

STANDARD CONSTRUCTION NOTES:

- 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 LOCATION 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 SPRINGS.
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOLOGICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIME INCLUDING THE FOLLOWING:
 - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2.
 - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
 - CDOT M&S STANDARDS.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- ONCE THE ESOPC HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPs AS INDICATED ON THE 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 PCO INSPECTIONS STAFF.
- IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORM WATER QUALITY CONTROL PERMIT (ESQCP), US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE CONSTRUCTION SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOW AND MUTCD CRITERIA.
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRE BY EL PASO COUNTY DOT 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 OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.

GRADING AND EROSION CONTROL NOTES:

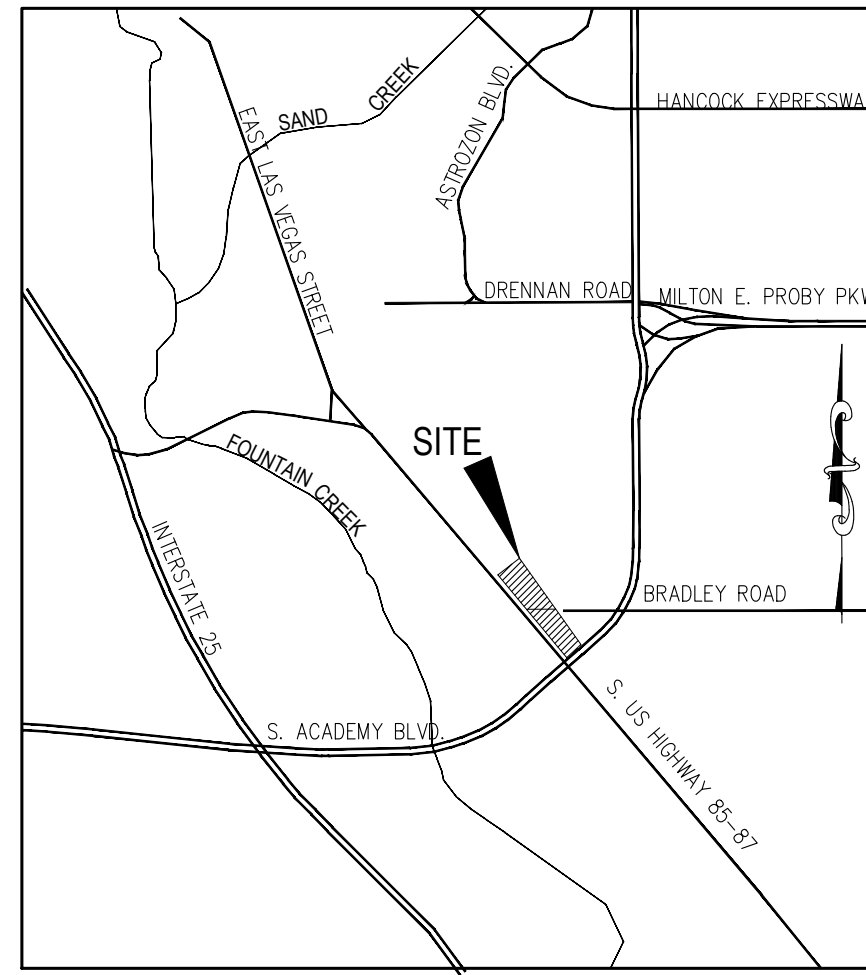
- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING 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 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.
- 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 ALTERNATIVE STABILIZATION METHOD 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 EFFECT 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 SYSTEMS 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.
- 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. CONSTRUCTION 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 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.
- 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 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DOM VOLUME 1 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 ENTECH ENGINEERS, ENTITLED "SOILS, GEOLOGY, AND GEOLOGIC HAZARD STUDY", DATED JANUARY 22ND, 2021, 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

BRADLEY POINT FILING NO. 1

COUNTY OF EL PASO, STATE OF COLORADO

GRADING/EROSION CONTROL PLANS

APRIL 2023



VICINITY MAP
N.T.S.



SITE MAP
N.T.S.

ADDITIONAL NOTES:

STAGING AREA TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.

SHEET INDEX

SHEET 1	TITLE SHEET
SHEET 2	GRADING & EROSION CONTROL PLAN
SHEET 3	GRADING & EROSION CONTROL DETAILS
SHEET 4	GRADING & EROSION CONTROL DETAILS
SHEET 5	GRADING & EROSION CONTROL DETAILS
SHEET 6	GRADING & EROSION CONTROL DETAILS
SHEET 7	GRADING & EROSION CONTROL DETAILS

EXISTING SITE TERRAIN GENERALLY SLOPES FROM NORTH TO SOUTHEAST AT GRADE RATES THAT VARY BETWEEN 0.7% TO 10%.

THERE ARE NO BATCH PLANTS ON SITE.

AREAS LEFT OPEN FOR 30 DAYS OR MORE, OTHER THAN FOR UTILITY AND DRAINAGE CONSTRUCTION SHALL BE SEEDED AND/OR MULCHED.

BENCHMARKS

- CONTROL DISK SET IN ABUTMENT OF BRIDGE
N: 1341598.37
E: 3210918.78
ELEV: 5782.74'

NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041C0744 G, EFFECTIVE DATE DECEMBER 7, 2018.

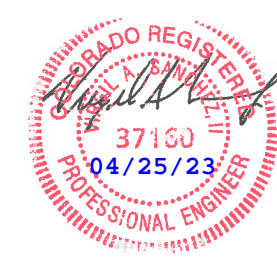
AGENCIES

- OWNER/DEVELOPER:** STEPHEN J. SCHNURR
2010 FOX MOUNTAIN POINT
COLORADO SPRINGS, CO 80906
STEPHEN J. SCHNURR (719) 491-3101
- CIVIL ENGINEER:** M & S CIVIL CONSULTANTS, INC.
212 N. WAHSATCH AVE, SUITE 305
COLORADO SPRINGS, CO 80903
VIRGIL A. SANCHEZ P.E. (719) 955-5485
- WATER RESOURCES:** SECURITY WATER AND SANITATION DISTRICT
231 SECURITY BOULEVARD
COLORADO SPRINGS, CO 80911
ROY HEALD (719) 392-3475
- COUNTY ENGINEERING:** EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, CO 80910
GILBERT LAFORCE (719) 520-7945
- TRAFFIC ENGINEERING:** EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS
3275 AKERS DRIVE
COLORADO SPRINGS, CO 80922
JENNIFER IRVINE, P.E. (719) 520-6460
- FIRE DISTRICT:** SECURITY FIRE DEPARTMENT
400 SECURITY BOULEVARD
SECURITY, CO 80911
BRANDON SULLIVAN (719) 392-7121
- GAS DEPARTMENT:** COLORADO SPRINGS UTILITIES
1521 HANCOCK EXPRESSWAY
COLORADO SPRINGS, CO 80903
(719) 668-7640
- ELECTRIC DEPARTMENT:** COLORADO SPRINGS UTILITIES
1521 HANCOCK EXPRESSWAY
COLORADO SPRINGS, CO 80903
(719) 668-7640
- COMMUNICATIONS:** TBD
(U.N.C.C. LOCATORS) (800) 922-1987
AT&T (LOCATORS) (719) 635-3674

ENGINEER'S STATEMENT:

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

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.



DEVELOPER'S STATEMENT:

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

Stephen J. Schnurr

STEPHEN J. SCHNURR
BRADLEY POINT, LLC
2010 FOX MOUNTAIN POINT
COLORADO SPRINGS, CO 80906
(719) 491-3101

4-26-2023
DATE

EL PASO COUNTY:

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

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

JOSHUA PALMER, P.E.
COUNTY ENGINEER/ECM ADMINISTRATOR

DATE

- MONTHLY INSPECTIONS MUST TAKE PLACE ON SITE WHERE CONSTRUCTION ACTIVITY IS COMPLETE, BUT VEGETATIVE COVER IS STILL BEING ESTABLISHED.
- MAINTENANCE OF CONTROL MEASURES CAN BE FOUND IN CONSTRUCTION DETAILS SECTION
- INFORMATION REGARDING DETAILED INSTALLATION OF BMP'S AND ALL OTHER IMPORTANT ASPECTS OF THESE PROCEDURES SHOULD BE REFERRED TO IN STORM WATER MANAGEMENT PLAN



EL PASO COUNTY FILE NO. MS-21-002

BRADLEY POINT FILING NO. 1

GRADING & EROSION CONTROL PLAN

PROJECT NO: 70-074

SCALE: HORIZONTAL: N/A VERTICAL: N/A

DATE: 04/24/2023

DESIGNED BY: VAS

DRAWN BY: CWV

CHECKED BY: DLN

SHEET 1 OF 7

GR01

212 N. WAHSATCH AVE, STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485



FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

PROFESSIONAL ENGINEER
37160
04/25/23

NO.	DATE:	DESCRIPTION:

REVISIONS:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

BRADLEY POINT FILING NO. 1

GRADING AND EROSION CONTROL PLAN

APRIL 2023

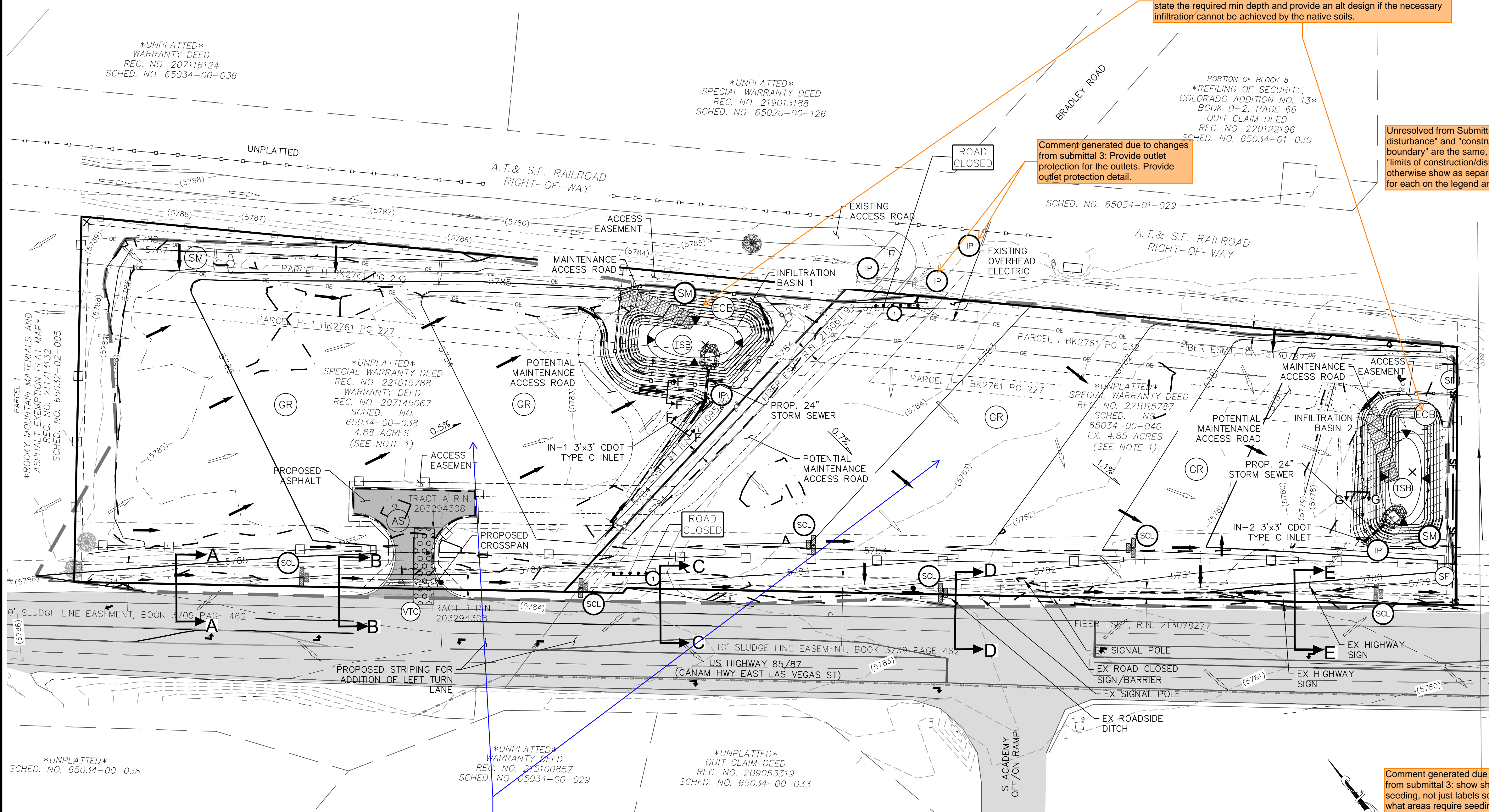
Unresolved from Submittal 3: provide basin details (forebay riprap dimensions and size)

Add specifications for basins in the notes. The basin require excavation to a depth that has sands/gravels according to the Entech report. Clearly state the required min depth and provide an alt design if the necessary infiltration cannot be achieved by the native soils.

Comment generated due to changes from submittal 3: Provide outlet protection for the outlets. Provide outlet protection detail.

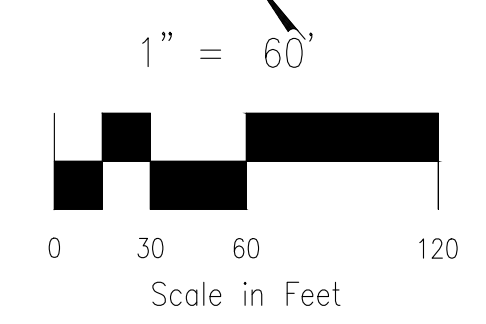
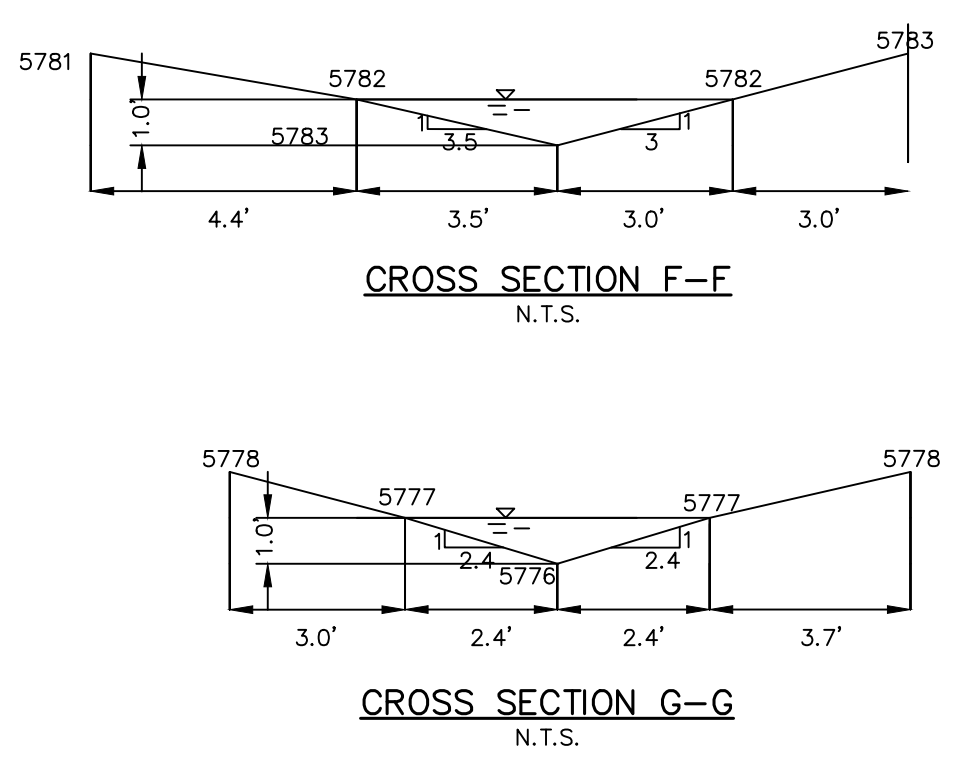
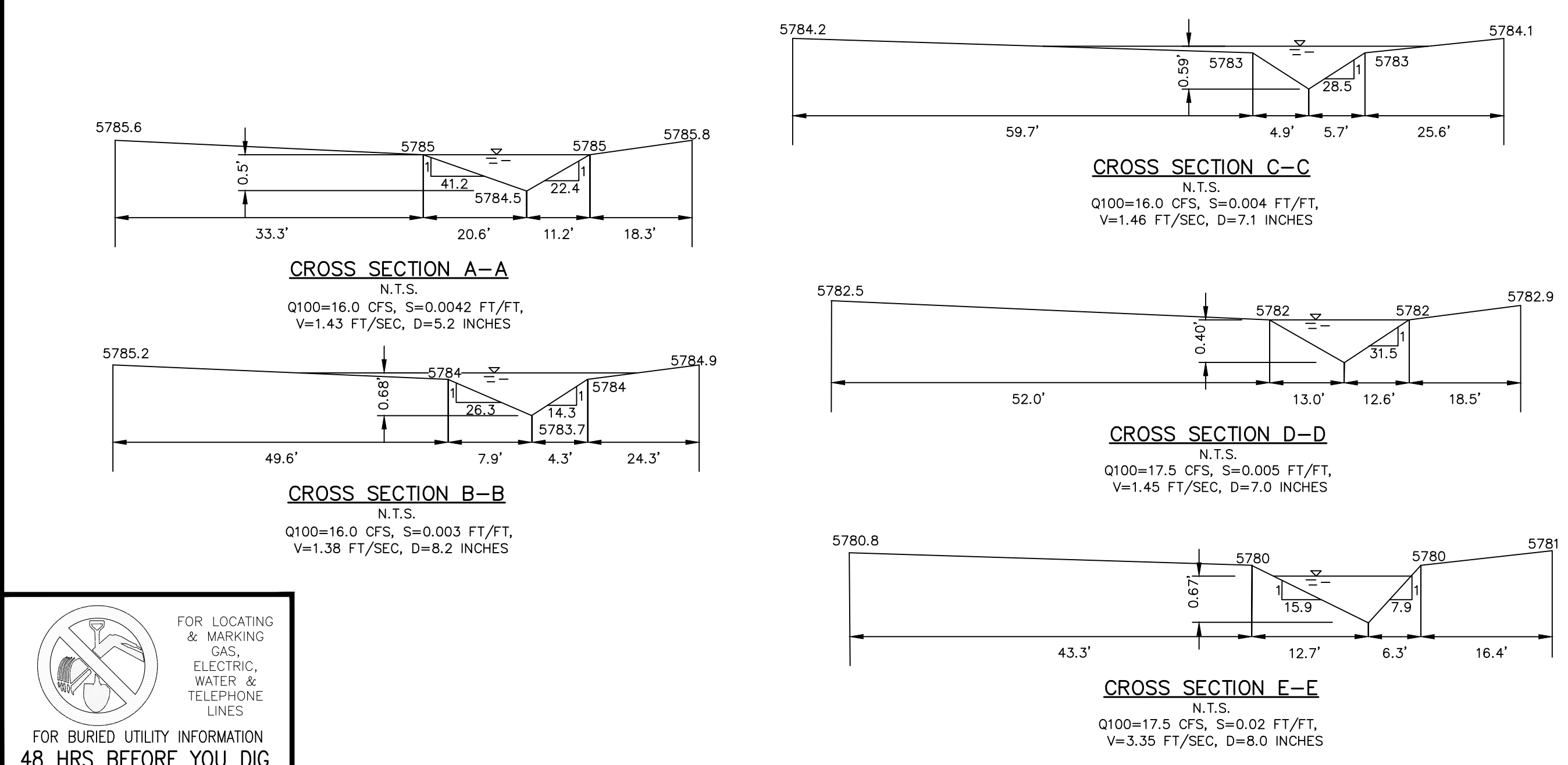
Unresolved from Submittal 3: If "limits of disturbance" and "construction boundary" are the same, change to "limits of construction/disturbance" or otherwise show as separate line types for each on the legend and figure.

Comment generated due to changes from submittal 3: show shapes for seeding, not just labels so it is clear what areas require seeding.



LEGEND

- PROP MAJ CONT
- PROP MIN CONT
- EXIST MAJ CONT
- EXIST MIN CONT
- EX OR EXIST
- FUT
- PROP
- LOW POINT/HIGH POINT
- EXISTING FLOW ARROW
- PROPOSED FLOW ARROW
- CUT/FILL LINE
- PROPOSED SUBDIVISION LINE
- PROPERTY LINE
- PROPOSED OPAQUE FENCE
- PROPOSED CHAINLINK FENCE
- PROPOSED 3-STRAND BARBWIRE FENCE W/ INTERMITTENT REFLECTORS
- CONSTRUCTION BOUNDARY
- ACCESS EASEMENT
- ADJACENT PROPERTY BOUNDARY
- OVERHEAD ELECTRIC
- PROPOSED RIPRAP
- MAINTENANCE/ACCESS ROAD ABOVE EURL
- MAINTENANCE/ACCESS ROAD BELOW EURL
- TEMPORARY SEDIMENT BASIN-INTERIM
- SILT FENCE-INITIAL/INTERIM
- SEDIMENT CONTROL LOG/STRAW WATTLE CHECK-INTERIM
- VEHICLE TRACKING CONTROL-INITIAL/INTERIM
- NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL)-PERM
- INLET PROTECTION-INTERIM
- CONCRETE WASHOUT-INITIAL
- GRAVEL
- SEEDING/MULCHING
- ASPHALT
- ACCESS TO BE REMOVED AND NOT TO BE USED DURING CONSTRUCTION
- EXIST BUSH/TREE
- ROAD CLOSED
- TYPE 3 BARRICADE W/ R11-2 ROAD CLOSED SIGN-INITIAL/INTERIM



INFILTRATION BASIN TABLE

INFILTRATION BASIN NO.	UPSTREAM DRAINAGE AREA AC.	BASIN WIDTH FT.	BASIN LENGTH FT.	ANTIC. MAX WATER HT. FT.	REQ'D VOLUME C.F.	PROV'D VOLUME C.F.
1	5	38	99	3.2	18,640	42,253
2	5	33	105	3.5	18,000	38,768

NOTE: THE TSB'S ARE INFILTRATION PONDS AND THEREFORE DO NOT HAVE FORMAL OUTLET STRUCTURES

NOTES:

- STAGING AND STOCKPILES AREA TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.
- THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.
- PROPOSED SLOPES SHALL BE 4:1 OR LESS, UNLESS OTHERWISE NOTED ON PLANS.
- THE CONTRACTOR SHALL OBTAIN A COPY OF THE GEOTECHNICAL ENGINEERING REPORT AND KEEP A COPY ONSITE DURING ALL EARTHWORK OPERATIONS.
- THE CONTRACTOR SHALL PROVIDE SUFFICIENT BUFFER BETWEEN THE LIMITS OF DISTURBANCE AND AREAS IN WHICH NO GRADING SHALL OCCUR TO MAKE SUFFICIENT TIE IN BETWEEN THE PROPOSED GRADE AND EXISTING GRADE WHICH MAY NOT BE CLEARLY ILLUSTRATED ON THIS PLAN.
- EXISTING VEGETATION CONSISTS OF SPARSE, NATIVE GRASSES; APPROXIMATELY 23.5% OF THE SITE IS COVERED IN AN AGGREGATE BASE MATERIAL IN THE EXISTING CONDITION
- FINAL STABILIZATION SHALL BE COMPLETED AT THE END OF THE CONSTRUCTION ACTIVITIES. ALL AREAS DISTURBED WITHIN THE CONSTRUCTION BOUNDARY/LIMITS OF DISTURBANCE AREA SHALL BE RESEEDED WITH NATIVE SEEDING.
- NO PORTION OF THE PROPOSED CROSSROADS MIXED USE SITE LIES WITHIN A FEMA EFFECTIVE 100-YR FLOODPLAIN.
- EROSION CONTROL BLANKET SHALL BE USED ON SLOPES GREATER THAN 4:1.
- SIGNAGE ADDED TO KEEP ON-SITE STORED MATERIALS OUT OF THE PONDS.

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987

BRADLEY POINT FILING NO. 1

GRADING & EROSION CONTROL PLAN

DATE: 04/24/2023

SHEET 2 OF 7

PROJECT NO. 70-074

SCALE: HORIZONTAL: 1" = 60' VERTICAL: N/A

DESIGNED BY: CWM

DRAWN BY: CWM

CHECKED BY: DLM

212 N. WASHACHE AVE. STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5465

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

MIRCEL A. SANCHEZ, COLORADO P.E. NO. 37160

APPROVED BY: DATE:

NO. DATE: DESCRIPTION:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

File: 0:\70074A SOUTH PLANT 85-87\South Plant 85-87\Map\Const Draw\GEO\GRO2.dwg Plotstamp: 4/24/2023 3:59 PM

SC-1 Silt Fence (SF)

Maintenance and Removal

Inspection of silt fence includes observing the material for tears or holes and checking for slumping fence and undercut areas bypassing flows. Repair of silt fence typically involves replacing the damaged section with a new section. Sediment accumulated behind silt fence should be removed, as needed to maintain BMP effectiveness, typically before it reaches a depth of 6 inches.

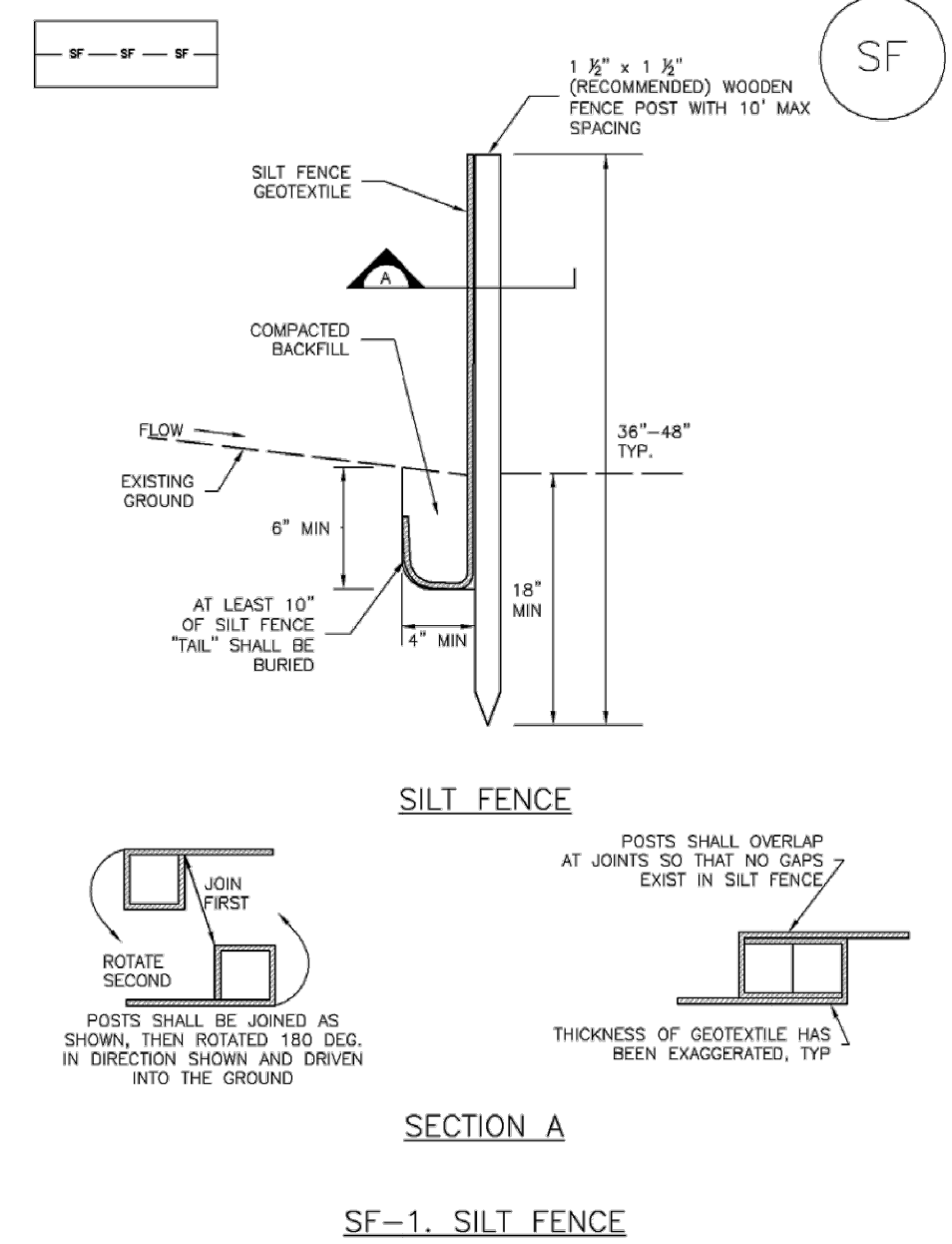


Photograph SF-2. When silt fence is not installed along the contour, a "J-hook" installation may be appropriate to ensure that the BMP does not create concentrated flow parallel to the silt fence. Photo courtesy of Tom Gave.

Silt fence may be removed when the upstream area has reached final stabilization.

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

Silt Fence (SF) SC-1



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

Silt Fence (SF) SC-1

SILT FENCE INSTALLATION NOTES

1. 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 (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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').
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

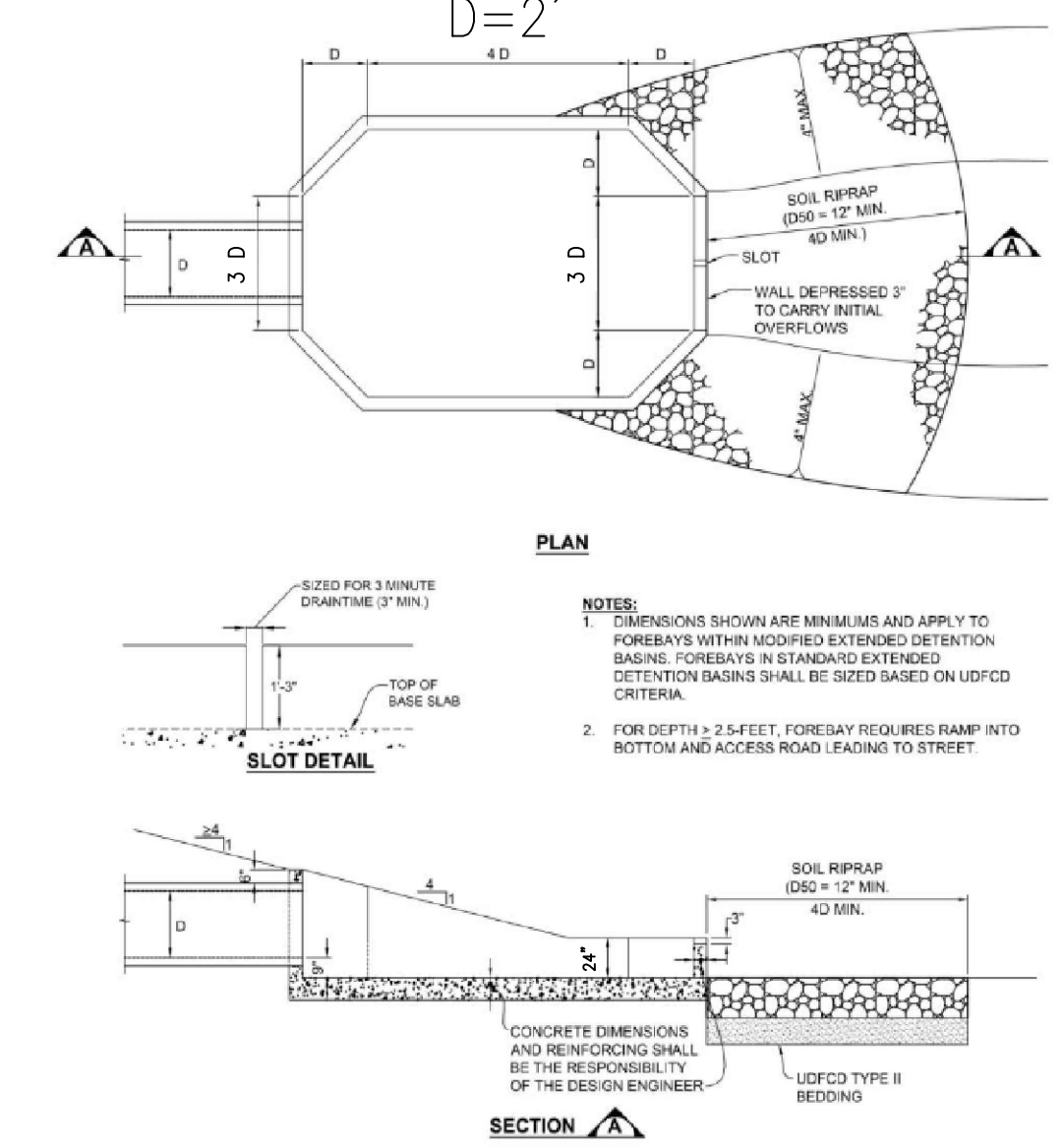
SILT FENCE MAINTENANCE NOTES

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. 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".
 5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
 6. 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.
 7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDS AND MULCH OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION. (DETAILS ADAPTED FROM TOWN OF PINDER, COLORADO AND CITY OF JORDAN, NOT AVAILABLE IN AUTOSCAD)
- 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 November 2010
Urban Storm Drainage Criteria Manual Volume 3

Storage Chapter 13

Figure 13-9. Concept for Integral Forebay at Pipe Outfall

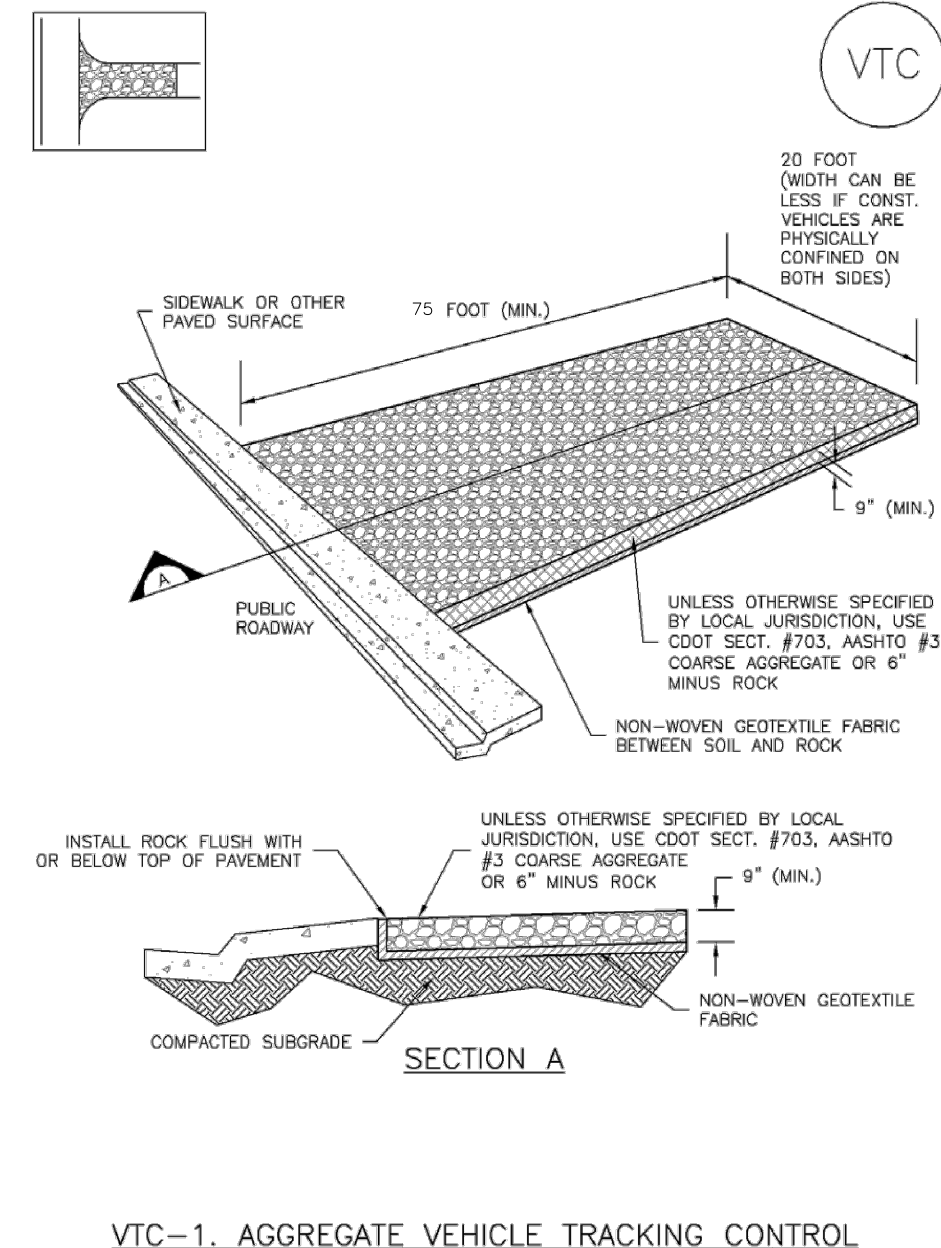


13-30 City of Colorado Springs May 2014
Drainage Criteria Manual, Volume 1

Comment generated due to changes from the submittal 3: Forebay Baffles: Per MHFD USDCMv2 Chap 9, Section 3.2.4 (pdf pages 89 to 99), baffles are required for inlet pipes up to 48" diameter. Use Type VI impact basin for larger pipes or higher exit velocities. Also see req's in DCMv1 Chap 10.8.

include forebay notch sizes

Vehicle Tracking Control (VTC) SM-4



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

Vehicle Tracking Control (VTC) SM-4

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

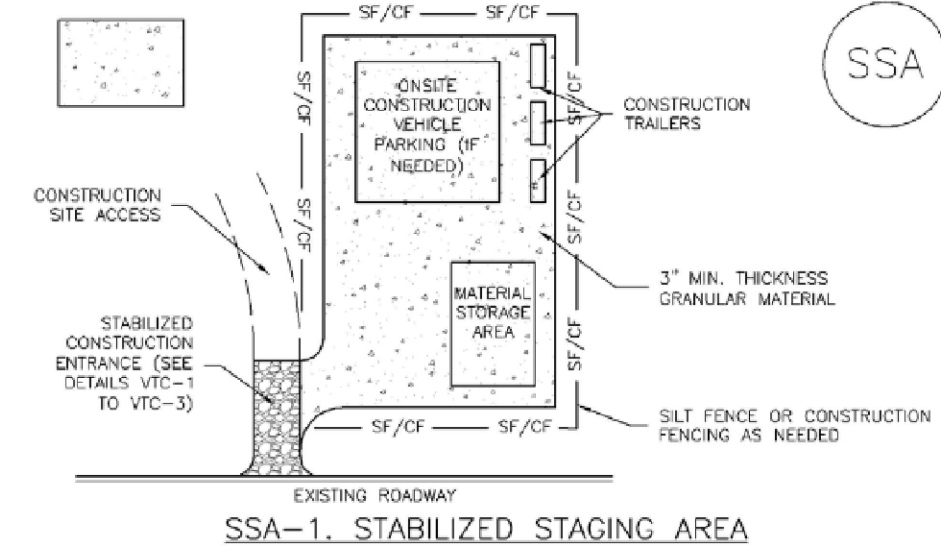
1. SEE PLAN VIEW FOR -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S). -TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TBM).
2. CONSTRUCTION MAT OR TBM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, ASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED CONSTRUCTION ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
 5. SEDIMENT TRACKED ONTO PAVED AREAS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.
- 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 CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOSCAD)

VTC-6 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

Stabilized Staging Area (SSA) SM-6



STABILIZED STAGING AREA INSTALLATION NOTES

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

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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

Stabilized Staging Area (SSA) SM-6

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
 6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDS AND MULCH 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 AUTOSCAD)

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

EROSION CONTROL CRITERIA:

EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IN A MANNER THAT WILL PROTECT PROPERTIES AND PUBLIC FACILITIES FROM THE ADVERSE EFFECTS OF EROSION AND SEDIMENTATION AS A RESULT OF CONSTRUCTION AND EARTHWORK ACTIVITIES WITHIN THE PROJECT SITE.

1. PRIOR TO START OF GRADING OPERATIONS, LOCATE AND SET THE SEDIMENT BERM AND VEHICLE TRACKING CONTROL AS SHOWN ON THE EROSION CONTROL PLAN.
2. THE SEDIMENT BERM SHALL BE KEPT IN PLACE AND MAINTAINED UNTIL EROSION AND SEDIMENTATION POTENTIAL IS MITIGATED. REMOVAL OF SILT AND SEDIMENT COLLECTED BY THE SEDIMENT BERM IS REQUIRED ONCE IT REACHES HALF THE HEIGHT OF THE SEDIMENT BERM.
3. EROSION CONTROL DEVICES SHOULD BE CHECKED AFTER EVERY STORM OR NOT MORE THAN EVERY 14 DAYS. REPAIRS OR REPLACEMENT SHOULD BE MADE AS NECESSARY TO MAINTAIN PROPER PROTECTION.

SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT THE FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDS. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPs SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION

48 HRS BEFORE YOU DIG

CALL 1-800-922-1987

BRADLEY POINT FILING NO. 1

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 70-074

DATE: 04/24/2023

SCALE: HORIZONTAL: N/A VERTICAL: N/A

DESIGNED BY: CW

DRAWN BY: CW

CHECKED BY: DLM

SHEET 3 OF 7

GR03

212 N. WABATCH AVE., STE 305
COLORADO SPRINGS, CO 80903
PHONE: 719.555.5485

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

PROFESSIONAL SEAL: APRIL A. SANCHEZ, COLORADO P.E. NO. 37160

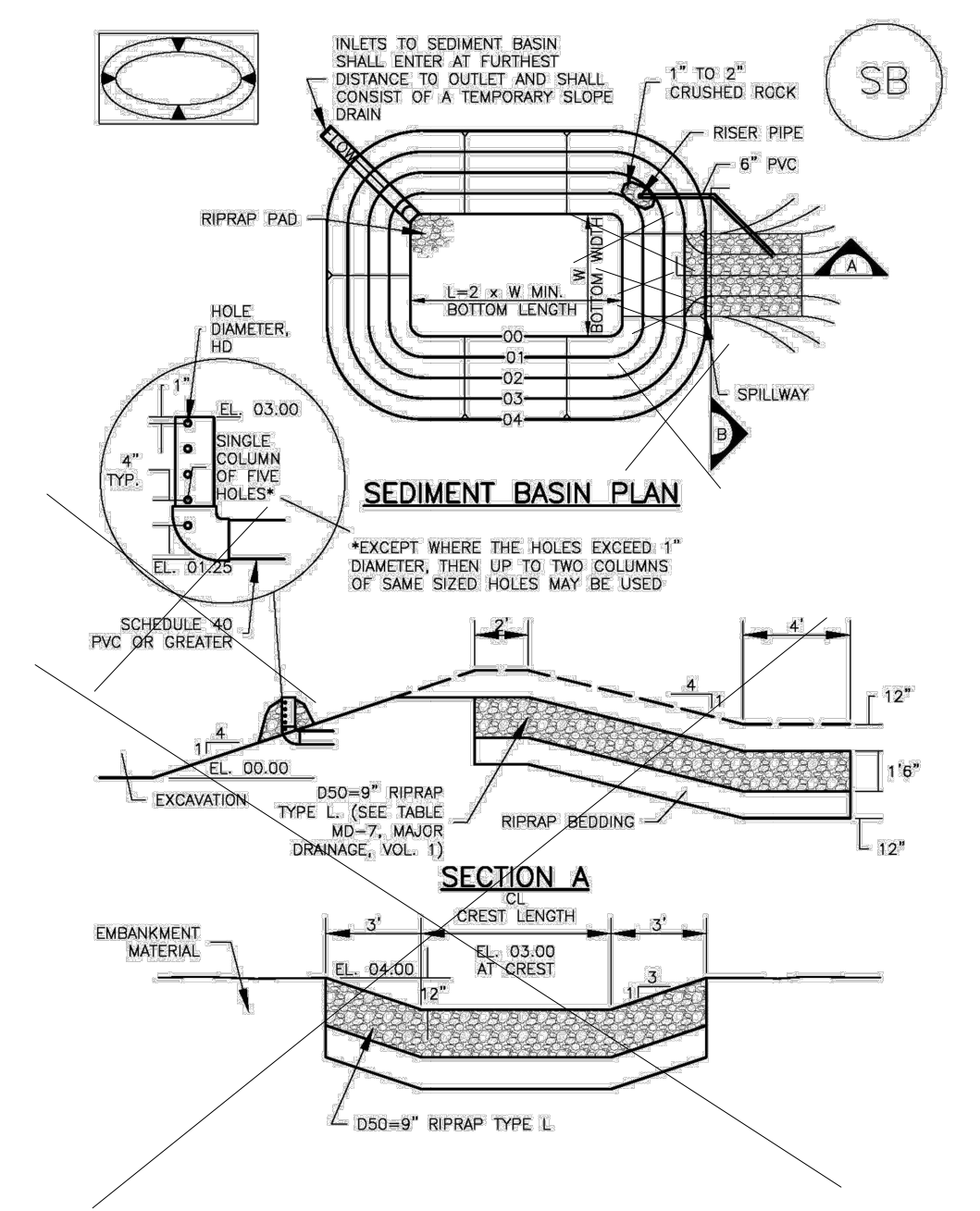
APPROVED BY: DATE:

REVISIONS: NO. DATE: BY: DESCRIPTION:

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CAUTION

Sediment Basin (SB) SC-7



August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-5

SC-7 Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (ft)
1	12 1/2	2	3/4
2	21	3	1 1/8
3	28	4	1 1/4
4	33 1/2	6	1 3/8
5	38 1/2	8	1 1/2
6	43	9	1 5/8
8	47 1/2	11	1 3/4
10	51	12	1 7/8
12	55	13	1 7/8
14	58 1/2	15	1 7/8
15	61	16	1 7/8
16	64	18	1 7/8
17	67 1/2	19	1 7/8
18	70 1/2	21	1 7/8
19	73 1/2	22	1 7/8

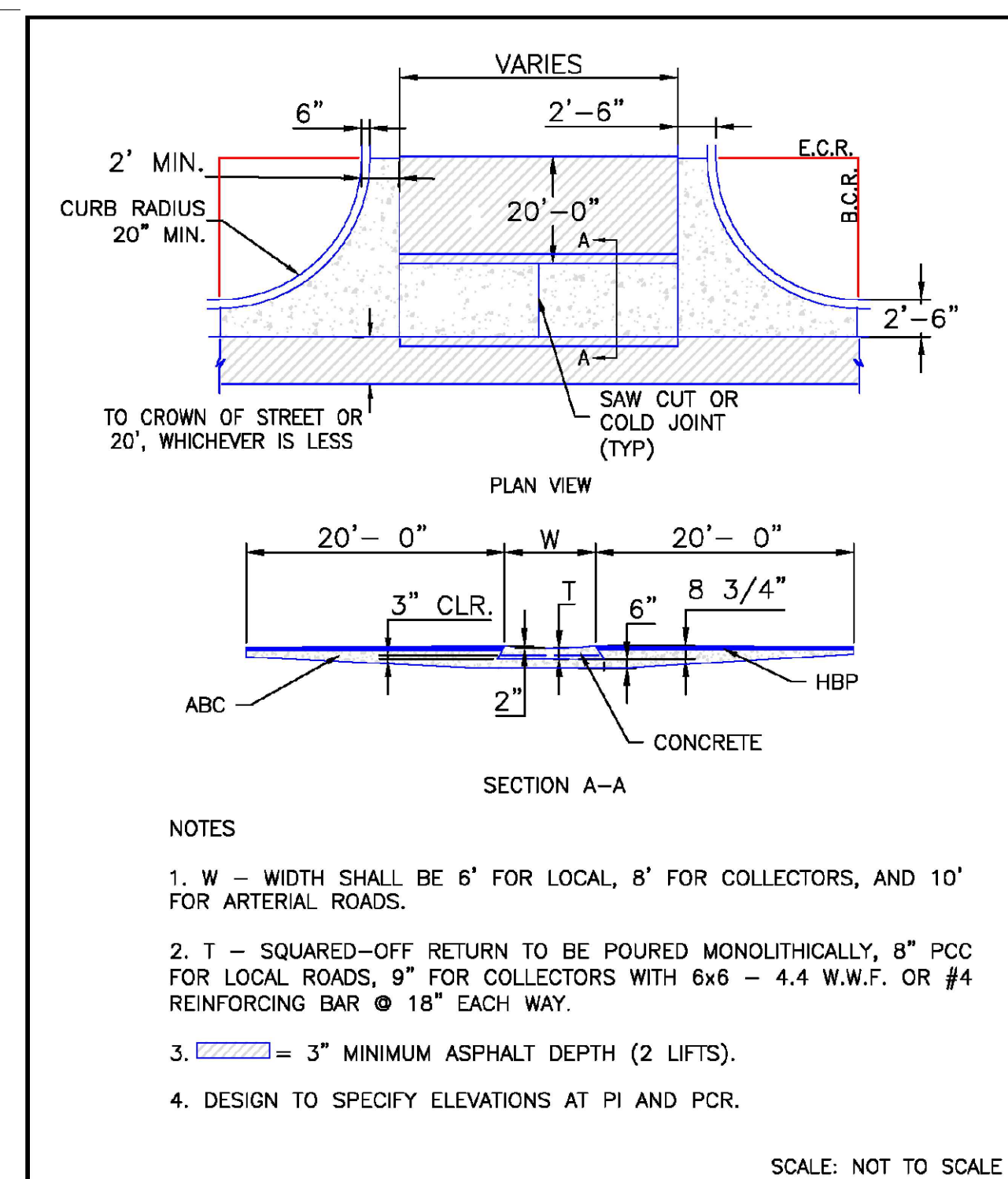
- SEDIMENT BASIN INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF SEDIMENT BASIN.
 - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
 - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
 - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT N, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
 - FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
 - SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL.
 - EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
 - EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
 - PIPE SCH 40 OR GREATER SHALL BE USED.
 - THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASINS FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASINS THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

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

Sediment Basin (SB) SC-7

- SEDIMENT BASIN 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 IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW THE SPILLWAY CREST).
 - SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
 - WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MACHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM SOULAS COUNTY, COLORADO)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM IUDFCO STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-7

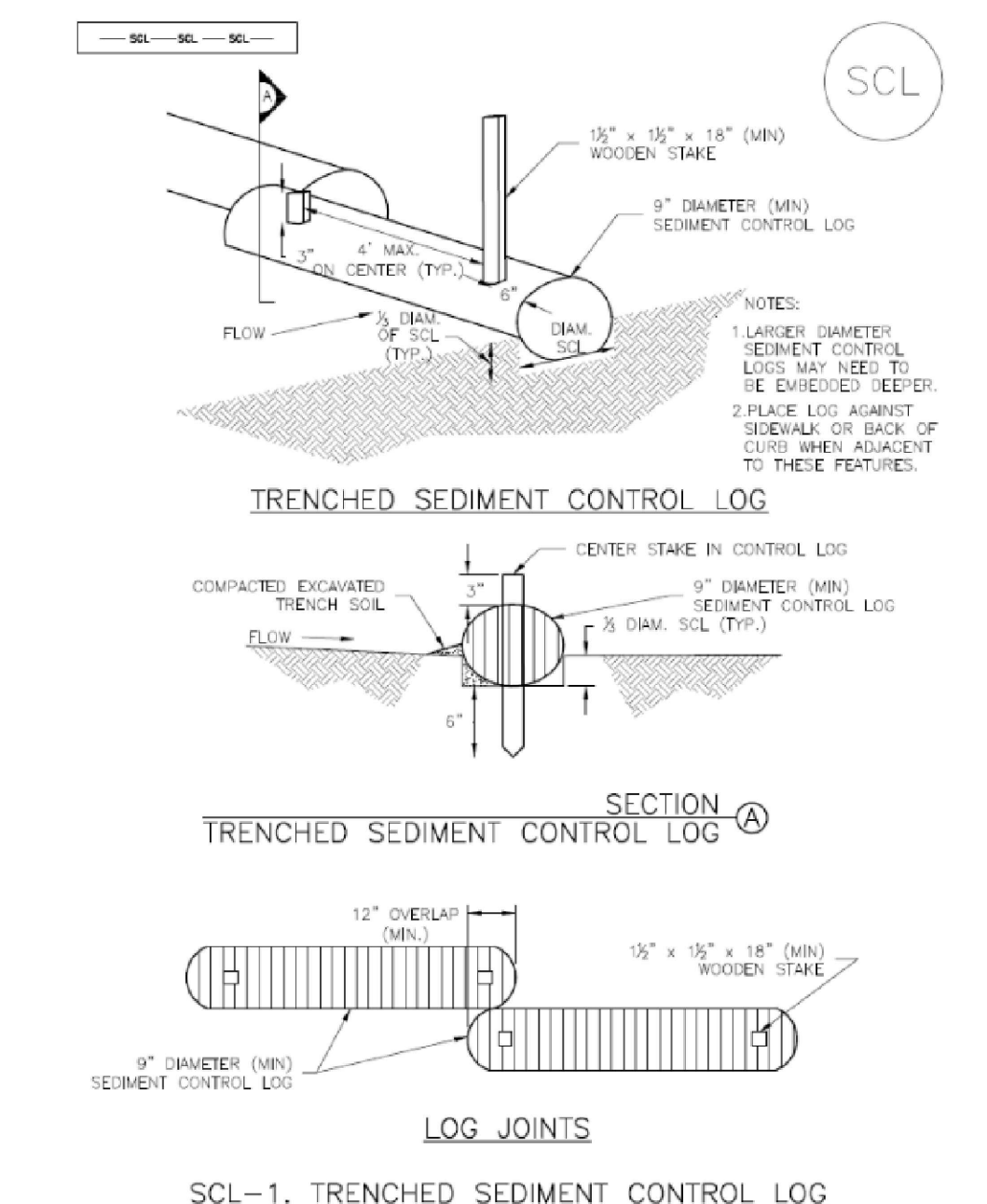


8/11/11
 DATE APPROVED: André P. Brackin
 DEPARTMENT OF TRANSPORTATION

Typical Cross Pan Layout Detail Standard Drawing
 SOURCE DATE: 12/8/15
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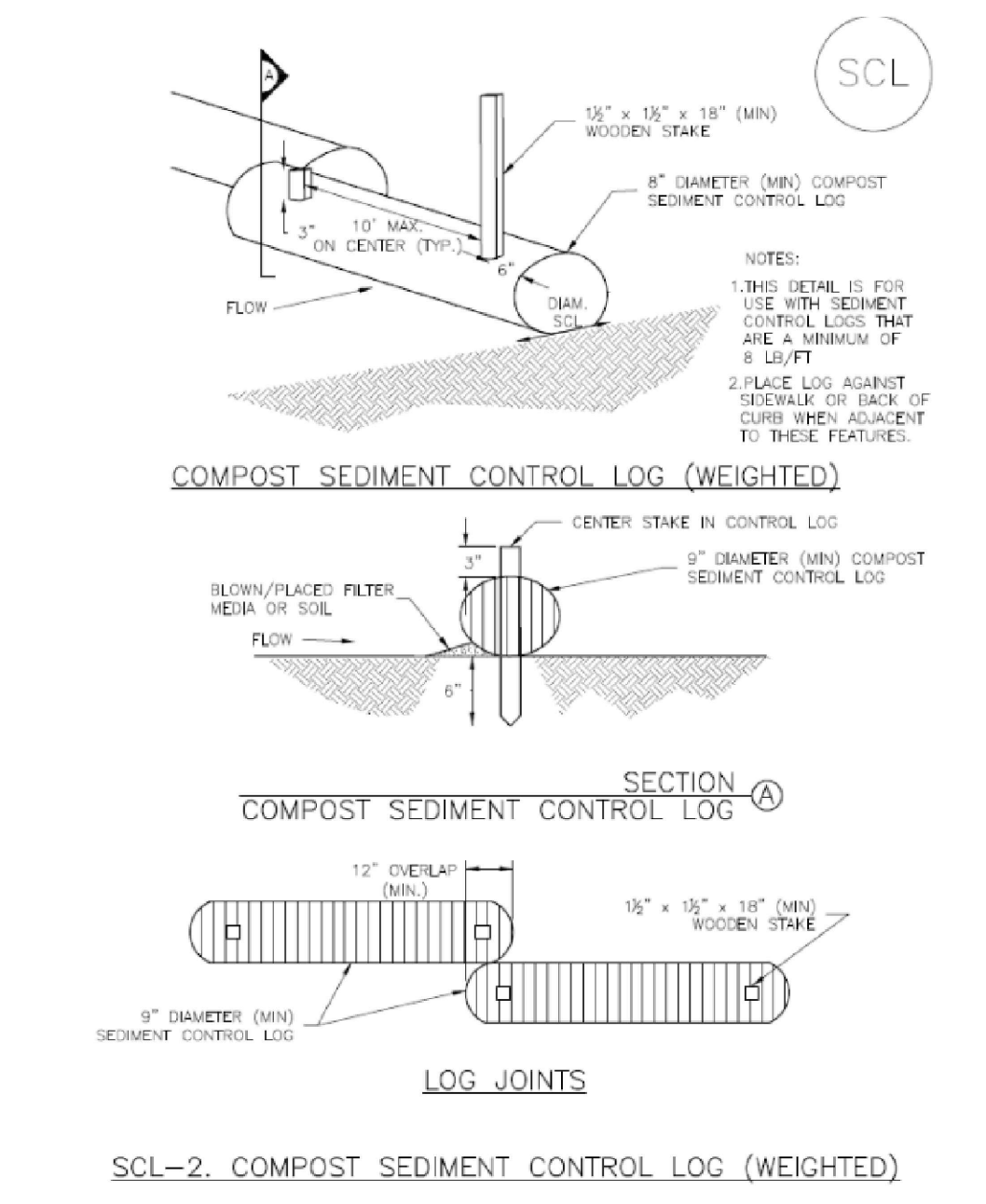
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Sediment Control Log (SCL) SC-2



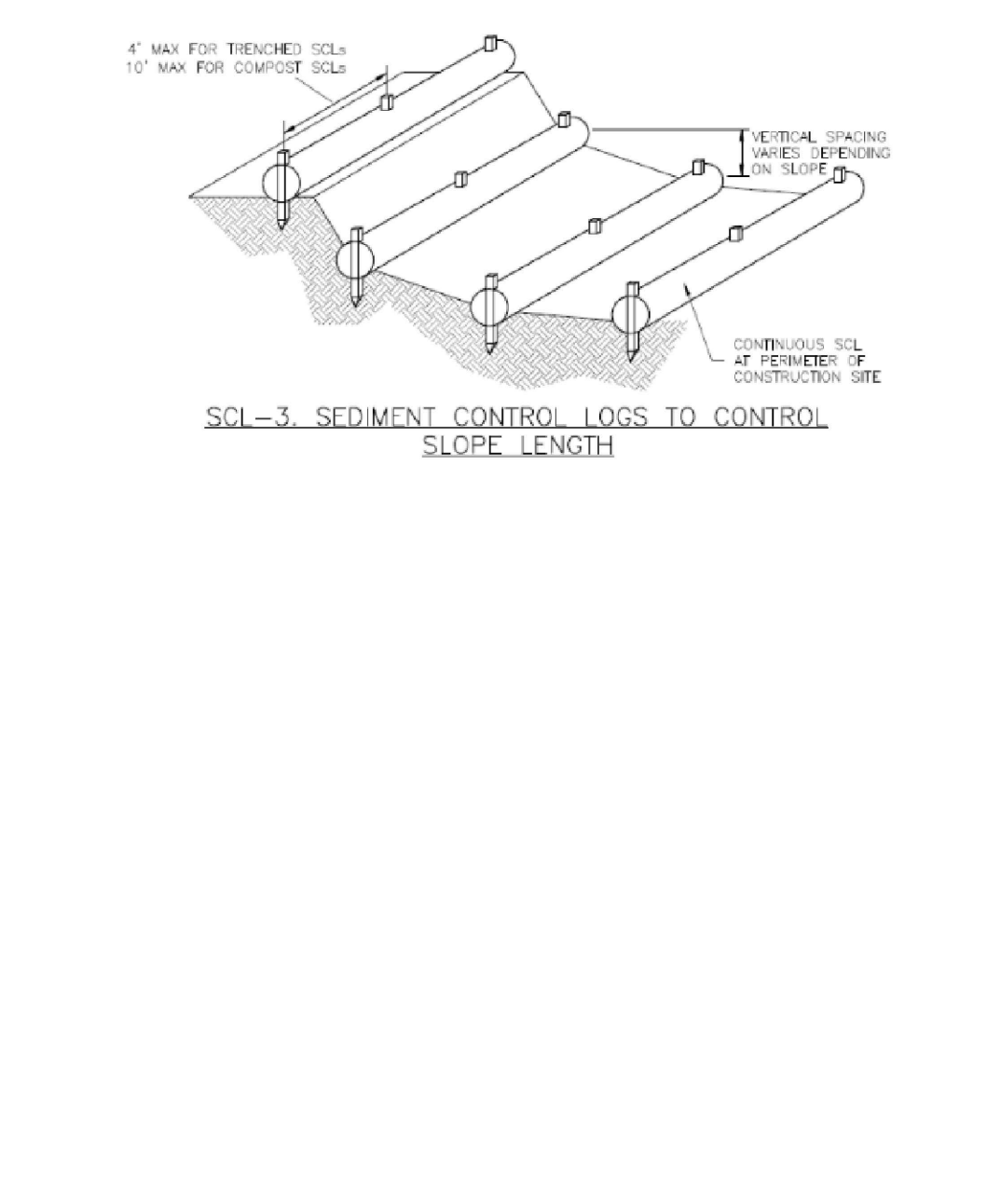
November 2015 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-3

SC-2 Sediment Control Log (SCL)

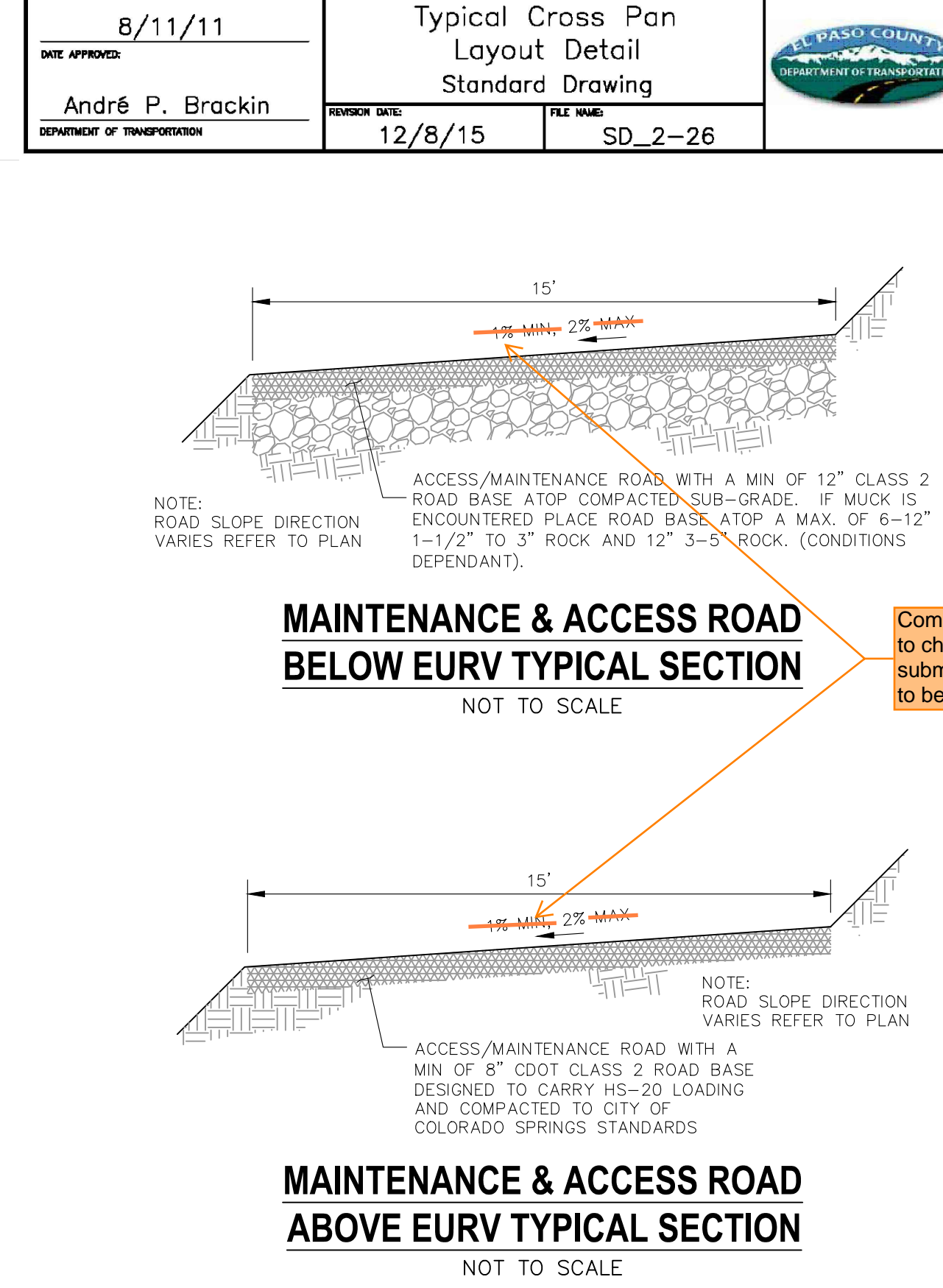


SCL-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2015

Sediment Control Log (SCL) SC-2



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



Comment generated due to changes from the submittal 3: Cross slope to be 2%

BRADLEY POINT FILING NO. 1

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 70-074

DATE: 04/24/2023

SCALE: HORIZONTAL: N/A VERTICAL: N/A

DESIGNED BY: CW DRAWN BY: CW CHECKED BY: DLM

212 N. WABASH AVE., STE. 305
 COLORADO SPRINGS, CO 80903
 PHONE: 719.553.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF CIVIL CONSULTANTS, INC.

PROFESSIONAL SEAL: VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

DATE: 04/25/23

REVISIONS:

NO.	DATE	DESCRIPTION

APPROVED BY: DATE:

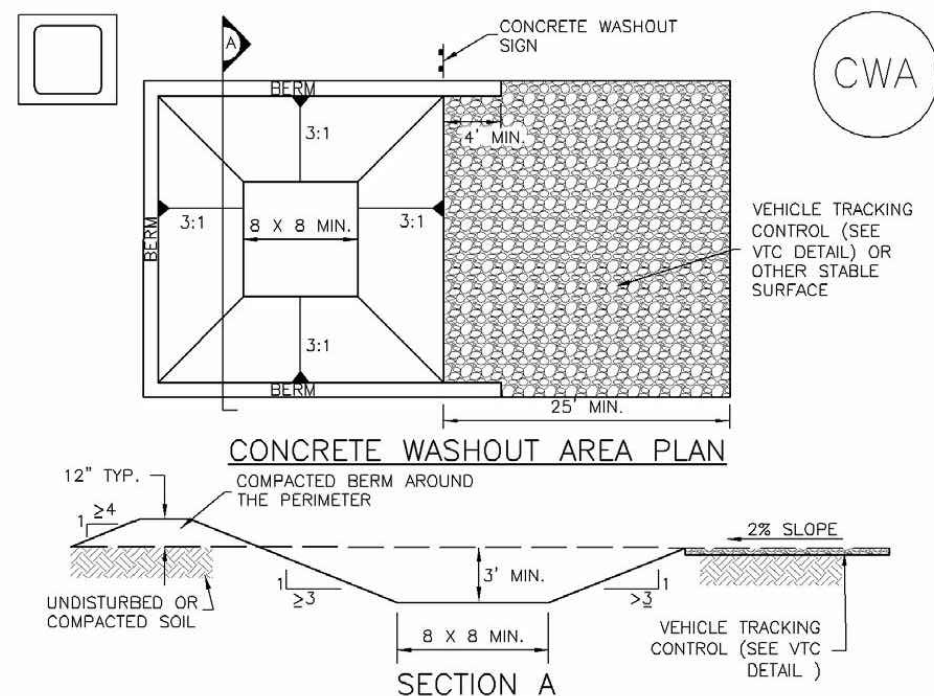
FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987

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CAUTION

Concrete Washout Area (CWA) MM-1



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8" BY 8" SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

MM-1 Concrete Washout Area (CWA)

CWA 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.
- THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
- CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
- THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
- WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

EC-6 Rolled Erosion Control Products (RECP)

Table RECP-2. ECTC Standard Specification for Permanent¹ Rolled Erosion Control Products
(Adapted from: Erosion Control Technology Council 2005)

Product Type	Slope Applications	Channel Applications	Minimum Tensile Strength ³
TRMs with a minimum thickness of 0.25 inches (6.35 mm) per ASTM D 6525 and UV stability of 80% per ASTM D 4355 (500 hours exposure).	Maximum Gradient	Maximum Shear Stress ^{4,5}	Minimum Tensile Strength ³
	0.5:1 (H:V)	6.0 lbs/ft ² (288 Pa)	125 lbs/ft (1.82 kN/m)
	0.5:1 (H:V)	8.0 lbs/ft ² (384 Pa)	150 lbs/ft (2.19 kN/m)
	0.5:1 (H:V)	10.0 lbs/ft ² (480 Pa)	175 lbs/ft (2.55 kN/m)

¹ For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the matting alone.

² Minimum Average Roll Values, machine direction only for tensile strength determination using ASTM D 6818 (Supersedes Mod. ASTM D 5035 for RECPs)

³ Field conditions with high loading and/or high survivability requirements may warrant the use of a TRM with a tensile strength of 44 kN/m (3,000 lb/ft) or greater.

⁴ Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in.) soil loss) during a 30-minute flow event in large scale testing.

⁵ Acceptable large-scale testing protocols may include ASTM D 6466, or other independent testing deemed acceptable by the engineer.

Design and Installation

RECPs should be installed according to manufacturer's specifications and guidelines. Regardless of the type of product used, it is important to ensure no gaps or voids exist under the material and that all corners of the material are secured using stakes and trenching. Continuous contact between the product and the soil is necessary to avoid failure. Never use metal stakes to secure temporary erosion control products. Often wooden stakes are used to anchor RECPs; however, wood stakes may present installation and maintenance challenges and generally take a long time to biodegrade. Some local jurisdictions have had favorable experiences using biodegradable stakes.

This BMP Fact Sheet provides design details for several commonly used ECB applications, including:

- ECB-1 Pipe Outlet to Drainageway
 - ECB-2 Small Ditch or Drainageway
 - ECB-3 Outside of Drainageway
- RECP-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Rolled Erosion Control Products (RECP) EC-6

Staking patterns are also provided in the design details according to these factors:

- ECB type
- Slope or channel type

For other types of RECPs including TRMs, these design details are intended to serve as general guidelines for design and installation; however, engineers should adhere to manufacturer's installation recommendations.

Maintenance and Removal

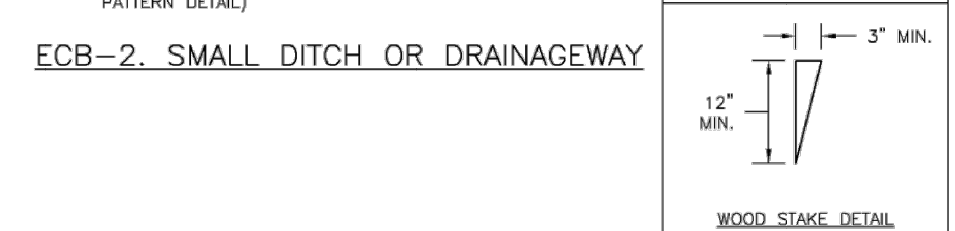
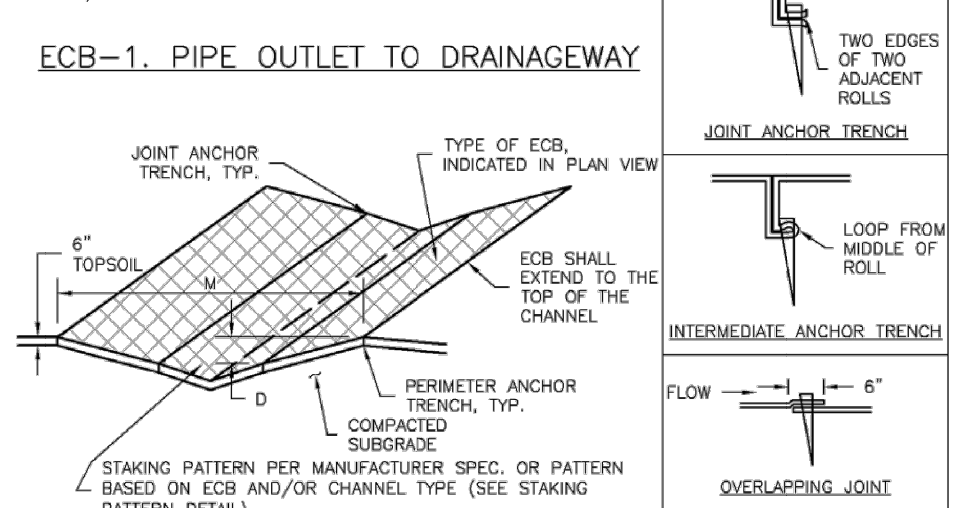
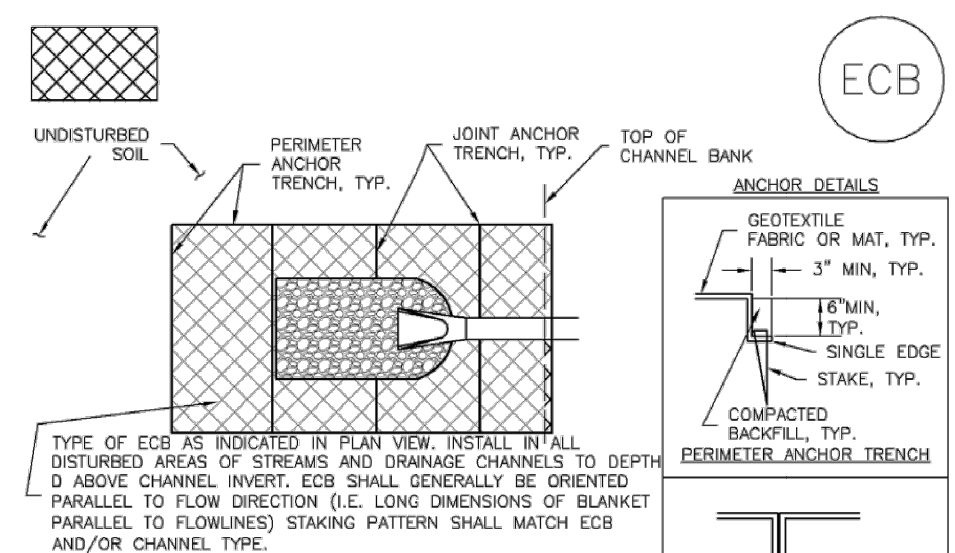
Inspection of erosion control blankets and other RECPs includes:

- Check for general signs of erosion, including voids beneath the mat. If voids are apparent, fill the void with suitable soil and replace the erosion control blanket, following the appropriate staking pattern.
- Check for damaged or loose stakes and secure loose portions of the blanket.

Erosion control blankets and other RECPs that are biodegradable typically do not need to be removed after construction. If they must be removed, then an alternate soil stabilization method should be installed promptly following removal.

Turf reinforcement mats, although generally resistant to biodegradation, are typically left in place as a dense vegetated cover grows in through the mat matrix. The turf reinforcement mat provides long-term stability and helps the established vegetation resist erosive forces.

EC-6 Rolled Erosion Control Products (RECP)



STAKING PATTERNS BY ECB TYPE

STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

Rolled Erosion Control Products (RECP) EC-6

EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCOONUT, COCOONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING, SUBGRADE SHALL BE SMOOTH AND MOST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR Voids SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCOONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB-1. ECB MATERIAL SPECIFICATIONS

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

*STRAW ECBs MAY ONLY BE USED SUBJECT TO STATE AND FEDERAL CHANGES.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET 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.
- ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
- ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE EXPOSED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

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 AND TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

Rolled Erosion Control Products (RECP) EC-6

EROSION CONTROL BLANKET MAINTENANCE NOTES

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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 AND TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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FOR AND ON BEHALF OF
CIVIL CONSULTANTS, INC.
MIRCEL A. SANCHEZ, COLORADO P.E. NO. 37160
PROFESSIONAL SEAL
37160
04/25/23

REVISIONS:

NO.	DATE	BY	DESCRIPTION

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR ALTERATIONS OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

NO. DATE BY DESCRIPTION



CAUTION

Erosion Control Blankets

What it is

Erosion control blankets are geotextiles or filter fabrics that are used to stabilize soils, steep slopes and drainage channels.

TYPES OF EROSION CONTROL BLANKETS

- WOVEN OR BONDED SYNTHETIC MATERIALS SUCH AS POLYPROPYLENE, POLYESTER, POLYETHYLENE, NYLON, POLYVINYL CHLORIDE, GLASS AND VARIOUS MIXTURES OF THESE.
- MULCH MATTING MADE FROM JUTE OR OTHER WOOD FIBER THAT HAS BEEN FORMED INTO SHEETS.
- NETTING MADE FROM JUTE OR OTHER WOOD FIBER, PLASTIC, PAPER, OR COTTON USED TO HOLD MULCH AND MATTING TO THE GROUND.
- BLANKETS OF WOVEN STRAW MULCH WITH A SYNTHETIC LAYER OR NET.



When and Where to use it

- In temporary and permanent swales.
- To protect recently seeded slopes.
- In drainage channels.

When and Where NOT to use it

- In swales with slopes greater than 5 percent or with stormwater velocities > 8 feet per second.

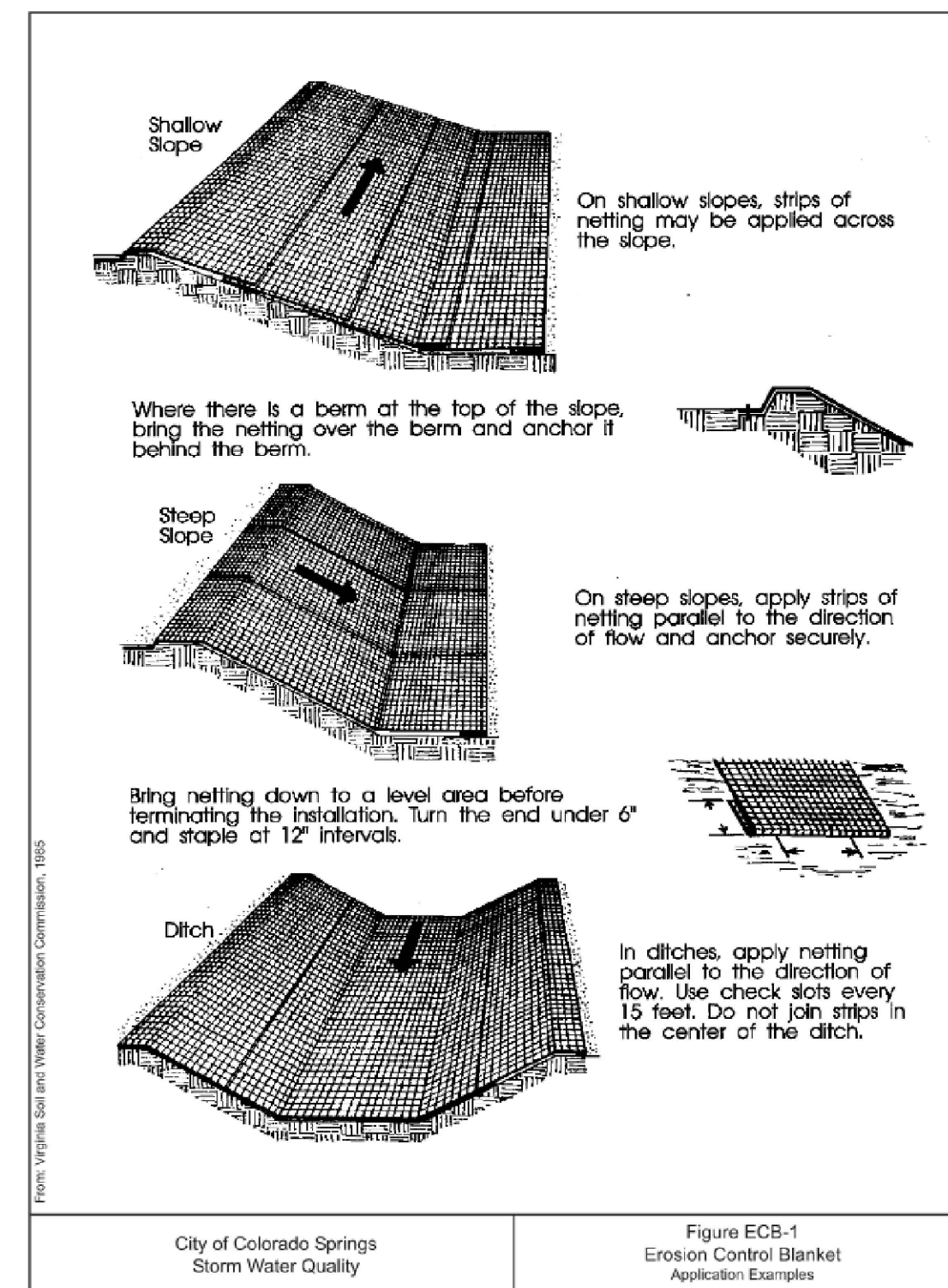
Installation and Maintenance Requirements

Installation requirements are provided in Figures ECB-1 and ECB-2.

Maintenance requirements include regular inspections to determine if fabric is damaged or has come loose, and appropriate repairs or replacement of damaged materials.

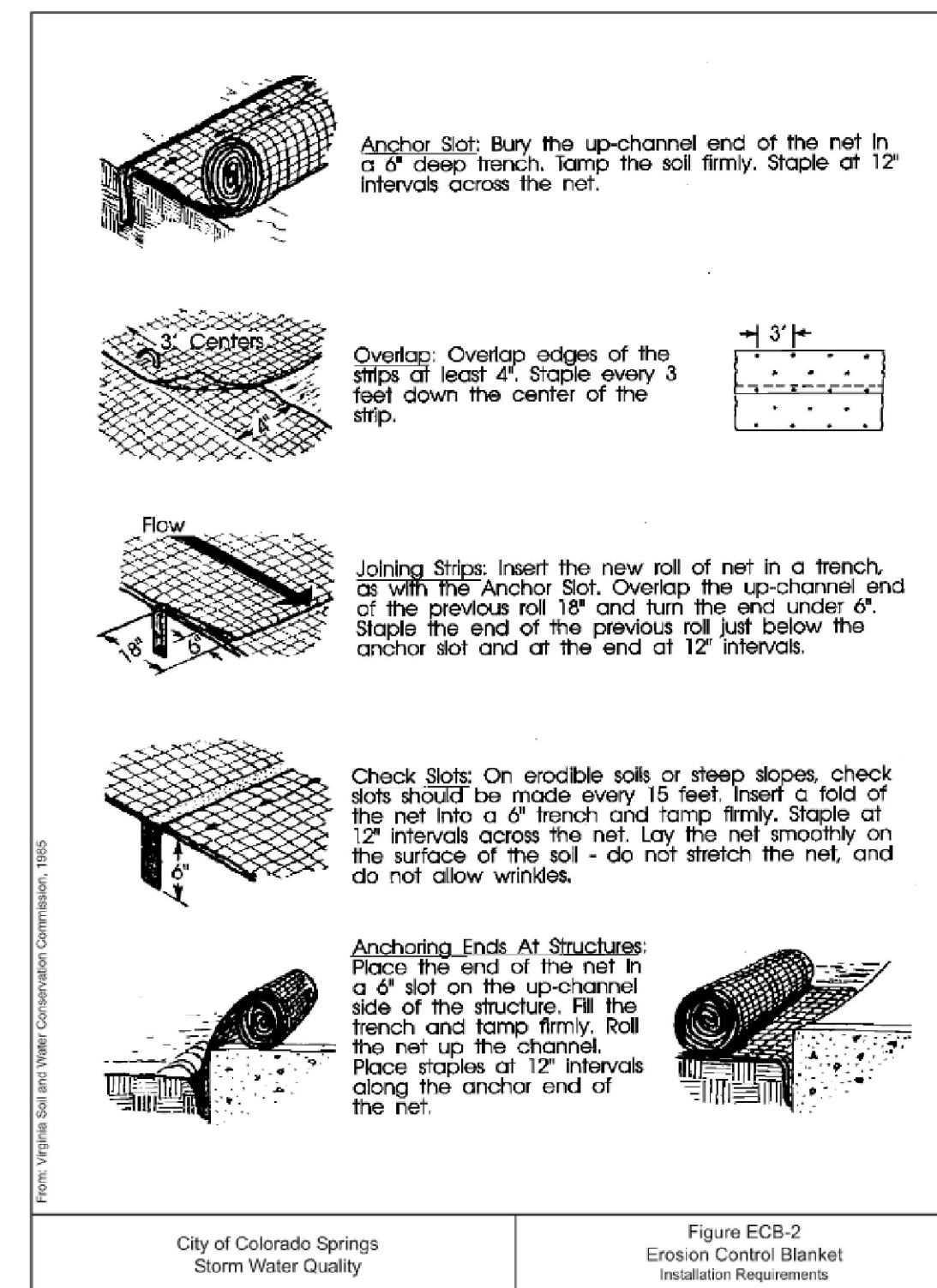
STORMWATER QUALITY BMP MANUAL

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3-22

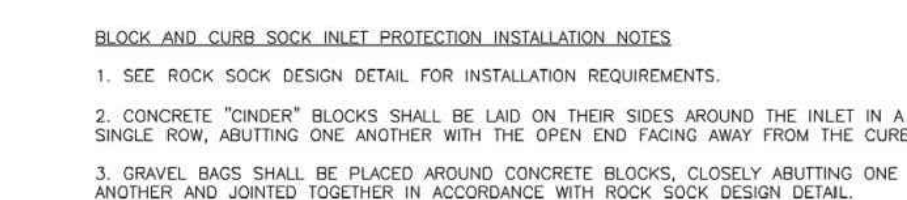
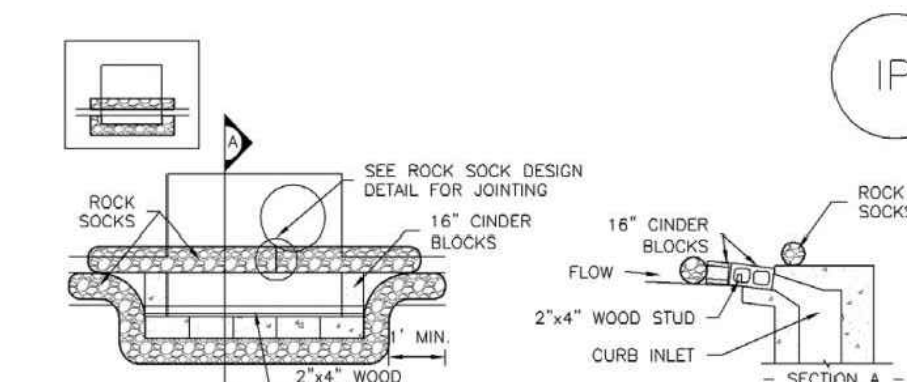


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SC-6

Inlet Protection (IP)

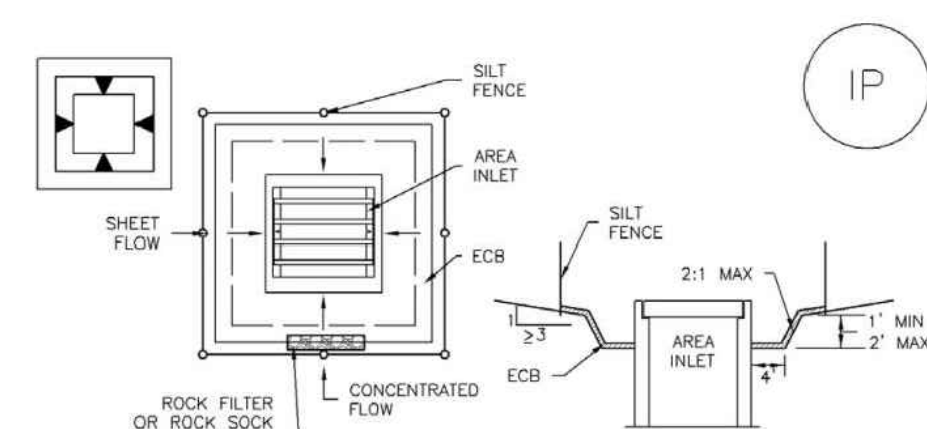


IP-4 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3

August 2013

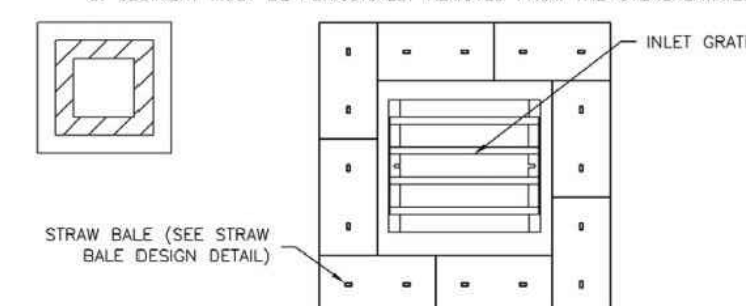
SC-6

Inlet Protection (IP)



IP-5. OVEREXCAVATION INLET PROTECTION

1. 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.
2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.
3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



IP-6. STRAW BALE FOR SUMP INLET PROTECTION

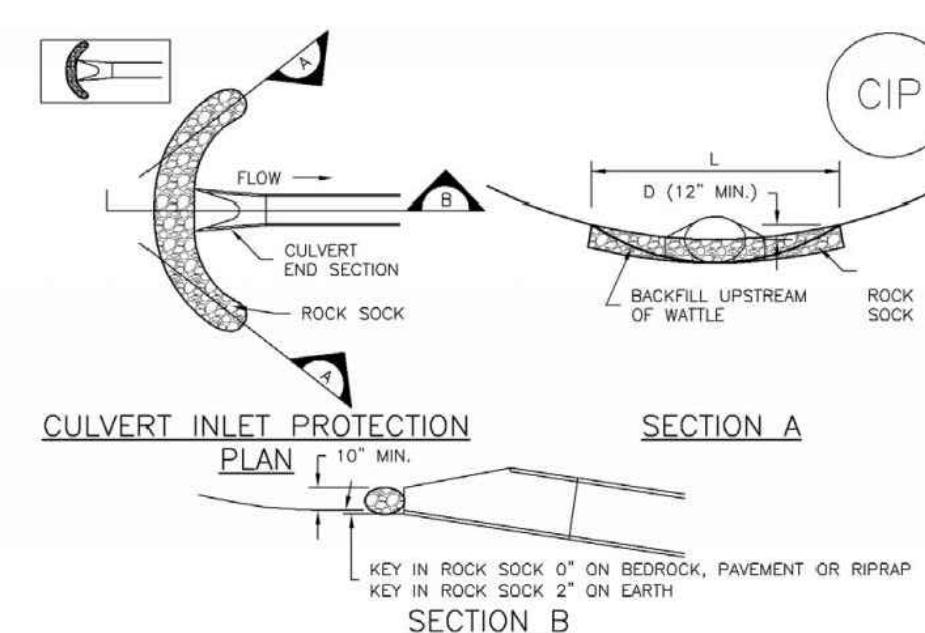
1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

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

August 2013

Inlet Protection (IP)

SC-6



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

IP-7

SC-6

Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR -LOCATION OF INLET PROTECTION. -TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
2. 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.
3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM IUDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INLET 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. 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.
5. 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.
6. 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.

(DETAILS 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, CONDITIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. IUDFCD 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
Urban Storm Drainage Criteria Manual Volume 3

August 2013

BRADLEY POINT FILING NO. 1

GRADING & EROSION CONTROL DETAILS

DATE: 04/24/2023

GR06

SCALE: PROJECT NO. 70-074

DESIGNED BY: CWM

DRAWN BY: CWM

CHECKED BY: DLM

HORIZONTAL: N/A

VERTICAL: N/A

212 N. WABASH AVE., STE. 305
COLORADO SPRINGS, CO 80903
PHONE: 719.553.5485



FOR AND ON BEHALF OF CIVIL CONSULTANTS, INC.

MIRCEL A. SANCHEZ, COLORADO P.E. NO. 37160



APPROVED BY: DATE:

REVISIONS: NO. DATE DESCRIPTION:

NO. DATE DESCRIPTION:



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CAUTION

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species* (Common name)	Growth Season*	Pounds of Pure Live Seed (PLS)/acre*	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Miller	Warm	3 - 15	½ - ¾
6. Winter wheat	Cool	20-35	1 - 2
7. Winter barley	Cool	20-35	1 - 2
8. Winter rye	Cool	20-35	1 - 2
9. Triticale	Cool	25-40	1 - 2

* Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

† See Table TS/PS-2 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

‡ Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

TS/PS-4 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 January 2021

Temporary and Permanent Seeding (TS/PS) EC-2

Table TS/PS-2. Seeding Dates for Annual and Perennial Grasses

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1 - March 15			✓	✓
March 16 - April 30		1,2,3		✓
May 1 - May 15			✓	
May 16 - June 30	5			
July 1 - July 15	5			
July 16 - August 31				
September 1 - September 30		6, 7, 8, 9		
October 1 - December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the USDCM Volume 2 *Revegetation* Chapter and Volume 3 *Matching BMP Fact Sheet (EC-04)* for additional guidance.

Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

If a temporary annual seed was planted, the area should be reseeded with the desired perennial mix when there will be no further work in the area. To minimize competition between annual and perennial species, the annual mix needs time to mature and die before seeding the perennial mix. To increase success of the perennial mix, it should be seeded during the appropriate seeding dates the second year after the temporary annual mix was seeded. Alternatively, if this timeline is not feasible, the annual mix seed heads should be removed and then the area seeded with the perennial mix.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

January 2021 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 TS/PS-5

Mulching (MU) EC-4

Description

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.



Photograph MU-1. An area that was recently seeded, mulched, and crimped.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

Appropriate Uses

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeded. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

Design and Installation

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

June 2012 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 MU-1

EC-4 Mulching (MU)

Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.

Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above).

On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.

Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.

Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)

Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)

Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

Maintenance and Removal

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare areas.

MU-2 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 June 2012



BRADLEY POINT FILING NO. 1

GRADING & EROSION CONTROL DETAILS

SCALE: PROJECT NO. 70-074
 HORIZONTAL: N/A
 VERTICAL: N/A

DATE: 04/24/2023
 SHEET 7 OF 7
GR07

DESIGNED BY: CW
 DRAWN BY: CW
 CHECKED BY: DLM

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CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF
 CIVIL CONSULTANTS, INC.

P.L.L.C.
 37160
 04/25/23
 PROFESSIONAL ENGINEER

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS:

NO.	DATE	DESCRIPTION	APPR'D. BY:	DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR REVISIONS TO THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION