

---

# **STORMWATER MANAGEMENT PLAN**

## **COLORADO SPRINGS UTILITIES**

### **GAS PROPANE AIR PLANT STAGING AREA**

---

7723 N. Carefree Circle

El Paso County, CO 80922

Latitude: 38°53'11.7" N, Longitude: 104°41'10.7" W

Project Manager/Key Contact: Clint Barden, Project Manager I, 719-668-4735 (office), 719-930-4877 (cell)

GEC Administrator/Qualified Stormwater Managers (Inspectors):

Joe Houghton, Environmental Engineer III, 719-668-3744 (office), 719-313-8472 (cell)

Richard Sebastian-Coleman, Environmental Engineer III, 719-668-8426 (office), 719-433-5770 (cell)

Nearest Navigable Waterway: Sand Creek is located 1.4 miles West of this facility

Add text:  
EPC PCD Filing No.:  
PPR2150

August, 2021

Environmental Services Department

Preparing Engineer: Richard Sebastian-Coleman

## CONTENTS

Record of Change .....	3
<b>Foreword</b> .....	4
<b>1. Site Description</b> .....	6
1.1. The nature of construction activity at the site .....	6
1.2. The proposed sequence for major activities .....	6
1.3. Disturbed Area and Adjacent Areas Size and Description .....	7
1.4. Soil or existing potential for soil erosion .....	7
1.5. Existing Vegetation .....	7
1.6. Potential pollution sources .....	7
1.7. Non-stormwater discharge .....	9
1.8. Receiving Areas, Sewer Systems, and Waters .....	9
1.9. Stream Crossings .....	9
<b>2. Site Map(s)</b> .....	10
<b>3. Stormwater Management Controls</b> .....	11
3.1. SWMP Administrator .....	11
3.2. Identification of potential pollutant sources .....	11
3.3. control measures for stormwater pollution prevention .....	11
3.3.1. Structural Practices for Erosion and Sediment Control .....	11
3.3.2. Non-Structural Practices for Erosion and Sediment Control .....	11
3.3.3. Phased Control Measure Implementation .....	12
3.3.4. Materials handling .....	12
3.3.5. Spill Prevention and Response Plan .....	12
3.3.6. Dedicated concrete or asphalt batch plants .....	12
3.3.7. Vehicle tracking control .....	12
3.3.8. Waste management and disposal, including concrete washout .....	12
3.3.9. Groundwater and stormwater dewatering .....	13
<b>4. Final Stabilization and Long-term Stormwater Management</b> .....	14
4.1. Final stabilization and pollution control practices post construction .....	14
4.2. Vegetative cover .....	14
4.3. Final stabilization .....	14
<b>5. Inspections and Maintenance</b> .....	15
5.1. Minimum Inspection Schedule .....	15
5.1.1. Post-storm event inspections at temporarily idle sites .....	15
5.1.2. Inspections at completed sites/areas .....	15
5.1.3. Winter conditions inspections exclusion .....	15
<b>CERTIFICATION STATEMENT</b> .....	16
<b>Attachment 1 CDPS General Permit</b> .....	17
<b>Attachment 2 SOILS REPORT</b> .....	18
<b>Attachment 3 Control Measure Installation and Maintenance</b> .....	19
<b>Attachment 4 INSPECTION REPORTS AND CORRECTIVE ACTIONS</b> .....	20

## RECORD OF CHANGE

[illegible]

## Foreword

The Stormwater Management Plan (SWMP) shall identify potential sources of pollution (including sediment) which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the facility. In addition, the plan shall describe and ensure the implementation of Control Measures which will be used to reduce the pollutants in stormwater discharges associated with construction activity. Control Measures must be implemented before construction/grading begins and maintained through construction operations until the site reaches final stabilization. Construction operations must implement the provisions of the SWMP required under this part as a condition of this permit. The Colorado Department of Public Health and Environment General Permit for Stormwater Discharges Associated with Construction Activities may be found in Attachment 1.

Prohibition of non-stormwater discharges. All discharges covered by this permit shall be composed entirely of stormwater associated with construction activity, except as provided below:

- a) Emergency fire fighting activities
- b) Landscape irrigation return flow
- c) Uncontaminated springs

Discharges of material other than stormwater must be addressed in a separate CDPS permit issued for that discharge.

Discharges to the ground of concrete washout water from washing of tools and concrete mixer chutes may be authorized by the stormwater permit, provided that:

- a) The source is identified in the SWMP
- b) Control Measures are included in the SWMP and to prevent pollution of groundwater
- c) These discharges do not leave the site as surface runoff to surface waters

Releases in excess of reportable quantities. The stormwater permit does not relieve the permittee of the reporting requirements of 40 CFR 110, 40 CFR 117 or 40 CFR 302. Any discharge of hazardous material must be handled in accordance with the Division's Noncompliance Notification Requirements (see Part II.A.3 of the stormwater permit).

SWMP Requirements. The plan shall be updated as appropriate. SWMP provisions shall be implemented until expiration or inactivation of permit coverage. A copy of the SWMP must be retained on site unless another location, specified by the permittee, is approved by the Division. The permittee shall amend the SWMP:

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

SWMP changes shall be made prior to changes in the site conditions. SWMP revisions may include, but are not limited to: potential pollutant source identification; selection of appropriate Control Measures for site conditions; Control Measure maintenance procedures; and interim and final stabilization practices. The SWMP changes may include a schedule for further Control Measure design and implementation, provided that, if any interim Control Measures are needed to comply with the permit, they are also included in the SWMP and implemented during the interim period.



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

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

# 1. Site Description

## 1.1. THE NATURE OF CONSTRUCTION ACTIVITY AT THE SITE

Construction is being performed to install a new staging area on five acres of open field on the northwest side of Colorado Springs Utilities' Gas Propane Air Plant (GPAP). Major ground disturbing activities are grubbing and grading the site, but construction will also include the installation of a security fence and gate, a permanent vehicle tracking pad, a scale and scale-house, and covering the cleared area with asphalt chips. The GPAP site already has above and below ground stormwater conveyances and control measures. This project will make use of these features and maintain them as needed during construction, but otherwise not alter them. Once the staging area is set up it will operate under a Municipal Facility Runoff Control Plan (MFRCP) to control erosion and discharge.

## 1.2. THE PROPOSED SEQUENCE FOR MAJOR ACTIVITIES

Construction activities are expected to start in August, 2021 and complete before the end of December, 2021. Revegetation is expected to establish in spring of 2022, giving a project final stabilization date of June 30<sup>th</sup>, 2022. Construction activities make use of various pre-existing permanent control measures, so it is useful to give a summary of what and where they are before describing the sequence of activities. Locations of these permanent control measures are shown along with construction control measures in Figures 4.

Most critically, the entire GPAP site drains into a 3-million gallon retention pond located in the southeast corner of the site. The pond is designed to hold the volume of a 100-year, one-hour, storm event from the entire 40-acre site, assuming no infiltration. The disturbance area is located in the north west corner of the site, and is approximately 700' long, north to south, and 290' wide. The eastern, downslope, edge is bounded by a large earthen berm from its southern end to about 200' from the site's northern extent. The northeast corner of the disturbance area is bounded by a driveway from North Carefree Circle to the main GPAP site. The northernmost acre of the site drains into a concrete ditch along this driveway, where it is carried to the retention pond at the south east corner. However, the rest of the disturbance area, along with two acres south of it, drains to a 16" storm pipe that runs underneath the berm approximately 230' from its the north end. This pipe discharges on the east side of the berm into a small detention pond, which when full will also discharge into conveyances leading to the main retention pond.

Before major earth disturbance begins, a security fence will be installed along the eastern and southern boundaries of the future staging area to separate it from the rest of the GPAP site. This fence will include a security gate crossing the driveway just north of the berm. For this limited disturbance, no additional control measures will be installed.

The first major earth work will be the laying of asphalt and a permanent vehicle tracking pad to form the entrance and exit to the staging area. These features will be in line with each other, just west of the berm. Earth moving equipment will remain on site during this time to reduce tracking onto the driveway. Dump trucks and other deliveries may have to drive onto dirt creating the risk of track out, therefore street sweeping will be performed as needed.

Once the tracking pad and asphalt are in place, grubbing and grading will commence. This is likely to be done in sections of approximately one-acre sections, starting in the east side of the site and continuing out to the edges. As each section is graded they will be covered by 6-8" of asphalt chips. Dump trucks will be used to either provide fill or move fill away as needed. All vehicles entering and exiting the site will make use of the tracking pad and street sweeping will continue to be performed as needed. During this phase, the scale and scale-house will be installed on site, just south of the tracking pad.

Seeding will be performed if needed along the western and southern boundaries of the site to restore any vegetation damaged in the process of construction.

### 1.3. DISTURBED AREA AND ADJACENT AREAS SIZE AND DESCRIPTION

The estimate of the total area of this site and the area of the site that is expected to undergo clearing, excavation, grading, or other construction activities that will disturb the surface is 6.0 acres. The disturbed area is outside of the 100-year flood plain. The project is expected to grade more than 500 cubic yards of soil.

The disturbance area is immediately adjacent to the rest of the GPAP site to its east and south, by N. Carefree Circle to the north, and by in-construction housing to the west. East of GPAP is Marksheffle Road, east of which are light industrial sites and undeveloped land. Further housing sits north of N. Carefree Circle, and south of GPAP sit El Paso County department of Public Works building and Rocky Mountain Classical Academy.

### 1.4. SOIL OR EXISTING POTENTIAL FOR SOIL EROSION

All soil within the disturbance area is made up of Truckton sandy loam, which is of hydraulic soil Group A. It, therefore, has a high infiltration rate even when thoroughly wetted, meaning in general it carries a low runoff risk. However, clear cutting large areas means the risk is raised. This is why grubbing and grading will be done in sections so as not to leave the entire five acres exposed for an extended period, and why it will be covered with asphalt chips. Furthermore, any runoff will eventually reach the retention pond, meaning runoff will not enter the county's MS4 system. Soil information was found using USDA's Web Soil Survey tool. A copy of the soil report is included as Attachment 2 to this SWMP.

### 1.5. EXISTING VEGETATION

Item 9. Include method used to determine ground cover (i.e., visual, aerial inspection)

The site is currently 100% vegetated with, for all practical purposes, a uniform mixture native grasses, weeds, and cacti at an average plant density of 3.5 plants per square foot. This was determined by the number of plants in five 1-square foot sections across the site.

### 1.6. POTENTIAL POLLUTION SOURCES

Incomplete sentence.

The location and description of all potential pollution sources, including ground surface disturbing activities, vehicle fueling, storage of fertilizers or chemicals, etc. Each of the sources and activities located in Table 1 on page 8 has been evaluated for the potential to contribute pollutants to stormwater discharges.

**TABLE 1: POTENTIAL POLLUTION SOURCES**

<b>POTENTIAL POLLUTION SOURCES</b>	<b>POSSIBLE SITE CONTRIBUTIONS OF POLLUTANTS TO STORMWATER DISCHARGES</b>
All disturbed and stored soils	Topsoil removal, site grading, and excavation for tracking pad, asphalt, and scale.
Vehicle tracking of sediments	See Figure 4 for vehicle entrance and exits
Management of contaminated soils	No contaminated soils expected to be encountered.
Loading and unloading operations	Delivery trucks unloading building materials, fencing, gate, associated hardware, and soil used for fill.
Outdoor storage activities (building material, fertilizers, chemicals, etc.)	Soil piles developed from grading (no fertilizers, petroleum or chemical products will be stored onsite)
Vehicle and equipment maintenance and fueling	Fueling will occur onsite, all equipment maintenance, save for oil changes, will occur offsite.
Significant dust or particulate generating processes	Vehicle tracking, grubbing, and grading
Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc	All equipment maintenance, save for oil changes, will occur offsite, no fertilizers, pesticides, detergents, and/or solvents will be used or stored onsite
On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.)	All waste will be removed from site ASAP
Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment	No concrete truck/equipment washing onsite
Dedicated asphalt and concrete batch plants	No dedicated asphalt and concrete batch plants onsite
Non-industrial waste sources such as worker trash and portable toilets	Worker trash will be removed from the site as soon as possible, portable toilets onsite are serviced regularly
Other areas or procedures where potential spills can occur	Petroleum releases possible from equipment

### **1.7. NON-STORMWATER DISCHARGE**

Non-stormwater discharge is not expected at this site. Groundwater is not expected to be encountered on site based on data from Colorado Department of Natural Resources DWR Well Permit database, thus construction dewatering is not expected to be performed and neither are springs of any kind expected to be discovered. Return irrigation flow will not be encountered as the site sits above any irrigated lawns. Concrete washout will not be performed on site.

### **1.8. RECEIVING AREAS, SEWER SYSTEMS, AND WATERS**

Runoff from the disturbance area will travel to the retention pond and is not expected to discharge off site. A discharge to county MS4 could occur if sediment is tracked onto North Carefree Circle, where it could enter stormwater inlets that discharge to Sand Creek or East Fork of Sand Creek, approximately 1.7 miles south of the site. If a truly large storm triggered a discharge from the retention pond, it would discharge to the east side of Marksheffel Rd, which is also within East Fork of Sand Creek's drainage. East Fork of Sand Creek discharges into Sand Creek, which discharges into Fountain Creek, which carries water out of El Paso County.

### **1.9. STREAM CROSSINGS**

There are no stream crossings within the bounds of this project.

## 2. SITE MAP(S)

The SWMP shall include a legible site map(s), showing the entire site, identifying:

- a) construction site boundaries;
- b) all areas of ground surface disturbance;
- c) areas of cut and fill;
- d) areas used for storage of building materials, equipment, soil or waste;
- e) locations of dedicated asphalt or concrete batch plants;
- f) locations of all structural Control Measures;
- g) locations of non-structural Control Measures as applicable;
- h) locations of springs, streams, wetlands and other surface waters;
- i) locations of all stream crossings;
- j) 50 foot distance around streams and waterways held for a vegetative buffer; and
- k) locations of streamside overlay zones.

Figures are located in GEC associated with this project.

### *List of Maps:*

Figure 1 – Site Vicinity Map

Figure 2 – Site Detail Map

Figure 3 – Site Topography

Figure 4 – Control Measure Placement Construction Drawings

Figure 5 – Engineering Drawings

Identify QSM in the SWMP and provide documentation of their credentials and/or state: "The QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5.2.A"

### 3. STORMWATER MANAGEMENT CONTROLS

#### 3.1. GEC ADMINISTRATOR

The names and titles of the GEC Administrator, who shall implement and maintain the SWMP, and the Qualified Stormwater Manager, who shall perform inspections are given below.

GEC Administrators, also Qualified Stormwater Managers (Stormwater Inspectors)

Joe Houghton, Environmental Engineer III

Richard Sebastian-Coleman, Environmental Engineer III

#### 3.2. IDENTIFICATION OF POTENTIAL POLLUTANT SOURCES

See Section 1.6, Table 1.

The contractor will be responsible for any re-excavation of sediment and debris that collects in the basin depression required to ensure that the basin meets the design grades following construction. The storm lines shall also be cleaned and free of sediment once the site becomes stabilized.

#### 3.3. CONTROL MEASURES FOR STORMWATER POLLUTION PREVENTION

Attachment 3 contains the installation, maintenance, and Control Measure specification guidelines for this project. This attachment should be referenced when installing Control Measures. All control measures are owned, managed, and maintained by Colorado Springs Utilities.

##### 3.3.1. STRUCTURAL PRACTICES FOR EROSION AND SEDIMENT CONTROL

The structural Control Measures that will be implemented at this site include, but are not limited to, the following:

- a) Retention Pond and Stormwater Conveyances. Stormwater conveyances consisting of concrete gutters and underground plastic and steel piping direct all runoff from the site to the retention pond. The retention pond is designed to hold the runoff volume of a 1-hr, 100-year storm event, with no infiltration, approximately 3-million gallons.
- b) Detention Pond: Smaller pond located just east of the berm, conservatively estimated 230,000 gallons, the immediate receiving body from the disturbance area. Holds water and allows for some settling before discharging to the Retention Pond.
- c) Earthen Berm: Large berm already in place running along the eastern boundary of the disturbance area, directs discharge to the Detention Pond.
- d) Vehicle Tracking Pad: Located parallel to the berm, used as vehicle entrance and exit to the site.
- e) Rock Socks: Potentially used in concrete above ground stormwater conveyances on site if necessary to slow sediment.
- f) Asphalt Chip Groundcover: Applied over the extent of the staging area to give a base for equipment and piles while allowing infiltration.

Locations for all structural Control Measures can be found on Figure 4.

##### 3.3.2. NON-STRUCTURAL PRACTICES FOR EROSION AND SEDIMENT CONTROL

The non-structural Control Measures that will be implemented at this site include, but are not limited to, the following:

- a) Minimizing Vehicle Traffic: Earth moving equipment will not be on the site driveway or any public roads during construction.

- b) Working in Sections: Five total acres will be disturbed, but in sections no greater than one-acre at a time.
- c) Street Sweeping: Will be performed as needed on the driveway and on North Carefree Circle for any sediment that is tracked out by vehicles.

Locations for all non-structural Control Measures can be found on Figure 4.

### 3.3.3. PHASED CONTROL MEASURE IMPLEMENTATION

See Section 1.2 for all phases and associated Control Measure implementation. Most prevalent is the establishment of a permanent tracking pad before any other ground disturbing activities take place.

### 3.3.4. MATERIALS HANDLING

Set up of the staging area does not include introduction of paints, solvents, fertilizers, solvents, or waste materials, other than soil. Installation of the staging area will involve heavy equipment, which incur the potential to discharge petroleum materials onto the site. Grading and movement of dirt creates an obvious risk of sediment run off. For this reason, the following material handling procedures will be employed:

- a) Equipment maintenance, save for oil changes performed over secondary containment, is done off-site.
- b) Off-site fuel trucks will fill individual equipment on-site. The fueling procedures given in Attachment 3 will be followed to prevent water contamination during this procedure.
- c) Areas or procedures where potential spills can occur must have spill prevention and response procedures identified in the SWMP.
- d) Workers are trained to handle of materials in a way that minimizes both risk to themselves and risk to the environment.

### 3.3.5. SPILL PREVENTION AND RESPONSE PLAN

Crews should follow proper material handling procedures to prevent a spill. If material is spilled on site crews should work to contain the spill with available materials and block inlets that the spill could potentially reach.

**SPILL RESPONSE — IN THE EVENT OF A SPILL OR DISCOVERY OF ON-SITE CONTAMINATION, IMMEDIATELY NOTIFY ENVIRONMENTAL SERVICES AT 448-4800.**

### 3.3.6. DEDICATED CONCRETE OR ASPHALT BATCH PLANTS

No concrete or asphalt batch plants on site.

### 3.3.7. VEHICLE TRACKING CONTROL

A permanent vehicle tracking control pad will be installed prior to site grubbing and activities. See Figure 4 for location. The tracking pad will be used during construction and once the site becomes operational under its MFRCP permit. Furthermore, earth moving equipment will remain on site for the duration of construction, meaning that it will not have the opportunity to track sediment off site. Dump trucks and other delivery vehicles will have to move on and off site using the tracking pad. Any excess sediment will be swept up on as needed basis.

### 3.3.8. WASTE MANAGEMENT AND DISPOSAL, INCLUDING CONCRETE WASHOUT

No concrete washout is planned to be performed on site. This plan will be updated accordingly if any is needed, but generally a pit will be established, then excavated and taken off site at the end of construction. Equipment and material waste will be brought to Utilities' Sand Creek Recycling Center for processing and recycling or disposal as necessary. Worker trash will be collected in bins provided and taken off site for proper disposal.



#### 3.3.9. GROUNDWATER AND STORMWATER DEWATERING

Groundwater and stormwater dewatering are not expected to be performed during construction. The site will be graded, but no trenches that would require dewatering will be established. If, for unforeseen circumstances dewatering needs to be performed, crews should follow procedures in CDPHE's Low-Risk Discharge Guidance document included in Attachment 3.

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

### **4.1. FINAL STABILIZATION AND POLLUTION CONTROL PRACTICES POST CONSTRUCTION**

Final stabilization will be achieved through properly grading and covering the staging area. Additionally, reseeding will be performed on any areas where vegetation was disturbed by construction but not part of the staging area proper. If any temporary Control Measures have been installed they will be removed at this time. All permanent control measures will be left as is.

### **4.2. VEGETATIVE COVER**

Attachment 3 presents specifications for achieving final stabilization by means of seed mix selection and application methods, soil preparation and amendments, soil stabilization practices (e.g., crimped straw, hydro mulch or rolled erosion control products), and appropriate sediment Control Measures as needed.

Reseeding, mulching, etc. will be completed by Trax Construction, Inc. Expected seed mix is included in Attachment 3. Further details of seeding procedures will be added to this SWMP at a later date.

### **4.3. FINAL STABILIZATION**

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.

Item 25. Specify that inspection logs must be signed by QSM.

Item 26. Add a note stating that this project does not rely on control measures owned or operated by another entity.

5. INSPECTIONS AND MAINTENANCE

describe what criteria will trigger maintenance, how fast it will be completed after inspection, etc.

5.1. MINIMUM INSPECTION SCHEDULE

During construction the permittee shall, at a minimum, make a thorough inspection either once every 14 calendar days and after a storm event, or once every 7 calendar days regardless of weather. After construction is complete and stabilization methods implemented, inspections may be conducted once per month as described in Section 5.1.2. The inspection frequency shall be listed on the Inspection Form (Attachment 4). Post-storm event inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Provided the timing is appropriate, the post-storm inspections may be used to fulfill the 14-day routine inspection requirement. A more frequent inspection schedule than the minimum inspections described may be necessary, to ensure that Control Measures continue to operate as needed to comply with the permit. Inspections will be stored on Utilities’ sharepoint system with the rest of the SWMP which crew will have access to at any time during construction. A hard copy of the plan will be provided if preferred by the crew.

5.1.1. POST-STORM EVENT INSPECTIONS AT TEMPORARILY IDLE SITES

If permittee is using the 14-Day and After Storm inspection frequency and if no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The occurrence of any such delayed inspection must be documented in the inspection record. Routine inspections still must be conducted at least every 14 calendar days.

If an area of a site lies idle for more than two weeks, permanent stabilization measures will be initiated.

5.1.2. INSPECTIONS AT COMPLETED SITES/AREAS

For sites or portions of sites that meet the following criteria, but final stabilization has not been achieved due to a vegetative cover that has not become established, the permittee shall make a thorough inspection of their stormwater management system at least once every month, and post-storm event inspections are not required. This reduced inspection schedule is only allowed if:

- a) all construction activities that will result in surface ground disturbance are completed;
- b) all activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
- c) the SWMP has been amended to indicate those areas that will be inspected in accordance with the reduced schedule allowed for in this paragraph.

5.1.3. WINTER CONDITIONS INSPECTIONS EXCLUSION

Inspections are not required at sites where construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This exception is applicable only during the period where melting conditions do not exist, and applies to the routine 14-day and monthly inspections, as well as the post-storm event inspections. The following information must be documented in the inspection record for use of this exclusion: dates when snow cover occurred, date when construction activities ceased, and date melting conditions began. Inspections, as described above, are required at all other times.

Item 21. Add text stating that the 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 SW quality issues at the site. The QSM shall amend the SWMP when there is a change in design, construction, O&M 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 SW discharges associated with construction activity or when BMPs are no longer necessary and are removed.

## CERTIFICATION STATEMENT

See SWMP Checklist for checklist review certifications.

ATTACHMENT 1  
CDPS GENERAL PERMIT

**CDPS GENERAL PERMIT, STORMWATER DISCHARGES ASSOCIATED WITH  
CONSTRUCTION ACTIVITY**



# STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT  
Water Quality Control Division

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

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

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

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

Issued and signed this 1st day of November 2018.

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Ellen Howard Kutzer, Permits Section Manager  
Water Quality Control Division

## Permit History

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

## Table of Contents

Part I .....	1
A. COVERAGE UNDER THIS PERMIT.....	1
1. Authorized Discharges .....	1
2. Limitations on Coverage.....	1
3. Permit Certification and Submittal Procedures .....	2
B. EFFLUENT LIMITATIONS .....	6
1. Requirements for Control Measures Used to Meet Effluent Limitations .....	6
2. Discharges to an Impaired Waterbody.....	9
3. General Requirements .....	10
C. STORMWATER MANAGEMENT PLAN (SWMP) REQUIREMENTS .....	11
1. SWMP General Requirements .....	11
2. SWMP Content .....	11
3. SWMP Review and Revisions .....	13
4. SWMP Availability.....	14
D. SITE INSPECTIONS.....	14
1. Person Responsible for Conducting Inspections .....	14
2. Inspection Frequency .....	14
3. Inspection Frequency for Discharges to Outstanding Waters.....	15
4. Reduced Inspection Frequency .....	15
5. Inspection Scope.....	16
E. DEFINITIONS .....	17
F. MONITORING.....	20
G. Oil and Gas Construction .....	21
Part II: Standard Permit Conditions.....	22
A. DUTY TO COMPLY.....	22
B. DUTY TO REAPPLY .....	22
C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE .....	22
D. DUTY TO MITIGATE .....	22
E. PROPER OPERATION AND MAINTENANCE .....	22
F. PERMIT ACTIONS .....	22
G. PROPERTY RIGHTS .....	22
H. DUTY TO PROVIDE INFORMATION .....	23
I. INSPECTION AND ENTRY .....	23
J. MONITORING AND RECORDS .....	23
K. SIGNATORY REQUIREMENTS .....	24

1. Authorization to Sign:.....	24
2. Electronic Signatures .....	25
3. Change in Authorization to Sign .....	25
L. REPORTING REQUIREMENTS .....	25
1. Planned Changes.....	25
2. Anticipated Non-Compliance .....	25
3. Transfer of Ownership or Control .....	25
4. Monitoring reports.....	26
5. Compliance Schedules .....	26
6. Twenty-four hour reporting.....	26
7. Other non-compliance .....	27
8. Other information .....	27
M. BYPASS .....	27
1. Bypass not exceeding limitations .....	27
2. Notice of bypass .....	27
3. Prohibition of Bypass.....	27
N. UPSET.....	28
1. Effect of an upset .....	28
2. Conditions necessary for demonstration of an Upset .....	28
3. Burden of Proof .....	28
O. RETENTION OF RECORDS.....	28
1. Post-Expiration or Termination Retention .....	28
2. On-site Retention.....	29
P. REOPENER CLAUSE.....	29
1. Procedures for modification or revocation .....	29
2. Water quality protection .....	29
Q. SEVERABILITY.....	29
R. NOTIFICATION REQUIREMENTS .....	29
1. Notification to Parties .....	29
S. RESPONSIBILITIES .....	30
1. Reduction, Loss, or Failure of Treatment Facility .....	30
T. Oil and Hazardous Substance Liability.....	30
U. Emergency Powers.....	30
V. Confidentiality .....	30
W. Fees.....	30



X. Duration of Permit..... 30

Y. Section 307 Toxics..... 30

## Part I

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

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

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

**a. Allowable Stormwater Discharges**

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

**b. Allowable Non-Stormwater Discharges**

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

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

**c. Emergency Fire Fighting**

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

**2. Limitations on Coverage**

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

**a. Discharges of Non-Stormwater**

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

- b. Discharges Currently Covered by another Individual or General Permit
- c. Discharges Currently Covered by a Water Quality Control Division (division) Low Risk Guidance Document

### 3. Permit Certification and Submittal Procedures

#### a. Duty to apply

The following activities shall apply for coverage under this permit:

- i. Construction sites that will disturb one acre or more; or
- ii. Construction sites that are part of a [common plan of development or sale](#); or
- iii. Stormwater discharges that are designated by the division as needing a stormwater permit because the discharge:
  - (a) Contributes to a violation of a water quality standard; or
  - (b) is a significant contributor of pollutants to state waters.

#### b. Application Requirements

To obtain authorization to discharge under this permit, applicants applying for coverage following the effective date of the renewal permit shall meet the following requirements:

- i. Owners and operators submitting an application for permit coverage will be co-permittees subject to the same benefits, duties, and obligations under this permit.
- ii. Signature requirements: Both the [owner](#) and [operator](#) (permittee) of the construction site, as defined in Part I.E., must agree to the terms and conditions of the permit and submit a completed application that includes the signature of both the owner and the operator. In cases where the duties of the owner and operator are managed by the owner, both application signatures may be completed by the owner. Both the owner and operator are responsible for ensuring compliance with all terms and conditions of the permit, including implementation of the stormwater management plan.
- iii. Applicants must use the paper form provided by the division or the electronic form provided on the division's web-based application platform when applying for coverage under this permit.
- iv. The applicant(s) must develop a stormwater management plan (SWMP) in accordance with the requirements of Part I.C. The applicant(s) must also certify that the SWMP is complete, or will be complete, prior to commencement of any construction activity.

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

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

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

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

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

i. Signature Certification

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

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

f. Compliance Document Signature Requirements

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

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

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

g. Field Wide Permit Coverage for Oil and Gas Construction

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

h. Permit Coverage without Application

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

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

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

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

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

k. Permit Expiration and Continuation of Permit Coverage

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

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

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

## B. EFFLUENT LIMITATIONS

### 1. Requirements for Control Measures Used to Meet Effluent Limitations

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

#### a. Stormwater Pollution Prevention

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

##### i. Control Measures for Erosion and Sediment Control

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

Specific control measures must meet the requirements listed below.

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

ii. Practices for Other Common Pollutants

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



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

iii. Stabilization Requirements

The following requirements must be implemented for each site.

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

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

b. Maintenance

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

c. Corrective Actions

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

- i. The permittee must take all necessary steps to minimize or prevent the discharge of pollutants, until a control measure is implemented and made operational and/or an inadequate control measure is replaced or corrected and returned to effective operating condition. If it is infeasible to install or repair of control measure immediately after discovering the deficiency, the following must be documented and kept on record in accordance with the recordkeeping requirements in Part II.
  - (a) Describe why it is infeasible to initiate the installation or repair immediately; and
  - (b) Provide a schedule for installing or repairing the control measure and returning it to an effective operating condition as soon as possible.
- ii. If applicable, the permittee must remove and properly dispose of any unauthorized release or discharge (e.g., discharge of non-stormwater, spill, or leak not authorized by this permit.) The permittee must also clean up any contaminated surfaces to minimize discharges of the material in subsequent storm events.

2. Discharges to an Impaired Waterbody

a. Total Maximum Daily Load (TMDL)

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

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

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

### 3. General Requirements

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

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

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

**2. SWMP Content**

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

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

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

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

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

### 3. SWMP Review and Revisions

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

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

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

#### 4. SWMP Availability

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

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

#### D. SITE INSPECTIONS

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

##### 1. Person Responsible for Conducting Inspections

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

##### 2. Inspection Frequency

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

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

### 3. Inspection Frequency for Discharges to Outstanding Waters

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

### 4. Reduced Inspection Frequency

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

#### a. Post-Storm Inspections at Temporarily Idle Sites

For permittees choosing to combine 14-day inspections and post-storm-event inspections, if no construction activities will occur following a storm event, post-storm event inspections must be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The delay of any post-storm event inspection must be documented in the inspection record. Routine inspections must still be conducted at least every 14 calendar days.

#### b. Inspections at Completed Sites/Areas

When the site, or portions of a site are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system at least once every 30 days. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:

- i. all construction activities resulting in ground disturbance are complete;
- ii. all activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
- iii. the SWMP has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph.

#### c. Winter Conditions Inspections Exclusion



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

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

## 5. Inspection Scope

### a. Areas to be Inspected

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

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

### b. Inspection Requirements

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

### c. Inspection Reports

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

- i. the inspection date;

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

## E. DEFINITIONS

For the purposes of this permit:

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

- (5) Control Measure Requiring Routine Maintenance - Any control measure that is still operating in accordance with its design and the requirements of this permit, but requires maintenance to prevent a breach of the control measure. See also inadequate control measure.
- (6) Dedicated Asphalt, Concrete Batch Plants and Masonry Mixing Stations - are batch plants or mixing stations located on, or within  $\frac{1}{4}$  mile of, a construction site and that provide materials only to that specific construction site.
- (7) Final Stabilization - The condition reached when all ground surface disturbing activities at the site have been completed, and for all areas of ground surface disturbing activities where a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.
- (8) Good Engineering, Hydrologic and Pollution Control Practices: are methods, procedures, and practices that:
  - a. Are based on basic scientific fact(s).
  - b. Reflect best industry practices and standards.
  - c. Are appropriate for the conditions and pollutant sources.
  - d. Provide appropriate solutions to meet the associated permit requirements, including practice based effluent limits.
- (9) Inadequate Control Measure - Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design. See also Control Measure Requiring Routine Maintenance.
- (10) Infeasible - Not technologically possible, or not economically practicable and achievable in light of best industry practices.
- (11) Minimize - reduce or eliminate to the extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice.
- (12) Municipality - A city, town, county, district, association, or other public body created by, or under, State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or a designated and approved management agency under section 208 of CWA (1987).
- (13) Municipal Separate Storm Sewer System (MS4) - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):
  - a) owned or operated by a State, city, town, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to state waters;
    - i. designed or used for collecting or conveying stormwater;
    - ii. are not a combined sewer; and
    - iii. are not part of a Publicly Owned Treatment Works (POTW). See 5 CCR 1002-61.2(62).
- (14) Municipal Stormwater Management Program - A stormwater program operated by a municipality, typically to meet the requirements of the municipalities MS4 discharge certification.

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

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

## F. MONITORING

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

If monitoring is required, the following applies:

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

**G. Oil and Gas Construction**

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

**Part II: Standard Permit Conditions**

**A. DUTY TO COMPLY**

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

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

**B. DUTY TO REAPPLY**

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

**C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE**

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

**D. DUTY TO MITIGATE**

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

**E. PROPER OPERATION AND MAINTENANCE**

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

**F. PERMIT ACTIONS**

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

**G. PROPERTY RIGHTS**

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

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

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

**H. DUTY TO PROVIDE INFORMATION**

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

**I. INSPECTION AND ENTRY**

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

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

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

**J. MONITORING AND RECORDS**

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



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

#### K. SIGNATORY REQUIREMENTS

##### 1. Authorization to Sign:

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

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

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

## 2. Electronic Signatures

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

## 3. Change in Authorization to Sign

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

# L. REPORTING REQUIREMENTS

## 1. Planned Changes

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

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

## 2. Anticipated Non-Compliance

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

## 3. Transfer of Ownership or Control

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

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

#### 4. Monitoring reports

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

#### 5. Compliance Schedules

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

#### 6. Twenty-four hour reporting

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

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

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

7. Other non-compliance

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

8. Other information

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

**M. BYPASS**

1. Bypass not exceeding limitations

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

2. Notice of bypass

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

3. Prohibition of Bypass

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

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

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

**N. UPSET**

**1. Effect of an upset**

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

**2. Conditions necessary for demonstration of an Upset**

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

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

**3. Burden of Proof**

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

**O. RETENTION OF RECORDS**

**1. Post-Expiration or Termination Retention**

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

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

**2. On-site Retention**

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

**P. REOPENER CLAUSE**

**1. Procedures for modification or revocation**

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

**2. Water quality protection**

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

**Q. SEVERABILITY**

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

**R. NOTIFICATION REQUIREMENTS**

**1. Notification to Parties**

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

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

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

**b. Written notification shall be to:**

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

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

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

**T. Oil and Hazardous Substance Liability**

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

**U. Emergency Powers**

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

**V. Confidentiality**

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

**W. Fees**

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

**X. Duration of Permit**

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

**Y. Section 307 Toxics**

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

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



ATTACHMENT 2  
SOILS REPORT



United States  
Department of  
Agriculture

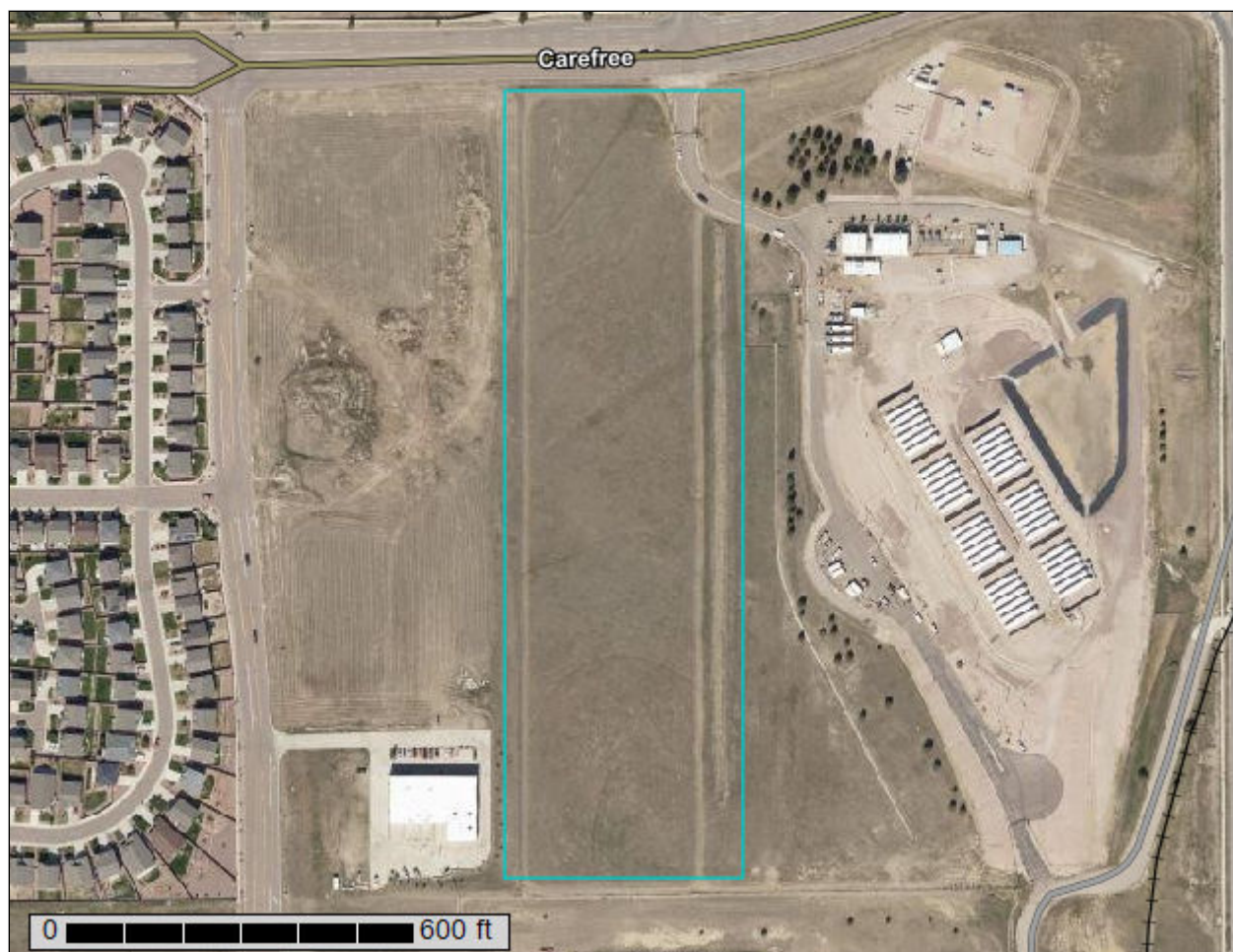
**NRCS**

Natural  
Resources  
Conservation  
Service

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

# Custom Soil Resource Report for **El Paso County Area, Colorado**

## GPAP Staging Area



# Preface

---

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

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

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

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

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

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

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

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

# Contents

---

<b>Preface</b> .....	2
<b>How Soil Surveys Are Made</b> .....	5
<b>Soil Map</b> .....	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
El Paso County Area, Colorado.....	13
97—Truckton sandy loam, 3 to 9 percent slopes.....	13
<b>References</b> .....	15

# How Soil Surveys Are Made

---

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

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

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

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

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

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

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

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

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

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

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

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

## Custom Soil Resource Report

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

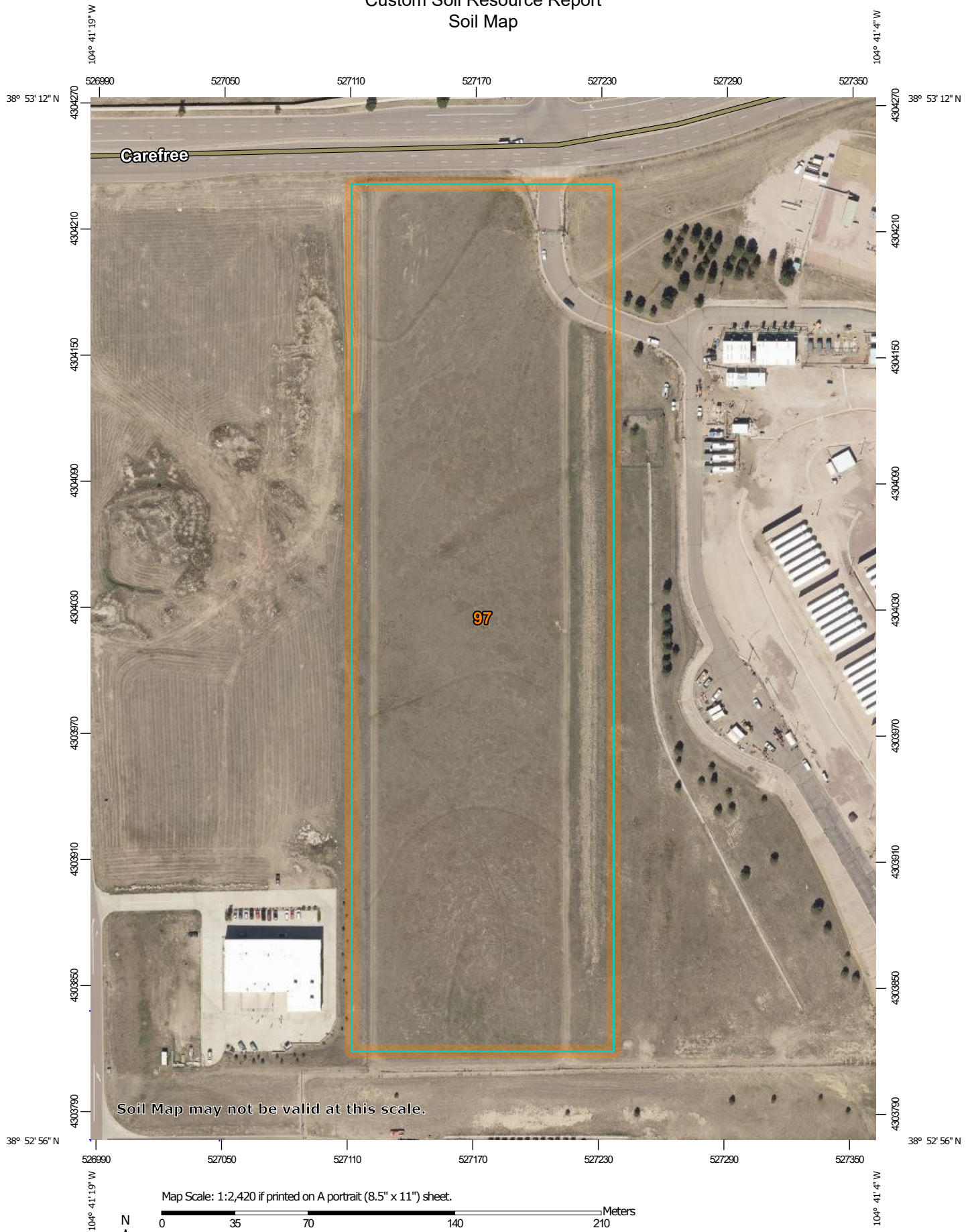


# Soil Map

---

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

# Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.


Map Scale: 1:2,420 if printed on A portrait (8.5" x 11") sheet.

0 35 70 140 210 Meters  
0 100 200 400 600 Feet

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


## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils


 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry


 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

### Water Features

 Streams and Canals

### Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado  
Survey Area Data: Version 18, Jun 5, 2020

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

Date(s) aerial images were photographed: Aug 19, 2018—Sep 23, 2018

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
97	Truckton sandy loam, 3 to 9 percent slopes	12.8	100.0%
<b>Totals for Area of Interest</b>		<b>12.8</b>	<b>100.0%</b>

## Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

## El Paso County Area, Colorado

### 97—Truckton sandy loam, 3 to 9 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2x0j2  
*Elevation:* 5,300 to 6,850 feet  
*Mean annual precipitation:* 14 to 19 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 85 to 155 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

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

#### Description of Truckton

##### Setting

*Landform:* Hillslopes, interfluves  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Re-worked alluvium derived from arkose

##### Typical profile

*A - 0 to 4 inches:* sandy loam  
*Bt1 - 4 to 12 inches:* sandy loam  
*Bt2 - 12 to 19 inches:* sandy loam  
*C - 19 to 80 inches:* sandy loam

##### Properties and qualities

*Slope:* 3 to 9 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 1 percent  
*Maximum salinity:* Nonsaline (0.1 to 1.9 mmhos/cm)  
*Available water capacity:* Moderate (about 6.6 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 6e  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* A  
*Ecological site:* R049XB210CO - Sandy Foothill  
*Hydric soil rating:* No

## Minor Components

### Blakeland

*Percent of map unit:* 8 percent

*Landform:* Interfluves, hillslopes

*Landform position (two-dimensional):* Shoulder, backslope, summit

*Landform position (three-dimensional):* Side slope, crest

*Down-slope shape:* Linear, convex

*Across-slope shape:* Linear, convex

*Ecological site:* R049XB210CO - Sandy Foothill

*Hydric soil rating:* No

### Bresser

*Percent of map unit:* 7 percent

*Landform:* Interfluves, low hills

*Landform position (two-dimensional):* Footslope, toeslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Linear, concave

*Across-slope shape:* Linear, concave

*Ecological site:* R049XB210CO - Sandy Foothill

*Hydric soil rating:* No

# References

---

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053580](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580)
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>



## Custom Soil Resource Report

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

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)

ATTACHMENT 3  
CONTROL MEASURE INSTALLATION AND MAINTENANCE

**FUELING PROCEDURES, SPILL CLEAN-UP PROCEDURES, SEEDING, LOW-  
RISK DISCHARGE GUIDANCE & CONTROL MEASURES: DESCRIPTION,  
APPLICATIONS, LIMITATIONS, DESIGN GUIDELINES, INSTALLATION,  
MAINTENANCE AND INSPECTION**

# STORMWATER BEST MANAGEMENT PRACTICE

## CLEAN-UP OF INCIDENTAL PETROLEUM FUEL & NON-PCB OIL SPILLS

**APPLICABILITY:** This guidance document is only applicable to incidental petroleum fuel and non-pcb oil spills that are less than 25 gallons *and* can be cleaned up within 24 hours *and* have not caused a sheen on nearby surface water *and* are not located at a facility with a Spill Prevention, Control, and Countermeasure (SPCC) Plan. An incidental spill is one that can be safely absorbed, neutralized, or otherwise controlled at the time of release by personnel in the release area. Colorado Springs Utilities - Environmental Services Department – Regulatory Services Section (RSS) can provide consultation and assistance.

**SAFETY:** During clean-up of an incidental spill, personnel safety / human health are of greatest importance. Personnel must not take unnecessary risks, and must beware of vapor and fire hazards. City or Utility personnel may only respond if they have received proper training *and* feel comfortable doing in a safe manner. Personnel who are qualified through training shall wear appropriate Personal Protective Equipment (PPE) for which they are physically approved.

**IDENTIFY:** Identify the spilled substance and source. Decide whether the spill is small enough to handle without outside assistance. Refer to the products Material Safety Data Sheets (MSDS) for hazard information and to aid in the selection of appropriate PPE.

**CONTAIN AND PROTECT DRAINS:** Pursue ways for immediate containment of the spilled material. Use absorbent materials, dirt, or other spill response equipment to prevent the spilled material from reaching a surface water or storm water drain. Protecting a drain could be the most valuable activity performed.

**CLEAN-UP:** It is important that the spilled material be promptly cleaned up. Delaying clean up allows for spreading of spills by rain and vehicle traffic, and may be a safety hazard.

- ▼ For spills on low-permeable surfaces, such as asphalt or concrete:
  - Initially, “dry” methods for spill clean-up are preferable.
  - Spread absorbents across the spill area (i.e. kitty litter, loose sorbents, petroleum absorbent pads).
  - Broom or shovel (non-sparking) the affected absorbent and place it into a covered container.
  - To minimize the potential for regulatory citations, it is generally recommended that residual staining be further cleaned with a hot water pressure washer and possibly detergents (preferably biodegradable). These rinsates must also be collected and containerized.
- ▼ For spills on permeable surfaces, such as grass, gravel, or soil:
  - Promptly mark the perimeter of the affected area.
  - Excavate the materials within the area to depths where indications of impact (discoloration, petroleum odors, or visible product) are not apparent.
  - Contact RSS for consultation regarding the need for confirmatory sampling.
  - Place the excavated material into a covered container or stockpile the material. Stockpiles must be placed on an asphalt pad, concrete pad, or plastic / visqueen liner that retards leaching of contaminants. Stockpiles must be protected with a plastic / visqueen cover that prevents infiltration from rainwater and by berms or other devices that divert run-on of stormwater.

**DISPOSAL:** Once all the spilled material has been absorbed, cleaned-up, and contained, contact RSS for assistance with disposal / recycling of the materials.

**DOCUMENT AND EVALUATE:** Document the clean-up activities performed. Determine the reason for the spill. Make improvements in order that a reoccurrence may be avoided.

# Vehicle and Equipment Fueling Procedures

- Employees and subcontractors must be informed on proper fueling and cleanup procedures.
- All fueling operations must be attended at all times.
- No smoking while fueling.
- Do not fuel during major precipitation events.
- Onsite vehicle and equipment fueling should occur only when offsite fueling is impractical.
- Do not "top-off" fuel tanks.
- All fueling areas and fuel trucks must have absorbent spill cleanup materials and spill kits.
- Absorbent materials should be used on small spills and must be promptly and properly disposed.
- Drip pans are recommended during all vehicle and equipment fueling.
- Fueling should occur in designated fueling areas; a designated fueling area should be level, protected from stormwater run-on and runoff, and must be located at least 50 feet from a drainage course or waterway.
- Nozzles should be equipped with an automatic shutoff to control drips.
- The project superintendent should be promptly informed of all spills, who shall contact Colorado Springs Utilities - Environmental Services Department - Regulatory Services Section to evaluate any regulatory reporting requirements.
- In the event of an emergency, or a spill that can not be safely absorbed or otherwise controlled at the time of release, call 911.

# STATE OF COLORADO

Bill Ritter, Jr., Governor  
James B. Martin, Executive Director

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

4300 Cherry Creek Dr. S.  
Denver, Colorado 80246-1530  
Phone (303) 692-2000  
TDD Line (303) 691-7700  
Located in Glendale, Colorado

Laboratory Services Division  
8100 Lowry Blvd.  
Denver, Colorado 80230-6928  
(303) 692-3090

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



Colorado Department  
of Public Health  
and Environment

## **LOW RISK DISCHARGE GUIDANCE:**

## **DISCHARGES OF POTABLE WATER**

**Revised August 2009**

This discharge guidance has been developed in accordance with WQP-27, Low Risk Discharges. The Division has previously had coverage for some discharges of potable water under the Treated Water Distribution Permit (COG380000), however, this permit is only available to entities that produce, store and distribute potable water supplies. The Division does not intend to renew the Treated Water Distribution Permit as all authorized discharges under this permit are potable water related. Other discharges of potable water have been covered under the Minimum Industrial Discharge Permit (COG600000); however, this permit is in process of being dismantled as it has evolved into covering numerous facility and discharge types.

When the provisions of this guidance are met, the Division will not actively pursue permitting or enforcement for the discharge of potable water, unless on a case-by-case basis the Division finds that a discharge has resulted in an adverse impact to the quality of any state waters receiving the discharge.

Discharges of potable water are a type of industrial activity with short term infrequent discharges that with proper management are not expected to contain pollutants in concentrations that are toxic or in concentrations that would cause or contribute to a violation of a water quality standard. The typical pollutant of concern is total residual chlorine, however, depending on how the discharge occurs, total suspended solids and oil and grease may become pollutants of concern. These pollutants can be handled using dechlorination techniques, filters, oil booms, and other best management practices (BMPs).

There are a large number of discharges of potable water, some of which are covered under the previously mentioned General Permits. Numerous discharges occur without permit coverage. These types of discharges may occur at all times of the year, and require a resource intensive effort to permit, without resulting in a clear general benefit to environmental quality.

The following conditions must be followed by anyone discharging potable water:

- The discharge of cleaning materials or chemicals, including dyes, is strictly prohibited, and should be sent to the sanitary sewer, with permission of the local wastewater treatment facility, or otherwise collected and disposed of.

# CHECK DAM

## CD



## 1.0 DESCRIPTION

- Check dams are small temporary rock dams constructed across a swale or drainage ditch.

## 2.0 PURPOSE

- Used to slow down the velocity of concentrated flow to limit erosion and to promote sedimentation.
- Placed in areas of concentrated flow, such as a ditch or swale.

## 3.0 IMPLEMENTATION

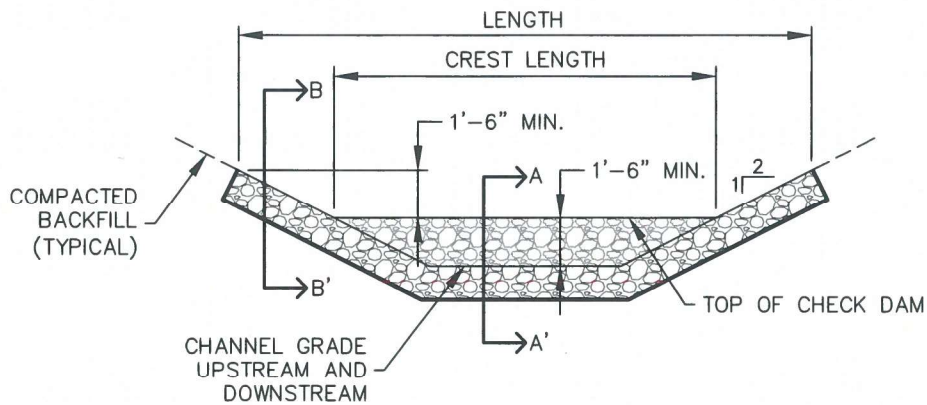
- Place check dams at regular intervals perpendicular to the direction of flow.
- Use check dams on mild or moderately steep slopes.
- Install wide enough check dams to reach from bank to bank of the ditch or swale.
- In general, the maximum spacing between check dams should be such that the toe of the upstream check dam is at the same elevation as the top of the downstream check dam.
- During installation, place rock mechanically or by hand.

## 4.0 TIMING

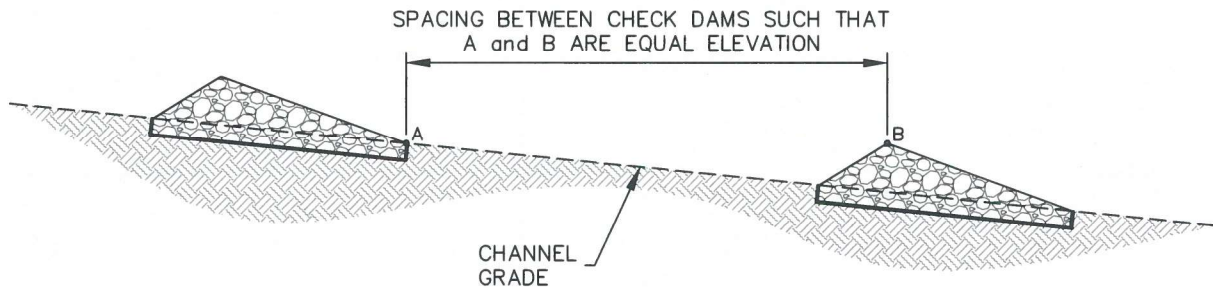
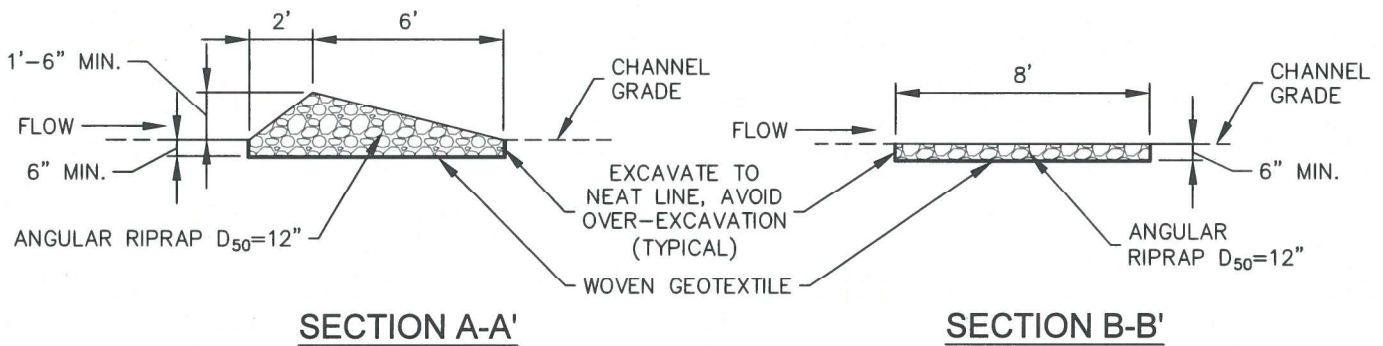
- Install prior to land disturbing activities.
- Remove after surrounding area has been permanently stabilized, or immediately prior to installation of a non-erodible lining. Permanently stabilize bare areas caused by check dams after removal.

## 5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the check dam crest.
- Replace missing rocks causing voids in the check dam.
- Inspect for erosion along the ends of check dams and repair when necessary.



### CHECK DAM ELEVATION VIEW



### PROFILE

#### INSTALLATION NOTES

1. CHECK DAMS SHOULD BE INSTALLED BEFORE UPSTREAM LAND DISTURBING ACTIVITIES.
2. RIPRAP PAD SHOULD BE TRENCHED INTO GROUND BY A MINIMUM OF 6".

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES  $\frac{1}{2}$  THE HEIGHT OF THE CHECK DAM CREST.
3. CHECK DAMS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER CHECK DAMS ARE REMOVED IF REMOVAL IS REQUIRED.



### CHECK DAM

APPROVED:

SWENT MANAGER

ISSUED:  
10/7/19

REVISED:  
8/19/2020

DRAWING NO.  
900-CD



# CULVERT INLET PROTECTION

## CIP



## 1.0 DESCRIPTION

- Culvert inlet protection consists of a permeable sediment barrier installed upstream of a flared end section entrance to a culvert or storm sewer.

## 2.0 PURPOSE

- Used to prevent sediment and debris from entering a culvert or storm drainage system prior to permanent stabilization of the contributing disturbed area.
- Culvert inlet protection slows down runoff velocity to filter runoff and to promote sedimentation prior to entry into a culvert or storm drainage system.

## 3.0 IMPLEMENTATION

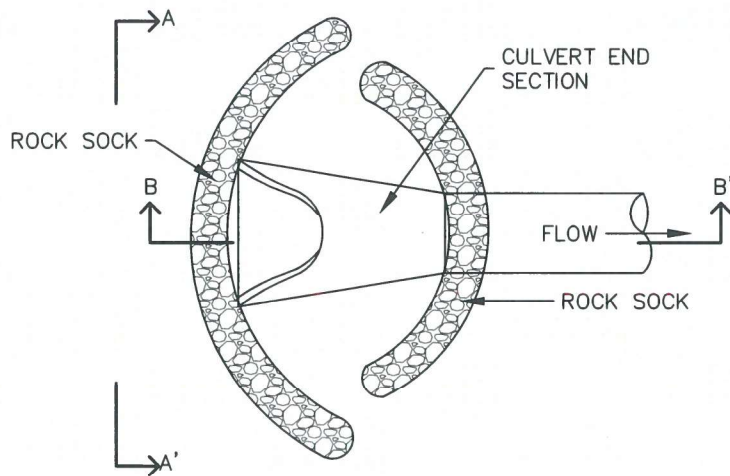
- Install culvert inlet protection at flared end section inlets to culverts and storm sewers that are operable and receiving runoff from disturbed areas during construction.
- Culvert inlet protection is not a stand-alone control measure and should be used in conjunction with other upgradient control measures. Culvert inlet protection with a contributing drainage area including of one acre or more of disturbed area must be part of a treatment train.

## 4.0 TIMING

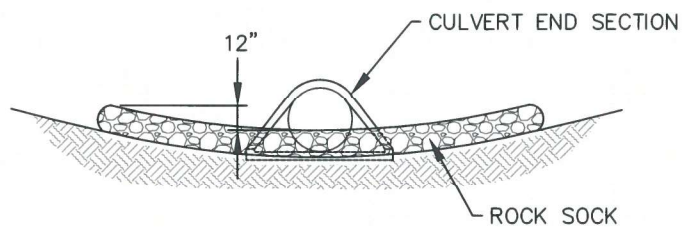
- Install prior to land disturbing activities, or immediately after pipe installation.
- Remove and properly dispose of culvert inlet protection after the contributing drainage area has been permanently stabilized.

## 5.0 MAINTENANCE

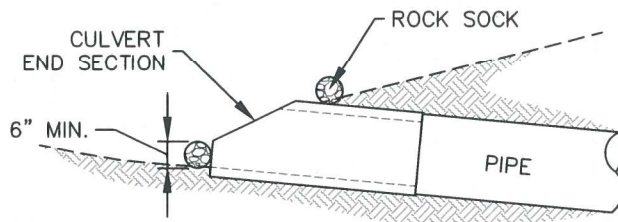
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the rock sock.
- Inspect for displaced rock socks that are no longer protecting the inlet.



**CULVERT INLET PROTECTION PLAN**



**SECTION A-A'**



**SECTION B-B'**

**INSTALLATION NOTES**

1. SEE ROCK SOCK DETAIL.

**MAINTENANCE NOTES**

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS  $\frac{1}{2}$  HEIGHT OF THE ROCK SOCK.
3. CULVERT INLET PROTECTION SHALL REMAIN UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.



**CULVERT INLET  
PROTECTION**

APPROVED:

SWENT MANAGER

ISSUED:  
10/7/19

REVISED:  
8/19/2020

DRAWING NO.  
900-CIP

# CONCRETE WASHOUT AREA

## CWA



## 1.0 DESCRIPTION

- Concrete washout areas consist of either an excavated pit or a prefabricated haul-away container designed to contain concrete and concrete waste water.

## 2.0 PURPOSE

- Used to contain concrete and concrete waste water when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery.
- Concrete washout areas consolidate solids for easier disposal and prevent runoff of concrete waste water, which is alkaline and contains high levels of chromium.

## 3.0 IMPLEMENTATION

- Locate at least 50 feet away from State Waters, measured horizontally. Unlined concrete washout areas must be located at least 400 feet away from State Waters, and at least 1000 feet away from wells or drinking water sources.
- Do not locate in areas where shallow groundwater may be present, such as near natural drainages, springs, or wetlands.
- Do not place in areas subject to run-on.
- Label areas with appropriate signage.
- The addition of solvents, flocculents, or acid to wash water is prohibited.

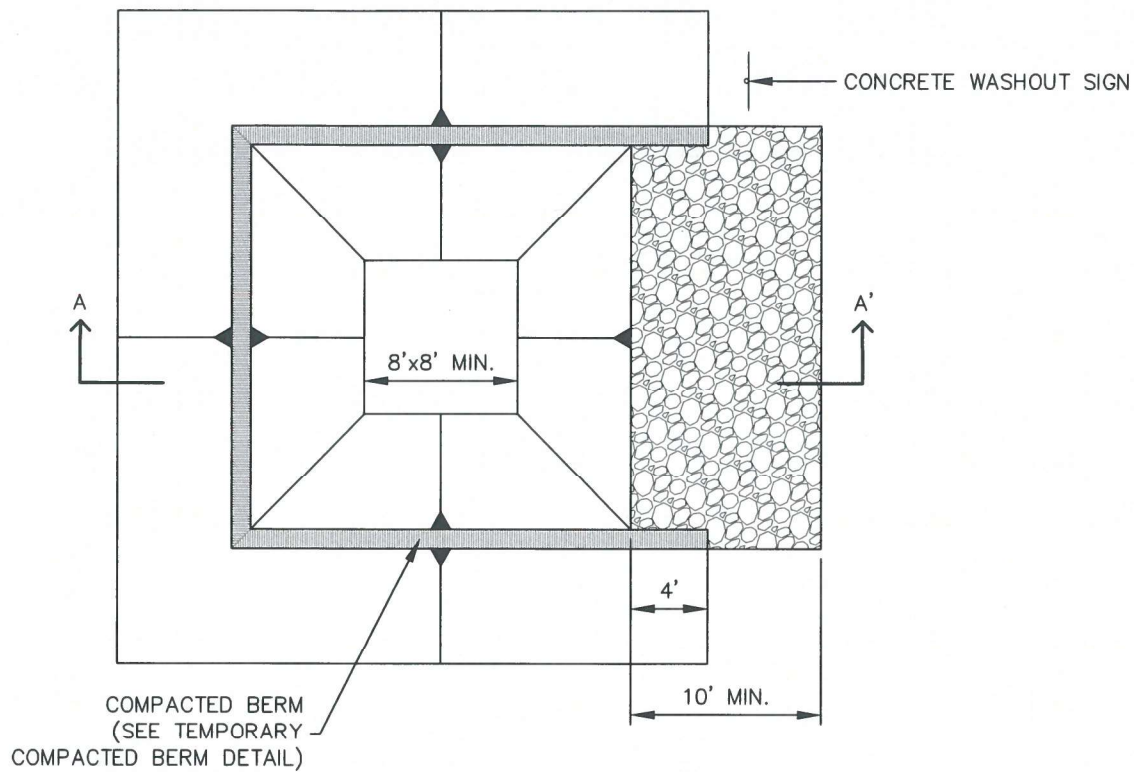
## 4.0 TIMING

- Install prior to concrete activities.
- Remove after concrete activities have concluded.

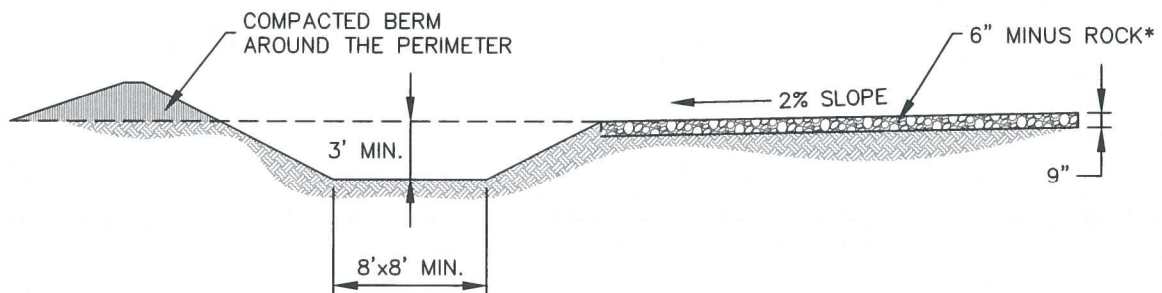
## 5.0 MAINTENANCE

- Clean out facilities once they are 2/3 full, or construct new facilities for additional capacity.
- Concrete waste must be permanently disposed of off-site in an appropriate manner.





CONCRETE WASHOUT AREA PLAN



SECTION A-A'

\*ROCK REQUIRED BASED ON  
SITE CONDITIONS AT THE  
DISCRETION OF THE GEC  
INSPECTOR



**CONCRETE  
WASHOUT AREA**

APPROVED:		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-CWA-1

#### INSTALLATION NOTES

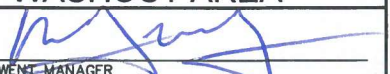
1. SEE PLAN VIEW FOR:  
—LOCATION OF CONCRETE WASHOUT AREA
2. LOCATE AT LEAST 50' AWAY FROM STATE WATERS MEASURED HORIZONTALLY.
3. AN IMPERMEABLE LINER (16 MIL. MINIMUM THICKNESS) IS REQUIRED IF CONCRETE WASH AREA IS LOCATED WITHIN 400' OF STATE WATERS OR 1000' OF WELLS OR DRINKING WATER SOURCES.
4. DO NOT LOCATE IN AREAS WHERE SHALLOW GROUNDWATER MAY BE PRESENT.
5. THE CONCRETE WASH AREA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
6. CONCRETE WASH AREA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8'.
7. BERM SURROUNDING SIDES AND BACK OF CONCRETE WASH AREA SHALL HAVE A MINIMUM HEIGHT OF 2 FEET.
8. CONCRETE WASH AREA ENTRANCE SHALL BE SLOPED 2% TOWARDS THE CONCRETE WASH AREA.
9. SIGNS SHALL BE PLACED AT THE CONCRETE WASH AREA.
10. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. THE CONCRETE WASH AREA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF  $\frac{2}{3}$  THE HEIGHT OF THE CONCRETE WASH AREA.
3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
4. THE CONCRETE WASH AREA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
5. PERMANENTLY STABILIZE AREA AFTER CONCRETE WASH AREA IS REMOVED.



#### CONCRETE WASHOUT AREA

APPROVED: 		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-CWA-2

# EROSION CONTROL BLANKET

## ECB





## 1.0 DESCRIPTION

- Woven blankets made of natural and biodegradable materials placed on disturbed areas and secured to the ground with staples or stakes.

## 2.0 PURPOSE

- Used to control erosion, retain sediment resulting from sheet flow, and protect newly seeded areas.

## 3.0 IMPLEMENTATION

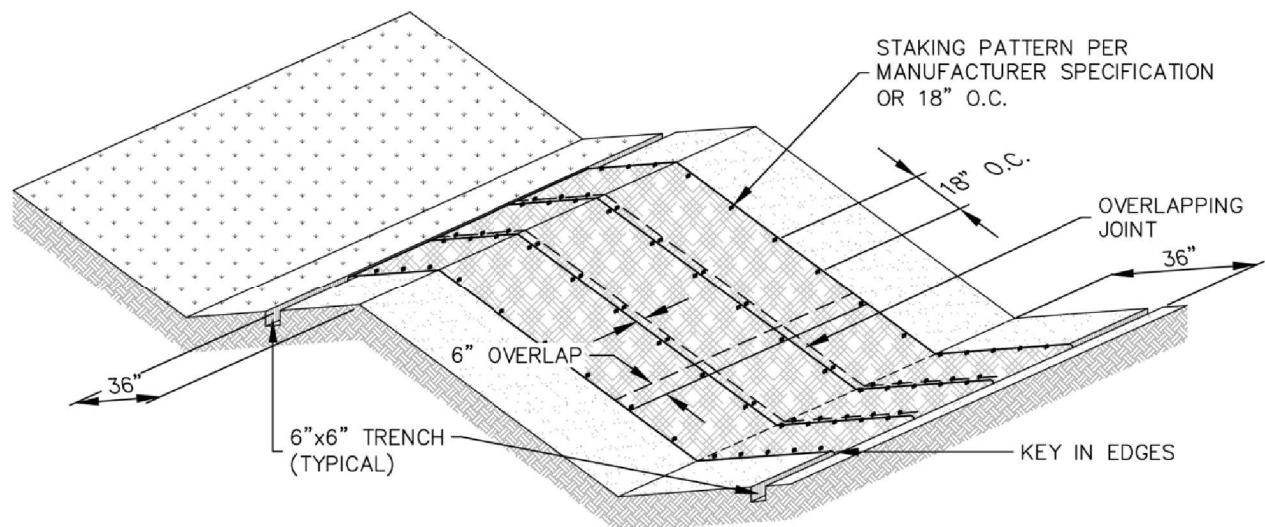
- Install erosion control blankets over uniform surfaces, with no large rocks, vegetation, or rills.
- Properly prepare topsoil and apply seed prior to blanket installation.
- Erosion control blankets must be made from 100% natural and biodegradable materials.
- Turf reinforcement mats may be used in place of erosion control blankets when specified by engineer.

## 4.0 TIMING

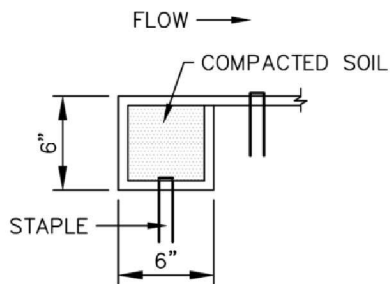
- Install in disturbed areas after final grading and seeding has been completed.
- Leave erosion control blankets in place to biodegrade, or remove if required by the GEC Inspector.

## 5.0 MAINTENANCE

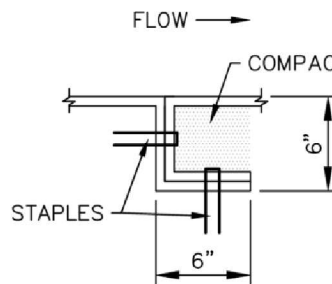
- Any erosion control blanket pulled out, torn, or otherwise damaged shall be repaired or reinstalled.
- Any subgrade areas below the geotextile that have eroded to create a void under the blanket, or that remain devoid of grass shall be repaired, reseeded and mulched and the erosion control blanket reinstalled.
- Broken or damaged staking must be repaired immediately when identified.



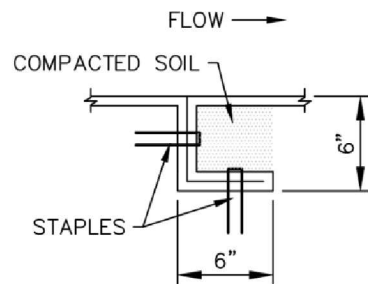
## EROSION CONTROL BLANKET



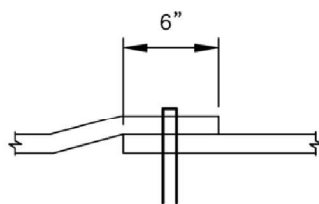
PERIMETER  
ANCHOR TRENCH



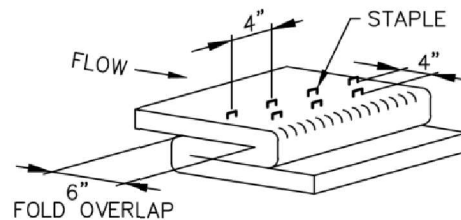
JOINT  
ANCHOR TRENCH



INTERMEDIATE  
CHECK SLOT



OVERLAPPING  
JOINT



STAPLE CHECK  
TO BE USED ON SLOPE EVERY 15 FEET



### EROSION CONTROL BLANKET

APPROVED:   
SWENT MANAGER

ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-ECB-1
--------------------	-----------------------	--------------------------

### INSTALLATION NOTES

1. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE REQUIRED FOR EROSION CONTROL BLANKETS. TRM PRODUCTS MAY BE USED WHERE APPROPRIATE AS DESIGNATED BY THE ENGINEER.
2. IN AREAS WHERE EROSION CONTROL BLANKETS ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO EROSION CONTROL BLANKET INSTALLATION, AND THE EROSION CONTROL BLANKET SHALL BE IN FULL CONTACT WITH THE SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
3. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
4. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL EROSION CONTROL BLANKETS.
5. INTERMEDIATE CHECK SLOT OR STAPLE CHECK SHALL BE INSTALLED EVERY 15' DOWN SLOPES. IN DRAINAGEWAYS, INSTALL CHECK SLOTS EVERY 25' PERPENDICULAR TO FLOW DIRECTION.
6. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER FOR EROSION CONTROL BLANKETS ON SLOPES.
7. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKETS SHALL CONFORM TO TABLE ECB-1.
8. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKETS SHALL BE RESEED AND MULCHED.
9. STRAW EROSION CONTROL BLANKETS SHALL NOT BE USED WITHIN STREAMS AND DRAINAGE CHANNELS.
10. COMPACT ALL TRENCHES.

### MAINTENANCE NOTES


1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. EROSION CONTROL BLANKETS SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE. TRM MUST BE REMOVED AT THE DISCRETION OF THE GEC INSPECTOR.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

TABLE ECB-1, EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING
STRAW	—	100%	—	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN.	70% MAX.	—	DOUBLE/NATURAL
COCONUT	100%	—	—	DOUBLE/NATURAL
EXCELSIOR	—	—	100%	DOUBLE/NATURAL



### EROSION CONTROL BLANKET

APPROVED:   
SWENT MANAGER

ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-ECB-2
--------------------	-----------------------	--------------------------

# INLET PROTECTION

## IP





## 1.0 DESCRIPTION

- Inlet protection consists of a permeable sediment barrier installed around a storm inlet.

## 2.0 PURPOSE

- Used to minimize the amount of sediment and debris entering a storm drainage system prior to permanent stabilization of the contributing disturbed area.
- Inlet protection slows down runoff velocity to filter runoff and to promote sedimentation prior to entry into a storm drainage system.

## 3.0 IMPLEMENTATION

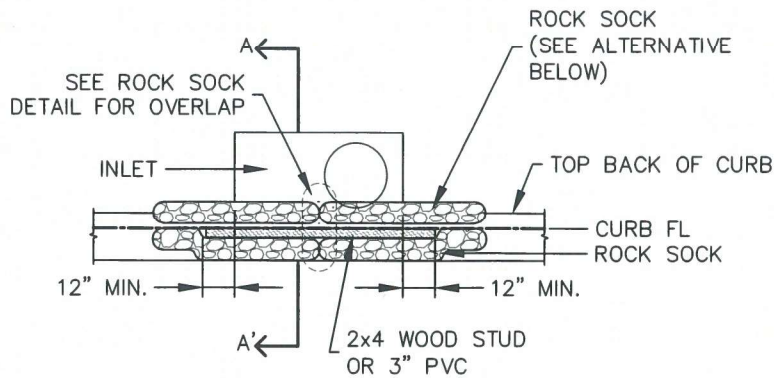
- Install inlet protection at storm sewer inlets that are operable and receiving runoff from disturbed areas during construction.
- Place inlet protection to allow the inlet to function without completely blocking flows into the inlet in a manner that causes localized flooding.
- Inlet protection is not a stand-alone control measure and should be used in conjunction with other upgradient control measures. Inlet protection in areas with a contributing drainage area of one acre or larger must be part of a treatment train.
- When selecting the type of inlet protection, consider factors such as type of inlet, traffic, anticipated flows, ability to secure the inlet protection, safety, and other site-specific conditions.

## 4.0 TIMING

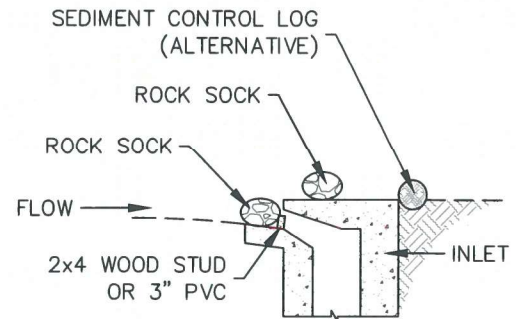
- Install prior to land disturbing activities, or immediately after inlet installation.
- Remove and properly dispose of inlet protection after the contributing drainage area has been permanently stabilized.

## 5.0 MAINTENANCE

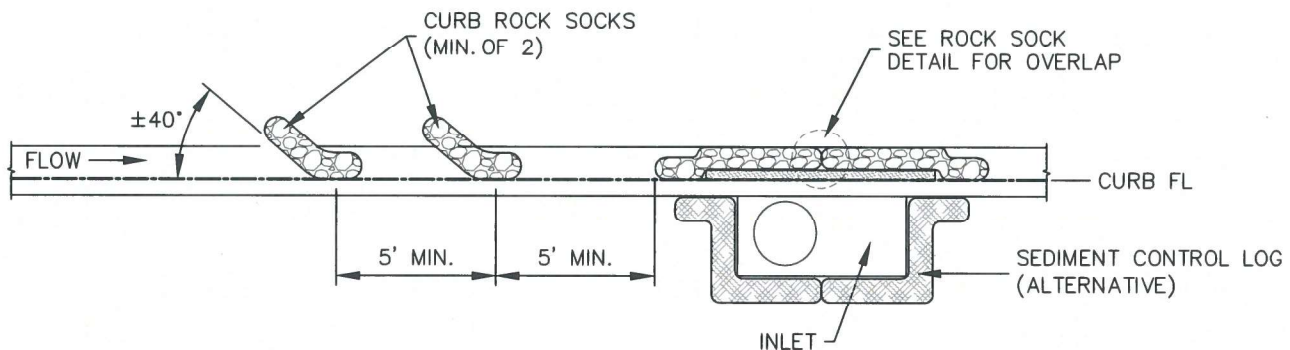
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the design depth of the inlet barrier.
- Inspect for holes or tears that can result in sediment directly entering the inlet.
- Inspect for displaced inlet protection that is no longer protecting the inlet.



**CURB INLET PROTECTION PLAN**



**SECTION A-A'**



**CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION**

**INSTALLATION NOTES**

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE ROCK SOCK SHALL BE APPROXIMATELY 40 DEGREES FROM THE CURB.
3. ROCK SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5' APART.
4. AT LEAST TWO CURB ROCK SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.
5. ADDITIONAL ROCK SOCKS MAY BE REQUIRED AT GEC INSPECTOR'S DISCRETION.

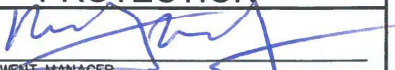
**MAINTENANCE NOTES**

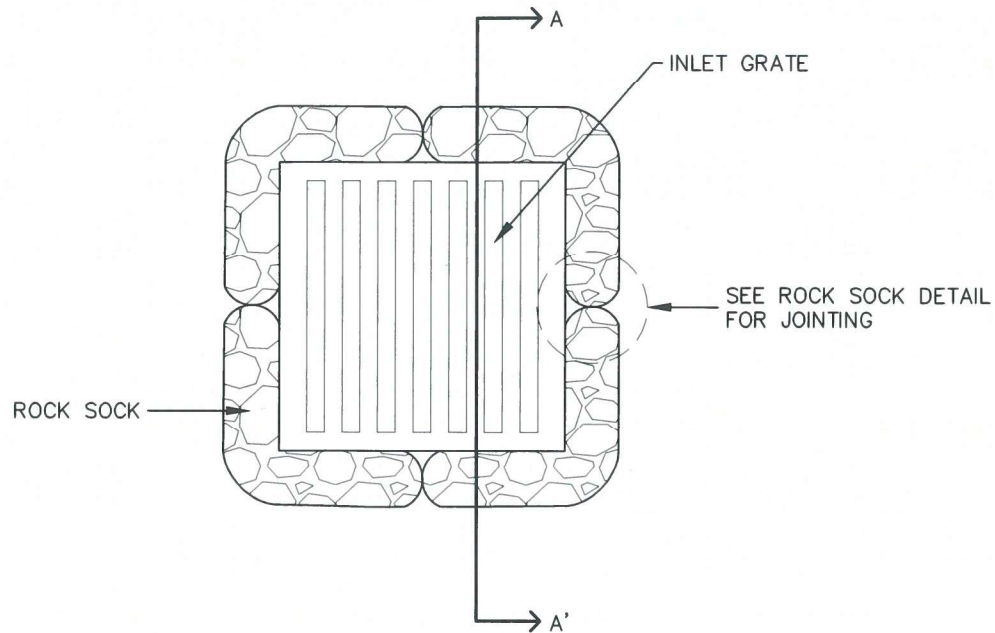
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES  $\frac{1}{2}$  OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA BEHIND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-1

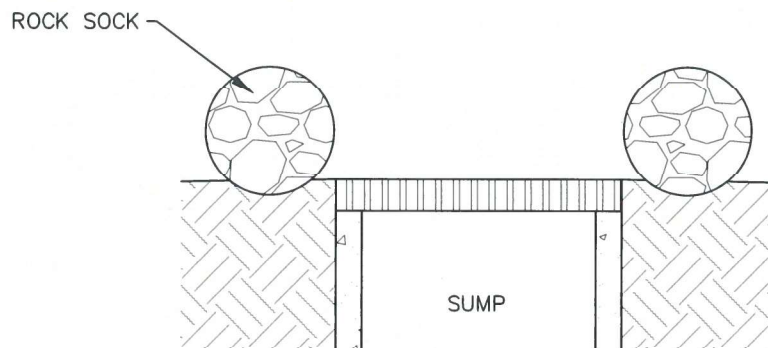


**ON-GRADE INLET PROTECTION**

APPROVED: 		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-IP-1



### ROCK SOCK SUMP INLET PROTECTION PLAN



### SECTION A-A'

#### INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS IN PVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL
3. CONTROL MEASURES MUST BE WRAPPED AROUND INLET AS TIGHTLY AS POSSIBLE.

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES  $\frac{1}{2}$  OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-2



#### SUMP INLET PROTECTION

APPROVED:

SWENT MANAGER

ISSUED:

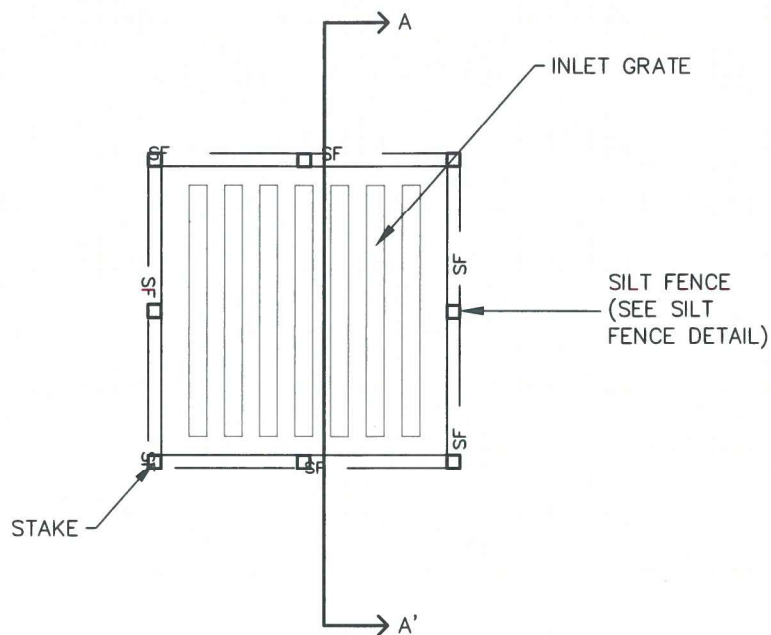
10/7/19

REVISED:

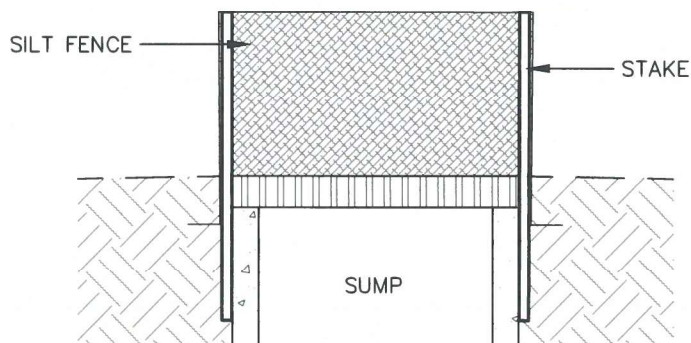
8/19/2020

DRAWING NO.

900-IP-2



### SILT FENCE SUMP INLET PROTECTION PLAN



### SECTION A-A'

#### INSTALLATION NOTES

1. SEE SILT FENCE DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF THREE FEET.
3. SILT FENCE FABRIC SHOULD HAVE A FLOW RATE IN EXCESS OF 30 GALLONS PER MINUTE PER SQUARE YARD SO AS TO ALLOW SOME WATER FLOW AND NOT DAM THE WATER. STANDARD, LOW-FLOW SILT FENCE FABRIC WILL NOT BE ALLOWED.

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES  $\frac{1}{2}$  OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER SILT FENCE IS REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-3



#### SUMP INLET PROTECTION

APPROVED:

SWENT MANAGER

ISSUED:

10/7/19

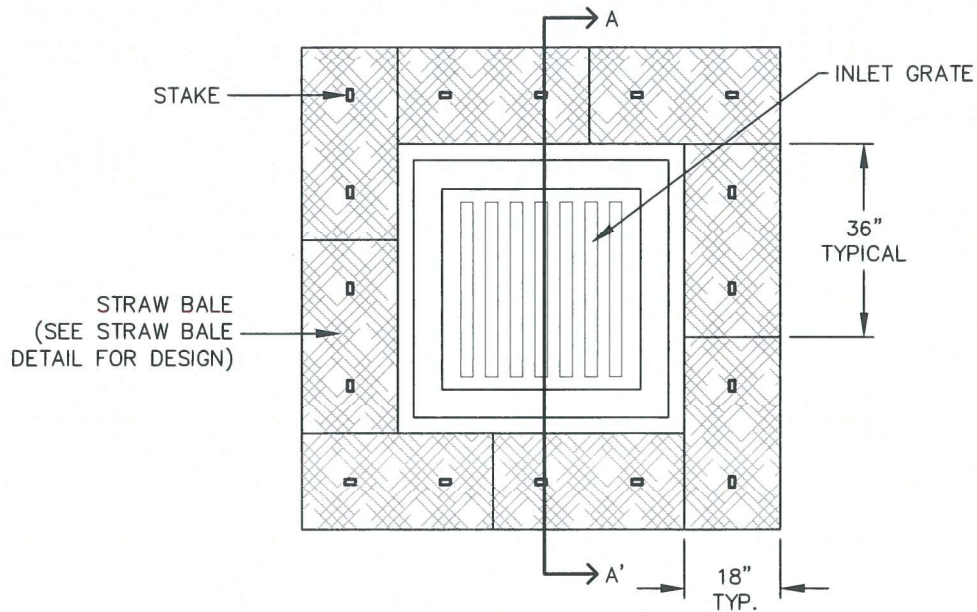
REVISED:

8/19/2020

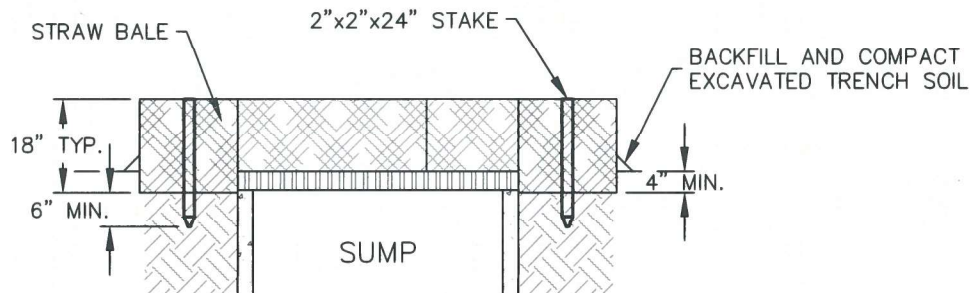
DRAWING NO.

900-IP-3





**STRAW BALE SUMP INLET PROTECTION PLAN**



**SECTION A-A'**

**INSTALLATION NOTES**

1. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE ENDS OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
4. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
5. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PACED SO THAT THE BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S).
6. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24 (MIN.)". WOODEN STAKES SHALL BE DRIVEN A MINIMUM OF 6" INTO THE GROUND.


**MAINTENANCE NOTES**

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES  $\frac{1}{2}$  OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. STRAW BALES MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER STRAW BALES ARE REMOVED WHEN REMOVAL IS APPROPRIATE.
5. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN OR DAMAGED BEYOND REPAIR.

**IP-4**



**SUMP INLET PROTECTION**

APPROVED: 		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-IP-4

# PORTABLE TOILET

## PT



## 1.0 DESCRIPTION

- The portable toilet detail provides requirements for portable toilet use on construction sites.

## 2.0 PURPOSE

- Used to minimize the risk of pollutant migration to State Waters.

## 3.0 IMPLEMENTATION

- Place portable toilet a minimum of 10 feet from the back of curb or on a trailer for road projects or sites that are mostly paved.
- Anchor portable toilet to the ground, at a minimum of two opposing corners (on a diagonal) using U-shaped rebar stakes.

## 4.0 TIMING

- Install as needed.
- Remove prior to the end of construction. Permanently stabilize any disturbed areas associated with the installation, maintenance, and/or removal of the toilets.

## 5.0 MAINTENANCE

- Portable toilets shall be serviced at the necessary intervals to eliminate the possibility of overflow.

TOP BACK OF CURB, ATTACHED SIDEWALK, OR OTHER IMPERVIOUS AREAS

EDGE OF ASPHALT

PORTABLE TOILET

10' MIN.

CURB & GUTTER

### PORTABLE TOILET PLAN

CONTRACTOR SHALL ANCHOR PORTABLE TOILET TO THE GROUND, AT A MINIMUM OF TWO OPPOSING CORNERS (ON A DIAGONAL) USING U-SHAPED REBAR STAKES

PORTABLE TOILET (TYPICAL)

10' MIN.

### ISOMETRIC

CONTRACTOR SHALL ANCHOR PORTABLE TOILET TO THE GROUND, AT A MINIMUM OF TWO OPPOSING CORNERS (ON A DIAGONAL) USING U-SHAPED REBAR STAKES OR OTHER EFFECTIVE ANCHORING

#### INSTALLATION NOTES

1. PORTABLE TOILETS SHALL BE PLACED A MINIMUM OF 10 FEET BEHIND ALL CURBS, SIDEWALKS, AND OTHER IMPERVIOUS AREAS; 50 FEET FROM STORM INLETS, AND 100 FEET FROM WATERWAYS.
2. PORTABLE TOILETS IN THE RIGHT-OF-WAY ARE REQUIRED TO BE PLACED ON MOBILE TRAILERS AND MUST BE ANCHORED OR WEIGHTED DOWN. PORTABLE TOILETS MAY BE INSTALLED IN ACCORDANCE WITH NOTE #1 IN STAGING AREAS/YARDS.
3. PORTABLE TOILETS SHALL BE SECURELY ANCHORED TO THE GROUND USING U-SHAPED REBAR STAKES, OR OTHER EFFECTIVE ANCHORING.
4. ANCHORING SHALL BE POSITIONED ON AT LEAST TWO OPPOSING (DIAGONAL) CORNERS.
5. TOILET CONTAINMENT PANS MAY BE USED IN PLACE OF A TRAILER AT THE GEC INSPECTOR'S DISCRETION. TOILET CONTAINMENT PANS MUST BE ANCHORED IN PLACE AND MUST NOT BE USED WITHIN THE CITY R.O.W.

PT

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. PORTABLE TOILETS SHALL BE SERVICED AT THE NECESSARY INTERVALS TO ELIMINATE THE POSSIBILITY OF OVERFLOW.
3. WHEN THE PORTABLE TOILETS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE TOILETS MUST BE PERMANENTLY STABILIZED.

### PORTABLE TOILET

APPROVED:

SWENT MANAGER

ISSUED:

2/19/19

REVISED:

8/19/2020

DRAWING NO.

900-PTM



# ROCK SOCK

## RS



## 1.0 DESCRIPTION

- A rock sock consists of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter.

## 2.0 PURPOSE

- Used to slow down the velocity of runoff to filter runoff and to promote sedimentation.
- Rock socks are typically used as either perimeter control or as a part of inlet protection.

## 3.0 IMPLEMENTATION

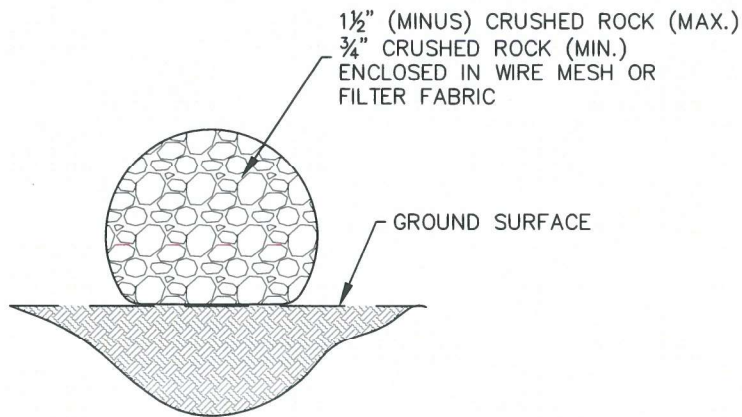
- Rock socks do not require trenching or staking, and are able to be placed on hard surfaces where trenching or staking would be impossible.
- The maximum tributary drainage area per 100 liner feet of rock socks is 1/4 acre.
- When placed in a gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely.
- Proprietary rock socks can be used in place of wire mesh rock socks.

## 4.0 TIMING

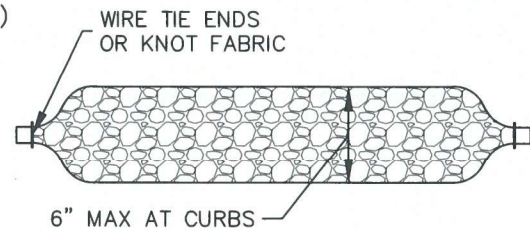
- Install prior to land disturbing activities, or immediately after inlet installation.
- Remove and properly dispose of inlet protection after the contributing drainage area has been permanently stabilized.

## 5.0 MAINTENANCE

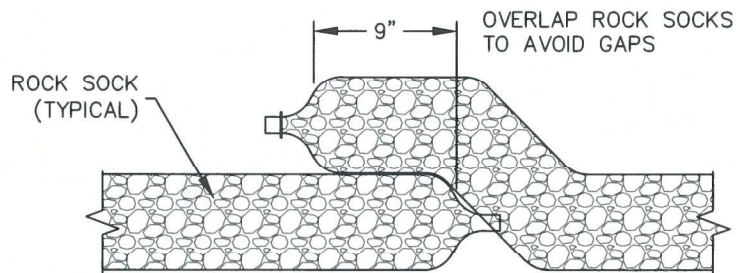
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the rock sock.
- Inspect for and replace damaged or displaced rock socks.



**ROCK SOCK SECTION**



**ROCK SOCK PLAN**



**ROCK SOCK OVERLAP**

**GRADATION TABLE**

	MASS PERCENT PASSING SQUARE MESH SIEVES
	No. 4
2"	100
1 1/2"	90-100
1"	20-55
3/4"	0-15
3/8"	0-5

MATCHES SPECIFICATIONS FOR  
No. 4 COARSE AGGREGATE FOR  
CONCRETE PER AASHTO M-43.  
ALL ROCK SHALL BE FRACTURED  
FACE, ALL SIDES

**INSTALLATION NOTES**

1. CRUSHED ROCK SHALL BE BETWEEN MAX. 1 1/2" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET AND MIN. 3/4" CRUSHED ROCK.
2. WIRE MESH SHALL HAVE OPENINGS SMALLER THAN THE SMALLEST SIZE ROCK.
3. WIRE MESH SHALL BE SECURED USING 'HOG RINGS' OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

**MAINTENANCE NOTES**

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED BEYOND REPAIR.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH REACHES 1/2 OF THE HEIGHT OF THE ROCK SOCK.
4. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL DISTURBED AREA IS STABILIZED.
5. PERMANENTLY STABILIZE AREA AFTER ROCK SOCKS HAVE BEEN REMOVED.



**ROCK SOCK**

APPROVED:

SWENT MANAGER

ISSUED:

10/7/19

REVISED:

8/19/2020

DRAWING NO.

900-RS

# SEDIMENT CONTROL LOG

## SCL





## 1.0 DESCRIPTION

- A sediment control log is a temporary sediment barrier consisting of a linear roll of natural materials such as straw, compost, excelsior or coconut fiber.

## 2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.
- Placed on long slopes to slow down flows.

## 3.0 IMPLEMENTATION

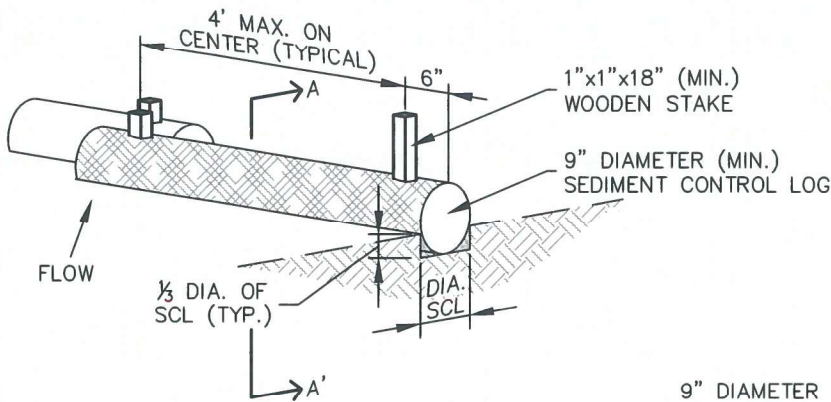
- Install sediment control logs to intercept sheet flow runoff from disturbed areas.
- Install sediment control logs along the contour of slopes or in a manner to avoid creating concentrated flow.
- Place sediment control logs against sidewalk or back of curb when adjacent to these features.
- The maximum tributary drainage area per 100 liner feet of sediment control logs is 1/4 acre.
- Sediment control logs shall consist of straw, compost, excelsior or coconut fiber, and shall be free from any noxious weed seeds or defects.

## 4.0 TIMING

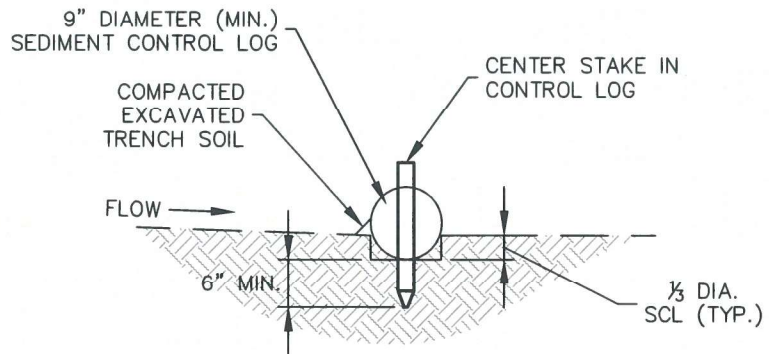
- Install prior to land disturbing activities.
- Remove sediment control logs after the upstream area has been permanently stabilized.

## 5.0 MAINTENANCE

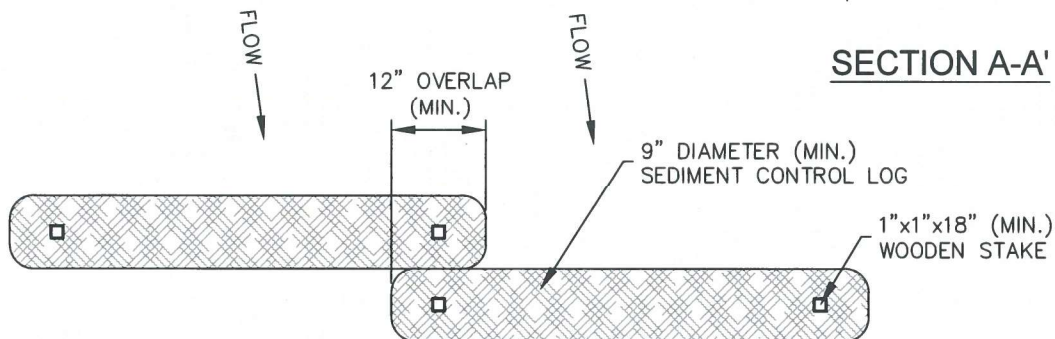
- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the exposed sediment control log.
- Inspect for and repair or replace damaged sediment control logs.



## SEDIMENT CONTROL LOG



## SECTION A-A'



## SEDIMENT CONTROL LOG JOINTS

### INSTALLATION NOTES

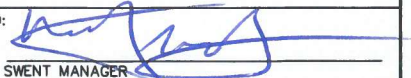
1. ALL SEDIMENT CONTROL LOGS MUST BE EMBEDDED TO  $\frac{1}{3}$  OF THE HEIGHT OF THE LOG
2. LARGER DIAMETER SEDIMENT CONTROL LOGS NEED TO BE EMBEDDED DEEPER.
3. PLACE SEDIMENT CONTROL LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.
4. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE FROM ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
5. IF USING AS SLOPE PROTECTION, INSTALL SEDIMENT CONTROL LOGS ALONG THE CONTOUR.

### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES  $\frac{1}{2}$  OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
3. PERMANENTLY STABILIZE AREA AFTER SEDIMENT CONTROL LOGS HAVE BEEN REMOVED.



## SEDIMENT CONTROL LOGS

APPROVED: 		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-SCL

# SILT FENCE

## SF



## 1.0 DESCRIPTION

- Silt fence is a temporary sediment barrier consisting of woven geotextile fabric attached to supporting posts and trenched into the soil.

## 2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.

## 3.0 IMPLEMENTATION

- Install silt fence to intercept sheet flow runoff from disturbed areas.
- Silt fence is not designed to be used as a filter fabric.
- Do not install silt fence across streams, channels, swales, ditches, or other drainageways.
- Install silt fence along the contour of slopes or in a manner to avoid creating concentrated flow (i.e. "J-hook" installation).
- The maximum tributary drainage area per 100 liner feet of silt fence is 1/4 acre.
- Properly installed silt fence should not be easily pulled out by hand and there should be no gaps between the ground and fabric.

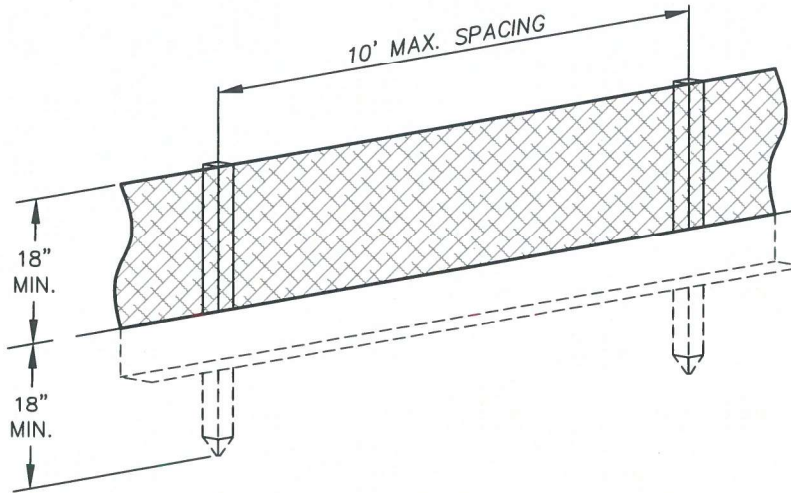
## 4.0 TIMING

- Install prior to land disturbing activities.
- Remove silt fence after the upstream area has been permanently stabilized.

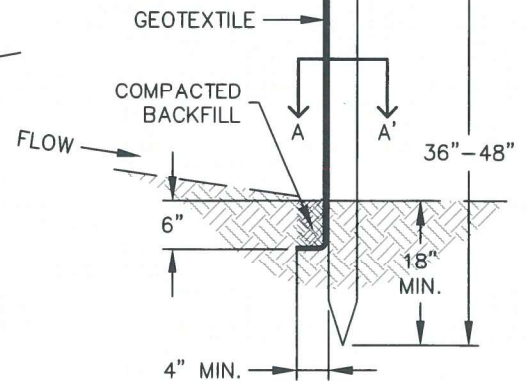
## 5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the exposed silt fence.
- Inspect for and repair or replace damaged silt fence.

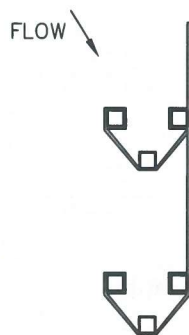




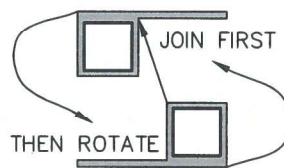
1½"x1½" (RECOMMENDED)  
WOODEN FENCE POST  
WITH 10' MAX. SPACING



## SILT FENCE



## J-HOOK INSTALLATION



## SECTION A-A'

### INSTALLATION NOTES


1. SILT FENCE MUST BE PLACED ON A FLAT SURFACE 2'-5' AWAY FROM TOE OF THE SLOPE TO ALLOW FOR PONDING AND DEPOSITION.
2. COMPACT THE TRENCH USING A JUMPING JACK OR WHEEL ROLLING TO THE POINT THAT THE FENCE RESISTS BEING PULLED OUT OF THE GROUND BY HAND.
3. SILT FENCE SHALL BE TAUT WITH NO SAGS AFTER IT HAS BEEN ANCHORED.
4. FABRIC SHALL BE ATTACHED TO POSTS WITH 1" HEAVY DUTY STAPLES OR 1" NAILS. THESE SHOULD BE PLACED VERTICALLY DOWN THE POST, 3" APART.
5. THE PREFERRED INSTALLATION METHOD USES A TRENCHER OR SILT FENCE INSTALLATION DEVICE.
6. INSTALL SILT FENCE ALONG THE CONTOUR OF THE SLOPES OR IN A MANNER TO AVOID CREATING CONCENTRATED FLOW (SUCH AS A "J-HOOK" INSTALLATION).

### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN HEIGHT OF THE SILT FENCE.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SILT FENCE IS REMOVED.



## SILT FENCE

APPROVED: 		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-SF

# SEEDING AND MULCHING

## SM



## 1.0 DESCRIPTION

- The preparation of soil, application of much, and application of seed to disturbed areas.

## 2.0 PURPOSE

- Used to control runoff and erosion on disturbed areas by establishing vegetative cover.
- Reduces erosion and sediment loss.
- Provides permanent stabilization in disturbed areas.

## 3.0 IMPLEMENTATION

- All soil testing, soil amendment and fertilizer documentation, and seed load and bag tickets must be added to the CSWMP.
- Properly prepare soil prior to seeding and mulching.
- Apply seed mixes as specified in the City of Colorado Springs Stormwater Construction Manual. Alternative seed mixes are acceptable if included in an approved Landscaping Plan.
- Mulch seeded areas using hay or straw mulch, hydraulic mulching, or install erosion control blanket.

## 4.0 TIMING

- Seed and mulch disturbed areas after final grading.
- Seeding and mulching may also be used as a temporary erosion control measure during construction.

## 5.0 MAINTENANCE

- Repair and reseed bare areas as necessary.
- Restrict vehicle access to seeded areas.



## SEEDING & MULCHING

ALL SOIL TESTING, SOILS AMENDMENT AND FERTILIZER DOCUMENTATION, AND SEED LOAD AND BAG TICKETS MUST BE ADDED TO THE CSWMP.

### SOIL PREPARATION

1. IN AREAS TO BE SEEDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRIABLE CONDITION. LESS THAN 85% STANDARD PROCTOR DENSITY IS ACCEPTABLE. AREAS OF COMPACTION OR GENERAL CONSTRUCTION ACTIVITY MUST BE SCARIFIED TO A DEPTH OF 6 TO 12 INCHES PRIOR TO SPREADING TOPSOIL TO BREAK UP COMPACTED LAYERS AND PROVIDE A BLENDING ZONE BETWEEN DIFFERENT SOIL LAYERS.
2. AREAS TO BE PLANTED SHALL HAVE AT LEAST 4 INCHES OF TOPSOIL SUITABLE TO SUPPORT PLANT GROWTH.
3. THE CITY RECOMMENDS THAT EXISTING AND/OR IMPORTED TOPSOIL BE TESTED TO IDENTIFY SOIL DEFICIENCIES AND ANY SOIL AMENDMENTS NECESSARY TO ADDRESS THESE DEFICIENCIES. SOIL AMENDMENTS AND/OR FERTILIZERS SHOULD BE ADDED TO CORRECT TOPSOIL DEFICIENCIES BASED ON SOIL TESTING RESULTS.
4. TOPSOIL SHALL BE PROTECTED DURING THE CONSTRUCTION PERIOD TO RETAIN ITS STRUCTURE AVOID COMPACTION, AND TO PREVENT EROSION AND CONTAMINATION. STRIPPED TOPSOIL MUST BE STORED IN AN AREA AWAY FROM MACHINERY AND CONSTRUCTION OPERATIONS, AND CARE MUST BE TAKEN TO PROTECT THE TOPSOIL AS A VALUABLE COMMODITY. TOPSOIL MUST NOT BE STRIPPED DURING UNDESIRABLE WORKING CONDITIONS (E.G. DURING WET WEATHER OR WHEN SOILS ARE SATURATED). TOPSOIL SHALL NOT BE STORED IN SWALES OR IN AREAS WITH POOR DRAINAGE.

### SEEDING

1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
2. SEED SHOULD BE DRILL-SEEDED WHENEVER POSSIBLE
  - SEED DEPTH MUST BE  $\frac{1}{3}$  TO  $\frac{1}{2}$  INCHES WHEN DRILL-SEEDED IS USED
3. BROADCAST SEEDING OR HYDRO-SEEDED WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
  - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO-SEEDED
  - BROADCAST SEEDING MUST BE LIGHTLY HAND-RAKED INTO THE SOIL

### MULCHING

1. MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING, HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.
2. MULCHING REQUIREMENTS INCLUDE:
  - HAY OR STRAW MULCH
    - ONLY CERTIFIED WEED-FREE AND CERTIFIED SEED-FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 2 TONS/ACRE AND ADEQUATELY SECURED BY CRIMPING AND/OR TACKIFIER.
    - CRIMPING MUST NOT BE USED ON SLOPES GREATER THAN 3:1 AND MULCH FIBERS MUST BE TUCKED INTO THE SOIL TO A DEPTH OF 3 TO 4 INCHES.
    - TACKIFIER MUST BE USED IN PLACE OF CRIMPING ON SLOPES STEEPER THAN 3:1.
  - HYDRAULIC MULCHING
    - HYDRAULIC MULCHING IS AN OPTION ON STEEP SLOPES OR WHERE ACCESS IS LIMITED.
    - IF HYDRO-SEEDED IS USED, MULCHING MUST BE APPLIED AS A SEPARATE, SECOND OPERATION.
    - WOOD CELLULOSE FIBERS MIXED WITH WATER MUST BE APPLIED AT A RATE OF 2,000 TO 2,500 POUNDS/ACRE, AND TACKIFIER MUST BE APPLIED AT A RATE OF 100 POUNDS/ACRE.
  - EROSION CONTROL BLANKET
    - EROSION CONTROL BLANKET MAY BE USED IN PLACE OF TRADITIONAL MULCHING METHODS.



### SEEDING & MULCHING

APPROVED:

SWENT MANAGER

ISSUED:

10/7/19

REVISED:

8/19/2020

DRAWING NO.

900-SM



# STOCKPILE PROTECTION

## SP



## 1.0 DESCRIPTION

- Perimeter control placed around stockpiles of soil and other erodible materials.

## 2.0 PURPOSE

- Used to avoid the migration of sediment and other materials from stockpiles.

## 3.0 IMPLEMENTATION

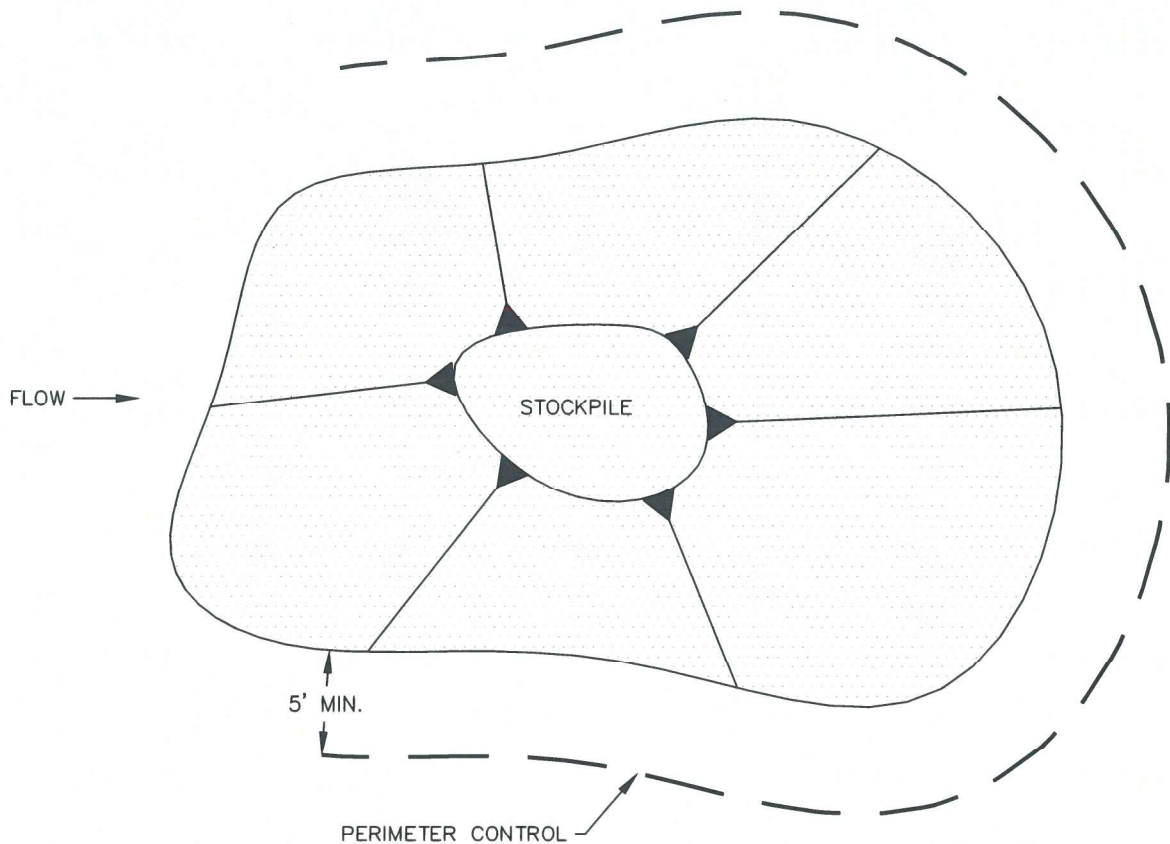
- Install perimeter control around stockpile on downgradient side.
- Stockpile perimeter controls may not be required for stockpiles on the interior portion of a construction site where other downgradient controls including perimeter control are in place.

## 4.0 TIMING

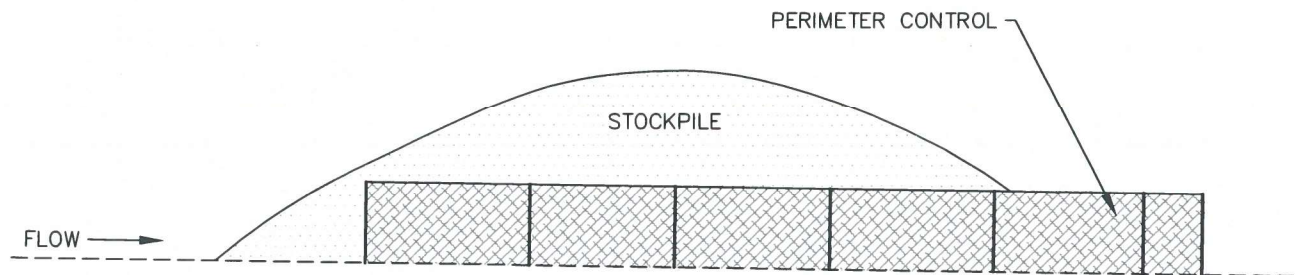
- Install immediately after stockpile has formed or limits are known, whichever occurs first.
- Remove stockpile protection after the stockpile has been removed.

## 5.0 MAINTENANCE

- Remove and properly dispose of sediment according to the perimeter control detail.
- If perimeter controls must be moved to access stockpile, replace perimeter controls by the end of the work day.
- Inspect for and repair and/or replace perimeter controls as needed to maintain functionality.



### STOCKPILE PROTECTION PLAN



### STOCKPILE PROTECTION ELEVATION

#### INSTALLATION NOTES


1. INSTALL PERIMETER CONTROL AROUND STOCKPILE ON DOWNGRAIDENT SIDE. PERIMETER CONTROL MUST BE SUITABLE TO SITE CONDITIONS AND INSTALLED ACCORDING TO THE RELEVANT DETAIL.
2. FOR STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRAIDENT CONTROLS INCLUDING PERIMETER CONTROL ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. IF PERIMETER CONTROLS MUST BE MOVED TO ACCESS STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORK DAY.
3. ACCUMULATED SEDIMENT MUST BE REMOVED ACCORDING TO PERIMETER CONTROL DETAIL.



### STOCKPILE PROTECTION

APPROVED: 		
SWENT MANAGER		
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SP

# SURFACE ROUGHENING

## SR



## 1.0 DESCRIPTION

- Surface roughening is a practice where the soil surface is roughened by the creation of grooves and depressions that run parallel to the contour of the land.

## 2.0 PURPOSE

- Used to create variations in the soil surface that slow down the velocity of runoff, increase infiltration, reduce erosion, and trap soil.
- May be used to help establish vegetative cover by reducing runoff velocity and giving seed an opportunity to take hold.

## 3.0 IMPLEMENTATION

- Roughen soil in areas flatter than 3:1.
- Surface roughening may be completed by furrowing, scarifying, ripping, or disking soil.
- Grooves must be installed along contours to avoid concentrating flow.
- Do not use in areas with extremely sandy or rocky soils.

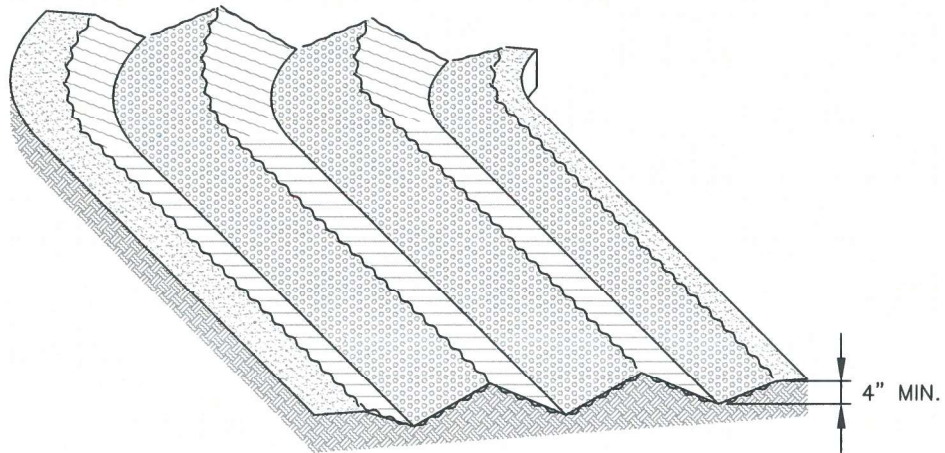
## 4.0 TIMING

- Install after overlot grading activities when area is in an interim condition or at final grade.
- Remove prior to permanent stabilization during soil preparation.

## 5.0 MAINTENANCE

- Inspect roughened areas for signs of erosion. Repeat surface roughening as needed.
- Do not allow vehicles to drive over surface roughened areas.





## SURFACE ROUGHENING

### INSTALLATION NOTES

1. SURFACE ROUGHENING MAY BE USED IN AREAS FLATTER THAN 3:1. INSTALL FURROWS ALONG CONTOUR TO INTERCEPT SHEET FLOW.
2. SURFACE ROUGHENING MAY BE ACCOMPLISHED BY FURROWING, SCARIFYING, RIPPING OR DISKING THE SOIL.
3. FURROWS MUST BE A MINIMUM OF 4" IN DEPTH.
4. SURFACE ROUGHENING SHALL NOT BE USED ON EXTREMELY SANDY OR ROCKY SOILS.

### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.

SR



## SURFACE ROUGHENING

APPROVED:

SWENT MANAGER

ISSUED:  
10/7/19

REVISED:  
8/19/2020

DRAWING NO.  
900-SR

# SLOPE TRACKING

## ST



## 1.0 DESCRIPTION

- Slope tracking is a practice where construction equipment is used to create grooves and depressions that run parallel to the contour of the land on slopes.

## 2.0 PURPOSE

- Used to create variations in the soil surface that slow down the velocity of runoff, increase infiltration, reduce erosion, and trap soil.

## 3.0 IMPLEMENTATION

- Use slope tracking on slopes 3:1 or steeper.
- Grooves must be installed along contours to avoid concentrating flow.
- Do not use in areas with extremely sandy or rocky soils.

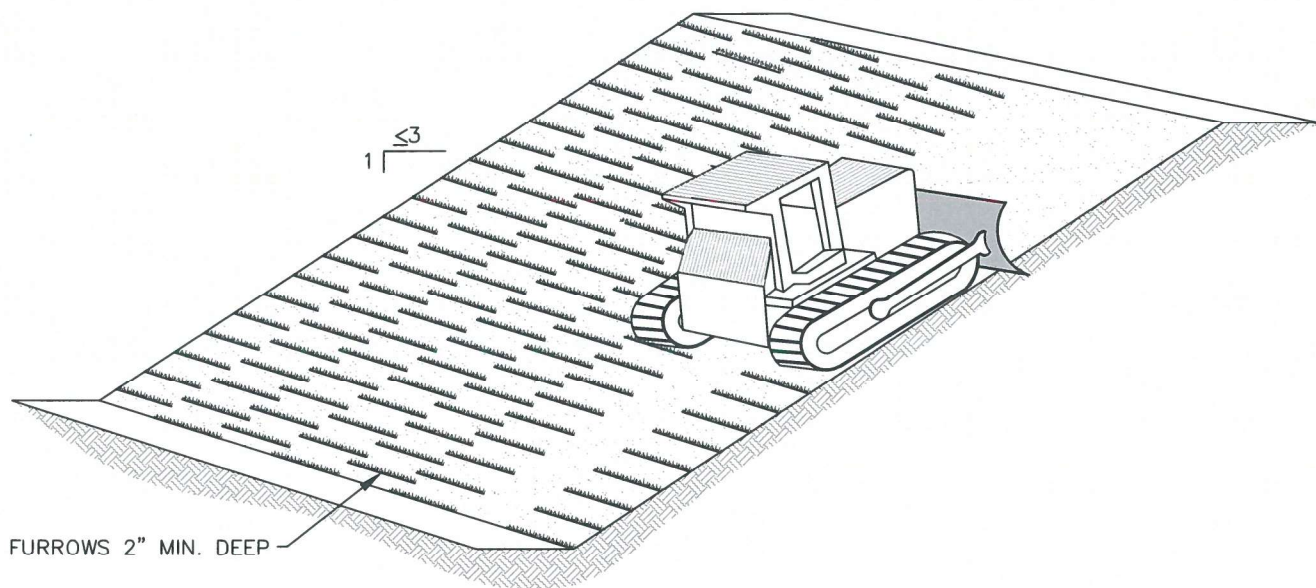
## 4.0 TIMING

- Install after land disturbing activities when area is in an interim condition or at final grade.
- Remove prior to permanent stabilization during soil preparation.

## 5.0 MAINTENANCE

- Inspect areas with tracking for signs of erosion. Repeat slope tracking as needed.
- Do not allow vehicles to drive over tracked areas.





## SLOPE TRACKING

### INSTALLATION NOTES

1. SLOPE TRACKING MAY BE USED ON SLOPES 3:1 OR STEEPER.
2. TRACKING GROOVES SHALL BE PERPENDICULAR TO THE SLOPE.
3. SLOPE TRACKING SHALL NOT BE USED ON EXTREMELY SANDY OR ROCKY SOILS.

### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SLOPE TRACKED.

ST



### SLOPE TRACKING

APPROVED:

SWENT MANAGER

ISSUED:

10/7/19

REVISED:

8/19/2020

DRAWING NO.

900-ST

# TEMPORARY COMPACTED BERM

## TCB



## 1.0 DESCRIPTION

- A temporary compacted berm is a compacted ridge that slows and diverts stormwater from disturbed areas.

## 2.0 PURPOSE

- Used to intercept sheet flow prior to leaving a construction site.
- May be used around the perimeter of a construction site.
- Placed on long slopes to slow down flows.

## 3.0 IMPLEMENTATION

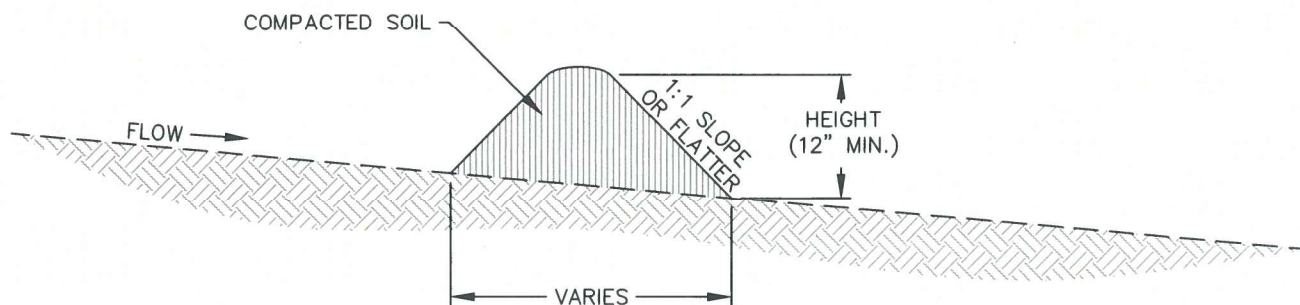
- Compacted berms must be a minimum height of one foot.
- Adequately compact berms. Not all soils are suitable for compacted berms. Soils may need to be adequately watered down to facilitate compaction.
- Install compacted berms along the contour of slopes or in a manner to avoid creating concentrated flow.
- The maximum tributary drainage area per 100 linear feet of an installed compacted berm is 1/4 acre.

## 4.0 TIMING

- Install prior to land disturbing activities.
- Remove compacted berms after the upstream area has been permanently stabilized. Permanently stabilize area after compacted berms have been removed.

## 5.0 MAINTENANCE

- Remove and properly dispose of sediment when it has accumulated to 1/2 of the height of the compacted berm.
- Inspect for and repair damaged compacted berms.
- Do not allow vehicles to drive over berms.



## TEMPORARY COMPACTED BERM

### INSTALLATION NOTES


1. COMPACTED BERM MUST BE A MINIMUM HEIGHT OF ONE FOOT. BASE WIDTH IS DETERMINED BY HEIGHT.
2. COMPACTED BERMS MUST BE ADEQUATELY COMPACTED. NOT ALL SOILS ARE SUITABLE FOR COMPACTED BERMS.
3. INSTALL COMPACTED BERMS ALONG CONTOUR; DO NOT INSTALL PERPENDICULAR TO SLOPE.
4. THE MAXIMUM TRIBUTARY DRAINAGE AREA PER 100 LINEAR FEET OF COMPACTED BERMS SHALL BE  $\frac{1}{4}$  ACRE.

### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES  $\frac{1}{2}$  OF THE DESIGN DEPTH OF THE BERM.



## TEMPORARY COMPACTED BERM

APPROVED: 		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-TCB

# TEMPORARY SEDIMENT BASIN

## TSB



## 1.0 DESCRIPTION

- Temporary sediment basins are small impoundments of water with a small outlet structure built on a construction site.

## 2.0 PURPOSE

- Used to capture and slowly release runoff prior to discharge from a construction site to allow sediment to settle out.

## 3.0 IMPLEMENTATION

- Temporary sediment basins for drainage areas larger than 15 acres must be individually designed by engineer.
- Erosion and other sediment controls should be implemented upstream of temporary sediment basins.

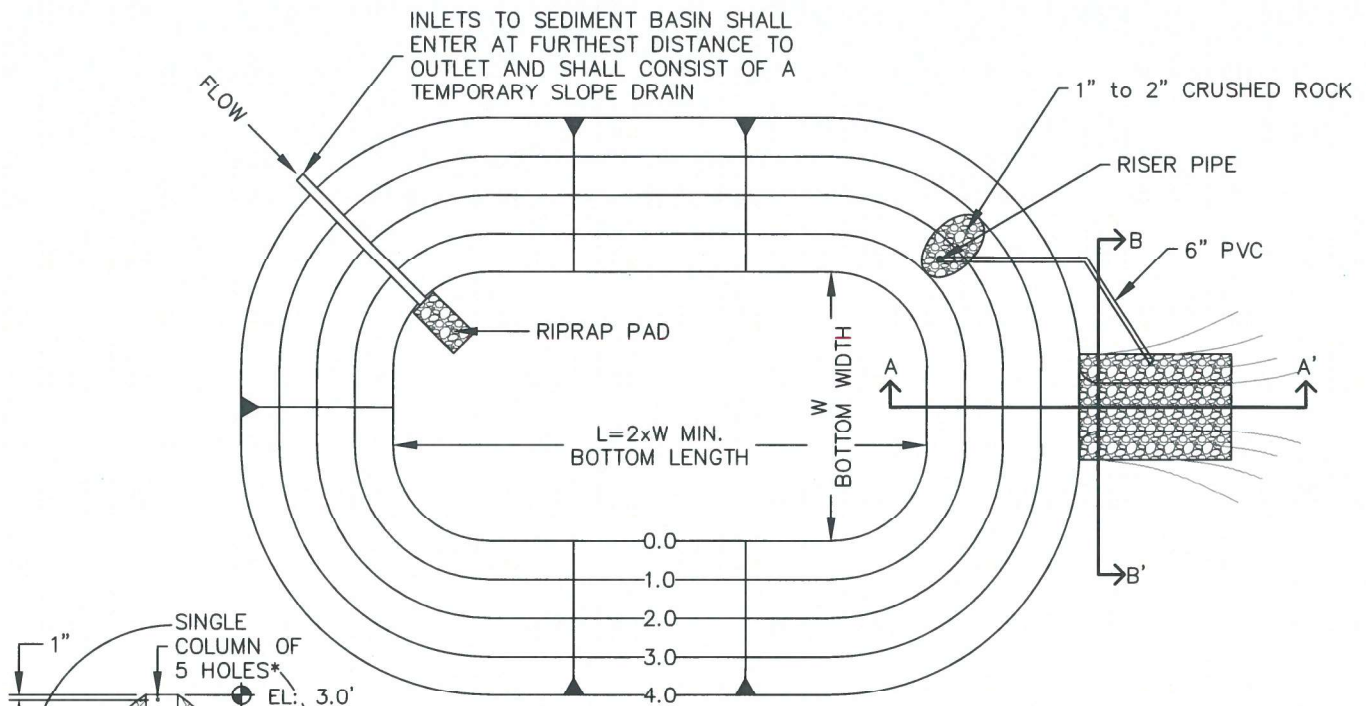
## 4.0 TIMING

- Install prior to upstream land disturbance.
- Remove temporary sediment basin after upstream area has been stabilized. Permanently stabilize area after basin has been removed.

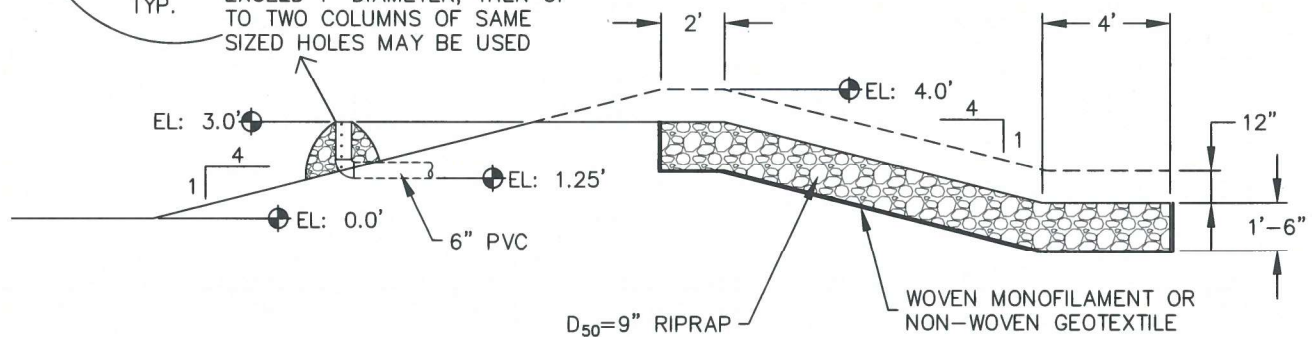
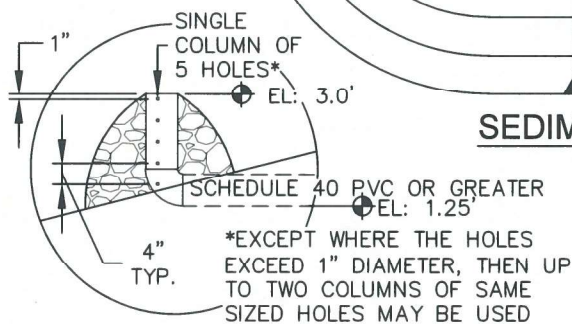
## 5.0 MAINTENANCE

- Remove sediment from basin as needed to maintain the effectiveness of the temporary sediment basin. This is typically when sediment depth reaches one foot.
- Inspect sediment basin embankments for stability and seepage.
- Inspect the inlet and outlet of the basin, repair damage, and remove debris.

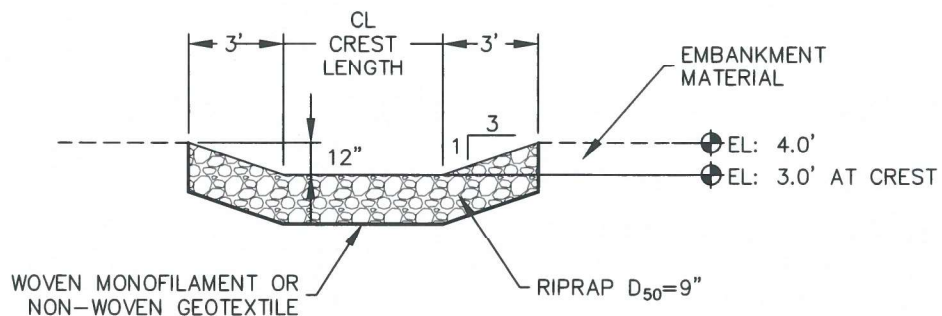




**SEDIMENT BASIN PLAN**



**SECTION A-A'**



**SECTION B-B'**



**TEMPORARY  
SEDIMENT BASIN**

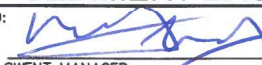
APPROVED: 		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-TSB-1

TABLE SB-1, SIZING INFORMATION FOR  
STANDARD SEDIMENT BASIN

UPSTREAM DRAINAGE AREA (ROUNDED TO NEAREST ACRE), (AC)	BASIN BOTTOM WIDTH (W), (FT)	SPILLWAY CREST LENGTH (CL), (FT)	HOLE DIAMETER (HD), (IN)
1	12½"	2	9/32
2	21	3	13/16
3	28	5	½
4	33½	6	9/16
5	38½	8	21/32
6	43	9	23/32
7	47¼	11	25/32
8	51	12	27/32
9	55	13	7/8
10	58¼	15	15/16
11	61	16	31/32
12	64	18	1
13	67½	19	1 1/16
14	70½	21	1 1/8
15	73¼	22	1 3/16

#### INSTALLATION NOTES

1. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
2. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES, AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE No. 200 SIEVE
3. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-698.
4. PIPE SCHEDULE 40 OR GREATER SHALL BE USED.
5. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES. DESIGN CALCULATIONS MUST BE APPROVED PRIOR TO IMPLEMENTATION.

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN CONTROL MEASURE EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW SPILLWAY CREST).
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SEDIMENT BASIN REMOVAL.

TSB



#### TEMPORARY SEDIMENT BASIN

APPROVED:

SWENT MANAGER

ISSUED:  
10/7/19

REVISED:  
8/19/2020

DRAWING NO.  
900-TSB-2



# TEMPORARY SLOPE DRAIN

## TSD



## 1.0 DESCRIPTION

- A temporary slope drain is a flexible conduit for stormwater that extends down the length of a disturbed slope to divert stormwater and serve as a temporary outlet.

## 2.0 PURPOSE

- Used to convey runoff during construction without causing erosion on or at the bottom of a slope.

## 3.0 IMPLEMENTATION

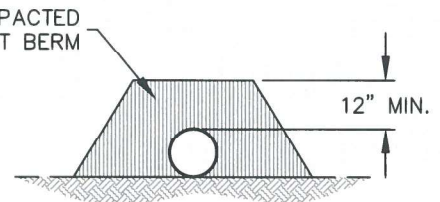
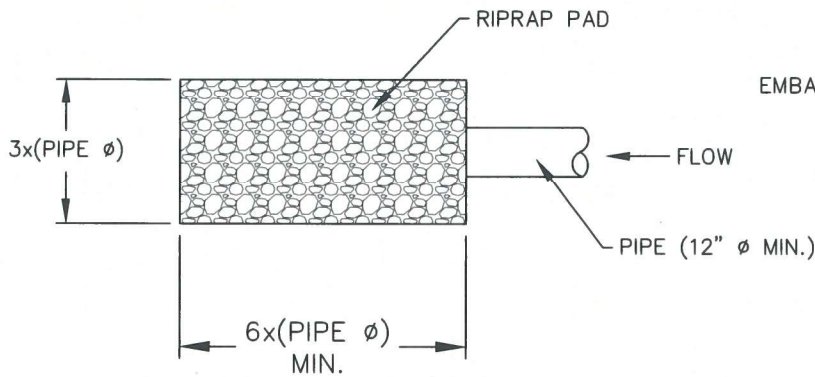
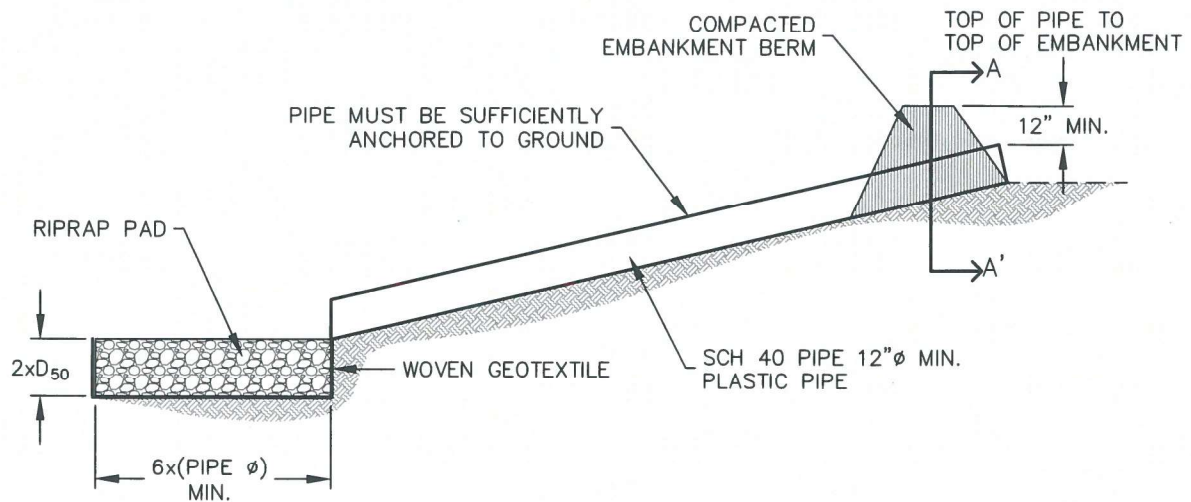
- Direct runoff into flexible pipe using a temporary compacted embankment berm.
- Anchor pipe to slope.
- Install riprap pad at pipe outlet.

## 4.0 TIMING

- Install prior to upstream land disturbing activities.
- Remove temporary slope drain prior to the end of construction after the contributing drainage area has been permanently stabilized.

## 5.0 MAINTENANCE

- Inspect for erosion and accumulated debris at the inlet and outlet.
- Breaches in pipes should be repaired as soon as feasibly possible.



#### INSTALLATION NOTES

1. THE LISTED DIMENSIONS ARE CONSIDERED A MINIMUM; LARGER DRAINS CAN BE IMPLEMENTED BY THE CONTRACTOR.
2. DETAILS SHOW MINIMUM COVER; INCREASE COVER AS NECESSARY.

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. INSPECT INLETS AND OUTLETS AFTER STORMS TO PREVENT EXCESS CLOGGING. BREACHES IN PIPES SHOULD BE REPAIRED AS SOON AS FEASIBLY POSSIBLE.
3. INSPECT RIPRAP PAD AT OUTLET FOR SIGNS OF EROSION. IF SIGNS OF EROSION EXIST, ADDITIONAL ARMORING MAY BE INSTALLED.
4. TEMPORARY SLOPE DRAINS SHOULD REMAIN UNTIL THEY ARE NOT NEEDED, BUT SHOULD BE REMOVED BEFORE THE END OF CONSTRUCTION.
5. PERMANENTLY STABILIZE AREA AFTER TEMPORARY SLOPE DRAINS ARE REMOVED.



#### TEMPORARY SLOPE DRAIN

APPROVED:

SWENT MANAGER

ISSUED:

10/7/19

REVISED:

8/19/2020

DRAWING NO.

900-TSD



# VEHICLE TRACKING CONTROL

## VTC



## 1.0 DESCRIPTION

- Vehicle tracking control consists of a pad of coarse stone aggregate placed on a geotextile filter fabric.

## 2.0 PURPOSE

- Used to reduce the tracking of sediment onto roadways by construction vehicles.
- As vehicles drive over the VTC device, mud and sediment is removed from the tires.

## 3.0 IMPLEMENTATION

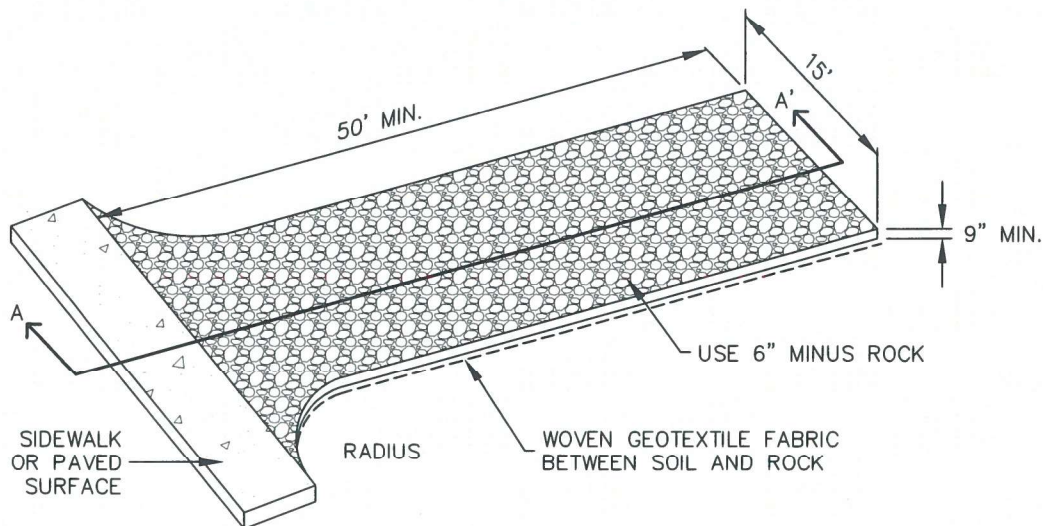
- Locate at construction entrance/exit.
- Organize site to ensure that all vehicles use the vehicle tracking control device.
- Where possible, grade VTC device to drain to construction site rather than to street.
- Proprietary VTC devices may be used if approved as an alternative Construction Control Measure.

## 4.0 TIMING

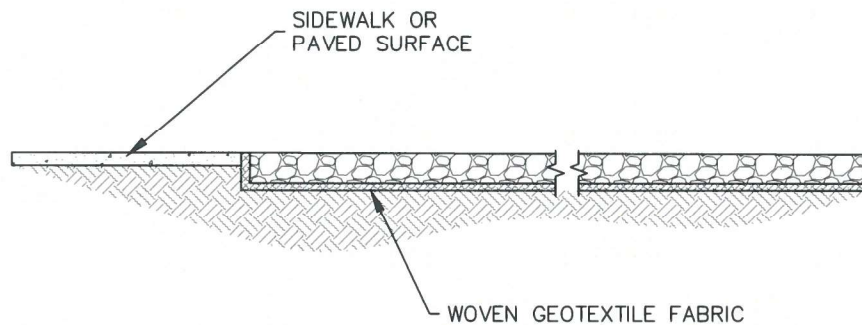
- Install prior to land disturbing activities.
- Remove when the potential for sediment migration onto adjacent roadways no longer exists (typically after site has been stabilized). Permanently stabilized area after vehicle tracking control is removed.

## 5.0 MAINTENANCE

- Roughen, replace, and/or add rock as needed to maintain a consistent depth and to prevent sediment tracking onto adjacent street.
- Sediment tracked onto the adjacent road shall be removed daily, by sweeping or shoveling, and never washed down storm drains.



## AGGREGATE VEHICLE TRACKING CONTROL



### SECTION A-A'

#### INSTALLATION NOTES


1. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHOULD BE LOCATED AT ALL POINTS WHERE VEHICLES EXIT THE CONSTRUCTION SITE TO ADJACENT ROADWAY.
2. STABILIZED CONSTRUCTION ENTRANCE/EXITS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
3. RADIUS MUST BE ADEQUATE FOR INTENDED CONSTRUCTION VEHICLE TURNING.
4. ROCK SHOULD CONSIST OF 6" MINUS ROCK.
5. INSTALL CONSTRUCTION FENCE ON BOTH SIDES OF VEHICLE TRACKING CONTROL PAD WHEN NEEDED OR REQUIRED BY INSPECTOR.

#### MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT TRACKED ONTO THE ADJACENT ROAD SHALL BE REMOVED DAILY, BY SWEEPING OR SHOVELING, AND NEVER WASHED DOWN STORM DRAINS.
3. ROUGHEN, REPLACE AND/OR ADD ROCK AS NEEDED TO MAINTAIN CONSISTENT DEPTH AND TO PREVENT SEDIMENT TRACKING ONTO ADJACENT STREET.
4. PERMANENTLY STABILIZE AREA AFTER VEHICLE TRACKING CONTROL IS REMOVED.



## VEHICLE TRACKING CONTROL

APPROVED: 		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-VTC

ATTACHMENT 4  
INSPECTION REPORTS AND CORRECTIVE ACTIONS

Attachment #4

Stormwater Inspection  
For Permit COR400000

Inspection Date: \_\_\_\_\_

**Site Information**

Name of Qualified Stormwater

Manager performing this Inspection: \_\_\_\_\_

Qualified Stormwater Manager Title: \_\_\_\_\_

Weather: \_\_\_\_\_

Phase of Construction:

☐ Pre-Disturbance

☐ Construction

☐ Stabilization

☐ Finally Stabilized

Estimated Current Acreage of Disturbed Area: \_\_\_\_\_

Inspection Frequency:

☐ Biweekly and After Storm

☐ Weekly

☐ Monthly (IFF Construction is Complete)

Due Date of Next Inspection: \_\_\_\_\_

Location of Discharges: *See Figure 4 for Locations of Discharges*

**Inspection Questions**

**Were the following areas inspected?**

☐ Construction Site Perimeter

☐ All Disturbed Areas

☐ Designated Haul Routes

☐ Locations Where Vehicles Exit the Site

☐ Material and Waste Storage Areas  
Exposed to Precipitation

☐ Locations Where Stormwater Has the  
Potential to Discharge Off-Site

**Are All Control Measures in Effective Operational Condition?**

☐ Yes

☐ No – Describe required maintenance. See Figure 4 for locations.

Date Required Maintenance Completed: \_\_\_\_\_



**Are Any Areas in Need of Additional or Modified Control Measures?**

☐ No      ☐ Yes – Describe needed additions or modifications. See Figure 4 for locations.

Date Required Maintenance Completed: \_\_\_\_\_

**Are There Any Previously Unidentified Pollutants or Pollutant Sources on Site?**

☐ No      ☐ Yes – Describe pollutants or pollutant source. See Figure 4 for locations.

Date Required Maintenance Completed: \_\_\_\_\_

**Are all areas in compliance with the permit requirements?**

☐ Yes      ☐ No – Describe instances of non-compliance. See Figure 4 for locations.

Date Required Maintenance Completed: \_\_\_\_\_

**Other Notes**

**Certification**

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

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

\_\_\_\_\_  
Signature of Qualified Stormwater Manager

\_\_\_\_\_  
Date