

1. COVER SHEET

STORMWATER QUALITY MANAGEMENT PLAN

2290 Old Ranch Road,
Colorado Springs, Colorado CO 80908

For:

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Colorado Springs, Co 80908



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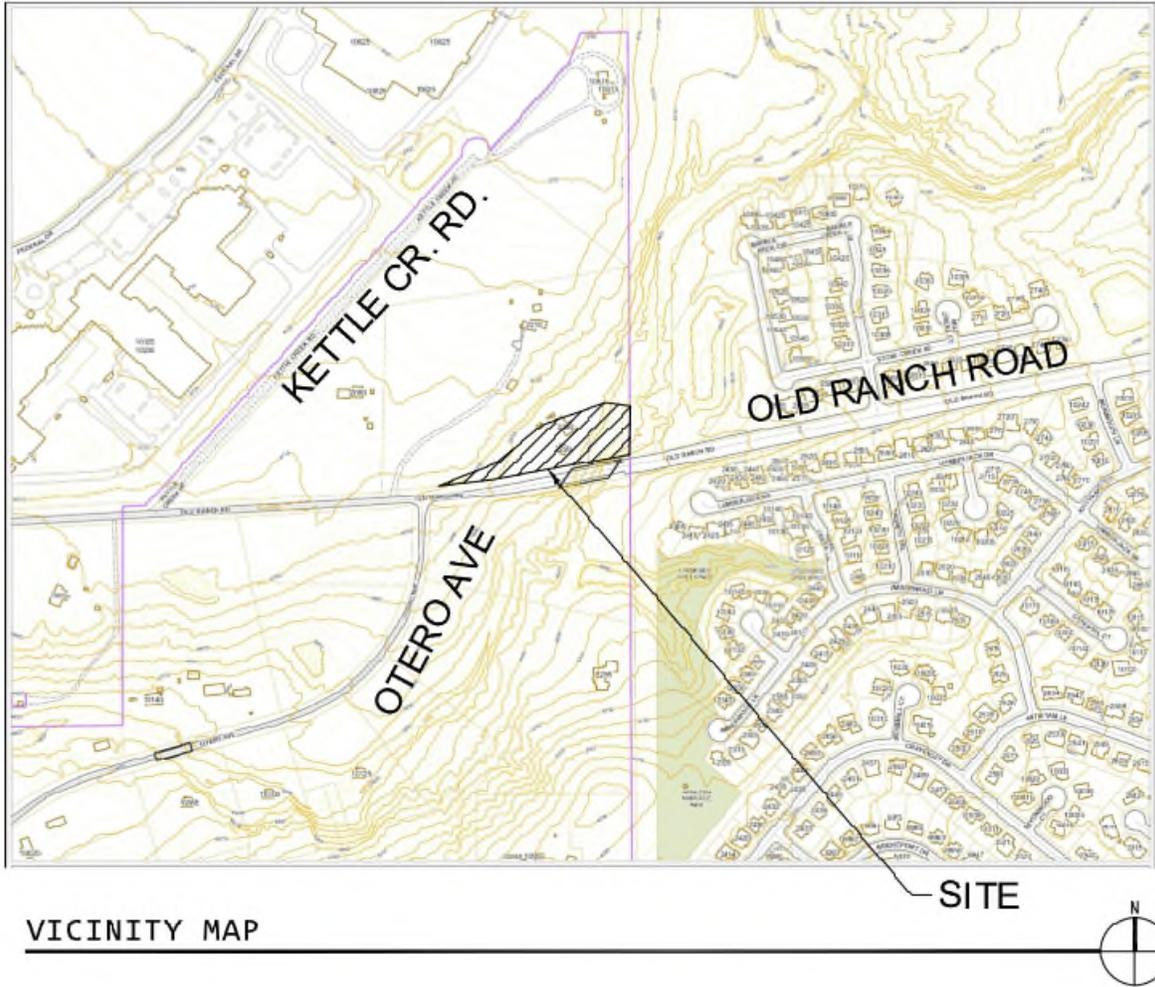
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3. SITE DESCRIPTION AND LOCATION

Site Vicinity Map



An existing two-car garage will remain on the site, and a new residence with large attached garage behind will be constructed behind it, within approximately the same area as a previous residence.

The site is a roughly triangular area north of Old Ranch Road, approximately 0.6 miles west of Voyager Parkway and one mile east of N. Powers Boulevard. Kettle Creek forms the southeast side of the site.

4. CONSTRUCTION ACTIVITIES PROPOSED.

The land will be cleared, grubbed (topsoil stockpiled), and graded. Utility service lines (water service from an existing onsite well) and new septic field/line be installed, the building will be constructed, then paving, final grading and landscaping will occur. The concrete apron to the existing garage will be replaced, and the remaining drive/parking will be installed as gravel.

5. PHASING PLAN

INITIAL:

Pre-disturbance, Site Access:

Vehicle Tracking Control

Perimeter control – sediment control logs top of streambank

INTERIM:

Site Clearing and Grubbing

Portable toilet, on flat surface, located a minimum of 10ft from stormwater inlets and 50ft from state waters. They will be secured at all four corners to prevent overturning.

Waste disposal areas: Dump trailer

Stockpile protection

Surface roughening of disturbed areas that will be inactive for an extended period

Utility Construction (septic field, and water service line from well, all onsite)

Protect and repair BMPs if necessary

Building Construction, final grading

Remove excess or waste materials

FINAL:

Final stabilization

Seed and mulch

Install erosion control blankets on steep slopes

Remove all temporary BMPs when site has reached final stabilization.

6. PROPOSED SEQUENCE FOR MAJOR ACTIVITIES:

February, 2024	Prior to the start of any construction, perimeter controls such as sediment control logs at top of streambank, and vehicle tracking control protection will be installed
February, 2024	Clearing and grubbing, grading
March, 2024 to August, 2024	Building and utility construction
September, 2024 to October, 2024	Driveway installation, removal of temporary BMPs

7. ESTIMATE OF SITE AREA AND AREA TO UNDERGO DISTURBANCE.

Site contains 2.19 acres. The area to be disturbed will be approximately 0.9 acres.

8. SOIL EROSION POTENTIAL AND IMPACTS ON DISCHARGE

According to the Natural Resources Conservation Service soil mapping the soil is sandy loam and sandy clay loam, well-drained, in the low to medium runoff class, and tending toward the low end of the indexes that predict susceptibility to water erosion (see Appendix.) Onsite soil testing found sandy clay and silt throughout the 18' test depth. No basement excavation is proposed for the development, and utility service lines will be contained onsite. The building itself is pre-manufactured, thus limiting the construction time. Driveway/parking will be gravel roadbase. All proposed construction will have wide landscape buffers, and is set well back from the bank of adjacent Kettle Creek. The construction will primarily occur on the section of the site with flat slopes (approx. 2%.) and soil erosion is expected to be minimal.

9. DESCRIPTION OF EXISTING VEGETATION

The existing vegetation on the site, determined by visual survey is approximately 40-50 percent (native grasses and weeds). This is the percent ground cover in pervious, undisturbed vegetated areas on-site. The northern and western edges of the site have a few existing trees and shrubs, which will be left undisturbed as much as possible. Much of the tree cover is beyond the property line.



10. LOCATION AND DESCRIPTION OF ALL POTENTIAL POLLUTION SOURCES

Potential Pollutant	Potential with this Project?	Description of Activities	BMPs Selected to Control Source
All disturbed and stored soils	Yes	During grading activities, site construction, and until final stabilizaton	Sediment Control Log, Surface roughening and Seeding
Vehicle Tracking of Sediments	Yes	During grading activities, site construction, and until final stabilizaton	Vehicle tracking control at site's only entrance
Loading and Unloading Operations	Yes	During all aspects of construction	Employ proper practices when unloading construction materials that may be a potential pollutant
Outdoor storage activities	Yes	During all aspects of construction	Employ proper practices when storing construction materials that may be a potential pollutant
Vehicle and equipment maintenance and	No	During any construction where maintenance of	Refueling to be done offsite. Only emergency

Potential Pollutant	Potential with this Project?	Description of Activities	BMPs Selected to Control Source
refueling		vehicles or refueling is necessary	maintenance to be done onsite. Contractor shall have personnel present to detect and maintain spills
On site waste management practices	Yes	During all aspects of construction	Portable sanitary facilities, and dumpsters when needed.
Concrete truck/equipment washing	Yes	During site construction when concrete is being poured on-site	Concrete Washout- not needed

No non-stormwater discharges are anticipated.

11. MATERIAL HANDLING

Spill prevention measures:

- Storage of hazardous materials, chemicals, fuels, and oils and fueling of construction equipment will not be performed within 150 feet of a definitive stormwater drainage.
- An effort will be made to store only enough product required to do the job.
- Materials will be stored in a neat, orderly manner, in appropriate closed containers, in secondary containment and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of the product will be used up before disposing of the container.
- Manufacturer's recommendations for proper use of a product will be followed.
- If surplus product must be disposed of, local and state recommended methods for proper disposal will be followed.

Spill response

- Spills will be contained and cleaned up immediately after discovery. Spill kits are located in the construction trailer, in the stabilized staging area.
- Onsite employees have been instructed by a State Stormwater Inspector on the proper procedures for chemical spill containment.
- Manufacturer's methods for spill cleanup of a material will be followed as described on the material's MSDS.

- Materials and equipment needed for cleanup procedures will be kept readily available on the site, either at an equipment storage area or on contractor's trucks. Equipment to be kept on the site may include but is not limited to brooms, dust pans, shovels, granular absorbents, sand, sawdust, absorbent pads and socks, plastic and metal trash containers, gloves, and goggles.
- Drums containing used clean up materials will be labeled with the contents and date.
- Personnel on the site will be made aware of cleanup procedures and the location of spill cleanup equipment.

The contractor will be responsible for all cleanup activities in accordance with applicable local, state, and federal regulations

12. SPILL PREVENTION AND POLLUTION CONTROLS FOR DEDICATED BATCH PLANTS.

A dedicated batch plant will not be used.

13. OTHER SW POLLUTANT CONTROL MEASURES

Portable sanitary facilities, and dumpsters when needed, will be used and regularly maintained/serviced.

Portable toilets will be located a minimum of 10ft from stormwater inlets and 50ft from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills.

Waste disposal bins (dump trailer) will be inspected weekly for leaks and overflowing capacity. They will be emptied when three-quarters full. It is not anticipated that they will fill during this project, since construction is limited.

14. LOCATION AND DESCRIPTION OF ANY ANTICIPATED ALLOWABLE NON-STORMWATER DISCHARGE

Not expected on this site.

15. ULTIMATE RECEIVING WATERS

Receiving water for Kettle Creek: Monument Creek, Fountain Creek, Arkansas River, approximately 55 miles south in Pueblo, Colorado.

16. STREAM CROSSINGS LOCATED WITHIN THE PROJECT AREA

Kettle Creek forms the southeast side of the site. Approximately 0.5 acres along Kettle Creek is in the Zone AE floodplain (floodplain base flood elevation at 6671 adjacent to buildings, at least 10' below the finished floor elevations.)

17. SWMP Map:

See attached.

18. STRUCTURAL CONTROL MEASURES

None proposed. Not required for development area less than one acre.

19. NON-STRUCTURAL CONTROL MEASURES

Perimeter control, in the form of sediment control logs, serves as erosion and sediment control. At downgradient locations, perimeter controls will be installed where overland sheet flow has the potential to leave the site. Perimeter control will remain in place until areas up-gradient of controls are stabilized.

Seeded areas will be surface-roughened before seeding. If needed, grass will be truck-watered, or if available, well-watered, until 70% coverage is achieved.

Existing trees in erosion control blanket slopes will be protected from being filled in over (no more than 1-2" of soil within drip line.)

20. TECHNICAL DETAILS FOR NON-STRUCTURAL CONTROL MEASURES

See details attached after SWMP Map.

21. HOW SWMP IS TO BE REVISED

The SWMP should be viewed as a "living document" that is continuously being reviewed and modified as a part of the overall process of evaluating and managing SW quality issues at the site. The QSM shall amend the SWMP when there is a change in design, construction, O&M of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in SW discharges associated with construction activity or when BMPs are no longer necessary and are removed.

Changes to be appended to the report, and kept in the construction trailer.

22. DESCRIPTION OF FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

Final stabilization will occur by the installation of any permanent landscaping, including permanent seeding and mulching in any areas to be left in a natural state, that had been disturbed during construction.

23. VEGETATIVE COVER STATEMENT

Final vegetative cover density is to be 70% of pre-disturbed levels.

24. OUTLINE OF PERMIT HOLDER INSPECTION PROCEDURES TO INSTALL, MAINTAIN, AND EFFECTIVELY OPERATE CONTROL MEASURES

Owner Inspections:

The owner/developer or their representative shall make a thorough inspection of their stormwater management system at least every 14 days and after any precipitation or snowmelt event that causes surface erosion. Inspections shall be made during the work progress, if work is suspended for a time, and until final acceptance of the work. The person making the inspections must be certified in a County-approved inspection training program.

The construction site perimeter, disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly.

Based on the results of the inspection, the description of potential pollutant sources, and the pollution prevention and control measures that are identified in the plan shall be revised and modified as appropriate as soon as practicable after such inspection. Modification to control measures shall be implemented in a timely manner, but in no case more than seven (7) calendar days after the inspection.

The operator shall keep a record of inspections. Uncontrolled releases of mud or muddy water or measurable quantities of sediment found off the site shall be recorded with a brief explanation as to the measures taken to prevent future releases, as well as any measure taken to clean up the sediment that has left the site. Inspection records shall be made available to the County upon request.

The owner/developer shall make a thorough inspection of their stormwater management system at least once every month for sites where all construction activities are completed but final stabilization has not been achieved because planted vegetative cover has not become established. When site conditions make this schedule impractical, the owner/developer may petition the County to grant an alternative inspection schedule. These inspections must be conducted in accordance with the above paragraphs.

Records must be kept of the inspections and corrective measures taken, at with the onsite location of the Stormwater Management Plan.

County inspections: The County shall have the right to enter the construction site at any time to determine if the site is in compliance with the plan.

INITIAL:

Install pre-disturbance and site access control measures.

Vehicle Tracking Control,

Inspection: check if gravel surface is clogged with mud or sediment, if gravel surface is sinking into the ground, if any sediment has been tracked onto any roads, and if it has been cleaned up.

Perimeter control – sediment control logs top of streambank

Inspection: Check if sediment control logs are damaged, collapsed, unentrenched or ineffective, if sediment has been removed per maintenance agreement, and if SCLs are properly located.

INTERIM:

Site Clearing and Grubbing

Portable toilet, on flat surface, located a minimum of 10ft from stormwater inlets and 50ft from state waters. They will be secured at all four corners to prevent overturning.

Inspection: Toilet to be inspected at the intervals required to prevent overflow.

Waste disposal areas: Dump trailer

Inspection: Dump trailer (waste disposal) to be inspected at the intervals required to prevent overflow. Minimal construction waste is anticipated at this site, as building is premanufactured.

Stockpile protection

Inspection: Check if perimeter control of stockpiles (SCLs) has been maintained on the downhill side of the stockpile.

Surface roughening of disturbed areas that will be inactive for an extended period

Inspection: Check if roughening is consistent or uniform on slopes, and if there is any evidence of erosion.

Utility Construction (septic field, and water service line from well, all onsite)

Protect and repair BMPs if necessary

Inspection: Continue with specific measures outlined above.

Building Construction, final grading

Remove excess or waste materials

FINAL:

Final stabilization

Seed and mulch

Inspection: check if mulch is distributed on all disturbed areas, if application rate is adequate, if there is evidence of mulch being blown or washed away, and if mulched area has been seeded, if necessary. Check if seedbeds are protected by mulch, whether erosion has occurred in seeded areas, and if there is any evidence of vehicle tracking in seeded areas.

Install erosion control blankets on steep slopes

Inspection: check if fabric is damaged, loose, or in need of repair

Remove all temporary BMPs when site has reached final stabilization.

Inspection: Check if all grading has been completed in compliance with the approved GEC plan, and all stabilization completed. Has final stabilization been achieved, uniform vegetative cover established to at least 70% of pre-disturbance levels, and cover capable of adequately controlling soil erosion. Are all paved surfaces, onsite and offsite, clean? Have all stockpiles, construction materials, and construction equipment been removed?

25. RECORD-KEEPING PROCEDURES.

Record keeping procedures to include signature on inspection logs. SWMP records to be kept in construction trailer.

26. OUTSIDE CONTROL MEASURES OWNED OR OPERATED BY ANOTHER ENTITY.

This project does not rely on control measures owned or operated by another entity.

APPENDIX



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

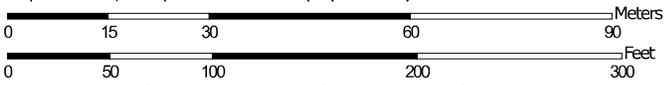
Custom Soil Resource Report for El Paso County Area, Colorado



Custom Soil Resource Report Soil Map



Map Scale: 1:1,120 if printed on A landscape (11" x 8.5") sheet.



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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	0.1	3.9%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	2.2	96.1%
Totals for Area of Interest		2.3	100.0%

Map Unit Descriptions

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

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

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

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

El Paso County Area, Colorado

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Flood plains, fan terraces, fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
→ *Hydrologic Soil Group:* A
Ecological site: Gravelly Foothill (R049BY214CO)
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

Percent of map unit:
Landform: Swales
Hydric soil rating: Yes

Pleasant

Percent of map unit:

Custom Soil Resource Report

Landform: Depressions
Hydric soil rating: Yes

Other soils

Percent of map unit:
Hydric soil rating: No

85—Stapleton-Bernal sandy loams, 3 to 20 percent slopes

Map Unit Setting

National map unit symbol: 36b1
Elevation: 6,500 to 6,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Stapleton and similar soils: 40 percent
Bernal and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stapleton

Setting

Landform: Hills
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

A - 0 to 11 inches: sandy loam
Bw - 11 to 17 inches: gravelly sandy loam
C - 17 to 60 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e

Custom Soil Resource Report

→ *Hydrologic Soil Group: B*
Ecological site: Gravelly Foothill (R049BY214CO)
Hydric soil rating: No

Description of Bernal

Setting

Landform: Hills
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: sandy loam
Bt - 4 to 11 inches: sandy clay loam
C - 11 to 13 inches: sandy loam
R - 13 to 17 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 20 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e

→ *Hydrologic Soil Group: D*
Ecological site: Shallow Foothill (R049BY204CO)
Hydric soil rating: No

Minor Components

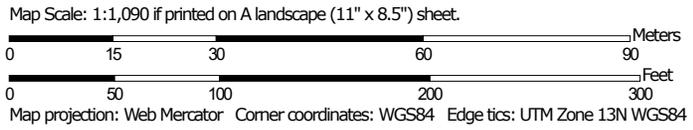
Other soils

Percent of map unit:
Hydric soil rating: No

K Factor, Whole Soil—El Paso County Area, Colorado
(2290 Old Ranch Road - k factor whole soil - water erosion)



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  .02
-  .05
-  .10
-  .15
-  .17
-  .20
-  .24
-  .28
-  .32
-  .37
-  .43
-  .49
-  .55
-  .64
-  Not rated or not available

Soil Rating Lines

-  .02
-  .05
-  .10
-  .15
-  .17
-  .20

-  .24
-  .28
-  .32
-  .37
-  .43
-  .49
-  .55
-  .64
-  Not rated or not available

Soil Rating Points

-  .02
-  .05
-  .10
-  .15
-  .17
-  .20
-  .24
-  .28
-  .32
-  .37
-  .43
-  .49
-  .55
-  .64
-  Not rated or not available

Water Features

-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado
 Survey Area Data: Version 21, Aug 24, 2023

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

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

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

K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	.10	0.1	2.8%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	.20	2.0	97.2%
Totals for Area of Interest			2.1	100.0%

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

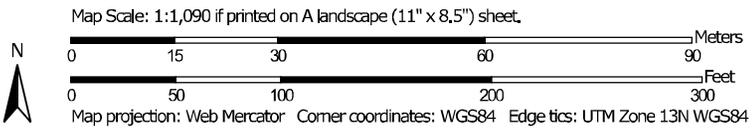
Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

K Factor, Rock Free—El Paso County Area, Colorado
(2290 Old Ranch Road - k factor rock free- water erosion)



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  .02
-  .05
-  .10
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-  .28
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-  .55
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Soil Rating Points

-  .02
-  .05
-  .10
-  .15
-  .17
-  .20
-  .24
-  .28
-  .32
-  .37
-  .43
-  .49
-  .55
-  .64
-  Not rated or not available

Water Features

-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado
 Survey Area Data: Version 21, Aug 24, 2023

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

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

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

K Factor, Rock Free

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	.17	0.1	2.8%
85	Stapleton-Bernal sandy loams, 3 to 20 percent slopes	.20	2.0	97.2%
Totals for Area of Interest			2.1	100.0%

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kf (rock free)" indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Appendix C Inspection Checklist – Grading Erosion, and Stormwater Quality Controls

CITY OF COLORADO SPRINGS

DATE/TIME:
INSPECTOR:
TYPE OF INSPECTION: Self-Monitoring_____
Initial _____ Compliance_____ Follow-Up_____
Reconnaissance_____ Complaint_____ Final_____

SITE:	DATE OF PERMIT:
ADDRESS:	
CONTRACTOR:	OWNER/OWNER'S REPRESENTATIVE:
CONTACT:	CONTACT:
PHONE:	PHONE:
STAGE OF CONSTRUCTION: Initial BMP Installation/Prior to Construction_____ Clearing & Grubbing_____	
Rough Grading_____ Finish Grading_____ Utility Construction_____ Building Construction_____	
Final Stabilization_____	

OVERALL SITE INSPECTION	YES/NO/N.A.	REMARKS/ACTIONS
Is there any evidence of sediment leaving the construction site? If so, note areas.		
Have any adverse impacts such as flooding, structural damage, erosion, spillage, or accumulation of sediment, debris or litter occurred on or within public or private property, wetlands or surface waters –to include intermittent drainageways and the City's stormwater system (storm sewers, gutters, ditches, etc.)?		
Are the BMPs properly installed and maintained?		
Have the BMPs been placed as shown on approved plans?		
Are the BMPs functioning as intended?		
Is work being done according to approved plans and any phased construction schedule?		
Is the construction schedule on track?		
Are drainage channels and outlets adequately stabilized?		
Is there any evidence of discharges or spills of fuels, lubricants, chemicals, etc.?		

BMP MAINTENANCE CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
<p>CHECK DAM</p> <p>Has accumulated sediment and debris been removed per maintenance requirements?</p>		
<p>EROSION CONTROL BLANKET</p> <p>Is fabric damaged, loose or in need of repairs?</p>		
<p>INLET PROTECTION</p> <p>Is the inlet protection damaged, ineffective or in need of repairs?</p> <p>Has sediment been removed per maintenance requirements?</p>		
<p>MULCHING</p> <p>Distributed uniformly on all disturbed areas?</p> <p>Is the application rate adequate?</p> <p>Any evidence of mulch being blown or washed away?</p> <p>Has the mulched area been seeded, if necessary?</p>		
<p>SEDIMENT BASIN</p> <p>Is the sediment basin properly constructed and operational?</p> <p>Has sediment and debris been cleaned out of the basin?</p>		
<p>SILT FENCE SCL Sediment Control Logs</p> <p>Is the fence SCL damaged, collapsed, unentrenched or ineffective?</p> <p>Has sediment been removed per maintenance requirements?</p> <p>SILT FENCE SCL</p> <p>Is the silt fence SCL properly located?</p>		
<p>SLOPE DRAIN</p> <p>Is water bypassing or undercutting the inlet or pipe?</p> <p>Is erosion occurring at the outlet of the pipe?</p>		
<p>STRAW BALE BARRIER</p> <p>Are the straw bales damaged, ineffective or unentrenched?</p> <p>Has sediment been removed per maintenance requirements?</p> <p>Are the bales installed and positioned correctly?</p>		

BMP MAINTENANCE CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
<p>SURFACE ROUGHENING</p> <p>Is the roughening consistent/uniform on slopes??</p> <p>Any evidence of erosion?</p>		
<p>TEMPORARY SEEDING</p> <p>Are the seedbeds protected by mulch?</p> <p>Has any erosion occurred in the seeded area?</p> <p>Any evidence of vehicle tracking on seeded areas?</p>		
<p>TEMPORARY SWALES</p> <p>Has any sediment or debris been deposited within the swales?</p> <p>Have the slopes of the swale eroded or has damage occurred to the lining?</p> <p>Are the swales properly located?</p>		
<p>VEHICLE TRACKING (Existing gravel drive)</p> <p>Is gravel surface clogged with mud or sediment?</p> <p>Is the gravel surface sinking into the ground?</p> <p>Has sediment been tracked onto any roads and has it been cleaned up?</p> <p>Is inlet protection placed around curb inlets near construction entrance?</p>		
<p>OTHER</p>		

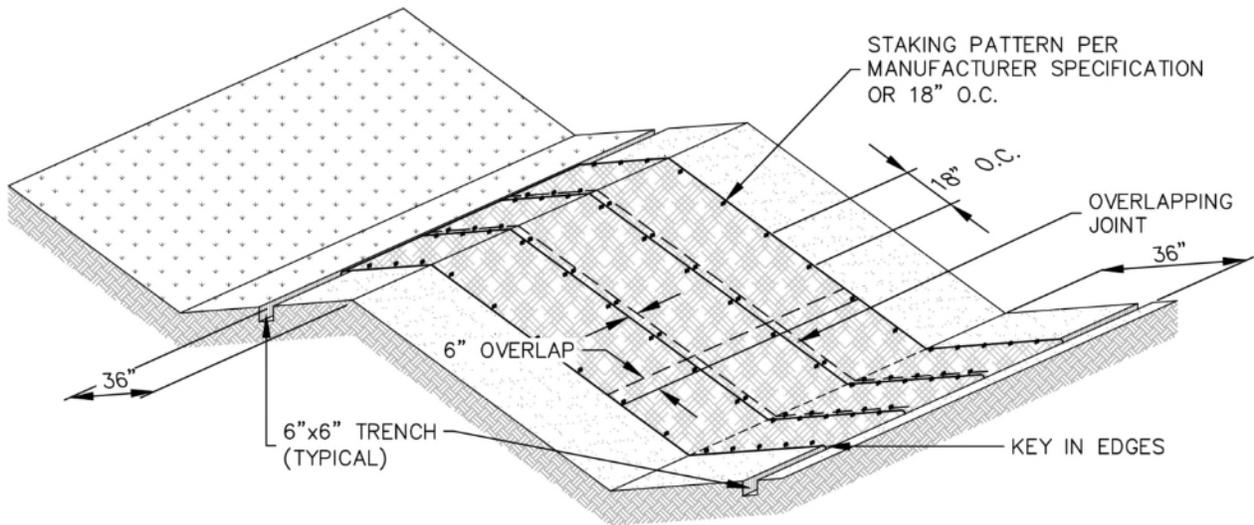
FINAL INSPECTION CHECKLIST	YES/NO/N.A.	REMARKS/ACTIONS NECESSARY
Has all grading been completed in compliance with the approved Plan, and all stabilization completed, including vegetation, retaining walls or other approved measures?		
Has final stabilization been achieved – uniform vegetative cover with a density of at least 70 percent of pre-disturbance levels, and cover capable of adequately controlling soil erosion; or permanent, physical erosion methods?		
Have all temporary measures been removed?		
Have all stockpiles, construction materials and construction equipment been removed?		
Are all paved surfaces clean (on-site and off-site)?		
Has sediment and debris been removed from drainage facilities (on-site and off-site) and other off-site property, including proper restoration of any damaged property?		
Have all permanent stormwater quality BMPs been installed and completed?		

ADDITIONAL COMMENTS:

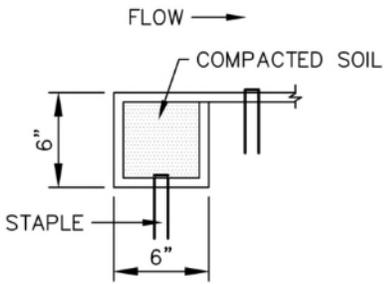
The items noted as needing action must be remedied no later than _____.
The contractor shall notify the inspector when all the items noted above have been addressed.

By signing this inspection form, the owner/owner’s representative and the contractor acknowledge that they have received a copy of the inspection report and are aware it is their responsibility to take corrective actions by the date noted above. Failure to sign does not relieve the contractor and owner/owner’s representative of their responsibility to take the necessary corrective action and of their liability for any damages that have occurred or may occur.

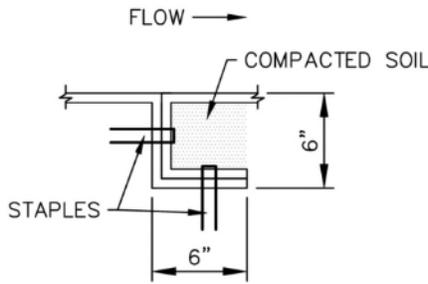
INSPECTOR’S SIGNATURE:	DATE:
OWNER/OWNER’S REPRESENTATIVE SIGNATURE:	DATE:
CONTRACTOR’S SIGNATURE:	DATE:



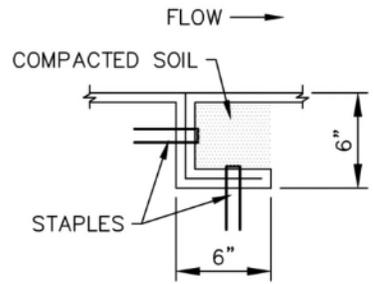
EROSION CONTROL BLANKET



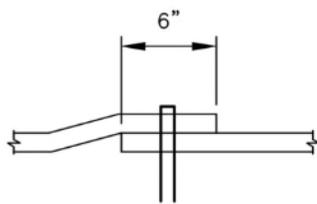
PERIMETER ANCHOR TRENCH



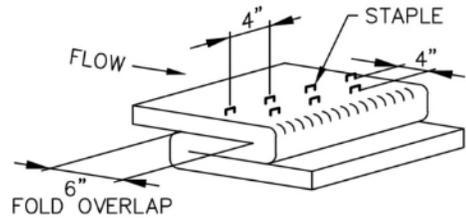
JOINT ANCHOR TRENCH



INTERMEDIATE CHECK SLOT



OVERLAPPING JOINT



STAPLE CHECK
TO BE USED ON SLOPE EVERY 15 FEET



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

INSTALLATION NOTES

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

MAINTENANCE NOTES

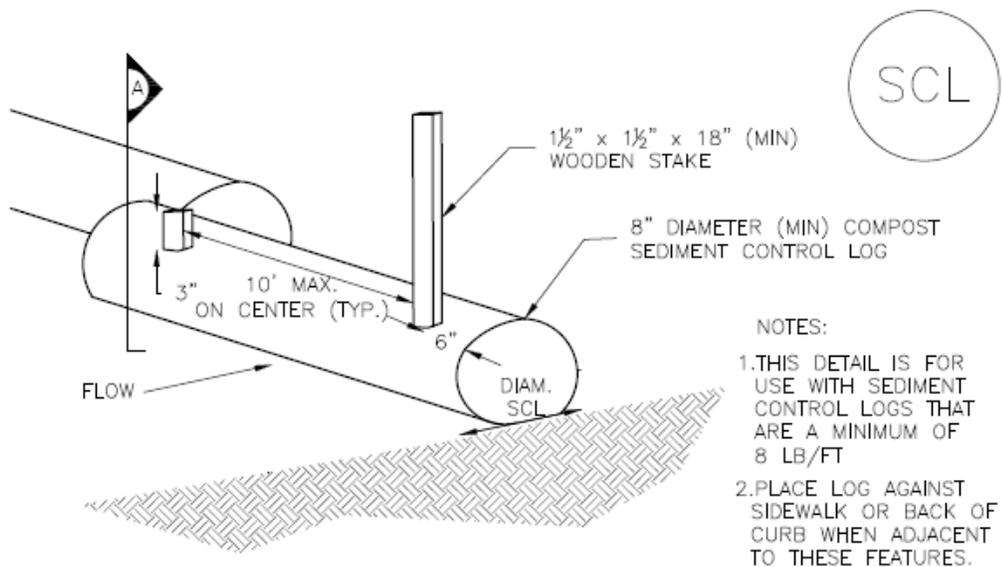
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. EROSION CONTROL BLANKETS SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE. TRM MUST BE REMOVED AT THE DISCRETION 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

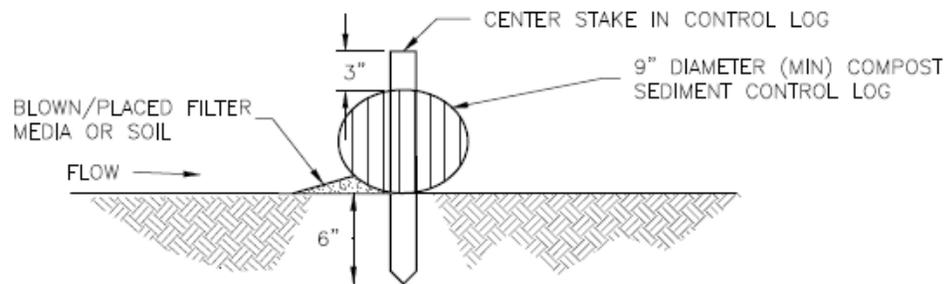
TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING
STRAW	-	100%	-	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN.	70% MAX.	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL



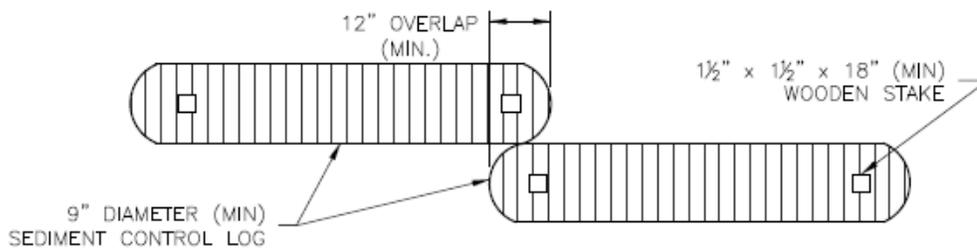
EROSION CONTROL BLANKET		
APPROVED:		
SWENT MANAGER		
ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-ECB-2



COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



SECTION A
COMPOST SEDIMENT CONTROL LOG (A)



LOG JOINTS

SCL-2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

SEEDING & MULCHING

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

SOIL PREPARATION

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

SEEDING

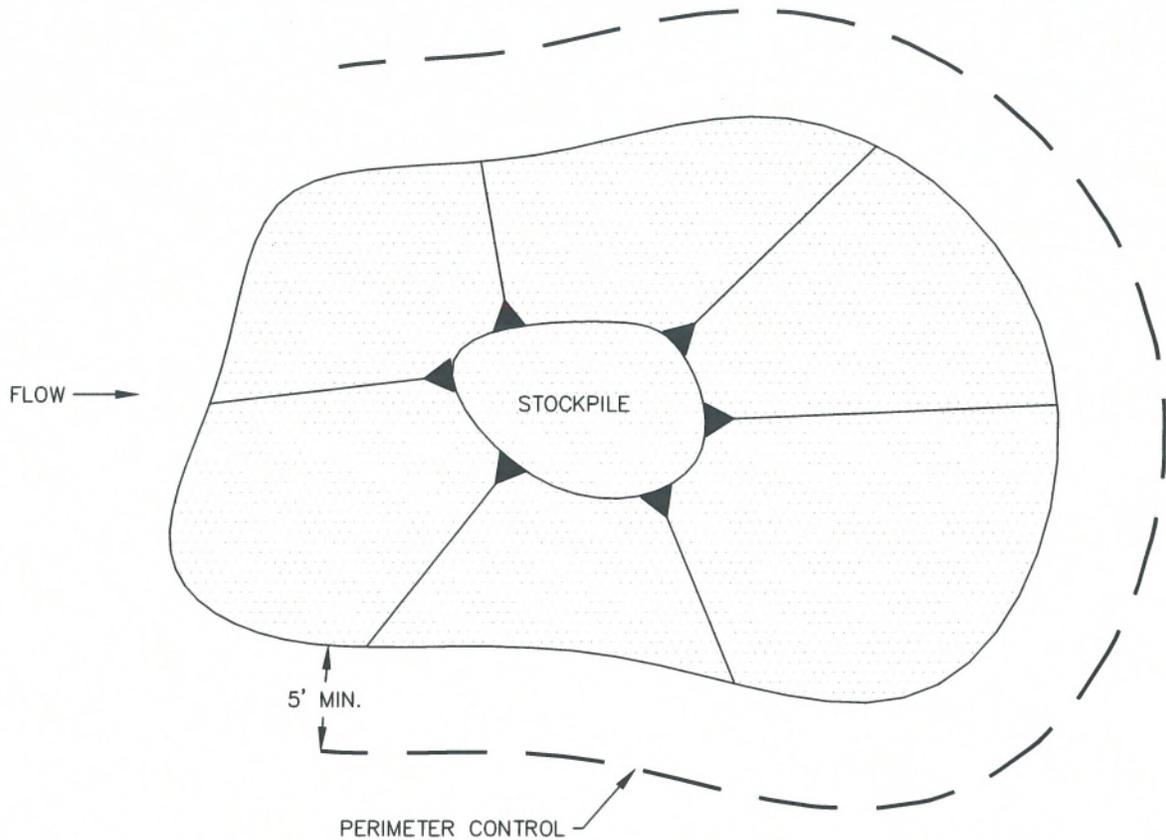
1. ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
2. SEED SHOULD BE DRILL-SEEDED WHENEVER POSSIBLE
 - SEED DEPTH MUST BE $\frac{1}{3}$ TO $\frac{1}{2}$ INCHES WHEN DRILL-SEEDED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

MULCHING

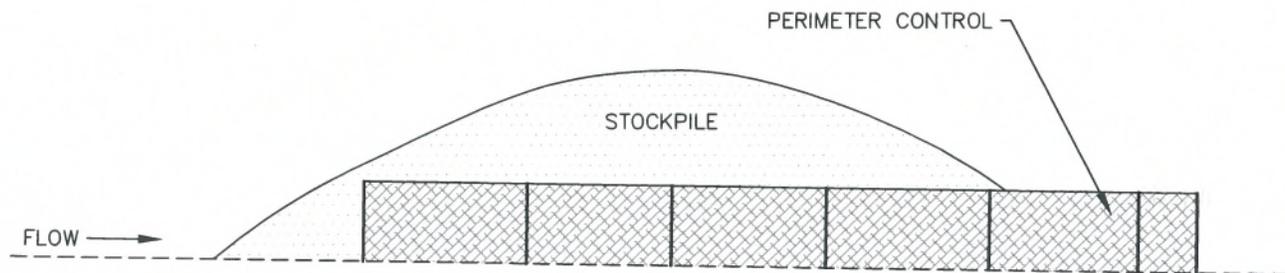
1. MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING, HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.
2. MULCHING REQUIREMENTS INCLUDE:
 - HAY OR STRAW MULCH
 - ONLY CERTIFIED WEED-FREE AND CERTIFIED SEED-FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 2 TONS/ACRE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



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



STOCKPILE PROTECTION PLAN



STOCKPILE PROTECTION ELEVATION

INSTALLATION NOTES

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

MAINTENANCE NOTES

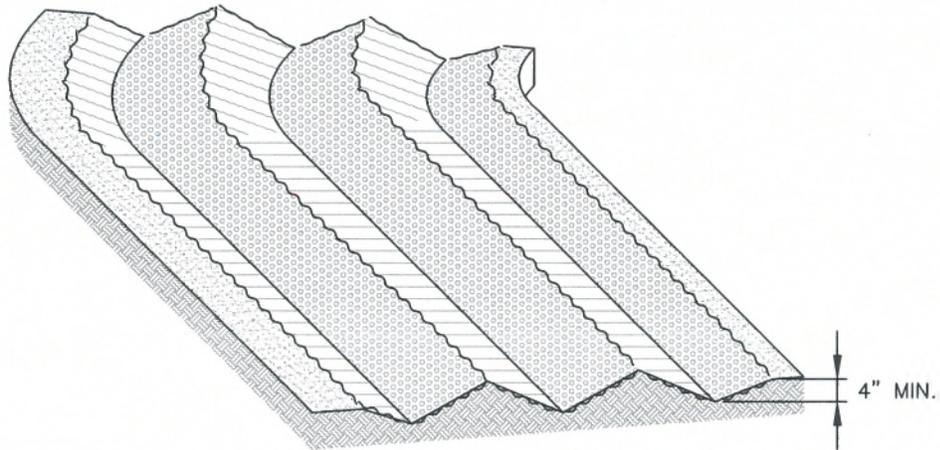
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. IF PERIMETER CONTROLS MUST BE MOVED TO ACCESS STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORK DAY.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



STOCKPILE PROTECTION

APPROVED: 
SWENT MANAGER

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



 <p>STORMWATER ENTERPRISE</p>	SURFACE ROUGHENING		
	APPROVED:  SWENT MANAGER		
	ISSUED: 10/7/19	REVISED: 8/19/2020	DRAWING NO. 900-SR