Construction Stormwater Management Plan

For

FOOD BANK OF THE ROCKIES

2294 Tall Grass Drive

4-8-21

CSWMP Preparer: Emma Gardner
123 N 7th Street
Grand Junction, CO 81501
970-242-7540

Introduction

The following CSWMP is organized and presented as follows:

Section 1. Qualified Stormwater Manager

Please list the individuals(s) by Title and Name who are designated as the site's Qualified Stormwater Manager(s) responsible for implementing the CSWMP in its entirety.

1. *TBD*
2. _____
3. _____

Provide Name, Phone number and Email address and/or 3rd party inspection company contact information here, if applicable.

Name: *TBD*

Phone: _____

Email: _____

Section 2. Spill Prevention and Response Plan

Briefly outline response procedures to a spill (e.g. fuels, oils, chemicals, paints, solvents, liquid admixtures, cement) by providing cleanup responsibilities and site contact information.

Cleanup of spills should begin immediately. The spill shall be assessed and the severity determined. Contact the spill cleanup coordinator immediately. No emulsifier or dispersant should be used. On all units requiring refueling, absorbent, materials should be packaged in small bags and stored in small drums or containers. Absorbent materials shall not be disposed into any drainage. It is the contractor's responsibility to make available all emergency phone number at the construction site and to notify the responsible agencies as soon as possible. It is the contractor's responsibility to ensure proper cleanup in a timely manner. All personnel should be trained in using the Spill Cleanup Kits.

For NON HAZARDOUS materials such as gasoline, diesel paint, or oil spilled in SMALL QUANTITIES that do not enter state water or threaten to do so, the following measures shall be implemented:
i. Use absorbent materials to contain spills and clean the area of residuals.
ii. Do not hose down spill area with water
iii. Dispose of the absorbent material properly.

For NON-HAZARDOUS materials that that qualify as a SIGNIFICANT SPILL, or spills of any size that enter state waters or have the potential to do so, the following measures shall be implemented:
i. Contact the CDPHE Environmental Emergency Spill Reporting Line (1-877-518-5608) within 24 hours of the spill event. A written notification of the CDPHE-EMP is necessary within 5 days.
ii. Contact the Colorado State Patrol 24-hour hotline (1-303-239-4501) if the spill is on a state highway.
iii. Report spill to foreman on site.
iv. Cleanup spill immediately. Use absorbent materials if the material is on an impermeable surface. Construct earthen dikes to contain spills on dirt areas. If rainfall is present, cover the spill with a tarp to prevent contaminated runoff.

For spills involving HAZARDOUS MATERIALS, the following measures shall be implemented:
i. Report spills to project foreman.
ii. Contact the local emergency response team by dialing 911.
iii. Contact the CDMPHE-EMP Environmental Emergency Spill Reporting Line (1-877-518-5608) within 24 hours of the spill event.
iv. Contact the Colorado State Patrol 24-hour hotline (1-303-239-4501) if the spill is on a state highway.
v. Call the CDOT illicit discharge hotline if spilled material spreads to a CDOT storm drain or waterway adjacent to CDOT right-of-way.
vi. Construction personnel shall not try to clean up the spill. A licensed contractor or HazMat team shall be used to properly clean up spills.

Section 3. Materials Handling

Describe the control measures that will be used at the site to minimize impacts from handling, storing and disposing/ recycling of ***significant materials*****,** which is any chemical or hazardous substance that exhibits ignitability, corrosivity, reactivity or toxicity characteristics that could potentially contribute pollutants to stormwater runoff.

a. On-Site chemical storage:

The project does not anticipate mixing or handling of chemical or hazardous substances other than construction equipment fueling and servicing operations. Fueling operations shall only occur with physical observation and monitoring to avoid fuel overflow. Grease cartridges shall be properly disposed of in approved containers on the jobsite.

b. Label System:

This section applies only when chemicals are stored onsite during any portion of the project. If chemicals are stored onsite, MSDS Sheets for these will be completed and clearly labeled in a notebook. This notebook will be located onsite.

c. Maintenance and Inspection:

Areas shall be inspected every 14 days after a storm event. All equipment and vehicles will be inspected routinely for leaks. A sufficient supply of cleanup materials will be kept at all maintenance areas and areas where leaks or spills may occur.

d. Waste Handling

Portable concrete washout facilities will be provided to wash out concrete trucks at the project site. Remaining waste will be disposed of and/or recycled in the appropriate manner with daily oversight by a Site

Section 4. Potential Sources of Pollution

List and identify ALL potential pollutant sources that may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the site.

A. Disturbed and stored soils

Site Clearing and Grubbing, Site Grading and Haul Routes can pulverize native soils and create airborne sediment (dust) from disturbed soils. These areas shall be sprayed with a water truck as needed to prevent airborne sediment.

Stored stockpiles from utility trenches, building foundations and loose bank material is sediment shall be contained with down gradient earth berms at the downstream side or toe of slope on stockpiles.

Additional control measures may include dust suppression with a water truck, vehicle tracking controls and maintaining pre-existing vegetation. When stockpiles sit for more than 14 days, tarps, tackifier, hydro seed of other 'crusting' methods will be used as temporary stabilization to prevent windblown sediment.

B. Vehicle tracking of sediments

Vehicle Tracking Control will be provided at the construction site entrance, and will be large clean angular rock. Control measures to mitigate off-site vehicle tracking include angular aggregate tracking pads at construction access points, operator awareness, exit surveys and street sweeping.

C. Management of contaminated soils

This project has the potential to contaminate soils with fuels, oils, grease, paints, solvents, dry mix chemical, tool cleaning waste and/or chemical, porta-john chemical, stucco and grout mixing operations, concrete washout waste, fertilizers, pesticides, detergents and/or industrial, municipal or agricultural waste. Petroleum products and liquid chemical over 55 gallons will have secondary containment. The site will provide a concrete washout for concrete trucks and other masonry waste. All other spills to the ground will be cleaned up according to the Spill Response procedures outlined in Section 2.

D. Loading and unloading operations

This project has the potential for spills during material delivery while loading or unloading. Loading and unloading operations shall be within the limits of disturbance as outlined on the site plan. Site personnel will clean up spills by following the Spill Prevention and Response Plan in Section 2.

E. Outdoor storage activities

All construction materials that pose a potential pollutant risk to ground or surface water when exposed to rainfall must be stored and protected from rainfall (trailer, zircon, or other approved equal) in the designated materials storage areas. All chemicals and fertilizers must be stored in weather proof containers or otherwise be protected from rainfall in the designated building materials storage areas.

F. Vehicle and equipment maintenance and fueling

Vehicle fueling and equipment maintenance has the potential to spill fuel, oils and other fluids to the ground. Construction equipment will be fueled and maintained offsite, however, if mechanical failure does occur, clean-up will follow the Spill Prevention and Response Plan in Section 2.

G. Significant dust or particulate generating processes

Haul road, earthwork operations and stockpile materials left unattended for any length of time has the potential to generate significant dust. Wood or concrete saw cutting can also generate airborne particulates. Control measures include surface roughening, moisture conditioning and parking and walking from paved surfaces. Saw cuttings will be swept and collected at regular intervals and not allowed to accumulate.

H. Routine maintenance activities involving fertilizers, pesticides, herbicides, fuels, solvents, oils, etc.

There is a potential for a spill during routine maintenance activities. In the event of a spill, site personnel will follow the Spill Prevention and Response Plan in Section 2.

I. On-site waste management practices (waste piles, liquid wastes, dumpsters)

On site waste will be generated during all phases of construction. Potential pollutants include concrete wash water, tool cleaning, asphalt debris, worker trash, wind-blown debris, building construction materials to include paint, solvents, mortar, grout, masonry, stucco, punctured bags of dry mix chemicals or additives, leaking or uncapped liquid chemicals, saw cutting debris, drywall debris, roofing materials, and other loose building material hardware and plastic.

Control measures include good housekeeping procedures, removing waste before it is allowed to accumulate, secondary containment on all mixing operations and familiarity with site personnel responsible for spill response.

J. Concrete truck/equipment washing, including washing of the concrete truck chute and associated fixtures and equipment

Concrete waste and concrete wash water are potential pollutants that will be generated on-site. Control measures designed for concrete washout waste will be implemented. This could include a portable metal containment tank, or an impermeable synthetic liner designed to control seepage when site soils lack the buffering capacity needed prior to reaching groundwater

K. Dedicated asphalt, concrete batch plants and masonry mixing stations

No asphalt or concrete batch plants are anticipated.

L. Non-industrial waste sources such as worker trash and portable toilets

Worker trash and portable toilets have pollutant potential. The site will provide waste receptacles and portable toilets on the job site. Dumpsters will be routinely emptied or covered to prevent wind-blown debris and portable toilets will be staked down to prevent tipping during high winds.

Section 5. Implementation of Control Measures

The CSWMP must include the design specifications of ALL control measures used on the project. Include applicable drawings, dimensions, installation, materials, implementation, control measure-specific inspection expectations and maintenance requirements.

Please see Control Measures in Appendix D.

Section 6. Site Description

A. Provide a description of the construction activity that is planned, to include the physical location, address and cross streets, type of project, and a summary of the work

The Food Bank of the Rockies Building project has a total disturbance of 6.5- acres. The project is located at 2294 Tall Grass Drive in Grand Junction, Colorado. See Appendix A for an aerial view of the project.

Land disturbing activities at the site will consist of clearing and grubbing, material stockpiling, site grading, excavations, cuts and fills, utility installation, concrete work, building foundations, building construction, asphalt pavement, and final landscaping.

Construction activities may include, but are not limited to, material import/export, concrete and asphalt placement, underground utility installation, vertical construction and landscaping.

B. The proposed sequence for major activities and the planned implementation of control measures for each phase

1) Installation of site access points, perimeter sediment control measures and offsite control measures.
2) Clearing and Grubbing.
3) Site Grading.
4) Underground Utility Installation.
5) Building Foundation.
6) Building Construction
7) Installation of temporary, interior control measures, such as a concrete washout area.
8) Concrete and Asphalt placement.
9) Construction of permanent stormwater control measures, such as a water quality pond.
10) Revision of temporary control measures to accommodate final landscaping.
11) Sodding and final landscaping.
12) Removal of temporary control measures and final cleaning of permanent control measures.

C. Estimates of the total acreage of the site, and the acreage expected to be disturbed by clearing, excavation, grading, and any other construction activities

Entire lot: 6.46-acres. Area to be disturbed: 6.5 acres.

D. A summary of any existing data used in the development of the construction site plans or CSWMP that describe the soil or existing potential for soil erosion

The project geotechnical report prepared by Huddleston-Berry Engineering and Testing, LLC, titled "Geotechnical and Geologic Hazards Investigation 2294 Tall Grass Drive Grand Junction, Colorado Project #01282-0002" indicates all soils on the site are Massadona Silty Clay Loam, 0-2% slopes hydrologic group "C". Topsoil material on the site is typically around 12" thick. These soils have slow infiltration rates when thoroughly wet and have slow rates of water Transmission.

Groundwater was detected approximately 7-ft below the ground surface.

E. A description of the existing vegetation at the site and an estimate of the percent vegetative ground cover

Existing vegetation on the site consists of various semi-desert shrubs and grasses such as sagebrush, rabbit brush and other plants. The undeveloped site has approximately 80% vegetative cover. See Appendix A for an aerial view of existing vegetation.

F. A description of any allowable non-stormwater discharges at the site, including those being discharged under a low risk discharge guidance policy

The following non-stormwater discharges are allowed under this permit if they are identified in the CSWMP and they have appropriate control measures in place:
1. *Discharges from uncontaminated springs that do not originate from an area of land disturbance*
2. *Discharges to the ground of concrete washout water to include the washing of concrete tools and mixer chutes*
3. *Discharges of irrigation return flow*
4. *Emergency fire-fighting activities*

It is understood that this permit does not authorize the discharge of non-storm water except those allowed above and it is understood that the project will need a separate de-watering permit to discharge groundwater off-site or to the MS4 (Municipal Separate Storm Sewer System) infrastructure.

G. A description of areas receiving discharge from the site, including a description of the immediate source receiving the discharge. If the stormwater discharge is to a MS4 (Municipal Separate Storm Sewer System), provide the name of the entity owning that system, the location of the storm sewer discharge, and the ultimate receiving water(s)

Stormwater drains into an existing storm sewer system in Long Acre Drive. This storm water system discharges to a detention pond approximately 500-ft south of the project site. The detention pond pumps water to a City of Grand Junction Storm Sewer Pipe which connects to the Appleton Drain which then outlets into the Colorado River about 0.6-miles south-west of the subject property.

H. A description of all stream crossings located within the construction site boundary

The site does not have any stream crossings within the construction site boundary.

Section 7. <u>Site Map</u>

The CSWMP must include a site map showing the entire area, control measures and runoff direction flow arrows:

A. Construction site boundaries;

The site map clearly identifies the boundaries of the property. Please see Appendix B.

B. Flow arrows that depict stormwater flow directions on-site and runoff direction;

The site map clearly identifies on-site and runoff direction with flow arrows. Please see Appendix B.

C. All areas of ground disturbance including areas of cut and fill;

The site map includes all areas of ground disturbance. Please see Appendix B.

**Since trying to fit existing and planned contour lines on the map can overcrowd it, it is acceptable and encouraged to include a separate map either with contour lines and preferably, color coded. However, including existing and new contours on the drawing will be acceptable. Please make sure the contours are properly labeled. In some cases, hatching may be needed but hatching should generally be avoided If it will make the drawing too difficult to read.*

D. Areas used for storage of soil;

The site map includes all areas used for storage of soil. Please See Appendix B.

**Since this determination is often made by the contractor just prior to construction, a note to that effect on the map along with the symbol to be used by the contractor to indicate those areas in the legend will be sufficient at the time of submittal. The contractor must make the requisite changes on the map before storing materials on the site.*

E. Locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt;

The site map includes all areas for liquid, concrete, masonry, and asphalt. Please see Appendix B.

F. Locations of all dedicated asphalt, concrete batch plants and masonry mixing stations;

There are no asphalt, concrete, or masonry mixing stations or batch plants.

**Identify initial areas. If there will be no dedicated asphalt or concrete batch plants on this project, document it here as well as in Section 4 Potential/Sources of Pollution.*

G. Locations of all structural control measures;

The site map includes all structural control measures. Please see Appendix B.

**These include, but are not limited to, straw wattles/sediment control logs, silt fence, vehicle tracking controls, compacted earthen berms, erosion control blankets, drainage swales, sediment traps, inlet protection, outlet protection, gabions, cutback curbs, etc. The map must clearly show the specific locations of each individual structural control measure implemented on the project. Please remember, that every control measure selected for your project must have a corresponding design and maintenance specification included in Section 5 Implementation of Control Measures.*

H. Locations of all non-structural control measures;

The site map includes all non-structural control measures. Please see Appendix B.

**These include, but are not limited to, surface roughening, temporary or permanent vegetation, mulching, sod stabilization, vegetative buffer strip, etc. Please remember that every control measure selected for your project must have a corresponding design and maintenance specification included in Section 5 Implementation of Control Measures.*

I. Locations of springs, streams, wetlands, and other state waters; including areas that require pre-existing vegetation be maintained within 50 feet of a receiving water, unless infeasible, must be documented;

There are no springs, streams, wetlands or state waters on the project site.

J. Locations of all stream crossings located within the construction site boundary;

The project does not have any stream crossings within the site boundaries.

Section 8: Final Stabilization and Long-Term Stormwater Management

Describe the practices used to achieve final stabilization of all disturbed areas at the site and any planned practices to control pollutants in stormwater discharges that will occur after construction operations are completed

Final Stabilization will be achieved when all ground surface disturbing activities at the construction site are complete, through either a uniform cover of an individual plant density of at least 70% of pre-disturbance levels or equivalent permanent pavement, hardscape, xeriscape or stabilized driving surface. Temporary CM's will remain in place until final stabilization has been reached, but will be removed once final stabilization has been achieved.

For residential sites, the permittee understands that they may remove residential lots from permit coverage once the lot is sold, a certificate of occupancy has been issued, the lot is less than an acre of disturbance, all construction activity by the permittee is complete, the permittee is no longer responsible for final stabilization of the lot, and the CSWMP Map has been modified.

Final stabilization will be designed, installed and approved by a Professional Engineer through a final drainage report where an appropriately sized, permanent water quality control measure may be implemented to control the discharge of pollutants to the MS4 or any unnamed waterway in the state of Colorado, after construction.

Through an Operations and Maintenance Agreement with the Mesa County Stormwater Division, the permittee or designee, agrees to conduct a yearly inspection of any permanent water quality control measure in the permitted area and ensure that it continues to operate and function as designed.

Section 9. Inspection Reports

Does the CSWMP include documented inspection reports in accordance with the permit?

A. Is the inspector a Qualified Stormwater Manager?

The construction contractor for the project has not been identified at this time and they will be responsible for providing stormwater management controls and inspections on the project.

B. Do inspection records meet the minimum required frequency?

Site inspections will start within 7 days of the start of construction. Inspections will be done once every 7 calendar days or once every 14 calendar days with post-storm event inspections conducted within 24 hours of any precipitation or snow melt event that causes erosion.

C. What areas will be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state water?

Inspections will include the site perimeter, all disturbed areas, designated haul routes, material and waste storage areas exposed to precipitation and locations where stormwater has the potential to discharge offsite.

D. Additional inspection report requirements

All implemented control measures will be visually vinified to be in effective operational condition and to work as designed to minimize pollutant discharges, identify new potential sources of pollutants and notify the permittee of any corrective actions that are necessary.

**The inspection report will include the date, Name and Title of the person conducting the inspection, weather conditions, phase of construction, estimated acreage of disturbance, location(s) of discharges of sediment or other pollutants from the site, location(s) of control measures requiring routine maintenance, location(s) and identification of additional control measures needed that were not in place at the time of inspection, a description of the minimum inspection frequency and any deviations from the minimum inspection schedule. Each report will conclude with the Qualified Storm water Manager signing and dating below the following statement:*

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

Section 10. CSWMP Preparer Statement

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

CSWMP Preparer*:* _____

Date*:* _____

Appendix A: Site Aerial View

Appendix B: Site Map

Appendix C: Inspection Report

Appendix D: Best Management Practices

APPENDIX A

SITE AERIAL VIEW

2294 Tall Grass Drive

N

0 0.03 0.07 mi

Printed: 4/8/2021

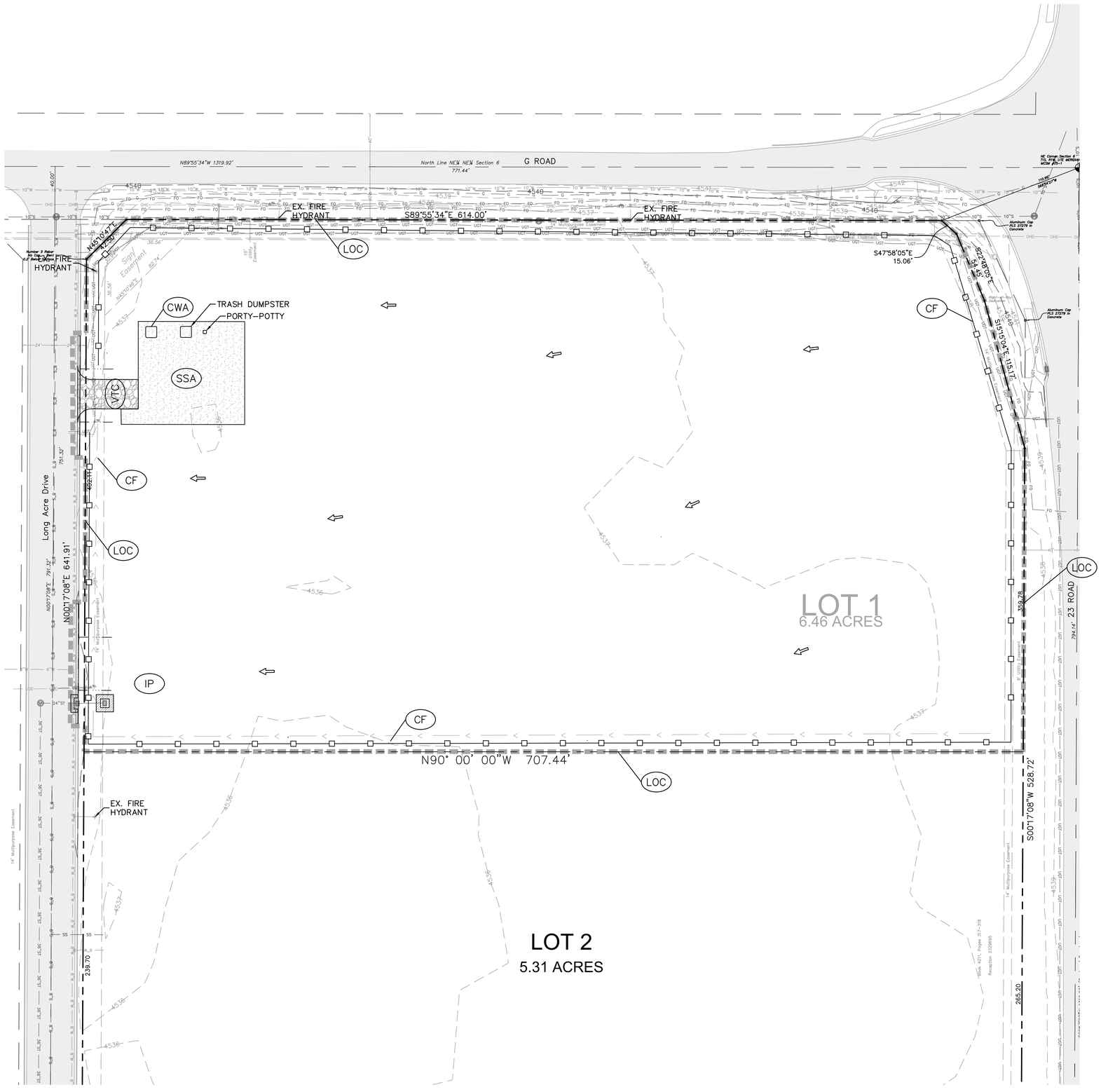
1 inch equals 94 feet

Scale: 1:1,128

CITY OF Grand Junction COLORADO GEOGRAPHIC INFORMATION SYSTEM

APPENDIX B

SITE MAP



0 20 40 60

N

BMP LEGEND

CD	CHECK DAM	
CB	COMPOST BLANKET	
CWA	CONCRETE WASHOUT AREA	
CF	CONSTRUCTION FENCE	
CM	CONSTRUCTION MARKER	
DW	DEWATERING	
DD	DIVERSION DITCH	
ECB	EROSION CONTROL BLANKET	
IP	INLET PROTECTION	
PB	PERIMETER BERM	
RCD	REINFORCED CHECK DAM	
RRB	REINFORCED ROCK BERM	
RRC	RRB FOR CULVERT PROTECTION	
SB	SEDIMENT BASIN	
SCL	SEDIMENT CONTROL LOG	
SF	SILT FENCE	
SFB	SEDIMENT FILTER BERM	
SM	SEEDING AND MULCHING	
SR	SURFACE ROUGHENING	
SSA	STABILIZED STAGING AREA	
ST	SEDIMENT TRAP	
TSD	TEMPORARY SLOPE DRAIN	
TSC	TEMPORARY STREAM CROSSING	
TER	TERRACING	
VTC	VEHICLE TRACKING CONTROL	
WW	VTC WITH WHEEL WASH	
LOC	LIMITS OF CONSTRUCTION	

CONTOUR INTERVAL:
EXISTING GROUND: 1'
FINISH GRADE: 1'

EXISTING GROUND 4580
FINISH GRADE 4580

AREA OUTSIDE LIMITS OF CONSTRUCTION

AREA TO BE SEEDED

NOTES:
1.) SEE STORM WATER MANAGEMENT PLAN REPORT FOR DETAILS.

2.) SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS DETENTION FACILITIES, CULVERTS, STORM DRAINAGE AND INLET AND OUTLET PROTECTION.

Know what's below. Call before you dig. 811

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
ADJUST SCALES ACCORDINGLY

NO	DESCRIPTION	DATE	BY
	REVISIONS		

A·C·G
AUSTIN CIVIL GROUP, INC.
Land Planning ▪ Civil Engineering ▪ Development Services
123 North 7th Street, Suite 300 ▪ Grand Junction, Colorado 81501
(970) 242-7540

FOOD BANK OF THE ROCKIES

description
STORM EATER MANAGEMENT PLAN
DESCRIPTION
2294 TALLGRASS DRIVE

prepared for
Food Bank of the Rockies

DRAWN BY:	ERG
DESIGNED BY:	ERG
CHECKED BY:	
APPROVED BY:	MRA
JOB NUMBER:	1411.0001
DATE:	4-8-21
SCALE:	1"=40'
SHEET NO:	SWMP

A:\PROJECTS\1411.0001 - Food Bank Of The Rockies\Dwg\C3d\Production Dwg\PROD-SITE FBR SWMP.dwg, SWMP, 4/8/2021 2:24:53 PM, DWG To PDF.pc3

APPENDIX C

INSPECTION REPORT

CONSTRUCTION STORMWATER SITE INSPECTION REPORT

Facility Name		Permittee	
Date of Inspection		Weather Conditions	
Permit Certification #		Disturbed Acreage	
Phase of Construction		Inspector Title	
Inspector Name			

	YES	NO
Is the above inspector a qualified stormwater manager? (permittee is responsible for ensuring that the inspector is a qualified stormwater manager)	☐	☐

INSPECTION FREQUENCY	
Check the box that describes the minimum inspection frequency utilized when conducting each inspection	
At least one inspection every 7 calendar days	☐
At least one inspection every 14 calendar days, with post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosions	☐
• This is this a post-storm event inspection. Event Date: _____	☐
Reduced inspection frequency - Include site conditions that warrant reduced inspection frequency	☐
• Post-storm inspections at temporarily idle sites	☐
• Inspections at completed sites/area	☐
• Winter conditions exclusion	☐

	YES	NO
Have there been any deviations from the minimum inspection schedule? If yes, describe below.	☐	☐

INSPECTION REQUIREMENTS*
i. Visually verify all implemented control measures are in effective operational condition and are working as designed in the specifications
ii. Determine if there are new potential sources of pollutants
iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges
iv. Identify all areas of non-compliance with the permit requirements, and if necessary, implement corrective action
*Use the attached **Control Measures Requiring Routine Maintenance** and **Inadequate Control Measures Requiring Corrective Action** forms to document results of this assessment that trigger either maintenance or corrective actions

AREAS TO BE INSPECTED			
Is there evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system or discharging to state waters at the following locations?			
	NO	YES	If "YES" describe discharge or potential for discharge below. Document related maintenance, inadequate control measures and corrective actions **Inadequate Control Measures Requiring Corrective Action** form
Construction site perimeter	☐	☐	
All disturbed areas	☐	☐	
Designated haul routes	☐	☐	
Material and waste storage areas exposed to precipitation	☐	☐	
Locations where stormwater has the potential to discharge offsite	☐	☐	
Locations where vehicles exit the site	☐	☐	
Other: _____	☐	☐	

CONTROL MEASURES REQUIRING ROUTINE MAINTENANCE

Definition: 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.

Are there control measures requiring maintenance?	NO	YES	
	☐	☐	If "YES" document below

Date Observed	Location	Control Measure	Maintenance Required	Date Completed

INADEQUATE CONTROL MEASURES REQUIRING CORRECTIVE ACTION

Definition: 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 pollutant 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 possible.

	NO	YES	
Are there inadequate control measures requiring corrective action?	☐	☐	If "YES" document below

	NO	YES	
Are there additional control measures needed that were not in place at the time of inspection?	☐	☐	If "YES" document below

Date Discovered	Location	Description of Inadequate Control Measure	Description of Corrective Action	Was deficiency corrected when discovered? YES/NO if "NO" provide reason and schedule to correct	Date Corrected

REPORTING REQUIREMENTS

The permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances. The division may waive the written report required if the oral report has been received within 24 hours.

All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit

a. Endangerment to Health or the Environment

Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a of the Permit)

This category would primarily result from the discharge of pollutants in violation of the permit

b. Numeric Effluent Limit Violations

- o Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit)
- o Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit)
- o Daily maximum violations (See Part II.L.6.d of the Permit)

Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if numeric effluent limits are included in a permit certification.

Has there been an incident of noncompliance requiring 24-hour notification?	NO	YES	
	☐	☐	If "YES" document below

Date and Time of Incident	Location	Description of Noncompliance	Description of Corrective Action	Date and Time of 24 Hour Oral Notification	Date of 5 Day Written Notification *

*Attach copy of 5 day written notification to report. Indicate if written notification was waived, including the name of the division personnel who granted waiver.

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

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

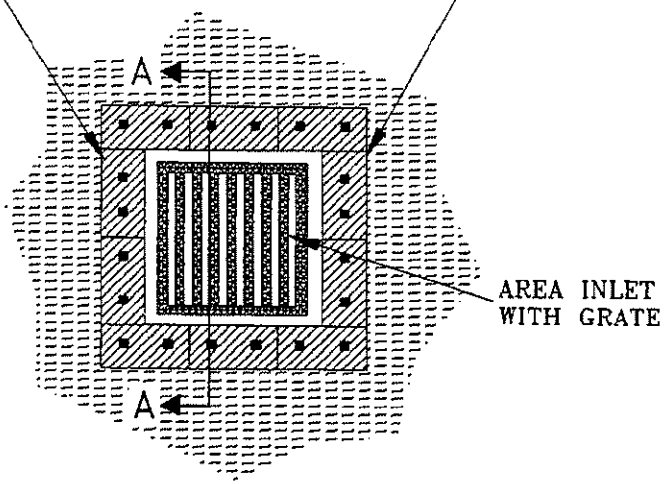
Name of Qualified Stormwater Manager	Title of Qualified Stormwater Manager
Signature of Qualified Stormwater Manager	Date

Notes/Comments

APPENDIX D

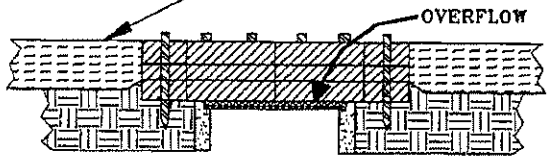
BMP DETAILS

BALES ARE TO BE PLACED 100-MM (4-IN.) IN THE GROUND, TIGHTLY ABUTTING WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER



PLAN VIEW

WHEN PROPERLY INSTALLED AND MAINTAINED, WATER WILL POND AROUND THE BALES AND MAY CAUSE LOCAL FLOODING



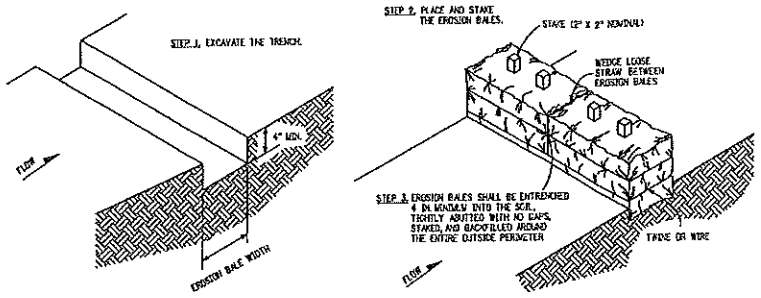
SECTION AA

1. BALES MUST BE PROPERLY INSTALLED IN SOIL AND NOT PLACED ON TOP OF CONCRETE OR PAVEMENT.

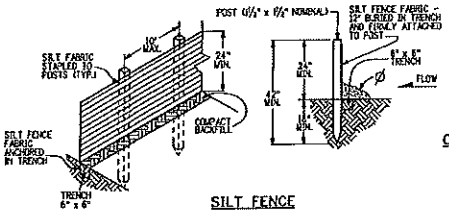
2. SINCE 1992, THE USEPA HAS NOT RECOGNIZED BALE BARRIERS AS AN APPROPRIATE STRUCTURAL METHOD TO REDUCE SEDIMENT IN RUNOFF WATERS.

BALE BARRIER FOR AREA DRAINS

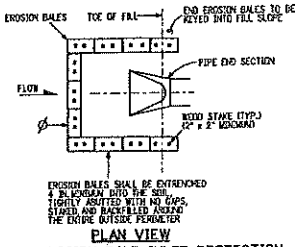
8/01



TYPICAL EROSION BALE TRENCHING AND STAKING



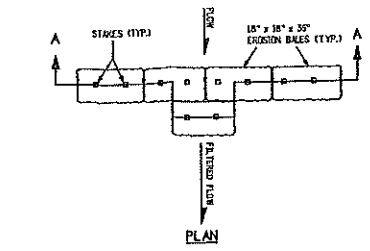
SILT FENCE



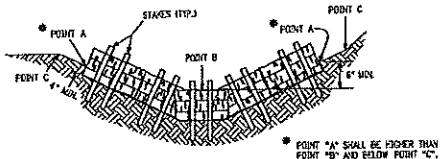
PLAN VIEW

CULVERT EROSION BALE INLET PROTECTION

Ø REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE HALF OF EXPOSED SILT FENCE OR BALE HEIGHT. INSPECTION SHALL BE PERFORMED CONTINUOUSLY FOR PROPER FUNCTION.

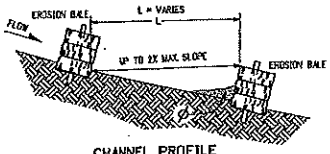


PLAN



SECTION A-A

* POINT "A" SHALL BE HIGHER THAN POINT "B" AND BELOW POINT "C".



CHANNEL PROFILE

SPACING BETWEEN EROSION BALES

NOTE: EROSION BALES SHALL BE ENTRENCHED 4 IN MINIMUM INTO THE SOIL, TIGHTLY ABUTTED WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER.

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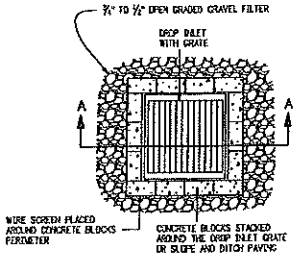
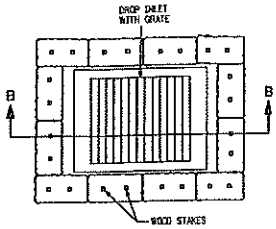
Creation Date: 07/04/06 Initials: SJR		Date:	Comments	4201 East Arkansas Avenue, Denver, Colorado 80222		M-208-1
Last Modification Date: 07/04/06 Initials: LTA	(REQ)			Phone: (303) 757-9083		
Full Path: www.dot.state.co.us/DesignSupport/	(REQ)			Fax: (303) 757-9820		Sheet No. 1 of 7
Drawing File Name: 208010107.dgn	(REQ)			Project Development Branch SRJ/LTA	Issued By: Project Development Branch July 04, 2006	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(REQ)					



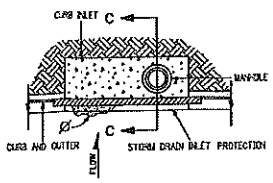
PLAN VIEW



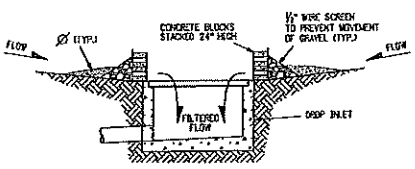
PLAN VIEW

NOTE

Ø REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE HALF OF EXPOSED INLET PROTECTION HEIGHT. INSPECTION SHALL BE PERFORMED CONTINUOUSLY FOR PROPER FUNCTION.

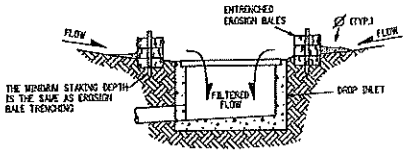


PLAN VIEW



SECTION A-A

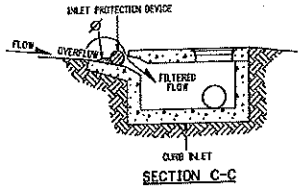
STORM DRAIN INLET PROTECTION (TYPE C OR D)



SECTION B-B

INLET EROSION BALE FILTER (TYPE C OR D)

NOTE: EROSION BALES ARE TO BE ENTRENCHED 4 IN. INTO THE SOIL, TIGHTLY ABUTTING WITH NO GAPS, STAKED AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER OF GRATE OR SLOPE AND DITCH PAVING.



SECTION C-C

STORM DRAIN INLET PROTECTION (TYPE R)

NOTES:

1. INLET PROTECTION SHALL EXTEND 12 IN. PAST EACH END OF THE INLET AND BE 4 IN. TO 6 IN. IN DIAMETER.
2. INLET PROTECTION MAY CONSIST OF CONTINUOUS FILTER TUBING FILLED WITH GRAVEL OR PREMANUFACTURED DEVICE.

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Creation Date: 07/04/06	InRefs: SJR		Date:	Comments	4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 Fax: (303) 757-9820		M-208-1
Last Modification Date: 07/04/06	InRefs: LTA	(R=X)			Project Development Branch SRJ/LTA	Issued By: Project Development Branch July 04, 2006	Sheet No. 3 of 7
Full Path: www.dot.state.co.us/DesignSupport/		(R=X)					
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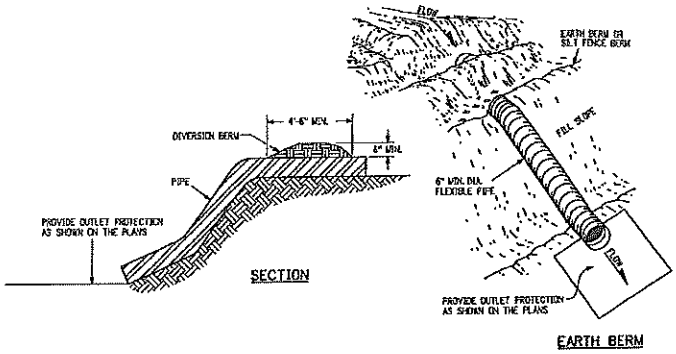
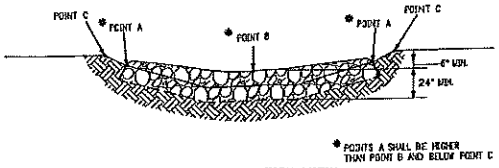
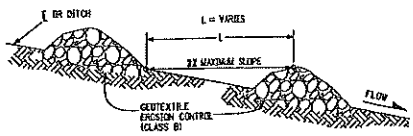


EARTH BERM

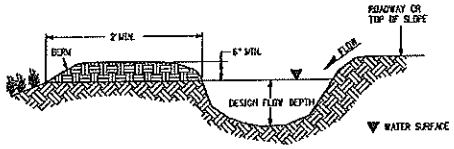
TEMPORARY SLOPE DRAIN



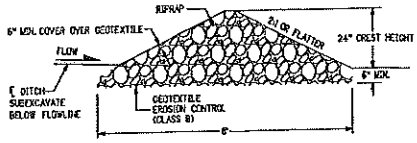
TYPICAL SECTION VIEW



SECTION VIEW ALONG DITCH FLOWLINE



DIVERSION DAM



SECTION DETAIL

CHECK DAM FOR EROSION CONTROL

NOTES:
1. RIPRAP SIZE D50 = 6 IN OR AS SHOWN ON THE PLANS.
2. THE ENDS OF RIPRAP CHECK DAM SHALL BE A MINIMUM OF 6 IN. HIGHER THAN CENTER OF CHECK DAM.
3. SEDIMENT SHALL BE REMOVED WHEN THE DEPTH UPSTREAM FROM CHECK DAM IS ½ THE CREST HEIGHT.
4. CHECK DAMS MAY BE TEMPORARY OR PERMANENT AS SHOWN ON THE PLANS.

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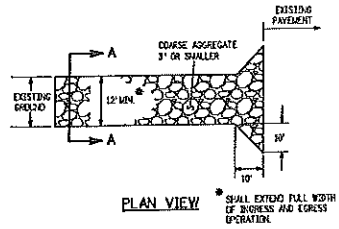
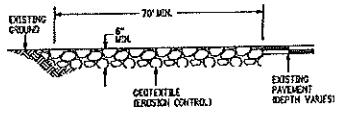
Creation Date: 07/04/06 Initials: SJR		Date:	Comments:	4201 East Arkansas Avenue, Denver, Colorado 80222		M-208-1
Last Modification Date: 07/04/06 Initials: LTA	(REV)			Phone: (303) 757-9083 Fax: (303) 757-9820		
FullPath: www.dot.state.co.us/DesignSupport/	(REV)			Project Development Branch SRJ/LTA	Issued By: Project Development Branch July 04, 2006	Sheet No. 4 of 7
Drawing File Name: 208010407.dgn	(REV)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(REV)					

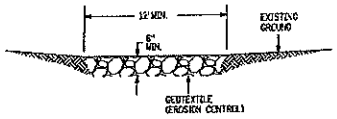


PLAN VIEW

* SHALL EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION.



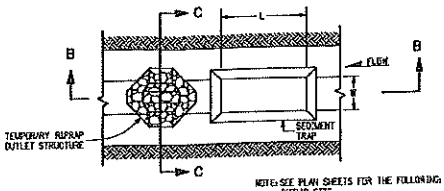
ELEVATION SECTION



SECTION A-A

STABILIZED CONSTRUCTION ENTRANCE

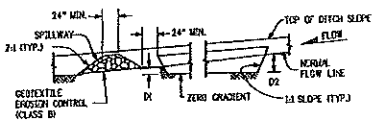
NOTE: THE CONTRACTOR SHALL PROTECT ANY CURB AND GUTTER THAT CROSSES THE ENTRANCE. PROTECTION OF THE CURB AND GUTTER WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.



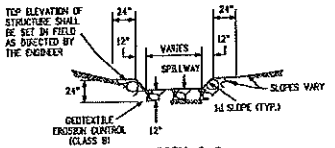
NOTE: SEE PLAN SHEETS FOR THE FOLLOWING:
RIPRAP SIZE
DEPTH (D1 AND D2)
LENGTH (L)
WIDTH (W)
DITCH TYPE, SIZE AND LOCATION

PLAN VIEW

Ø REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE HALF OF STRUCTURE HEIGHT. INSPECTION SHALL BE PERFORMED CONTINUOUSLY FOR PROPER FUNCTION.



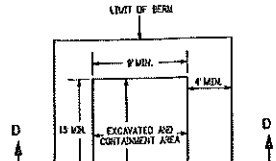
CROSS SECTION B-B



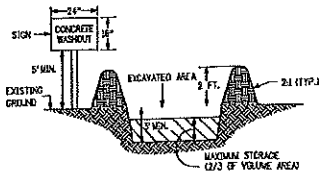
SECTION C-C

SEDIMENT TRAP/DEWATERING STRUCTURE

NOTE: THE RIPRAP AND GEOTEXTILE ARE INCLUDED IN THE COST OF THE BID ITEM.



PLAN VIEW



SECTION D-D

CONCRETE WASHOUT STRUCTURE

NOTES:

1. SIGN MATERIAL, EXCAVATION, AND RESTORATION ARE INCLUDED IN THE COST OF THE CONCRETE WASHOUT STRUCTURE.
2. EROSION BALES MAY BE USED AS AN ALTERNATIVE FOR THE BERM.

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Creation Date: 07/04/08 Initials: SJR			Date	Comments	4201 East Arkansas Avenue, Denver, Colorado 80222		M-208-1
Last Modification Date: 07/04/08 Initials: LTA		(R-X)			Phone: (303) 757-9083		
FullPath: www.dot.state.co.us/DesignSupport/		(R-X)			Fax: (303) 757-9820		Sheet No. 5 of 7
Drawing File Name: 208010507.dgn		(R-X)			Project Development Branch SRJ/LTA	Issued By: Project Development Branch, July 04, 2006	
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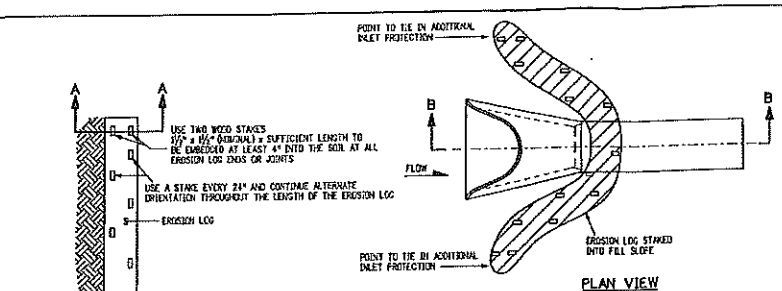
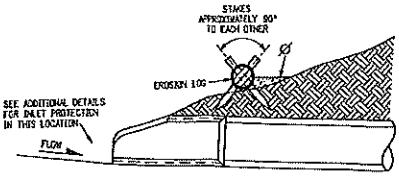


TYPICAL STAKE INSTALLATION

PLAN VIEW

NOTE

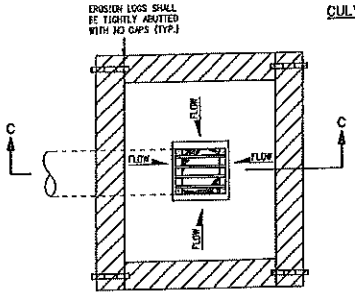
Ø REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE HALF OF PROTECTION FEATURE HEIGHT. INSPECTION SHALL BE PERFORMED CONTINUOUSLY FOR PROPER FUNCTION.



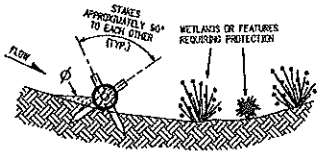
SECTION B-B

CULVERT EROSION LOG INLET PROTECTION

(FOR SLOPES 3:1 OR STEEPER)

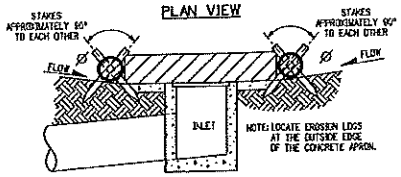


PLAN VIEW



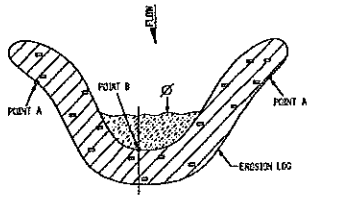
SECTION A-A

EROSION LOG APPLICATION

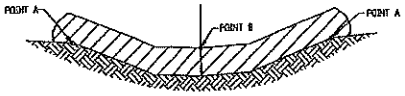


SECTION C-C

DROP INLET EROSION LOG FILTER



PLAN VIEW



POINTS A SHALL BE HIGHER THAN POINT B.

ELEVATION

EROSION LOG DETAIL DITCH INSTALLATION

NOTE: EROSION LOGS SHALL BE TIGHTLY ABUTTED WITH NO GAPS.

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Creation Date: 07/04/06 Initials: SJR		Date	Comments
Last Modification Date: 07/04/06 Initials: LTA	(R=X)		
Full Path: www.dot.state.co.us/DesignSupport/	(R=X)		
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CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R=X)		

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Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch SRJ/LTA

TEMPORARY EROSION CONTROL

Issued By: Project Development Branch July 04, 2006

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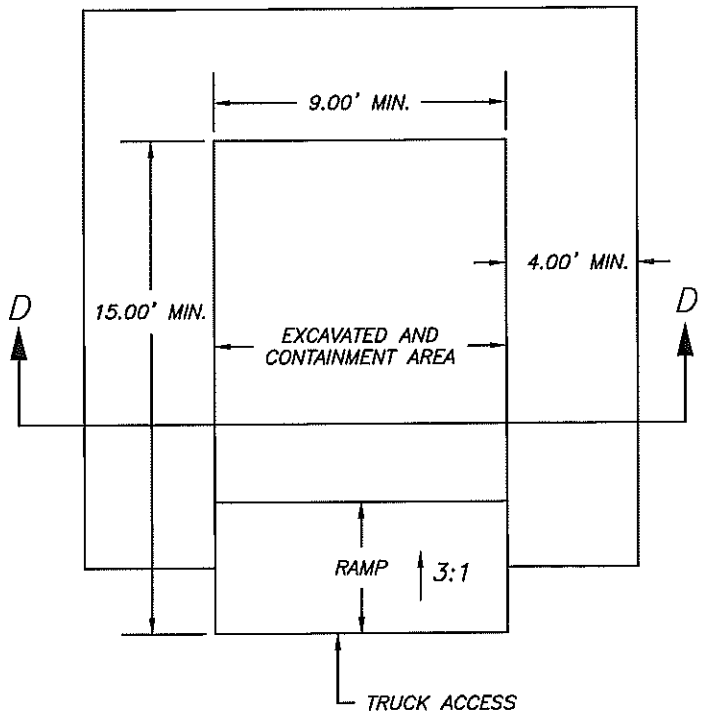
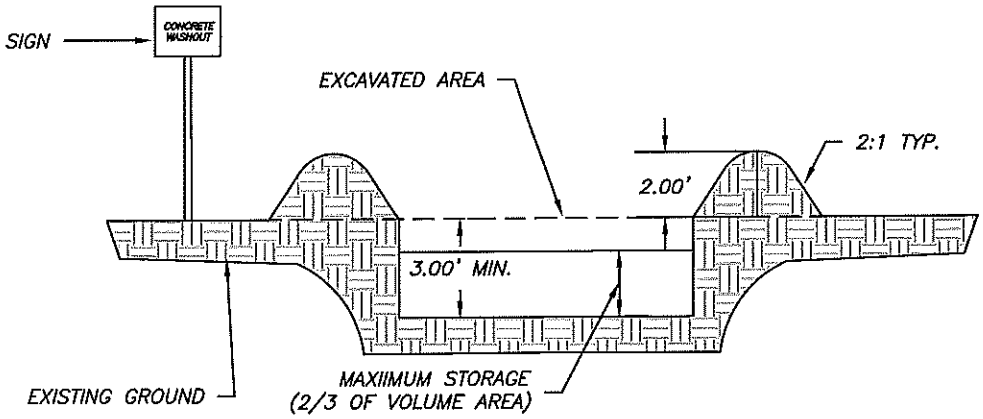
Sheet No. 7 of 7



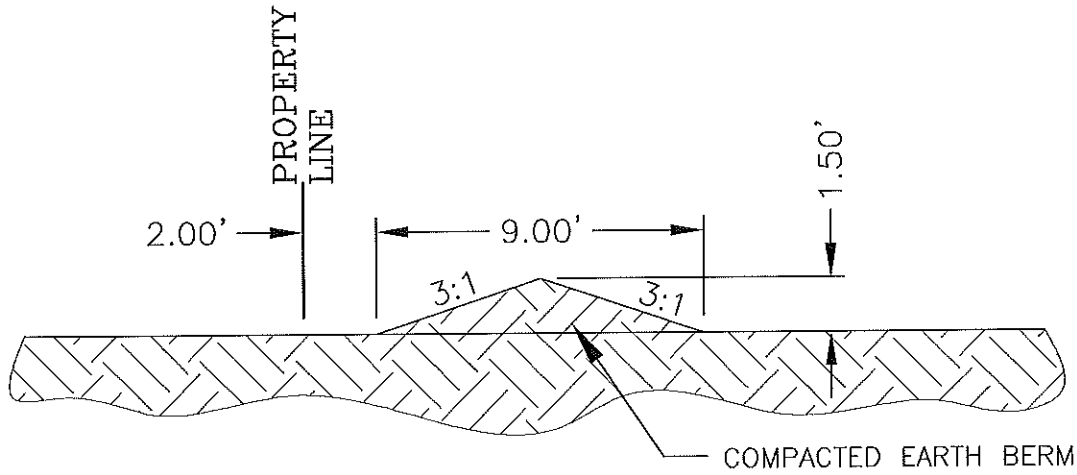
PLAN VIEW



SECTION D–D

CONCRETE WASHOUT STRUCTURE

NOTE:
1. EROSION BALES MAY BE USED AS AN ALTERNATIVE FOR THE BERM.



TYPICAL EROSION CONTROL BERM SECTION

NTS

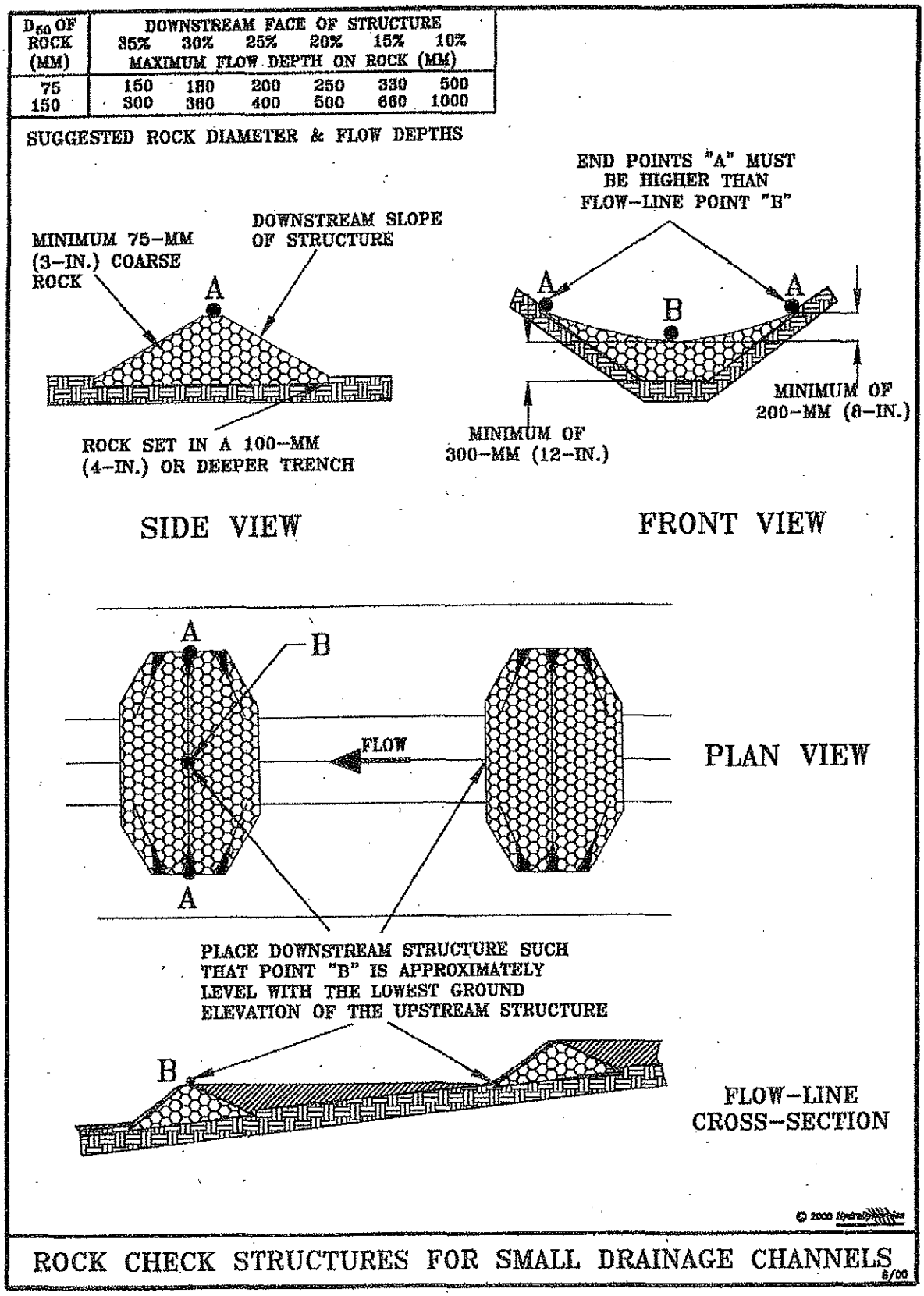


Figure 31. Rock Check Structures for Small Drainage Channels

Description

A rock sock is constructed of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter. Rock socks are typically used either as a perimeter control or as part of inlet protection. When placed at angles in the curb line, rock socks are typically referred to as curb socks. Rock socks are intended to trap sediment from stormwater runoff that flows onto roadways as a result of construction activities.

Photograph RS-1. Rock socks placed at regular intervals in a curb line can help reduce sediment loading to storm sewer inlets. Rock socks can also be used as perimeter controls.

Appropriate Uses

Rock socks can be used at the perimeter of a disturbed area to control localized sediment loading. A benefit of rock socks as opposed to other perimeter controls is that they do not have to be trenched or staked into the ground; therefore, they are often used on roadway construction projects where paved surfaces are present.

Use rock socks in inlet protection applications when the construction of a roadway is substantially complete and the roadway has been directly connected to a receiving storm system.

Design and Installation

When rock socks are used as perimeter controls, the maximum recommended tributary drainage area per 100 lineal feet of rock socks is approximately 0.25 acres with disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. A rock sock design detail and notes are provided in Detail RS-1. Also see the Inlet Protection Fact Sheet for design and installation guidance when rock socks are used for inlet protection and in the curb line.

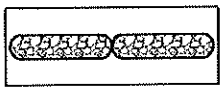
When placed in the gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely. If located in a high traffic area, place construction markers to alert drivers and street maintenance workers of their presence.

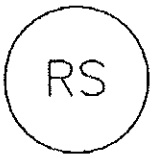
Maintenance and Removal

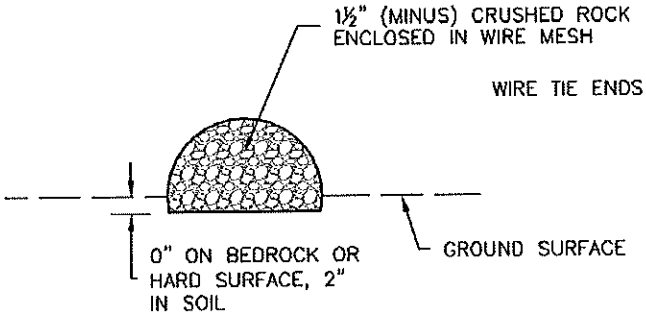
Rock socks are susceptible to displacement and breaking due to vehicle traffic. Inspect rock socks for damage and repair or replace as necessary. Remove sediment by sweeping or vacuuming as needed to maintain the functionality of the BMP, typically when sediment has accumulated behind the rock sock to one-half of the sock's height.

Once upstream stabilization is complete, rock socks and accumulated sediment should be removed and properly disposed.

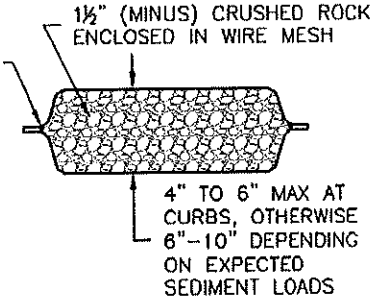
Rock Sock	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No



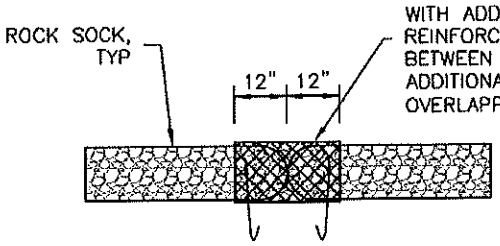




ROCK SOCK SECTION



ROCK SOCK PLAN



ROCK SOCK JOINTING

ANY GAP AT JOINT SHALL BE FILLED WITH AN ADEQUATE AMOUNT OF 1½" (MINUS) CRUSHED ROCK AND WRAPPED WITH ADDITIONAL WIRE MESH SECURED TO ENDS OF ROCK REINFORCED SOCK. AS AN ALTERNATIVE TO FILLING JOINTS BETWEEN ADJOINING ROCK SOCKS WITH CRUSHED ROCK AND ADDITIONAL WIRE WRAPPING, ROCK SOCKS CAN BE OVERLAPPED (TYPICALLY 12-INCH OVERLAP) TO AVOID GAPS.

GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1½"	90 – 100
1"	20 – 55
¾"	0 – 15
⅜"	0 – 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION(S) OF ROCK SOCKS.

2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).

3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF ½", RECOMMENDED MINIMUM ROLL WIDTH OF 48"

4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS–1. ROCK SOCK PERIMETER CONTROL

ROCK SOCK MAINTENANCE NOTES

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

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

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

4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.

5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE ROCK SOCK.

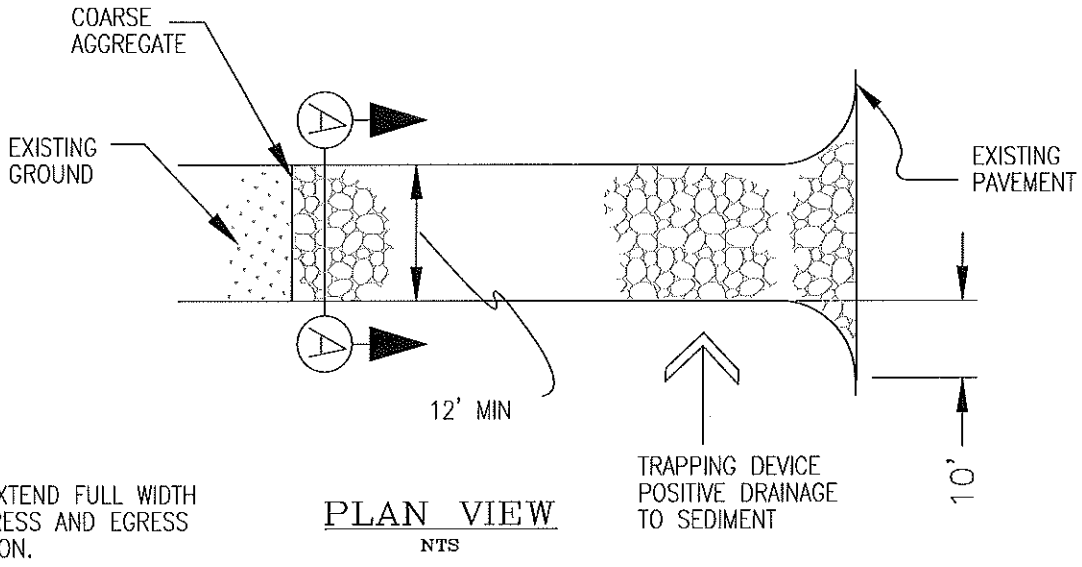
6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

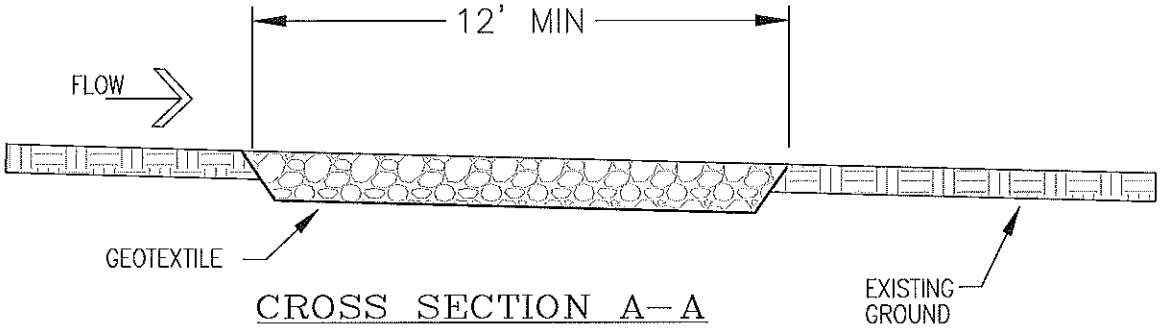
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

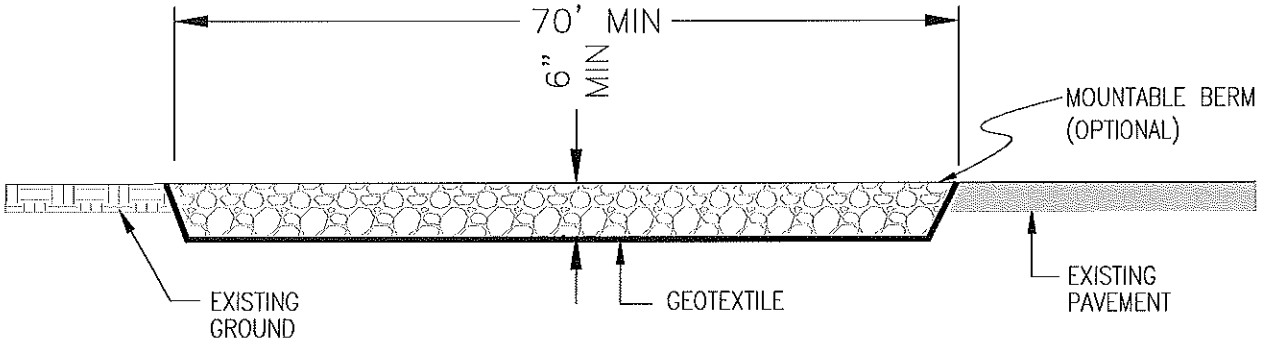


* MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION.

PLAN VIEW
NTS



CROSS SECTION A–A



SIDE ELEVATION
NTS

VEHICLE TRACKING PAD
NTS