



# Grading, Erosion & Sediment Control Report: Haymeadow Filing No. 2 – Phases 2 & 4

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## LOCATION

The proposed Sylvan Lake Road Extension Filing 2 project (hereinafter referred to as “Site”) is located in Tracts 37, 38, 44, 55, 59, 61, 62, and 63 of Sections 2, 3, 10 and 11, Township 5 South, Range 84 West of the 6th Principal Meridian, Town of Eagle, County of Eagle, State of Colorado. The Site is platted land known as Tract X Haymeadow Filing No.1 (Rec #201907561). The Site acreage is 660 acres and is bound by Adams Rib Ranch to the east, Brush Creek Road to the south, BLM to the North, and the Town of Eagle Ice Rink and Pool complex to the west.

Filing 1 of this project included the extension/improvement of Sylvan Lake Road from just before the roundabout intersection at Brush Creek Road, to the intersection at Whitney Peak Road, as well as the related residential developments.

Phase 1 of this project is a further extension of Sylvan Lake Road from where Filing 1 left off at Whitney Peak Road, to the point before the crossing of the willow corridor, which will be constructed as part of Filing 2. Phase 1 includes an extension of approximately 875' to Sylvan Lake Road.

Filing 2 of this project is a further extension of Sylvan Lake Road from where Phase 1 left off at & of Ouzel Lane; to connect to Brush Creek Road, the other portion of Filing 2 creates a loop from Mt Hope Circle to Red Peak Road.

A Vicinity Map is included in Appendix A.

## NATURE OF CONSTRUCTION ACTIVITY

The nature of proposed construction activity is to extend Sylvan Lake Road to Brush Creek Road, and to create a loop from Mt. Hope Circle to Red Peak Road, as well as associated grading and utility installation.

## ESTIMATES OF SITE AREA

The Site is approximately 660 acres, however, is split into multiple phases. Approximately 36.2 acres will be disturbed by demolition, grading, instillation, permanent control measures, and other construction activities during this phase. The exact limits of disturbance are shown on the Grading, Erosion & Sediment Control Plan (GESC) located in Appendix D.

## SUMMARY OF EXISTING DATA

The Filing 2 Site is comprised of conditions including natural grassland, and some shrubs, generally sloping northeast to southwest.

There are two soil types on the Site as identified by the Natural Resource Conservation Service (NRCS) Web Soil Survey: Evanston Loam and Redrob Loam, both classified as Hydrologic Soil Group C. A copy of the soil survey is included in Appendix A.

There are no known significant geologic features, irrigation canals or ditches within the limits of construction.

The Site is located within Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) Community Panel Number 0393D, Map Number 08037C0393D, effective as of December 4, 2007. This Site lays in Zone X, area of minimal flood hazard. See Appendix A for FIRMette map.



## POTENTIAL NON-STORMWATER DISCHARGES

Non-stormwater components of discharge, such as underground springs and landscape irrigation return flow are not anticipated to occur with this project. However, the contractor shall be responsible to monitor for such discharges and notify the engineer in such an event.

## RECEIVING WATER(S)

The Site is tributary to Brush Creek directly downstream of the Site. The Site will discharge to the south into an existing detention pond and ultimately into Brush Creek. There are no anticipated non-storm water discharges from the development. There are no stream crossings or streams that cross the project area.

## CONSTRUCTION SCHEDULE

Construction on this Project is scheduled to commence in the Winter of 2025, directly after the completion of phase 1, construction will be completed winter of 2026. Construction best management practices (BMP's) for the entire Site shall be installed according to the GESC in Appendix D.

## STORMWATER MANAGEMENT CONSIDERATIONS

### Phase 1 – Prior to earth disturbances

- Construction Fence (CF)
- Vehicle Tracking Control (VTC)
- Straw Waddle (SW)
- Inlet Protection (IP) at the existing inlets (Refer to Grading, Erosion, & Sediment Control Plans)
- Stabilized Staging Area (SSA)

### Phase 1a – During and immediately after earth disturbances

- Maintenance of the previously installed measures
- Roadway inspection and cleanup each day
- Concrete Washout Area (CWA) installation
- Surface roughening where necessary
- Temporary Soil Stockpile (SP) area installation

### Phase 3 – After paving and underground utility construction

- Maintenance of previously installed measures
- Removal of concrete washout area

### Phase 4 – Final

- Maintenance of previously installed measures
- Request for final inspection
- Upon inspection approval, removal of temporary measures

## EROSION AND SEDIMENT CONTROL MEASURES (BMP'S)

The following BMP's shall be implemented as indicated, prior to and during construction activities on the Site. This plan indicates the purpose of and estimated timing of implementation of such BMP's. The contractor's representative shall be vigilant in ensuring that additional BMP placement is implemented immediately in the event of deficiencies of any unforeseen erosion conditions.



### **Straw Waddle**

Straw waddle is to be utilized along the perimeter of the Site. Straw waddle shall be placed along the contour, at the base of any disturbed area, as shown on the Stormwater Management Plan. Rock socks may be substituted for straw waddle as perimeter control on hard surface areas.

### **Inlet Protection**

All storm sewer inlets that are made operable during construction or previously exist adjacent to, or located within the Site, must be protected to prevent sediment-laden runoff from entering the storm sewer system. Inlet protection locations are indicated on the GESC. Inlet protection measures may be removed after upstream areas are stabilized.

### **Vehicle Tracking Control**

A vehicle tracking control area will be installed at the location shown on the GESC. All construction traffic will be required to pass through this area in order to limit the amount of sediment transported to public roadways. Whenever sediment is transported onto a public road, the road shall be cleaned immediately. Sediment shall be removed by shoveling, sweeping, or other approved methods. Street washing is not allowed.

### **Dust Mitigation**

The contractor shall have measures on Site during grading to mitigate airborne dust pollutants. Water trucks shall be used to moisten soil access drives to reduce the amount of dust particles created by wind and on-Site construction traffic.

### **Concrete Washout Area**

A concrete washout area is identified on the GESC. The concrete washout can be earth built or portable. The concrete washouts shall be maintained in effective operational condition and built to spec per the Urban Drainage and Flood Control District.

### **Stabilized Staging Area**

A Stabilized Staging Area (used for equipment storage, parking, and a loading/unloading zone) is identified on the GESC.

### **Temporary Soil Stockpile**

A temporary soil stockpile is shown on the GESC. The stockpile shall have perimeter protection that shall consist of silt fence (particularly on the downhill side of the stockpile), and rock socks, or sediment control logs (on the upslope side of the stockpile). The stockpile surface shall be stabilized with surface roughening, temporary seeding and mulching, erosion control blankets, or soil binders. Soils that will be stockpiled for more than 60 days should be seeded and mulched with a temporary grass cover once the stockpile is placed (within 14 days). Use of mulch only or a soil binder is acceptable if the stockpile will be in place between 30 to 60 days. If the perimeter protection must be moved to access the soil stockpile, the perimeter controls shall be replaced by the end of the workday.

### **Seeding and Mulching**

All disturbed areas shall be seeded and mulched within 30 days of initial exposure, or 7 days after grading is substantially complete in a given area. All disturbed areas shall be seeded and mulched per Urban Drainage and Flood Control District's criteria or as described in the approved landscape plans.



## **Surface Roughening**

Surface roughening provides temporary stabilization of disturbed areas from water and wind erosion. The soil surface is considered to be roughened if depressions are created two to six inches deep and are spaced approximately six inches apart. Surface roughening shall be performed on all disturbed and graded areas of the Site (except in areas where buildings, pavement, or sod are to be placed within 7 days). Surface Roughening should follow along the contours of the slope. Care should be taken not to allow vehicles on treated slopes, as tire tracks will smooth the roughened surface and encourage runoff to collect into channels.

## **QUALIFIED STORMWATER MANAGER**

The Qualified Stormwater Manager (QSM) shall be the construction site superintendent.

- The QSM is responsible for implementing and maintaining the Grading, Erosion & Sediment Control Plan.
- The QSM shall contact the engineer of record for development and revisions of the GESC.
- The QSM shall be responsible for reporting spills.
- The QSM shall conduct Site inspections and shall verify that repairs to the BMPs have been completed and certify corrections.
- The QSM shall conduct BMP training.

## **POTENTIAL POLLUTION SOURCES**

### **Disturbed and Stored Soils**

Disturbed and stored soils are a potential pollution source for the Site. Implementing dust mitigation, rock socks, silt fence, and sediment control logs will control the disturbed and stored soils.

### **Vehicle Tracking of Sediments**

Vehicle tracking of sediments is a potential pollution source for the Site and will be controlled by vehicle tracking control pads located at the construction entrances.

### **Management of Contaminated Soils**

The contractor shall be responsible to monitor for contaminated soils and notify the engineer and the Town of Eagle if discovered.

Any contaminated soil on Site shall be removed and disposed of.

### **Loading and Unloading Operations**

Loading and unloading operations is a potential pollution source for the Site. Loading and unloading operations shall take place within the stabilized staging area.

### **Outdoor Storage Activities**

Outdoor storage activities are a potential pollution source for the Site. Materials sometimes used at a construction site present a potential for contamination of stormwater runoff. These may include, but are not limited to: building materials, fuel, oil, lubricants, paints, solvents, concrete curing compounds, pesticides, fertilizers, chemicals, herbicides, etc. The contractor shall designate an area where these



products should be stored in an enclosure, container, or lined earthen dike, constructed to prevent discharge of these materials in runoff from the Site. These barriers will also function to contain spilled materials from contact with surface runoff. Standard Operating Procedures (SOP) for material spill containment and clean-up are provided in Appendix C.

#### **Vehicle and Equipment Maintenance and Fueling**

Vehicle and equipment maintenance and fueling is a potential pollution source for the Site. Measures shall also be taken to prevent spills or leaks of fuel, oils, lubricants, antifreeze, and other contaminant fluids from construction vehicles to protect groundwater and stormwater runoff. All equipment maintenance shall be performed in a designated area away from drainage courses, and measures such as drip pans shall be used to contain petroleum products. Dedicated fueling areas shall be protected from stormwater run on and runoff and shall be a minimum of 50 feet away from drainage courses. The area is to be protected with secondary containment such as berms and dikes. Drop cloths or drain pans can be used to catch spills if Spills of construction materials should be cleaned up immediately and disposed of properly. The contractor shall routinely inspect equipment for leaks that could lead to discharge of petroleum products into surface runoff. There will be no bulk storage of fuel onsite.

#### **Dust or Particulate Generating Processes**

Significant dust or particulate generating processes are not a potential pollution source for the Site; however minor dust or particulate may be generated during the grading process. Dust mitigation, surface roughening, and seeding and mulching shall be implemented to mitigate airborne dust pollutants.

#### **Routine Maintenance Activities**

Routine maintenance activities are a potential pollution source for the Site. The contractor shall designate an area where these practices occur and shall routinely inspect and maintain areas to eliminate the pollution source.

#### **On-Site Waste Management Practices**

On-Site waste management practices (waste piles, liquid wastes, dumpsters, etc.) are a potential pollution source for the Site. The contractor shall designate an area where these practices occur and shall routinely inspect and maintain the areas to eliminate the pollution source.

#### **Concrete Truck/Equipment Washing**

Concrete truck and equipment washing is a potential pollution source for the Site and should only occur at the designated Concrete Washout Area shown on the GESC.

#### **Dedicated Asphalt and Concrete Batch Plants**

Dedicated asphalt and concrete batch plants are not a potential pollution source for the Site. There will not be any dedicated concrete or asphalt batch plants on Site.

#### **Non-Industrial Waste Sources**

Non-industrial waste sources such as worker trash and portable toilets are a potential pollution source for the Site. The contractor shall designate an area where these practices occur and shall routinely inspect and maintain the areas to eliminate the pollution source. Portable toilets shall be located in level locations, but not in drainage paths, swales, curb and gutter or on sidewalks or drives and at least 50 feet away from storm sewer inlets and waters of the state. Downstream perimeter controls shall be installed to prevent leaks from entering the storm sewer system. For stabilization purposes, portable toilets shall be provided with tie-downs or stake-downs.



### **Other Areas or Procedures Where Potential Spills Can Occur**

Other areas or procedures where potential spills can occur are not a potential pollution source for the Site.

### **Training**

All contractor's employees and subcontractor's employees shall receive orientation training in "Spill Prevention and Response Procedures". Training will cover responsibilities and procedures to be followed in the event of an on-Site material spill. Periodic training shall be conducted during weekly or monthly safety meetings. All training records shall be maintained in the construction trailer. The contractor is responsible for preparing and training Site personnel for procedures on potential spills.

## **FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT**

Final stabilization is reached when all soil-disturbing activities at the Site have been completed, and uniform vegetative cover has been established with a density of at least seventy percent of pre-disturbance levels or equivalent permanent, physical erosion reduction methods have been employed. Upon completion, all portions of the Site outside of the proposed channel will be sodded, seeded and planted per the final stabilization plan to establish vegetation.

Long-term stormwater quality measures will be carried out by a stormwater quality pond that will detain and discharge flows at or below pre-construction levels.

## **INSPECTION AND MAINTENANCE**

Inspections will be conducted at least every 7 days. Inspection form to be provided by contractor/QSM that can be used either directly or as a go-by. At a minimum, the contractor or his agent shall produce and retain weekly written inspection records for all BMP's and after significant precipitation events or snowmelt event that causes surface erosion. All necessary maintenance and repair shall be completed immediately. However, street sweeping is to be completed by the close of the business day or on an as needed basis. It is the responsibility of the contractor to have all erosion control devices in place and effective, prior to a storm event. The GESC administrator must maintain a record of the inspection results for a period of three years following expiration or inactivation of permit coverage.

This document shall be viewed as a "living document" that is continuously being reviewed and modified as a part of the overall process of evaluating and managing stormwater quality complications that may arise on the site. The QSM shall amend the GESC when there is a change in design, construction, or O&M of the site which would require the implementation of new or revised BMPs to more effectively achieve the general objectives of controlling pollutants associated with construction activities. The QSM can also amend the GESC to remove BMPs when they are no longer necessary.

### **Record Keeping and Documenting Inspections**

The following items (at a minimum) must be documented as part of the Site inspections:

- i. The inspection date;
- ii. Name(s) and title(s) of personnel making the inspection;
- iii. Location(s) of discharges of sediment or other pollutants from the Site;
- iv. Location(s) of BMPs that need to be maintained;
- v. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;



- vi. Location(s) where additional BMPs are needed that were not in place at the time of inspection;
- vii. Deviations from the minimum inspection schedule as provided in Section IX above;
- viii. Description of corrective action for items iii, iv, v, and vi, above, dates corrective action(s) taken, and measures taken to prevent future violations, including requisite changes to the GESD, as necessary; and
- ix. After adequate corrective action(s) has been taken, or where a report does not identify and incidents requiring corrective action, the report shall contain a signed statement indicating the Site is in compliance with the permit to the best of the signer's knowledge and belief.
- x. Signed site inspection forms must be kept on-site.

## **CONCLUSION**

This Grading, Erosion & Sediment Control Plan is in conformance with the Urban Drainage and Flood Control District Erosion and Sediment Control Plan Manual and the State of Colorado Stormwater Management Plan Preparation Guidance. Additional grading, erosion and sediment control measures may be required of the owner or his/her agents, due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this plan shall be the obligation of the landowner and/or his successors or heirs; until such time as the plan is properly completed, modified, or voided.

## **LIST OF REFERENCES**

### **References**

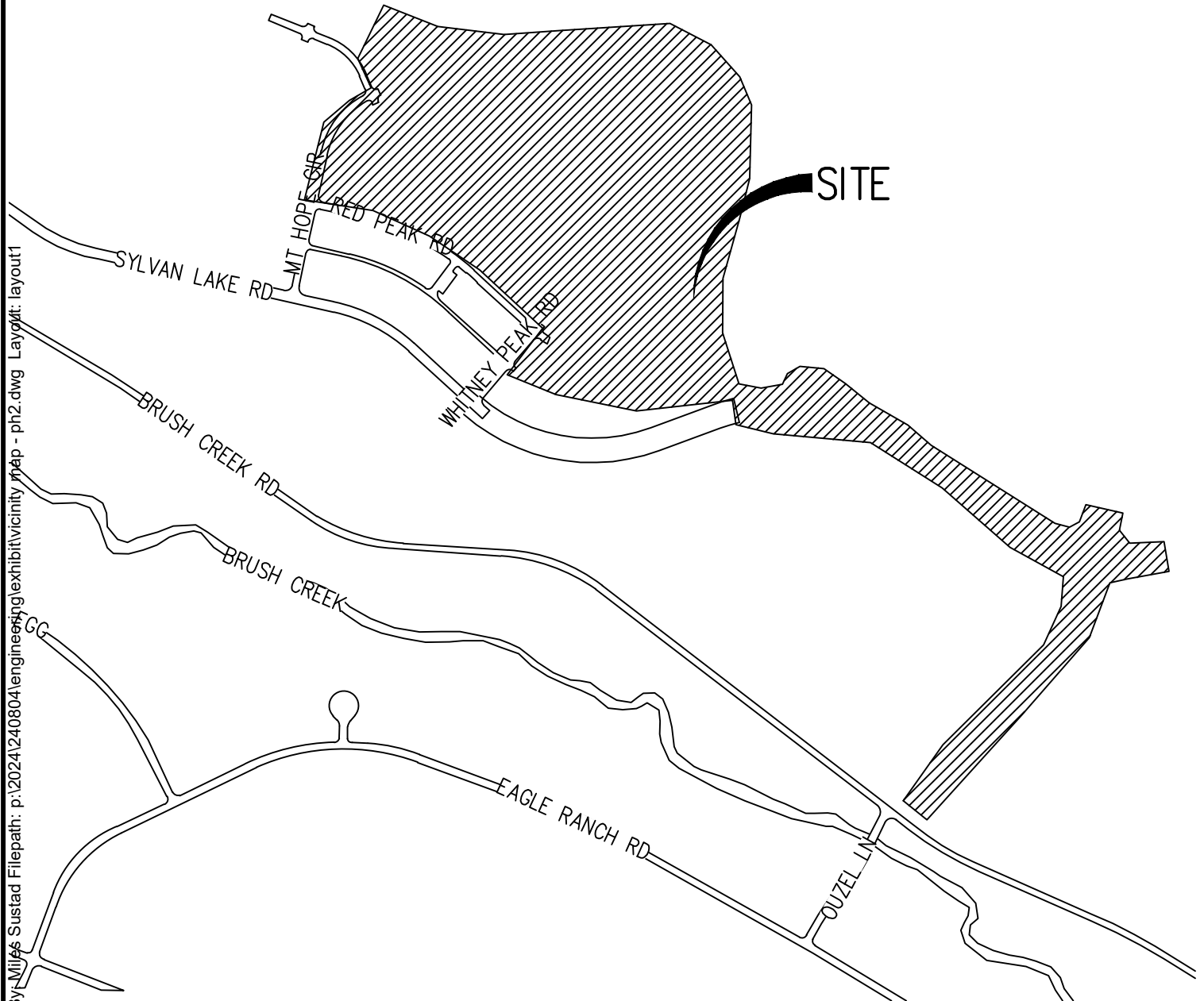
1. Urban Storm Drainage Criteria Manual: Volume 3, Best Management Practices; Urban Drainage and Flood Control District; Update November 2010.
2. Stormwater Management Plan Preparation Guidance; Colorado Department of Public Health and Environment; Revised April, 2011.



## **APPENDIX A – VICINITY/FIRMETTE/SOIL MAP**

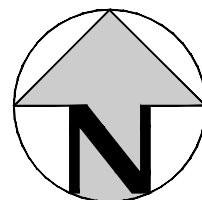


Plotted: TUE 11/12/24 3:40:36P By: Mj/s Sustad Filepath: p:\2024\240804\engineering\exhibit\vicinity map - ph2.dwg Layout: layout1



# VICINITY MAP

SCALE: 1" = 500'



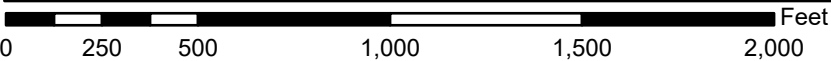
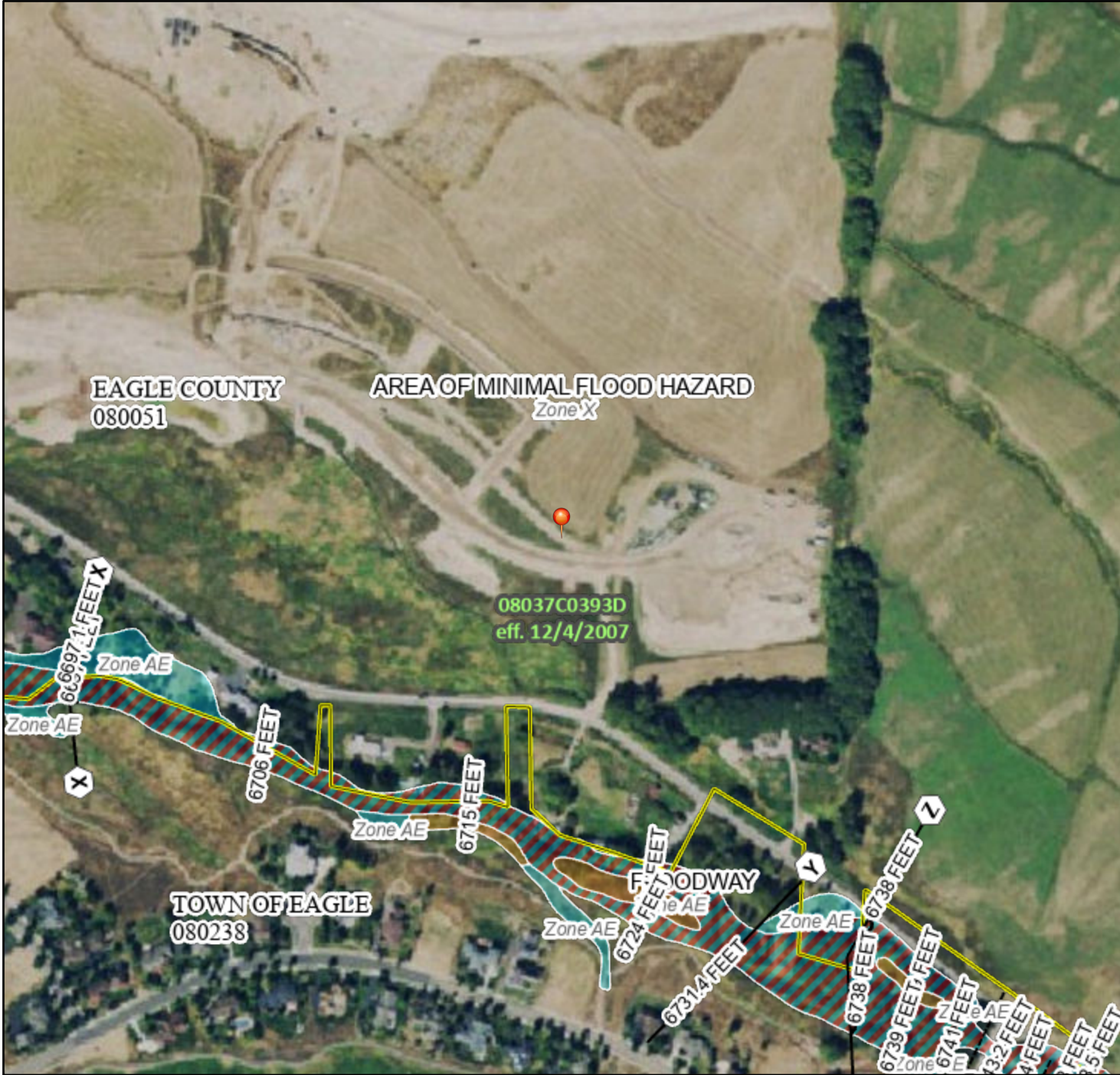
SCALE: 1" = 500'



# National Flood Hazard Layer FIRMette



106°48'42"W 39°38'27"N



1:6,000

106°48'4"W 39°37'59"N

Basemap Imagery Source: USGS National Map 2023

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/10/2024 at 2:47 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.





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**NRCS**

Natural  
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A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# **Custom Soil Resource Report for Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties**

## **Sylvan Lake Road Extension**





# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and



## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.



# Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# Custom Soil Resource Report Soil Map






## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features

 Blowout


 Borrow Pit

 Clay Spot


 Closed Depression

 Gravel Pit


 Gravelly Spot


 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip

 Sodic Spot


 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

### Water Features

 Streams and Canals

### Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties  
Survey Area Data: Version 14, Aug 23, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 5, 2021—Sep 7, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background



## MAP LEGEND

## MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
38	Evanston loam, 1 to 6 percent slopes	19.7	84.8%
92	Redrob loam, 1 to 6 percent slopes	3.5	15.2%
<b>Totals for Area of Interest</b>		<b>23.3</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,



onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



## Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties

### 38—Evanston loam, 1 to 6 percent slopes

#### Map Unit Setting

*National map unit symbol:* jq5t  
*Elevation:* 6,500 to 8,000 feet  
*Mean annual precipitation:* 13 to 15 inches  
*Mean annual air temperature:* 42 to 46 degrees F  
*Frost-free period:* 80 to 90 days  
*Farmland classification:* Prime farmland if irrigated

#### Map Unit Composition

*Evanston and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Evanston

##### Setting

*Landform:* Valley sides, terraces, alluvial fans  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed alluvium

##### Typical profile

*H1 - 0 to 14 inches:* loam  
*H2 - 14 to 31 inches:* clay loam  
*H3 - 31 to 60 inches:* loam

##### Properties and qualities

*Slope:* 1 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 10 percent  
*Available water supply, 0 to 60 inches:* High (about 10.1 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 4c  
*Land capability classification (nonirrigated):* 4c  
*Hydrologic Soil Group:* C  
*Ecological site:* R048AY292CO - Deep Loam  
*Other vegetative classification:* DEEP LOAM (null\_11)  
*Hydric soil rating:* No



## Minor Components

### Other soils

*Percent of map unit:* 15 percent

*Hydric soil rating:* No

## 92—Redrob loam, 1 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* jq7r

*Elevation:* 5,800 to 7,200 feet

*Mean annual precipitation:* 16 to 18 inches

*Mean annual air temperature:* 40 to 44 degrees F

*Frost-free period:* 85 to 105 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Redrob and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Redrob

#### Setting

*Landform:* Flood plains, terraces, valley floors

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Mixed alluvium derived from sandstone and shale

#### Typical profile

*H1 - 0 to 14 inches:* loam

*H2 - 14 to 20 inches:* stratified loamy sand to stony loam

*H3 - 20 to 60 inches:* extremely cobbly loamy sand

#### Properties and qualities

*Slope:* 1 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* About 18 to 48 inches

*Frequency of flooding:* Rare

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)



## Custom Soil Resource Report

### **Interpretive groups**

*Land capability classification (irrigated): 4w*

*Land capability classification (nonirrigated): 4w*

*Hydrologic Soil Group: C*

*Ecological site: R048AY010UT - Wet Fresh Streambank (Willow)*

*Other vegetative classification: riverbottom (null\_19)*

*Hydric soil rating: No*

### **Minor Components**

#### **Fluvaquents**

*Percent of map unit: 10 percent*

*Landform: Flood plains*

*Hydric soil rating: Yes*

#### **Other soils**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*



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## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

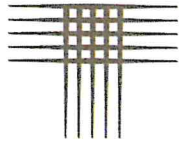
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## **APPENDIX B – GEOTECHNICAL REPORT**





# CTL|THOMPSON

Founded in 1971

## **SUBGRADE INVESTIGATION AND PAVEMENT DESIGN**

**HAYMEADOW PROJECT – PHASE F1B ROADS  
(MT. HOPE CIRCLE, SYLVAN LAKE ROAD, AND OUZEL LANE)  
EAGLE, COLORADO**

Prepared for:

Abrika Properties, LLC  
8250 SW 27<sup>th</sup> Avenue  
Ocala, FL 34476

Attention: Michael Hood

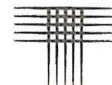
CTL|T Project No. GS06765.001-135

January 15, 2025

[CTL|Thompson, Inc.](#)

[Denver](#), [Fort Collins](#), [Colorado Springs](#), [Glenwood Springs](#), [Pueblo](#), [Summit County](#) – Colorado  
[Cheyenne](#), [Wyoming](#) and [Bozeman](#), [Montana](#)



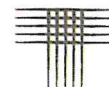


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## SCOPE

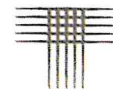
CTL|Thompson, Inc. (CTL|T) has completed a subgrade investigation and pavement design for the Phase F1B roads of the Haymeadow Project in Eagle, Colorado. We conducted this investigation to evaluate subsurface conditions below the subject street sections and provide geotechnical engineering recommendations for construction of new pavement. The scope of our investigation was set forth in our Proposal No. GS 24-0172. Our report was prepared from data developed from our field exploration, laboratory testing, engineering analysis, and our experience with similar conditions.

## PROJECT DESCRIPTION

The Haymeadow Project is located northeast of the intersection of Sylvan Lake Road and Brush Creek Road in Eagle, Colorado. The Eagle Ice Rink & Pool is about 0.4 mile northwest of the subject property. A vicinity map with the locations of the site is included as Figure 1. The property was historically irrigated hayfield. Roads and multi-family residential buildings were recently constructed on the parcel to the west. An aerial photograph of the site is shown on Figure 2.

Development of the Haymeadow property will involve construction of approximately 4,700 linear feet of new roads that will be paved with asphalt concrete. The roads include sections of Sylvan Lake Road, Ouzel Lane, and Mt. Hope Circle. Road construction will incorporate concrete curb and gutter. Single-family and multi-family residential buildings are planned adjacent to the roads. Some utilities were constructed below the subject sections of Sylvan Lake Road and Ouzel Lane prior to our exploratory drilling for this investigation. Additional utilities will be constructed below the other road sections. The proposed development is shown on Figure 3.





## SUBSURFACE CONDITIONS

Subsurface conditions were investigated by drilling 22 exploratory borings (P-1 through P-22) along the proposed road alignments. The borings were drilled on December 2 and 3, 2024 with a track-mounted drill rig and 6-inch diameter hollow-stem auger at the approximate locations shown on Figures 2 and 3. Exploratory drilling operations were directed by our engineer, who logged the subsurface conditions encountered and obtained samples of the soils. Graphic logs of subsurface conditions found in our borings are included as Figures 4 and 5.

Subsoils encountered in our borings generally consisted of a thin topsoil layer over sandy clay to the maximum drilled depth of 5 feet. Lenses of clayey gravel were encountered within the sandy clay in P-3 and P-21. Groundwater was not found in our borings at the time of drilling. The borings were backfilled immediately after exploratory drilling operations were completed.

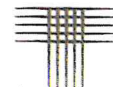
Samples of the subgrade soils obtained from our exploratory borings were returned to our laboratory for pertinent testing. Engineering index testing indicated liquid limits of 23 to 45 percent, plasticity indices of 6 to 24 percent, and 39 to 97 percent silt and clay sized material (passing the No. 200 sieve). Four samples tested had 0.01 to 0.26 percent water soluble sulfates. Results of laboratory testing are summarized on Table I.

## EARTHWORK

### Excavations

Our subsurface information indicates that trench excavations for utility construction can be accomplished using conventional, excavation equipment. For excavations deeper than 5 feet, the sides of excavations need to be sloped or braced to meet local, state, and federal safety regulations. We expect the soils will classify as Type B soils





based on OSHA standards governing excavations. Temporary slopes should be no steeper than 1 to 1 (horizontal to vertical) in Type B soils. Proper sloping of deep excavations would result in the top of the trench excavation being more than 10 feet wide. This volume may not be practical. Trench boxes should be considered for utility construction at the site.

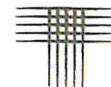
Lateral loads on bracing, such as trench boxes, depend on the depth of excavation, slope of excavation above the bracing, surface loads, hydrostatic pressures, and allowable movement. For trench boxes and bracing allowed to move enough to mobilize the strength of the soils with associated cracking of the ground surface, the “active earth pressure conditions are appropriate for design. If only small movements are tolerable, the “at rest” earth pressures are appropriate. We suggest an equivalent fluid density of 45 pcf for the “active” earth pressure condition and 60 pcf for the “at rest” earth pressure condition, assuming level backfill. These pressures do not include allowances for surcharge loading or for hydrostatic conditions. Contractors are responsible for proper site excavation and overall site safety.

Free groundwater was not encountered in our borings at the time of our subsurface investigation. Some subsurface water may be encountered due to seepage loss from the Matthews Ditch that historically flowed near the north boundary of the Haymeadow property. We do not anticipate excavations to construct utilities will penetrate a free groundwater table. We recommend excavations be sloped to a temporary sump where water from precipitation can be removed by pumping.

### **Trench Backfill**

Compaction of trench backfill will have a significant effect on the life and serviceability of pavements in the roads. Improper compaction of trench backfill can cause backfill materials to consolidate leading to potentially severe pavement deformity. The on-site soils, free of rocks larger than 4 inches in diameter, organics, and debris can be used as utility trench backfill.





Trench backfill soils should be placed in loose lifts of 10 inches thick or less, moisture conditioned to within 2 percent of optimum moisture content, and compacted to at least 95 percent of standard Proctor (ASTM D 698) maximum dry density. Special care is needed for backfill adjacent to manholes and vertical riser pipes. CTL|T should be called to test moisture and density of backfill soils during placement.

### **Subgrade Preparation**

Topsoil and organics should be removed from the proposed road alignments. Prior to constructing new pavements, the subgrade soils should be scarified to a depth of at least 12 inches. These materials should be moisture-treated to within 2 percent of optimum moisture content and compacted to at least 95 percent of standard Proctor (ASTM D 698) maximum dry density. Moisture content and density of the subgrade materials should be checked by a representative of CTL|T during construction.

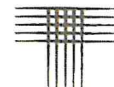
After the subgrade has been compacted and tested, the road alignments should be proof-rolled to check for soft or deflecting areas. We recommend proof-rolling with a heavy, pneumatic-tired vehicle, such as a loaded dump truck or water truck. The proof-roll should be performed while moisture contents of the subgrade are still within recommended limits. CTL|T should be called to observe proof-rolling. Areas of soft or deflecting subgrade will need to be stabilized. We can provide geotechnical engineering input if areas require stabilization.

## **PAVEMENTS**

If recommendations for subgrade preparation in the EARTHWORK section are followed, we anticipate the subgrade soils will generally classify as AASHTO Group A-6. We estimate a resilient modulus ( $M_R$ ) of 5,500 psi for this soil.

Traffic volumes were not available at the time of this investigation. We understand Mt. Hope Circle is considered a local residential road subject to an estimated 20-





year Equivalent Single Axle Load (ESAL<sub>20</sub>) of 36,500. Sylvan Lake Road and Ouzel Lane are considered minor collector streets subject to an estimated ESAL<sub>20</sub> of 100,000. If traffic volumes vary significantly from our estimate, we should be contacted to revise our calculations.

Utilizing the parameters and assumptions above, our calculations result in the minimum pavement section alternatives on Table 1 below.

Table 1  
Recommended Pavement Section Alternatives

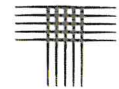
Design ESAL <sub>20</sub>	Asphalt Concrete (AC)	Asphalt Concrete + Aggregate Base Course (AC + ABC)
Local Residential (Mt. Hope Circle) 36,500	5.0" AC	4.0"AC + 6.0" ABC
Minor Collector (Sylvan Lake Road & Ouzel Lane) 150,000	6.0" AC	4.0" AC + 8.0" ABC

\*A geotextile fabric, such as Mirafi 600x or equivalent, is recommended below the aggregate base course.

The performance of a pavement system depends on the quality of the paving materials and construction as well as the support characteristics of the subgrade soil. If a pavement system is constructed of inferior material, the life and serviceability of the pavement will be substantially reduced. Pavement material and construction recommendations are provided in the attached Appendix A.

Routine maintenance is necessary to achieve long-term performance of pavement systems. Deferring maintenance usually results in accelerated deterioration leading to higher future maintenance costs. A primary cause of early pavement deterioration is water infiltration into the pavement system. The addition of moisture usually results in





softening of subgrade and the eventual failure of the pavement. We recommend drainage be designed for rapid removal of surface water off pavement surfaces and away from the roads. Final grading should be carefully controlled so that design cross-slope is maintained and low spots in the subgrade, which could trap water are eliminated. Portland cement concrete drainage pans should be considered in areas where water will flow across pavement surfaces.

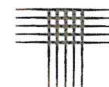
## **CONSTRUCTION OBSERVATIONS**

We recommend that CTLJT be retained to provide construction observation and materials testing services for the project. This would allow us the opportunity to verify whether soil conditions are consistent with those found during this investigation. If others perform these observations, they must accept responsibility to judge whether the recommendations in this report remain appropriate. It is also beneficial to projects, from economic and practical standpoints, when there is continuity between engineering consultation and the construction observation and materials testing phases.

## **GEOTECHNICAL RISK**

The concept of risk is an important aspect of any geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. We never have complete knowledge of subsurface conditions. Our analysis must be tempered with engineering judgment and experience. Therefore, the recommendations in any geotechnical evaluation should not be considered risk-free and are not a guarantee that the interaction between the soils and the pavement section will lead to performance as desired or intended. It is critical that all recommendations in this report are followed.



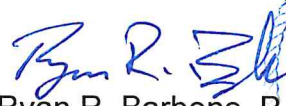



## LIMITATIONS

Our exploratory borings provide a reasonable characterization of subsurface conditions below the proposed sections of roads. Variations in the subsurface conditions not indicated by borings will occur.

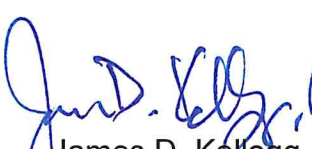
This investigation was conducted in a manner consistent with that level of care and skill ordinarily exercised by geotechnical engineers currently practicing under similar conditions in the locality of this project. No warranty, express or implied, is made. Please contact us if we can be of further service in discussing the contents of this report.


CTL|THOMPSON, INC.

  
Ryan R. Barbone, P.E.  
Division Manager  
[rbarbone@ctlthompson.com](mailto:rbarbone@ctlthompson.com)



Reviewed by:

  
James D. Kellogg, P.E.  
Senior Principal Engineer  
[jkellogg@ctlthompson.com](mailto:jkellogg@ctlthompson.com)







0 500 1000  
SCALE: 1" = 1000'

NOTE: SATELLITE IMAGE FROM MAXAR  
(COPYRIGHT 2022)



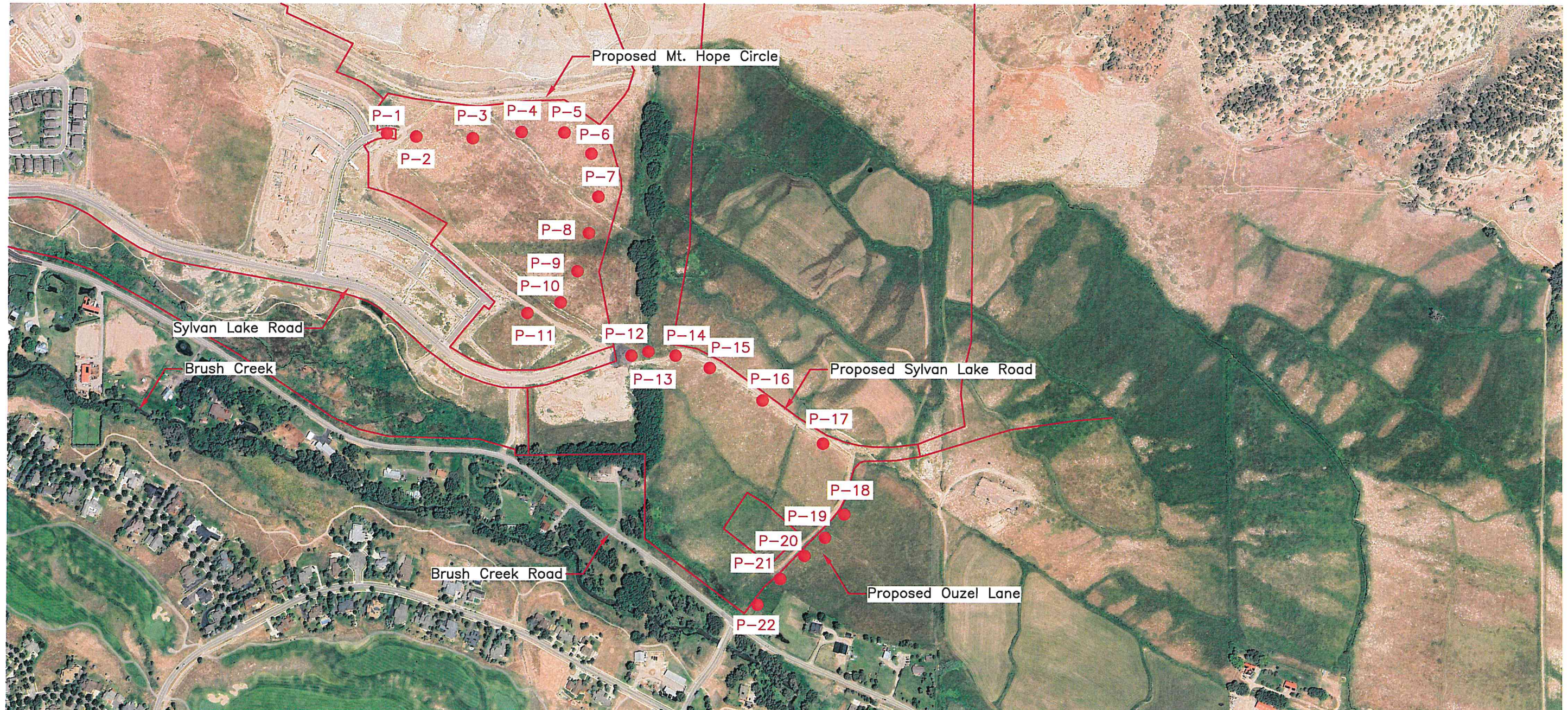




LEGEND:

- P-1  
● APPROXIMATE LOCATION OF EXPLORATORY BORING
- APPROXIMATE LOCATION OF PROPERTY BOUNDARIES

NOTE: SATELLITE IMAGE FROM GOOGLE EARTH  
(DATED AUGUST 3, 2023)





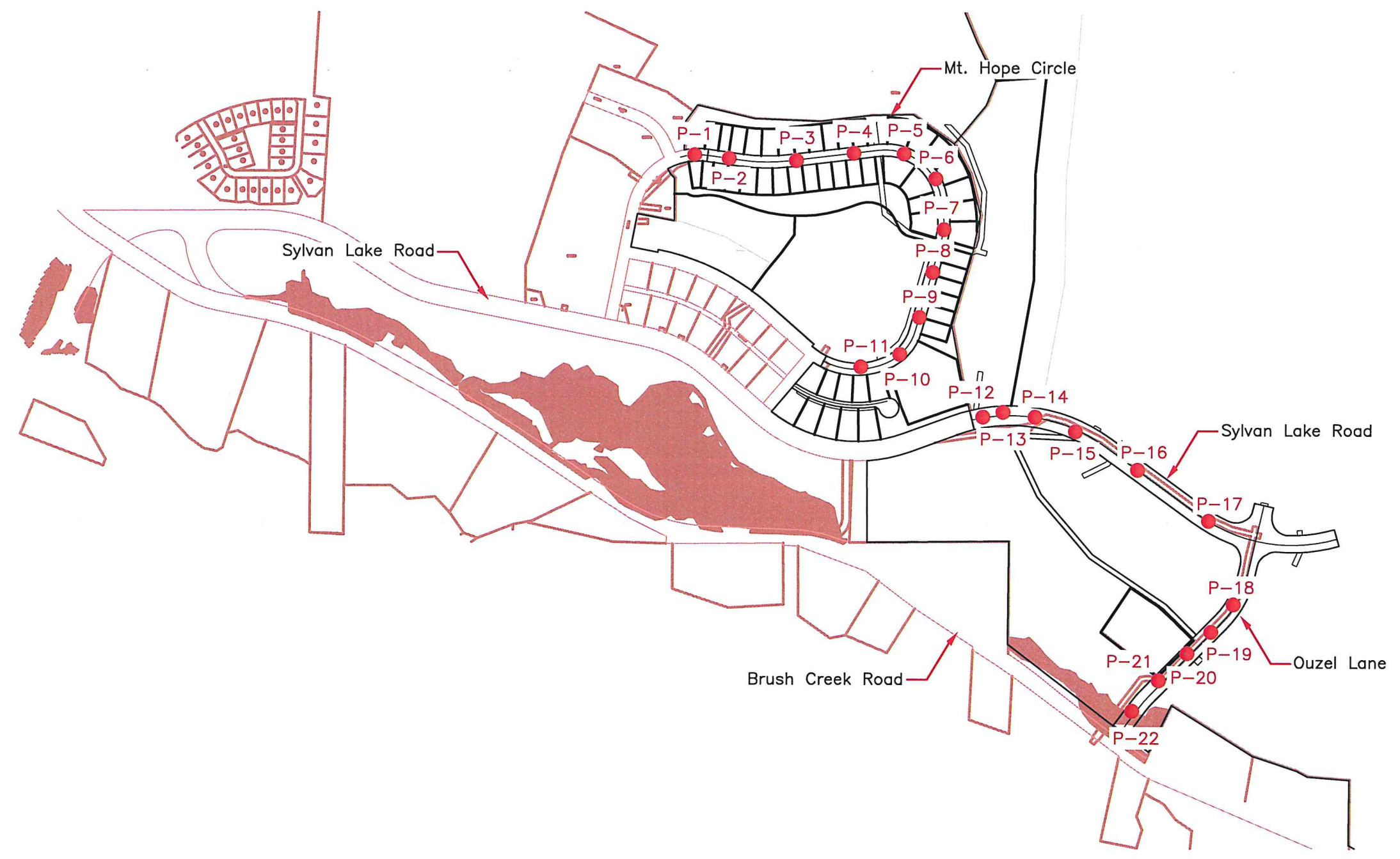


LEGEND:

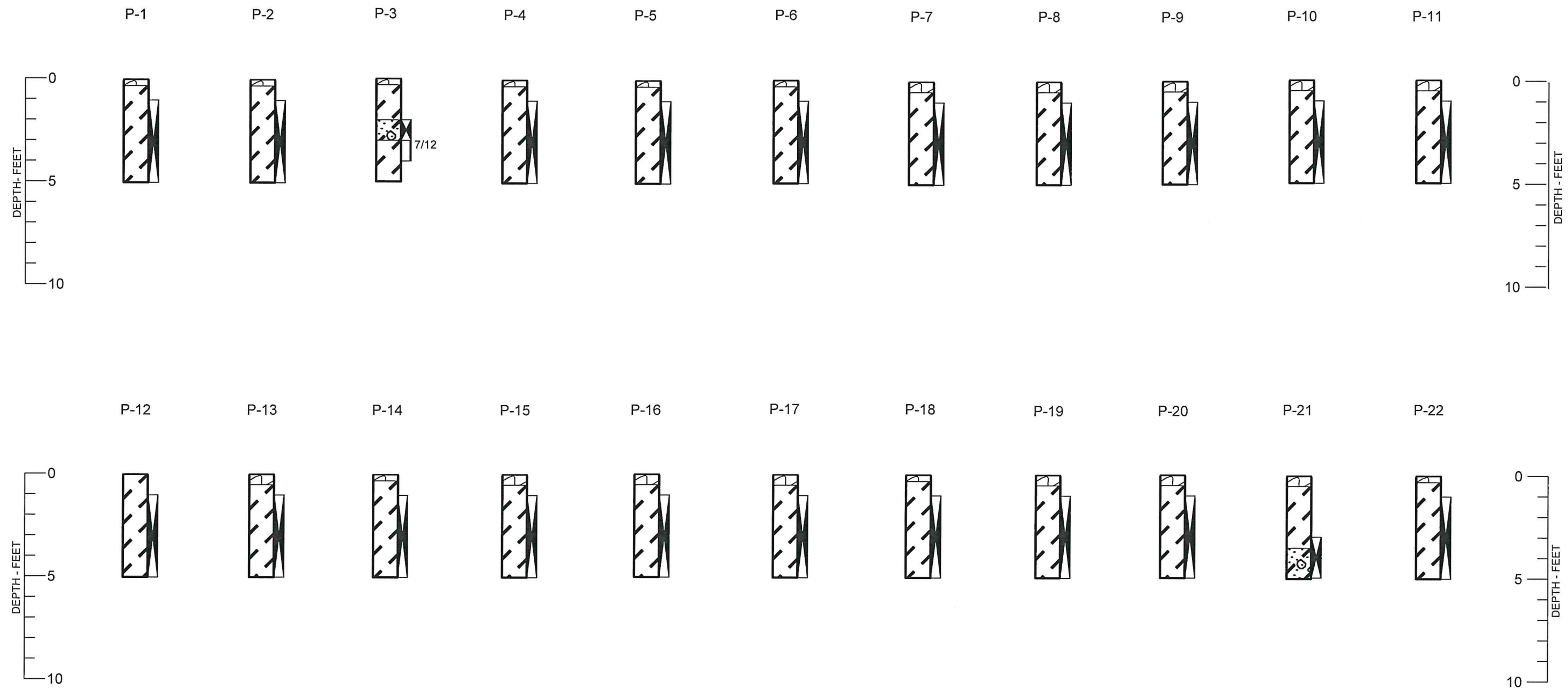
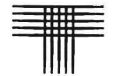
P-1  
● APPROXIMATE LOCATION OF EXPLORATORY BORING

0 250 500  
SCALE: 1" = 500'

NOTE: BASE IMAGE BY HARRIS KOCHER SMITH  
(DATED NOVEMBER 19, 2024)







SUMMARY LOGS OF EXPLORATORY BORINGS





#### LEGEND:



TOPSOIL, CLAY, SANDY, SLIGHTLY MOIST, BROWN.



CLAY, SANDY, SILTY, MEDIUM STIFF, SLIGHTLY MOIST TO MOIST, BROWN. (CL, CL-ML)



GRAVEL, CLAYEY, MEDIUM DENSE, MOIST, BROWN, TAN, RUST. (GC)



DRIVE SAMPLE. THE SYMBOL 7/12 INDICATES 7 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2.5-INCH O.D. CALIFORNIA-BARREL SAMPLER 12 INCHES.



INDICATES BULK SAMPLE OBTAINED FROM AUGER CUTTINGS.

#### NOTES:

1. THE EXPLORATORY BORINGS WERE DRILLED WITH A TRACK-MOUNTED DRILL RIG AND 6-INCH DIAMETER HOLLOW-STEM AUGER ON DECEMBER 2 AND 3, 2024.
2. GROUNDWATER WAS NOT FOUND IN OUR EXPLORATORY BORINGS AT THE TIME OF DRILLING. THE BORINGS WERE BACKFILLED IMMEDIATELY AFTER EXPLORATORY DRILLING OPERATIONS WERE COMPLETE.
3. THESE LOGS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS AND CONCLUSIONS IN THIS REPORT.



TABLE I

SUMMARY OF LABORATORY TESTING  
CTLJT PROJECT NO. GS06765.001-135

EXPLORATORY BORING	DEPTH (FEET)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	ATTERBERG LIMITS		UNCONFINED COMPRESSION (PSF)	SOLUBLE SULFATES (%)	PASSING NO. 200 SIEVE (%)	AASHTO GROUP INDEX	AASHTO GROUP	USCS DESCRIPTION
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)						
P-1	1-5	10.4		31	11			87	11	A-6	CLAY, SANDY (CL)
P-2	1-5	8.3		31	12			77	10	A-6	CLAY, SANDY (CL)
P-3	1-5	11.0		31	13			50	4	A-6	CLAY, SANDY (CL)
P-3	3	13.8	108			3300					CLAY, SANDY (CL)
P-4	1-5	11.2		33	16			81	13	A-6	CLAY, SANDY (CL)
P-5	1-5	9.5		34	16			82	13	A-6	CLAY, SANDY (CL)
P-6	1-5	6.8		34	16		0.03	85	14	A-6	CLAY, SANDY (CL)
P-7	1-5	4.0		36	18			88	16	A-6	CLAY, SANDY (CL)
P-8	1-5	18.5		37	18			87	16	A-6	CLAY, SANDY (CL)
P-9	1-5	14.1		37	16			92	16	A-6	CLAY, SANDY (CL)
P-10	1-5	7.3		37	17		0.01	89	16	A-6	CLAY, SANDY (CL)
P-11	1-5	11.0		37	14			89	14	A-6	CLAY, SANDY (CL)
P-12	1-5	13.0		38	18			91	17	A-6	CLAY, SANDY (CL)
P-13	1-5	17.2		38	17			90	16	A-6	CLAY, SANDY (CL)
P-14	1-5	17.5		33	14			90	14	A-6	CLAY, SANDY (CL)
P-14	3	17.3	97			3600					CLAY, SANDY (CL)
P-15	1-5	10.1		37	15			88	14	A-6	CLAY, SANDY (CL)

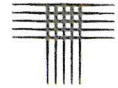




## TABLE I

[illegible]

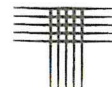




## **APPENDIX A**

### **PAVEMENT MATERIALS AND CONSTRUCTION RECOMMENDATIONS**





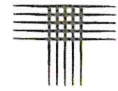
## PAVEMENT MATERIALS AND CONSTRUCTION RECOMMENDATIONS

Material properties and construction criteria for the pavement alternatives are provided below. These criteria were developed from analysis of the field and laboratory data and our experience. If the materials cannot meet these recommendations, then the pavement design should be reevaluated based upon available materials. Materials planned for construction should be submitted and the applicable laboratory tests performed to verify compliance with the specifications.

### Asphalt Concrete (AC)

1. AC should be composed of a mixture of aggregate, filler, hydrated lime and asphalt cement. Some mixes may require polymer modified asphalt cement or make use of up to 20 percent reclaimed asphalt pavement (RAP). A job mix design is recommended and periodic checks on the job site should be made to verify compliance with specifications.
2. AC should be relatively impermeable to moisture and should be designed with crushed aggregates that have a minimum of 80 percent of the aggregate retained on the No. 4 sieve with two mechanically fractured faces.
3. Gradations that approach the maximum density line (within 5 percent between the No. 4 and 50 sieves) should be avoided. A gradation with a nominal maximum size of 1 or 2 inches developed on the fine side of the maximum density line should be used.
4. Total void content, voids in the mineral aggregate (VMA) and voids filled should be considered in the selection of the optimum asphalt cement content. The optimum asphalt content should be selected at a total air void content of approximately 4 percent. The mixture should have a minimum VMA of 14 percent and between 65 percent and 80 percent of voids filled.
5. Asphalt cement should meet the requirements of the Superpave Performance Graded (PG) Binders. The minimum performing asphalt cement should be PG 58-28 for use in the Eagle area.
6. Hydrated lime should be added at the rate of 1 percent by dry weight of the aggregate and should be included in the amount passing the No. 200 sieve. Hydrated lime for aggregate pretreatment should conform to the requirements of ASTM C 207, Type N.
7. Paving should only be performed when subgrade temperatures are above 40°F and air temperature is at least 40°F and rising.





8. AC should not be placed at a temperature lower than 245°F for mixes containing PG 58-28 asphalt, and 290°F for mixes containing polymer modified asphalt. The breakdown compaction should be completed before the mixture temperature drops 20°F.
9. The maximum compacted lift should be 3.0 inches and joints should be staggered. No joints should be placed within wheel paths.
10. AC should be compacted to between 92 and 96 percent of Maximum Theoretical Density. The surface shall be sealed with a finish roller prior to the mix cooling to 185°F.
11. Placement and compaction of AC should be observed and tested by a representative of our firm. Placement should not commence until the subgrade is properly prepared (or stabilized), tested and proof-rolled. Proof-rolling should be performed with the heaviest machine available at the time. The proof-roller should be selected from machines providing both mass and high contact pressure.

#### **Aggregate Base Course (ABC)**

1. A Class 6 Colorado Department of Transportation (CDOT) specified aggregate base course should be used. A recycled concrete alternative which meets the Class 6 designation is also acceptable.
2. Aggregate base course should have a minimum Hveem stabilometer value of 78. Aggregate base course or recycled concrete material must be moisture stable. The change in R-value from 300 psi to 100 psi exudation pressure should be 12 points or less.
3. Aggregate base course or recycled concrete should be laid in thin lifts not to exceed 8 inches, moisture treated to within 2 percent of optimum moisture content, and compacted to at least 95 percent of maximum modified Proctor dry density (ASTM D 1557, AASHTO T 180).
4. Placement and compaction of aggregate base course or recycled concrete should be observed and tested by a representative of our firm. Placement should not commence until the underlying subgrade is properly prepared and tested.



February 7, 2025

Abrika Properties, LLC  
8250 SW 27<sup>th</sup> Avenue  
Ocala, FL 34476

Attention: Michael Hood

Subject: Addendum to Subgrade Investigation and  
Revised Pavement Design  
Haymeadow Project – Phase F1B Roads  
Mt. Hope Circle, Ouzel Lane, Sylvan Lake Road  
Eagle, Colorado  
Project No. GS06765.001-135-L1

CTL|Thompson, Inc. (CTL|T) provided a subgrade investigation and pavement design for the roads proposed for Phase F1B of the Haymeadow project in Eagle, Colorado (report dated January 15, 2025). The subject roads include sections of Mt. Hope Circle, Ouzel Lane, and Sylvan Lake Road. Subsequent to our report, CTL|T was provided with a traffic impact study addendum (dated November 30, 2023) and a sensitivity analysis (dated January 11, 2024) by Fox Tuttle Transportation Group. After reviewing these documents, we revised our pavement design to reflect the anticipated traffic loading.

The traffic impact study anticipates Annual Average Daily Traffic (AADT) of 6,699 vehicles per day for the current land-use plan for the Haymeadow development, including the adjacent pool and ice rink facilities. To estimate the 20-year Equivalent Single Axle Load (ESAL<sub>20</sub>) for Ouzel Lane and Sylvan Lake Road, CTL|T applied an annual growth factor of 4 percent to the AADT. We considered a vehicle-type distribution that is primarily passenger vehicles. Our calculations resulted in an ESAL<sub>20</sub> of approximately 850,000 for Ouzel Lane and Sylvan Lake Road. Our ESAL<sub>20</sub> calculations are summarized on the attached Figure 1.

CTL|T increased the estimated ESAL<sub>20</sub> for Mt. Hope Circle from 36,500 to 73,000. This is based on the anticipated residential density units serviced by the streets. Our ESAL<sub>20</sub> estimate is pursuant to Equation 1 below.

**Equation 1**                       $ESAL_{20} = 62,000 + 80R$

*R = number of residential density units serviced by the street  
(CTL|T estimated R as less than 140 residential units)*

Our revised pavement calculations incorporate a resilient modulus (M<sub>R</sub>) of 5,500 psi for the subgrade soils. This value is based on correlations with unconfined compressive strength testing that was performed as part of our previous subgrade investigation and pavement design.

Utilizing the parameters and assumptions above, our calculations result in the revised minimum pavement section alternatives summarized on Table 1 below.






**Table 1**  
**Revised Recommended Pavement Section Alternatives**

Design ESAL <sub>20</sub>	Asphalt Concrete (AC)	Asphalt Concrete + Aggregate Base Course (AC + ABC)
Local Residential (Mt. Hope Circle) 73,000	5.5" AC	4.0" AC + 6.0" ABC
Minor Collector (Ouzel Lane & Sylvan Lake Road) 850,000	8.0" AC	5.0" AC + 11.0" ABC

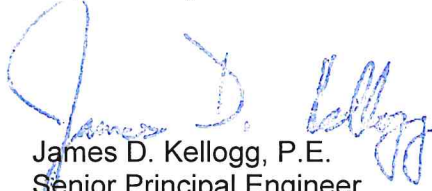
This letter is an addendum to our subgrade investigation and pavement design report (dated January 15, 2025) for the Phase F1B roads within the Haymeadow development. Please contact us if you have questions or need additional information.

CTL|THOMPSON, INC.

  
Ryan R. Barbone, P.E.  
Division Manager  
[rbarbone@ctlthompson.com](mailto:rbarbone@ctlthompson.com)



Reviewed by:

  
James D. Kellogg, P.E.  
Senior Principal Engineer  
[jkellogg@ctlthompson.com](mailto:jkellogg@ctlthompson.com)

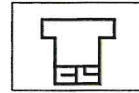
Attachment: Figure 1 – ESAL<sub>20</sub> Calculations

Via email: [michael@rangeconsultingllc.com](mailto:michael@rangeconsultingllc.com)



# 18 KIP EQUIVALENT SINGLE AXLE LOAD (ESAL) APPLICATIONS - AASHTO

Project Name: Haymeadow  
 Job Number: GS06765.001-135  
 Date: 02/06/25



Location: Eagle, CO  
 Pavement Type: Flexible  
 Avg. ADT: 6,699

Design Period: 20 Years  
 Growth Factor: 4%  
 Total Number of Lane: 2

Vehicle Types	Axle Load	Percent ADT	ADT	ADT x 365 x Design Period	Load Equivalent Factor	ESAL
School Bus (a)	22	0.20%	13	145,623	2.578	375,416
Type 3-Heavy (b)	34(1set)	0.20%	13	145,623	1.693	246,539
Passenger Car (c)	2	98.90%	6625	72,010,497	0.008	576,084
Type H-10 (d)	16	0.10%	7	72,811	0.617	44,925
RTD Bus (e)	24	0.10%	7	72,811	3.848	280,178
Type 3S2 (f)	32(2sets)	0.10%	7	72,811	1.788	130,187
2-Axle Truck (g)	20	0.10%	7	72,811	1.587	115,552
3-Axle Truck (h)	20(2axles)	0.10%	7	72,811	3.157	229,866
Type 3-Light (i)	24(1set)	0.20%	13	145,623	0.29	42,231
<b>TOTAL</b>		100.00%	<b>6,699</b>			<b>1,419,022</b>

ESAL	Lane Distribution Factor	DESIGN ESAL
1,419,022	0.60	851,413

20 YEAR DESIGN ESAL = 851,413

DESIGN EDLA = 117



## **APPENDIX C – STANDARD OPERATING PROCEDURES**



## **Haymeadow Standard Operating Procedure (SOP)**

### **Minor Spill of Material (Paint, Stain, Solvent, Glue) (Less than Reportable Quantity)**

#### **A. Purpose**

The purpose of this Standard Operating Procedure is to establish uniform procedures for clean up and disposal of material from a minor accidental spill of paint, stain, solvent, or glue. The procedures outlined in this SOP are applicable to all personnel working on site. Clean up and proper disposal of spilled material into the soil or onto the ground surface is required to ensure the material or contaminated soil does not enter or impact the waters of the state or the sanitary sewer system.

#### **B. Summary of the Method**

This procedure outlines the steps to be taken to prevent spilled material from impacting waters of the state and disposal of the resulting contaminated cleanup material.

#### **C. Definitions**

1. Material Safety Data Sheet (MSDS). The standard industry list for a product detailing the chemical make-up, safety hazards, first aid, fire fighting, and spill cleanup measures, handling, storage, and disposal methods

#### **D. Health and Safety Warnings**

Many construction materials may be flammable, cause skin and eye irritation, and may be harmful or fatal if swallowed. Caution should be used during clean up operations. The MSDS for the spilled material should be consulted to ensure personnel safety during cleanup operations.

#### **E. Equipment and Supplies**

1. Absorbent pads and booms
2. Hand equipment (shovels, brooms)
3. Waste containers (5 gallon buckets, drums)
4. Personal Protective Equipment

#### **F. Procedural Steps**

1. Shut down all equipment operating in the area to prevent ignition of the spill.
2. Quickly control the spill by stopping or securing the spill source. This could be as simple as up-righting a tipped container or shutting down a piece of equipment producing the spill.
3. Contact the Responsible Person on site to enact the emergency response contact procedure.



- a. Responsible Person shall consult the MSDS for proper spill procedures and determination of Reportable Quantity for a spill. In the event the spilled quantity exceeds the reportable quantity the Responsible Person shall contact:
    1. Call 911 for fire control if necessary.
    2. Colorado Environmental Release and Incident Reporting Hotline (1-877-518-5608)
    3. Town of Eagle Public Works: (970) 328-6678
  - b. A release of any chemical, oil, petroleum product, sewage, etc., which may enter waters of the State of Colorado (which include surface water, ground water, and dry gullies or storm sewers leading to surface water) must be reported to CDPHE immediately (25-8-601 CRS).
4. Prevent migration of the spill by using an absorbent. This could include absorbent pads or booms, floor dry, cat litter, or dirt. The absorbent should be spread across the spill and along the downhill side to stop any flow.
5. If necessary to prevent the material from entering a storm inlet or manhole a dam of absorbent material should be placed in the gutter upstream from the inlet.
6. Begin cleanup of the spilled material and absorbents by placing the materials in 5 gallon, plastic buckets with lids or into a provided drum.
7. Continue cleanup until all spilled material and contaminated absorbents are removed. On a hard surface this should include sweeping of the area. Material spilled on dirt should be removed down to a level where discoloration of the soil has been removed. Water shall never be used to flush material off a surface.
8. All material shall be properly stored in a location designated by the Responsible Person on site.
9. The Responsible Person shall contact the Site Contracted Emergency Response and Disposal Co. to collect and properly dispose of the material.
10. Location of the spill will be documented on the Grading, Erosion & Sediment Control Plan (GESD) in the construction trailer.
11. Inspection of materials and equipment shall occur daily.

#### **G. Record Management**

All documentation from the incident, including incident report and incident disposal manifests, shall be maintained at Range Consulting, LLC, for a period of 3 years from the date of the spill.

#### **H. After Incident Briefing**

All personnel involved in the incident shall attend a debriefing to determine the cause of the spill, procedures followed, and corrective actions to prevent future spills. All pertinent data shall be documented. All findings from the debriefing should be discussed at the next Safety Meeting. Town of Eagle shall be notified.



## **Standard Operating Procedure (SOP)**

### **Minor Fuel or Oil Spill (Less than 5 Gallons)**

#### **A. Purpose**

The purpose of this Standard Operating Procedure is to establish a uniform procedure for clean up and disposal of material from a minor accidental spill of fuel (gasoline or diesel) or oil (hydraulic or motor). The procedures outlined in this SOP are applicable to all personnel working on site. Clean up and proper disposal of spilled fuel or oil into the soil or onto the ground surface is required to ensure the material or contaminated soil does not enter or impact the waters of the state or the sanitary sewer system.

#### **B. Summary of the Method**

This procedure outlines the steps to be taken to prevent spilled fuel or oil from impacting waters of the state and disposal of the resulting contaminated cleanup material.

#### **C. Definitions**

1. Material Safety Data Sheet (MSDS). The standard industry list for a product detailing the chemical make-up, safety hazards, first aid, fire fighting, and spill cleanup measures, handling, storage, and disposal methods

#### **D. Health and Safety Warnings**

Fuels and fuel oils may be extremely flammable, cause skin and eye irritation, and may be harmful or fatal if swallowed. Caution should be used during clean up operations. The MSDS for the spilled material should be consulted to ensure personnel safety during cleanup operations.

#### **E. Equipment and Supplies**

1. Absorbent pads and booms
2. Hand equipment (shovels, brooms)
3. Waste containers (5 gallon buckets, drums)
4. Personal Protective Equipment

#### **F. Procedural Steps**

1. Shut down all equipment operating in the area to prevent ignition of the spill.
2. Quickly control the spill by stopping or securing the spill source. This could be as simple as up-righting a tipped container or shutting down a piece of equipment producing the spill.
3. Contact the Responsible Person on site to enact the emergency response contact procedure.
  - a. Responsible Person shall consult the MSDS for proper spill procedures and determination of Reportable Quantity for a spill.



In the event the spilled quantity exceeds the reportable quantity the Responsible Person shall contact:

1. Call 911 for fire control if necessary.
  2. Colorado Environmental Release and Incident Reporting Hotline (1-877-518-5608)
  3. Town of Eagle Public Works: (970) 328-6678
- b. A release of any chemical, oil, petroleum product, sewage, etc., which may enter waters of the State of Colorado (which include surface water, ground water, and dry gullies or storm sewers leading to surface water) must be reported to CDPHE immediately (25-8-601 CRS).
4. Prevent migration of the spill by using an absorbent. This could include absorbent pads or booms, floor dry, cat litter, or dirt. The absorbent should be spread across the spill and along the downhill side to stop any flow.
  5. If necessary to prevent the material from entering a storm inlet or manhole a dam of absorbent material should be placed in the gutter upstream from the inlet.
  6. Begin cleanup of the spilled material and absorbents by placing the materials in 5 gallon, plastic buckets with lids or into a provided drum.
  7. Continue cleanup until all spilled material and contaminated absorbents are removed. On a hard surface this should include sweeping of the area. Material spilled on dirt should be removed down to a level where discoloration of the soil has been removed. Water shall never be used to flush material off a surface.
  8. All material shall be properly stored in a location designated by the Responsible Person on site.
  9. The Responsible Person shall contact the Site Contracted Emergency Response and Disposal Co to collect and properly dispose of the material.
  10. Location of the spill will be documented on the Grading, Erosion & Sediment Control Plan (GESD) in the construction trailer.
  11. Inspection of materials and equipment shall occur daily.

#### **G. Record Management**

All documentation from the incident, including incident report and incident disposal manifests, shall be maintained at Range Consulting, LLC, for a period of 3 years from the date of the spill.

#### **H. After Incident Briefing**

All personnel involved in the incident shall attend a debriefing to determine the cause of the spill, procedures followed, and corrective actions to prevent future spills. All pertinent data will be recorded. All findings from the debriefing should be discussed at the next Safety Meeting. Town of Eagle shall be notified.



## **Standard Operating Procedure (SOP)**

### **Small Fuel or Oil Spill (5 Gallons to Less than 25 Gallons)**

#### **A. Purpose**

The purpose of this Standard Operating Procedure is to establish a uniform procedure for clean up and disposal of material from a small accidental spill of fuel (gasoline or diesel) or oil (hydraulic, or motor). The procedures outlined in this SOP are applicable to all personnel working on Site. Clean up and proper disposal of spilled fuel or oil into the soil or onto the ground surface is required to ensure the material or contaminated soil do not enter or impact the waters of the state or the sanitary sewer system.

#### **B. Summary of the Method**

This procedure outlines the steps to be taken to prevent spilled fuel or oil from impacting waters of the state and disposal of the resulting contaminated cleanup material.

#### **C. Definitions**

1. Material Safety Data Sheet (MSDS). The standard industry list for a product detailing the chemical make-up, safety hazards, first aid, fire fighting, and spill cleanup measures, handling, storage, and disposal methods

#### **D. Health and Safety Warnings**

Fuels and fuel oils may be extremely flammable, cause skin and eye irritation, and may be harmful or fatal if swallowed. Caution should be used during clean up operations. The MSDS for the spilled material should be consulted to ensure personnel safety during cleanup operations.

#### **E. Equipment and Supplies**

1. Absorbent pads and booms
2. Hand equipment (shovels, brooms)
3. Waste containers (5 gallon buckets, drums)
4. Personal Protective Equipment

#### **F. Procedural Steps**

1. Shut down all equipment operating in the area to prevent ignition of the spill.
2. Contact the Responsible Person on site to enact the emergency response contact procedure.
  - a. The Responsible Person begins contacting Emergency Response Agencies.
    1. For gasoline or diesel spill call 911 for fire control
  - b. Responsible Person shall consult the MSDS for proper spill procedures and determination of Reportable Quantity for a spill.



In the event the spilled quantity exceeds the reportable quantity the Responsible Person shall contact:

1. Call 911 for fire control if necessary.
  2. Colorado Environmental Release and Incident Reporting Hotline (1-877-518-5608)
  3. Town of Eagle Public Works: (970) 328-6678
- c. A release of any chemical, oil, petroleum product, sewage, etc., which may enter waters of the State of Colorado (which include surface water, ground water, and dry gullies or storm sewers leading to surface water) must be reported to CDPHE immediately (25-8-601 CRS).
3. Attempt to control the spill by stopping or securing the spill source. This could be as simple as up-righting a tipped container or shutting down a piece of equipment producing the spill.
  4. Prevent migration of the spill by using an absorbent. This could include absorbent pads or booms, floor dry, cat litter, or dirt. The absorbent should be spread across the spill and along the downhill side to stop any flow.
  5. If necessary to prevent the material from entering a storm inlet or manhole a dam of absorbent material should be placed in the gutter upstream from the inlet.
  6. Begin cleanup of the spilled material and absorbents by placing the materials in 5 gallon, plastic buckets with lids or into a provided drum.
  7. Continue cleanup until all spilled material and contaminated absorbents are removed. On a hard surface, this should include sweeping of the area. Material spilled on dirt should be removed down to a level where discoloration of the soil has been removed. Water shall never be used to flush material off a surface.
  8. All material shall be properly stored in a location designated by the Responsible Person on site.
  9. The Responsible Person shall contact the Site Contracted Emergency Response and Disposal Co. to collect and properly dispose of the material.
  10. Location of the spill will be documented on the Grading, Erosion & Sediment Control Plan (GESD) in the construction trailer.
  11. Inspection of materials and equipment shall occur daily.

#### **G. Record Management**

All documentation from the incident, including incident report and incident disposal manifests, shall be maintained at Range Consulting, LLC, for a period of 3 years from the date of the spill.

#### **H. After Incident Briefing**

All personnel involved in the incident shall attend a debriefing to determine the cause of the spill, procedures followed, and corrective actions to prevent future spills. All pertinent data will be recorded. The CDPHE shall be notified of a major spill by a written follow up within five days of the incident. All findings from the



debriefing should be discussed at the next Safety Meeting. Town of Eagle shall be notified. Town of Eagle will require one copy of any documents that are sent to the state.



## **Standard Operating Procedure (SOP)**

### **Significant Fuel or Oil Spill (25 Gallons or More)**

#### **A. Purpose**

The purpose of this Standard Operating Procedure is to establish a uniform procedure for clean up and disposal of material from a significant accidental spill of fuel (gasoline or diesel) or oil (hydraulic or motor). The procedures outlined in this SOP are applicable to all personnel working on site. Clean up and proper disposal of spilled fuel or oil into the soil or onto the ground surface is required to ensure the material or contaminated soil does not enter or impact the waters of the state or the sanitary sewer system.

#### **B. Summary of the Method**

This procedure outlines the steps to be taken to prevent spilled fuel or oil from impacting waters of the state and disposal of the resulting contaminated cleanup material.

#### **C. Definitions**

1. Material Safety Data Sheet (MSDS). The standard industry list for a product detailing the chemical make-up, safety hazards, first aid, fire fighting, and spill cleanup measures, handling, storage, and disposal methods

#### **D. Health and Safety Warnings**

Fuels and fuel oils may be extremely flammable, cause skin and eye irritation, and may be harmful or fatal if swallowed. Caution should be used during clean up operations. The MSDS for the spilled material should be consulted to ensure personnel safety during cleanup operations.

#### **E. Equipment and Supplies**

1. Absorbent pads and booms
2. Hand equipment (shovels, brooms)
3. Waste containers (5 gallon buckets, drums)
4. Personal Protective Equipment

#### **F. Procedural Steps**

1. Shut down all equipment operating in the area to prevent ignition of the spill.
2. Ensure the safety of personnel in the area. If necessary, evacuate the area and wait for Emergency Response Personnel.
3. Contact the Chain of Command on site to enact the emergency response contact procedure.
  - a. Responsible Person begins contacting Emergency Response Agencies.
    1. Call 911 for fire control



2. Colorado Environmental Release and Incident Reporting Hotline (1-877-518-5608)
3. Town of Eagle Public Works: (970) 328-6678
- b. Responsible Person consults the MSDS for spill procedure
4. If it can be safely accomplished, attempt to control the spill by stopping or securing the spill source.
5. If it can be safely accomplished, attempt to prevent migration of the spill by using an absorbent. This could include absorbent pads or booms, floor dry, cat litter, or dirt. The absorbent should be spread along the downhill side to stop any flow.
6. If it can be safely accomplished, attempt to prevent the material from entering a storm inlet or manhole by constructing a dam of absorbent material in the gutter upstream from the inlet.
7. Emergency Response Personnel should handle stabilization of the spill and initial cleanup.
8. Final cleanup and disposal of contaminated material should be handled by the Site Contracted Emergency Response and Disposal Co.
9. Location of the spill will be documented on the Grading, Erosion & Sediment Control Plan (GESD) in the construction trailer.
10. Inspection of materials and equipment shall occur daily.

#### **G. Record Management**

All documentation from the incident, including incident report and incident disposal manifests, shall be maintained at Range Consulting, LLC, for a period of 3 years from the date of the spill.

#### **H. After Incident Briefing**

All personnel involved in the incident shall attend a debriefing to determine the cause of the spill, procedures followed, and corrective actions to prevent future spills. All pertinent data will be recorded. The CDPHE shall be notified of a major spill by a written follow up within five days of the incident. All findings from the debriefing should be discussed at the next Safety Meeting. Town of Eagle shall be notified. Town of Eagle will require one copy of any documents that are sent to the state.



## **APPENDIX D – GRADING, EROSION & SEDIMENT CONTROL PLANS**



NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF HARRIS KOCHER SMITH.

Project: P:240804 HKS ENGINEERING CONSTRUCTION PHASE 2 & 4 TIES - COVER SHEET - COVER SHEET - PHASE 2 & 4 DWG Layout LAYOUT1  
Printed: TUE 06/23/2025 12:28:00 PM by: John Hochstetler



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CIVIL ENGINEER  
**HKS HARRIS KOCHER SMITH**  
1120 Lincoln Street, Suite 1000  
Denver, Colorado 80203  
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ISSUE DATE: 11-19-2024 PROJECT #: 240804	
DATE	REVISION COMMENTS
12-04-2024	BID SET
01-09-2025	BID SET
02-14-2025	PER TOWN OF EAGLE COMMENTS

# HAYMEADOW FILING 2 - PHASES 2 & 4

SITUATED IN TRACTS 37, 38, 44, 55, 59, 61, 62, AND 63, TOWNSHIP 5 SOUTH, RANGE 84 WEST OF THE SIXTH P.M.,  
TOWN OF EAGLE, COUNTY OF EAGLE, STATE OF COLORADO

## GRADING, EROSION & SEDIMENT CONTROL PLANS

### LEGAL DESCRIPTION:

A REPLAT OF TRACT Z1 OF HAYMEADOW CABIN PARCEL AND TRACTS RMF-4 AND X OF HAYMEADOW FILING 1  
HAYMEADOW FILING NO. 2  
REC. NO.:  
TOWN OF EAGLE, EAGLE COUNTY, STATE OF COLORADO.

### BASIS OF BEARINGS:

BEARINGS ARE BASED ON AN ASSUMED BEARING OF N89°57'47"E THE LINE BETWEEN CORNER 2 OF TRACT 38 A 2 1/2" USGLD BRASS CAP ON A 1" DIAMETER IRON PIPE AND CORNER 1 OF SAID TRACT 38 A 2 1/2" ALUMINUM CAP ON A 3/4" REBAR SITUATED ALONG THE NORTH LINE OF THE SUBJECT PARCEL.

### BENCHMARK:

ELEVATION INFORMATION SHOWN HEREON IS BASED UPON GPS OBSERVATIONS UTILIZING OPUS, GEOID 12B TO DERIVE THE NGVD29 ELEVATION OF 6734.7' AT THE TOP OF A 2-1/2" ALUMINUM CAP ON #6 REBAR STAMPED CORNER 1 TRACT 58 MEYER LAND SYSTEMS, 2000, AS SHOWN HEREON.

### TOWN OF EAGLE STANDARD DETAIL DRAWING INDEX:

STANDARD DETAILS INCORPORATED BY REFERENCE WITHIN THESE DRAWINGS SHALL CONSIST OF, BUT NOT BE LIMITED TO, THE FOLLOWING TOWN OF EAGLE STANDARD DETAILS INDICATED AND ALL SUBSEQUENT DETAILS WHICH MAY BE REFERENCED THEREIN:

#### TYPICAL SEWER DETAILS

- A1: PAVED SURFACE TRENCH BACKFILL
- A2: TRENCH BACKFILL
- A3: TRENCH BACKFILL
- A4: SEWER SERVICE FROM MAIN
- A5: STANDARD MANHOLE
- A11: CHANNELS
- A12: STANDARD CHANNELS SECTION

#### TYPICAL WATER DETAILS

- B1: WATER MAIN SEWER CROSSING/PARALLEL
- B2: FIRE HYDRANT DETAIL
- B3: AIR RELEASE VALVE
- B6: WATER SERVICE TAP
- B14: VALVE BOX
- B17: CUT IN TEE
- B18: TAPPING SLEEVE
- B20: TEE DETAIL
- B21: GENERAL THRUST BLOCKS
- B22: VERTICAL THRUST BLOCKS

#### TYPICAL ROAD DETAILS

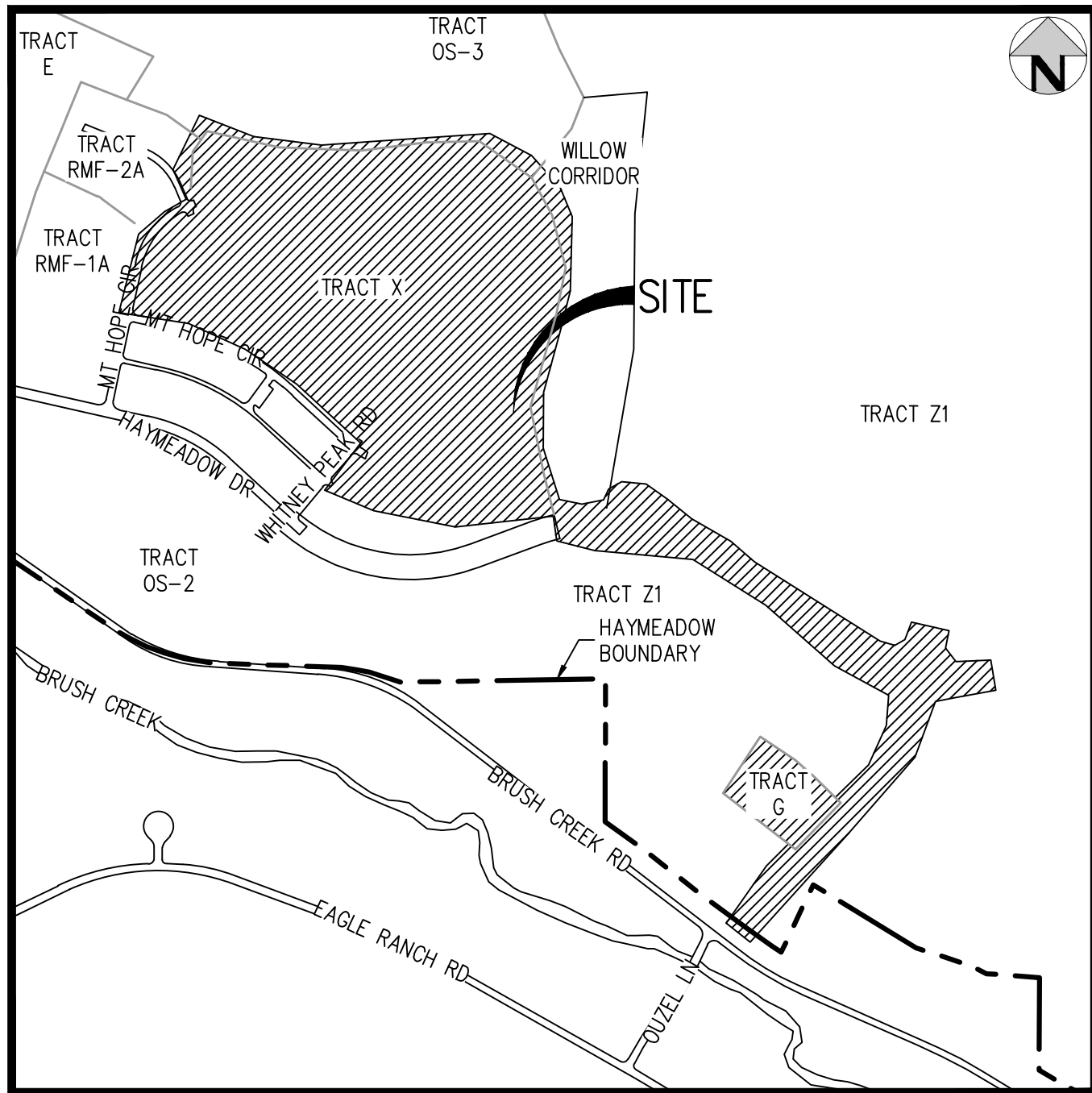
- C1: 6" VERTICAL CURB AND GUTTER
- C2: MOUNTABLE CURB AND GUTTER
- C4: ADA RAMPS
- C5: ADA CORNER RAMP
- C7: STREET INTERSECTION CURB FILLETS
- C12: CROSSWALK DETAIL
- C14: STREET CUT DETAIL

#### TYPICAL STORM SEWER DETAILS

- D1: CURB INLET
- D2: CURB INLET 2
- D3: CULVERT BEDDING
- D4: SILT FENCE
- D5: EROSION LOG

#### BUILDING TYPICAL DETAILS

- E8: ALLEY SEWER SERVICE
- E10: DRIVEWAY CULVERT
- E11: CONSTRUCTION TRACKING PAD



VICINITY MAP  
SCALE: 1" = 500'

### SHEET INDEX

- 1 COVER SHEET
- 2 GRADING, EROSION & SEDIMENT CONTROL PLAN - INITIAL
- 3 GRADING, EROSION & SEDIMENT CONTROL PLAN - INITIAL
- 4 GRADING, EROSION & SEDIMENT CONTROL PLAN - INITIAL
- 5 GRADING, EROSION & SEDIMENT CONTROL PLAN - FINAL
- 6 GRADING, EROSION & SEDIMENT CONTROL PLAN - FINAL
- 7 GRADING, EROSION & SEDIMENT CONTROL PLAN - FINAL
- 8 GRADING, EROSION & SEDIMENT CONTROL DETAILS
- 9 GRADING, EROSION & SEDIMENT CONTROL DETAILS
- 10 GRADING, EROSION & SEDIMENT CONTROL DETAILS

### LEGEND

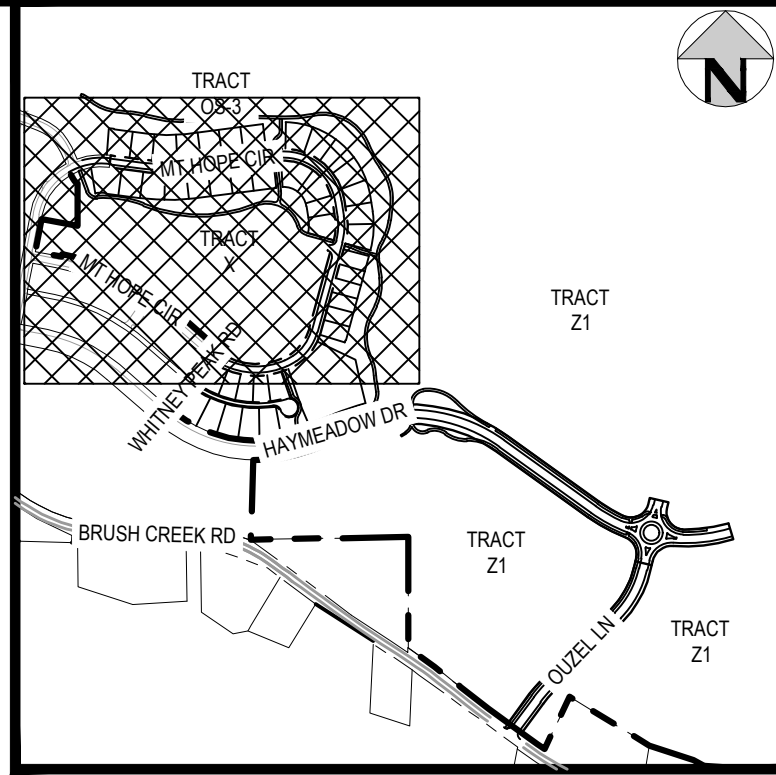
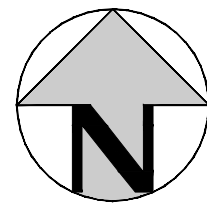
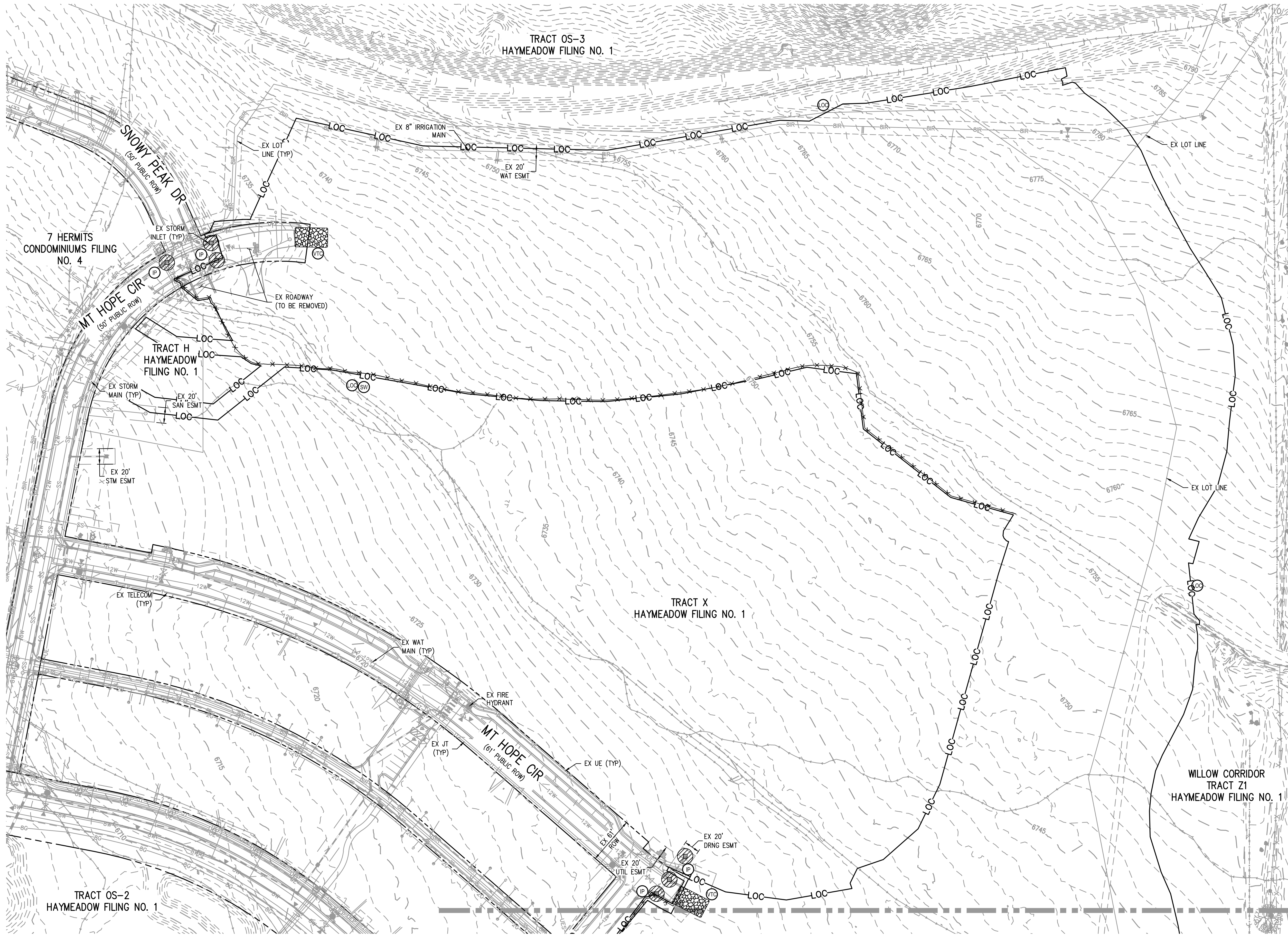
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PROPERTY BOUNDARY	---	---
RIGHT-OF-WAY	---	---
UTILITY EASEMENT	---	---
SANITARY SEWER W/ MANHOLE	SS	SS
SANITARY SERVICE W/CLEANOUT	SS	SS
WATER LINE AND GATE VALVE	W	W
WATER SERVICE	W	W
NON-POTABLE WATER LINE	BIR	BIR
STORM SEWER W/ MANHOLE & INLETS	ST	ST
GAS	G	G
UNDERGROUND ELECTRIC	UE	UE
TELECOM	T	T
ASPHALT TRAIL		
FIRE HYDRANT		
STREET LIGHT		
SIGN		

PRELIMINARY  
NOT FOR  
CONSTRUCTION



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PLOT: 8/25/2024 10:00 AM  
PLOTTER: TUE 04/20/2025 4:28:18P BY: COLTON HOCHHEAR



KEY MAP  
SCALE: 1" = 800'

LEGEND:

RIGHT OF WAY	---
EXISTING CONTOURS	5173 5170
LIMITS OF CONSTRUCTION / LIMITS OF DISTURBANCE	LOC — LOC
STRAW WADDLE	SW — x x x
STABILIZED STAGING AREA	SSA [hatched box]
VEHICLE TRACKING CONTROL	VTC [stippled box]
CONCRETE WASHOUT AREA	CWA [square with crosshatch]
SOIL STOCKPILE	SP [cloud-like shape]
CONSTRUCTION TRAILER	CT [rectangle]
INLET PROTECTION	IP [circle with crosshatch]
OUTLET PROTECTION	OP [circle with crosshatch]

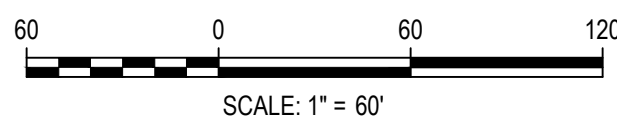
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1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION, EXCAVATION, TRENCHING, BORING, GRADING, OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO THE MUNICIPAL SEPARATE STORM SEWER SYSTEM, RECEIVING WATERS, WATERWAYS, WETLANDS, AND OR OTHER PUBLIC OR PRIVATE PROPERTIES, RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
2. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO OR, ACCUMULATE IN THE FLOW LINES STORM DRAINAGE APPURTENANCES, AND PUBLIC RIGHTS OF WAYS OF THE CITY AND COUNTY OF DENVER AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT. ALL REMOVALS SHALL BE CONDUCTED IN A TIMELY MANNER.
3. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL INSURE THAT ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT ON PUBLIC RIGHTS OF WAY.
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7. TRENCHES THAT MUST BE LEFT OPEN DURING NON-WORKING HOURS SHALL BE COVERED WITH SUITABLE MATERIALS AND/OR BARRICADED.

MATCHLINE — SEE SHEET 3



DESIGNED BY: CLH  
CHECKED BY: RCP  
DRAWN BY: CLH

ISSUE DATE: 11-19-2024

DATE	REVISION COMMENTS
12-04-2024	BID SET
01-09-2025	BID SET
02-14-2025	PER TOWN OF EAGLE COMMENTS



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ABRIKA PROPERTIES

HAYMEADOW FILING 2 - PHASES 2 & 4  
GRADING, EROSION & SEDIMENT CONTROL PLAN - INITIAL

PRELIMINARY  
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CONSTRUCTION

PROJECT #: 240804  
SHEET NUMBER

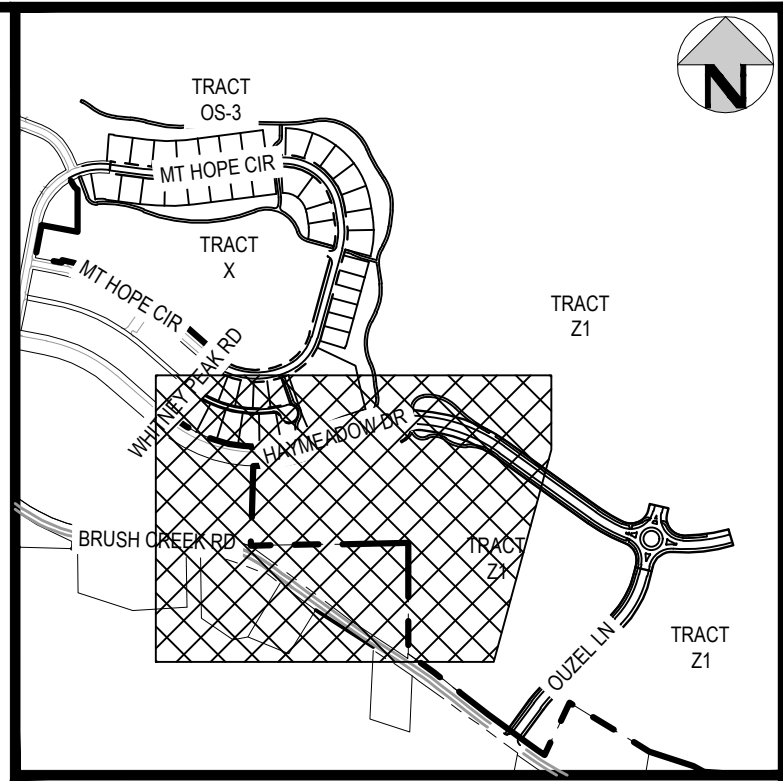
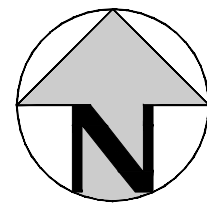
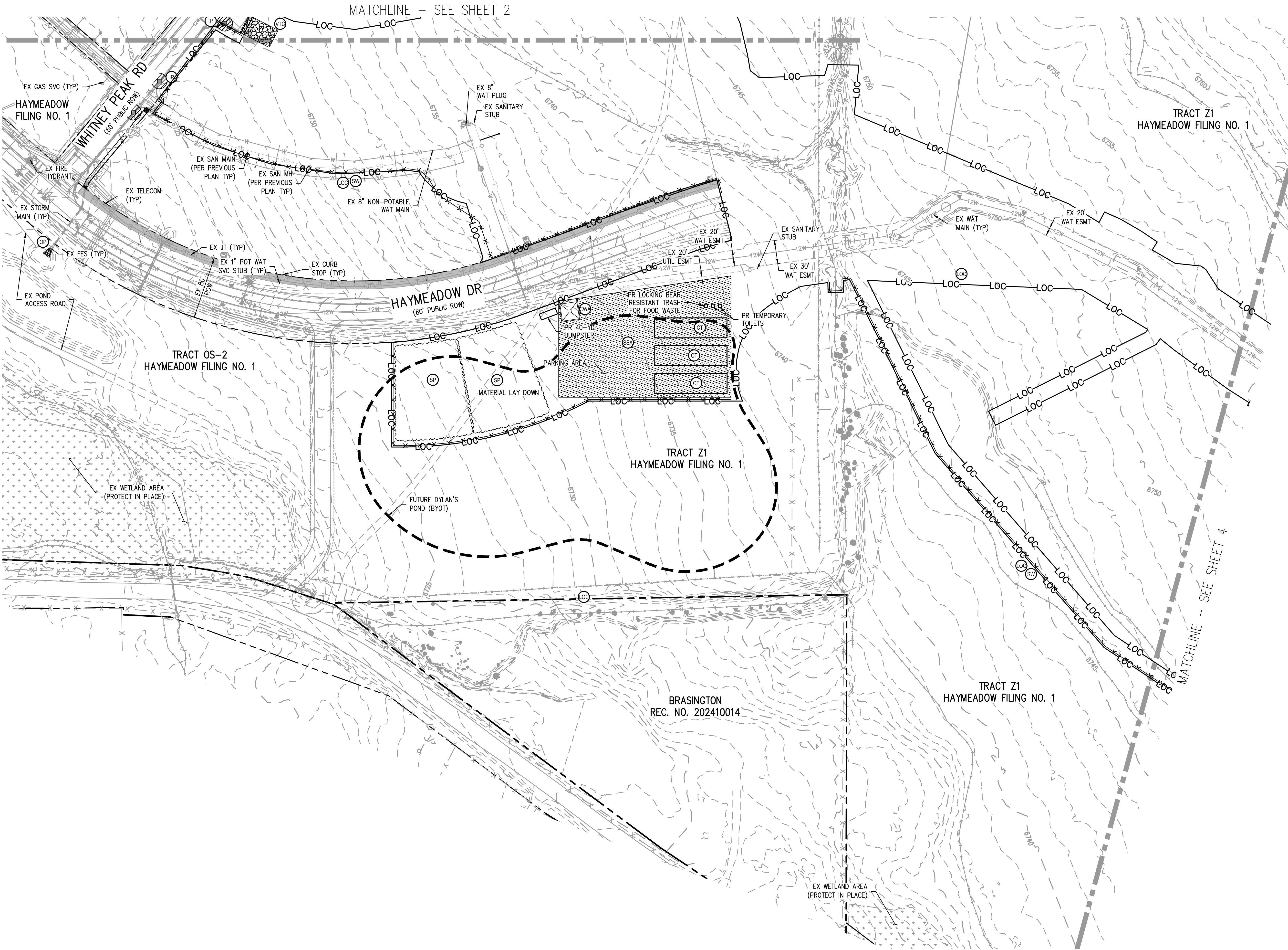
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2 OF 10



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KEY MAP  
SCALE: 1" = 800'

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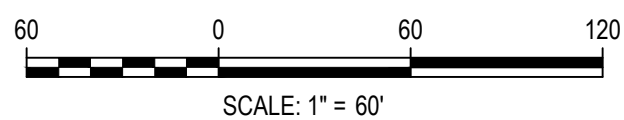
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EXISTING CONTOURS	5173 5170
LIMITS OF CONSTRUCTION / LIMITS OF DISTURBANCE	LOC
STRAW WADDLE	SW
STABILIZED STAGING AREA	SSA
VEHICLE TRACKING CONTROL	VTC
CONCRETE WASHOUT AREA	CWA
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CHECKED BY: RCP  
DRAWN BY: CLH

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HarrisKocherSmith.com

ABRIKA PROPERTIES

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GRADING, EROSION & SEDIMENT CONTROL PLAN - INITIAL

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PROJECT #: 240804  
SHEET NUMBER

3

3 OF 10

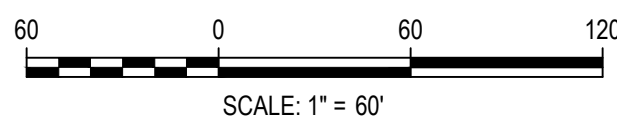


NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF HARRIS KOCHER SMITH.

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DESIGNED BY: CLH  
CHECKED BY: RCP  
PLOTTED: TUE 04/22/25 4:28:50P BY: COLTON KOCHER



Know what's below.  
Call before you dig.



DESIGNED BY: CLH  
CHECKED BY: RCP  
DRAWN BY: CLH

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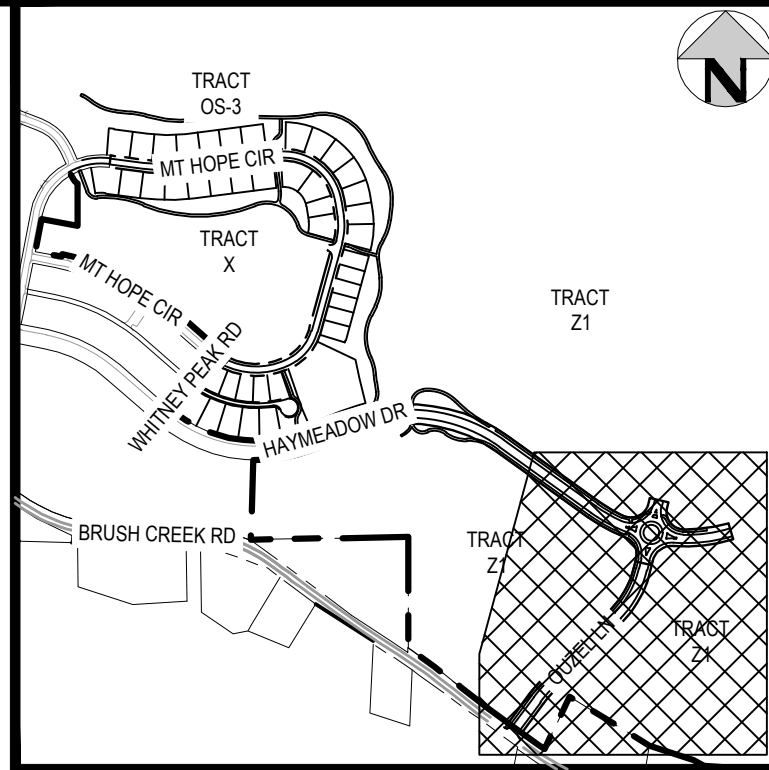
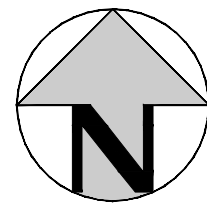
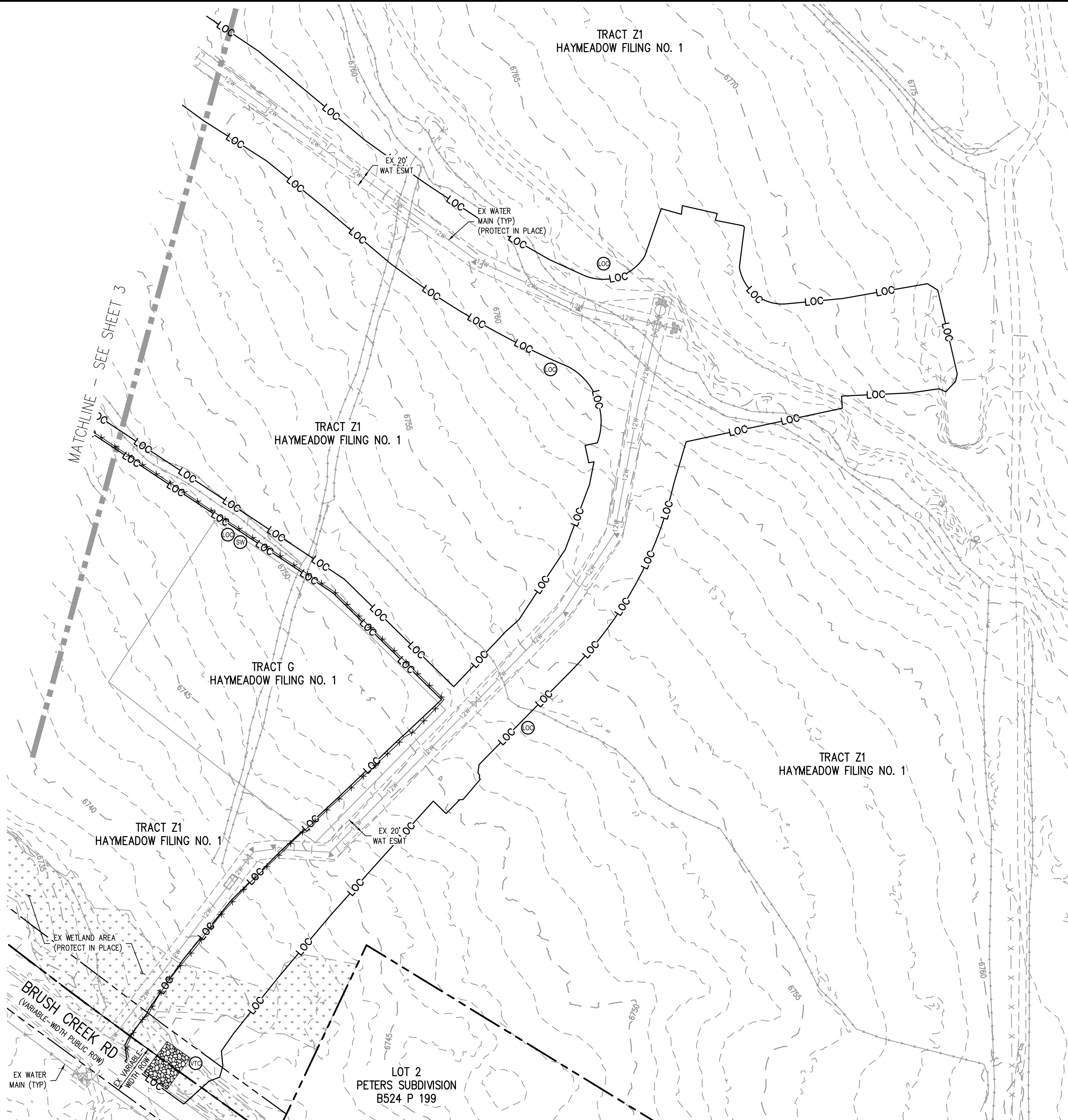
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GRADING, EROSION & SEDIMENT CONTROL PLAN - INITIAL

PRELIMINARY  
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CONSTRUCTION

PROJECT #: 240804  
SHEET NUMBER

4

4 OF 10



#### LEGEND:

RIGHT OF WAY	---
EXISTING CONTOURS	5173 5170
LIMITS OF CONSTRUCTION / LIMITS OF DISTURBANCE	LOC — LOC
STRAW WADDLE	SW — x x x
STABILIZED STAGING AREA	SSA [hatched box]
VEHICLE TRACKING CONTROL	VTC [stippled box]
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CONSTRUCTION TRAILER	CT [rectangle]
INLET PROTECTION	IP [circle with crosshatch]
OUTLET PROTECTION	OP [circle with crosshatch]

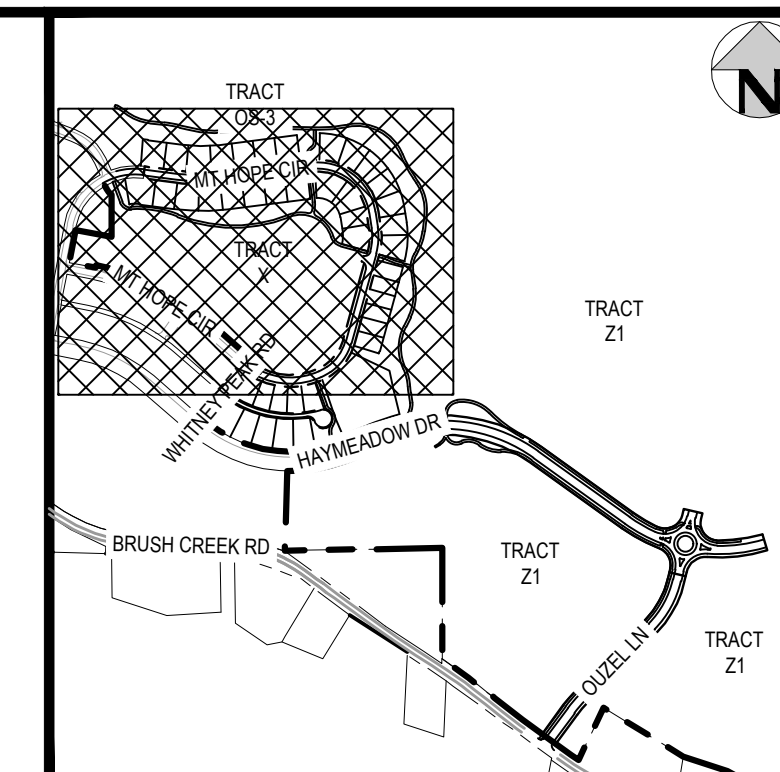
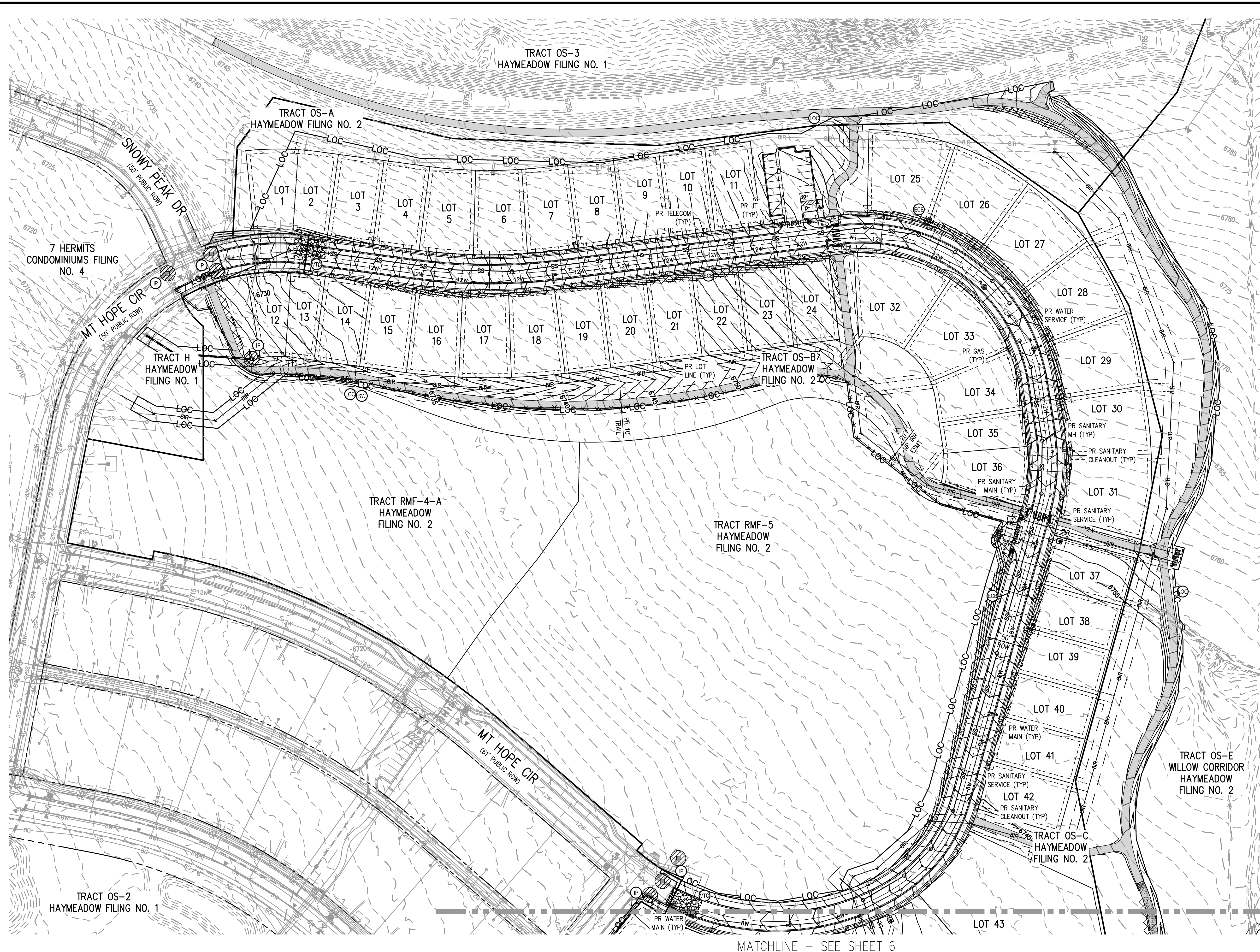
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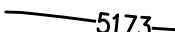






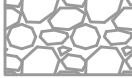












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7. TRENCHES THAT MUST BE LEFT OPEN DURING NON-WORKING HOURS SHALL BE COVERED WITH SUITABLE MATERIALS AND/OR BARRICADED.





**KEY MAP**  
SCALE: 1" = 800'

LEGEND:

PROPERTY BOUNDARY	
RIGHT OF WAY	
EXISTING CONTOURS	 
PROPOSED CONTOURS	 
LIMITS OF CONSTRUCTION / LIMITS OF DISTURBANCE	 — LOC
STRAW WADDLE	 — x — x — x
STABILIZED STAGING AREA	 
VEHICLE TRACKING CONTROL	 
CONCRETE WASHOUT AREA	 
SOIL STOCKPILE	 
CONSTRUCTION TRAILER	 
INLET PROTECTION	 
OUTLET PROTECTION	 
EROSION PROTECTION BLANKET	 

TOWN OF EAGLE EROSION CONTROL NOTES:

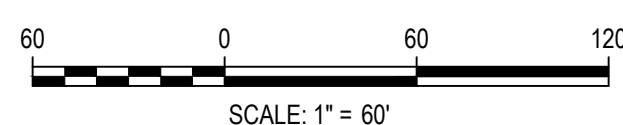
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CHECKED BY: RCP  
DRAWN BY: MJS

ISSUE DATE: 11-19-2024	
DATE	REVISION COMMENTS
12-04-2024	BID SET
01-09-2025	BID SET
02-14-2025	PER TOWN OF EAGLE COMMENTS



1120 Lincoln Street, Suite 1000  
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HarrisKocherSmith.com

ABRIKA PROPERTIES

HAYMEADOW FILING 2 - PHASES 2 & 4  
GRADING, EROSION & SEDIMENT CONTROL PLAN - FINAL

PRELIMINARY  
NOT FOR  
CONSTRUCTION

PROJECT #:	240804
SHEET NUMBER	

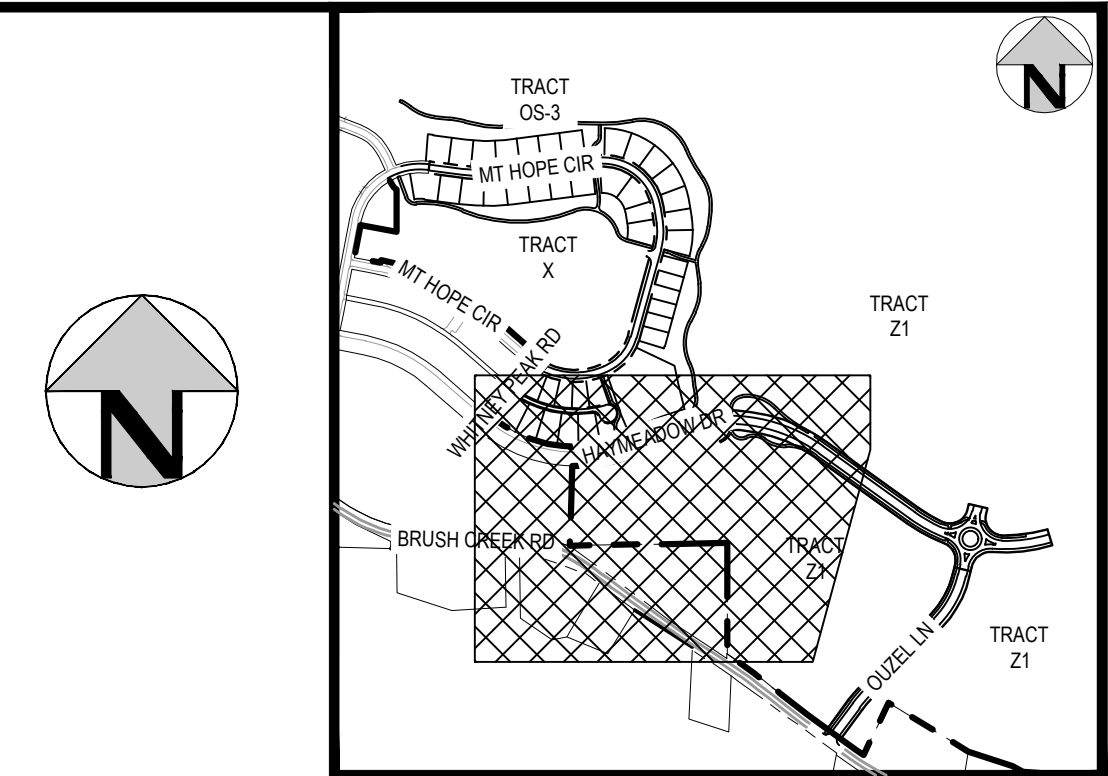
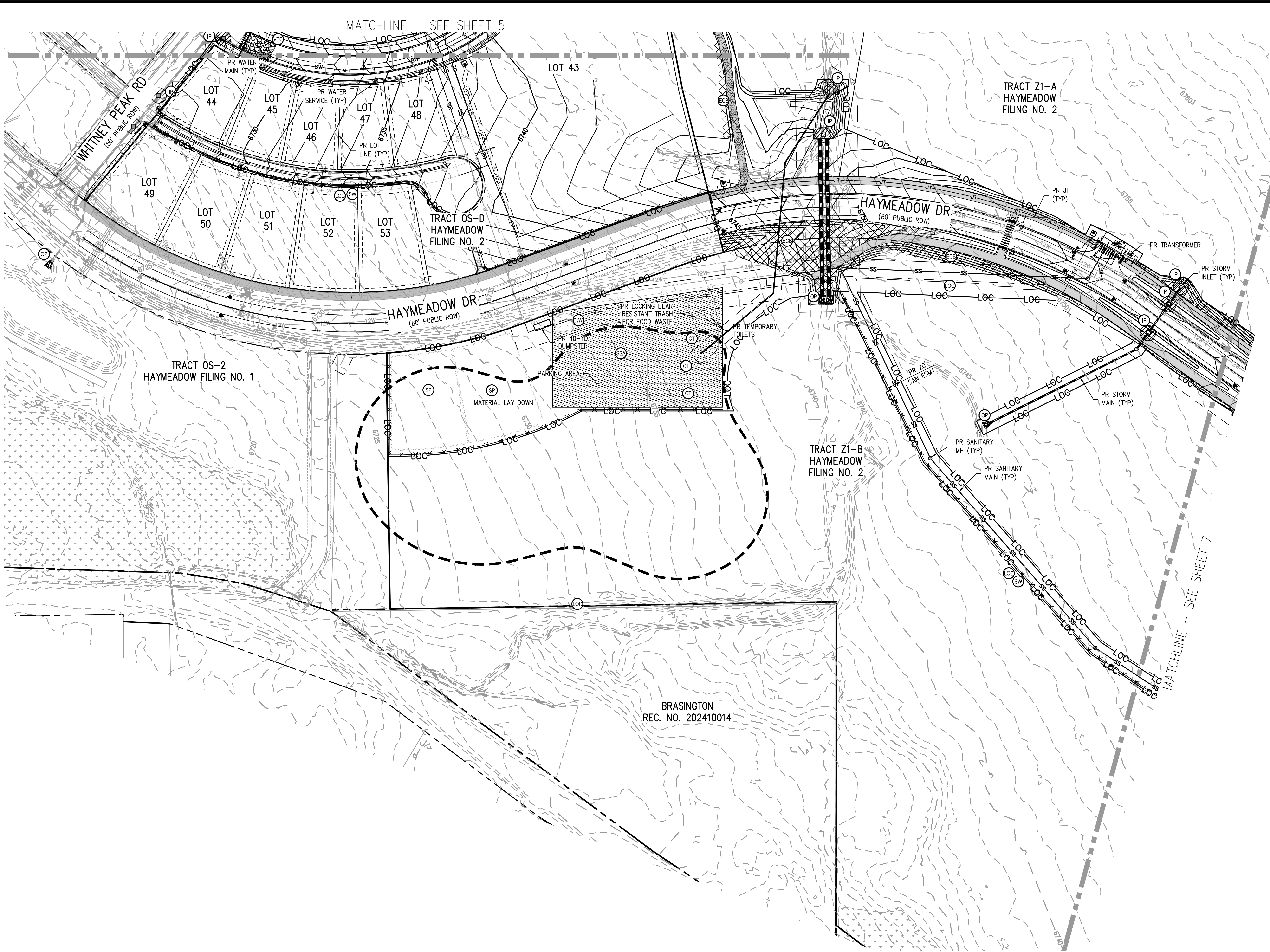
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5 OF 10



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PLOT: TLE 04/2025 4:28:12P BY: COLTON HOCHHEAR



**KEY MAP**  
SCALE: 1" = 800'

**LEGEND:**

PROPERTY BOUNDARY	---
RIGHT OF WAY	---
EXISTING CONTOURS	5173 5170
PROPOSED CONTOURS	5173 5170
LIMITS OF CONSTRUCTION / LIMITS OF DISTURBANCE	LOC LOC
STRAW WATTLE	SW x x x
STABILIZED STAGING AREA	SSA
VEHICLE TRACKING CONTROL	VTC
CONCRETE WASHOUT AREA	CWA
SOIL STOCKPILE	SP
CONSTRUCTION TRAILER	CT
INLET PROTECTION	IP
OUTLET PROTECTION	OP
EROSION CONTROL BLANKET	ECB

**TOWN OF EAGLE EROSION CONTROL NOTES:**

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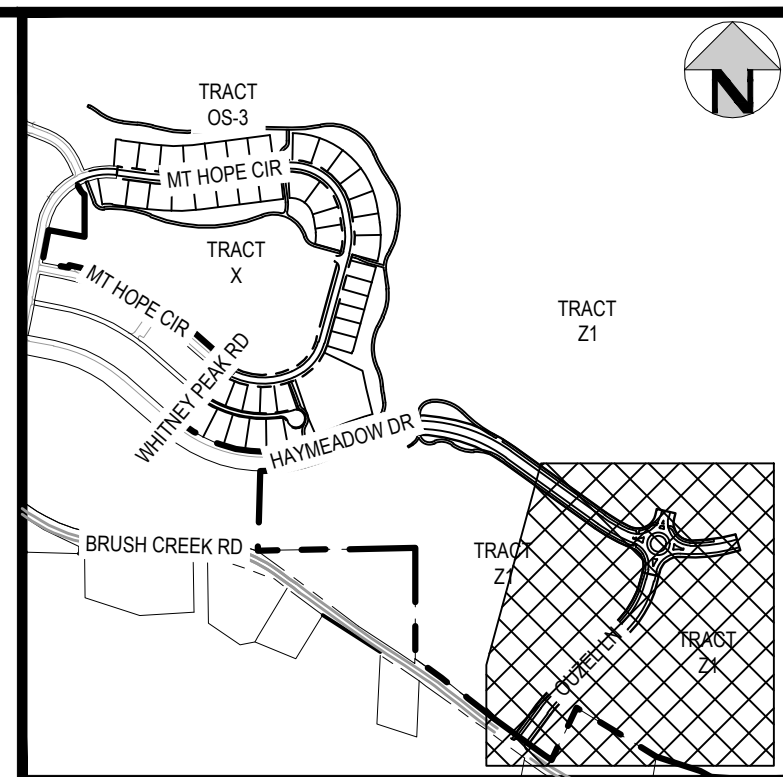
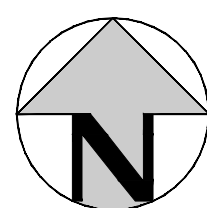
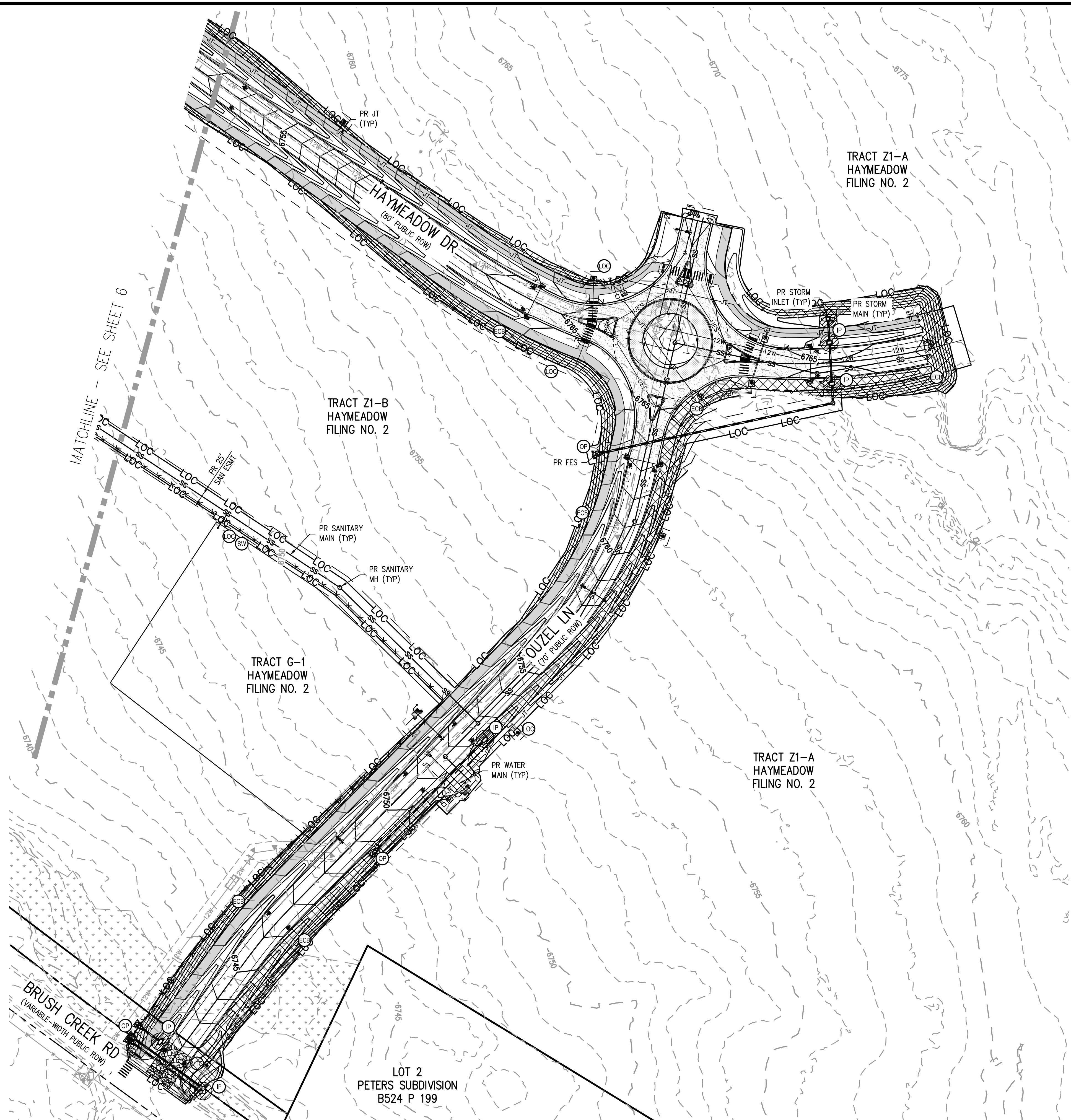
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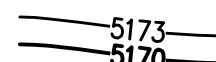
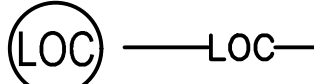









 Know what's below. Call before you dig.	 SCALE: 1" = 60'	ISSUE DATE: 11-19-2024	 <b>HARRIS KOCHER SMITH</b> 1120 Lincoln Street, Suite 1000 Denver, Colorado 80203 P: 303.623.6300 F: 303.623.6311 HarrisKocherSmith.com	ABRIKA PROPERTIES	HAYMEADOW FILING 2 - PHASES 2 & 4 GRADING, EROSION & SEDIMENT CONTROL PLAN - FINAL	PRELIMINARY NOT FOR CONSTRUCTION	PROJECT #: 240804
		DATE REVISION COMMENTS					SHEET NUMBER
DESIGNED BY: MJS	12-04-2024 BID SET						6
CHECKED BY: RCP	01-09-2025 BID SET						10
DRAWN BY: MJS	02-14-2025 PER TOWN OF EAGLE COMMENTS						





**KEY MAP**  
SCALE: 1" = 800'

LEGEND:

PROPERTY BOUNDARY	
RIGHT OF WAY	
EXISTING CONTOURS	
PROPOSED CONTOURS	
LIMITS OF CONSTRUCTION / LIMITS OF DISTURBANCE	
STRAW WADDLE	
STABILIZED STAGING AREA	
VEHICLE TRACKING CONTROL	
CONCRETE WASHOUT AREA	
SOIL STOCKPILE	
CONSTRUCTION TRAILER	
INLET PROTECTION	
OUTLET PROTECTION	
EROSION CONTROL BLANKET	

TOWN OF EAGLE EROSION CONTROL NOTES:

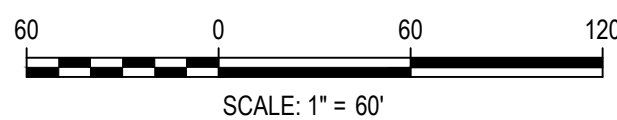
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CHECKED BY: RCP  
DRAWN BY: MJS

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**IKS HARRIS KOCHER SMITH**  
1120 Lincoln Street, Suite 1000  
Denver, Colorado 80203  
P: 303.623.6300 F: 303.623.6311  
HarrisKocherSmith.com

ABRIKA PROPERTIES

HAYMEADOW FILING 2 - PHASES 2 & 4  
GRADING, EROSION & SEDIMENT CONTROL PLAN - FINAL

PRELIMINARY  
NOT FOR  
CONSTRUCTION

PROJECT #: 240804
SHEET NUMBER

7

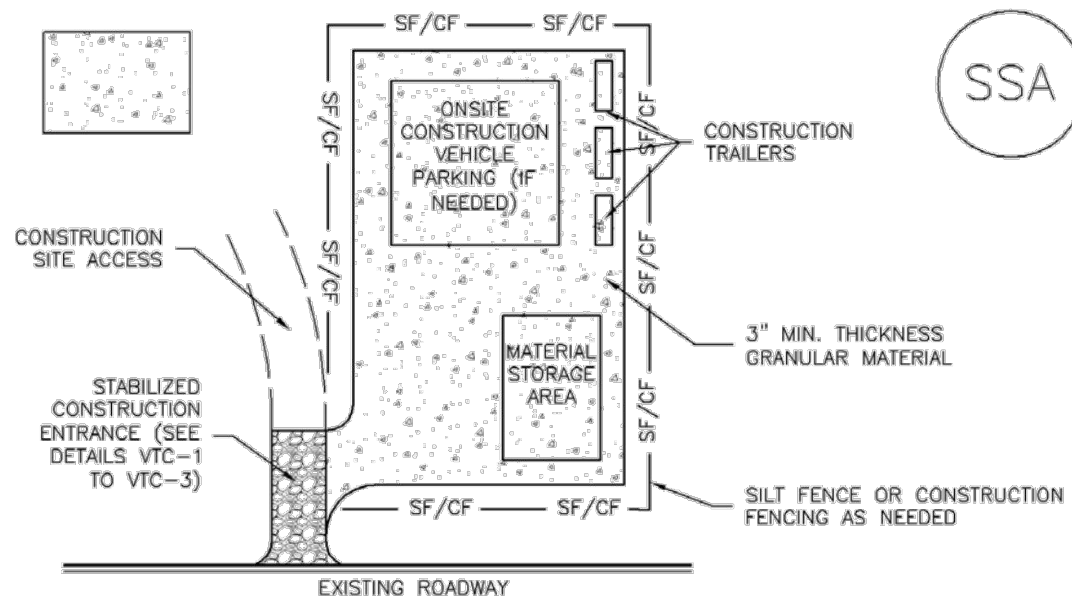
7 OF 10



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PLOT DATE: 04/22/25 4:29:22P BY: COLTON HOEHEVAR

Stabilized Staging Area (SSA) SM-6



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR  
-LOCATION OF STAGING AREA(S).  
-CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

November 2010 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 SSA-3

SM-6 Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

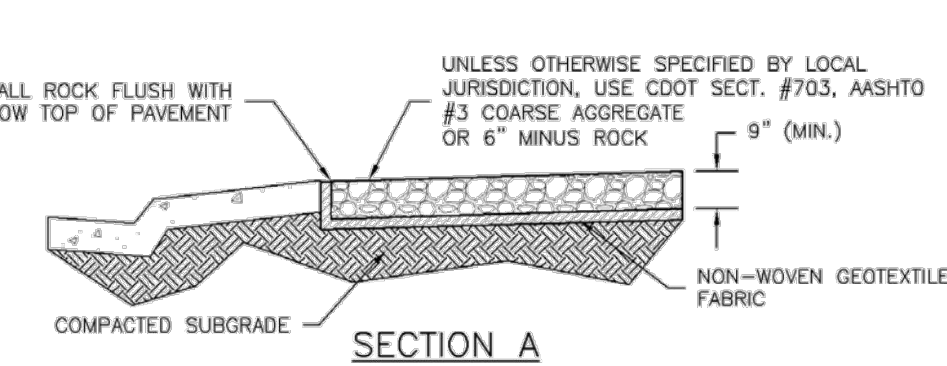
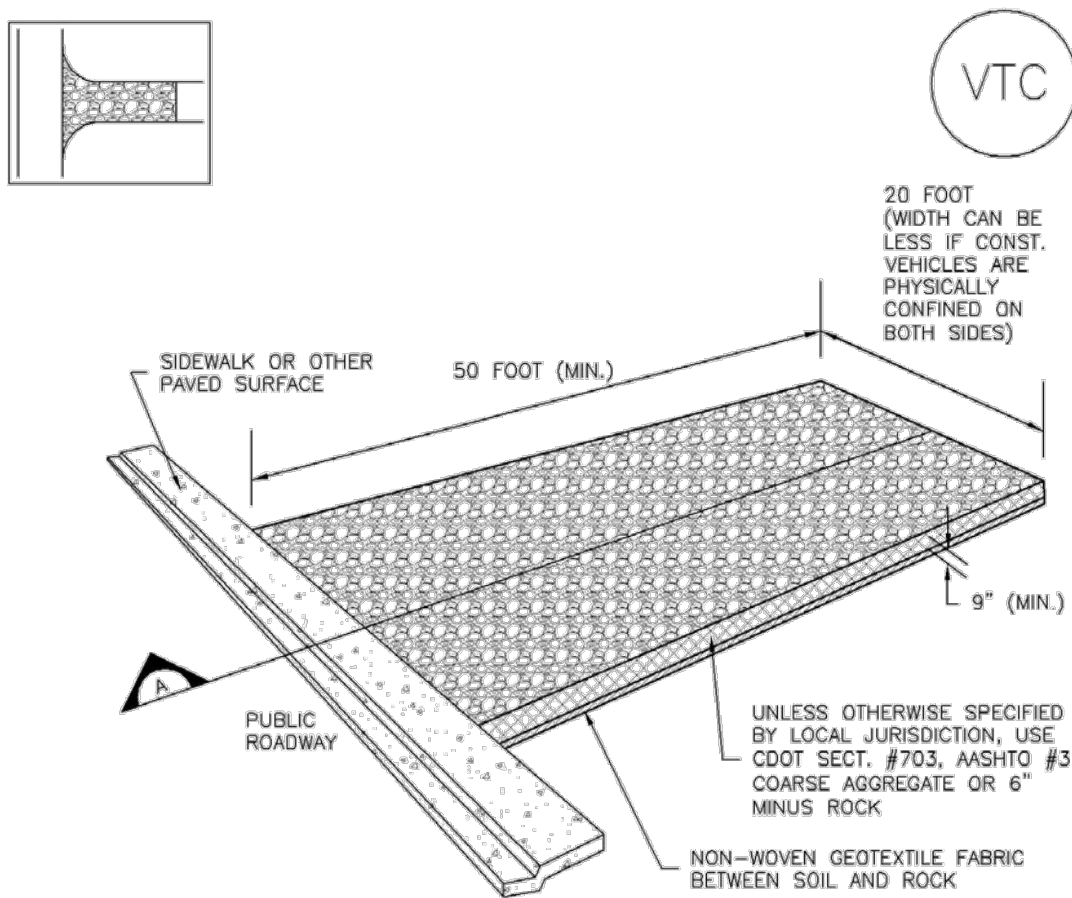
NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

SSA-4 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 November 2010

Vehicle Tracking Control (VTC) SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

November 2010 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 VTC-3

SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR  
-LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).  
-TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

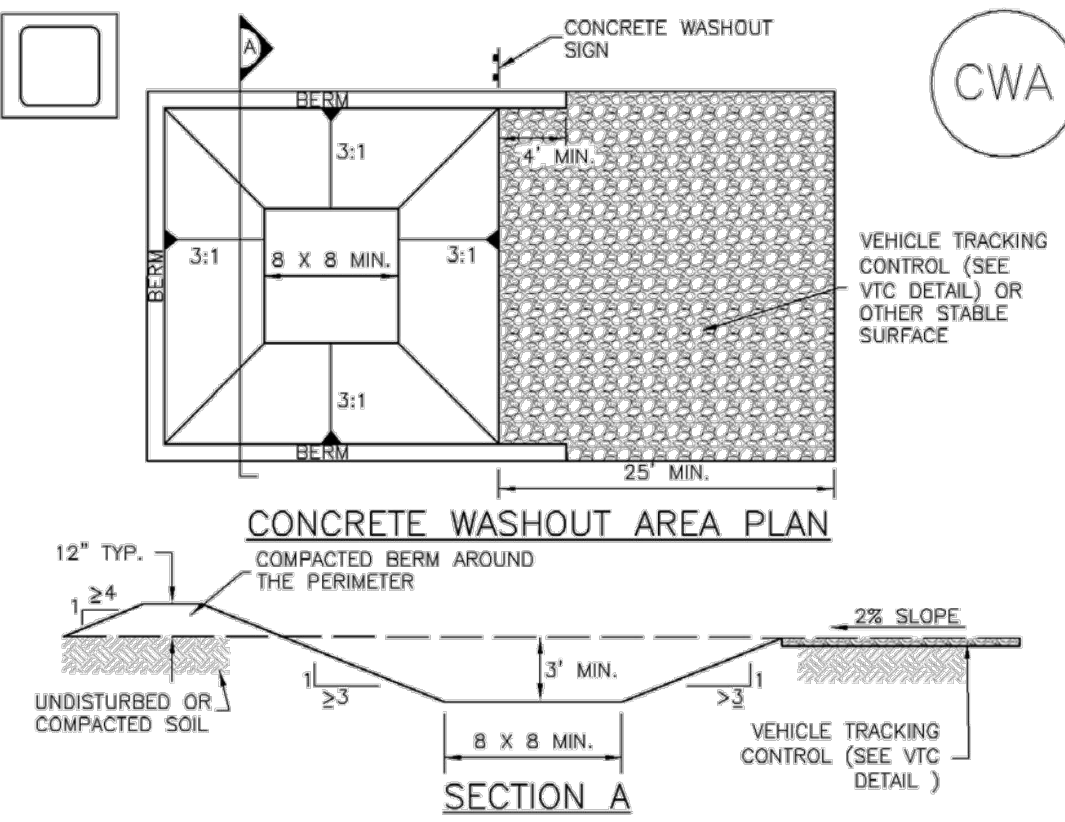
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2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

VTC-6 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 November 2010

Concrete Washout Area (CWA) MM-1



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:  
-CWA INSTALLATION LOCATION.
2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFESIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (1.5 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

November 2010 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3 CWA-3

MM-1 Concrete Washout Area (CWA)

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

CWA-4 Urban Drainage and Flood Control District  
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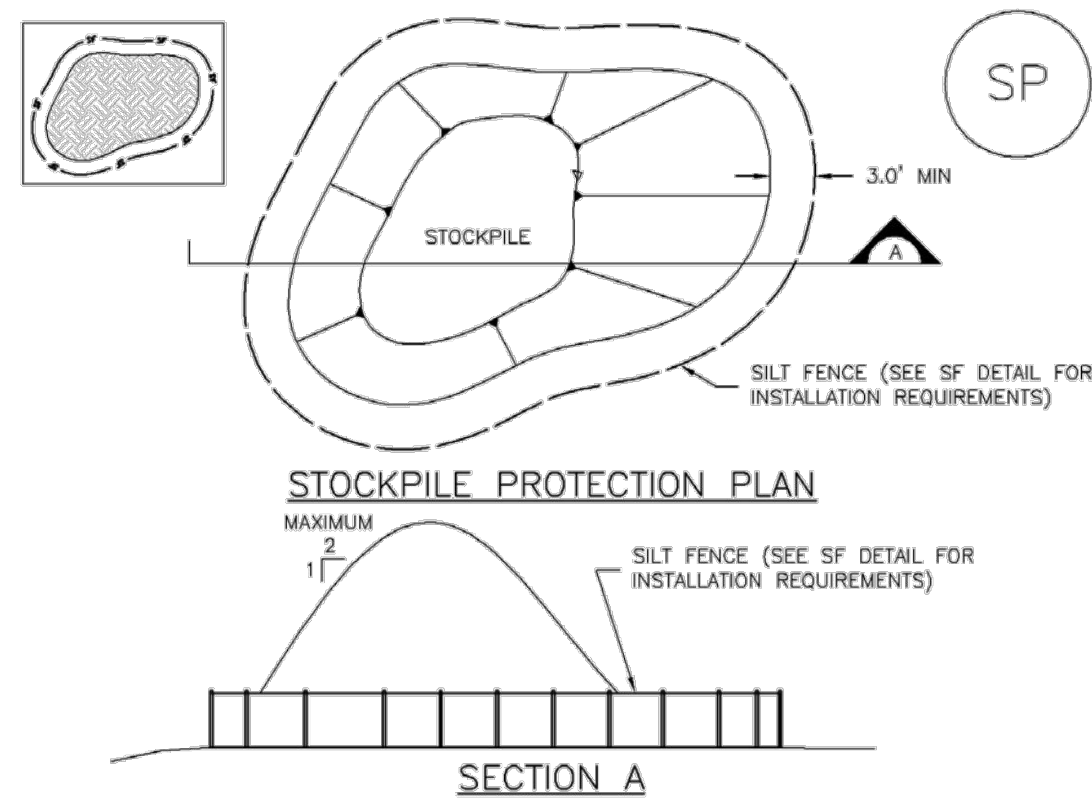
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Stockpile Management (SP) MM-2



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR:
  - LOCATION OF STOCKPILES.
  - TYPE OF STOCKPILE PROTECTION.
- INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
- STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
- FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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MM-2 Stockpile Management (SM)

STOCKPILE PROTECTION MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

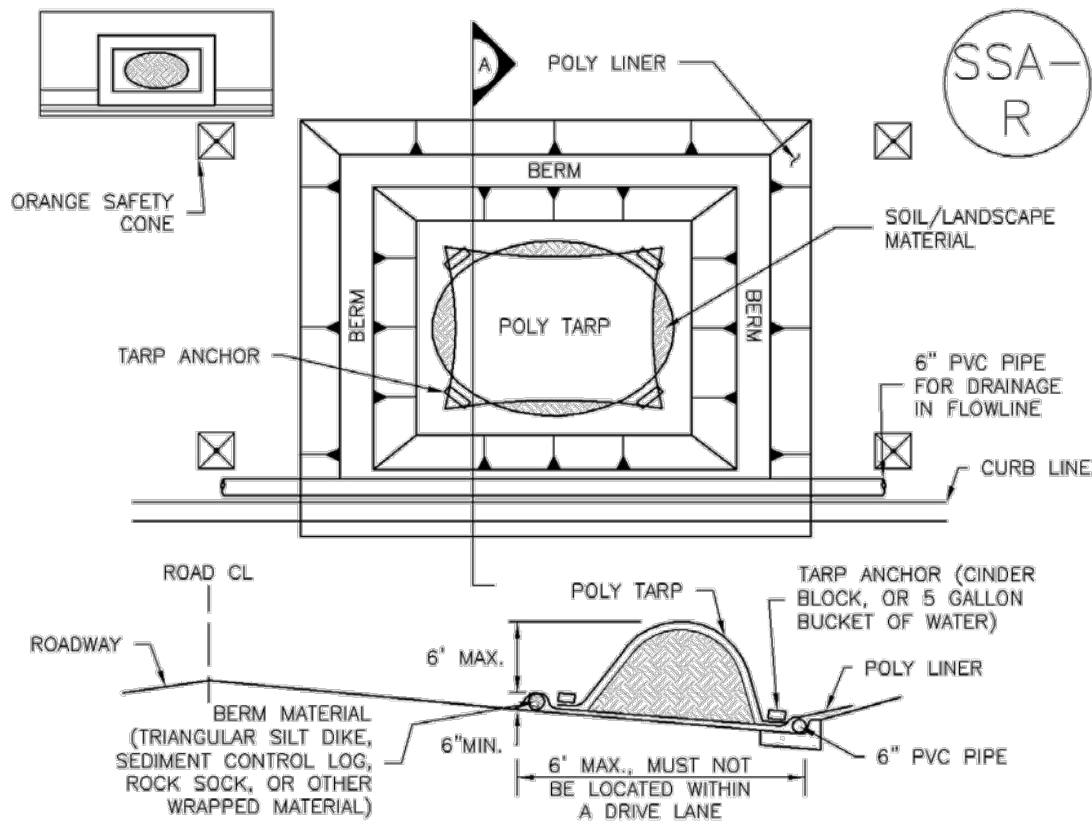
- IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
- STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SP-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Stockpile Management (SP) MM-2



SP-2. MATERIALS STAGING IN ROADWAY

MATERIALS STAGING IN ROADWAY INSTALLATION NOTES

- SEE PLAN VIEW FOR:
  - LOCATION OF MATERIAL STAGING AREA(S).
  - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
- FEATURE MUST BE INSTALLED PRIOR TO EXCAVATION, EARTHWORK OR DELIVERY OF MATERIALS.
- MATERIALS MUST BE STATIONED ON THE POLY LINER. ANY INCIDENTAL MATERIALS DEPOSITED ON PAVED SECTION OR ALONG CURB LINE MUST BE CLEANED UP PROMPTLY.
- POLY LINER AND TARP COVER SHOULD BE OF SIGNIFICANT THICKNESS TO PREVENT DAMAGE OR LOSS OF INTEGRITY.
- SAND BAGS MAY BE SUBSTITUTED TO ANCHOR THE COVER TARP OR PROVIDE BERMING UNDER THE BASE LINER.
- FEATURE IS NOT INTENDED FOR USE WITH WET MATERIAL THAT WILL BE DRAINING AND/OR SPREADING OUT ON THE POLY LINER OR FOR DEMOLITION MATERIALS.
- THIS FEATURE CAN BE USED FOR:
  - UTILITY REPAIRS.
  - WHEN OTHER STAGING LOCATIONS AND OPTIONS ARE LIMITED.
  - OTHER LIMITED APPLICATION AND SHORT DURATION STAGING.

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SP-5

MM-2 Stockpile Management (SM)

MATERIALS STAGING IN ROADWAY MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

- INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS PROMPTLY.

- CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM AURORA, COLORADO)

SP-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

EC-8 Temporary Outlet Protection (TOP)

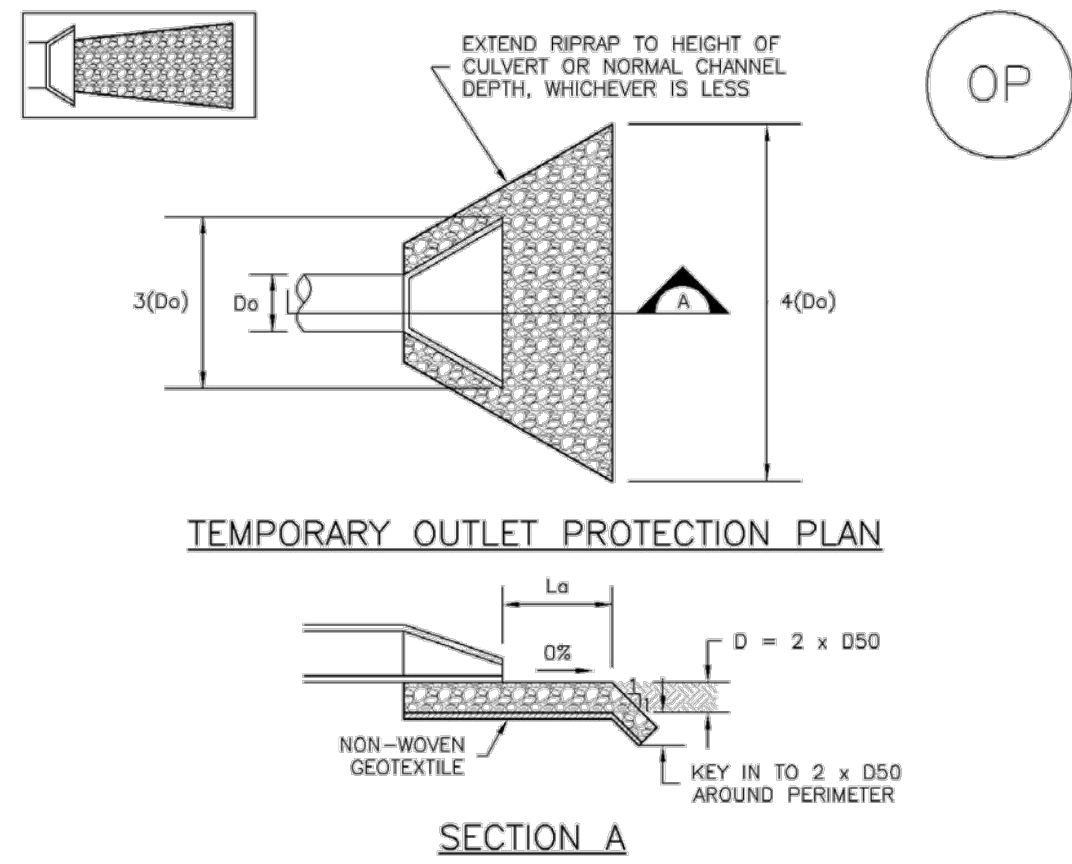


TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE				
PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APPROX. LENGTH, La (FT)	RIPRAP D50 MIN (INCHES)	RIPRAP D50 MAX (INCHES)
8	2.5	5	4	6
	5	10	4	6
12	5	10	4	6
	10	13	6	10
18	10	10	6	10
	20	16	9	12
	30	23	12	16
	40	26	16	16
24	30	16	9	12
	40	26	9	12
	50	26	12	16
	60	30	16	16

OP-1. TEMPORARY OUTLET PROTECTION

TOP-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Temporary Outlet Protection (TOP) EC-8

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR:
  - LOCATION OF OUTLET PROTECTION.
  - DIMENSIONS OF OUTLET PROTECTION.

- DETAIL IS INTENDED FOR PIPES WITH SLOPE < 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.

- TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM AURORA, COLORADO AND PREVIOUS VERSION OF VOLUME 3, NOT AVAILABLE IN AUTOCAD)

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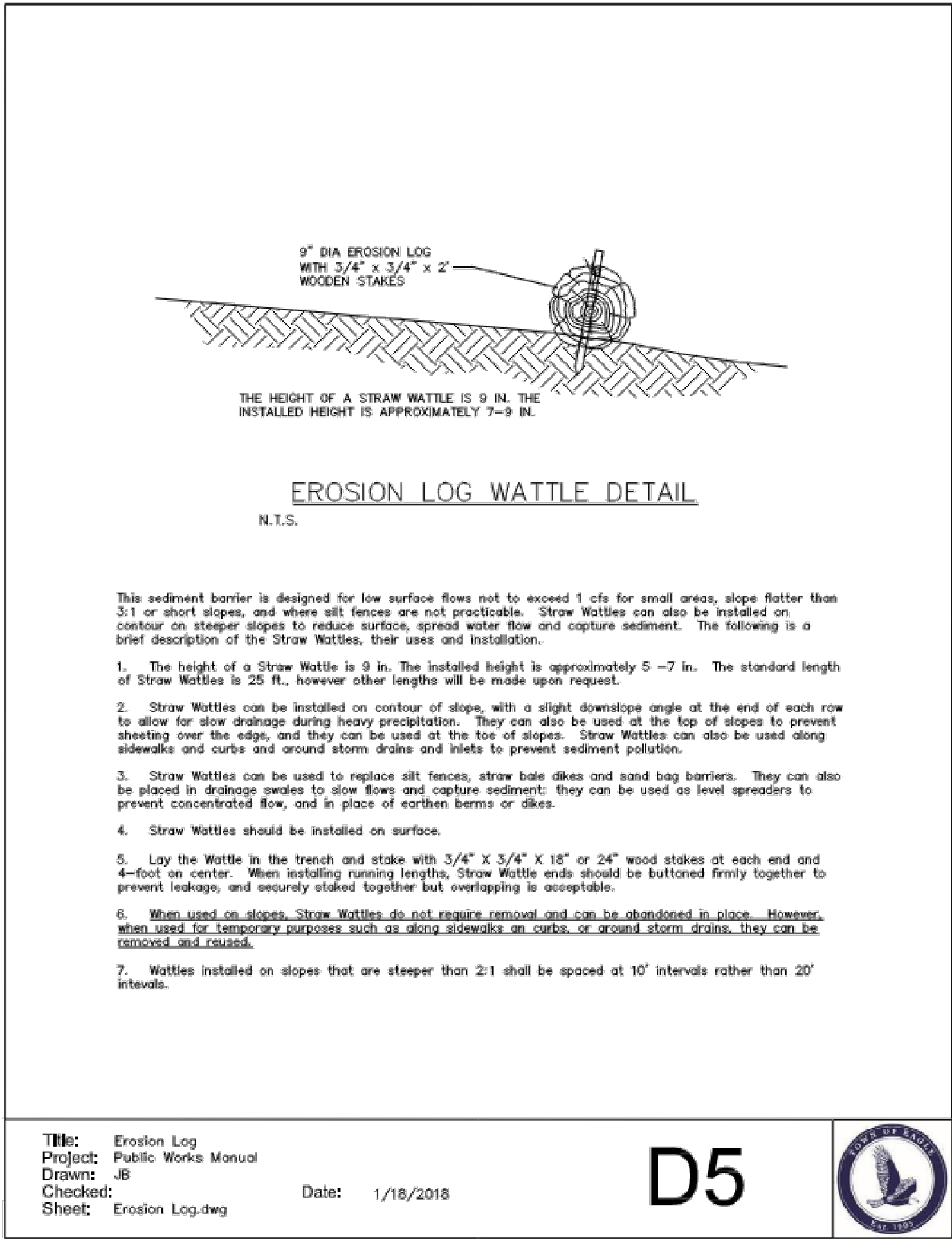
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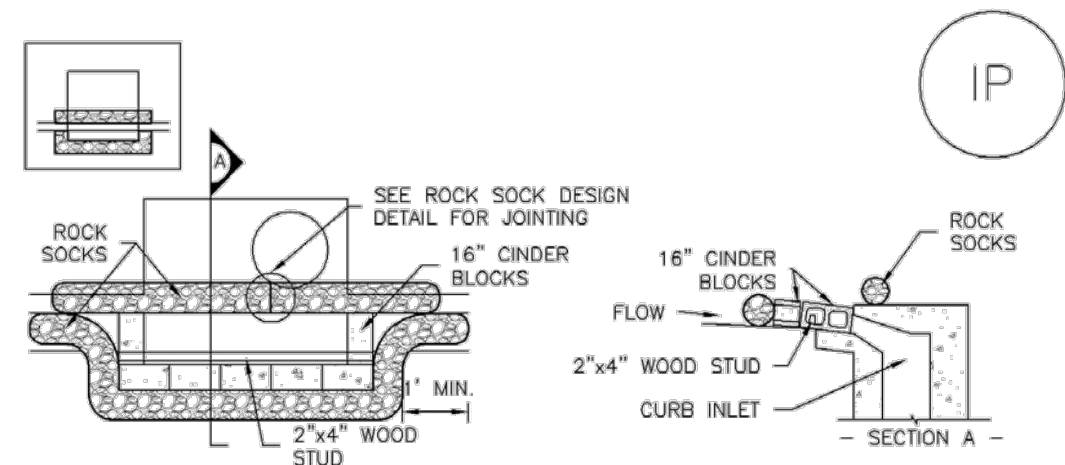


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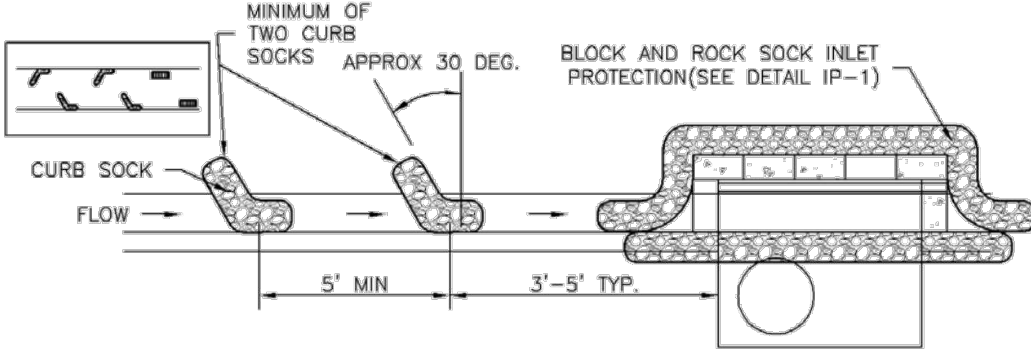
Inlet Protection (IP)



IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

**BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES**

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

**CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES**

1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

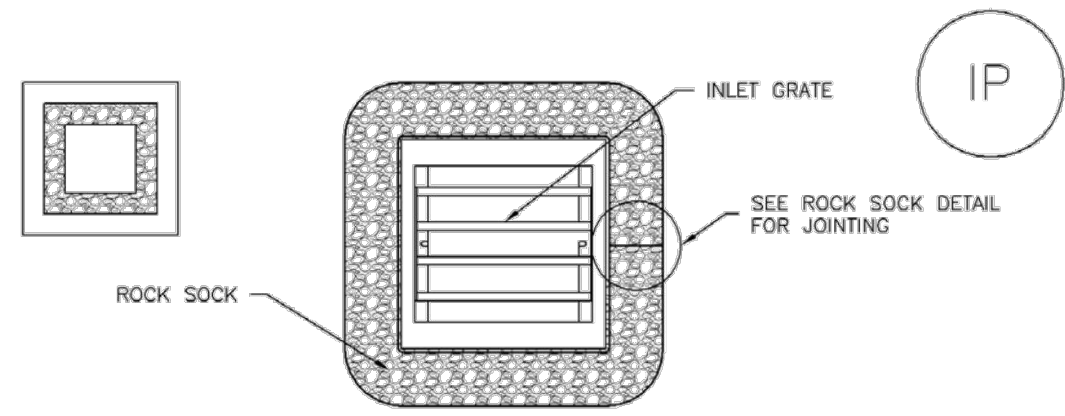
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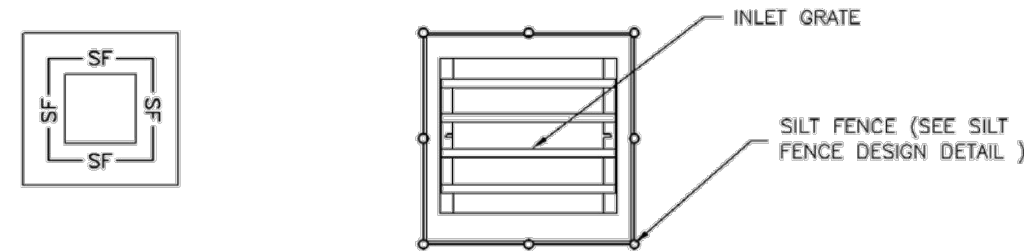
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IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

**ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES**

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



IP-4. SILT FENCE FOR SUMP INLET PROTECTION

**SILT FENCE INLET PROTECTION INSTALLATION NOTES**

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.
3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

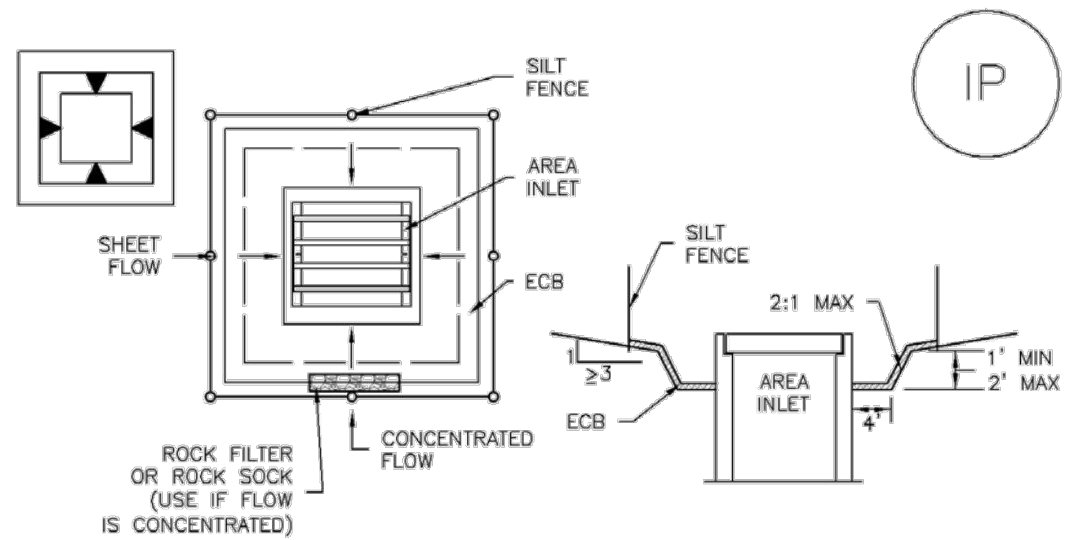
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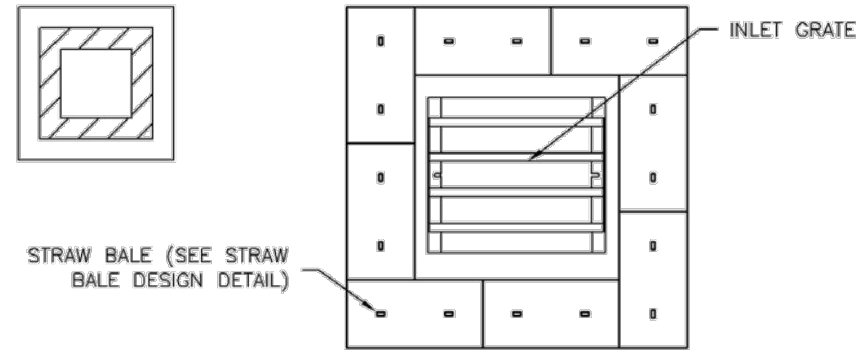
Inlet Protection (IP)



IP-5. OVEREXCAVATION INLET PROTECTION

**OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES**

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.
2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.
3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



IP-6. STRAW BALE FOR SUMP INLET PROTECTION

**STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES**

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

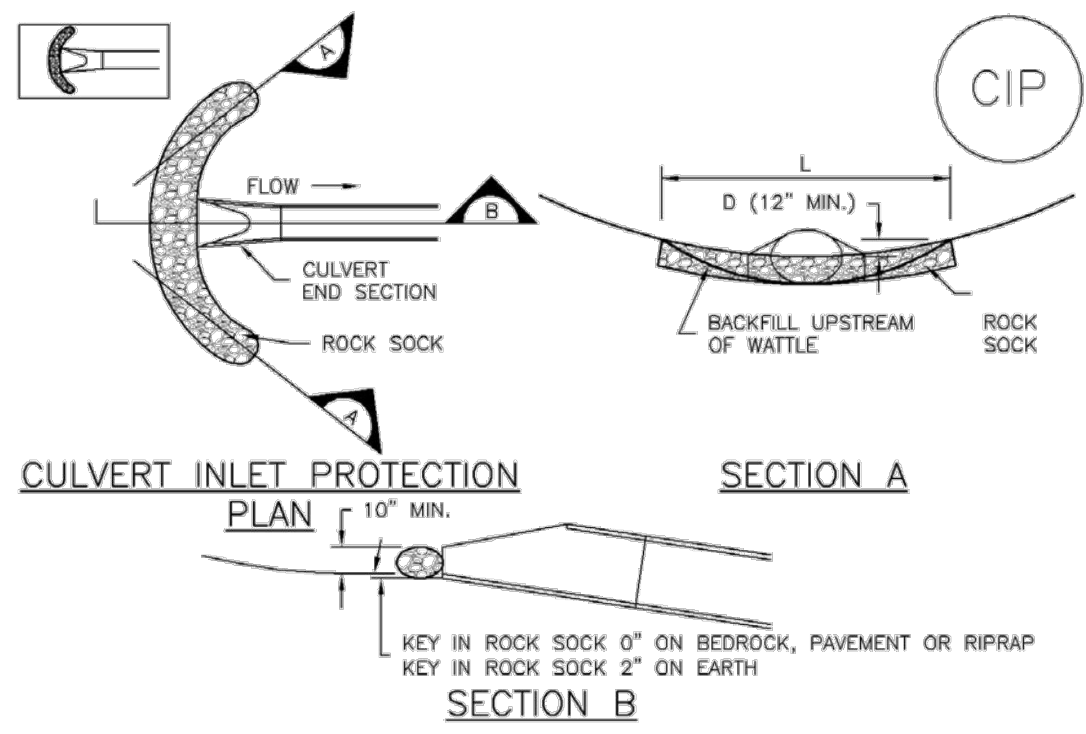
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Inlet Protection (IP)

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CIP-1. CULVERT INLET PROTECTION

**CULVERT INLET PROTECTION INSTALLATION NOTES**

1. SEE PLAN VIEW FOR -LOCATION OF CULVERT INLET PROTECTION.
2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

**CULVERT INLET PROTECTION MAINTENANCE NOTES**

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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Inlet Protection (IP)

**GENERAL INLET PROTECTION INSTALLATION NOTES**

1. SEE PLAN VIEW FOR:
  - LOCATION OF INLET PROTECTION.
  - TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

**INLET PROTECTION MAINTENANCE NOTES**

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES.
5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

IP-8

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