



STORMWATER MANAGEMENT PLAN (SWMP)

FOR

PROJECT:

Tanner Ranch
El Paso County, Colorado
PCD File No.: XXXXX

DA261

PROPERTY OWNER:

Pusan Holdings, LLC
5801 N. Union Blvd, Suite 100
Colorado Springs, Colorado 80918

SWMP PREPARER:

Kimley-Horn and Associates, Inc.
2 North Nevada Avenue,
Suite 900
Colorado Springs, CO 80903

QUALIFIED STORMWATER MANAGER:

Name/Entity:

Address:

Contact:

Prepared: March 31, 2026

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 PROJECT: 1

 PROPERTY OWNER: 1

 SWMP PREPARER: 1

 QUALIFIED STORMWATER MANAGER: 1

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DEVELOPER/OWNER'S STATEMENT

"The owner will comply with the requirements of the Erosion and Stormwater Quality Control Plan including temporary BMP inspection requirements and final stabilization requirements. I acknowledge the responsibility to determine whether the construction activities on these plans require Colorado Discharge Permit System (CDPS) permitting for Stormwater discharges associated with Construction Activity."

Developer/Owner Signature: _____

Name of Developer/Owner: _____ Date: _____

DBA: _____ Phone: _____

Title: _____ Email: _____

Address: _____ Fax: _____

ENGINEER'S STATEMENT

"This Erosion and Stormwater Quality Control/Grading Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. If such work is performed in accordance with the grading and erosion control plan, the work will not become a hazard to life and limb, endanger property, or adversely affect the safety, use, or stability of a public way, drainage channel, or other property."

Signature: _____ Date: _____

Printed Name: Kevin Kofford, P.E.

PERMITTEE / OPERATOR RESPONSIBILITIES

This Stormwater Management Plan (SWMP) is prepared for GWH, LLC (the Owner) to fulfill the Colorado Discharge Permit System (CDPS) requirements for El Paso County and the State of Colorado Department of Public Health and Environment (CDPHE) for Tanner Ranch (the Project). This narrative, in conjunction with the Stormwater Management Plan, examines measures taken onsite to improve stormwater quality leaving the Site, and also addresses important erosion control measures implemented prior to and during construction. A general overview of the procedures outlined in the SWMP which the Operator (the Contractor) shall follow is provided below for reference.

	Responsibility
	<u>Operator</u>
1. Submit and receive the Colorado Discharge Permit System (CDPS) General Permit through CDPHE	<input type="checkbox"/>
2. Complete the Permittee / Operator SWMP Certifications provided within the SWMP Narrative.	<input type="checkbox"/>
3. Complete the Operator / SWMP Administrator Contact Information identified in the SWMP Narrative.	<input type="checkbox"/>
4. Post the Site in accordance with the requirements identified on the SWMP Site Map included in the appendices of this report.	<input type="checkbox"/>
5. Commence BMP installation and construction in accordance with the Phased BMP Implementation.	<input type="checkbox"/>
6. Complete Land Disturbance / BMP / Site Stabilization Log, a copy of which is included in the appendices of this report.	<input type="checkbox"/>
7. Complete Inspections in accordance with the SWMP Inspection Schedule and Procedures outlined within the SWMP Narrative.	<input type="checkbox"/>
8. Complete field maintenance or field modifications to Stormwater Management Practices based upon the results of the Inspection.	<input type="checkbox"/>
9. Maintain current records of the SWMP Inspections in accordance with the Inspection Record Keeping identified in the SWMP Narrative.	<input type="checkbox"/>
10. Maintain current records of the Land Disturbance / BMP / Site Stabilization Log, a copy of which is included in the appendices of this report.	<input type="checkbox"/>
11. Maintain current records of the BMP Corrective Action Log, a copy of which is included in the appendices of this report.	<input type="checkbox"/>
12. Maintain current records of the SWMP Amendment Log, a copy which is included in the appendices of this report.	<input type="checkbox"/>
13. Achieve Final Stabilization in accordance with the Final Stabilization practices outlined within the SWMP Narrative.	<input type="checkbox"/>
14. File the County and State Construction Stormwater Inactivation Notice.	<input type="checkbox"/>

This summary is provided for Permittee / Operator convenience only and shall not be considered all-inclusive with respect to stormwater management responsibilities. The Permittee / Operator shall familiarize themselves with the County and CDPS General Permit and SWMP and implement storm

water management strategies based upon the recommendations identified herein and varying Site conditions.

PERMITTEE CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner's Authorized Agent:

Date:

OPERATOR CERTIFICATION

I certify under penalty of law that a complete Stormwater Management Plan, has been prepared for my activity. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations.

Operator's Authorized Agent:

Date:

SUBCONTRACTOR CERTIFICATION

I certify under penalty of law that a complete Stormwater Management Plan, has been prepared for my activity. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations.

Subcontractor's Authorized Agent:

Date:

Note: Additional Subcontractor Certifications shall be completed as necessary.

INTRODUCTION

The purpose of this report is to outline the SWMP plan associated with the effort to bring the previously constructed improvements to Preliminary Acceptance with the County for the Tanner Ranch development (herein the “Project”), located within the jurisdictional limits of El Paso County (“the County”).

PERMIT COVERAGE AND APPLICATIONS

Based upon a Site Disturbance Area of one (1) acre or more, this Site requires the approval of this Stormwater Management Plan and a Grading and Erosion Control Plan with the County and the issuance of a Colorado Discharge Permit System (CDPS) - Stormwater Discharge Associated with Construction Activities Application (the General Permit) through the Colorado Department of Public Health and Environment (CDPHE).

A copy of the CDPS General Permit is included in the Appendices of this report.

DEFINITIONS

CDPHE – Colorado Department of Public Health and Environment

Operator – The group or individual that is responsible for day-to-day operations on the Project Site. The Operator will be assigned the SWMP Administrator role, and these terms are used interchangeably in the SWMP.

SWMP – Construction Activities Stormwater Management Plan

SWMP Administrator – The specific individual(s), position or title that is responsible for developing, implementing, maintaining, and revising the SWMP. The activities and responsibilities of the Administrator shall address all aspects of the facility’s SWMP. The Operator will be assigned the SWMP Administrator role, and these terms are used interchangeably in the SWMP.

Permittee – The specific individual(s), position or title that is legally responsible for compliance with the permit. The Permittee is authorized to sign and certify the permit application.

SITE DESCRIPTION

GENERAL PROJECT DESCRIPTION

The Project is located at 350 N Dinner Bell Dr., more specifically, the Project is located in Section 18, Township 14 South, Range 61 West of the 6th Principal Meridian, County of El Paso, State of Colorado. The site is bounded by Highway 94 to the North, S Calhan Highway to the east, Handle Road to the South, and vacant properties to the west. A vicinity map has been provided in the **Appendix** of this report.

Tanner Ranch Filing No. 1 is approximately 208.51 acres with approximately 44.90 acres of disturbance. The entire property consists of developed land with an existing subdivision of single-family homes, existing infrastructure, including graded recycled asphalt roads, culverts, and four full spectrum extended detention basins. The proposed Project consists of repairing and maintaining the existing infrastructure consisting of paving the existing roadways, removing sediment from roadside ditches and pond bottoms, and other required improvements to bring the project to Preliminary Acceptance with the County. The site currently provides stormwater quality and detention and generally drains from (NW to SE) with slopes ranging from 1% to 4%. Runoff generated from the site is channelized to multiple shallow natural grassy drainage swales that flow to each of the four existing detention ponds onsite. The Project is tributary to Pond Creek.

PROJECT CONTACTS

SWMP Preparer

Company: Kimley-Horn and Associates, Inc.
Contact: Kevin Kofford, P.E.
Address: 2 North Nevada Avenue- Suite 900
Colorado Springs, CO 80903
Phone: 719.435.0181
Email: Kevin.Kofford@kimley-horn.com

SWMP Administrator

Company: _____
Contact: _____
Address: _____

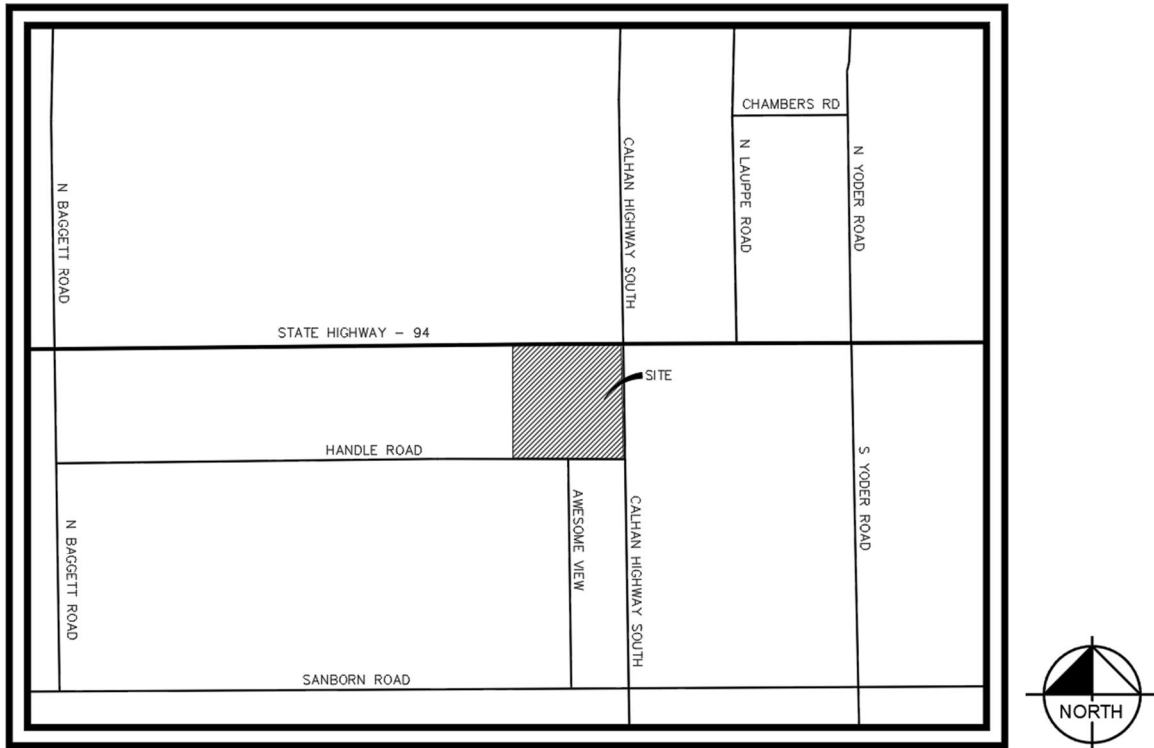
Phone: _____

PROJECT LOCATION

The Project is located at 350 N Dinner Bell Dr., South of Highway 94, west of S Calhan Highway, and north of Handle Road, in El Paso County, Colorado. More specifically, the Project is in Section 18, Township 14 South, Range 61 West of the 6th Principal Meridian in El Paso County, Colorado.

VICINITY MAP

A vicinity map is provided below for reference:



VICINITY MAP
N.T.S.

SITE CONDITIONS

VEGETATION

The existing site is currently partially developed. The site contains primarily field grasses, weeds, yucca, and some scattered trees in the drainage and planted as landscaping surrounding the residences. Based on visual inspection from site photos and aerial imagery the site currently is 90% vegetated with short prairie grasses.

DRAINAGE CHARACTERISTICS

Under existing conditions, the topography of the site slopes northwest to southeast with slopes of 1% - 4%, with moderately defined drainage channels running through the site. All of the stormwater infrastructure that was constructed based on the approved Construction Documents on July 18, 2005 along with the Final Drainage Report for Tanner Ranch Filing No. 1 also dated July 18, 2005, both of which were completed by Westworks Engineering. Per the constructed design, runoff generated within the Site sheet flow to existing roadside ditches which combine into to existing channels and pass through existing storm culverts to each of the four existing detention ponds on site. Runoff then travels southwardly, ultimately discharging into Pond Creek.

Water quality treatment will be provided by four existing private detention ponds. The existing stormwater facilities are designed with outlet structures that are fitted with an orifice plate to release the WQCV in a 40-hour time period. All flows ultimately outfall into Pond Creek.

The Project is located within Flood Zone X. A FEMA flood map is provided in the **Appendix**. Additionally, no streams or state waters are located within the proposed project site area.

SOILS

In general, the soils consist of sandy loam. The soils have been described to have high infiltration rates. The soils are described as well suited for use as home sites. The erosion potential can be controlled with vegetation. The soils have been described to have moderate erosion hazards. NRCS soil data is available for the Site (See Appendix) and the onsite soils are 100% USCS Hydrologic Soil Group A. Group A soils have low runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted. Group A soils typically have deep, well drained to excessively drained sands or gravelly sands. A NRCS web soil survey can be found in the **Appendix**.

AREAS & VOLUMES

The Site area for Filing No. 1 is approximately 208.51 acres. The total anticipated Project disturbance area is approximately ±48.10 acres, which includes 0.0 acres of offsite disturbance. No estimated earthwork quantities are provided as the roadways are substantially graded. The effort of these improvements is to finalize the vertical profile and pave the roads.

EROSION & SEDIMENT CONTROL MEASURES

Construction operations including grading, hauling of soil, drainage, gravel work, and final stabilization shall implement erosion and sediment control measures as described below and in the Timing section of this report. Additional measures shall be implemented as appropriate.

Erosion and sediment control measures shall be implemented during construction of the Project. Vehicle tracking control (VTC) shall be implemented to reduce off-site sediment tracking. It will be located at the proposed entrance off the existing private gravel drive internal to the property. Temporary

Soil Stockpiles (SP) shall be protected from stormwater using SF or other perimeter control to inhibit soil transport as well as at material storage areas. A Silt Fence (SF) and Construction Fence (CF) shall be used for perimeter control. **Concrete Washout (CWA) shall be used.** In addition to those measures noted above, Perimeter Control and Portable Toilets will also be utilized on Site. Portable toilets shall be located on flat surfaces away from drainage paths, tie-downed or stake-downed, emptied regularly, and where possible secondary containment pans shall be provided under the portable toilets. Please see the Grading and Erosion Control Plans for locations and sizing of recommended erosion control measures.

All persons engaged in earth disturbances shall design, implement, and maintain acceptable soil erosion and sedimentation control measures in conformance with the erosion and sediment control technical standards adopted by the County. All temporary erosion and sediment control facilities, and all permanent facilities intended to control erosion of any earth disturbance operation shall be installed before any earth disturbance operations take place. Any earth disturbances shall be conducted in such a manner to effectively control runoff volumes, reduce accelerated soil erosion, sediment movement, and deposition off-site. All earth disturbances shall be completed in such a manner so that the total amount of soil exposed at any given time shall be minimized, and the exposed area of any disturbed land shall be limited to the shortest possible period of time. Temporary soil erosion control facilities shall be removed, and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to approved plans and specifications.

Permanent soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within fourteen (14) calendar days after final grading or the final earth disturbances have been completed. When it is not possible to permanently stabilize a disturbed area after an earth disturbance has been completed or where significant earth disturbance activity ceases, temporary soil erosion control measures shall be implemented within fourteen (14) calendar days. All temporary soil erosion control measures shall be maintained until permanent soil erosion measures are implemented.

Paved and impervious surfaces which are adjacent to construction sites must be swept on a daily basis and as needed during the day when sediment and other materials are tracked or discharged onto them. Either sweeping by hand or use of street sweepers is acceptable. Street sweepers using water while sweeping is preferred in order to minimize dust. Flushing off paved surfaces with water is prohibited. All construction site operators shall control waste such as discarded building materials, hazardous chemicals (to include but not be limited to, heavy equipment maintenance fluids, motor oil, antifreeze, and secondary containment of vehicle fuel), litter, and sanitary waste at the construction Site that may cause adverse impacts to water quality. Chemicals, paints, solvents, fertilizers, and other toxic materials must be stored in weatherproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the Site, treated, and disposed of at an approved solid waste or chemical disposal facility. On-site fueling is not expected with this Project.

Throughout build-out, the developer shall be responsible for implementing and maintaining Best Management Practices (BMPs) to control erosion and sediment problems on all idle lots.

All stockpiles shall require erosion and sediment control. All stockpiles shall:

- Not be located adjacent to a waterway.
- Be stabilized within 14 days after establishment. Stabilization shall include, but not be limited to, surface roughening, seeding, and mulching.
- Not exceed 10 feet in height.
- Utilize silt fence in all down slope sides of the stockpile.

TIMING & SCHEDULE

The proposed project will begin in Q3 2026 to Q2 2027. The general sequence of the phasing of the related construction activities will occur according to the following anticipated sequence:

Project sequence:

Include anticipated starting and completion dates for each major construction activity

Phased BMP Implementation – Initial and Interim Phase

The initial phase shall consist of the temporary construction BMPs to minimize potential for erosion and sediment transfer while mobilizing and preparing the Site for construction activities. The operator shall complete the anticipated initial phase sequencing as follows:

1. Prepare and submit the state of Colorado, Colorado department of public health and environment (CDPHE) application. A copy of the permit shall be provided to the owner upon receipt from the CDPHE.
2. Install SWMP information sign in accordance with applicable city, state, and owner requirements.
3. Ensure that general construction BMPs which are required throughout the Project at locations shown on the GEC plans or as dictated by construction activities are operational.
4. Install perimeter controls (CF) and ensure that the limits of construction (LOC) are defined as necessary or known by all parties which will be responsible for construction on the Site.
5. Install sump inlet protection (IP), on-grade inlet protection and curb socks (CS) for existing stormwater conveyance facilities as indicated on the GEC plans or as necessitated by field conditions.
6. Install concrete washout area (CWA) prior to construction of concrete improvements.
7. Install stabilized vehicle tracking control pad (VTC) as indicated on the GEC plans.

8. Install inlet protection (IP) on all existing stormwater ponds as they will serve as Temporary Sediment Bains during the construction period.
9. Install Diversion Swales and outfall the diversion swales into the Temporary Sediment Basins. Check Dams should be installed in the diversion swales for the amount of vertical fall as shown on the GEC Plans on the table provided.
10. Construct required stabilized staging area (SSA).
11. Install silt fence (SF) as shown on the GEC plans.
12. Upon completion of the initial BMP installation the operator shall schedule a pre-construction meeting with the owner and the County erosion control inspector to confirm BMPs installed are adequate prior to proceeding with additional land disturbing activities.
13. Complete demolition of existing site improvements and clearing and grubbing of the Site as necessary to proceed with initial grading operations. Stockpile materials in accordance with the stockpile management (SP) BMP.

Include anticipated starting and completion dates for each major construction activity (including final stabilization)

Phased BMP Implementation - Final Phase

The final phase shall consist of the temporary construction BMPs to minimize potential for erosion and sediment transfer during the construction of the proposed parking structure and associated limited site improvements. The operator shall complete the anticipated final phase sequencing as follows:

1. Confirm existing BMPs from the initial phase, which are to be maintained throughout construction, are in working order and compliant with applicable regulations.
2. Repair and/or replace any existing BMPs which are deemed inadequate.
3. Temporary stabilize (TS) all areas of the Site which will remain inactive for a period greater than 30 days. Temporary stabilization shall be implemented within 14 days of disturbance.
4. Complete required grading operations necessary for construction of the proposed commercial building and associated site and utility improvements. Stockpile materials in accordance with the stockpile management (SP) BMP.
5. Complete fine grading and proceed with temporary stabilization (TS) and permanent stabilization (PS) practices in accordance with approved landscape plans.
6. Achieve permanent stabilization in accordance with El Paso County, CDPHE and owner requirements.

7. Remove remaining BMPs once permanent stabilization (PS) has been achieved. Repair and stabilize areas disturbed through BMP removal.
8. Notify the owner of intent to file the notice of inactivation with the EL PASO COUNTY and CDPHE and receive owner acceptance to proceed with stormwater management close-out.
9. Notify the EL PASO COUNTY of the intent to file the notice of inactivation and receive EL PASO COUNTY field acceptance prior to proceeding with filing the notice of inactivation with the EL PASO COUNTY.
10. Proceed with filing the notice of inactivation with the EL PASO COUNTY and CDPHE.
11. Provide the owner with a copy of all stormwater documentation (permits, inspection reports, logs, etc.). Upon completion of Project, file the notice of inactivation.

STORMWATER MANAGEMENT CONTROLS

SWMP ADMINISTRATOR

The SWMP Administrator is the Operator selected for the Project and will be sufficiently qualified for the required duties per the ECM Appendix I.5. The SWMP Administrator is responsible for developing, implementing, maintaining, and revising the SWMP. The activities and responsibilities of the Administrator shall address all aspects of the facility's SWMP.

SITE SPECIFIC POLLUTION SOURCES

Further identification of site-specific pollutants that fall within the categories outlined in the next section may be field noted using the corresponding log included in the appendices of this report. The logs are intended to record site-specific pollutants, the date of arrival on the Site, the date removed from the Site, and the methods of treatment.

IDENTIFICATION OF POLLUTANT SOURCES

Evaluation of general sediment and non-sediment pollution sources associated with Site construction activities, as outlined within the General Permit, consist of the following:

- **Disturbed and Stored Soils** – Earth disturbing activities (grading, excavation, etc.) will be necessary for this Project; therefore, the potential exists for disturbed site soils to contribute sediment to stormwater discharges.
- **Vehicle Tracking and Sediment** – Construction traffic will be entering and exiting the Site; therefore, the potential exists for vehicle tracking to contribute sediment to stormwater discharges.
- **Management of Contaminated Soils** – Contaminated soils are not anticipated on this Site. If encountered, the SWMP Administrator shall take appropriate containment and treatment measures.

- **Loading and Unloading Operations** – Loading and unloading operations will be taking place at the Site; therefore, the potential exists for these operations to introduce sediment and non-sediment pollutants to stormwater discharges.
- **Outdoor Storage of Materials** – Limited outdoor storage of materials is anticipated with construction of this Site; however, outdoor storage of chemicals, fertilizers, etc. is not anticipated.
- **Vehicle and Equipment Maintenance and Fueling** – Routine maintenance and fueling of vehicles and equipment is not anticipated with this Site.
- **Significant Dust or Particulate Generating Processes** – Earth disturbing activities (grading, excavation, etc.) will be necessary for this Project; therefore, the potential exists for windblown site soils to contribute sediment to stormwater discharges.
- **Routine Maintenance** – Routine maintenance involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc., other than those identified within Vehicle and Equipment Maintenance and Fueling are not anticipated with this Project. If encountered, the SWMP Administrator shall take appropriate containment and treatment measures.
- **Onsite Waste Management** – Waste management consisting of solid waste piles, liquid wastes, dumpsters, etc. are anticipated onsite; therefore, the potential exists for these operations to introduce sediment and non-sediment pollutants to stormwater discharges.
- **Concrete Truck / Equipment Washing** – Concrete truck and equipment washing are anticipated with this Project. The SWMP Administrator shall take appropriate containment and treatment measures.
- **Dedicated Asphalt and Concrete Batch Plants** – Dedicated asphalt and/or concrete batch plants are not anticipated with this Project. If encountered, the SWMP Administrator shall take appropriate containment and treatment measures and document as necessary.
- **Non-Industrial Waste Sources** – Non-Industrial waste sources limited to portable sanitary facilities are anticipated with this Project.
- **Additional Pollutant Sources** – Additional areas or procedures where potential spills could occur are not anticipated with this Project.

Logs for the identification of pollutant sources are included in the Appendices for reference and use. Based on the following, the potential to contribute pollutants to stormwater discharges is not significant for most of the pollutants identified above:

- Relatively Low Frequency of the Activities
- The Ability to Schedule Activities During Dry Weather
- Existing Site Topography
- The Ability to Implement Primary and Secondary Containment for Product Storage
- The Ability to Locate Activities Away from Drainage Ways

Potential pollutant sources noted below shall be mitigated by use of Best Management Practices (BMPs) as noted in the following sections:

- Disturbed and Stored Soils
- Vehicle Tracking and Sediment

- Loading and Unloading Operations
- Outdoor Storage
- Vehicle Equipment and Maintenance Fueling
- Significant Dust or Particulate Generating Processes
- Non-Industrial Waste Sources

BEST MANAGEMENT PRACTICES FOR STORMWATER POLLUTION PREVENTION

Structural Practices for Erosion and Sediment Control

Structural BMPs shall be implemented onsite to minimize erosion and sediment transport. Recommended BMPs based upon a limited site review may be seen within the SWMP Site Map included in the Appendices of this report. Additional BMPs shall be implemented by the SWMP Administrator if necessary to prevent sediment-laden runoff from leaving the Project Site. The SWMP shall be updated to reflect any changes or revisions enacted in the field.

Non-Structural Practices for Erosion and Sediment Control

Non-Structural BMPs shall be implemented onsite to minimize erosion and sediment transport. Recommended BMPs based upon a limited site review may be seen within the SWMP Site Map included in the Appendices of this report. Additional BMPs shall be implemented by the SWMP Administrator if necessary to prevent sediment-laden runoff from leaving the Project Site. The SWMP shall be updated to reflect any changes or revisions enacted in the field.

Phased BMP Implementation

Construction of the identified improvements will take place under two main phases of construction anticipated as identified within the construction sequencing included within this report. A Land Disturbance, BMP Installation, and Stabilization Log is provided in the Appendices and shall be filled out accordingly during BMP implementation.

Materials Handling and Spill Prevention

Any hazardous or potentially hazardous material that is brought onto the construction Site shall be handled properly in order to reduce the potential for stormwater pollution. In an effort to minimize the potential for a spill of petroleum products or hazardous materials to come in contact with stormwater, the following steps shall be implemented:

- Material Safety Data Sheets (MSDS) information shall be kept on Site for any and all applicable materials.
- All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, additives for soil stabilization, concrete, curing compounds and additives, etc.) shall be stored in a secure location, under cover and in appropriate, tightly sealed containers when not in use.
- The minimum practical quantity of all such materials shall be kept on the job Site and scheduled for delivery as close to time of use as practical.

- A spill control and containment kit (containing, for example, absorbent material, acid neutralizing agent, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) shall be provided on the construction Site and location(s) shown on Site Maps.
- All of the products in a container shall be used before the container is disposed of. All such containers shall be triple rinsed with water prior to disposal. The rinse water used in these containers shall be disposed of in a manner in compliance with State and Federal regulations and shall not be allowed to mix with stormwater discharges.
- All products shall be stored in and used from the original container with the original product label and used in strict compliance with the instructions on the product label.
- The disposal of excess or used products shall be in strict compliance with instructions on the product label.

Temporary onsite fuel tanks for construction vehicles shall meet all state and federal regulations. Tanks shall have approved spill containment with the capacity required by the applicable regulations. From NFPA 30: All tanks shall be provided with secondary containment (i.e. containment external to and separate from primary containment). Secondary containment shall be constructed of materials of sufficient thickness, density and composition so as not to be structurally weakened as a result of contact with the fuel stored and capable of containing discharged fuel for a period of time equal to or longer than the maximum anticipated time sufficient to allow recovery of discharged fuel.

The tanks shall be in sound condition free of rust or other damage which might compromise containment. Fuel storage areas shall meet all Environmental Protection Agency (EPA), OSHA and other regulatory requirements for signage, fire extinguisher, etc. Hoses, valves, fittings, caps, filler nozzles and associated hardware shall be maintained, and in proper working condition at all times. The location of fuel tanks shall be shown on the Site Maps and shall be located to minimize exposure to weather and surface water drainage features.

The Operator shall develop and implement a Materials Handling and Spill Prevention Plan (MHSP) in accordance with the EPA and State of Colorado requirements. In the event of an accidental spill, immediate action shall be undertaken by the Operator to contain and remove the spilled material. All hazardous materials, including contaminated soil, shall be disposed of by the Operator in the manner specified by federal, state, and local regulations and by the manufacturer of such products. As soon as possible, the spill shall be reported to the appropriate agencies. As required under the provisions of the Clean Water Act, any spill or discharge entering waters of the United States shall be properly reported. The Operator shall prepare a written record of any spill and associated clean-up activities of petroleum products or hazardous materials in excess of 1 gallon or reportable quantities, whichever is less.

Any spills of petroleum products or hazardous materials in excess of Reportable Quantities as defined by EPA or the state or local agency regulations shall be immediately reported to the Colorado Department of Public Health and Environment spill reporting lines.

- CDPHE Environmental Release and Incident Reporting Line (877) 518-5608.

For reference, a bulletin on Environmental Spill Reporting published by the CDPHE, has been included in the Appendices of this report.

Vehicle Tracking and Dust Control

Vehicle Tracking Control BMPs (structural and non-structural) shall be implemented in order to control potential sediment discharges from vehicle tracking. Practices shall be implemented for all areas of potential vehicle tracking which include but are not limited to reduced Site access and utilization of designated haul routes.

Areas of soil that are denuded of vegetation and have little protection from particles being picked up and carried by wind should be protected with a temporary cover or kept under control with water or other soil adhering products to limit wind transported particles exiting the Site perimeter.

Waste Management and Disposal

An effective first step towards preventing pollution in stormwater from work sites involves using a commonsense approach to improve the facility's basic housekeeping methods. Poor housekeeping practices result in increased waste and potential for stormwater contamination.

No solid materials are allowed to be discharged from the Site with stormwater. All solid waste, including disposable materials incidental to the construction activities, must be collected, and placed in containers. Secure covers for the containers shall be provided at all times to meet state and local requirements. The location of solid waste receptacles shall be identified on the SWMP by the Operator. Storage containers are to be checked regularly for leaks and appropriate capacity weekly. Storage containers are to have a secure cover on at all times. If the cover cannot be secured shut it shall be emptied more regularly than the weekly inspection.

Concrete waste is anticipated with this Project; and therefore, a dedicated concrete washout is required. The SWMP Administrator shall take appropriate containment and treatment measures and document as necessary.

Portable Toilets

Portable toilets shall be provided on-site as necessary for construction personnel. Portable toilets shall be located on flat surfaces away from drainage paths with a minimum of 10' of clearance from stormwater inlets and 50' from state waters. They must be secured on at all four corners to prevent overturning, emptied on a weekly basis, inspected daily for spills, and where possible, secondary containment pans shall be provided under the portable toilets. In the event of a spill, the Permittee shall follow spill prevention measures as noted in Appendix G. Toilets shall be located away from anticipated stormwater discharges. Proper and regular maintenance and cleaning shall occur as a preventive measure.

Groundwater and Stormwater Dewatering

Except as noted below, all discharges covered by this permit shall be composed entirely of stormwater associated with construction activity.

- Emergency Fire Fighting Activities
- Uncontaminated Spring Water

Groundwater dewatering is not anticipated. Before excavation, or if encountered, the operator shall file for appropriate permits with the CDPHE.

FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

Permanent stabilization will be achieved on the Site with concrete hardscaping or landscaping. Permanent seeding and stabilization will occur on side slopes and areas without permanent landscaping. Stormwater will be managed by the Existing Detention Ponds A1, A, B, C and D. These permanent BMPs will provide water quality and detention for the Site. All stormwater on the site will be captured and routed to the permanent BMPs. Final vegetative cover density is to be 70% of pre-disturbed levels.

INSPECTION AND MAINTENANCE

Permittee or contractor shall produce written and signed inspection records every seven (7) days and after significant precipitation events. All necessary maintenance and repair shall be completed immediately. This project does not rely on the control measures owned or operated by another entity. The purpose of Site inspections is to assess performance of pollutant controls. The inspections will be conducted by the contractor's Storm Water Coordinator. Based on these inspections, it is the responsibility of the contractor to revise or implement additional Best Management Practices, repair erosion control measures, modify, maintain, supplement, or take additional steps as necessary to achieve effective pollutant control measures.

Examples of specific items to evaluate during Site inspections are listed below. This list is not intended to be comprehensive. During each inspection, the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additionally, signatures are required on all inspection logs. Additional factors should be considered as appropriate to the circumstances.

- A. Locations where vehicles enter and exit the Site must be inspected for evidence of off-site sediment tracking. A stabilized VTC shall be constructed where vehicles enter and exit. Exits shall be maintained or supplemented as necessary to prevent the release of sediment from vehicles leaving the Site.
- B. Sediment barriers must be inspected, and they must be extended, repaired or cleaned at such time as their original capacity has been reduced by 33 percent. All material excavated from behind sediment barriers shall be stockpiled on the up-slope side. Additional sediment barriers

must be constructed as needed.

- C. Inspections shall evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system or discharging from the Site. If necessary, the materials must be covered, or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas, and/or run-on.
- D. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

A sample report from the EPA has been included in the Appendices E and F for reference.

TERM AND CONDITIONS OF THE CDPS GENERAL PERMIT

GENERAL LIMITATIONS

The following limitations shall apply to discharges associated with construction activities:

- Stormwater discharges from construction activities shall not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any water quality standard, including narrative standards for water quality.
- Concrete washout water shall not be discharged to state surface waters or to storm sewer systems. Onsite permanent disposal of concrete washout waste is not authorized by this permit. Discharge to the ground of concrete washout waste that will subsequently be disposed of offsite is authorized by this permit. See Part I.D.3.c of the permit.
- Bulk storage structures for petroleum products and any other chemicals shall have secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering State Waters.
- No chemicals are to be added to the discharge unless permission for the use of a specific chemical is granted by CDPHE. In granting the use of such chemicals, special conditions and monitoring may be addressed by separate correspondence.
- CDPHE reserves the right to require sampling and testing, on a case-by-case basis, in the event that there is reason to suspect that compliance with the SWMP is a problem, or to measure the effectiveness of the BMPs in removing pollutants in the effluent. Such monitoring may include Whole Effluent Toxicity testing.
- All Site wastes must be properly managed to prevent potential pollution of State Waters. This permit does not authorize onsite waste disposal.
- All dischargers must comply with the lawful requirements of federal agencies, municipalities, counties, drainage districts and other local agencies regarding any discharges of stormwater to storm drain systems or other water courses under their jurisdiction, including applicable requirements in municipal stormwater management programs developed to comply with CDPS permits. Dischargers must comply with local stormwater management requirements, policies, or guidelines including erosion and sediment control.

SWMP Checklist Item 9. A CWA is referenced above in the report (highlighted). Discharge of concrete wash water to ground (e.g. a concrete washout area) is an allowable non-stormwater discharge per the COR400000 Permit if properly identified in the SWMP and if the appropriate control measures are implemented. Revise discussion. Reference COR400000 Part I.A.1.b.ii for more information if needed.

The above information is taken directly from the CDPHE General Permit.

PROHIBITION OF NON-STORMWATER DISCHARGES

Except as identified within the Terms and Conditions of the General Permit (Section D.3 – Prohibition of Non-Stormwater Discharges), all discharges covered by this permit shall be composed entirely of stormwater associated with construction activity. Discharges of material other than stormwater must be addressed in a separate CDPS permit issued for that discharge. **No non-stormwater discharges are anticipated at this site.**

Discharges to the ground from construction dewatering activities that do not meet the referenced criteria must be covered under a separate CDPS discharge permit. Contaminated groundwater requiring coverage under a separate CDPS discharge permit may include groundwater contaminated with pollutants from a landfill, mining activity, industrial pollutant plume, underground storage tank, or other source.

The above information is taken from the CDPHE General Permit.

SWMP RETENTION REQUIREMENTS

The permittee must document inspection results and maintain a record of the results for a period of 3 years following expiration or inactivation of permit coverage. These records must be made available to the City, County, CDPHE or EPA upon request.

In order to fulfill this requirement, the SWMP Administrator shall retain a copy of the SWMP and provide the original to the owner/permittee upon inactivation of the permit.

SWMP REVIEW / CHANGES

At nearly every site, the recommended and/or implemented BMPs will need to be modified to adapt to changing site conditions, or to ensure that the potential pollutants are consistently and properly managed. The Operator shall amend the SWMP:

- When there is a change in design, construction, operation, or maintenance of the Site, which would require the implementation of new or revised BMPs; or
- If the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity; or
- When BMPs are no longer necessary and removed.

SWMP changes shall be made prior to changes in Site conditions, except as noted below. Revisions may include, but are not limited to, potential pollutant source identification, selection of appropriate BMPs for Site conditions, BMP maintenance procedures and interim and final stabilization practices. The SWMP changes may include a schedule for further BMP design and implementation, provided that, if any interim BMPs are needed to comply with the permit, they are also included in the SWMP and implemented during the interim period.

RESPONSIVE SWMP CHANGES

SWMP changes addressing BMP installation and/or implementation are often required to be made in response to changing conditions, or when current BMPs are determined ineffective. The majority of these SWMP revisions can be made immediately with quick in-the-field revisions to the SWMP. In the less common situation where more complex development of materials to modify the SWMP is necessary, the revisions shall be made in accordance with the following requirements:

- The SWMP shall be revised as soon as practicable, but in no case more than 72 hours after the change(s) in BMP installation/implementation occur at the Site; and
- A notation must be included in the SWMP prior to the Site change(s) that includes the time and date of the change(s) in the field, an identification of the BMP(s) removed or added and the location(s) of those BMP(s).

Any BMP deficiencies, replacement or additional BMPs that may be required shall be documented on the Stormwater Management Plans and in the appropriate logs. Copies of the Corrective Action Log and SWMP Amendment Log have been included in the Appendices for reference and use.

CONCLUSIONS

Temporary erosion control measures and BMPs will enhance stormwater quality within the Project area by capturing and detaining sediment-laden runoff prior to discharging off-site.

REFERENCES

El Paso County Erosion Control, and Stormwater Quality Plan Checklist, Engineering Criteria Manual, El Paso County, CO, Revised March 2025

Colorado Discharge Permit System (CDPS) – Stormwater Discharge Associated with Construction Activities Application - Prepared by Water Quality Control Division, Colorado Department of Public Health and Environment; Revised March 2016.

Colorado Discharge Permit System (CDPS) General Permit – Stormwater Discharges Associated with Construction Activity - Prepared by Water Quality Control Division, Colorado Department of Public Health and Environment; signed and issued on May 31, 2007 and administratively continued effective July 1, 2012.

Stormwater Discharges Associated with Construction Activity – Stormwater Management Plan Preparation Guidance - Prepared by Water Quality Control Division, Colorado Department of Public Health and Environment; Revised April 2011.

Urban Storm Drainage Criteria Manual, Volume 3 – Mile High Flood District, Denver, CO.; November 2010.

APPENDICES

**APPENDIX A
STORMWATER MANAGEMENT PLANS / SITE MAPS**

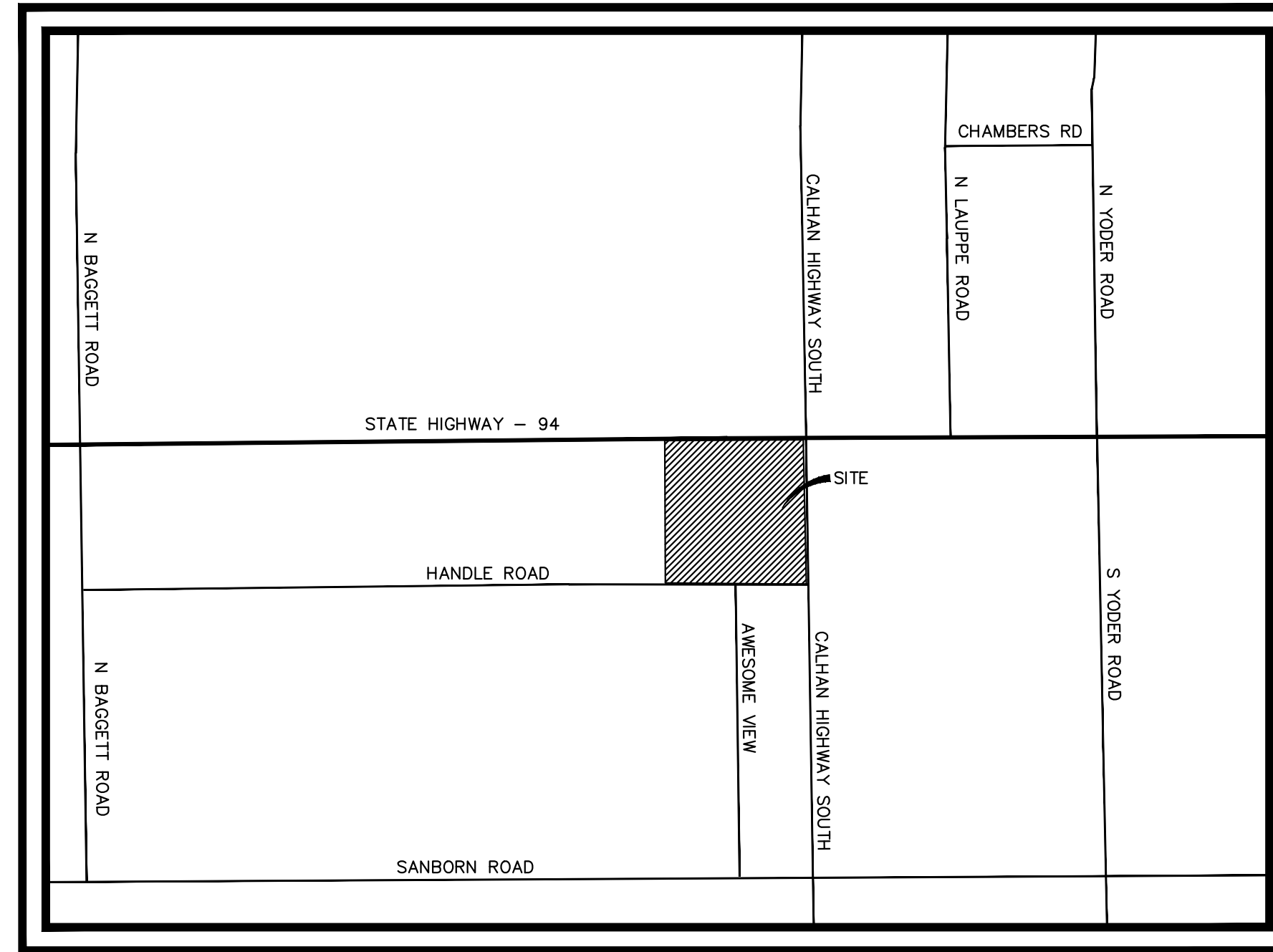
EL PASO COUNTY GRADING AND EROSION CONTROL PLAN NOTES

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRE-CONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

TANNER RANCH FILING NO. 1

GRADING AND EROSION CONTROL PLANS

SECTION 18, TOWNSHIP 14 SOUTH, RANGE 61 WEST OF THE 6TH P.M.,
COUNTY OF EL PASO, STATE OF COLORADO



VICINITY MAP
N.T.S.

SHEET TABLE	
SHEET TITLE	SHEET LIST
COVER	1
INITIAL GEC PLAN	2-11
INTERIM GEC PLAN	12-21
FINAL GEC PLAN	22-31
GEC DETAILS	32-38

CONTINUED...

- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY RMG - ROCKY MOUNTAIN GROUP, DATED OCTOBER 23, 2023 AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WOOD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

OWNER/DEVELOPER'S STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

OWNER SIGNATURE _____ DATE _____

PUSAN HOLDINGS, LLC
5801 N. UNION BLVD, SUITE 100
COLORADO SPRINGS, CO 80918
CONTACT: BEN WILBOR

ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

KEVIN KOFFORD, PE (CO #57234) - KIMLEY-HORN AND ASSOCIATES, INC. DATE _____

EL PASO COUNTY

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL, AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

JOSHUA PALMER, PE COUNTY ENGINEER/ECM ADMINISTRATOR DATE _____

LEGAL DESCRIPTION

THAT TANNER RANCH LLC, BEING THE OWNER OF A PARCEL OF LAND LOCATED IN SECTION 18, T 14 S, R 61 W, 6TH. P.M. IN EL PASO COUNTY, COLORADO, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT THE WEST 1/4 CORNER OF SAID SECTION 18; THENCE: N00°24'09" W, 2551.52 FT. ALONG THE WEST LINE OF SAID SECTION 18, TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY OF STATE HIGHWAY 94, AS RECORDED IN BOOK 978 AT PAGE 392; THENCE: S 89°56'30" E, ALONG SAID SOUTHERLY RIGHT-OF-WAY A DISTANCE OF 2566.98 FT. TO A POINT ON THE NORTH-SOUTH CENTERLINE OF SAID SECTION 18; THENCE: S 01°00'41" E, ALONG SAID NORTH-SOUTH CENTERLINE A DISTANCE OF 2575.48 FT. TO THE CENTER OF SAID SECTION 18; THENCE: S 36°47'28" W, 103.43 FT. THENCE: S 28°43'11" W, 627.43 FT. TO THE NORTHERLY RIGHT-OF-WAY OF THE ROAD KNOWN AS DINNER BELL DRIVE; THENCE: ALONG A CURVE TO THE LEFT WHOSE CHORD BEARS N 67°32'25" W, 191.81 FT., DELTA = 10°41'08" FOR A DISTANCE OF 192.09 FT.; THENCE: N 72°52'59" W, 460.69 FT.; THENCE: LEAVING SAID NORTHERLY RIGHT-OF-WAY S 17°06'51" W, 519.81 FT.; THENCE: S 02°32'02" W, 208.26 FT.; THENCE: S 83°53'00" W, 471.59 FT.; THENCE: S 32°42'30" E, 136.12 FT.; THENCE: S 57°17'27" W, 535.00 FT.; THENCE: N 32°26'17" W, 152.62 FT.; THENCE: N 53°50'41" W, 425.95 FT.; THENCE: N 89°25'14" W, 170.26 FT. TO THE WEST LINE OF SAID SECTION 18; THENCE: N 00°24'09" W, 1227.26 FT. TO THE WEST 1/4 CORNER OF SAID SECTION 18 AND THE POINT OF BEGINNING. THE ABOVE DESCRIBED TRACT OF LAND CONTAINS 208.51 ACRES.

CONTACTS:

OWNER:
PUSAN HOLDINGS, LLC
5801 N. UNION BLVD
COLORADO SPRINGS, CO 80918
CONTACT: BEN WILBOR

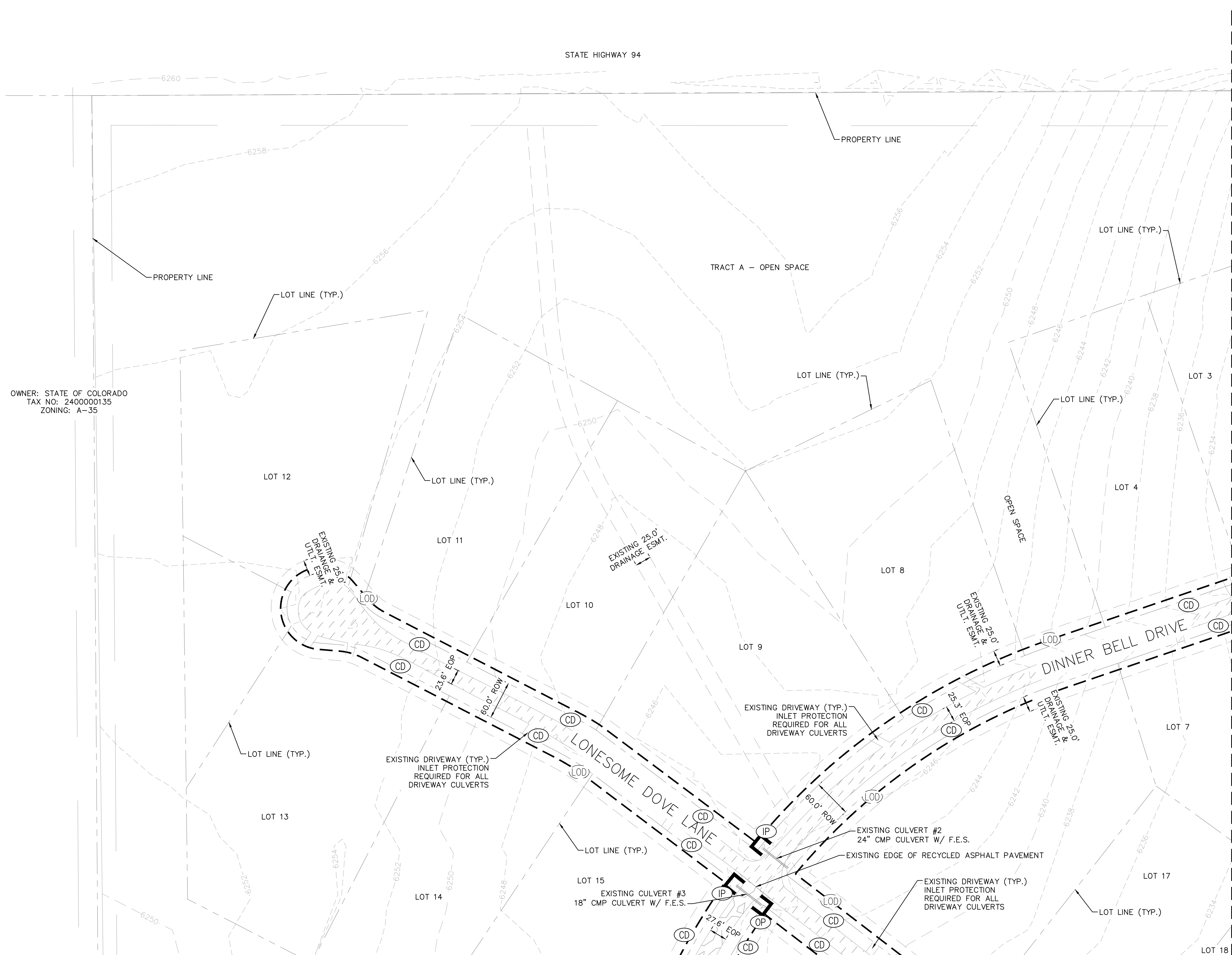
ENGINEER:
KIMLEY-HORN AND ASSOCIATES, INC.
2 NEVADA NORTH AVE., SUITE 900
COLORADO SPRINGS, CO 80903
CONTACT: KEVIN R. KOFFORD, P.E.
TEL: (719) 453-0180

SURVEYOR:
ALESSI AND ASSOCIATES, INC.
2989 BROADMOOR VALLEY ROAD, SUITE C
COLORADO SPRINGS, CO 80906
CONTACT: JOSEPH ALESSI III, PLS
TEL: (719) 540-8832

EL PASO COUNTY:
EL PASO COUNTY
PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, CO 80910
TEL: (719) 520-6300

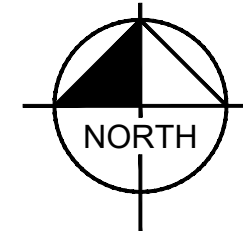
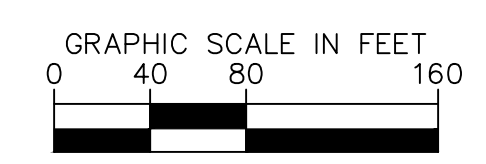


<p>2025 KIMLEY-HORN AND ASSOCIATES, INC. 2 North Nevada Avenue Suite 900 Colorado Springs, Colorado 80903 (719) 453-0180</p>	NO.	REVISION	BY	DATE
	<p>TANNER RANCH FILING NO. 1 EL PASO COUNTY, COLORADO GRADING AND EROSION CONTROL PLANS COVER SHEET</p>			
<p>DESIGNED BY: MEL DRAWN BY: MEL CHECKED BY: KRK DATE: 4/1/26</p>	<p>PRELIMINARY FOR REVIEW ONLY NOT FOR CONSTRUCTION</p>			
<p>PROJECT NO. 296172000</p>	<p>SHEET 1</p>			



OWNER: STATE OF COLORADO
 TAX NO: 240000135
 ZONING: A-35

CALL UTILITY NOTIFICATION
 CENTER OF COLORADO
 1-800-922-1987
 CALL 2-BUSINESS DAYS IN ADVANCE
 BEFORE YOU DIG, GRADE, OR EXCAVATE
 FOR THE MARKING OF UNDERGROUND
 MEMBER UTILITIES



MATCHLINE - SEE SHEET 4

LIMITS OF DISTURBANCE		SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
ONSITE DISTURBANCE	= ±48.10 ACRES	9 INCH	1.5 FEET
OFFSITE DISTURBANCE	= ±0.00 ACRES	12 INCH	2 FEET
TOTAL	= ±48.10 ACRES	16 INCH	2.67 FEET



KEYMAP
 SCALE: 1" = 2000'

- LEGEND**
- PROPERTY LINE
 - PR. LOT LINE
 - RIGHT-OF-WAY LINE
 - EX. EASEMENT LINE
 - PR. EASEMENT LINE
 - PR. ASPHALT ROAD
 - EX. RECYCLED ASPHALT ROAD
 - EX. GRAVEL ROAD
 - LIMITS OF DISTURBANCE/LIMITS OF CONSTRUCTION
 - SILF FENCE
 - CONSTRUCTION FENCE
 - SEDIMENT CONTROL LOG
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - VEHICLE TRACKING CONTROL
 - STABILIZED STAGING AREA
 - STOCK PILING
 - SEDIMENT BASIN (TEMPORARY)
 - CONCRETE WASHOUT
 - CHECK DAM
 - INLET/OUTLET PROTECTION
 - EXISTING SLOPE ARROW

- NOTES**
- THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
 - ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
 - TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
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 - CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS (STRAW-SINGLE NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES) ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
 - CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITH OWNER REQUIREMENTS.
 - SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
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 - DEMOLITION, REMOVAL, OVEREXCAVATION AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
 - NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.
 - ROCK CHECK DAMS (CD) MAY BE SUBSTITUTED FOR SEDIMENT CONTROL LOGS (SCL) OR STRAW WADDLES. CONTRACTOR TO DETERMINE LOCATION OF CD WITHIN THE ROADSIDE DITCH (SEE TABLE FOR MIN. SPACING REQUIREMENTS) IN COORDINATION WITH COUNTY INSPECTION.

NO. _____ BY _____ DATE _____
 REVISION _____

Kimley»Horn
 2025 KIMLEY-HORN AND ASSOCIATES, INC.
 2 North Nevada Avenue Suite 900
 Colorado Springs, Colorado 80903 (719) 453-0180

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 DRAWN BY: MEL
 CHECKED BY: KRK
 DATE: 4/1/26

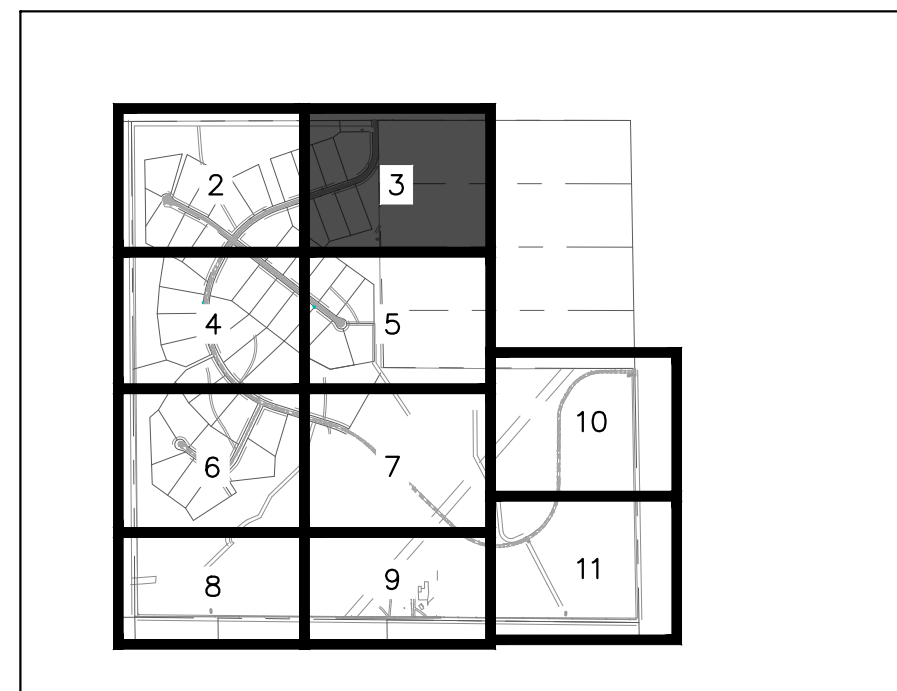
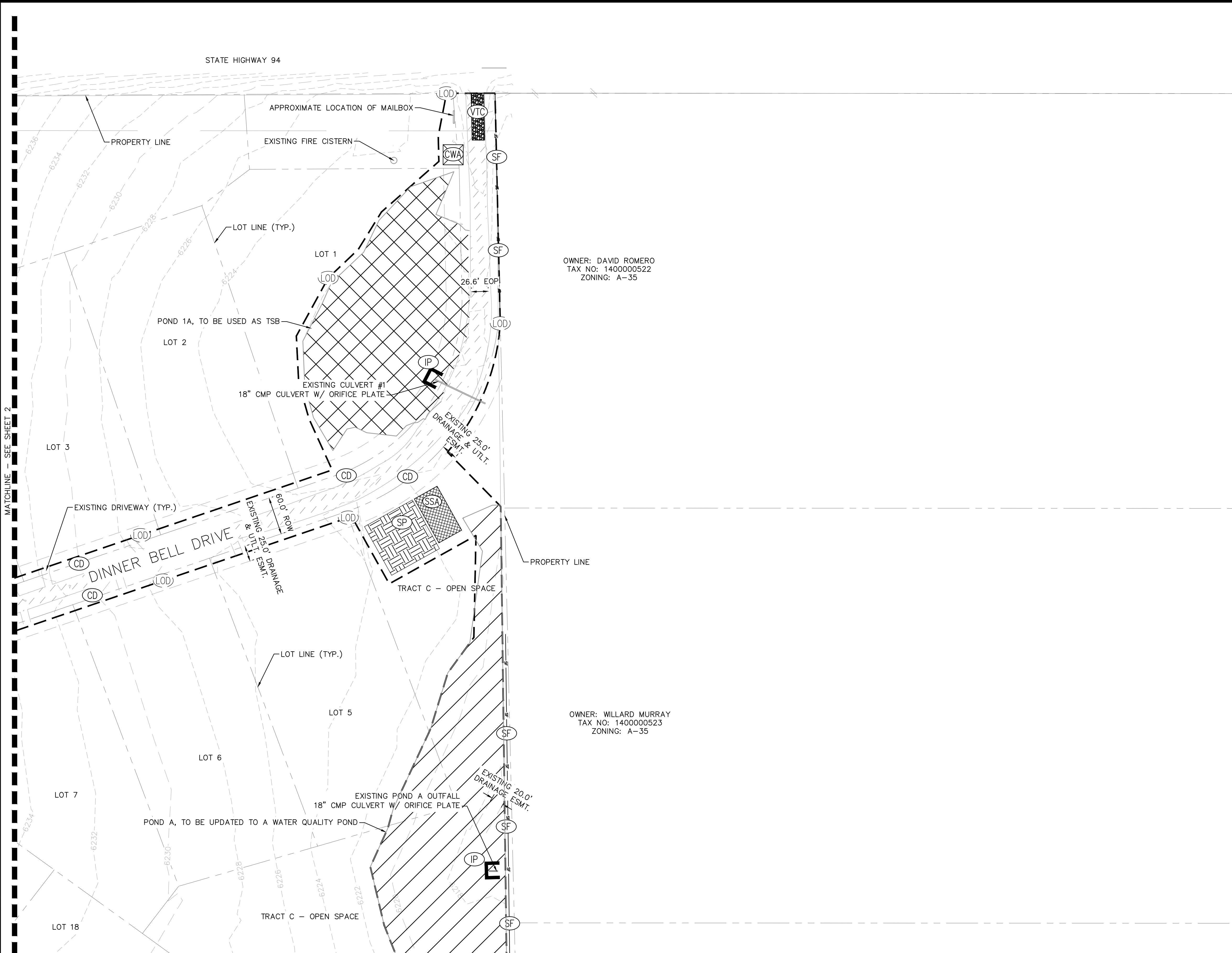
TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
 INITIAL GEC PLAN

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 Kimley-Horn and Associates, Inc.

PROJECT NO.
 296172000
 SHEET
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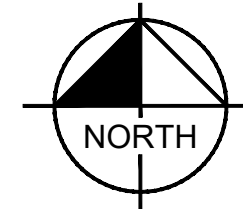
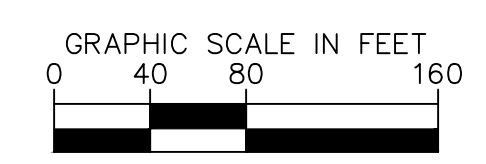
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- LEGEND**
- — — — — PROPERTY LINE
 - - - - - PR. LOT LINE
 - - - - - RIGHT-OF-WAY LINE
 - - - - - EX. EASEMENT LINE
 - - - - - PR. EASEMENT LINE
 - ▨▨▨▨▨▨ PR. ASPHALT ROAD
 - ▨▨▨▨▨▨ EX. RECYCLED ASPHALT ROAD
 - ▨▨▨▨▨▨ EX. GRAVEL ROAD
 - (LOD)--- LIMITS OF DISTURBANCE/LIMITS OF CONSTRUCTION
 - (SF)--- SILF FENCE
 - (C)--- CONSTRUCTION FENCE
 - (SCL)--- SEDIMENT CONTROL LOG
 - (XX)--- EXISTING MAJOR CONTOUR
 - (XX)--- EXISTING MINOR CONTOUR
 - (VTC)--- VEHICLE TRACKING CONTROL
 - (SSA)--- STABILIZED STAGING AREA
 - (SP)--- STOCK PILING
 - (SB)--- SEDIMENT BASIN (TEMPORARY)
 - (CWA)--- CONCRETE WASHOUT
 - (CD)--- CHECK DAM
 - (IP)--- INLET/OUTLET PROTECTION
 - (OP)--- EXISTING SLOPE ARROW

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MATCHLINE - SEE SHEET 5

LIMITS OF DISTURBANCE		SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
ONSITE DISTURBANCE	= ±48.10 ACRES	9 INCH	1.5 FEET
OFFSITE DISTURBANCE	= ±0.00 ACRES	12 INCH	2 FEET
TOTAL	= ±48.10 ACRES	16 INCH	2.67 FEET

NO. _____ BY DATE APPR.

NO. _____ REVISION _____

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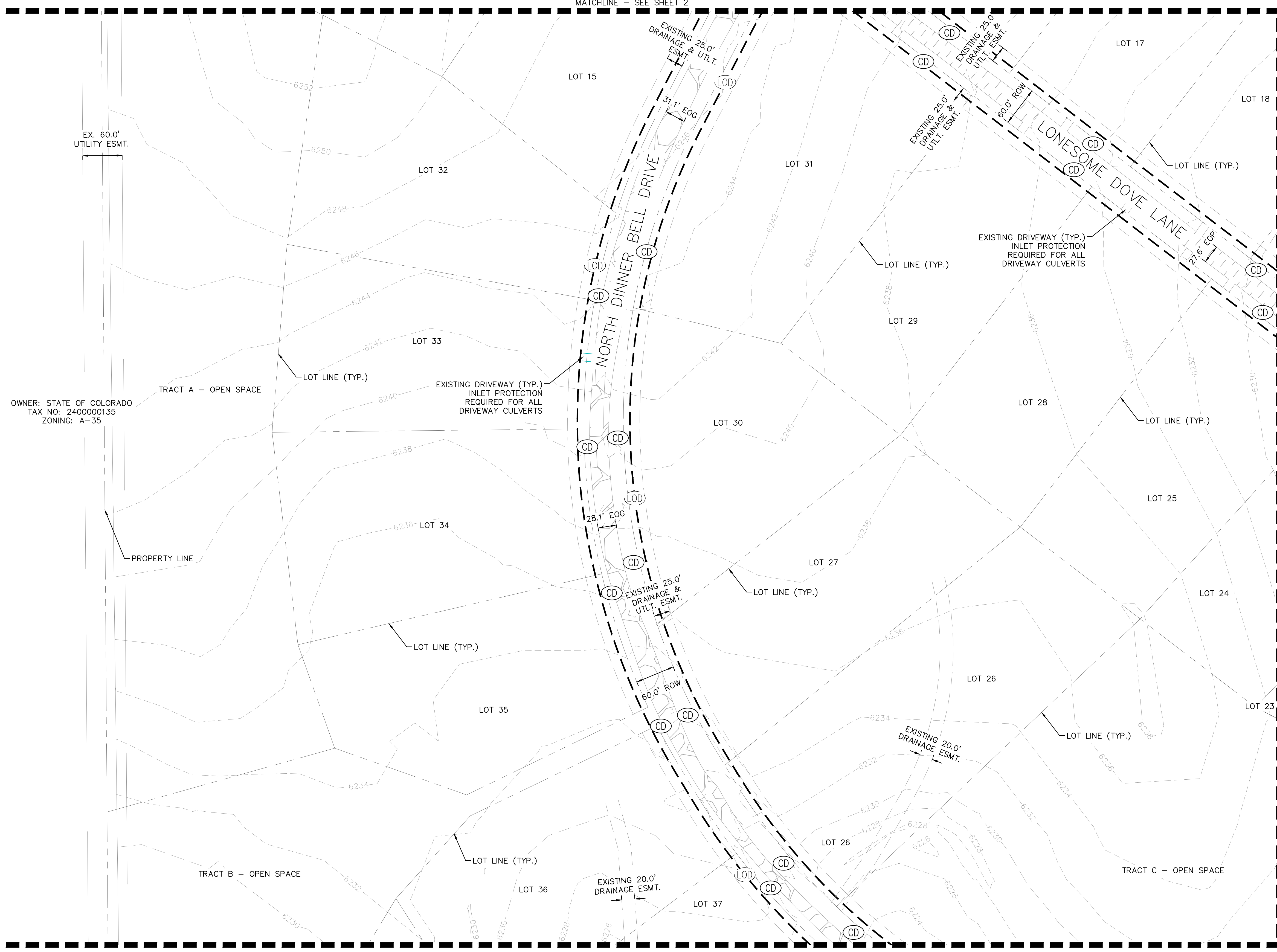
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PROJECT NO.
296172000
SHEET
3

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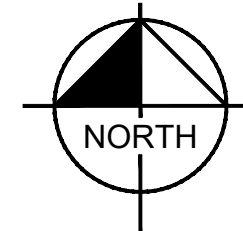
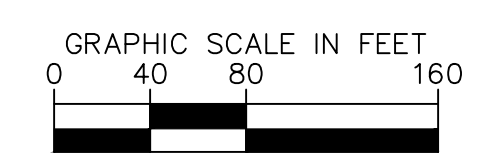
OWNER: STATE OF COLORADO
TAX NO: 2400000135
ZONING: A-35

TRACT A - OPEN SPACE

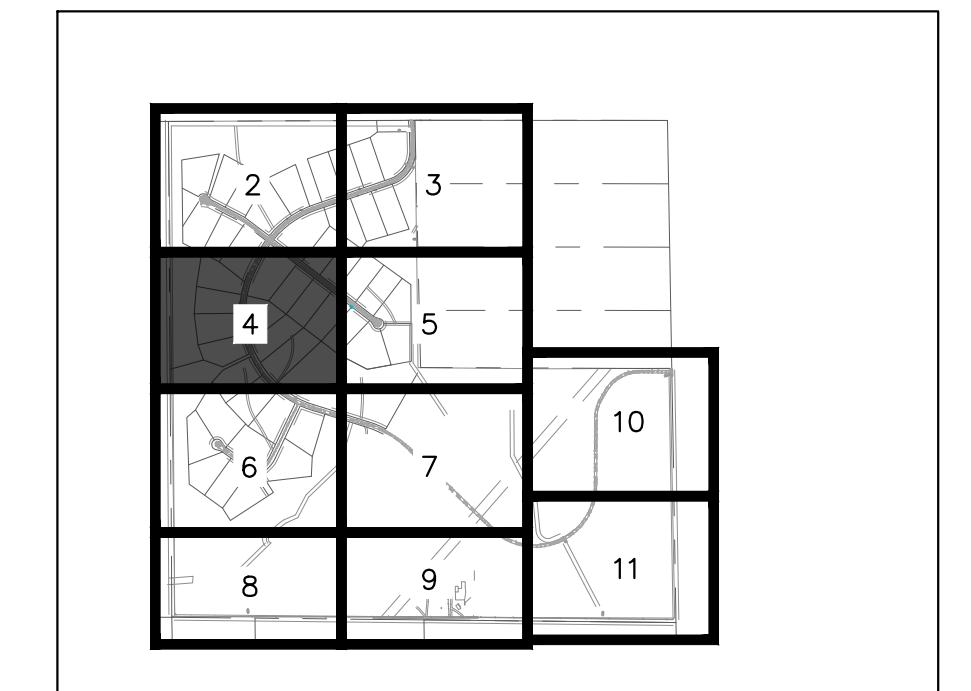
PROPERTY LINE

TRACT B - OPEN SPACE

TRACT C - OPEN SPACE



LIMITS OF DISTURBANCE		SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
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TOTAL	= ±48.10 ACRES	16 INCH	2.67 FEET



KEYMAP
SCALE: 1" = 2000'

- LEGEND**
- PROPERTY LINE
 - PR. LOT LINE
 - RIGHT-OF-WAY LINE
 - EX. EASEMENT LINE
 - PR. EASEMENT LINE
 - PR. ASPHALT ROAD
 - EX. RECYCLED ASPHALT ROAD
 - EX. GRAVEL ROAD
 - LIMITS OF DISTURBANCE/LIMITS OF CONSTRUCTION
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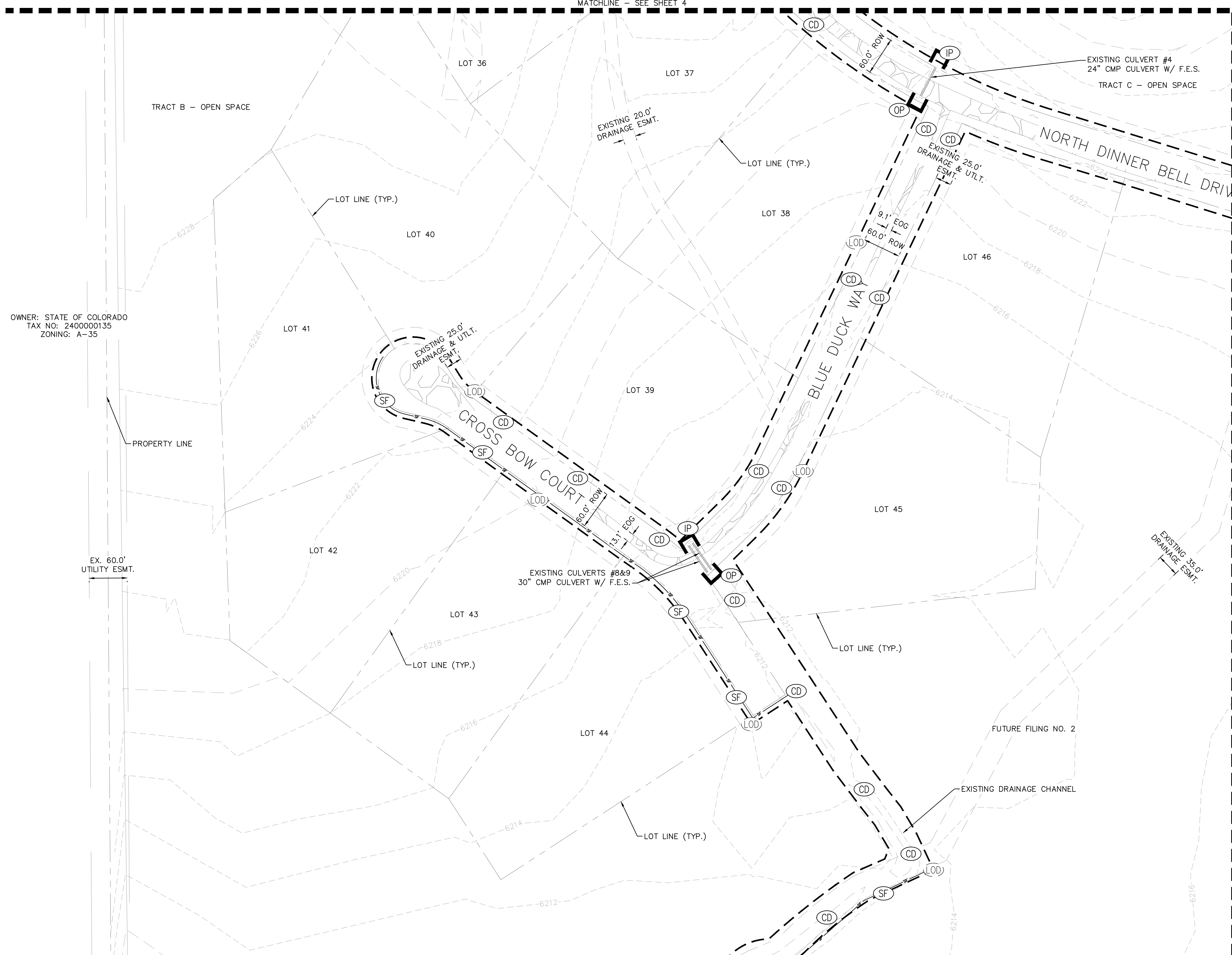
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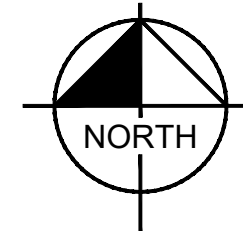
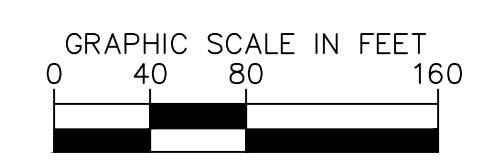
NO.	REVISION
BY	DATE
APPR.	APPR.

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- LEGEND**
- PROPERTY LINE
 - - - PR. LOT LINE
 - - - RIGHT-OF-WAY LINE
 - - - EX. EASEMENT LINE
 - - - PR. EASEMENT LINE
 - - - PR. ASPHALT ROAD
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LIMITS OF DISTURBANCE	SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
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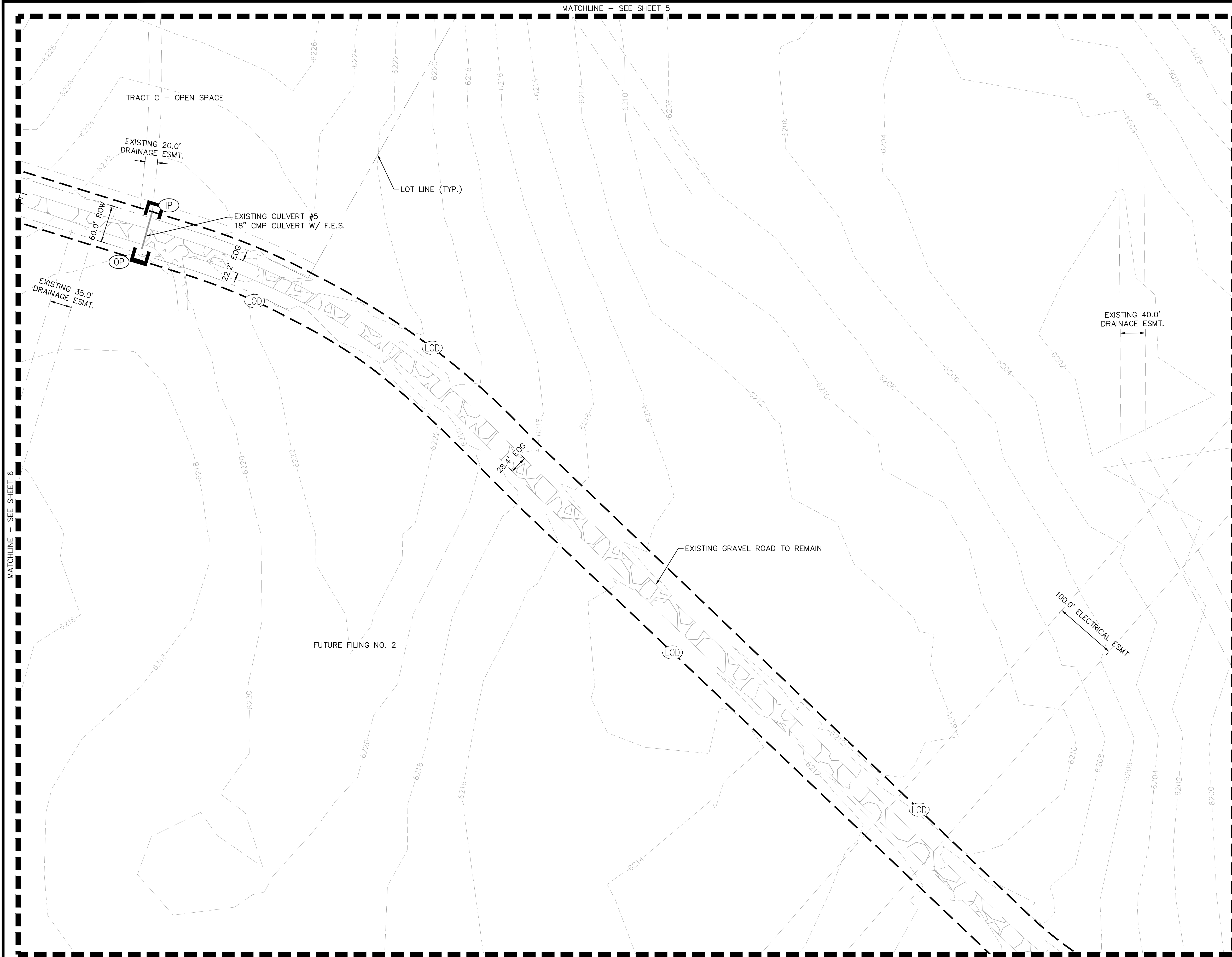
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SHEET
6

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KEYMAP
SCALE: 1" = 2000'

LEGEND

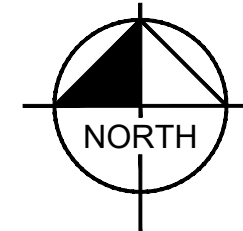
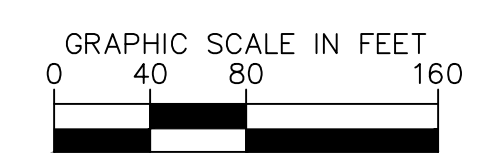
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	CHECK DAM
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MATCHLINE - SEE SHEET 10

MATCHLINE - SEE SHEET 11

NOTES

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MATCHLINE - SEE SHEET 9

LIMITS OF DISTURBANCE

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OFFSITE DISTURBANCE	= ±0.00 ACRES	12 INCH 2 FEET
TOTAL	= ±48.10 ACRES	16 INCH 2.67 FEET

NO.	REVISION	BY	DATE	APPR.

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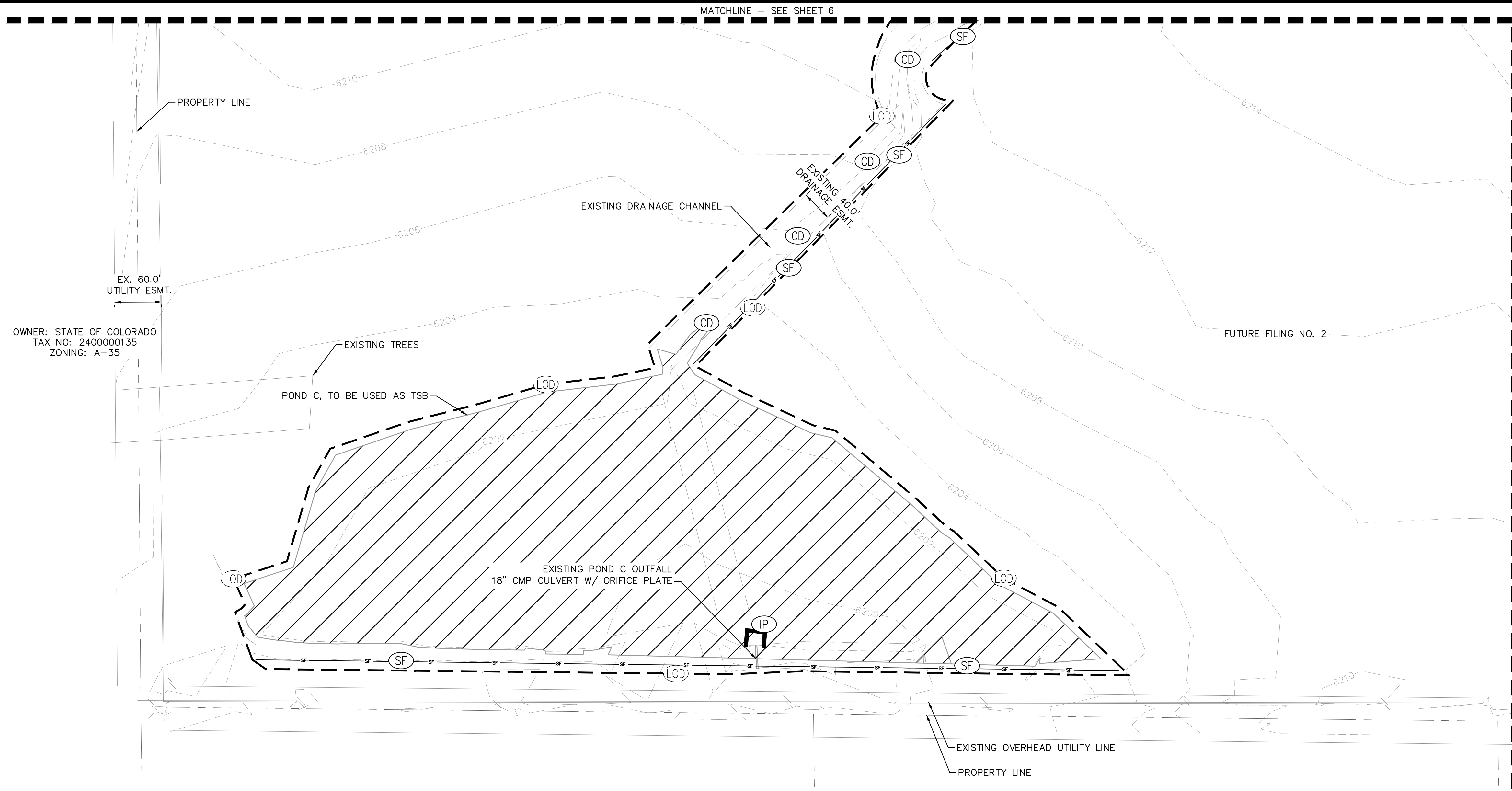
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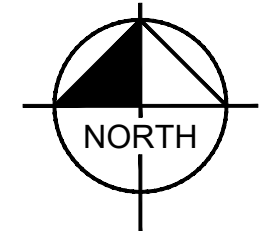
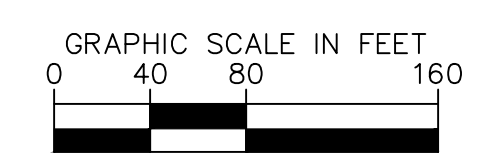


OWNER: STATE OF COLORADO
TAX NO: 2400000135
ZONING: A-35

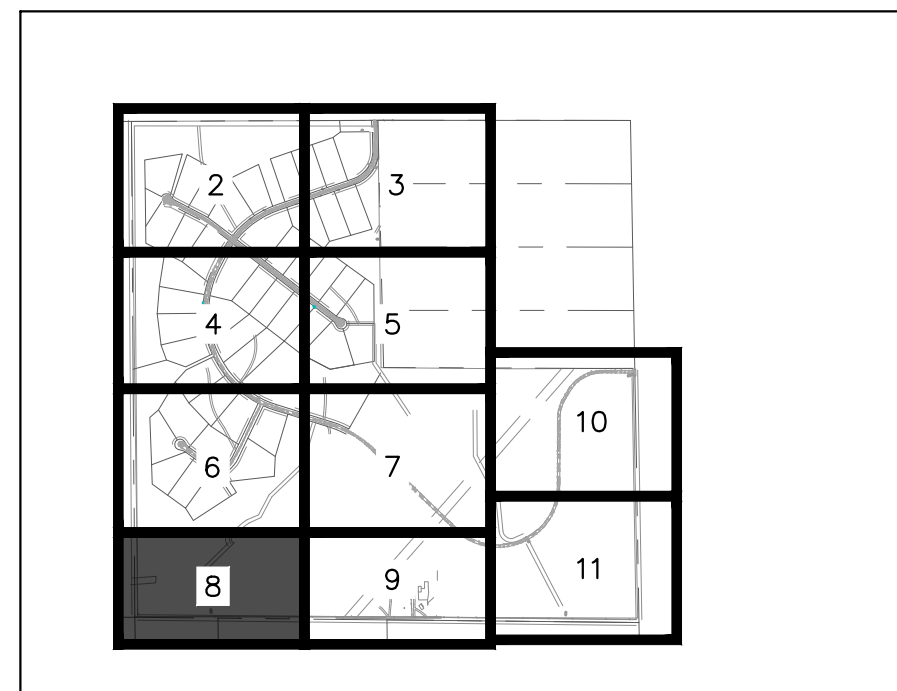
OWNER: STATE OF COLORADO
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LIMITS OF DISTURBANCE	SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
ONSITE DISTURBANCE = ±48.10 ACRES	9 INCH	1.5 FEET
OFFSITE DISTURBANCE = ±0.00 ACRES	12 INCH	2 FEET
TOTAL = ±48.10 ACRES	16 INCH	2.67 FEET



- LEGEND**
SCALE: 1" = 2000'
- PROPERTY LINE
 - - - PR. LOT LINE
 - RIGHT-OF-WAY LINE
 - - - EX. EASEMENT LINE
 - PR. EASEMENT LINE
 - PR. ASPHALT ROAD
 - EX. RECYCLED ASPHALT ROAD
 - EX. GRAVEL ROAD
 - (LOD) LIMITS OF DISTURBANCE/LIMITS OF CONSTRUCTION
 - (SF) SILF FENCE
 - CONSTRUCTION FENCE
 - (SCL) SEDIMENT CONTROL LOG
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - (VTC) VEHICLE TRACKING CONTROL
 - (SSA) STABILIZED STAGING AREA
 - (SP) STOCK PILING
 - (SB) SEDIMENT BASIN (TEMPORARY)
 - (CWA) CONCRETE WASHOUT
 - (CD) CHECK DAM
 - (IP) (OP) INLET/OUTLET PROTECTION
 - EXISTING SLOPE ARROW

- NOTES**
- THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
 - ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
 - TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
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Kimley»Horn
2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: MEL
DRAWN BY: MEL
CHECKED BY: KKK
DATE: 4/1/26

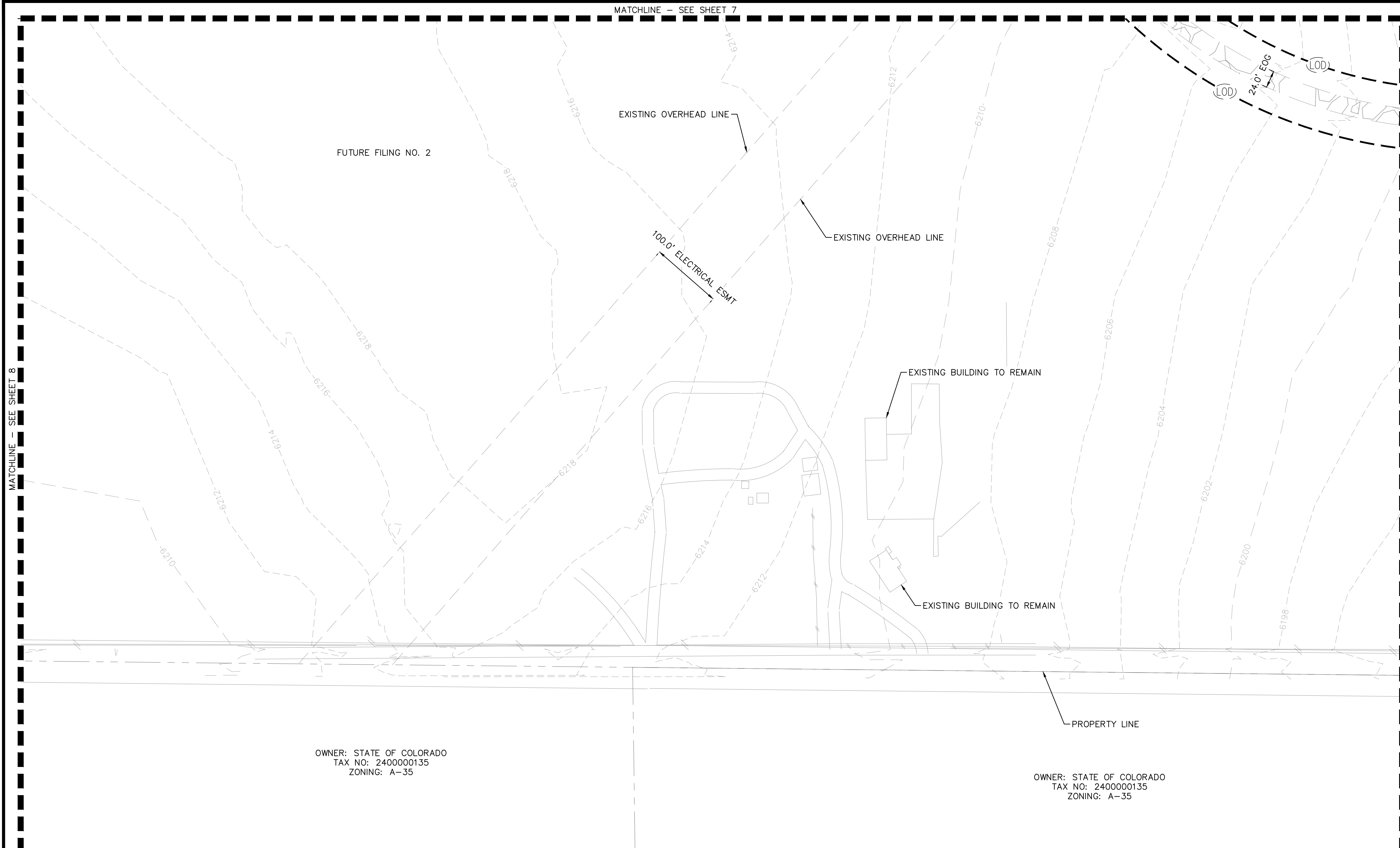
**TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
INITIAL GEC PLAN**

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION
Kimley»Horn
Kimley-Horn and Associates, Inc.

PROJECT NO.
296172000
SHEET
8

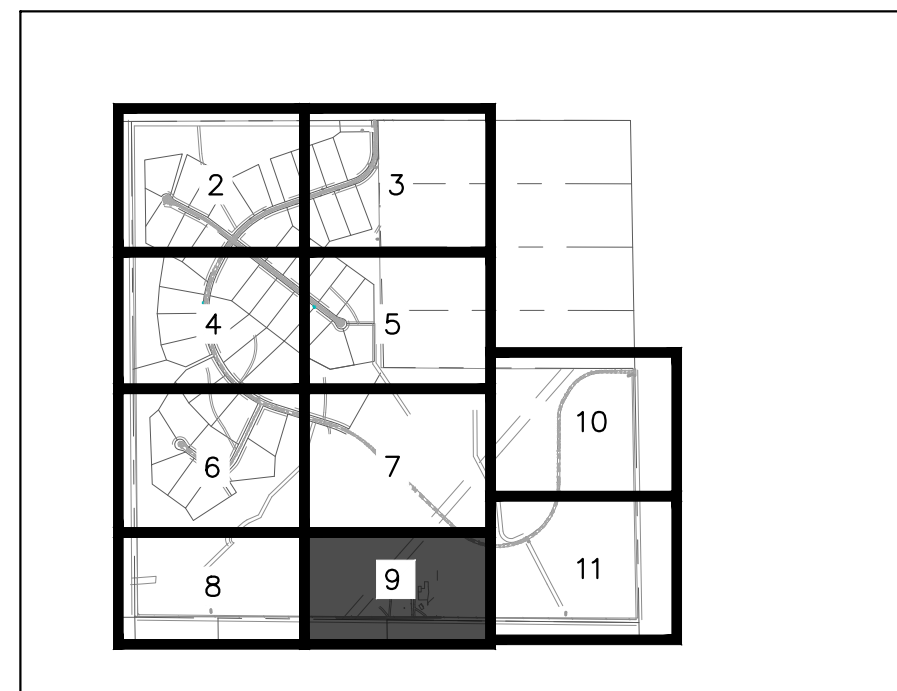
NO.	REVISION	BY	DATE	APPR.

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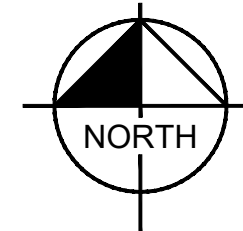
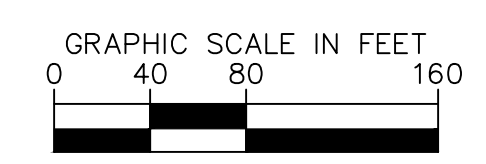
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KEYMAP
SCALE: 1" = 2000'

- LEGEND**
- PROPERTY LINE
 - PR. LOT LINE
 - RIGHT-OF-WAY LINE
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 - PR. EASEMENT LINE
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 - SILT FENCE
 - CONSTRUCTION FENCE
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BY
DATE
APPR.

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DESIGNED BY: MEL
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GRADING AND EROSION CONTROL PLANS
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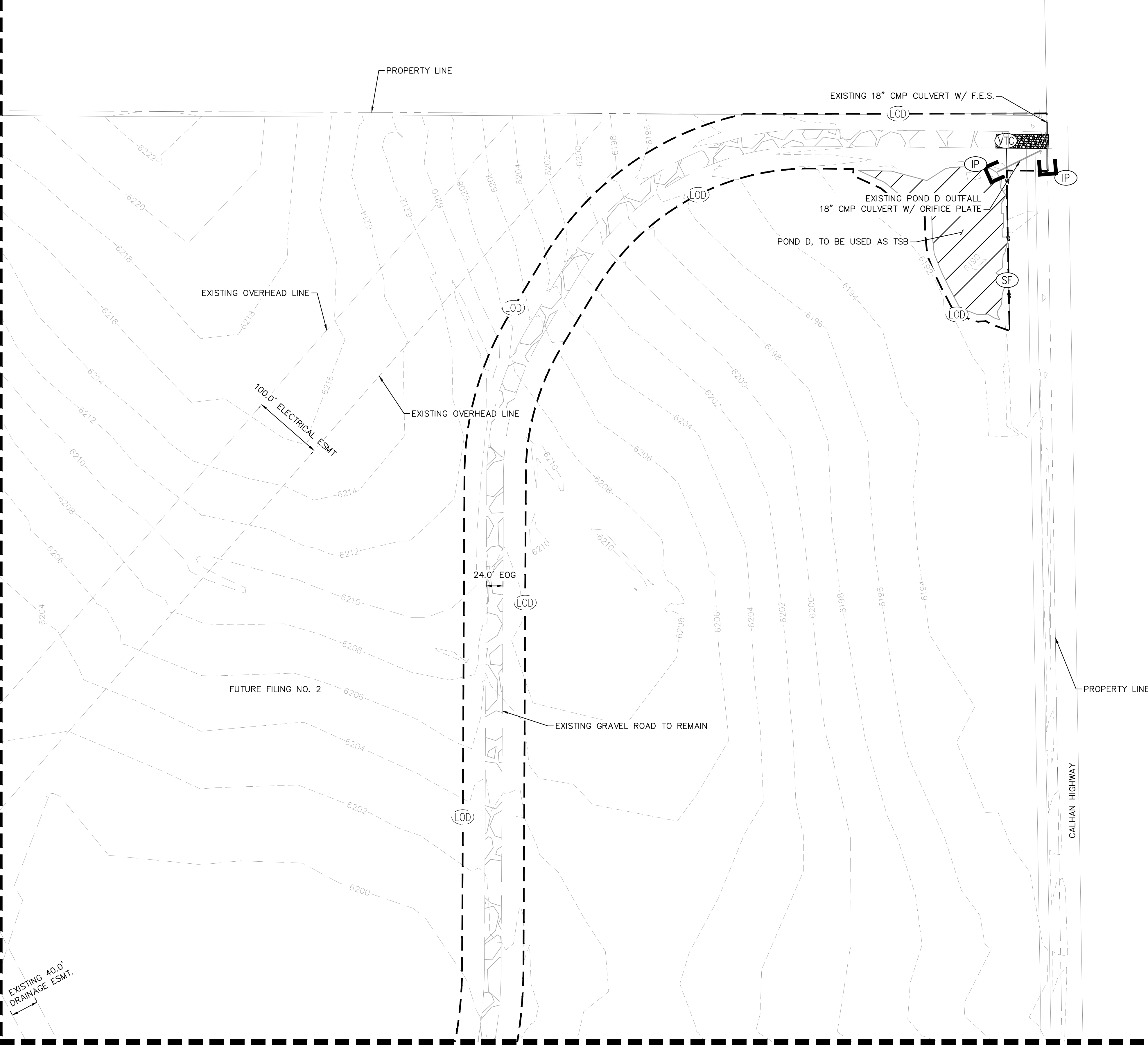
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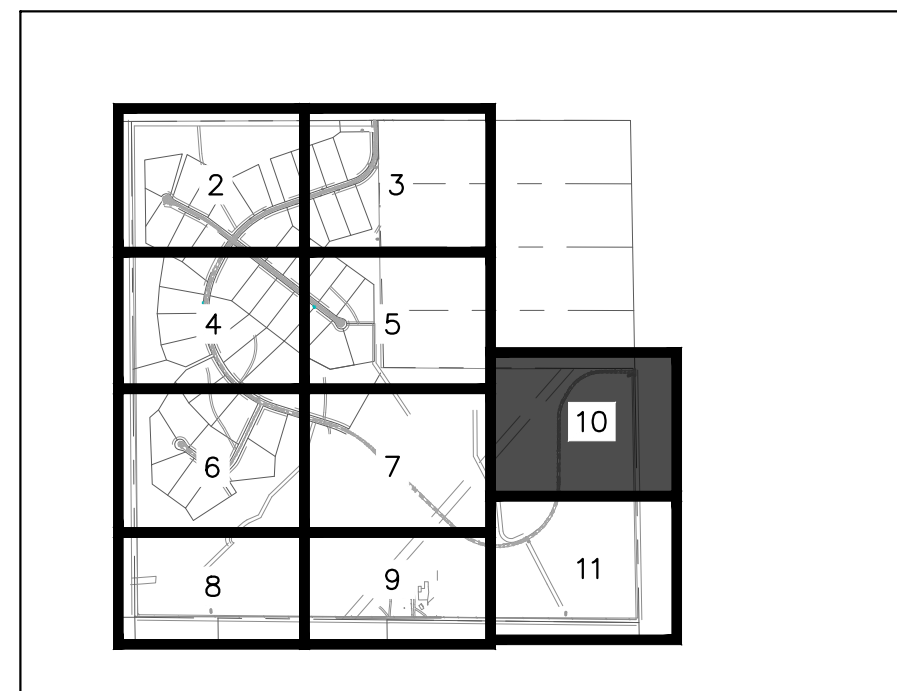
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MATCHLINE - SEE SHEET 5

MATCHLINE - SEE SHEET 7



OWNER: CHARLES REED
TAX NO: 140000593
ZONING: A-35

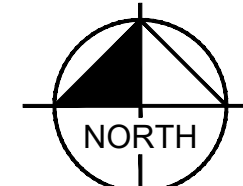
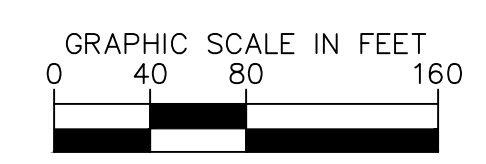


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CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES



MATCHLINE - SEE SHEET 11

LIMITS OF DISTURBANCE	SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
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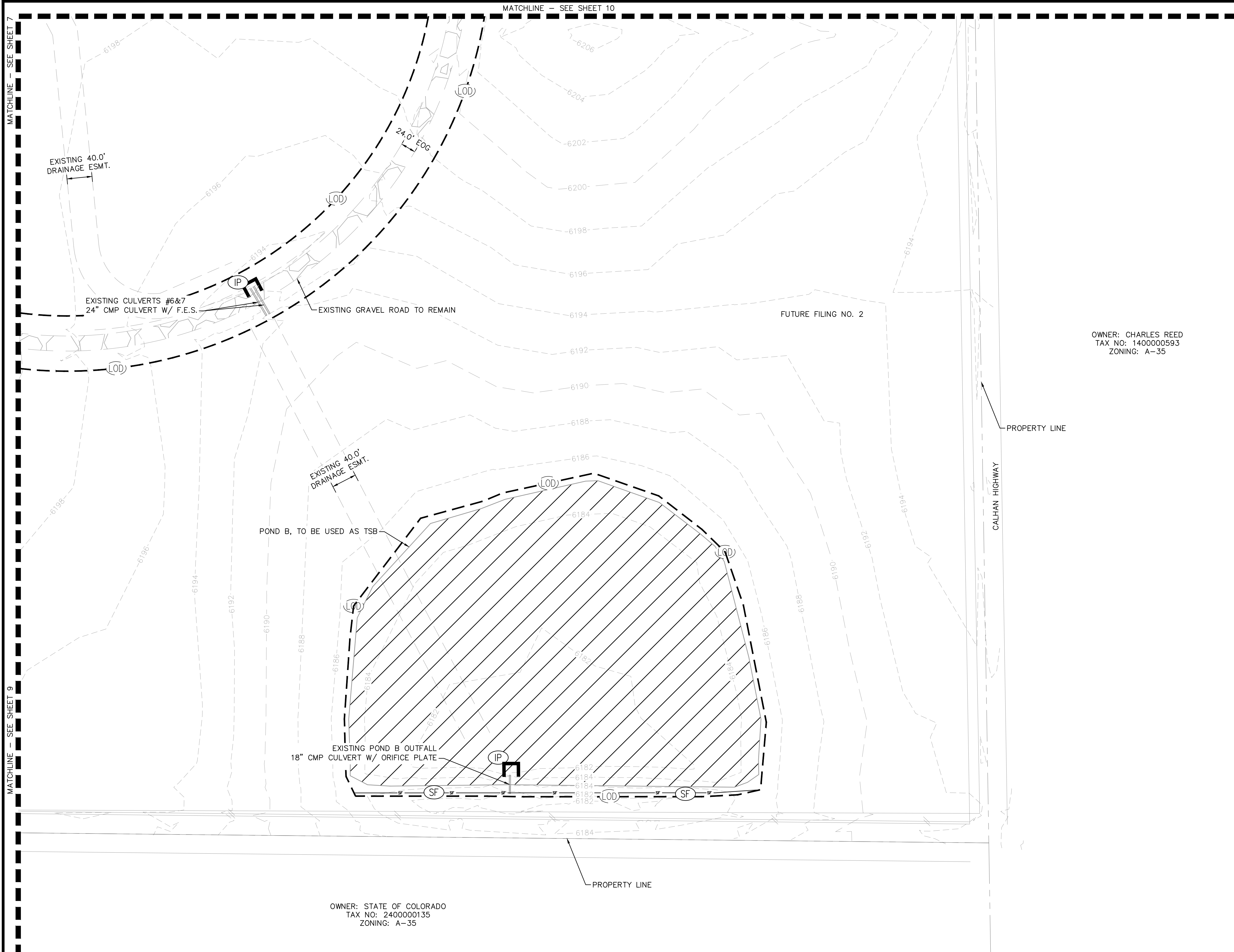
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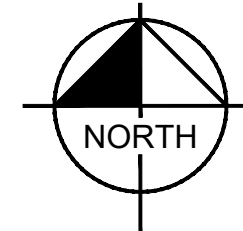
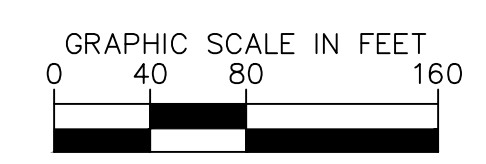
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OWNER: STATE OF COLORADO
TAX NO: 2400000135
ZONING: A-35

OWNER: CHARLES REED
TAX NO: 1400000593
ZONING: A-35



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REVISION

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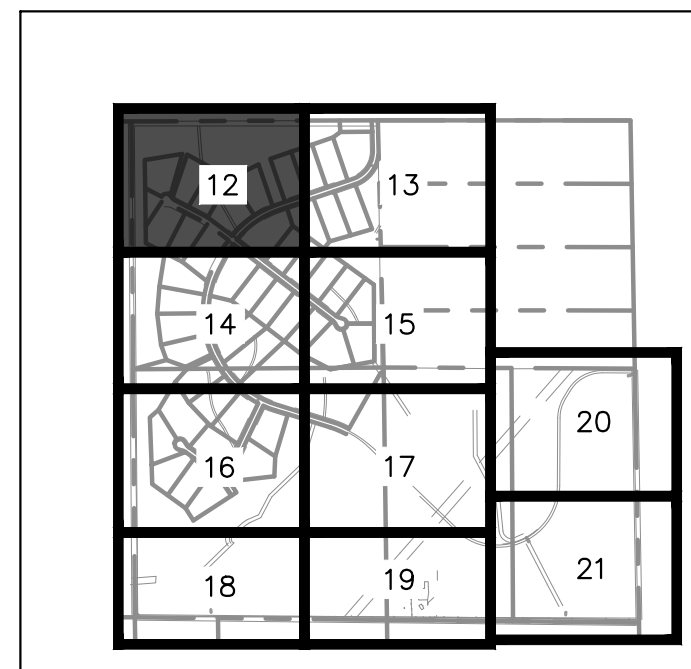
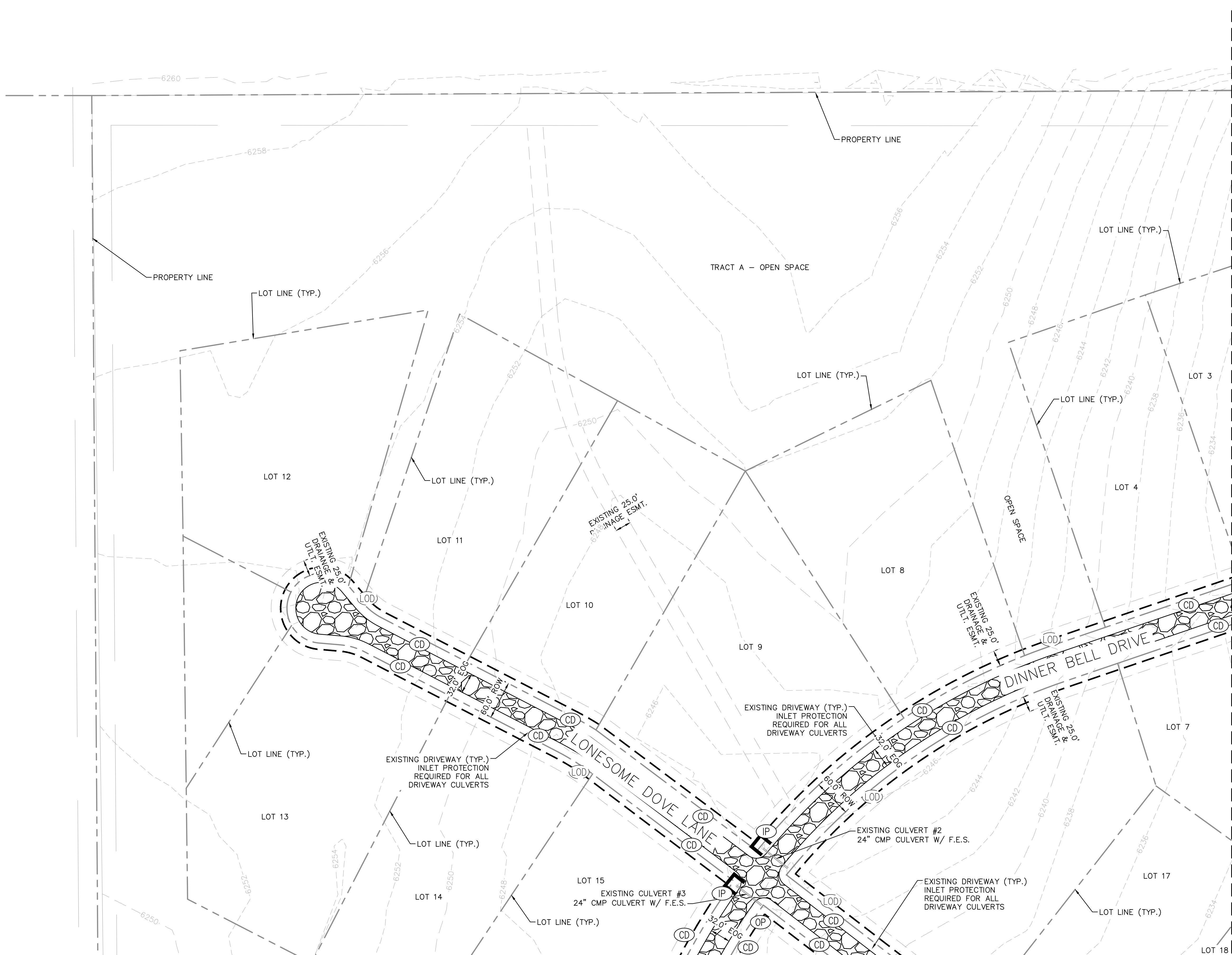
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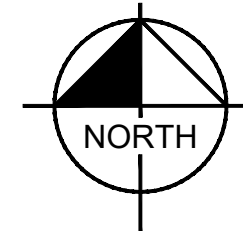
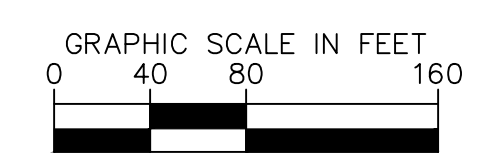
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 7. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
 8. SEDIMENT CONTROL LOGS (SCL) SHALL BE TRENCHED IN DURING INSTALLATION. IF SCL CANNOT BE TRENCHED IN, AGGREGATE BAGS SHALL BE USED (OVERTOP COMPACTED GRAVEL SURFACES).
 9. SEDIMENT BASIN (SB) SHALL BE INSPECTED DAILY AND SHALL UNDERGO SEDIMENT REMOVAL AS NECESSARY TO MITIGATE SEDIMENT BUILD UP OR TRANSPORTATION.
 10. DEMOLITION, REMOVAL, OVEREXCAVATION AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
 11. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.
 12. ROCK CHECK DAMS (CD) MAY BE SUBSTITUTED FOR SEDIMENT CONTROL LOGS (SCL) OR STRAW WADDLES. CONTRACTOR TO DETERMINE LOCATION OF CD WITHIN THE ROADSIDE DITCH (SEE TABLE FOR MIN. SPACING REQUIREMENTS) IN COORDINATION WITH COUNTY INSPECTION.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES



MATCHLINE - SEE SHEET 14

LIMITS OF DISTURBANCE		SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
ONSITE DISTURBANCE	= ±48.10 ACRES	9 INCH	1.5 FEET
OFFSITE DISTURBANCE	= ±0.00 ACRES	12 INCH	2 FEET
TOTAL	= ±48.10 ACRES	16 INCH	2.67 FEET

NO. _____ BY DATE APPR.

REVISION _____

Kimley»Horn
2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

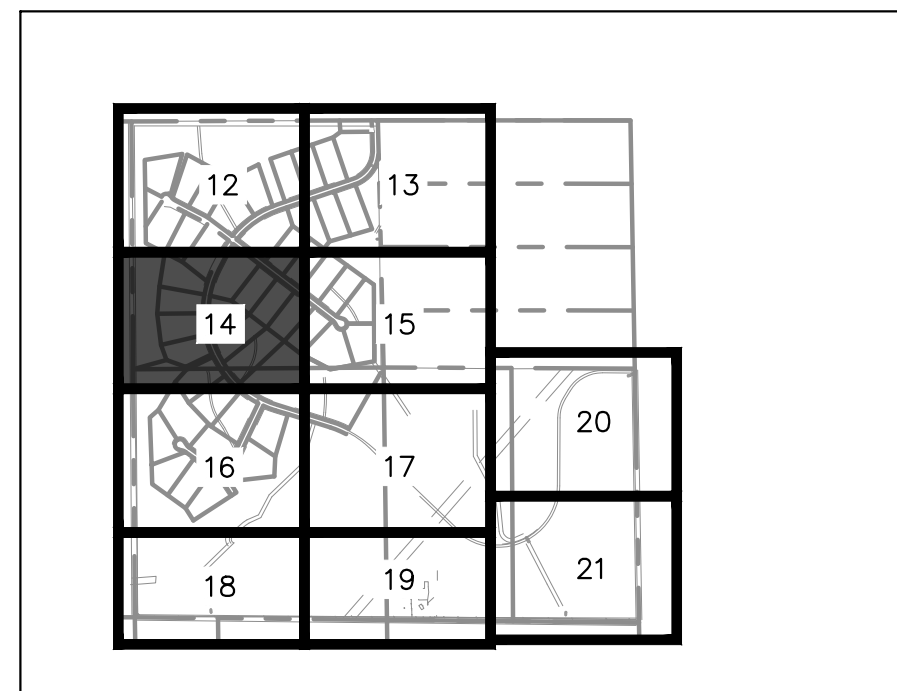
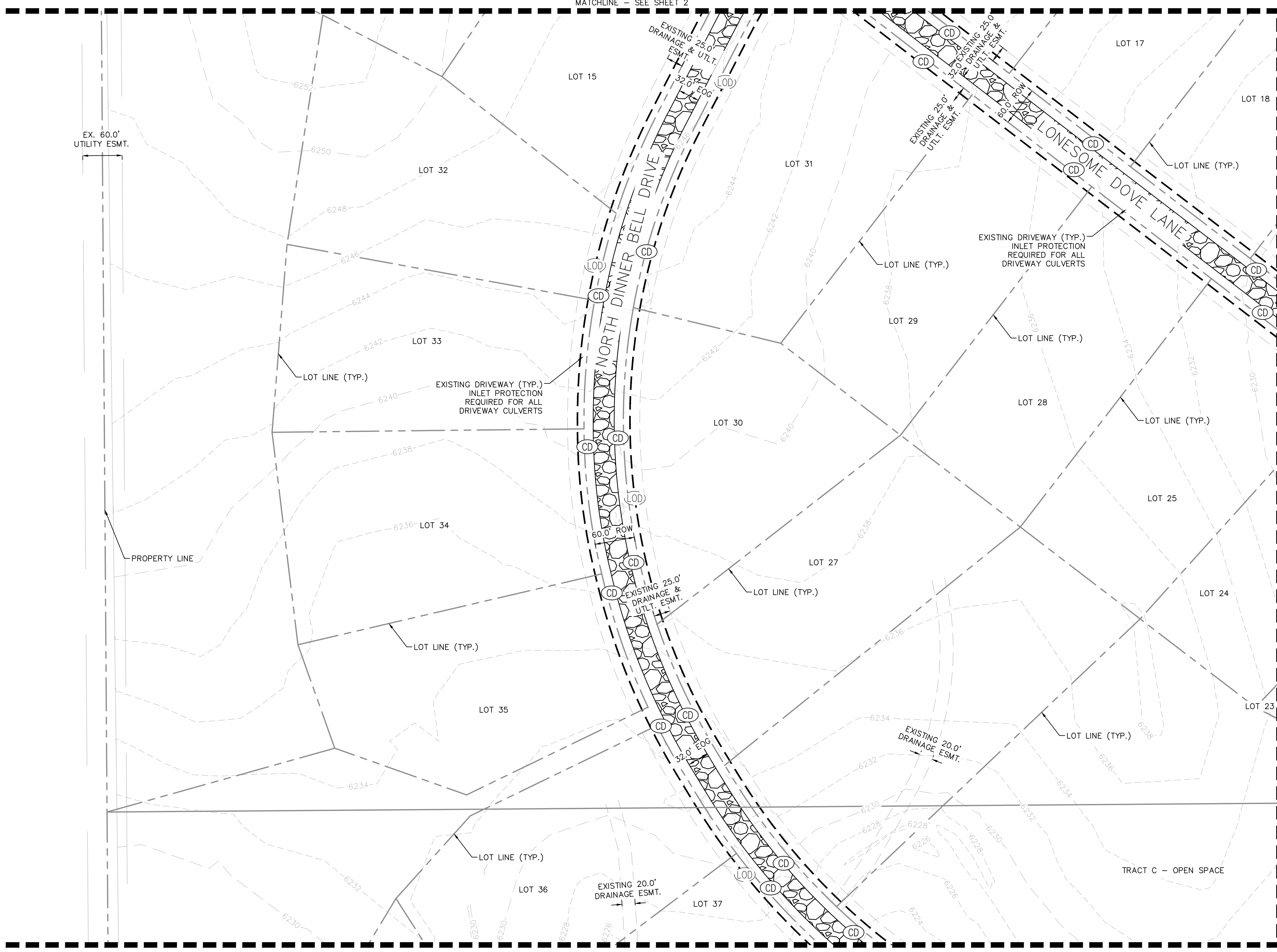
DESIGNED BY: MEL
DRAWN BY: MEL
CHECKED BY: KRK
DATE: 4/1/26

TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
INTERIM GEC PLAN

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION
Kimley»Horn
Kimley-Horn and Associates, Inc.

PROJECT NO.
296172000
SHEET
12

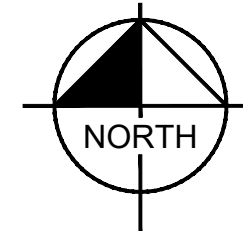
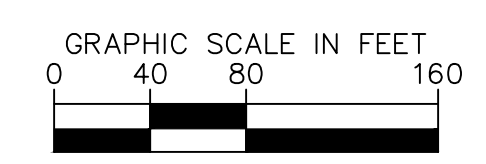
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KEYMAP
SCALE: 1" = 2000'

- LEGEND**
- PROPERTY LINE
 - PR. LOT LINE
 - RIGHT-OF-WAY LINE
 - - - EX. EASEMENT LINE
 - - - PR. EASEMENT LINE
 - ▨ PR. ASPHALT ROAD
 - ▨ EX. RECYCLED ASPHALT ROAD
 - ▨ PR. GRAVEL ROAD
 - (LOD)--- LIMITS OF DISTURBANCE/LIMITS OF CONSTRUCTION
 - SILF FENCE
 - CONSTRUCTION FENCE
 - SCL — SCL — SEDIMENT CONTROL LOG
 - XX — EXISTING MAJOR CONTOUR
 - XX — EXISTING MINOR CONTOUR
 - ▨ VTC ▨ VTC — VEHICLE TRACKING CONTROL
 - ▨ SSA — STABILIZED STAGING AREA
 - ▨ SP — STOCK PILING
 - ▨ SB — SEDIMENT BASIN (TEMPORARY)
 - CWA — CONCRETE WASHOUT
 - CD — CHECK DAM
 - IP □ OP — INLET/OUTLET PROTECTION
 - — EXISTING SLOPE ARROW

- NOTES**
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TOTAL	= ±48.10 ACRES	16 INCH	2.67 FEET

BY: DATE: APPR:

REVISION: NO.

Kimley»Horn

2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: MEL
DRAWN BY: MEL
CHECKED BY: KRK
DATE: 4/1/26

**TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
INTERIM GEC PLAN**

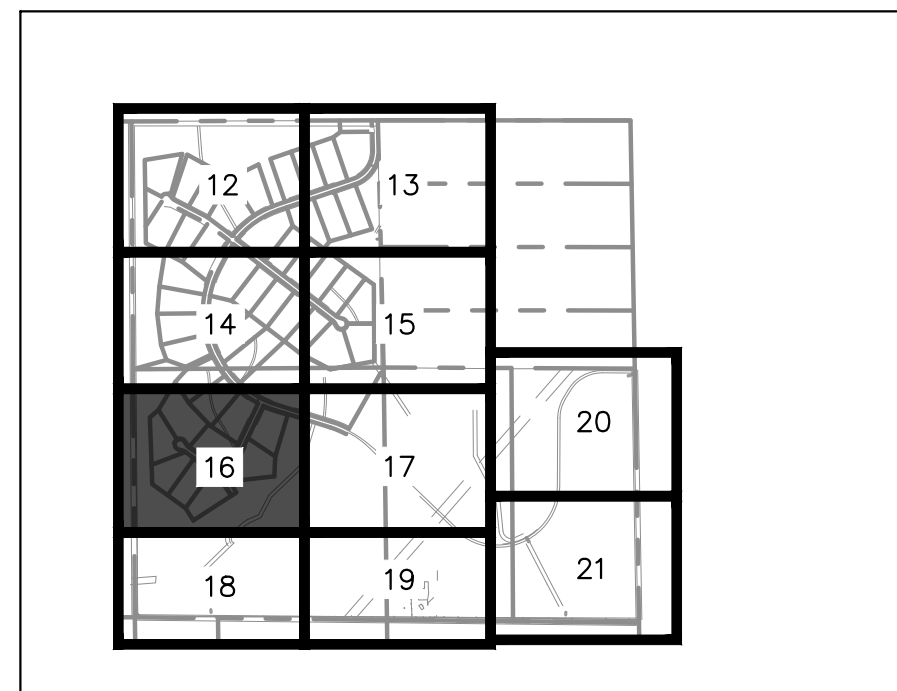
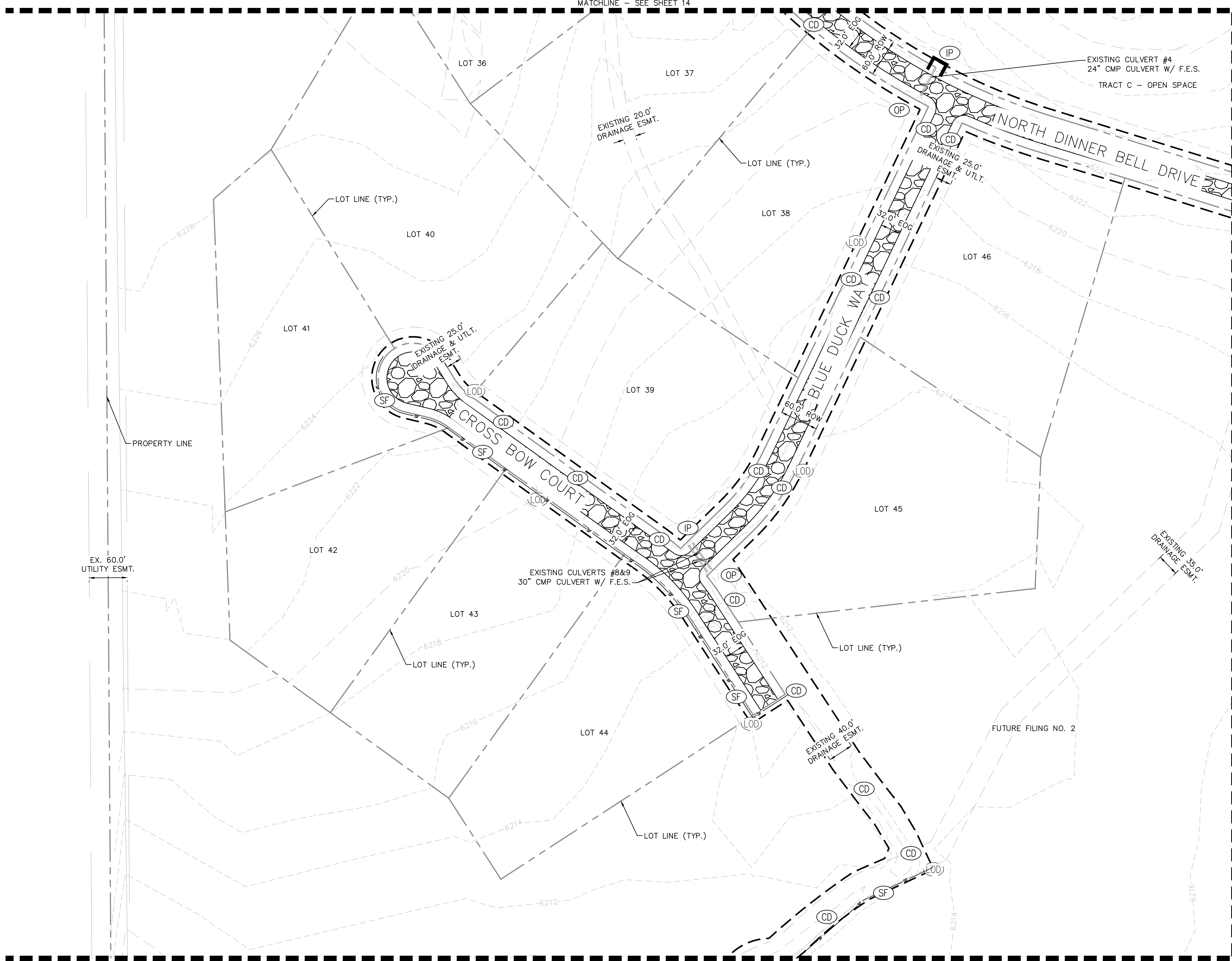
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Kimley»Horn
Kimley-Horn and Associates, Inc.

PROJECT NO.
296172000

SHEET
14

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LEGEND
SCALE: 1" = 2000'

- PROPERTY LINE
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- RIGHT-OF-WAY LINE
- - - EX. EASEMENT LINE
- - - PR. EASEMENT LINE
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- ▨ SB ▨ SEDIMENT BASIN (TEMPORARY)
- ◻ CWA CONCRETE WASHOUT
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- ◻ IP ◻ OP INLET/OUTLET PROTECTION
- EXISTING SLOPE ARROW

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1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

811 Know what's below. Call before you dig.

GRAPHIC SCALE IN FEET
0 40 80 160

NORTH

MATCHLINE - SEE SHEET 18

LIMITS OF DISTURBANCE	SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
ONSITE DISTURBANCE = ±48.10 ACRES	9 INCH	1.5 FEET
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TOTAL = ±48.10 ACRES	16 INCH	2.67 FEET

NO. BY DATE APPR.

REVISION

Kimley»Horn
2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

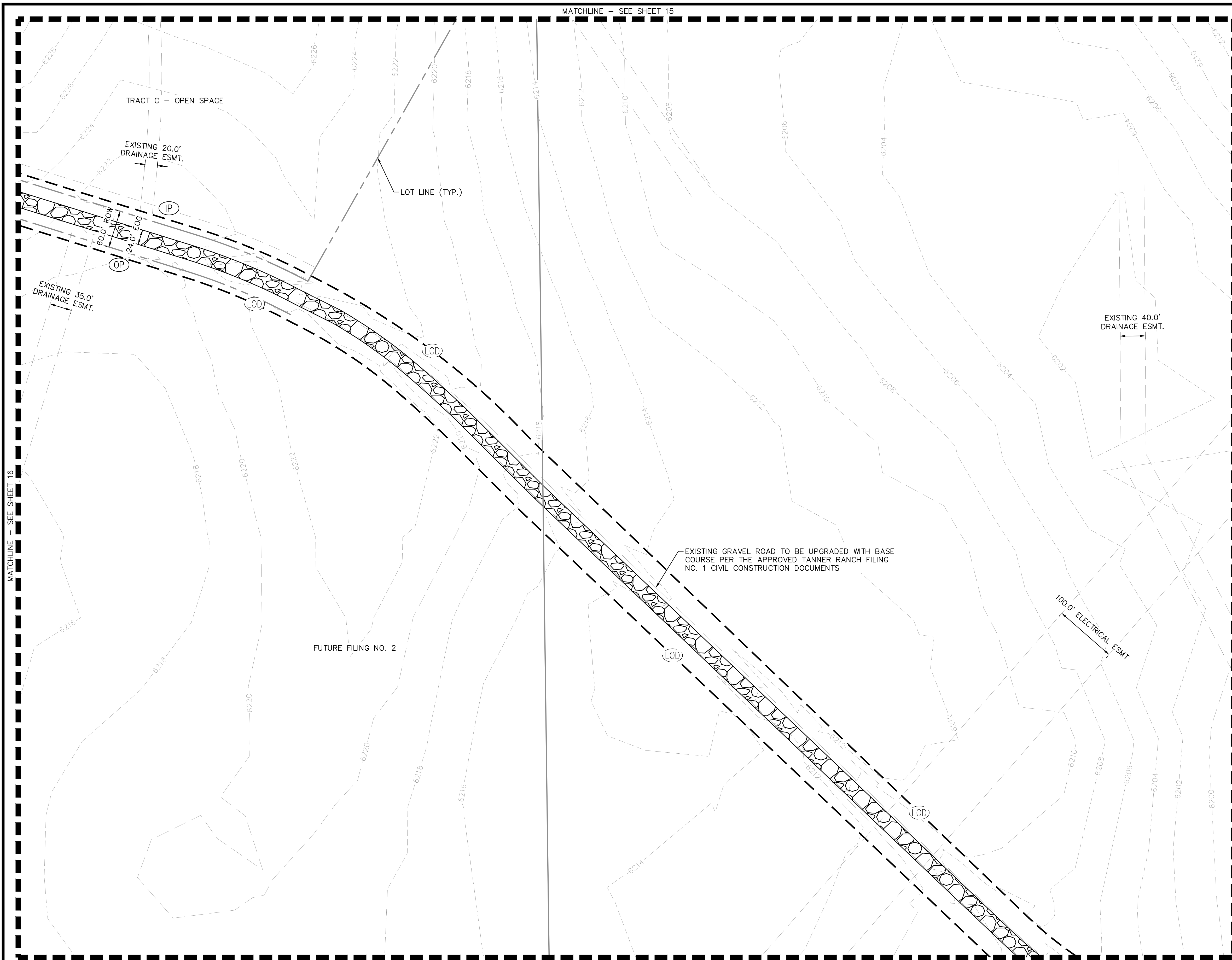
DESIGNED BY: MEL
DRAWN BY: MEL
CHECKED BY: KKK
DATE: 4/1/26

TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
INTERIM GEC PLAN

PRELIMINARY
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PROJECT NO.
296172000
SHEET
16

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KEYMAP
SCALE: 1" = 2000'

LEGEND

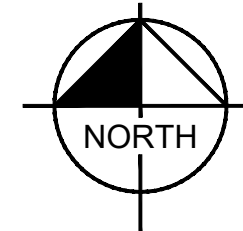
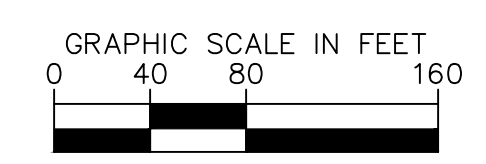
	PROPERTY LINE
	PR. LOT LINE
	RIGHT-OF-WAY LINE
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	EX. RECYCLED ASPHALT ROAD
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	LIMITS OF DISTURBANCE/LIMITS OF CONSTRUCTION
	SILT FENCE
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	SEDIMENT CONTROL LOG
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	VEHICLE TRACKING CONTROL
	STABILIZED STAGING AREA
	STOCK PILING
	SEDIMENT BASIN (TEMPORARY)
	CWA CONCRETE WASHOUT
	CD CHECK DAM
	IP INLET/OUTLET PROTECTION
	EXISTING SLOPE ARROW

MATCHLINE - SEE SHEET 19

MATCHLINE - SEE SHEET 20

NOTES

1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
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MATCHLINE - SEE SHEET 21

LIMITS OF DISTURBANCE

	SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
ONSITE DISTURBANCE	= ±48.10 ACRES	9 INCH 1.5 FEET
OFFSITE DISTURBANCE	= ±0.00 ACRES	12 INCH 2 FEET
TOTAL	= ±48.10 ACRES	16 INCH 2.67 FEET

NO.	REVISION	BY	DATE	APPR.

Kimley»Horn
2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

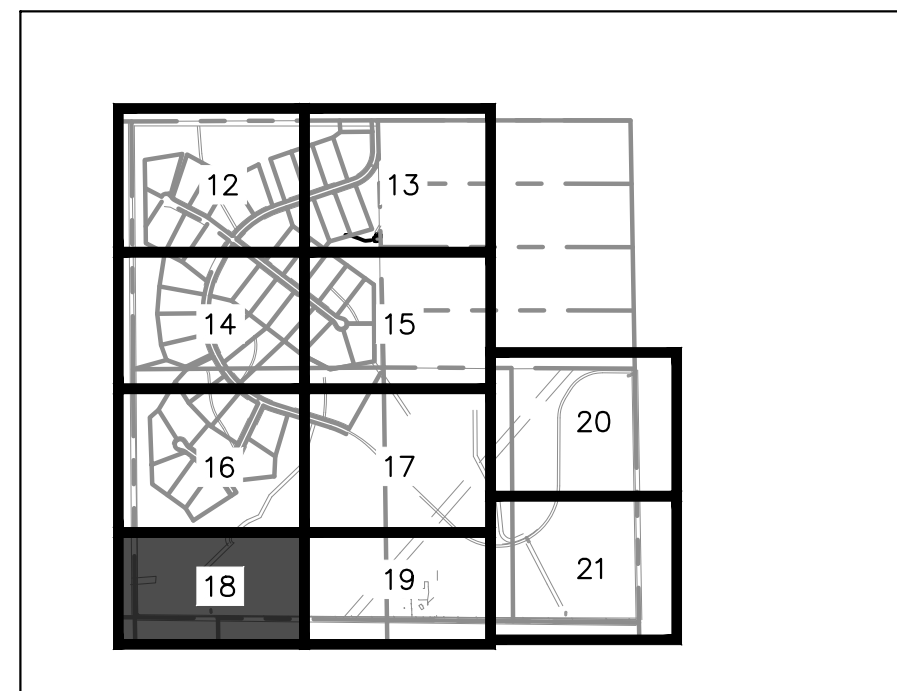
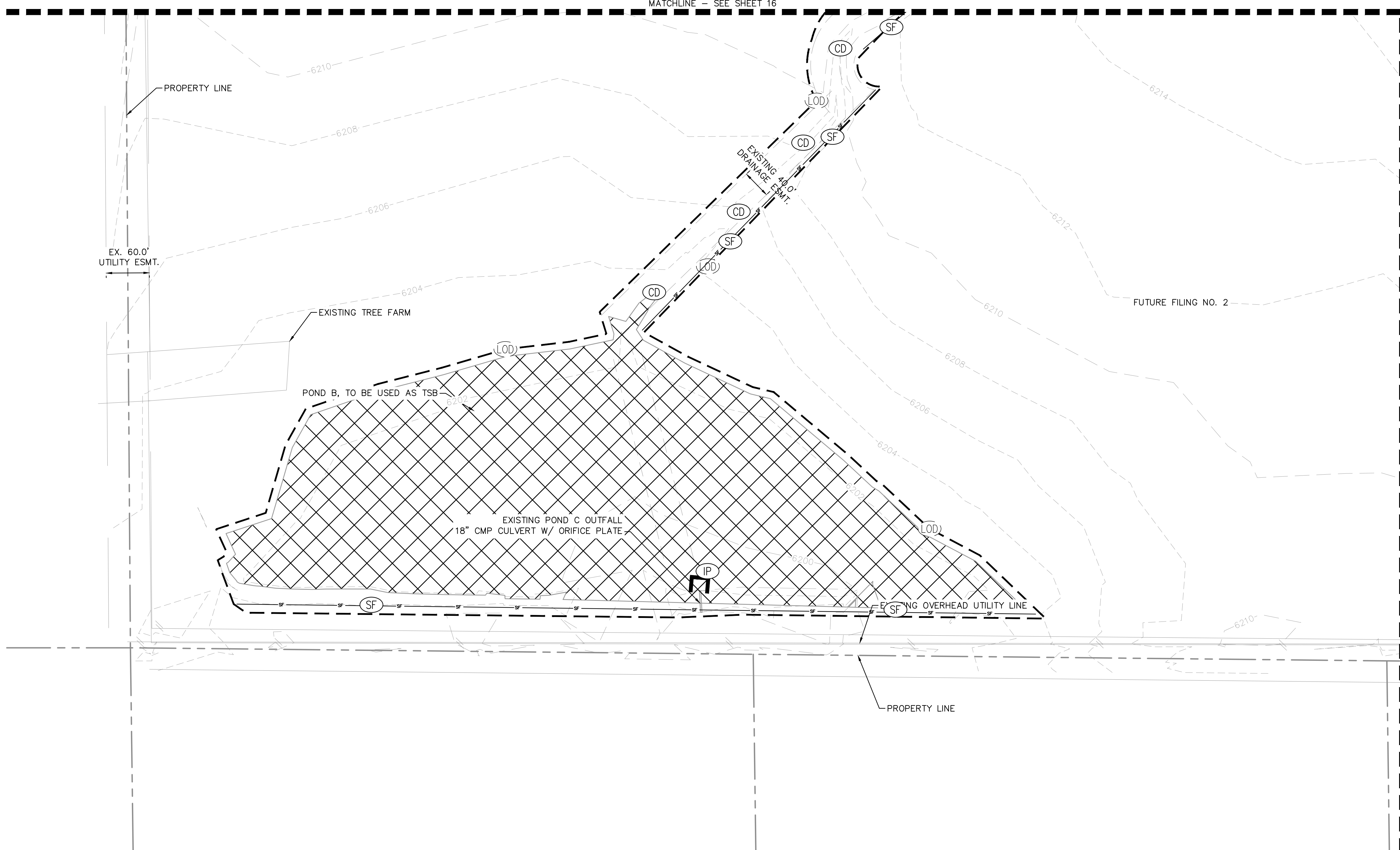
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EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
INTERIM GEC PLAN**

PRELIMINARY
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PROJECT NO.
296172000
SHEET
17

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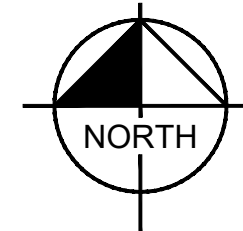
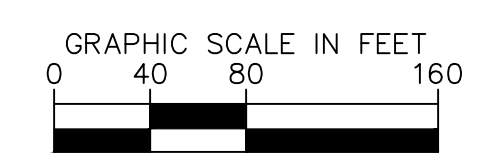


KEYMAP
SCALE: 1" = 2000'

- LEGEND**
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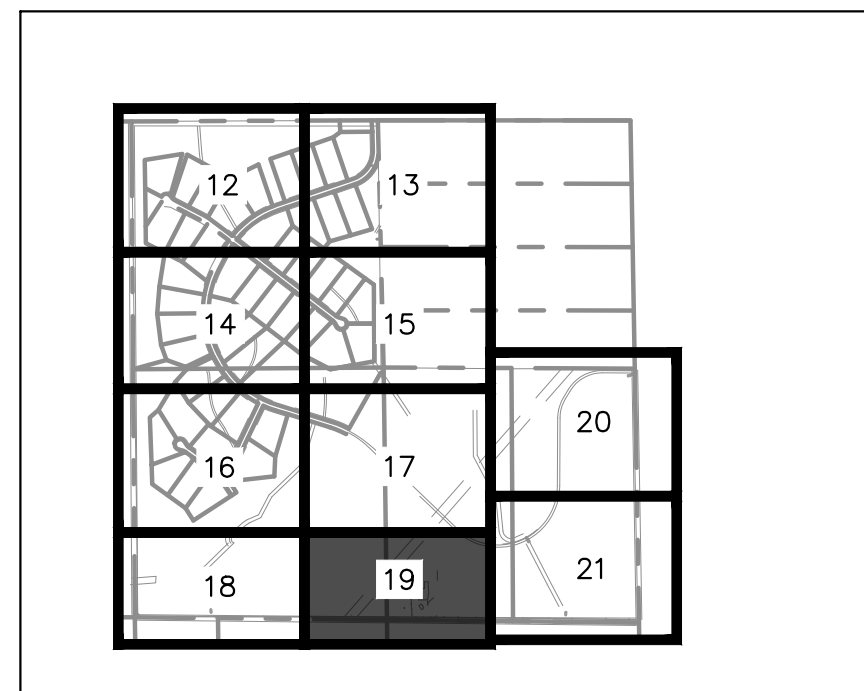
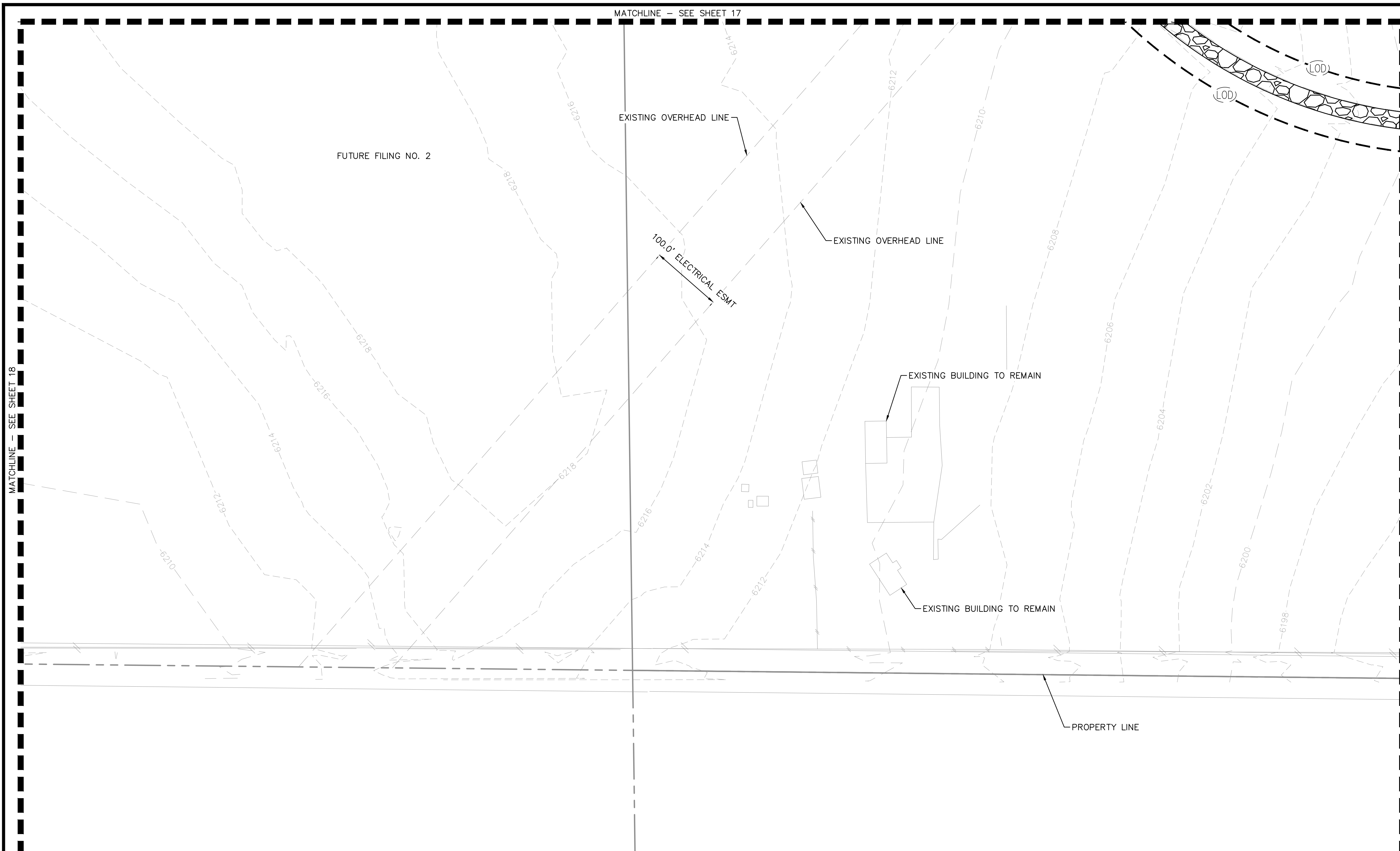
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<p>Kimley»Horn 2025 KIMLEY-HORN AND ASSOCIATES, INC. 2 North Nevada Avenue Suite 900 Colorado Springs, Colorado 80903 (719) 453-0180</p>	<p>DESIGNED BY: MEL DRAWN BY: MEL CHECKED BY: KKK DATE: 4/1/26</p>
<p>TANNER RANCH FILING NO. 1 EL PASO COUNTY, COLORADO GRADING AND EROSION CONTROL PLANS INTERIM GEC PLAN</p>	
<p>PRELIMINARY FOR REVIEW ONLY NOT FOR CONSTRUCTION</p>	
<p>PROJECT NO. 296172000</p>	
<p>SHEET 18</p>	
<p>NO. REVISION</p>	<p>BY DATE APPR.</p>

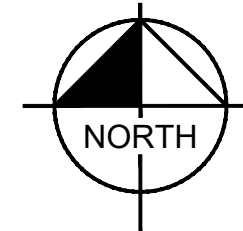
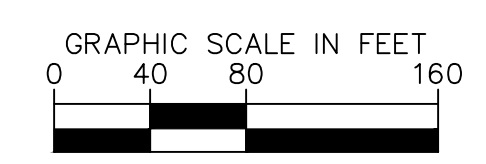
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 - EXISTING MINOR CONTOUR
 - VEHICLE TRACKING CONTROL
 - STABILIZED STAGING AREA
 - STOCK PILING
 - SEDIMENT BASIN (TEMPORARY)
 - CWA CONCRETE WASHOUT
 - CD CHECK DAM
 - IP INLET/OUTLET PROTECTION
 - OP EXISTING SLOPE ARROW

- NOTES**
1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
 2. ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
 3. TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
 4. PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
 5. CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS (STRAW-SINGLE NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES) ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
 6. CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITH OWNER REQUIREMENTS.
 7. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
 8. SEDIMENT CONTROL LOGS (SCL) SHALL BE TRENCHED IN DURING INSTALLATION. IF SCL CANNOT BE TRENCHED IN, AGGREGATE BAGS SHALL BE USED (OVERTOP COMPACTED GRAVEL SURFACES).
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 11. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.
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LIMITS OF DISTURBANCE		SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
ONSITE DISTURBANCE	= ±48.10 ACRES	9 INCH	1.5 FEET
OFFSITE DISTURBANCE	= ±0.00 ACRES	12 INCH	2 FEET
TOTAL	= ±48.10 ACRES	16 INCH	2.67 FEET

NO.	REVISION	BY	DATE	APPR.

2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: MEL
DRAWN BY: MEL
CHECKED BY: KRK
DATE: 4/1/26

TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
INTERIM GEC PLAN

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

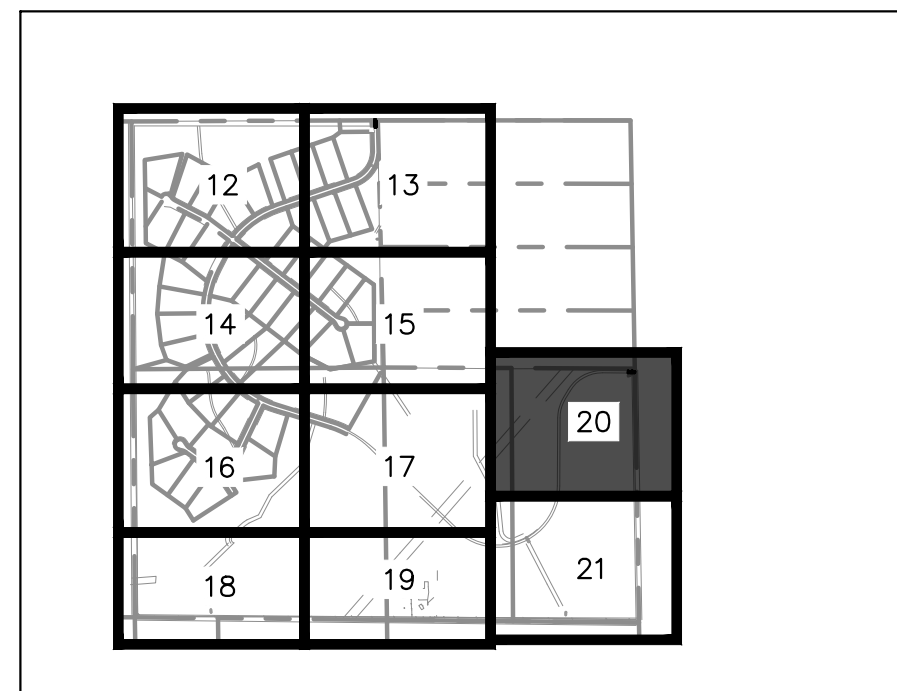
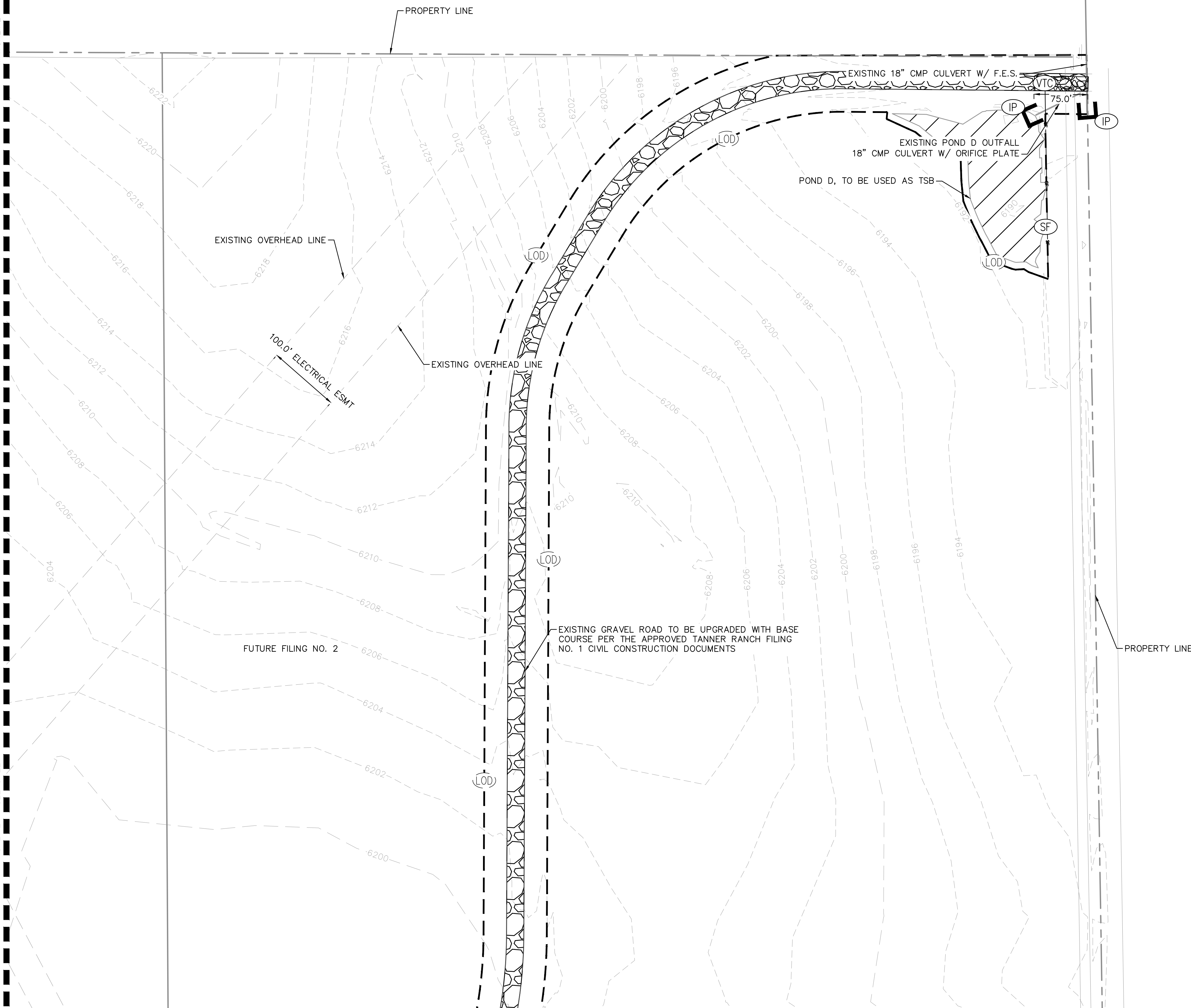
PROJECT NO.
296172000
SHEET
19

K:\COS_LA\296172000-Tanner Ranch\CADD\PlanSheets\GEC\GEC_INTERIM.dwg Olesen, Maria (Longer) 4/1/2026 11:30 AM

MATCHLINE - SEE SHEET 15

MATCHLINE - SEE SHEET 17

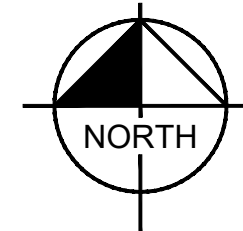
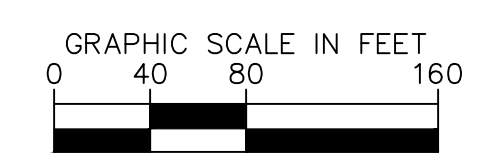
MATCHLINE - SEE SHEET 20



KEYMAP
SCALE: 1" = 2000'

- LEGEND**
- PROPERTY LINE
 - PR. LOT LINE
 - RIGHT-OF-WAY LINE
 - EX. EASEMENT LINE
 - PR. EASEMENT LINE
 - PR. ASPHALT ROAD
 - EX. RECYCLED ASPHALT ROAD
 - PR. GRAVEL ROAD
 - LIMITS OF DISTURBANCE/LIMITS OF CONSTRUCTION
 - SILT FENCE
 - CONSTRUCTION FENCE
 - SEDIMENT CONTROL LOG
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - VEHICLE TRACKING CONTROL
 - STABILIZED STAGING AREA
 - STOCK PILING
 - SEDIMENT BASIN (TEMPORARY)
 - CONCRETE WASHOUT
 - CHECK DAM
 - INLET/OUTLET PROTECTION
 - EXISTING SLOPE ARROW

- NOTES**
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OFFSITE DISTURBANCE	= ±0.00 ACRES	12 INCH	2 FEET
TOTAL	= ±48.10 ACRES	16 INCH	2.67 FEET

NO. _____ BY _____ DATE _____

REVISION _____

Kimley»Horn
2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

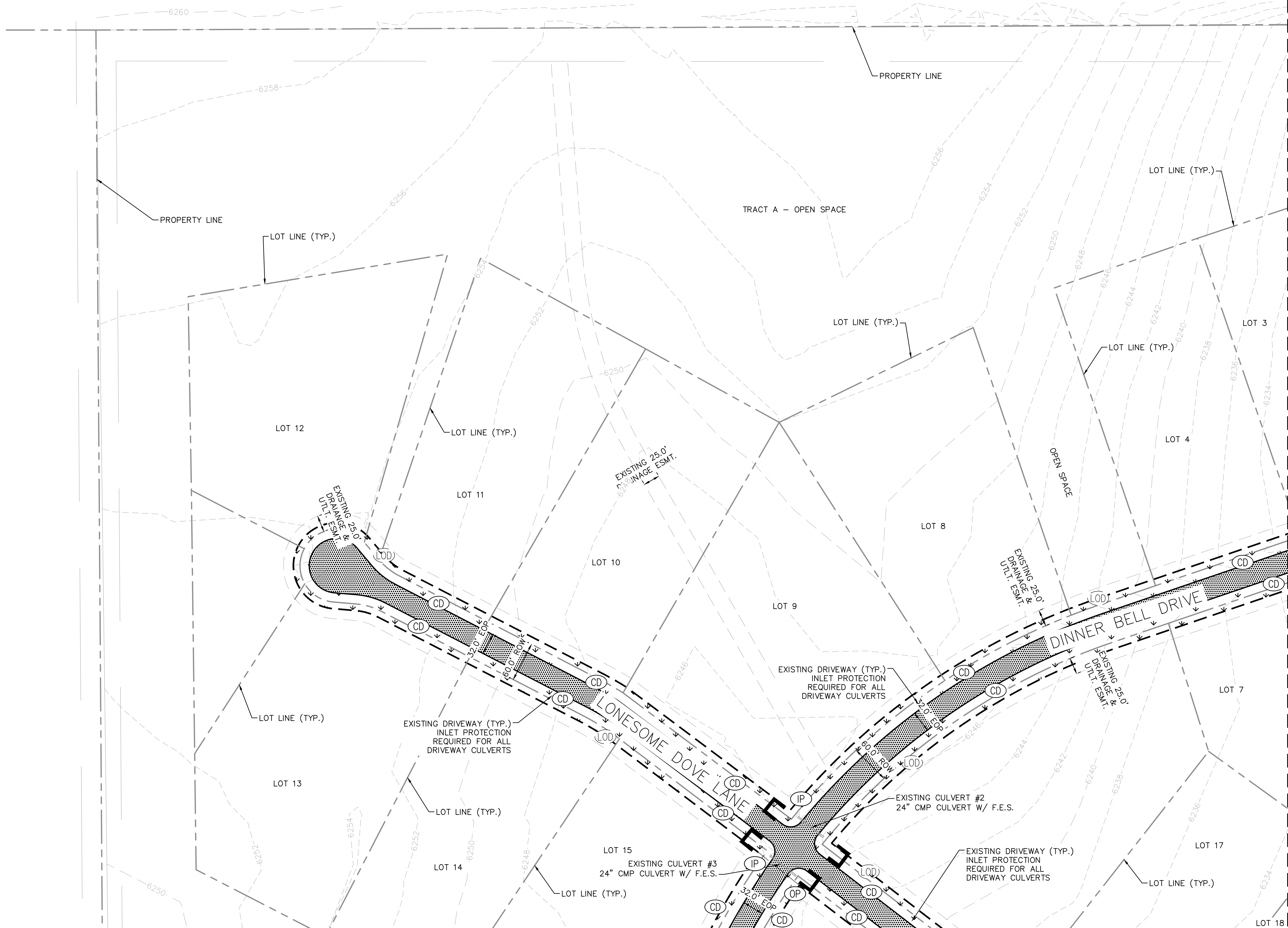
DESIGNED BY: MEL
DRAWN BY: MEL
CHECKED BY: KRK
DATE: 4/1/26

**TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
INTERIM GEC PLAN**

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION
Kimley»Horn
Kimley-Horn and Associates, Inc.

PROJECT NO.
296172000
SHEET
20

K:\COS_LA\296172000-Tanner Ranch\CADD\PlanSheets\GEC\FINAL.dwg Olesen, Maria (Langer) 4/1/2026 11:30 AM



KEYMAP
SCALE: 1" = 2000'

- LEGEND**
- PROPERTY LINE
 - PR. LOT LINE
 - RIGHT-OF-WAY LINE
 - - - EX. EASEMENT LINE
 - - - PR. EASEMENT LINE
 - PR. EDGE OF GRAVEL ROAD
 - - - EX. EDGE OF GRAVEL ROAD
 - ROAD CENTER LINE
 - 5048.8 FT — BASE FLOOD ELEVATION
 - REGULATORY FLOODWAY LINE WITHIN ZONE AE
 - ▨ PROPOSED PAVEMENT

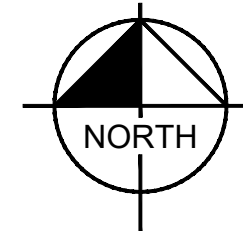
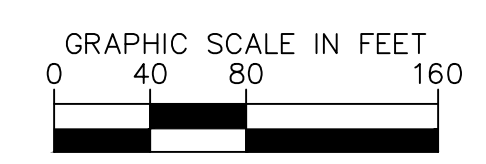
- GEC LEGEND**
- LOD — LIMITS OF DISTURBANCE
 - XX — EXISTING MAJOR CONTOUR
 - XX — EXISTING MINOR CONTOUR
 - XX — PROPOSED MAJOR CONTOUR
 - XX — PROPOSED MINOR CONTOUR
 - SM — SEEDING AND MULCHING
 - EXISTING SLOPE ARROW
 - PROPOSED SLOPE ARROW

NOTES

1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
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11. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.
12. SEE SHEET 6 FOR EL PASO COUNTY SEED MIXTURE DETAILS.

LIMITS OF DISTURBANCE

ONSITE DISTURBANCE	= ±48.10 ACRES
OFFSITE DISTURBANCE	= ±0.00 ACRES
TOTAL	= ±48.10 ACRES



MATCHLINE - SEE SHEET 24

NO. _____ BY _____ DATE _____
 REVISION _____

Kimley»Horn
 2025 KIMLEY-HORN AND ASSOCIATES, INC.
 2 North Nevada Avenue Suite 900
 Colorado Springs, Colorado 80903 (719) 453-0180

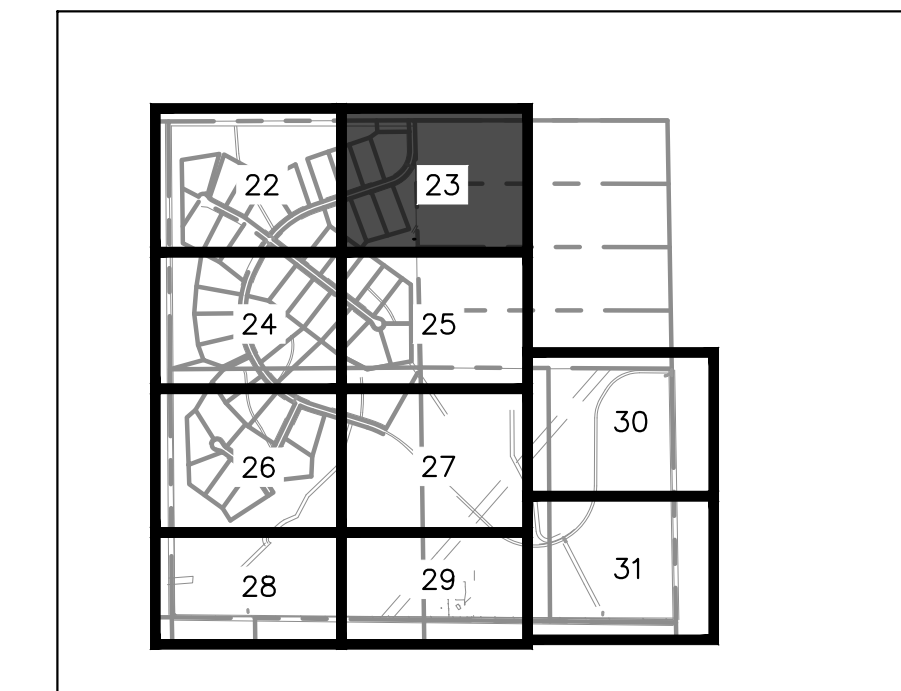
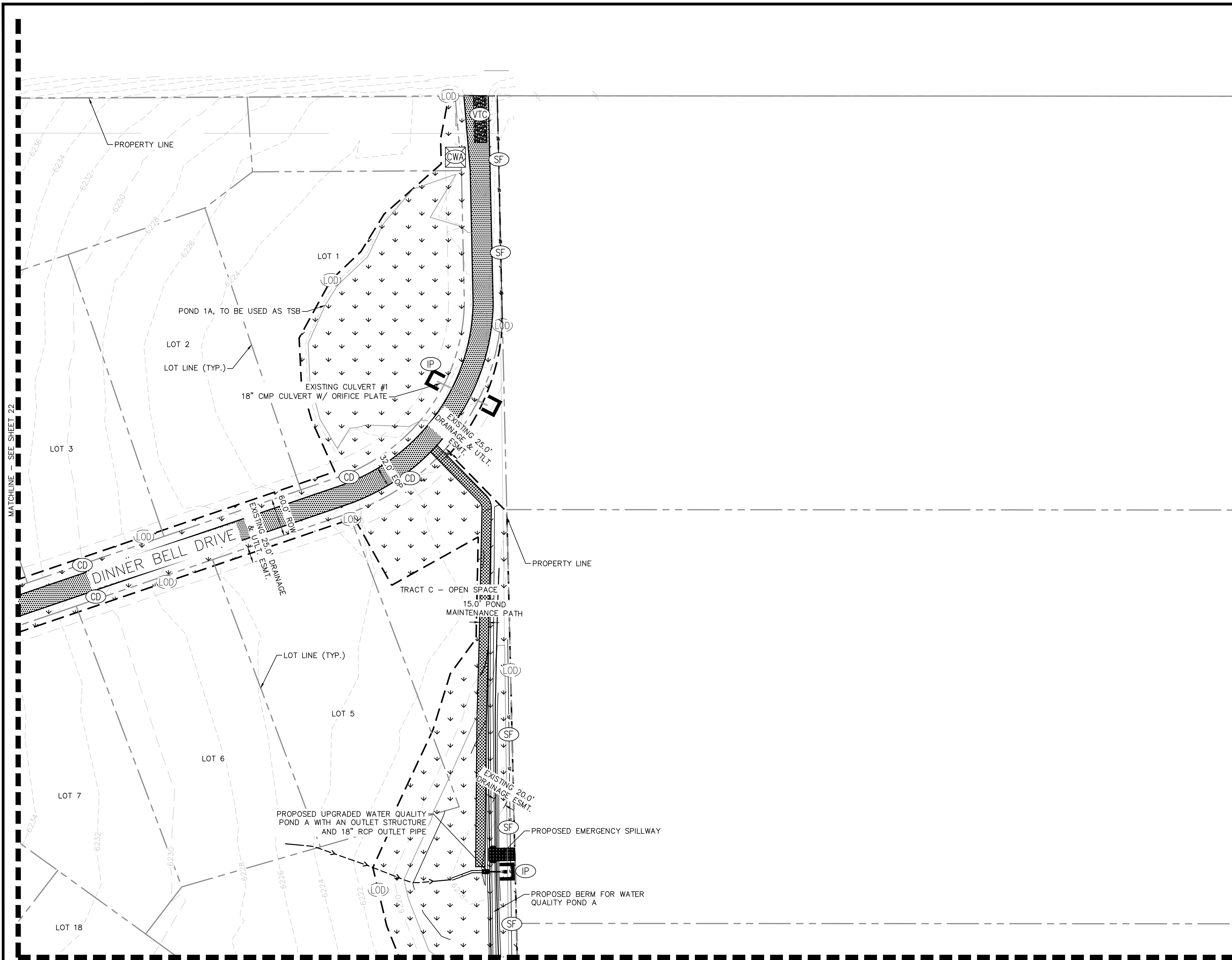
DESIGNED BY: MEL
 DRAWN BY: MEL
 CHECKED BY: KRK
 DATE: 4/1/26

TANNER RANCH FILING NO. 1
 EL PASO COUNTY, COLORADO
 GRADING AND EROSION CONTROL PLANS
 FINAL GEC PLAN

PRELIMINARY
 FOR REVIEW ONLY
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 CONSTRUCTION
 Kimley»Horn
 Kimley-Horn and Associates, Inc.

PROJECT NO.
 296172000
 SHEET
 22

K:\COS_LA\296172000-Tanner Ranch\CADD\PlanSheets\GEC\FINAL.dwg Olesen, Maria (Langer) 4/1/2026 11:30 AM



KEYMAP
SCALE: 1" = 2000'

- LEGEND**
- PROPERTY LINE
 - - - PR. LOT LINE
 - - - RIGHT-OF-WAY LINE
 - - - EX. EASEMENT LINE
 - - - PR. EASEMENT LINE
 - - - PR. EDGE OF GRAVEL ROAD
 - - - EX. EDGE OF GRAVEL ROAD
 - - - ROAD CENTER LINE
 - BASE FLOOD ELEVATION
 - REGULATORY FLOODWAY LINE WITHIN ZONE AE
 - PROPOSED PAVEMENT

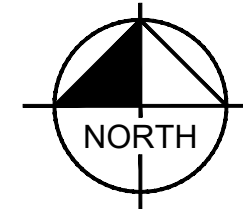
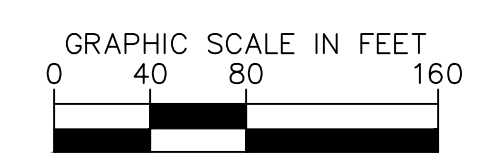
- GEC LEGEND**
- LOD --- LIMITS OF DISTURBANCE
 - - - XX - - - EXISTING MAJOR CONTOUR
 - - - XX - - - EXISTING MINOR CONTOUR
 - - - XX - - - PROPOSED MAJOR CONTOUR
 - - - XX - - - PROPOSED MINOR CONTOUR
 - SM --- SEEDING AND MULCHING
 - EXISTING SLOPE ARROW
 - PROPOSED SLOPE ARROW

NOTES

1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
2. ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
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12. SEE SHEET 6 FOR EL PASO COUNTY SEED MIXTURE DETAILS.

LIMITS OF DISTURBANCE

ONSITE DISTURBANCE	= ±48.10 ACRES
OFFSITE DISTURBANCE	= ±0.00 ACRES
TOTAL	= ±48.10 ACRES



MATCHLINE - SEE SHEET 25

NO.	REVISION	BY	DATE	APPR.

Kimley»Horn
2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

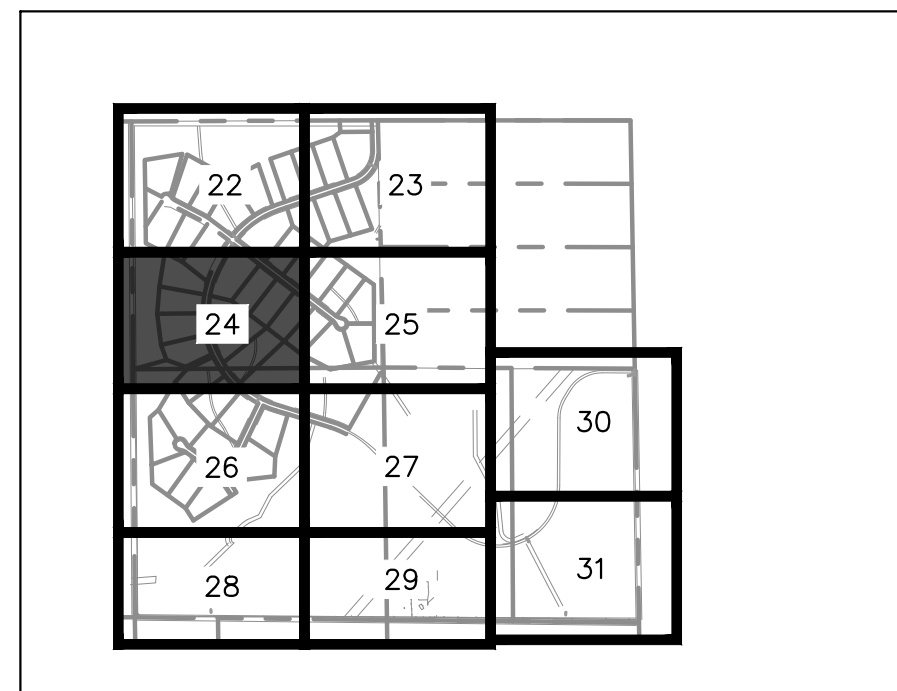
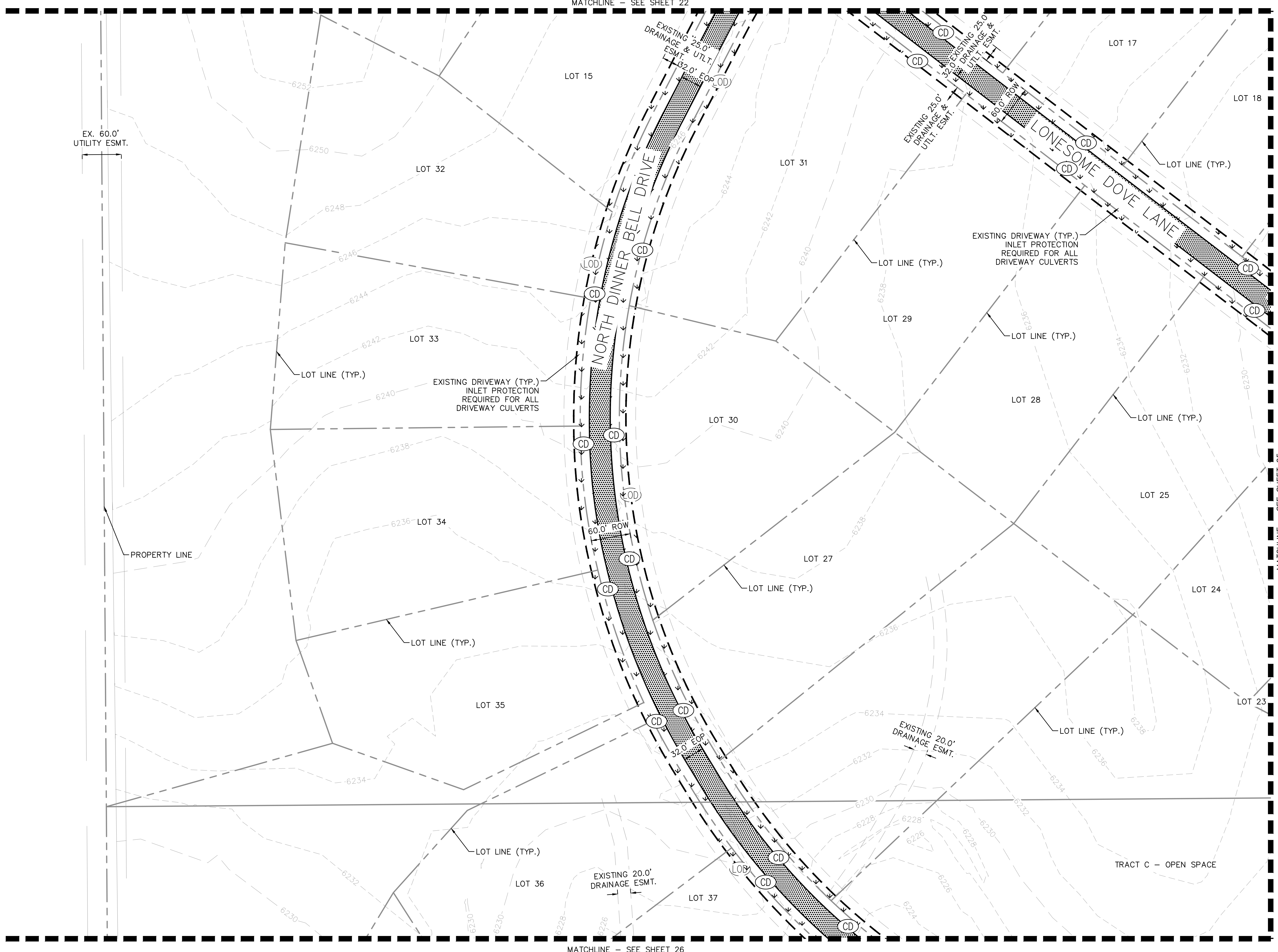
DESIGNED BY: MEL
DRAWN BY: MEL
CHECKED BY: KKK
DATE: 4/1/26

**TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
FINAL GEC PLAN**

PRELIMINARY
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PROJECT NO.
296172000
SHEET
23

K:\COS_LA\296172000-Tanner Ranch\CAD\PlanSheets\GEC\GEC_FINAL.dwg Olesen, Maria (Langer) 4/1/2026 11:30 AM



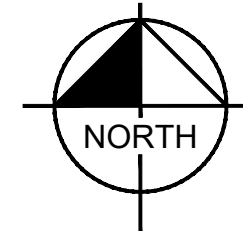
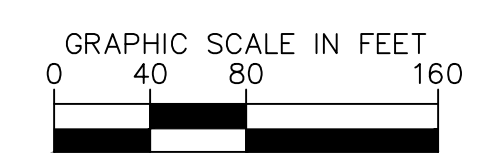
- LEGEND**
SCALE: 1" = 2000'
- PROPERTY LINE
 - PR. LOT LINE
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 - EX. EASEMENT LINE
 - PR. EASEMENT LINE
 - PR. EDGE OF GRAVEL ROAD
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- GEC LEGEND**
- LIMITS OF DISTURBANCE
 - EXISTING MAJOR CONTOUR
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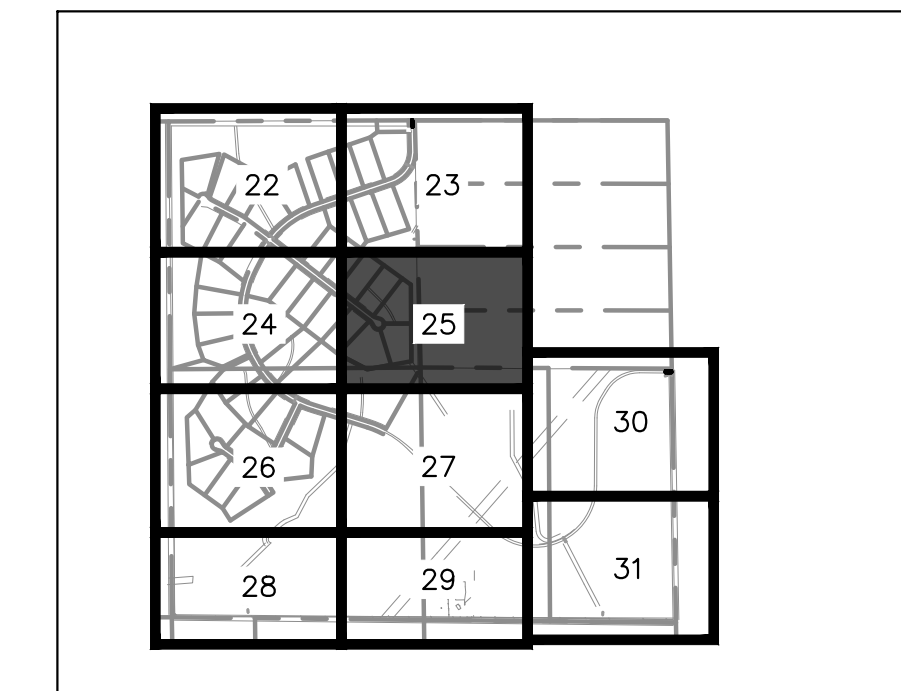
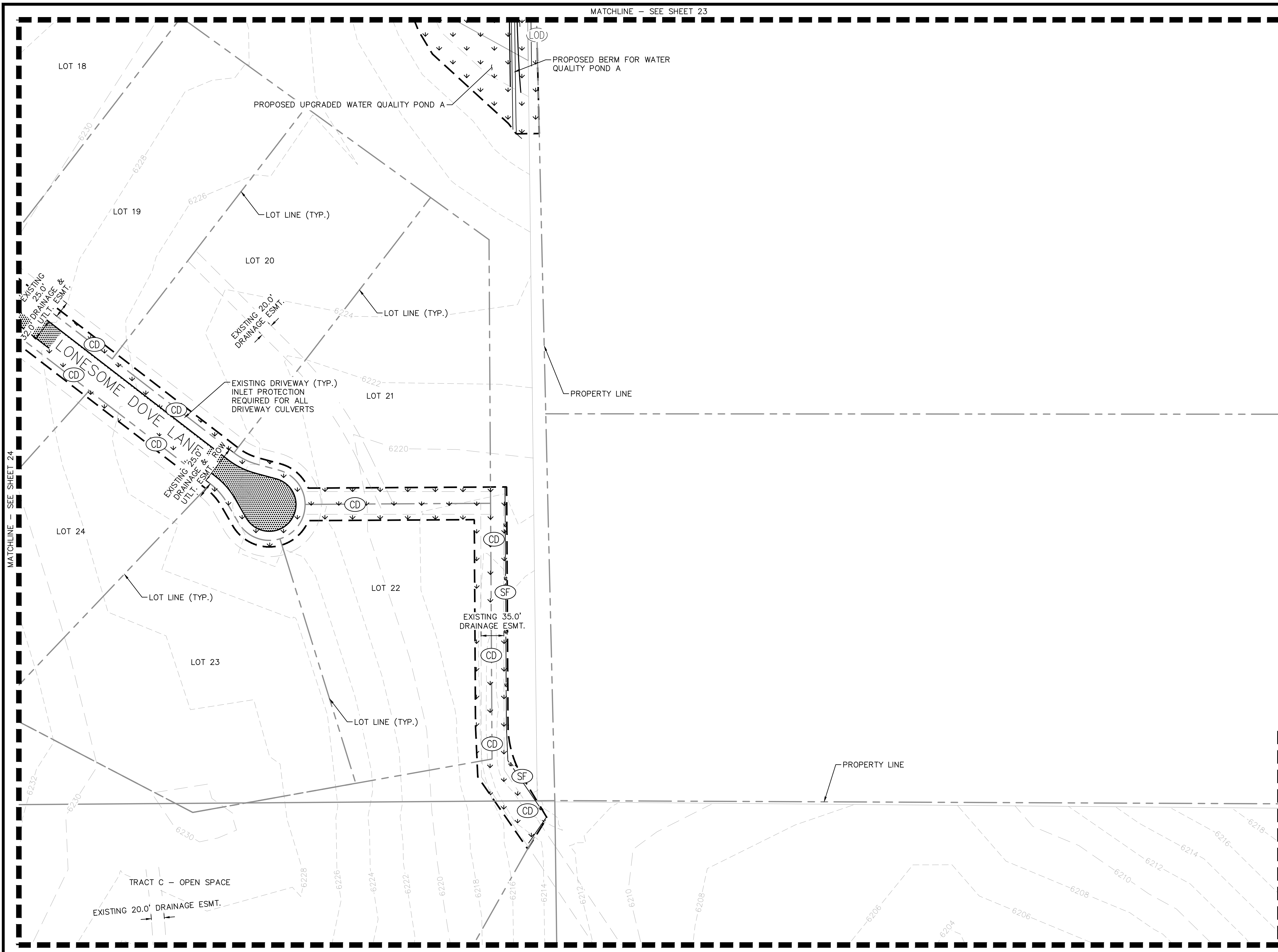
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GRADING AND EROSION CONTROL PLANS
FINAL GEC PLAN

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PROJECT NO.
296172000
SHEET
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NO.	REVISION	BY	DATE	APPR.

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KEYMAP
SCALE: 1" = 2000'

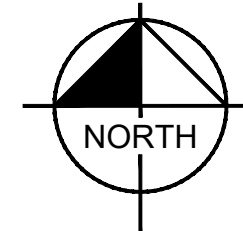
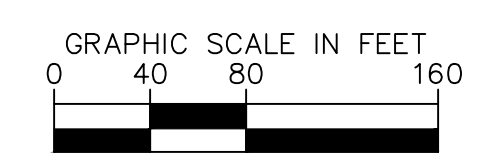
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- GEC LEGEND**
- (LOD)— LIMITS OF DISTURBANCE
 - XX— EXISTING MAJOR CONTOUR
 - XX— EXISTING MINOR CONTOUR
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LIMITS OF DISTURBANCE

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OFFSITE DISTURBANCE	= ±0.00 ACRES
TOTAL	= ±48.10 ACRES



NO.	REVISION	BY	DATE	APPR.

Kimley»Horn
2025 KIMLEY-HORN AND ASSOCIATES, INC.
2 North Nevada Avenue Suite 900
Colorado Springs, Colorado 80903 (719) 453-0180

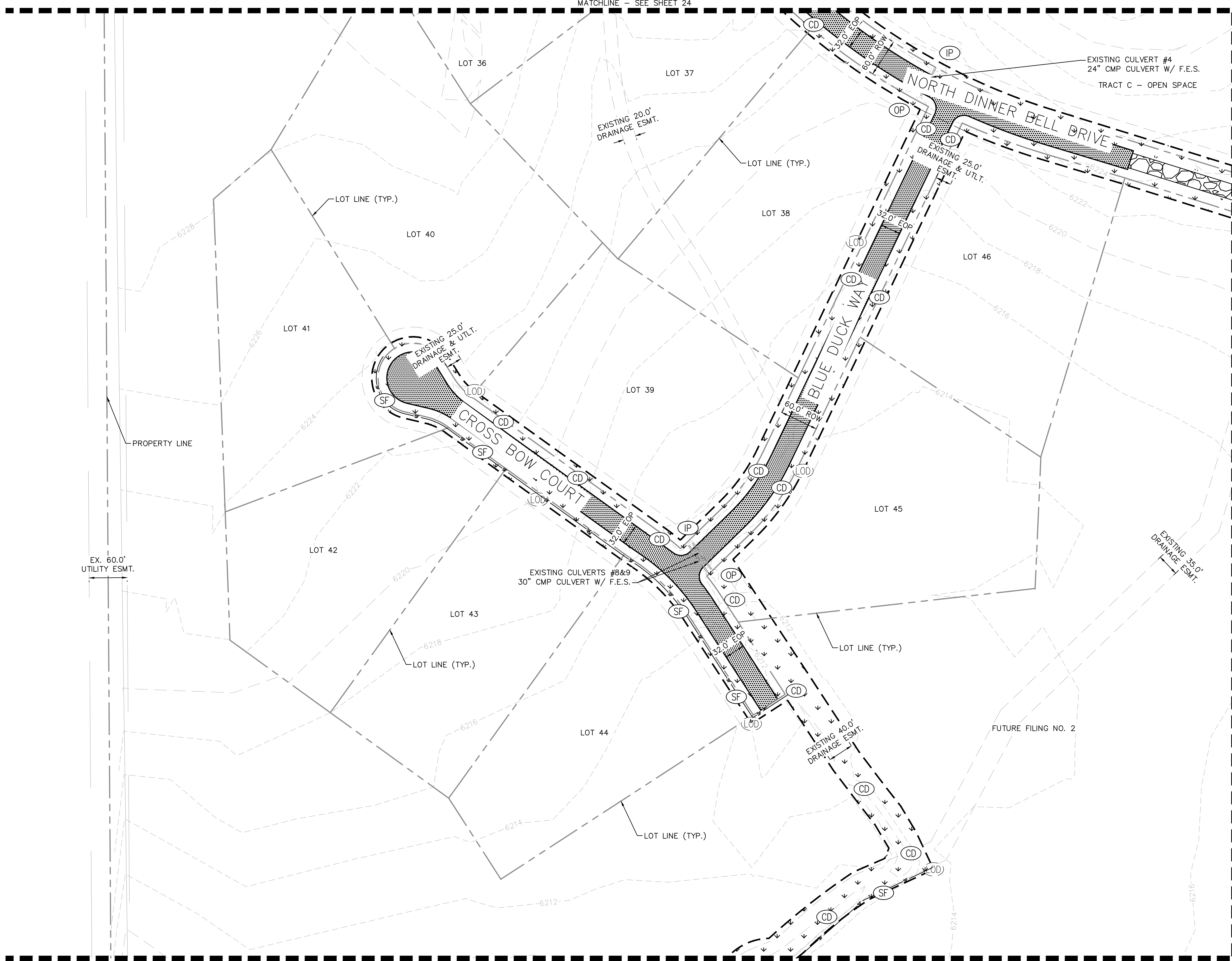
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DRAWN BY: MEL
CHECKED BY: KRK
DATE: 4/1/26

**TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
FINAL GEC PLAN**

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

PROJECT NO.
296172000
SHEET
25

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KEYMAP
SCALE: 1" = 2000'

- LEGEND**
- PROPERTY LINE
 - PR. LOT LINE
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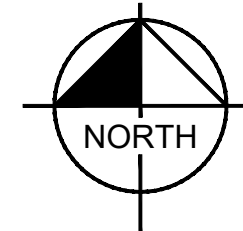
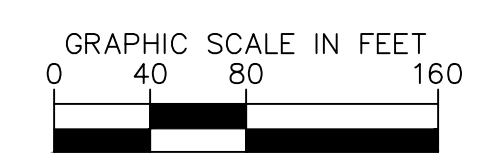
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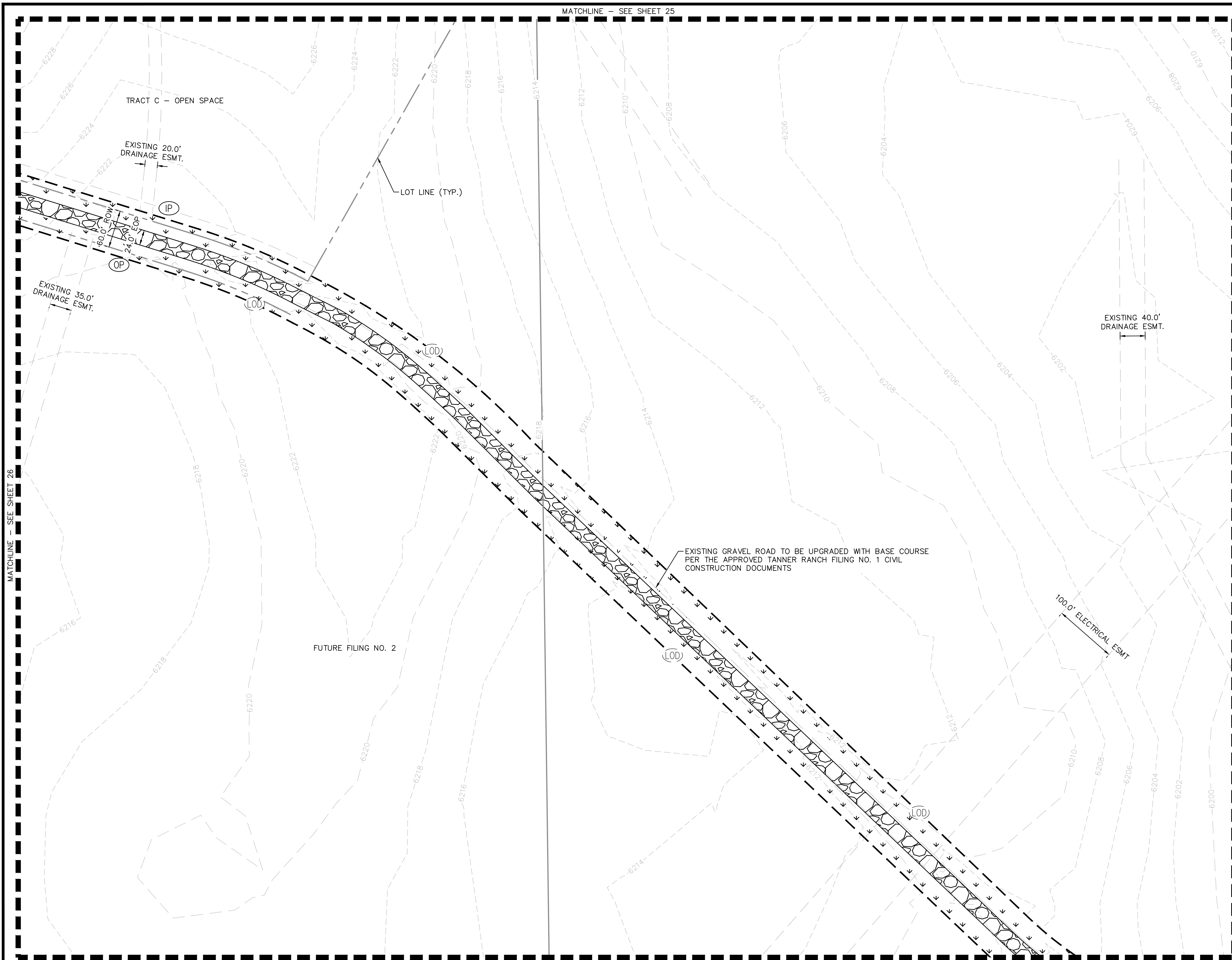
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CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES



<p>Kimley»Horn 2025 KIMLEY-HORN AND ASSOCIATES, INC. 2 North Nevada Avenue Suite 900 Colorado Springs, Colorado 80903 (719) 453-0180</p>	<p>DESIGNED BY: MEL DRAWN BY: MEL CHECKED BY: KRK DATE: 4/1/26</p>
<p>TANNER RANCH FILING NO. 1 EL PASO COUNTY, COLORADO GRADING AND EROSION CONTROL PLANS FINAL GEC PLAN</p>	
<p>PRELIMINARY FOR REVIEW ONLY NOT FOR CONSTRUCTION</p>	
<p>PROJECT NO. 296172000</p>	
<p>SHEET 26</p>	
<p>NO. REVISION BY DATE APPR.</p>	

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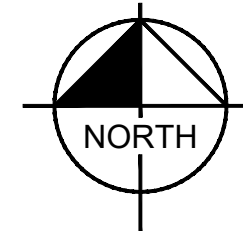
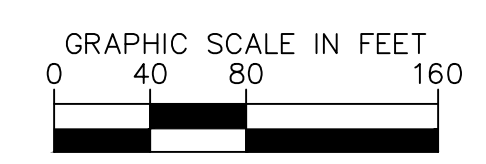
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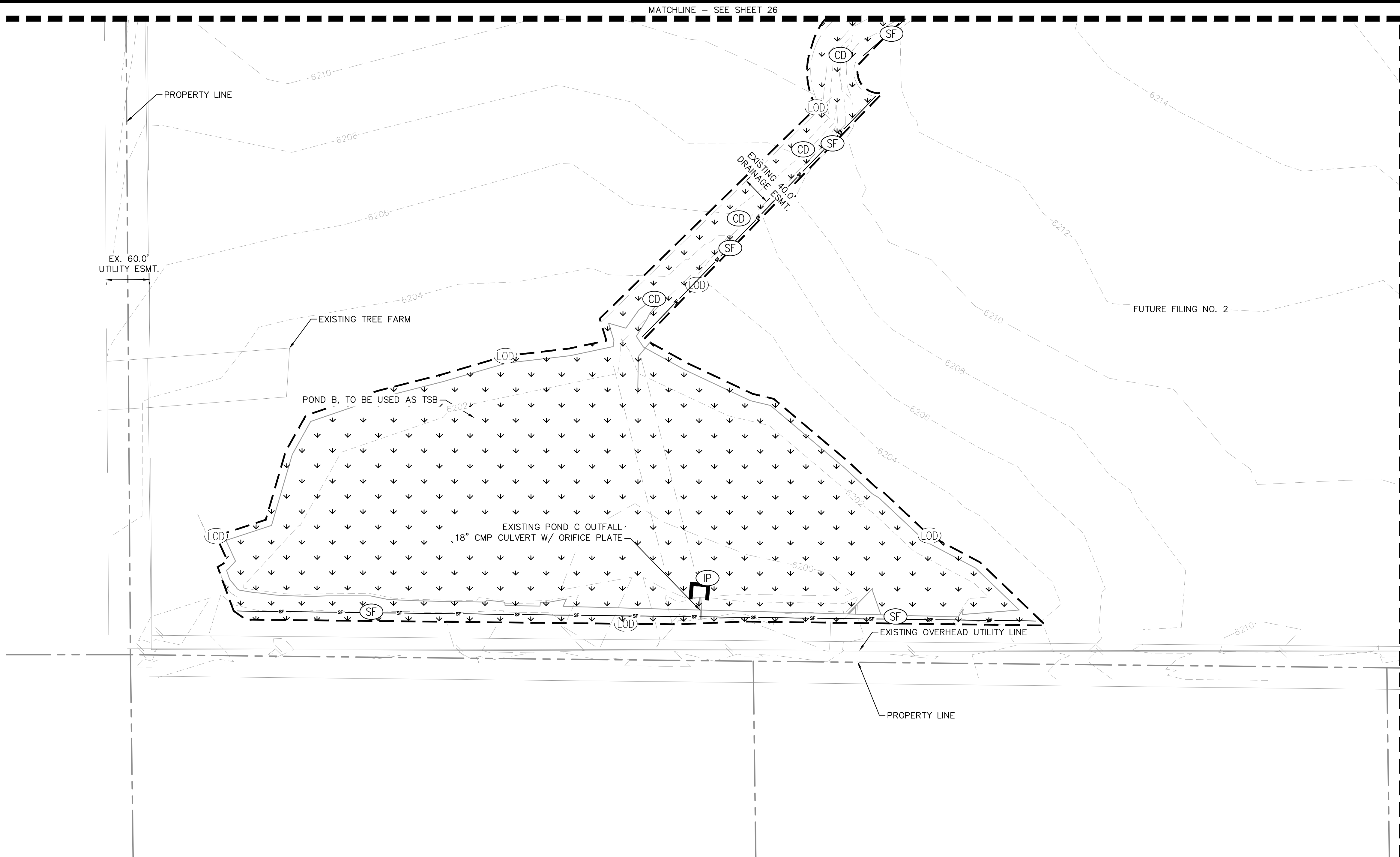
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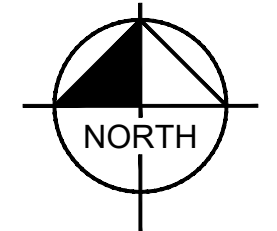
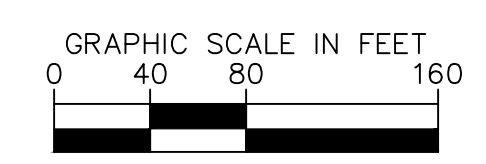
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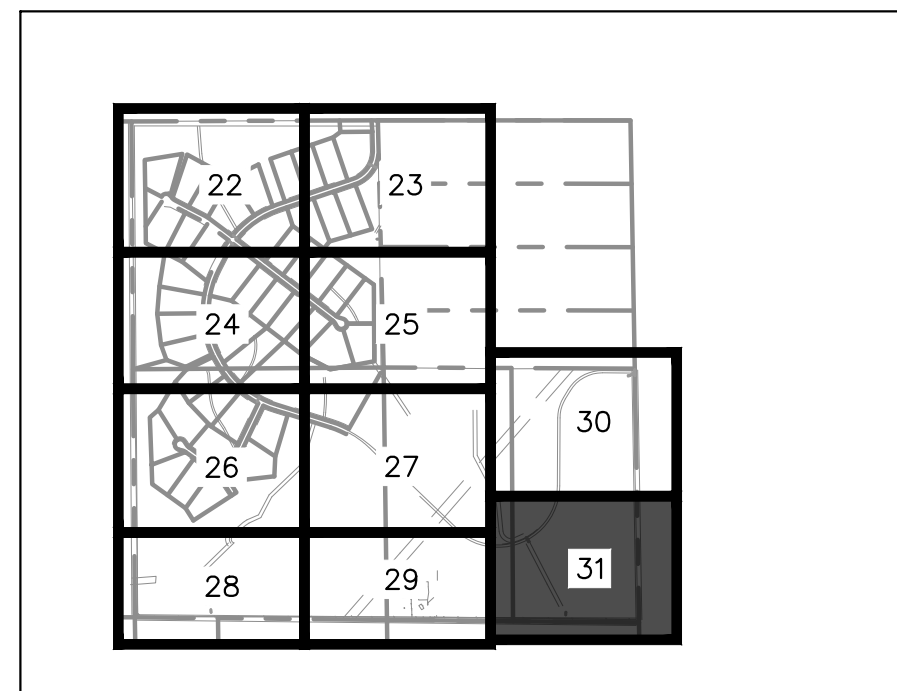
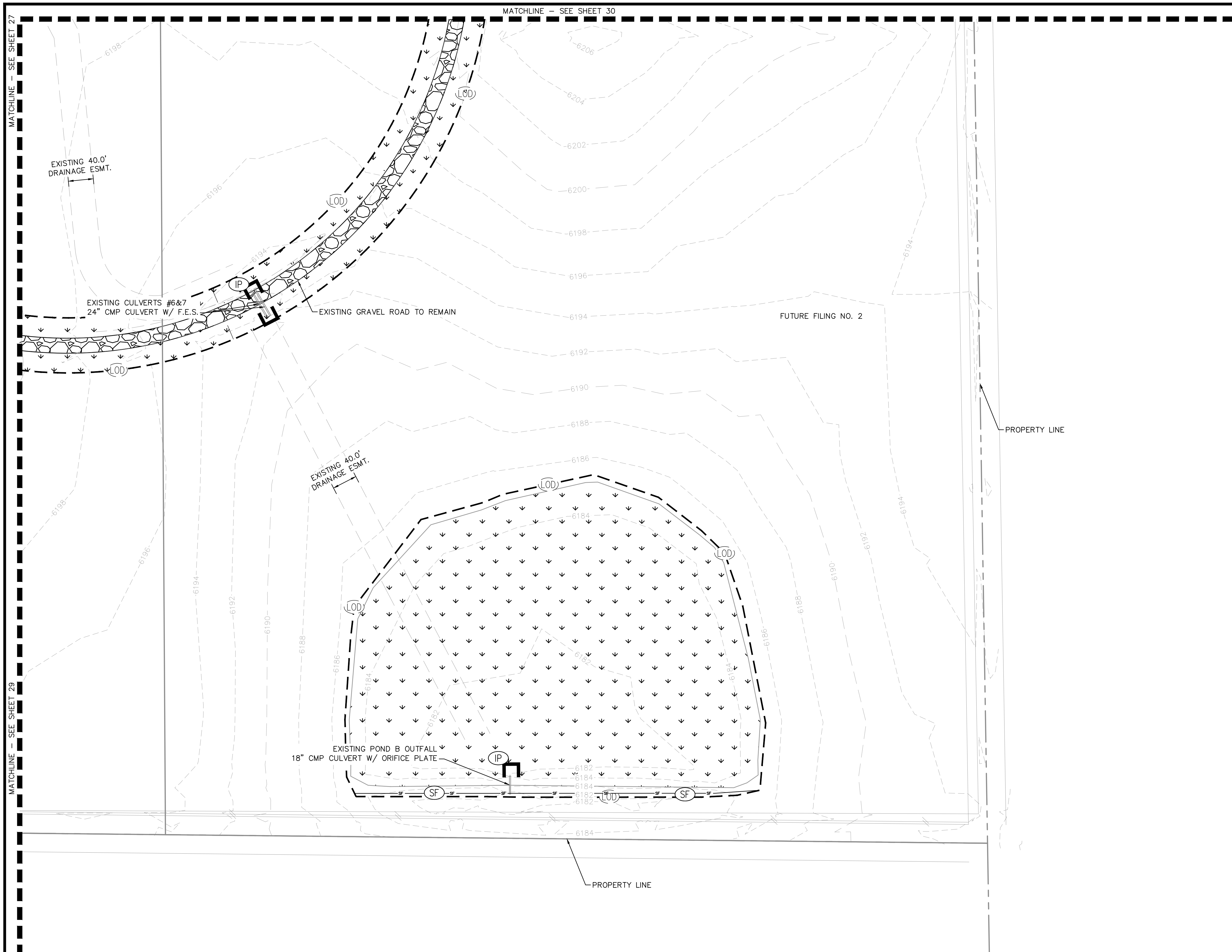
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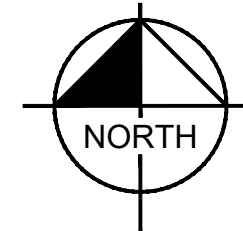
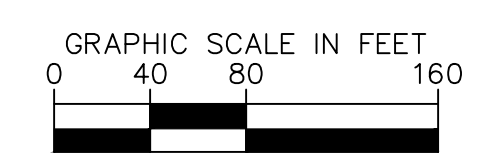
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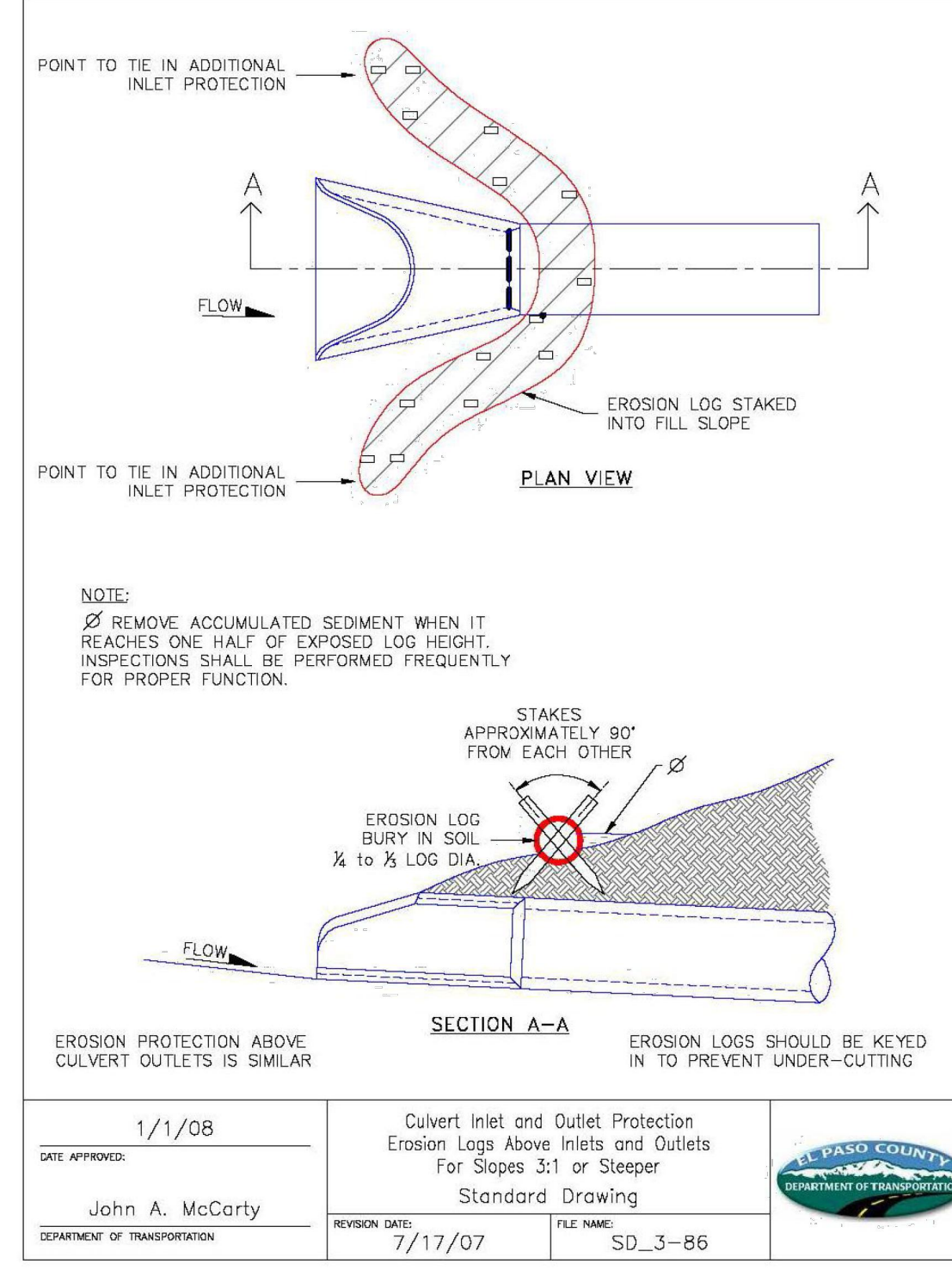
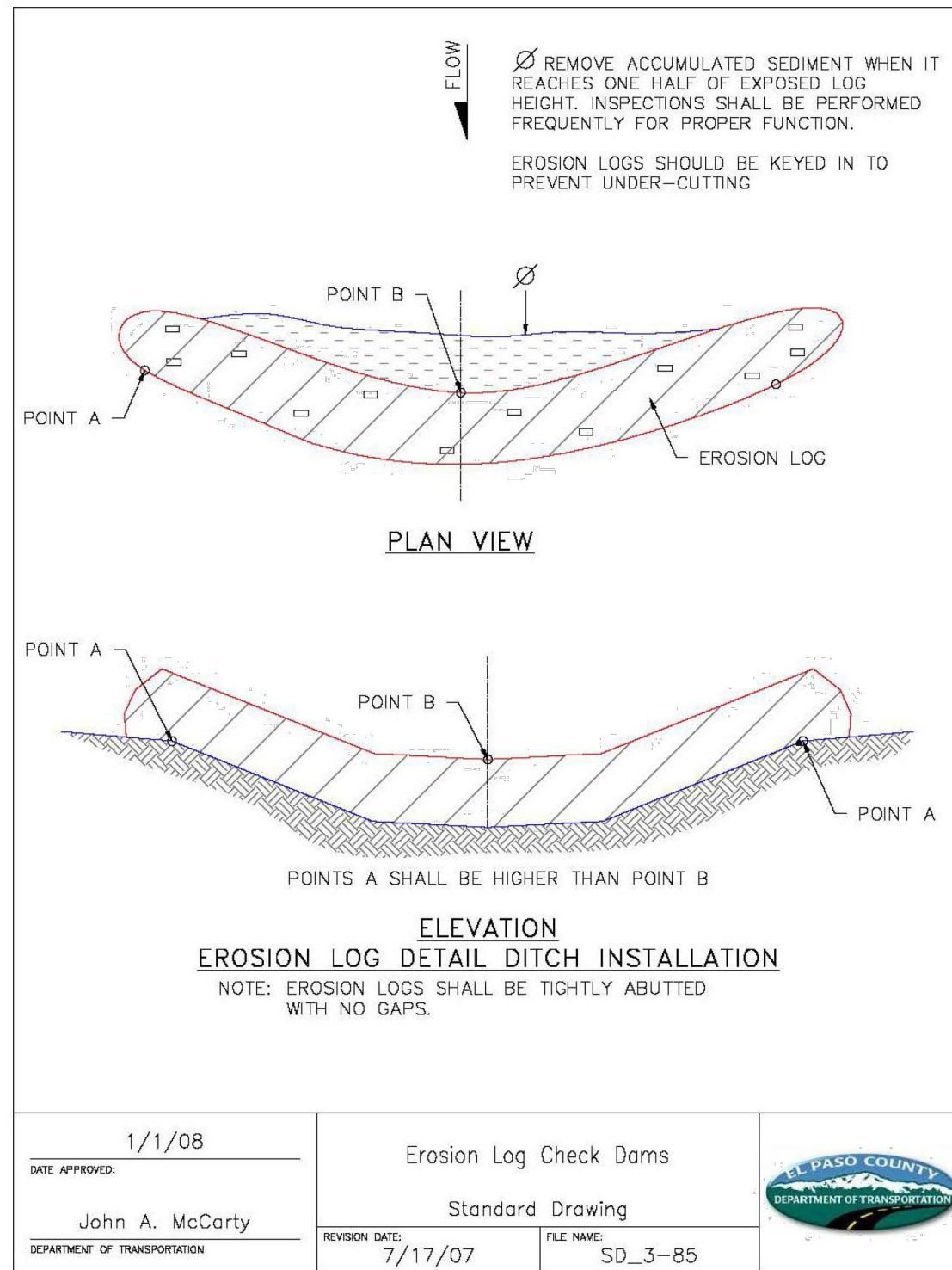
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APPR.	APPR.



Check Dams (CD)

Description

Check dams are temporary grade control structures placed in drainage channels to limit the erosivity of stormwater by reducing flow velocity. Check dams are typically constructed from rock, gravel bags, sand bags, or sometimes, proprietary devices. Reinforced check dams are typically constructed from rock and wire gabion. Although the primary function of check dams is to reduce the velocity of concentrated flows, a secondary benefit is sediment trapping upstream of the structure.



Appropriate Uses

- Use as a grade control for temporary drainage ditches or swales until final soil stabilization measures are established upstream and downstream. Check dams can be used on mild or moderately steep slopes. Check dams may be used under the following conditions:
 - As temporary grade control facilities along waterways until final stabilization is established.
 - Along permanent swales that need protection prior to installation of a non-erodible lining.
 - Along temporary channels, ditches or swales that need protection where construction of a non-erodible lining is not practicable.
- Reinforced check dams should be used in areas subject to high flow velocities.

Design and Installation

Place check dams at regularly spaced intervals along the drainage swale or ditch. Check dam heights should allow for pools to develop upstream of each check dam, extending to the downstream toe of the check dam immediately upstream.

When rock is used for the check dam, place rock mechanically or by hand. Do not dump rocks into the drainage channel. Where multiple check dams are used, the top of the lower dam should be at the same elevation as the toe of the upper dam.

When reinforced check dams are used, install erosion control fabric under and around the check dam to prevent erosion on the upstream and downstream sides. Each section of the dam should be keyed in to reduce the potential for washout or undermining. A rock apron upstream and downstream of the dam may be necessary to further control erosion.

Check Dams	
Functions:	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CD-1

EC-12 Check Dams (CD)

Description

- Check dams with notes are provided for the following types of check dams:
 - Rock Check Dams (CD-1)
 - Reinforced Check Dams (CD-2)

Maintenance and Removal

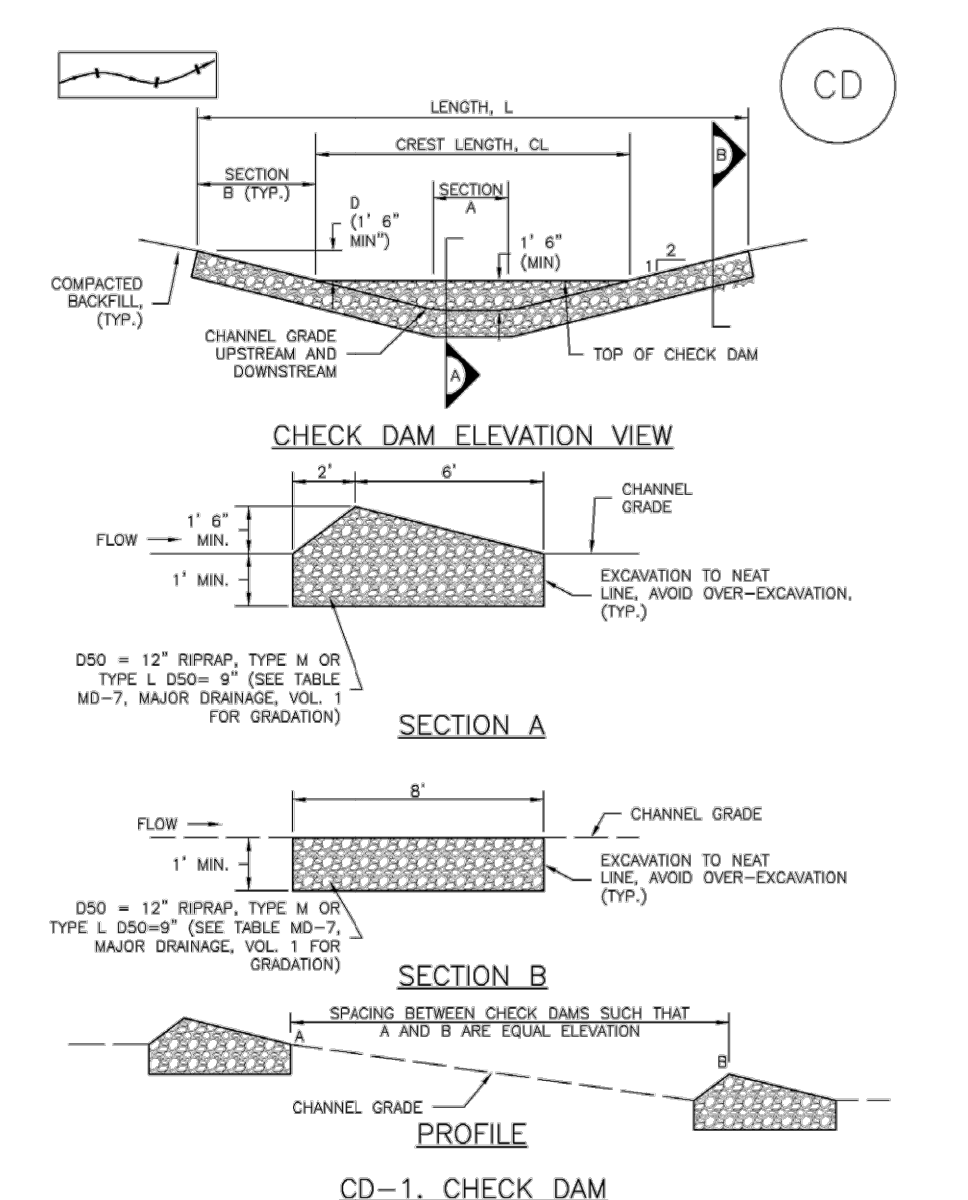
Replace missing rocks causing voids in the check dam. If gravel bags or sandbags are used, replace or repair torn or displaced bags.

Remove accumulated sediment, as needed to maintain BMP effectiveness, typically before the sediment depth upstream of the check dam is within 1/2 of the crest height. Remove accumulated sediment prior to mulching, seeding, or chemical soil stabilization. Removed sediment can be incorporated into the earthwork with approval from the Project Engineer, or disposed of at an alternate location in accordance with the standard specifications.

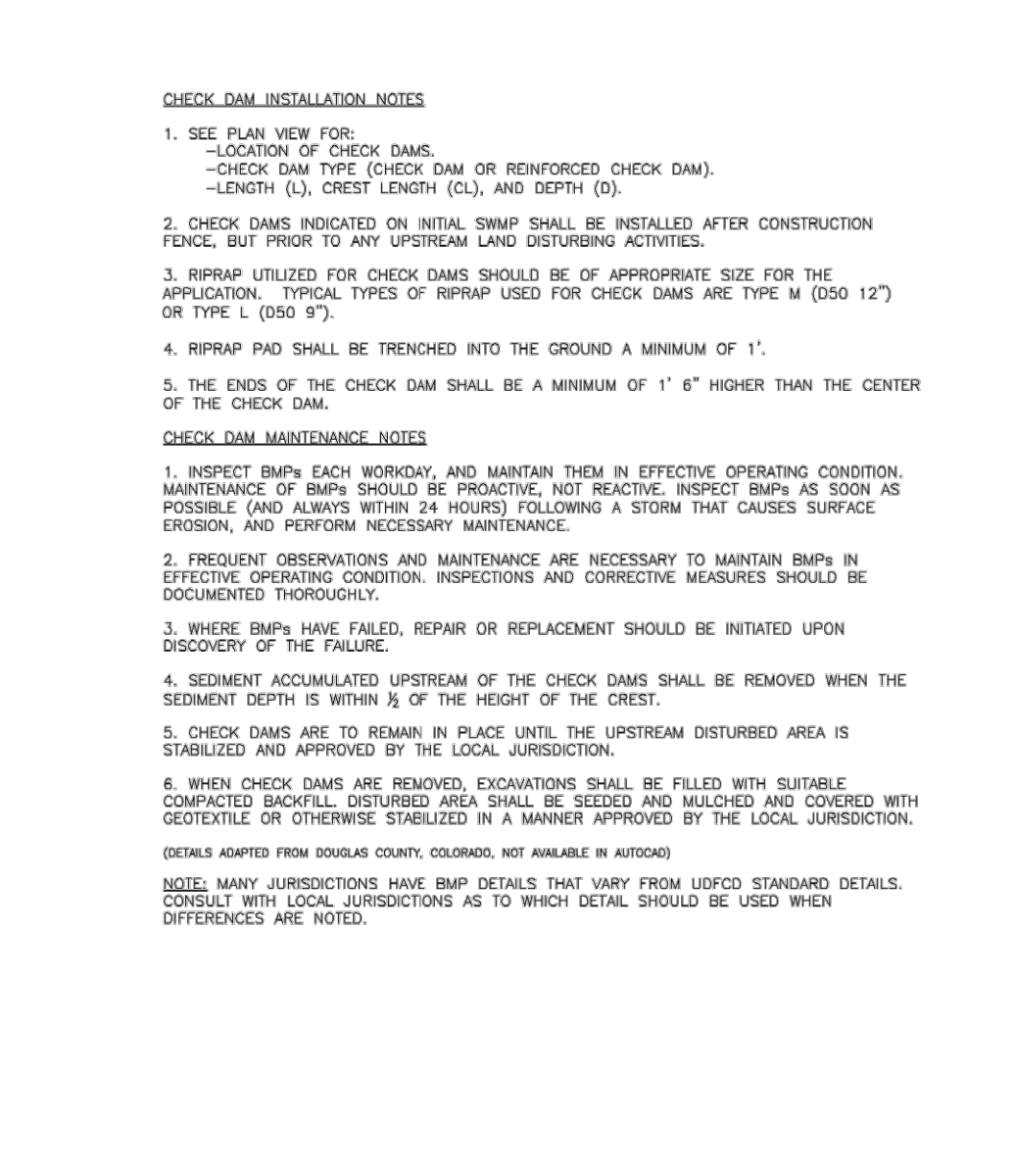
Check dams constructed in permanent swales should be removed when perennial grasses have become established, or immediately prior to installation of a non-erodible lining. All of the rock and accumulated sediment should be removed, and the area seeded and mulched, or otherwise stabilized.

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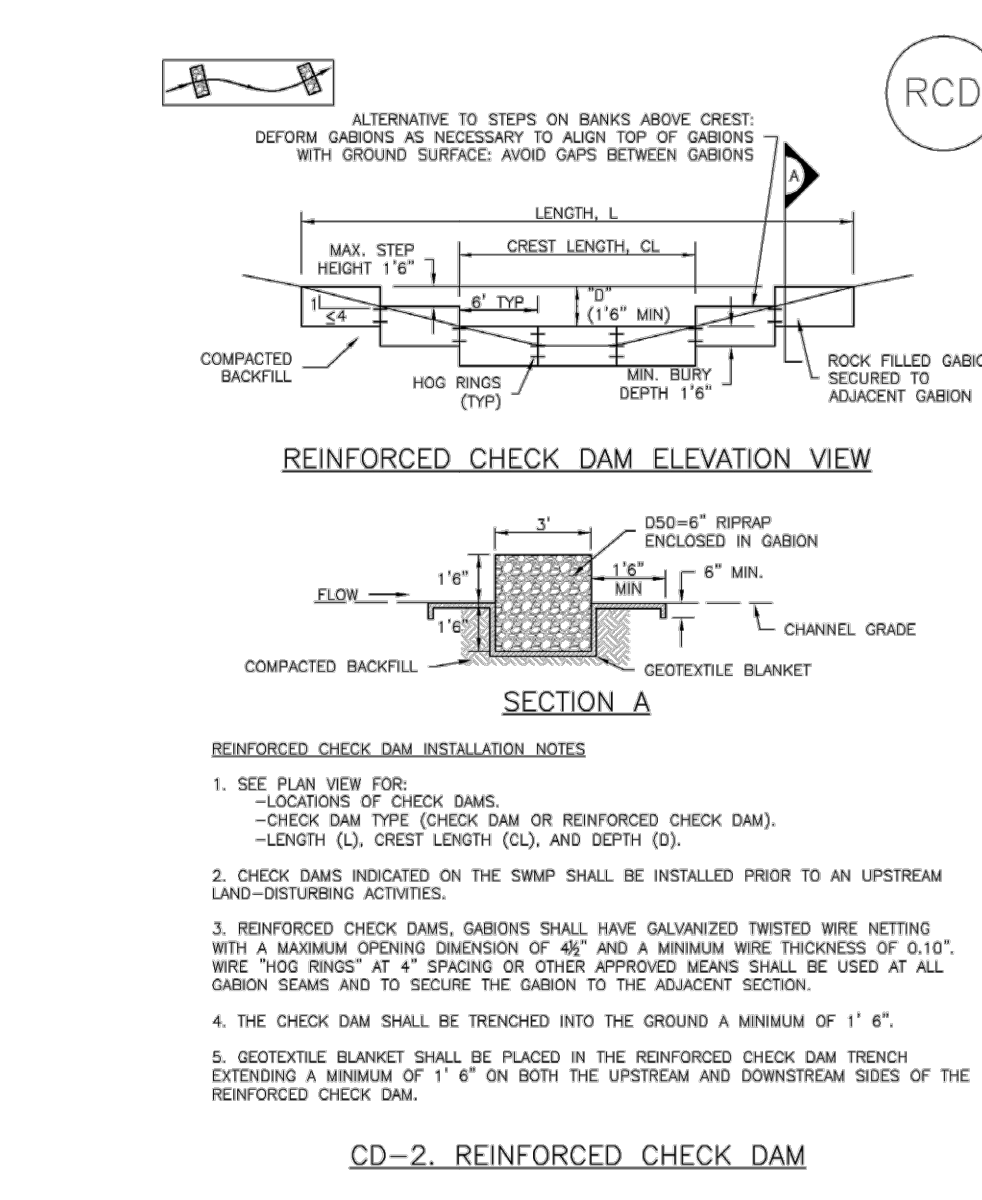
Check Dams (CD) EC-12



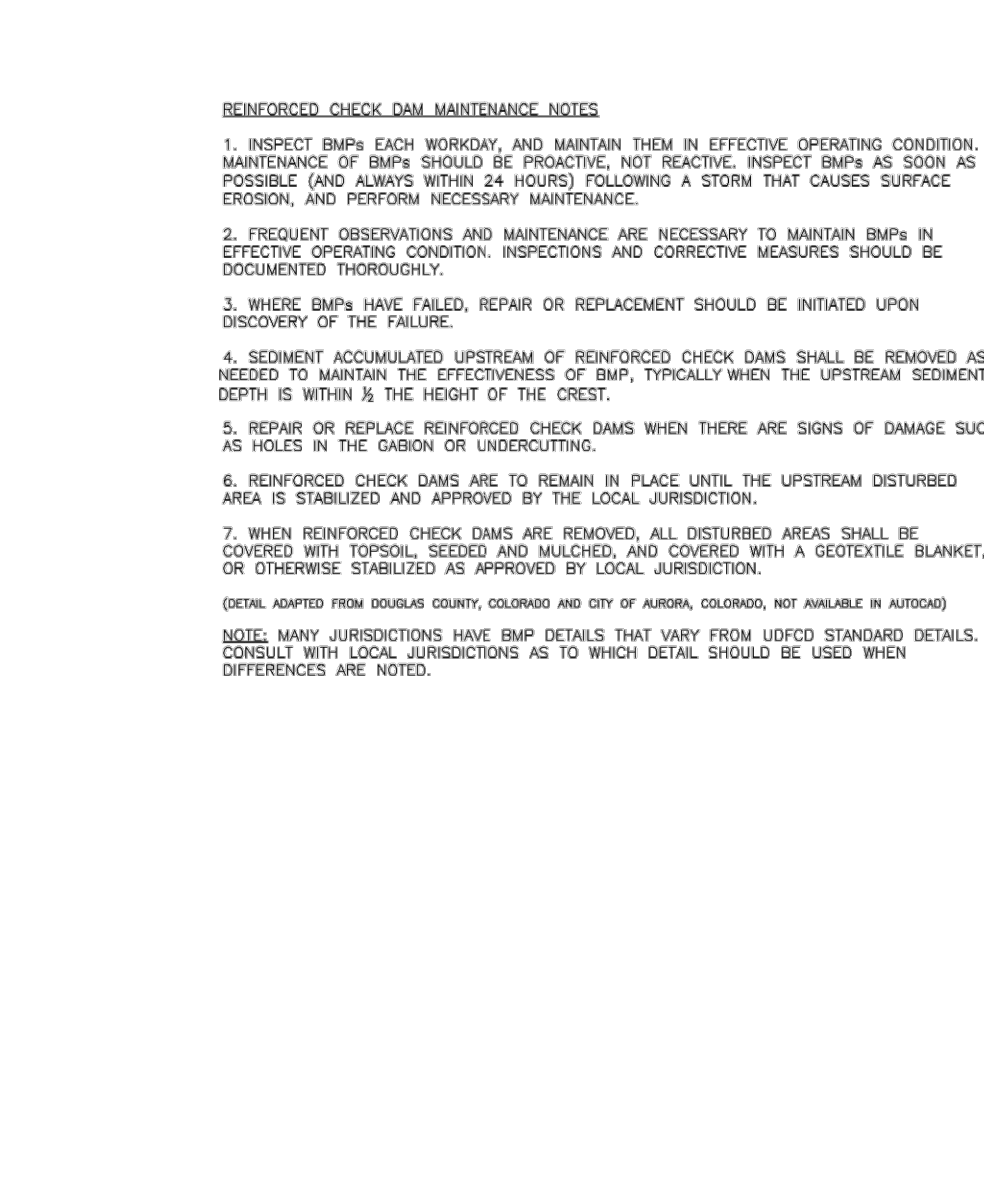
EC-12 Check Dams (CD)



Check Dams (CD) EC-12



EC-12 Check Dams (CD)



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

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

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

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NO.	REVISION	BY	DATE	APPR.

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 CHECKED BY: KRR
 DATE: 4/1/26

TANNER RANCH FILING NO. 1
 EL PASO COUNTY, COLORADO
 GRADING AND EROSION CONTROL PLANS
 GEC-DETAILS

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Construction Fence (CF) SM-3

Description

A construction fence restricts site access to designated entrances and exits, delineates construction site boundaries, and keeps construction out of sensitive areas such as natural areas to be preserved as open space, wetlands and riparian areas.



Photograph CF-1. A construction fence helps delineate areas where existing vegetation is being protected. Photo courtesy of Douglas County.

Appropriate Uses

A construction fence can be used to delineate the site perimeter and locations within the site where access is restricted to protect natural resources such as wetlands, waterbodies, trees, and other natural areas of the site that should not be disturbed.

If natural resource protection is an objective, then the construction fencing should be used in combination with other perimeter control BMPs such as silt fence, sediment control logs or similar measures.

Design and Installation

Construction fencing may be chain link or plastic mesh and should be installed following manufacturer's recommendations. See Detail CF-1 for typical installations.

Do not place construction fencing in areas within work limits of machinery.

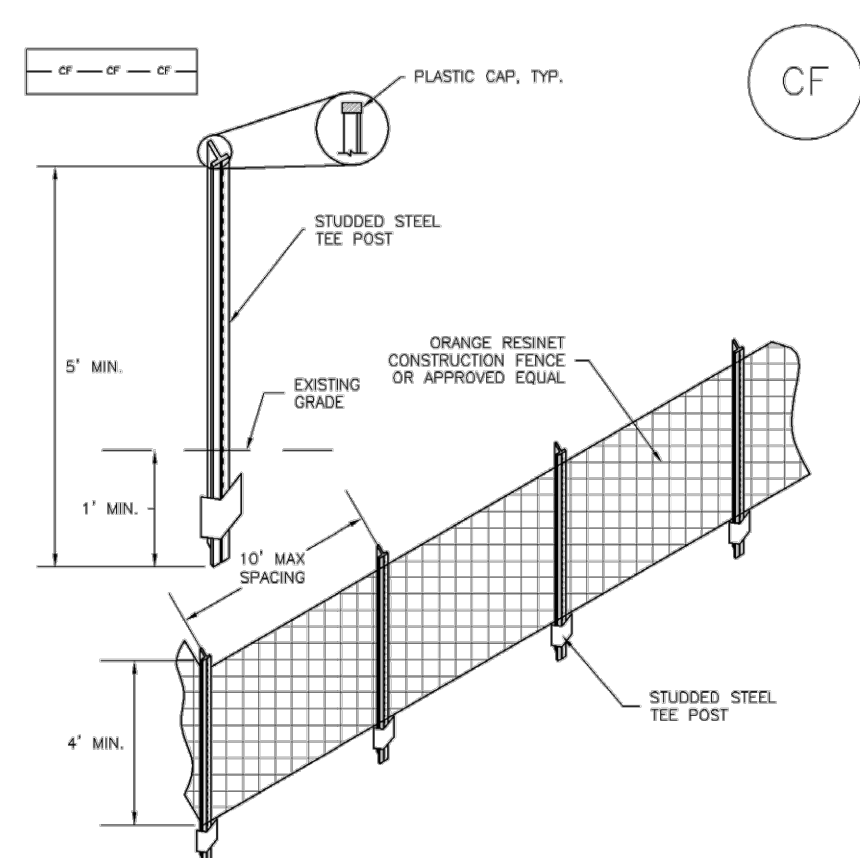
Maintenance and Removal

- Inspect fences for damage; repair or replace as necessary.
- Fencing should be tight and any areas with slumping or fallen posts should be reinstalled.
- Fencing should be removed once construction is complete.

Construction Fence	
Functions	
Erosion Control	No
Sediment Control	No
Site/Material Management	Yes

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SM-3 Construction Fence (CF)



CF-1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

- SEE PLAN VIEW FOR: -LOCATION OF CONSTRUCTION FENCE.
- CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRAST-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.
- STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.
- CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

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

Construction Fence (CF) SM-3

CONSTRUCTION FENCE 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.
 - CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPRISUM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
 - WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEED, AND MULCH, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDFD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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Concrete Washout Area (CWA) MM-1

Description

Concrete waste management involves designating and properly managing a specific area of the construction site as a concrete washout area. A concrete washout area can be created using one of several approaches designed to receive wash water from washing of tools and concrete mixer chutes, liquid concrete waste from dump trucks, mobile batch mixers, or pump trucks. Three basic approaches are available: excavation of a pit in the ground, use of an above ground storage area, or use of prefabricated haul-away concrete washout containers. Surface discharges of concrete washout water from construction sites are prohibited.



Photograph CWA-1. Example of concrete washout area. Note gravel tracking pad for access and sign.

Appropriate Uses

Concrete washout areas must be designated on all sites that will generate concrete wash water or liquid concrete waste from onsite concrete mixing or concrete delivery.

Because pH is a pollutant of concern for washout activities, when unlined pits are used for concrete washout, the soil must have adequate buffering capacity to result in protection of state groundwater standards; otherwise, a liner/containment must be used. The following management practices are recommended to prevent an impact from unlined pits to groundwater:

- The use of the washout site should be temporary (less than 1 year), and
- The washout site should be not be located in an area where shallow groundwater may be present, such as near natural drainages, springs, or wetlands.

Design and Installation

Concrete washout activities must be conducted in a manner that does not contribute pollutants to surface waters or stormwater runoff. Concrete washout areas may be lined or unlined excavated pits in the ground, commercially manufactured prefabricated washout containers, or aboveground holding areas constructed of berms, sandbags or straw bales with a plastic liner.

Although unlined washout areas may be used, lined pits may be required to protect groundwater under certain conditions.

Do not locate an unlined washout area within 400 feet of any natural drainage pathway or waterbody or within 1,000 feet of any wells or drinking water sources. Even for lined concrete washouts, it is advisable to locate the facility away from waterbodies and drainage paths. If site constraints make these

Concrete Washout Area	
Functions	
Erosion Control	No
Sediment Control	No
Site/Material Management	Yes

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MM-1 Concrete Washout Area (CWA)

setbacks infeasible or if highly permeable soils exist in the area, then the pit must be installed with an impermeable liner (16 mil minimum thickness) or surface storage alternatives using prefabricated concrete washout devices or a lined aboveground storage area should be used.

Design details with notes are provided in Detail CWA-1 for pits and CWA-2 for aboveground storage areas. Pre-fabricated concrete washout container information can be obtained from vendors.

Maintenance and Removal

A key consideration for concrete washout areas is to ensure that adequate signage is in place identifying the location of the washout area. Part of inspecting and maintaining washout areas is ensuring that adequate signage is provided and in good repair and that the washout area is being used, as opposed to washout in non-designated areas of the site.

Remove concrete waste in the washout area, as needed to maintain BMP function (typically when filled to about two-thirds of its capacity). Collect concrete waste and deliver offsite to a designated disposal location.

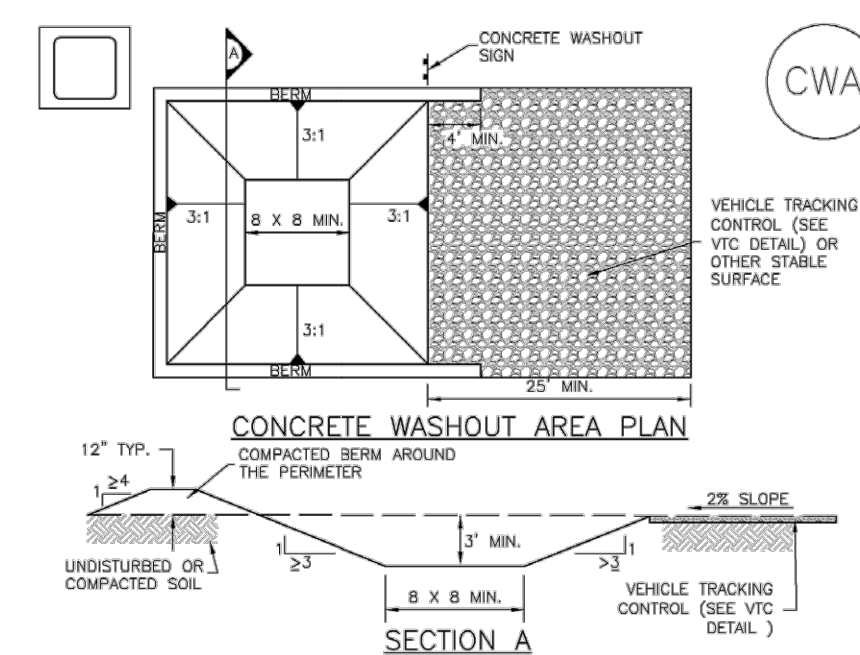
Upon termination of use of the washout site, accumulated solid waste, including concrete waste and any contaminated soils, must be removed from the site to prevent on-site disposal of solid waste. If the wash water is allowed to evaporate and the concrete hardens, it may be recycled.



Photograph CWA-2. Prefabricated concrete washout. Photo courtesy of CDOT. Photograph CWA-3. Earthen concrete washout. Photo courtesy of CDOT.

CWA-2 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

- SEE PLAN VIEW FOR: -CWA INSTALLATION LOCATION.
- 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 IMPROBABLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- 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.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND USUALLY AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

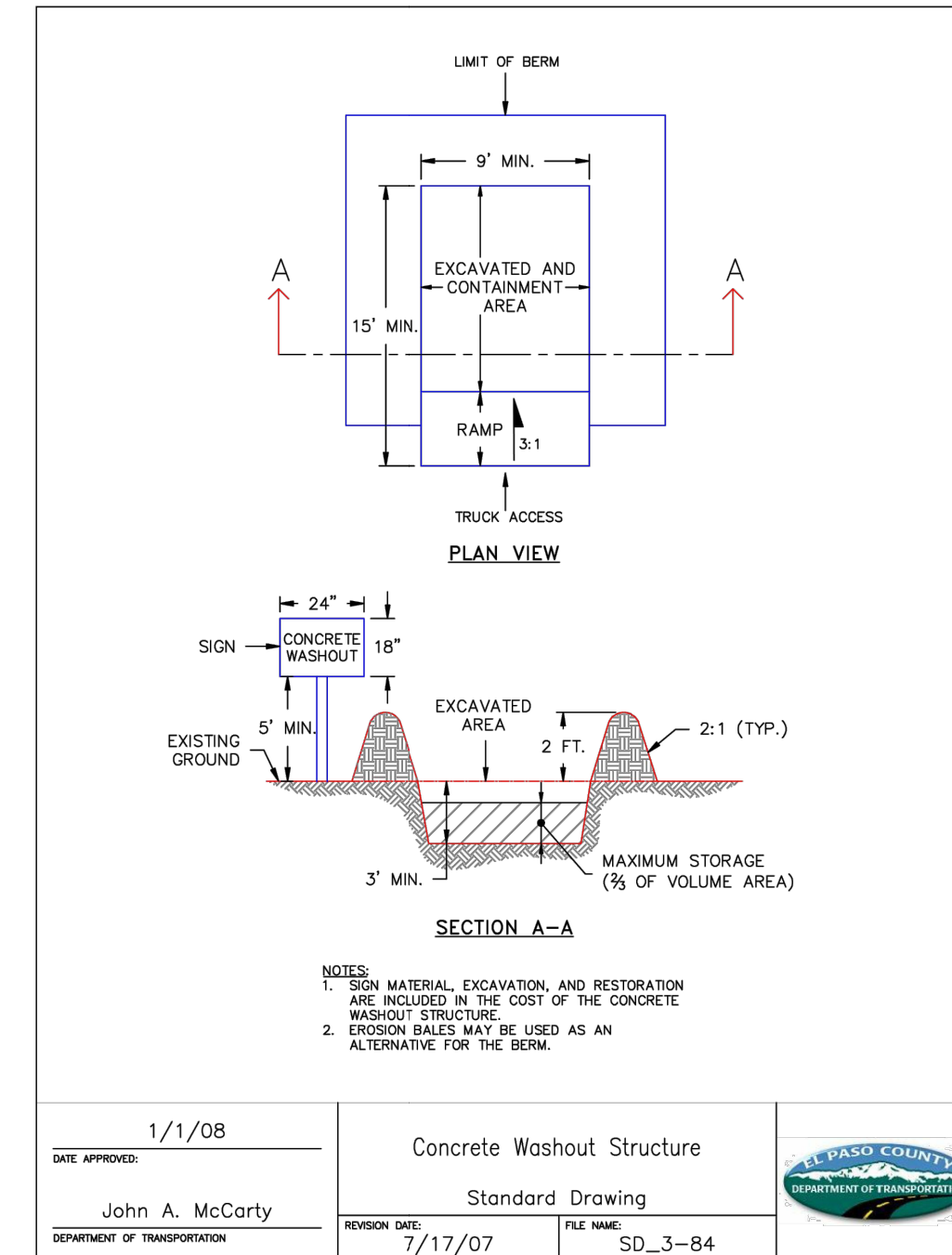
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MM-1 Concrete Washout Area (CWA)

CWA 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.
 - 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'.
 - 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.
 - THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
 - 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 USDFD 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 Urban Storm Drainage Criteria Manual Volume 3 November 2010



DATE APPROVED: 1/1/08	CONCRETE WASHOUT STRUCTURE	
DESIGNED BY: John A. McCarty	Standard Drawing	
GOVERNMENT OF TRANSPORTATION	REVISION DATE: 7/17/07 FILE NAME: SD_3-84	

NO.	REVISION	BY	DATE	APPR.

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 CHECKED BY: KRK
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 EL PASO COUNTY, COLORADO
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PROJECT NO.
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Earth Dikes and Drainage Swales (ED/DS) EC-10

Description

Earth dikes and drainage swales are temporary storm conveyance channels constructed either to divert runoff around slopes or to convey runoff to additional sediment control BMPs prior to discharge of runoff from a site. Drainage swales may be lined or unlined, but if an unlined swale is used, it must be well compacted and capable of resisting erosive velocities.



Photograph ED/DS-1. Example of an earth dike used to divert flows at a construction site. Photo courtesy of CDOT.

Appropriate Uses

Earth dikes and drainage swales are typically used to control the flow path of runoff at a construction site by diverting runoff around areas prone to erosion, such as steep slopes. Earth dikes and drainage swales may also be constructed as temporary conveyance features. This will direct runoff to additional sediment control treatment BMPs, such as sediment traps or basins.

Design and Installation

When earth dikes are used to divert water for slope protection, the earth dike typically consists of a horizontal ridge of soil placed perpendicular to the slope and angled slightly to provide drainage along the contour. The dike is used in conjunction with a swale or a small channel upslope of the berm to convey the diverted water. Temporary diversion dikes can be constructed by excavation of a V-shaped trench or ditch and placement of the fill on the downslope side of the cut. There are two types of placement for temporary slope diversion dikes:

- A dike located at the top of a slope to divert upland runoff away from the disturbed area and convey it in a temporary or permanent channel.
- A diversion dike located at the base or mid-slope of a disturbed area to intercept runoff and reduce the effective slope length.

Depending on the project, either an earth dike or drainage swale may be more appropriate. If there is a need for cut on the project, then an excavated drainage swale may be better suited. When the project is primarily fill, then a conveyance constructed using a berm may be the better option.

All dikes or swales receiving runoff from a disturbed area should direct stormwater to a sediment control BMP such as a sediment trap or basin.

Earth Dikes and Drainage Swales	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

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EC-10 Earth Dikes and Drainage Swales (ED/DS)

Unlined dikes or swales should only be used for intercepting sheet flow runoff and are not intended for diversion of concentrated flows.

Details with notes are provided for several design variations, including:

- ED-1. Unlined Earth Dike formed by Berm
- DS-1. Unlined Excavated Swale
- DS-2. Unlined Swale Formed by Cut and Fill
- DS-3. ECB-lined Swale
- DS-4. Synthetic-lined Swale
- DS-5. Riprap-lined Swale

The details also include guidance on permissible velocities for cohesive channels if unlined approaches will be used.

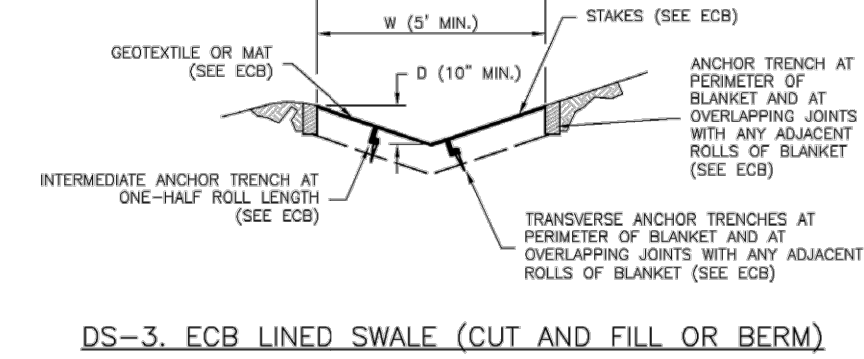
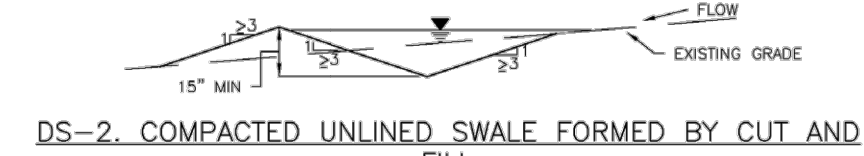
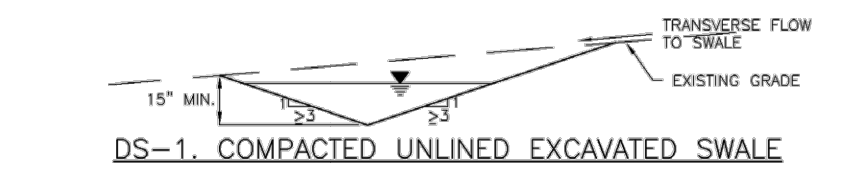
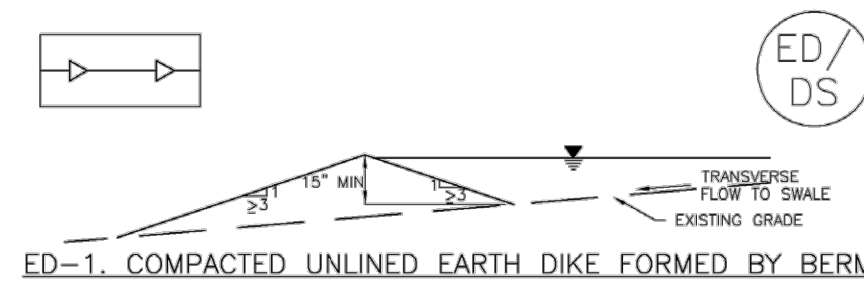
Maintenance and Removal

Inspect earth dikes for stability, compaction, and signs of erosion and repair. Inspect side slopes for erosion and damage to erosion control fabric. Stabilize slopes and repair fabric as necessary. If there is recurring extensive damage, consider installing rock check dams or lining the channel with riprap.

If drainage swales are not permanent, remove dikes and fill channels when the upstream area is stabilized. Stabilize the fill disturbed area immediately following removal by revegetation or other permanent stabilization method approved by the local jurisdiction.

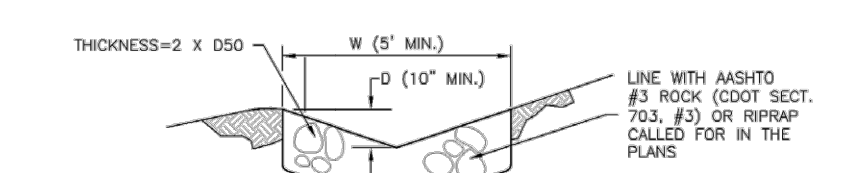
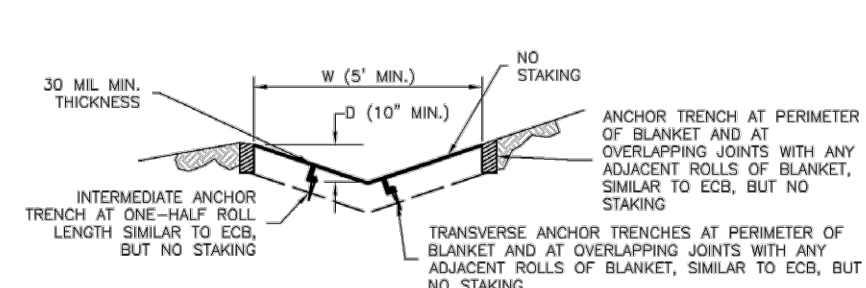
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 ED/DS-2

Earth Dikes and Drainage Swales (ED/DS) EC-10



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 ED/DS-3

EC-10 Earth Dikes and Drainage Swales (ED/DS)



EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

- SEE SITE PLAN FOR:
 - LOCATION OF DIVERSION SWALE
 - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED)
 - LENGTH OF EACH SWALE
 - DEPTH, D, AND WIDTH, W DIMENSIONS
 - FOR ECB/TRIM LINED SWALE, SEE ECB DETAIL FOR RIPRAP LINED SWALE, SIZE OF RIPRAP, D50.
- SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCLUDING 2-YEAR FLOW RATE OR 10 CFS.
- EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.
- EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.
- SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.
- FOR LINED SWALES, INSTALLATION OF ECB/TRIM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.
- WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 ED/DS-4

Earth Dikes and Drainage Swales (ED/DS) EC-10

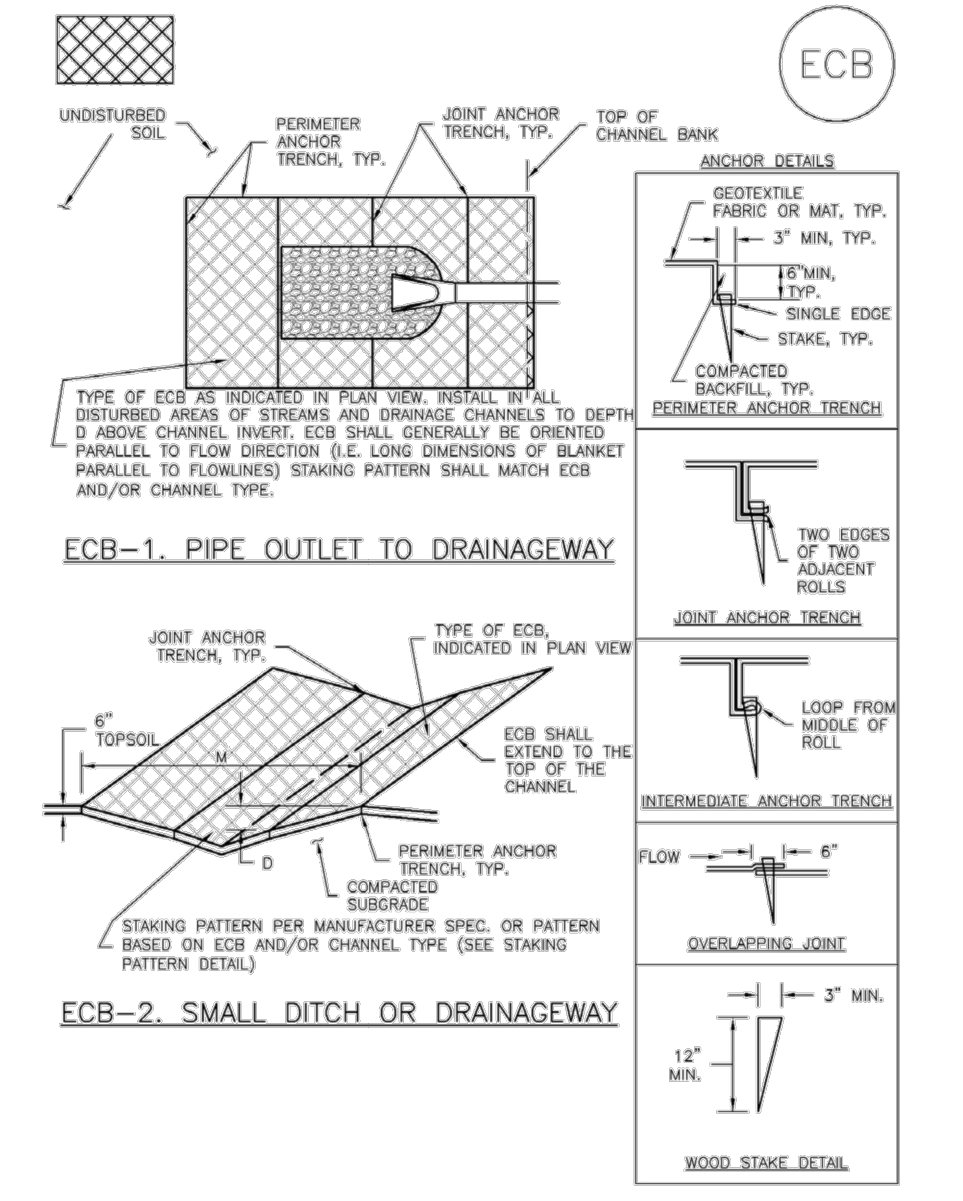
EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

- 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.
- SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.
- WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDING AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, COLORADO, NOT AVAILABLE IN AUTOCAD)
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDC STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

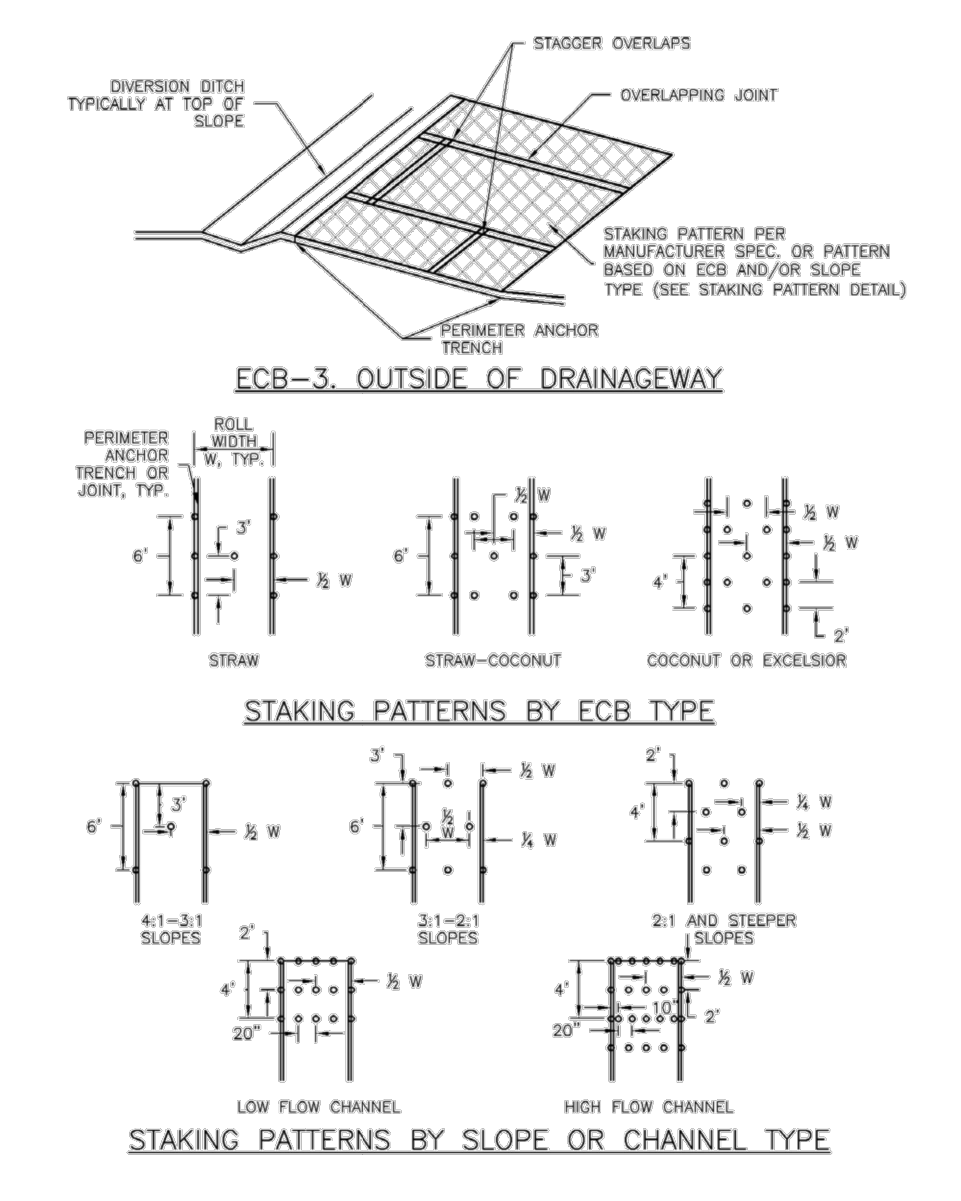
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 ED/DS-5

EC-6 Rolled Erosion Control Products (RECP)



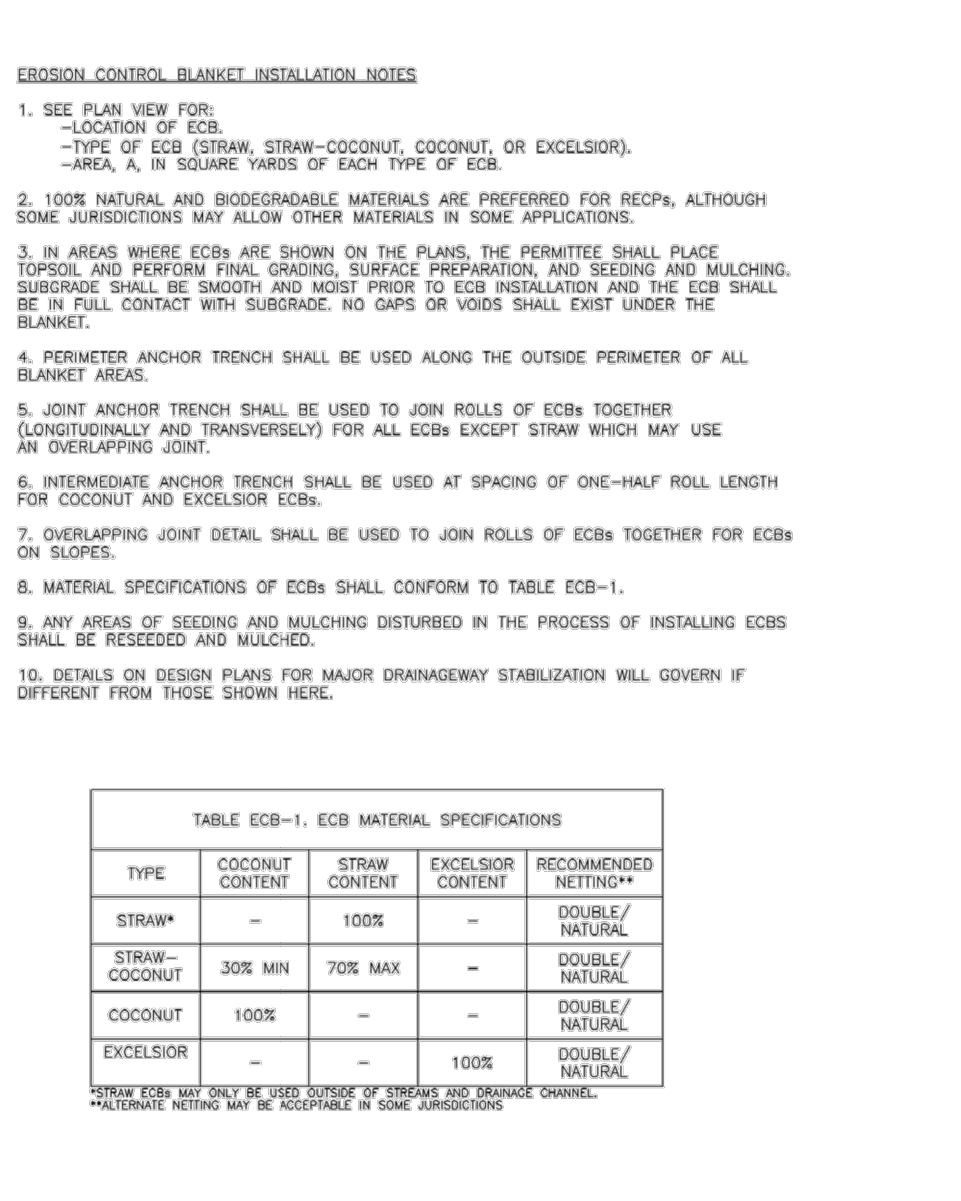
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RECP-6

EC-6 Rolled Erosion Control Products (RECP)



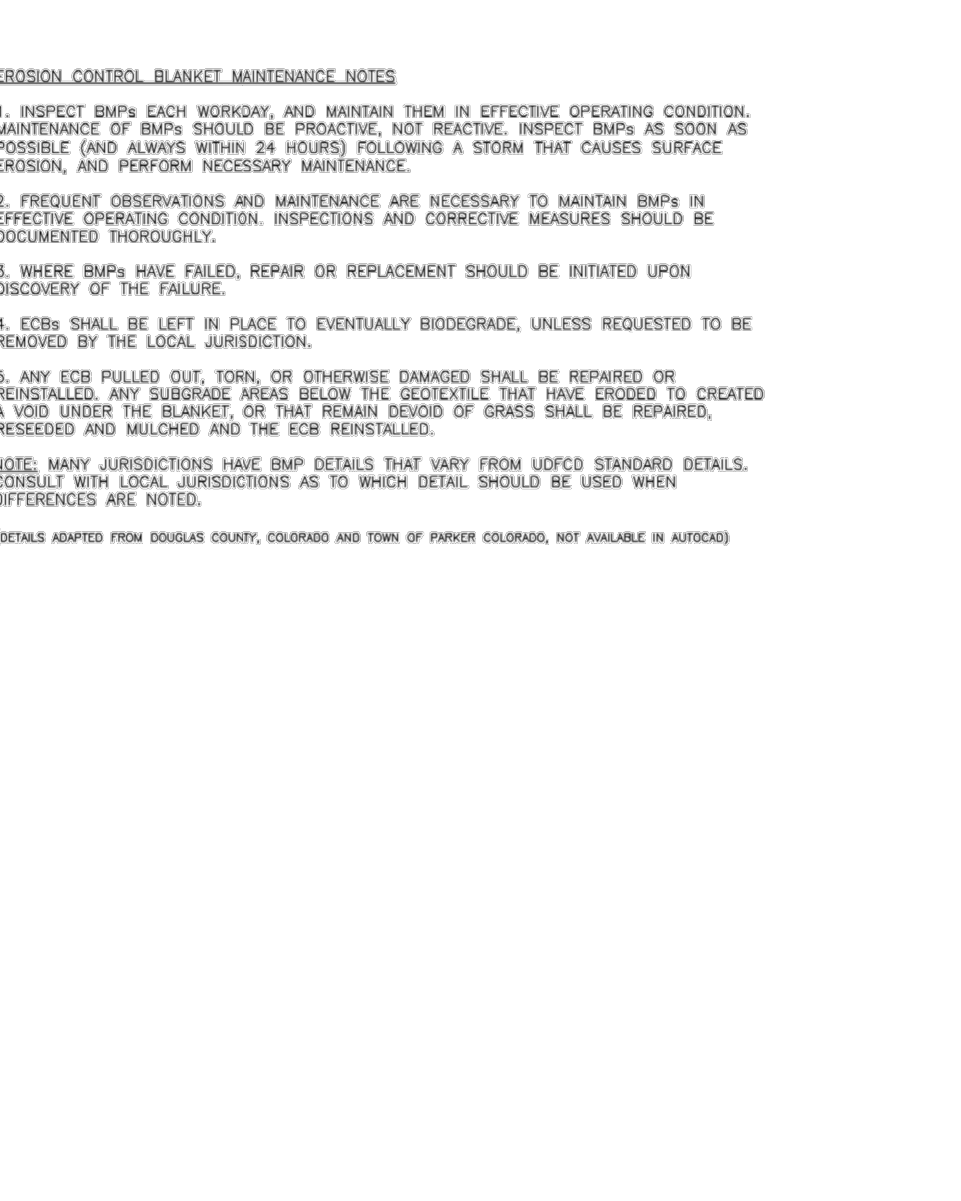
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RECP-7

EC-6 Rolled Erosion Control Products (RECP)



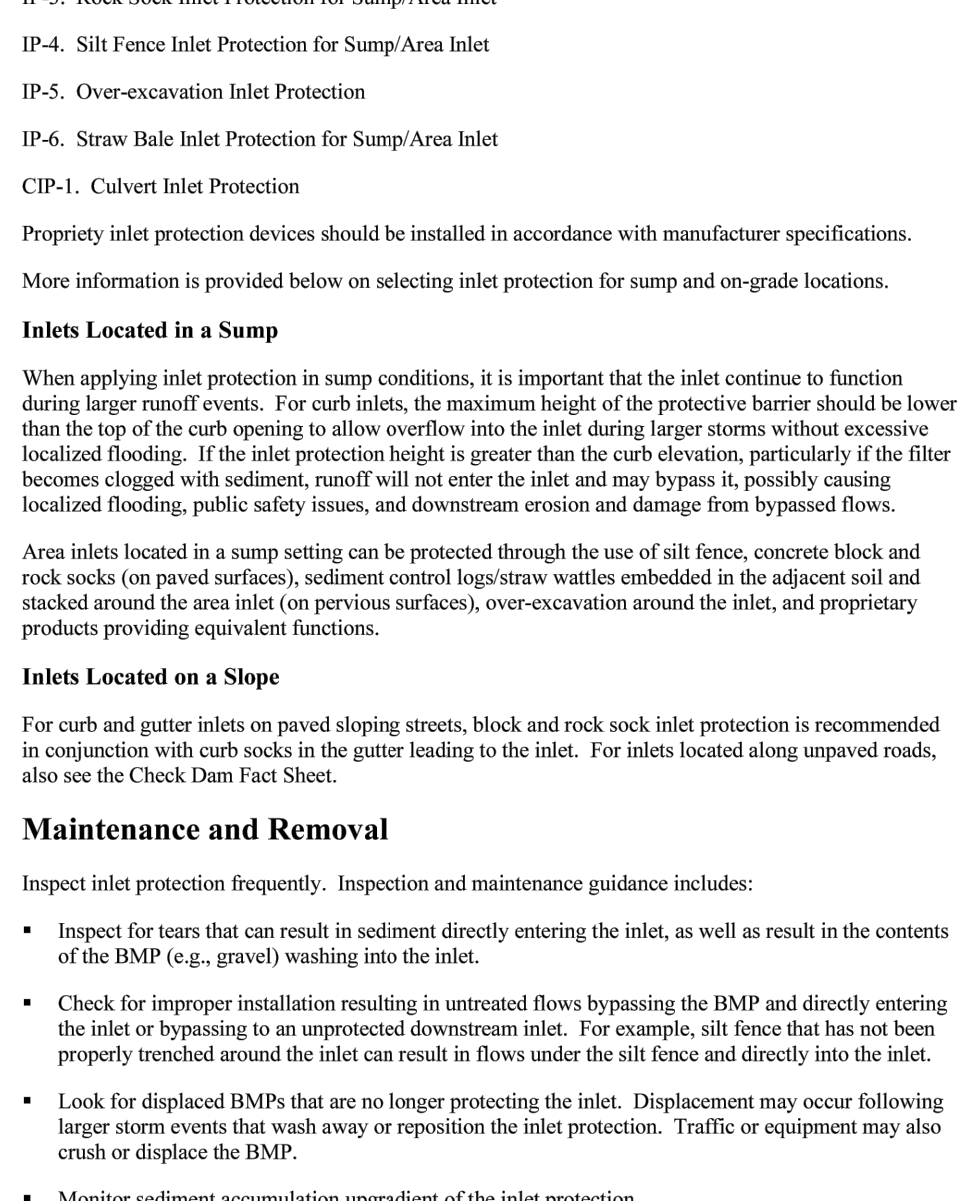
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RECP-8

EC-6 Rolled Erosion Control Products (RECP)



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RECP-9

SC-6 Inlet Protection (IP)



August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 IP-2

NO.	REVISION	DATE	BY	APPR.

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CHECKED BY: KRK
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Inlet Protection (IP)

SC-6

Description

Inlet protection consists of permeable barriers installed around an inlet to filter runoff and remove sediment prior to entering a storm drain inlet. Inlet protection can be constructed from rock socks, sediment control logs, silt fence, block and rock socks, or other materials approved by the local jurisdiction. Area inlets can also be protected by over-excavating around the inlet to form a sediment trap.



Photograph IP-1. Inlet protection for a curb opening inlet.

Appropriate Uses

Install protection at storm sewer inlets that are operable during construction. Consider the potential for tracked-out sediment or temporary stockpile areas to contribute sediment to inlets when determining which inlets must be protected. This may include inlets in the general proximity of the construction area, not limited to downgradient inlets. Inlet protection is not a stand-alone BMP and should be used in conjunction with other upgradient BMPs.

Design and Installation

To function effectively, inlet protection measures must be installed to ensure that flows do not bypass the inlet protection and enter the storm drain without treatment. However, designs must also enable the inlet to function without completely blocking flows into the inlet in a manner that causes localized flooding. When selecting the type of inlet protection, consider factors such as type of inlet (e.g., curb or area, sump or on-grade conditions), traffic, anticipated flows, ability to secure the BMP properly, safety and other site-specific conditions. For example, block and rock socks will be better suited to a curb and gutter along a roadway, as opposed to silt fence or sediment control logs, which cannot be properly secured in a curb and gutter setting, but are effective area inlet protection measures.

Several inlet protection designs are provided in the Design Details. Additionally, a variety of proprietary products are available for inlet protection that may be approved for use by local governments. If proprietary products are used, design details and installation procedures from the manufacturer must be followed. Regardless of the type of inlet protection selected, inlet protection is most effective when combined with other BMPs such as curb socks and check dams. Inlet protection is often the last barrier before runoff enters the storm sewer or receiving water.

Design details with notes are provided for these forms of inlet protection:

Inlet Protection (various forms)	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No

- IP-1. Block and Rock Sock Inlet Protection for Sump or On-grade Inlets
- IP-2. Curb (Rock) Socks Upstream of Inlet Protection, On-grade Inlets

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Inlet Protection (IP)

SC-6

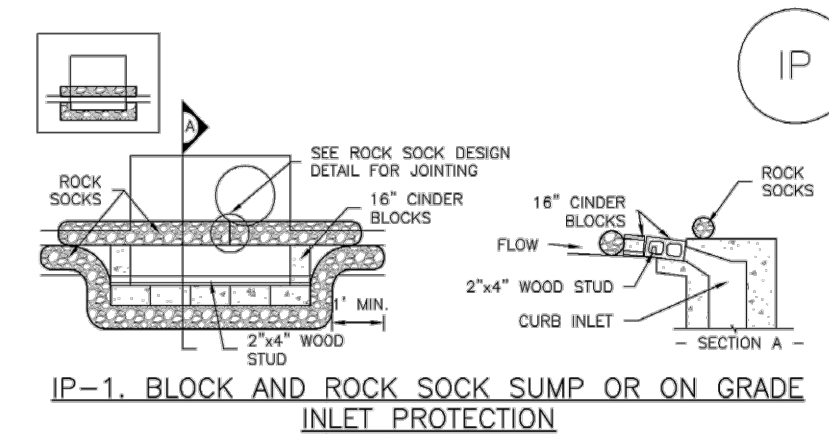
- Remove sediment accumulation from the area upstream of the inlet protection, as needed to maintain BMP effectiveness, typically when it reaches no more than half the storage capacity of the inlet protection. For silt fence, remove sediment when it accumulates to a depth of no more than 6 inches. Remove sediment accumulation from the area upstream of the inlet protection as needed to maintain the functionality of the BMP.
- Proprietary inlet protection devices should be inspected and maintained in accordance with manufacturer specifications. If proprietary inlet insert devices are used, sediment should be removed in a timely manner to prevent devices from breaking and spilling sediment into the storm drain.

Inlet protection must be removed and properly disposed of when the drainage area for the inlet has reached final stabilization.

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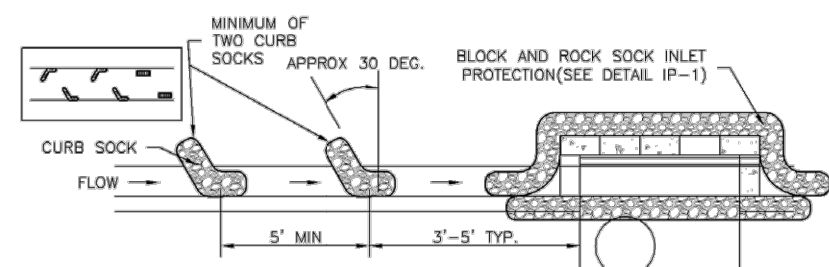
SC-6

Inlet Protection (IP)



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

- BLOCK AND ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES**
- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
 - 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.
 - GRAVEL BARS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



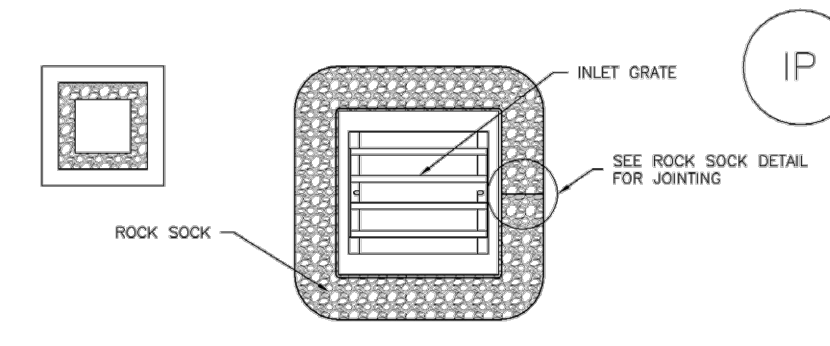
IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

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

IP-4 August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

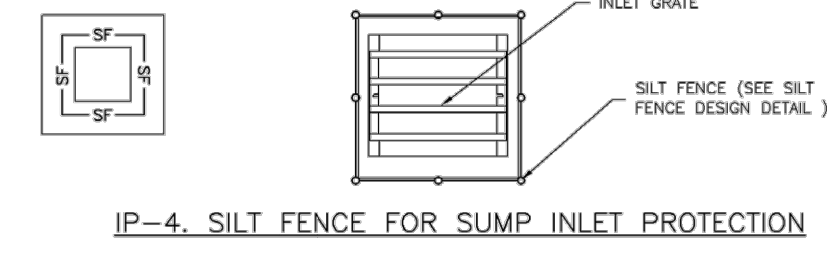
Inlet Protection (IP)

SC-6



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

- ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES**
- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
 - STRAW MATS/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



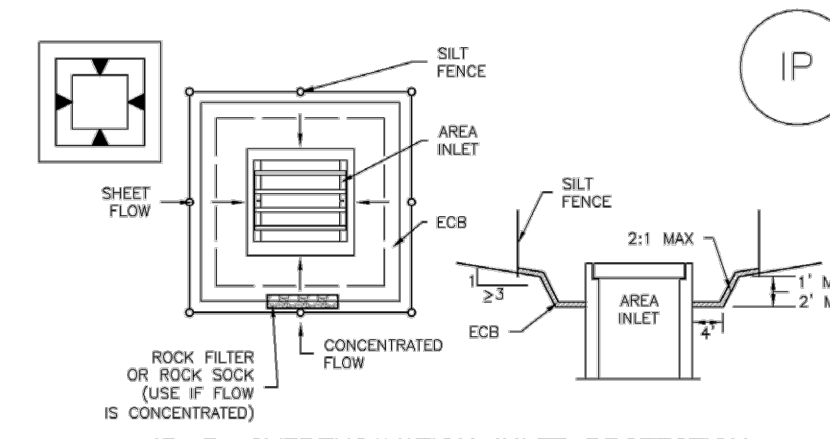
IP-4. SILT FENCE FOR SUMP INLET PROTECTION

- SILT FENCE INLET PROTECTION INSTALLATION NOTES**
- SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
 - POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.
 - STRAW MATS/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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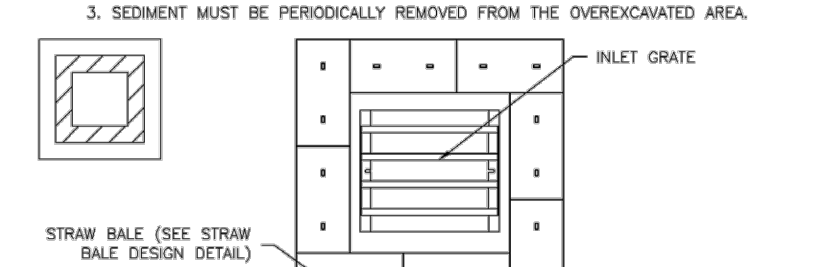
SC-6

Inlet Protection (IP)



IP-5. OVEREXCAVATION INLET PROTECTION

- OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES**
- 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.
 - WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.
 - SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



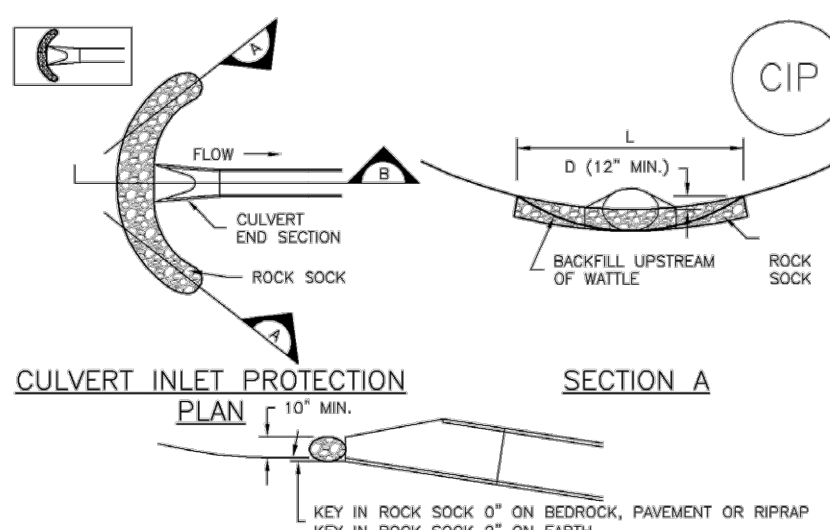
IP-6. STRAW BALE FOR SUMP INLET PROTECTION

- STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES**
- SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
 - 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)

SC-6



CIP-1. CULVERT INLET PROTECTION

- CULVERT INLET PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR -LOCATION OF CULVERT INLET PROTECTION.
 - SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

- CULVERT INLET 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.
 - SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS $\frac{1}{2}$ THE HEIGHT OF THE ROCK SOCK.
 - 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 AURORA
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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SC-6

Inlet Protection (IP)

- GENERAL INLET PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR: -LOCATION OF INLET PROTECTION -TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
 - 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.
 - 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**
- 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.
 - SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES SOX OF CAPACITY. A DEPTH OF 6" WHEN SILT FENCE IS USED, OR $\frac{1}{2}$ OF THE HEIGHT FOR STRAW BALES.
 - 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.
 - WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDING AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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.

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Temporary and Permanent Seeding (TS/PS)

EC-2

Description

Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Permanent seeding should be used to stabilize areas at final grade that will not be otherwise stabilized. Effective seeding includes preparation of a seedbed, selection of an appropriate seed mixture, proper planting techniques, and protection of the seeded area with mulch, geotextiles, or other appropriate measures.



Photograph TS/PS-1. Equipment used to drill seed. Photo courtesy of Douglas County.

Appropriate Uses

When the soil surface is disturbed and will remain inactive for an extended period (typically 30 days or longer), proactive stabilization measures should be implemented. If the inactive period is short-lived (on the order of two weeks), techniques such as surface roughening may be appropriate. For longer periods of inactivity, temporary seeding and mulching can provide effective erosion control. Permanent seeding should be used on finished areas that have not been otherwise stabilized.

Typically, local governments have their own seed mixes and timelines for seeding. Check jurisdictional requirements for seeding and temporary stabilization.

Design and Installation

Effective seeding requires proper seedbed preparation, selection of an appropriate seed mixture, use of appropriate seeding equipment to ensure proper coverage and density, and protection with mulch or fabric until plants are established.

Seedbed Preparation

Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Over-rot grading can result in loss of topsoil, resulting in poor quality subsoils at the ground surface that have low nutrient value, little organic matter content, few soil microorganisms, rooting restrictions, and conditions less conducive to infiltration of precipitation. As a result, it is typically necessary to provide stockpiled topsoil, compost, or other

Temporary and Permanent Seeding	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	No

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Temporary and Permanent Seeding (TS/PS)

EC-2

soil amendments and rototill them into the soil to a depth of 6 inches or more. Topsoil should be salvaged during grading operations for use and spread on areas to be revegetated later. Topsoil should be viewed as an important resource to be utilized for vegetation establishment, due to its water-holding capacity, structure, texture, organic matter content, biological activity, and nutrient content. The rooting depth of most native grasses in the semi-arid Denver metropolitan area is 6 to 18 inches. At a minimum, the upper 6 inches of topsoil should be stripped, stockpiled, and ultimately respread across areas that will be revegetated.

Where topsoil is not available, subsoils should be amended to provide an appropriate plant-growth medium. Organic matter, such as well digested compost, can be added to improve soil characteristics conducive to plant growth. Other treatments can be used to adjust soil pH conditions when needed. Soil testing, which is typically inexpensive, should be completed to determine and optimize the types and amounts of amendments that are required.

If the disturbed ground surface is compacted, rip or rototill the surface prior to placing topsoil. If adding compost to the existing soil surface, rototilling is necessary. Surface roughening will assist in placement of a stable topsoil layer on steeper slopes, and allow infiltration and root penetration to greater depth. Prior to seeding, the soil surface should be rough and the seedbed should be firm, but neither too loose nor compacted. The upper layer of soil should be in a condition suitable for seeding at the proper depth and conducive to plant growth. Seed-to-soil contact is the key to good germination.

Seed Mix for Temporary Vegetation

To provide temporary vegetative cover on disturbed areas which will not be paved, built upon, or fully landscaped or worked for an extended period (typically 30 days or more), plant an annual grass appropriate for the time of planting and mulch the planted areas. Annual grasses suitable for the Denver metropolitan area are listed in Table TS/PS-1. These are to be considered only as general recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

Seed Mix for Permanent Revegetation

To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established. Permanent seeding should be performed promptly (typically within 14 days) after reaching final grade. Each site will have different characteristics and a landscape professional or the local jurisdiction should be contacted to determine the most suitable seed mix for a specific site. In lieu of a specific recommendation, one of the perennial grass mixes appropriate for site conditions and growth season listed in Table TS/PS-2 can be used. The pure live seed (PLS) rates of application recommended in these tables are considered to be absolute minimum rates for seed applied using proper drill-seeding equipment.

If desired for wildlife habitat or landscape diversity, shrubs such as rubber rabbitbrush (*Chrysothamnus nauseosus*), fourwing saltbush (*Atriplex canescens*) and skunkbrush sumac (*Rhus trilobata*) could be added to the upland seedmixes at 0.25, 0.5 and 1 pound PLS/acre, respectively. In riparian zones, planting root stock of such species as American plum (*Prunus americana*), woods rose (*Rosa woodsii*), plains cottonwood (*Populus sargentii*), and willow (*Populus spp.*) may be considered. On non-topsoiled upland sites, a legume such as Ladak alfalfa at 1 pound PLS/acre can be included as a source of nitrogen for perennial grasses.

TS/PS-2 June 2012 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Temporary and Permanent Seeding (TS/PS)

EC-2

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species* (Common name)	Growth Season	Pounds of Pure Live Seed (PLS)/acre	Planting Depth (inches)
1. Oats	Cool	35-50	1-2
2. Spring wheat	Cool	25-35	1-2
3. Spring barley	Cool	25-35	1-2
4. Annual ryegrass	Cool	10-15	$\frac{1}{2}$
5. Millet	Warm	3-15	$\frac{1}{2}$ - $\frac{3}{4}$
6. Sudangrass	Warm	5-10	$\frac{1}{2}$ - $\frac{3}{4}$
7. Sorghum	Warm	5-10	$\frac{1}{2}$ - $\frac{3}{4}$
8. Winter wheat	Cool	20-35	1-2
9. Winter barley	Cool	20-35	1-2
10. Winter rye	Cool	20-35	1-2
11. Triticale	Cool	25-40	1-2

* Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.
Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Drifton Drill or by hydraulic seeding.

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NO.	REVISION	BY	DATE	APPR.

Kimley»Horn
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DESIGNED BY: MEL
DRAWN BY: MEL
CHECKED BY: KRK
DATE: 4/1/26

TANNER RANCH FILING NO. 1
EL PASO COUNTY, COLORADO
GRADING AND EROSION CONTROL PLANS
GEC-DETAILS

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION
Kimley»Horn
Kimley-Horn and Associates, Inc.

PROJECT NO.
296172000

SHEET
35

EC-2 Temporary and Permanent Seeding (TS/PS)

Common Name	Botanical Name	Growth Season	Growth Form	Seeds/Pound	Pounds of PLS/acre
Alkali Soil Seed Mix					
Alkali sycamore	<i>Sporobolus airoides</i>	Cool	Bunch	1,750,000	0.25
Basin wildrye	<i>Elymus cinereus</i>	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	<i>Agropyron riparium 'Sodar'</i>	Cool	Sod	170,000	2.5
Joee tall wheatgrass	<i>Agropyron elongatum 'Joee'</i>	Cool	Bunch	79,000	7.0
Ariha western wheatgrass	<i>Agropyron multii 'Ariha'</i>	Cool	Sod	110,000	5.5
Total					17.75
Fertile Loamy Soil Seed Mix					
Ephraim crested wheatgrass	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	2.0
Dural hard fescue	<i>Festuca ovina 'Dural'</i>	Cool	Bunch	565,000	1.0
Lincoln smooth brome	<i>Bromus inermis 'Lincoln'</i>	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	<i>Agropyron riparium 'Sodar'</i>	Cool	Sod	170,000	2.5
Ariha western wheatgrass	<i>Agropyron multii 'Ariha'</i>	Cool	Sod	110,000	7.0
Total					16.5
High Water Table Soil Seed Mix					
Meadow foxtail	<i>Alopecurus pratensis</i>	Cool	Sod	900,000	0.5
Redtop	<i>Agrostis alba</i>	Warm	Open sod	5,000,000	0.25
Reed canarygrass	<i>Phalaris arundinacea</i>	Cool	Sod	68,000	0.5
Lincoln smooth brome	<i>Bromus inermis 'Lincoln'</i>	Cool	Sod	130,000	3.0
Parlifer seedgrass	<i>Panicum virgatum 'Parlifer'</i>	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	<i>Agropyron elongatum 'Alkar'</i>	Cool	Bunch	79,000	5.5
Total					10.75
Transition Turf Seed Mix					
Rubens Canadian bluegrass	<i>Poa compressa 'Rubens'</i>	Cool	Sod	2,500,000	0.5
Dural hard fescue	<i>Festuca ovina 'Dural'</i>	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	<i>Lolium perenne 'Citation'</i>	Cool	Sod	247,000	3.0
Lincoln smooth brome	<i>Bromus inermis 'Lincoln'</i>	Cool	Sod	130,000	3.0
Total					7.5

TS/PS-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 June 2012

Temporary and Permanent Seeding (TS/PS) EC-2

Common Name	Botanical Name	Growth Season	Growth Form	Seeds/Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod-forming bunchgrass	825,000	0.5
Cumpr little bluestem	<i>Schizanthus scoparium 'Cumpr'</i>	Warm	Bunch	240,000	1.0
Prairie sandreed	<i>Calamagrostis longifolia</i>	Warm	Open sod	274,000	1.0
Sand dropseed	<i>Sporobolus cryptandrus</i>	Cool	Bunch	5,298,000	0.25
Vaughn sideots grama	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Ariha western wheatgrass	<i>Agropyron multii 'Ariha'</i>	Cool	Sod	110,000	5.5
Total					10.25
Heavy Clay, Rocky Foothill Seed Mix					
Ephraim crested wheatgrass	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	1.5
Oahe intermediate wheatgrass	<i>Agropyron intermedium 'Oahe'</i>	Cool	Sod	115,000	5.5
Vaughn sideots grama	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Lincoln smooth brome	<i>Bromus inermis 'Lincoln'</i>	Cool	Sod	130,000	3.0
Ariha western wheatgrass	<i>Agropyron multii 'Ariha'</i>	Cool	Sod	110,000	5.5
Total					17.5

* All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Britton Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.
 † See Table TS/PS-3 for seeding dates.
 ‡ If site is to be irrigated, the transition turf seed rates should be doubled.
 § Created wheatgrass should not be used on slopes steeper than 6:1 to 1V.
 ¶ Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideots grama.

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EC-2 Temporary and Permanent Seeding (TS/PS)

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1-March 15			✓	✓
March 16-April 30	4	1,2,3	✓	✓
May 1-May 15	4		✓	
May 16-June 30	4,5,6,7			
July 1-July 15	5,6,7			
July 16-August 31				
September 1-September 30		8,9,10,11		
October 1-December 31			✓	✓

Mulch
 Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by irrigating, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.
 An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.
 Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.
 Protect seeded areas from construction equipment and vehicle access.

TS/PS-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 June 2012

SC-1 Silt Fence (SF)

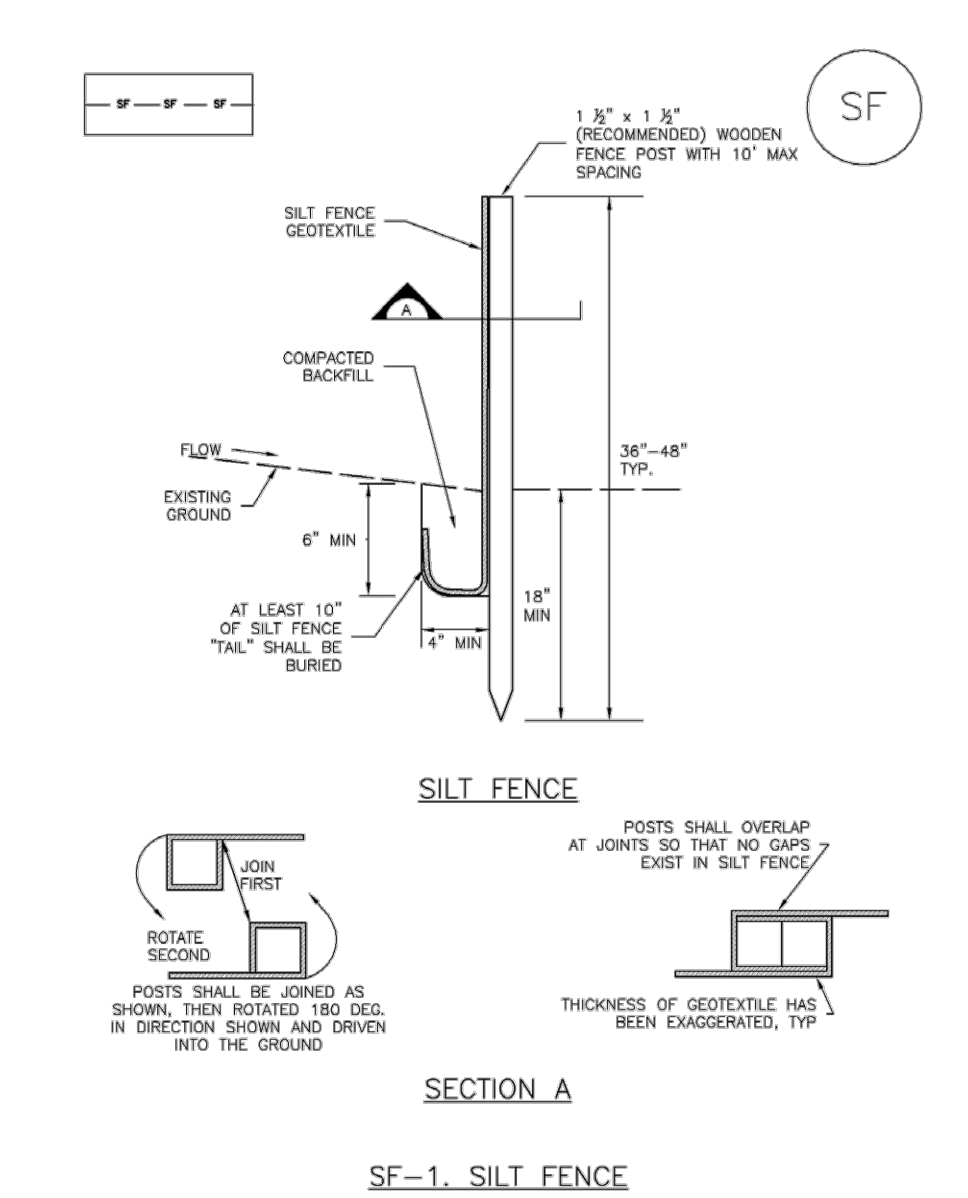
Maintenance and Removal

Inspection of silt fence includes observing the material for tears or holes and checking for slumping fence and undercut areas bypassing flows. Repair of silt fence typically involves replacing the damaged section with a new section. Sediment accumulated behind silt fence should be removed, as needed to maintain BMP effectiveness, typically before it reaches a depth of 6 inches.
 Silt fence may be removed when the upstream area has reached final stabilization.



Photograph SF-2. When silt fence is not installed along the contour, a "J-hook" installation may be appropriate to ensure that the BMP does not create concentrated flow parallel to the silt fence. Photo courtesy of Tom Goe.

Silt Fence (SF) SC-1



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

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND REDISTRIBUTION.
- A UNIFORM 6" x 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK". THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE 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.
- SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 4".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERMETER SEDIMENT CONTROL BMP.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWNS OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AURORA)
 NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDC STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Open Channels Chapter 8

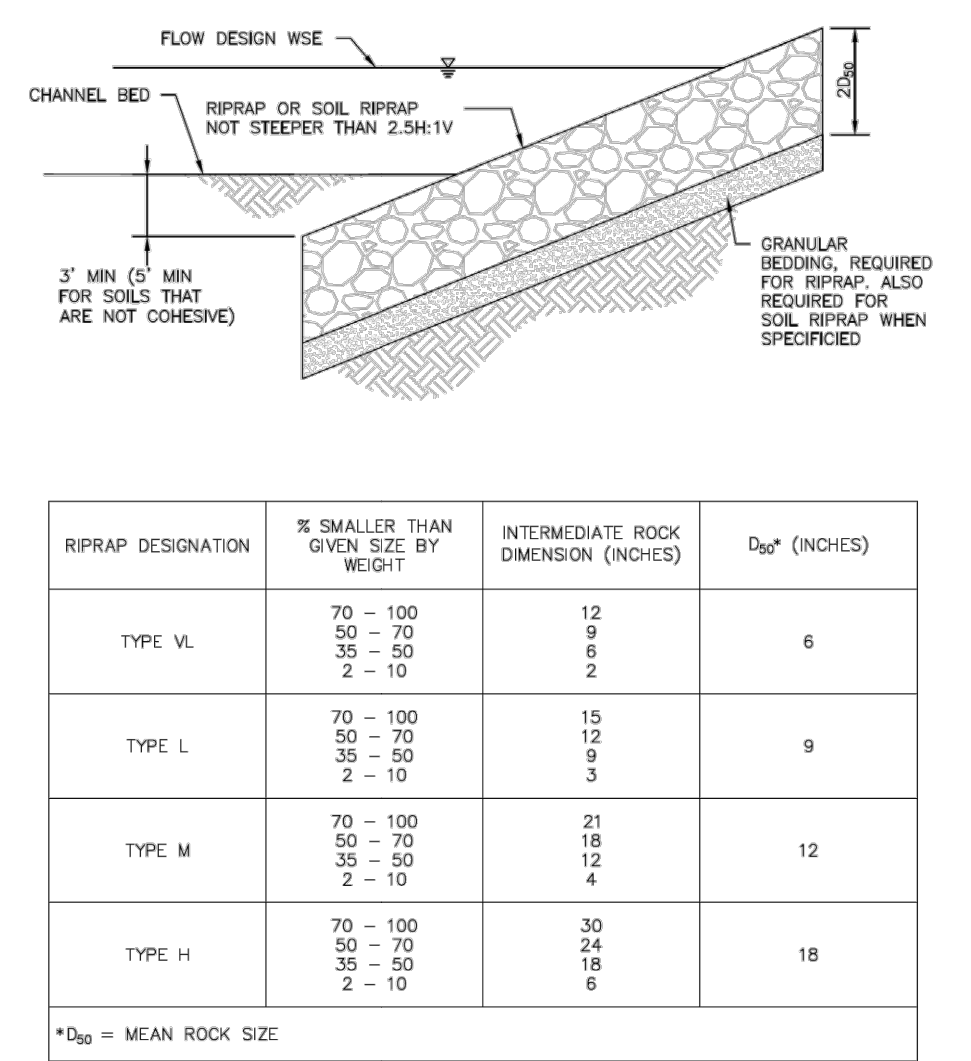


Figure 8-34. Riprap and soil riprap placement and gradation (part 1 of 3)

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Open Channels Chapter 8

SOIL RIPRAP NOTES:

- ELEVATION TOLERANCES FOR THE SOIL RIPRAP SHALL BE 0.10 FEET. THICKNESS OF SOIL RIPRAP SHALL BE NO LESS THAN THICKNESS SHOWN AND NO MORE THAN 2-INCHES GREATER THAN THE THICKNESS SHOWN.
- WHERE "SOIL RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, RIPRAP VOIDS ARE TO BE FILLED WITH NATIVE SOIL. THE RIPRAP SHALL BE PRE-MIXED WITH THE NATIVE SOIL AT THE FOLLOWING PROPORTIONS BY VOLUME: SEPERENT RIPRAP AND 35 PERCENT SOIL. THE SOIL USED FOR MIXING SHALL BE NATIVE TOPSOIL AND SHALL HAVE A MINIMUM FINES CONTENT OF 15 PERCENT. THE SOIL RIPRAP SHALL BE INSTALLED IN A MANNER THAT RESULTS IN A DENSE, INTERLOCKING LAYER OF RIPRAP WITH RIPRAP VOIDS FILLED COMPLETELY WITH SOIL. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERIAL COMPACT TO APPROXIMATELY 85% OF MAXIMUM DENSITY AND WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698. TOPSOIL SHALL BE ADDED TO ANY AREAS THAT SETTLE.
- WHERE SPECIFIED (TYPICALLY AS "BURIED SOIL RIPRAP"), A SURFACE LAYER OF TOPSOIL SHALL BE PLACED OVER THE SOIL RIPRAP ACCORDING TO THE THICKNESS SPECIFIED ON THE CONTRACT DRAWINGS. THE TOPSOIL SURFACE LAYER SHALL BE COMPACTED TO APPROXIMATELY 85% OF MAXIMUM DENSITY AND WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698. TOPSOIL SHALL BE ADDED TO ANY AREAS THAT SETTLE.
- ALL SOIL RIPRAP THAT IS BURIED WITH TOPSOIL SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY TOPSOIL PLACEMENT.

U.S. STANDARD SIEVE SIZE	GRADATION FOR GRANULAR BEDDING	
	PERCENT PASSING BY WEIGHT	
3 INCHES	100	100
1½ INCHES	100	100
¾ INCHES	100	100
¾ INCHES	100	100
#4	95 - 100	0 - 20
#16	45 - 80	-
#50	10 - 30	-
#100	2 - 10	-
#200	0 - 2	0 - 3

RIPRAP BEDDING

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D ₅₀ (INCHES)
TYPE L	70 - 100 50 - 70 35 - 50 2 - 10	15 12 9 3	9
TYPE M	70 - 100 50 - 70 35 - 50 2 - 10	21 18 12 4	12
TYPE H	70 - 100 50 - 70 35 - 50 2 - 10	30 24 18 6	18

*D₅₀ = MEAN ROCK SIZE

Figure 8-34. Riprap and soil riprap placement and gradation (part 2 of 3)

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Open Channels Chapter 8

RIPRAP DESIGNATION	THICKNESS REQUIREMENTS FOR GRANULAR BEDDING		
	MINIMUM BEDDING THICKNESS (INCHES)		
	FINE-GRAINED SOILS ¹		COARSE-GRAINED SOILS ²
	TYPE I (LOWER LAYER)	TYPE II (UPPER LAYER)	TYPE II
VL (D ₅₀ = 6 IN)	4	4	6
L (D ₅₀ = 9 IN)	4	4	6
M (D ₅₀ = 12 IN)	4	4	6
H (D ₅₀ = 18 IN)	4	5	8
VH (D ₅₀ = 24 IN)	4	6	8

NOTES:
 1. MAY SUBSTITUTE ONE 12-INCH LAYER OF TYPE II BEDDING. THE SUBSTITUTION OF ONE LAYER OF TYPE II BEDDING SHALL NOT BE PERMITTED AT DROP STRUCTURES. THE USE OF A COMBINATION OF FILTER FABRIC AND TYPE II BEDDING AT DROP STRUCTURES IS ACCEPTABLE.
 2. FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #4 SIEVE.

Figure 8-34. Riprap and soil riprap placement and gradation (part 3 of 3)

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Silt Fence (SF) SC-1

Description
 A silt fence is a woven geotextile fabric attached to wooden posts and trenched into the ground. It is designed as a sediment barrier to intercept sheet flow runoff from disturbed areas.

Appropriate Uses

- Down slope of a disturbed area to accept sheet flow.
- Along the perimeter of a receiving water such as a stream, pond or wetland.
- At the perimeter of a construction site.

Design and Installation
 Silt fence should be installed along the contour of slopes so that it intercepts sheet flow. The maximum recommended tributary drainage area per 100 lineal feet of silt fence, installed along the contour, is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures. This recommendation only applies to silt fence installed along the contour. Silt fence installed for other uses, such as perimeter control, should be installed in a way that will not produce concentrated flows. For example, a "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate in multiple areas rather than concentrate and cause erosive conditions parallel to the silt fence.

See Detail SF-1 for proper silt fence installation, which involves proper trenching, staking, securing the fabric to the stakes, and backfilling the silt fence. Properly installed silt fence should not be easily pulled out by hand and there should be no gaps between the ground and the fabric.

Silt fence must meet the minimum allowable strength requirements, depth of installation requirement, and other specifications in the design details. Improper installation of silt fence is a common reason for silt fence failure; however, when properly installed and used for the appropriate purposes, it can be highly effective.

Silt Fence	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SF-1

DESIGNED BY: MEL
 DRAWN BY: MEL
 CHECKED BY: KRK
 DATE: 4/1/26

TANNER RANCH FILING NO. 1
 EL PASO COUNTY, COLORADO
 GRADING AND EROSION CONTROL PLANS
 GEC-DETAILS

PRELIMINARY
 FOR REVIEW ONLY
 NOT FOR CONSTRUCTION
 Kimley-Horn
 Kimley-Horn and Associates, Inc.

PROJECT NO.
 296172000
 SHEET
 36

NO. BY DATE APPR.
 REVISION

Stockpile Management (SP)

MM-2

Description

Stockpile management includes measures to minimize erosion and sediment transport from soil stockpiles.

Appropriate Uses

Stockpile management should be used when soils or other erodible materials are stored at the construction site. Special attention should be given to stockpiles in close proximity to natural or manmade storm systems.

Design and Installation

Locate stockpiles away from all drainage system components including storm sewer inlets. Where practical, choose stockpile locations that will remain undisturbed for the longest period of time as the phases of construction progress. Place sediment control BMPs around the perimeter of the stockpile, such as sediment control logs, rock socks, silt fence, straw bales and sand bags. See Detail SP-1 for guidance on proper establishment of perimeter controls around a stockpile. For stockpiles in active use, provide a stabilized designated access point on the upgradient side of the stockpile.

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). Timeframes for stabilization of stockpiles noted in this fact sheet are "typical" guidelines. Check permit requirements for specific federal, state, and/or local requirements that may be more prescriptive.

Stockpiles should not be placed in streets or paved areas unless no other practical alternative exists. See the Stabilized Staging Area Fact Sheet for guidance when staging in roadways is unavoidable due to space or right-of-way constraints. For paved areas, rock socks must be used for perimeter control and all inlets with the potential to receive sediment from the stockpile (even from vehicle tracking) must be protected.

Maintenance and Removal

Inspect perimeter controls and inlet protection in accordance with their respective BMP Fact Sheets. Where seeding, mulch and/or soil binders are used, reseed or reapplication of soil binder may be necessary.

When temporary removal of a perimeter BMP is necessary to access a stockpile, ensure BMPs are reinstalled in accordance with their respective design detail section.

Stockpile Management	
Erosion Control	Yes
Sediment Control	Yes
Site/Material Management	Yes



Photograph SP-1. A topsoil stockpile that has been partially revegetated and is protected by silt fence perimeter control.

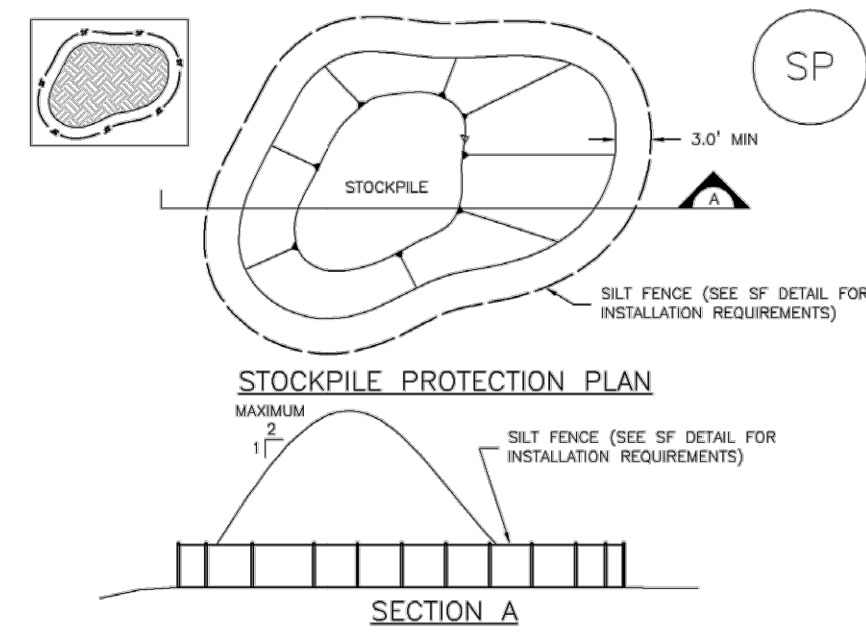
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SP-1

Stockpile Management (SM)

When the stockpile is no longer needed, properly dispose of excess materials and revegetate or otherwise stabilize the ground surface where the stockpile was located.

Stockpile Management (SP)

MM-2



SP-1. STOCKPILE PROTECTION

- STOCKPILE PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR LOCATION OF STOCKPILES.
 - 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 SEEDING 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 DRAINAGE CONTROLS INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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

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.
- 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.

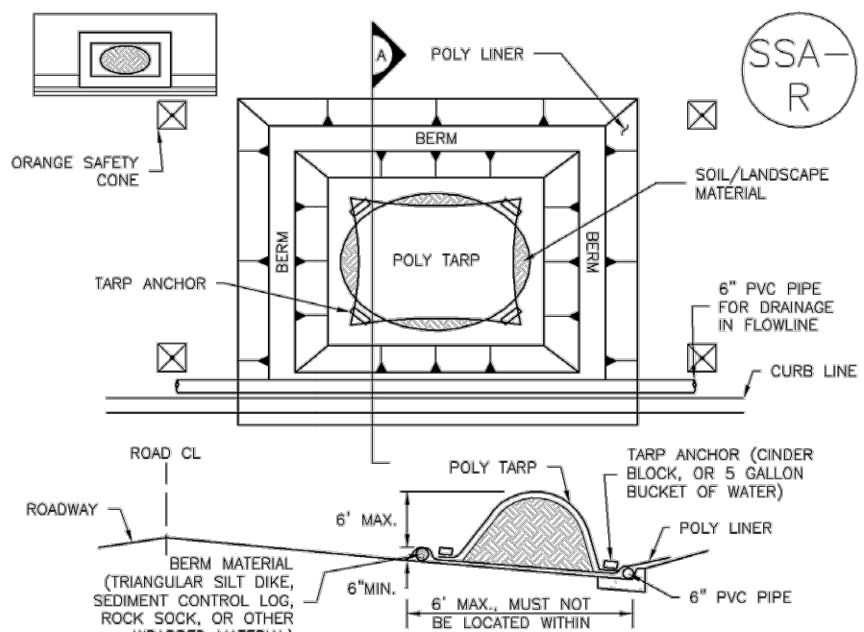
STOCKPILE PROTECTION MAINTENANCE NOTES

- 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.
- 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 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-4

Stockpile Management (SP)

MM-2



SP-2. MATERIALS STAGING IN ROADWAY

- MATERIALS STAGING IN ROADWAYS 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.
 - 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 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

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 SHEEPING 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 AUSTIN, COLORADO)

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

Stabilized Staging Area (SSA)

SM-6

Description

A stabilized staging area is a clearly designated area where construction equipment and vehicles, stockpiles, waste bins, and other construction-related materials are stored. The contractor office trailer may also be located in this area. Depending on the size of the construction site, more than one staging area may be necessary.

Appropriate Uses

Most construction sites will require a staging area, which should be clearly designated in SWMP drawings. The layout of the staging area may vary depending on the type of construction activity. Staging areas located in roadways due to space constraints require special measures to avoid materials being washed into storm inlets.

Design and Installation

Stabilized staging areas should be completed prior to other construction activities beginning on the site. Major components of a stabilized staging area include:

- Appropriate space to contain storage and provide for loading/unloading operations, as well as parking if necessary.
- A stabilized surface, either paved or covered, with 3-inch diameter aggregate or larger.
- Perimeter controls such as silt fence, sediment control logs, or other measures.
- Construction fencing to prevent unauthorized access to construction materials.
- Provisions for Good Housekeeping practices related to materials storage and disposal, as described in the Good Housekeeping BMP Fact Sheet.
- A stabilized construction entrance/exit, as described in the Vehicle Tracking Control BMP Fact Sheet, to accommodate traffic associated with material delivery and waste disposal vehicles.

Over-sizing the stabilized staging area may result in disturbance of existing vegetation in excess of that required for the project. This increases costs, as well as requirements for long-term stabilization following the construction period. When designing the stabilized staging area, minimize the area of disturbance to the extent practical.

Stabilized Staging Area	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material	Yes



Photograph SSA-1. Example of a staging area with a gravel surface to prevent mud tracking and reduce runoff. Photo courtesy of Douglas County.

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SSA-1

Stabilized Staging Area (SSA)

Minimizing Long-Term Stabilization Requirements

- Utilize off-site parking and restrict vehicle access to the site.
- Use construction mats in lieu of rock when staging is provided in an area that will not be disturbed otherwise.
- Consider use of a bermed contained area for materials and equipment that do not require a stabilized surface.
- Consider phasing of staging areas to avoid disturbance in an area that will not be otherwise disturbed.

See Detail SSA-1 for a typical stabilized staging area and SSA-2 for a stabilized staging area when materials staging in roadways is required.

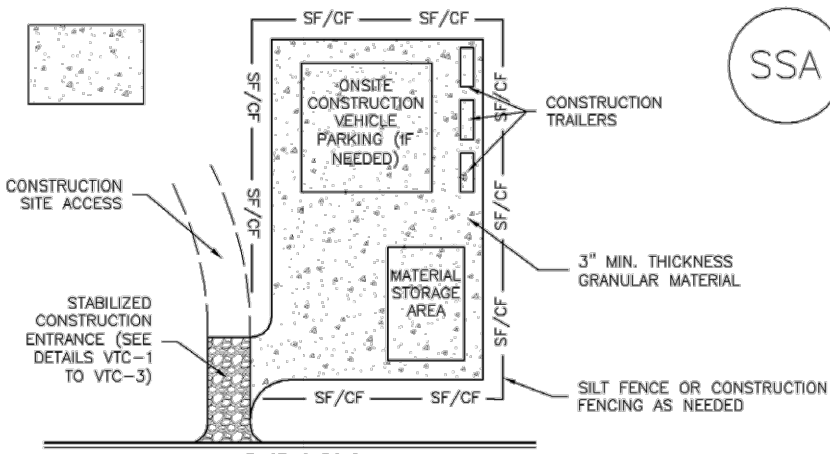
Maintenance and Removal

Maintenance of stabilized staging areas includes maintaining a stable surface cover of gravel, repairing perimeter controls, and following good housekeeping practices. When construction is complete, debris, unused stockpiles and materials should be recycled or properly disposed. In some cases, this will require disposal of contaminated soil from equipment leaks in an appropriate landfill. Staging areas should then be permanently stabilized with vegetation or other surface cover planned for the development.

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

Stabilized Staging Area (SSA)

SM-6



SSA-1. STABILIZED STAGING AREA

- STABILIZED STAGING AREA INSTALLATION NOTES**
- SEE PLAN VIEW FOR LOCATION OF STAGING AREA(S).
 - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
 - STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
 - STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
 - THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
 - UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
 - ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA 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.
- ROCK SHALL BE REPLACED 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

Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
- 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, SEEDING 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.

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

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NO.	REVISION	BY	DATE	APPR.

Kimley»Horn
 2025 KIMLEY-HORN AND ASSOCIATES, INC.
 2 North Nevada Avenue Suite 900
 Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: MEL
 DRAWN BY: MEL
 CHECKED BY: KKK
 DATE: 4/1/26

TANNER RANCH FILING NO. 1
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 GRADING AND EROSION CONTROL PLANS
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Sediment Basin (SB) SC-7

Description

A sediment basin is a temporary pond built on a construction site to capture eroded or disturbed soil transported in storm runoff prior to discharge from the site. Sediment basins are designed to capture site runoff and slowly release it to allow time for settling of sediment prior to discharge. Sediment basins are often constructed in locations that will later be modified to serve as post-construction stormwater basins.



Photograph SB-1. Sediment basin at the toe of a slope. Photo courtesy of W.W.E.

Appropriate Uses

Most large construction sites (typically greater than 2 acres) will require one or more sediment basins for effective management of construction site runoff. On linear construction projects, sediment basins may be impractical; instead, sediment traps or other combinations of BMPs may be more appropriate.

Sediment basins should not be used as stand-alone sediment controls. Erosion and other sediment controls should also be implemented upstream.

When feasible, the sediment basin should be installed in the same location where a permanent post-construction detention pond will be located.

Design and Installation

The design procedure for a sediment basin includes these steps:

- Basin Storage Volume:** Provide a storage volume of at least 3,600 cubic feet per acre of drainage area. To the extent practical, undisturbed and/or off-site areas should be diverted around sediment basins to prevent "clean" runoff from mixing with runoff from disturbed areas. For undisturbed areas (both on-site and off-site) that cannot be diverted around the sediment basin, provide a minimum of 500 ft³ of storage for undisturbed (but stable) off-site areas in addition to the 3,600 ft³ per acre for disturbed areas. For stable, developed areas that cannot be diverted around the sediment basin, storage volume requirements are summarized in Table SB-1.

- Basin Geometry:** Design basin with a minimum length-to-width ratio of 2:1 (L:W). If this cannot be achieved because of site space constraints, baffling may be required to extend the effective distance between the inflow position and the outlet to minimize short-circuiting.

Sediment Basins	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No

- Dam Embankment:** It is recommended that embankment slopes be 4:1 (H:V) or flatter and no steeper than 3:1 (H:V) in any location.

August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-1

SC-7 Sediment Basin (SB)

Inflow Structure: For concentrated flow entering the basin, provide energy dissipation at the point of inflow.

Table SB-1. Additional Volume Requirements for Undisturbed and Developed Tributary Areas Draining through Sediment Basins

Imperviousness (%)	Additional Storage Volume (ft ³) Per Acre of Tributary Area
Undeveloped	500
10	800
20	1230
30	1660
40	2030
50	2470
60	2980
70	3560
80	4360
90	5390
100	6460

- Outlet Works:** The outlet pipe shall extend through the embankment at a minimum slope of 0.5 percent. Outlet works can be designed using one of the following approaches:

- Riser Pipe (Simplified Detail):** Detail SB-1 provides a simplified design for basins treating no more than 15 acres.
- Outlet Plate or Riser Pipe:** Follow the design criteria for Full Spectrum Detention outlets in the EDB Fact Sheet provided in Chapter 4 of this manual for sizing of outlet perforations with an emptying time of approximately 72 hours. In lieu of the trash rack, pack uniformly sized 1½- to 2-inch gravel in front of the plate or surrounding the riser pipe. This gravel will need to be cleaned out frequently during the construction period as sediment accumulates within it. The gravel pack will need to be removed and disposed of following construction to reclaim the basin for use as a permanent detention facility. If the basin will be used as a permanent extended detention basin for the site, a trash rack will need to be installed once contributing drainage areas have been stabilized and the gravel pack and accumulated sediment have been removed.
- Floating Skimmer:** If a floating skimmer is used, install it using manufacturer's recommendations. Illustration SB-1 provides an illustration of a Faircloth Skimmer Floating Outlet™, one of the more commonly used floating skimmer outlets. A skimmer should be designed to release the design volume in no less than 48 hours. The use of a floating skimmer outlet can increase the sediment capture efficiency of a basin significantly. A floating outlet continually decants cleanest water off the surface of the pond and releases cleaner water than would discharge from a perforated riser pipe or plate.

SB-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

Sediment Basin (SB) SC-7

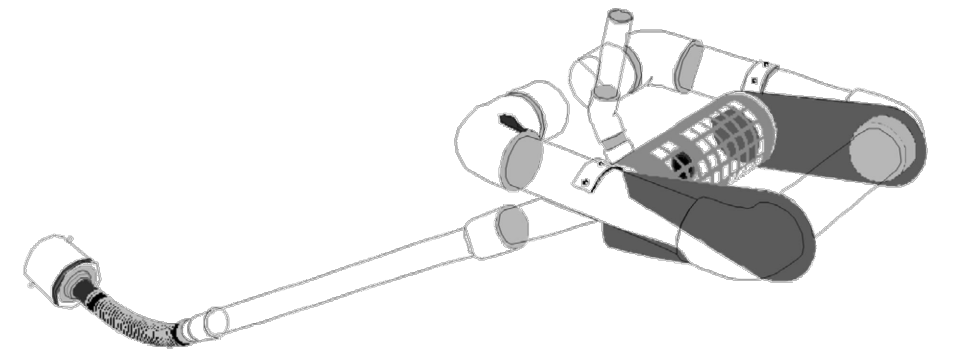


Illustration SB-1. Outlet structure for a temporary sediment basin - Faircloth Skimmer Floating Outlet. Illustration courtesy of W. W. Faircloth & Sons, Inc., FairclothSkimmer.com.

- Outlet Protection and Spillway:** Consider all flow paths for runoff leaving the basin, including protection at the typical point of discharge as well as overtopping.

- Outlet Protection:** Outlet protection should be provided where the velocity of flow will exceed the maximum permissible velocity of the material of the waterway into which discharge occurs. This may require the use of a riprap apron at the outlet location and/or other measures to keep the waterway from eroding.
- Emergency Spillway:** Provide a stabilized emergency overflow spillway for rainstorms that exceed the capacity of the sediment basin volume and its outlet. Protect basin embankments from erosion and overtopping. If the sediment basin will be converted to a permanent detention basin, design and construct the emergency spillway(s) as required for the permanent facility. If the sediment basin will not become a permanent detention basin, it may be possible to substitute a heavy polyvinyl membrane or properly bedded rock cover to line the spillway and downstream embankment, depending on the height, slope, and width of the embankments.

August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-3

SC-7 Sediment Basin (SB)

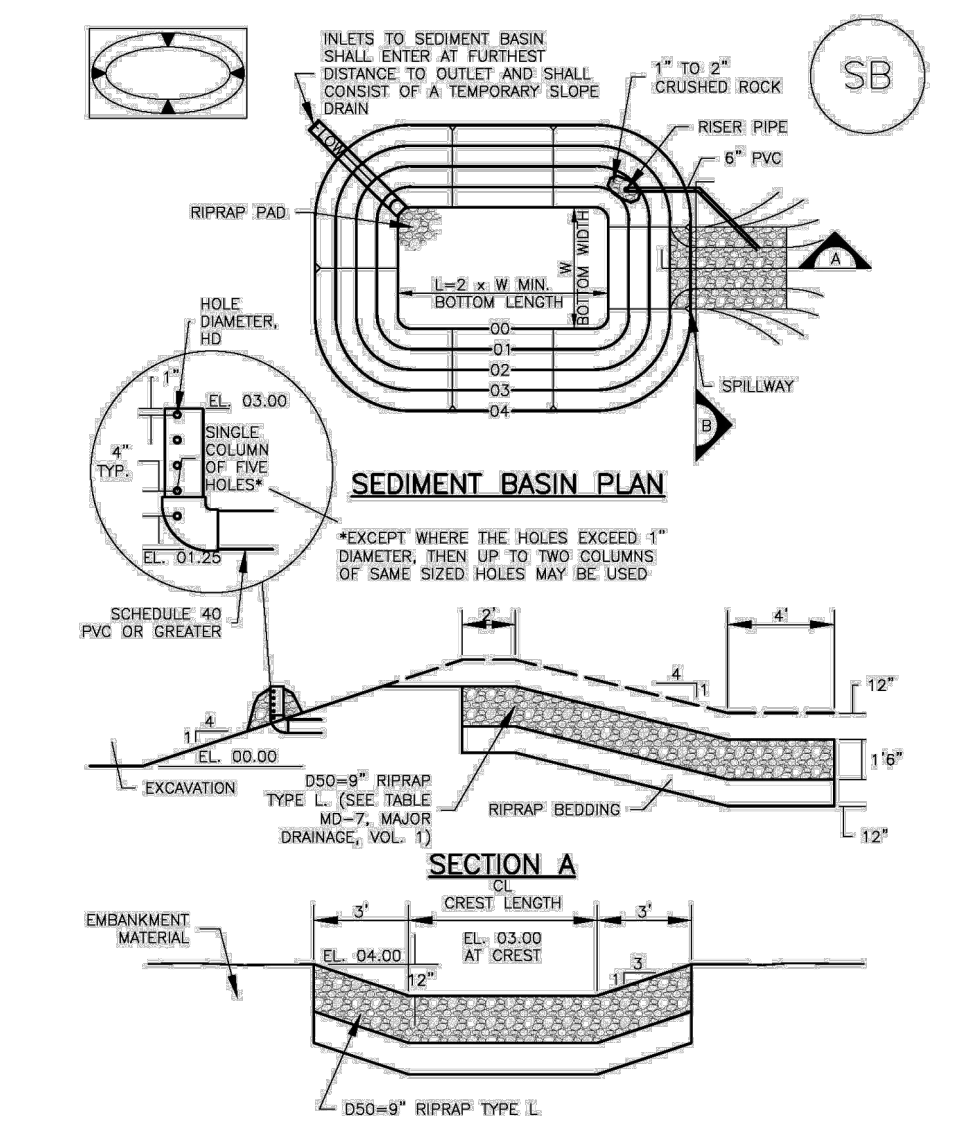
Maintenance and Removal

Maintenance activities include the following:

- Dredge sediment from the basin, as needed to maintain BMP effectiveness, typically when the design storage volume is no more than one-third filled with sediment.
- Inspect the sediment basin embankments for stability and seepage.
- Inspect the inlet and outlet of the basin, repair damage, and remove debris. Remove, clean and replace the gravel around the outlet on a regular basis to remove the accumulated sediment within it and keep the outlet functioning.
- Be aware that removal of a sediment basin may require dewatering and associated permit requirements.
- Do not remove a sediment basin until the upstream area has been stabilized with vegetation.

Final disposition of the sediment basin depends on whether the basin will be converted to a permanent post-construction stormwater basin or whether the basin area will be returned to grade. For basins being converted to permanent detention basins, remove accumulated sediment and reconfigure the basin and outlet to meet the requirements of the final design for the detention facility. If the sediment basin is not to be used as a permanent detention facility, fill the excavated area with soil and stabilize with vegetation.

Sediment Basin (SB) SC-7



August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-5

SC-7 Sediment Basin (SB)

Upstream Drainage Area (Furthest to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (DE), (in)
1	12 ½	2	½
2	16 ½	3	¾
3	20 ½	4	1
4	24 ½	5	1 ¼
5	28 ½	6	1 ½
6	32 ½	7	1 ¾
7	36 ½	8	2
8	40 ½	9	2 ¼
9	44 ½	10	2 ½
10	48 ½	11	2 ¾
11	52 ½	12	3
12	56 ½	13	3 ¼
13	60 ½	14	3 ½
14	64 ½	15	3 ¾
15	68 ½	16	4
16	72 ½	17	4 ¼
17	76 ½	18	4 ½
18	80 ½	19	4 ¾
19	84 ½	20	5
20	88 ½	21	5 ¼
21	92 ½	22	5 ½
22	96 ½	23	5 ¾
23	100 ½	24	6

SEDIMENT BASIN INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF SEDIMENT BASIN.
 - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
 - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
 - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PVC DIAMETER D.
- FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
- SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON OR BAINS AS A STORMWATER CONTROL.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE (GREATER THAN 3 INCHES) AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
- PIPE 30" HD OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASINS FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASINS THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SB-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

Sediment Basin (SB) SC-7

SEDIMENT BASIN 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.
 - SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
 - SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
 - WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDS AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-7

Vehicle Tracking Control (VTC) SM-4

Description

Vehicle tracking controls provide stabilized construction site access where vehicles exit the site onto paved public roads. An effective vehicle tracking control helps remove sediment (mud or dirt) from vehicles, reducing tracking onto the paved surface.



Photograph VTC-1. A vehicle tracking control pad constructed with properly sized rock reduces off-site sediment tracking.

Appropriate Uses

Implement a stabilized construction entrance or vehicle tracking control where frequent heavy vehicle traffic exits the construction site onto a paved roadway. An effective vehicle tracking control is particularly important during the following conditions:

- Wet weather periods when mud is easily tracked off site.
- During dry weather periods where dust is a concern.
- When poorly drained, clayey soils are present on site.

Although wheel washes are not required in designs of vehicle tracking controls, they may be needed at particularly muddy sites.

Design and Installation

Construct the vehicle tracking control on a level surface. Where feasible, grade the tracking control towards the construction site to reduce off-site runoff. Place signage, as needed, to direct construction vehicles to the designated exit through the vehicle tracking control. There are several different types of stabilized construction entrances including:

VTC-1. Aggregate Vehicle Tracking Control. This is a coarse-aggregate surfaced pad underlain by a geotextile. This is the most common vehicle tracking control, and when properly maintained can be effective at removing sediment from vehicle tires.

VTC-2. Vehicle Tracking Control with Construction Mat or Turf Reinforcement Mat. This type of control may be appropriate for site access at very small construction sites with low traffic volume over vegetated areas. Although this application does not typically remove sediment from vehicles, it helps protect existing vegetation and provides a stabilized entrance.

Vehicle Tracking Control	
Functions	
Erosion Control	Moderate
Sediment Control	Yes
Site/Material Management	Yes

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 VTC-1

SM-4 Vehicle Tracking Control (VTC)

VTC-3. Stabilized Construction Entrance/Exit with Wheel Wash. This is an aggregate pad, similar to VTC-1, but includes equipment for tire washing. The wheel wash equipment may be as simple as hand-held power washing equipment to more advance proprietary systems. When a wheel wash is provided, it is important to direct wash water to a sediment trap prior to discharge from the site.

Vehicle tracking controls are sometimes installed in combination with a sediment trap to treat runoff.

Maintenance and Removal

Inspect the area for degradation and replace aggregate or material used for a stabilized entrance/exit as needed. If the area becomes clogged and ponds water, remove and dispose of excess sediment or replace material with a fresh layer of aggregate as necessary.



Photograph VTC-2. A vehicle tracking control pad with wheel wash facility. Photo courtesy of Tom Gore.

With aggregate vehicle tracking controls, ensure rock and debris from this area do not enter the public right-of-way.

Remove sediment that is tracked onto the public right of way daily or more frequently as needed. Excess sediment in the roadway indicates that the stabilized construction entrance needs maintenance.

Ensure that drainage ditches at the entrance/exit area remain clear.

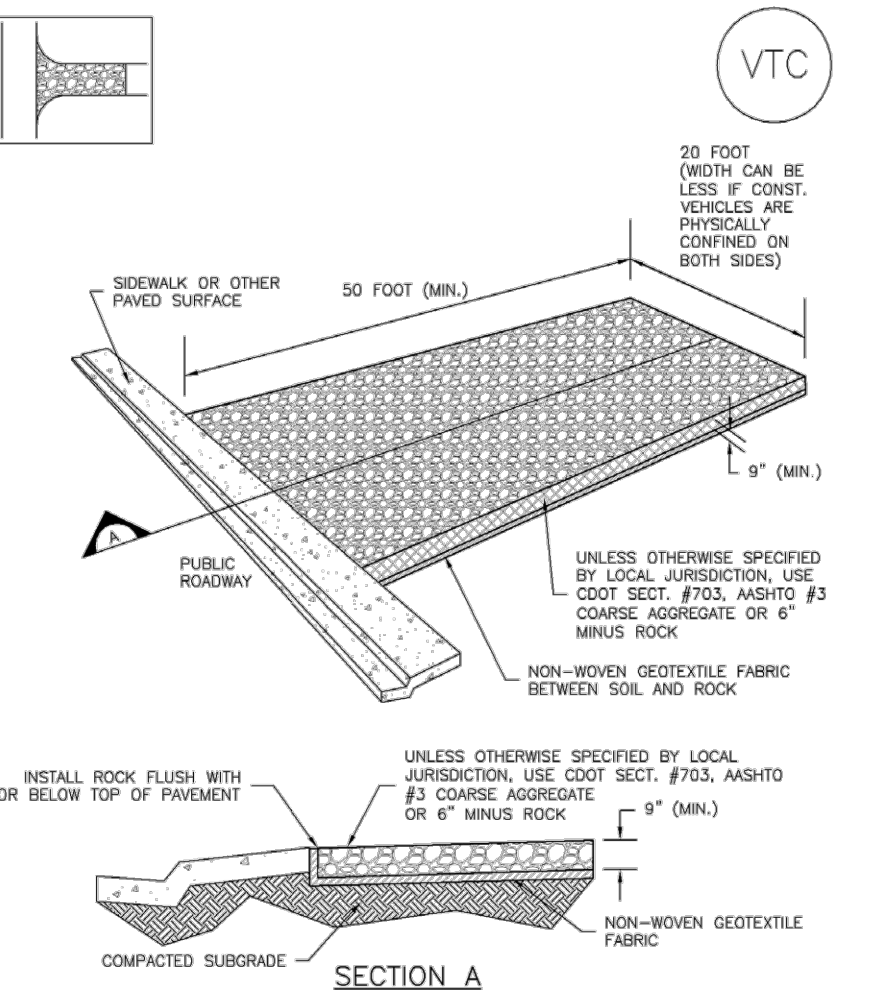
A stabilized entrance should be removed only when there is no longer the potential for vehicle tracking to occur. This is typically after the site has been stabilized.

When wheel wash equipment is used, be sure that the wash water is discharged to a sediment trap prior to discharge. Also inspect channels conveying the water from the wash area to the sediment trap and stabilize areas that may be eroding.

When a construction entrance/exit is removed, excess sediment from the aggregate should be removed and disposed of appropriately. The entrance should be promptly stabilized with a permanent surface following removal, typically by paving.

VTC-2 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

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Colorado Springs, Colorado 80903 (719) 453-0180

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DRAWN BY: MEL
CHECKED BY: KRK
DATE: 4/1/26

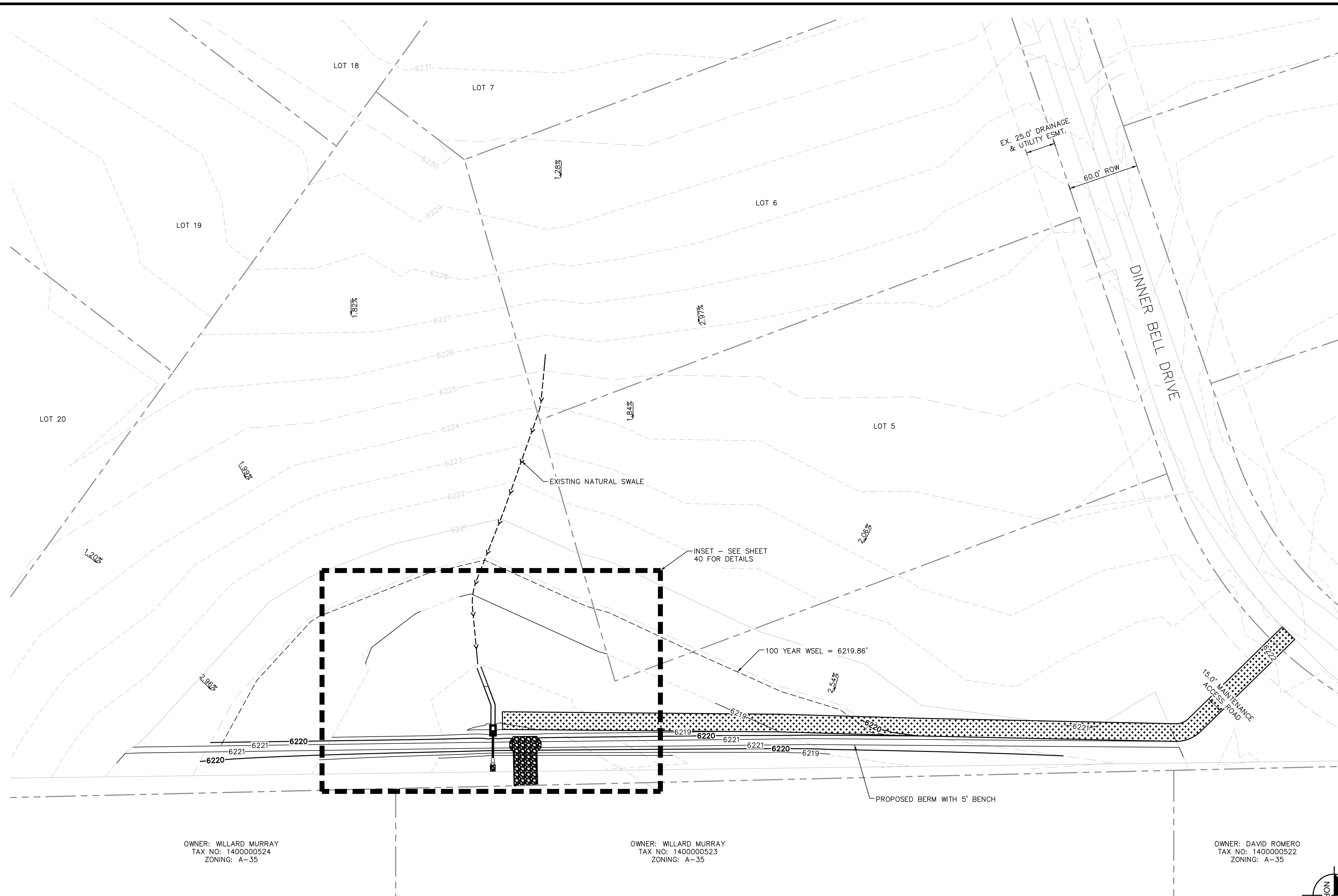
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EL PASO COUNTY, COLORADO
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GEC DETAILS

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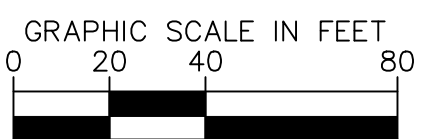
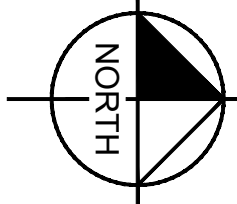
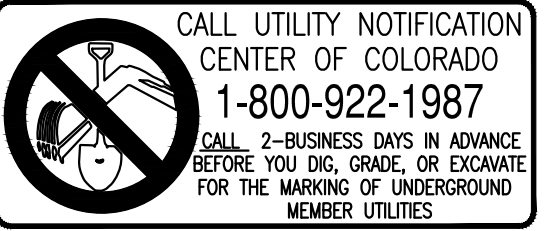
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OWNER: WILLARD MURRAY
TAX NO: 140000524
ZONING: A-35

OWNER: WILLARD MURRAY
TAX NO: 140000523
ZONING: A-35

OWNER: DAVID ROMERO
TAX NO: 140000522
ZONING: A-35



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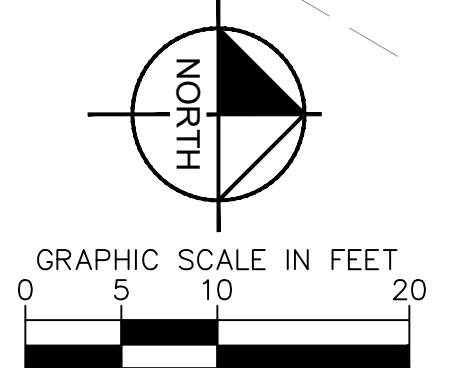
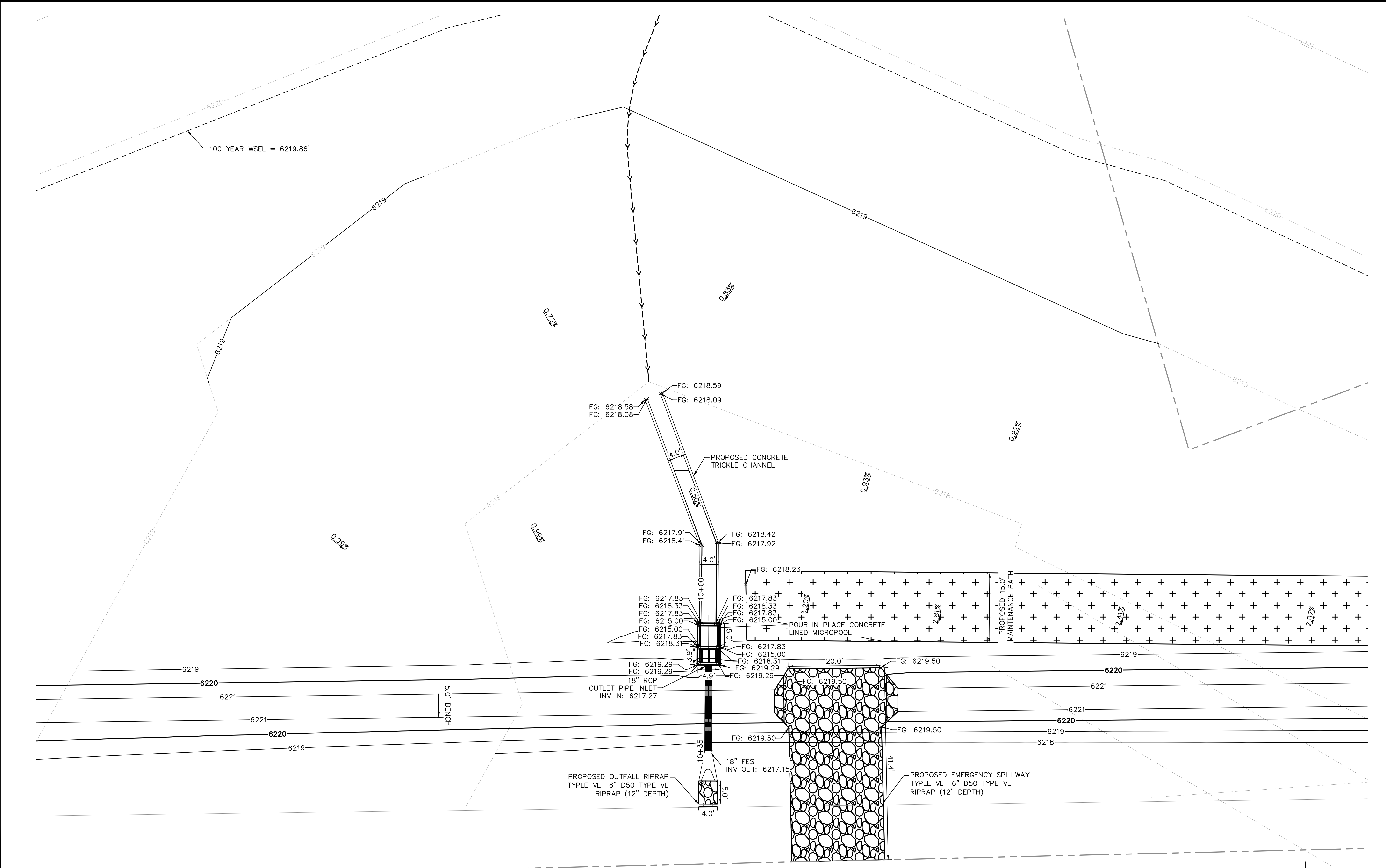
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OVERALL POND A PLAN

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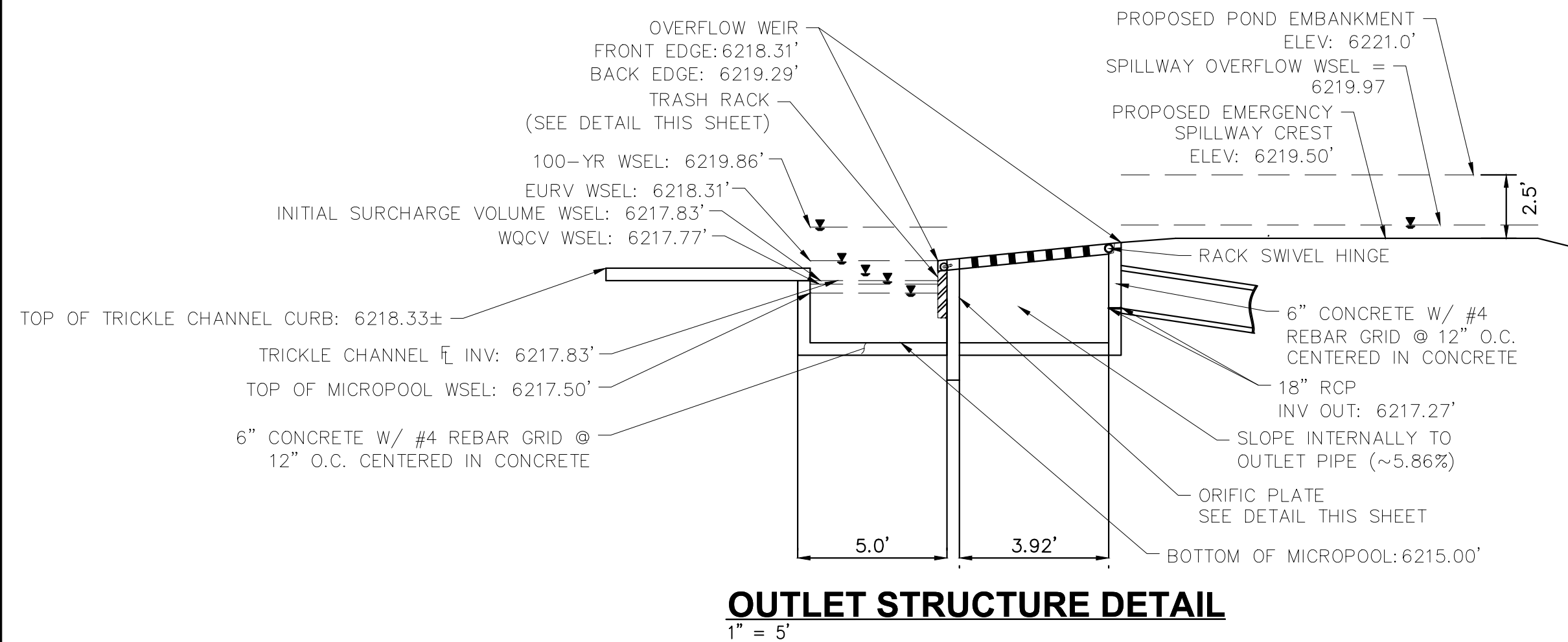
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 POND A PLAN INSET

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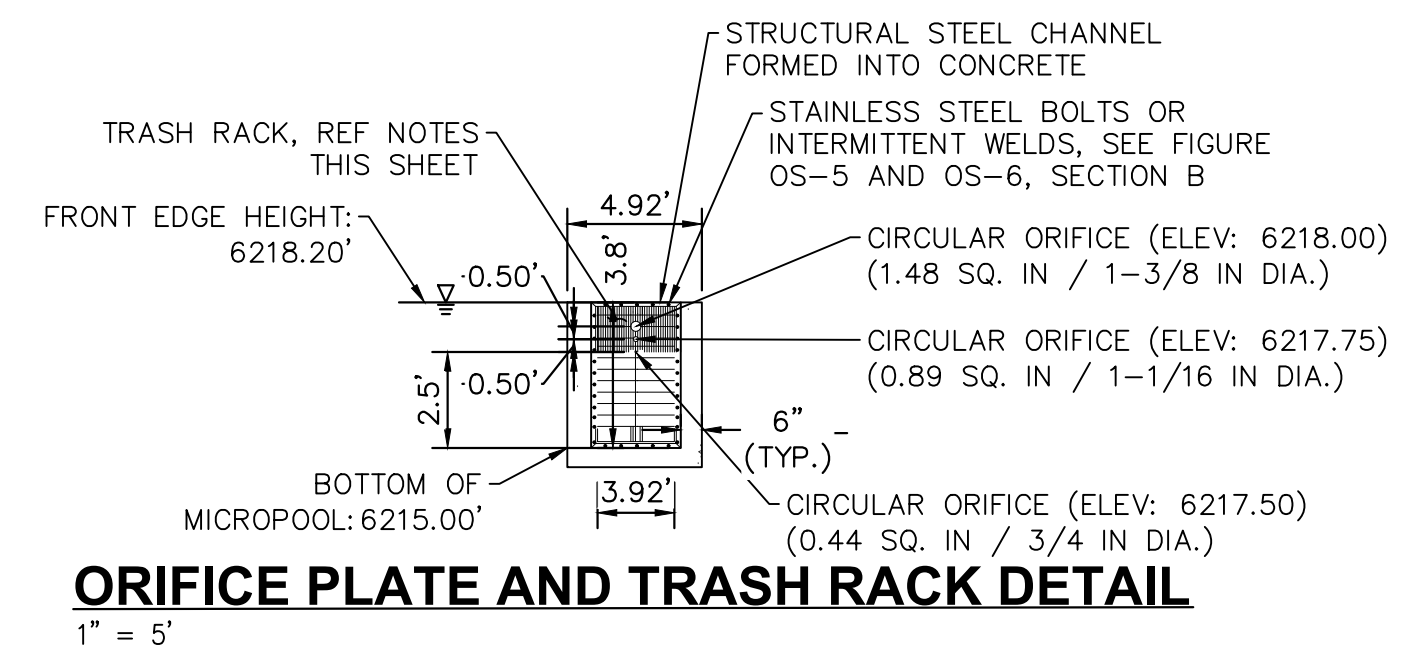
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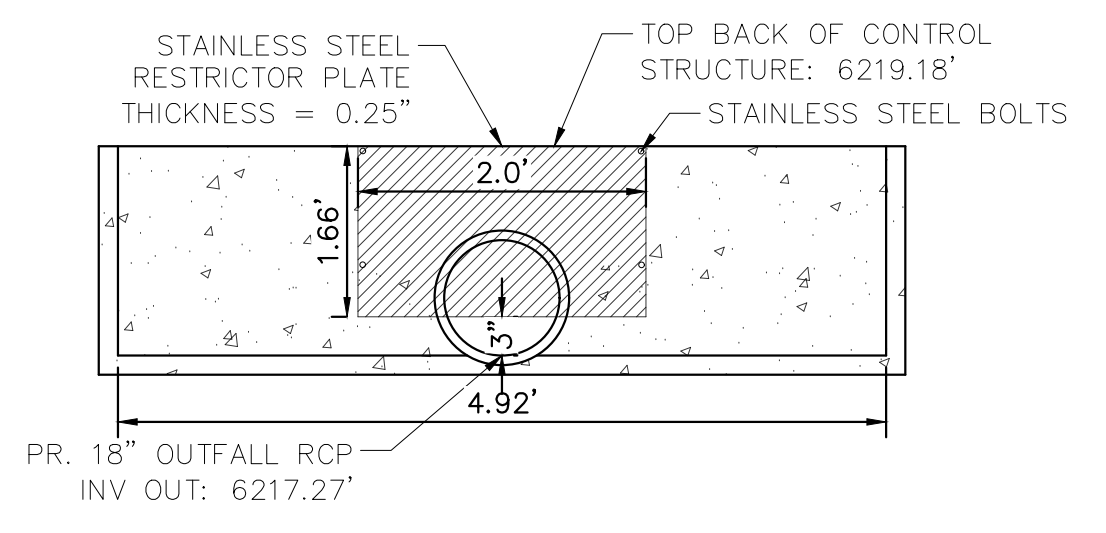
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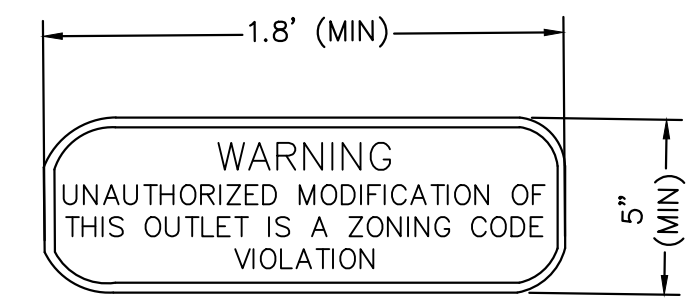
OUTLET STRUCTURE DETAIL
1" = 5'



ORIFICE PLATE AND TRASH RACK DETAIL
1" = 5'

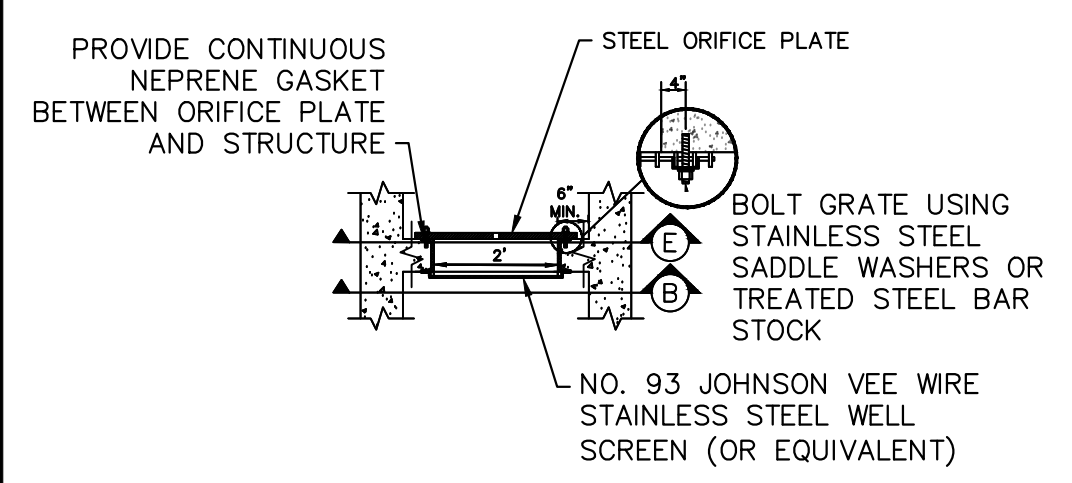


RESTRICTOR PLATE

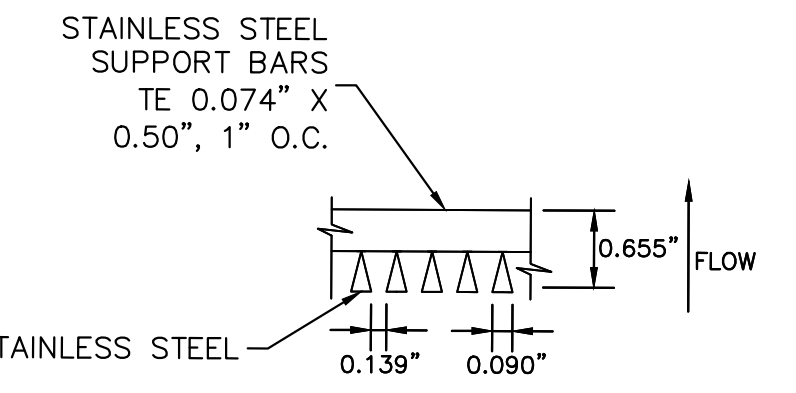


OUTLET SIGNAGE

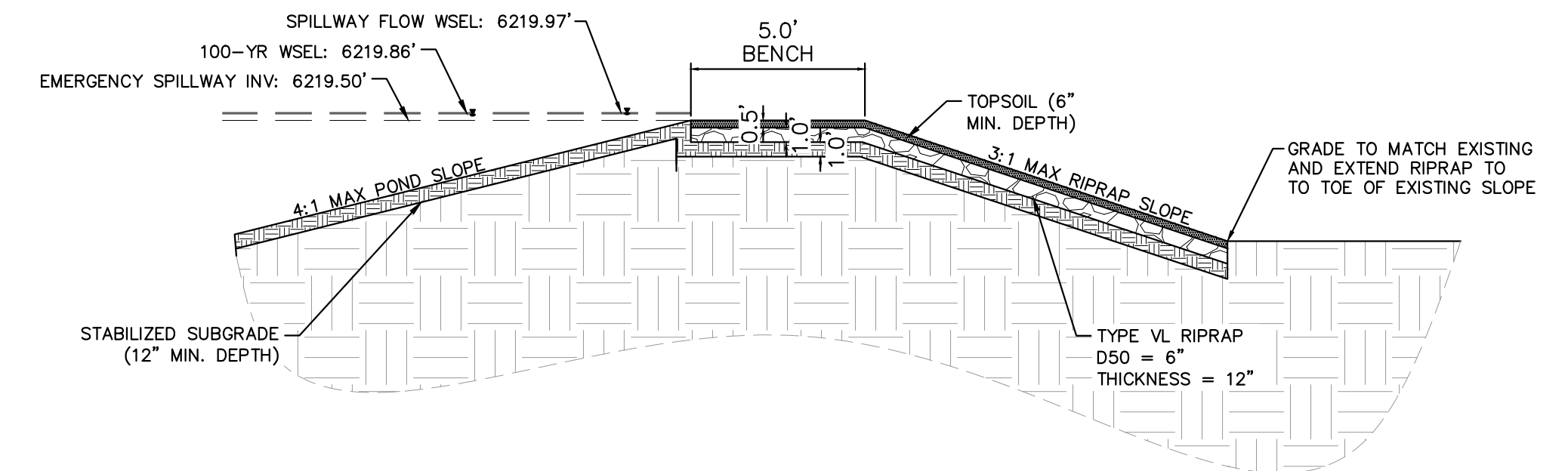
N.T.S.
OUTLET SIGNAGE NOTES
 1. SIGN SHALL BE A MINIMUM OF 0.75 SQUARE FEET AND SHALL BE ATTACHED TO THE OUTLET OR POSTED NEARBY.



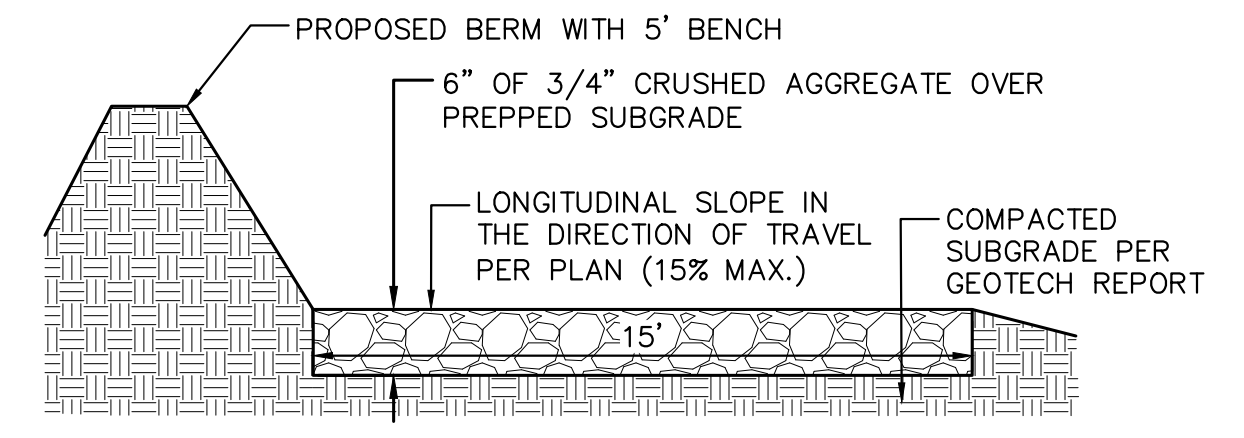
SECTION A



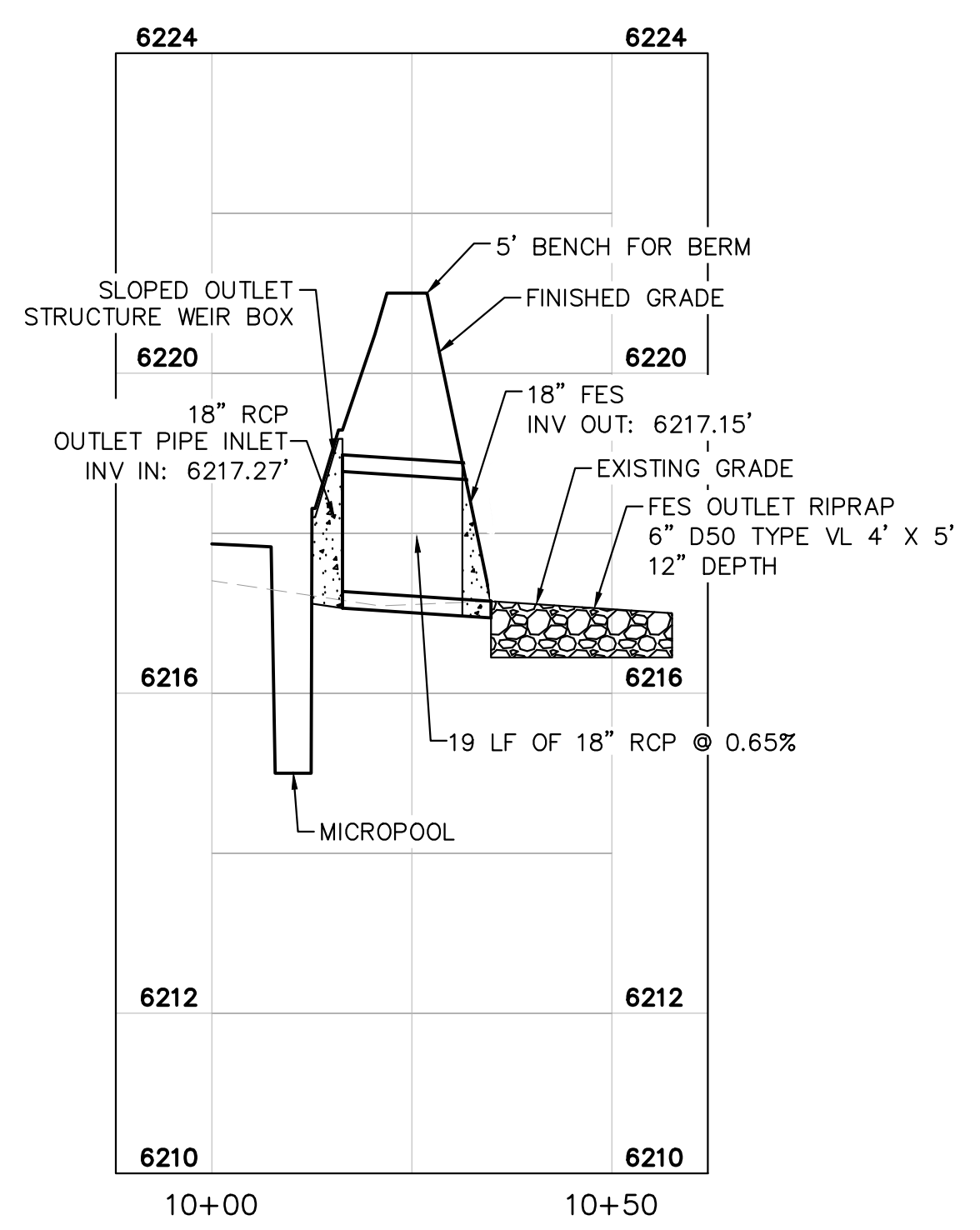
WELL SCREEN



EMERGENCY SPILLWAY - PROFILE VIEW
1" = 10'



MAINTENANCE ACCESS RD DETAIL
N.T.S.



OUTLET STRUCTURE PROFILE
1" = 10'



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**APPENDIX B
CDPHE STOMWATER PERMIT**



STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Water Quality Control Division

CDPS GENERAL PERMIT
STORMWATER DISCHARGES ASSOCIATED WITH
CONSTRUCTION ACTIVITY
AUTHORIZATION TO DISCHARGE UNDER THE
COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), this permit authorizes the discharge of stormwater associated with construction activities (and specific allowable non-stormwater discharges in accordance with Part I.A.1. of the permit) certified under this permit, from those locations specified throughout the State of Colorado to specified waters of the State.

Such discharges shall be in accordance with the conditions of this permit. This permit specifically authorizes the facility listed on the certification to discharge in accordance with permit requirements and conditions set forth in Parts I and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

This permit becomes effective on April 1, 2019, and shall expire at midnight March 31, 2024.

Issued and signed this 1st day of November 2018.

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Ellen Howard Kutzer, Permits Section Manager
Water Quality Control Division

Permit History

Originally signed and issued October 31, 2018; effective April 1, 2019.

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Part I

Note: At the first mention of terminology that has a specific connotation for the purposes of this permit, the terminology is electronically linked to the definitions section of the permit in Part I.E.

A. COVERAGE UNDER THIS PERMIT**1. Authorized Discharges**

This general permit authorizes [permittee\(s\)](#) to discharge the following to state waters: stormwater associated with [construction activity](#) and specified non-stormwater associated with construction activity. The following types of stormwater and non-stormwater discharges are authorized under this permit:

a. Allowable Stormwater Discharges

- i. Stormwater discharges associated with construction activity.
- ii. Stormwater discharges associated with producing earthen materials, such as soils, sand, and gravel dedicated to providing material to a single contiguous site, or within ¼ mile of a construction site (i.e. borrow or fill areas)
- iii. Stormwater discharges associated with [dedicated asphalt, concrete batch plants and masonry mixing stations](#) (Coverage under this permit is not required if alternative coverage has been obtained.)

b. Allowable Non-Stormwater Discharges

The following non-stormwater discharges are allowable under this permit if the discharges are identified in the stormwater management plan in accordance with Part I.C. and if they have appropriate [control measures](#) in accordance with Part I.B.1.

- i. Discharges from uncontaminated springs that do not originate from an area of land disturbance.
- ii. Discharges to the ground of concrete washout water associated with the washing of concrete tools and concrete mixer chutes. Discharges of concrete washout water must not leave the site as surface runoff or reach [receiving waters](#) as defined by this permit.
- iii. Discharges of landscape irrigation return flow.

c. Emergency Fire Fighting

Discharges resulting from emergency firefighting activities are authorized by this permit.

2. Limitations on Coverage

Discharges not authorized by this permit include, but are not limited to, the discharges and activities listed below. Permittees may seek individual or alternate general permit coverage for the discharges, as appropriate and available.

a. Discharges of Non-Stormwater

Discharges of non-stormwater, except the authorized non-stormwater discharges listed in Part I.A.1.b., are not eligible for coverage under this permit.

- b. Discharges Currently Covered by another Individual or General Permit
 - c. Discharges Currently Covered by a Water Quality Control Division (division) Low Risk Guidance Document
3. Permit Certification and Submittal Procedures
- a. Duty to apply
The following activities shall apply for coverage under this permit:
 - i. Construction sites that will disturb one acre or more; or
 - ii. Construction sites that are part of a [common plan of development or sale](#); or
 - iii. Stormwater discharges that are designated by the division as needing a stormwater permit because the discharge:
 - (a) Contributes to a violation of a water quality standard; or
 - (b) is a significant contributor of pollutants to state waters.
 - b. Application Requirements
To obtain authorization to discharge under this permit, applicants applying for coverage following the effective date of the renewal permit shall meet the following requirements:
 - i. Owners and operators submitting an application for permit coverage will be co-permittees subject to the same benefits, duties, and obligations under this permit.
 - ii. Signature requirements: Both the [owner](#) and [operator](#) (permittee) of the construction site, as defined in Part I.E., must agree to the terms and conditions of the permit and submit a completed application that includes the signature of both the owner and the operator. In cases where the duties of the owner and operator are managed by the owner, both application signatures may be completed by the owner. Both the owner and operator are responsible for ensuring compliance with all terms and conditions of the permit, including implementation of the stormwater management plan.
 - iii. Applicants must use the paper form provided by the division or the electronic form provided on the division's web-based application platform when applying for coverage under this permit.
 - iv. The applicant(s) must develop a stormwater management plan (SWMP) in accordance with the requirements of Part I.C. The applicant(s) must also certify that the SWMP is complete, or will be complete, prior to commencement of any construction activity.

- v. The applicant(s) must submit a complete, accurate, and signed permit application electronically, by mail or hand delivery to the division at least 10 days prior to the commencement of construction activity except that construction activities that are in response to a **public emergency related site** shall apply for coverage no later than 14 days after the commencement of construction activities. The provisions of this part in no way remove a violation of the Colorado Water Quality Control Act if a point source discharge occurs prior to the issuance of a CDPS permit.
 - vi. The application must be signed in accordance with the requirements of Part IA. Applications submitted by mail or hand delivered should be directed to:

Colorado Department of Public Health and Environment
Water Quality Control Division
Permits Section, WQCD-PS-B2
4300 Cherry Creek Drive South
Denver, CO 80246
 - vii. The applicant(s) must receive written notification that the division granted permit coverage prior to conducting construction activities except for construction activities that are in response to a public emergency related site
- c. Division Review of Permit Application
Within 10 days of receipt of the application, and following review of the application, the division may:
- i. Issue a certification of coverage;
 - ii. request additional information necessary to evaluate the discharge;
 - iii. delay the authorization to discharge pending further review;
 - iv. notify the applicant that additional terms and conditions are necessary; or
 - v. deny the authorization to discharge under this general permit.
- d. Alternative Permit Coverage
- i. Division Required Alternate Permit Coverage:
The Division may require an applicant or permittee to apply for an individual permit or an alternative general permit if it determines the discharge does not fall under the scope of this general permit. In this case, the Division will notify the applicant or permittee that an individual permit application is required.
 - ii. Permittee Request for alternate permit coverage:
A permittee authorized to discharge stormwater under this permit may request to be excluded from coverage under this general permit by applying for an individual permit. In this case, the permittee must submit an individual application, with reasons supporting the request, to the Division at least 180 days prior to any discharge. When an individual permit is issued, the permittee's authorization to discharge under this permit is terminated on the effective date of the individual permit.
- e. Submittal Signature Requirements

Documents required for submittal to the division in accordance with this permit, including applications for permit coverage and other documents as requested by the division, must include signatures by both the owner and the operator, except for instances where the duties of the owner and operator are managed by the owner.

Signatures on all documents submitted to the division as required by this permit must meet the Standard Signatory Requirements in Part II.K. of this permit in accordance with 40 C.F.R. 122.41(k).

i. Signature Certification

Any person(s) signing documents required for submittal to the Division must make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

f. Compliance Document Signature Requirements

Documents which are required for compliance with the permit, but for which submittal to the division is not required unless specifically requested by the division, must be signed by the individual(s) designated as the Qualified Stormwater Manager, as defined in Part I.E.

i. Any person(s) signing inspection documents required for compliance with the permit must make the following statement:

"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

g. Field Wide Permit Coverage for Oil and Gas Construction

At the discretion of the division, a single permit certification may be issued to a single oil and gas permittee to cover construction activity related discharges from an oil and gas field at multiple locations that are not necessarily contiguous.

h. Permit Coverage without Application

Qualifying Local Program: When a small construction site is within the jurisdiction of a qualifying local program, the owner and operator of the construction activity are authorized to discharge stormwater associated with small construction activity under this general permit without the submittal of an application to the division. Sites covered by a qualifying local program are exempt from the following sections of this general permit:

Part I.A.3.a.; Part I.A.3.b.; Part I.A.3.c.; Part I.A.3.d.; Part I.A.3.g.; Part I.A.3.i.; Part I.A.3.j.; Part I.A.3.k.

Sites covered by a qualifying local program are subject to the following requirements:

- i. **Local Agency Authority:** This permit does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control discharges of stormwater to storm drain systems or other water courses within their jurisdiction.
 - ii. **Permit Coverage Termination:** When a site under a Qualifying Local Program is finally stabilized, coverage under this permit is automatically terminated.
 - iii. **Compliance with Qualifying Local Program:** Qualifying Local Program requirements that are equivalent to the requirements of this permit are incorporated by reference. Permittees authorized to discharge under this permit, must comply with the equivalent requirements of the Qualifying Local Program that has jurisdiction over the site as a condition of this permit.
 - iv. **Compliance with Remaining Permit Conditions.** Requirements of this permit that are in addition to or more stringent than the requirements of the Qualifying Local Program apply in addition to the requirements of the Qualifying Local Program.
 - v. **Written Authorization of Coverage:** The division or local municipality may require any permittee within the jurisdiction of a Qualifying Local Program covered under this permit to apply for, and obtain written authorization of coverage under this permit. The permittee must be notified in writing that an application for written authorization of coverage is required.
- i. **Permittee Initiated Permit Actions**
Permittee initiated permit actions, including but not limited to modifications, contact changes, transfers, reassignments, and terminations, shall be conducted following division guidance and using appropriate division-provided forms.
 - j. **Sale of Residence to Homeowner**
Residential construction sites only: The permittee may remove residential lots from permit coverage once the lot meets the following criteria:
 - i. the residential lot has been sold to the homeowner(s) for private residential use;
 - ii. a certificate of occupancy, or equivalent, is maintained on-site and is available during division inspections;
 - iii. the lot is less than one acre of disturbance;
 - iv. all construction activity conducted on the lot by the permittee is complete;
 - v. the permittee is not responsible for final stabilization of the lot; and
 - vi. the SWMP was modified to indicate the lot is no longer part of the construction activity.

If the residential lot meets the criteria listed above then activities occurring on the lot are no longer considered to be construction activities with a duty to apply and maintain permit coverage. Therefore, the permittee is not required to meet the final stabilization requirements and may terminate permit coverage for the lot.

k. Permit Expiration and Continuation of Permit Coverage

Authorization to discharge under this general permit shall expire at midnight on March 31, 2024. While Regulation 61.4 requires a permittee to submit an application for continuing permit coverage 180 days before the permit expires, the division is requiring that permittees desiring continued coverage under this general permit must reapply at least 90 days in advance of this permit expiration. The Division will determine if the permittee may continue to discharge stormwater under the terms of the general permit. An individual permit may be required for any facility not reauthorized to discharge under the reissued general permit.

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued and remain in force and effect. For permittees that have applied for continued permit coverage, discharges authorized under this permit prior to the expiration date will automatically remain covered by this permit until the earliest of:

- i. An authorization to discharge under a reissued permit, or a replacement of this permit, following the timely and appropriate submittal of a complete application requesting authorization to discharge under the new permit and compliance with the requirements of the new permit; or
- ii. The issuance and effect of a termination issued by the Division; or
- iii. The issuance or denial of an individual permit for the facility's discharges; or
- iv. A formal permit decision by the Division not to reissue this general permit, at which time the Division will identify a reasonable time period for covered dischargers to seek coverage under an alternative general permit or an individual permit. Coverage under this permit will cease when coverage under another permit is granted/authorized; or
- v. The Division has informed the permittee that discharges previously authorized under this permit are no longer covered under this permit.

B. EFFLUENT LIMITATIONS

1. Requirements for Control Measures Used to Meet Effluent Limitations

The permittee must implement control measures to **minimize** the discharge of pollutants from all potential pollutant sources at the site. Control measures must be installed prior to commencement of activities that may contribute pollutants to stormwater discharges. Control measures must be selected, designed, installed and maintained in accordance with good engineering, hydrologic and pollution control practices. Control measures implemented at the site must be designed to prevent pollution or degradation of state waters.

a. Stormwater Pollution Prevention

The permittee must implement structural and/or nonstructural control measures that effectively minimize erosion, sediment transport, and the release of other pollutants related to construction activity.

i. Control Measures for Erosion and Sediment Control

Control measures for erosion and sediment control may include, but are not limited to, wattles/sediment control logs, silt fences, earthen dikes, drainage swales, sediment traps, subsurface drains, pipe slope drains, inlet protection, outlet protection, gabions, sediment basins, temporary vegetation, permanent vegetation, mulching, geotextiles, sod stabilization, slope roughening, maintaining existing vegetation, protection of trees, and preservation of mature vegetation. Specific non-structural control measures must meet the requirements listed below.

Specific control measures must meet the requirements listed below.

- (a) Vehicle tracking controls shall either be implemented to minimize vehicle tracking of sediment from disturbed areas, or the areas where vehicle tracking occurs shall meet subsection Part I.B.1.a.i(b);
- (b) Stormwater runoff from all disturbed areas and soil storage areas for which permanent or temporary stabilization is not implemented, must flow to at least one control measure to minimize sediment in the discharge. This may be accomplished through filtering, settling, or straining. The control measure must be selected, designed, installed and adequately sized in accordance with good engineering, hydrologic and pollution control practices. The control measure(s) must contain or filter flows in order to prevent the bypass of flows without treatment and must be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions (i.e., sheet or concentrated flow);
- (c) Outlets that withdraw water from or near the surface shall be installed when discharging from basins and impoundments, unless **infeasible**.
- (d) Maintain pre-existing vegetation or equivalent control measures for areas within 50 horizontal feet of receiving waters as defined by this permit, unless **infeasible**.
- (e) Soil compaction must be minimized for areas where infiltration control measures will occur or where **final stabilization** will be achieved through vegetative cover.
- (f) Unless **infeasible**, topsoil shall be preserved for those areas of a site that will utilize vegetative final stabilization.
- (g) Minimize the amount of soil exposed during construction activity, including the disturbance of steep slopes.

ii. Practices for Other Common Pollutants

- (a) Bulk storage, 55 gallons or greater, for petroleum products and other liquid chemicals must have secondary containment, or equivalent protection, in order to contain **spills** and to prevent spilled material from entering state waters.
- (b) Control measures designed for concrete washout waste must be implemented. This includes washout waste discharged to the ground as authorized under this permit and washout waste from concrete trucks and masonry operations contained on site. The permittee must ensure the washing activities do not contribute pollutants to stormwater runoff, or receiving waters in accordance Part I.A.1.b.ii. Discharges that may reach groundwater must flow through soil

that has buffering capacity prior to reaching groundwater, as necessary to meet the effluent limits in this permit, including Part I.B.3.a. The concrete washout location shall not be located in an area where shallow groundwater may be present and would result in buffering capacity not being adequate, such as near natural drainages, springs, or wetlands. This permit authorizes discharges to the ground of concrete washout waste.

iii. Stabilization Requirements

The following requirements must be implemented for each site.

- (a) Temporary stabilization must be implemented for earth disturbing activities on any portion of the site where ground disturbing construction activity has permanently ceased, or temporarily ceased for more than 14 calendar days. Temporary stabilization methods may include, but are not limited to, tarps, soil tackifier, and hydroseed. The permittee may exceed the 14-day schedule when either the function of the specific area of the site requires it to remain disturbed, or, physical characteristics of the terrain and climate prevent stabilization. The SWMP must document the constraints necessitating the alternative schedule, provide the alternate stabilization schedule, and identify all locations where the alternative schedule is applicable on the site map.
- (b) Final stabilization must be implemented for all construction sites. Final stabilization is reached when all ground surface disturbing activities at the construction site are complete; and, for all areas of ground surface disturbing activities, either a uniform vegetative cover with an individual plant density of at least 70 percent of pre-disturbance levels is established, or equivalent permanent alternative stabilization methods are implemented. The division may approve alternative final stabilization criteria for specific operations.
- (c) Final stabilization must be designed and installed as a permanent feature. Final stabilization measures for obtaining a vegetative cover or alternative stabilization methods include, but are not limited to, the following as appropriate:
 - (1) Seed mix selection and application methods;
 - (2) Soil preparation and amendments;
 - (3) Soil stabilization methods (e.g., crimped straw, hydro mulch or rolled erosion control products);
 - (4) Appropriate sediment control measures as needed until final stabilization is achieved;
 - (5) Permanent pavement, hardscape, xeriscape, stabilized driving surfaces;
 - (6) Other alternative stabilization practices as applicable;

(d) The permittee(s) must ensure all temporary control measures are removed from the construction site once final stabilization is achieved, except when the control measure specifications allow the control measure to be left in place (i.e., bio-degradable control measures).

b. Maintenance

The permittee must ensure that all control measures remain in effective operating condition and are protected from activities that would reduce their effectiveness. Control measures must be maintained in accordance with good engineering, hydrologic and pollution control practices. Observations leading to the required maintenance of control measures can be made during a site inspection, or during general observations of site conditions. The necessary repairs or modifications to a [control measure requiring routine maintenance](#), as defined in Part I.E., must be conducted to maintain an effective operating condition. This section is not subject to the requirements in Part I.B.1.c. below.

c. Corrective Actions

The permittee must assess the adequacy of control measures at the site, and the need for changes to those control measures, to ensure continued effective performance. When an [inadequate control measure](#), as defined in Part I.E., is identified (i.e., new or replacement control measures become necessary), the following corrective action requirements apply. The permittee is in noncompliance with the permit until the inadequate control measure is replaced or corrected and returned to effective operating condition in compliance with Part I.B.1. and the general requirements in Part I.B.3. If the inadequate control measure results in noncompliance that meets the conditions of Part II.L., the permittee must also meet the requirements of that section.

i. The permittee must take all necessary steps to minimize or prevent the discharge of pollutants, until a control measure is implemented and made operational and/or an inadequate control measure is replaced or corrected and returned to effective operating condition. If it is infeasible to install or repair of control measure immediately after discovering the deficiency, the following must be documented and kept on record in accordance with the recordkeeping requirements in Part II.

(a) Describe why it is infeasible to initiate the installation or repair immediately; and

(b) Provide a schedule for installing or repairing the control measure and returning it to an effective operating condition as soon as possible.

ii. If applicable, the permittee must remove and properly dispose of any unauthorized release or discharge (e.g., discharge of non-stormwater, spill, or leak not authorized by this permit.) The permittee must also clean up any contaminated surfaces to minimize discharges of the material in subsequent storm events.

2. Discharges to an Impaired Waterbody

a. Total Maximum Daily Load (TMDL)

If the permittee's discharge flows to or could reasonably be expected to flow to any water body for which a TMDL has been approved, and stormwater discharges

associated with construction activity were assigned a pollutant-specific Wasteload Allocation (WLA) under the TMDL, the division may:

- i. ensure the WLA is implemented properly through alternative local requirements, such as by a municipal stormwater permit; or
- ii. notify the permittee of the WLA and amend the permittee's certification to add specific effluent limits and other requirements, as appropriate. The permittee may be required to do the following:
 - (a) under the permittee's SWMP, implement specific control measures based on requirements of the WLA, and evaluate whether the requirements are met through implementation of existing stormwater control measures or if additional control measures are necessary. Document the calculations or other evidence demonstrating that the requirements are expected to be met; and
 - (b) if the evaluation shows that additional or modified control measures are necessary, describe the type and schedule for the control measure additions or modifications.
- iii. Discharge monitoring may also be required. The permittee may maintain coverage under the general permit provided they comply with the applicable requirements outlined above. The division reserves the right to require individual or alternate general permit coverage.

3. General Requirements

- a. Discharges authorized by this permit shall not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any applicable water quality standard, including narrative standards for water quality.
- b. The division may require sampling and testing, on a case-by-case basis, in the event that there is reason to suspect that the SWMP is not adequately minimizing pollutants in stormwater or in order to measure the effectiveness of the control measures in removing pollutants in the effluent. Such monitoring may include Whole Effluent Toxicity testing.
- c. The permittee must comply with the lawful requirements of federal agencies, municipalities, counties, drainage districts and other local agencies including applicable requirements in Municipal Stormwater Management Programs developed to comply with CDPS permits. The permittee must comply with local stormwater management requirements, policies and guidelines including those for erosion and sediment control.
- d. All construction site wastes must be properly managed to prevent potential pollution of state waters. This permit does not authorize on-site waste disposal.
- e. This permit does not relieve the permittee of the reporting requirements in 40 CFR 110, 40 CFR 117 or 40 CFR 302. Any discharge of hazardous material must be handled in accordance with the division's Noncompliance Notification Requirements (see Part II.L. of the permit).

C. STORMWATER MANAGEMENT PLAN (SWMP) REQUIREMENTS**1. SWMP General Requirements**

- a. A SWMP shall be developed for each construction site covered by this permit. The SWMP must be prepared in accordance with good engineering, hydrologic and pollution control practices.
 - i. For public emergency related sites a SWMP shall be created no later than 14 days after the commencement of construction activities.
- b. The permittee must implement the provisions of the SWMP as written and updated, from commencement of construction activity until final stabilization is complete. The division may review the SWMP.
- c. A copy of the SWMP must be retained onsite or be onsite when construction activities are occurring at the site unless the permittee specifies another location and obtains approval from the division.

2. SWMP Content

- a. The SWMP, at a minimum, must include the following elements.
 - i. Qualified Stormwater Manager. The SWMP must list individual(s) by title and name who are designated as the site's qualified stormwater manager(s) responsible for implementing the SWMP in its entirety. This role may be filled by more than one individual.
 - ii. Spill Prevention and Response Plan. The SWMP must have a spill prevention and response plan. The plan may incorporate by reference any part of a Spill Prevention Control and Countermeasure (SPCC) plan under section 311 of the Clean Water Act (CWA) or a Spill Prevention Plan required by a separate CDPS permit. The relevant sections of any referenced plans must be available as part of the SWMP consistent with Part I.C.4.
 - iii. Materials Handling. The SWMP must describe and locate all control measures implemented at the site to minimize impacts from handling **significant materials** that could contribute pollutants to runoff. These handling procedures can include control measures for pollutants and activities such as, exposed storage of building materials, paints and solvents, landscape materials, fertilizers or chemicals, sanitary waste material, trash and equipment maintenance or fueling procedures.
 - iv. Potential Sources of Pollution. The SWMP must list all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the site. This shall include, but is not limited to, the following pollutant sources:
 - (a) disturbed and stored soils;
 - (b) vehicle tracking of sediments;
 - (c) management of contaminated soils;
 - (d) loading and unloading operations;

- (e) outdoor storage activities (erodible building materials, fertilizers, chemicals, etc.);
 - (f) vehicle and equipment maintenance and fueling;
 - (g) significant dust or particulate generating processes (e.g., saw cutting material, including dust);
 - (h) routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.;
 - (i) on-site waste management practices (waste piles, liquid wastes, dumpsters);
 - (j) concrete truck/equipment washing, including washing of the concrete truck chute and associated fixtures and equipment;
 - (k) dedicated asphalt, concrete batch plants and masonry mixing stations;
 - (l) non-industrial waste sources such as worker trash and portable toilets.
- v. Implementation of Control Measures. The SWMP must include design specifications that contain information on the implementation of the control measure in accordance with good engineering hydrologic and pollution control practices; including as applicable drawings, dimensions, installation information, materials, implementation processes, control measure-specific inspection expectations, and maintenance requirements.

The SWMP must include a documented use agreement between the permittee and the owner or operator of any control measures located outside of the permitted area, that are utilized by the permittee's construction site for compliance with this permit, but not under the direct control of the permittee. The permittee is responsible for ensuring that all control measures located outside of their permitted area, that are being utilized by the permittee's construction site, are properly maintained and in compliance with all terms and conditions of the permit. The SWMP must include all information required of and relevant to any such control measures located outside the permitted area, including location, installation specifications, design specifications and maintenance requirements.

- vi. Site Description. The SWMP must include a site description which includes, at a minimum, the following:
- (a) the nature of the construction activity at the site;
 - (b) the proposed schedule for the sequence for major construction activities and the planned implementation of control measures for each phase. (e.g.: clearing, grading, utilities, vertical, etc.);
 - (c) estimates of the total acreage of the site, and the acreage expected to be disturbed by clearing, excavation, grading, or any other construction activities;
 - (d) a summary of any existing data used in the development of the construction site plans or SWMP that describe the soil or existing potential for soil erosion;

- (e) a description of the percent of existing vegetative ground cover relative to the entire site and the method for determining the percentage;
 - (f) a description of any allowable non-stormwater discharges at the site, including those being discharged under a division low risk discharge guidance policy;
 - (g) a description of areas receiving discharge from the site. Including a description of the immediate source receiving the discharge. If the stormwater discharge is to a municipal separate storm sewer system, the name of the entity owning that system, the location of the storm sewer discharge, and the ultimate receiving water(s); and
 - (h) a description of all stream crossings located within the construction site boundary.
- vii. Site Map. The SWMP must include a site map which includes, at a minimum, the following:
- (a) construction site boundaries;
 - (b) flow arrows that depict stormwater flow directions on-site and runoff direction;
 - (c) all areas of ground disturbance including areas of borrow and fill;
 - (d) areas used for storage of soil;
 - (e) locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt;
 - (f) locations of dedicated asphalt, concrete batch plants and masonry mixing stations;
 - (g) locations of all structural control measures;
 - (h) locations of all non-structural control measures;
 - (i) locations of springs, streams, wetlands and other state waters, including areas that require pre-existing vegetation be maintained within 50 feet of a receiving water, where determined feasible in accordance with Part I.B.1.a.i.(d).; and
 - (j) locations of all stream crossings located within the construction site boundary.
- viii. Final Stabilization and Long Term Stormwater Management. The SWMP must describe the practices used to achieve final stabilization of all disturbed areas at the site and any planned practices to control pollutants in stormwater discharges that will occur after construction operations are completed. Including but not limited to, detention/retention ponds, rain gardens, stormwater vaults, etc.
- ix. Inspection Reports. The SWMP must include documented inspection reports in accordance with Part ID.

3. SWMP Review and Revisions

Permittees must keep a record of SWMP changes made that includes the date and identification of the changes. The SWMP must be amended when the following occurs:

- a. a change in design, construction, operation, or maintenance of the site requiring implementation of new or revised control measures;
- b. the SWMP proves ineffective in controlling pollutants in stormwater runoff in compliance with the permit conditions;
- c. control measures identified in the SWMP are no longer necessary and are removed;
and
- d. corrective actions are taken onsite that result in a change to the SWMP.

For SWMP revisions made prior to or following a change(s) onsite, including revisions to sections addressing site conditions and control measures, a notation must be included in the SWMP that identifies the date of the site change, the control measure removed, or modified, the location(s) of those control measures, and any changes to the control measure(s). The permittee must ensure the site changes are reflected in the SWMP. The permittee is noncompliant with the permit until the SWMP revisions have been made.

4. SWMP Availability

A copy of the SWMP must be provided upon request to the division, EPA, and any local agency with authority for approving sediment and erosion plans, grading plans or stormwater management plans within the time frame specified in the request. If the SWMP is required to be submitted to any of these entities, the submission must include a signed certification in accordance with Part I.A.3.e., certifying that the SWMP is complete and compliant with all terms and conditions of the permit.

All SWMPs required under this permit are considered reports that must be available to the public under Section 308(b) of the CWA and Section 61.5(4) of the CDPS regulations. The permittee must make plans available to members of the public upon request. However, the permittee may claim any portion of a SWMP as confidential in accordance with 40 CFR Part 2.

D. SITE INSPECTIONS

Site inspections must be conducted in accordance with the following requirements. The required inspection schedules are a minimum frequency and do not affect the permittee's responsibility to implement control measures in effective operating condition as prescribed in the SWMP. Proper maintenance of control measures may require more frequent inspections. Site inspections shall start within 7 calendar days of the commencement of construction activities on site.

1. Person Responsible for Conducting Inspections

The person(s) inspecting the site may be on the permittee's staff or a third party hired to conduct stormwater inspections under the direction of the permittee(s). The permittee is responsible for ensuring that the inspector is a qualified stormwater manager.

2. Inspection Frequency

Permittees must conduct site inspections in accordance with one of the following minimum frequencies, unless the site meets the requirements of Part ID.3

- a. At least one inspection every 7 calendar days. Or
 - b. At least one inspection every 14 calendar days, if post-storm event inspections are conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Post-storm inspections may be used to fulfill the 14-day routine inspection requirement.
 - c. When site conditions make the schedule required in this section impractical, the permittee may petition the Division to grant an alternate inspection schedule. The alternative inspection schedule may not be implemented prior to written approval by the division and incorporation into the SWMP.
3. Inspection Frequency for Discharges to Outstanding Waters

Permittees must conduct site inspections at least once every 7 calendar days for sites that discharge to a water body designated as an Outstanding Water by the Water Quality Control Commission.

4. Reduced Inspection Frequency

The permittee may perform site inspections at the following reduced frequencies when one of the following conditions exists:

- a. Post-Storm Inspections at Temporarily Idle Sites
For permittees choosing to combine 14-day inspections and post-storm-event-inspections, if no construction activities will occur following a storm event, post-storm event inspections must be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The delay of any post-storm event inspection must be documented in the inspection record. Routine inspections must still be conducted at least every 14 calendar days.
- b. Inspections at Completed Sites/Areas
When the site, or portions of a site are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system at least once every 30 days. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:
 - i. all construction activities resulting in ground disturbance are complete;
 - ii. all activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
 - iii. the SWMP has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph.
- c. Winter Conditions Inspections Exclusion

Inspections are not required for sites that meet all of the following conditions: construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This inspection exception is applicable only during the period where melting conditions do not exist, and applies to the routine 7-day, 14-day and monthly inspections, as well as the post-storm-event inspections. When this inspection exclusion is implemented, the following information must be documented in accordance with the requirements in Part II:

- i. dates when snow cover existed;
- ii. date when construction activities ceased; and
- iii. date melting conditions began.

5. Inspection Scope

a. Areas to be Inspected

When conducting a site inspection the following areas, if applicable, must be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters:

- i. construction site perimeter;
- ii. all disturbed areas;
- iii. designated haul routes;
- iv. material and waste storage areas exposed to precipitation;
- v. locations where stormwater has the potential to discharge offsite; and
- vi. locations where vehicles exit the site.

b. Inspection Requirements

- i. Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.
- ii. Determine if there are new potential sources of pollutants.
- iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.
- iv. Identify all areas of non-compliance with the permit requirements and, if necessary, implement corrective action in accordance with Part IB.1.c.

c. Inspection Reports

The permittee must keep a record of all inspections conducted for each permitted site. Inspection reports must identify any incidents of noncompliance with the terms and conditions of this permit. Inspection records must be retained in accordance with Part II.O. and signed in accordance with Part I.A.3.f. At a minimum, the inspection report must include:

- i. the inspection date;

- ii. name(s) and title(s) of personnel conducting the inspection;
- iii. weather conditions at the time of inspection;
- iv. phase of construction at the time of inspection;
- v. estimated acreage of disturbance at the time of inspection
- vi. location(s) of discharges of sediment or other pollutants from the site;
- vii. location(s) of control measures needing maintenance;
- viii. location(s) and identification of inadequate control measures;
- ix. location(s) and identification of additional control measures are needed that were not in place at the time of inspection;
- x. description of the minimum inspection frequency (either in accordance with Part I.D.2., I.D.3. or I.D.4.) utilized when conducting each inspection.
- xi. deviations from the minimum inspection schedule as required in Part I.D.2.;
- xii. after adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the report shall contain a statement as required in Part I.A.3.f.

E. DEFINITIONS

For the purposes of this permit:

- (1) Bypass - the intentional diversion of waste streams from any portion of a treatment facility in accordance with 40 CFR 122.41(m)(1)(i) and Regulation 61.2(12).
- (2) Common Plan of Development or Sale - A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules, but remain related. The Division has determined that "contiguous" means construction activities located in close proximity to each other (within ¼ mile). Construction activities are considered to be "related" if they share the same development plan, builder or contractor, equipment, storage areas, etc. "Common plan of development or sale" includes construction activities that are associated with the construction of field wide oil and gas permits for facilities that are related.
- (3) Construction Activity - Ground surface disturbing and associated activities (land disturbance), which include, but are not limited to, clearing, grading, excavation, demolition, installation of new or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction does not include routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Activities to conduct repairs that are not part of routine maintenance or for replacement are construction activities and are not routine maintenance. Repaving activities where underlying and/or surrounding soil is exposed as part of the repaving operation are considered construction activities. Construction activity is from initial ground breaking to final stabilization regardless of ownership of the construction activities.
- (4) Control Measure - Any best management practice or other method used to prevent or reduce the discharge of pollutants to state waters. Control measures include, but are not limited to, best management practices. Control measures can include other methods such as the installation, operation, and maintenance of structural controls and treatment devices.

- (5) Control Measure Requiring Routine Maintenance - Any control measure that is still operating in accordance with its design and the requirements of this permit, but requires maintenance to prevent a breach of the control measure. See also inadequate control measure.
- (6) Dedicated Asphalt, Concrete Batch Plants and Masonry Mixing Stations - are batch plants or mixing stations located on, or within ¼ mile of, a construction site and that provide materials only to that specific construction site.
- (7) Final Stabilization - The condition reached when all ground surface disturbing activities at the site have been completed, and for all areas of ground surface disturbing activities where a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.
- (8) Good Engineering, Hydrologic and Pollution Control Practices: are methods, procedures, and practices that:
 - a. Are based on basic scientific fact(s).
 - b. Reflect best industry practices and standards.
 - c. Are appropriate for the conditions and pollutant sources.
 - d. Provide appropriate solutions to meet the associated permit requirements, including practice based effluent limits.
- (9) Inadequate Control Measure - Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design. See also Control Measure Requiring Routine Maintenance.
- (10) Infeasible - Not technologically possible, or not economically practicable and achievable in light of best industry practices.
- (11) Minimize - reduce or eliminate to the extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice.
- (12) Municipality - A city, town, county, district, association, or other public body created by, or under, State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or a designated and approved management agency under section 208 of CWA (1987).
- (13) Municipal Separate Storm Sewer System (MS4) - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):
 - a) owned or operated by a State, city, town, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to state waters;
 - i. designed or used for collecting or conveying stormwater;
 - ii. are not a combined sewer; and
 - iii. are not part of a Publicly Owned Treatment Works (POTW). See 5 CCR 1002-61.2(62).
- (14) Municipal Stormwater Management Program - A stormwater program operated by a municipality, typically to meet the requirements of the municipalities MS4 discharge certification.

- (15) Operator - The party that has operational control over day-to-day activities at a project site which are necessary to ensure compliance with the permit. This party is authorized to direct individuals at a site to carry out activities required by the permit. (e.g. the general contractor)
- (16) Owner - The party that has overall control of the activities and that has funded the implementation of the construction plans and specifications. This is the party with ownership of, a long term lease of, or easements on the property on which the construction activity is occurring (e.g., the developer).
- (17) Permittee(s) - The owner and operator named in the discharge certification issued under this permit for the construction site specified in the certification.
- (18) Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. Point source does not include irrigation return flow. See 5 CCR 102-61.2(75).
- (19) Pollutant - Dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal or agricultural waste. See 5 CCR 1002-61.2(76).
- (20) Presentation of credentials - a government issued form of identification, if in person; or (ii) providing name, position and purpose of inspection if request to enter is made via telephone, email or other form of electronic communication. A Permittee's non-response to a request to enter upon presentation of credentials constitutes a denial to such request, and may result in violation of the Permit.
- (21) Process Water - Any water which, during manufacturing or processing, comes into contact with or results from the production of any raw material, intermediate product, finished product, by product or waste product.
- (22) Public Emergency Related Site - a project initiated in response to an unanticipated emergency (e.g., mud slides, earthquake, extreme flooding conditions, disruption in essential public services), for which the related work requires immediate authorization to avoid imminent endangerment to human health or the environment, or to reestablish essential public services.
- (23) Qualified Stormwater Manager - An individual knowledgeable in the principles and practices of erosion and sediment control and pollution prevention, and with the skills to assess conditions at construction sites that could impact stormwater quality and to assess the effectiveness of stormwater controls implemented to meet the requirements of this permit.
- (24) Qualifying Local Program - A municipal program for stormwater discharges associated with small construction activity that was formally approved by the division as a qualifying local program.
- (25) Receiving Water - Any classified or unclassified surface water segment (including tributaries) in the State of Colorado into which stormwater associated with construction activities discharges. This definition includes all water courses, even if they are usually dry, such as borrow ditches, arroyos, and other unnamed waterways.
- (26) Severe Property Damage - substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 CFR 122.41(m)(1)(ii).

- (27) Significant Materials - Include, but not limited to, raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the permittee is required to report under section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.
- (28) Small Construction Activity - The discharge of stormwater from construction activities that result in land disturbance of equal to, or greater than, one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan ultimately disturbs equal to, or greater than, one acre and less than five acres.
- (29) Spill - An unintentional release of solid or liquid material which may pollute state waters.
- (30) State Waters - means any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.
- (31) Steep Slopes: where a local government, or industry technical manual (e.g., stormwater BMP manual) has defined what is to be considered a "steep slope", this permit's definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 3:1 or greater.
- (32) Stormwater - Precipitation runoff, snow melt runoff, and surface runoff and drainage. See 5 CCR 1002-61.2(103).
- (33) Total Maximum Daily Loads (TMDLs) -The sum of the individual wasteload allocations (WLA) for point sources and load allocations (LA) for nonpoint sources and natural background. For the purposes of this permit, a TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes WLAs, LAs, and must include a margin of safety (MOS), and account for seasonal variations. See section 303(d) of the CWA and 40 C.F.R. 130.2 and 130.7.
- (34) Upset - an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation in accordance with 40 CFR 122.41(n) and Regulation 61.2(114).

F. MONITORING

The division may require sampling and testing, on a case-by-case basis. If the division requires sampling and testing, the division will send a notification to the permittee. Reporting procedures for any monitoring data collected will be included in the notification.

If monitoring is required, the following applies:

1. the thirty (30) day average must be determined by the arithmetic mean of all samples collected during a thirty (30) consecutive-day period; and
2. a grab sample, for monitoring requirements, is a single "dip and take" sample.

G. Oil and Gas Construction

Stormwater discharges associated with construction activities directly related to oil and gas exploration, production, processing, and treatment operations or transmission facilities are regulated under the Colorado Discharge Permit System Regulations (5 CCR 1002-61), and require coverage under this permit in accordance with that regulation. However, references in this permit to specific authority under the CWA do not apply to stormwater discharges associated with these oil and gas related construction activities, to the extent that the references are limited by the federal Energy Policy Act of 2005.

Part II: Standard Permit Conditions

A. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Water Quality Control Act and is grounds for:

- a. enforcement action;
- b. permit termination, revocation and reissuance, or modification; or
- c. denial of a permit renewal application.

B. DUTY TO REAPPLY

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain authorization as required by Part I.A.3.k. of the permit.

C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. DUTY TO MITIGATE

A permittee must take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. PROPER OPERATION AND MAINTENANCE

A permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit. This requirement can be met by meeting the requirements for Part I.B., I.C., and I.D. above. See also 40 C.F.R. § 122.41(e).

F. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause. The permittee request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. Any request for modification, revocation, reissuance, or termination under this permit must comply with all terms and conditions of Regulation 61.8(8).

G. PROPERTY RIGHTS

In accordance with 40 CFR 122.41(g) and 5 CCR 1002-61, 61.8(9):

1. The issuance of a permit does not convey any property or water rights in either real or personal property, or stream flows or any exclusive privilege.

2. The issuance of a permit does not authorize any injury to person or property or any invasion of personal rights, nor does it authorize the infringement of federal, state, or local laws or regulations.
3. Except for any toxic effluent standard or prohibition imposed under Section 307 of the Federal act or any standard for sewage sludge use or disposal under Section 405(d) of the Federal act, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 318, 403, and 405(a) and (b) of the Federal act. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in Section 61.8(8) of the Colorado Discharge Permit System Regulations.

H. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the division, within a reasonable time, any information which the division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the division, upon request, copies of records required to be kept by this permit in accordance with 40 CFR 122.41(h) and/or Regulation 61.8(3)(q).

I. INSPECTION AND ENTRY

The permittee shall allow the division and the authorized representative, upon the presentation of credentials as required by law, to allow for inspections to be conducted in accordance with 40 CFR 122.41(i), Regulation 61.8(3), and Regulation 61.8(4):

1. to enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;
2. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit;
3. at reasonable times, inspect any monitoring equipment or monitoring method required in the permit; and
4. to enter upon the permittee's premises in a reasonable manner and at a reasonable time to inspect or investigate, any actual, suspected, or potential source of water pollution, or any violation of the Colorado Water Quality Control Act. The investigation may include: sampling of any discharges, stormwater or process water, taking of photographs, interviewing site staff on alleged violations and other matters related to the permit, and assessing any and all facilities or areas within the site that may affect discharges, the permit, or an alleged violation.

The permittee shall provide access to the division or other authorized representatives upon presentation of proper credentials. A permittee's non-response to a request to enter upon presentation of credentials constitutes a denial of such request, and may result in a violation of the permit.

J. MONITORING AND RECORDS

1. Samples and measurements taken for the purpose of monitoring must be representative of the volume and nature of the monitored activity.

2. The permittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date the permit expires or the date the permittee's authorization is terminated. This period may be extended by request of the division at any time.
3. Records of monitoring information must include:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
4. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in the permit.

K. SIGNATORY REQUIREMENTS

1. Authorization to Sign:

All documents required to be submitted to the division by the permit must be signed in accordance with the following criteria:

- a. For a corporation: By a responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means:
 - i. a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or
 - ii. the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or
- c. For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes
 - i. (i) the chief executive officer of the agency, or

- ii. (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. (e.g., Regional Administrator of EPA)

2. Electronic Signatures

For persons signing applications for coverage under this permit electronically, in addition to meeting other applicable requirements stated above, such signatures must meet the same signature, authentication, and identity-proofing standards set forth at 40 CFR § 3.2000(b) for electronic reports (including robust second-factor authentication). Compliance with this requirement can be achieved by submitting the application using the Colorado Environmental Online Service (CEOS) system.

3. Change in Authorization to Sign

If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be submitted to the division, prior to the re-authorization, or together with any reports, information, or applications to be signed by an authorized representative.

L. REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall give advance notice to the division, in writing, of any planned physical alterations or additions to the permitted facility in accordance with 40 CFR 122.41(l) and Regulation 61.8(5)(a). Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.41(a)(1).

2. Anticipated Non-Compliance

The permittee shall give advance notice to the division, in writing, of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements. The timing of notification requirements differs based on the type of non-compliance as described in subparagraphs 5, 6, 7, and 8 below.

3. Transfer of Ownership or Control

The permittee shall notify the division, in writing, ten (10) calendar days in advance of a proposed transfer of the permit. This permit is not transferable to any person except after notice is given to the division.

- a. Where a facility wants to change the name of the permittee, the original permittee (the first owner or operators) must submit a Notice of Termination.
- b. The new owner or operator must submit an application. See also signature requirements in Part II.K, above.
- c. A permit may be automatically transferred to a new permittee if:
 - i. The current permittee notifies the Division in writing 30 calendar days in advance of the proposed transfer date; and
 - ii. The notice includes a written agreement between the existing and new permittee(s) containing a specific date for transfer of permit responsibility, coverage and liability between them; and
 - iii. The division does not notify the existing permittee and the proposed new permittee of its intent to modify, or revoke and reissue the permit.
 - iv. Fee requirements of the Colorado Discharge Permit System Regulations, Section 61.15, have been met.

4. Monitoring reports

Monitoring results must be reported at the intervals specified in this permit per the requirements of 40 CFR 122.41(l)(4).

5. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule in the permit, shall be submitted on the date listed in the compliance schedule section. The fourteen (14) calendar day provision in Regulation 61.8(4)(n)(i) has been incorporated into the due date.

6. Twenty-four hour reporting

In addition to the reports required elsewhere in this permit, the permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances:

- a. Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident;
- b. Circumstances leading to any unanticipated bypass which exceeds any effluent limitations in the permit;
- c. Circumstances leading to any upset which causes an exceedance of any effluent limitation in the permit;

- d. Daily maximum violations for any of the pollutants limited by Part I of this permit. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.
- e. The division may waive the written report required under subparagraph 6 of this section if the oral report has been received within 24 hours.

7. Other non-compliance

A permittee must report all instances of noncompliance at the time monitoring reports are due. If no monitoring reports are required, these reports are due at least annually in accordance with Regulation 61.8(4)(p). The annual report must contain all instances of non-compliance required under either subparagraph 5 or subparagraph 6 of this subsection.

8. Other information

Where a permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Permitting Authority, it has a duty to promptly submit such facts or information.

M. BYPASS

1. Bypass not exceeding limitations

The permittees may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II.M.2 of this permit. See 40 CFR 122.41(m)(2).

2. Notice of bypass

- a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, the permittee must submit prior notice, if possible at least ten days before the date of the bypass. See 40 CFR §122.41(m)(3)(i) and/or Regulation 61.9(5)(c).
- b. Unanticipated bypass. The permittee must submit notice of an unanticipated bypass in accordance with Part II.L.6. See 40 CFR §122.41(m)(3)(ii) .

3. Prohibition of Bypass

Bypasses are prohibited and the division may take enforcement action against the permittee for bypass, unless:

- i. the bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

- ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- iii. proper notices were submitted to the division.

N. UPSET

1. Effect of an upset

An upset constitutes an affirmative defense to an action brought for noncompliance with permit effluent limitations if the requirements of Part II.N.2. of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review in accordance with Regulation 61.8(3)(j).

2. Conditions necessary for demonstration of an Upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that

- a. an upset occurred and the permittee can identify the specific cause(s) of the upset;
- b. the permitted facility was at the time being properly operated and maintained; and
- c. the permittee submitted proper notice of the upset as required in Part II.L.6. (24-hour notice); and
- d. the permittee complied with any remedial measure necessary to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition to the demonstration required above, a permittee who wishes to establish the affirmative defense of upset for a violation of effluent limitations based upon water quality standards shall also demonstrate through monitoring, modeling or other methods that the relevant standards were achieved in the receiving water.

3. Burden of Proof

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

O. RETENTION OF RECORDS

1. Post-Expiration or Termination Retention

Copies of documentation required by this permit, including records of all data used to complete the application for permit coverage to be covered by this permit, must be

retained for at least three years from the date that permit coverage expires or is terminated. This period may be extended by request of EPA at any time.

2. On-site Retention

The permittee must retain an electronic version or hardcopy of the SWMP at the construction site from the date of the initiation of construction activities to the date of expiration or inactivation of permit coverage; unless another location, specified by the permittee, is approved by the division.

P. REOPENER CLAUSE

1. Procedures for modification or revocation

Permit modification or revocation of this permit or coverage under this permit will be conducted according to Regulation 61.8(8).

2. Water quality protection

If there is evidence indicating that the stormwater discharges authorized by this permit cause, have the reasonable potential to cause or contribute to an excursion above any applicable water quality standard, the permittee may be required to obtain an individual permit, or the permit may be modified to include different limitations and/or requirements.

Q. SEVERABILITY

The provisions of this permit are severable. If any provisions or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

R. NOTIFICATION REQUIREMENTS

1. Notification to Parties

All notification requirements, excluding information submitted using the CEOS portal, shall be directed as follows:

a. Oral Notifications, during normal business hours shall be to:

Clean Water Compliance Section
Water Quality Control Division
Telephone: (303) 692-3500

b. Written notification shall be to:

Clean Water Compliance Section
Water Quality Control Division
Colorado Department of Public Health and Environment
WQCD-WQP-B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530

S. RESPONSIBILITIES**1. Reduction, Loss, or Failure of Treatment Facility**

The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the effluent limitations of the permit. It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

T. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 (Oil and Hazardous Substance Liability) of the CWA.

U. Emergency Powers

Nothing in this permit shall be construed to prevent or limit application of any emergency power of the division.

V. Confidentiality

Any information relating to any secret process, method of manufacture or production, or sales or marketing data which has been declared confidential by the permittee, and which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, or otherwise, shall not be publicly disclosed by any member, officer, or employee of the Water Quality Control Commission or the division, but shall be kept confidential. Any person seeking to invoke the protection of of this section shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

W. Fees

The permittee is required to submit payment of an annual fee as set forth in the 2016 amendments to the Water Quality Control Act. Section 25-8-502 (1.1) (b), and the Colorado Discharge Permit System Regulations 5 CCR 1002-61, Section 61.15 as amended. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-601 et. seq., C.R.S.1973 as amended.

X. Duration of Permit

The duration of a permit shall be for a fixed term and shall not exceed five (5) years. If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least ninety (90) calendar days before this permit expires. Filing of a timely and complete application shall cause the expired permit to continue in force to the effective date of the new permit. The permit's duration may be extended only through administrative extensions and not through interim modifications. If the permittee anticipates there will be no discharge after the expiration date of this permit, the division should be promptly notified so that it can terminate the permit in accordance with Part I.A.3.i.

Y. Section 307 Toxics

If a toxic effluent standard or prohibition, including any applicable schedule of compliance specified, is established by regulation pursuant to Section 307 of the Federal Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in the discharge permit, the division

shall institute proceedings to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition

**APPENDIX C
FEMA FIRM MAP**

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **Floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRMs. Users should be aware that BFEs shown on the FIRMs represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRMs for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only to landward of 0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRMs should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRMs.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The horizontal datum was NAD83. GRS80 adjusted differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRMs.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOMA, NINGS12
National Geodetic Survey
SBNIC3, BRD02
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov/>.

Base Map information shown on this FIRMs was provided in digital format by El Paso County, Colorado Springs Utilities, and Anderson Consulting Engineers, Inc. These data are current as of 2008.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRMs for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRMs may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

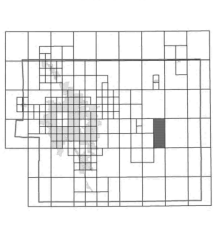
Contact **FEMA Map Service Center (MSC)** via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with the FIRMs. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-368-9620 and its website at <http://www.msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/fip/>.

El Paso County Vertical Datum Offset Table

Flooding Source	Vertical Datum Offset (ft)
REFER TO SECTION 2.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM OR STREAM VERTICAL DATUM CONVERSION INFORMATION	

Panel Location Map

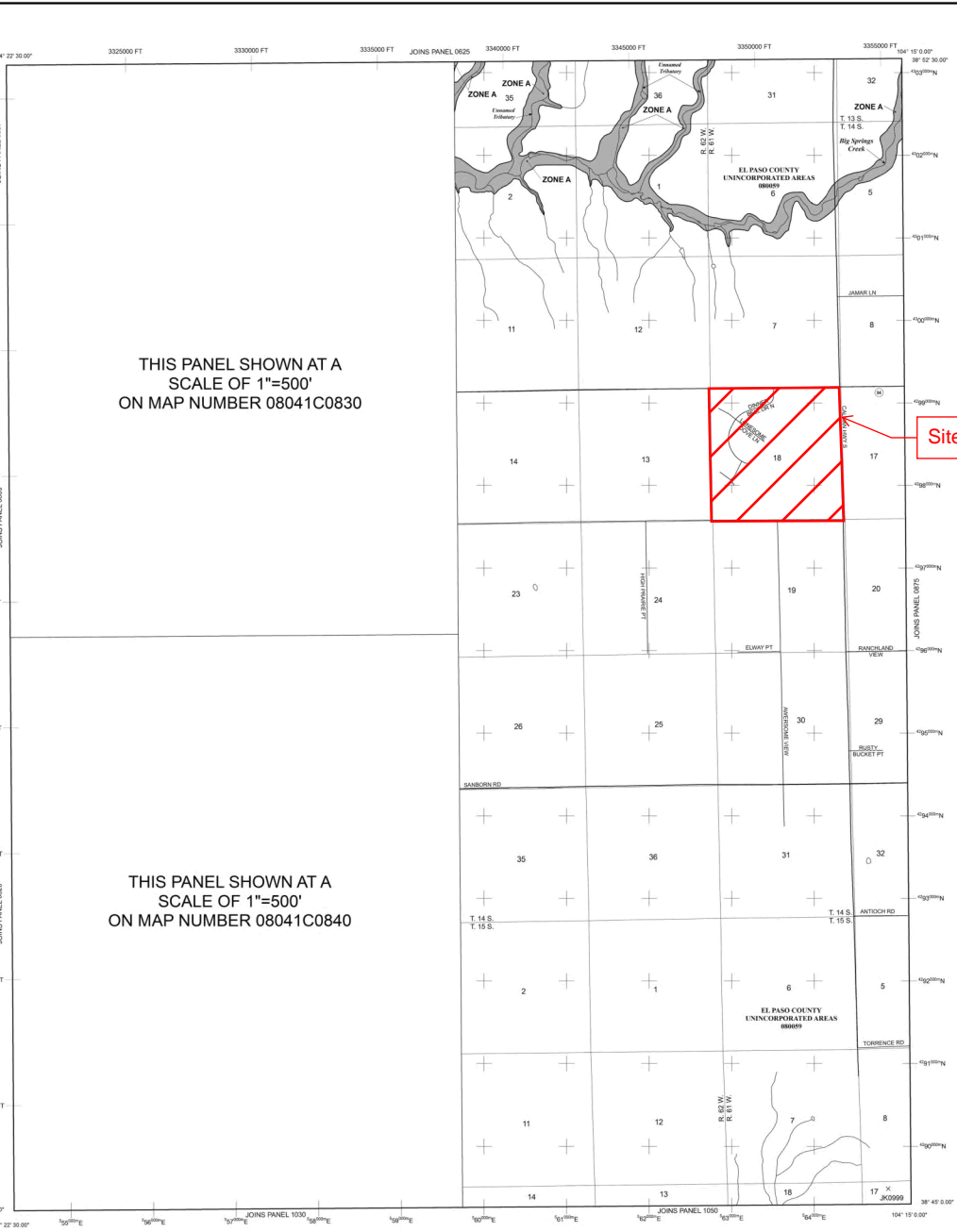


THIS PANEL SHOWN AT A SCALE OF 1"=500' ON MAP NUMBER 08041C0830

THIS PANEL SHOWN AT A SCALE OF 1"=500' ON MAP NUMBER 08041C0840

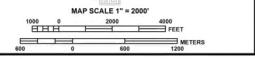


Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



LEGEND

- SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
- The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard Zones A, AE, AH, AO, AR, AV, X, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No base flood elevation determined. Base Flood Elevation determined.
- ZONE AE** Flood depths of 1 to 3 feet (locally areas of ponding); Base Flood Elevation determined.
- ZONE AH** Flood depths of 1 to 3 feet (locally areas of ponding); average depth determined; for areas of shallow sea flooding, wavelets also determined.
- ZONE AR** Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently destroyed. Zone AR areas that the former flood control system is being restored to provide flood control protection from the 1% annual chance flood.
- ZONE AV** Area to be protected from the 1% annual chance flood by a Federal flood protection system under construction; no base flood elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevation determined.
- FLOODWAY AREAS IN ZONE AE
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachments so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS
- ZONE X** Areas of 0.2% annual chance flood, areas of 1% annual chance flood with average depths of 1 to 3 feet with average areas less than 1 square mile, and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
- OTHERWISE PROTECTED AREAS (OPAs)
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary of Special Flood Hazard Areas of different Base Flood Elevations. Read datum in notes to this map.
- Base Flood Elevation line and value, elevation in feet (EL 987)
- Base Flood Elevation value where uniform water zone; elevation in feet
- Cross section line
- Transverse line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 1000-meter Universal Transverse Mercator grid cells, zone 13
- 5000-foot grid ticks, Colorado State Plane coordinate system, central area (FIPS/USGS 5002), Lambert Conformal Conic Projection
- Bench mark (see explanation in Notes to Users section of this FIS report)
- River Mile
- MAP REPOSITORIES
- Refer to Map Repositories list on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP MARCH 17, 1997
- EFFECTIVE DATE OF REVISIONS TO THIS PANEL DECEMBER 7, 2018. To update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.
- For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.
- To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6623.



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0850G

FIRM FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 850 OF 1300
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY	0850	0850	G

MAP NUMBER 08041C0850G

MAP REVISED DECEMBER 7, 2018

Federal Emergency Management Agency

**APPENDIX D
SOILS INFORMATION**

Custom Soil Resource Report for El Paso County Area, Colorado



Preface

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).

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

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

Custom Soil Resource Report

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



Soil Map may not be valid at this scale.

Map Scale: 1:13,500 if printed on A landscape (11" x 8.5") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



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: El Paso County Area, Colorado
 Survey Area Data: Version 22, Sep 3, 2024

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

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Ascalon sandy loam, 1 to 3 percent slopes	374.9	60.2%
3	Ascalon sandy loam, 3 to 9 percent slopes	223.6	35.9%
6	Bijou sandy loam, 0 to 3 percent slopes	4.9	0.8%
11	Bresser sandy loam, cool, 0 to 3 percent slopes	19.4	3.1%
Totals for Area of Interest		622.8	100.0%

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.

Custom Soil Resource Report

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.

El Paso County Area, Colorado

2—Ascalon sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367q
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 130 to 150 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ascalon and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ascalon

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian deposits

Typical profile

A - 0 to 8 inches: sandy loam
Bt - 8 to 21 inches: sandy clay loam
BC - 21 to 27 inches: sandy loam
Ck1 - 27 to 48 inches: sandy loam
Ck2 - 48 to 60 inches: loamy sand

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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: More than 80 inches
Frequency of flooding: None
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: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R069XY026CO - Sandy Plains
Other vegetative classification: SANDY PLAINS (069BY026CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

3—Ascalon sandy loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2tlny
Elevation: 3,870 to 5,960 feet
Mean annual precipitation: 13 to 18 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 95 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Ascalon

Setting

Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind-reworked alluvium and/or calcareous sandy eolian deposits

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt1 - 6 to 12 inches: sandy clay loam
Bt2 - 12 to 19 inches: sandy clay loam
Bk1 - 19 to 35 inches: fine sandy loam
Bk2 - 35 to 80 inches: fine sandy loam

Properties and qualities

Slope: 3 to 9 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 to high
(0.60 to 5.98 in/hr)

Custom Soil Resource Report

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline (0.1 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Olnest

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Vona

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

6—Bijou sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tqxr
Elevation: 5,700 to 6,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Bijou and similar soils: 85 percent

Custom Soil Resource Report

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bijou

Setting

Landform: Sand sheets
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands

Typical profile

A - 0 to 4 inches: sandy loam
Bt1 - 4 to 8 inches: sandy loam
Bt2 - 8 to 21 inches: sandy loam
Bw - 21 to 28 inches: sandy loam
C - 28 to 79 inches: loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 0.2 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Valent

Percent of map unit: 10 percent
Landform: Sand sheets
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Oldest

Percent of map unit: 5 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R067BY024CO - Sandy Plains

Hydric soil rating: No

11—Bresser sandy loam, cool, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tlph

Elevation: 5,850 to 6,880 feet

Mean annual precipitation: 15 to 19 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 100 to 130 days

Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Bresser, cool, and similar soils: 85 percent

Minor components: 15 percent

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

Description of Bresser, Cool

Setting

Landform: Interfluves

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Tertiary aged alluvium derived from arkose

Typical profile

Ap - 0 to 5 inches: sandy loam

Bt1 - 5 to 8 inches: sandy loam

Bt2 - 8 to 27 inches: sandy clay loam

Bt3 - 27 to 36 inches: sandy loam

C - 36 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Custom Soil Resource Report

Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Truckton

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Yoder

Percent of map unit: 5 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

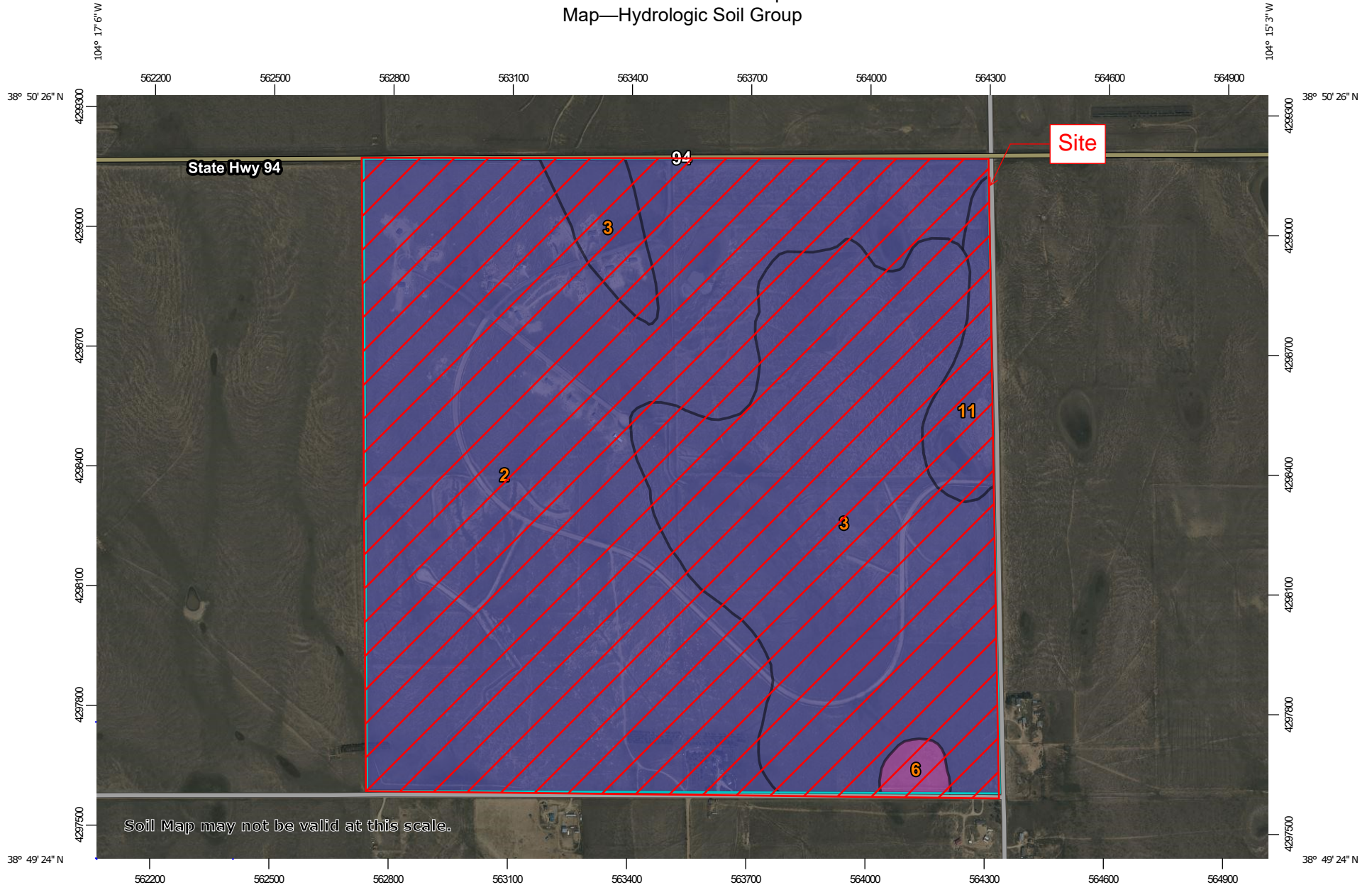
Custom Soil Resource Report

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

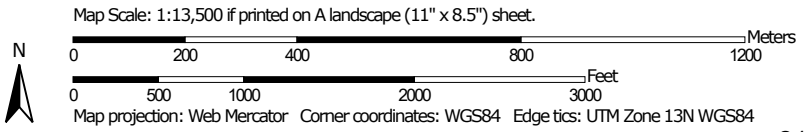
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report Map—Hydrologic Soil Group




Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines


-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado
 Survey Area Data: Version 22, Sep 3, 2024

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

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2	Ascalon sandy loam, 1 to 3 percent slopes	B	374.9	60.2%
3	Ascalon sandy loam, 3 to 9 percent slopes	B	223.6	35.9%
6	Bijou sandy loam, 0 to 3 percent slopes	A	4.9	0.8%
11	Bresser sandy loam, cool, 0 to 3 percent slopes	B	19.4	3.1%
Totals for Area of Interest			622.8	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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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

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

**APPENDIX E
IDENTIFICATION OF POLLUTANT SOURCES**

**APPENDIX F
LAND DISTURBANCE / CONTROL MEASURE / STABILIZATION
LOG**

**APPENDIX G
CDPHE ENVIRONMENTAL SPILL REPORTING / CONTROL
MEASURE**



Environmental Spill Reporting

*24–Hour Emergency and Incident Reporting Line
Office of Emergency Preparedness & Response*

1-877-518-5608

Updated: June, 2018

Reporting chemical spills and releases in Colorado

General

For all hazardous substance incidents, local emergency response agencies must be notified.

Releases from fixed facilities

The Superfund Amendments and Reauthorization Act (SARA) Title III, requires reporting releases from fixed facilities

Refer to the SARA Title III List of Lists, available from the Environmental Protection Agency (EPA), for the reportable quantity.

The party that owns the spilled material must immediately notify the following agencies or organizations:

- National Response Center (NRC) 1-800-424-8802;
- Colorado Emergency Planning Committee (CEPC), represented by the Colorado Department of Public Health and Environment (CDPHE) 1-877-518-5608; and
- Local Emergency Planning Committee (LEPC) 1-720-852-6600.

In addition to telephone notification, the responsible party must also send written notification describing the release and associated emergency response to both the CEPC (in this case, CDPHE) and the LEPC.

Releases from RCRA facilities

Emergency releases from facilities permitted under the Resource Conservation and Recovery Act (RCRA) are reportable according to the permit requirements.

The permit often requires reporting to CDPHE, even if the amount of the release is less than a reportable quantity under SARA Title III (6 CCR 1007-3 Part 264).

Permitted facilities and generators and transporters of hazardous waste are required to have and implement a contingency plan that describes the actions facility personnel must take in response to fires, explosions or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, surface or ground water at the facility (6 CCR 1007-3 Sections 261, 262, 263, 264 and 265).

Whenever there is an imminent or actual emergency situation, appropriate state or local agencies, with designated response roles as described in the contingency plan, must be notified immediately.

The National Response Center or government official designated as the regional on-scene coordinator must be notified immediately if it is determined that the facility has had a release, fire or explosion that could threaten human health or the environment outside the facility.

CDPHE and local authorities must be notified when the facility is back in compliance and ready to resume operations. In addition, the facility must send a written report to CDPHE within 15 days of any incident that requires implementation of the contingency plan. The contingency plan should include current contact information for notification and submittal of written reports.

Permitted facilities, generators and transporters that store hazardous waste must notify CDPHE within 24 hours of any release to the environment that is greater than one (1) pound and must submit a written report to CDPHE within 30 days of the release (6 CCR 1007-3).

Transportation accidents

Transportation accidents that require reporting:

- Result in a spill or release of a hazardous substance in excess of the reportable quantity (40 CFR Part 302.6)
- Cause injury or death or cause estimated property damage exceeding \$50,000.
- Cause an evacuation of the general public lasting one or more hours.

Those that close or shut down one or more major transportation arteries or facilities or result in fire, breakage, spillage, or suspected contamination from radioactive or infectious substances must immediately be reported to the National Response Center.

Refer to the EPA SARA Title III List of Lists for those substances that have reportable quantities.

In addition to the NRC being notified, the local emergency number (9-1-1) must be called and CDPHE should be notified.

Written notification of any transportation accident involving a release of hazardous materials must be provided to the U.S. Department of Transportation within 30 days (49 CFR Part 171.16)

Since hazardous waste is a subset of hazardous materials, transporters who have discharged hazardous waste must notify the NRC and provide a written report to the US Department of Transportation as noted in the above reporting requirements.

The transporter must give immediate notice to the nearest Colorado State Patrol office (8 CCR 1507-8 HMP 5) and the nearest law enforcement agency if the accident or spill involved a vehicle (42-20-113(3) CRS).

Notification and a written report detailing the ultimate disposition of the discharge of hazardous waste must also be provided to CDPHE (6 CCR 1007-2 Section 263.30). This may be a duplicate copy of the US Department of Transportation report

In the event of a spill or discharge of hazardous waste at a transfer facility, the transporter must notify CDPHE within 24 hours if the spill exceeds 55 gallons or if there is a fire or explosion.

Within 15 days of a reportable incident, the transporter must submit a written report of the incident to CDPHE, including the final disposition of the material (6 CCR 1007-2 Section 263.40).

Releases of hazardous waste at a transfer facility may also require notification to the National Response Center and a written report to the U.S. Department of Transportation.

Releases to water

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).

Written notification to CDPHE must follow within five (5) days (5 CCR 1002-61, Section 61.8(5)(d)).

Any accidental discharge to the sanitary sewer system must be reported immediately to the local sewer authority and the affected wastewater treatment plant.

Releases of petroleum products and certain hazardous substances listed under the Federal Clean Water Act (40 CFR Part 116) must be reported to the National Response Center as well as to CDPHE (1-877-518-5608) as required under the Clean Water Act and the Oil Pollution Act.

Releases to air

Any unpredictable failure of air pollution control or process equipment that results in the violation of emission

control regulations should be reported CDPHE by 10 a.m. of the following working day, followed by a written notice explaining the cause of the occurrence and describing action that has been or is being taken to correct the condition causing the violation and to prevent such excess emissions in the future (5 CCR 1001-2 Common Provisions Regulations Section II.E).

If emergency conditions cause excess emissions at a permitted facility, the owner/operator must provide notice to CDPHE no later than noon of the next working day following the emergency, and follow by written notice within one month of the time when emission limitations were exceeded due to the emergency (5 CCR 1001-5, Regulation 3 Part C, Section VII.C.4).

Releases from oil and gas wells

All spills or releases of exploration and production wastes or produced fluids which meet the reporting thresholds of the Colorado Oil and Gas Conservation Commission (COGCC) Rule 906 shall be reported verbally to the COGCC within 24 hours of discovery and on the COGCC Spill/Release Report Form 19 within 72 hours of discovery.

Spills or releases are reportable to the COGCC in the following circumstances:

- 1) the spill or release impacts or threatens to impact any waters of the state, (which include surface water, ground water and dry gullies or storm sewers leading to surface water), a residence or occupied structure, livestock or a public byway;
- 2) a spill or release in which 1 barrel or more is released outside of berms or other secondary containment; or
- 3) any spill or release of 5 barrels or more.

COGCC also requires reportable spills or releases be reported to the surface owner and local government. Whether or not they are reportable, spills or releases of any size must be stopped, cleaned up, and investigated as soon as practicable.

If the spill or release impacts or threatens to impact waters of the state, it must also be reported immediately to CDPHE (25-8-601 CRS).

Releases from storage tanks

Petroleum releases of 25 gallons or more (or any size that causes a sheen on nearby surface waters) from regulated aboveground and underground fuel storage tanks must be reported to the Division of Oil and Public Safety (303-318-8547) within 24 hours. If the report is made after business hours, please leave a message on the technical assistance line for the Division of Oil and Public Safety, and contact the 24 hour CDPHE Emergency and Incident Reporting Line. This includes spills from fuel dispensers.

Spills or releases of hazardous substances from regulated storage tanks in excess of the reportable quantity (40 CFR Part 302.6) must be reported to the National Response Center and the local fire authority immediately, and to the Division of Oil and Public Safety within 24 hours. (8-20.5-208 CRS and 7 CCR 1101-14 Article 4).

Owners/operators of regulated storage tanks must contain and immediately clean up a spill or overflow of less than 25 gallons of petroleum and a spill or overflow of a hazardous substance that is less than the reportable quantity.

If cleanup cannot be accomplished within 24 hours, the Division of Oil and Public Safety must be notified immediately (7 CCR 1101-14 Article 4-4).

CDPHE should also be notified in the case of hazardous substance releases as cleanup activities may be covered by state solid or hazardous waste requirements (6 CCR 1007-2, 6 CCR 1007-3).

Any release that has or may impact waters of the state (which include surface water, ground water and dry

gullies or storm sewers leading to surface water), no matter how small, must be reported immediately to CDPHE (25-8-601 CRS).

Releases from pipelines

Releases of five or more gallons of hazardous liquids or carbon dioxide from a pipeline that result in explosion or fire, cause injury or death or cause estimated property damage (including cost of clean-up and recovery, value of lost product and property damage) exceeding \$50,000 must be reported immediately to the US Department of Transportation Office of Pipeline Safety (49 CFR Part 195 Subpart B) and the National Response Center.

Releases of five or more gallons of hazardous liquids or carbon dioxide from interstate pipelines that do not involve explosion or fire, injury or death or property damage exceeding \$50,000 should be reported to the US Department of Transportation Office of Pipeline Safety within 30 days after the incident.

Releases of natural gas from intrastate pipelines that cause injury or death, property damage in excess of \$50,000 (including the cost of lost product), closure of a public road, or evacuation of 50 or more people must be reported immediately to the Colorado Public Utilities Commission, Pipeline Safety Group (4 CCR 723-11-2).

Releases of natural gas or liquefied natural gas (LNG) from interstate pipelines that cause injury or death, property damage in excess of \$50,000 (including the cost of lost product), or results in an emergency shutdown of the facility must be reported immediately to the National Response Center and the US Dept of Transportation Office of Pipeline Safety.

Releases of oil, petroleum products or other hazardous liquids from interstate and intrastate pipelines that have or 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). CDPHE should also be notified of releases to soil, as cleanup activities may be covered by state solid or hazardous waste requirements (6 CCR 1007-2, 6 CCR 1007-3).

Radiological accidents, incidents, and events

CDPHE must be notified of any condition that has caused or threatens to cause an event, which meets or exceeds the criteria specified in (6 CCR 1007-1) RH 4.51 and RH 4.52 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control*. Reportable events include lost radioactive materials, lost radiation producing machines, over-exposures to persons, contamination events and fires or explosions involving radioactive materials.

Depending upon the severity of the event, notification may be required immediately, within 24 hours, or within 30 days. In most cases, a written follow-up report is also required.

If you are unsure of the proper notification requirement, please contact CDPHE immediately. Telephone event notifications can be made to the CDPHE Radiation Program at any time by calling 1-303-877-9757.

Notification Numbers

Colorado Department of Public Health and Environment toll-free 24-hour environmental emergency and incident reporting line: (877) 518-5608 (24-hour)

National Response Center
(800) 424-8802 (24-hour)

State Oil Inspector (Colorado Division of Oil & Public Safety-Above & Underground Storage Tank Regulators)
(303) 318-8547

**APPENDIX H
STORM EVENT LOG**

**APPENDIX I
INSPECTION AND SAMPLING REPORTS**

CONSTRUCTION STORMWATER SITE INSPECTION REPORT

Facility Name		Permittee					
Date of Inspection		Weather Conditions					
Permit Certification #		Disturbed Acreage					
Phase of Construction		Inspector Title					
Inspector Name							
Is the above inspector a qualified stormwater manager? (permittee is responsible for ensuring that the inspector is a qualified stormwater manager)			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
YES	NO						
<input type="checkbox"/>	<input type="checkbox"/>						

INSPECTION FREQUENCY					
Check the box that describes the minimum inspection frequency utilized when conducting each inspection					
At least one inspection every 7 calendar days	<input type="checkbox"/>				
At least one inspection every 14 calendar days, with post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosions	<input type="checkbox"/>				
<ul style="list-style-type: none"> • This is this a post-storm event inspection. Event Date: _____ 	<input type="checkbox"/>				
Reduced inspection frequency - Include site conditions that warrant reduced inspection frequency	<input type="checkbox"/>				
<ul style="list-style-type: none"> • Post-storm inspections at temporarily idle sites 	<input type="checkbox"/>				
<ul style="list-style-type: none"> • Inspections at completed sites/area 	<input type="checkbox"/>				
<ul style="list-style-type: none"> • Winter conditions exclusion 	<input type="checkbox"/>				
Have there been any deviations from the minimum inspection schedule? If yes, describe below.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
YES	NO				
<input type="checkbox"/>	<input type="checkbox"/>				

INSPECTION REQUIREMENTS*
i. Visually verify all implemented control measures are in effective operational condition and are working as designed in the specifications
ii. Determine if there are new potential sources of pollutants
iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges
iv. Identify all areas of non-compliance with the permit requirements, and if necessary, implement corrective action
*Use the attached Control Measures Requiring Routine Maintenance and Inadequate Control Measures Requiring Corrective Action forms to document results of this assessment that trigger either maintenance or corrective actions

AREAS TO BE INSPECTED			
Is there evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system or discharging to state waters at the following locations?			
	NO	YES	If "YES" describe discharge or potential for discharge below. Document related maintenance, inadequate control measures and corrective actions Inadequate Control Measures Requiring Corrective Action form
Construction site perimeter	<input type="checkbox"/>	<input type="checkbox"/>	
All disturbed areas	<input type="checkbox"/>	<input type="checkbox"/>	
Designated haul routes	<input type="checkbox"/>	<input type="checkbox"/>	
Material and waste storage areas exposed to precipitation	<input type="checkbox"/>	<input type="checkbox"/>	
Locations where stormwater has the potential to discharge offsite	<input type="checkbox"/>	<input type="checkbox"/>	
Locations where vehicles exit the site	<input type="checkbox"/>	<input type="checkbox"/>	
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	

REPORTING REQUIREMENTS

The permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances. The division may waive the written report required if the oral report has been received within 24 hours.

All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit		
a. Endangerment to Health or the Environment Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a of the Permit) <i>This category would primarily result from the discharge of pollutants in violation of the permit</i>		
b. Numeric Effluent Limit Violations <ul style="list-style-type: none"> o Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit) o Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit) o Daily maximum violations (See Part II.L.6.d of the Permit) <i>Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if numeric effluent limits are included in a permit certification.</i>		

Has there been an incident of noncompliance requiring 24-hour notification?	NO	YES	
	<input type="checkbox"/>	<input type="checkbox"/>	If "YES" document below

Date and Time of Incident	Location	Description of Noncompliance	Description of Corrective Action	Date and Time of 24 Hour Oral Notification	Date of 5 Day Written Notification *

*Attach copy of 5 day written notification to report. Indicate if written notification was waived, including the name of the division personnel who granted waiver.

After adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the individual(s) designated as the Qualified Stormwater Manager, shall sign and certify the below statement:

"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

Name of Qualified Stormwater Manager

Title of Qualified Stormwater Manager

Signature of Qualified Stormwater Manager

Date

Notes/Comments

**APPENDIX J
SWMP AMENDMENT LOG**

