



**EARLY STORMWATER MANAGEMENT PLAN  
FOR  
ESTATES AT CATHEDRAL PINES,  
EL PASO COUNTY, COLORADO**

**Prepared For (Applicant):**

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5710 Vessey RD  
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**Prepared By:**

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**Qualified Stormwater Manager:**

To Be Determined

**Contractor:**

To Be Determined

**February, 2024**

**El Paso County PCD File No.:  
EGP232**

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**1. Applicant / Contact Information**

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**SWMP Administrator:** To Be Determined

**Contractor:** To Be Determined

**2. Site Description and Location**

The proposed Estates at Cathedral Pines development, hereby known as “the site”, is located within the southeast quarter of Section 2, Township 12 South, Range 66 West of the 6th Prime Meridian, El Paso County, Colorado. The proposed development is 35.09 acres containing approximately 8 – 2.7 to 4.1 acre single-family lots, 2.5 acres of open space, and associated infrastructure. The site is bounded on the east by Winslow Drive, by Cathedral Pines Subdivision Filing No. 1 to the east and north, properties at 13855 Highway 83 and 13580 Bridle Bit Road to the west, and by Falcon Forest Subdivision Filing No. 2 to the south. A vicinity map of the area is presented in Appendix A.

The site is currently covered by an existing forested area with a large portion that has suffered damage from a fire. There is an existing grove of trees in the middle of the property that are healthy with little to no fire damage. The proposed development will save as many healthy trees as possible. Multiple natural drainage channels run through the site and range from poorly-defined to well-defined. The existing ground cover is sparse vegetation and open space with slopes that range from 3% to 30% generally draining from east to west.

Site details:

- a. Estimated area to undergo disturbance: 5.9 acres
  - i. No off-site grading is proposed.
  
- b. Soil Type: Soils located within the site as shown on the USDA Natural Resources Conservation Service Soil Survey Map are kettle gravelly loamy sand. These soils

are characterized as Hydrologic Soil Group B, which have a moderate infiltration rate when thoroughly wet and have a moderate rate of water transmission. A soils map is included in Appendix A of this report.

- c. Soil erosion potential and potential impacts upon discharge:
  - i. Conduct land-disturbing activities in a manner that effectively reduces accelerated soil erosion and reduces sediment movement and deposition off site.
  - ii. Schedule construction activities to minimize the total amount of soil exposed at any given time.
  - iii. Establish temporary or permanent cover on areas that have been disturbed as soon as practical after grading is completed.
  - iv. Design and construct temporary or permanent facilities to limit the flow of water to non-erosive velocities for the conveyance of water around, through or from the disturbed area.
  - v. Remove sediment caused by accelerated soil erosion from surface runoff water before it leaves the site.
  - vi. Stabilize disturbed areas with permanent vegetative cover and provide permanent storm water quality control measures for the post-construction condition.
- d. Existing vegetation: Native meadow grasses and tree grove (approximately 60% coverage), determined using aerial inspection.
- e. Location and description of potential pollution sources: Potential sources of pollution include: Onsite waste management, portable toilets, onsite vehicle fueling, and outdoor storage, vehicle tracking pads, dust management, and temporary stock pile. The locations of these sources are shown in the GEC plans in Appendix C or will be determined by the contractor.
  - i. Non-industrial waste sources such as worker trash and portable toilets – Clean up litter and debris from the construction site daily and worker trash receptacles will be located by entrance/exit for easy removal/replace access. All portable toilets should be kept a minimum of 50 feet from a storm drain inlet or drainage course and secured to the ground. Toilets will be cleaned regularly and inspected daily for any spills or leaks. Waste disposal bins will be reasonably maintained at regular intervals to check for leaks and overflow capacity, and will be emptied routinely to prevent overflow.
  - ii. Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc. – oil, grease, coolants, etc. that leak onto the soil or impervious surface should be cleaned up as soon as possible and on-site personnel notified.
  - iii. Vehicle, equipment maintenance, and fueling – all designated fueling and maintenance areas shall be located a minimum of 100 feet from any drainage course whenever possible. If the fueling area is located on a pervious surface, the area shall be covered with a non-pervious lining so as to prevent soil contamination by way of infiltration. Any spillage shall be cleaned up immediately.
  - iv. Raw materials, intermediate products, byproducts, process residuals,

Finished products, containers, and materials storage areas can be sources of pollutants such as metals, oils and grease, sediment and other contaminants. Where practical, conduct operations indoors. Where impractical, select an appropriate temporary or permanent covering to reduce exposure of materials to rainfall and runoff.

- v. Vehicle tracking controls (VTC) provide stabilized construction site access where vehicles exit the site onto paved public roads. An effective vehicle tracking control helps remove sediment (mud or dirt) from vehicles, reducing tracking onto the paved surface. With aggregate vehicle tracking controls, ensure rock and debris from this area do not enter the public right-of-way. Inspect the VTC for degradation and replace aggregate or material used for a stabilized entrance/exit as needed.
- vi. Wind erosion and dust control BMPs help to keep soil particles from entering the air as a result of land disturbing construction activities. Dust control measures should be used on any site where dust poses a problem to air quality. Dust control is important to control for the health of construction workers and surrounding waterbodies.
- vii. Stockpile management should be used when soils or other erodible materials are stored at the construction site. Special attention should be given to stockpiles in close proximity to natural or manmade storm systems. Soils stockpiled for an extended period (typically for more than 30 days) mulched with a temporary grass cover once the stockpile is placed (typically within 21 days). An area that will remain in an interim state for over 60 days must also be seeded. Use of mulch only or a soil binder is acceptable if the stockpile will be in place for a more limited time period (typically 30-60 days). Refer to DCM Vol 2 – Section 3.2- General principles - Basic Grading, Erosion and Stormwater Quality Requirements and General Prohibitions #16 for more information.
- f. Spill prevention and pollution controls for dedicated batch plants: Not applicable for this site since there will be no dedicated batch plants.
- g. Street sweeping or vacuuming should be conducted when there is noticeable sediment accumulation on roadways adjacent to the construction site. Typically, this will be concentrated at the entrance/exit to the construction site. Well-maintained stabilized construction entrances and vehicle tracking controls can help reduce the necessary frequency of street sweeping and vacuuming.
- h. Location and description of anticipated non-stormwater components of discharge: Another potential source of non-stormwater discharge could be the irrigation of temporary seeding (TS). Irrigation will be kept at a rate so as to not create runoff.
- i. Existing basin drainage patterns are generally from east to west by way of sheet flow.
- j. Receiving water: Runoff from the project will be treated and released through an outlet structure pipe that will direct the water into Black Squirrel Creek. The water will follow the historic path and continue flowing southwest.
- k. There are no streams that cross the project site.

### **3. Proposed Sequence of Major Activities**

The project will follow standard construction sequences for construction, i.e., clearing and grubbing, over excavation, and over lot grading. The contractor will be responsible for implementing and maintaining the erosion and sediment control measures described in this document and the accompanying design drawings. The contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and their proposed function at each phase of the project remains with the contractor. The order of major activities (with estimated completion dates) will be as follows:

1. Install VTC and other perimeter soil erosion control measures (Spring 2024).
2. Clear and rough grade for improvements (Spring 2024).
3. Install rough cut street control (Spring 2024).
4. Place Seed and Mulch (Summer 2024).
5. Clean up and final stabilization (Summer 2024).

### **4. BMPs for Stormwater Pollution Prevention**

See GEC plans in Appendix C for BMP locations and detail sheets.

#### a. Erosion and Sediment Controls

##### i. Structural BMPs:

1. Sediment basins (SB) to collect runoff before it enters receiving waters (initial, interim)
2. Silt fence (SF) along downstream limits of disturbed areas to filter sediment from runoff (initial, interim)
3. Stabilized staging area (SSA) near site entrance to consolidate construction equipment in a stabilized location (initial, interim)
4. Construction fence (CF) to identify limits of construction (LOC) where silt fence is not needed (initial, interim)
5. Vehicle tracking control (VTC) at site entrance to prevent sediment from leaving the site via vehicle tires (initial, interim)
6. Rough Cut Street Control (RCS) is material placed after a road has been cut and before base has been installed for paving (initial)
7. Temporary stock pile (TSP) to consolidate materials such as topsoil in a controlled area bounded by silt fence (interim)
8. Inlet protection (IP) around culvert entrances (interim, final)
9. Outlet protection (OP) at culvert outlets (interim, final)
10. Temporary Swale (TSW) to Convey runoff to sediment basins (initial, interim)
11. Check Dams (CD) in swales to slow and filter sediment from runoff (initial, interim)
12. Turf Reinforcement Mat (TRM) in swales for vegetation reinforcement from water or wind (initial)

##### ii. Non-structural BMPs:

1. Mulching (MU) to stabilize soils and promote seed growth (final)
  2. Temporary seeding (TS) to stabilize disturbed areas (final)
- b. Materials Handling and Spill Prevention
- i. General Materials Handling Practices:
    1. Potential pollutants shall be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practical, material storage areas should not be located near storm drain inlets and should be equipped with covers, roofs, or secondary containment as required to prevent storm water from contacting stored materials. Chemicals that are not compatible shall be stored in segregated areas so that spilled materials cannot combine and react.
    2. Disposal of materials shall be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
    3. Materials no longer required for construction shall be removed from the site as soon as possible.
    4. Adequate garbage, construction waste, and sanitary waste handling and disposal facilities shall be provided as necessary to keep the site clear of obstruction and BMPs clear and functional.
  - ii. Specific Materials Handling Practices
    1. All pollutants, including waste materials and demolition debris, that occur onsite during construction shall be handled in a way that does not contaminate storm water.
    2. All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored onsite shall be covered and protected from vandalism.
    3. Maintenance, fueling, and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants, shall be conducted under cover during wet weather and on an impervious surface to prevent release of contaminants onto the ground. Materials spilled during maintenance operations shall be cleaned up immediately and properly disposed of.
    4. Wheel wash water shall be settled and discharged onsite by infiltration.
    5. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to storm water runoff. Follow manufacturer's recommendations for application rates and procedures.
    6. pH-modifying sources shall be managed to prevent contamination of runoff and storm water collected onsite. The most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate

processes, and concrete pumping and mixer washout waters.

iii. Spill Prevention and Response Procedures

1. The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize their migration into storm water runoff and conveyance systems. If the release has impacted onsite storm water, it is critical to contain the released materials onsite and prevent their release into receiving waters.
2. Spill Response Procedures:
  - a. Notify site superintendent immediately when a spill, or the threat of a spill, is observed. The superintendent shall assess the situation and determine the appropriate response.
  - b. If spills represent an imminent threat of escaping onsite facilities and entering the receiving waters, site personnel shall respond immediately to contain the release and notify the superintendent after the situation has stabilized.
  - c. The site superintendent, or his/her designee, shall be responsible for completing a spill reporting form and for reporting the spill to the appropriate agency.
  - d. Spill response equipment shall be inspected and maintained as necessary to replace any materials used in spill response activities.
3. Spill kits shall be on-hand at all fueling sites. Spill kit location(s) shall be reported to the SWMP administrator.
4. Absorbent materials shall be on-hand at all fueling areas for use in containing inadvertent spills. Containers shall be on-hand at all fueling sites for disposal of used absorbents.
5. Recommended components of spill kits include the following:
  - a. Oil absorbent pads (one bale)
  - b. Oil absorbent booms (40 feet)
  - c. 55-gallon drums (2)
  - d. 9-mil plastic bags (10)
  - e. Personal protective equipment including gloves and goggles
6. Notification procedures:
  - a. In the event of an accident or spill, the SWMP administrator shall be notified.
  - b. Depending on the nature of the spill material involved, the Colorado Department of Public Health and Environment (24-hour spill reporting line: 887-518-5608), downstream water users, or other agencies may also need to be notified.
  - c. Any spill of oil which 1) violates water quality standards, 2) produces a “sheen” on a surface water, or 3) causes a sludge or emulsion, or any hazardous substance release, or hazardous waste release which exceeds the reportable quantity, must be reported immediately by telephone to the National Response Center Hotline at (800) 424-8802.

## **5. Final Stabilization and Long-Term Stormwater Management**

- a. Permanent seeding will be provided to achieve long-term stabilization of the site.
- b. Seed Mix: Sand dropseed, or approved equal.
- c. Seeding Application Rate: Drill seed 0.25” to 0.5” into the soil. In small areas not accessible to a drill, hand broadcast at double the rate and rake 0.25” to 0.5” into the soil. Apply seed at the following rates:
  - i. Dryland: 20-25 lbs/acre
  - ii. Irrigated: 40 lbs/acre
- d. Soil stabilization Practices:
  - i. Mulching Application: Apply 1-1/2 tons of certified weed free hay per acre mechanically crimped into the soil in combination with an organic mulch tackifier. On slopes and ditches requiring a blanket, the blanket shall be placed in lieu of much and mulch tackifier.
- e. Soil Conditioning and Fertilization Requirements:
  - i. Soil conditioner, organic amendment shall be applied to all seeded areas at 3 CY / 1000 SF.
  - ii. Fertilizer shall consist of 90% fungal biomass (mycelium) and 10% potassium-magnesia with a grade of 6-1-3 or approved equal. Fertilizer shall be applied as recommended by seed supplier.
- f. Final stabilization is reached when all soil-disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plan density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.
  - i. The overall project does not solely rely on another entity or control measures for final stabilization or permanent water quality or detention.
- g. Final Stabilization and Long-term Stormwater Quality:
  - i. After final stabilization occurs, Stormwater Quality of the site will be maintained via the use of full-spectrum ponds, all developed flows on site will be routed to the pond and treated.
    1. Mowing and Trimming shall occur on a regular basis in the pond and at the spillway.
  - ii. Onsite flows will also be treated via grass swales that route flows present in open spaces to the storm sewer system which eventually outfalls to the full-spectrum pond.

## **6. Inspection and Maintenance**

- a. Inspection Schedules:
  - i. The contractor shall inspect BMPs once every 14 days at a minimum, and immediately (within 24 hours) after any precipitation or snowmelt event that causes surface erosion (i.e. that results in storm water running across the ground), to ensure that BMPs are maintained in effective operating condition.
  - ii. The contractor will be responsible for any re-excavation of sediment and debris that collects in the basin depression required to ensure that the basin

meets the design grades following construction. The storm lines shall also be cleaned and free of sediment once the site becomes stabilized.

b. Inspection Procedures:

i. Site Inspection / Observation Items:

1. Construction site perimeter and discharge points
2. All disturbed areas
3. Areas used for material / waste storage that are exposed to precipitation
4. Other areas having a significant potential for storm water pollution, such as demolition areas or concrete washout areas, or locations where vehicles enter or leave the site
5. Erosion and sediment control measures identified in the SWMP
6. Any other structural BMPs that may require maintenance, such as secondary containment around fuel tanks, or the conditions of spill response kits.

ii. Inspection Requirements:

1. Determine if there is any evidence of, or potential for, pollutants entering the receiving waters.
2. Review BMPs to determine if they still meet design and operational criteria in the SWMP, and if they continue to adequately control pollutants at the site.
3. Upgrade and/or revise any BMPs not operating in accordance with the SWMP and update the SWMP to reflect any revisions.
4. The SWMP should be viewed as a “living document” that is continuously being reviewed and modified as a part of the overall process of evaluating and managing storm water quality issues at the site.
5. The QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5.2.A.
6. The Qualified Storm water Manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity or when BMPs are no longer necessary and are removed.

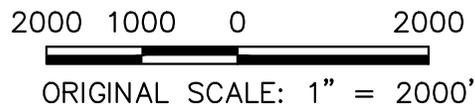
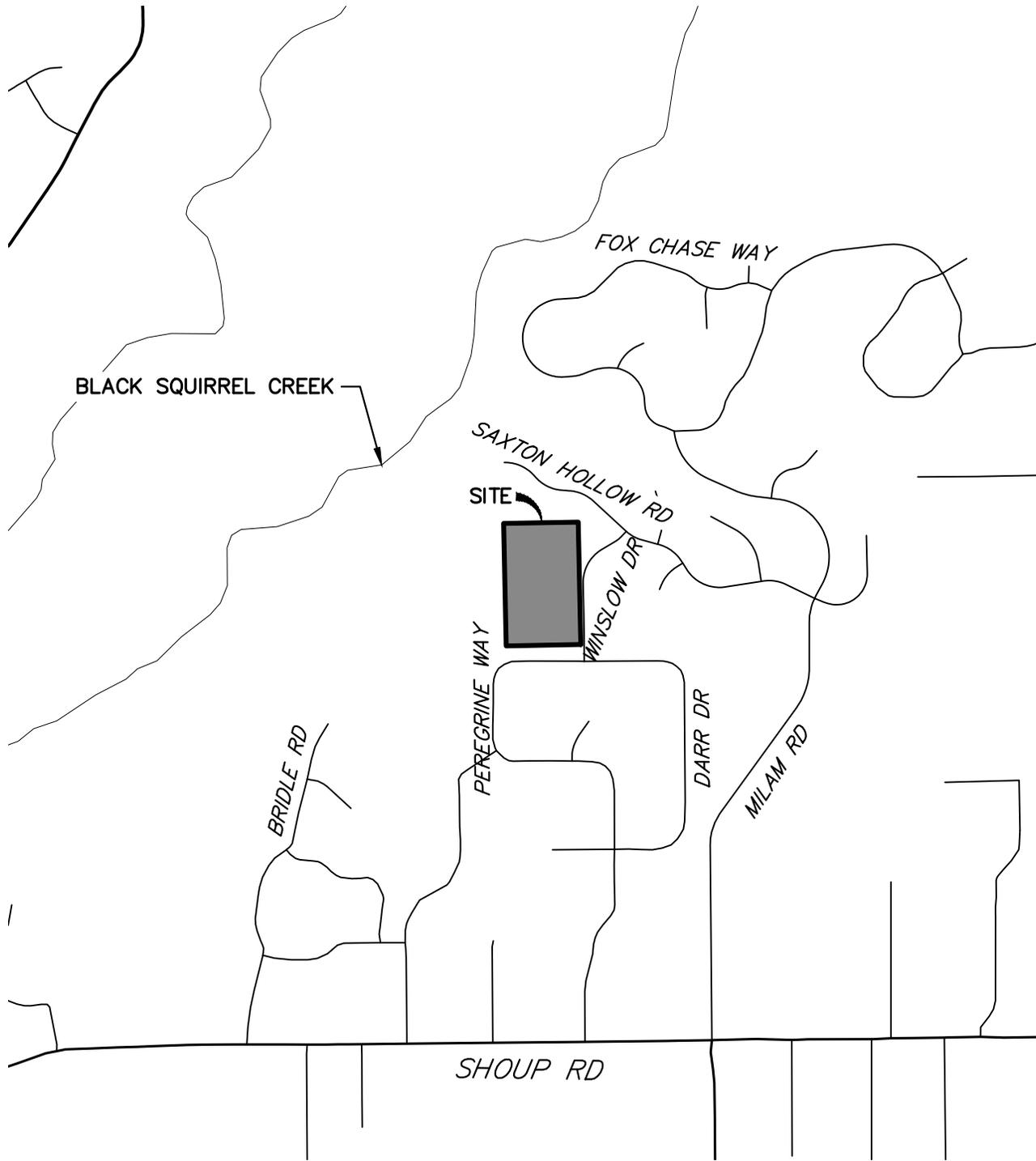
iii. BMP Maintenance / Replacement and Failed BMPs:

1. The contractor shall remove sediment that has been collected by perimeter controls, such as silt fence and inlet protection, on a regular basis to prevent failure of BMPs, and remove potential of sediment from being discharged from the site in the event of BMP failure.
2. Removed sediment must be moved to an appropriate location where it will not become an additional pollutant source, and should never be placed in ditches or streams.
3. The contractor shall update the GEC as required with any new

- BMPs added during the construction period.
4. The SWMP should be viewed as a “living document” that is continuously being reviewed and modified as a part of the overall process of evaluating and managing storm water quality issues at the site.
  5. The Qualified Storm water Manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity or when BMPs are no longer necessary and are removed.
  6. The contractor shall address BMPs that have failed or have the potential to fail without maintenance or modifications, as soon as possible, immediately in most cases, to prevent discharge of pollutants.
- iv. Record Keeping and Documenting Inspections:
1. The contractor shall maintain records of all inspection reports, including signed inspection logs, at the project site.
  2. The permittee shall document inspection results and maintain a record of the results for a period of 3 years following expiration or inactivation of permit coverage.
  3. Site inspection records shall include the following:
    - a. Inspection date
    - b. Name and title of personnel making the inspection
    - c. Location of discharges of sediment or other pollutants from the site
    - d. Location(s) of BMPs in need of maintenance
    - e. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location
    - f. Location(s) where additional BMPs are needed that were not in place at the time of inspection
    - g. Deviations from the minimum inspection schedule

## **APPENDIX A – VICINITY MAP**

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CATHEDRAL PINES  
VICINITY MAP  
2000-5260.00  
08-17-2022  
SHEET 1 OF 1



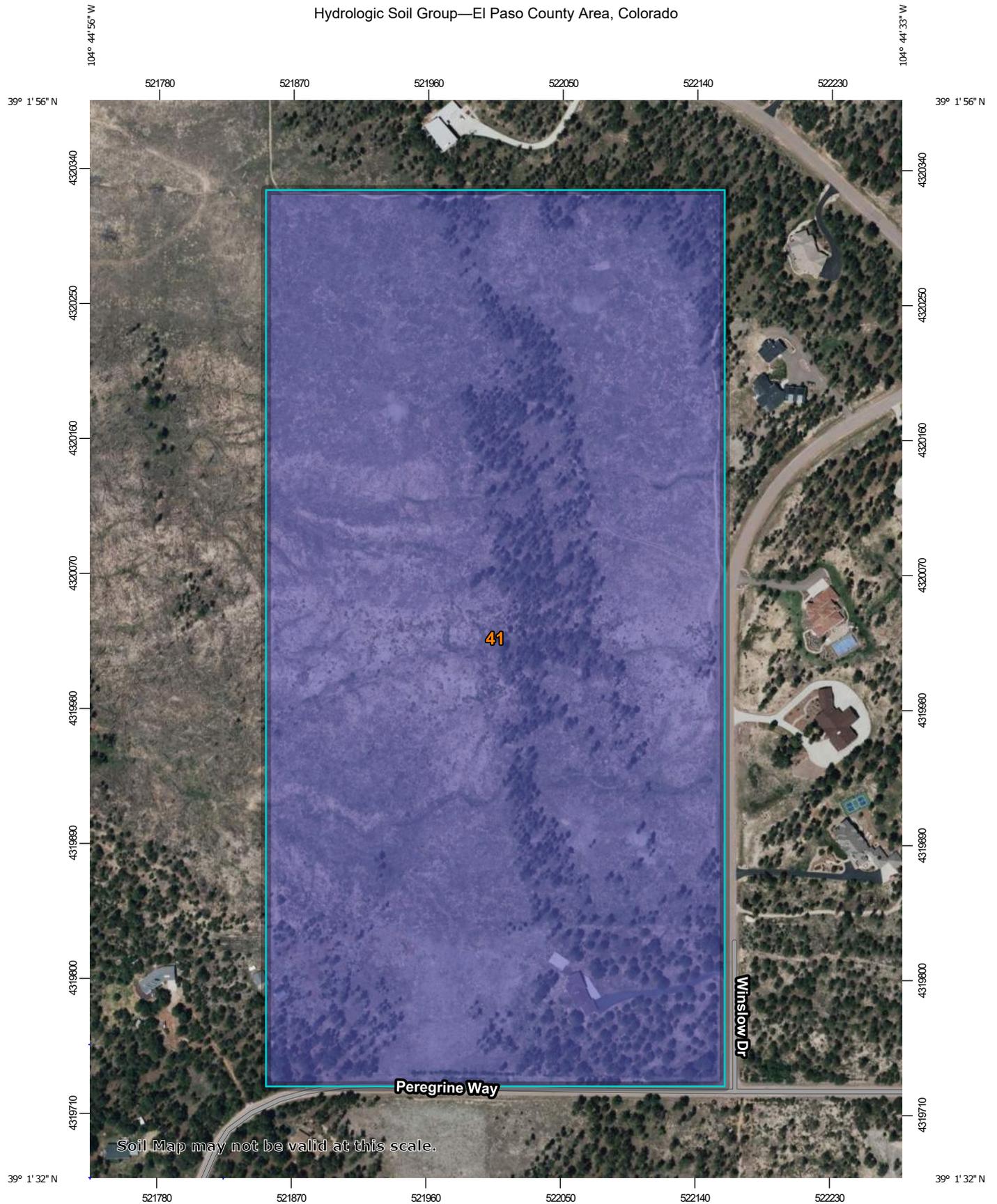
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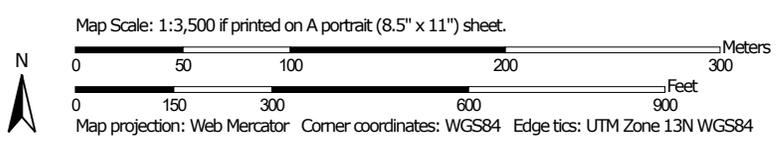
## **APPENDIX B – SOILS MAP**

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Hydrologic Soil Group—El Paso County Area, Colorado



Soil Map may not be valid at this scale.



### 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 1:24,000.

Warning: Soil Map may not be valid at this scale.

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado  
 Survey Area Data: Version 19, Aug 31, 2021

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

Date(s) aerial images were photographed: Jun 9, 2021—Jun 12, 2021

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
41	Kettle gravelly loamy sand, 8 to 40 percent slopes	B	45.5	100.0%
<b>Totals for Area of Interest</b>			<b>45.5</b>	<b>100.0%</b>

### 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*

## **APPENDIX C – GEC PLANS AND DETAILS**

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# ESTATES AT CATHEDRAL PINES

## COUNTY OF EL PASO, STATE OF COLORADO

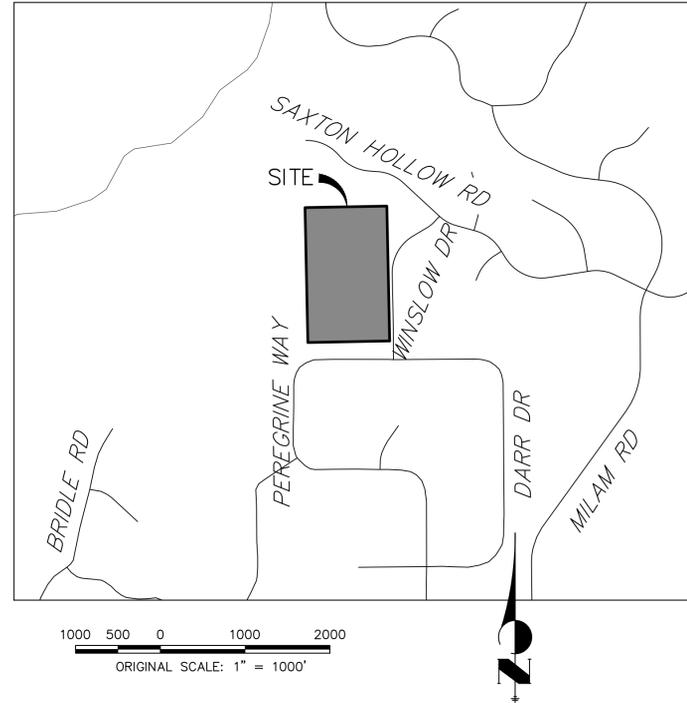
### EARLY GRADING AND EROSION CONTROL PLANS

#### NOVEMBER 2023

#### GRADING AND EROSION CONTROL STANDARD NOTES

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A 'NOTICE TO PROCEED' HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRE-CONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT STABILIZATION IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITY. WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE 'COLORADO WATER QUALITY CONTROL ACT' (TITLE 25, ARTICLE 8, CRS), AND THE 'CLEAN WATER ACT' (33 USC 1342) IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ROCKY MOUNTAIN GROUP. (DATED 06/24/2022) AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

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



#### BASIS OF BEARINGS

THE WEST LINE OF THE SOUTHEAST 1/4 OF SECTION 2, TOWNSHIP 12 SOUTH, RANGE 66 WEST OF THE 6TH P.M. BEING MONUMENTED BY A 3-1/4" ALUMINUM CAP STAMPED "LS 9132" AT THE SOUTH 1/4 CORNER AND A 2-1/2" ALUMINUM CAP STAMPED "LS 9132" AT THE CENTER 1/4 CORNER, SAID LINE BEARING N00°11'44"W AS SHOWN ON THE PLAT OF CATHEDRAL PINES SUBDIVISION FILING NO. 1 RECORDED UNDER RECEPTION NO. 205001738 IN THE RECORDERS OF THE EL PASO COUNTY CLERK AND RECORDER.

#### BENCHMARKS

- SITE VERTICAL DATUM NOV088 FROM PLANS BY LEIGH-WHITEHEAD ELEVATION 7436.65  
NO. 4 REBAR 23" NORTH AND 20" EAST OF THE SOUTHEAST CORNER OF SECTION 2, TOWNSHIP 12 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY COLORADO, SAID SECTION CORNER BEING A 3-1/4" ALUMINUM SURVEYORS CAP STAMPED "PLS 9132" BEING APPROPRIATELY MARKED
- 1" IRON PIPE AT SOUTHEAST CORNER OF SITE BEING 367 +/- NORTH OF THE INTERSECTION OF PEREGRINE WAY AND WINSLOW DRIVE AND 30' WESTERLY OF THE CENTERLINE OF WINSLOW DRIVE ELEVATION = 7347.65
- THE NORTHWEST CORNER OF AN AREA INLET BEING EASTERLY OF WINSLOW DRIVE AND BEING 900' +/- NORTH OF THE INTERSECTION OF PEREGRINE WAY AND WINSLOW DRIVE ELEVATION = 7347.47

#### AGENCIES

OWNER/DEVELOPER:	VILLAGREE DEVELOPMENT LLC 5710 VESSEY RD COLORADO SPRINGS, CO 80908 GREGG & ELAINE CAWLFIELD (719) 413-6900	FIRE DISTRICT:	BLACK FOREST FIRE PROTECTION DISTRICT 11445 TEACHOOT ROAD COLORADO SPRINGS, CO 80908 CHIEF BRYAN JACK (719) 495-4300
CIVIL ENGINEER:	JR ENGINEERING, LLC 5475 TECH CENTER DRIVE COLORADO SPRINGS, CO 80919 RYAN BURNS P.E. (303) 267-6178	GAS DEPARTMENT:	BLACK HILLS ENERGY 7080 ALEGRE STREET FOUNTAIN, CO 80817 (719) 393-6625
COUNTY ENGINEERING:	EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, CO 80910 CHARLENE DURHAM, P.E. (719) 520-7951	ELECTRIC DEPARTMENT:	MOUNTAIN VIEW ELECTRIC 11140 E. WOODMEN ROAD FALLON, CO 80831 (719) 495-2283
TRAFFIC ENGINEERING:	EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 JOSHUA PALMER, P.E. (719) 520-6460	COMMUNICATIONS:	U.S. WEST COMMUNICATIONS (LOCATORS) (800) 922-1987

#### STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOIL AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
  - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
  - CITY OF COLORADO SPRINGS/ EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
  - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS AND BRIDGE CONSTRUCTION
  - CDOT M&S STANDARDS
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSIONS OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAYMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- SIGHT VISIBILITY TRIANGLES ARE IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED IN SIGHT TRIANGLES.
- SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS AND MUTCD CRITERIA.
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

#### SHEET INDEX

- 1 : COVER SHEET
- 2 : LEGEND
- 3 : TYPICAL SECTIONS
- 4-5 : GRADING & EROSION CONTROL PLAN
- 6-11 : DETAIL SHEET

TOTAL SHEETS: 11



Know what's below.  
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EDARP PROJECT NUMBER: EGP232

#### EL PASO COUNTY STATEMENT

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

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.1.2, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

H-SCALE	V-SCALE	DATE	DESIGNED BY		DRAWN BY		CHECKED BY	
			N/A	2/14/24	PAL	PAL		
			JOSHUA PALMER, P.E.					
			COUNTY ENGINEER/ECM ADMINISTRATOR					

#### OWNER/DEVELOPER STATEMENT

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

*Elaine Cawfield* 12/11/2023  
ELAINE CAWLFIELD DATE

VILLAGREE DEVELOPMENT, LLC  
5710 VESSEY RD  
COLORADO SPRINGS, CO 80908

#### ENGINEER'S STATEMENT

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

*Ryan E. Burns* 2/14/24  
RYAN E. BURNS, P.E. 0054412 DATE

COLORADO P.E. 0054412  
FOR AND ON BEHALF OF JR ENGINEERING



UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR  
VILLAGREE DEVELOPMENT LLC  
5710 VESSEY RD  
COLORADO SPRINGS, CO 80908  
GREGG & ELAINE CAWLFIELD  
(719) 413-6900

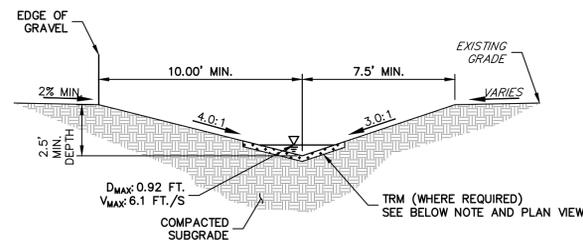
J.R. ENGINEERING  
A Westman Company  
Central 303-740-8888 • Colorado Springs 719-583-2583  
Fort Collins 970-491-9888 • www.jrengineering.com

DATE	BY	REVISION

ESTATES AT CATHEDRAL PINES  
COVER SHEET

SHEET 1 OF 11  
JOB NO. 25260.00

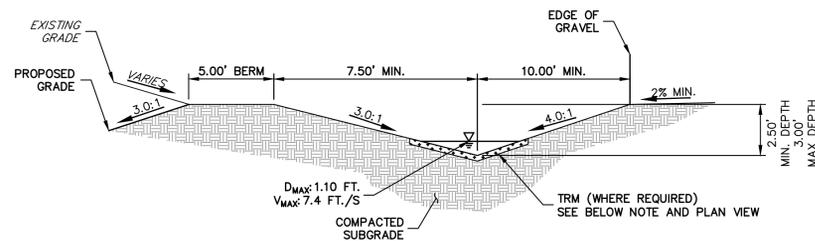




SWALE SECTION BASIN D

N.T.S.

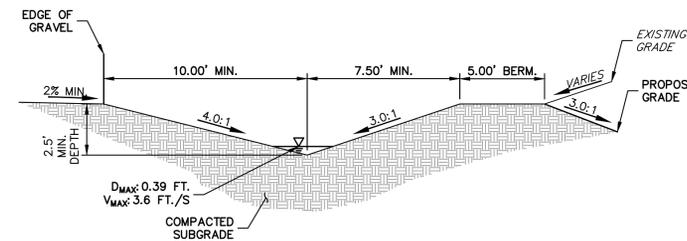
SC250 VMAX (OR APPROVED EQUIVALENT) PERMANENT TURF REINFORCEMENT MAT (TRM) IS REQUIRED TO BE INSTALLED 70' NORTH OF THE ROAD HIGH POINT AND CONTINUE FOR 400' (SEE GEC PLAN FOR LOCATIONS)



SWALE SECTION BASIN L

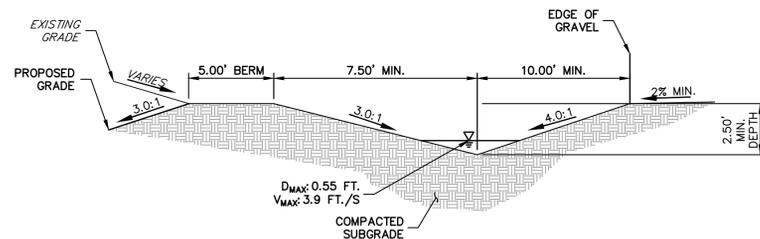
N.T.S.

SC250 VMAX (OR APPROVED EQUIVALENT) PERMANENT TURF REINFORCEMENT MAT (TRM) IS REQUIRED TO BE INSTALLED 60' SOUTH OF THE ROAD HIGH POINT AND CONTINUE FOR 280' (SEE GEC PLAN FOR LOCATIONS)



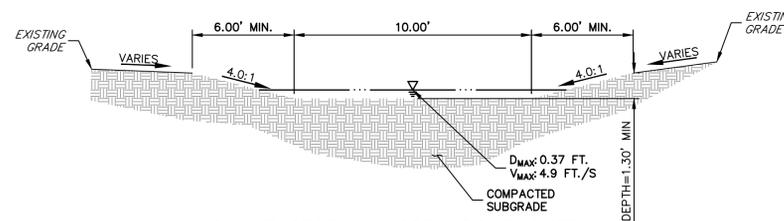
SWALE SECTION BASIN M

N.T.S.



SWALE SECTION BASIN E

N.T.S.



SWALE SECTION NORTH POND OUTFALL

SCALE: N.T.S.



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**ENGINEER'S STATEMENT**

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

*[Signature]*



RYAN E. BURNS, P.E.  
COLORADO P.E. 0054412  
FOR AND ON BEHALF OF JR ENGINEERING

2/14/24

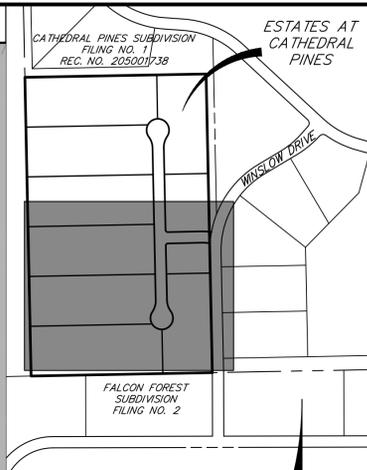
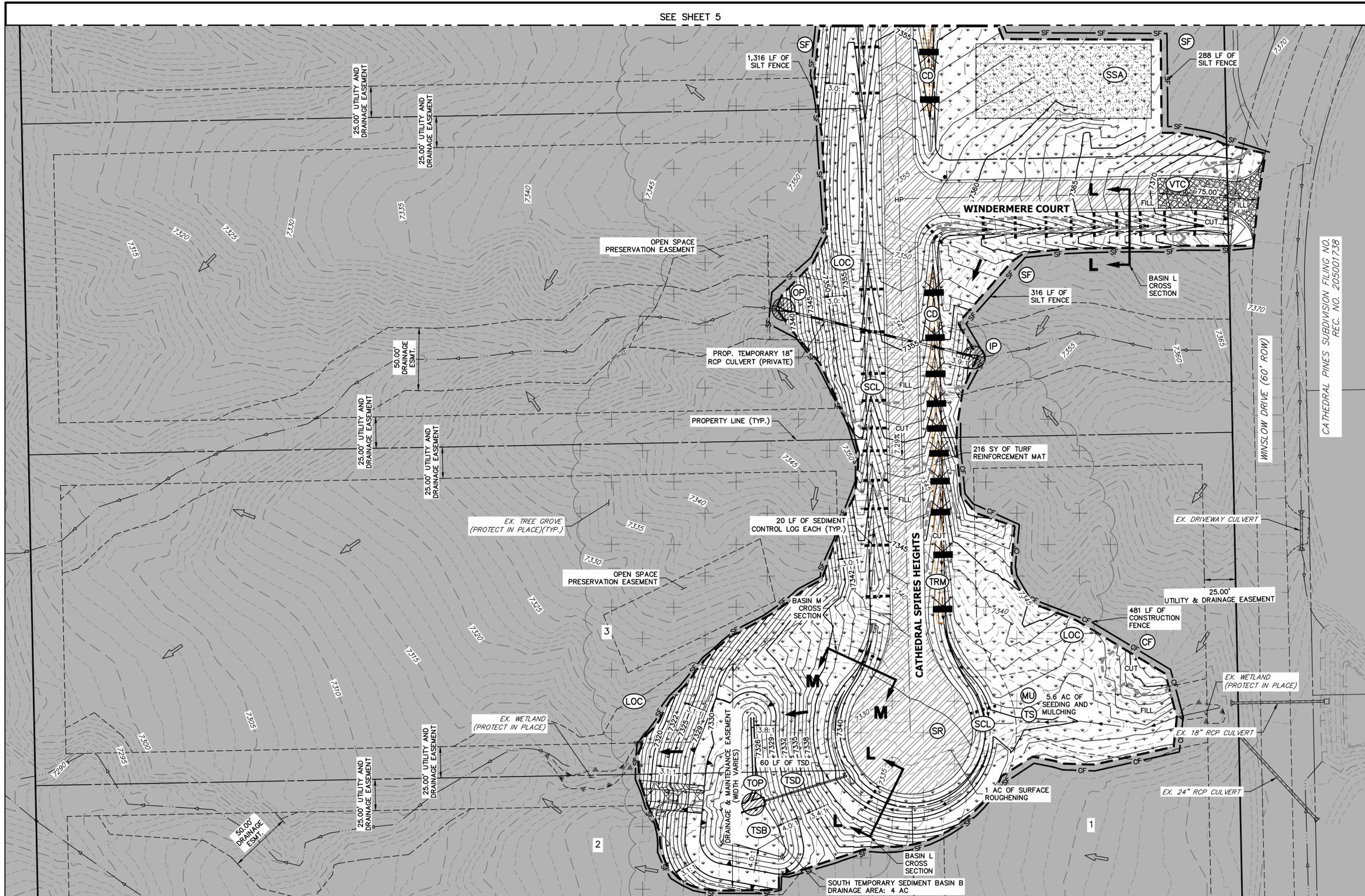
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				NTS	N/A	2/14/24	PAL

ESTATES AT CATHEDRAL PINES  
TYPICAL SECTIONS  
SHEET 3 OF 11  
JOB NO. 25260.00

**J.R. ENGINEERING**  
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(719) 413-6900

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE AGENCIES, OR ENGINEERING APPROVES THEIR USES DESIGNATED BY WRITTEN AUTHORIZATION.



**LEGEND**

SILT FENCE	(SF)	PROPOSED FLOW PATH	(→)
CUT/FILL BOUNDARY	---	EXISTING FLOW PATH	(⇄)
STABILIZED STAGING AREA	(SSA)	LIMITS OF CONSTRUCTION/DISTURBANCE	(LOC)
VEHICLE TRACKING CONTROL	(VTC)	TEMPORARY SEEDING AND MULCHING	(SM)
SURFACE ROUGHENING	(SR)	TEMPORARY CHECK DAM	(CD)
TEMP. SWALE	(TSW)	OUTLET PROTECTION	(OP)
INLET PROTECTION	(IP)	STOCK PILE	(SP)
TEMPORARY SEDIMENT BASIN	(TSB)	TURF REINFORCEMENT MAT	(TRM)
CONSTRUCTION FENCE	(CF)	TEMPORARY SLOPE DRAIN	(TSD)
TEMPORARY OUTLET PROTECTION	(TOP)	SEDIMENT CONTROL LOG	(SCL)

**BMP PHASING**

<b>INITIAL</b>	<b>INTERIM</b>	<b>FINAL</b>
1. INSTALL VTC	1. MAINTAIN ALL BMP'S	1. INSTALL MULCH AND TEMPORARY SEEDING
2. INSTALL SILT FENCE	2. LOCATE/INSTALL TEMPORARY STOCK PILE	IN ALL DISTURBED AREA
3. INSTALL SEDIMENT BASINS	3. INSTALL INLET AND OUTLET PROTECTION	2. REMOVE ALL TEMPORARY BMP'S AFTER 70% VEGETATION HAS BEEN ACHIEVED
	4. ESTABLISH SSA	
	5. INSTALL CONSTRUCTION FENCE	
	6. INSTALL SR	
	7. INSTALL TEMPORARY SWALE	
	8. INSTALL CHECK DAMS	

**NOTE:**  
FUTURE ANTICIPATED LOTS AND EASEMENTS SHOWN FOR INFORMATION ONLY. EARLY GRADING REQUEST IS FOR THE EXISTING 35 ACRE PARCEL.

**CONSTRUCTION NOTES:**  
EXISTING VEGETATION ON THE PROJECT SITE CONSISTS OF SPARSE GRASS AND TREES.  
NO WETLANDS ARE TO BE PERMANENTLY DISTURBED PER THIS GRADING PLAN.  
THERE ARE NO DEDICATED ASPHALT OR CONCRETE BATCH PLANTS PROPOSED AS PART OF THIS PROJECT.  
DEWATERING OPERATIONS ARE NOT ANTICIPATED FOR THIS PROJECT.  
NO EARLY GRADING IS TO OCCUR WITHIN THE 100 YEAR FLOODPLAIN.  
ALL TEMPORARY RIPRAP SHOWN ON THE PLANS SHALL BE TYPE 'M'. RIPRAP SHALL BE PLACED IN THE LOCATIONS INDICATED BY THE PLAN OR IN AREAS AS THE CONTRACTOR SEES FIT TO CONTROL EROSION. ALL RIPRAP SHALL BE PLACED AT A MINIMUM THICKNESS OF 2.0' DEEP.

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

RYAN E. BURNS, P.E.  
COLORADO P.E. 0054412  
FOR AND ON BEHALF OF JR ENGINEERING

DATE: 2/14/24

ESTATES AT CATHEDRAL PINES

GRADING & EROSION CONTROL PLAN

SHEET 4 OF 11

JOB NO. 25260.00

BY DATE

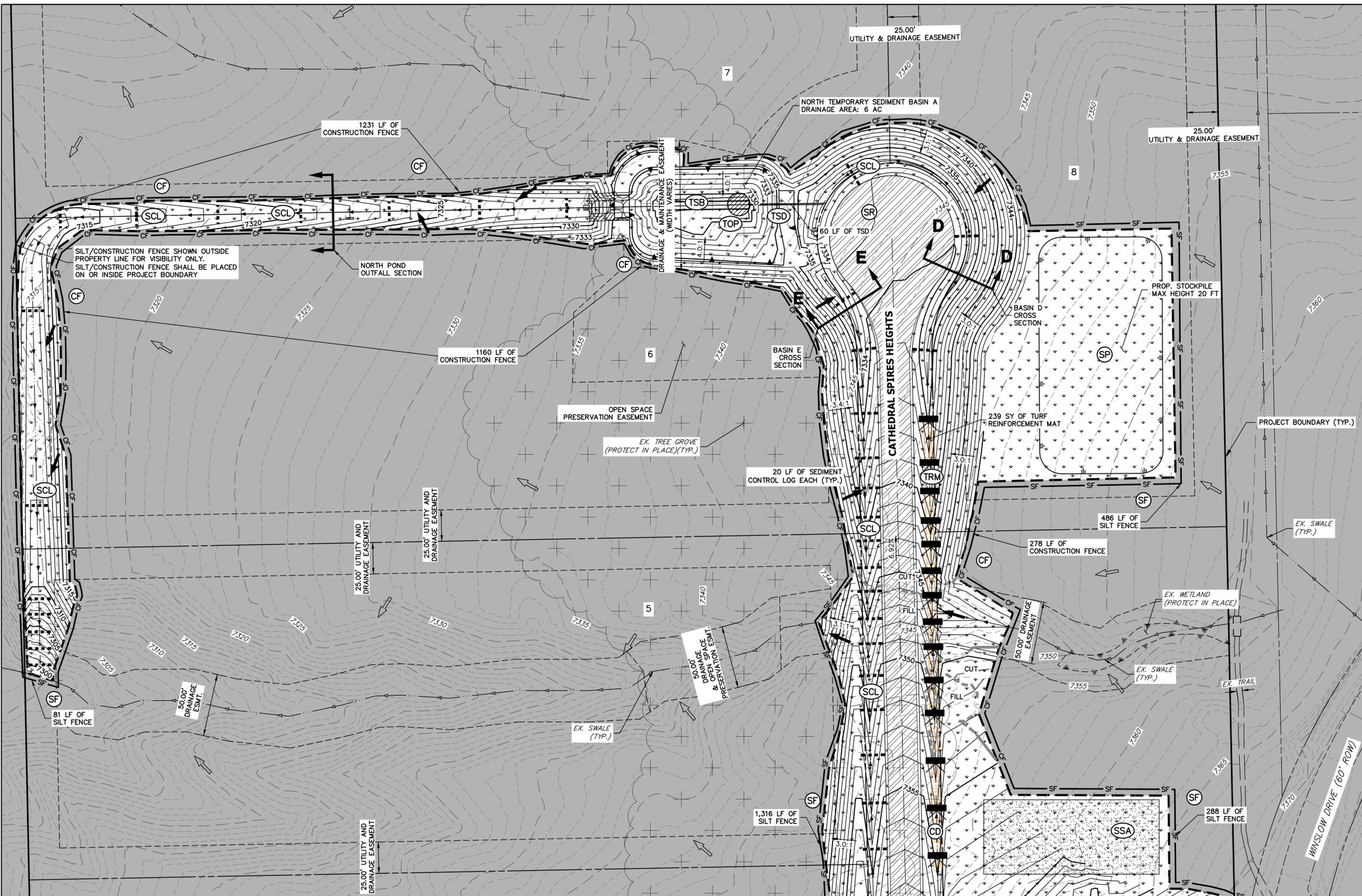
No.	REVISION
1"	40'
H-SCALE	N/A
V-SCALE	2/14/24
DATE	PAL
DESIGNED BY	PAL
DRAWN BY	
CHECKED BY	

ESTATES AT CATHEDRAL PINES

PREPARED FOR  
VILLAGREE DEVELOPMENT LLC  
5710 VESSEY RD  
COLORADO SPRINGS, CO 80908  
GREGG & ELAINE CAWFIELD  
(719) 413-6900

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

J.R. ENGINEERING  
A Westman Company  
Central 303-740-9888 • Colorado Springs 719-583-2583  
Fort Collins 970-491-9888 • www.jrengineering.com



**LEGEND**

SILT FENCE	SF	PROPOSED FLOW PATH	→
CUT/FILL BOUNDARY	--- C/F ---	EXISTING FLOW PATH	⇄
STABILIZED STAGING AREA	SSA	LIMITS OF CONSTRUCTION/DISTURBANCE	LOC
VEHICLE TRACKING CONTROL	VTC	TEMPORARY SEEDING AND MULCHING	SM
SURFACE ROUGHENING	SR	TEMPORARY CHECK DAM	CD
TEMP. SWALE	TSW	OUTLET PROTECTION	OP
INLET PROTECTION	IP	STOCK PILE	SP
TEMPORARY SEDIMENT BASIN	TSB	TURF REINFORCEMENT MAT	TRM
CONSTRUCTION FENCE	CF	TEMPORARY SLOPE DRAIN	TSD
TEMPORARY OUTLET PROTECTION	TOP	SEDIMENT CONTROL LOG	SCL

- BMP PHASING**
- INITIAL**
1. INSTALL VTC
  2. INSTALL SILT FENCE
  3. INSTALL SEDIMENT BASINS
- INTERIM**
1. MAINTAIN ALL BMP'S
  2. LOCATE/INSTALL TEMPORARY STOCK PILE
  3. INSTALL INLET AND OUTLET PROTECTION
  4. ESTABLISH SSA
  5. INSTALL CONSTRUCTION FENCE
  6. INSTALL SR
  7. INSTALL TEMPORARY SWALE
  8. INSTALL CHECK DAMS
- FINAL**
1. INSTALL MULCH AND TEMPORARY SEEDING IN ALL DISTURBED AREA
  2. REMOVE ALL TEMPORARY BMP'S AFTER 70% VEGETATION HAS BEEN ACHIEVED
- NOTE:**  
 FUTURE ANTICIPATED LOTS AND EASEMENTS SHOWN FOR INFORMATION ONLY.  
 EARLY GRADING REQUEST IS FOR THE EXISTING 35 ACRE PARCEL.

**CONSTRUCTION NOTES:**  
 EXISTING VEGETATION ON THE PROJECT SITE CONSISTS OF SPARSE GRASS AND TREES.  
 NO WETLANDS ARE TO BE PERMANENTLY DISTURBED PER THIS GRADING PLAN.  
 THERE ARE NO DEDICATED ASPHALT OR CONCRETE BATCH PLANTS PROPOSED AS PART OF THIS PROJECT.  
 DEWATERING OPERATIONS ARE NOT ANTICIPATED FOR THIS PROJECT.  
 NO EARLY GRADING IS TO OCCUR WITHIN THE 100 YEAR FLOODPLAIN.  
 ALL TEMPORARY RIPRAP SHOWN ON THE PLANS SHALL BE TYPE 'M'. RIPRAP SHALL BE PLACED IN THE LOCATIONS INDICATED BY THE PLAN OR IN AREAS AS THE CONTRACTOR SEES FIT TO CONTROL EROSION. ALL RIPRAP SHALL BE PLACED AT A MINIMUM THICKNESS OF 2.0' DEEP.

CATHEDRAL PINES SUBDIVISION  
 FILING NO. 1  
 REC. NO. 205001738

ESTATES AT CATHEDRAL PINES

FALCON FOREST SUBDIVISION  
 FILING NO. 2

WINDFLOW DRIVE

KEYMAP  
 SCALE: N.T.S.

PREPARED FOR  
 VILLAGREE DEVELOPMENT LLC  
 5710 VESSEY RD  
 COLORADO SPRINGS, CO 80908  
 GREGG & ELAINE CAWFIELD  
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**J.R. ENGINEERING**  
 A Westman Company  
 Centennial 303-740-9888 • Colorado Springs 719-583-2593  
 Fort Collins 970-491-9888 • www.jrengineering.com

No.	REVISION	DATE

H-SCALE 1"=40'  
 V-SCALE N/A  
 DATE 2/14/24  
 DESIGNED BY PAL  
 DRAWN BY PAL  
 CHECKED BY PAL

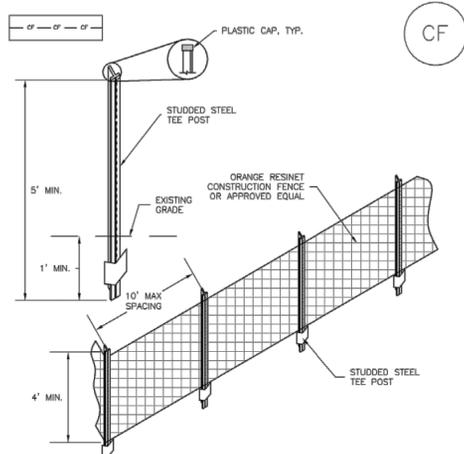
**811**  
 Know what's below.  
 Call before you dig.

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

RYAN E. BURNS, P.E.  
 COLORADO P.E. 0054412  
 FOR AND ON BEHALF OF JR ENGINEERING

COLOrado REGISTred PROFESSIONAL ENGINEER  
 0054412  
 2/14/24

ESTATES AT CATHEDRAL PINES  
 GRADING & EROSION CONTROL PLAN  
 SHEET 5 OF 11  
 JOB NO. 25260.00



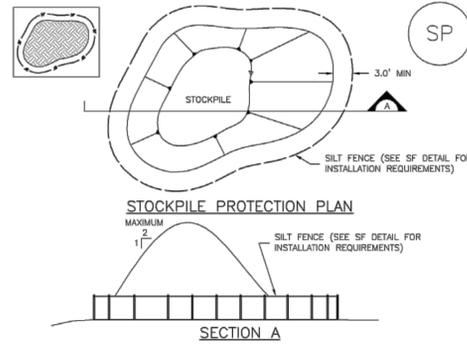
CF-1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION OF CONSTRUCTION FENCE.
2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.
4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.
5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
  5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDING AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.  
(DETAIL ADAPTED FROM TORIN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION OF STOCKPILES AND TYPE OF STOCKPILE PROTECTION.
2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDING AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADE CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  4. IF PERIMETER CONTROL MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
  5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.
- (DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)  
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

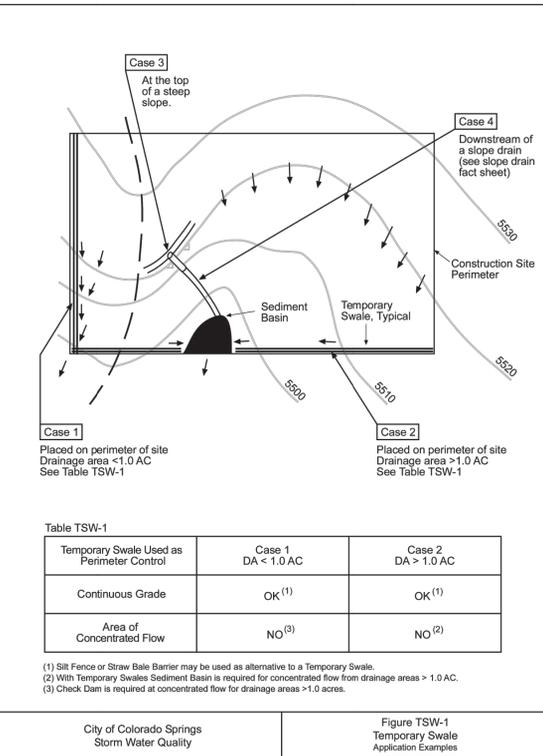
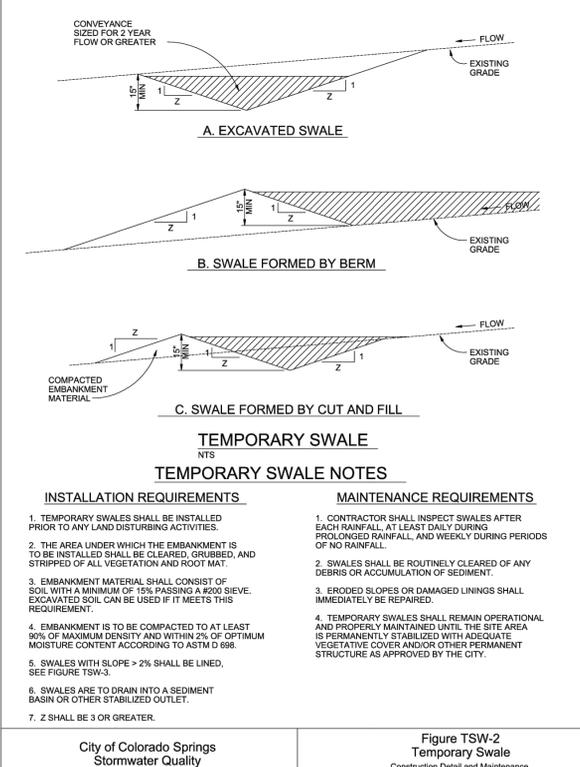


Table TSW-1

Temporary Swale Used as	Case 1 DA < 1.0 AC	Case 2 DA > 1.0 AC
Continuous Grade	OK <sup>(1)</sup>	OK <sup>(1)</sup>
Area of Concentrated Flow	NO <sup>(3)</sup>	NO <sup>(2)</sup>

(1) Silt Fence or Straw Bale Barrier may be used as alternative to a Temporary Swale.  
(2) With Temporary Swales Sediment Basin is required for concentrated flow from drainage areas > 1.0 AC.  
(3) Check Dam is required at concentrated flow for drainage areas > 1.0 acres.



TEMPORARY SWALE NOTES

INSTALLATION REQUIREMENTS MAINTENANCE REQUIREMENTS

1. TEMPORARY SWALES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
  2. THE AREA UNDER WHICH THE EMBANKMENT IS TO BE INSTALLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATION AND ROOT MAT.
  3. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL WITH A MINIMUM OF 15% PASSING A #200 SIEVE. EXCAVATED SOIL CAN BE USED IF IT MEETS THIS REQUIREMENT.
  4. EMBANKMENT IS TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D 698.
  5. SWALES WITH SLOPE > 2% SHALL BE LINED. SEE FIGURE TSW-2.
  6. SWALES ARE TO DRAIN INTO A SEDIMENT BASIN OR OTHER STABILIZED OUTLET.
  7. Z SHALL BE 3 OR GREATER.
1. CONTRACTOR SHALL INSPECT SWALES AFTER EACH RAINFALL AT LEAST DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.
  2. SWALES SHALL BE ROUTINELY CLEARED OF ANY DEBRIS OR ACCUMULATION OF SEDIMENT.
  3. ERODED SLOPES OR DAMAGED LININGS SHALL IMMEDIATELY BE REPAIRED.
  4. TEMPORARY SWALES SHALL REMAIN OPERATIONAL AND PROPERLY MAINTAINED UNTIL THE SITE AREA IS PERMANENTLY STABILIZED WITH ADEQUATE VEGETATIVE COVER AND/OR OTHER PERMANENT STRUCTURE AS APPROVED BY THE CITY.

Description

Outlet protection helps to reduce erosion immediately downstream of a pipe, culvert, slope drain, rundown or other conveyance with concentrated, high-velocity flows. Typical outlet protection consists of riprap or rock aprons at the conveyance outlet.



Photograph TOP-1. Riprap outlet protection.

Appropriate Uses

Outlet protection should be used when a conveyance discharges onto a disturbed area where there is potential for accelerated erosion due to concentrated flow. Outlet protection should be provided where the velocity at the culvert outlet exceeds the maximum permissible velocity of the material in the receiving channel.

Note: This Fact Sheet and detail are for temporary outlet protection, outlets that are intended to be used for less than 2 years. For permanent, long-term outlet protection, see the Major Drainage chapter of Volume 1.

Design and Installation

Design outlet protection to handle runoff from the largest drainage area that may be contributing runoff during construction (the drainage area may change as a result of grading). Key in rock, around the entire perimeter of the apron, to a minimum depth of 6 inches for stability. Extend riprap to the height of the culvert or the normal flow depth of the downstream channel, whichever is less. Additional erosion control measures such as vegetative lining, turf reinforcement mat and/or other channel lining methods may be required downstream of the outlet protection if the channel is susceptible to erosion. See Design Detail OP-1 for additional information.

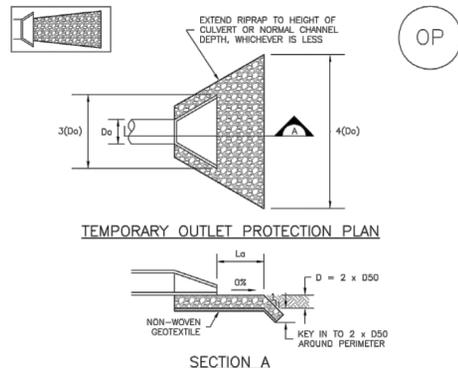
Maintenance and Removal

Inspect apron for damage and displaced rocks. If rocks are missing or significantly displaced, repair or replace as necessary. If rocks are continuously missing or displaced, consider increasing the size of the riprap or deeper keying of the perimeter.

Remove sediment accumulated at the outlet before the outlet protection becomes buried and ineffective. When sediment accumulation is noted, check that upgradient BMPs, including inlet protection, are in effective operating condition.

Outlet protection may be removed once the pipe is no longer draining an upstream area, or once the downstream area has been sufficiently stabilized. If the drainage pipe is permanent, outlet protection can be left in place; however, permanent outlet protection should be designed and constructed in accordance with the requirements of the Major Drainage chapter of Volume 2.

Outlet Protection	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No



TEMPORARY OUTLET PROTECTION PLAN

SECTION A

PIPE DIAMETER, D <sub>p</sub> (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, L <sub>a</sub> (FT)	RIPRAP D50 MIN (INCHES)
8	2.5	5	4
	5	10	6
	10	13	6
12	5	10	4
	10	13	6
	20	16	9
18	30	23	12
	40	26	16
	60	30	16
24	30	16	9
	40	26	9
	60	30	16

OP-1. TEMPORARY OUTLET PROTECTION

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

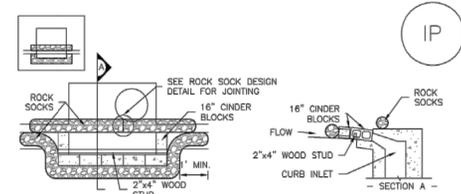
*(Signature)*  
RYAN E. BURNS, P.E.  
COLORADO P.E. 0054412  
FOR AND ON BEHALF OF JR ENGINEERING & ARCHITECTURE, P.C.  
DATE: 2/14/24

ESTATES AT CATHEDRAL PINES  
DETAIL SHEET  
SHEET 6 OF 11  
JOB NO. 252600.00

PREPARED FOR: VILLAGREE DEVELOPMENT LLC  
5710 VESSEY RD  
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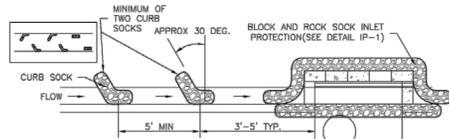
SC-6 Inlet Protection (IP)



IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
- GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
- PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
- SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
- AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

IP-4 Urban Drainage and Flood Control District August 2013  
Urban Storm Drainage Criteria Manual Volume 3

SC-6 Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR:  
-LOCATION OF INLET PROTECTION.  
-TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
- INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
- MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INLET PROTECTION MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/2 OF THE HEIGHT FOR STRAW BALES.
- INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
- WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

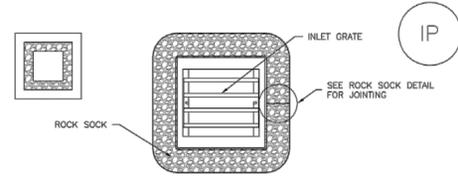
(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

IP-8 Urban Drainage and Flood Control District August 2013  
Urban Storm Drainage Criteria Manual Volume 3

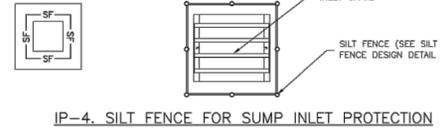
Inlet Protection (IP) SC-6



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



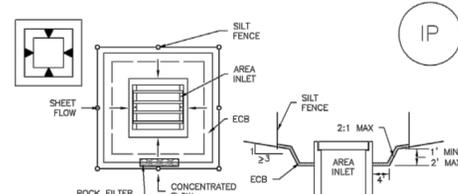
IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

- SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.
- STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

August 2013 Urban Drainage and Flood Control District August 2013  
Urban Storm Drainage Criteria Manual Volume 3

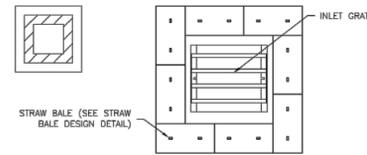
SC-6 Inlet Protection (IP)



IP-5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

- THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.
- WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.
- SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



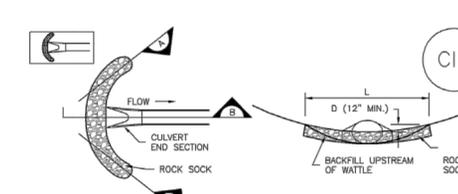
IP-6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

- SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
- BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

IP-6 Urban Drainage and Flood Control District August 2013  
Urban Storm Drainage Criteria Manual Volume 3

Inlet Protection (IP) SC-6



CIP-1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR:  
-LOCATION OF CULVERT INLET PROTECTION.
- SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

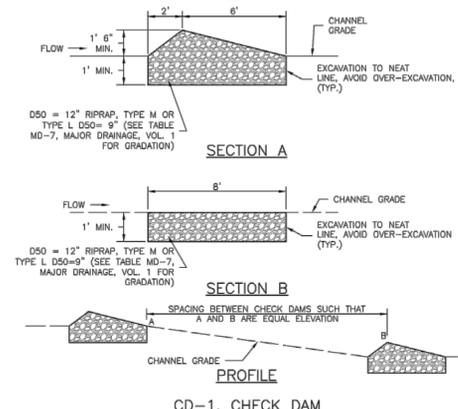
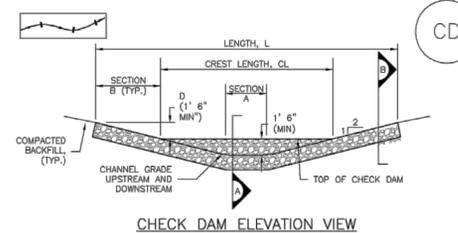
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
- CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

August 2013 Urban Drainage and Flood Control District August 2013  
Urban Storm Drainage Criteria Manual Volume 3

EC-12 Check Dams (CD)

Check Dams (CD) EC-12



November 2010 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

CD-4 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

SEEDING & MULCHING

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

**SOIL PREPARATION**

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

**SEEDING**

- ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
- SEED SHOULD BE DRILL-SEEDED WHENEVER POSSIBLE.
  - SEED DEPTH MUST BE 1/4 TO 3/8 INCHES WHEN DRILL-SEEDED IS USED.
- BROADCAST SEEDING OR HYDRO-SEEDED WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
  - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLIANT DRILL OR HYDRO-SEEDED.
  - BROADCAST SEEDING MUST BE LIGHTLY HAND-RAKED INTO THE SOIL.

**MULCHING**

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

**ENGINEER'S STATEMENT**

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

*Ryan E. Burns*

RYAN E. BURNS, P.E.  
COLORADO P.E. 0054412

DATE: 2/14/24

ESTATES AT CATHEDRAL PINES  
DETAIL SHEET

PREPARED FOR  
VILLAGREE DEVELOPMENT LLC  
5710 VESSEY RD  
COLORADO SPRINGS, CO 80908  
GREGG & ELAINE CAWFIELD  
(719) 413-6900

NO.	REVISION	DATE

H-SCALE	V-SCALE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
N/A	N/A	2/14/24	PAL	PAL	

**ENGINEER'S STATEMENT**  
 STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT  
*Ryan E. Burns*  
 RYAN E. BURNS, P.E.  
 COLORADO P.E. 0054412  
 FOR AND ON BEHALF OF JR ENGINEERING, INC.

SHEET 7 OF 11  
JOB NO. 25260.00



**Surface Roughening (SR)**

**EC-1**

**Description**

Surface roughening is an erosion control practice that involves tracking, scarifying, imprinting, or tilling a disturbed area to provide temporary stabilization of disturbed areas. Surface roughening creates variations in the soil surface that help to minimize wind and water erosion. Depending on the technique used, surface roughening may also help establish conditions favorable to establishment of vegetation.



Photograph SR-1. Surface roughening via imprinting for temporary stabilization.

**Appropriate Uses**

Surface roughening can be used to provide temporary stabilization of disturbed areas, such as when revegetation cannot be immediately established due to seasonal planting limitations. Surface roughening is not a stand-alone BMP, and should be used in conjunction with other erosion and sediment controls.

Surface roughening is often implemented in conjunction with grading and is typically performed using heavy construction equipment to track the surface. Be aware that tracking with heavy equipment will also compact soils, which is not desirable in areas that will be revegetated. Scarifying, tilling, or ripping are better surface roughening techniques in locations where revegetation is planned. Roughening is not effective in very sandy soils and cannot be effectively performed in rocky soil.

**Design and Installation**

Typical design details for surfacing roughening on steep and mild slopes are provided in Details SR-1 and SR-2, respectively.

Surface roughening should be performed either after final grading or to temporarily stabilize an area during active construction that may be inactive for a short time period. Surface roughening should create depressions 2 to 6 inches deep and approximately 6 inches apart. The surface of exposed soil can be roughened by a number of techniques and equipment. Horizontal grooves (running parallel to the contours of the land) can be made using tracks from equipment treads, stair-step grading, ripping, or tilling.

Fill slopes can be constructed with a roughened surface. Cut slopes that have been smooth graded can be roughened as a subsequent operation. Roughening should follow along the contours of the slope. The tracks left by track mounted equipment working perpendicular to the contour can leave acceptable horizontal depressions; however, the equipment will also compact the soil.

Surface Roughening	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	No

November 2010 Urban Drainage and Flood Control District SR-1  
Urban Storm Drainage Criteria Manual Volume 3

**EC-1**

**Surface Roughening (SR)**

**Maintenance and Removal**

Care should be taken not to drive vehicles or equipment over areas that have been surface roughened. Tire tracks will smooth the roughened surface and may cause runoff to collect into rills and gullies.

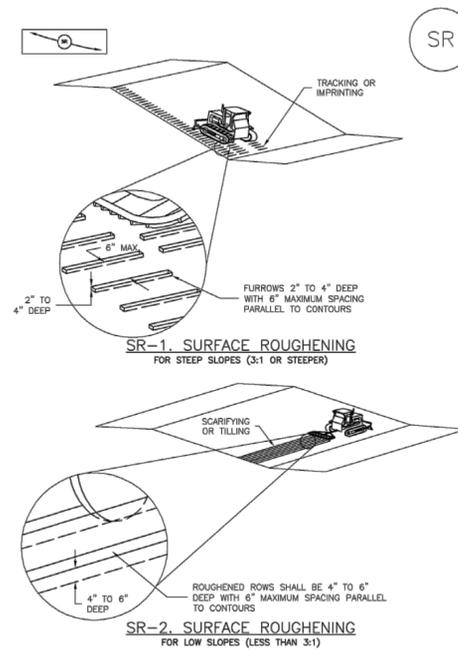
Because surface roughening is only a temporary control, additional treatments may be necessary to maintain the soil surface in a roughened condition.

Areas should be inspected for signs of erosion. Surface roughening is a temporary measure, and will not provide long-term erosion control.

SR-2 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

**Surface Roughening (SR)**

**EC-1**



SR-1 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

**EC-1**

**Surface Roughening (SR)**

**SURFACE ROUGHENING INSTALLATION NOTES**

- SEE PLAN VIEW FOR:  
-LOCATION(S) OF SURFACE ROUGHENING.
- SURFACE ROUGHENING SHALL BE PROVIDED PROMPTLY AFTER COMPLETION OF FINISHED GRADING (FOR AREAS NOT RECEIVING TOPSOIL) OR PRIOR TO TOPSOIL PLACEMENT OR ANY FORECASTED RAIN EVENT.
- AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD WILL BE PLACED WITHOUT DELAY IN THE CONSTRUCTION SEQUENCE, SURFACE ROUGHENING IS NOT REQUIRED.
- DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.
- A FARMING DISK SHALL NOT BE USED FOR SURFACE ROUGHENING.

**SURFACE ROUGHENING MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACE UPON DISCOVERY OF THE FAILURE.
- VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
- IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
- IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER RILL EROSION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)  
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM IUDPCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SR-4 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR  
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BY	DATE	REVISION	No.	N/A	N/A	DATE	DESIGNED BY	PAL	PAL	CHECKED BY
						2/14/24				

ESTATES AT CATHEDRAL PINES  
DETAIL SHEET  
SHEET 9 OF 11  
JOB NO. 252600

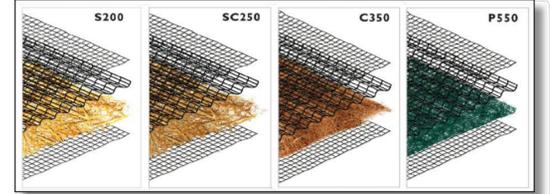
**VMax® TRMs**



**A Permanent Turf Reinforcement Mat Solution for Every Design**  
The VMax system of permanent TRMs are ideal for high-flow channels, streambanks, shorelines, and other areas needing permanent vegetation reinforcement and protection from water and wind. Our VMax TRMs combine a three-dimensional matting and a fiber matrix material for all-terrain erosion protection, vegetation establishment and reinforcement. The VMax TRMs are available with various performance capabilities and support reinforced vegetative lining development from germination to maturity.

**VMax® Unique Three-Dimensional Design**  
North American Green VMax TRMs are each designed to maximize performance through all development phases of a reinforced vegetative lining. The corrugated matting structure lends a true reinforcement zone for vegetation entanglement, especially compared to flat net mats. The unique design of the corrugated matting also helps to create a shear plane that deflects flowing water away from the soil surface. And the incorporation of a fiber matrix supplements the 3-D structure by creating a ground cover that blocks soil movement and aids in vegetation establishment.

**Four VMax Turf Reinforcement Mats Designed for Every Level of Performance**



Matrix Fiber	100% Straw	70% Straw / 30% Coconut	100% Coconut	100% Polypropylene
Netting Types	Top and Bottom light-weight UV-stabilized PP, Crimped PP center net	Top and Bottom UV-stabilized PP, Crimped PP center net	Top and Bottom heavy-weight UV-stabilized PP, Crimped PP center net	Top and Bottom ultra heavy-weight UV-stabilized PP, Crimped PP center net
Typical Slope Applications (HS)	1:1 and greater	1:1 and greater	1:1 and greater	1:1 and greater
Channel Shear Stress Threshold	Unvegetated: 2.3 psf Vegetated: 10.0 psf	Unvegetated: 3.0 psf Vegetated: 10.0 psf	Unvegetated: 3.2 psf Vegetated: 12.0 psf	Unvegetated: 4.0 psf Vegetated: 14.0 psf
Channel Velocity Threshold	Unvegetated: 8.5 fps Vegetated: 18 fps	Unvegetated: 9.5 fps Vegetated: 15 fps	Unvegetated: 10.5 fps Vegetated: 20 fps	Unvegetated: 12.5 fps Vegetated: 25 fps

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North American Green, LLC.  
4609 E. Boonville-New Harmony Rd., Evansville, IN  
(800) 772-2040 | www.nagreen.com

**VMax® TRMs cont.**

**Selecting the Right VMax TRM**  
Choosing the right VMax TRM can be made easy by utilizing our Erosion Control Materials Design Software (www.ecmds.com), which allows users to input project specific parameters for channels, slopes, spillways, and more and ensures proper evaluation, design, and product selection in return. Our four VMax TRMs offer varying performance values, fiber matrix longevities, and price points, to help you meet your project specific goals.

**Twist Pin + VMax TRM - an Ideal Installation**  
Utilizing the VMax TRMs in conjunction with Twist Pin fastener technology can result in an installed system that pushes TRM performance with increased factors of safety. The combined system has been shown to have superior pullout strength performance up to 200 lbs when compared to installation with traditional wire staples and pins. This is up to 10x the pullout resistance of wire staples and pins. Additionally, the use of the twist pins provides intimate contact between the TRM and the soil, and have been shown to be effective in a wide range of soil types. With a quick and easy installation using an electric drill and custom chuck, the TRM+Twist Pin system can eliminate time and labor costs from day 1 through project release.

VMax turf reinforcement mat being installed on a channel application (top right), twist pins installed with TRMs can have increased system performance and pullout resistance (middle right), twist pins are available in 8" and 12" lengths and two coil configurations designed for hard or soft soil types (lower right).

Comparison of common TRM fasteners based on pullout performance and typical application (below).

Fastener	Pullout Resistance (lb)	Comment
6" Round Top Pin	14	Best for hardened soils where other fasteners are damaged during installation.
6" Regular U-staple	42	Standard fastener that develops additional pullout as legs may deflect and add friction during installation.
12" Pin with Washer	35	Standard fastener good for soils where staples can be bent frequently and are too difficult to install.
18" Pin with Washer	27	Standard fastener good for soils where staples are frequently bent and 12" straight pins fail to provide sufficient pullout because surface soil is wet or loose.
Twist Pin	170	Upgraded fastener that provides high pullout and ideal for loose or soft soils.

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(800) 772-2040 | www.nagreen.com

**ENGINEER'S STATEMENT**  
STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

*[Signature]*  
RYAN E. BURNS, P.E.  
COLORADO P.E. 0054412  
FOR AND ON BEHALF OF JR ENGINEERING

0054412  
2/14/24  
DATE



**Sediment Control Log (SCL)**

SC-2

**Description**

A sediment control log is a linear roll made of natural materials such as straw, coconut fiber, or compost. The most common type of sediment control log has straw filling and is often referred to as a "straw wattle." All sediment control logs are used as a sediment barrier to intercept sheet flow runoff from disturbed areas.



**Appropriate Uses**

Sediment control logs can be used in the following applications to trap sediment:

- As perimeter control for stockpiles and the site.
- As part of inlet protection designs.
- As check dams in small drainage ditches. (Sediment control logs are not intended for use in channels with high flow velocities.)
- On disturbed slopes to shorten flow lengths (as an erosion control).
- As part of multi-layered perimeter control along a receiving water such as a stream, pond or wetland.



Photographs SCL-1 and SCL-2. Sediment control logs used as 1) a perimeter control around a soil stockpile; and, 2) as a "J-hook" perimeter control at the corner of a construction site.

Sediment control logs work well in combination with other layers of erosion and sediment controls.

**Design and Installation**

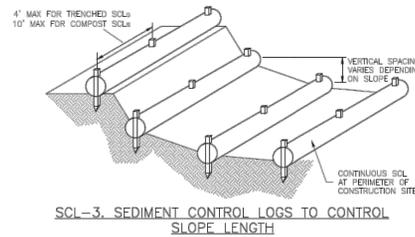
Sediment control logs should be installed along the contour to avoid concentrating flows. The maximum allowable tributary drainage area per 100 lineal feet of sediment control log, installed along the contour, is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures. This recommendation only applies to sediment control logs installed along the contour. When installed for other uses, such as perimeter control, it should be installed in a way that will not produce concentrated flows. For example, a "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate in multiple areas rather than concentrate and cause erosive conditions parallel to the BMP.

Sediment Control Log	
Erosion Control	Moderate
Sediment Control	Yes
Site/Material Management	No

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**Sediment Control Log (SCL)**

SC-2



November 2015 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-5

**SC-2 Sediment Control Log (SCL)**

Although sediment control logs initially allow runoff to flow through the BMP, they can quickly become a barrier and should be installed as if they are impermeable.

Design details and notes for sediment control logs are provided in the following details. Sediment logs must be properly installed per the detail to prevent undercutting, bypassing and displacement. When installed on slopes, sediment control logs should be installed along the contours (i.e., perpendicular to flow).

Improper installation can lead to poor performance. Be sure that sediment control logs are properly trenched (if lighter than 8 lb/ft), anchored and tightly jointed.

**Maintenance and Removal**

Be aware that sediment control logs will eventually degrade. Remove accumulated sediment before the depth is one-half the height of the sediment log and repair damage to the sediment log, typically by replacing the damaged section.

Once the upstream area is stabilized, remove and properly dispose of the logs. Areas disturbed beneath the logs may need to be seeded and mulched. Sediment control logs that are biodegradable may occasionally be left in place (e.g., when logs are used in conjunction with erosion control blankets as permanent slope breaks). However, removal of sediment control logs after final stabilization is typically appropriate when used in perimeter control, inlet protection and check dam applications. Compost from compost sediment control logs may be spread over the area and seeded as long as this does not cover newly established vegetation.

SCL-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2015

**SC-2 Sediment Control Log (SCL)**

**SEDIMENT CONTROL LOG INSTALLATION NOTES**

- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
- SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.
- SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
- SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
- IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/2 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
- THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
- FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

**SEDIMENT CONTROL LOG MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
- SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION.COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

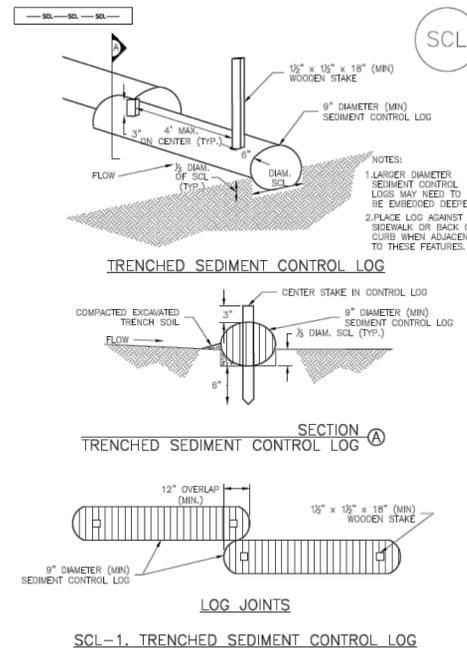
(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO; NOT AVAILABLE IN AUSTIN)

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

SCL-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2015

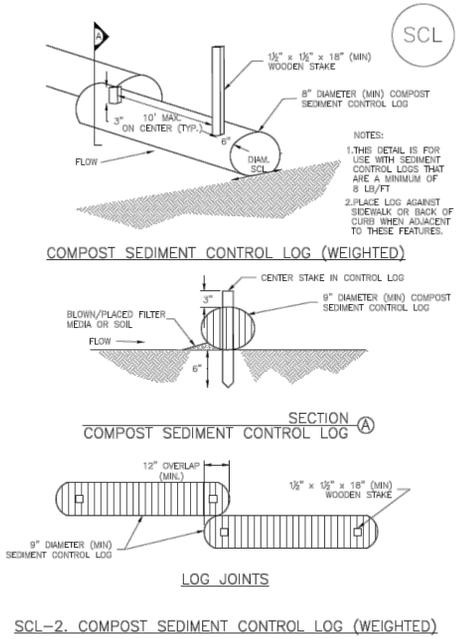
**Sediment Control Log (SCL)**

SC-2



SCL-1. TRENCHED SEDIMENT CONTROL LOG November 2015 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-3

**SC-2 Sediment Control Log (SCL)**



SCL-2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED) November 2015 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-4

**ENGINEER'S STATEMENT**  
 STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

*[Signature]*  
 RYAN E. BURNS, P.E.  
 COLORADO P.E. 0054412  
 FOR AND ON BEHALF OF JR ENGINEERING

2/14/24

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR  
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 GREGG & ELAINE CAWFIELD  
 (719) 413-6900

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BY	DATE	No.	REVISION	H-SCALE	V-SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
				N/A	N/A	2/14/24	PAL	PAL
ESTATES AT CATHEDRAL PINES DETAIL SHEET								
SHEET	11	OF	11	JOB NO. 25260.00				

## APPENDIX D – SWMP CHECKLIST

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3275 Akers Drive  
 Colorado Springs, CO 80922  
 Phone 719-520-6460  
 Fax 719-520-6879  
 www.elpasoco.com

## EL PASO COUNTY STORMWATER MANAGEMENT PLAN CHECKLIST

EPC Project Number:

Revised: October 2021

		Applicant	EPC
<b>1. STORMWATER MANAGEMENT PLAN</b> (in the "Applicant" column specify the page number for each item)			
1	Applicant (owner/designated operator), SWMP Preparer, Qualified Stormwater Manager, and Contractor Information. (On cover/title sheet)		
2	Table of Contents		
3	Site description and location to include: vicinity map with nearest street/crossroads description		
4	Narrative description of construction activities proposed (e.g., may include clearing and grubbing, temporary stabilization, road grading, utility / storm installation, final grading, final stabilization, and removal of temporary control measures)		
5	Phasing plan – may require separate drawings indicating initial, interim, and final site phases for larger projects. Provide "living maps" that can be revised in the field as conditions dictate		
6	Proposed sequence for major activities: Provide a construction schedule of anticipated starting and completion dates for each stage of land-disturbing activity depicting conservation measures anticipated, including the expected date on which the final stabilization will be completed		
7	Estimates of the total site area and area to undergo disturbance; current area of disturbance must be updated on the SWMP as changes occur		
8	Soil erosion potential and impacts on discharge that includes a summary of the data used to determine soil erosion potential		
9	A description of existing vegetation at the site and percent ground cover and method used to determine ground cover		
10	Location and description of all potential pollution sources including but not limited to: disturbed and stored soils; vehicle tracking; management of contaminated soils; loading and unloading operations; outdoor storage of materials; vehicle and equipment maintenance and fueling; significant dust generating process; routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.; on-site waste management; concrete truck/equipment washing; dedicated asphalt, concrete batch plants and masonry mixing stations; non-industrial waste such as trash and portable toilets		
11	Material handling to include spill prevention and response plan and procedures		
12	Spill prevention and pollution controls for dedicated batch plants		
13	Other SW pollutant control measures to include waste disposal and off-site soil tracking		
14	Location and description of any anticipated allowable non-stormwater discharge (ground water, springs, irrigation, discharge covered by CDPHE Low Risk Guidance, etc.)		
15	Name(s) of ultimate receiving waters; size, type and location of stormwater outfall or storm sewer system discharge		
16	Description of all stream crossings located within the project area or statement that no streams cross the project area		



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## EL PASO COUNTY STORMWATER MANAGEMENT PLAN CHECKLIST

EPC Project Number:

Revised: October 2021

		Applicant	EPC
17	SWMP Map to include:		
17a	construction site boundaries		
17b	flow arrows to depict stormwater flow directions		
17c	all areas of disturbance		
17d	areas of cut and fill		
17e	areas used for storage of building materials, soils (stockpiles) or wastes		
17f	location of any dedicated asphalt / concrete batch plants		
17g	location of all structural control measures		
17h	location of all non-structural control measures		
17i	springs, streams, wetlands and other surface waters, including areas that require maintenance of pre-existing vegetation within 50 feet of a receiving water		
18	Narrative description of all structural control measures to be used. Modifications to EPC standard control measures must meet or exceed County-approved details		
19	Description of all non-structural control measures to be used including seeding, mulching, protection of existing vegetation, site watering, sod placement, etc.		
20	Technical drawing details for all control measure installation and maintenance; custom or other jurisdiction's details used must meet or exceed EPC standards		
21	Procedure describing how the SWMP is to be revised		
22	Description of Final Stabilization and Long-term Stormwater Quality (describe nonstructural and structural measures to control SW pollutants after construction operations have been completed, including detention, water quality control measure etc.)		
23	Specification that final vegetative cover density is to be 70% of pre-disturbed levels		
24	Outline of permit holder inspection procedures to install, maintain, and effectively operate control measures to manage erosion and sediment		
25	Record keeping procedures identified to include signature on inspection logs and location of SWMP records on-site		
26	If this project relies on control measures owned or operated by another entity, a documented agreement must be included in the SWMP that identifies location, installation and design specifications, and maintenance requirements and responsibility of the control measure(s)		
<b>Please note: all items above must be addressed. If not applicable, explain why, simply identifying "not applicable" will not satisfy CDPHE requirement of explanation.</b>			
<b>2. ADDITIONAL REPORTS/PERMITS/DOCUMENTS</b>			
a	Grading and Erosion Control Plan (signed)		
b	Erosion and Stormwater Quality Control Permit (ESQCP) (signed)		



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## EL PASO COUNTY STORMWATER MANAGEMENT PLAN CHECKLIST

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		Applicant	EPC
<b>3. APPLICANT COMMENTS</b>			
a			
b			
c			
<b>4. CHECKLIST REVIEW CERTIFICATIONS</b>			
a	<p>Applicant:            The Stormwater Management Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County and State for Stormwater Management Plans.</p> <p>_____ Date</p> <p>Engineer of Record and/or            Qualified Stormwater Manager Signature</p>		
b	<p>Review Engineer:            The Stormwater Management Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request.</p> <p>_____ Date</p> <p>Review Engineer</p>		

## **APPENDIX E – INSPECTION REPORT TEMPLTE**

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# CONSTRUCTION STORMWATER SITE INSPECTION REPORT

Facility Name		Permittee					
Date of Inspection		Weather Conditions					
Permit Certification #		Disturbed Acreage					
Phase of Construction		Inspector Title					
Inspector Name							
Is the above inspector a qualified stormwater manager? (permittee is responsible for ensuring that the inspector is a qualified stormwater manager)			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
YES	NO						
<input type="checkbox"/>	<input type="checkbox"/>						

INSPECTION FREQUENCY					
Check the box that describes the minimum inspection frequency utilized when conducting each inspection					
At least one inspection every 7 calendar days	<input type="checkbox"/>				
At least one inspection every 14 calendar days, with post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosions	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>• This is this a post-storm event inspection. Event Date: _____</li> </ul>	<input type="checkbox"/>				
Reduced inspection frequency - Include site conditions that warrant reduced inspection frequency	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>• Post-storm inspections at temporarily idle sites</li> </ul>	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>• Inspections at completed sites/area</li> </ul>	<input type="checkbox"/>				
<ul style="list-style-type: none"> <li>• Winter conditions exclusion</li> </ul>	<input type="checkbox"/>				
Have there been any deviations from the minimum inspection schedule? If yes, describe below.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
YES	NO				
<input type="checkbox"/>	<input type="checkbox"/>				

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

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





## REPORTING REQUIREMENTS

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

<b>All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit</b>		
<b>a. Endangerment to Health or the Environment</b> Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a of the Permit) <i>This category would primarily result from the discharge of pollutants in violation of the permit</i>		
<b>b. Numeric Effluent Limit Violations</b> <ul style="list-style-type: none"> <li>o Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit)</li> <li>o Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit)</li> <li>o Daily maximum violations (See Part II.L.6.d of the Permit)</li> </ul> <i>Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if numeric effluent limits are included in a permit certification.</i>		

Has there been an incident of noncompliance requiring 24-hour notification?	NO	YES	
	<input type="checkbox"/>	<input type="checkbox"/>	If "YES" document below

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

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

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

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

\_\_\_\_\_  
Name of Qualified Stormwater Manager

\_\_\_\_\_  
Title of Qualified Stormwater Manager

\_\_\_\_\_  
Signature of Qualified Stormwater Manager

\_\_\_\_\_  
Date

Notes/Comments