Item numbers refer to SWMP Checklist

STORMWATER MANAGEMENT PLAN (SWMP)
STORMWATER BEST MANAGEMENT PRACTICES

For:

STERLING RANCH
(OFF-SITE SANITARY SEWER FORCE MAIN)

Prepared For:

SR Land, LLC

20 Boulder Crescent
Colorado Springs, CO 80903
Contact: Chaz Collins
719-491-8717

Prepared by:

M&S Civil Consultants, Inc.
102 E. Pikes Peak, Suite 500
Colorado Springs, CO 80903

Item 1. Add Qualified Stormwater Manager information to cover/title sheet. If unknown, add a placeholder to be updated prior to the start of work.

silt fence and VTC details

Item 1. Add Contractor information to cover/title sheet.

Job. No. 90-010
Project #PPR-1763

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APPENDICES

STORMWATER MANAGEMENT PLAN (SWMP)

General Site Description

Sterling Ranch is composed of approximately 1408.4 acres located to the north and east of Colorado Springs. The Off-Site Sanitary Sewer Force Main installation will impact approximately 8.0 acres along the 14,122 Linear feet. The areas of disturbances is limited to the alignment corridor. The primary area of disturbance is as follows:

Utility Installation and Reseeding along the alignment corridor from the southeast corner of Sterling Ranch, along the right-of-way in Woodmen Hills Drive to Meridian Road, thence along the western edge of right-of-way of Meridian Road southerly to a bored crossing of Meridian Road, to the ultimate discharge manhole.

The alignment is located in Sections 34, 35, 36, Township 12 South. and Section 1, Township 13 South, Range 65 West of the 6th P.M., in El Paso County, Colorado.

Narrative Description of Site Activities

The purpose of the Early Grading and Erosion Control Plan for Sterling Ranch - Off-Site Sanitary Sewer Force Main, is to install an 8" & 10" pipe to convey effluent from the Sterling Ranch Lift Station to the Meridian Service Metropolitan District. Specific construction activities will include clearing and grubbing, trench excavation and backfill, temporary stabilization, and utility installation and permanent stabilization. Disturbance and grading of the site in the proposed manner shown within the plans will not adversely impact adjacent or downstream properties. The proposed construction primarily runs converse to the natural grade of the project. The utility runs mostly west to east, and the natural grades run primarily north to south. Implementation of the BMP's proposed on the plan will serve to maintain or improve the water quality of the site runoff in a manner that is safe and satisfies the requirements set forth in the El Paso county Drainage Criteria Manual.

Phasing Plan

The installation of the Force Main plans was not planned for phasing, nor do the construction drawings consider it. However, at the time of this report, ~70% of the line was previously installed. Pending this approval February 2020, the line will be completed in the Spring of 2020.

Proposed Sequence for Major Activities Item 6. Include construction schedule for each stage.

Installations of BMPs are staged in order to minimize the potential for pollutants in the stormwater discharge. A preconstruction meeting is necessary prior to commencement of BMP installation. The following stages will be used: establishment of perimeter controls, installation of temporary BMPs during soil disturbance and then finally installation of permanent controls. Descriptions of some of the available BMPs are listed in below stages:

Only clearing necessary for the installation of perimeter controls should be employed in the first stage of temporary BMPs installation. Vehicle tracking, sediment control logs and a graded berm down stream of the trenching should be installed as shown on the Grading & Erosion Control Plan. At this time, the El Paso County inspector should be notified to schedule an initial inspection. Rough grading of the site will precede construction of proposed underground utilities. Silt fence can be used as an alternative the a graded soil berm.

Once utilities and temporary storm sewer infrastructure have been constructed, installation of temporary BMPs will commence. Temporary BMPs for this site consist of temporary seeding. Locations for temporary earthwork stockpiles will also be established. Once these locations have been established, they should be added and denoted on the copy of the plan that will be kept with the site administrator.

The final stage is the installation of permanent BMPs where no further disturbance is anticipated. Upon completion of the permanent BMPs and all grading activities are completed, all disturbed areas not sodded or developed will be mulched and reseeded with native seed mix and may be watered until vegetative cover has been fully re-instated. At this point, the person responsible for inspection and maintenance can begin to address requirements for final stabilization. See construction details for installation and maintenance.

Soils

The soils will vary along the pipe installation corridor. The majority of the soil will be excavated and backfilled in the same day of construction. Therefore, the effects of the remaining disturbed area shall be the replacement with native topsoil. The topsoil can then be reseeded to accomplish growth of vegetation for soil stability and to prevent erosion.

Water Quality

There are no existing or proposed full spectrum detention, or water quality ponds directly adjacent to the utility alignment corridor. Therefore, extreme care shall be given to prevent sediment leaving the area of construction. The methods for this are stated further in this report.

Narrative Description of BMP Control Measures

Installations of BMPs are staged in order to minimize the potential for pollutants in the stormwater discharge. The following stages will be used: establishment of perimeter controls, installation of temporary BMPs during soil disturbance and then finally installation of permanent controls. Descriptions of some of the available BMPs are listed in below stages:

Only clearing necessary for the installation of perimeter controls should be employed in the first stage of temporary BMPs installation. Silt fence and vehicle tracking should be installed as shown on the Grading & Erosion Control Plan. At this time, the El Paso County inspector should be notified to schedule an initial inspection. Rough grading of the site will precede construction of proposed underground utilities.

Once the utility infrastructure has been constructed, installation of temporary BMPs will commence. Temporary BMPs for this site consist of straw wattles. Locations for a concrete washout area and temporary stockpile location will also be established, or the use of the existing concrete washout area for the project can be used. These locations are likely to be different than what is shown on the Grading and Erosion Control Plan that accompanies this report. Once these locations have been established, they should be added and denoted on the copy of the plan that will be kept with the site administrator.

The final stage is the installation of permanent BMPs where no further disturbance is anticipated. Upon completion of the permanent BMPs and all grading activities are completed, all disturbed areas not sodded or developed will be mulched and reseeded with native seed mix and may be watered until vegetative cover has been fully re-instated. At this point, the person responsible for inspection and maintenance can begin to address requirements for final stabilization. See construction details for installation and maintenance.

Specifically, the proposed project will use a graded berm, a vehicle tracking control pad, sediment control logs, mulching and reseeding as well as erosion control matting to mitigate the potential for erosion across the site.

No ground water, springs, or irrigation of non-stormwater discharge covered by CDPHE low risk guidance are known for this project.

No additional areas for storage of building materials, soil stockpiles or wastes are proposed for this project. The existing equipment storage yard for Sterling Ranch contractors will be utilized. Access for the project for construction equipment will be along the construction corridor. Construction vehicles (trucks) will access the site from adjacent public roadways.

There are no dedicated asphalt or concrete batch plants associated with this project.

This project does not rely on control measures owned or operated by another entity. There are no offsite stormwater control measures proposed for use by the project that are not under the direct control of the owner or contractor.

Timing Schedule

Anticipated Starting and Completion Time Period of Grading Activities:
February 2020 - May 2021

Expected Date on Which The Final Stabilization Will Be Completed:
October 2021

Areas of Disturbance

Total subject property site acreage: **8.33 AC** (24,181 LF x 15' Feet)
Total disturbed area of subject property: **~8.33 AC**

Item 25. Add a sentence stating that all inspection logs will be signed by qualified stormwater manager

Permanent Stabilization

Final stabilization is reached when all soil-disturbing activities at the site have been completed, and uniform vegetative cover has been established by drill seeding and crimping with a density of at least 70% of pre-disturbance levels or equivalent permanent physical erosion reduction methods have been employed. The CDPHE Water Quality Division may, after consultation with the permittee and upon good cause, amend the final stabilization criteria for specific operations. At this time, the El Paso County inspector should be notified to schedule a final inspection. The conditions of the SWMP and General Permit for Stormwater Discharges associated with Construction Activity will remain in effect until Final Stabilization is achieved and a notice of inactivation is sent by the applicant to CDPHE Stormwater Quality Division. All pertinent records must be kept on file for at least 3 years from the date the site is finally stabilized.

Owner Inspections and Maintenance of BMP's

1. Make thorough inspection of the stormwater management system at least every 14 days.
2. Make thorough inspection of the stormwater management system after each precipitation event that causes runoff.
3. If any deficiencies are noted, they must be corrected immediately after being noted.
4. Records of the site inspections or modifications must be kept at the site unless alternate place is approved by the El Paso County inspector and must be made available upon request.
5. Inspections must take place where construction activity is complete, but lot is not sold.
6. Monthly inspections must take place on site where construction activity is complete, but vegetative cover is still being established.

Soil Borings / Test and Groundwater

A Geotechnical Investigation has been completed for the overall Sterling Ranch development which is inclusive of the Sterling Ranch Force Main, titled Geologic Hazard Evaluation Sterling Ranch Residential, EL Paso County Colorado, by CTL Thompson Inc. dated January 20, 2009.

Site Run-Off Characteristics

The site runoff coefficients are:	Minor Storm	Major Storm
-Historic existing Conditions	0.09	0.36
-Roofs, sidewalks, paved areas	0.90	0.96
-Landscaped and undeveloped areas	0.25	0.35

STORMWATER MANAGEMENT PLAN

Introduction

To: Site Inspector responsible for all Colorado Department of Public Health and Environment and El Paso County Requirements:

The following stormwater management plan (SWMP) is a required item under the Construction Stormwater Discharge Permit. The primary goal for a SWMP to is to improve water quality by reducing pollutants in to stormwater discharges. Construction dewatering is a separate issue, and must be covered by the CDPHE Stormwater Quality Division's general permit for construction dewatering (regardless of the size of the construction project). Stormwater that mixes with ground water in an excavation is subject to the controls of a Construction Dewatering Permit. It is assumed that the SWMP will be completed and implemented at the time the project breaks ground, and will be revised if necessary as construction proceeds. This document must be kept at the construction site at all times and be made available to the public and any representative of any Water Quality Control Divisions if requested. Inspection guidance can be found at www.cdphe.state.co.us/and El Paso County and City of Colorado Springs Storm Drainage Design Criteria. The inspections should be made at least every 14 days and after any precipitation or snowmelt event that causes surface erosion. El Paso County requires that the inspector must be contacted 48 hours prior to initial and final inspections. An inspection log entry should be completed with each inspection performed. The inspection log should be kept with the SWMP. The conditions of the SWMP and General Permit for Stormwater Discharges associated with the construction activity will remain in effect until final stabilization is achieved, and a notice of inactivation is sent to CDPHE Stormwater Quality Division. All pertinent records must be kept for at least 3 years from date the site is stabilized or sold.

Project is within 100 yr FP firm map 08041C0533G

Floodplain Statement

No portion of this alignment (Off-Site Sterling Ranch) lies within a designated F.E.M.A. floodplain as determined by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 08041C0535 G, effective date December 7, 2018 and revised to reflect LOMR, 08-08-O541P, dated July 23, 2009. An annotated FIRM Panel is included in the Appendix.

Receiving Water Description

The site is located with the East Fork of the Sand Creek Drainage Basin, & Falcon Drainage Basin.

Item 16. Add description of streams and wetlands adjacent to and crossing the project area

Existing Vegetation Description

Off-Site Sterling Ranch Sanitary Sewer Force Main is proposed within developed and undeveloped areas. The undeveloped areas contain sparse vegetation, consisting of native grasses. The developed areas that the alignment will cross will contain sparse vegetation to dense residential landscaping. The alignment is proposed outside of the asphalt along Woodmen Hills Drive and Meridian Road, mostly in the roadside ditches. These areas have varying types of vegetation. Replacement of the vegetation post construction should be in-kind or better than the pre-construction conditions.

Item 9. Add vegetation percent ground cover and method for determining (i.e. visual, aerial survey, etc.)

Potential Pollution Sources

Construction activities that will take place at this site may have an impact on the stormwater quality. These include, but are not limited to, portable toilets, materials storage, vehicle fueling, maintenance and vehicle tracking, dust, waste piles and dumpsters. The location of any of these activities not included on the initial site map should be added along with a description of the measures used to prevent the discharge of these materials from the site. See construction details for installation and maintenance.

Anticipated Non-Stormwater Discharges

Non-stormwater discharges are caused by activities other than direct runoff from precipitation events. These include, but are not limited to natural springs. Any non-stormwater discharges that are not included in the initial map should be added along with a description of measures used to handle it.

Item 14. If there are no non-stormwater discharges, state that. Otherwise provide the location and a description of the anticipated non-stormwater discharges.

EROSION SEDIMENT CONTROLS

Proposed Sequence of Construction Activities

1. Notify the inspector for initial inspection.
2. Clearing for necessary for perimeter controls.
3. Construct vehicle traffic control pad at entrance/exit of construction site.
4. Install lot perimeter controls, including silt fence, delineating project site as indicated on Site Map.
5. Complete remaining clearing and grubbing for project area. Install additional BMPs, as indicated on Site Map.
6. Final grade site as indicated on Site Map.
7. Achieve Final Stabilization, as outlined in SWMP. Send inactivation notice to CDPHE.
8. See Construction Details for BMP Installation and Maintenance.

Any stockpile areas are to be contained with silt fence, or other acceptable measures to prevent erosion and sediment from leaving the area. All BMP's that may be in place need to be inspected and cleaned if sediment should leave the site and enter the streets. Erosion control measures shall be implemented in a manner that will protect properties and public facilities from the adverse effect of erosion and sedimentation as a result of construction and earthwork activities. The following practices are to be implemented for this site:

Structural Practices

In areas of sheet flow running off-site and at the top and bottom of steep slopes, silt fence will be used to trap sediment. Silt fence should be placed on the contour and in areas where the tributary area is less than one-quarter acre per 100' of silt fence. A vehicle traffic control pad will be installed at the entrance/exit of the site to reduce sediment tracking off-site.

Practices may include, but are not limited to straw bales, wattles/sediment control logs, silt fences, earth dikes, drainage swales, sediment traps, subsurface drains, pipe slope drains, inlet protection, outlet protection, gabions, and temporary or permanent sediment basins. All roads will be inspected to ensure that sediment from on-site construction activity is not being discharged with the stormwater. Sediment and debris that have been tracked off-site should be removed daily by shoveling or sweeping. See construction details for installation and maintenance.

Non-Structural Control Measures

Surface roughening may be used to reduce the amount of runoff and wind erosion from any given areas. Once the existing vegetation is cleared, watering should occur to help control fugitive dust. Disturbed areas where work is temporarily halted shall be temporarily stabilized within 21 calendar days after activity has ceased unless work is to be resumed within 30 calendar days after the activity has ceased. Other Non-Structural Practices may include soils erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within 21 calendar days after final grade, or final earth disturbance, has been completed. Disturbed areas and stockpiles, which are not at final grade but will remain dormant for longer than 30 days, shall also be mulched within 21 days after interim grading. An area that is going to remain in an interim state for more than 60 days shall also be seeded. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented. See construction details for installation and maintenance.

Materials Handling and Spill Practices

Any substances with potential to contaminate either the ground or ground surface water shall be cleaned up immediately after discovery or contained until appropriate cleanup methods can be employed. Manufacture's recommended methods for clean up shall be followed, along with proper disposal methods. Any discharge of hazardous materials must be handled in accordance with the Divisions Notification Requirement. All waste and debris created by construction activities at the site or removed from the site shall be disposed of in compliance with all laws, regulations and ordinances of the federal, state and local agencies. See construction details for Materials Handling and Spills.

Potential Pollution Sources

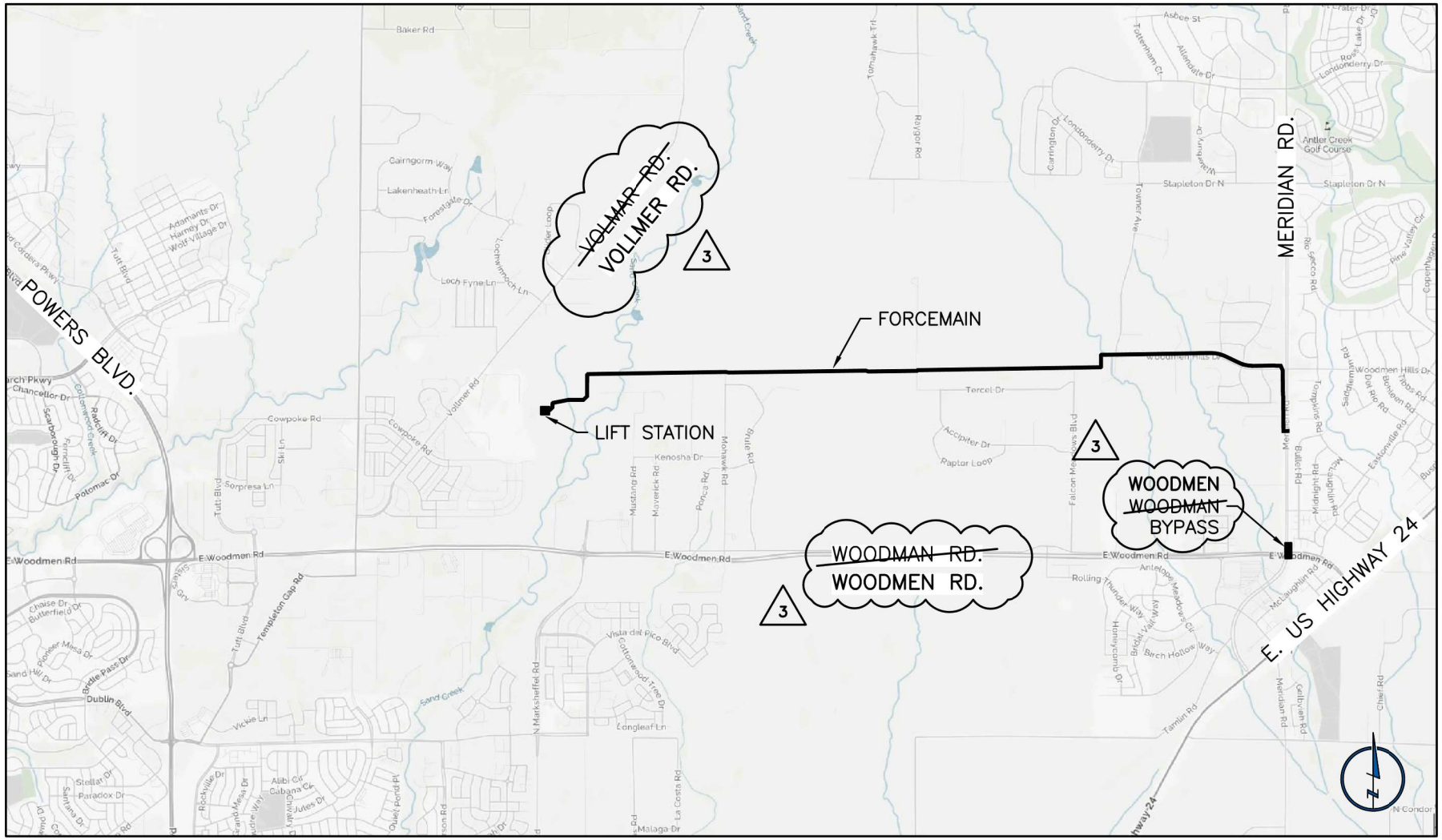
Construction activities that will take place at this site may have an impact on the stormwater quality. These include, but are not limited to, portable toilets, materials storage, vehicle fueling, maintenance and vehicle tracking, dust, waste piles and dumpsters. The location of any of these activities not included on the initial site map should be added along with a description of the measures used to prevent the discharge of these materials from the site. See construction details for installation and maintenance.

Potential Soil Erosion

The proposed onsite construction activities anticipate the potential for soil erosion. Onsite stormwater BMP management facilities are proposed to minimize and aid in soil erosion. This project consists for the installation of a utility. No permanent displacement of soil material is proposed. Therefore, not cut or fill quantities are applicable.

APPENDICES

VICINITY MAP



LOCATION MAP
N.T.S.

COPY OF CDPHE APPLICATION

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
Dedicated to protecting and improving the health and environment of the people of Colorado

Water Quality Control Division
4300 Cherry Creek Drive South
WQCD-WQPS-B2
Denver, CO 80246-1530
(303) 692– 3500 **www.coloradowaterpermits.com**

For Agency Use Only

Permit Number Assigned

COR03-_____

Date Received ____/____/____
MM DD YYYY

COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES APPLICATION

PHOTO COPIES, FAXED COPIES, PDF COPIES OR EMAILS WILL NOT BE ACCEPTED.

Please print or type. Original signatures are required.
All items must be completed accurately and in their entirety for the application to be deemed complete. Incomplete applications will not be processed until all information is received which will ultimately delay the issuance of a permit. If more space is required to answer any question, please attach additional sheets to the application form. Applications must be submitted by mail or hand delivered to:

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

Any additional information that you would like the Division to consider in developing the permit should be provided with the application. Examples include effluent data and/or modeling and planned pollutant removal strategies.

HOW TO COMPLETE THIS APPLICATION

1. Online via web browser. You must use Internet Explorer (version 8 and above). All other browsers disable the electronic submission features.
OR
2. Download and save this form to your computer. Then open Adobe Reader (or Acrobat), select File, then Open and navigate to where the form is saved. This is the best option if using a Mac computer (Do not use the Mac Preview program).

PERMIT INFORMATION

Reason for Application: ☑ NEW CERT ☐ RENEW CERT EXISTING CERT# _____

Applicant is: ☐ Property Owner ☑ Contractor/Operator

A. CONTACT INFORMATION—NOT ALL CONTACTS MAY APPLY *indicates required

*** PERMITTEE (if more than one please add additional pages)**

*** ORGANIZATION FORMAL NAME:** C & C Land, LLC

1) * PERMITTEE CONTACT the person **authorized to sign and certify** the permit application.
This person receives all permit correspondences and is the person **responsible** for ensuring compliance with the permit.

Responsible Person (Title): Contractor

Currently Held By (Person): FirstName: Chaz LastName: Collins

Telephone: 719-471-1742 Email Address: candclandllc@aol.com

Organization: C & C Land, LLC

Mailing Address: 20 Boulder Crescent, Suite 200

City: Colorado Springs State: CO Zip Code: 80903

This form must be signed by the Permittee (listed in item 1) to be considered complete.
Per Regulation 61 In all cases, it shall be signed as follows:

In the case of corporations, by a responsible corporate officer. For the purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the application originates.
In the case of a partnership, by a general partner.
In the case of a sole proprietorship, by the proprietor.
In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

2) **DMR COGNIZANT OFFICIAL (i.e. authorized agent)** the person or position authorized to **sign and certify reports required by the Division** including Discharge Monitoring Reports *DMR's, Annual Reports, Compliance Schedule submittals, and other information requested by the Division. The Division will transmit pre-printed reports (ie. DMR's) to this person. If more than one, please add additional pages.

☑ Same as 1) Permittee

Responsible Person (Title): Contractor

Currently Held By (Person): FirstName: Chaz LastName: Collins

Telephone: 719-471-1742 Email Address: candclandllc@aol.com

Organization: C & C Land, LLC

Mailing Address: 20 Boulder Crescent, Suite 200

City: Colorado Springs State: CO Zip Code: 80903

Per Regulation 61 : All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

i. The authorization is made in writing by the permittee.

ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a **named individual** or any individual occupying a **named position);** and

iii. The written authorization is submitted to the Division.

3) ***SITE CONTACT** local contact for questions relating to the facility & discharge authorized by this permit

☑ Same as 1) Permittee

Responsible Person (Title): Contractor

Currently Held By (Person): FirstName: Chaz LastName: Collins

Telephone: 719-471-1742 Email Address: candclandllc@aol.com

Organization: C & C Land, LLC

Mailing Address: 20 Boulder Crescent, Suite 200

City: Colorado Springs State: CO Zip Code: 80903

4) ***BILLING CONTACT** if different than the permittee.

☑ Same as 1) Permittee

Responsible Person (Title): Contractor

Currently Held By (Person): FirstName: Chaz LastName: Collins

Telephone: 719-471-1742 Email Address: candclandllc@aol.com

Organization: C & C Land, LLC

Mailing Address: 20 Boulder Crescent, Suite 200

City: Colorado Springs State: CO Zip Code: 80903

5) OTHER CONTACT TYPES (check below) Add pages if necessary:

Responsible Person (Title): _____

Currently Held By (Person): _____ LastName: _____

Telephone: _____ Email Address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

- ☐ Pretreatment Coordinator
- ☐ Property Owner
- ☐ Compliance Contact
- ☐ Environmental Contact
- ☐ Inspection Facility Contact
- ☐ Stormwater MS4 Responsible Person
- ☐ Biosolids Responsible Party
- ☐ Consultant
- ☐ Stormwater Authorized Representative
- ☐ Other: _____

B) PERMITTED PROJECT/FACILITY INFORMATION

Project/Facility Name: Sterling Ranch Off-Site Sanitary Sewer Force Main

Street Address or Cross Streets: North and East of the future intersection of Vollmer Road and Marksheffel Road

(e.g., "S. of Park St. between 5th Ave. and 10th Ave.", or "W. side of C.R. 21, 3.25 miles N. of Hwy 10"; A street name without an address, intersection, mile marker, or other identifying information describing the location of the project is not adequate. For **linear projects**, the route of the project should be described as best as possible with the location more accurately indicated by a map.)

City: N/E of Colorado Springs Zip Code: _____ County: EL Paso

Facility Latitude/Longitude - (approximate center of site to nearest 15 seconds using one of the following formats)

☐ Decimal Degrees

OR 001A Latitude _____ . _____ (Degrees (to 3 decimal places)) 001A Longitude _____ . _____ (Degrees (to 3 decimal places)) (e.g., 39.703°, 104.933°)

☑ Degrees, Minutes, Seconds

001A Latitude 38 (Degrees) ° 57 (Minutes) ' 47N (Seconds) " 001A Longitude 104 (Degrees) ° 40 (Minutes) ' 30W (Seconds) " e.g., 39°46'11"N, 104°53'11"W

For the approximate center point of the property, to the nearest 15 seconds. The latitude and longitude must be provided as either degrees, minutes, and seconds, or in decimal degrees with three decimal places. This information may be obtained from a variety of sources, including:

- **Surveyors or engineers** for the project should have, or be able to calculate, this information.
- EPA maintains a **web-based siting tool** as part of their Toxic Release Inventory program that uses interactive maps and aerial photography to help users get latitude and longitude. The siting tool can be accessed at **www.epa.gov/tri/report/siting_tool/index.htm**
- **U.S. Geological Survey topographical map(s)**, available at area map stores.
- Using a **Global Positioning System (GPS) unit** to obtain a direct reading.

***Note**: the latitude/longitude required above is not the directional degrees, minutes, and seconds provided on a site legal description to define property boundaries.*

C) MAP (Attachment) If no map is submitted, the permit will not be issued Facility Information

Map: Attach a map that indicates the site location and that CLEARLY shows the boundaries of the area that will be disturbed. Maps must be **no larger** than 11x17 inches.

D) LEGAL DESCRIPTION

Legal description: If subdivided, provide the legal description below, or indicate that it is not applicable (**do not** supply Township/Range/Section or metes and bounds description of site)

Subdivision(s): _____ Lot(s): _____ Block(s) _____

OR ☑ Not applicable (site has not been subdivided)

E) AREA OF CONSTRUCTION SITE

Total area of project site: 4.86 AC. Area of project site to undergo disturbance: ~8.0 AC

Note: aside from clearing, grading and excavation activities, disturbed areas also include areas receiving overburden (e.g., stockpiles), demolition areas, and areas with heavy equipment/vehicle traffic and storage that disturb existing vegetative cover

Total disturbed area of Larger Common Plan of Development or Sale, if applicable: not applicable

(i.e., total, including all phases, filings, lots, and infrastructure not covered by this application)

Provide both the total area of the construction site, and the area that will undergo disturbance, in acres. **Note:** aside from clearing, grading and excavation activities, disturbed areas also include areas receiving overburden (e.g., stockpiles), demolition areas, and areas with heavy equipment/vehicle traffic and storage that disturb existing vegetative cover (see construction activity description under the APPLICABILITY section on page 1). If the project is part of a **larger common plan of development or sale** (see the definition under the APPLICABILITY section on page 1), the disturbed area of the total plan must also be included.

F) NATURE OF CONSTRUCTION ACTIVITY

Check the appropriate box(s) or provide a brief description that indicates the general nature of the construction activities. (The full description of activities must be included in the Stormwater Management Plan.)

- ☐ Single Family Residential Development
- ☐ Multi-Family Residential Development
- ☐ Commercial Development
- ☐ Oil and Gas Production and/or Exploration (including pad sites and associated infrastructure)
- ☐ Highway/Road Development (not including roadways associated with commercial or residential development)
- ☑ Other—Description: Early Grading and Erosion Control Plan in preparation for Single Family Development

G) ANTICIPATED CONSTRUCTION SCHEDULE

Construction Start Date: June 2019 Final Stabilization Date: June 2022

- *Construction Start Date* - This is the day you expect to begin ground disturbing activities, including grubbing, stockpiling, excavating, demolition, and grading activities.
- *Final Stabilization Date* - in terms of permit coverage, this is when the site is finally stabilized. This means that all ground surface disturbing activities at the site have been completed, and all disturbed areas have been either built on, paved, or a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels. **Permit coverage must be maintained until the site is finally stabilized. Even if you are only doing one part of the project, the estimated final stabilization date must be for the overall project.** If permit coverage is still required once your part is completed, the permit certification may be transferred or reassigned to a new responsible entity(s).

H) RECEIVING WATERS (If discharge is to a ditch or storm sewer, include the name of the ultimate receiving waters)

Immediate Receiving Water(s): Sand Creek

Ultimate Receiving Water(s): Fountain Creek

Identify the receiving water of the stormwater from your site. Receiving waters are any waters of the State of Colorado. This includes all water courses, even if they are usually dry. If stormwater from the construction site enters a ditch or storm sewer system, identify that system and indicate the ultimate receiving water for the ditch or storm sewer. **Note:** a stormwater discharge permit does not allow a discharge into a ditch or storm sewer system without the approval of the owner/ operator of that system.

I) SIGNATURE PAGE

1. **You may print and sign this document and mail the hard copy to the State along with required documents.**

OR

2. **Electronic Submission Signature**

You may choose to submit your application electronically, along with required attachments. To do so, click the SUBMIT button below which will direct you, via e-mail , to sign the document electronically using the DocuSign Electronic Signature process. Once complete, you will receive, again via e-mail, an electronically stamped Adobe pdf of this application. Print the signature page from the electronically stamped pdf, sign it and mail it to the WQCD Permits Section to complete the application process (address is on page 1 of the application).

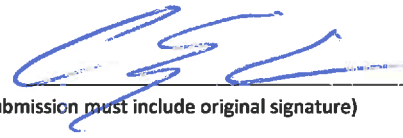
- **The Division encourages use of the electronic submission of the application and electronic signature. This method meets signature requirements as required by the State of Colorado.**
- **The ink signed copy of the electronically stamped pdf signature page is also required. This requirement meets Federal EPA Requirements.**

Processing of the application will begin with the receipt of the valid electronic signature.

☑ **STORMWATER MANAGEMENT PLAN CERTIFICATION**

"I certify under penalty of law that a complete Stormwater Management Plan, as described in Appendix B of this application, 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."

"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."
"I understand that submittal of this application is for coverage under the State of Colorado General Permit for Stormwater Discharges Associated with Construction Activity **for the entirety of the construction site/project described and applied for, until such time as the application is amended or the certification is transferred, inactivated, or expired."** [Reg 61.4(1)(h)]

For Docusign
Electronic Signature _____ Ink Signature  Date: _____

Signature of Legally Responsible Person or Authorized Agent (submission must include original signature)

Chaz Collins	Contractor
Name (printed)	Title

This form must be signed by the Permittee to be considered complete. **Per Regulation 61** In all cases, it shall be signed as follows:

a) In the case of corporations, by a responsible corporate officer. For the purposes of this section, the responsible corporate officer is responsible for the over all operation of the facility from which the discharge described in the application originates.
b) In the case of a partnership, by a general partner.
c) In the case of a sole proprietorship, by the proprietor.
d) In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official

3rd Party Preparer: If this form was prepared by an authorized agent on behalf of the Permittee, please complete the fields below.

Darin L. Moffett	darin@mscivil.com
Preparer Name (printed)	Email Address

DO NOT INCLUDE A COPY OF THE STORMWATER MANAGEMENT PLAN
DO NOT INCLUDE PAYMENT—AN INVOICE WILL BE SENT AFTER THE CERTIFICATION IS ISSUED.

	Attach Map
	Attach File
	Attach File
	Attach File
	Attach File

GRADING, EROSION, STORMWATER
INSPECTION CHECKLIST

Appendix C Inspection Checklist – Grading Erosion, and Stormwater Quality Controls

CITY OF COLORADO SPRINGS

DATE/TIME:
INSPECTOR:
TYPE OF INSPECTION: Self-Monitoring_____ Initial _____ Compliance_____ Follow-Up_____ Reconnaissance_____ Complaint_____ Final____

SITE:	DATE OF PERMIT:
ADDRESS:	
CONTRACTOR: CONTACT: PHONE:	OWNER/OWNER'S REPRESENTATIVE: CONTACT: PHONE:
STAGE OF CONSTRUCTION: Initial BMP Installation/Prior to Construction_____ Clearing & Grubbing_____ Rough Grading_____ Finish Grading_____ Utility Construction_____ Building Construction_____ Final Stabilization_____	

OVERALL SITE INSPECTION	YES/NO/N.A.	REMARKS/ACTIONS
Is there any evidence of sediment leaving the construction site? If so, note areas.		
Have any adverse impacts such as flooding, structural damage, erosion, spillage, or accumulation of sediment, debris or litter occurred on or within public or private property, wetlands or surface waters –to include intermittent drainageways and the City's stormwater system (storm sewers, gutters, ditches, etc.)?		
Are the BMPs properly installed and maintained?		
Have the BMPs been placed as shown on approved plans?		
Are the BMPs functioning as intended?		
Is work being done according to approved plans and any phased construction schedule?		
Is the construction schedule on track?		
Are drainage channels and outlets adequately stabilized?		
Is there any evidence of discharges or spills of fuels, lubricants, chemicals, etc.?		

BMP MAINTENANCE CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
SURFACE ROUGHENING Is the roughening consistent/uniform on slopes?? Any evidence of erosion?		
TEMPORARY SEEDING Are the seedbeds protected by mulch? Has any erosion occurred in the seeded area? Any evidence of vehicle tracking on seeded areas?		
TEMPORARY SWALES Has any sediment or debris been deposited within the swales? Have the slopes of the swale eroded or has damage occurred to the lining? Are the swales properly located?		
VEHICLE TRACKING Is gravel surface clogged with mud or sediment? Is the gravel surface sinking into the ground? Has sediment been tracked onto any roads and has it been cleaned up? Is inlet protection placed around curb inlets near construction entrance?		
OTHER		

FINAL INSPECTION CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
Has all grading been completed in compliance with the approved Plan, and all stabilization completed, including vegetation, retaining walls or other approved measures?		
Has final stabilization been achieved – uniform vegetative cover with a density of at least 70 percent of pre-disturbance levels, and cover capable of adequately controlling soil erosion; or permanent, physical erosion methods?		
Have all temporary measures been removed?		
Have all stockpiles, construction materials and construction equipment been removed?		
Are all paved surfaces clean (on-site and off-site)?		
Has sediment and debris been removed from drainage facilities (on-site and off-site) and other off-site property, including proper restoration of any damaged property?		
Have all permanent stormwater quality BMPs been installed and completed?		

ADDITIONAL COMMENTS:

The items noted as needing action must be remedied no later than _____. The contractor shall notify the inspector when all the items noted above have been addressed.

By signing this inspection form, the owner/owner's representative and the contractor acknowledge that they have received a copy of the inspection report and are aware it is their responsibility to take corrective actions by the date noted above. Failure to sign does not relieve the contractor and owner/owner's representative of their responsibility to take the necessary corrective action and of their liability for any damages that have occurred or may occur.

INSPECTOR'S SIGNATURE:	DATE:
OWNER/OWNER'S REPRESENTATIVE SIGNATURE:	DATE:
CONTRACTOR'S SIGNATURE:	DATE:

SPILL CLEANUP INSTRUCTIONS AND REPORT FORM

involving a radioactive or infectious material, or there is a release of a marine pollutant.

Spills and incidents that have or may result in a spill along a highway must be reported to the nearest law enforcement agency immediately. The Colorado State Patrol and CDPHE must also be notified as soon as possible. In the event of a spill 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.

The National Response Center should be notified as soon as possible after discovery of a release of a hazardous liquid or carbon dioxide from a pipeline system if a person is killed or injured, there is a fire or explosion, there is property damage of $50,000 or more, or any nearby water body is contaminated.

The National Response Center and the Colorado Public Utilities Commission Gas Pipeline Safety Section must be notified as soon as possible, but not more than two hours after discovery of a release of gas from a natural gas pipeline or liquefied natural gas facility if a person is killed or injured, there is an emergency shutdown of the facility, or there is property damage of $50,000 or more. The Colorado Public Utilities Commission should also be notified if there is a gas leak from a pipeline, liquefied natural gas system, master meter system or a propane system that results in the evacuation of 50 or more people from an occupied building or the closure of a roadway.

Oil and Gas Exploration

All Class I major events on federal lands, including releases of hazardous substances in excess of the CERCLA reportable quantity and spills of more than 100 barrels of fluid and/or 500 MCF of gas released, must be reported to the Bureau of Land Management (BLM) immediately. Spills of oil, gas, salt water, toxic liquids and waste materials must also be reported to the BLM and the surface management agency.

Spills of exploration and production (E&P) waste on state or private lands in excess of 20 barrels, and spills of any size that impact or threaten to impact waters of the state, an occupied structure, or public byway must be reported to the Colorado Oil and Gas Conservation Commission as soon as practicable, but not more than 24 hours after discovery. Spills of any size that impact or threaten to impact waters of the state must be reported to CDPHE immediately. Spills that impact or threaten to impact a surface water intake must be reported to the emergency contact for that facility immediately after discovery. Spills of more than five (5) barrels of E&P waste must be reported in writing to the Oil and Gas Conservation Commission within 10 days of discovery.

REPORTING NUMBERS

National Response Center (24-hour)
1-800-424-8802

CDPHE Colorado Environmental Release and Incident Reporting Line (24-hour)
1-877-518-5608

Radiation Incident Reporting Line (24-hour)
303-877-9757

Colorado State Patrol (24-hour)
303-239-4501

Division of Oil and Public Safety
(business hours)
303-318-8547

Oil and Gas Conservation Commission
(business hours)
303-894-2100

Colorado Public Utilities Commission Gas Pipeline Safety Section (business hours)
303-894-2851

Local Emergency Planning Committees
(to obtain list, business hours)
720-852-6603

Colorado Department of Public Health and Environment

Environmental Spill Reporting

Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

http://www.cdphe.state.co.us

January 2009

When a release of a hazardous material or other substance occurs to the environment, there are a number of reporting and notification requirements that must be followed by the company or individual responsible for the release. Most spills are covered by more than one reporting requirement, and **all** requirements must be met. In addition to verbal notification, written reports are generally required. This brochure briefly explains the major requirements. A more detailed description is provided in the "Reporting Environmental Releases in Colorado" Guidance Document, available on the web.

Releases that must be reported to the Colorado Department of Public Health and Environment (CDPHE) may be reported to the Colorado Environmental Release and Incident Reporting Line.

ENVIRONMENTAL SPILL REPORTING

CERCLA, EPCRA and RCRA

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA) require that a release of a reportable quantity or more of a hazardous substance to the environment be reported immediately to the appropriate authorities when the release is discovered.

Under CERCLA, reportable quantities were established for hazardous substances listed or designated under other environmental statutes. These include:

- all hazardous air pollutants (HAPs) listed under Section 112(b) of the Clean Air Act.
- all toxic pollutants designated under Section 307(a) or Section 311(b)(2)(A) of the Clean Water Act.
- all Resource Conservation and Recovery Act (RCRA) characteristic and listed hazardous wastes.
- any element, compound, or substance designated under Section 102 of CERCLA.

EPCRA established a list of extremely hazardous substances (EHS) that could cause serious irreversible health effects from accidental releases. Many substances appear on both the CERCLA and EPCRA lists. EPCRA extremely hazardous substances that are also CERCLA hazardous substances have the same reportable quantity (RQ) as under CERCLA. EPCRA extremely hazardous substances that are not listed under CERCLA have a reportable quantity that is equal to their threshold planning quantity (TPQ). A list of CERCLA reportable quantities is included in 40 CFR Section 302.4. A list of EPCRA threshold planning quantities is included in 40 CFR Part 355 Appendices A & B.

CERCLA-reportable releases must be reported immediately to the National Response Center (NRC), while EPCRA-reportable releases must be reported immediately to the National Response Center, the State Emergency Response Commission (SERC) and the affected Local Emergency Planning Committee (LEPC). If the release is an EPCRA extremely hazardous substance, but not a CERCLA hazardous substance, and there is absolutely no potential to affect off-site persons, then only the State Emergency Planning Commission (represented by CDPHE for reporting purposes) and the Local Emergency Planning Committee need to be notified.

In the case of a release of hazardous waste stored in tanks, RCRA-permitted facilities and large quantity generators must also notify CDPHE within 24 hours of any release to the environment that is greater than one (1) pound.

Radiation Control

Each licensee or registrant must report to the Radiation Incident Reporting Line in the event of lost, stolen or missing licensed or registered radioactive materials or radiation machines, releases of radioactive materials, contamination events, and fires or explosions involving radioactive materials. Releases of radionuclides are reportable under CERCLA.

Clean Water Act

The Clean Water Act requires the person in charge of a facility or vessel to immediately report to the National Response Center all discharges of oil or designated hazardous substances to water. Oil means oil of any kind or form. Designated hazardous substances are included in the CERCLA list.

The Clean Water Act also requires that facilities with a National Pollutant Discharge Elimination System (NPDES) permit report to the National Response Center within 24 hours of becoming aware of any unanticipated bypasses or upsets that cause an exceedance of the effluent limits in their permit and any violations of their maximum daily discharge limits for pollutants listed in their permit.

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 and storm sewers leading to surface water) must be reported immediately to CDPHE. Any accidental discharge to the sanitary sewer system must be reported immediately to the local sewer authority and the affected wastewater treatment plant. For additional regarding releases to water, please see "Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits" at http://www.cdphe.state.co.us/op/wqcc/Resources/Guidance/spillguidance.pdf.

Clean Air Act

Hazardous air pollutants (HAPs) are designated as hazardous substances under CERCLA. If a facility has an air permit but the permit does not allow for or does not specify the release of a substance, or if the facility does not have an air permit, then all releases in excess of the CERCLA / EPCRA reportable quantity for that substance must be reported to the National Response Center and CDPHE. If the facility releases more of a substance than is allowed under its air permit, the facility must also report the release. Discharges of a substance that are within the allowable limits specified in the facility's permit do not need to be reported.

Regulated Storage Tanks

Owners and operators of regulated storage tank systems must report a release or suspected release of regulated substances to the Division of Oil and Public Safety at the Colorado Department of Labor and Employment within 24 hours. Under this program, the reportable quantity for petroleum releases is 25 gallons or more, or any amount that causes a sheen on nearby surface water. Spills of less than 25 gallons of petroleum must be immediately contained and cleaned up. If cleanup cannot be accomplished within 24 hours, the Division of Oil and Public Safety must be notified immediately.

Spills of hazardous substances from tanks in excess of the CERCLA or EPCRA reportable quantity must be reported immediately to the National Response Center, CDPHE and the local fire authority, and to the Division of Oil and Public Safety within 24 hours.

Transportation and Pipelines

The person in physical possession of a hazardous material must notify the National Response Center as soon as practical, but not to exceed 12 hours after the incident, if as a direct result of the hazardous material, a person is killed or injured, there is an evacuation of the general public lasting more than an hour, a major transportation artery is shut down for an hour or more, the flight pattern of an aircraft is altered, there is fire, spillage or suspected contamination

Colorado Water Quality Control Division

WATER QUALITY CONTROL DIVISION

Policy No: WQE-10
Initiated By: Dave Akers
Approved By:
Effective Date: 3/1/08
Revision No.:
Revision Date:

Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits

I. Purpose

To provide guidance on applicable Colorado reporting requirements pursuant to § 25-8-601(2), C.R.S., that pertains to spills or discharges that may cause pollution of State waters. This guidance does not relieve an entity of any other statutory or regulatory requirements applicable to a spill. Facilities possessing a Colorado Discharge Permit System (CDPS) permit should follow applicable permit terms and conditions regarding spill reporting and response. This guidance is not intended to supersede or modify such permit terms and conditions or the applicable statute and regulations. This guidance does not limit the existing rights or responsibilities of persons with respect to spill reporting. For example, persons retain the right and responsibility to determine in the first instance whether a particular spill is covered by an existing permit or may cause pollution to State waters (i.e., surface or ground waters).

II. Statutory Requirement Addressed

Colorado Water Quality Control Act - Spill Reporting Requirements - § 25-8-601(2), C.R.S.

> "Any person engaged in any operation or activity which results in a spill or discharge of oil or other substance which may cause pollution of the waters of the state contrary to the provisions of this article as soon as he has knowledge thereof, shall notify the division of such discharge."

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 (§ 25-8-103 (19), C.R.S.).

Examples of State waters include, but are not limited to, perennial streams, intermittent or ephemeral gulches and arroyos, ponds, lakes, reservoirs, irrigation canals or ditches, wetlands, stormwater conveyances (when they discharge to a surface water), and groundwater.

III. Policy/Applicability

The Division distinguishes between reporting requirements for spills that occur with respect to activities that result in a discharge that is authorized under a CDPS permit and those that are not. For non-permitted activities, or in the case of an activity where a permit does not address reporting of or response to a given spill, the Division recommends that the responsible person(s) take the following actions:

1. Immediately report spills that may result in a non-permitted discharge of pollutants to State waters to the Environmental Release and Incident Reporting Line at 1-877-518-5608;
2. Include the following information, if available, when notifying the Division of a spill:
   a. The name of the responsible person and, if not reported by that person, the name of the person reporting the spill and the name of the responsible person if known;
   b. An estimate of the date and time that the spill began or the actual date and time, if known;

c. The location of the spill, its source (e.g., manhole, tanker truck), and identification of the type of material spilled (e.g., untreated wastewater, biosolids, specific chemical);

d. The estimated volume of the spill and, if known, the actual date and time the spill was fully controlled/stopped.

e. Whether the spill is ongoing and, if it is, the rate of flow and an estimate of the time that the spill will be fully controlled, if known;

f. Measures that are being or have been taken to contain, reduce, and/or clean up the spill;

g. A list of any potentially affected area and any known downstream water uses (e.g., public water supplies, irrigation diversions, public use areas such as parks or swim beaches) that will be or have been notified; and

h. A phone number and e-mail to contact a representative of the responsible person that is in charge of the response. Where a non-responsible person is reporting the spill, they are encouraged, but not required, to provide contact information.

Reporting and management of spills that occur with respect to activities resulting in a discharge authorized under a permit should be performed in accordance with the specific requirements of that permit. If the permit does not provide specific reporting or management response requirements for a given spill that may pollute State waters, the Division recommends that the responsible person report the spill in accordance with the procedures listed above.

This guidance only addresses reporting requirements under the Division's authority. The person or entity engaged in any operation or activity that results in a spill is responsible for any other applicable reporting requirements associated with the spill to other regulatory agencies.

Section 25-8-601(2), C.R.S. only addresses spill reporting to the Division. Section 25-8-202(7), C.R.S. provides certain water quality responsibilities to other state "implementing agencies." The Division's position is that, where a spill to the ground that may impact ground water only is fully and timely reported to an implementing agency having jurisdiction over that spill, the intent of section 601(2) has been fulfilled, and the spill need not also be reported to the Division. The Division suggests that the responsible person confirm with the implementing agency that a spill falls under the jurisdiction of the implementing agency at the time it is reported in order to avoid possible legal liability should it fall under the Division's jurisdiction.

IV. Division Examples of Non-Reportable Spills

The Division has identified the following examples of types of spills that are considered "non-reportable" under § 25-8-601(2), C.R.S. Documentation of such spills, including the information listed in section III.2.a – III.2.f above, should be maintained by the responsible person for Division review for a period of three years.

1. A spill to a generally impervious surface or structure (e.g., paved street/parking lot, storm sewer, warehouse floor, manhole, vault, concrete basement), or onto soils, that is fully contained in/on the impervious surface/structure or soils, or that is managed in a manner so that it will not reach State waters at the time of the spill or in the future. Such spills that are cleaned up within 24 hours will be considered by the Division to have no potential to reach State waters. However, even if such spills are not cleaned up within 24 hours, the responsible person may be able to "fully contain" or otherwise manage a spill such that it will not reach State waters. Where there is a sump pump present in a basement to which a spill occurred, the responsible person must establish that the pump did not discharge to State waters during the time between the start of the spill and the completion of clean-up in accordance with best management practices.
2. A spill or discharge that is managed consistent with best management practices that are established in accordance with a CDPS discharge permit or any Water Quality Control Commission-adopted control regulation related to spill management or reporting.
3. A spill of potable water from a public water system that does not reach surface waters.

Colorado Department of Public Health and Environment
Water Quality Control Division

Incident / Spill / SSO Release Reporting
Five (5) Day Reporting Form

☒ Field Services - Grand Junction 222 South 6th Street, Room 232 Grand Junction, CO 81501 Telephone: 970-248-7150 Fax: 970-248-7198 Contact email: michelle.thiebaud@state.co.us	☐ Field Services - Pueblo 140 Central Main, Suite 300 Pueblo, CO 81003 Telephone: 719-295-5060 Fax: 719-543-8441 Contact email: carol.keever@state.co.us	☐ Field Services - Denver 4300 Cherry Creek Dr. South, B2 Denver, Colorado 80246-1530 Phone: 303-692-3650 Fax: 303-782-0390 Contact email: annemarie.goolsby@state.co.us

Reporting Form: Incident / Spill / Sanitary Sewer Overflow (SSO)

The Water Quality Control Division distinguishes between reporting requirements for spills that occur with respect to activities that result in a discharge that is authorized under a CDPS permit and those that are not. Reporting and management of spills that occur with respect to activities resulting in a discharge authorized under a permit should be performed in accordance with the specific requirements of that permit. If the permit does not require a 5-day report, please provide the information below in writing. For non-permitted activities, or in the case of an activity where a permit does not address reporting of or response to a given spill, please submit this written response to the Water Quality Control Division within five (5) working days of the date of the event. If sufficient space is not provided, please attach other sheets. Please send the completed form with signature via fax or email to the Division's Field Services office indicated above. If you have any questions please contact the Division's Field Services Engineer at your earliest convenience. The Field Services County list is available at: http://www.colorado.gov/cdphe/wqcd (Contacts, Inspection services contacts, then Field services contacts).

Prior to the five (5) working day deadline, you may request an extension to submit the report if sample analyses justifiably are going to require more time to analyze than the reporting time allows. To request an extension please send an email to the Division's Field Services Engineer for the County that the incident / spill / SSO took place or to the email listed above.

Incident Background Information			
County			
Incident / Spill Number (Division provided) and Spill Date			
Type of Incident / Spill / SSO (check one)	☐ Sanitary Sewer Overflow/Reuse	☐ Petroleum Product	☐ Chemical
	☐ WW Treatment Plant Bypass or Upset (through an authorized outfall point)	☐ WW Treatment Plant Spill or Overflow (other than outfall)	☐ Biosolids
	☐ Unplanned potable water release (e.g., water line break)		☐ Other

Contact Information			
Potentially Responsible Party (PRP): Contact Name		Potentially Responsible Party (PRP): Company / Agency	
PRP Phone / Fax	Phone: Fax:	PRP email address	
CDPS Permit Number:		CDPS Permittee Name:	
Reported by (if not PRP): Contact Name		Reported by (if not PRP): Company / Agency	
Reported by (if not PRP): Phone / Fax	Phone: Fax:	Reported by (if not PRP): email address	

Incident Information: Please provide the following information.	
A	Incident / spill / SSO source, cause, and event description.
	Response:
B	Material released (e.g., untreated wastewater, biosolids, specific chemicals or products) and estimated total quantity (e.g., gallons). Please attach MSDS for any and all chemicals or products involved in spill or release.
	Response:
C	Actual or estimated dates and times of the event, including duration and actual date and time spill was fully controlled/stopped. If release is still occurring, the date and time the release is expected to be stopped.
	Response:

D	Location of release (e.g., address, lat/long, road name and mile marker).
	Response:
E	Describe measures taken or planned to contain, reduce, and clean up spill or release.
	Response:
F	Steps taken or planned to prevent reoccurrence of the event.
	Response:
Incident Impact to State Waters (As defined in § 25-8-103(19), C.R.S.). *Examples of State waters include: perennial streams, intermittent or ephemeral gulches, ditches, ponds, lakes, reservoirs, irrigation canals, wetlands, stormwater conveyances (when they discharge to surface water), and groundwater.*	
G	Did flow or materials reach surface waters of the State? If so, please describe the path of flow to State waters and which State water body was impacted (e.g., spill impacted a storm drain which was directly connected to Cherry Creek, Colorado River, etc.). If yes, what quantity of material (e.g., gallons) reached the surface water and what was the resulting impact?
	Response:
H	Were any water quality samples or other samples taken? If so, please describe sampling process and attached results.
	Response:
I	Did flow or materials reach groundwater of the State? If so, please describe the path of flow to State waters and which State water body impacted (e.g, spill soaked into ground and wet soil was not excavated). If yes, what quantity of material (e.g., gallons) reached the ground or groundwater and what was the resulting impact?
	Response:
J	Did the incident include any of the following (check if yes)? If so, please include additional details below.
	☐ Toxic Chemical Release ☐ Fish Kill
	Response:
Incident Impact to Areas or Water Users	
K	Did the incident / spill / SSO impact any areas (e.g., public use areas including parks or swim beaches) or downstream water users (e.g., public water suppliers, irrigation diversions)? Please list impacted areas and/or users, their location, and potential impacts.
	Response:
L	How were the impacted area users (e.g., park patrons) and downstream water users notified (e.g., signs posted, list downstream users contact via phone).
	Response:

I hereby certify that the information presented above is accurate and complete.

Date	Company	Typed Name and Title	Signature

BMP CONSTRUCTION DETAILS

Use details from EPC DCM Vol. 2 and ECM.

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

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.

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.

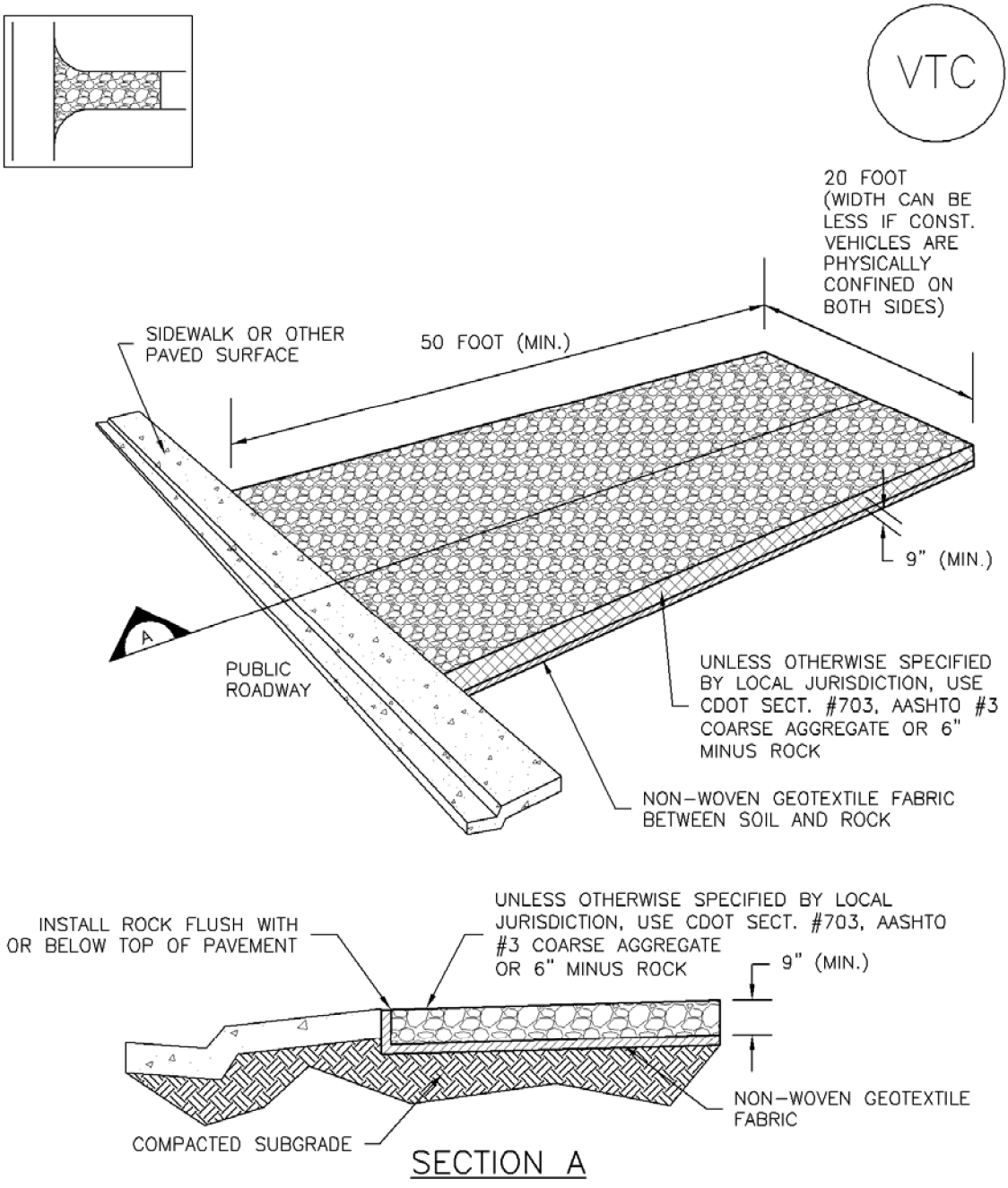
Ensure that drainage ditches at the entrance/exit area remain clear.

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

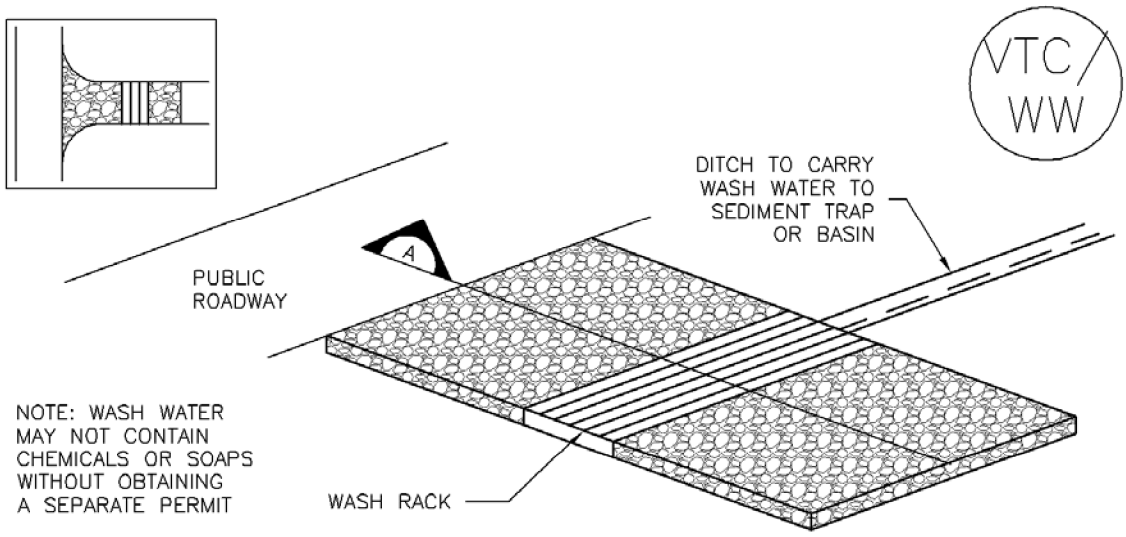
A stabilized entrance should be removed only when there is no longer the potential for vehicle tracking to occur. This is typically after the site has been stabilized.

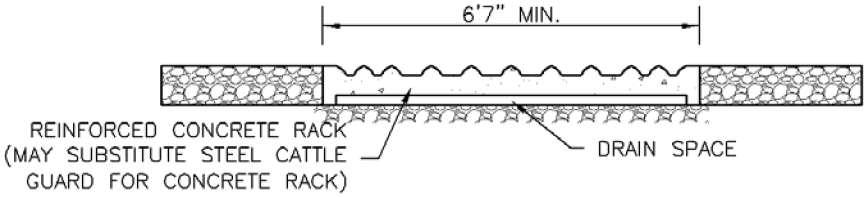
When wheel wash equipment is used, be sure that the wash water is discharged to a sediment trap prior to discharge. Also inspect channels conveying the water from the wash area to the sediment trap and stabilize areas that may be eroding.

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.



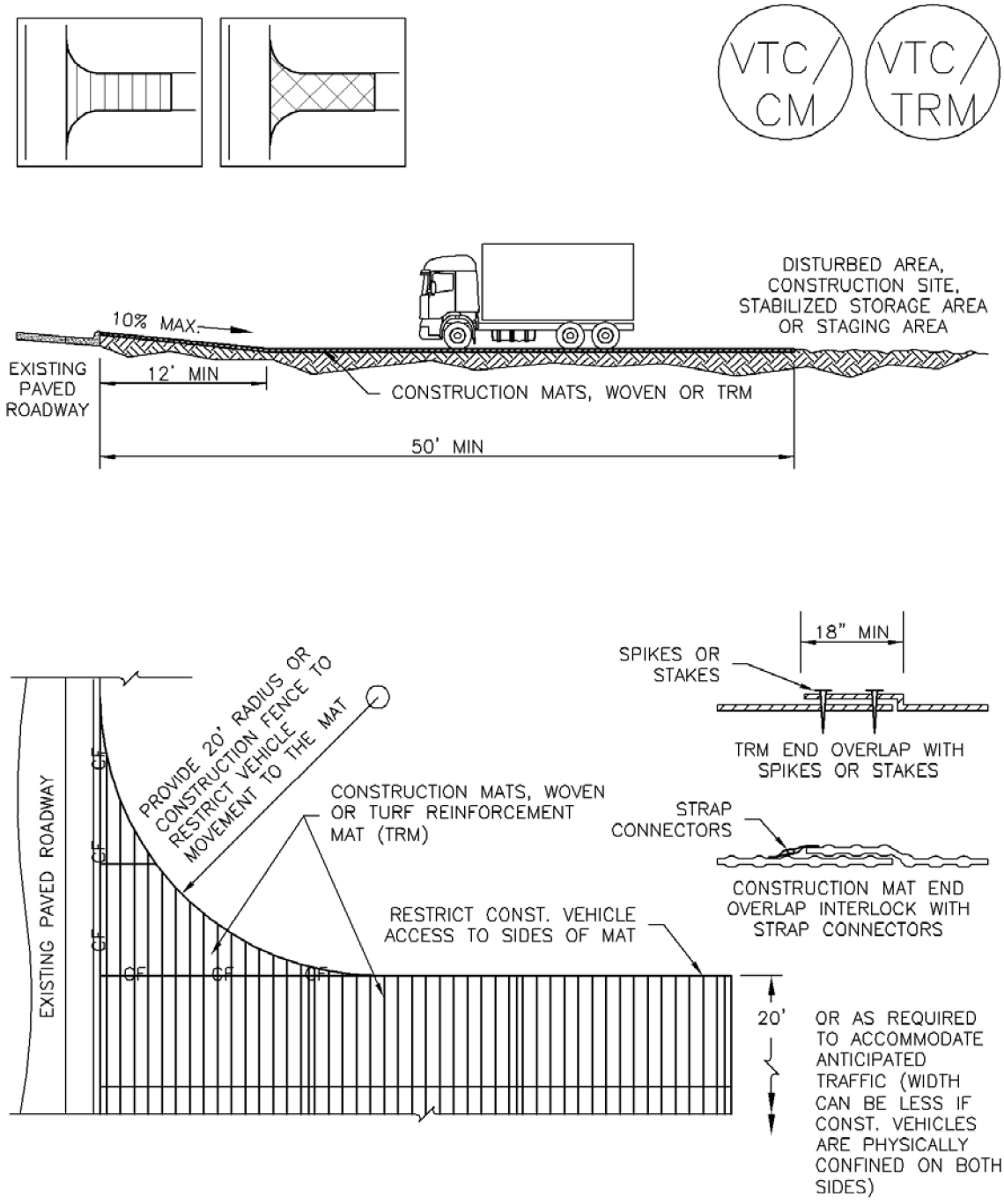
VTC-1. AGGREGATE VEHICLE TRACKING CONTROL





SECTION A

VTC–2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK



VTC–3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).

2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

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

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

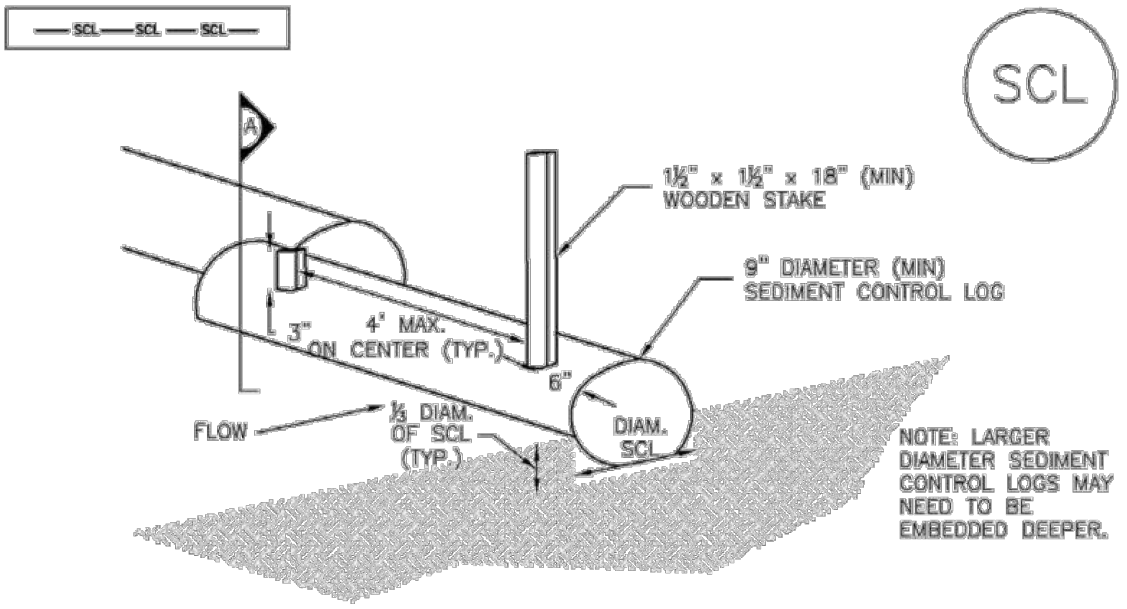
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

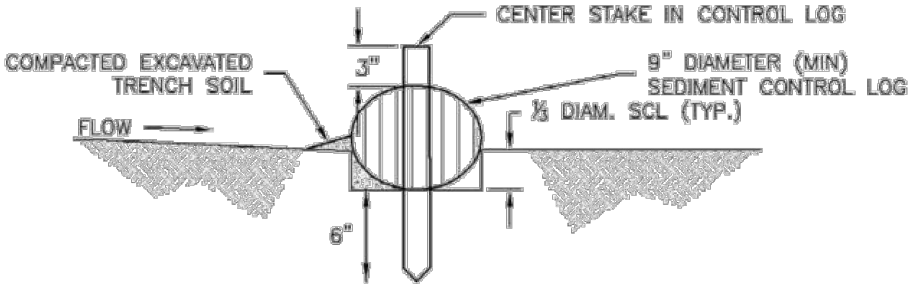
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

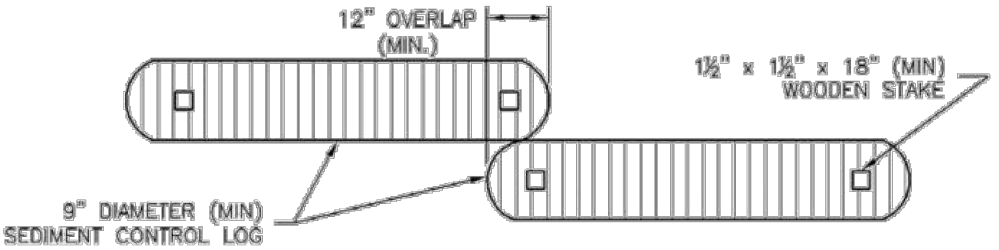
(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)



SEDIMENT CONTROL LOG



SECTION A



SEDIMENT CONTROL LOG JOINTS

SCL–1. SEDIMENT CONTROL LOG

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.

2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND–DISTURBING ACTIVITIES.

3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ⅓ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING

6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.

7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

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

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

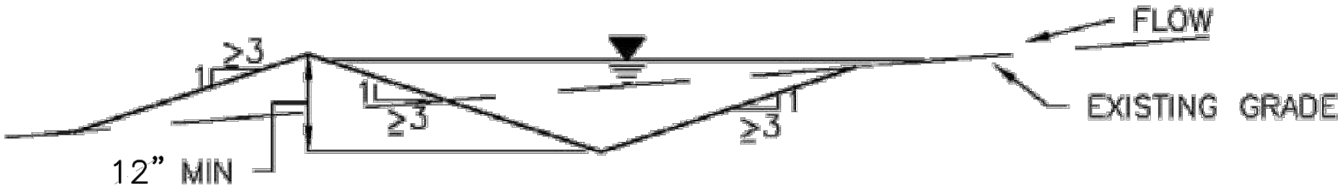
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.

5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO. NOT AVAILABLE IN AUTOCAD)

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



EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. 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/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.

2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.

3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.

4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.

5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.

6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.

7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

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

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

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

4. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.

5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAIL 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 UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

GRADED BERM

N.T.S

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.

The USDCM Volume 2 *Revegetation* Chapter contains detailed seed mix, soil preparations, and seeding and mulching recommendations that may be referenced to supplement this Fact Sheet.

Drill seeding is the preferred seeding method. Hydroseeding is not recommended except in areas where steep slopes prevent use of drill seeding equipment, and even in these instances it is preferable to hand seed and mulch. Some jurisdictions do not allow hydroseeding or hydromulching.

Seedbed Preparation

Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Overlot 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

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.

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[a] (Common name)	Growth Season[b]	Pounds of Pure Live Seed (PLS)/acre[c]	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	½
5. Millet	Warm	3 - 15	½ - ¾
6. Sudangrass	Warm	5–10	½ - ¾
7. Sorghum	Warm	5–10	½ - ¾
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

[a] 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.

[b] See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

[c] Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common[a] Name	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Alakali Soil Seed Mix					
Alkali sacaton	*Sporobolus airoides*	Cool	Bunch	1,750,000	0.25
Basin wildrye	*Elymus cinereus*	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Jose tall wheatgrass	*Agropyron elongatum 'Jose'*	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.75**
Fertile Loamy Soil Seed Mix					
Ephriam crested wheatgrass	*Agropyron cristatum 'Ephriam'*	Cool	Sod	175,000	2.0
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	7.0
Total					**15.5**
High Water Table Soil Seed Mix					
Meadow foxtail	*Alopecurus pratensis*	Cool	Sod	900,000	0.5
Redtop	*Agrostis alba*	Warm	Open sod	5,000,000	0.25
Reed canarygrass	*Phalaris arundinacea*	Cool	Sod	68,000	0.5
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Pathfinder switchgrass	*Panicum virgatum 'Pathfinder'*	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	*Agropyron elongatum 'Alkar'*	Cool	Bunch	79,000	5.5
Total					**10.75**
Transition Turf Seed Mix[c]					
Ruebens Canadian bluegrass	*Poa compressa 'Ruebens'*	Cool	Sod	2,500,000	0.5
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	*Lolium perenne 'Citation'*	Cool	Sod	247,000	3.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Total					**7.5**

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	*Bouteloua gracilis*	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	*Schizachyrium scoparium 'Camper'*	Warm	Bunch	240,000	1.0
Prairie sandreed	*Calamovilfa longifolia*	Warm	Open sod	274,000	1.0
Sand dropseed	*Sporobolus cryptandrus*	Cool	Bunch	5,298,000	0.25
Vaughn sideoats grama	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**10.25**
Heavy Clay, Rocky Foothill Seed Mix					
Ephriam crested wheatgrass[d]	*Agropyron cristatum 'Ephriam'*	Cool	Sod	175,000	1.5
Oahe Intermediate wheatgrass	*Agropyron intermedium 'Oahe'*	Cool	Sod	115,000	5.5
Vaughn sideoats grama[e]	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.5**

[a] 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 Brillion 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.

[b] See Table TS/PS-3 for seeding dates.

[c] If site is to be irrigated, the transition turf seed rates should be doubled.

[d] Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

[e] Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
Seeding Dates	**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 crimping, 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.

SWMP GRADING AND EROSION CONTROL PLANS

STERLING RANCH LIFT STATION AND FORCE MAIN

COUNTY OF EL PASO, STATE OF COLORADO

GRADING AND EROSION CONTROL PLANS

JANUARY 2020

STANDARD CONSTRUCTION NOTES:

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO SPRINGS.

3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIME INCLUDING THE FOLLOWING:
   3.1 EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   3.2 CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2.
   3.3 COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
   3.4 CDOT M&S STANDARDS.

4. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPERS RESPONSIBILITY TO RECTIFY.

5. ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPS AS INDICATED ON THE GEC. A PRECONSTRUCTION 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 PCD INSPECTIONS STAFF.

6. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORM WATER QUALITY CONTROL PERMIT (ESQCP), US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.

7. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE CONSTRUCTION SITE AT APPROVED CONSTRUCTION ACCESS POINTS.

8. ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOW AND MUTCD CRITERIA.

9. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRE BY EL PASO COUNTY DOT INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.

10. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.

GRADING AND EROSION CONTROL NOTES:

1. 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.

2. 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.

3. 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.

4. 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 PRECONSTRUCTION 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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).

12. 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.

13. 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.

14. 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.

15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.

16. 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.

17. 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.

18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.

19. 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.

20. 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.

21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE 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.

22. 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 ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.

23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.

24. 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.

25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.

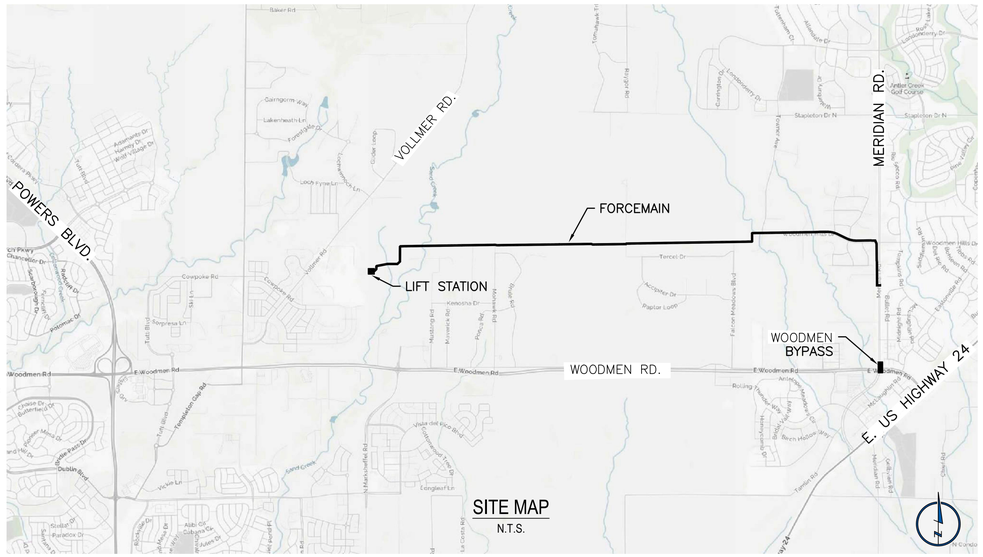
26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.

27. 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.

28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING, INC., ENTITLED GEOLOGIC HAZARD/LAND STUDY AND PRELIMINARY SUBSURFACE SOIL INVESTIGATION STERLING RANCH, DATED OCTOBER 31, 2006, AND SHALL BE CONSIDERED A PART OF THESE PLANS.

29. 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
WQCD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT



SITE MAP
N.T.S.

SHEET INDEX

ADDITIONAL NOTES:

STAGING AREA TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.

THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.

NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041C0535G, EFFECTIVE DATE MARCH 12, 2018.

WETLANDS DISTURBANCE:
CONTRACTOR SHALL MINIMIZE DISTURBANCE OF EXISTING WETLANDS AND FOLLOW ALL OF THE RECOMMENDATIONS OUTLINED IN THE WETLANDS DELINEATION REPORT FOR THE STERLING RANCH DEVELOPMENT (PREPARED BY CORE CONSULTANTS, INC., PN 15-001, DATED MAY 7TH, 2015), THE PRE-CONSTRUCTION NOTIFICATION REPORT PREPARED BY CORE CONSULTANTS, INC., AS WELL AS ALL OTHER AVAILABLE INFORMATION AND JURISDICTIONAL REQUIREMENTS.

PROJECT CONTROL

HORIZONTAL CONTROL:

N ¼ CORNER, SEC 3, T13S, R65W
NORTHING: 410191.1110
EASTING: 241732.9390
ELEVATION: 7010.07
DESCRIPTION: 2 ½" ALUM CAP W/ 2" ALUM PIPE, LS 11624

NW CORNER, SEC 3, T13S, R65W
NORTHING: 410154.8270
EASTING : 239010.5240
ELEVATION: 7028.15
DESCRIPTION: 2 ½" ALUM CAP W/ ¾" REBAR, LS 11624

VERTICAL DATUM:

STERLING RANCH DEVELOPMENT BENCHMARK
NORTHING: 413533.64
EASTING: 235994.01
ELEVATION: 7076.93
DESCRIPTION: ¾" REBAR WITH 1" PLASTIC CAP

AGENCIES

OWNER/DEVELOPER:	SR LAND, LLC 20 BOULDER CRESCENT, SUITE 201 COLORADO SPRINGS, CO 80903 JIM MORLEY (719) 598-5192
CIVIL ENGINEER:	M & S CIVIL CONSULTANTS, INC. 102 E PIKES PEAK AVE. 5TH FLOOR COLORADO SPRINGS, CO 80903 VIRGIL A. SANCHEZ P.E. (719) 955-5485
COUNTY ENGINEERING:	EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, CO 80910 JEFF RICE, P.E. (719) 520-6300
TRAFFIC ENGINEERING:	EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 JENNIFER IRVINE, P.E. (719) 520-6460
WATER RESOURCES:	STERLING RANCH METRO DISTRICT ENGINEERS JDS-HYDRO CONSULTANTS 545 E. PIKES PEAK AVE., SUITE 300 COLORADO SPRINGS, CO 80903 JOHN MCGINN (719) 668-8769
FIRE DISTRICT:	BLACK FOREST FIRE PROTECTION DISTRICT 11445 TEACHOUT ROAD COLORADO SPRINGS, CO 80908 CHIEF BRYAN JACK (719) 495-4300
GAS DEPARTMENT:	COLORADO SPRINGS UTILITIES 7710 DURANT DR. COLORADO SPRINGS, CO 80947 TIM WENDT (719) 668-3556
ELECTRIC DEPARTMENT:	MOUNTAIN VIEW ELECTRIC 11140 E. WOODMEN ROAD FALCON, CO 80831 (719) 495-2283
COMMUNICATIONS:	QWEST COMMUNICATIONS (U.N.C.C. LOCATORS) (800) 922-1987 AT&T (LOCATORS) (719) 635-3674

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.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160 — DATE
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

DEVELOPER'S STATEMENT:

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

JAMES F. MORLEY — DATE
SR LAND, LLC
20 BOULDER CRESCENT, SUITE 201
COLORADO SPRINGS, CO 80903
(719) 471-1742

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.

JENNIFER IRVINE, P.E. — DATE
COUNTY ENGINEER/ECM ADMINISTRATOR

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APPR'D. BY:	DATE:

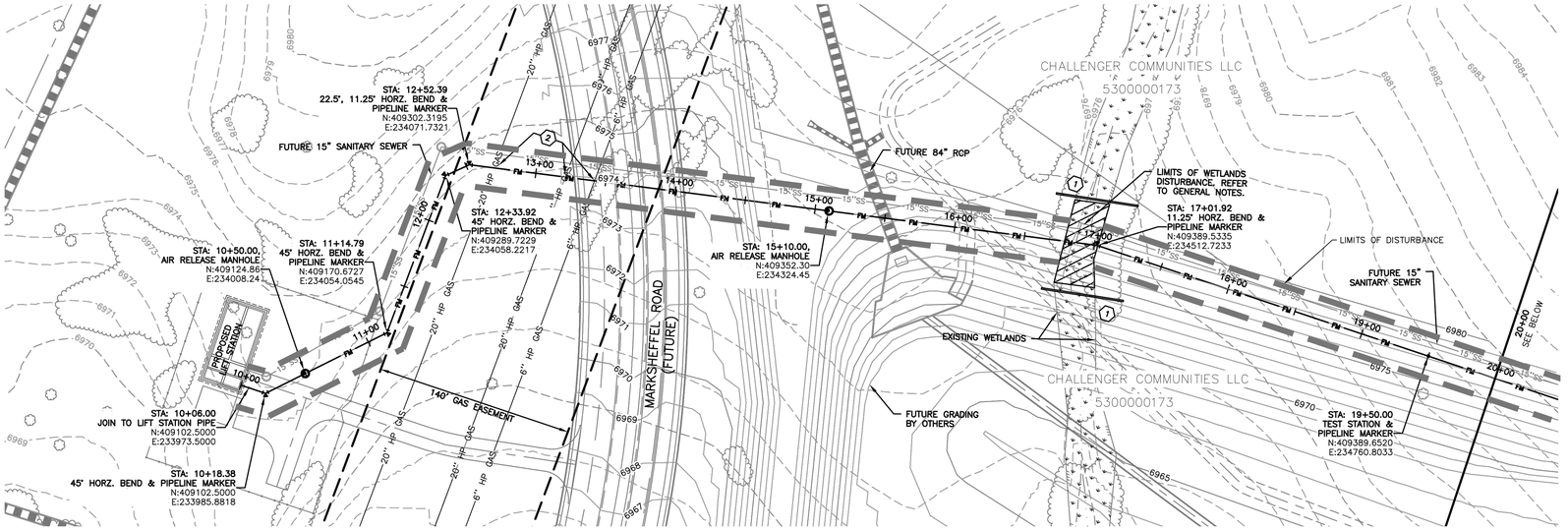
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

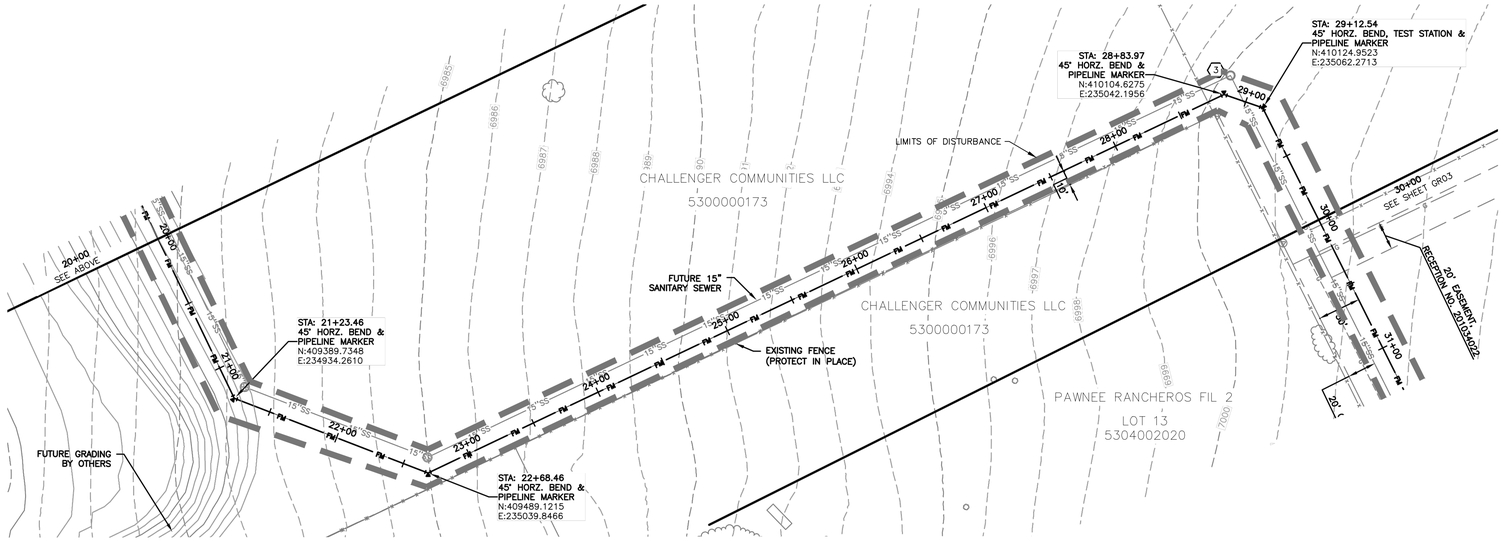
CAUTION

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN
PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01-24-2020
SHEET 1 OF 15
GR01

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.





SCALE: 1"= 50'

NOTES:

1. SEE SHEET GR01 FOR GENERAL NOTES.
2. STATIONING IS BASED ON THE CENTERLINE BETWEEN THE 8" AND 10" FORCE MAINS.
3. CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL HORIZONTAL AND VERTICAL BENDS PER DETAIL.
4. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES WITHIN THE AREA OF WORK 7 DAYS PRIOR TO THE START OF INSTALLATION OF THE PIPELINE. THE CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER OF ANY CONFLICTS THAT ARISE AND REQUIRE REDESIGN OF ANY PORTION OF THE PROJECT. REFER TO GENERAL NOTES FOR FURTHER INFORMATION.
5. CONTRACTOR SHALL BE REQUIRED TO STAY WITHIN THE CONSTRUCTION EASEMENTS AND/OR ROAD RIGHT OF WAY WHEN CONSTRUCTING THE PIPELINE. TRAFFIC CONTROL MEASURES SHALL BE IN PLACE DURING CONSTRUCTION PER EL PASO COUNTY REQUIREMENTS.
6. CONTRACTOR SHALL PROVIDE A MINIMUM 1' OF CLEARANCE BETWEEN ALL UTILITIES UNLESS OTHERWISE NOTED.
7. CONTRACTOR SHALL PLACE SEDIMENT CONTROL LOGS UPSTREAM OF ALL STORM DRAIN PIPES WITHIN THE PROJECT AREA.
8. CONTRACTOR SHALL BLADE A SMALL 6" HIGH BERM ALONG THE DOWNSTREAM SIDE OF TRENCHING OPERATIONS TO CONTROL STORM DRAINAGE FLOWS AND MINIMIZE TRANSPORTATION SEDIMENT DOWNSTREAM. SEE DETAIL SHEET GR15.
9. CONTRACTOR SHALL RESEED ALL AREAS DISTURBED DURING CONSTRUCTION, INCLUDING ANY SOD AND/OR LANDSCAPING.
10. CONTRACTOR SHALL PROTECT IN PLACE OR REMOVE AND REPLACE ANY SIGNS, MAILBOXES, LANDSCAPING, OR OTHER OBSTRUCTIONS DISTURBED DURING CONSTRUCTION.

KEYNOTE:

1. SEDIMENT CONTROL LOG PER DETAIL SHEET GR15
2. CONTRACTOR SHALL COORDINATE AND OBTAIN PERMITS WITH THE UTILITY COMPANIES PRIOR TO CONSTRUCTION AND CROSSING THE EXISTING HIGH PRESSURE GAS MAIN.
   A. COLORADO INTERSTATE GAS (719) 520-4816
   B. MAGELLAN MIDSTREAM GAS (918) 574-7098
3. REMOVE AND RE-INSTALL 50 LF OF EXISTING FENCE

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
- - -	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

100	EXISTING CONTOUR
— · · · —	PROPOSED SWALE
· · · · · · · ·	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
SCALE: HORIZONTAL: N/A VERTICAL: N/A | DATE: 01-24-2020 | SHEET 2 OF 15 | GR02

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MCS CIVIL CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS: NO. | DATE: | BY: | DESCRIPTION: | APPV'D. BY: | DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

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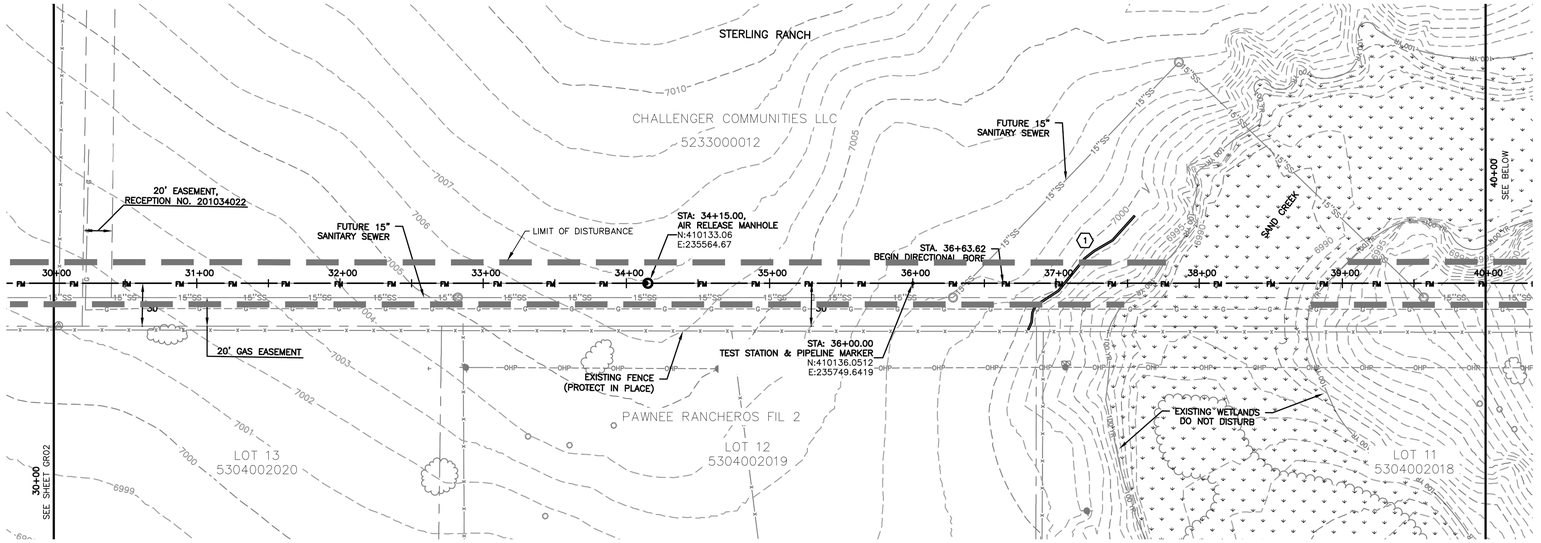

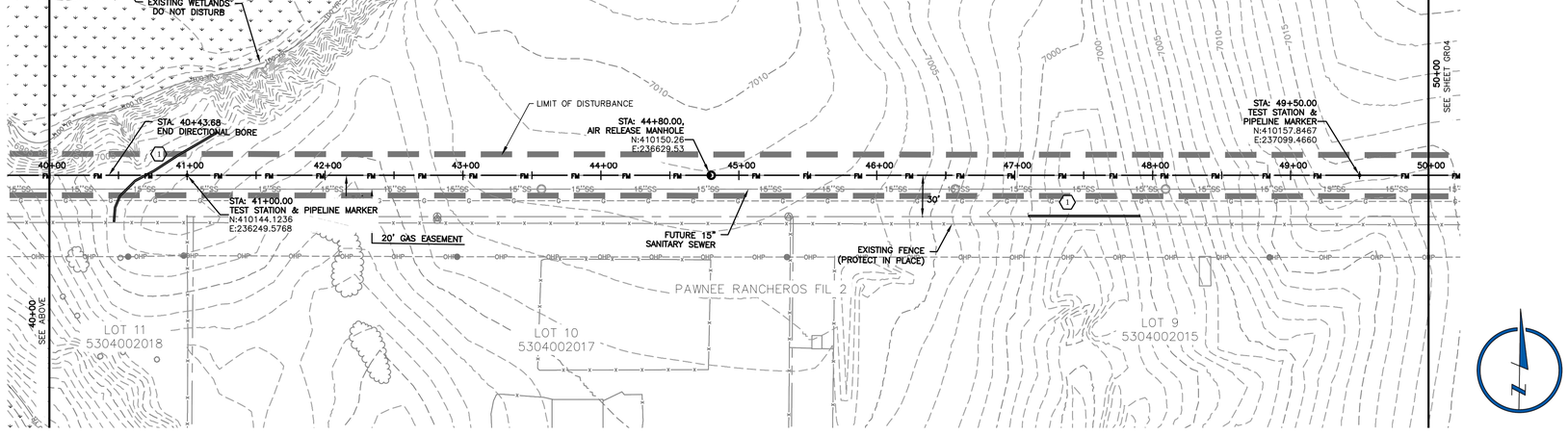

SCALE: 1" = 50'

NOTES:

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KEYNOTE:

1. SEDIMENT CONTROL LOG PER DETAIL SHEET GR15

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
— — —	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

7100	EXISTING CONTOUR
— · · —	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01-24-2020
SHEET 3 OF 15
GR03

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MATRIX DESIGN CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
COLORADO REGISTERED 37160 PROFESSIONAL ENGINEER

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APRVD. BY:	DATE:

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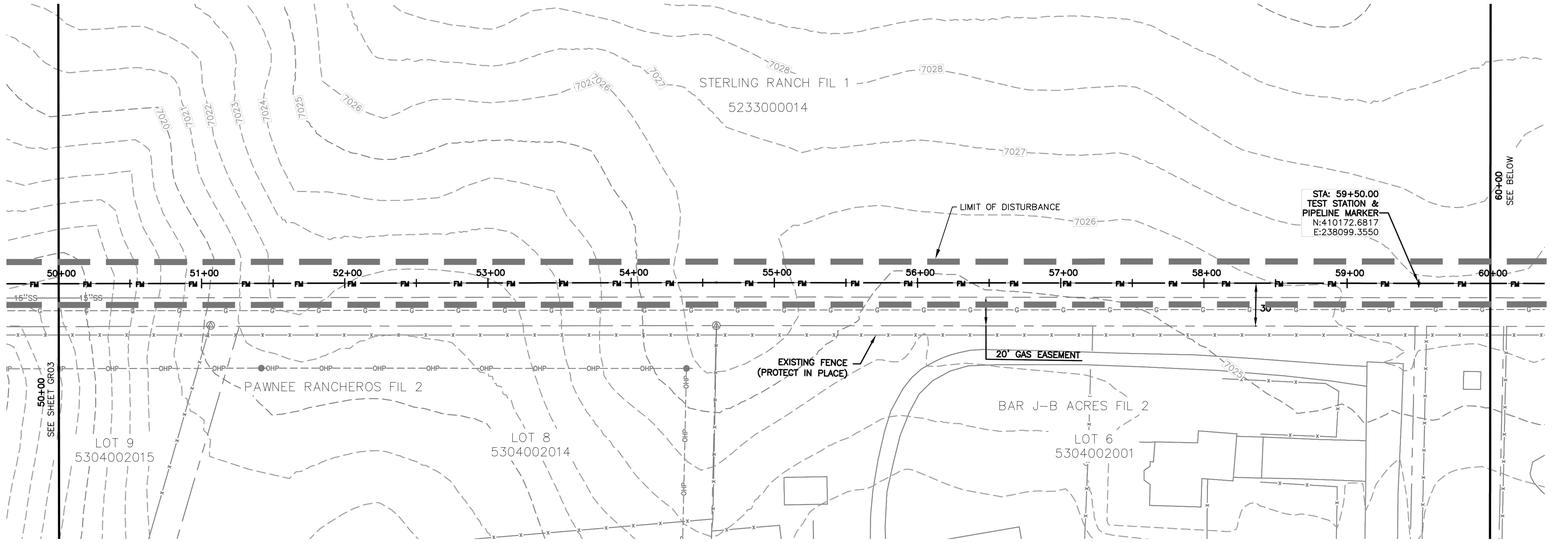
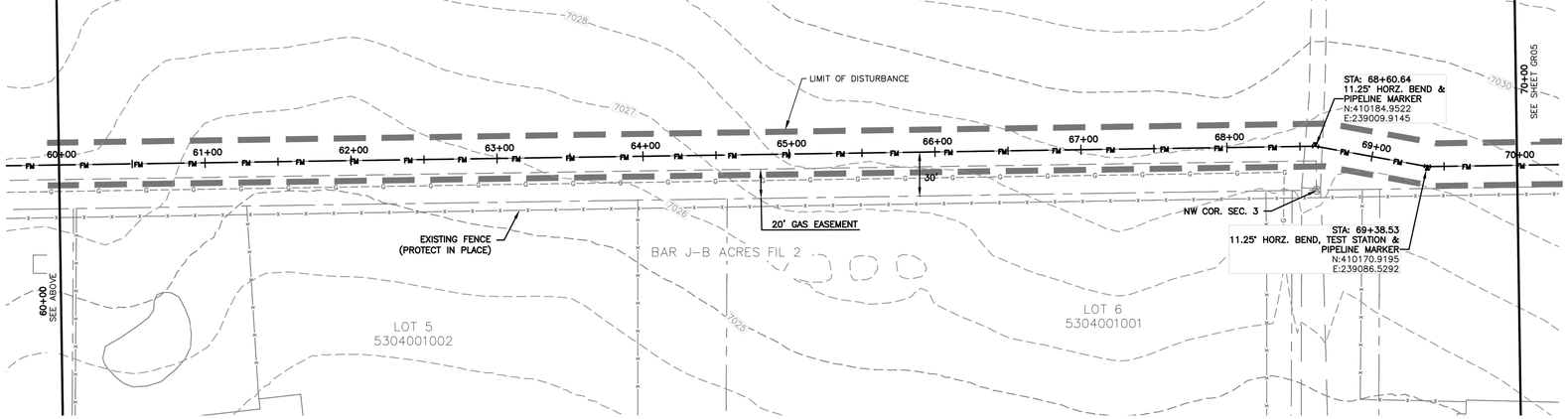
CAUTION





50 0 50 100
SCALE: 1"= 50'

NOTES:

1. SEE SHEET GR01 FOR GENERAL NOTES.
2. STATIONING IS BASED ON THE CENTERLINE BETWEEN THE 8" AND 10" FORCE MAINS.
3. CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL HORIZONTAL AND VERTICAL BENDS PER DETAIL.
4. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES WITHIN THE AREA OF WORK 7 DAYS PRIOR TO THE START OF INSTALLATION OF THE PIPELINE. THE CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER OF ANY CONFLICTS THAT ARISE AND REQUIRE REDESIGN OF ANY PORTION OF THE PROJECT. REFER TO GENERAL NOTES FOR FURTHER INFORMATION.
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8. CONTRACTOR SHALL BLADE A SMALL 6" HIGH BERM ALONG THE DOWNSTREAM SIDE OF TRENCHING OPERATIONS TO CONTROL STORM DRAINAGE FLOWS AND MINIMIZE TRANSPORTATION SEDIMENT DOWNSTREAM. SEE DETAIL SHEET GR15.
9. CONTRACTOR SHALL RESEED ALL AREAS DISTURBED DURING CONSTRUCTION, INCLUDING ANY SOD AND/OR LANDSCAPING.
10. CONTRACTOR SHALL PROTECT IN PLACE OR REMOVE AND REPLACE ANY SIGNS, MAILBOXES, LANDSCAPING, OR OTHER OBSTRUCTIONS DISTURBED DURING CONSTRUCTION.

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
- - - -	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

7100	EXISTING CONTOUR
——— · · · ———	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

STERLING RANCH LIFT STATION & FORCE MAIN

GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM | DATE: 01-24-2020 | SCALE: HORIZONTAL: N/A VERTICAL: N/A | SHEET 4 OF 15 | GR04

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MATRIX DESIGN CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

COLORADO REGISTERED PROFESSIONAL ENGINEER VIRGIL A. SANCHEZ 37160

REVISIONS: NO.	DATE:	BY:	DESCRIPTION:	APRVD. BY:	DATE:

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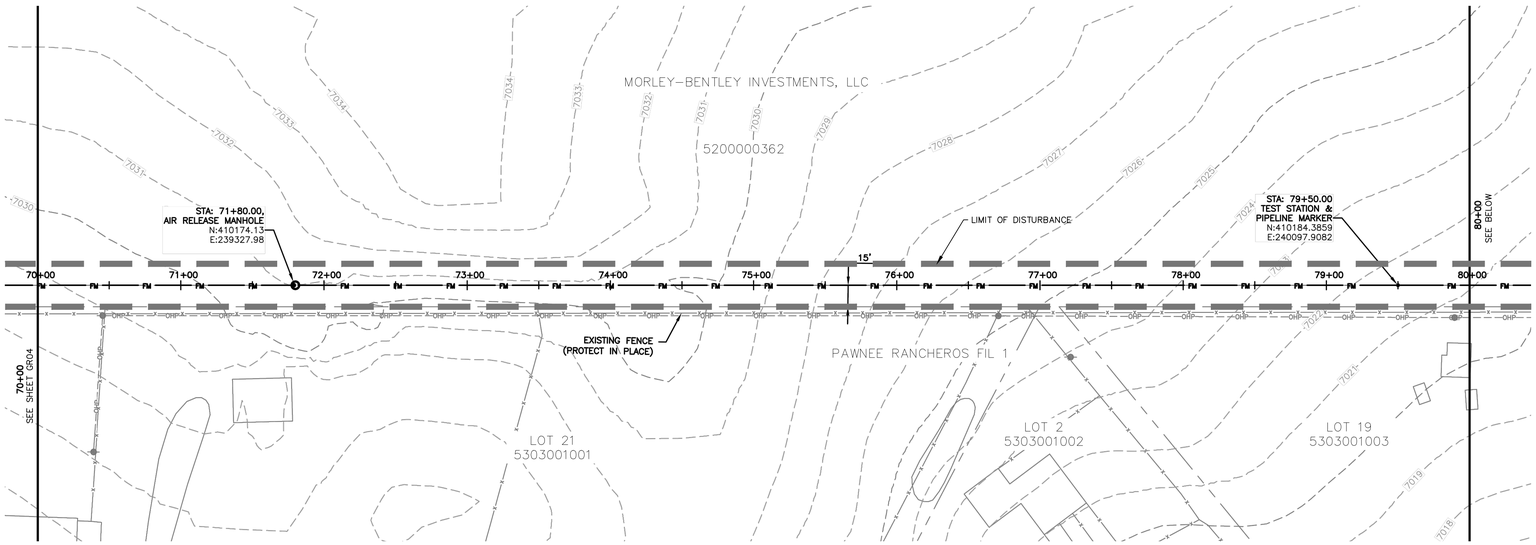
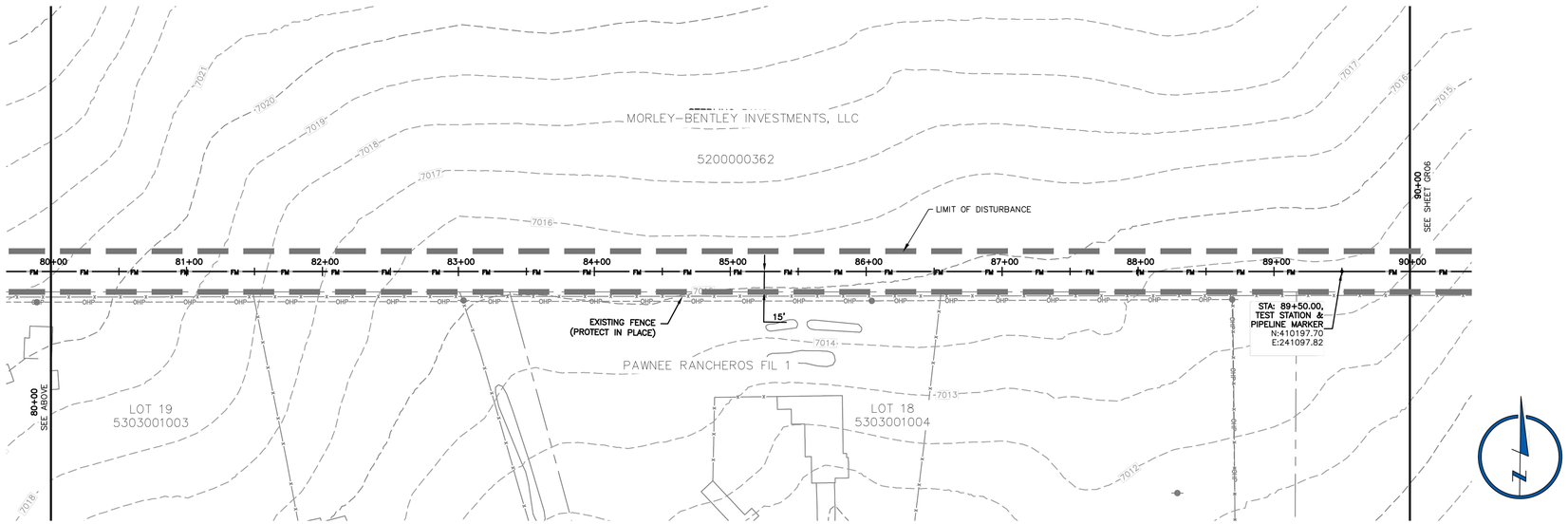
CAUTION

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

File: G:\09002A\Sterling Ranch District\dwg\Const Dwg\Grading & Erosion Control\Force Main\GR04.dwg Plotstamp: 1/31/2020 2:26 PM





EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
— — —	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

7100	EXISTING CONTOUR
——— · · · ———	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

50 0 50 100
SCALE: 1"= 50'

NOTES:

1. SEE SHEET GR01 FOR GENERAL NOTES.
2. STATIONING IS BASED ON THE CENTERLINE BETWEEN THE 8" AND 10" FORCE MAINS.
3. CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL HORIZONTAL AND VERTICAL BENDS PER DETAIL.
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FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
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CALL 1-800-922-1987

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
SCALE: HORIZONTAL: N/A VERTICAL: N/A | DATE: 01-24-2020 | SHEET 5 OF 15 | GR05

102 E. PIKES PEAK AVE, 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
FOR AND ON BEHALF OF MCS CIVIL CONSULTANTS, INC.
COLORADO REGISTERED PROFESSIONAL ENGINEER VIRGIL A. SANCHEZ 37160 01/24/2020

REVISIONS: NO.	DATE:	BY:	DESCRIPTION:	APPV'D. BY:	DATE:

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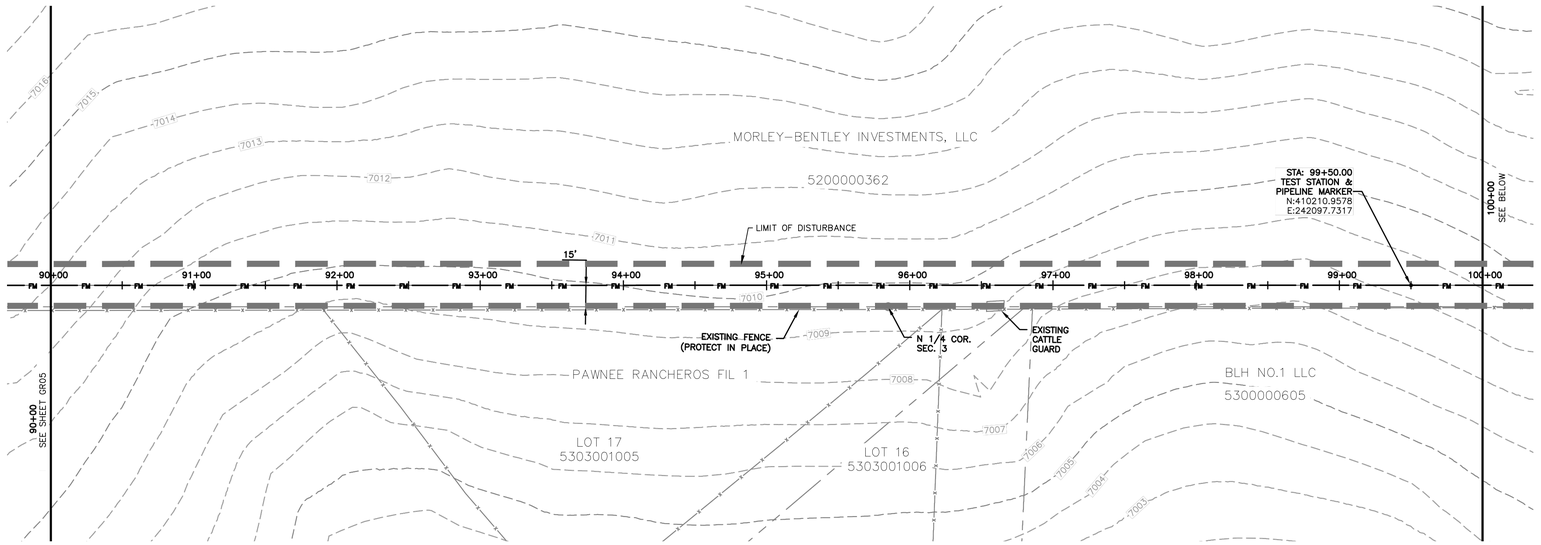
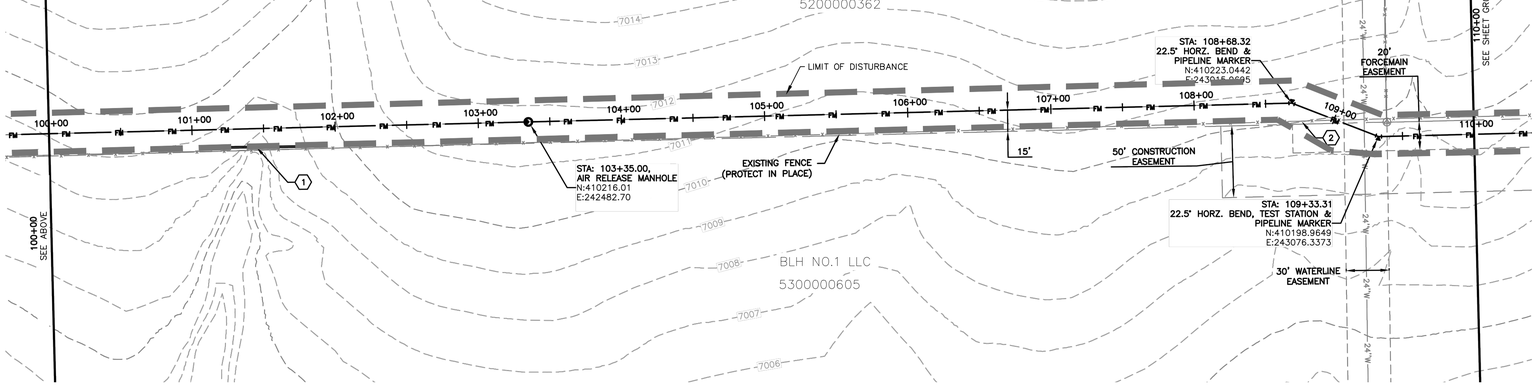
CAUTION





EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
– – –	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

7100	EXISTING CONTOUR
— · · —	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

50 0 50 100
SCALE: 1"= 50'

NOTES:

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KEYNOTE:

1. SEDIMENT CONTROL LOG PER DETAIL SHEET GR15
2. REMOVE AND RE–INSTALL 115 LF OF EXISTING FENCE

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09–010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01–24–2020
SHEET 6 OF 15
GR06

102 E. PIKES PEAK AVE, 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37760

REVISIONS: NO. | DATE: | BY: | DESCRIPTION:

APRV'D. BY: | DATE:

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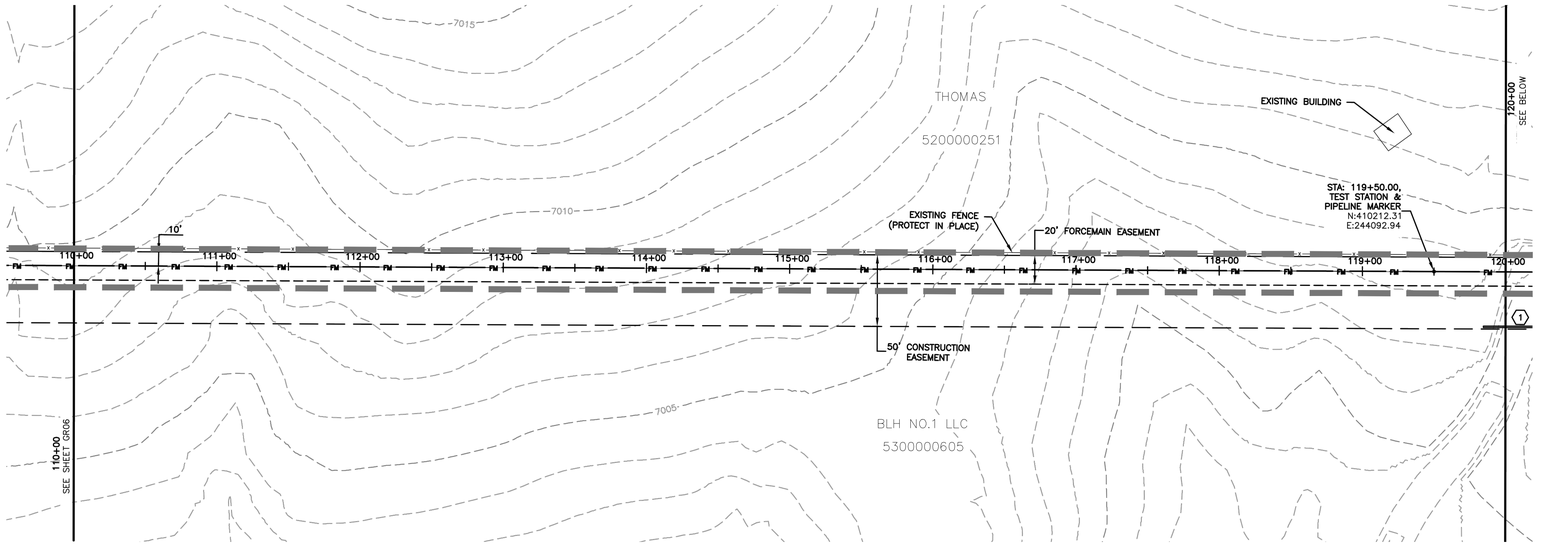

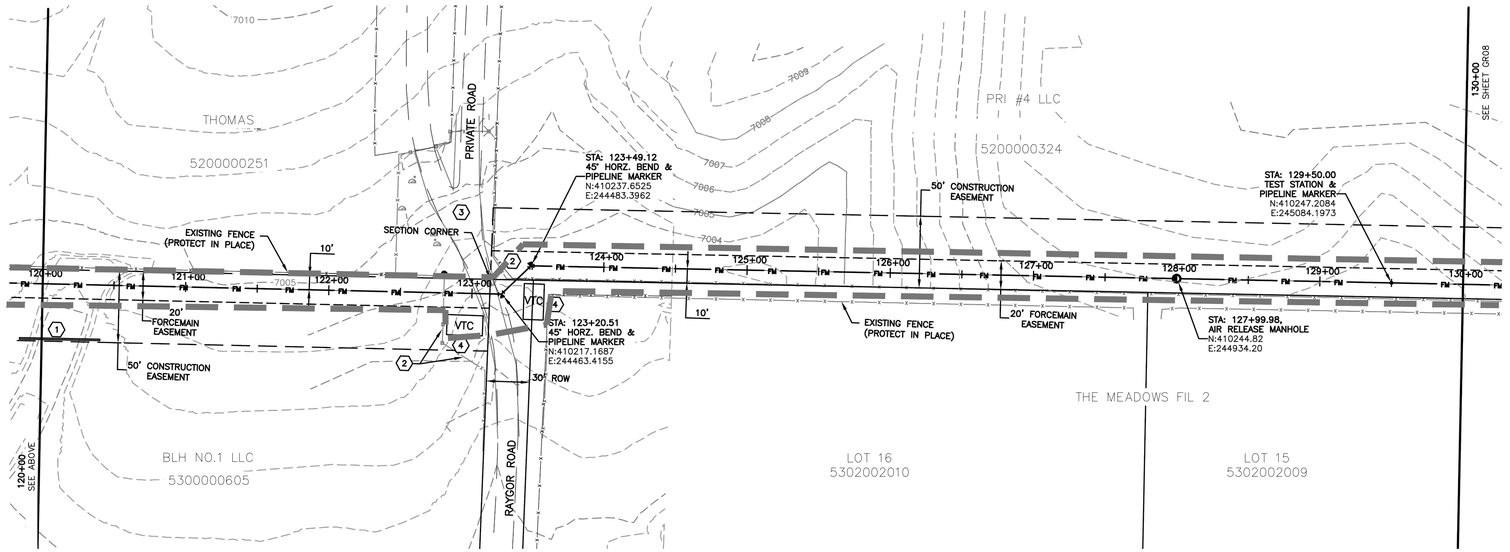

50 0 50 100
SCALE: 1"= 50'

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KEYNOTES:

1. SEDIMENT CONTROL LOG PER DETAIL SHEET GR15
2. REMOVE AND RE-INSTALL 115 LF OF EXISTING FENCE.
3. CONTRACTOR SHALL KEEP ACCESS OPEN TO ALL RESIDENTIAL LOTS AT ALL TIMES. CONTRACTOR SHALL NOTIFY AND COORDINATE ACCESS WITH ALL PROPERTY OWNERS.
4. VEHICLE TRACKING CONTROL PER SHEET GR15.

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
— —	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

7100	EXISTING CONTOUR
——— · · · ———	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
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CAUTION

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01-24-2020
SHEET 7 OF 15
GR07

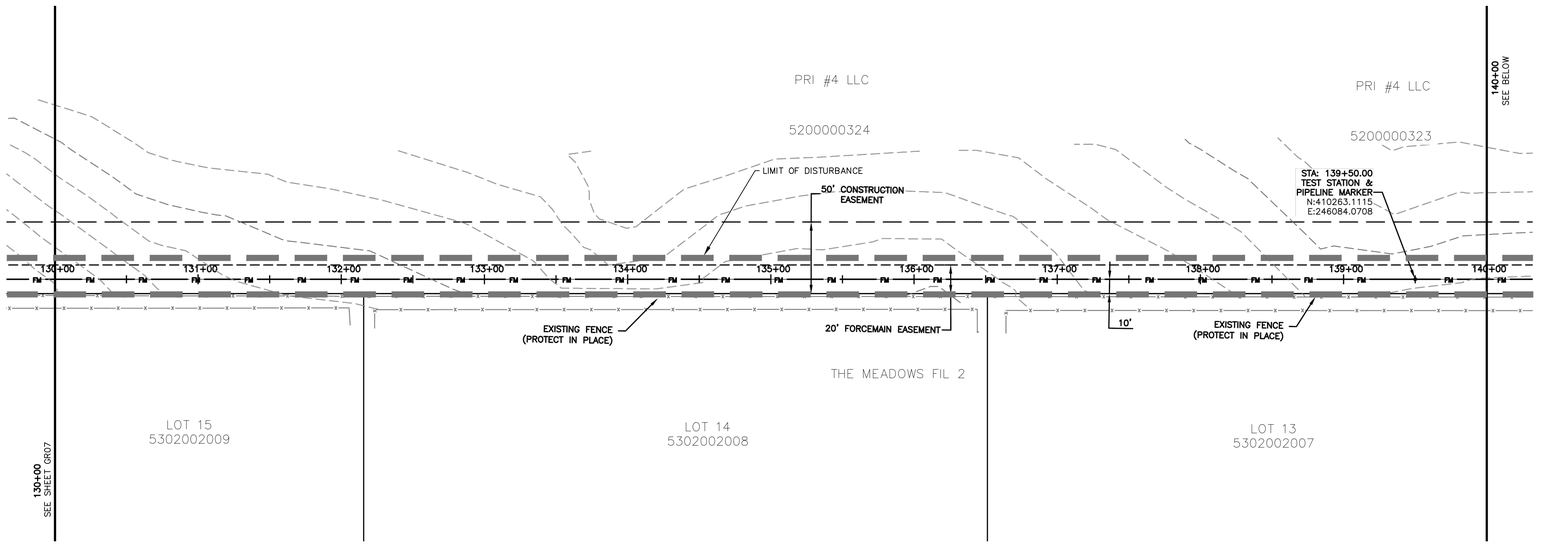
102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MATRIX DESIGN CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

COLORADO REGISTERED VIRGIL A. SANCHEZ 37160 PROFESSIONAL ENGINEER

File: O:\09002A\Sterling Ranch District\dwg\Const Dwg\Grading & Erosion Control\Force Main\GR07.dwg Plotstamp: 1/31/2020 3:27 PM



NOTES:

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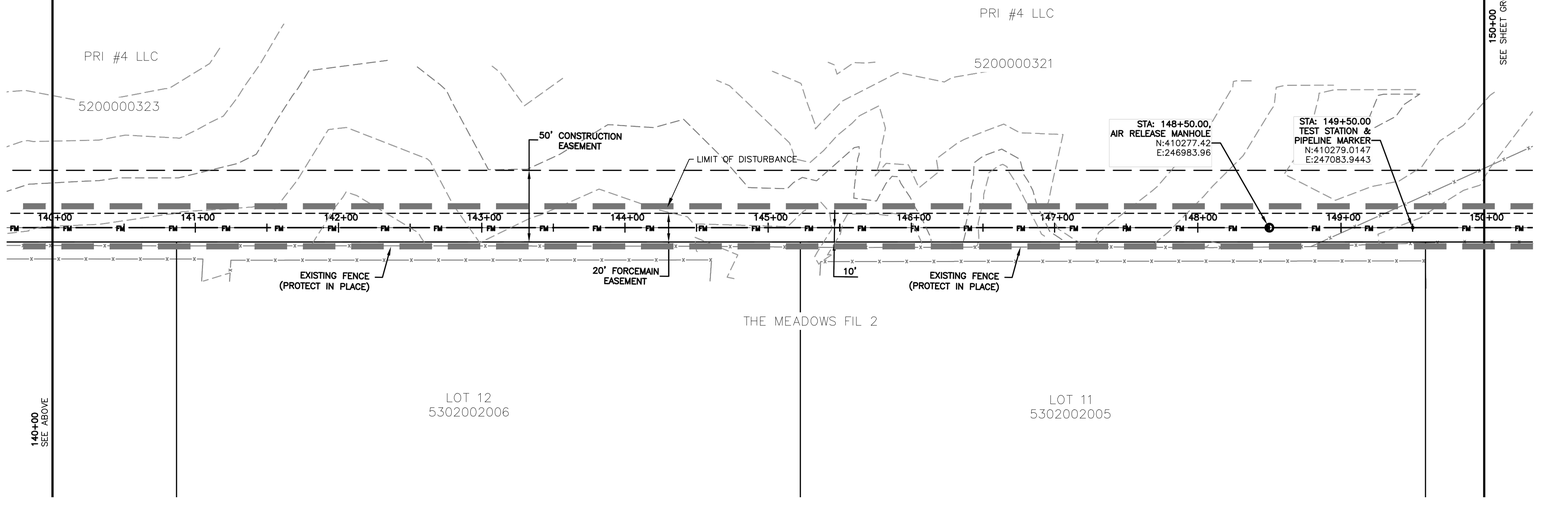

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
— — —	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

4100	EXISTING CONTOUR
— · · —	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

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STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010
DESIGNED BY: DM
DRAWN BY: CLP
CHECKED BY: DM
DATE: 01-24-2020
SCALE: HORIZONTAL: N/A VERTICAL: N/A
SHEET 8 OF 15
GR08

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MCS CIVIL CONSULTANTS, INC.

VIROIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APRV'D. BY:	DATE:

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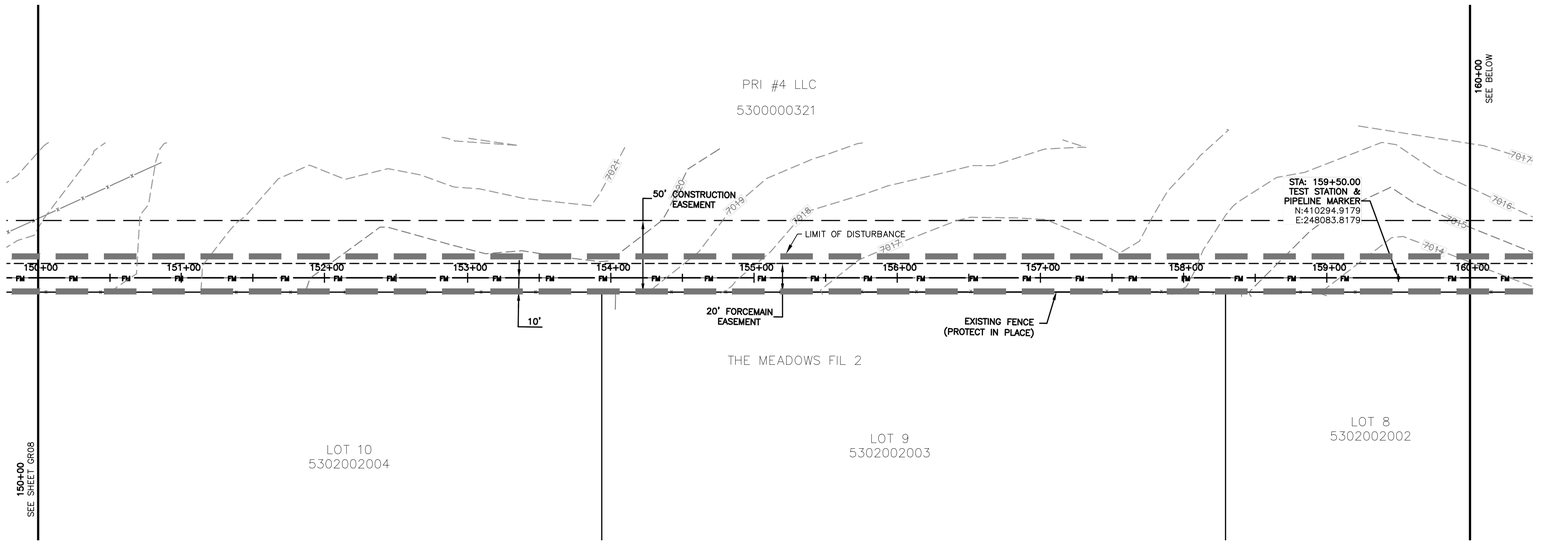
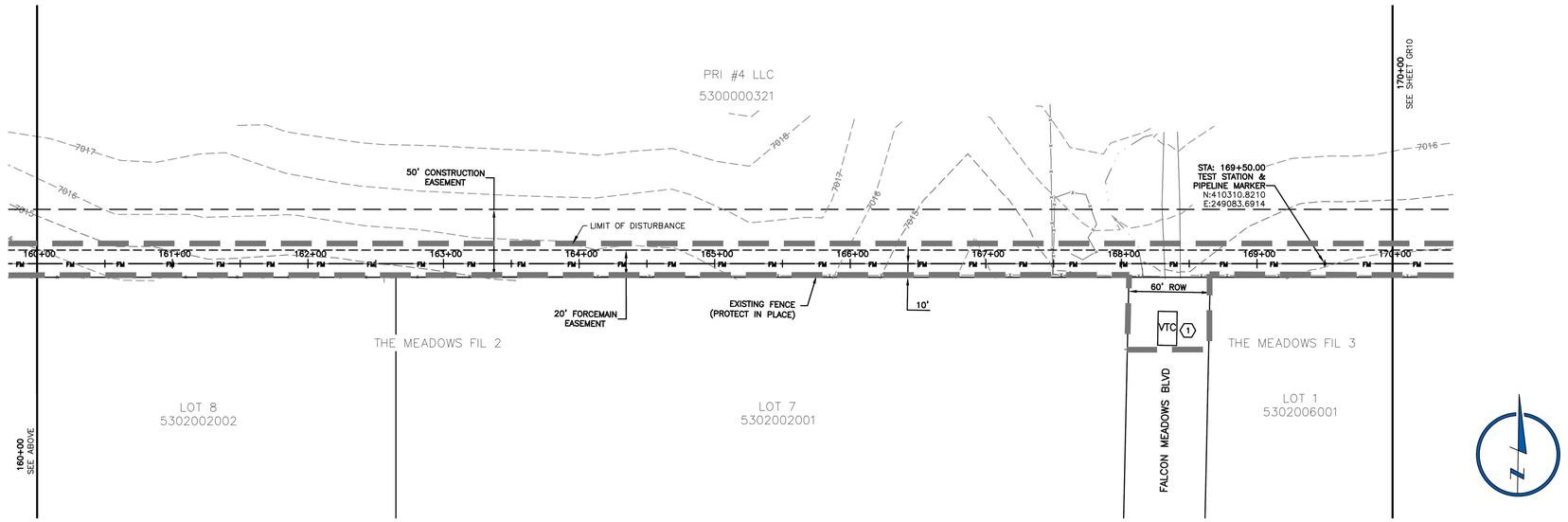
CAUTION





50 0 50 100
SCALE: 1"= 50'

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KEYNOTES:

(1) VEHICLE TRACKING CONTROL PER SHEET GR15

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

7100	EXISTING CONTOUR
	PROPOSED SWALE
	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
X4638.00	SPOT ELEVATION

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

REVISIONS:
NO. | DATE: | BY: | DESCRIPTION:

APPR'D. BY: | DATE:

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CAUTION

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | SCALE: HORIZONTAL: N/A VERTICAL: N/A | DATE: 01-24-2020 | SHEET 9 OF 15 | GR09

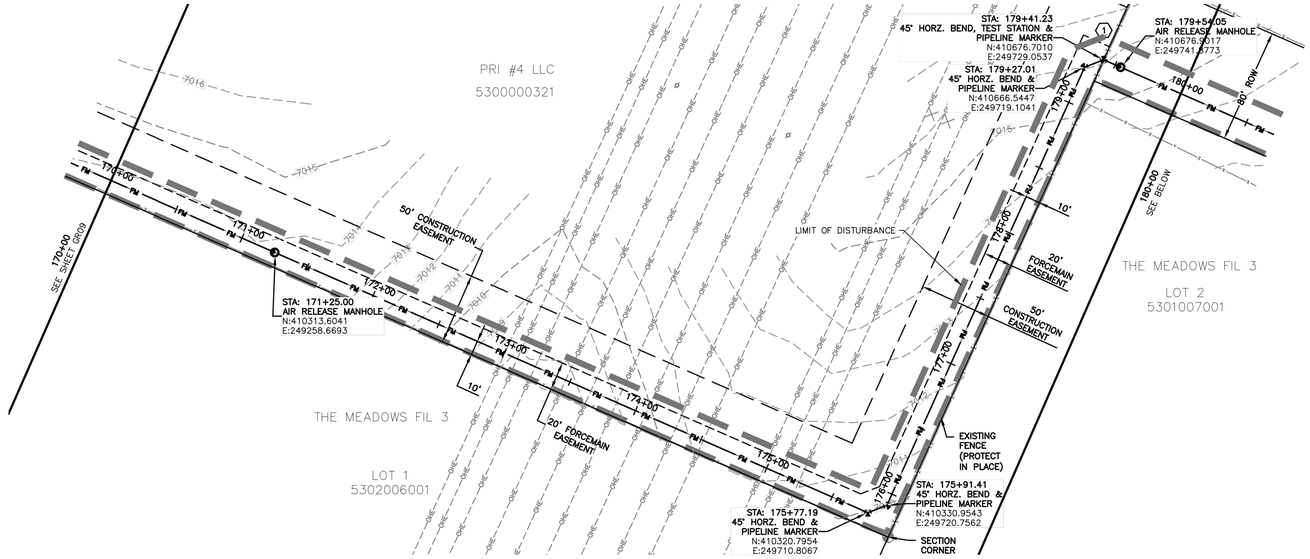
DESIGNED BY: DM
DRAWN BY: CLP
CHECKED BY: DM

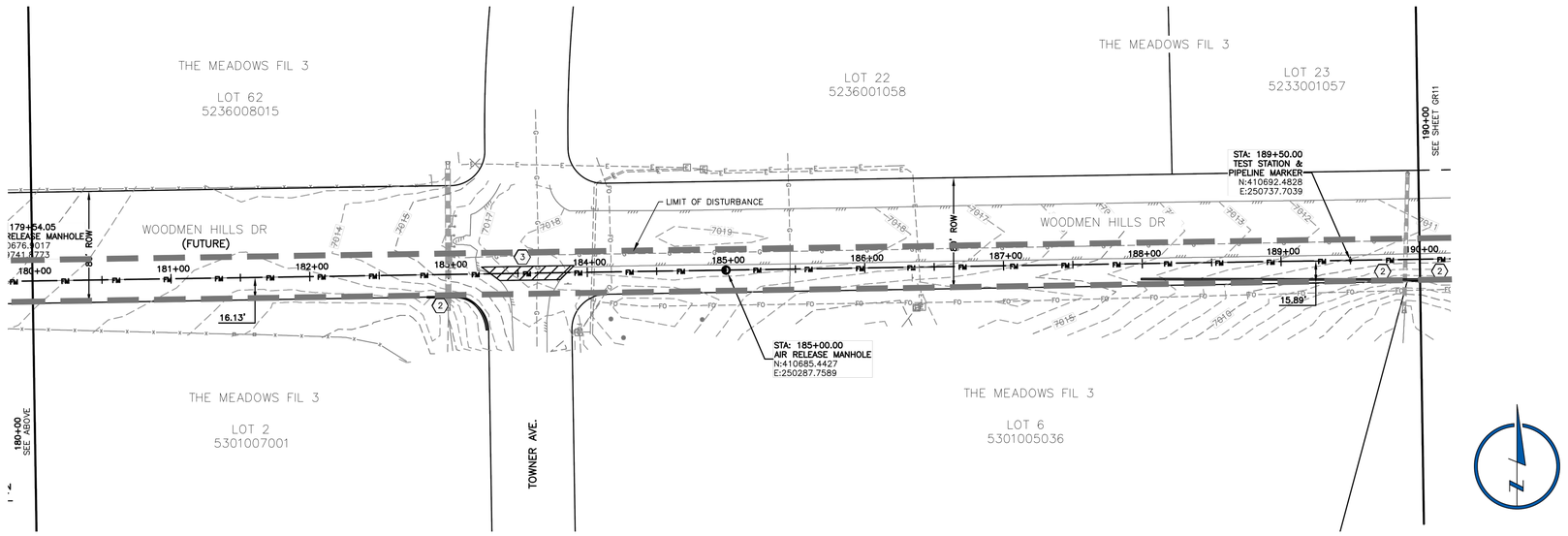
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

CIVIL CONSULTANTS, INC.

File: G:\09002A\Sterling Ranch District\Dwg\Const Dwg\Grading & Erosion Control\Force Main\GR09.dwg Plotstamp: 1/31/2020 4:00 PM





NOTES:

1. SEE SHEET GR01 FOR GENERAL NOTES.
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3. CONTRACTOR SHALL INSTALL THRUST BLOCKS AT ALL HORIZONTAL AND VERTICAL BENDS PER DETAIL.
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9. CONTRACTOR SHALL RESEED ALL AREAS DISTURBED DURING CONSTRUCTION, INCLUDING ANY SOD AND/OR LANDSCAPING.
10. CONTRACTOR SHALL PROTECT IN PLACE OR REMOVE AND REPLACE ANY SIGNS, MAILBOXES, LANDSCAPING, OR OTHER OBSTRUCTIONS DISTURBED DURING CONSTRUCTION.

KEYNOTES:

1. REMOVE & RE-INSTALL 50 LF OF EXISTING FENCING.
2. SEDIMENT CONTROL LOG PER DETAIL SHEET GR15
3. CONTRACTOR SHALL SAW CUT, REMOVE & REPLACE EXISTING PAVEMENT PER EL PASO COUNTY SPECIFICATIONS.

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
— — —	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

7100	EXISTING CONTOUR
— · · —	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
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STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01-24-2020
SHEET 10 OF 15
GR10

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MATRIX DESIGN CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APRVD. BY:	DATE:

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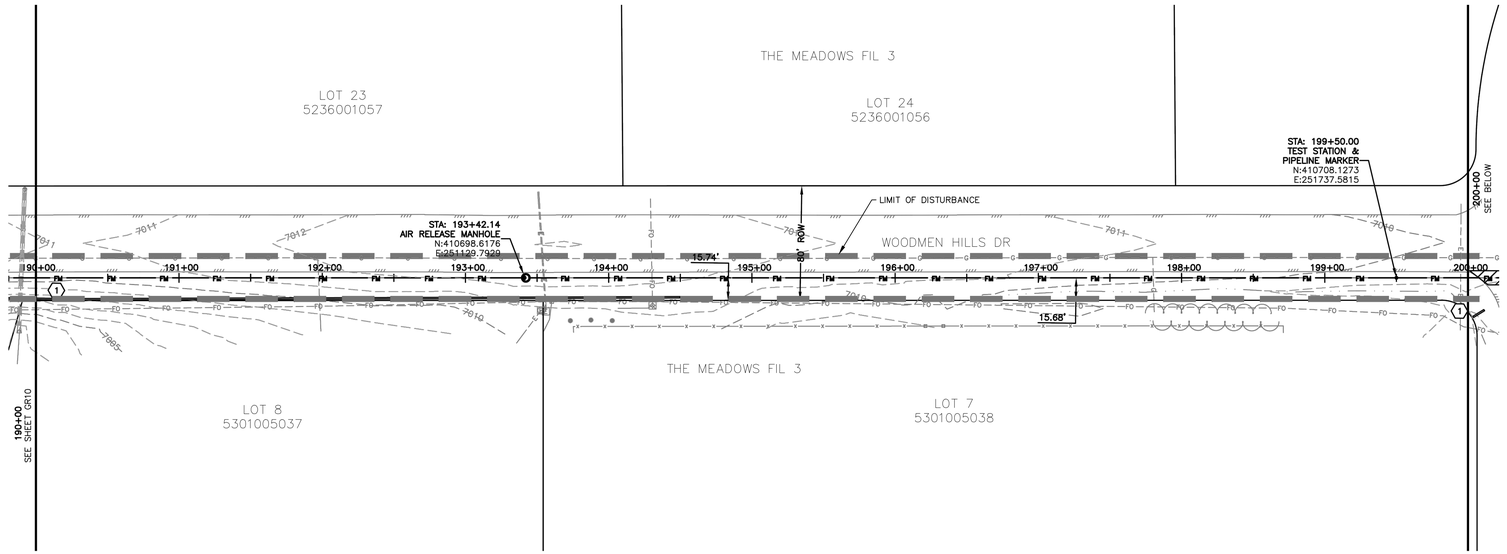
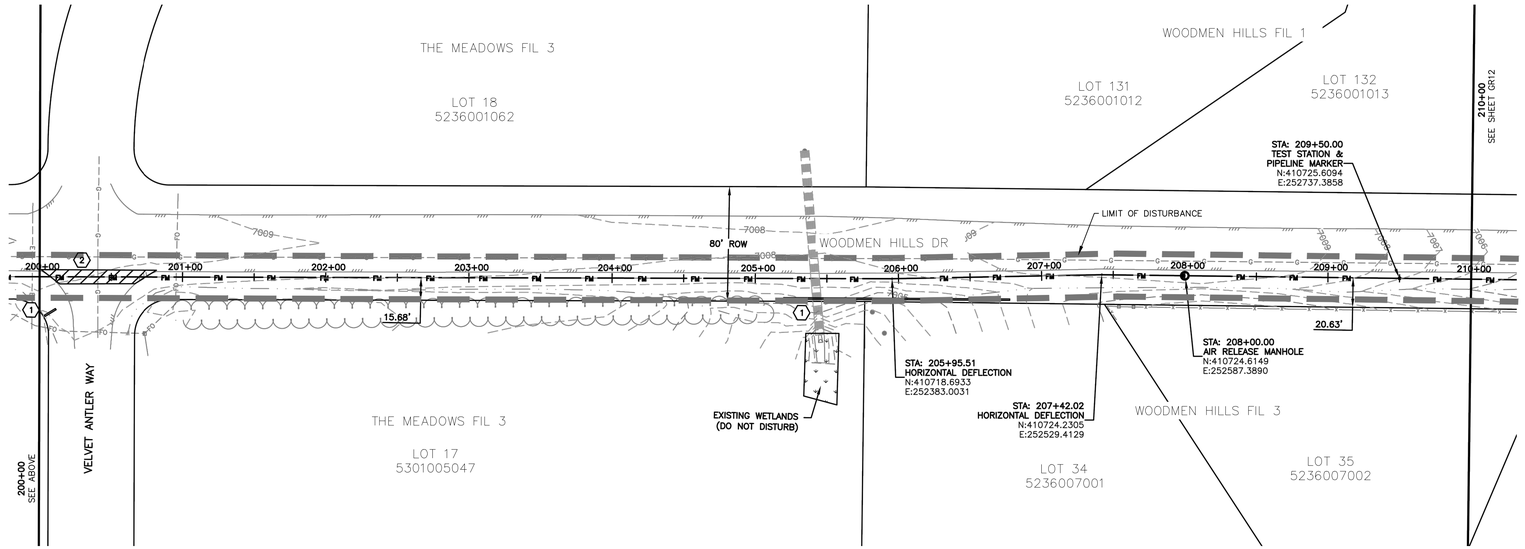
CAUTION





50 0 50 100
SCALE: 1"= 50'

NOTES:

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KEYNOTES:

1. SEDIMENT CONTROL LOG PER DETAIL SHEET IGR15
2. CONTRACTOR SHALL SAW CUT, REMOVE & REPLACE EXISTING PAVEMENT PER EL PASO COUNTY SPECIFICATIONS.

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
— — —	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

7100	EXISTING CONTOUR
— · · —	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
X4638.00	SPOT ELEVATION
XHP=4637.94	SPOT ELEVATION WITH DESCRIPTION SEE ABBREVIATIONS THIS SHEET

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
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CALL 1-800-922-1987

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
DATE: 01-24-2020 | SCALE: HORIZONTAL: N/A VERTICAL: N/A
SHEET 11 OF 15 | GR11

102 E. PIKES PEAK AVE, 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MVE, CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
REGISTERED PROFESSIONAL ENGINEER
VIRGIL A. SANCHEZ
37160
STATE OF COLORADO

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APPR'D. BY:	DATE:

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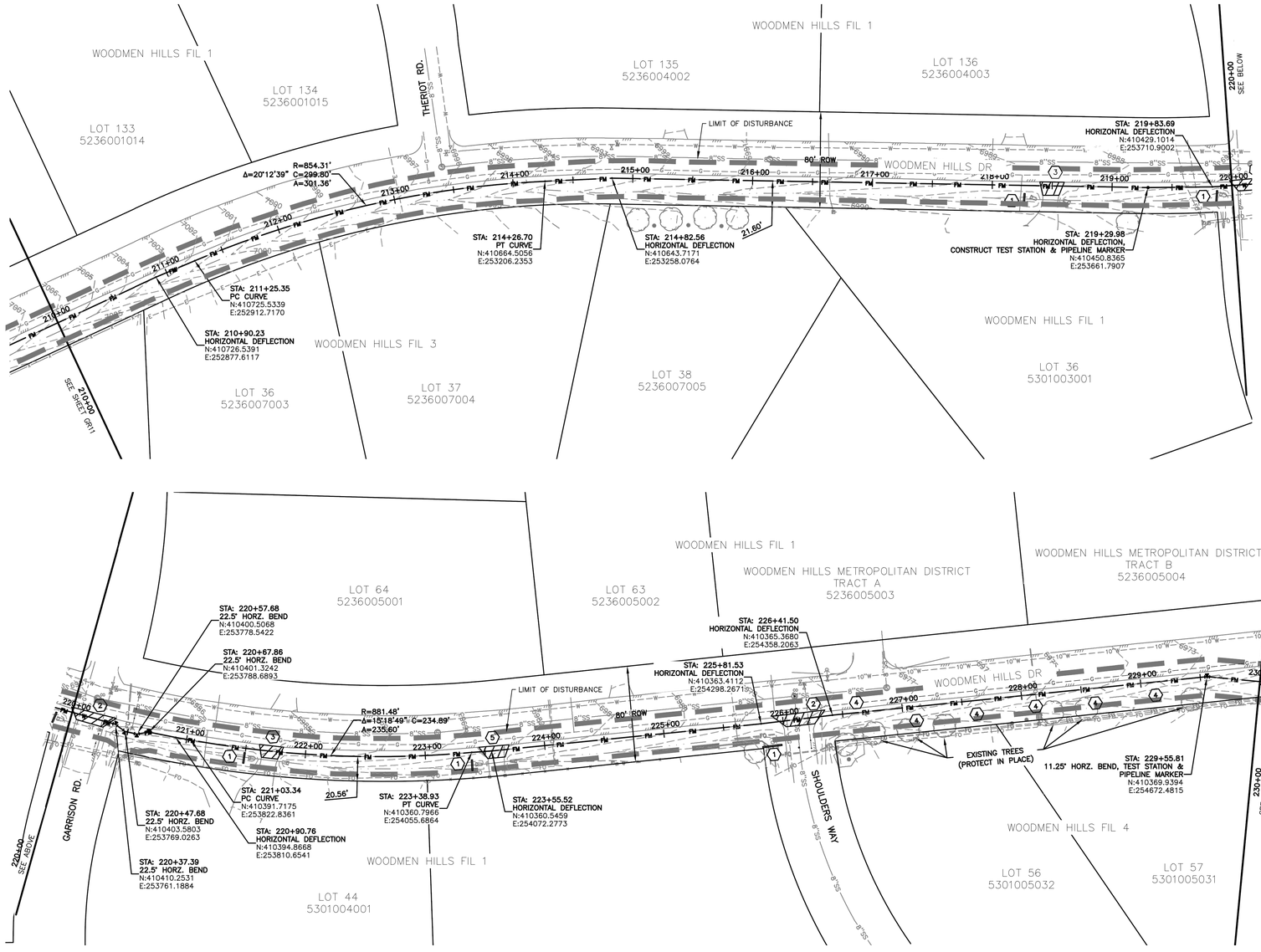
CAUTION

File: C:\09002A\Sterling Ranch District\Dwg\Const Dwg\Grading & Erosion Control\Force Main\GR11.dwg Plotstamp: 1/31/2020 4:41 PM



50 0 50 100
SCALE: 1"= 50'

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KEYNOTES:

1. SEDIMENT CONTROL LOG PER DETAIL SHEET GR15
2. CONTRACTOR SHALL SAW CUT, REMOVE & REPLACE EXISTING PAVEMENT PER EL PASO COUNTY SPECIFICATIONS.
3. CONTRACTOR SHALL SAW CUT, REMOVE AND REPLACE EXISTING CONCRETE DRIVEWAY.
4. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING DECORATIVE FENCE.
5. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING GRAVEL DRIVEWAY.

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
— — —	LIMITS OF DISTURBANCE/ CONSTRUCTION BOUNDARY

GRADING

4100	EXISTING CONTOUR
— · · · —	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM
DATE: 01-24-2020 | SCALE: HORIZONTAL: N/A VERTICAL: N/A
SHEET 12 OF 15 | GR12

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MATRIX DESIGN CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
COLORADO REGISTERED VIRGIL A. SANCHEZ 37160 PROFESSIONAL ENGINEER
01/24/2020

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APRVD. BY:	DATE:

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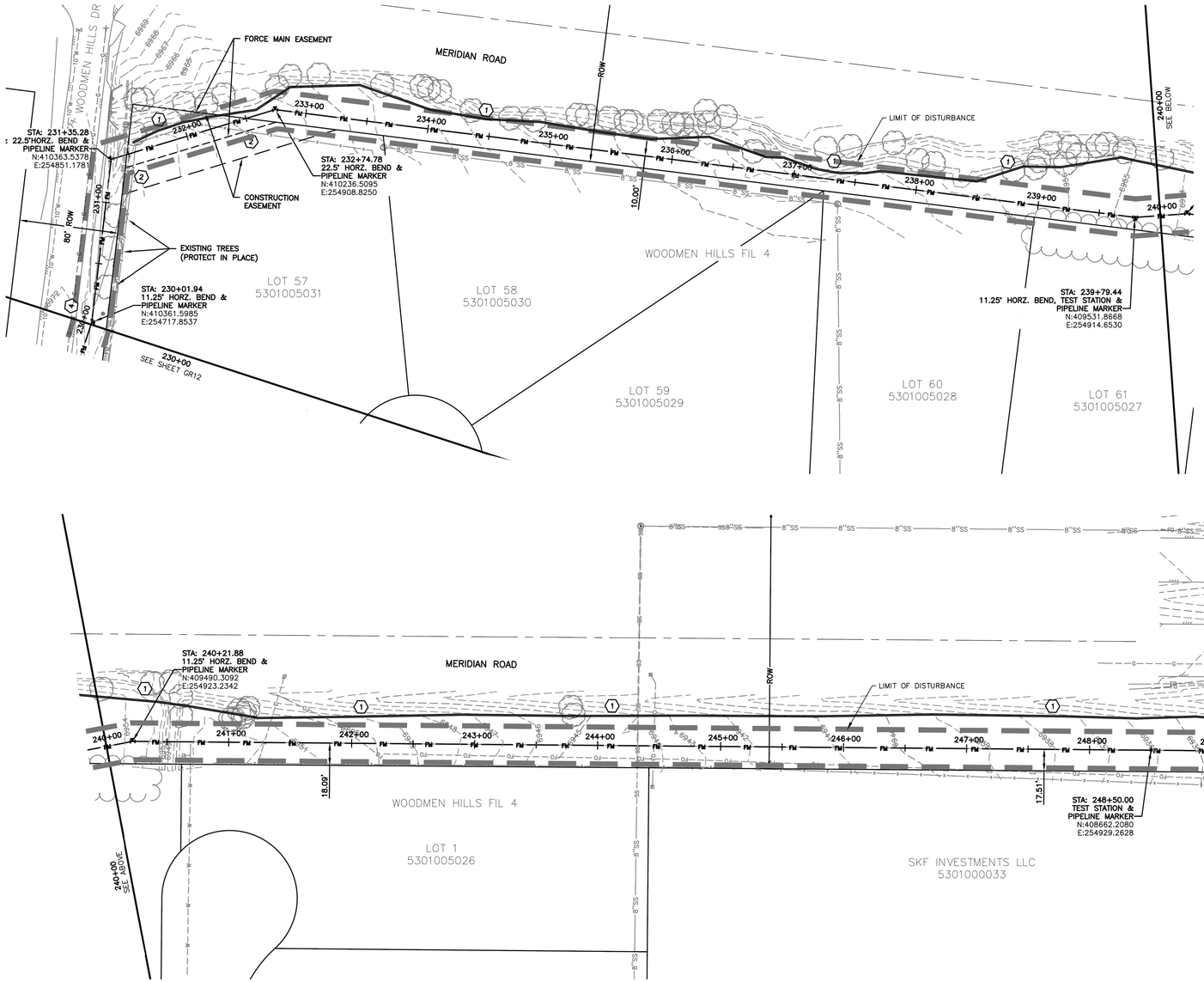

50 0 50 100
SCALE: 1"= 50'

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KEYNOTES:

1. SEDIMENT CONTROL LOG PER DETAIL SHEET GR15.
2. REMOVE AND REPLACE 180 L.F. OF EXISTING FENCE.
3. NOT USED.
4. CONTRACTOR SHALL REMOVE AND RE-INSTALL EXISTING DECORATIVE FENCE.

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL
TS	TEMPORARY SEEDING (SEE NOTE 9.)
———	SEDIMENT CONTROL LOG (SEE NOTE 7.)
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)
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GRADING

4100	EXISTING CONTOUR
— · · —	PROPOSED SWALE
. . . . .	GRADE BREAK
	WETLANDS AREA NOT TO BE DISTURBED
×4638.00	SPOT ELEVATION
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REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:

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CAUTION

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010
DESIGNED BY: DM
DRAWN BY: CLP
CHECKED BY: DM
DATE: 01-24-2020
SCALE: HORIZONTAL: N/A VERTICAL: N/A
SHEET 13 OF 15
GR13

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MCS CIVIL CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
COLORADO REGISTERED 37160 PROFESSIONAL ENGINEER

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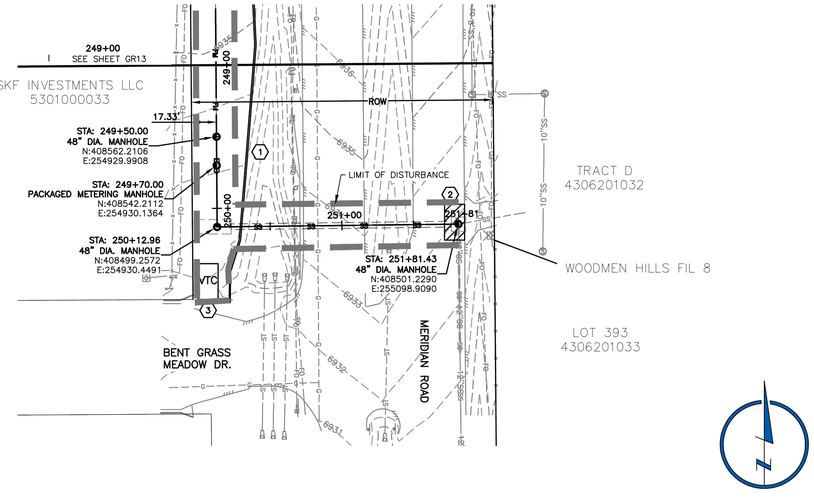

50 0 50 100

SCALE: 1"= 50'

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KEYNOTES:

1. SEDIMENT CONTROL LOG PER DETAIL SHEET GR15
2. CONTRACTOR SHALL SAW CUT, REMOVE & REPLACE EXISTING PAVEMENT PER EL PASO COUNTY SPECIFICATIONS.
3. VEHICLE TRACKING CONTROL PER SHEET GR15

EROSION & SEDIMENT CONTROL (EC) LEGEND

VTC	VEHICLE TRACKING CONTROL	6100	EXISTING CONTOUR
TS	TEMPORARY SEEDING (SEE NOTE 9.)		PROPOSED SWALE
	SEDIMENT CONTROL LOG (SEE NOTE 7.)		GRADE BREAK
EB	(COMPACTED) EARTH BERM (SEE NOTE 8.)		WETLANDS AREA NOT TO BE DISTURBED
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GRADING

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION

48 HRS BEFORE YOU DIG

CALL 1-800-922-1987

STERLING RANCH LIFT STATION & FORCE MAIN

GRADING & EROSION CONTROL PLAN

PROJECT NO. 09-010 | DESIGNED BY: DM | DRAWN BY: CLP | CHECKED BY: DM | SCALE: HORIZONTAL: N/A VERTICAL: N/A | DATE: 01-24-2020 | SHEET 14 OF 15 | GR14

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MVE, CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS: NO.	DATE:	BY:	DESCRIPTION:	APPVD. BY:	DATE:

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[a] (Common name)	Growth Season[b]	Pounds of Pure Live Seed (PLS)/acre[c]	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	½
5. Millet	Warm	3 - 15	½ - ¾
6. Sudangrass	Warm	5–10	½ - ¾
7. Sorghum	Warm	5–10	½ - ¾
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

[a] 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.

[b] See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

[c] Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

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

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common[a] Name	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Alakali Soil Seed Mix					
Alkali sacaton	*Sporobolus airoides*	Cool	Bunch	1,750,000	0.25
Basin wildrye	*Elymus cinereus*	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Jose tall wheatgrass	*Agropyron elongatum 'Jose'*	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.75**
Fertile Loamy Soil Seed Mix					
Ephriam crested wheatgrass	*Agropyron cristatum 'Ephriam'*	Cool	Sod	175,000	2.0
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	7.0
Total					**15.5**
High Water Table Soil Seed Mix					
Meadow foxtail	*Alopecurus pratensis*	Cool	Sod	900,000	0.5
Redtop	*Agrostis alba*	Warm	Open sod	5,000,000	0.25
Reed canarygrass	*Phalaris arundinacea*	Cool	Sod	68,000	0.5
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Puthfinder switchgrass	*Panicum virgatum 'Puthfinder'*	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	*Agropyron elongatum 'Alkar'*	Cool	Bunch	79,000	5.5
Total					**10.75**
Transition Turf Seed Mix[c]					
Ruebens Canadian bluegrass	*Poa compressa 'Ruebens'*	Cool	Sod	2,500,000	0.5
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	*Lolium perenne 'Citation'*	Cool	Sod	247,000	3.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Total					**7.5**

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

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	*Bouteloua gracilis*	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	*Schizachyrium scoparium 'Camper'*	Warm	Bunch	240,000	1.0
Prairie sandreed	*Calamovilfa longifolia*	Warm	Open sod	274,000	1.0
Sand dropseed	*Sporobolus cryptandrus*	Cool	Bunch	5,298,000	0.25
Vaughn sideoats grama	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	*5.5*
Total					**10.25**
Heavy Clay, Rocky Foothill Seed Mix					
Ephriam crested wheatgrass[d]	*Agropyron cristatum 'Ephriam'*	Cool	Sod	175,000	1.5
Oahe Intermediate wheatgrass	*Agropyron intermedium 'Oahe'*	Cool	Sod	115,000	5.5
Vaughn sideoats grama[e]	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	*5.5*
Total					**17.5**

[a] 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 Brillion 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.

[b] See Table TS/PS-3 for seeding dates.

[c] If site is to be irrigated, the transition turf seed rates should be doubled.

[d] Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

[e] Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

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

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
Seeding Dates	**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 crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

Maintenance and Removal

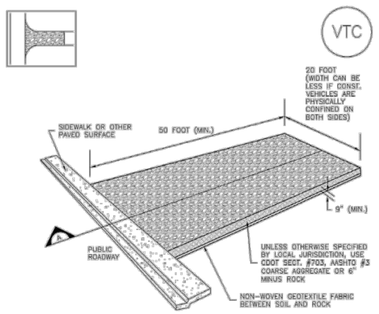
Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

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.

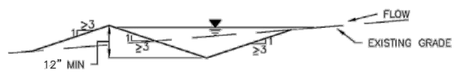
Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

Vehicle Tracking Control (VTC) SM-4



VTC–1. AGGREGATE VEHICLE TRACKING CONTROL



EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. 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/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.
2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2–YEAR FLOW RATE OR 10 CFS.
3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND–DISTURBING ACTIVITIES IN PROXIMITY.
4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.
5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.
6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.
7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.
5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

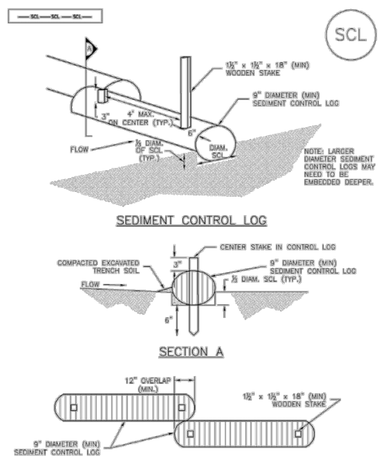
(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

GRADED BERM

N.T.S

Sediment Control Log (SCL) SC-2



SCL–1. SEDIMENT CONTROL LOG

Sediment Control Log (SCL) SC-2

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND–DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBNOXIS WEAR.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ⅓ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING
6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.
7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

STERLING RANCH LIFT STATION & FORCE MAIN
GRADING & EROSION CONTROL PLAN
PROJECT NO. 09-010 | DATE: 01-24-2020 | SHEET 15 OF 15 | GR15
DESIGNED BY: DM | SCALE: HORIZONTAL: N/A | VERTICAL: N/A
DRAWN BY: CLP
CHECKED BY: DM

102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
COLORADO REGISTERED PROFESSIONAL ENGINEER 37160

REVISIONS: NO. | DATE: | BY: | DESCRIPTION: | APPR'D. BY: | DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

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