Construction Activities Stormwater Management Plan (SWMP)
Grading, Erosion and Stormwater Quality Control Plan
Sand Creek Drainageway
Sterling Ranch Road and Briargate Parkway Bridge Design
Homestead at Sterling Ranch Filing No. 2
Branding Iron at Sterling Ranch Filing No. 2
El Paso County, Colorado
38.959800°N, -104.673787°W

Owner/Developer:
Sterling Ranch Metropolitan District
20 Boulder Crescent, 2nd Floor
Colorado Springs, Colorado 80903
719-471-1742



1604 South 21st Street Colorado Springs, Colorado 80904 (719) 630-7342

Contact: Richard Wray, P.E.

Kiowa Project No. 19032

May 20, 2020

Qualified Stormwater Manager:	
Contractor:	

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STATE STORMWATER DISCHARGE PERMIT REQUIREMENTS

At least ten days prior to the anticipated start of construction activities (i.e. the initial disturbance of soils associated with clearing, grading, excavation activities, installation of structural Best Management Practices, or other activities), for projects that will disturb one (1.0) acre or more, the owner or operator of the construction activity must submit an application as provided by the Colorado Department of Public Health and Environment, Water Quality Control Division (Division). This form may be reproduced and is also available from the Division's web site. Applications received by the Division are processed and a permit certification and other relevant materials will be sent to the attention of the legally responsible person. The application contains certification of completion of a storm water management plan (SWMP). Do <u>not</u> include a copy of the Stormwater Management Plan, unless requested by the Division.

For information or application materials contact:

Colorado Department of Public Health and Environment
Water Quality Control Division
WQCD-P-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530
https://www.colorado.gov/pacific/cdphe/wq-construction-general-permits

Electronic Application - CDPHE website:

https://www.colorado.gov/pacific/cdphe/WQ%20permits%20construction%20electronic%20application

STORMWATER MANAGEMENT PLAN OBJECTIVES

The objective of the Stormwater Management Plan (SWMP) is "to identify possible pollutant sources that may contribute pollutants to stormwater and identify Best Management Practices (BMPs) that, when implemented, will reduce or eliminate any possible water quality impacts. The SWMP must be completed and implemented at the time the project breaks ground and revised as construction proceeds, to accurately reflect the conditions and practices at the site (CDPHE Stormwater Management Plan Preparation Guidance)". A general schedule or phasing of BMPs will be determined by construction schedule and ground disturbances necessitating required erosion control methods/BMPs. The SWMP shall be implemented until expiration or inactivation of permit coverage. Evaluations of and modifications to this plan may be necessary during the length of the construction project until the site is finally stabilized.

SWMP Plan Availability: A copy of the Stormwater Discharge Permit from the State of Colorado, SWMP Report, SWMP Site Map, SWMP Notes and Details; and inspection reports shall be kept on site by the Qualified Stormwater Manager at all times, as to be available for use by the operator/Qualified Stormwater Manager and to be available for inspection by federal, state and local agencies. If an office location is not available at the site, the SWMP must be managed so that it is available at the site when construction activities are occurring (for example: by keeping the SWMP in the superintendent's vehicle). The permittee shall retain copies of the SWMP and all reports required by the Permit and records of all data used to complete the Permit application for three (3) years minimum after expiration or inactivation of permit coverage, unless the community requires a longer period.

This SWMP should 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. The Qualified Stormwater Manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity or when BMPs are no longer necessary and are removed. If the Qualified Stormwater Manager feels that modifications to the BMPs shown on the SWMP are necessary to provide for a more effective plan, the Qualified Stormwater Manager should contact the County Inspector to obtain acceptance of the proposed modifications prior to installing the BMPs. The process will include: 1) Evaluate pollutant sources, 2) Select BMPs, 3) Document BMPs, 4) Implement BMPs. Minor field modifications to the BMPs may be approved by the County inspector. All other requested major modifications shall be in writing and submitted to the County for approval.

SWMP revisions must be made <u>prior to changes in the site conditions</u>, except for "Responsive SWMP Changes" as follows:

- SWMP revision must be made immediately after changes are made in the field to address BMP installation and/or implementation issues; or
- SWMP revisions must be made as soon as practicable, but in no case more than 72 hours, after change(s) in BMP installation and/or implementation occur at the site that require development of materials to modify the SWMP
 - ♦ A notation must be included in the SWMP prior to the site change(s) that includes the time and date of the change(s) in the field, and identification of the BMP(s) removed or added and the location(s) of the BMP(s). Modifications to the SWMP shall be submitted to the County within seven days.

An El Paso County Erosion and Stormwater Quality Control Permit (ESQCP) is required along with a Colorado Discharge Permit System (CDPS), Stormwater Discharge Associated with Construction Activities Permit from the Colorado Department of Public Health and Environment for this project. The general conditions associated with the permits must be followed through the duration of the land disturbing activities at the site. For additional details or more specific information on the CDPS permit, consult the CDPS General Permit No. COR-030000. County ESQCP: Signoff and acceptance of both the Grading Plan and the Erosion Control Plan, or a combined plan, by the County constitute and an ESQCP authorizing the approved land disturbance and implementation of the approved erosion and stormwater quality control measures are required.

A. State Permit Applicant

The State Permit applicant (also referred to as the Permittee) must be a legal entity that meets the definition of the owner and/or operator of the construction site, in order for this application to legally cover the activities occurring at the site. The applicant must have day-to-day supervision and control over activities at the site and implementation of the SWMP. Although it is acceptable for the applicant to meet this requirement through the actions of a contractor, as discussed in the examples below, the applicant remains liable for violations resulting from the actions of their contractor and/or subcontractors. Examples of acceptable applicants include:

<u>Owner or Developer</u> - An owner or developer who is operating as the site manager or otherwise has supervision and control over the site, either directly or through a contract with an entity such as those listed below.

<u>General Contractor or Subcontractor</u> - A contractor with contractual responsibility and operational control (including SWMP implementation) to address the impacts construction activities may have on stormwater quality.

Other Designated Agents/Contractors - Other agents, such as a consultant acting as construction manager under contract with the owner or developer, with contractual responsibility and operational control (including SWMP implementation) to address the impacts construction activities may have on stormwater quality.

Refer to the CDPHE, Stormwater Management Plan Preparation Guidance for additional information.

The Permittee shall be legally responsible for compliance with the State Permit.

B. SWMP Terms

<u>Best Management Practices (BMPs)</u>: BMPs encompass a wide range of erosion and sediment control practices, both structural and non-structural in nature, that are intended to reduce or eliminate any possible water quality impacts from stormwater leaving a construction site. The individual BMPs appropriate for a particular construction site are largely dependent of the types of potential pollutant sources present, the nature of the construction activity, and specific-site conditions.

<u>Nonstructural BMPs</u>, such as preserving natural vegetation, preventive maintenance and spill response procedures, schedules of activities, prohibition of specific practices, education, and other management practices are mainly operational or managerial techniques.

<u>Structural BMPs</u> include treatment processes and practices ranging from diversion structures and silt fences, to retention ponds and inlet protection.

<u>Construction Start Date</u>: This is the day when ground disturbing activities are expected to begin, including grubbing, stockpiling, excavating, demolition, and grading activities.

<u>Disturbance Area Determination</u>: 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.

<u>Final Stabilization Date</u>: 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 (refer to Final Stabilization Section). Permit coverage must be maintained until the site has reached Final Stabilization. Even if only one part of the project is being done, 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).

SWMP Drawings: Also known as the SWMP Site Map.

C. Contractor Required Items

e Contractor shall include and/or provide the following items prior to beginning land turbing activities:
Add the Qualified Stormwater Manager and Alternate with phone numbers to this plan.
Construction Dates – Verify the construction dates indicated in this report. Update as necessary to reflect the planned schedule.
Material Handling and Spill Prevention procedures – See Section IV-4.
Application - Insert Application for CDPS Stormwater Discharge Associated with Construction Activities Permit into Appendix.
Permit - Insert Permit for CDPS Stormwater Discharge Associated with Construction Activities into Appendix.
Location of SWMP and Records: The most current version of the SWMP. Construction activities discharge permit, inspection reports and other related files shall be onsite by the Contractor during the period of construction.
Calculate preconstruction percentage of cover for the existing vegetation and document

II. SITE DESCRIPTION

using photographs.

Nature of the Construction Activity

The proposed activities will include drainageway improvements along the Sand Creek and bridge crossing of Sand Creek at Sterling Ranch Road and at Briargate Parkway. Included in the project is the stabilization of the existing floodplain along Sand Creek. Stabilization measures include spoil riprap low flow channel, soil riprap and grass-lined overbank channel that will range in width from 20 to 50-feet, 19 grouted sloping boulder necessary to achieve stable longitudinal design slopes that range from 0.2 to 0.8 of 0.5 percent and a multi-use

trail. Drainageway and bridge geometry have been designed to be able to convey the 100-year discharge. The bottom width of the low-flow channel will be 25-feet. All soil/riprap will be un-grouted and will be revegetated. Channel stabilization work will be preceded by the installation of initial construction stormwater BMPs, clear and grubbing, topsoil, temporary and permanent seeding and temporary and permanent mulching.

i. Site Location

The site is located within the Sterling Ranch development. Drainageway improvements will begin at the south property line of Sterling Ranch and extend north to the north property line covering approximately 8,800 lineal feet. The site is located within the portions of Sections 27 and 33 Township 12 South, Range 65 West of the 6th Principal Meridian, in El Paso County, Colorado. The location of the site is shown on the Vicinity Map (Figure 1).

ii. Adjacent Areas

The site is bounded to the west by the Branding Iron at Sterling Ranch Filing 2 and Homestead at Sterling Ranch Filing 2, on the south by the Rancheros Filing No, 1 subdivision, and on the east and north by undeveloped land owned by the developer(s) of Sterling Ranch.

B. Sequence of Major Activities

The major construction activities associated with this project are shown in the table below along with an approximate timing of the sequence. In general, the Qualified Stormwater Manager and the Contractor will identify the precise schedule to be used during the term of this project and modify this schedule as needed. Minimal clearing and grubbing may be necessary to install the initial erosion control features. Access to the construction site will be accomplished via the rough graded road section for Sterling Ranch Road and Briargate Boulevard. Accordingly, vehicle tracking will be established at any paved roadway where construction traffic could be anticipated.

Approximate Sequence of Major Construction Activities:

Mobilization and installation of initial BMPs	January 2021
Clearing and grubbing, channel earthwork	January-February 2021
Grading	February -April 2021
Drainageway Construction; bank linings and drop structures	April- July 2021
Bridge construction	June-September 2021
Maintenance trail and fine grading	September-October 2021
Site Revegetation	October 2021
End Construction (refer to Final Stabilization section)	March 2022

The temporary erosion control measures can be removed when Final Stabilization has occurred. Refer to the Final Stabilization section for a description of the requirements.

C. Estimate of Area and Volume Disturbed

The total site area associated with the channel construction is 47.3 acres of which approximately 22.1 acres will be subject to disturbance. The estimated area of disturbance corresponds to that necessary to perform grading and proposed improvements for Sand Creek. Locations of disturbed areas are as shown on the SWMP Site Maps included in Appendix D. All other areas are planned to remain undisturbed.

Earthwork operations will involve be roughly 25,000 cubic yards of Cut-to-Fill. Fill will be placed within the limits of construction. The earthwork quantity is approximate.

D. Soil Data

Soils within the area of disturbance are classified to be within Hydrologic Soils Group B as shown in the El Paso County Soils Survey. Specifically, the site includes Pring sandy loam. These consist mainly of deep well drained soil clay loams with a moderate to high hazard of erosion. Hydrologic Soil Group B soils have a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission and a moderate erosion hazard. Discharges of these soils into the receiving waterways could cause localized areas of sediment deposition. Deposition of excessive amounts of sediment could in turn cause a decrease in the hydraulic capacity of the drainageway.

Pre-construction 100-year runoff coefficient for the site is 0.25 and the post-construction runoff coefficient will be roughly 0.25.

E. Existing Vegetation and Ground Cover

The existing site is undeveloped, and the vegetative cover is in fair condition with non-native and native grasses and herb. The channel banks are lined with trees, most notably Russian olive and Siberian elms. The existing ground slopes on the overbanks are moderate and range from 1 to 6 percent. Slopes along the channel are moderate to extreme, nearly vertical at some locations.

During the design phase an estimate of 65 percent ground cover was made using aerial photographs for the segment of Sand Creek subject to the construction. The low percent cover results from the sand bed channel of the drainageway. It is recommended that the contractor take pictures of the existing vegetation cover at various locations within the area proposed for disturbance prior to construction to document the preconstruction vegetative cover percentage. Contractor shall provide calculations of vegetative cover that they feel will be necessary to make the Final Stabilization comparison (refer to Final Stabilization section for additional information). The contractor will be responsible for providing the documentation to make this comparison to the County and the State of Colorado, Water Quality Control Division.

F. Potential Pollution Sources

The potential pollution sources for the site that may have an impact to stormwater include the following items. During the initial phase of the work, the Qualified Stormwater Manager should identify the locations of the potential pollutant sources on the SWMP site map and routinely update them as the work progresses.

- 1. Ground disturbing activities and grading Sediment
- 2. Off-site vehicle tracking Sediment
- 3. Vehicle maintenance or fueling Fuel, oil, chemicals
- 4. Storage of demolition and disposal items Sediment, asphalt, concrete
- 5. Soil, aggregate and sand stockpiling Sediment
- 6. Storage of fertilizers, materials or chemicals Chemicals
- 7. Haul routes Sediment, fuel, oil
- 8. Landscaping Fertilizers, sediment, over-watering, pesticides
- 9. Portolet Chemicals, human waste

G. Non-stormwater Discharges

In the existing condition there are no known non-stormwater discharges from the project site, such as springs and landscape irrigation return flows. During construction, the following non-stormwater discharges from the project site could occur.

- 1. Construction dewatering is not anticipated, but in the case groundwater is encountered, a CDPHE construction dewatering permit will be required prior to performing the dewatering activities. A dewatering bag or other approved BMP shall be used during dewatering.
- 2. Release of concrete washout water Not anticipated.
- 3. Runoff from water used for dust control Not anticipated. The contractor should limit the amount of water used for dust control to an amount less than would result in runoff. Perimeter control BMPs are planned to filter water that may cause runoff.

If any other non-stormwater discharges from the site become apparent during the term of construction, the occurrence and mitigation shall be addressed by the Qualified Stormwater Manager.

H. Receiving Waters

In the existing condition, the site drains by the East Fork Jimmy Camp Creek flowing from the northeast in a southeasterly manner to join the mainstem of Jimmy Camp Creek a short distance downstream.

Immediate Receiving water(s):	Sand Creek	
Ultimate Receiving Water(s):	Fountain Creek	

Sand Creek is a major drainageway that crosses through the northwest portion of the site from north to south. The subject property is located within a Zone AE FEMA regulated floodplain based on Flood Insurance Rate Map 08041C0957G, dated December 7, 2018. The planned improvements to Sand Creek will modify the existing floodplain. A Conditional Letter of Map Revision (CLOMR) has been submitted to FEMA for the major drainageway and bridge construction. The FIRM panel for the project area is contained in the Appendix. The 100-year floodplain will be contained within the proposed channel section and will not extend into the proposed lots.

III. SWMP SITE MAP CONTENTS

The SWMP Site Map and SWMP Drawings are considered a part of this plan. It identifies the following:

- 1. Construction site boundaries:
- 2. All areas of ground disturbance;
- 3. Areas of cut and fill:
- 4. Areas used for storage of building materials, equipment, soil, or waste;
- 5. Locations of all structural BMPs;
- 6. Locations of non-structural BMPs where applicable:
- 7. Locations of springs, streams, wetlands, detention basins, irrigation canals, roadside ditches and other surface waters.

The Qualified Stormwater Manager will be required to regularly update SWMP Site Maps contained in Appendix D so that current conditions at the site can be reflected at all times.

IV. STORMWATER MANAGEMENT CONTROLS

A. Qualified Stormwater Manager

The Permittee shall designate the Qualified Stormwater Manager. The Qualified Stormwater Manager is typically the Contractor or his/her designated representative and is responsible for developing, implementing, maintaining and revising the SWMP. The Qualified Stormwater Manager is the contact person with the County and State for all matters pertaining to the SWMP. The Qualified Stormwater Manager is the person responsible for the SWMP accuracy, completeness and implementation. Therefore the Qualified Stormwater Manager should be a person with authority to adequately manage and direct day to day stormwater quality management activities at the site. The Qualified Stormwater Manager shall have the authority to act on behalf of the Permittee(s) to ensure the site remains in compliance with the CDPS Stormwater Discharge Associated with Construction Activities Permit and the County's ESQCP. An Alternate Qualified Stormwater Manager who is able to serve in the same capacity as the Qualified Stormwater Manager shall also be selected.

The Qualified Stormwater Manager shall be present at the project site a majority of the time and (along with the Alternate Qualified Stormwater Manager) shall provide the County with a 24-hour emergency contact number.

If the Qualified Stormwater Manager or Alternate changes for any reason, it shall be noted/redlined on this Plan. The County shall be notified in writing of any change.

Qualified Stormwater Manager:
hone:
alternate Qualified Stormwater Manager:
hone:

B. Identification of Potential Pollutant Sources:

At a minimum, the following sources and activities shall be evaluated for the potential to contribute pollutants to stormwater discharges and identified in the SWMP if found to have such potential. The sources of any potential pollutants must be controlled through BMP selection and implementation. Each pollutant source recognized through this process as having the potential to contribute pollutants to stormwater, must be identified in the SWMP along with the specific stormwater management control (BMPs) that will be implemented to adequately control the source. (Note: the actual evaluation of the potential pollutant sources does NOT need to be included in the SWMP – just the resultant pollutant sources and their associated BMPs.). The Qualified Stormwater Manager shall determine the need for and locations of each of the following potential pollutant sources during the course of the construction project.

Could it Contribute?	Potential Pollutant Source	BMP Implemented to Control Source
Yes	All disturbed and stored soils	Sediment control logs, inlet protection, seed and mulch
Yes	Vehicle tracking of sediments	VTC is offsite from construction limits
No	Management of contaminated soils	
Yes	Loading and unloading operations	Stabilized staging area, materials storage area, vehicle tracking control, silt fence
Yes	Outdoor storage activities (building materials, fertilizers, chemicals, etc.)	Stabilized staging area, materials storage area, perimeter silt fence
Yes	Vehicle and equipment maintenance and fueling	Stabilized staging area, materials storage area, perimeter silt fence
Not expected	Significant dust or particulate generating processes	Control by sprinkling with water and other appropriate means.
Yes	Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc	Use as recommended by manufacturer and in areas specified, inlet protection
Yes	On-site waste management practices (waste piles, liquid wastes, dumpsters, etc)	Stabilized staging area, silt fence, inlet protection, sediment basin, non-structural BMPs. Daily cleanup of staging and stockpile area to be conducted.
No	Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment	Cast-in-place concrete is not anticipated to complete the part of the work
No	Dedicated asphalt and concrete batch plants	There are no concrete or asphalt batch plant required for this project
Yes	Non-industrial waste sources such as worker trash and portable toilets	Stabilized staging area, construction fence, non-structural BMPs. Daily cleanup of staging and stockpile area to be conducted
Yes	Other areas or procedures where potential spills can occur	Construction fence Two concrete washou stations are proposed

stations are proposed on GEC Plans & FAE. Update text

The Air Pollution Control Division of the Colorado Department of Public Health and Environment (CDPHE) has passed air quality regulations consistent with Federal legislation. Regulation No. 3 requires submittal of an Air Pollutant Emission Notice (APEN) for sources of fugitive dust from construction sites, as well as other sources. Regulation No. 1 defines particulate emission control regulations for haul roads and roadways. Additional controls, such as road watering, may be necessary to fully comply with these regulations at a construction site. The Contractor should contact CDPHE about APENs and other air quality requirements.

C. Best Management Practices (BMPs) for Pollution Prevention

- A list of the Structural BMPs for erosion and sediment control implemented on the site to minimize erosion and sediment are as follows. Refer to the SWMP Drawings for Installation and Maintenance requirements for each structural BMP and refer to the SWMP drawings for the location of the BMPs.
 - Sediment control logs (SCL): A temporary sediment barrier constructed of straw waddles placed continuously behind the back of the boulder low flow linings.
 - b) Stabilized Staging Area (SSA): Consists of stripping topsoil and spreading a layer of granular material in the area to be used for a trailer, parking, storage, unloading and loading. Silt fence will be installed as a perimeter control around stored construction materials (riprap), topsoil, and temporary soil stockpiles.
 - c) Concrete Washout Area (CWA): An approved portable concrete washout system, or a shallow excavation with a small perimeter berm to isolate concrete truck washout operations.
 - d) Erosion Control Blanket (ECB): Slopes equal to greater than the steepness indicated on the plans shall be protected with an erosion control blanket.
 - e) Vehicle Tracking Control (VTC): Consists of a rock pad that is intended to help strip mud from tires prior to vehicles leaving the construction site. Installed at all entrance/exit points to the site. The number of access points shall be minimized.
 - f) Inlet protection (IP): Installed at appropriate inlets
 - g) Construction fencing: This will consist of plastic construction fencing at the limits of disturbance.

Minimal clearing and grubbing may be necessary prior to installing the initial erosion control features.

No clearing, grading, excavation, filling or other land disturbing activities shall be permitted until signoff and acceptance of the Grading Plan and Erosion Control Plan (or the combined plan) is received from the County.

Once signoff and acceptance is received, the approved erosion and sediment control measures must be installed before land-disturbing activities are initiated so that no adverse effect of site alteration will impact surrounding property.

- 2. Non-structural practices for erosion and sediment control to be used to minimize erosion and sediment transport are:
 - a) Seeding and Mulching (SM): Temporary seeding and mulching will be used to stabilize disturbed areas that will be inactive for an extended time. Permanent seeding should be used to stabilize areas at final grade that will not otherwise be stabilized.
 - b) Hydro-mulching (MU): Temporary hydro-mulching will be used to stabilize disturbed areas that will be inactive for an extended time. Permanent seeding should be used to stabilize areas at final grade that will not otherwise be stabilized.

3. Phased BMP Implementation:

The Qualified Stormwater Manager shall update the BMP Implementation if necessary to meet and/or address the Contractor's schedule. The SWMP shall be updated as necessary to reflect the BMPs installed.

a) Installation of Initial BMPs

Prior to any construction activities, erosion control facilities shall be installed. Minimal demolition, clearing and grubbing may be necessary prior to installing the initial erosion control features. Stabilization of demolished asphalt and cleared or grubbed areas to be completed the same day if possible. The "initial" BMPs include, but may not be limited to, construction fencing, silt fence (perimeter control at stockpile area(s), stabilized staging area, and material storage area. Designated areas for construction trailer (if used), trash container, portolets, vehicle and equipment parking and material storage. If these areas are not indicated on the plan, the contractor must "red line" the plan with the locations. Provide a confined area for maintenance and fueling of equipment from which runoff will be contained and filtered. BMP / Erosion Control facility waste shall be disposed of properly.

b) Clearing, grubbing and site clearing

The measures included in the previous sequence shall be maintained and continue. The removal debris and dead vegetation shall be disposed of properly. If a soil stockpile area is needed, the area shall be protected in accordance with the DCM and the stockpile area shall be redlined onto the plan. Existing vegetation to remain shall be protected. Wind erosion shall be controlled on the site by sprinkling and other appropriate means.

c) Site Grading and Drainageway Construction

The measures included in the previous sequence shall be maintained and continue. The earthwork will occur within the 100-year floodplain of the drainageway when the stabilization measures are installed. It is the intent to minimize the disturbance of the native vegetation by limiting access points and haul roads within the drainageway. The contractor shall not leave any equipment in the bottom of the creek in times when precipitation is expected or when the contractor is not on site. Sediment control logs shall be placed along the low flow channel that forms the low flow channel. Dewatering is not anticipated for the work within and adjacent to the drainageway. Construction details related to dewatering should be prepared and included with a CDPHE construction dewatering permit application. A CDPHE construction dewatering permit is required prior to performing the dewatering activities. Excess and removed asphalt and concrete shall be disposed of properly. Materials associated with drainageway construction shall be stored in the areas delineated on the SWMP site plan. If an area is not delineated on the plan, the contractor shall "red line" the plan to show the location. Material waste from drainageway construction shall be disposed of properly. Solvents, paints and chemicals shall be stored and disposed properly.

d) Landscaping

The measures included in the previous sequence shall be maintained and continue, unless the work requiring the measure is completed. Seeding and mulching shall be installed. Avoid excess watering and placing of fertilizers and chemicals.

e) Final Stabilization

The necessary erosion control measures included in the previous sequence shall continue until Final Stabilization is reached. Refer to Final Stabilization section for requirements.

The Qualified Stormwater Manager shall amend the SWMP if necessary and as required, refer to Section I.

4. Materials handling and spill prevention:

The Qualified Stormwater Manager will inspect daily to ensure proper use and disposal of materials on-site including building materials, paints, solvents, fertilizers, chemicals, waste materials and equipment maintenance or fueling procedures. All materials stored on-site will be stored in a neat and orderly manner in the original containers with the original manufacturer's label and where possible under a roof or other enclosure to prevent contact with stormwater. Chemicals should be stored within berms or other secondary containment devices to prevent leaks and spills from contacting stormwater runoff. Before disposing of the container all of a product will be used up whenever possible and manufacturer's recommendations for proper disposal will be followed according to state and local regulations.

Material and equipment necessary for spill cleanup will be kept in the material storage area on-site. Manufacturer's recommendations for spill cleanup will be posted and site personnel will be made aware of the procedures along with the location of the information and cleanup supplies.

The contractor shall have spill prevention and response procedures that include the following:

- a) Notification procedures to be used in the event of an accident. At the very least, the Qualified Stormwater Manager should be notified. Depending on the nature of the spill and the material involved, the Colorado Department of Public Health and Environment (24-hour spill reporting line 877-518-5608), downstream water users or other agencies may also need to be notified.
- b) Instructions for clean-up procedures and identification of spill kit location(s).
- c) Provisions for absorbents to be made available for use in fuel areas and for containers to be available for used absorbents.
- d) Procedures for properly washing out concrete truck chutes and other equipment in a manner and location so that the materials and wash water cannot discharge from the site and never into a storm drain system or stream.
- 5. Dedicated concrete or asphalt batch plants:

No dedicated concrete or asphalt batch plants will be used.

6. Waste management and disposal:

All construction site waste both liquid and solid must be contained in approved waste containers and disposed of off-site according to state and local regulations. Portable sanitary facilities shall be provided at the site throughout the construction phase and must comply with state and local sanitary or septic system.

7. Groundwater and stormwater dewatering:

Groundwater dewatering is not anticipated for the work within channel. During groundwater or stormwater dewatering, locations and practices to be implemented to control stormwater pollution from excavations, etc. must be noted on the SWMP. A separate CDPHE construction discharge (dewatering) permit will be required for groundwater dewatering and shall be obtained by the Qualified Stormwater Manager. Construction dewatering water cannot be discharged to surface water or to storm sewer systems without separate permit coverage. The discharge of Construction Dewatering water to the ground, under specific conditions, may be allowed by the Stormwater Construction Permit when appropriate BMPs are implemented. Refer to USDCM Volume III (UDFCD) for County acceptable means of dewatering.

V. FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

"Final stabilization is reached when all ground surface disturbing activities at the site have been completed and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed." When vegetation is used to achieve final stabilization, the 70% vegetation requirement applies to a uniform plant density, which means that all areas of the site that rely on a vegetative cover to achieve stabilization must be uniformly vegetated. The contractor will be responsible for providing the documentation to make this comparison to the County and the State of Colorado, Water Quality Control Division. The stormwater permit allows the permittee to use alternatives to vegetation to achieve final stabilization. All alternatives to vegetation must meet specific criteria to be considered equivalent to vegetation, specifically: Stabilization must be permanent, all disturbed areas must be stabilized, and alternatives must follow good practices, refer to CDPHE Memo, dated March 5, 2013 (see References).

Temporary seeding for the project site shall include drilled seeding and mulching and hydromulching. For the application methods, soil preparation and seeding and mulching and hydromulching requirements, refer to SWMP Drawings. All slopes steeper than four-to-one (4:1) must be covered with an erosion control blanket meeting the County requirements.

Management of storm water after completion of construction will be accomplished by utilizing the practices listed below.

- Upon completion of construction, the site shall be inspected to ensure that all equipment, waste materials and debris have been removed.
- The site will be inspected to make certain that all graded surfaces have been paved, landscaped or seeded with an appropriate ground cover.
- All silt fence, inlet protection, sediment logs, rock socks, etc. and all other control practices and measures that are to remain after completion of construction will be inspected to ensure their proper functioning.
- The contractor shall remove erosion control measures that are not required to remain.

After all construction activities are completed on the site, but final stabilization has not been achieved, the contractor shall make a thorough inspection of the stormwater management system at least once every month.

The contractor shall be responsible for maintaining the BMPs and stormwater controls in good working order and shall also be responsible for the costs incurred until such time as final stabilization is reached. Once final stabilization has been achieved the contractor shall be responsible for removal of the erosion control measures.

Should any of the erosion control facilities (BMPs) become in disrepair prior to the establishment of the native or natural erosion control measures, the Contractor is responsible for the cost of such maintenance. The Contractor is also responsible for the clean-up of offsite areas affected by any sediment that may leave the site. Control of erosion from areas disturbed by drainageway, utility or building construction will be the responsibility of the respective contractor. All erosion control measures shown on the plan shall be installed and maintained in accordance with Best Management Practices.

Inactivation of permit coverage: Coverage under the Stormwater Construction Permit may be inactivated by the permittee when the site has attained final stabilization, <u>all temporary erosion and sediment control measures have been removed</u>, and all components of the SWMP are complete.

VI. RECOMMENDED INSPECTION AND MAINTENANCE PROCEDURES

A. Minimum Inspection Schedule

- 1. <u>Frequency.</u> Contractor should inspect and document Construction BMP's at the following times and intervals.
 - a) After installation of any Construction BMP;
 - b) At least once every 14 days, but a more frequent inspection schedule may be necessary to ensure that BMPs continue to operate as needed to comply with the permit.
 - c) Within 24 hours after a precipitation or snowmelt event that produces runoff or causes surface erosion.
- 2. Consult State Permit No. COR-030000 for alternate inspection requirements at temporarily idle sites, at completed sites, or for winter conditions.
- 3. Refer to the Standard Details for the maintenance procedures associated with each BMP.
- 4. <u>Inspection Procedures</u>. The inspection much include observation of:
 - a) The construction site perimeter and discharge points (including discharges into a storm sewer system);
 - b) All disturbed areas:
 - c) Areas used for material/waste storage that are exposed to precipitation
 - d) Other areas determined to have a significant potential for stormwater pollution, such as demolition areas or concrete washout locations, or locations where vehicles enter or leave the site:
 - e) Erosion and sediment control measures identified in the SWMP; and any other structural BMPs that may require maintenance, such as secondary containment around fuel tanks, or the condition of spill response kits.

The inspection must determine if there is evidence of, or the potential for, pollutants entering the drainage system. BMPs should be reviewed to determine if they still meet the design and operational criteria in the SWMP, and if they continue to adequately control pollutants at the site. Any BMPs not operating in accordance with the SWMP must be addressed as soon as possible, immediately in most cases, to minimize the discharge of pollutants, and the SWMP must be updated as described.

- 5. Record Keeping and Documenting Inspections: Keeping accurate and complete records serves several functions. First, keeping records of spills, leaks, inspections, etc. is a requirement of the State Stormwater Construction Permit; therefore, enforcement action, including fines, could result if records are not adequate. Second, by keeping accurate and detailed records, you will have documentation of events which could prove invaluable should complications arise concerning the permit, lawsuits, etc.
- 6. <u>Inspection Checklist/Report</u>. The Permittee must document inspection results and maintain a record of the results for a period of 3 years following expiration or inactivation of permit coverage. These records must be made available to CDPHE, the County or EPA upon request. The Qualified Stormwater Manager should record the inspection results on a site-specific standardized inspection report or County Inspection Checklist to be maintained and kept on the construction site. An example template for the inspection report format is included in the Appendix. The Qualified Stormwater Manager should develop a site-specific inspection report that itemizes the selected Construction BMP's for their site. At a minimum the following information from each inspection should be recorded on the site-specific report:
 - a) Date of inspection;
 - b) Name and title of inspector;
 - Location(s) of discharges of sediment or other pollutants from the site;
 - d) Location(s) of BMPs that need to be maintained;
 - e) Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
 - f) Location(s) where additional BMPs are needed that were not in place at the time of inspection;
 - g) Deviations from the minimum inspection schedule as provided in the permit;
 - h) Descriptions of corrective actions for any item above, date(s) of corrective actions taken, and measures taken to prevent future violations, including requisite changes to the SWMP, as necessary and
 - i) After adequate corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective actions, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.
- 7. <u>Inspection Checklists/Reports to County: Inspection Checklists/Reports to County:</u> Completed Inspection Checklists will be submitted electronically to the assigned County Engineering inspector within 5 business days of the inspection. The inspections checklists must also be kept on-site. In the location designated. The Qualified Stormwater Manager will be responsible for signing the inspection forms.

B. BMP Operation and Maintenance.

The Qualified Stormwater Manager is responsible for operation and maintenance of construction BMPs. The Qualified Stormwater Manager will inspect the site per inspection and monitoring protocol outlined above and will make any necessary repairs to construction BMPs immediately after a defect or other need for repair is discovered. The project site and

the adjacent streets impacted by the construction shall be kept neat, clean and free of debris. The erosion control measures and facilities will be maintained in good working order until final stabilization. Any items that are not functioning properly or are inadequate will be promptly repaired or upgraded. Records of inspections must be kept and be available for review by the State of Colorado Water Quality Control Division or the County.

VII. REFERENCES

- 1) <u>CDPS General Permit: Stormwater Discharges Associated with Construction Activity Permit No. COR-030000</u>. Colorado Department of Public Health and Environment, dated July 1, 2007. Administratively continued effective July 1, 2012.
- 2) <u>CDPHE, Stormwater Discharges Associated with Construction Activity, Stormwater Management Plan Preparation Guidance</u>, prepared by CDPHE, dated April 2011.
- 3) <u>CDPHE Memorandum, Final Stabilization requirements for stormwater construction permit termination, Alternatives to the 70% plant density re-vegetation requirement, prepared by CDPHE, dated March 5, 2013.</u>
- 4) <u>El Paso County Drainage Criteria Manual (Volumes 1 and 2) and Engineering Criteria Manual, current editions.</u>
- 5) <u>Volume 3, Urban Storm Drainage Criteria Manual</u>, by Urban Drainage and Flood Control District, current edition.
- 6) <u>Soil Survey of El Paso County Area, Colorado</u>, prepared by United States Department of Agriculture Soil Conservation Service.
- (7) <u>Flood Insurance Rate Map</u>, Map Number 08041C0757G, by Federal Emergency Management Administration, dated December 7, 2018.

APPENDIX TABLE OF CONTENTS

APPENDIX

Figure 1 - Vicinity Map

Figure 2 - FIRM Panels 533G and 535G

APPENDIX A

**Permittee Provided: Application for CDPS Stormwater Discharge Associated with Construction Activities Permit

APPENDIX B

**Permittee Provided: CDPS Stormwater Discharge Associated with Construction Activities Permit

APPENDIX C

Example - Exhibit A: Erosion and Sediment Control Field Inspection Report

Example - Exhibit B: Corrective Action Report

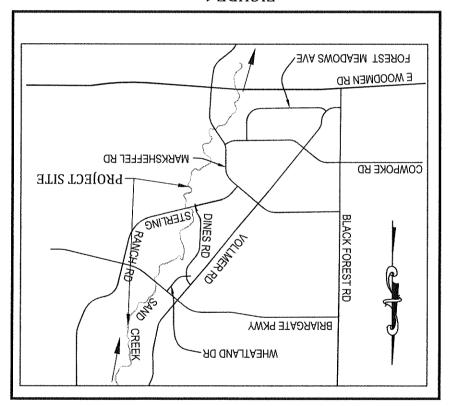
APPENDIX D

SWMP Plans

APPENDIX

Figure 1 - Vicinity Map Figure 2 – FIRM Panels 533G and 535G

FIGURE 1 SCALE: N.T.S.







AREA OF MINIMAL FLOOD HAZARD CX-7017/5 FEE PASO T128 R65 OTHER AREAS OF FLOOD HAZARD SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT HAZARD AREAS SPECIAL FLOOD OTHER AREAS STRUCTURES | 1111111 Levee, Dike, or Floodwall GENERAL

989'7'EEE Feet 1:6,000 ational Map: Orthoimagery. Data refreshed April, 2019. 38°57'4.22"N W"66,7'04°401

Regulatory Floodway With BFE or Depth 2one AE, AO, AH, VE, AR Without Base Flood Elevation (BFE) Zone A, V, A99

0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainag. areas of less than one square mile

Chance Flood Hazard Zon Future Conditions 1% Annual Levee. See Notes. Area with Reduced Flood Risk due to

Area with Flood Risk due to Levee 2000

NO SCREEN Area of Minimal Flood Hazard Effective LOMRs

Area of Undetermined Flood Hazard

Channel, Culvert, or Storm Sewer

Cross Sections with 1% Annual Chance Base Flood Elevation Line (BFE) Limit of Study Coastal Transect Water Surface Elevation

Digital Data Available Profile Baseline No Digital Data Available Hydrographic Feature Coastal Transect Baseline Jurisdiction Boundary

FEATURES

OTHER



Unmapped

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

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

was exported on 5/5/2020 at 1:41:59 PM and does not The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map become superseded by new data over time. time. The NFHL and effective information may change or reflect changes or amendments subsequent to this date and

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

250

500

1,000

1,500

2,000



Legend

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



OTHER AREAS OF areas of less than one square mile 2011 Levee. See Notes. Zo Area with Reduced Flood Risk due to Chance Flood Hazard Future Conditions 1% Annual depth less than one foot or with drainage 0.2% Annual Chance Flood Hazard, Area

NO SCREEN Area of Minimal Flood Hazard Effective LOMRs

Area with Flood Risk due to Levee

OTHER AREAS GENERAL Channel, Culvert, or Storm Sewer Area of Undetermined Flood Hazard

STRUCTURES | 1111111 Levee, Dike, or Floodwall

FEATURES OTHER Limit of Study Profile Baseline Coastal Transect Baseline Water Surface Elevation Cross Sections with 1% Annual Chance No Digital Data Available Digital Data Available Hydrographic Feature Jurisdiction Boundary Base Flood Elevation Line (BFE) Coastal Transect

Unmapped

MAP PANELS

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/5/2020 at 1:40:17 PM and does not time. The NFHL and effective information may change or become superseded by new data over time reflect changes or amendments subsequent to this date and

regulatory purposes. unmapped and unmodernized areas cannot be used for FIRM panel number, and FIRM effective date. Map images for legend, scale bar, map creation date, community identifiers, This map image is void if the one or more of the following map

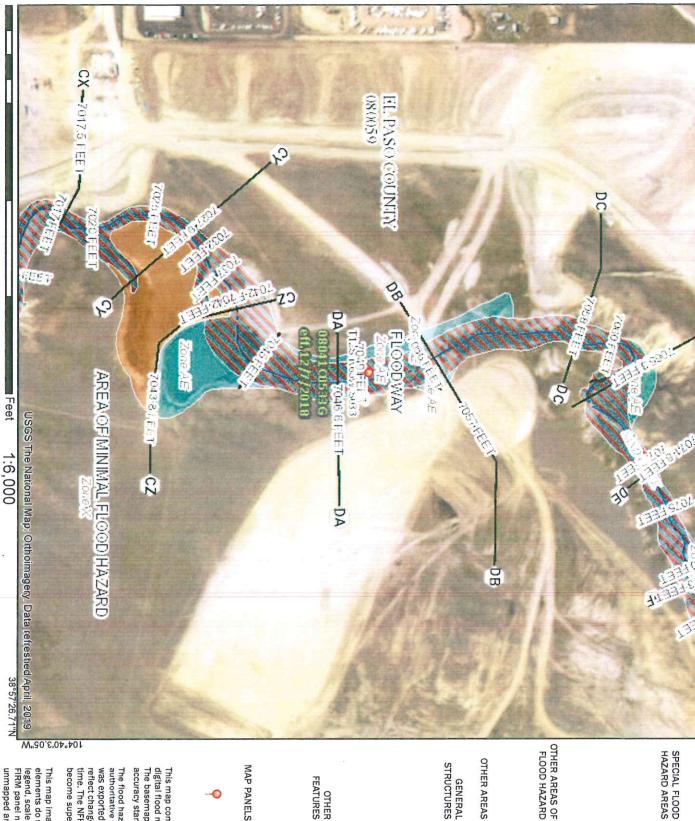
250

500

1,000

1,500

2,000





accuracy standards GENERAL STRUCTURES OTHER FEATURES MAP PANELS SPECIAL FLOOD HAZARD AREAS OTHER AREAS OF FLOOD HAZARD OTHER AREAS 104°39'46.83"W USGS The National Map: Orthoimagery, Data refreshed April, 20:19. OK H WINDO. Feet ODDIE STREET, STREET 08007103 EL PA AREA @FIMINIMALTIZS R60W S028JARD Z006X 1,500 ā 1,000 500 250 DE

Legend

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

Without Base Flood Elevation (BFE)

With BFE or Depth Zone AE, AO, AH, VE, AR Regulatory Floodway of 1% annual chance flood with average depth less than one foot or with drainag Area with Reduced Flood Risk due to areas of less than one square mile Future Conditions 1% Annual Chance Flood Hazard

0.2% Annual Chance Flood Hazard, Area

Area with Flood Risk due to Levee Zune Levee. See Notes.

NO SCREEN Area of Minimal Flood Hazard

Area of Undetermined Flood Hazard Effective LOMRs

Channel, Culvert, or Storm Sewer 111111 Levee, Dike, or Floodwall Cross Sections with 1% Annual Chance

Base Flood Elevation Line (BFE) Water Surface Elevation Coastal Transect me 513 mm

Jurisdiction Boundary Limit of Study

Coastal Transect Baseline Profile Baseline

Hydrographic Feature

Digital Data Available

No Digital Data Available

Unmapped

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

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

authoritative NFHL web services provided by FEMA. This map was exported on 5/5/2020 at 1:34:46 PM and does not reflect changes or amendments subsequent to this date and ime. The NFHL and effective information may change or The flood hazard information is derived directly from the become superseded by new data over time. This map image is void if the one or more of the following map legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for elements do not appear: basemap imagery, flood zone labels,



SPECIAL FLOOD HAZARD AREAS OTHER AREAS OF FLOOD HAZARD OTHER AREAS OTHER **FEATURES** MAP PANELS 104°39'20.96"W USGS The National Map: Orthoimagery. Data refreshed April, 2019. AREA OF MINIMAL FLOOD HAZARD 16241FEET-08041 C0535 G eff.12/7/2018 158.8 FEET-DO MIXWAFEET-OP T1 2S, R65W, S027 EL PASO COUNTY

Legend

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

Without Base Flood Elevation (BFE)

Regulatory Floodway

areas of less than one square mile zone Future Conditions 1% Annual Chance Flood Hazard

0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainag.

Area with Reduced Flood Risk due to Levee. See Notes. 2

Area with Flood Risk due to Levee 2

No screen Area of Minimal Flood Hazard Zone Effective LOMRs

Area of Undetermined Flood Hazard

Channel, Culvert, or Storm Sewer GENERAL ---- Channel, Culvert, or Storn STRUCTURES | 1111111 Levee, Dike, or Floodwall Cross Sections with 1% Annual Chance

Water Surface Elevation Coastal Transect

Base Flood Elevation Line (BFE)

Jurisdiction Boundary Limit of Study

Coastal Transect Baseline

Hydrographic Feature Profile Baseline

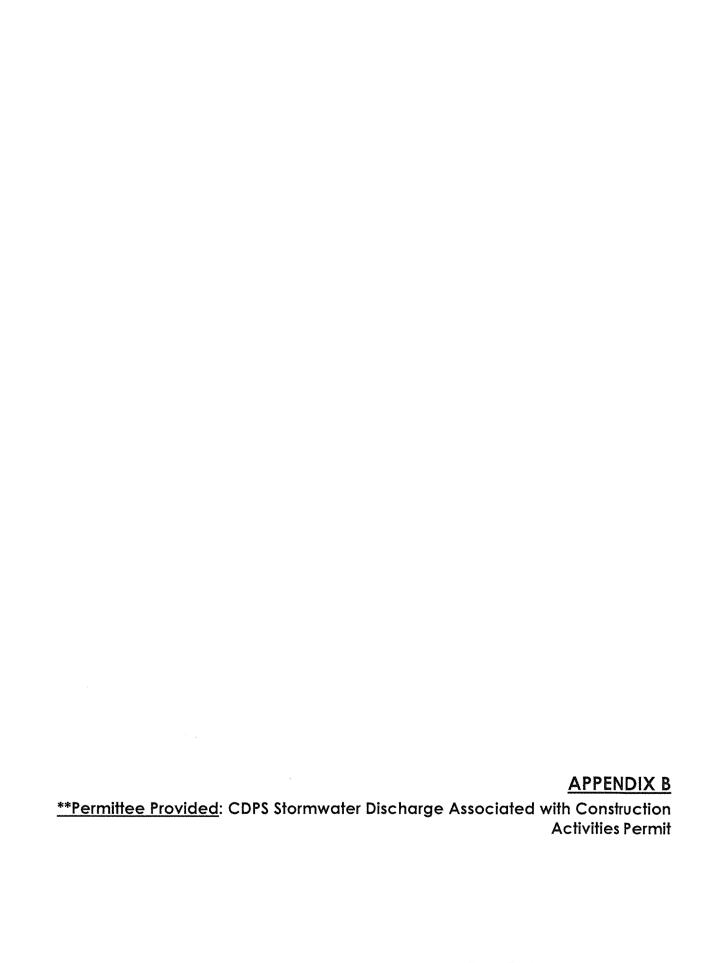
Digital Data Available

No Digital Data Available Unmapped The pin displayed on the map is an approximate point selected by the user and does not represe an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map reflect changes or amendments subsequent to this date and was exported on 5/5/2020 at 1:28:11 PM and does not time. The NFHL and effective information may change or become superseded by new data over time. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for





APPENDIX C

Example – Exhibit A: Erosion and Sediment Control Field Inspection Report

Example – Exhibit B: Corrective Action Report

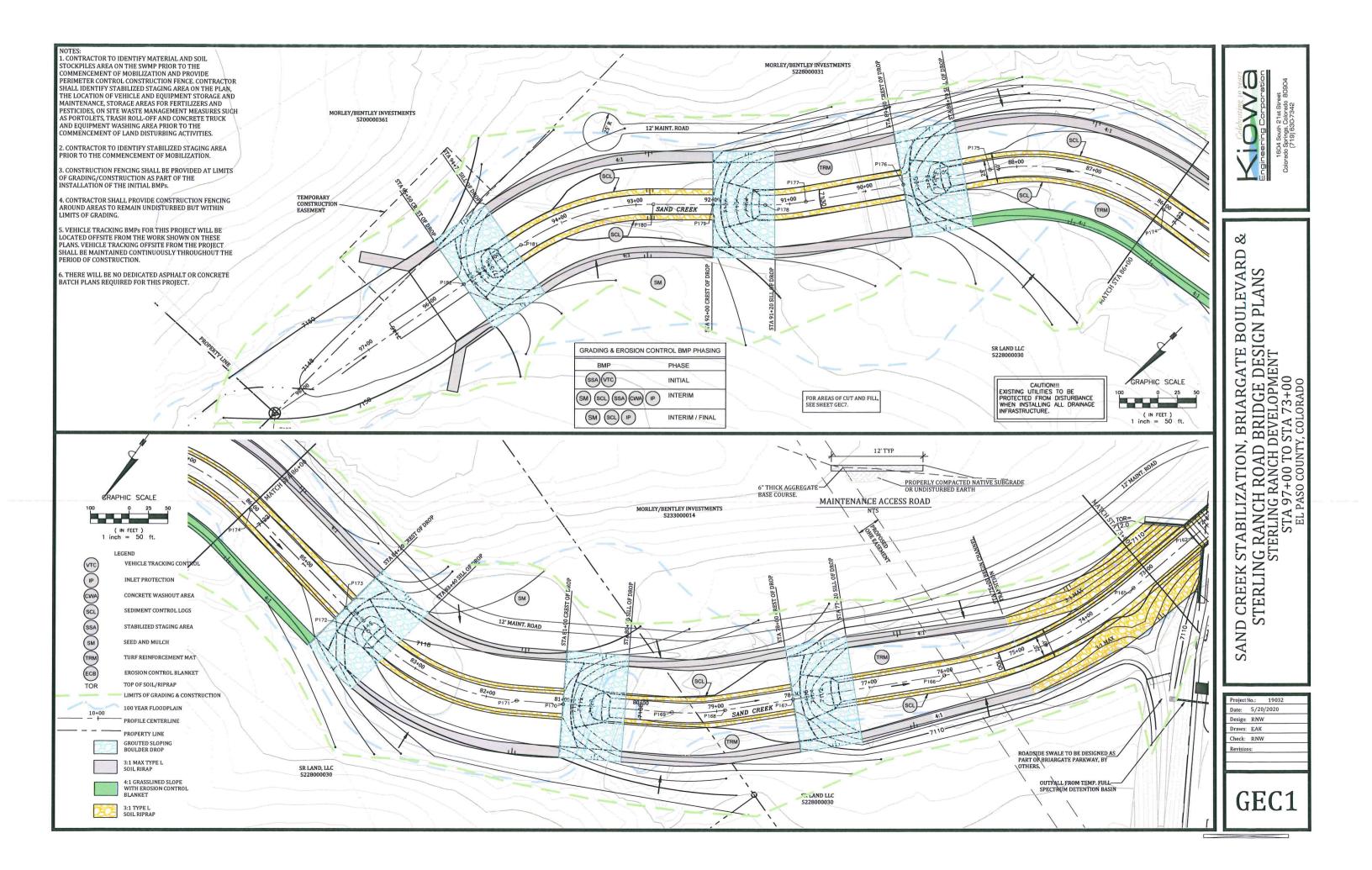
Exhibit A Erosion and Sediment Control Field Inspection Report

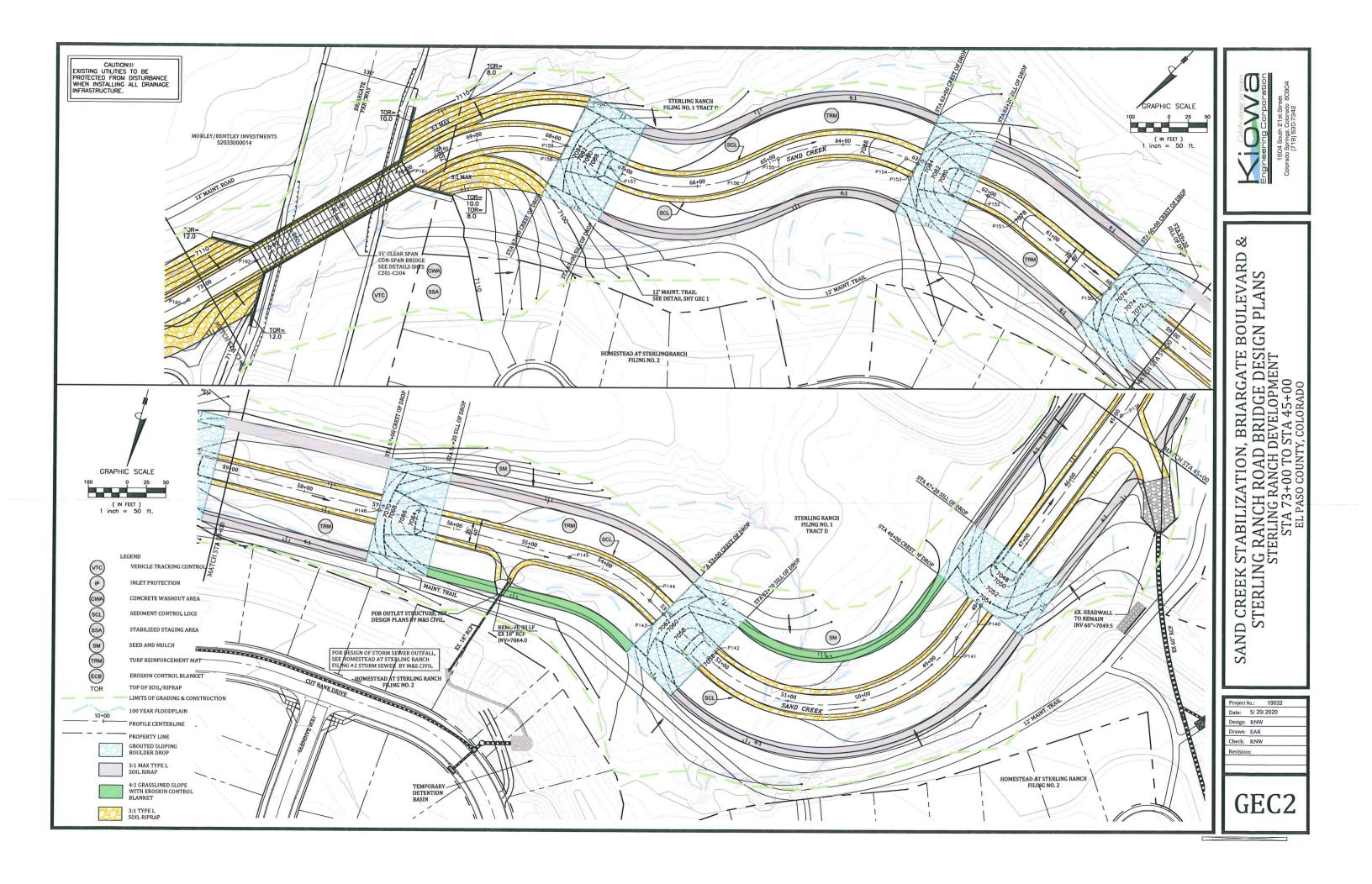
Project Name:				Date of Ins	spection:
Project Address/Location:		Time of Inspection:			
Contractor:				Name of I	nspector:
Reason for Inspection:					
BMP for Erosion Control	Practice Used Sedimen		Sedimen Req	nance or t Removal uired No	Explain Required Action
Check Dams	103				
Concrete Washout Area					
Construction Fence					
Diversion Ditch/Swales/Berms					
Erosion Control Blankets				······································	
Inlet Protection					
Reinforced Rock Berms					
Reinforced Rock Berms - Culvert					
Sediment Basin					
Sediment Control Log					
Seed & Mulch (Temp. or Permanent)					
Silt Fence					
Sodding					
Stabilized Staging Area					
Straw Bale Barrier					
Surface Roughening					
Vehicle Tracking Control Pad		ATTAI COLO MANDE MANDE MANDE	PAPARENTANCISMONI NATIO		
Contractor's Comments:					
Inspector's Comments:					
I certify this Erosion and Sediment Con Inspector Signature and Date:	trol Fiel	d Inspe	ction Repo	rt is comple Reviewed	ete and accurate, to my knowledge and belief. By:

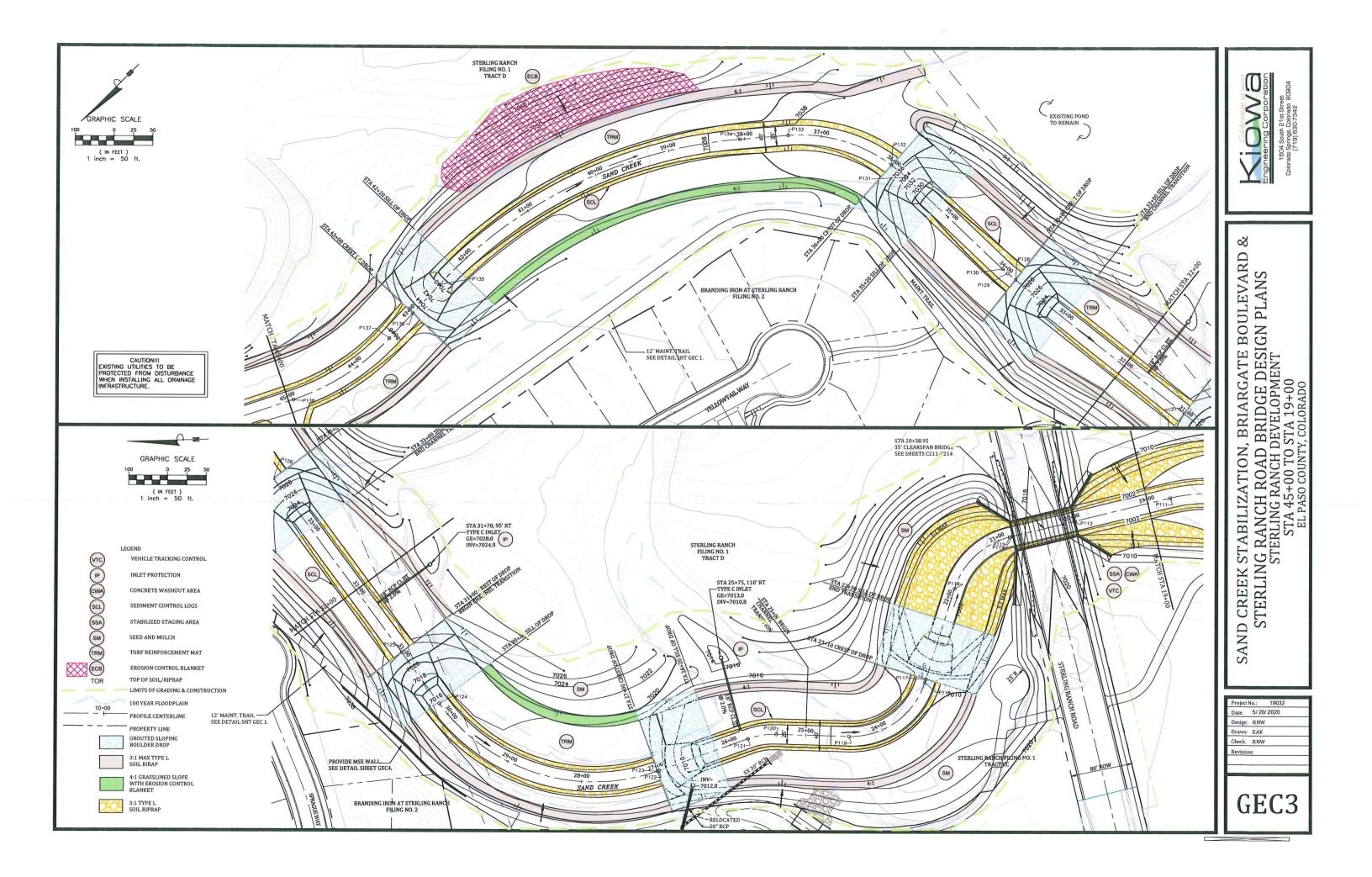
Exhibit B Corrective Action Report

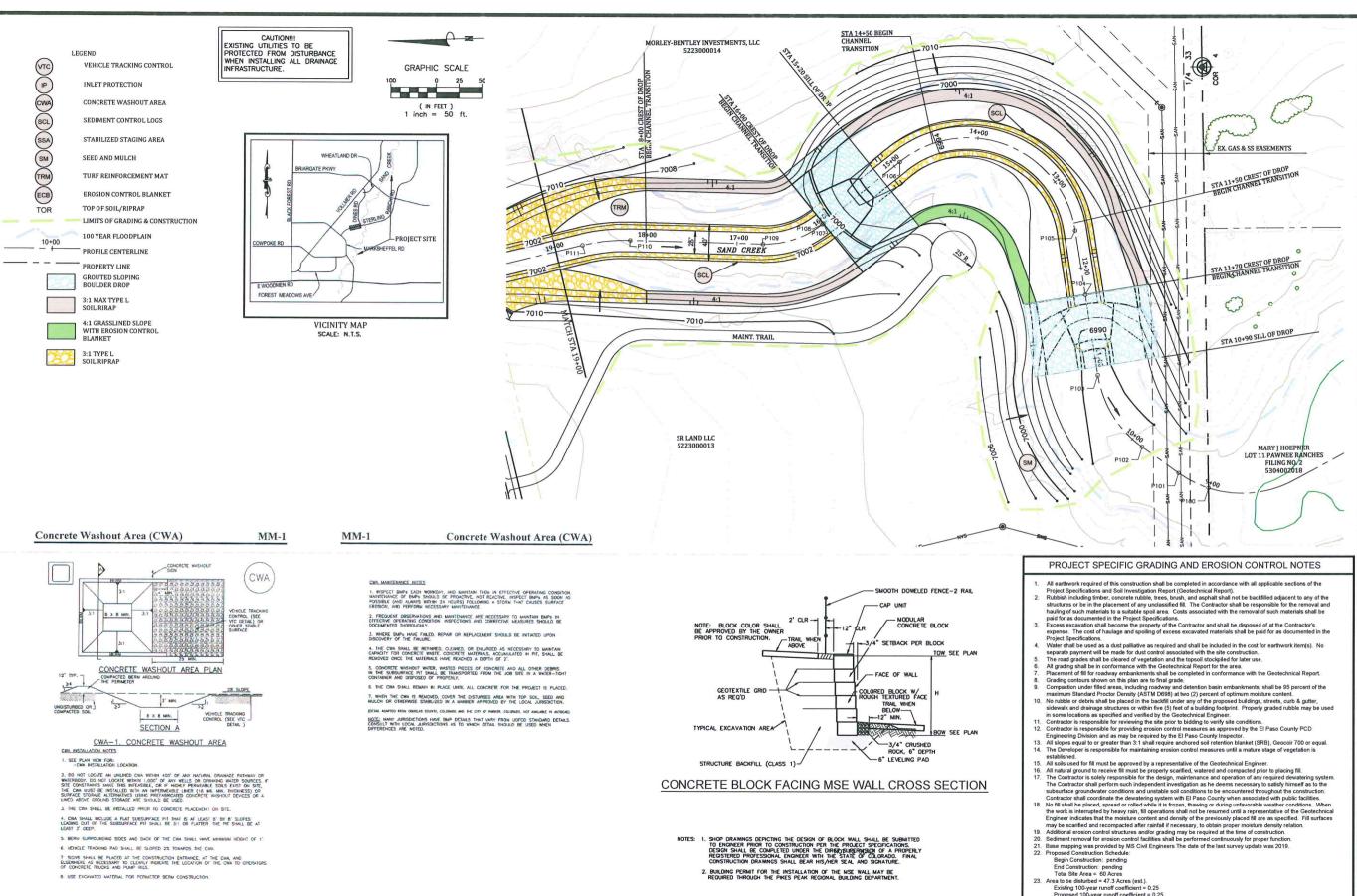
Site:		
Inspector:		
Date:		
Erosion Control Measure/Facility Requiri	ng Attention:	
Recommended Corrective Action:		
	D. t. Cl. t. d	
	Date Completed:	
Erosion Control Measure/Facility Requiri		
		
Recommended Corrective Action:		
Scheduled Completion Date:	Date Completed:	
Erosion Control Measure/Facility Requiri	ng Attention:	
		A
Recommended Corrective Action:		
Scheduled Completion Date:	Date Completed:	

APPENDIX D SWMP Plans









- Existing 100-year runoff coefficient = 0.25
 Proposed 100-year runoff coefficient = 0.25
- Existing Hydrologic Soil Groups: HSG A & B veloped and covered with native grasses on mild to oderate to steep slopes (1%-4%)
- 24. Site is located in the Sand Creek Drainage Basin.

CONCRETE BLOCK FACING MSE WALL CROSS SECTION

2. BUILDING PERMIT FOR THE INSTALLATION OF THE MSE WALL MAY BE REQUIRED THROUGH THE PIKES PEAK REGIONAL BUILDING DEPARTMENT

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST B' BY B' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER THE PIT SHALL BE AT LEAST 3' OBEN

5. BERN SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF I 6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7 SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PLMP RIGS.

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

CWA-4

CWA-3

GEC4

8

BOULEVARD &

N, BRIARGATE ED BRIDGE DESIC I DEVELOPMENT TO STA 9+00 TY, COLORADO

RANCH ROAD E FERLING RANCH DE STA 19+00 TO S EL PASO COUNTY,

G. STI

TERLIN CREEK

Project No.: 19032 Date: 5/20/2020

Design: RNW

Drawn: EAK Check: RNW

Revisions:

ND S

SA

STABILIZATION,

DING AND MULCHING INSTALLATION NOTES SEE PLAN VIEW FOR: - TYPE OF SEED MIX ALL BRAIDS FURINISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COARSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAP WEED AND LEAPY SPURGE. THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLD Y OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLDY OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO REGULATING AGENCY UPON REQUEST. DRILL SEEDING MIX SHALL CONFORM TO THE TABLE ON THE RICHT. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE WINNIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO CONTRACTOR AND FORWARDED TO THE REGULATING AGENCYS GESS. INSPECTOR. THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED), (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS) SHALL BE SEED MIXES MY SUPPLIED TO CONTRACTOR AND FORWARDED TO THE REGULATING AGENCYS GESS. INSPECTOR. THE FORMULA USED FOR LIE LEMMINING THE LOCATION OF FIRE LIST OF LOCATION OF THE REGULATING AGENCY. SEED (PLS). PERMANENT SEED MIX SHALL BE USED UNLESS OTHERWISE APPROVED BY THE REGULATING AGENCY. ALL AREAS TO BE SEEDED AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES (LOOSE DEPTH), HAUL ROADS AND OTHER COMPACTED AREAS SHALL BE LOOSENED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL. SOIL IS TO BE THOROUGHLY LOOSENED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING. THE TOP 6 INCHES OF THE SEED BED SHALL BE FREE OF ROCKS GREATER THAN A INCHES AND SOIL CLODS GREATER THAN 2 INCHES NOT SEEDING OVER ANY COMPACTED AREAS THAT HAVENT BEEN THOROUGHLY AREAS THAT HAVENT BEEN THOROUGHLY.

SC-2

SEEDING AND MULCHING MAINTENANCE NOTES

- 1. SEEDED AND MUI CHED AREAS SHALL BE INSPECTED FOR REQUIRED. SECLEU AND MULTICLEU AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY FOR A PERIOD OF TIMO YEARS FOLLOWING INITIAL SEEDING, REPAIRS AND RE-SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
 REQUIRED COVERAGE FOR STAMDARD, OPEN SPACE AND LOW GROWTH REQUIRED COVERAGE FOR STAMDARD, OPEN SPACE AND LOW GROWTH
- SEED MIXES 6HALL BE DEFINED AS FOLLOWS:

 1. THREE (3) PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3
 INCHES. THE 3 PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3
 INCHES. THE 3 PLANTS PER SQUARE FOOT SHALL BE OF THE VARIETY
 AND SPECIES FOUND IN THE DOUGLAS COUNTY-APPROVED MIX.

 2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT).

 5. FREE OF ERODED AREAS.

 6. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH
- SECTION 6.4 OF THE GESC CRITERIA MANUAL.
 REQUIRED COVERAGE FOR TURF GRASS AREAS SHALL BE DEFINED AS
- 1. AT LEAST 80% VEGETATIVE COVER OF GRASS SPECIES PLANTED. 2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO-FEET BY TWO-FEET OR EQUIVALENT.

 3. FREE OF ERODED AREAS.

 4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH
- 4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE VIII.
 SECTION 6.4 OF THE GESC CRITERIA MANUAL.
 SELLED WITH TOPSOIL PRIOR TO
 RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY THE

AREAS DISTURBED BY THE EARTHWORK SHALL BE PERMANENTLY SPECIES
WESTERN WHEAT GRASS
SIDEOATS GRAMS
SLENDER WHEAT GRASS
LITTLE BLUESTEM
BLUE GRAMA
SWITCH GRASS
JUNE GRASS
SAND DROPSEED Bouteloua curtipendul Elymus trachycaulus Schizachyrium scopar Bouteloua gracilis Panicum virgatum Koeleria cristata 12.5 lbs SEEDING APPLICATION: DRILL SEED 1/4" TO 1/2" INTO TOPSOIL. IN AREAS INACCESSIBLE TO A DRILL, HAND BROADCAST AT DOUBLE THE RATE AND RAVE 1/4" TO 1/2" INTO THE TOPSOIL. MULCHING APPLICATION: 1-1/2 TONS NATIVE HAY PER ACRE

ABOVE.

SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 30 DAYS OF INITIAL EXPOSURE OR 7 DAYS AFTER GRADING IS SUBSTANTIALLY COMPLETE IN A GIVEN AREA (
AS DEFINED BY THE REGULATING AGENCY), THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.

MULCH SHALL BE APPLIED WITHIN 24 HOURS OF SEEDING.

TACKIFIER SHOULD BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.

SEEDING AND MULCH SEEDING AND MULCH



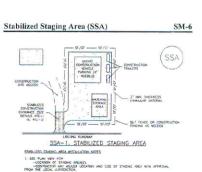
SC-2



LOOSENED SHALL BE REJECTED.
SEED IS TO BE APPLIED JUSTO A MECHANICAL DRILL TO A DEPTH OF 1/4 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MUICH SHALL
CONSIST OF LONG-STEMMED STRAW. AT LEAST 50 PERCENT OF THE MUICH, BY WEIGHT, SHALL BE 10 INCHES OR MORE IN LENGTH, MUICH SHALL BE APPLIED AND
MECHANICALLY ANCHORED TO A DEPTH OF AT LEAST 2 INCHES. MUICH SHALL BE APPLIED AT A RATE OF 4000 L. OF STRAW PER ACRE.
IF THE PERMITTEE DEMONSTRATES TO THE REGULATING AGENCY THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFICAMLY BROADCAST AT TWO TIMES
THE DRILLED BATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY IN MICH, THEN DOLLED TO COMPACT, THEN MUICHED AS SPECIFIED

Sediment Control Log (SCL)

10000000	2 DELAMENT CONTROL LOGS THAT ACT AS A PERMITTER CONTROL SHALL BE INSTALLED PRIOR TO ARM UPGRADED LAND-DISTURBING ACTIVITIES.
	3 DEDMENT CONTROL LOGS SHALL CONDET OF STRAW, COMPOST, EXCELSION OR COCONET. FIREY, AND SHALL SE FREE OF MY MODIOUS WIDE SEEDS ON CIDENTS INCLUDING RIPS, MOLES AND SHALLOW WERE.
	A SERMENT CONTROL LOSS MAY DE USED AS SMALL CHECK DAMS IN OTTOMES AND SWALES HOMEVER, THEY SHOULD NOT HE USED IN PERENNAL STREAMS.
The state of the s	5. If IS RECOVARIODS THAT SCHROOM CONTROL LOCKS RE INSIDENCE INTO THE ORDINATE TO A GETTH OF APPROXIMATELY BY THE DIMPTER OF THE LOCK OF TRENCHING TO THIS SETTH IS NOT TENSING ANYON DETERMINE CONTROL THE OPPORTUNITY OF THE DESIRE NOT TO DAMAGE LANGUAGE, A LESSEY TRENCHING DOTH HAW HE ACCORDANGE WITH MORE ROCKET STARRIO COMPOST LOCK THAT ARE OUT TO NOT A LOCK TO HE TRENCHING.
CL-3. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH	A THE WHALL SHE OF THE DELECTION CONTROL LOSS SHALL BE ENCOPPLED WITH VIEW OF FILTER WITHOUL THE B PEEE OF FACILIE AND TERMS THE SAME SHALL BE TRAINED COMMITTED AND THE SHAPE OF A STAIR THANKET LISTING A SHAPLEL OF WITHHITE LAWN FOLLER OF RECORD IN SPACE.
	7. FALLOW MAN PACUMENS' CONDAINS FOR STANDAL, IF MANUFACTUREN' PROBERTIONS ON NOT SPECIFY SHACKS, STARES SHALL BE FLACED ON A CONTROL AND EMPEROD IN VINANCE OF 6" PAID THE ORDINGS OF THE STARE SHALL WORKING FROM THE DID OF THE LOS STARES THAT HAS RESIDENCE TO VISTALLATION SHALL BE REPLACED. CONVENTS LOSS SHADE IN STARES OF ON CONTROL.
	SECRETAL CONTROL LOG WARRENAME NOTES
	I NORTH SOME BOOK BOOK AND SHARING HER IN EXPERITE OFFICENCE, CONSTITUTION WANTEDWAY OF BOOK BOOK BOOK AND SHARING THE WAS FOUNDED AND THE WAY AS SOON AS FOUNDED AND THE WAS FOUNDED AND SHARING BOOK BOOK BOOK BOOK BOOK BOOK BOOK BOO
	 FREQUENT ORSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BURN IN EFFECTIVE ORDERING CONTINUE POWERTHORS AND CONNECTIVE MEASURES MESSARY TO DOCUMENTED TRANSPORTED.
	 WHERE SUCE HAVE FALLED, REPAR OR REPLACEMENT SHOULD BE INTUITED UPON DISCOVERY OF THE FALLINE.
	A, SEDIMENT ACCUMULATED UNSTREAM OF SEDIMENT CONTROL LOG SHALL BE MEMOVED AS NEEDED TO MARTHAN FINATIONALITY OF THE BANK, THEMALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY SO THE MEMOTT OF THE SEDIMENT CONTROL LOG.
	 SERVER CONTROL LOS SHALL DE PEROVED AT THE EAR OF CONSTRUCTION CONFEST PROM CONFEST LOSS MAY BE LET 14 FACET AS LOVER AS QUEST AND THE ARIA SERVER, ET CONFEST ASSAULTE ATTEMPS FROM ALL THE OWNER, ALL CONFEST WITH THE LOSAL SERVER AND MOUNTED HIS CHARMAGE STABILLED. IN A MANAGE AFFORMED BY THE LOSAL ASSESSMENT AS THE ASSAULT ASSAULTED.
	(SETALS ASAFTED FICE THAN IF TANDE DELOTHON, LETTERSON COUNTY DELOTHON, COLORES DOWNEY, COLORED AND OTHER ADDRESS, CELEBRACE, AND ANGLESS AS A SPECIAL COUNTY.



2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE.

CVERSIONS RESULTS IN A LANCER MEA TO STABILIZE FORLOWING CONSTRUCTION.

I STACING AREA SHALL BE STABLUED PRIOR TO OTHER OPERATIONS ON THE STE.

THE STABLUED STACING AREA SHALL CONSIST OF A MINIAUM 3" SHICK ORBANILAR

5. LIMITES OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOI. SECT. \$703. MASHTO \$1 COARSE ADDRECATE OF 6" (MMLS) ROCK.

E. ACDITIONAL PERIMETER DWG MAY DE REDURGED INCLUDING BUT NOT LIMITED TO SET-FENCE AND CONSTRUCTION FENCING.

NOPECT BRIPS EACH WORNDAY, NO MENTARY THEM IN EFFECTIVE OPERATING CONDINION MANITIMANCE OF BRIPS SPECIAL DE PROCEIVE, NOT PECCHOE, ROPECT BRIPS AS 2004 AS POSSIBLE (NND ALMATS WITHIN 24 HOURS) FULLDITING A STORM THAT CAUSES SUPPRICE PROSIDE AND PREPARE MERCYSSIAN MARIENDALPS.

COMPOST SEDIMENT CONTROL LOG

SCL-2, COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

5 STABLIZED SHARING AREA SHALL BE ENLARCED IF NECESSARY TO CONTAIN PARKING, 6. THE STABLISES STATUS APER SHALL BE PRADUCED AT THE END OF CONSERCTION. THE GRANALAS BALEDAL SHALL BE PROMISED OF, IN APPROVED BY THE LOCAL AUGSDICTION, USED ON STE, AND THE AREA CONFERD WITH TOPION, SECTION AND AUGUSTO OR DYNAMICS STABLISES AN AN ANALYSIS AND BY LOCAL AUGSDICTION. NOTE, MANY MUNICIPALITIES PROMBET THE USE OF RESYCLED CONCRETE AS GRANULAR MARRIAGO, FOR STRAILIZED STACKNESS AREAS DOES TO DISTRICT WHITH RE CSTABLISHMENT OF MODIFIED WAS ARREST WARREN FOR THE WARREN WAS ARREST. NOTE HART JURSBICTIONS HAVE BUR DETAILS THAT MIRT FROM LOPES STANDARD DETAILS CONSULT WITH LOCAL JURSDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DETFERENCES ARE NOTED.

SM-6

 FFEQUENT OBSERVATIONS AND IMMISSIONING ARE NECESSARY TO MAINTAIN BMITS OF EFFECTIVE OFFERTING CONDITION INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGH. 1. WHERE BUR'S HAVE FALLED INCPART OR REPLACEMENT SHOULD BE INCREED UPON INCOMERY OF THE FALLINE. 4. NOCK SHILL BE REAPPLED OR RECORDED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SURRALIES RECORDS EXPOSED.

Stabilized Staging Area (SSA)

Sediment Control Log (SCL)

SECREPAT CONTROL LOG INSTALLATION HOTES

SEE PLAN WEN FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOCS.

NOTE: MANY JUNISDICTIONS HAVE BAY DETAILS THAT WAY FROM JOFCE STANDARD DETAILS. CONSULT WITH LOCAL JUNISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN

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Standard Notes for El Paso County Grading and Erosion Control Plans

Revised 7/02/19

- 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 o 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 mos 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 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 (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
- 4. Once the ESQCP is approved and a "Notice to Proceed" has been issued, the contractor may install the initial Once the assets is approved and a Notice to Proceed in also been source, the Control may instant 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 condiuntil permanent soil erosion control measures are implemented and final stabilization is established. All persons engaged in land disturbance activities shall assess the adequacy of control measures at the site and identify if changes to those control measures are needed to ensure the continued effective performance of the control measures. All changes to temporary sediment and erosion control measures must be incorporated into the Stormwater Management Plan.
- Temporary stabilization shall be implemented on disturbed areas and stockpiles where ground disturbing construction activity has permanently ceased or temporarily ceased for longer than 14 days.
- 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 affect the design or function of permanent stormwater management structures must be apputhe 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 schieved. 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 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
- 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 stormwate ces 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 approve
- 24. Owner/developer and their agents shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CR\$), 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 Sub-Surface Soil INvestigation, Sterling Ranch Bridges prepared by Entech Engineering shall be considered a part 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 Environ Colorado Department of Public I Water Quality Control Division WQCD - Permits 4300 Cherry Creek Drive South Denver, CO 80246-1530 Attn: Permits Unit



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Project No.:

Design: RNW

Drawn: EAK

Check: RNW

Revisions:

Date: 5/20/2020

GEC5

EC-6

EROSION CONTROL BLANKET INSTALLATION NOTES

2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPS, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.

3. IN AREAS WHERE COBIN ARE SHOWN ON THE PLANS, THE PRINTING SHALL PLACE TOPSOL AND PERFORM HALL GRADING, SHEAZE PREPARATION, AND SECOND AND MILLOHING SHEAZE PREPARATION, AND SECOND AND MILLOHING SHEAZE SHALL DE SHOOTH AND MICH PROOF TO COB INSTILLING AND THE COB SHALL DE SHOOTH AND MICH OF WORS THAT DOST LINGER THE SHALL DESCRIPTION OF ONE OF ONCE SHALL DOST LINGER THE SHALL DESCRIPTION OF ONE OF ONE SHALL DOST LINGER THE SHALL DESCRIPTION OF ONE OF ONE OF THE SHALL DESCRIPTION OF ONE OF THE SHALL DESCRIPTION OF TH

4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.

5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.

8. MATERIAL SPECIFICATIONS OF FORK SHALL CONFORM TO TABLE FOR-9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS.
SMALL BE RESEEDED AND MULCHED.

STRAW* - 100% -

STRAW-COCONUT 30% MIN 70% MAX -

100%

5. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSION SCHE. 7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOCETHER FOR ECBs

10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB-1. ECB MATERIAL SPECIFICATIONS TYPE COCONUT STRAW EXCELSION RECOMMENDE CONTENT CONTENT CONTENT NETTING**

DOUBLE/ NATURAL

DOUBLE/ NATURAL

DOUBLE/ NATURAL DOUBLE/ NATURAL EROSION CONTROL BLANKET MAINTENANCE NOTES

1. HISPECT BARFS EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING COMPITION.
MAINTENANCE OF BARFS SHOULD BE PROJECTIVE, NOT REACTIVE INSPECT BARF AS SOON AS
ENDOOD, AND PREFORM INCONSINGUITHANDORS SUBPACE
ENDOOD, AND PREFORM INCONSINGUITHANDORS.

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

5. ANY ECB PULLED DUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPARED OR RESTAULD. ANY SUBGRACE AREAS BELOW THE GOTEFULE THAT HAVE ENDOED TO CREATED RESERVED, AND HULCHED AND THE ECB REMISTRALED.

RESERVED, AND HULCHED AND THE ECB REMISTRALED.

NOTE: MANY JURISDICTIONS HAVE BUS DETAILS THAT VARY FROM LOFCO STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN

CORRESS ADJURNO FROM DOMOUS COMMON CONDINANT AND TOWN OF PARTIES PROGRADO AND AND ARE AN AUTOMO

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE. 4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODECRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.

EC-6

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BOULEVARD &

N, BRIARGATE I D BRIDGE DESIC I DEVELOPMENT TROL DETAILS ITY, COLORADO

RANCH ROAD E FERLING RANCH DI EROSION CONTRO EL PASO COUNTY,

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D CREEK S

SAND

Project No.: 19032

Date: 5/ 20/ 2020

Design: RNW

Drawn: EAK Check: RNW

Revisions:

STABILIZATION,

Description

Appropriate Uses



Design and Installation

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

Design details with notes are provided for these forms of inlet protection:	Inlet Protection (various forms)	
	Functions	
IP-1. Block and Rock Sock Inlet Protection for Sump or On-grade Inlets	Erosion Control	No
inicis	Sediment Control	Yes
IP-2. Curb (Rock) Socks Upstream of Inlet Protection, On-grade	Site/Material Management	No
Inlets		

Several interprotoction designs are provided in the Design Details. Additionally, a variety of proprietary products are available for interprotection that may be approved for use by local governments. If proprietary products are used, design details and installation procedures from the manufacturer must be followed. Regardless of the type of interprotection selected, intel protection is most effective when combined with other fbMFs such secule such secked and check dams, lintle protection is often the last barrier before munoff enters the storm severe or receiving water.

trol No
ntrol Yes
Management No

Inlet Protection (IP)

(ECB) DIVERSION DITCH TYPICALLY AT TOP OF PERIMETER
- ANCHOR
TRENCH, TYP. ANCHOR DETAILS GEOTEXTILE FASRIC OR MAT, TYP. ECB-3. OUTSIDE OF DRAINAGEWAY PERIMETER ANCHOR WIDTH W. TYP. ECB-1. PIPE OUTLET TO DRAINAGEWAY JOINT ANCHOR TRENCH TYPE OF ECB

STAKING PATTERNS BY FCB TYPE STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

Urban Drainage and Flood Control District

Inlet Protection (IP)

Urban Drainage and Flood Control District

IP-3. Rock Sock Inlet Protection for Sump/Area Inlet

IP-6. Straw Bale Inlet Protection for Sump/Area Inlet

CIP-1. Culvert fulet Protection

Propriety inlet protection devices should be installed in accordance with manufacturer specifications.

More information is provided below on selecting inlet protection for sump and on-grade locations.

When applying inlet protection in sump conditions, it is important that the inlet continue to function during larger runoff events. For curb inlets, the maximum height of the protective barrier should be lowed than the top of the curb opening to allow overflow into the inlet during larger storms without excessive localized flooding. If the inlet protection height is greater than the corb elevation, particularly if the filter becomes cloged with sediment, runoff will not enter the inlet and may byposs it, possibly causing localized flooding, public safety issues, and downstream exists and damage from bypassed flows.

For curb and gutter inlets on paved sloping streets, block and rock sock inlet protection is recommended in conjunction with curb socks in the gutter leading to the inlet. For inlets located along unpaved roads, also see the Check Dam Fact Sheet.

Maintenance and Removal

Inspect inlet protection frequently. Inspection and maintenance guidance includes:

- Check for improper installation resulting in untreated flows bypassing the BMP and directly entering
 the inlet or bypassing to an unprotected downstream inlet. For example, sill fence that has not been
 properly trenched around the inlet can result in flows under the sil fence and directly into the inlet.
- Look for displaced BMPs that are no longer protecting the inlet. Displacement may occur following
 larger storm events that wash away or reposition the inlet protection. Traffic or equipment may also
 crush or displace the BMPs.
- · Monitor sediment accumulation upgradient of the inlet protection

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Inlet Protection (IP)

Remove sediment accumulation from the area upstream of the inlet protection, as needed to maintain BMF effectiveness, bypically when it reaches so more than half the storage capacity of the inlet protection. For sill force, remove sediment when it accumulates to a depth of on more than 6 inches. Remove sediment accumulation from the area upstream of the inlet protection as needed to maintain the functionality of the BMF.

Propriety inlet protection devices should be inspected and maintained in accordance with manufacturer specifications. If proprietary inlet insent devices are used, sediment should be removed in a timely manner to prevent devices from breaking and spilling sediment into the storm drain.

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

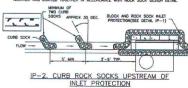
IP SEE ROCK SOCK DESIGN ROCK Z 6" CINDER 16" CINDER BLOOKS 2"x4" WOOD STUD -CURB INLET -

Inlet Protection (IP)

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

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES 1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIRE

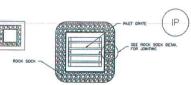
2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUITING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB. 3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH BOOK SOON DESIGN DETAIL



CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES . SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.

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

Inlet Protection (IP)



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

BOCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES 2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS, INSTALL PER SEDIMENT CONTROL LOG DETAIL.

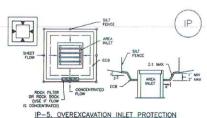


IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

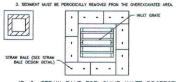
1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS. 2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET. 3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SLT FENCE FOR INLETS IN PERMOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG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

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volum-



1. THIS FORM OF INLET PROTECTION IS PRIMARLY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAMAGE AREA. 2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.

3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



IP-6. STRAW BALE FOR SUMP INLET PROTECTION

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

GEC6



IP-4. Silt Fence Inlet Protection for Sump/Area Inlet

ECB-2. SMALL DITCH OR DRAINAGEWAY

Inlets Located in a Sump

Area inlets located in a sump setting can be protected through the use of silt fence, concrete block and rock socks (on paved surfaces), sediment control logs/straw wattles embedded in the adjacent soil and stacked around the area inlet (on pervious surfaces), over-excavation around the inlet, and proprietary products providing equivalent functions.

Inspect for tears that can result in sediment directly entering the inlet, as well as result in the contents
of the BMP (e.g., gravel) washing into the inlet.

SC-6

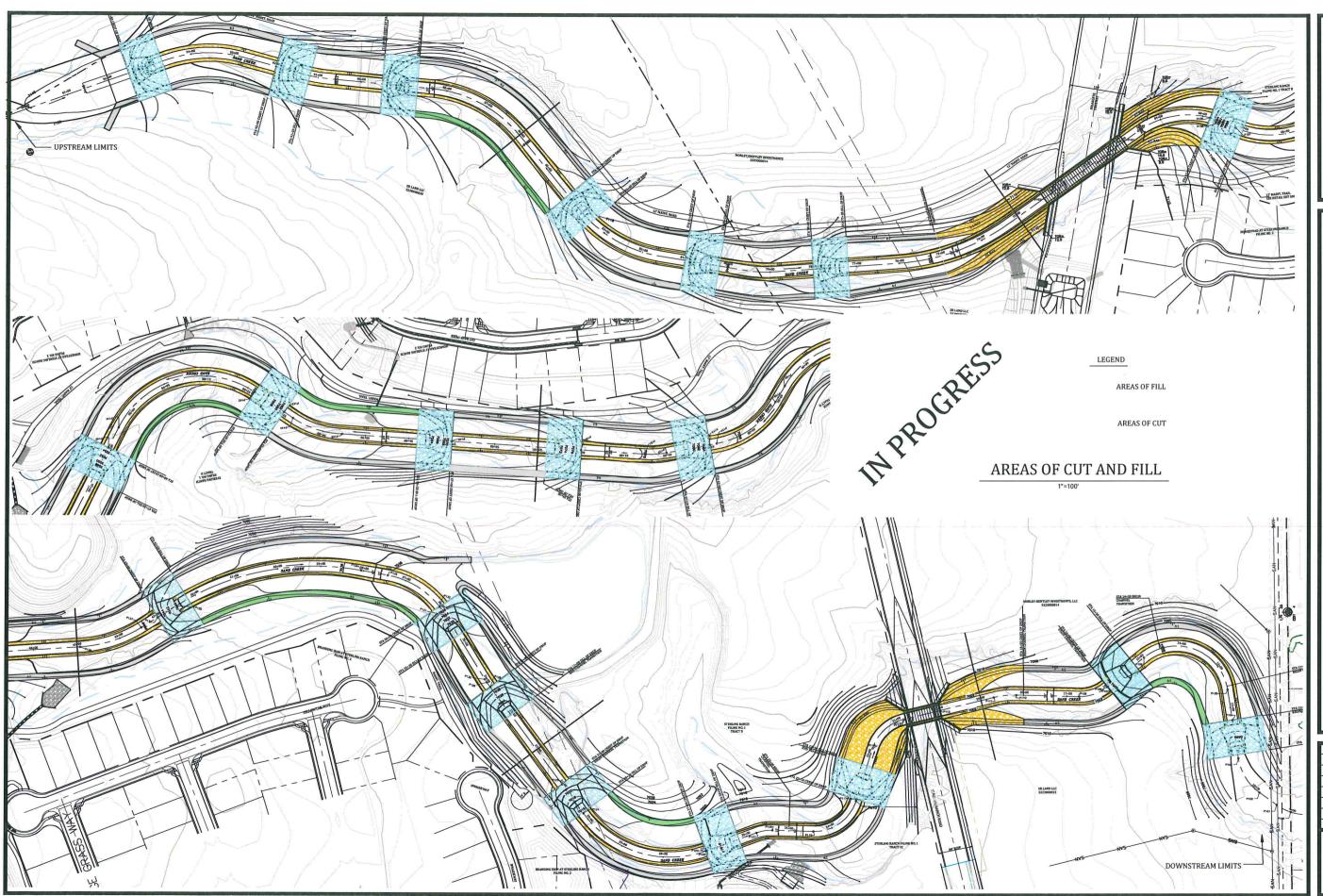
SC-6

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

SC-6

SC-6

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SAND CREEK STABILIZATION, BRIARGATE BOULEVARD & STERLING RANCH ROAD BRIDGE DESIGN PLANS STERLING RANCH DEVELOPMENT AREAS OF CUT AND FILL EL PASO COUNTY, COLORADO

Project No.: 19032
Date: 5/2020
Design: RNW
Drawn: EAK
Check: RNW
Revisions:

GEC7