

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...
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 A 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 LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
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 CTL THOMPSON, INC., TITLED GEOLOGIC HAZARD EVALUATION AND, PRELIMINARY GEOTECHNICAL INVESTIGATION, CROSSROADS NORTH, MARKSHEFFEL ROAD AND STATE HIGHWAY 24, EL PASO COUNTY, COLORADO, DATED OCTOBER 6, 2020, 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 80245-1530
ATTN: PERMITS UNIT

COLORADO SPRINGS AIRPORT NOTE:

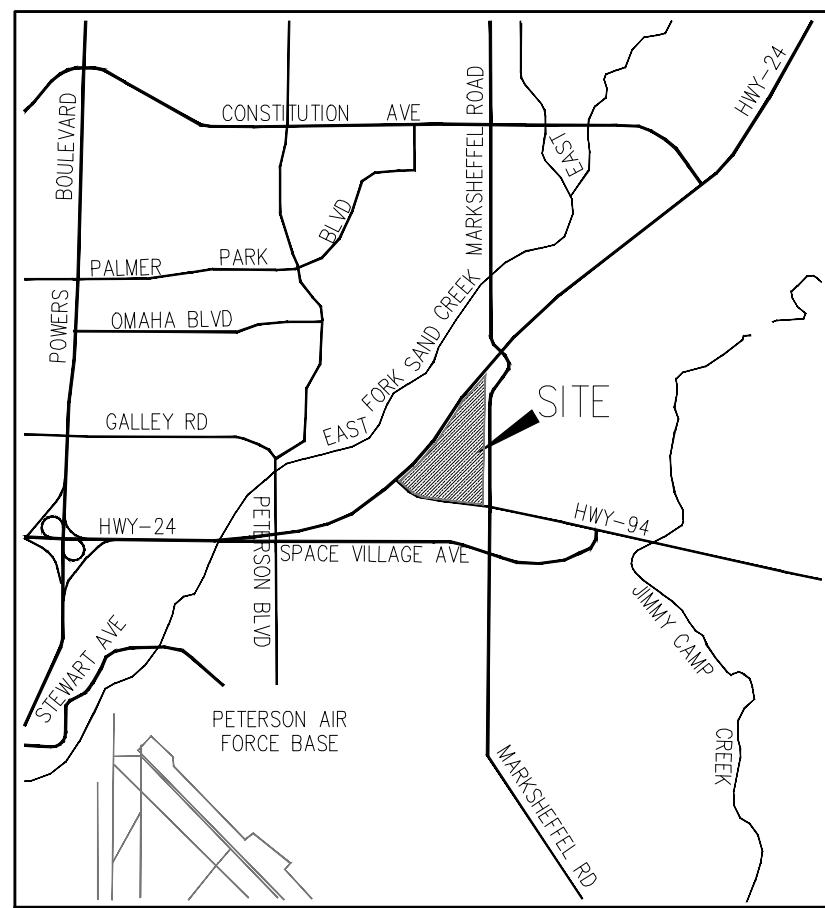
- 1. ALL PERMANENT CONTROL MEASURES REQUIRE AN ANNUAL INSPECTION AND APPLICABLE MAINTENANCE PER THE CITY MS4 PERMIT AND THE COLORADO SPRINGS AIRPORT INDUSTRIAL STORMWATER PERMIT. ALL COLORADO SPRINGS AIRPORT TENANTS WITH PERMANENT CONTROL MEASURES NEED TO SUBMIT ALL ANNUAL INSPECTION AND MAINTENANCE FORMS TO AIRPORT ENVIRONMENTAL ANNUALLY BY MAY 15TH SO ALL DOCUMENTATION CAN BE SUBMITTED TO CITY SWENT PRIOR TO THE END OF MAY EACH YEAR.

QUALIFIED STORMWATER MANAGER'S INSPECTIONS AND MAINTENANCE OF BMP'S:

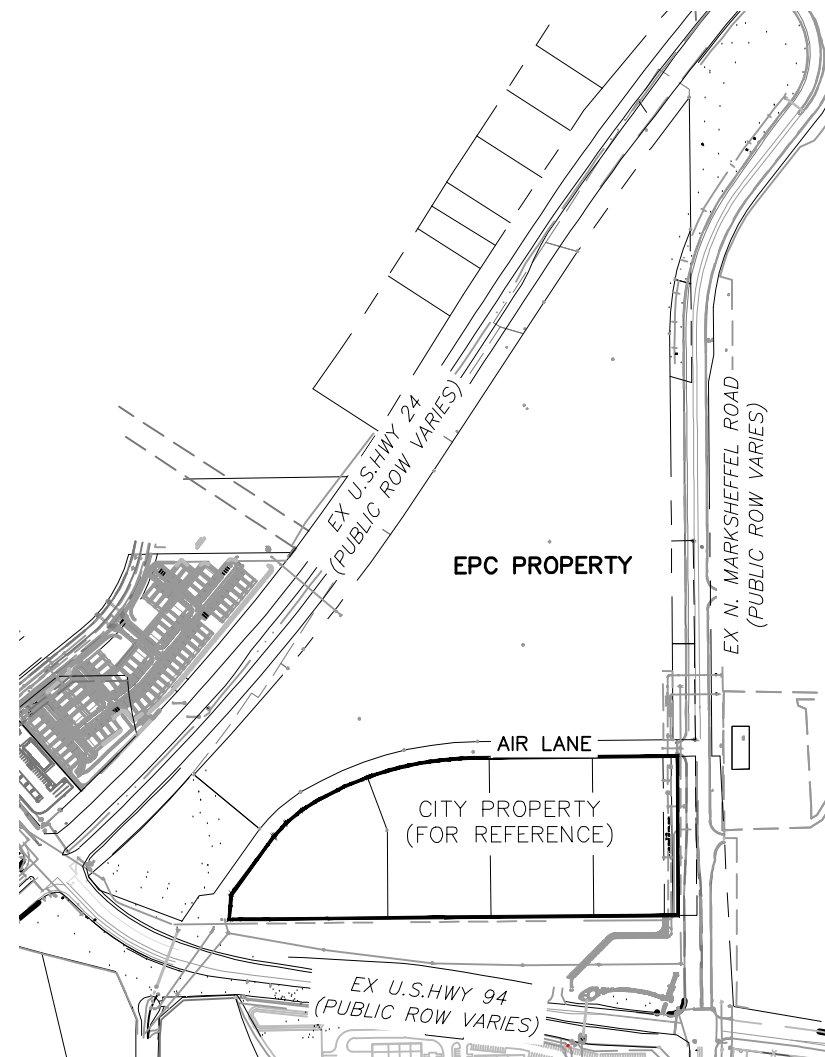
- 1. MAKE THROUGH INSPECTION OF THE STORMWATER MANAGEMENT SYSTEM AFTER EACH PRECIPITATION EVENT THAT CAUSES RUNOFF.
2. IF ANY DEFICIENCIES ARE NOTED, THEY MUST BE CORRECTED IMMEDIATELY AFTER BEING NOTED
3. RECORDS OF THE SIGNED SITE INSPECTIONS OR MODIFICATIONS MUST BE KEPT AT THE SITE UNLESS AN ALTERNATE PLACE IS APPROVED BY THE EL PASO COUNTY INSPECTOR AND MUST BE MADE AVAILABLE UPON REQUEST.
4. INSPECTIONS MUST TAKE PLACE WHERE CONSTRUCTION ACTIVITY IS COMPLETE, BUT LOT IS NOT SOLD
5. MONTHLY INSPECTIONS MUST TAKE PLACE ON SITE WHERE CONSTRUCTION ACTIVITY IS COMPLETE, BUT VEGETATIVE COVER IS STILL BEING ESTABLISHED.

CROSSROADS NORTH
COUNTY OF EL PASO, STATE OF COLORADO
EARLY GRADING AND EROSION CONTROL PLANS

AUGUST 2023



VICINITY MAP N.T.S.



SITE MAP N.T.S.

STANDARD CONSTRUCTION NOTES:

- 1. 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.
2. 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.
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIME INCLUDING THE FOLLOWING:
3.1 EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
3.2 CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2.
3.3 COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
3.4 CDOT M&S STANDARDS.
4. 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.
5. ONCE THE ESQCP 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 PCD INSPECTIONS STAFF.
6. 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.
7. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE CONSTRUCTION SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
8. ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOW AND MUTCD CRITERIA.
9. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRE BY EL PASO COUNTY DOT INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
10. 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.

BASIS OF BEARINGS:

THE SOUTHEASTERLY LINE OF CDOT RIGHT OF WAY SH-24 (PROJECT NO. NHO243-058: UNIT 2) FROM STA. 320+28.40 (125.00' RT) TO STA. 327+61.58 (125.00' RT), MONUMENTED AT BOTH POINTS WITH 3-1/4" ALUMINUM CDOT MONUMENTS STAMPED 'PLS 25381' AND BEARS N33°35'09" A DISTANCE OF 733.37'. THE UNIT OF MEASUREMENT IS THE U.S. SURVEY FOOT.

BENCHMARKS:

- 1. NATIONAL GEODETIC VERTICAL DATUM OF 1929; BENCHMARK R-76 IS A DISK SET IN TOP OF A CONCRETE MONUMENT STAMPED 'R 76 1935', IS PROJECTED ~0.25', AND IS LOCATED ~160' SOUTH OF THE CENTER OF HWY 24 ON THE NORTH SIDE OF SPACE VILLAGE AVENUE
ELEV: 6286.32'
2. #4 REBAR IN AIR LAINE NEAR ELECTRIC VAULT ON HILL TOP
N: 57321.99
E: 39206.06
ELEV: 6374.05'

ADDITIONAL NOTES:

STAGING, PORTABLE TOILETS, STOCKPILE, AND CONCRETE WASHOUT AREAS 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.
EXISTING SITE TERRAIN GENERALLY SLOPES FROM NORTH TO SOUTHWEST AT GRADE RATES THAT VARY BETWEEN 2% TO 9%.
THERE ARE NO BATCH PLANTS ON SITE.
NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041C07546, 08041C07566, & 08041C07586 EFFECTIVE DATES DECEMBER 7, 2018.

EXISTING VEGETATION:

EXISTING, ON-SITE VEGETATION CONSISTS OF SPARSE NATIVE GRASSES (APPROX. 60% COVER). A VISUAL, POST CONSTRUCTION OCMPARISON CAN BE MADE TO ADJACENT, UNDEVELOPED PROPERTY.

TIMING: CROSSROADS NORTH

Table with 2 columns: Anticipated Starting and Completion Time Period of Site Grading, and Expected Date on which the Final Stabilization will be Completed. Values include Summer 2023 - Winter 2023 and Winter 2023.

AREAS: CROSSROADS NORTH

Table with 2 columns: Total Area of the Site to be Cleared, Excavated or Graded, and City Property of the Site to be Cleared, Excavated or Graded. Values include ~64.9 AC and ~19 AC.

RECEIVING WATERS:

SAND CREEK VIA EAST FORK SAND CREEK SUBTRIBUTARY
JIMMY CAMP CREEK

SOIL TYPES:

BLAKELAND LOAMY SAND-HYDROLOGIC SOIL GROUP A

AGENCIES

Table listing agencies and their contact information: OWNER/DEVELOPER (Colorado Springs Equities LLC), CIVIL ENGINEER (M & S Civil Consultants, Inc.), COUNTY ENGINEERING (El Paso County Planning and Community Development), TRAFFIC ENGINEERING (El Paso County Public Services & Trans. Depot), WATER RESOURCES (Cherokee Metro District), FIRE DISTRICT (Falcon Fire Protection District), GAS DEPARTMENT (Colorado Springs Utilities), ELECTRIC DEPARTMENT (Colorado Springs Utilities), COMMUNICATIONS (Qwest Communications).

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. DATE

DEVELOPER'S STATEMENT:

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

Designed by: Danny Mienka

COLORADO SPRINGS EQUITIES LLC
DANNY MIENKA
90 SOUTH CASCADE AVE. SUITE 1500
COLORADO SPRINGS, CO 80903
(719) 745-7621 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.

Plans approval is limited to the proposed development area located within unincorporated El Paso County.

Approved

By: Gilbert LaForce, P.E.
Engineering Manager
Date: 11/07/2023 9:26:15 AM DATE

JOSHUA PALMER, P.E.
COUNTY ENGINEER/ECM
El Paso County Department of Public Works

SHEET INDEX

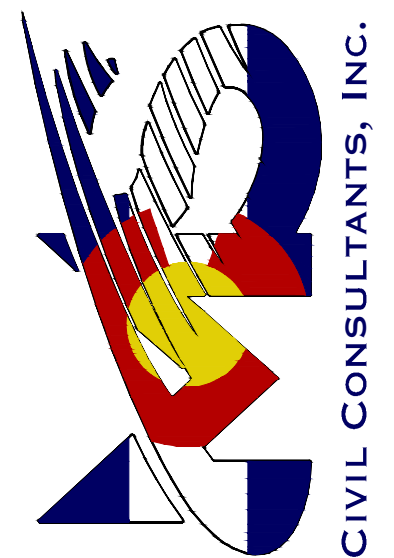
Table with 2 columns: Sheet Number and Description. Lists sheets 1 through 15, including cover sheet, grading plans, erosion control plan, and details.

EL PASO COUNTY FILE NO. EGP 231



CROSSROADS NORTH
EARLY GRADING & EROSION CONTROL PLANS
PROJECT NO. 18--006
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DESIGNED BY: DM DRAWN BY: GT CHECKED BY: VAS
DATE: 08/29/2023
SHEET 1 OF 15
EGR01

212 N. WAHSATCH AVE, STE 305
COLORADO SPRINGS CO 80903
PHONE: 719.955.5468



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



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

Table with 3 columns: REVISIONS (NO., DATE), APPROVED BY, and DESCRIPTION.

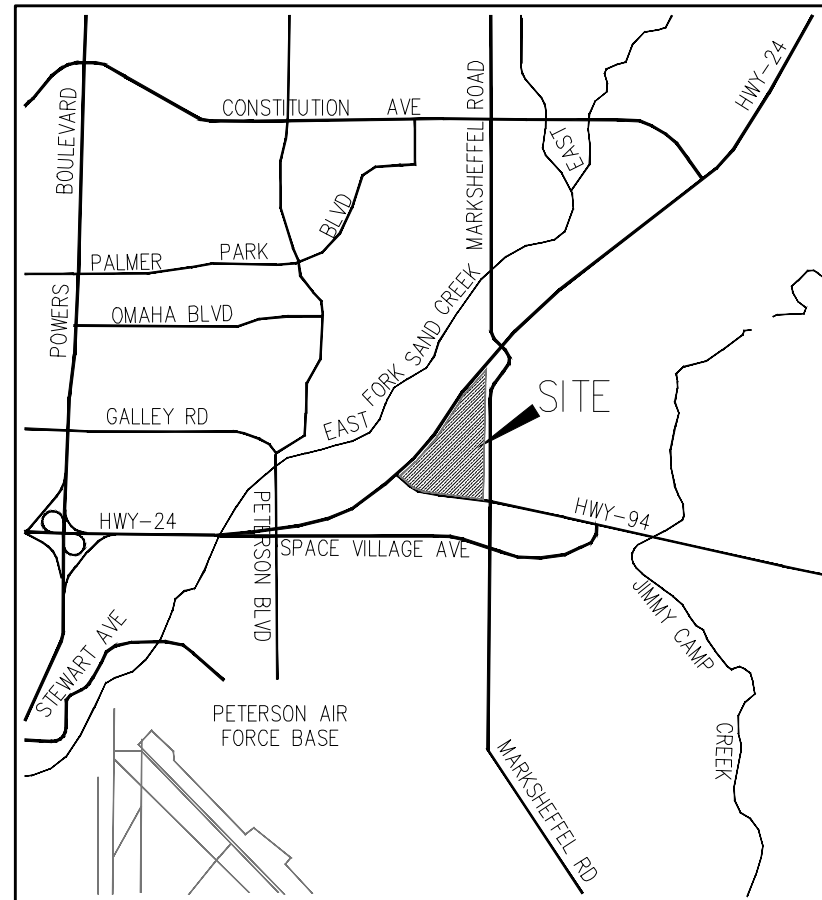
CAUTION

# CROSSROADS NORTH

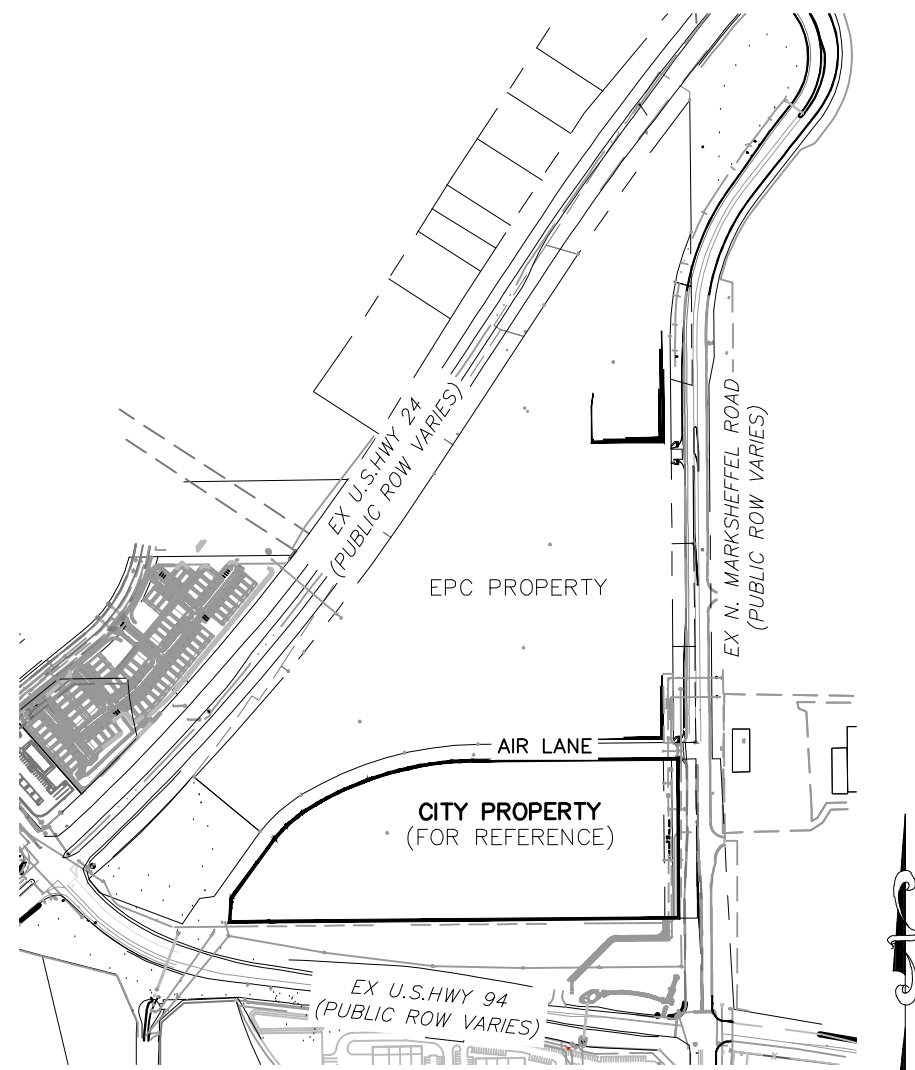
## CITY OF COLORADO SPRINGS, COUNTY OF EL PASO, STATE OF COLORADO

# EARLY GRADING & EROSION CONTROL PLANS

AUGUST 2023



VICINITY MAP  
N.T.S.



SITE MAP  
N.T.S.

### CROSSROADS NORTH: CITY PROPERTY

(4) EA INLET PROTECTION @ \$110/EA	\$ 440.00
(1) VT DEVICES @ \$1325/EA	\$ 1,325.00
(0) STRAW BALES @ \$18.00/EA	\$ 0.00
(20) SEDIMENT CONTROL LOGS @ \$18.00/EA	\$ 360.00
(19) ACRES RESEEDING @ \$525.00/AC	\$ 9,975.00
(2950) LF SILT FENCE @ \$2.50/LF	\$ 7,375.00
(0) CONCRETE WASHOUT AREA \$760/EA	\$ 0.00
(2) TEMPORARY SEDIMENT BASINS @ \$ 2,000/EA	\$ 4,000.00
(1) TYPE 3 BARRICADE @ \$250/EA	\$ 250.00
(0) SQ YD TEMPORARY EROSION CONTROL BLANKET @ \$3.00 SQ YD	\$ 0.00
<b>SUBTOTAL:</b>	<b>\$ 23,725.00</b>
<b>MAINTENANCE 40%</b>	<b>\$ 9,490.00</b>
<b>TOTAL:</b>	<b>\$ 33,215.00</b>

M&S CIVIL CONSULTANTS CANNOT AND DOES NOT GUARANTEE THAT THE CONSTRUCTION COST WILL NOT VARY FROM THESE OPTIONS OF PROBABLY CONSTRUCTION COST. THESE OPTIONS REPRESENT OUR BEST JUDGMENT AS A DESIGN PROFESSIONAL FAMILIAR WITH THE CONSTRUCTION INDUSTRY AND IN THIS DEVELOPMENT.

### AGENCIES

**OWNER:** COLORADO SPRINGS EQUITIES LLC  
90 SOUTH CASCADE, SUITE 1500  
COLORADO SPRINGS, CO 80903  
DANNY MIENTKA (719) 475-7621

**CIVIL ENGINEER:** M & S CIVIL CONSULTANTS, INC.  
212 N. WAHSATCH AVENUE, SUITE 305  
COLORADO SPRINGS, CO 80903  
VIRGIL A. SANCHEZ P.E. (719) 491-0818

**ENGINEERING DIVISION:** CITY OF COLORADO SPRINGS  
30 S. NEVADA AVE., SUITE 401  
COLORADO SPRINGS, CO 80903  
PATRICK MORRIS (719) 385-5075

**TRAFFIC ENGINEERING:** CITY OF COLORADO SPRINGS  
30 S. NEVADA AVE., SUITE 401  
COLORADO SPRINGS, CO 80903  
ZAKER ALAZZEH (719) 385-5468

**DEVELOPMENT SERVICES:** COLORADO SPRINGS UTILITIES  
1521 HANCOCK EXPRESSWAY  
COLORADO SPRINGS, CO 80903  
MIKE GACKLE (719) 668-8262

**GAS DEPARTMENT:** COLORADO SPRINGS UTILITIES  
7710 DURANT DR.  
COLORADO SPRINGS, CO 80947  
TIM WENDT (719) 668-3556

**ELECTRIC DEPARTMENT:** COLORADO SPRINGS UTILITIES  
7710 DURANT DR.  
COLORADO SPRINGS, CO 80920  
SARAH LABARRE (719) 668-4933

**COMMUNICATIONS:** QWEST COMMUNICATIONS  
(U.N.C.C. LOCATORS) (800) 922-1987  
AT&T (LOCATORS) (719) 635-3674

### GRADING PLAN / EROSION CONTROL STATEMENTS:

#### ENGINEER'S STATEMENT:

THIS EROSION CONTROL/GRADING PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. IF SUCH WORK IS PERFORMED IN ACCORDANCE WITH THIS EROSION CONTROL/GRADING PLAN, THE WORK WILL NOT BECOME A HAZARD TO LIFE AND LIMB, ENDANGER PROPERTY, OR ADVERSELY AFFECT THE SAFETY, USE OR STABILITY OF A PUBLIC WAY, DRAINAGE CHANNEL OR OTHER PROPERTY.

VIRGIL A. SANCHEZ, COLORADO P.E. #37160 \_\_\_\_\_ DATE \_\_\_\_\_

#### DEVELOPER / OWNER STATEMENT:

THE OWNER WILL COMPLY WITH ALL THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN/CSWMP INCLUDING CONSTRUCTION CONTROL MEASURE INSPECTION REQUIREMENTS AND FINAL STABILIZATION REQUIREMENTS ACCORDING TO THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. I ACKNOWLEDGE THE RESPONSIBILITY TO DETERMINE WHETHER THE CONSTRUCTION ACTIVITIES ON THESE PLANS REQUIRED COLORADO DISCHARGE PERMIT SYSTEM (CDPS) PERMITTING FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.

DocuSigned by:  
*Danny Mientka*  
OWNER/DEVELOPER SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

DANNY MIENTKA  
OWNER/DEVELOPER PRINTED NAME \_\_\_\_\_

OWNER/DEVELOPER \_\_\_\_\_

TITLE: \_\_\_\_\_

PHONE NUMBER: (719) 475-7621

EMAIL ADDRESS: DANNY@THEEQUITYGROUP.NET

### BASIS OF BEARINGS:

THE SOUTHEASTERLY LINE OF CDOT RIGHT OF WAY SH-24 (PROJECT NO. NH0243-058: UNIT 2) FROM STA. 320+28.40 (125.00' RT) TO STA. 327+61.58 (125.00' RT), MONUMENTED AT BOTH POINTS WITH 3-1/4" ALUMINUM CDOT MONUMENTS STAMPED "PLS 25381" AND BEARS N33°35'09"E A DISTANCE OF 733.37'. THE UNIT OF MEASUREMENT IS THE U.S. SURVEY FOOT.

### BENCHMARKS:

- NATIONAL GEODETIC VERTICAL DATUM OF 1929; BENCHMARK R-76 IS A DISK SET IN TOP OF A CONCRETE MONUMENT STAMPED "R 76 1935", IS PROJECTED ~0.25', AND IS LOCATED ~160' SOUTH OF THE CENTER OF HWY 24 ON THE NORTH SIDE OF SPACE VILLAGE AVENUE  
ELEV: 6286.32'
- #4 REBAR IN AIR LANE NEAR ELECTRIC VAULT ON HILL TOP  
N: 57321.99  
E: 39208.08  
ELEV: 6374.05'

### ADDITIONAL NOTES:

STAGING, PORTABLE TOILETS, STOCKPILE, AND CONCRETE WASHOUT AREAS 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.

EXISTING SITE TERRAIN GENERALLY SLOPES FROM NORTH TO SOUTHWEST AT GRADE RATES THAT VARY BETWEEN 2% TO 9%.

THERE ARE NO BATCH PLANTS ON SITE.

NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041C07546, 08041C07566, & 08041C0758G EFFECTIVE DATES DECEMBER 7, 2018.

### EXISTING VEGETATION:

EXISTING, ON-SITE VEGETATION CONSISTS OF SPARSE NATIVE GRASSES (APPROX. 60% COVER). A VISUAL, POST CONSTRUCTION COMPARISON CAN BE MADE TO ADJACENT, UNDEVELOPED PROPERTY.

### TIMING: CROSSROADS NORTH

SUMMER 2023 - WINTER 2023
ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:
WINTER 2023
EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:

### AREAS: CROSSROADS NORTH

TOTAL AREA OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED:	~64.9 AC.
CITY PROPERTY OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED:	~19 AC.

### RECEIVING WATERS:

SAND CREEK VIA EAST FORK SAND CREEK SUBTRIBUTARY  
JIMMY CAMP CREEK

### SOIL TYPES:

BLAKELAND LOAMY SAND-HYDROLOGIC SOIL GROUP A

### SHEET INDEX

- SHEET 1 COVER SHEET EL PASO COUNTY
- SHEET 2 COVER SHEET CITY OF COLORADO SPRINGS
- SHEET 3 EARLY GRADING PLAN
- SHEET 4 EARLY GRADING PLAN
- SHEET 5 EROSION CONTROL PLAN
- SHEET 6 EROSION CONTROL PLAN
- SHEET 7 RETAINING WALL PLAN
- SHEET 8 CROSS SECTION DETAILS
- SHEET 9 EROSION CONTROL DETAILS EL PASO COUNTY
- SHEET 10 EROSION CONTROL DETAILS EL PASO COUNTY
- SHEET 11 EROSION CONTROL DETAILS EL PASO COUNTY
- SHEET 12 EROSION CONTROL DETAILS EL PASO COUNTY
- SHEET 13 EROSION CONTROL DETAILS EL PASO COUNTY
- SHEET 14 EROSION CONTROL DETAILS CITY OF COLORADO SPRINGS
- SHEET 15 EROSION CONTROL DETAILS CITY OF COLORADO SPRINGS

### CITY OF COLORADO SPRINGS EROSION CONTROL REVIEW:

THIS GRADING AND EROSION CONTROL PLAN/CSWMP IS FILED IN ACCORDANCE WITH CITY CODE. THE PLAN IS REVIEWED IN ACCORDANCE WITH THE STORMWATER CONSTRUCTION MANUAL; LATEST REVISION.

FOR THE SWENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

### NOTES:

APPLICANT REPRESENTS AND WARRANTS THAT THEY HAVE THE LEGAL AUTHORITY TO GRADE AND/OR CONSTRUCT IMPROVEMENTS ON ADJACENT PROPERTY. THE CITY HAS NOT REVIEWED THE DEVELOPERS AUTHORITY TO MODIFY THE ADJACENT PROPERTY.

### STATEMENT:

THE CITY OF COLORADO SPRINGS RECOGNIZES THE DESIGN ENGINEER AS HAVING RESPONSIBILITY FOR THE DESIGN. THE CITY HAS LIMITED ITS SCOPE OF REVIEW ACCORDINGLY. RESUBMITTAL REQUIRED IF CONSTRUCTION HAS NOT COMMENCED WITHIN 180 DAYS AFTER APPROVAL DATE.



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

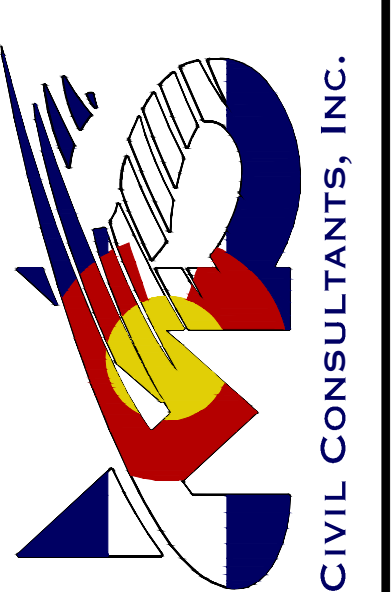
FOR BURIED UTILITY INFORMATION  
**48 HRS BEFORE YOU DIG**  
CALL 1-800-922-1987

REVISIONS:  
NO. DATE: BY: DESCRIPTION:

CAUTION

CROSSROADS NORTH  
EARLY GRADING & EROSION CONTROL PLANS  
PROJECT NO. 18-006  
SCALE: HORIZONTAL: N/A  
VERTICAL: N/A  
DATE: 08/29/2023  
DESIGNED BY: DM  
DRAWN BY: GT  
CHECKED BY: VAS  
SHEET 2 OF 15  
EGR01A

212 N. WAHSATCH AVE, STE 305  
COLORADO SPRINGS, CO 80903  
PHONE: 719.955.5468



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

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

NO.	DATE	BY	DESCRIPTION

- LEGEND**
- (6920) EXISTING MAJOR CONTOUR
  - (6918) EXISTING MINOR CONTOUR
  - 6920 PROPOSED MAJOR CONTOUR
  - 6918 PROPOSED MINOR CONTOUR
  - FILING BOUNDARY LINE
  - RIGHT-OF-WAY LINE
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  - PROPOSED STORM DRAIN
  - EXISTING STORM DRAIN
  - PROP SWALE
  - SEDIMENT BASIN TRIBUTARY AREA
  - EXISTING FIBER OPTIC LINE
  - OH EXISTING OVERHEAD ELECTRIC
  - EXISTING LOT LINE
  - EXISTING FENCE
  - CUT/FILL LINE
  - EXISTING LOT LINE
  - EXISTING UNDERGROUND ELECTRICAL
  - US EXISTING GAS LINE
  - WL EXISTING WATERLINE
  - EXISTING DRAINAGE BASIN
  - EXIST INLET
  - PROPOSED INLET
  - LOW POINT/HIGH POINT
  - FLOW DIRECTION & SLOPE
  - FLOW DIRECTION ARROW
  - PROPOSED SWALE
  - EXISTING FLOW DIRECTION ARROW
  - EXISTING SWALE/ROADSIDE DITCH
  - EMERGENCY OVERFLOW DIRECTION
  - RIPRAP TYP.
  - EXISTING UTILITY POLE
  - EX. STORM INLET
  - EX. IRRIGATION VALVE
  - EX. STORM INLET
  - EX. GAS TEST NODE
  - EX. TRAFFIC SIGNAL CONTROL BOX
  - EX. ELECTRIC VAULT
  - EX. SANITARY MANHOLE
  - EX. WATER VALVE
  - EXISTING WATER WELL
  - EXISTING MONITORING WELL
  - EX. TELEPHONE VAULT
  - EX. ELECTRIC VAULT
  - EX. ELECTRIC PEDESTAL
  - EX. ELECTRIC METER
  - EX. ELECTRIC TRANSFORMER
  - EX. TELEPHONE PEDESTAL
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  - EX. ELECTRIC PEDESTAL
  - EX. WATER MARKER
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  - EX. ELECTRIC MANHOLE
  - EX. CABLE TV MARKER
  - EX. SHRUB/TREE
  - EX. WATER YARD HYDRANT
  - EX. STORM INLET
  - EX. ELECTRIC BOX
  - EX. FIRE HYDRANT
  - EX. ELECTRIC MARKER
  - EX. TRAFFIC SIGNAL

**SEDIMENT BASIN TABLE**

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1	3	28	56	3	7,841	5	1 1/2	1
2	10	58.25	116.5	3	27,007	15	15/16	1
3	12	64	128	3	31,799	18	1	1
4	13	67.5	135	3	34,848	19	1-1/16	1

**CONSTRUCTION NOTES:**

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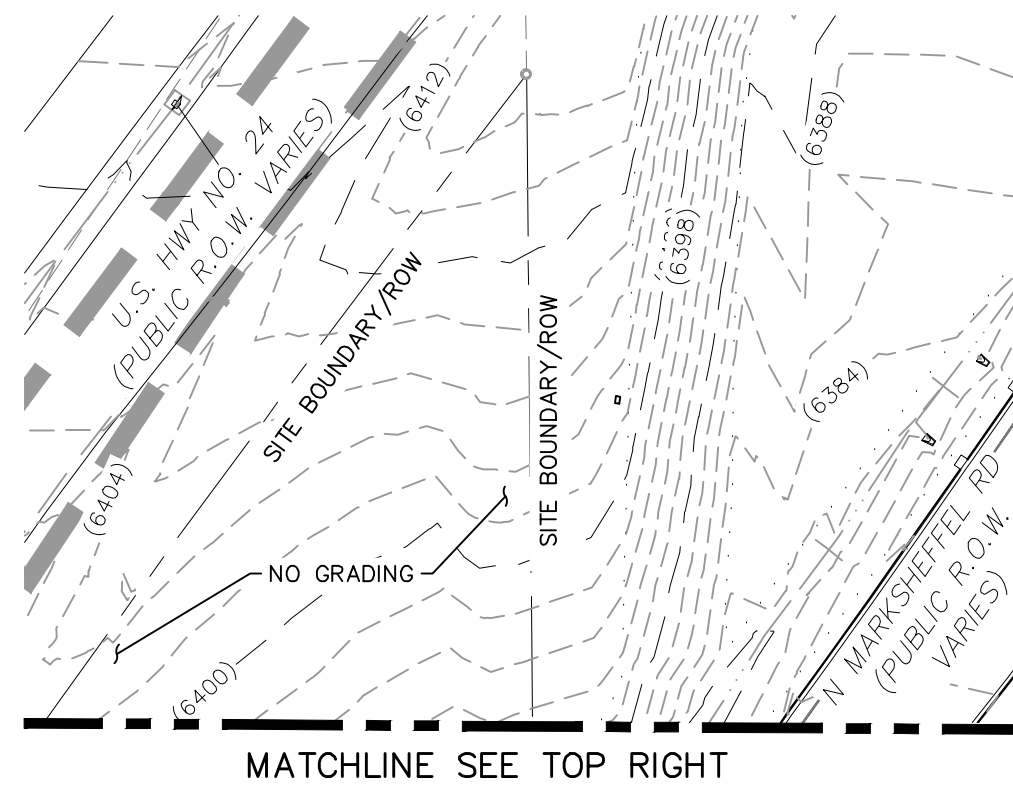
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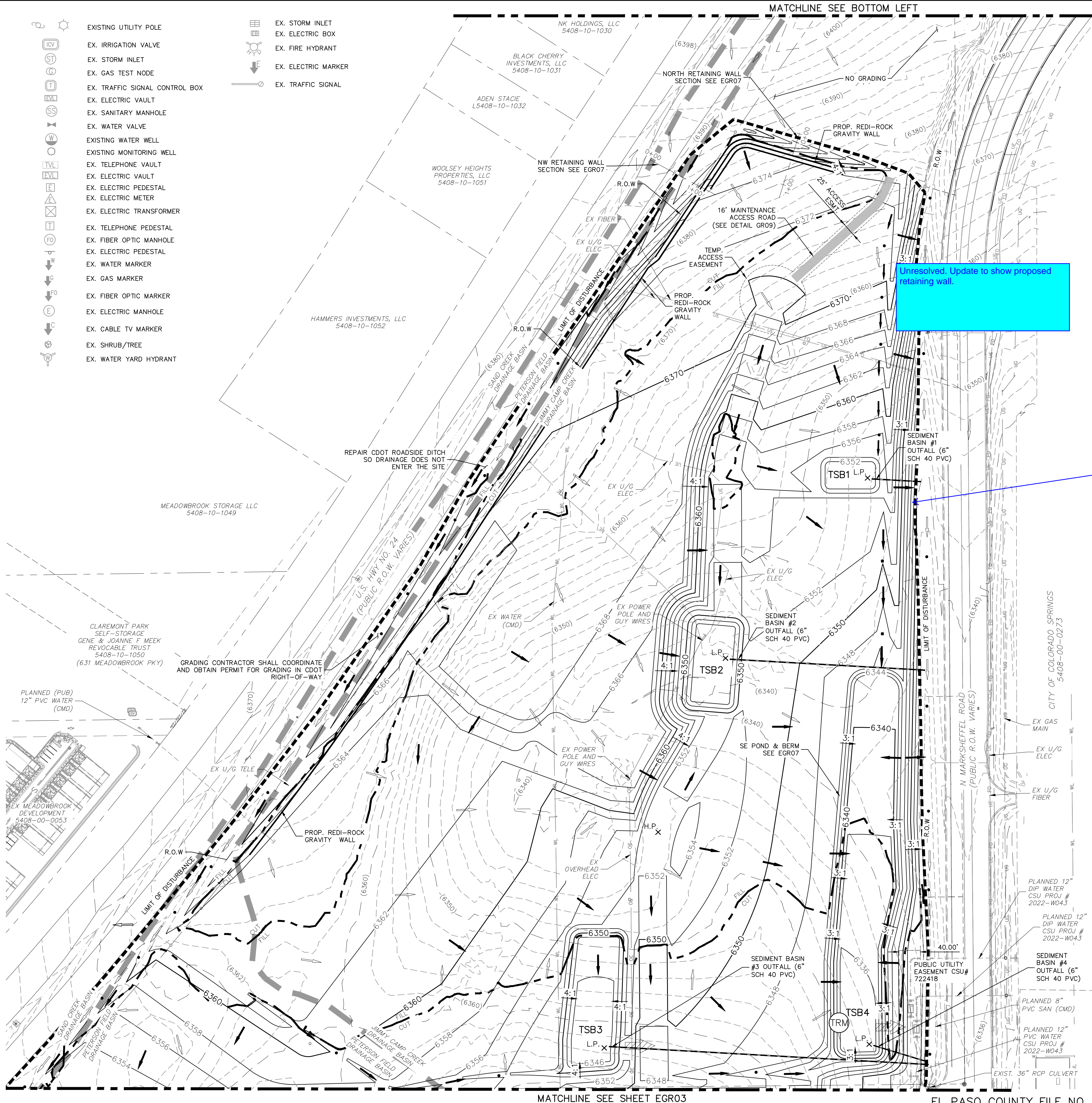
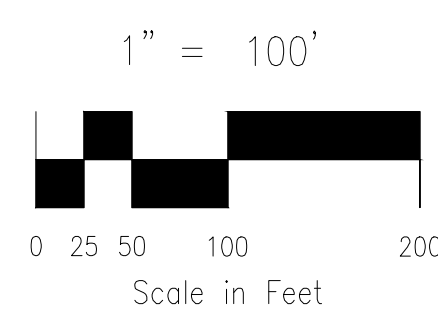
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EXISTING VEGETATION CONSISTS OF SPARSE, NATIVE GRASSES AND SHRUBS



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Unresolved. Update to show proposed retaining wall.

See comment on the TIS. Marksheffel Rd is anticipated to be 6 lanes as such ROW dedication appears to be required.

Unresolved. Verify the City does not require additional ROW.

Unresolved from review 3.

**CROSSROADS NORTH**

**EARLY GRADING PLAN**

PROJECT NO. 18-006

SCALE: HORIZONTAL: 1"=100' VERTICAL: N/A

DATE: 08/29/2023

DESIGNED BY: DM

DRAWN BY: GT

CHECKED BY: VAS

EL PASO COUNTY FILE NO. EGR 231

ARHATCH AVE. SITE 305 DO SPRINGS CO 80903 19755.5485

FOR AND ON BEHALF OF MRS CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

09-14-23

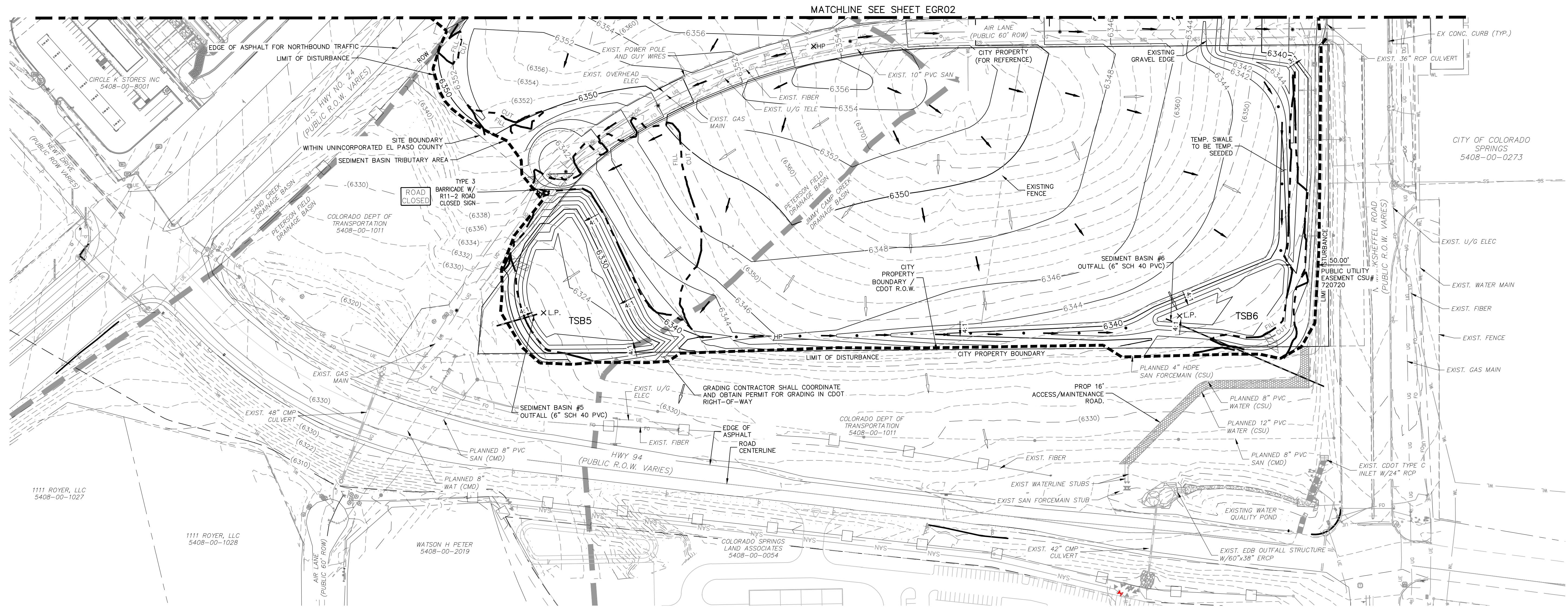
REVISIONS:

NO.	DATE	BY	DESCRIPTION

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CAUTION

File: C:\18006A-Crossroads North Design\Const Dwg\early grading\El Paso County\EGR02.dwg Platstamp: 11/3/2023 10:24 AM



**LEGEND**

- |                    |  |   |                               |   |                                |   |                     |
|--------------------|--|---|-------------------------------|---|--------------------------------|---|---------------------|
| — (6920) —         | EXISTING MAJOR CONTOUR                             | □ | EXIST INLET                   | ⊕ | EXISTING UTILITY POLE          | ⊠ | EX. STORM INLET     |
| - - - (6918) - - - | EXISTING MINOR CONTOUR                             | □ | PROP INLET                    | ⊕ | EX. IRRIGATION VALVE           | ⊠ | EX. ELECTRIC BOX    |
| — 6920 —           | PROPOSED MAJOR CONTOUR                             | □ | LOW POINT/HIGH POINT          | ⊕ | EX. STORM INLET                | ⊠ | EX. FIRE HYDRANT    |
| - - - 6918 - - -   | PROPOSED MINOR CONTOUR                             | □ | FLOW DIRECTION & SLOPE        | ⊕ | EX. GAS TEST NODE              | ⊠ | EX. ELECTRIC MARKER |
| —                  | FLING BOUNDARY LINE                                | □ | FLOW DIRECTION ARROW          | ⊕ | EX. TRAFFIC SIGNAL CONTROL BOX | ⊠ | EX. TRAFFIC SIGNAL  |
| —                  | RIGHT-OF-WAY LINE                                  | □ | PROPOSED SWALE                | ⊕ | EX. ELECTRIC VAULT             | ⊠ |                     |
| —                  | PROPOSED PROPERTY LINE                             | □ | EXISTING FLOW DIRECTION ARROW | ⊕ | EX. SANITARY MANHOLE           | ⊠ |                     |
| —                  | FUTURE PROPERTY LINE                               | □ | EXISTING SWALE/ROADSIDE DITCH | ⊕ | EX. WATER VALVE                | ⊠ |                     |
| —                  | EXISTING PROPERTY LINE                             | □ | EMERGENCY OVERTFLOW DIRECTION | ⊕ | EXISTING WATER WELL            | ⊠ |                     |
| —                  | LIMITS OF DISTURBANCE/CONST. BOUNDARY/CONST. FENCE | □ | RIPRAP TYP.                   | ⊕ | EXISTING MONITORING WELL       | ⊠ |                     |
| —                  | PROPOSED STORM DRAIN                               | □ |                               | ⊕ | EX. TELEPHONE VAULT            | ⊠ |                     |
| —                  | EXISTING STORM DRAIN                               | □ |                               | ⊕ | EX. ELECTRIC VAULT             | ⊠ |                     |
| —                  | SWALE  | □ |                               | ⊕ | EX. ELECTRIC PEDESTAL          | ⊠ |                     |
| —                  | SEDIMENT BASIN TRIBUTARY AREA                      | □ |                               | ⊕ | EX. ELECTRIC METER             | ⊠ |                     |
| —                  | EXISTING FIBER OPTIC LINE                          | □ |                               | ⊕ | EX. ELECTRIC TRANSFORMER       | ⊠ |                     |
| —                  | EXISTING OVERHEAD ELECTRIC                         | □ |                               | ⊕ | EX. TELEPHONE PEDESTAL         | ⊠ |                     |
| —                  | EXISTING LOT LINE                                  | □ |                               | ⊕ | EX. FIBER OPTIC MANHOLE        | ⊠ |                     |
| —                  | EXISTING FENCE                                     | □ |                               | ⊕ | EX. ELECTRIC PEDESTAL          | ⊠ |                     |
| —                  | CUT/FILL LINE                                      | □ |                               | ⊕ | EX. WATER MARKER               | ⊠ |                     |
| —                  | EXISTING LOT LINE                                  | □ |                               | ⊕ | EX. GAS MARKER                 | ⊠ |                     |
| —                  | UNDERGROUND ELECTRICAL                             | □ |                               | ⊕ | EX. FIBER OPTIC MARKER         | ⊠ |                     |
| —                  | EXISTING GAS LINE                                  | □ |                               | ⊕ | EX. ELECTRIC MANHOLE           | ⊠ |                     |
| —                  | EXISTING WATERLINE                                 | □ |                               | ⊕ | EX. CABLE TV MARKER            | ⊠ |                     |
| —                  | EXISTING DRAINAGE BASIN                            | □ |                               | ⊕ | EX. SHRUB/TREE                 | ⊠ |                     |
|                    |  | □ |                               | ⊕ | EX. WATER YARD HYDRANT         | ⊠ |                     |

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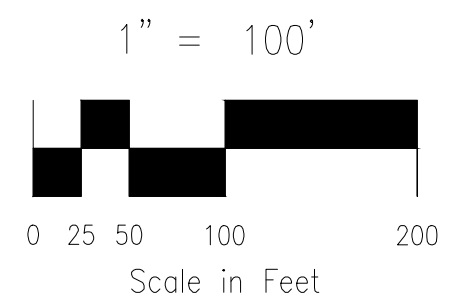
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5	12	64	128	3	31,799	18	1	1
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**CROSSROADS NORTH**

**EARLY GRADING PLAN**

DATE: 08/29/2023

SCALE: HORIZONTAL: 1"=100' VERTICAL: N/A

PROJECT NO. 18-006

DESIGNED BY: DM

DRAWN BY: GT

CHECKED BY: VAS

212 N. WABATCH AVE. STE 305  
COLORADO SPRINGS CO 80903  
PHONE: 719.955.5466

**CIVIL CONSULTANTS, INC.**

FOR AND ON BEHALF OF  
MKS CIVIL CONSULTANTS, INC.

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

09-14-23

REVISIONS:

NO.	DATE	BY	DESCRIPTION

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CAUTION

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- (6920) EXISTING MAJOR CONTOUR
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- EXISTING GAS LINE
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- EXISTING DRAINAGE BASIN
- EXIST INLET
- PROPOSED INLET
- L.P./H.P.
- LOW POINT/HIGH POINT
- FLOW DIRECTION & SLOPE (2.0%)
- FLOW DIRECTION ARROW
- PROPOSED SWALE
- EXISTING FLOW DIRECTION ARROW
- EXISTING SWALE/ROADSIDE DITCH
- EMERGENCY OVERFLOW DIRECTION
- RIPRAP TYP.
- INLET PROTECTION - INTERIM
- STRAW BALE DITCH CHECK - INTERIM
- SEDIMENT CONTROL LOG - INTERIM
- TEMPORARY SEDIMENT BASIN - INTERIM
- SILT FENCE - INITIAL/INTERIM
- VEHICLE TRACKING CONTROL - INITIAL/INTERIM
- NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL) - PERMANENT
- DISTURBED AREA WEST AND NORTH OF THE PROPOSED REDI-ROCK WALL SHALL BE PERMANENTLY SEEDED.
- DISTURBED AREA EAST AND SOUTH OF THE PROPOSED REDI-ROCK WALL SHALL BE TEMPORARILY SEEDED.

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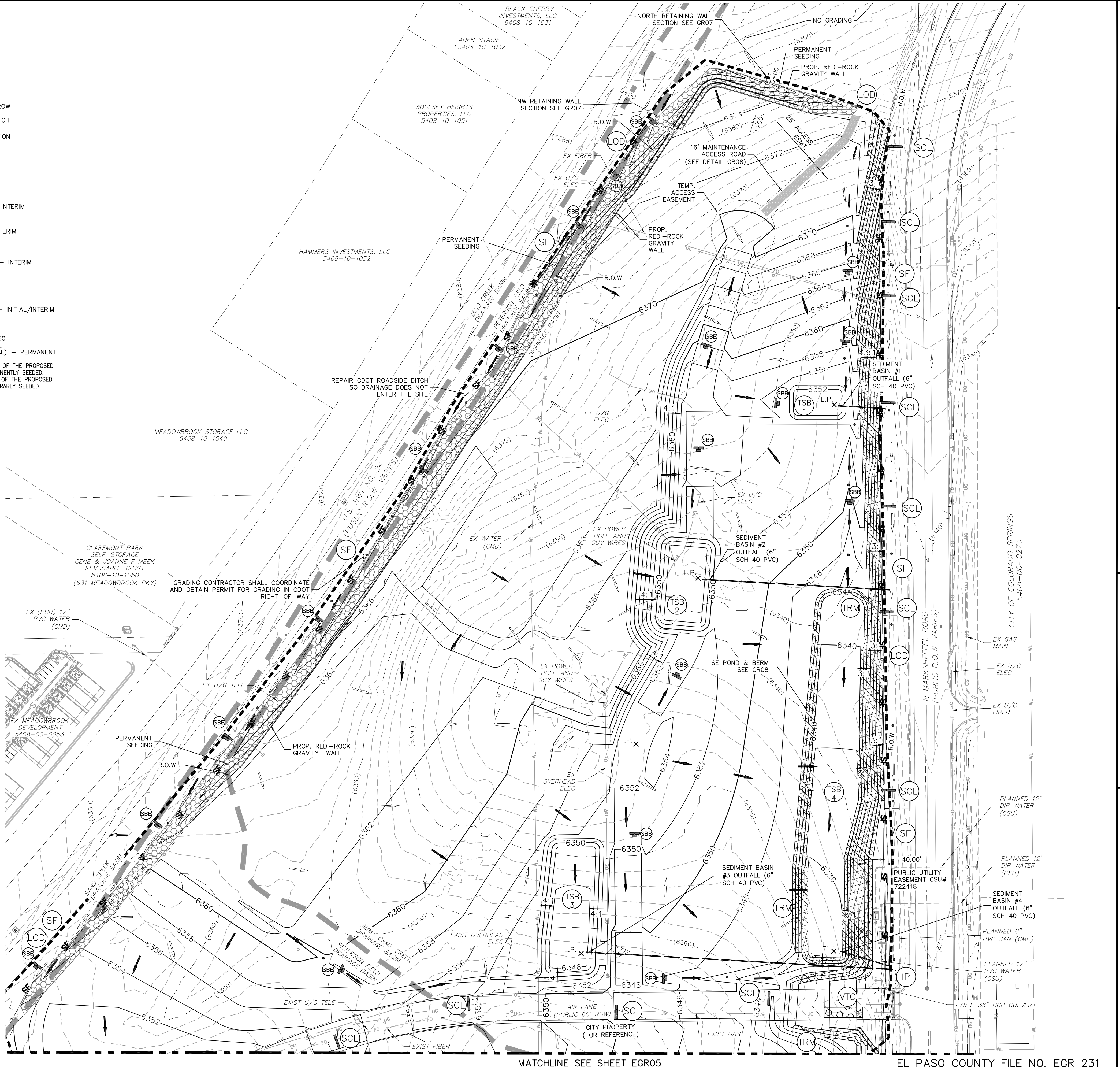
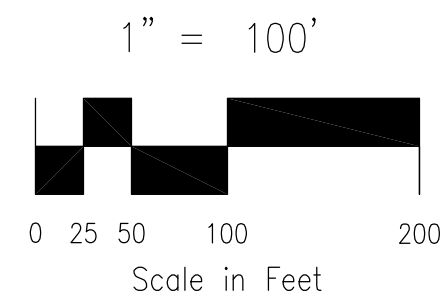
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<b>CROSSROADS NORTH</b>	
<b>EROSION CONTROL PLAN</b>	
PROJECT NO. 18-006	DATE: 08/29/2023
SCALE: HORIZONTAL: 1"=100'	SCALE: VERTICAL: N/A
DESIGNED BY: DM	CHECKED BY: VAS
DRAWN BY: GT	
<b>EGR04</b>	
SHEET 5 OF 15	

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

**CIVIL CONSULTANTS, INC.**

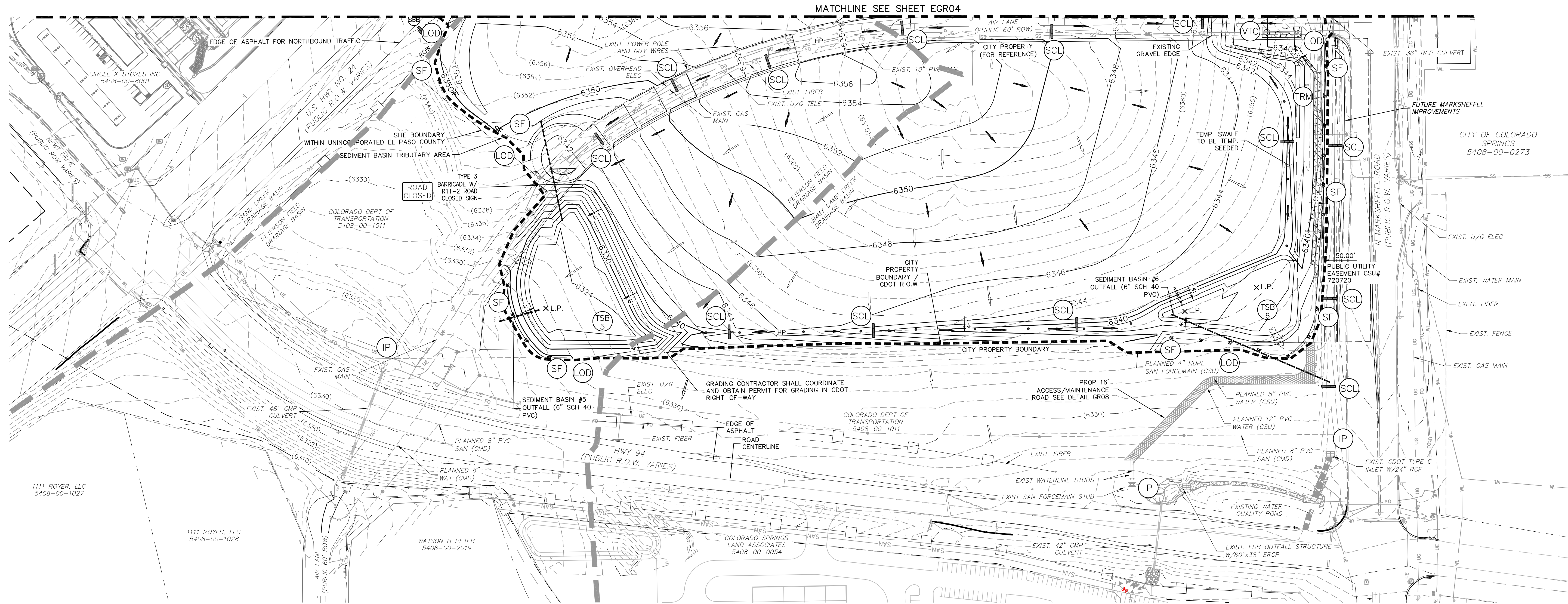
FOR AND ON BEHALF OF MKS CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

REV. NO.	DATE	BY	DESCRIPTION

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CAUTION



**LEGEND**

- |            |  |           |  |
|------------|--|-----------|--|
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| (6918) --- | EXISTING MINOR CONTOUR                             | □         | PROPOSED INLET   |
| — 6920 —   | PROPOSED MAJOR CONTOUR                             | L.P./H.P. | LOW POINT/HIGH POINT   |
| — 6918 —   | PROPOSED MINOR CONTOUR                             | → (2.0)%  | FLOW DIRECTION & SLOPE   |
| —          | FILING BOUNDARY LINE                               | →         | FLOW DIRECTION ARROW   |
| —          | RIGHT-OF-WAY LINE                                  | →         | PROPOSED SWALE   |
| —          | PROPOSED PROPERTY LINE                             | →         | EXISTING FLOW DIRECTION ARROW  |
| —          | FUTURE PROPERTY LINE                               | →         | EXISTING SWALE/ROADSIDE DITCH  |
| —          | EXISTING PROPERTY LINE                             | →         | EMERGENCY OVERFLOW DIRECTION   |
| —          | LIMITS OF DISTURBANCE/CONST. BOUNDARY/CONST. FENCE | →         | RIPRAP TYP.  |
| —          | PROPOSED STORM DRAIN                               | IP        | INLET PROTECTION - INTERIM   |
| —          | EXISTING STORM DRAIN                               | SB        | STRAW BALE DITCH CHECK - INTERIM   |
| —          | SWALE  | SCL       | SEDIMENT CONTROL LOG - INTERIM   |
| —          | SEDIMENT BASIN TRIBUTARY AREA                      | TSB       | TEMPORARY SEDIMENT BASIN - INTERIM   |
| —          | EXISTING FIBER OPTIC LINE                          | SF        | SILT FENCE - INITIAL/INTERIM   |
| —          | EXISTING OVERHEAD ELECTRIC                         | VTC       | VEHICLE TRACKING CONTROL - INITIAL/INTERIM   |
| —          | EXISTING LOT LINE                                  | TRM       | NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL) - PERMANENT |
| —          | EXISTING FENCE                                     |           |  |
| —          | CUT/FILL LINE                                      |           |  |
| —          | EXISTING LOT LINE                                  |           |  |
| —          | UNDERGROUND ELECTRICAL                             |           |  |
| —          | EXISTING GAS LINE                                  |           |  |
| —          | EXISTING WATERLINE                                 |           |  |
| —          | EXISTING DRAINAGE BASIN                            |           |  |

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

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

**CONSTRUCTION NOTES:**  
ALL TEMPORARY RIPRAP SHOWN ON THE PLANS SHALL BE TYPE 'M'. RIPRAP SHALL BE PLACED IN THE LOCATIONS INDICATED BY THE PLAN OR IN AREAS AS THE CONTRACTOR SEES FIT TO CONTROL EROSION. ALL RIPRAP SHALL BE PLACED AT A MINIMUM THICKNESS OF 1.5' DEEP.

ALL TEMPORARY STORM SEWER SHOWN ON PLANS SHALL BE 24" DIA. HP POLYPROPYLENE BY ADS OR APPROVED EQUAL. ALL PIPE SHALL BE LAID TO ACHIEVE A MIN. SLOPE OF 0.5%.

CONTRACTOR SHALL PROTECT ALL AREAS OUTSIDE OF THE CONSTRUCTION LIMITS WITH SILT FENCE OR OTHER METHOD TO PROTECT UNDISTURBED AREAS FROM EROSION

CONTRACTOR SHALL OBTAIN BUILDING PERMITS PRIOR TO ANY RETAINING WALL CONSTRUCTION

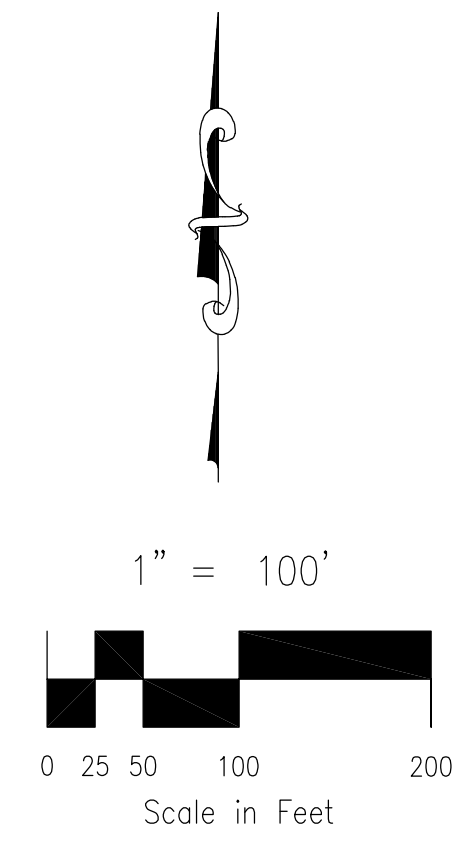
**ADDITIONAL NOTES:**  
STAGING, STORAGE, STOCKPILE, AND WASHOUT AREAS TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.

THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.

ALL TEMPORARY OR PERMANENT GRADING DISTURBANCES SHALL BE RE-SEEDED AND MULCHED PER EL PASO COUNTY CRITERIA AND SPECIFICATIONS.

DISTURBED AREA WEST AND NORTH OF THE PROPOSED REDI-ROCK WALL SHALL BE PERMANENTLY SEEDED. DISTURBED AREA EAST AND SOUTH OF THE PROPOSED REDI-ROCK WALL SHALL BE TEMPORARILY SEEDED.

EXISTING VEGETATION CONSISTS OF SPARSE, NATIVE GRASSES AND SHRUBS



CROSSROADS NORTH		EROSION CONTROL PLANS		PROJECT NO. 18-006		SCALE: HORIZONTAL: 1"=100' VERTICAL: N/A		DATE: 08/29/2023	
210 N. WABATCH AVE, STE 305 COLORADO SPRINGS, CO 80903 PHONE: 719.555.5485		CIVIL CONSULTANTS, INC.		DESIGNED BY: DM		DRAWN BY: GT		CHECKED BY: VAS	
FOR AND ON BEHALF OF MKS CIVIL CONSULTANTS, INC.		VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160		NO.:		DATE:		DESCRIPTION:	
FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES		FOR BURIED UTILITY INFORMATION 48 HRS BEFORE YOU DIG CALL 1-800-922-1987		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		EGR05 SHEET 6 OF 15	

**LEGEND**

- (6920) --- EXISTING MAJOR CONTOUR
  - (6918) --- EXISTING MINOR CONTOUR
  - 6920 --- PROPOSED MAJOR CONTOUR
  - 6918 --- PROPOSED MINOR CONTOUR
  - FILING BOUNDARY LINE
  - RIGHT-OF-WAY LINE
  - PROPOSED PROPERTY LINE
  - FUTURE PROPERTY LINE
  - EXISTING PROPERTY LINE
  - LIMITS OF DISTURBANCE/  
CONST. BOUNDARY/CONST. FENCE
  - PROPOSED STORM DRAIN
  - EXISTING STORM DRAIN
  - SWALE
  - SEDIMENT BASIN TRIBUTARY  
AREA
  - FO --- EXISTING FIBER OPTIC LINE
  - OH --- EXISTING OVERHEAD ELECTRIC
  - EXISTING LOT LINE
  - EXISTING FENCE
  - CUT/FILL LINE
  - EXISTING LOT LINE
  - UE --- UNDERGROUND ELECTRICAL
  - UG --- EXISTING GAS LINE
  - WL --- EXISTING WATERLINE
- INLET
  - L.P./H.P. LOW POINT/HIGH POINT
  - (2.0)% FLOW DIRECTION & SLOPE
  - FLOW DIRECTION ARROW
  - PROPOSED SWALE
  - EXISTING FLOW DIRECTION ARROW
  - EXISTING SWALE/ROADSIDE DITCH
  - EMERGENCY OVERFLOW DIRECTION
  - ▨ RIPRAP TYP.
- TW:63XX.X FINISH GRADE AT THE TOP OF WALL  
 BW:63XX.X FINISH GRADE AT THE BOTTOM OF WALL

**CONSTRUCTION NOTES:**

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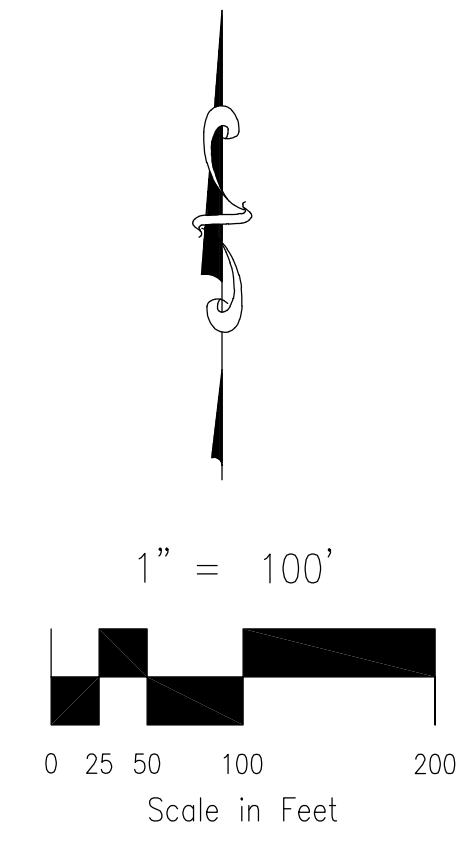
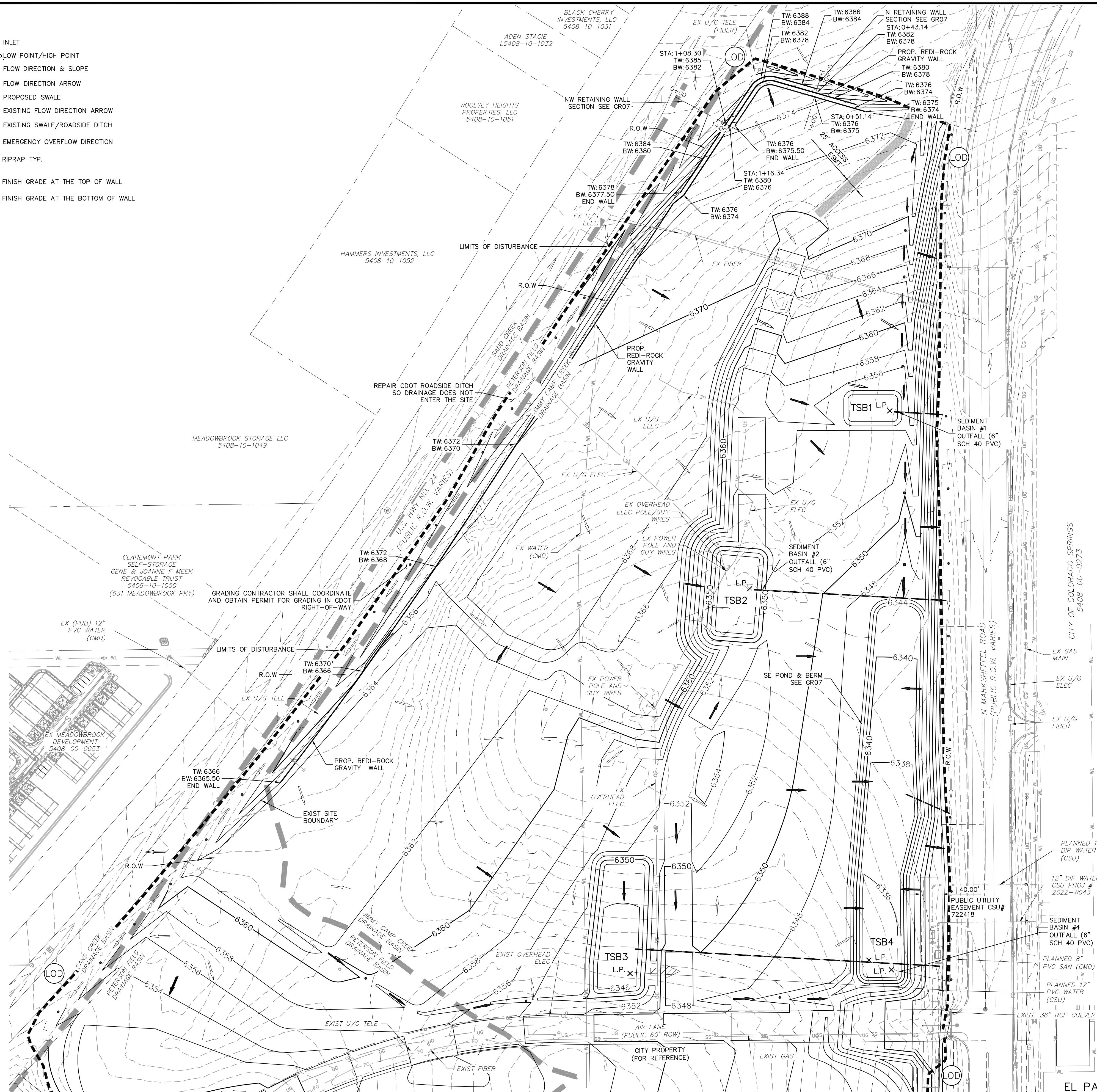
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EXISTING VEGETATION CONSISTS OF SPARSE, NATIVE GRASSES AND SHRUBS



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**48 HRS BEFORE YOU DIG**  
 CALL 1-800-922-1987

<b>CROSSROADS NORTH</b>	
<b>RETAINING WALL PLAN</b>	
PROJECT NO. 18-006	DATE: 08/29/2023
DESIGNED BY: DM	SCALE: HORIZONTAL: 1"=100'
DRAWN BY: GT	VERTICAL: N/A
CHECKED BY: VAS	<b>EGR06</b>
SHEET 7 OF 15	

**CIVIL CONSULTANTS, INC.**

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

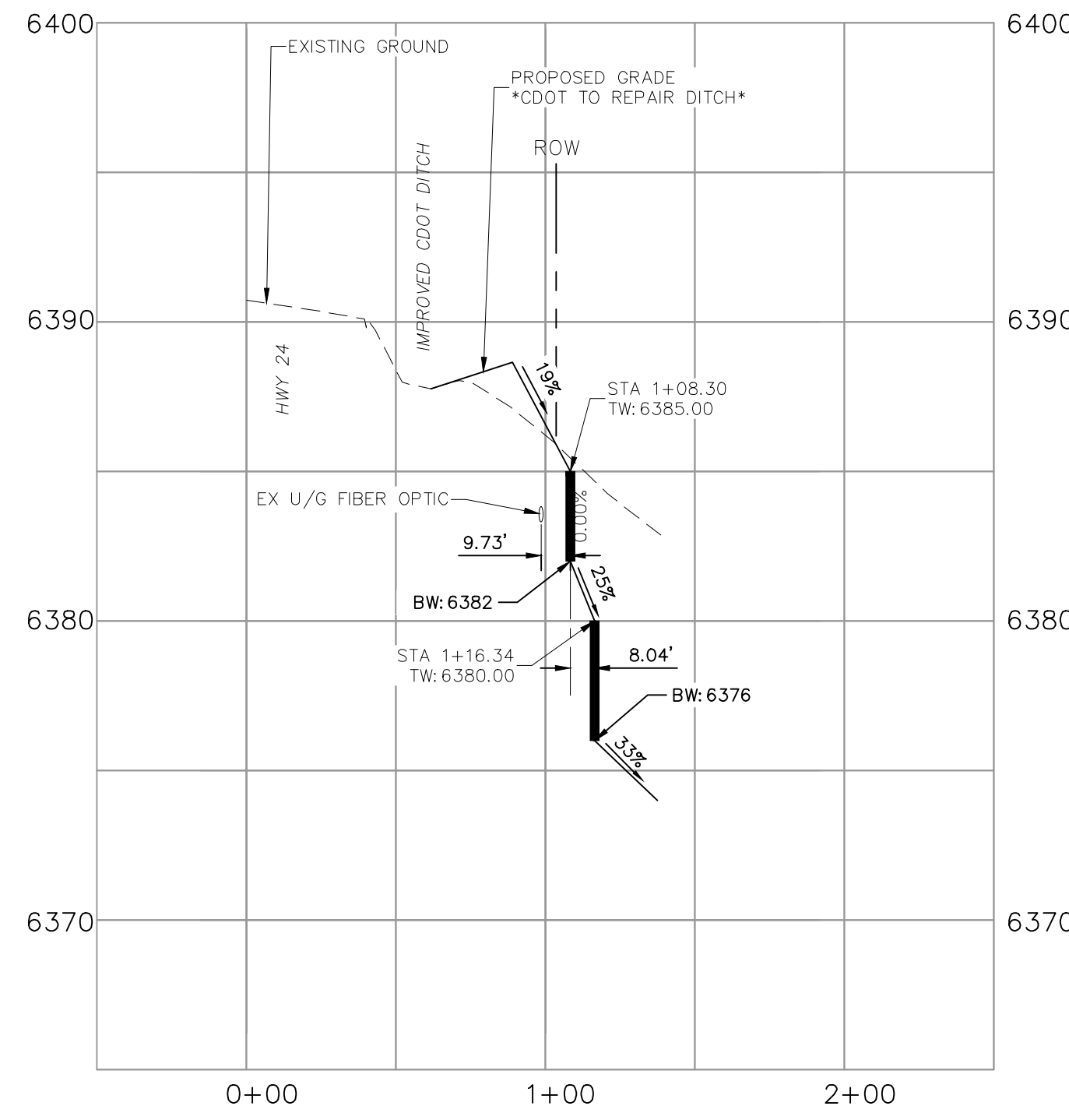
FOR AND ON BEHALF OF  
 MRS. CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

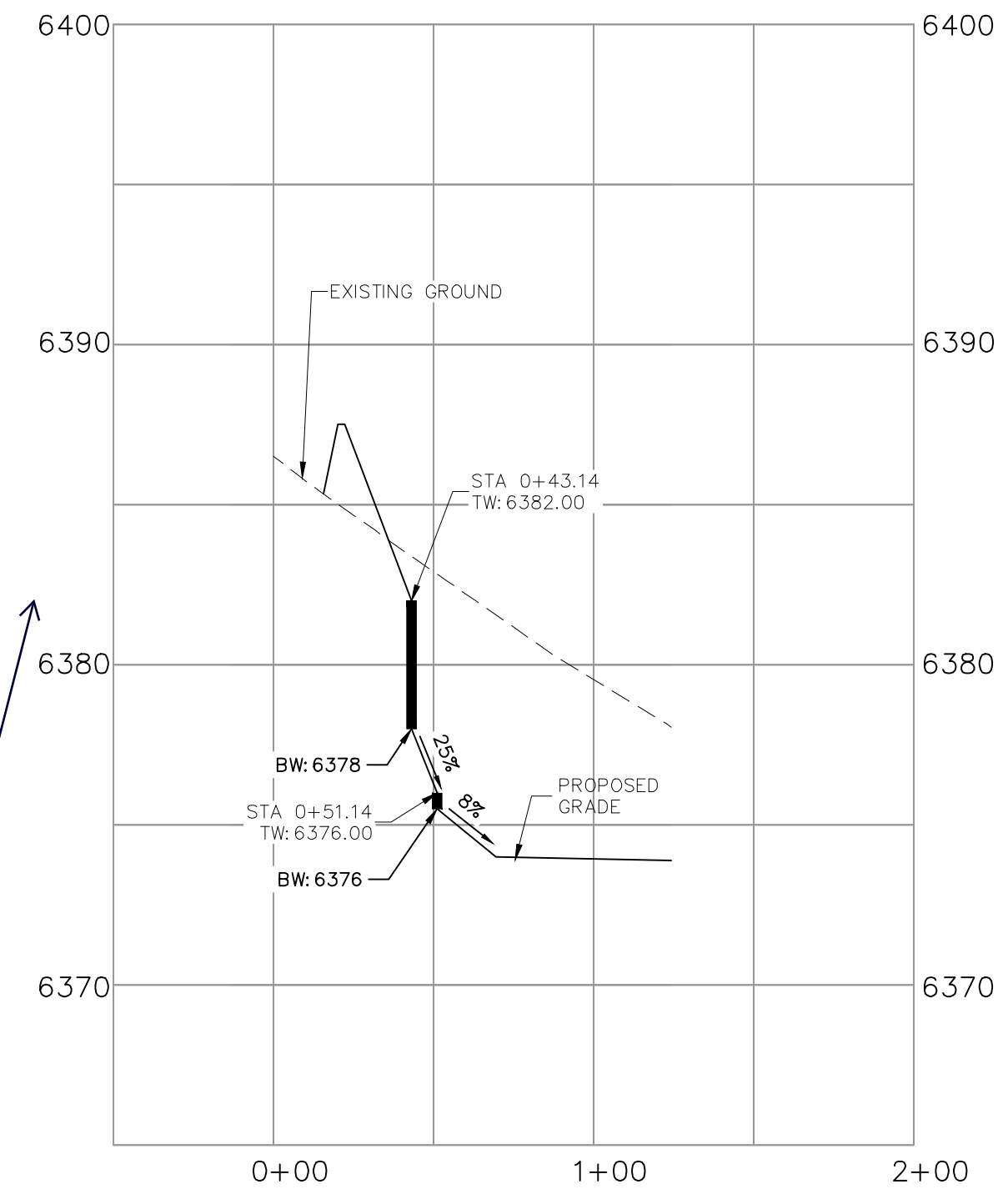
REVISONS:	NO.	DATE:	BY:	DESCRIPTION:	APPROV'D. BY:	DATE:

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



**NORTHWEST RETAINING WALL  
TYP. CROSS SECTION**  
SCALE: HORIZ: 1"=50'  
VERT: 1"=5'



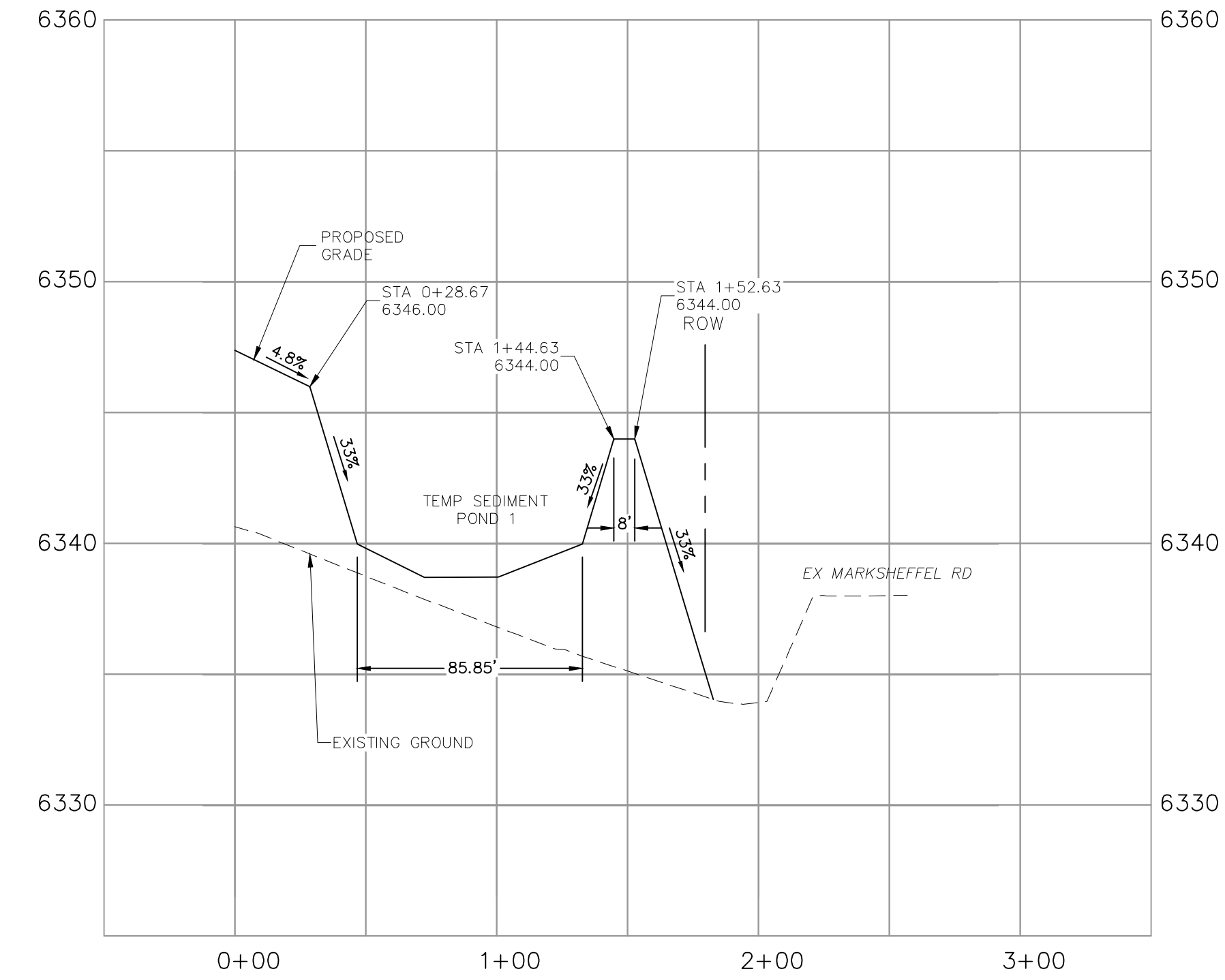
**NORTH RETAINING WALL  
TYP. CROSS SECTION**  
SCALE: HORIZ: 1"=50'  
VERT: 1"=5'

Based on the offset between tiered walls the retaining wall design the design does not meet the two highlighted sections of the Pikes Peak Regional Building Code Section RBC105.2.1 and will require building permit through PPRBD.

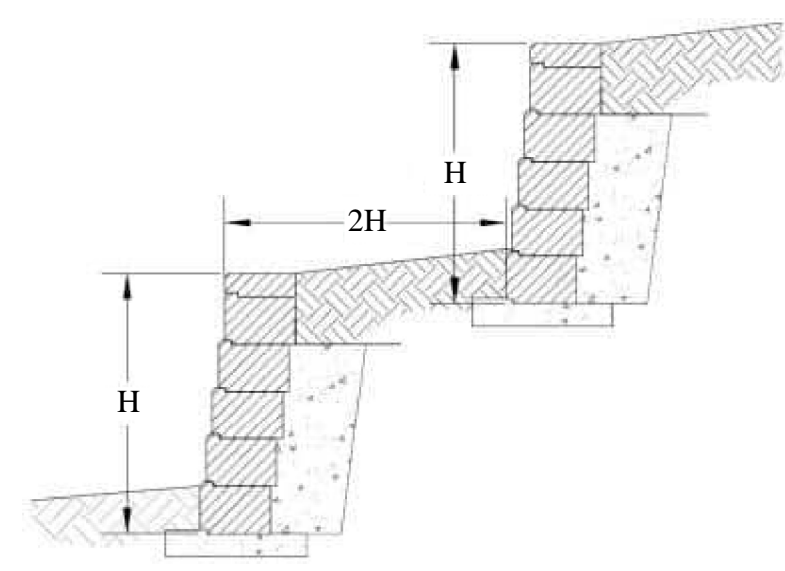
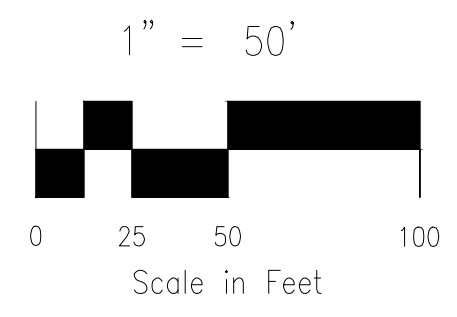
Provide a reference to the retaining wall construction plans and submit a copy of the retaining plans to regional building for review and approval.

The early grading plans will not be approved until the retaining wall plans are approved.

Unresolved from review 3 and 4

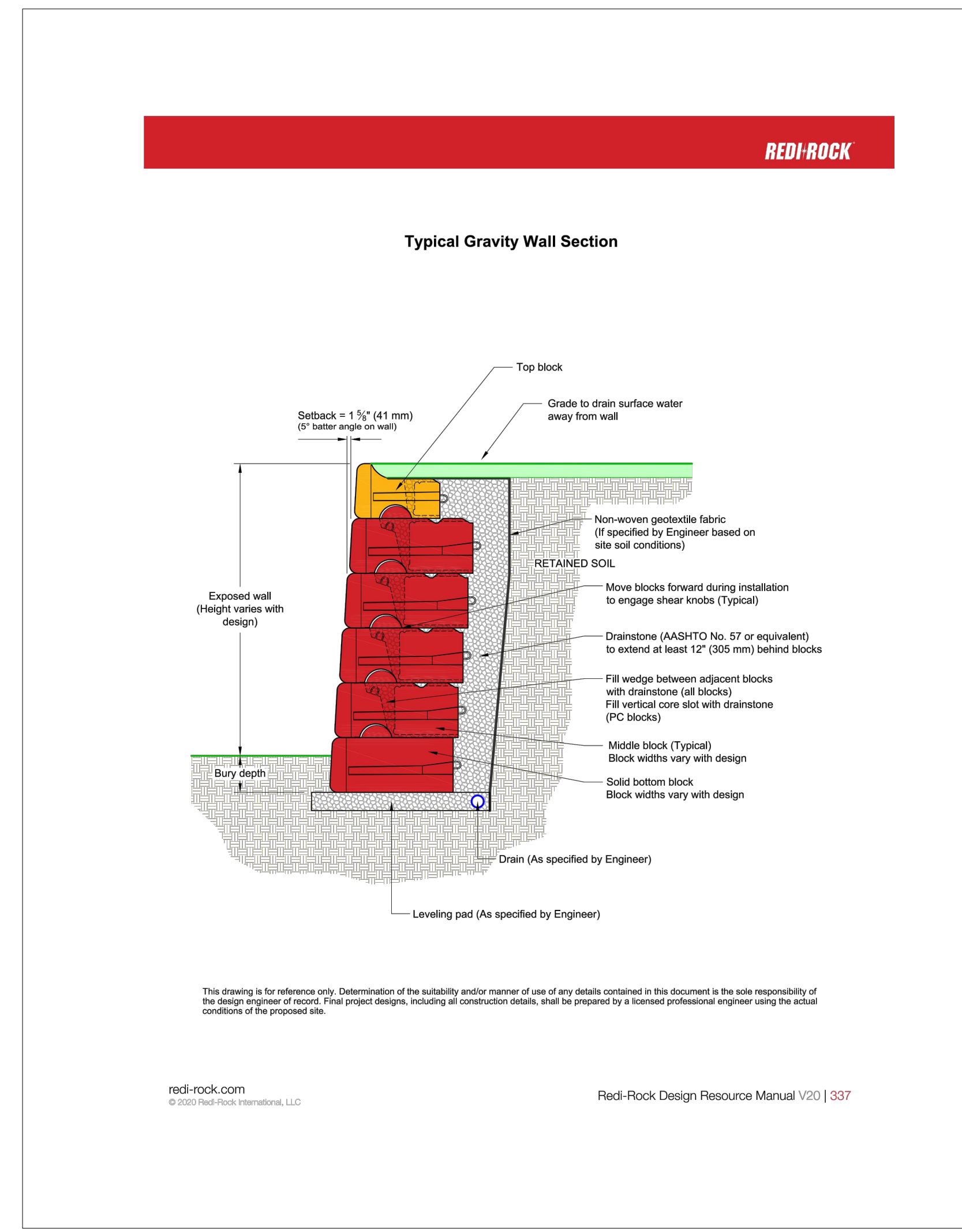


**SOUTHEAST POND & BERM TYP. CROSS SECTION**  
SCALE: HORIZ: 1"=50'  
VERT: 1"=5'



**TIERED/TERRACED  
RETAINING WALL H<4'**

Unresolved from review 3. Update to provide a profile view for road improvements.



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**CROSSROADS NORTH**

**CROSS SECTION DETAILS**

PROJECT NO. 18-006  
DATE: 08/29/2023

SCALE: HORIZONTAL: 1"=50'  
VERTICAL: 1"=5'

DESIGNED BY: DM  
DRAWN BY: GT  
CHECKED BY: VAS

212 N. WATKINS AVE., STE 305  
COLORADO SPRINGS, CO 80903  
PHONE: 719.955.5465

**CIVIL CONSULTANTS, INC.**

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

FOR AND ON BEHALF OF  
CIVIL CONSULTANTS, INC.

PROFESSIONAL SEAL: VIRGIL A. SANCHEZ, P.E. NO. 37160, 09-14-23

NO.	DATE	BY	DESCRIPTION

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CAUTION



**Sediment Basin (SB)**

SC-7

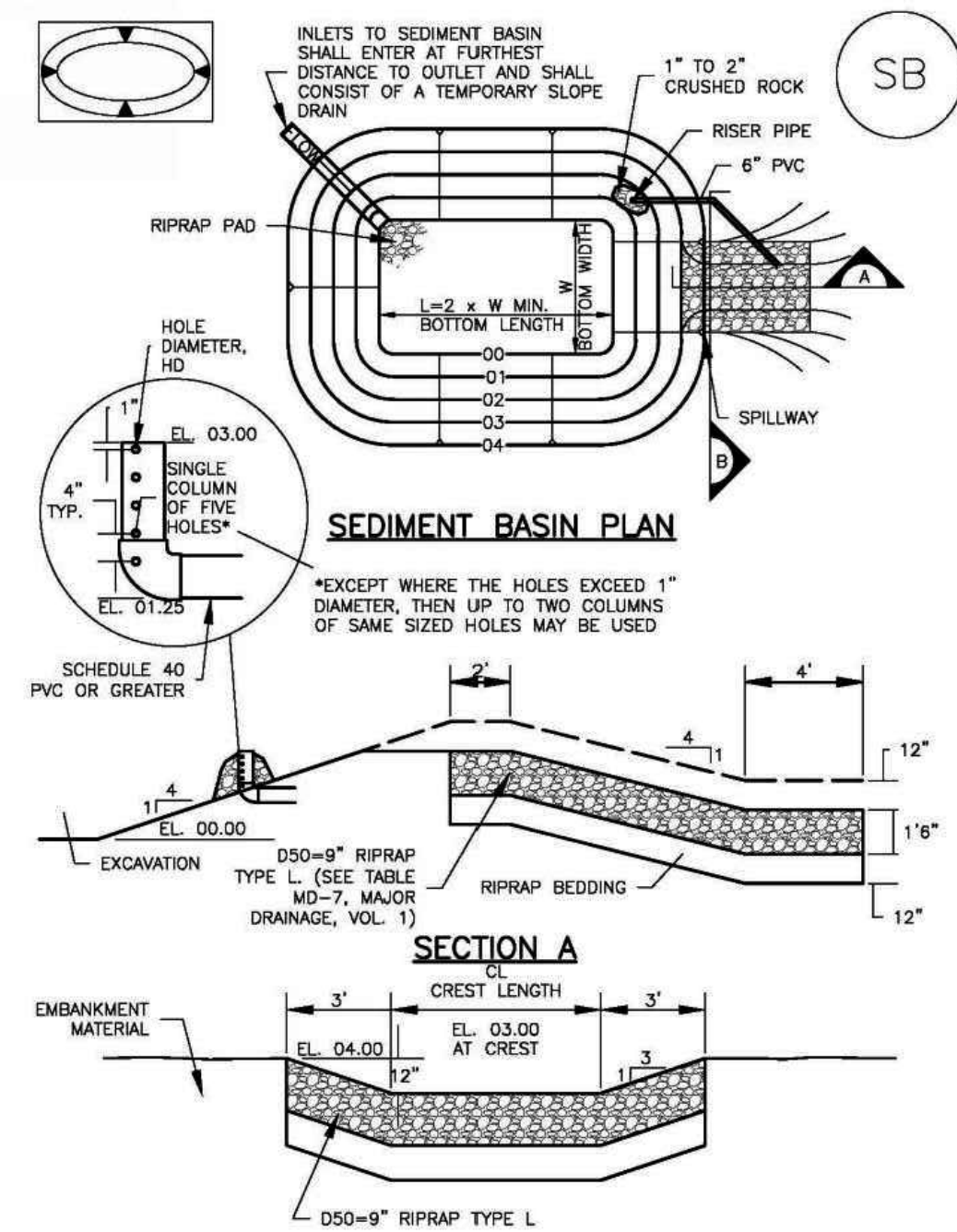


TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

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

- 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 H, 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 BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

**Sediment Basin (SB)**

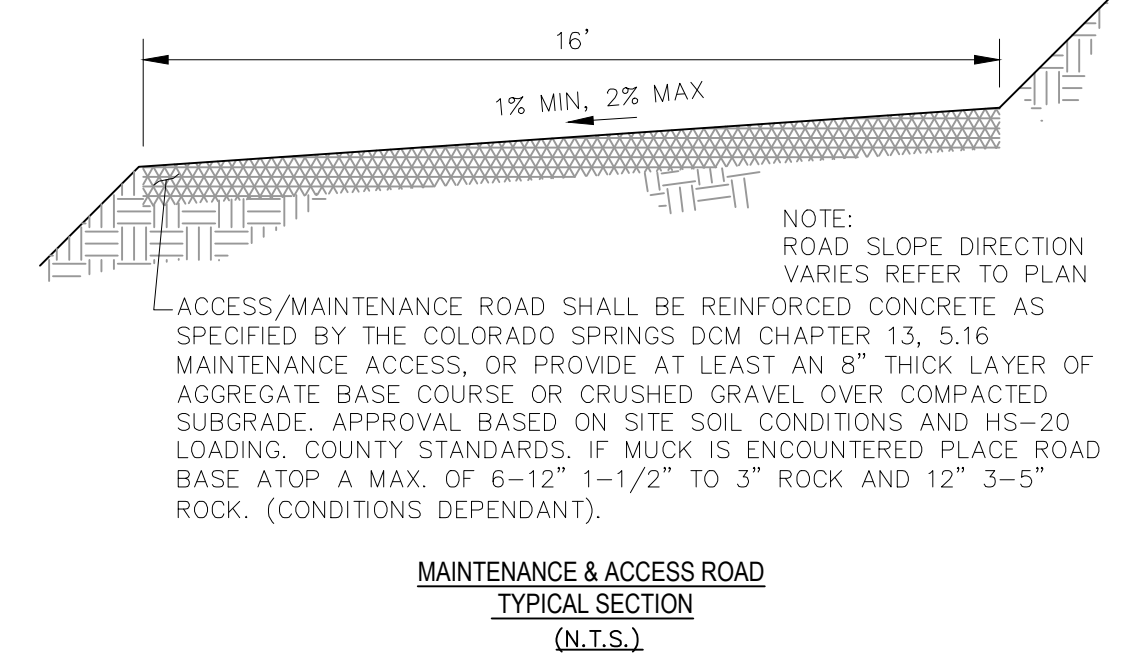
SC-7

**EL PASO COUNTY DETAILS**

**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 MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)
- 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.



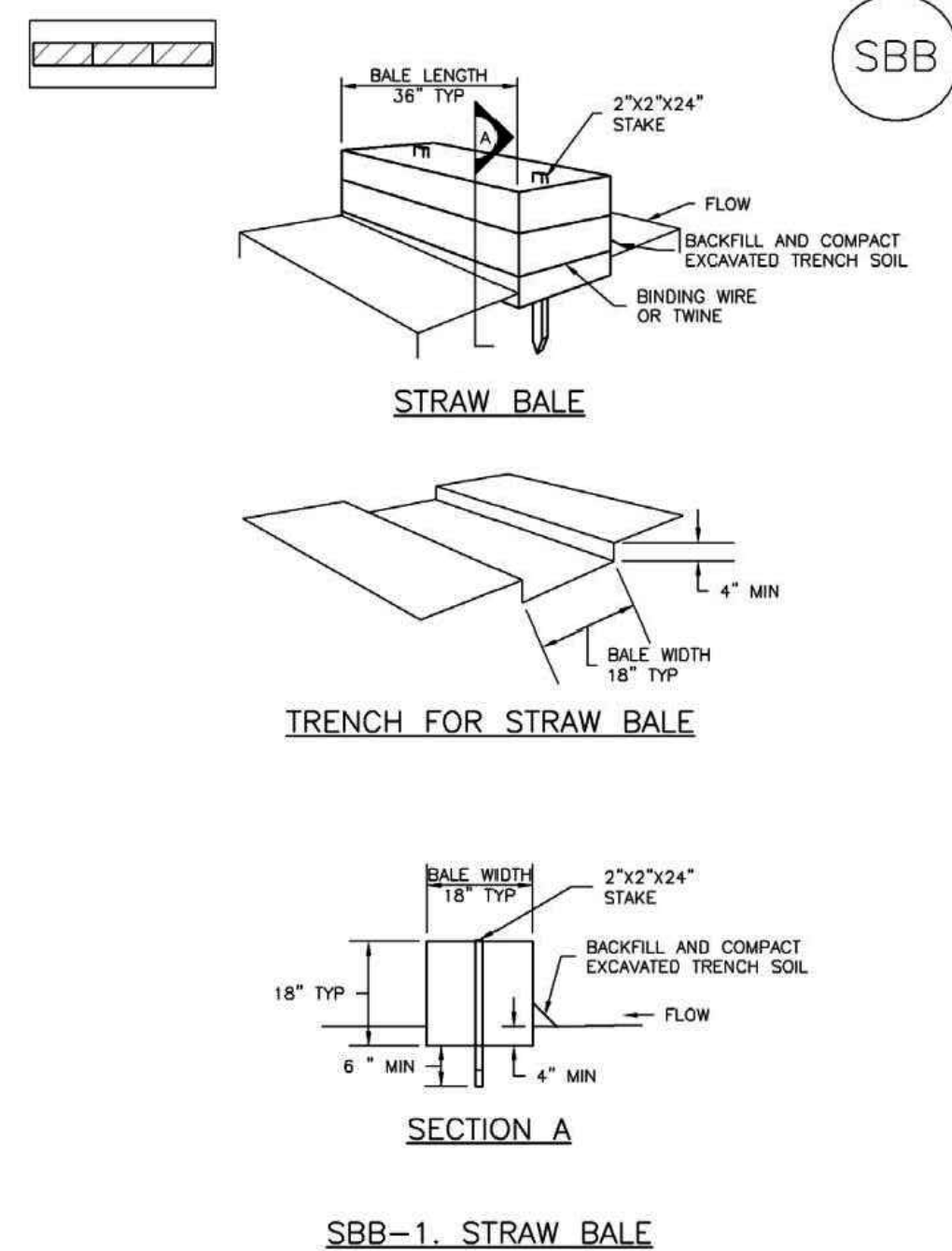
**EROSION CONTROL CRITERIA:**

- PRIOR TO START OF GRADING OPERATIONS, LOCATE AND SET THE SILT FENCE AND VEHICLE TRACKING CONTROL AS SHOWN ON THE EROSION CONTROL PLAN.
  - THE SILT FENCE SHALL BE KEPT IN PLACE AND MAINTAINED UNTIL EROSION AND SEDIMENTATION POTENTIAL IS MITIGATED. REMOVAL OF SILT AND SEDIMENT COLLECTED BY THE SILT FENCES IS REQUIRED ONCE IT REACHES HALF THE HEIGHT OF THE SILT FENCES.
  - 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 SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPs SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

**NOTE:**  
SEE URBAN DRAINAGE CRITERIA MANUAL (VOL. 3) FOR INSTALLATION AND MAINTENANCE (TYP)

**SC-1**

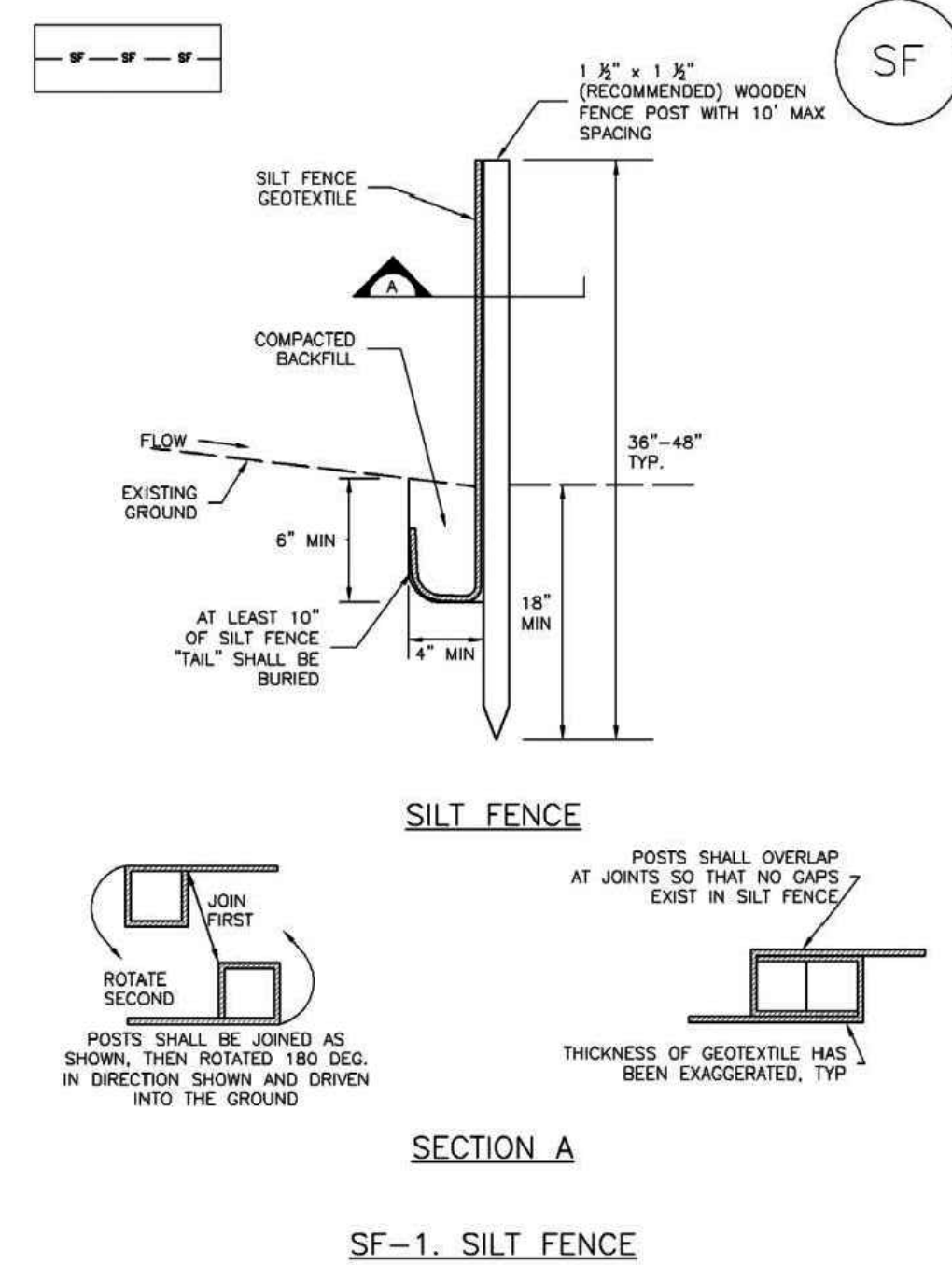
**SC-3 Straw Bale Barrier (SBB)**



**SC-3 Straw Bale Barrier (SBB)**

- STRAW BALE INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
    - LOCATION(S) OF STRAW BALES.
  - STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
  - STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
  - WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.
  - STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
  - A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALES. ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.
  - TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.
- STRAW BALE 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.
  - STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.
  - SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/4 OF THE HEIGHT OF THE STRAW BALE BARRIER.
  - STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
  - WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM TOWN 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.

**SC-1 Silt Fence (SF)**



**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 (2-5 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.
- (DETAIL ADAPTED FROM TOWN 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.

CROSSROADS NORTH

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 18-006 SCALE: HORIZONTAL: N/A VERTICAL: N/A

DESIGNED BY: DM DRAWN BY: GT CHECKED BY: VAS

DATE: 08/29/2023

SHEET 9 OF 15

EGR08

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



FOR AND ON BEHALF OF  
MKS CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

REVISIONS: NO. DATE: BY: DESCRIPTION: APPROD. BY: DATE:

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

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

soil amendments and rototill them into the soil to a depth of 6 inches or more.

Topsoil should be salvaged during grading operations for use and spread on areas to be revegetated later. Topsoil should be viewed as an important resource to be utilized for vegetation establishment, due to its water-holding capacity, structure, texture, organic matter content, biological activity, and nutrient content.

Where topsoil is not available, subsoils should be amended to provide an appropriate plant-growth medium. Organic matter, such as well digested compost, can be added to improve soil characteristics conducive to plant growth.

If the disturbed ground surface is compacted, rip or rototill the surface prior to placing topsoil. If adding compost to the existing soil surface, rototilling is necessary.

Prior to seeding, the soil surface should be rough and the seedbed should be firm, but neither too loose nor compacted. The upper layer of soil should be in a condition suitable for seeding at the proper depth and conducive to plant growth.

Seed Mix for Temporary Vegetation

To provide temporary vegetative cover on disturbed areas which will not be paved, built upon, or fully landscaped or worked for an extended period (typically 30 days or more), plant an annual grass appropriate for the time of planting and mulch the planted areas.

Seed Mix for Permanent Revegetation

To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established. Permanent seeding should be performed promptly (typically within 14 days) after reaching final grade.

If desired for wildlife habitat or landscape diversity, shrubs such as rubber rabbitbrush (Chrysothamnus nauseosus), fourwing saltbush (Atriplex canescens) and skunkbrush sumac (Rhus trilobata) could be added to the upland seedmixes at 0.25, 0.5 and 1 pound PLS/acre, respectively.

TS/PS-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 June 2012

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

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes.

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

Table with 4 columns: Species (Common name), Growth Season, Pounds of Pure Live Seed (PLS)/acre, and Planting Depth (inches). Lists species like Oats, Spring wheat, Spring barley, etc.

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.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist.

See Table TS/PS-3 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.

June 2012 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 TS/PS-3

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

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Table with 6 columns: Common Name, Botanical Name, Growth Season, Growth Form, Seeds/Pound, and Pounds of PLS/acre. Lists species like Alkali sacaton, Basin wildrye, Sodiar streambank wheatgrass, etc.

TS/PS-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 June 2012

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

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Table with 6 columns: Common Name, Botanical Name, Growth Season, Growth Form, Seeds/Pound, and Pounds of PLS/acre. Lists species like Blue grama, Camper little bluestem, Prairie sandreed, etc.

Table with 6 columns: Common Name, Botanical Name, Growth Season, Growth Form, Seeds/Pound, and Pounds of PLS/acre. Lists species like Heavy Clay, Rocky Foothill Seed Mix, Ephrium crested wheatgrass, etc.

All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding.

See Table TS/PS-3 for seeding dates. If site is to be irrigated, the transition turf seed rates should be doubled.

Crested wheatgrass should not be used on slopes steeper than 6H to 1V. Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

June 2012 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 TS/PS-5

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

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

Table with columns for Seeding Dates, Annual Grasses (Warm, Cool), and Perennial Grasses (Warm, Cool). Shows months and specific date ranges for seeding.

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.

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.

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.

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.

TS/PS-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 June 2012

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.



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 reseeding.

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:

Table with 2 columns: Functions and Mulch. Lists Erosion Control (Yes), Sediment Control (Moderate), and Site/Material Management (No).

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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.

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.

On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place.

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.

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.

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.

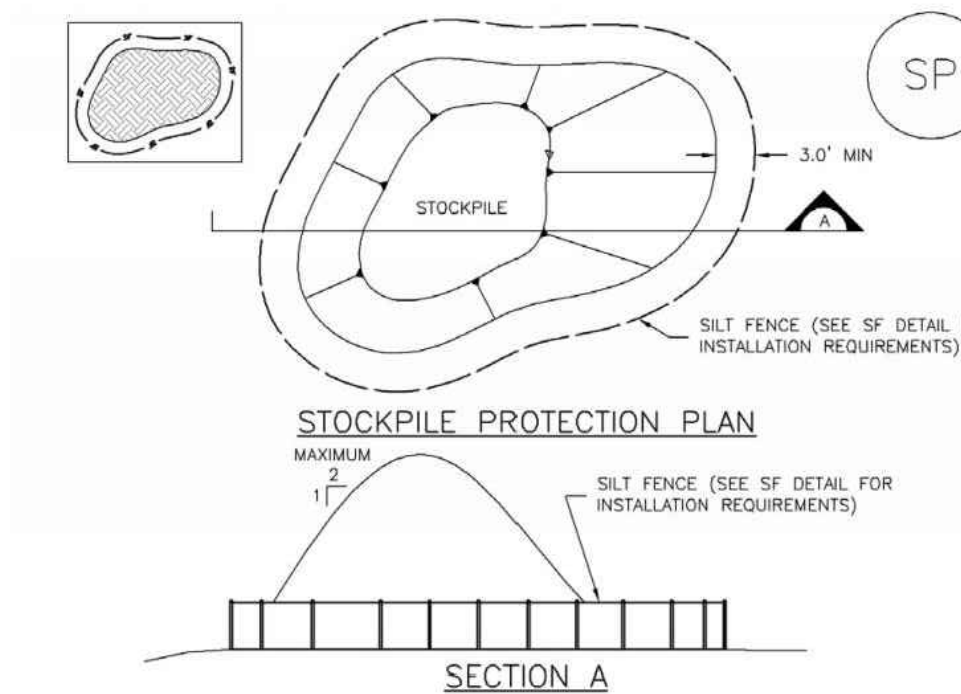
Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation.

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

Stockpile Management (SP) MM-2



SP-1. STOCKPILE PROTECTION

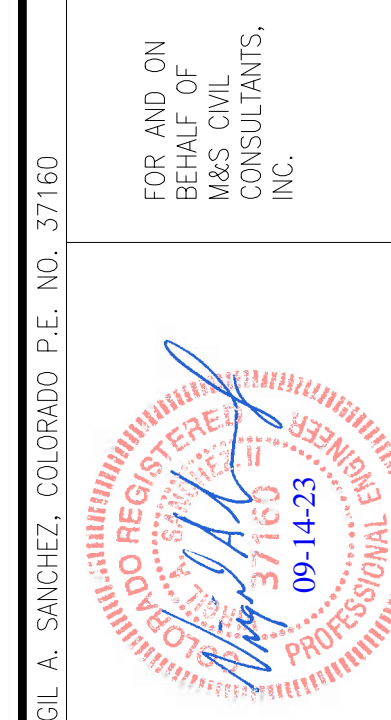
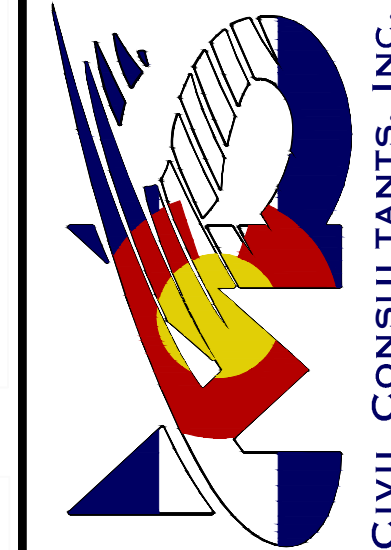
STOCKPILE PROTECTION INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR: - LOCATION OF STOCKPILES - TYPE OF STOCKPILE PROTECTION. 2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. 3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING... 4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE...

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

CROSSROADS NORTH GRADING & EROSION CONTROL DETAILS PROJECT NO. 18-006 SCALE: HORIZONTAL: N/A VERTICAL: N/A DATE: 08/29/2023 DESIGNED BY: DM DRAWN BY: GT CHECKED BY: VAS SHEET 10 OF 15 EGR09

212 N. WAHATCH AVE, STE 303 COLORADO SPRINGS CO 80903 PHONE: 719.555.5485



REVISIONS: NO. DATE BY DESCRIPTION DATE: APPROVD BY: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS. CAUTION

**SC-6 Inlet Protection (IP)**

- IP-3. Rock Sock Inlet Protection for Sump/Area Inlet
  - IP-4. Silt Fence Inlet Protection for Sump/Area Inlet
  - IP-5. Over-excavation Inlet Protection
  - IP-6. Straw Bale Inlet Protection for Sump/Area Inlet
  - CIP-1. Culvert Inlet Protection
- Proprietary inlet protection devices should be installed in accordance with manufacturer specifications.
- More information is provided below on selecting inlet protection for sump and on-grade locations.

**Inlets Located in a Sump**

When applying inlet protection in sump conditions, it is important that the inlet continue to function during larger runoff events. For curb inlets, the maximum height of the protective barrier should be lower than the top of the curb opening to allow overflow into the inlet during larger storms without excessive localized flooding. If the inlet protection height is greater than the curb elevation, particularly if the filter becomes clogged with sediment, runoff will not enter the inlet and may bypass it, possibly causing localized flooding, public safety issues, and downstream erosion and damage from bypassed flows.

Area inlets located in a sump setting can be protected through the use of silt fence, concrete block and rock socks (on paved surfaces), sediment control logs/straw wattles embedded in the adjacent soil and stacked around the area inlet (on pervious surfaces), over-excavation around the inlet, and proprietary products providing equivalent functions.

**Inlets Located on a Slope**

For curb and gutter inlets on paved sloping streets, block and rock sock inlet protection is recommended in conjunction with curb socks in the gutter leading to the inlet. For inlets located along unpaved roads, also see the Check Dam Fact Sheet.

**Maintenance and Removal**

Inspect inlet protection frequently. Inspection and maintenance guidance includes:

- Inspect for tears that can result in sediment directly entering the inlet, as well as result in the contents of the BMP (e.g., gravel) washing into the inlet.
- Check for improper installation resulting in untreated flows bypassing the BMP and directly entering the inlet or bypassing to an unprotected downstream inlet. For example, silt fence that has not been properly trenched around the inlet can result in flows under the silt fence and directly into the inlet.
- Look for displaced BMPs that are no longer protecting the inlet. Displacement may occur following larger storm events that wash away or reposition the inlet protection. Traffic or equipment may also crush or displace the BMP.
- Monitor sediment accumulation upgradient of the inlet protection.

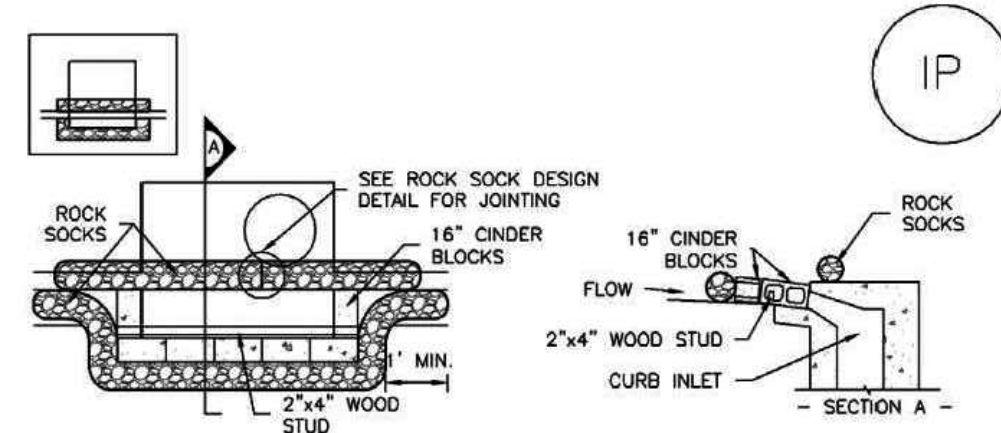
IP-2 Urban Drainage and Flood Control District August 2013  
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**Inlet Protection (IP) SC-6**

- Remove sediment accumulation from the area upstream of the inlet protection, as needed to maintain BMP effectiveness, typically when it reaches no more than half the storage capacity of the inlet protection. For silt fence, remove sediment when it accumulates to a depth of no more than 6 inches. Remove sediment accumulation from the area upstream of the inlet protection as needed to maintain the functionality of the BMP.
  - Proprietary inlet protection devices should be inspected and maintained in accordance with manufacturer specifications. If proprietary inlet insert devices are used, sediment should be removed in a timely manner to prevent devices from breaking and spilling sediment into the storm drain.
- Inlet protection must be removed and properly disposed of when the drainage area for the inlet has reached final stabilization.

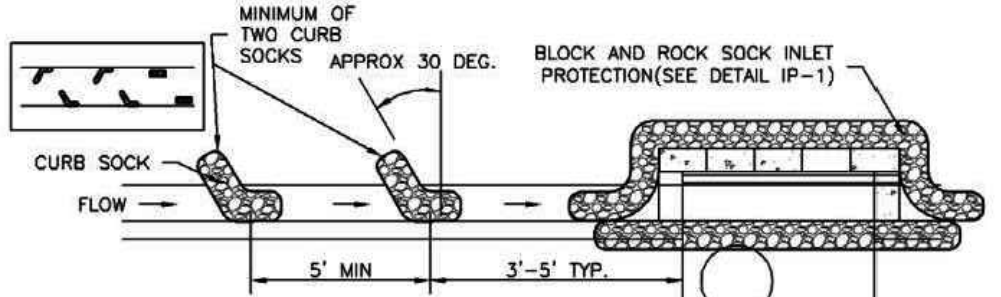
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**SC-6 Inlet Protection (IP)**



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

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

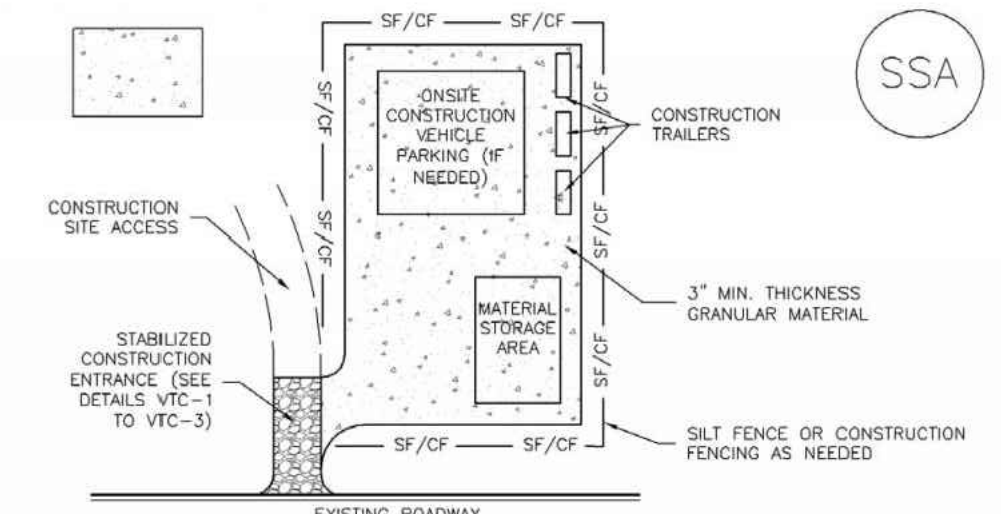


**IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION**

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

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**Stabilized Staging Area (SSA) SM-6**

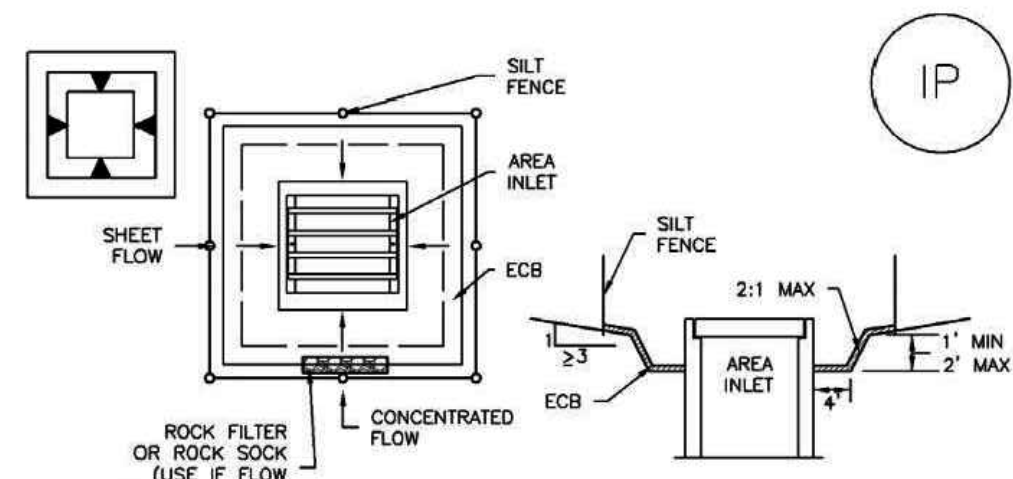


**SSA-1. STABILIZED STAGING AREA**

- STABILIZED STAGING AREA INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
    - LOCATION OF STAGING AREA(S).
    - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
  - STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
  - STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
  - THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
  - UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
  - ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.
- STABILIZED STAGING AREA 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.
  - ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

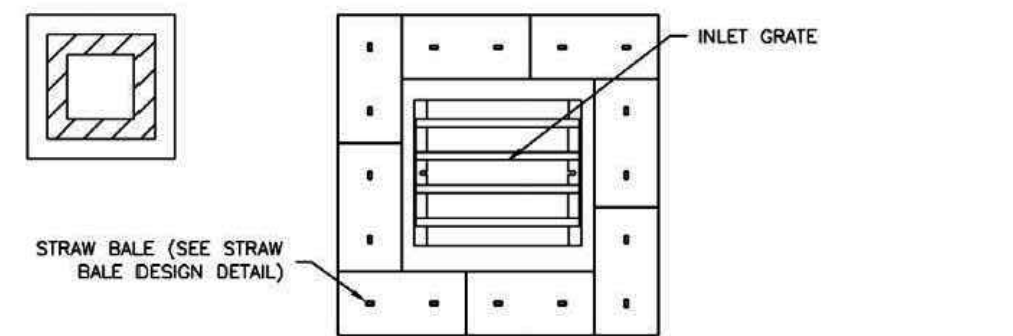
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**SC-6 Inlet Protection (IP)**



**IP-5. OVEREXCAVATION INLET PROTECTION**

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

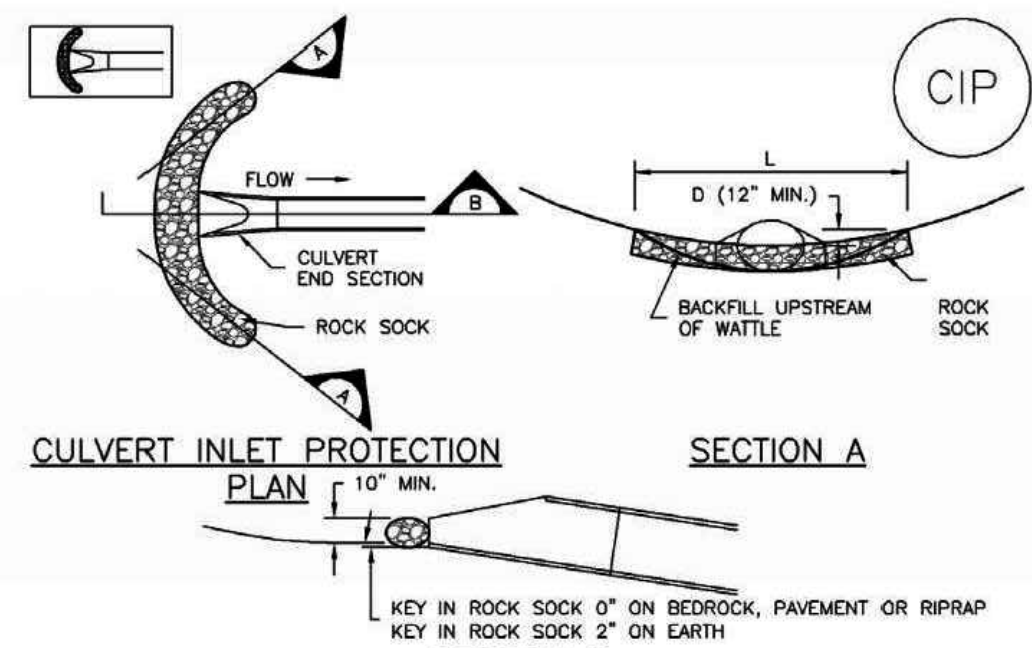


**IP-6. STRAW BALE FOR SUMP INLET PROTECTION**

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

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**Inlet Protection (IP) SC-6**



**CIP-1. CULVERT INLET PROTECTION**

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

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

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**SC-6 Inlet Protection (IP)**

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

- INLET PROTECTION MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/3 OF THE HEIGHT FOR STRAW BALES.
  - INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
  - WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDS 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:** 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.

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

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

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Urban Storm Drainage Criteria Manual Volume 3

**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, SEEDS 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)

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Urban Storm Drainage Criteria Manual Volume 3

CROSSROADS NORTH

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 18-006 DATE: 08/29/2023

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

DESIGNED BY: DM DRAWN BY: GT CHECKED BY: VAS

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FOR AND ON BEHALF OF MKS CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 371160

PROFESSIONAL SEAL: VIRGIL A. SANCHEZ, P.E. 37160, 09-14-23

REVISIONS: NO. DATE: BY: DESCRIPTION: APPROV. BY: DATE:

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

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**EC-6 Rolled Erosion Control Products (RECP)**

**Turf Reinforcement Mat (TRM):** A rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh, and/or other elements, processed into a permanent, three-dimensional matrix of sufficient thickness. TRMs, which may be supplemented with degradable components, are designed to impart immediate erosion protection, enhance vegetation establishment and provide long-term functionality by permanently reinforcing vegetation during and after maturation. Note: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forces may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.

Tables RECP-1 and RECP-2 provide guidelines for selecting rolled erosion control products appropriate to site conditions and desired longevity. Table RECP-1 is for conditions where natural vegetation alone will provide permanent erosion control, whereas Table RECP-2 is for conditions where vegetation alone will not be adequately stable to provide long-term erosion protection due to flow or other conditions.

**Table RECP-1. ECTC Standard Specification for Temporary Rolled Erosion Control Products**  
(Adapted from Erosion Control Technology Council 2005)

Product Description	Slope Applications*		Channel Applications*	Minimum Tensile Strength <sup>1</sup>	Expected Longevity
	Maximum Gradient	C Factor <sup>2,5</sup>			
Mulch Control Nets	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft <sup>2</sup> (12 Pa)	5 lbs/ft (0.073 kN/m)	Up to 12 months
Netless Rolled Erosion Control Blankets	4:1 (H:V)	≤0.10 @ 4:1	0.5 lbs/ft <sup>2</sup> (24 Pa)	5 lbs/ft (0.073 kN/m)	
Single-net Erosion Control Blankets & Open Weave Textiles	3:1 (H:V)	≤0.15 @ 3:1	1.5 lbs/ft <sup>2</sup> (72 Pa)	50 lbs/ft (0.73 kN/m)	
Double-net Erosion Control Blankets	2:1 (H:V)	≤0.20 @ 2:1	1.75 lbs/ft <sup>2</sup> (84 Pa)	75 lbs/ft (1.09 kN/m)	
Mulch Control Nets	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft <sup>2</sup> (12 Pa)	25 lbs/ft (0.36 kN/m)	24 months
Erosion Control Blankets & Open Weave Textiles (slowly degrading)	1.5:1 (H:V)	≤0.25 @ 1.5:1	2.00 lbs/ft <sup>2</sup> (96 Pa)	100 lbs/ft (1.45 kN/m)	24 months
Erosion Control Blankets & Open Weave Textiles	1:1 (H:V)	≤0.25 @ 1:1	2.25 lbs/ft <sup>2</sup> (108 Pa)	125 lbs/ft (1.82 kN/m)	36 months

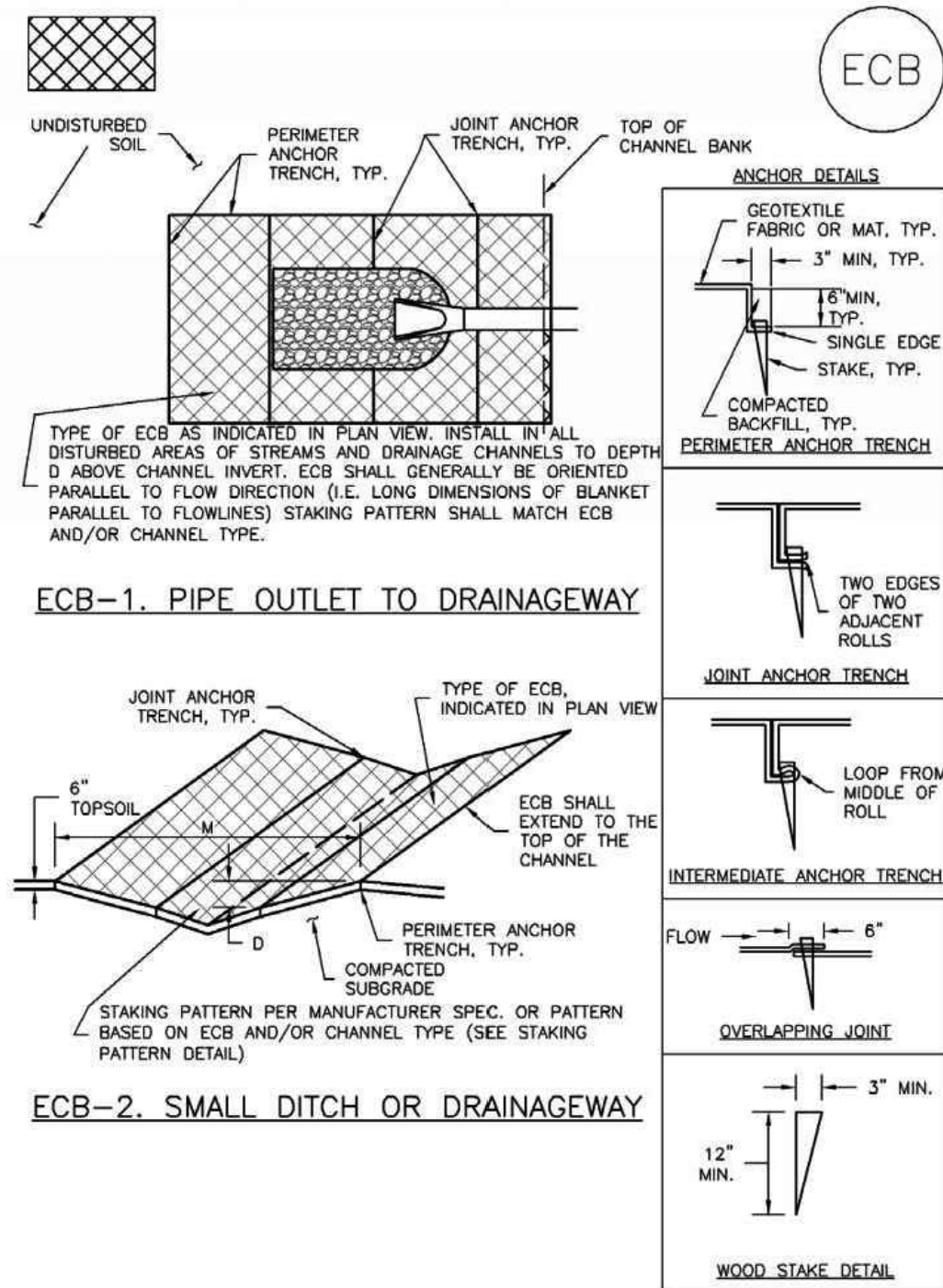
\* C Factor and shear stress for mulch control nettings must be obtained with netting used in conjunction with pre-applied mulch material. (See Section 5.3 of Chapter 7 Construction BMPs for more information on the C Factor.)

- <sup>1</sup> Minimum Average Roll Values, Machine direction using ECTC Mod. ASTM D 5035.
- <sup>2</sup> C Factor calculated as ratio of soil loss from RECP protected slope (tested at specified or greater gradient, H:V) to ratio of soil loss from unprotected (control) plot in large-scale testing.
- <sup>3</sup> Required minimum shear stress RECP (unvegetated) 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.
- <sup>4</sup> The permissible shear stress levels established for each performance category are based on historical experience with products characterized by Manning's roughness coefficients in the range of 0.01 - 0.05.
- <sup>5</sup> Acceptable large-scale test methods may include ASTM D 6459, or other independent testing deemed acceptable by the engineer.
- <sup>6</sup> Per the engineer's discretion. Recommended acceptable large-scale testing protocol may include ASTM D 6460, or other independent testing deemed acceptable by the engineer.

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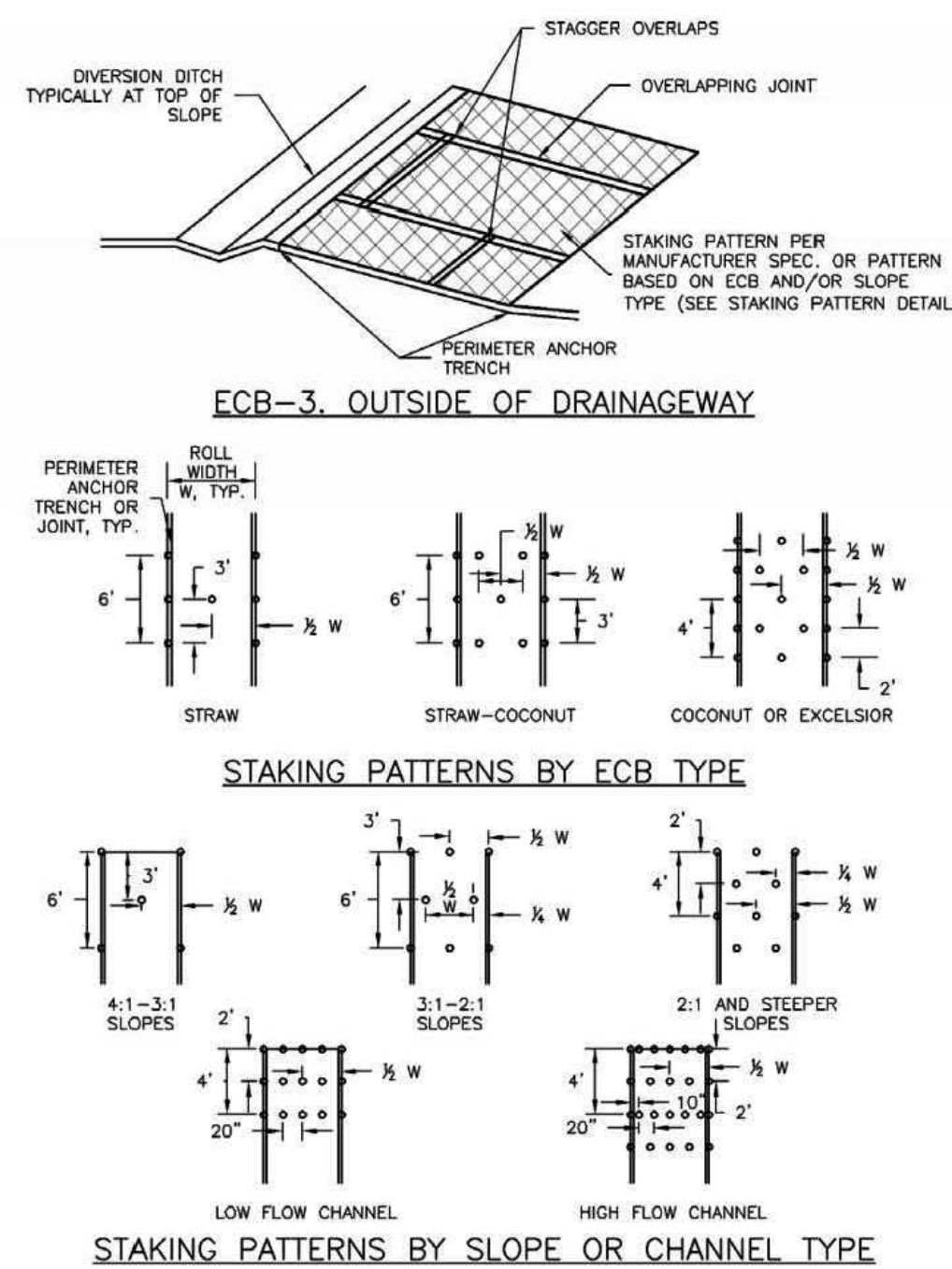
RECP-3 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

**EC-6 Rolled Erosion Control Products (RECP)**



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

**EC-6 Rolled Erosion Control Products (RECP)**



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**EC-6 Rolled Erosion Control Products (RECP)**

**Table RECP-2. ECTC Standard Specification for Permanent<sup>1</sup> Rolled Erosion Control Products**  
(Adapted from: Erosion Control Technology Council 2005)

Product Type	Slope Applications	Channel Applications	Minimum Tensile Strength <sup>2,3</sup>
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).	0.5:1 (H:V)	6.0 lbs/ft <sup>2</sup> (288 Pa)	125 lbs/ft (1.82 kN/m)
	0.5:1 (H:V)	8.0 lbs/ft <sup>2</sup> (384 Pa)	150 lbs/ft (2.19 kN/m)
	0.5:1 (H:V)	10.0 lbs/ft <sup>2</sup> (480 Pa)	175 lbs/ft (2.55 kN/m)

- <sup>1</sup> For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the matting alone.
- <sup>2</sup> Minimum Average Roll Values, machine direction only for tensile strength determination using ASTM D 6818 (Supersedes Mod. ASTM D 5035 for RECPs)
- <sup>3</sup> 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.
- <sup>4</sup> 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.
- <sup>5</sup> Acceptable large-scale testing protocols may include ASTM D 6460, 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

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**EC-6 Rolled Erosion Control Products (RECP)**

- 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 PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST 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 RESEEDED 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

\*NATURAL ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNELS.  
\*\*ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

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**EC-6 Rolled Erosion Control Products (RECP)**

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.

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**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 ERODED 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)

RECP-9 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

CROSSROADS NORTH

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 18-006

DATE: 08/29/2023

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

DESIGNED BY: DM

DRAWN BY: GT

CHECKED BY: VAS

SHEET 12 OF 15

EGR 11

210 N. WAHATCH AVE. STE 305  
COLORADO SPRINGS, CO 80903  
PHONE: 719.955.5486

FOR AND ON BEHALF OF  
CIVIL CONSULTANTS, INC.

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

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_

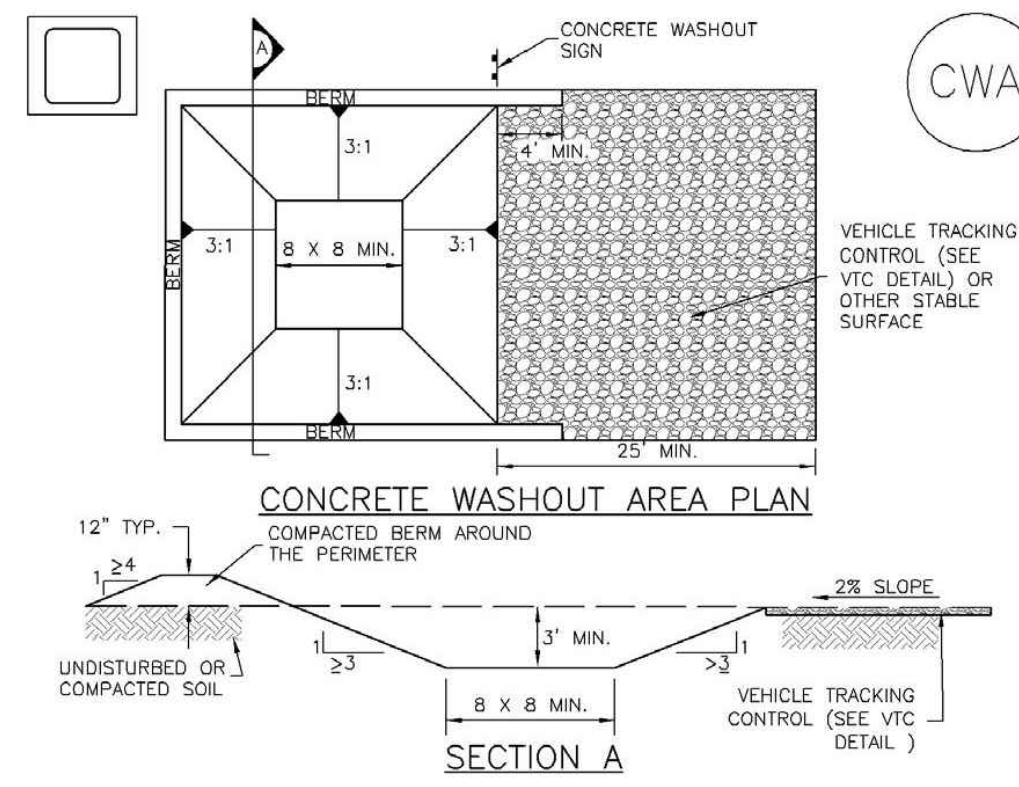
NO. \_\_\_\_\_

DATE: \_\_\_\_\_

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CAUTION

**Concrete Washout Area (CWA) MM-1**



**CWA-1. CONCRETE WASHOUT AREA**

**CWA INSTALLATION NOTES**

1. SEE PLAN VIEW FOR: -CWA INSTALLATION LOCATION.
2. 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.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. 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.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. 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.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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**Concrete Washout Area (CWA) MM-1**

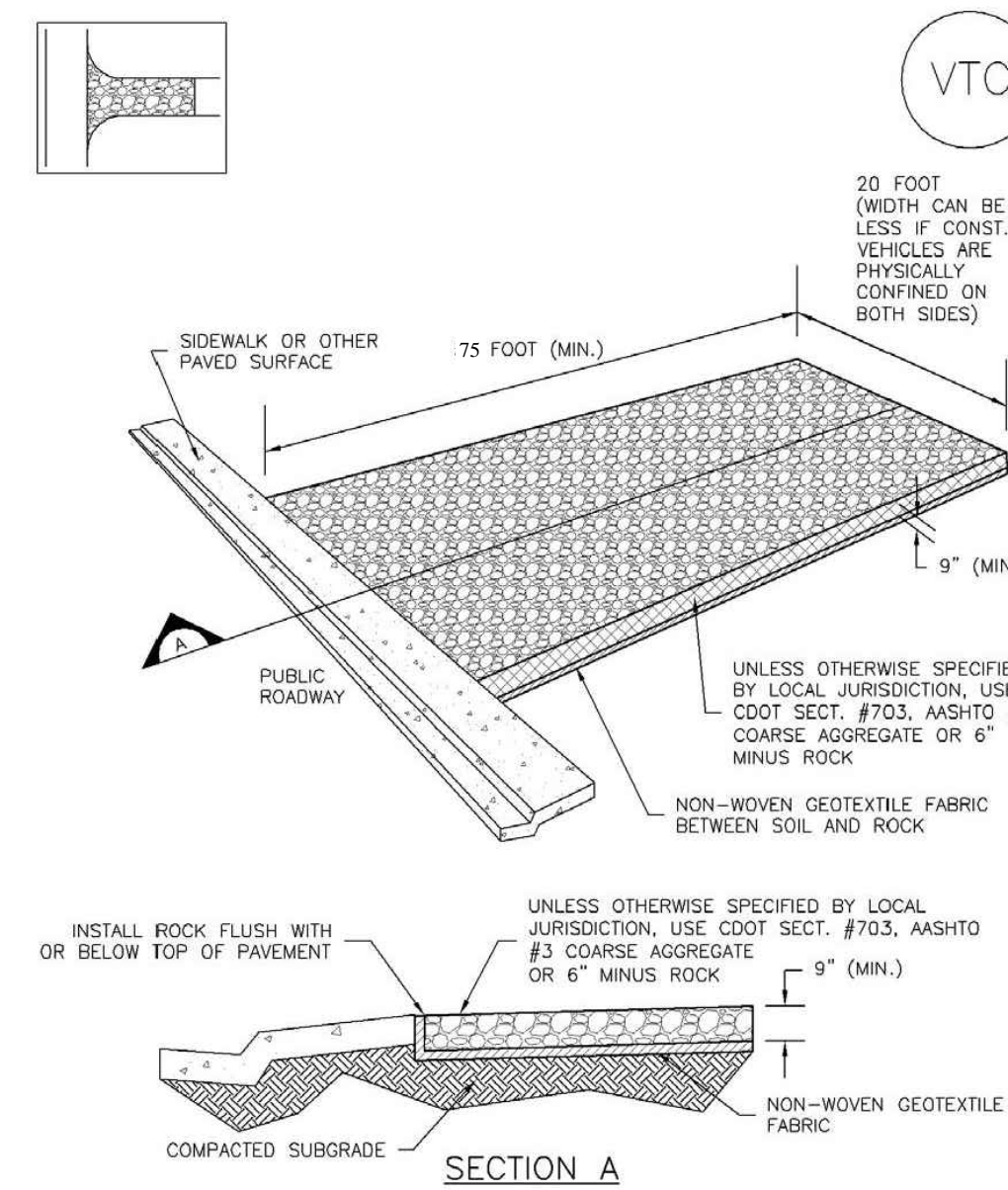
**CWA MAINTENANCE NOTES**

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. 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'.
5. 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.
6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
7. 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 UDPCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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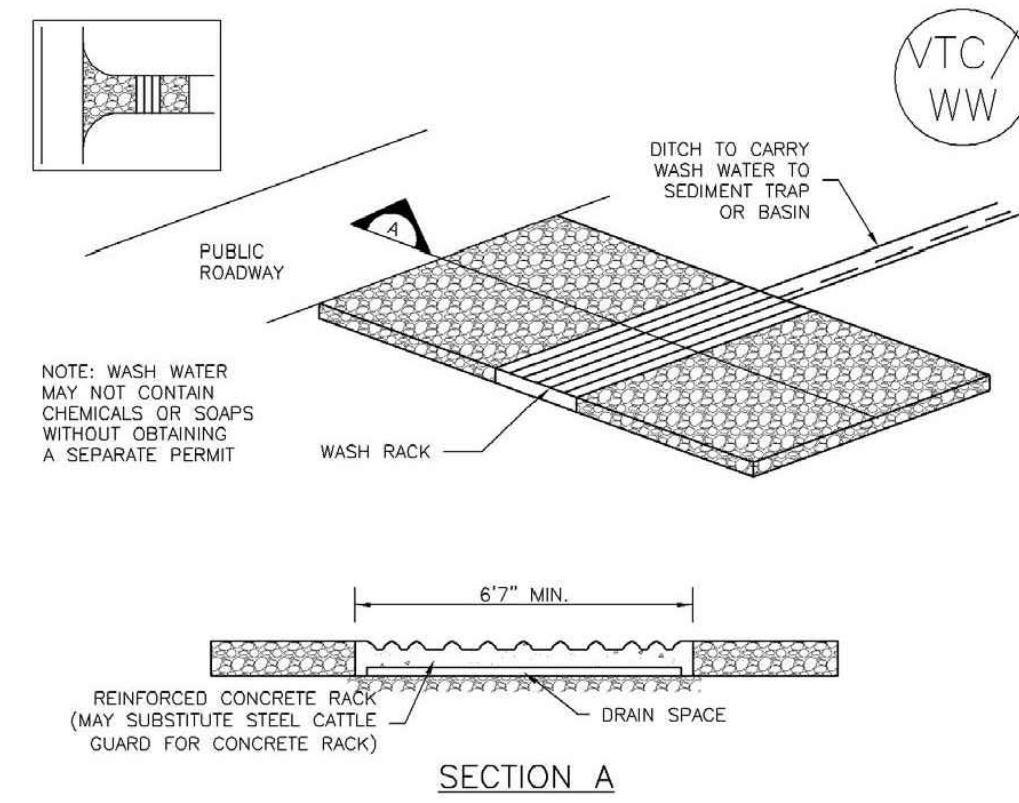
**Vehicle Tracking Control (VTC) SM-4**



**VTC-1. AGGREGATE VEHICLE TRACKING CONTROL**

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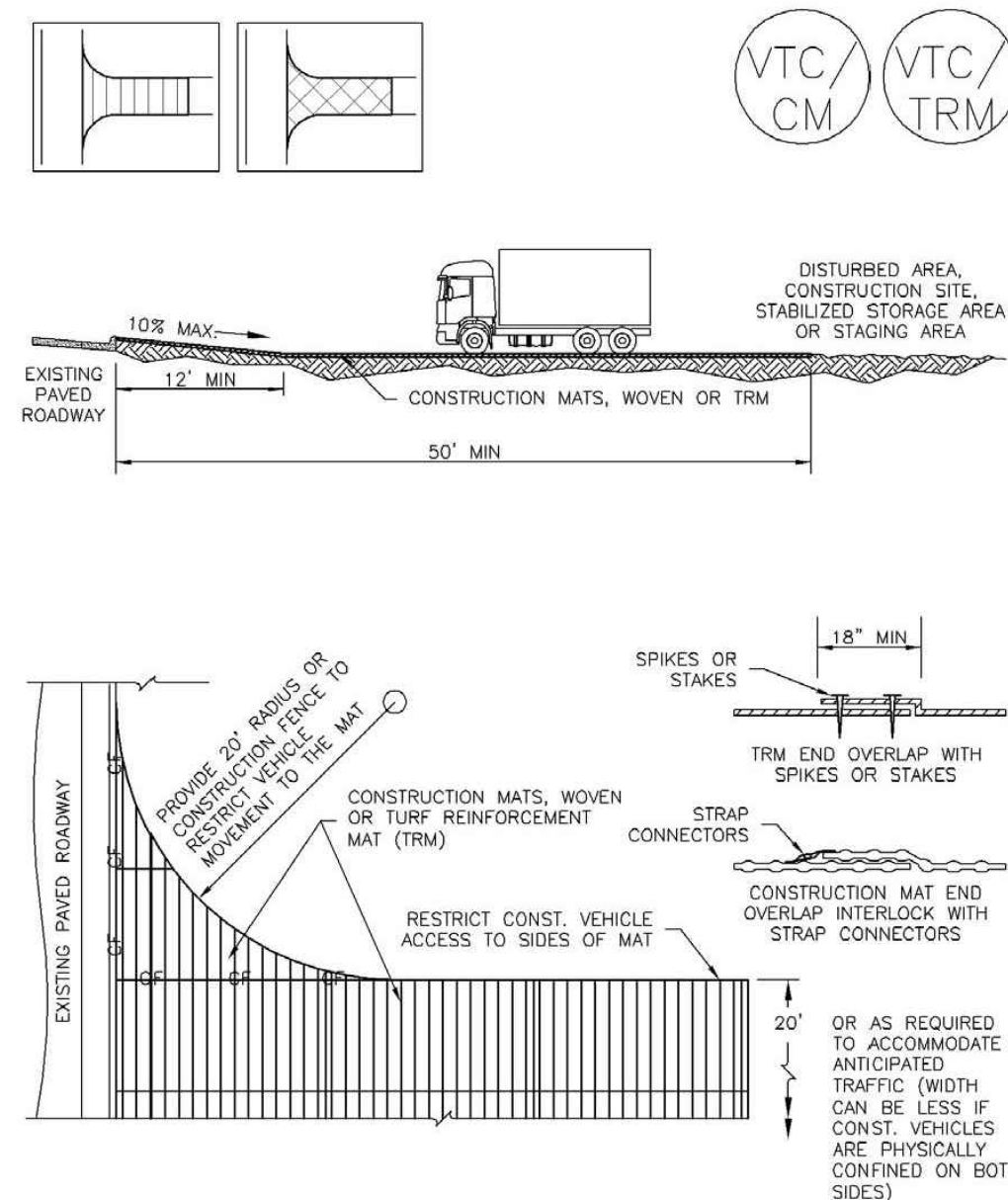
**SM-4 Vehicle Tracking Control (VTC)**



**VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK**

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**SM-4 Vehicle Tracking Control (VTC)**



**VTC-3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)**

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**SM-4 Vehicle Tracking Control (VTC)**

**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 TRM).
2. CONSTRUCTION MAT OR TRM 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, AASHTO #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 ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS 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 UDPCD 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 AUTOCAD)

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CROSSROADS NORTH

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 18-006 SCALE: DATE: 08/29/2023  
DESIGNED BY: DM HORIZONTAL: N/A  
DRAWN BY: GT VERTICAL: N/A  
CHECKED BY: WAS SHEET 13 OF 15 EGR12

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

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



NO.	DATE	BY	DESCRIPTION	APPROVED	DATE

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CAUTION

### AGGREGATE VEHICLE TRACKING CONTROL

**SECTION A-A'**

#### INSTALLATION NOTES

- A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHOULD BE LOCATED AT ALL POINTS WHERE VEHICLES EXIT THE CONSTRUCTION SITE TO ADJACENT ROADWAY.
- STABILIZED CONSTRUCTION ENTRANCE/EXITS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- RADIUS MUST BE ADEQUATE FOR INTENDED CONSTRUCTION VEHICLE TURNING.
- ROCK SHOULD CONSIST OF 6" MINUS ROCK.
- INSTALL CONSTRUCTION FENCE ON BOTH SIDES OF VEHICLE TRACKING CONTROL PAD WHEN NEEDED OR REQUIRED BY INSPECTOR.

#### MAINTENANCE NOTES

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- SEDIMENT TRACKED ONTO THE ADJACENT ROAD SHALL BE REMOVED DAILY BY SWEEPING OR SHOVELING, AND NEVER WASHED DOWN STORM DRAINS.
- ROUGHEN, REPLACE AND/OR ADD ROCK AS NEEDED TO MAINTAIN CONSISTENT DEPTH AND TO PREVENT SEDIMENT TRACKING ONTO ADJACENT STREET.
- PERMANENTLY STABILIZE AREA AFTER VEHICLE TRACKING CONTROL IS REMOVED.

**VEHICLE TRACKING CONTROL**

APPROVED: \_\_\_\_\_

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

### SEEDING & MULCHING

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

#### SOIL PREPARATION

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

#### SEEDING

- ALLOWABLE SEED MIXES ARE INCLUDED IN THE CITY OF COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL. ALTERNATIVE SEED MIXES ARE ACCEPTABLE IF INCLUDED IN AN APPROVED LANDSCAPING PLAN.
- SEED SHOULD BE DRILL-SEEDED WHENEVER POSSIBLE.
- SEED DEPTH MUST BE ½ TO ¾ INCHES WHEN DRILL-SEEDED IS USED.
- BROADCAST SEEDING OR HYDRO-SEEDED WITH TACKIFIER MAY BE SUBSTITUTED ON SLOPES STEEPER THAN 3:1 OR ON OTHER AREAS NOT PRACTICAL TO DRILL SEED.
- SEEDING RATES MUST BE DOUBLED FOR BROADCAST SEEDING OR INCREASED BY 50% IF USING A BRILLION DRILL OR HYDRO-SEEDED.
- BROADCAST SEEDING MUST BE LIGHTLY HAND-RAKED INTO THE SOIL.

#### MULCHING

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

**SEEDING & MULCHING**

APPROVED: \_\_\_\_\_

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

#### Chapter 5 Native Vegetation Requirements and Guidelines

**Table 5-1. El Paso County Conservation District All-Purpose Mix for Upland, Transition and Permanent Control Measure Areas**

Common Name	Scientific Name	Growth Season / Form	% of Mix	Pounds PLS		
				Irrigated broadcast Irrigated hydroseeded	Non-irrigated broadcast Non-irrigated hydroseeded Irrigated drilled	Non-irrigated drilled
Bluestem, big	<i>Andropogon gerardii</i>	Warm, sod	20	4.4	2.2	1.1
Gramma, blue	<i>Bouteloua gracilis</i>	Warm, bunch	10	0.5	0.25	0.13
Green needlegrass <sup>2</sup>	<i>Nassella viridula</i>	Cool, bunch	10	2	1	0.5
Wheatgrass, western <sup>2</sup>	<i>Pascopyrum smithii</i>	Cool, sod	20	6.4	3.2	1.6
Gramma, sideoats	<i>Bouteloua curtipendula</i>	Warm, bunch	10	2	1	0.5
Switchgrass <sup>2</sup>	<i>Panicum virgatum</i>	Warm, bunch/sod	10	0.8	0.4	0.2
Prairie sandreed	<i>Calamovilfa longifolia</i>	Warm, sod	10	1.2	0.6	0.3
Yellow indiangrass <sup>2</sup>	<i>Sorghastrum nutans</i>	Warm, sod	10	2	1	0.5
Seed rate (lbs PLS/acre)				19.3	9.7	4.8

<sup>1</sup>For portions of facilities located near or on the bottom or where wet soil conditions occur. Planting of potted nursery stock wetland plants 2-foot on-center is recommended for sites with wetland hydrology.

<sup>2</sup>Species that will do well in the bottom of pond areas.

City of Colorado Springs  
Stormwater Enterprise

Stormwater Construction Manual  
December 2020

#### Chapter 5 Native Vegetation Requirements and Guidelines

**Table 5-2. El Paso County All-Purpose Low Grow Mix for Upland and Transition Areas**

Common Name	Scientific Name	Growth Season / Form	% of Mix	Pounds PLS		
				Irrigated broadcast Irrigated hydroseeded	Non-irrigated broadcast Non-irrigated hydroseeded Irrigated drilled	Non-irrigated drilled
Buffalograss	<i>Buchloe dactyloides</i>	Warm, sod	25	9.6	4.8	2.4
Gramma, blue	<i>Bouteloua gracilis</i>	Warm, bunch	20	10.8	5.4	2.7
Gramma, sideoats	<i>Bouteloua curtipendula</i>	Warm, bunch	29	5.6	2.8	1.4
Green needlegrass	<i>Nassella viridula</i>	Cool, bunch	5	3.2	1.6	0.8
Wheatgrass, western	<i>Pascopyrum smithii</i>	Cool, sod	20	12	6	3
Dropseed, sand	<i>Sporobolus cryptandrus</i>	Warm, bunch	1	0.8	0.4	0.2
Seed rate (lbs PLS/acre)				42	21	10.3

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December 2020

#### TABLE ECB-1, EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

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

**EROSION CONTROL BLANKET**

APPROVED: \_\_\_\_\_

ISSUED: 10/7/19 REVISED: 8/19/2020 DRAWING NO. 900-ECB-2

### EROSION CONTROL BLANKET

**PERIMETER ANCHOR TRENCH**

**JOINT ANCHOR TRENCH**

**INTERMEDIATE CHECK SLOT**

**OVERLAPPING JOINT**

**STAPLE CHECK**

TO BE USED ON SLOPE EVERY 15 FEET

**EROSION CONTROL BLANKET**

APPROVED: \_\_\_\_\_

ISSUED: 10/7/19 REVISED: 8/19/2020 DRAWING NO. 900-ECB-1

### SEDIMENT CONTROL LOG

#### SECTION A-A'

#### SEDIMENT CONTROL LOG JOINTS

#### INSTALLATION NOTES

- ALL SEDIMENT CONTROL LOGS MUST BE EMBEDDED TO ½ OF THE HEIGHT OF THE LOG.
- LARGER DIAMETER SEDIMENT CONTROL LOGS NEED TO BE EMBEDDED DEEPER.
- PLACE SEDIMENT CONTROL LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.
- SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE FROM ANY NOXIOUS WEED SEEDS OF DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
- IF USING AS SLOPE PROTECTION, INSTALL SEDIMENT CONTROL LOGS ALONG THE CONTOUR.

#### MAINTENANCE NOTES

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
- PERMANENTLY STABILIZE AREA AFTER SEDIMENT CONTROL LOGS HAVE BEEN REMOVED.

**SEDIMENT CONTROL LOGS**

APPROVED: \_\_\_\_\_

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

#### Table 17.1 Standard CDOT gradations for rock riprap.

Pay Item	Stone Size d50 <sup>1</sup> (Inches)	Percent of Material Smaller Than Typical Stone <sup>2</sup>	Typical Stone Dimensions <sup>3</sup> (Inches)	Typical Stone Weight <sup>4</sup> (Pounds)
Riprap 6		70-100	12	85
		50-70	9	35
		35-50	6	10
Riprap 9		70-100	15	160
		50-70	12	85
		35-50	9	35
Riprap 12		70-100	21	440
		50-70	18	275
		35-50	12	85
Riprap 18		100	30	1280
		50-70	24	650
		35-50	18	275
Riprap 24		100	42	3500
		50-70	33	1700
		35-50	24	650

<sup>1</sup>d50 = nominal stone size  
<sup>2</sup>based on typical rock mass  
<sup>3</sup>equivalent spherical diameter  
<sup>4</sup>based on a specific gravity = 2.5

CROSSROADS NORTH

GRADING & EROSION CONTROL DETAILS

PROJECT NO. 18-006

DATE: 08/29/2023

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

DESIGNED BY: DM

DRAWN BY: GT

CHECKED BY: VAS

SHEET 14 OF 15

EGR13

210 N. WAHATCH AVE., STE 305  
COLORADO SPRINGS, CO 80903  
PHONE: 719.555.5465

REVIEWS:

NO.	DATE	BY	DESCRIPTION

APPROVED BY:

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**CAUTION**

**CULVERT INLET PROTECTION PLAN**

**SECTION A-A'**

**SECTION B-B'**

**INSTALLATION NOTES**

- SEE ROCK SOCK DETAIL.

**MAINTENANCE NOTES**

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- ACCUMULATED SEDIMENT UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 HEIGHT OF THE ROCK SOCK.
- CULVERT INLET PROTECTION SHALL REMAIN UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.

**CIP**

**STORMWATER ENTERPRISE**

**CULVERT INLET PROTECTION**

APPROVED: [Signature]

ISSUED: 10/7/19 SHEET NUMBER: [Blank] REVISED: 8/19/2020 DRAWING NO. 900-IP-1

**ROCK SOCK SUMP INLET PROTECTION PLAN**

**SECTION A-A'**

**INSTALLATION NOTES**

- SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
- SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS IN PEROUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.
- CONTROL MEASURES MUST BE WRAPPED AROUND INLET AS TIGHTLY AS POSSIBLE.

**MAINTENANCE NOTES**

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES 1/2 OF THE DESIGN DEPTH OF THE INLET BARRIER.
- ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
- PERMANENTLY STABILIZE AREA AROUND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

**IP-2**

**STORMWATER ENTERPRISE**

**SUMP INLET PROTECTION**

APPROVED: [Signature]

ISSUED: 10/7/19 SHEET NUMBER: [Blank] REVISED: 8/19/2020 DRAWING NO. 900-IP-2

**SILT FENCE SUMP INLET PROTECTION PLAN**

**SECTION A-A'**

**INSTALLATION NOTES**

- SEE SILT FENCE DETAIL FOR INSTALLATION REQUIREMENTS.
- POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF THREE FEET.
- SILT FENCE FABRIC SHOULD HAVE A FLOW RATE IN EXCESS OF 30 GALLONS PER MINUTE PER SQUARE YARD SO AS TO ALLOW SOME WATER FLOW AND NOT DAM THE WATER. STANDARD, LOW-FLOW SILT FENCE FABRIC WILL NOT BE ALLOWED.

**MAINTENANCE NOTES**

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES 1/2 OF THE DESIGN DEPTH OF THE INLET BARRIER.
- SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
- PERMANENTLY STABILIZE AREA AROUND INLET AFTER SILT FENCE IS REMOVED WHEN REMOVAL IS APPROPRIATE.

**IP-3**

**STORMWATER ENTERPRISE**

**SUMP INLET PROTECTION**

APPROVED: [Signature]

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**STRAW BALE SUMP INLET PROTECTION PLAN**

**SECTION A-A'**

**INSTALLATION NOTES**

- BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH THE ENDS OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
- STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
- STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
- CORNER BALE DIMENSIONS SHALL BE APPROXIMATELY 36" X 18" X 18".
- A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PACED SO THAT THE BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S).
- TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24" (MIN.). WOODEN STAKES SHALL BE DRIVEN A MINIMUM OF 6" INTO THE GROUND.

**MAINTENANCE NOTES**

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES 1/2 OF THE DESIGN DEPTH OF THE INLET BARRIER.
- STRAW BALES MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
- PERMANENTLY STABILIZE AREA AROUND INLET AFTER STRAW BALES ARE REMOVED WHEN REMOVAL IS APPROPRIATE.
- STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN OR DAMAGED BEYOND REPAIR.

**IP-4**

**STORMWATER ENTERPRISE**

**SUMP INLET PROTECTION**

APPROVED: [Signature]

ISSUED: 10/7/19 SHEET NUMBER: [Blank] REVISED: 8/19/2020 DRAWING NO. 900-IP-4

**SILT FENCE**

**J-HOOK INSTALLATION**

**SECTION A-A'**

**INSTALLATION NOTES**

- SILT FENCE MUST BE PLACED ON A FLAT SURFACE 2'-5' AWAY FROM TOE OF THE SLOPE TO ALLOW FOR PONDING AND DEPOSITION.
- COMPACT THE TRENCH USING A JUMPING JACK OR WHEEL ROLLING TO THE POINT THAT THE FENCE RESISTS BEING PULLED OUT OF THE GROUND BY HAND.
- SILT FENCE SHALL BE TAUT WITH NO SAGS AFTER IT HAS BEEN ANCHORED.
- FABRIC SHALL BE ATTACHED TO POSTS WITH 1" HEAVY DUTY STAPLES OR 1" NAILS. THESE SHOULD BE PLACED VERTICALLY DOWN THE POST, 3" APART.
- THE PREFERRED INSTALLATION METHOD USES A TRENCHER OR SILT FENCE INSTALLATION DEVICE.
- INSTALL SILT FENCE ALONG THE CONTOUR OF THE SLOPES OR IN A MANNER TO AVOID CREATING CONCENTRATED FLOW (SUCH AS A "J-HOOK" INSTALLATION).

**MAINTENANCE NOTES**

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES 1/2 OF THE DESIGN HEIGHT OF THE SILT FENCE.
- SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
- PERMANENTLY STABILIZE AREA AFTER SILT FENCE IS REMOVED.

**SF**

**STORMWATER ENTERPRISE**

**SILT FENCE**

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**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), (IN)
1	12 1/2	2	3/4
2	21	3	1 1/8
3	28	4	1 1/4
4	33 1/2	5	1 3/8
5	38 1/2	6	1 1/2
6	43	7	1 5/8
7	47 1/2	8	1 3/4
8	51	9	1 7/8
9	55	10	2
10	58 1/2	11	2 1/8
11	61	12	2 1/4
12	64	13	2 1/2
13	67 1/2	14	2 3/8
14	70 1/2	15	2 1/2
15	73 1/2	16	2 3/4

**INSTALLATION NOTES**

- FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
- 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 WEIGHT PASSING THE No. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-698.
- PIPE SCHEDULE 40 OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES. DESIGN CALCULATIONS MUST BE APPROVED PRIOR TO IMPLEMENTATION.

**MAINTENANCE NOTES**

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN CONTROL MEASURE EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW SPILLWAY CREST).
- SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED.
- PERMANENTLY STABILIZE AREA AFTER SEDIMENT BASIN REMOVAL.

**TSB**

**STORMWATER ENTERPRISE**

**TEMPORARY SEDIMENT BASIN**

APPROVED: [Signature]

ISSUED: 10/7/19 SHEET NUMBER: [Blank] REVISED: 8/19/2020 DRAWING NO. 900-TSB-2

**SEDIMENT BASIN PLAN**

**SECTION A-A'**

**SECTION B-B'**

**INSTALLATION NOTES**

- INLETS TO SEDIMENT BASIN SHALL ENTER AT FURTHEST DISTANCE TO OUTLET AND SHALL CONSIST OF A TEMPORARY SLOPE DRAIN.
- RISER PIPE SHALL BE 1" TO 2" CRUSHED ROCK.
- 6" PVC SHALL BE USED FOR RISER PIPE.
- SINGLE COLUMN OF 5 HOLES SHALL BE USED.
- SCHEDULE 40 PVC OF GREATER THAN 1 1/2" SHALL BE USED EXCEPT WHERE THE HOLES EXCEED 1" DIAMETER, THEN UP TO TWO COLUMNS OF SAME SIZED HOLES MAY BE USED.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-698.
- PIPE SCHEDULE 40 OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES. DESIGN CALCULATIONS MUST BE APPROVED PRIOR TO IMPLEMENTATION.

**MAINTENANCE NOTES**

- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN CONTROL MEASURE EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E. TWO FEET BELOW SPILLWAY CREST).
- SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED.
- PERMANENTLY STABILIZE AREA AFTER SEDIMENT BASIN REMOVAL.

**TSB**

**STORMWATER ENTERPRISE**

**TEMPORARY SEDIMENT BASIN**

APPROVED: [Signature]

ISSUED: 10/7/19 SHEET NUMBER: [Blank] REVISED: 8/19/2020 DRAWING NO. 900-TSB-1

**STOCKPILE PROTECTION PLAN**

**STOCKPILE PROTECTION ELEVATION**

**INSTALLATION NOTES**

- INSTALL PERIMETER CONTROL AROUND STOCKPILE ON DOWNGRADIENT SIDE.
- FOR STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS INCLUDING PERIMETER CONTROL ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

**MAINTENANCE NOTES**

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

**SP**

**STORMWATER ENTERPRISE**

**STOCKPILE PROTECTION**

APPROVED: [Signature]

ISSUED: 10/7/19 SHEET NUMBER: [Blank] REVISED: 8/19/2020 DRAWING NO. 900-SP

**CROSSROADS NORTH**

**GRADING & EROSION CONTROL DETAILS**

PROJECT NO. 18-006 DATE: 08/29/2023

DESIGNED BY: DM HORIZONTAL: N/A

DRAWN BY: GT VERTICAL: N/A

CHECKED BY: VAS

212 N. WAHATCH AVE., STE. 305  
COLORADO SPRINGS, CO 80903  
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**CIVIL CONSULTANTS, INC.**

FOR AND ON BEHALF OF MRS. CIVIL CONSULTANTS, INC.

REGISTERED PROFESSIONAL ENGINEER  
NO. 57160  
09-14-23

REVISIONS:

NO.	DATE	BY	DESCRIPTION

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