WINTER PARK MOUNTAIN BASE AREA PRELIMINARY DEVELOPMENT PLAN
SUBMITTAL

July 2024
Nov 2024 Revision 1

ACKNOWLEDGMENTS

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Public Works
Town Manager
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1. INTRODUCTION

INTRODUCTION

The PDP for the Winter Park Mountain Base Area envisions a mixed-use, vibrant and active community that thrives year-round.

The PDP for the Winter Park Mountain Base Area contains a conceptual plan for development of the land area to be rezoned to the Planned Development zone district or land area currently zoned Planned Development that requires an updated plan. The land area depicted in Figure 1.2 in the PDP represents the land area subject to the PDP and the future FDPs governing development of such land, which is hereinafter referred to as the "Plan Area."

The PDP provides a framework for the Plan Area that is aligned with the Town's guiding principles, as established in the Town Comp Plan, among other applicable planning documents that aim to enhance community character while providing flexibility for innovative design and responses to future needs.

The Applicant proposes that each Phase or Sub Phase will be submitted via its own FDP, and that vested rights will attach to the overall PDP, but only to the level of detail provided in the PDP. As each FDP is approved by the Town, it will also be vested for the agreed upon vesting period set forth in the Development Agreement. The Development Agreement, along with the PDP, will be recorded against the entirety of the Property, but each FDP will be recorded against only the Phase or Sub Phase to which it pertains.

Development potential in the Plan Area will encourage mixes of active uses to support the year-round vibrancy of the Plan Area. While the Mountain will continue to foster active winter and summer activities like skiing and mountain biking, access to the Fraser River and Arapahoe National Forest, new areas of the Mountain, and new development in and around the Base Area will provide visitors with a complete user experience, as recreation will be complemented by intentional programming for cultural events, leisure activities, food-and-beverage experiences, and more. All activities will be curated to support the vibrancy of each unique neighborhood and will be connected with greenspace and trails centered around the Fraser River.

Finally, and fundamental to everything outlined above, development in the Plan Area will set a new standard for sustainable infrastructure and development. The Applicant recognizes that the future of the Town, Winter Park Resort, and the surrounding land area requires the Plan Area to exemplify sustainability, laying the groundwork for carbon and energy-use reductions, and environmental stewardship. The Applicant is committed to creating a future Plan Area that is vibrant, active, and most importantly, sustainable.

RELATION TO OTHER PLANS

The plans identified below were reviewed in conjunction with preparation of this PDP for background and to ensure alignment of common goals and objectives.

The 2019 Imagine Winter Park Comprehensive Plan acknowledges existing land use patterns and establishes visions, principles, and strategies for future land use and development within the Town.

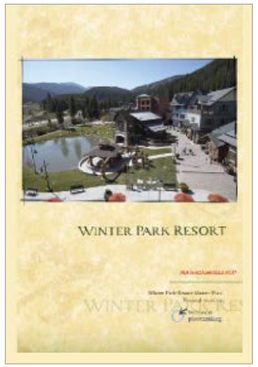
The Town UDC establishes baseline rules, regulations, and standards for future development in the PDP. Any modifications to rules, regulations, and/or standards contained in the Town UDC applicable to this development are noted in this PDP or will be noted in subsequent FDPs, Design Guidelines, and/or Development Agreement.

This PDP and subsequent FDPs supersede the 1998 Winter Park Village Final Development Plan (1998 WPV FDP) in its entirety. This PDP covers much of the same land area as the 1998 WPV FDP and includes an additional approximately 108 acres (the Additional Land Area) not covered by the 1998 WPV FDP. The Plan Area shown in the PDP includes approximately 177 acres in total, representing the 1998 WPV FDP plus Additional Land Area.

The 2017 Winter Park Resort (WPRA) Master Plan (the WPRA Plan) is being amended to include certain portions of the Additional Land Area and align the PDP and subsequent FDPs with the WPRA Plan.

The 2022 Mountain Master Development Plan developed under the Forest Service (USFS) was considered in development of this PDP. The vision for the Plan Area assumes build out of improvements to the Base Area in concert with on-mountain improvements included in the Mountain Master Development Plan.

1998 Winter Park Village Final Development Plan



2017 Winter Park Resort (WPRA) Master Plan

2019 Imagine Winter Park Comprehensive Plan

2022 Winter Park Resort Mountain Master Development Plan

THE VISION

The vision for the Plan Area is to create a vibrant, year-round experience for a diverse group of residents, guests, and employees. Fundamental to this vision is a diversity of uses, ease of circulation and mobility to and around the Mountain, and a variety of housing product types. The character, connectivity, recreation, and environment envisioned for the Plan Area are supportive of and complementary with the Town.

The PDP envisions and will support a more diverse and inclusive Mountain, creating varied amenities for all groups and establishing a thriving, year-round community through strategic seasonal programming. An emphasis on the public realm prioritizes a human-scale, people-focused environment throughout the Plan Area to connect lodging and other uses, and to provide safe and efficient mobility and circulation for day skiers, resort guests, employees, and residents.

The Plan Area will connect to surrounding communities by mountain, road, trail, train and aerial transport. Connectivity to, from, and within the Plan Area will be user-friendly, experience-driven, and broken into unique neighborhoods with their own identities. Trail connectivity will be enhanced and improved throughout the Plan Area; Mountain-to-Town Aerial transport system is envisioned to land visitors at the heart of the Base Area; bus and shuttle routes will be expanded to provide greater accessibility to the Mountain and throughout the Plan Area; and the process of driving, entering the resort, and parking a car will be facilitated by an enjoyable arrival experience that will have two primary parking facilities at the North and South main entrances.

The PDP endeavors to strategically grow Winter Park Resort into a year-round world-class destination for all demographics and age groups. The Winter Park Resort will be known as Colorado's destination to "Venture Out" for soul-fulfilling experiences and continue to grow an inclusive community with unrivaled passion for mountain adventure.

The PDP also recognizes the importance of enhanced connectivity between the Mountain and Town - experientially, economically, and manifested in the built environment - establishing a framework that balances the ease of access for both local enthusiasts and new visitors.

FIGURE 1.1 FUTURE POTENTIAL

DESIGN INSPIRATION

The evolution of Winter Park Resort draws inspiration from its rich local history and the modern alpine architectural style. This design ethos celebrates the use of natural materials like wood and stone, seamlessly integrating them with expansive glass portals, overhangs, and balconies. The resort will embody a harmonious blend of interior and exterior experiences, creating large welcoming openings to invite gathering, complimented by more intimate unique spaces for private or semi-private experiences. These elements will be enhanced by casual outdoor seating, natural landscapes, fire pits, and soft evening lighting, enhancing the resort's warm and inviting atmosphere throughout the day and well into the night.

KEY FEATURES AND AMENITIES

- **Landmark Lodging:** The resort offers a variety of accommodations, ranging from cozy single-story cabins to 6-8 story lodgings, each meticulously designed to enhance the guest experience and respond appropriately to the immediate surroundings.
- **Culinary Experiences:** Guests can indulge in extraordinary culinary experiences within casual, lounge-like atmospheres that prioritize comfort and relaxation.
- **Skier Services:** The resort provides world-class skier services, ensuring that every guest's needs are met seamlessly.
- **Cultural Programming:** A celebration of local art, music, and culture through curated programs that engage guests and the community alike.
- **Event Programming:** Opportunities for both public and private events year-round, encouraging a vibrant and dynamic atmosphere.
- **Celebration of Nature:** Enhancement and expansion of the existing natural habitats to create a lush "green belt" through the site, connecting organically into the surrounding ecosystems.

LOCATION HIGHLIGHTS

Nestled within the stunning Rocky Mountains, the resort's architecture is thoughtfully designed to blend seamlessly with its natural surroundings.

Harmonious Integration: The resort's use of natural wood and stone materials reflects regional building practices and complements the forested mountain landscape, providing a warm and inviting feel.

Panoramic Views: Large glass openings and rooftop amenities offer breathtaking panoramic views of the surrounding peaks, ensuring guests have an immersive mountain experience.

Active Ground Floor: The ground floor is highly active with retail and dining spaces that integrate indoor and outdoor areas, encouraging interaction with the natural environment and community of people.

ARCHITECTURAL STYLE, SCALE, AND MATERIALS

Alpine minimalism emphasizes simplicity through clean lines, organic materials, and a thoughtful integration of the landscape that does not overshadow the natural beauty of the surroundings. By connecting intimately with the environment, the resort aims to bring nature in while having as little impact on it as possible. This approach ensures that the resort not only provides an enhanced experience and comfort but also remains in harmony with its stunning natural backdrop.

DESIGN GUIDELINES

The Mountain Base Area Design Guidelines will supplement the Town of Winter Park Design Guidelines in order to implement the vision shown in the PDP. The initial set of Design Guidelines will cover the entirety of the Property and will be made applicable to the Property by means of the recorded PDP. As each FDP is approved, each FDP must demonstrate compliance with the PDP, and with the Design Guidelines, and may set forth additional detail regarding matters addressed in the Design Guidelines, and may set forth additional detail regarding matters addressed in the Design Guidelines, but only as it relates to that FDP for that Phase or Sub Phase.

EXISTING SITE & CONTEXT

SUMMARY

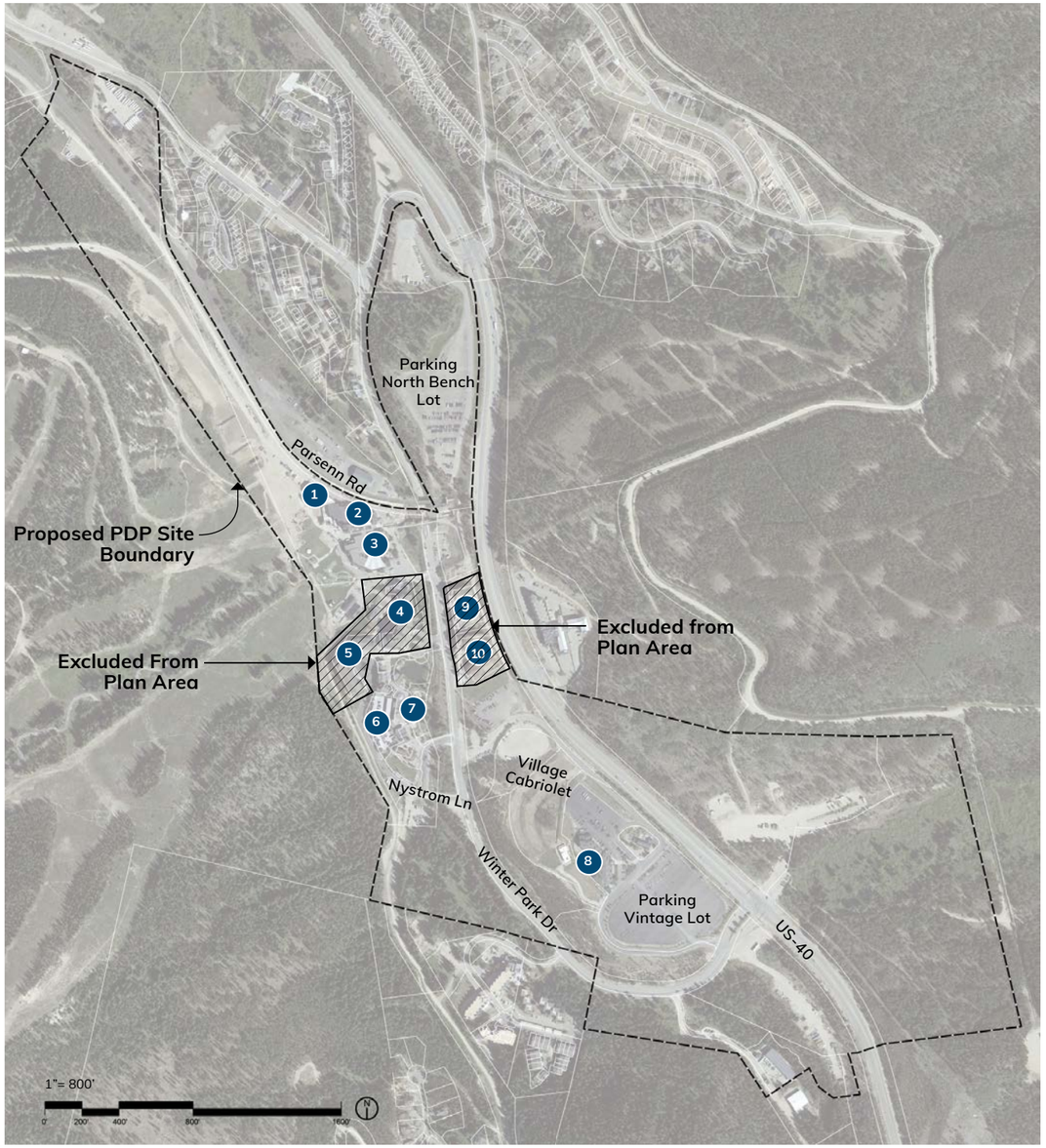
The Plan Area is an approximately 177-acre site bounded by US Highway 40 to the east, the Mountain and Winter Park Resort area to the west, residential areas to the north and south, and by the Arapahoe National Forest in the Jim Creek area. New development in the Plan Area will be generally concentrated on previously disturbed land used for Winter Park Resort facilities including skier services, parking, lodging and commercial uses.

The topography of the Plan Area has considerable grade changes making development difficult on the Mountain side. Thus, development is concentrated on the flatter areas of the Plan Area.

While most of the flat, developable areas within the Plan Area are currently occupied by surface parking lots and service pads, almost all of this land contains little to no subterranean disturbance. The future vision for this Plan Area focuses on maximizing land use efficiency to unlock its value responsibly. This approach is beneficial for both the resort development and preservation of the existing natural landscape.

Existing condominium units owned by third parties will be excluded from the PDP and Development Agreement by legal description. The PDP demonstrates that development constructed pursuant to the PDP will not negatively impact existing condominium units in terms of pedestrian connectivity, parking, utility easements, or other relevant considerations. Subsequent FDPs will provide additional detail.

FIGURE 1.2 PLAN AREA SITE & CONTEXT



- Existing Buildings
- Proposed PDP Site Boundary
- 1 Denver Health E. Grand Community Clinic & Emergency Center
- 2 West Portal
- 3 Balcony House
- 4 Zephyr Mountain Lodge-Riverside
- 5 Zephyr Mountain Lodge-Slopeside
- 6 Parking Garage
- 7 The Village
- 8 Vintage Hotel
- 9 Fraser Pointe
- 10 Fraser Crossing
- Not Included In Plan Area

EXISTING ZONING

SUMMARY

The PDP Plan Area encompasses several current zone districts. The intent of this PDP is to utilize the D-C zone district as the base zone district for the Plan Area, with provisions of this PDP, subsequent FDPs, and the Development Agreement providing overlaid and combining standards. Areas that are excluded from the PDP remain under the existing PUD.

CURRENT ZONING DISTRICTS LOCATED WITHIN THE PLAN AREA

DESTINATION CENTER ZONE - **D-C (Mixed Use)**
A planned mixture of high density and upper-floor residential and commercial uses in horizontal and vertical formats that are arranged to create a walkable pedestrian environment.

PLANNED DEVELOPMENT & PLANNED DEVELOPMENT (DESTINATION CENTER) - **P-D & PD (D-C)**
Legacy P-D/PD districts to be rezoned and superseded by this PDP and subsequent FDPs.

RESIDENTIAL-COMMERCIAL SERVICE ZONE DISTRICT - **R-C (Mixed Use)**
Single-family attached uses within close proximity to commercial uses. This district provides for convenient commercial uses subject to design and performance standards.

ADJACENT ZONING DISTRICTS (NOT WITHIN THE PLAN AREA)

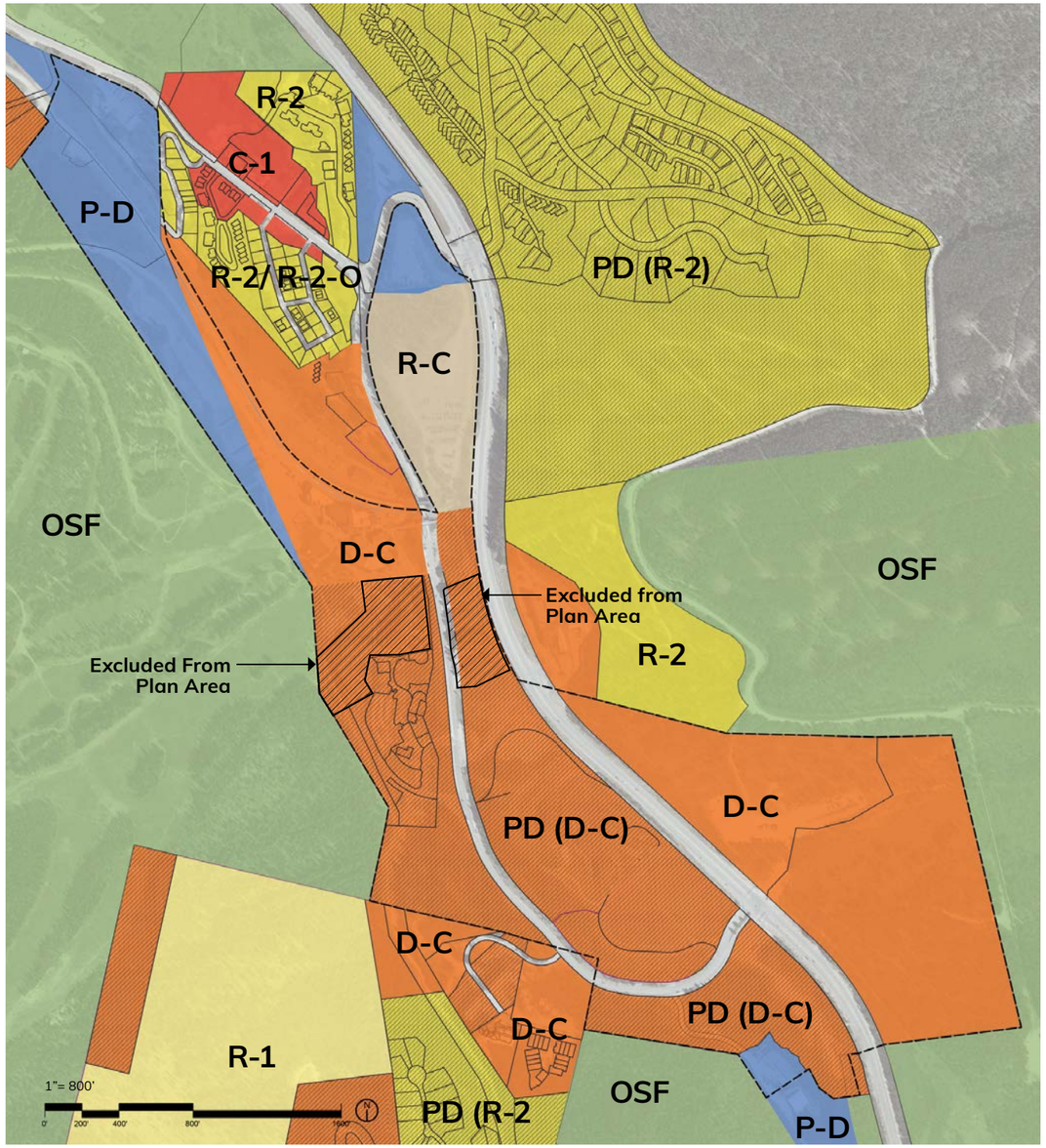
MULTIPLE-FAMILY RESIDENTIAL - **R-2 (Medium Density Residential)**
Single-family detached residences on smaller lots, together with single-family attached and multiple family dwelling types developed in proximity to, but not abutting Main Street, and in proximity to the Resort Base.

MULTIPLE-FAMILY RESIDENTIAL DISTRICT WITHIN OLD TOWN ZONE DISTRICT -
R-2-O (Varied Density Residential) Lot and building standards that are flexible and unique to the Old Town neighborhood where development preceded incorporation into the Town and hence the types and patterns of lots and buildings do not conform to a uniform set of requirements.

SINGLE FAMILY RESIDENTIAL - **R-1 (Low Density Residential)**
Single-family detached residential neighborhoods on moderately sized lots, including provision for varying lot areas and widths, home siting, and by-right cluster development to preserve resources, protect sensitive lands, and accommodate natural topography.

OPEN SPACE / FORESTRY / AGRICULTURAL / RECREATIONAL - **OSF (Forest and Open Land)**
Preservation of the US Forest Service Property; protection of the Fraser River and associated creeks and their wetland and riparian areas; provision of agricultural areas and uses; and expanding upon the recreational amenities and assets of the Town.

FIGURE 1.3 EXISTING ZONING



- PD Overlay
- PD (D-C)
- D-C
- R-1
- R-2
- OSF
- P-D (Expired P-D zoning - areas will be rezoned in accordance with Future Conditions, shown in subsequent exhibits.)
- Plan Area Boundary
- Not Included In Plan Area

SITE PROPERTIES & OWNERSHIP

The PDP includes all or part of 33 parcels, all of which are owned or controlled by Alterra Mountain Company or an affiliate. This PDP does not intend to rezone, modify any applicable standards, or require redevelopment of any properties controlled by others, including but not limited to residential condominiums.

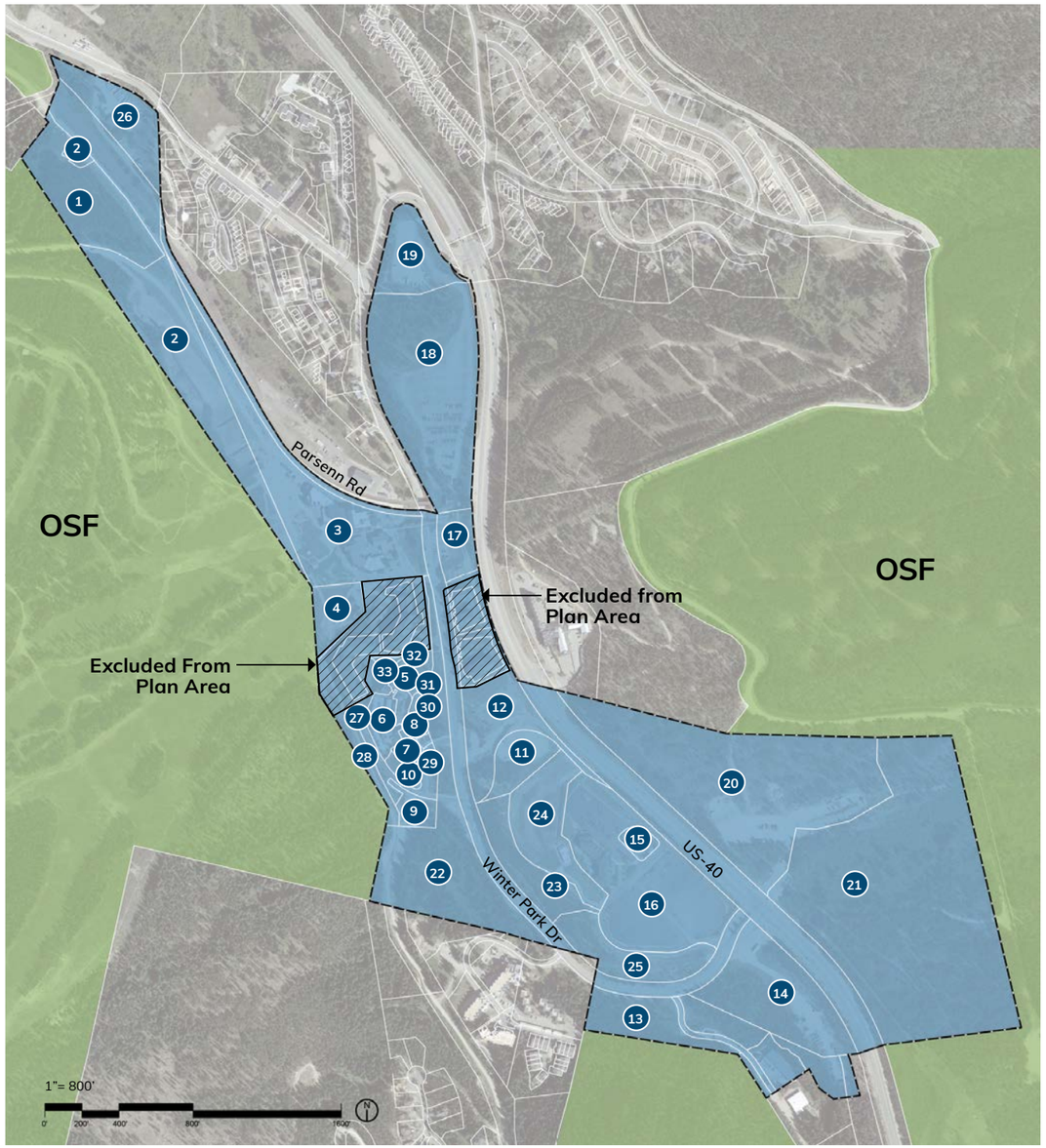
Such properties located in or near the properties covered by this PDP are specifically excluded from this PDP and retain their original zoning. The PDP demonstrates that development constructed pursuant to the PDP will not negatively impact existing residential condominium units in terms of pedestrian connectivity, parking, utility easements, or other performance standards. Subsequent FDPs will provide additional detail.

TABLE 1.1 SITE OWNERSHIP

ID	ACREAGE	OWNER	ADDRESS OR LEGAL	PARCEL ID	ZONING
1	5.48	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	TRACT 41 MINOR SUB LOT 2	170510204002	P-D
2	12.7	WINTER PARK RECREATIONAL ASSOCIATION	TRACT 41 MINOR SUB LOT 3	170510204003	P-D
3	11.07	WINTER PARK RECREATIONAL ASSOCIATION	W E EVANS SUB DIV EX FINAL 11.07 AC A TRACT OF LAND BEING PART OF W E EVANS SUBDIVISION EXEMPTION & HES 117, WEST PARCEL, SEC 10 T2S R75W DESC AT REC 9600 8224 & PLAT 9600 8223	170510408001	P-D
4	1.66	WINTER PARK RECREATIONAL ASSOCIATION	VILLAGE AT WINTER PARK SUBDIVISION 1.66AC 145 PARSENN RD	170510405001	D-C
5	0.577	IW/WP VILLAGE CORE DEV COMPANY, LLC	PARRY PEAK LOFTS CONDOMINIUM DESC: POND UNIT & GAZEBO UNIT 130 PARRY PEAK WY	170510420003	PD/D-C
6	1.091	WINTER PARK RECREATIONAL ASSOCIATION	WINTER PARK VILLAGE CORE LOT: H PARKING GARAGE 200 NYSTROM LN	170510420008	PD/D-C
7	0.85	WINTER PARK RECREATIONAL ASSOCIATION	WINTER PARK VILLAGE CORE LOT: I 103 PARRY PEAK WY	170510420009	PD/D-C
8	0.171	IW/WP VILLAGE CORE DEV COMPANY, LLC	WINTER PARK VILLAGE CORE LOT: N 110 PARRY PEAK WY	170510420033	PD/D-C
9	N/A	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	WINTER PARK VILLAGE CORE EX#3 LOT: K 105 NYSTROM LN	170510424001	PD/D-C
10	N/A	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	WINTER PARK VILLAGE CORE EX#3 LOT: J	170510424002	PD/D-C
11	N/A	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	VILLAGE AT WINTER PARK RESORT MINOR SUBDIVISION LOT: 2A	170510417015	PD/D-C
12	4.082	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	VILLAGE AT WINTER PARK RESORT MINOR SUBDIVISION LOT: 1 100 VINTAGE WAY	170510417013 0515109001	PD/D-C
13	4.901	WINTER PARK RECREATIONAL ASSOCIATION	MINOR SUBDIVISION OF TR 44A LOT: 44A1	170514201001	PD/D-C
14	7.498	WINTER PARK HOUSING DEVELOPMENT COMPANY	JIM CREEK WEST SUB EXEMPT LOT: 1 1 WINTER PARK DR	170514202011	PD/D-C
15	0.568	WINTER PARK RECREATIONAL ASSOCIATION	VILLAGE AT WINTER PARK RESORT MINOR SUBDIVISION LOT: 2B 100 VINTAGE WY	170510417017	PD/D-C
16	11.609	WINTER PARK RECREATIONAL ASSOCIATION	VILLAGE AT WINTER PARK RESORT MINOR SUB FILING NO. 2 LOT: 3 100 VINTAGE WAY	170515111003	PD/DC
17	1.409	IW/WP BUILDING SIX VINTAGE DEVELOPMENT	VILLAGE AT WINTER PARK RESORT MINOR SUBDIVISION LOT: 1 NORTH	170510417004	PD/D-C
18	12.306	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	METES & BOUNDS 75 ALL 12.306 AC IN TRACTS 38B, 45 AND 49 NE4 SEC 10 T2S R75W	170510100020	PD/D-C
19	2.223	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	METES & BOUNDS 75 ALL T2S SEC 10 PT TRACT 40 2.223 AC+/- TRACT 38A AND TRACT 40 DESC IN PATENT REC 94006810 LESS NORTH BENCH FLG NO 1 MS PLAT 200701361 IN NE4 SEC 10 T2S R75W	170510100023	R-C
20	23.423	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	JIM CREEK MINOR SUBDIVISION LOT: 1 82705 US HWY 40	170514202008	P-D
21	34.714	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	JIM CREEK MINOR SUBDIVISION LOT: 2 84255 US HWY 40	170514202009	D-C

22	10.473	WINTER PARK RECREATIONAL ASSOCIATION	VILLAGE AT WINTER PARK RESORT MINOR SUBDIVISION LOT: 3	170515109001	PD/D-C
23	3.656	WINTER PARK RECREATIONAL ASSOCIATION	VILLAGE AT WINTER PARK RESORT MINOR SUB FILING NO. 2 LOT: 2	170515111002	PD/D-C
24	4.482	WINTER PARK RECREATIONAL ASSOCIATION	VILLAGE AT WINTER PARK RESORT MINOR SUB FILING NO. 2 LOT: 1	170515111001	PD/D-C
25	3.420	ALTERRA MTN CO REAL ESTATE DEVELOPMENT CO, INC.	VINTAGE SUBDIVISION MINOR SUB PLAT LOT: 1 BLOCK: 1	170510422001	PD/D-C
26	3.587	WINTER PARK RECREATIONAL ASSOCIATION	TRACT 41 MINOR SUB LOT 1	170510204001	P-D
27	1.87	IW/WP VILLAGE CORE DEVELOPMENT, LLC	WINTER PARK VILLAGE CORE EX#3, LOT E	170510424003	PD/D-C
28	1.012	WINTER PARK RECREATIONAL ASSOCIATION	WINTER PARK VILLAGE CORE LOT L	170510420012	PD/D-C
29	0.094	ALTERRA MTN CO REAL ESTATE DEVELOPMENT, INC.	WINTER PARK VILLAGE CORE LOT O	170510420015	PD/D-C
30	0.073	IW/WP VILLAGE CORE DEVELOPMENT COMPANY, LLC	WINTER PARK VILLAGE CORE LOT B	170510420030	PD/D-C
31	0.123	IW/WP VILLAGE CORE DEVELOPMENT COMPANY, LLC	WINTER PARK VILLAGE CORE LOT C	170510420031	PD/D-C
32	0.126	WINTER PARK RECREATIONAL ASSOCIATION	WINTER PARK VILLAGE CORE LOT A	1705104200001	PD/D-C
33	0.396	IW/WP VILLAGE CORE DEVELOPMENT CO, LLC	PARRY PEAKS LOFTS CONDOMINIUM DESC: ROAD AND PLAZA UNIT (FKA WINTER PARK VILLAGE CORE LOT F)	1705104200006	PD/D-C

FIGURE 1.4 OWNERSHIP PLAN



2. PLAN ORGANIZATION

APPROVAL OF AMENDMENTS TO THE PDP

The process of approving and amending the Preliminary Development Plan (PDP) shall follow the Town UDC procedure, except as provided in this PDP, any subsequent FDPs, or in the Development Agreement.

MODIFICATIONS TO EXISTING PLANNED DEVELOPMENTS

Proposed amendments to the approved PDP and any subsequent FDP will follow the procedures outlined in the Town UDC, Article 5.C.; and proposed appeals, modifications, and interpretations of the approved PDP and any subsequent FDPs will follow the procedures outlined in the Town UDC, Article 5.F.; except as otherwise provided in this PDP, any subsequent FDPs, and the Development Agreement.

MAJOR AMENDMENTS - APPROVAL CRITERIA

Innovative and Greater Benefit. As determined by Town Council, provides substantial public benefits that are appropriate and proportionate with the proposed development, which may include open space and trail dedication, affordable housing, infrastructure improvements, sustainable development, added public amenities, and/or alternative energy sources.

Transitioning Character. The character of the surrounding area is transitioning or being affected by other factors, such as traffic, new public facilities, adjoining uses, development transitions, deterioration, or environmental issues.

Compatibility with Area. Represents a high-quality development that provides a desired need for and benefit to the Town that could not otherwise be accomplished through base zoning; Adequate Facilities. Provides all public improvements necessary for the development of the PDP.

Town Code, Plans, and Policies. Conforms with the policies, intents, and requirements of the Town's Code of Ordinances and other adopted plans and policies.

Adherence to Town's Code of Ordinances. Does not modify any of the procedures in the Town UDC. In addition, meets all applicable Town regulations unless a variation is agreed to by the Town Council.

MINOR AMENDMENTS - APPROVAL PROCESS

Minor amendments, variances, and modifications to this PDP or any subsequent FDP may be approved administratively by the Director, including but not limited to the following:

- Relocation of off street parking and loading spaces, so long as overall parking counts in a Planning Area or FDP are satisfied
- A reduction in approved common open space or usable open space of less than 10%, so long as overall intent of the open space plan for the Planning Area or FDP is satisfied
- Minor modifications to traffic circulation and public utilities
- Transfers of units, GSF, or density within and between Planning Areas of less than 15%, so long as the aggregate maximum unit count, GSF, or density in the approved PDP or any subsequent FDP is not exceeded

- Changes in location, siting, and height of buildings of less than 25%
- Changes in building coverage of structures of +/- 25%, so long as overall GSF for a Planning Area is not exceeded
- Co-location of multiple uses on a parcel and/or within buildings
- Construction and/or placement of temporary uses and/or structures

RELATION TO DEVELOPMENT AGREEMENT

In connection with approval of the PDP and the first FDP in the Plan Area, a Development Agreement shall also be executed in a form agreed upon between the Town and the Applicant extending the statutorily vested rights that will be created at the time the Town adopts its Ordinance approving the PDP, and automatically conferring vesting on any subsequent FDP, for a period agreed upon in the Development Agreement, in light of all relevant circumstances, including, but not limited to, the size and cost of the project, the need to phase project development, and the economic cycles and market conditions anticipated to impact the project during development.

Specific requirements and development standards described in the Town UDC may be altered as described in this PDP, any subsequent FDP, or the Development Agreement, or during detailed site plan review of individual phases of the project.

Exact terms and conditions for the Development Agreement will be discussed as the PDP is being reviewed and as part of the PDP and first phase FDP approval processes. Items to be discussed include but are not limited to:

General Provisions for the Development Agreement:

- Implementation requirements for the PDP
- Modification of Town UDC standards applicable to the PDP and subsequent FDPs
- Timing and funding of construction of public improvements and contributions/recoupment from the Town, benefited properties or developments, or any other applicable third parties
- Caps on requirements for public land dedication and workforce housing construction; density bonuses, design allowances, fee exemptions, or other incentives for additional land dedication and/or workforce housing
- Requirements/allowances for payment of fees in lieu of certain dedication requirements
- Maintenance and improvements of/to Public Lands and Rights of Ways impacted by the PDP and subsequent FDPs
- Town participation in/support for CDOT Highway US-40 permitting processes, Town Gondola, and Ski Train
- Exemption of transfers of property between Alterra entities/affiliates from the Town's Real Estate Transfer Tax (RETT) and any Real Estate Transfer Assessment (RETA)
- Other provisions of the PDP and subsequent FDPs that may not be explicitly outlined in the Town UDC

RELATION TO TOWN UDC

SUMMARY

The intent of this PDP is to utilize the D-C zone district as the base zone district for the Plan Area.

The PDP for the Winter Park Mountain Base Area will utilize the D-C zone district as the base zone district, subject to this PDP overlay as a combining district and any subsequent FDP. This will maximize opportunities for mixes of use and activation, while providing flexibility for implementation over time.

SUMMARY OF MODIFICATIONS TO TOWN UDC INCLUDED IN THIS PDP

Development Standards under consideration for modification in this PDP are as follows and outlined in more detail in Chapter 7: Development Standards - Building & Site Design:

Code	Title
2-B-4-F	Retaining Walls
Table 3-A-3	Residential Lot and Building Standards - Maximum Height
3-A-6-E	Measurements, Computations, and Exceptions - Building Height
3-A-8	Design Guidelines
3-C-B4/B6	Resource Identification and Sensitive Lands Protection
3-c-2-2-A	Hillside Regulations for Land Use Type
3-C-2-5-F	Hillside and Ridgeline Design Standards - Ridgeline Setback and Landscape Bufferyard
3-C-2-5-H	Hillside and Ridgeline Design Standards - Slopes of 30% or More
3-H-3	Required Parking
3-H-4	Parking Reductions and Alternative Parking Plan
3-H-6	Off Street Loading
3-I-5	Landscaping | Bufferyards
Guideline 12	Retaining Wall Height (1997 Code)
2.4, H	Insulation at Water Mains
6.2.5, X	Stormwater Detention
3.6.1	Grades
3.7.4	Grades

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3. PLAN VISION

MASTERPLAN VISION

SUMMARY

The Masterplan establishes an approach to align future development with the aspirations and goals of the Town Comprehensive Plan.

The overall aspirations of the PDP are to align with the principles established in the Town Comprehensive Plan.

The following concepts provide a brief explanation as to how this PDP and proposed improvements align with these principles (See Figure 3.1 Illustrative Masterplan). Development of the plan will align with strategies from the Town's Comprehensive Plan and key strategies of focus are referenced here.

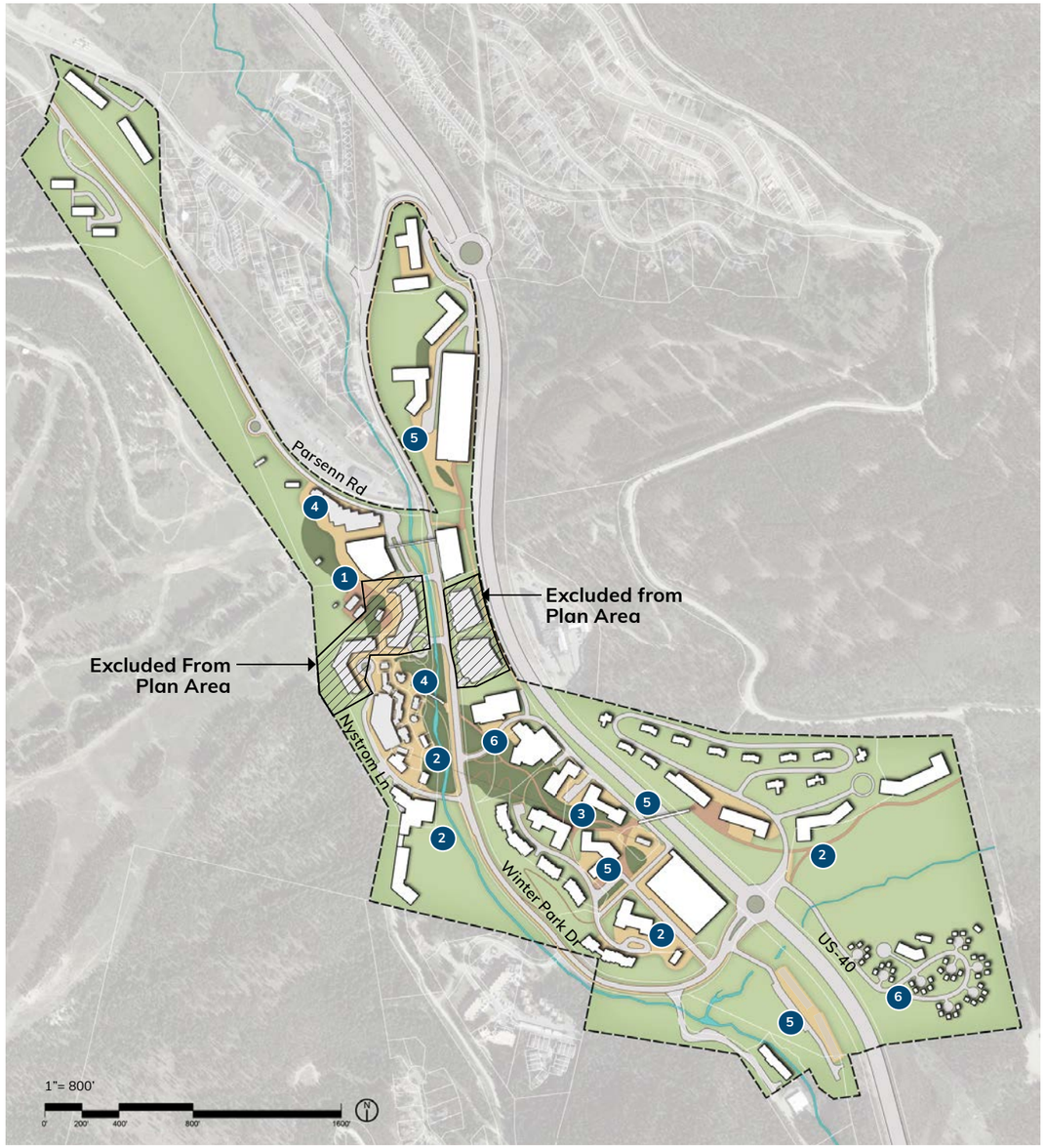
1 **Create a Year-Round Community**
Be consistent with the community envisioned in the Town Comprehensive Plan and foster diverse year-round opportunities for living, working, and recreating.

- CC Strategy 1.5: Strengthen the sense of connection between Downtown and The Resort.
- CC Strategy 3.1 : Work with developers to provide recreational and cultural amenities that benefit both residents and guests alike.
- CC Strategy 3.4: Support stable employment opportunities by strengthening existing business and further expanding new business opportunities in areas such as the environmental, home-based, and healthcare fields.

2 **Create Unique Public Spaces**
Create unique public spaces where the community can gather, recreate, connect with nature, and be creative.

- CC Strategy 2.1: Incorporate public places into future development.
- CC Strategy 5.1: Allow for publicly accessible parks, plazas, and open spaces in both design and policy, meeting the goal of being an inviting community.
- CC Strategy 5.2: Include neighborhood-scale parks and open spaces within developments that are fully accessible to the public.

FIGURE 3.1 ILLUSTRATIVE MASTERPLAN



- Existing Buildings
- Proposed Buildings
- Open/Green Space
- Circulation Space
- Site Boundary

Note: The Illustrative Masterplan depicts a representative site approach to show where development could occur based on the zoning and design standards set forth by current and proposed regulations. The PDP provides flexibility regarding the placement and design of individual buildings. For this reason, the Illustrative Masterplan is subject to change.

3 **Establish A Sustainable Approach to Density**
Create a pillar of sustainable development consistent with the Town Comprehensive Plan to improve resource management and development practices. Encourage sustainable growth and development as a tool to increase community amenities and economic opportunities.

- CC Strategy 1.3: Ensure that the built environment continues to be seamlessly integrated with mountain and recreational amenities (e.g. connections to trails, integration with the Fraser River, bikeable paths, etc.).

- CC Strategy 2.7: Support quality design and encourage unique and high-quality building construction and energy-efficiency.

4 **Revitalize, Enhance, and Renew the Resort Areas**
Emphasize compact, tourist-related mixed-use neighborhoods that are connected, safe, and walkable.

- CC Strategy 1.1: Maintain a healthy balance of commercial development that can provide a multitude of services both for local residents and for guests.

5 **Enhance A Sense of Inclusiveness**
Create a community that is inclusive and equitable through mobility, economic opportunity, housing, services, and employment for a diversity of ages, incomes, and household compositions. This includes the recently completed affordable housing facility providing living opportunities for Winter Park's workforce.

- CC Strategy 3.1: Fully integrate workforce housing throughout the Town's built environment.

- CC Strategy 3.3: Encourage a mix of housing for the local workforce within commercial developments.

6 **Be Authentic**
Develop a year-round community that is family-oriented and rooted in the spirit of Winter Park's adventure seeking enthusiasm.

- CC Strategy 2.8: Build on Winter Park's designations as "Mountain Bike Capital USA" and Colorado's "Top Adventure Town" as a way to attract growth that supports our recreational heritage.

- CC Strategy 5.6: Continue to support community gatherings and events that bring people together.

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4. PLAN ELEMENTS

LAND-USE PLANNING AREAS

SUMMARY

The conceptual land-use plan divides the Plan Area into distinct Planning Areas (or neighborhoods), and each embodies its location, existing conditions, scale, sense of place and resort function. This PDP provides a range of possible uses and development scenarios that could occur within the Plan Area. The exact density, magnitude and mix of use and development locations will be determined in the future by timing, market factors and feasibility.

The four Planning Areas created by this PDP are as follows:

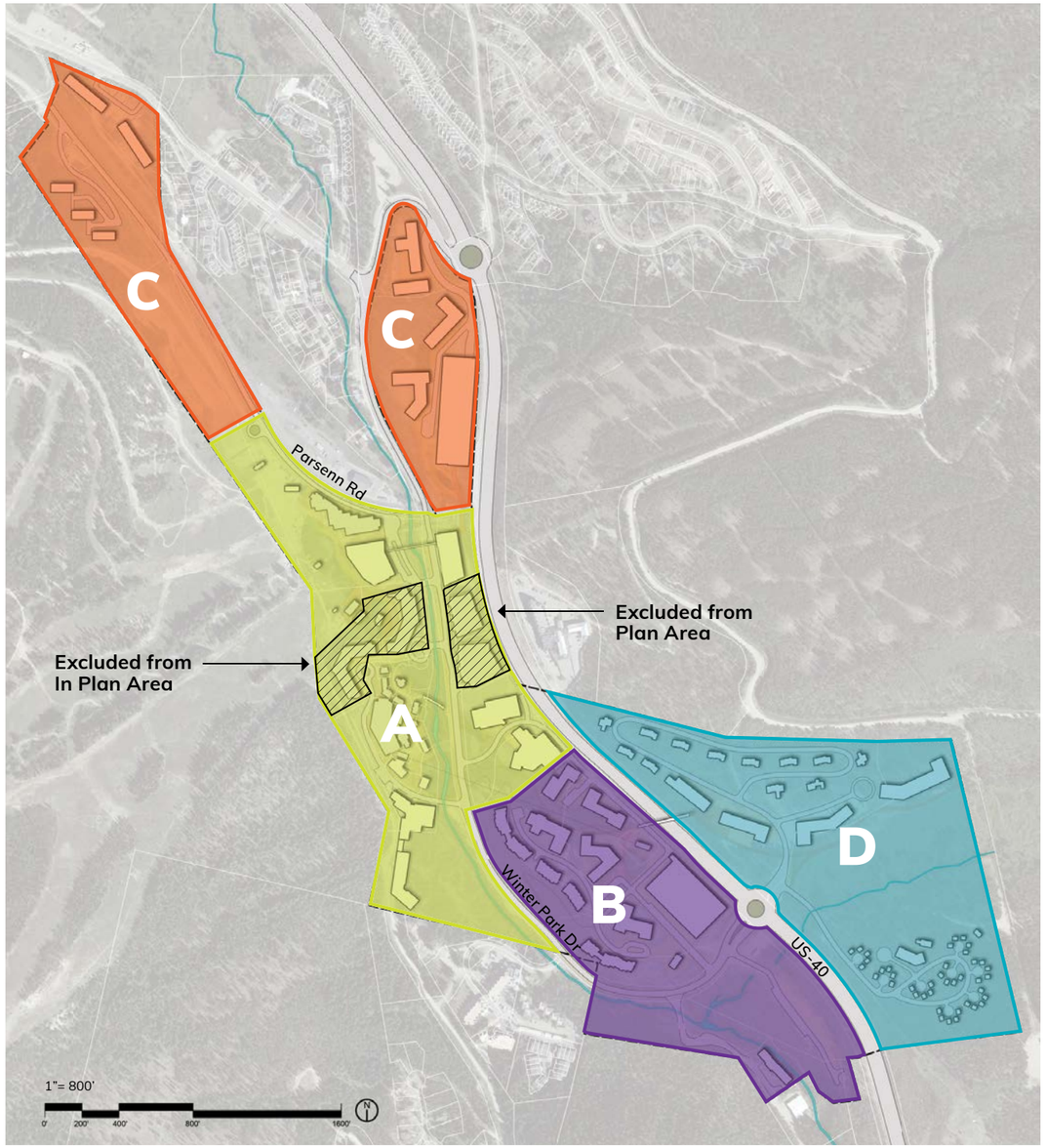
RESORT VILLAGE (AREA A)
The Resort Village Planning Area is a convergence of activity located directly at the Mountain Base. Density and use are planned around multiple modes of transportation fostering an efficient and elevated arrival experience, high-intensity activation, community connection, the engagement and celebration of nature, and a dynamic choreography of places, spaces, programming, and functions.

WELCOME VILLAGE (AREA B)
The Welcome Village Planning Area is set to significantly elevate Winter Park Resort's arrival experience with an efficiently upgraded Highway 40 entrance/exit, a public parking structure, and an array of retail, hospitality, and residential options to bolster a year-round destination experience and provide a welcoming gateway to Winter Park.

OLD TOWN (AREA C)
The Old Town Planning Area will strengthen the connection between the Town and the Mountain, re-envisioning this arrival and offering an opportunity for future development and growth over time.

RETREAT (AREA D)
The Retreat Planning Area offers an opportunity to embrace the Resort's harmony with the natural ecosystems and surrounding environment, championing responsible development in a more serene setting.

FIGURE 4.1 LAND-USE PLANNING AREAS



Planning Area A - Resort Village
Planning Area B - Welcome Village
Planning Area C - Old Town
Planning Area D - Retreat

PLANNING AREA NARRATIVES

The following descriptions and plans reflect a conceptual vision for the four Planning Areas defined in the Land-Use Planning Areas Plan (See Figure 4.3 Land-Use Planning Areas).

RESORT VILLAGE (AREA A)

The Resort Village (Area A) includes the Winter Park Resort base area composed of buildings, parking, and circulation, the existing Winter Park Village corridor, the Fraser River frontage, undeveloped land just south of Nystrom Lane, and the current Lot B surface parking lot south of Iron Horse Resort. This area is expected to see more activity and a variety of year-round uses, with improved traffic flow for vehicles, pedestrians, and cyclists to enhance efficiency and safety.

The Resort Village (Area A) is divided into sub-areas with Key Elements and Supporting Elements as outlined below:

1 Mountain Base

Key Elements: This area encompasses the revitalization of the current base, including the Balcony House, to establish a new vibrant core of experience and activity for Winter Park Resort. It opens avenues for enhancing base services like ticketing, lockers, wayfinding, and the NSCD programs, serving as the gateway to the Mountain. A mix of retail, dining, guest services, hospitality, and placemaking initiatives will shape a lively, year-round destination.

Supporting Elements: Anticipated enhancements to Winter Park Drive, including new bus drop offs and parking garages aim to boost shuttle accessibility and efficiency, while elevating the multi-modal pedestrian experience.

2 Mountain Base North

Key Elements: A planned Aerial transport system is set to establish a direct link to the Town and the proposed on-mountain ski school. Enhancements and extensions to the existing West Portal are expected to cater to potential ridership growth on the Ski Train, and to streamline Winter Park Resort's skier services and educational programs.

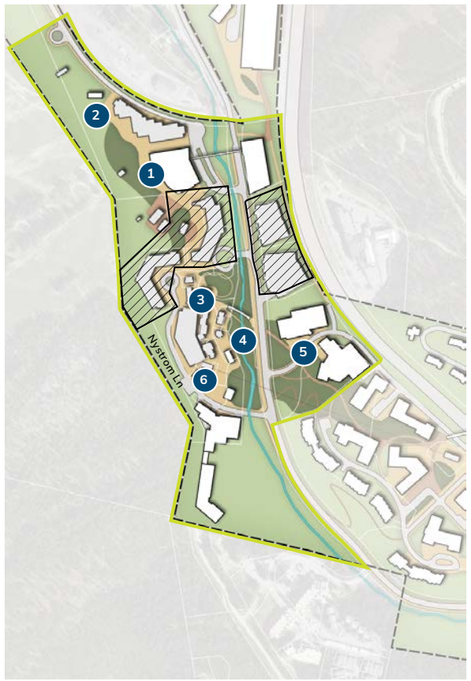
Supporting Elements: Further amenities and services will be considered to enhance the base area and guest arrival experience for travelers utilizing these forthcoming modes of transportation.

3 Village Corridor

Key Elements: Enriching the Village Corridor to create a lively, inclusive, and distinctive atmosphere involves promoting local culture through curated retail, art displays, engaging activities, enhanced green spaces, natural play areas, public squares, parks, and a strong link to the Fraser River. Vibrant hospitality will be centered at the southern Village, featuring indoor/outdoor cafes, public events, dining options, and lodging.

Supporting Elements: Enhancements to the current village may encompass repaving, additional amenities, pocket plazas, and upgrades to the Cabriolet landing. A promenade skirting the revitalized existing structures and running alongside the river will facilitate a more vibrant, varied, and interactive pedestrian flow. A potential footbridge spanning the Fraser River will establish a more significant connection to Winter Park Drive, the improved multi-modal transportation, and the proposed development to the east and south.

FIGURE 4.2 AREA A DETAIL



4 River Park

Key Elements: The Fraser River corridor is a crucial natural asset within the Plan Area, deserving recognition, restoration, and celebration. Channelization through the resort over the years has led to steep banks, limiting visibility and visitor engagement. Improvements to River Park will include opening up the existing culvert, widening the river base, creating a more gentle grade along the banks, and natural habitat restoration. The Fraser River will become a central component of River Park through increasing public access to the river, improving summer recreation opportunities, expanding programming, supporting habitat health, and raising awareness of the river's importance to natural ecosystems.

Supporting Elements: The River Park offers year-round recreational opportunities. Its open spaces, including lawns, amphitheaters, promenades, and play areas, can animate the park, serving as venues for both formal events and casual interactions.

5 Village Overlook

Key Elements: Elevated above the Village Corridor, the Village Overlook serves as a vital link connecting the lively Mountain Base to the serene landscape and upper arrival experience of Winter Park Resort. It bridges the southern edge of the Resort Village with the northern edge of the Welcome Village, blending the vibrancy of the surroundings with the natural beauty. This intersection harmoniously combines hospitality, lodging, events, and culinary delights that engage and honor the landscape, creating a communal and inviting ambiance.

Supporting Elements: Natural gathering places and meandering paths provide connectivity, while enhanced vehicular and bicycle circulation optimize safety and efficiency.

WELCOME VILLAGE (AREA B)

Located east of the main Winter Park Resort exit at Highway 40, the Welcome Village (Area B) serves as the new gateway to this premier destination, warmly greeting visitors, guests, and locals. Winter Park Drive runs through the neighborhood to the south and borders it to the west. At present, this area is home to the Vintage Hotel, the upper Winter Park Village Cabriolet station, the tubing hill, and several surface parking lots. The PDP seeks to protect the coniferous trees between Winter Park Drive and the crest of the western slope with minimal disruption, ensuring the preservation of the natural beauty to the fullest extent possible.

The Welcome Village (Area B) is divided into sub-areas with Key Elements and Supporting Elements as outlined below:

1 The Gateway

Key Elements: A new entrance off Highway 40 into Winter Park Resort will include a vehicular roundabout, enhancing the arrival experience, improving traffic flow, and offering direct access to a large parking structure at the southeast corner. This entrance will also lead to an enhanced upper Cabriolet experience in a new plaza with retail amenities, services, and programming. The new public parking garage location enables visitors to quickly park upon arrival followed by a variety of options for venturing further into the resort, including direct access to a potential future Mary Jane gondola connection. Plans also include a new lodging experience at the renovated Vintage Hotel site, elevating Winter Park Resort's front door with expanded accommodations and amenities. The existing workforce housing complex completes the gateway at this entrance.

Supporting Elements: Surrounding the improved Cabriolet, a plaza will offer gathering spaces and serve as the foundation for a landmark pedestrian bridge connecting over Highway 40 to Jim Creek and the upcoming Retreat development areas. This will weave together the natural "green belt" across the site, linking to existing hiking and bike trails. A transit drop-off area will be located adjacent to the Cabriolet plaza, providing connections with the public transit network. Centralizing multiple current surface parking lots into one structure boosts parking density, streamlines efficiency, and readies adjacent surface lots for future development prospects.

2 The Green

Key Elements: Located directly west of Highway 40 on the current Vintage Hotel parking lot site, this sub-area proposes a diversity of accommodations and amenities that interact directly with the lush "green belt" running through the site, the beauty of nature and the outdoors is embraced as a link from the upper Welcome Village to the Resort Village at the Mountain Base below.

Supporting Elements: Terraces, meandering paths, and natural landscapes terrace down the hill as the cabriolet cars travel in the air above, and cafes/restaurants spill out from the adjacent lodging accommodations and pop-ups in the parks.

3 The Bluffs

Key Elements: Lodging accommodations hug the upper terrain of the western edge of the Welcome Village, celebrating a perimeter of evergreens and extraordinary views in all directions, as the slope of Winter Park Drive falls down into the village below.

Supporting Elements: Quaint restaurants and shops fill the ground floor of lodging accommodations, providing both public and private space for leisure, recreation, and tranquility.

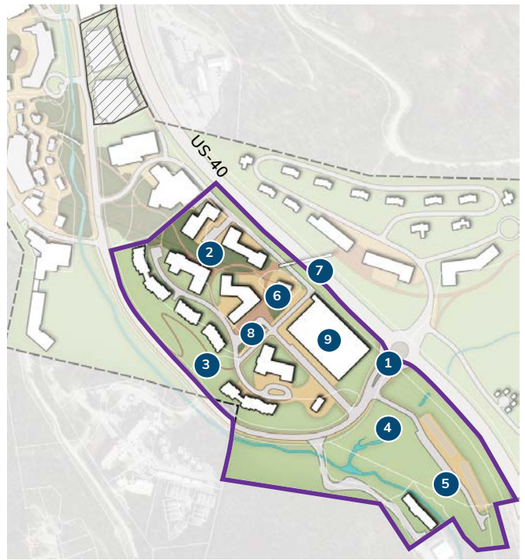
4 South River

Key Elements: Located directly west of Highway 40 and just south of the main Winter Park Resort arrival experience at Winter Park Drive, this area provides workforce housing for a diverse group of Winter Park Resort employees.

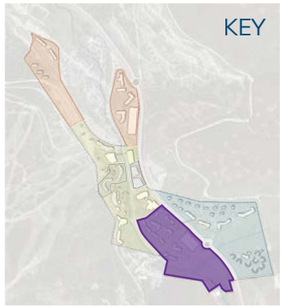
(Note: 332 units of workforce housing have already been implemented in this sub-area by Winter Park Resort and will be adaptable to support future needs.)

Supporting Elements: Additional/alternative development should remain adaptable to include future resort operations facilities, as well as enhanced open space along the Fraser River.

FIGURE 4.3 AREA B DETAIL



1 The Gateway
2 The Green
3 The Bluffs
4 South River
5 Workforce Housing (Existing)
6 Cabriolet Landing
7 Multi-Use Bridge Connection
8 Transit Drop-Off Area
9 Welcome Village Parking Garage



OLD TOWN (AREA C)

The Old Town Planning Area (Area C) lies to the north of the train tracks, bordered by Highway 40 to the east, Winter Park Drive and Old Town Drive to the west and north, and Winter Park Resort to the south. Currently composed mostly of surface parking lots, the upcoming development aims to utilize the already disturbed open spaces to minimize environmental impact to existing natural landscapes, watersheds, and topography. This area offers a unique opportunity not only to welcome people to the resort, but also to seamlessly integrate with and enhance the cultural charm of the historic Old Town setting.

Old Town (Area C) is divided into sub-areas with Key Elements and Supporting Elements as outlined below:

1 Old Town East

Key Elements: Serving as the Northern Gateway to Winter Park Resort and adjacent to Highway 40, the existing traffic light will be replaced by a vehicular roundabout to slow traffic, optimize vehicular flow, and pronounce a welcoming arrival experience from the north. This will include a new consolidated parking structure with associated services and amenities to greet visitors and locals to the resort, while also providing additional lodging and accommodations integrated into the culture of the Old Town district. The new lodging buildings will be developed at a scale which is responsive to the character and scale of the existing single family and multifamily buildings in the Old Town neighborhood. Building heights will step down from the eastern to western boundaries of the neighborhood to where they meet the existing Old Town neighborhood. Existing natural vegetation buffers from existing neighborhoods will be retained and enhanced.

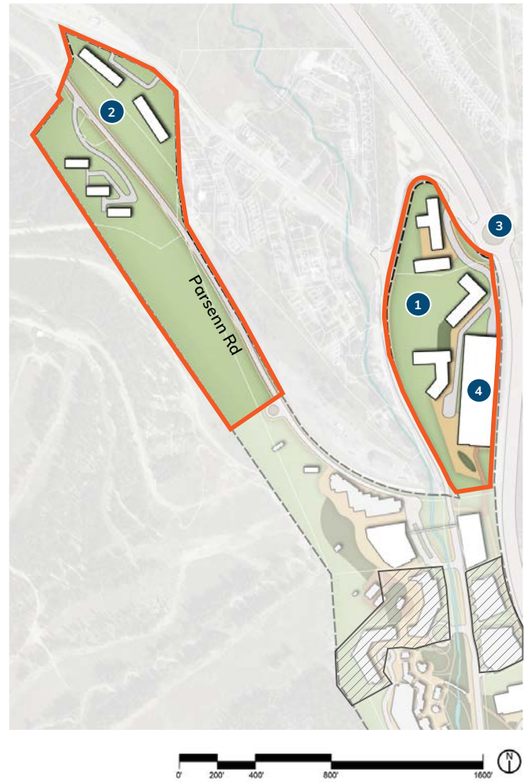
Supporting Elements: Ensuring safety and efficiency in vehicular arrivals will be complemented by an exceptional pedestrian experience that seamlessly connects individuals to the Resort Village and Mountain Base Area. Thoughtfully designed grade separations and vertical circulation will enhance access and movement for pedestrians. Enhancements to Winter Park Drive, along with expanded trails and multi-use pathways, will enhance safety and connectivity within the resort and extend beyond to the broader regional trail network.

2 Old Town West

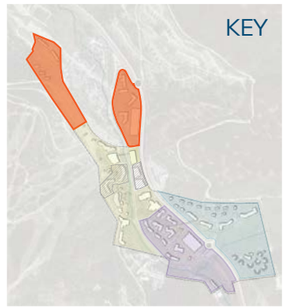
Key Elements: Positioned at the northwestern corner of the Resort and situated parallel to the train tracks on either side, this sub-area aims to provide accommodations and amenities with potential for direct connection to the Mountain, as well as integration into the culture of Old Town. Accommodations will be developed at an appropriate scale for the existing neighborhood. Existing natural vegetation buffers from existing neighborhoods will be retained.

Supporting Elements: Pedestrian and trail upgrades will enhance connectivity to the Resort.

FIGURE 4.4 AREA C DETAIL



1 Old Town East
2 Old Town West
3 Roundabout B
4 Old Town Parking Garage



RETREAT (AREA D)

The Retreat Planning Area (Area D) lies to the east of US Highway 40 and will be accessed via the southern entrance of Winter Park Resort via the proposed vehicular roundabout. Thoughtful lower-density development plans involve utilizing the current surface parking lots while striving to minimize site disruption. This approach ensures that the charm and serenity of the site and its surrounding wetlands are preserved and cherished. The area boasts dense forestation and envelops a sizable wetland encircling Jim Creek. A key goal for the Retreat Planning Area is the conservation and enrichment of its natural open spaces for guests, locals, and nature lovers to enjoy.

The Retreat (Area D) is divided into sub-areas with Key Elements and Supporting Elements as outlined below:

1. **Retreat North**

   Key Elements: Connected directly to the rest of Winter Park resort via the landmark pedestrian bridge over Highway 40, the sub-area becomes the natural connection between the Resort and extensive natural habitat surrounding Jim Creek, the wetlands, trails, and mountains beyond. A collection of low and mid-density lodging and residential accommodations sit responsibly on the site, with associated amenities, natural parkscapes, and meandering trails for adventurers and tranquility seekers to enjoy.

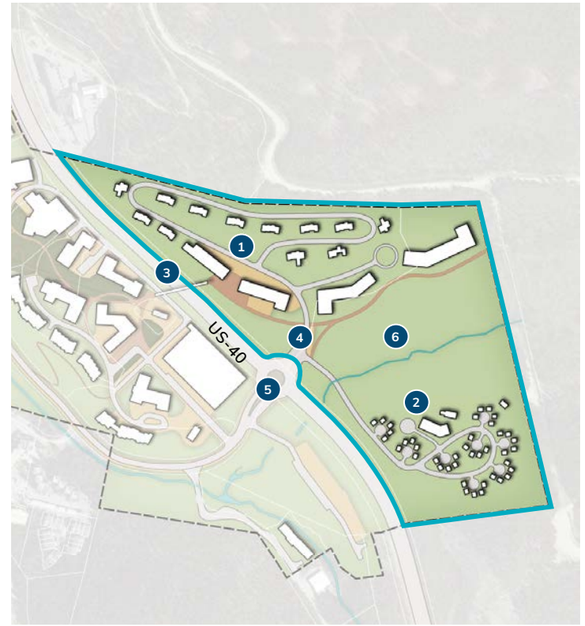
   Supporting Elements: Trail connections, pocket parks, event/wellness platforms, and celebrated natural habitats establish a meaningful relationship with the local ecosystem for all to enjoy.

2. **Retreat South**

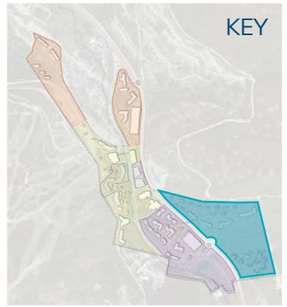
   Key Elements: Situated east of Highway 40 and south of the Jim Creek Wetlands, this sub-area is accessible via a proposed vehicular/pedestrian bridge spanning responsibly over the protected habitats. A collection of lower-density accommodations are situated responsibly on the site with associated amenities and gathering places to embrace the natural landscape.

   Supporting Elements: Meandering pedestrian paths and passive parks touch lightly on the natural landscape, offering minimal impact to the local habitat.

FIGURE 4.5 AREA D DETAIL



1. Retreat North
2. Retreat South
3. Multi-Use Bridge Connection
4. New Primary Street Access
5. Roundabout A
6. Jim Creek Wetlands



OPEN SPACE

SUMMARY

The foundation of Winter Park Resort was based on providing visitors and nearby residents access to mountain activities, specifically winter sports and skiing, and celebrating the open space inherently provided by its location tucked into the Rocky Mountains, adjacent to the Fraser River and close proximity to Denver.

Since its opening day in 1940, that core value has not changed, but expanded to greater outdoor possibilities. The PDP's open space elements continue to celebrate the unique positioning of Winter Park Resort. The Plan looks to enhance the existing site conditions, provide additional public gathering spaces for both small groups and large events, improve pedestrian, vehicular, and multi-modal circulation, restore habitat and ecological functions, and provide additional outdoor recreational opportunities for year-round activity.

As an outdoor recreation destination, the development plan aims to create a comfortable and dynamic pedestrian and bicycle circulation network within the resort. In addition to sidewalks, this will primarily be accomplished through high quality and accessible open space connection the different areas of the plan through pathways, parks, and a robust trail network. Preservation of the natural open space is critical to protect the authentic mountain character and shall be protected. Where possible, each development shall look to preserve the existing trees, vegetation, and open space and develop on the previously disturbed areas of land. The open space surrounding the developments shall not only support the use of the development through active programming, passive experiences, and interactive learning, but also act as the connective tissue for newly introduced landscape to integrate into the fabric of the surrounding natural open space.

OPEN SPACE

Programmed Open Space is primarily focused on centralized, active areas adjacent to active recreation and retail uses, and includes areas where large, permitted events may be held. The Programmed Open Space shall be a balance of hardscape and softscape that can support active open space activities. This may include sidewalks, plazas, turf lawns, seating areas, lighting, and areas for primary pedestrian circulation. Programmed Open Spaces shall be linked by a continuous pedestrian trail network, and include pedestrian connections to adjacent roadways, building parcels, and soft-surface trails within passive open spaces.

Passive Open Space is focused on creating protected areas for habitat and wildlife, promotes recreational uses such as walking, biking, and hiking, and helps advance fire mitigation practices. The Passive Open Space shall be primarily softscape (trees and shrubs) with natural surface trails and/or areas that support the adjacent building uses. Passive open spaces should also include natural areas for the reflection and enjoyment of the native surroundings. Vehicles shall be allowed to operate in Open Space for performing infrastructure maintenance within Open Space areas pursuant to permitted Temporary Uses.

FIGURE 4.6 OPEN SPACE NETWORK

Programmed Open Space
Passive Open Space

OPEN SPACE BY PLANNING AREA

The development plan intends for a significant portion of the Plan Area to be developed or preserved as open space. Table 4.1 outlines the intended percentage of each Plan Area that will provide Open Space.

The plan will include a mix of Programmed Open Space for both daily public use and special events, as well as Passive Open Space areas, which will protect and celebrate the alpine landscape as a shared resource. The balance between Passive and Programmed Open Space will differ between Planning Areas. In general, the amount of Open Space that will be programmed increases with proximity to active groundfloor uses such as retail, food and beverage, and skier/visitor services.

An approximate allocation of each Planning Area's Open Space by Programmed and Passive Area is provided in Table 4.1 and illustrated in Figure 4.7. Individual developments within the base area shall adhere to all Town Open Space minimum requirements and regulations.

TABLE 4.1 OPEN SPACE BY PLANNING AREA

* All areas included in the Planning Area Breakdown tables are approximate.

	Resort Village	Welcome Village	Old Town	Retreat
Total Planning Area (Acres)	48 ac	41 ac	38 ac	51 ac
Overall % Open Space	30%	40%	30%	60%
Programmed % of Open Space	40%	20%	10%	5%
Passive % of Open Space	60%	80%	90%	95%

FIGURE 4.7 OPEN SPACE BY PLANNING AREA

SITEWIDE MOBILITY

SUMMARY

Consistent with the Town Comprehensive Plan goals, the PDP prioritizes the creation of diverse transportation options. The mobility framework described in this section aims to adequately serve the proposed land uses, while also improving current circulation and parking systems.

The concept plan will create a resort that is highly accessible to residents and visitors by train, bus, aerial transport, or bike, and allows drivers to park once and easily walk to all destinations. The proposed circulation and parking patterns will promote the pedestrian realm while serving day-to-day practicalities of service, parking access, and pickup/drop-off functions.

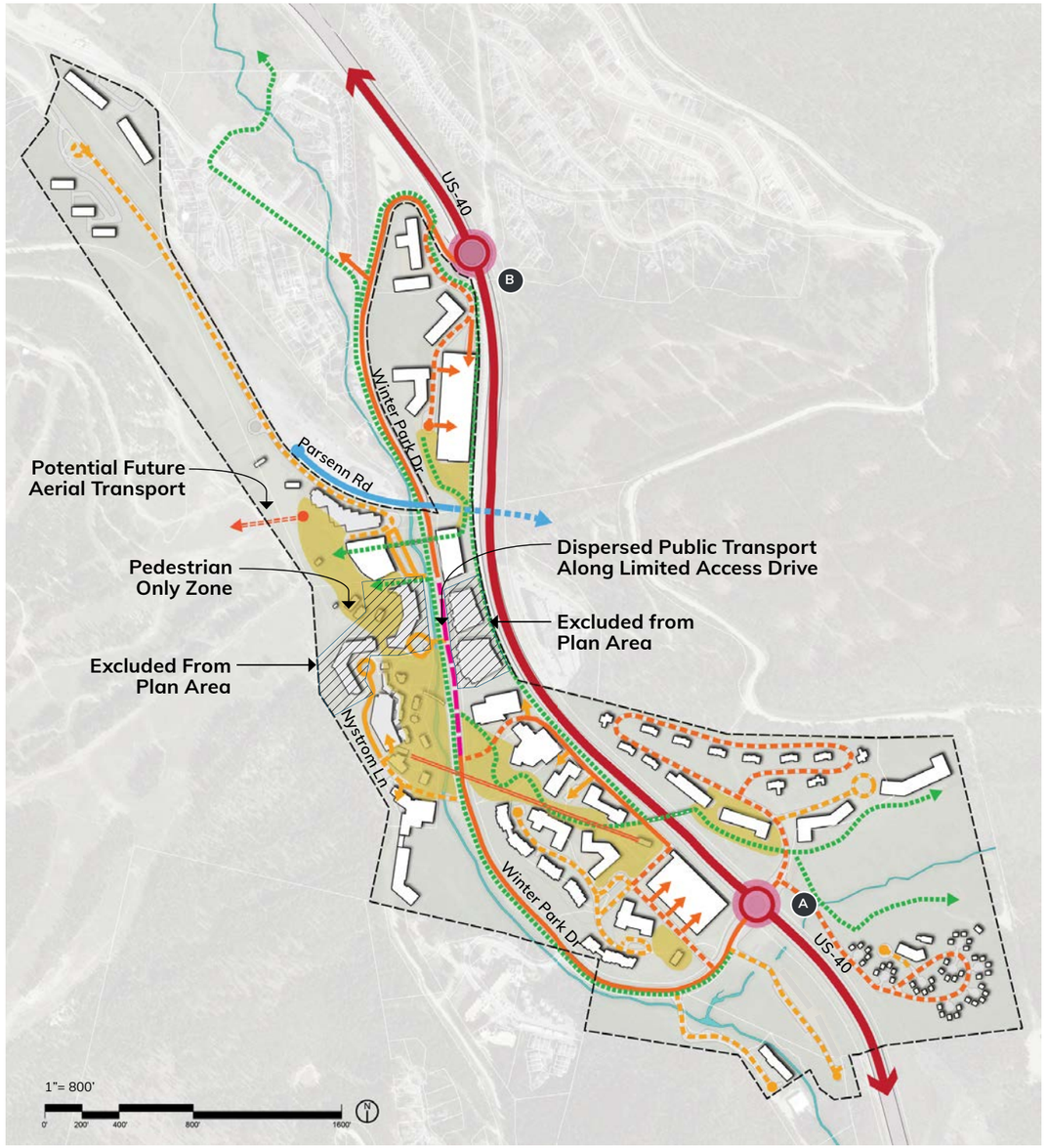
- **Proposed Primary Streets**
  As the Plan Area develops, additional collector streets will be needed for access, parking, and services for new facilities. These roads will extend from existing vehicular infrastructure (such as Winter Park Drive and US-40) to distribute traffic flow and improve primary site circulation.
- **Proposed Roundabouts and Highway US-40 Enhancements**
  Roundabouts at existing intersections on US-40 are proposed to improve circulation, reduce congestion, and allow for signature gateways to and from Winter Park Resort.
- **Fraser River Trail Extension**
  Serving as an important multi-use path for the Plan Area, the Fraser River Trail acts as an undisturbed connection point between the Plan Area and Town. It currently ends just short of the Mountain Base Area. This PDP envisions a formal extension of the trail through the development and across US-40 to connect with the Jim Creek area trail network.
- **Pedestrian Zones**
  Various areas of the development embrace pedestrian centric zones - dense, highly walkable areas with bicycle dismounts and no vehicle access. These environments contribute to a safe, intimate and highly connected public realm for guests.
- **Accessibility**
  The PDP aims to maintain existing and expand accessible routes and elements throughout the Plan Area.

WINTER PARK MOBILITY STUDY

The Winter Park Mobility Study (a separate submittal) documents potential transportation-related impacts to the surrounding multi-modal network from proposed development in the Plan Area.

The Mobility Study considers existing conditions, future adjacent forecasted conditions (beyond Winter Park Resort), and proposed future Winter Park Resort conditions in its evaluation. Points of access/ingress/egress, multi-modal circulatory routes, and parking in and around the site are analyzed with regard to existing conditions and performance, as well as future potential conditions and performance. The Mobility Study will inform further design of plan elements in subsequent design phases.

FIGURE 4.8 OVERALL SITE MOBILITY



ROAD NETWORK

SUMMARY

Intersections from US-40 will be the primary access points for the Plan Area. The placement of multiple roundabouts at both existing and newly proposed access points along US-40 will help slow traffic, provide a safer driving and pedestrian condition, and promote an improved arrival experience to Winter Park Resort.

The road network shows a combination of public and private road rights-of-way. Winter Park Drive, which will retain its current alignment, will remain within the public ROW. The major enhancements to Winter Park Drive will occur between the Village Corridor and Mountain Base - further slowing the flow of traffic and devoting more protected space to pedestrians and bicycles. As shown in the proposed street cross sections (Figure 4.14), Winter Park Drive will be reconfigured to provide a linear transit 'flex lane' , minimum vehicular travel lanes, and a widened pedestrian/ bicycle zone within the existing public ROW width. New private roads within the Plan Area will improve circulation and connect both existing and future developments.

VEHICLE ACCESS, INGRESS / EGRESS

- Two new roundabouts at the existing intersections along US-40 facilitate traffic flow and increase resort access.
- Winter Park Drive will continue to have controlled access gates through the resort to limit personal vehicle through-traffic and improve safety in the public realm.
- Improved drop-off at base expands access and connection. (Potential for valet services.)
- Potential for a new Mountain-to-Town Aerial Transport System at the Mountain Base Area connects and integrates the local communities of Winter Park and Fraser.

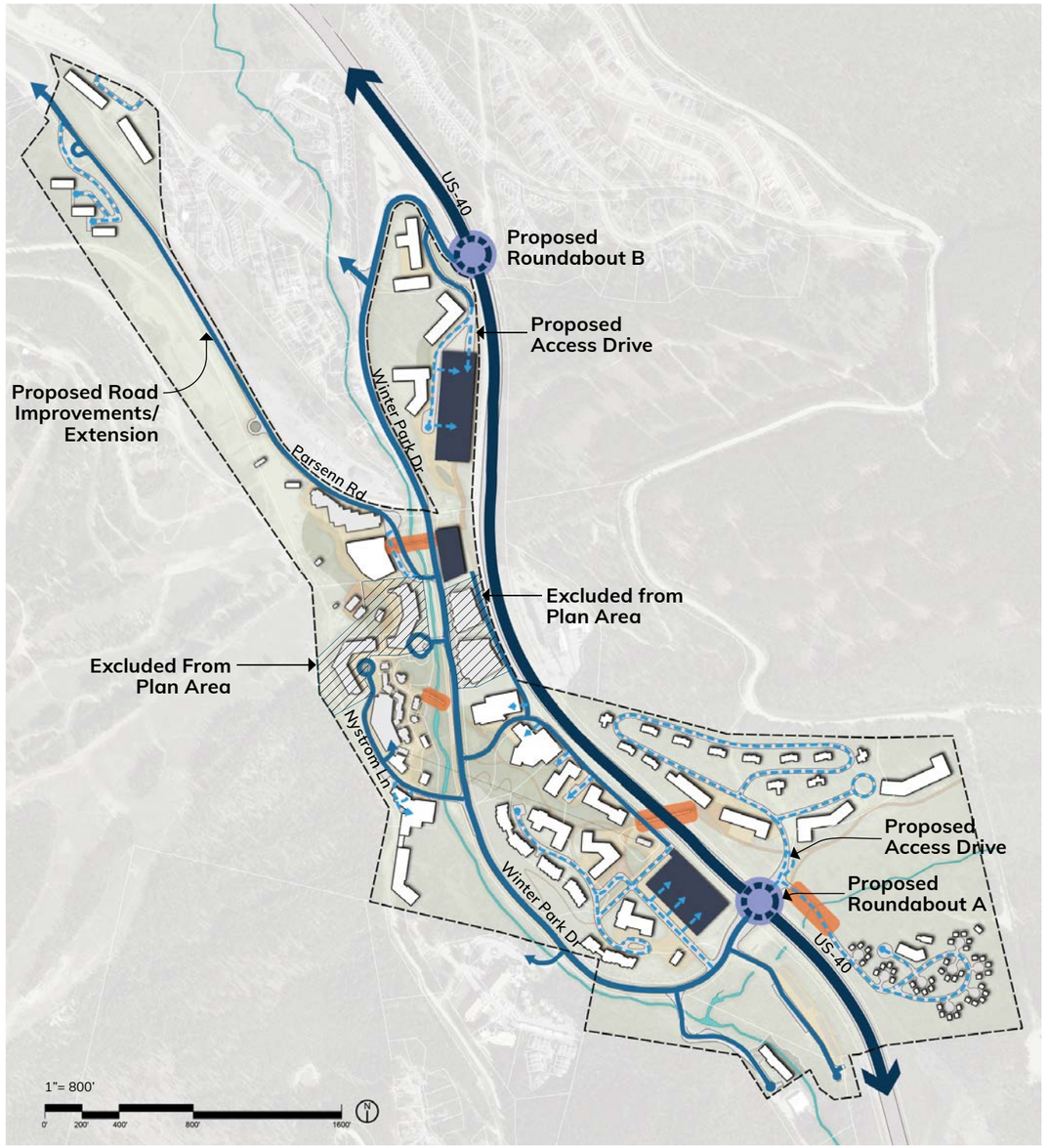
CIRCULATION

- Universal roadway enhancements throughout the Plan Area.
- New private streets established within individual Planning Areas connect new developments and parking.
- Formal extension of Parsenn Rd. and improvements to connect Parsenn Rd. to Winter Park Dr.

ROAD MAINTENANCE

- Highway US-40 and future adjoining roundabouts are to be maintained and serviced by the Colorado Department of Transportation (CDOT).
- Winter Park Drive, a public ROW, is and will continue to be maintained by the Town.
- Maintenance of all circulatory private roads, access drives and parking lots/structures shall be addressed by Winter Park Resort on behalf of the WPRA.
- Private parking stalls, driveways and access points associated with independent developments within the Plan Area shall be maintained by the owner or operator of each individual property.

FIGURE 4.9 VEHICULAR CIRCULATION



PARKING STRATEGY

SUMMARY

The PDP envisions a strategic parking approach that improves parking opportunities through the use of both public and private parking garages distributed across the Plan Area. The intent is to increase parking capacity while better connecting guests with resort functions and limiting vehicular traffic within the Plan Area.

The approach includes public parking structures, off-street parking spaces, private parking areas per individual development, and a limited number of surface lots to support short-term parking.

Parking for Winter Park Resort day-use and public visitors will primarily be accommodated by two structured garages, located near the north and south ends of the resort area respectively, with access from the new roundabouts on Highway 40 for ease of arrival. The intent is to provide abundant, accessible, and readily available areas for guests to quickly park and enter the Winter Park Resort. These garages will for the most part replace surface parking displaced by future development.

At full build-out, the parking within individual site developments will need to meet parking requirements and may be located under buildings, in associated parking structures, or surface lots.

TRANSPORTATION DEMAND MANAGEMENT AND SHARED PARKING ZONES

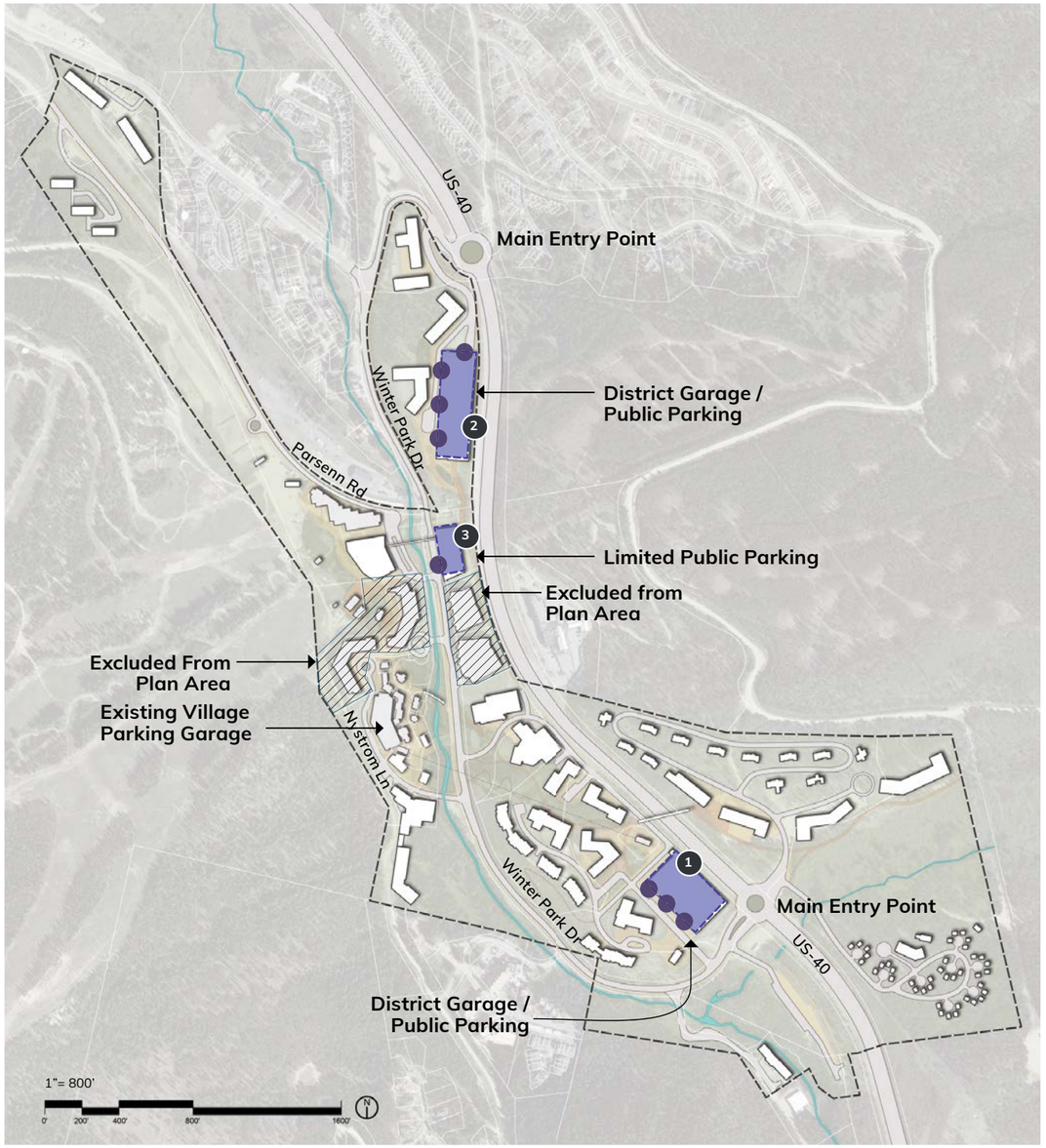
Transportation demand strategies for reducing vehicle trips are based on the destination resort and mixed-use concept of the visitor “parking once” and leaving the vehicle behind, or arriving by transit or other means, to enter a pedestrian dominant environment. Internal capture of trips within the development due to the adjacency of a mix of uses and improvements supporting pedestrian mobility reduces the total number of vehicle trips and resultant demand for parking. The shared parking strategy for the development allows for parking to be shared between different land uses resulting in a lower demand for parking than if parking was provided for individual land uses.

The Winter Park Mobility Study defines parking calculations, loads, and access demands for parking. This parking demand analysis analyzes parking needs for each of the proposed land uses on the site, considering the opportunity to share parking among these uses and the resultant impact on parking demand. The shared parking model enables grouping of land uses by “zones” within the development which will allow drivers to park in areas close to their primary destination. The Mobility Study provides further detail and recommendations for shared parking and transportation demand management strategies.

SNOW STORAGE AND REMOVAL

Appropriate snow removal and storage locations shall be provided for all parking areas/structures and associated driving surfaces within the Plan Area. Storage and removal practices shall comply with the Town UDC **Section 3-H-5-A Parking Design Standards / Snow Storage.**

FIGURE 4.10 PARKING APPROACH



TRANSIT

SUMMARY

Providing an extensive and convenient public transportation network with both local and regional transit options is an integral part of the PDP vision. An enhanced network of shuttles/buses and rail works to build a more accessible, connected and sustainable future for the Plan Area.

The Applicant, in conjunction with the Town, shall ensure that adequate public transportation (mass transit) options are provided for guests and residents of the area. These transit routes shall connect throughout the various neighborhood areas, parking facilities, and main resort destinations. It is essential that any new transit options work in close collaboration with existing transportation routes to most efficiently and effectively serve the Plan Area. The transportation network shall operate in full capacity during peak season(s) and may additionally operate on a situational basis during special events and other times deemed necessary by Winter Park Resort.

WINTER PARK TRANSIT SYSTEM - THE LIFT

The PDP will maintain existing transit routes that connect the resort area, neighboring properties, and the Town. Additional stops or alterations may be considered to existing transit routes in order to service future developments. Currently, the Old Town West Plan Area is not well-served by existing transit routes. It will be considered as a location to be served by a possible future transit route and corresponding stop in conjunction with the formal extension of Parsenn Road. All requested changes or additions/alterations to any local transit lines must be reviewed, approved, and implemented by the Winter Park Transit Department, with additional supervision provided by the town Transit Advisory Committee (TAC).

RESORT SHUTTLE

A local shuttle, circulating guests between district parking areas and the Mountain Base area, may be considered as an asset to better connect the Resort and minimize walking distance for guests.

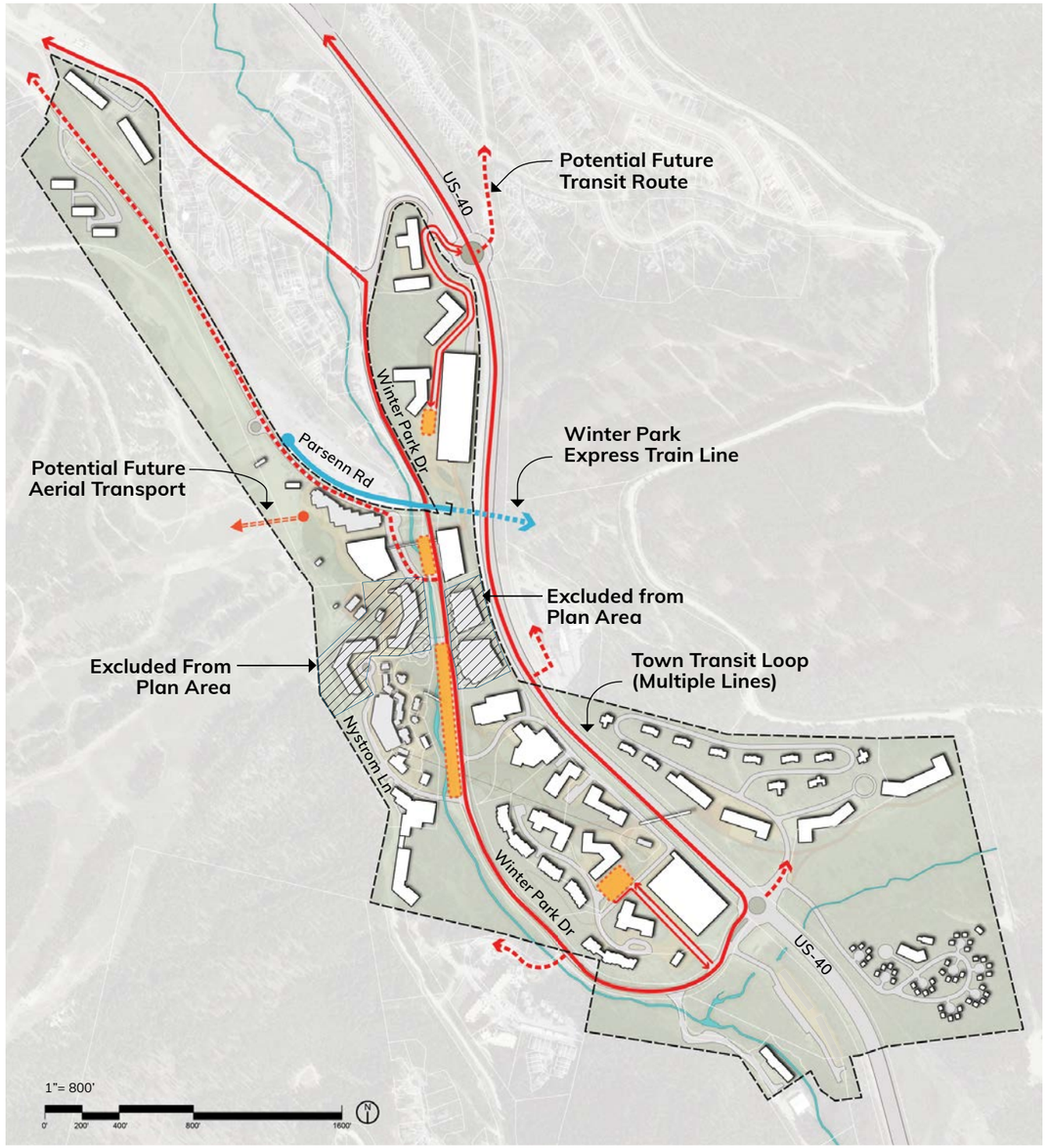
WINTER PARK EXPRESS - AMTRAK

Amtrak provides rail services to Winter Park Resort as part of the Amtrak Winter Park Express, operating from January through the end of March. With a station located just north of the Mountain Base Area along Parsenn Rd., this train provides an efficient and uninterrupted transit alternative from Denver to the Mountain Base front doorstep. Future improvements to this station area may be considered to help increase train staging capacity, bolster platform infrastructure and loading conditions, and expand this unique entry portal and transit option for the resort. Coordination with Amtrak, Union Pacific Railroad, and all other associated rail entities will be necessary in the progression of this effort.

AERIAL TRANSPORT SYSTEM

A potential aerial transport system would connect the Mountain and Town, providing a new means of public access to the Resort.

FIGURE 4.11 TRANSIT CIRCULATION



The Lift Bus Lines
Potential Transit Route
Winter Park Express (Amtrak) Railroad Line
Potential Primary Public Transit Pick-Up/Drop-Off Area
Potential Aerial Transport

PEDESTRIAN & BICYCLE MOBILITY

SUMMARY

A planned mixture of pedestrian pathways, protected and shared bicycle lanes, and an extensive mixed-mobility trail network works to create a safe, interconnected pedestrian and bicycle-centric environment throughout the Plan Area.

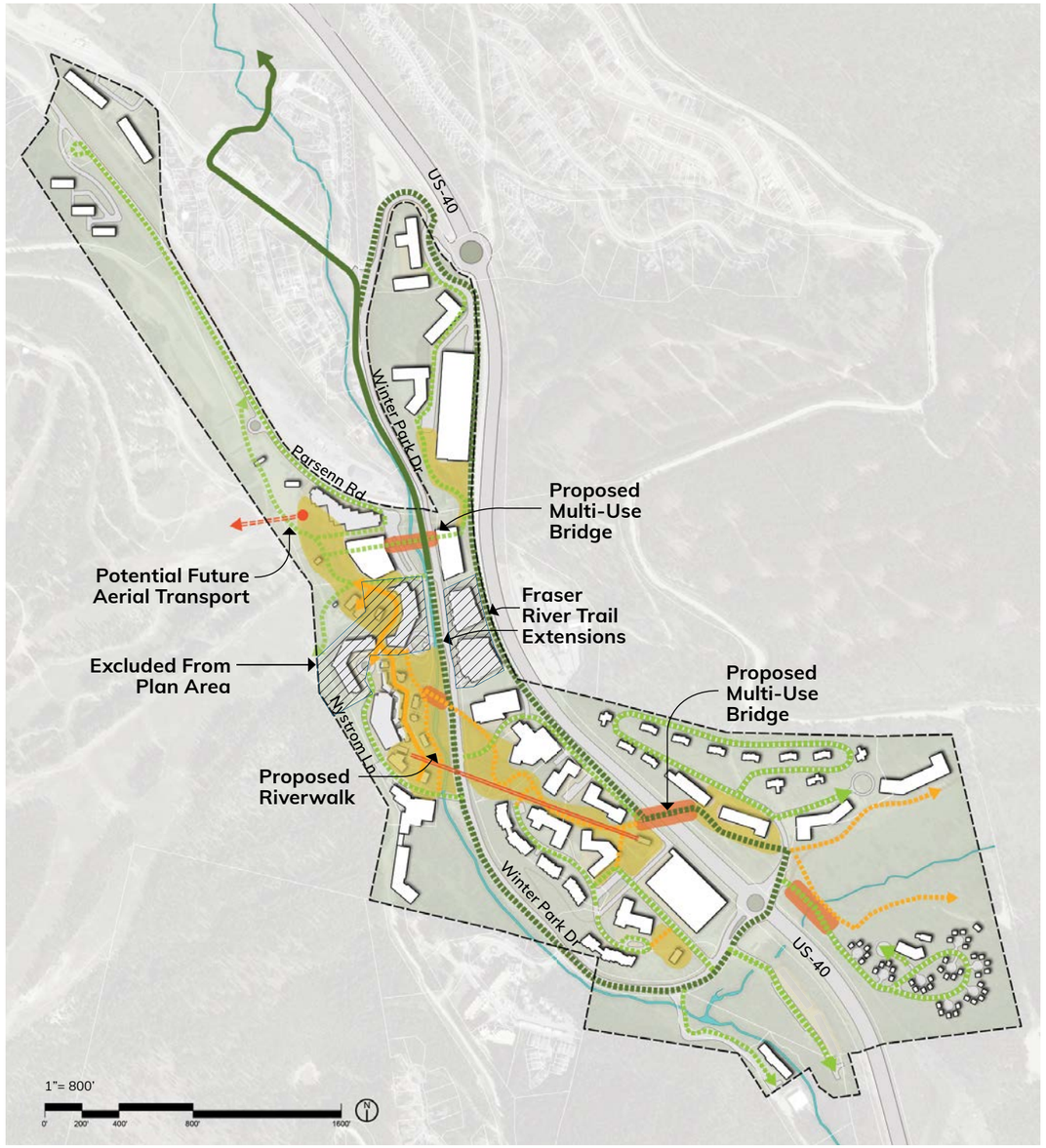
Improvements to existing paths and trails join multiple new pedestrian and bicycle connections into the Plan Area. Important access points and extensions to the Fraser River Trail network help improve multi-modal connections between the Resort and the Town. A formal, protected extension over US-40 helps access surrounding opens space and trail networks and establishes a necessary link to the future Retreat Planning Area.

1. Mobility & Circulation
This PDP prioritizes increasing the vibrancy and accessibility of the public realm. An improvement to existing pedestrian and bicycle infrastructure will support circulation in a convenient and enjoyable manner for guests. In addition, an expansion of such infrastructure will continue to advance mobility options and discourage a car-centric environment. It is essential that all future developments prioritize pedestrian mobility and circulation in an effort promote a healthy and vibrant public realm.

2. Proposed Pedestrian Bridges
As illustrated in Figure 4.12, multiple proposed pedestrian bridges will improve pedestrian connections between Planning Areas and individual developments, providing undisturbed, continuous paths of travel throughout the Plan Area. Bridges crossing Winter Park Drive and US-40 will promote a safer circulation pattern that improves the walkability in and between various Planning Areas. New and improved bridges as part of the River Park bring guests closer to the Fraser River, while improving walkability within the Resort Village Planning Area.

3. Connect with the Fraser River Trail
The Winter Park Resort Mobility Study emphasizes the Fraser River Trail as an integral part of the development and important connection point to the Town and beyond. A proposed extension to this trail leads through the Resort Village Area, continuing to follow the Fraser River upstream towards the southern-most entrance at US-40. Trail improvements will be constructed as part of infrastructure improvements within the broader phases. The extension, widening, and improved condition of this trail will serve as a backbone for pedestrian and bicycle circulation throughout the Plan Area.

FIGURE 4.12 PEDESTRIAN & BICYCLE MOBILITY



TRAILS

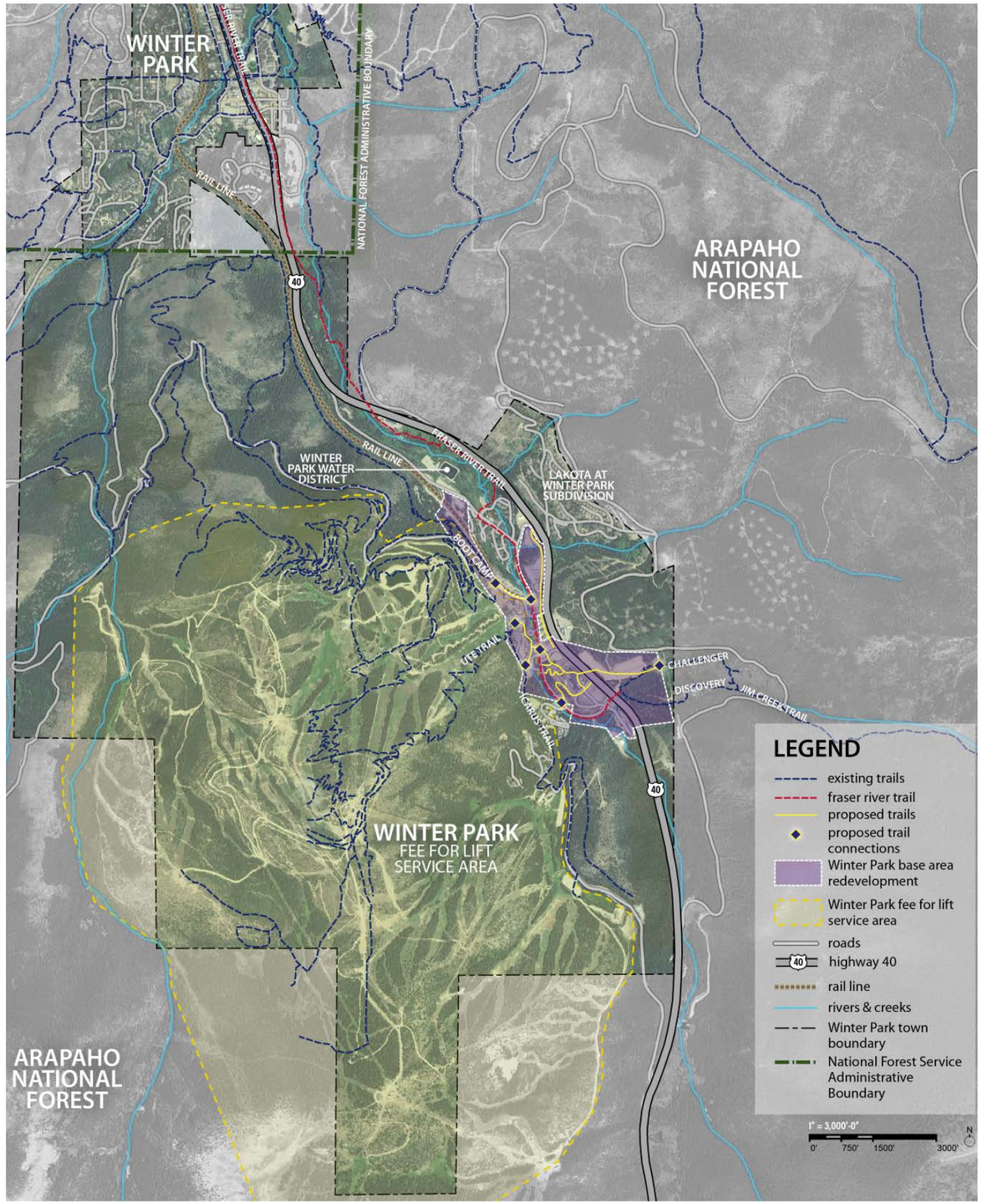
The trail network shows general location rather than exact alignments. The intent of the trail network is to provide a cohesive system of trails to connect to, from, and through the Plan Area. An extension of the Fraser River Trail will provide the backbone for the trail network. Improvements to this regional connection should be considered high-priority. Trail connections to adjacent developments should spur from the Fraser River Trail. A multi-use trail along Winter Park Drive that also functions as the extension of the Fraser River Trail will be constructed.

Multi-use trails for walking, biking, and hiking should be incorporated where possible.

General Trail Considerations:

- Trail locations shall avoid trail-user conflicts with adjacent land users, steep slopes, wetland setback requirements, wildlife movement/mitigation corridors and other key wildlife habitats or any other environmental constraints
- Trails shall minimize the number of driveway and road crossings
- Alternate pedestrian and trail routes shall be provided when existing trails are impacted by construction
- Trails shall be designed in a manner that take advantage of natural, existing vegetation to buffer the trails from development and mitigate any safety hazards
- Provide clear signage for directional and safety purposes
- Trails should slope to drain
- Maximum cross slope shall be 2%; Maximum slope in direction of travel should not exceed 10%; however, 5-10% is optimal
- Trails should follow best practices set forth by the Town for design and layout

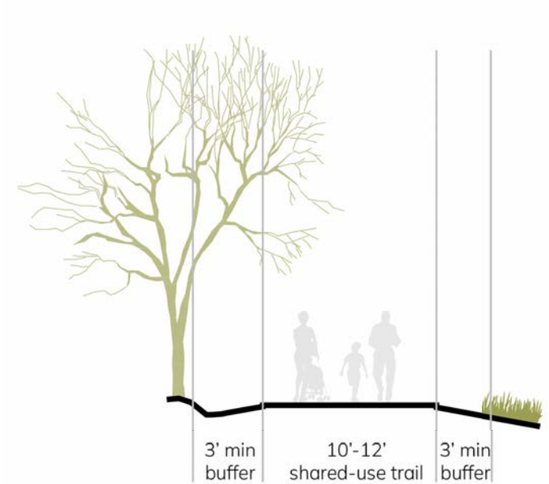
FIGURE 4.13 TRAIL NETWORK - REGIONAL CONTEXT



MULTI-USE PATHS & TRAILS

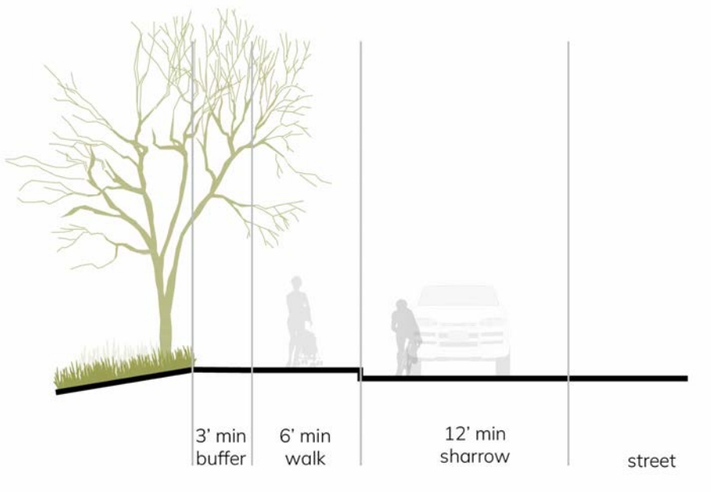
The following diagrams provide conceptual guidelines for typical multi-use paths and trails. Future development will adhere to minimum dimensions presented, wherever possible. These standard dimensions help maximize safe travel space for pedestrians and bicycles, and provide ample protection from vehicles. These spaces are designed to enhance the wellbeing and natural quality of the public realm, focusing on the pedestrian experience and slowing of any shared traffic. A multi-modal trail or separated bicycle lane should be used where possible. In areas where it is not feasible for the wider cross section, a sharrow should be considered.

FIGURE 4.14 MULTI-USE PATHS & TRAILS - TYPICAL SECTIONS



RIVER: MULTI-USE TRAIL

0' 2.5' 5' 10'

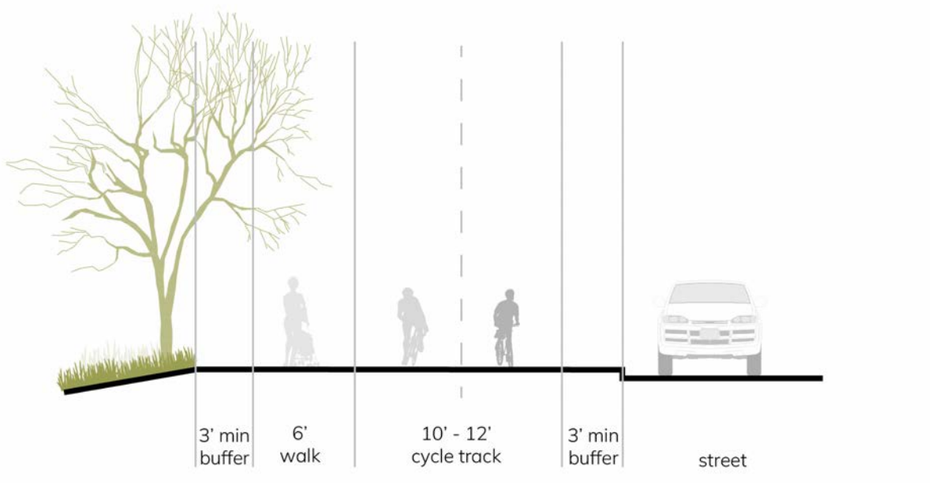


WINTER PARK DRIVE: SHARROW

0' 2.5' 5' 10'

WINTER PARK DRIVE: MULTI-USE TRAIL

0' 2.5' 5' 10'



WINTER PARK DRIVE: OFF-STREET BIKE LANES

0' 2.5' 5' 10'

STREET SECTIONS

COMPREHENSIVE MOBILITY NETWORK

Today, visitors to Winter Park arriving by bus or shuttle are all dropped off at the end of the existing village at the transit turnaround. With the expansion of hospitality, dining, and other program offerings at other areas of the site, full buildout will require a more dispersed transit network rather than one centralized location. Additionally, the existing transit turnaround prevents expansion of the village and limits opportunities to restore the Fraser River. Therefore, the plan proposes reconfiguring the transit network throughout the resort.

An improved drop-off along Winter Park Drive at the Mountain Base will bring people to the Base Area and potential Mountain-to-Town Aerial transport system. A shuttle loop could bring visitors across the resort area and improve circulation and the overall visitor experience. Although the turnaround plaza is vehicular, it should cater to the pedestrian experience and safety. The material and character should extend towards the Base Area to connect the plaza and drop-off areas.

WINTER PARK DRIVE

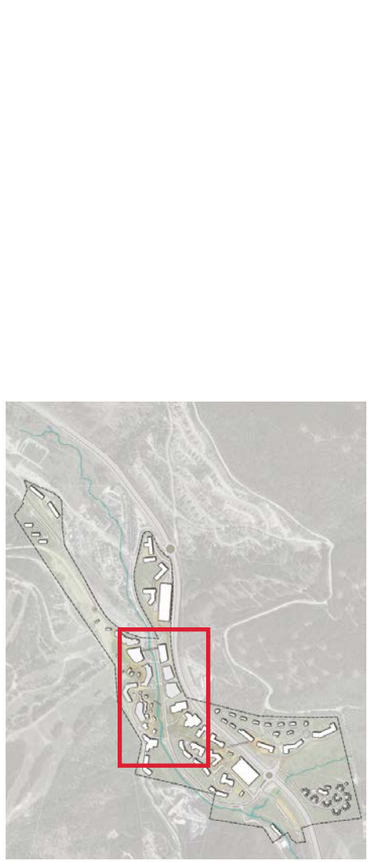
Dedicated transit stops in a 'flex' lane along Winter Park Drive will provide space for bus and shuttle drop-off as well as visitor drop-off. Traffic through the resort during peak hours will continue to be controlled in order to reduce the amount of personal vehicles using Winter Park Drive. Sidewalks and waiting areas adjacent to the flex lane should be pedestrian-friendly and consider pedestrian circulation and comfort. The transit lane along Winter Park Drive should be flexible to allow for reduced summer stops and special events closures for events at the River Park.

The current Right-of-Way width for the majority of Winter Park Drive within the development is 60’-0”. The roadway width for the majority is 35’-0” wide. A section of the roadway between Zephyr Way and Parry Peak Way is narrower at 26’-0” wide. The future intent of the roadway between the intersection at Nystrom Lane and the transit stop at the new parking garage is to be primarily for shuttle/bus use and to limit single passenger vehicles. It also seeks to improve the pedestrian and cyclist circulation and experience along Winter Park Drive. Therefore, between the two transit stops the travel lanes of the roadway shall be 26’-0” wide. This will allow for a linear ‘flex’ lane for bus transit drop off, a larger sidewalk, and integration of the Fraser River Trail but should be kept separated from vehicular traffic by the curb. The feasibility of including a portion of on-street parking along Winter Park Drive will be further evaluated as part of the FDP.

The rework of Winter Park Drive begins at the eastern most existing curb line. To not disrupt the drop-off, loading, and infrastructure for the existing buildings, the curb line was established as the point of connection for proposed improvements. All improvements shall be to the west of the curb line. Should improvements need to be made to the east, coordination will be required with the existing property owners to maintain the building access and functionality. At the constrained portion just south of the railroad tunnel, the centerline of the roadway travel lanes may be shifted in order to accommodate a transit stop along the roadway close to the Base Area. The intention is to keep Winter Park Drive as two-way with potential signalization at the trestle to allow one-way flow of traffic at this pinchpoint.

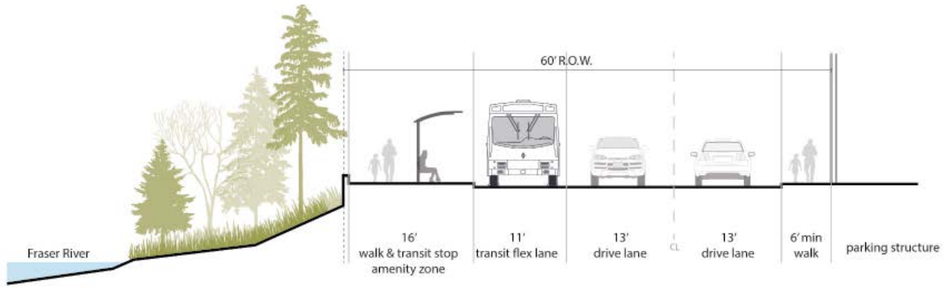
This plan is conceptual in nature and subject to future alterations as design is advanced and subsequent FDPs are submitted.

DEVELOPMENT CORE AT WINTER PARK DRIVE



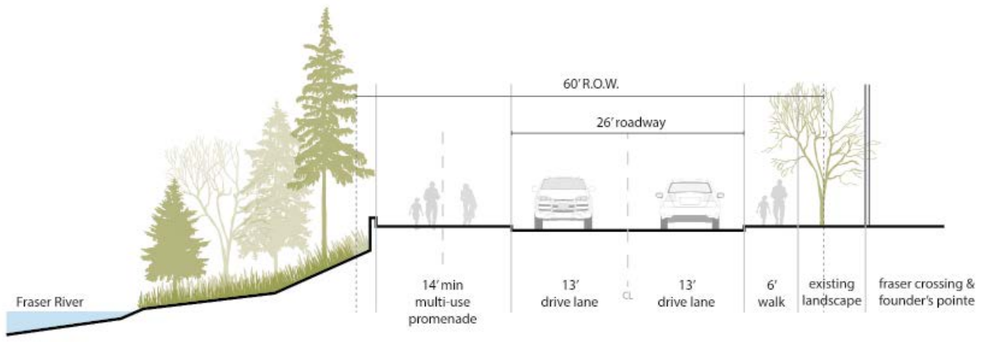
N.T.S.

FIGURE 4.15 WINTER PARK DRIVE - TYPICAL STREET SECTIONS A & B



WINTER PARK DRIVE: SECTION A

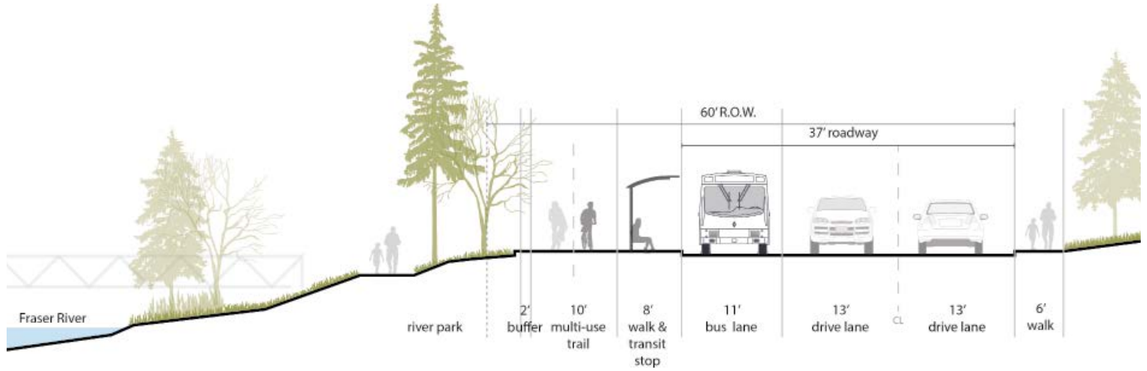
0' 5' 10' 20'



WINTER PARK DRIVE: SECTION B

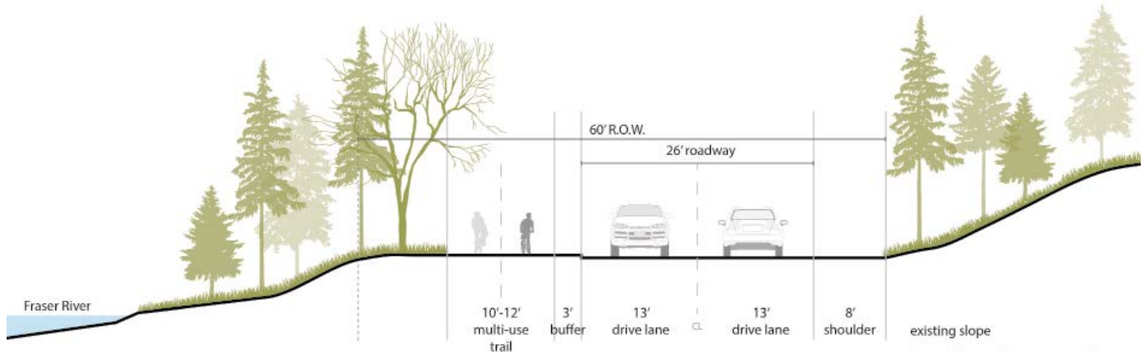
0' 5' 10' 20'

FIGURE 4.16 WINTER PARK DRIVE - TYPICAL STREET SECTIONS C, D & E



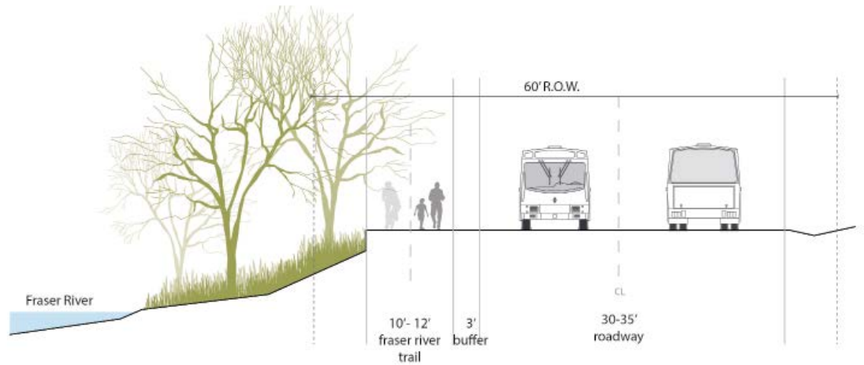
WINTER PARK DRIVE: SECTION C

0' 5' 10' 20'



WINTER PARK DRIVE: SECTION D

0' 5' 10' 20'



WINTER PARK DRIVE: SECTION E

0' 5' 10' 20'

PRIMARY PRIVATE STREET - WELCOME VILLAGE MAIN STREET AND OLD TOWN MAIN STREET

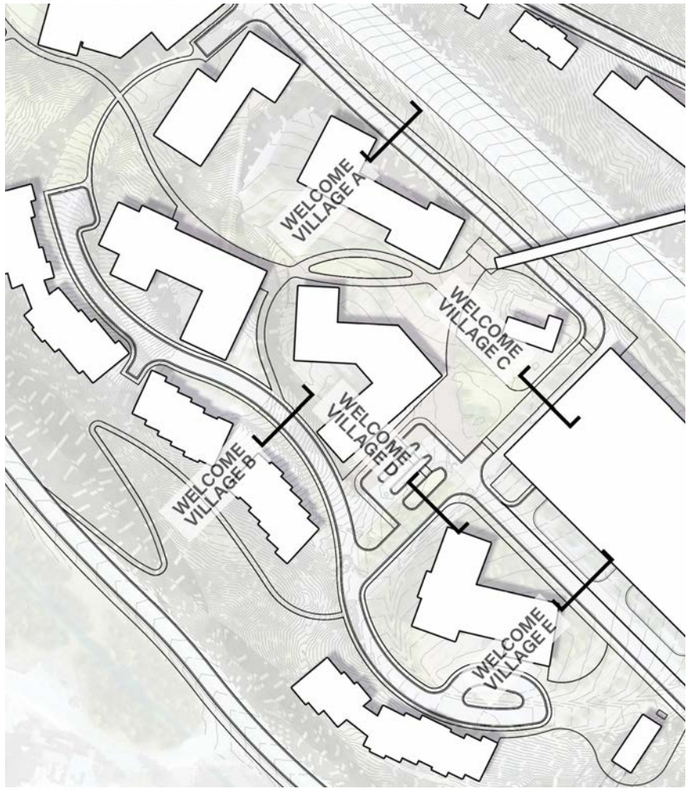
The primary private main streets that are not Town right of way roads shall be designed for improved vehicular and pedestrian circulation. (These two private roadways will be the backbone for adjacent development within the specific Planning Area.) Depending on the adjacent use, the roadway profile may change to include parking, loading, bike lanes, and/or expanded sidewalks or promenades.

These street sections are intended to be potential configurations within the boundaries of the streetscape and are not intended to be final design or the only allowable cross sections. The desire is to create a pedestrian friendly streetscape for street activation and to provide improved pedestrian circulation. There are multiple ways to accomplish this including (but not limited to) narrowing drive lane widths and/or parking stall dimensions, creating curbless roadways, increasing the sidewalk widths, and/or created a tree lined promenade.

*Actual design and dimensions of the cross sections may vary based on needs of the adjacent use, snow storage and removal, grading restriction and possible unforeseen conditions. These plans are conceptual in nature and are subject to future alterations as the PDP matures. These areas will be further designed and detailed along with adjacent projects if/when developed.

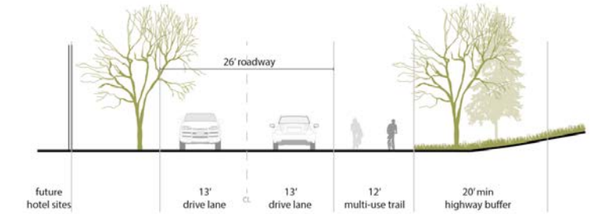
N.T.S.

WELCOME VILLAGE PLAN

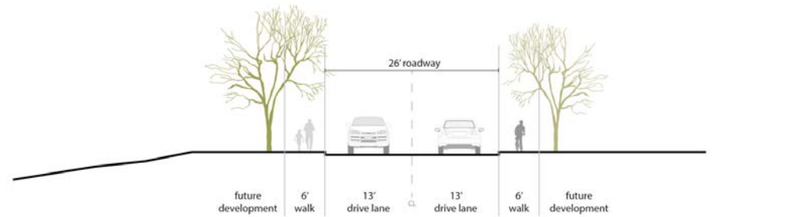


1"=200'-0"

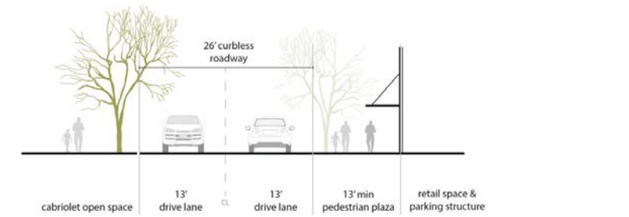
FIGURE 4.17 PRIMARY PRIVATE STREET ALTERNATIVES - TYPICAL STREET SECTIONS



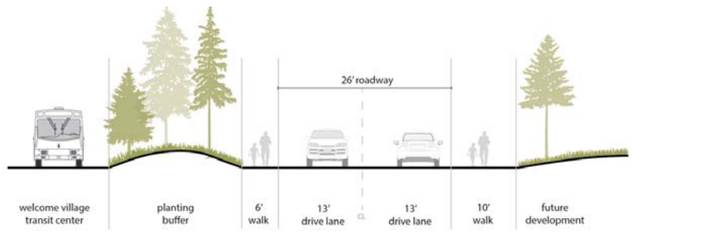
WELCOME VILLAGE: SECTION A



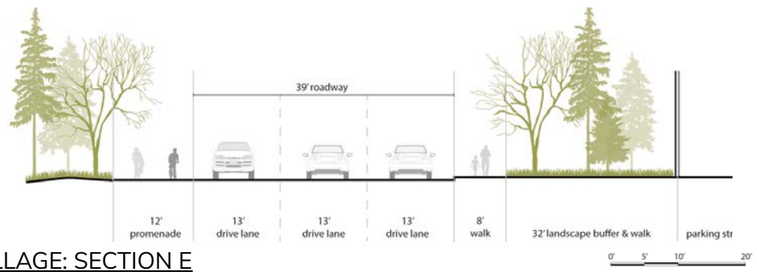
WELCOME VILLAGE: SECTION B



WELCOME VILLAGE: SECTION C

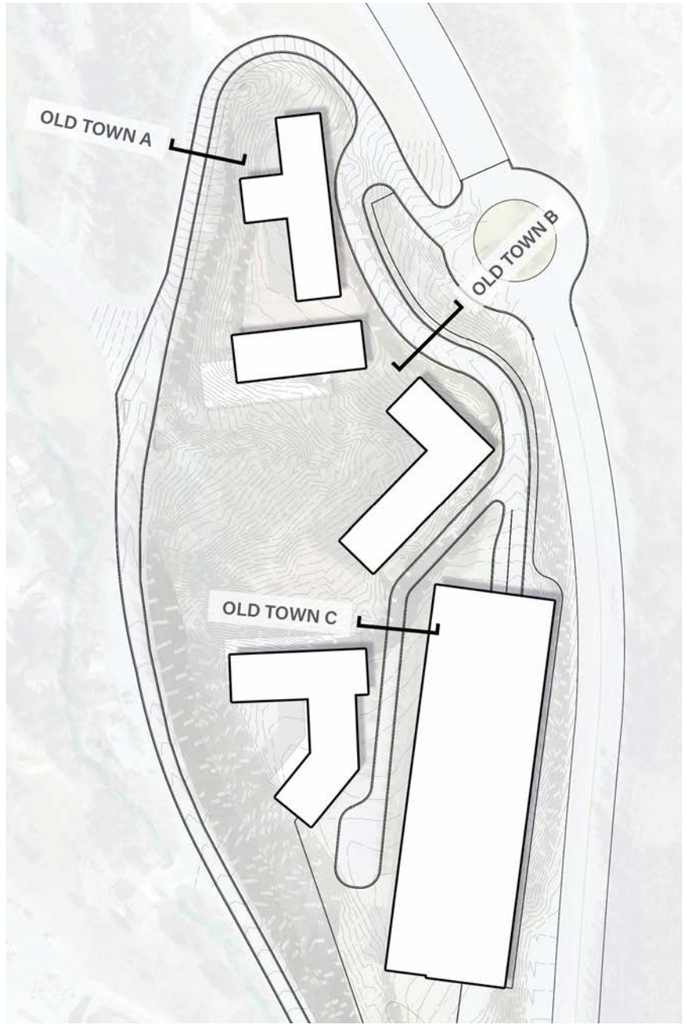


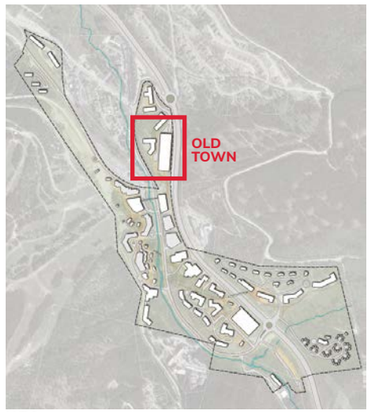
WELCOME VILLAGE: SECTION D



WELCOME VILLAGE: SECTION E

OLD TOWN PLAN

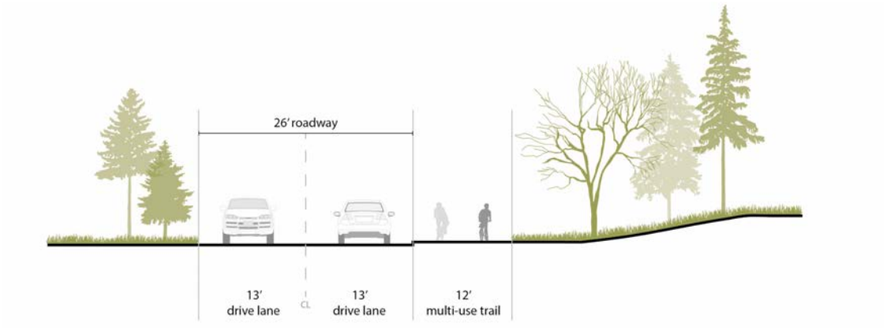




N.T.S.

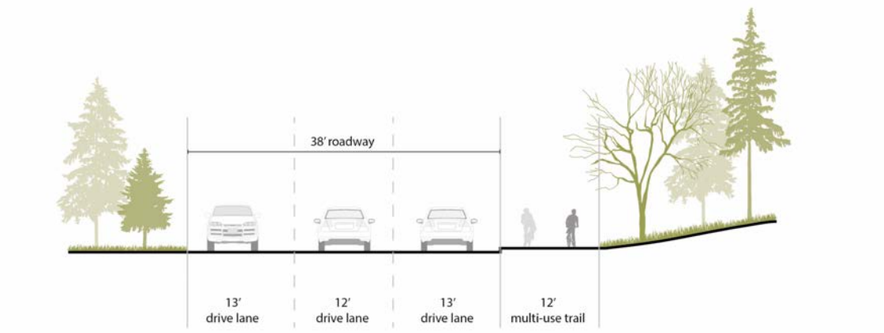
1"=200'-0"

FIGURE 4.18 PRIMARY PRIVATE STREET ALTERNATIVES - TYPICAL STREET SECTIONS



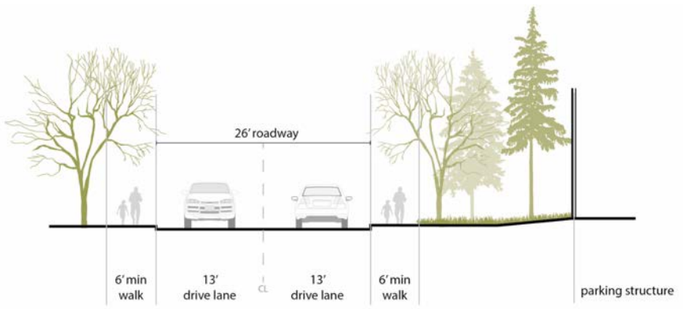
OLD TOWN: SECTION A

0' 5' 10' 20'



OLD TOWN: SECTION B

0' 5' 10' 20'



OLD TOWN: SECTION C

0' 5' 10' 20'

5. INFRASTRUCTURE & RESOURCE MANAGEMENT

GRADING

SUMMARY

Slopes greater than 30% have been identified in the Plan Area. The majority of steep slopes fall outside the areas to be developed and those adjacent to the Fraser River will remain undisturbed. Within the areas to be developed, the design team will identify areas requiring mitigation such as walls, building steps, and slope stabilization in order to maximize the development potential.

DEVELOPMENT CRITERIA

Building on continuous slopes over 30% is avoided where possible, particularly along the mountain side. Any development of utility lines, walkways, roads, etc. that must occur in these areas will be carefully analyzed, sited, and stabilized. Clearing and drainage will be managed to minimize visual scars, erosion, and ecological disturbance. Proposed modifications to UDC sections related to development on steep slopes and retaining walls are included in the Development Standards - Site and Building Design section of the PDP and will be evalated in further detail in subsequent FDPs.

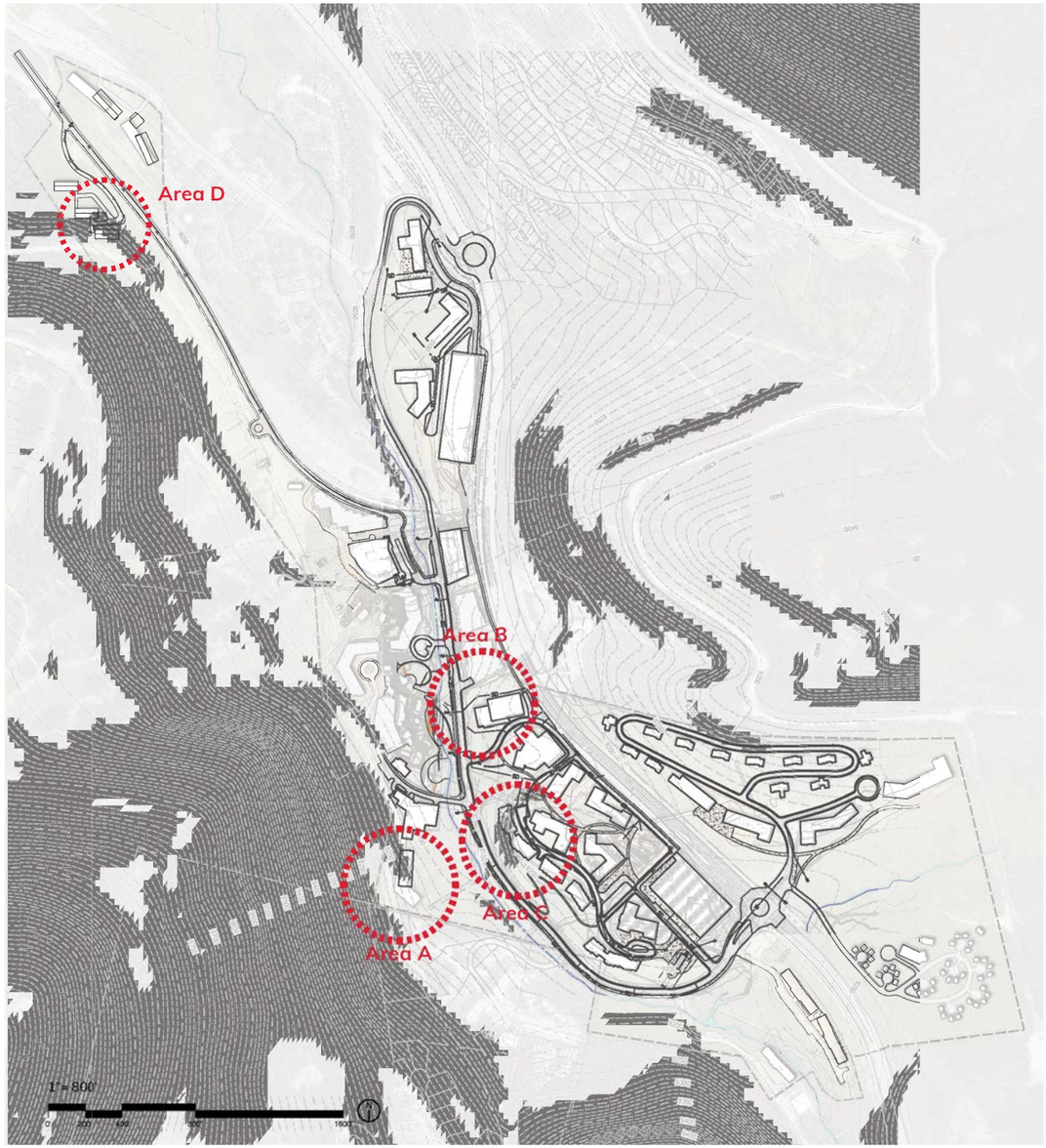
LANDSCAPE CONCEPT

Over the years, the Plan Area has been subject to significant modification including the construction of the Moffat Tunnel, development of roads, surface parking lots, and additional supportive infrastructure. As a result, much of the natural environment within the Plan Area has already been disturbed. The purpose of this section is to describe aspects of the natural environment that influence the future development of portions of the Plan Area and identify requirements to protect, and enhance (where possible), sensitive areas and reclaim those areas that have or will be disturbed during development. The following areas have been identified as potential areas of intervention as described below.

- **Area A** - The southwest portion of the site may require retaining walls and erosion control measures to maintain the existing wetland areas and areas where slopes exceed 30%.
- **Area B** - The north portion of the site will likely equire retaining walls, erosion control, and steep grades in order to integrate with existing topography and areas of slope greater than 30%.
- **Area C** - The west portion of the site may require retaining walls and erosion control measures in areas where slopes exceed 30%.
- **Area D** - The northwest portion of the site will require grading and retaining walls to accommodate future residential program if desired in the specific area of the lot where grades are in excess of 30%.

All other areas within the Plan Area will feature a natural landscape and be subject to limited disturbance or grading only to accommodate trails, utility lines, and roads that are close to the existing grade.

FIGURE 5.1 AREA OF 30% (OR GREATER) SLOPES



30% Slope or Greater

EASEMENTS

SUMMARY

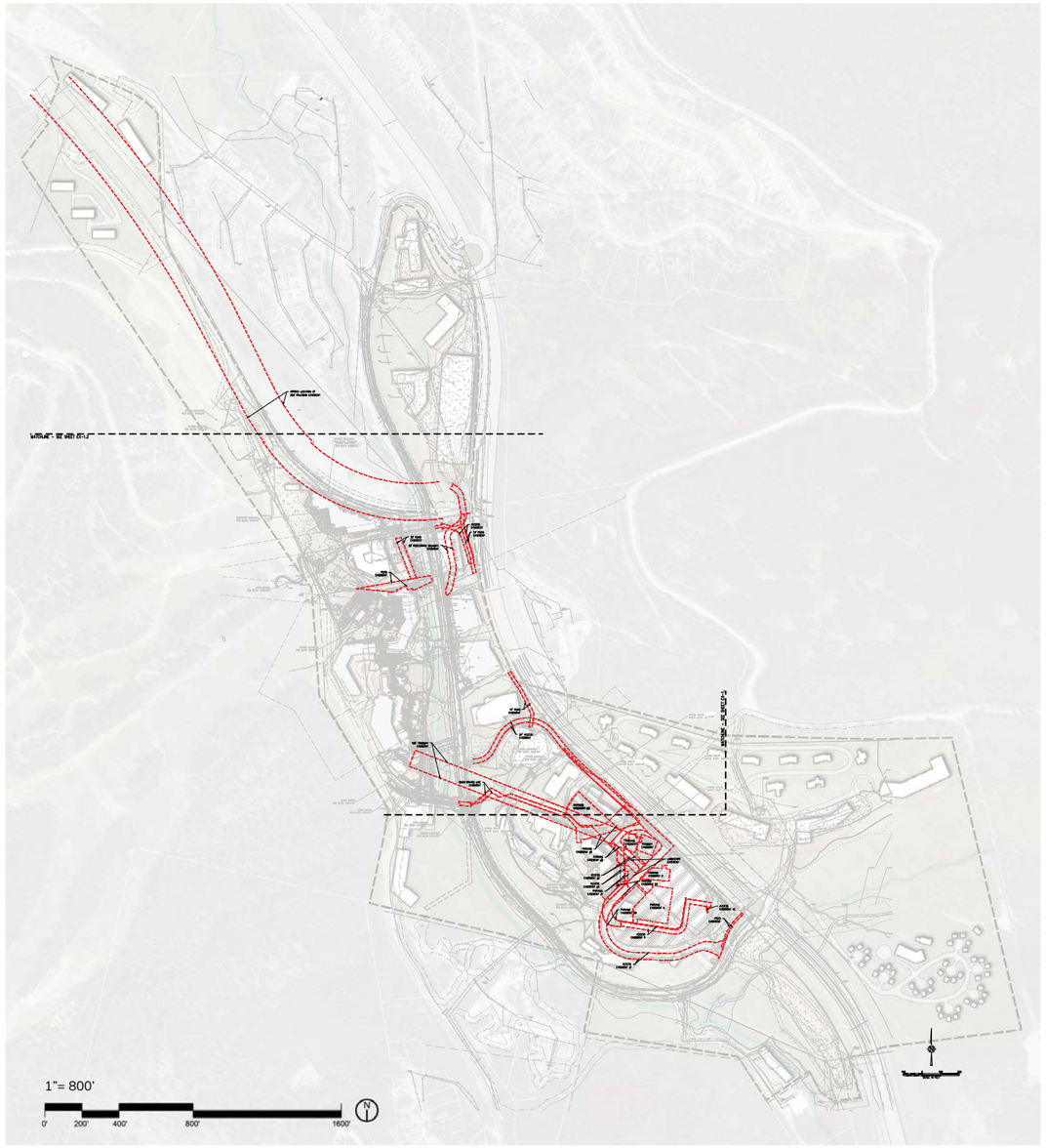
Common areas and facilities will be held through a variety of easement and ownership arrangements depending on the purpose to be served and the operation and management responsibility.

MAJOR EASEMENT CONSIDERATIONS

Multiple large, high value easements exist within the Plan Area, notably the Denver Water Syphon Easements and the existing UPRR Railroad Easements. The team will be working closely with each entity to facilitate maximum coordination and avoid potential conflicts.

*These exhibits, executed by JVA Consulting Engineers, can be found in greater detail at the end of this document in **Appendix C - Utility, Easement and Grading Exhibits.**

FIGURE 5.2 EASEMENTS



Easement

UTILITIES

SUMMARY

This section summarizes how utilities and public services are to be provided. More detailed information and engineering reports are provided in Appendix C - Utility, Easement, and Grading Exhibits.

DRY UTILITIES

Existing dry utility corridors will require re-routing and updating in order to serve future developed areas. Where possible, the development will follow existing corridors, but in some cases there will be a need to install completely new utilities and associated infrastructure to access these areas and service new development. The individual utility providers will assist in the design, review, and approval of these updates and additions.

DOMESTIC WATER

The domestic water system is managed by WPWSD and the proposed design will adhere to WPWSD standards. The current water distribution system has multiple areas of aging or damaged infrastructure that requires redesign, replacement, or repair. Available water for proposed development will be coordinated with WPWSD.

SANITARY SEWER

The sanitary sewer system is managed by WPWSD and the proposed design will adhere to WPWSD standards. The current sanitary collection system has multiple areas of aging or damaged infrastructure that requires redesign, replacement, or repair. Multiple existing sewer collection mains on site currently go directly through building foundations and will need to be re-routed. Available capacity for proposed development will be coordinated with WPWSD.

WATER AND SEWER PIPE INSULATION

Due to steep topography, the presence of bedrock, and existing utilities that do not meet burial depth requirements it will be necessary to utilize polystyrene insulation. Insulation equal to Styrofoam 40 High Load Square EXE, ASTM C518, C578, and D1621 shall be placed over the water or sewer service line and detailed on construction drawings where cover is not able to be maintained.

*These exhibits, executed by JVA Consulting Engineers, can be found in greater detail at the end of this document in **Appendix C - Utility, Easement and Grading Exhibits.**

FIGURE 5.3 EXISTING UTILITIES

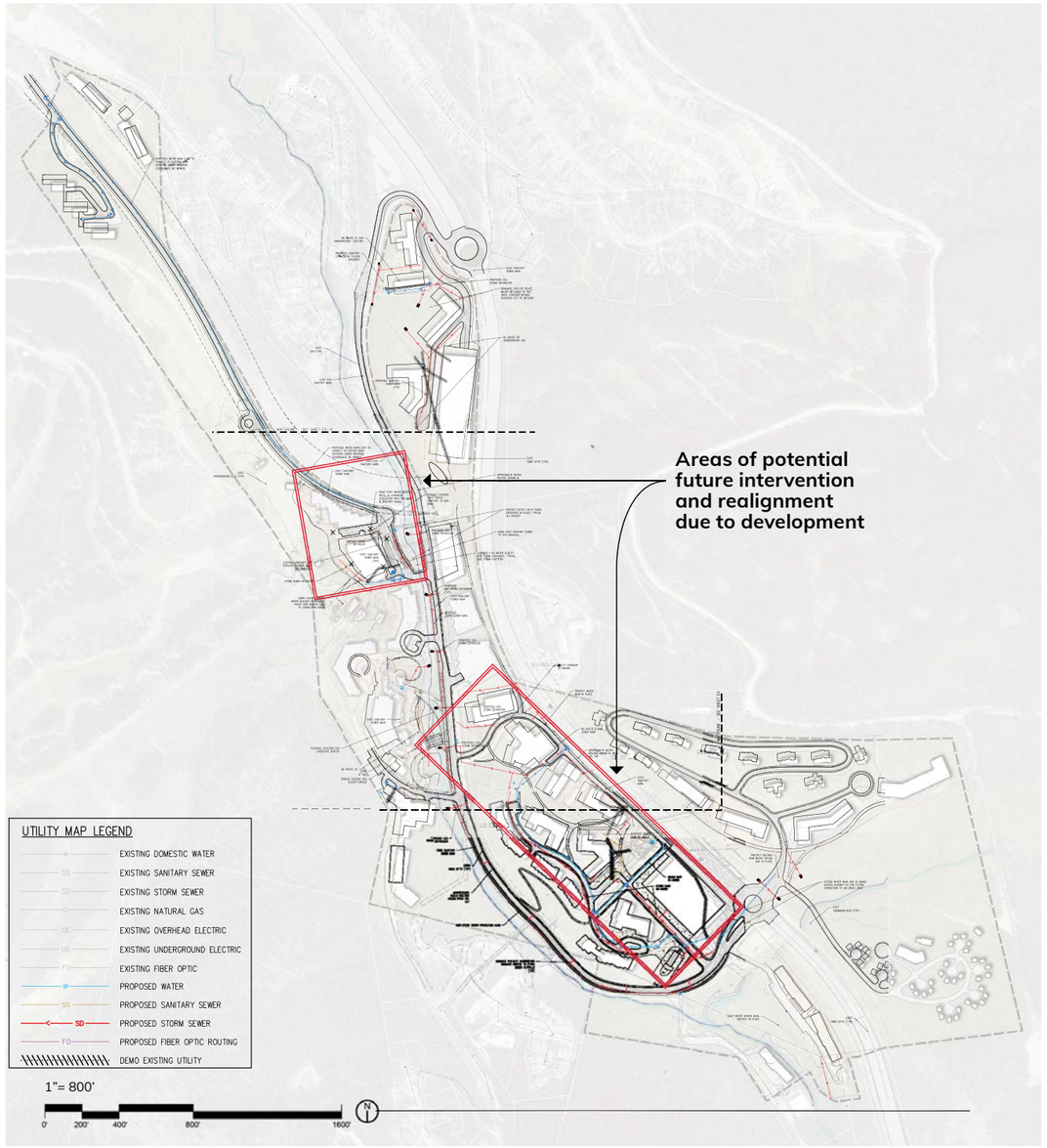
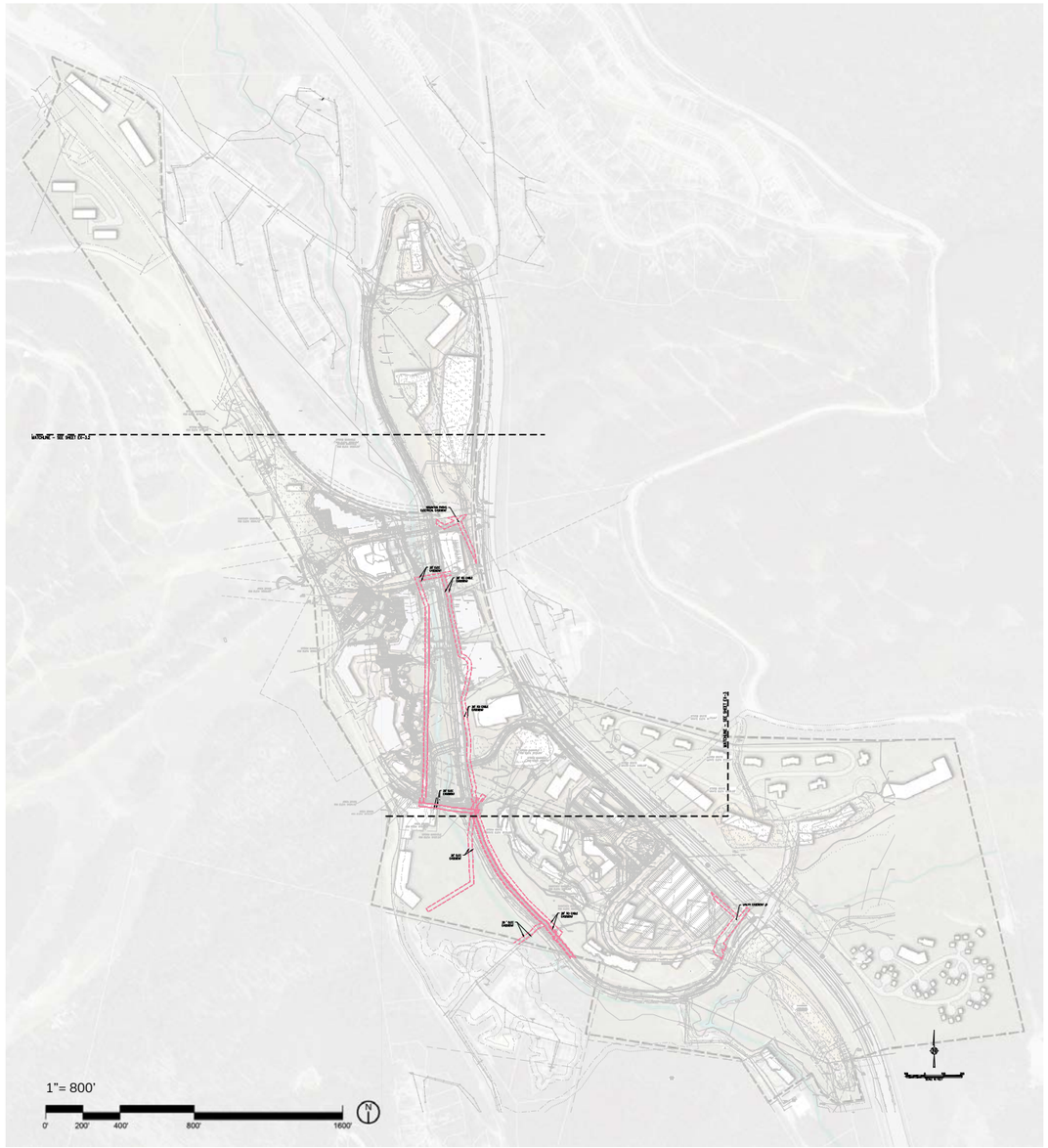
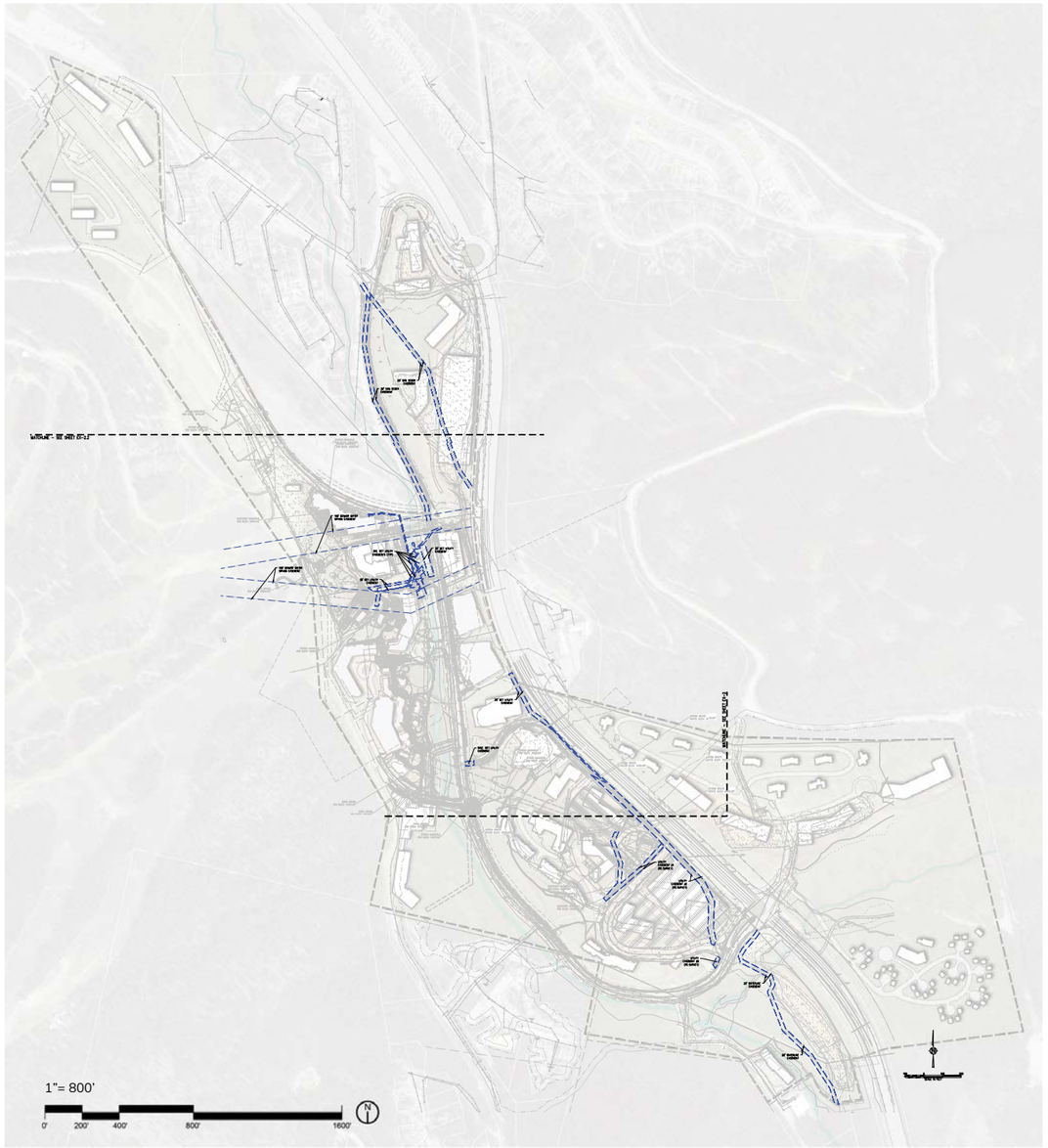


FIGURE 5.4 DRY UTILITIES PLAN



Dry Utility Easements

FIGURE 5.5 WET UTILITIES PLAN



Wet Utility Easements

FIBER-OPTIC AND TELECOMMUNICATION FACILITIES

Fiber-optic planning represents high level desirable pathways and future routing.

Impacts to existing fiber needs to be evaluated on a site-specific, per project basis as it relates to function, scale and capacity. Stub conduit, pull-boxes and hand holes, as well as additional hub locations for fiber interconnects are to be evaluated. All new pathways are to be aligned with existing utilities corridors as much as possible as to avoid any unnecessary or excessive environmental impacts.

All telecommunication facilities, included ground mounted equipment, within the Plan Area shall abide by provisions and regulations set forth in the current Town UDC. The Town Planning Department may administratively review and approve any new facilities on a per project basis based on size, placement, appearance, and general nature.

Figure 5.6 illustrates a potential future fiber-optic network that works to expand capacity to new neighborhoods and better service development outside of the Base Area. Specific areas are identified where major re-routing of existing pathways may occur due to new development.

The list below details specific areas of importance that require special consideration when improving and expanding telecommunication facilities.

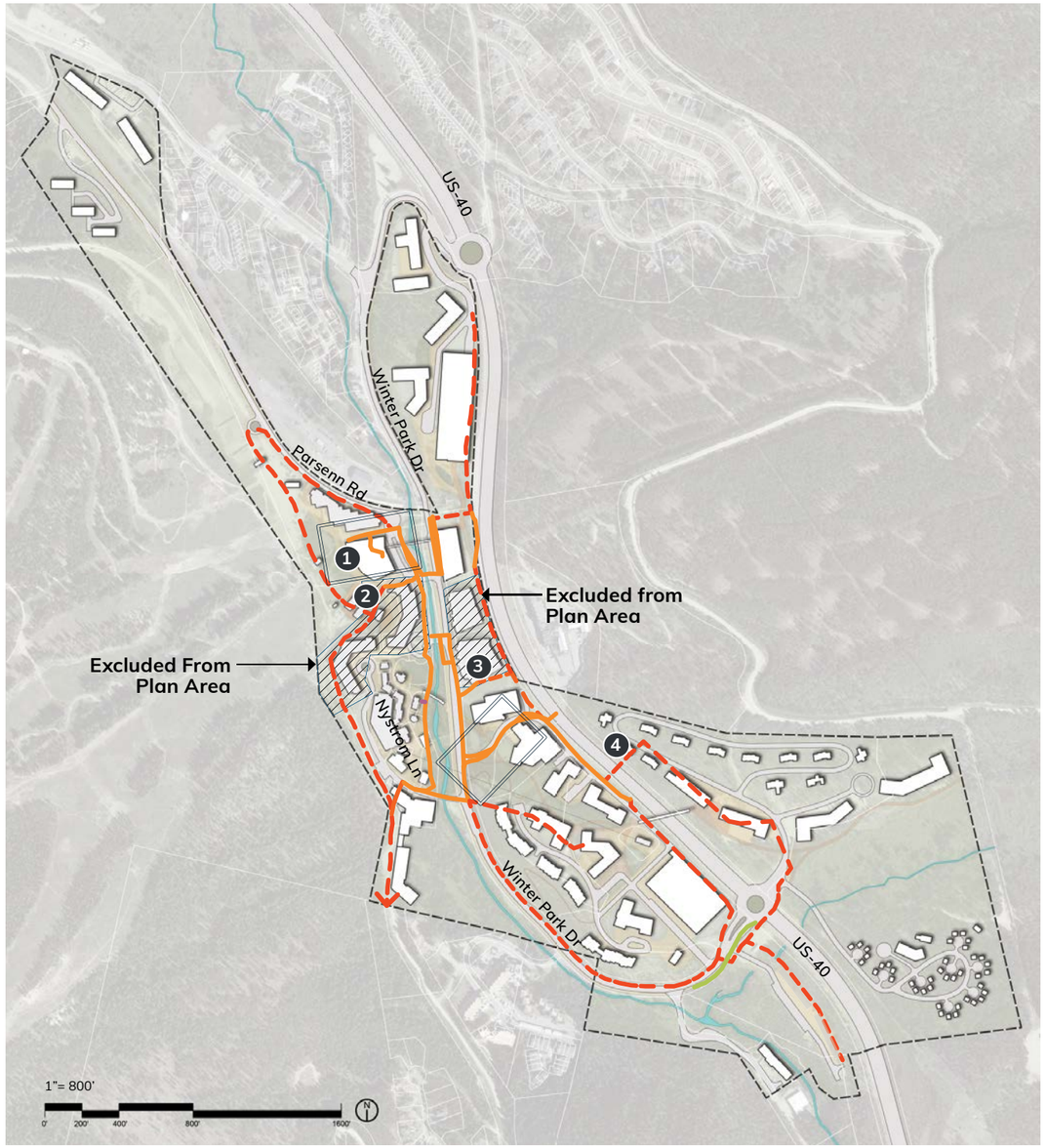
1. Admin Building - Future Mountain Lodge Site
Current Resort data-center with main ingress for CenturyLink and telecommunications. Any future redevelopment must consider this site function. Facilities are to be retained and improved or relocated to another location.

2. Aerial Transport Building
Fiber-optic hub and site for future routing connections.

3. FCFP
Main ingress for fiber-optic and Comcast circuits. Site for future routing connections.

4. US-40 / Retreat Extension
Redundant loop and alternate pathways support future development and growth.

FIGURE 5.6 FIBER OPTIC TELECOMMUNICATION PLAN



- Existing Fiber Optic Routing
- Potential New Fiber Optic Routing
- Non-Resort Fiber Optic
- Potential Areas of Re-routing Around Future Development

1. Admin Building - Future Mountain Lodge Site
2. Aerial Transport Building
3. FCFP
4. US-40 / Retreat Extension

WATER QUALITY STRATEGY

The Base Area is part of the Fraser River watershed, and is directly adjacent to the Fraser River itself. In order to improve and maintain the stormwater quality of runoff to the Fraser River, a water quality strategy will be implemented utilizing the best management practices defined by the Mile High Flood District Urban Storm Drainage Criteria Manual. The main strategy to be used is mechanical separation through the use of underground storm sewer pipe networks to convey runoff to water quality manholes that discharge to the watershed. In addition to mechanical separation, the use of grass buffers, low gradient grass lined swales, and infiltration basins will be implemented where feasible to further enhance site stormwater quality.

With a close proximity to natural drainage and wetlands areas, water quality from snowmelt is a concern for this development in the Base Area. Several measures can be implemented that will improve the quality of the water prior to entering the wetlands and waterways, including the use of water quality swales and ponds within the plan areas. These elements promote sedimentation and release runoff with improved water quality. The strategy for maintaining water quality will be closely coordinated with Winter Park Resort and Town snow removal operations to ensure excess sediment does not make it to the Fraser River.

STORMWATER MANAGEMENT

Due to Plan Area proximity to the Fraser River, detention facilities will not be proposed as is common along the Fraser River corridor in order to avoid peak flows from detention sites coinciding with peak flows from the overall watershed. Currently, few water quality enhancement features exist within the Plan Area. The design team will be working to enhance the water quality discharge from the Base Area and incorporate BMP's per the MHFD into the design.

Winter Park Resort is in a unique location adjacent to both sides of the Fraser River, which bisects the Base Area. To ensure the peak flows from the site do not coincide with the peak flows from the overall Fraser River Watershed, peak flows from the major and minor storm events will be allowed to release naturally into the adjacent Fraser River, undetained, regardless of historic discharge rates. This methodology has commonly been called "beat the peak" and has been granted as a variance from Town UDC Section 6.2.5 of the Standards for Design and Construction elsewhere within the Fraser River watershed.

DRAINAGE REPORT

A Phase 1 drainage report, executed by JVA Consulting Engineers, can be found at the end of this document in **Appendix Section B - Water Quality / Drainage Report.** In summary, the Drainage Report illustrates existing drainage conditions for the site as well as preliminary design concepts for future development. There will be no on-site detention and the drainage design will be solely designed to protect water quality. The included analysis conceptually demonstrates that the water quality and development runoff impacts and quantities can be appropriately mitigated in accordance with the requirements for development in the Town.

FIGURE 5.7 WATER QUALITY & STORMWATER PLAN

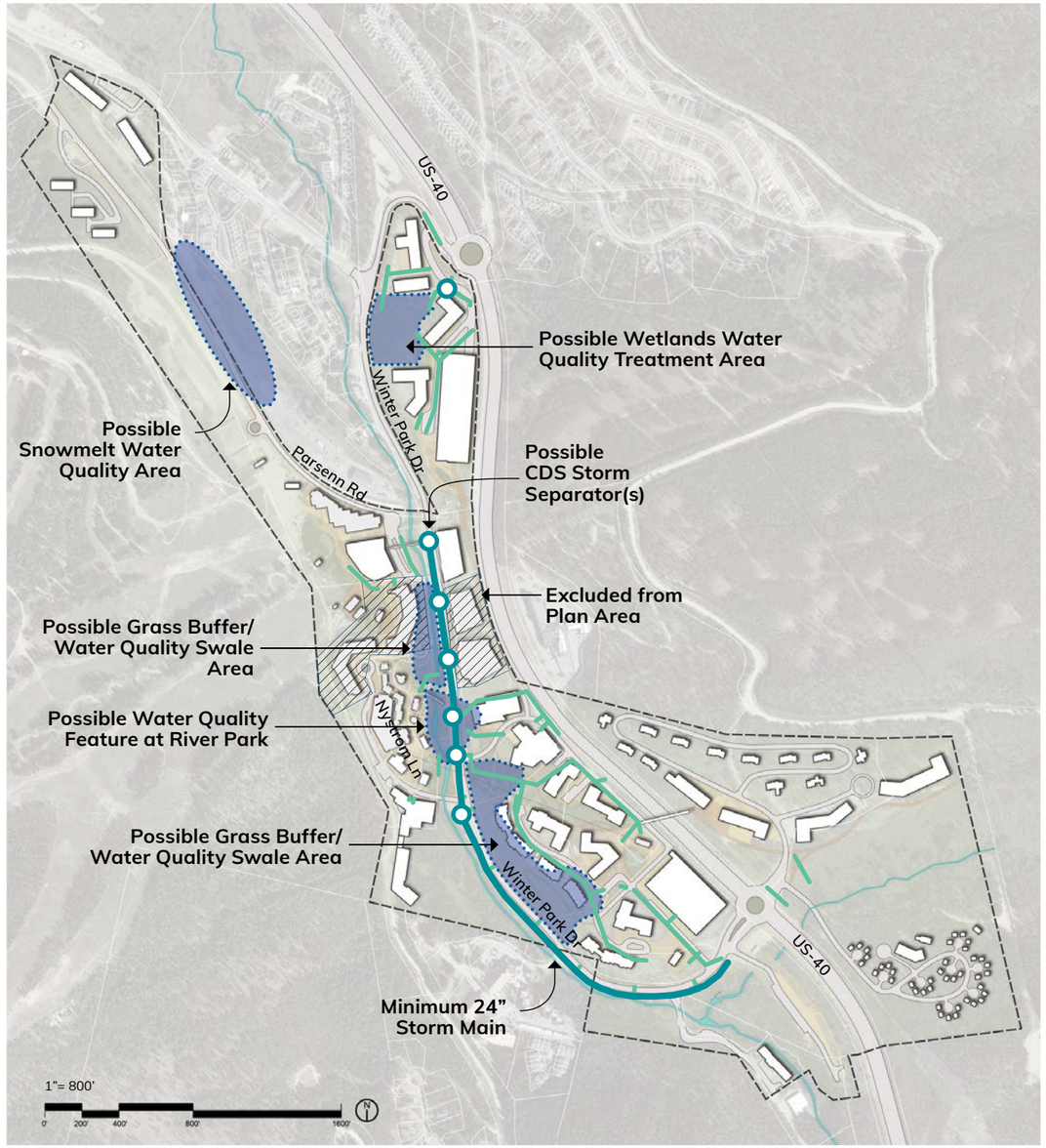


FIGURE 5.8 30’ RIVER OFFSET PLAN OVERALL

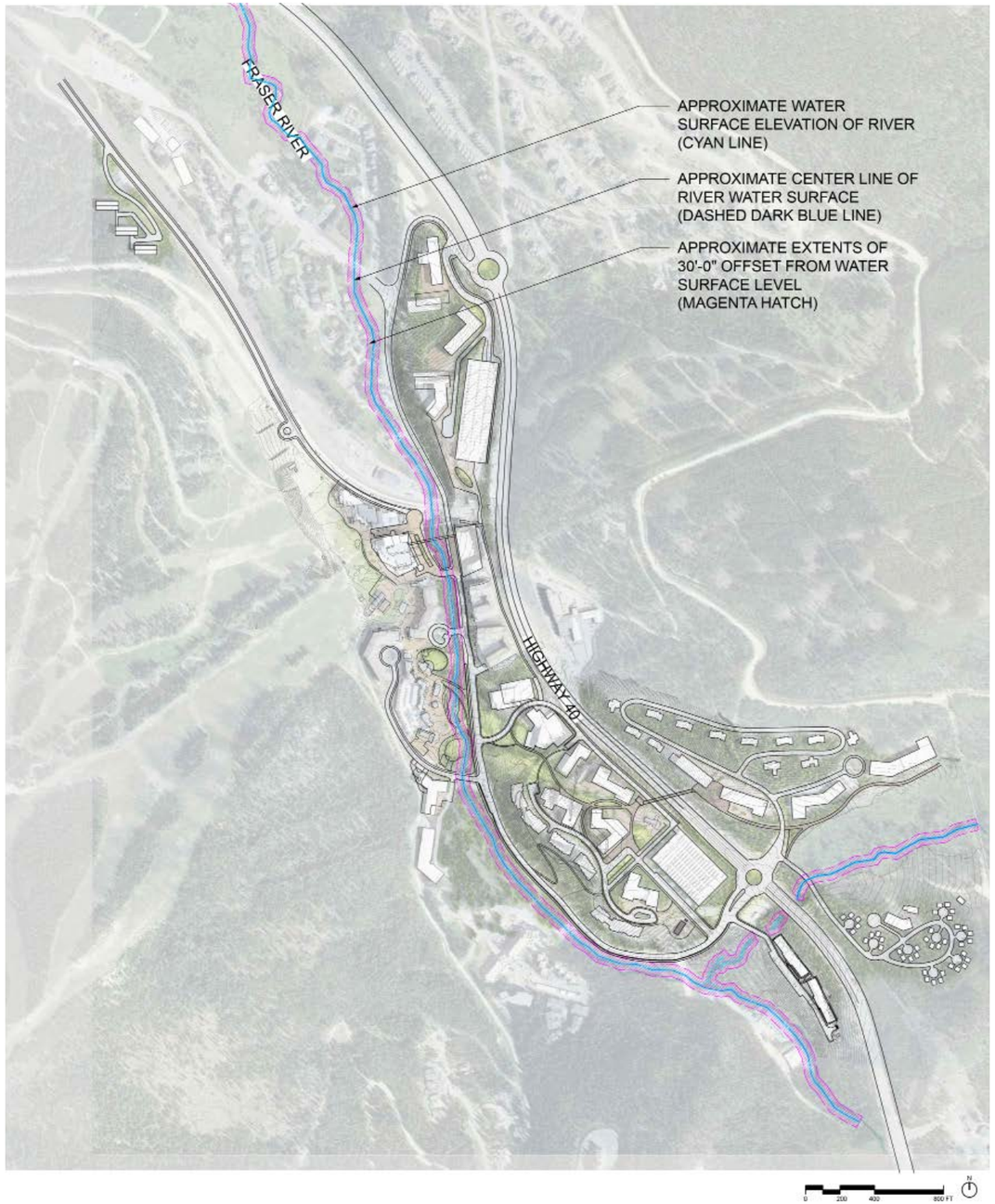
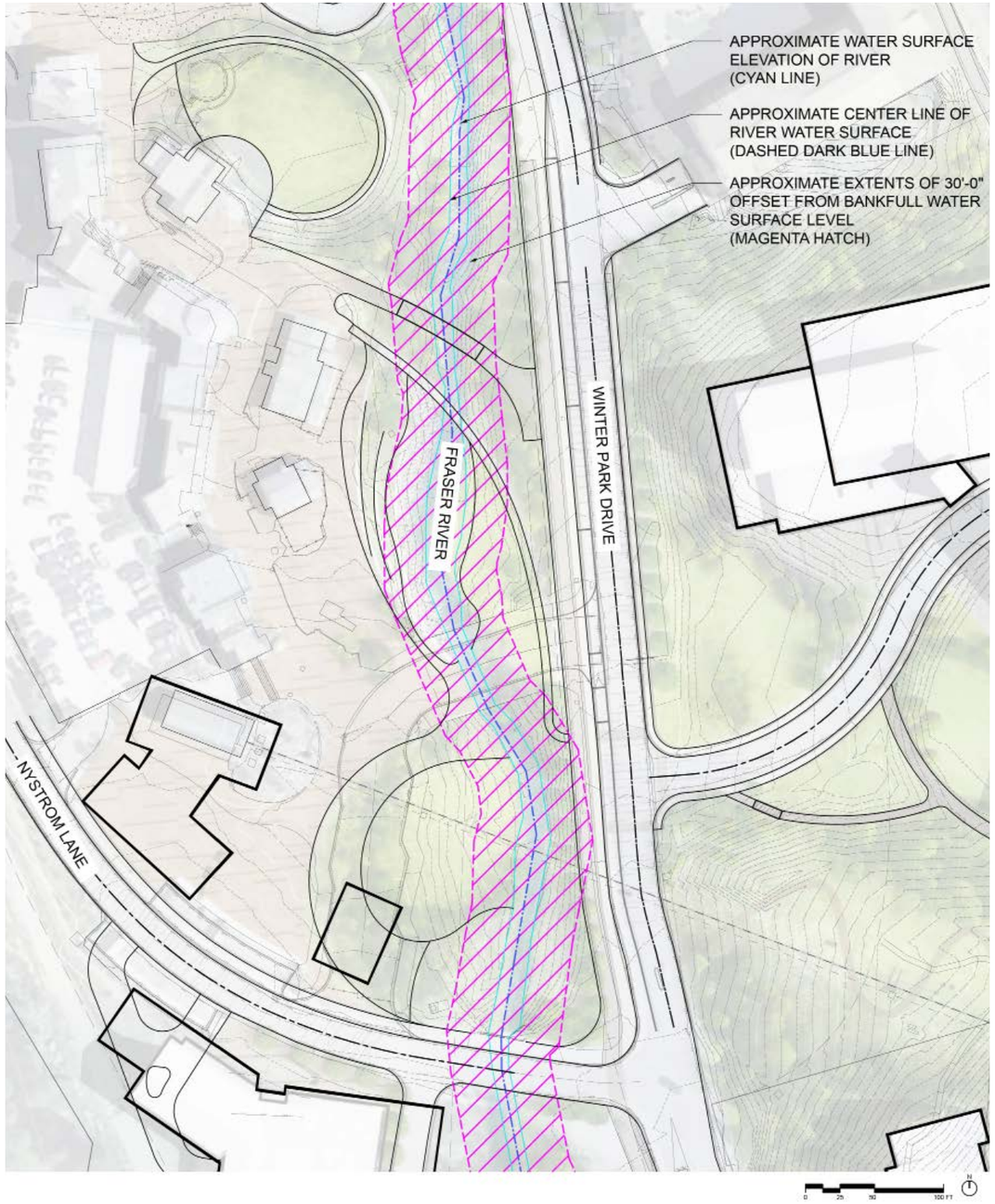


FIGURE 5.9 ENLARGED RIVER OFFSET PLAN



RIVER & WETLAND DELINEATION

WETLANDS

Existing wetlands have been mapped and are primarily located within the existing drainage corridors. A Wetland Delineation Report has been included in the PDP for review. The enclosed Wetland Delineation Report summarizes jurisdictional and non-jurisdictional wetlands. The intent is to incorporate preservation of the existing drainage and wetland corridors to the extent practicable. Where not practicable, compensatory mitigation will be implemented per the Town UDC and US Army Corps of Engineers permitting requirements.

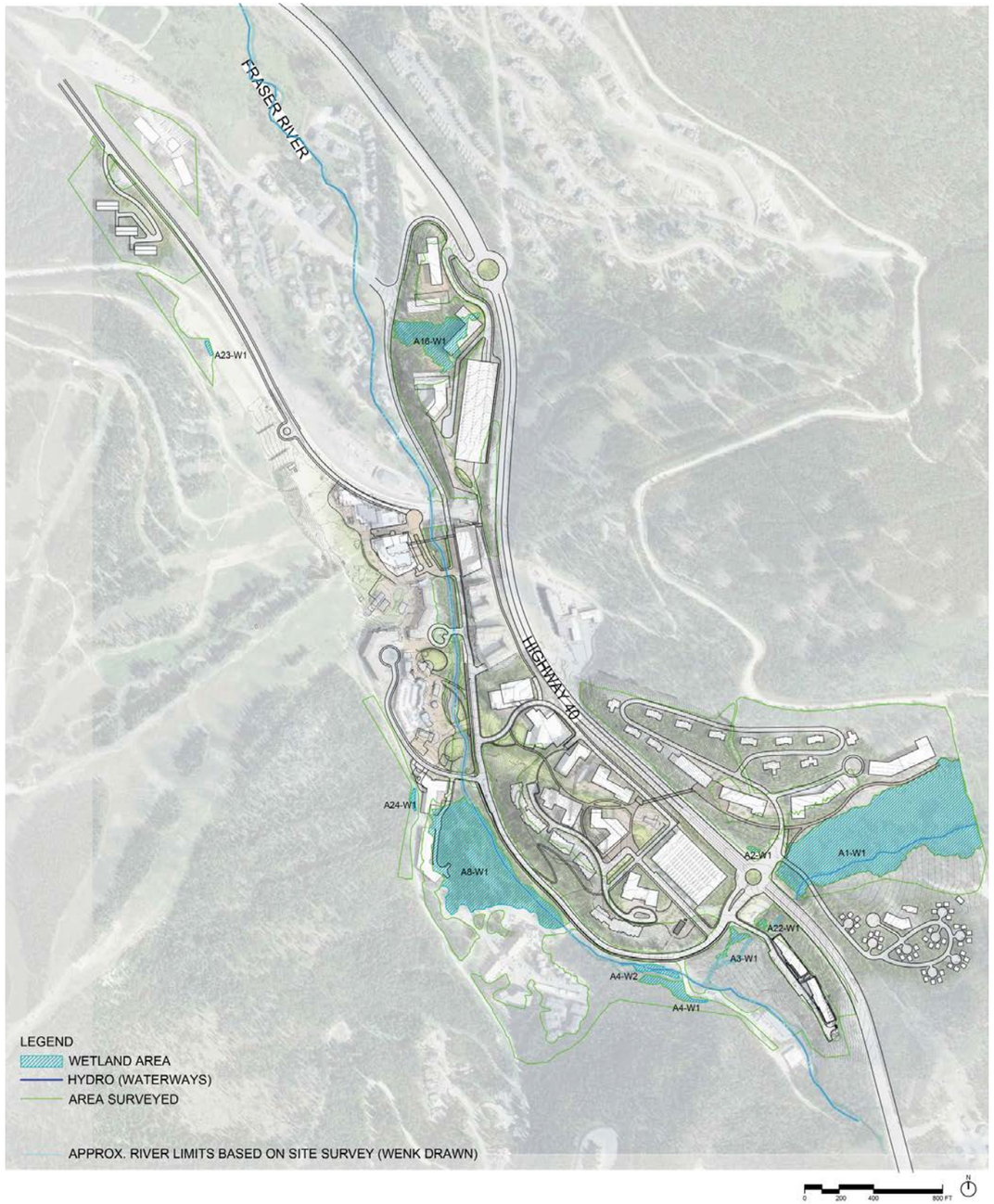
Impacts to jurisdictional wetlands will be processed and approved with the regulations outlined by the United States Army Corps of Engineers. All development within the Plan Area will be subject to the 30' setback as defined in the Town UDC **Article 3.E. Flood Hazard Reduction** unless a variance is applied for and granted by the Town. Any mitigation required will be permitted per Section 404 of the Clean Water Act Permit Requirements through the USACE and the Town.

The water quality of the Fraser River is paramount to the local ecology as it is one of the main headwaters of the Colorado River. Winter Park Resort will continue to follow the recommendations of the Fraser River Source Water Protection Partnership, Source Water Protection Plan, and the East Grand Water Quality Board. This PDP is proposing water quality enhancement through treatment of stormwater and snowmelt adjacent to the Fraser River as well as sustainable development and enhancement of the natural vegetation, wildlife, and topography.

WETLANDS REPORT

A complete Plan Area wetland evaluation executed by Owl Ridge Natural Resource Consultants can be found at the end of this document in **Appendix Section F - Wetland Reports**.

FIGURE 5.10 WETLAND DELINEATION



SNOW MANAGEMENT

SUMMARY

Plan Area snow management services will be executed in partnership by the Town and Winter Park Resort operations teams based on current practices and procedures. Snow removal at the proposed roundabouts along US Highway 40 will be added as part of CDOT Operations.

SNOW STORAGE AND REMOVAL

Snow removal shall be provided for all paved roads, paths and trails, and other circulatory areas to be plowed, unless otherwise permitted. Snow storage shall exist in strategic locations throughout the site to accommodate snow removal loads. In dense, active development spaces that cannot accommodate high volumes of snow storage, snow may be transported to appropriate snow storage locations detailed in Figure 5.11.

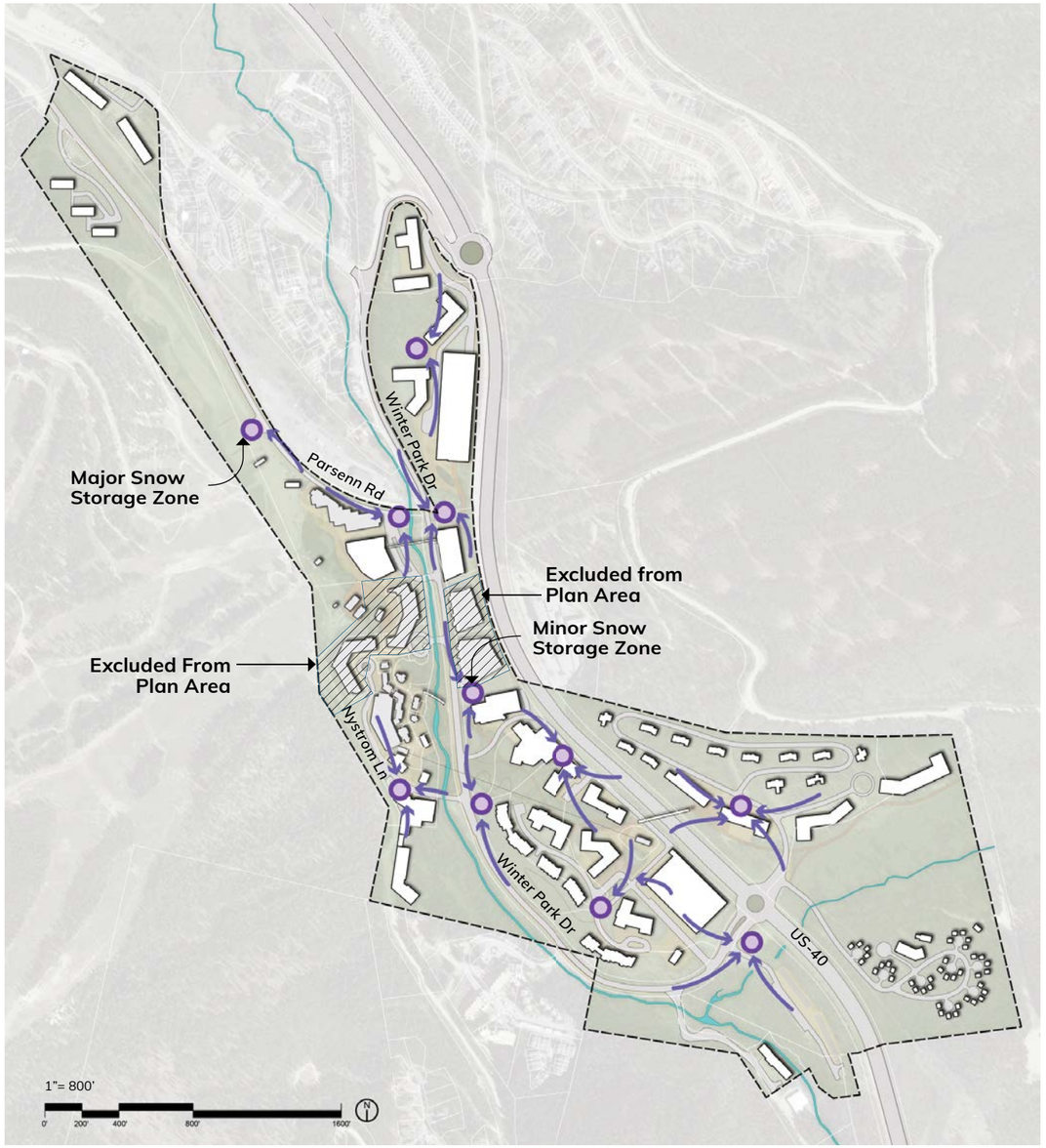
Figure 5.11 presents a conceptual on-site snow removal plan based off a layout of potential future conditions and development volumes. The Snow Removal Plan outlines specific optimal areas of snow storage based on surrounding conditions, along with a pattern for directional movement and removal. This layout concentrates storage along Winter Park Dr. where future CDS storm separators and main lines may be located, helping manage high volume runoff and increase drainage capacity. Additional locations shall be allocated on a per neighborhood basis in response to site specific conditions.

Maintenance and operation of services beyond those provided by the Town, such as snow removal and storage, will ultimately be the responsibility of the developer or owner of each individual property.

SNOW-MELT SYSTEMS

Where on-site snow melting systems or heated paving exists, the area served by the system may not be necessary in snow storage and removal processes.

FIGURE 5.11 SNOW REMOVAL PLAN



SNOW-MELT WATER QUALITY

This snow management strategy is intended to work in close coordination with the Water Quality and Wetlands Plan to utilize best management practices. Snow storage shall not be located in wetlands, and where practicable, shall not be stored within 25' of wetlands. Special considerations are to be made in close proximity to the Fraser River watershed that work to maintain water quality standards and avoid the movement and intrusion of salt/sand or other pollutant materials into the drainage basin.

With a close proximity to natural drainage and wetlands areas, water quality from snowmelt is a concern for the Plan Area that is not currently mitigated. Several measures can be implemented that will improve the quality of the water prior to entering the wetlands and the Fraser River. These include the use of water quality swales and ponds in snow storage zones and mechanical separation through the use of storm separators for snowmelt runoff. These elements promote sedimentation and release runoff with improved water quality. Other options to be implemented where practical include off-site snow storage and small landscaping berms to contain the snowmelt. A sand filter or piped outlet will allow for sedimentation to occur prior to the release.

SUSTAINABILITY APPROACH

SUMMARY

Consistent with the Town and Applicant objectives to develop projects that are sustainable and resilient, this PDP promotes sustainable design and implementation of future projects. Where the Town's design guidelines are inconsistent with sustainable design objectives and building systems and materials, the Town will support the option with a more positive sustainability impact.

ENERGY USE AND ANALYSIS

DMA Engineering is performing an energy analysis to understand how energy is consumed, and where that energy can be recovered, relocated, and reused across the phased expansion plan. If energy cannot be recovered, DMA is exploring methods to reduce the overall demand and minimize natural gas combustion.

DMA Engineering uses software to quantify the seasonal heating and cooling requirements of all new buildings. A geometric model is tuned to the Winter Park climate, and oriented to accurately react with sun patterns over the course of a year. The software satisfies code requirements for load calculations and produces energy consumption requirements. Software and thermodynamic calculations are being used to quantify the effectiveness of the different energy conservation measures.

These explored energy conservation strategies are accomplished by using local bodies of water, the Fraser River and Moffat Tunnel, as well as sanitary and sewer drains, domestic cold water, and the ground itself. The feasibility, calculated reduction in utility consumption, carbon emissions, annual cost, qualitative hurdles, and municipalities associated with each energy conservation measure are outlined in an extensive report. By holistically quantifying all energies entering and leaving the development, DMA Engineering can associate systems that complement each other, and minimize the utility consumption of the property. This effort will preserve the climate that draws people to the Winter Park Valley in the first place.

PRESERVATION OF THE NATURAL ENVIRONMENT

The vision prioritizes preservation of natural areas and emphasizes concentrating the most development in previously disturbed areas. New development will incorporate low-impact development strategies, implement green infrastructure practices where possible, and take measures to celebrate and enhance the existing environmental and ecological systems. Colorado Division of Wildlife guidance for best practices will be referenced to mitigate the impact of development on wildlife and support the preservation of existing natural habitat.

6. POTENTIAL DEVELOPMENT PHASING

POTENTIAL DEVELOPMENT PHASING

The PDP envisions a more dense, walkable and highly connected mountain environment providing guests and local residents a newly re-imagined, year-round adventure, leisure, and lifestyle experience.

PHASING

The development plan is intended to be built out in multiple phases. The description of phasing included here provides a conceptual overview of key areas of focus in the initial phases of development, along with subsequent phases of the Plan Area as currently contemplated. Phasing is subject to change due to market conditions or other external factors.

Phasing of public improvements and other private improvements will be determined in connection with the PDP, subsequent FDPs, Development Agreement, subdivision plats, other site development plans and agreements, resort operations/programming, market demands, and other considerations.

Interim parking phasing will be a key focus of the project phasing. A sufficient amount of parking and corresponding operations must be retained to allow for ongoing operation of the resort during build out of the plan. Prioritization of construction of the first district parking structure will allow for parking currently accommodated in surface lots to be shifted to the new district garage, allowing for the redevelopment of existing surface parking lots for other uses.

Apart from the proposed district parking structures, parking for individual projects will be addressed in subsequent vertical project FDPs.

KEY PRIORITIES

The initial phases of development will include numerous infrastructure improvements to support future development, enhance the Resort experience and operations, and improve mobility. Initial development will be anchored by proposed upgrades at the Mountain Base, additional lodging and residential options, and improvements to the public realm to enhance connectivity and vibrancy throughout the Plan Area.

A new district parking structure will improve the arrival experience and concentrate vehicular traffic entering the Resort, promoting a safer, pedestrian- and bicycle centric environment. The initial phases will also include the expansion of strategic program to activate the public realm year-round and provide support facilities for future development.

Key priorities for the initial phases of development include:

- District parking structure and ancillary infrastructure and connection to Highway US-40
- Provision of parks, placemaking, and public realm improvements
- Enhancements to the overall Resort experience
- Increasing the bed and key count with initial focus on the Resort Village Planning Area
- Mobility improvements to Winter Park Drive
- Utility upgrades to support future development
- Skier services improvements at the Mountain Base
- Improvements to enhance guest arrival at the Mountain Base adjacent to the existing Ski Train platform and base of the planned aerial transport system link to the town

POTENTIAL PRIORITY PHASING

The phasing plan for the project contemplates that the elements of the Resort Village will be delivered first in closest proximity to the existing resort base. Following that, one of the district parking structures will be delivered, enabling redevelopment of existing surface parking lots, as well as improvements in the Welcome Village or Old Town Planning Areas. Finally, the Retreat Planning Area and second district parking garage will be delivered.

It is currently contemplated that the initial phases will be constructed in the following general order:

TABLE 6.1 POTENTIAL PRIORITY PHASING

	PLANNING AREA	MULTIFAMILY DWELLING / OVERNIGHT ACCOMMODATION *	RETAIL / COMMERCIAL **	DISTRICT PUBLIC PARKING STRUCTURES
1	Resort Village	400-600 Units	+/- 100,000 SF	--
	Welcome Village	250-600 Units	+/- 10,000 SF	1,300-1,500 Spaces
2		OR		
	Old Town	200-650 Units	+/- 10,000 SF	1,100-1,500 Spaces
3	Retreat	--	--	--
	Total (Range)	600-1,250 Units	+/- 110,000 GSF	1,100-1,500 Spaces

* Multifamily Dwelling and Overnight Accommodation uses have the same definitions and requirements as in the Town UDC. Use for each proposed project will be specified in the corresponding subsequent FDP.

** Includes Resort operations

TABLE 6.2 FULL BUILDOUT

PLANNING AREA	MULTIFAMILY DWELLING / OVERNIGHT ACCOMMODATION *	RETAIL / COMMERCIAL **	DISTRICT PUBLIC PARKING STRUCTURES
Resort Village	400-600 Units	+/- 100,000 SF	--
Welcome Village	700-900 Units	+/- 35,000 SF	1,300-1,500 Spaces
Old Town	600-800 Units	+/- 10,000 SF	1,100-1,500 Spaces
Retreat	400-650 Units	+/- 45,000 SF	--
Total (Range)	2,100-2,950 Units	+/- 190,000 GSF	2,400-3,000 Spaces

* Multifamily Dwelling and Overnight Accommodation uses have the same definitions and requirements as in the Town UDC. Use for each proposed project will be specified in the corresponding subsequent FDP.

** Includes Resort operations

The start and end of construction of phases may overlap. The full Plan Area is assumed to be built out over a 10-20 year timeframe.

FIGURE 6.1 FULL BUILDOUT

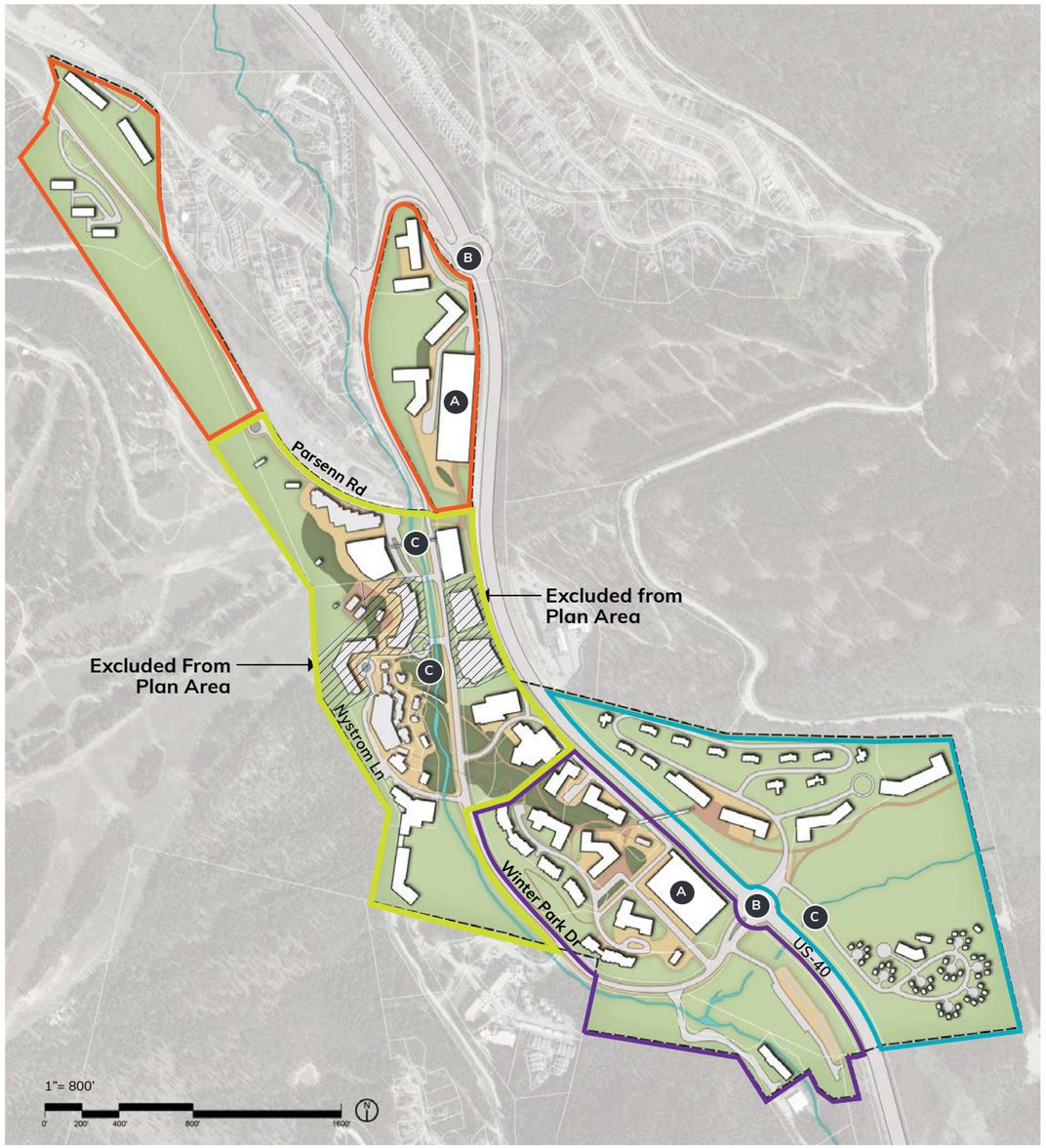
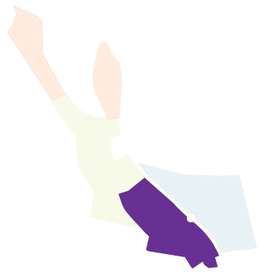


TABLE 6.3 PLANNING AREA BREAKDOWN

* All areas included in the Planning Area Breakdown tables are approximate.

AREA A - Resort Village	
Zoning	PD (D-C)
Planning Area (Acres)	48
Planning Area (SF)	2,049,000
Building Area-Existing (SF)	110,729

AREA B - Welcome Village	
Zoning	PD (D-C)
Planning Area (Acres)	41
Planning Area (SF)	1,776,000
Building Area-Existing (SF)	68,334



AREA C - Old Town	
Zoning	P-D (D-C)
Planning Area (Acres)	38
Planning Area (SF)	1,646,000
Building Area-Existing (SF)	3,795

AREA D - Retreat	
Zoning	P-D (D-C)
Planning Area (Acres)	51
Planning Area (SF)	2,200,000
Building Area-Existing (SF)	0

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7. DEVELOPMENT STANDARDS

DEVELOPMENT STANDARDS - BUILDING & SITE DESIGN

Both the quality and quantity of development must be planned to conserve, protect, and enhance the aesthetic, ecological and environmental assets of the Plan Area. Development within the Plan Area will adhere to the Town UDC, except as modified by the PDP and subsequent FDPs.

As noted in earlier sections of the PDP, Title 7 of the Town UDC establishes baseline regulations and standards for future development in the Plan Area, including but not limited to, permitted uses, building heights, parcel coverage, and parking requirements. The intent of the PDP is to utilize the D-C zone district as the base zone district for the Plan Area. Modifications to certain sections of the Town UDC are anticipated, and adjusted development standards will be further defined in the PDP, subsequent FDPs, Design Guidelines, and the Development Agreement.

PERMITTED USES

All uses permitted in the D-C zone district shall be permitted in the Plan Area. The PDP also adds Condo Hotel as a use type in the Overnight Accommodations use category permitted in the D-C zone district. Uses designated as permitted or permitted subject to Planning Commission recommendation and subsequent approval of a special use permit by the Town Council will be processed and approved under Article 2-B of the Town UDC.

REQUIRED PARKING

The PDP utilizes a shared parking strategy and zonal approach to manage parking demand. Multifamily Residential and Overnight Accommodations use categories will generally adhere to the parking requirements established in the UDC. However, parking for additional Commercial Uses typical of the mixed-use resort area will be accommodated by the district parking garages. The Mobility Study and separate Parking Analysis will inform the proposed modifications to parking standards in subsequent FDPs.

BUILDING STANDARDS

Lot and building standards for building height are proposed to be modified in the PDP by Planning Area as shown in Figure 7.1 Building Standards - Maximum Height. Density, open space, setback, and building height stepback requirements may be modified through subsequent FDPs and Design Guidelines to align with the vision for each of the four Planning Areas.

The PDP proposes a building specific Base Plane method as basis for determining the Building Height (refer to Appendix A-Terms & Definitions). The use of this method intends to allow buildings to be integrated into the topography and height determined based on the average grades at prominent building corners. The adjusted maximum allowable building heights support the development of a mixed-use, vibrant base are with height focused in the Resort Village and Welcome Village planning areas and transitioning to moderate and lower scales in the Old Town and Retreat planning areas.

FIGURE 7.1 BUILDING STANDARDS - MAXIMUM HEIGHT

- Planning Area A - Resort Village
- Planning Area B - Welcome Village
- Planning Area C - Old Town
- Planning Area D - Retreat

BUFFERYARDS

The Town UDC requires Bufferyards adjacent to residential, nonresidential, industrial, and mixed-use permitted land uses to provide screening between adjacent uses on a parcel or single site on a development basis. Due to the unique site conditions and uses within the Plan Area, the PDP provides alternative landscape screening guidelines that supersede the Bufferyard classifications and requirements.

The Town UDC provides standards and requirements for landscaping, buffering, and screening for several reasons. These include protecting and preserving the appearance and character of the Town, promoting cohesive development, and improving compatibility of adjacent uses **(See Town UDC Section 3-I-1)**. Due to the unique site conditions and uses within this Plan Area, the PDP provides alternative landscape screening guidelines that supersede the Bufferyard classifications and requirements listed in Town UDC **Article 3.I. Landscaping, Buffering, and Screening**.

The proposed land use plan in this document divides the larger development into a series of Planning Areas. The use of bufferyards is evaluated per each Planning Area and depends upon each areas context within the overall development, adjacency of the uses, and the land use goals within each area.

The Resort Village (Area A) and Welcome Village (Area B) are the active and vibrant pedestrian cores of the Plan Area. Creating a bufferyard between the developments likely would discourage the interactive and fluid relationship that is desired to create a vibrant pedestrian experience and urban core. Therefore, these two Planning Areas will not require bufferyards. Instead, developments within these Planning Areas will be subject to additional architectural review and subsequent approval by the Town as set forth in the Design Guidelines in order to achieve the aesthetic and functional goals of the Planning Areas (a connected urban ski resort village.)

When screening is deemed appropriate around service areas, parking lots, structured parking, and utilities, landscape buffering should be incorporated. The extent and character should be determined based on the site requirements and best practices set forth by the Town.

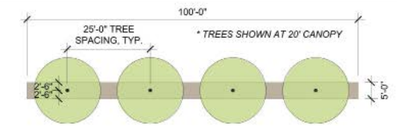
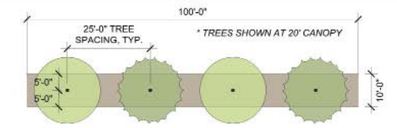
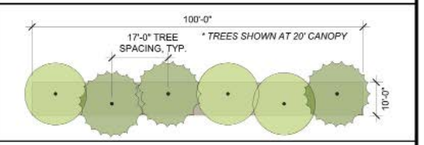
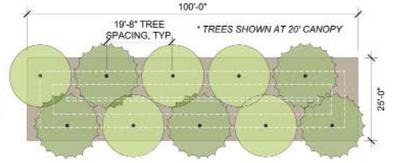
The Old Town (Area C) and Retreat (Area D) Planning Areas are outside of the urban core of the development and should still require bufferyards. Exceptions to bufferyards would be allowed in front of primary architectural features or where commercial viability is important.

The Town Bufferyard requirements have been evaluated and revised according to best practices for vegetation health, fire mitigation, and overall desired character within the development.

Therefore, the following chart lists the revised bufferyard requirements for Area C and Area D:

- Evergreens need wider planting areas, 10’-0” minimum
- Soil volume per tree shall be no less than 500 cubic yards; ideal soil volume would be 1,000 cubic yards.

TABLE 7.1 BUFFERYARDS

BUFFER YARD CLASSIFICATIONS						
TYPE	WIDTH	REQUIRED PLANTING PER 100 LINEAR FEET			HEIGHT OF BERM	BUFFERYARD EXAMPLE DIAGRAM
		DECIDUOUS TREE	EVERGREEN TREE	SHRUBS		
TYPE A	5'	4	0	15	N/A	
TYPE B	10'	2	2	30	N/A	
TYPE C	10'	4	4	30	N/A	
TYPE D	25'	10	10	60	3' HT. 4:1 SLOPE	

MODIFIED STANDARDS

Exemptions from or modifications to standards in the following sections of the Town UDC may be further defined in the PDP, subsequent FDPs, and the Development Agreement. Additional sections may be considered if applicable.

TABLE 7.2 MODIFIED STANDARDS

UDC Section	UDC Section Title	PDP Section Description
2-B-4-F	Retaining Walls	Retaining walls are subject to requirements of UDC 2-B-4-F. However, the PDP proposes that retaining walls that exceed the UDC requirements may be permitted, subject to Design Guidelines Review, when existing topographic and/or ecological constraints limit the amount of space available for tiered walls or require additional height. Retaining walls shall not affect the CDOT ROW or the Fraser River and should limit disturbance to existing natural vegetation. Proposed retaining walls over 48" in height will be designed and stamped by a Structural Engineer licensed in the state of Colorado. All retaining walls will be of a construction type that blends with the natural environment and the adjacent architecture.
Table 3-A-3	Residential Lot and Building Standards - Maximum Height	Residential Lot and Buidling Standards for the maximum Building Height for Multifamily and Overnight Accommodations Uses in the D-C Zone District are modified by PDP Planning Area as shown in Figure 7.1 Building Standards - Maximum Height: Resort Village: 120'/150' per Figure 7.1 Welcome Village: 100' Old Town East: 85'/100' per Figure 7.1 Old Town West: 85' Retreat North: 95' Retreat South: 55'
3-A-7-E	Measurements, Computations, and Exceptions - Building Height	It is the responsibility of the property owner to design a structure that will fit the natural or existing contours of a site. When calculating building height in the PDP D-C Zone District, a horizontal datum called the Base Plane shall be established at the average elevation of the original or finished grade, whichever is lower, at the primary building corners. The vertical distance above this Base Plane measured to the highest point of coping for a flat roof or the midpoint of a pitched or hipped roof determines the Building Height. The overall Building Height may not exceed the heights indicated in Section 3-A-3 for maximum height by PDP Plan Area.
3-A-8	Design Guidelines	The Winter Park Mountain Base Area Design Guidelines will supplement the Town of Winter Park Design Guidelines in order to implement the vision shown in the PDP. The initial set of Design Guidelines will cover the entirety of the Property and will be made applicable to the Property by means of the recorded PDP. As each FDP is approved, each FDP must demonstrate compliance with the PDP, and with the Design Guidelines, and may set forth additional detail regarding matters addressed in the Design Guidelines, but only as it relates to that FDP for that Phase or Sub Phase. In the event of any conflict between the Town of Winter Park Design Guidelines and the Winter Park Mountain Base Area Design Guidelines, the Winter Park Mountain Base Area Design Guidelines shall control.
3-C-2-2-A Table 3-C-2-2-1	Hillside Regulations for Land Use Type	This PDP allows for the creation of new lots and development in areas that include slopes of 30% and greater highlighted as Areas A/B/C/D in Figure 5.1.
3-C-2-5-F	Hillside and Ridgeline Design Standards -Ridgeline Setback and Landscape Bufferyard	This PDP modifies Bufferyards by Planning Area as described in Development Standards - Building & Site Design section on Bufferyards and Table 7.1.
3-C-2-5-H	Hillside and Ridgeline Design Standards -Slopes of Thirty Percent (30%) or More	This PDP allows for the creation of new lots and development in areas that include slopes of 30% and greater highlighted as Areas A/B/C/D in Figure 5.1.
3-H-3	Required Parking	The PDP Plan Area will utilize the base Parking Requirements by Use Category outlined in UDC Section 3-H-3 and propose modifications for how these are applied via Section 3-H-4 Parking Reductions and Alternative Parking Plan.
3-H-4	Parking Reductions and Alternative Parking Plan	The PDP Plan Area will establish parking requirements based on a shared parking strategy which takes into account parking demands of adjacent complementary land uses, time use characteristics for mixed uses, and the provision of public parking in district parking structures. For mixed-use developments, parking will be provided on site for Multifamily Residential and Overnight Accommodations Use Categories per UDC Table 3-H-3-1 Residential Parking Requirements. Parking required per UDC Table 3-H-3-2 for Non-Residential and Mixed-Use Use Categories may be accommodated by the public parking garages as part of the shared parking strategy for the mixed-use development. Per UDC Section 3-H-3-H, a special study conducted by a qualified transportation planner or traffic engineer may be submitted to support the request for an Alternative Parking Plan and determine parking reductions.
3-H-6	Off Street Loading	Off-Street Loading shall be provided based in the PDP Plan Area based on Use Category and gross floor area. <u>Required Number of Spaces</u> Primary Use of Retail Sales: < than or equal to 15,000 GSF = None >15,000 and < or equal to 50,000 GSF = 1 >50,000 and < or equal to 200,000 GSF = 2 All Other Primary Uses: < than or equal to 25,000 GSF = None >25,000 and < or equal to 250,000 GSF = 1 >250,000 and < or equal to 500,000 GSF = 2 The Design Guidelines may provide addtional direction for location of off-street loading on specific parcels.
3-I-5	Landscaping | Bufferyards	This PDP modifies Bufferyards by Planning Area as described in Development Standards - Building & Site Design section on Bufferyards and Table 7.1.
Town of Winter Park Residential Architectural Guidelines and Design Regulations (1997) Guideline 12	Retaining Wall Height	Retaining walls are subject to requirements of UDC 2-B-4-F. However, retaining walls that exceed the UDC requirements are permitted, subject to Design Guidelines Review, when existing topographic and/or ecological constraints limit the amount of space available for tiered walls or require additional height. Retaining walls shall not affect the CDOT ROW or the Fraser River and should limit disturbance to existing natural vegetation. Proposed retaining walls over 48" in height will be designed and stamped by a Structural Engineer licensed in the state of Colorado. All retaining walls will be of a construction type that blends with the natural environment and the adjacent architecture.

UDC Section	UDC Section Title	PDP Section Description
Grand County Water & Sanitation District Standards - 2.4,H	Insulation at Water Mains	Due to steep topography, the presence of bedrock, and existing utilities that do not meet burial depth requirements it will be necessary to utilize polystyrene insulation. Insulation equal to Styrofoam 40 High Load Square EXE, ASTM C518, C578, and D1621 shall be placed over the water or sewer service line and detailed on construction drawings where cover is not able to be maintained.
Town of Winter Park Standards and Specifications for Design and Construction Manual - Section 6.2.5,X	Stormwater Detention	Winter Park Resort is in a unique location adjacent to both sides of the Fraser River, which bisects the Base Area. To ensure the peak flows from the site do not coincide with the peak flows from the overall Fraser River Watershed, peak flows from the major and minor storm events will be allowed to release naturally into the adjacent Fraser River undetained regardless of historic discharge rates. This methodology has commonly been called “beat the peak” and has been granted as a variance from Section 6.2.5 of the Town of Winter Park Standards and Specifications for Design and Construction Manual elsewhere within the Fraser River watershed.
Town of Winter Park Standards and Specifications for Design and Construction Manual - Section 3.6.1	Grades	This PDP allows a maximum grade of 8.99% for roads.
Town of Winter Park Standards and Specifications for Design and Construction Manual - Section 3.7.4	Grades	This PDP allows a grade of up to 5% for 50 feet. Given existing site constraints, an increase in the allowable grade approaching intersections will reduce site disturbance while still improving roadways from existing conditions.

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8. GENERAL PROVISIONS

GENERAL PROVISIONS

Some General Provisions may be indicated in the FDPs, while others may be incorporated into a Development Agreement. The General Provisions are to be discussed, reviewed, and confirmed between the Town and the Applicant in connection with the submittal of the FDPs and drafting of the Development Agreement.

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9. APPENDICES

APPENDIX-A
TERMS AND DEFINITIONS

TERMS AND DEFINITIONS:

Applicant - Alterra Mountain Company and where the context so indicates, affiliates and/or successor developers.

Base Area - the area generally comprising the Resort Village Planning Area and Mountain Base Sub-Area.

Base Plane - a horizontal plane established at the average elevation of the original grade or finished grade, whichever is lower, of the primary corners of a building. The vertical distance above the base plane will establish the overall building height.

Building Height - the vertical distance above a referenced datum, the base plane, measured to the highest point of the coping for a flat roof or the midpoint of a pitched or hipped roof.

Condo Hotel - a real estate development which combines elements of a hotel and a condominium. In a condo hotel, units are sold as individual condominium units, meaning each unit has a private owner. However, the property also operates as a hotel, with owners able to rent out their units through a central hotel management system or a property management company when they are not in residence. A condo hotel may include some or all of the suite of amenities typical to a full service hotel such as front desk, housekeeping, restaurant, room service, business centers, spa and wellness amenities, exercise facilities or similar. In the PDP, a condo hotel is a Land Use Type equal to Hotel or Motel in the Overnight Accommodations Use Category.

Design Guidelines - the Winter Park Mountain Base Area Design Guidelines will supplement the Town of Winter Park Design Guidelines in order to implement the vision shown in the PDP. The initial set of Design Guidelines will cover the entirety of the Property and will be made applicable to the Property by means of the recorded PDP. As each FDP is approved, each FDP must demonstrate compliance with the PDP, and with the Design Guidelines, and may set forth additional detail regarding matters addressed in the Design Guidelines, but only as it relates to that FDP for that Phase or Sub Phase.

Final Development Plan/FDP - the second of two phases of provisions for development of a planned development, which may include, but need not be limited to, easements, covenants and restrictions relating to use, location and bulk of buildings and other structures, density of development, utilities, private and public streets, pedestrian areas and parking facilities, common open space and other public facilities.

Mountain - the land area accessible for recreational use, commonly known as the land area within the Ski Boundary, as depicted on the Winter Park Trail Map.

Multi-use Trail - a paved two-way shared pedestrian/bicycle/other non-motorized vehicle trail.

Plan Area - the collective land area of parcels subject to the PDP, as illustrated in Figure 1.2 - Plan Area Site & Context of the PDP.

Planning Area - a portion of the Plan Area, as depicted on the respective Area Detail maps. The four Planning Areas are the Resort Village Planning Area, Welcome Village Planning Area, Old Town Planning Area, and Retreat Planning Area.

Preliminary Development Plan/PDP - the first of two phases of provisions for development of a planned development, which may include, but need not be limited to, easements, covenants and restrictions relating to use, location and bulk of buildings and other structures, density of development, utilities, private and public streets, pedestrian areas and parking facilities, common open space and other public facilities.

Sub-Area - a portion of a Planning Area, as depicted on the respective Area Detail map.

Town - the Town of Winter Park, Colorado.

Town Comp Plan - the Town of Winter Park, Imagine Winter Park Comprehensive Plan, adopted in January 2019.

Town UDC - the Town of Winter Park Unified Development Code, as may be amended.

Winter Park Mobility Study - the mobility study prepared for Alterra Mountain Company by Fehr & Peers.

Winter Park Resort - the ski areas on the Mountain and related operations and amenities.

APPENDIX-B
WATER QUALITY / DRAINAGE REPORT

DRAINAGE LETTER

FOR WINTER PARK RESORT – PRELIMINARY DEVELOPMENT PLAN

85 PARSENN RD

WINTER PARK, COLORADO 80482

FOR

TOWN OF WINTER PARK

50 VAZQUEZ ROAD
WINTER PARK, CO 80482

JVA, INC.

CONSULTING ENGINEERS

1319 SPRUCE STREET

BOULDER, CO

PHONE: 303-444-1951

JVA PROJECT NUMBER: 3494.2C

JUNE 26, 2024

JVA, Incorporated
1319 Spruce Street
Boulder, CO 80302
303.444.1951
info@jvajva.com

www.jvajva.com

July 19, 2024

James Shockey, Community Development Director
Town of Winter Park
50 Vazquez Road
P.O. Box 3327
Winter Park, Colorado 80482

RE: Drainage Letter for Winter Park Resort – Preliminary Development Plan
JVA, Inc. Job No. 3494.2c

Dear James:

Introduction

Alterra Mountain Co. is proposing to redevelop the Winter Park Resort base area and associated properties with improvements to commercial, hospitality, recreation, and various residential land uses. The intent of this drainage letter illustrates existing drainage conditions for the site as well as proposed conditions with preliminary design concepts for the Preliminary Development Plan (PDP) for the base area. The purpose of this report is to conceptually demonstrate that the water quality and developed runoff impacts can be appropriately mitigated in accordance with the requirements and standards for development in the Town of Winter Park.

Location

The proposed redevelopment will be to the existing Winter Park Resort base area, located along the south side of US Highway 40 (US 40) adjacent to both banks of the Fraser River. The existing property is approximately 167.60-acres and consists of trees, native vegetation, landscaped areas, paved and unpaved pedestrian areas, asphalt and gravel drives, paved and gravel parking areas, and buildings.

Existing

For the historic analysis, existing drainage basins and our site limits have been delineated as depicted in Figure 1. Basin OS2 is an area of the site designated for development, that will be further analyzed once survey data is received. The total impervious area for the existing 178.05-acres within the boundaries analyzed was 24.0%.

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Historic Basin Information:

Basin Name	Design Point	Area (acres)	Imperviousness (%)	Q100 (cfs)
H1	1	43.02	11.1	71.90
H2	2	14.09	15.1	39.52
H3	3	11.67	74.9	37.03
H4	4	47.26	31.6	110.48
Z1	5	6.50	51.6	21.16
OS1	6	47.34	18.4	81.38
OS2	7	8.17	2.0	17.61
Total	-	178.05	24.0	369.08

Proposed

As shown in Figure 2, for this analysis, the proposed drainage conditions were analyzed within the same basin boundaries as the historic. OS2 is an area of the site designated for development, that will be further analyzed once survey data is received. Basin A4 (Historic "H4") contains a complex drainage system that will need to be analyzed in detail going forward. The total impervious area for the proposed 178.05-acres within the boundaries analyzed is 33.3%, a total increase of approximately 9.3%.

Proposed Basin Information:

Basin Name	Design Point	Area (acres)	Imperviousness (%)	Q100 (cfs)
A1	1	43.02	15.8	77.84
A2	2	14.09	31.0	35.41
A3	3	11.67	42.9	31.55
A4	4	47.26	47.2	125.35
B1	5	6.50	51.5	21.14
OS1	6	47.34	34.8	91.17
OS2	7	8.17	12.9	19.75
Total	-	178.05	33.3	402.22

CONSULTING ENGINEERS

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Detention and Water Quality

Winter Park Resort is in a unique location adjacent to both sides of the Fraser River, which bisects the base area. To ensure the peak flows from the site do not coincide with the peak flows from the overall Fraser River Watershed, peak flows from the major and minor storm events will be allowed to release naturally into the adjacent Fraser River undetained regardless of historic discharge rates. This methodology has commonly been called “beat the peak”.

In order to improve and maintain the stormwater quality of runoff to the Fraser river a water quality strategy will be implemented utilizing the best management practices defined by the Mile High Flood District Urban Storm Drainage Criteria Manual. The main strategy to be used is mechanical separation through the use of underground storm sewer pipe networks to convey runoff to water quality manholes that discharge to the watershed. In addition to mechanical separation the use of grass buffers, low gradient grass lined swales, and infiltration basins will be implemented where feasible to further enhance site stormwater quality.

Conclusion

In summary, this drainage letter illustrates existing drainage conditions for the site as well as preliminary design concepts for the Final Development Plan (FDP). There will be no proposed onsite detention and the drainage design will be solely in consideration of water quality. The above analysis begins to conceptually demonstrate that the water quality and developed runoff impacts can be appropriately mitigated in accordance with the requirements for development in the Town of Winter Park. All Water Quality implementation will follow existing Town of Winter Park standards.

Sincerely,

JVA, Inc.

_____

Dylan Dunn, P.E.
Project Engineer

_____

Sam Redfield, P.E.
Project Manager

JVA Incorporated
PO Box 1860
47 Cooper Creek Way, S 328
Winter Park, CO 80482
Ph: (970) 722 7677

Job Name: Winter Park Resort FDP
Job Number: 3494.2c
Date: 7/19/24
By: DAM

Winter Park Resort FDP

Historic Runoff Coefficient & Time of Concentration Calculations

Location: Winter Park, CO
Minor Design Storm: 5
Major Design Storm: 100
Soil Type: C/D

Basin Design Data

	I (%) =	100%	90%	90%	40%	25%	25%	2%	2%			I (%)	Runoff Coeff's			
Basin Name	Design Point	$A_{paved\ streets}$ (sf)	$A_{drives/conc}$ (sf)	A_{roof} (sf)	A_{gravel} (sf)	A_{plygnd} (sf)	$A_{art.\ turf}$ (sf)	$A_{lscape\ (B\ soil)}$ (sf)	$A_{lscape\ (C/D\ soil)}$ (sf)	A_{Total} (sf)	A_{Total} (ac)	Imp (%)	C2	C5	C10	C100
H1	1	97,767	0	4,220	185,025	0	0	0	1,586,919	1,873,931	43.02	11.1%	0.07	0.13	0.21	0.53
H2	2	47,565	247	713	86,958	0	0	0	478,085	613,568	14.09	15.1%	0.10	0.16	0.24	0.55
H3	3	335,524	18,965	26,629	3,882	0	0	0	123,341	508,341	11.67	74.9%	0.60	0.65	0.69	0.79
H4	4	439,515	39,963	117,685	106,302	0	0	0	1,355,399	2,058,863	47.26	31.6%	0.23	0.29	0.37	0.61
Z1	5	80921.6175	0	69492.6	0	0	0	0	132,761	283,175	6.50	51.6%	0.40	0.46	0.51	0.70
OS1	6	194965	0	0	385425	0	0	0	1,481,701	2,062,091	47.34	18.4%	0.12	0.19	0.27	0.56
OS2	7	0	0	0	0	0	0	0	356,098	356,098	8.17	2.0%	0.01	0.05	0.15	0.49
TOTAL SITE		1,196,258	59,175	218,739	767,591	0	0	0	5,514,305	7,756,068	178.05	24.0%	0.17	0.23	0.31	0.58

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Job Name: Winter Park Resort FDP
Job Number: 3494.2c
Date: 7/19/24
By: DAM

Winter Park Resort FDP

Composite Runoff Coefficient Calculations

Location: Winter Park, CO
Minor Design Storm: 5
Major Design Storm: 100
Soil Type: C/D

CA 100yr = 0.78i + 0.11
CB 100yr = 0.47i + 0.426
CC/D 100yr = 0.41i + 0.484)

Basin Design Data

	I (%) =	100%	90%	90%	40%	25%	25%	2%	2%			I (%)	Runoff Coeff's			
Basin Name	Design Point	$A_{paved\ streets}$ (sf)	$A_{drives/conc}$ (sf)	A_{roof} (sf)	A_{gravel} (sf)	A_{plygnd} (sf)	$A_{art.\ turf}$ (sf)	$A_{lscape\ (B\ soil)}$ (sf)	$A_{lscape\ (C/D\ soil)}$ (sf)	A_{Total} (sf)	A_{Total} (ac)	Imp (%)	C2	C5	C10	C100
A1	1	145,578	42,836	75,508	28,635	0	0	0	1,581,374	1,873,931	43.02	15.8%	0.10	0.16	0.25	0.55
A2	2	89,893	35,546	59,648	16,027	0	0	0	412,454	613,568	14.09	31.0%	0.22	0.29	0.36	0.61
A3	3	50,717	74,971	103,393	3,703	0	0	0	275,557	508,341	11.67	42.9%	0.32	0.39	0.45	0.66
A4	4	339,331	220,525	449,913	20,187	0	0	0	1,028,906	2,058,863	47.26	47.2%	0.36	0.42	0.48	0.68
B1	5	79,337	1,366	69,493	0	0	0	0	132,980	283,175	6.50	51.5%	0.39	0.46	0.51	0.70
OS1	6	291,290	150,000	270,000	54,441	0	0	0	1,296,360	2,062,091	47.34	34.8%	0.25	0.32	0.39	0.63
OS2	7	7,894	13,751	21,629	0	0	0	0	312,824	356,098	8.17	12.9%	0.08	0.14	0.23	0.54
TOTAL SITE		1,004,040	538,995	1,049,584	122,993	0	0	0	5,040,456	7,756,068	178.05	33.3%	0.24	0.31	0.38	0.62

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Ph: (970) 722 7677

Job Name: Winter Park Resort FDP
Job Number: 3494.2c
Date: 7/19/24
By: DAM

Winter Park Resort FDP

Time of Concentration Calculations

Location:	Wheat Ridge
Minor Design Storm:	5
Major Design Storm:	100
Soil Type:	C/D

Sub-Basin Data				Initial Overland Time (t_i)			Travel Time (t_t) t_t=Length/(Velocity x 60)						t_c Comp	tc Urbanized Check ON		t_c Final
Basin Name	Design Point	A_{Total} (ac)	C5	Upper most Length (ft)	Slope (%)	t_i (min)	Length (ft)	Slope (%)	Type of Land Surface	C_v	Velocity (fps)	t_t (min)	Time of Conc $t_i + t_t = t_c$	Total Length (ft)	t_c=(L/180) +10 (min)	Min t_c
A1	1	43.02	0.16	500	33.0%	12.0	1200	15.0%	Paved areas & shallow paved swales	20	7.7	2.6	14.5	1700	19.4	14.5
A2	2	14.09	0.29	300	33.0%	8.0	175	10.0%	Paved areas & shallow paved swales	20	6.3	0.5	8.5	475	12.6	8.5
A3	3	11.67	0.39	20	5.0%	3.4	1400	5.0%	Paved areas & shallow paved swales	20	4.5	5.2	8.6	1420	17.9	8.6
A4	4	47.26	0.42	50	10.0%	4.1	1500	5.0%	Paved areas & shallow paved swales	20	4.5	5.6	9.7	1550	18.6	9.7
B1	5	6.50	0.46	20	5.0%	3.1	1000	10.0%	Paved areas & shallow paved swales	20	6.3	2.6	5.7	1020	15.7	5.7
OS1	6	47.34	0.32	500	5.0%	18.7	720	25.0%	Paved areas & shallow paved swales	20	10.0	1.2	19.9	1220	16.8	16.8
OS2	7	8.17	0.14	100	20.0%	6.5			Paved areas & shallow paved swales	20	0.0	0.0	6.5	100	10.6	6.5

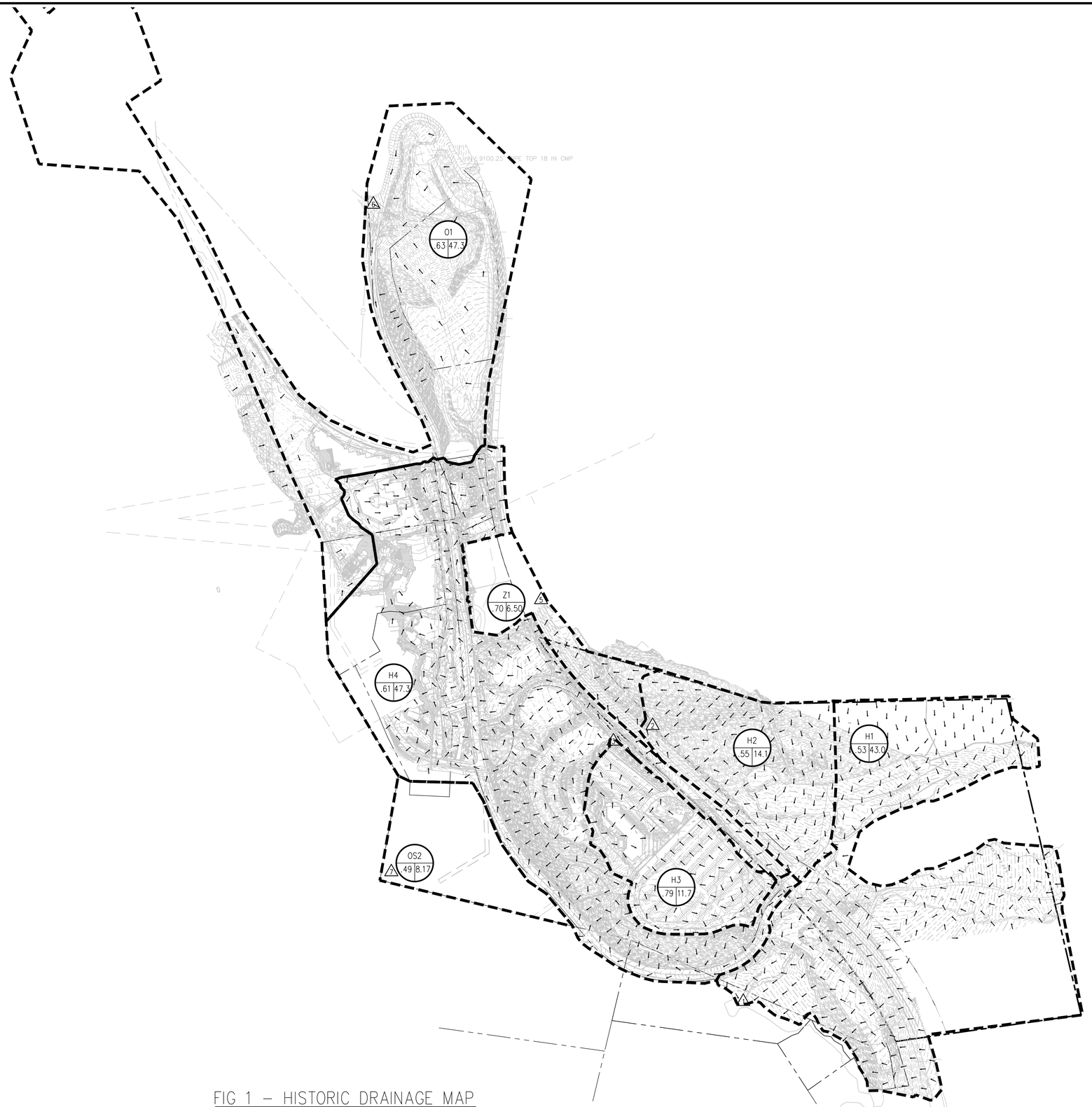
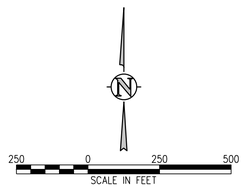


FIG 1 – HISTORIC DRAINAGE MAP



HISTORIC DRAINAGE SUMMARY				
BASIN	DESIGN POINT	AREA(AC)	5YR-COEF	100YR-COEF
H1	1	43.02	0.13	0.53
H2	2	14.09	0.16	0.55
H3	3	11.67	0.65	0.79
H4	4	47.26	0.29	0.61
Z1	5	06.50	0.46	0.70
OS1	6	47.34	0.19	0.56
OS2	7	08.17	0.05	0.49

DRAINAGE MAP LEGEND

- EXISTING INDEX CONTOUR (5220)
- EXISTING INTERMEDIATE CONTOUR (5221)
- PROPOSED INDEX CONTOUR (20)
- PROPOSED INTERMEDIATE CONTOUR (21)
- +03.3 EXISTING SPOT ELEVATION
- +03.54 PROPOSED SPOT ELEVATION
- HISTORIC DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- HISTORIC DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DIRECTION OF FLOW (HISTORIC)
- DIRECTION OF FLOW (DEVELOPED)
- 1 BASIN DESIGN POINT
- A / 50 / 1.0 DRAINAGE BASIN IDENTIFICATION BUBBLE

A = DEVELOPED BASIN DESIGNATION
.50 = 100-YR RUNOFF COEFFICIENT
1.0 = AREA ACRES

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NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

DESIGNED BY: SAR/DAD
DRAWN BY: DAD
CHECKED BY: SAR/KEV
JOB #: 3494.2c
DATE: 07/19/2024

WINTER PARK RESORT
PRELIMINARY DEVELOPMENT PLAN
WINTER PARK, GRAND COUNTY, CO

HISTORIC DRAINAGE EXHIBIT

SHEET NO.
FIG-1

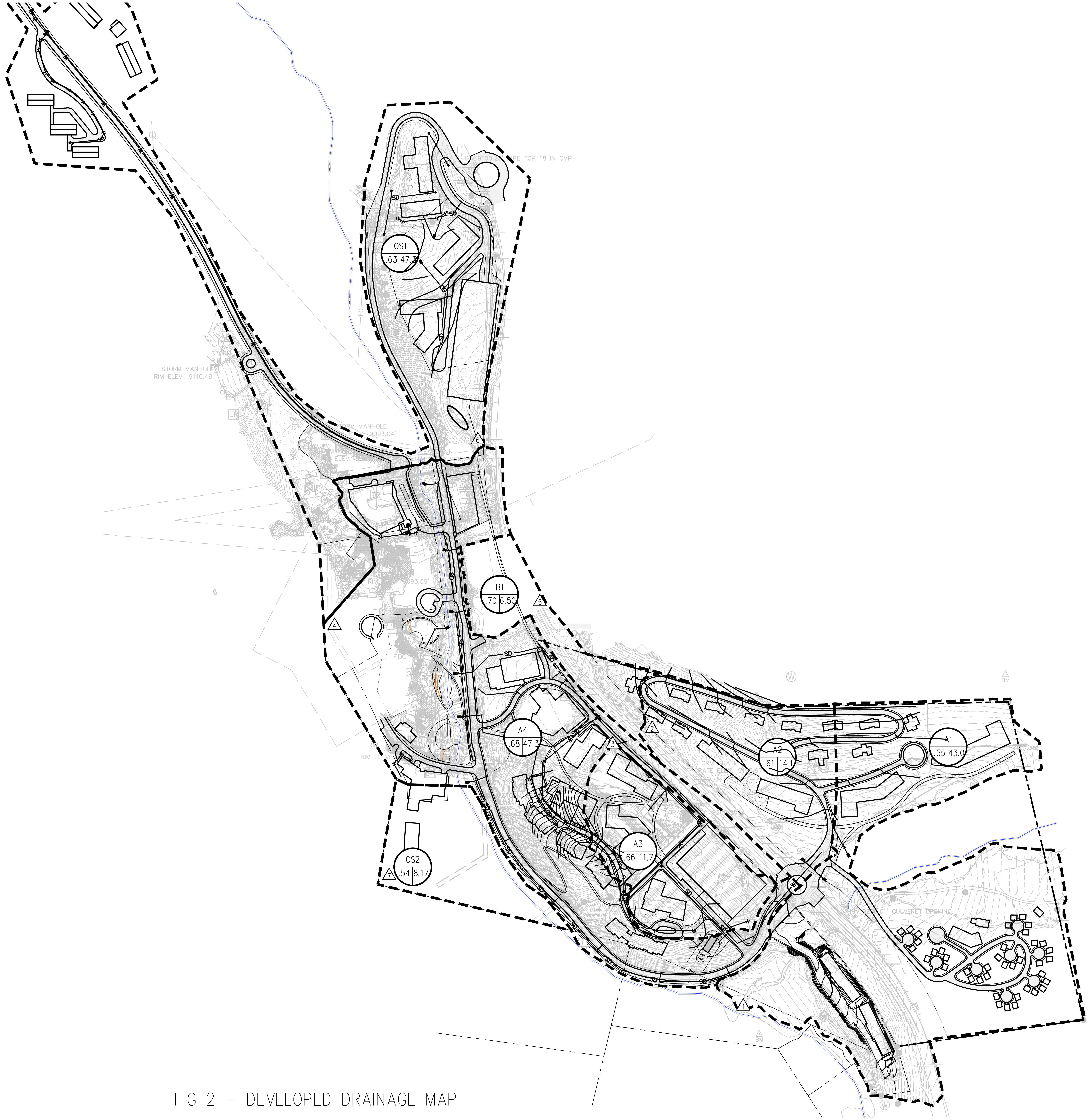

FIG 2 – DEVELOPED DRAINAGE MAP

DEVELOPED DRAINAGE SUMMARY				
BASIN	DESIGN POINT	AREA(AC)	5YR-RUNOFF	100YR-RUNOFF
A1	1	43.02	0.16	0.55
A2	2	14.09	0.29	0.61
A3	3	11.67	0.39	0.66
A4	4	47.26	0.42	0.68
B1	5	06.50	0.46	0.70
OS1	6	47.34	0.32	0.63
OS2	7	08.17	0.14	0.54

DRAINAGE MAP LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED INTERMEDIATE CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- HISTORIC DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- HISTORIC DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (MAJOR BASIN)
- DEVELOPED DRAINAGE BASIN BOUNDARY (SUB BASIN)
- DIRECTION OF FLOW (HISTORIC)
- DIRECTION OF FLOW (DEVELOPED)
- BASIN DESIGN POINT
- DRAINAGE BASIN IDENTIFICATION BUBBLE

A = DEVELOPED BASIN DESIGNATION
.50 = 100-YR RUNOFF COEFFICIENT
1.0 = AREA ACRES

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NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

DESIGNED BY:	SAR/DAD
DRAWN BY:	DAD
CHECKED BY:	SAR/KEV
JOB #:	3494.2c
DATE:	07/19/2024

WINTER PARK RESORT
PRELIMINARY DEVELOPMENT PLAN
WINTER PARK, GRAND COUNTY, CO

DEVELOPED DRAINAGE EXHIBIT

SHEET NO.
FIG-2

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APPENDIX-C
UTILITY, EASEMENT & GRADING EXHIBITS

APPROX LOCATION OF
200' RAILROAD EASEMENT

STORM MANHOLE
RIM ELEV: 9110.39'

STORM MANHOLE
RIM ELEV: 9110.48'

STORM MANHOLE
RIM ELEV: 9093.04'

MATCHLINE – SEE SHEET EX-1.2

100 0 100 200
SCALE IN FEET

CONSULTING ENGINEERS

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JOB #:	3494.2c
DATE:	07/19/2024

WINTER PARK RESORT
PRELIMINARY DEVELOPMENT PLAN
WINTER PARK, GRAND COUNTY, CO

ACCESS & MISC EASEMENTS

SHEET NO.
EX-1.1

MATCHLINE – SEE SHEET EX-1.1

STORM MANHOLE
RIM ELEV: 9093.04'

SANITARY MANHOLE
RIM ELEV: 9094.12'

AREA DRAIN
RIM ELEV: 9093.04'

ACCESS EASEMENT

14' ROAD EASEMENT

30' ROAD EASEMENT

30' PEDESTRIAN WALKWAY EASEMENT

ROAD EASEMENT

AREA DRAIN
RIM ELEV: 9092.60'

STORM MANHOLE
RIM ELEV: 9093.59'

14' ROAD EASEMENT

24' ACCESS EASEMENT

100' TRAMWAY EASEMENT

STORM MANHOLE
RIM ELEV: 9159.84'

STORM MANHOLE
RIM ELEV: 9159.47'

STORM GRATE
GRATE ELEV: 9182.58'

STORM GRATE
GRATE ELEV: 9175.64'

STORM GRATE
GRATE ELEV: 9159.67'

STORM GRATE
GRATE ELEV: 9150.28'

SNOW MAKING LINE EASEMENT

PARKING EASEMENT #3

AREA DRAIN
RIM ELEV: 9124.42'

AREA DRAIN
RIM ELEV: 9119.01'

AREA DRAIN
RIM ELEV: 9123.53'

AREA DRAIN
RIM ELEV: 9121.08'

AREA DRAIN
RIM ELEV: 9124.03'

STORM GRATE
GRATE ELEV: 9133.25'

STORM MANHOLE

MATCHLINE – SEE SHEET EX-1.3

100 0 100 200
SCALE IN FEET

K:\3494.2c-Winter Park Resort ODP\Drawings\3493.2c-00-EAS-Ex-01.dwg, 7/16/2024 - 3:57 PM, DAM

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NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

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CHECKED BY:	SAR/KEV
JOB #:	3494.2c
DATE:	07/19/2024

WINTER PARK RESORT
PRELIMINARY DEVELOPMENT PLAN
WINTER PARK, GRAND COUNTY, CO

ACCESS & MISC EASEMENTS

SHEET NO.
EX-1.2

MATCHLINE – SEE SHEET EX-1.2

PARKING EASEMENT #3

PARKING EASEMENT C

TRAMWAY EASEMENT

PARKING EASEMENT #3

PARKING EASEMENT #2

LANDSCAPE EASEMENT

ACCESS EASEMENT #2

PARKING EASEMENT D

ACCESS EASEMENT #3

PARKING EASEMENT 5A

PARKING EASEMENT #1

PARKING EASEMENT A

ACCESS EASEMENT 4C

PARKING EASEMENT 5B

PSCO EASEMENT

ACCESS EASEMENT 4

ACCESS EASEMENT #1

AREA DRAIN
RIM ELEV: 9124.03

STORM MANHOLE
RIM ELEV: 9127.24'

STORM GRATE
GRATE ELEV: 9133.25

SANITARY MANHOLE
RIM ELEV: 9204.93'

SANITARY MANHOLE
RIM ELEV: 9206.74'

SANITARY MANHOLE
RIM ELEV: 9208.85'

75.64'

ORM GRATE
!ATE ELEV: 9196.67'

STORM GRATE
GRATE ELEV: 9[illegible]0.28'

9216.04'

9216.84'

100 0 100 200
SCALE IN FEET

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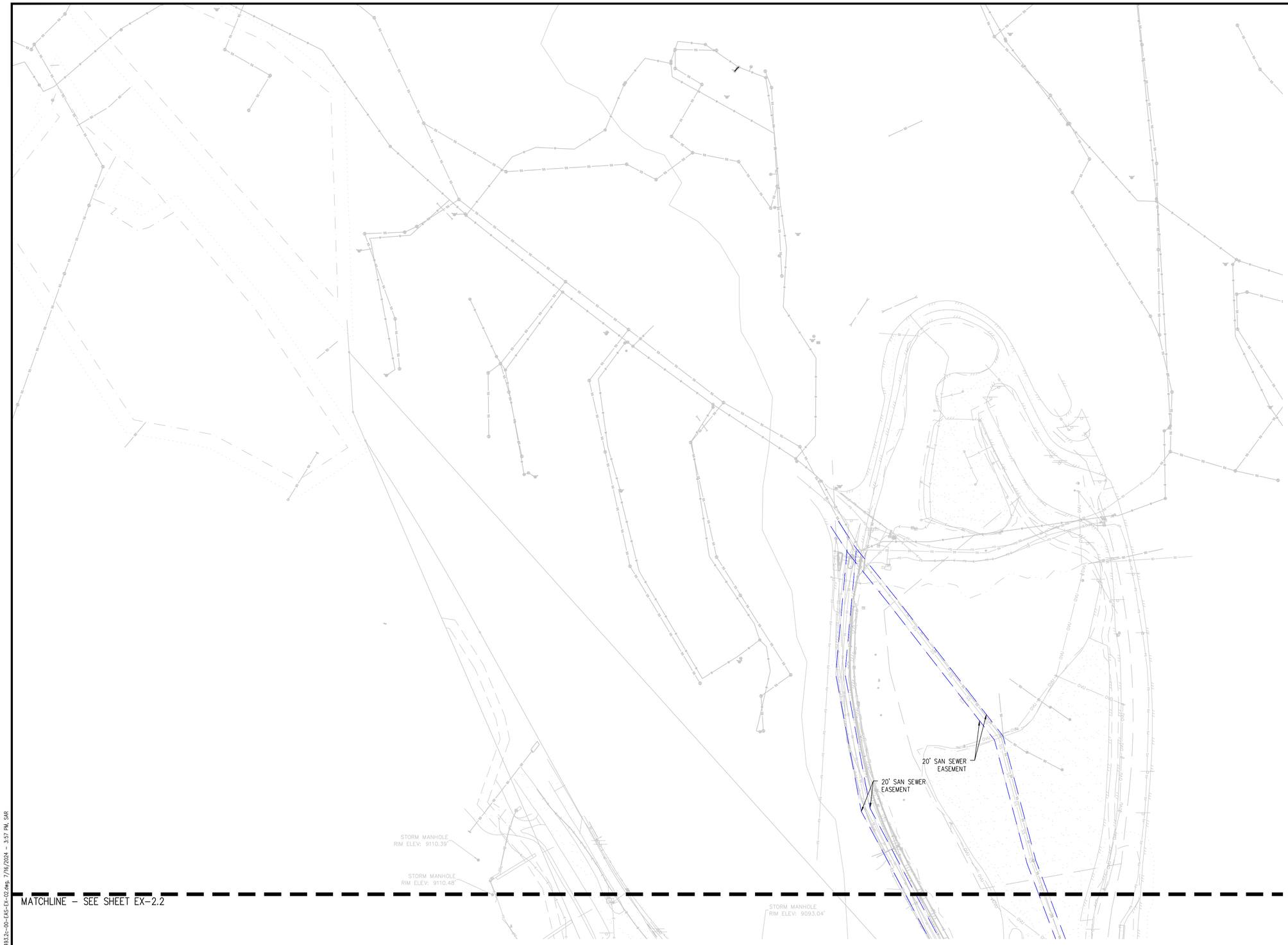
WINTER PARK, GRAND COUNTY, CO

ACCESS & MISC EASEMENTS

SHEET NO.
EX-1.3



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WINTER PARK RESORT
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WINTER PARK, GRAND COUNTY, CO

WET UTILITY EASEMENTS

SHEET NO.
EX-2.1

MATCHLINE – SEE SHEET EX-2.1

STORM MANHOLE
RIM ELEV: 9093.04'

SANITARY MANHOLE
RIM ELEV: 9094.12'

100' DENVER WATER
SIPHON EASEMENT

AREA DRAIN
RIM ELEV: 9093.05'

MIS. WET UTILITY
EASEMENTS (TYP)

30' WET UTILITY
EASEMENT

100' DENVER WATER
SIPHON EASEMENT

30' WET UTILITY
EASEMENT

AREA DRAIN
RIM ELEV: 9092.60'

STORM MANHOLE
RIM ELEV: 9093.59'

20' WET UTILITY
EASEMENT

MISC. WET UTILITY
EASEMENT

STORM MANHOLE
RIM ELEV: 9159.84'

STORM MANHOLE
RIM ELEV: 9159.47'

STORM GRATE
GRATE ELEV: 9182.58'

STORM GRATE
GRATE ELEV: 9175.64'

STORM GRATE
GRATE ELEV: 9159.67'

STORM GRATE
GRATE ELEV: 9150.28'

AREA DRAIN
RIM ELEV: 9124.42'

AREA DRAIN
RIM ELEV: 9119.01'

AREA DRAIN
RIM ELEV: 9123.53'

AREA DRAIN
RIM ELEV: 9124.03'

AREA DRAIN
RIM ELEV: 9121.08'

STORM GRATE
GRATE ELEV: 9133.25'

STORM MANHOLE

MATCHLINE – SEE SHEET EX-2.3

100 0 100 200
SCALE IN FEET

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WINTER PARK RESORT
PRELIMINARY DEVELOPMENT PLAN
WINTER PARK, GRAND COUNTY, CO

WET UTILITY EASEMENTS

SHEET NO.
EX-2.2

MATCHLINE – SEE SHEET EX-2.2

75.64'

ORM GRATE
!ATE ELEV: 9195.67'

STORM GRATE
GRATE ELEV: 9[illegible]0.28'

AREA DRAIN
RIM ELEV: 9124.03'

STORM MANHOLE
RIM ELEV: 9127.24'

STORM GRATE
GRATE ELEV: 9133.25'

SANITARY MANHOLE
RIM ELEV: 9204.93'

SANITARY MANHOLE
RIM ELEV: 9206.74'

SANITARY MANHOLE
RIM ELEV: 9208.95'

9216.04'

9216.84'

UTILITY
EASEMENT #4
(RE: SURVEY)

UTILITY
EASEMENT #2
(RE: SURVEY)

UTILITY
EASEMENT #8
(RE: SURVEY)

20' WATERLINE
EASEMENT

20' WATERLINE
EASEMENT

100 0 100 200
SCALE IN FEET

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WINTER PARK, GRAND COUNTY, CO

WET UTILITY EASEMENTS

SHEET NO.
EX-2.3

STORM MANHOLE
RIM ELEV: 9110.39'

STORM MANHOLE
RIM ELEV: 9110.48'

STORM MANHOLE
RIM ELEV: 9093.04'

MATCHLINE – SEE SHEET EX-3.2

100 0 100 200
SCALE IN FEET

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DRY UTILITIES EASEMENTS

SHEET NO.
EX-3.1

MATCHLINE – SEE SHEET EX-3.1

STORM MANHOLE
RIM ELEV: 9093.04'

SANITARY MANHOLE
RIM ELEV: 9094.12'

AREA DRAIN
RIM ELEV: 9093.69'

MOUNTAIN PARKS
ELECTRICAL EASEMENT

20' ELEC
EASEMENT

20' TCI CABLE
EASEMENT

AREA DRAIN
RIM ELEV: 9092.60'

STORM MANHOLE
RIM ELEV: 9093.59'

20' TCI CABLE
EASEMENT

STORM GRATE
GRATE ELEV: 9175.64'

STORM MANHOLE
RIM ELEV: 9159.84'

STORM MANHOLE
RIM ELEV: 9159.47'

STORM GRATE
GRATE ELEV: 9182.58'

STORM GRATE
GRATE ELEV: 9176.67'

STORM GRATE
GRATE ELEV: 9160.28'

20' ELEC
EASEMENT

AREA DRAIN
RIM ELEV: 9124.42'

AREA DRAIN
RIM ELEV: 9119.01'

AREA DRAIN
RIM ELEV: 9123.53'

AREA DRAIN
RIM ELEV: 9124.03'

AREA DRAIN
RIM ELEV: 9121.08'

STORM GRATE
GRATE ELEV: 9133.25'

STORM MANHOLE

MATCHLINE – SEE SHEET EX-3.3

100 0 100 200
SCALE IN FEET

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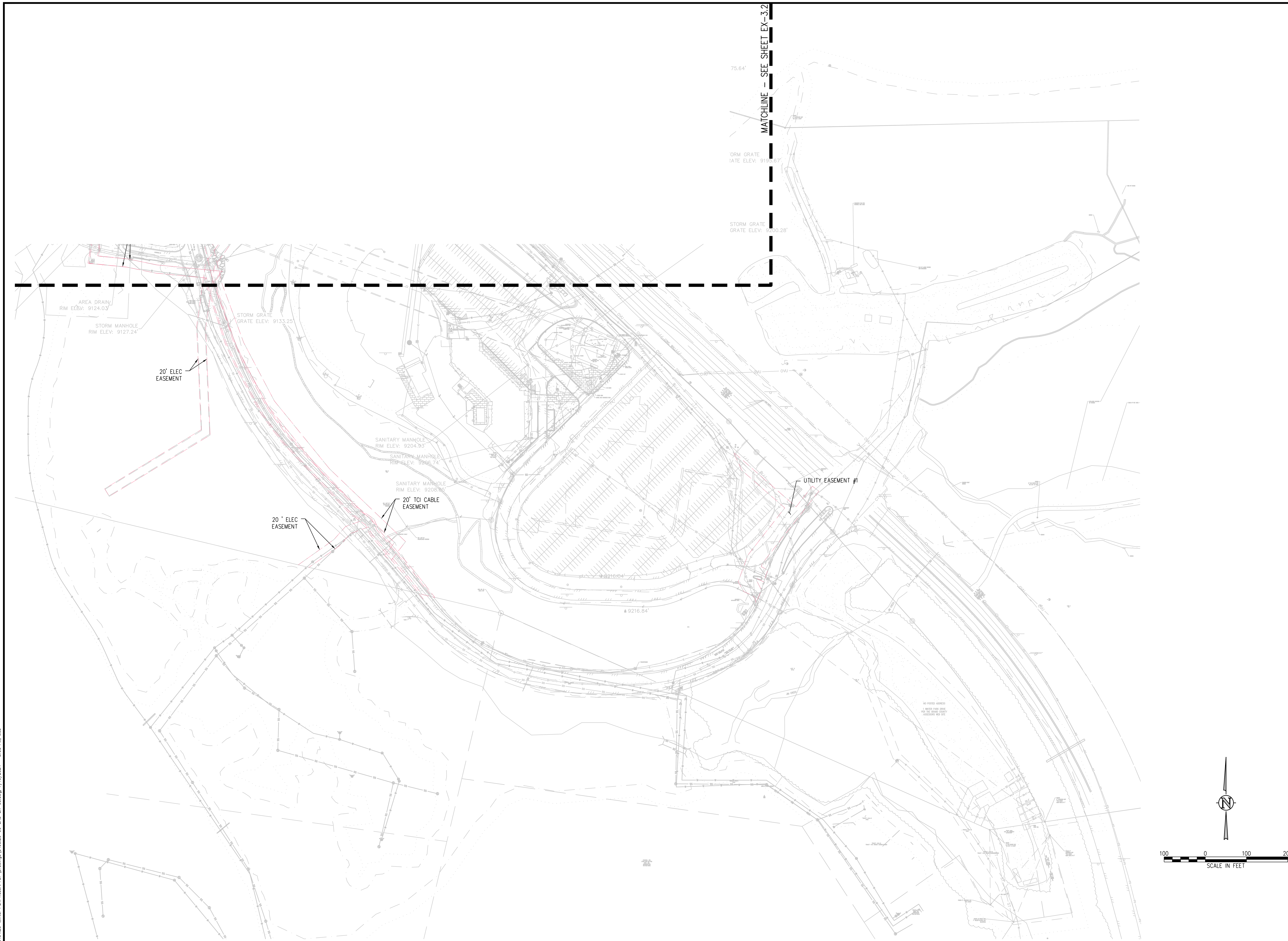
WINTER PARK RESORT
PRELIMINARY DEVELOPMENT PLAN
WINTER PARK, GRAND COUNTY, CO

DRY UTILITIES EASEMENTS

SHEET NO.
EX-3.2



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WINTER PARK, GRAND COUNTY, CO

DRY UTILITIES EASEMENTS

SHEET NO.

EX-3.3

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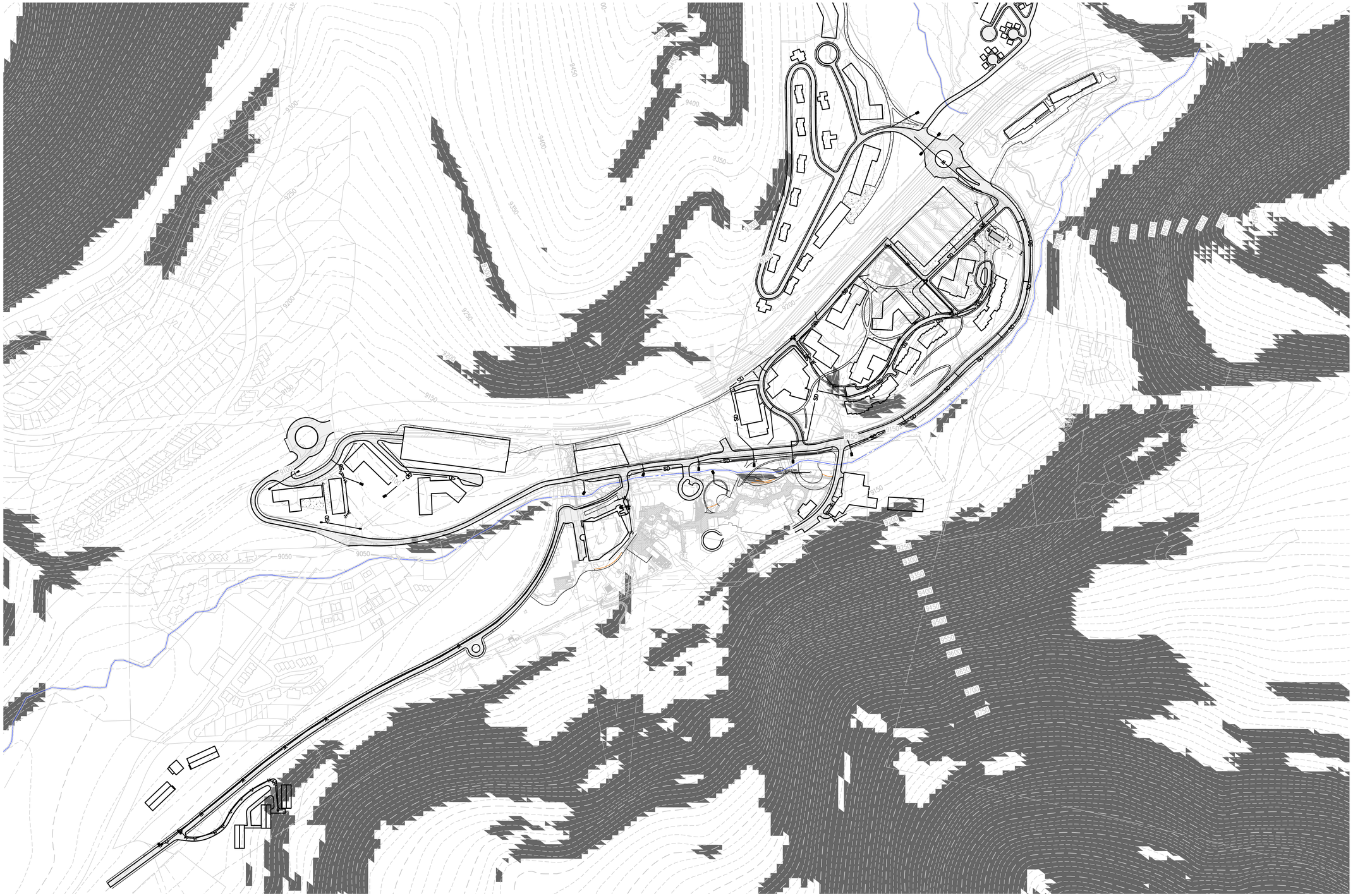

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WINTER PARK RESORT
PRELIMINARY DEVELOPMENT PLAN
WINTER PARK, GRAND COUNTY, CO

EXISTING SURFACE SLOPE STUDY

SHEET NO.
EX-4.0

UTILITY MAP LEGEND

- W — EXISTING DOMESTIC WATER
- SS — EXISTING SANITARY SEWER
- SD — EXISTING STORM SEWER
- G — EXISTING NATURAL GAS
- OE — EXISTING OVERHEAD ELECTRIC
- UE — EXISTING UNDERGROUND ELECTRIC
- FO — EXISTING FIBER OPTIC
- W — PROPOSED WATER
- SS — PROPOSED SANITARY SEWER
- SD — PROPOSED STORM SEWER
- FO — PROPOSED FIBER OPTIC ROUTING
- DEMO EXISTING UTILITY

GENERAL NOTES:

ALL EXISTING ELEC, FO, AND GAS SERVICES TO BALCONY HOUSE TO BE DEMOLISHED. SEVERAL UTILITIES ROUTE TO WEST PORTAL THROUGH BALCONY HOUSE. THOSE CONNECTION POINTS TO WEST PORTAL TO BE RE-USED IF POSSIBLE IN FUTURE DESIGN.

N

100 0 100 200
SCALE IN FEET

PROPOSED WATER MAIN LOOP TO CONNECT TO EXISTING MAIN CROSSING UNDER RAILROAD (COORDINATE W/ WPWSD)

RE-ROUTE FO AND UNDERGROUND ELECTRIC

PROPOSED SANITARY CONNECTION TO NEW BUILDINGS

EXIST SANITARY SEWER MAIN

PROPOSED CDS STORM SEPARATOR

DRAINAGE PATH RE ROUTE, MAJOR WETLANDS IN THIS AREA, CONSIDER MOVING BUILDINGS OUT OF WETLANDS

RE-ROUTE OR UNDERGROUND OHE

EXIST GAS (TYP)

EXIST PVC SANITARY MAIN

PROPOSED SANITARY SEWER MAIN (TYP)

STORM MANHOLE RIM ELEV: 9110.39

STORM MANHOLE RIM ELEV: 9110.48

STORM MANHOLE RIM ELEV: 9093.04

PROPOSED WATER MAIN LOOP TO

MATCHLINE – SEE SHEET EX-02

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WINTER PARK RESORT
PRELIMINARY DEVELOPMENT PLAN
WINTER PARK, GRAND COUNTY, CO

OVERALL UTILITY EXHIBIT

SHEET NO.
EX 01

MATCHLINE – SEE SHEET EX-01

PROPOSED WATER MAIN LOOP TO CONNECT TO EXISTING MAIN CROSSING UNDER RAILROAD (COORDINATE W/ WPWSD)

EXIST PVC SANITARY MAIN

EXIST FIBER OPTIC (TYP)

EXIST UNDERGROUND ELEC (TYP)

EXIST SANITARY SEWER MAIN

APPROXIMATE WATER ROUTING DRAWN IN FROM GIS, TYP

DEMO EXIST WATER METERS, FDC'S, & HYDRANTS ASSOCIATED WITH THE ADMIN & BALCONY HOUSE,

CONNECT EXISTING WEST PORTAL SANITARY TO NEW MAIN

PROTECT EXITST UTILITY RIVER CROSSINGS IN PLACE, TYPICAL ALL PHASES

PROPOSED CDS STORM SEPARATOR

DEMO EXIST SANITARY SEWER TO THIS MANHOLE,

SANITARY SEWER RE-ROUTE

EXIST SANITARY SEWER MAIN (TYP)

CURRENTLY NO WATER QUALITY FOR STORM DISCHARGE, TYPICAL, ADD STORM SCEPTERS

EXISTING SANITARY GOES THROUGH EXISTING ADMIN BUILDING HERE

STORM SEWER RE-ROUTE

DEMO UTILITY SERVICES WITHIN BUILDING FOUNDATION, ROUTE NEW SERVICE LINES TO CONNECTION POINTS

PROPOSED CDS STORM SEPARATOR (TYP)

EXIST SANITARY SEWER MAIN

PROPOSED STORM SEWER MAIN

PROPOSED CDS STORM SEPARATOR

UTILITY CORRIDOR TO REMAIN

PROTECT WATER MAIN IN PLACE

PROPOSED CDS STORM SEPARATOR

EXIST SANITARY SEWER MAIN

RE-ROUTE STORM SEWER MAIN

PROPOSED CDS STORM SEPARATOR

APPROXIMATE WATER ROUTING DRAWN IN FROM GIS, TYP

POSSIBLE LOCATION FOR LANDSCAPE BUFFER

RE-ROUTE FO

EXIST 8" PVC

REMOVE EXISTING BOX CULVERT BRIDGE

EXIST SANITARY MAIN

MATCHLINE – SEE SHEET EX-03

UTILITY MAP LEGEND

- W — EXISTING DOMESTIC WATER
- SS — EXISTING SANITARY SEWER
- SD — EXISTING STORM SEWER
- G — EXISTING NATURAL GAS
- OE — EXISTING OVERHEAD ELECTRIC
- UE — EXISTING UNDERGROUND ELECTRIC
- FO — EXISTING FIBER OPTIC
- W — PROPOSED WATER
- SS — PROPOSED SANITARY SEWER
- SD — PROPOSED STORM SEWER
- FO — PROPOSED FIBER OPTIC ROUTING
- DEMO EXISTING UTILITY

GENERAL NOTES:

ALL EXISTING ELEC, FO, AND GAS SERVICES TO BALCONY HOUSE TO BE DEMOLISHED. SEVERAL UTILITIES ROUTE TO WEST PORTAL THROUGH BALCONY HOUSE. THOSE CONNECTION POINTS TO WEST PORTAL TO BE RE-USED IF POSSIBLE IN FUTURE DESIGN.

N

100 0 100 200
SCALE IN FEET

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WINTER PARK, GRAND COUNTY, CO

OVERALL UTILITY EXHIBIT

SHEET NO.
EX 02

MATCHLINE – SEE SHEET EX-02

UTILITY MAP LEGEND

W	EXISTING DOMESTIC WATER
SS	EXISTING SANITARY SEWER
SD	EXISTING STORM SEWER
G	EXISTING NATURAL GAS
OE	EXISTING OVERHEAD ELECTRIC
UE	EXISTING UNDERGROUND ELECTRIC
FO	EXISTING FIBER OPTIC
W	PROPOSED WATER
SS	PROPOSED SANITARY SEWER
SD	PROPOSED STORM SEWER
FO	PROPOSED FIBER OPTIC ROUTING
	DEMO EXISTING UTILITY

GENERAL NOTES:

ALL EXISTING ELEC, FO, AND GAS SERVICES TO BALCONY HOUSE TO BE DEMOLISHED. SEVERAL UTILITIES ROUTE TO WEST PORTAL THROUGH BALCONY HOUSE. THOSE CONNECTION POINTS TO WEST PORTAL TO BE RE-USED IF POSSIBLE IN FUTURE DESIGN.

N

100 0 100 200
SCALE IN FEET

AREA DRAIN
RIM ELEV: 9127.24'

STORM MANHOLE
RIM ELEV: 9127.24'

STORM GRATE
GRATE ELEV: 9133.25'

PROPOSED CDS STORM SEPARATOR

EXIST SANITARY SEWER MAIN

EXIST FIBER OPTIC (TYP)

APPROCIMATE WATER ROUTING DRAWN FROM GIS, TYP

NEW STORM SEWER CONNECTION MAIN

CONNECT PAVEMENT SUBSURFACE DRAINAGE SYSTEM TO STORM SEWER OUTFALLS (TYP)

SANITARY SEWER MAIN RE-ROUTE

WATER MAIN RE-ROUTE

STORM MAIN RE-ROUTE

PROTECT EXISTING RAW WATER SIPHON LINE IN PLACE

EXTEND WATER MAIN AND SS MAINS ACROSS HIGHWAY 40 FOR FUTURE CONNECTION TO JIM CREEK AREA

EXIST OVERHEAD ELEC (TYP)

EXIST WATER SIPHON MAIN, PROTECT IN PLACE

EXIST FIBER OPTIC (TYP)

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WINTER PARK RESORT
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WINTER PARK, GRAND COUNTY, CO

OVERALL UTILITY EXHIBIT

SHEET NO.
EX 02

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APPENDIX-D
GEOTECH REPORTS

Kumar & Associates, Inc.
Geotechnical and Materials Engineers
and Environmental Scientists

ACEC MEMBER

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Fax: (970) 468-5891
Phone: (970) 468-1989
Email: hpksummit@kumarusa.com

Office Locations: Denver (HQ), Colorado Springs, Fort Collins, Glenwood Springs Parker and Summit County, Colorado

PRELIMMINARY GEOTECHNICAL ENGINEERING STUDY
PROPOSED WINTER PARK MASTER PLAN PHASE 1
U.S. HIGHWAY 40 AND WINTER PARK DRIVE
WINTER PARK, COLORADO

Prepared by:

James A. Parker, P.E, P.G

Reviewed by:

Steven L. Pawlak, P.E.

PREPARED FOR:

ALTERRA MOUNTAIN COMPANY
ATTN: STEVEN PETERSON
3501 WAZEE STREET, SUITE 400
DENVER, COLORADO 80216

speterson@alterramtnco.com

Project No. 22-6-160.01

December 21, 2022

TABLE OF CONTENTS

PURPOSE AND SCOPE OF STUDY

This report presents the results of a preliminary geotechnical engineering study for the proposed Winter Park Master Plan Phase 1 project, located at U.S. Highway 40 and Winter Park Drive, in Winter Park, Colorado. The project vicinity is shown on Fig. 1, and the project area is shown on Fig. 2. Kumar & Associates previously performed a geotechnical engineering study update to the 2005 report for the workforce housing portion of the project, located in the southern portion of the project area, as shown on Fig. 2, and presented findings and recommendations in a report dated August 2, 2022, Project No. 22-6-160.

The purpose of the study was to perform additional field exploration, supplement, and update recommendations provided in a geotechnical engineering study report for the Winter Park Core Development, performed by Kumar & Associates, Project No. 05-1-390, dated October 11, 2005. Our 2005 study was reviewed as part of the scope of this update report, and is attached as Appendix A. Our services were conducted in accordance with our proposal for geotechnical engineering services to Alterra Mountain Company, dated May 2, 2022, Proposal P6-22-170.

A field exploration program, consisting of exploratory borings and a site reconnaissance, was conducted to obtain information on the surface and subsurface conditions and supplement exploration performed in the project area for the referenced 2005 study, with respect to the current proposed construction. Samples of the subsoils obtained during the field exploration were tested in the laboratory to determine their classification and other engineering characteristics. The results of the field exploration and laboratory testing were analyzed to develop recommendations for foundation types, depths and allowable pressures for the proposed structure foundations. This report summarizes the data obtained during this study and presents our conclusions, recommendations for preliminary design and other geotechnical engineering considerations based on the proposed construction and the subsoil conditions encountered.

PROPOSED CONSTRUCTION

Project planning was preliminary at the time of this report and we understand that construction will be phased over the next ten years. Based on review of the Winter Park Master Plan Phase 1 Projects planning package, provided by the Client, we understand that the project will include the construction of workforce housing, a new entry “Arrival Experience” and roundabout on U.S. Highway 40, 200,000 square foot Adventure Center Hotel, 50,000 square foot Adventure Center Building, 1,200 space Central Parking Garage, Mountain Center and New Base Experience, River Center with 2,000 person amphitheater and associated park area, roadway improvements, and improvements to the River Park and Village area, generally as shown on

Fig. 1. Associated infrastructure and paved parking and drive lanes will also be constructed. We assume the structures will range from concrete, masonry and structural steel, to wood-frame and light gauge steel construction, and will be up to four to five-stories in height. Grading for the project is assumed to be relatively minor to moderate with anticipated grading cuts and fills of about 8 to 25 feet. We assume relatively light to heavy foundation loadings, typical of the proposed types of construction.

When final building locations, plans, grading and structural load information have been developed, we should be notified to re-evaluate the recommendations presented in this report and conduct additional analysis and subsurface exploration as needed.

SITE CONDITIONS

The project site is located around the base village area of the Winter Park Ski Resort, west of U.S. Highway 40, roughly bounded to the north by the West Portal of the Moffat Tunnel and just south of Winter Park Drive and northeast of the Fraser River, as shown on Figures 1 & 2. At the time of our exploration the project area was occupied by numerous residential and commercial structures, open space and park areas, paved roadways and asphalt-paved, and unpaved, gravel surfaced parking areas.

FIELD EXPLORATION

The current field exploration for the project was conducted on September 28 & 29 and October 24 & 25, 2022. Seventeen exploratory borings were drilled in proposed development areas to evaluate the subsurface conditions. The borings were advanced with 4-inch diameter continuous flight augers powered by a truck-mounted CME 45 drill rig. The borings were logged by a representative of Kumar and Associates, Inc. Boring and exploratory pit logs from the referenced 2005 study, presented in Appendix A, were also reviewed.

Samples of the subsoils were taken with 1 3/8 and 2-inch I.D. spoon samplers. The samplers were driven into the subsoils at various depths with blows from a 140-pound hammer falling 30 inches. This test is similar to the standard penetration test described by ASTM Method D-486. The penetration resistance values are an indication of the relative density of the granular subsoils. Depths at which the samples were taken, and the penetration resistance values are shown on the Logs of Exploratory Borings, Fig. 3. The samples were returned to our laboratory for review by the project engineer and laboratory testing.

LABORATORY TESTING

Samples of soils obtained from the exploratory borings were visually classified in the laboratory by the project manager and samples were selected for laboratory testing. Laboratory testing

performed on samples obtained from the borings consisted of natural moisture content, percent passing the No. 200 sieve, and gradation analyses. Laboratory testing from the borings from the 2005 study also included Atterberg limits, pH, and water-soluble sulfates. Results of gradation analyses from the pits, performed on the minus 3-inch fraction of the natural coarse granular soils are shown on Fig.'s 6 & 7. The laboratory test results are summarized on the Logs of Exploratory Borings, Fig's. 3 & 4, and on Table 1.

GEOLOGIC CONDITIONS

The US Geological Survey Geologic Map of the Fraser 7.5-Minute Quadrangle indicates the project area is primarily underlain by granular soils consisting of glacial till material of the Pinedale Till (Qtp). The till consists of sand, gravel, cobbles and boulders, with varying amounts of clay and silt fines. The till is likely underlain by granitic to gneissic bedrock across the project site. Bedrock was encountered in the 2005 study in Borings B-6, B-7, B-11, and B-16 (Appendix A), at depths of 15 to 17 feet. Bedrock was not encountered in borings drilled for the current study.

SUBSURFACE CONDITIONS

Soil Types Encountered - Graphic logs of the subsurface conditions encountered in the borings from the current study are shown on Fig's. 3 & 4. A Legend and Notes from the current study is presented on Figure 5.

Existing fill, ranging in depth up to about 20 feet below the existing site grade was encountered in all borings with the exception of Borings 4, 5 and 10. The shallow fill typically consisted of aggregate base course, and deeper fills consisted of silty sand, gravel, and cobbles with scattered boulders and debris. A shallow depth of topsoil was encountered in Borings 4 and 5, and Borings 1 – 3, 7, and 11 – 16 were drilled through asphalt pavement. Below the fill, topsoil, and pavement, and ground level in Boring 10, the natural soils consisted of medium dense to very dense, silty sand (SM) and medium dense to very dense, silty gravel (GM) with variable amounts of cobbles and boulders. Drilling in the coarse granular soils was difficult due to the cobbles and boulders, and practical refusal to auger drilling was encountered at depths of 4 to 30 feet in all borings with the exception of Borings 14 and 17, which were drilled to planned termination depths of 24 and 10 feet, respectively.

We understand that much of the granular fill material placed in the project area consists of rock fragments and matrix material generated from the Moffat Tunnel construction in the mid to late 1920's. The fill reportedly contains variable amounts of debris including timbers and steel debris from the tunnel construction.

Groundwater: Groundwater was not encountered in the borings at the time of drilling. Although not encountered during the current study, performed during assumed seasonal low groundwater levels in October and November 2022, relatively shallow ground water conditions were encountered within the project area in the referenced 2005 study, at depths as shallow as 5 feet in the central and southern portions.

The depth to groundwater can vary based on seasonal and climatic factors, and perched water can occur seasonally over frozen ground. Dewatering of foundation and utility excavations during construction could be needed.

GEOTECHNICAL ENGINEERING CONSIDERATIONS

Subsurface data indicates that medium dense to very dense, natural silty sand and gravel, with cobbles and boulders, and typically medium dense, existing fill, will likely be the predominant materials encountered beneath shallow foundation, floor slab, flatwork and pavement areas.

The granular natural soils at anticipated foundation levels are generally considered good to excellent for shallow foundation support. Undocumented, non-engineered existing fill, was placed in unknown conditions, contains deleterious material, and should typically be removed from beneath foundation, floor slab and pavement areas.

In areas with deeper depths of existing fill where full removal of the fill is not economically practical, possible alternatives to removing all of the fill material include supporting a spread footing or stiffened mat foundation on subgrade soils where only the upper portion of the existing fill is excavated and replaced, or the existing fill is improved using compaction grouting or other deep foundation techniques such as piers or piles down into the natural granular soils or bedrock. Some of these options would entail acceptance of a higher risk of building movements and associated damage by the building owner. Provided the higher risk option is acceptable to the owner, we recommend that partial excavation of the fill material can be considered only for lightly loaded building structures, where the existing fill is relatively free of construction debris and other deleterious material. Existing fill encountered within 5 feet beneath the foundation, and to an equal distance outside the foundation footprint, should be excavated and replaced with structural fill.

Plans for individual structures, and civil grading plans, were not available at the time of this report. A civil engineer licensed in the State of Colorado should prepare a final grading plan for

each planned structure. Once building locations, foundation plans, elevations, and structural loads for each structure have been established by the designer, we should review the final plans for each structure and re-evaluate the recommendations provided in this report for additional analysis and subsurface investigation, as needed.

Additional exploration, consisting of exploratory borings, should typically be performed for heavily loaded structures, such as parking garages, to confirm the validity of the preliminary recommendations in this report with respect to the proposed construction and structural loads, and the need for adjusting recommended allowable bearing pressure for foundations provided in this report.

Our recommendations contained in this report are contingent upon reviewing final building locations and project plans once they are complete.

SITE GRADING

The following recommendations should be followed for grading, site preparation, and fill compaction.

1. Where fill is to be placed, topsoil, existing fill (or specified depth of existing fill), loose, disturbed, or otherwise unsuitable material should be removed prior to placement of new fill. The exposed soils should then be scarified to a depth of 6 inches, moisture conditioned and compacted to the minimum requirements of the overlying fill. Soils should be compacted with appropriate equipment for the lift thickness placed. Lift thickness should be no more than 8 loose inches subsequently compacted at the recommended moisture content and to the minimum required density.
2. Permanent unretained cut and fill slopes should be graded at 2.5 horizontal to 1 vertical (2.5:1) or flatter and protected against erosion by revegetation or other means. The risk of slope instability will be increased if seepage is encountered in cuts and flatter slopes may be necessary. If seepage is encountered in permanent cuts, an investigation should be conducted to determine if the seepage will adversely affect the cut stability. This office should review site grading plans for the project prior to construction.
3. Slopes of 4:1 or steeper should be benched to provide a level surface for compaction.
4. All backfill should be processed so that it does not contain fragments larger than 6-inches in diameter and placed at the recommended moisture content.

5. The following compaction requirements should be used:

TYPE OF FILL PLACEMENT	MOISTURE CONTENT	SOIL TYPE - Compaction Percent (ASTM D698 – Standard Proctor)
Below Foundations	± 2% Optimum	Structural Fill – 100%
Foundation Wall Backfill	± 2% Optimum	Processed On-site or Structural Fill – 95%
Below Floor Slabs	± 2% Optimum	Structural Fill – 95%
Landscape Areas	± 2% Optimum	Processed On-site – 95%
Below Concrete Flatwork/Pavements	± 2% Optimum	Structural Fill – 95%
Utility Trenches	As they apply to the finished area	

Suitability of On-Site Soil

Natural soils consisting of silty sand and gravel with cobbles and boulders were encountered across the project area and are anticipated in foundation excavations. The on-site sand and gravel soils are suitable as backfill after processing to remove all plus 6-inch material and moisture treatment. The on-site topsoil is not suitable for reuse except in the upper 6 to 12 inches of backfill in landscape areas. Existing fill, encountered to significant depths across portions of the project area, should be evaluated for suitability by Kumar & Associates at the time of excavation, but should typically be suitable for use as structural fill after processing and removal of deleterious material.

Considerable processing will be necessary to reduce the on-site soil and existing fill to fragments of minus 6-inches. Processing may include screening, rock raking and crushing. All on-site soil should be processed, moisture-conditioned and placed to at least the minimum required compaction.

Structural Fill

Structural fill used for support of the buildings and pavement areas should consist of processed on-site granular soils, approved existing fill, or a relatively well-graded imported granular material with a liquid limit of 35 or less, a plasticity index of 10 or less, 5 to 25 percent material passing the No. 200 sieve, 60 percent or more passing the No. 4 sieve and no rocks larger than 6 inches. CDOT Class 1 structural backfill is acceptable as structural fill. Structural fill should be properly placed and compacted to reduce the risk of settlement and distress. Structural fills should be placed in accordance with the recommendations presented in the SITE GRADING section of this report.

Import Fill

The Geotechnical engineer should evaluate the suitability of any proposed import fill for its intended use.

Excavations

It is the responsibility of the Contractor to provide safe working conditions and to comply with the regulations in OSHA Standards, Excavations, 29CFS Part 1926. The onsite sand and gravel soil, and existing fill, will typically classify as "Type C" in accordance with OSHA regulations. The regulations allow slopes of 1½ horizontal to 1 vertical (1½:1) for **dry** temporary excavations less than 20 feet deep.

The presence of water, seepage, fissuring, vibrations or surcharge loads will require temporary excavation to have flatter slopes. **The excavation contractor's Competent Person should make decisions regarding cut slopes.** A qualified Geotechnical engineer should observe any questionable slopes or conditions. Temporary shoring may be necessary.

FOUNDATIONS

Considering the subsoil conditions encountered in the exploratory borings, review of the referenced 2005 report, and the nature of the proposed construction, we recommend the structures be founded with spread footings bearing on the undisturbed natural granular soils, or properly compacted structural fill less than 8 feet in depth.

The design and construction criteria presented below should be observed for a spread footing foundation system.

1) Footings placed on the undisturbed natural granular soils, or a limited depth of properly compacted structural fill, should be designed for an allowable soil bearing pressures of 3,000 to 5,500 pounds per square foot (psf). Based on experience, we expect movement of footings designed and constructed as discussed in this section will be about 1 inch or less.
2) The footings should have a minimum width of 18 inches for continuous walls and 2 feet for isolated pads.
3) Exterior footings and footings beneath unheated areas should be provided with adequate soil cover above their bearing elevation for frost protection. Placement of foundations at least 40 inches below exterior grade, or in accordance with local building code requirements, is recommended for foundations bearing on the native soils. Concrete should not be placed on frost, frozen soil, snow or ice.

4) Continuous foundation walls should be reinforced top and bottom to span local anomalies such as by assuming an unsupported length of at least 10 feet. Foundation walls acting as retaining structures should also be designed to resist lateral earth pressures as discussed in the "Foundation and Retaining Walls" section of this report.
5) Topsoil, undocumented, non-engineered existing fill (or the specified depth of existing fill), and any loose or disturbed soils should be removed, and the footing bearing level extended down to the relatively undisturbed soils. The exposed soils in footing areas should then be moistened to near optimum moisture, if necessary, and compacted. If water seepage is encountered, the footing areas should be dewatered before concrete placement and we shall be contacted for further evaluation.
6) Voids created by boulder removal in foundation areas should be backfilled with properly compacted structural fill, lean mix concrete or structural concrete to re-establish bearing elevations.
7) Structural fill used for support of the foundation should meet the requirements listed in the SITE GRADING section of this report.
8) **A representative of the geotechnical engineer should observe all footing excavations prior to forming footings and concrete placement to evaluate bearing conditions.**

FOUNDATION AND RETAINING WALLS

Foundation walls and retaining structures which are laterally supported and can be expected to undergo only a slight amount of deflection should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 50 pounds per cubic foot (pcf) for backfill consisting of the on-site processed granular soils. Cantilevered retaining structures which are separate from the foundation and can be expected to deflect sufficiently to mobilize the full active earth pressure condition should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 40 pcf for backfill consisting of the processed on-site granular soils. The backfill should not contain organics, deleterious material, and rock larger than about 6 inches in diameter.

The lateral resistance of foundation or retaining wall footings will be a combination of the sliding resistance of the footing on the foundation materials and passive earth pressure against the side of the footing. Resistance to sliding at the bottoms of the footings can be calculated based on a coefficient of friction of 0.45. Passive pressure of compacted backfill against the sides of the footings can be calculated using an equivalent fluid unit weight of 460 pcf. The coefficient of friction and passive pressure values recommended above assume ultimate soil strength. Suitable factors of safety should be included in the design to limit the strain which will occur at

the ultimate strength, particularly in the case of passive resistance. Fill placed against the sides of the footings to resist lateral loads should be an on-site soil material compacted to at least 95% of the maximum standard Proctor dry density at a moisture content near optimum.

All foundation and retaining structures should be designed for appropriate hydrostatic and surcharge pressures such as adjacent footings, traffic, construction materials and equipment. The pressures recommended above assume drained conditions behind the walls and a horizontal backfill surface. The buildup of water behind a wall or an upward sloping backfill surface will increase the lateral pressure imposed on a foundation wall or retaining structure. An underdrain should be provided to limit hydrostatic pressure buildup behind walls.

Backfill in patio, pavement, and walkway areas should be placed in uniform lifts and compacted to at least 95% of the maximum standard Proctor (ASTM D-698) dry density. Backfill placed in landscape areas should be compacted to at least 90% of the maximum standard Proctor dry density at a moisture content near optimum. Care should be taken not to over-compact the backfill or use large equipment near foundation and retaining walls, since this could cause excessive lateral pressure on the wall. Some settlement of deep foundation wall backfill should be expected, even if the material is placed correctly, and could result in distress to facilities constructed on the backfill.

FLOOR SLABS

The natural on-site granular soils, exclusive of topsoil, and properly compacted new structural fill, are suitable to support lightly loaded slab-on-grade construction. Undocumented, non-engineered existing fill should be removed from floor slab areas and replaced with properly compacted new structural fill to re-establish floor slab elevations. In areas of deeper fills, where complete removal of the fill may not be feasible, the existing fill soils should be observed by Kumar & Associates and appropriate recommendations for mitigation provided at the time of excavation.

To reduce the effects of some differential movement, floor slabs should be separated from all bearing walls and columns with expansion joints which allow unrestrained vertical movement. Floor slab control joints should be used to reduce damage due to shrinkage cracking. The requirements for joint spacing and slab reinforcement should be established by the designer based on experience and the intended slab use. A minimum 4-inch layer of free-draining gravel should be placed beneath basement level slabs to facilitate drainage. This material should consist of minus 2-inch aggregate with at least 50% retained on the No. 4 sieve and less than 2% passing the No. 200 sieve. All backfill under floor slabs should be placed in accordance

with the SITE GRADING section of this report. Proper drainage design to prevent wetting of the under-slab soils will be important in reducing the potential for slab movement.

We recommend vapor retarders conform to the minimum requirements of ASTM E1745 Class B material. Certain floor types are more sensitive to water vapor transmission than others. For floor slabs bearing on angular gravel or where flooring system sensitive to water vapor transmission are utilized, we recommend a vapor barrier be utilized conforming to the minimum requirements of ASTM E1745 Class A material. The vapor retarder should be installed in accordance with the manufacturers' recommendations.

Structural fill placed beneath slabs can consist of processed on-site soils, excluding topsoil and oversized rocks, or an imported well-graded granular material. Structural fill should be spread in thin horizontal lifts, adjusted to at or above optimum moisture content, and compacted to at least 95% of the maximum standard Proctor dry density. All vegetation, topsoil and loose or disturbed soil should be removed prior to fill placement.

EXTERIOR FLATWORK

Structural fill placed beneath exterior flatwork can consist of processed on-site granular soils excluding topsoil and oversized rocks, approved and processed existing fill, or an imported well-graded granular material. Structural fill should be spread in thin horizontal lifts, adjusted to at or above optimum moisture content, and compacted to at least 95% of the maximum standard Proctor dry density. All vegetation, topsoil and loose or disturbed soil should be removed prior to fill placement.

UNDERDRAIN SYSTEM AND DAMPPROOFING

Although groundwater was not encountered at assumed foundation bearing elevations in the current exploration, shallow groundwater was encountered in the referenced 2005 study, and it has been our experience in mountainous areas that the water level can rise and that local perched groundwater can develop during times of heavy precipitation or seasonal runoff. Frozen ground during spring runoff can create a perched condition. We recommend below-grade construction, such as retaining walls, crawlspace and basement areas, be protected from wetting and hydrostatic pressure buildup by an underdrain and wall drain system. **Slab-on-grade, at-grade construction, should not require a foundation drain.**

The underdrain should consist of drainpipe placed in the bottom of the wall backfill surrounded above the invert level with free-draining gravel. The drain should be placed at each level of excavation and at least 12-inches below lowest adjacent finish grade and sloped at a minimum

1% to a suitable gravity outlet, drywell or sump and pump system. Free-draining gravel used in the underdrain system should contain less than 2% passing the No. 200 sieve, less than 50% passing the No. 4 sieve and have a maximum size of 1-inch. The drain gravel backfill should be at least 1½ feet deep and protected by filter fabric. A typical drain detail is shown on Figure 8.

For exterior below grade foundation walls, we recommend, as a minimum, damp proofing consist of bituminous material, 3 lbs per square yard, extending from the top of the footing to above ground level. A wall drain system consisting of a geocomposite, MiraDrain 6000, or equivalent, should be placed adjacent to below grade construction walls, with 100 percent coverage on the foundation wall facing the uphill slope and a minimum of 50 percent coverage for the adjacent foundation walls. The wall drain system should connect into the underdrain and extend to within 1 to 2 feet of the ground surface.

SEISMIC DESIGN CRITERIA

A 100-foot-deep boring was outside the scope of this study, but using estimated shear wave velocities for the subgrade materials encountered, based on observations of the exploratory borings, review of the referenced 2005 report, and our professional experience in the project area, calculations indicate a design Site Class C per the 2018 International Building Code (IBC). Based on the subsurface profile and the anticipated ground conditions, liquefaction is not a design consideration.

SURFACE DRAINAGE

The following drainage precautions should be observed during construction and maintained at all times after the structures have been completed:

1) Inundation of the foundation excavations and underslab areas should be avoided during construction.
2) Backfill in pavement and slab areas should be compacted to at least 95% of the maximum standard Proctor dry density at a moisture content within 2% of optimum. Exterior backfill placed in landscape areas should be compacted to at least 90% of the maximum standard Proctor dry density at a moisture content near optimum.
3) The ground surface surrounding the exterior of the buildings should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 6 inches in the first 10 feet in unpaved areas and a minimum slope of 2½ inches in the first 10 feet in paved areas.
4) Roof downspouts and drains should discharge well beyond the limits of all backfill.

5) Landscaping which requires regular heavy irrigation should be located at least 5 feet from foundation walls. The upper 2 feet of foundation wall backfill should consist of relatively impervious cover soil.

PAVEMENT SECTION DESIGN

Based on our understanding of the project, asphalt-paved access drives, roadways and parking areas will be constructed as part of project development. Traffic will generally consist of light automotive, bus traffic, and occasional heavy service vehicles. Traffic during construction will consist of heavier vehicles with higher wheel loads and precautions should be taken to prevent damage to the newly constructed pavement during construction.

The proposed development package, Fig. 2, indicates that a new roundabout is proposed at a future date on U.S. Highway 40 at the project entrance area. If the roundabout is constructed, a geotechnical engineering study for pavement section design should be performed for the roundabout prior to construction, in accordance with Colorado Department of Transportation (CDOT) guidelines, using current traffic data at the time of the study.

The proof-rolled, inorganic native granular soils and properly-compacted new structural fill will provide, in our opinion, adequate subgrade support for asphalt-paved drives, project roadways, and parking areas associated with the development. Existing undocumented, non-engineered existing fill should typically be removed from pavement areas and replaced with new, properly compacted structural fill to re-establish pavement section elevations. In areas of deeper existing fills, the fill should be evaluated by Kumar & Associates at the time of construction, and recommendations for a minimum depth of existing fill removal and replacement may be provided at that time, depending on the observed fill consistency and planned pavement structures.

Proper pavement section drainage, including site drainage to avoid ponding of water on, or adjacent to pavement areas, will be important in reducing the potential for pavement distress. Structural fill placed in paved areas should consist of processed on-site native soil, or approved existing fill, or imported sand and gravel meeting the requirements of the Site Grading section of this report. Fill should be placed in maximum 8-inch lifts, loose thickness, moisture-conditioned, and compacted to at least 95 percent of the standard Proctor density, ASTM D698.

A pavement section is a layered system designed to distribute concentrated traffic loads to the subgrade. Performance of the pavement structure is directly related to the physical properties of the subgrade soils and traffic loadings. Soils are represented for pavement design purposes by

means of a soil support value for flexible pavements and a modulus of subgrade reaction for rigid pavements. Both values are empirically related to strength.

Subgrade Soils

Subgrade soils consisting of natural, medium dense to very dense silty sand and gravel with cobbles and boulders, and existing fill of variable composition, are anticipated to be present at the pavement subgrade level. The natural soils typically classify as Groups A-1 and A-2, and in some cases A-4, in accordance with the American Association of State Highway and Transportation Officials (AASHTO). The soil types are considered excellent to good for pavement subgrade support. For design purposes, a seasonally adjusted effective resilient modulus of 5,000 psi was used to represent the subgrade strength for flexible pavements. Existing fill encountered in pavement subgrade areas, should be evaluated by Kumar & Associates at the time of excavation for suitability and appropriate recommendations provided at that time.

Traffic Estimates

Since anticipated traffic loading information was not available at the time of report preparation, Colorado Department of Transportation (CDOT) procedures were used to calculate an estimated 20-year Equivalent Single Axle Load (ESAL) value of 500,000 for project roadways. **The designer should verify anticipated traffic loads for the project. If higher 20-year ESAL values are anticipated, the pavement sections presented in this report will have to be re-evaluated.**

Asphaltic Concrete (AC) Pavement Design

Pavement section recommendations are presented for asphaltic concrete (AC) over aggregate base course (ABC) for the roadways, drive lanes and parking lot areas. We recommend that portland cement concrete (PCC) pavement be used in concrete aprons, garbage dumpster areas, entry areas, and other areas that will receive concentrated truck turning movements.

For flexible pavement design, a serviceability loss of 2.5 was selected. If other design parameters are preferred, we should be contacted in order to reevaluate the recommendations presented herein. A summary of the parameters used for the pavement section design is presented below.

20 Year ESAL's (roadways)	500,000
Design Serviceability Loss (Parking and Drive Lanes)	2.5
Drainage Coefficient	1.0
Effective Resilient Modulus (MR)	5,000 psi
Asphaltic Concrete Strength Coefficient	0.44
Aggregate Base Course Strength Coefficient	0.12

Based on the data presented above, an in-house spreadsheet utilizing AASHTO and CDOT methods was used to calculate a minimum structural number. Based on the structural number and the design parameters outlined above, the recommended pavement section thickness is presented in the following table:

Location	**Asphalt and Aggregate Base Course (AC + ABC)**	**Full Depth Asphalt Pavement (AC)**
Roadways (Excluding Highway 40)	*5 inches + 8 inches*	*7½ inches*
Access Drives & Auto-only Parking	*3 inches + 6 inches*	*5½ inches*
Bus Access Drives & Parking	4½ inches + 8 inches	7 inches

Asphalt should consist of a mixture of aggregate, filler and asphalt cement established by a qualified engineer. Aggregate Base Course (ABC) should conform to the requirements of AASHTO M147 and to Section 703.03 of the CDOT Standard Specifications for Road and Bridge Construction. The ABC should meet Class 6 grading and quality as defined by the CDOT specifications. The ABC should have a minimum R-value of 77 and a minimum dry unit weight of 120 pcf when placed at the required compaction. The ABC must also meet all other appropriate CDOT specifications.

Portland Cement Concrete Pavement Section

For concrete pavements, we recommend a minimum of 6-inches of Portland cement concrete (PCC) underlain by 4 inches of CDOT Class 6 ABC. Concrete pavement underlain by 4 inches Class 6 ABC is recommended 1) to create a uniform subbase/base, 2) to prevent pumping of fines from beneath the pavement, and 3) provide a working platform for construction.

All concrete should be based on a mix design established by a qualified engineer. A CDOT Class P or D mix would be acceptable. The design mix should consist of aggregate, Portland

cement, water, and additives which will meet the requirements contained in this section. The concrete should have a modulus of rupture of third point loading of 650 psi. Normally, concrete with a 28-day compressive strength of 4,200 psi will meet this requirement. Concrete should contain approximately 6 percent entrained air. Maximum allowable slump should not exceed 4 inches.

The concrete should contain joints not greater than 10 feet on centers. Joints should be sawed or formed by pre-molded filler. The joints should be at least 1/3 of the slab thickness. Joints should be reinforced with dowels to provide load transfer between slabs. Concrete pavement joints should meet the requirements of CDOT Standard Plan No. M 412-1 and CDOT Standard Specifications Section 412.13. Expansion joints should be provided at the end of each construction sequence and between the concrete slab and adjacent structures. Expansion joints, where required, should be filled with a ½-inch thick asphalt impregnated fiber. Concrete should be cured by protecting against loss of moisture, rapid temperature changes and mechanical injury for at least three days after placement. After sawing joints, the saw residue shall be removed and the joint sealed.

Subgrade Preparation

Prior to placing compacted fill, the exposed subgrade soils should be thoroughly scarified and well mixed to a depth of 12 inches, adjusted to a moisture content near optimum, and compacted to at least 95% of the standard Proctor (ASTMD 698) maximum dry density.

Proof Roll

Before placing aggregate base course for the pavement section, the subgrade should be proof rolled with a heavily loaded, pneumatic-tired vehicle. The vehicle should have gross vehicle weight of at least 50,000 pounds with a loaded single axle weight of 18,000 pounds and a tire pressure of 100 psi. Areas which deform excessively under heavy wheel loads are not stable and should be removed and replaced to achieve a stable subgrade prior to paving or placement of base course.

Drainage

The collection and diversion of surface drainage away from paved areas is extremely important for the satisfactory performance of pavement. Drainage design should provide for the removal of water from paved areas and prevent wetting of the subgrade soils.

Maintenance

Periodic maintenance of paved areas is critical to achieve the design pavement life. Crack sealing should be performed annually as new cracks appear. Joint seals in concrete should be replaced as they deteriorate. Chip seals, fog seals, or slurry seals applied at approximate intervals of 3 to 5 years are usually necessary for asphalt. As conditions warrant, it may be necessary to perform patching and structural overlays at approximate 10-year intervals. In temporary gravel roadways, periodic regrading should be expected on a yearly basis.

CONTINUING SERVICES

Three additional elements of geotechnical engineering service are important to the successful completion of this project.

1) Consultation with design professionals during the design phases. This is important to ensure that the intentions of our recommendations are properly incorporated in the design, and that any changes in the design concept properly consider geotechnical aspects.
2) Grading and Structural Plans Review. Project plans for specific structures were not available for our review at the time of this report. Project structural plans should be prepared by qualified, licensed designers, and a grading plan with finish floor elevations for the proposed construction should be prepared by a civil engineer licensed in the State of Colorado. Kumar and Associates, Inc. should be provided with project structural and grading plans once they are complete to confirm the recommendations contained in this report.
3) Observation and monitoring during construction. A representative of the Geotechnical engineer from our firm should observe the foundation excavation, earthwork, and foundation phases of the work for each structure and pavement area to determine that subsurface conditions are compatible with those used in the analysis and design and our recommendations have been properly implemented. Placement of backfill should be observed and tested to judge whether the proper placement conditions have been achieved. We recommend a representative of the geotechnical engineer observe the drain and dampproofing phases of the work, if constructed, to judge whether our recommendations have been properly implemented.

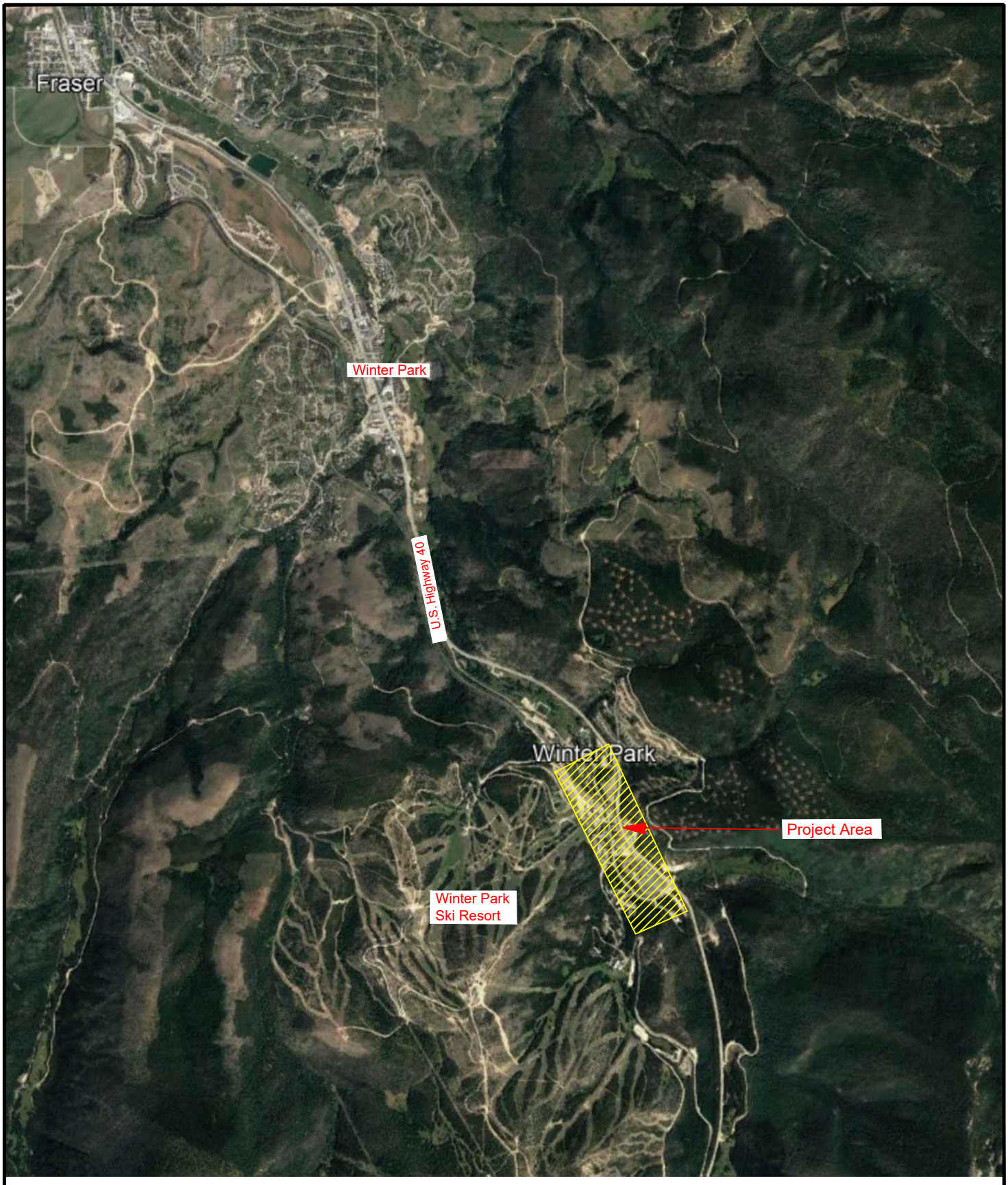
LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering principles and practices in this area at this time. We make no warranty either express or implied. The conclusions and recommendations submitted in this report are based upon the data obtained from the exploratory borings at the locations indicated on Fig. 2, review of the

referenced 2005 report, the proposed type of construction and our experience in the area. Our services do not include determining the presence, prevention or possibility of mold or other biological contaminants (MOBC) developing in the future. If the client is concerned about MOBC, then a professional in this special field of practice should be consulted. Our findings include interpolation and extrapolation of the subsurface conditions identified at the exploratory borings and variations in the subsurface conditions may not become evident until excavation is performed. If conditions encountered during construction appear different from those described in this report, we should be notified so that re-evaluation of the recommendations may be made.

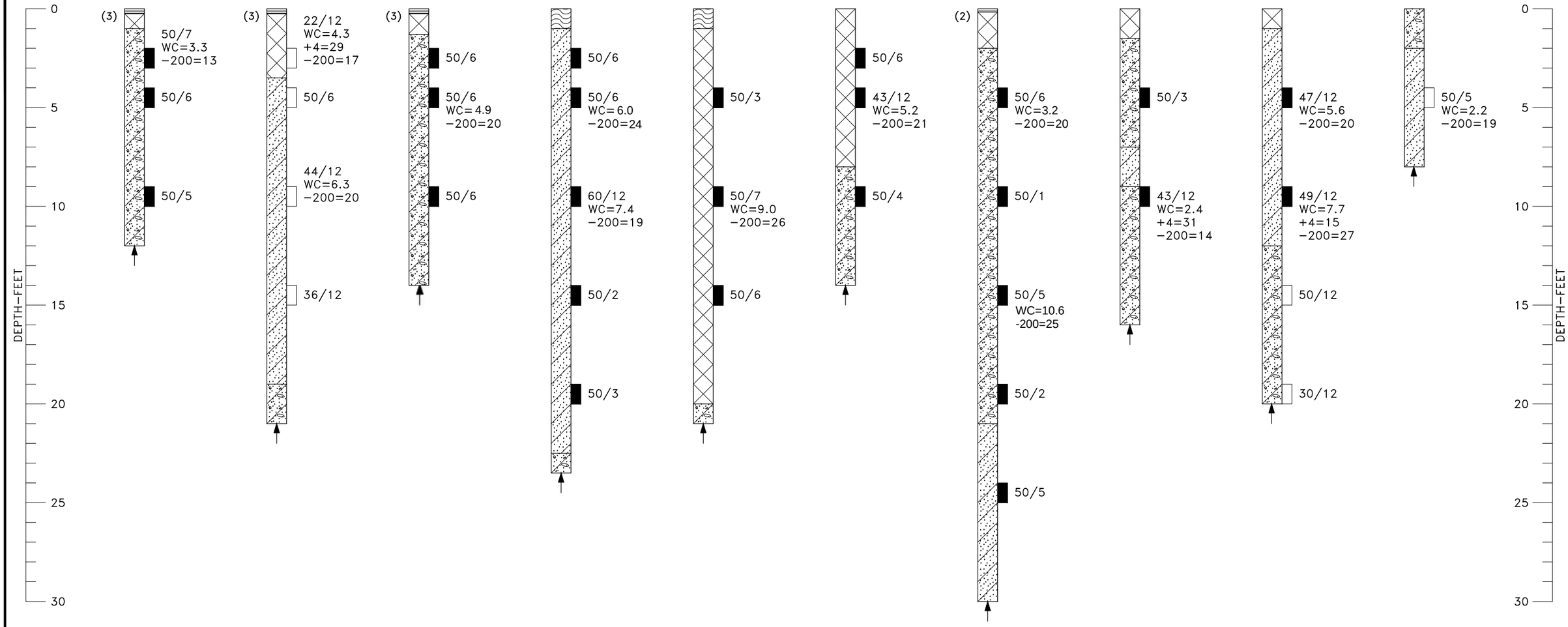
This report has been prepared for the exclusive use by our client for preliminary planning and design purposes. We are not responsible for technical interpretations by others of our information. As the project evolves, we should provide continued consultation and field services during construction to review and monitor the implementation of our recommendations, and to verify that the recommendations have been appropriately interpreted.

The recommendations contained in this report are contingent upon review of final building plans, as well as grading and excavation plans prepared by a civil engineer licensed in the State of Colorado. Review of project plans may alter our recommendations.



* No Scale

22–6–160.01	Kumar and Associates	VICINITY MAP	Fig. 1



22-6-160.01	Kumar & Associates	PROPOSED WINTER PARK MASTER PLAN PHASE I	LOGS OF EXPLORATORY BORINGS	Fig. 3

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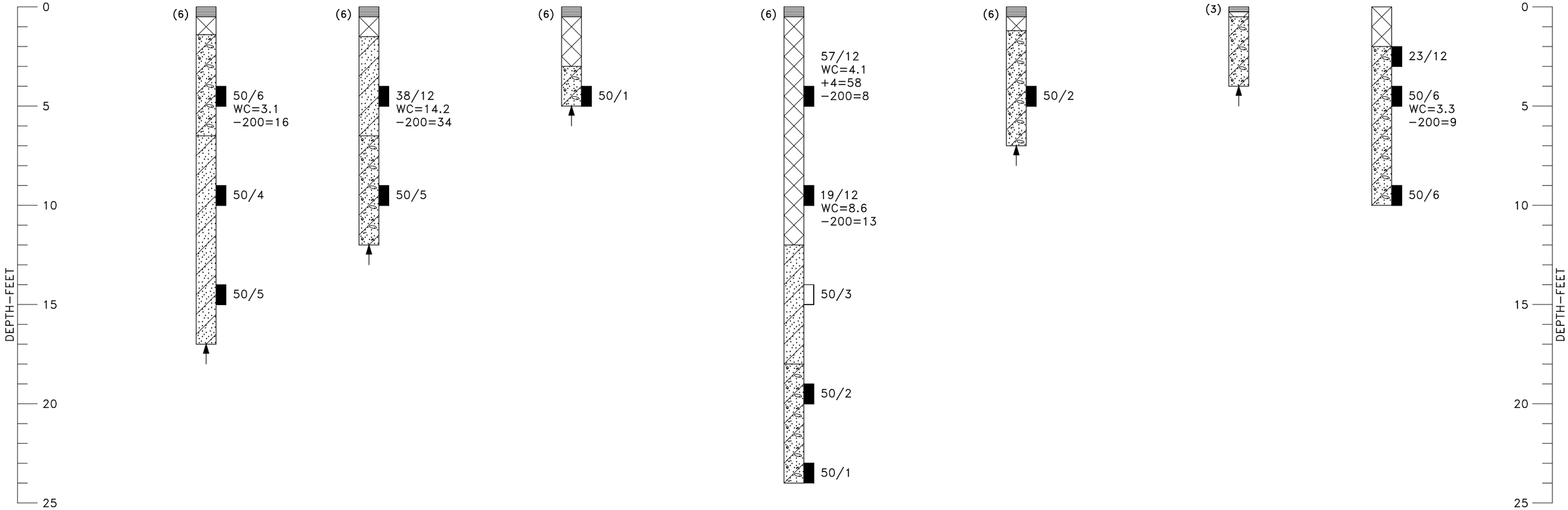

22-6-160.01	Kumar & Associates	PROPOSED WINTER PARK MASTER PLAN PHASE I	LOGS OF EXPLORATORY BORINGS	Fig. 4

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LEGEND

(3) ASPHALT, THICKNESS IN INCHES SHOWN IN PARENTHESES TO LEFT OF THE LOG.

TOPSOIL; SILTY SAND AND GRAVEL WITH ORGANICS, MOIST, DARK BROWN.

FILL: SILTY SAND, GRAVEL, AND COBBLES, WITH SCATTERED BOULDERS AND SCATTERED DEBRIS, TYPICALLY MEDIUM DENSE, MOIST, BROWN.

SILTY SAND (SM); WITH GRAVEL, COBBLES, AND SCATTERED BOULDERS, MEDIUM DENSE TO VERY DENSE, MOIST, BROWN.

SILTY GRAVEL (GM); WITH SAND, COBBLES, AND BOULDERS, MEDIUM DENSE TO VERY DENSE, MOIST, BROWN.

DRIVE SAMPLE, 2-INCH I.D. CALIFORNIA LINER SAMPLE.

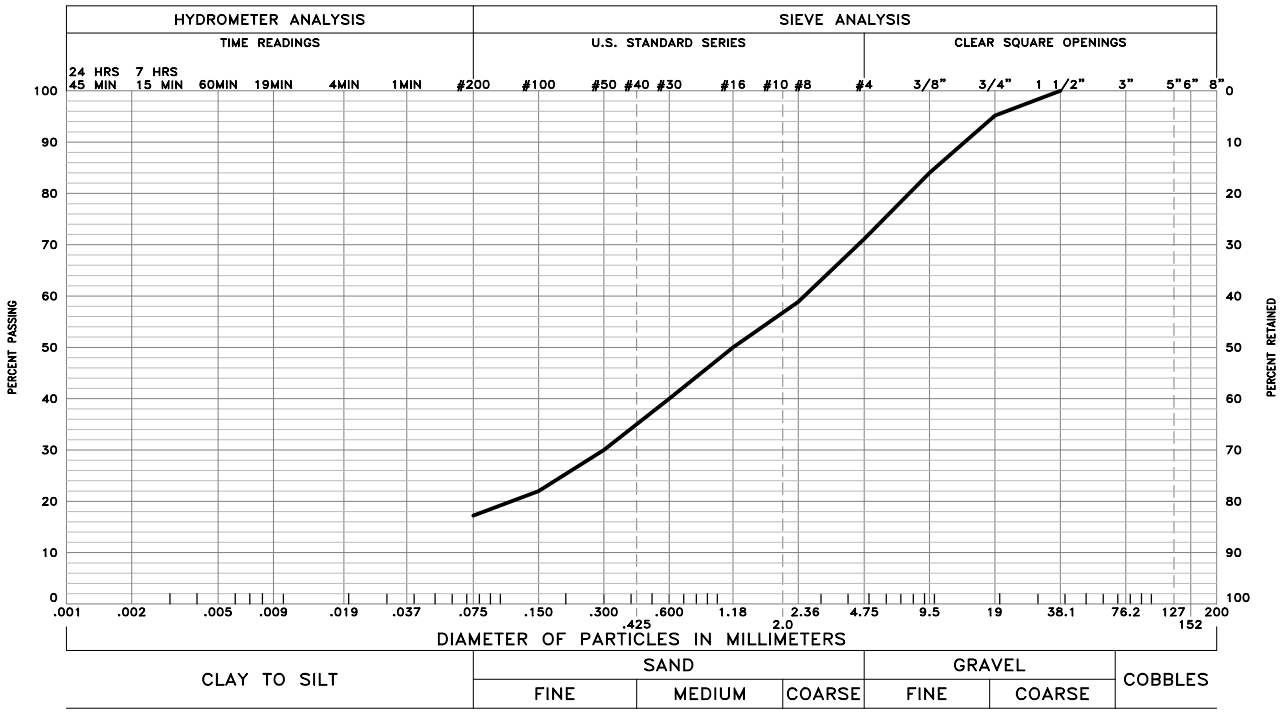
DRIVE SAMPLE, 1 3/8-INCH I.D. SPLIT SPOON STANDARD PENETRATION TEST.

50/7 DRIVE SAMPLE BLOW COUNT. INDICATES THAT 50 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE THE SAMPLER 7 INCHES.

PRACTICAL AUGER REFUSAL.

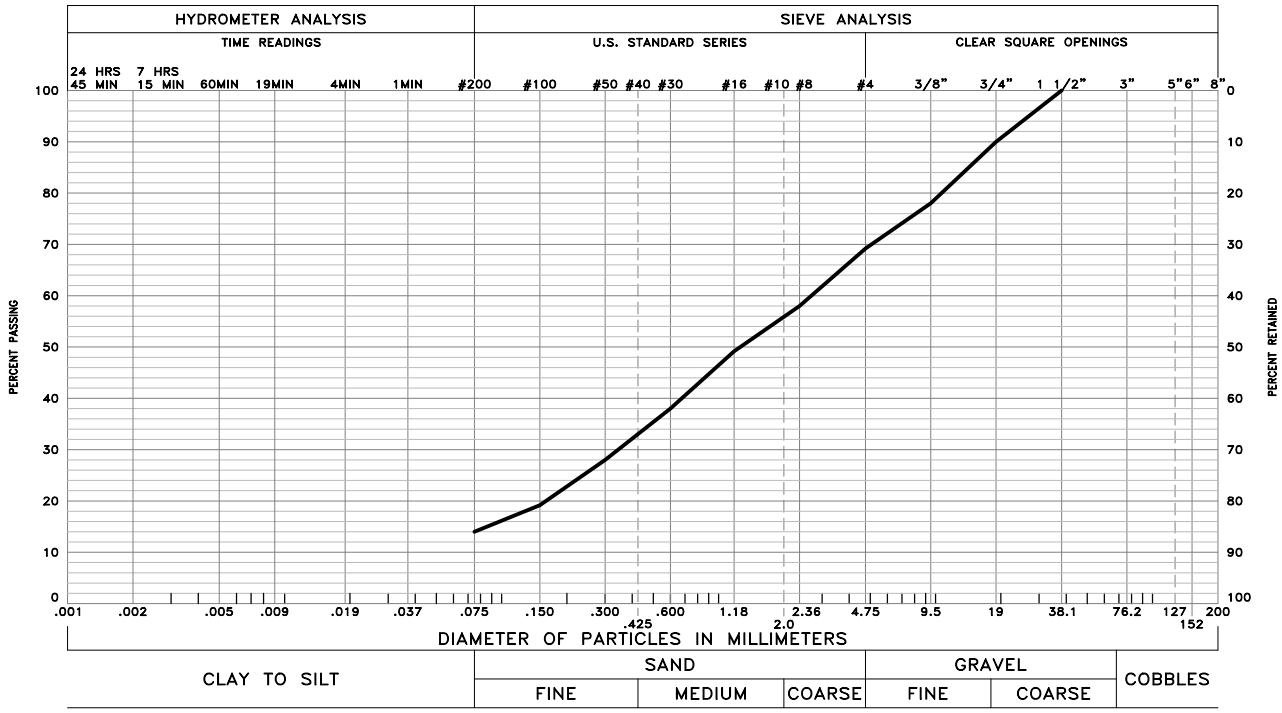
NOTES

1. THE EXPLORATORY BORINGS WERE DRILLED ON SEPTEMBER 28 AND 29 AND OCTOBER 24 AND 25, 2022 WITH A 4-INCH-DIAMETER CONTINUOUS-FLIGHT POWER AUGER.
2. THE LOCATIONS OF THE EXPLORATORY BORINGS WERE MEASURED APPROXIMATELY BY PACING FROM FEATURES SHOWN ON THE SITE PLAN PROVIDED.
3. THE ELEVATIONS OF THE EXPLORATORY BORINGS WERE NOT MEASURED AND THE LOGS OF THE EXPLORATORY BORINGS ARE PLOTTED TO DEPTH.
4. THE EXPLORATORY BORING LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
5. THE LINES BETWEEN MATERIALS SHOWN ON THE EXPLORATORY BORING LOGS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES AND THE TRANSITIONS MAY BE GRADUAL.
6. GROUNDWATER WAS NOT ENCOUNTERED IN THE BORINGS AT THE TIME OF DRILLING.
7. LABORATORY TEST RESULTS:
   WC = WATER CONTENT (%) (ASTM D2216);
   +4 = PERCENTAGE RETAINED ON NO. 4 SIEVE (ASTM D6913);
   -200= PERCENTAGE PASSING NO. 200 SIEVE (ASTM D1140).



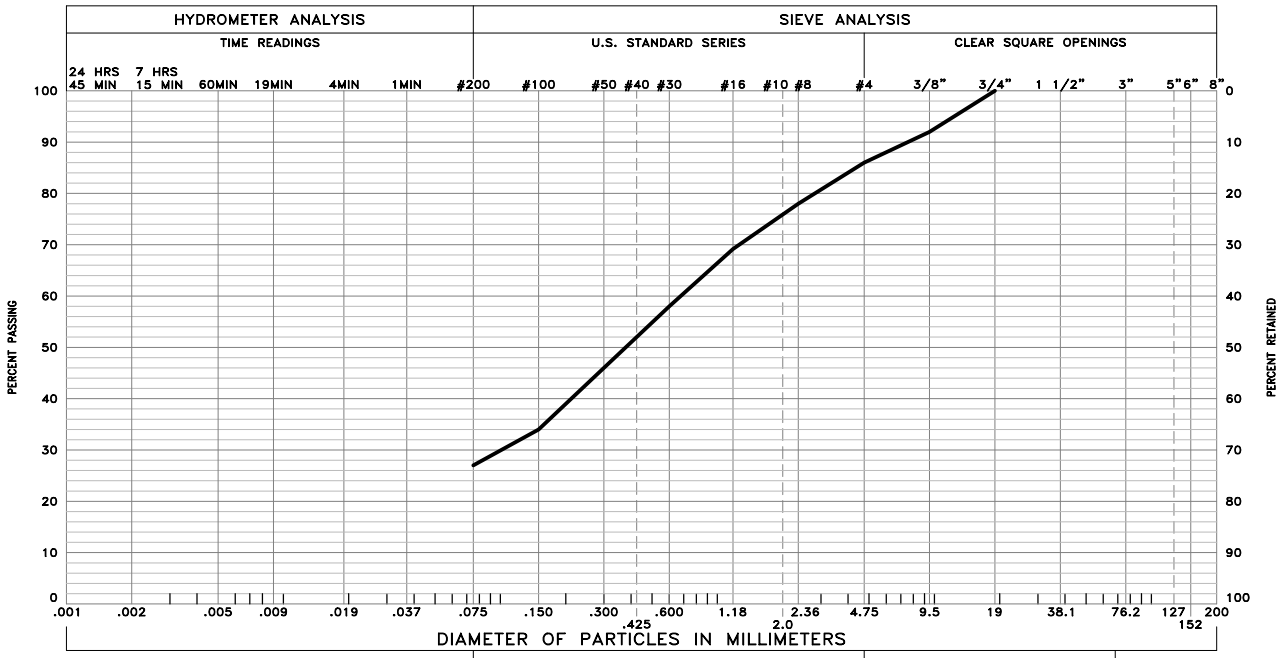
GRAVEL 29 % SAND 54 % SILT AND CLAY 17 %

SAMPLE OF: Silty Sand with Gravel FROM: Boring 2 @ 2'



GRAVEL 31 % SAND 55 % SILT AND CLAY 14 %

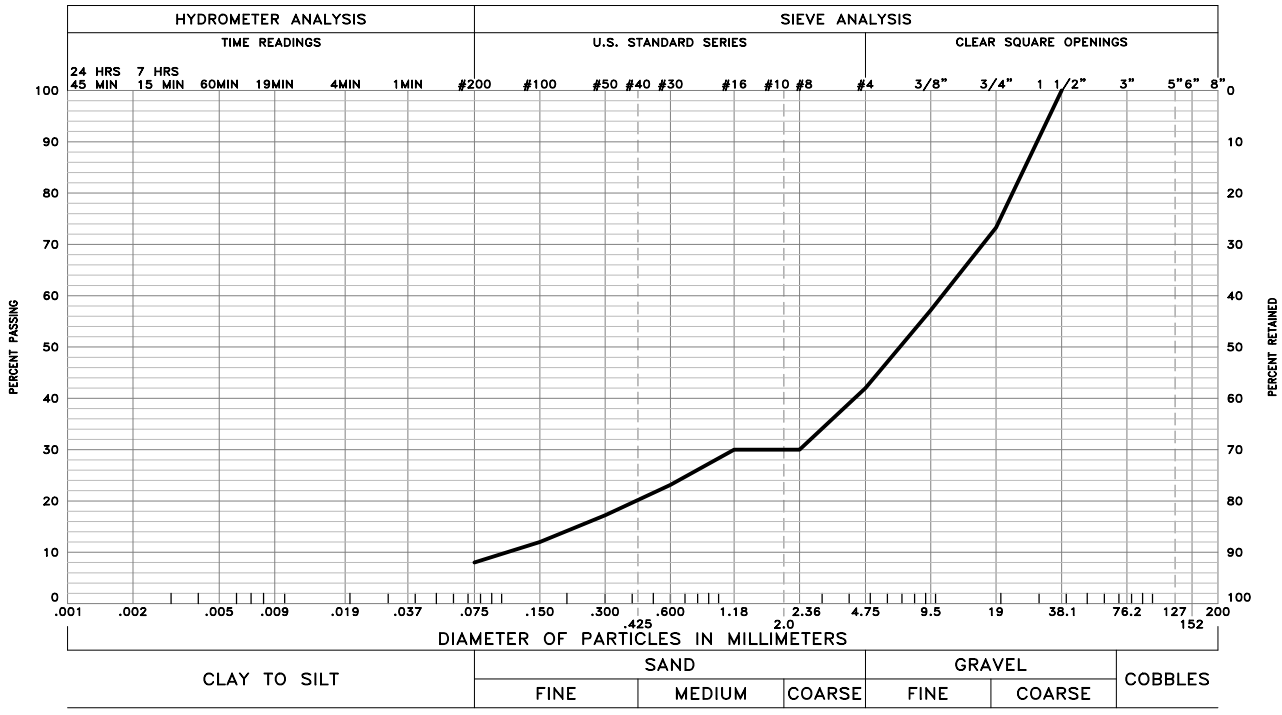
SAMPLE OF: Silty Sand with Gravel FROM: Boring 8 @ 9'



GRAVEL 15 % SAND 58 % SILT AND CLAY 27 %

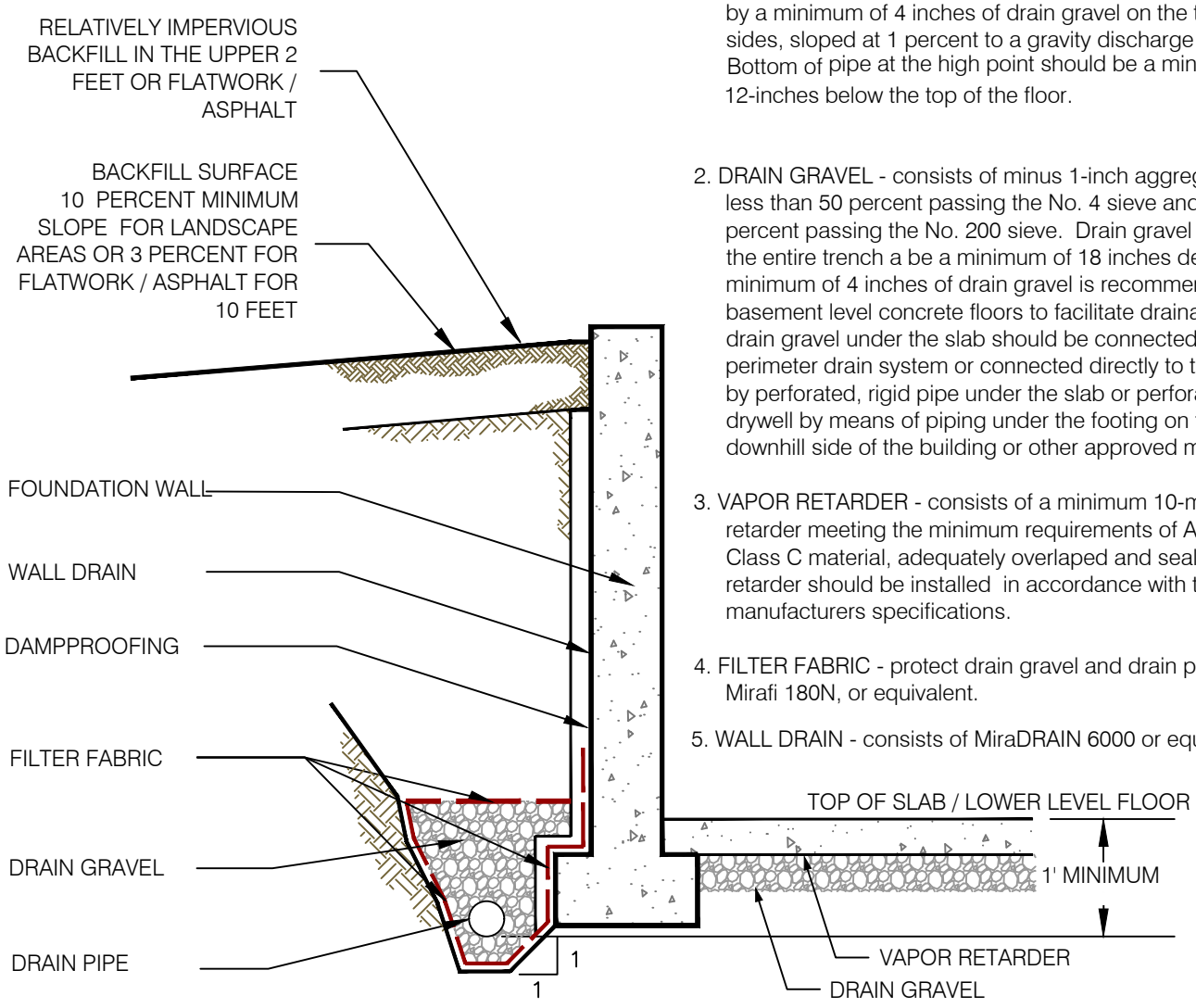
LIQUID LIMIT

SAMPLE OF: Silty Sand with Gravel FROM: Boring 9 @ 9'



GRAVEL 58 % SAND 34 % SILT AND CLAY 8 %

SAMPLE OF: Fill: Well Graded Silty Gravel with Sand FROM: Boring 14 @ 4'



1. DRAIN PIPE - consists of 4-inch perforated PVC, surrounded by a minimum of 4 inches of drain gravel on the top and sides, sloped at 1 percent to a gravity discharge or drywell. Bottom of pipe at the high point should be a minimum of 12-inches below the top of the floor.

2. DRAIN GRAVEL - consists of minus 1-inch aggregate with less than 50 percent passing the No. 4 sieve and less than 2 percent passing the No. 200 sieve. Drain gravel should fill the entire trench a be a minimum of 18 inches deep. A minimum of 4 inches of drain gravel is recommended under basement level concrete floors to facilitate drainage. The drain gravel under the slab should be connected to the perimeter drain system or connected directly to the drywell by perforated, rigid pipe under the slab or perforation in the drywell by means of piping under the footing on the downhill side of the building or other approved method.

3. VAPOR RETARDER - consists of a minimum 10-mil vapor retarder meeting the minimum requirements of ASTM E1745 Class C material, adequately overlaped and sealed. Vapor retarder should be installed in accordance with the manufacturers specifications.

4. FILTER FABRIC - protect drain gravel and drain pipe with Mirafi 180N, or equivalent.

5. WALL DRAIN - consists of MiraDRAIN 6000 or equivalent.

NOT TO SCALE

22-6-160.01	Kumar & Associates	TYPICAL DRAIN DETAIL	FIG. 8

Kumar & Associates

JOB NO: 22-6-160.01
JOB NAME: PROPOSED WINTER PARK MASTER PLAN PHASE I

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

SAMPLE LOCATION		NATURAL MOISTURE CONTENT	NATURAL DRY UNIT WEIGHT	GRADATION			ATTERBERG LIMITS		SWELL-COMPRESSION		HVEEM STABILOMETER	WATER SOLUBLE SULFATES	pH	SOIL OR BEDROCK DESCRIPTION
BORING (#)	DEPTH (feet)	(%)	(pcf)	GRAVEL (%)	SAND (%)	SILT & CLAY (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SWELL (%)	SUR-CHARGE (psf)	(R-VALUE)	(%)	()	
1	2	3.3				13								SILTY GRAVEL WITH SAND
2	2	4.3		29	54	17								FILL: SILTY SAND WITH GRAVEL
	9	6.3				20								SILTY SAND WITH GRAVEL
3	4	4.9				20								SILTY GRAVEL WITH SAND
4	4	6.0				24								SILTY SAND WITH GRAVEL
	9	7.4				19								SILTY SAND WITH GRAVEL
5	9	9.0				26								FILL: SILTY GRAVEL WITH SAND
6	4	5.2				21								FILL: SILTY GRAVEL WITH SAND
7	4	3.2				20								SILTY GRAVEL WITH SAND
	14	10.6				25								SILTY GRAVEL WITH SAND
8	9	2.4		31	55	14								SILTY GRAVEL WITH SAND

Kumar & Associates

JOB NO: 22-6-160
JOB NAME: PROPOSED WINTER PARK CORE DEVELOPMENT TABLE 1 PAGE 2

SUMMARY OF LABORATORY TEST RESULTS

SAMPLE LOCATION		NATURAL MOISTURE CONTENT	NATURAL DRY UNIT WEIGHT	GRADATION			ATTERBERG LIMITS		SWELL-COMPRESSION		HVEEM STABILOMETER	WATER SOLUBLE SULFATES	pH	SOIL OR BEDROCK DESCRIPTION
BORING (#)	DEPTH (feet)	(%)	(pcf)	GRAVEL (%)	SAND (%)	SILT & CLAY (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SWELL (%)	SUR-CHARGE (psf)	(R-VALUE)	(%)	()	
9	4	5.6				20								SILTY SAND WITH GRAVEL
	9	7.7		15	58	27								SILTY SAND WITH GRAVEL
10	4	2.2				19								SILTY SAND WITH GRAVEL
11	4	3.1				16								SILTY GRAVEL WITH SAND
12	4	14.2				34								SILTY SAND WITH GRAVEL
14	4	4.1		58	34	8								FILL: WELL GRADED SILTY GRAVEL WITH SAND
	9	8.6				13								FILL: SILTY GRAVEL WITH SAND
17	4	3.3				9								WELL GRADED SILTY GRAVEL WITH SAND

APPENDIX A

WINTER PARK CORE GEOTECHNICAL ENGINEERING STUDY REPORT DATA

PROJECT NO. 05-1-390

DATED: OCTOBER 11, 2005

BORING 1
EL. 9132

BORING 2
EL. 9125

BUILDING 1

BORING 3
EL. 9129

BORING 4
EL. 9118

BORING 5
EL. 9130

BORING 6
EL. 9126

BORING 7
EL. 9121

BORING 8
EL. 9122

BORING 9
EL. 9105

VILLAGE CORE

ELEVATION–FEET

DEPTH–FEET

9135
9130
9125
9120
9115
9110
9105
9100
9095

0
5
10
15
20
25
30
35
40

APPROX. LOWER FLOOR LEVEL

50/2
WC=6.4
+4=53
−200=13
A−1−a (0)

18/12

5/12
WC=37.7
+4=16
−200=43
LL=50
PI=20
Org=8.3

17/12

19/12

17/12
WC=44.8
−200=57
WSS=0.02

BOUNCE

66/12
WC=8.4
+4=48
−200=11

48/12

56/12

50/6

11/12

11/12

7/12
+4=35
−200=10

4/12
WC=86.3
−200=37
LL=45
PI=14
Org=12.2

5/12

43/12

18/12

23/12

45/12

50/3

50/5

WC=46.9
−200=36
LL=59
PI=6
WSS=0.02
Org=11.0
A−4 (0)

WC=10.3
+4=4
−200=33
LL=24
PI=7
Org=2.6
RES=450
A−2−4 (0)

(4)

18/12

26/12
WC=9.5
+4=23
−200=22
LL=21
NP
WSS<0.02

50/3

50/6
WC=7.4
+4=49
−200=12
LL=19
PI=1

50/1

24/12

14/12
WC=9.9
+4=30
−200=18
NV
NP
A−1−b (0)

50/6

BOUNCE

11/12
WC=11.1
DD=122.7
+4=23
−200=23
A−1−b (0)

42/12
WC=6.4
DD=144.1
+4=51
−200=7

52/12
WC=12.0
+4=11
−200=23
WSS=0.02
A−1−b (0)

41/12

46/12
WC=8.0
DD=127.4
+4=60
−200=8

31/12

7/12
WC=9.2
+4=40
−200=16
A−1−b (0)

50/6

25/12
WC=9.6
+4=47
−200=10

57/12

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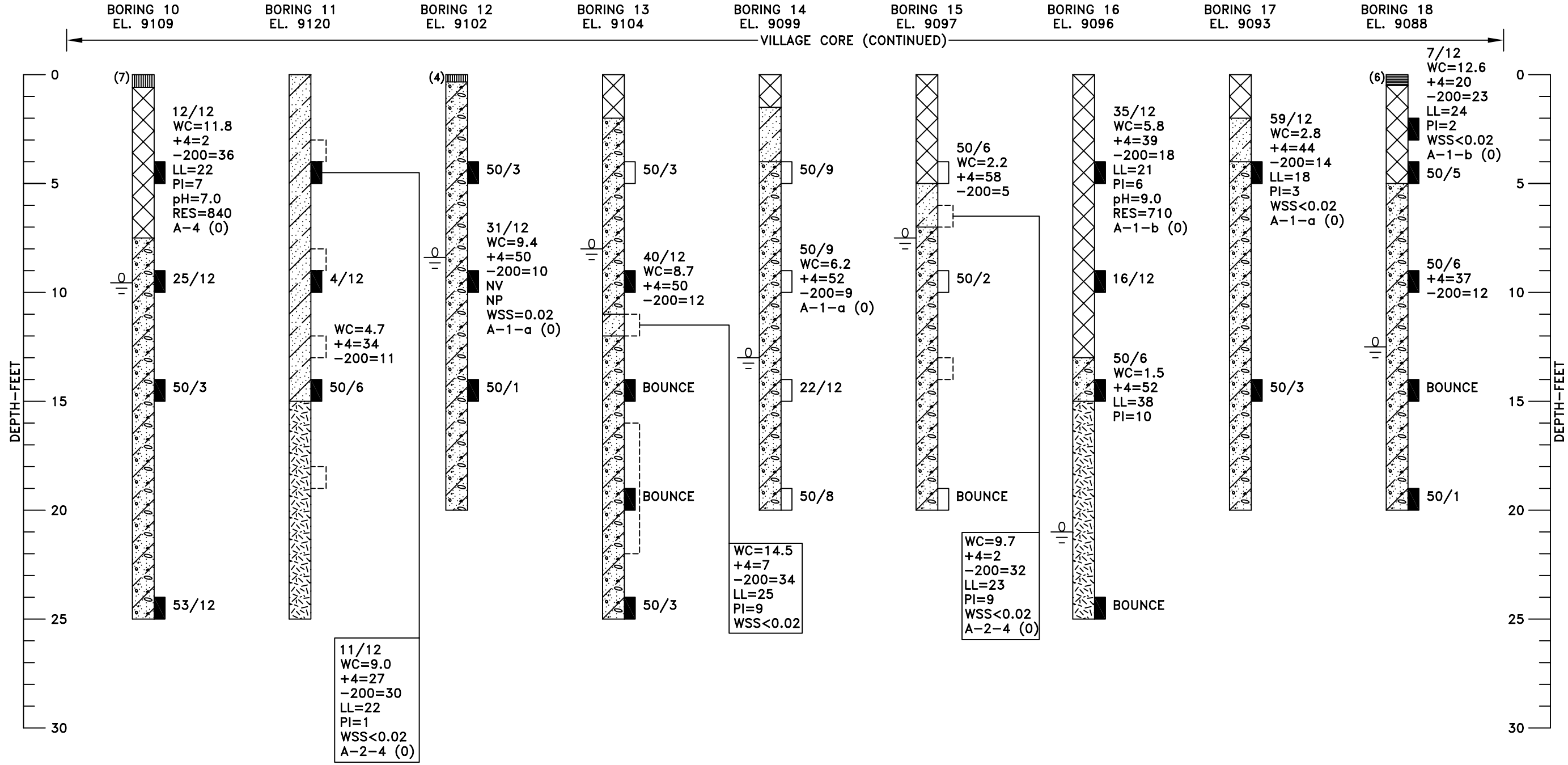
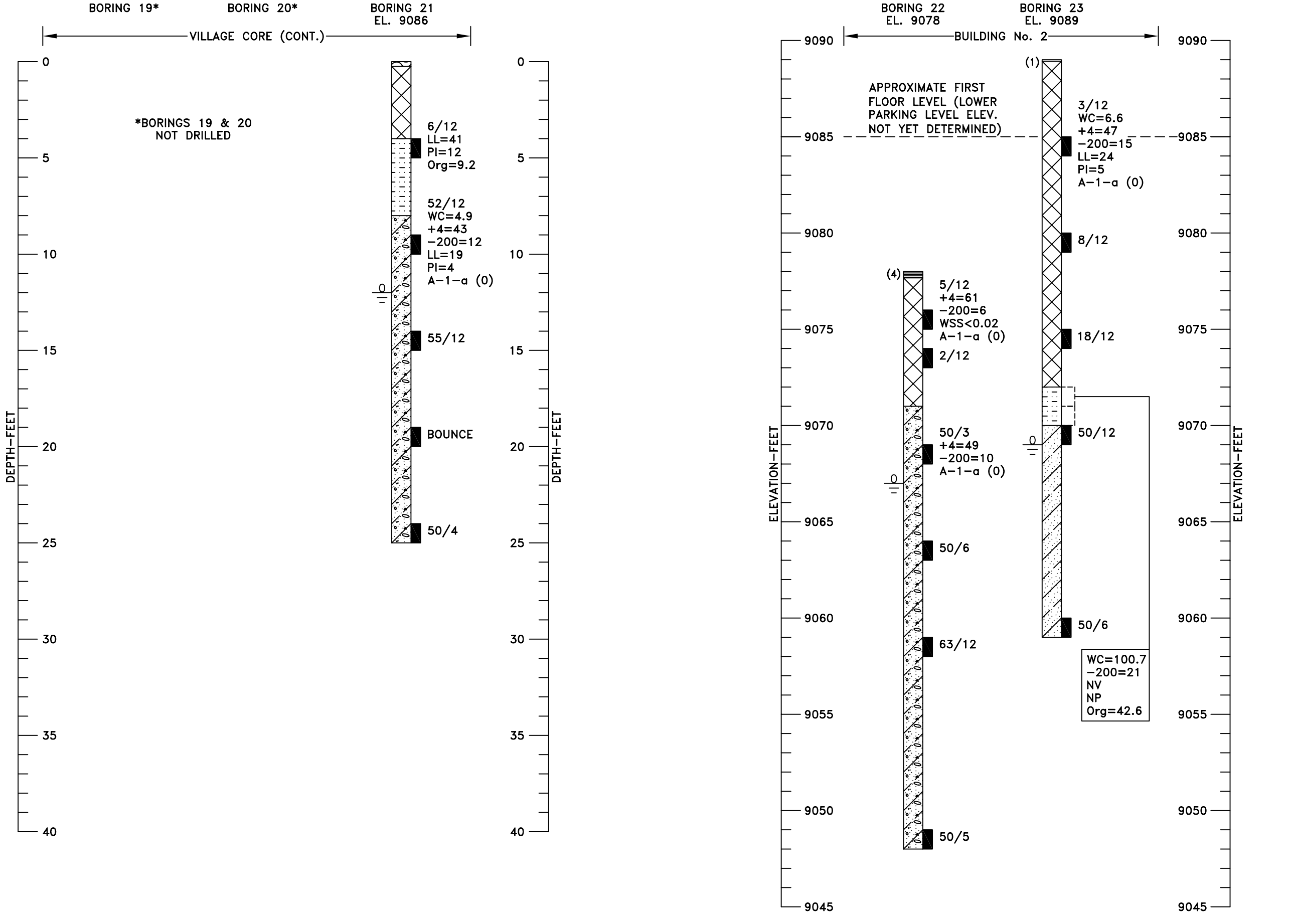
05−1−390	Kumar & Associates	WINTER PARK VILLAGE CORE AND FUTURE RESIDENTIAL DEVELOPMENT	LOGS OF EXPLORATORY BORING − VILLAGE CORE	Fig. 4

VILLAGE CORE (CONTINUED)



05−1−390	Kumar & Associates	WINTER PARK VILLAGE CORE AND FUTURE RESIDENTIAL DEVELOPMENT	LOGS OF EXPLORATORY BORINGS − VILLAGE CORE	Fig. 5



05−1−390	Kumar & Associates	WINTER PARK VILLAGE CORE AND FUTURE RESIDENTIAL DEVELOPMENT	LOGS OF EXPLORATORY BORINGS − VILLAGE CORE	Fig. 6

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05-1-390

Kumar & Associates

WINTER PARK VILLAGE CORE AND FUTURE RESIDENTIAL DEVELOPMENT

LOGS OF EXPLORATORY BORINGS - VILLAGE CORE

Fig. 7

BORING 24 EL. 9102 | BORING 24A EL. 9073 | BORING 25 EL. 9118 | BORING 26 EL. 9106 | BORING 26A EL. 9088 | BORING 27 EL. 9118

BUILDING No. 3

ELEVATION-FEET

9120, 9115, 9110, 9105, 9100, 9095, 9090, 9085, 9080, 9075, 9070, 9065, 9060, 6055, 6050

BORING 24
- 5/12 WC=4.3 +4=36 −200=14 LL=19 PI=1 WSS<0.02
- 10/12
- 14/12 WC=7.2 +4=37 −200=18 LL=21 PI=3
- 21/12
- 50/7

BORING 24A
- (4)
- 22/12 WC=12.6 +4=38 −200=15 LL=21 PI=1
- 24/12
- BOUNCE
- BOUNCE
- BOUNCE

BORING 25
- 28/12 WC=6.4 +4=23 −200=23 LL=20 PI=3
- 18/12
- 24/12
- 31/12
- 29/12 WC=10.1 +4=19 −200=28 LL=19 PI=3

APPROXIMATE RANGE OF LOWER FLOOR LEVELS

BORING 26
- 20/12
- 27/12 WC=1.9 +4=59 −200=11
- 13/12
- 50/3

BORING 26A
- (4)
- 47/12
- 17/12
- WC=23.8 −200=45 LL=22 PI=4
- 6/12
- 50/7 WC=8.7 +4=53 −200=12 LL=21 PI=2
- BOUNCE

BORING 27
- (3)
- BOUNCE
- 6/12
- WC=15.3 −200=54 LL=25 PI=9 WSS<0.02
- 50/6
- 50/1
- 13/12 WC=7.8 +4=38 −200=17 LL=19 PI=2
- 44/12

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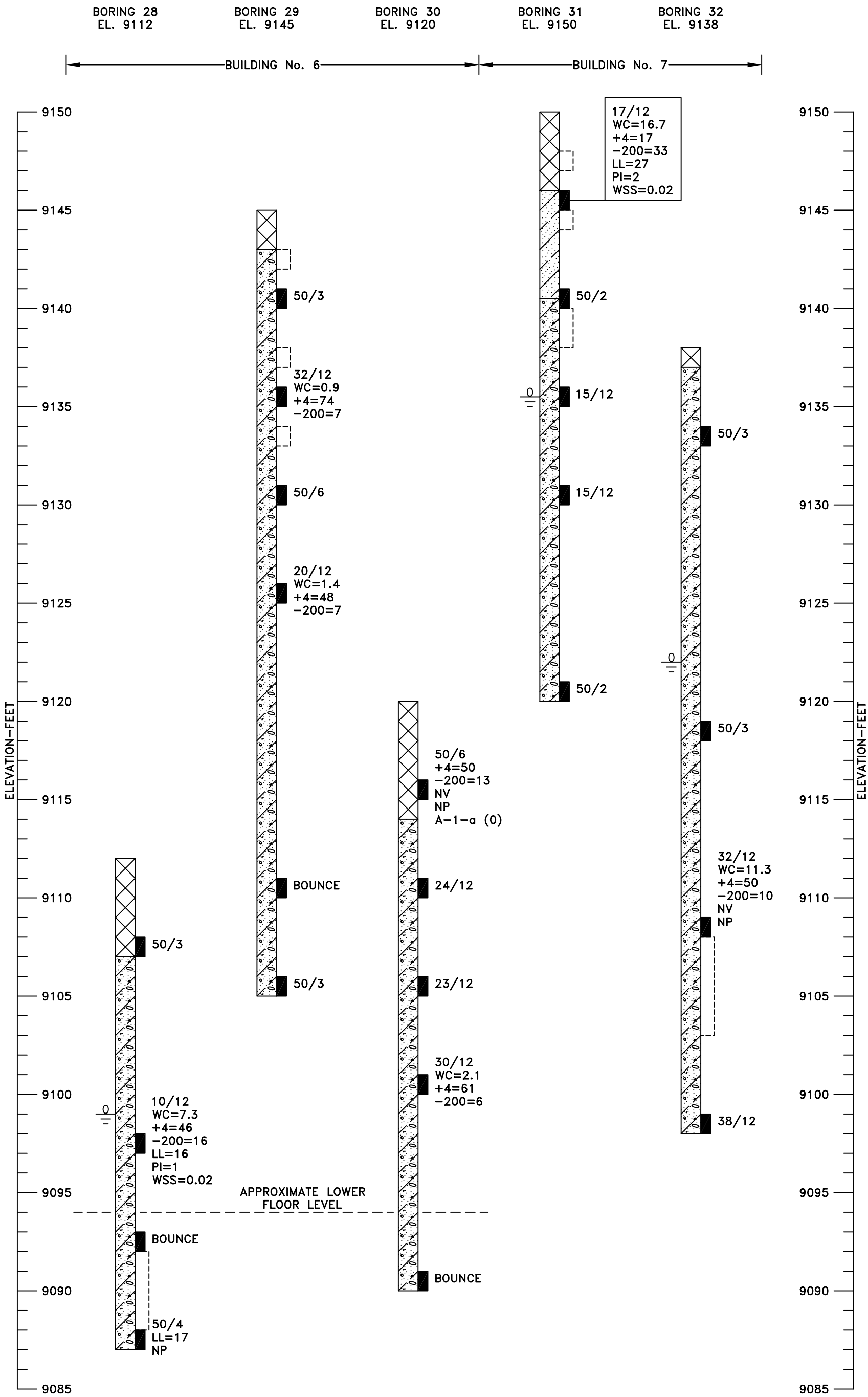
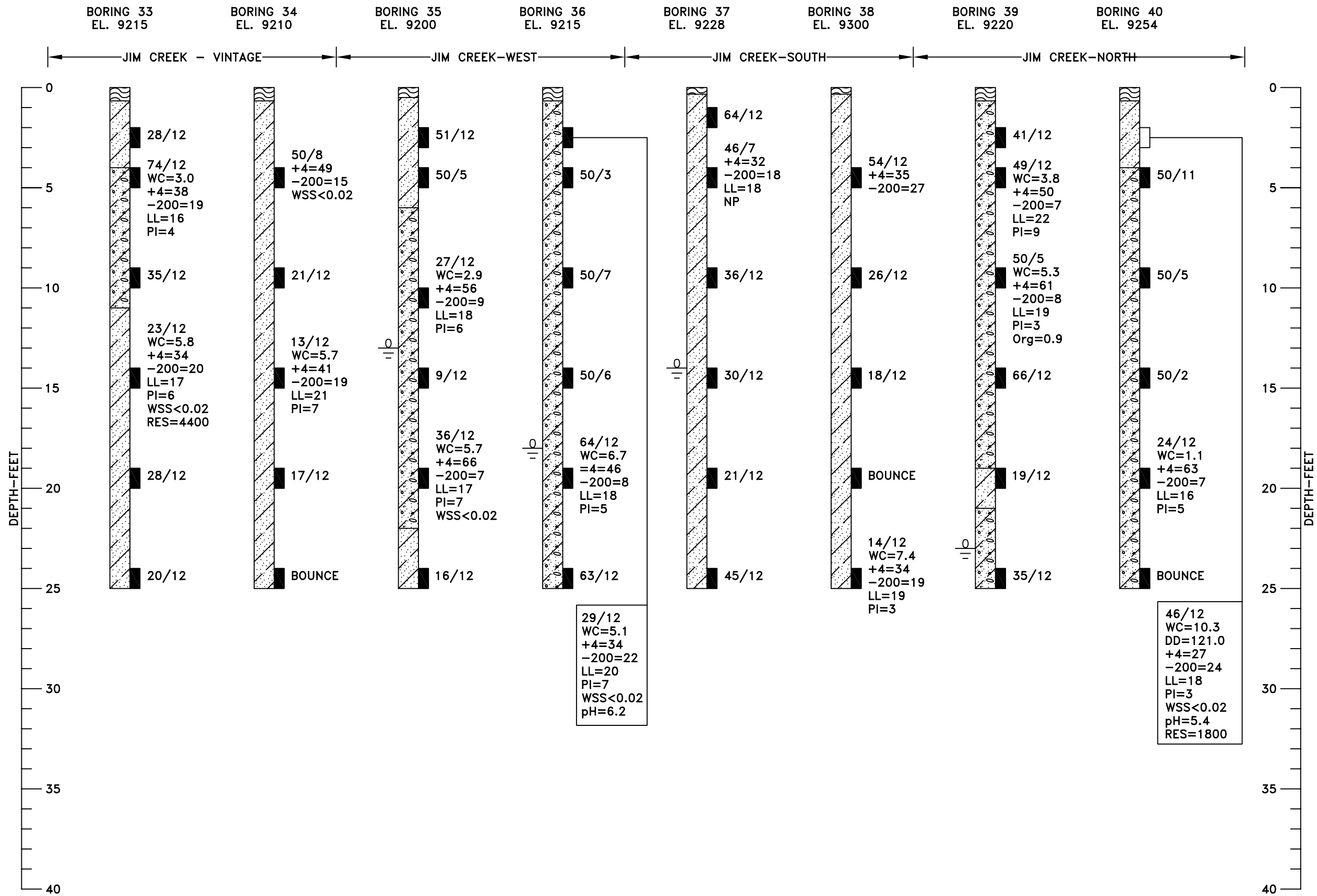
Kumar & Associates

WINTER PARK VILLAGE CORE AND FUTURE RESIDENTIAL DEVELOPMENT

LOGS OF EXPLORATORY BORINGS - VILLAGE CORE

Fig. 8





05–1–390	Kumar & Associates	WINTER PARK VILLAGE CORE AND FUTURE RESIDENTIAL DEVELOPMENT	LOGS OF EXPLORATORY BORINGS – FUTURE RESIDENTIAL DEVELOPMENT	Fig. 9

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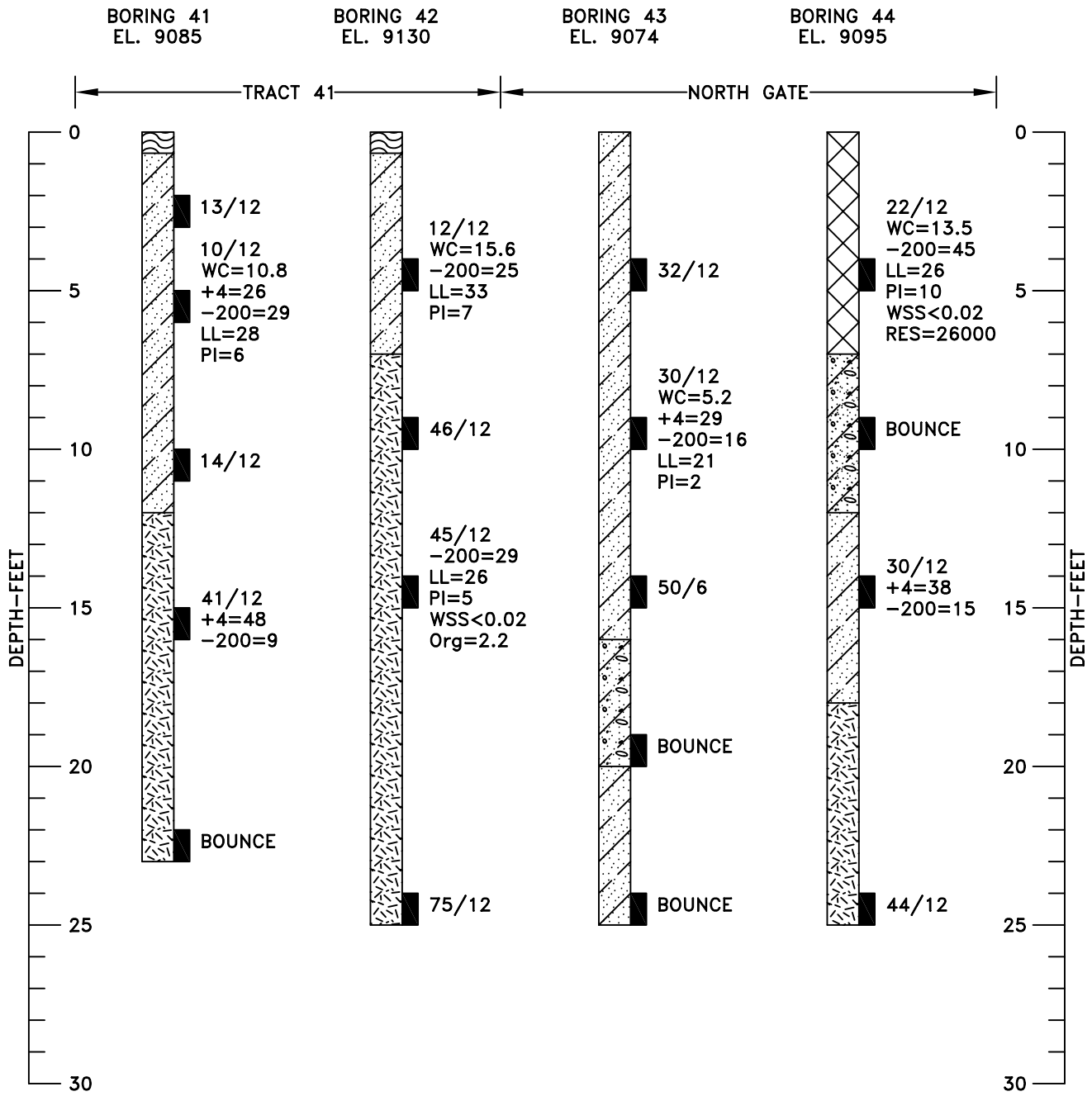
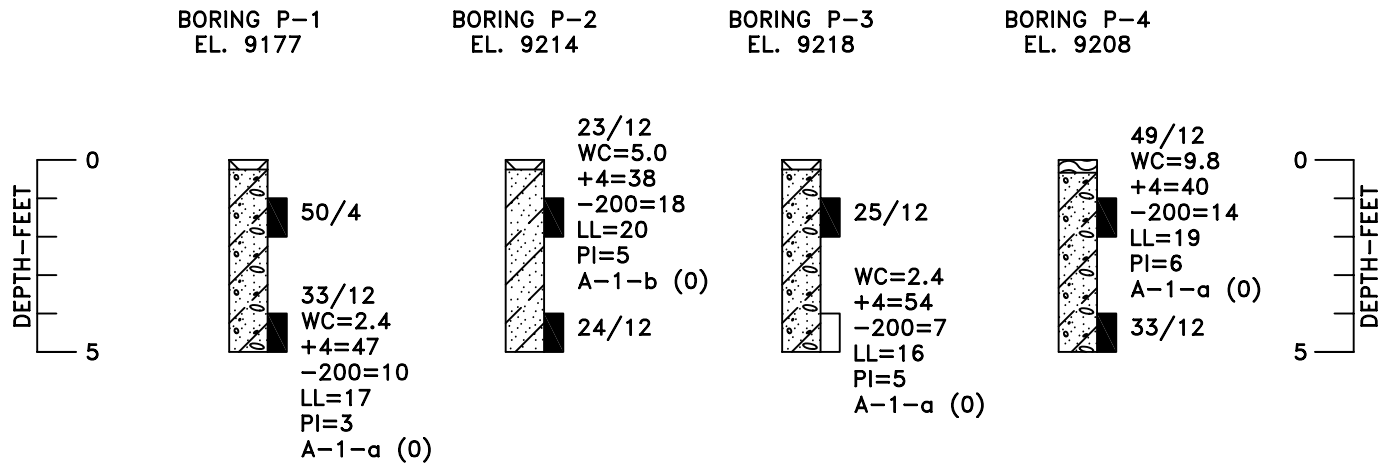




05-1-390	Kumar & Associates	WINTER PARK VILLAGE CORE AND FUTURE RESIDENTIAL DEVELOPMENT	LOGS OF EXPLORATORY BORINGS – FUTURE RESIDENTIAL DEVELOPMENT

Fig. 10

LEGEND

(4) ASPHALT, THICKNESS IN INCHES SHOWN IN PARENTHESES TO LEFT OF THE LOG.

(7) CONCRETE, THICKNESS IN INCHES SHOWN IN PARENTHESES TO LEFT OF THE LOG.

FILL: CLAYEY/SILTY SAND AND GRAVEL, OCCASIONAL TO FREQUENT COBBLES AND BOULDERS, DRY TO WET, LIGHT-GRAY TO BROWN TO DARK GRAY, OCCASIONAL TIMBER AND OTHER CONSTRUCTION DEBRIS.

TOPSOIL: CLAYEY TO SILTY SAND AND GRAVEL WITH ORGANICS.

ORGANIC CLAY, SILT AND PEAT, MOIST TO VERY MOIST, DARK BROWN TO BROWNISH-BLACK, FIBROUS PEAT.

POORLY GRADED GRAVEL WITH SILT, CLAY AND SAND (GP-GC, GP-GM), CLAYEY GRAVEL WITH SAND (GC), AND SILTY GRAVEL WITH SAND (GM), OCCASIONAL TO FREQUENT COBBLES AND BOULDERS, MEDIUM DENSE TO VERY DENSE, DRY TO WET, LIGHT-GRAY TO BROWN TO DARK GRAY.

POORLY GRADED SAND WITH CLAY, SILT AND GRAVELS (SP-SC, SP-SM), CLAYEY SAND WITH GRAVEL (SC) AND SILTY SAND WITH GRAVEL (SM), OCCASIONALLY SILTY AND OCCASIONAL TO FREQUENT COBBLES AND BOULDERS, LOOSE TO VERY DENSE, DRY TO WET, LIGHT BROWN TO DARK BROWN TO DARK GRAY.

LEAN CLAY WITH SAND TO SANDY LEAN CLAY (CL), MEDIUM STIFF TO STIFF, MOIST TO WET, BROWN, OCCASIONAL ORGANIC MATERIAL.

BEDROCK, GRANITIC TO GNEISSIC, WHITE TO DARK BROWN-GRAY.

DRIVE SAMPLE, 2-INCH I.D. CALIFORNIA LINER SAMPLE.

DRIVE SAMPLE, 1 3/8-INCH I.D. SPLIT SPOON STANDARD PENETRATION TEST.

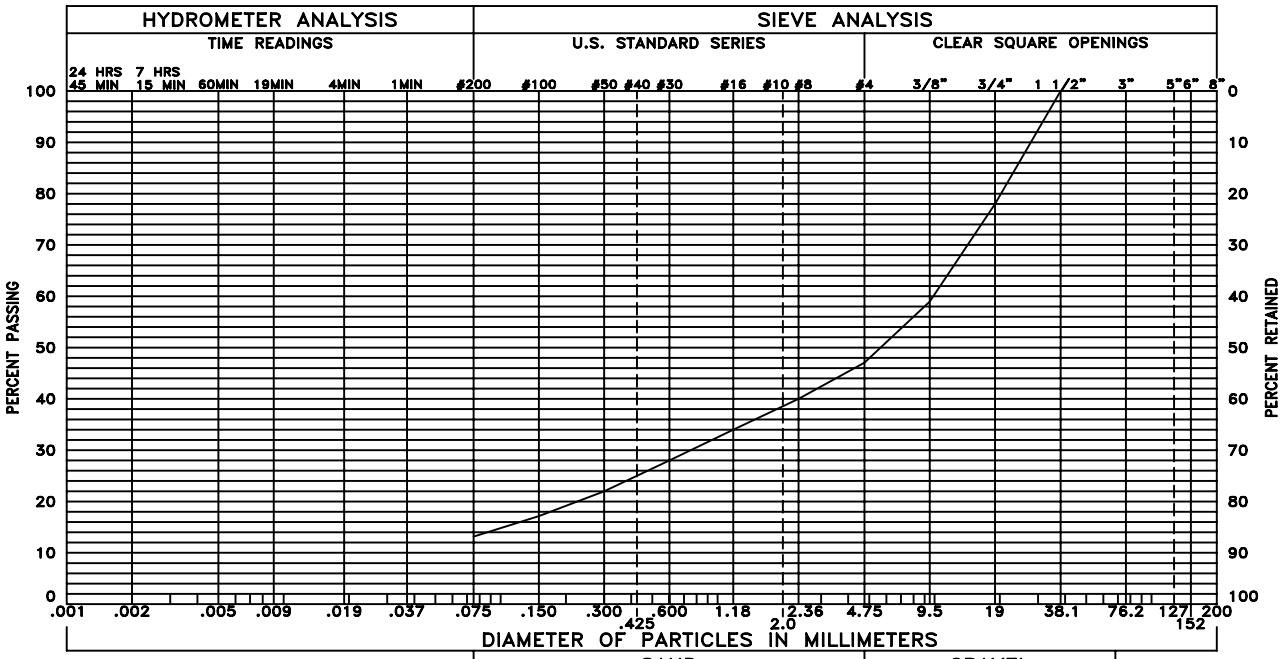
18/12 DRIVE SAMPLE BLOW COUNT. INDICATES THAT 18 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE THE SAMPLER 12 INCHES.

DISTURBED BULK SAMPLE.

DEPTH TO WATER LEVEL ENCOUNTERED AT THE TIME OF DRILLING.

NOTES

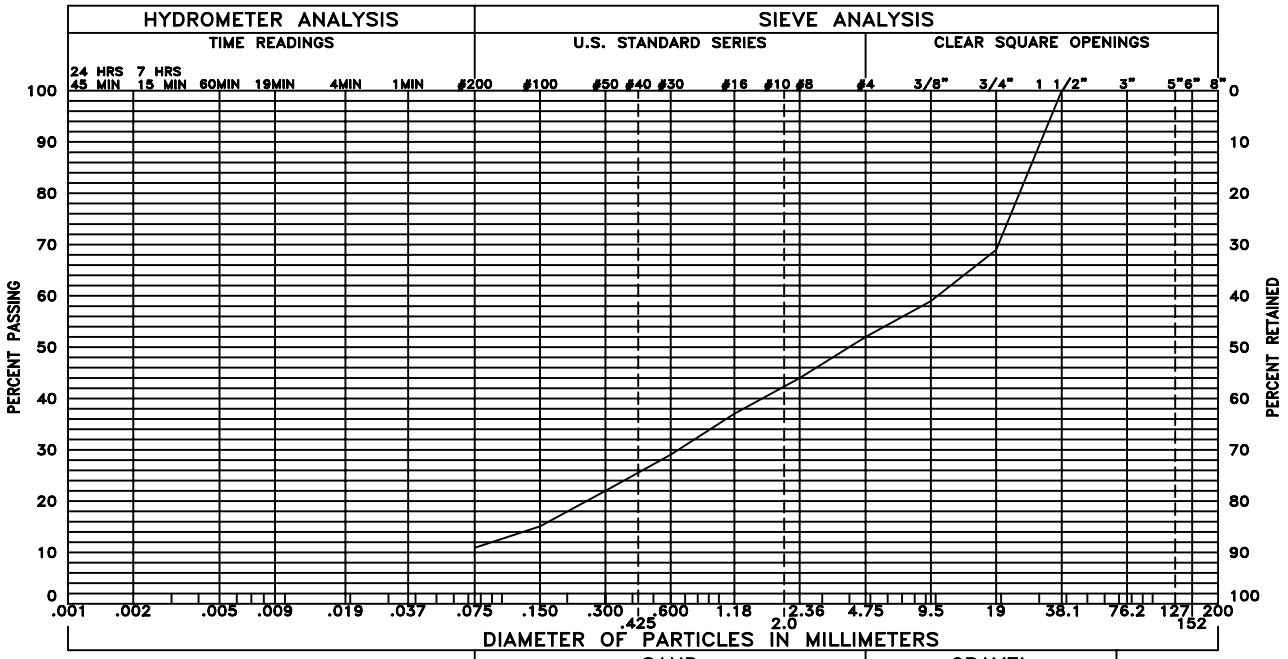
1. THE EXPLORATORY BORINGS WERE DRILLED ON AUGUST 8, 2005 THROUGH AUGUST 29, 2005 WITH A 6-INCH DIAMETER TUBEX PERCUSSION DRILLING SYSTEM.
2. THE LOCATIONS OF THE EXPLORATORY BORINGS WERE STAKED IN THE FIELD BY MARTIN & MARTIN AT THE DIRECTION OF THE CLIENT.
3. THE ELEVATIONS OF THE EXPLORATORY BORINGS WERE INTERPOLATED FROM ELEVATIONS SHOWN ON THE CONTOUR PLAN PROVIDED BY THE CLIENT.
4. THE EXPLORATORY BORING LOCATIONS AND ELEVATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
5. THE LINES BETWEEN MATERIALS SHOWN ON THE EXPLORATORY BORING LOGS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES AND THE TRANSITIONS MAY BE GRADUAL.
6. GROUND WATER LEVELS SHOWN ON THE LOGS WERE MEASURED AT THE TIME AND UNDER CONDITIONS INDICATED. FLUCTUATIONS IN THE WATER LEVEL MAY OCCUR WITH TIME.
7. LABORATORY TEST RESULTS:
   WC = WATER CONTENT (%) (ASTM D 2216);
   DD = DRY DENSITY (pcf) (ASTM D 2216);
   +4 = PERCENTAGE RETAINED ON NO. 4 SIEVE (ASTM D 422);
   -200 = PERCENTAGE PASSING NO. 200 SIEVE (ASTM D 1140);
   LL = LIQUID LIMIT (ASTM D 4318);
   PI = PLASTICITY INDEX (ASTM D 4318);
   NP = NON-PLASTIC (ASTM D 4318);
   RES = MINIMUM LABORATORY RESISTIVITY (ohm-cm.) (AASHTO T 288);
   WSS = WATER SOLUBLE SULFATES (%) (HACH METHOD);
   pH = HYDROGEN ION CONCENTRATION (pH UNITS) (HACH METHOD);
   Org = ORGANIC CONTENT (%) (AASHTO T 267);
   A-1-a (0) = AASHTO CLASSIFICATION (GROUP INDEX).



GRAVEL 53% SAND 34% SILT AND CLAY 13%

LIQUID LIMIT PLASTICITY INDEX

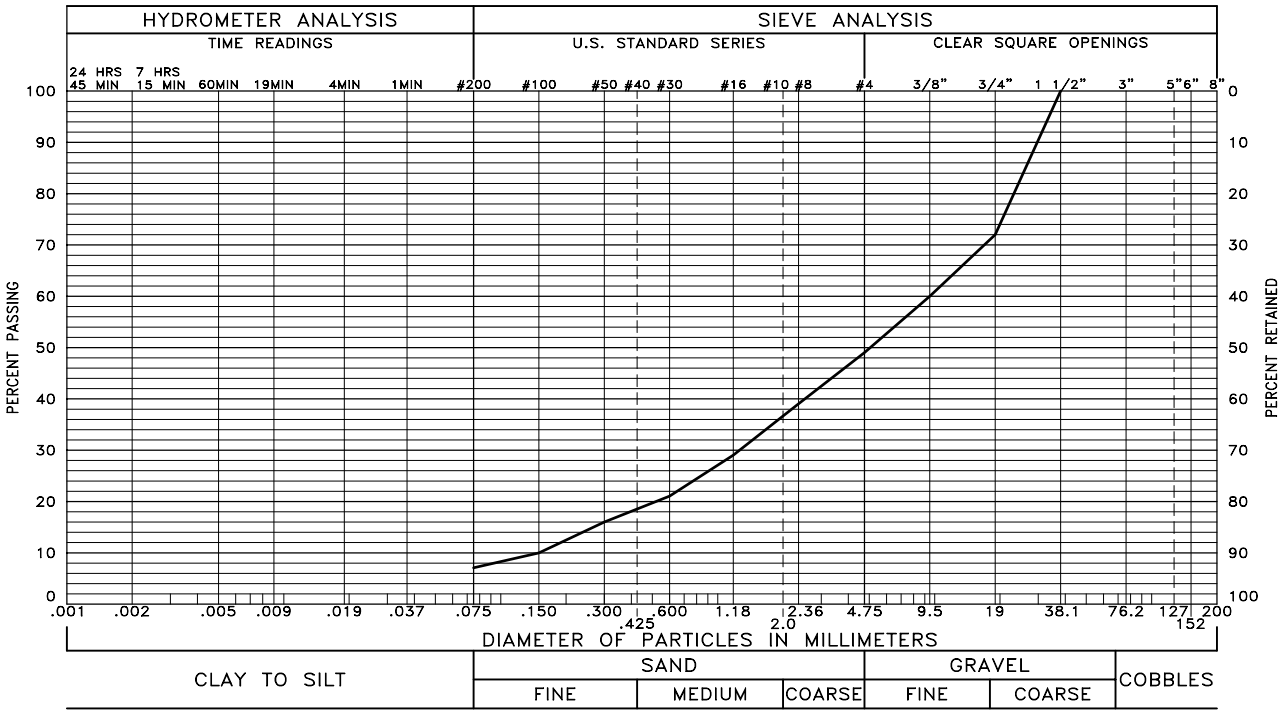
SAMPLE OF: Silty Gravel wtih Sand (GM) FROM: Boring 1 @ 3'



GRAVEL 48% SAND 41% SILT AND CLAY 11%

LIQUID LIMIT PLASTICITY INDEX

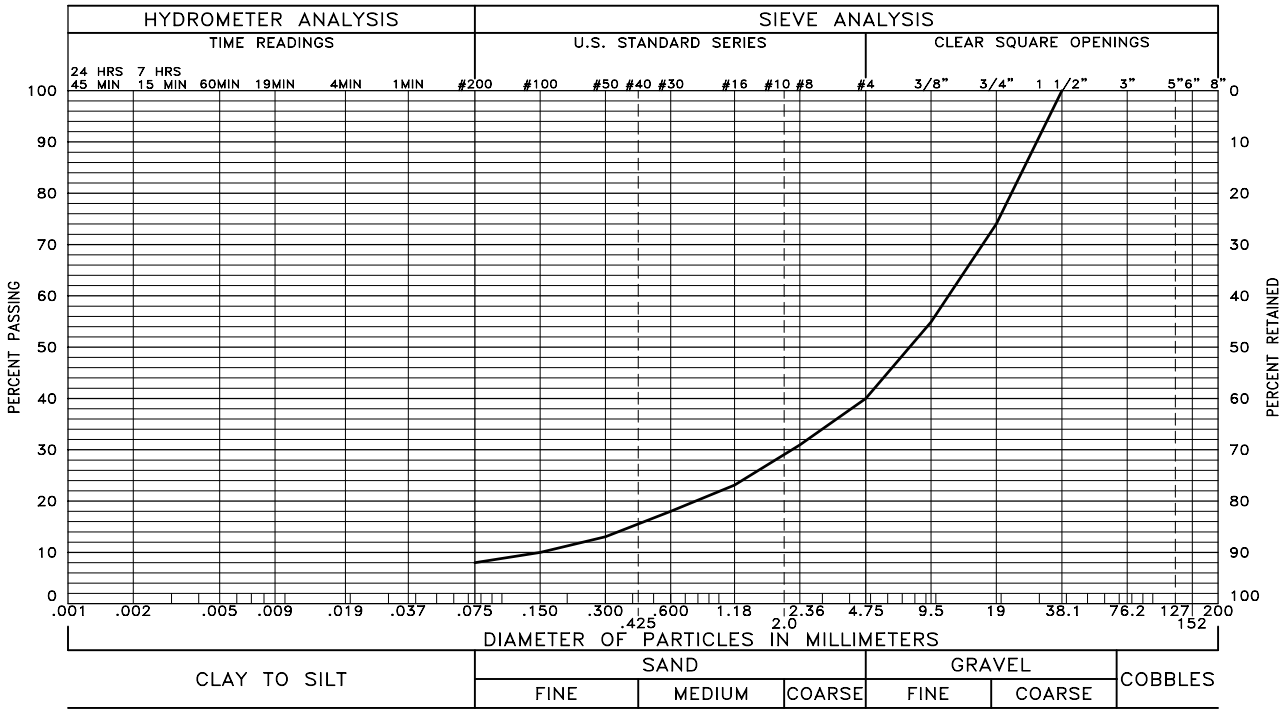
SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 2 @ 14'



GRAVEL 51% SAND 42% SILT AND CLAY 7%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly–Graded Gravel with Silt and Sand (GP–GM) FROM: Boring 7 @ 14'

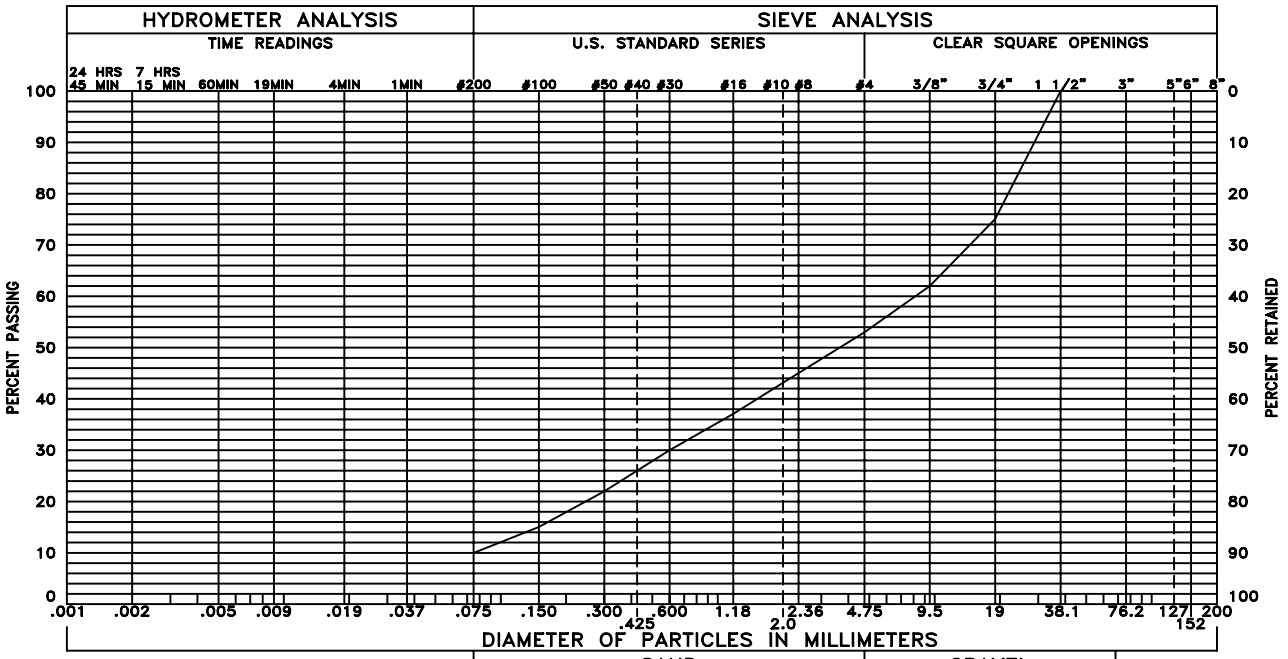


GRAVEL 60% SAND 32% SILT AND CLAY 8%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly–Graded Gravel wtih Silt and Sand (GP–GM) FROM: Boring 8 @ 14'

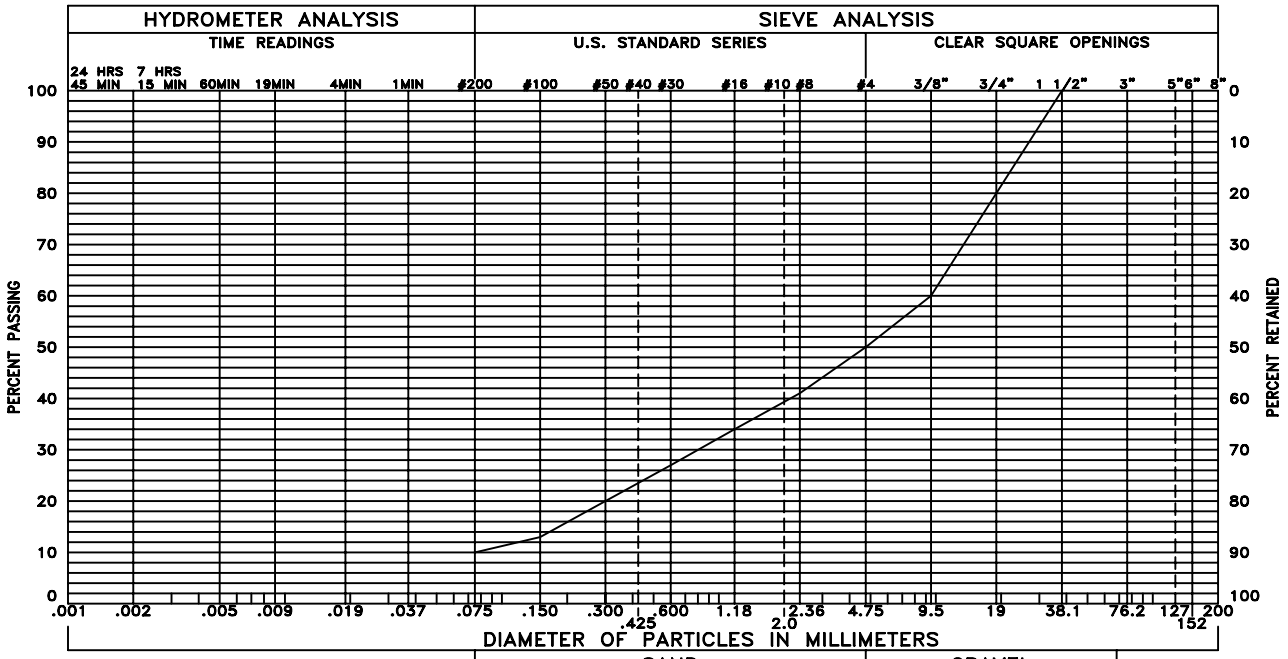
05–1–390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 13



GRAVEL 47% SAND 43% SILT AND CLAY 10%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 9 @ 19'



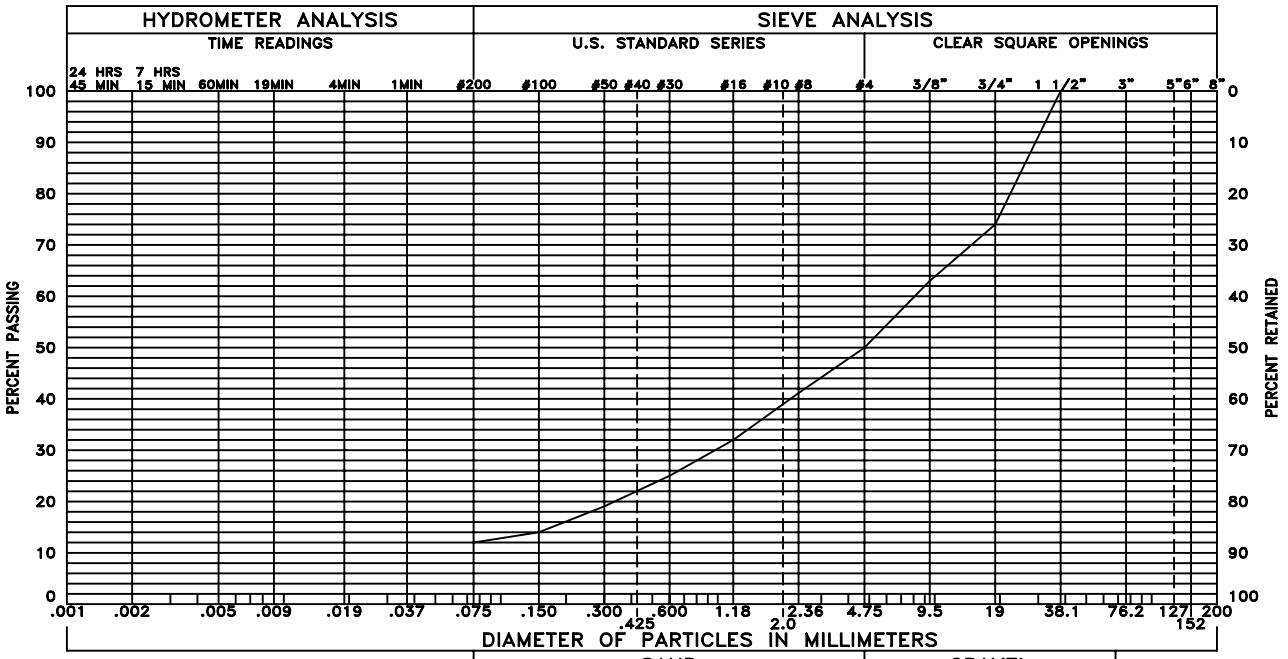
GRAVEL 50% SAND 40% SILT AND CLAY 10%

LIQUID LIMIT NV PLASTICITY INDEX NP

SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 12 @ 9'

These test results apply only to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. Sieve analysis testing is performed in accordance with ASTM D422, ASTM C136 and/or ASTM D1140.

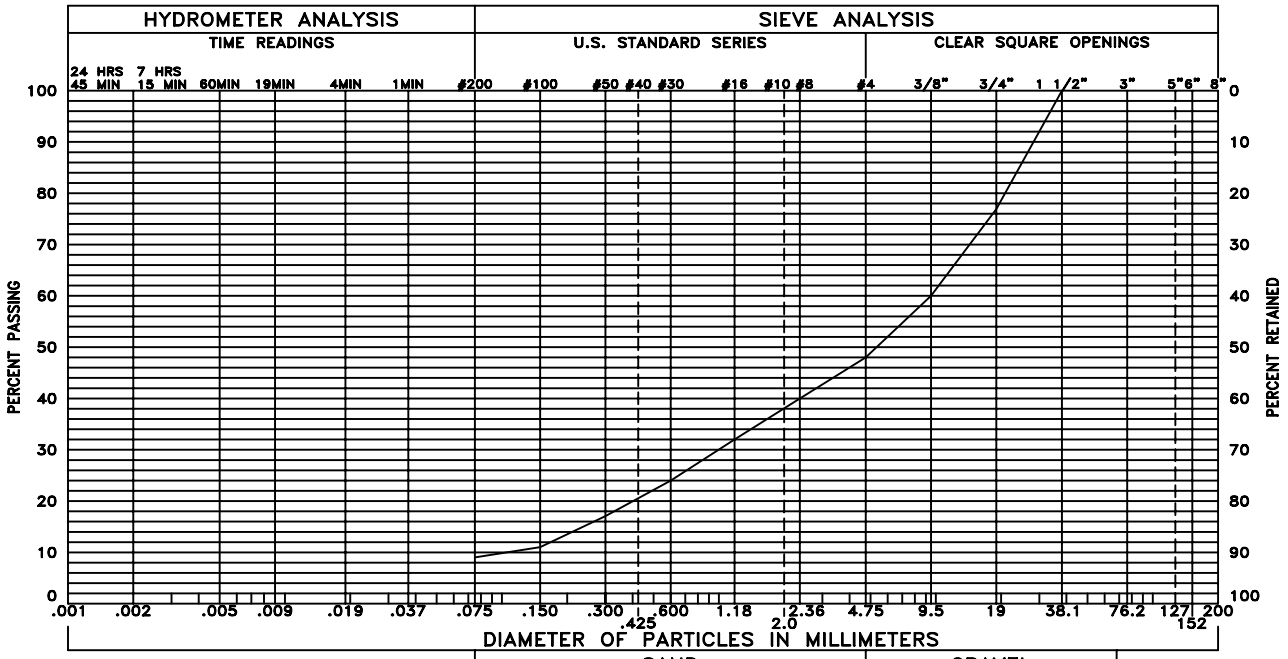
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 14



GRAVEL 50% SAND 38% SILT AND CLAY 12%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 13 @ 9'

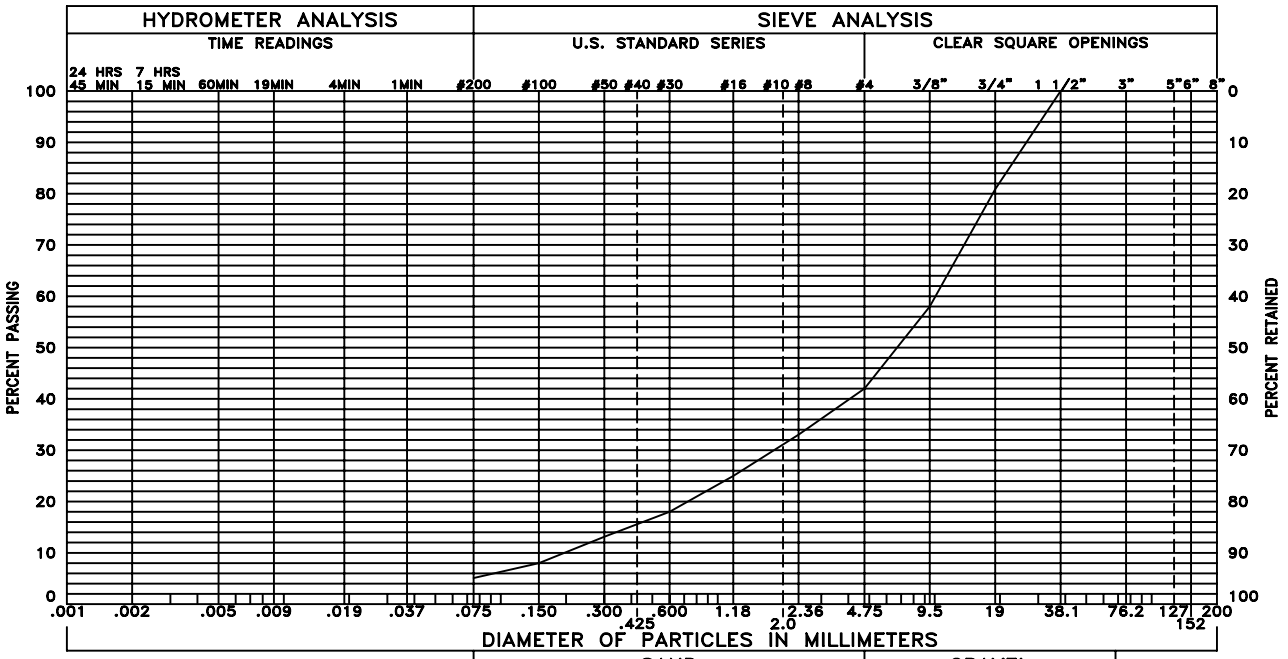


GRAVEL 52% SAND 39% SILT AND CLAY 9%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel with Silt and Sand (gp-GM) FROM: Boring 14 @ 9'

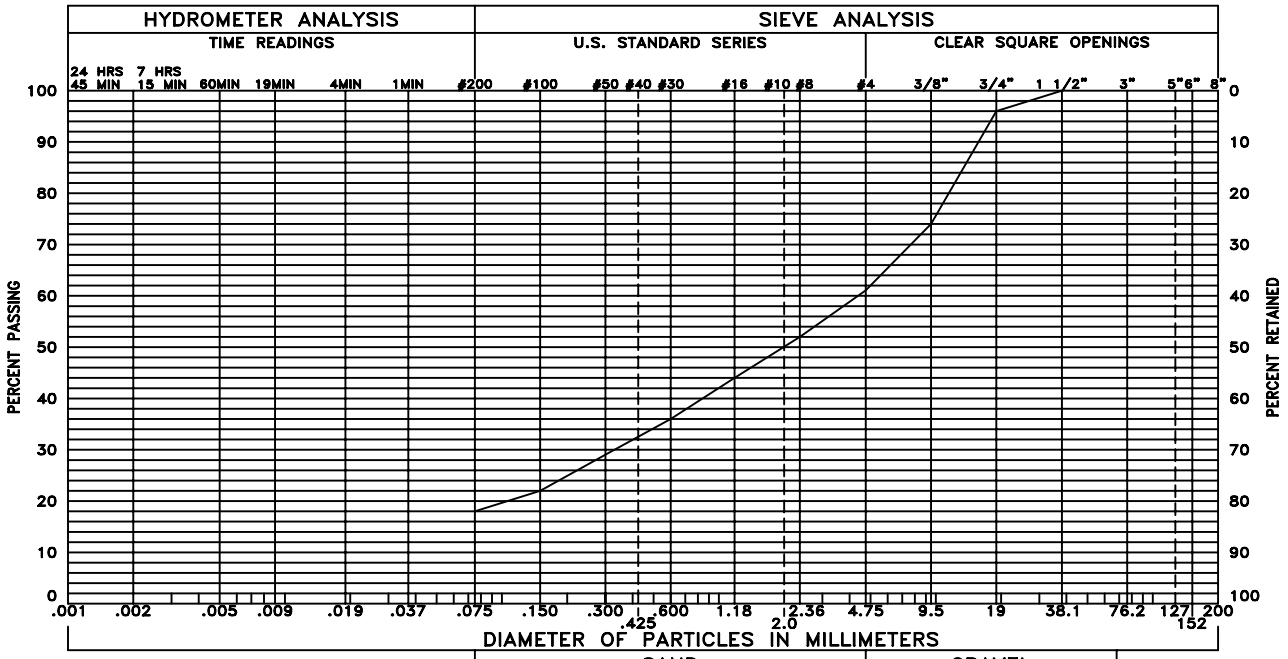
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 15



GRAVEL 58% SAND 37% SILT AND CLAY 5%

LIQUID LIMIT PLASTICITY INDEX

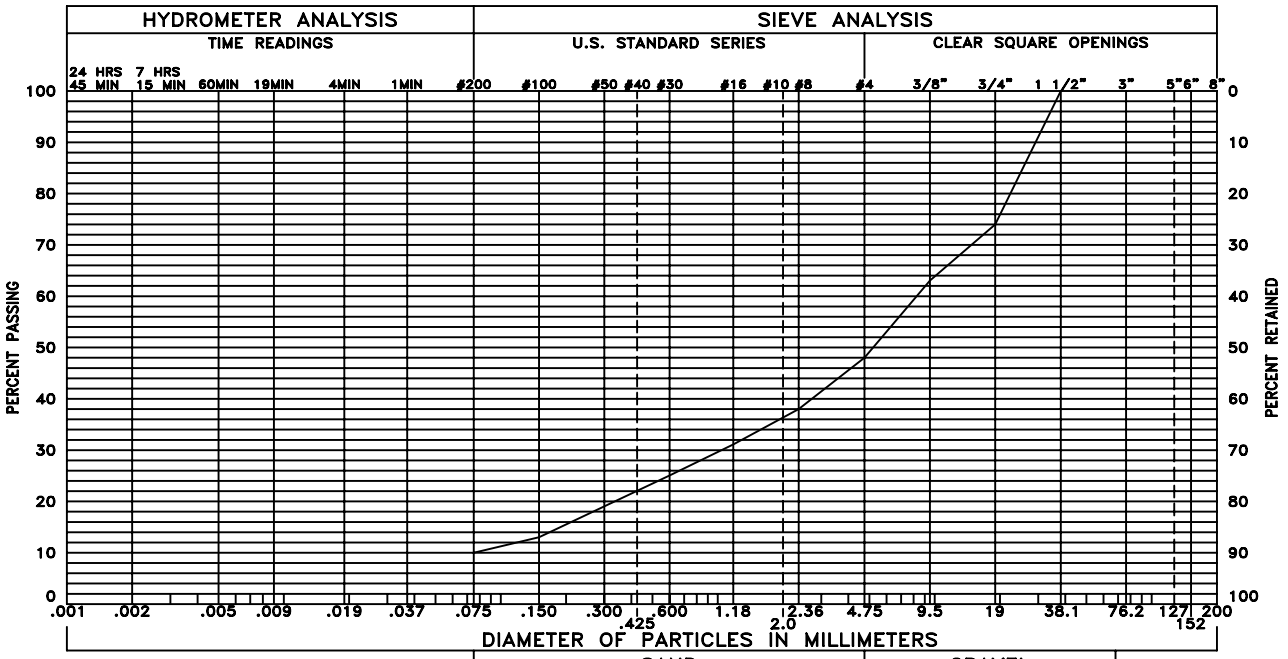
SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 15 @ 4'



GRAVEL 39% SAND 43% SILT AND CLAY 18%

LIQUID LIMIT 21 PLASTICITY INDEX 6

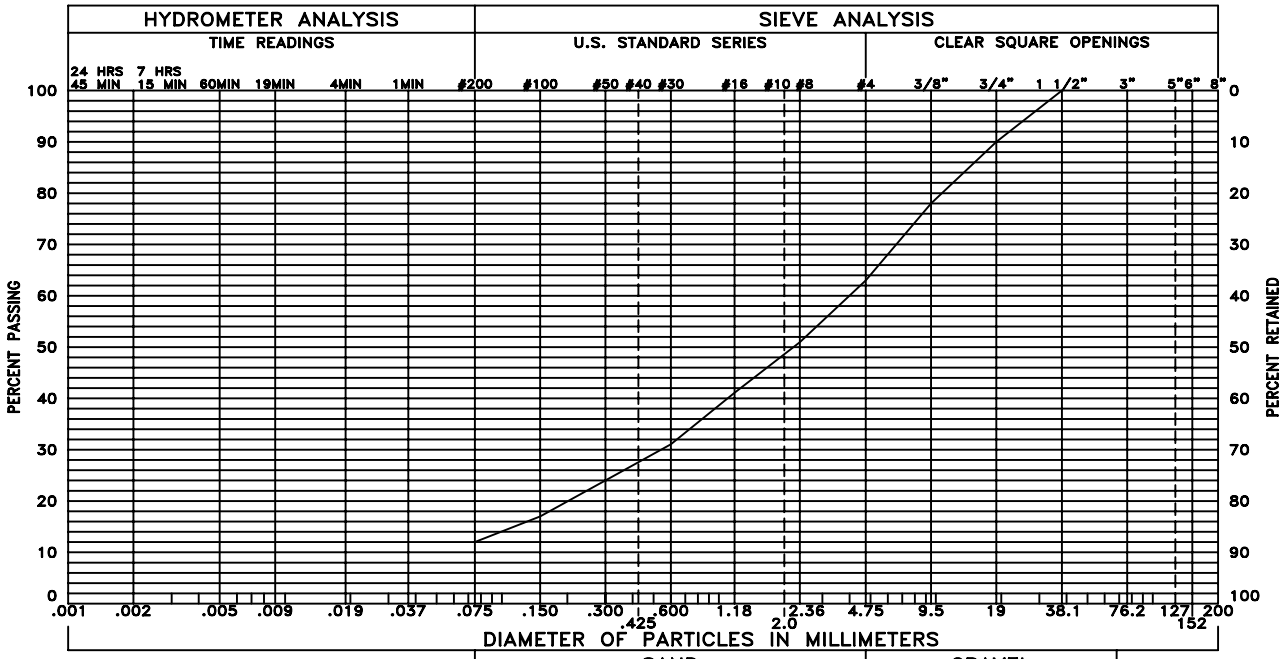
SAMPLE OF: Silty, Clayey Sand with Gravel (SC-SM) FROM: Boring 16 @ 4'



GRAVEL 52% SAND 38% SILT AND CLAY 10%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel with Silt and Sand (GP-GM) FROM: Boring 16 @ 14'

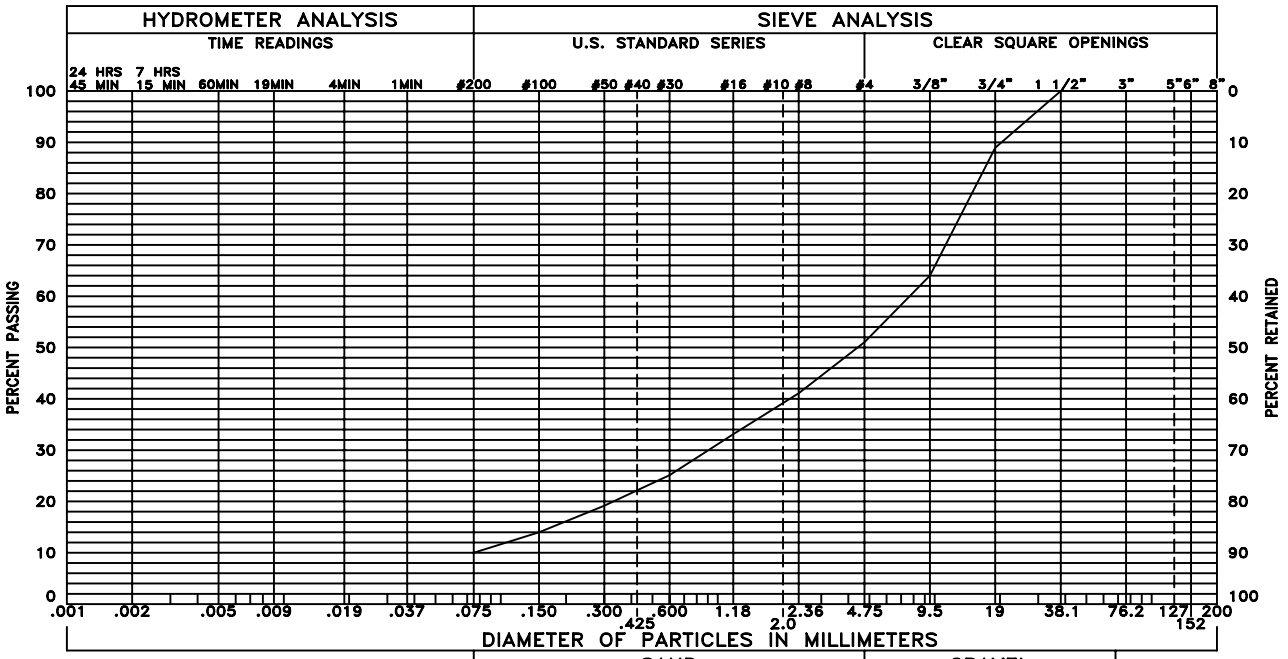


GRAVEL 37% SAND 51% SILT AND CLAY 12%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Sand wtih Silt and Gravel (SP-SM) FROM: Boring 18 @ 9'

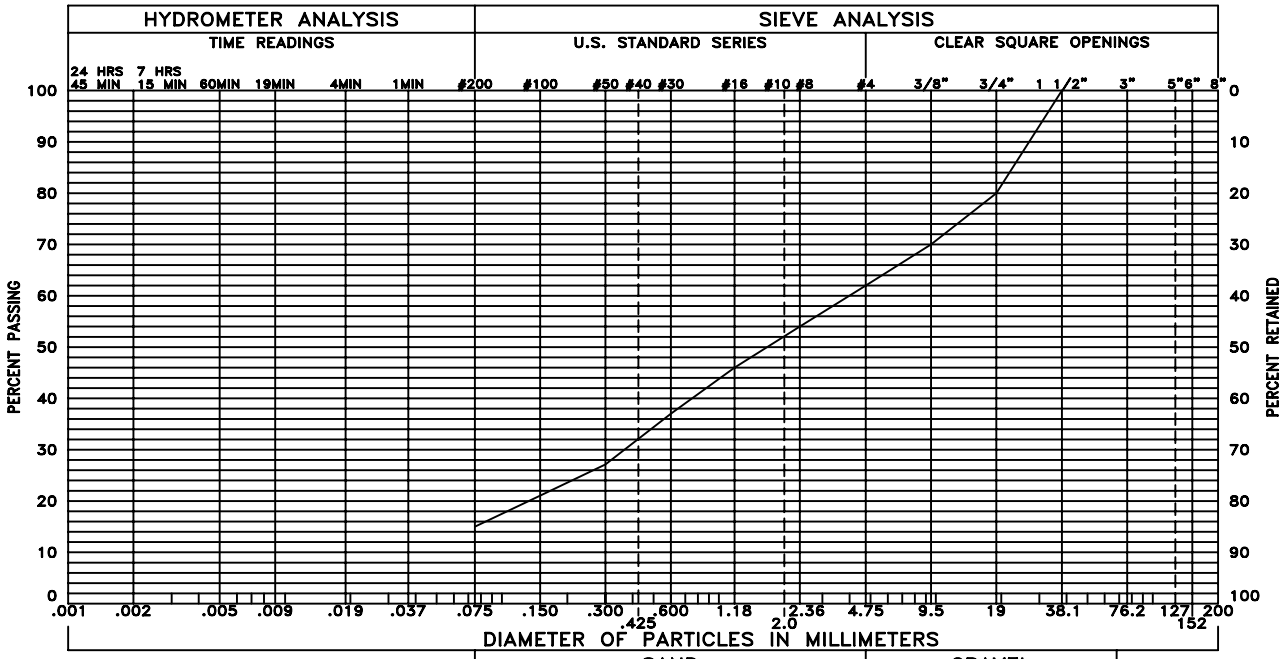
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 17



GRAVEL 49% SAND 41% SILT AND CLAY 10%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 22 @ 9'



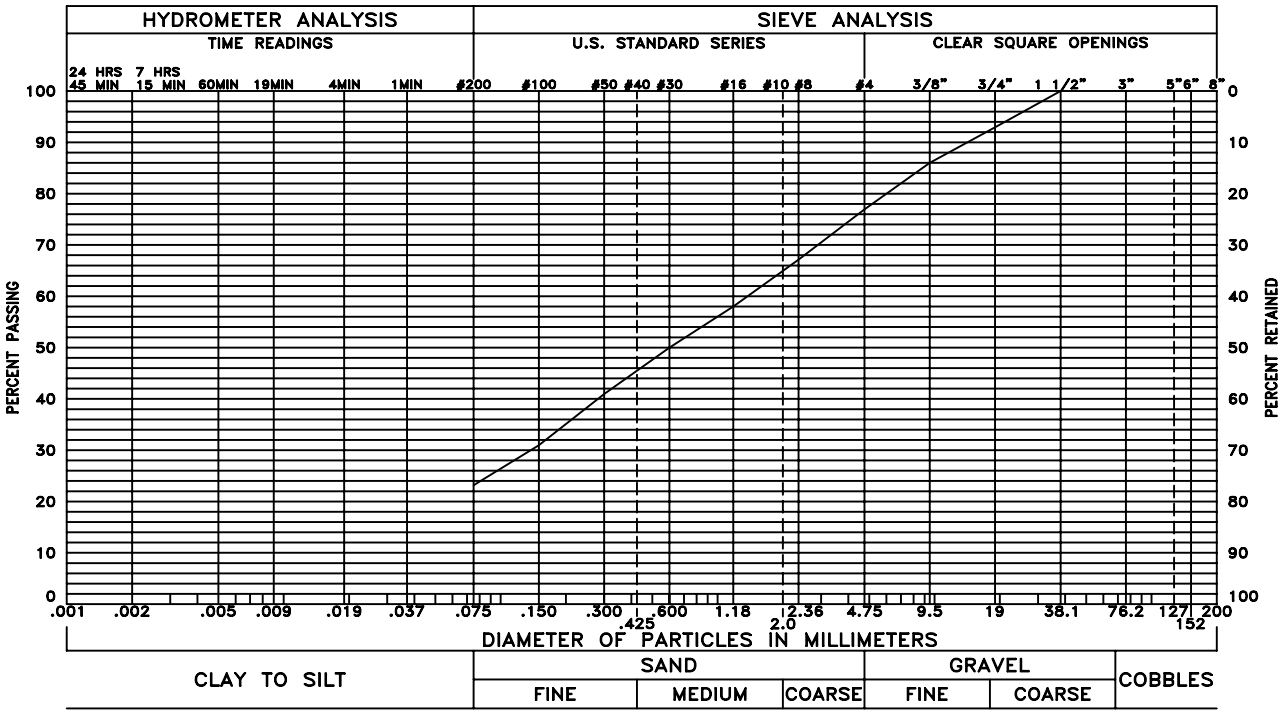
GRAVEL 38% SAND 47% SILT AND CLAY 15%

LIQUID LIMIT 21 PLASTICITY INDEX 1

SAMPLE OF: Silty Sand wtih Gravel (SM) FROM: Boring 24A @ 4'

These test results apply only to the samples which were tested. The testing report shall not be reproduced, except in full, without the written approval of Kumar & Associates, Inc. Sieve analysis testing is performed in accordance with ASTM D422, ASTM C136 and/or ASTM D1140.

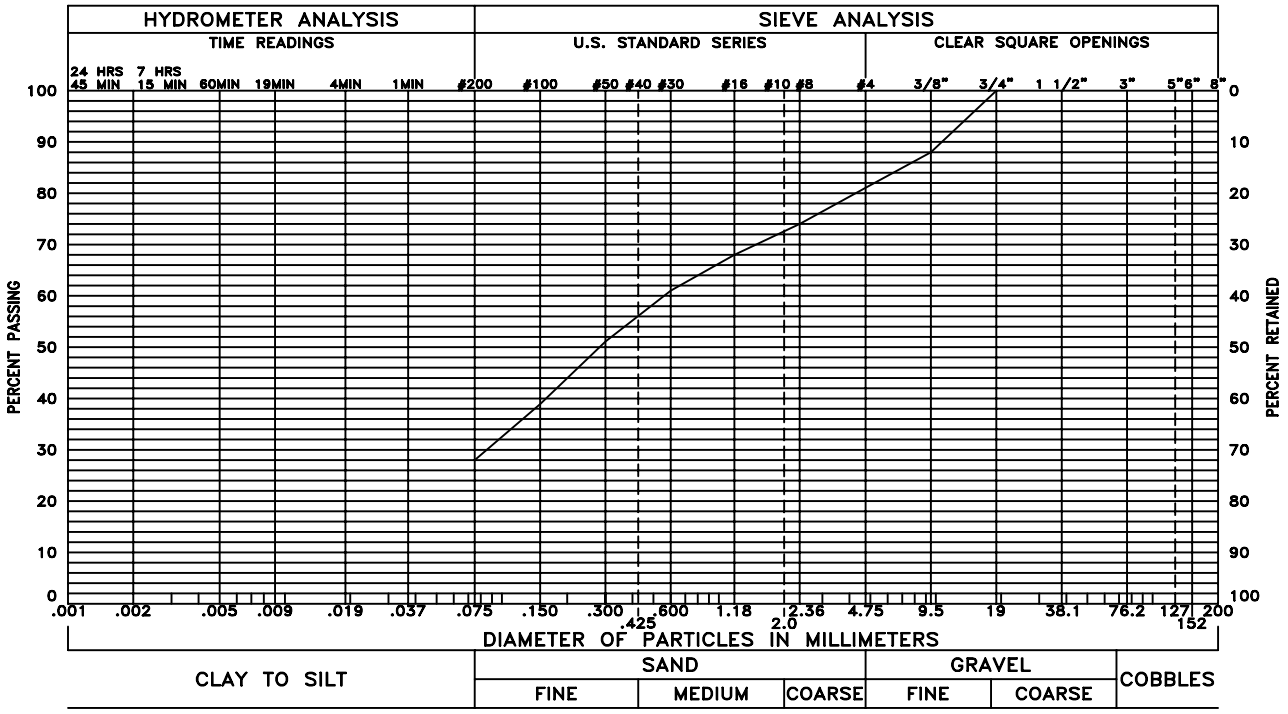
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 18



GRAVEL 23% SAND 54% SILT AND CLAY 23%

LIQUID LIMIT 20 PLASTICITY INDEX 3

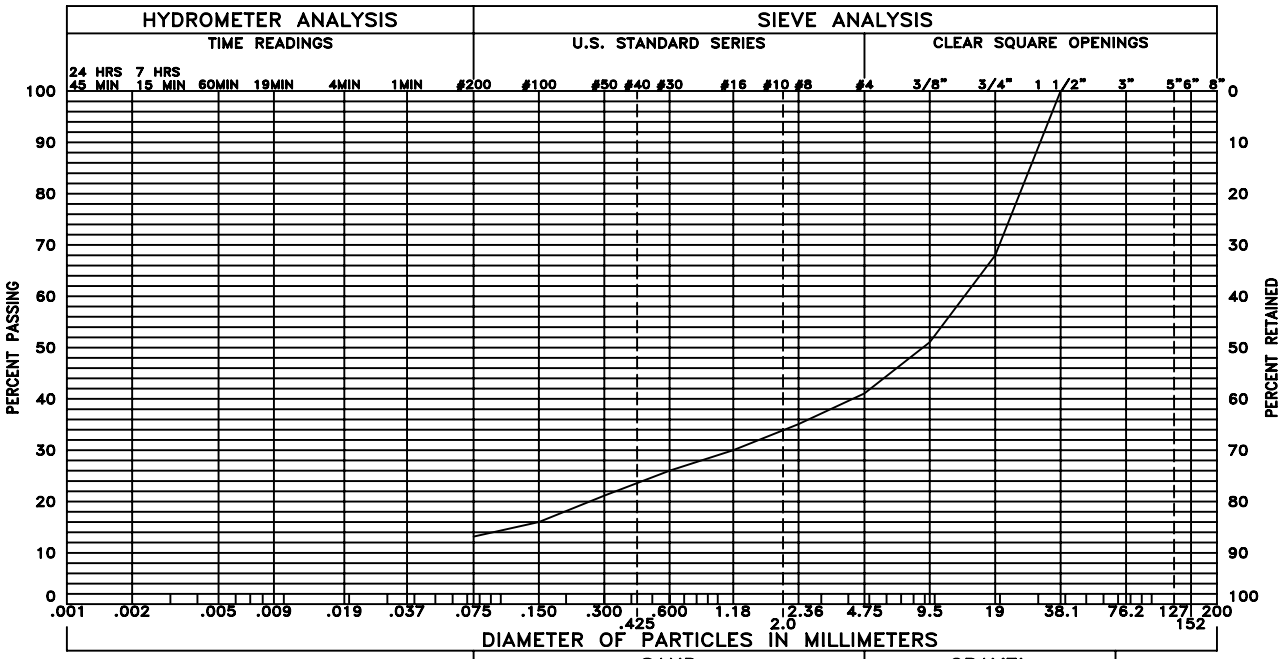
SAMPLE OF: Silty Sand with Gravel FROM: Boring 25 @ 4'



GRAVEL 19% SAND 53% SILT AND CLAY 28%

LIQUID LIMIT 19 PLASTICITY INDEX 3

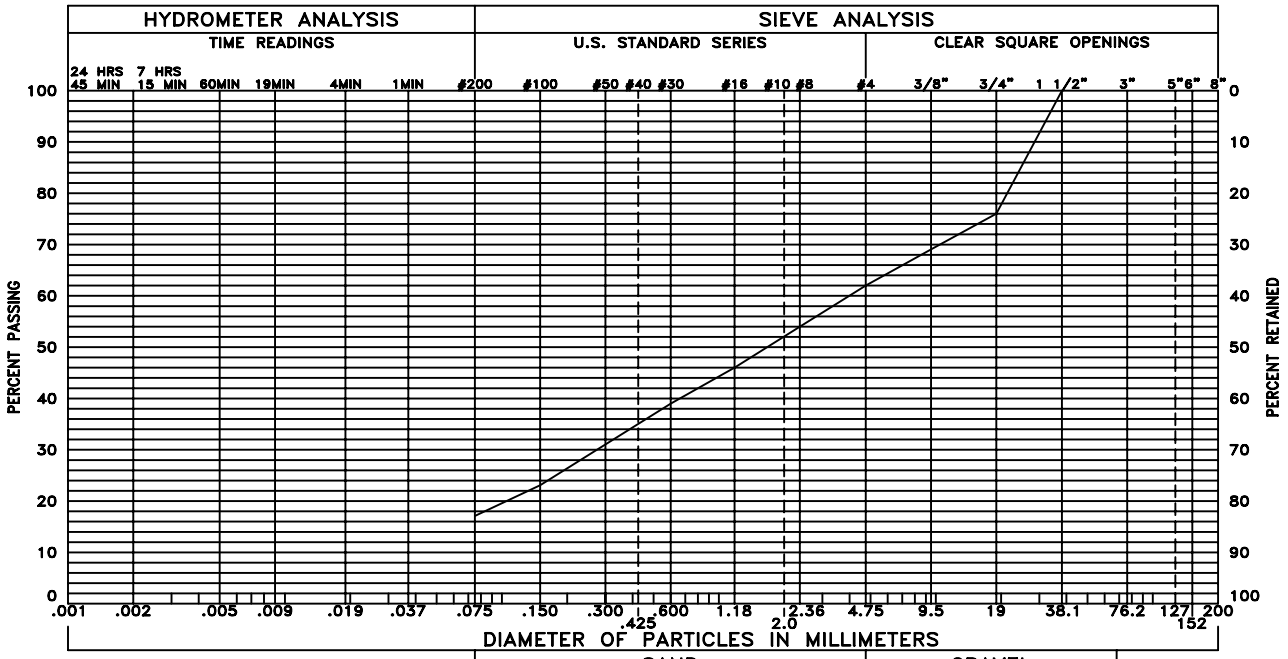
SAMPLE OF: Silty Sand with Gravel FROM: Boring 25 @ 29'



GRAVEL 59% SAND 30% SILT AND CLAY 11%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 26 @ 9'

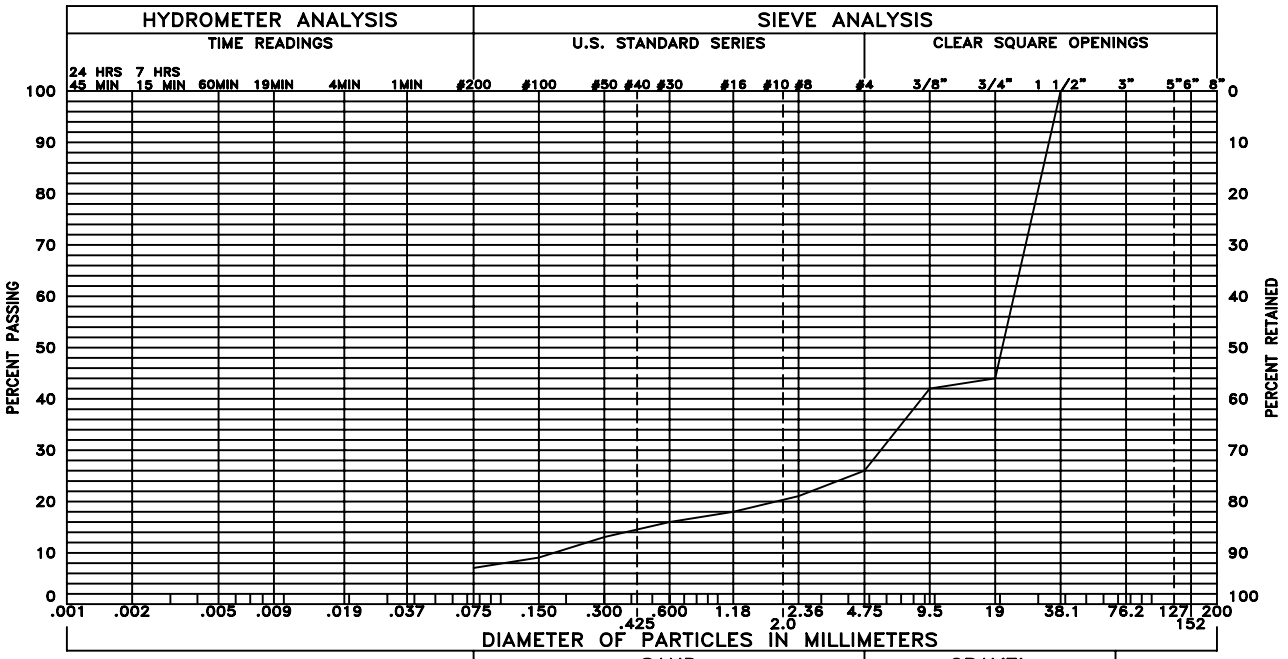


GRAVEL 38% SAND 45% SILT AND CLAY 17%

LIQUID LIMIT 19 PLASTICITY INDEX 2

SAMPLE OF: Silty Sand with Gravel (SM) FROM: Boring 27 @ 29'

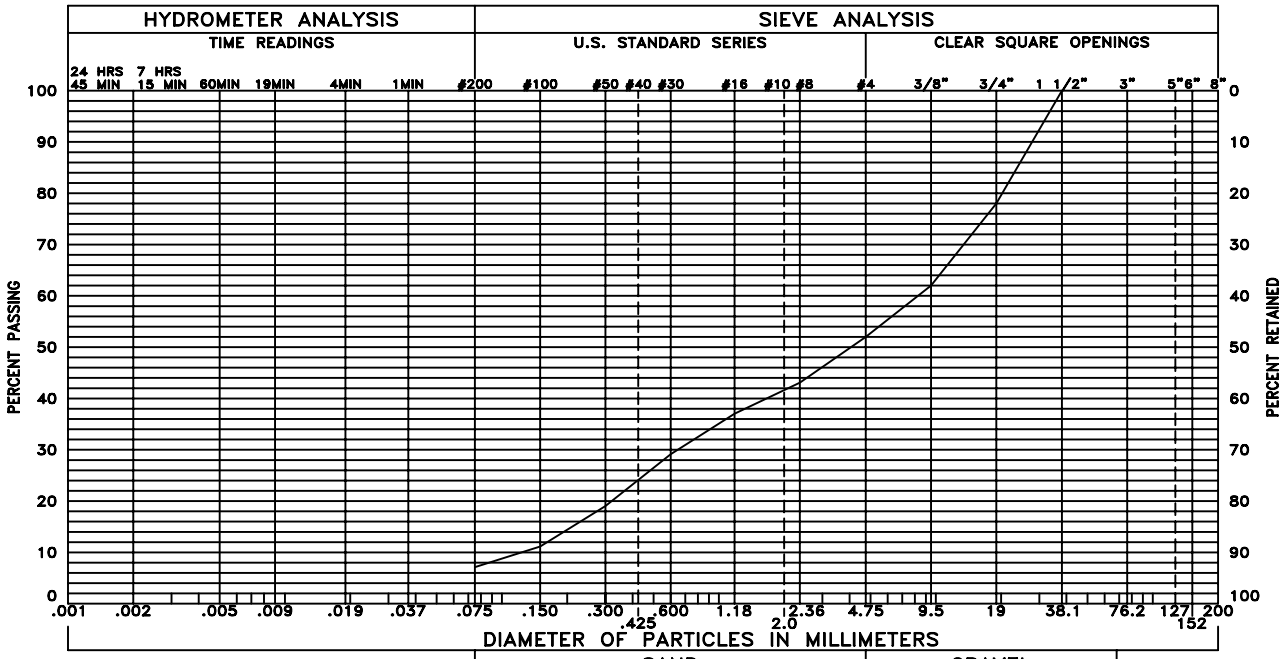
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 20



GRAVEL 74% SAND 19% SILT AND CLAY 7%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel wtih Silt and sand (GP-GM) FROM: Boring 29 @ 9'

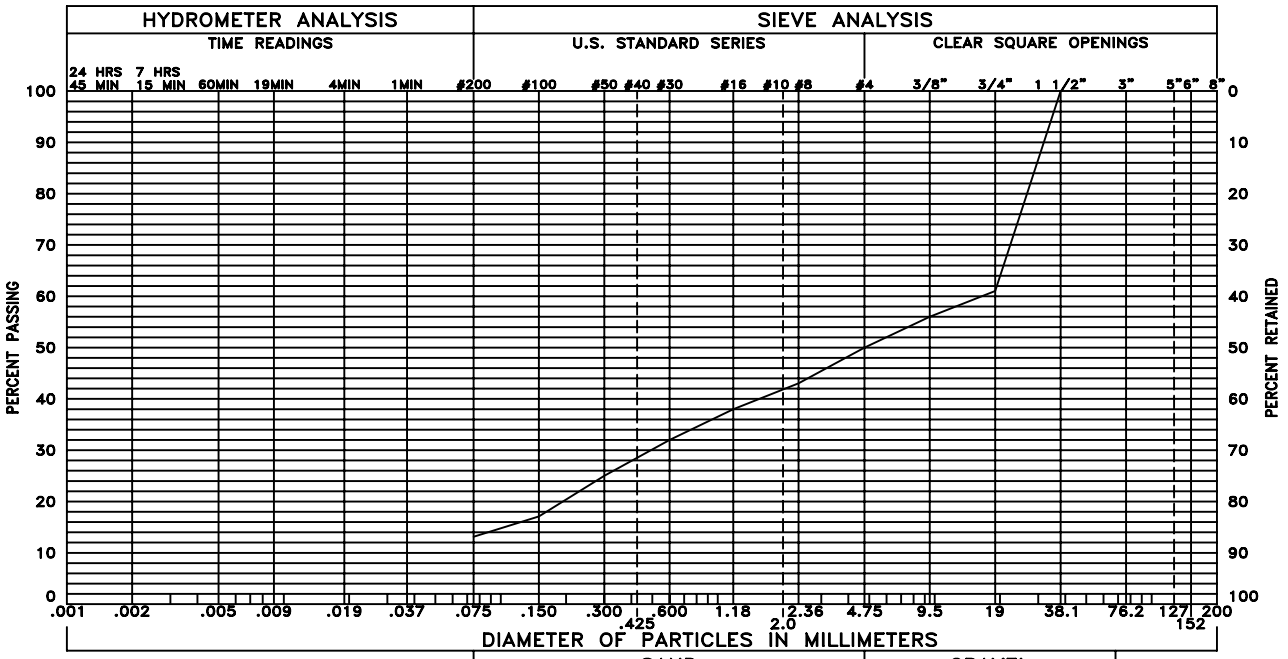


GRAVEL 48% SAND 45% SILT AND CLAY 7%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 29 @ 19'

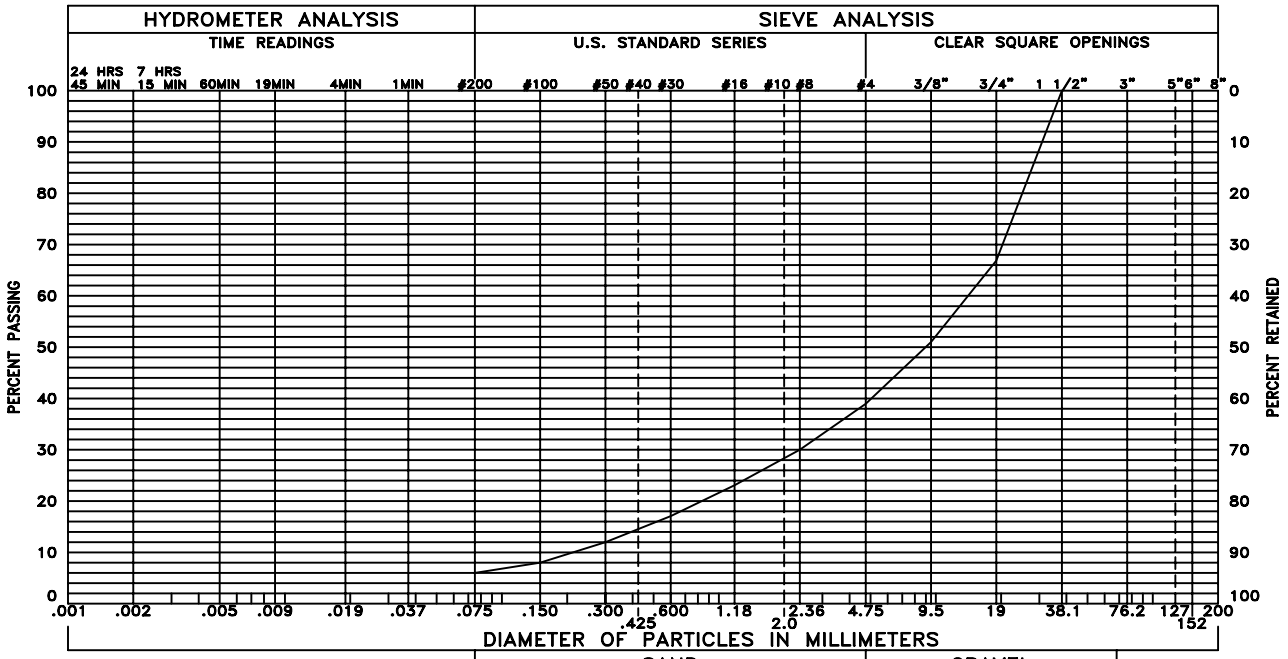
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 21



GRAVEL 50% SAND 37% SILT AND CLAY 13%

LIQUID LIMIT NV PLASTICITY INDEX NP

SAMPLE OF: Silty Gravel wtih Sand (GM) FROM: Boring 30 @ 4'

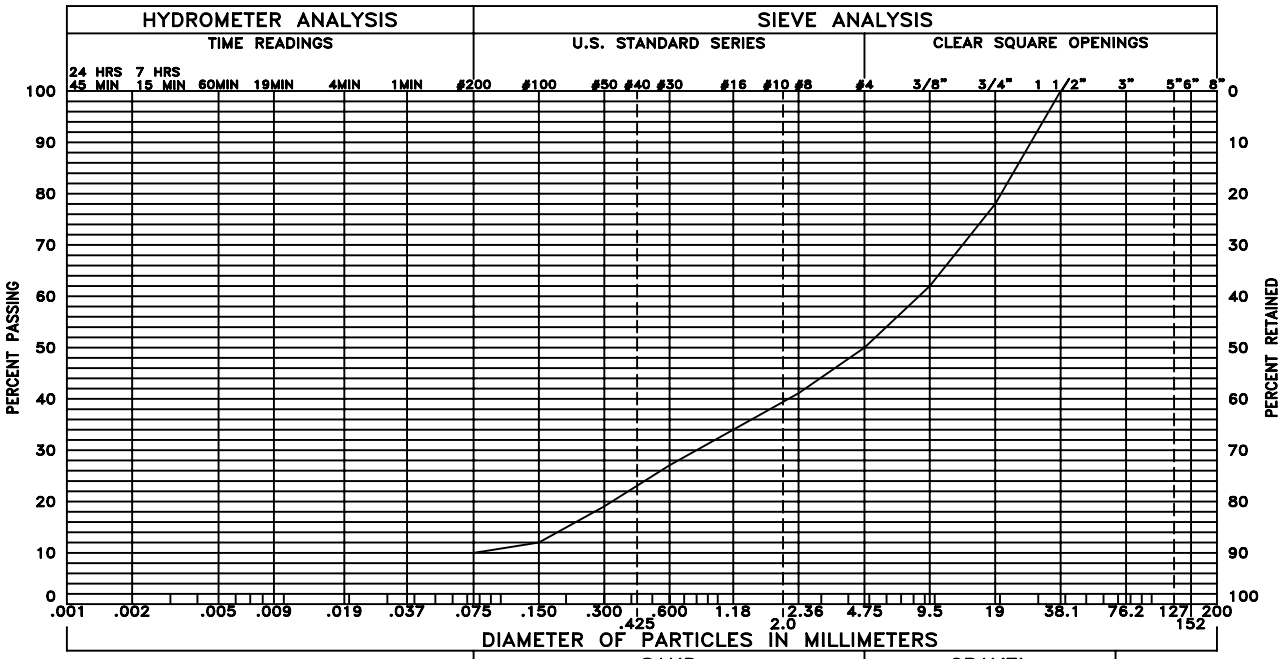


GRAVEL 61% SAND 33% SILT AND CLAY 6%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 30 @ 19'

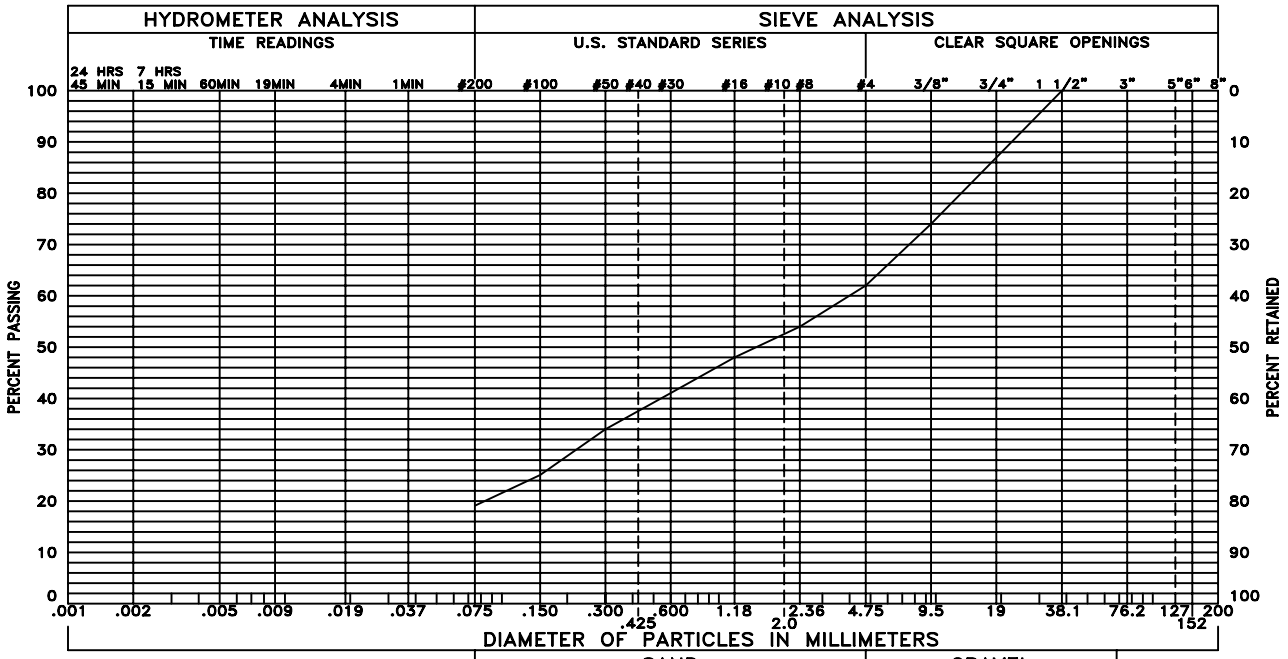
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 22



GRAVEL 50% SAND 40% SILT AND CLAY 10%

LIQUID LIMIT NV PLASTICITY INDEX NP

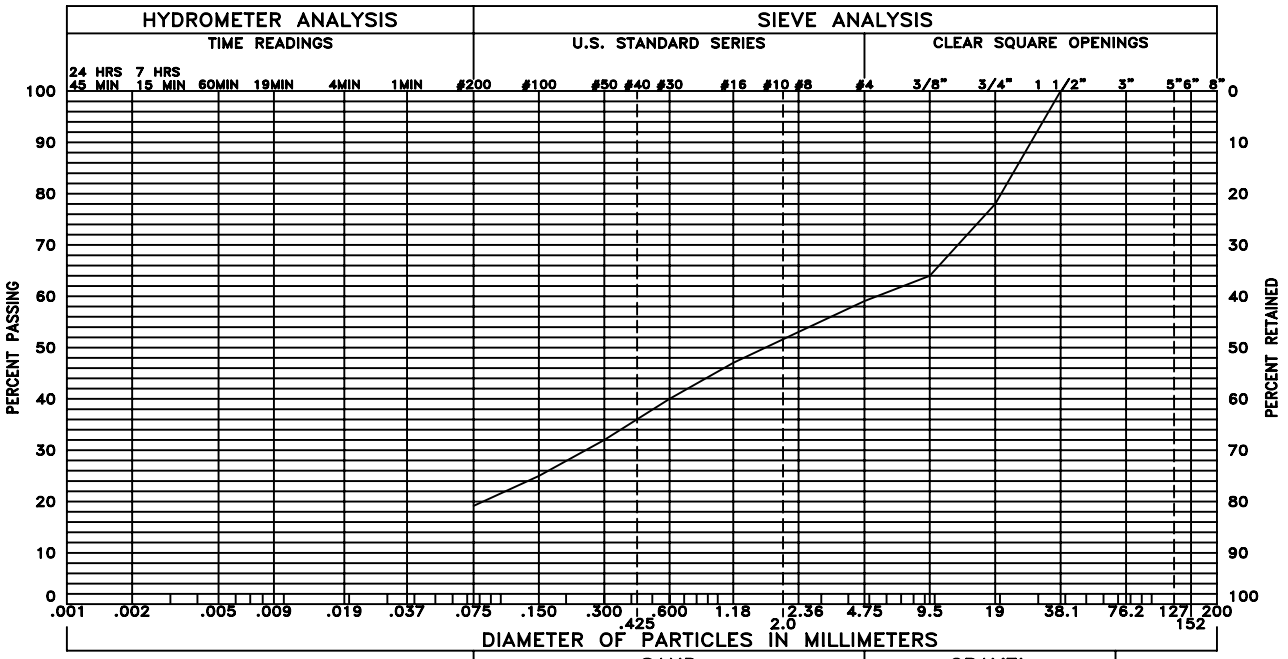
SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 32 @ 29'



GRAVEL 38% SAND 43% SILT AND CLAY 19%

LIQUID LIMIT 16 PLASTICITY INDEX 4

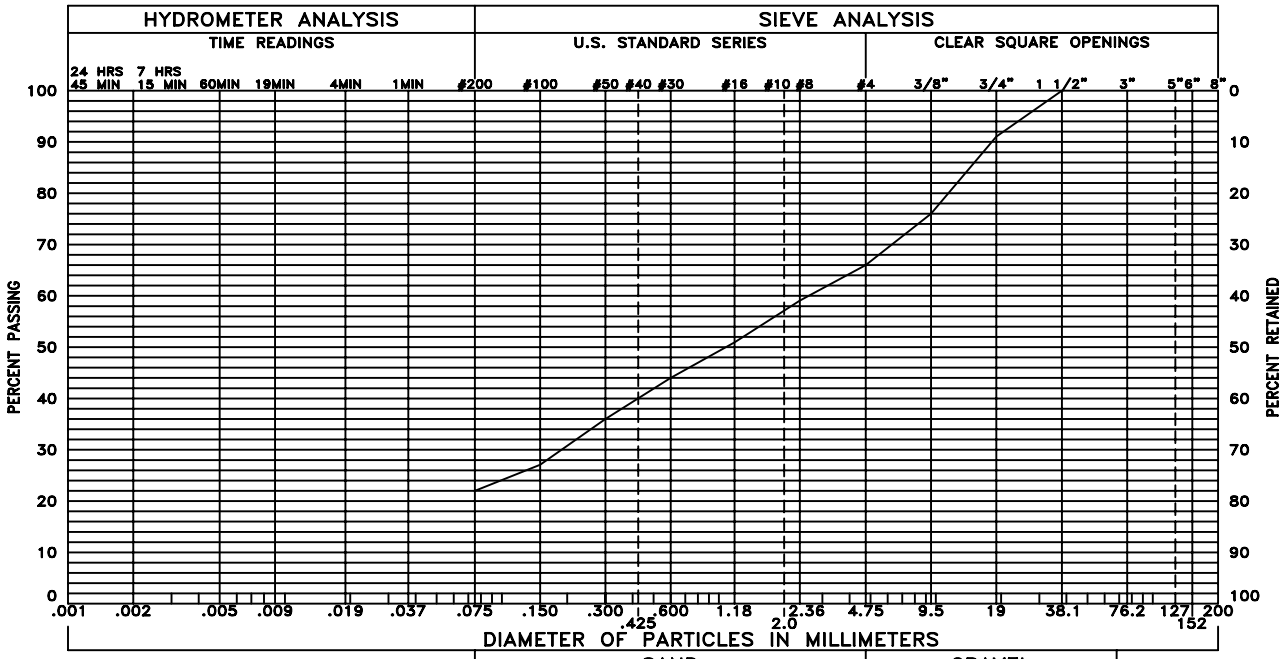
SAMPLE OF: Silty, Clayey Sand wtih Gravel (SC-SM) FROM: Boring 33 @ 4'



GRAVEL 41% SAND 40% SILT AND CLAY 19%

LIQUID LIMIT 21 PLASTICITY INDEX 7

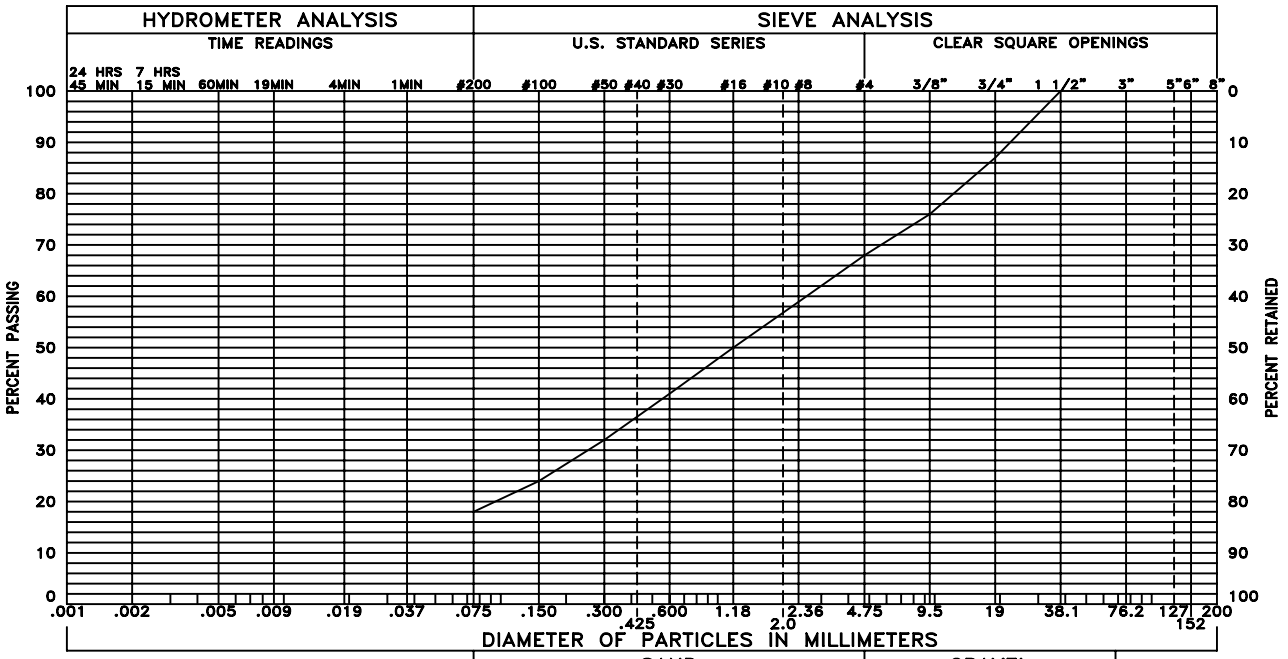
SAMPLE OF: Silty, Clayey Gravel with Sand (GC-GM) FROM: Boring 34 @ 14'



GRAVEL 34% SAND 44% SILT AND CLAY 22%

LIQUID LIMIT 20 PLASTICITY INDEX 7

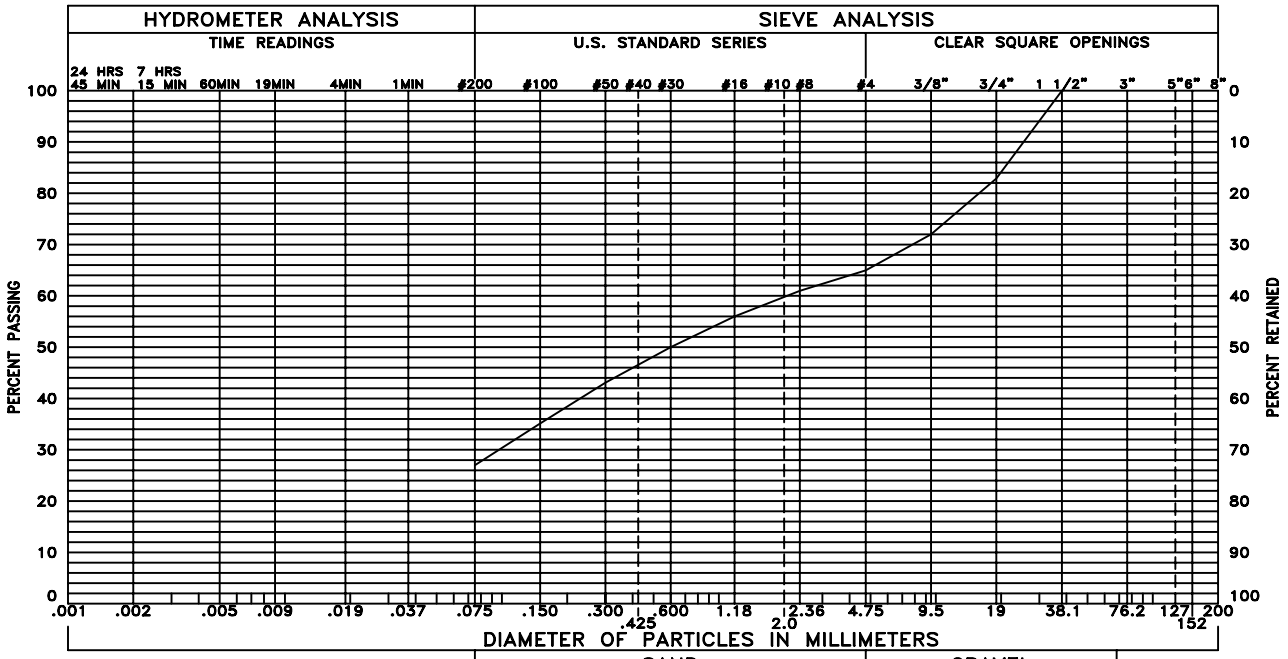
SAMPLE OF: Clayey Sand with Gravel (SC) FROM: Boring 36 @ 2'



GRAVEL 32% SAND 50% SILT AND CLAY 18%

LIQUID LIMIT 18 PLASTICITY INDEX NP

SAMPLE OF: Silty Sand with Gravel (SM) FROM: Boring 37 @ 4'

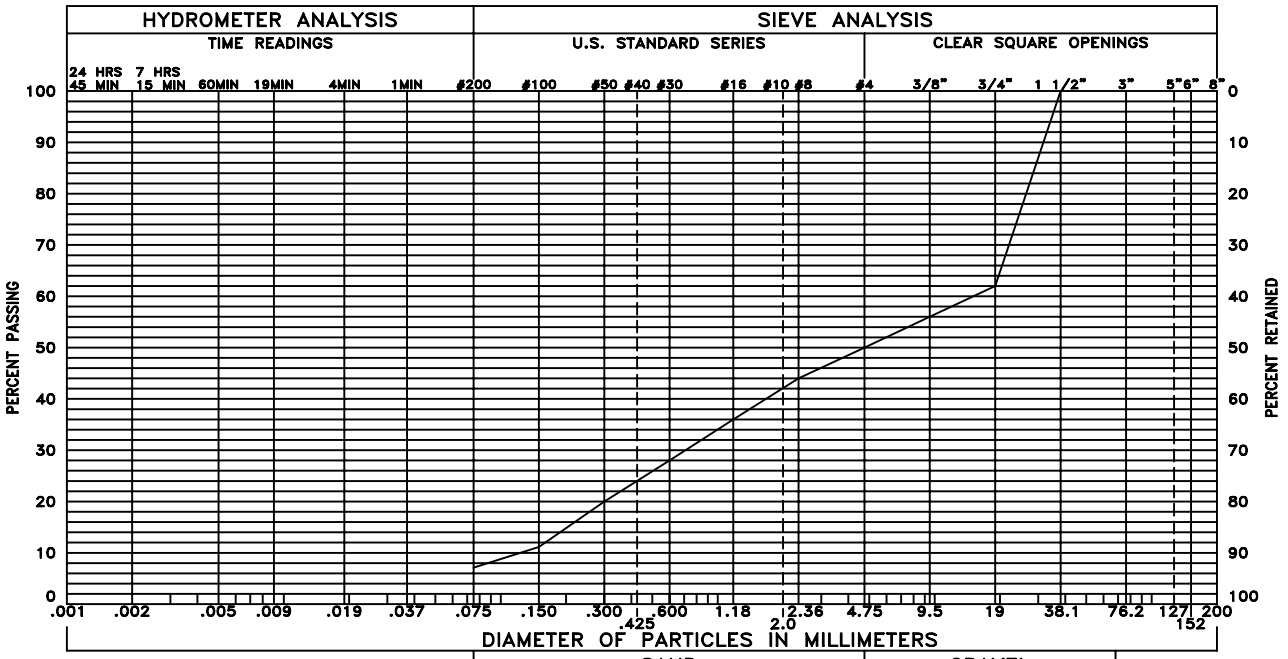


GRAVEL 35% SAND 38% SILT AND CLAY 27%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Silty Sand with Gravel (SM) FROM: Boring 38 @ 4'

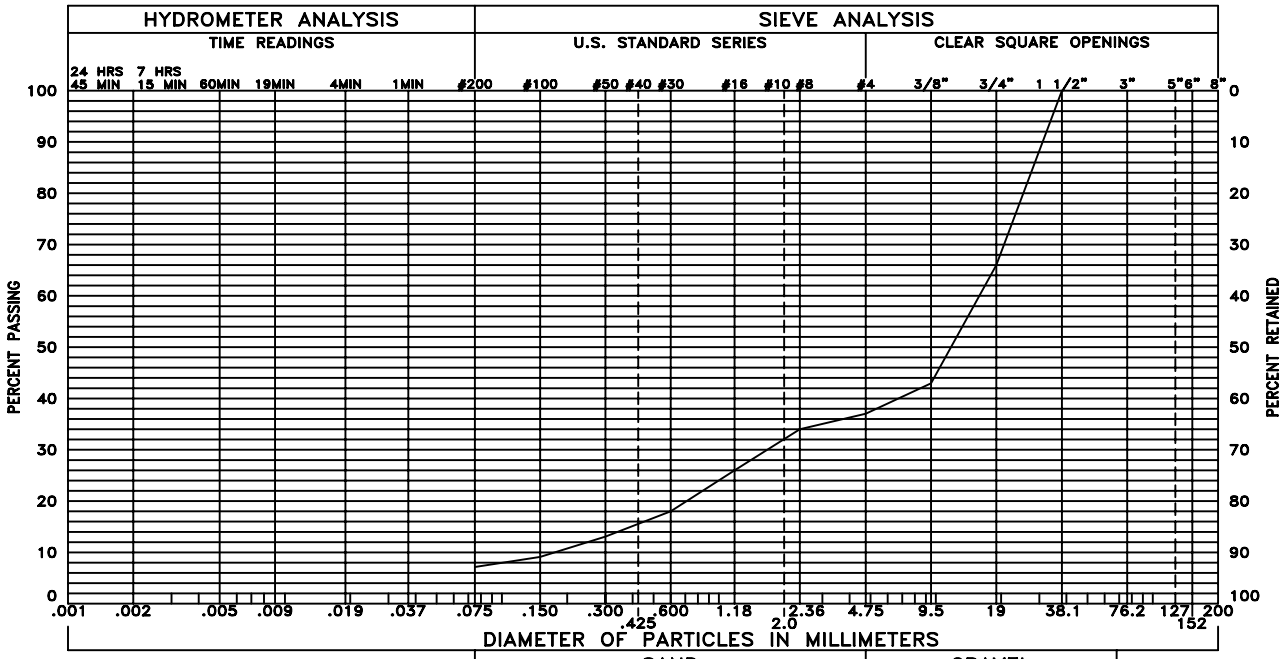
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 25



GRAVEL 50% SAND 43% SILT AND CLAY 7%

LIQUID LIMIT 22 PLASTICITY INDEX 9

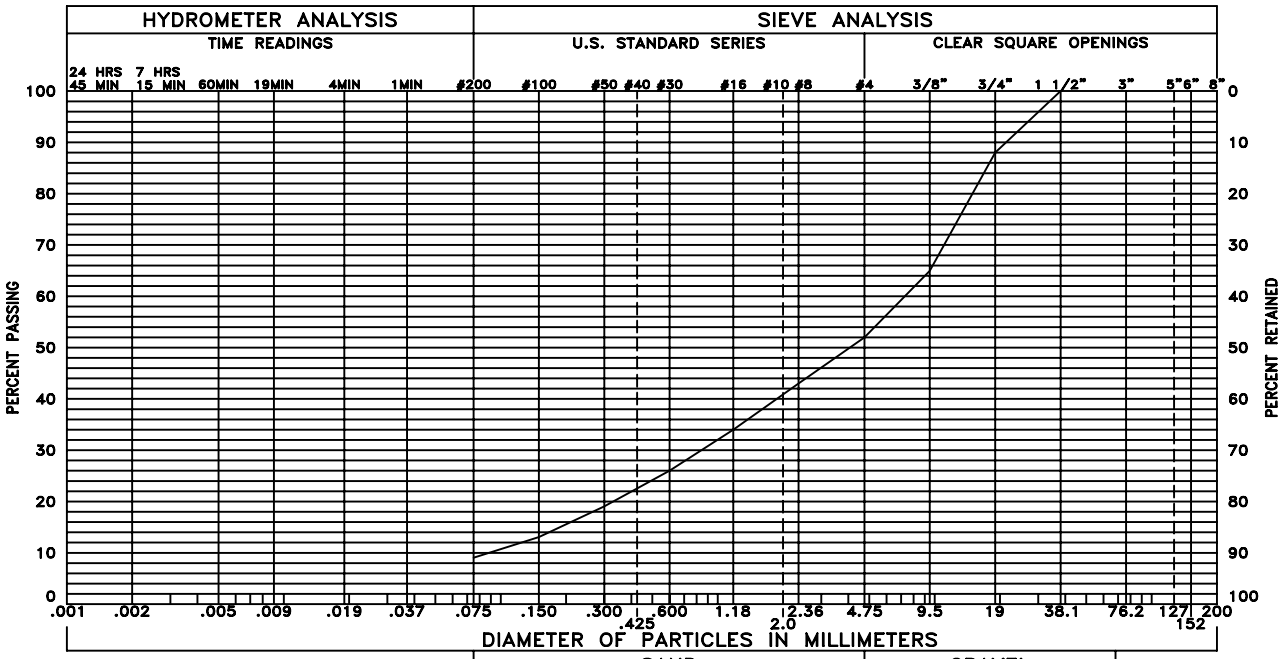
SAMPLE OF: Poorly-Graded Gravel wtih Clay and Sand (GP-GC) FROM: Boring 39 @ 4'



GRAVEL 63% SAND 30% SILT AND CLAY 7%

LIQUID LIMIT 16 PLASTICITY INDEX 5

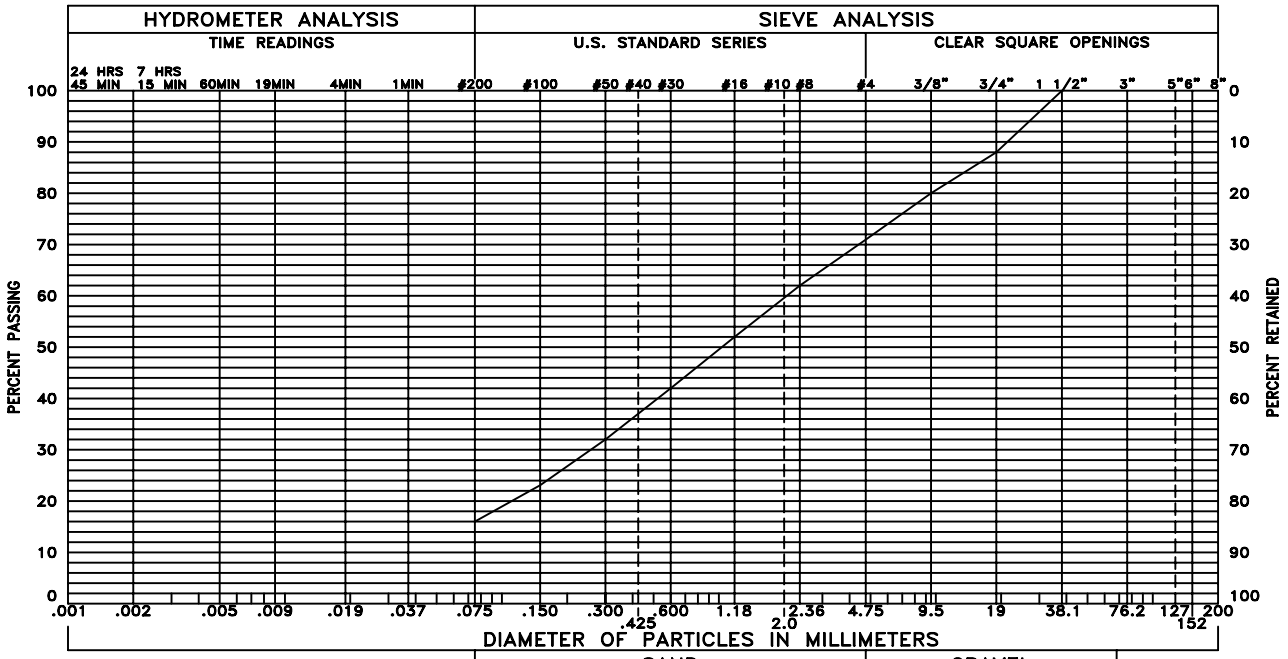
SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 40 @ 19'



GRAVEL 48% SAND 43% SILT AND CLAY 9%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Poorly-Graded Gravel wtih Silt and Sand (GP-GM) FROM: Boring 41 @ 15'

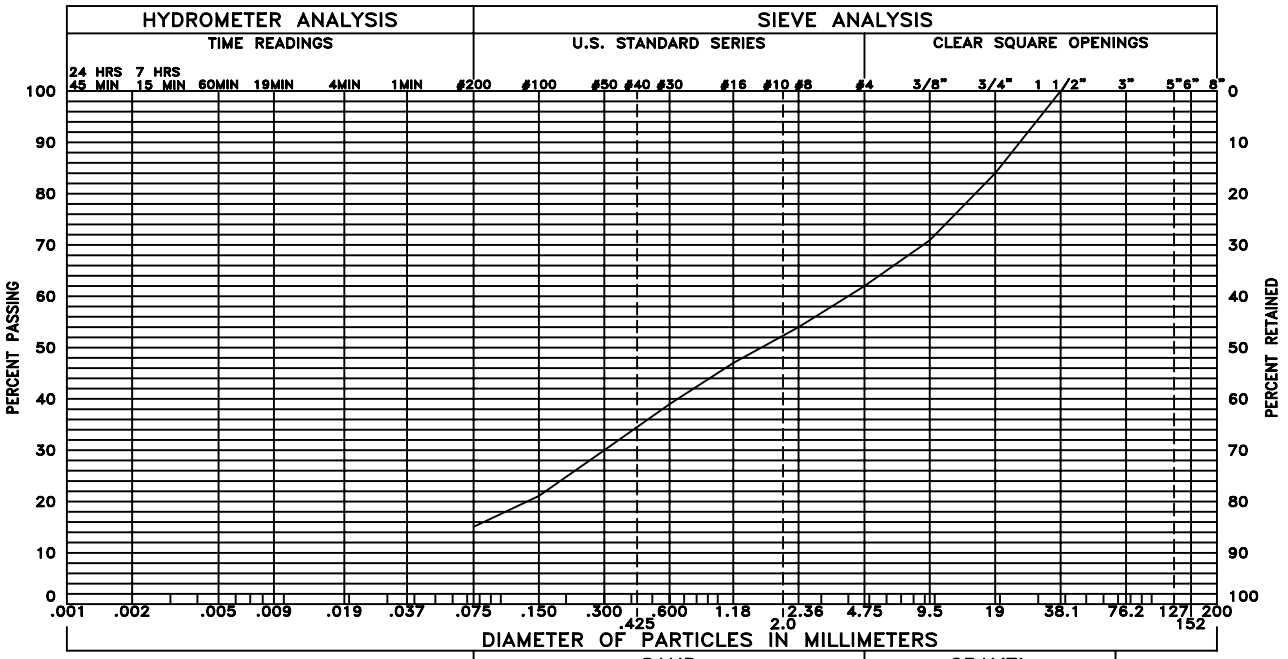


GRAVEL 29% SAND 55% SILT AND CLAY 16%

LIQUID LIMIT 21 PLASTICITY INDEX 2

SAMPLE OF: Silty Sand with Gravel (SM) FROM: Boring 43 @ 9'

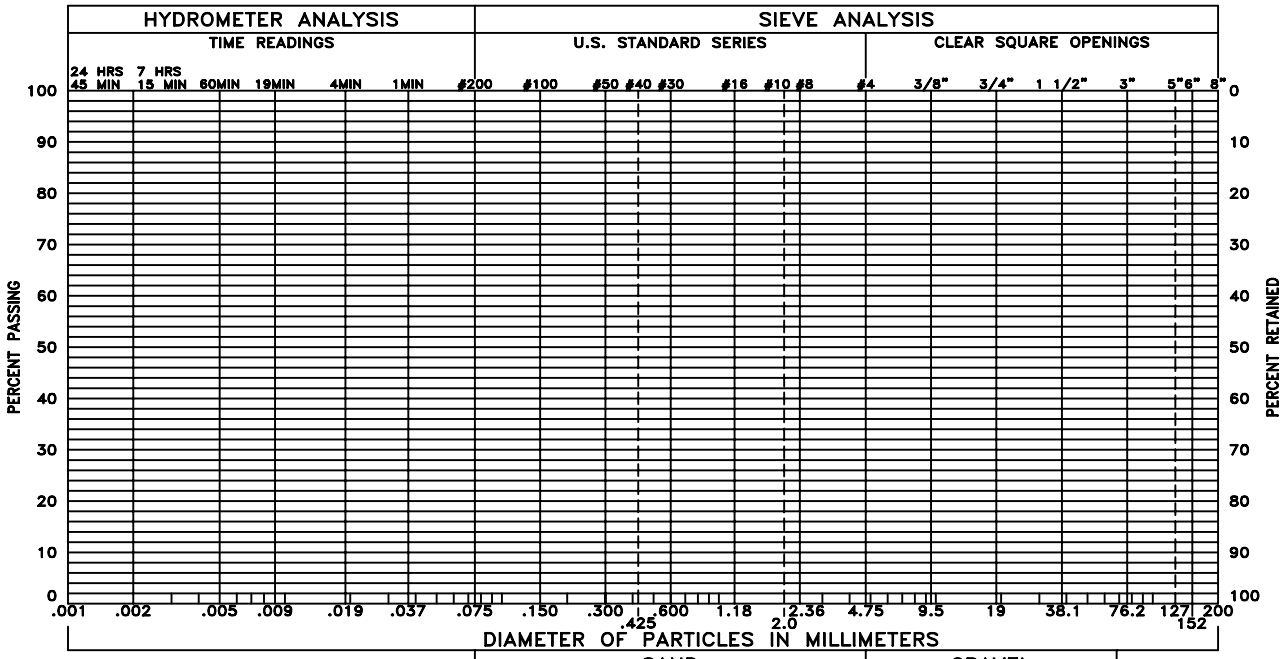
05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 27



GRAVEL 38% SAND 47% SILT AND CLAY 15%

LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: Silty Sand with Gravel (SM) FROM: Boring 44 @ 14'

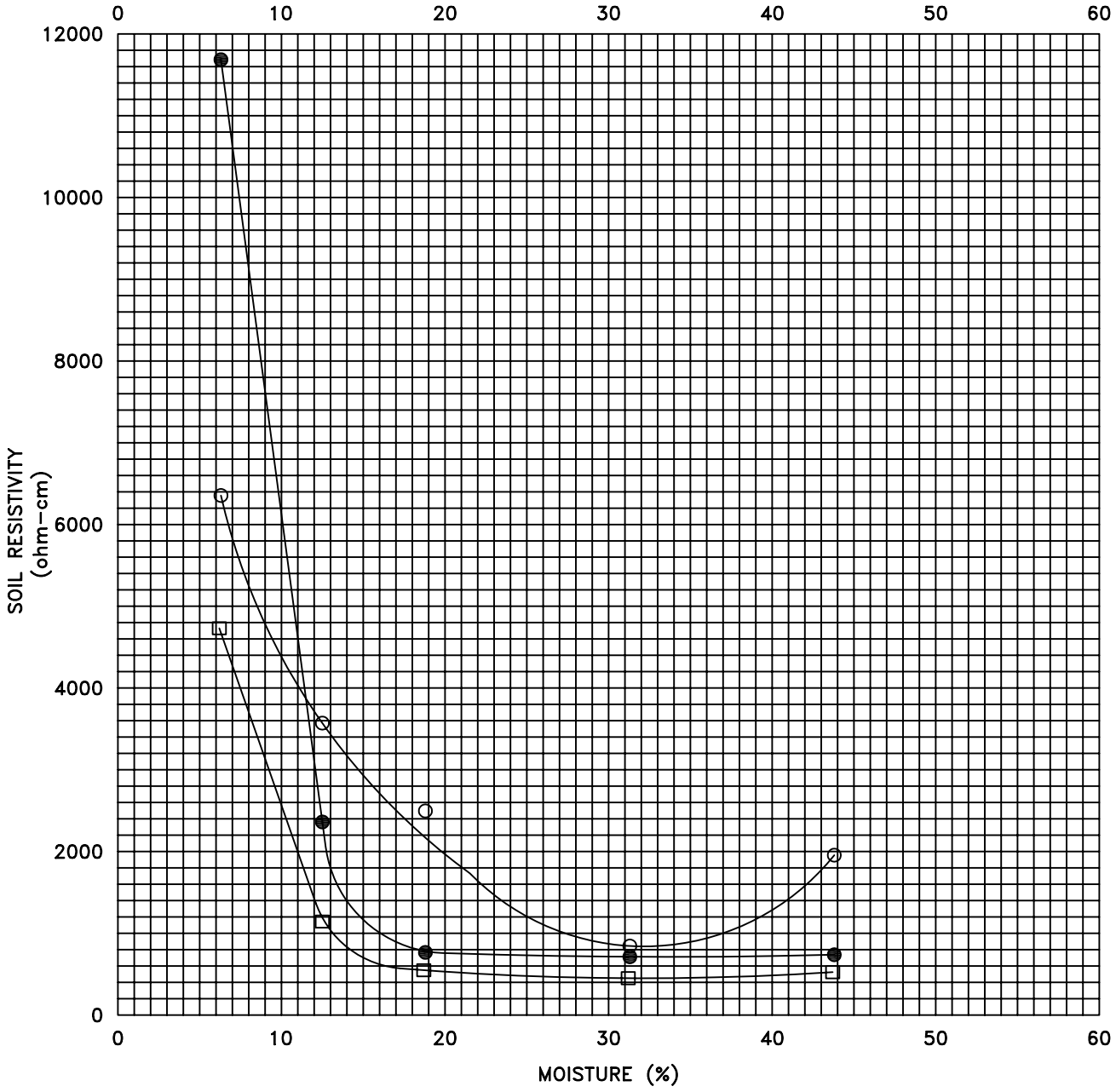


GRAVEL % SAND % SILT AND CLAY %

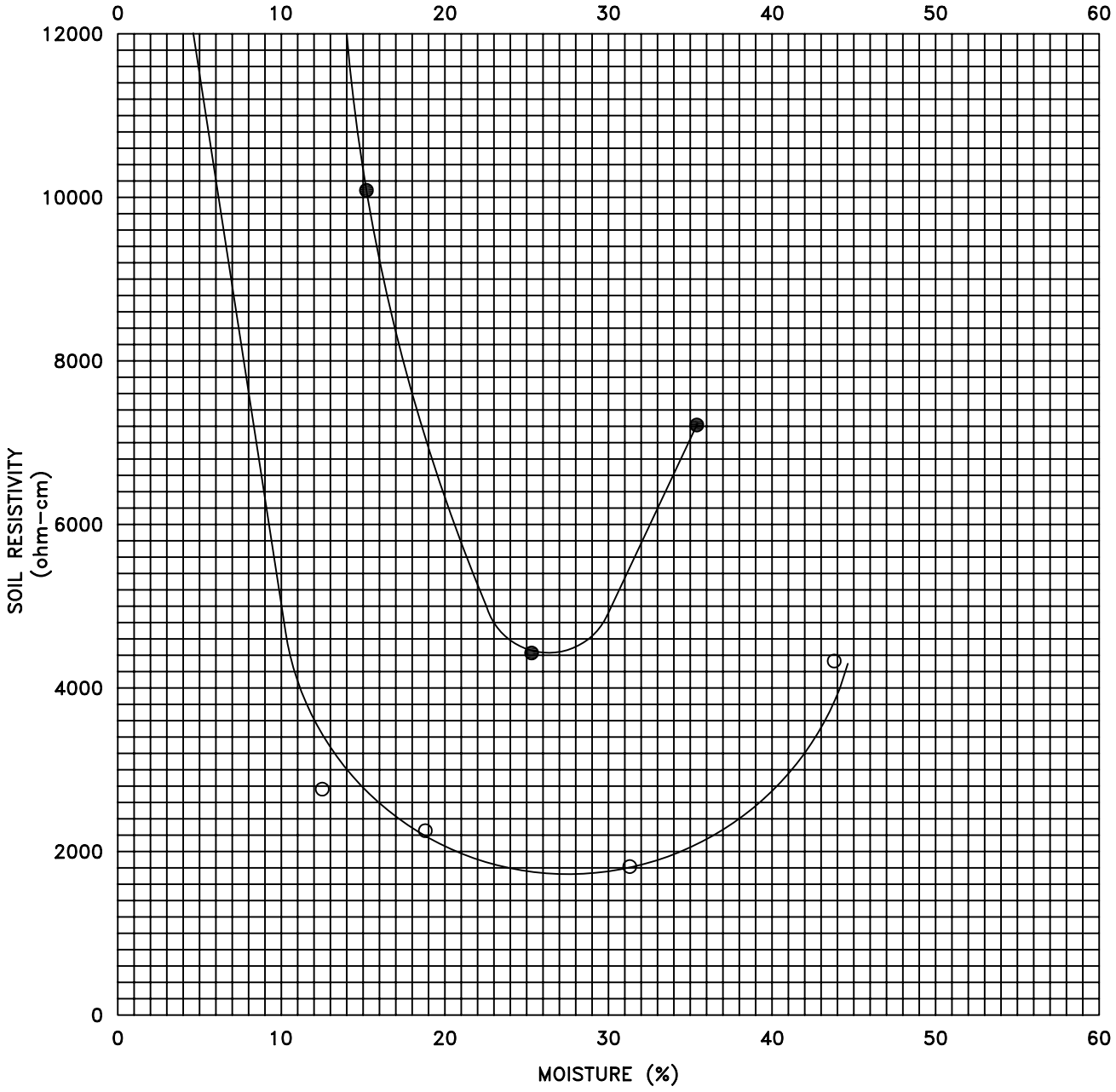
LIQUID LIMIT PLASTICITY INDEX

SAMPLE OF: FROM:

05-1-390	Kumar & Associates	GRADATION TEST RESULTS	Fig. 28



CURVE SYMBOL	SAMPLE IDENTIFICATION	SOIL OR BEDROCK TYPE	MINIMUM RESISTIVITY (ohm-cm)	RESISTIVITY AT IN SITU MOISTURE CONTENT (ohm-cm)
□	BORING 4 @ 6 FT.	Clayey Sand	450	2,400
○	BORING 10 @ 4 FT.	Clayey Sand	840	3,800
●	BORING 16 @ 4 FT.	Silty Clayey Sand with Gravel	710	>12,000



CURVE SYMBOL	SAMPLE IDENTIFICATION	SOIL OR BEDROCK TYPE	MINIMUM RESISTIVITY (ohm-cm)	RESISTIVITY AT IN SITU MOISTURE CONTENT (ohm-cm)
●	BORING 33 @ 14 FT.	Silty to Clayey Sand with Gravel	4,400	>12,000
○	BORING 40 @ 2 FT.	Poorly Graded Gravel with Silt and Sand	1,800	>12,000
NOT SHOWN	BORING 44 @ 2 FT.	Silty Sand with Gravel	26,000	>26,000

05-1-390	Kumar & Associates	LABORATORY RESISTIVITY RESULTS	Fig. 30

TABLE I
SUMMARY OF LABORATORY TEST RESULTS

PROJECT NO.: 05-1-390
PROJECT NAME: WINTER PARK
DATE SAMPLED: 8/8/05 TO 8/29/05
DATE RECEIVED: 8/16/05, 8/26/05 AND 9/2/05

SAMPLE LOCATION		DATE TESTED	NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (pcf)	GRADATION		PERCENT PASSING NO. 200 SIEVE	ATTERBERG LIMITS		WATER SOLUBLE SULFATES (%)	ORGANIC CONTENT (%)	pH	MIN. ELECTRICAL RESISTIVITY (ohm-cm)	AASHTO CLASSIFICATION (group index)	SOIL OR BEDROCK TYPE
BORING	DEPTH (feet)				GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)						
1	3	8/23/05	6.4		53	34	13							A-1-a (0)	Silty Gravel with Sand (GM)
1	18	8/26/05	37.7		16	41	43	50	20		8.3				Silty Sand with Gravel (SM)
2	7	8/24/05	44.8				57			0.02					Sandy Lean Clay (CL)
2	14	8/24/05	8.4		48	41	11								Poorly-Graded Gravel with Silt and Sand (GP-GM)
3	11	8/26/05	46.9				36	59	6	0.02	11.0			A-4 (0)	Silty Sand with Gravel (SM)
3	18	8/22/05			35	55	10								Poorly Graded Sand with Silt and Gravel (SP-SM)
3	23	8/22/05	86.3				37	45	14		12.2				Silty Sand (SM)
4	6	9/2/05	10.3		4	63	33	24	7		2.6		450	A-2-4 (0)	Clayey Sand (SC)
5	9	9/2/05	9.5		23	55	22	21	NP	<0.02					Silty Sand with Gravel (SM)
5	19	9/2/05	7.4		49	39	12	19	1						Poorly-Graded Gravel with Silt and Sand (GP-GM)
6	9	8/22/05	9.9		30	52	18	NV	NP					A-1-b (0)	Silty Sand with Gravel (SM)
7	4	8/24/05	11.1	122.7	23	54	23							A-1-b (0)	Silty Sand with Gravel (SM)
7	14	8/24/05	6.4	144.1	51	42	7								Poorly-Graded Gravel with Silt and Sand (GP-GM)
8	4	8/24/05	12.0		11	66	23			0.02				A-1-b (0)	Silty Sand (SM)
8	14	8/24/05	8.0	127.4	60	32	8								Poorly-Graded Gravel with Silt and Sand (GP-GM)
9	4	8/23/05	9.2		40	44	16							A-1-b (0)	Silty Sand with Gravel (SM)
9	19	8/23/05	9.6		47	43	10								Poorly-Graded Gravel with Silt and Sand (GP-GM)
10	4	9/2/05	11.8		2	62	36	22	7			7.0	840	A-4 (0)	Clayey Sand (SC)

TABLE I
SUMMARY OF LABORATORY TEST RESULTS

PROJECT NO.: 05-1-390
PROJECT NAME: WINTER PARK
DATE SAMPLED: 8/8/05 TO 8/29/05
DATE RECEIVED: 8/16/05, 8/26/05 AND 9/2/05

SAMPLE LOCATION		DATE TESTED	NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (pcf)	GRADATION		PERCENT PASSING NO. 200 SIEVE	ATTERBERG LIMITS		WATER SOLUBLE SULFATES (%)	ORGANIC CONTENT (%)	pH	MIN. ELECTRICAL RESISTIVITY (ohm-cm)	AASHTO CLASSIFICATION (group index)	SOIL OR BEDROCK TYPE
BORING	DEPTH (feet)				GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)						
11	4	8/22/05	9.0		27	43	30	22	1	<0.02				A-2-4 (0)	Silty Sand with Gravel (SM)
11	12	8/24/05	4.7		34	55	11								Poorly-Graded Sand with Silt and Gravel (SP-SM)
12	9	9/2/05	9.4		50	40	10	NV	NP	0.02				A-1-a (0)	Poorly-Graded Gravel with Silt and Sand (GP-GM)
13	9	8/23/05	8.7		50	38	12								Poorly-Graded Gravel with Silt and Sand (GP-GM)
13	11	8/22/05	14.5		7	59	34	25	9	<0.02					Clayey Sand (SC)
14	9	8/23/05	6.2		52	39	9							A-1-a (0)	Poorly-Graded Gravel with Silt and Sand (GP-GM)
15	4	8/23/05	2.2		58	37	5								Poorly-Graded Gravel with Silt and Sand (GP-GM)
15	6	8/23/05	9.7		2	66	32	23	9	<0.02				A-2-4 (0)	Clayey Sand (SC)
16	4	9/9/05	5.8		39	43	18	21	6			9.0	710	A-1-b (0)	Silty, Clayey Sand with Gravel (SC-SM)
16	14	9/2/05	1.5		52	38	10								Poorly-Graded Gravel with Silt and Sand (GP-GM)
17	4	9/9/05	2.8		44	42	14	18	3	<0.02				A-1-a (0)	Silty Gravel with Sand (GM)
18	2	9/6/05	12.6		20	57	23	24	2	<0.02				A-1-b (0)	Silty Sand with Gravel (SM)
18	9	9/6/05			37	51	12								Poorly-Graded Sand with Silt and Gravel (SP-SM)
21	4	9/6/05						41	12		9.2				Silty Sand with Gravel (SM)
21	9	9/6/05	4.9		43	45	12	19	4					A-1-a (0)	Poorly-Graded Sand with Silt and Gravel (SP-SM)

TABLE I
SUMMARY OF LABORATORY TEST RESULTS

PROJECT NO.: 05-1-390
PROJECT NAME: WINTER PARK
DATE SAMPLED: 8/8/05 TO 8/29/05
DATE RECEIVED: 8/16/05, 8/26/05 AND 9/2/05

SAMPLE LOCATION		DATE TESTED	NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (pcf)	GRADATION		PERCENT PASSING NO. 200 SIEVE	ATTERBERG LIMITS		WATER SOLUBLE SULFATES (%)	ORGANIC CONTENT (%)	pH	MIN. ELECTRICAL RESISTIVITY (ohm-cm)	AASHTO CLASSIFICATION (group index)	SOIL OR BEDROCK TYPE
BORING	DEPTH (feet)				GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)						
22	2	9/6/05			61	33	6			<0.02				A-1-a (0)	Poorly-Graded Gravel with Silt & Sand (GP-GM)
22	9	9/6/05			49	41	10							A-1-a (0)	Poorly-Graded Gravel with Silt & Sand (GP-GM)
23	4	9/6/05	6.6		47	38	15	24	5					A-1-a (0)	Silty, Clayey Gravel (GC-GM)
23	17	9/6/05	100.7				21	NV	NP		42.6				Peat (Pt)
24	4	9/6/05	4.3		36	50	14	19	1	<0.02					Silty Sand with Gravel (SM)
24	14	9/6/05	7.2		37	45	18	21	3						Silty Sand with Gravel (SM)
24A	4	9/6/05	12.6		38	47	15	21	1						Silty Sand with Gravel (SM)
25	4	9/6/05	6.4		23	54	23	20	3						Silty Sand with Gravel (SM)
25	29	9/6/05	10.1		19	53	28	19	3						Silty Sand with Gravel (SM)
26	9	9/6/05	1.9		59	30	11								Poorly-Graded Gravel with Silt & Sand (GP-GM)
26A	12	9/6/05	23.8				45	22	4						Silty Gravel with Sand (GM)
26A	19	9/6/05	8.7		53	35	12	21	2						Poorly-Graded Gravel with Silt & Sand (GP-GM)
27	11	9/6/05	15.3				54	25	9	<0.02					Sandy Lean Clay (CL)
27	29	9/6/05	7.8		38	45	17	19	2						Silty Sand with Gravel (SM)
28	14	8/18/05	7.3		46	38	16	16	1	0.02					Silty Gravel with Sand (GM)
28	24	8/18/05						17	NP						Silty Sand with Gravel (SM)
29	9	8/18/05	0.9		74	19	7								Poorly-Graded Gravel with Silt and Sand (GP-GM)
29	19	8/18/05	1.4		48	45	7								Poorly-Graded Gravel with Silt and Sand (GP-GM)

TABLE I
SUMMARY OF LABORATORY TEST RESULTS

PROJECT NO.: 05-1-390
PROJECT NAME: WINTER PARK
DATE SAMPLED: 8/8/05 TO 8/29/05
DATE RECEIVED: 8/16/05, 8/26/05 AND 9/2/05

SAMPLE LOCATION		DATE TESTED	NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (pcf)	GRADATION		PERCENT PASSING NO. 200 SIEVE	ATTERBERG LIMITS		WATER SOLUBLE SULFATES (%)	ORGANIC CONTENT (%)	pH	MIN. ELECTRICAL RESISTIVITY (ohm-cm)	AASHTO CLASSIFICATION (group index)	SOIL OR BEDROCK TYPE
BORING	DEPTH (feet)				GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)						
30	4	8/18/05			50	37	13	NV	NP					A-1-a (0)	Silty Gravel with Sand (GM)
30	19	8/18/05	2.1		61	33	6								Poorly-Graded Gravel with Silt and Sand (GP-GM)
31	4	8/18/05	16.7		17	50	33	27	2	0.02					Silty Sand with Gravel (SM)
32	29	8/18/05	11.3		50	40	10	NV	NP						Poorly-Graded Gravel with Silt and Sand (GP-GM)
33	4	9/2/05	3.0		38	43	19	16	4						Silty, Clayey Sand with Gravel (SC-SM)
33	14	9/2/05	5.8		34	46	20	17	6	<0.02			4400		Silty, Clayey Sand with Gravel (SC-SM)
34	4	9/6/05			49	36	15			<0.02					Silty Gravel with Sand (GM)
34	14	9/6/05	5.7		41	40	19	21	7						Silty, Clayey Gravel with Sand (GC-GM)
35	10	9/9/05	2.9		56	35	9	18	6						Poorly-Graded Gravel with Silt and Sand (GP-GM)
35	19	9/2/05	5.7		66	27	7	17	7	<0.02					Poorly-Graded Gravel with Clay and Sand (GP-GC)
36	2	9/9/05	5.1		34	44	22	20	7	<0.02		6.2			Clayey Sand with Gravel (SC)
36	19	9/9/05	6.7		46	46	8	18	5						Poorly-Graded Gravel with Silt and Sand (GP-GM)
37	4	9/6/05			32	50	18	18	NP						Silty Sand with Gravel (SM)
38	4	9/6/05			35	38	27								Silty Sand with Gravel (SM)
38	24	9/6/05	7.4		34	47	19	19	3						Silty Sand with Gravel (SM)
39	4	9/9/05	3.8		50	43	7	22	9						Poorly-Graded Gravel with Clay and Sand (GP-GC)

TABLE I
SUMMARY OF LABORATORY TEST RESULTS

PROJECT NO.: 05-1-390
PROJECT NAME: WINTER PARK
DATE SAMPLED: 8/8/05 TO 8/29/05
DATE RECEIVED: 8/16/05, 8/26/05 AND 9/2/05

SAMPLE LOCATION		DATE TESTED	NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (pcf)	GRADATION		PERCENT PASSING NO. 200 SIEVE	ATTERBERG LIMITS		WATER SOLUBLE SULFATES (%)	ORGANIC CONTENT (%)	pH	MIN. ELECTRICAL RESISTIVITY (ohm-cm)	AASHTO CLASSIFICATION (group index)	SOIL OR BEDROCK TYPE
BORING	DEPTH (feet)				GRAVEL (%)	SAND (%)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)						
39	9	9/9/05	5.3		61	31	8	19	3		0.9				Poorly-Graded Gravel with Silt and Sand (GP-GM)
40	2	9/9/05	10.3	121.0	27	49	24	18	3	<0.02		5.4	1800		Silty Sand with Gravel (SM)
40	19	9/9/05	1.1		63	30	7	16	5						Poorly-Graded Gravel with Silt and Sand (GP-GM)
41	5	9/6/05	10.8		26	45	29	28	6						Silty, Clayey Sand with Gravel (SC-SM)
41	15	9/6/05			48	43	9								Poorly-Graded Gravel with Silt and Sand (GP-GM)
42	4	9/6/05	15.6				25	33	7						Clayey Sand (SC)
42	14	9/6/05					29	26	5	<0.02	2.2				Silty Sand with Gravel (SM)
43	9	9/6/05	5.2		29	55	16	21	2						Silty Sand with Gravel (SM)
44	2	9/9/05	5.3		34	44	22	20	7	<0.02		6.2	26000		Silty to Clayey Sand with Gravel (SC-SM)
44	4	9/6/05	13.5				45	26	10	<0.02					Clayey Sand (SC)
44	14	9/6/05			38	47	15								Silty Sand with Gravel (SM)
P-1	4	9/2/05	2.4		47	43	10	17	3					A-1-a (0)	Poorly-Graded Gravel with Silt and Sand (GP-GM)
P-2	1	9/2/05	5.0		38	44	18	20	5					A-1-b (0)	Silty, Clayey Sand with Gravel (SC-SM)
P-3	4	9/2/05	2.4		54	39	7	16	5					A-1-a (0)	Poorly-Graded Gravel with Silt and Sand (GP-GM)
P-4	1	9/2/05	9.8		40	46	14	19	6					A-1-a (0)	Silty, Clayey Sand with Gravel (SC-SM)

Table 2 - SUMMARY OF GENERALIZED SUBSURFACE CONDITIONS

DEVELOPMENT	EXPLORATORY BORINGS/ PITS	GENERALIZED SUBSURFACE CONDITIONS	GROUND WATER DEPTHS (ft)
	B-1, B-2, B-3, B-4 KA92-26	Existing fill from the surface to depths ranging from 3.5 ft of 13 ft, underlain by nil to 3 feet of stiff organic-rich clay and peat. The fill and peat were in turn underlain by medium dense to very dense poorly graded sand with clay and gravel, clayey sand with gravel and clayey gravel with sand containing frequent cobbles and boulders, which extended to explored depths ranging from 11.5 to 40 ft.	Encountered in Borings B-1, B-2 and B-3 at the time of drilling at depths ranging from 12 to 22 ft. Encountered in Boring KA92-26 at a depth of 8 ft at the time of drilling, and at the surface in that boring when measured an unspecified number of days after drilling.
	B-22, B-23, KA92-1 to KA92-10	Existing fill from the surface to depths ranging from 7 ft of 23 ft, underlain by nil to 3 feet of stiff organic-rich clay and peat. Fill and peat in turn underlain by medium dense to very dense poorly graded sand with clay and gravel, clayey sand with gravel, and clayey to silty gravel with sand containing frequent cobbles and boulders, which extended to the explored depths ranging from 14 to 45 ft.	Encountered at 10.5 to 26 ft at the time of drilling.
	B-24, B-24A, B-25, B-26, B-26A, B-27, KA92-27	Existing fill encountered in Borings B-24, B-25, B-26, B-27 and KA92-27, located within the existing parking lot embankment, from the surface to depths ranging from 6 to 13 feet. Material encountered below the fill in these borings, and in Borings B-24A and B26-A at the toe of the embankment, consisted of medium dense to very dense clayey sand with gravel and poorly graded gravel with sand and clay, which extended to explored depths ranging from 20 to 40 ft.	Encountered in Borings 24A and 26A, located at the embankment toe, at depths ranging from 5 to 7 ft, and in Boring 27, within the existing parking lot, at a depth of 35 ft at the time of drilling.
	B-28, B-29, B-30, KA-94-5	Existing fill encountered from the surface to depths ranging from 2 to 6 feet. This material was underlain by medium dense to very dense clayey gravel with sand and poorly graded gravel with sand and clay, containing occasional to frequent cobbles and boulders, to explored depths ranging from 25 to 40 feet.	Encountered only in Boring B-28, at a depth of 13 feet at the time of drilling.
	B-31, B-32, MW-D, KA94-3, KA94-4, KA92-30	Nil to 11 ft of existing fill underlain by medium dense to very dense silty to clayey gravel with sand and silty to clayey sand with gravel, containing frequent cobbles and boulders, to explored depths ranging from 25 to 55 ft.	Encountered in Borings B-31, B-32 and MW-D at depth ranging from 14.5 to 16 ft at the time of drilling. Measured in Borings KA94-3 and KA94-4 at depths ranging from 14.5 to 15 ft two to three days after drilling.

Table 2 - SUMMARY OF GENERALIZED SUBSURFACE CONDITIONS

DEVELOPMENT	EXPLORATORY BORINGS/ PITS	GENERALIZED SUBSURFACE CONDITIONS	GROUND WATER DEPTHS (ft)
	B-21, KA92-16	Existing fill encountered from the surface to a depth of 4 feet, underlain by 2 to 4 feet of organic clay and peat material, to depths ranging from 6 to 8 feet. This material was underlain by medium dense to very dense silty to clayey gravel with sand containing cobbles and possible boulders, to the explored depth of 25 feet.	Encountered at depths ranging from 9 to 12 during drilling, and in Boring KA92-16 at a depth of 7 feet when measured 6 days after drilling.
	B-18, KA92-20	Encountered existing fill from the surface to depths ranging from 5 to 8 feet, which was underlain by very dense, poorly graded gravel with silt and sand to explored depths ranging from 16 to 20 ft.	Encountered at depths ranging from 7 to 12.5 during drilling, and in Boring KA92-20 at a depth of 11 ft when measured 6 days after drilling.
	B-17, KA92-21	Encountered existing fill from the surface to a depth of 2 ft, underlain by nil to 1 ft of sandy organic clay. This material was in turn underlain by very dense clayey sand with gravel and poorly graded gravel with sand containing cobbles and possible boulders to explored depths ranging from 4.5 to 20 ft.	Ground water was not encountered in Boring B-17 and Pit KA92-21 at the time of exploration.
	B-12, B-15	Encountered nil to 6 ft existing fill, underlain by dense to very dense, poorly graded gravel with sand and silt, and clayey gravel with sand to an explored depth of 20 ft.	Encountered at depths ranging from 7.5 to 8.5 ft at the time of drilling.
	B-12, B-13, KA92-24	Nil to 2 ft existing fill underlain by dense to very dense poorly graded gravel with sand, silt and clay to explored depths ranging from 17 to 25 ft.	Encountered at depths ranging from 8 to 8.5 during drilling, and in Boring KA92-24 at a depth of 15 ft when measured 6 days after drilling.
	B-9, B-13	Nil to 2 ft topsoil or fill underlain by loose to very dense clayey sand with gravel and clayey gravel with sand containing cobbles and boulders to an explored depth of 25 ft.	Encountered at depths ranging from 6 to 8 ft at the time of drilling.
	B-7, B-8, MW-C	Nil to 1.5 ft existing fill underlain by medium dense to very dense clayey sand with gravel and clayey gravel with sand containing cobbles and boulders to a depth of 13.5 ft in Boring B-7, and to explored depths ranging from 11 to 16 ft in Borings B-8 and MW-C. In Boring B-7, the overburden soils were underlain by granitic, gneissic bedrock to the explored depth of 25 ft.	Encountered at depths ranging from 6 to 9 during drilling, and in Boring MW-C at a depths ranging from 7 to 8.5 ft based on frequent measurements taken after well completion.
	B-12, KA92-23, KA92-24	Encountered nil to 2 ft existing fill underlain by dense to very dense silty sand with gravel, and silty to clayey gravel with sand containing cobbles and boulders, to explored depths ranging from 17 to 25 ft.	Encountered at depths ranging from 7.5 to 9 ft during drilling, in Borings KA92-23 at a depth of 5 ft when measured an unspecified time after drilling, and in KA92-24 at a depth of 15 ft when measured 6 days after drilling.

Table 2 - SUMMARY OF GENERALIZED SUBSURFACE CONDITIONS

DEVELOPMENT	EXPLORATORY BORINGS/ PITS	GENERALIZED SUBSURFACE CONDITIONS	GROUND WATER DEPTHS (ft)
	B-12, B-14, B-16	Encountered nil to 13 ft existing fill underlain by dense to very dense poorly graded gravel with sand and clay, which extended to an explored depth of 20 ft in Borings B-12 and B-14, and to a depth of 15 ft in Boring B-16. In Boring B-16, the overburden soil was underlain by granitic to gneissic bedrock, which extended to the explored depth of 25 ft.	Encountered at depths ranging from 8.5 to 21 ft at the time of drilling.
	B-16, KA92-19, KA92-21	Encountered 2 to 13 ft existing fill underlain by nil to 1 ft of organic sandy clay. The fill and organic clay were underlain by very dense poorly graded gravel with sand, silt and clay to explored depths ranging from 5 to 7 ft in Pits KA92-19 and KA92-21, and to a depth of 15 ft in Boring B-16. In Boring B-16, the overburden soil was underlain by granitic to gneissic bedrock, which extended to the explored depth of 25 ft.	Encountered only in Boring B-16 at a depth of 21 ft at the time of drilling.
	KA92-17, KA92-18, KA92-19	Encountered 2 to 5 ft existing fill underlain by nil to 1 ft of organic sandy clay. The fill and organic clay were underlain by dense to very dense poorly graded gravel with sand, silt and clay to explored depths ranging from 7 to 25 ft.	Encountered only in Boring KA92-17 and KA92-18, at depths ranging from 8.5 to 10 ft at the time of drilling, in Boring KA92-17 at a depth of 7.5 ft when measured 6 days after drilling, and in Boring KA92-18 at a depth of 5 ft when measured an unspecified number of days after drilling.
	B-4, B-5	Encountered 6 to 7.5 ft existing fill underlain by medium dense to very dense, poorly graded gravel with sand and silt containing cobbles and possible boulders to an explored depth of 25 ft.	Encountered at depths ranging from 12 to 12.5 ft at the time of drilling.
	B-9, B-10	Encountered nil to 7.5 ft existing fill beneath the pavement or topsoil, which was underlain by medium dense to very dense , poorly graded gravel with sand and clay, and clayey gravel with sand, containing cobbles and possible boulders, to the explored depth of 25 ft.	Encountered at depths ranging from 6 to 9.5 ft at the time of drilling.
	B-28, KA92-22	Encountered 1 to 5 ft existing fill underlain by medium dense to very dense silty sand with gravel and poorly graded gravel with sand and silt containing cobbles and possible boulders to explored depths ranging from 10 to 25 ft..	Encountered water in Boring B-28 at the time of drilling, and in Boring KA92-22 at a depth of 8 ft when measured six days after drilling .
	P-1, P-2, P-3, P-4	Encountered medium dense to very dense poorly graded gravel with sand and silt, silty gravel with sand, and silty sand with gravel, below less than 6 inches of topsoil to the explored depth of 5 ft.	Ground water not encountered.

Table 2 - SUMMARY OF GENERALIZED SUBSURFACE CONDITIONS

DEVELOPMENT	EXPLORATORY BORINGS/ PITS	GENERALIZED SUBSURFACE CONDITIONS	GROUND WATER DEPTHS (ft)
	B-33, B-34	Encountered approximately 8 inches of topsoil underlain by medium dense to dense, sandy gravels and gravelly sands, with clay, silt, cobbles, and boulders to the explored depth of 25 feet.	Not encountered at the time of drilling.
	B-35, B-36	Encountered approximately 6 to 8 inches of topsoil underlain by medium dense to very dense, sandy gravels and gravelly sands, with clay, silt, cobbles, and occasional boulders to the explored depths of 25 feet.	Encountered at depths ranging from 13 to 18 feet at the time of drilling.
	B-37, B-38	Encountered approximately 4 inches of topsoil underlain by medium dense to very dense, gravelly sand with clay, silt, cobbles, and boulders to the explored depths of 25 feet.	Encountered only in Boring B-37 at a depth of 14 ft at the time of drilling.
	B-39, B-40	Encountered approximately 8 inches of topsoil underlain by medium dense to very dense, sandy gravels with clay, silts, cobbles, and occasional boulders to the explored depths of approximately 25 ft.	Encountered only in Boring B-39 at a depth of 23 feet at the time of drilling.
	B-41, B-42	Encountered approximately 8 inches of topsoil underlain by loose to medium dense, gravelly sand with clay and silt to depths ranging from 7.5 to 12 ft. This material was in turn underlain by granitic to gneissic bedrocks to the explored depths of 22 and 25 ft.	Not encountered at the time of drilling.
	B-43, B-44	Encountered nil to 7 feet of existing fill consisting of gravelly sand with silt and clay, which was underlain by medium dense to dense, gravelly sands and sandy gravels, with clay, silt, and occasional cobbles and boulders, to the explored depth of 25 in Boring B-43, and to a depth of 18 ft in Boring B-44. In Boring B-44, the overburden material was underlain by relatively weathered granitic to gneissic bedrock to the explored depth of 25 ft.	Not encountered at the time of drilling.

APPENDIX-E
WETLAND SURVEY REPORT

Winter Park Resort

2022 Base Area Wetlands Evaluation

October 2022

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Acronyms

AA	Assessment Areas
Alterra	Alterra Mountain Company
AOI	Area of Interest
CDOT	Colorado Department of Transportation
CNHP	Colorado Natural Heritage Program
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GPS	Global positioning system
Hwy 40	U.S. Highway 40
MDP	Master Development Plan
NRCS	Natural Resources Conservation Service
NI	No Indicator
NWI	National Wetlands Inventory
OBL	Obligate
OHWM	Ordinary High Water Mark
Owl Ridge	Owl Ridge Natural Resource Consultants, Inc.
UPL	Obligate Upland
USACE	U.S. Army Corp of Engineers
USDA	U.S. Department of Agriculture
WPR	Winter Park Resort

1. INTRODUCTION

Winter Park Resort (WPR) operates year-round recreational facilities in Grand County, Colorado. For future development purposes, Alterra Mountain Company (Alterra) required the location of aquatic resources in and around projects proposed for inclusion in the WPR base area be identified, and contracted Owl Ridge Natural Resource Consultants, Inc. (Owl Ridge) to conduct a wetland survey in support of future development projects. The purpose of this effort was to map the extent of wetlands in and adjacent to areas proposed for construction activities.

Owl Ridge biologists conducted the delineation of wetlands and waters of the U.S. (WOUS) presented in this report in accordance with applicable federal, state, and local ordinances and the U.S. Army Corps of Engineers (USACE) requirements for delineation and reporting for WOUS (USACE 1987). The wetland boundaries described in this report represent Owl Ridge's best professional judgement based on the circumstances and site conditions encountered at the time of this study.

2. SURVEY AREA AND METHODOLOGY

Current and proposed projects include a variety of locations throughout the WPR base area on the west side of U.S. Highway 40 (Hwy 40), and adjacent lands on the east side of Hwy 40. Areas included for this survey are shown in Figure 1.

The survey was conducted over two periods (July 18-21 and August 30, 2022). Weather during both field efforts was sunny to partly cloudy, with afternoon thunderstorms. Site and weather conditions were favorable for identifying and delineating wetland resources within the survey area.

2.1 Pre-Survey Review

Prior to the field visits, the following documents and resources were reviewed to determine guidelines and criteria needed for assessing wetlands within the survey area:

- Regional Supplement to the U.S. Corps of Engineers (USACE) Wetland Delineation Manual (1987): Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE May 2010)
- Corps of Engineers Wetlands Delineation Manual (USACE 1987)
- A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (USACE 2014)
- State of Colorado 2018 Wetland Plant List (USACE 2018)
- Ecological Integrity Assessment for Colorado Wetlands (Colorado State University 2013)
- Aerial imagery
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS): Soil Survey Data (USDA 2022)
- Colorado Wetland Inventory (CNHP 2022) in conjunction with National Wetlands Inventory (NWI) program (USFWS 2022)

2.2 Field Survey

The team conducted a complete assessment within the confines of the pre-determined survey areas (Figure 1) using aerial imagery, visual observations, and proposed improvements defined in the Phase I Master Development Plan (MDP). Particular attention was paid to assessing locations that appeared to contain potential wetland vegetation as well as the areas expressing the presence of wetland hydrology and hydric soils. Paired soil test pits were excavated at representative locations to examine hydrology and soil conditions. Photographs of representative site conditions were taken during the survey. Potential wetland features and photo points were mapped using a Trimble R2 GPS with sub-meter accuracy.

Potential jurisdictional wetlands were evaluated in accordance with the Wetland Delineation Manual (USACE 1987) and Western Mountains, Valleys, and Coast Region, Regional Supplement (USACE 2010). Wetlands are defined by the USACE as:

> *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

Potential wetlands were identified by the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. Methods used to evaluate each of these parameters are discussed below.

2.2.1 Vegetation

Vegetation at potential wetland areas was assessed for the prevalence of hydrophytic plants. The wetland indicator status of each dominant plant species was determined using the Wetland Plant List (USACE 2018). The list divides plants into five categories that reflect the range of estimated probabilities (expressed as a frequency of occurrence) of a species occurring in a wetland versus a non-wetland as follows (USACE 1987):

- Obligate (OBL) – Plants that occur almost always in wetlands under natural conditions
- Facultative Wetland (FACW) – Plants that occur usually in wetlands, but also occur in non-wetlands
- Facultative (FAC) – Plants with similar likelihood of occurring in both wetlands and non-wetlands
- Facultative Upland (FACU) – Plants that occur sometimes in wetlands, but occur more often in non-wetlands
- Obligate Upland (UPL) – Plants that occur rarely in wetlands, but occur almost always in non-wetlands under natural conditions

Plant identification was determined using several resources specific to Colorado and the western U.S. mountain region:

- Flora of Colorado (Ackerfield 2015)
- Trees and Shrubs of Colorado (Carter 2006)
- Field Guide to Intermountain Sedges (Hurd et al. 1998)
- Field Guide to Intermountain Rushes (Hurd et al. 1997)
- Field Guide to Colorado's Wetland Plants (Culver et al. 2013)

- Field Guide to the Wetland and Riparian Plant Associations of Colorado (CNHP 2003)

2.2.2 Hydrology

The Wetland Delineation Manual (USACE 1987) and Western Mountains, Valleys, and Coast Region, Regional Supplement (USACE 2010) provide a list of primary and secondary field indicators of wetland hydrology and prescribe field procedures for detecting these indicators. Potential wetland areas were examined for surface water, a water table, and/or saturation, and primary and secondary field indicators of wetland hydrology including:

- Visual observation of surface inundation or soil saturation at the surface
- Water marks on stems and fixed objects
- Drift lines consisting of debris and waterborne material
- Sediment deposition
- Visual evidence of surface flows and ponding
- Evidence of drainage patterns
- Geomorphic position
- Site-dependent features based on the professional judgment of the delineator

2.2.3 Soils

The preliminary assessment of potential wetland soil types (hydric soils) was performed prior to the field effort and relied on the mapped soil types provided by the NRCS soil survey data (USDA 2022). The dominant soil types within the survey area include:

- Leighcan family (Map Unit 7201B). This soil type is described as cobbly silt loam and very cobbly sandy loam on slopes of 5 to 40 percent. It has a high runoff class with a drainage class of somewhat excessively drained. This is not a Hydric Soil.
- Cryaqualls-Leighcan family, till substratum complex (Map Unit 7103A). The Cryaqualls portion is described as a silt loam trending towards a sandy loam at depth occurring on slopes of 0 to 15 percent. The drainage class is poorly drained. This soil type is found along floodplains, drainageways, and depressions and is considered a Hydric Soil type.
- Leighcan family, till substratum-Cryaquolls complex (Map Unit 7202B). The composition of this soil type is 60 percent Leighcan family and 25 percent Cryaquolls. The Cryaquolls portion is composed of poorly drained silt loams on slopes of 5 to 40 percent. This is a Hydric Soil.
- Leighcan family (Map Unit 7700C). The composition of this soil type is 85 percent Leighcan family and 15 percent minor components. This somewhat excessively drained soil is found on 40 to 75 percent slopes, and is not considered a Hydric Soil.
- ML Dams and Mine Dumps (Map Unit ML). This is a non-soil type and has an unranked Hydric Soil rating. It is mapped throughout the Winter Park Resort base area adjacent to Hwy 40 and the Fraser River. It most likely reflects the historic use of this area of Colorado.

Soil pits were excavated to at least 18 inches in most cases, but due to the cobbly and rocky nature of the area, refusal was encountered at shallower depths at several locations. Shallow water tables also limited deeper pits in some locations. This did not preclude a complete assessment of the soil type or conditions.

2.3 Wetland Functional Assessment

In addition to delineating wetland resources, an assessment of each wetland was conducted using the Colorado Department of Transportation's Functional Assessment of Colorado Wetlands (FACWet) Method (CDOT 2013). FACWet is a weight-of-evidence, forensic assessment method that is used to rate the functional condition of wetlands according to the best evidence obtainable under the circumstances of a specific project. It compares the wetland feature in question to a fully functioning undisturbed natural wetland. It is often used to aid in determining mitigation requirements for a given situation.

There are three main attributes to consider; Buffer and Landscape Context, Hydrology, and Abiotic and Biotic Habitat. Each attribute was considered and appropriate data sheets completed for each. There are set scoring parameters for each category with the final score determined by a pre-determined formula. There are five functional categories for the final score (1.0 down to <0.6): Reference Standard, Highly Functioning, Functioning, Functioning Impaired, and Non-Functioning.

3. RESULTS

3.1 Wetland Delineations

A total of ten wetland features were mapped during the field effort. Table 1 summarizes pertinent data for each mapped wetland. Figure 1 is an overview of each mapped feature, with more detailed maps provided in Figures 2-6. Appendix A lists the dominant plant species observed during the survey along with each plant's wetland status. Appendix B contains representative photos taken during the survey. Complete photo documentation is provided in digital format. The Wetland Determination Data Sheets can be viewed in Appendix C. The FACWet analysis score card is provided in Appendix D.

A careful examination of each area was conducted during the survey effort to assess wetland resources. The biologists walked the entirety of each site, excavating soil test pits at representative locations as needed. A Wetland Determination Data Form was completed for all test pits, where vegetation, soils, and hydrology were assessed. Photo documentation was completed for both wetland and upland habitats with a unique ID assigned to each GPS location. A detailed discussion of each area is provided below.

A1: Area A1 (Figure 2, Figure 3) is approximately 28.0 acres located on the east side of Hwy 40. Jim Creek bisects a portion of the site and supports most of the hydrology for the wetland habitat indicated in Figure 2. One 10.54 acre wetland (A1-W1) was delineated in this area. Wetland A1-W1 has a prevalence of wetland vegetation including rushes, sedges, and willow (Photograph 1). A portion of A1-W1 is forested with Douglas fir (*Pseudotsuga menziesii*) and lodgepole pine (*Pinus contorta*). Hydric soils were present and confirmed the mapped soil survey data (USDA 2022). Hydrology appears to be groundwater sources and Jim Creek. The Colorado Wetland Mapper and NWI data confirm this wetland habitat (CNHP 2022; USFWS 2022).

A2: Area A-2 (Figure 2, Figure 3) is approximately 5.0 acres located on the east side of Hwy 40, immediately adjacent to the north of A1. Upland montane mixed conifer forest consisting of lodgepole pine (*Pinus contorta*), Douglas fir (*Pseudotsuga menziesii*), and quaking aspen (*Populus tremuloides*) dominates the site (Photograph 2). One isolated wetland feature (A2-W1) was mapped at 0.04 acres.

Sedge is the dominant vegetation of wetland A2-W1 (Photograph 3). Hydric soils were present and confirmed the mapped soil survey data (USDA 2022). Hydrology is heavily influenced by runoff from an up-gradient campground and associated access road.

A3: Area A3 (Figure 2, Figure 3) is approximately 5.7 acres located on the west side of Hwy 40, southwest and down-gradient of F Lot and adjacent to the Fraser River. Upland montane mixed conifer forest consisting of lodgepole pine (*Pinus contorta*) and Douglas fir (*Pseudotsuga menziesii*) dominates the site. One wetland feature (A3-W1) associated with Jim Creek was mapped at 0.19 acres. Wetland A3-W1 vegetation is dominated by willow and sedge. Hydric soils were present and confirmed the mapped soil survey data (USDA 2022). Hydrology is heavily influenced by runoff from Hwy 40 and up-gradient gravel surfaces.

A4: Area A4 (Figure 2, Figure 3, Figure 4) is approximately 7.6 acres located southwest and adjacent to Winter Park Drive with the Fraser River bisecting a portion of the area (Photograph 4). The site is dominated by upland montane mixed conifer forest consisting of lodgepole pine (*Pinus contorta*), Engelmann's spruce *(Picea engelmannii),* and Douglas fir (*Pseudotsuga menziesii*). This area includes existing residential development as well as active construction activities. Two wetland features associated with the Fraser River were located in this area: A4-W1 at 0.4 acres and A4-W2 at 0.23 acres for a total of 0.63 acres. These two wetlands were defined by a dominance of willow and sedge vegetation. Hydric soils were present and confirmed the mapped soil survey data (USDA 2022). Hydrology appears to be groundwater sources, but is influenced by runoff from up-gradient gravel and paved road surfaces.

A5: Area A5 (Figure 3, Figure 4) is approximately 8.2 acres located on the west side of Hwy 40 adjacent to the Winter Park Drive Parking lot and Winter Park Dive. Upland montane mixed conifer forest consisting of lodgepole pine (*Pinus contorta*), Engelmann's spruce *(Picea engelmannii),* quaking aspen (*Populus tremuloides*), and Douglas fir (*Pseudotsuga menziesii*) dominates the site. There is no wetland habitat.

A6 and A7: Areas A6 and A7 are small, isolated areas (Figure 4) totaling 0.36 acres located within the existing residential development of Iron Horse Resort. Upland montane mixed conifer forest consisting of lodgepole pine (*Pinus contorta*), Engelmann's spruce *(Picea engelmannii),* quaking aspen (*Populus tremuloides*), and Douglas fir (*Pseudotsuga menziesii*) dominates the site. There is no wetland habitat.

A8: Area A8 (Figure 3, Figure 4) is approximately 9.4 acres and is located adjacent to Winter Park Drive, immediately north of Iron Horse Resort, with a portion of the Fraser River along its eastern boundary (Photograph 5). Area A8 had a large wetland feature of 6.12 acres (A8-W1) with a dominance of willow and sedge wetland vegetation. Hydric soils were present but not confirmed by the mapped soil survey data (USDA 2022). The mapped unit ML soil type denotes historic mining activities and disturbance. Hydrology appears to be from groundwater sources coming off the mountain to the west, but is also influenced by runoff from paved surfaces to the south.

A9–A15: Areas A9–A15 (Figure 4, Figure 5) have a combined area of approximately 3.4 acres and are located immediately west of and adjacent to Winter Park Drive at the center of the Winter Park base area. The Fraser River runs through the center of these areas. Willow species with scattered conifers dominate this riparian habitat, with steep banks of rock, gravel, and sand found along these areas.

Although the Fraser River provides some hydrology to this community, these areas are heavily influenced by runoff from adjacent paved surfaces. There is no wetland habitat.

A16: Area A16 (Figure 5) is approximately 8.1 acres located between Winter Park Drive and the North Bench Parking Lot and has one wetland feature of 1.75 acres (A16-W1). Sedges, wetland grasses, and willow are the dominant wetland vegetation. Hydric soils were present (Photograph 6) but not confirmed by the mapped soil survey data (USDA 2022). The mapped ML soil type denotes historic mining activities and disturbance. Hydrology appears to be from groundwater sources coming off the slopes to the east, but is also influenced by runoff from paved surfaces to the north and south.

A17 and A18: Areas A17–A18 (Figure 5) have a combined total of approximately 2.1 acres located between Hwy 40 and the North Bench Parking Lot. These narrow wooded strips of upland montane mixed conifer forest are dominated by Lodgepole pine (*Pinus contorta*), Engelmann's spruce *(Picea engelmannii),* quaking aspen (*Populus tremuloides*), and Douglas fir (*Pseudotsuga menziesii*). There is no wetland habitat.

A19 and A20: Areas A19–A20 (Figure 6) have a combined total of approximately 6.0 acres and are located immediately west of the railroad tracks on the steep mountainside just below Turnpike ski run. Lodgepole pine (*Pinus contorta*), Engelmann's spruce *(Picea engelmannii),* quaking aspen (*Populus tremuloides*), and Douglas fir (*Pseudotsuga menziesii*) dominate this upland montane mixed conifer forest. There is no wetland habitat.

A21: Area A21 (Figure 6) is approximately 3.7 acres located between the railroad tracks and Winter Park Drive. There is a small area of native vegetation, but the site is dominated and heavily impacted by industrial and residential uses. There is no wetland habitat.

A22: Area A22 (Figure 2, Figure 3) is approximately 2.2 acres located between Hwy 40 and F Lot. The site has one wetland feature of 0.04 acres (A22-W1) associated with Jim Creek. Sedges and willow are the dominant wetland vegetation. Hydrology appears to be a combination of groundwater sources and Jim Creek, but also influenced by runoff from up-gradient paved surfaces (Hwy 40).

A23: Area A23 (Figure 6) is approximately 1.35 acres located along the roadside near the Spirit Lift at the base of the resort. Area A23 has one wetland feature of 0.03 acres (A23-W1) concentrated in a depression that is associated with runoff captured from upslope (Photograph 7). Willows and wetland grasses are the dominant vegetation. A culvert drains the wetland downslope along the roadside, but wetland conditions do not continue.

A24: Area A24 (Figure 4) is located at the base of a slope adjacent to the road and has a wetland feature of 0.03 acres (A24-W1) present at the base of the slope (Photograph 8). The wetland is densely vegetated with birch, willow, and wetland grasses. Hydrology is provided by upslope flows concentrating along the roadside. A culvert drains the wetland to the other side of the road.

Table 1. Summary of Wetland Features

Wetland ID	Mapped (Acres)	Hydrophytic Plants	Hydrology	Soils
A1-W1	10.54	Rushes, Willow, Sedges present. Partially Forested	Saturated to Surface Associated with Jim Creek	Hydric Soils Confirmed with Soil Survey Data
A2-W1	0.04	Sedges	Impacted from Campground & Access Road	Hydric Soils Present
A3-W1	0.19	Sedges, Willow	Saturated to Surface Associated with Jim Creek	Hydric Soils Confirmed with Soil Survey Data
A4-W1	0.40	Rushes, Sedges, Willow	Saturated to Surface	Hydric Soils Confirmed with Soil Survey Data
A4-W2	0.23	Rushes, Sedges, Willow	Saturated to Surface	Hydric Soils Confirmed with Soil Survey Data
A8-W1	6.12	Rushes, Sedges, Willow Partially Forested	Saturated to Surface	Hydric Soils Present
A16-W1	1.75	Rushes, Sedges, Willow Partially Forested	Saturated to Surface	Hydric Soils Present
A22-W1	0.04	Rushes, Sedges, Willow	Saturated to Surface Associated with Jim Creek	Hydric Soils Present
A23-W1	0.03	Willows, Grasses	Saturated to Surface	Hydric Soils Present
A24-W1	0.03	Willows, Grasses	Saturated with High Water Table	Hydric Soils Present

3.2 Wetland Functional Assessment (FACWet)

A functional assessment was performed for the wetland habitat mapped during the field effort. The proposed Phase I plans (Figure 1) were used as the Area of Interest (AOI) for this analysis. All ten wetland areas were included as Assessment Areas (AA) within the AOI. The project area includes a variety of factors impacting the parameters used in the FACWet analysis. These include: Hwy 40, parking lots, residential areas, packed/gravel surfaces, railroad, walkways, and industrial uses. Despite these potential negative impacts, the wetlands discussed above appear to have some positive attributes. The final FACWet Scorecard was a 0.7 (Functioning), indicating:

> *The capacity of some or all of the AAs functions has been markedly altered, but the wetland still provides the types of functions associated with its habitat type.*

The main driver affecting these wetlands is hydrology. All of the wetlands described are known as slope wetlands and the hydrology is associated with the discharge of groundwater to the land surface. The predominant source of water is groundwater of interflow discharging to the land surface (CDOT 2013). The up-gradient areas adjacent to the mapped wetlands have been modified (e.g., paving, compaction) and likely influence the wetland hydrology both negatively and positively.

4. DISCUSSION

Ten wetland features were mapped during the survey effort. The results of this report will be used during the planning stages of future development. The appropriate regulatory process will be followed if future development results in unavoidable impacts to any of the identified wetlands.

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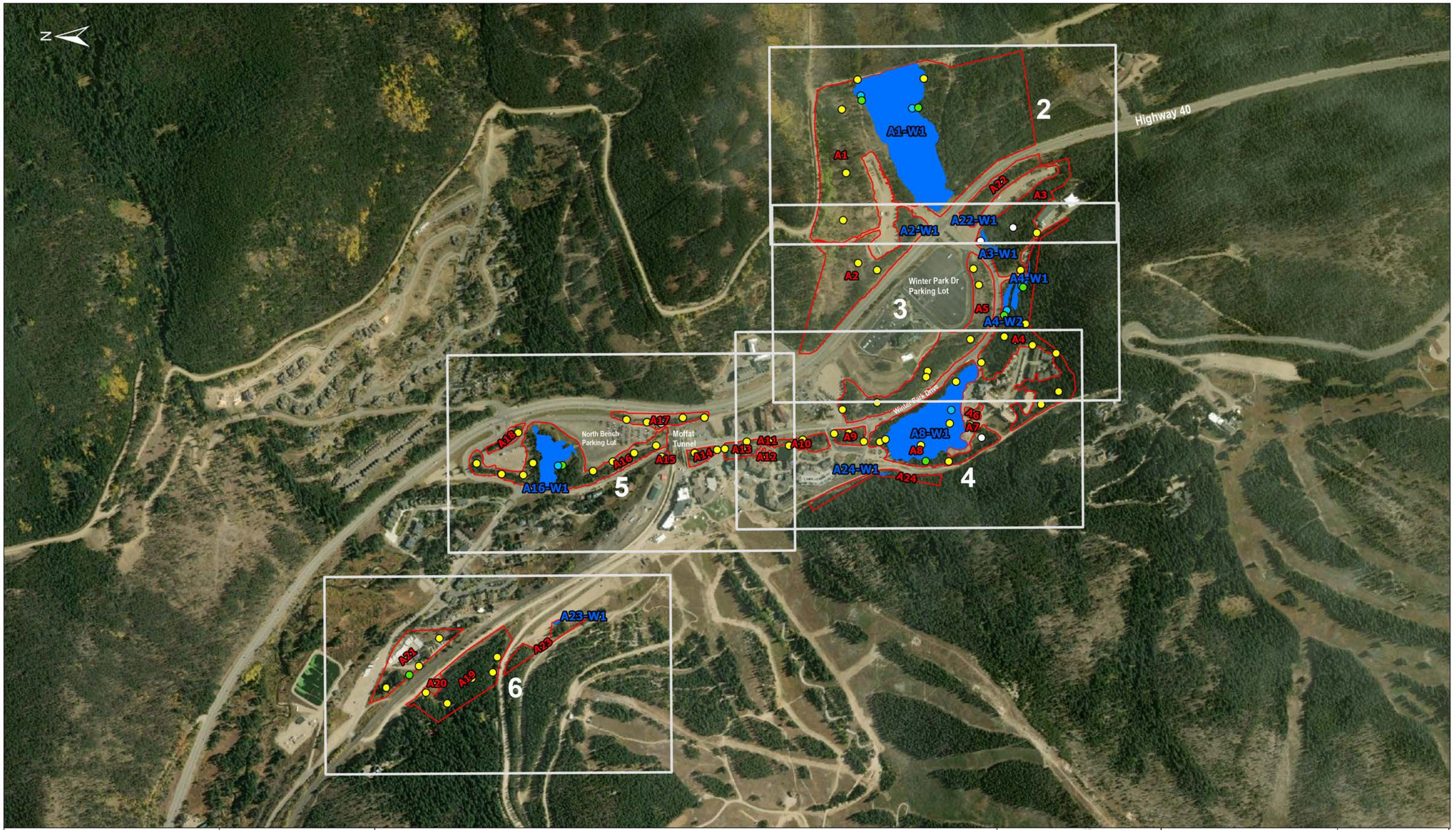
FIGURES



Point Type

- Other
- Photo
- Upland
- Wetland

- Map Index
- Survey Area
- Wetland

ALTERRA MOUNTAIN COMPANY

ALTERRA MOUNTAIN COMPANY

AREA OF WETLAND EVALUATION - OVERVIEW

Wyoming
Colorado
Winter Park
PROJECT LOCATION

SCALE:
0 550 1,100 Ft
0 130 260 M

FIGURE:
1

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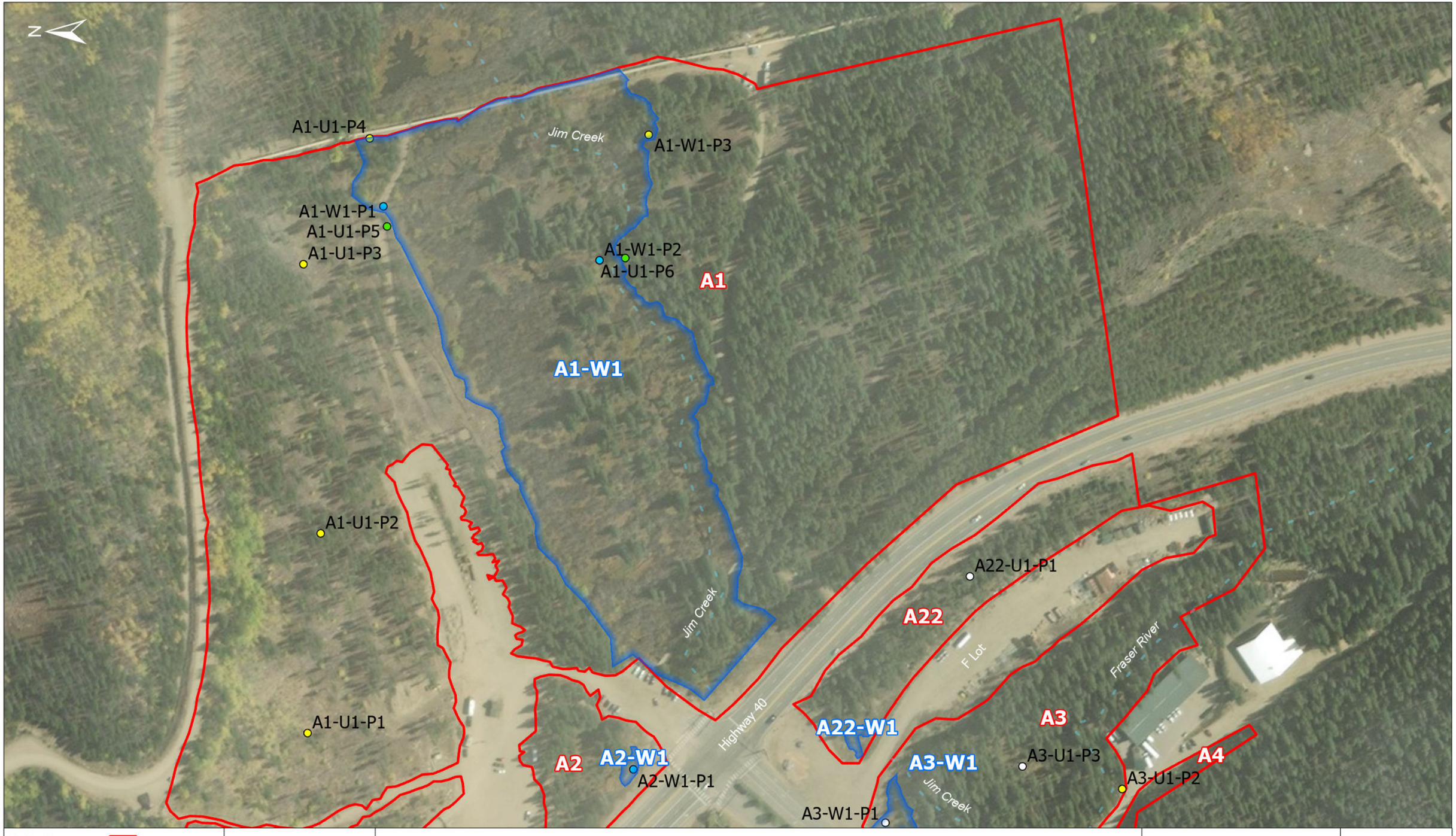

Point Type

- Other
- Photo
- Upland
- Wetland

- Survey Area
- Wetland
- Rivers

ALTERRA MOUNTAIN COMPANY

ALTERRA MOUNTAIN COMPANY

AREA OF WETLAND EVALUATION

SCALE:

0 75 150 300 Ft

0 12.5 25 50 M

FIGURE:

2

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Point Type

- Other
- Photo
- Upland
- Wetland

- Survey Area
- Wetland
- Rivers

ALTERRA MOUNTAIN COMPANY

ALTERRA MOUNTAIN COMPANY

AREA OF WETLAND EVALUATION

SCALE:

0 75 150 300 Ft

0 12.5 25 50 M

FIGURE:

3

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Point Type

- Other
- Photo
- Upland
- Wetland

- Survey Area
- Wetland
- Rivers

ALTERRA MOUNTAIN COMPANY

ALTERRA MOUNTAIN COMPANY

AREA OF WETLAND EVALUATION

SCALE:

0 75 150 300 Ft

0 12.5 25 50 M

FIGURE:

4

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Point Type

- Other
- Photo
- Upland
- Wetland
- Survey Area
- Wetland
- Rivers

ALTERRA MOUNTAIN COMPANY

ALTERRA MOUNTAIN COMPANY

AREA OF WETLAND EVALUATION

SCALE:

0 75 150 300 Ft

0 12.5 25 50 M

FIGURE:

5

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Point Type

- Photo
- Upland
- Survey Area
- Wetland
- Rivers

ALTERRA MOUNTAIN COMPANY

ALTERRA MOUNTAIN COMPANY

AREA OF WETLAND EVALUATION

SCALE:

0 75 150 300 Ft

0 12.5 25 50 M

FIGURE:

6

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APPENDIX A
Dominant Plant Species Observed During the Survey

Scientific Name	Common Name	Wetland Plant Status
Achillea millefolium	Common Yarrow	FACU
Agrostis gigantea	Redtop	FAC
Alnus incana	Thinleaf Alder	FACW
Alopercurus pretensis	Meadow Foxtail	FAC
Anaphalis margaritacea	Pearly Everlasting	FACU
Arctostaphylos uva-ursi	Kinnikinnick	FACU
Arnica latifolia	Daffodil leopardbane	FAC
Bromus inermis	Smooth Brome	UPL
Calamagrostis canadensis	Canadian Reedgrass	FACW
Caltha leptosepala	Marsh Marigold	OBL
Carex aquatilis	Water Sedge	OBL
Carex canescens	Hoary Sedge	FACW
Carex lenticularis	Kellogg Sedge	OBL
Carex nebrascensis	Nebraska Sedge	OBL
Carex utriculata	North-west Territory Sedge	OBL
Cinna latifolia	Drooping Woodreed	FACW
Cirsium arvense	Canadian Thistle	FAC
Deschampsia cespitosa	Tufted Hairgrass	FACW
Eleocharis palustris	Common Spikerush	OBL
Eleocharis quinqueflora	Fewflower Spikerush	OBL
Equisetum arvense	Field Horsetail	FAC
Erigeron glacialis	Glacier Fleabane	FACW
Galium boreale	Northern Bedstraw	FACU
Geranium richardsonii	White Crane Bill	FAC
Glycyrrhiza lepidota	American Licorice	FAC
Heracleum maximum	American Cow-Parsnip	FAC
Juncus arcticus	Arctic Rush	FACW
Juncus balticus	Baltic Rush	FACW
Juncus compressus	Roundfruit Rush	OBL
Juncus confusus	Colorado Rush	FAC
Juncus drummondii	Drummonds Rush	FACW
Juncus ensifolius	Swordleaf Rush	FACW
Juncus mertensianus	Merten's Rush	OBL
Juncus torreyi	Torrey Rush	FACW
Mertensia ciliata	Streamside Bluebells	FACW
Micranthes odontoloma	Brook saxifrage	FACW
Muhlenbergia ssp	Muhly	FACW
Osmorhiza berteroi	Mountain Sweet Cicely	FACU
Pedicularis groenlandica	Elephant's Head	OBL

Scientific Name	Common Name	Wetland Plant Status
Phleum alpinum	Mountain Timothy	FAC
Picea engelmannii	Englemann's Spruce	FAC
Picea pungens	Blue Spruce	FAC
Pinus contorta	Lodgepole Pine	FAC
Platanthera tescamnis	Intermountain Bod Orchid	OBL
Populus tremuloides	Quaking Aspen	FACU
Potentilla gracilis	Graceful Cinquefoil	FAC
Pseudotsuga menziesii	Douglas Fir	FACU
Rosa woodsii	Wood's Rose	FACU
Salix drummondiana	Drummond’s Willow	FACW
Salix exigua	Narrow-leaf Willow	FACW
Salix monticola	Rocky Mountain Willow	OBL
Salix planifolia	Diamondleaf Willow	OBL
Senicio triangularis	Arrow-leaf Groundsel	FACW
Streptopus amplexifolius	Clasping Twistedstalk	FAC
Taraxacum officinale	Common Dandelion	FACU
Thermopsis montana	Montane Golden Banner	FAC
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FAC
Vaccinium myrtillus	Whortle Berry	UPL
Veratrum tenuipetalum	Colorado False Hellebore	NI

APPENDIX B
Representative Photographs

Photograph 1. View of large wetland, A1-W1, with rushes, sedges, and willows. Jim Creek flows west of here.

Photograph 2. View of typical upland (A2), mixed forest with lodgepole pine (*Pinus contorta*), Douglas fir (*Pseudotsuga menziesii*), and quaking aspen (*Populus tremuloides*).

Photograph 3. View of wetland, A2-W1, showing typical rushes, sedges, and willow, adjacent campground and Highway 40.

Photograph 4. View of wetland (A4-W2) with raised upland boundary (A4-U1-P8) and Fraser River to the west. Area receives run-off from Highway 40 to the north.

Photograph 5. View of typical slope wetland (A8-W1) with construction area to the south.

Photograph 6. View of soil pit in wetland, A16-W1, with Histic Epipedon hydric soil indicator, and saturation to surface.

Photograph 7. Wetland A23-W1 facing southeast from the inlet culvert. The wetland is confined between the road to the left and sloping uplands to the right.

Photograph 8. Wetland A24-W1 facing north, from above on the adjacent road. The wetland is formed by flows collected at the toe.

APPENDIX C
Wetland Delineation Forms

A1-W1

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7.18.2023
Applicant/Owner: Alterra State: CO Sampling Point: WET001
Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W
Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): Concave Slope (%): ____
Subregion (LRR): LRR E Lat: ____ Long: ____ Datum: NAD83
Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: large wetland complex with large pipe E of here. Jim Creek flows out of here

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. Salix monticola	20	Y	OBL
2.			
3.			
4.			
5.			
	20 =Total Cover		
Herb Stratum (Plot size: 5 Ft Radius)			
1. Juncus triglumis	40	Y	FACW
2. Carex aquatilis	25	N	OBL
3. Trifolium thalictrum pretensii	15		FAC
4.			
5. Pedicularis groenlandicum	2		OBL
6. Plantethera sp.	1		FACW
7.			
8.			
9.			
10.			
11.			
	83 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 1

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

A1-W1

Sampling Point: WET01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					organic	fibric
6-16	10YR 4/1	90	7.5 YR 4/6	5	C	PL	silt loam	
	10YR 2/1	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ✓ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks: hydric soil - matches wetland soil type
Charcoal bits

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✓ No ✓ Depth (inches): 1

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 6

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: hillslope

A1 - WL. P2

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/22

Applicant/Owner: Alterra State: CO Sampling Point: WET02

Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W

Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): LRR E Lat: _____ Long: _____ Datum: NAD83

Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: slightly raised mound adjacent to creek, river banks ~2'.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea Engelmenii	7		FAC
2.			
3.			
4.			
	7 =Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. salix monticola	40	D	OBL
2. exigua	10		FACW
3.			
4.			
5.			
	50 =Total Cover		
Herb Stratum (Plot size: 5 Ft Radius)			
1. Mertensia oblongifolia	1		FACU
2. geranium richardsonii	3		FACU
3. Ufleum alpinum			FAC
4. new species heracleum	6		
5. heracleum maxima	6		FAC
6. equisetum arvense	10		FAC
7.			
8.			
9.			
10.			
11.			
	20 =Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ =Total Cover		

% Bare Ground in Herb Stratum –

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- x 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

A1-W1-P2 Sampling Point: WET02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					sandy loam	no redox
6-16	10YR 3/2	60					sandy clay loam	
6-16			7.5YR 4/6	40	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks: very sandy, lots of redox in matrix, soils match mapped layers

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A4-W1

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/[illegible]/19
Applicant/Owner: Alterra State: CO Sampling Point: WET03
Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W
Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): LRR E Lat: Long: Datum: NAD83
Soil Map Unit Name: 7201B (7103A) 7202B - ML NWI classification: no
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. picea engelmenii	20		FAC
2. pinus contorta			FAC
3.			
4.			
	20 =Total Cover		

Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. salix monticola	30%	D	OBL
2.			
3.			
4.			
5.			
	30 =Total Cover		

Herb Stratum (Plot size: 5 Ft Radius)			
1. pedicularis groenlandica	3		OBL
2. pyrola asarifolia montecola	1		FAC OBL
3. erigeron peregrinus	1		
4. carex nebraskinsis	50	D	OBL
5. carex aquatalis	30	D	OBL
6. plantanthera huronensis	1		
7.			
8.			
9.			
10.			
11.			
	86 =Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 1

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL A4-W1 Sampling Point: WET03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					Fibric	not broken down great, org matter

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ✓ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: ___
Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:
fine sand towards bottom (20) some gravel present sporadically, maybe from road?
confirm soil type pit inundated quickly after digging

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✓ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ✓	No ___	Depth (inches): 1
Water Table Present?	Yes ✓	No ___	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 1

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: lots of wet signs

A4-W2

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/[illegible]/19
Applicant/Owner: Alterra State: CO Sampling Point: WET04
Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W
Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): LRR E Lat: Long: Datum: NAD83
Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: no
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____
Hydric Soil Present? Yes ✓ No ____
Wetland Hydrology Present? Yes ✓ No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: adjacent road / Fraser, diffuse boundary

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea engelmenii	5		FAC
2. pseudotsuga menziesii	10		FACU
3.			
4.			
	15	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. Salix monticola			OBL
2.			
3.			
4.			
5.			
	2	=Total Cover	
Herb Stratum (Plot size: 5 Ft Radius)			
1. carex aquatilis	50		OBL
2. carex nebrascensis	15		OBL
3. equisetum arvense	3		FAC
4. heracleum maximum	2		FAC
5. streptopus amplexifolius	1		FACW
6. geranium richardsonii	1		FAC
7. spiranthes romanzoffiana	1		FACW
8. calamagrostis canadensis	25		
9. senecio triangularis	3		
10.			
11.			
	106	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

A4-W2

SOIL

Sampling Point: WET04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					organic - fibric	
8-20	10YR 2/1	90	10YR 5/4	10	C	PL	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ✓ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

soil layer confirmed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2) → NO
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ✓	No ___	Depth (inches): ___
Water Table Present?	Yes ✓	No ___	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ✓	No 0	Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

inundation to 15"

A2. W1. P1

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/19/2

Applicant/Owner: Alterra State: CO Sampling Point: WETO5

Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W

Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): LRR E Lat: Long: Datum: NAD83

Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: NO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: semi-isolated wetland, heavily influenced by human mods nearby. (culvert, campground, drainage)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. pinus contorta	3		FAC
2. abies lasiocarpa	2		
3.			
4.			
	5	=Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. salix monticola	5		OBL
2.			
3.			
4.			
5.			
	5	=Total Cover	

Herb Stratum (Plot size: 5 Ft Radius)			
1. carex aquatilis	70		OBL
2. Elymus elymoides	5		FAC
3. pascopyrum smithii	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80	=Total Cover	

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

A2-W1-P1 Sampling Point: WET05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	90	10YR 6/3	10	C	PL	loamy clay	
8-16	10YR 4/2	95	10YR 5/4	5	C	PL	sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

depression subject to ponding

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: heavily influenced by hwy 40, adjacent campground site is in depression/ditch with culvert

A8-W1

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/20
Applicant/Owner: Alterra State: CO Sampling Point: WET06
Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W
Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): LRR E Lat: Long: Datum: NAD83
Soil Map Unit Name: 7201B - 7103A - 7202B - (ML) NWI classification: no but within
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.) old data boundary WPR
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: Southern central end of large wetland. Construction to the S+E. Fraser River to the W. Old data shows it's wet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea Engelmenii	3		FAC
2. ~~Pseudotsuga menziesii~~			~~FACU~~
3. Pinus contorta	5		FAC
4.			
	8	=Total Cover	

Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. Salix monticola	3		OBL
2.			
3.			
4.			
5.			
	3	=Total Cover	

Herb Stratum (Plot size: 5 Ft Radius)			
1. Mertensia ~~oblongifolia~~ ciliata	5		FACW
2. Carex aquatilus	40	D	OBL
3. Carex nebrascansis	30		OBL
4. heracleum maximum	2		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	77	=Total Cover	

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum -

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: A few large down/dead trees. Trees are on edge of plot

SOIL

A8-W1 Sampling Point: WETOC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	98 100	10YR 5/4	2	C		Fibric	
8-18	10YR 2/2		10YR 5/4	5	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ✓ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Inundated to 14 after digging

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ✓	No ___	Depth (inches):	1	
Water Table Present?	Yes ✓	No ___	Depth (inches):	14	
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches):	0	**Wetland Hydrology Present?** Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: It's wet

A16-W1

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/20

Applicant/Owner: Alterra State: CO Sampling Point: WET07

Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W

Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): varied Slope (%): 15, NW

Subregion (LRR): LRR E Lat: Long: Datum: NAD83

Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: No, but within WPR (old data boundary)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?** Yes ✓ No
Hydric Soil Present?	Yes ✓	No	
Wetland Hydrology Present?	Yes ✓	No	

Remarks: Stepped hillslope with some depressions, open area here but wetland continues into forest

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea engelmanii			
2. Pseudotsuga menziesii	10	D	FACU
3.			
4.			
	10	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. Salix exigua	10		FACW
2.			
3.			
4.			
5.			
	10	=Total Cover	
Herb Stratum (Plot size: 5 Ft Radius)			
1. Senecio triangularis	8		FACW
2. ~~Taraxacum~~ Achillea millefolium	5		
3. Plantathera ~~sp~~ dilatata	2		FACW
4. Calamagrostis canadensis	70	D	FACW
5. Equisetum arvense	10		FAC
6.			
7.			
8.			
9.			
10.			
11.			
		=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum ~

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- x 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

A16-W1 Sampling Point: WET07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					fibric	
6-18	10YR 2/2	100					silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ✓ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: no redox, clay forms nice ribbon

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ✓	No ___	Depth (inches):	1	
Water Table Present?	Yes ✓	No ___	Depth (inches):	15	
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches):	0	**Wetland Hydrology Present?** Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Some small ponding in depressions

Paired with Al.Wl.P1 Alt. Al-Ul-P5

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/18/22

Applicant/Owner: Alterra State: CO Sampling Point: UP001

Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W

Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): flat Slope (%): 2

Subregion (LRR): LRR E Lat: Long: Datum: NAD83

Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: Wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Dear paired up point on margin of large wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. pinus contorta	10	Y	FAC
2.			
3.			
4.			
	10 =Total Cover		

Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. trifolium pratense			
2.			
3.			
4.			
5.			
	1 =Total Cover		

Herb Stratum (Plot size: 5 Ft Radius)			
1. castilleja occidentalis	5		FAC
2. erigeron sp	2		
3. trifolium pratense	10		FAC
4. geranium richardsonii	2		FAC
5. achillea millifolium	4		FACU
6. bromus inermis	5		FACU
7. phleum alpinum	5		FAC
8. balsamorhiza sagittata	4		UPL
9. taraxacum officinale	4		FACU
10.			
11.			
	41 =Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- x 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

A1-U1-P5 Sampling Point: UP001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					silt loam	
6-16	10YR 5/3	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ~~X~~ **No X**

Remarks:

no hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

no hydro

AL.UP.P6 Paired with AL.WL.P2

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/22
Applicant/Owner: Alterra State: CO Sampling Point: UP02
Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W
Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): LRR E Lat: Long: Datum: NAD83
Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: no
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes ____ No ____

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: paired upland right on other side of Jim Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus contorta	20		FAC
2. Pseudotsuga menziesii	20		FACU
3. Picea engelmanii	10		FAC
4.			
	50 =Total Cover		

Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. Salix exigua			FACW
2.			
3.			
4.			
5.			
	2 =Total Cover		

Herb Stratum (Plot size: 5 Ft Radius)			
1. pedicularis			
2. trifolium	3, 4		
3. castilleja occidentalis	1		FAC
4. taraxacum officinale	3, 4		FACU
5. cameron angustifolium	1		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	10 =Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: UP02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 5/3	100					← Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks:

~~not~~ not a wetland soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

nothing notable

A4.U1.P7 Paired with A4.W1

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/23/19
Applicant/Owner: Alterra State: CO Sampling Point: ~~UP03~~ UP03
Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W
Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): LRR E Lat: Long: Datum: NAD83
Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: no
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea Engelmenii	7		FAC
2. pinus ~~contorta~~ contorta	10		FAC
3. abies lasiocarpa	3		FACU
4. pseudotsugmenziesii	5		FACU
	25 =Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1. salix exigua			FACW
2.			
3.			
4.			
5.			
	2 =Total Cover		
Herb Stratum (Plot size: 5 Ft Radius)			
1. carex nebraskensis	15		OBL
2. chamerion latifolia			FACU
3. ~~UNKN cover~~	~~70~~ 70	D	
4. ↳ vaccinium myrtillus			UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	=Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

A4 U1.P7 Sampling Point: UP03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock

Depth (inches): 8

Hydric Soil Present? Yes ___ No X

Remarks: bedrock refusal at 8"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ~~X~~ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: no hydro

A4.U1.P8 Paired with A4.W2.P1

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort City/County: Grand County Sampling Date: 7/[illegible]/19
Applicant/Owner: Alterra State: CO Sampling Point: UP04
Investigator(s): D Fillipi / Shira Ellenson Section, Township, Range: T2S - R75W
Landform (hillside, terrace, etc.): Slope / Riverine Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): LRR E Lat: Long: Datum: NAD83
Soil Map Unit Name: 7201B - 7103A - 7202B - ML NWI classification: no
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____ or Hydrology / naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: isolated raised mound, close to road disturbed tree cuttings in area - signify disturbance, trails bisect area

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	10		FACU
2. Picea engelmanii	5		FAC
3.			
4.			
	15 =Total Cover		

Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		

Herb Stratum (Plot size: 5 Ft Radius)			
1. Equisetum arvense	30		FAC
2. ~~UNK grnd cover~~	16		UPL
3. Vaccinium myrtillus			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 =Total Cover		

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

A4-U1-P8 Sampling Point: UP04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Fibric	
3-16	10YR 4/4	50						
3-16	~~10YR 6/6~~	~~50~~	10YR 6/6	50	C	M	loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: bedrock

Depth (inches): 16"

Hydric Soil Present? Yes ___ No X

Remarks: refusal at 16"

soil layer confirmed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

no hydro

A8.U1.P3

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort | City/County: Grand County | Sampling Date: 7/20
Applicant/Owner: Alterra | State: CO | Sampling Point: UP05
Investigator(s): D Fillipi / Shira Ellenson | Section, Township, Range: T2S - R75W
Landform (hillside, terrace, etc.): Slope / Riverine | Local relief (concave, convex, none): convex | Slope (%): 2, NW
Subregion (LRR): LRR E | Lat: | Long: | Datum: NAD83
Soil Map Unit Name: 7201B - 7103A - 7202B (ML) 7700C border | NWI classification: no [illegible]
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No /	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No /	
Wetland Hydrology Present?	Yes ____	No /	

Remarks: microtopo is convex, but about ~30' below road so recieving runoff + hydro impact

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft Radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	40	D	
2.			
3.			
4.			
	40 =Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft Radius)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5 Ft Radius)			UPL
1. ~~UNEA~~ vaccinium myrtillus	15		FAC
2. equisetum arvense	5		FAC
3. geranium richardsonii	5		FAC
4. ~~pasaopyron~~			~~FAC~~
5. trifolium repens	15		FAC
6. orobanche sp.	1		
7. senecio triangularis	1		FAC
8.			
9.			
10.			
11.			
	41 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
x 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: lots of duff near pit

SOIL

A8.U1.P3

Sampling Point: UP05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					sandy loam	
6-18	10YR 3/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks: no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydro indicators

M

A16

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: WPR City/County: Grand Cty Sampling Date: 7/20

Applicant/Owner: Alterra State: CO Sampling Point: UP06

Investigator(s): DF, SE Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 10

Subregion (LRR): CRRE Lat: Long: Datum:

Soil Map Unit Name: ML NWI classification: ND

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No /	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No /	
Wetland Hydrology Present?	Yes ____ No /	

Remarks: open hillslope on wetland edge downslope from parking lot receives runoff from lot above, moderate slope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea engelmenii	15	D	FAC
2. Pseudotsuga menziesii	5		FACU
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. salix exigua	5	D	FACW
2. salix sp.	5		
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Heracleum maximum (richardsonii)	7		FAC
2. Taraxacum officinale (montanum)	8		FACU
3. geranium	3		FAC
4. trifolium pratense	5		FACU
5. senecio triangularis	7		FACW
6. Calamagrostis canadensis	25		FACW
7. erigeron glacialis	3		FACW
8. equisetum arvense	17		FAC
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

FOU

A21.UL.P2

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Winter Park Resort City/County: Grand Sampling Date: 7/21/22

Applicant/Owner: Alterra State: CO Sampling Point: UP07

Investigator(s): DF, SE Section, Township, Range:

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): Slope (%): 3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: ML NWI classification: no, but UPR yes

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ____	
Wetland Hydrology Present?	Yes ____ No ____	

Remarks: Immediately adjacent to railroad tracks
topo is in small ditch like feature ~15' below railroad.

VEGETATION – Use scientific names of plants.

runoff/hydro influenced

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus contorta	42		FAC
2.			
3.			
4.			
	2 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Salix exigua	10	D	FACW
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Cirsium arvense	20		FAC
2. potentilla gracilis	15		FAC
3. juncus balticus	5		FACW
4. gallium boreale	10		FACU
5. calamagrostis canadensis	5		FACW
6. heracleum maximum	3		FAC
7. achillea millefolium	3		FACU
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort | City/County: Grand County | Sampling Date: 8/30/22

Applicant/Owner: Winter Park Resort | State: CO | Sampling Point: WLA23-1

Investigator(s): Kizlinski | Section, Township, Range: S10, T2S R75W

Landform (hillside, terrace, etc.): floodplain | Local relief (concave, convex, none): flat | Slope (%): 0-1

Subregion (LRR): LRR E, MLRA 48A | Lat: 39.889925 | Long: -105.766730 | Datum: WGS84

Soil Map Unit Name: Leighcan family, till substratum | NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil X, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Functionally a ditch wetland formed by concentrated runoff from upslope. Fed by culvert on north end, confined to small basin with steep sides

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix drummondiana*	20	Yes	FACW
2.			
3.			
4.			
5.			
	20 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Calamagrostis canadensis*	50	Yes	FACW
2. *Achillea millefolium*	20	Yes	FACU
3. *Equisetum arvense*	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 =Total Cover		
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	10	x 3 =	30
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	100 (A)		250 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ 5 - Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: WLA23-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	95	10YR 5/2	5	D	M	Loamy/Clayey	depositional

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Soils formed by depositional events from runoff. Shallow water table in whole wetland prevents deeper pit. Problematic soils granted.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 1		
Water Table Present?	Yes X	No ___	Depth (inches): 7		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No flows from inlet at sampling, but hydro is clear

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Winter Park Resort | City/County: Grand County | Sampling Date: 8/30/22

Applicant/Owner: Winter Park Resort | State: CO | Sampling Point: WLA24-1

Investigator(s): Kizlinski | Section, Township, Range: S15, T2S R75W

Landform (hillside, terrace, etc.): toe of slope | Local relief (concave, convex, none): concave | Slope (%): 0-1

Subregion (LRR): LRR E, MLRA 48A | Lat: 39.882691 | Long: -105.762423 | Datum: WGS84

Soil Map Unit Name: Leighcan family, 40 to 75 percent slopes | NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Functionally a ditch wetland formed by concentrated runoff from upslope. Confined to depression between road and toe of slope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea engelmannii*	15	Yes	FAC
2.			
3.			
4.			
	15	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Betula occidentalis*	20	Yes	FACW
2. *Salix drummondiana*	20	Yes	FACW
3.			
4.			
5.			
	40	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Calamagrostis canadensis*	25	Yes	FACW
2. *Calamagrostis canadensis*	20	Yes	FACW
3. *Equisetum arvense*	10	No	FAC
4. *Senecio triangularis*	15	Yes	FACW
5. *Heracleum maximum*	10	No	FAC
6. *Micranthes odontoloma*	10	No	FACW
7.			
8.			
9.			
10.			
11.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: 5)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		325 (B)
Prevalence Index = B/A =	2.24		

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: WLA24-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Mucky Peat	fibric and hemic material
3-10	10YR 4/1	90	7.5YR 5/8	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

OM accumulation, shallow water table precludes deeper pit

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 5
Water Table Present?	Yes X	No ___	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 4

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water from upslope ditch and overland from surrounding slopes. 24-in culvert drains wetland to other side of road

APPENDIX D
Winter Park **FACWet Scorecard**

FACWet Score Card

Scoring Procedure:

1. Transcribe variable scores from each variable data sheet to the corresponding cell in the variable score table.
2. In each Functional Capacity Index (FCI) equation, enter the corresponding variable scores in the equation cells. Do not enter values in the crossed cells lacking labels.
3. Add the variable scores to calculate the total functional points achieved for each function.
4. Divide the total functional points achieved by the functional points possible. The typical number of total points possible is provided, however, if a variable is added or subtracted to FCI equation the total possible points must be adjusted
5. Calculate the Composite FCI, by adding the FCI scores and dividing by the total number of functions scored (usually 7).
6. If scoring is done directly in the Excel spreadsheet, all values will be transferred and calculated automatically.

VARIABLE SCORE TABLE

Buffer & Landscape Context	**Variable 1:**	**Habitat Connectivity (Connect)**	0.80
	Variable 2:	**Contributing Area (CA)**	0.65
Hydrology	**Variable 3:**	**Water Source (Source)**	0.70
	Variable 4:	**Water Distribution (Dist)**	0.65
	Variable 5:	**Water Outflow (Outflow)**	0.70
Abiotic and Biotic Habitat	**Variable 6:**	**Geomorphology (Geom)**	0.60
	Variable 7:	**Chemical Environment (Chem)**	0.80
	Variable 8:	**Vegetation Structure and Complexity (Veg)**	0.80

Functional Capacity Indices

Function 1 -- Support of Characteristic Wildlife Habitat

$V1_{connect}$	+ $V2_{CA}$	+ $(2 \times V8_{veg})$				= Total Functional Points	÷	FCI
0.80	+ 0.65	+ 1.60	+	+	+	= 3.05	÷ 4	= 0.76

Function 2 -- Support of Characteristic Fish/aquatic Habitat

$(3 \times V3_{source})$	+ $(2 \times V4_{dist})$	+ $(2 \times V5_{outflow})$	+ $V6_{geom}$	+ $V7_{chem}$				
2.10	+ 1.30	+ 1.40	+ 0.60	+ 0.80	+	= 6.20	÷ 9	= 0.69

Function 3 -- Flood Attenuation

$V2_{CA}$	+ $(2 \times V3_{source})$	+ $(2 \times V4_{dist})$	+ $(2 \times V5_{outflow})$	+ $V6_{geom}$	+ $V8_{veg}$			
0.65	+ 1.40	+ 1.30	+ 1.40	+ 0.60	+ 0.80	= 6.15	÷ 9	= 0.68

Function 4 -- Short- and Long-term Water Storage

$V3_{source}$	+ $(2 \times V4_{dist})$	+ $(2 \times V5_{outflow})$	$V6_{geom}$					
0.70	+ 1.30	+ 1.40	+ 0.60	+	+	= 4.00	÷ 6	= 0.67

Function 5 -- Nutrient/Toxicant Removal

$(2 \times V2_{CA})$	+ $(2 \times V4_{dist})$	+ $V6_{geom}$	$V7_{chem}$					
1.30	+ 1.30	+ 0.60	+ 0.80	+	+	= 4.00	÷ 6	= 0.67

Function 6 -- Sediment Retention/Shoreline Stabilization

$V2_{CA}$	+ $(2 \times V6_{geom})$	+ $(2 \times V8_{veg})$						
0.65	+ 1.20	+ 1.60	+	+	+	= 3.45	÷ 5	= 0.69

Function 7 -- Production Export/Food Chain Support

$V1_{connect}$	+ $(2 \times V5_{outflow})$	+ $V6_{geom}$	+ $V7_{chem}$	+ $(2 \times V8_{veg})$				
0.80	+ 1.40	+ 0.60	+ 0.80	+ 1.60	+	= 5.20	÷ 7	= 0.74

Sum of Individual FCI Scores 4.90

Divide by the Number of Functions Scored ÷ 7

Composite FCI Score 0.70