STORM WATER MANAGEMENT PLAN

4480 SOUTH HOLLY STREET
LOT 7, CHARLOU PARK AMENDED
CITY OF CHERRY HILLS VILLAGE
ARAPAHOE COUNTY

Prepared for
Designs by Sundown
6875 S. Santa Fe Dr.
Lakewood, CO 80120

Developer
Kyle Musick and Lacey Musick
4480 S Holly St
Cherry Hills Village, CO 80111

Prepared by
David E. Archer & Associates, Inc.
105 North Wilcox Street
Castle Rock, Colorado 80104

Project No. 20-0420
July 2025

DAVID E. ARCHER & ASSOCIATES, INC.
LAND DEVELOPMENT CONSULTING
SURVEYING & ENGINEERING
PHONE (303) 688-4642
105 WILCOX ST., CASTLE ROCK, COLORADO 80104

Table of Contents

This Grading, Erosion and Sediment Control (GESC) document has been placed in the project file for this project and appears to fulfill the latest version of the Grading, Erosion and Sediment Control Manual. Additional grading, erosion and sediment Control Measures may be required of the owner or his/her agents, due to unforeseen erosion problems or if the submitted plan does not function as intended. The requirements of this GESC document shall run with the land and be the obligation of the landowner, or his/her designated representative(s) until such time as the plan is properly completed, modified or voided.

LANDOWNER CERTIFICATION STATEMENT:

I hereby certify that the Grading, Erosion and Sediment Control Measures for 4480 S Holly Street shall be constructed according to the design presented in this document. I understand that additional erosion control, sediment control and water quality enhancing measures may be required for the owner and his or her agents due to unforeseen pollutant discharges or if the submitted plan does not function as intended. The requirements of the plan shall be the obligation of the landowner and/or his successors or heirs; until such time as the plan is properly completed, modified, of voided.

Owner or Authorized Agent_____

Authorized Signature_____

PROFESSIONAL ENGINEER CERTIFICATION STATEMENT:

I hereby attest that this Grading, Erosion, and Sediment Control (GESC) document for 4480 S Holly Street has been prepared by me or under my direct supervision, and to the best of my knowledge and ability has been prepared in accordance with the latest version of the GESC manual. The signature and stamp affixed hereon certifies that this GESC Document was prepared in accordance with the required regulations and criteria; however, the stamp and signature does not certify or guarantee future performance of the execution of the plan by the contractor. The contractor is responsible for executing the construction work according to the information set forth in the plan and in accordance with all applicable requirements.

Registered Professional Engineer _____
State of Colorado No. _____
Affix Seal w/date

Applicant Information

Owner / Applicant/Permittee:	Kyle Musick and Lacey Musick
Owner / Applicant Address:	4480 S Holly St, Cherry Hills Village, CO 80111
Representative:	David E. Archer & Associates Inc.
Representative Address:	105 Wilcox St., Castle Rock CO 80104
Representative Phone:	303-688-4642
SWMP Administrator:	Designs by Sundown
SWMP Admin. Address	6875 S Santa Fe Dr. Lakewood, CO 80120
SWMP Administrator Phone No.:	303-789-4400

I. Site Description

a. The nature of the construction activity at the site:
   - *i. 4480 S Holly Street is currently developed with a residential home. This project will consist of the construction of a concrete sport court and modifications to the existing patio and landscaping.*
   - *ii. The existing site contains a total of 2.08 acres.*
   - *iii. The approximate area of disturbance is 0.82 acres*

b. The proposed sequence for major activities:
   - *i. Initial CM's shall be installed*
   - *ii. Topsoil Shall Be stripped.*
   - *iii. Excavation shall occur.*
   - *iv. Structure shall be completed*
   - *v. Final CM's shall be installed.*
   - *vi. Initial CM's shall be removed.*
   - *vii. CM's shall be maintained during all sequences of construction activities.*

c. Estimates of the total area of the site, and the area and location expected to be disturbed by clearing, excavation grading or other construction activities:
   - *i. The area of disturbance for 4480 S Holly Street and other construction activities are as shown on the GESC (SWMP) Plan is 0.82 acres.*
   - *ii. The site is located at 4480 S Holly Street, or Lot 7 Charlou Park Amended, W1/2 of the N/w ¼ of Section 8, Township 5 South, Range 67 West of the 6th Principal Meridian. Lat. 39.635239, Long. 104.922092.*

d. A summary of any existing data used in the development of the site construction plans or SWMP that describe the soil or existing potential for soil erosion:
   - *i. The soils on site are 100% Renohil-Litle-Thedalund complex (RtE). See soils information in the appendix.*

ii. *The Renohil-Litle-Thedalund complex (RtE) soils are a hydrologic type D soil. The soils are of wind erodibility rating of 6 and have a rainfall erodibility factor (K) of 0.32.*

e. A description of the existing vegetation at the site and estimate of percent vegetative ground cover:
   i. *The existing ground cover of site consists of well established native and planted grasses and landscaping features, The site slopes to the south.*
   ii. *The estimated percentage of vegetated ground cover for the site is 70%.*

f. The location and description of all potential pollution sources, including ground surface disturbing activities, vehicle fueling, storage of fertilizers or chemicals, ect:
   i. *Sources noted above shall be limited to areas such as SSA, Stockpile Areas, and at the most the Limit of Construction as outlined on the Storm Water Management Plan (Appendix C), and described in Section 3 of this report.*

g. The location and description of any anticipated allowable sources of non-stormwater discharge at the site, e.g., uncontaminated springs, landscape irrigation return flow, construction dewatering, and concrete washout:
   i. *It is not anticipated that uncontaminated springs, groundwater, or landscape watering will impact this project. Also, any non stormwater discharge such as CWA as shown on the GESC plans (Appendix C) will be contained on site.*

h. The name of the receiving water(s) and the size, type and location of any outfall(s). If the stormwater discharge is to a municipal separate storm sewer system, the name of that system, the location of the storm sewer discharge, and the ultimate receiving water(s).

   i. *Developed storm water runoff from the site will follow existing flow patterns. The site flows will exit the property to the south into Blackmer Gulch.*

II. <u>Site Map</u>

a. Construction site boundaries: *See GESC PLAN (SWMP Plan), August 2025*

b. All areas of ground surface disturbance: *See GESC PLAN (SWMP Plan), August 2025*

c. Areas of cut and fill: *See GESC PLAN (SWMP Plan), August 2025.*

d. Areas used for storage of building materials, equipment, soil, or waste: *See GESC PLAN (SWMP Plan), August 2025.*

e. Locations of all dedicated asphalt or concrete batch plants: *There are no asphalt or concrete batch plants associated with the development of this site.*

f. Locations of all structural CM's: *See GESC PLAN (SWMP Plan), August 2025.*

g. Location of non-structural CM's as applicable: *See GESC PLAN (SWMP Plan), August 2025.*

h. Location of springs, streams, wetlands, and other surface waters: *There are no springs, streams, wetlands or other surface waters located within the area of the proposed development of the site.*

III. Storm Water Management Controls

a. Control Measures (CM's) for Stormwater Pollution Prevention
   1. Structural Practices for Erosion and Sediment Control:
      i. The CM's outlined in this report and located on the GESC Plans (Storm Water Management Plans (SWMP)) are intended to provide the following:
         A. Avoid the Clearing and Grading of Sensitive Areas.
         B. Limit the Size of Grading Phases to Reduce Soil Exposure.
         C. Stabilize Exposed Soils in a Timely Manner.
         D. Provide Access and General Construction Controls.

      ii. Vehicle Tracking Control (VTC) as shown on the SWMP Plans will consist of a pad of 3 inch to 6 inch rock at all entrance and exit points to remove mud from the tires of vehicles leaving the site. Since this site is already developed Mud mats can be used on the existing driveway in place the rock. The VTC for this site shall be installed per the SWMP General Notes and Standard Details. Please note that recycled asphalt cannot be used for the Vehicle tracking control.

      iii. The stockpile areas (SPA) as shown on the SWMP plan shall be used for the stockpiling of excess excavated materials and the stockpiling of imported materials. Stockpiles that are to remain dormant for more than 30 days shall be seeded, mulched, and tackified within 7 days of the completion of the stockpiling activities.

      iv. Silt Fence (SF) shall be located as shown on the SWMP Plan to act as a temporary sediment barrier in certain locations. The SF for this site shall be installed per the SWMP General Notes and Standard Details.

      v. Sediment Control Log (SCL) shall be located as shown on the SWMP Plan to act as a temporary sediment barrier in certain locations. The SCL for this site shall be installed per the SWMP General Notes and Standard Details.

      vi. Reinforced Rock Berm (RRB) shall be located as shown on the SWMP Plan to act as a temporary sediment barrier in certain locations. The RRB for this site shall be installed per the SWMP General Notes and Standard Details.

      vii. Concrete Washout Area (CWA) as shown on the SWMP Plan used for the isolation of concrete truck washout operations shall be located near the proposed SSA area. The CWA for this site shall be installed per the SWMP General Notes and Standard Details.

viii. *A Stabilized Staging Area (SSA) as shown on the SWMP Plans shall be located near the future garage near the main access point to the site and shall be connected to the VTC. The area shall consist of stripped topsoil and covered with a layer of granular material.*

ix. *Erosion Control Blankets (ECB) shall be located as shown on the SWMP Plan to prevent erosion in the drainageways while vegetation is reestablished. The ECB shall be installed per the SWMP General Notes and Standard Details.*

x. *Inlet Protection (IP) shall be located as shown on the SWMP Plan to prevent erosion and sediment in the inlet. The IP shall be installed per the SWMP General Notes and Standard Details.*

2. Non-Structural Practices for Erosion and Sediment Control.:

i. *The Limits of Construction (LOC), Construction Fence, and Silt Fence (SF) as shown on the SWMP Plans will delineate the areas where construction is to take place which includes adequate room for the necessary work, vehicular and temporary storage of equipment and materials.*

ii. *Seeding, Mulching and Tacking (SM) shall be located as shown on the SWMP Plan and shall consist of drill seeding disturbed areas with grasses and crimping in straw mulch to provide immediate protection against raindrop and wind erosion, and as the grass cover becomes established, to provide long-term stabilization of the exposed soil. Temporary irrigation is to be provided for the seeding until it is established. The SM for this site shall be installed per the SWMP General Notes and Standard Details.*

3. Phased CM Implementation: *Phased CM Implementation will be as follows:*

i. *The timing for the site development will occur in three stages: the Initial Stage, the Interim Stage, and the Final Stage. Construction is anticipated to begin in May 2025 and end in May 2025.*

During the Initial Stage the CM's outlined on the overall site SWMP Plan as initial shall be maintained, this shall occur at the onset of construction, prior to the initial Preconstruction Meeting and any other land-disturbing activities. These existing CM's shall be maintained through the completion of the construction activities and shall be modified as outlined in the Interim and Final Stages of the SWMP Plan. The following CM's shall be installed during the Initial Stage: CWA, IP, SF, SCL, SSA, and VTC.

ii. *During the Interim Stage the CM's outlined on the SWMP Plan shall be maintained, the placement shall be based on proposed grades, and drainage features and structures, and shall be installed as needed during site grading. Interim controls associated with structures shall be installed immediately after the construction of site infrastructure. The following CM's shall be installed during the Interim Stage: RRB.*

iii. *During the Final Stage the CM's outlined on the SWMP Plan as final shall be installed. Seeding, Mulching, tacking, and erosion control blankets shall be completed within 7 days when final grade is achieved at the disturbed areas as shown on the SWMP plan. During the final stage some previously*

installed CM's may be removed as outlined on the Final Stage SWMP Plan. At the Final Stage the following CM's shall be installed. SM, ECB. The following CM's may be removed as directed by the inspector: CWA, SPA, IP, SSA, VTC, SCL, RRB, and SF.

4. Materials Handling and Spill Prevention: *Handling of materials shall be confined to the Stabilized Staging Area (SSA) to reduce the risk of spill and site contamination. If a spill should occur the SWMP Administrator shall take the appropriate actions for clean up as well as notify the Colorado Department of Health and Environment (1-877-518-5608), and Local Fire Protection District (911)*

5. Dedicated Concrete or Asphalt Batch Plants: *There is no dedicated asphalt or concrete batch plants associated with the development of this site.*

6. Vehicle Tracking Control: *Shall be provided and located as described in the CM section III.a.1.ii above.*

7. Waste Management and Disposal, Including Concrete Washout: *Shall be provided and located as indicated on the SWMP Plan, and in section III.a.1.vii above.*

8. Groundwater and Stormwater Dewatering: *It is not anticipated that there will be a need for dewatering activities with the development of this site, however if these activities become necessary due to the presence of ground water, the dewatering shall be directed to the proper dewatering apparatus. In addition all state or local permits shall be obtained prior to commencing associated activities.*

IV. Final Stabilization and Long-term Stormwater Management

a. The SWMP shall clearly describe the practice used to achieve final stabilization of all disturbed areas at the site, and any planned practices to control pollutants in stormwater discharge that will occur after construction operations have been completed at the site.

i. Ensure that all disturbed areas are landscaped per the final landscaping plans for the site as provided by others. Ensure that all areas not planned for specific landscaping are drill seeded, crimp mulched and tackified, or otherwise stabilize

ii. Final stabilization shall be achieved when a uniform vegetative cover of at least 70% of predisturbance level is established.

iii. No bare areas larger than 4 square feet, 2 feet x 2 feet or equivalent.

iv. The developed area is free of eroded areas.

v. Seeding areas shall be free from infestation of noxious weeds.

vi. Storm water management will be in accordance the Urban Drainage and Flood Control Districts, and the City of Cherry Hills Village Criteria Manual.

Storm water runoff from the site will follow the historic flow paths to Little Dry Creek.

V. Other Controls

Identification of Potential Pollutant Sources:

1. all disturbed and stored soils: *Stockpile Areas, to be provided*

2. vehicle tracking of sediments: *Vehicle Tracking Control, VTC to be provided.*

3. management of contaminated soils: *Contaminated soils to be treated or disposed of properly and in a timely manner by the SWMP Administrator, or under their direct supervision. The disposal of contaminated soils will comply with all local, state, and federal requirements.*

4. loading and unloading operations: *All loading and unloading activities shall occur in the Stabilized Staging Area, SSA. In the event spill or contamination occurs during these activities the SWMP administrator shall take the appropriate actions as outlined in the Spill Prevention and Control Plan (Appendix B of this report)*

5. outdoor storage activities: *Outdoor storage activities shall be confined to the Stabilized Staging Area, SSA.*

6. vehicle and equipment maintenance and fueling: *Stabilized Staging Area, SSA to be provided. During routine maintenance activities the contractor shall use drip pans to minimize the risk of spill. If a spill occurs, the SWMP administrator shall take the appropriate actions as outlined in the Spill Prevention and Control Plan (Appendix B of this report)*

7. significant dust or particulate generating processes: *Construction watering, during high dust periods to be provided. Contractor shall provide construction water on site at all times in the event construction watering is necessary.*

8. routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, ect: *Fertilizers, pesticides, detergents, fuels, solvents, and oils shall be stored in covered containers and located in the Stabilized Staging Area, SSA during construction activities.*

9. on-site waste management practices: *Covered dumpsters shall be provided for waste management practices, and shall be located in the Stabilized Staging Area, SSA during construction activities.*

10. concrete truck/equipment washing, including the concrete truck chute and associated equipment.: *Concrete Washout Area, CWA to be provided.*

11. dedicated asphalt and concrete batch plants: *There are no dedicated asphalt or concrete batch plants associated with the development of this site.*

12. non-industrial waste sources such as worker trash and portable toilets: *Dumpsters and portable toilets shall be located in the Stabilized Staging Area, SSA during construction activities.*

13. other areas or procedures where potential spills can occur: *There are no other anticipated sources for potential spills other than those already outlined in this report.*

VI. Inspection and Maintenance

Inspection and Maintenance shall be completed according to sections I.D.6, and I.D.7 of the SWMP permit.

1. *All CM's structural and nonstructural shall be installed and maintained in accordance with all applicable criteria as determined by the City of Cherry Hills Village.*

2. *The SWMP Administrator shall inspect all erosion and sediment control measures at least weekly and after any rainfall or snow melt event.*

3. *Record Keeping and Inspection Documentation shall include at a minimum the following information. See Appendix C for a Inspection Report Template.*
    - *i. The inspection date;*
    - *ii. Name(s) and tile(s) of the personnel making the Inspection;*
    - *iii. Locations(s) of discharges of sediment or other pollutants from the site;*
    - *iv. Location(s) of CM's that need to be maintained;*
    - *v. Location(s) where additional CM's that failed to operate as designed or proved inadequate for a particular location;*
    - *vi. Location(s) where additional CM's are needed that were not in place at the time of inspection;*
    - *vii. Deviations from the minimum inspection schedule as noted in section VI.2 above;*
    - *viii. Description of corrective action for items iii, iv, v, vi, above, dates corrective action(s) taken, and measures taken to prevent future violations, including requisite changes to the SWMP, as necessary;*
    - *ix. After adequate 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.*

APPENDIX A: *Supplemental Information*

Hydrologic Soil Group—Arapahoe County, Colorado
(4480 S Holly)

Map Scale: 1:698 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 30 60 120 180

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- 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 1:20,000.

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: Arapahoe County, Colorado
Survey Area Data: Version 16, Jun 4, 2020

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

Date(s) aerial images were photographed: Oct 3, 2018—Dec 4, 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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RtE	Renohill-Litle-Thedalund complex, 9 to 30 percent slopes	D	2.6	100.0%
Totals for Area of Interest			**2.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Map Scale: 1:698 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 30 60 120 180

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil 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
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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)

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K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RtE	Renohill-Litle-Thedalund complex, 9 to 30 percent slopes	.32	2.6	100.0%
Totals for Area of Interest			**2.6**	**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.

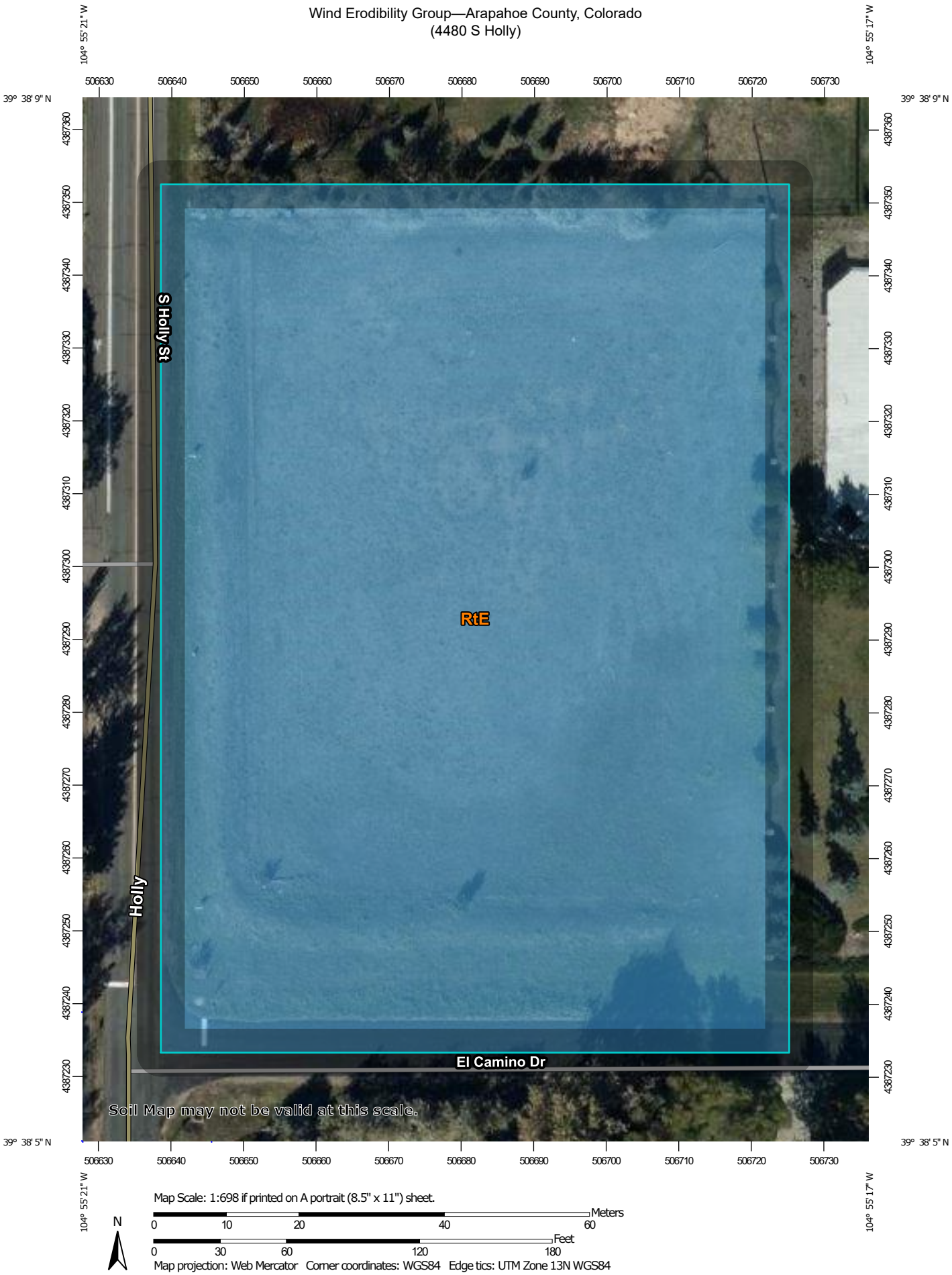
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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



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MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 1
- 2
- 3
- 4
- 4L
- 5
- 6
- 7
- 8
- Not rated or not available

Soil Rating Lines
- 1
- 2
- 3
- 4
- 4L
- 5
- 6
- 7
- 8
- Not rated or not available

Soil Rating Points
- 1
- 2
- 3
- 4
- 4L
- 5
- 6
- 7
- 8
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

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- Aerial Photography

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Wind Erodibility Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RtE	Renohill-Litle-Thedalund complex, 9 to 30 percent slopes	6	2.6	100.0%
Totals for Area of Interest			**2.6**	**100.0%**

Description

A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

APPENDIX B: *Spill Prevention and Control Plan*

SPILL PREVENTION AND CONTROL PLAN

SPILL PREVENTION

Whenever significant quantities of fuels, materials, vehicle fluids, or other pollutants are to be used on site, specific procedures for material containment and spill prevention shall be developed and implemented.

Introduction:

The following Spill Prevention and Response Plan shall be implemented during the construction at 4480 S Holly Street. This plan will be implemented to meet the requirements of the State of Colorado.

Materials On-Site:

Spill control procedures will be implemented when materials are stockpiled or when chemicals and/or fluids are used in the construction area.

Stockpiles of Dry Materials:

The following spill prevention procedures shall be implemented:

All materials shall be stockpiled in designated areas, with CM's used to reduce and minimize the runoff of contaminants. CM's such as silt fence and sediment control logs will be installed according to City criteria using the details shown in the Erosion Control plans. Loading and unloading operations shall be performed in a manner to limit materials from being spilled. Any spilled materials shall be swept up immediately after the operations are performed.

Vehicle Fueling

The following spill prevention procedures shall be implemented:

All vehicle fueling will be done off-site as much as possible. All on-site fueling operations will be performed in designated areas. Measures will be taken where necessary to reduce and minimize spills during vehicle fueling operations. These measures may include the placement of a temporary berm around the fueling area, covering the fueling area under a temporary portable structure, and/or the placement of drip pans under valves and tank openings. Berms will be constructed around all fueling areas. An adequate supply of absorbents will also be stockpiled at each fueling area.

Routine Vehicle and Equipment Maintenance

The following spill prevention procedures shall be implemented:

All vehicle maintenance will be performed off-site when possible. However, there may be occasions where construction equipment and vehicles may break down at the site and on-site repairs are more feasible. On-site vehicle and equipment maintenance, if needed, will be performed in designated areas, where practical, and enclosed by earthen berms. All maintenance areas will maintain an adequate supply of drip pans. These pans will be placed underneath vehicles as needed and absorbents will be used in the event of a minor spill or leak.

SPILL RESPONSE

NOTE: IN CASE OF FIRE, EVACUATE ALL PERSONNEL FROM THE IMMEDIATE AREA, RENDER FIRST AID TO ANYONE WHO IS INJURED, AND DIAL 911 IMMEDIATELY. TAKE APPROPRIATE STEPS TO PROTECT HUMAN LIFE AND TO CONTROL FIRES FIRST. SPILL CONTROL IS A SECONDARY CONCERN.

Cleanup and Removal Procedures

- Upon detection of any spill, the first action to be taken is to ensure personal safety. All possible ignition sources, including running engines, electrical equipment (including cellular telephones, etc.), or other hazards will be immediately turned off or removed from the area. The extent of the spill and the nature of the spilled material will be evaluated to determine if remedial actions could result in any health hazards, escalation of the spill, or further damage that would intensify the problem. If such conditions exist, a designated employee will oversee the area of the spill and the construction supervisor will be notified immediately.

- The source of the spill will be identified and if possible the flow of pollutants stopped if it can be done safely. However, no employee will attend to the source or begin cleanup of the spill until **ALL** emergency priorities (fire, injuries, etc.) have been addressed.

Small Spills

Small spills (usually <5 gallons) consist of minor quantities of gasoline, oil, anti-freeze, or other materials that can be cleaned up by a single employee using readily available materials.

The following procedures shall be used for cleanup of small spills:

1. Ensure personal safety, evaluate the spill, and if possible, stop the flow of pollutants.

2. Contain the spread of the spill using absorbents, portable berms, sandbags, or other available measures.

3. Spread absorbent materials on the area to soak up as much of the liquid as possible and to prevent or minimize infiltration into the soil.

4. Once the liquids have been absorbed, remove all absorbents from the spill and place the materials in a suitable storage container. On paved areas, wipe any remaining liquids from the surface and place the materials in a storage container. Do not spray or wash down the area using water. For open soil areas, excavate any contaminated soil as soon as possible and place the soil in a suitable storage container. All materials will then be transported off-site for disposal.

5. If immediate transfer and storage of the contaminated soil is not practical, excavate and place the contaminated soil on a double thickness sheet of 3-mil or higher polyethylene film. In addition, a small berm should be formed around the outer edges of the soil stockpile, underneath the polyethylene film, to ensure that contaminants are not washed from the site during precipitation events and that materials do not seep through the berm.

6. Record all significant facts and information about the spill, including the following:
   - Type of pollutant
   - Location
   - Apparent source
   - Estimated volume
   - Time of discovery
   - Actions taken to clean up spill

7. Notify the supervisor of the spill and provide the information from Item #6. The supervisor will then contact the City Cherry Hills Village.

Medium to Large Spills

Medium to large spills consist of larger quantities of materials (usually >5 – 25 gallons) that are used on site that cannot be controlled by a single employee. Generally, a number of facility personnel will be needed to control the spill and a response may require the suspension of other facility activities.

The following procedure shall be used for the cleanup of medium to large spills:

1. Ensure personal safety, evaluate the spill, and if possible, stop the flow of pollutants.

2. Immediately dispatch a front-end loader or similar equipment to the spill and construct a berm or berms down gradient of the spill to minimize the spread of potential pollutants. On paved surfaces, portable berms, sandbags, booms, or other measures will be used to control the lateral spread of the pollutants.

3. When the spread of the spill has been laterally contained, contact the supervisor or designated facility employee and provide them information on the location, type, and amount of spilled material, and a briefing on the extent of the spread and measures undertaken to contain the contaminants.

4. Depending on the nature of the spill, mobilize additional resources as needed to contain the contaminants.

5. Cleanup will commence when the lateral spread has been contained and the notification to the supervisor has been made.

6. Freestanding liquid will be bailed or pumped into 55-gallon storage drums, steel tanks, or other suitable storage containers. When all the liquid has been removed from the pavement or soil layer, absorbents will be applied to the surface and transferred to the storage containers when they have soaked up as much of the spill as possible.

7. On paved surfaces, the remaining contaminants will be removed to the extent possible, with rags, sweeping, or similar measures. The area of the spill will not be sprayed or washed down using water. Any contaminant soaked materials will be placed into the storage containers with the other absorbents.

8. The remaining contaminated soils will be excavated and loaded into a dump truck(s) for disposal off-site at a designated facility. If transport off-site is not immediately available, the remaining soils will be stockpiled on a double thickness sheet of 3-mil or higher polyethylene film. In addition, a small berm will be formed around the outer edges of the soil stockpile, underneath the polyethylene film, to ensure that contaminants are not washed from the site during precipitation and do not seep through the berm.

9. Record all significant facts and information about the spill, including the following:
   - Type of pollutant
   - Location
   - Apparent source
   - Estimated volume
   - Time of discovery
   - Actions taken to clean up spill

10. Provide the supervisor (or designated employee) with the information from Item #9. The supervisor will then contact the City of Cherry Hills Village

NOTIFICATION

Notification to the Colorado Department of Public Health & Environment (CDPHE) is required if there is any release or suspected release of any substance, including oil or other substances that spill into or threaten State waters. Unless otherwise noted, notifications are to be made by the supervisor and only after emergency responses related to the release have been implemented. This will prevent misinformation and assures that notifications are properly conducted.

The notification requirements are as follows:

1. **Spills into/or Threatens State Waters**:
   Immediate notification is required for releases that occur beneath the surface of the land or impact or threaten waters of the State of threaten the public health and welfare. Notifications that will be made are:

   a. For any substance, regardless of quantity, contact CDPHE at 1-877-518-5608. State as follows:

      a) Give your name.
      b) Give location of spill (name of city).
      c) Describe the nature of the spill, type of products, and estimate size of spill.
      d) Describe type of action taken thus far, type of assistance or equipment needed.

   b. For any quantity of oil or other fluids, call the National Response Center at 1-800-424-8802. State as follows:

      a) Give your name.
      b) Give location of spill (name of city and state).
      c) Describe the nature of the spill, type of product, and estimate size of spill.
      d) Describe type of action taken thus far, type of assistance or equipment needed.

The notification procedures to be followed are:

a) Give your name.
b) Give location of spill (name of city and state).
c) Describe nature of the spill, type of product, and estimate size of spill.
d) Describe type of action taken thus far, type of assistance or equipment needed.
e) Give name of land owner
f) Specify department responsible for any facilities that may be impacted

3. Notification is not required for release of oil upon the land surface of 25 gallons or less that will not constitute a threat to public health and welfare, the environmental or a threat of entering the waters of the State.

4. Notification, as required in paragraphs 1 and 2 above, will be made to the CDPHE using the 24-hour telephone number to report environmental spills. All information known about the release at the time of discovery is to be included, such as the time of occurrence, quantity and type of material, location and any corrective or clean-up actions presently being taken. Table B lists these phone numbers.

2. Reportable Quantity Spill on Land Surface:
Immediate notification is required of a release upon the land surface of an oil in quantity that exceeds 25 gallons, or of a hazardous substance that equals or exceeds 10 pounds or its reportable quantity under Section 101(14) of the Comprehensive Environmental Response, Compensation Liability Act (CERCLA) of 1980 as amended (40 CFR Part 302) and Section 329 (3) of the Emergency Planning and Community Right to Know Act of 1986 (40 CFR Part 355) whichever is less. This requirement does apply at a minimum to the substances listed in Table A below.

TABLE A

Substances Requiring Notification

SUBSTANCE	**REPORTABLE QUANTITY**
Motor Oil	25 Gallons
Hydraulic Oil	25 Gallons
Gasoline/Diesel Fuel	25 Gallons

SPILL RESPONSE CONTACTS
TABLE B

Emergency Notification Contacts

Name/Agency	Number
Local Fire Protection District	911
Local Sheriff's Department	911
Ambulance	911
Hospital	911
National Response Center	1-800-424-8802
CDPHE – Report Environmental Spills (24 hrs/day)	1-877-518-5608
Colorado Emergency Planning Committee	303-273-1622

It is the responsibility of the supervisor to contact Cherry Hills Village, CDPHE, and/or the National Response Center.

- **The National Response Center** is to be contacted when a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR 110, 4- DFR 117, or 40 CFR 302 occurs during a 24-hour period.

- Notification to the **CDPHE** is required if there is any release or suspected release of any material, including oil or hazardous substances that spill into or threaten state waters.

REPORTS

The CDPHE requires written notification of a spill or discharge of oil or other substance that may cause pollution of the waters of the State of Colorado. A written report must be submitted to the Water Quality Control District (WQCD) within five days after becoming aware of the spill or discharge.

The CDPHE requires a written final report within 15 days for all releases of an oil or hazardous substance that require implementation of a contingency plan. The CDPHE may also require additional reports on the status of the clean up until any required remedial action has been complete.

Written notification of reports must contain at a minimum:

1. Date, time, and duration of the release.
2. Location of the release.
3. Person or persons causing and responsible for the release.
4. Type and amount of oil or substance released.
5. Cause of the release.
6. Environmental damage caused by the release.
7. Actions taken to respond, contain, and clean up the release.
8. Location and method of ultimate disposal of the oil or other fluids.
9. Actions taken to prevent a reoccurrence of the release.
10. Any known or anticipated acute or chronic health risks associated with the release.
11. When appropriate advice regarding medical attention necessary for exposed individuals.

APPENDIX C: *Inspection Report Template*

City of Cherry Hills Village
STORMWATER CONSTRUCTION
BMP FIELD INSPECTION REPORT (Revised 1/23) Per Applicable City Code and MS-4 Permit Sections

(5) **Project Address:**

(6) **Stormwater Construction Permit Number:**

(1) **Date Of Inspection**:

(2) **Property Owne**r:

(3) **Site Contact Name**: (print)

(4) **Inspector Name:** (print)

(7) **Inspection Type: (MUST check one)**

- ☐ Required Maximum 14 Calendar Day Inspection
- ☐ Required 30 Calendar Day Inspection for Completed Projects
- ☐ Required Storm Event Inspection
- ☐ Complaint
- ☐ Other

(8) Construction Site Assessment

- ☐ Construction site perimeter contained. Offsite tracking minimized.
- ☐ Disturbed areas contained.
- ☐ Estimate disturbed area at the time of inspection._____Acres
- ☐ Areas used for material, waste storage and fueling contained.

(9) CSWMP Management

- ☐ Does site have current CSWMP: No
- ☐ Changes noted & dated on the plans? No
- ☐ Contents of CSWMP:
  - ☐ Site Description: No
  - ☐ Site Map: No
  - ☐ Description of BMPs during construction activities: No
  - ☐ Materials Handling & Spill Prevention: No
- ☐ Contents of CSWMP (Cont.)
  - ☐ Final Stabilization: No
  - ☐ Other Controls: No
  - ☐ Inspection & Maintenance: No
  - ☐ Certification: No

(10) Best Management Practices (BMPs)

(10) BMP Type	(11) Practice Required/ Used		(12) Reason Modified or Removed	(13) Maintenance/ Sediment Removal Required Y/N	(14) Course of Action/Action Taken to Maintain	(15) Date for Action to be Completed
EROSION CONTROL						
Seeding				No		
Mulching				No		
Blankets				No		
Check Dams				No		
Earth Berms				No		
Diversion				No		
Embankment Protector				No		
Outlet Protection				No		
Surface Roughening				No		
Armoring				No		
Other				No		

Has a discharge occurred or sediments released from the site during this inspection period? No

If "Yes"- describe discharge and actions taken to remediate:

(10) BMP Type	(11) Practice Required/ Used		Reason- Deleted/Added or Modified	(13) Maintenance/ Sediment Removal Required Y/N	(14) Course of Action/Action Taken to Maintain	(15) Date for Action to be Completed
SEDIMENT CONTROL						
Inlet Protection	☐	☐		No		
Bales Wattles	☐	☐		No		
Silt Fencing	☐	☐		No		
Sediment Trap/Basin	☐	☐		No		
Site Entrance-VTC	☐	☐		No		
Dewatering Structure	☐	☐		No		
Stabilized Parking/Staging Area	☐	☐		No		
MATERIALS HANDLING, SPILL PREVENTION, WASTE MANAGEMENT AND GENERAL POLLUTION PREVENTION						
Stockpile Management	☐	☐		No		
Material Covering	☐	☐		No		
Spill Prevention and Control	☐	☐		No		
Concrete Washout	☐	☐		No		
Saw Water Containment	☐	☐		No		
Solid Waste	☐	☐		No		
Portable Toilet(s) or other	☐	☐		No		
Maintenance and Fueling	☐	☐		No		
Street Sweeping Vacuuming	☐	☐		No		
Trash removal	☐	☐		No		
Materials Palletized	☐	☐		No		

(16) INSPECTIONS AND MAINTENANCE PROGRAM (MUST check one)	
☐ Inspection occurring at least every 14 calendar days.	Course of Action:
☐ Inspections occurring after storm events that result in runoff.	Course of Action:
☐ Inspections occurring at least every 30 calendar days since Project Completion	Course of Action:
☐ Inspection reports retained at the construction project site.	Course of Action:
☐ Corrective measures completed within 7 calendar days of inspect.	Course of Action:

Pursuant to applicable MS-4 and CDPS Permit and CHV Municipal Code Sections

compliant or has been returned to compliance following corrective actions as required by city code and the permit. NOTE: This bi-weekly inspection report is required IN ADDITION TO any periodic inspections and reporting detailed in your SWMP	
Inspector Signature	**Date of Inspection (Not to Exceed Inspection Interval)**

1. **Date of Inspection:** Indicate the date of inspection. (**Not to Exceed Allotted Interval Based on Inspection Type**)
2. **Property owner:** Indicate the name of the property owner.
3. **Site Contact:** Indicate the main contact for the site.
4. **Inspector Name:** Indicate the name of the Inspector completing the inspection.
5. **Project Name:** Indicate the name of the project for which the report is being completed.
6. **Permit Number:** Indicate the permit number issued with the approval of the permit.
7. **Inspection Type:** Indicate the purpose for the inspection. The types of inspections include the following:
   - "**Required 14 Calendar Day Inspection**." These inspections are required at least every 14 calendar days during the life of the construction project.
   - "**Required 30 Day Inspection for Completed Projects.**" These inspections are required at least every 30 calendar days following the completion of the construction project where final stabilization has not been achieved.
   - "**Required Storm Event Inspection**." These inspections are required after a storm event that results in runoff.
   - Inspection as a response to a complaint.
   - Inspection for any other reason.

   The first three types of inspections are required to comply with the City of Cherry Hills Village Stormwater permit and the Colorado Discharge Permit System General Permit for Stormwater Discharges Associated with Construction Activity (CDPS General Permit.)
8. **Construction Site Assessment:** Inspect the noted areas of the construction site and indicate with a "✓" the items which apply.
   - "**Construction site perimeter contained**." Are the appropriate BMPs in place and offsite sediment tracking minimized? Is there any evidence of pollutants entering a storm drainage system/conveyance?
   - "**Disturbed areas contained**." Are the appropriate BMPs implemented to minimize erosion or sediment tracking from the disturbed areas? Is there any evidence of pollutants entering a storm drainage system/conveyance? Estimate the the disturbed area at the time of the inspection.
   - "**Areas used for material, waste storage and fueling contained**." Are the appropriate BMP's implemented to prevent and contain spills? Are wastes removed from the site and disposed of properly? Are storage areas located at least 50 feet from a watercourse? Is there any evidence of pollutants entering a storm drainage system/conveyance?
9. **CSWMP Management:**
   - Indicate if the construction site has a current and updated CSWMP, by circling **yes** or **no.**
   - Indicate if the required contents of the CSWMP are included, by circling **yes** or **no** on each line.
   - Indicate whether changes have been made to the CSWMP during construction and whether the changes have been documented and dated to include an updated site map.
10. **BMP:** The BMPs shown may not be a complete list of what is required by the CSWMP. Add additional BMPs that are required. Additional sheets can be inserted to show all the BMPs required by the CSWMP.
11. **Practice Required/Used:** This column can be used as follows:
    - If the BMP is required by the CSWMP and implemented, indicate by placing a "✓" in both the "**Required**" and "**Used**" columns.
    - If the BMP is required by the CSWMP, but not implemented, indicate by placing a "✓" in the "**Required**" column. Indicate the reason for the change in column (14), "**Reason**."
    - If the BMP has been added to the CSWMP, indicate with a "✓" in the "**Used**" column. Indicate the reason for the change in column (14), "**Reason**."
12. **Reason:** Indicate the reason(s) for the deletion, addition, and modification of BMP(s) to the CSWMP.
13. **Maintenance/Sediment Removal Required:** Indicate whether maintenance and sediment removal are required with a **Yes** or **No**. If maintenance and sediment removal are required, indicate what the action plan is in column (15), "**Course of Action**."
14. **Course of Action:** If maintenance and/or sediment removal is required, describe the action plan.
15. **Date for Action to be Completed:** Indicate the date for which the course of action will be completed. The course of action must be completed in a timely manner, **but in no case more than 7 days after the inspection.**
16. **Inspections and Maintenance:** Evaluate the inspections and maintenance aspects of the construction project and check all that applies with a "✓" to verify compliance with the City of Cherry Hills Village Stormwater Permit, the State CDPS General Permit and all applicable CHV Municipal Code Sections. All requirements of the CSWMP must be adhered to.

NOTE: This bi-weekly inspection report is required IN ADDITION TO any periodic inspections and reporting detailed in your SWMI

APPENDIX D: *Opinion of Probable Costs*

Appendix C: Engineer's Cost Estimate - Initial/Interim

GESC Permit

Engineer's Cost Estimate Spreadsheet for Initial and Interim Control Measures

Note: *Initial* and *Interim* Control Measures shall be added together for the Cost Estimate

Project Name: 4480 S Holly Street

Date: 7/22/2025

No.	Control Measures	ID	Unit	Installation Unit Cost	Initial/Interim Quantity	Initial/Interim Cost
1	Check Dam	CD	LF	$ 24.00		$ -
2	Compost Blanket	CB	SF	$ 0.36		$ -
3	Compost Filter Berm	CFB	LF	$ 2.00		$ -
4	Concrete Washout Area	CWA	EA	$ 100.00	1	$ 100.00
5	Construction Fence	CF	LF	$ 2.00		$ -
6	Construction Markers	CM	LF	$ 0.20		$ -
7	Dewatering	DW	EA	$ 600.00		$ -
8	Diversion Ditch	DD	LF	$ 1.60		$ -
9	Erosion Control Blanket	ECB	SY	$ 5.00		$ -
10	Inlet Protection	IP	EA	$ 200.00		$ -
11	Reinforced Check Dam	RCD	LF	$ 36.00		$ -
12	Reinforced Rock Berm	RRB	LF	$ 9.00	60	$ 540.00
13	RRB for Culvert Protection	RRC	LF	$ 9.00		$ -
14	Sediment Basin (Based on area tributary to the pond)	SB	AC	$ 1,000.00		$ -
15	Sediment Control Log	SCL	LF	$ 2.00	305	$ 610.00
16	Sediment Trap	ST	EA	$ 600.00		$ -
17	Seeding & Mulching (Less than 10 Acres)	SM	AC	$ 2,500.00		$ -
	(Greater than 10 Acres)	SM	AC	$ 1,500.00		$ -
18	Silt Fence	SF	LF	$ 2.00	92	$ 184.00
19	Stabilized Staging Area	SSA	SY	$ 2.00	70	$ 140.00
20	Surface Roughening	SR	AC	$ 600.00		$ -
21	Temporary Slope Drain	TSD	LF	$ 30.00		$ -
22	Temporary Stream Crossing	TSC	EA	$ 1,000.00		$ -
23	Terracing	TER				$ -
24	Vehicle Tracking Control	VTC	EA	$ 1,000.00	1	$ 1,000.00
25	VTC with Wheel Wash	WW	EA	$ 1,500.00		$ -
26	Mobilization (required on all projects)	MB	LS	$ 5,000.00	1	$ 5,000.00
27	Pond Maintenance/Sediment Removal (Based on area tributary to the pond)	PM	AC	$ 1,000.00		$ -
28	Rock/Curb Socks	CS	LF	$ 16.00		$ -
29	Street Maintenance (Required on all projects. Based on lane miles of streets within project and frontage)	SM	LM	$ 500.00	0.035	$ 17.50

Total Cost of ***Initial*** **&** ***Interim*** **Control Measures** **$ 7,591.50**

Appendix C: Engineer's Cost Estimates - Final

GESC Permit

Engineer's Cost Estimate for Final Control Measures

Note: Final Control Measures shall be added together for the Cost Estimate

Project Name: 4480 S Holly Street

Date: 7/22/2025

No.	Control Measures	ID	Unit	Installation Unit Cost	Final Quantity	Final Cost
1	Check Dam	CD	LF	$ 24.00		$ -
2	Compost Blanket	CB	SF	$ 0.36		$ -
3	Compost Filter Berm	CFB	LF	$ 2.00		$ -
4	Concrete Washout Area	CWA	EA	$ 100.00		$ -
5	Construction Fence	CF	LF	$ 2.00		$ -
6	Construction Markers	CM	LF	$ 0.20		$ -
7	Dewatering	DW	EA	$ 600.00		$ -
8	Diversion Ditch	DD	LF	$ 1.60		$ -
9	Erosion Control Blanket	ECB	SY	$ 5.00	827	$ 4,135.00
10	Inlet Protection	IP	EA	$ 200.00		$ -
11	Reinforced Check Dam	RCD	LF	$ 36.00		$ -
12	Reinforced Rock Berm	RRB	LF	$ 9.00		$ -
13	RRB for Culvert Protection	RRC	LF	$ 9.00		$ -
14	Sediment Basin (Based on area tributary to the pond)	SB	AC	$ 1,000.00		$ -
15	Sediment Control Log	SCL	LF	$ 2.00		$ -
16	Sediment Trap	ST	EA	$ 600.00		$ -
17	Seeding & Mulching (Less than 10 Acres)	SM	AC	$ 2,500.00	0.604	$ 1,510.00
	(Greater than 10Ac	SM	AC	$ 1,500.00		$ -
18	Silt Fence	SF	LF	$ 2.00	92	$ 184.00
19	Stabilized Staging Area	SSA	SY	$ 2.00		$ -
20	Surface Roughening	SR	AC	$ 600.00		$ -
21	Temporary Slope Drain	TSD	LF	$ 30.00		$ -
22	Temporary Stream Crossing	TSC	EA	$ 1,000.00		$ -
23	Terracing	TER				$ -
24	Vehicle Tracking Control	VTC	EA	$ 1,000.00		$ -
25	VTC with Wheel Wash	WW	EA	$ 1,500.00		$ -
26	Mobilization (Required on all projects)	MB	LS	$ 5,000.00	1	$ 5,000.00
27	Pond Maintenance/Sediment Removal (Based on area tributary to the pond)	PM	AC	$ 1,000.00		$ -
28	Street Maintenance (Required on all projects. Based on lane miles of streets within project and frontage)	SM	LM	$ 500.00	0.035	$ 17.50
29	Other					$ -

Total Cost of ***Final Control Measures*** **$ 10,846.50**

APPENDIX E: *SWMP Plan and Details*

GRADING, EROSION, AND SEDIMENT CONTROL PLAN

4480 S HOLLY STREET - SPORT COURT
LOT 7, CHARLOU PARK AMENDED
IN W1/2 OF NW 1/4 OF SECTION 8 TOWNSHIP 5S, RANGE 67, WEST OF 6TH P.M., ARAPAHOE COUNTY, COLORADO.

UNCC
UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

CONTRACTOR
DESIGNS BY SUNDOWN
6875 S. SANTA FE DR.
LITTLETON, CO. 80120

PROPERTY OWNER
KYLE MUSICK AND LACEY MUSICK
4480 S HOLLY ST.
CHERRY HILLS VILLAGE, CO 80111

SURVEYOR/ENGINEER
DAVID E. ARCHER & ASSOCIATES, INC.
105 WILCOX STREET
CASTLE ROCK CO 80104
PHONE: (303)-688-4642
FAX: (303)-688-4675

PROPERTY DESCRIPTION:
4480 S HOLLY ST.
CHERRY HILLS VILLAGE, CO 80111
LOT 7 CHARLOU PARK AMENDED
ARAPAHOE COUNTY, COLORADO.

VICINITY MAP
SCALE: 1"=500'

EARTH WORK VOLUMES
CUT: 1429 BANK CY
FILL: 236 BANK CY
NET: 1193 BANK CY EXCESS

Note:

This Grading, Erosion and Sediment Control (GESC) document has been placed in the file for this project and appears to fulfill the latest version of the Grading, Erosion and Sediment Control Manual. Additional grade, erosion and sediment control measures may be required of the owner or his/her agents, due to unforeseen erosion problems of if the submitted plan does not function as intended.The requirements of this GESC document shall run with the land and be obligation of the landowner, or his/her designated representative(s) until such time as the gesc plan is property completed, modified or voided.

I hereby attest that this Grading, Erosion, and Sediment Control (GESC) document for 4480 S Holly Street, has been prepared by me or under my direct supervision, and to the best of my knowledge and ability has been prepared in accordance with the latest version of the GESC Manual. The signature and stamp affixed hereon certifies that this GESC document was prepared in accordance with the required regulations and criteria; however, the stamp and signature does not certify or guarantee future performance of the execution of the plan by the Contractor. The Contractor is responsible for executing the construction work according to the informationset forth in the plan and in accordance with all applicable requirements.

_____
Registered Professional Engineer Zachary E. Thatcher
State of Colorado No. 64656

I hereby attest that this Grading, Erosion, and Sediment Control (GESC) measures for 4480 S Holly Street shall be constructed according to the design presented in this document. I understand that additional erosion control, sediment control and water quality enhancing measures may be required of the owner and his or her agent due to unforeseen pollutant discharges or if the submitted plan does not function as intended. The requirements of the plan shall be the obligation of the land owner and/or his successors or heirs; until such time as the plan is properly completed, modified or voided.

Owner or Authorized Agent _____

Authorized Signature _____ Date _____

SHEET INDEX

SHEET NO.	DESCRIPTION
1 OF 4	COVER SHEET
2 OF 4	INITIAL GESC PLAN
3 OF 4	INTERIM GESC PLAN
4 OF 4	FINAL GESC PLAN

ARAPAHOE COUNTY STANDARD NOTES AND DETAILS

SHEET 1	GESC STANDARD NOTES AND DETAILS
SHEET 2	GESC STANDARD NOTES AND DETAILS
SHEET 3	GESC STANDARD NOTES AND DETAILS
SHEET 4	GESC STANDARD NOTES AND DETAILS

ENGINEERING & COMMUNITY DEVELOPMENT
THESE PLANS HAVE BEEN REVIEWED BY CHERRY HILLS VILLAGE FOR GRADING, EROSION AND SEDIMENT CONTROL IMPROVEMENTS ONLY

SHEET 1 OF 4
APRIL 2025
JOB NUMBER 20-0420

DAVID E. ARCHER & ASSOCIATES, INC.
LAND DEVELOPMENT CONSULTING
SURVEYING & ENGINEERING
PHONE (303) 688-4642
105 WILCOX ST., CASTLE ROCK, COLORADO 80104

REVISIONS

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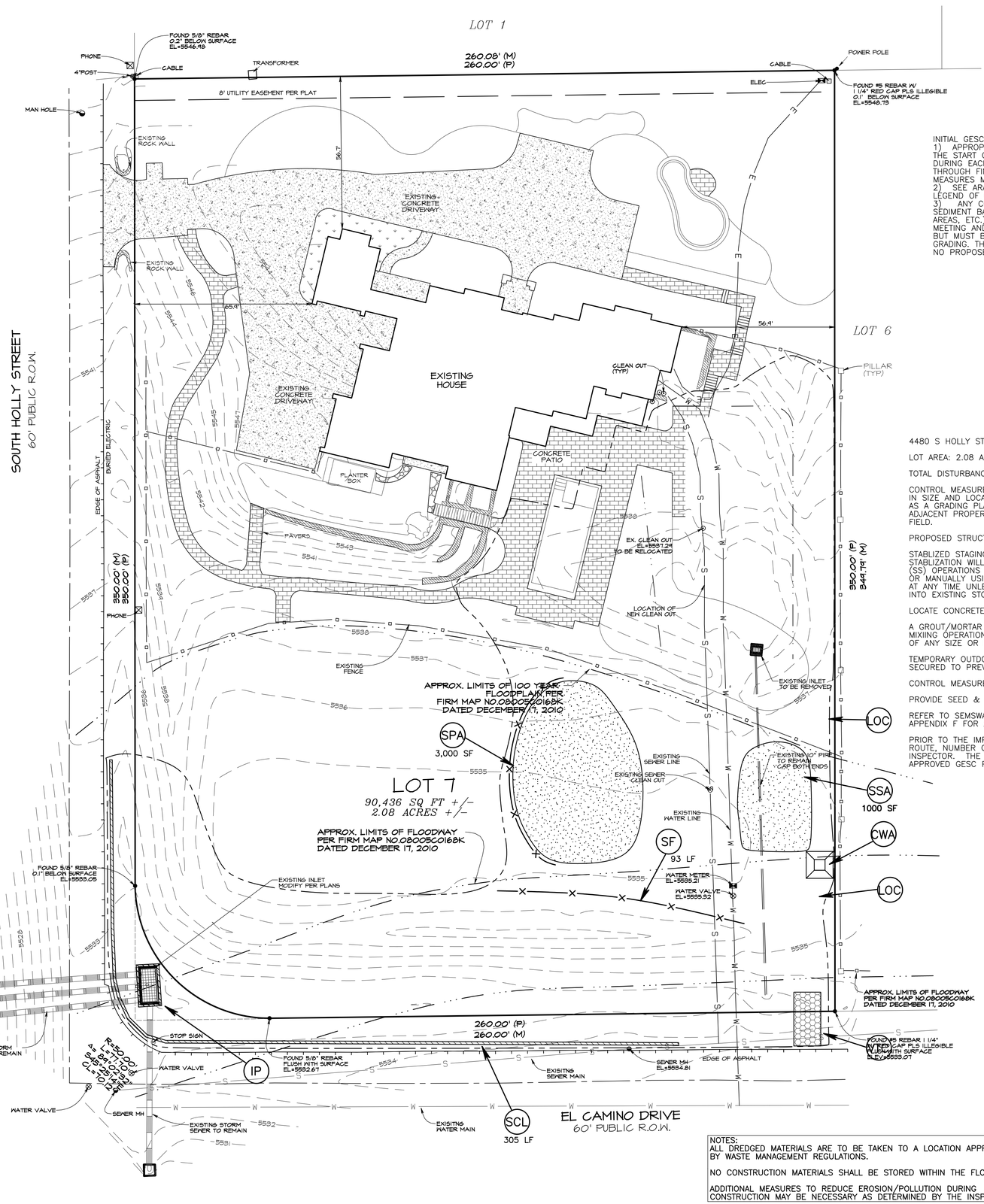

UNCC

UTILITY NOTIFICATION CENTER OF COLORADO

1-800-922-1987

CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

INITIAL GESC NOTES:
1) APPROPRIATE CONTROL MEASURES MUST BE IMPLEMENTED PRIOR TO THE START OF ACTIVITY, MUST CONTROL POTENTIAL POLLUTANTS DURING EACH PHASE OF CONSTRUCTION, AND MUST BE CONTINUED THROUGH FINAL STABILIZATION. APPROPRIATE STRUCTURAL CONTROL MEASURES MUST BE MAINTAINED IN OPERATIONAL CONDITION.
2) SEE ARAPAHOE COUNTY STANDARD NOTES AND DETAILS (SHEET 1 OF 4) FOR LEGEND OF CONTROL MEASURE NAMES AND SYMBOLS.
3) ANY CONTROL MEASURES SHOWN THAT REQUIRE GRADING, (E.G. SEDIMENT BASINS, SEDIMENT TRAPS, CONCRETE WASH-OUT AREAS, ETC.), SHALL NOT BE PLACED UNTIL AFTER THE PRECONSTRUCTION MEETING AND ISSUANCE OF THE GESC PERMIT, BUT MUST BE FULLY FUNCTIONAL PRIOR TO ANY LARGE SCALE GRADING. THE INITIAL PLAN ILLUSTRATES EXISTING CONDITIONS. NO PROPOSED INFRASTRUCTURE IS SHOWN.

EARTH WORK VOLUMES
CUT: 1429 BANK CY
FILL: 236 BANK CY
NET: 1193 BANK CY EXCESS

4480 S HOLLY STREET

LOT AREA: 2.08 ACRES

TOTAL DISTURBANCE AREA = 0.82 ACRES

CONTROL MEASURES (CM) PERTAIN TO EROSION AND SEDIMENT CONTROL ARE APPROXIMATE IN SIZE AND LOCATION. THIS EROSION AND SEDIMENT CONTROL PLAN IS NOT TO BE UTILIZED AS A GRADING PLAN. IF GRADING ON SITE IS NECESSARY IT SHALL NOT ADVERSELY IMPACT ADJACENT PROPERTIES. FLOW ARROWS MAY NOT DEPICT ACTUAL FLOW PATTERNS IN THE FIELD.

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STABLIZED STAGING AREA (SSA), IF THIS OCCURS ON A VEGETATED SURFACE ADDITIONAL STABLIZATION WILL NEED TO OCCUR ONCE CONSTRUCTION IS COMPLETE. STREET SWEEPING (SS) OPERATIONS SHALL UTILIZE A VACUUM-TYPE STREET SWEEPER, A BRUSH STYLE SWEEPER, OR MANUALLY USING SHOVELS AND BROOMS. PAVEMENT SHALL NOT BE WASHED WITH WATER AT ANY TIME UNLESS ALL WATER IS CONTAINED AND COLLECTED AND IS NOT ALLOWED TO DRAIN INTO EXISTING STORM CONVEYANCES, ON OR OFF SITE.

LOCATE CONCRETE WASHOUT AREA (CWA) AWAY FROM ALL STORM CONVEYANCES.

A GROUT/MORTAR MIXING STATION (GMS) AREA IS CONTAINED AREA TO ISOLATE GROUT/MORTAR MIXIING OPERATIONS. A (GMS) CONTROL MEASURE SHALL BE PROVIDED WIHEN MASONRY WORK OF ANY SIZE OR DIMENSION IS TO BE PERFORMED.

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CONTROL MEASURES (CM) MUST BE UTILIZED ON STOCKPILES (SP).

PROVIDE SEED & MULCH (SM) UNLESS PERMANENT LANDSCAPING (LS) IS PROVIDED IN FINAL PLAN.

REFER TO SEMSWA GESC MANUAL STANDARD NOTES AND DETAILS FEBRUARY 2023 LOCATED IN APPENDIX F FOR ADDITIONAL INFORMATION.

PRIOR TO THE IMPORT/EXPORT OF MATERIAL THE CONTRACTOR SHALL COORDINATE THE HAUL ROUTE, NUMBER OF TRUCKS, AND THE NUMBER OF TRIPS ETC. WITH THE SEMSWA STORMWATER INSPECTOR. THE BORROW/FILL SITE IF WITHIN SEMSWA BOUNDARIES, MAY REQUIRE ADDITIONAL APPROVED GESC PERMITS, PLANS, AND A REPORT.

LEGEND

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  - BERM = TOP OF BERM
- = DRAINAGE EASEMENT (RECORDED SEPARATELY)

INITIAL GESC PLAN

SCALE: 1"=20'

GRAPHIC SCALE 1"=20'

0 20 40 60

I HEREBY AFFIRM THAT THESE GRADING EROSION AND SEDIMENT CONTROL PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, IN ACCORDANCE WITH ALL APPLICABLE CHERRY HILLS VILLAGE AND STATE OF COLORADO STANDARDS AND STATUTES, RESPECTIVELY, AND THAT I AM FULLY RESPONSIBLE FOR ALL DESIGN AND REVISIONS RELATIVE TO SAID PLANS.

ZACHARY E THATCHER PE NO. 64656

ENGINEERING & COMMUNITY DEVELOPMENT

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NOTES:
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SCALE 1"=20'
DATE 04/02/25
DR'N. ZET CK'D.
APV'D.

TITLE INITIAL GESC PLAN
4480 South Holly
In Sec. 8, Township 5 South, Range 67 West, 6th P.M., Arapahoe County, Colorado.

CLIENT Designs By Sundown

Sheet 2 of 4

JOB NUMBER 20-0420

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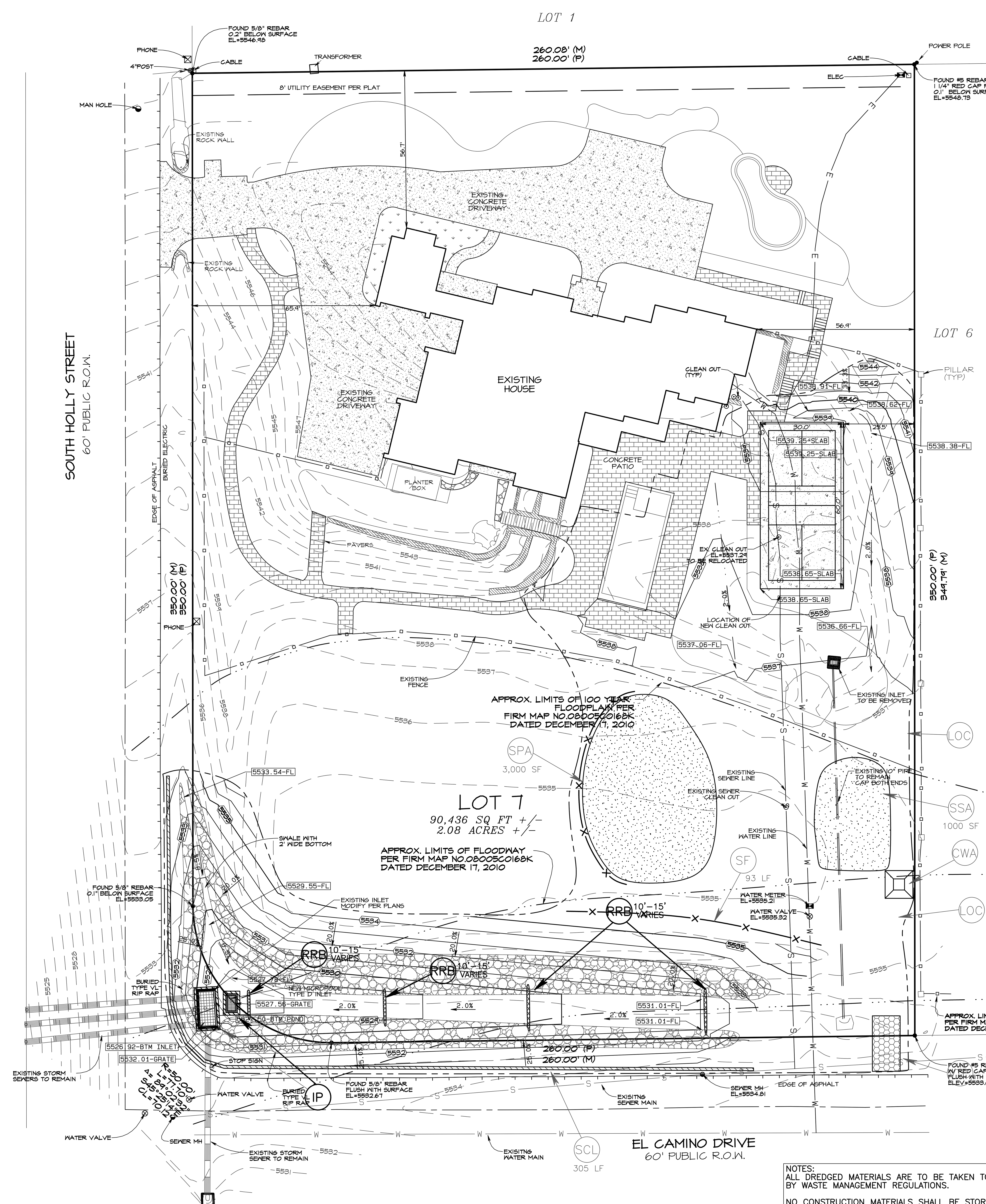

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2) SEE SEMSWA STANDARD NOTES AND DETAILS (SHEET 1 OF 4) FOR LEGEND OF NAMES AND SYMBOLS.
3) SHADED CONTROL MEASURES WERE INSTALLED IN THE INITIAL STAGE AND SHALL BE LEFT IN PLACE IN THE INTERIM STAGE UNLESS OTHERWISE NOTED.
4) CONTROL MEASURES, INCLUDING SEEDING AND MULCHING OF DISTURBED AREAS, MUST BE COMPLETED WITHIN 14 DAYS IF THE AREAS WILL REMAIN UNDISTURBED FOR A PERIOD GREATER THAN 30 DAYS.
5) ALL PROPOSED SLOPES ON THIS PLAN HAVE A MAXIMUM SLOPE OF 4:1. ANY SLOPES BETWEEN 3:1 AND 4:1 WILL REQUIRE THE USE OF EROSION CONTROL BLANKETS OR FLEXIBLE GROWTH MEDIUM, AS APPROVED BY SEMSWA INSPECTOR.
6) SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS DETENTION FACILITIES, WATER QUALITY FACILITIES, CULVERTS, STORM DRAINS, AND INLET AND OUTLET PROTECTION.
7) IF SITE RUNOFF ENTERS THE POST-CONSTRUCTION PERMANENT CONTROL MEASURE(S), SEDIMENT CONTAMINATION OF THE MATERIALS MAY RESULT IN THE POST-CONSTRUCTION PERMANENT CONTROL MEASURE(S) HAVING TO BE RECONSTRUCTED IN ITS ENTIRETY. (WHERE APPLICABLE) REMOVAL OF SEDIMENT BASINON SITE SHALL ONLY OCCUR AFTER ALL AREAS TRIBUTARY TO THE SEDIMENT BASIN HAVE BEEN STABILIZED. REMOVAL MUST BE APPROVED BY SEMSWA.
8) PRIOR TO THE IMPORT/EXPORT OF MATERIAL THE CONTRACTOR MUST COORDINATE WITH THE SEMSWA STORMWATER INSPECTOR. THE BORROW/FILL SITE IF WITHIN SEMSWA BOUNDARIES MAY REQUIRE AN ADDITIONAL APPROVED GESC PERMIT, PLANS, AND/OR REPORT. ADDITIONALLY THE HAUL ROUTE, AMOUNT OF TRUCKS, AND NUMBER OF TRIPS WILL NEED TO BE COORDINATED WITH THE SEMSWA STORMWATER INSPECTOR.
9) ASPHALT AND CONCRETE "TAILINGS" FROM SAWCUT OPERATIONS SHALL BE CLEANED USING A VACUUM-TYPE STREET SWEEPER, A BRUSH STYLE STREET SWEEPER, OR MANUALLY USING SHOVELS AND BROOMS. PAVEMENT SHALL NOT BE WASHED WITH WATER AT ANY TIME UNLESS ALL WATER IS CONTAINED AND COLLECTED AND IS NOT ALLOWED TO DRAIN INTO EXISTING STORM CONVEYANCES, ON OR OFF SITE.

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INTERIM GESC PLAN

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NOTE:
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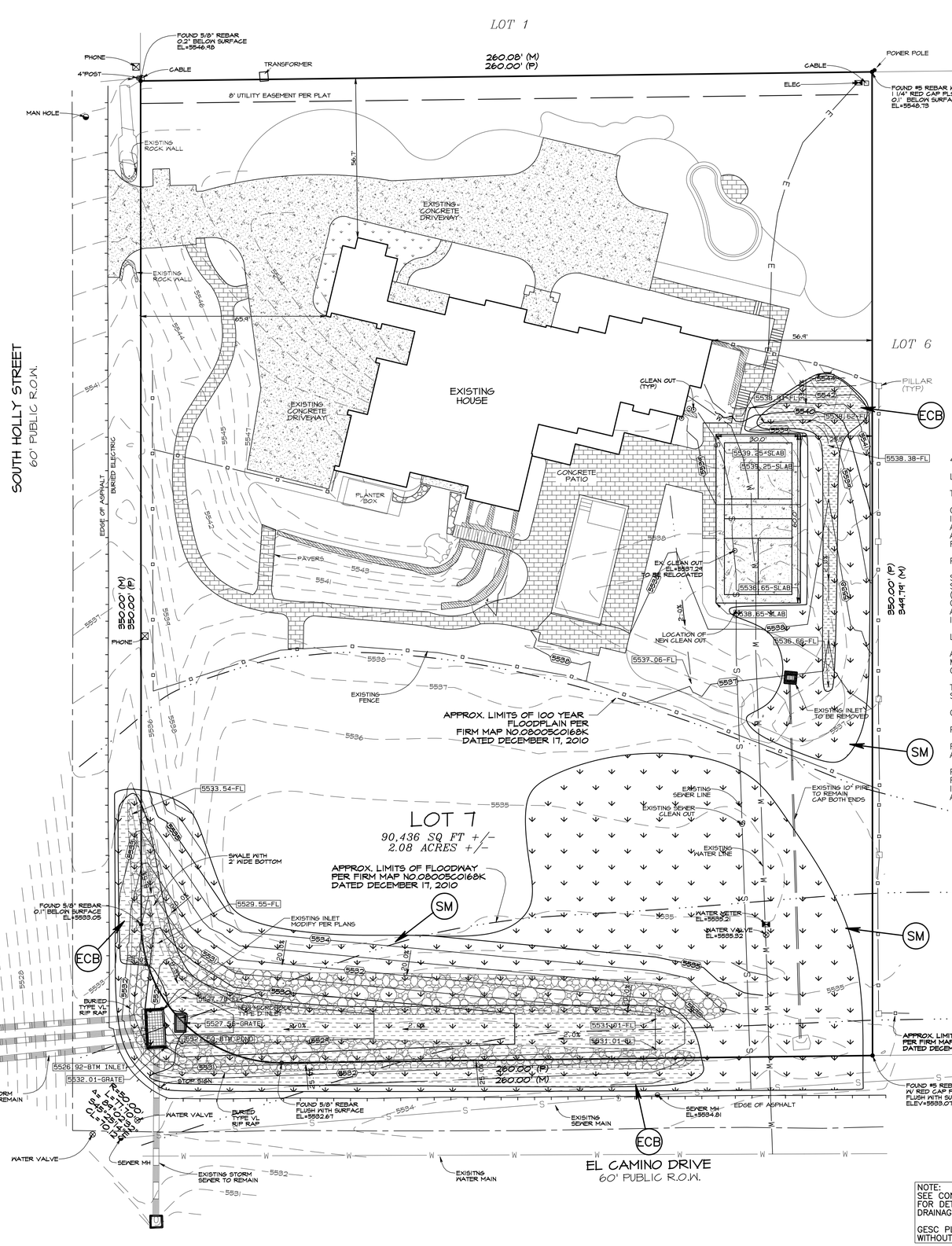
105 WILCOX ST. CASTLE ROCK, COLORADO 80104

SCALE 1"=30'
DATE 04/02/25
DR'N. ZET CKD.
AP'VD.

TITLE INTERIM GESC PLAN
4480 South Holly
In Sec. 8, Township 5 South, Range 67 West, 6th P.M., Arapahoe County, Colorado.

CLIENT Designs By Sundown

JOB NUMBER 24-0902



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NOTE:
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SEEDING & MULCHING: 26,330 SF

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ZACHARY E THATCHER PE NO. 64656

NOTE:
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GESC PLANS ARE NOT COMPLETE WITHOUT THE GESC REPORT

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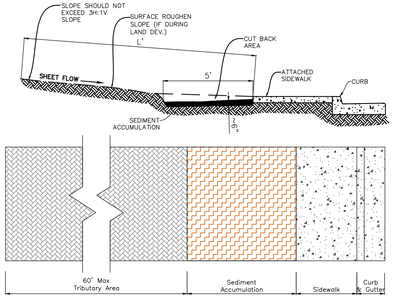
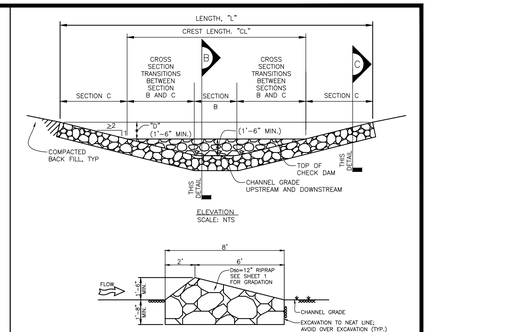
In Sec. 8, Township 5 South, Range 67 West, 6th P.M., Arapahoe County, Colorado.

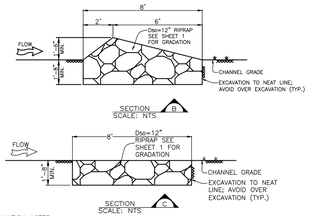
CLIENT Designs By Sundown

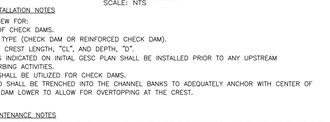
Sheet 4 of 4

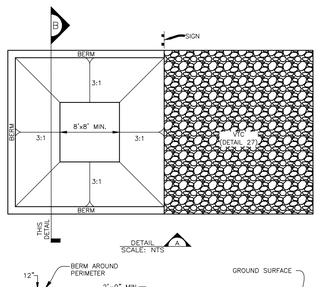
JOB NUMBER 24-0902

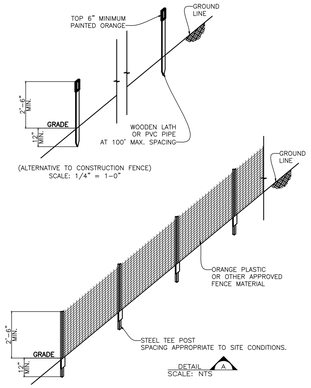


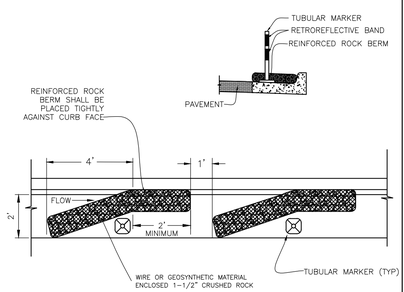


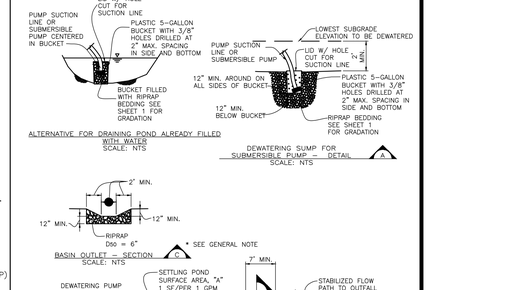


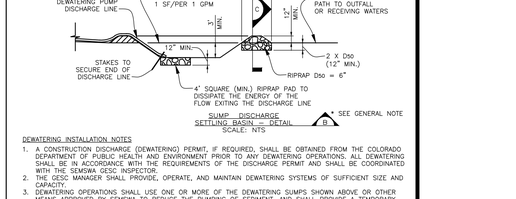












GRADING, EROSION, AND SEDIMENT CONTROL (GESC) GENERAL NOTES

1. THE SOUTHEAST METRO STORMWATER AUTHORITY (SEMSWA) LAND DEVELOPMENT REVIEW MANAGER SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES SEMSWA HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE GRADING, EROSION AND SEDIMENT CONTROL (GESC) MANUAL. THE LAND DEVELOPMENT REVIEW MANAGER THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.

2. THE ADEQUACY OF THIS GESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER. CHANGES TO DESIGN INTENT THAT MEET THE DEFINITION OF MAJOR MODIFICATIONS MUST GO THROUGH ORIGINAL DESIGN ENGINEER.

3. THE GESC PLAN SHALL BE CONSIDERED VALID FOR TWO (2) YEARS FROM THE DATE OF ACCEPTANCE BY SEMSWA, AFTER WHICH TIME THE PLAN SHALL BE VOID AND WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY SEMSWA. PLANS MUST CONFORM TO CURRENT REQUIREMENTS.

4. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY SEMSWA'S INSPECTION DIVISION. SEMSWA RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE GESC MANUAL, GESC PLAN OR GESC PERMIT.

5. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE ACCEPTED GESC PLAN AND THE SEMSWA GESC MANUAL.

6. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL MEASURES FROM THE SEMSWA – ACCEPTED GESC PLAN WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF SEMSWA.

7. UPON RECEIVING THE APPROVED, SIGNED AND STAMPED GESC PLANS AND REPORT, THE CONTRACTOR MAY INSTALL THE NON-EARTH DISTURBING INITIAL-STAGE EROSION AND SEDIMENT CONTROL MEASURES INDICATED ON THE ACCEPTED GESC PLAN.

8. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL MEASURES, THE PERMITTEE SHALL CALL THE INSPECTION DIVISION TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE NO LESS THAN 24 HOURS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.

9. IN ADDITION TO THE SEMSWA INSPECTOR AND GESC MANAGER, THE FOLLOWING REPRESENTATIVES SHOULD ATTEND: GENERAL CONTRACTOR, OWNER, OR OWNER'S REPRESENTATIVE AND GRADING SUBCONTRACTOR. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE INSTALLATION OF THE INITIAL CONTROL MEASURES ARE NOT APPROVED BY THE SEMSWA INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH CONTROL MEASURE INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION.

10. CONSTRUCTION SHALL NOT BEGIN UNTIL THE SEMSWA INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL CONTROL MEASURES AND THE APPROVED GESC PERMIT HAS BEEN ISSUED BY SEMSWA AND IS IN-HAND ON THE SITE. THE COMPLETED PERMIT WILL GENERALLY BE FIELD ISSUED OR ISSUED VIA EMAIL AFTER THE INSTALLATION OF THE INITIAL CONTROL MEASURES ARE APPROVED.

11. THE GESC MANAGER SHALL STRICTLY ADHERE TO THE SEMSWA APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE SEMSWA INSPECTION DIVISION MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE INSPECTION DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION/ DISTURBANCE ARE NEEDED.

12. THE MAXIMUM AREA OF CONSTRUCTION SHALL BE LIMITED TO 40 ACRES (70 ACRES IF APPROVED FOR SOIL MITIGATION OPERATIONS) TO REDUCE THE AMOUNT OF LAND DISTURBED AT ANY ONE TIME. LARGER SITES SHALL BE DIVIDED INTO PHASES THAT ARE EACH 40 (OR 70) ACRES OR LESS IN SIZE. THESE PROJECTS SHALL CONDUCT GRADING ACTIVITIES IN ACCORDANCE WITH THE ACCEPTED GESC PLAN. CONTROL MEASURE INSTALLATION AND APPROVAL BY SEMSWA AT THE START AND COMPLETION OF EACH PHASE SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE GESC MANUAL.

13. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.

14. THE GESC PERMIT SHALL BE VALID FOR A PERIOD OF TWO (2) YEARS.

15. A COPY OF THE GESC PERMIT AND APPROVED GESC PLANS SHALL BE ON SITE OR MADE AVAILABLE UPON REQUEST.

16. THE GESC MANAGER SHALL BE RESPONSIBLE PARTY FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE WITH THE GESC PERMIT AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH SEMSWA FOR ALL MATTERS PERTAINING TO THE GESC PERMIT. THE GESC MANAGER SHALL BE ON THE SITE AS NECESSARY TO ENSURE THE GESC REQUIREMENTS ARE BEING IMPLEMENTED, AND (ALONG WITH THE ALTERNATE GESC MANAGER) SHALL PROVIDE SEMSWA WITH A 24-HOUR EMERGENCY CONTACT NUMBER. IN THE EVENT THAT THE CONTRACTOR'S GESC MANAGER IS NOT ON SITE AND CANNOT BE REACHED DURING A VIOLATION, THE ALTERNATE GESC MANAGER SHALL BE CONTACTED. IF NEITHER THE GESC MANAGER NOR ALTERNATE GESC MANAGER CAN BE CONTACTED DURING ANY VIOLATION, WITHIN 24 HOURS, VIOLATION MAY BE ISSUED TO THE PERMITTE(S).

17. ALL CONSTRUCTION TRAFFIC MUST EXIT THE SITE THROUGH THE SEMSWA-APPROVED ACCESS POINT. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL EXIT POINTS ON THE SITE. ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE SEMSWA INSPECTION DIVISION.

18. THE GESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS INCLUDING STREETS ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED, WITH A STREET SWEEPER OR SIMILAR DEVICE, AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE SEMSWA GESC INSPECTOR. STREET WASHING IS NOT ALLOWED. SEMSWA RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.

19. APPROVED EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE GESC MANAGER SHALL INSPECT ALL CONTROL MEASURES IN ACCORDANCE WITH THE ACCEPTED GESC PLAN AND GESC MANUAL. ALL NECESSARY MAINTENANCE AND REPAIR ACTIVITIES SHALL BE COMPLETED WITHIN 48 HOURS. ACCUMULATED SEDIMENT AND CONSTRUCTION DEBRIS SHALL BE REMOVED AND PROPERLY DISPOSED.

20. STRAW BALES ARE NOT A SEMSWA GESC-ACCEPTED SEDIMENT CONTROL MEASURE.

21. TOPSOIL SHALL BE STRIPPED AND STOCKPILED IN THE LOCATION SHOWN ON THE ACCEPTED GESC PLAN. THE TOPSOIL STOCKPILE(S) SHALL FOLLOW ALL STOCKPILING CRITERIA DESCRIBED IN THE GESC MANUAL. TOPSOIL SHALL BE REPLACED AT A MINIMUM DEPTH OF 6 INCHES. IF A MINIMUM DEPTH OF 6 INCHES CAN NOT BE OBTAINED, ADDITIONAL TOPSOIL AND/ OR APPROVED SOIL AMENDMENTS WILL BE REQUIRED TO BE PLACED PRIOR TO SEEDING AND MULCHING.

22. THE ACCEPTED GESC PLAN MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. THE GESC MANAGER SHALL OBTAIN PRIOR APPROVAL FOR MAJOR MODIFICATIONS FROM THE DESIGN ENGINEER AND SEMSWA FOR ANY PROPOSED CHANGES.

23. LINING OF TEMPORARY SWALES AND DITCHES SHALL BE IN ACCORDANCE WITH THE GESC MANUAL.

24. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE GESC MANAGER. THE GESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.

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

26. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDED AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY SEMSWA.

27. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND SEMSWA. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER AS WELL AS THE CDPHE. CONTACT INFORMATION FOR CDHPE, SEMSWA AND THE NATIONAL RESPONSE CENTER CAN BE FOUND IN APPENDIX A. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER. TO REPORT SPILLS TO SEMSWA CALL 303-858-8844.

28. ALL WORK ON SITE SHALL STAY A MINIMUM OF ONE HUNDRED (100) FEET AWAY FROM ANY DRAINAGE WAY, WETLAND, ETC. UNLESS OTHERWISE NOTED ON AN ACCEPTED SEMSWA GESC PLAN.

29. THE USE OF REBAR, STEEL STAKES STAPLES, OR STEEL FENCE POSTS FOR STAKING OR SUPPORT OF ANY EROSION OR SEDIMENT CONTROL MEASURE IS PROHIBITED (EXCEPT STEEL TEE-POSTS FOR USE IN SUPPORTING CONSTRUCTION FENCE).

30. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.

31. ALL DEWATERING ON SITE SHALL BE COORDINATED WITH A SEMSWA GESC INSPECTOR AND BE FREE OF SEDIMENT IN ACCORDANCE WITH THE GESC MANUAL, AND STATE OF COLORADO DEWATERING PERMIT.

32. ALL PERMANENT INSTALLATIONS OF PIPES FOR STORM SEWERS, SLOPE DRAINS, AND CULVERTS, TOGETHER WITH RIPRAP APRONS OR OTHER INLET AND OUTLET PROTECTION, REQUIRE INSPECTION BY SEMSWA (SEPARATE FROM GESC INSPECTIONS).

33. ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE GESC MANUAL WITHIN 14 DAYS OF SUBSTANTIAL COMPLETION OF GRADING, INCLUDING AREAS TO REMAIN DORMANT FOR LONGER THAN 30 DAYS, WHICHEVER IS LESS. THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.

34. HYDRAULIC SEEDING IS NOT AN ACCEPTABLE METHOD OF SEEDING WITHIN THE SEMSWA SERVICE AREA.
35. HYDRO-MULCH MAY BE USED FOR LIMITED APPLICATIONS AS APPROVED BY SEMSWA.
36. UTILITY LINE INSTALLATION SHALL COMPLY WITH THE FOLLOWING CRITERIA:
- ALL UTILITY WORK WITHIN A RIGHT-OF-WAY SHALL BE REQUIRED TO OBTAIN A RIGHT-OF-WAY USE AND CONSTRUCTION PERMIT IN ACCORDANCE WITH THE APPROPRIATE STANDARDS.
- PROVIDE ADEQUATE EROSION AND SEDIMENT CONTROLS.
- AT THE END OF A WORK DAY, NO TRENCH SHALL BE LEFT OPEN AND BACKFILL MUST BE COMPLETED TO GRADE.
- WHERE CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS, EXCAVATED MATERIAL IS TO BE PLACED ON THE UPHILL SIDE OF TRENCHES.
- AT NO TIME SHALL EXCAVATED MATERIAL BE PLACED ON THE STREET.
- TRENCH DEWATERING DEVICES MUST DISCHARGE IN A MANNER THAT WILL NOT EFFECT STREAMS, WETLANDS, DRAINAGE SYSTEMS, OR OFF-SITE PROPERTY. DISCHARGE FROM TRENCH SHALL BE FREE OF ANY SEDIMENT. A RIPRAP PAD SHALL BE PLACED AT THE DISCHARGE END OF THE HOSE TO PREVENT ANY ADDITIONAL EROSION.
- STORM SEWER INLET PROTECTION SHALL BE PROVIDED WHENEVER SOIL EROSION FROM THE EXCAVATED AREA HAS POTENTIAL OF ENTERING THE STORM DRAINAGE SYSTEM.
- ALL DISTURBED AREAS SHALL BE DRILL SEEDED AND CRIMP MULCHED WITHIN FIVE DAYS AFTER UTILITY INSTALLATION IS COMPLETED.
- ALL OTHER APPLICABLE CRITERIA AS OUTLINED IN THE GESC MANUAL.

37. ALL SINGLE-FAMILY RESIDENTIAL DEVELOPMENT PROJECTS SHALL COMPLY WITH THE GESC CRITERIA AS PRESENTED IN THE GESC MANUAL.
38. NO RECYCLED ASPHALT SHALL BE USED AS A CONTROL MEASURE. RECYCLED CONCRETE MUST BE APPROVED BY SEMSWA.
39. SEMSWA MAY ALLOW THE INSTALLATION OF ALTERNATIVE CONTROL MEASURES OTHER THAN THE GESC PLAN STANDARD NOTES AND DETAILS. IF ALTERNATIVE EROSION AND SEDIMENT CONTROL MEASURES WILL BE USED, CUT SHEETS MUST BE SUBMITTED TO THE SEMSWA INSPECTOR.
40. IF YOU ARE EXPORTING EXCESS DIRT WITHIN THE SEMSWA SERVICE AREA,YOU WILL BE REQUIRED TO OBTAIN A GESC PERMIT FOR THE SECONDARY SITE.

LEGEND

1	①	CBC	CUT BACK CURB
2	①	CD	CHECK DAM
3	①	CWA	CONCRETE WASHOUT AREA
4	①	CF	CONSTRUCTION FENCE
5	①	CM	CONSTRUCTION MARKERS
6	①	CS	CURB SOCK
7	①	DW	DEWATERING
8	②	DD	DIVERSION DITCH
9	②	ECB	EROSION CONTROL BLANKET
10	②	FGM	FLEXIBLE GROWTH MEDIUM
11	②	GMS	GROUT MIXING STATION
12	②	IP	INLET PROTECTION
13	②	RCD	REINFORCED CHECK DAM
14	②	RRB	REINFORCED ROCK BERM
15	②	RRC	RRB FOR CULVERT PROTECTION
16	③	SB	SEDIMENT BASIN
17	③	SCL	SEDIMENT CONTROL LOG
18	③	ST	SEDIMENT TRAP
19	③	SM	SEEDING AND MULCHING
20	③	SF	SILT FENCE
21	③	SFR	SILT FENCE REINFORCED
22	④	SID	SLOPE INTERCEPT DITCH
23	④	SSA	STABILIZED STAGING AREA
24	④	SR	SURFACE ROUGHENING
25	④	TSD	TEMPORARY SLOPE DRAIN
26	④	TSC	TEMPORARY STREAM CROSSING
27	④	VTC	VEHICLE TRACKING CONTROL
28	④	WW	VTC WITH WHEEL WASH
		LOC	LIMITS OF CONSTRUCTION
		*EG	MAY MEET MAJOR MODIFICATION REQUIREMENTS

ROCK AND RIPRAP GRADATIONS

TABLE 1. RIPRAP GRADATIONS

D50 MEDIAN STONE SIZE (INCHES)	% OF MATERIAL SMALLER THAN TYPICAL STONE	TYPICAL STONE EQUIVALENT DIAMETER (INCHES)	TYPICAL STONE WEIGHT (POUNDS)
6	70 – 100	12	85
	50 – 70	9	35
	35 – 50	6	10
	2 – 10	2	0.4
9	70 – 100	15	160
	50 – 70	12	85
	35 – 50	9	35
	2 – 10	3	1.3
12	70 – 100	21	440
	50 – 70	18	275
	35 – 50	12	85
	2 – 10	4	3
18	100	30	1280
	50 – 70	24	650
	35 – 50	18	275
	2 – 10	6	10
24	100	42	3500
	50 – 70	33	1700
	35 – 50	24	650
	2 – 10	9	35

TABLE 2. RIPRAP BEDDING

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	CLASS A
3"	100
1 1/2"	20 – 90
NO. 4	0 – 20
NO. 200	0 – 3
MATCHES SPECIFICATIONS FOR CDOT CLASS A FILTER MATERIAL AND UDFCD TYPE 1 BEDDING. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

DESCRIPTION AND PURPOSE
- A TEMPORARY SEDIMENT BARRIER AND TRAP FORMED BY EXCAVATION BEHIND CURB OR SIDEWALK TO RETAIN SEDIMENT ON SITE DURING CONSTRUCTION.

SUITABLE APPLICATIONS
- DURING LAND DEVELOPMENT AFTER PAVING OR DURING VERTICAL CONSTRUCTION.
- USE IN TREE LAWNS OR IN LANDSCAPE ISLAND.
- USE SURFACE ROUGHENING ON UPGRADIENT SLOPES IF DURING LAND DEVELOPMENT.

SIZING
- SEDIMENT ACCUMULATION VOLUME IS SIZED PER 1800CF/AC OF TRIBUTARY AREA. 5' WIDTH AND 6" DEPTH IS ACCEPTABLE FOR TRIBUTARY SHEET FLOW UP TO 60 LF. TRIBUTARY SHEET FLOW OVER 60 LF MUST COMPUTE CUSTOM SEDIMENT ACCUMULATION BASIN.

LIMITATIONS
- NOT FOR USE EXCEEDING 3H:1V SLOPES.
- NOT FOR USE FOR CONCENTRATED FLOW AREAS.
- PROLONGED STANDING WATER MAY AFFECT SUB-BASE OF PAVING AND COULD CAUSE SOIL TO SETTLE AND POTENTIALLY DAMAGE CONCRETE.

INSPECTION AND MAINTENANCE
- THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
- REMOVE ACCUMULATED SEDIMENT WHEN 1/2 CAPACITY. DO NOT ALLOW SEDIMENT TO OVERFLOW ONTO CURB OR SIDEWALK.
- IMPLEMENT ADDITIONAL CONTROL MEASURES SUCH AS DOWNGRADIENT
- SEDIMENT CONTROL LOGS, CURB CHECKS, OR OTHER BARRIERS AS ON-SITE CONDITIONS REQUIRE.

CBC CUT BACK CURB (1)

CHECK DAM INSTALLATION NOTES
1. SEE PLAN VIEW FOR:
- LOCATIONS OF CHECK DAMS.
- CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
- LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
2. CHECK DAMS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
3. VL RIPRAP SHALL BE UTILIZED FOR CHECK DAMS.
4. RIP RAP PAD SHALL BE TRENCHED INTO THE CHANNEL BANKS TO ADEQUATELY ANCHOR WITH CENTER OF THE CHECK DAM LOWER TO ALLOW FOR OVERTOPPING AT THE CREST.

CHECK DAM MAINTENANCE NOTES
1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
3. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY SEMSWA.
4. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL. ANY DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

CD CHECK DAM (2)

CONCRETE WASHOUT AREA INSTALLATION NOTES
1. SEE PLAN VIEW FOR LOCATIONS OF CONCRETE WASHOUT AREA.
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL (VTC) (DETAIL 27) IS REQUIRED AT THE ACCESS POINT. THE VTC CAN BE REMOVED AT THE DISCRETION OF THE SEMSWA INSPECTOR.
4. SIGNAGE SHALL BE PLACED AT THE WASHOUT AREA, AND MAY BE ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL MAY BE UTILIZED IN PERIMETER BERM CONSTRUCTION.
6. CONCRETE WASHOUT MUST BE LINED IN AREAS WITH HIGH GROUNDWATER. LINERS MUST BE 30 MIL OR GREATER.

CONCRETE WASHOUT AREA MAINTENANCE NOTES
1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
2. AS NEEDED DURING CONSTRUCTION, AND AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.
4. INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.

GENERAL NOTE:

USE OF PROPRIETARY CONCRETE WASHOUT SYSTEM MAY BE CONSIDERED IF APPROVED BY SEMSWA INSPECTOR PRIOR TO USE.

CWA CONCRETE WASHOUT AREA (3)

CONSTRUCTION FENCE INSTALLATION NOTES
1. SEE PLAN VIEW FOR:
- TYPE OF CONSTRUCTION LIMIT INDICATOR (FENCE OR MARKERS).
- LOCATION AND LENGTH OF FENCE OR LINE OF MARKERS.
2. CONSTRUCTION FENCE OR MARKERS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO OTHER CONTROL MEASURES AND ANY LAND-DISTURBING ACTIVITIES.
3. STEEL TEE POSTS SHALL BE UTILIZED FOR SUPPORT OF CONSTRUCTION FENCE. SPACING OF TEE POSTS SHALL BE APPROPRIATE TO SITE CONDITIONS.

CONSTRUCTION FENCE MAINTENANCE NOTES
1. ANY DAMAGED FENCE OR MARKERS SHALL BE REPAIRED ON A DAILY BASIS.
2. FENCE OR MARKERS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER FENCE REMOVAL, IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

CF CONSTRUCTION FENCE (4)

CM CONSTRUCTION MARKERS (5)

CURB SOCK ON CONTINUOUS GRADE
SCALE: NTS

CURB SOCK INSTALLATION NOTES
1. ADDITIONAL CURB SOCKS MAY BE REQUIRED AS DIRECTED BY SEMSWA.
2. CURB SOCKS IN STREETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING CURBS. CURB SOCKS (AFTER PAVEMENT) SHALL BE INSTALLED WITHIN 48 HOURS AFTER PAVING IS PLACED.
3. CRUSHED ROCK SHALL BE FRACTURED FACE ON ALL SIDES.
4. WIRE MESH SHALL BE FABRICATED OF WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT APPROXIMATELY 6-INCH CENTERS ALONG ALL JOINTS AND AT APPROXIMATELY 2-INCH CENTERS ON ENDS OF BERM.
6. REINFORCED ROCK BERM SHALL BE CONSTRUCTED IN ONE PIECE OR SHALL BE CONSTRUCTED USING JOINT DETAIL.
7. EXAMPLES OF ACCEPTABLE GEOSYNTHETIC MATERIAL: TENCATE MIRAFI 'MIRAGRID 2XT'; STRATA GLOBAL SOLUTIONS 'STRATAGRID SG 150'. SOLID FABRIC OPTIONAL.
8. THE TOP OF REINFORCED ROCK BERM SHALL BE 1/2"–1" BELOW TOP OF CURB.

CURB SOCK MAINTENANCE NOTES
1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF CURB SOCK SHALL BE REMOVED WHEN THERE IS EVIDENCE OF SIGNIFICANT SEDIMENT BUILDUP.
3. CURB PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED, UNLESS SEMSWA APPROVES EARLIER REMOVAL OF CURB PROTECTION IN STREETS.

CS CURB SOCKS (6)

DEWATERING INSTALLATION NOTES
1. A CONSTRUCTION DISCHARGE (DEWATERING) PERMIT, IF REQUIRED, SHALL BE OBTAINED FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT PRIOR TO ANY DEWATERING OPERATIONS. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DISCHARGE PERMIT AND SHALL BE COORDINATED WITH THE SEMSWA GESC INSPECTOR.
2. THE GESC MANAGER SHALL PROVIDE, OPERATE, AND MAINTAIN DEWATERING SYSTEMS OF SUFFICIENT SIZE AND CAPACITY.
3. DEWATERING OPERATIONS SHALL USE ONE OR MORE OF THE DEWATERING SUMPS SHOWN ABOVE OR OTHER MEANS APPROVED BY SEMSWA TO REDUCE THE PUMPING OF SEDIMENT, AND SHALL PROVIDE A TEMPORARY BASIN FOR SETTLING PUMPED DISCHARGES PRIOR TO RELEASE OFF SITE OR TO A RECEIVING WATER. SEDIMENT BASIN PER DETAIL 14 MAY BE USED IN LIEU OF SUMP DISCHARGE SETTLING BASIN SHOWN ABOVE.
4. DISCHARGE POINT SHALL BE A STABILIZED AREA..
5. THE DISCHARGE END OF THE LINE SHALL BE STAKED IN PLACES TO PREVENT MOVEMENT OF THE LINE OFF THE STABILIZED DISCHARGE POINT.

DEWATERING MAINTENANCE NOTES
1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. TEMPORARY SETTLING BASINS SHALL BE REMOVED WHEN NO LONGER NEEDED FOR DEWATERING OPERATIONS. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

GENERAL NOTE:

USE OF A SEDIMENT FILTER BAG MAY BE SUBSTITUTED FOR USE OF THE RIPRAP PAD AND SUMP DISCHARGE SETTLING BASIN. FILTER BAG TO SET ON RELATIVELY FLAT STABLE GROUND.

DW DEWATERING (7)

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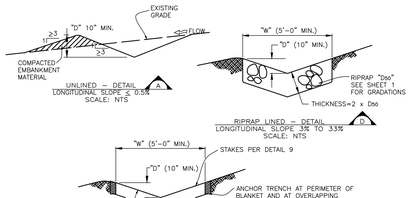
ARAPAHOE COUNTY
COLORADO'S FIRST

GRADING EROSION AND SEDIMENT CONTROL
STANDARD NOTES AND DETAILS
REVISED FEBRUARY 2023

GESC
SHEET
1 OF 4



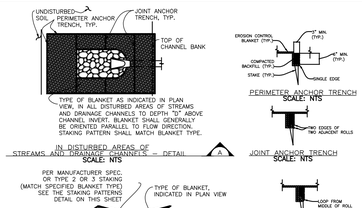
DIVERSION DITCH INSTALLATION NOTES

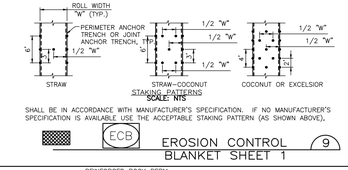
1. SEE PLAN VIEW FOR:
   - LOCATION OF DIVERSION DITCH.
   - TYPE OF DITCH (UNLINED, ECB LINED, PLASTIC LINED OR RIPRAP LINED).
   - LENGTH OF EACH TYPE OF DITCH.
   - DEPTH, "D", AND WIDTH, "W" DIMENSIONS.
   - FOR ECB LINED DITCH, EROSION CONTROL BLANKET TYPE (SEE DETAIL 9).
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, "Dso".
2. SEE DRAINAGE PLANS FOR DETAILS OF ANY PERMANENT CONVEYANCE FACILITIES OR DIVERSION DITCHES EXCEEDING A 2-YEAR FLOW RATE OF 10 CFS.
3. DIVERSION DITCHES INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITIES.
4. FOR ECB LINED DITCHES, INSTALLATION OF EROSION CONTROL BLANKET SHALL CONFORM TO THE REQUIREMENTS OF DETAIL 9.
5. IN LOCATIONS WHERE CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION DITCH, THE PERMITTEES SHALL INSTALL A TEMPORARY CULVERT.

DIVERSION DITCH MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. DIVERSION DITCHES ARE TO REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, OR, IF APPROVED BY SEMSWA, LEFT IN PLACE.
3. IF DIVERSION DITCHES ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

DD — DIVERSION DITCH — 8





SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. IF NO MANUFACTURER'S SPECIFICATION IS AVAILABLE USE THE ACCEPTABLE STAKING PATTERN (AS SHOWN ABOVE).

ECB — EROSION CONTROL BLANKET SHEET 1 — 9

EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.
   - TYPE OF BLANKET (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
   - AREA "A" IN SQUARE YARDS OF EACH TYPE OF BLANKET.
2. ALL EROSION CONTROL BLANKETS, STAKES, AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL; NO PLASTIC OR OTHER SYNTHETIC MATERIAL, INCLUDING PHOTO-DEGRADABLE, SHALL BE ALLOWED.
3. IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE BLANKET IN ACCORDANCE WITH THE REQUIREMENTS OF DETAIL 19, SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS. FOLLOW ALL MANUFACTURES INSTALLATION SPECIFICATIONS.
5. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF THE ROLL LENGTH FOR COCONUT AND EXCELSIOR BLANKETS.
6. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKET SHALL CONFORM TO TABLE 7.1.
7. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKET SHALL BE RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 19.
8. SEE DRAINAGE DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION MEASURES THAT MAY EXCEED THE DESIGN CONDITIONS ASSOCIATED WITH THE DETAILS ABOVE.

TABLE 7.1 — EROSION CONTROL BLANKET TYPE

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

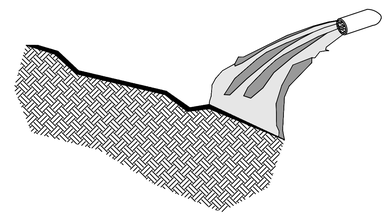
* FOR OUTSIDE OF STREAMS AND DRAINAGE CHANNELS

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY SEMSWA.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED. ANY SUBGRADE AREAS BELOW THE BLANKET 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.
4. REMOVAL OF 2X4 WEDGE STAKES MAY BE REQUIRED PRIOR TO FINAL CLOSE OUT OF THE GESC PERMIT.

GENERAL NOTE:
ECO-STAKES MAY BE USED IN AREAS ABOVE ORDINARY HIGH WATER MARK.

ECB — EROSION CONTROL BLANKET SHEET 2 — 9



GENERAL GUIDELINES FOR APPLICATION RATES FOR SLOPE INSTALLATIONS	
SLOPE CONDITION	APPLICATION RATE
≤3H:1V	3000 LB/ACRE

FLEXIBLE GROWTH MEDIUM INSTALLATION NOTES:

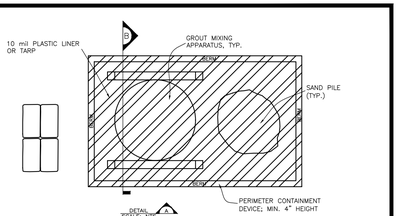
1. IN AREAS WHERE THE FLEXIBLE GROWTH MEDIUM IS SHOWN ON THE PLANS, THE PERMITTEE(S) SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE BLANKET IN ACCORDANCE WITH THE GESC PLAN STANDARD NOTES AND DETAILS; SEEDING AND MULCHING. APPLY THE FLEXIBLE GROWTH MEDIUM TO GEOTECHNICALLY STABLE SLOPES THAT HAVE BEEN DESIGNED AND CONSTRUCTED TO DIVERT RUNOFF AWAY FROM THE FACE OF THE SLOPE. DO NOT PROCEED WITH INSTALLATION UNTIL SATISFACTORY CONDITIONS ARE ESTABLISHED.
2. HYDROSEEDING IS NOT ALLOWED. PLEASE FOLLOW SEED AND MULCH DETAIL (DETAIL 19).
3. MIX AND APPLY PER MANUFACTURERS DETAILS. FRESHLY SEEDED SURFACES AND DO NOT LEAVE SEEDED SURFACES UNPROTECTED; CONFIRM LOADING RATES WITH EQUIPMENT MANUFACTURER.
4. APPLY FGM FROM OPPOSING DIRECTIONS TO ASSURE 100% SOIL SURFACE COVERAGE. SLOPE DEVICES OR WATER DIVERSION TECHNIQUES ARE RECOMMENDED WHEN SLOPE LENGTHS EXCEED 75 FT.
5. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING FGM SHALL BE RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 19.

NOTE:
THE FLEXIBLE GROWTH MEDIUM SHOULD NOT BE APPLIED IN CHANNELS, SWALES OR OTHER AREAS WHERE CONCENTRATED FLOWS ARE ANTICIPATED, UNLESS INSTALLED IN CONJUCTION WITH A TEMPORARY EROSION CONTROL BLANKET.

FLEXIBLE GROWTH MEDIUM MAINTENANCE NOTES:

1. THE GESC MANAGER SHALL INSPECT FLEXIBLE GROWTH MEDIUMS WEEKLY AND DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
2. FLEXIBLE GROWTH MEDIUM SHALL BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE COUNTY.
3. DO NOT LEAVE SEEDED SURFACES UNPROTECTED, ESPECIALLY IF PRECIPITATION IS IMMINENT.
4. ANY DAMAGED FLEXIBLE GROWTH MEDIUM SHALL BE RE-INSTALLED.

FGM — FLEXIBLE GROWTH MEDIUM — 10



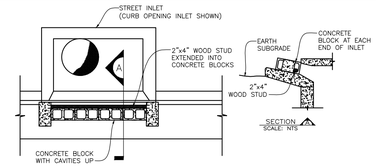
GROUT MIXING STATION INSTALLATION NOTES

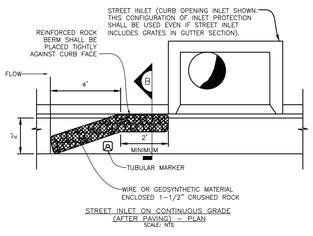
1. LOCATION TO BE DETERMINED IN THE FIELD AND SHALL BE SITUATED A MINIMUM OF 50' FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES AND WATER COURSES.
2. AREA TO BE LARGE ENOUGH TO PROVIDE ADEQUATE CONTAINMENT OFF ALL MIXING OPERATIONS.
3. MIXING AREA TO HAVE PERIMETER CONTAINMENT, A MINIMUM OF 4" IN HEIGHT. CONTAINMENT DEVICE CAN BE CONSTRUCTED OF AN EARTHEN BERM, CONCRETE BLOCKS, WOOD FRAME SECURELY FASTENED AROUND PERIMETER AREA OR OTHER APPROVED METHOD. MUST BE SIZED TO ADEQUATELY CONTAIN MIXING OPERATION.
4. EXCAVATED MATERIAL MAY BE USED IN PERIMETER BERM CONSTRUCTION.
5. MINIMUM 10 MIL PLASTIC LINER OR TARP SHALL COVER THE ENTIRE MIXING AREA SECURELY FASTENED TO THE RAISED CONTAINMENT DEVICE.

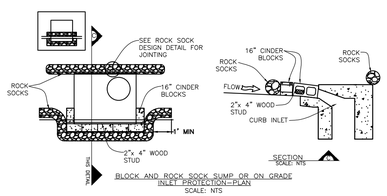
GROUT MIXING STATION MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. ALL GROUT/ MORTAR WASHOUT SHALL BE IN AN APPROVED CONCRETE WASHOUT AREA (CWA).
3. ALL MATERIALS SHALL BE STORED AND COVERED ON PALLETS ADJACENT TO THE MIXING AREA.
4. LINER AND ALL GROUT/ MORTAR WASTE RESIDUE SHALL BE PROPERLY DISPOSED OF AT THE END OF THE MIXING OPERATION.

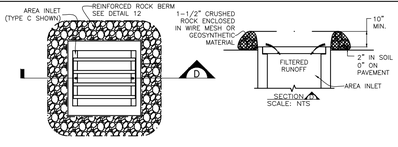
GMS — GROUT MIXING STATION — 11

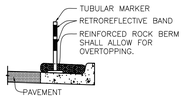






IP — INLET PROTECTION SHEET 1 — 12





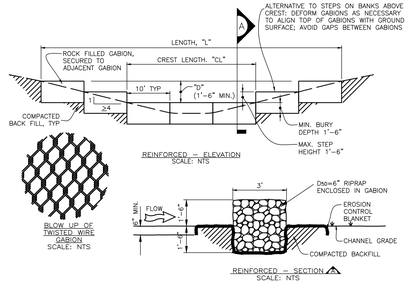
INLET PROTECTION INSTALLATION NOTES

1. INTERIM CONFIGURATION OF INLET PROTECTION IN STREETS SHALL BE INSTALLED IMMEDIATELY BEFORE POURING INLET. INLET PROTECTION (AFTER PAVEMENT) SHALL BE INSTALLED IMMEDIATELY AFTER PAVING IS PLACED.
2. INLET PROTECTION AT AREA INLETS SHALL BE INSTALLED IMMEDIATELY AFTER POURING INLET.
3. 1-1/2" CRUSHED ROCK SHALL BE FRACTURED FACE ON ALL SIDES.
4. WIRE MESH SHALL BE FABRICATED OF WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE").
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT APPROXIMATELY 6-INCH CENTERS ALONG ALL JOINTS AND AT APPROXIMATELY 2-INCH CENTERS ON ENDS OF BERM.
6. EXAMPLES OF ACCEPTABLE GEOSYNTHETIC MATERIAL: TENCATE MIRAFI "MIRAGRID 2XT"; STRATA GLOBAL SOLUTIONS "STRATAGRID SG 150". SOLID FABRIC OPTIONAL.
7. TUBULAR MARKERS SHALL BE PLACED ON EACH END OF THE INLET PROTECTION LOCATED ON STREETS WHERE PUBLIC ACCESS CAN OCCUR.
8. THE TOP OF REINFORCED ROCK BERM SHALL ALLOW FOR OVERTOPPING INTO THE INLET.

INLET PROTECTION MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED WHEN THERE IS EVIDENCE OF SIGNIFICANT SEDIMENT BUILDUP.
3. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED, UNLESS SEMSWA APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
4. WHEN INLET PROTECTION AT AREA INLETS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

IP — INLET PROTECTION SHEET 2 — 12



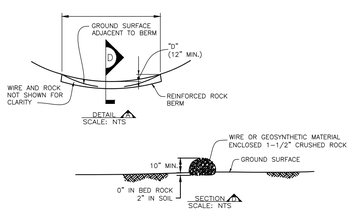
REINFORCED CHECK DAM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CHECK DAMS.
   - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM),
   - LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
2. REINFORCED CHECK DAMS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
3. REINFORCED CHECK DAM GABIONS SHALL HAVE GALVANIZED TWISTED WIRE NETTING WITH A MAXIMUM APPROPRIATE GAUGE TO WITHSTAND ANTICIPATED FLOWS. WIRE "HOG RINGS" AT 4" SPACING OR OTHER APPROVED MEANS SHALL BE USED AT ALL GABION SEAMS AND TO SECURE THE GABION TO THE ADJACENT GABION.
4. VL RIP RAP SHALL BE UTILIZED FOR CHECK DAMS.
5. RIP RAP PAD SHALL BE TRENCHED INTO THE CHANNEL BANKS TO ADEQUATELY ANCHOR WITH CENTER OF CHECK DAM LOWER TO ALLOW FOR OVERTOPPING AT THE CREST.

REINFORCED CHECK DAM MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
3. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY SEMSWA.
4. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

RCD — REINFORCED CHECK DAM — 13



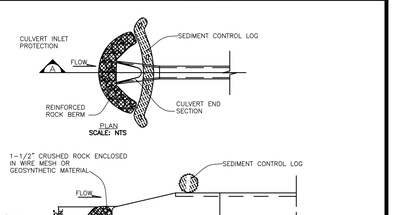
REINFORCED ROCK BERM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF REINFORCED ROCK BERMS.
   - LENGTH, "L", AND DEPTH, "D" DIMENSIONS.
2. REINFORCED ROCK BERM SECTION APPLIES TO CULVERT INLET FILTER AND INLET PROTECTION.
3. 1-1/2" CRUSHED ROCK SHALL BE FRACTURED FACE ON ALL SIDES.
4. WIRE MESH SHALL BE FABRICATED OF 10 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
6. FOR CONCENTRATED FLOW AREAS THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

REINFORCED ROCK BERM MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED ROCK BERM SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS WITHIN APPROXIMATELY 1/2 OF THE HEIGHT OF THE CREST.
3. REINFORCED ROCK BERMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED.
4. WHEN REINFORCED ROCK BERMS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

RRB — REINFORCED ROCK BERM — 14



INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF CULVERT INLET FILTERS.
   - AND DEPTH, "D".
2. 1-1/2" CRUSHED ROCK SHALL BE FRACTURED FACE ON ALL SIDES.
3. WIRE MESH SHALL BE FABRICATED OF WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE").
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT APPROXIMATELY 6-INCH CENTERS ALONG ALL JOINTS AND AT APPROXIMATELY 2-INCH CENTERS ON ENDS OF BERM.
5. THE ENDS OF THE REINFORCED ROCK BERM SHALL BE HIGHER THAN THE CENTER OF THE BERM AND ALLOW FOR ADEQUATE OVERTOPPING CAPACITY IN THE CENTER.

MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF CULVERT INLET FILTER SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS 1/2 THE HEIGHT OF THE REINFORCED ROCK BERM.
3. RRB FOR CULVERT PROTECTION ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY SEMSWA.
4. WHEN CULVERT INLET FILTERS ARE REMOVED, ANY DISTURBED AREA SHALL BE SEEDED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

RRC — RRB FOR CULVERT PROTECTION — 15

UTILITY NOTIFICATION CENTER OF COLORADO
CALL BEFORE YOU DIG
811
Call 2 days prior to any digging, grading or excavating for the marking of underground member utilities

SOUTHEAST METRO STORMWATER AUTHORITY
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GRADING EROSION AND SEDIMENT CONTROL
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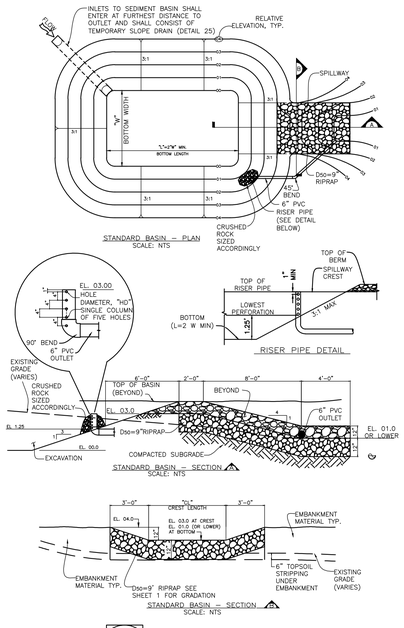
GESC SHEET 2 OF 4



SB SEDIMENT BASIN SHEET 1 16

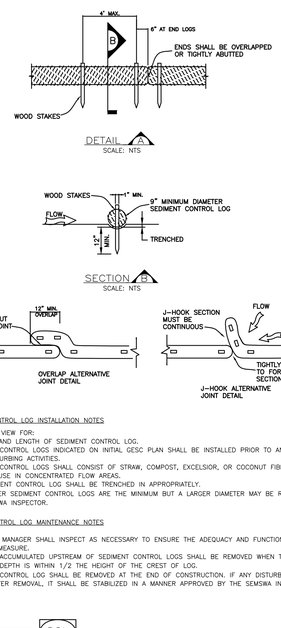
SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF SEDIMENT BASIN.
   - TYPE OF BASIN (STANDARD BASIN OR NON-STANDARD BASIN).
   - FOR STANDARD BASIN, CREST LENGTH, "CL", BOTTOM WIDTH, "W", AND HOLE DIAMETER, "HD".
   - FOR NON-STANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT, "H", NUMBER OF COLUMNS, "N", HOLE DIAMETER, "HO", AND PIPE DIAMETER "D".
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY WITHIN 2 PERCENTAGE POINTS OF OPTIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THIS SHEET PERTAIN TO STANDARD SEDIMENT BASIN(S) IDENTIFIED ON THE GESC PLAN VIEW DRAWINGS USED 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.

SEDIMENT BASIN MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT SHALL BE REMOVED FROM THE POND WHEN DESIGNED STORAGE VOLUME IS NO MORE THAN ONE-THIRD FILLED WITH SEDIMENT.
3. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY SEMSWA.
4. IF SEDIMENT BASINS ARE REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.
5. TRASH AND DEBRIS SHALL BE REMOVED FROM THE SEDIMENT BASIN TO PREVENT CLOGGING AT THE OUTLET.

SB SEDIMENT BASIN SHEET 2 16



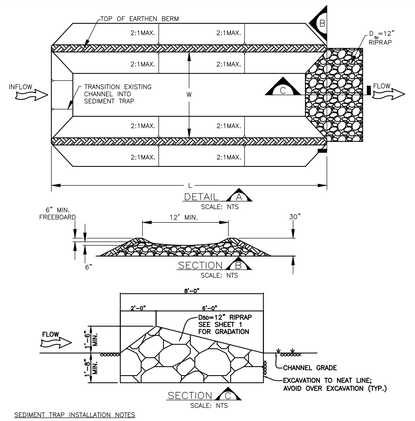
SCL SEDIMENT CONTROL LOG 17

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION AND LENGTH OF SEDIMENT CONTROL LOG.
2. SEDIMENT CONTROL LOGS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR, OR COCONUT FIBER.
4. NOT FOR USE IN CONCENTRATED FLOW AREAS.
5. THE SEDIMENT CONTROL LOG SHALL BE TRENCHED IN APPROPRIATELY.
6. 9" DIAMETER SEDIMENT CONTROL LOGS ARE THE MINIMUM BUT A LARGER DIAMETER MAY BE REQUIRED BY THE SEMSWA INSPECTOR.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOGS SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 1/2 THE HEIGHT OF THE CREST OF LOG.
3. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE STABILIZED IN A MANNER APPROVED BY THE SEMSWA INSPECTOR.



ST SEDIMENT TRAP 18

SEDIMENT TRAP INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION, LENGTH AND WIDTH OF SEDIMENT TRAP.
2. SEDIMENT TRAPS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITIES.
3. SEDIMENT TRAP BERM SHALL BE CONSTRUCTED FROM MATERIAL FROM EXCAVATION. THE BERM SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
4. RIPRAP OUTLET SHALL BE CONSTRUCTED WITH D_{50} =12" RIPRAP WITH A MINIMUM OVERFLOW OF 6".
5. THE TOP OF THE EARTHEN BERM SHALL ALLOW FOR OVERTOPPING.
6. THE ENDS OF THE RIPRAP OUTLET STRUCTURE SHALL ALLOW FOR OVERTOPPING.
7. OVERTOPPING MUST OCCUR ON A STABILIZED SURFACE TO INCLUDE WELL VEGETATED AREAS, RIP RAP, OR PAVEMENT.
8. SEDIMENT TRAP SIZED TO PROVIDE STORAGE VOLUME EQUAL TO 1800 CUBIC FEET PER UPSTREAM ACRE.

SEDIMENT TRAP MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF RIPRAP SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 1/2 THE HEIGHT OF THE RIPRAP OUTLET STRUCTURE.
3. SEDIMENT TRAPS SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVERAGE IS APPROVED BY SEMSWA.
4. WHEN SEDIMENT TRAPS ARE REMOVED THE DISTURBED AREA SHALL BE DRILLED SEEDED AND CRIMP MULCHED OR STABILIZED IN A MANNER APPROVED BY SEMSWA.

SM SEEDING AND MULCHING 19

SEEDING AND MULCHING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - – AREA OF SEEDING AND MULCHING.
   - – TYPE OF SEED MIX.
2. ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COARSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAP WEED AND LEAFY SPURGE.
3. THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY, SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO SEMSWA UPON REQUEST.
4. DRILL SEEDING MIX SHALL CONFORM TO THE TABLE BELOW: UNLESS OTHERWISE APPROVED BY SEMSWA.
5. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE CONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO CONTRACTOR AND FORWARDED TO THE SEMSWA GESC INSPECTOR.
6. THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS).
7. PERMANENT SEED MIX SHALL BE USED UNLESS OTHERWISE APPROVED BY SEMSWA.
8. ALL AREAS TO BE SEEDED AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES (LOOSE DEPTH). ALL DISTURBED AREAS SHALL BE LOOSENED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL.
9. SOIL IS TO BE THOROUGHLY LOOSENED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING. THE TOP 6 INCHES OF THE SEED BED SHALL BE GENERALLY FREE OF ROCKS GREATER THAN 4 INCHES AND SOIL CLODS GREATER THAN 2 INCHES. SEEDING OVER ANY COMPACTED AREAS THAT HAVEN'T BEEN THOROUGHLY LOOSENED SHALL BE REJECTED.
10. SEED IS TO BE APPLIED USING A MECHANICAL DRILL TO A DEPTH OF 1/4 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MULCH SHALL CONSIST OF LONG-STEMMED STRAW. AT LEAST 50 PERCENT OF THE MULCH, BY WEIGHT, SHALL BE AS LONG AS POSSIBLE IN LENGTH. MULCH SHALL BE APPLIED AND MECHANICALLY ANCHORED TO A DEPTH OF AT LEAST 3 INCHES. MULCH SHALL BE APPLIED AT A RATE OF 2000 LB. OF STRAW PER ACRE.
11. IF THE PERMITTEE DEMONSTRATES TO SEMSWA THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFORMLY BROADCAST AT TWO TIMES THE DRILLED RATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY 1/4 INCH, THEN ROLLED TO COMPACT, THEN MULCHED AS SPECIFIED ABOVE.
12. WHEN SEEDING AND MULCHING IS USED TO STABILIZED DISTURBED AREAS, ALL DISTURBED AREAS WHICH ARE EITHER FINAL GRADE, OR WILL REMAIN INACTIVE FOR A PERIOD OF MORE THAN 30 DAYS SHALL BE REQUIRED TO BE STABILIZED WITHIN 14 DAYS OF THE COMPLETION OF THE GRADING ACTIVITIES. THIS MAY REQUIRED MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
13. MULCH SHALL BE APPLIED WITHIN 24-HOURS OF SEEDING.
14. TACKIFIER SHALL BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.

SEEDING AND MULCHING MAINTENANCE NOTES

1. SEEDED AND MULCHED AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY UNTIL FINAL ACCEPTANCE IS ISSUED. REPAIRS AND RE-SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
2. REQUIRED COVERAGE FOR STANDARD, OPEN SPACE AND LOW GROWTH SEED MIXES SHALL BE DEFINED AS FOLLOWS:
   - 70% OF THE EXISTING/ PRE-CONSTRUCTION CONDITION.
   - FREE OF ERODED AREAS.
   - FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH THE GESC CRITERIA MANUAL.
3. RILL AND GULLY EROSION SHALL BE FILLED WITH TOPSOIL PRIOR TO RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY SEMSWA.

TEMPORARY DRILL SEEDING MIX

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
SMOOTH BROMEGRASS	LINCOLN	PICS	30	3.9
INTERMEDIATE WHEATGRASS	OAHE	PICS	30	4.5
PUBESCENT WHEATGRASS	LUNA	PICS	30	4.2
ANNUAL RYEGRASS	N/A	AICB	10	0.8
		TOTAL	100	13.4

NOTES: P=PERENNIAL
A=ANNUAL
I=INTRODUCED
C=COOL SEASON
S=SOD FORMER
B=BUNCHGRASS

SM SEEDING AND MULCHING 19

PERMANENT DRILL SEEDING – WETLAND SEED MIX[1]

SPECIES	SCIENTIFIC NAME	SEASON	% IN MIX	SEEDS/LB.	LBS PLS[2]/AC
SLOUGH GRASS	BECKMANNIA SYZIGACHNE	COOL	20	1,150,000	0.5
CANADIAN REED GRASS	CALAMAGROSTIS CANADENSIS	COOL	20	2,270,000	0.2
TUFTED HAIR GRASS	DESCHAMPSIA CESPITOSA	COOL	10	2,500,000	0.1
COMMON SPIKE RUSH	ELEOCHARIS PALUSTRIS	COOL	15	620,000	0.6
BALTIC RUSH	JUNCUS BALTICUS	COOL	15	10,900,000	0.4
KNOTTED RUSH	JUNCUS NODOSUS	COOL	10	12,300,000	0.1
TORREY'S RUSH	JUNCUS TORREYI	COOL	10	12,300,000	0.1
TOTAL			100	2 LBS PLS[2]/AC	

[1] TO BE INSTALLED AT APPROXIMATELY 0" TO 6" ABOVE WATER LINE.
[2] PLS = PURE LIVE SEED PER POUND BASED 60 SEEDS PER SQUARE FOOT. IF BROADCAST SEEDING, DOUBLE THE RATE APPLIED.

PERMANENT DRILL SEEDING[13] – TRANSITION SEED MIX – WITHOUT FORBS

SPECIES	SCIENTIFIC NAME	SEASON	% IN MIX	SEEDS/LB.	LBS PLS[2]/AC
CANADA WILDRYE	ELYMUS CANADENSIS	COOL	15	115,000	3.4
STREAMBANK WHEATGRASS	ELYMUS LANCEOLATUS SPP. PSAMMOPHILUS	COOL	15	156,000	2.5
SLENDER WHEAT GRASS	ELYMUS TRACHYCAULUS	WARM	10	159,000	1.6
BALTIC RUSH	JUNCUS BALTICUS	COOL	15	10,900,000	0.1
SWITCHGRASS	PANICUM VIRGATUM	WARM	15	389,000	1.0
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	COOL	15	110,000	3.6
SAND DROPSEED	SPOROBOLUS AIROIDES	WARM	15	1,758,000	0.2
TOTAL			100	12.4 LBS PLS[2]/AC	

[1] TO BE INSTALLED AT APPROXIMATELY 6" TO 24" ABOVE WATER LINE.
[2] PLS = PURE LIVE SEED PER POUND BASED 60 SEEDS PER SQUARE FOOT. IF BROADCAST SEEDING, DOUBLE THE RATE APPLIED.
[3] IF DESIRED, SHRUBS FROM THE WILLOW SHRUBLAND PLANT COMPOSITION SCHEDULE CAN BE INSTALLED IN THIS ZONE.

PERMANENT DRILL SEEDING[13] – TRANSITION SEED MIX – WITH FORBS

SPECIES	SCIENTIFIC NAME	SEASON	% IN MIX	SEEDS/LB.	LBS PLS[2]/AC
NATIVE GRASSES					
CANADA WILDRYE	ELYMUS CANADENSIS	COOL	15	115,000	3.4
STREAMBANK WHEATGRASS	ELYMUS LANCEOLATUS SPP. PSAMMOPHILUS	COOL	15	156,000	2.5
SLENDER WHEAT GRASS	ELYMUS TRACHYCAULUS	WARM	10	159,000	1.6
BALTIC RUSH	JUNCUS BALTICUS	COOL	15	10,900,000	0.1
SWITCHGRASS	PANICUM VIRGATUM	WARM	15	389,000	1.0
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	COOL	15	110,000	3.6
SAND DROPSEED	SPOROBOLUS AIROIDES	WARM	15	1,758,000	0.2

SM SEEDING AND MULCHING 19

PERMANENT DRILL SEEDING[13] – TRANSITION SEED MIX – WITH FORBS

SPECIES	SCIENTIFIC NAME	SEASON	% IN MIX	SEEDS/LB.	LBS PLS[2]/AC
NATIVE WILDFLOWERS					
INDIAN BLANKET FLOWER	GAILLARDIA ARISTATA	SUMMER-FALL	1	132,000	0.2
ROCKY MOUNTAIN IRIS	IRIS MISSOURIENSIS	SPRING-SUMMER	2	368,000	0.1
EVENING PRIMROSE	OENETHERA ELATA	SUMMER	2	1,300,000	0.1
GOLDEN BANNER	THERMOPSIS MONTANA	SPRING	2	15,000	3.5
MEXICAN HAT	RATIBIDA COLUMNIFERA	SUMMER-FALL	1	1,230,000	0.1
SAND DROPSEED	SPOROBOLUS AIROIDES	WARM	15	1,758,000	0.2
TOTAL			100	14.4 LBS PLS[2]/AC	

[1] TO BE INSTALLED AT APPROXIMATELY 6" TO 24" ABOVE WATER LINE.
[2] PLS = PURE LIVE SEED PER POUND BASED 60 SEEDS PER SQUARE FOOT. IF BROADCAST SEEDING, DOUBLE THE RATE APPLIED.
[3] IF DESIRED, SHRUBS FROM THE WILLOW SHRUBLAND PLANT COMPOSITION SCHEDULE CAN BE INSTALLED IN THIS ZONE.

PERMANENT DRILL SEEDING – UPLAND SEED[13] MIX – WITHOUT FORBS

SPECIES	SCIENTIFIC NAME	SEASON	% IN MIX	SEEDS/LB.	LBS PLS[2]/AC
BIG BLUESTEM	ANDROPOGON GERARDII	WARM	10	130,000	2.0
SIDEOATS GRAMA	BOUTELOUA CURTIPENDULA	WARM	10	191,000	1.4
BLUE GRAMA	BOUTELOUA GRACILIS	WARM	10	825,000	0.3
CANADA WILDRYE	ELYMUS CANADENSIS	COOL	10	115,000	2.3
THICKSPIKE WHEATGRASS	ELYMUS LANCEOLATUS SPP. LANCEOLATUS	COOL	5	154,000	0.8
STREAMBANK WHEATGRASS	ELYMUS LANCEOLATUS SPP. PSAMMOPHILUS	COOL	5	156,000	0.8
SLENDER WHEAT GRASS	ELYMUS TRACHYCAULUS	WARM	10	159,000	1.6
NEEDLE AND THREAD	HESPEROSTIPA COMATA	COOL	10	115,000	2.3
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	COOL	10	110,000	2.4
INDIAN GRASS	SORGHASTRUM NUTANS	WARM	10	170,000	1.5
SAND DROPSEED	SPOROBOLUS CRYPTANDRUS	WARM	10	5,298,000	0.1
TOTAL			100	15.5 LBS PLS[2]/AC	

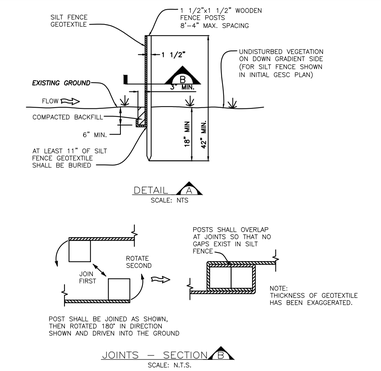
[1] TO BE INSTALLED AT APPROXIMATELY 24" ABOVE WATER LINE.
[2] PLS = PURE LIVE SEED PER POUND BASED 60 SEEDS PER SQUARE FOOT. IF BROADCAST SEEDING, DOUBLE THE RATE APPLIED.
[3] IF DESIRED, TREES AND SHRUBS FROM THE COTTONWOOD SHRUB WOODLAND COMPOSITION SCHEDULE CAN BE INSTALLED IN THIS ZONE.

UPLAND SEED MIX – WITH FORBS[13]

SPECIES	SCIENTIFIC NAME	SEASON	% IN MIX	SEEDS/LB.	LBS PLS[2]/AC
NATIVE GRASSES					
BIG BLUESTEM	ANDROPOGON GERARDII	WARM	8	130,000	1.6
SIDEOATS GRAMA	BOUTELOUA CURTIPENDULA	WARM	8	191,000	1.1
BLUE GRAMA	BOUTELOUA GRACILIS	WARM	8	825,000	0.3
CANADA WILDRYE	ELYMUS CANADENSIS	COOL	8	115,000	1.8
THICKSPIKE WHEATGRASS	ELYMUS LANCEOLATUS SPP. LANCEOLATUS	COOL	5	154,000	0.8
STREAMBANK WHEATGRASS	ELYMUS LANCEOLATUS SPP. PSAMMOPHILUS	COOL	5	156,000	0.8
SLENDER WHEAT GRASS	ELYMUS TRACHYCAULUS	WARM	10	159,000	1.6
NEEDLE AND THREAD	HESPEROSTIPA COMATA	COOL	8	115,000	1.8
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	COOL	10	110,000	2.4
INDIAN GRASS	SORGHASTRUM NUTANS	WARM	10	170,000	1.5
SAND DROPSEED	SPOROBOLUS CRYPTANDRUS	WARM	10	5,298,000	0.1
NATIVE WILDFLOWERS					
BLACK-EYED SUSAN	RUDBECKIA HIRTA	SUMMER-FALL	1	1,710,000	0.1
SULFUR FLOWER	ERIOGONUM UMBELLATUM	FALL	2	209,000	0.3
PRAIRIE ASTER	MACHAERANTHERA TANACETIFOLA	SUMMER	1	408,000	0.1
PURPLE PRAIRIE CLOVER	DALEA PURPUREUM	SUMMER	1	210,000	0.1
WESTERN YARROW	ACHILLEA MILLEFOLIUM VAR. OCCIDENTALIS	SUMMER-FALL	2	2,770,000	0.1
PLAINS COREOPSIS	COREOPSIS TINCTORIA	SUMMER-FALL	1	1,400,000	0.1
INDIAN BLANKET FLOWER	GAILLARDIA ARISTATA	SUMMER-FALL	1	132,000	0.2
PURPLE CONEFLOWER	ECHINACEA PURPUREA	SUMMER	1	117,000	0.2
TOTAL			100	15 LBS PLS[2]/AC	

COMMON OR TRADE NAME	SCIENTIFIC NAME	LBS PLS/AC
OPTION 1: OATS	AVENA SATIVA	60 TO 90
OPTION 2: QUICKGARD	TRITICUM AESTIVUM X SECALE CEREALE	10 TO 40
OPTION 3: REGREEN	TRITICUM AESTIVUM X ELYTRIGIA ELONGATA	10 TO 40

SM SEEDING AND MULCHING 19



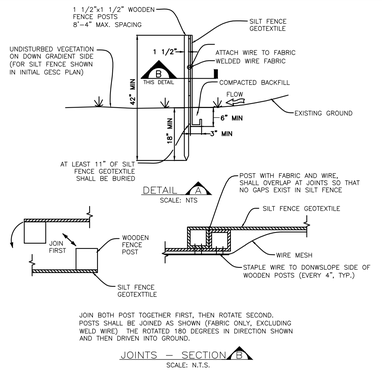
SF SILT FENCE 20

SILT FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION AND LENGTH OF FENCE.
2. ANCHOR TRENCH SHALL BE EXCAVATED WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE; NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED. TRENCH SHALL BE COMPACTED BY HAND, WITH "JUMPING JACK", OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
3. SILT FENCE GEOTEXTILE SHALL MEET THE FOLLOWING REQUIREMENTS:
   - 6-TO 12-GALLONS PER MINUTE PER SQUARE FOOT FLOW CAPACITY.
   - 90 LB. TENSILE STRENGTH PER ASTM D4622.
   - UV DESIGN AT 500 HRS MIN. 70% STRENGTH RETAINED PER ASTM D 4355.
4. SILT FENCE INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT REACHES 25%.
3. SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY SEMSWA. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.



SFR SILT FENCE REINFORCED 21

SILT FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION AND LENGTH OF FENCE.
2. ANCHOR TRENCH SHALL BE EXCAVATED WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE; NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED. TRENCH SHALL BE COMPACTED BY HAND, WITH "JUMPING JACK", OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
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   - 6-TO 12-GALLONS PER MINUTE PER SQUARE FOOT FLOW CAPACITY.
   - 90 LB. TENSILE STRENGTH PER ASTM D4622.
   - UV DESIGN AT 500 HRS MIN. 70% STRENGTH RETAINED PER ASTM D 4355.
4. SILT FENCE INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT REACHES 25%.
3. SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY SEMSWA. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

UTILITY NOTIFICATION CENTER OF COLORADO
CALL BEFORE YOU DIG
811
Call 2 days prior to any digging, grading or excavating for the marking of underground member utilities

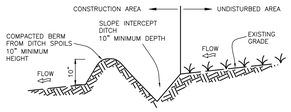
SOUTHEAST METRO STORMWATER AUTHORITY
7437 SOUTH FAIRPLAY STREET
CENTENNIAL COLORADO
80112-4486
(303) 858-8844 - INSPECTION DIVISION

Southeast Metro Stormwater Authority

ARAPAHOE COUNTY
COLORADO'S FIRST

GRADING EROSION AND SEDIMENT CONTROL
STANDARD NOTES AND DETAILS
REVISED FEBRUARY 2023

GESC SHEET 3 OF 4



(TO PREVENT RUN-ON OF OFF-SITE FLOWS)
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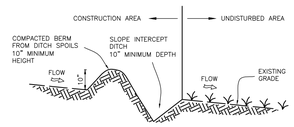


(AS PERIMETER CONTROL)
SCALE: NTS

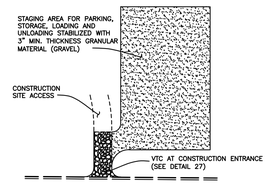
SLOPE INTERCEPT DITCH INSTALLATION NOTES

1. MATERIALS CUT OUT OF DITCH TO FORM A COMPACTED BERM ADJACENT TO AND ON THE CONSTRUCTION AREA SIDE OF DITCH.
2. SLOPE INTERCEPT DITCH SHALL HAVE A MINIMUM DEPTH OF 10".
3. COMPACTED BERM SHALL HAVE A MINIMUM HEIGHT OF 10".
4. SLOPE INTERCEPT DITCH SHALL BE CUT IN ON THE CONTOUR.
5. SLOPE INTERCEPT DITCH CAN BE USED IN PLACE OF SILT FENCE (SF) AND SEDIMENT CONTROL LOGS (SCL).
6. SEE PLAN VIEW FOR LOCATION.

SLOPE INTERCEPT DITCH MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED IN DITCH SHALL BE REMOVED WHEN DITCH BECOMES 1/2 FULL. REMOVED SEDIMENT SHALL BE PLACED ON AND COMPACTED WITH THE ADJACENT BERM.
3. BERM MATERIAL TO FILL DITCH UPON COMPLETION OF CONSTRUCTION. ALL DISTURBED AREAS TO BE SEEDED AND MULCHED PER DETAIL 19.

SID SLOPE INTERCEPT DITCH 22



PLAN
SCALE: N.T.S.

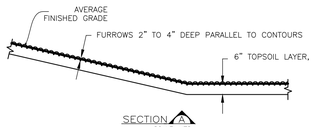
STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH SEMSWA APPROVAL.
2. STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
3. IF REQUIRED BY SEMSWA, SITE ACCESS ROADS SHALL BE STABILIZED IN THE SAME MANNER AS THE STAGING AREA.
4. STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE.
5. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL (GRAVEL).

STABILIZED STAGING AREA MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. GESC MANAGER SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
3. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
4. ANY ACCUMULATED DIRT OR MUD SHALL BE REMOVED FROM THE SURFACE OF THE STABILIZED STAGING AREA.
5. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY SEMSWA, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

SSA STABILIZED STAGING AREA 23



SECTION A
SCALE: NTS

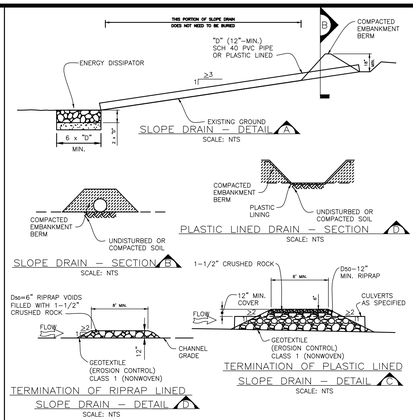
SURFACE ROUGHENING INSTALLATION NOTES

1. SURFACE ROUGHENING SHALL BE PROVIDED ON ALL FINISHED GRADES (SLOPES AND "FLAT" AREAS) WITHIN 2 DAYS OF COMPLETION OF FINISHED GRADE (FOR AREAS NOT RECEIVING TOPSOIL) OR WITHIN 2 DAYS OF TOPSOIL PLACEMENT.
2. AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD IS TO BE PLACED WITHIN 7-DAYS OF FINISHED GRADING DO NOT NEED TO BE SURFACE ROUGHENED.
3. DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.

SURFACE ROUGHENING MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. VEHICLES AND EQUIPMENT SHALL GENERALLY BE CONFINED TO ACCESS DRIVES AND SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
3. IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
4. IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER ANY RILL EROSION.

SR SURFACE ROUGHING 24



SLOPE DRAIN – DETAIL A
SCALE: NTS

SLOPE DRAIN – SECTION B
SCALE: NTS

PLASTIC LINED DRAIN – SECTION C
SCALE: NTS

TERMINATION OF RIPRAP LINED SLOPE DRAIN – DETAIL D
SCALE: NTS

TERMINATION OF PLASTIC LINED SLOPE DRAIN – DETAIL E
SCALE: NTS

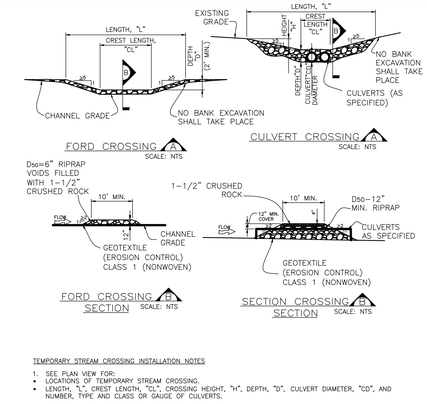
SLOPE DRAIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION AND LENGTH OF SLOPE DRAIN.
   - PIPE DIAMETER, "D", AND RIPRAP SIZE, "Dso".
2. SLOPE DRAIN DIMENSIONS SHALL BE CONSIDERED MINIMUM DIMENSIONS; CONTRACTOR MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE TO SLOPE OR SLOPE DRAIN DURING RUNOFF EVENTS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
3. SLOPE DRAINS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
4. FOR TEMPORARY SLOPE DRAINS, PIPE MAY BE INSTALLED ON TOP OF SLOPE; HOWEVER, 12" MIN. COVER AT TOP OF SLOPE SHALL BE PROVIDED.
5. AN ENERGY DISSIPATOR SHALL BE PLACED AT THE OUTFALL OF THE SLOPE DRAIN.

SLOPE DRAIN MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. TEMPORARY SLOPE DRAINS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION. WHEN SLOPE DRAINS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

TSD TEMPORARY SLOPE DRAIN 25



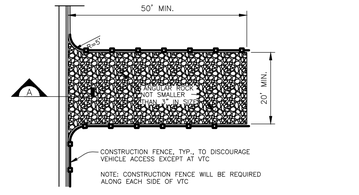
TEMPORARY STREAM CROSSING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATIONS OF TEMPORARY STREAM CROSSING.
   - LENGTH, "L", CREST LENGTH, "CL", CROSSING HEIGHT, "H", DEPTH, "D", CULVERT DIAMETER, "CD", AND NUMBER, TYPE AND CLASS OR GAUGE OF CULVERTS.
2. TEMPORARY STREAM CROSSING DIMENSIONS, D50, AND NUMBER OF CULVERTS INDICATED (FOR CULVERT CROSSING) SHALL BE CONSIDERED MINIMUM DIMENSIONS; ENGINEER MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE TO STREAM CROSSING OR EXISTING STREAM CHANNEL DURING BASEFLOW OR FLOOD EVENTS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
3. SEE SHEET 1 FOR RIPRAP AND 1-1/2" CRUSHED ROCK GRADATIONS.
4. FOR A TEMPORARY STREAM CROSSING THAT WILL CARRY LOADS, THE TEMPORARY STREAM CROSSING MUST BE DESIGNED BY THE DESIGN ENGINEER, AND ONLY USED IF APPROVED BY SEMSWA.

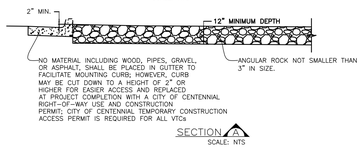
TEMPORARY STREAM CROSSING MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. SEDIMENT ACCUMULATED UPSTREAM OF STREAM CROSSINGS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CROSSING IS WITHIN 50% OF THE CREST (FORD CROSSING) OR GREATER THAN AN AVERAGE DEPTH OF 50% (CULVERT CROSSING).
3. STREAM CROSSINGS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION.
4. WHEN STREAM CROSSINGS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY SEMSWA.

TSC TEMPORARY STREAM CROSSING 26



PLAN
SCALE: NTS



SECTION A
SCALE: NTS

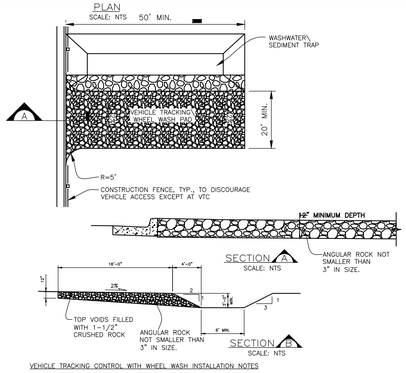
VEHICLE TRACKING CONTROL INSTALLATION NOTES

1. VEHICLE TRACKING CONTROL PADS SHALL BE INSTALLED AT EVERY EXIT POINT OF THE SITE.
2. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL NOT BE SMALLER THAN 3" IN SIZE. THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
3. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY PERMITTEE.

VEHICLE TRACKING CONTROL MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. VEHICLE TRACKING CONTROL SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE ROCK MATERIAL REMOVED OR, IF APPROVED BY SEMSWA, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

VTC VEHICLE TRACKING CONTROL 27



VEHICLE TRACKING CONTROL WITH WHEEL WASH INSTALLATION NOTES

1. SEMSWA RESERVES THE RIGHT TO REQUIRE VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES AT SITES WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM.
2. IF VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES ARE REQUIRED, ALL WHEELS ON EVERY VEHICLE LEAVING THE SITE SHALL BE CLEANED OF MUD USING A PRESSURE-WASHER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER SOURCE.
3. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL NOT BE SMALLER THAN 3" IN SIZE. THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
4. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY CONTRACTOR.

VEHICLE TRACKING CONTROL WITH WHEEL WASH MAINTENANCE NOTES

1. THE GESC MANAGER SHALL INSPECT AS NECESSARY TO ENSURE THE ADEQUACY AND FUNCTIONALITY OF THE CONTROL MEASURE.
2. ACCUMULATED SEDIMENT IN THE WASHWATER/SEDIMENT TRAP SHALL BE REMOVED WHEN THE SEDIMENT DEPTH REACHES AN AVERAGE OF 12-INCHES.
3. VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITY SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE RIPRAP MATERIAL REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

WW VTC WITH WHEEL WASH 28

UTILITY NOTIFICATION CENTER OF COLORADO
CALL BEFORE YOU DIG
811
Call 2 days prior to any digging, grading or excavating for the marking of underground member utilities

SOUTHEAST METRO STORMWATER AUTHORITY
7437 SOUTH FAIRPLAY STREET
CENTENNIAL COLORADO
80112-4486
(303) 858-8844 - INSPECTION DIVISION

Southeast Metro Stormwater Authority

ARAPAHOE COUNTY
COLORADO'S FIRST

GRADING EROSION AND SEDIMENT CONTROL
STANDARD NOTES AND DETAILS
REVISED FEBRUARY 2023

GESC SHEET 4 OF 4