

# TECS TRAINING SWMP



**The following document is for Training Purposes Only.**

**Please ensure that your SWMP is Site-Specific & Implementable.**

Version 4.0

# Stormwater Management Plan (SWMP)

## Documentation

CDOT - Region \_\_\_\_

Project Name: \_\_\_\_\_

Project Number: \_\_\_\_\_

Sub Account: \_\_\_\_\_

CDPS-SCP Certification Number: \_\_\_\_\_

Resident Engineer: \_\_\_\_\_

Contact #'s: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Contact #'s: \_\_\_\_\_

Project Engineer: \_\_\_\_\_

Contact #'s: \_\_\_\_\_

SWMP Administrator: \_\_\_\_\_

Contact #'s: \_\_\_\_\_

TECS: \_\_\_\_\_

Contact #'s: \_\_\_\_\_



# **1 SWMP Plan Sheets**

- Notes and Tabulation Template

## **1.1 Site Description**

### **1.1.1 Construction activities, Sequence for Major Activities, Areas of Disturbance, Existing Soil Data, Existing Vegetation Percent Cover, Potential Pollutant Sources, Receiving Water, Non Stormwater Discharges and Environmental Impacts**

## **1.2 Site Map Components**

- Preconstruction items labeled in the Site Plan
- Refer to the Site Map for locations

## **1.3 SWMP Administrator for Design**

## **1.4 Best Management Practices (BMPs)**

### **1.5.1 Narratives and Matrix**

#### **1.5.1.1 Offsite Drainage**

#### **1.5.1.2 Perimeter Control**

#### **1.5.1.3 Design BMPs and Additional BMPs**

## **1.6 Inspections, BMP Maintenance and Record**

- Refer to Items 8 through 10 of the notebook

## **1.7 Temporary, Interim and Final Stabilization**

## **1.8 Tabulation of Quantities and Notes Related to Items**

**1. SITE DESCRIPTION**

The Contractor shall comply with all CDOT contractual requirements and all requirements associated with the CDPS-SCP on this project. The SWMP Administrator for Construction shall update to reflect current project site conditions.

A. **PROJECT SITE LOCATION:** Project is located at Latitude 39.737073 , Longitude -104.771009. Site is bounded by Tower Rd. on the West, East 13<sup>th</sup> Ave on the South, Colefax Ave on the North and Kirkgard Acres on the East. Address is: 18500 E. Colefax Ave, Aurora, CO 8001.

Location or address of construction office: N/A

B. **PROJECT SITE DESCRIPTION:** Project will regrade existing field and erect a training facility In the middle of preexisting field. Part of training facility will include the installation of new asphalt road, concrete curb and gutter as well as the creation of "training cells" and "training Swales" in order to demonstrate erosion and sediment control principles.

C. **PROPOSED SEQUENCING FOR MAJOR CONSTRUCTION ACTIVITIES:**

- a. Clearing and grubbing
- b. Over lot grading
- c. Installation of storm infrastructure & tie into existing sewer.
- d. Vertical construction on training facility
- e. Irrigation / outside plumbing
- f. Final grade for PWQ facility as well as swales and cells
- g. Landscaping and permanent stabilization to include asphalt and final curb and gutter

D. **ACRES OF DISTURBANCE:**

- 1. Total area of construction site (LOC (PERMITTED AREA)): **3** acres
- 2. Total area of proposed disturbance (LDA): **2.5** acres
- 3. Total area of seeding: **1** acres
- 4. Total area of pre-project impervious surface: **[XXX]** sq. ft.
- 5. Total area of final impervious surface: **[XXX]** sq. ft.

E. **EXISTING SOIL DATA:** Site has predominantly sandy soils. See Geotech Report located in Site Trailer for further information.

F. **EXISTING VEGETATION, INCLUDING PERCENT COVER:**

During design the SWMP Administrator for Design in consultation with the Engineer will determine if the SWMP Administrator for Design or the SWMP Administrator for Construction will conduct the Vegetation Transects as outlined in Chapter 4.11.2 of the CDOT's Erosion Control and Stormwater Quality Guide. A survey including general description of existing vegetation shall be conducted by the SWMP Administrator for Construction prior to any ground disturbance on the project. The manager shall photo-document existing vegetation where all work will be occurring. The manager shall also perform the vegetation survey transect(s) including photo documentation as outlined in Chapter 4.11.2 of CDOT's Erosion Control and Stormwater Quality Guide.

Pre-Construction Date of survey: 6/1/2010 %Density: 85%  
Description of existing vegetation: Predominantly List A Noxious Weeds with some interspersed prairie grass.  
Map or table showing transect locations in SWMP tab 17:

Post-Construction Date of survey: \_\_\_\_\_ %Density: \_\_\_\_\_  
Description of existing vegetation: \_\_\_\_\_  
Map or table showing transect locations in SWMP tab 17: \_\_\_\_\_  
**Date of CDPS-SCP Closure:** \_\_\_\_\_

G. **POTENTIAL POLLUTANTS SOURCES:** See First Construction Activities under Potential Pollutant Sources. The SWMP Administrator for Construction shall prepare a list of all potential pollutants and their locations in accordance with subsection 107.25.

H. **RECEIVING WATER:**

1. Outfall locations: Project has one outfall as part of a PWQ Facility Located in the NW Corner of the PWQ Pond. Pond discharges to CDOT MS4 Permit which ties into City of Aurora MS4. Ultimate Receiving water is the S. Platte with the Immediate Receiving Water being Sand Creek.

2. Names of immediate receiving water(s) on site:
- a. CDOT MS4
  - b. City of Aurora MS4
  - c. Sand Creek

3. Ultimate receiving water(s): S. Platte River

4. Horizontal distance to nearest ultimate receiving water from project: N/A

5. Description of all stream crossings located within the Construction Site Boundary: At present there will be no stream crossings in any area on the project.

Location [Station or Mile Post]	Stream Name	Description Of Any Disturbed Upland Areas
N/A		

I. **NON-STORMWATER DISCHARGES:** SWMP Administrator for Construction shall provide a method statement of how discharge will be handled

Discharge Description	Location (Site Map #)	Method Statement (Location)
Dewatering*		
Uncontaminated Spring		
Concrete Wash Water (in-ground washout structure)	Adjacent to Building Pad on the SE Corner. See Site Map.	Method Statement is contained in the SWMP.
Landscape Irrigation Return Flows		
Emergency Fire Fighting	Fire hydrants located throughout CDOT Facility	
Concrete Saw Water	Will be utilized on Curb and Gutter installation. See Site Map.	Method Statement is contained in the SWMP.

ALLOWABLE: Refer to CDPHE Low Risk Discharge Guidance Document of Uncontaminated Groundwater to Land.  
<https://www.colorado.gov/pacific/sites/default/files/WQ%20LOW%20RISK%20GW.pdf>

\*If ground water does not meet water quality standards for receiving water a separate CDPS Dewatering Permit shall be obtained by the Contractor from CDPHE in accordance with subsections 107.02 and 107.25.

**2. SITE MAP COMPONENTS:**

Pre-construction

- A. **PROJECT CONSTRUCTION POTENTIAL SITE BOUNDARIES** [See SWMP Site Maps or reference site map #]
- B. **ALL AREAS OF GROUND SURFACE DISTURBANCE** [See SWMP Site Maps or reference site map #]
- C. **AREAS OF CUT AND FILL** [See SWMP Site Maps or reference site map X]
- D. **LOCATION OF ALL STRUCTURAL CONTROL MEASURES IDENTIFIED IN THE SWMP** [See SWMP Site Maps or reference site map #]

\*Please note: this example includes some discrepancies to enrich TECS Certification Class experience.

E. LOCATION OF NON-STRUCTURAL CONTROL MEASURES AS APPLICABLE IN THE SWMP [See SWMP Site Maps or reference site map #]

F. STREAMS, SPRINGS, WETLANDS AND OTHER STATE WATERS, INCLUDING AREAS THAT REQUIRE PRE-EXISTING VEGETATION BE MAINTAINED WITHIN 50 FEET OF A RECEIVING WATER [See SWMP Site Maps or reference site map #]

G. PROTECTION OF TREES, SHRUBS AND CULTURAL RESOURCES [See SWMP Site Maps or reference site map #]

H. Flow arrows that depict stormwater flow directions on-site and runoff direction [See SWMP Site Maps or reference site map #]

I. AREAS USED FOR STORING AND STOCKPILING OF MATERIALS, STAGING AREAS (field trailer, fueling, etc.) WASTE ACCUMULATION and BATCH PLANTS INCLUDING MASONARY MIXING STATIONS [See SWMP Site Maps or reference site map #, if known at time of design]

J. LOCATIONS OF ALL STREAM CROSSING LOCATED WITHIN THE CONSTRUCTION SITE BOUNDARY [See SWMP Site Maps or reference site map #]

**3. QUALIFIED STORMWATER MANAGERS:**

A. SWMP ADMINISTRATOR FOR DESIGN:

Name/Title	Contact Information [phone & email]	Certification #
Joe Dirt	123.456.7890	987654

B. SWMP Administrator for Construction: (As defined in Subsection 208) The Contractor shall designate a SWMP Administrator for Construction upon co-permittee of the permit. The SWMP Administrator for Construction shall become the operator for the SWMP and assume responsibility for all design changes to the SWMP implementation and maintenance in accordance to 208.03, the SWMP shall remain the property of CDOT. The SWMP Administrator for Construction shall be responsible for implementing, maintaining and revising SWMP, including the title and contact information. The activities and responsibilities of the SWMP Administrator for Construction shall address all aspects of the project's SWMP. (Update the information below for each new SWMP Administrator for Construction) (Copy of TECS Certification must also be included in the SWMP.)

Name/Title	Contact Information (phone & email)	Certification #	Start Date	Engineer Approval
Jane Water	098.765.4321 jane.water@internet.com		6/1/20	

C. EROSION CONTROL INSPECTOR: (As defined in Subsection 208) The Contractor may designate an Erosion Control Inspector. The Erosion Control Inspector shall complete duties in accordance with subsection 208.03 (c) (Copy of TECS Certification must also be included in the SWMP.)

Name/Title	Contact Information (phone & email)	Certification #	Start Date	Engineer Approval

**4. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES**

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. POTENTIAL POLLUTANT SOURCES

Evaluate, identify, locate and describe all potential sources of pollutants at the site in accordance with subsection 107.25, CDPS-SCP and place in the SWMP. All control measures related to potential

pollutants shall be shown on the SWMP Site Map by the Contractor's SWMP Administrator for Construction.

B. OFFSITE DRAINAGE (RUN ON WATER)

1. Describe and record control measures on the SWMP Site Map that have been implemented to address off site run-on water in accordance with subsection 208.03.

C. VEHICLE TRACKING PAD/VEHICLE TRACKING CONTROL

1. Control measures shall be implemented in accordance with subsection 208.04.

D. PERIMETER CONTROL

1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. Perimeter control shall be in accordance with subsection 208.04  
2. Perimeter control may consist of berms, silt fence, erosion logs, existing landforms, or other control measures as approved.

**5. DURING CONSTRUCTION**

RESPONSIBILITIES OF THE SWMP Administrator for Construction

The SWMP is a living document "living document" that is continuously reviewed and modified throughout the construction phasing. During construction, the following items shall be added, updated, or amended as needed by the SWMP Administrator for Construction in accordance with subsection 208.03. During construction, indicate how items that have not been addressed during design are being handled in construction. If items are covered in the template or other sections of the SWMP, indicate below what section the discussion takes place.

A. STOCKPILE MANAGEMENT: Shall be done in accordance with subsection 107.25 and 208.07

B. CONCRETE WASHOUT: Concrete wash out water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.

C. SAW CUTTING: Shall be done in accordance with subsection 107.25, 208.04, 208.05

D. STREET SWEEPING: Shall be done in accordance with subsection 208.04

**6. INSPECTIONS**

A. Inspections shall be in accordance with subsection 208.03(c).

**7. CONTROL MEASURE MAINTENANCE**

A. Maintenance shall be in accordance with subsection 208.04(f).

**8. RECORD KEEPING**

A. Records shall be kept in accordance with subsection 208.03(d).

**9. INTERIM, PERMANENT STABILIZATION and LONG TERM STORMWATER MANAGEMENT**

The Contractor shall comply with all interim stabilization and permanent stabilization requirements in accordance with subsection 208.04(e).

A. SEEDING PLAN

Seeding will be required for an estimated 3 acres of disturbed area within the right-of-way limits which are not surfaced. The following types [as specified on the Site Maps] and rates shall be used:

COMMON NAME	BOTANICAL NAME	LBS. PLS PER ACRE

\*Please note: this example includes some discrepancies to enrich TECS Certification Class experience.



TOTAL		

B. **SEEDING APPLICATION:** Drill seed 0.25 inch to 0.5 inch into the soil. In small areas not accessible to a drill, hand broadcast or hydroseed at double the rate and rake 0.25 inch to 0.5 inch into the soil per subsection 212. Soil compaction shall be minimized for areas where permanent stabilization will be achieved through vegetative cover.

C. **MULCHING APPLICATION:** Apply a minimum of 2 tons of certified weed free hay or 2 1/2 tons of certified weed free straw per acre and in accordance with Section 213, and mechanically crimp it into the soil in combination with an organic mulch tackifier.

1. Prior to winter shutdown or the summer seeding window closure: Uncompleted slopes shall be mulched with 2 tons of mulching (weed free) per acre, mechanically crimped into the topsoil in combination with an organic mulch tackifier in accordance with subsections 208 and 213.

D. **SPECIAL REQUIREMENTS:**

1. Due to high failure rates, hydroseeding will not be allowed for permanent stabilization.
2. Due to steep slopes (>2:1), hydroseeding will be allowed on this project for permanent stabilization. Hydroseeding rate shall be at double the seeding rate. Hydroseed shall be applied in two applications. The first application is a slurry which contains seed, organic amendment and fertilizer. The second application is a slurry of mulch and tackifier. Both slurry applications shall be applied from top of slope downward, in 50' vertical lifts, unless otherwise approved by the Engineer.

E. **SOIL CONDITIONING AND FERTILIZER REQUIREMENTS:** Minimum amendment material requirements for all disturbances to receive seeding (native). Elevation: (5,260) feet

Soil conditioners paid for as Item 212- Soil Conditioning (Acre)			
Biological nutrient organic based fertilizer (lbs./acre)*	Humate (lbs./acre)	Compost (yd3/acre) [**] <b>All areas &lt;2:1</b> [1/2 inch depth]	Spray-on Amendment (lbs./acre) [**] <b>&gt;2:1 slopes only</b>
300	200	65	3500

\*Biological nutrient organic based fertilizer shall not exceed 8-8-8 (N-P-K).

Humate shall be in accordance to 212.02.

F. **SOIL RETENTION COVERING:** On slopes and ditches requiring a blanket or turf reinforcement mat (trm), the blanket/trm shall be placed in lieu of mulch and mulch tackifier and placed after seeding (native). See SWMP Site Map for blanket/trm locations.

G. **Permanent Stabilization Application Under Structures:** Under structures shade patterns should be considered and the use of Median Cover Material (Stone) or other stabilized options with an approved Project Special Provision should be used. See SWMP Site Map for locations.

H. **RESEEDING OPERATIONS/CORRECTIVE STABILIZATION:**

Prior to partial acceptance.

All seeded areas shall be reviewed during the 7-day inspections by the SWMP Administrator for Construction and or Erosion Control Inspector for bare soils caused by surface or wind erosion. Bare areas caused by surface or gully erosion, blown away mulch, etc. shall be re-graded, seeded, and have the designated mulching applied as necessary, at no additional cost to the project.

1. The Contractor shall maintain seeding/mulch/tackifier/blanket/TRM, mow to control weeds or apply herbicide to control weeds in the seeded areas until Partial Acceptance of the stormwater construction work.

I. **LONG TERM STORMWATER MANAGEMENT**

See Item #18 of the SWMP for long term management practices to control pollutants in stormwater discharges that will occur after construction operations are completed.

**10. PRIOR TO PROJECT FINAL ACCEPTANCE**

- A. Partial Acceptance shall be in accordance with subsection 107.25 (d), 208.10 and 214.04. At the Partial Acceptance of the project, it shall be determined by the SWMP Administrator for Construction and the Engineer which temporary control measures shall remain until 70% revegetation is established or which shall be removed.
- B. At the end of the project, all ditch checks shall either consist of temporary erosion logs (or equivalent) or permanent riprap.
- C. All storm drains shall be cleaned prior to the Final Acceptance of the project. Work shall be included in 202 Clean Culvert.

\*Please note: this example includes some discrepancies to enrich TECS Certification Class experience.

**11. NARRATIVES:** [Below are the CDOT narratives covered in CDOT's Standard Specifications and M Standard Plans. Proposed non-standard control measures during design should be added to the matrix. Place an X in the column for M-208 Standard or "X" for Non-Standard and provide a narrative. The narrative shall include what, when, where and why the control measure is being used. Also place an X in the appropriate implementation column(s)] [During design place a "P" in the Initial Activities Column for any control measures that should be installed before construction activity starts.]

**Control Measure Matrixes During Construction:**

- Control measure narratives have been included for the CDOT Standard Specifications and Standard Plan M-208 and M-216 along with any non-standard control measures approved during the design process. If a Non-Standard Control Measure not included in the SWMP is proposed and approved by the Engineer the SWMP Administrator for Construction shall do the following: Place an "X" in the column for non-standard and complete a Non-Standard Control Measure Specification and Narrative covering the what, when, where and why the control measure is being used shall be add to the SWMP. The appropriate "X" shall also be added to the implementation phase(s).
- The SWMP Administrator for Construction shall place an "X" in the column In Use On Site when the control measure has been installed.
- A "P" in the Initial Activities Column indicates that the control measure shall be installed before construction activity starts. Locations and quantities will be discussed during the Environmental Pre-construction Conference with the Regional Water Pollution Control Manager.

**STRUCTURAL Control Measures** that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:

APPLICATION, CONTROL MEASURE	NARRATIVE	M- 208 STANDARD or "X" for NON- STANDARD	IN USE ON SITE	CONTROL MEASURE IMPLEMENTATION PHASE		
				INITIAL ACTIVITIES	INTERIM ACTIVITIES	PERMANENT STABILIZATION
PROTECTION OF EXISTING WETLANDS <i>Fence (plastic) and erosion logs</i>	Fence (plastic) shall be placed in combination with erosion logs to prevent encroachment of construction traffic and sediment into state waters prior to start of construction disturbances. Fence (plastic) shall be placed adjacent to the wetlands; erosion logs shall be placed between the plastic fence and disturbance area. Logs shall be placed to direct flows away from or filter water running into wetlands from disturbance areas.					
PROTECTION OF EXISTING TREES/LANDSCAPING <i>Fence (plastic)</i>	Fence (plastic) shall be used in areas indicated in the plans to prevent encroachment of construction traffic and sediment for the protection of mature trees and/or existing landscaping prior to start of construction disturbances.			P	X	
CHECK DAM/DITCH CHECK <i>Erosion log, silt berm, silt dike, rock check dam</i>	Placed in ditches immediately upon completion of ditch grading to reduce velocity of runoff in ditch. For existing ditches, place prior to start of construction disturbances.	M-208			X	
Storm Drain Inlet Protection In Paved Roadways (Type 1, 2 and 3 as shown on M-208-1, sheet 5 of 11)	Manufactured storm drain inlet protection placed prior to construction disturbances as detailed in M-208-1, to protect existing inlets or immediately upon completion of new inlets to prevent sediment from entering the inlet throughout construction.	M-208		P	X	X
Storm Drain Inlet Protection In Native Seed Areas (M-604 Standard Inlets Type C and D)	Erosion logs or aggregate bags placed around inlet grate to prevent sediment from entering inlet. Place prior to construction disturbances to protect existing inlets or immediately upon completion of new inlets.	M-208			X	X
CULVERT INLET/OUTLET PROTECTION <i>Erosion logs, aggregate bags</i>	Placed at mouth of culvert inlets and over top of culvert at inlet and outlet where disturbance may be occurring adjacent to pipe to prevent sediment laden water from entering pipe or drainage. Place prior to start of construction disturbances.	M-208			X	X
TYPE C, TYPE D AND TYPE 13 PROTECTION <i>Erosion logs, aggregate bags, erosion bales</i>	Placed around inlet grate or slope and ditch paving to prevent sediment from entering inlet. Place prior to start of construction disturbances.	M-208				
STOCKPILE PROTECTION <i>Temporary berm, erosion logs, aggregate bags*</i>	Placed within specified distance, in accordance with subsection 208.06, from toe to contain sediment around stockpile. *Aggregate bags are easily moved and replaced for access during the work day. Place prior to start of stockpile, increase control as stockpile increases size.	M-208			X	
TOE OF FILL PROTECTION <i>Erosion logs, temporary berm, silt fence, topsoil windrow*</i>	Place prior to slope/embankment work to capture sediment and protect and delineate undisturbed areas. *Can be used to stockpile topsoil for salvage.	M-208		X	X	x
PERIMETER CONTROL <i>Erosion logs, silt fence, temporary berm, topsoil windrow*</i>	Placed prior to construction commencing to address potential run-on water from off site, and to divert around disturbed area. *Can be used to stockpile topsoil for salvage.	M-208		P	X	
SEDIMENT CONTROL/ SLOPE CONTROL <i>Silt fence, erosion logs</i>	Placed on the contour of a slope to contain and slow down construction runoff. Place prior to start of construction disturbances.	M-208			X	X
TEMPORARY SEDIMENT TRAP	Used to capture sediment laden runoff from disturbed areas < 5 acres during construction. Place prior to start of construction disturbances. Outlets that withdraw water from or near the surface may be installed when discharging from basins and impoundments.	M-208		X	X	
EMBANKMENT PROTECTION OR TEMPORARY SLOPE DRAIN	Placed as a conduit or chute to drain runoff down slope and to prevent erosion of slope.	M-208			X	X

\*Please note: this example includes some discrepancies to enrich TECS Certification Class experience.

OUTLET PROTECTION <i>Riprap, or approved other</i>	Material placed as energy dissipator to prevent erosion at outlet structure.	M-601-12			X	X
CONCRETE WASHOUT <i>In-ground or fabricated</i>	Construction control used for waste management of concrete and concrete equipment cleaning. Place prior to start of concrete activities.	M-208		X	X	X
VEHICLE TRACKING PAD	Source control placed to prevent tracking of sediment from disturbed area to offsite surface. Place prior to start of construction disturbances.	M-208		P	X	X
Engineered SEDIMENT BASIN	Constructed early in project, prior to storm sewer/ditches and in accordance with 208.05(p) to capture storm flow. Outlet structure and/or outfall shall be modified for temporary sediment control using an approved non-standard detail. Outlets that withdraw water from or near the surface shall be installed when discharging from basins and impoundments, unless infeasible			X	X	
DEWATERING <i>(Contractor is responsible for obtaining a permit from Colorado Department of Health and Environment.)</i>	Shall be done in such a manner to prevent potential pollutants from entering state waters.			X	X	
TEMPORARY STREAM CROSSING	Constructed over stream or drainage to prevent discharge of pollutants from construction equipment into water.					
CLEAN WATER DIVERSION	Placed to divert clean surface or ground water around disturbance area to prevent it from mixing with construction runoff.					
OTHER						

**NON-STRUCTURAL Control Measures** that may be potentially used on the project for erosion and sediment control; practices may include, but are not limited to:

Erosion control devices are used to limit the amount of soil loss on site. Sediment control devices are designed to capture sediment on the project site. Construction controls are control measures related to construction access and staging. Control Measure locations are indicated on the SWMP Site Map.

\* **Use of vegetative buffer strip requirements.** The CDPHE Water Quality Control Division Technical Memorandum dated August 27, 2015 clarifies the requirements for utilization of existing vegetation as a buffer type of sediment control measure, while maintaining compliance with the CDPS permit for Stormwater Discharges Associated with Construction Activity – CDPS Permit No. COR4000000. In general, the division does not recommend that vegetated buffers be implemented as a sediment removal control measure for runoff from disturbed areas at construction sites, unless implemented as a “finishing” component of a treatment train comprised of additional, adequate up-gradient Control Measures. The entire memorandum can be found at: <https://www.colorado.gov/pacific/sites/default/files/Vegetative%20Buffer%20Memo.pdf>

APPLICATION, CONTROL MEASURE	NARRATIVE	M-STANDARD or “For NON-STANDARD	IN USE ON SITE	CONTROL MEASURE IMPLEMENTATION PHASE		
				INITIAL ACTIVITY	INTERIM ACTIVITIES	PERMANENT STABILIZATION
* VEGETATIVE BUFFER STRIP <i>Fence (plastic)</i>	Finishing component for filtering sediment-laden runoff from disturbance area. Area within CDOT ROW or temporary easement to be identified on SWMP prior to construction starting.					
GRADING APPLICATIONS (LANDFORM)	Existing or created landforms may be used as a control measure if they prevent sediment from entering or leaving the disturbance area. If a landform directs flow of water to a concentrated outfall point, the outfall point shall be protected to prevent erosion. Area to be identified on SWMP prior to construction starting.	M-208		X	X	X
TOPSOIL MANAGEMENT STOCKPILE/SALVAGE <i>Windrow or stockpile</i>	Prior to any site disturbance work commencing, existing topsoil shall be scraped to a depth four inches or as specified and placed in stockpiles or windrows. Upon completion of final grading, topsoil shall be evenly distributed over embankment to a depth of four inches or as specified.	M-208		X	X	X
SURFACE ROUGHENING / GRADING TECHNIQUES	Temporary stabilization of disturbance and to minimize wind and erosion.				X	
SEEDING (TEMPORARY)	Temporary stabilization used for over wintering of disturbance or used to control erosion for areas scheduled for future construction.					X
BONDED FIBER MATRIX or MULCHING (HYDRAULIC)	Not to be used in areas of concentrated flows, i.e. ditch lines. To be for either Interim or Permanent Stabilization placed as a surface cover for erosion control. May be used as surface cover when work is temporarily halted and as approved by the Engineer for stockpiles.					X
Straw or Hay MULCH/MULCH TACKIFIER	Interim or Permanent Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as Interim Stabilization as a surface cover when work is temporarily halted and as approved by the Engineer					X

\*Please note: this example includes some discrepancies to enrich TECS Certification Class experience.



SPRAY-ON MULCH BLANKET (Not to be used in areas of concentrated flows, i.e. ditch lines.)	Interim or Final Stabilization placed as a surface cover for erosion control and or seeding establishment. To be installed as temporary surface cover when work is temporarily halted and as approved by the Engineer					X
SEEDING PERMANENT (NATIVE)	Final Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.					X
SOIL RETENTION BLANKET (SRB)	Final Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas.	M-216		X	X	X
TURF REINFORCEMENT MAT (TRM)	Final Stabilization of disturbance and to reduce runoff and control erosion on disturbed areas. Placed in channels or on slopes for erosion control, channel liner and seeding establishment.	M-216		X	X	X
Sweeping	Source control used to remove sediment tracked onto paved surfaces and to prevent sediment from entering drainage system. Sweep daily and at the end of the construction shift as needed. Kick brooms shall not be permitted.				X	X
OTHER						

## 12. TABULATION OF STORMWATER QUANTITIES

- A. Control Measure sediment removal and disposal shall be paid for as: 208 Removal and Disposal of Sediment (Equipment) and 208 Removal and Disposal of Sediment (Labor). All other control measure maintenance shall be included in the cost of the control measure.
- B. It is estimated that 500 hours of blading (140-250 horsepower), dozing (130-250 horsepower) and/or combination loader (80-125 horsepower) may be required for miscellaneous erosion control work as directed by the Engineer. Work shall be paid for as: 203 Blading & 203 Dozing
- C. Establishment of seeded areas from Substantial Landscape Completion shall be paid for as: Landscape Maintenance (24 Month), F/A Erosion Control, 212 Seeding (Native), 214 Landscape Maintenance. This shall include mowing, weed control, reseeding/mulch/tackifier. Contractor shall be liable for establishment of Seed during the 24 Month Warranty Period.

Pay Item	Description	Pay Unit	Initial Const.	Interim Const.	Permanent Stabilization	*Total Quantity
202-04002	Clean Culvert	Each				
203-01500	Blading	Hour	30	350	50	430
203-01550	Dozing	Hour		40		40
203-01594	Combination Loader	Hour		30		30
207-00205	Topsoil	CY			60	60
207-00210	Stockpile Topsoil	CY				
208-00001	Silt Dike	LF		20		20
208-00004	Silt Berm	LF				
208-00012	Erosion Log Type 1 (9 inch)	LF				
208-00002	Erosion Log Type 1 (12 inch)	LF		100		100
208-00013	Erosion Log Type 1 (20 Inch)	LF				
208-00007	Erosion Log Type 2 (8 Inch)	LF				
208-00008	Erosion Log Type 2 (12 Inch)	LF				
208-00009	Erosion Log Type 2 (18 Inch)	LF				
208-00011	Erosion Bales (Weed Free)	Each				
208-00015	Sand Bag	LF				
208-00030	Sediment Basin	Each		1		1
208-00020	Silt Fence	LF		50	550	600

208-00021	Silt Fence (Reinforced)	LF			50	50	100
208-00022	Erosion Log Type 3 (9 Inch)	LF					
208-00023	Erosion Log Type 3 (12 Inch)	LF					
208-00024	Erosion Log Type 3 (20 Inch)	LF					
208-00025	Plastic Sheeting	SY			50	50	100
208-00026	Coir Roll	LF					
208-00033	Sediment Trap	Each					
208-00035	Aggregate Bag	LF			25	50	75
208-00041	Rock Check Dam	Each				4	4
208-00045	Concrete Washout Structure	Each				1	1
208-00046	Pre-fabricated Concrete Washout Structure (Type 1)	Each				1	1
208-00047	Pre-fabricated Concrete Washout Structure (Type 2)	Each					
208-00051	Storm Drain Inlet Protection (Type I)	LF				5	5
208-00052	Storm Drain Inlet Protection (Type II)	LF					
208-00053	Storm Drain Inlet Protection (Type I)(84 Inch)	Each					
208-00054	Storm Drain Inlet Protection (Type II)	Each					
208-00055	Rigid Inlet Protection Device	Each					
208-00056	Storm Drain Inlet Protection (Type III)	Each					
208-00057	Storm Drain Inlet Protection (Type I)(144 Inch)	Each					
208-00058	Storm Drain Inlet Protection (Type I)(204 Inch)	Each					
208-00060	Temporary Slope Drains	LF					
208-00070	Vehicle Tracking Pad	Each			3	3	6
208-00071	**Maintenance Aggregate (Vehicle Tracking Pad)	CY			120	60	180

\*Please note: this example includes some discrepancies to enrich TECS Certification Class experience.

208-00075	Pre-fabricated Vehicle Tracking Pad	Each		1		1
208-00103	Removal and Disposal of Sediment (Labor)	Hour		200		200
208-00105	Removal and Disposal of Sediment (Equipment)	Hour		200		200
208-00106	Sweeping (Sediment Removal)	Hour		300		300
208-00107	Removal of Trash	Hour	100	100	200	400
208-00207	Erosion Control Management (ECM)	Day	8	96	48	152
208-00300	Temporary Berm	LF			50	50
208-00301	Temporary Diversion	LF			100	100
212-00006	Seeding (Native)	Acre			3	3
212-00009	Seeding (Temporary)	Acre				
212-00032	Soil Conditioning	Acre			3	3
212-00032	Spray-on Amendments	Acre				
213-00002	Mulching (Weed Free Hay)	Acre				
213-00003	Mulching (Weed Free)	Acre				
213-00004	Mulching (Weed Free Straw)	Acre				
213-00007	Mulching Wood Strand	Acre				
213-00012	Spray-on Mulch Blanket	Acre				
213-00013	Spray-on Mulch Blanket	LB			.25	.25
213-00061	Mulch Tackifier	LB				
213-00150	Bonded Fiber Matrix	Acre			.25	.25
213-00151	Bonded Fiber Matrix	LB				
214-00000	Landscape Maintenance	LS				
214-00005	Landscape Maintenance (24 Month)	LS				
216-00101	Soil Retention Blanket (Straw/Coconut) (Photodegradable Class 1)	SY			60	60

216-00111	Soil Retention Blanket (Excelsior) (Photodegradable Class 1)	SY				
216-00122	Soil Retention Blanket (Coconut) (Photodegradable Class 2)	SY				
216-00201	Soil Retention Blanket (Straw/Coconut) (Biodegradable Class 1)	SY				
216-00211	Soil Retention Blanket (Excelsior) (Biodegradable Class 1)	SY				
216-00222	Soil Retention Blanket (Coconut) (Biodegradable Class 2)	SY				
216-00301	Turf Reinforcement Mat (Class 1)	SY				
216-00302	Turf Reinforcement Mat (Class 2)	SY			60	60
216-00303	Turf Reinforcement Mat (Class 3)	SY				
217-00000	Herbicide Treatment	SY				
217-00020	Herbicide Treatment	Hour				
610-00050	Median Cover Material (Stone)	Ton				
607-11525	Fence (Plastic)	LF				
615-00152	Erosion Protector (Special)	LF				
700-70380	F/A Erosion Control	FA				
700-90026	F/A Landscaping	FA				

\*It is anticipated that additional control measures and control measure quantities not shown on the SWMP Site Maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsection 208.03 and 208.04. **Quantities for all control measures shown above are estimated, and have been increased for unforeseen conditions and normal control measure life expectancy.** Quantities shall be adjusted according to the conditions encountered in the field as directed and approved by the Engineer. Payment shall be for the actual work completed and material used.

\*\*Pay Item 208-00071 is included for anticipated maintenance of vehicle tracking pads based on the service life of the control measure in the field. The use of the material shall be directed and approved by the Engineer.

\*\*\* F/A refers to CDOT's Force Account Pay Items.

### 13. BIOLOGIC IMPACTS and DEWATERING

#### A. ENVIRONMENTAL IMPACTS:

1. Wetland Impacts: NO
2. Stream Impacts: NO
3. Threatened and Endangered Species: NO

#### B. DEWATERING (Not Covered Under the CDPHE Low Risk Discharge Guidance Document of Uncontaminated Groundwater to Land):

1. Dewatering: Refer to other environmental permits in accordance with subsection 107.02 and the permits contained in Tab 16 of the SWMP.

### 14. NOTES

\*Please note: this example includes some discrepancies to enrich TECS Certification Class experience.

## **2 Site Map and Project Plan Title Sheet**

### **2.1 Title Sheet containing Project Location Map**

### **2.2 Site Map Revisions and Recording in Accordance to 208.03 (c)**

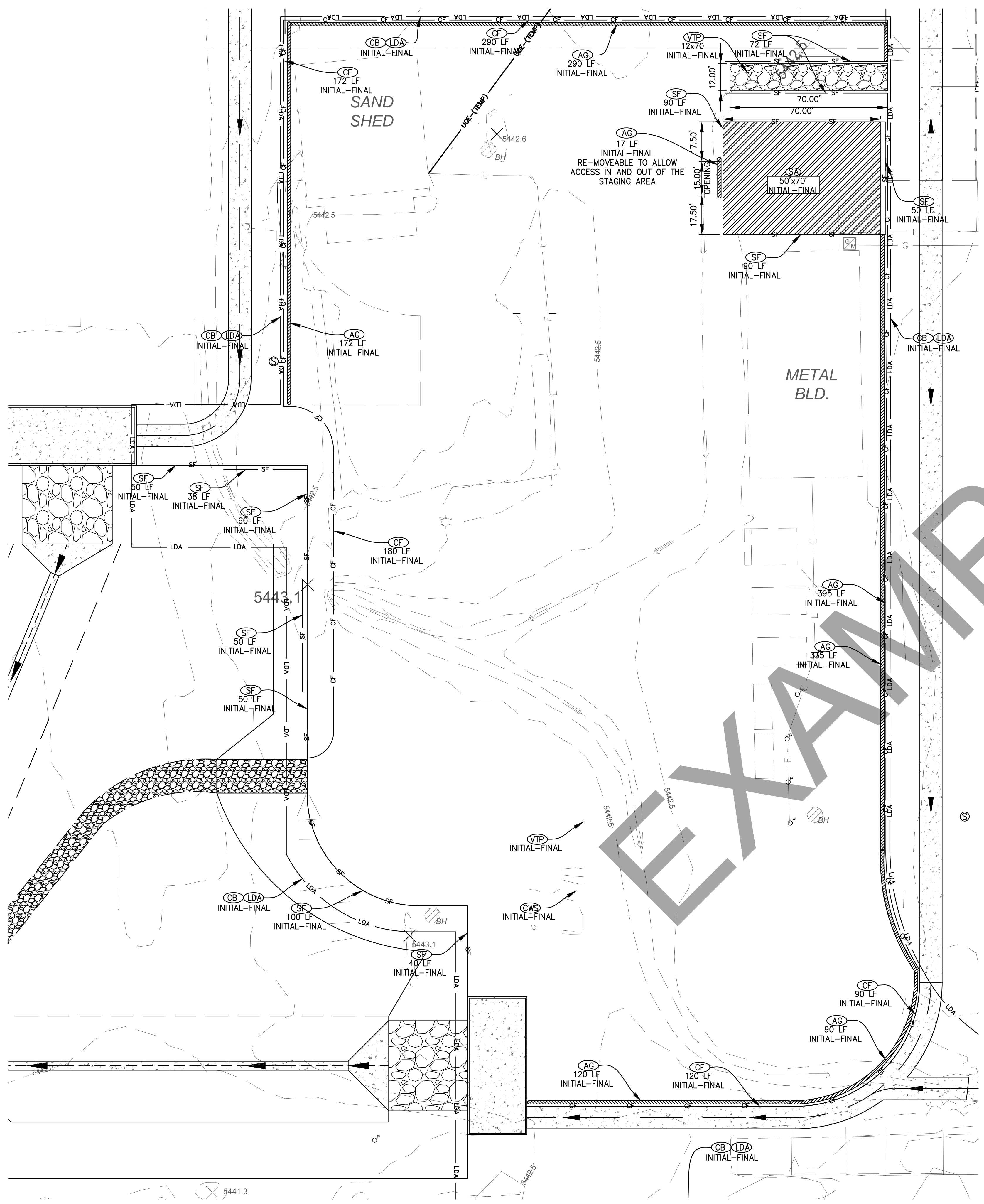
### **2.3 Site Map Components**

- **Area of Disturbance (AD), Construction Site Boundary/Limits of Construction (LOC), Limits of Disturbed Area (LDA), Areas of Cut and Fill, Flow Arrows, Structural BMPs, Non Structural BMPs, Springs, Streams, Wetlands and other Surface Water and Protection of Trees, Shrubs, Cultural Resources and Mature Vegetation**

### **2.4 Locations of Potential Pollutants**

### **2.5 Perimeter Control**





**STORM WATER MANAGEMENT PLAN (SWMP) NOTES:**  
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 B. PROPOSED BMPS:

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2-CONCRETE WASHOUT (CWS)-CONCRETE WASHOUT AS INDICATED ON DRAWINGS. ADDITIONAL/ALTERNATIVE LOCATIONS TO BE DETERMINED BY THE CONTRACTOR.

3-VEHICLE TRACKING PAD (VTP)- LOCATED AT THE NORTHEAST CORNER OF THE SITE AND IN FRONT OF THE CONCRETE WASHOUT AREA.

4-STAGING AREA (SA)-STAGING AREA LOCATIONS TO BE DETERMINED BY THE CONTRACTOR ONE STAGING LOCATION SHOWN ON DRAWINGS.

5-SILT FENCE (SF)-SILT FENCE TO BE USED ALONG THE EDGES OF THE VTP AND ALONG THE WEST PERIMETER OF THE BMP SITE. ALSO IF NEEDED ELSEWHERE PER CONTRACTOR AND TRANSPORTATION EROSION CONTROL SUPERVISOR (TECS).

6-EROSION LOGS (EL)- EROSION LOGS TO BE LOCATED IN SWALES AS INDICATED ON THE DRAWINGS. PROVIDE EROSION LOGS WHEN CONSTRUCTING UTILITY LINES.

7-INLET PROTECTION (IP)-SHALL BE INSTALLED ON THREE NEW INLETS AS NOTED ON THE DRAWINGS.

C. REQUIRED AREA OF REVEGETATION: 0 SF  
 IF THERE IS DISTURBANCE TO THE DETENTION POND THE POND AREA SHALL BE RE-SEED AS NECESSARY. VEGETATION SHALL BE SEED MIX AS INDICATED IN THE CDOT SWMP NOTEBOOK.

3. ADJUSTMENTS TO THESE BMP TYPES AND LOCATIONS SHALL BE MADE AS DIRECTED BY FIELD CONDITIONS AND CDOT REPRESENTATIVES.

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6. WITHIN THE AREA OF THE NEW BMP TRAINING FACILITY IT IS NOT NECESSARY TO MAINTAIN THE BMP'S THRU THE SWMP FINAL PHASE AND STABILIZATION, EXCEPT FOR THE SEEDING AREAS ALONG THE SOUTH AND WEST OF THE BMP SITE SHOWN ON C3.2. THIS SITE IS BEING USED AS A BMP TRAINING AND DEMONSTRATION FACILITY. THEREFORE CONTRACTOR'S CONSTRUCTED BERMS AND SWALES WILL BE REVISED THROUGHOUT THE TRAINING OPERATIONS ONCE THE CONTRACTOR'S WORK IS COMPLETE AND THE SITE IS OCCUPIED BY THE OWNER. THE CONTRACTOR WILL NOT BE REQUIRED TO COMPLY WITH SWMP FINAL PHASE STABILIZATION ITEMS-EXCEPT FOR SEEDING. THE CONSTRUCTION BMP'S PROVIDED AS PART OF THE INITIAL AND INTERIM PHASES (C3.0 & C3.1) SHALL BE LEFT IN PLACE AND MAINTAINED BY THE CONTRACTOR UNTIL THE OWNER TAKES OCCUPANCY OF THE SITE.

**BMP LEGEND**

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- (LDA) - LIMITS OF DISTURBED AREA
- (CF) - CONSTRUCTION FENCE
- (CB) - CONSTRUCTION BOUNDARIES
- (VTP) - VEHICLE TRACKING PAD
- (SF) - SILT FENCE
- (IP) - INLET PROTECTION
- (EL) - EROSION LOGS

**KOA BMP FACILITY-SWMP (INITIAL)**  
 SCALE: HORIZ. 1"=25'

NO.	DESCRIPTION	DATE
1	85% CONSTRUCTION DOCS	03/11/2016
2	85% CONSTRUCTION DOCS	04/22/2016
3	85% CONSTRUCTION DOCS	08/19/2016

**Colorado Department of Transportation**  
 15285 SOUTH GOLDEN ROAD  
 BUILDING 47  
 GOLDEN, CO 80401  
 Phone: 303-512-5505 FAX: 303-512-5550



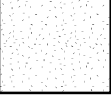



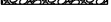
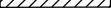





**BMP FACILITY AND CLASSROOM**  
 18500 EAST COLFAX AVE  
 AURORA, COLORADO 80011

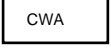
**Richard Weingart Consultants**  
 2121 South Quebec Street, Suite 530  
 Denver, CO 80224 USA  
 Telephone (303) 871-7055  
 Fax (303) 871-7039  
 Email: rweingart@rcconsultants.com

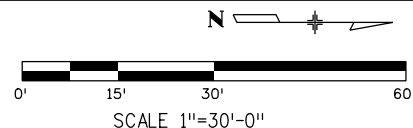
DRAWN BY: DLH  
 CDOT PROJECT NO. 20353  
 SAP BUILDING NO. 1000-1-360  
 CITY OF AURORA NO 1306 TOWER ROAD  
 DRAWING NUMBER  
**C3.0**



**LEGEND**

-  INTERIM STABILIZATION AREA
-  AREAS OF RIPRAP (FINAL STABILIZATION AREA)
-  MEDIAN COVER MATERIAL (STONE) 610-00050 (703.10 AGGREGATE FOR MEDIAN COVER) (FINAL STABILIZATION AREA)
-  NATIVE VEGETATION (FINAL STABILIZATION AREA)
-  LDA LIMITS OF DISTURBED AREA
-  CONSTRUCTION SITE BOUNDARY LIMITS OF CONSTRUCTION (LOC)
-  ROCK CHECK DAM
-  EROSION LOG CHECK DAM
-  SILT BERM CHECK DAM
-  EROSION LOG
-  EROSION LOG
-  SF SILT FENCE
-  PF PLASTIC FENCE

- ① X  Concrete washout
- ② X
- ③ X
- ④ X
- ⑤ X
- ⑥ X
- ⑦ X
- ⑧ X
- ⑨ X
- ⑩ X
- ⑪ X
- ⑫ X
- ⑬ X
- ⑭ X

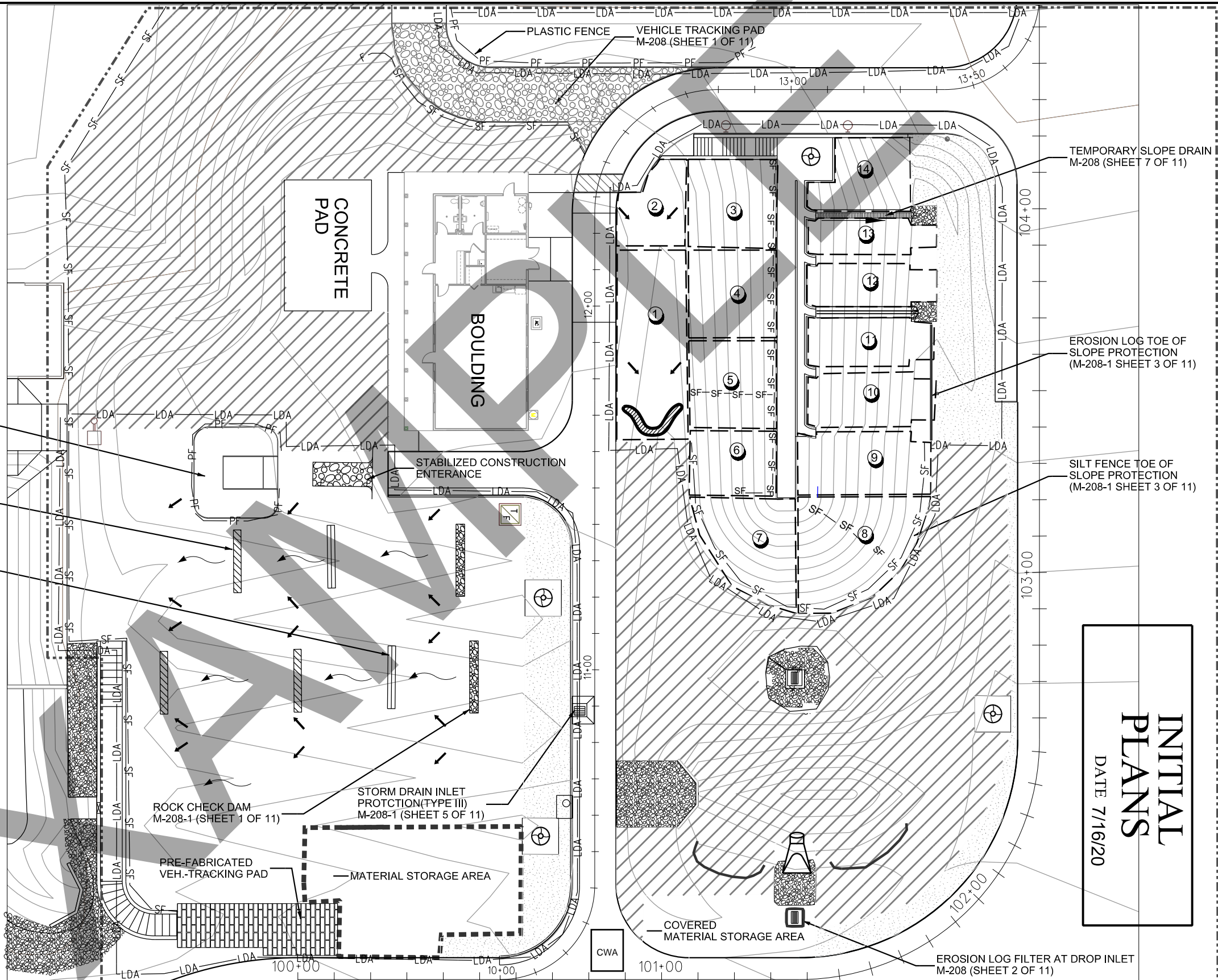


**INITIAL PLANS**  
DATE 7/16/20

CONCRETE WASHOUT STRUCTURE M-208-1 (SHEET 1 OF 11)

EROSION LOG CHECK DAM M-208-1 (SHEET 6 OF 11)

SILT BERM CHECK DAM M-208-1 (SHEET 6 OF 11)



**INITIAL PLANS**  
DATE 7/16/20

Print Date: 7/15/2020  
File Name: KDA BMP 1176 Inspection Graphic 062520.dgn  
Horiz. Scale: 1"=30'-0" Vert. Scale:

Sheet Revisions		
Date:	Comments	Init.

**Colorado Department of Transportation**

2829 W. Howard  
Denver, CO 80204  
Phone: 303-322-2020 FAX: N/A

**Region 1 PH**

**As Constructed**

No Revisions:  
Revised:  
Void:

STORMWATER MANAGEMENT PLAN  
SITE MAP - INTERIM  
TOM BOYCE CENTER

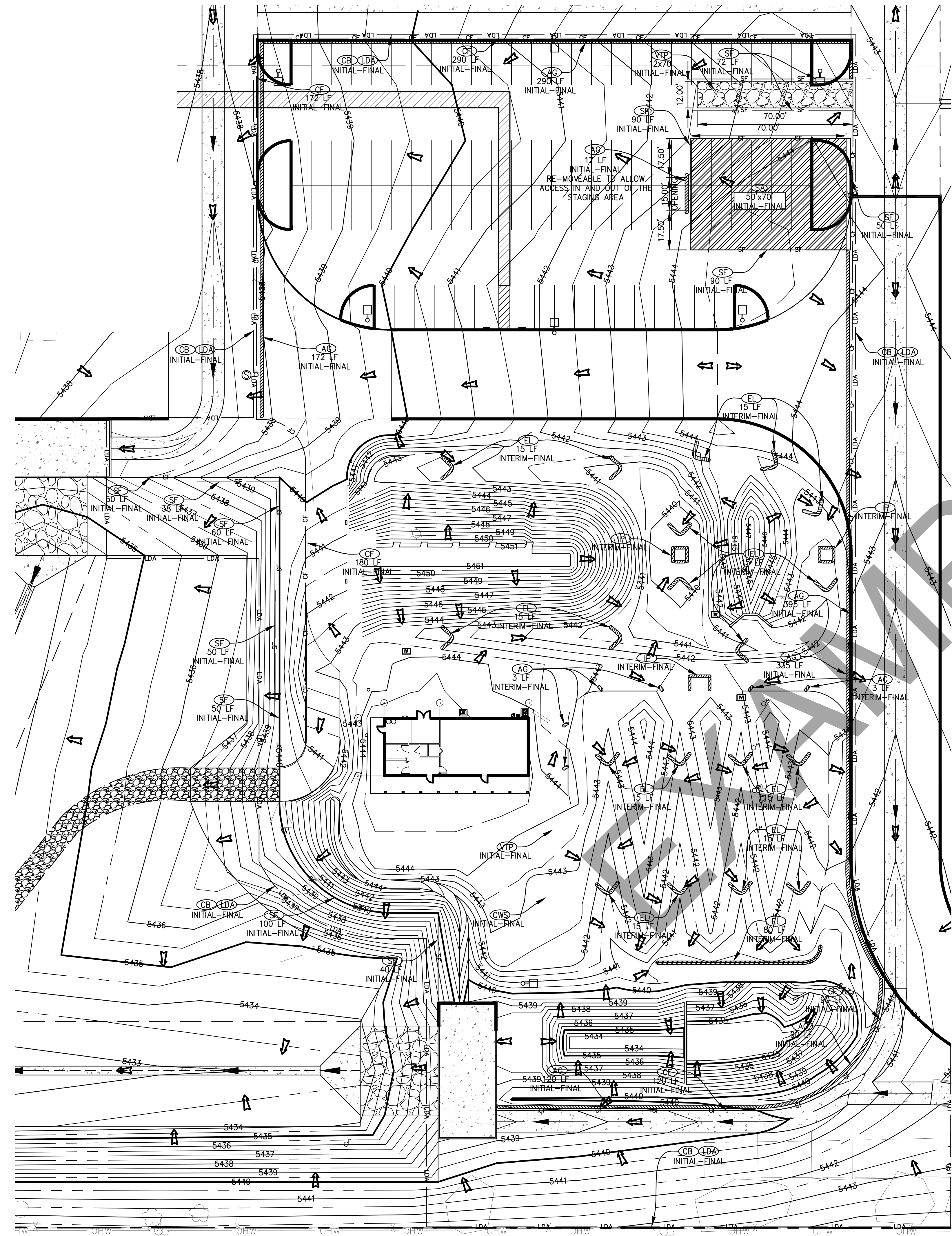
Designer: DAF  
Detailer: DAF  
Subset: SWMP

Structure Numbers:  
Subset Sheets: 6 of 8

**Project No./Code**

Sheet Number





**STORM WATER MANAGEMENT PLAN (SWMP) NOTES:**  
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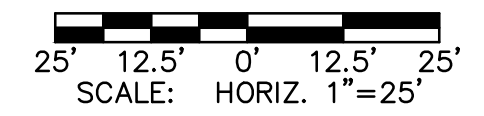
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  - (IP) - INLET PROTECTION
  - (EL) - EROSION LOGS

**KOA BMP FACILITY-SWMP (INTERIM)**



DATE	NO.	DESCRIPTION
03/11/2016	1	85% CONSTRUCTION DOCS
04/22/2016	2	85% CONSTRUCTION DOCS
08/19/2016	3	85% CONSTRUCTION DOCS

**Colorado Department of Transportation**  
 15285 SOUTH GOLDEN ROAD  
 BUILDING 47  
 GOLDEN, CO 80401  
 Phone: 303-512-5505 FAX: 303-512-5550

**BMP FACILITY AND CLASSROOM**  
 18500 EAST COLFAX AVE  
 AURORA, COLORADO 80011

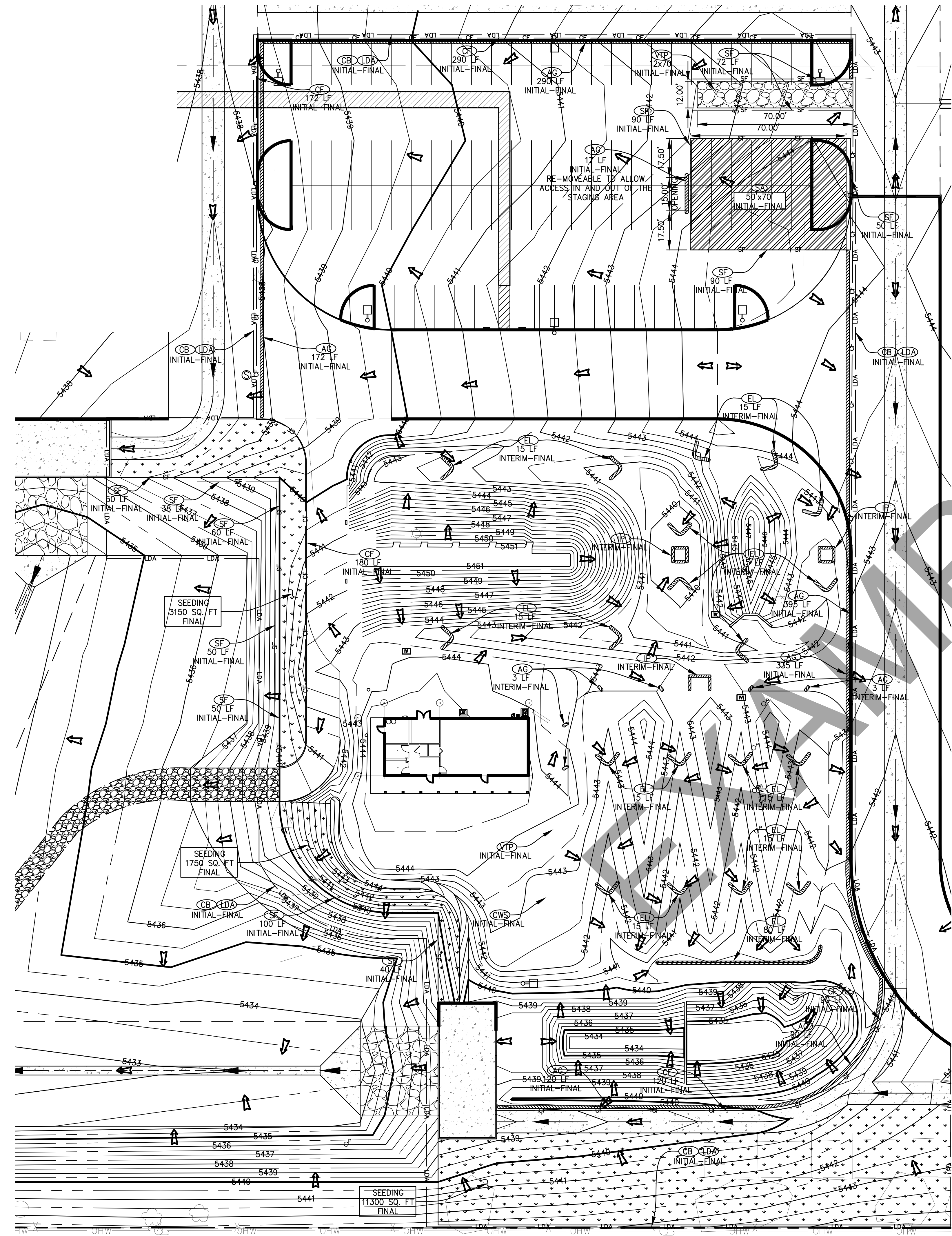
Richard Weingardt Consultants  
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 Telephone (303) 871-7055  
 Fax (303) 871-7078  
 Email: rweingardt@rcconsultants.com

DRAWN BY: DLH  
 CDOT PROJECT NO. 20353  
 SAP BUILDING NO. 1000-1-360  
 CITY OF AURORA NO 1306 TOWER ROAD  
 DRAWING NUMBER  
**C3.1**





DATE	NO.	DESCRIPTION
03/17/2016	1	85% CONSTRUCTION DOCS
04/22/2016	2	85% CONSTRUCTION DOCS
08/19/2016	3	95% CONSTRUCTION DOCS



**STORM WATER MANAGEMENT PLAN (SWMP) NOTES:**  
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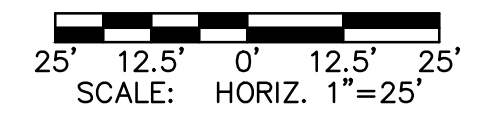
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**KOA BMP FACILITY-SWMP (FINAL)**



Colorado Department of Transportation  
 15285 SOUTH GOLDEN ROAD  
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 GOLDEN, CO 80401  
 Phone: 303-512-5505 FAX: 303-512-5550

SWMP - FINAL  
 BMP FACILITY AND CLASSROOM  
 18500 EAST COLFAX AVE  
 AURORA, COLORADO 80011

Richard Weingardt Consultants  
 2151 South Quebec Street, Suite 530  
 Denver, CO 80224 USA  
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 Email: rweingardt@rc.com

DRAWN BY: DLH  
 CDOT PROJECT NO. 20353  
 SAP BUILDING NO. 1000-1-360  
 CITY OF AURORA NO 1306 TOWER ROAD  
 DRAWING NUMBER  
**C3.2**



### **3 Specifications**

#### **3.1 Project and Standard Special Provisions**

#### **3.2 Standard Specifications**

#### **3.3 Modified or Added Specifications**

This is where you will include your contract specifications, referencing the project's year/version of the CDOT Road and Bridge Specifications.

**COLORADO**  
**DEPARTMENT OF TRANSPORTATION**  
**SPECIAL PROVISIONS**

**AWARD**  
**SET**

**The 2019 Standard Specifications for Road and Bridge Construction controls construction of this project. The following special provisions supplement or modify the Standard Specifications and take precedence over the Standard Specifications and plans.**

**PROJECT SPECIAL PROVISIONS**

	<u>Date</u>	<u>Page</u>
Index Pages	(November 21, 2019)	1-2
Notice to Bidders	(November 21, 2019)	3-4
Commencement and Completion of Work (Working or Calendar Day)	(November 21, 2019)	5
Revision of Sections 101,102, and 108 – Basic Costs Plus Time Bidding	(November 21, 2019)	6-7
Revision of Section 102 - Project Plans and Other Data	(November 21, 2019)	8
Revision of Section 105 – Control of Work	(November 21, 2019)	9
Revision of Section 107 - Performance of Safety Critical Work	(November 21, 2019)	10-12
<b>Revision of Section 107 – Protection of Existing Vegetation</b>	<b>(November 21, 2019)</b>	<b>13</b>
<b>Revision of Section 107 - Stormwater Construction Permit</b>	<b>(November 21, 2019)</b>	<b>14</b>
Revision of Section 201 – Removal of Debris	(November 21, 2019)	15-16
<b>Revision of Section 202 – Removal of Structures and Obstructions</b>	<b>(November 21, 2019)</b>	<b>17-18</b>
<b>Clean Inlet/Clean Culvert</b>		
Revision of Section 202 – Sandblasting Reinforcing Steel	(November 21, 2019)	19
Revision of Section 202 – Removal of Portions of Present Structure	(November 21, 2019)	20-22
<b>Revision of Section 208 – Removal of Trash</b>	<b>(November 21, 2019)</b>	<b>23</b>
<b>Revision of Section 217 – Herbicide Treatment</b>	<b>(November 21, 2019)</b>	<b>24-25</b>
<b>Revision of Section 240 – Protection of Migratory Birds Biological Work</b>	<b>(November 21, 2019)</b>	<b>26-29</b>
<b>Performed by the Contractor’s Biologist</b>		
Revision of Section 250 – Coating-Lead-Based Paint on Structures	(November 21, 2019)	30-31
Revision of Section 509 – Steel Structure Retrofit/Repair	(November 21, 2019)	32-36
Revision of Section 601 – Structural Concrete	(November 21, 2019)	37
Revision of Section 601 – Concrete Patching	(November 21, 2019)	38-39
Revision of Section 601 – Structural Concrete Coating (Anti-Graffiti)	(November 21, 2019)	40-41
Revision of Section 620 – Field Office (Class 2)	(November 21, 2019)	42
Revision of Section 626 – Mobilization	(November 21, 2019)	43
Revision of Section 626 - Public Information Services (Tier III)	(November 21, 2019)	44-51
Revision of Section 630 - Portable Message Sign Panel	(November 21, 2019)	52-53
Revision of Section 630 – Uniformed Traffic Control and Uniformed Traffic Control (Vehicle)	(November 21, 2019)	54-56
Revision of Section 632 – Night Work Lighting	(November 21, 2019)	57-59
Force Account Items	(November 21, 2019)	60
Traffic Control Plan – General	(November 21, 2019)	61-62
Utilities	(November 21, 2019)	63-65

Colorado Project No. [REDACTED]  
Construction Subaccount No. [REDACTED]

[REDACTED], [REDACTED]

**COLORADO  
DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISIONS**

[REDACTED]

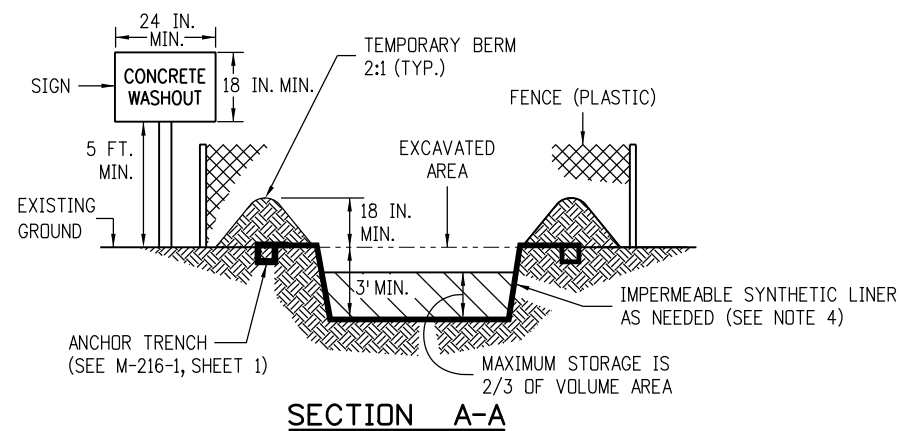
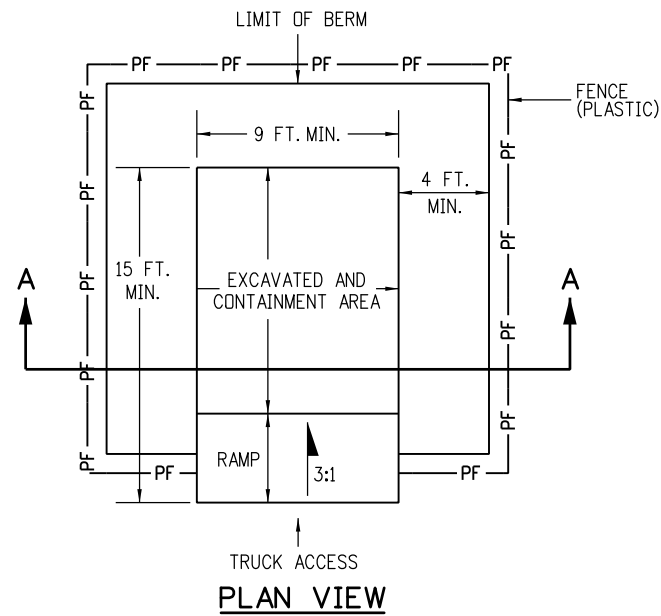
**STANDARD SPECIAL PROVISIONS**

	<u>Date</u>	<u>#Pages</u>
Revision of Section 103 – Colorado Resident Bid Preference	(October 1, 2019)	1
Revision of Section 106 – Buy America Requirements – Non-Federal Aid	(October 1, 2019)	1
Revision of Section 601 – Structural Concrete	(October 4, 2019)	17
Affirmative Action Requirements – Equal Employment Opportunity	(October 1, 2019)	10
Minimum Wages, Colorado,	(May 10, 2019)	10
U.S. Department of Labor General Decision Number CO190006, MOD 1, Highway Construction for [REDACTED] counties.		
Project First Program	(October 1, 2019)	2



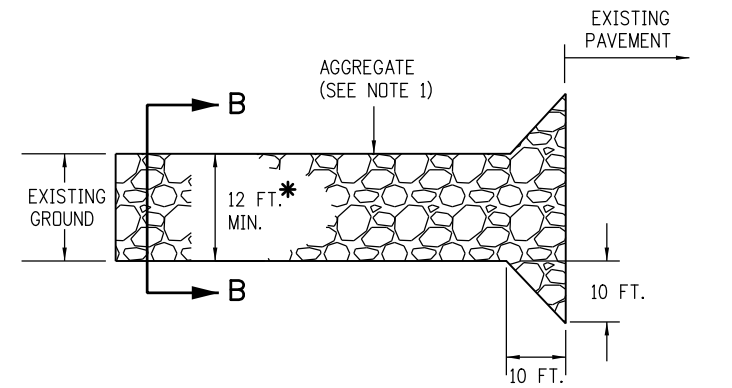
## **4 CDOT Standard Plans**

### **4.1 M-208-1, M-216-1 and M-615-1**

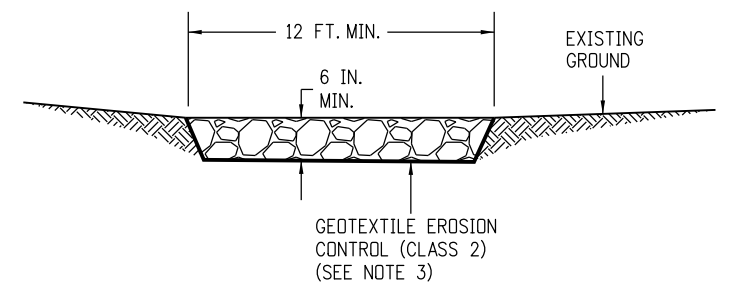
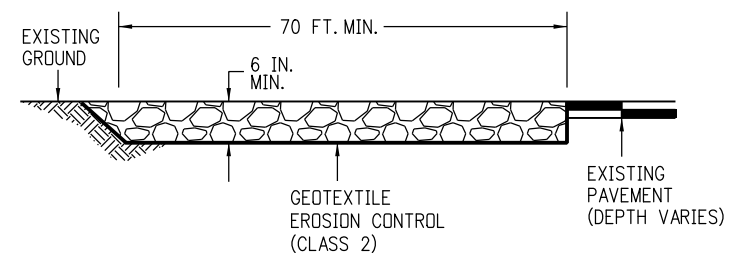


- NOTES:
1. A FENCE (PLASTIC) CONFORMING TO SECTION 607 SHALL BE INSTALLED AROUND THE CONCRETE WASHOUT AREA, EXCEPT AT THE OPENING.
  2. THE CONCRETE WASHOUT SIGN SHALL HAVE LETTERS AT LEAST 3 INCHES HIGH AND CONFORM TO SUBSECTION 630.02.
  3. ALL MATERIALS AND LABOR TO COMPLETE THE CONCRETE WASHOUT STRUCTURE SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
  4. THE BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF FIVE FEET ABOVE GROUND WATER. IF NOT, THE BOTTOM OF EXCAVATION SHALL BE IN ACCORDANCE WITH 208.02 (j).
  5. THE PAY ITEM NUMBER FOR CONCRETE WASHOUT STRUCTURE (EACH) IS 208-00045.

**CONCRETE WASHOUT STRUCTURE**



\* SHALL EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION.

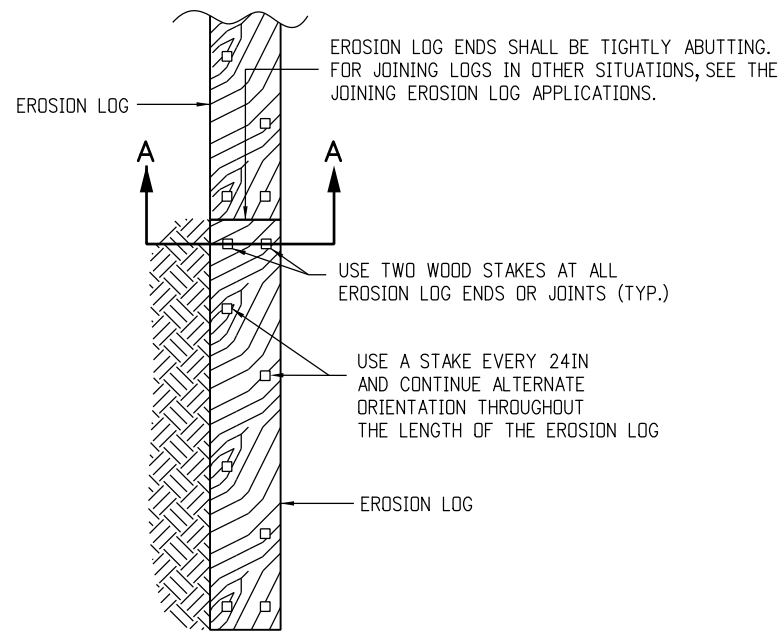


- NOTES:
1. AGGREGATE SHALL CONFORM TO SUBSECTION 208.02 (i).
  2. THE CONTRACTOR SHALL PROTECT CURB AND GUTTER THAT CROSSES THE ENTRANCE FROM DAMAGE, WHILE NOT BLOCKING FLOW OF WATER THRU STRUCTURE. PROTECTION OF THE CURB AND GUTTER SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
  3. GEOTEXTILE SHALL CONFORM TO SUBSECTION 712.08.
  4. ALL MATERIALS AND LABOR TO COMPLETE THE VEHICLE TRACKING PAD SHALL BE INCLUDED IN THE COST OF WORK AND NOT PAID FOR SEPARATELY.
  5. THE PAY ITEM NUMBER FOR VEHICLE TRACKING PAD (EACH) IS 208-00070.

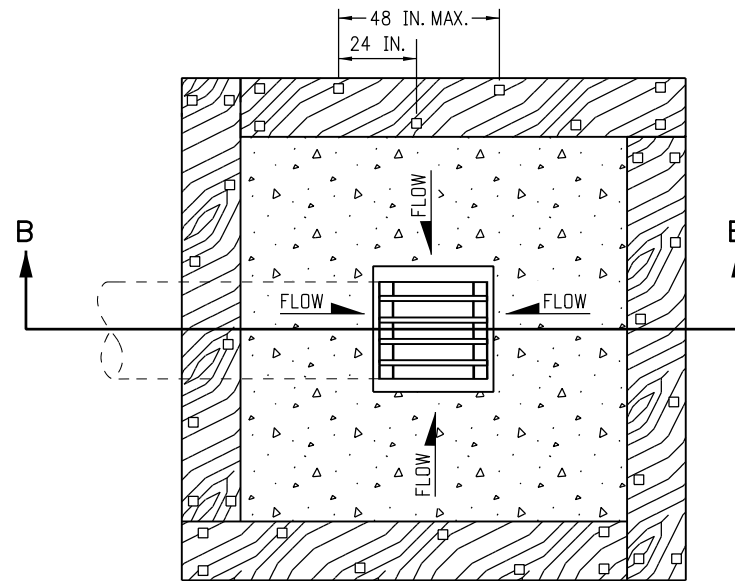
**VEHICLE TRACKING PAD**

<b>Computer File Information</b>		<b>Sheet Revisions</b>	<b>Colorado Department of Transportation</b>	<b>TEMPORARY EROSION CONTROL</b>		<b>STANDARD PLAN NO. M-208-1</b>
Creation Date: 07/31/19		Date:                      Comments	2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868	Issued by the Project Development Branch: July 31, 2019		Standard Sheet No. 1 of 11
Designer Initials: JBK	(R-X)				Project Sheet Number:	
Last Modification Date: 07/31/19	(R-X)					
Detailer Initials: LTA	(R-X)					
CAD Ver.: MicroStation V8    Scale: Not to Scale    Units: English	(R-X)				<b>Project Development Branch                      JBK</b>	

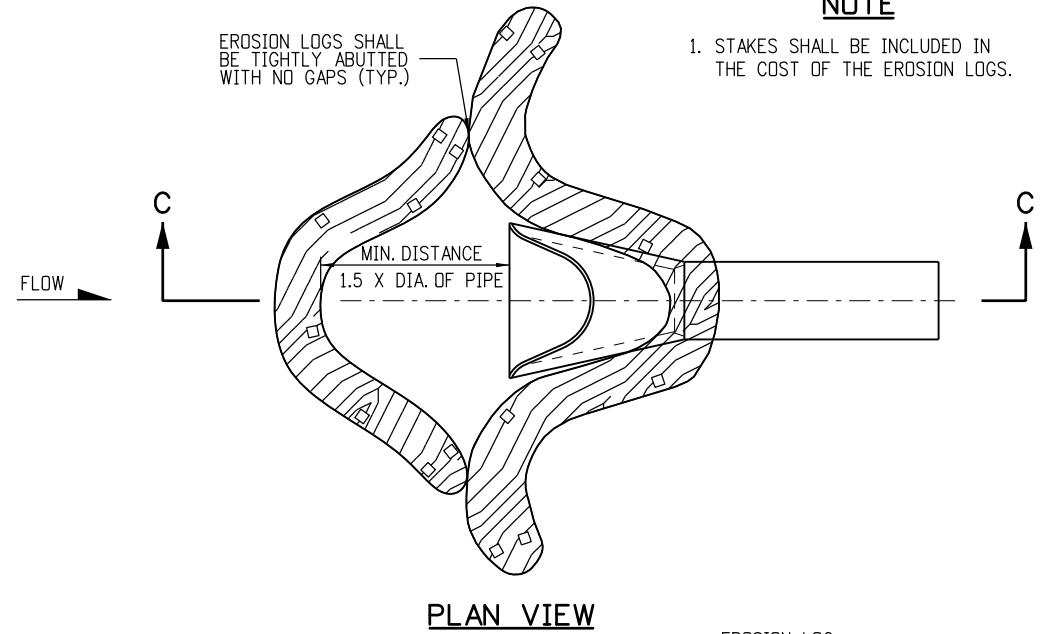
EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9 IN.)
208-00002	TYPE 1 (12 IN.)
208-00013	TYPE 1 (20 IN.)
208-00007	TYPE 2 (8 IN.)
208-00008	TYPE 2 (12 IN.)
208-00009	TYPE 2 (18 IN.)
208-00022	TYPE 3 (9 IN.)
208-00023	TYPE 3 (12 IN.)
208-00024	TYPE 3 (20 IN.)



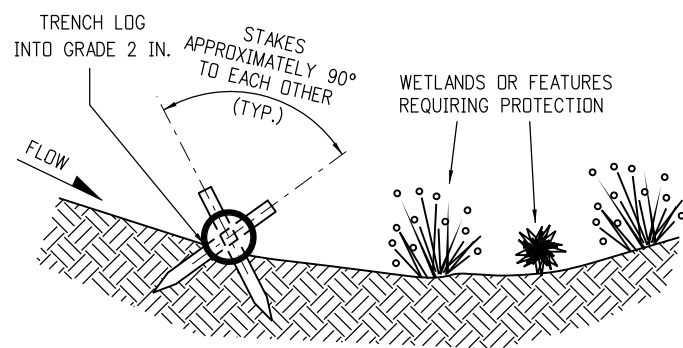
**PLAN VIEW**



**PLAN VIEW**



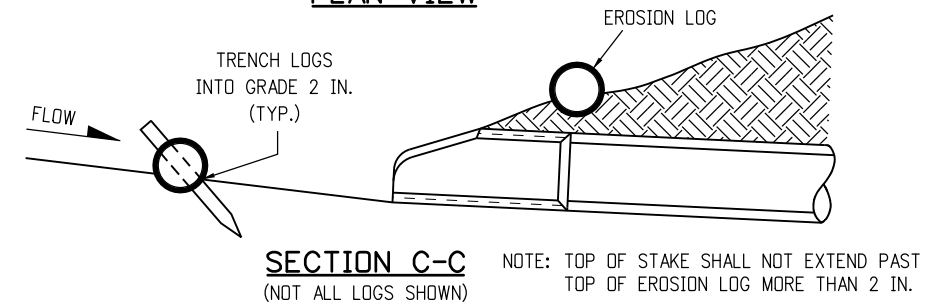
**PLAN VIEW**



**SECTION A-A**

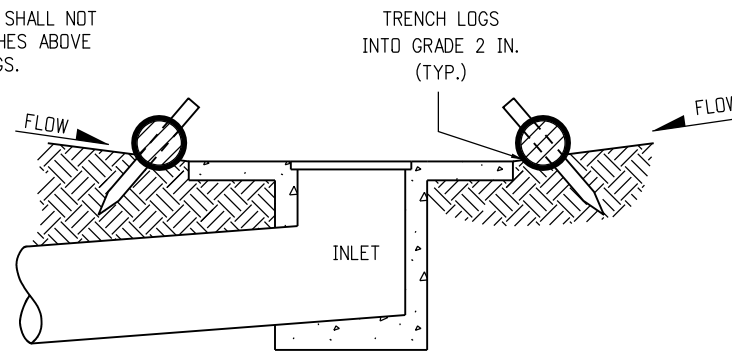
**TYPICAL STAKE INSTALLATION**

NOTE: THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2 INCHES ABOVE THE TOPS OF EROSION LOGS.



**SECTION C-C**  
(NOT ALL LOGS SHOWN)

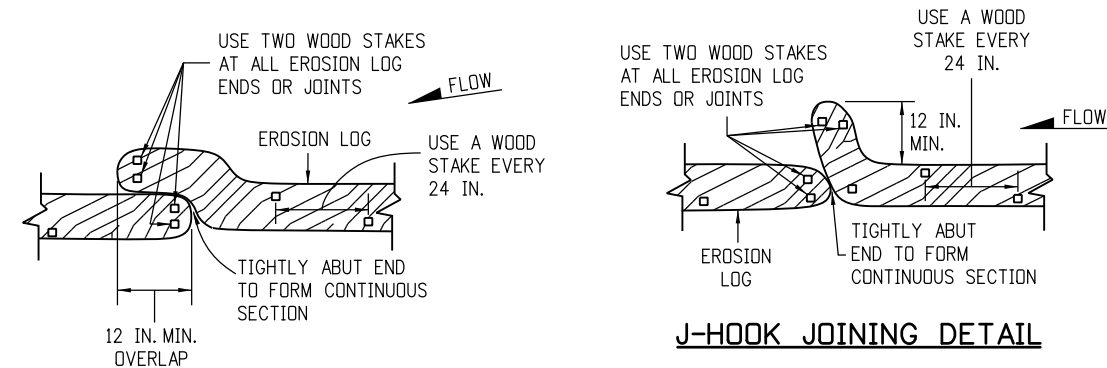
**EROSION LOG CULVERT INLET PROTECTION**



**SECTION B-B**

NOTE: LOCATE EROSION LOGS AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

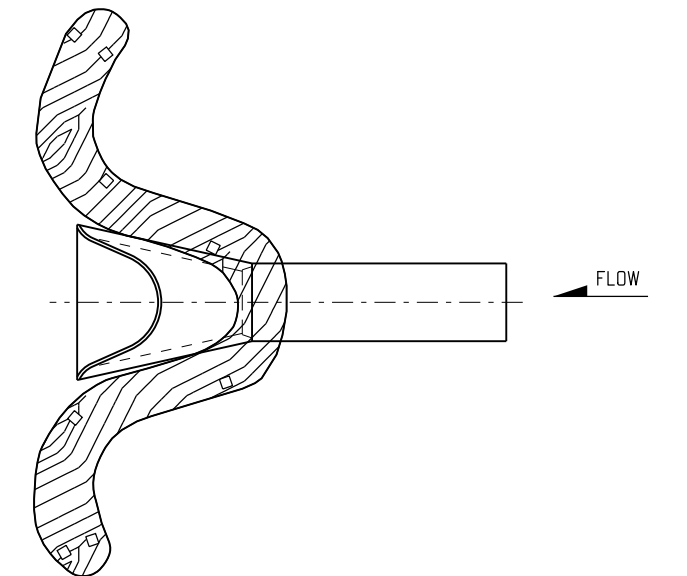
**EROSION LOG FILTER AT DROP INLET**



**OVERLAP JOINING DETAIL**

**J-HOOK JOINING DETAIL**

**JOINING EROSION LOG APPLICATIONS**



**EROSION LOG CULVERT OUTLET PROTECTION**

**EROSION LOG APPLICATIONS**

Computer File Information	
Creation Date: 07/31/19	
Designer Initials: JBK	(R-X)
Last Modification Date: 07/31/19	(R-X)
Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

Sheet Revisions	
Date:	Comments

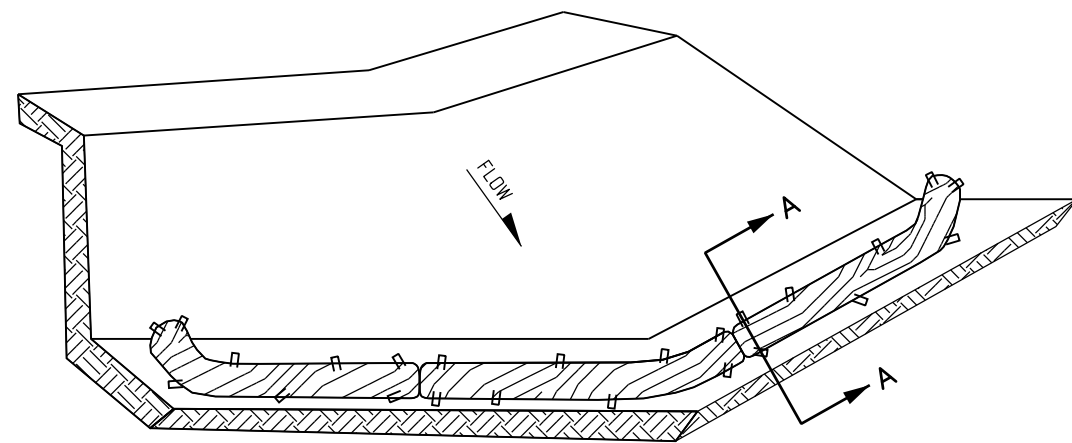
Colorado Department of Transportation  
 2829 West Howard Place  
 CDDT HQ, 3rd Floor  
 Denver, CO 80204  
 Phone: 303-757-9021 FAX: 303-757-9868  
 Project Development Branch **JBK**

**TEMPORARY  
 EROSION CONTROL**  
 Issued by the Project Development Branch: July 31, 2019

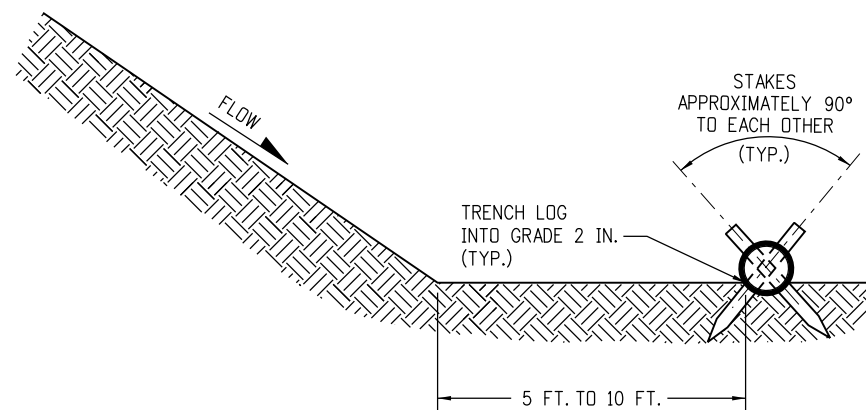
STANDARD PLAN NO.
M-208-1
Standard Sheet No. 2 of 11
Project Sheet Number:

**NOTES**

1. SILT FENCE SHALL HAVE A MAXIMUM DRAINAGE AREA OF ONE-QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; MAXIMUM SLOPE LENGTH BEHIND BARRIER IS 100 FEET.
2. SILT FENCE USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
3. SILT FENCE SHALL BE PLACED PARALLEL TO THE CONTOUR WITH ENDS FLARED UP SLOPE.
4. THE MAXIMUM LENGTH OF EROSION LOGS OR SILT FENCES WITHOUT A FLARED END TURNING UPSLOPE IS 150 FEET.



**ISOMETRIC VIEW**



**SECTION A-A**

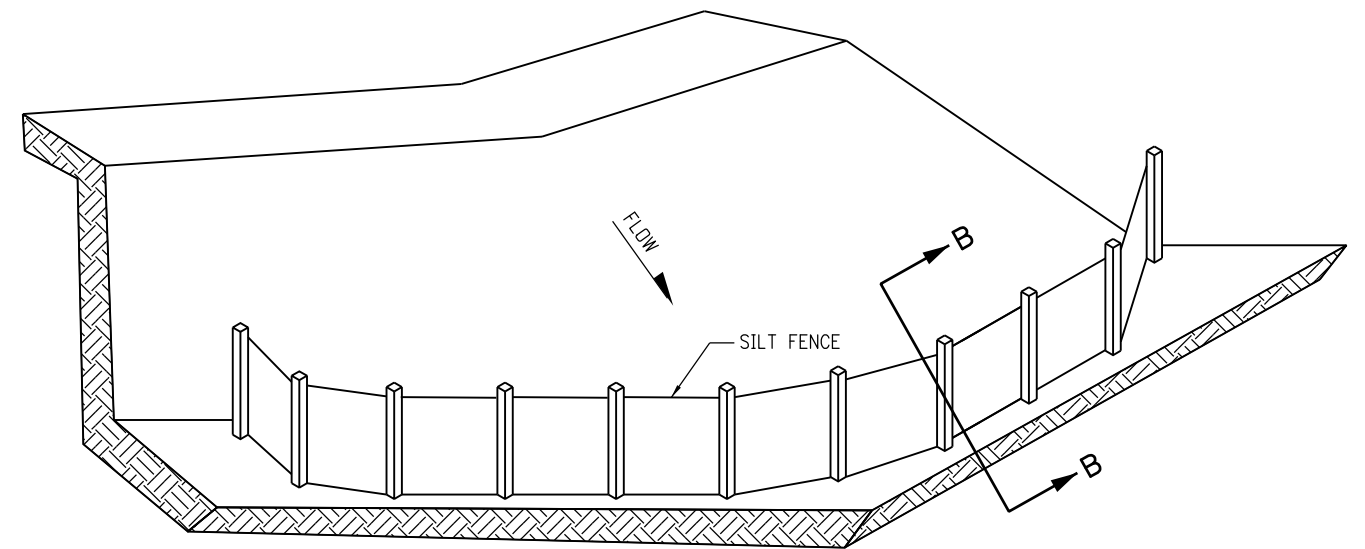
NOTE: THE TOPS OF ALL STAKES SHALL NOT EXTEND MORE THAN 2 INCHES ABOVE THE TOPS OF EROSION LOGS.

EROSION LOGS PAY ITEMS	
NUMBER	DESCRIPTION
208-00012	TYPE 1 (9 IN.)
208-00002	TYPE 1 (12 IN.)
208-00013	TYPE 1 (20 IN.)
208-00007	TYPE 2 (8 IN.)
208-00008	TYPE 2 (12 IN.)
208-00009	TYPE 2 (18 IN.)
208-00022	TYPE 3 (9 IN.)
208-00023	TYPE 3 (12 IN.)
208-00024	TYPE 3 (20 IN.)

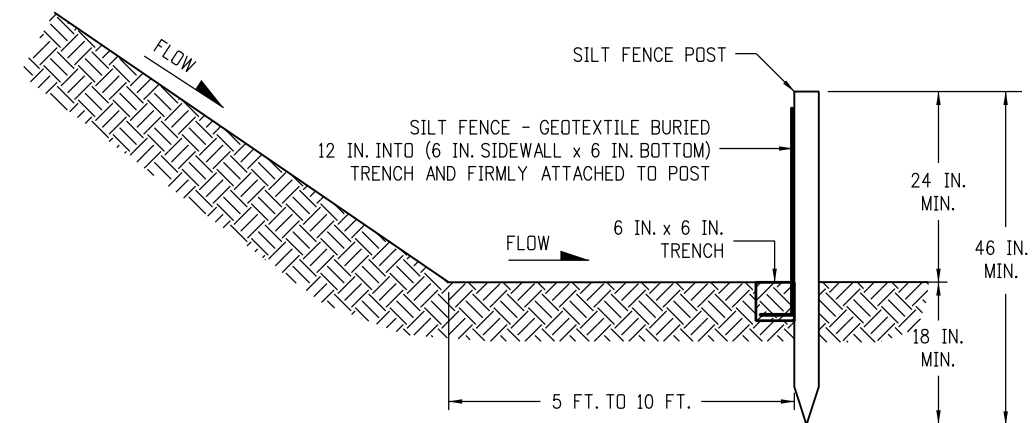
**NOTES:**

1. EROSION LOGS USED AT TOE OF SLOPE SHALL BE PLACED 5 TO 10 FEET BEYOND TOE OF SLOPE TO PROVIDE STORAGE CAPACITY.
2. EROSION LOGS SHALL BE PLACED ON THE CONTOUR WITH ENDS FLARED UP SLOPE.
3. SEE SHEET 2 OF 11 FOR JOINING LOGS DETAIL.

**EROSION LOG TOE OF SLOPE PROTECTION**



**ISOMETRIC VIEW**



**SECTION B-B**

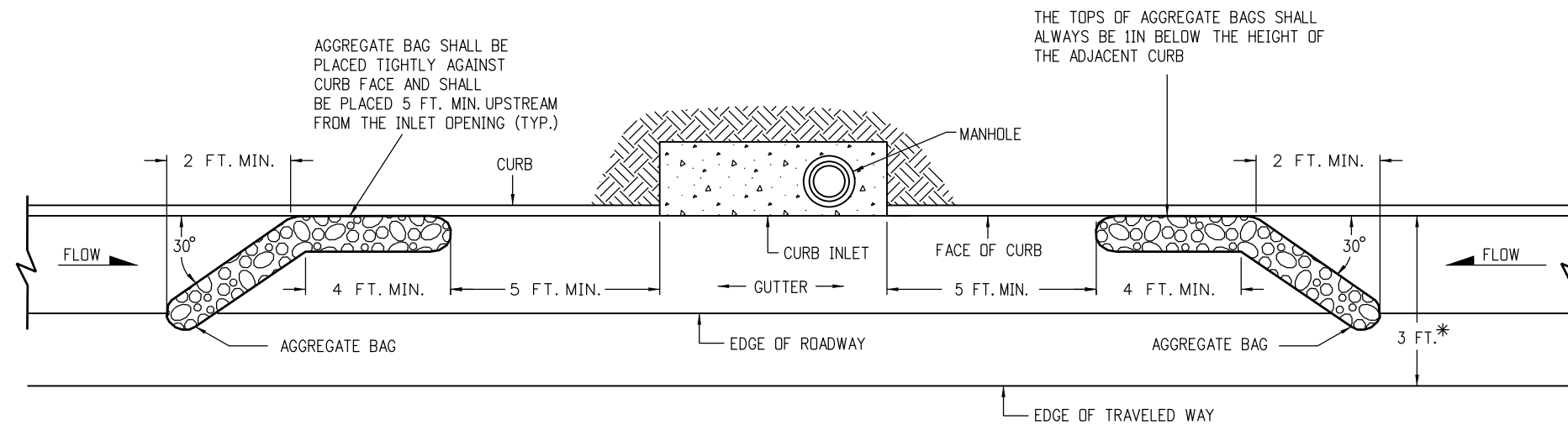
**SILT FENCE TOE OF SLOPE PROTECTION**

NOTE: THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.

**TOE OF SLOPE PROTECTION APPLICATIONS**

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch	TEMPORARY EROSION CONTROL	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments:			Issued by the Project Development Branch: July 31, 2019	M-208-1
Designer Initials: JBK	(R-X)						
Last Modification Date: 07/31/19	(R-X)						
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)					Project Sheet Number:	





AGGREGATE BAG SHALL BE PLACED TIGHTLY AGAINST CURB FACE AND SHALL BE PLACED 5 FT. MIN. UPSTREAM FROM THE INLET OPENING (TYP.)

THE TOPS OF AGGREGATE BAGS SHALL ALWAYS BE 1IN BELOW THE HEIGHT OF THE ADJACENT CURB

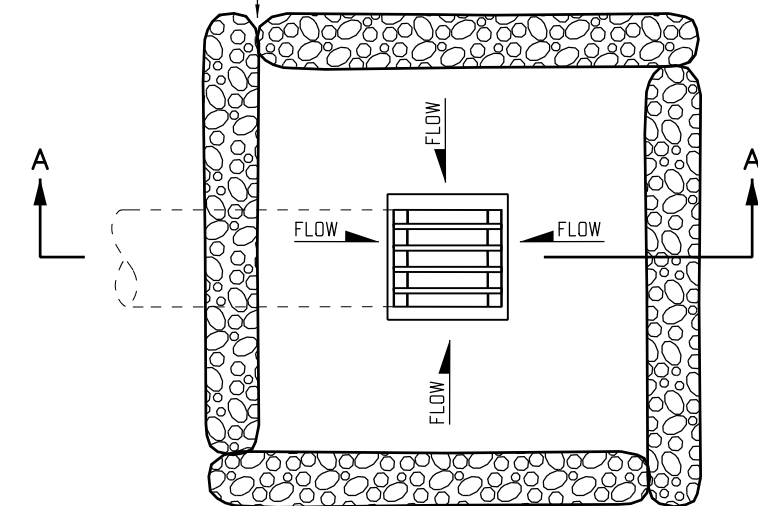
AGGREGATE BAGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS (TYP.)

**PLAN VIEW**

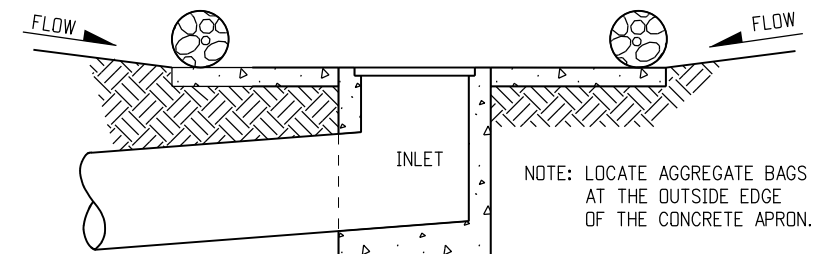
\* NOTE: USE AGGREGATE BAGS ONLY WHEN THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY (INCLUDING CONDITIONS DURING DETOURS) TO THE FACE OF CURB.

LENGTH (L) OF INLET FT.	NUMBER OF AGGREGATE BAGS UPSTREAM OF INLET
0 - 5	1
6 - 10	2
L > 10	3

**AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I)**



**PLAN VIEW**



NOTE: LOCATE AGGREGATE BAGS AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

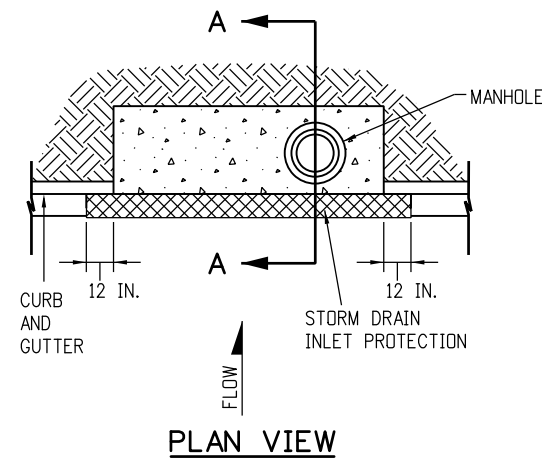
**SECTION A-A**

**AGGREGATE BAGS AT DROP INLET**

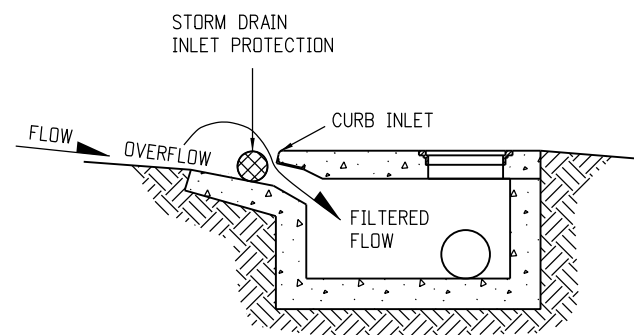
**AGGREGATE BAG APPLICATIONS**

NOTE: THE PAY ITEM NUMBER FOR AGGREGATE BAG (LF) IS 208-00035

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch	TEMPORARY EROSION CONTROL	STANDARD PLAN NO.	
Creation Date: 07/31/19	(R-X)	Date:	Comments:			Issued by the Project Development Branch: July 31, 2019	M-208-1
Designer Initials: JBK	(R-X)						
Last Modification Date: 07/31/19	(R-X)						
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)					Project Sheet Number:	



**PLAN VIEW**

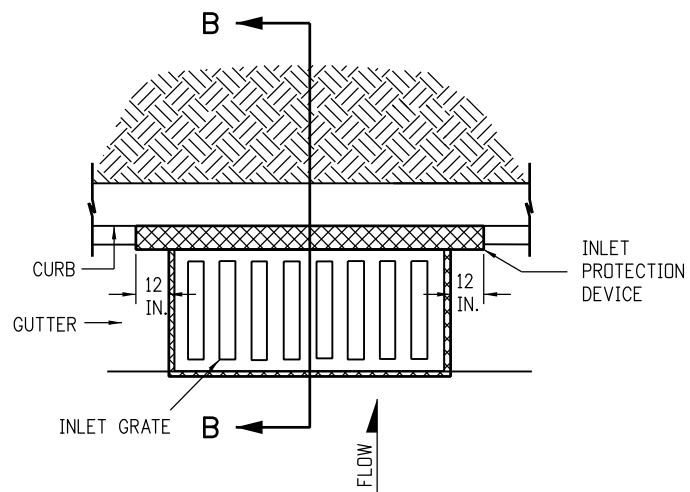


**SECTION A-A**

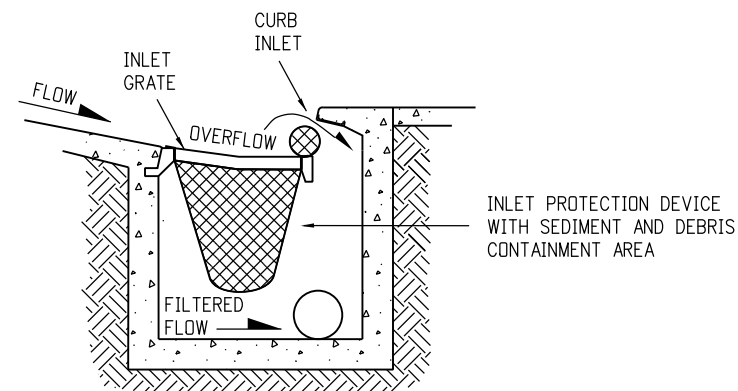
**STORM DRAIN INLET PROTECTION (TYPE I)**

**NOTES:**

1. INLET PROTECTION DEVICE SHALL EXTEND 12 INCHES PAST EACH END OF THE INLET.
2. THE PAY ITEM NUMBERS FOR STORM DRAIN INLET PROTECTION (TYPE I) ARE 208-00051 (LF), 208-00053 84 INCHES (EACH), 208-00057 144 INCHES (EACH), AND 208-00058 204 INCHES (EACH).
3. FOR STORM DRAIN INLET TYPES I AND II, IF THERE IS A MINIMUM CLEARANCE OF 3 FEET FROM THE EDGE OF THE TRAVELED WAY TO THE FACE OF CURB, USE THE AGGREGATE BAGS AT STORM DRAIN INLET (TYPE I) DETAIL ON SHEET 4 INSTEAD.



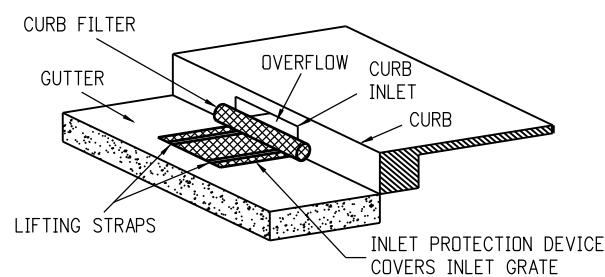
**PLAN VIEW**



**SECTION B-B**

**OPTION A**

**STORM DRAIN INLET PROTECTION (TYPE II)**

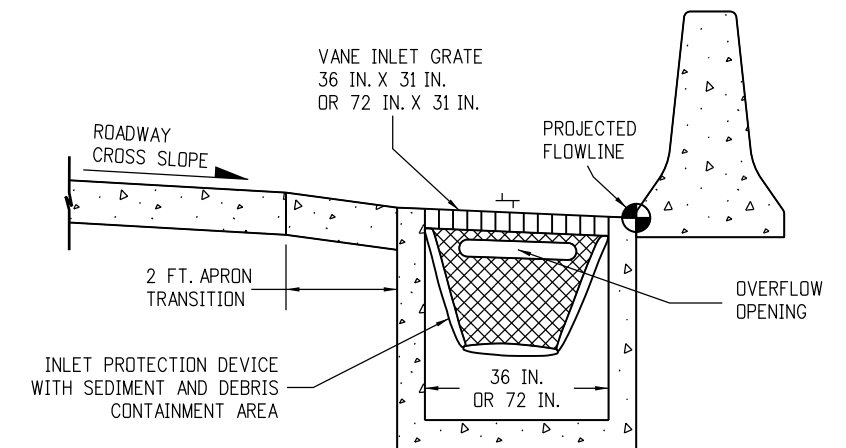


**ISOMETRIC VIEW**

**OPTION B**

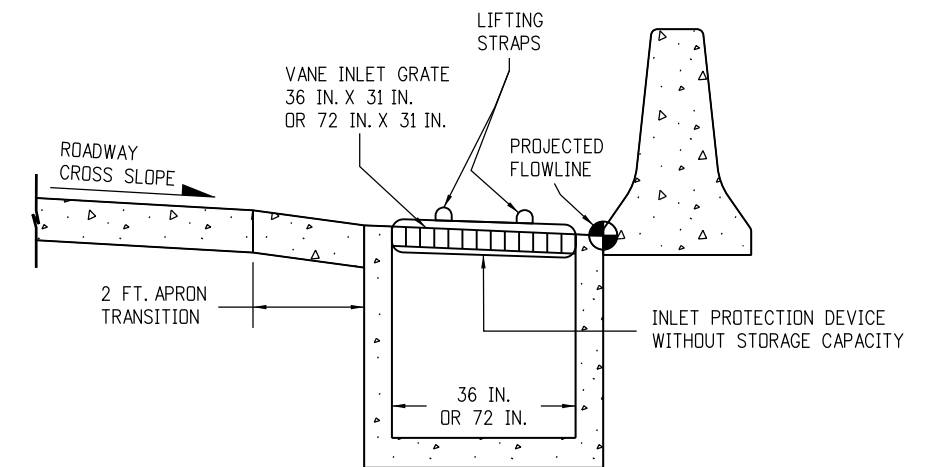
**STORM DRAIN INLET PROTECTION (TYPE II)**

NOTE: THE PAY ITEM NUMBERS FOR STORM DRAIN INLET PROTECTION (TYPE II) ARE 208-00054 (EACH).



**OPTION A**

**STORM DRAIN INLET PROTECTION (TYPE III)**



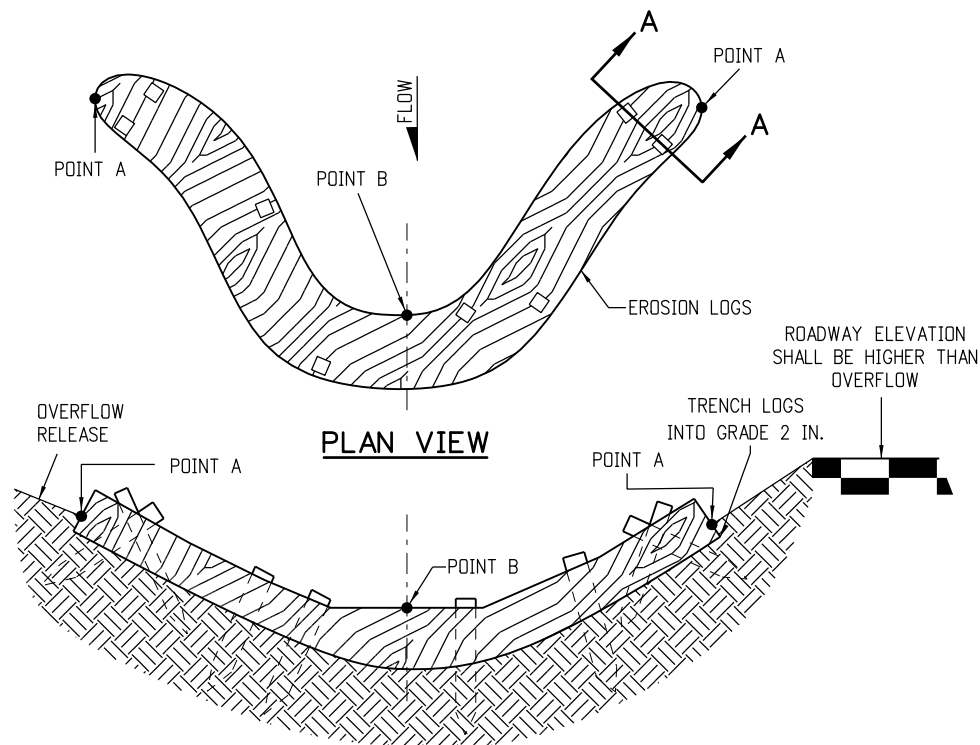
**OPTION B**

**STORM DRAIN INLET PROTECTION (TYPE III)**

NOTE: THE PAY ITEM NUMBER FOR STORM DRAIN INLET PROTECTION (TYPE III) (EACH) IS 208-00056.

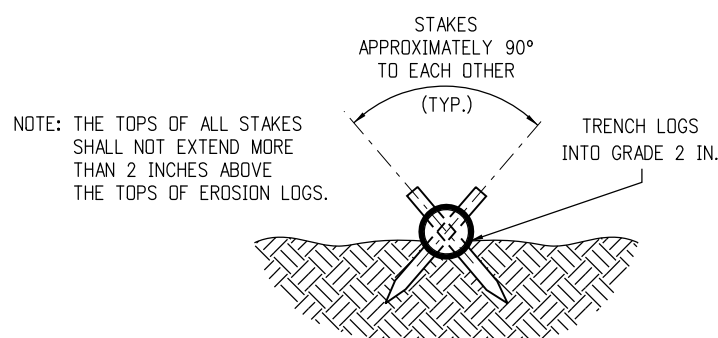
**STORM DRAIN INLET PROTECTION TYPES**

<b>Computer File Information</b>		<b>Sheet Revisions</b>		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 <b>Project Development Branch</b>	<b>TEMPORARY EROSION CONTROL</b>	<b>STANDARD PLAN NO.</b>	
Creation Date: 07/31/19		Date:	Comments			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 5 of 11	
Last Modification Date: 07/31/19	(R-X)						
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)			Project Development Branch	JBK	Issued by the Project Development Branch: July 31, 2019	
						Project Sheet Number:	



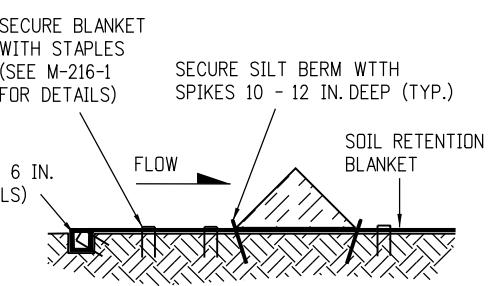
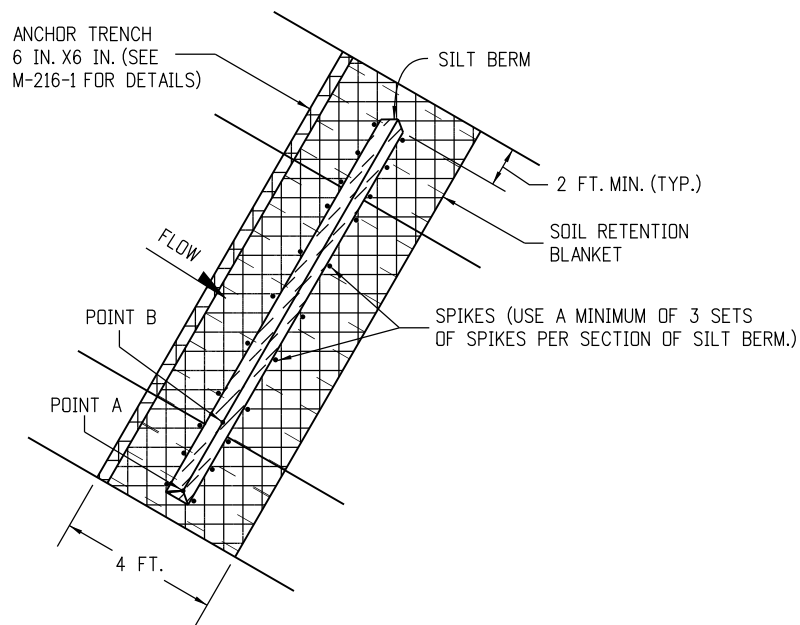
NOTE: POINTS "A" SHALL BE A MINIMUM 4 IN. HIGHER THAN POINT "B".

**ELEVATION**

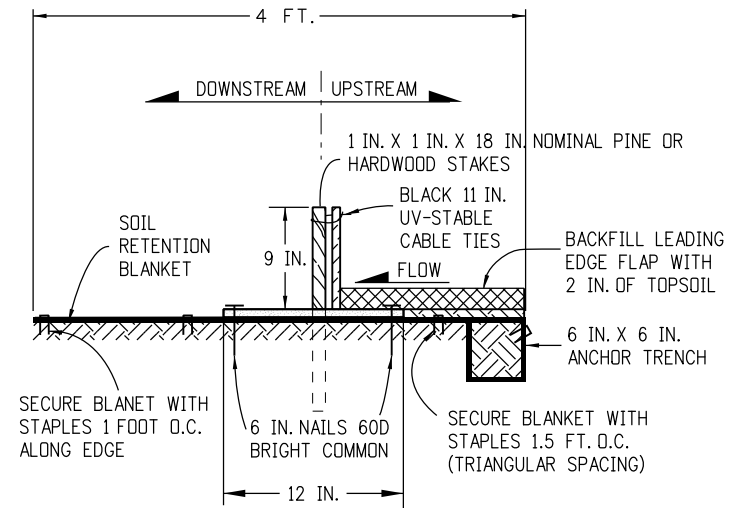


- NOTES:
1. EROSION LOGS SHALL BE EMBEDDED 2 INCHES INTO THE SOIL.
  2. EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.
  3. V-SHAPED TEMPORARY DITCHES SHALL NOT BE USED. DITCHES SHALL BE GRADED IN A PARABOLIC OR TRAPEZOIDAL SHAPE.

**EROSION LOG INSTALLATION**

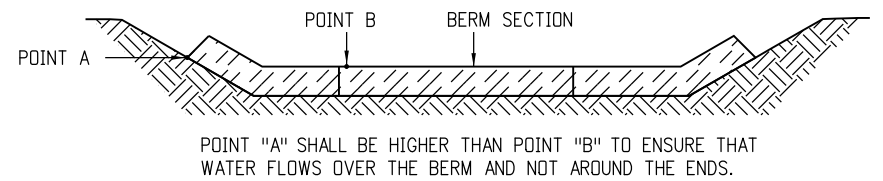


**SILT BERM (1) SECTION VIEW**



- NOTES:
1. MINIMUM 4 NAILS PER SEGMENT (UPSTREAM).
  2. MINIMUM 2 NAILS PER SEGMENT (DOWNSTREAM).
  3. MINIMUM 2 WOOD STAKES PER SEGMENT.

**SILT BERM (2) SECTION VIEW**

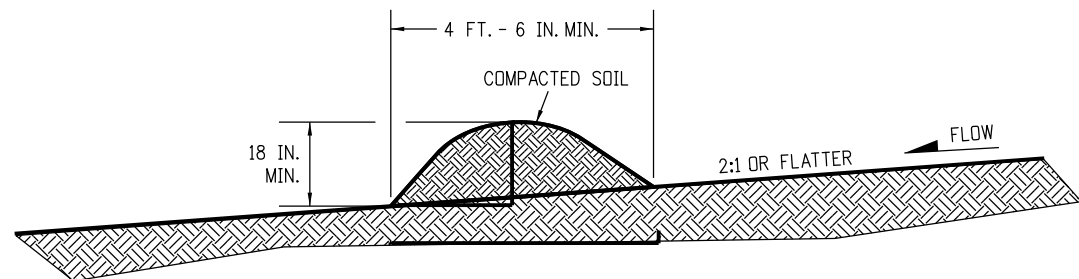


- NOTES
1. ANCHOR SOIL RETENTION BLANKET INTO TRENCH WITH 8 INCHES MIN. STAPLES PLACED AT 1 FOOT INTERVALS ALONG EDGE.
  2. FILL AND COMPACT TRENCH.
  3. SECTIONS OF THE SILT BERM SHALL BE OVERLAPPED WITH NO GAPS.
  4. FOR SLOPE AND CHANNEL SPACING SEE THE "SECTION VIEW ALONG DITCH FLOWLINE" DETAIL ON SHEET 11 OF 11.
  5. SOIL RETENTION BLANKET SHALL ALWAYS BE REQUIRED.
  6. THE PAY ITEM NUMBER FOR SILT BERM (LF) IS 208-00004.

**SILT BERM INSTALLATION**

**DRAINAGE DITCH APPLICATIONS**

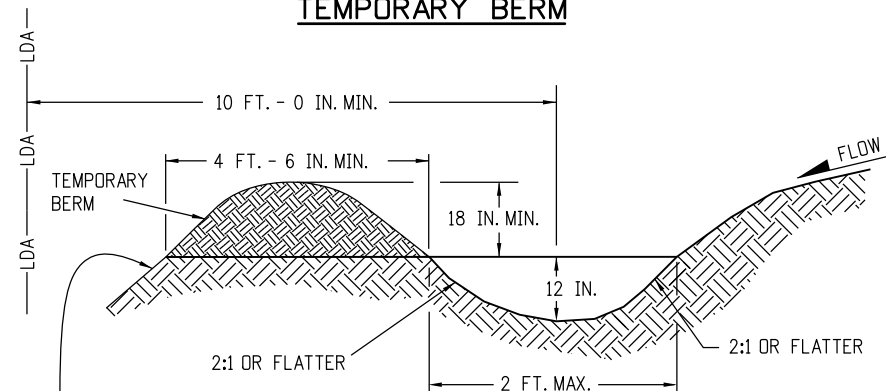
<b>Computer File Information</b>		<b>Sheet Revisions</b>		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 <b>Project Development Branch</b>	<b>TEMPORARY EROSION CONTROL</b> Issued by the Project Development Branch: July 31, 2019	<b>STANDARD PLAN NO.</b>	
Creation Date: 07/31/19	Designer Initials: JBK	Date:	Comments:			M-208-1	Standard Sheet No. 6 of 11
Last Modification Date: 07/31/19	Detailer Initials: LTA			Phone: 303-757-9021 FAX: 303-757-9868	Project Sheet Number:		
CAD Ver.: MicroStation V8	Scale: Not to Scale			<b>Project Development Branch</b>			



**NOTES:**

1. BERMS SHALL HAVE A HEIGHT OF 18 INCHES, SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM BASE WIDTH OF 4 FT. - 6 IN.
2. BERMS SHALL BE USED TO INTERCEPT AND DIVERT DRAINAGE TO A DESIGNATED OUTLET.
3. BERMS SHALL NOT BE USED WHERE DRAINAGE AREA EXCEEDS 10 ACRES.
4. BERMS SHALL BE CONSTRUCTED OUT OF ACCEPTABLE MATERIAL THAT CAN BE COMPACTED AND RECEIVE AT A MINIMUM HEAVY EQUIPMENT WHEEL ROLLED COMPACTION.
5. TEMPORARY BERMS SHALL BE CONSTRUCTED OUT OF EMBANKMENT (SUBSOIL) AND IN NO CIRCUMSTANCE CONSTRUCTED OUT OF SALVAGED TOPSOIL.
6. THE PAY ITEM NUMBER FOR TEMPORARY BERM (LF) IS 208-00300.

**TEMPORARY BERM**

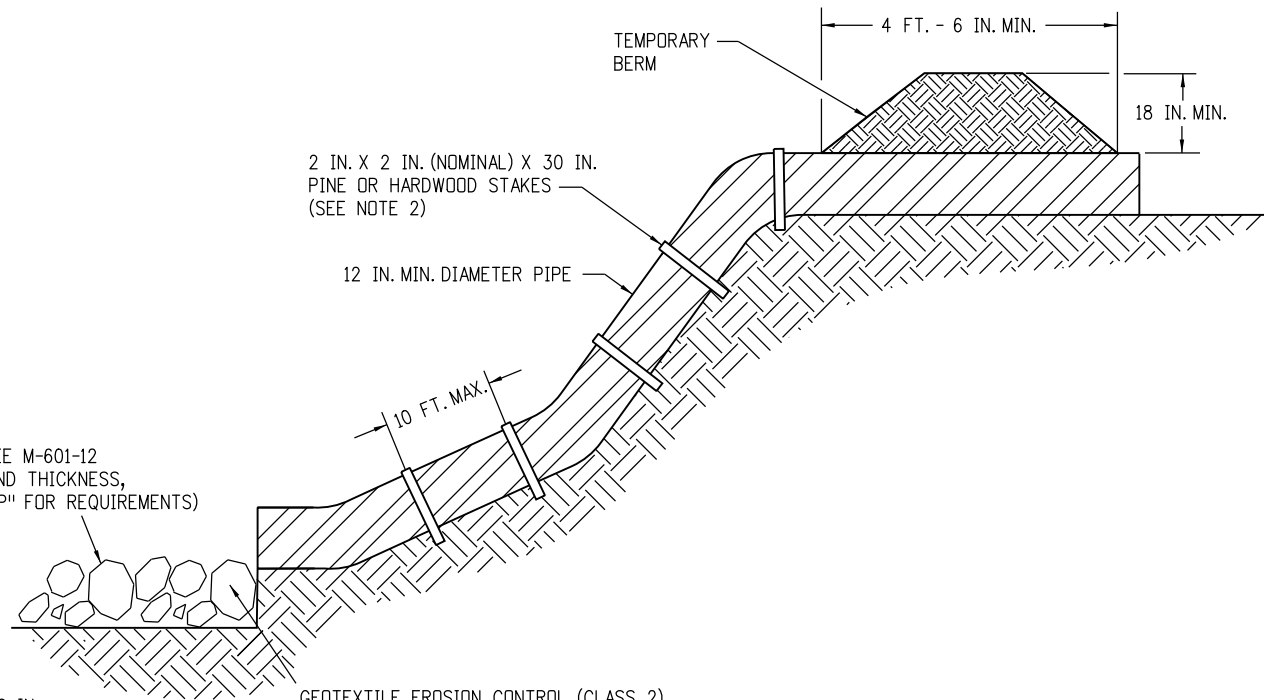


FOR BERMS TALLER THAN 2 FT.,  
INSTALL TOE OF SLOPE CONTROL MEASURES.  
SEE SHEET 3 OF 11 FOR DETAILS.

**NOTES:**

1. TEMPORARY DIVERSION DITCHES SHALL BE CONSTRUCTED ACROSS THE SLOPE TO INTERCEPT RUNOFF AND DIRECT IT TO A STABLE OUTLET OR SEDIMENT TRAP.
2. USE THE TEMPORARY DIVERSION DITCH IMMEDIATELY ABOVE A NEW CUT, FILL SLOPE, OR AROUND THE PERIMETER OF A DISTURBED AREA.
3. THE GRADIENT ALONG THE FLOW PATH SHALL HAVE A POSITIVE GRADE TO ASSURE DRAINAGE, BUT SHALL NOT BE SO STEEP AS TO RESULT IN EROSION DUE TO HIGH VELOCITY.
4. THE DIVERSION FLOWLINE SHALL ALWAYS BE LOCATED A MINIMUM 10 FEET FROM THE OUTSIDE LIMITS OF DISTURBED AREA BOUNDARY.
5. THE PAY ITEM NUMBER FOR TEMPORARY DIVERSION (LF) IS 208-00301.

**TEMPORARY DIVERSION**



\* RIPRAP OUTLET PROTECTION (SEE M-601-12 FOR MIN. HORIZONTAL LAYOUT AND THICKNESS, AND SPECIFICATION 506 "RIPRAP" FOR REQUIREMENTS)

\* RIPRAP SIZE  $D_{50} = 6$  IN. OR AS SHOWN ON THE PLANS.

GEOTEXTILE EROSION CONTROL (CLASS 2) SHALL ALWAYS BE REQUIRED

**NOTES:**

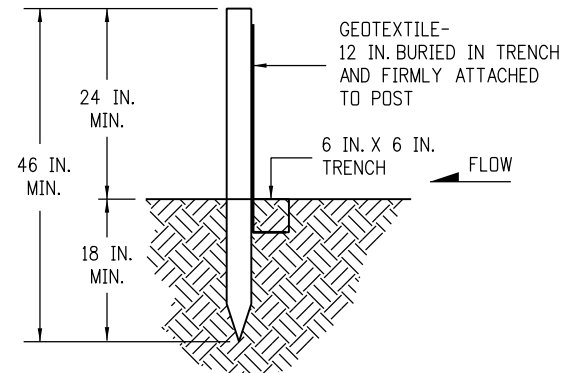
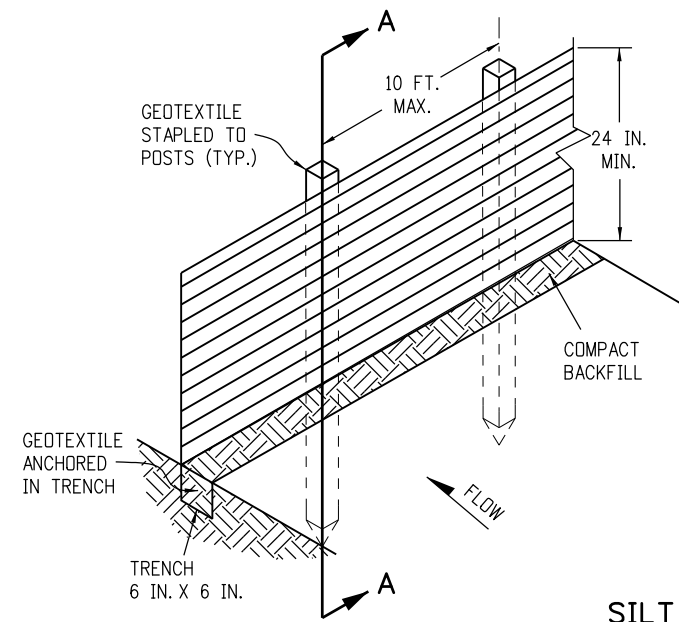
1. ANCHOR SIZE VARIES ACCORDING TO PIPE SIZE
2. TO SECURE THE PIPE, DRIVE STAKES INTO GROUND, THEN TIE A 12 GAUGE WIRE BETWEEN THEM ABOVE AND ACROSS THE PIPE'S WIDTH.
3. THE OUTLET SHALL BE ALIGNED WITH THE FLOW DIRECTION OF THE EXISTING GRADE. PERPENDICULAR DISCHARGE TO A CHANNEL SHALL NOT BE ACCEPTABLE.
4. THE GRADE AROUND THE INLET TO THE PIPE SHALL BE COMPACTED.
5. THE PAY ITEM NUMBER FOR TEMPORARY SLOPE DRAINS (LF) IS 208-00060.

**TEMPORARY SLOPE DRAINS**

**GRADING APPLICATIONS**

<b>Computer File Information</b>		<b>Sheet Revisions</b>		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 <b>Project Development Branch</b>	<b>TEMPORARY EROSION CONTROL</b>	<b>STANDARD PLAN NO.</b>	
Creation Date: 07/31/19		Date:	Comments:			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 7 of 11	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number:	
Detailer Initials: LTA	(R-X)					Issued by the Project Development Branch: July 31, 2019	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)			<b>Project Development Branch</b>	<b>JBK</b>		



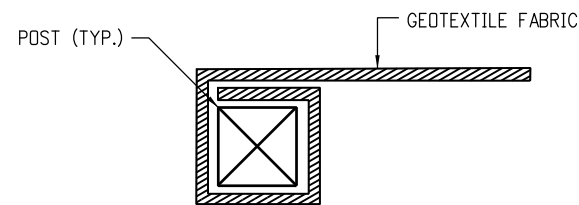


**SECTION A-A**

**SILT FENCE**

**NOTES:**

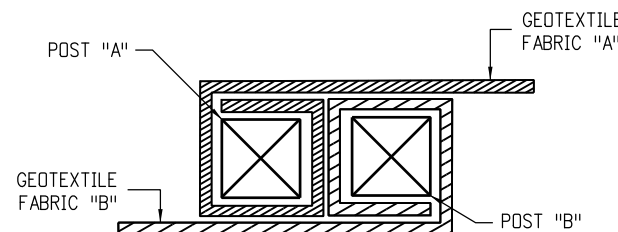
1. GEOTEXTILE SHALL BE ATTACHED TO WOOD POSTS WITH THREE OR MORE STAPLES PER POST. STAPLES SHALL BE HEAVY DUTY WIRE AND AT LEAST 1 INCH LONG.
2. WOOD POST SHALL BE 1 IN. X 1 IN. NOMINAL.
3. THE PAY ITEM NUMBER FOR SILT FENCE (LF) IS 208-00020.
4. THE SILT FENCE SHALL BE PLACED ON THE CONTOUR (AT THE SAME ELEVATION ±6 IN.). THE ENDS SHALL BE FLARED UP SLOPE (MINIMUM ELEVATION GAIN OF 18 IN.).



**END SECTION DETAIL (PLAN VIEW)**

**NOTE:**

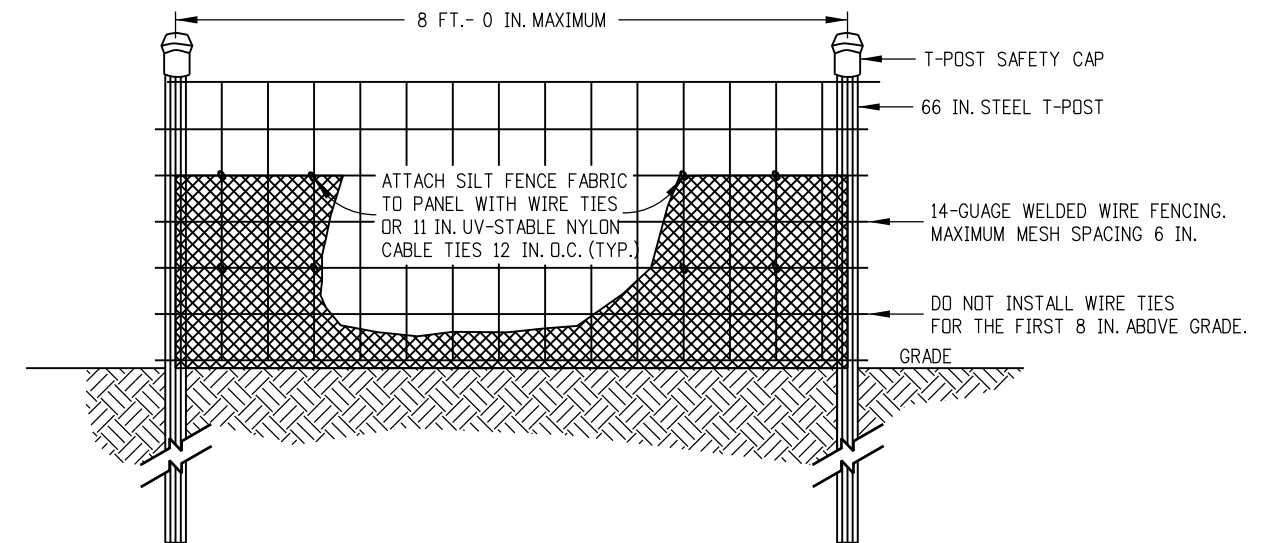
1. THE END OF THE SILT FENCE FABRIC SHALL BE WRAPPED APPROX. 6 INCHES AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.



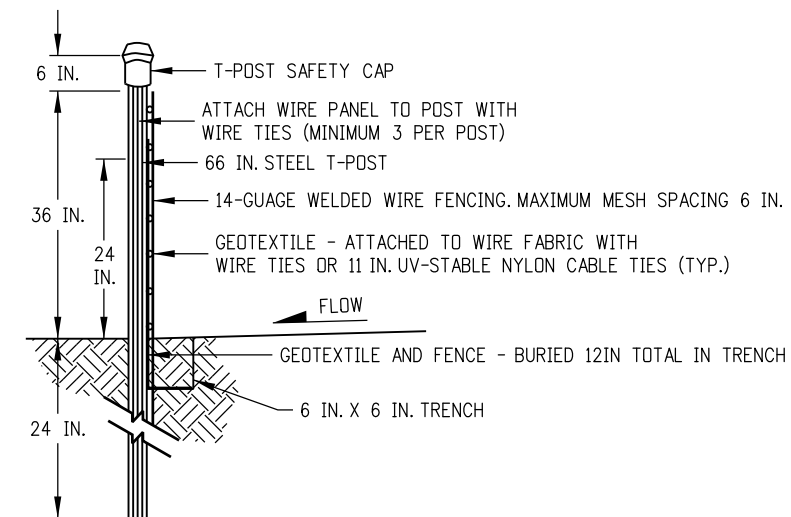
**JOINING SECTION DETAIL (PLAN VIEW)**

**NOTES:**

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A WOODEN POST ONE FULL TURN, THEN SECURED ALONG THE POST WITH 6 HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG.
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.



**ELEVATION VIEW**



**SIDE VIEW**

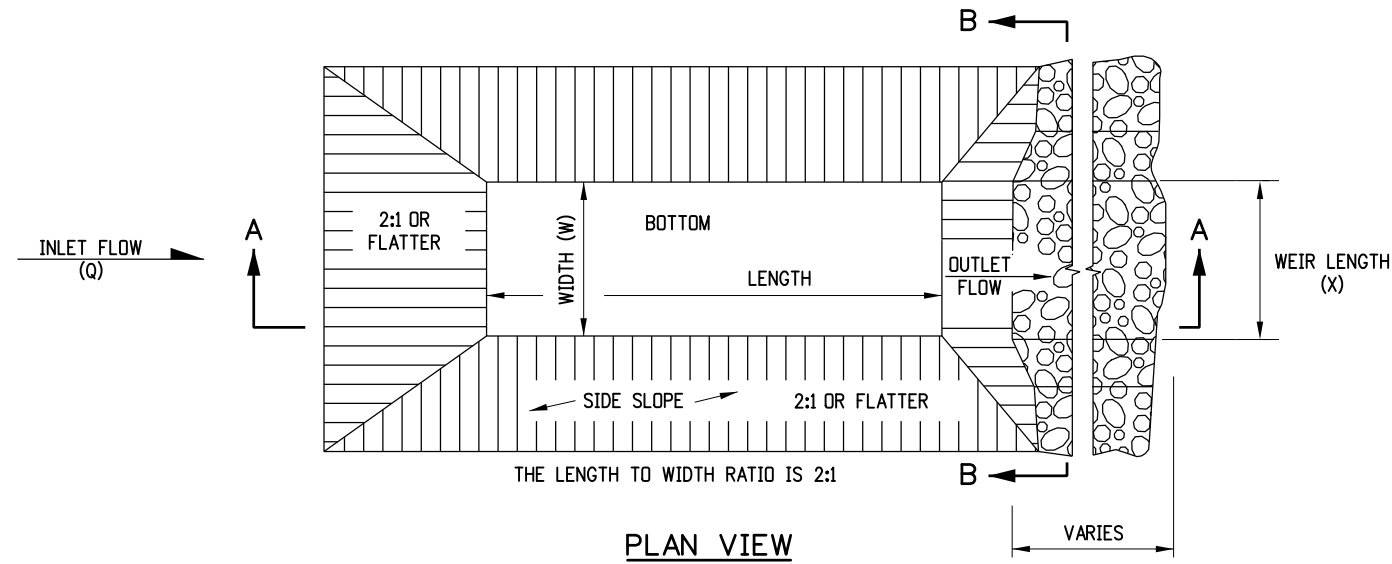
**NOTES:**

1. THE ENDS OF THE SILT FENCE FABRIC SHALL BE JOINED TOGETHER BY WRAPPING APPROX. 6 INCHES OF EACH END AROUND A STEEL T-POST, THEN SECURED ALONG THE POST WITH WIRE TIES (MINIMUM 3 PER POST).
2. POSTS SHALL BE TIGHTLY ABUTTED WITH NO GAPS TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT.
3. SILT FENCES SHALL NOT BE USED FOR CHECK DAMS.
4. THE PAY ITEM NUMBER FOR SILT FENCE (REINFORCED) (LF) IS 208-00021.

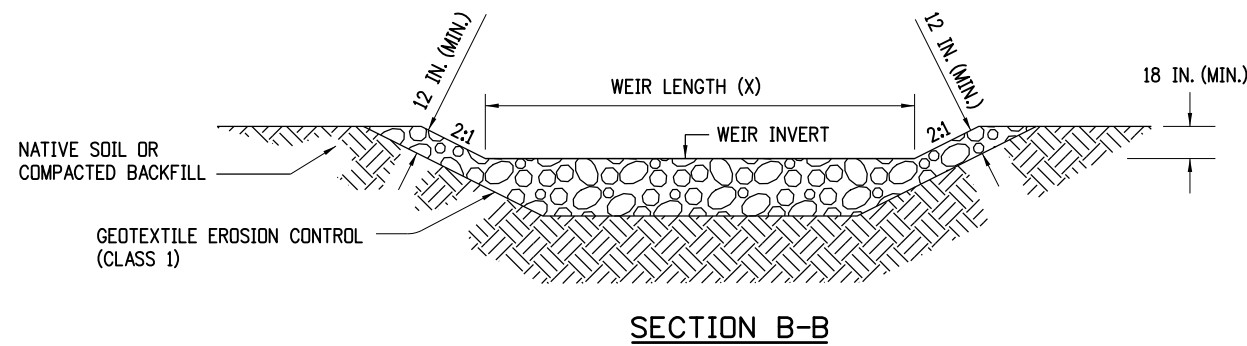
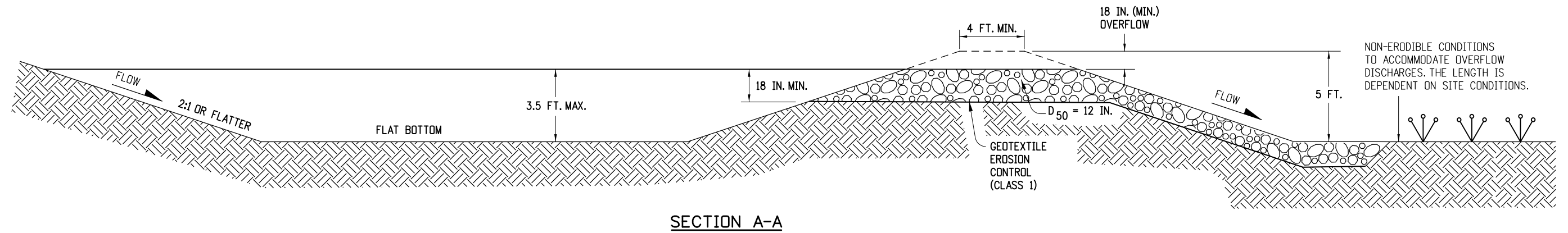
**SILT FENCE (REINFORCED)**

**SILT FENCE APPLICATIONS**

<b>Computer File Information</b>		<b>Sheet Revisions</b>		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 <b>Project Development Branch</b>	<b>TEMPORARY EROSION CONTROL</b>	<b>STANDARD PLAN NO.</b>	
Creation Date: 07/31/19	(R-X)	Date:	Comments:			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 8 of 11	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number:	
Detailer Initials: LTA	(R-X)					Issued by the Project Development Branch: July 31, 2019	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)			<b>JBK</b>			



- NOTES**
1. THE MAXIMUM DRAINAGE AREA IS 5 ACRES.
  2. THE MAXIMUM STRUCTURE LIFE IS 2 YEARS.
  3. THE STORAGE AREA IS 1800 CUBIC FEET PER ACRE.
  4. THE MAXIMUM EMBANKMENT HEIGHT SHALL BE 5 FT. MEASURED ON THE DOWNSTREAM SIDE.
  5. THE LENGTH/WIDTH RATIO MAY BE ADJUSTED TO MEET SITE CONDITIONS WHEN APPROVED BY THE ENGINEER.
  6. WIDTH (W) OF SEDIMENT TRAP IS APPROXIMATELY EQUAL TO THE WEIR LENGTH (X).
  7. SEDIMENT TRAP DESIGN SHALL BE APPROVED BY THE ENGINEER.
  8. THE DOWN GRADE FROM WEIR SHALL BE STABLE AND NON-ERODIBLE.
  9. THE PAY ITEM NUMBER FOR SEDIMENT TRAP (LF) IS 208-00033.

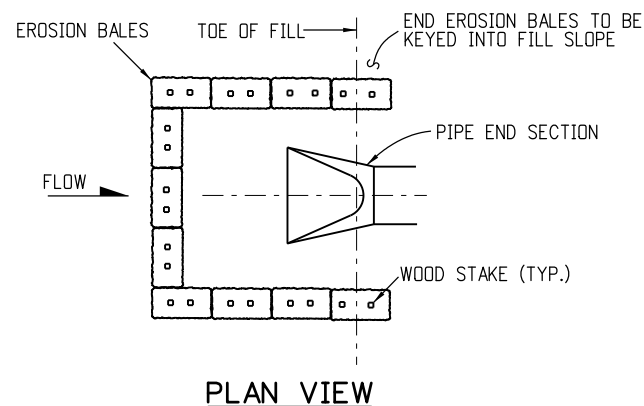
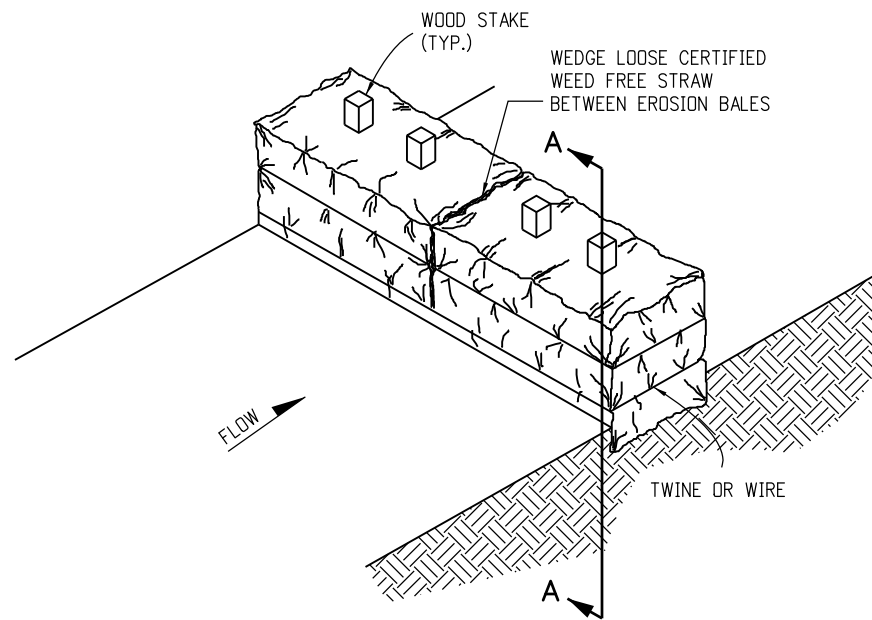
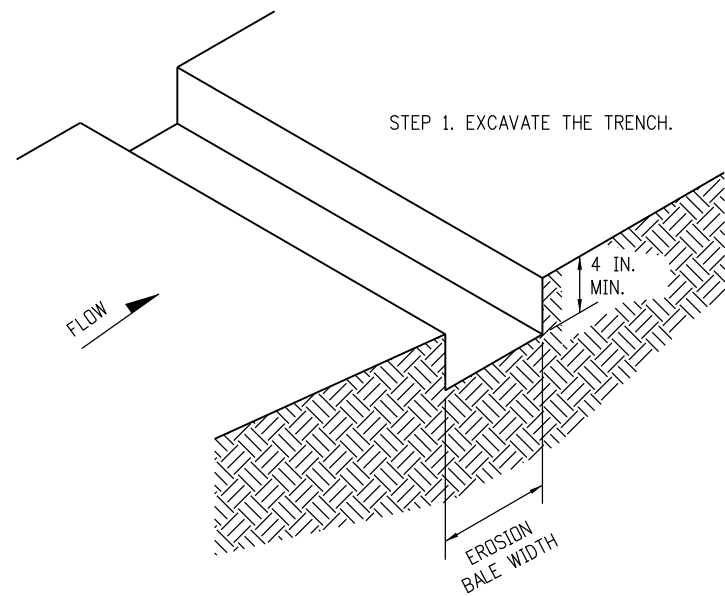


DRAINAGE AREA (ACRES)	WEIR LENGTH (FEET)
1	4
2	6
3	8
4	10
5	12

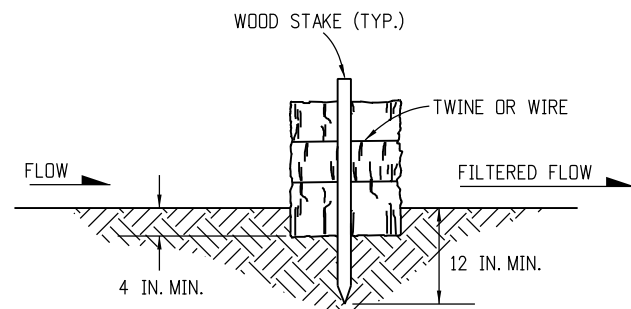
**WEIR LENGTH TABLE**

**SEDIMENT TRAP**

<b>Computer File Information</b>		<b>Sheet Revisions</b>		<b>Colorado Department of Transportation</b>		<b>TEMPORARY EROSION CONTROL</b>		<b>STANDARD PLAN NO.</b>	
Creation Date: 07/31/19		Date: _____		2829 West Howard Place				M-208-1	
Designer Initials: JBK		Comments: _____		CDOT HQ, 3rd Floor		<b>Standard Sheet No. 9 of 11</b>		Project Sheet Number: _____	
Last Modification Date: 07/31/19		_____		Denver, CO 80204					
Detailer Initials: LTA		_____		Phone: 303-757-9021 FAX: 303-757-9868		Issued by the Project Development Branch: July 31, 2019			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		_____		<b>Project Development Branch</b>					
				<b>JBK</b>					

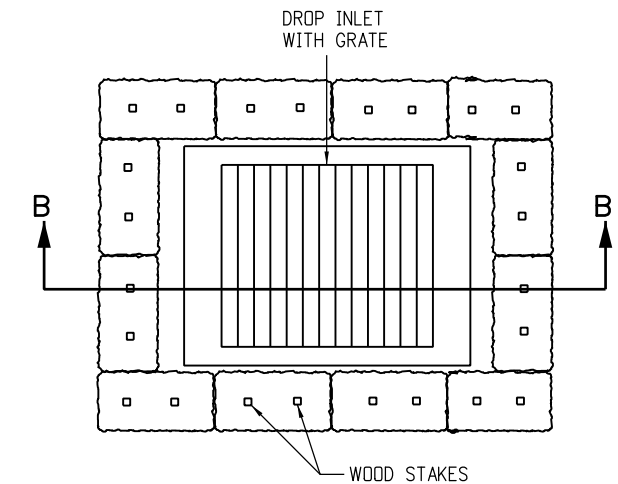


**EROSION BALES CULVERT INLET PROTECTION**

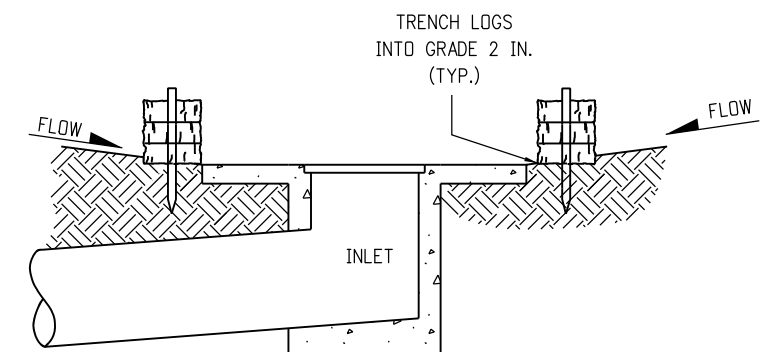


**SECTION A-A**

**EROSION BALES TRENCHING AND STAKING**



**PLAN VIEW**



**SECTION B-B**

NOTE: LOCATE EROSION BALES AT THE OUTSIDE EDGE OF THE CONCRETE APRON.

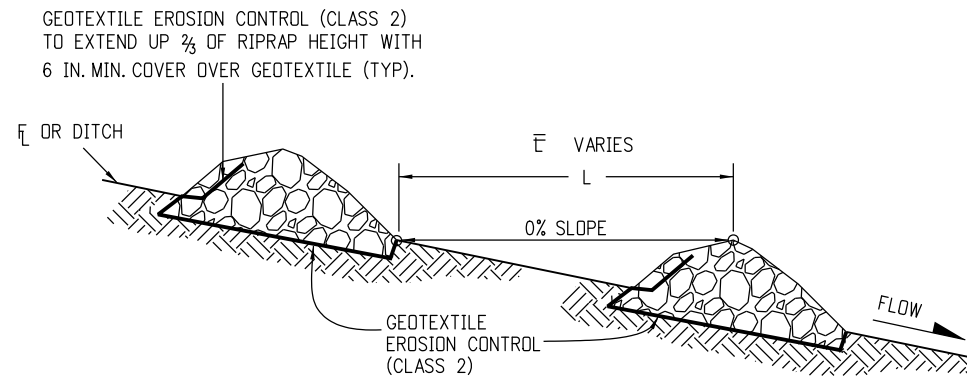
**EROSION LOG FILTER AT DROP INLET**

**NOTES**

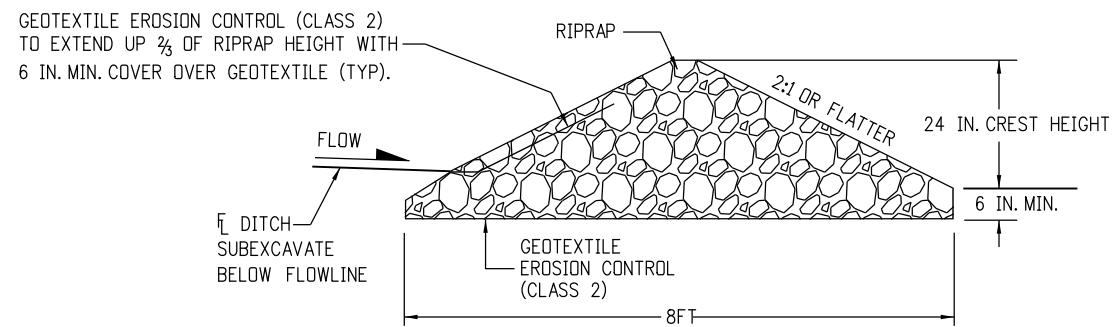
1. STAKES SHALL BE WOOD AND SHALL BE 2 IN. X 2 IN. X 30 IN. NOMINAL.
2. EROSION BALES SHALL BE 18 IN. X 18 IN. X 36 IN.
3. EROSION BALES SHALL BE ENTRENCHED 4 IN. MINIMUM INTO THE SOIL, TIGHTLY ABUTTED WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER.
4. EROSION BALES CANNOT BE USED FOR CHECK DAMS.
5. EROSION BALE FILTER SHALL BE LOWER THAN BERM ELEVATION OR USED IN A SUMP CONDITION.
6. THE PAY ITEM NUMBER FOR EROSION BALES (WEED FREE) (EA) IS 208-00011.

**EROSION BALES APPLICATIONS**

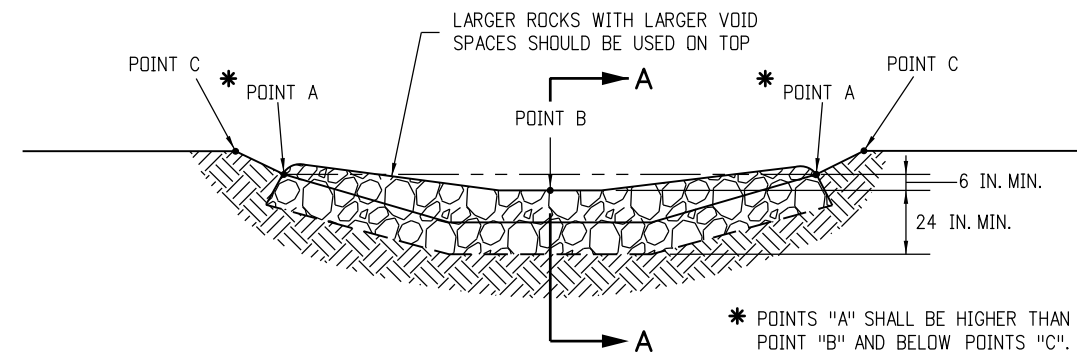
<b>Computer File Information</b>		<b>Sheet Revisions</b>		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 <b>Project Development Branch</b>	<b>TEMPORARY EROSION CONTROL</b>	<b>STANDARD PLAN NO.</b>	
Creation Date: 07/31/19		Date:	Comments			M-208-1	
Designer Initials: JBK		(R-X)				Standard Sheet No. 10 of 11	
Last Modification Date: 07/31/19		(R-X)					
Detailer Initials: LTA		(R-X)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		Project Sheet Number:			



**SECTION VIEW ALONG DITCH FLOWLINE**



**SECTION A-A**



**TYPICAL SECTION VIEW**

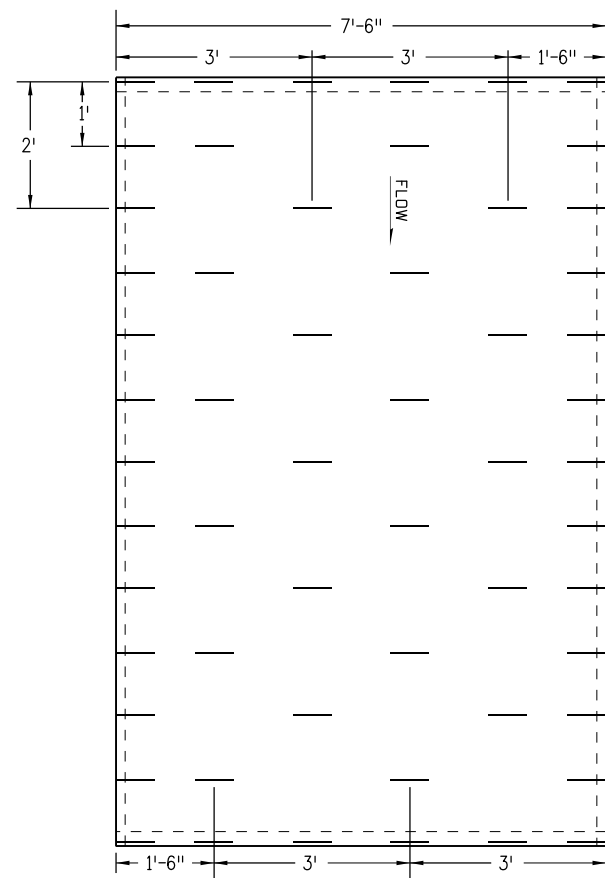
**NOTES:**

1. RIPRAP SIZE  $D_{50}$  = 6IN OR AS SHOWN ON THE PLANS.
2. THE GEOTEXTILE EROSION CONTROL SHALL BE CLASS 2 AND CONFORM TO THE REQUIREMENTS OF SUBSECTION 712.08.
3. THE ENDS OF RIPRAP CHECK DAM SHALL BE A MINIMUM OF 6 IN. HIGHER THAN CENTER OF CHECK DAM.
4. FOR USE AS TEMPORARY CHECK DAMS ONLY AND NOT FOR PERMANENT INSTALLATIONS.
5. THE PAY ITEM NUMBER FOR ROCK CHECK DAM (EA) IS 208-00041.

NOTE: ALL MATERIALS AND LABOR TO COMPLETE THE ROCK CHECK DAM SHALL BE INCLUDED IN THE COST OF WORK.

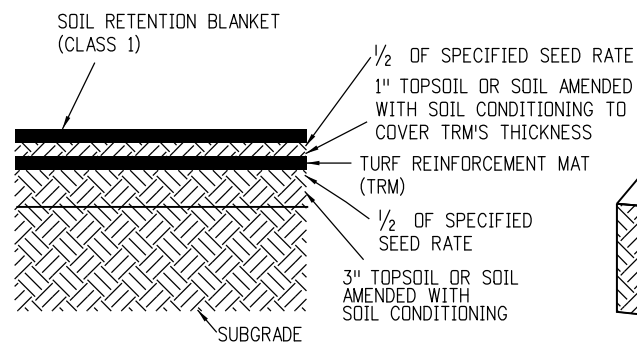
**ROCK CHECK DAM**

<b>Computer File Information</b>		<b>Sheet Revisions</b>		<b>Colorado Department of Transportation</b>  2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 <b>Project Development Branch</b> <b>JBK</b>	<b>TEMPORARY EROSION CONTROL</b>	<b>STANDARD PLAN NO.</b>	
Creation Date: 07/31/19	(R-X)	Date:	Comments:			M-208-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 11 of 11	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number:	
Detailer Initials: LTA	(R-X)					Issued by the Project Development Branch: July 31, 2019	
CAD Ver.: MicroStation V8    Scale: Not to Scale    Units: English	(R-X)						



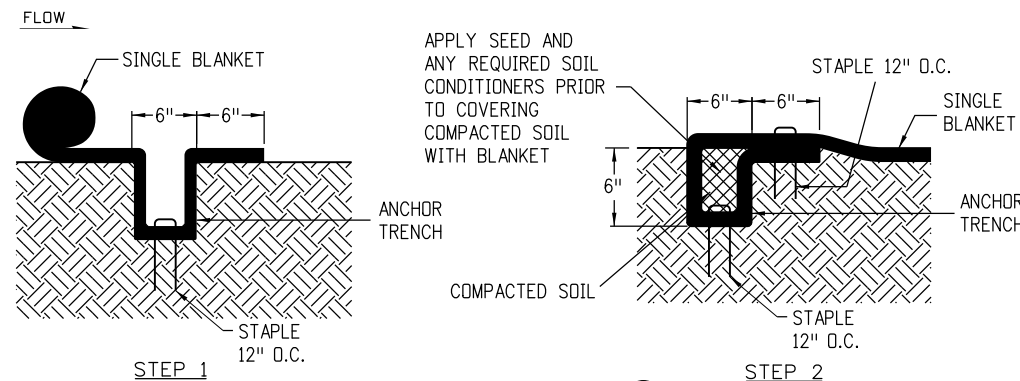
**TYPICAL STAPLE PATTERN FOR CHANNEL APPLICATION**

SEE SUBSECTION 216.05.



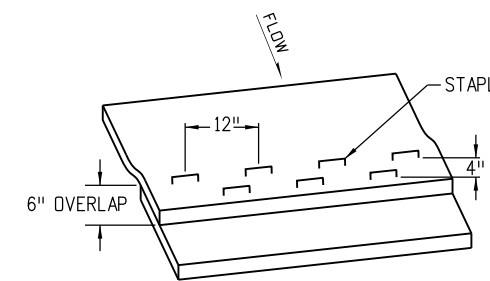
**SOIL FILLED TRM APPLICATION**

1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
2. APPLY HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
3. INSTALL TRM.
4. PLACE 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING INTO THE MATRIX TO COVER THE PRODUCT'S THICKNESS.
5. APPLY THE REMAINING HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
6. INSTALL SOIL RETENTION BLANKET (CLASS 1).



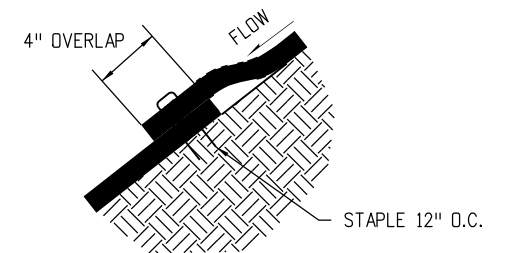
**ANCHOR TRENCH (A)**

TO BE USED AT THE BEGINNING AND END OF THE CHANNEL ACROSS IT'S ENTIRE WIDTH.



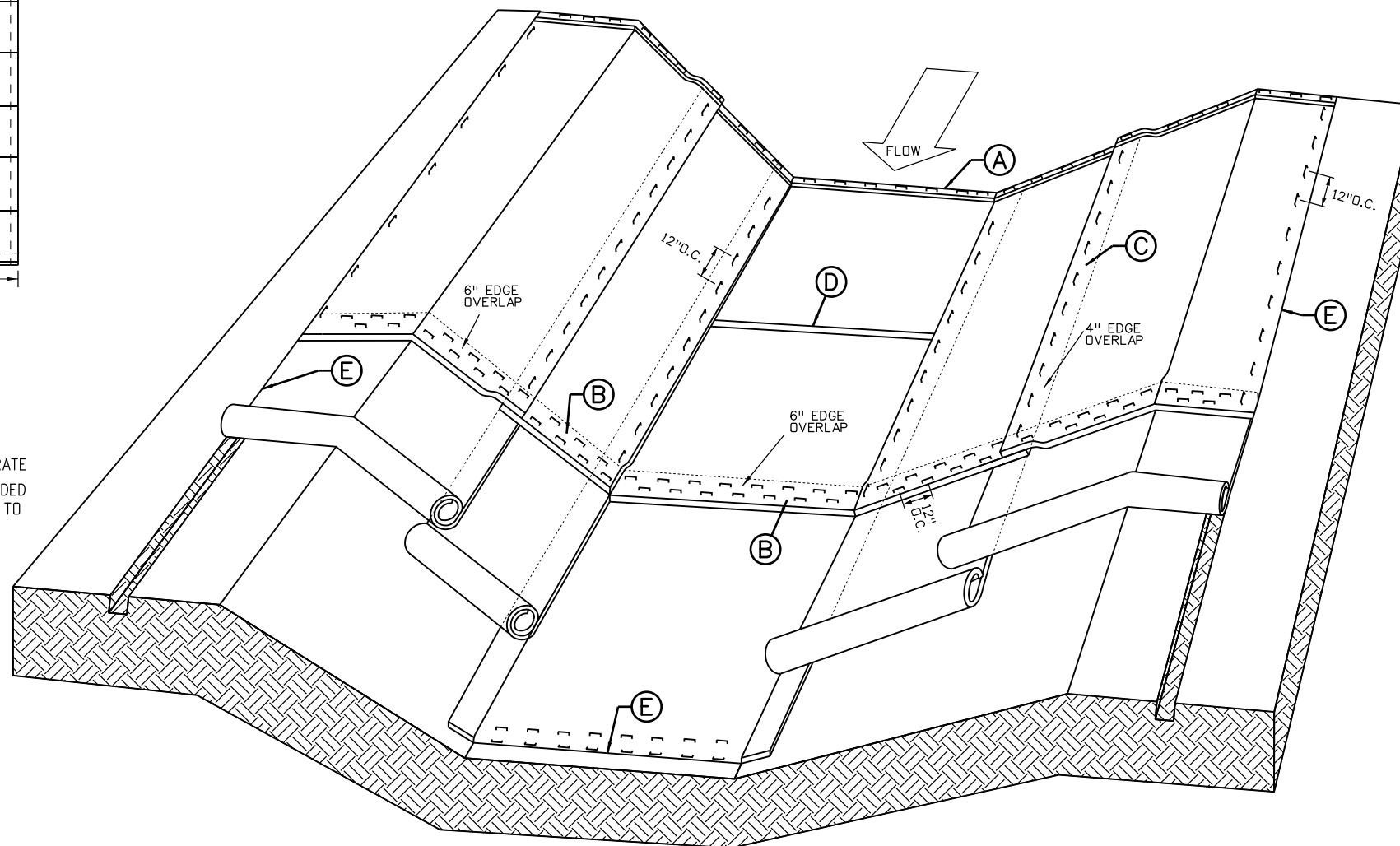
**CONSECUTIVE ROLL OVERLAP (B)**

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH UPSTREAM BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNSTREAM SIDE.



**SIDE SEAM OVERLAP (C)**

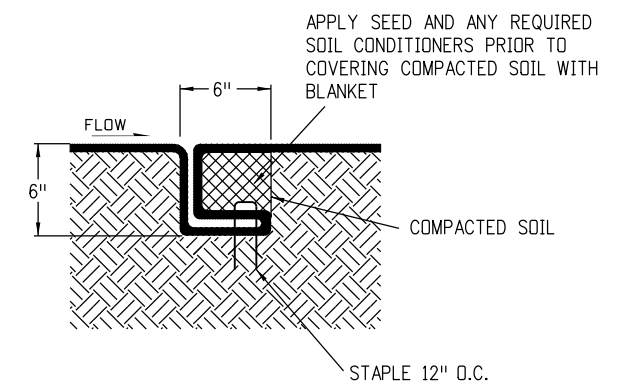
TO BE USED FOR OVERLAP WHEN 2 WIDTHS OF BLANKET ARE APPLIED SIDE BY SIDE WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



**SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM)**

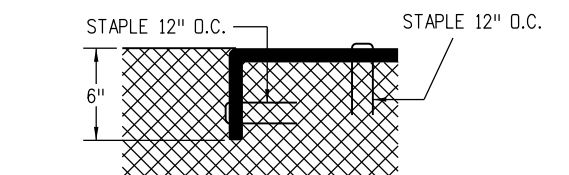
**CHANNEL APPLICATION**

IN ACCORDANCE WITH SECTION 216.



**CHANNEL CHECK SLOT (D)**

TO BE USED AT 30' INTERVALS IN CHANNEL FLOWLINE.



**TERMINATION OF CHANNEL (E)**

**GENERAL NOTES**

1. Z SHAPED FOLD TO BE USED ON SLOPE EVERY 35 FEET MAXIMUM.
2. STAPLE CHECK LOCATIONS SHOULD BE AT LEAST 15 FEET FROM THE BOTTOM OF SLOPE.

APPLY SEED AND ANY REQUIRED SOIL CONDITIONERS PRIOR TO COVERING COMPACTED SOIL WITH BLANKET

Computer File Information	
Creation Date: 07/31/19	(R-X)
Designer Initials: JBK	(R-X)
Last Modification Date: 07/31/19	(R-X)
Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

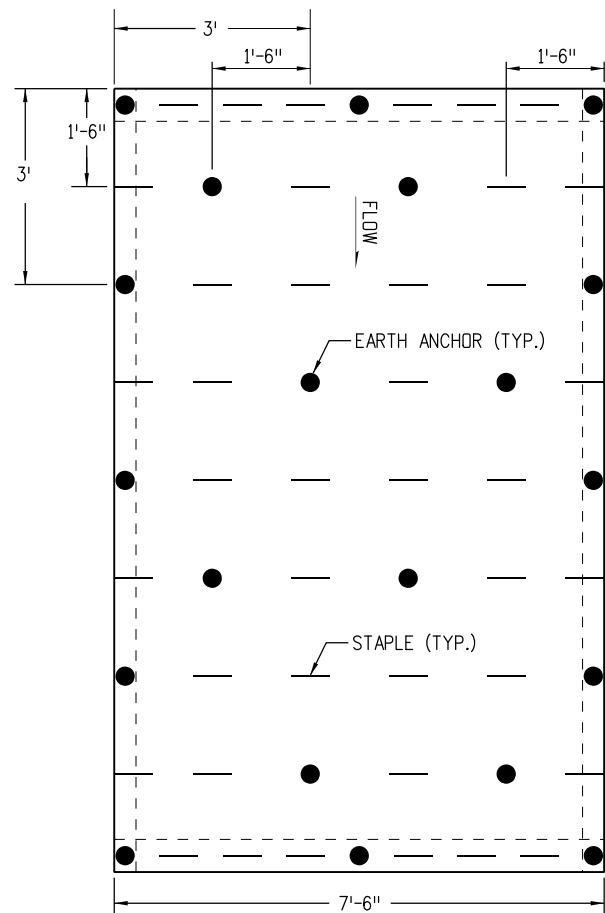
Sheet Revisions	
Date:	Comments

Colorado Department of Transportation  
 2829 West Howard Place  
 CDDT HQ, 3rd Floor  
 Denver, CO 80204  
 Phone: 303-757-9021 FAX: 303-757-9868  
 Project Development Branch JBK

**SOIL RETENTION COVERING**  
 Issued by the Project Development Branch: July 31, 2019

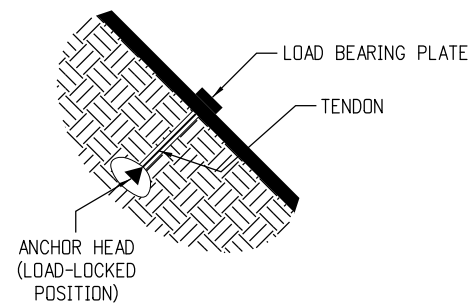
STANDARD PLAN NO.  
**M-216-1**  
 Standard Sheet No. 1 of 2  
 Project Sheet Number:





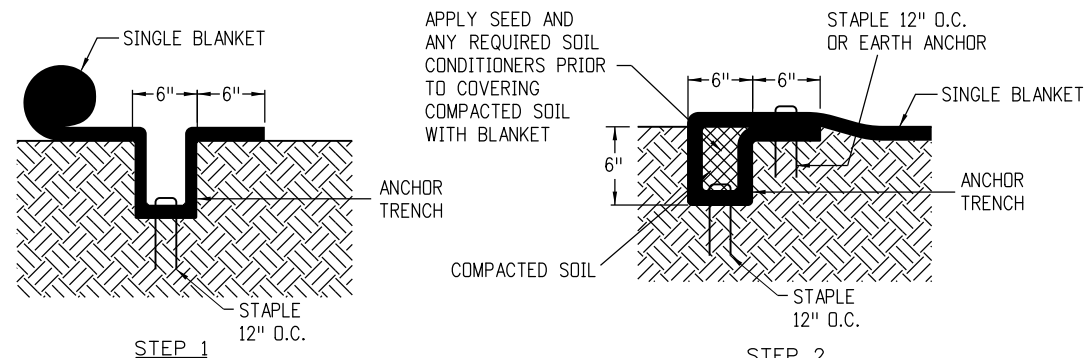
**TYPICAL STAPLE OR EARTH ANCHOR PATTERN FOR SLOPE APPLICATION**

IF EARTH ANCHORS ARE NOT SPECIFIED ON THE PLANS, ONLY STAPLES SHALL BE USED. SEE SUBSECTION 216.04



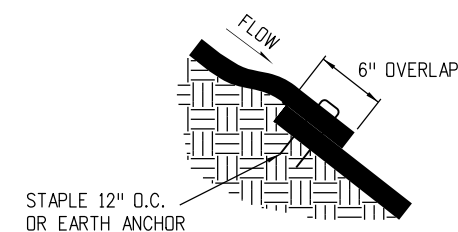
**EARTH ANCHOR**

- NOTES: 1. EARTH ANCHORS WILL BE USED INSTEAD OF STAPLES WHEN SPECIFIED IN THE PLANS.  
2. EARTH ANCHORS SHALL BE PAID FOR SEPERATLY AS SPECIFIED IN SECTION 216.



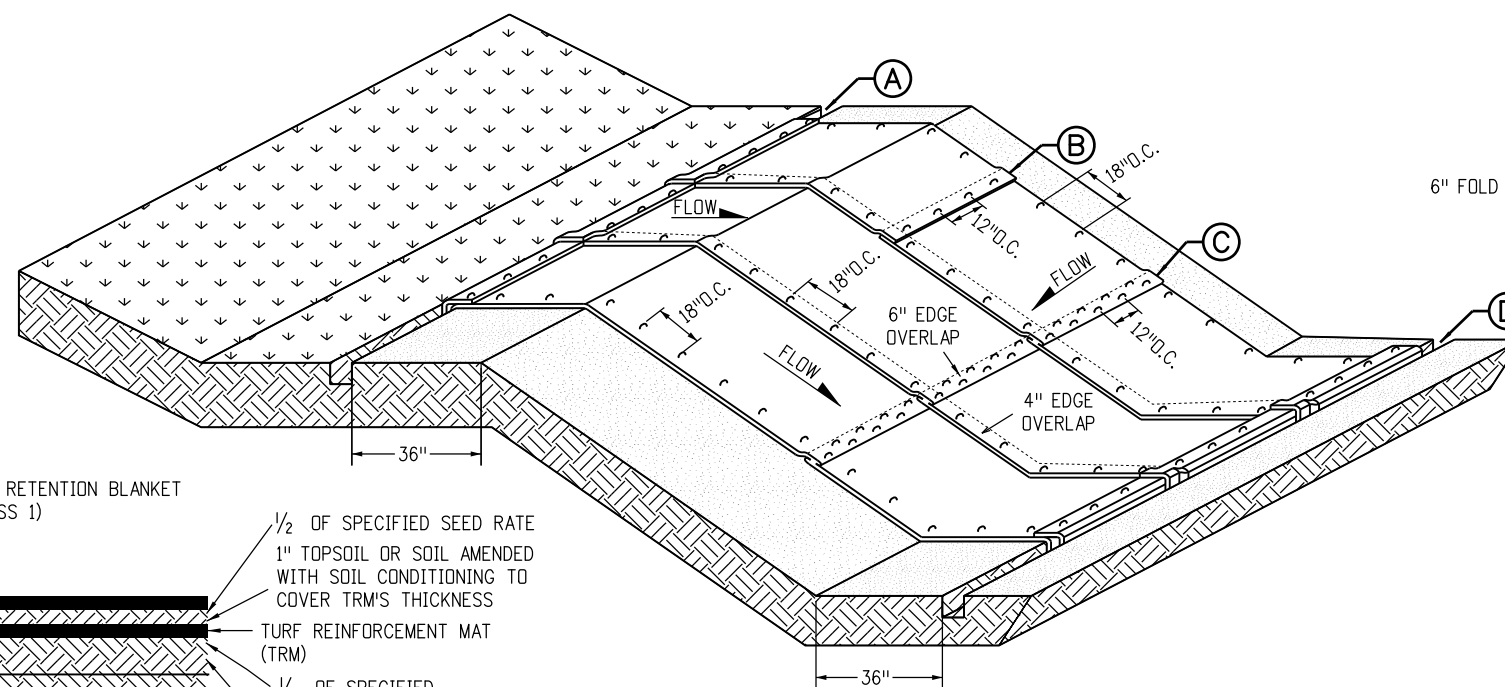
**ANCHOR TRENCH (A)**

TO BE USED AT THE UPSLOPE AND DOWNSLOPE ENDS OF BLANKET ACROSS THE ENTIRE WIDTH OF SLOPE UNLESS SLOPE RUNS INTO RECEIVING WATER. (SEE DOWNSLOPE END STAPLE CHECK).



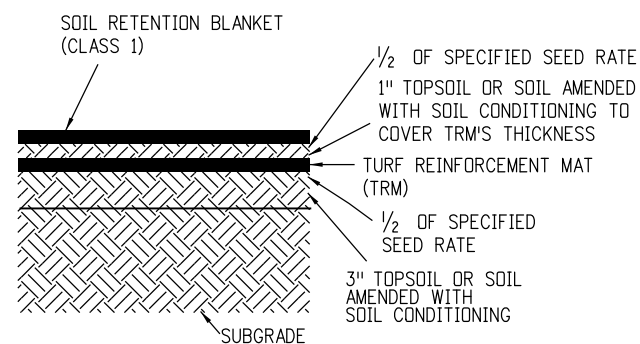
**CONSECUTIVE ROLL OVERLAP (B)**

TO BE USED WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS WITH THE UPHILL BLANKET PLACED ON TOP OF THE BLANKET ON THE DOWNHILL SIDE.



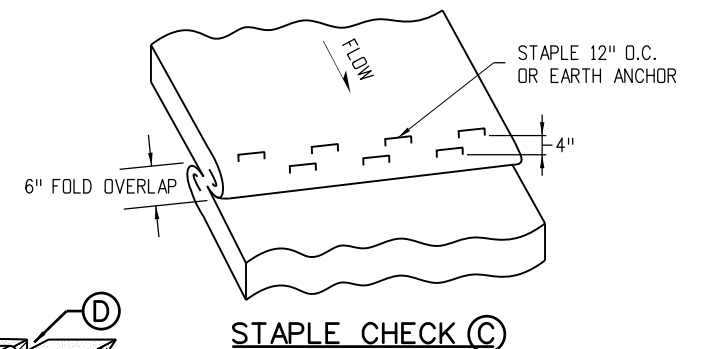
**SOIL RETENTION BLANKETS/TURF REINFORCEMENT MATS (TRM) SLOPE APPLICATION**

IN ACCORDANCE WITH SECTION 216.

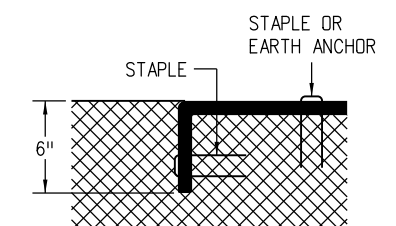


**SOIL FILLED TRM APPLICATION**

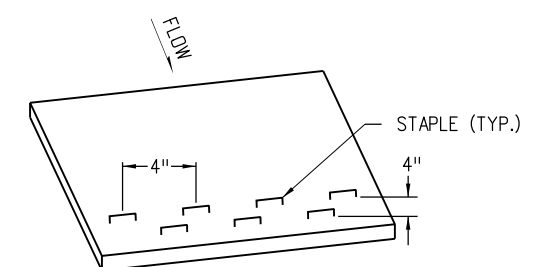
1. PLACE 3" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING.
2. APPLY HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
3. INSTALL TRM.
4. PLACE 1" TOPSOIL OR SOIL AMENDED WITH SOIL CONDITIONING INTO THE MATRIX TO COVER THE PRODUCT'S THICKNESS.
5. APPLY THE REMAINING HALF OF THE SPECIFIED SEED AT THE BROADCAST RATE AND RAKE IT INTO THE SOIL.
6. INSTALL SOIL RETENTION BLANKET (CLASS 1).



**STAPLE CHECK (C)**



**TERMINATION OF CHANNEL (D)**



**DOWNSLOPE END STAPLE CHECK**

TO BE USED WHEN SLOPE RUNS INTO A RECEIVING WATER AND CANNOT BE EXTENDED 3 FEET BEYOND SLOPE.

**Computer File Information**

Creation Date: 07/31/19	(R-X)
Designer Initials: JBK	(R-X)
Last Modification Date: 07/31/19	(R-X)
Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

**Sheet Revisions**

Date:	Comments

Colorado Department of Transportation  
2829 West Howard Place  
CDDT HQ, 3rd Floor  
Denver, CO 80204  
Phone: 303-757-9021 FAX: 303-757-9868  
Project Development Branch JBK

**SOIL RETENTION COVERING**

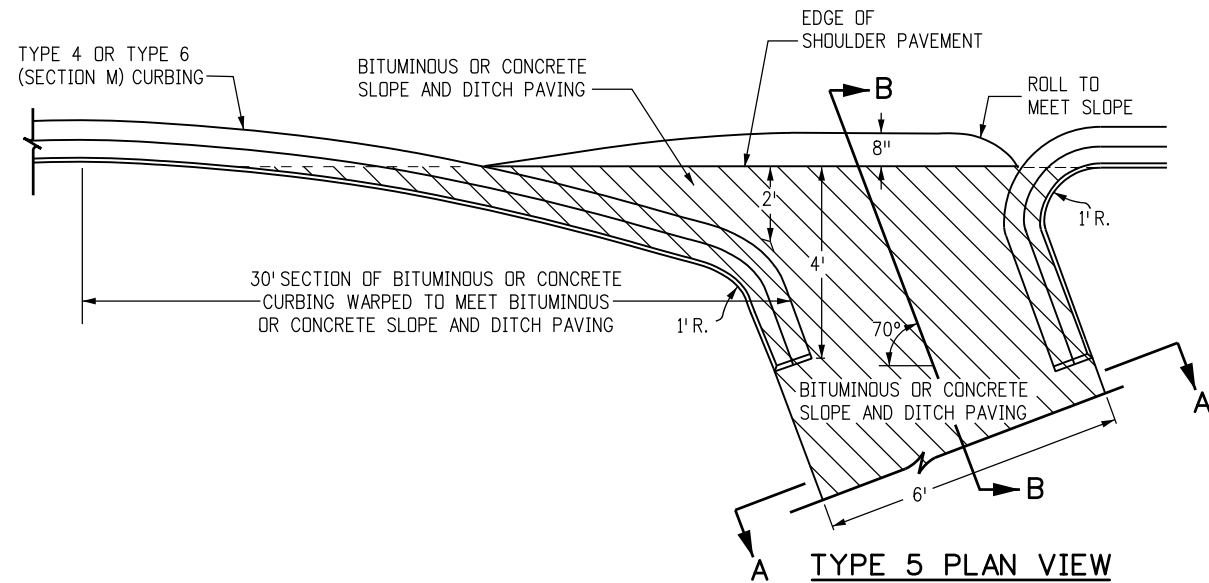
Issued by the Project Development Branch: July 31, 2019

**STANDARD PLAN NO.**

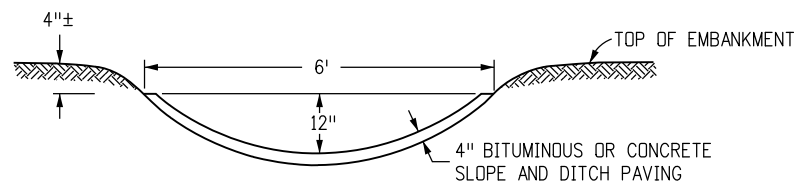
M-216-1

**Standard Sheet No. 2 of 2**

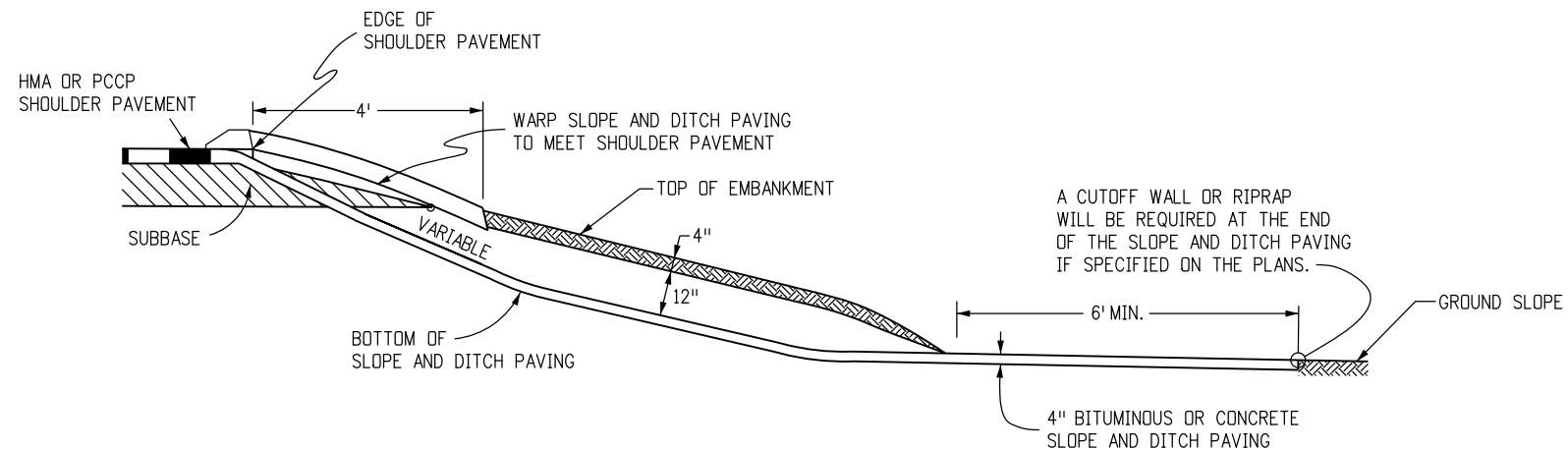
Project Sheet Number:



**TYPE 5 PLAN VIEW**



**SECTION A-A**



**SECTION B-B**

(WITH 4 IN. BITUMINOUS OR CONCRETE SLOPE AND DITCH PAVING)

**GENERAL NOTES**

1. IF THE EMBANKMENT PROTECTOR IS LOCATED IN THE BOTTOM OF A SAG VERTICAL CURVE, FLARE THE CURB ON EACH SIDE OF THE INLET TO ALLOW FOR FLOW FROM BOTH DIRECTIONS.
2. DETAILS OF CURBING ARE SHOWN IN STANDARD PLAN M-609-1.
3. STRUCTURE BACKFILL MATERIAL SHALL NOT BE USED IN THIS WORK. EMBANKMENT MATERIAL SHALL BE USED WITH CONSTRUCTION REQUIREMENTS IN ACCORDANCE WITH SECTION 203. EMBANKMENT MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE PAY ITEM FOR EMBANKMENT PROTECTOR (TYPE 5).
4. PAYMENT FOR THE QUANTITIES SHOWN ON THE PLANS FOR THIS WORK SHALL BE AS FOLLOWS:
  - 507 - BITUMINOUS SLOPE AND DITCH PAVING (ASPHALT) . . . . . TON
  - 507 - CONCRETE SLOPE AND DITCH PAVING . . . . . CU. YD.
  - 609 - CURB, TYPE 4 OR TYPE 6 (SECTION M) . . . . . LINEAR FT.
  - 615 - EMBANKMENT PROTECTOR (TYPE 5) . . . . . EACH
 NOTE: THIS PAYMENT INCLUDES THE STRUCTURE EXCAVATION, ANY OTHER EARTHWORK, AND ANY EXTRA WORK REQUIRED TO MODIFY OTHER PAY ITEMS.

Computer File Information	
Creation Date: 07/31/19	
Designer Initials: JBK	(R-X)
Last Modification Date: 07/31/19	(R-X)
Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

Sheet Revisions	
Date:	Comments

Colorado Department of Transportation  
 2829 West Howard Place  
 CDDT HQ, 3rd Floor  
 Denver, CO 80204  
 Phone: 303-757-9021 FAX: 303-757-9868



Project Development Branch **JBK**

**EMBANKMENT  
PROTECTOR TYPE 5**

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-615-2
Standard Sheet No. 1 of 1
Project Sheet Number:

## **5 BMP Details not in CDOT Standard Plans**

### **5.1 New or Revised BMPs (208.03 (c) 12)**

- **How to install and inspect the BMP**
- **Where to install the BMP**
- **When to maintain the BMP**

### **5.2 New Narratives**

## Description

Describe the control measure and what pollutant sources it will provide effective treatment for (part I.C.2.a.iv of the permit). Include the mechanism used for treatment of the pollutant source.

## Implementation

Describe how the control measure will be implemented in accordance with good engineering, hydrologic and pollution control practices. Include the phase(s) of construction the control measure will be implemented for.

## Installation Procedures

Describe the process required to install the control measure and have it adequately treat the intended pollutant source. Include specific depths, lengths, materials, and any other applicable information necessary to properly install the control measure.

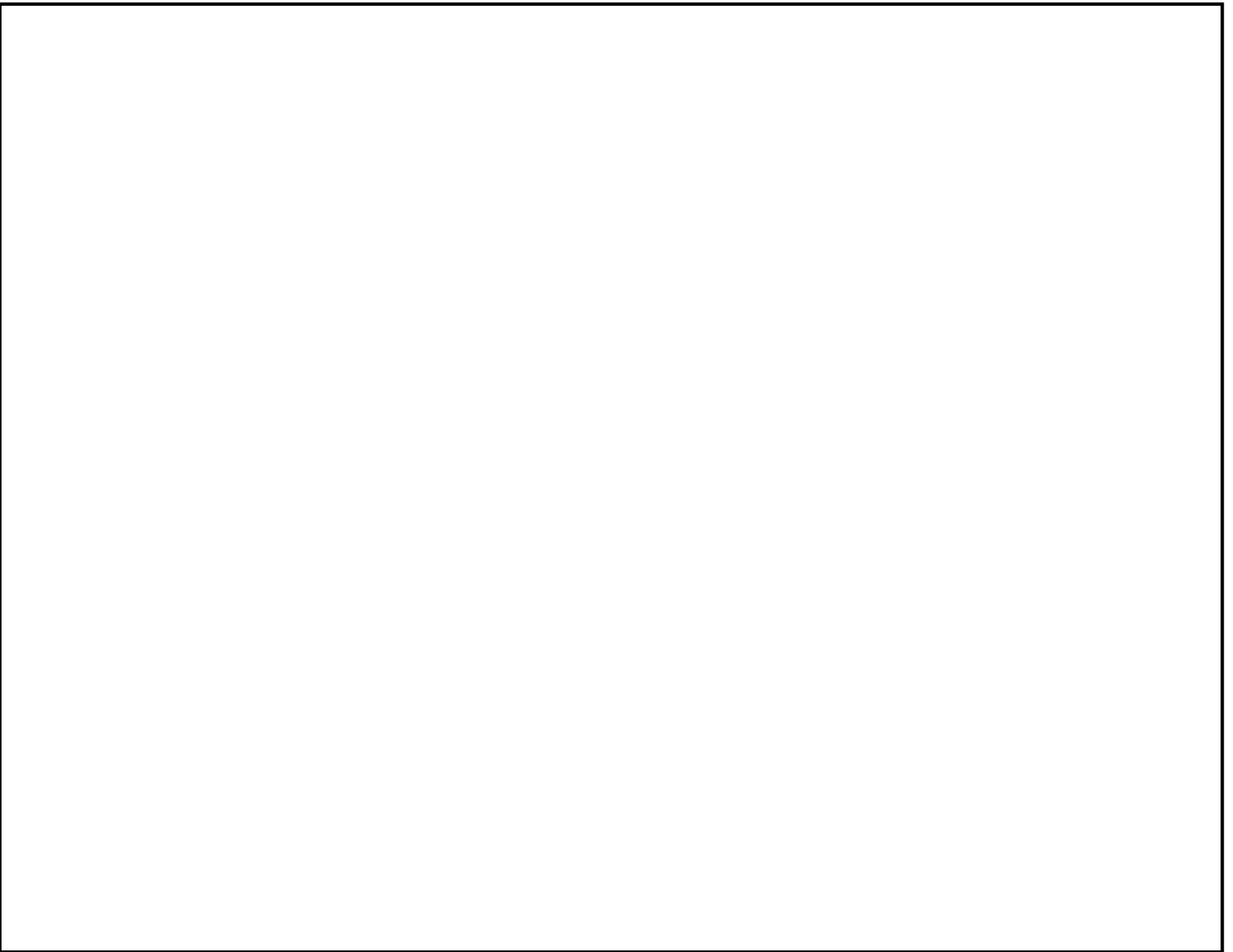
## Inspection Expectations

Describe how often the control measure will be inspected and what key features should be checked during each inspection (is the silt fence tail entrenched, are the straw wattles staked ever 4 feet, etc.)

## Maintenance Requirements

Describe maintenance requirements, such as how to repair damaged sections, what qualifies as a failed control measure and when it needs to be replaced. Also include criteria that would trigger maintenance (i.e. 50% capacity of the control measure has been reached).

## Control Measure Diagram



# BLANK TEMPLATE

Provide Sketch of Non-Standard BMP Detail

Created By: \_\_\_\_\_ Date: \_\_\_\_\_

Engineer Approval Through Form 105?  YES  NO



# BLANK TEMPLATE

Company Name
--------------

Name of BMP

<b>What:</b>	
<b>When:</b>	
<b>Where:</b>	
<b>Why:</b>	
<b>How:</b>	

Submitted By: \_\_\_\_\_ Date: \_\_\_\_\_

Engineer Approval Through Form 105?

YES

NO

COLORADO DEPARTMENT OF TRANSPORTATION  
**SPEED MEMO**

Project No.: [REDACTED]

Project Code (SAB): [REDACTED]

Location: TBWQTF

MESSAGE

To: [REDACTED] ( CDOT PE)

Date: [REDACTED]

Subject: Seeking Non-Standard Inlet Protection APPROVAL

See Non-Standard Inlet Protection Detail. Due to the amount of up-gradient disturbance a more aggressive IP detail is needed to prevent off site discharge of sediment.

Signed (CDOT) [Signature] [REDACTED]

Title: Project Engineer

By Signing Below I Acknowledge Receipt of This Document

Signed: [Signature] [REDACTED]

Title: SWMP Admin

REPLY

To: [REDACTED]

Date: [REDACTED]

APPROVED. Please Implement Immediately and appropriately file this 105 in the SWMP.

Signed: [Signature] [REDACTED]

Title: Project Engineer

Distribution:  
Contractor  
Resident Engineer  
Project Engineers

# Control Measure Specification Template

Control Measure Name    Reinforced Area Inlet Protection

---

## Description

Reinforced area inlet protection is a compound control measure (CM) that provides extra filtration and mechanical settling. The pollutant this CM is designed to work for is sediment. This CM functions by slowing water down and allowing suspended sediment (sand and silt sized particles) to drop out of the water column. The basic components of this inlet protection consists of two layers reinforced silt fence (RSF), type L rip rap sandwiched in between the reinforced SF.

## Implementation

This CM is designed for use during active construction phases and must be implemented with sound engineering, hydrologic and pollution control practices. This CM must be installed pursuant to the approved detail and attached 105. Not more than .25 tributary acres of drainage should be directly to this CM. This CM should be utilized as part of a CM treatment train and attention should be given to controlling erosion in the up gradient condition.

## Installation Procedures

Construction of this CM begins by installing the inner perimeter of RSF. This inner perimeter RSF should be installed pursuant to standard M-208-1 RSF detail. Care should be taken ensure that RSF is proper trenched and fits snugly against the concrete area inlet collar. Creating the rip rap bedding area 3 feet wide around inner IP. Create a 4 inch deep excavation around the outer concrete collar of the inlet should be made prior to laying down geotextile fabric. Type L riprap should not sit too high relative to the IP invert elevation. Cut and lay geotextile fabric flat so that the fabric forms a square area 3 ft. X 3 ft. around the inner SF installation. Begin installation of type L riprap on the up stream side of the inner SF installation. 3 feet from the inner RSF installation. On the exterior edge of the type L riprap add a final layer of SF installed pursuant to the M-208-1 standard detail. See detail provided with this narrative.

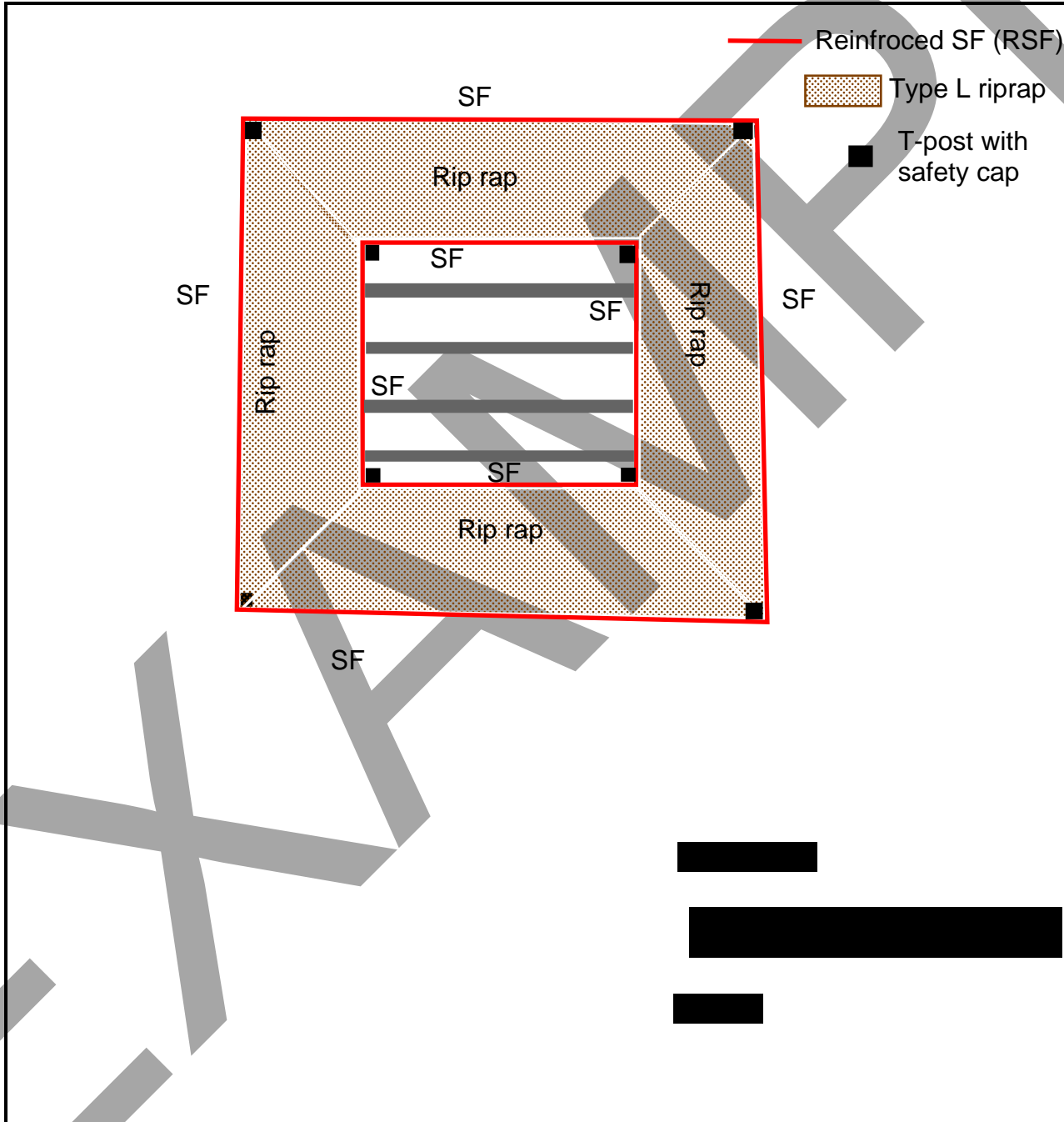
## Inspection Expectations

This CM must be inspected daily. Inspector should look for signs of water back up and excessive sediment build up within the rip rap or behind either layer of RSF. Its important to note that design stormwater flows must be allowed to enter the inlet, By pass of water around the inlet is a sign maintenance is required. **Maintenance** threshold: Not more than 3 inches of sediment should be allowed to accumulate behind either RSF layer or within rip rap filter. More than 3 inches of sediment build up anywhere within the CM constitutes **inadequacy**

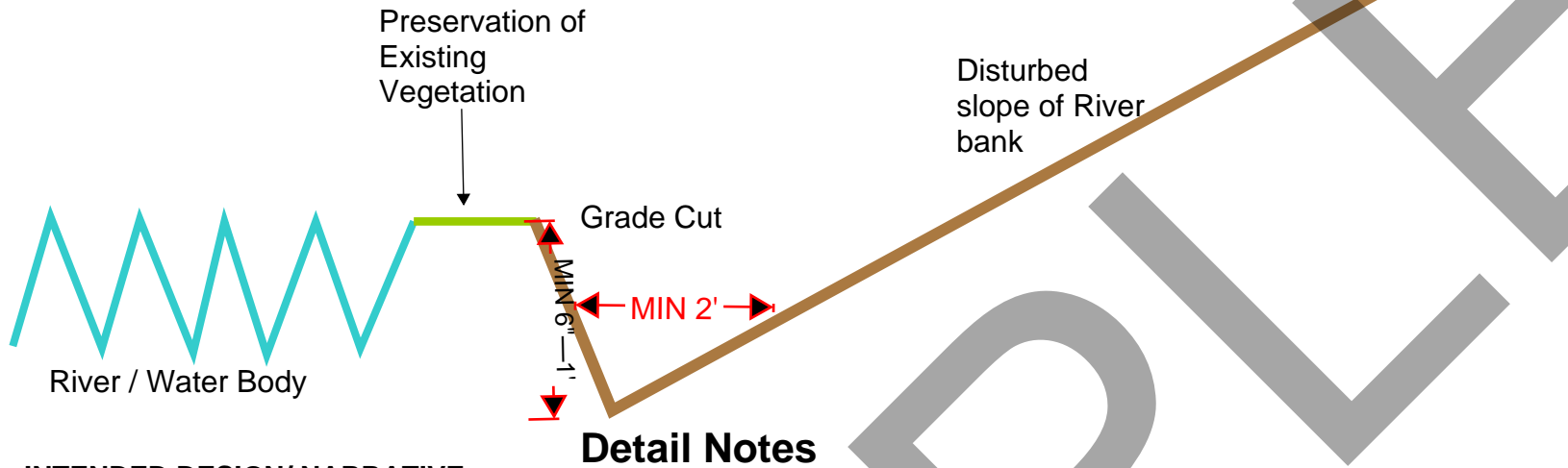
## Maintenance Requirements

Maintenance activities should be performed on this CM when 3 inches or less of sediment has been deposited behind the SF or within the rip rap components of this control measure. Maintenance should consist of removal of sediment load from the CM all sediment must be completely removed from the immediate area of the CM, no stockpiling of removed sediment. More than three inches of sediment build up anywhere within the CM constitutes an inadequacy or failure of the CM. Any CM noted by the TECS as inadequate or failed must be completely removed and reinstalled **no piecemill** fixes allowed.

## Control Measure Diagram



# River Bank Grade Differential Application



## Detail Notes

### INTENDED DESIGN/ NARRATIVE:

1. Grade Differential is intended to be a Sediment Control Control Measure which must be utilized in conjunction with other CMs. This CM functions best when used in a treatment train application in conjunction with temporary erosion control such as tracking of the slope and is not designed to used as a stand alone CM
2. Grade Differential as a grading technique for Sediment Control which acts as a physical barrier to contain sediment laden sheet flows and allow any suspended sediment to settle out within the depression created by the grade differential and storm water to infiltrate into the ground.
3. The above Installation is intended for a River Bank or body of water applications where a clean must be made from the upgrading side of the body of water with a small amount of existing vegetation being left in place. The Cut Must be a minimum of 6" —to—1 foot in depth and 2 feet in width, with larger dimensions as slope length and angle increase or when soil conditions require greater storage capacity. Standard tributary area for GD is .25 Acres Tributary Area for every 100 LF of GD.

### MAINTENANCE & REMOVAL:

1. Grade Differential shall be maintained at a minimum of 50% storage capacity, i.e. when the total depth is 50% full of sediment.
2. In order to clean out and Maintain grade differential all accumulated sediment will be scooped up, removed from behind the control measure and properly managed upland on the construction site.
3. When Grade Differential is no longer needed, the cut will be filled in and all disturbed surfaces stabilized pursuant to the approved plan.

### INSPECTION:

Grade Differential will be visually inspected by site staff on a daily basis to ensure it is not in need of maintenance. Grade Differential will be visually inspected by Qualified Stormwater Manager Once every 7 Days.

\*\*\*Depending of Depth to Ground Water and size of tributary area Depth of Grade Differential will be between 6" to 1' as a minimum standard\*\*\*

PE Name: \_\_\_\_\_

PE signature: \_\_\_\_\_

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

COLORADO DEPARTMENT OF TRANSPORTATION  
**SPEED MEMO**

Project No.: [REDACTED]

Project Code (SA#): [REDACTED]

Location: TBWQTF

**MESSAGE**

To: [REDACTED] Project Engineer

Date: [REDACTED]

Subject: Seeking Non-Standard Grade Differential Approval

Seeking 105 Approval for Non-Standard Grade Differential. Non-Standard is needed to ensure there is no off site movement of sediment at the COR400000 and 404 interface while utilizing native materials.

Signed (CDOT) [REDACTED]

Title: CDOT PE

By Signing Below I Acknowledge Receipt of This Document

Signed: [REDACTED]

Title: SWMP Admin

**REPLY**

To: [REDACTED]

Date: [REDACTED]

APPROVED W/ CORRECTIONS. Modify detail to reflect 1-2 ft Min on the depth of the grade differential to account for additional up-gradient disturbance and new impervious surface which will add additional run off potential.

Signed: [REDACTED]

Title: CDOT PE

Distribution:  
Contractor  
Resident Engineer  
Project Engineer

Company Name

# Name of BMP

What:	COMPOST EROSION LOG
When:	INITIAL / INTERIM EROSION CONTROL.
Where:	[REDACTED]
Why:	[REDACTED]
How:	E.L.'S PLACED ON GRADE PER MANUFACTURER'S RECOMMENDATION.* REDUCES VEGETATION LOSS.

\* SEE ATTACHED

Submitted by:

[REDACTED]

Date:

[REDACTED]

Approved by Engineer:

[REDACTED]

Date:

[REDACTED]



## SECTION 1: CONSTRUCTION

### Filtrex<sup>®</sup> Sediment/Perimeter Control (SiltSoxx<sup>™</sup>)

#### PURPOSE & DESCRIPTION

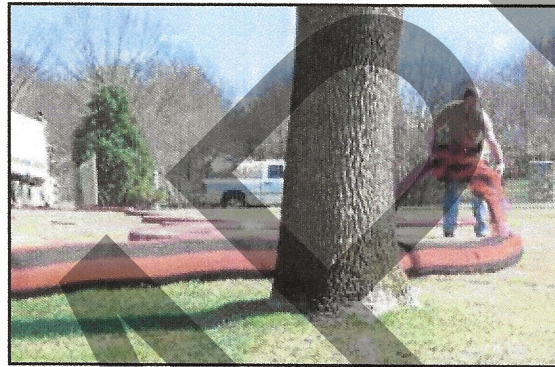
Filtrex<sup>®</sup> SiltSoxx<sup>™</sup> is a three-dimensional tubular sediment control and stormwater runoff filtration device typically used for **Sediment/Perimeter Control** of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons), on and around construction activities. Perimeter control traps sediment and soluble pollutants by *filtering* runoff water as it passes through the matrix of the Soxx<sup>™</sup> and by allowing water to temporarily pond behind the Soxx, allowing *deposition* of suspended solids. Perimeter control is also used to reduce runoff flow velocities on sloped surfaces.

#### APPLICATION

Perimeter control is to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. Perimeter control is effective when installed perpendicular to sheet or low concentrated flow, and in areas that silt fence is normally considered appropriate. Acceptable applications include:

- Site perimeters
- Above and below disturbed areas subject to sheet runoff, interrill and rill erosion
- Above and below exposed and erodable slopes
- Along the toe of stream and channel banks
- Around area drains or inlets located in a 'sump'
- On compacted soils where trenching of silt fence is difficult or impossible
- Around sensitive trees where trenching of silt fence is not beneficial for tree survival or may unnecessarily disturb established vegetation
- On frozen ground where trenching of silt fence is impossible
- On paved surfaces where trenching of silt fence is impossible

Perimeter control can be applied to areas of high sheet runoff and erosion, on slopes up to a 1:1 grade (should be used in conjunction with slope stabilization/erosion control technology on slopes



#### Installation Method – Perimeter Control

> 4:1), around inlets, and in other disturbed areas of construction sites requiring sediment control. Perimeter control may also be used in sensitive environmental areas, where migration of wildlife may be impeded by the use of fences or trenching may damage roots.

It is possible to drive over perimeter control during construction (although not recommended), however, these areas should be immediately repaired by manually moving perimeter control back into place, if disturbed. Continued heavy construction traffic may destroy the fabric mesh, reduce the dimensions, and reduce the effectiveness of the perimeter control.

#### ADVANTAGES AND DISADVANTAGES

##### Advantages

- Tubular filtration matrix allows for better trapping and removal of sediment and soluble pollutants in stormwater runoff compared to planar constructed sediment control devices (i.e., silt fence).
- Greater surface area contact with soil than typical sediment control devices reduces potential for runoff to create rills under the device leading to unfiltered sediment.
- No trenching is required; therefore soil is not disturbed upon installation or removal.
- Perimeter control can be installed year-round in



difficult soil conditions such as frozen or wet ground, and dense and compacted soils, as long as stakes can be driven.

- Perimeter control is easily implemented as a treatment in a greater treatment train approach to erosion and sediment control.
- Organic matter and humus colloids in FilterMedia™ (filler material in perimeter control) have the ability to bind and adsorb phosphorus, metals, and hydrocarbons that may be in stormwater runoff.
- Microorganisms in FilterMedia have the ability to degrade organic pollutants and cycle captured nutrients in stormwater runoff.
- Soxx (the mesh netting containment system) allows perimeter control to be placed in areas of high sheet flow and low concentrated flow.
- Perimeter control can be direct seeded at time of application to provide greater stability and filtration capability once vegetation is established.
- FilterMedia is organic and can be left on site after permanent stabilization is complete, to be used in landscape design and/or seeded and planted with permanent vegetation.
- FilterMedia improves existing soil structure if spread out and used as a soil amendment after construction activity is complete.
- Biodegradable or photodegradable perimeter control can be left on site after construction activity and may eliminate the need for removal and labor and disposal costs.
- Perimeter control can be used on slopes to slow down runoff velocity, disperse concentrated runoff, and reduce effective slope lengths, reducing

the erosive potential of stormwater runoff.

- Perimeter control is less likely to obstruct wildlife movement and migration than planar/silt fence sediment control practices.
- Perimeter control is available in 5 in. (125mm), 8 in.(200mm), 12 in. (300mm), 18 in. (450mm), 24 in. (600mm), and 32 in (800mm) diameters for customized applications and challenging situations.
- Perimeter control is available in up to 200 ft (61m) continuous lengths to prevent weak sections and creation of concentrated flow situations typical to low points in runs of other sediment control devices. End points are sleeved together to form continuous runs of unlimited lengths without low or break points.
- Perimeter control may assist in qualification for LEED® Green Building Rating and Certification credits under LEED Building Design & Construction (BD+C), New Construction v4. Awarded credits may be possible from the categories of Sustainable Sites, Water Efficiency, Materials & Resources, and Innovation. *Note: LEED is an independent program offered through the U.S. Green Building Council. LEED credits are determined on a per project basis by an independent auditing committee. Filtrex neither guarantees nor assures LEED credits from the use of its products. LEED is a trademark of the U.S. Green Building Council.*

#### Disadvantages

- If filler material of perimeter control is not Filtrex® Certified<sup>SM</sup> FilterMedia™, performance may be diminished.
- If not installed correctly, maintained or used for a purpose or intention that does not meet specifications performance may be diminished.
- If land surface is extremely bumpy, rocky, or changes elevation abruptly ground surface contact to perimeter control may be diminished thereby adversely effecting performance.

#### MATERIAL SPECIFICATIONS

Perimeter control use only photodegradable or biodegradable Soxx netting materials available from Filtrex International and are the only mesh materials accepted in creating perimeter control for any purpose. For Soxx tubular mesh material specifications see Table 1.1.

ADVANTAGES			
	LOW	MED	HIGH
Installation Difficulty	✓		
Durability			✓
Sediment Control			✓
Soluble Pollutant Control		✓	
Runoff Flow Control		✓	
Life Cycle Cost	✓		



**FILTERMEDIA™ CHARACTERISTICS**

Specifications for perimeter control use only Filtrex Certified FilterMedia which is a coarse composted material that is specifically designed for removal of solids and soluble pollutants from stormwater runoff. FilterMedia can be altered or customized to target specific pollutants in runoff as approved by the Engineer or Filtrex International. All Filtrex Certified FilterMedia has been third party tested and certified to meet minimum performance criteria defined by Filtrex International. Performance parameters include; hydraulic flow through rate, total solids removal efficiency, total suspended solids removal efficiency, turbidity reduction, nutrient removal efficiency, metals removal efficiency, and motor oil removal efficiency. For information on the physical and chemical properties of Filtrex Certified FilterMedia refer to the Filtrex Design Manual, section 5.1. Look for the Filtrex Certified FilterMedia Seal from our international network of Filtrex Certified Installers and Manufacturers.

**PERFORMANCE**

Performance testing and research on perimeter control has been extensive. Results from testing and research programs conducted on perimeter control include: hydraulic flow through rate, ponding rate and calculation (behind perimeter control), sediment storage capacity (inside + behind tool), total solids removal efficiency, suspended solids removal efficiency (with and w/out biopolymer and polymer flocculants), turbidity reduction (with and w/out biopolymer and polymer flocculants), nitrate-N removal efficiency, total P removal efficiency, soluble reactive P removal efficiency (with and w/out Nutrient Agent), petroleum hydrocarbon (motor oil) removal efficiency, and heavy metals (Cu, Fe, Mn, Zn) removal efficiency. For a summary of performance testing, research results, and design specifications see Table 1.1 and Table 1.2. For copies of full reports visit [www.filtrex.com](http://www.filtrex.com).

Successful bidders will furnish adequate research support showing their manufactured product meets or exceeds performance and design criteria outlined in this standard specification. Research or performance testing will be accepted if it meets the following criteria: conducted by a neutral third party, utilizes standard test methods reported by ASTM or referenced in a peer reviewed scientific journal,

product and control treatments are tested in triplicate, performance results are reported for product and control (control should be a bare soil under the same set of environmental and experimental conditions), results are peer reviewed, results indicate a minimum 60% TSS removal efficiency and a minimum hydraulic flow through rate of 5 gpm/ft<sup>2</sup>. Bidders shall attach a copy of the research report indicating test methodologies utilized and results.

*Note: the Contractor is responsible for establishing a working erosion and sediment control system and may, with approval of the Engineer, work outside the minimum construction requirements as needed. Where the perimeter control deteriorates or fails, it shall be repaired or replaced with an effective alternative.*

**DESIGN CRITERIA**

The sediment and pollutant removal process characteristic to perimeter control combines both filtering and deposition from settling solids. This is different than methods that rely on ponding for deposition of solids for perimeter control (i.e., silt fence). Ponding occurs when water flowing to the perimeter control accumulates faster than the hydraulic flow through rate of the perimeter control. Typically, hydraulic flow-through rates for perimeter control are 50% greater than geotextile filter fabric (silt fence). *Greater hydraulic flow-through rates reduce ponding, therefore reducing the need for taller sediment control structural design height.* Additionally, perimeter control does not blind as easily with small soil/sediment colloids, such as clay soils, as do planar geotextile sediment control barriers (such as silt fence). However, installation and maintenance is especially important for proper function and performance. For engineering design details see Figure 1.1. For a summary of specifications for product/practice use, performance and design see Table 1.1 and Table 1.2.



Filtering Water



For most standard perimeter control applications, a 12 in (300mm) diameter perimeter control can replace a 24 to 36 in (600 to 900mm) silt fence. See Table 1.3 and 1.4 and Figure 1.2 for standard design specifications for maximum allowable slope lengths. Note: In some low flow conditions, an 8 in (200mm) perimeter control may replace a 24 in (600mm) silt fence. Design consideration should be given to the duration of the project, total area of disturbance, rainfall/runoff potential, soil erosion potential, and sediment loading.

**Runoff Flow:**

Sheet runoff flow and ponding depth should

not exceed the height of the perimeter control. If overflow of the device is a possibility, larger diameter perimeter control should be constructed, other sediment control devices may be used, or management practices to reduce runoff should be installed. Alternatively, a second perimeter control may be constructed or used in combination with compost erosion control blankets or rolled erosion control blankets to slow runoff and reduce erosion. The Filtrexx Design Tool can assist in planning and designing what diameter perimeter control should be used, correct spacing requirements, and what rainfall and site conditions can lead to runoff breaching of the perimeter control. For instructions and a copy of

**Figure 1.3** Filtrexx® Sediment Control Design Tool for Sediment Control Applications.

Step 1: Choose units. ft or m

Step 2: Choose input: Tr or I

total rainfall

inches

ft

Tr

1.5

storm duration

hours: 24

Step 3: Choose input: A or W

width of area

ft

400.00

length of slope

ft: 250

43560

Step 4: Input slope

%

10

452.588

Step 5: Input reduction runoff percent

%

10

Step 6: Input effective length of filter

ft

400

sediment control (8,12,16)

silt fence (24, 30)

400

Step 7: Input diameter/height of filter

inches

12

36

Step 8: Find time to overflow filter and total flow/ft the filter can handle

Step 9: On figure find for given flow expected time to overflow filter

**Part A. Evaluation of  $q_i$**

I inches/hr	A acres	s percent	Q gpm	$L_{ss}$ ft	$q_i$ gpm/ft
0.063	2.2957	10	58.15	400	0.145

**Part B. Predicted time and total flow to top filter.**

	$q_o$ gpm/hr	D inches	Effective D inches	Time Overflow hr	Total Flow gal/f	Filter OKAY time > tr
Sediment control (Coarse Material)	0.145	12	9.6	99.1	865	OKAY
Silt Fence	0.145	36	30.6	97.5	851	OKAY



Use on Ecologically Sensitive Sites

the Filtrexx Design Tool, refer to the Filtrexx Design Manual, Section 5.4 and 5.4a.

#### Level Contour:

Perimeter control should be placed on level contours to assist in dissipating low concentrated flow into sheet flow and reducing runoff flow velocity. Do not construct perimeter control to concentrate runoff or channel water. Sheet flow of water should be perpendicular to the perimeter control at impact and relatively un-concentrated. Placing perimeter control on undisturbed soil will reduce the potential for undermining.

#### Runoff and Sediment Accumulation:

Where possible, perimeter control should be placed at a 5 ft (1.5m) or greater distance away from the toe of the slope to allow for proper runoff accumulation for sediment deposition and to allow for maximum sediment storage capacity behind the device. If a 5 ft (1.5m) distance is not available, due to construction restrictions, a second perimeter control may be installed to increase ponding and sediment accumulation capacity. Steeper slopes allow less sediment storage behind the perimeter control device and may require larger perimeter control or shorter slope lengths.

#### End Around Flow:

In order to prevent water flowing around the ends of perimeter control, the ends of the perimeter control must be constructed pointing upslope so the ends are at a higher elevation. A minimum of 10 linear ft (3m) per end each placed at a 30 degree angle is recommended.

#### Vegetated Perimeter Control:

For permanent areas perimeter control can be direct-seeded to allow vegetation established

directly in the device, and may be expanded to 5 ft (1.5m) upslope and downslope from the device, for added performance. Vegetation on and around the perimeter control will assist in slowing runoff velocity for increased deposition and filtration of pollutants. The option of adding vegetation will be at the discretion of the Engineer. No additional soil amendments or fertilizer are required for vegetation establishment in the perimeter control.

#### Slope Spacing & Drainage Area:

Maximum drainage area to, and slope spacing between perimeter control is dependent on: rainfall intensity and duration used for specific design/plan, slope steepness, and width of area draining to the perimeter control. Refer to the Filtrexx Design Tool developed by The Ohio State University to accurately design a plan based on your site and climate conditions. See *Design Capacity Prediction Tool for SiltSoxx™ and Silt Fence* and *Flow-Through Rates and Evaluation of Solids Separation of Compost FilterMedia™ vs. Silt Fence in Sediment Control Applications* (<http://www.filtrexx.com/research-library/>) for more information on the Design Tool or the research project and results used to create the tool. Figure 1.3 provides an example of the user interface for the Design Tool. A specification for maximum slope lengths, based on a 1 in (25 mm)/24 hr rainfall event is provided in Table 1.3 and Figure 1.2; and for a 2 in (50 mm)/24 hr rainfall event is provided in Table 1.4.

#### INSTALLATION

1. Perimeter control used for control of sediment and soluble pollutants in storm runoff shall meet Filtrexx Soxx Material Specifications and use Filtrexx Certified FilterMedia.
2. Contractor is required to be Filtrexx Certified or use pre-filled Filtrexx® SiltSoxx™ products manufactured by a Filtrexx Certified Manufacturer as determined by Filtrexx International (call Filtrexx at 877-542-7699 for a current list of installers). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application. Look for the Filtrexx Certified Seal.
3. Perimeter control will be placed at locations indicated on plans and in a manner as directed by the Engineer or Manufacturer.
4. Perimeter control should be installed parallel to the base of the slope or other disturbed area.



- In challenging conditions (i.e., 2:1 slopes), a second perimeter control shall be constructed at the top of the slope, or staking may be increased.
5. Effective Soxx height in the field should be as follows: 5" diameter Soxx = 4" high; 8" diameter Soxx = 6.5" high; 12" diameter Soxx = 9.5" high; 18" diameter Soxx = 14.5" high; 24" diameter Soxx = 19" high.
  6. Stakes should be installed through the middle of the perimeter control on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. In the event staking is not possible, i.e., when perimeter control is used on pavement, heavy concrete blocks shall be used behind the perimeter control to help stabilize during rainfall/runoff events.
  7. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
  8. Loose compost may be backfilled along the upslope side of the perimeter control, filling the seam between the soil surface and the device, improving filtration and sediment retention.
  9. If the perimeter control is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for establishment of permanent vegetation. The Engineer will specify seed requirements.
  10. Perimeter control is not to be used in perennial, ephemeral, or intermittent streams.

See design drawing schematic for correct installation (Figure 1.1).

### INSPECTION

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Perimeter control should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional perimeter control may be required to reduce effective slope length or sediment removal may be necessary. Perimeter control shall be inspected until area above has been permanently stabilized and construction activity has ceased.

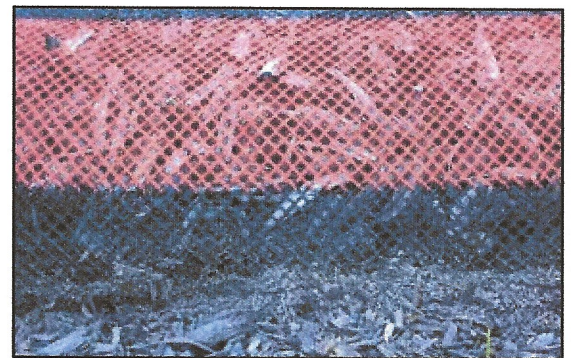
### MAINTENANCE

1. The Contractor shall maintain the perimeter control in a functional condition at all times and it shall be routinely inspected.
2. If the perimeter control has been damaged, it shall be repaired, or replaced if beyond repair.

3. The Contractor shall remove sediment at the base of the upslope side of the perimeter control when accumulation has reached 1/2 of the effective height of the Soxx, or as directed by the Engineer. Alternatively, a new perimeter control can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. Perimeter control shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
5. The FilterMedia will be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, perimeter control can be seeded at the time of installation to create a vegetative filtering system for prolonged and increased filtration of sediment and soluble pollutants (contained vegetative filter strip). The appropriate seed mix shall be determined by the Engineer.

### DISPOSAL/RECYCLING

FilterMedia is a composted organic product recycled and manufactured from locally generated organic, natural, and biologically based materials. Once all soil has been stabilized and construction activity has been completed, the FilterMedia may be dispersed with a loader, rake, bulldozer or similar device and may be incorporated into the soil as an amendment or left on the soil surface to aid in permanent seeding or landscaping. Leaving the FilterMedia on site reduces removal and disposal costs compared to other sediment control devices. The mesh netting material will be extracted from the FilterMedia and disposed of properly by the Contractor. The photodegradable



Close Up of Sediment Control



mesh netting material (Soxx) may degrade if left on site. Biodegradable mesh netting material is available and may eliminate the need and cost of removal and disposal.

#### METHOD OF MEASUREMENT

Bid items shall show measurement as 5 (125), 8 (200), 12 (300), 18 (450), 24 (600), 32 (800) inch (mm) diameter Filtrexx® Sediment/Perimeter Control or SiltSoxx™ per linear foot (or linear meter), installed.

Engineer shall notify Filtrexx of location, description, and details of project prior to the bidding process so that Filtrexx can provide design aid and technical support.

#### ADDITIONAL INFORMATION

For other references on this topic, including additional research reports and trade magazine and press coverage, visit the Filtrexx website at [www.filtrexx.com](http://www.filtrexx.com)

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Call for complete list of international installers.

BactoLoxx, DuraSoxx, EarthBloxx, EnviroBloxx, EnviroSoxx, Filtrexx, GardenSoxx, GreenLoxx, GroSoxx, Let Nature Do It, MetalLoxx, NutriLoxx, PetroLoxx, and Trinity are Registered Trademarks of Filtrexx International.

BioSoxx, CECB [Compost Erosion Control Blanket], CSWB [Compost StormWater Blanket], DitchChexx, EdgeSaver, FilterCell, FilterMedia, FilterSoxx, GrowingMedia, InletSoxx, LivingWall, Lockdown, NitroLoxx, PhosLoxx, SiltSoxx, Soft Blocks, and Soxx are Trademarks of Filtrexx International.

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**TABLES & FIGURES:**

**Table 1.1. Filtrexx® Soxx™ Material Specifications.**

Material Type	Cotton BioSoxx™	5 mil High Density Polyethylene (HDPE)	5 mil High Density Polyethylene (HDPE)	Multi-Filament Polypropylene (MFPP, previously HDPP)	Multi-Filament Polypropylene SafteySoxx™	Multi-Filament Polypropylene DuraSoxx®	Multi-Filament Polypropylene DuraSoxx® (Heavy Duty)
Material Characteristic	Biodegradable	Oxo-degradable	Photodegradable	Photodegradable	Photodegradable	Photodegradable	Photodegradable
Design Diameters	8 in (200mm), 12 in (300mm)	8 in (200mm), 12 in (300mm), 18 in (400mm)	5 in (125mm), 8 in (200mm), 12 in (300mm), 18 in (400mm)	8 in (200mm), 12 in (300mm), 18 in (400mm), 24 in (600mm), 32 in (800mm)	8 in (200mm), 12 in (300mm), 18 in (400mm)	8 in (200mm), 12 in (300mm), 18 in (400mm), 24 in (600mm), 32 in (800mm)	5 in (125mm), 8 in (200mm), 12 in (300mm), 18 in (400mm)
Mesh Opening	1/8 in (3mm)	3/8 in (10mm)	3/8 in (10mm)	3/8 in (10mm)	1/8 in (3mm)	1/8 in (3mm)	1/8 in (3mm)
Tensile Strength	ND	26 psi (1.83 kg/cm <sup>2</sup> )	26 psi (1.83 kg/cm <sup>2</sup> )	44 psi (3.09 kg/cm <sup>2</sup> )	202 psi (14.2 kg/cm <sup>2</sup> )*	202 psi (14.2 kg/cm <sup>2</sup> )	242 psi (16.99 kg/cm <sup>2</sup> )
% Original Strength from Ultraviolet Exposure (ASTM G-155)	ND	ND	23% at 1000 hr	100% at 1000 hr	100% at 1000 hr	100% at 1000 hr	100% at 1000 hr
Functional Longevity/ Project Duration***	up to 12 months**	6 mo-3.5 yr	9 mo-4 yr	1-4 yr	2-5 yr	2-5 yr	2-5 yr

\* Tested at Texas Transportation Institute/Texas A&M University (ASTM 5035-95).

\*\* Data based on Caltrans research and specifications

\*\*\* Functional longevity ranges are estimates only. Site specific environmental conditions may result in significantly shorter or longer time periods.

**Table 1.2. Filtrexx® Sediment Control Performance and Design Specifications Summary.**

Design Diameter	5 in (125mm)	8 in (200mm)	12 in (300mm)	18 in (450mm)	24 in (600mm)	32 in (800mm)	Testing Lab/ Reference	Publication(s)
Design & Performance								
Effective Height	4 in (100mm)	6.5 in (160mm)	9.5 in (240mm)	14.5 in (360mm)	19 in (480mm)	26 in (650mm)	The Ohio State University, Ohio Agricultural Research and Development Center	Transactions of the American Society of Agricultural & Biological Engineers, 2006
Effective Circumference	15 in (380mm)	25 in (630mm)	38 in (960mm)	57 in (1450mm)	75 in (1900mm)	100 in (2500mm)		
Density (when filled)	7.8 lbs (12 kg/m)	13 lbs/ft (20 kg/m)	32 lbs/ft (50 kg/m)	67 lbs/ft (100 kg/m)	133 lbs/ft (200 kg/m)	200 lbs/ft (300 kg/m)	Soil Control Lab, Inc	
Air Space	20%	20%	20%	20%	20%	20%	Soil Control Lab, Inc	
Maximum continuous length	unlimited	unlimited	unlimited	unlimited	unlimited	unlimited		
Staking Requirement	10 ft (3m)	10 ft (3m)	10 ft (3m)	10 ft (3m)	10 ft (3m)	10 ft (3m)		
Maintenance Requirement (sediment accumulation removal at X height)	2 in (50mm)	3.25 in (80mm)	4.75 in (120mm)	7.25 in (180mm)	9.5 in (240mm)	13 in (325mm)		

(continued on next page)





**Table 1.2. Filtrexx® Sediment Control Performance and Design Specifications Summary. (continued)**

Design Diameter	5 in (125mm)	8 in (200mm)	12 in (300mm)	18 in (450mm)	24 in (600mm)	32 in (800mm)	Testing Lab/ Reference	Publication(s)
Design & Performance								
Initial Maintenance Requirement based on Rainfall-Runoff*	13 in (33 cm); 665 L/linear m	22 in (55 cm); 1109 L/linear m	32 in (80 cm); 1388 L/linear m	42 in (105 cm); 1825 L/linear m	64 in (160 cm); 2776 L/linear m	86 in (215 cm); 3885 L/linear m	The University of Georgia & Auburn University	
Functional Longevity**	6 mo – 5 yr	6 mo – 5 yr	6 mo – 5 yr	6 mo – 5 yr	6 mo – 5 yr	6 mo – 5 yr		
Maximum Slope Length (<2%)	360 ft (110m)	600 ft (183m)	750 ft (229m)	1000 ft (305m)	1300 ft (396m)	1650 ft (500m)	The Ohio State University, Ohio Agricultural Research and Development Center	Filtrexx® Design Tool™, Filtrexx® Library #301, Filtrexx® Tech Link #3304 & #3311
Hydraulic Flow Through Rate	4.5 gpm/ft (56 L/min/m)	7.5 gpm/ft (94 L/min/m)	11.3 gpm/ft (141 L/min/m)	15.0 gpm/ft (188 L/min/m)	22.5 gpm/ft (281 L/min/m)	30.0 gpm/ft (374 L/min/m)	The Ohio State University, Ohio Agricultural Research and Development Center; University of Guelph, School of Engineering/Watershed Research Group	Filtrexx® Tech Link #3311 & #3313, #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings, 2006, Second Interagency Conference on Research in Watersheds, 2006
P Factor (RUSLE)	0.1-0.32	0.1-0.32	0.1-0.32	0.1-0.32	0.1-0.32	0.1-0.32	USDA ARS Environmental Quality Lab/ University of Georgia	American Society of Agricultural & Biological Engineers Meeting Proceedings, 2006
Sediment Storage Capacity***	104 cu. in (1710cc)	174 cu. in (2850cc)	396 cu. in (6490cc)	857 cu. in (14040cc)	1631 cu. in (26840cc)	2647 cu. in (43377 cc)		Filtrexx® Tech Link #3314
Total Solids Removal	98%	98%	98%	98%	98%	98%	Soil Control Lab, Inc	International Erosion Control Association, 2006
Total Suspended Solids Removal	78%	78%	78%	78%	78%	78%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings, 2006

(continued on next page)



**Table 1.2.** Filtrexx® Sediment Control Performance and Design Specifications Summary. (continued)

Design Diameter	5 in (125mm)	8 in (200mm)	12 in (300mm)	18 in (450mm)	24 in (600mm)	32 in (800mm)	Testing Lab/ Reference	Publication(s)
Design & Performance								
Turbidity Reduction	63%	63%	63%	63%	63%	63%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Clay (<0.002mm) Removal	65%	65%	65%	65%	65%	65%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Silt (0.002-0.05mm) Removal	64%	64%	64%	64%	64%	64%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
TSS Removal w/PAM	97%	97%	97%	97%	97%	97%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
TSS Removal w/ Flocculent	97%	97%	97%	97%	97%	97%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Turbidity Reduction w/PAM	98%	98%	98%	98%	98%	98%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006
Turbidity Reduction w/ Flocculent	94%	94%	94%	94%	94%	94%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings , 2006

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**Table 1.2.** Filtrex® Sediment Control Performance and Design Specifications Summary. (continued)

Design Diameter	5 in (125mm)	8 in (200mm)	12 in (300mm)	18 in (450mm)	24 in (600mm)	32 in (800mm)	Testing Lab/ Reference	Publication(s)
Design & Performance								
Total Phosphorus Removal	34%	34%	34%	34%	34%	34%	USDA ARS Environmental Quality Lab	Filtrex® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings, 2006
Reactive Phosphorus Removal	38%	38%	38%	38%	38%	38%	USDA ARS Environmental Quality Lab	American Society of Agricultural & Biological Engineers Meeting Proceedings, 2006
Total Phosphorus Removal w/ Nutrient Agent	60%	60%	60%	60%	60%	60%	USDA ARS Environmental Quality Lab	American Society of Agricultural & Biological Engineers Meeting Proceedings, 2006
Reactive Phosphorus Removal w/ Nutrient Agent	99%	99%	99%	99%	99%	99%	USDA ARS Environmental Quality Lab	Filtrex® Tech Link #3308; American Society of Agricultural & Biological Engineers Meeting Proceedings, 2006
Nitrate-N Removal	25%	25%	25%	25%	25%	25%	USDA ARS Environmental Quality Lab	American Society of Agricultural & Biological Engineers Meeting Proceedings, 2006
Ammonium-N Removal	15%	15%	15%	15%	15%	15%	USDA ARS Environmental Quality Lab	Filtrex® Tech Link
Ammonium-N Removal w/ Nutrient Agent	33%	33%	33%	33%	33%	33%	USDA ARS Environmental Quality Lab	Filtrex® Tech Link
Motor Oil Removal w/ Hydrocarbon Agent	99%	99%	99%	99%	99%	99%	USDA ARS Environmental Quality Lab	International Erosion Control Association, 2006
Diesel Fuel Removal w/ Hydrocarbon Agent	99%	99%	99%	99%	99%	99%	USDA ARS Environmental Quality Lab	Filtrex® Tech Link
Gasoline Removal w/ Hydrocarbon Agent	54%	54%	54%	54%	54%	54%	USDA ARS Environmental Quality Lab	Filtrex® Tech Link

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**Table 1.2.** Filtrexx® Sediment Control Performance and Design Specifications Summary. (continued)

Design Diameter	5 in (125mm)	8 in (200mm)	12 in (300mm)	18 in (450mm)	24 in (600mm)	32 in (800mm)	Testing Lab/ Reference	Publication(s)
Design & Performance								
Cadmium (Cd) Removal w/ Heavy Metal Agent	73%	73%	73%	73%	73%	73%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Chromium (Cr) Removal w/ Heavy Metal Agent	47%	47%	47%	47%	47%	47%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Copper (Cu) Removal w/ Heavy Metal Agent	70%	70%	70%	70%	70%	70%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Nickel (Ni) Removal w/ Heavy Metal Agent	69%	69%	69%	69%	69%	69%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Lead (Pb) Removal w/ Heavy Metal Agent	73%	73%	73%	73%	73%	73%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Zinc (Zn) Removal w/ Heavy Metal Agent	53%	53%	53%	53%	53%	53%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Iron (Fe) Removal	22%	22%	22%	22%	22%	22%	Soil Control Lab, Inc	
Manganese (Mn) Removal	8%	8%	8%	8%	8%	8%	Soil Control Lab, Inc	
Total coliform Removal	67%	67%	67%	67%	67%	67%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
E. coli Removal	67%	67%	67%	67%	67%	67%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Enterococcus Removal	47%	47%	47%	47%	47%	47%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
E. coli Removal w/ Bacteria Agent	98%	98%	98%	98%	98%	98%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Fecal coliform Removal w/ Bacteria Agent	98%	98%	98%	98%	98%	98%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Enterococcus Removal w/ Bacteria Agent	91%	91%	91%	91%	91%	91%	USDA ARS Environmental Quality Lab	Filtrexx® Tech Link
Other Recommended Uses	Slope Interruption	Inlet Protection, Ditch Protection, Slope Interruption	Inlet protection, Ditch Protection, Concrete Washout, Filtration System, Slope Interruption	Ditch Protection, Concrete Washout, Filtration System	Ditch Protection, Concrete Washout, Filtration System	Ditch Protection, Concrete Washout, Filtration System		

\* Based on rainfall intensity of 12.5 cm (5 in)/hr applied to a bare clay loam soil at a 10% slope; runoff flow rate of 108 ml/sec/linear m (0.52 gpm/linear ft); and mean runoff volume of 230 L/m<sup>2</sup> (6.3 g/ft<sup>2</sup>).

\*\* Functional Longevity is dependent on mesh material type, UV exposure, freeze/thaw frequency, region of US/Canada, runoff-sediment frequency/duration/loading, and adherence to specified maintenance requirement. Functional longevity ranges are estimates only. Site specific environmental conditions may result in significantly shorter or longer time periods.

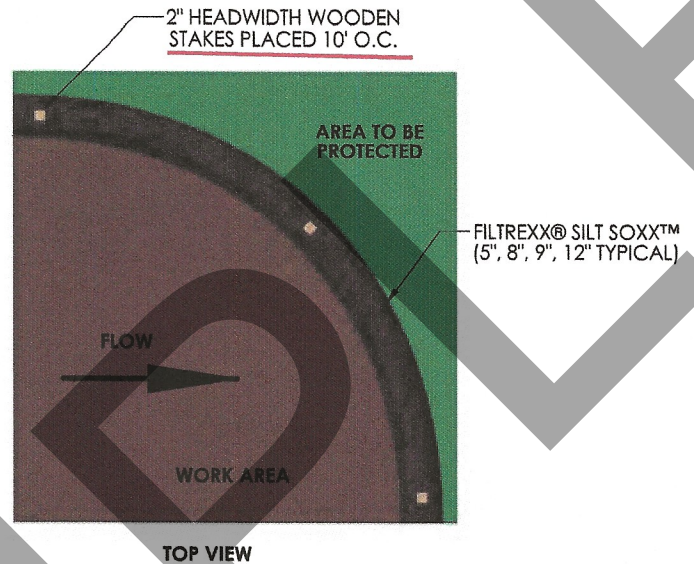
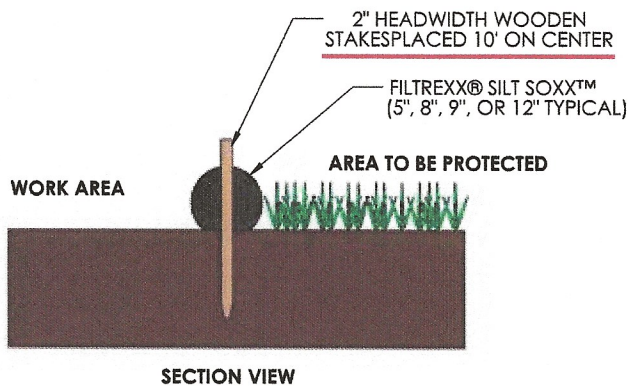
\*\*\* Sediment Storage Capacity = sediment accumulation behind (directly upslope) + within the device.



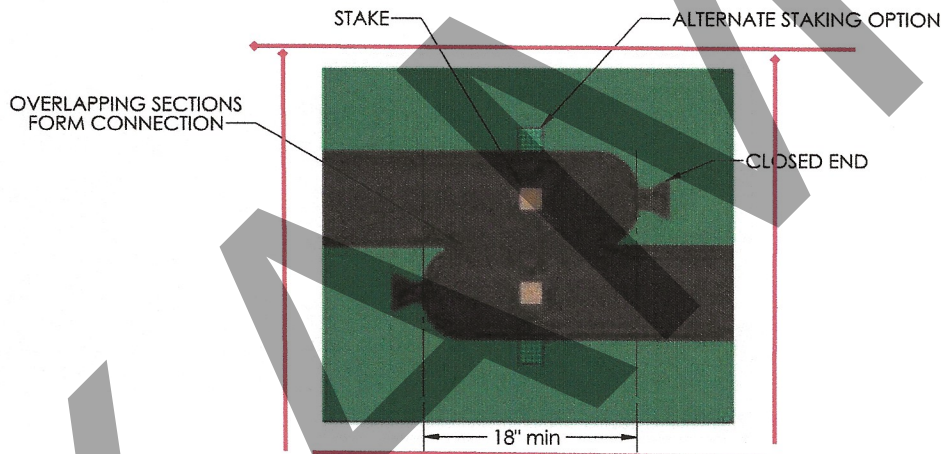


**Figure 1.1. Engineering Design Drawing for Perimeter Control**

## FILTREXX® SILT SOXX™



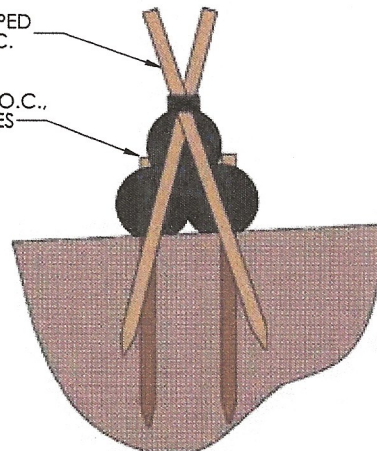
## COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



## FILTREXX® PYRAMID STAKING DETAIL

(2) 2"x2"x48+" HARDWOOD STAKES, WRAPPED TOGETHER WITH 16 GAUGE WIRE, 10' O.C.

2"x2"x36" HARDWOOD STAKE, 10' O.C., STARTING 5' FROM ANGLED STAKES



**NOTES:**

1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.



Figure 1.2. Maximum Slope Lengths of Filtrexx® Perimeter Control Based on a 1 in (25 mm)/24 hr Rainfall Event.

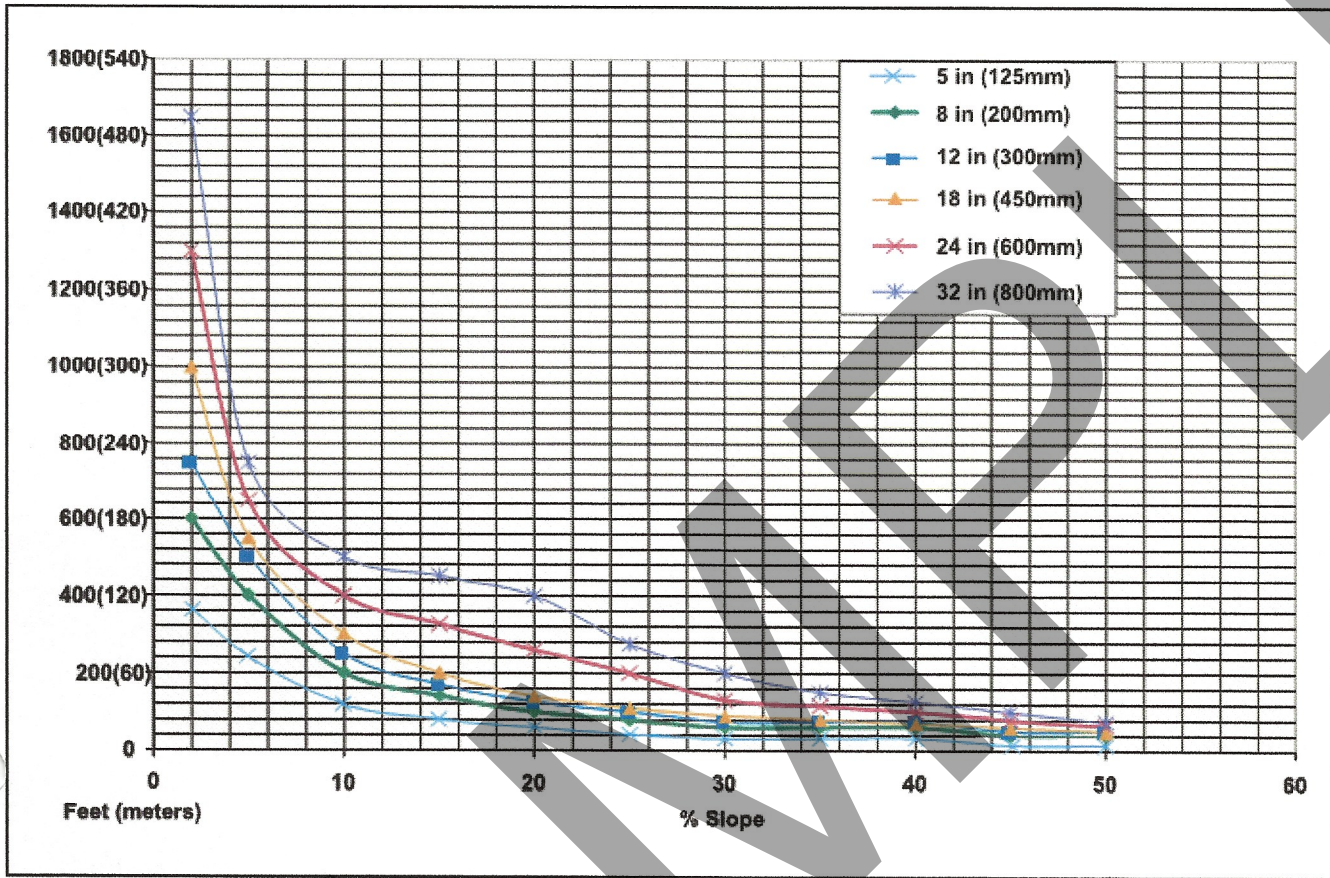


Table 1.3. Maximum Slope Lengths for Filtrexx® Perimeter Control Based on a 1 in (25 mm)/24 hr Rainfall Event.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*					
	5 in (125 mm) Sediment control	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	4 in (100 mm)**	6.5 in (160 mm)**	9.5 in (240 mm)**	14.5 in (360 mm)**	19 in (480 mm)**	26 in (650 mm)**
2 (or less)	360 (110)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	240 (73)	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	120 (37)	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	85 (26)	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	60 (18)	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	48 (15)	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	36 (11)	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	36 (11)	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	36 (11)	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	24 (7)	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	24 (7)	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

\* Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (303 m) of slope, watershed width equivalent to receiving length of sediment control device, 1 in/ 24 hr (25 mm/24 hr) rain event.

\*\* Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.





**Table 1.4.** Maximum Slope Lengths for Filtrex® Perimeter Control Based on a 2 in (50 mm)/24 hr Rainfall Event.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*					
	5 in (125 mm) Sediment control	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	4 in (100 mm)**	6.5 in (160 mm) **	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
2 (or less)	180 (55)	300 (90)	375 (110)	500 (150)	650 (200)	850 (260)
5	120 (37)	200 (60)	250 (75)	275 (85)	325 (100)	400 (120)
10	60 (18)	100 (30)	125 (35)	150 (45)	200 (60)	275 (85)
15	42 (13)	70 (20)	85 (25)	100 (30)	160 (50)	225 (70)
20	30 (9)	50 (15)	65 (20)	70 (20)	130 (40)	180 (55)
25	24 (7)	40 (12)	50 (15)	55 (16)	100 (30)	150 (45)
30	18 (6)	30 (9)	40 (12)	45 (13)	65 (20)	100 (30)
35	18 (6)	30 (9)	40 (12)	45 (13)	55 (18)	75 (23)
40	18 (6)	30 (9)	40 (12)	45 (13)	50 (15)	60 (38)
45	12 (4)	20 (6)	25 (8)	30 (9)	40 (12)	50 (15)
50	12 (4)	20 (6)	25 (8)	30 (9)	35 (10)	40 (12)

\* Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (303 m) of slope, watershed width equivalent to receiving length of sediment control device, 2 in/ 24 hr (50 mm/24 hr) rain event.

\*\* Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.



[Redacted]  
-----  
From: [Redacted]  
Sent: [Redacted]  
To: [Redacted]  
Cc: [Redacted]  
Subject: [Redacted]

[Redacted]  
See email below.

[Redacted]  
----- Forwarded message -----  
From: [Redacted]  
Date: [Redacted]  
Subject: [Redacted]  
To: [Redacted]

[Redacted]  
I approve the use of the filtrex compost erosion logs and their not being embedded. Please have [Redacted] include the manufacturer design manual sheets with the [Redacted] non standard BMP description sheet in the SWMP. When the Type 2 compost-wood blended erosion logs are no longer needed, the compost material may be dispersed onsite, but all elements of the geotextile bag and stakes must be picked up and disposed of at a landfill or recycling plant.

[Redacted]  
On [Redacted] wrote:  
Here is the [Redacted]'s manufacturer recommendation

[Redacted]  
----- Forwarded message -----  
From: [Redacted]  
Date: [Redacted]  
Subject: [Redacted]  
To: [Redacted]  
Cc: [Redacted]

[Redacted]

From:  
Sent:  
To:  
Cc:  
Subject:

[Redacted]  
[Redacted]  
[Redacted]  
[Redacted]

[Redacted]

I agree to the pricing submitted.

[Redacted]

On [Redacted] [Redacted] wrote:

[Redacted]

[Redacted] is scheduled to come in at [Redacted] to spray the exposed soil on the [Redacted]  
[Redacted] We will have to [Redacted] in order for them to  
get their equipment in and spray the slope. It should be a short duration activity, and as soon as they are done  
[Redacted]

[Redacted]

Thank You,

[Redacted]  
[Redacted]  
[Redacted]  
[Redacted]  
[Redacted]

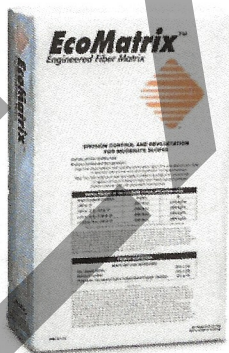
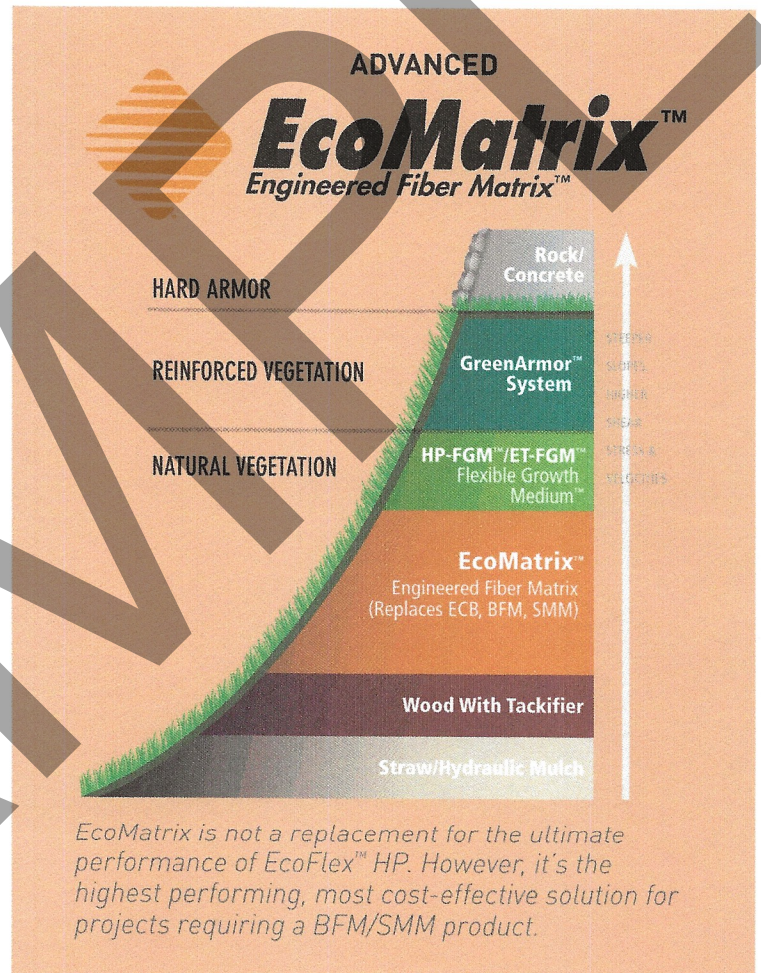


# World Class Performance AT A COMPETITIVE PRICE

Now with patented Engineered Fiber Matrix™ (EFM™) technology, EcoMatrix™ delivers superior erosion control and vegetative establishment you've come to expect from EcoSolutions. It's available at a competitive price to give you an edge when bidding on jobs requiring Bonded Fiber Matrix (BFM)/ Stabilized Mulch Matrix (SMM) hydraulic mulch products. New EcoMatrix EFM will change your world.

## EcoMatrix Engineered Fiber Matrix Technology Delivers:

- **HIGHEST-LOADING FORMULATION** with BFM performance
- **MEETS OR EXCEEDS** all industry standards for BFM/SMM products
- **FUNCTIONAL LONGEVITY** for up to 12 months
- **QUICK GERMINATION** and rapid vegetative establishment
- **ENVIRONMENTALLY SAFE**



Product Mixing Rate Number of Bales for Machine Size				
		800 gal (3028 L)	1500 gal (5677 L)	3000 gal (11,355 L)
<b>EcoMatrix EFM</b>	60 lb/100 gal (27.2 kg/379 L)	10	18	36
<b>Atmospheric Wood BFM</b>	50 lb/100 gal (22.7 kg/379 L)	8	15	30
<b>Straw/Cotton by-product</b>	50 lb/100 gal (22.7 kg/379 L)	8	15	30



## **6 Weekly Meeting Sign In Sheet**

### **6.1 Attend Weekly Meeting in Accordance to 208.03 (c) 1. (3)**



---

# Weekly Meeting Agenda

---

Location:

Date:

Time:

Attendees & Sign In:

<i>Title/ Company</i>	<b>Name</b>	<b>Signature</b>
<i>CDOT Engineer or Designee</i>		
<i>General Contractor Site Superintendent</i>		
<i>General Contractor SWMP Administrator</i>		
_____		
_____		
_____		
_____		
_____		
_____		
_____		
_____		

---

\*\*\* All subcontractors not in attendance at the Environment Pre-construction Conference shall be briefed on the project by the SWMP Administrator prior to start of work. The SWMP Administrator shall record the names of these subcontractors as an addendum to the list of attendees, and add it to the SWMP. \*\*\*



## Agenda Details:

- I. Recalcitrant, Chronic and Severe Inspection Findings
  - a. Discussion Items:
  
  - b. NOTES:
  
- II. Unresolved Issues from previous Inspections
  - a. Discussion Items:
  
  - b. NOTES:
  
- III. Requirements of the SWMP
  - a. Discussion Items:
  
  - b. NOTES:
  
- IV. Problems that may have arisen in implementing the site specific SWMP or maintaining control measures
  - a. Discussion Items:
  
  - b. NOTES:

\*\*\* All subcontractors not in attendance at the Environment Pre-construction Conference shall be briefed on the project by the SWMP Administrator prior to start of work. The SWMP Administrator shall record the names of these subcontractors as an addendum to the list of attendees, and add it to the SWMP. \*\*\*

V. Control measures that are to be installed, removed, modified or maintained, and associated SWMP Activities

a. Discussion Items:

b. NOTES:

VI. Planned activities that will affect stormwater in order to proactively phase control measures

a. Discussion Items:

b. NOTES:

VII. Additional Items For Discussion

a. \_\_\_\_\_

i. NOTES:

b. \_\_\_\_\_

i. NOTES:

c. \_\_\_\_\_

i. NOTES:

## 7 Calendar of Inspections



## **Inspection Calendar Instruction**

*Per 208.03.(d).(8) Calendar for marking when all inspections except the daily inspections take place.*

### **Instructions:**

- Use the calendar to track 7 day inspections (1176), Monthly Audit Reports (MAR), RECATs and runoff event inspections.
- Design a legend to delineate the 4 different inspections noted.
  - a. 7 day inspections (1176)
  - b. Runoff Events
  - c. Monthly Audit Reports (MAR)
  - d. Regional Environmental Construction Assessment Team (RECAT)
- When an inspection is conducted, fill out the calendar showing dates and type of inspection per legend noted above.
- Daily inspections (1388) do not need to be shown on calendar.

# August 2020

Sunday	Monday	Tuesday	Wednes	Thursda	Friday	Saturda
26	27	28	29	30	31	1
2	3	4 WEEKLY	5	6	7	8
9	10	11 WEEKLY	12 STORM	13	14 MAR	15
16	17	18 WEEKLY	19	20	21	22
23	24	25 WEEKLY	26	27 STORM	28	29
30	31	1	2	3	4	5

KEY: Routine Inspection - WEEKLY  
 Post Storm Inspection - STORM  
 Monthly Audit - MAR

# 2020

## January

S	M	T	W	T	F	S
			<u>1</u>	2	3	4
5	6	7	<u>8</u>	9	10	11
12	13	14	<u>15</u>	16	<u>17</u>	18
19	20	21	<u>22</u>	23	<u>24</u>	25
26	27	28	<u>29</u>	30	31	

## February

S	M	T	W	T	F	S
						1
2	3	4	<u>5</u>	6	7	8
9	10	11	<u>12</u>	13	<u>14</u>	15
16	<u>17</u>	18	<u>19</u>	20	21	22
23	24	25	<u>26</u>	27	28	29

## March

S	M	T	W	T	F	S
1	2	3	<u>4</u>	5	6	7
8	9	10	<u>11</u>	12	13	14
15	16	17	<u>18</u>	19	<u>20</u>	21
22	23	24	<u>25</u>	26	27	28
29	<u>30</u>	31				

## April

S	M	T	W	T	F	S
				1	<u>2</u>	3
4	5	6	7	8	<u>9</u>	10
11	12	13	<u>14</u>	15	16	<u>17</u>
18	19	20	<u>21</u>	22	<u>23</u>	24
25	26	27	<u>28</u>	29	30	

## May

S	M	T	W	T	F	S
					<u>1</u>	2
3	4	<u>5</u>	6	7	8	9
10	11	<u>12</u>	13	14	<u>15</u>	16
17	18	<u>19</u>	20	<u>21</u>	22	23
24	25	<u>26</u>	27	28	<u>29</u>	30
31						

## June

S	M	T	W	T	F	S
	1	<u>2</u>	3	4	5	6
7	8	<u>9</u>	10	11	12	13
14	15	<u>16</u>	17	18	<u>19</u>	20
21	22	<u>23</u>	24	25	26	27
28	29	<u>30</u>				

## July

S	M	T	W	T	F	S
				1	2	3
4	5	6	<u>7</u>	8	9	10
11	12	13	<u>14</u>	15	16	<u>17</u>
18	19	20	<u>21</u>	22	<u>23</u>	24
25	26	27	<u>28</u>	29	30	31

## August

S	M	T	W	T	F	S
						1
2	3	<u>4</u>	5	6	7	8
9	10	<u>11</u>	<u>12</u>	13	<u>14</u>	15
16	17	<u>18</u>	19	20	21	22
23	24	<u>25</u>	26	<u>27</u>	28	29
30	31					

## September

S	M	T	W	T	F	S
		<u>1</u>	2	3	4	5
6	7	<u>8</u>	9	10	11	12
13	14	<u>15</u>	16	17	<u>18</u>	19
20	21	<u>22</u>	23	24	25	26
27	28	<u>29</u>	30			

## October

S	M	T	W	T	F	S
				1	2	3
4	5	<u>6</u>	7	8	9	10
11	12	<u>13</u>	14	15	<u>16</u>	17
18	19	<u>20</u>	21	22	23	24
25	26	<u>27</u>	28	29	30	31

## November

S	M	T	W	T	F	S
1	2	<u>3</u>	4	5	6	7
8	9	<u>10</u>	11	12	13	14
15	16	<u>17</u>	18	19	<u>20</u>	21
22	23	<u>24</u>	25	26	27	28
29	30					

## December

S	M	T	W	T	F	S
		<u>1</u>	2	3	4	5
6	7	<u>8</u>	9	10	11	12
13	14	<u>15</u>	16	17	<u>18</u>	19
20	21	<u>22</u>	23	24	25	26
27	28	<u>29</u>	30	31		

Key:

Routine Inspections – #

Post Storm Inspections – #

Monthly Audit Report – #



# July 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 MAR INITIAL SITE VISIT	3	4	5	6
7	8	9 7-DAY	10	11	12	13
14	15	16 7-DAY	17	18	19	20
21	22 POST STORM	23	24	25	26	27
28	29 7-DAY	30	31			

# August 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5 7-DAY	6 MAR	7	8	9 POST STORM	10
11	12	13	14	15	16 7-DAY	17
18	19	20	21	22 7-DAY -MOVED TO WORKING DAY	23	24
25	26	27	28	29 7-DAY	30	31

# September 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 MAR	4	5	6	7
8	9	10 7-DAY	11	12	13	14
15	16	17 7-DAY	18	19	20	21
22	23	24 7-DAY	25	26	27	28
29	30					



# October 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 7 Day	2 <del>MAR</del>	3 MAR	4	5
6	7	8 7 Day	9	10	11	12
13	14	15 7 Day	16	17	18	19
20	21	22 7 Day	23	24	25	26
27	28	29 7 Day	30 Post Stom	31		

# November 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 MAR	5 7 Day	6	7	8	9
10	11	12 7-DAY	13	14	15	16
17	18	19 7-DAY	20	21	22	23 POST STORM
24	25	26 7-DAY	27	28	29	30

# December 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 7-DAY	4	5	6	7
8	9	10 MAR	11	12	13	14
15	16	17 7-DAY/ POST STORM	18	19	20	21
22	23	24 7-DAY	25	26	27	28
29	30	31 7-DAY				



**8 Form 1176 - Inspection Reports and Weekly Meeting Notes in Accordance to 208.03 (c) 2. (3) and 208.03 (e)**

# COLORADO DEPARTMENT OF TRANSPORTATION STORMWATER FIELD INSPECTION REPORT - ACTIVE CONSTRUCTION

(1) Project Name:	(2) Project Contractor:	(3) SWMP Administrator (Qualified Stormwater Manager) / Erosion Control Inspector:	
(4) CDOT Project Engineer/CDOT Designee:	(5) Other Attendee(s) (Name and Title):		
(6) CDOT Project Number:	(7) Project Code (Sub Account #):	(8) CDPS-SCP Certification#:	(9) CDOT Region:
(10) Date of Project Inspection:	(11) Weather at Time of Inspection:		

## (12) REASON FOR INSPECTION / EXCLUSION

- Routine Inspection: (A routine erosion control inspection shall be conducted at a minimum, once every 7 Calendar Days)
- Runoff Event: (Post-storm event inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. 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 every 7 calendar days.  
 Storm Start Date: \_\_\_\_\_ Approximate End Time of Storm (hrs): \_\_\_\_\_
- Third Party Request: 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 7-day inspections, as well as the post-storm-event inspections. If **visual inspection** of the site verifies that all of these conditions are satisfied, document the conditions in section 17 (General Notes) and proceed to section 18 (Inspection Certification). Documentation must include: dates when snow cover existed, date when construction activities ceased, and date when melting conditions began.
- Other: \_\_\_\_\_

## (13) SWMP MANAGEMENT

	Yes	No	N/A	(g) Reason for N/A
(a) Is the SWMP located on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(b) Are changes to the SWMP documents noted and approved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(c) Are the inspection reports retained in the SWMP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(d) Are corrective actions from the last inspection completed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(e) Is the Spill Response Plan updated in the SWMP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(f) Is a list of potential pollutants updated in the SWMP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## (14) CURRENT CONSTRUCTION ACTIVITIES

(a) Describe current phase of construction activities

---

(b) Estimate of disturbed area at the time of the inspection, use guidance found in 208.04 (e):

	Acres	Notes
Temporary Stabilization (includes areas of vertically tracked and/or surface roughened temporary stabilizing surface treatments) +		
Interim Stabilization (spray on soil tackifier such as organic mulch tackifier, bonded fiber matrix, wood cellulose fiber with tackifier, etc.) +		
Permanent Stabilization (includes areas of permanent seeding that have not achieved 70% of pre-disturbance vegetation levels) +		
Other (Includes ground disturbing, clearing and grubbing, materials storage, equipment staging, haul roads) +		
Total acres of disturbance (includes cumulative total number of acres including: temporary, interim, permanent stabilized and other) =		

(c) Has the SWMP Phased Control Measure Implementation Matrix been updated?       Yes       No

**(15) CONSTRUCTION SITE ASSESSMENT & CORRECTIVE ACTIONS    *\*\*Off-site Pollutant Discharges are a Violation of the Permit and Reason for Immediate Project Suspension\*\****

The Construction Site Boundary/Limits of Construction (LOC), all disturbed areas, designated haul roads, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles exit the site shall be inspected for evidence of, or the **potential** for, pollutants leaving the LOC, entering the stormwater drainage system, or discharging to State waters. If there is evidence of sediment or other pollutants discharging from the site, see section 16 (Construction Site Assessment).

All erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are maintained and operating correctly. Identify the condition of the control measure, using more than one letter if necessary: **(I) Inadequate** control measure; **(M) Maintenance** is needed; **(A) Additional** control measure is needed; **(R) Remove** control measure. Keep copies of this blank page for additional room if needed.

Continuous maintenance is required on all control measures. As per CDPS-SCP: **“Control measures that are not operating effectively, have proven to be inadequate, or have failed must be addressed as soon as possible, immediately in most cases.”**

Location	Control Measure	Condition	Comments:	Date Completed & Initials
			Description of Corrective Action and Preventative Measure Taken	



**(16) CONSTRUCTION SITE ASSESSMENT    \*\*Off-site Pollutant Discharges are a Violation of the Permit and Reason for Immediate Project Suspension\*\***

(a) Is there evidence of discharge of sediment or other pollutants from the site?     Yes    No

\*If yes, explain the discharge, the location and the associated corrective actions in section 15 (Construction Site Assessment & Corrective Actions) or section 18 (General Notes).

(b) Has sediment or other pollutants discharging from the site reached State waters?    Yes    No

\*If yes, see subsection 208.03(c) and Part I.L.6 of the permit for reporting requirements.

**(17) GENERAL NOTES**

**(18) INSPECTION CERTIFICATION**

By signing this form, I certify that I attended the inspection in accordance with specification 208.03.

Contractor's SWMP Administrator (Qualified Stormwater Manager)

Print Name:

Signature Required:

Date:

Contractor's Erosion Control Inspector (If Needed):

Print Name:

Signature (if needed)

Date:

**(19) COMPLIANCE CERTIFICATION**

I verify to the best of my knowledge and belief, all corrective actions and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit (Part I.A.3.f).

Contractor's SWMP Administrator/ECI

Print Name:

Signature Required:

Date:

Contractor's Superintendent/Approved Designee

Print Name:

Signature Required:

Date:

CDOT Project Engineer/CDOT Designee

Print Name:

Signature Required:

Date:

## Stormwater Management Field Inspection Report Instructions

**State waters** are defined to be any and all surface and subsurface waters which are contained in or flow through the state, including, streams, rivers, lakes, drainage ditches, storm drains, ground water, and wetlands, but not including 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. (Per subsection 107.25 and 25-8-103 (19) CRS)

- (3) SWMP Administrator (Qualified Stormwater Manager) and Erosion Control Inspector:** Indicate the name(s) of the individual responsible for implementing, maintaining and revising the SWMP. An Erosion Control Inspector(s) may be the SWMP Administrator in projects with not more than 40 acres of disturbance (see 208.03(c)).
- (4) CDOT Project Engineer/CDOT Designee:** Indicate the name of the CDOT representative performing the inspection with the SWMP Administrator/Erosion Control Inspector(s). This person should be the Project Engineer or an authorized representative.
- (9) CDPS-SCP Certification #:** Indicate the Colorado Discharge Permit System (CDPS) Stormwater Construction Permit (SCP) (for Stormwater Discharges Associated with Construction Activities) certification number, issued by CDPHE, for the project which the report is being completed. Certification number can be found on the first page of the SCP.
- (12) Reason(s) for Inspection / Exclusion:** Indicate the purpose for the inspection or exclusion. These inspections are required to comply with the CDOT Specifications and the CDPS-SCP.
- Routine Inspections. These inspections are required at least every 7 calendar days during active construction. Suspended projects require the 7 calendar day inspection unless snow cover exists over the entire site for an extended period of time, and melting conditions do not exist (see, Winter Conditions Inspections Exclusions).  Runoff Event Inspection for Active Sites. See page 1 for definition.
  - Third Party Request. Indicate the name of the third party requesting the inspection and, if known, the reason the request was made.
  - Winter Conditions Inspections Exclusions. See page 1 for definition. An inspection does not need to be completed, but use this form to document the conditions that meet the Exclusion.  Other. Specify any other reason(s) that resulted in the inspection.
- (13) SWMP Management:** Review the SWMP records and documents and use a ✓ to answer the question. To comply with CDOT Standard Specifications and the CDPS-SCP, all of the items identified must be adhered to. If No is checked, indicate the necessary corrective action in section 15 (Construction Site Assessment & Corrective Actions). Specification 208.03(d).
- a) A copy of the SWMP must be retained on site, unless another location (specified by the permit) is approved by the Division.
  - b) Indicate all changes that have been made to any portion of the SWMP documents during construction. Changes shall be dated and signed at the time of occurrence. Amendments may include items listed in subsection 208.03(d).
  - c) The SWMP Administrator shall keep a record of inspections. Inspection reports must identify any incidents of noncompliance with the terms and conditions of the CDOT specifications or the CDPS-SCP. Inspection records must be retained for three years from expiration or inactivation of permit coverage.
  - d) Are corrective actions from the last inspection completed? Is a description of the corrective action(s), the date(s) of the corrective action(s), and the measure(s) taken to prevent future violations (including changes to the SWMP, as necessary) documented?
  - e) Subsection 208.06(c) requires that a Spill Response Plan be developed and implemented to establish operating procedures and that the necessary employee training be provided to minimize accidental releases of pollutants that can contaminate stormwater runoff. Records of spills, leaks or overflows that result in the discharge of pollutants must be documented and maintained. Information that should be recorded for all occurrences include the time and date, weather conditions, reasons for spill, etc. Some spills may need to be reported to the Water Quality Control Division immediately.
  - f) (f) Subsection 107.25(b)6 requires the Erosion Control Supervisor to identify and describe all potential pollutant sources, including materials and activities, and evaluate them for the potential to contribute pollutants to stormwater discharge.
  - g) (g) If N/A is checked for any of the items (a) through (f), indicate why in the space provided, if additional space is needed indicate in section 17 (General Notes).

## Stormwater Management Field Inspection Report Instructions (continued)

### (14) Current Construction Activities:

- a) Provide a short description of the current construction activities/phase at the project site; include summary of grading activities, installation of utilities, paving, excavation, landscaping, etc.
- (1) Estimate of disturbed area at the time of the inspection, use guidance found in 208.04 (e). Estimate the acres of disturbed area at the time of the inspection. Include clearing, grading, excavation activities, areas receiving overburden (e.g. stockpiles), demolition areas and areas with heavy equipment/vehicle traffic, installation of new or improved haul roads and access roads, staging areas, borrow areas and storage that will disturb existing vegetative cover, (Areas that have been: hard armored or paved should not be counted for total disturbance).
- b) Has the Phased control measure Implementation Matrix on the SWMP been updated? As part of the inspection the Phased control measure Implementation matrix for both the structural and non-structural control measures found at the beginning of the SWMP sheets must be reviewed to ensure that "In use on site" box is checked for control measures currently in use at the time of the inspection.

**(15) Construction Site Assessment & Corrective Actions:** Inspect the construction site and indicate where control measure feature(s) identified in section 13 (SWMP Management), require corrective action. Erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are operating correctly.

- Condition. Identify the condition of the control measure, using more than one letter (identified in section 15) if necessary.
- Location. Site location (e.g., project station number, mile marker, intersection quadrant, etc.).
- Control measure. Indicate the type of control measure at this location that requires corrective action (e.g., silt fence, erosion logs, soil retention blankets, etc.).
- Date Completed & Initials. Date and initial when the corrective action was completed and the preventative measure statement finished.
- Description of Corrective Action and Preventative Measure Taken. Provide the proposed corrective action needed to bring the area or control measure into compliance. Once corrective actions are completed, state the measures taken to prevent future violations and ensure that the control measures are operating correctly, including the required changes made to the SWMP.

**Inadequate control measure:** Is 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, this includes control measures that have not been implemented for pollution sources. If it is infeasible to install or repair the control measure immediately after discovering the deficiency the reason must be documented and a schedule included to return the control measure to effective operating condition as soon as possible.

**Control measures requiring routine maintenance:** Any control measure that is still operating in accordance with its design and the requirements of the permit, but requires maintenance to prevent a breach of the control measure. These items are not subject to the corrective action requirements as specified in Part I.b.1.c of the permit.

**Additional:** Any control measure inadequate for its application or an area with insufficient control measure(s). If it is infeasible to install revised or additional control measure(s) immediately after discovering the deficiency the reason must be documented and a schedule included to return the control measure to effective operating condition as soon as possible.

**Remove:** Control measure no longer necessary

**(16) Construction Site Assessment:** Was there any off site discharge of sediment at this site since the last inspection?

- a) Is there evidence of discharge of sediment or other pollutants from the site? **Off-site pollutant discharges are a violation of the permit.** (The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system).
- b) Are pollutants discharging to State water?
- c) Has sediment or other pollutants discharging from the site reached State waters? **Off-site pollutant discharges are a violation of the permit.** If off site discharge has occurred, explain the discharge and the corrective actions in section 15 (Construction Site Assessment & Corrective Actions) or section 17 (General Notes).



- (17) General Notes: Indicate any additional notes that add detail to the inspection; this may include positive practices noted on the project.
- (18) Inspection Certification: In accordance with 208.03, required personnel shall sign to verify that they were in attendance.
- (19) Compliance Certification: After all corrections have been made, this signature must be completed in accordance with Part I.A.3.f of the CDPS-SCP.

**STORMWATER FIELD INSPECTION REPORT - ACTIVE CONSTRUCTION**

(1) Project Name: [REDACTED]	(2) Project Contractor: [REDACTED]	(3) SWMP Administrator (Qualified Stormwater Manager) Erosion Control Inspector: <b>Natasha Hogan</b>	
(4) CDOT Project Engineer/CDOT Designee:	(5) Other Attendee(s) (Name and Title): <b>Hillary Swank ( Site Super)</b>		
	<b>Khalil Swift ( ECI)</b>		
	<b>Shelly Wrack ( CDOT PE)</b>		
(6) CDOT Project Number: <b>966-522</b>	(7) Project Code (Sub Account #): <b>333-456</b>	(8) CDPS-SCP Certification#: <b>COR400123</b>	(9) CDOT Region: <b>4</b>
(10) Date of Project Inspection: <b>9/10/2020</b>	(11) Weather at Time of Inspection: Sunny and 95 Degrees with a slight westerly wind.		

**(12) REASON FOR INSPECTION / EXCLUSION**

- Routine Inspection: (A routine erosion control inspection shall be conducted at a minimum, once every 7 Calendar Days)
- Runoff Event: (Post-storm event inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. 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 every 7 calendar days.  
Storm Start Date: \_\_\_\_\_ Approximate End Time of Storm (hrs): \_\_\_\_\_
- Third Party Request: 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 7-day inspections, as well as the post-storm-event inspections. If visual inspection of the site verifies that all of these conditions are satisfied, document the conditions in section 17 (General Notes) and proceed to section 18 (Inspection Certification). Documentation must include: dates when snow cover existed, date when construction activities ceased, and date when melting conditions began.
- Other:

**(13) SWMP MANAGEMENT**

	Yes	No	N/A	(g) Reason for N/A
(a) Is the SWMP located on site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Digital SWMP Ask for Copy or Access
(b) Are changes to the SWMP documents noted and approved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(c) Are the inspection reports retained in the SWMP?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(d) Are corrective actions from the last inspection completed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	COVID has caused a delay in bringing materials onto site See Memo 9/3/2020.
(e) Is the Spill Response Plan updated in the SWMP?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(f) Is a list of potential pollutants updated in the SWMP?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**(14) CURRENT CONSTRUCTION ACTIVITIES**

(a) Describe current phase of construction activities  
**Rough Grading, Traffic Control due to single lane for 2 way traffic.**

(b) Estimate of disturbed area at the time of the inspection, use guidance found in 208.04 (e):

	Acres	Notes
Temporary Stabilization (Includes areas of vertically tracked and/or surface roughened temporary stabilizing surface treatments) +	25	See 105 Approving more than 20 acres Temp.
Interim Stabilization (spray on soil tackifier such as organic mulch tackifier, bonded fiber matrix, wood cellulose fiber with tackifier, etc.) +	10	
Permanent Stabilization (Includes areas of permanent seeding that have not achieved 70% of pre-disturbance vegetation levels) +	25	first lift still on W Bound side.
Other (Includes ground disturbing, clearing and grubbing, materials storage, equipment staging, haul roads) +	5	
Total acres of disturbance (includes cumulative total number of acres including temporary, interim, permanent stabilized and other) -	65	2 ECM Team members on site.

(c) Has the SWMP Phased Control Measure Implementation Matrix been updated?  Yes  No

**(15) CONSTRUCTION SITE ASSESSMENT & CORRECTIVE ACTIONS** **\*\*Off-site Pollutant Discharges are a Violation of the Permit and Reason for Immediate Project Suspension\*\***

The Construction Site Boundary/Limits of Construction (LOC), all disturbed areas, designated haul roads, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles exit the site shall be inspected for evidence of, or the potential for, pollutants leaving the LOC, entering the stormwater drainage system, or discharging to State waters. If there is evidence of sediment or other pollutants discharging from the site, see section 16 (Construction Site Assessment).

All erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are maintained and operating correctly. Identify the condition of the control measure, using more than one letter if necessary: **(I)** Inadequate control measure; **(M)** Maintenance is needed; **(A)** Additional control measure is needed; **(R)** Remove control measure. Keep copies of this blank page for additional room if needed.

Continuous maintenance is required on all control measures. As per CDPS-SCP: "Control measures that are not operating effectively, have proven to be inadequate, or have failed must be addressed as soon as possible, immediately in most cases."

Location	Control Measure	Condition	Comments:	Date Completed & Initials
			Description of Corrective Action and Preventative Measure Taken	
Sta 110 - Sta 500 along WB perimiter	Berm	M	Minor erosion occurring at the base of the berm. add additional material and re-compact.	
sta 215	SF IP	I	SF inlet protection is no longer adagueate. SF IP has a hole below the 50% maintenance Threshold. Reinstall per approved Detail.	
Sta 450	RCD	A	Add Rock Check Dam to mitigate run on and reduce erosion potential in the swale located at Sta450	

**(16) CONSTRUCTION SITE ASSESSMENT** \*\*Off-site Pollutant Discharges are a Violation of the Permit and Reason for Immediate Project Suspension\*\*

(a) Is there evidence of discharge of sediment or other pollutants from the site?  Yes  No

\*If yes, explain the discharge, the location and the associated corrective actions in section 15 (Construction Site Assessment & Corrective Actions) or section 16 (General Notes).

(b) Has sediment or other pollutants discharging from the site reached State waters?  Yes  No

\*If yes, see subsection 208.03(c) and Part I.L.6 of the permit for reporting requirements.

**(17) GENERAL NOTES**

Additional CMs needed to manage run on occurring at station 450 in wb swale.

**(18) INSPECTION CERTIFICATION**

By signing this form, I certify that I attended the inspection in accordance with specification 208.03.

Contractor's SWMP Administrator (Qualified Stormwater Manager)

Print Name: **Natasha Hogan**

Signature Required:

**Natasha Hogan**

Digitally signed by Natasha Hogan  
Date: 2020.09.10 09:41:48 -0600

Date: **9/10**

Contractor's Erosion Control Inspector (If Needed):

Print Name: **Khalil Swift**

Signature (if needed):

Date: **9/10**

**(19) COMPLIANCE CERTIFICATION**

I verify to the best of my knowledge and belief, all corrective actions and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit (Part I.A.3.f).

Contractor's SWMP Administrator/ECI

Print Name:

Signature Required:

Date:

Contractor's Superintendent/Approved Designee

Print Name:

Signature Required:

Date:

CDOT Project Engineer/CDOT Designee

Print Name:

Signature Required:

Date:



## Stormwater Management Field Inspection Report Instructions

**State waters** are defined to be any and all surface and subsurface waters which are contained in or flow through the state, including, streams, rivers, lakes, drainage ditches, storm drains, ground water, and wetlands, but not including 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. (Per subsection 107.25 and 25-8-103 (19) CRS)

- (3) **SWMP Administrator (Qualified Stormwater Manager) and Erosion Control Inspector:** Indicate the name(s) of the individual responsible for implementing, maintaining and revising the SWMP. An Erosion Control Inspector(s) may be the SWMP Administrator in projects with not more than 40 acres of disturbance (see 208.03(c)).
- (4) **CDOT Project Engineer/CDOT Designee:** Indicate the name of the CDOT representative performing the inspection with the SWMP Administrator/Erosion Control Inspector(s). This person should be the Project Engineer or an authorized representative.
- (9) **CDPS-SCP Certification #:** Indicate the Colorado Discharge Permit System (CDPS) Stormwater Construction Permit (SCP) (for Stormwater Discharges Associated with Construction Activities) certification number, issued by CDPHE, for the project which the report is being completed. Certification number can be found on the first page of the SCP.
- (12) **Reason(s) for Inspection / Exclusion:** Indicate the purpose for the inspection or exclusion. These inspections are required to comply with the CDOT Specifications and the CDPS-SCP.
- Routine Inspections. These inspections are required at least every 7 calendar days during active construction. Suspended projects require the 7 calendar day inspection unless snow cover exists over the entire site for an extended period of time, and melting conditions do not exist (see, Winter Conditions Inspections Exclusions).
  - Runoff Event Inspection for Active Sites. See page 1 for definition.
  - Third Party Request. Indicate the name of the third party requesting the inspection and, if known, the reason the request was made.
  - Winter Conditions Inspections Exclusions. See page 1 for definition. An inspection does not need to be completed, but use this form to document the conditions that meet the Exclusion.
  - Other. Specify any other reason(s) that resulted in the inspection.
- (13) **SWMP Management:** Review the SWMP records and documents and use a ✓ to answer the question. To comply with CDOT Standard Specifications and the CDPS-SCP, all of the items identified must be adhered to. If No is checked, indicate the necessary corrective action in section 15 (Construction Site Assessment & Corrective Actions). Specification 208.03(d).
- a) A copy of the SWMP must be retained on site, unless another location (specified by the permit) is approved by the Division.
  - b) Indicate all changes that have been made to any portion of the SWMP documents during construction. Changes shall be dated and signed at the time of occurrence. Amendments may include items listed in subsection 208.03(d).
  - c) The SWMP Administrator shall keep a record of inspections. Inspection reports must identify any incidents of noncompliance with the terms and conditions of the CDOT specifications or the CDPS-SCP. Inspection records must be retained for three years from expiration or inactivation of permit coverage.
  - d) Are corrective actions from the last inspection completed? Is a description of the corrective action(s), the date(s) of the corrective action(s), and the measure(s) taken to prevent future violations (including changes to the SWMP, as necessary) documented?
  - e) Subsection 208.06(c) requires that a Spill Response Plan be developed and implemented to establish operating procedures and that the necessary employee training be provided to minimize accidental releases of pollutants that can contaminate stormwater runoff. Records of spills, leaks or overflows that result in the discharge of pollutants must be documented and maintained. Information that should be recorded for all occurrences include the time and date, weather conditions, reasons for spill, etc. Some spills may need to be reported to the Water Quality Control Division immediately.
  - f) (f) Subsection 107.25(b)8 requires the Erosion Control Supervisor to identify and describe all potential pollutant sources, including materials and activities, and evaluate them for the potential to contribute pollutants to stormwater discharge.
  - g) (g) If N/A is checked for any of the items (a) through (f), indicate why in the space provided, if additional space is needed indicate in section 17 (General Notes).



## Stormwater Management Field Inspection Report Instructions (continued)

### (14) Current Construction Activities:

- a) Provide a short description of the current construction activities/phase at the project site; include summary of grading activities, installation of utilities, paving, excavation, landscaping, etc.
- (1) Estimate of disturbed area at the time of the inspection, use guidance found in 208.04 (e). Estimate the acres of disturbed area at the time of the inspection. Include clearing, grading, excavation activities, areas receiving overburden (e.g. stockpiles), demolition areas and areas with heavy equipment/vehicle traffic, installation of new or improved haul roads and access roads, staging areas, borrow areas and storage that will disturb existing vegetative cover. (Areas that have been: hard armored or paved should not be counted for total disturbance).
- b) Has the Phased control measure Implementation Matrix on the SWMP been updated? As part of the inspection the Phased control measure Implementation matrix for both the structural and non-structural control measures found at the beginning of the SWMP sheets must be reviewed to ensure that "In use on site" box is checked for control measures currently in use at the time of the inspection.

### (15) Construction Site Assessment & Corrective Actions: Inspect the construction site and indicate where control measure feature(s) identified in section 13 (SWMP Management), require corrective action. Erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are operating correctly.

- Condition. Identify the condition of the control measure, using more than one letter (identified in section 15) if necessary.
- Location. Site location (e.g., project station number, mile marker, intersection quadrant, etc.).
- Control measure. Indicate the type of control measure at this location that requires corrective action (e.g., silt fence, erosion logs, soil retention blankets, etc.).
- Date Completed & Initials. Date and initial when the corrective action was completed and the preventative measure statement finished.
- Description of Corrective Action and Preventative Measure Taken. Provide the proposed corrective action needed to bring the area or control measure into compliance. Once corrective actions are completed, state the measures taken to prevent future violations and ensure that the control measures are operating correctly, including the required changes made to the SWMP.

**Inadequate control measure:** Is 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, this includes control measures that have not been implemented for pollution sources. If it is infeasible to install or repair the control measure immediately after discovering the deficiency the reason must be documented and a schedule included to return the control measure to effective operating condition as soon as possible.

**Control measures requiring routine maintenance:** Any control measure that is still operating in accordance with its design and the requirements of the permit, but requires maintenance to prevent a breach of the control measure. These items are not subject to the corrective action requirements as specified in Part I.b.1.c of the permit.

**Additional:** Any control measure inadequate for its application or an area with insufficient control measure(s). If it is infeasible to install revised or additional control measure(s) immediately after discovering the deficiency the reason must be documented and a schedule included to return the control measure to effective operating condition as soon as possible.

**Remove:** Control measure no longer necessary

### (16) Construction Site Assessment: Was there any off site discharge of sediment at this site since the last inspection?

- a) Is there evidence of discharge of sediment or other pollutants from the site? **Off-site pollutant discharges are a violation of the permit.** (The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system).
- b) Are pollutants discharging to State water?
- c) Has sediment or other pollutants discharging from the site reached State waters? **Off-site pollutant discharges are a violation of the permit.** If off site discharge has occurred, explain the discharge and the corrective actions in section 15 (Construction Site Assessment & Corrective Actions) or section 17 (General Notes).

- (17) General Notes: Indicate any additional notes that add detail to the inspection; this may include positive practices noted on the project.
- (18) Inspection Certification: In accordance with 208.03, required personnel shall sign to verify that they were in attendance.
- (19) Compliance Certification: After all corrections have been made, this signature must be completed in accordance with Part I.A.3.f of the CDPS-SCP.

EXAMPLE

**9 Region and Headquarter Water Quality Reports and Form 105(s)  
relating to Water Quality**



## **10 Description of Inspection and Maintenance Methods in Accordance with Section 208 and items not Addressed in the Design**

- 10.1 Cleaning of Equipment Letter of Certification**
- 10.2 Street Cleaning if Different from the Design**
- 10.3 Stockpile Management**

INSPECTION AND MAINTENANCE METHOD STATEMENT

Stormwater management for the project will be performed in accordance with the Colorado Department of Public Health and Environment, Colorado Discharge Permitting System- Stormwater Construction Permit (CDPS-SCP) and CDOT Specifications, Standard Plans and project Stormwater Management Plan (SWMP)

Installation of BMPs will be completed by:

\_\_\_\_\_

\_\_\_\_\_

(Including initial BMPs as shown in the plans, temporary stabilization measures during construction and permanent/final stabilization items upon completion of work.)

Prior to construction commencing, initial BMPs required by the site specific SWMP shall be installed in accordance with CDOT Standard Plans. After their installation the Superintendent and TECS shall attend a meeting with the Project Engineer and the Region Water Pollution Control Manager to inspect installation; to ensure they have been installed and located correctly.

Inspections of the project shall be performed by the project TECS: \_\_\_\_\_  
and/or the Superintendent: \_\_\_\_\_ as required by the CDOT Specifications.

- The TECS will update the SWMP daily with any changes that may exist including, but not limited to; any new disturbance areas, potential pollutants, BMPs placed and/or removed, etc.
- Minimum 7 Day Inspections: In addition to the daily inspections the TECS, Superintendent and Project Engineer shall perform 7 day inspections as required by the CDPS-SCP and CDOT Specifications. A field inspection of all BMPs shall be completed to check adequacy, installation and maintenance that may be required. (Form 1176 shall be used for the inspection.)
- Post Storm Inspections: In addition to the 7 day inspections, the TECS or Superintendent shall perform post storm inspections within 24 hours after the end of precipitation or snow melt events which cause surface erosion. If construction activities have not occurred on-site following a storm event, an inspection shall occur prior to commencing construction activities but in no case more than 72 hours following the end of the storm event. The occurrence of any delayed inspection shall be documented on the 1176 inspection form.

Maintenance: If findings occur on the 7 day, or post-storm event inspections a list of action items shall be given to the Superintendent on the day of the inspection.

\_\_\_\_\_ is responsible for correcting any problem areas/addressing action items or scheduling the appropriate Subcontractor to return to the project site for any assistance needed.

\_\_\_\_\_ is responsible for installing or repairing BMPs.

\_\_\_\_\_ is responsible for maintenance of and to clean installed BMPs (removal and disposal of accumulated sediment by laborers and/or equipment)





CDOT Project#: [Redacted]

## Method Statement for Containing Pollutant Byproducts

**Installation of Concrete Washout-** [Redacted] will install concrete washout structure(s) as detailed on the CDOT M-208-1 specification. A concrete washout will be installed in the material storage area and additional locations may be used if needed. If additional locations are needed, approval from the Project Engineer will be requested prior to installation. All washouts will be located a minimum of 50 horizontal feet from any Waters of the State and also shown on the SWMP site map when installed and removed. All waste/spoils generated from concrete work on site will be disposed of properly in the designated concrete washout area by the end of every shift. The concrete wash out area will be maintained per the 107.25 standard. Waste concrete from the maintenance of the concrete washout will be removed from the site and disposed of properly at an approved disposal site.

**Saw Cutting Operations-** Material from pavement saw cutting operations shall be cleaned from the roadway surface during operations using a vacuum. A BMP, such as a berm, shall be placed to contain slurry from joint flushing operations until the residue can be removed from the soil surface. Residue shall be removed and disposed in the designated concrete washout.

**Excess Fill Material-** Excess fill material has been arranged to be hauled off site to a local farmer who desires clean fill for his property.

**Material Removed from Sediment Traps-** These materials shall be stockpiled and/or dispersed away from any streams and/or outfalls.

Project Engineer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Tab 10**

**Description of Inspection and Maintenance Methods in Accordance with Section 208 and items not Addressed in the Design:**

- **Inspection and Maintenance Method Statement**
- **Cleaning of Equipment Letter of Certification**

**Inspection and Maintenance Methods**

The Project will comply with the inspection schedule outlined in the CDPS - SCP and the CDOT standard specifications, including:

208.03(c) *Erosion Control Supervisor*

When included in the Contract, the Contractor shall assign to the project an individual to serve in the capacity of the Erosion Control Supervisor (ECS). The ECS shall be a person other than the Superintendent. The ECS shall be experienced in all aspects of construction and have satisfactorily completed and ECS training program authorized by the Department. (The level of training of the ECS on this project exceeds this requirement as Certified Inspector of Sediment and Erosion Control (CISEC). Proof that this requirement has been met shall be submitted to the Engineer prior to or at the Environmental Preconstruction Conference. The ECS shall act as the SWMP Administrator on the Project. The SWMP Administrator shall be responsible for oversight of the implementation, maintenance, and revision of the SWMP for the duration of the project. The ECS shall use the information provided in CDOT's Erosion Control and Stormwater Quality Field Guide and the CDPS – SCP.

Inspect with the Superintendent and the Engineer the stormwater management system at least every 7 calendar days. Post storm event inspections shall be conducted within 24 hrs. after the end of any precipitation or snow melt event that may cause surface erosion. If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to 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 report. CDOT Form 1176 shall be used for all 7 day inspections and inspections following storm events.

Inspections are not required at sites when construction activities are temporarily halted, when snow cover exists over the entire site and melting conditions do not pose a risk of surface erosion. This exception is applicable only during the period where melting conditions do not exist, and applies to the routine 7 day inspections, as well as post-storm event inspections. The following information shall be documented on CDOT form 1176 for use of this exclusion: dates when snow cover occurred, dates when construction activities ceased, and date melting conditions began.

Inspection reports will be completed for each inspection conducted. All inspection reports will be retained in the SWMP notebook. This notebook will be kept on site for the duration of the project.

208.04 (f)

Erosion and sediment control practices and other protective measures identified in the SWMP as BMPs and/or CMs for stormwater pollution prevention shall be maintained in effective operating condition. BMPs shall be continuously maintained in accordance with good engineering, hydrologic and pollution control practices, including removal of collected sediment when silt depth is 50 percent or more of the height of the erosion control device.

Maintenance of erosion and sediment control devices shall include replacement of such devices upon the end of their useful service life as recommended by the ECS and approved by the Engineer. Maintenance of rock check dams and vehicle tracking pads shall be limited to removal and disposal of sediment or addition of aggregate.

Complete site assessment shall be performed as part of comprehensive inspection and maintenance procedures to assess the adequacy of BMPs at the site and the necessity of changes to those BMPs to ensure continued effective performance. Where site assessment results in the determination that new or replacement BMPs are necessary, the BMPs shall be installed to ensure continuous effectiveness. When identified, BMPs shall be maintained, added, modified, or replaced as soon as possible, immediately in most cases.

Whenever sediment collects on the paved surface, the surface shall be cleaned. Storm drain inlet protection shall be in place prior to shoveling, sweeping or vacuuming. Sweeping shall be completed with a pickup broom or equipment capable of collecting the sediment. Sweeping with a kick broom will not be allowed.

Material from pavement saw cutting operations shall be cleaned from the roadway surface during operations using a vacuum. A BMP, such as a berm, shall be placed to contain slurry from joint flushing operations until the residue can be cleaned from the soil surface.

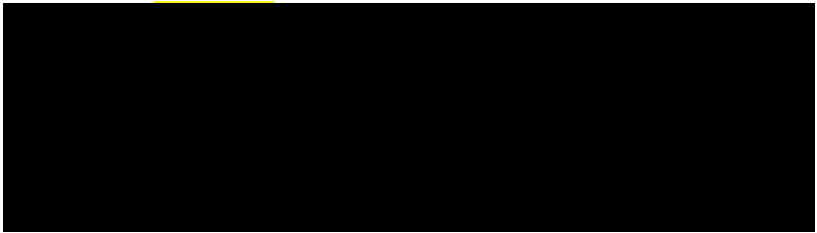
### **Certification of Vehicle and Equipment Cleaning**

To whom it may concern,

This letter is to certify that, to the best of my knowledge; all construction vehicles, tools, and equipment have been cleaned prior to arrival on site and are free of soil and debris capable of transporting noxious weeds, roots or organisms. The majority of the equipment on the project is rented, which arrives on the job clean.

Sincerely,

John Doe - Project Manager



205 Tunnel Drive  
719-269-1173

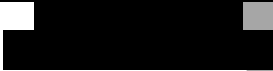
Canon City, CO 81212  
719-269-1148 (Fax)

**Equal Opportunity Employer**

**Stormwater Manager**



**Contractor**





## Sediment Control Measures

### Silt Fence

**Potential:** Yes

**Type:** Temporary

**Location:**

**Maintenance and Inspection:** Silt Fence will be inspected regularly. Any portion that is damaged, torn or loose will be repaired or replaced immediately. Any accumulated sediment will be removed prior to reaching 50% capacity of the fence.

### Sediment Control Log

**Potential:** Yes

**Type:** Temporary

**Location:**

**Maintenance and Inspection:** Sediment Control Logs will be inspected regularly. Any portion that is damaged will be replaced immediately. Any accumulated sediment will be removed prior to reaching 50% capacity of the SCL.

### Rock Check Dam

**Potential:** Yes

**Type:** Temporary

**Location:**

**Maintenance and Inspection:** Rock Check Dams will be inspected regularly. Any displaced rock will be replaced or reset. Any sediment accumulation shall be removed to maintain the functionality of the device.

### Sediment Basin

**Potential:** No

**Type:**

**Location:**

**Maintenance and Inspection:** Sediment Basins will be inspected regularly. Any accumulated sediment will be removed prior to reaching 1/3 of the design capacity.

## **Sediment Trap**

**Potential:** No

**Type:**

**Location:**

**Maintenance and Inspection:** Sediment Traps will be inspected regularly. Any accumulated obstructions will be removed. Accumulated sediment will be removed prior to reaching 50% of the height of the outflow.

## **Inlet Protection**

**Potential:** No

**Type:**

**Location:**

**Maintenance and Inspection:** Inlet Protection will be inspected regularly. Any accumulated sediment will be removed prior to reaching 50% capacity of the device.

## **Rock Socks**

**Potential:** No

**Type:**

**Location:**

**Maintenance and Inspection:** Rock Socks shall be inspected regularly. Any rock socks that are damaged will be replaced immediately. Accumulated sediment shall be removed as necessary to keep the device functional.

## **Erosion Control Measures**

### **Surface Roughening**

**Potential:** Yes

**Type:** Temporary

**Implementation:** Surface Roughening is tracking, scarifying, imprinting or tilling a disturbed area to provide temporary stabilization. Variations in the soil are created to help minimize wind and water erosion. Vehicles and equipment shall not travel on areas where Surface Roughening has been completed.

## **Dust Control**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Dust Control shall be achieved through proper planning, coordination, and by establishing proper haul routes. Haul routes will be visually monitored for dust, and watered with a water truck, as necessary

## **Soil Binder**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Soil Binder shall be applied in an even application rate. Areas will be regularly inspected and re-applied as necessary. Vehicles and equipment shall not travel on areas where Soil Binder has been applied.

## **Seeding**

**Potential: Yes**

**Type: Temporary**

**Implementation:** All disturbed areas shall be seeded using the mix defined in the plans. Seed shall be drill seeded, or hand broadcasted at a 2X rate and raked in. Vehicles and equipment shall not travel on areas where Seeding has been completed.

## **Mulching**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Certain areas where Seed was applied will also receive Mulch. Mulch shall be applied in an even application rate. Mulched areas shall be inspected regularly, and re-mulched as necessary. Vehicles and equipment shall not travel on areas where Mulch has been applied.

## **Rolled Erosion Control Products**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Rolled Erosion Control Products shall be installed in certain areas of disturbance. All products shall be installed to ensure there is good blanket to ground contact with minimal voids. Vehicles and equipment shall not travel on areas where RECP has been installed.

## **Slope Drains**

**Potential: No**

**Type:**

**Implementation:** Slope drains shall be installed in areas with a potential of high volume of erosion. Inspections shall be done regularly to ensure no debris accumulation at the inlet, as well as scouring at the outfall.

## **Outlet Protection**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Outlet Protection shall be installed at the locations identified on the SWMP. Accumulated sediment shall be removed to keep the structure functional.

## **Earthen Berm**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Earthen Berms shall be utilized in areas identified in the SWMP. Berms shall be inspected for damage and erosion regularly. Any accumulated sediment shall be removed prior to reaching 50% of the feature.



## **Check Dam**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Check Dams will be inspected regularly. Any displaced material will be replaced or reset. Any sediment accumulation shall be removed to maintain the functionality of the device.

## **2.5 – Materials Management**

### **Concrete Washout Area**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Concrete Washout Area will be installed per plan. CWA shall be inspected regularly. Concrete waste shall be removed prior to reaching 2/3 capacity if the structure.

### **Stockpile Management**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Stockpiled materials shall be limited to a pre-defined location. All necessary control measures shall be installed and maintained.

### **Street Sweeping:**

**Potential: Yes**

**Type: Temporary**

**Implementation:** Street Sweeping shall be done with a pick-up style broom attachment for a skid steer, or a similar attachment for a CAT IT28 loader.

## Site Control Measures

### Construction Fence

**Potential:** Yes

**Type:** Temporary

**Implementation:** Construction Fence shall be used to delineate any sensitive areas, mark limits of construction, delineate any staging areas, delineate haul routes or construction entrances. Construction Fence will be inspected and maintained regularly.

### Vehicle Tracking Control

**Potential:** Yes

**Type:** Temporary

**Implementation:** Vehicle Tracking Control shall be installed at all construction entrances. VTC shall be inspected and maintained regularly by scarifying or replacing the material.

### Temporary Diversion Channel

**Potential:** No

**Type:**

**Implementation:** Temporary Diversion Channel shall be installed by the use of an earthen coffer dam, constructed from on site material. The Temporary Diversion Channel shall be inspected regularly, and maintained as needed.

### Temporary Stream Crossing

**Potential:** No

**Type:**

**Implementation:** Temporary Stream Crossing shall be installed utilizing two runs of 72" reinforced concrete pipe.

### Control Measures by Others

N/A

# Stormwater Inspections and Record Keeping

## Inspections

### Stormwater Inspector

Name: [REDACTED]  
Title: [REDACTED]  
Telephone: [REDACTED]  
Email: [REDACTED]  
Organization: [REDACTED]  
Mailing Address: [REDACTED]  
City: [REDACTED]  
State: [REDACTED]  
Zip: [REDACTED]

### Inspection Frequency

Inspections shall be done every 7 calendar days.

## Record Keeping

### Documents Available on Site

Updated SWMP  
Updated Site Map (Living Document)  
Completed Inspection Reports  
Calendar of Events

### Documented Modifications to SWMP

1. Change in design, construction, operation, or maintenance of the site, requiring the implementation of new or revised control measures.
2. SWMP proves ineffective in controlling pollutants in stormwater runoff in compliance with permit conditions.
3. Control Measures are installed.
  - a. Date
  - b. SWMP Administrator Initials
4. Control Measures are removed.
  - a. Date
  - b. SWMP Administrator Initials
5. Corrective actions modifying the SWMP.

# 11 Spill Response Plan in Accordance to 208.06



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## Spill Response Plan

### Introduction

In accordance with CDOT Standard Specification subsection 208.06;  
\_\_\_\_\_ has developed this Spill Response Plan to establish standard operation procedures and the necessary employee training to minimize the likelihood of accidental releases of pollutants that can contaminate stormwater runoff.

### 1. Identification and contact information of each Spill Response Coordinator

All responsible personnel and their corresponding contact information are presented in the table below.

Name and Title	Phone Number

### 2. Locations of areas on project site where equipment fueling and servicing operations are permitted

### 3. Location of cleanup kits

The kit will contain an absorbent boom, absorbent rags, absorbent litter and an over-pack drum to store the material.

Type of spill kit	Location(s)

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## 4. Quantities of chemicals and locations stored on site

The following is a table of chemical quantities and where they are located on site.

Material	Quantity	Staging/Storage Location

## 5. Label system for chemicals and Safety Data Sheets (SDS) for products

Any products/chemicals that are located or stored onsite shall be properly labeled as to the contents of the material. The Safety Datasheets for all products/chemicals utilized onsite can be found in a notebook onsite.

## 6. Notification and cleanup procedures to be implemented in the event of a spill for spills which do not enter state waters or are under reporting limits of the chemical of concern (diesel fuel, hydraulic fluid, motor oil, used hydraulic fluid and motor oil, tack oil)

- Immediately notify onsite Spill Cleanup Coordinator (see table above)
- Immediately notify CDOT Project Engineer
- Under the direction of Spill Cleanup Coordinator; contain the spill with spill cleanup kit, remove and dispose of debris properly offsite

## 7. Procedures for spills of any size that enter surface waters or ground water, or have the potential to do so

For non-hazardous materials, the following measures shall be implemented:

- Contact the CDPHE Environmental Emergency Spill Reporting Line (1-877-518-5608) within 24 hours of the spill event. A written notification to the CDPHE-EMP is necessary within 5 days.
- Contact the Colorado State Patrol 24-hour hotline (1-303-239-4501) if the spill is on a state highway.
- Report spill to the Project Engineer and CDOT maintenance personnel on patrol.
- Call the CDOT illicit discharge hotline (303 - 512 - 4H2O (4426)) if spilled material spreads to a CDOT storm drain or a waterway adjacent to CDOT right-of-way.

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For spills involving **hazardous** materials, the following measures shall be implemented:

- Contact the local emergency response team by dialing 911.
- Contact the CDPHE Environmental Emergency Spill Reporting Line (1-877-518-5608) within 24 hours of the spill event. A written notification to the CDPHE-EMP is necessary within 5 days.
- Contact the Colorado State Patrol 24-hour hotline (1-303-239-4501) if the spill is on a state highway.
- Report spill to Project Engineer and CDOT maintenance personnel on patrol.
- Call the CDOT illicit discharge hotline (303 - 512 - 4H2O (4426)) if spilled material spreads to a CDOT storm drain or a waterway adjacent to CDOT right-of-way.

## **8. Spill Prevention and Response Training**

Prior to project startup, \_\_\_\_\_ personnel have been trained in the following spill control procedures:

- Spill control
- Containment
- Spill response, containment and clean-up
- Company policies on reporting and responding to spills
- Protection of environmentally sensitive areas



SPILL RESPONSE PLAN



REVISION DATE: 

APPROVED BY: 

**Purpose**

To provide spill reporting requirements and give proper instruction and protocol for cleanup of different spills depending on the factors listed below as well as project site specific conditions.

**Scope**

This program applies to all spills occurring on or directly outside of  construction limits for all spills which were caused by  or their subcontractors.

**Definitions**

**Small Spills** – Any spill where the major dimension is less than 18 inches in diameter.

**Medium Spills** – Spills where the major dimension exceeds 18 inches, but is less than 6 feet

**Large Spills** – Any spill involving flammable liquid where the major dimension exceeds 6 feet in diameter, and any “running” spill where the source of the spill has not been contained or flow has not been stopped.

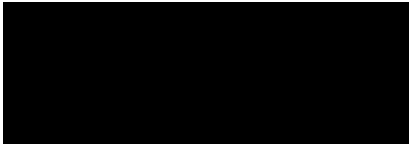
**Reportable Spills to CDPHE - Releases to water** – A release of any chemical, oil, petroleum product, sewage, etc., which may enter waters of the State of Colorado (which include surface water, ground water and dry gullies or storm sewers leading to surface water) must be reported to CDPHE immediately (25-8-601 CRS).

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

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

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





Act.

**Referenced Documents**

- **CDPHE Spill Reporting Guidance Document**
- **CDOT Road and Bridge Design Manual**

**Responsibilities**

Superintendent:

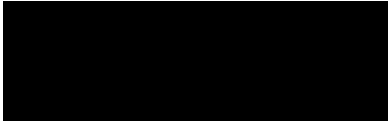
- Is Responsible for the proper cleanup of all spills on the project and subsequent disciplinary actions if needed.
- Site Super may delegate clean-up to another Trained Personnel or sub-contractor at the site super's discretion. This delegation does not indemnify the site super from proper spill clean-up responsibility.
- Spill Response Coordinators:

Name	Phone #	Email

**Implementation**

**1) Fuel Storage**

- i) Only approved containers and portable tanks will be used for storage and handling of flammable and combustible liquids.
- ii) Containers and portable tanks should be located a minimum of 50 Horizontal feet away from a surface water unless approved by the CDOT project engineer.
- iii) All small fuel containers must be stored in a flammable storage cabinet and must be identified on the site map.
- iv) For quantities of one gallon or less, the original container or approved metal safety cans will be used for storage, use and handling of flammable and combustible liquids.
- v) No on-site storage containers for flammable or combustible liquids are allowed to exceed 55 gallons without written permission from \_\_\_\_\_.
- vi) Fuel trucks that have mounted tanks in excess to this amount are allowed short term access to the site for refueling of equipment.
- vii) Flammable or combustible liquids will not be stored in areas used for exits, stairways or the passage of people. Storage of containers (not more than 55 gallons each) will not exceed 1,100 gallons in any one pile or area. Piles or groups of containers will be separated by a 5-foot clearance. Piles or groups of containers will not be nearer than



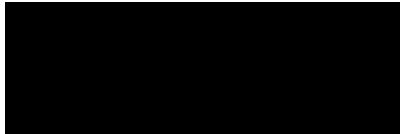
20 feet to a building.

- viii) Within 200 feet of each pile of containers there will be a 12-foot wide access for fire control apparatus.
- ix) The storage area shall be graded in a manner to divert possible spills away from buildings or other exposures, or shall be surrounded by a curb or dike at least 12 inches high.
  - (1) When curbs or dikes are used, provisions shall be made for draining off accumulations of ground or rainwater, or spills of flammable or combustible liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions.
- x) Outdoor portable tank storage
  - (1) Individual tanks or barrels greater than 55 gallons must receive written permission from Bryan Construction Director of Environmental, Health, and Safety or Designee for temporary storage on site.
  - (2) Portable tanks will not be nearer than 20 feet from any building. Two or more portable tanks grouped together having a combined capacity in excess of 2,200 gallons will be separated by a 5-foot clear area. Individual portable tanks exceeding 1,100 gallons will be separated by a 5-foot clear area.
- xi) Within 200 feet of each portable tank, there will be a 12-foot wide access for fire control apparatus.
- xii) Locations of Areas on the project where equipment fueling, and servicing operations are permitted:

Type of Operation	Location where it will occur on the Project

**2) Petrochemical Spill Prevention, Control, and Countermeasures**

- i) In the event of a small petrochemical spill occurring on this site or within areas temporarily controlled by [REDACTED], any of the following controls and countermeasures may be implemented to insure proper clean-up and practices:
  - (1) The General Contractor will have on site, and use in the event of a small scale petrochemical spill, Hazmat Spill Control Kit or other adequate form of spill clean-up and countermeasure. In addition, such spill countermeasure(s) will be available and within close proximity to areas that have been determined to have high possibility for petrochemical spills. The General Contractor will make all techniques and products readily available to our employees and employees of subcontractors with adequate training in implementation and execution of such controls and countermeasures.
  - (2) [REDACTED] will house and keep on site the spill countermeasure named micro-blaze emergency liquid spill control. Micro-blaze functions by eliminate flammability of hydrocarbons, it breaks down, degrades and digests the waste.



- (3) Micro-blaze characteristics:
  - (a) White, opaque perfumed liquid formulation
  - (b) pH: 7.3
  - (c) Completely soluble in water
  - (d) Bacteria count: ~400 billion/gallon
  - (e) Bacillus bacterial cultures: non-pathogenic, non-toxic
  - (f) Completely biodegradable
  - (g) 10-year shelf life

a. NOTE: See construction trailer and/or on site description for additional information concerning micro-blaze, its properties, or its location.

### 3) Chemical Spill Prevention, Response, and Cleanup Policy

- i) Spill Management and Responsibilities:
  - (1) The superintendent has primary responsibility for coordinating the response to emergencies, including chemical spills.
  - (2) Supervisors should ensure that employees are familiar with these procedures and receive any necessary training.
  - (3) All employees should follow these procedures in the event of a chemical spill.


- ii) Emergency Contact Numbers:
  - (1) Police, fire department, ambulance: 911
  - (2) National Poison Control Center: 1-800-222-1222
  - (3) Water Quality Control Division Toll Free 24-Hour Environmental Emergency Spill Reporting Line: 1-877-518-5608

- (4) Nearest Emergency Room:
  - (a) Name:
  - (b) Contact Number:

a. NOTE: All additional details, locations, addresses, phone numbers are located inside the main site construction trailer.

- iii) Clean-Up Procedures:
  - (1) Spilled chemicals should be effectively and quickly contained and cleaned up. Employees will clean up spills themselves, only if properly trained and protected. Employees, who are not trained in spill clean-up procedures, will need to report the spill to the Responsible Person(s) listed in this program, warn other employees, and then leave the area.
  - (2) In the event of large spills that cannot be cleaned up with the jobsite provided cleanup kits, contact the appropriate responders listed in the Emergency Contact Numbers section.

- iv) Evacuation:



(1) The following general guidelines should be followed for evacuation, spill control, notification of proper authorities, and general emergency procedures in the event of a chemical incident in which there is a potential for a significant release of hazardous materials.

(a) Persons in the immediate vicinity of a spill should immediately evacuate the premises (except for employees with training in spill response in circumstances described below) if the spill is of a medium or large size, or if the spill seems hazardous, immediately notify emergency response personnel.

v) Spill Control Techniques:

(1) Once the spill has occurred, the employee needs to decide whether the spill is small enough to handle without outside assistance. Only employees training in spill response should attempt to contain or clean up a spill.

(2) If you are cleaning up a spill yourself, make sure you are aware of the hazards associated with the materials spilled, have adequate ventilation, and proper personal protective equipment. Treat all residual chemical and cleanup materials as hazardous waste.

(3) Spill control equipment should be located wherever significant quantities of hazardous materials are received or stored. SDS's, absorbents, over4pack containers, container patch kits, spill dams, shovels, floordry, acid/base neutralizers, and "Caution-Keep Out" signs are common spill response items.

vi) Spill Response and Cleanup:

(1) Chemical spills are divided into three categories: Small, Medium and Large. Response and cleanup procedures vary depending on the size of the spill. When containing spills, try to protect any water discharge areas, (inlets, streams, ponds, etc.) first.

(a) Small Spills: Any spill where the major dimension is less than 18 inches in diameter. Small spills are generally handled by internal personnel and usually do not require an emergency response by police or fire department HAZMAT teams.

(i) Quickly control the spill by stopping or securing the spill source. This could be as simple as up righting a container and using floor-dry or absorbent pads to soak up spilled material. Wear gloves and protective clothing if necessary.

(ii) Put spill material and absorbents in secure containers if any are available.

(iii) Consult with the facility Response Person and the SDS for spill and waste disposal procedures.

(iv) In some instances, the area of the spill should not be washed with water. Use Dry Cleanup Methods and never wash spills down the drain, onto a storm drain or onto the driveway or parking lot.

(v) Both the spilled material and the absorbent may be considered hazardous waste and must be disposed of, in compliance with State and Federal, environmental regulations.



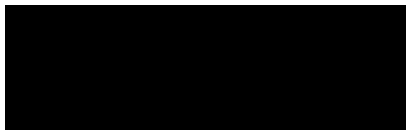
[REDACTED]

(b) Medium Spills: Spills where the major dimension exceeds 18 inches, but is less than 6 feet. Outside emergency response personnel (police and fire department HAZMAT teams) should usually be called for medium spills. Common sense, however, will dictate when it is necessary to call them. Immediately try to help and contain the spill at its source by:

- i. simple measures only. This means quickly up-righting a container, or putting a lid on a container, if possible. Do not use absorbents unless they are immediately available.
- (ii) Once you have made a quick attempt to contain the spill, or once you have quickly determined you cannot take any brief containment measures, leave the area and alert Emergency Responders at 911 or appropriate emergency response number.
- (iii) Closing doors behind you when leaving the area, helps contain fumes from spills. Give Emergency Responders accurate information as to the location, chemical, and estimated amount of the spill.
- (iv) Evaluate the area outside the spill. Engines and electrical equipment near the spill area that must be turned off. This could eliminate various sources of potential ignition in the area. Advise Emergency Responders on how to turn off ignition sources such as, engines, electrical, heating, air conditioning equipment, air circulating equipment or any other potential source of ignition. Do not go back into the spill area once you have left.
- (v) If Emergency Responders evacuate the spill area, follow their instructions in leaving the area.
- (vi) After Emergency Responders have contained the spill, be prepared to assist them with any other information that may be necessary, such as, SDS's and questions about the facility. Emergency Responders or trained personnel with proper Personal Protective Equipment (PPE) will then clean up the spill residue. Do not re-enter the area until the responder in charge gives the all clear. Be prepared to assist these persons from outside the spill area with SDS's, absorbents, and containers.
- (vii) Reports must be filed with proper authorities. It is the responsibility of the spiller to inform both his/her supervisor and the Emergency Responders as to what caused the spill. The response for large spills is similar to the procedures for medium spills, except that the exposure is greater.

(c) Large Spills: Any spill involving flammable liquid where the major dimension exceeds 6 Feet in diameter, and any "running" spill where the source of the spill has not been contained or flow has not been stopped.

- (i) Leave the area and notify Emergency Responders (911). Give the operator the spill location, chemical spilled and approximate amount.
- (ii) From a safe area, attempt to get SDS information for the spilled chemical for the emergency responders to use. Also, be prepared to advise responders as to any ignition sources, engines, electrical power, or air conditioning/ventilation systems that may need to be shut off. Advise



responders of any absorbents, containers, or spill control equipment that may be available. This may need to be done from a remote area, because an evacuation that would place the spiller far from the scene may be needed. Use radio or phone to assist from a distance, if necessary.

- 4) Only emergency response personnel, in accordance with their own established procedures, should handle spills greater than 6 feet in any dimension or that are continuous. Remember, once the emergency responders or HAZMAT team is on the job cleaning up spills or putting out fires, the area is under their control and no one may re-enter the area until the responder in charge gives the "all clear".
- 5) Provide information for reports to supervisors and responders, just as in medium spills.

(2) Reporting Spills:

- (a) All chemical spills, regardless of size, should be reported as soon as possible to the Jobsite Superintendent. The Superintendent will determine whether the spill has the potential to affect human health or the environment outside of the facility and must be reported to 911 or the National Response Center at 1-800-424-8802 as well as CDPHE At (1-877-518-5608)
- (b) Examples of spills that could affect the outside environment include spills that are accompanied by fire or explosion and spills that could reach nearby water bodies such as surface waters.
- (c) The ECI will document the Spill Clean-up on Form 1176 in the General Notes Section.

**4) Spill Kit Locations:**

- a. Spill response kit(s) will be available nearby the job trailer. The location of these kit(s) will be clearly identified on the official site map throughout the entirety of the project.
- b. Additional Spill Kit locations are as follows:

Spill Kit Type	Spill Kit Location

**5) Quantities of Stored Chemicals**

Chemical Name	Chemical Description	Chemical Quantity	Location Stored on Site




**6) Label system for chemicals and Safety Data Sheets (SDS) for products.**

- a. All chemicals stored on the project will be labeled in accordance with their respective safety data sheet nomenclature.
- b. All chemicals stored on the project will be accompanied by their appropriate safety data sheets.

**7) Training**

<b>Staff Name</b>	<b>Training Received</b>	<b>Certification #</b>	<b>Training Certification Date</b>

**8) Attachments**

N/A

# **Material Handling Procedures and Spill Prevention Program**

## ***PURPOSE***

This written program provides guidelines for the proper handling of hazardous materials used on [REDACTED] construction project sites, and also spill prevention procedures associated with heavy equipment operation, maintenance, and servicing (including fueling operations). These procedures are designed and intended to minimize or eliminate adverse environmental impacts at project locations, including impacts to soil, water, air, and natural habitat within and around our worksite boundaries. This program also ensures the cooperation and support of all [REDACTED] personnel in an effort to meet Federal, State, and local environmental regulatory requirements related to protection of the environment.

In addition to protecting the environment, attention to general cleanliness, proper material storage practices, and good housekeeping can also help to prevent numerous accidents. Good housekeeping efforts are also a part of the company fire prevention and accident prevention programs. By following the requirements set forth in this program, [REDACTED] employees can help to preserve environmental quality for the future and prevent accidents and injuries in the present.

## ***SCOPE***

This Directive applies to all THE employees and subcontracted labor that perform work at THE projects and jobsites.

## ***REFERENCES***

- *OSHA's 29 CFR 1926 Subpart D - Hazardous Waste Operations and Emergency Response*
- *OSHA's 29 CFR 1926 Subpart F – Fire Protection and Prevention*
- *OSHA's 29 CFR 1926 Subpart H – Materials Handling, Storage and Disposal*
- *OSHA's 29 CFR 1910 Subpart H – Hazardous Materials*
- *EPA's 40 CFR Part 112 - Requirements for Preparation and Implementation of Spill Prevention Control and Countermeasure Plans*
- *EPA's Clean Water Act (CWA) of 1977*
- *EPA's 40 CFR Part 122.26 National Pollutant Discharge Elimination System (NPDES) pursuant to the Clean Water Act – in Colorado, the program is administered by the Colorado Department of Public Health and Environment, Water Quality Control Division as the Colorado Discharge Permit System (CDPS).*



## ***POLICY STATEMENT***

Project Managers and Project Superintendents are jointly responsible for environmental compliance activities at all company worksites, as well as ensuring that proper material handling methods are utilized wherever our employees engage in work. The Project Manager (PM) has overall responsibility for environmental activities, and both the PM and project superintendent will provide for continuous surveillance, review, evaluation, and assurance of activities with a potential for adverse environmental impact at each company project and worksite.

Under their authority, both the PM and project superintendent have control for the approval or cessation of all phases of construction and or potentially hazardous work operations that may result in noncompliance with applicable environmental regulatory standards. The PM and superintendent shall ensure that procedures are maintained to comply with applicable Federal, State, and local environmental laws and regulations, and all employees are required to comply with directions provided by their supervisor and to act in an environmentally responsible manner at all times.

## ***RESPONSIBILITIES***

### **Senior Management**

- Ensure that proper management of hazardous materials in accordance with applicable regulations is accomplished at all levels within the organization.
- Ensure that this written program is maintained and annually reviewed, and that updates to this program are accomplished as necessary to remain consistent with current environmental regulation.
- Ensure that PMs and superintendents provide for guidance and instruction to employees regarding hazardous material management.
- Ensure that funding is available to provide appropriate material handling and environmental training for project personnel.
- Ensure that PMs and superintendents provide for the proper disposal of waste materials in accordance with applicable waste management guidelines.
- Ensure that Reportable Quantity Releases (if any) are reported to appropriate State and/or Federal agencies as required.

### **Project Managers, Project Superintendents, and Supervisors (i.e. Foremen)**

- Ensure that proper management of hazardous materials in accordance with applicable regulations is accomplished at their project sites.

- Ensure that requirements of this written plan are implemented at their project sites.
- Inform senior management whenever deficiencies in this program are noted so that it can be updated as necessary.
- Provide guidance and instruction to employees regarding hazardous material management.
- Provide appropriate material handling and environmental training for project personnel. Training should include at a minimum, the proper operation of equipment and processes associated with hazardous waste or material storage areas, storage yards, construction activities, erosion and erosion controls, materials handling/fueling areas, equipment parking, and maintenance of servicing areas for mobile equipment, and vehicle or equipment washing and maintenance activities.
- Regularly inspect their work areas at the designated daily intervals.
- Identify and control potential sources of storm water and wastewater pollution.
- Properly dispose of all waste materials in accordance with applicable regulatory requirements.
- Notify senior management of hazardous material spills so that reporting requirements (if any) can be evaluated.
- Promptly respond to and clean up fuel spills.

### **Employees**

- As a condition of employment, employees will follow and abide by the requirements of this written program and all instructions provided by their supervisor.
- Attend all training provided by the company.
- Manage all hazardous materials in accordance with requirements identified by this written program, their training, and as directed by their supervisor.
- Properly dispose of all waste materials.
- Promptly report all hazardous material spills to their supervisor.
- Promptly respond to and clean up fuel spills.
- Perform all work in an environmentally responsible manner.

## ***INTRODUCTION***

Similar to the critical role of accident prevention in employee safety, pollution prevention is the best means to protect the environment. Just as [REDACTED] plans for safety, we must and will also plan to prevent and minimize all sources of environmental pollution related to our construction operations. All construction materials shall be handled and stored to prevent impacts to the environment from accidental release or contact with storm water. All construction activities will be planned and carried out to prevent non-storm water discharges and to minimize impacts to soils and water before, during, and after construction.

Each employee is responsible for conducting their individual jobs in a manner that protects the environment from all sources of environmental pollution. Project foremen, superintendents, and project managers will instruct employees on construction practices necessary to maintain environmental impacts to a minimum, and will monitor employee performance in this area. Project requirements related to pollution prevention and minimization will be communicated in writing to all subcontractors and enforced by all supervisory personnel.

Environmental and water quality in the construction arena is regulated by multiple federal, state, and local agencies. At the federal level, much of this activity is regulated by the U.S. Army Corps of Engineers (USACE) Section 404 program under the Clean Water Act (CWA).

Two types of permits are administered by the USACE Section 404 program under the CWA: (1) Individual and (2) General (Nationwide or Predischarge Notification). The type of permit and the length of internal review depend on the nature of the projects and the type and extent of wetlands affected.

For projects involving potentially significant impacts, authorization usually must be sought through an application for an individual permit. The individual permit requires detailed information about the project and its potential effects on the environment. The information in the permit application is reviewed by several regulatory agencies including the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). In addition to the regulatory review, the individual permit application undergoes a public notice review that is scheduled for 30 days but may be longer if comments are significant.

The nationwide permit is the type of general permit used for common, minor construction projects that will occur in a localized area but are similar in scope throughout the nation, such as the construction of an underground pipeline that crosses wetlands, construction of road crossings through wetlands, and discharges into wetlands located above headwaters. At the State level in Colorado, much of this construction activity is regulated by the Colorado Department of Public Health and Environment (CDPHE). The CDPHE regulates both point source and non-point source discharges for regulated construction activities in the State. This written Material Handling and Spill Prevention Program is intended to facilitate and:

- Identify potential point source and non-point source pollutants that have the potential to impact the quality of discharges of storm water associated with construction activities;
- Identify, construct, and implement appropriate storm water pollution control measures to minimize pollutants in storm water discharges from construction locations during and after construction; and
- Ensure all operations are conducted in a manner that prevents any point source discharges from [REDACTED] construction activities.

## ***MATERIAL HANDLING AND WASTE MANAGEMENT***

Potentially hazardous materials present on [REDACTED] construction sites primarily consist of fuel and maintenance materials for construction equipment. These materials include diesel fuel, oil, gasoline, hydraulic fluid, lubricants, antifreeze, and lead-acid batteries. Construction equipment includes backhoes, trackhoes, front end loaders, all terrain forklifts, drilling equipment, pick-up trucks, etc.

Site activities that may involve the use of these materials include equipment refueling, equipment repair/maintenance, movement between work areas, daily storage, waste management, and incidental spill cleanup.

### **Refueling and On-Site Repair/Maintenance**

Limited refueling of backhoes and other construction equipment may take place on construction sites. Refueling is normally performed with a fuel truck. The integrity of all hoses, fluid containers, and storage tanks is visually verified prior to the daily use of equipment. Scheduled maintenance and repair activities do not take place on the construction site, but occasional on-site repair and maintenance may be necessary due to equipment failure.

No bulk storage of fuel of any type is authorized on any [REDACTED] project location without specific written authorization from the client, and only when done in full compliance with the all local, state and federal regulations.

The following steps shall be used when refueling and performing unexpected repair/maintenance activities on the site:

- Protect eyes and exposed skin surfaces from accidental spills. At a minimum, eye protection and safety gloves are required.
- Ensure there are no ignition sources (especially no smoking) in work areas. Ensure that all equipment is turned off.
- Use an adequate funnel when refueling, and never use a hand held portable container with greater capacity than the receiving tank.



- Maintain fire suppression and spill control equipment nearby and readily accessible to all such activities.
- Never open batteries on the construction site.

### **On-Site Materials Movement**

Materials may be moved on-site between pick-up trucks, staging areas, and refueling or emergency (breakdown) equipment maintenance and repair areas. The following steps shall be used when materials are moved on the project site.

- Inspect all fluid containers to ensure they are properly closed and that the container is in good condition prior to transportation to and from a work area.
- Use hand trucks or a forklift when transporting large quantity portable containers (i.e. 55-gallon drums), and use straps and/or wrapping materials to prevent accidental dumping. Be sure containers are always well supported.
- All portable hazardous material containers must be labeled, and the potential hazards associated with exposure to the materials must be identified. Flammable liquid containers must be red and clearly labeled as flammable.
- Spill control equipment must be readily accessible during transportation. Fire suppression equipment, consisting of ABC-type fire extinguishers, shall be readily accessible during handling and movement of flammable materials (fuel).

### **Temporary Storage Areas**

Typically, equipment and materials are never stored overnight on construction sites. During the day, material may be stored in a temporary storage area on the ground or in a pick-up truck. The following requirements apply to daily material storage areas.

- Flammable materials will be stored in labeled, red containers away from ignition sources or exposure to excessive heat. Flammables will not be placed within ten feet of incompatible materials (ordinary combustibles, oxidizers, and corrosives).
- All materials will be stored off the ground in a level and stable area with leak-tight flooring (such as plastic sheeting). The area will be bermed with sand bags or soil on any down gradient side if it becomes necessary to store any liquid materials overnight. A U-shaped berm sufficiently sized to contain the single largest container in the area is adequate.
- Fire extinguishers (if staging flammable materials) and spill control equipment must be readily accessible to the daily staging area.

## Incidental Spill Cleanup

In case of incidental spills, follow the spill cleanup procedures outlined below:

- Immediately contain the spill and stop the leak if possible, including using dikes and/or absorbent materials such as rolls, bales, soil, or vermiculite. Use absorbent materials to remove spilled material from the spill area and place them into a drum or similar container.
- Priority is given to preventing spilled materials from reaching surface waters. Use diverting techniques, such as berms, diversion ditches and catch basins, to prevent spills from reaching surface waters.
- If a spill impacts site soils (less than five gallons), immediately remove the material and any affected soils; remove the adjacent six inches of soil in all directions with a shovel and/or equipment.
- If a spill of greater than 5-gallons of material occurs, or if the spill affects surface waters, implement the [REDACTED] spill response procedures and contact the designated client response authority as soon as possible.

## Waste Management

Under normal operating circumstances, solid waste streams generated at the construction site will be limited to refuse consisting of paper, plastic and glass wastes associated with lunch and break activities. All refuse is placed into on-site domestic waste containers and removed at the end of each day. Refuse waste may be transported to an off-site waste receptacle, prior to transportation to a permitted solid waste management facility.

When on-site equipment repair or spill cleanup occurs, waste streams may be generated that contain fuel, petroleum-based lubricants, empty containers, and associated clean-up materials such as absorbents and contaminated soil.

[REDACTED] maintains a strict waste management policy that precludes improper transportation or disposal of regulated wastes. It may not be feasible to make proper disposal arrangements for these materials by the end of the day. Therefore, a temporary accumulation area must be constructed.

When possible, elevate the waste containers off the ground by placing on a pallet or similar item. All containers shall be legibly labeled with the contents of the containerized materials. Place caution tape on stakes secured around the perimeter of the area.

The project's client representative shall be notified of the location, identity, and quantity of the material. Arrangements for proper disposal shall be promptly secured.

The following Best Management Practices (BMPs) shall be followed in managing wastes generated by equipment repair and/or spill cleanup operations:

- Empty containers may be placed into the on-site refuse receptacles or transported off site for disposal in a solid waste receptacle or dumpster approved for this use and purpose.
- Rags contaminated with (saturated) flammable materials shall be placed into a sealed, flammable container inside the temporary waste accumulation area for proper storage until disposed. Dried rags may be reused or placed in the container for eventual transportation and disposal at a permitted solid waste disposal facility.
- Store waste flammable materials, and soil, rags, or absorbents contaminated by them, only in containers suitable for flammable materials storage.

In general,

- Store all flammable and combustible materials apart from oxidizers.
- Store acids apart from bases (caustics).
- Prevent water from contacting acids.
- Do not mix any materials you are not positive are compatible.
- Keep all containers tightly closed unless you are adding or removing materials.
- Make sure all containers are legibly labeled with the identity of all contents.

Non-Flammable waste petroleum products and/or batteries shall be placed into sealed plastic bags and put inside of a polyethylene drum inside the temporary waste accumulation area for subsequent transportation and reclamation or disposal at a permitted facility.

Segregate known hazardous waste materials from all other wastes, and store in compatible containers inside of the waste accumulation area until proper characterization, transportation and disposal can be arranged. Label all containers with the identity of their contents.

Generation, storage, transportation and disposal of hazardous waste require a hazardous waste generator identification number, and compliance with additional specific regulations. If a spill occurs that results in generation of a hazardous waste, or if you are unsure if the spill may have generated a hazardous waste, immediately notify:

The T.H.E. Project Manager ( ) at:

Telephone:

Mobile:

## Common Materials That Become Hazardous Waste When Spilled

Certain common materials become regulated as hazardous waste when they become wastes or are spilled. These materials include:

- Gasoline or any other material with a flash point below 140 degrees Fahrenheit or that is considered to be an oxidizer under DOT regulations;
- Any liquid material with a pH less than or equal to 2 (acids) or greater than or equal to 12.5 (caustics); and
- Materials that contain certain concentrations of various solvents or metals (e.g. certain used motor oils).
- Impacted soil or water, recovered spill product, and cleanup materials generated by a cleanup of these materials may all be regulated as a hazardous waste, and should all be containerized and handled as such until they are proven not to be.

For accumulation, transportation and disposal of wastes involving cleanup of spilled petroleum or hazardous materials products, immediately contact the designated client project representative. Off-site transportation of hazardous materials and wastes shall be done in strict accordance with [REDACTED] waste management procedures, Department of Transportation regulations, and Colorado solid waste and hazardous waste management regulations.

### ***EMPLOYEE TRAINING***

[REDACTED] has developed and implemented an employee training program designed to:

- Communicate the importance of minimizing impacts to the water resources of the State of Colorado; and
- Provide specific information regarding BMPs, construction practices and regulatory requirements relative to storm water pollution control.

The topics addressed as part of the training course include:

#### Storm Water Sources of Pollution Associated with Construction

Erosion

Sedimentation

The Effects of Erosion and Sedimentation on Water Bodies and Soils

#### Non-Storm Water Sources of Pollution Associated with Construction

Petroleum Spills

Equipment Maintenance, Servicing, and Refueling

Solid waste

Excess Soils

Drilling/Boring Wastes  
Wastewater Discharges  
Impacted Groundwater Discharges

Best Management Practices

Erosion and Sedimentation Prevention  
Construction Practices and Prohibitions  
Soil Stabilization Measures  
Structural Controls

EXAMPLE



**12 List and Evaluation of Potential Pollutants as Described in Subsection 107.25**

**12.1 Approved Method Statement for Containing Pollutant Byproducts for Concrete and Asphalt Saw Cutting, Grinding and Milling Containment and Removal**

# BLANK TEMPLATE Example

## Potential Pollutants List for CDOT Projects

POTENTIAL POLLUTANT SOURCE	POTENTIAL WITH THIS PROJECT?		ACTIVITIES ASSOCIATED WITH THIS POLLUTION SOURCE AND BMPs SELECTED TO CONTROL THE SOURCE
	Y	N	
<p><b>All disturbed and stored soils</b></p> <ul style="list-style-type: none"> <li>• Stockpiled soils (i.e. topsoil, embankments, wetland, spoils, etc)</li> <li>• Disturbed soils (exposed areas, staging areas, parking, etc)</li> </ul>			<p>Potential during all phases of construction activities, including but not limited to excavating, grading, cutting, filling, landscaping, etc. Potential pollutants include disturbed eroded sediment entering state waterways, inlets and sewers, and off CDOT right of way.</p> <p><u>BMPs</u></p> <p>Sediment control and stockpile containment may include usage of: silt fence, temporary berms, temporary sediment basin, gravel bags, check dams, landforms, asphalt diversion berms, and inlet protection as outlined in the SWMP narratives.</p> <p>Erosion Control may include: soil roughening, mulch/mulch tackifier application, seeding/mulching, temporary slope drains, and vegetative buffers.</p> <p>Administrative BMPs include site management and limiting number and locations of stockpiles. Phased construction to reduce the amount of open area at any given time.</p>
<p><b>Vehicle tracking of sediments</b></p>			<p>Potential during all construction activities.</p> <p><u>BMPs</u></p> <p>Sediment control including: vehicle tracking pads, street sweeping, and inlet protection.</p> <p>Minimize the number of entry and exit points, add orange perimeter fence to define construction entries/exits and establish perimeter control, and require equipment to be cleaned prior to arrival on site.</p>
<p><b>Management of contaminated soils</b></p>			<p>If contaminated soils/water are encountered, all activity shall be stopped until the situation can be assessed. The CDOT Project Manager will be contacted for further direction.</p>
<p><b>Loading and unloading operations</b></p>			<p>Potential during delivery and staging of materials, equipment, soil, debris, etc.</p> <p><u>BMPs</u></p> <p>Loading and unloading operations shall occur within the disturbance limits of the project using designated vehicle tracking pads.</p> <p>Administrative controls include site management to minimize the number of areas at which loading/unloading occurs. Education as to where access points are on the project to prevent vehicle tracking.</p>

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POTENTIAL POLLUTANT SOURCE	POTENTIAL WITH THIS PROJECT?		ACTIVITIES ASSOCIATED WITH THIS POLLUTION SOURCE AND BMPs SELECTED TO CONTROL THE SOURCE
	Y	N	
Outdoor storage activities (building materials, fertilizers, chemicals, etc)			<p>Potential during all phases of construction activities including delivery, staging/storage and use of various materials.</p> <p><u>BMPs</u></p> <p>Containment of the storage or staging areas using temporary berms. Use of secondary containment device for storage of chemicals and petroleum products. Chemicals shall not be used, stored or stockpiled within 50 feet of state waters.</p> <p>Administrative controls including site management to ensure limited amount of materials are stored on site and are placed in proper designated areas.</p>
Vehicle and equipment maintenance and fueling			<p>Fueling of equipment or vehicles and equipment or vehicle repair activities may occur during all phases of construction activity.</p> <p><u>BMPs</u></p> <p>Limit areas where fueling occurs (no less than 50 feet from any state water, inlet, flow line). Ensure Spill Response kit is accessible where fueling is taking place. Use of plastic sheeting, drip pans, dirt berms and other measures to contain fluids. Immediate clean-up and disposal of spoils as detailed in the Spill Prevention, Control and Countermeasure Plan.</p> <p>Administrative controls include site management to limit equipment and vehicle maintenance that occurs on site.</p>
Significant dust or particulate generating processes			<p>Potential during clearing and grubbing, cut/fill activities, sawcutting/sanding work and final stabilization.</p> <p><u>BMPs</u></p> <p>Water truck on site for use as needed to minimize dust production. Use of pickup broom or vacuum during or immediately following sawcutting projects.</p>
Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.			<p>Very few routine maintenance activities will occur on site. See Vehicle and Equipment maintenance for activities associated with those items.</p> <p><u>BMPs</u></p> <p>See Vehicle and Equipment Maintenance</p>

# BLANK TEMPLATE

POTENTIAL POLLUTANT SOURCE	POTENTIAL WITH THIS PROJECT?		ACTIVITIES ASSOCIATED WITH THIS POLLUTION SOURCE AND BMPs SELECTED TO CONTROL THE SOURCE
	Y	N	
<b>On-site waste management practices (waste piles, liquid wastes, dumpsters, etc.)</b>			<p>All activities including clear and grubbing, demolition activities, et.</p> <p><u>BMPs</u></p> <p>Trash receptacles will be placed on site and garbage disposed of when full. Public trash will be routinely picked up around the site (daily) and disposed of in proper containers. Wastepiles shall be placed a minimum of 50 feet from state waters, contained by earthen berms, silt fence, erosion logs, and landforms. Wastepiles shall be placed in areas where stormwater runoff would not result in contamination of state waters.</p> <p>Liquid wastes will be contained and removed from site and properly disposed of by the subcontractors/contractor generating wastes in accordance with the Spill Prevention, Control and Countermeasure Plan.</p>
<b>Non-industrial waste sources such as worker trash and portable toilets</b>			<p>Potential throughout construction.</p> <p><u>BMPs</u></p> <p>See onsite waste management.</p> <p>Cleanup of trash will occur daily. A dumpster will be placed on site, at our office trailer. This will be emptied on a weekly basis, and more often, if waste amounts warrant extra pick-ups. Portable toilets will be located a minimum of 50 feet from state waters.</p> <p>They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills. Administrative controls will include site management practices to ensure workers are placing trash in the appropriate dumpsters. Monitoring to ensure trash dumpsters are removed from the site when full. Monitoring to ensure portable toilets are cleaned as needed, and repaired or removed if found to be leaking.</p>
<b>Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment</b>			<p>Activities associated with this pollution source are concrete pours.</p> <p><u>BMPs</u></p> <p>Dedicated concrete washout areas that are clearly marked and maintained.</p>
<b>Dedicated asphalt and concrete batch plants</b>			<p>Activities associated with asphalt and concrete batch plants.</p> <p><u>BMPs</u></p> <p>Perimeter controls, concrete washout area, and vehicle tracking pad.</p>
<b>Other areas or procedures where spills can occur</b>			<p>Any additional potential pollutants shall be identified below.</p>

Note: If "Yes" is marked, identified items/products will be used on site during construction and therefore have the potential for being a pollution source if not properly handled.



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**POTENTIAL POLLUTANTS ASSOCIATED WITH**

**PROJECT NAME:**

**LOCATION:**

**1. Stockpiled soils (i.e. embankment):**

This item has a potential during all phases of construction activities, including but not limited to excavating, grading, cutting, and Filling. Potential pollutants include disturbed eroded sediment leaving the site.

BMP's- Sediment control and stockpile containment may include usage of: silt fence, erosion logs, temporary berms, and check dams. This will also be minimized by limiting phases of construction to reduce the amount of open area at any given time.

**2. Disturbed soils (exposed areas, staging areas, and parking areas)**

This item has a potential during all phases of construction activities, including but not limited to excavating, grading, cutting, and Filling. Potential pollutants include disturbed eroded sediment leaving the site and entering drainage ditches.

BMP's- Sediment control and stockpile containment may include usage of: silt fence, erosion logs, temporary berms, check dams, perimeter control. This will also be minimized by limiting phases of construction to reduce the amount of open area at any given time.

**3. Management of Contaminated Soils:**

No unknown contaminated soils are expected to be encountered during this project. If contaminated soils/water is encountered, all activity in this location will be stopped until the situation can be further assessed. The Superintendent, Erosion Control Supervisor, and representative of WHMD will be contacted for further direction.



#### **4. Vehicle and Equipment Maintenance and Fueling:**

Fueling and greasing of equipment or vehicles and equipment or vehicle repair activities may occur during all phases of construction on this project.

BMP's- We will limit the areas where fueling will occur. We will be no less than 50-feet from any water source, inlet, or flow line. Our fuel/grease truck is equipped with a spill response kit. In case of any spill, we will follow the procedures set forth in our Spill Prevention, Control, and Countermeasure Plan.

#### **5. Loading and Unloading Operations**

This is not anticipated to be an issue for this project.

#### **6. Significant Dust or Particle Generating Process:**

This item has a potential while hauling materials on site, cut & fill operations.

BMP's- Our Project crew will have the means to spray water on all exposed surfaces to keep significant dust to a minimum.

#### **7. On-Site Waste Management Practices (Waste Piles, Liquid Waste, & Dumpsters:**

BMP's- A trash receptacle will be placed on site and garbage disposed of when it is full. Public trash will be routinely policed up around the job site and disposed of in proper containers. Any waste pile will be placed at a minimum of 50 feet from any water source and will be contained by either erosion logs or by earthen berms. Waste piles will be placed in areas where stormwater run-off will not result in contamination of any water source.

#### **8. Vehicle Tracking Control**

Due to the remote location, and distance from any paved roads, the risk of tracking materials off site is not anticipated to be an issue.

#### **9. Concrete Truck/Equipment Washing, Including the Concrete Truck Chute and Associated Fixtures and Equipment:**

This item is expected and anticipated throughout the duration of this project.

BMP's – Concrete Washout Area will be installed, and regular inspection and maintenance will be implemented.

#### **10. Non-Industrial Waste Sources such as Worker Trash and Portable Toilets:**

This item has a potential throughout the construction period.

BMP's- Clean-up of trash will be a daily task for our crews. This will be performed on a weekly basis, and more often, if waste amounts warrant additional daily pick-

ups. Portable Johns will be placed on site and away from any water source. They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills.

Administrative Controls will include site management practices to ensure workers are placing trash in the appropriate dumpsters. Monitoring to ensure portable toilets are cleaned as needed, and repaired or removed if found to be leaking.

### **11. Construction Dewatering:**

This item has potential of contamination during the dewatering operations on site.

**If Dewatering is required:** The following guidelines will be implemented:

BMP's – Sump – The sump area will consist of a steel perforated pipe surrounded with ¾" to 1 ½" Clean Wash Rock to filtrate the water. The discharge are may consist of the following BMP's – Dewatering Bag with Erosion Log Check Dams or Filter Fabric with Rock Check Dams. Testing of discharged water will be conducted weekly per the CDPHE Dewatering Permit.

### **12. Designated Concrete and Asphalt Batch Plants:**

Not applicable to this Project.

### **13. Water Diversion: (when or as needed)**

This item has potential of contamination during the diversion of water on site.

BMP's – Per the Erosion Control Plans, Cofferdams will be used to keep water off each worksite. Materials used must be erosion resistant and shall not cause damage to the diversion of water. Cofferdams will be completely removed after construction of each site has been completed.

# List of Potential Pollutants

## Disturbed Soils Stored Soils

**Potential: Yes**

**Control Measure:** Sediment control and stockpile containment may include usage of: silt fence, erosion logs, temporary berms, and check dams. This will also be minimized by limiting phases of construction to reduce the amount of open area at any given time.

## Stored Soils

**Potential: Yes**

**Control Measure:** Sediment control and stockpile containment may include usage of: silt fence, erosion logs, temporary berms, check dams, perimeter control. This will also be minimized by limiting phases of construction to reduce the amount of open area at any given time.

## Vehicle Tracking

**Potential: Yes**

**Control Measure:** A tracking pad shall be installed and maintained at the entrance to the site.

## Contaminated Soils

**Potential: Yes**

**Control Measure:** Spill kits are located in on site work vehicles, tool trailers, storage containers, and equipment. Hazardous materials management and spill response procedures will be followed.

## Loading and Unloading Operations

**Potential: Yes**

**Control Measure:** Proper planning and coordination will ensure all loading and unloading practices will be completed in pre-defined areas. All site access shall be through the designated access point.

## **Vehicle and Equipment Maintenance and Fueling**

**Potential: Yes**

**Control Measure:** We will limit the areas where fueling will occur. We will be no less than 50-feet from any water source, inlet, or flow line. Our fuel/grease truck is equipped with a spill response kit. In case of any spill, we will follow the procedures set forth in our Spill Prevention, Control, and Countermeasure Plan.

## **Outdoor Storage (building materials, fertilizers, chemicals, etc.)**

**Potential: No**

**Control Measure:** Materials will be stored in a pre-defined storage area, with secondary containment for hazardous materials.

## **Significant Dust or Particle Generating Process**

**Potential: Yes**

**Control Measure:** Our Project crew will have the means to spray water on all exposed surfaces to keep significant dust to a minimum.

## **Routine Maintenance (fertilizers, herbicides pesticides, detergents, solvents, fuel, oil, etc.)**

**Potential: No**

**Control Measure:**

## **Non-Industrial Waste**

**Potential: Yes**

**Control Measure:** Clean-up of trash will be a daily task for our crews. This will be performed on a weekly basis, and more often, if waste amounts warrant additional daily pick-ups. Portable Johns will be placed on site and away from any water source. They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills.

## **On Site Industrial Waste**

**Potential: Yes**

**Control Measure:** A trash receptacle will be placed on site and garbage disposed of when it is full. Public trash will be routinely policed up around the job site and disposed of in proper containers. Any waste pile will be placed at a minimum of 50 feet from any water source and will be contained by either erosion logs or by earthen berms. Waste piles will be placed in areas where stormwater run-off will not result in contamination of any water source.

## **Concrete Truck/Equipment Washing**

**Potential: No**

**Control Measure:**

## **Construction Dewatering**

**Potential: No**

**Control Measure:** Sump – The sump area will consist of a steel perforated pipe surrounded with ¾” to 1 ½” Clean Wash Rock to filtrate the water. The discharge area may consist of the following BMP’s – Dewatering Bag with Erosion Log Check Dams or Filter Fabric with Rock Check Dams. Testing of discharged water will be conducted weekly per the CDPHE Dewatering Permit.

## **Drywall Mud and Paint**

**Potential: No**

**Control Measure:**

## **Fly Ash**

**Potential: No**

**Control Measure:**

## **Dedicated Asphalt Plants, Concrete Batch Plants, Masonry Mixing Stations**

**Potential: No**

**Control Measure:** Materials will be stored in a pre-defined storage area, with secondary containment for hazardous materials.



## **13 Other Correspondence**

### **13.1 Agreements with Other MS4s**

### **13.2 Approved Deferral Request**

### **13.3 CDPHE Audit Documentation**

### **13.4 Water Quality Permit Transfer to Maintenance Punch List**

### **13.5 Audits by Other Agencies**

### **13.6 Revisions to the Stormwater Construction Permit**



## 14 TECS Certifications of the SWMP Administrator and Erosion Control Inspectors

# Transportation Erosion Control Supervisor Certification



**COLORADO**  
Department of  
Transportation


[REDACTED]

In accordance to the Standard Specifications for Road and Bridge Construction per section 208.03 stating, "All ECM staff shall have working knowledge and experience in construction, and shall have successfully completed the Transportation Erosion Control Supervisor Certificate Training (TECS) as provided by the Department". I hereby certify that Valerie Stanson has successfully completed training and has earned the Transportation Erosion Control Supervisor certification.

[REDACTED]

Certification Number: [REDACTED]

Certification Expires on: [REDACTED]



**15 Environmental Pre-construction Conference Agenda with a Certification of Understanding of the Terms and Conditions of the CDPS-SCP and SWMP**

**15.1 The Certification shall be signed by all attendees and new subcontractors**



**1. Introductions**

	<b>Name</b>	<b>Phone number</b>	<b>Email Address</b>
Project Engineer			
Superintendent			
Contractor's SWMP Administrator			
Supervisors or Foremen			
RWPCM			
CDOT SWMP Preparer or Reviewer			

**2. Purpose of the Environmental Preconstruction Conference**

- a) The purpose of this required Environmental Preconstruction Conference is to help the project team understand the terms and conditions of the CDPHE's Colorado Discharge Permit System - Stormwater Construction Permit (CDPS-SCP and referred to in this document as the Permit) and certain CDOT specifications regarding water quality. We will discuss the following topics:
  - Goal of the Permit and the Stormwater Management Plan (SWMP)
  - Inspections
  - Regulatory Mechanism for Water Quality
  - Required document submittals prior to construction
  - The SWMP sections (with the TECS).
- b) At the conclusion of this Environmental Preconstruction Conference, each attendee is required to sign a certificate that they understand the topics discussed at this conference (terms and conditions of the Permit and the SWMP). Any other sub-contractors that come onto the project site during construction shall also be made aware of these topics, and they shall sign the certification per 208.03(d)15.

**3. Goal of the Permit and the SWMP**

- a) Basic concept is that stormwater runoff caused by precipitation is OK. It's the pollutants collected in the runoff as it is conveyed through our construction site that is the problem.
- b) Our goal is to contain, reduce or eliminate the pollution to the stormwater runoff that is caused by the project's construction activities be it grading, paving, painting, or simply where we park our vehicles and dispose of our trash.
- c) This project has a Permit from the CDPHE. Under this Permit, facilities are granted authorization to discharge stormwater associated with construction activities into

waters of the state of Colorado; however, there are regulatory requirements that we need to comply with to protect water quality as defined in the Permit.

- d) A SWMP is required on all projects with a Permit. The SWMP must include a description of all stormwater management controls that will be implemented as part of the construction activity to control pollutants in stormwater discharges such as sediment, chemicals and trash.
- e) The Contractor is responsible for making their own determination as to the adequacy and locations of BMP types, and shall amend the SWMP in accordance with Section 208.

#### 4. Inspections

- a) **Project Start Date:** Prior to construction other than the installation of BMPs, the Region Water Pollution Control Manager (RWPCM) and the contractor's TECS shall inspect the project to determine whether the BMPs described in the plans and the site specific SWMP are installed and located correctly for the initial phase of the Contractor's work. Notice shall be given to all participants at least 3 working days in advance per specification 208.03. The Project Engineer and Superintendent are also urged to attend.

The anticipated date of inspection is: \_\_\_\_\_

- b) **7-day and post-storm event inspections** by the Erosion Control Inspector (ECI), Superintendent and Project Engineer per specification 208.03(c)2.iii.
- c) **Headquarters or Region Routine Audit** (also called Monthly Audit Reviews or MARs) performed by the RWPCM/Designee or HQ staff per CDOTs Municipal Separate Storm Sewer System (MS4) permit. Routine Audits must be conducted at a minimum of every 45 calendar days, and the SWMP Administrator will be notified a minimum of 5 calendar days in advance. Attendees include the RWPCM/Designee or HQ staff and the SWMP Administrator. The concept of the Routine Audits is to initially assess each project for their level of environmental risk to adversely impact State Waters, and then continually reassess the project's performance throughout the duration of the project. Environmental risk is based upon factors such as proximity to State Waters, amount of acres of disturbance, type of project, soil classification, slopes and type of "findings" identified during the Routine Audits. The items identified in the Routine Audits that need to be corrected must be documented with photographs and submitted to the Engineer.
- d) **Local Jurisdictional and Qualifying Local Program inspections** may also be required per 107.02, per 208.03(c)2(4) and Part 1,A.3(h) of the Permit unless a waiver or other agreement has been made.

#### 5. Regulatory Mechanism for Water Quality

- a) Failure to implement the SWMP is a violation of the Permit and CDOT specifications. Penalties may be assessed to the Contractor by the appropriate agencies. Any penalties (including monetary fines) assessed to the Department for the Contractor's

failure to implement the SWMP will be deducted from moneys due the Contractor in accordance with subsection 107.25(d). See subsection 208.09 for further information about Regulatory Mechanism for Water Quality such as Regular Finding, Severe Finding, Chronic Finding, Recalcitrance, Deferment, Liquidated Damages and Stop Work Orders.

- b) When a failure meets any one of the following conditions, the Engineer may immediately issue a Stop Work Order in accordance with subsection 105.01 irrespective of any other available remedy:
  - 1. It may endanger health or the environment.
  - 2. It consists of a spill or discharge of hazardous substances or oil which may cause pollution of the waters of the state.
  - 3. It consists of a discharge of stormwater which may cause an exceedance of a water quality standard.

## 6. Required Document Submittals

- a) A Colorado Discharge Permit System - Stormwater Construction Permit (the Permit) per 107.25(c)
- b) Erosion and Sediment Control Activities included in the project schedule per 208.03(b).
- c) Clean Equipment Certification submitted prior to the start of work per 107.25(b)19.
- d) The SWMP will be provided by the Engineer to the contractor at the time of the Pre-construction Conference per 208.03(d)1.
- e) List of Potential Pollutant Sources submitted prior to the Environmental Pre-construction Conference per 107.25(b)6.
- f) Transportation Erosion Control Supervisory Certificate (TECS) per 208.03(c).
- g) A Spill Response Plan submitted at or prior to the Environmental Pre-construction Conference per 208.06(c) and 107.25(b)6.
- h) Certified Weed Free hay or straw Erosion Bales per 208.02(a) and 213.02.
- i) Method Statement for Containing Pollutant Byproducts submitted a minimum of ten days prior to the start of the construction activity per 107.25(b)13 which can reference information found in 208.02(j) and (k).
- j) Soil Retention Blankets Subsection 216.02(c): **Staples**. A sample of the staples and a Certificate of Compliance (COC) including the manufacturer's product data showing that the product meets the Contract requirements shall be submitted for approval at the Environmental Pre-construction Conference. Installation of the blanket will not begin until approval has been received from the Engineer in writing.

## 7. The SWMP:

- a) This is for the TECS to update and revise as needed. Read all areas prior to the start of construction to make sure they are correct and apply to this project. The SWMP is and shall remain the property of CDOT. The SWMP will be stored in the CDOT field office or at another on-site location approved by the Engineer.

- b) The following Contract documents and per reports shall be kept, maintained, and updated in the SWMP by the SWMP Administrator per 208.03(d)1:
1. SWMP Plan Sheets.
  2. SWMP Site Maps and Project Plan Title Sheet.
  3. Specifications - Standard and project special provisions related to stormwater and erosion control Copies of subsection 107.25, and Sections 207, 208, 212, 213, and 216 of the Standard Specifications, and the standard and project special provisions that modify them.
  4. Standard Plans M-208-1, M-216-1 and M-615-1.
  5. Control Measure Details not in Standard Plan M-208-1 - Non-standard details.
  6. Weekly meeting sign-in sheet and weekly meeting notes.
  7. Calendar of Inspections - Calendar of inspections marking when all inspections take place.
  8. Contractor Stormwater Field Inspection Reports (Forms 1176, 1177).
  9. All Water Quality Audit Reports and Form 105(s) relating to Water Quality.
  10. Description of Inspection and Maintenance Methods - Description of inspection and maintenance methods implemented at the site to maintain all control measures identified in the SWMP and items not addressed in the design.
  11. Spill Response Plan - Reports of reportable spills submitted to CDPHE.
  12. List and Evaluation of Potential Pollutants - List of potential pollutants as described in subsection 107.25 and approved Method Statement for containing Pollutant Byproducts.
  13. Other Correspondence including agreements with other MS4s, approved deferral request, CDPHE audit documentation, Water Quality Permit Transfer to Maintenance Punch List, and other miscellaneous documentation such as documented use agreements for areas outside of the permitted area.
  14. TECS Certifications of the SWMP Administrator and all ECIs, kept current through the life of the project.
  15. Environmental Pre-construction Conference - Conference agenda with a certification of understanding of the terms and conditions of the CDPS-SCP and SWMP. The certification shall be signed by all attendees. A certification shall also be signed by all attendees of meetings held for new subcontractors beginning work on the project that could adversely affect water quality after the Environmental Pre-construction Conference has been held.
  16. Project Environmental Permits - All project environmental permits and associated applications and certifications, including: CDPS-SCP, Senate Bill 40, USACE 404, temporary stream crossings, dewatering, biological opinions, and all other permits applicable to the project, including any separate CDPS-SCP obtained by the Contractor for staging area on private property, asphalt or concrete batch plant, etc.
  17. Photographs Documenting Existing Vegetation - Project photographs shall include the following information with the record: project number, project code, name of the person who took the picture, date and time the picture was taken, and location and approximate station number or mile marker. The Contractor shall submit photographs documenting existing vegetation, prior to construction

commencing, on paper with a maximum of four colored images per side of 8 ½ inch by 11 inch sheet or a digital copy on CD-ROM/Flash Drive (JPG format) as directed by the Engineer.

18. Permanent Water Quality Plan Sheets - Plan sheets and specifications for permanent water quality structures and riprap.

**8. Environmental issues:**

- a) SWMP should include practices to ensure that existing vegetation is preserved where possible per 101.78, 208.03(6) and Part 1,B.1.a.i and Part 1,B.1.a.i.d of the Permit.
- b) SWMP should include practices to ensure protection of existing wetlands per 101.78 and 208.03(6).
- c) Protection of threatened and endangered species (T&E habitat) (Biological Resources Report).
- d) Requirements of dewatering per 107.25(b)8.

**9. New requirements from specification updates (includes but not limited to):**

- a) See subsection 208.09 for further information about Regulatory Mechanism for Water Quality such as Regular Finding, Severe Finding, Chronic Finding, Recalcitrance, Deferment, Liquidated Damages and Stop Work Orders.
- b) Stabilization is now defined as temporary, interim, permanent and final. The maximum area of temporary stabilization shall not exceed 20 acres per 208.04(e)1.
- c) Per 208.03(c)2, one ECI is required for every 40 acres of total disturbed area which is currently receiving temporary and interim stabilization measures as defined in subsection 208.04(e). An ECI shall not be responsible for more than 40 acres in the project. Accepted permanent stabilization methods as defined in subsection 208.04(e) will not be included in the 40 acres.
- d) 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 per 208.01.
- e) Vegetative buffers shall not be used as a sole control measure. They shall only be used as the final stage of a treatment train per 208.03(c)17.

**10. Additional References:**

- a) CDOT Erosion Control and Stormwater Quality Guide.
- b) CDOT Erosion Control and Stormwater Quality Field Guide.
- c) The CDOT H2O Website for TECS Learning:  
[http://h2o.codot.gov/portal\\_wap/tecs/main/index.aspx](http://h2o.codot.gov/portal_wap/tecs/main/index.aspx)



**16 All Project Environmental Permits**

**16.1 Any Local Agency, State, or Federal Permits**

**16.2 Include permit applications, permits, transfers, inactivation, and acceptance of inactivation**

**16.3 Clean Water Diversion, In-stream Work and Work Access Design Related to 404 Permits or Work in or Adjacent to Waters of the State (Subsection 107.25)**



**COLORADO**

Department of Public Health & Environment

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

[Redacted]  
CDOT

[Redacted]  
[Redacted]

[Redacted], Project Manager

[Redacted]  
[Redacted]  
[Redacted]

DATE: [Redacted]

MEMO RE: Transfer Certification, Colorado Discharge Permit System  
Permit No., COR400000, Certification Number: [Redacted]

DIVISION CONTACTS: [Redacted]

ATTACHMENTS: Certification COR407030, [COR400000 General Permit](#)

The Water Quality Control Division (the Division) has reviewed the application submitted for the [Redacted] and determined that it qualifies for coverage under the CDPS General Permit for Stormwater Discharges Associated with Construction Activities (the permit). Enclosed please find a copy of the permit certification, which was issued under the Colorado Water Quality Control Act.

**FEE INFORMATION: 3.0 acres**  
There is no fee for this transfer application.

It is the responsibility of the permittee to submit a termination application when the permit is no longer needed. Fees are assessed and invoiced for every permit that is active July 1 of the fiscal year. Permits for which termination applications are received by [Redacted] of the current fiscal year will not be invoiced for the new fiscal year.

**CERTIFICATION RECORDS INFORMATION:**  
The following information is what the Division records show for this certification.  
For any changes to Contacts - Owner, Operator, Facility, or Billing - a "Notice of Change of Contacts form" must be managed through the Division's new platform called the Colorado Environmental Online Services (CEOS). The Notice of Change of Contacts form must be electronically signed by both the owner and the operator.

**Facility:** [Redacted]  
Construction Activities Highway and Transportation Development  
**Owner (receives all legal documentation pertaining to the permit certification):**  
[Redacted] Resident Engineer  
CDOT  
[Redacted]  
[Redacted]  
Phone number: [Redacted]  
Email: [Redacted]

**Operator (receives all legal documentation pertaining to the permit certification):**  
[Redacted]  
[Redacted]  
[Redacted]  
[Redacted]  
Phone number: [Redacted]  
Email: [Redacted]

**Facility Contact (contacted for general inquiries regarding the facility):**  
[Redacted] Regional Water Pollution Control Mgr  
CDOT  
[Redacted]  
[Redacted]  
Phone number: [Redacted]  
Email: [Redacted]







**COLORADO**

Department of Public Health & Environment

**CERTIFICATION TO DISCHARGE  
UNDER  
CDPS GENERAL PERMIT COR400000  
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES**

Certification Number: [REDACTED]

**This Certification to Discharge specifically authorizes:**

**Owner CDOT**

**Operator [REDACTED]**

to discharge stormwater from the facility identified as

[REDACTED]

**To the waters of the State of Colorado, including, but not limited to:**

**Arkansas River, Fountain Creek**

**Facility Activity :**

Highway and Transportation Development

**Disturbed Acres:**

3.0 acres

**Facility Located at:**

[REDACTED]  
[REDACTED]  
[REDACTED]

**Specific Information  
(if applicable):**

**Certification is issued and effective:** [REDACTED]

**Expiration date of general permit:** [REDACTED]

This certification under the permit requires that specific actions be performed at designated times. The certification holder is legally obligated to comply with all terms and conditions of the permit.

This certification was approved by:

[REDACTED] Section Manager  
Permits Section  
Water Quality Control Division



## 17 Photographs Documenting Existing Vegetation



## 4.11 Method of Measurement for Vegetative Cover

This section describes the basis for determining final stabilization as required for terminating coverage under the “General Permit for Stormwater Discharges Associated with Construction Activity.”

### 4.11.1 Vegetative Cover

The restoration for final stabilization shall form an effective and permanent vegetative cover that prevents soil movements prior to termination under the CDPS permit. The minimum vegetative cover requirement shall be the amount of cover sufficient to prevent accelerated erosion. Accelerated erosion shall be defined as rills of 2 inches deep or more, earth slides, mud flows, sediment deposition, or evidence of concentrated flows of water over bare soils.

The CDOT staff shall take into consideration final stabilization in relation to the level of vegetation cover at the site prior to disturbance.

### 4.11.2 Documentation

Documentation supporting that the site has been adequately stabilized to 70 percent of predisturbance cover and does not show signs of accelerated erosion shall be submitted. The documentation required shall include the following:

1. Pictures of the desirable plant growth (State and County noxious weeds excluded) at the construction project site shall be required prior to construction disturbance and when determining that final stabilization is adequate. Pictures of the location where each transect (see below) was conducted shall be required. Low-level photography shall occur at approximately 90 degrees to the surface in order to properly assess ground cover.
2. A minimum of at least one 50-foot transect of pre-construction and post-construction cover shall be conducted for every 5 acres that is cleared, graded, or excavated. The CHAPTER 4 STORMWATER MANAGEMENT PLAN PROCEDURES 4-11 environmental specialists shall determine the number of transects required for large construction projects (>20 acres).

Transects shall be located in an area(s) that is representative of the revegetation for the whole construction project. Transects shall be conducted by laying out a 50-foot tape. At every footmark, it must be noted whether vegetation or bare soil is encountered. (Vegetation consists of viable grasses, shrubs, trees, or forbs.) Results are to be expressed as a percent cover.

For example: One transect of 50 points in which 28 points exhibit cover is  $(28/50) = 0.56 = 56$  percent cover.

For example: Combined transects of 50 points each in which 28 points exhibit cover in one transect and 41 points exhibit cover in the other transect is  $(28+41)/ 100 = 69/ 100 = 0.69 = 69$  percent cover.

## Transect Work Sheet

Project Name & S/A \_\_\_\_\_

No.	Location Description	Pre-Exisitng Conditions					Final Stabilization Conditions						
		Transect Length (ft)	Vegetation/ ft	% Vegetation (Page 3)	Photo No.	Initial/Date	Transect Length (ft)	Vegetation/ ft	% Vegetation	70% Ex. Veg. Rqrd (Page 4)	Meets Reqrd 70% Ex. Veg. (Y/N)	Photo No.	Initial/Date
1													
2													
3													
4													
5													
6													
7													

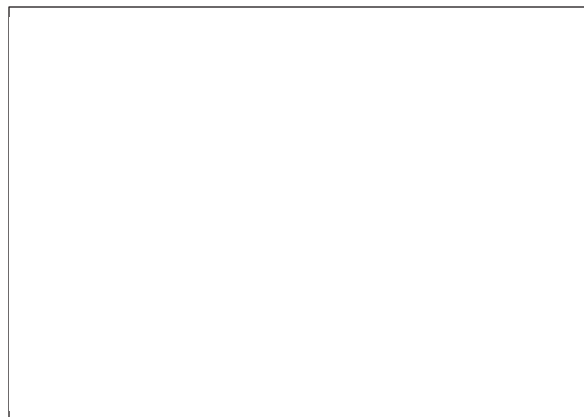
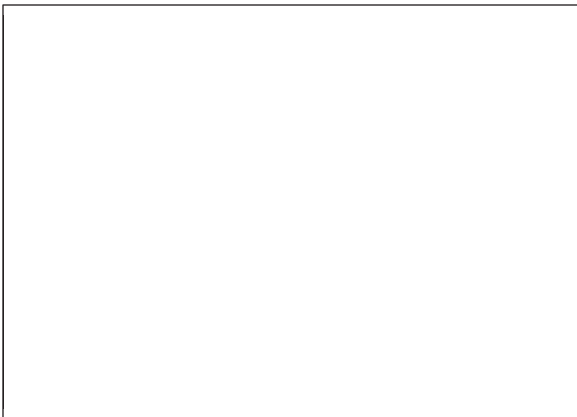
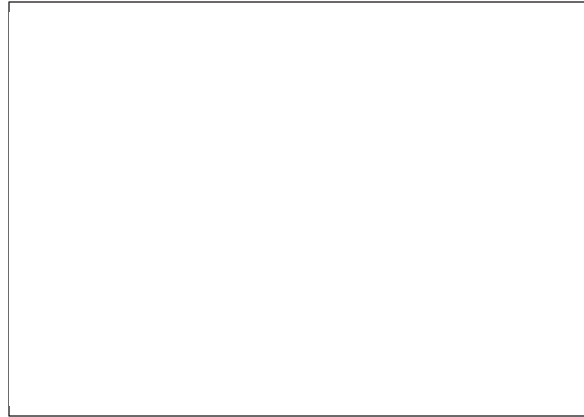
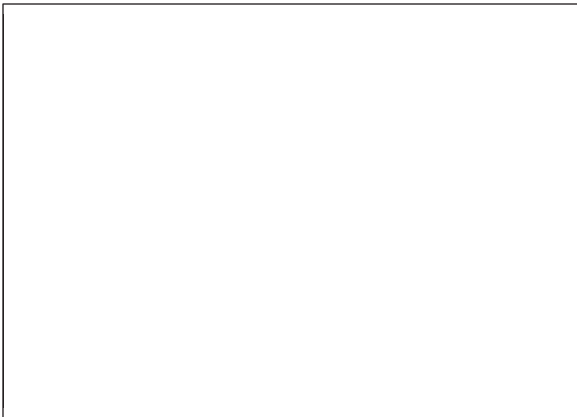
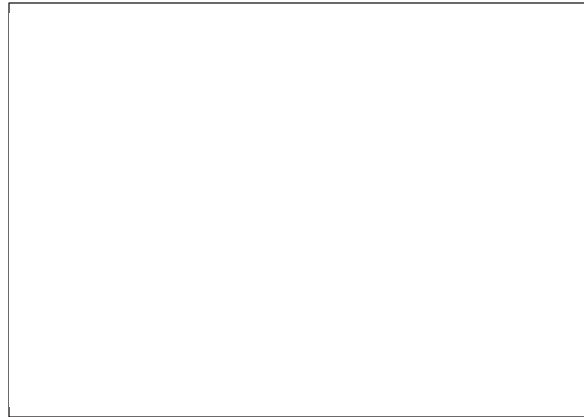
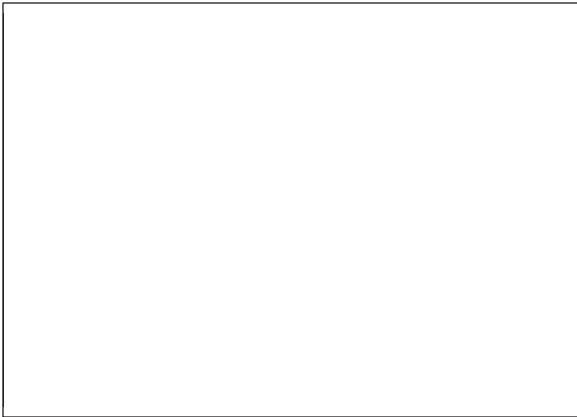
# BLANK TEMPLATE

## Photographs Documenting Existing Vegetation

Project: \_\_\_\_\_

Date of photos: \_\_\_\_\_

Photos taken by: \_\_\_\_\_



3. In areas in which final stabilization may be less than satisfactory (less than 70 percent of pre-construction cover) due to poor soil or other natural site conditions, the CDOT representative shall document the percent cover of the indigenous vegetation with pictures and a transect(s).

## **18 Permanent Water Quality Plan Sheets**

### **18.1 Plan sheets and specification for permanent water quality structures, riprap.**