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Storm Water Management Plan

Nabulsi-Abushaban Subdivision Filing No. 1

PCD File Number: SF-21-035

Project No. 61201

September 21, 2023

prepared for

Nabulsi-Abushaban Family Trust
143894 Whispering Ridge Rd.San Diego, CA 92131

prepared by

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Qualified Stormwater Manager

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prepared for

Taher Nabulsi (Co-Trustee)
Nabulsi-Abushaban Family Trust
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Contents

Storm Water Management Plan

This Storm Water Management Plan (SWMP) is required for certification under the Colorado Discharge Permit System – General Permit for Stormwater Discharges Associated with Construction (Stormwater Construction Permit), and has been produced according to the guidelines provided in the *State of Colorado Stormwater Management Plan Guidance for Stormwater Discharges Associated with Construction Activity General Permit Application and Stormwater Management Plan Preparation Guidance*. The goal of this SWMP is to "...identify possible pollutant sources that may contribute pollutants to stormwater, and identify Control Measures (CMs) that, when implemented, will reduce or eliminate any possible water quality impacts."[1] A current copy of this SWMP must be maintained on the project site for the duration of the construction and stabilization period.

The Permit Holder or their agent will designate a SWMP Administrator for this project. The SWMP Administrator may be the Construction Project Manager, Owner, Construction Site Superintendent or other party so designated by the Permit Holder or their agent. The SWMP Administrator is responsible for implementing, maintaining, and revising the SWMP. The SWMP Administrator is the contact for all SWMP related issues. The SWMP Administrator will have specific site knowledge and authority to adequately manage and direct day-to-day stormwater quality management activities at the site.[2]

1 Site Description

1.1 Site Overview

The Nabulsi-Abushaban Subdivision Filing No. 1 site is located within the Southeast ¼ of the Southeast ¼ of Section 19, Township 12 South, Range 65 West, of the 6th Principal Meridian in Colorado Springs, Colorado. The site is situated adjacent west of Black Forest Road and adjacent north of Old Ranch Road. The site is made up of a single unplatted parcel having El Paso County Tax Assessor's Schedule Number: 52190-00-101. A Vicinity Map is included in the **Appendix**.

The Nabulsi-Abushaban Subdivision Filing No. 1 site encompasses approximately 39.079 ± acres existing as an unplatted parcel. The site is to be platted as Nabulsi-Abushaban Subdivision Filing No. 1.

This parcel is mostly undeveloped with minor grading around the existing buildings. The storm runoff from the site and the offsite basins generally drains from the north to the southeast and southwest. There is an existing natural pond within the southeast portion of the lots. The drainage channels within the property has no improvements or previous stabilization. The drainage channels onsite are well vegetated with no indication of erosion and do not require any improvements.

1 [CDPHE], App. A, Section A
2 [CDPHE], App. A, Section C.4 (a)

No known irrigation facilities are located on the site.

A rural residential development is proposed for the site that will include four (4) single family residential lots ranging in size from 4.761 acres to 9.287 acres. The necessary supporting infrastructure including a private gravel shared driveway, along with the roadway culvert and utilities will be constructed. Maintenance of said shared driveway will be per the recorded maintenance agreement.

According to the Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) Community Panel Number(s) 08041C0527G, effective December 7, 2018, for El Paso County, Colorado, the site is not located within a Federal Emergency Management Agency (FEMA) designated Special Flood Hazard Area (SFHA)[3].

1.2 Construction Activities

Clearing and grubbing necessary for perimeter controls. Install perimeter controls, including silt fence, or sediment control logs along the down sloped side of the disturbed areas and around down slope areas of any designated stockpile area as well as erosion control blankets where necessary. Silt fence/sediment control logs to be maintained during entire construction sequence. Install Vehicle Traffic Control at the south edge of the site. Notify El Paso County for initial inspection. After receiving notice to proceed from EPC, complete remaining clearing and grubbing. Install stormwater culvert. Install additional CMs, as outlined in the SWMP. Rough grading site. Install additional CMs, as outlined in the SWMP. Final grading of site. Removal of temporary CMs. Installation of road base. On-site stabilization to reduce erosion of disturbed soil. Achieve Final Stabilization, as outlined in SWMP.

1.3 Activities Sequence

Activities will commence with Site Preparation and the installation of Initial Control Measures (CMs) – including a Vehicle Tracking Control (Initial CM) at the south edge of the site, which will be used as construction access. Silt Fence (Initial CM) will be placed along the sides of the construction activities. General site grading will then begin with removal of topsoil only from those areas that will be regraded. Because of the small size of the disturbed site, topsoil from the entire construction area may be removed at this time, however, smaller areas will be removed if the construction sequencing so requires. Topsoil, if it is to be stockpiled on the site, requires silt fence (Interim CM) to be installed on the downstream side of the storage area. General site grading, creation of road profile and roadside ditches will then commence. Following the general grading, the electric and gas lines will be installed within the finished sub-grade. During this time, additional interior erosion controls consisting of Erosion Control Blankets (Interim CM) and Straw Bale Barriers (Interim CM) will be added along roadside ditches. Then, drainage culverts will be installed, followed immediately by installation of Culvert Inlet Protection (Interim CM), Outlet Protection (Interim BP / Permanent Protection) and additional Straw Bale Barriers (Interim CM) at culverts. Promptly following completion of the installation of drainage culverts, redistribution of topsoil, mulching and seeding (Final CM) will be applied to all disturbed areas that will not be paved or further disturbed by road surfacing operations. Following the placement of topsoil, seeding and mulch, and immediately following removal of Vehicle Tracking Control, Aggregate Base Course road surface and hot mix asphalt will be placed. Following the construction of these items, final “touch up” grading and redistribution of topsoil will be done for all remaining disturbed unpaved areas on the site. Then, seeding and mulching (Final CM) will be applied to all remaining disturbed areas. Following completion of these construction activities, all remaining interior Straw Bale Barrier, rock sock and mulching and seeding will be applied to the resulting disturbed areas. The site will then be ready for initial close out. The perimeter Silt Fence will remain until site stabilization. At the time of final stabilization, all remaining construction CM's will be removed, and seeding and mulching will be placed over the resulting disturbed area. Project closeout will be established at final stabilization, as defined in the UDFCD[4]. Construction Scheduling is as defined in Section 6, below.

3 [FIRM]
4 [UDFCD], Ch. 7, 3.1

1.4 Area & Volume Estimates

The Nabulsi-Abushaban Subdivision Filing No. 1 site encompasses approximately 39.079 ± acres. Within that total area, approximately 1.4 acres are expected to undergo clearing, excavation, grading or other disturbance due to the construction activities of the Nabulsi-Abushaban Subdivision Filing No. 1 subdivision. Earthwork activities will comprise of more than 500 cubic yards of soil, assuming compacted soils will have about 15% higher density than natural embankment densities. The earthwork on the site is expected to balance. No import or export of earth is anticipated.

1.5 Existing Soil

According to the National Resource Conservation Service, there are two soil types identified at the Nabulsi-Abushaban Subdivision Filing No. 1 site. Kettle gravelly loamy sand, 8 to 40 percent slopes (map unit 41) makes up the majority of the site and offsite sub-basins which is contained in Hydrologic Soil Group B. This soil is deep and is well drained, permeability is rapid, surface runoff is medium, and the hazard of erosion is moderate.

The secondary soil group is: Pring coarse sandy loam, 3 to 8 percent slopes (map unit 71) which is large portion of the west offsite sub-basins and onsite sub-basin B1. This soil is contained in Hydrologic Soil Group B. This soil is shallow to deep and well drained, permeability is rapid, surface runoff is medium, and the hazard of erosion is slight to moderate. A portion of the Soil Map and data tables from the National Cooperative Soil Survey and relevant Official Soil Series Descriptions (OSD) are included in the **Appendix**.[5] [6]

A portion of the Soil Map and data tables from the National Cooperative Soil Survey and relevant Official Soil Series Descriptions (OSD) are included in the **Appendix**.[7] [8]

A portion of the **National Cooperative Soil Survey Map** is included with this Storm Water Management Plan .[9] [10]

The impervious area on the site will not be significantly increased by the development of the site due to the low residential density. The drainage patterns on and off site will not be significantly altered as a result of the proposed construction activities.

1.6 Existing Vegetation

The existing ground cover on the site consists mostly of grasses in fair to good condition. The homestead area also has several trees and shrubs. The existing vegetative ground cover is approximately 80% for the entire site as determined by visual observation. This will service as a basis for determining final stabilization at the conclusion of the project. Photographs of existing vegetative ground cover may also be used to verify existing conditions.

1.7 Potential Stormwater Pollution Sources

The primary potential stormwater pollution source from the Nabulsi-Abushaban Subdivision Filing No. 1 site is sediment resulting from erosion. There is potential for sediment carrying stormwater to originate from nearly anywhere within the site, and such runoff might deposit sediment onto any of the downstream properties or into the downstream receiving waters. Erosion control and sediment reduction measures will be implemented to mitigate potential pollution from sediment. Such measures are described in the below section **Control Measures for Stormwater Pollution Prevention**.

No significant storage of chemicals will occur on site Small amounts of vehicle and equipment fuel and maintenance chemicals (oil, antifreeze, hydraulic fluid, etc.) may be stored on site, but all such materials will be stored in appropriately contained and managed facilities. Storage of materials is

5 [WSS]
6 [OSD]
7 [WSS]
8 [OSD]
9 [WSS]
10 [OSD]

described in the below section **Control Measures for Stormwater Pollution Prevention**.
Chemicals released from vehicles and equipment may also be a source of stormwater pollution.

Appropriate procedures will be taken to limit the potential of stormwater pollution from spills and leaks. No significant maintenance of vehicles and equipment and no vehicle and equipment washing may be performed on site "Rinsing of construction vehicles carrying concrete may only be performed in designated concrete rinse facilities." Proper handling of vehicles and equipment is described in the below section **Control Measures for Stormwater Pollution Prevention**.

1.8 Potential Non-Stormwater Runoff

In addition to being a potential stormwater pollution source, water from the rinsing of construction vehicles carrying concrete may be a potential source of non-stormwater runoff. This non-stormwater runoff is not permitted under the Stormwater Construction Permit. The installation of concrete rinse facilities will mitigate the potential of such rinse water becoming a non-stormwater runoff source.

Temporary irrigation for the establishment and/or maintenance of ground cover may also be a source of non-stormwater runoff from the site. This non-stormwater runoff is permitted under the Stormwater Construction Permit; however, appropriate irrigation practices will be used to limit the potential of runoff, and any runoff that does occur will be treated with the same control measures applied to stormwater runoff. Proper management of the irrigation schedules and duration will minimize excess irrigation runoff. The construction CM's described below which are to remain in place until ground cover is established, as well as the permanent CM's described below will mitigate the potential of such irrigation water becoming a non-stormwater runoff source.

1.9 Receiving Waters

Discharge from this site flows southerly into an unnamed tributary of Cottonwood Creek. The ultimate receiving waters are Cottonwood Creek.

2 Site Map

A **Site Map** is included with this SWMP for the Nabulsi-Abushaban Subdivision Filing No. 1 project. The **Site Map** consists of the Nabulsi-Abushaban Subdivision Filing No. 1 Erosion Control Plan as submitted and approved by El Paso County. The **Site Map** includes construction site boundaries, areas of ground surface disturbance, areas of cut and fill, areas used for storage of building materials, equipment, soil, and waste, the locations of structural and non-structural Control Measures, the locations of the existing water courses (if any exist), the soil type areas, existing and proposed contours, proposed structures and improvements, an explanation of the existing vegetation on the site, locations of existing water courses, locations of existing 100-year floodplains (if any exist), locations of existing and proposed utilities and a vicinity map. The are no asphalt or concrete batch plants planned and therefore are not shown on the **Site Map**.

3 Control Measures for Stormwater Pollution Prevention

"Control Measures (CMs) encompass a wide range of erosion and sediment control practices, both structural and non-structural in nature, that are intended to reduce or eliminate any possible water quality impacts from stormwater leaving a construction site."[11] "Structural CMs" traditionally refers to any physical process, but in this SWMP "structural CMs" refers only to practices involving the installation of a specific, definable object or structure. "Nonstructural CMs" traditionally refers to definitions of operational and managerial techniques, but in this SWMP "nonstructural CMs" also includes any physical process not involving the installation of a specific, definable object or structure. "Erosion control CMs" prevent or reduce erosion, while "sediment control CMs" remove or reduce sediment from runoff. Because sediment resulting from erosion is typically the primary pollutant of stormwater runoff from a construction site, erosion control practices are considered the primary and preferred method of stormwater pollution prevention in this SWMP, while sediment control practices

11 [CDPHE], App. A, Section B

will be implemented as secondary measures or when erosion control practices are not possible or are not fully effective. Prevention of stormwater pollutants other than sediment are addressed under an additional set of materials handling and spill prevention CMs.[12]

3.1 Structural Erosion and Sediment Controls

Inlet protection will be installed around all storm drain inlets, culvert inlets, and other drainage structure inlets installed on the site immediately after the installation of the inlet. Inlet protection reduces sediment deposition in storm drains and culverts and reduces sediment pollution in stormwater by "filtering" out some of the sediment carried by runoff flowing through the inlet protection. The locations of inlet protection are identified on the **Site Map**, and details for the installation and maintenance of the inlet protection are included in the **Appendix**. In addition to the inlet protection indicated on the **Site Map**, inlet protection will be installed wherever the contractor deems them to be necessary or helpful. Inlet protection installed at the contractor's discretion might not be shown on the **Site Map**.[13]

Before any other construction activities commence on the site, **vehicle tracking controls** will be installed at all site access points. Vehicle tracking control helps reduce the deposition of sediment, dirt, mud, and debris by vehicles exiting the site onto the streets adjacent to the site. The locations of site entrance vehicle tracking controls are identified on the **Site Map**, and details for the installation and maintenance of the controls are included in the **Appendix**.[14]

Before any grading or other significant disturbance occurs on site, **silt fence** will be installed along any edge of an area to be disturbed where runoff would otherwise go untreated. Silt fence will be also installed along those portions of the site perimeter where potentially sediment ladened runoff may flow into adjacent properties. Silt fence will also be installed along the downstream edges of the topsoil stockpile. Silt fences help reduce pollution of stormwater by "filtering" out some of the sediment carried by runoff flowing through the fences and by facilitating deposition of sediment by slowing the runoff. Silt fences can also help reduce erosion by slowing and distributing runoff. The locations of silt fences are identified on the **Site Map**, and details for the installation and maintenance of silt fences are included in the **Appendix**. In addition to the silt fences indicated on the **Site Map**, silt fences will be installed wherever the contractor deems them to be necessary or helpful. Silt fences installed at the contractor's discretion might not be shown on the **Site Map**.[15]

After the installation of the silt fence but before any other construction activities commence on the project, **Sediment Control Logs** will be installed at the designated locations identified on the **Site Map**. Sediment control logs help reduce pollution of stormwater by "filtering" out much of the sediment carried by runoff flowing through the barriers and by facilitating deposition of sediment by slowing the runoff. Sediment control logs also help reduce erosion by slowing and distributing runoff. Sediment control logs should not be installed across significant concentrated flow paths. The details for the installation and maintenance of straw bale barriers which are included in the **Appendix** can also be generally applied to the installation and maintenance of sediment control logs.

Straw bale barriers help reduce pollution of stormwater by "filtering" out much of the sediment carried by runoff flowing through the barriers and by facilitating deposition of sediment by slowing the runoff. Straw bale barriers also help reduce erosion by slowing and distributing runoff. The locations of straw bale barriers are identified on the **Site Map**, and details for the installation and maintenance of straw bale barriers are included in the **Appendix**. In addition to the straw bale barriers indicated on the **Site Map**, barriers will be installed wherever the contractor deems them to be necessary or helpful. Straw bale barriers installed at the contractor's discretion might not be shown on the **Site Map**.[16]

Straw bale check structures are similar to straw bale barriers in function and form but serve to reduce pollution of stormwater by helping stabilized channels until adequate vegetative cover is

12 [CDPHE], App. A, Section C.1 (4)
13 [UDFCD], SC-6
14 [UDFCD], SM-4
15 [UDFCD], SC-1
16 [UDFCD], SC-2

established. The locations of straw bale check structures are identified on the **Site Map**, and details for the installation and maintenance of straw bale check structures are included in the **Appendix**.

A **Stabilized Staging Area** is a clearly designated area where construction equipment and vehicles, stockpiles, waste bins, and other construction-related materials are stored. The **stabilized staging area** will be sized appropriately to provide space for loading/unloading operations as well as parking. The surface of the stabilized staging area is to be covered with 3-inch diameter aggregate or larger. Perimeter controls will be installed at the down slope sides of the **Stabilized staging Area** to reduce runoff from the area. Construction fencing will be utilized to prevent unauthorized access to construction materials. The location of the Stabilized Staging Area is identified on the **Site Map**, and details for the installation and maintenance of the Stabilized Staging Area are included in the **Appendix**.

Stockpile Management is an important practice that is used to minimize erosion and sediment transport from stockpiles. Any stockpile located on-site is to be located away from all drainage system components. The stockpile is to be stabilized with surface roughening, temporary seeding and mulching, or erosion control blankets as deemed necessary. Soils stockpiled for an extended period (more than 60 days) should be seeded and mulched within 14 days. Perimeter controls such as silt fence will be installed around the stockpile as necessary to minimize sediment transport from the stockpile. When the stockpile is no longer needed, excess materials are to be properly disposed of and the area will be revegetated. The location of the stockpile is identified on the **Site Map**, and details for the management of the Stockpile are included in the **Appendix**.

Before any grading or other significant disturbance occurs on site, **Temporary Compacted Berms** will be installed at the north end of the cul-de-sac and north side of the road side ditch in the location indicated on the **Site Map**. Temporary Compacted Berms help reduce pollution of stormwater by allowing existing runoff to be directed around the disturbed areas of the site helping to reduce sediment carried by runoff. The locations of temporary compacted berms are identified on the **Site Map**, and details for the installation and maintenance of temporary compacted berms are included in the **Appendix**. [17]

Following the installation of the initial CM's described above, grading and utility construction on the site may commence.

3.2 Nonstructural Erosion and Sediment Controls

In order to minimize the total amount of soil exposed at any given time to “reduce the period of accelerated soil erosion”[18] the construction activities of the Nabulsi-Abushaban Subdivision Filing No. 1 project will be phased scheduled as described in the above section **Activities Sequence**. In addition to the schedule described in the above section **Activities Sequence**, many of the details and specifications included in the index provide specific scheduling information.

An undisturbed “buffer” will be preserved around as much of the site as possible to help control erosive run-on and sediment ladened runoff. The locations of undisturbed buffer areas are identified on the **Site Map**.

Before construction activities commence in any area of the site, the full layer of topsoil will be stripped only from the portions of that area that are to be disturbed and will be stockpiled in location identified on the **Site Map**. Rather than stripping topsoil from the entire site at once, as has been the traditional practice in some cases, topsoil will be stripped from particular areas of the site only as construction work progresses to that area as described in the above section **Activities Sequence**. Soils stockpiled for more than 60 days will be seeded and mulched within 14 days of completion of stockpiling activities.[19]

Before construction activities commence in any area of the site, the construction vehicle traffic areas to and around that area – including all construction roads, parking areas, loading and unloading zones, storage areas, and staging areas – will be stabilized through proper grading, compaction, and

17 [UDFCD], SC-7
18 [UDFCD], Ch 7, 2.3
19 [UDFCD], MM-2

surfacing. Stabilization of traffic areas reduces erosion and vehicle tracking thus helping to eliminate potential pollution of stormwater by sediment. To prevent vehicle tracking of soil into the surrounding roadways, construction related traffic will be limited to entering the site at the designated construction entrance(s). The construction entrance will have a Vehicle Tracking Control as described above. Should significant soil still be deposited on the surrounding roadways, street sweeping will be utilized to remove the soil from the roadways immediately following deposition. The locations of areas to receive traffic area stabilization are identified on the **Site Map**, and specifications for the installation and maintenance of surface stabilization are included in the **Appendix**.[20]

When seasonally appropriate, seed will be applied to all disturbed areas (not otherwise stabilized) immediately if possible or within 14 days of completion of final grading. Additionally, seed will be applied to all disturbed areas that are not at final grade but will remain dormant (undisturbed) for longer than 1 year. When the season is inappropriate for seed application, surface roughening and mulch will be applied within 14 days and seed will be applied as soon as seasonally appropriate. Specifications for re vegetation are included in the **Appendix**.

3.3 Materials Handling and Spill Prevention

A vigorous program of "good housekeeping" will be implemented on the Nabulsi-Abushaban Subdivision Filing No. 1 site in an effort to prevent stormwater pollution by materials used and stored on-site.

No significant storage of chemicals and other potentially pollutive materials will be allowed on site Only those chemicals and materials necessary for the described construction activities may be stored on site, and then only in the smallest amounts reasonable and for the shortest time possible. The location of a storage area for toxic, hazardous, and potentially pollutive materials is identified on the **Site Map** as the Stabilized Staging Area and a specification for on site materials handling is provided in the **Appendix**.

Portable toilets will be located away from direct traffic routes and will be situated out of the potential path of any potential stormwater runoff. Any grading necessary to achieve such a situation will be completed before the portable toilets are delivered to the site. The locations of portable toilets shall be determined by the Contracter and identified on the **Site Map.** They shall be located a minimum of 10 feet from any storm inlets and 50 feet from state waters. Portable toilets will be securely anchored at all four corners to prevent tipping. Portable toilets shall be inspected daily for spills.

Fueling and minor preventative maintenance of vehicles and equipment may occur only on areas specifically stabilized for construction vehicle traffic. Appropriate procedures will be taken to limit the potential of stormwater pollution from spills and leaks. The locations of areas specifically stabilized for construction vehicle traffic are identified on the **Site Map** and a specification for vehicle and equipment handling is provided in the **Appendix**. No significant maintenance of vehicles and equipment and no vehicle and equipment washing will be performed on site

Any spills of potential pollutants on the site related to the construction activities will be addressed according to the requirements of Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division.

Appropriate spill prevention and response measures will be implemented on the site. The details and specifications referenced above in this section provide general and specific guidelines for spill prevention and response measures relating to the various potential non-sediment pollution sources.

No groundwater and/or stormwater dewatering activities are proposed or expected for the proposed construction activities.

No significant waste generation is expected as a result of the proposed construction activities. Any minor waste that is produced will be disposed of properly in waste disposal bins. (See Inspection and Maintenance section below for inspection and emptying frequency.)

20 [UDFCD], SM-6

SWMP Checklist Item 22 - discuss long-term stormwater management. This site is utilizing runoff reduction to provide treatment.

4 Final Stabilization and Long-Term Storm Water Management

According to the Stormwater Construction Permit "Final stabilization is reached when all soil disturbing activities at the site have been completed, and uniform vegetative cover has been established with a density of at least 70 percent of pre-disturbance levels or equivalent permanent, physical erosion reduction methods have been employed."[21] Such a viable vegetative cover will be established within one year of completion of construction activities on all disturbed areas not otherwise stabilized. Unless otherwise indicated on a landscape plan, revegetation will be achieved through seedbed preparation, including but not necessarily limited to soil roughening, seeding, mulching, and irrigating when specified. Soil roughening, mulching, and seeding are all described in the above section **Control Measures for Stormwater Pollution Prevention**, and specifications for surface stabilization and revegetation are included in the **Appendix**.

In order to prevent or control erosion and pollution of stormwater by sediment after completion of construction activities, many of the structural CMs described in the above section **Control Measures for Stormwater Pollution Prevention**, will remain in place until final stabilization. CMs that must remain in place until final stabilization shall be removed following final stabilization and the resulting disturbed areas shall be seeded and mulched. The specifications or details corresponding to each CM provide general guidelines for the removal of the CM.

5 Other Stormwater Pollution Controls

All stormwater pollution control measures to be implemented on the Nabulsi-Abushaban Subdivision Filing No. 1 site are included in the above sections **Control Measures for Stormwater Pollution Prevention** and **Final Stabilization and Long-Term Storm Water Management**.

6 Construction Scheduling

The expected timing of the project is to install initial erosion control CM's and start grading Fall 2023. Grading and site operations are expected to continue through Fall 2023 with final stabilization by Spring 2024. Activities are expected to proceed as written above. Final Stabilization is described in a following section. Update dates

7 Inspection and Maintenance

The primary purpose of a regular inspection is to "determine if there is evidence of, or the potential for, pollutants entering the drainage system."[22] "The Stormwater Construction Permit requires that a thorough inspection of the stormwater management system be performed and documented at least every 14 days, and after any precipitation or snowmelt event that results in stormwater running across the ground."[23] This is only a minimum requirement and more frequent inspection and regular maintenance of the stormwater management system is typically necessary to effectively reduce pollutants in stormwater discharges from a construction site. A thorough inspection of the Nabulsi-Abushaban Subdivision Filing No. 1 site will therefore be performed and documented weekly and after any precipitation or snowmelt event that results in stormwater running across the ground.

The regular inspections of the site will include observation of the construction site perimeter and all stormwater discharge points including storm drain system inlets and culverts. CMs applied in the site perimeter or around stormwater discharge points include inlet protection, site entrance vehicle tracking controls, silt fences, straw bale barriers, and straw bale check structures. Specific inspection and maintenance requirements for each of these CMs are included in the **Appendix**.

The regular inspections of the site will also include observation of all disturbed areas and all stabilized and revegetated areas. Inspection of these areas will involve particular attention on

21 [CDPHE], App. A, Section C.5
22 [CDPHE], App. A, Section C.6 (b)
23 [CDPHE], App. A, Section C.6 (a)

possible erosion problems. Specifications for surface stabilization and revegetation are included in the **Appendix** and provide specific inspection and maintenance requirements.

The regular inspections of the site will also include observation of material storage areas including waste disposal bins and topsoil stockpiles. Inspection of these areas will involve particular attention on possible leaks and spills and, in the case of the topsoil stockpile, on possible ineffectively managed runoff. Any leaking waste disposal bins shall be replaced prior to the next inspection. Waste disposal bins shall be emptied upon reaching 90% capacity. Specifications for on site materials handling and details for silt fence, used around topsoil stockpiles, are included in the **Appendix** and provide specific inspection and maintenance requirements.

Concrete rinse facilities will be included in the regular inspections of the site, but will require additional attention when in use. Details of a concrete rinse facility, with specific inspection and maintenance requirements, are included in the **Appendix**.

All structural CMs on the site will be thoroughly examined during each inspection to "determine if they still meet the design and operational criteria in the SWMP and that they continue to adequately control pollutants at the site."[24] Details of each CM, with specific inspection and maintenance requirements, are included in the **Appendix**.

Following each inspection, repairs will be performed on CMs that are found to no longer function as needed and designed, and preventative maintenance will be exercised on CMs as needed to ensure continued operation. CMs that have failed or have the potential to fail without maintenance or modifications will be addressed immediately to prevent the discharge of pollutants. As described above, the details of each CM, included in the **Appendix**, provided specific maintenance instructions and requirements. When a CM is found to be ineffective in preventing discharge of pollutants, even though the CM is in good repair and is functioning as designed, that CM will be modified or an alternative or additional CM will be installed promptly.[25]

An **Inspection Log** will be maintained on site in an enclosed seal receptacle near the site entrance and will include a record of all stormwater management system inspections along with all CM maintenance and repair activities[26]. Said inspection log will be signed and dated by the SWMP Administrator after each inspection. All the inspection, maintenance, and repair requirements for each CM, as described in this SWMP and as outlined in the details or specifications in the **Appendix**, will be performed as specified and will be recorded in the **Inspection Log**. The **Inspection Log** will also include a description of any incidence of non-compliance, such as uncontrolled releases of pollutants including mud, muddy water or measurable quantities of sediment found off the site along with a description of measures to be taken to cleanup pollutants that have left the site and a description of measures to be taken to prevent future pollutive discharges. Records of any spills, leaks, or overflows of non-sediment potential pollutants, whether or not such a spill, leak, or overflow results in pollution of stormwater, will be included.

Following an inspection that does not reveal any incidents of non-compliance, or following the completion of measures taken to correct any non-compliance issues, a **Certification** indicating the site is in compliance will be signed and dated.

In addition to regularly maintaining an **Inspection Log** and **Certification**, this SWMP will be updated regularly to reflect the actual stormwater management system as implemented on the site.

8 SWMP Revision Procedure

When CMs or other site conditions change, the SWMP must be modified to accurately reflect the actual field conditions. Examples include, but are not limited to, removal of CMs, identification of new potential pollutant sources, addition of CMs, modification of CM installation and implementation criteria or maintenance procedures, and changes in items included in the site map and/or

24 [CDPHE], App. A, Section C.6 (b)
25 [CDPHE], App. A, Section C.6 (c)
26 [CDPHE], App. A, Section C.6 (d)

descriptions. SWMP revisions must be made prior to changes in site conditions, except for Responsive SWMP Changes, as follows:

The SWMP Administrator shall be a Qualified Stormwater Manager (QSM). The designations of QSM and SWMP Administrator are used interchangeably in this SWMP. The SWMP Administrator is responsible for implementing, maintaining, and revising the SWMP. The SWMP administrator will update the Site Map by adding, deleting or modifying specific CMs shown on the Site Map by hand marking on the full size hard copy Site Map. The QSM will be sufficiently qualified for the required duties per the Engineering Criteria Manual (ECM) Appendix I.5.2.A.

– SWMP revisions must be made immediately after changes are made in the field to address CM installation and/or implementation issues; or

– SWMP revisions must be made as soon as practicable, but in no case more than 72 hours, after change(s) in CM installation and/or implementation occur at the site that require development of materials to modify the SWMP (e.g., design of retention pond capacity)

The SWMP should be viewed as a living document that is continuously being reviewed and modified as part of the overall process of assessing and managing stormwater quality issues at the site by the SWMP Administrator.

9 Batch Plants, Wetlands, and Control Measures by other Entities

There are no dedicated batch plants to be located on this project.

There are no springs, streams, wetlands and other surface waters, including areas that require maintenance of pre-existing vegetation that are located within 50 feet of a receiving waters for this project. This project does not rely on control measure to be operated by another entity.

References

CDPHE: Colorado Department of Public Health & Environment, Water Quality Control Division, *State of Colorado Stormwater Management Plan Guidance for Stormwater Discharges Associated with Construction Activity* (State of Colorado:Denver , April, 2011).

FIRM: Federal Emergency Management Agency, National Flood Insurance Program, *Flood Insurance Rate Map (FIRM)* (:Washington D.C. , March 17, 1997).

OSD: United States Department of Agriculture, Natural Resources Conservation Service, *NRCS Official Soil Series Descriptions* (: , March, 2018).

OSD: United States Department of Agriculture, Natural Resources Conservation Service, *NRCS Official Soil Series Descriptions* (: , October 20165).

OSD: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, *Official Soil Series Descriptions* (USDA-NRCS:Lincoln, NE , Accessed April 26, 2007).

UDFCD: Urban Drainage and Flood Control District, *Urban Storm Drainage Criteria Manual Volume 3 - Best Management Practices* (Urban Drainage and Flood Control District:2480 W. 26th Ave. Ste 156B, Denver, CO 80211 , September 1992, Updated November 2010).

WSS: United States Department of Agriculture, Natural Resources Conservation Service, *NCSS Web Soil Survey* (: , Accessed April 26, 2007).

WSS: United States Department of Agriculture, Natural Resources Conservation Service, *NRCS Web Soil Survey* (: , March, 2018).

WSS: United States Department of Agriculture, Natural Resources Conservation Service, *NRCS Web Soil Survey* (: , October 2016).

Appendix

Vicinity Map

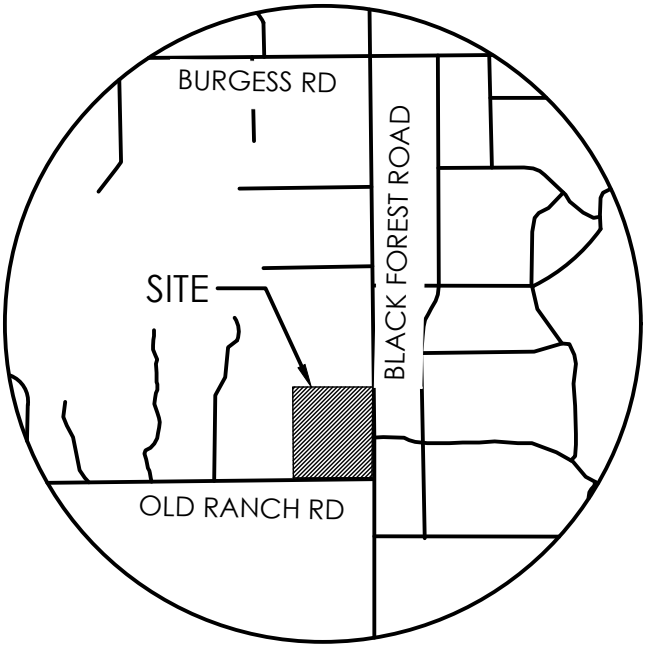
Sample Field Inspection Sequence and Field Inspection Report

CM Installation and Maintenance Details*

Colorado Springs SCM Detail and Description	Map Key Abbreviation
CD – Check Dam	CD
CIP – Culvert Inlet Protection	CIP
CWA – Concrete Washout Area	CWA
ECB – Erosion Control Blanket	ECB
IP – Inlet Protection	IP-1, IP-2, IP-3, IP-4
PT – Portable Toilet	PT
RS – Rock Sock	RS
SCL – Sediment Control Log	SCL
SF – Silt Fence	SF
SM – Seeding and Mulching	SM
SP – Stockpile Protection	SP
SR – Surface Roughening	SR
ST – Slope Tracking	ST
TCB – Temporary Compacted Berm	TCB
TSB – Temporary Sediment Basin	TSB
TSD – Temporary Slope Drain	TSD
VTC – Vehicle Tracking Control	VTC

UDFCD Detail and Description	Map Key Abbreviation
EC-10 – Earth Dikes and Drainage Swales	ED/DS
SM-6 – Stabilized Staging Area	SSA
SM-7 – Street Sweeping and Vacuuming	SS
MM-3 – Good Housekeeping Practices	GH

Site Map (Grading, Erosion, and Stormwater Quality Plan)



VICINITY MAP

NOT TO SCALE

Field Inspection Sequence

1. Pre-inspection Research:
    a. Evaluate Project Phasing
    b. Review Management Plan
    c. Review inspection and maintenance files
    d. Contact City Inspector for pre-construction inspection
2. Weekly or Post-Precipitation Field Inspection
    a. Construction Exits and Entrances
        i. Identified on Plan
        ii. Installed correctly
        iii. Properly maintained
        iv. Proper Utilization
        v. Tire wash area
        vi. Sediment leaving site and entering adjacent properties or roadways
3. Are BMPs effective and are modifications necessary
4. Walk the perimeter of the site
5. Observe terrain and perimeter controls
    a. Note type of sediment controls
        i. Installed correctly
        ii. Properly maintained
        iii. According to Plan
    b. Sediment leaving site and entering adjacent properties or roadways
    c. BMPs effective and are modifications necessary
6. Inspect active construction areas
    a. Documented in Management Plan
    b. Mulch or other temporary stabilization should be applied to all exposed areas within seven (7) or fourteen (14) days of disturbance in accordance with the SWMP
    c. Note type of controls
        i. Installed correctly
        ii. Properly maintained
7. Inspect non-active disturbed areas
    a. Areas left idle for more than thirty (30) days should be stabilized
    b. Note type of controls
        i. Installed correctly
        ii. Properly maintained
        iii. Documented in Management Plan
        iv. Are BMPs effective and are modifications necessary
8. Inspect discharge points, Structural Controls and adjacent off-site areas for impact
    a. If sediment is leaving site and impacting adjacent properties or roadways
    b. Document downstream impacts
    c. Remediate potential downstream damages
    d. Identify and implement more effective BMPs
9. Final Stabilization Inspections
    a. Perimeter controls intact
    b. Installed correctly
    c. Properly maintained
    d. Documented in Management Plan
    e. Mulch cover
        i. Estimate application density
    f. Properly secured or crimped

COLORADO DEPARTMENT OF TRANSPORTATION

STORMWATER FIELD INSPECTION REPORT - ACTIVE CONSTRUCTION

(1) Project Name:	(2) Project Contractor:	(3) Erosion Control Supervisor/SWMP Administrator:	
(4) CDOT Project Engineer/Representative:	(5) Inspector(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: (minimum every 14 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 14 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 14-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 18 (General Notes) and proceed to section 19 (Inspection Certification). Documentation must include: dates when snow cover occurred, date when construction activities ceased, and date when melting conditions began.
- ☐ Other:

(13) SWMP MANAGEMENT

	Yes	No	NA
(a) Is the SWMP notebook located on site?			
(b) Are changes to the SWMP documents noted and approved?			
(c) Are the inspection reports retained in the SWMP notebook?			
(d) Are corrective actions from the last inspection completed?			
(e) Is a Spill Prevention Control and Countermeasure Plan retained at the project site?			
(f) Is a list of potential pollutants retained at the site?			

(14) CURRENT CONSTRUCTION ACTIVITIES:

Estimate of disturbed area at the time of the inspection: _____ Acres

(15) BMPs ON SITE AT TIME OF INSPECTION

*See Inspection Report Instructions for more detail.

	In SWMP	Used	Not Needed at this time
(a) EROSION CONTROL BMPs ON SITE			
Seeding	☐	☐	☐
Mulching/Mulch Tackifier	☐	☐	☐
Soil Binder	☐	☐	☐
Soil Retention Blankets	☐	☐	☐
Embankment Protector*	☐	☐	☐
Grading Techniques*	☐	☐	☐
Berm/Diversion	☐	☐	☐
Check Dams*	☐	☐	☐
Outlet Protection*	☐	☐	☐
Other:	☐	☐	☐
(c) BMPs FOR SPECIAL CONDITIONS			
Dewatering Structure	☐	☐	☐
Temp. Stream Crossing	☐	☐	☐
Clear Water Diversion	☐	☐	☐
Sensitive Area Fencing	☐	☐	☐
Other:	☐	☐	☐

	In SWMP	Used	Not Needed at this time
(b) SEDIMENT CONTROL BMPs ON SITE			
Stabilized Const. Entrance	☐	☐	☐
Sediment Trap	☐	☐	☐
Inlet Protection*	☐	☐	☐
Sediment Basin	☐	☐	☐
Perimeter Control*	☐	☐	☐
Other:	☐	☐	☐
(d) MATERIALS HANDLING, SPILL PREVENTION, WASTE MANAGEMENT AND GENERAL POLLUTION PREVENTION			
Stockpile Management*	☐	☐	☐
Materials Management*	☐	☐	☐
Concrete Waste Management*	☐	☐	☐
Saw Water Management*	☐	☐	☐
Solid Waste/Trash Management	☐	☐	☐
Street Sweeping	☐	☐	☐
Sanitary Facility*	☐	☐	☐
Vehicle and Equip. Management	☐	☐	☐
Other:	☐	☐	☐

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

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, or discharging to state waters. If there is evidence of sediment or other pollutants discharging from the site, see section 17 (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 BMP, using more than one letter if necessary: (I) Incorrect Installation; (M) Maintenance is needed; (F) BMP failed to operate; (A) Additional BMP is needed; (R) Remove BMP. Keep copies of this blank page for additional room if needed.

Continuous maintenance is required on all BMPs. **BMPs that are not operating effectively, have proven to be inadequate, or have failed must be addressed assoon as possible, immediately in most cases.**

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

(17) 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 and the corrective actions in section 16 (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 II A.2 and 3 of the permit for reporting requirements.

(18) GENERAL NOTES

(19) INSPECTION CERTIFICATION

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

Contractor's Erosion Control Supervisor/SWMP Administrator (Signature Required)	Date:
CDOT Project Engineer/CDOT Designee (Signature Required)	Date:

(20) COMPLIANCE CERTIFICATION

Corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

Contractor's Erosion Control Supervisor/SWMP Administrator (Signature Required)	Date:
CDOT Project Engineer/CDOT Designee (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 or 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) Erosion Control Supervisor/SWMP Administrator: Indicate the name of the individual responsible for implementing, maintaining and revising the SWMP.

(4) CDOT Project Engineer/Representative: Indicate the name of the CDOT representative performing the inspection with the ECS/SWMP Administrator. 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 14 calendar days during active construction. Suspended projects require the 14 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, document the reason and indicate the necessary corrective action in section 16 (Construction Site Assessment & Corrective Actions). If NA is checked, indicate why in the space provided or indicate in section 18 (General Notes).
(a) Is the SWMP notebook located on site? A copy of the SWMP notebook must be retained on site, unless another location, specified by the permit, is approved by the Division.
(b) Are changes to the SWMP documents noted and approved? Indicate all changes that have been made to any portion of the SWMP notebook documents during construction. Changes shall be dated and signed at the time of occurrence. Amendments may include items listed in subsection 208.03(c).
(c) Are the inspection reports retained in the SWMP notebook? The ECS/Engineer shall keep a record of inspections. Inspection reports must identify any incidents of non-compliance 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? Have corrective actions from the last inspection been addressed? 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) Is a Spill Prevention Control and Countermeasure (SPCC) Plan retained in the SWMP notebook? Subsection 208.06(c) requires that a SPCC 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) Is a list of potential pollutants retained at the site? 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.

(14) Current Construction Activities: 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.
- 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.

(15) BMPs On Site at Time of Inspection: Indicate the BMPs that are installed on-site at the time of inspection. All BMP details (e.g., Standard Plan M-208-1) shall be included with the SWMP documents.

BMPs In SWMP/Used/Not Needed at this Time. This section can be used as follows:

- If the BMP is required by the SWMP and implemented, indicate by placing a ✔ in both the "In SWMP" and "Used" columns.
- If the BMP is required by the SWMP, but not implemented, indicate by placing a ✔ in the "In SWMP" and "Not Needed at this Time" columns.

(a) Erosion Control BMPs On Site

- Embankment Protector (e.g., temporary slope drains, open-chute drains, etc.)
- Grading Techniques (e.g., vertical tracking, scarifying, or disking the surface on the contour, etc.)
- Check Dams (e.g., rock check, erosion logs, erosion bales, silt berms, etc.)
- Outlet Protection (e.g., riprap, erosion log around top of headwall, etc.)

(b) Sediment Control BMPs On Site

- Inlet Protection (e.g., erosion logs, erosion bales, sand bags, gravel bags, etc.)
- Perimeter Control (e.g., silt fence, erosion logs, berms, etc.)

(d) Materials Handling, Spill Prevention, Waste Management and General Pollution Prevention

- Stockpile Management. Stockpiles shall be located away from sensitive areas. All erodible stockpiles (including topsoil) shall be contained by silt fence, berms or other sediment control devices throughout construction (also see subsection 208.07).
- Materials Management. Material that could contribute pollutants to stormwater shall have secondary containment or other equivalent protection (also see subsection 208.06(a).
- Concrete Waste Management. All concrete residue shall be contained in a signed structure as designed per subsection 208.02(j) and subsection 208.05(n). It shall be located a minimum of 50 feet from state waters.
- Saw Water Containment (e.g., pick-up broom or vacuum). Street washing is *not* allowed.
- Sanitary Facility. Temporary sanitary facilities shall be located 50 feet away from drainage ways, inlets, receiving waters, and located away from areas of high traffic, and areas susceptible to flooding or damage by construction equipment.

(16) Construction Site Assessment & Corrective Actions: Inspect the construction site and indicate where BMP feature(s) identified in section 15 (BMPs On Site at Time of Inspection), require corrective action. Erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are operating correctly.

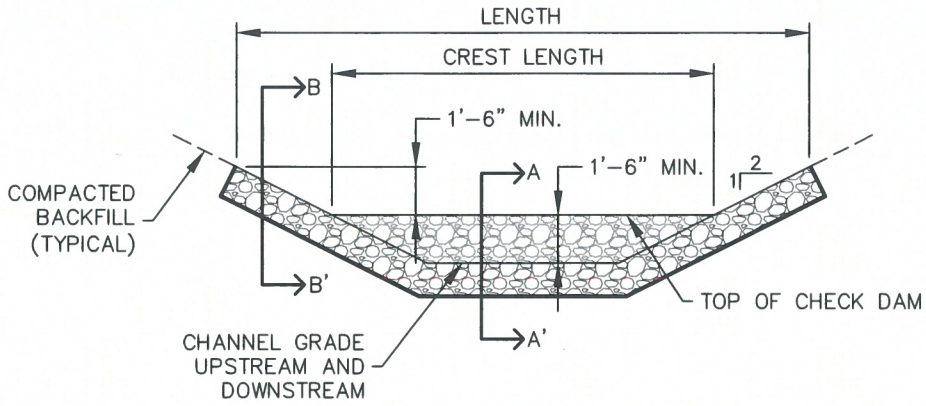
- Location. Site location (e.g., project station number, mile marker, intersection quadrant, etc.).
- BMP. Indicate the type of BMP at this location that requires corrective action (e.g., silt fence, erosion logs, soil retention blankets, etc.).
- Condition. Identify the condition of the BMP, using more than one letter (identified in section 16) if necessary.
- Description of Corrective Action and Preventative Measure Taken. Provide the proposed corrective action needed to bring the area or BMP into compliance. Once corrective actions are completed, state the measures taken to prevent future violations and ensure that the BMPs are operating correctly, including the required changes made to the SWMP.
- Date Completed & Initials. Date and initial when the corrective action was completed and the preventative measure statement finished.

(17) 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, or discharging to state water.
(b) 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 16 (Construction Site Assessment & Corrective Actions) or section 18 (General Notes).

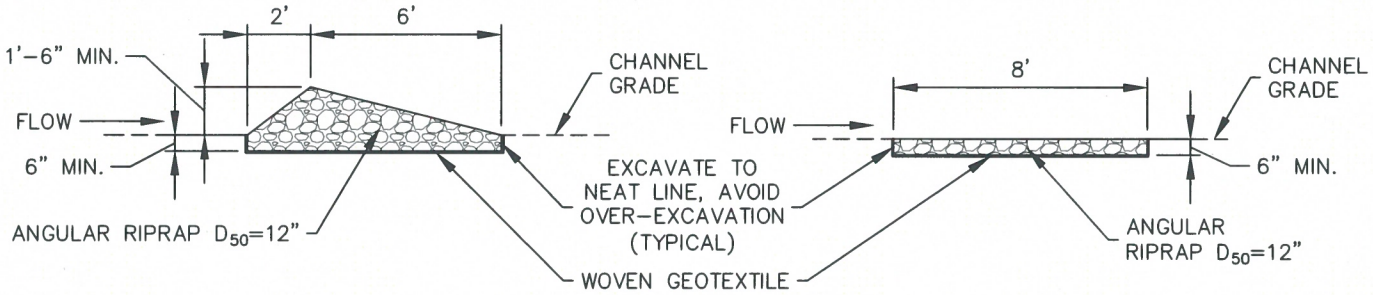
(18) General Notes: Indicate any additional notes that add detail to the inspection; this may include positive practices noted on the project.

(19) Inspection Certification: In accordance with Part I, F.1.c of the CDPS-SCP, all reports for submittal shall be signed and certified for accuracy.

(20) Compliance Certification: In accordance with Part I, D.6.b.2.viii of the CDPS-SCP, compliance shall be certified through signature.

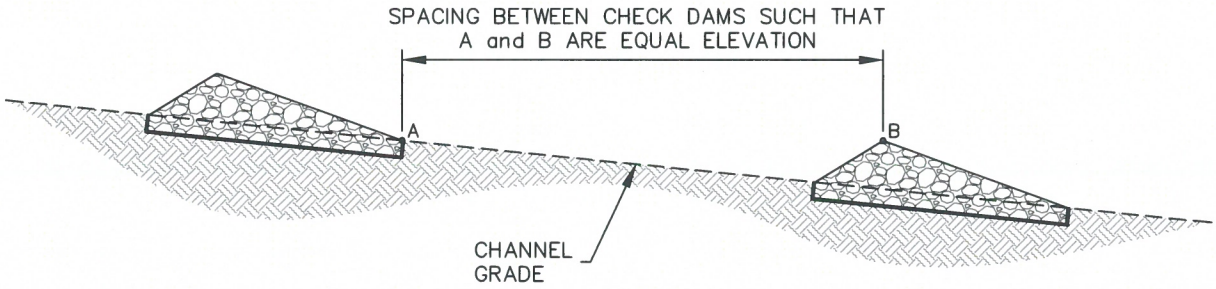


CHECK DAM ELEVATION VIEW



SECTION A-A'

SECTION B-B'



PROFILE

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

CD

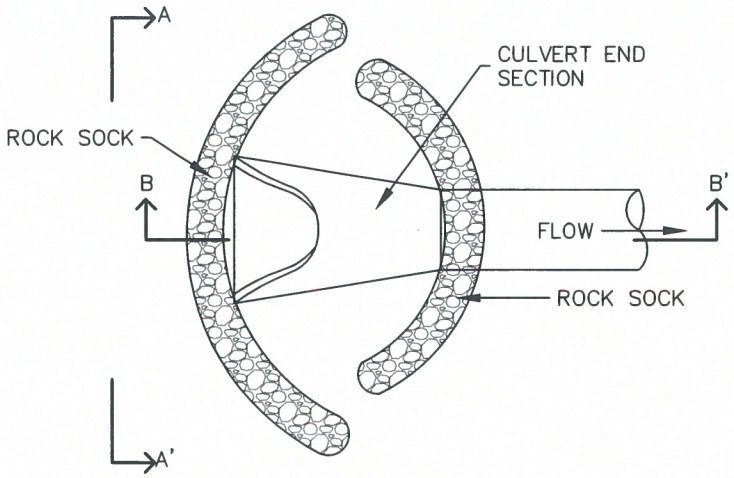
STORMWATER ENTERPRISE

CHECK DAM

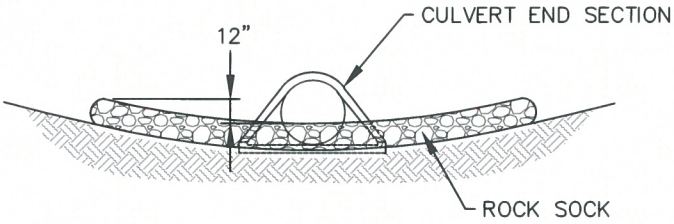
APPROVED:

SWENT MANAGER

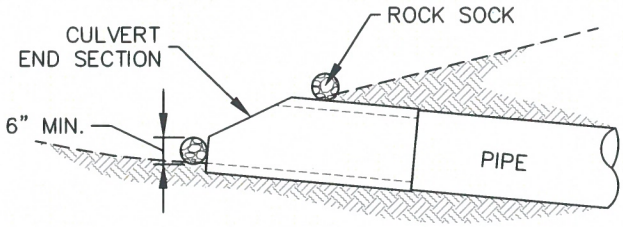
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–CD



CULVERT INLET PROTECTION PLAN



SECTION A-A'



SECTION B-B'

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ HEIGHT OF THE ROCK SOCK.
3. CULVERT INLET PROTECTION SHALL REMAIN UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.

CIP

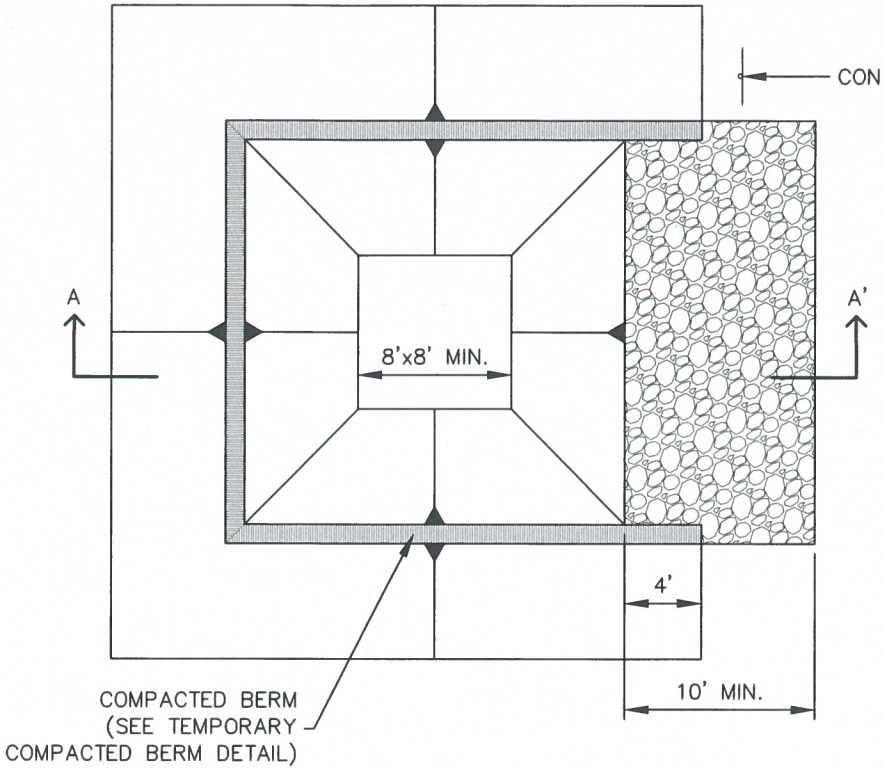
STORMWATER ENTERPRISE

CULVERT INLET PROTECTION

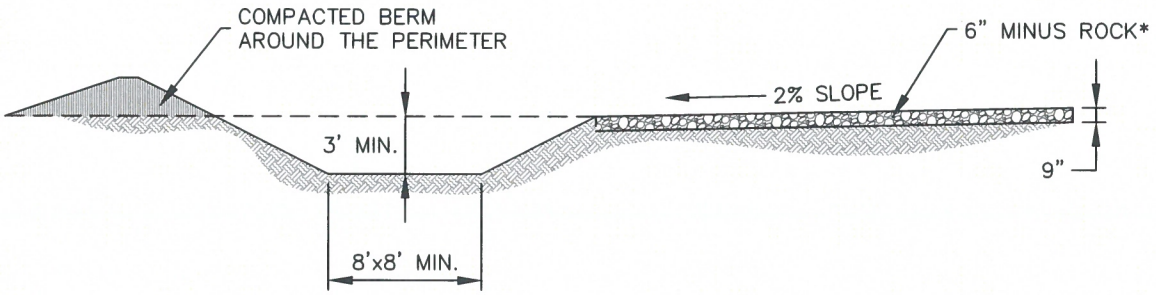
APPROVED:

SWENT MANAGER

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



CONCRETE WASHOUT AREA PLAN



SECTION A-A'

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

CWA

STORMWATER ENTERPRISE

CONCRETE WASHOUT AREA

APPROVED:

SWENT MANAGER

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

INSTALLATION NOTES

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

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. THE CONCRETE WASH AREA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF ⅔ THE HEIGHT OF THE CONCRETE WASH AREA.
3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.
4. THE CONCRETE WASH AREA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
5. PERMANENTLY STABILIZE AREA AFTER CONCRETE WASH AREA IS REMOVED.

CWA

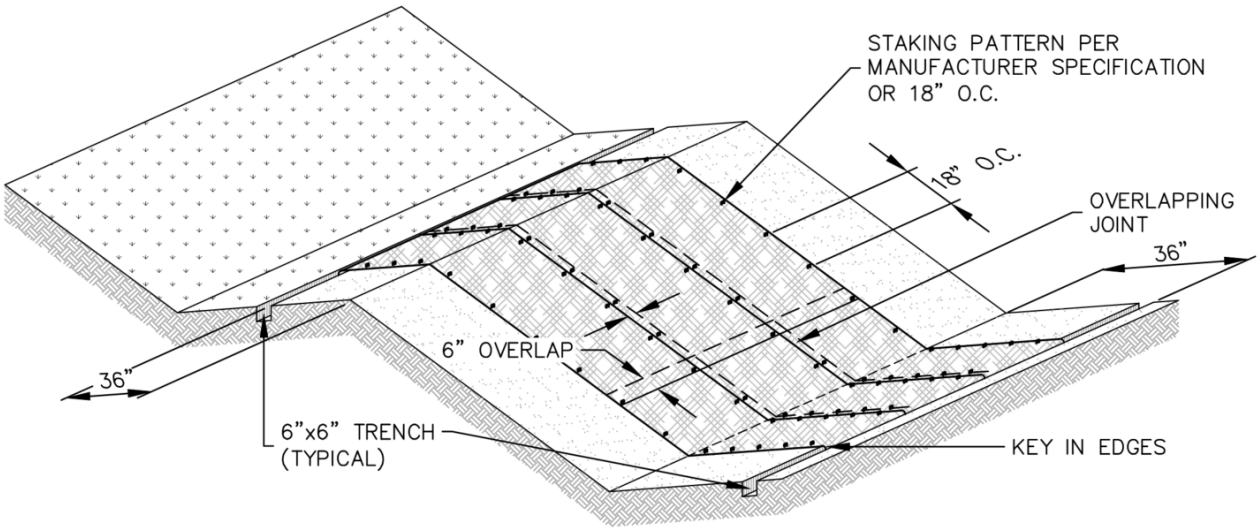
STORMWATER ENTERPRISE

CONCRETE WASHOUT AREA

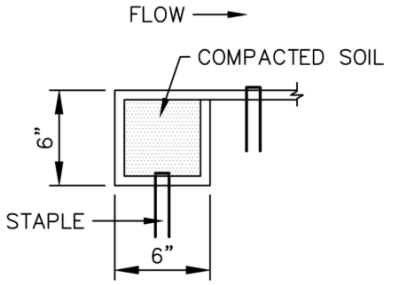
APPROVED:

SWENT MANAGER

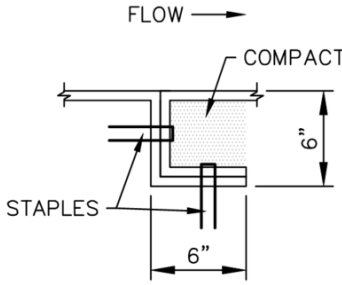
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–CWA–2



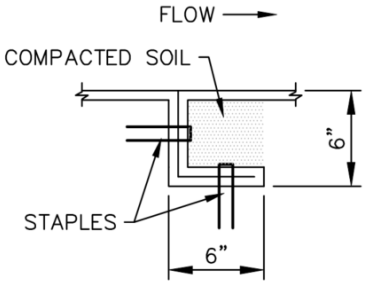
EROSION CONTROL BLANKET



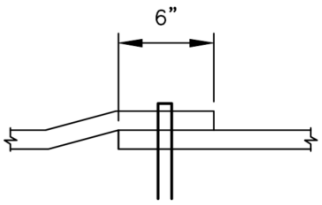
PERIMETER
ANCHOR TRENCH



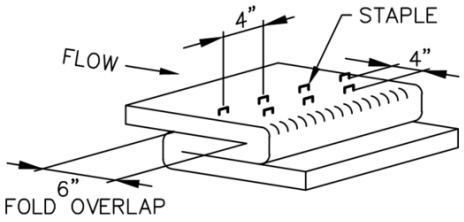
JOINT
ANCHOR TRENCH



INTERMEDIATE
CHECK SLOT



OVERLAPPING
JOINT



STAPLE CHECK

TO BE USED ON SLOPE EVERY 15 FEET

ECB

STORMWATER ENTERPRISE

EROSION CONTROL BLANKET		
APPROVED: SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-ECB-1

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

TABLE ECB–1, EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

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

ECB

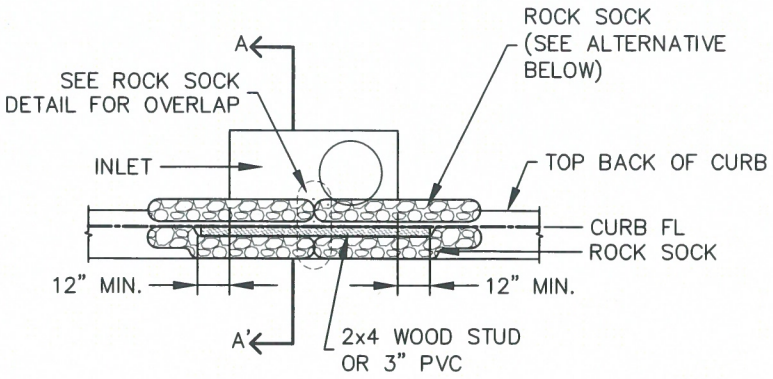
STORMWATER ENTERPRISE

EROSION CONTROL BLANKET

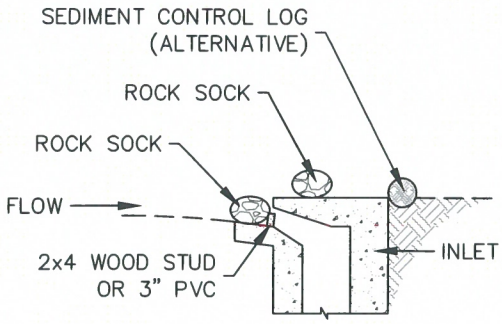
APPROVED:

SWENT MANAGER

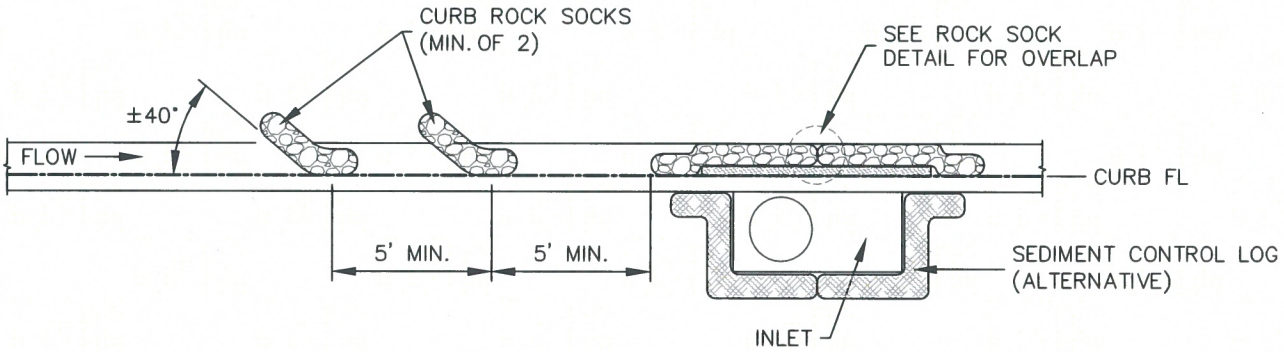
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–ECB–2



CURB INLET PROTECTION PLAN



SECTION A-A'



CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

IP-1

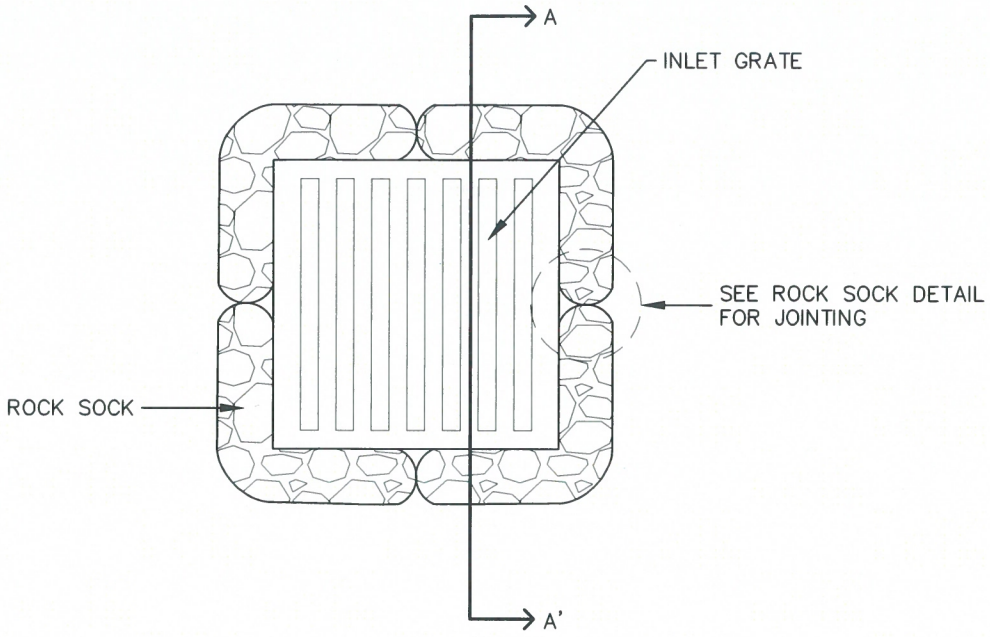
STORMWATER ENTERPRISE

ON-GRADE INLET PROTECTION

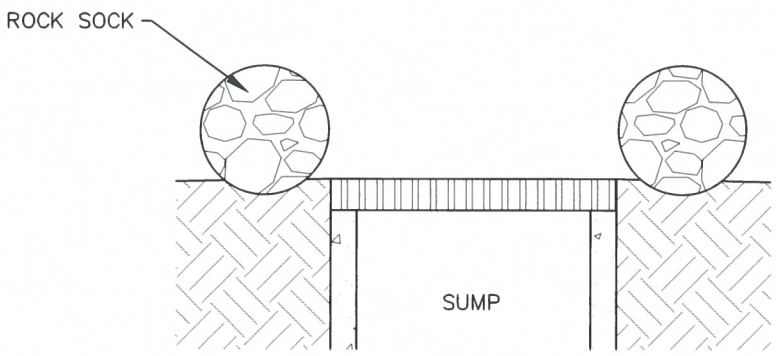
APPROVED:

SWENT MANAGER

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



ROCK SOCK SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

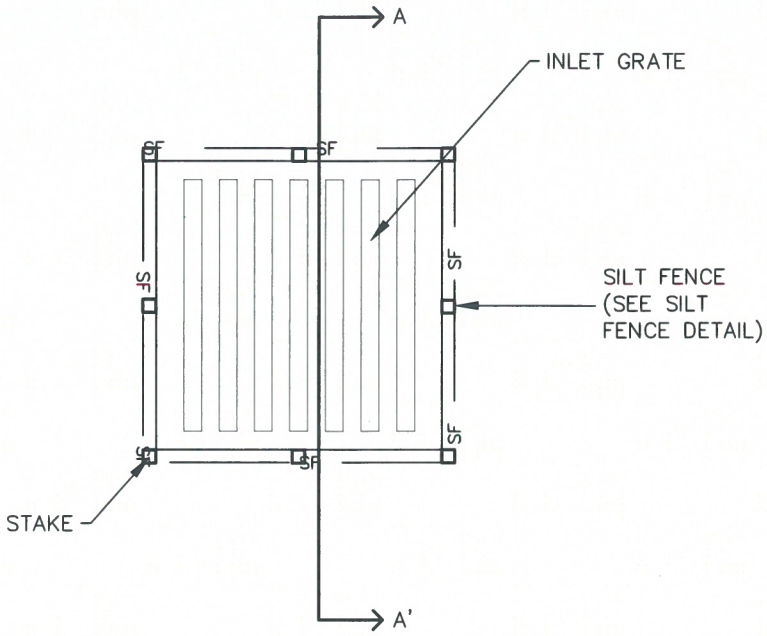
IP-2

STORMWATER ENTERPRISE

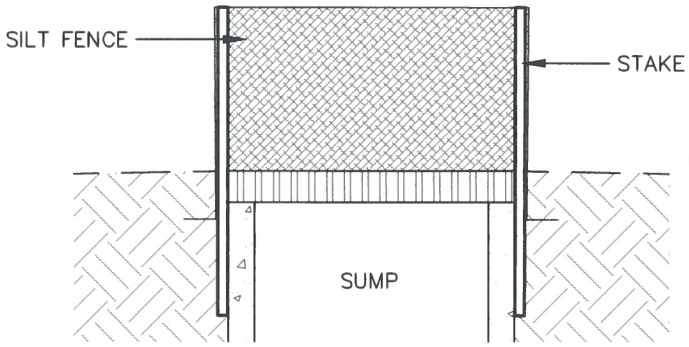
SUMP INLET PROTECTION

APPROVED: SWENT MANAGER

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



SILT FENCE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

IP-3

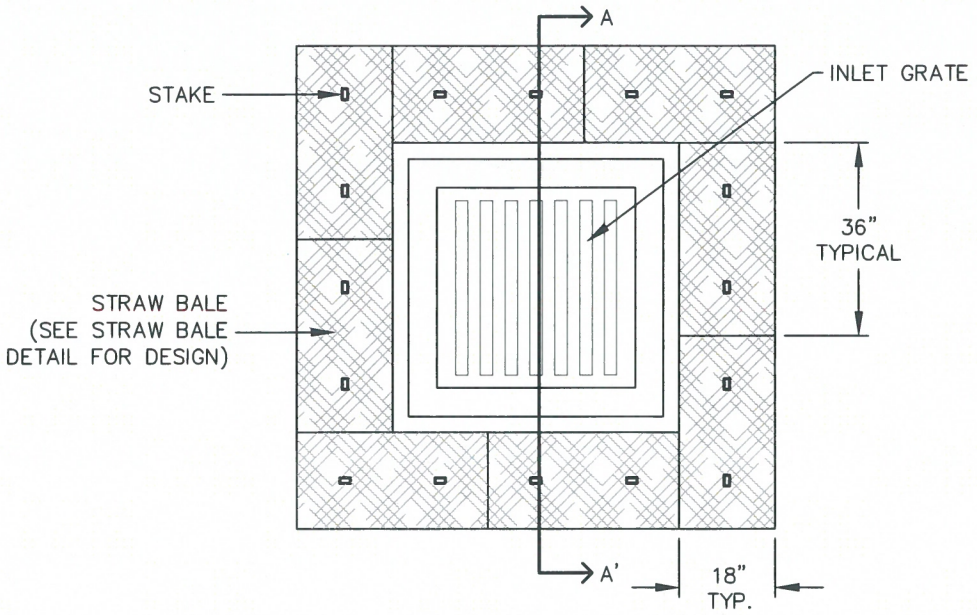
STORMWATER ENTERPRISE

SUMP INLET PROTECTION

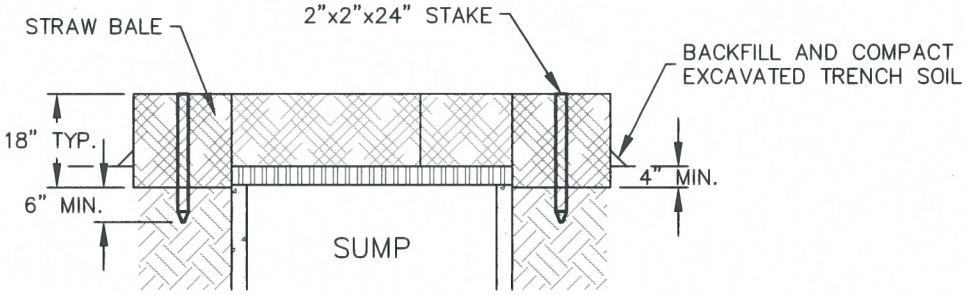
APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-IP-3



STRAW BALE SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

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

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. STRAW BALES MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER STRAW BALES ARE REMOVED WHEN REMOVAL IS APPROPRIATE.
5. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN OR DAMAGED BEYOND REPAIR.

IP-4

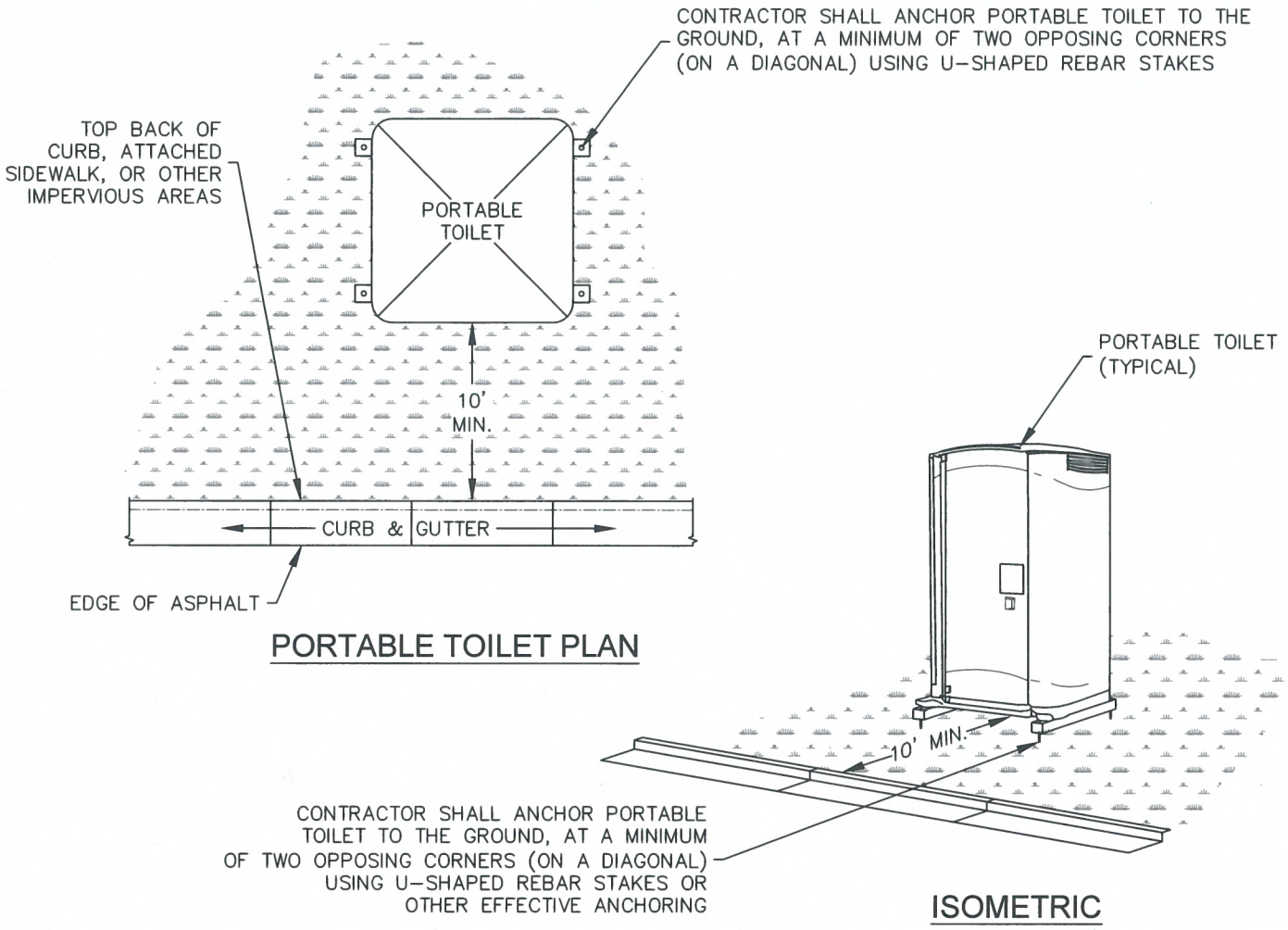
STORMWATER ENTERPRISE

SUMP INLET PROTECTION

APPROVED:

SWENT MANAGER

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



PORTABLE TOILET PLAN

ISOMETRIC

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

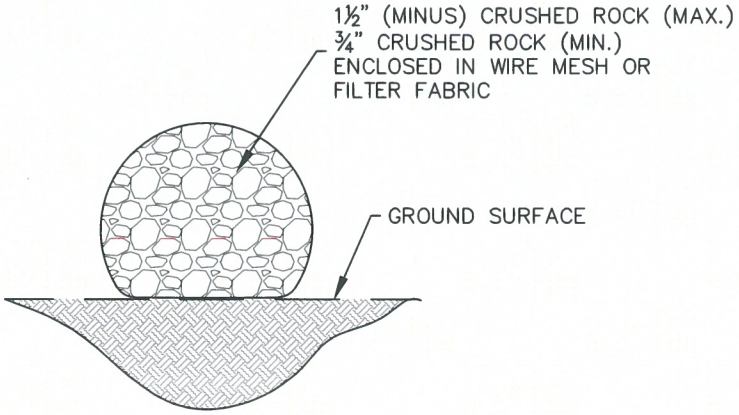
PT

PORTABLE TOILET

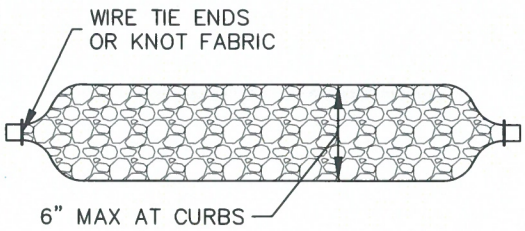
APPROVED:

SWENT MANAGER

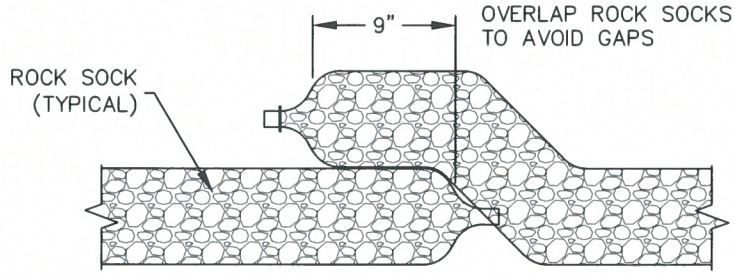
ISSUED:	REVISED:	DRAWING NO.
2/19/19	8/19/2020	900-PTM



ROCK SOCK SECTION



ROCK SOCK PLAN



ROCK SOCK OVERLAP

GRADATION TABLE	
	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 M–43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES	

INSTALLATION NOTES

1. CRUSHED ROCK SHALL BE BETWEEN MAX. 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET AND MIN. ¾" CRUSHED ROCK.
2. WIRE MESH SHALL HAVE OPENINGS SMALLER THAN THE SMALLEST SIZE ROCK.
3. WIRE MESH SHALL BE SECURED USING 'HOG RINGS' OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED BEYOND REPAIR.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH REACHES ½ OF THE HEIGHT OF THE ROCK SOCK.
4. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL DISTURBED AREA IS STABILIZED.
5. PERMANENTLY STABILIZE AREA AFTER ROCK SOCKS HAVE BEEN REMOVED.

RS

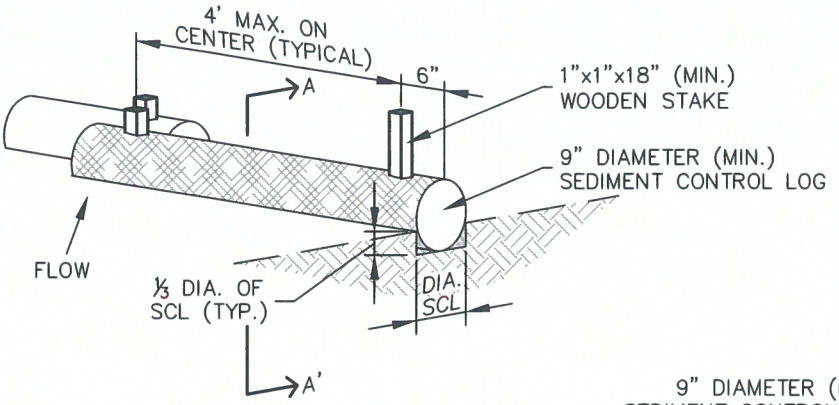
STORMWATER ENTERPRISE

ROCK SOCK

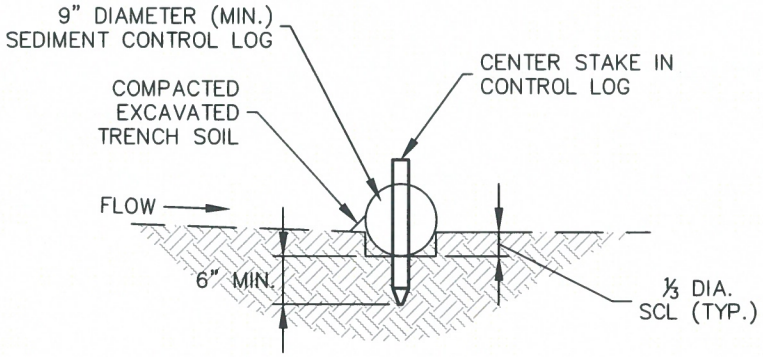
APPROVED:

SWENT MANAGER

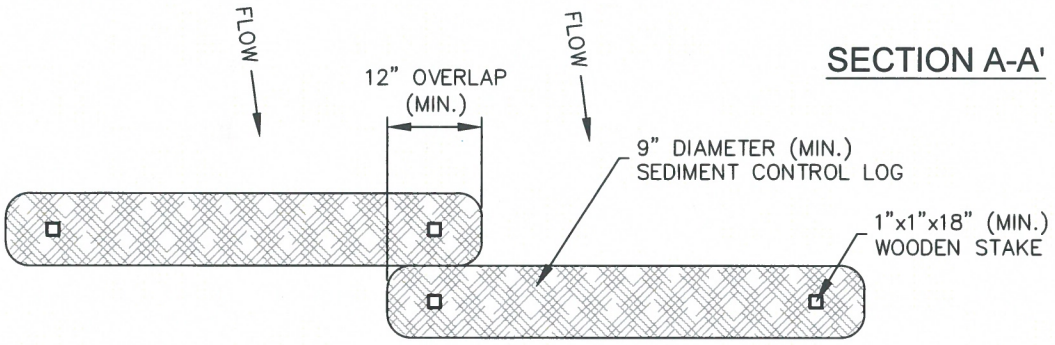
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–RS



SEDIMENT CONTROL LOG



SECTION A-A'



SEDIMENT CONTROL LOG JOINTS

INSTALLATION NOTES

1. ALL SEDIMENT CONTROL LOGS MUST BE EMBEDDED TO ⅓ OF THE HEIGHT OF THE LOG
2. LARGER DIAMETER SEDIMENT CONTROL LOGS NEED TO BE EMBEDDED DEEPER.
3. PLACE SEDIMENT CONTROL LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.
4. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BR FREE FROM ANY NOXIOUS WEED SEEDS OF DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
5. IF USING AS SLOPE PROTECTION, INSTALL SEDIMENT CONTROL LOGS ALONG THE CONTOUR.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
3. PERMANENTLY STABILIZE AREA AFTER SEDIMENT CONTROL LOGS HAVE BEEN REMOVED.

SCL

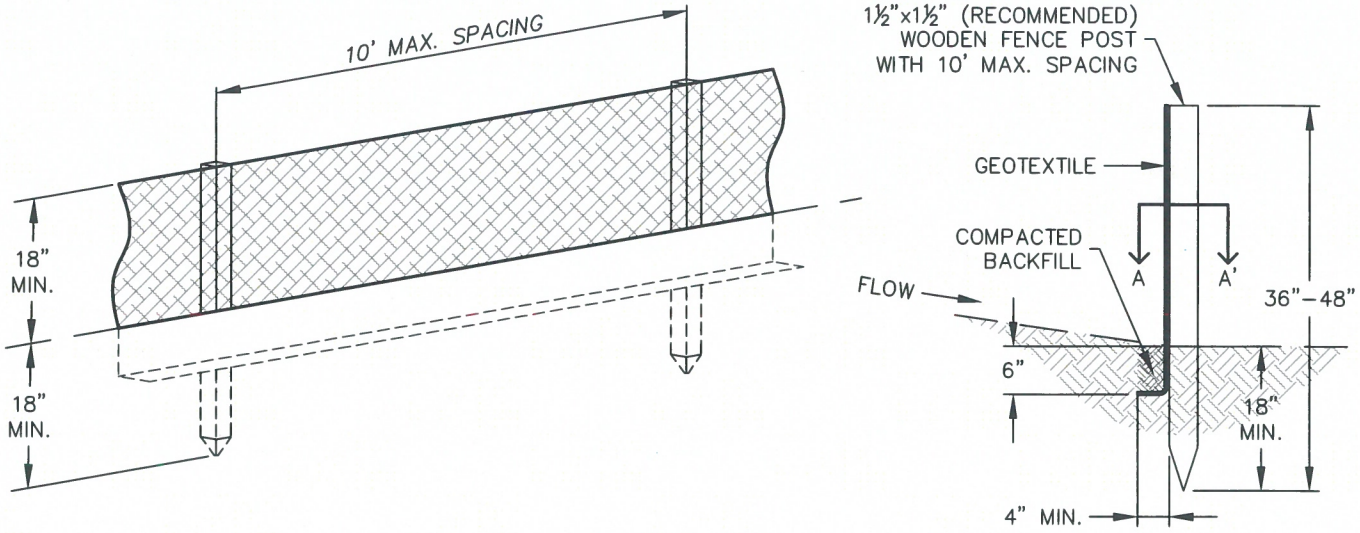
STORMWATER ENTERPRISE

SEDIMENT CONTROL LOGS

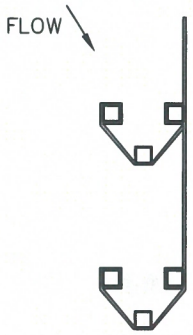
APPROVED:

SWENT MANAGER

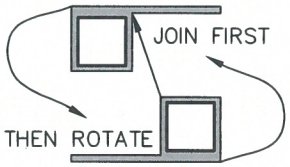
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-SCL

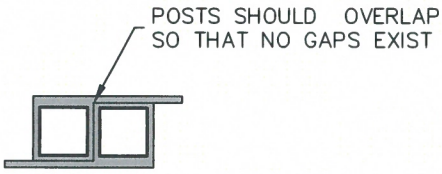


SILT FENCE



J-HOOK INSTALLATION





SECTION A-A'

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

SF

STORMWATER ENTERPRISE

SILT FENCE

APPROVED:
SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–SF

SEEDING & MULCHING

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

SOIL PREPARATION

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

SEEDING

1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
2. SEED SHOULD BE DRILL–SEEDED WHENEVER POSSIBLE
   - SEED DEPTH MUST BE ⅓ TO ½ INCHES WHEN DRILL–SEEDING IS USED
3. BROADCAST SEEDING OR HYDRO–SEEDING WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
   - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO–SEEDING
   - BROADCAST SEEDING MUST BE LIGHTLY HAND–RAKED INTO THE SOIL

MULCHING

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

SM

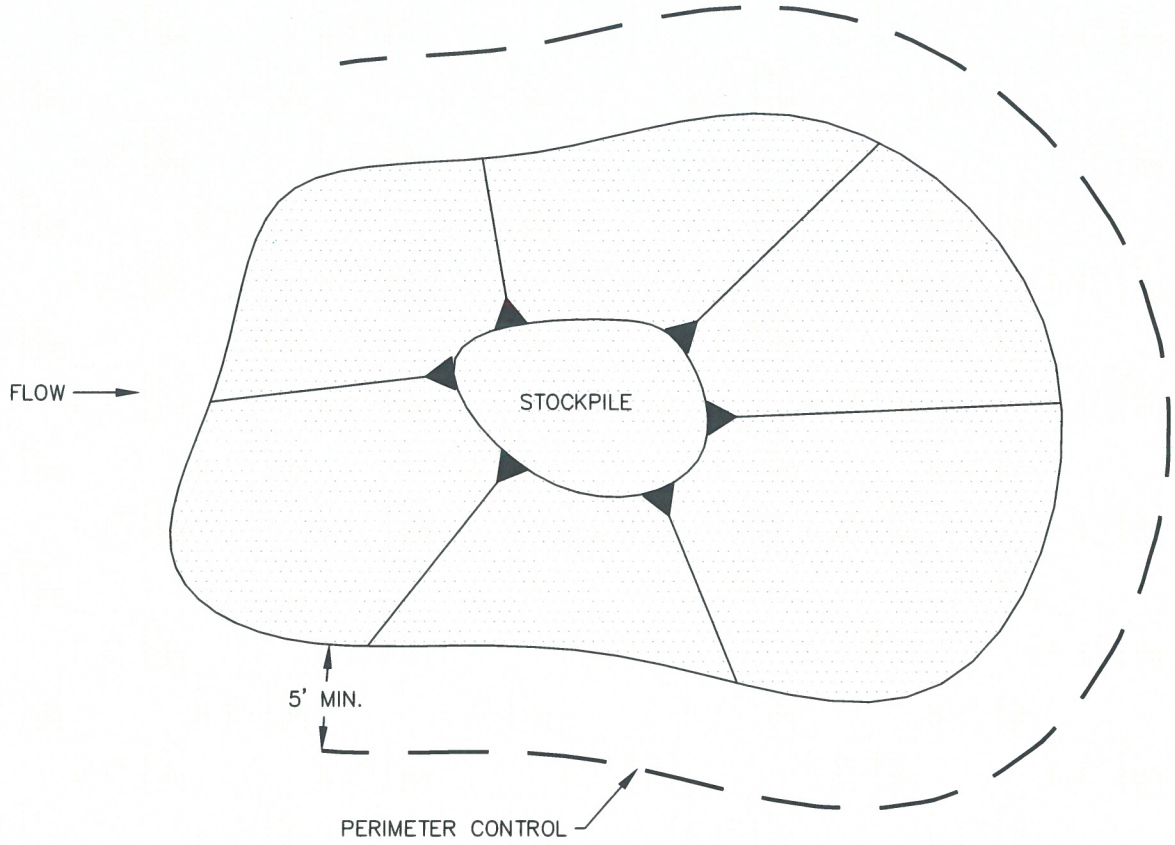
STORMWATER ENTERPRISE

SEEDING & MULCHING

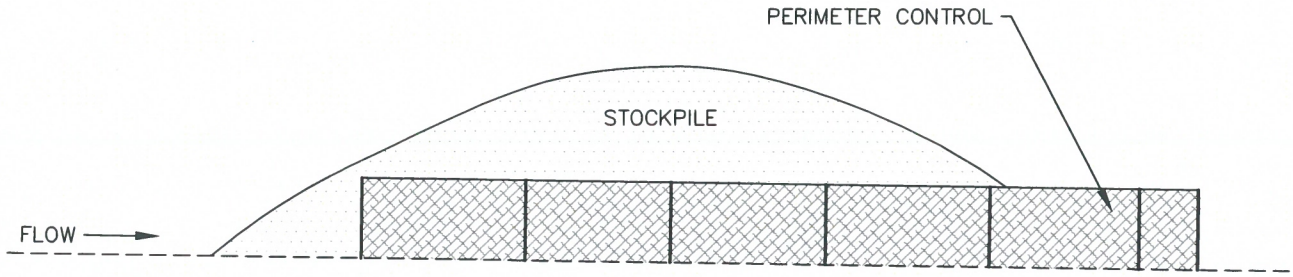
APPROVED:

SWENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–SM



STOCKPILE PROTECTION PLAN



STOCKPILE PROTECTION ELEVATION

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

SP

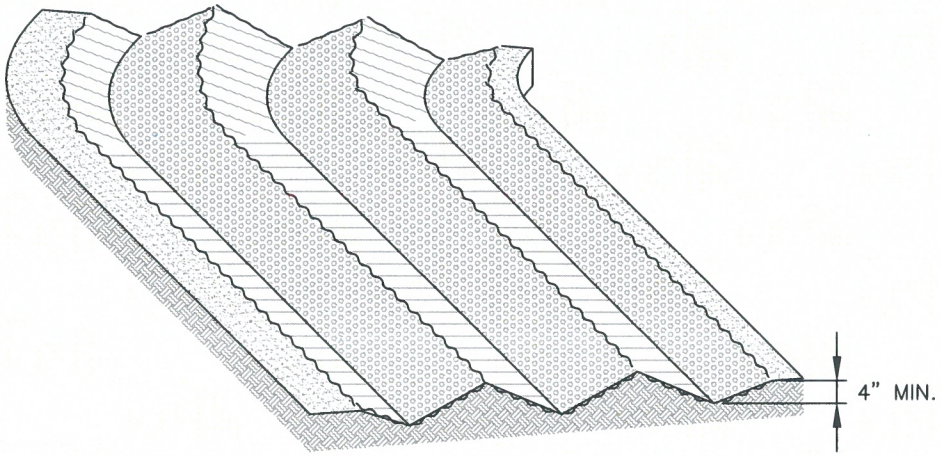
STORMWATER ENTERPRISE

STOCKPILE PROTECTION

APPROVED:

SWENT MANAGER

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



SURFACE ROUGHENING

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

SR

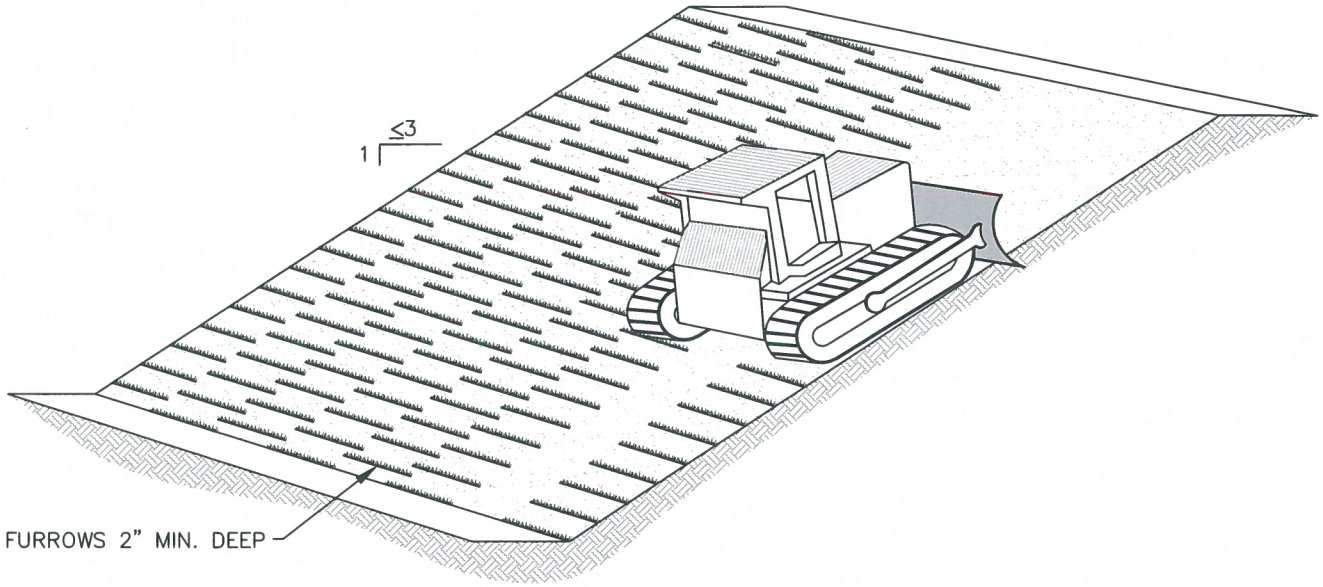
STORMWATER ENTERPRISE

SURFACE ROUGHENING

APPROVED:

SWENT MANAGER

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



SLOPE TRACKING

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

ST

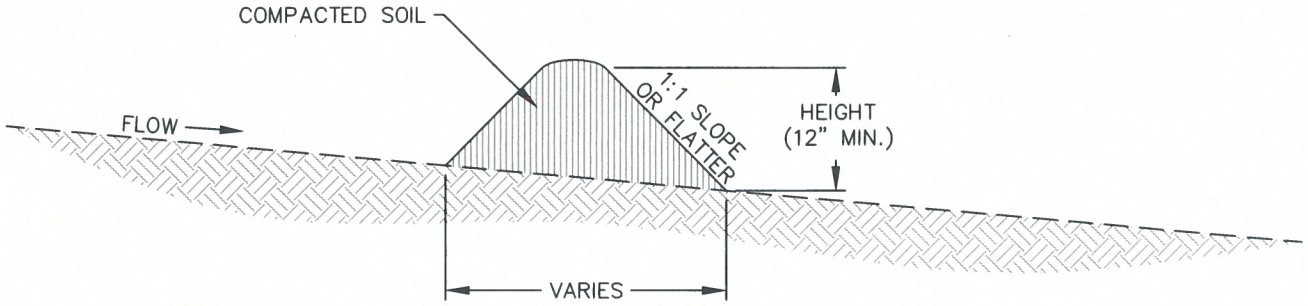
STORMWATER ENTERPRISE

SLOPE TRACKING

APPROVED:

SWENT MANAGER

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



TEMPORARY COMPACTED BERM

INSTALLATION NOTES

1. COMPACTED BERM MUST BE A MINIMUM HEIGHT OF ONE FOOT. BASE WIDTH IS DETERMINED BY HEIGHT.
2. COMPACTED BERMS MUST BE ADEQUATELY COMPACTED. NOT ALL SOILS ARE SUITABLE FOR COMPACTED BERMS.
3. INSTALL COMPACTED BERMS ALONG CONTOUR; DO NOT INSTALL PERPENDICULAR TO SLOPE.
4. THE MAXIMUM TRIBUTARY DRAINAGE AREA PER 100 LINEAR FEET OF COMPACTED BERMS SHALL BE ¼ ACRE.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE BERM.

TCB

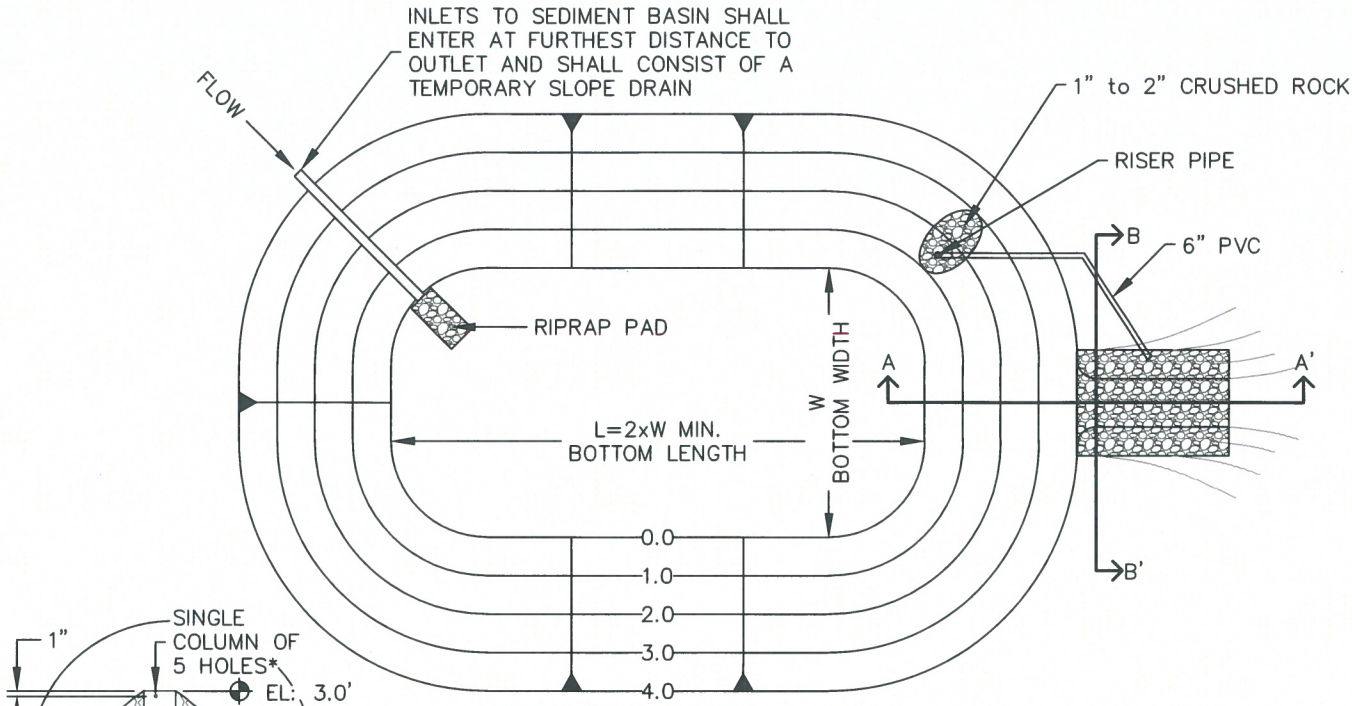
STORMWATER ENTERPRISE

TEMPORARY COMPACTED BERM

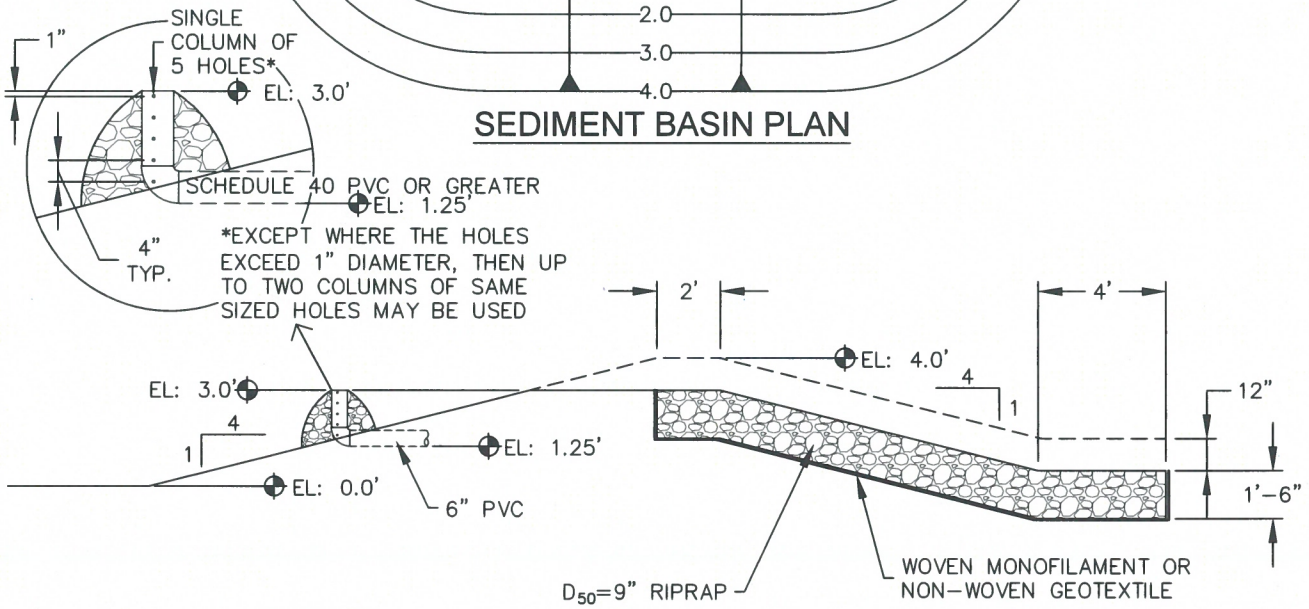
APPROVED:

SWENT MANAGER

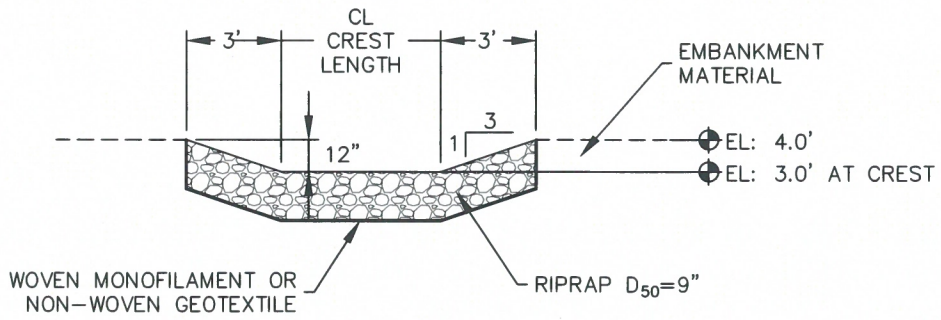
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-TCB



SEDIMENT BASIN PLAN



SECTION A-A'



SECTION B-B'

TSB

STORMWATER ENTERPRISE

TEMPORARY SEDIMENT BASIN

APPROVED:

SWENT MANAGER

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

TABLE SB–1, SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

UPSTREAM DRAINAGE AREA (ROUNDED TO NEAREST ACRE), (AC)	BASIN BOTTOM WIDTH (W), (FT)	SPILLWAY CREST LENGTH (CL), (FT)	HOLE DIAMETER (HD), (IN)
1	12½"	2	9/32
2	21	3	13/16
3	28	5	½
4	33½	6	9/16
5	38½	8	21/32
6	43	9	21/32
7	47¼	11	25/32
8	51	12	27/32
9	55	13	⅞
10	58¼	15	15/16
11	61	16	31/32
12	64	18	1
13	67½	19	1 1/16
14	70½	21	1⅛
15	73¼	22	1 3/16

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

TSB

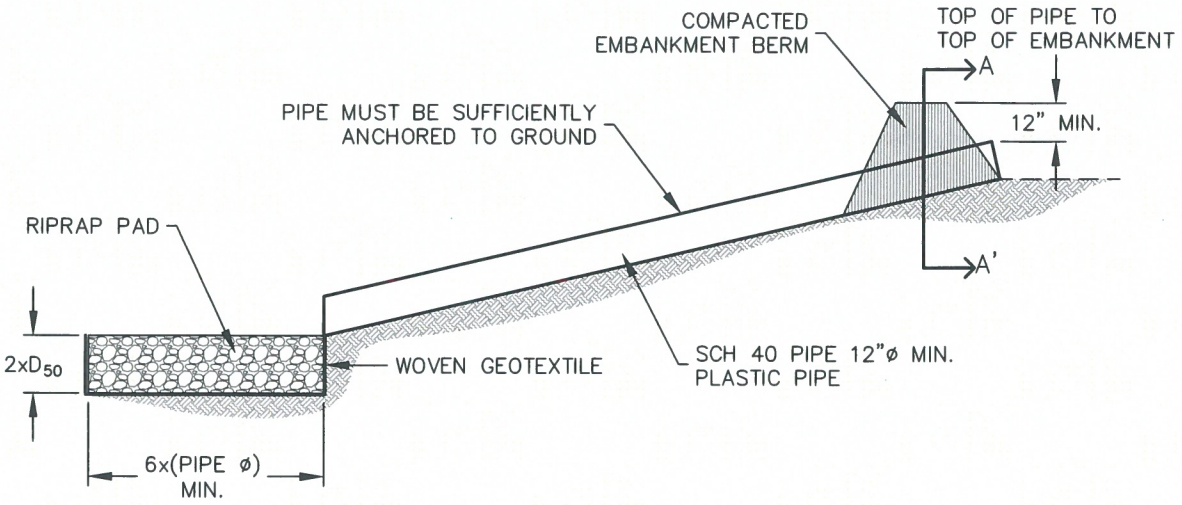
STORMWATER ENTERPRISE

TEMPORARY SEDIMENT BASIN

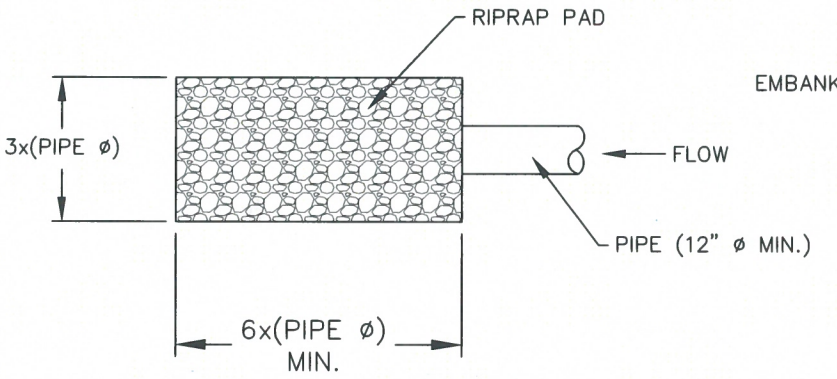
APPROVED:

SWENT MANAGER

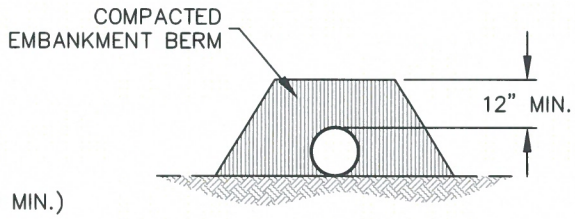
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900–TSB–2



TEMPORARY SLOPE DRAIN



RIPRAP PAD PLAN



SECTION A-A'

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

TSD

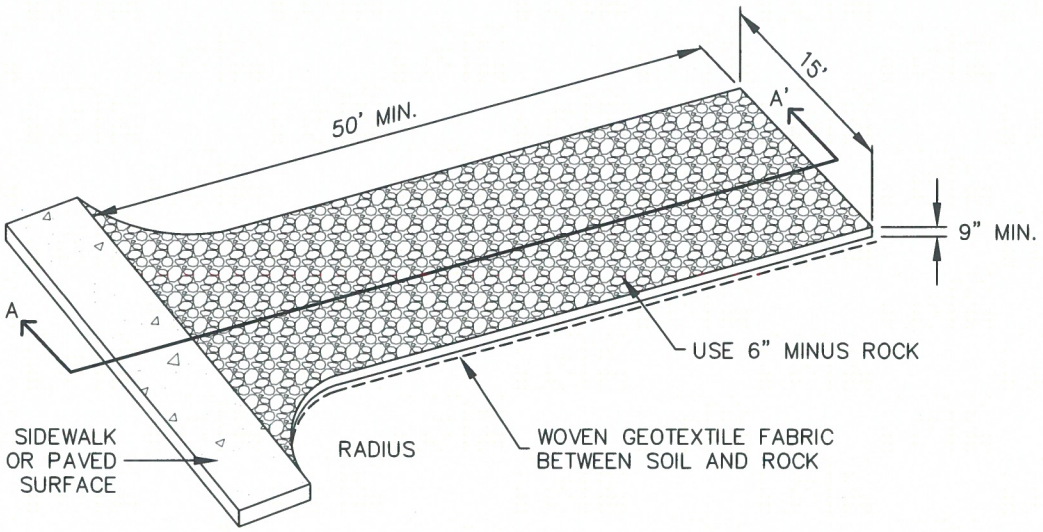
STORMWATER ENTERPRISE

TEMPORARY SLOPE DRAIN

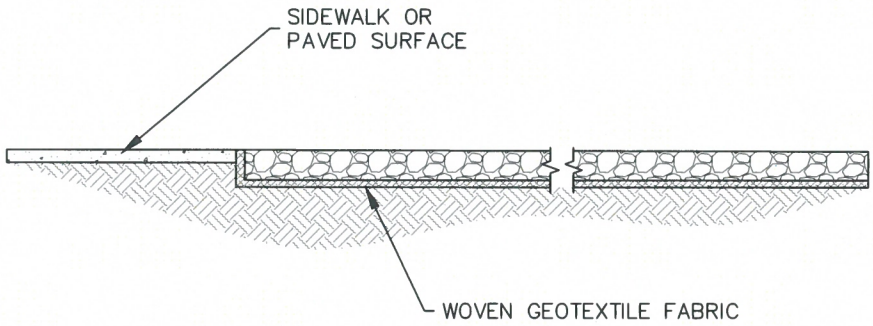
APPROVED:

SWENT MANAGER

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



AGGREGATE VEHICLE TRACKING CONTROL



SECTION A-A'

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

VTC

STORMWATER ENTERPRISE

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

Earth Dikes and Drainage Swales (ED/DS) EC-10

Description

Earth dikes and drainage swales are temporary storm conveyance channels constructed either to divert runoff around slopes or to convey runoff to additional sediment control BMPs prior to discharge of runoff from a site. Drainage swales may be lined or unlined, but if an unlined swale is used, it must be well compacted and capable of resisting erosive velocities.

Photograph ED/DS-1. Example of an earth dike used to divert flows at a construction site. Photo courtesy of CDOT.

Appropriate Uses

Earth dikes and drainage swales are typically used to control the flow path of runoff at a construction site by diverting runoff around areas prone to erosion, such as steep slopes. Earth dikes and drainage swales may also be constructed as temporary conveyance features. This will direct runoff to additional sediment control treatment BMPs, such as sediment traps or basins.

Design and Installation

When earth dikes are used to divert water for slope protection, the earth dike typically consists of a horizontal ridge of soil placed perpendicular to the slope and angled slightly to provide drainage along the contour. The dike is used in conjunction with a swale or a small channel upslope of the berm to convey the diverted water. Temporary diversion dikes can be constructed by excavation of a V-shaped trench or ditch and placement of the fill on the downslope side of the cut. There are two types of placement for temporary slope diversion dikes:

- A dike located at the top of a slope to divert upland runoff away from the disturbed area and convey it in a temporary or permanent channel.
- A diversion dike located at the base or mid-slope of a disturbed area to intercept runoff and reduce the effective slope length.

Depending on the project, either an earth dike or drainage swale may be more appropriate. If there is a need for cut on the project, then an excavated drainage swale may be better suited. When the project is primarily fill, then a conveyance constructed using a berm may be the better option.

All dikes or swales receiving runoff from a disturbed area should direct stormwater to a sediment control BMP such as a sediment trap or basin.

Earth Dikes and Drainage Swales	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

EC-10 Earth Dikes and Drainage Swales (ED/DS)

Unlined dikes or swales should only be used for intercepting sheet flow runoff and are not intended for diversion of concentrated flows.

Details with notes are provided for several design variations, including:

ED-1. Unlined Earth Dike formed by Berm

DS-1. Unlined Excavated Swale

DS-2. Unlined Swale Formed by Cut and Fill

DS-3. ECB-lined Swale

DS-4. Synthetic-lined Swale

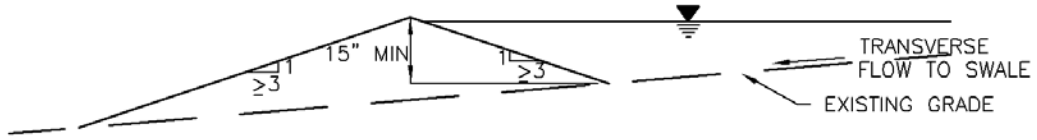
DS-5. Riprap-lined Swale

The details also include guidance on permissible velocities for cohesive channels if unlined approaches will be used.

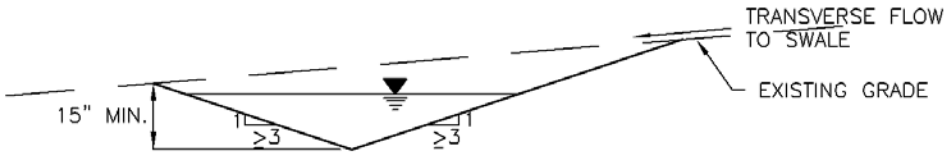
Maintenance and Removal

Inspect earth dikes for stability, compaction, and signs of erosion and repair. Inspect side slopes for erosion and damage to erosion control fabric. Stabilize slopes and repair fabric as necessary. If there is reoccurring extensive damage, consider installing rock check dams or lining the channel with riprap.

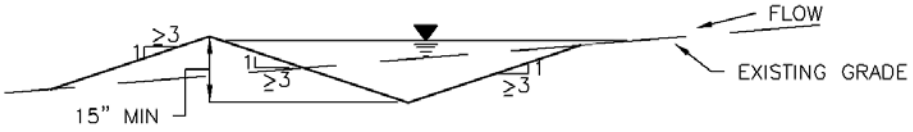
If drainage swales are not permanent, remove dikes and fill channels when the upstream area is stabilized. Stabilize the fill or disturbed area immediately following removal by revegetation or other permanent stabilization method approved by the local jurisdiction.



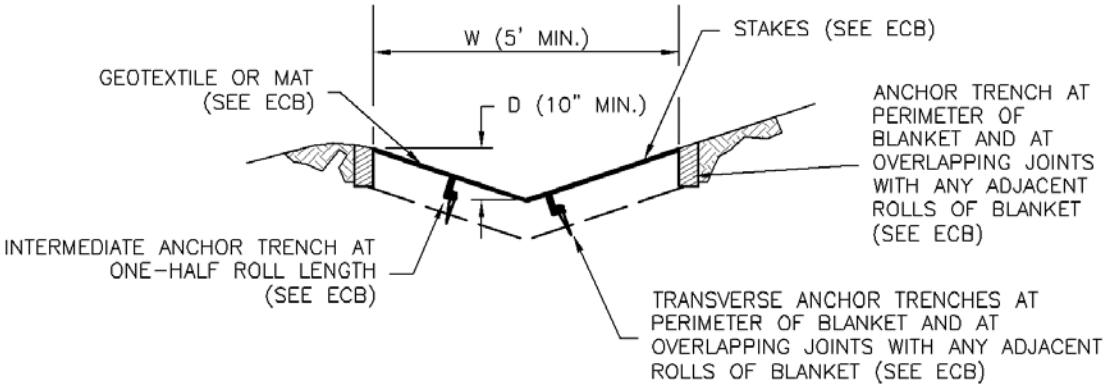
ED–1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM



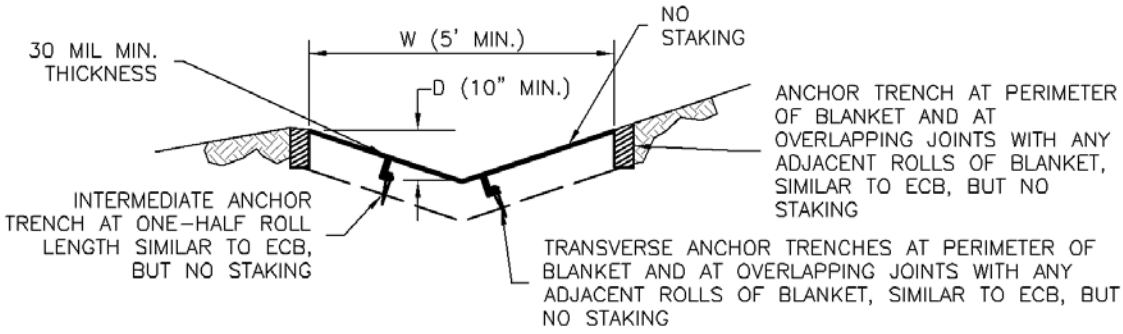
DS–1. COMPACTED UNLINED EXCAVATED SWALE



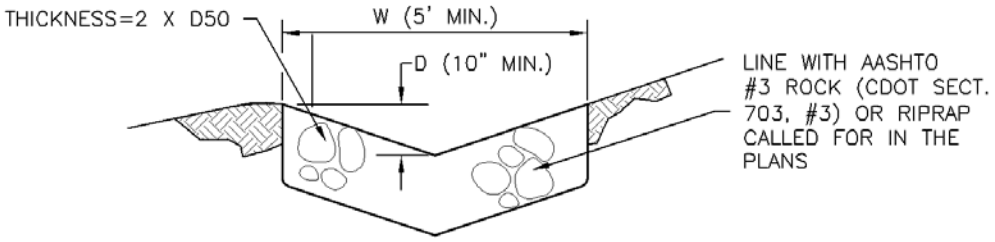
DS–2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL



DS–3. ECB LINED SWALE (CUT AND FILL OR BERM)



DS-4. SYNTHETIC LINED SWALE



DS-5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. SEE SITE PLAN FOR:
   - LOCATION OF DIVERSION SWALE
   - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED).
   - LENGTH OF EACH SWALE.
   - DEPTH, D, AND WIDTH, W DIMENSIONS.
   - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.

2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.

3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.

4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.

5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.

6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.

7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

EARTH DIKE AND DRAINAGE SWALE 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. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.

5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, 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.

Stabilized Staging Area (SSA) SM-6

Description

A stabilized staging area is a clearly designated area where construction equipment and vehicles, stockpiles, waste bins, and other construction-related materials are stored. The contractor office trailer may also be located in this area. Depending on the size of the construction site, more than one staging area may be necessary.

Photograph SSA-1. Example of a staging area with a gravel surface to prevent mud tracking and reduce runoff. Photo courtesy of Douglas County.

Appropriate Uses

Most construction sites will require a staging area, which should be clearly designated in SWMP drawings. The layout of the staging area may vary depending on the type of construction activity. Staging areas located in roadways due to space constraints require special measures to avoid materials being washed into storm inlets.

Design and Installation

Stabilized staging areas should be completed prior to other construction activities beginning on the site. Major components of a stabilized staging area include:

- Appropriate space to contain storage and provide for loading/unloading operations, as well as parking if necessary.
- A stabilized surface, either paved or covered, with 3-inch diameter aggregate or larger.
- Perimeter controls such as silt fence, sediment control logs, or other measures.
- Construction fencing to prevent unauthorized access to construction materials.
- Provisions for Good Housekeeping practices related to materials storage and disposal, as described in the Good Housekeeping BMP Fact Sheet.
- A stabilized construction entrance/exit, as described in the Vehicle Tracking Control BMP Fact Sheet, to accommodate traffic associated with material delivery and waste disposal vehicles.

Over-sizing the stabilized staging area may result in disturbance of existing vegetation in excess of that required for the project. This increases costs, as well as requirements for long-term stabilization following the construction period. When designing the stabilized staging area, minimize the area of disturbance to the extent practical.

Stabilized Staging Area	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material	Yes

Minimizing Long-Term Stabilization Requirements

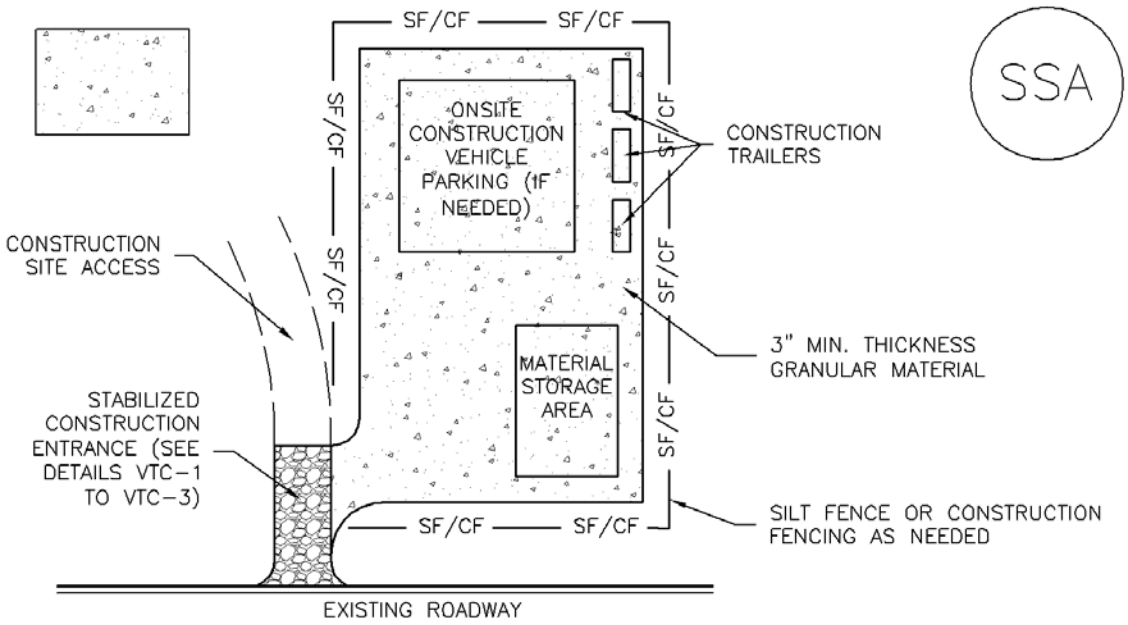
- Utilize off-site parking and restrict vehicle access to the site.
- Use construction mats in lieu of rock when staging is provided in an area that will not be disturbed otherwise.
- Consider use of a bermed contained area for materials and equipment that do not require a stabilized surface.
- Consider phasing of staging areas to avoid disturbance in an area that will not be otherwise disturbed.

See Detail SSA-1 for a typical stabilized staging area and SSA-2 for a stabilized staging area when materials staging in roadways is required.

Maintenance and Removal

Maintenance of stabilized staging areas includes maintaining a stable surface cover of gravel, repairing perimeter controls, and following good housekeeping practices.

When construction is complete, debris, unused stockpiles and materials should be recycled or properly disposed. In some cases, this will require disposal of contaminated soil from equipment leaks in an appropriate landfill. Staging areas should then be permanently stabilized with vegetation or other surface cover planned for the development.



SSA–1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF STAGING AREA(S).
   –CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA 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 SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

Street Sweeping and Vacuuming (SS) SM-7

Description

Street sweeping and vacuuming remove sediment that has been tracked onto roadways to reduce sediment transport into storm drain systems or a surface waterway.

Photograph SS-1. A street sweeper removes sediment and potential pollutants along the curb line at a construction site. Photo courtesy of Tom Gore.

Appropriate Uses

Use this practice at construction sites where vehicles may track sediment offsite onto paved roadways.

Design and Installation

Street sweeping or vacuuming should be conducted when there is noticeable sediment accumulation on roadways adjacent to the construction site. Typically, this will be concentrated at the entrance/exit to the construction site. Well-maintained stabilized construction entrances, vehicle tracking controls and tire wash facilities can help reduce the necessary frequency of street sweeping and vacuuming.

On smaller construction sites, street sweeping can be conducted manually using a shovel and broom. Never wash accumulated sediment on roadways into storm drains.

Maintenance and Removal

- Inspect paved roads around the perimeter of the construction site on a daily basis and more frequently, as needed. Remove accumulated sediment, as needed.
- Following street sweeping, check inlet protection that may have been displaced during street sweeping.
- Inspect area to be swept for materials that may be hazardous prior to beginning sweeping operations.

Street Sweeping/ Vacuuming	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	Yes

Description

Good housekeeping practices are designed to maintain a clean and orderly work environment. The most effective first steps towards preventing pollution in stormwater from work sites simply involve using common sense to improve the facility's basic housekeeping methods. Poor housekeeping practices result in increased waste and potential for stormwater contamination.

Photograph GH-1. Use dry clean-up methods to remove spilled materials. Photo courtesy of Colorado Nonpoint Source Program.

A clean and orderly work site reduces the possibility of accidental spills caused by mishandling of chemicals and equipment and should reduce safety hazards to personnel. A well-maintained material and chemical storage area will reduce the possibility of stormwater mixing with pollutants.

Some simple procedures a facility can use to promote good housekeeping include improved operation and maintenance of machinery and processes, material storage practices, material inventory controls, routine and regular clean-up schedules, maintaining well organized work areas, signage, and educational programs for employees and the general public about all of these practices.

Appropriate Uses

Good housekeeping practices require education and training, typically targeted to industries and businesses, municipal employees, as well as the general public.

Practice Guidelines

Good housekeeping practices include these general areas:

- Operation and Maintenance
- Material Storage
- Material Inventory
- Training and Participation.

Operation and Maintenance

Consider implementing the following practices:

- Maintain dry and clean floors and ground surfaces by using brooms, shovels, vacuums or cleaning machines, rather than wet clean-up methods.
- Regularly collect and dispose of garbage and waste material.

- Routinely inspect equipment to ensure that it is functioning properly without leaking and conduct preventative maintenance and needed repairs.
- Train employees on proper clean up and spill response procedures.
- Designate separate areas of the site for auto parking, vehicle refueling and routine maintenance.
- Promptly clean up leaks, drips and other spills.
- Cover and maintain dumpsters and waste receptacles. Add additional dumpsters or increase frequency of waste collection if overflowing conditions reoccur.
- Where outdoor painting and sanding occur, implement these practices:
    - Conduct these activities in designated areas that provide adequate protection to prevent overspray and uncontrolled emissions. All operations should be conducted on paved surfaces to facilitate cleanup.
    - Use portable containment as necessary for outside operations.
    - Clean up and properly dispose of excess paint, paint chips, protective coatings, grit waste, etc.
- Maintain vegetation on facility grounds in a manner that minimizes erosion. Follow the Landscape Maintenance and Pesticide, Herbicide and Fertilizer Usage BMPs to ensure that minimum amounts of chemicals needed for healthy vegetation are applied in a manner that minimizes transport of these materials in runoff.

Material Storage Practices

Proper storage techniques include the following:

- Provide adequate aisle space to facilitate material transfer and ease of access for inspection.
- Store containers, drums, and bags away from direct traffic routes to reduce container damage resulting in accidental spills.
- Stack containers according to manufacturer's instructions to avoid damaging the containers from improper weight distribution. Also store materials in accordance with directions in Material Safety Data Sheets (MSDSs).
- Store containers on pallets or similar devices to prevent corrosion of containers that results from containers coming in contact with moisture on the ground.
- Store toxic or hazardous liquids within curbed areas or secondary containers.

Material Inventory Practices

An up-to-date materials inventory can keep material costs down by preventing overstocking, track how materials are stored and handled onsite, and identify which materials and activities pose the most risk to the environment. Assign responsibility of hazardous material inventory to individuals trained to handle such materials. A material inventory should include these steps:

- Identify all chemical substances present at work site. Perform a walk-through of the site, review

purchase orders, list all chemical substances used and obtain Material Safety Data Sheets (MSDS) for all chemicals.

- Label all containers. Labels should provide name and type of substance, stock number, expiration date, health hazards, handling suggestions, and first aid information. Much of, this information can be found on an MSDS.

- Clearly identify special handling, storage, use and disposal considerations for hazardous materials on the material inventory.

- Institute a shelf-life program to improve material tracking and inventory that can reduce the amount of materials that are overstocked and ensure proper disposal of expired materials. Careful tracking of materials ordered can result in more efficient materials use. Decisions on the amounts of hazardous materials that are stored on site should include an evaluation of any emergency control systems that are in place. All storage areas for hazardous materials should be designed to contain spills.

Training and Participation

Frequent and proper training in good housekeeping techniques reduces the likelihood that chemicals or equipment will be mishandled. To promote good housekeeping, consider implementing these practices:

- Discuss good housekeeping practices in training programs and meetings.

- Publicize pollution prevention concepts through posters or signs.

- Post bulletin boards with updated good housekeeping procedures, tips and reminders.

GRADING AND EROSION CONTROL PLANS
for
NABULSI-ABUSHABAN SUBDIVISION FILING NO. 1
SE ONE-QUARTER OF THE SE ONE-QUARTER OF SECTION 19, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO

STANDARD EL PASO COUNTY GRADING & EROSION CONTROL PLAN NOTES

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.

2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.

3. A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.

4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.

5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.

6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.

7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.

8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.

9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.

10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.

11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER, AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).

12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.

13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.

14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.

15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.

16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.

17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.

18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.

19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.

20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.

21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.

22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.

23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.

24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344). IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I, ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.

26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.

27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.

28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING INC. ON SEPTEMBER 9, 2022 AND SHALL BE CONSIDERED A PART OF THESE PLANS.

29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT. WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD – PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

ABBREVIATIONS

EL	ELEVATION	ROW	RIGHT-OF-WAY
PC	POINT OF CURVATURE	R	RADIUS
PI	POINT OF INTERSECTION	T	TANGENT
PT	POINT OF TANGENCY	L	LENGTH
PCR	POINT OF CURVE RETURN	LF	LINEAR FEET
PRC	POINT OF REVERSE CURVATURE	CL	CENTERLINE
PVC	POINT OF VERTICAL CURVATURE	X.XX' R	DIMENSION RIGHT OF CL
PVI	POINT OF VERTICAL INTERSECTION	X.XX' L	DIMENSION LEFT OF CL
PVT	POINT OF VERTICAL TANGENCY	PL	PROPERTY LINE
GB	GRADE BREAK	PVRC	POINT OF VERT REVERSE CURVATURE
CSP	CORRUGATED STEEL PIPE		
RCP	REINFORCED CONCRETE PIPE	VC	VERTICAL CURVE
CBC	CONCRETE BOX CULVERT	AP	ANGLE POINT
TBC	TOP BACK CURB	STA	STATION
TC	TOP OF CURB	INV	INVERT
BT	BEGIN TAPER	RG	RAIN GARDEN
ET	END TAPER	SFB	SAND FILTER BASIN
EC	EDGE OF CONCRETE		

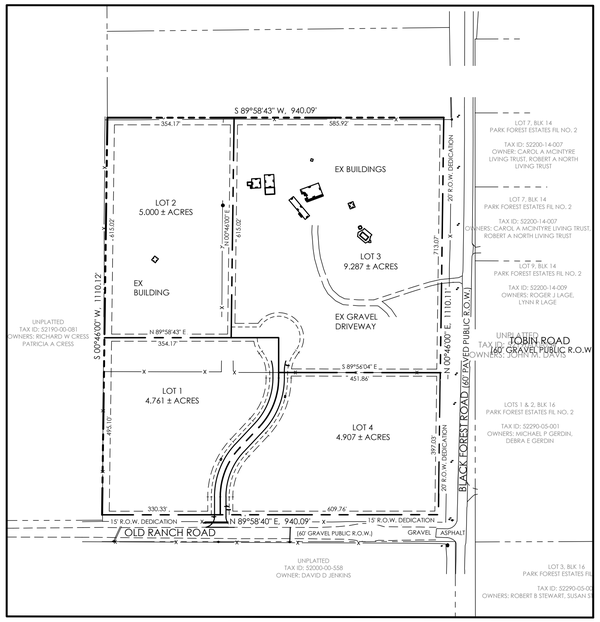
LEGEND

EXISTING

BOUNDARY LINE
ADJACENT BOUNDARY LINE
ADJACENT LOT LINE
EASEMENT LINE
INDEX CONTOUR — 6030
INTERMEDIATE CONTOUR — 6028
TEST HOLE LOCATION
CURB AND GUTTER
SIGN
FENCE
LIGHT POLE
MANHOLE
UTILITY POLE
MISC OBJECT
PILE
CULVERT
ROCK
MAILBOX — MB
TREE
RIPRAP
POLE-ANCHOR

PROPOSED

BOUNDARY LINE
LOT LINE
EASEMENT LINE
CENTER LINE
INDEX CONTOUR — 6030
INTERMEDIATE CONTOUR
SLOPE / GRADE — 4:1 — 2.6%
SPOT ELEVATION — 35.0
CONSTRUCTION BOUNDARY/LIMITS OF DISTURBANCE



SITE MAP
SCALE 1"=200'

SHEET INDEX

PLAN SET SHEET NO.	SHEET INDEX	M.V.E. DRAWING NO.
C2.1 (1 OF 4)	COVER SHEET	61201-GEC-CS
C2.2 (2 OF 4)	GRADING & EROSION CONTROL PLAN	61201-GEC-EC
C2.3 (3 OF 4)	EROSION CONTROL DETAILS	61201-GEC-EC2
C2.4 (4 OF 4)	EROSION CONTROL DETAILS	61201-GEC-EC3

GENERAL NOTES

1. ALL NEW CONSTRUCTION IS TO CONFORM TO THE SPECIFICATIONS OF EL PASO COUNTY.

2. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN DRAWN FROM AVAILABLE RECORDS AND/OR SURFACE EVIDENCE. THE LOCATION OF ALL UTILITIES MAY NOT BE SHOWN OR MAY NOT HAVE BEEN LOCATED. BELOW GROUND LOCATIONS HAVE NOT BEEN PERFORMED, THEREFORE, THE RELATIONSHIP BETWEEN PROPOSED WORK AND EXISTING FACILITIES, STRUCTURES AND UTILITIES MUST BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL SUBSURFACE UTILITY OWNERS PRIOR TO BEGINNING WORK TO DETERMINE LOCATION OF UTILITY FACILITIES. ALL UTILITIES SHALL BE LOCATED PRIOR TO ANY EARTH WORK OR DIGGING (1-800-922-1987). THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

3. EXISTING CONDITIONS SHALL BE VERIFIED BY THE GENERAL CONTRACTOR, DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION.

4. SOIL PREPARATION, SEEDING, AND MULCHING FOR AN ESTIMATED 3.3 ACRES WILL BE REQUIRED ON ALL DISTURBED AREAS NOT SURFACED. THE FOLLOWING TYPES AND RATES SHALL BE USED:

GRASS	VARIETY	AMOUNT IN PLS lbs. PER ACRE
SIDEOATS GRAMA	EL RENO	3.0 lbs.
WESTERN WHEATGRASS	BARTON	2.5 lbs.
SLENDER WHEAT GRASS	NATIVE	2.0 lbs.
LITTLE BLUESTEM	PASTURA	2.0 lbs.
SAND DROPSEED	NATIVE	0.5 lbs.
SWITCH GRASS	NEBRASKA 28	3.0 lbs.
WEEPING LOVE GRASS	MORPHA	1.0 lbs.
	TOTAL	14.0 lbs.

5. SEEDING APPLICATION: DRILLED TO A DEPTH OF .25" TO .50" INTO SOIL WHERE POSSIBLE. BROADCAST AND RAKED TO COVER ON STEEPER THAN 3:1 SLOPES WHERE ACCESS IS LIMITED OR UNSAFE FOR EQUIPMENT.

6. MULCHING REQUIREMENT AND APPLICATION: 2.0 TONS PER ACRE NATIVE HAY MECHANICALLY CRIMPED INTO SOIL.

7. ALL STORM DRAIN SHALL BE REINFORCED CONCRETE PIPE. ALL CULVERTS SHALL BE PLACED COMPLETE WITH FLARED END SECTIONS. ALL STORM DRAIN FITTINGS AND BENDS SHALL BE PRE-CAST. STORM DRAIN PIPE MAY ALSO BE CORRUGATED METAL OR HDPE, PLACED IN ACCORDANCE WITH EL PASO COUNTY SPECIFICATIONS.

8. CONTRACTOR WILL BE RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING HELD PRIOR TO CONSTRUCTION WITH EPC-PCD, ENGINEER, AND CONTRACTOR IN ATTENDANCE.

9. CONTRACTOR IS RESPONSIBLE FOR ALL OF HIS OPERATIONS ON THE SITE. CONTRACTOR SHALL OBSERVE ALL SAFETY AND OSHA REGULATIONS DURING CONSTRUCTION OPERATIONS. TRENCH WIDTHS AND SLOPE ANGLES SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD AND ACCORDING TO SAFETY AND OSHA REGULATIONS.

10. ALL NECESSARY PERMITS, SUCH AS SWMP, FUGITIVE DUST, ACCESS, C.O.E. 404, ESQCP PERMIT, ETC., SHALL BE OBTAINED PRIOR TO CONSTRUCTION.

COMPANIES AND AGENCIES

OWNER/DEVELOPER
MYPAD, INC.
CASAS LIMITED PARTNERSHIP #4
5390 N ACADEMY BLVD #300
COLORADO SPRINGS, CO 80918
(719) 359-1471

ENGINEER
M.V.E., INC.
1903 LELARAY STREET, STE 200
COLORADO SPRINGS, CO 80909
(719) 635-5736

EL PASO COUNTY PLANNING
EPC PLANNING AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, CO 80910
(719) 520-6300

STREETS AND RIGHTS-OF-WAY
EPC DEPARTMENT OF PUBLIC WORKS
3275 AKERS DRIVE
COLORADO SPRINGS, CO 80922
(719) 520-6460

ELECTRIC
MOUNTAIN VIEW ELECTRIC ASSOCIATION
11140 EAST WOODMEN ROAD
FALCON, CO 80831
(719) 495-2283

TELEPHONE
CENTURYLINK
555 TECH CENTER DRIVE SUITE 110
COLORADO SPRINGS, CO 80919
(866)-301-9889

NATURAL GAS
BLACK HILLS ENERGY
18965 BASE CAMP RD, A-7
MONUMENT, CO 80132
(719)-488-0739

CALL BEFORE YOU DIG... 48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS FOR LOCATING AND MARKING GAS, ELECTRIC, WATER AND WASTEWATER
1-800-922-1987

STANDARD EL PASO COUNTY CONSTRUCTION PLAN NOTES

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).

3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
   a. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   b. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
   c. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
   d. CDOT M & S STANDARDS

4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.

5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.

6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT (PCD) - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.

7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.

8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.

9. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY DSD.

10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.

11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.

12. SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.

13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]

14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.

15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

OWNERS STATEMENT

I, TAHER NABULSI, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

TAHER NABULSI — DATE
CO-TRUSTEE, NABULSI ABUSHABAN FAMILY TRUST

DESIGN ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

DAVID R. GORMAN, P.E. — COLORADO NO. 31672 — DATE
FOR AND ON BEHALF OF M.V.E., INC.

EL PASO COUNTY

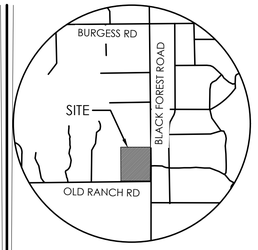
COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

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

JOSHUA PALMER, P.E. — DATE
INTERIM COUNTY ENGINEER / ECM ADMINISTRATOR

PCD FILE NO. : SF2225



VICINITY MAP
NOT TO SCALE

BENCHMARK
THE BENCHMARK FOR THESE PLANS IS THE NO. 4 REBAR, LOCATED APPROX. 40' EAST OF THE PROPOSED ROADWAY & 10' NORTH OF EXISTING OLD RANCH ROAD EDGE OF GRAVEL. ELEVATION = 7273.40' (NAVD88).

N

50 0 100 200 400
1" = 200' 1:2,400

MVE INC. ENGINEERS / SURVEYORS
1903 lelaray street, suite 200 colorado springs co 80909 719.635.5736

REVISIONS

DESIGNED BY
DRAWN BY
CHECKED BY
AS-BUILTS BY
CHECKED BY

ASHUBAN-NABULSI SUBDIVISION

GRADING & EROSION CONTROL PLAN
COVER SHEET

C2.1 MVE PROJECT 61201
MVE DRAWING GEC-CS

JULY 13, 2023
SHEET 1 OF 4

HYDROLOGIC SOIL GROUP	
MAP UNIT NUMBER	DESCRIPTION
40	KETTLE GRAVELLY LOAMY SAND, HYDROLOGIC SOIL GROUP B, SLIGHT TO MODERATE HAZARD OF EROSION
41	KETTLE GRAVELLY LOAMY SAND, HYDROLOGIC SOIL GROUP B, SLIGHT TO MODERATE HAZARD OF EROSION
71	PRING COARSE SANDY LOAM, HYDROLOGIC SOIL GROUP B, MODERATE HAZARD OF EROSION

EROSION CONTROL DATA

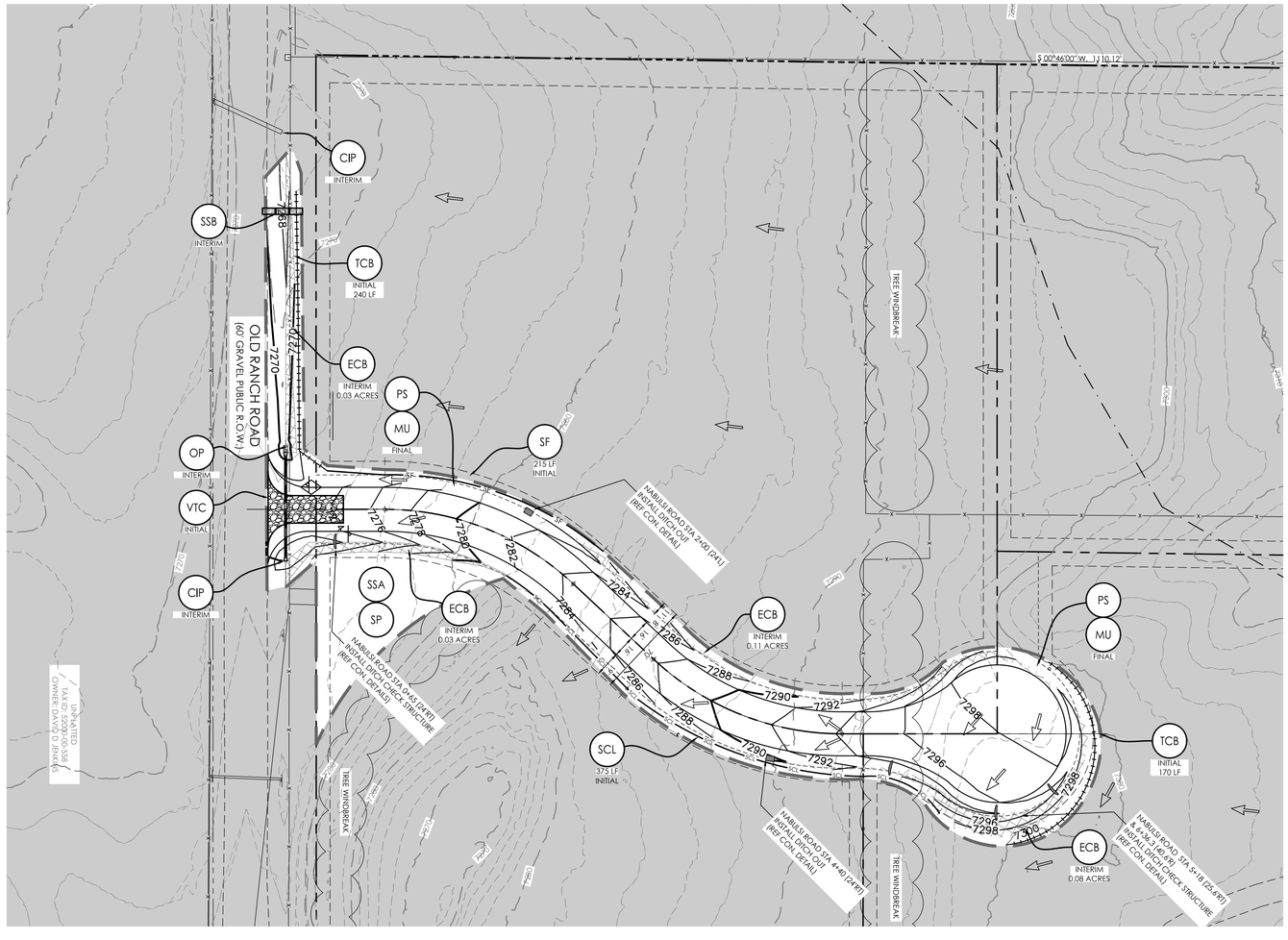
TIMING	
ANTICIPATED START & COMPLETION TIME PERIOD OF SITE GRADING	FALL 2023 TO FALL 2023
EXPTECTED DATE ON WHICH FINAL STABILIZATION WILL BE COMPLETED	SPRING 2024
AREAS	
TOTAL AREA OF SITE	39.09 ACRES
AREA OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED	1.44 ACRES
RECEIVING WATERS	
NAME OF RECEIVING WATERS	COTTONWOOD CREEK
SOIL DATA	
PRIMARY SOIL DESCRIPTION	71- PRING COARSE SANDY LOAM
PERMEABILITY	MODERATELY RAPID TO RAPID
SURFACE RUNOFF	SLOW
HAZARD OF EROSION	SLIGHT TO MODERATE
HYDROLOGIC SOIL GROUP	B
EXISTING PERCENT IMPERVIOUS	1.9%
DEVELOPED PERCENT IMPERVIOUS	5.0%

BMP LEGEND

MAP SYMBOL	KEY	DESCRIPTION
		INITIAL BMPs
	SP	STOCKPILE MANAGEMENT (Initial BMP)
	SSA	STABILIZED STAGING AREA (Initial BMP)
	TCB	TEMPORARY COMPACTED BERM (Initial BMP)
	VTC	VEHICLE TRACKING CONTROL (Initial BMP)
SF	SF	SILT FENCE (Initial BMP)
	IP	CULVERT INLET PROTECTION (Initial BMP)
		INTERIM BMPs
	ECB	EROSION CONTROL BLANKET (Interim BMP)
	SBB	STRAW BALE BARRIER AS CHECK DAM (interim BMP)
	OP	OUTLET PROTECTION (RIP-RAP) (Interim BMP)
	DCS	DITCH CHECK STRUCTURE (INTERIM BMP)

BMP LEGEND

MAP SYMBOL	KEY	DESCRIPTION
		FINAL BMPs
	SR	SURFACE ROUGHENING (Final BMP)
	MU	MULCHING (Final BMP)
	PS	PERMANENT SEEDING (Final BMP)
		ROCK CHECK DAM (Final BMP)
1.50%		SLOPE DIRECTION AND GRADE
		DRAINAGE FLOW ARROW
40		LIMITS OF CONSTRUCTION/DISTURBANCE
71		LIMITS OF SOIL TYPE
CUT FILL		CUT/FILL BOUNDARY



EROSION CONTROL NOTES

1.) ALL DISTURBED AREAS SHALL BE REVEGETATED. SEE GENERAL NOTES FOR SEED MIX AND APPLICATION NOTES.

2.) RIP-RAP APRONS WILL BE PLACED AT ALL CULVERT OUTLETS. (SEE DETAILS FOR RIP-RAP APRONS ON THIS SHEET.)

3.) HAY BALES WILL BE PLACED UPSTREAM OF CULVERTS IN NEW ROADSIDE DITCHES AS DETERMINED IN THE FIELD BY THE ENGINEER.

4.) ALL PERSONS ENGAGED IN EARTH DISTURBANCE SHALL IMPLEMENT AND MAINTAIN ACCEPTABLE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING BMPs IN CONFORMANCE WITH THIS EROSION CONTROL PLAN AND THE BMP DETAILS SHOWN ON THIS PLAN.

5.) THE INSTALLATION OF THE FIRST LEVEL OF TEMPORARY EROSION CONTROL FACILITIES AND BMPs SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE OPERATIONS TAKING PLACE.

6.) CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION CONTROL MEASURES DURING EARTHWORK OPERATIONS TO CONTROL EROSION AND SEDIMENT TRANSFER TO ADJACENT PROPERTIES. EROSION CONTROL MEASURES ARE NOT LIMITED TO THOSE NOTED ON THIS PLAN.

7.) SEDIMENT (MUD AND DIRT) TRANSPORTED ONTO A PUBLIC ROAD, REGARDLESS OF THE SIZE OF THE SITE, SHALL BE CLEANED AT THE END OF EACH DAY.

8.) SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN FOURTEEN (14) CALENDAR DAYS AFTER FINAL GRADING OR FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 14 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPs SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

GENERAL NOTES

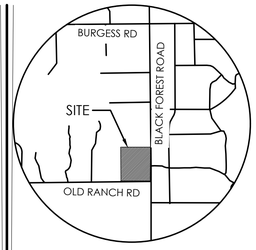
THERE ARE NO PROPOSED BATCH PLANTS ON SITE

THERE ARE NOT ANY NO-BUILD AREAS INDICATED ON THIS PLAN

VEGETATION:

SITE CONSIST OF OPEN PRAIRIE WITH NATIVE GRASSES. THE NORTHERN HALF OF THE SITE CONTAINS DENSE TREE COVERAGE CONSISTING OF MATURE CONIFEROUS TREES.

*NOTE: CONTRACTOR MAY NEED EPC "WORK IN THE ROW PERMIT" FOR THE CONNECTION TO THE EXISTING ROAD.



VICINITY MAP

NOT TO SCALE

BENCHMARK

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N

10 0 20 50 100

1" = 50' 1:600

MVE INC. ENGINEERS / SURVEYORS
1903 lelaray street, suite 200 colorado springs co 80909 719.635.5736

REVISIONS

DESIGNED BY
DRAWN BY
CHECKED BY
AS-BUILTS BY
CHECKED BY

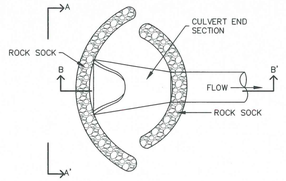
ASHUBAN-NABULSI SUBDIVISION

GRADING & EROSION CONTROL PLAN PLAN SHEET

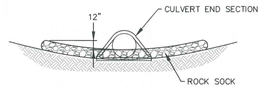
C2.2 MVE PROJECT 61201
MVE DRAWING GEC-EC

SEPTEMBER 21, 2023

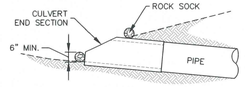
SHEET 2 **OF** 4



CULVERT INLET PROTECTION PLAN



SECTION A-A'



SECTION B-B'

INSTALLATION NOTES

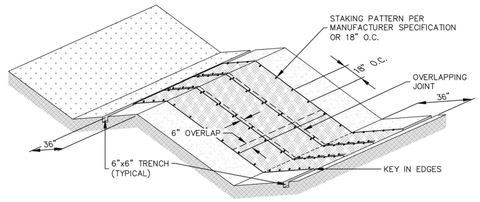
1. SEE ROCK SOCK DETAIL.

MAINTENANCE NOTES

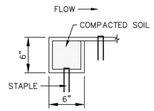
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ HEIGHT OF THE ROCK SOCK.
3. CULVERT INLET PROTECTION SHALL REMAIN UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.

CIP

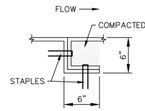
STORMWATER ENTERPRISE	CULVERT INLET PROTECTION		
APPROVED: SWENT MANAGER			
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-CIP	



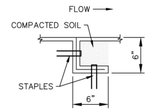
EROSION CONTROL BLANKET



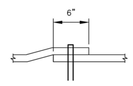
PERIMETER ANCHOR TRENCH



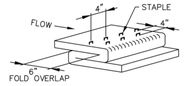
JOINT ANCHOR TRENCH



INTERMEDIATE CHECK SLOT



OVERLAPPING JOINT



STAPLE CHECK

TO BE USED ON SLOPE EVERY 15 FEET

ECB

STORMWATER ENTERPRISE	EROSION CONTROL BLANKET		
APPROVED: SWENT MANAGER			
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-ECB-1	

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

TABLE ECB-1, EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

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

ECB

STORMWATER ENTERPRISE	EROSION CONTROL BLANKET		
APPROVED: SWENT MANAGER			
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-ECB-2	

MULCHING NOTES

INSTALLATION REQUIREMENTS

1. ALL DISTURBED AREAS MUST BE MULCHED WITHIN 21 DAYS AFTER FINAL GRADE AND SEEDED AREAS ARE TO BE MULCHED WITHIN 24 HOURS AFTER SEEDING.

2. MATERIAL USED FOR MULCH CAN BE CERTIFIED CLEAN, WEED- AND SEED-FREE LONG STEMMED FIELD OR MARSH HAY, OR STRAW OF OATS, BARLEY, WHEAT, RYE, OR TRITICALE CERTIFIED BY THE COLORADO DEPARTMENT OF AGRICULTURE WEED FREE FORAGE CERTIFICATION PROGRAM.

3. HYDRAULIC MULCHING MATERIAL SHALL CONSIST OF VIRGIN WOOD FIBER MANUFACTURED FROM CLEAN WHOLE WOOD CHIPS. WOOD CHIPS CANNOT CONTAIN ANY GROWTH OR GERMINATION INHIBITORS OR BE PRODUCED FROM RECYCLED MATERIAL. GRAVEL CAN ALSO BE USED.

4. MULCH IS TO BE APPLIED EVENLY AT A RATE OF 2 TONS PER ACRE.

5. MULCH IS TO BE ANCHORED EITHER BY CRIMPING (TUCKING MULCH FIBERS 4 INCHES INTO THE SOIL), USING NETTING (USED ON SMALL AREAS WITH STEEP SLOPES), OR WITH A TACKIFIER.

6. HYDRAULIC MULCHING AND TACKIFIERS ARE NOT TO BE USED IN THE PRESENCE OF FREE SURFACE WATER.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL MULCHED AREAS.

2. MULCH IS TO BE REPLACED IMMEDIATELY IN THOSE AREAS IT HAS BEEN REMOVED, AND IF NECESSARY THE AREA SHOULD BE RESEEDED.

MU

City of Colorado Springs
Stormwater Quality

Figure MU-1
Mulching
Construction Detail and Maintenance Requirements

SEEDING & MULCHING

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

SOIL PREPARATION

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

SEEDING

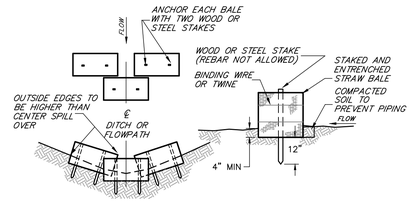
1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
2. SEED SHOULD BE DRILL–SEEDED WHENEVER POSSIBLE
   - SEED DEPTH MUST BE ¼ TO ½ INCHES WHEN DRILL–SEEDING IS USED
3. BROADCAST SEEDING OR HYDRO–SEEDING WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
   - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO–SEEDING
   - BROADCAST SEEDING MUST BE LIGHTLY HAND–RAKED INTO THE SOIL

MULCHING

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

PS

STORMWATER ENTERPRISE	SEEDING & MULCHING		
APPROVED: SWENT MANAGER			
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-SM	



STRAW BALE EROSION CONTROL

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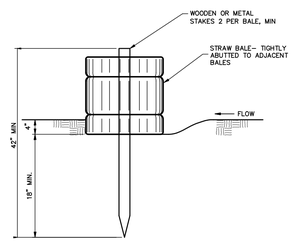

INSTALLATION REQUIREMENTS

1. STRAW BALE BARRIERS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
2. BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF CERTIFIED WEED FREE HAY OR STRAW AND WEIGH NOT LESS THAN 35 POUNDS.
3. BALES ARE TO BE PLACED IN A SINGLE ROW WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
4. EACH BALE IS TO BE SECURELY ANCHORED WITH AT LEAST TWO STAKES AND THE FIRST STAKE IS TO BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
5. STAKES ARE TO BE A MINIMUM OF 42 INCHES LONG. METAL STAKES SHALL BE STANDARD "T" OR "U" TYPE WITH MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD STAKES SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION DIMENSION OF 2 INCHES.
6. BALES ARE TO BE BOUND WITH EITHER WIRE OR STRING AND ORIENTED SUCH THAT THE BINDINGS ARE AROUND THE SIDES AND NOT ALONG THE TOPS AND BOTTOMS OF THE BALE.
7. GAPS BETWEEN BALES ARE TO BE CHINKED (FILLED BY WEDGING) WITH STRAW OR THE SAME MATERIAL OF THE BALE.
8. END BALES ARE TO EXTEND UPSLOPE SO THE TRAPPED RUNOFF CANNOT FLOW AROUND THE ENDS OF THE BARRIER.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT STRAW BALE BARRIERS IMMEDIATELY AFTER EACH RAINFALL AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS NO RAINFALL.
2. DAMAGED OR INEFFECTIVE BARRIERS SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNENTRENCHED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALE BARRIERS WHEN IT ACCUMULATES TO APPROXIMATELY 1/2 THE HEIGHT OF THE BARRIER.
4. STRAW BALE BARRIERS SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED AS APPROVED BY THE CITY.

City of Colorado Springs
Stormwater Quality Figure SBB-2

STRAW BALE BARRIER DETAIL & MAINTENANCE REQUIREMENTS

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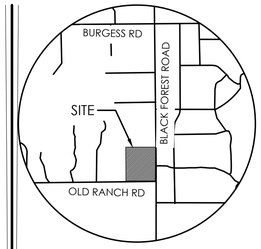

VICINITY MAP

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REVISIONS

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DRAWN BY
CHECKED BY
AS-BUILTS BY
CHECKED BY

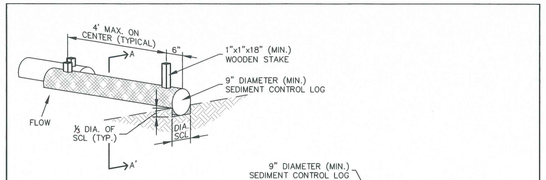
ASHUBAN-NABULSI SUBDIVISION

GRADING & EROSION CONTROL PLAN
EROSION DETAILS

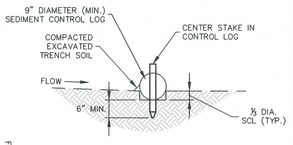
C2.3 MVE PROJECT 61201
MVE DRAWING GEC-ED1

SEPTEMBER 21, 2023

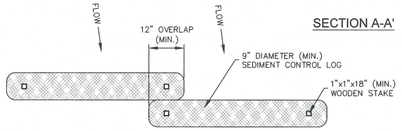
SHEET 3 OF 4



SEDIMENT CONTROL LOG



SECTION A-A'



SEDIMENT CONTROL LOG JOINTS

INSTALLATION NOTES

1. ALL SEDIMENT CONTROL LOGS MUST BE EMBEDDED TO ⅓ OF THE HEIGHT OF THE LOG.
2. LARGER DIAMETER SEDIMENT CONTROL LOGS NEED TO BE EMBEDDED DEEPER.
3. PLACE SEDIMENT CONTROL LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.
4. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BR FREE FROM ANY NOXIOUS WEED SEEDS OF DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
5. IF USING AS SLOPE PROTECTION, INSTALL SEDIMENT CONTROL LOGS ALONG THE CONTOUR.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
3. PERMANENTLY STABILIZE AREA AFTER SEDIMENT CONTROL LOGS HAVE BEEN REMOVED.

SCL

STORMWATER ENTERPRISE

SEDIMENT CONTROL LOGS

APPROVED: SWENT MANAGER

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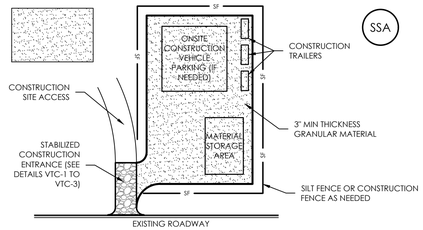


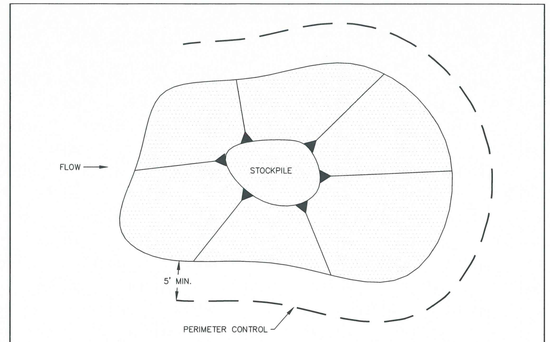
SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

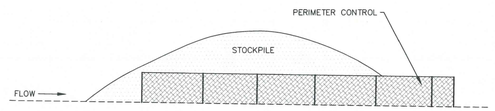
1. SEE PLAN VIEW FOR
   - —LOCATION(S) OF STAGING AREA(S).
   - —CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF CDOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
6. ADDITIONAL PERIMETER BMPS MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED CONSTRUCTION ENTRANCE EXIT 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 SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.



STOCKPILE PROTECTION PLAN



STOCKPILE PROTECTION ELEVATION

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

SP

STORMWATER ENTERPRISE

STOCKPILE PROTECTION

APPROVED: SWENT MANAGER

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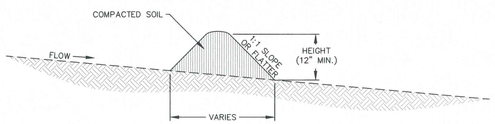
10/7/19	8/19/2020	900-SP



TEMPORARY COMPACTED BERM

INSTALLATION NOTES

1. COMPACTED BERM MUST BE A MINIMUM HEIGHT OF ONE FOOT. BASE WIDTH IS DETERMINED BY HEIGHT.
2. COMPACTED BERMS MUST BE ADEQUATELY COMPACTED. NOT ALL SOILS ARE SUITABLE FOR COMPACTED BERMS.
3. INSTALL COMPACTED BERMS ALONG CONTOUR; DO NOT INSTALL PERPENDICULAR TO SLOPE.
4. THE MAXIMUM TRIBUTARY DRAINAGE AREA PER 100 LINEAR FEET OF COMPACTED BERMS SHALL BE ¼ ACRE.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE BERM.

TCB

STORMWATER ENTERPRISE

TEMPORARY COMPACTED BERM

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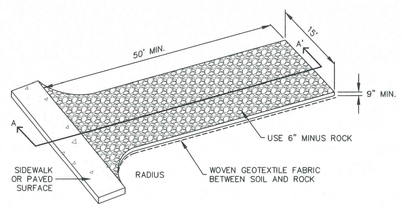
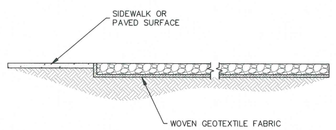


AGGREGATE VEHICLE TRACKING CONTROL



SECTION A-A'

INSTALLATION NOTES

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

MAINTENANCE NOTES

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

VTC

STORMWATER ENTERPRISE

VEHICLE TRACKING CONTROL

APPROVED: SWENT MANAGER

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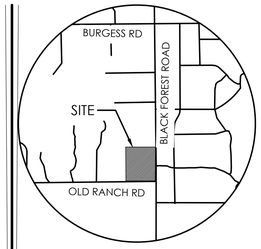
10/7/19	8/19/2020	900-VTC



VICINITY MAP

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BENCHMARK

MVE INC. ENGINEERS / SURVEYORS
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REVISIONS

DESIGNED BY
DRAWN BY
CHECKED BY ____ _____
AS-BUILTS BY
CHECKED BY ____ _____

ASHUBAN-NABULSI SUBDIVISION

GRADING & EROSION CONTROL PLAN
EROSION DETAILS 2

C2.4 MVE PROJECT 61201
MVE DRAWING GEC-ED2

SEPTEMBER 21, 2023
SHEET 4 **OF** 4