

As previously stated: this VTC will need to be within the LOD. But honestly, since this VTC would only be used for the RV area disturbance (0.144ac) and none of the other 4 areas of disturbance, it'd probably be best/easiest to just not have a VTC at all and just implement/encourage street sweeping and shoveling. Having a VTC for such a small area does not make sense. Plus the surrounding gravel areas will act as mini-VTCs.

**EROSION CONTROL LEGEND:**

- SILT FENCE (SF) INTERIM
- VEHICLE TRACKING CONTROL (VTC) INTERIM
- STOCK PILE PROTECTION (SP) INTERIM
- STABILIZED STAGING AREA (SSA) INTERIM
- DIRECTION OF RUNOFF

- CONTOUR LEGEND:**
- ORIGINAL CONTOURS: 2', 10', 2', 10'
  - FINISH CONTOURS: 1', 5'
  - LIMIT OF DISTURBANCE 1.597 ACRES

GEC Checklist Items H and M. If "limits of disturbance" and "construction boundary" are the same, change to "limits of construction/disturbance" or otherwise show as separate line types for each on the legend and figure.

Page 3 of the PBMP Applicability Form shows LOD as 1.104ac. Revise to remove discrepancies.

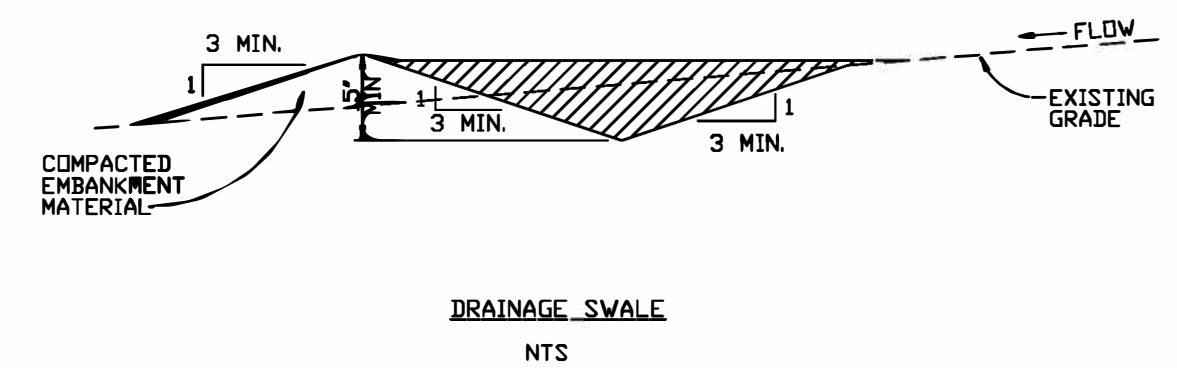
**Engineer's Statement (for standalone GEC Plan):**  
 This Grading and Erosion Control Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County for Grading and Erosion Control Plans. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this plan.

Engineer of Record Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Oliver E. Watts, COLD PELS#9853  
 Oliver E. Watts Consulting Engineer, Inc.  
 614 Elkton Drive Colorado Springs, CO 80907  
 719-593-0173  
 olliewatts@aol.com

**Owner's Statement (for standalone GEC Plan):**  
 I, the owner/developer have read and will comply with the requirements of the Grading and Erosion Control Plan.

Owner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Show location of newly added runoff reduction (RR) area. The RR area is discussed in the Drainage Report text and calculations were provided but the limits of that area are not delineated anywhere.



- GEC Checklist Item "i" - add a note about existing vegetation.
- GEC Checklist Item "o" - identify areas of cut and fill.

GEC Checklist Item "o" - callout as office grading

Grading doesn't show swale terminating at an LP here... Maybe best to provide a detail that shows "bowl" shape fine grading around inlet.

Grading doesn't show swale terminating at an LP here... Maybe best to provide a detail that shows "bowl" shape fine grading around inlet.

proposed grading outside of LOD and not connected to an existing contour.

Is there still going to be SF here? Linetype was remove but bubble remains.

Unresolved comment from previous review: inlet piping still not shown and label invert.

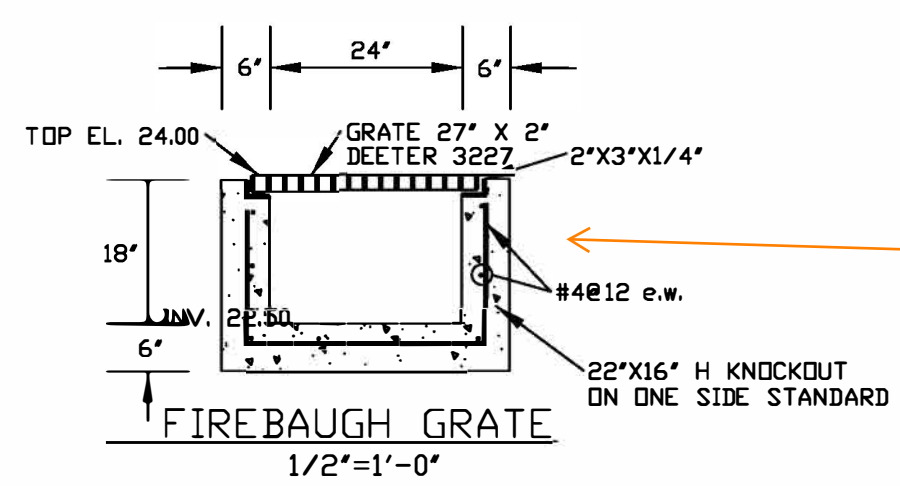
Unresolved comment from Review #2 and #3: SP's and SSA's should be within the LOD.

Per DCMv2 Section 4.3, outlet pipe should be 18" minimum. (UD Figure 6-a)

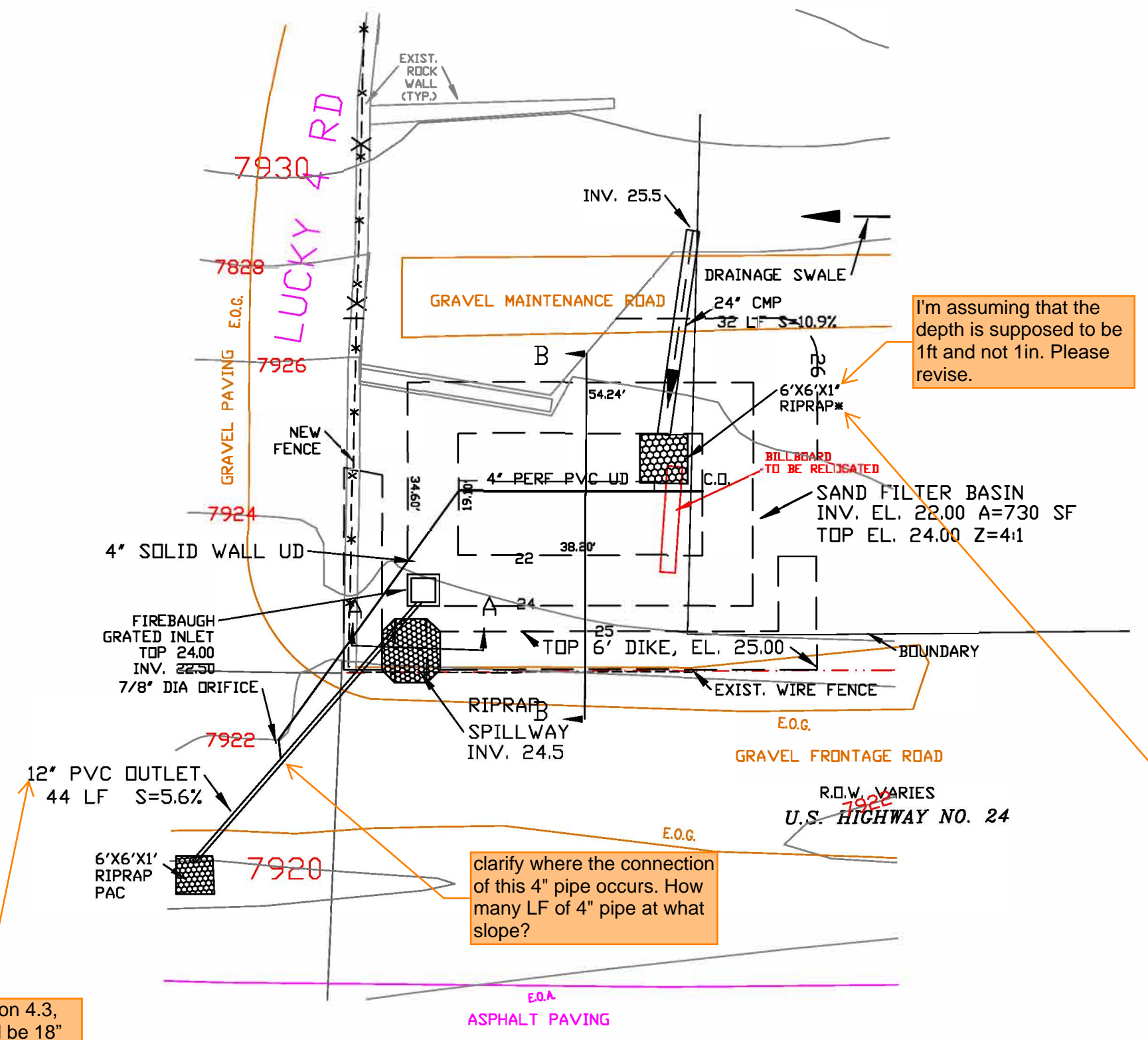
R.O.W. VARIES  
 U.S. HIGHWAY NO. 24  
 (BOOK 910 PAGE 473)

DRAWN BY: O.E. WATTS DATE: 6-13-19 DWG. NO.: 19-5341-03 TOPOGRAPHY BY: CITY FMS 6-12-19 SURVEY INFORMATION BY: RAMPART JOB NO. 18384	APPROVED BY: _____ PROJ. NO.: _____ DWG.: _____	REVISIONS 8-16-21 UPDATED OEW 12-30-21 REVISED PER COUNTY REVIEW COMMENTS OEW 8-22-22 REVISED PER COUNTY REVIEW COMMENTS OEW	OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS	PROJECT: ROCKY TOP MOTEL & CAMPGROUND PART NW1/4 SECTION 9, T.13S., R.68W., 6TH P.M. EL PASO COUNTY	SHIT. NAME: GRADING AND EROSION CONTROL PLAN	SHIT. NO.: 1 OF 4
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show outlet pipe connection



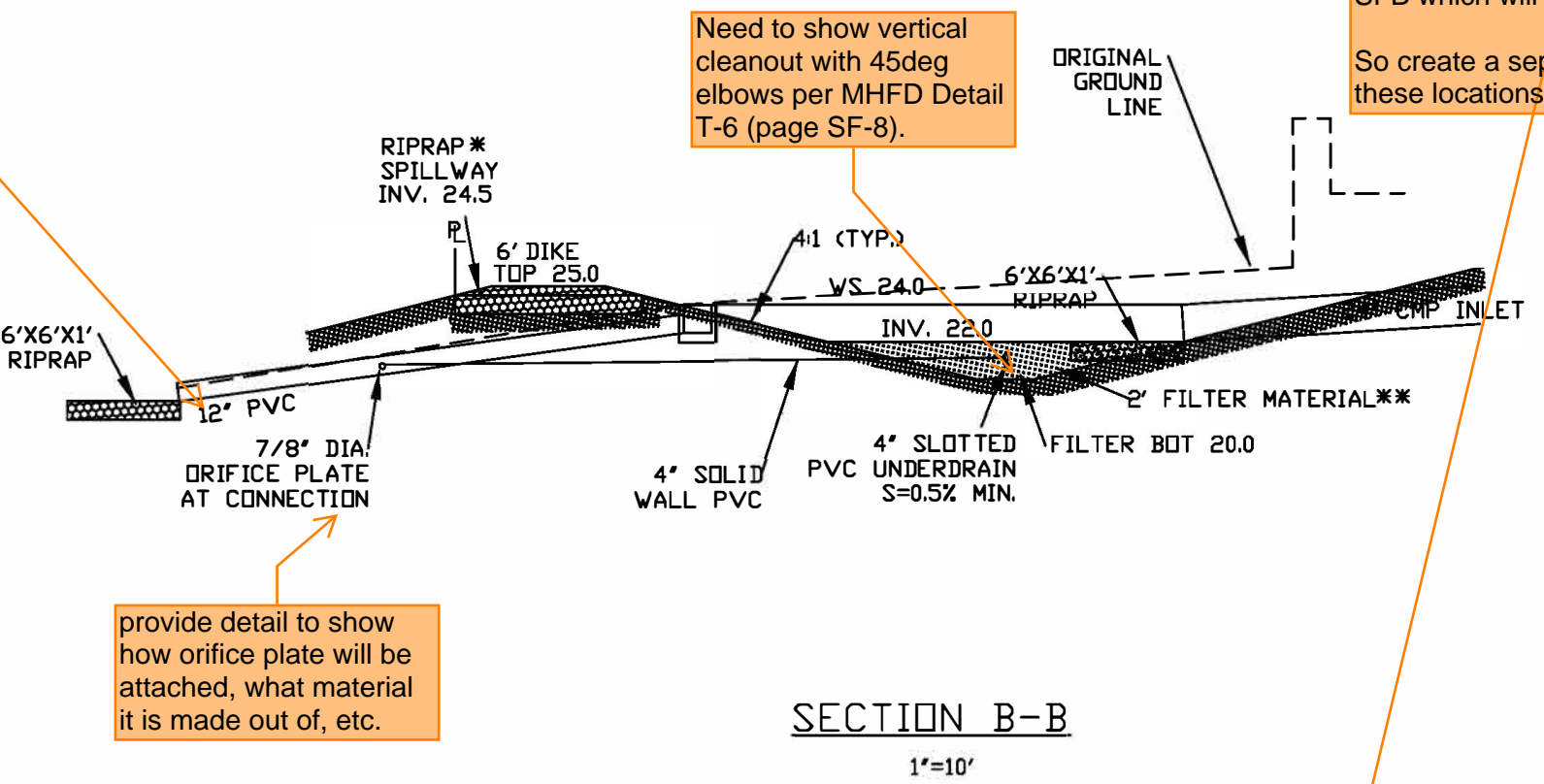
I'm assuming that the depth is supposed to be 1ft and not 1in. Please revise.

clarify where the connection of this 4" pipe occurs. How many LF of 4" pipe at what slope?

Per DCMv2 Section 4.3, outlet pipe should be 18" minimum. (UD Figure 6-a)

This type of soil riprap with topsoil is fine for the spillway but is not appropriate for the erosion protection at the bottom of the SFB where the inlet pipe outfalls. We don't want to encourage the growth of vegetation with the topsoil nor do we want to introduce more sediment into the SFB which will cause extra maintenance. So create a separate asterisk or text callout for these locations.

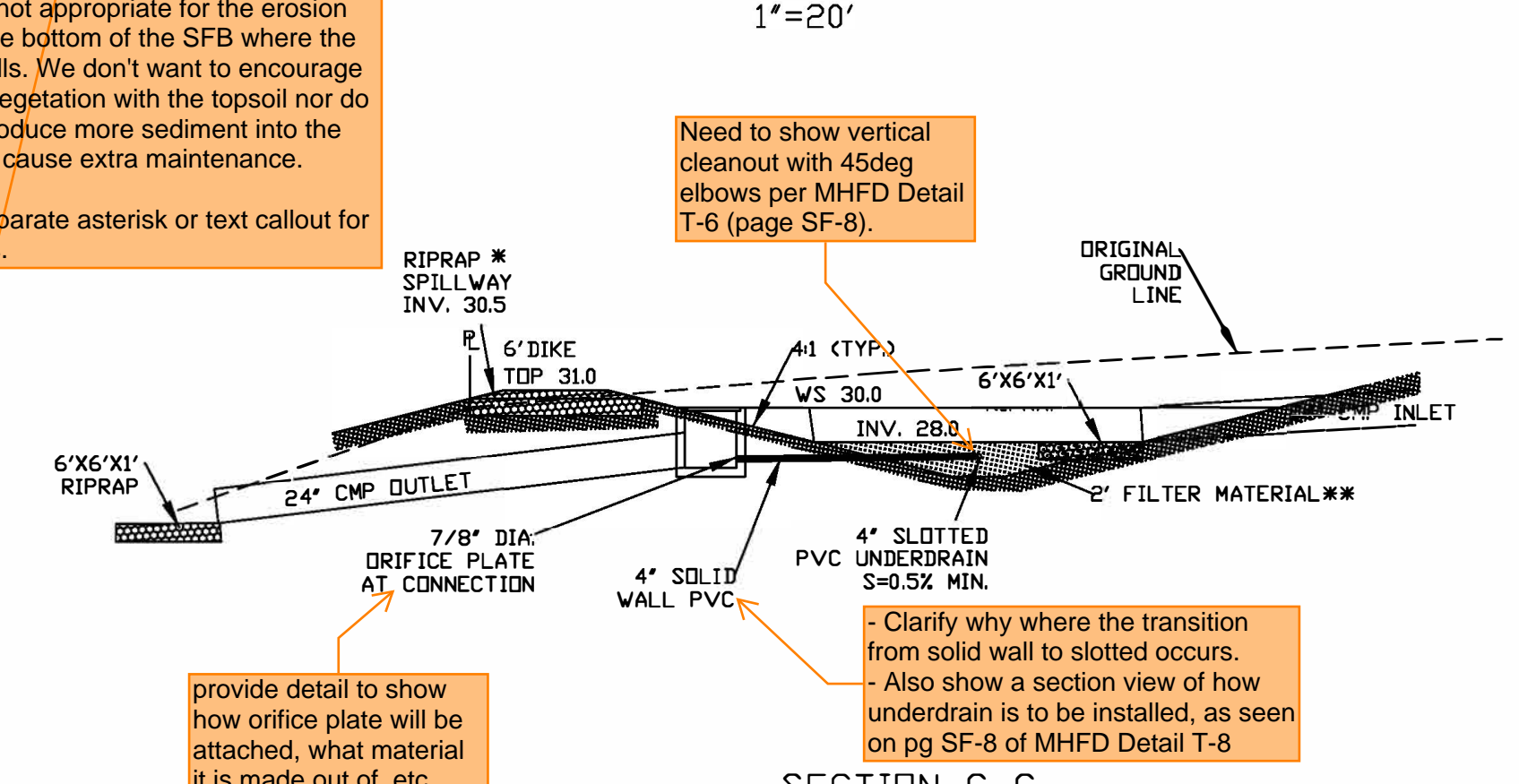
WEST SFB DETAILS  
1"=20'



SECTION B-B  
1"=10'

provide detail to show how orifice plate will be attached, what material it is made out of, etc.

EAST SFB DETAILS  
1"=20'



SECTION C-C  
1"=10'

Need to show vertical cleanout with 45deg elbows per MHFD Detail T-6 (page SF-8).

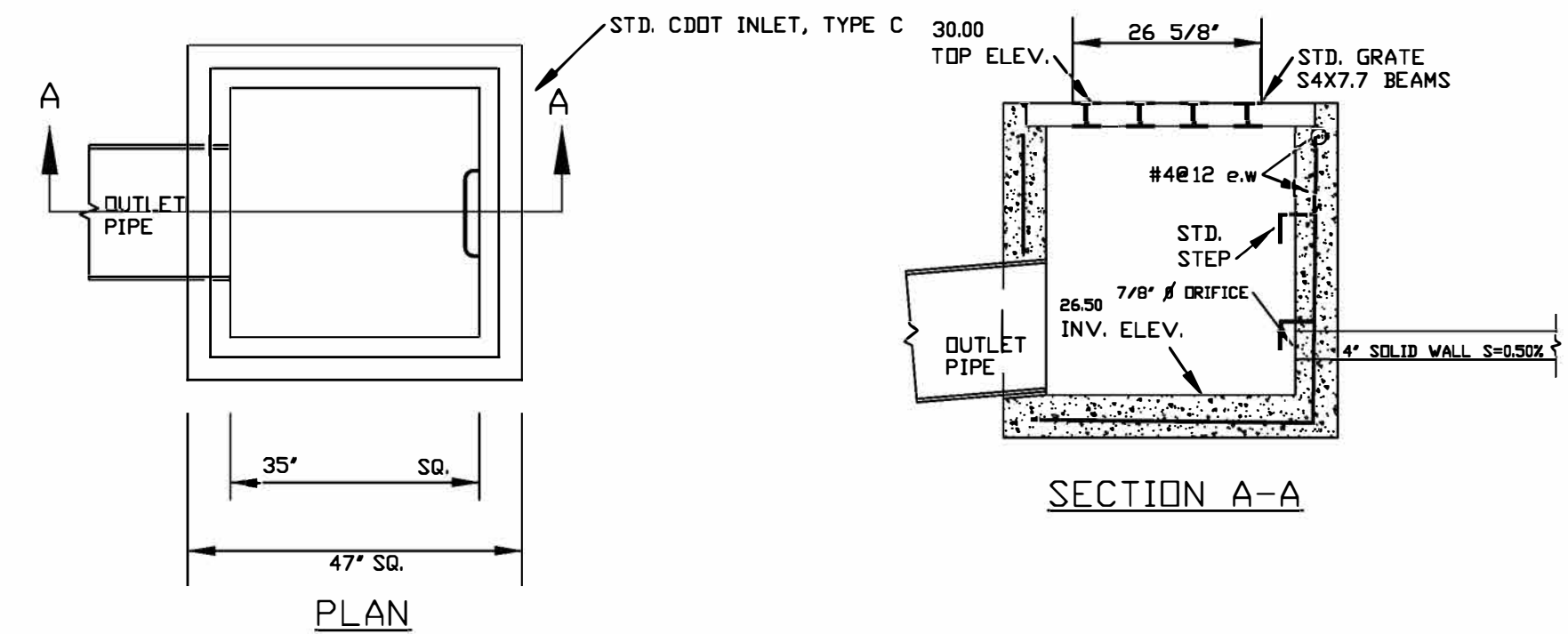
provide detail to show how orifice plate will be attached, what material it is made out of, etc.

Clarify why where the transition from solid wall to slotted occurs. Also show a section view of how underdrain is to be installed, as seen on pg SF-8 of MHFD Detail T-8

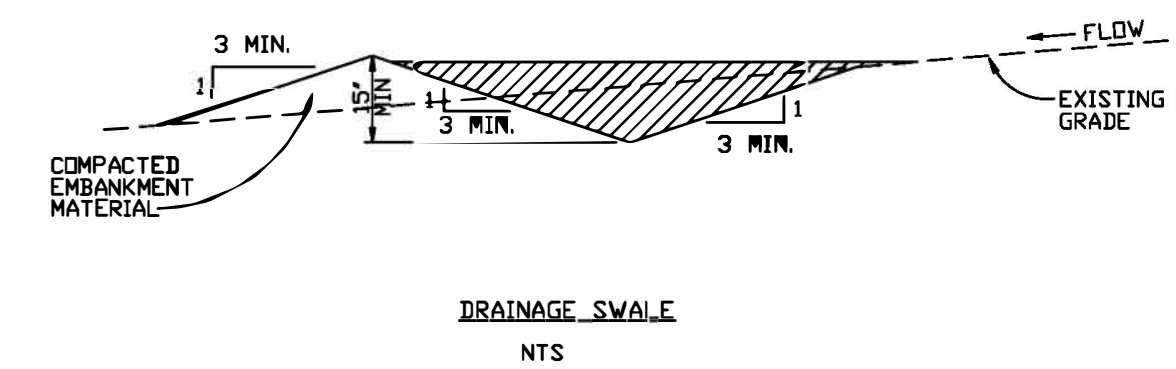
\*RIPRAP IS TO BE TYPE 'L' OR 'VL', MIXED WITH 35% NATIVE SOIL BY WEIGHT, COVERED WITH 4" MIN TOPSOIL

\*\* FILTER MATERIAL IS TO BE 85% SAND, ASTM C-33 15% PEAT MIX RESEED PER MHFD TABLE B-6 MIX FOR DRYLAND GRASSES

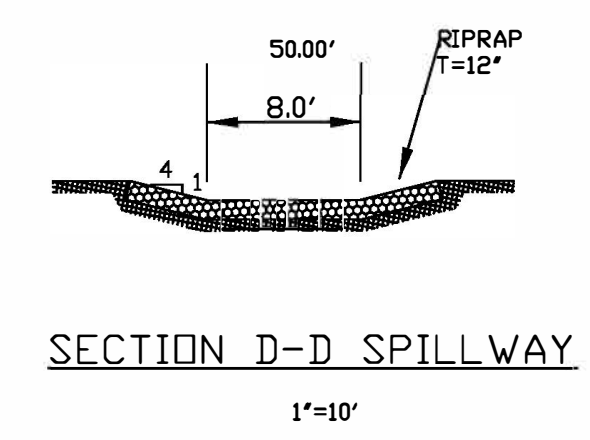
Please review MHD Detail T-6. SFB bottoms are to remain unvegetated. Side slopes should be vegetated.



CDDT INLET  
1/2"=1'-0"



DRAINAGE SWALE  
NTS



SECTION D-D SPILLWAY  
1"=10'

Prepared by the office of:  
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Colorado Springs, CO 80907  
(719) 593-0173  
oliewatts@aol.com  
Celebrating 42 years in Business

DRAWN BY: O.E. WATTS DATE: 8-16-21 DWG. NO.: 19-5341-05 TOPOGRAPHY BY: CITY FIMS 6-12-19 SURVEY INFORMATION BY: RAMPART JOB NO. 18384	APPROVED BY: PROJ. NO.: DWG.:	REVISIONS 8-16-21 UPDATED DEW 12-31-21 REVISED PER COUNTY REVIEW COMMENTS DEW 8-22-22 REVISED PER COUNTY REVIEW COMMENTS DEW	OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS	PROJECT ROCKY TOP MOTEL & CAMPGROUND PART NW1/4 SECTION 9, T.13S., R.68W., 6TH P.M. EL PASO COUNTY	SHIT. NAME <b>GRADING AND EROSION CONTROL PLAN</b>	SHIT. NO. 2 OF 4
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El Paso County (standalone GEC Plan):

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 1.12, these construction documents will be valid for construction for a period of 2 years from the date signed by the El Paso County Engineer. If construction has not started within those 2 years, the plans will need to be resubmitted for approval, including payment of review fees at the Planning and Community Development Director's discretion.

County Engineer/ECM Administrator \_\_\_\_\_

Date \_\_\_\_\_

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

1. Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters, including wetlands.
2. Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing.
3. A separate Stormwater Management Plan (SWMP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. Management of the SWMP during construction is the responsibility of the designated Qualified Stormwater Manager or Certified Erosion Control Inspector. The SWMP shall be located on site at all times during construction and shall be kept up to date with work progress and changes in the field.
4. Once the ESQCP is approved and a "Notice to Proceed" has been issued, the contractor may install the initial stage erosion and sediment control measures as indicated on the approved GEC. A Preconstruction Meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County staff.
5. Control measures must be installed prior to commencement of activities that could contribute pollutants to stormwater. Control measures for all slopes, channels, ditches, and disturbed land areas shall be installed immediately upon completion of the disturbance.
6. All temporary sediment and erosion control measures shall be maintained and remain in effective operating condition until permanent soil erosion control measures are implemented and final stabilization is established. All persons engaged in land disturbance activities shall assess the adequacy of control measures at the site and identify if changes to those control measures are needed to ensure the continued effective performance of the control measures. All changes to temporary sediment and erosion control measures must be incorporated into the Stormwater Management Plan.
7. Temporary stabilization shall be implemented on disturbed areas and stockpiles where ground disturbing construction activity has permanently ceased or temporarily ceased for longer than 14 days.
8. Final stabilization must be implemented at all applicable construction sites. Final stabilization is achieved when all ground disturbing activities are complete and all disturbed areas either have a uniform vegetative cover with individual plant density of 70 percent of pre-disturbance levels established or equivalent permanent alternative stabilization method is implemented. All temporary sediment and erosion control measures shall be removed upon final stabilization and before permit closure.
9. All permanent stormwater management facilities shall be installed as designed in the approved plans. Any proposed changes that effect the design or function of permanent stormwater management structures must be approved by the ECM Administrator prior to implementation.
10. Earth disturbances shall be conducted in such a manner so as to effectively minimize accelerated soil erosion and resulting sedimentation. All disturbances shall be designed, constructed, and completed so that the exposed area of any disturbed land shall be limited to the shortest practical period of time. Pre-existing vegetation shall be protected and maintained within 50 horizontal feet of waters of the state unless shown to be infeasible and specifically requested and approved.
11. Compaction of soil must be prevented in areas designated for infiltration control measures or where final stabilization will be achieved by vegetative cover. Areas designated for infiltration control measures shall also be protected from sedimentation during construction until final stabilization is achieved. If compaction prevention is not feasible due to site constraints, all areas designated for infiltration and vegetation control measures must be loosened prior to installation of the control measures.
12. Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be a stabilized conveyance designed to minimize erosion and the discharge of sediment off site.
13. Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to enter State Waters, including any surface or subsurface storm drainage system or facilities. Concrete washouts shall not be located in an area where shallow groundwater may be present, or within 50 feet of a surface water body, creek or stream.
14. During dewatering operations of uncontaminated ground water may be discharged on site, but shall not leave the site in the form of surface runoff unless an approved State dewatering permit is in place.
15. Erosion control blanketing or other protective covering shall be used on slopes steeper than 3:1.
16. Contractor shall be responsible for the removal of all wastes from the construction site for disposal in accordance with local and State regulatory requirements. No construction debris, tree slash, building material wastes or unused building materials shall be buried, dumped, or discharged at the site.
17. Waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. Control measures may be required by El Paso County Engineering if deemed necessary, based on specific conditions and circumstances.
18. Tracking of soils and construction debris off-site shall be minimized. Materials tracked off-site shall be cleaned up and properly disposed of immediately.
19. The owner/developer shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, soil, and sand that may accumulate in roads, storm drains and other drainage conveyance systems and stormwater appurtenances as a result of site development.
20. The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels.
21. No chemical(s) having the potential to be released in stormwater are to be stored or used onsite unless permission for the use of such chemical(s) is granted in writing by the ECM Administrator. In granting approval for the use of such chemical(s), special conditions and monitoring may be required.
22. Bulk storage of allowed petroleum products or other allowed liquid chemicals in excess of 55 gallons shall require adequate secondary containment protection to contain all spills onsite and to prevent any spilled materials from entering State Waters, any surface or subsurface storm drainage system or other facilities.
23. No person shall cause the impediment of stormwater flow in the curb and gutter or ditch except with approved sediment control measures.
24. Owner/developer and their agents shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CRS), and the "Clean Water Act" (33 USC 1344), in addition to the requirements of the Land Development Code, DCM Volume II, and the ECM Appendix I. All appropriate permits must be obtained by the contractor prior to construction (1041, NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and other laws, rules, or regulations of other Federal, State, local, or County agencies, the most restrictive laws, rules, or regulations shall apply.
25. All construction traffic must enter/exit the site only at approved construction access points.
26. Prior to construction the Permittee shall verify the location of existing utilities.
27. A water source shall be available on site during earthwork operations and shall be utilized as required to minimize dust from earthwork equipment and wind.
28. The soils report for this site has been prepared by \_\_\_\_\_ and shall be considered a part of these plans.
29. At least ten (10) days prior to the anticipated start of construction, for projects that will disturb one (1) acre or more, the owner or operator of construction activity shall submit a permit application for stormwater discharge to the Colorado Department of Public Health and Environment, Water Quality Division. The application contains certification of completion of a stormwater management plan (SWMP), of which this Grading and Erosion Control Plan may be a part. For information or application materials contact:  
Colorado Department of Public Health and Environment  
Water Quality Control Division  
WQCD - Permits  
4300 Cherry Creek Drive South  
Denver, CO 80246-1530  
Attn: Permits Unit

Input "N/A"

~~Review Engineer:  
The Grading and Erosion Control Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request.~~

~~Review Engineer \_\_\_\_\_~~

~~Date \_\_\_\_\_~~

Delete. This is just something I sign on the GEC Checklist itself, not on these plans.

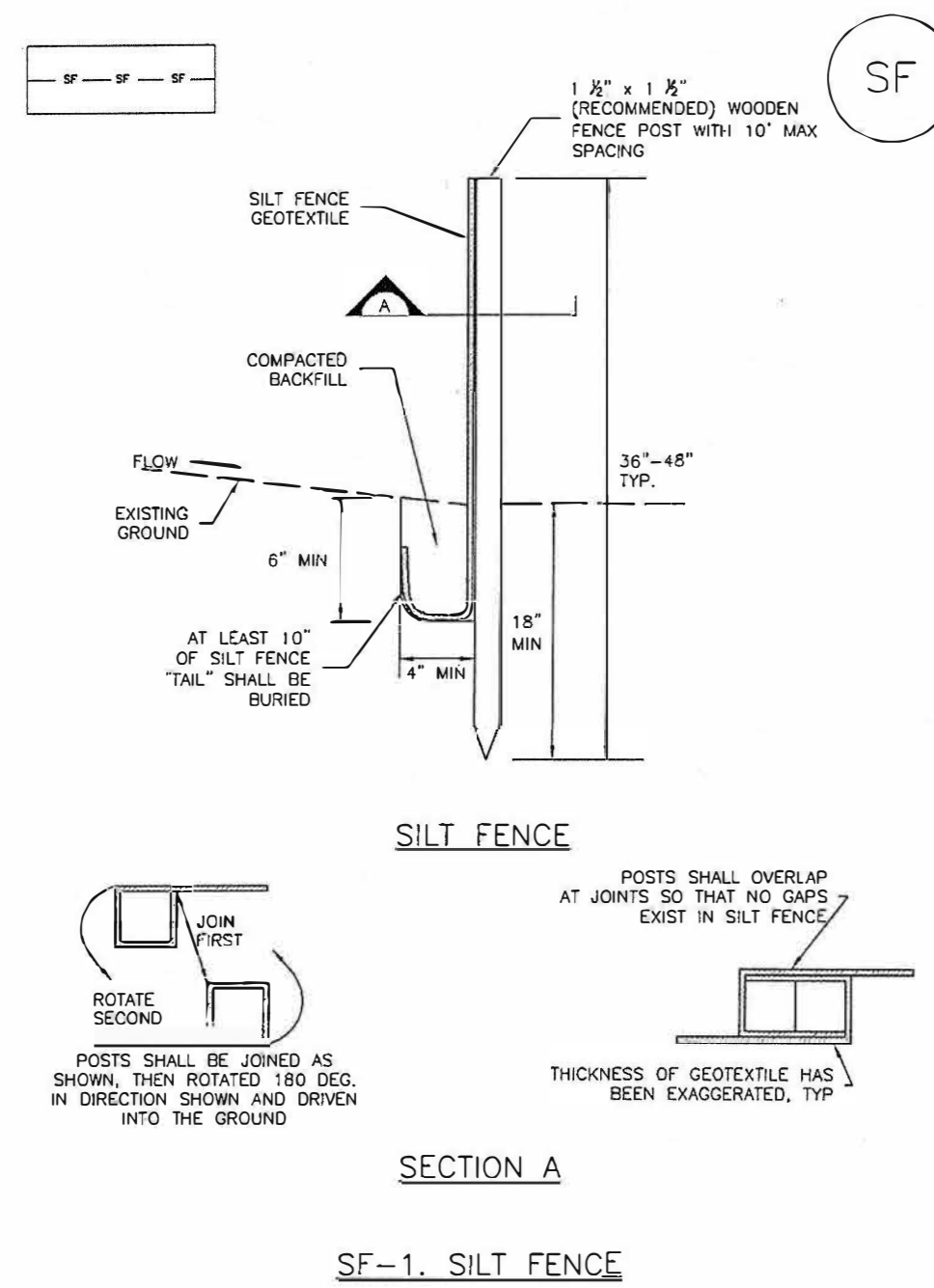
Prepared by the office of:  
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DRAWN BY: O.E. WATTS DATE: DWG. NO.: TOPOGRAPHY BY: CITY FIMS 6-12-19	APPROVED BY: PROJ. NO.: DWG.	REVISIONS 8-16-21 UPDATED OEW 12-31-21 REVISED PER COUNTY REVIEW COMMENTS OEW 8-22-22 REVISED PER COUNTY REVIEW COMMENTS OEW	OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS	PROJECT ROCKY TOP MOTEL & CAMPGROUND PART NW1/4 SECTION 9, T.13S., R.68W., 6TH P.M. EL PASO COUNTY	SHEET NAME <b>GRADING AND EROSION CONTROL PLAN</b>	SHEET NO. 3 OF 4
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**Silt Fence (SF)**

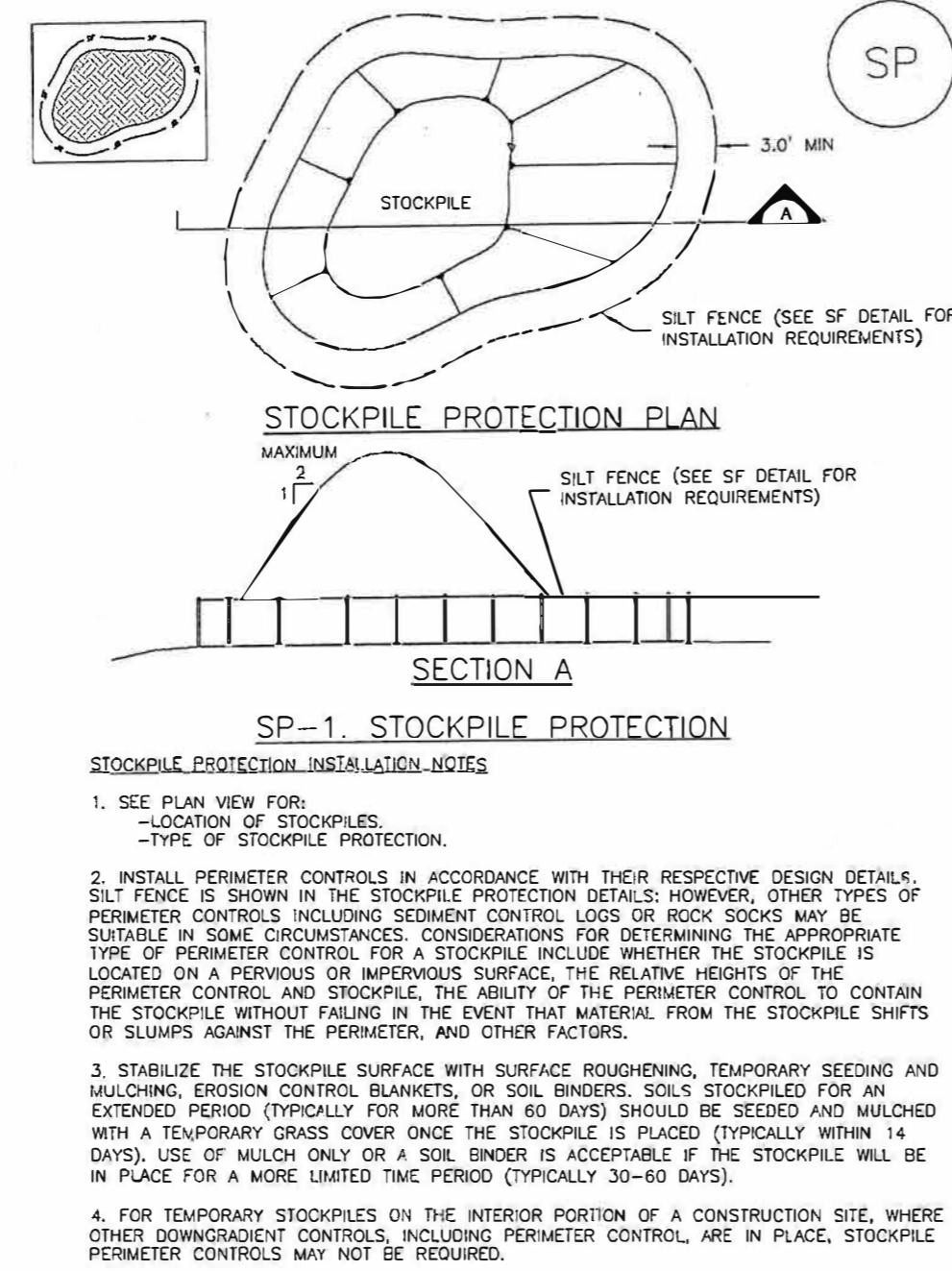
**SC-1**



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

**Stockpile Management (SP)**

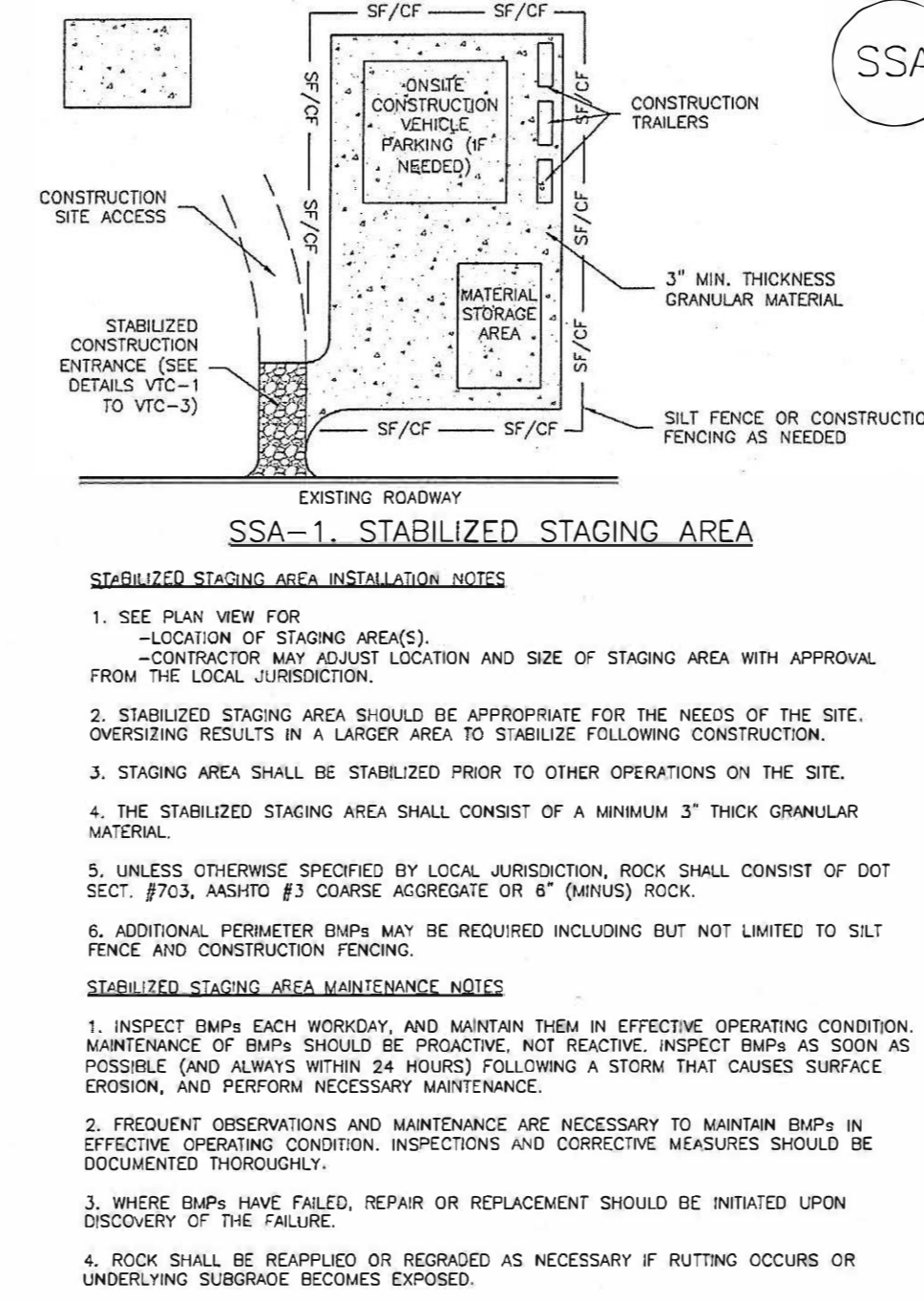
**MM-2**



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

**Stabilized Staging Area (SSA)**

**SM-6**



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

**SC-1**

**Silt Fence (SF)**

**SILT FENCE INSTALLATION NOTES**

- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-3 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
- A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE, NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

**SILT FENCE 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 SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM 109% OF PARKER, COLORADO AND CITY OF AURORA, 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.

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

**MM-2**

**Stockpile Management (SM)**

**STOCKPILE 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.
- IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
- 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.

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

**SM-6**

**Stabilized Staging Area (SSA)**

**STABILIZED STAGING AREA MAINTENANCE NOTES**

- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
- THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDING AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

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

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

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

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

**SEEDING & MULCHING**

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

**SOIL PREPARATION**

- IN AREAS TO BE SEEDDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRABLE CONDITION. LESS THAN 85% STANDARD PROCTOR DENSITY IS ACCEPTABLE. AREAS OF CONTRACTION 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.
- BROADCAST SEEDING OR HYDRO-SEEDING WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
  - SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLIANT DRILL OR HYDRO-SEEDING.
  - BROADCAST SEEDING MUST BE LIGHTLY HAND-RAKED INTO THE SOIL.

**MULCHING**

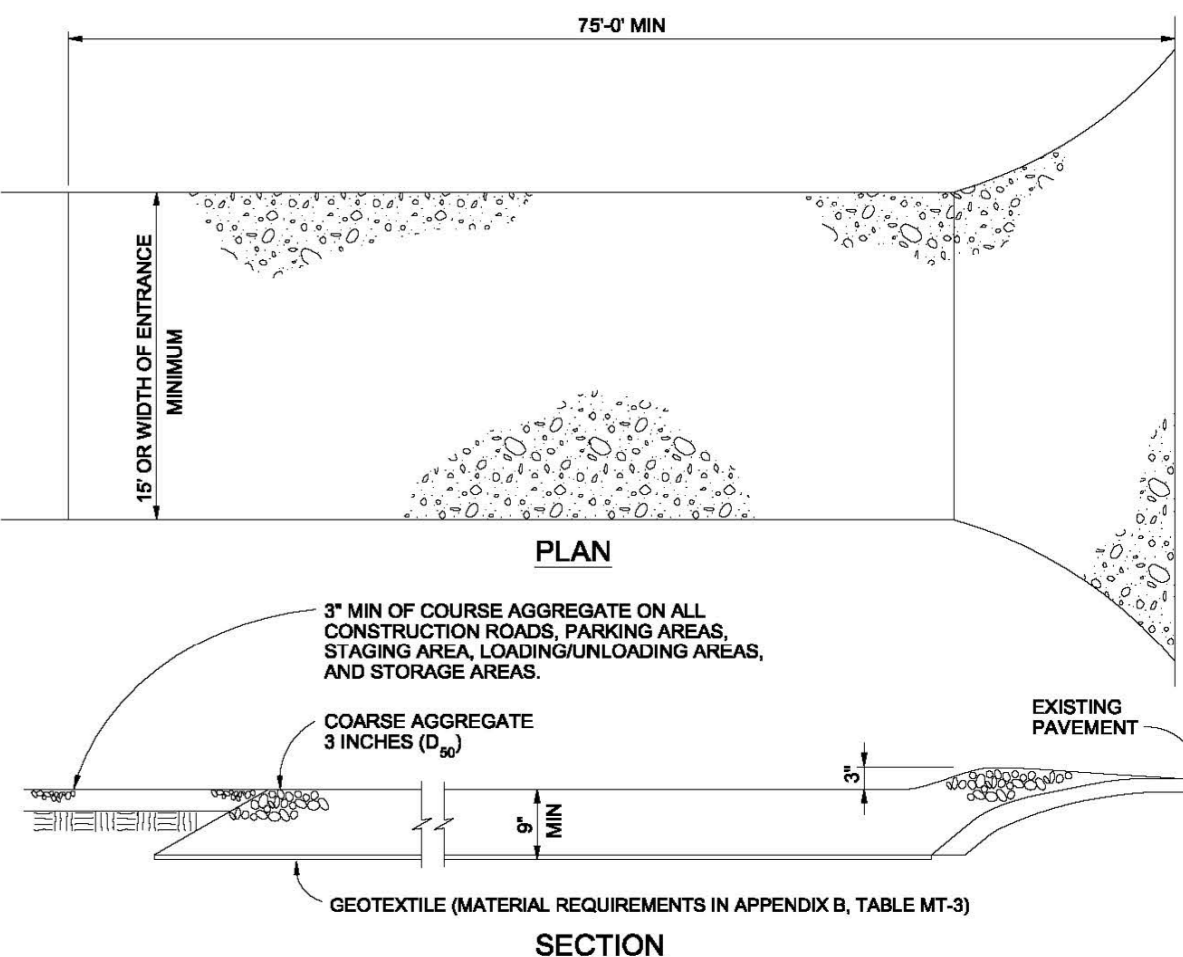
- MULCHING SHOULD BE COMPLETED AS SOON AS PRACTICABLE AFTER SEEDING, HOWEVER PLANTED AREAS MUST BE MULCHED NO LATER THAN 14 DAYS AFTER PLANTING.
- MULCHING REQUIREMENTS INCLUDE:
  - HAY OR STRAW MULCH
    - ONLY CERTIFIED WEED-FREE AND CERTIFIED SEED-FREE MULCH MAY BE USED. MULCH MUST BE APPLIED AT 2 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-SEEDING IS USED, MULCHING MUST BE APPLIED AS A SEPARATE SECOND OPERATION.
    - WOOD CELLULOSE FIBERS MIXED WITH WATER MUST BE APPLIED AT A RATE OF 2,000 TO 2,500 POUNDS/ACRE, AND TACKIFIER MUST BE APPLIED AT A RATE OF 100 POUNDS/ACRE.
    - EROSION CONTROL BLANKET
      - EROSION CONTROL BLANKET MAY BE USED IN PLACE OF TRADITIONAL MULCHING METHODS.

STORMWATER & SEEDING & MULCHING

APPROVED: [Signature]

DESIGN: [Signature]

DATE: 10/7/10



**VEHICLE TRACKING NOTES**

**INSTALLATION REQUIREMENTS**

- ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
- CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.
- AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
- CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
- CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADIES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

**MAINTENANCE REQUIREMENTS**

- REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.
- STONES ARE TO BE REPLACED PERIODICALLY AND WHEN REPAIR IS NECESSARY.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.
- STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.
- OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

City of Colorado Springs Stormwater Quality Figure VT-2 Vehicle Tracking Application Examples

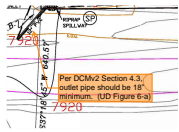
Prepared by the Office of:  
Oliver E. Watts, Consulting Engineer, Inc.  
614 Elkton Drive, Colorado Springs, CO 80907  
719-593-0173  
oliewatts@aol.com  
Celebrating over 39 years in business

DRAWN BY: O.E. WATTS DATE: 12-14-18 DWG. NO.: 19-5348	APPROVED BY: PROJ. NO.: DWG.	REVISIONS	OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS	PROJECT	SHT. NAME EROSION CONTROL DETAILS	SHT. NO. 4 OF 4
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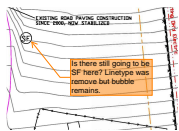
# Grading & Erosion Control Plan\_V3.pdf Markup Summary

## Glenn Reese - EPC Stormwater (31)



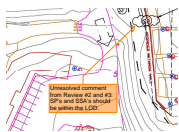
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**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:06:40 AM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

Per DCMv2 Section 4.3, outlet pipe should be 18" minimum. (UD Figure 6-a)



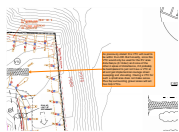
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**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:06:40 AM  
**Status:**  
**Color:** ■  
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**Space:**

Is there still going to be SF here? Linetype was remove but bubble remains.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:06:40 AM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

Unresolved comment from Review #2 and #3: SP's and SSA's should be within the LOD.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:06:40 AM  
**Status:**  
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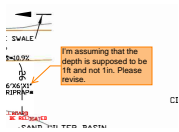
As previously stated: this VTC will need to be within the LOD. But honestly, since this VTC would only be used for the RV area disturbance (0.144ac) and none of the other 4 areas of disturbance, it'd probably be best/easiest to just not have a VTC at all and just implement/encourage street sweeping and shoveling. Having a VTC for such a small area does not make sense. Plus the surrounding gravel areas will act has mini-VTCs.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:06:51 AM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

This type of soil riprap with topsoil is fine for the spillway but is not appropriate for the erosion protection at the bottom of the SFB where the inlet pipe outfalls. We don't want to encourage the growth of vegetation with the topsoil nor do we want to introduce more sediment into the SFB which will cause extra maintenance.

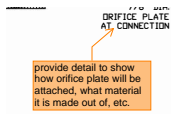
So create a separate asterisk or text callout for these locations.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:06:51 AM  
**Status:**  
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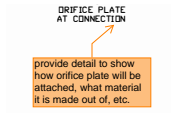
I'm assuming that the depth is supposed to be 1ft and not 1in. Please revise.





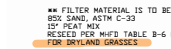
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**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:11:53 AM  
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**Space:**

provide detail to show how orifice plate will be attached, what material it is made out of, etc.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
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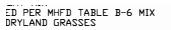
provide detail to show how orifice plate will be attached, what material it is made out of, etc.



**Subject:** SW - Highlight  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:14:04 AM  
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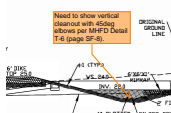


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**Author:** Glenn Reese - EPC Stormwater  
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**Subject:** SW - Textbox with Arrow  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:16:57 AM  
**Status:**  
**Color:** ■  
**Layer:**  
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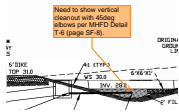
Please review MHD Detail T-6. SFB bottoms are to remain unvegetated. Side slopes should be vegetated.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:17:58 AM  
**Status:**  
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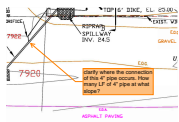
Need to show vertical cleanout with 45deg elbows per MHD Detail T-6 (page SF-8).





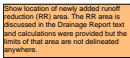
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**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:18:46 AM  
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Need to show vertical cleanout with 45deg elbows per MHFD Detail T-6 (page SF-8).



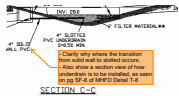
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**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 11:22:05 AM  
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clarify where the connection of this 4" pipe occurs. How many LF of 4" pipe at what slope?



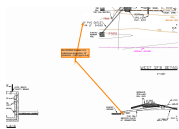
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**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 2:03:00 PM  
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Show location of newly added runoff reduction (RR) area. The RR area is discussed in the Drainage Report text and calculations were provided but the limits of that area are not delineated anywhere.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 2:06:20 PM  
**Status:**  
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- Clarify why where the transition from solid wall to slotted occurs.  
 - Also show a section view of how underdrain is to be installed, as seen on pg SF-8 of MHFD Detail T-8



**Subject:** SW - Textbox with Arrow  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 2:08:37 PM  
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Per DCMv2 Section 4.3, outlet pipe should be 18" minimum. (UD Figure 6-a)



**Subject:** SW - Textbox with Arrow  
**Page Label:** 2  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 2:10:37 PM  
**Status:**  
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show outlet pipe connection





**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 2:11:51 PM  
**Status:**  
**Color:** ■  
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Grading doesn't show swale terminating at an LP here...Maybe best to provide a detail that shows "bowl" shape fine grading around inlet.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 2:12:02 PM  
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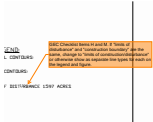
Grading doesn't show swale terminating at an LP here...Maybe best to provide a detail that shows "bowl" shape fine grading around inlet.

ISTURBANCE 1597 ACRES

Page 3 of the PBMP Applicability Form shows LOD as 1.104ac. Revise to remove discrepancies

**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:31:03 PM  
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Page 3 of the PBMP Applicability Form shows LOD as 1.104ac. Revise to remove discrepancies.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:31:57 PM  
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GEC Checklist Items H and M. If "limits of disturbance" and "construction boundary" are the same, change to "limits of construction/disturbance" or otherwise show as separate line types for each on the legend and figure.



**Subject:** Line  
**Page Label:** 3  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:32:55 PM  
**Status:**  
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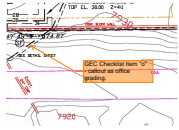
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**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:32:55 PM  
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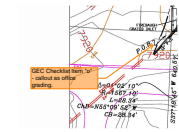
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**Page Label:** 3  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:33:16 PM  
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**Space:**

Delete. This is just something I sign on the GEC Checklist itself, not on these plans.



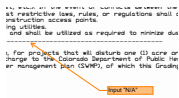
**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:39:05 PM  
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GEC Checklist Item "o" - callout as office grading.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:39:16 PM  
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GEC Checklist Item "o" - callout as office grading.



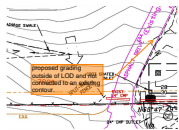
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**Page Label:** 3  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:43:34 PM  
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**Space:**

Input "N/A"



**Subject:** SW - Textbox  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:43:46 PM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

- GEC Checklist Item "i" - add a note about existing vegetation.  
 - GEC Checklist Item "o" - identify areas of cut and fill.



**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:46:15 PM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

proposed grading outside of LOD and not connected to an existing contour.





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**Subject:** SW - Textbox with Arrow  
**Page Label:** 1  
**Author:** Glenn Reese - EPC Stormwater  
**Date:** 12/6/2022 3:46:30 PM  
**Status:**  
**Color:** ■  
**Layer:**  
**Space:**

Unresolved comment from previous review: inlet piping still not shown and label invert.