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ENGINEERING, LLC
FORENSICS, LAND DEVELOPMENT, DRAINAGE, CIVIL

STORMWATER MANAGEMENT PLAN FOR TERRA RIDGE NORTH

September 9, 2022

Prepared for:

Phillip & Jennifer Miles
15630 Fox Creek
Colorado Springs, CO 80908

Prepared by:

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P.O. Box 88461
Colorado Springs, CO 80908

Qualified Stormwater Manager

Name: Shay Miles, P.E.

Company: Lodestar Engineering, LLC

Address: P.O. Box 88461, Colorado Springs,
CO 80908

Contractor

Name: _____

Company: _____

Address: _____

PCD File #: SP209



Add text: SF2239

STORMWATER MANAGEMENT PLAN TERRA RIDGE NORTH

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PURPOSE

The following storm water management plan (SWMP) is a detailed account of the requirements for the CDPS permit. The primary objective of this plan is to prevent storm water contamination during construction activity.

It is estimated that clearing, grading, roadway construction will impact 3.6 acres of the 39.72-acre site. Grading operations will require approximately 8000 CY of earth be moved. Grading operations are anticipated to commence in Winter, 2022 with final site stabilization proposed in Fall, 2023.

This document must be kept at the construction site at all times; and be made available to the public and any representative of the Colorado Department of Health - Water Quality Control Division, if requested.

The Grading & Erosion Control Plans are considered part of this SWMP and are included in the appendix. These plans shall be kept at the site at all times. Modifications to the erosion control plan may be occasionally necessary based on site inspections. Any additions or deletions of erosion control measures should be documented on the site copy of the Grading & Erosion Control Plans.

The development ultimately outfalls to East Cherry Creek, and no streams cross the project area. No on-site batch plant is proposed with the development.

SITE DESCRIPTION

The subject 39.72 acres consists of unplatted land to be developed into 11 residential lots with extension of Fox Creek Lane. The parcel is located within the Southwest ¼ of Section 29, Township 11 South, Range 65 West of the 6th principal meridian in El Paso County.

The parcel is bounded to the north by Lots 11-13 of Ridgeview Acres, to the west by Lots 4-5 of Whispering Hills Estates and Lot 4 of Terra Ridge Filing No. 1, to the south by Lot 1 of Terra Ridge Filing No. 5 & 6, and to the east by Lots 148-151 of Wildwood Village.

The parcel generally drains from south to the north at approximately 1.2%. A drainage swale extends from the southwest corner to the northeast corner of the property, and a second channel extends along the eastern property line connect with the other channel at the northeast corner of the property.

Existing soils on the site consist of 68-Peyton-Pring complex, hydrologic soil group B, 92-Tomah-Crowfoot loamy sands, hydrologic soil group "B" as determined by the Natural Resources Conservation Service Web Soil Survey. The site is located within the East Cherry Creek Drainage Basin. The fine grains of the soils are subject to erosion by water; therefore, proper erosion control measure shall be implemented prior to ground disturbing activities.

Soil ID Number	Soil Type	Soil Description	Hydrologic Classification
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Add page numbers to every page so that the table of contents can be used more effectively.

14	Brusset Loam, 1%- 3% slopes	Surface runoff is low, well drained	B
68	Peyton- Pring Complex	Surface runoff is low, well drained	B
92	Tomah- Crowfoot Loamy	Surface Drainage is medium, well drained	B

It is estimated the site exhibits 95% groundcover of native grasses. Sparsely located volunteer trees and shrubs are evident on-site as observed from a visual onsite inspection.

FLOODPLAIN STATEMENT

No portion of the site lies within a F.E.M.A. designated floodplain per FIRM 08041C0305G AND 08041C0315G, effective date of December 7, 2018

BASIC GRADING, EROSION AND STORMWATER QUALITY REQUIREMENTS AND GENERAL PROHIBITIONS

*Information taken from the City of Colorado Springs/ El Paso County Drainage Criteria Manual Volume 2, herein referred to as the "Manual."

1. Storm water discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters.
2. Concrete wash water shall not be discharged to or allowed to runoff to the Municipal Separate Sewer System (MS4).
3. Building, construction, excavation, or other 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. BMPs may be required by the MS4 Permittee if deemed necessary, based on specific conditions and circumstances (e.g., estimated time of exposure, season of the year, etc.).
4. Vehicle tracking of soils off-site shall be minimized.
5. All wastes composed of building materials must be removed from the construction site for disposal in accordance with local and state regulatory requirements. No building material wastes or unused building materials shall be buried, dumped, or discharged at the site.
6. No chemicals are to be added to the discharge unless permission for the use of a specific chemical is granted by the state. In granting the use of such chemicals, special conditions and monitoring may be required.
7. Bulk storage structures for petroleum products and other chemicals shall have secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering the MS4, including any surface or subsurface storm drainage system or facilities.

8. All persons engaged in earth disturbance shall implement and maintain acceptable soil erosion and sediment control measures including BMPs in conformance with the erosion control technical standards of the Drainage Criteria Manual, Volume 2 and in accordance with the approved Erosion and Stormwater Quality Control Plan approved by the MS4 permittee, if required.
9. All temporary erosion control facilities including BMPs and all permanent facilities intended to control erosion of any earth disturbance operations shall be installed as defined in the approved Erosion and Stormwater Quality Control Plan and the Drainage Criteria Manual, Volume 2 and maintained throughout the duration of the earth disturbance operation. The installation of the first level of temporary erosion control facilities and BMPs shall be installed and inspected prior to any earth disturbance operations taking place.
10. Any earth disturbance shall be conducted in such a manner so as to effectively reduce accelerated soil erosion and resulting sedimentation.
11. All earth disturbances shall be designed, constructed, and completed in such a manner so that the exposed area of any disturbed land shall be limited to the shortest practical period of time.
12. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters, including wetlands.
13. Suspended sediment caused by accelerated soil erosion shall be minimized in runoff water before it leaves the site of the earth disturbance.
14. Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be designed to limit the discharge to a non-erosive velocity.
15. Temporary soil erosion control facilities shall be removed and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to the standards and specifications prescribed in the Drainage Criteria Manual, Volume 2, and in accordance with the permanent erosion control features shown on the approved Erosion and Stormwater Quality Control Plans approved by the City of Colorado Springs/El Paso County, if required.
16. Soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within twenty-one (21) calendar days after final grading, 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. On a case-by-case basis, the MS4 permittee may allow appropriate BMP to be in place that prevents sediment from leaving the site. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented.
17. No person shall cause, permit, or contribute to the discharge into the municipal separate storm sewer pollutants that could cause the MS4 permittee to be in violation of its Colorado Discharge Permit System MS4 Permit.
18. The owner, site developer, contractor, and/or their authorized agents shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, and sand that may accumulate in the storm sewer or other drainage conveyance system and stormwater appurtenances as a result of site development.
19. No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter, including the temporary or permanent ramping with materials for vehicle access.

20. Individuals shall comply with the “Colorado Water Quality Control Act” (Title 25, Article 8, CRS), and the “Clean Water Act” (33 USC 1344), regulations promulgated, certifications or permits issued, in addition to the requirements included in the Drainage Criteria Manual, Volume 2. In the event of conflicts between these requirements and water quality control laws, rules, or regulations of other Federal or State agencies, the more restrictive laws, rules, or regulations shall apply.
21. 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. Materials shall not be stored in a location where they may be carried by stormwater runoff into the MS4 at any time.
22. Spill prevention and containment measures shall be used at storage, and equipment fueling and servicing areas to prevent pollution from discharging to the MS4. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer’s recommended methods for spill cleanup shall be followed, along with proper disposal methods.

CONSTRUCTION ACTIVITIES

The following is a list of major construction activities and the anticipated order of construction.

- 1) “Overlot” grading of undeveloped portions of site. **Installed in Winter of 2022.**
 - a) Install initial erosion control measures.
 - i) Develop Stabilized Staging Area
 - ii) Vehicle tracking control.
 - iii) Perimeter silt fence.
 - b) Overlot grade portions of the site.
 - i) Strip and stockpile topsoil.
 - (1) Install silt fence around topsoil stockpile.
 - ii) Overlot grade site.
 - c) Temporary Sediment Basin
 - d) Concrete washout
 - e) Straw bale barriers
 - f) Inlet Protection
 - g) Install remaining site erosion control measures.
 - i) Additional silt fence.
 - ii) Seed, Crimp & mulch.
 - iii) Straw bale ditch checks
 - iv) Seed exposed areas not intended for further development
- 2) Site construction
 - a) Storm Sewer.
 - i) Install pipe culverts
 - ii) Install riprap protection at surface discharge points.
 - b) Dry utility installation (trench & backfill)
- 3) Construction schedule
 - a) Winter/Spring 2022-2023

- i) Grading of roadway and ditches
- ii) Grading of detention pond
- iii) Install temporary erosion control measures
- b) Winter/Spring 2022-2023
 - i) Installation of roadway culverts
 - ii) Paving of roadway
 - iii) Installation of detention pond forebay, trickle channel, outlet structure, emergency overflow channel
 - iv) Dry utility installation
 - v) Installation of fire protection tank
 - vi) Seed and mulch

Lodestar?

It is ultimately the property owner’s responsibility to ensure that the work at the site is in compliance with this SWMP, the Grading and Erosion Control Plan, and all applicable statutes and ordinances. For this project the overall property owner is responsible for installing, inspecting, and maintaining all erosion control measures and BMP’s during the overlot grading process. **Catamount Engineering** recommends that the responsibility for compliance be transferred with property ownership to the buyer of any individual lot or other portion of this site. For example, if a retail developer purchases a lot, then that developer should become responsible for compliance with this SWMP and all applicable statutes and ordinances on that lot. **Catamount Engineering** recommends that the current overall property owner establish an agreement with potential buyers to knowingly transfer this responsibility with property ownership.

The main potential pollutant to Stormwater on this site is sediment.

Other known potential sources of pollution:

	<u>Notes</u>
<input type="checkbox"/> Vehicle fueling.....Yes	See Below
<input type="checkbox"/> Vehicle tracking.....Yes	See Below
<input type="checkbox"/> Vehicle washing.....No	
<input type="checkbox"/> Vehicle maintenance.....Yes	See Below
<input type="checkbox"/> Waste incineration, treatment, storage, or disposal.....No	
<input type="checkbox"/> Storage of chemical/fertilizers.....No	
<input type="checkbox"/> Concrete washoutYes	See Below
<input type="checkbox"/> Other (specify) – Portable Toilets.....Yes	See Below
<input type="checkbox"/> On-Site Batch plant for construction activities No	

Non-stormwater components of discharge:

	<u>Notes</u>
<input type="checkbox"/> Landscape irrigation return flow.....No	
<input type="checkbox"/> Springs.....No	
<input type="checkbox"/> Other (specify).....No	

Notes:

- Vehicle Fueling – there is no known vehicle fueling station to be installed or used on this site. However, it is anticipated that construction equipment may be refueled during construction. Spill prevention and containment measures shall be used at equipment fueling and servicing areas to prevent the pollution of any state waters, including wetlands. A sample spill report form is included in the Appendix of this report. All spills shall be cleaned up immediately after discovery or contained until appropriate cleanup methods can be employed. Manufacturer’s recommended methods for spill cleanup shall be followed, along with proper disposal methods. The

contractor shall follow the recommendations of the appropriate Hazard Communication Plan of the site construction manager, general contractor, or site superintendent. Vehicle refueling should be done in an area surrounded by an earthen berm to contain any fuel spills. Containment berming should be of sufficient size to safely contain a spill from the largest tank truck or other containment device located inside the possible spill area. In the event of a spill, a method of removal must be provided, such as application of absorbent materials and the use of a pump or vacuum truck. Any material removed from the spill site must be disposed of according to local, state, and federal standards. Stormwater and snowmelt runoff shall be diverted away from the containment berming area. Water that collects within the berming due to rainfall or snowmelt must be treated to meet standards before release from the spill area.

- Vehicle Tracking – the transporting or tracking of sediments from the site is possible particularly when moist soils conditions occur. In an effort to prevent sediments from being transported off-site during navigation from the site, a rock tracking pad shall be installed. Constant inspection is required to maintain the tracking pad in the proper condition. The rock of the tracking pas shall be cleaned or replaced as needed.
- Vehicle Maintenance – from time to time it may be necessary for the contractor to perform maintenance on the construction equipment being used on the site. If possible, major repairs to construction equipment shall be done off-site. Basic vehicle maintenance shall be performed in the vehicle fueling area and all recommendations listed above shall be followed.
- Concrete wash water shall not be discharged to or allowed to runoff to State Waters, including any surface or subsurface storm drainage system or facilities. Any concrete wash water shall be done in a temporary pit on site. The area around this pit shall be protected per the detail provided and concrete inside the pit shall be removed when done.
- Portable toilets will be located a minimum of 10 feet from stormwater inlets and 50 feet from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills.
- This project does not rely on control measures owned or operated by another entity.

SITE MAP

See attached plans.

BMP EROSION CONTROL MEASURES

Steps to prevent sediment from entering the Stormwater discharge system are listed below.

Structural Practices:

Structural sediment control measures include the following:

1. Use of filter fabric silt fencing at site perimeter locations and throughout the site (before commencement of construction activities). Silt fence shall also be located around homesites and dirt stockpiles during home building operations. Erosion control measures on individual home sites are the responsibility of the homebuilder. This responsibility should be transferred to the homebuilder with the purchase of any lot. The transfer of erosion control responsibility should be clearly stated in the purchase contract for any lot(s).

Per SWMP Checklist Item "13" - State that in the event of sediment being tracked onto offsite roadways (like Fox Creek Lane), the sediment will be swept up.

2. Straw bale barriers to protect ditches, swales and detention pond outfalls (immediately after construction of each item).
3. Vehicle tracking control devices at construction traffic ingress/egress points to prevent sediment tracking onto surrounding streets (before commencement of construction activities).
4. All disturbed areas shall have crimped straw installed and shall be reseeded if area will be dormant for more than 60 days. A recommended seed mix and application rate is included below. Final stabilization to be established by Fall of 2022.
5. All slopes not covered with slope protection erosion control blankets shall be roughened. Roughening shall be performed to follow the contour of the slope, that is, the roughening shall be perpendicular to surface runoff flow direction.
6. Water quality volume and outfall structures in the detention pond can be used as a sedimentation basin (at beginning of pond construction). Details of the water quality outfall structures are included in the Appendix of this report. Temporary sedimentation basins shall have straw bale barriers installed in front of the water quality outfall structures during site construction. The contractor should be aware that the sedimentation basins are considered a last line of defense and that the majority of sediment should be contained on the site near the source of the erosion using the other structural sediment control measures described in this report. The contractor shall remove any accumulated sediment prior to landscaping or seeding the ponds and ensure final grades meet the design grades following construction.
7. It is recommended that construction haul roads, if used on this site, have small stormwater diversions installed at intermittent locations and low points to prevent rutting and erosion on the roads.

See attached Grading and Erosion Control, and Detail sheets in the Appendix for locations and technical drawings for structural BMP's.

Recommended Seed Mix:
35 lbs/ acre - drilled

20% Big Bluestem
10% Blue Gramma
10% Green Needlegrass
20% Western Wheatgrass
10% Sideoats Grama
10% Switchgrass
10% Prairie Sandreed
10% Yellow Indiangrass

Nonstructural Practices:

Temporary or permanent seeding will be employed in all areas disturbed by construction activities. Should excessive blowing of sediment become apparent, then the contractor shall water the site for dust control.

Other Controls:

Contractors shall take steps to keep the site reasonably free from large amounts of construction debris during construction. All waste materials generated by construction activities shall be removed from the site. All wastes composed of building materials must be removed from the construction site for disposal in accordance with local and state

regulatory requirements. No building material wastes or unused building materials shall be buried, dumped, or discharged at the site.

Spill prevention and containment measures shall be used at storage, and equipment fueling and servicing areas to prevent the pollution of any state waters, including wetlands. A sample of the spill report form is included in the Appendix of this report. All spills shall be cleaned up immediately after discovery or contained until appropriate cleanup methods can be employed. Manufacturer's recommended methods for spill cleanup shall be followed, along with proper disposal methods. The contractor shall follow the recommendations of the appropriate Hazard Communication Plan of the site construction manager, general contractor, or site superintendent.

Also discuss the pond in this section.

Final Stabilization and Long-Term Stormwater Quality:

Permanent sediment control measures include paving of the streets, installation of riprap, and the installation of landscaping and reseeding with a native grass seed mix. The contractor shall consult the approved Landscape Plan for the proper location, species, and installation methods for landscaping on the site. If the owner reasonably maintains the landscaping and reseeding, then it will provide good soil stability and sediment control. After these permanent measures are installed and final stabilization is achieved, then temporary measures can be removed. Final stabilization is considered achieved when all earth disturbing activities at the site have been completed and uniform vegetative cover has been established with a density of at least 70% of pre-disturbance levels and such cover is capable of adequately controlling soil erosion.

Inspection and Maintenance:

The site construction manager or site inspector responsible for these measures shall inspect them every 14 days and after every storm event and/or snow event that causes surface erosion. This report recommends that all erosion control measures on the site are inspected a minimum of once every 7 days, except during winter snowpack conditions where no melting is occurring or when all construction activities are completed. Repairs shall be made within a reasonable timeframe after deficiencies are discovered. A record of all inspections made shall be kept with the SWMP Report for a minimum of 3 years. A sample BMP Checklist is included in the Appendix of this report. See attached Detail sheet for specific maintenance requirements for individual BMP's. The inspection logs shall include the signature of the QSM.

SWMP Revision Procedures:

The site construction manager or site inspector responsible for updating the on-site SWMP report to reflect field conditions and project phasing. Upon determination that addition, modification, or deletion of proposed erosion control measures the site construction manager will notify the El Paso County Inspector and the project engineer of proposed modifications. Any field modifications shall be reflected within the on-site copy upon completion of modifications. The SWMP shall be viewed as a "living document" that is continuously being reviewed and modified as a part of the overall process of evaluating and managing stormwater quality issues at the site.

Self-Monitoring Inspections – The QSM shall provide their credentials and/or state: "The QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5.2.A."

APPENDIX

VICINITY MAP



GENERAL PERMIT APPLICATION

**EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP)
EL PASO COUNTY APPLICATION AND PERMIT
PCD FILING NO.: SP 209**

APPLICANT INFORMATION

PERMIT NUMBER

Owner Information	
Owner	Phillip S. and Jennifer Miles
Name (person of responsibility)	Phillip S. Miles
Company/Agency	
Position of Applicant	Owner
Address (physical address, not PO Box)	15630 Fox Creek Lane
City	Colorado Springs
State	CO
Zip Code	80908
Mailing address, if different from above	
Telephone	719-352-8886
FAX number	
Email Address	shay@milestoneeng.org
Cellular Phone number	
Contractor/Operator Information	
Name (person of responsibility)	
Company	
Address (physical address, not PO Box)	
City	
State	
Zip Code	
Mailing address, if different from above	
Telephone	
FAX number	
Email Address	
Cellular Phone number	
Erosion Control Supervisor (ECS)*	
ECS Phone number*	
ECS Cellular Phone number*	

*Required for all applicants. May be provided at later date pending securing a contract when applicable.

PROJECT INFORMATION

Project Information	
Project Name	Terra Ridge North
Legal Description	TR BEING A PORT OF SW4 SEC 29-11-65 DESC AS FOLS: BEG AT NW COR OF SW4SW4 OF SD SEC 29, TH S 89<46'29" E ALG S LN OF WHISPERING HILLS ESTATES 1407.75 FT, N 00<58'34" E 1327.96 FT, S 89<47'26" E 1246.16 FT TO NE COR OF SD SW4 ALSO BEING ON W LN OF WILDWOOD VILLAGE UNIT 3, S 00<59'16" W ALG E LN OF SD SW4 1366.81 FT, N 89<46'29" W 945.48 FT, N 00<58'34" E 8.50 FT, N 89<46'29" W 1708.14 FT, N 00<58'34" E 30.00 FT TO POB
Address (or nearest major cross streets)	15630 Fox Creek Lane, Colorado Springs, CO 80908
Acreage (total and disturbed)	Total: 39.72 acres Disturbed: 3.6 acres
Schedule	Start of Construction: Winter 2022 Completion of Construction: Summer 2023 Final Stabilization: Spring 2024
Project Purpose	To construction a roadway to access lots in new subdivision
Description of Project	11 lot subdivision
Tax Schedule Number	51293000002

FOR OFFICE USE ONLY

The following signature from the ECM Administrator signifies the approval of this ESQCP. All work shall be performed in accordance with the permit, the El Paso County Engineering Criteria Manual (ECM) Standards, City of Colorado Springs Drainage Criteria Manual, Volume 2 (DCM2) as adopted by El Paso County Addendum, approved plans, and any attached conditions. The approved plans are an enforceable part of the ESQCP. Construction activity, except for the installation of initial construction BMPs is not permitted until issuance of a Construction permit and Notice to Proceed.

Signature of ECM Administrator: _____

Date _____

1.1 REQUIRED SUBMISSIONS

In addition to this completed and signed application, the following items must be submitted to obtain an ESQCP:

- Permit fees
- Stormwater Management Plan (SWMP) meeting the requirements of DCM2 and ECM either as part of the plan set or as a separate document;
- Cost estimates of construction and maintenance of construction and permanent stormwater control measures (Cost estimates shall be provided on a unit cost basis for all stormwater BMPs);
- Financial surety in an amount agreeable to the ECM Administrator based on the cost estimates of the stormwater quality protection measures provided. The financial surety shall be provided in the form of a Letter of Credit, Surety with a Bonding Company, or other forms acceptable to El Paso County;
- Operation and Maintenance Plan for any proposed permanent stormwater control measures; and
- Signed Private Detention Basin/Stormwater Quality Best Management Practice Maintenance Agreement and Easement, if any permanent stormwater control measures are to be located on site.

1.2 RESPONSIBILITY FOR DAMAGE

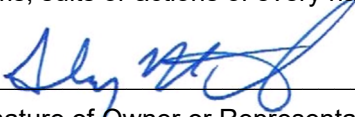
The County and its officers and employees, including but not limited to the ECM Administrator, shall not be answerable or accountable in any manner, for injury to or death of any person, including but not limited to a permit holder, persons employed by the permit holder, persons acting in behalf of the permit holder, or for damage to property resulting from any activities undertaken by a permit holder or under the direction of a permit holder. The permit holder shall be responsible for any liability imposed by law and for injuries to or death of any person, including but not limited to the permit holder, persons employed by the permit holder, persons acting in behalf of the permit holder, or damage to property arising out of work or other activity permitted and done by the permit holder under a permit, or arising out of the failure on the permit holder's part to perform the obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity, or at any subsequent time work or other activity is being performed under the obligations provided by and contemplated by the permit.

To the extent allowed by law, the permit holder shall indemnify, save, and hold harmless the County and its officers and employees, including but not limited to the BOCC and ECM Administrator, from all claims, suits or actions of every name, kind and description brought for or on account of injuries to or death of any person, including but not limited to the permit holder, persons employed by the permit holder, persons acting in behalf of the permit holder and the public, or damage to property resulting from the performance of work or other activity under the permit, or arising out of the failure on the permit holder's part to perform his obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity or at any subsequent time work or other activity is being performed under the obligations provided by and contemplated by the permit, except as otherwise provided by state law. The permit holder waives any and all rights to any type of expressed or implied indemnity against the County, its officers or employees.

1.3 APPLICATION CERTIFICATION

We, as the Applicants or the representative of the Applicants, hereby certify that this application is correct and complete as per the requirements presented in this application and the El Paso County Engineering Criteria Manual and Drainage Criteria Manual, Volume 2 and El Paso County Addendum.

We, as the Applicants or the representatives of the Applicants, have read and will comply with all of the requirements of the specified Stormwater Management Plan and any other documents specifying stormwater best management practices to be used on the site including permit conditions that may be required by the ECM Administrator. We understand that the stormwater control measures are to be maintained on the site and revised as necessary to protect stormwater quality as the project progresses. We further understand that a Construction Permit must be obtained and all necessary stormwater quality control measures are to be installed in accordance with the SWMP, the El Paso County Engineering Criteria Manual, Drainage Criteria Manual, Volume 2 and El Paso County Addendum before land disturbance begins and that failure to comply will result in a Stop Work Order and may result in other penalties as allowed by law. We further understand and agree to indemnify, save, and hold harmless the County and its officers and employees, including but not limited to the BOCC and ECM Administrator, from all claims, suits or actions of every name, kind and description as outlined in Section 1.2 Responsibility for Damage.



Signature of Owner or Representative

Date: 9/10/22

Phillip Shay Miles

Print Name of Owner or Representative

Signature of Operator or Representative

Date: _____

Print Name of Operator or Representative

Permit Fee \$ _____

Surcharge \$ _____

Financial Surety \$ _____

Type of Surety _____

Total \$ _____

**RECOMMENDED BMP MAINTENANCE INSPECTION
CHECKLIST**



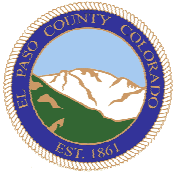
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 Colorado Springs, CO 80910
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 www.elpasoco.com

**EL PASO COUNTY PLANNING AND
 COMMUNITY DEVELOPMENT
 DEPARTMENT**

STORMWATER MANAGEMENT PLAN CHECKLIST

Revised: July 2019

		Applicant	PCD
1. STORMWATER MANAGEMENT PLAN (SWMP)			
1	Applicant (owner/designated operator), SWMP Preparer, Qualified Stormwater Manager, and Contractor Information. (On cover/title sheet)		
2	Table of Contents		
3	Site description and location to include: vicinity map with nearest street/crossroads description.		
4	Narrative description of construction activities proposed (e.g., may include clearing and grubbing, temporary stabilization, road grading, utility / storm installation, final grading, final stabilization, and removal of temporary control measures)		
5	Phasing plan – may require separate drawings indicating initial, interim, and final site phases for larger projects. Provide “living maps” that can be revised in the field as conditions dictate.		
6	Proposed sequence for major activities: Provide a construction schedule of anticipated starting and completion dates for each stage of land-disturbing activity depicting conservation measures anticipated, including the expected date on which the final stabilization will be completed.		
7	Estimates of the total site area and area to undergo disturbance; current area of disturbance must be updated on the SWMP as changes occur.		
8	Soil erosion potential and impacts on discharge that includes a summary of the data used to determine soil erosion potential		
9	A description of existing vegetation at the site and percent ground cover and method used to determine ground cover		
10	Location and description of all potential pollution sources including but not limited to: disturbed and stored soils; vehicle tracking; management of contaminated soils; loading and unloading operations; outdoor storage of materials; vehicle and equipment maintenance and fueling; significant dust generating process; routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.; on-site waste management; concrete truck/equipment washing; dedicated asphalt, concrete batch plants and masonry mixing stations; non-industrial waste such as trash and portable toilets		
11	Material handling to include spill prevention and response plan and procedures.		
12	Spill prevention and pollution controls for dedicated batch plants		
13	Other SW pollutant control measures to include waste disposal and off site soil tracking		
14	Location and description of any anticipated allowable non-stormwater discharge (ground water, springs, irrigation, discharge covered by CDPHE Low Risk Guidance, etc.)		
15	Name(s) of ultimate receiving waters; size, type and location of stormwater outfall or storm sewer system discharge		
16	Description of all stream crossings located within the project area or statement that no streams cross the project area		



2880 International Circle, Suite 110
 Colorado Springs, CO 80910
 Phone 719-520-6300
 Fax 719-520-6695
 www.elpasoco.com

**EL PASO COUNTY PLANNING AND
 COMMUNITY DEVELOPMENT
 DEPARTMENT**

STORMWATER MANAGEMENT PLAN CHECKLIST

Revised: July 2019		Applicant	PCD
17	SWMP Map to include:		
17a	construction site boundaries		
17b	flow arrows to depict stormwater flow directions		
17c	all areas of disturbance		
17d	areas of cut and fill		
17e	areas used for storage of building materials, soils (stockpiles) or wastes		
17f	location of any dedicated asphalt / concrete batch plants		
17g	location of all structural control measures		
17h	location of all non-structural control measures		
17i	springs, streams, wetlands and other surface waters, including areas that require maintenance of pre-existing vegetation within 50 feet of a receiving water		
18	Narrative description of all structural control measures to be used. Modifications to EPC standard control measures must meet or exceed County-approved details.		
19	Description of all non-structural control measures to be used including seeding, mulching, protection of existing vegetation, site watering, sod placement, etc.		
20	Technical drawing details for all control measure installation and maintenance; custom or other jurisdiction's details used must meet or exceed EPC standards		
21	Procedure describing how the SWMP is to be revised		
22	Description of Final Stabilization and Long-term Stormwater Quality (describe nonstructural and structural measures to control SW pollutants after construction operations have been completed, including detention, water quality control measure etc.)		
23	Specification that final vegetative cover density is to be 70% of pre-disturbed levels		
24	Outline of permit holder inspection procedures to install, maintain, and effectively operate control measures to manage erosion and sediment		
25	Record keeping procedures identified to include signature on inspection logs and location of SWMP records on-site		
26	If this project relies on control measures owned or operated by another entity, a documented agreement must be included in the SWMP that identifies location, installation and design specifications, and maintenance requirements and responsibility of the control measure(s).		
	Please note: all items above must be addressed. If not applicable, explain why, simply identifying "not applicable" will not satisfy CDPHE requirement of explanation.		
2. ADDITIONAL REPORTS/PERMITS/DOCUMENTS			
a	Grading and Erosion Control Plan (signed)		
b	Erosion and Stormwater Quality Control Permit (ESQCP) (signed)		
3. Applicant Comments:			
a			



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STORMWATER MANAGEMENT PLAN CHECKLIST

Revised: July 2019

		Applicant	PCD
b			
c			

4. Checklist Review Certifications:

a	Engineer of Record: The Stormwater Management 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 and State for Stormwater Management Plans.		
	_____ Date _____ Engineer of Record Signature		
b	Review Engineer: The Stormwater Management Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request.		
	_____ Date _____ Review Engineer		

**SAMPLE SPILL RESPONSE PLAN
AND SPILL REPORT FORM**

STATE OF COLORADO

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado
<http://www.cdphe.state.co.us>



Colorado Department
of Public Health
and Environment

For Agency Use Only

Permit Number Assigned

COR03- _____

Date Received ____/____/____
Month Day Year

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-P-B2
Denver, Colorado 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.

PERMIT INFORMATION

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

Applicant is: Property Owner Contractor/Operator

A. CONTACT INFORMATION - NOT ALL CONTACT TYPES MAY APPLY * indicates required

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

***ORGANIZATION FORMAL NAME:** _____

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

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

email address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

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 Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

email address _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

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 for the facility.

Same As 1) Permittee

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

email address _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

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

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

email address _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

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

Responsible Position (Title): _____
Currently Held By (Person): _____
Telephone No: _____
email address _____
Organization: _____
Mailing Address: _____
City: _____ State: _____ Zip: _____

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

B. Permitted Project/Facility Information

Project/Facility Name _____
Street Address or cross streets _____

(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, _____ Zip Code _____ County _____

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

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

or

001A Latitude _____ ° _____ ' _____ " Longitude _____ ° _____ ' _____ " (e.g., 39°46'11"N, 104°53'11"W)
degrees minutes seconds degrees minutes seconds

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.

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): _____

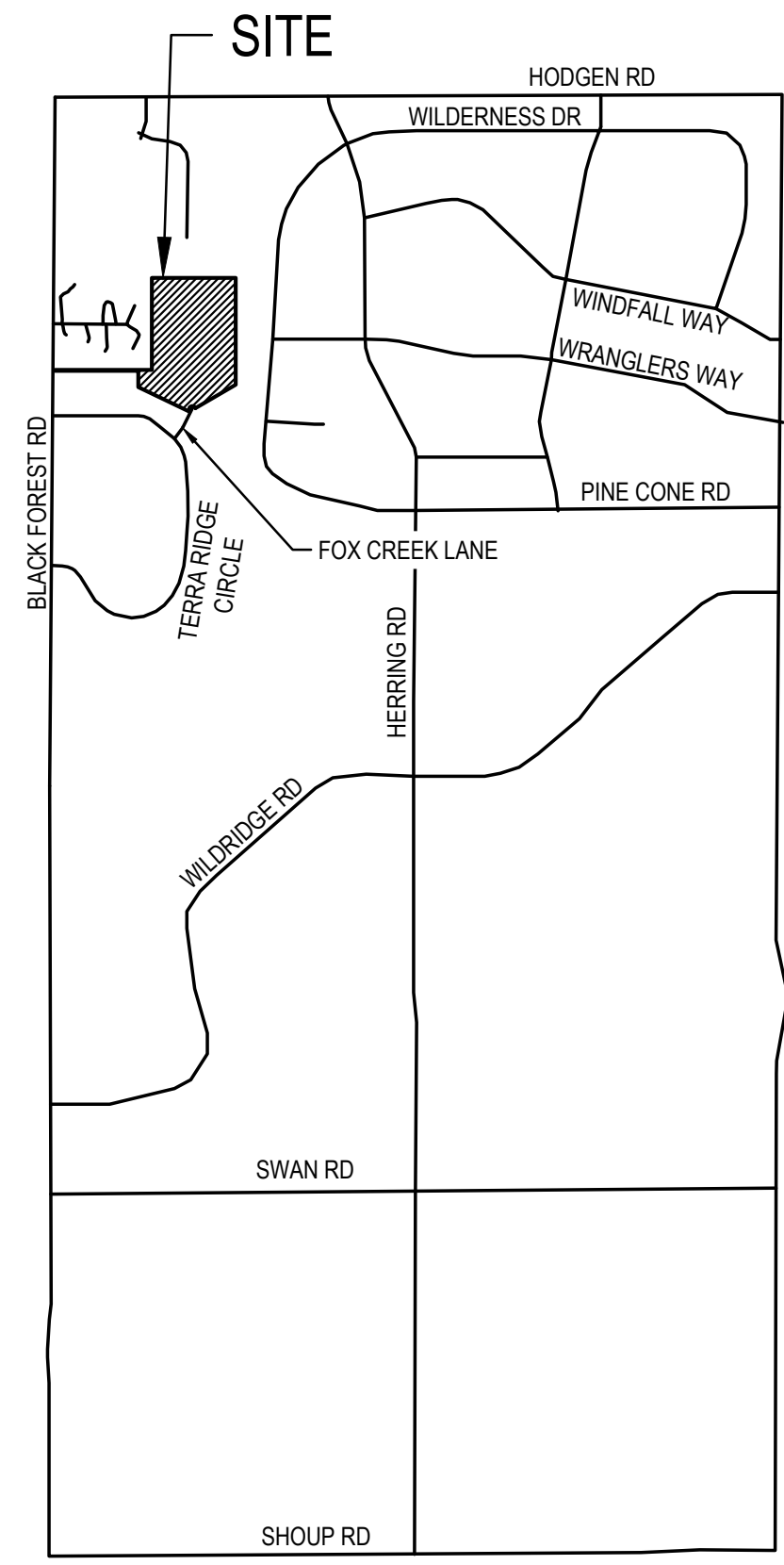
OR

- Not applicable (site has not been subdivided)

"

FEDERAL, STATE,
OR LOCAL STORM
WATER OR OTHER
ENVIRONMENTAL
INSPECTOR SITE
VISIT LOG

DETAILS &
DRAWINGS



VICINITY MAP
SCALE 1"=1/2 MILE

NOTE: THIS IS AN OVERLOT GRADING AND EROSION CONTROL PLAN ONLY. THIS PLAN DOES NOT REFLECT DETAILED/FINE GRADING ELEMENTS THAT WILL BE PART OF FINAL CONSTRUCTION DOCUMENTS FOR SITE DEVELOPMENT AND PAVING OPERATIONS ARE PROVIDED FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE.



KEYMAP
SCALE NTS

TERRA RIDGE NORTH Pre-Development Grading & Erosion Control Plan El Paso County, Colorado

Prepared For:
Phillip S. & Jennifer Miles

15630 Fox Creek Lane
Colorado Springs, CO 80908

Prepared By:
Lodestar Engineering, LLC
P.O. Box 88461
Colorado Springs, CO 80908
OCTOBER, 2022

Legal Description:
Portion of the Southwest Quarter of Section 29, Township 11 South, Range 65 West of the 6th P.M., County of El Paso, State of Colorado, more particularly described as follows:

Beginning at the Northwest corner of the Southwest Quarter of said Southwest Quarter; thence S89°46'29"E along the South line of Whispering Hills Estates as recorded in Plat Book Z-2 at Page 2 of said county records, 1407.75 feet to the Southeast corner thereof; thence N00°58'34"E, 1327.96 feet to the Northeast corner thereof; thence S89°47'26"E, 1245.16 feet to the Northeast corner of said Southwest Quarter, said Northeast corner also being on the West line of Wildwood Village Unit 3 as recorded in Plat Book H-3 at Page 57 of said county records; thence S00°59'16"W along the East line of said Southwest Quarter and the West Line of said Wildwood Village Unit 3 and Wildwood Village Unit 4 as recorded in Plat Book M-3 at Page 46 of said county records, 1366.91 feet; thence N89°46'29"W, 945.48 feet; thence N00°58'34"E, 8.50 feet; thence N89°46'29"W, 1708.14 feet to a point on the west line of said Southwest Quarter; thence N00°58'34E, 30.00 feet to the point of beginning, County of El Paso, State of Colorado., said described tract contains 52.63 Acres +/-

AGENCIES/CONTACTS

DEVELOPER:	SHAY MILES 15630 FOX CREEK LANE COLORADO SPRINGS, CO 80908 (719) 352-8886	GAS DEPARTMENT:	BLACK HILLS ENERGY MR. SEBASTIAN SCHWENDER (719) 359-3716
SURVEYOR:	JOHN KEILERS & ASSOCIATES, LLC 9920 OTERO AVENUE COLORADO SPRINGS, CO 80920 (719) 649-9243	ELECTRIC DEPARTMENT:	MOUNTAIN VIEW ELECTRIC ASSOCIATION' 11140 E. WOODMEN ROAD COLORADO SPRINGS, CO 80908MR. DAVE WALDNER (719) 495-2283
CIVIL ENGINEER:	LODESTAR ENGINEERING, LLC P.O. BOX 88461 COLORADO SPRINGS, CO 80908 (719) 352-8886	TELEPHONE COMPANY:	N/A
LOCAL ROADS & DRAINAGE:	EL PASO COUNTY PCD 2880 INTERNATIONAL CIRCLE COLORADO SPRINGS, CO 80910 MR. LUPE PACKMAN, P.E. (719) 520-7945	FIRE DEPARTMENT:	BLACK FOREST FIRE PROTECTION DISTRICT (719) 650-2276

PROJECT DRAWING LIST	
SHEET NUMBER	SHEET DESCRIPTION
EROSION CONTROL PLANS	
C1	COVER SHEET
C2	NOTES & DETAIL SHEET
C3	EROSION CONTROL PLAN
C4	EROSION CONTROL DETAILS
C5	EROSION CONTROL DETAILS

DESIGN ENGINEER'S STATEMENT:

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION IN 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 EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

PHILLIP SHAY MILES, P.E. #40462 DATE

OWNER/DEVELOPER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

SHAY MILES DATE
15630 FOX CREEK LANE
COLORADO SPRINGS, CO 80908

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.

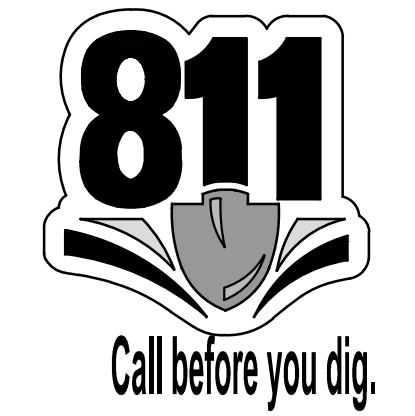
IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF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

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

NOTE: 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 TO BE ACCEPTABLE.

BASIS OF BEARINGS:
AS MONUMENTED AND SHOWN, AND WAS ASSUMED S00°12'10"E.

BENCHMARK:
THE MONUMENT AT THE NORTHWEST PROPERTY CORNER, HAVING AN ELEVATION OF 7441.73'. DATUM IS NAVD '88



ISSUED	REVISIONS

TERRA RIDGE NORTH
15630 FOX CREEK LANE
COLORADO SPRINGS, COLORADO

EL PASO COUNTY PRE-DEVELOPMENT
TERRA RIDGE NORTH
GRADING & EROSION CONTROL
COVER SHEET

C1
SHEET NO.

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

REVISED JULY 2019

- 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 OFFSITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS TO REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A 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.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT MAY CONTRIBUTE POLLUTANTS TO STORMWATER. TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES IS NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DEFINED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE, UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUT SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING IS TO BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER, DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN THE STORM SEWER OR OTHER DRAINAGE CONVEYANCE SYSTEM AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED 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.
- 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 MATERIAL FROM ENTERING STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY GEOQUEST AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB 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

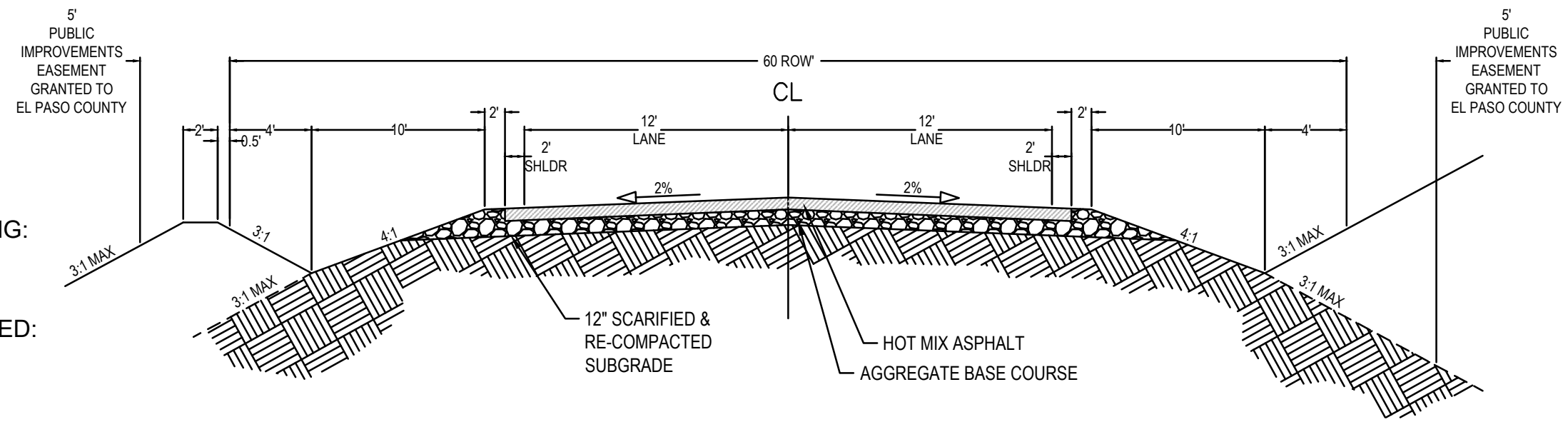
TIMING
 ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:
 FALL 2021-SPRING 2022

EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:
 FALL 2022

AREAS
 TOTAL AREA: 52.6 ACRES
 DISTURBED AREA: 4.0 ACRES

RECEIVING WATERS
 NAME OF RECEIVING WATERS
 EAST CHERRY CREEK

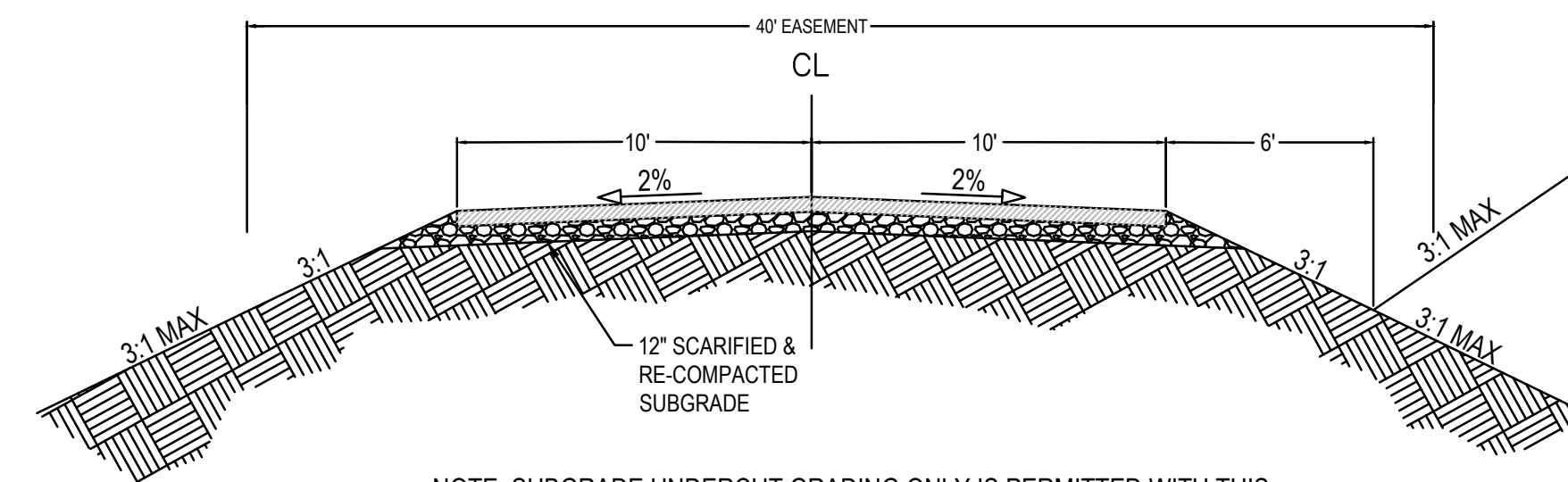
NOTE:
 ALL EROSION CONTROL DESIGNS AND INSTALLATIONS SHALL CONFORM TO EL PASO COUNTY STANDARDS AND POLICIES UNLESS OTHERWISE APPROVED IN WRITING



NOTE: SUBGRADE UNDERCUT GRADING ONLY IS PERMITTED WITH THIS PREDEVELOPMENT CONSTRUCTION PLAN. ASPHALT AND AGGREGATE BASE COARSE SHALL NOT BE CONSTRUCTED WITH THE PREDEVELOPMENT GRADING.

**RURAL LOCAL - PAVED
 TYPICAL SECTION**

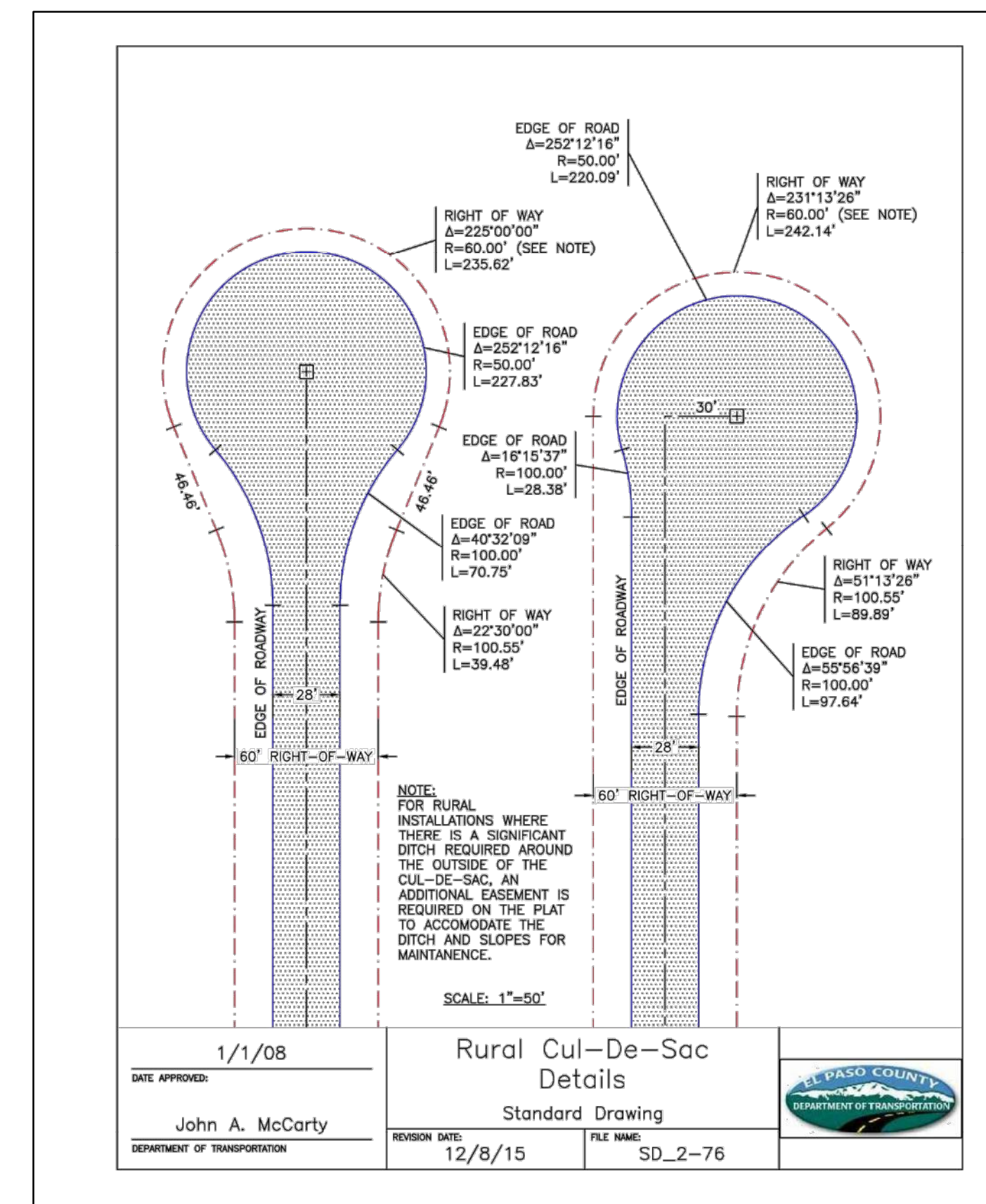
SCALE N.T.S.



NOTE: SUBGRADE UNDERCUT GRADING ONLY IS PERMITTED WITH THIS PREDEVELOPMENT CONSTRUCTION PLAN. ASPHALT AND AGGREGATE BASE COARSE SHALL NOT BE CONSTRUCTED WITH THE PREDEVELOPMENT GRADING.

**PRIVATE DRIVEWAY - PAVED
 TYPICAL SECTION**

SCALE: NTS

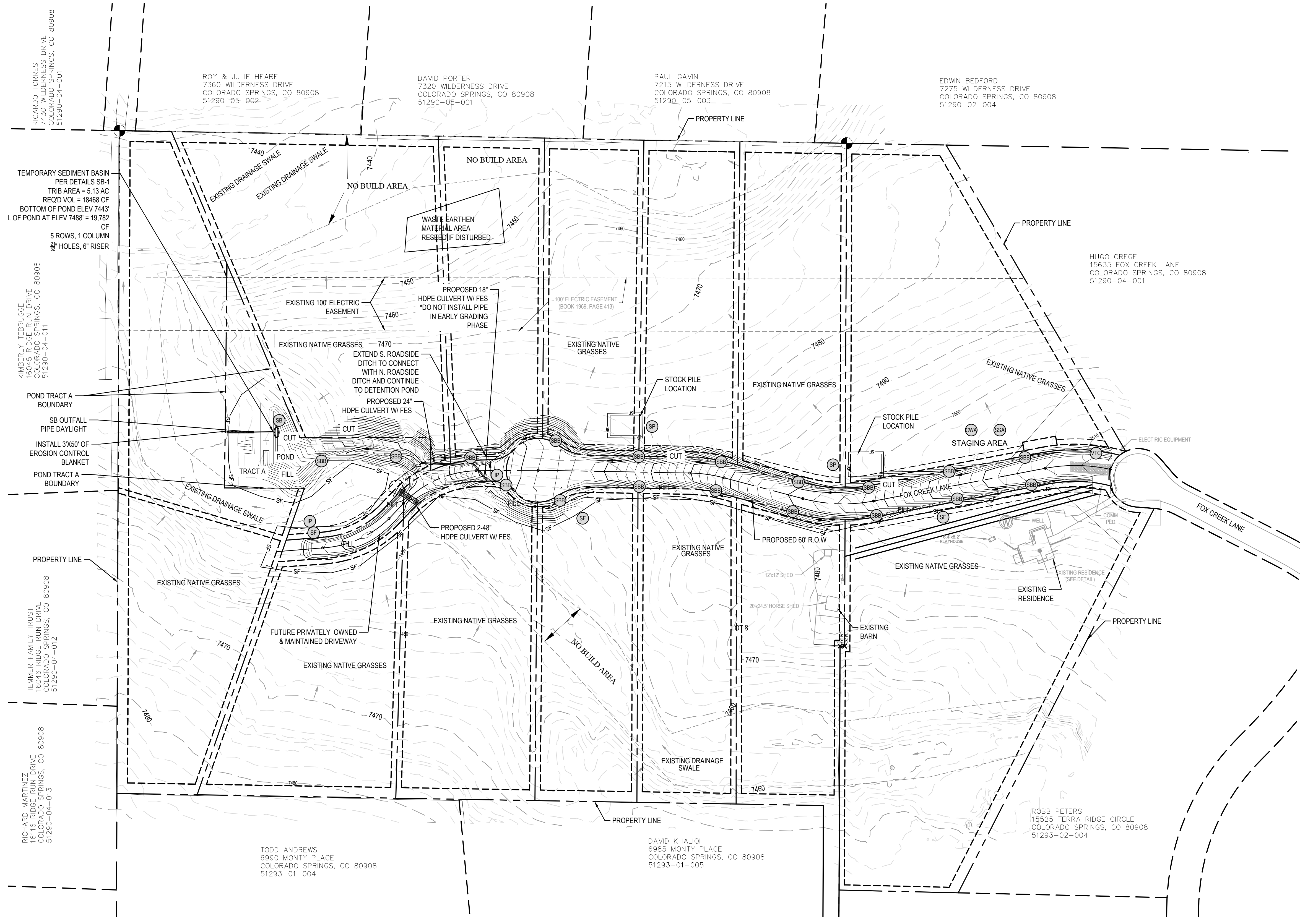


ISSUED	REVISIONS

TERRA RIDGE NORTH
 15630 FOX CREEK LANE
 COLORADO SPRINGS, COLORADO

EL PASO COUNTY PRE-DEVELOPMENT
 TERRA RIDGE NORTH
**GRADING & EROSION CONTROL
 NOTES**

C2
 SHEET NO.



GENERAL DRAINAGE NOTES:

1. ALL GRADING OPERATIONS SHALL REMAIN OUTSIDE OF DESIGNATED MOUSE HABITAT AND WETLANDS. DESIGNATED MOUSE HABITAT AND WETLANDS ARE TO REMAIN UNDISTURBED.
2. ONLY SUBGRADE UNDERCUT GRADING IS PERMITTED WITH THIS PREDEVELOPMENT CONSTRUCTION PLAN SET. ASPHALT AND BASE COURSE SHALL NOT BE CONSTRUCTED WITH THIS PREDEVELOPMENT PLAN.

ESTIMATED EARTHWORK QUANTITY:

TOTAL CUT: 7,689 CY
 TOTAL FILL: 6,871 CY
 NET (CUT): 818 CY

NOTE: THE ESTIMATED QUANTITIES DO NOT ACCOUNT FOR SOIL LOSS DUE TO COMPACTION OR SHRINKAGE.

KEY NOTES:

1. CONTRACTOR MAY WASTE EXCESS CUT MATERIAL OR BORROW SUITABLE FILL MATERIAL FROM ONSITE BORROW AREA. MATCH INTO EXISTING GRADES WITH 3:1 MAX CUT AND FILL SLOPES AND MAINTAIN POSITIVE DRAINAGE IN ALL AREAS.
2. CONTRACTOR TO LOCATE WASTE CONTAINER AND/OR OFFICE TRAILER IN THE FIELD WITH APPROVAL OF ENGINEER.
3. EXISTING VEGETATION CONSISTS OF NATIVE GRASSES

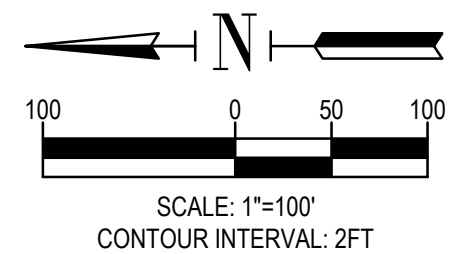
BMP PHASING:

INITIAL BMP'S:
 • INSTALL VTC, SILT FENCE, TEMP SEDIMENT BASIN, STAGING

FINAL BMP'S:
 • STRAW BALE BARRIERS, CONCRETE WASHOUT, SEEDING & MULCHING

LEGEND

	7464	EXISTING CONTOUR
	7464	PROPOSED CONTOUR
		DRAINAGE SWALE CENTER LINE
		ROAD CENTER LINE
		CONSTRUCTION BOUNDARY/LIMITS OF DISTURBANCE
		PROPERTY BOUNDARY
		FLOW DIRECTION
	P	PROPOSED CULVERT
	IP	INLET PROTECTION
	VTC	VEHICLE TRACKING PAD
	CW	CONCRETE WASHOUT AREA
	SBB	STRAW BALE BARRIER
	SP	STOCKPILE PROTECTION
	SB	SEDIMENT BASIN
	SF	SILT FENCE
		NO BUILD ZONE
		EMERGING WETLAND. DO NOT DISTURB



ISSUED	REVISIONS

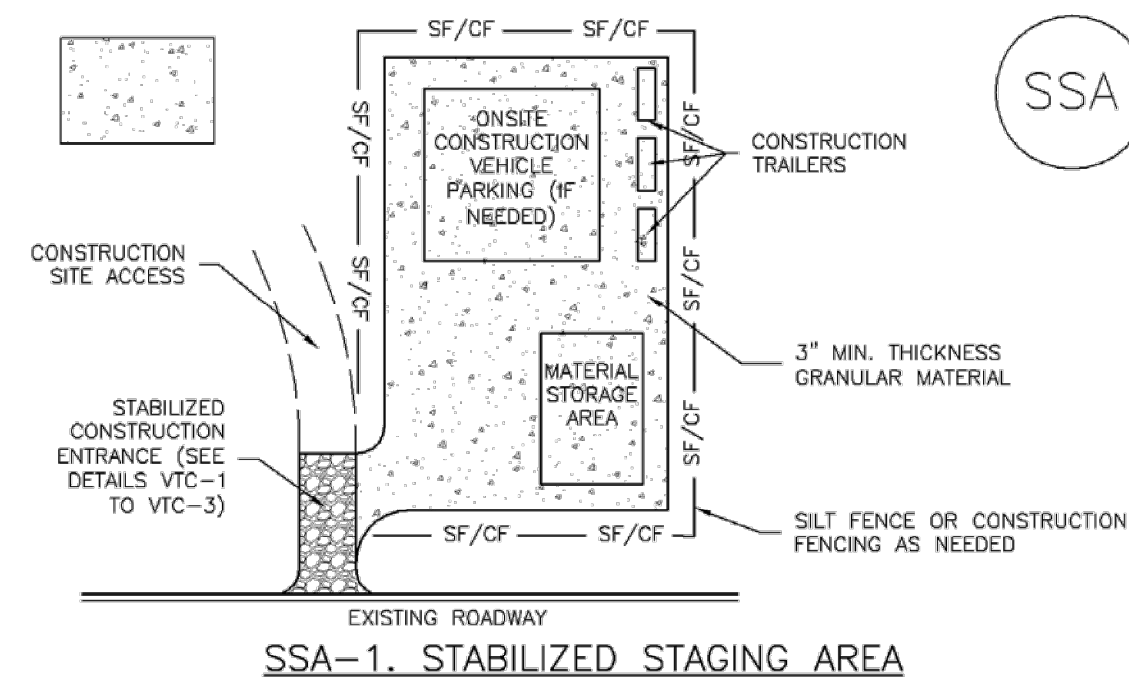
TERRA RIDGE NORTH
 15630 FOX CREEK LANE
 COLORADO SPRINGS, COLORADO

EL PASO COUNTY PRE-DEVELOPMENT
 TERRA RIDGE NORTH
SITE GRADING & EROSION CONTROL PLAN

C3
 SHEET NO.

Stabilized Staging Area (SSA)

SM-6



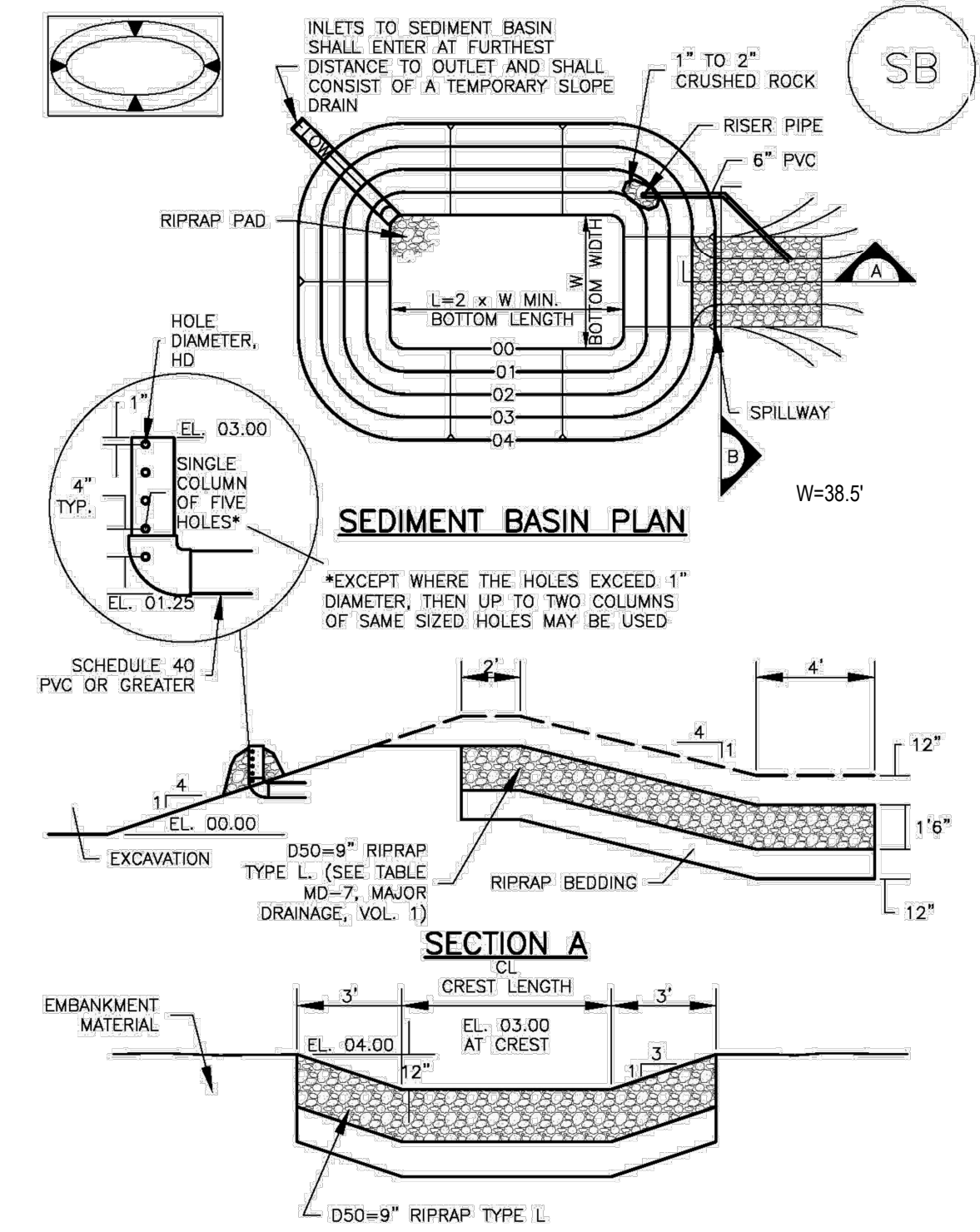
SSA-1. STABILIZED STAGING AREA

- STABILIZED STAGING AREA INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF STAGING AREA(S).
 - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
 - STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
 - STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
 - THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
 - UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
 - ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING AS NEEDED.
- STABILIZED STAGING AREA MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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

Sediment Basin (SB)

SC-7



SEDIMENT BASIN PLAN

SECTION A

- SEDIMENT BASIN INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF SEDIMENT BASIN.
 - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
 - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
 - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
 - FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
 - SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL.
 - EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
 - EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
 - PIPE SCH 40 OR GREATER SHALL BE USED.
 - THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

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

Sediment Basin (SB)

SC-7

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 1/2	2	9 1/2
2	21	3	13 1/4
3	28	5	16
4	33 1/2	6	18
5	38 1/2	8	21 1/2
6	43	9	24 1/2
7	47 1/2	11	27 1/2
8	51	12	30 1/2
9	55	13	33 1/2
10	58 1/2	15	36 1/2
11	61	16	39 1/2
12	64	18	42 1/2
13	67 1/2	19	45 1/2
14	70 1/2	21	48 1/2
15	73 1/2	22	51 1/2

- SEDIMENT BASIN INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF SEDIMENT BASIN.
 - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
 - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
 - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
 - FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
 - SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL.
 - EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
 - EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
 - PIPE SCH 40 OR GREATER SHALL BE USED.
 - THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

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

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 preparing a seedbed, selecting an appropriate seed mixture, using proper planting techniques, and protecting 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 determined by local government requirements), proactive stabilization measures, including planting a temporary seed mix, 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 of up to one year, temporary seeding and mulching can provide effective erosion control. Permanent seeding should be used on finished areas that have not been otherwise stabilized.

The USDCM Volume 2 *Revegetation* Chapter contains suggested annual grains and native seed mixes to use for temporary seeding. Alternatively, local governments may 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, selecting an appropriate seed mixture, using appropriate seeding equipment to ensure proper coverage and density, and protecting seeded areas with mulch or fabric until plants are established.

The USDCM Volume 2 *Revegetation* Chapter contains detailed seed mixes, soil preparation practices, and seeding and mulching recommendations that should 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

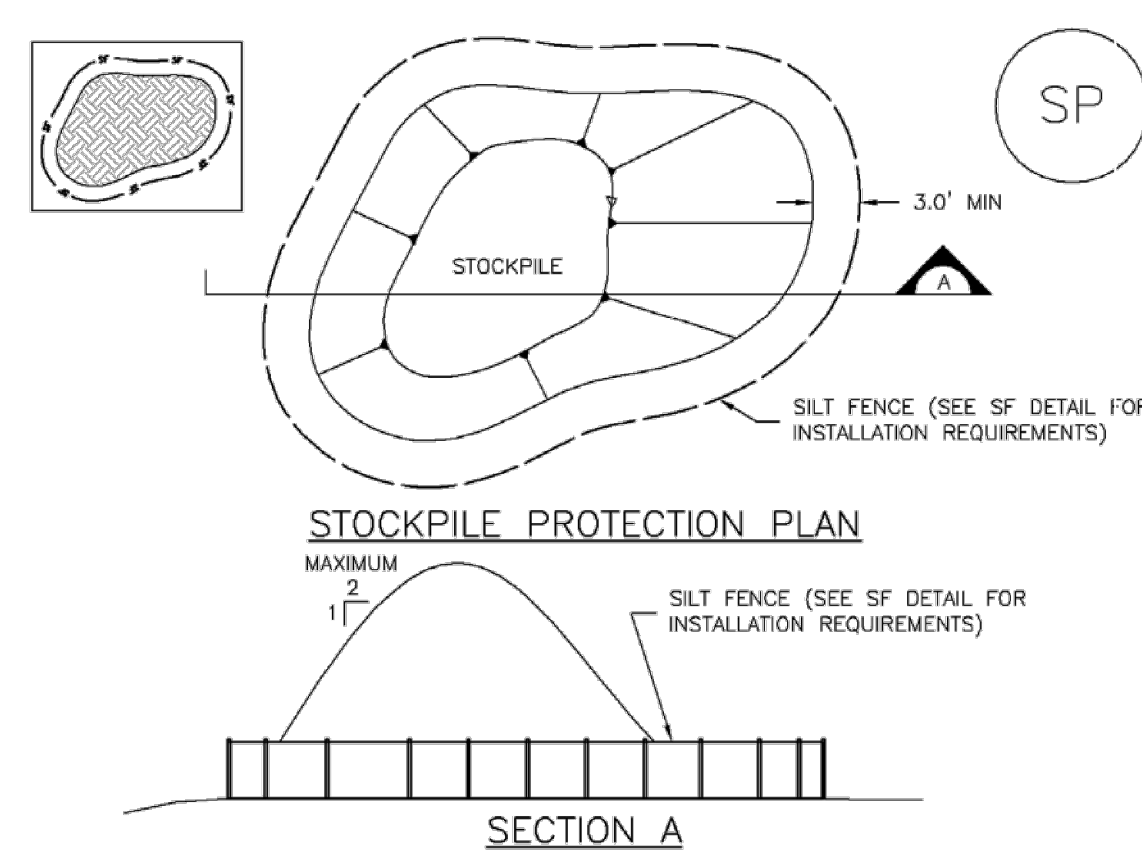
Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Overlot grading can result in loss of topsoil and compaction, resulting in poor quality subsoils at the ground surface that

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

January 2012 Urban Drainage and Flood Control District TS/PS-1
Urban Storm Drainage Criteria Manual Volume 3

Stockpile Management (SP)

MM-2



STOCKPILE PROTECTION PLAN

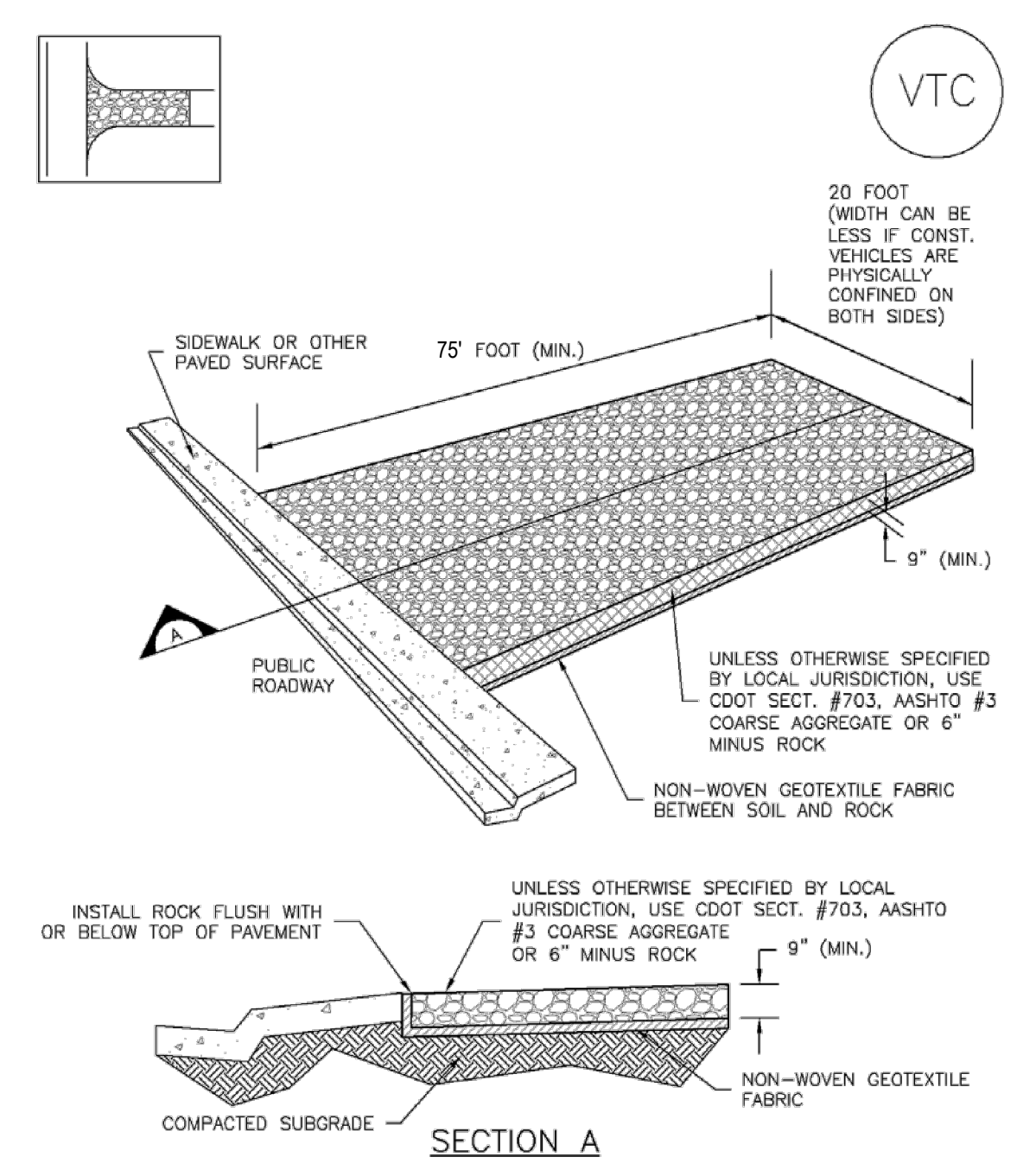
SECTION A

- SP-1. STOCKPILE PROTECTION**
- STOCKPILE PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF STOCKPILES.
 - TYPE OF STOCKPILE PROTECTION.
 - INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
 - STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDING AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
 - FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADE CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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

Vehicle Tracking Control (VTC)

SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

Mulching (MU)

EC-4

Description

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.



Photograph MU-1. An area that was recently seeded, mulched, and crimped.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

Appropriate Uses

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeded. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

Design and Installation

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

June 2012 Urban Drainage and Flood Control District MU-1
Urban Storm Drainage Criteria Manual Volume 3



ISSUED	REVISIONS

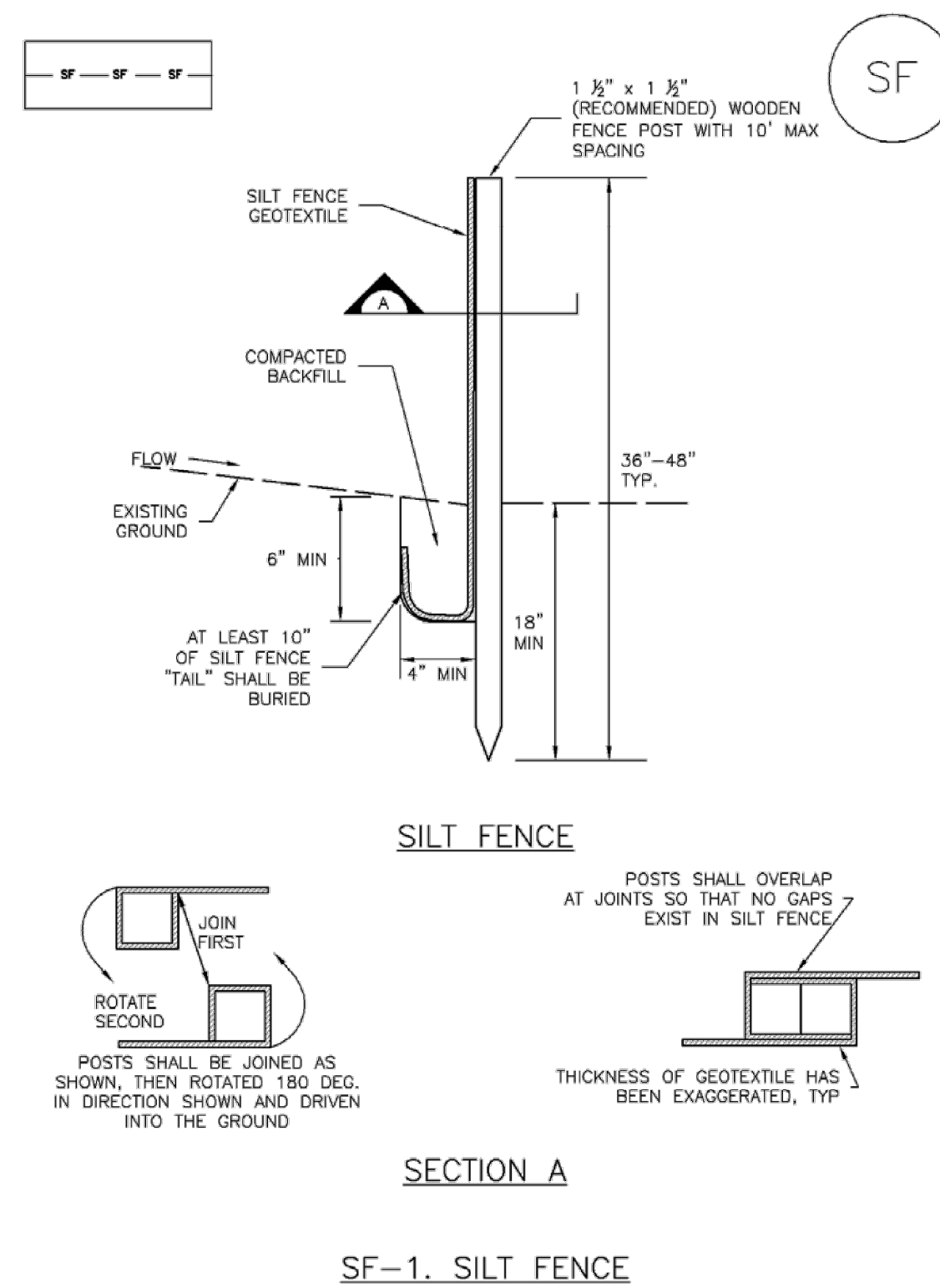
TERRA RIDGE NORTH
15630 FOX CREEK LANE
COLORADO SPRINGS, COLORADO

EL PASO COUNTY PRE-DEVELOPMENT
TERRA RIDGE NORTH
GRADING & EROSION CONTROL
DETAILS

C4
SHEET NO.

Silt Fence (SF)

SC-1

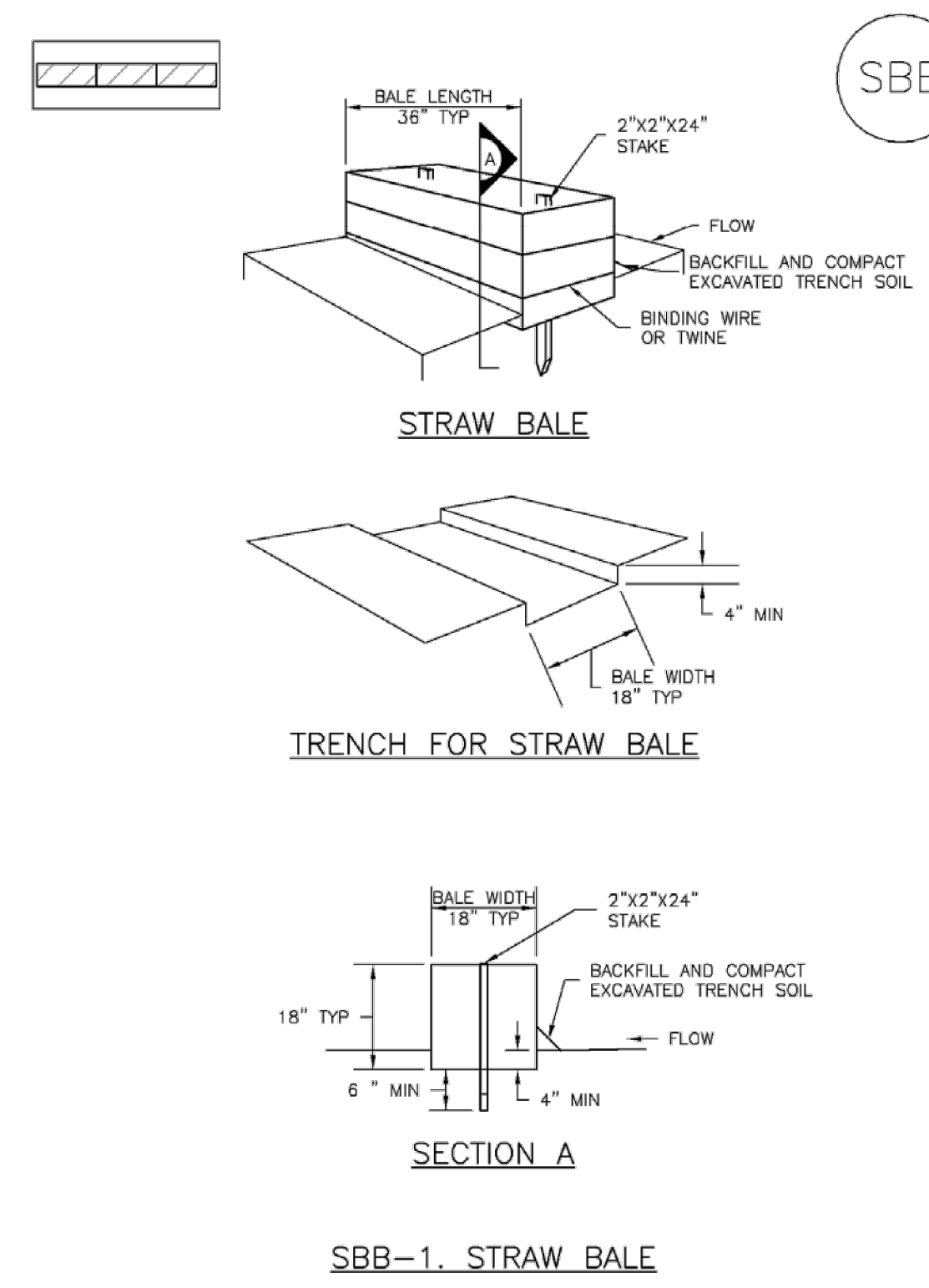


SF-1. SILT FENCE

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

Straw Bale Barrier (SBB)

SC-3

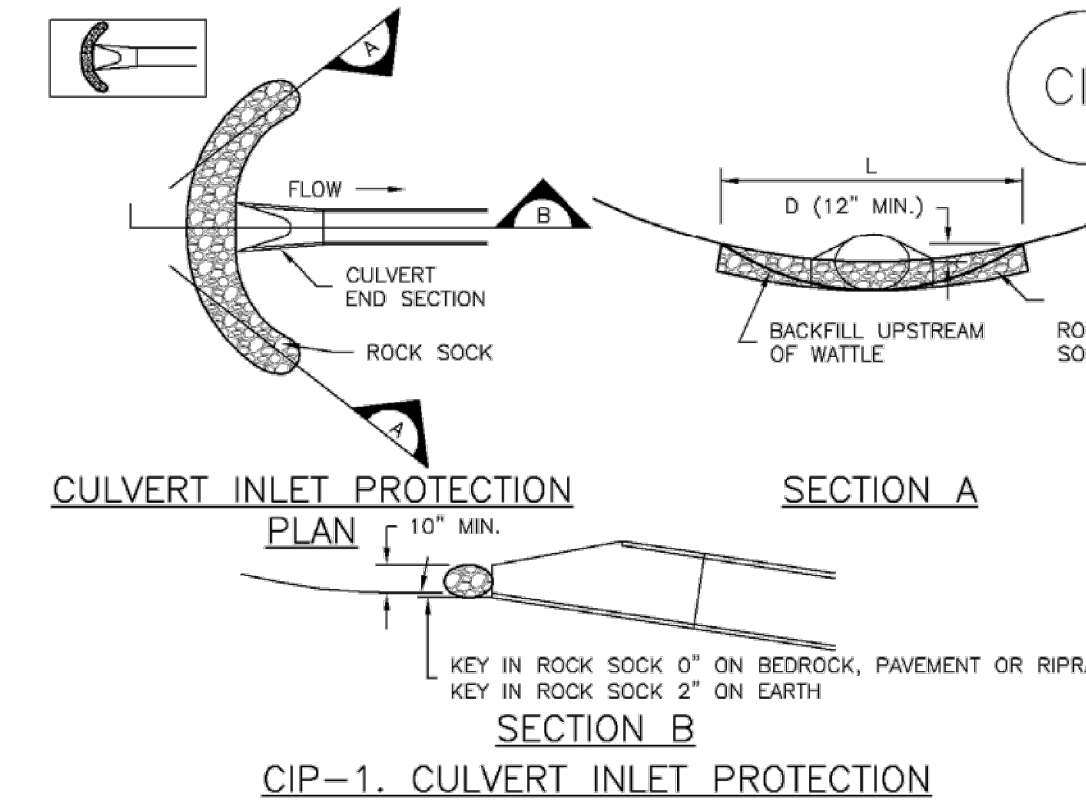


SBB-1. STRAW BALE

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

Inlet Protection (IP)

SC-6



CIP-1. CULVERT INLET PROTECTION

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

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

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

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, 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.

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

SC-3 Straw Bale Barrier (SBB)

STRAW BALE INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -LOCATION(S) OF STRAW BALES.
2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
4. WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.
5. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
6. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.
7. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.

STRAW BALE 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. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.
5. SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/4 OF THE HEIGHT OF THE STRAW BALE BARRIER.
6. STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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SC-6 Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

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

INLET PROTECTION MAINTENANCE NOTES

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

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

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

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

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