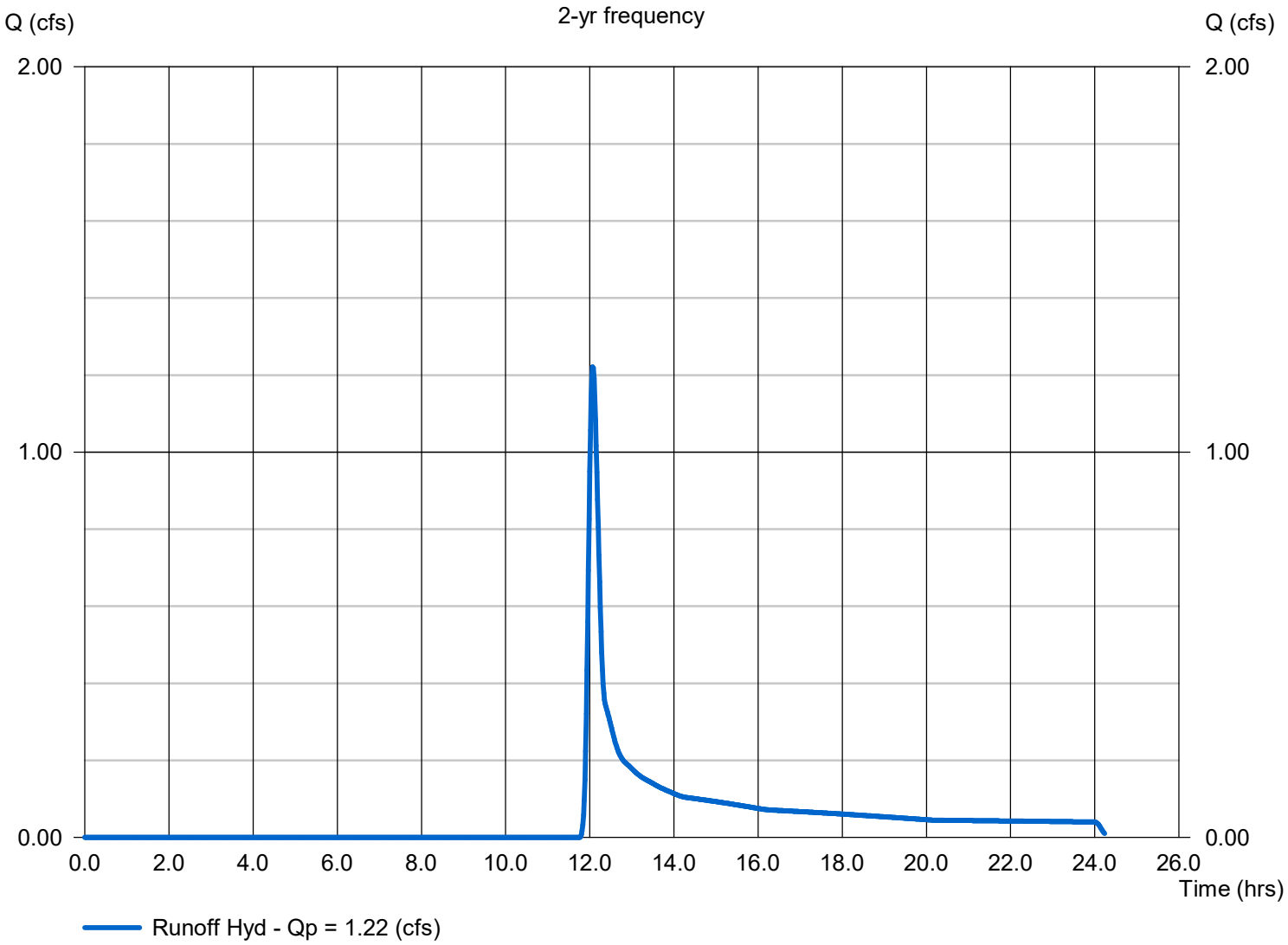
Hydrology Report

Basin 6 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 1.221
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 5.800	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 15
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 4,547 (cuft); 0.104 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 6 - 2 yr

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	= 1.47		0.00		0.00		
Land slope (%)	= 2.00		0.00		0.00		
Travel Time (min)	**= 12.09**	**+**	**0.00**	**+**	**0.00**	**=**	**12.09**
Shallow Concentrated Flow							
Flow length (ft)	= 440.60		0.00		0.00		
Watercourse slope (%)	= 2.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 2.28		0.00		0.00		
Travel Time (min)	**= 3.22**	**+**	**0.00**	**+**	**0.00**	**=**	**3.22**
Channel Flow							
X sectional flow area ((sqft))	= 1.12		1.77		0.00		
Wetted perimeter ((ft))	= 5.03		4.71		0.00		
Channel slope (%)	= 5.00		0.50		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 8.12		3.65		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0**	**+**	**0**	**+**	**0**	**=**	**0.00**

Total Travel Time, Tc ..... 15.00 min

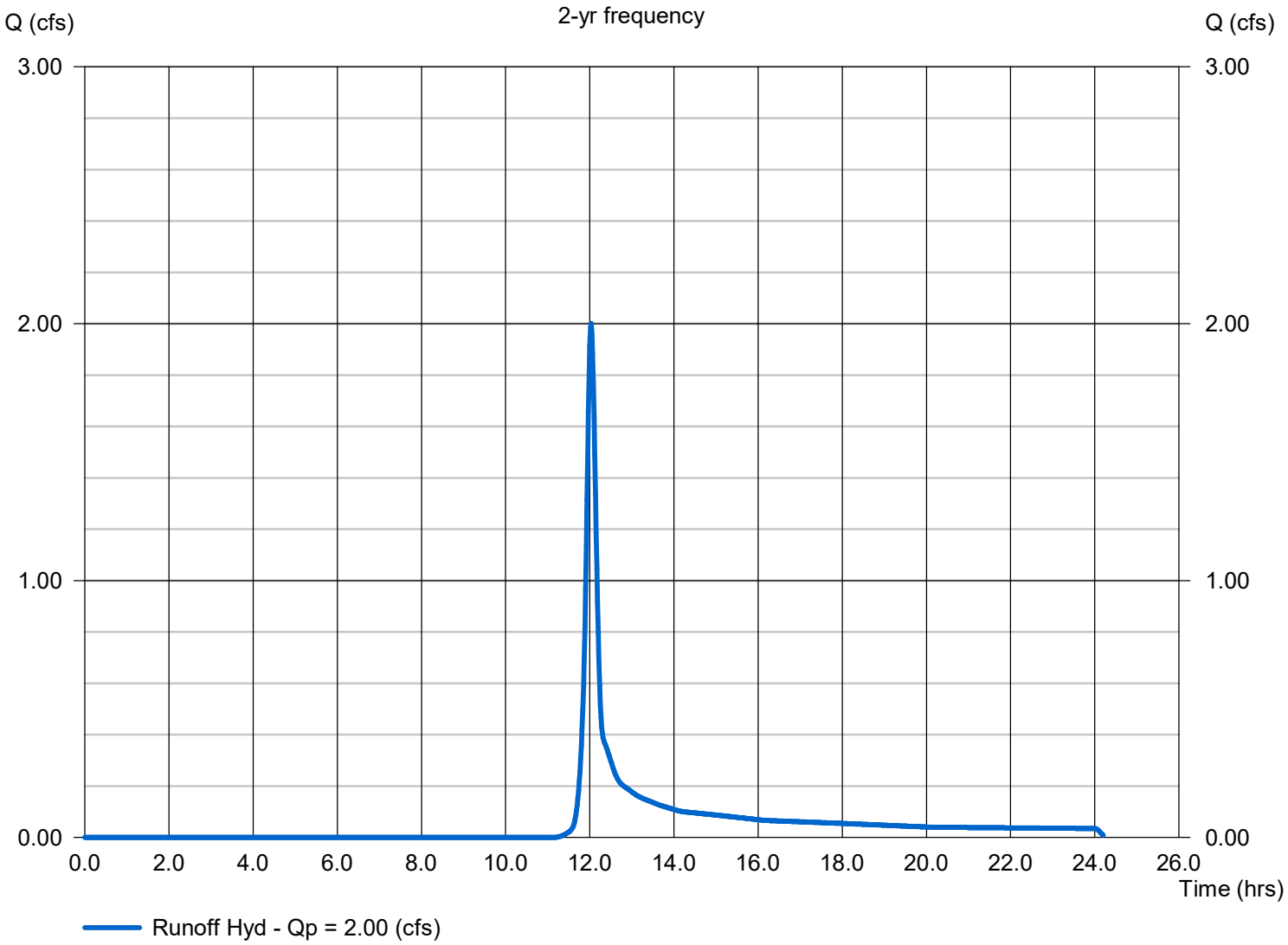
Hydrology Report

Basin 7 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 2.001
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 3.470	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 5,292 (cuft); 0.121 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 7 - 2 yr

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 50.0	0.0	0.0	
Two-year 24-hr precip. ((in))	= 1.47	0.00	0.00	
Land slope (%)	= 5.00	0.00	0.00	
Travel Time (min)	**= 8.38**	**+ 0.00**	**+ 0.00**	**= 8.38**
Shallow Concentrated Flow				
Flow length (ft)	= 82.10	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 0.38**	**+ 0.00**	**+ 0.00**	**= 0.38**
Channel Flow				
X sectional flow area ((sqft))	= 1.12	1.77	0.00	
Wetted perimeter ((ft))	= 5.03	4.71	0.00	
Channel slope (%)	= 5.00	0.50	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 8.12	3.65	0.00	
Flow length (ft)	= 209.0	556.6	0.0	
Travel Time (min)	**= 0.42907290.00**	**2.5444950.00**	**0**	**= 2.97**

Total Travel Time, Tc ..... 12.00 min

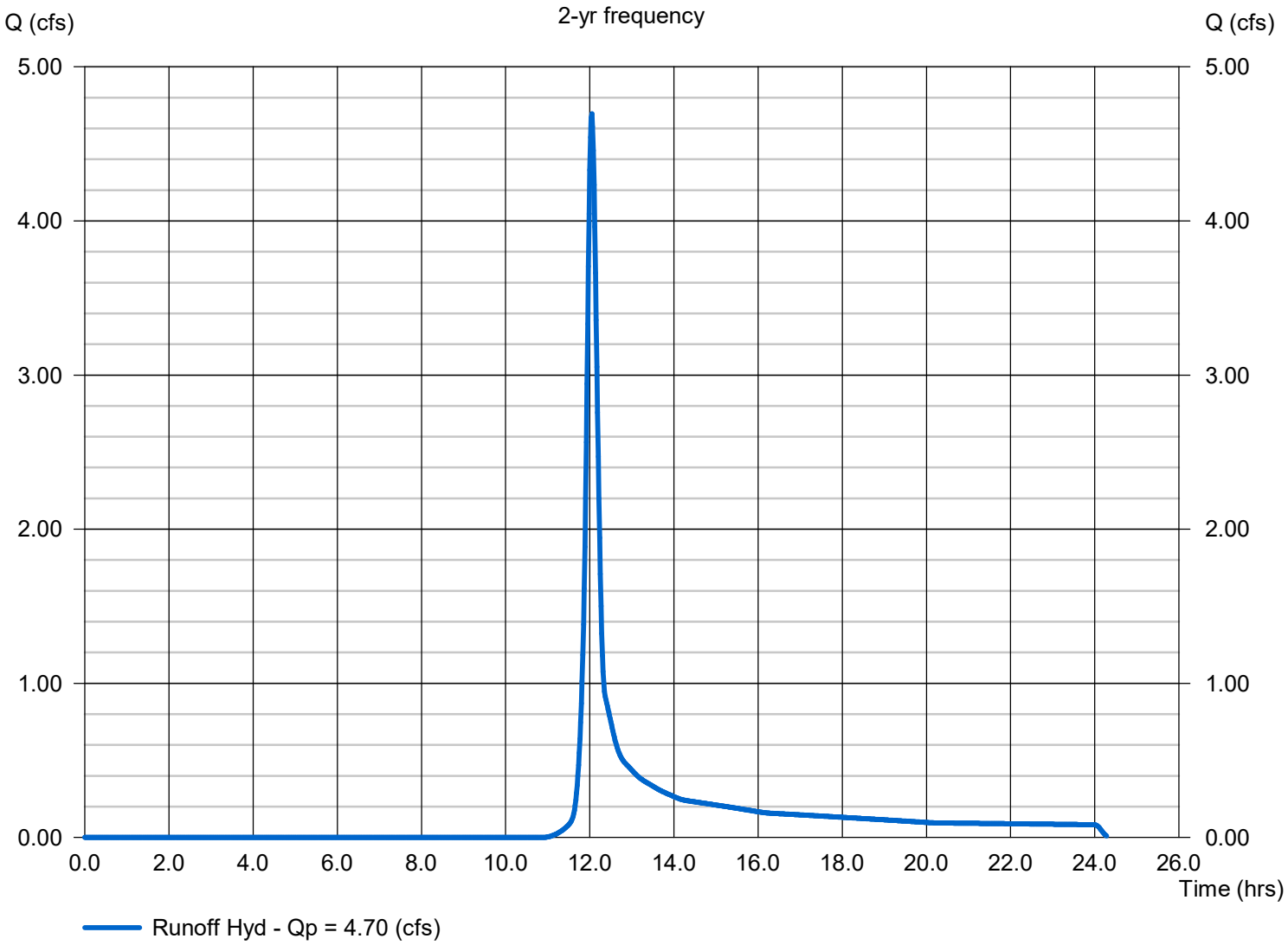
Hydrology Report

Basin 8 - 2yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 4.696
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 7.760	Curve number (CN)	= 86
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 15
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 13,123 (cuft); 0.301 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 8 - 2yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	73.50		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.34**	**+**	**0.00**	**+**	**0.00**	**=**	**0.34**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	381.7		1203.4		0.0		
Travel Time (min)	**=**	**0.78354750.00**		**5.5012410.00**		**0**	**=**	**6.28**

Total Travel Time, Tc ..... 15.00 min

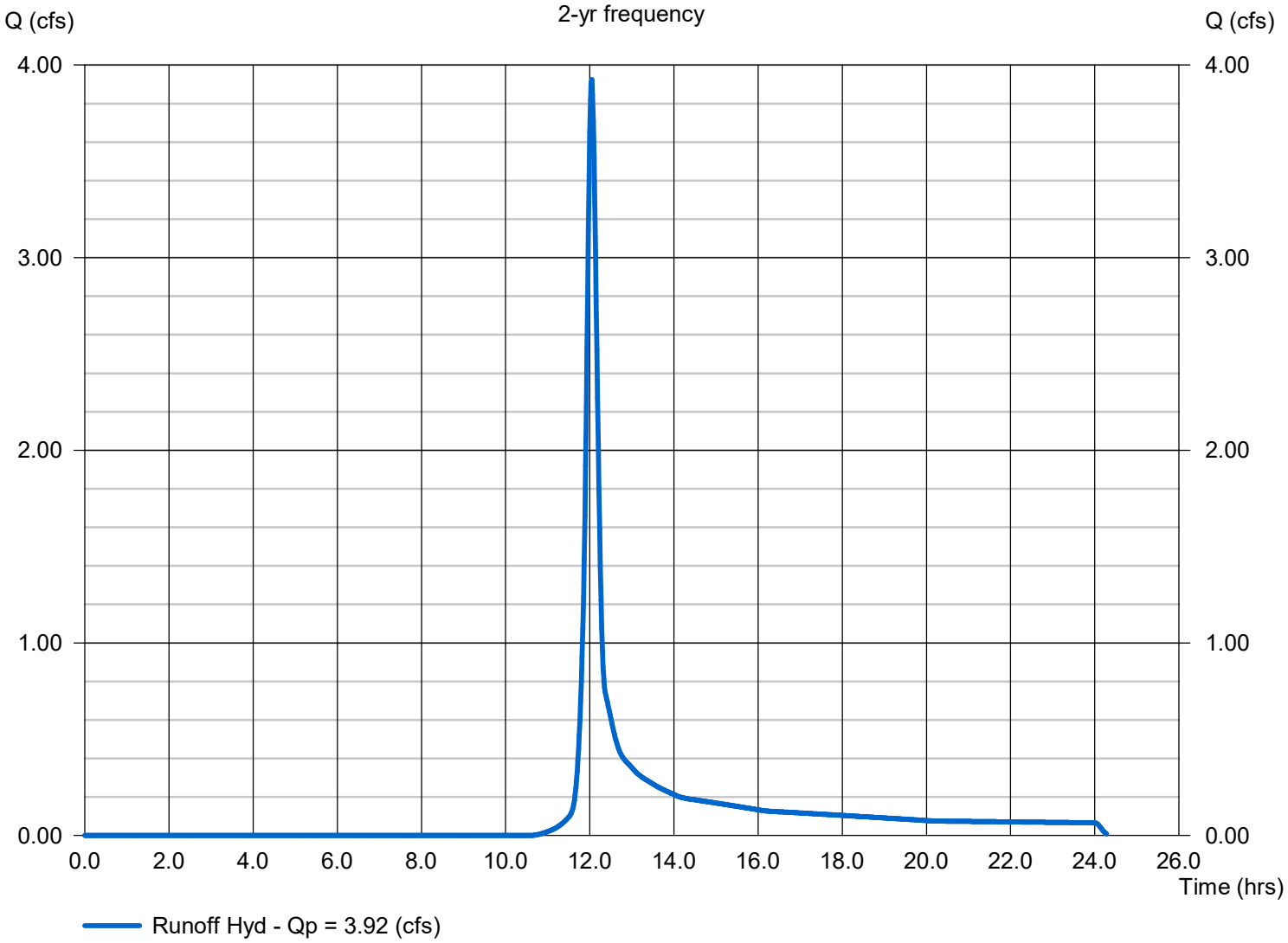
Hydrology Report

Basin 9 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 3.924
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 5.880	Curve number (CN)	= 87
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 14
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 10,838 (cuft); 0.249 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 9 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		0.00		0.00		
Land slope (%)	=	5.00		0.00		0.00		
Travel Time (min)	**=**	**8.38**	**+**	**0.00**	**+**	**0.00**	**=**	**8.38**
Shallow Concentrated Flow								
Flow length (ft)	=	62.00		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.29**	**+**	**0.00**	**+**	**0.00**	**=**	**0.29**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	136.3		1183.1		0.0		
Travel Time (min)	**=**	**0.27979**	**+**	**5.40857**	**+**	**0.00**	**=**	**5.69**

Total Travel Time, Tc ..... 14.00 min

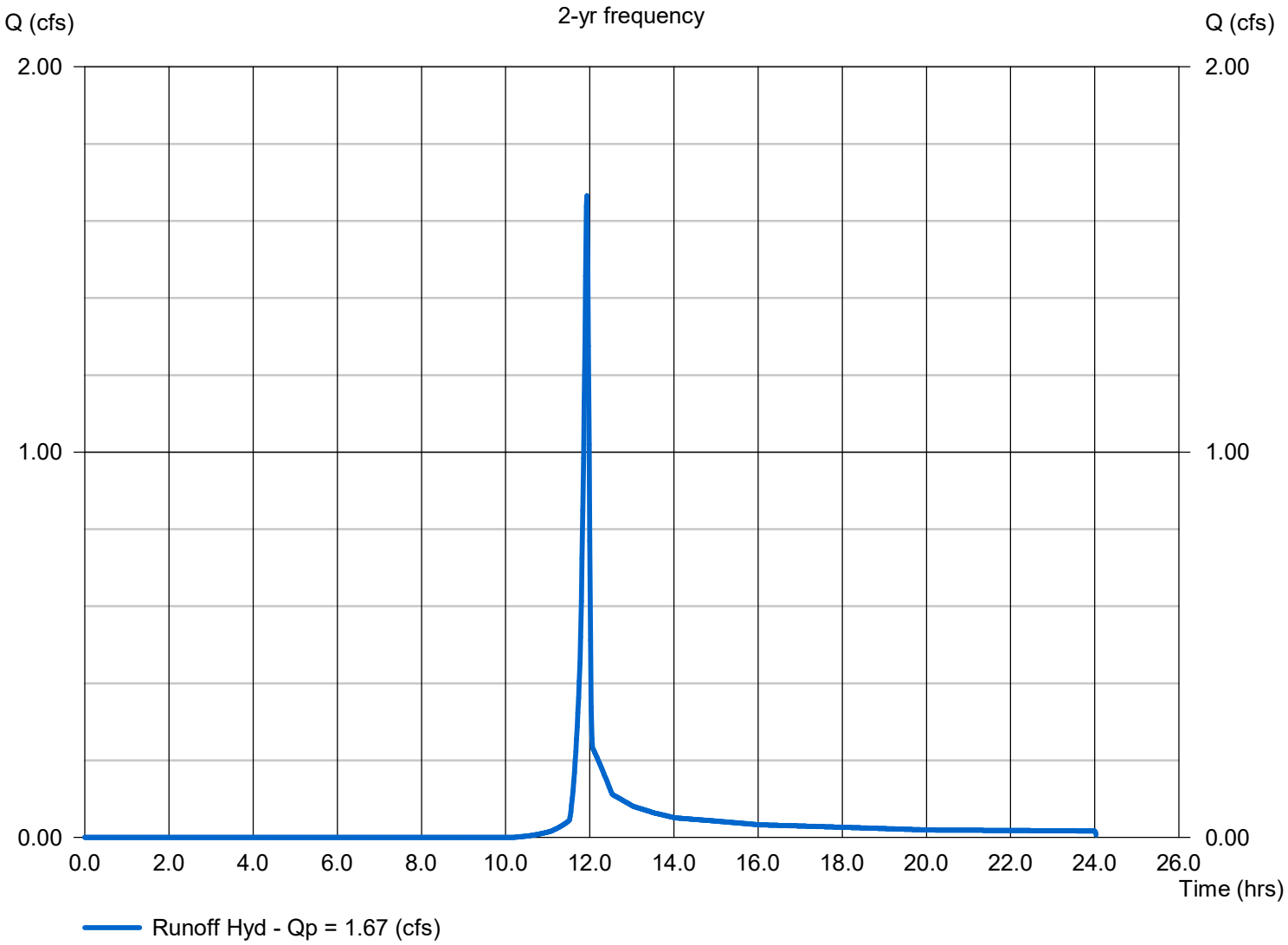
Hydrology Report

Basin 10 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 1.665
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 1.540	Curve number (CN)	= 88
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 3
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 2,896 (cuft); 0.066 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 10 - 2 yr

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 0.0	15.0	0.0	
Two-year 24-hr precip. ((in))	= 1.47	1.46	0.00	
Land slope (%)	= 5.00	2.00	0.00	
Travel Time (min)	**= 0.00 +**	**0.39 +**	**0.00 =**	**0.39**
Shallow Concentrated Flow				
Flow length (ft)	= 0.00	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 0.00 +**	**0.00 +**	**0.00 =**	**0.00**
Channel Flow				
X sectional flow area ((sqft))	= 1.12	1.77	0.00	
Wetted perimeter ((ft))	= 5.03	4.71	0.00	
Channel slope (%)	= 5.00	0.50	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 8.12	3.65	0.00	
Flow length (ft)	= 168.8	475.0	0.0	
Travel Time (min)	**= 0.34646880.00**	**2.1714220.00**	**0 =**	**2.52**

Total Travel Time, Tc ..... 3.00 min

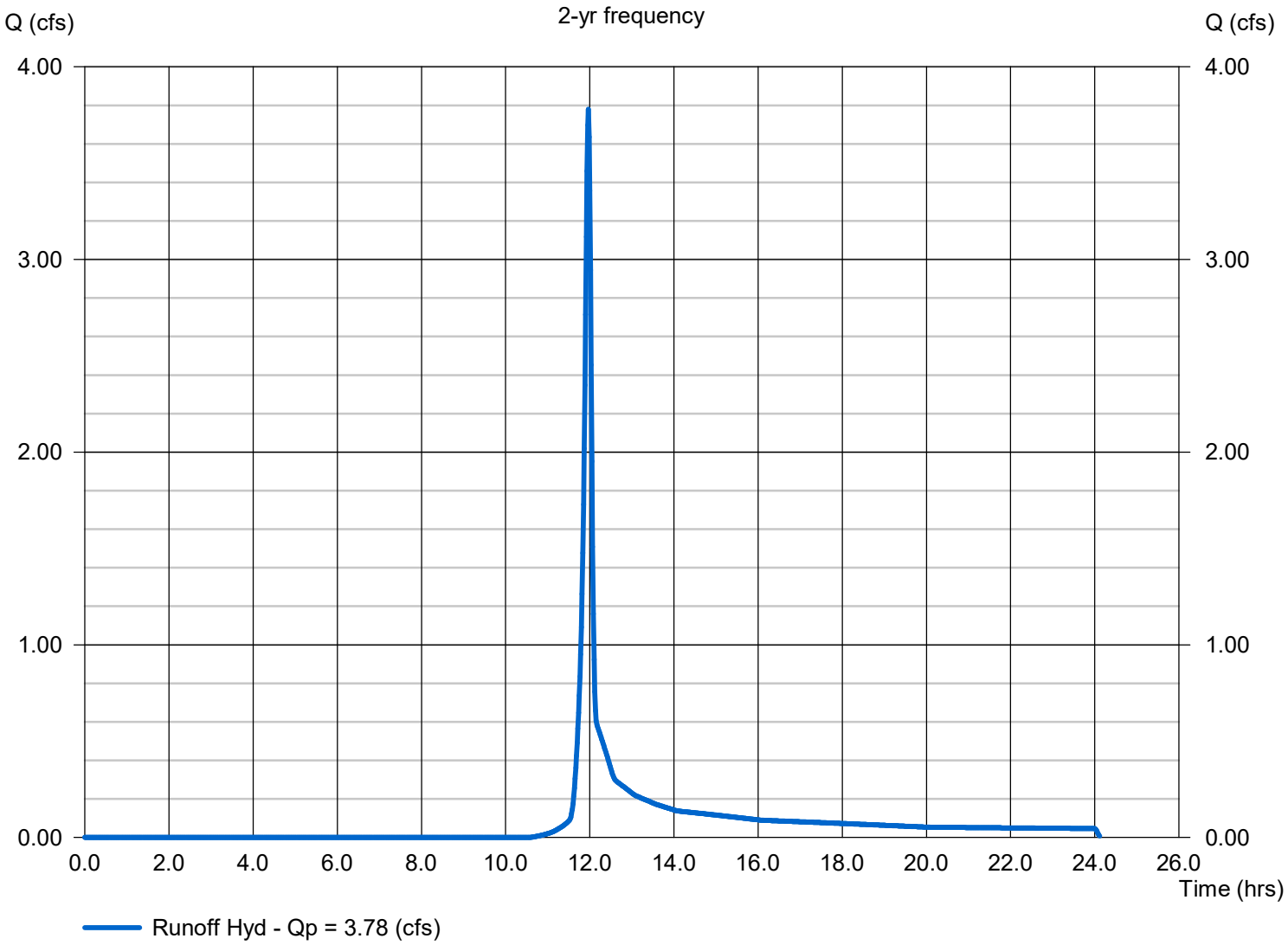
Hydrology Report

Basin 11 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 3.779
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 4.010	Curve number (CN)	= 87
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 6
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 7,622 (cuft); 0.175 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 11 - 2 yr

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 45.0	0.0	0.0	
Two-year 24-hr precip. ((in))	= 1.47	1.46	0.00	
Land slope (%)	= 33.00	2.00	0.00	
Travel Time (min)	**= 3.62**	**+ 0.00**	**+ 0.00**	**= 3.62**
Shallow Concentrated Flow				
Flow length (ft)	= 0.00	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**
Channel Flow				
X sectional flow area ((sqft))	= 1.12	1.77	0.00	
Wetted perimeter ((ft))	= 5.03	4.71	0.00	
Channel slope (%)	= 5.00	0.50	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 8.12	3.65	0.00	
Flow length (ft)	= 300.0	427.0	0.0	
Travel Time (min)	**= 0.61583540.00 1.9519940.00 0**			**= 2.57**

Total Travel Time, Tc ..... 6.00 min

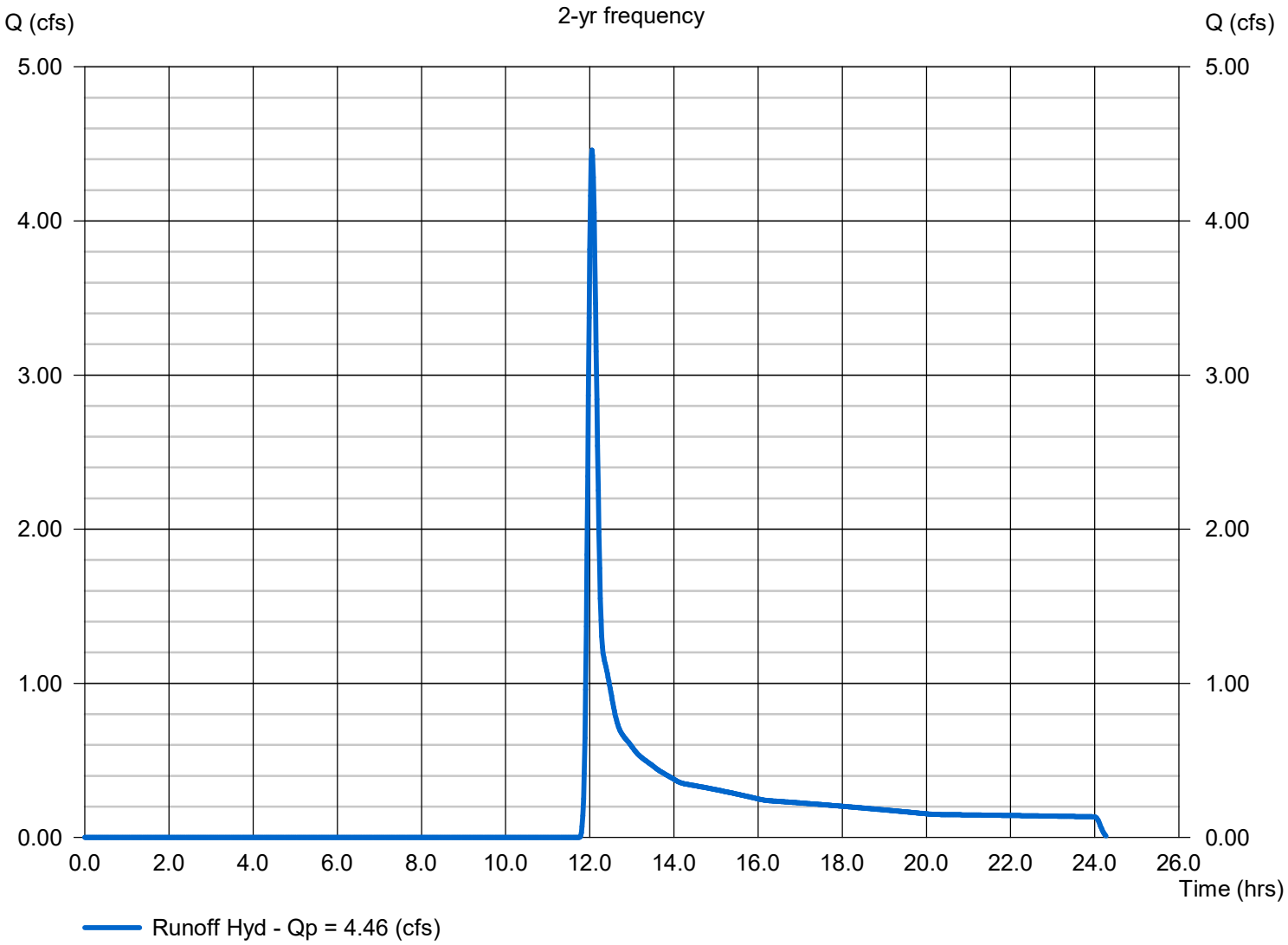
Hydrology Report

Basin 12.1 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 4.460
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 19.710	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 15,211 (cuft); 0.349 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 12.1 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	86.90		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.9		1567.8		0.0		
Travel Time (min)	**=**	**0.54788790.00**		**7.16706500.00**		**0**	**=**	**7.71**

Total Travel Time, Tc ..... 12.00 min

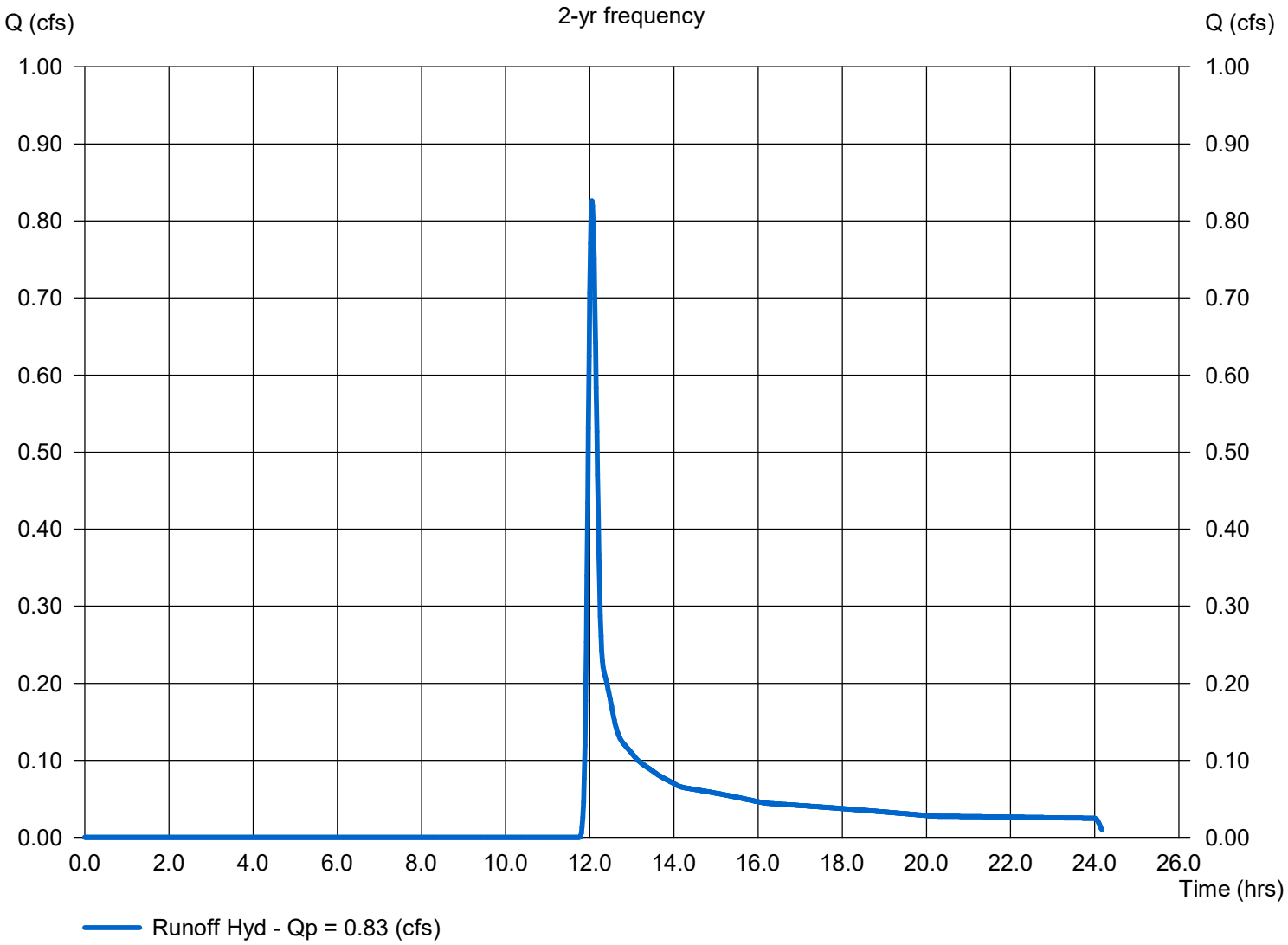
Hydrology Report

Basin 12.2 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 0.826
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 3.650	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 2,817 (cuft); 0.065 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 12.2 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	86.90		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.9		1567.8		0.0		
Travel Time (min)	**=**	**0.54788790.00**		**7.16706500.00**		**0**	**=**	**7.71**

Total Travel Time, Tc ..... 12.00 min

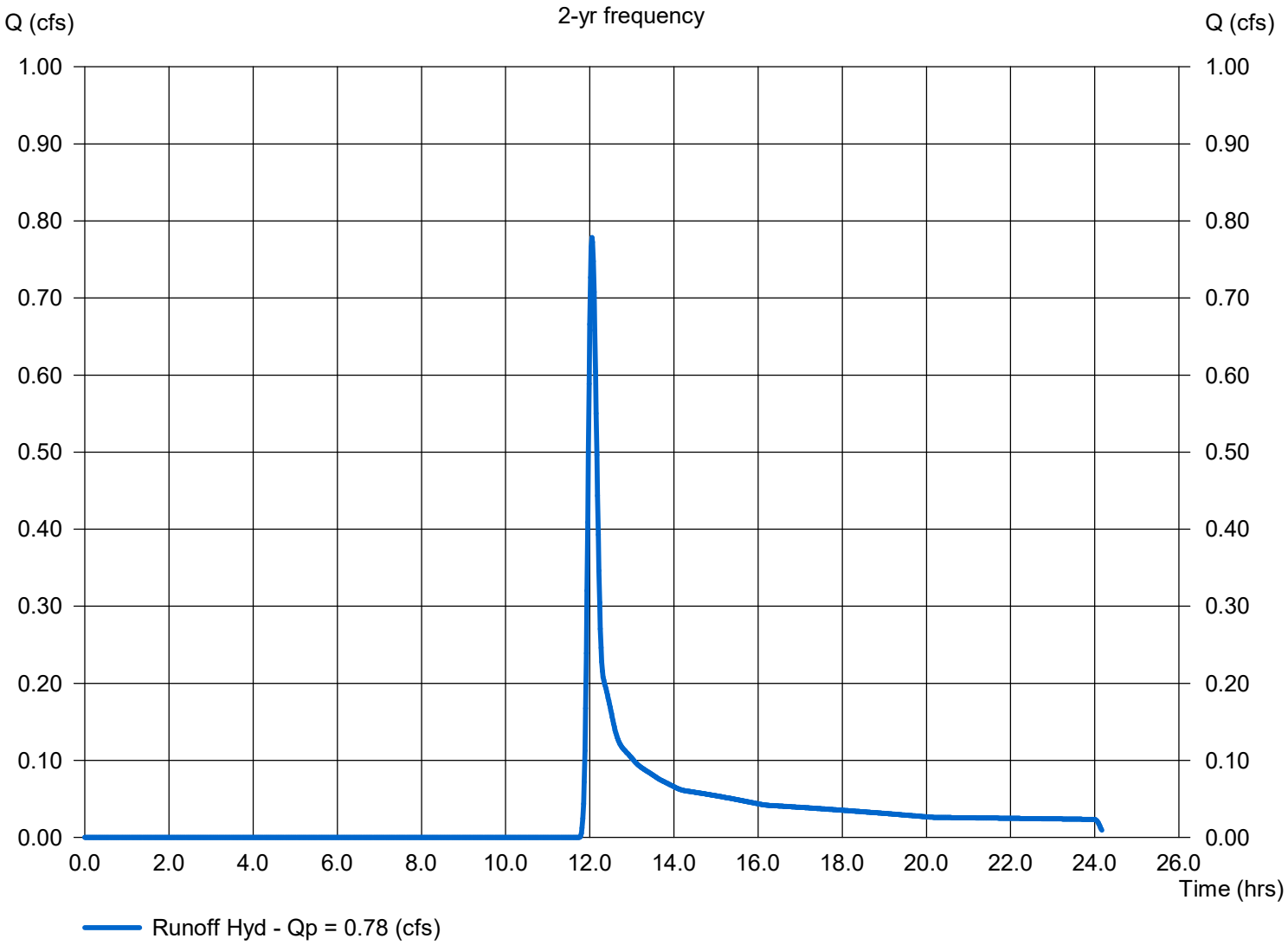
Hydrology Report

Basin 12.3 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 0.778
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 3.440	Curve number (CN)	= 78
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 12
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 2,655 (cuft); 0.061 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 12.3 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	86.90		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.40**	**+**	**0.00**	**+**	**0.00**	**=**	**0.40**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.9		1567.8		0.0		
Travel Time (min)	**=**	**0.54788790.00**		**7.16706500.00**		**0**	**=**	**7.71**

Total Travel Time, Tc ..... 12.00 min

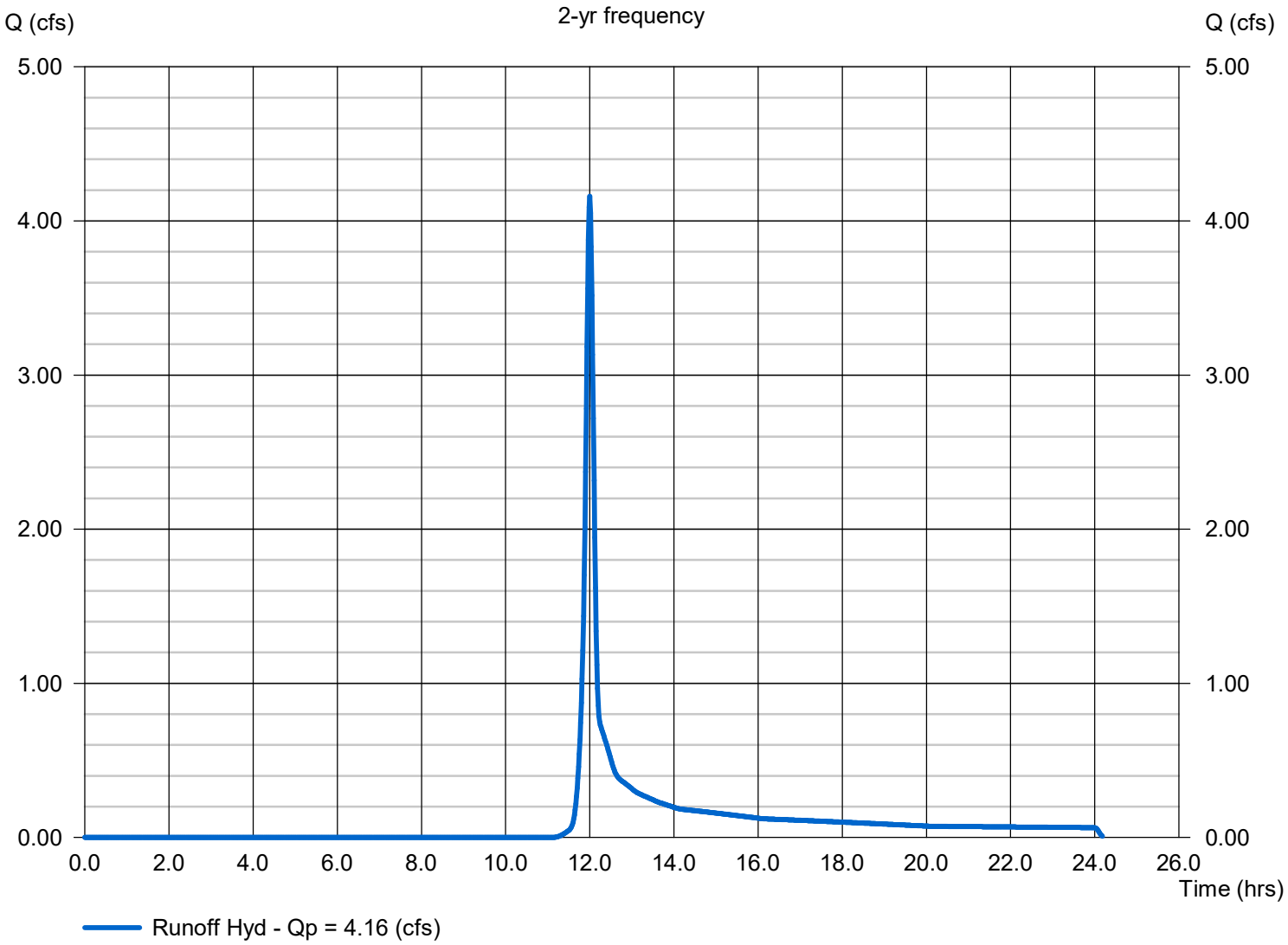
Hydrology Report

Basin 13 - Pond 13 East Discharge - 2yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 4.159
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 6.250	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 9,682 (cuft); 0.222 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - Pond 13 East Discharge - 2yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	121.70		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.56**	**+**	**0.00**	**+**	**0.00**	**=**	**0.56**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	266.6		828.5		0.0		
Travel Time (min)	**=**	**0.54727240.00**		**3.7874170.00**		**0**	**=**	**4.33**

Total Travel Time, Tc ..... 9.00 min

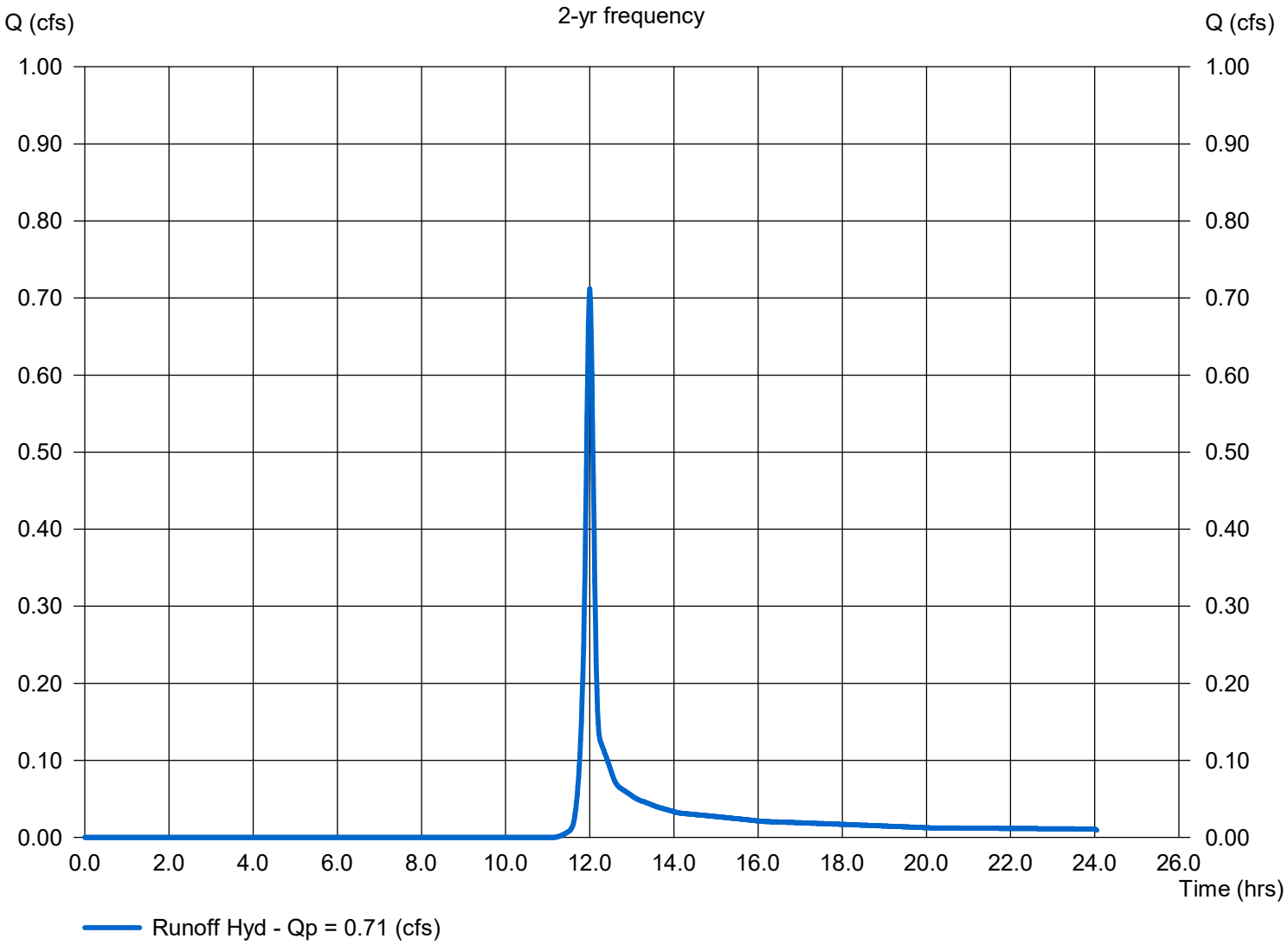
Hydrology Report

Basin 13 - Pond 13 Middle Discharge

Hydrograph type	= SCS	Peak discharge (cfs)	= 0.712
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 1.070	Curve number (CN)	= 85
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 1,658 (cuft); 0.038 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - Pond 13 Middle Discharge

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 50.0	0.0	0.0	
Two-year 24-hr precip. ((in))	= 1.47	1.46	0.00	
Land slope (%)	= 33.00	2.00	0.00	
Travel Time (min)	**= 3.94**	**+ 0.00**	**+ 0.00**	**= 3.94**
Shallow Concentrated Flow				
Flow length (ft)	= 121.70	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 0.56**	**+ 0.00**	**+ 0.00**	**= 0.56**
Channel Flow				
X sectional flow area ((sqft))	= 1.12	1.77	0.00	
Wetted perimeter ((ft))	= 5.03	4.71	0.00	
Channel slope (%)	= 5.00	0.50	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 8.12	3.65	0.00	
Flow length (ft)	= 266.6	828.5	0.0	
Travel Time (min)	**= 0.54727240.00**	**3.7874170.00**	**0**	**= 4.33**

Total Travel Time, Tc ..... 9.00 min

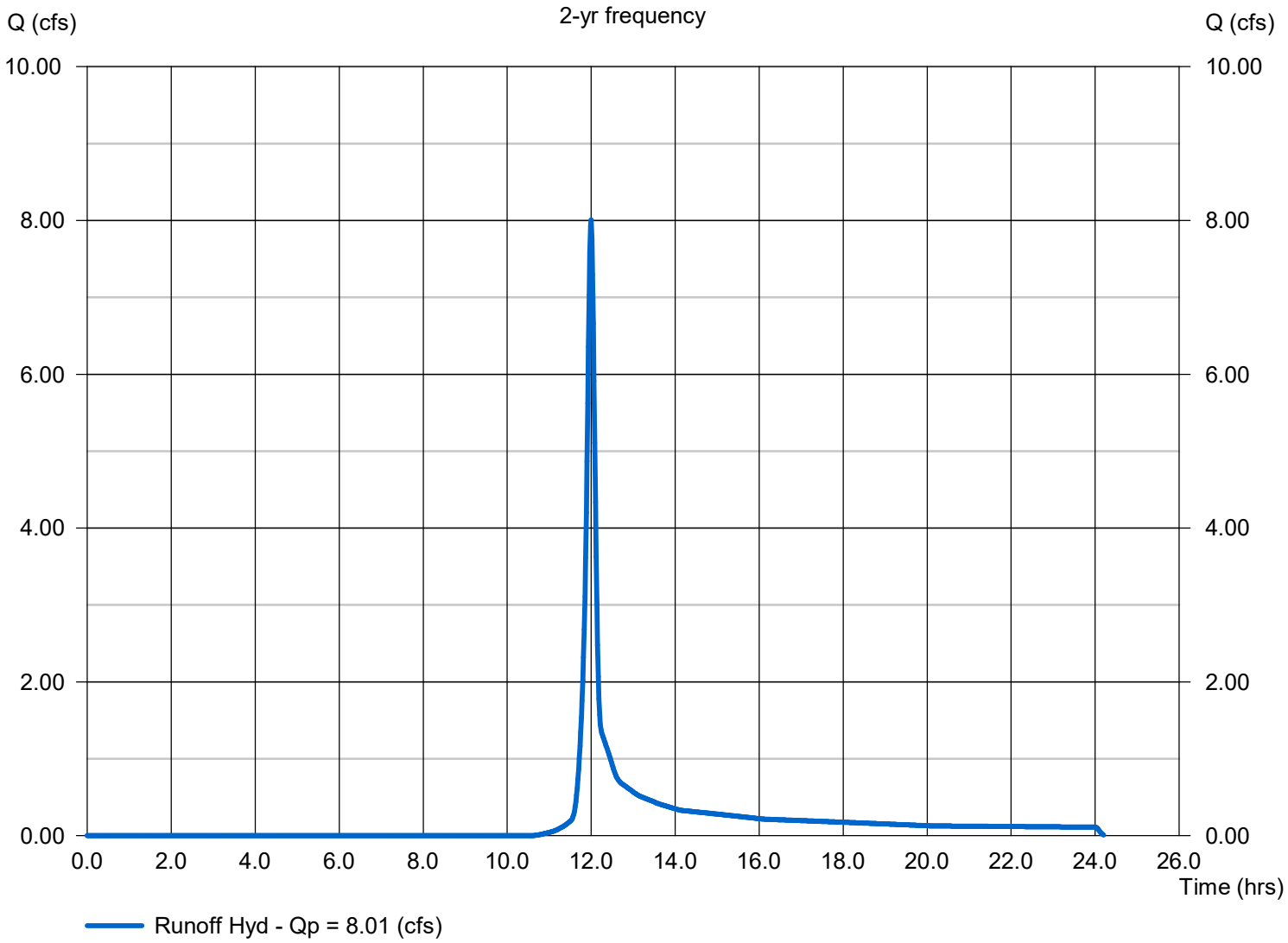
Hydrology Report

Basin 13 - West Discharge

Hydrograph type	= SCS	Peak discharge (cfs)	= 8.006
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 9.920	Curve number (CN)	= 87
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 9
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 18,284 (cuft); 0.420 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 13 - West Discharge

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 50.0	0.0	0.0	
Two-year 24-hr precip. ((in))	= 1.47	1.46	0.00	
Land slope (%)	= 33.00	2.00	0.00	
Travel Time (min)	**= 3.94**	**+ 0.00**	**+ 0.00**	**= 3.94**
Shallow Concentrated Flow				
Flow length (ft)	= 121.70	0.00	0.00	
Watercourse slope (%)	= 5.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 3.61	0.00	0.00	
Travel Time (min)	**= 0.56**	**+ 0.00**	**+ 0.00**	**= 0.56**
Channel Flow				
X sectional flow area ((sqft))	= 1.12	1.77	0.00	
Wetted perimeter ((ft))	= 5.03	4.71	0.00	
Channel slope (%)	= 5.00	0.50	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 8.12	3.65	0.00	
Flow length (ft)	= 266.6	828.5	0.0	
Travel Time (min)	**= 0.54727240.00**	**3.7874170.00**	**0**	**= 4.33**

Total Travel Time, Tc ..... 9.00 min

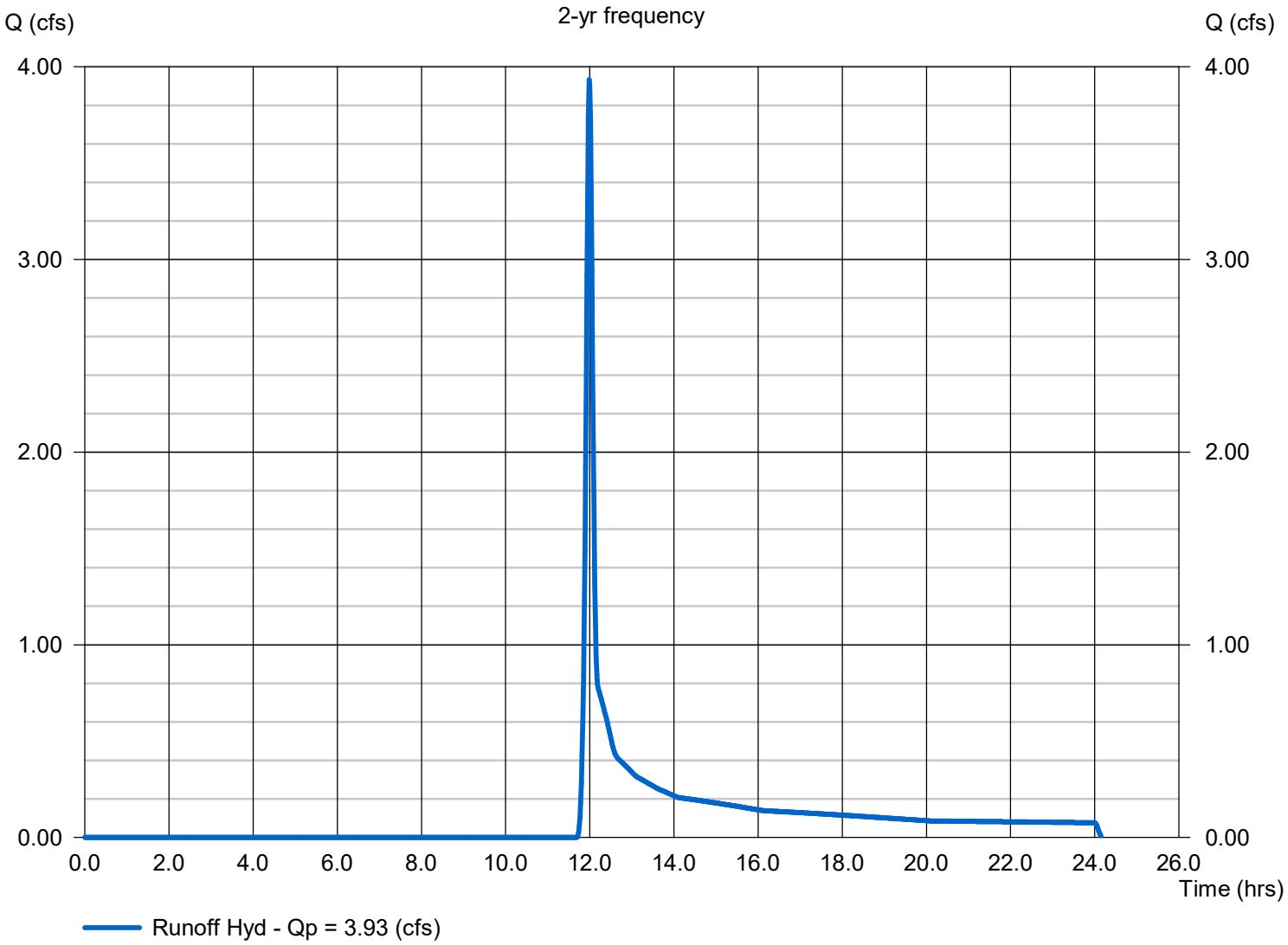
Hydrology Report

Basin 14/15 - 2 yr

Hydrograph type	= SCS	Peak discharge (cfs)	= 3.934
Storm frequency (yrs)	= 2	Time interval (min)	= 1
Drainage area (ac)	= 10.030	Curve number (CN)	= 80
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 8
Total precip. (in)	= 1.46	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 9,455 (cuft); 0.217 (acft)

Runoff Hydrograph



TR55 Tc Worksheet

SCS

Basin 14/15 - 2 yr

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.240		0.011		0.011		
Flow length (ft)	=	50.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	1.47		1.46		0.00		
Land slope (%)	=	33.00		2.00		0.00		
Travel Time (min)	**=**	**3.94**	**+**	**0.00**	**+**	**0.00**	**=**	**3.94**
Shallow Concentrated Flow								
Flow length (ft)	=	33.70		0.00		0.00		
Watercourse slope (%)	=	5.00		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	3.61		0.00		0.00		
Travel Time (min)	**=**	**0.16**	**+**	**0.00**	**+**	**0.00**	**=**	**0.16**
Channel Flow								
X sectional flow area ((sqft))	=	1.12		1.77		0.00		
Wetted perimeter ((ft))	=	5.03		4.71		0.00		
Channel slope (%)	=	5.00		0.50		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	8.12		3.65		0.00		
Flow length (ft)	=	50.0		799.1		0.0		
Travel Time (min)	**=**	**0.10**	**+**	**3.65**	**+**	**0.00**	**=**	**3.76**

Total Travel Time, Tc ..... 8.00 min

Figures

Location Map EX-01

Parcel Configuration EX-02

Highlands Residential Master Plan – Version 11B-4 ..... EX-03

North Village Undeveloped Drainage Master Plan EX-04

Offsite Drainge Basin Exhibit EX-05

Onsite Drainage Basins EX-06A

Onsite Drainage Basins EX-06B

Commercial Parcel EX-07

Detention/Retention Ponds EX-08

Northwest Corner Ponds Map EX-08A

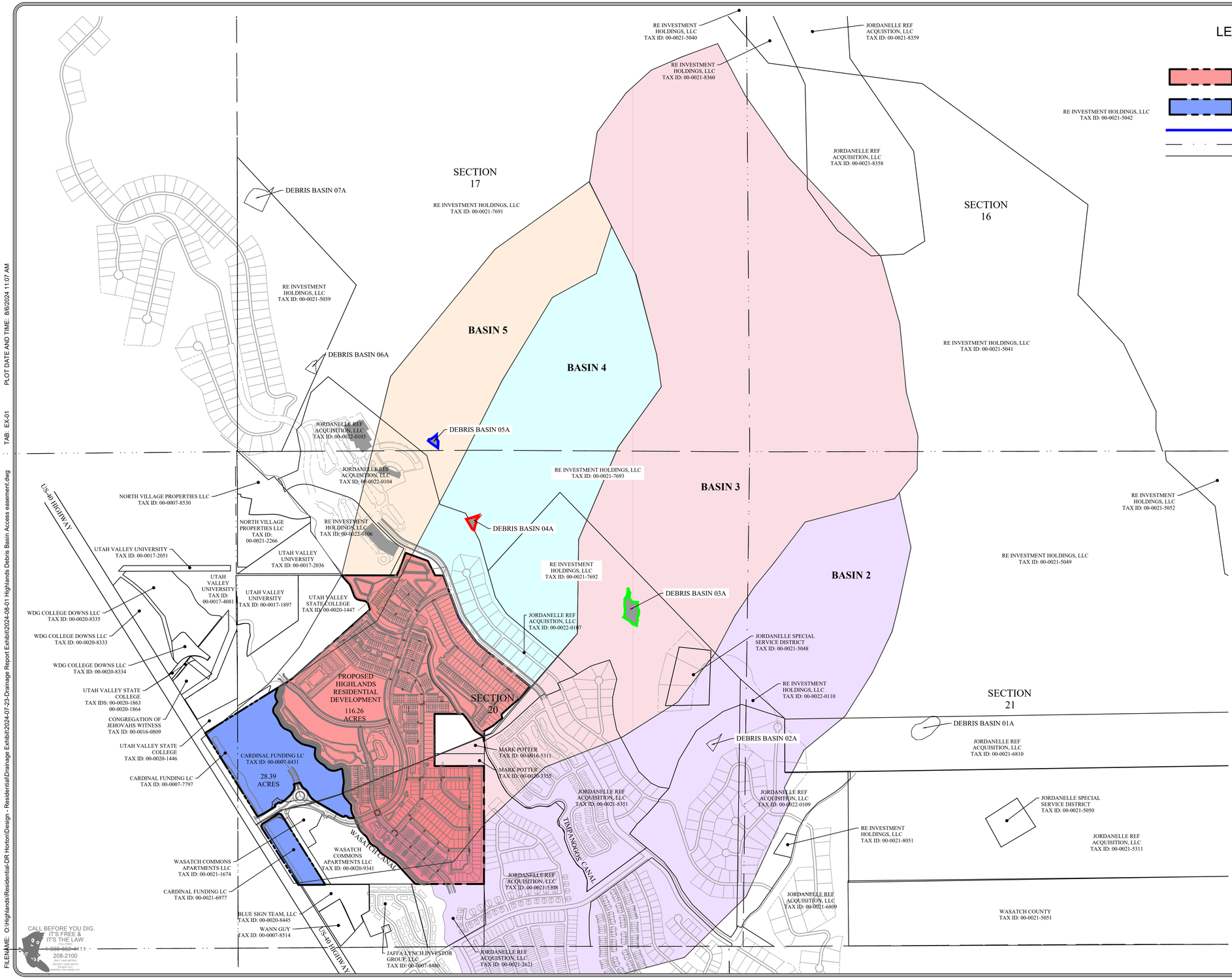
Flow Chart Drainage Pattern with Infiltration EX-09

Flow Chart Pond Volume Calculation with Infiltration EX-10

Flow Chart Drainage Patter without Infiltration EX-11

Flow Chart Pond Volume Calculations without Infiltration EX-12

SD Treatment Locations EX-13



HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
LOCATION MAP

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: 2024-08-01 HIGHLANDS DEBRIS BASIN ACCESS EASEMENT.DWG
JOB No. 3891-DRH01-23
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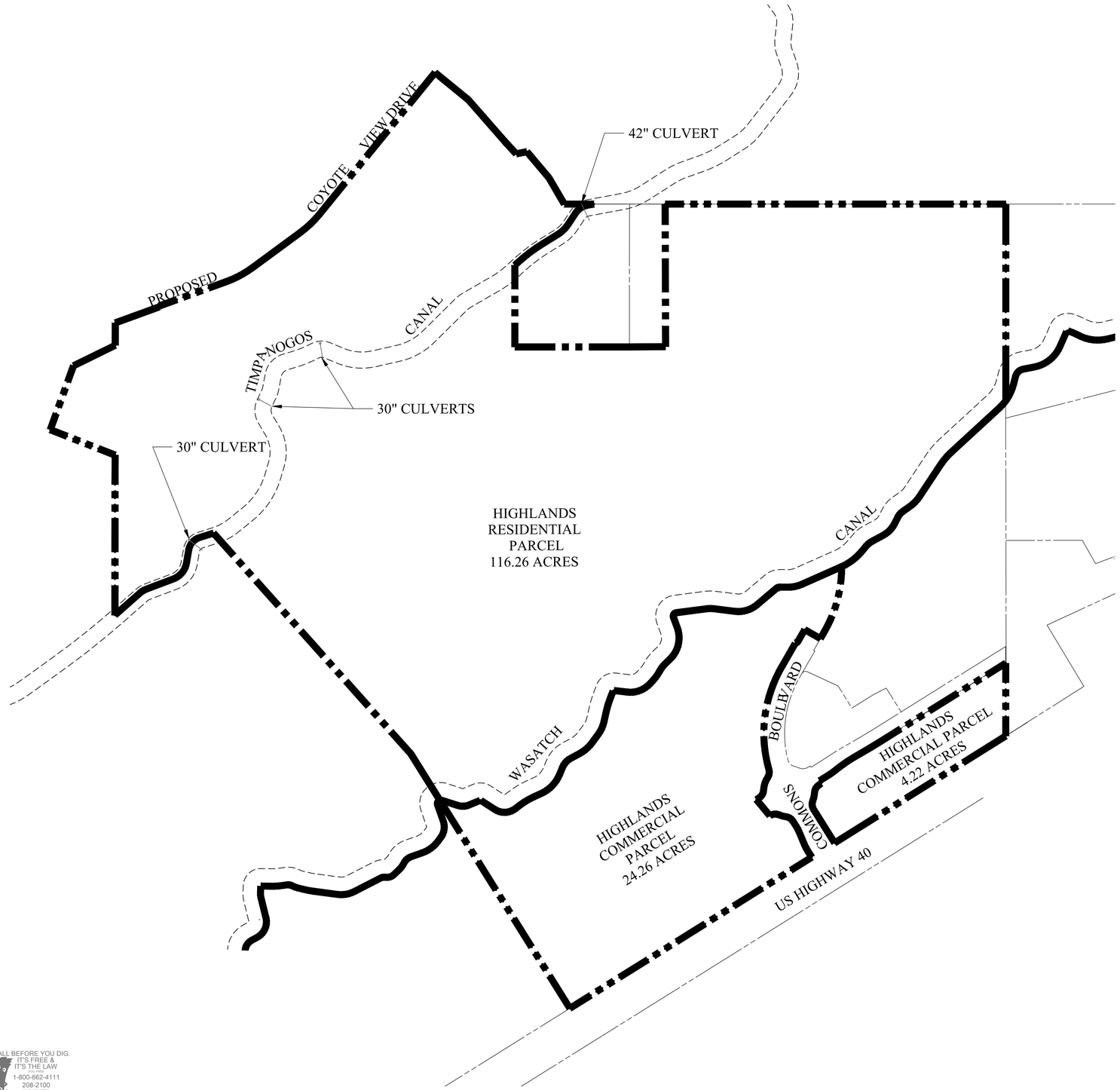
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SHEET
EX-01

PLOT DATE AND TIME: 8/6/2024 11:07 AM
TAB: EX-01
FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-01 Highlands Debris Basin Access easement.dwg

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FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-07-29 Residential & Commercial Parcels Exhibit.dwg TAB: EX-02 (2) PLOT DATE AND TIME: 8/6/2024 11:08 AM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
RESIDENTIAL/COMMERCIAL PARCEL CONFIGURATION

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
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CLIENT: D.R HORTON
DWG: 2024-07-29 RESIDENTIAL & COMMERCIAL PARCELS
JOB No: 5897DRHH1.23
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EX-02



HIGHLANDS RESIDENTIAL DEVELOPMENT SUMMARY

AREA= 116.26 AC. **ERU's= 579** **(TOTAL AFFORDABLE HOUSING ERU's= 51)**

DR HORTON	UNITS	ERUs/UNIT	ERUs
SINGLE FAMILY RESIDENTIAL ALTA LOTS WITH ALTA HOME (40.5x93)	112	0.75	84.0
SINGLE FAMILY RESIDENTIAL COTTAGE LOTS WITH COTTAGE HOME (46.5x93)	93	1.0	93.0
STACKED FLATS	235	SEE STACKED FLAT SUMMARY TABLE	104.6
TOWNHOMES - OLIVER	89	1.0	89.0
TOWNHOMES - MILLBROOK	145	0.75	108.75
TOWNHOMES - DALTON	133	0.75	99.75
TOTAL UNITS = 807		**TOTAL ERUs = 579**	

STACKED FLATS SUMMARY			
SQ FT	Units	ERUs Rate	ERUs
<800	108	0.33	35.6
800-1200	105	0.50	52.5
1200-1600	22	0.75	16.5
>1600	0	1.00	0.0
GRAND TOTAL	235		104.6

LEGEND:

- HIGHLANDS PONDS
- ACCESS DRIVES
- RIPRAP CHANNEL

Scale 1" = 200'

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FILENAME: O:\Highlands\Base\Proposed Base V11B-4.dwg TAB: EX-03 PLOT DATE AND TIME: 8/6/2024 11:10 AM

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
HIGHLANDS RESIDENTIAL MASTER PLAN-VERSION 11B-4

231 West 800 South Salt Lake City, Utah 84101
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CLIENT: D.R. HORTON
DWG: PROPOSED BASE V11B-4.DWG
JOB No: 3691-DRH01-23
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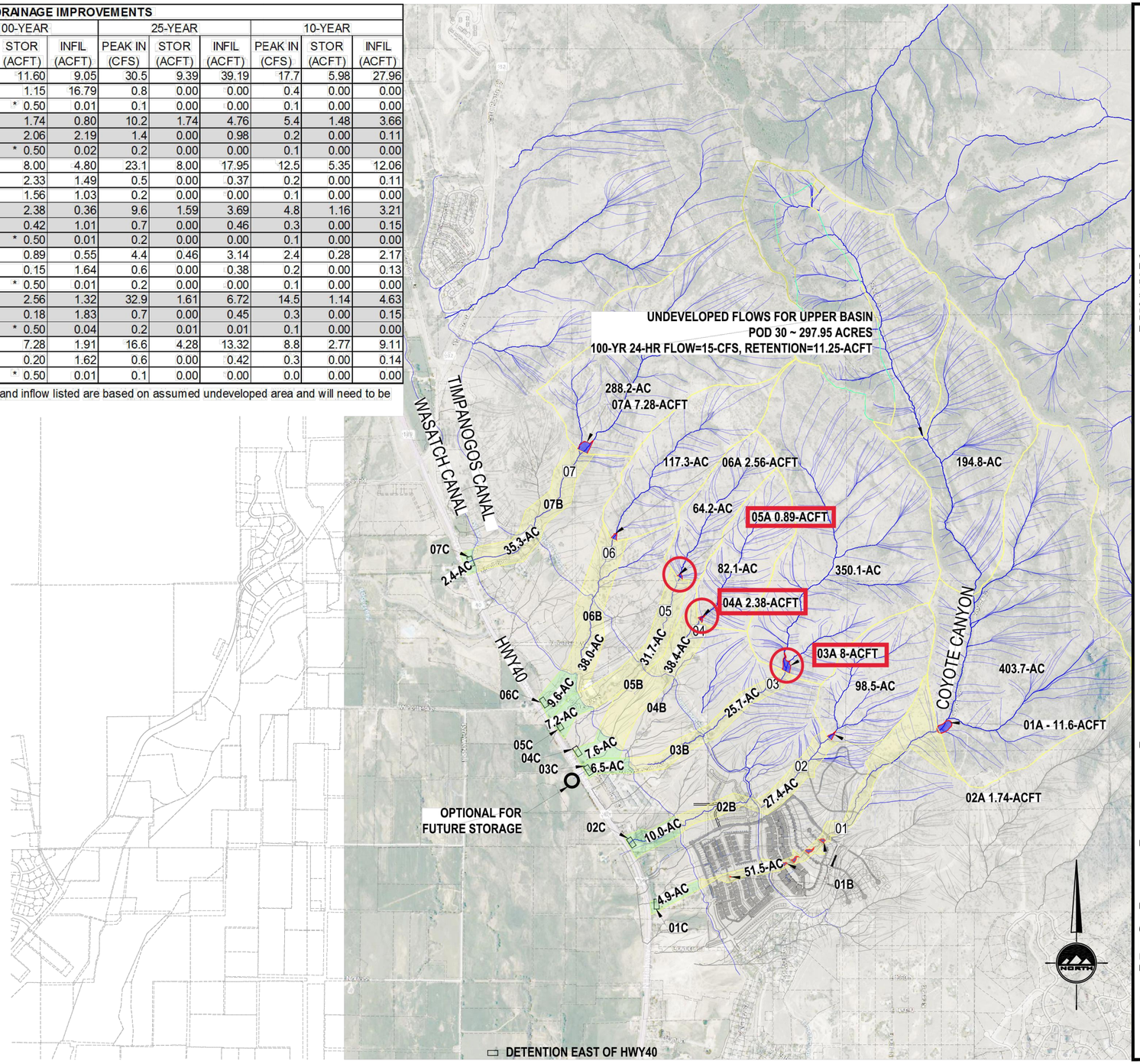
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SHEET
EX-03

UNDEVELOPED FLOWS THROUGH JORDANELLE CANYONS WITH DRAINAGE IMPROVEMENTS

STORAGE / LID MEASURE		HISTORIC 100-YR 24-HR PEAK IN (CFS)	HISTORIC 100-YR 24-HR STOR (ACFT)	INFIL. (IN/HR)	100-YEAR PEAK IN (CFS)	100-YEAR STOR (ACFT)	100-YEAR INFIL (ACFT)	25-YEAR PEAK IN (CFS)	25-YEAR STOR (ACFT)	25-YEAR INFIL (ACFT)	10-YEAR PEAK IN (CFS)	10-YEAR STOR (ACFT)	10-YEAR INFIL (ACFT)
01A	SEDIMENT BASIN	162	87	5.45	65.9	11.60	9.05	30.5	9.39	39.19	17.7	5.98	27.96
01B	ROADS / TRAILS			27	22.6	1.15	16.79	0.8	0.00	0.00	0.4	0.00	0.00
01C	EAST HWY 40 *			2	0.8	* 0.50	0.01	0.1	0.00	0.00	0.1	0.00	0.00
02A	SEDIMENT BASIN	33	13	2	25.3	1.74	0.80	10.2	1.74	4.76	5.4	1.48	3.66
02B	ROADS / TRAILS			2	11.9	2.06	2.19	1.4	0.00	0.98	0.2	0.00	0.11
02C	EAST HWY 40 *			2	1.2	* 0.50	0.02	0.2	0.00	0.00	0.1	0.00	0.00
03A	SEDIMENT BASIN	100	35	3.75	54.1	8.00	4.80	23.1	8.00	17.95	12.5	5.35	12.06
03B	ROADS / TRAILS			2	17.7	2.33	1.49	0.5	0.00	0.37	0.2	0.00	0.11
03C	EAST HWY 40 *			2	11.1	1.56	1.03	0.2	0.00	0.00	0.1	0.00	0.00
04A	SEDIMENT BASIN	42	12.5	1	23.1	2.38	0.36	9.6	1.59	3.69	4.8	1.16	3.21
04B	ROADS / TRAILS			1	2.7	0.42	1.01	0.7	0.00	0.46	0.3	0.00	0.15
04C	EAST HWY 40 *			1	1.0	* 0.50	0.01	0.2	0.00	0.00	0.1	0.00	0.00
05A	SEDIMENT BASIN	16	7	2.5	12.5	0.89	0.55	4.4	0.46	3.14	2.4	0.28	2.17
05B	ROADS / TRAILS			2	2.5	0.15	1.64	0.6	0.00	0.38	0.2	0.00	0.13
05C	EAST HWY 40 *			2	1.0	* 0.50	0.01	0.2	0.00	0.00	0.1	0.00	0.00
06A	SEDIMENT BASIN	41	14.5	3.75	80.5	2.56	1.32	32.9	1.61	6.72	14.5	1.14	4.63
06B	ROADS / TRAILS			2	2.7	0.18	1.83	0.7	0.00	0.45	0.3	0.00	0.15
06C	EAST HWY 40 *			2	1.2	* 0.50	0.04	0.2	0.01	0.01	0.1	0.00	0.00
07A	SEDIMENT BASIN	90	34	1.75	40.1	7.28	1.91	16.6	4.28	13.32	8.8	2.77	9.11
07B	ROADS / TRAILS			2	2.6	0.20	1.62	0.6	0.00	0.42	0.3	0.00	0.14
07C	EAST HWY 40 *			2	0.7	* 0.50	0.01	0.1	0.00	0.00	0.0	0.00	0.00

* Minimum basin size at bottom of all drainages (0XC) is 0.5-acft. Volumes and inflow listed are based on assumed undeveloped area and will need to be verified with individual overall drainage basin/development plans.



HORIZONTAL GRAPHIC SCALE

2000 0 1000 2000 4000

(IN FEET)

HORZ: 1 inch = 2000ft.

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Phone: 435.843.3590

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Phone: 435.865.1453

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Phone: 435.896.2983

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FOR:
MOMENTUM DEVELOPMENT GROUP, LLC
10421 SOUTH JORDAN GATEWAY BLVD, #200
SOUTH JORDAN, UTAH 84095
CONTACT:
DAVE BARBEE
PHONE: 801-316-3193

NORTH VILLAGE
UNDEVELOPED DRAINAGE MASTER PLAN
700 COYOTE LANE
HEBER CITY, UTAH

UNDEVELOPED DRAINAGE
COYOTE CANYON
DISCHARGE VOLUMES
UPDATED INFIL RATES

PROJECT NUMBER 10229A
PRINT DATE 7/19/22
DRAWN BY C. DUNKEL
CHECKED BY B. MORGAN
PROJECT MANAGER B. MORGAN

EX-110

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
NORTH VILLAGE UNDEVELOPED DRAINAGE MASTER PLAN

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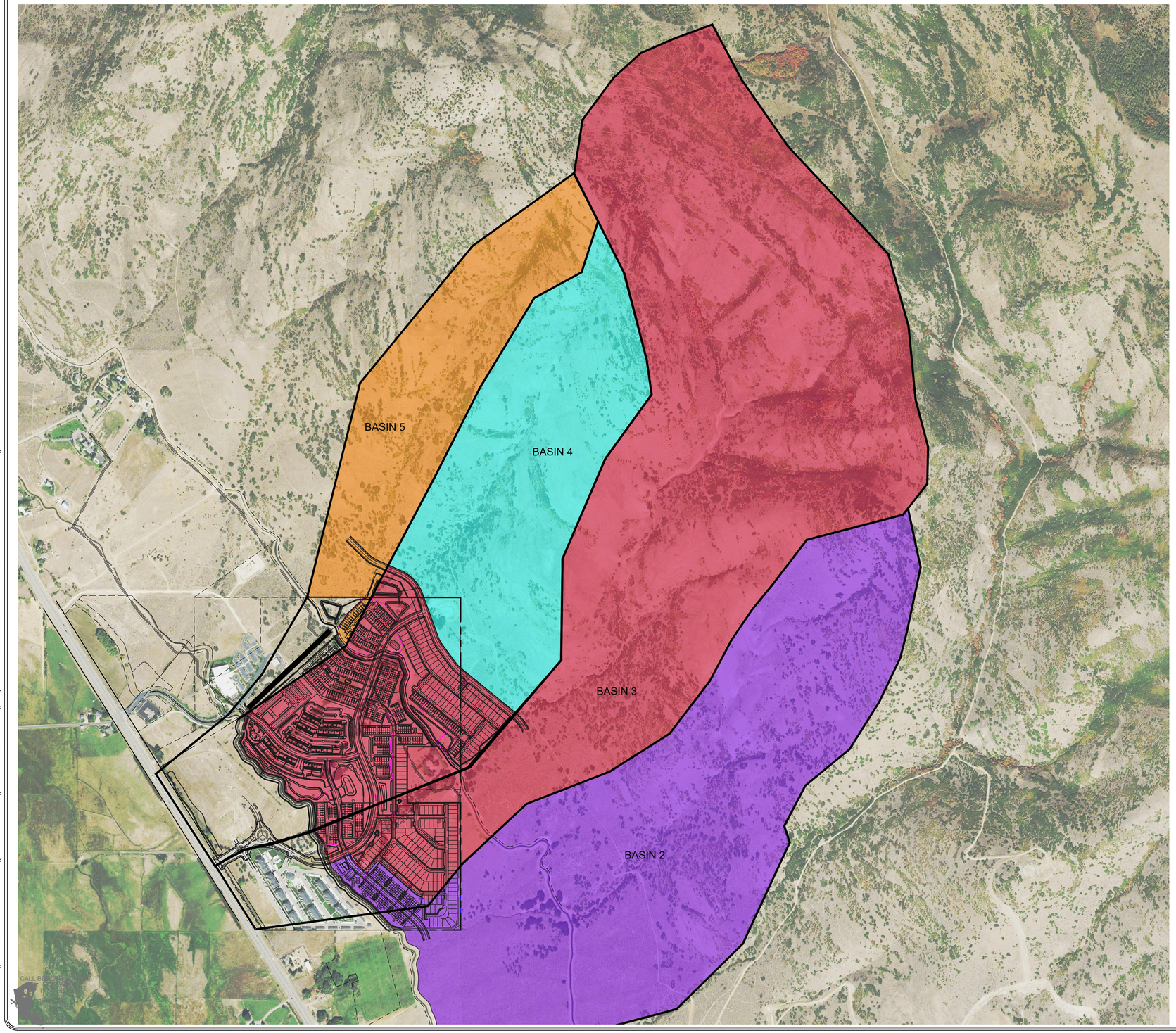
CLIENT: D.R.HORTON
DWG: 2024-08-06 NORTH VILLAGE UNDEVELOPED DRAINAGE MASTER
JOB No: 9891HORT01-23
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EX-04

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-06 North Village Undeveloped Drainage Master Plan.dwg TAB: EX-04 PLOT DATE AND TIME: 8/6/2024 11:12 AM



LEGEND:

- BASIN 5
- BASIN 4
- BASIN 3
- BASIN 2

NOTE:
1. FOR OWNERSHIP PARCEL REFER TO EXHIBIT 01(EX-01).

N

500 0 500 1000 1500

Scale 1" = 500'

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
OFF-SITE DRAINAGE BASIN EXHIBIT

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
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CLIENT: D.R.HORTON
DWG: 2024-08-01-OFF SITE DRAINAGE BASIN EXHIBIT.PRO
JOB No: 3891DRH1123
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EX-05

FILENAME: O:\Highlands\Residential\DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-01-OFF SITE DRAINAGE BASIN EXHIBIT-Pro Condition.dwg TAB: EX-05 PLOT DATE AND TIME: 8/6/2024 11:13 AM



NOTE:

1. BASIN 14 AND 15 HAVE 11 ACRES IN AREA. THE STORM WATER FROM BASINS 14 AND 15 FLOW TOWARDS SOUTHEAST TO VALLEY HILL BOULEVARD IN JORDANELLE RIDGES.
2. POND 14 AND 15 WILL RETAIN STORM WATER FROM THE 100-YRS, 24 HOUR RAIN FALL EVENT, GENERATED FROM THE 11 ACRES IN HIGHLANDS.

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Scale 1" = 200'

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FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-05-DRAINAGE EXHIBIT(On Site Drainage Basin).dwg TAB: EX-06A PLOT DATE AND TIME: 8/6/2024 11:18 AM

HIGHLANDS RESIDENTIAL DEVELOPMENT HEBER CITY, UT

ON-SITE DRAINAGE BASINS

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CLIENT: D.R.HORTON
DWG: 2024-08-05-DRAINAGE EXHIBIT(ON SITE DRAINAGE BASIN).DWG
JOB No: 3891-DRH01-23
DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22 in x 34in. USE DIMENSIONS AND NOTES IF MADE PRECISELY

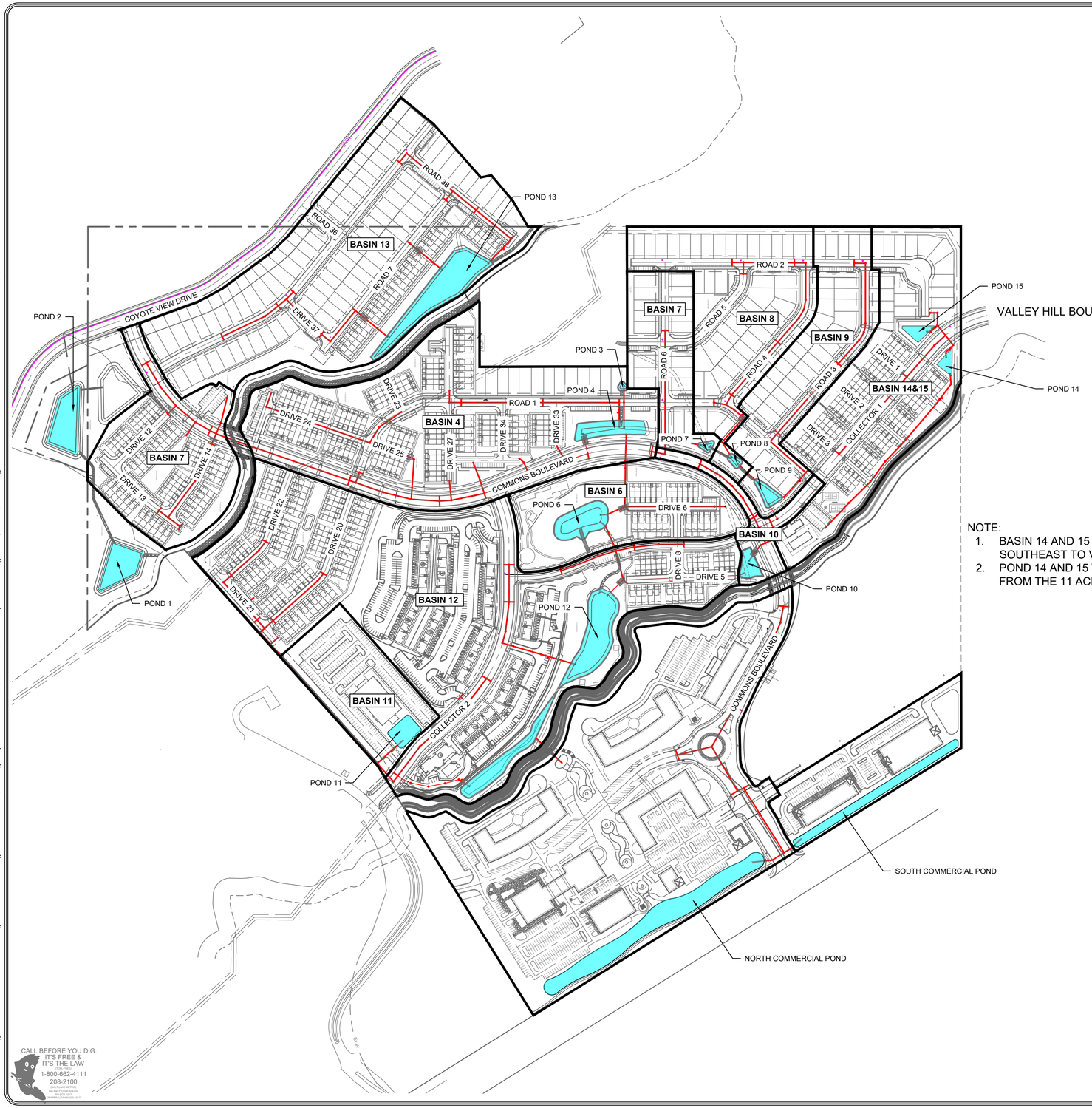
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EX-06A



NOTE:

1. BASIN 14 AND 15 HAVE 11 ACRES IN AREA. THE STORM WATER FROM BASINS 14 AND 15 FLOW TOWARDS SOUTHEAST TO VALLEY HILL BOULEVARD IN JORDANELLE RIDGES.
2. POND 14 AND 15 WILL RETAIN STORM WATER FROM THE 100-YRS, 24 HOUR RAIN FALL EVENT, GENERATED FROM THE 11 ACRES IN HIGHLANDS.

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Scale 1" = 200'

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FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-05-DRAINAGE EXHIBIT(On Site Drainage Basin) - FOR UTILITY.dwg TAB: EX-06B PLOT DATE AND TIME: 8/6/2024 11:20 AM

HIGHLANDS RESIDENTIAL DEVELOPMENT HEBER CITY, UT

ON-SITE DRAINAGE BASINS

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CLIENT: D.R.HORTON
DWG: 2024-08-05-DRAINAGE EXHIBIT(ON SITE DRAINAGE BASIN)-FOR UTILITY.dwg
JOB No: 3881.01.DRW 1-23
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EX-06B

RECOVERED: 1976 WASATCH COUNTY ALUMINUM CAP IN CONCRETE PURPORTING TO BE THE NORTHWEST CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M.

Utah Valley University Entry #333087

Utah Valley University Entry #333087

RECOVERED: 2005 WASATCH COUNTY ALUMINUM CAP, WEST QUARTER CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M. BENCHMARK: ELEVATION = 5697.65

Utah Valley University Entry #333087

US HIGHWAY 40 PROJECT NO. F-0099-4(11)

NORTH COMMERCIAL PARCEL
CARDINAL FUNDING LC
TAX ID: 00-0007-8431 AND 00-0007-7797
1,052,923 SQ.FT. OR 24.17 ACRES

PARCEL 3 PER TITLE REPORT 3,728,418 SQ. FT. OR 85.59 ACRES

COMMONS BOULEVARD

WASATCH COMMONS PLE2 ENTRY #410526

WASATCH COMMONS APARTMENTS ENTRY #410526

EXISTING STORM DRAIN MANHOLE WITH ORIFICE (SEE EX-08)

McDonald Zina Trust Entry #410526

EXISTING 30" CMP

RECOVERED: 1999 WASATCH COUNTY ALUMINUM CAP, SOUTHWEST CORNER, SECTION 20, TOWNSHIP 3 SOUTH, RANGE 5 EAST, S.L.B.&M.

RECOVERED: 1976 WASATCH COUNTY BRASS CAP IN CONCRETE PURPORTING TO BE THE SOUTHWEST CORNER, SECTION 20, SAID SPURIOUS 1976 BRASS CAP MONUMENT WAS FOUND SITUATE S00°47'30" W 121.86 FEET FROM SAID 1999 WASATCH COUNTY ALUMINUM CAP

LEGEND:

- BOUNDARY LINE
- SECTION LINE
- QUARTER SECTION LINE
- CENTERLINE
- RIGHT OF WAY
- LOT LINE
- DEED LINE
- EASEMENT LINE
- RADIAL LINE
- FENCE LINE (WIRE)
- CONCRETE
- ASPHALT
- OVERHEAD POWER LINE
- MONUMENT
- LEAD PLUG
- BOUNDARY CORNER
- POWER POLE
- LIGHT POLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- SEWER CLEANOUT
- GAS METER
- POWER METER
- MAJOR CONTOUR
- MINOR CONTOUR

150 0 150 300 450

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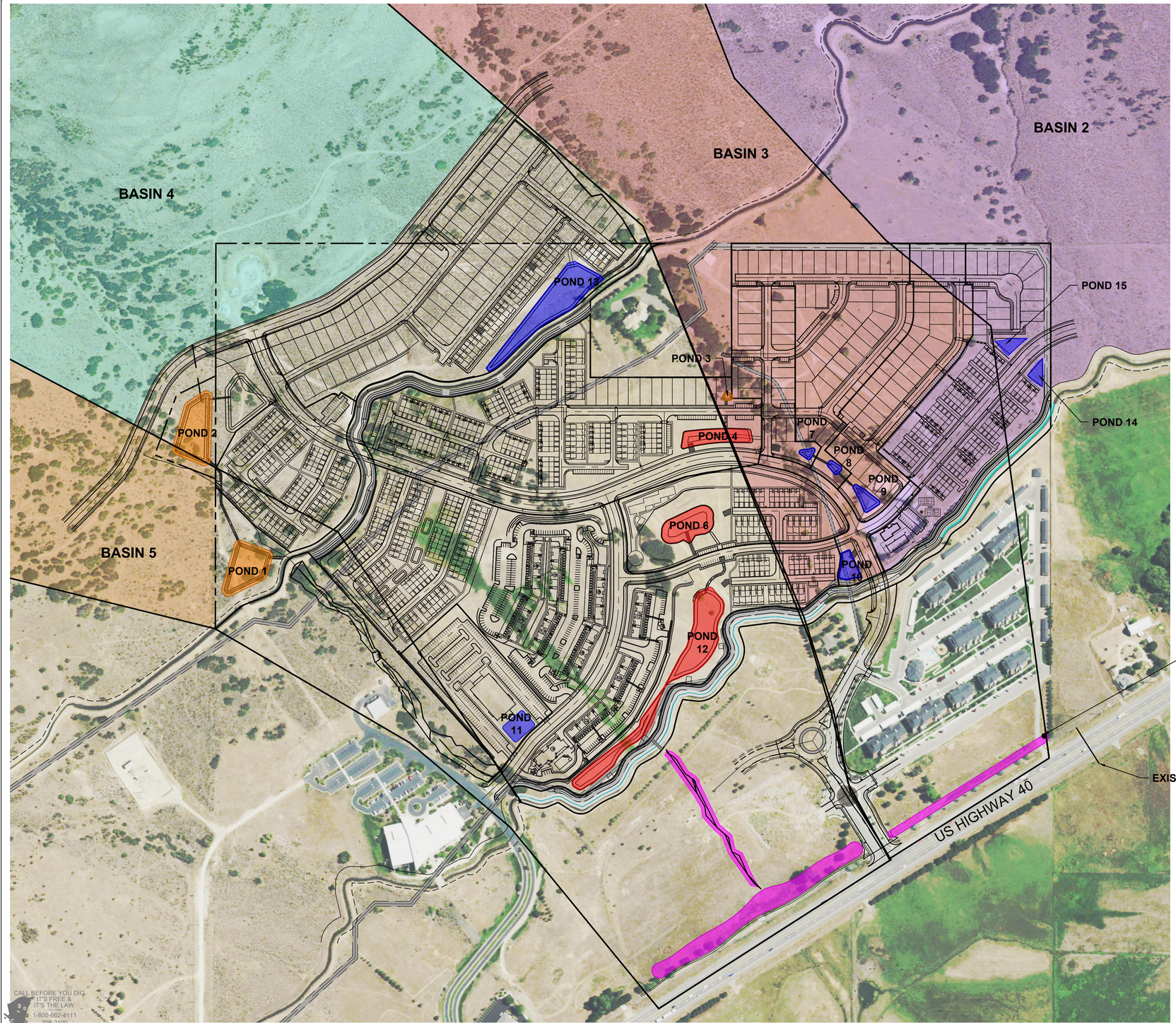
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DWG: ALTA-COMMERCIAL DWG
JOB No: 3891-DRH01-23
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EX-07

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\ALTA-Commercial.dwg TAB: EX-07 PLOT DATE AND TIME: 8/6/2024 11:34 AM



LEGEND:

- RETAINING ONSITE RESIDENTIAL FLOW
- RETAINING OFFSITE FLOW
- RETAINING BOTH OFFSITE AND ONSITE RESIDENTIAL FLOW
- RETAINING UNDEVELOPED COMMERCIAL FLOW

EXISTING STORM DRAIN MANHOLE WITH ORIFICE CONVEYS FLOW FROM WASATCH COMMONS APARTMENTS TO US HIGHWAY 40 ROAD SIDE SWALES

EXISTING 30" CMP

200 0 200 400 600

Scale 1" = 200'

CALL BEFORE YOU DIG IT'S FREE & IT'S THE LAW 811 1-800-662-4111 blue stakes 259-2100 (ONLY LAKE METRO) OR 8437 1000 SOUTH PROVO 801 (OTHER AREAS) 227

HIGHLANDS RESIDENTIAL DEVELOPMENT HEBER CITY, UT

DETENTION / RETENTION PONDS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

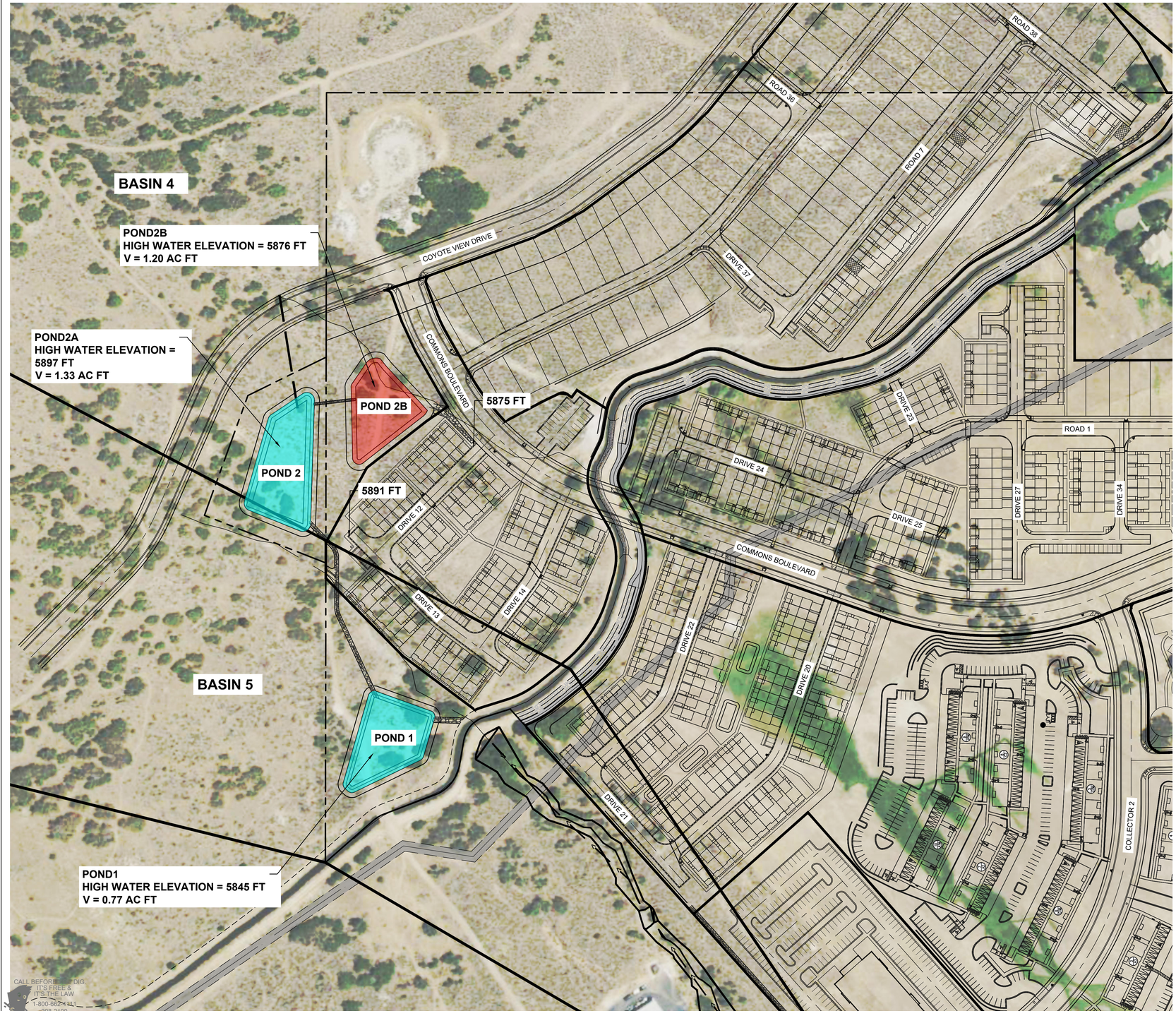
CLIENT: D.R.HORTON
DWG: 2024-08-01-DRAINAGE EXHIBIT-3(DETENTIONRETENTION PONDS).dwg
JOB No: 9891D.H961-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in - DIMENSIONS AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SHEET
EX-08

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-01-DRAINAGE EXHIBIT-3(detention-retention ponds).dwg TAB: EX-08 PLOT DATE AND TIME: 8/6/2024 11:41 AM



LEGEND:

- CAPACITY POND
- EMERGENCY POND

NOTE:

1. THE SAFE PASSAGE OF STORM WATER FROM POND-2 IN EXCESS OF 100 YEAR, 24 HOUR RAINFALL EVENT IS PRIMARILY VIA AN OVERFLOW CHANNEL TO POND-1 AND FROM THERE TO DRAINAGE DITCH IN UVU CAMPUS AS SHOWN IN EXHIBIT EX-08B.
2. THE OVERFLOW ELEVATION FROM POND-2 TO POND-1 IS THE MAXIMUM WATER SURFACE ELEVATION IN POND-2 WHICH IS 5897 FT. POND 2B IS STRATEGICALLY DESIGNED TO RECEIVE STORM WATER FROM POND-2A IF THE WATER SURFACE IN THE POND 2 RISES 6 INCHES ABOVE MAXIMUM WATER SURFACE ELEVATION.

N

100 0 100 200 300

Scale 1" = 100'

CALL BEFORE YOU DIG
IT'S FREE &
IT'S THE LAW
1-800-662-4111
-208-2100
(NON-TUNNE METRO)
140 EAST 12300 SOUTH
PO BOX 1617
DRAPER, UTAH 84020-1617

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
NORTHWEST CORNER PONDS MAP

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: 2024-08-07-DRAINAGE EXHIBIT-3(DETENTION/RETENTION PONDS)
JOB No: 9891(3)-HH1-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22"x34" - USE NOTES AND NOTES THAT PRECEDE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS

1	07/30/2024	GRADING REVISION

SHEET

EX-08A

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-07-DRAINAGE EXHIBIT-3(detention-retention ponds).dwg TAB: EX-08A PLOT DATE AND TIME: 8/7/2024 3:33 PM

CALL BEFORE YOU DIG
IT'S FREE &
IT'S THE LAW!
811
1-800-662-4111
208-2100
Blue Stakes of Utah
Utah811.com

ALTERNATIVE 1

OFF SITE SEDIMENTATION BASIN 5
VREQ=0.89 AC.FT

OFF SITE SEDIMENTATION BASIN 4
VREQ=2.38 AC.FT

OFF SITE SEDIMENTATION BASIN 3
VREQ=8.0 AC.FT

OFF SITE BASIN 5
(SEE NOTE 3)
VREQ=0.65 AC.FT

OFF SITE BASIN 4
(SEE NOTE 3)
VREQ=0.92 AC.FT

OFF SITE BASIN 3
(SEE NOTE 3)
VREQ=3.89 AC.FT

BASIN 5 CHANNEL

BASIN 4 CHANNEL

BASIN 3 CHANNEL

OFF SITE BASIN 13
VREQ=2.28 AC.FT

POND 1

POND 2

POND 13

PROVIDED V=0.77 AC.FT
INFILTRATION V=1.69 AC.FT
BALANCE= -1.81 AC.FT

PROVIDED V=1.33 AC.FT
INFILTRATION V=3.96 AC.FT
BALANCE= -1.44 AC.FT

PROVIDED V=1.56 AC.FT
INFILTRATION V=3.96 AC.
BALANCE= -3.21 AC.FT

TIMPANOGOS CANAL

SAFE PASSAGE ROUTE THROUGH UVU CHANNEL

POND 3

PROVIDED V=0.03 AC.FT
INFILTRATION V=0.08 AC.FT
BALANCE= 3.79 AC.FT

BASIN 7
VREQ=0.45 AC.FT

POND 7

PROVIDED V=0.12 AC.FT
INFILTRATION V=0.1 AC.FT
BALANCE= 0.16 AC.FT

BASIN 12
VREQ=2.46 AC.FT

BASIN 4
VREQ=3.05 AC.FT

POND 4

PROVIDED V=1.40 AC.FT
INFILTRATION V=1.31 AC.FT
BALANCE= 4.13 AC.FT

BASIN 8
VREQ=1.08 AC.FT

POND 8

PROVIDED V=0.14 AC.FT
INFILTRATION V=0.21 AC.FT
BALANCE= 0.89 AC.FT

BASIN 11
VREQ=0.6 AC.FT

POND 11

PROVIDED V=
0.12 AC.FT
INFILTRATION V= 0.41
AC.FT
BALANCE= 0.07 AC.FT

BASIN 6
VREQ=0.55 AC.FT

POND 6

PROVIDED V=2.60 AC.FT
INFILTRATION V=1.86
AC.FT
BALANCE= 0.22 AC.FT

BASIN 9
VREQ=0.45 AC.FT

POND 9

PROVIDED V=0.58 AC.FT
INFILTRATION V=0.79 AC.FT
BALANCE= 0.43 AC.FT

BASIN 10
VREQ=0.22
AC.FT

POND 10

PROVIDED V=0.79
AC.FT
INFILTRATION V=0.59
AC.FT
BALANCE= -0.73 AC.FT

BASIN 14/15
VREQ=1.02 AC.FT

POND 14&15

PROVIDED V=0.95 AC.FT
INFILTRATION V=0.61 AC.FT
BALANCE= -0.53 AC.FT

OFF SITE BASIN
2 TO
(RAINTREE)

POND 12

PROVIDED V=4.05
AC.FT
INFILTRATION V=5.00
AC.FT
BALANCE= -6.60 AC.FT

WASATCH CANAL

NORTH COMMERCIAL
UNDEVELOPED
VREQ= 0.74 AC.FT

SOUTH COMMERCIAL
UNDEVELOPED
VREQ= 0.17 AC.FT

EXISTING APARTMENTS

PROPOSED
US 40
POND
VREQ= 0.91 AC.FT

EXISTING
POND

US 40

EXISTING 30" CMP UNDER US 40
WITH 20 CFS CAPACITY

LEGEND

- EXISTING POND
- PROPOSED POND
- PROPOSED BASIN
- PROPOSED SEDIMENT BASIN
- SAFE PASSAGE OVERFLOW (NO ROUTING)
- ROUTED BASIN OVERFLOW

NOTES:
1) OFFSITE SEDIMENTATION BASINS ARE NOT PART OF THIS DEVELOPMENT AND ARE NOT ROUTED THROUGH THE ONSITE SYSTEM (PROPOSED PONDS).
2) THE INFILTRATION VOLUME IS AN EQUIVALENT CALCULATED STORAGE VOLUME ATTRIBUTED TO STORMWATER INFILTRATED AS A MEASURE OF INCHES OVER A 24 HOUR PERIOD OF TIME.
3) FLOWS GENERATED OFFSITE BELOW THE MASTER PLAN SEDIMENTATION BASINS.

SHEET EX-09

REVISIONS

1	07/30/2024	GRADING REVISION

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

CLIENT: D.R.HORTON
DWG: 2024-08-01-DRAINAGE SCHEMATIC EXHIBIT WITH INFITRATION.DWG
JOB No: 3891-DRH01-23

DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22in x 34in - DIMENSIONS AND NOTES TAKE PRECEDENCE

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
FLOW CHART DRAINAGE PATTERN WITH INFILTRATION

WITH INFILTRATION

Offsite Basin	Highlands Ponds	Required Offsite Volume (Ac-Ft)	Required Onsite Volume (Ac-Ft)	Total Required Volume (Ac-Ft)	Provided Surface Volume (Ac-Ft)*	Provided Infiltration Volume per day (Ac-ft)	Total Provided Volume (Ac-Ft)	Remaining Volume (Ac-Ft)
3	13	0.00	2.28	2.28	1.56	3.96	5.52	-3.24
3	3	3.89	0.00	3.89	0.03	0.08	0.10	3.79
3	4	3.79	3.05	6.84	1.40	1.31	2.70	4.13
3	6	4.13	0.55	4.68	2.60	1.86	4.46	0.22
3	7	0.00	0.45	0.45	0.12	0.17	0.29	0.16
3	8	0.16	1.08	1.24	0.14	0.21	0.35	0.89
3	9	0.89	0.45	1.34	0.33	0.58	0.91	0.43
3	10	0.43	0.22	0.65	0.79	0.59	1.38	-0.73
3	11	0.00	0.60	0.60	0.12	0.41	0.53	0.07
3	12	0.00	2.46	2.46	4.05	5.00	9.06	-6.60
Total to Highway 40 Ponds				0.00				
2	14	0.00	1.02	1.02	0.49	0.29	1.55	-0.53
2	15				0.46	0.32		
Total to Basin 2 (Raintree)				0.00				
4	2A	0.92	0	0.92	1.33	1.02	2.36	-1.44
4	2B		0	0	1.20	0.99		
5	1	0.65	0	0.65	0.77	1.69	2.46	-1.81
		14.87	9.88	24.75	**10.54**	**10.80**		

* Volume shown as Graded currently (March 14, 2024)

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
FLOW CHART POND VOLUME CALCULATION WITH INFILTRATION

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: 2024-08-01-DRAINAGE SCHEMATIC "EXHIBIT WITH INFITRATION.DWG
JOB No: 3891-I-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in - DIMENSIONS AND NOTES TAKE PRECEDENCE

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SHEET
EX-10

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-01-Drainage Schematic Exhibit WITH INFITRATION.dwg TAB: EX-10 PLOT DATE AND TIME: 8/6/2024 11:22 AM

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811 or 1-800-662-4111
208-2100
(SALT LAKE METRO)
UNDERGROUND FACILITY PROTECTION

CALL BEFORE YOU DIG. IT'S FREE & IT'S THE LAW! 811 or 1-800-662-4111 or 208-2100

ALTERNATIVE 2

OFF SITE SEDIMENTATION BASIN 5
VREQ=0.89 AC.FT

OFF SITE SEDIMENTATION BASIN 4
VREQ=2.38 AC.FT

OFF SITE SEDIMENTATION BASIN 3
VREQ=8.0 AC.FT

OFF SITE BASIN 5
(SEE NOTE 3)
VREQ=0.65 AC.FT

OFF SITE BASIN 4
(SEE NOTE 3)
VREQ=0.92 AC.FT

OFF SITE BASIN 3
(SEE NOTE 3)
VREQ=3.89 AC.FT

BASIN 5 CHANNEL

BASIN 4 CHANNEL

BASIN 3 CHANNEL

OFF SITE BASIN 13
VREQ= 2.28 AC.FT

POND 1

POND 2

POND 13

PROVIDED V=0.77 AC.FT
BALANCE= -0.12 AC.FT

PROVIDED V=1.33 AC.FT
BALANCE= -0.41 AC.FT

PROVIDED V=1.56 AC.FT
BALANCE= 0.72 AC.FT

TIMPANOGOS CANAL

VREQ= 4.81 AC.FT

SAFE PASSAGE ROUTE THROUGH UVU CHANNEL

POND 3

PROVIDED V=0.03 AC.FT
BALANCE= 4.58 AC.FT

BASIN 7
VREQ= 0.45 AC.FT

POND 7

PROVIDED V=0.12 AC.FT
BALANCE= 0.33 AC.FT

BASIN 12
VREQ= 2.46 AC.FT

BASIN 4
VREQ= 3.05 AC.FT

POND 4

PROVIDED V=1.40 AC.FT
BALANCE= 6.24 AC.FT

BASIN 8
VREQ= 1.08 AC.FT

POND 8

PROVIDED V=0.14 AC.FT
BALANCE= 1.27 AC.FT

BASIN 11
VREQ= 0.6 AC.FT

POND 11

PROVIDED V=
0.12 AC.FT
BALANCE= 0.48 AC.FT

BASIN 6
VREQ= 0.55 AC.FT

POND 6

PROVIDED V=2.60 AC.FT
BALANCE= 4.18 AC.FT

BASIN 9
VREQ= 0.45 AC.FT

POND 9

PROVIDED V=0.58 AC.FT
BALANCE= 1.38 AC.FT

BASIN 10
VREQ= 0.22 AC.FT

POND 12

POND 10

PROVIDED V=0.79
AC.FT
BALANCE= 0.8 AC.FT

BASIN 14/15
VREQ= 1.02 AC.FT

POND 14&15

PROVIDED V=0.95 AC.FT
BALANCE= 0.07 AC.FT

OFF SITE BASIN 2 TO (RAINTREE)

TOTAL REQUIRED= 7.94
AC.FT
PROVIDED V=4.05
AC.FT
BALANCE= 3.88 AC.FT

WASATCH CANAL

NORTH COMMERCIAL UNDEVELOPED
VREQ= 0.74 AC.FT

SOUTH COMMERCIAL UNDEVELOPED
VREQ= 0.17 AC.FT

EXISTING APARTMENTS

PROPOSED US 40 POND
VREQ= 4.79 AC.FT

EXISTING POND

US 40

EXISTING 30" CMP UNDER US 40
WITH 20 CFS CAPACITY

LEGEND

- EXISTING POND
- PROPOSED POND
- PROPOSED BASIN
- PROPOSED SEDIMENT BASIN
- SAFE PASSAGE OVERFLOW (NO ROUTING)
- ROUTED BASIN OVERFLOW

NOTES:
1) OFFSITE SEDIMENTATION BASINS ARE NOT PART OF THIS DEVELOPMENT AND ARE NOT ROUTED THROUGH THE ONSITE SYSTEM (PROPOSED PONDS).
2) THE INFILTRATION VOLUME IS AN EQUIVALENT CALCULATED STORAGE VOLUME ATTRIBUTED TO STORMWATER INFILTRATED AS A MEASURE OF INCHES OVER A 24 HOUR PERIOD OF TIME.
3) FLOWS GENERATED OFFSITE BELOW THE MASTER PLAN SEDIMENTATION BASINS.

SHEET EX-11

REVISIONS

1	07/30/2024	GRADING REVISION

DRAWN BY: WARD
DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

CLIENT: D.R.HORTON
DWG: 2024-08-01-DRAINAGE SCHEMATIC EXHIBIT-ZERO INFILTRATION.DWG
JOB No: 3891-DRH01-23

DO NOT SCALE THIS DRAWING. DRAWING IS REDUCED IF LESS THAN 22in x 34in - DIMENSIONS AND NOTES TAKE PRECEDENCE

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Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
FLOW CHART DRAINAGE PATTERN WITHOUT INFILTRATION

WITHOUT INFILTRATION

Offsite Basin	Highlands Ponds	Required Offsite Volume (Ac-Ft)	Required Onsite Volume (Ac-Ft)	Total Required Volume (Ac-Ft)	Provided Surface Volume (Ac-Ft)*	Provided Infiltration Volume per day (Ac-ft)	Total Provided Volume (Ac-Ft)	Remaining Volume (Ac-Ft)
3	13	0.00	2.28	2.28	1.56	0.00	1.56	0.72
3	3	4.61	0.00	4.61	0.03	0.00	0.03	4.58
3	4	4.58	3.05	7.63	1.40	0.00	1.40	6.24
3	6	6.24	0.55	6.79	2.60	0.00	2.60	4.18
3	7	0.00	0.45	0.45	0.12	0.00	0.12	0.33
3	8	0.33	1.08	1.41	0.14	0.00	0.14	1.27
3	9	1.27	0.45	1.72	0.33	0.00	0.33	1.38
3	10	1.38	0.22	1.60	0.79	0.00	0.79	0.82
3	11	0.00	0.60	0.60	0.12	0.00	0.12	0.48
3	12	5.48	2.46	7.94	4.05	0.00	4.05	3.88
Total to Highway 40 Ponds				3.88				
2	14	0.00	1.02	1.02	0.49	0.00	0.95	0.07
2	15				0.46	0.00		
Total to Basin 2 (Raintree)				0.07				
4	2A	0.92	0	0.92	1.33	0.00	1.33	-0.41
4	2B		0	0	1.20	0.00		
5	1	0.65	0	0.65	0.77	0.00	0.77	-0.12
		25.46	9.88	35.34	**10.54**	**0.00**		

* Volume shown as Graded currently (March 14, 2024)

HIGHLANDS RESIDENTIAL
DEVELOPMENT
HEBER CITY, UT
FLOW CHART POND VOLUME
CALCULATION WITHOUT INFILTRATION

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 .487. 8040

CLIENT: D.R.HORTON
DWG: 2024-08-01-DRAINAGE SCHEMATIC "EXHIBIT-ZERO INFILTRATION.DWG"
JOB No. 3891-DRH01-23
DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 22in x 34in = SMALLER/SCALE ACCORDINGLY
ANY 22in x 34in = SMALLER/SCALE ACCORDINGLY AND NOTES TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SHEET
EX-12

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-01-Drainage Schematic Exhibit-ZERO INFILTRATION.dwg TAB: EX-12 PLOT DATE AND TIME: 8/6/2024 11:23 AM

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HIGHLANDS RESIDENTIAL DEVELOPMENT
HEBER CITY, UT
SD TREATMENT LOCATIONS

231 West 800 South Salt Lake City, Utah 84101
Ward Engineering Group
Planning • Engineering • Surveying
PH: 801 . 487 . 8040

CLIENT: D.R.HORTON
DWG: 2024-08-06 SD SNOUT EXHIBIT.DWG
JOB No: 3881-DRH01-23

DO NOT SCALE THIS DRAWING DRAWING IS REDUCED IF LESS THAN 11"x17". DIMENSIONS AND NOTES TAKE PRECEDENCE

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DESIGN BY: WARD
CHECKED BY: AJS
DATE: 07/29/2024

REVISIONS
1 07/30/2024 GRADING REVISION

SHEET
EX-13

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IT'S THE LAW
811 BLUE STAKES
1-800-662-4111
208-2100
SALT LAKE METRO
138 EAST 12200 SOUTH
DRAPER, UTAH 84020-1507

FILENAME: O:\Highlands\Residential-DR Horton\Design - Residential\Drainage Exhibit\2024-07-23-Drainage Report Exhibit\2024-08-06 SD Snout Exhibit.dwg TAB: SD Snouts PLOT DATE AND TIME: 8/6/2024 11:26 AM