



Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

HAY CREEK VALLEY

EL PASO COUNTY, COLORADO

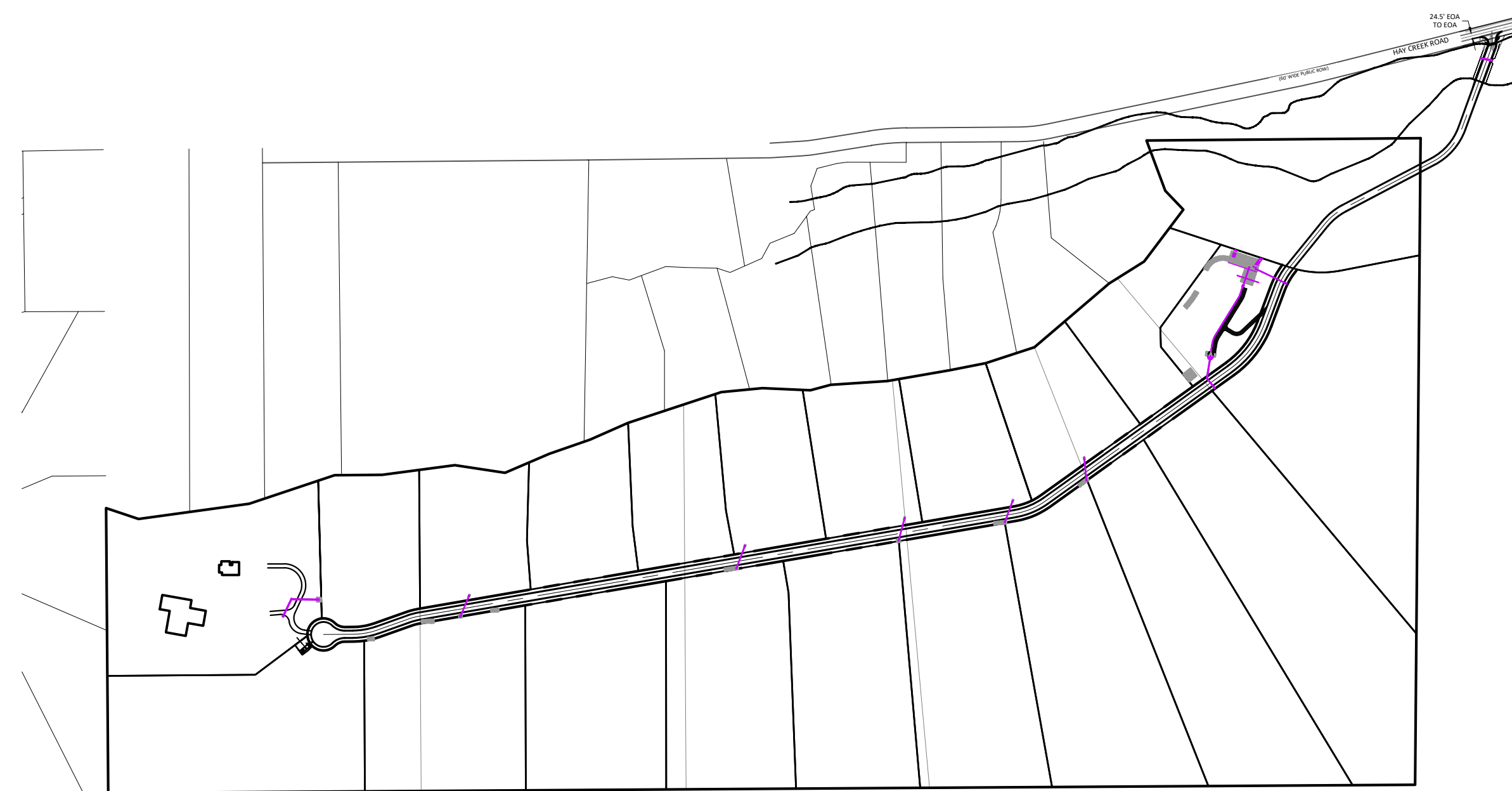
FINAL GRADING & EROSION CONTROL PLANS

JANUARY 2024

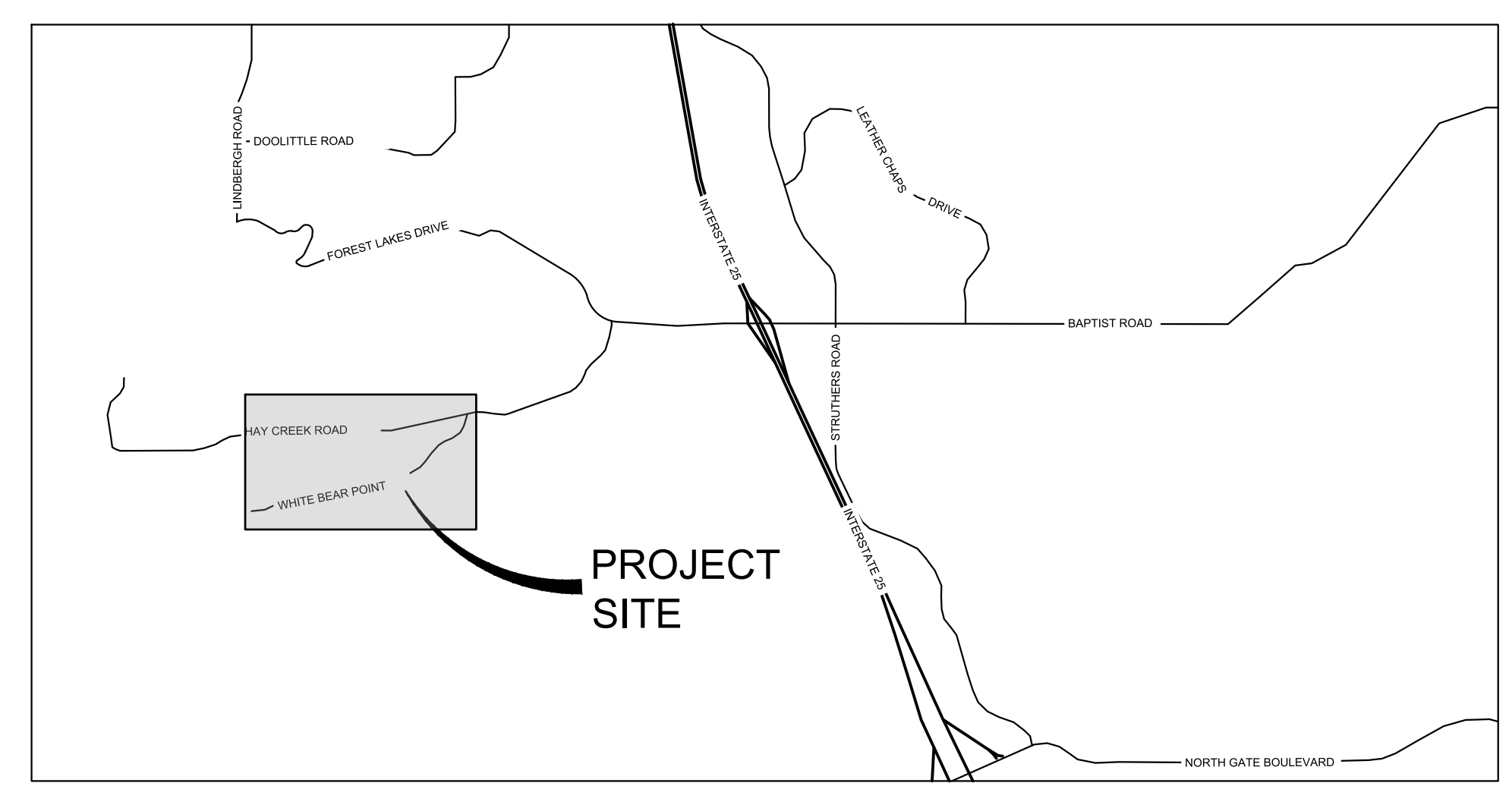
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GEC01-GEC06	GRADING & EROSION CONTROL PLAN	04-09
ECN01-ECN03	DETAILS	10-12

AGENCY CONTACT INFO

OWNER/DEVELOPER	VIEW HOMES, INC. 555 MIDDLE CREEK PARKWAY, SUITE 500 COLORADO SPRINGS, CO 80921 TIM BUSCHAR, (719)-382-9433
CIVIL ENGINEER	MATRIX DESIGN GROUP 2435 RESEARCH PARKWAY, SUITE 300 COLORADO SPRINGS, CO 80920 (719)-575-0100
ELECTRIC	MOUNTAIN VIEW ELECTRIC ASSOCIATION 15706 JACKSON CREEK PARKWAY, SUITE 100 MONUMENT, CO 80132 GINA PERRY, (719) 494-2636
GAS	BLACK HILLS ENERGY 105 S VICTORIA AVENUE PUEBLO, CO 81003 (800) 303-0752
ENGINEERING	EL PASO COUNTY PUBLIC WORKS DEPARTMENT 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 (719) 520-6460
TRAFFIC	EL PASO COUNTY PUBLIC WORKS DEPARTMENT 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 (719) 520-6460
DRAINAGE	EL PASO COUNTY PUBLIC WORKS DEPARTMENT 3275 AKERS DRIVE COLORADO SPRINGS, CO 80922 (719) 520-6460
FIRE DEPARTMENT	MONUMENT FIRE DISTRICT 16055 OLD FOREST POINT, SUITE 102 MONUMENT, CO 80132 (719)-484-0911



SITE MAP
1" = 500'



VICINITY MAP
N.T.S.

OWNER/DEVELOPER'S STATEMENT:

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

NAME _____ DATE _____

TIM BUSCHAR, (719)-382-9433
VIEW HOMES, INC.
555 MIDDLE CREEK PARKWAY, SUITE 500
COLORADO SPRINGS, CO 80921

DESIGN 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.

BY: _____ DATE: _____

JEFFREY A. ODOR, PE #39265
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC.

EL PASO COUNTY:

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

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

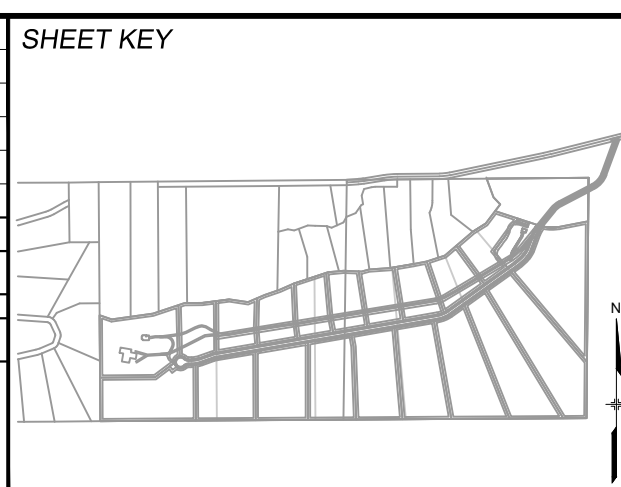
IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

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

Provide stamp and signatures (typical comment)

PCD FILE #: SF2324

REFERENCE DRAWINGS	No.	DATE	DESCRIPTION	BY
X-TITLE-CD				
X-886-PR-SITE				
FEMA_X3				
X-886-066-EX-MAP-1				
164022-01 Hay Creek Road BNDY				
X-886-ALTA-SURVEY				
Hay Creek BFEs				
COMPUTER FILE MANAGEMENT				
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\TS01.dwg				
CTB FILE: Matrix.ctb				
PLOT DATE: 1/26/2024 3:01 PM				
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.				



BENCHMARK
PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.

BASIS OF BEARING
THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PLS25955 C1/4 S22 T16S, R65W 1999, "AND THE WESTERLY END BY A2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T15S, R65W 2000, "BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.

PREPARED BY:

Excellence by Design

SEAL
PRELIMINARY
THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE

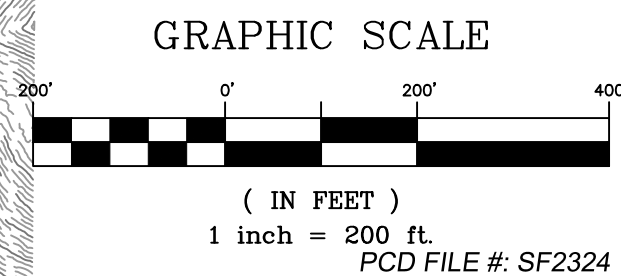
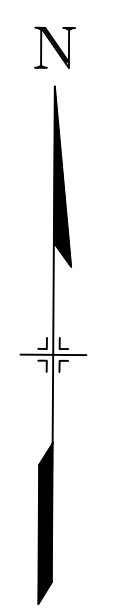
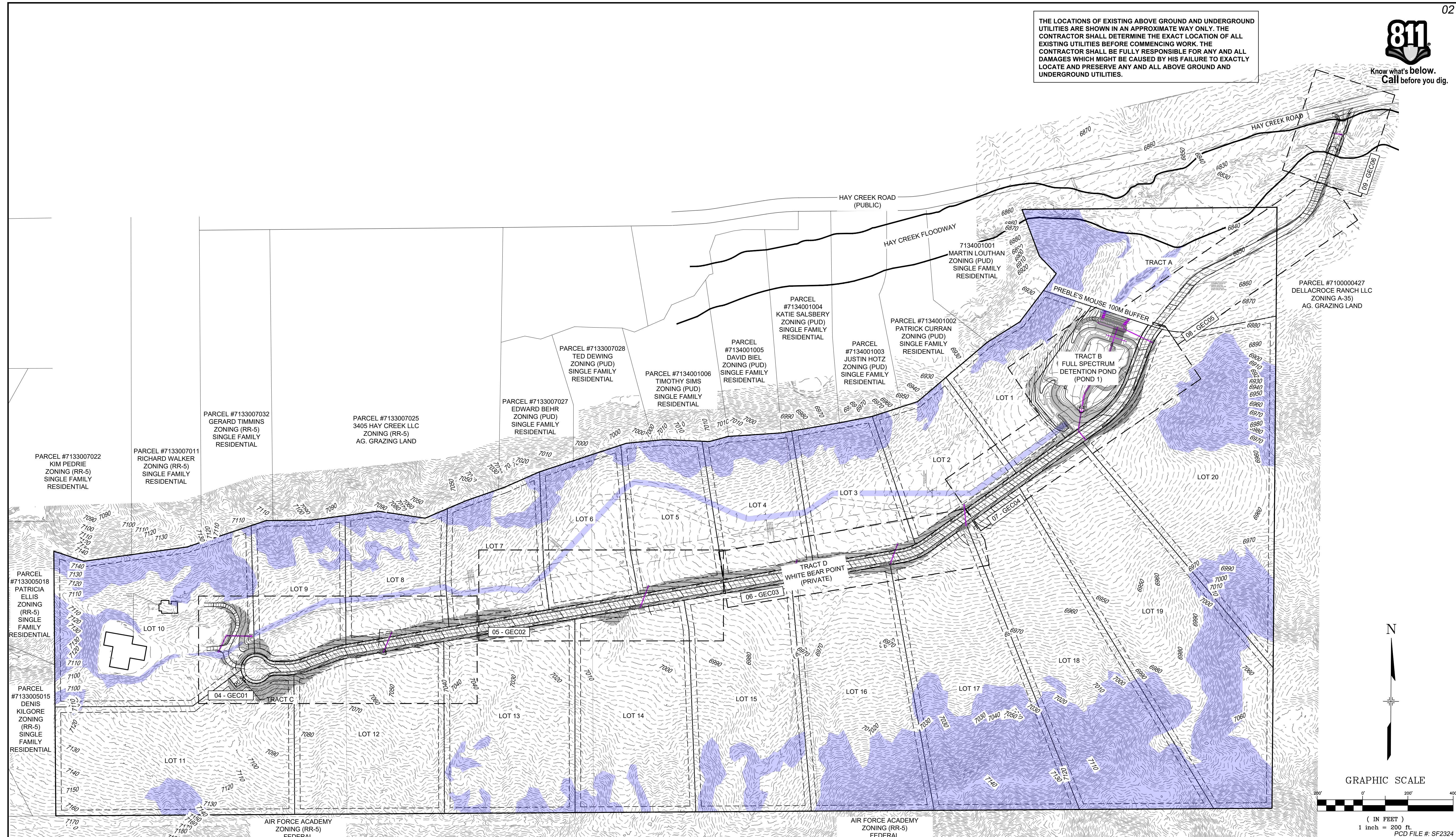
FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 22.886.076

HAY CREEK VALLEY				
EL PASO COUNTY, COLORADO				
FINAL GRADING & EROSION CONTROL PLANS				
TITLE SHEET				
DESIGNED BY: CVW	SCALE	DATE ISSUED: JANUARY 2024	DRAWING No.	
DRAWN BY: CVW	HORIZ. N/A		TS01	
CHECKED BY: JAO	VERT. N/A	SHEET 01 OF 12		

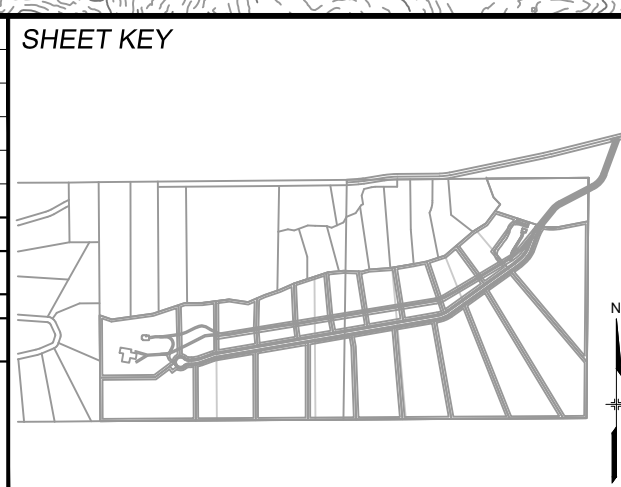


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X-TITLE-CD X-886-PR-SITE FEHA_XS X-886-066-EX-MAP-1 164022-01 Hay Creek Road BMDY X-886-ALTA-SURVEY Hay Creek BFEs				
COMPUTER FILE MANAGEMENT				
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\TS01.dwg				
CTB FILE: Matrix.ctb				
PLOT DATE: 1/26/2024 3:02 PM				
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.				



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FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 22.886.076

HAY CREEK VALLEY
EL PASO COUNTY, COLORADO
FINAL GRADING & EROSION CONTROL PLANS

KEY MAP

DESIGNED BY: CVW	SCALE: 1"=200'	DATE ISSUED: JANUARY 2024	DRAWING No. GN01
DRAWN BY: CVW	HORIZ. N/A	SHEET 02 OF 12	
CHECKED BY: JAO	VERT. N/A		



Know what's below. Call before you dig.

GENERAL CONSTRUCTION NOTES:

- 1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) 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

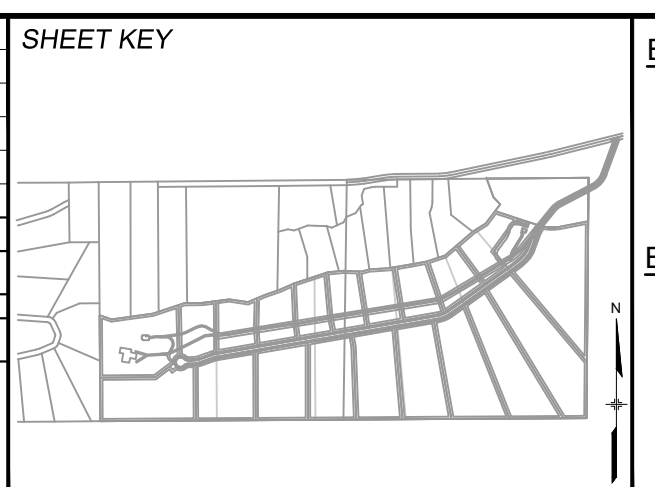
- DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED 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.

ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY CTL THOMPSON, DATED SEPTEMBER 19, 2023, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:
COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT
NRCs SOIL SURVEY FOR EL PASO COUNTY
SOIL ID NO. SOIL TYPE HYDROLOGIC CLASSIFICATION
38 JARRE-TECOLOTE COMPLEX (8%-65% SLOPES) B
71 PRING COARSE SANDY LOAM (3%-8% SLOPES) B
93 TOMAH-CROWFOOT COMPLEX (8%-15% SLOPES) B
TIMING
ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:
WINTER 2024 THRU FALL 2024
EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:
FALL 2024
AREAS
TOTAL DISTURBED AREA: 17.28 ACRES
RECEIVING WATERS
NAME OF RECEIVING WATERS
HAY CREEK (ULTIMATE)
ENGINEER'S NOTES:
THE EXISTING VEGETATION CONSISTS OF MODERATELY DENSE NATIVE GRASSES AND SHRUBS. BASED ON SITE VISITS AND A REVIEW OF AERIAL PHOTOGRAPHY, THE VEGETATIVE COVER AT HAY CREEK VALLEY IS APPROXIMATELY 80%.
ABBREVIATIONS
BOW BOTTOM OF WALL PL PROPERTY LINE
EL ELEVATION PSI POUNDS PER SQUARE INCH
EX EXISTING RCP REINFORCED CONCRETE PIPE
HORIZ HORIZONTAL SHLDR SHOULDER
INV INVERT TOW TOP OF WALL
MIN MINIMUM TYP TYPICAL
N,S,E,W NORTH,SOUTH,EAST,WEST
TYPICAL ROADWAY CROSS SECTIONS
PRIVATE RURAL LOCAL ROADWAY
PRIVATE RURAL LOCAL ROADWAY 2

NPDES NOTES:

- 1. THE CONTRACTOR SHALL REMOVE ALL SEDIMENT, MUD, AND CONSTRUCTION DEBRIS THAT MAY ACCUMULATE IN THE FLOWLINES AND PUBLIC RIGHTS OF WAYS AS A RESULT OF THIS CONSTRUCTION PROJECT. SAID REMOVAL SHALL BE CONDUCTED IN A TIMELY MANNER, OR AS DIRECTED BY THE ENGINEER.
2. THIS CONSTRUCTION ACTIVITIES STORMWATER MANAGEMENT PLAN (SWMP) HAS BEEN SUBMITTED AS PART OF AN APPLICATION FOR AN EROSION AND SEDIMENT CONTROL PERMIT FILED WITH EL PASO COUNTY AND AS INCLUSION BY REFERENCE TO THE CDPHE CONSTRUCTION ACTIVITY PERMIT. THE SWMP IS A LIVING DOCUMENT AND ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED OF THE CONTRACTOR DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS PLAN SHALL BE THE OBLIGATION OF THE LAND OWNER AND/OR HIS SUCCESSORS OR HEIRS; UNTIL SUCH TIME AS THE PLAN IS PROPERLY COMPLETED, MODIFIED, OR VOIDED.
3. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, ETC., RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
4. THE CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION, EXCAVATION, TRENCHING, BORING, GRADING OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT.
5. A LAYER OF SUITABLE MULCH SHALL BE APPLIED TO ALL DISTURBED PORTIONS OF THE SITE WITHIN 21 DAYS OF THE COMPLETION OF GRADING. SAID MULCH SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE AND SHALL BE TACKED OR FASTENED BY AN APPROVED METHOD SUITABLE FOR THE TYPE OF MULCH USED. ROUGH-CUT STREETS SHALL BE MULCHED UNLESS A LAYER OF AGGREGATE ROAD BASE OR ASPHALT PAVING IS TO BE APPLIED TO SAID ROUGH-CUT STREETS WITHIN THE 21 DAY PERIOD AFTER COMPLETION OF OVERLOT GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THEN SIXTY (60) DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.
6. THE CONTRACTOR SHALL LOCATE, INSTALL, AND MAINTAIN ALL EROSION CONTROL AND WATER QUALITY "BEST MANAGEMENT PRACTICES" AS INDICATED IN THE APPROVED CONSTRUCTION ACTIVITIES STORMWATER MANAGEMENT PLAN. BMP'S SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT.
7. AT A MINIMUM, THE CONTRACTOR SHALL INSPECT, AND KEEP A LOG OF, ALL BMP'S WEEKLY AND AFTER SIGNIFICANT PRECIPITATION EVENTS. ALL NECESSARY MAINTENANCE AND REPAIR SHALL BE COMPLETED IN A TIMELY MANNER. ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED FROM A BMP WHEN THE SEDIMENT LEVEL REACHES ONE-HALF THE HEIGHT OF THE BMP, OR, AT ANY TIME THAT SEDIMENT OR DEBRIS ADVERSELY IMPACTS THE FUNCTIONING OF THE BMP.
8. THE CONTRACTOR SHALL PROPERLY COVER ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT WITHIN PUBLIC RIGHTS OF WAY.
9. THE USE OF REBAR, STEEL STAKES, OR STEEL FENCE POSTS TO STAKE DOWN STRAW OR HAY BALES; OR TO SUPPORT SILT FENCING USED AS AN EROSION CONTROL MEASURE; IS PROHIBITED. THE USE OF OSHA APPROVED COLORED WARNING CAPS ON REBAR OR FENCE POSTS USED WITH EROSION CONTROL MEASURES IS NOT ACCEPTABLE.
10. SOILS THAT WILL BE STOCKPILED FOR MORE THAN 30 DAYS SHALL BE MULCHED AND SEEDED WITH A TEMPORARY OR PERMANENT GRASS COVER WITHIN 21 DAYS OF STOCKPILE CONSTRUCTION. IF STOCKPILES ARE LOCATED WITHIN 100 FEET OF A DRAINAGEWAY, ADDITIONAL SEDIMENT CONTROLS SUCH AS TEMPORARY DIKES OR SILT FENCE SHALL BE REQUIRED.
11. MODIFICATION OF AN ACTIVE EROSION AND SEDIMENT CONTROL PERMIT BY THE CONTRACTOR SHALL REQUIRE TIMELY NOTIFICATION OF AND APPROVAL BY EL PASO COUNTY. TERMINATION OF AN ACTIVE EROSION AND SEDIMENT CONTROL PERMIT UPON COMPLETION OF THE PROJECT REQUIRES NOTIFICATION OF AND APPROVAL BY EL PASO COUNTY.
12. UNLESS CONFINED IN A PREDEFINED, BERMED CONTAINMENT AREA, THE CLEANING OF CONCRETE TRUCK DELIVERY CHUTES IS PROHIBITED AT THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CEMENT TO THE STORM SEWER SYSTEM IS PROHIBITED.
13. THE CONTRACTOR SHALL PROTECT ALL STORM SEWER FACILITIES ADJACENT TO ANY LOCATION WHERE PAVEMENT CUTTING OPERATIONS INVOLVING WHEEL CUTTING, SAW CUTTING OR ABRASIVE WATER JET CUTTING ARE TO TAKE PLACE. THE DISCHARGE OF ANY WATER CONTAMINATED BY WASTE PRODUCTS FROM CUTTING OPERATIONS TO THE STORM SEWER SYSTEM IS PROHIBITED. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL WASTE PRODUCTS GENERATED BY SAID CUTTING OPERATIONS ON A DAILY BASIS.
14. LOCATION OF STAGING, STORAGE, EQUIPMENT MAINTENANCE, TEMPORARY DISPOSAL, VEHICLE TRACKING CONTROL AND CONCRETE TRUCK WASHOUT AREAS WILL BE DETERMINED IN THE FIELD AT THE START OF CONSTRUCTION ACTIVITY AND DELINEATED ON THIS PLAN.

REFERENCE DRAWINGS table with columns No., DATE, DESCRIPTION, BY. Includes COMPUTER FILE MANAGEMENT section with file names and dates.



BENCHMARK
PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A No. 5 REBAR HAVING AN ELEVATION OF 5769.92.
BASIS OF BEARING
THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PL252955 C1/4 S22 T16S, R65W 1999, "AND THE WESTERLY END BY A2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T16S, R65W 2000, "BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.

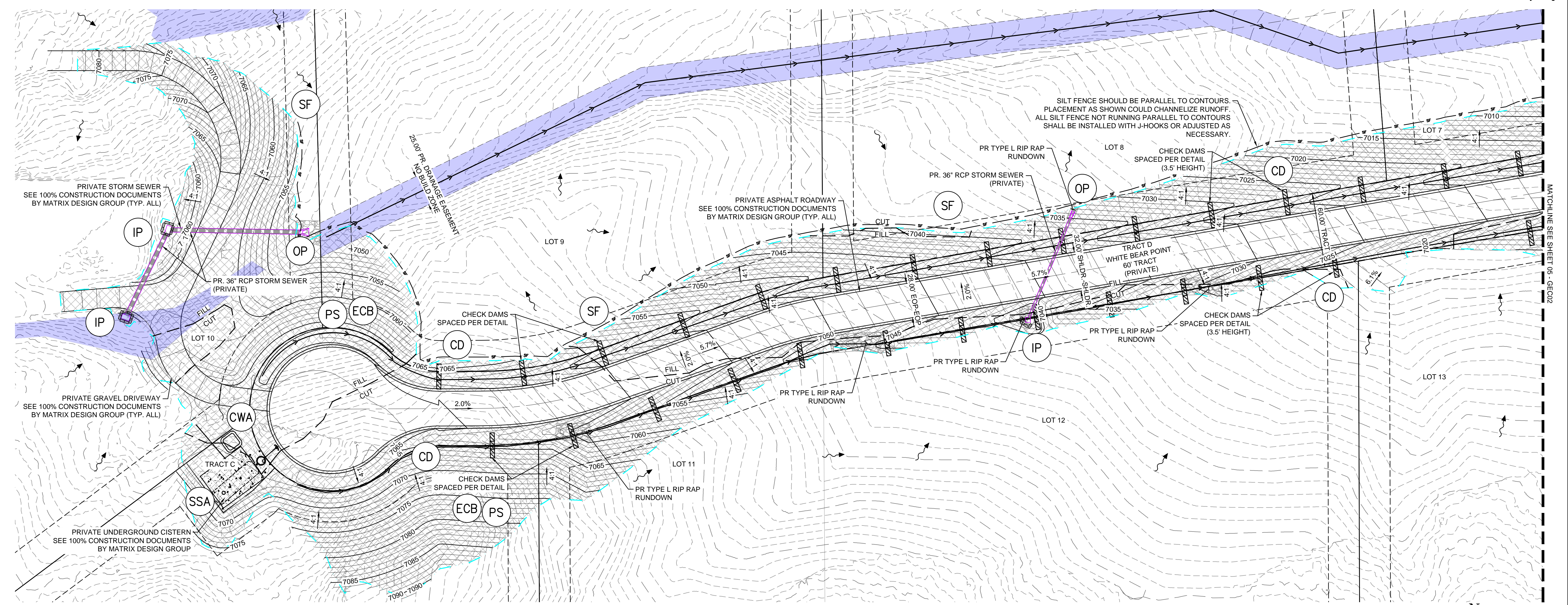


SEAL
PRELIMINARY
THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 22.886.076

HAY CREEK VALLEY
EL PASO COUNTY, COLORADO
FINAL GRADING & EROSION CONTROL PLANS
GENERAL NOTES
DESIGNED BY: CVW SCALE: DATE ISSUED: JANUARY 2024 DRAWING No. GN02
DRAWN BY: CVW HORIZ: N/A VERT: N/A SHEET: 03 OF 12
CHECKED BY: JAO



THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

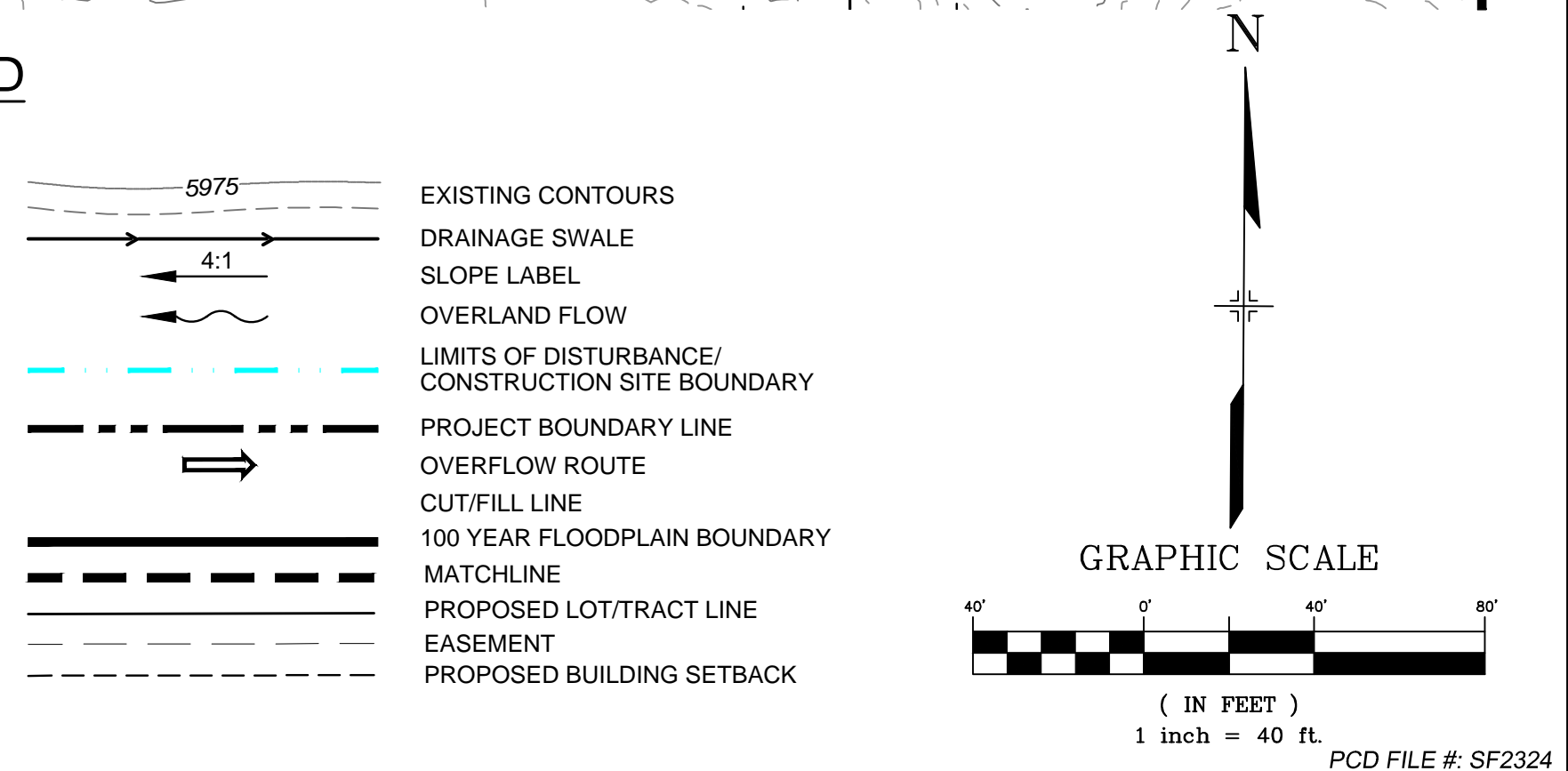


EROSION CONTROL LEGEND

Table with 3 columns: BMP SEQUENCING, INITIAL, INTERIM, FINAL. Rows describe measures like silt fence, check dams, and erosion control blankets.

- List of symbols and their meanings: PS (Permanent Seeding), SF (Silt Fence), ECB (Erosion Control Blanket), OP (Outlet Protection), IP (Inlet Protection), VTC (Vehicle Tracking Control), CD (Check Dam), MU (Mulching), TSB (Temporary Sediment Basin), CWA (Concrete Washout), SSA (Stockpile Management), HP (High Point), LP (Low Point), and various contour and boundary lines.

NOTES: 1. SEE CHECK DAM (CD) DETAIL EC-12 ON SHEET ECN01 FOR SPACING. 2. ALL EROSION CONTROL BLANKET SHALL BE INSPECTED 24-MONTHS AFTER INSTALLATION. EROSION CONTROL BLANKET MAY BE REQUIRED TO BE RE-INSTALLED PER MANUFACTURER SPECIFICATIONS.

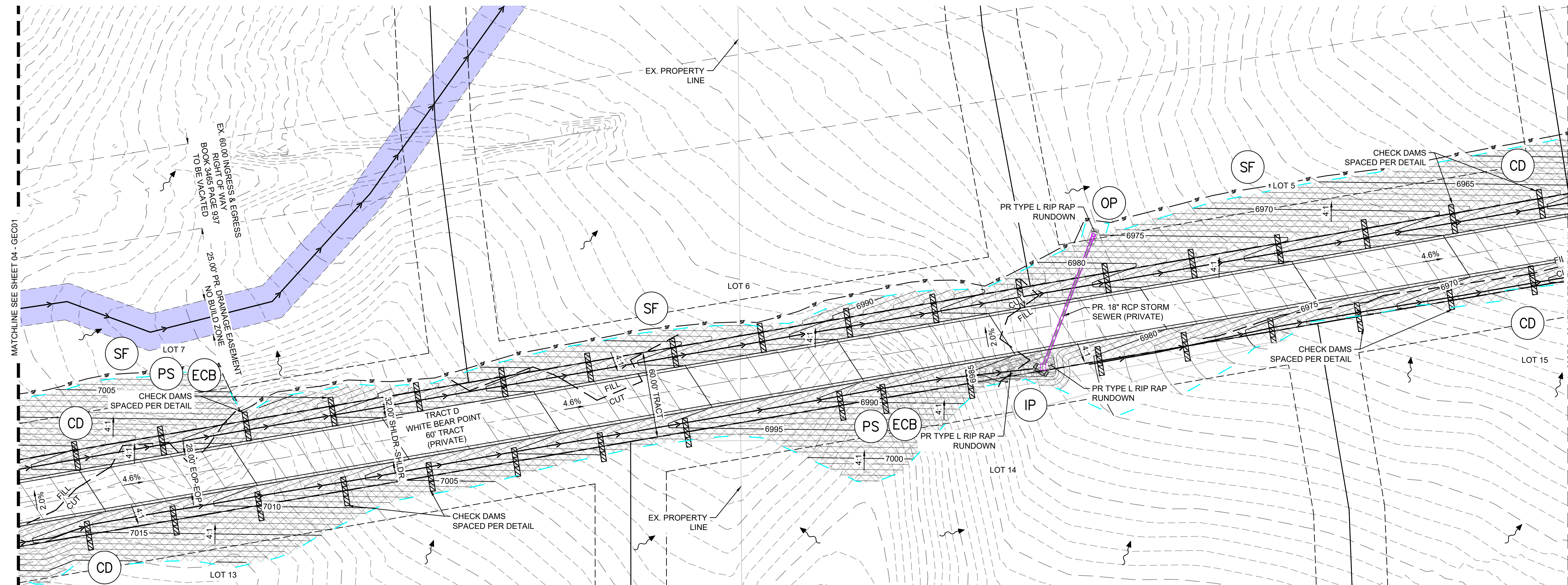


Project information block including Reference Drawings, Sheet Key, Benchmark, Basis of Bearing, Matrix logo, Preliminary status, and Hay Creek Valley project details.



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BMP SEQUENCING	
INITIAL	SILT FENCE, VEHICLE TRACKING, TEMP SEDIMENT BASINS
INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
FINAL	EROSION CONTROL BLANKETS, SEEDING & MULCHING, PERMANENT CONTROL MEASURE(S)

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EROSION CONTROL LEGEND

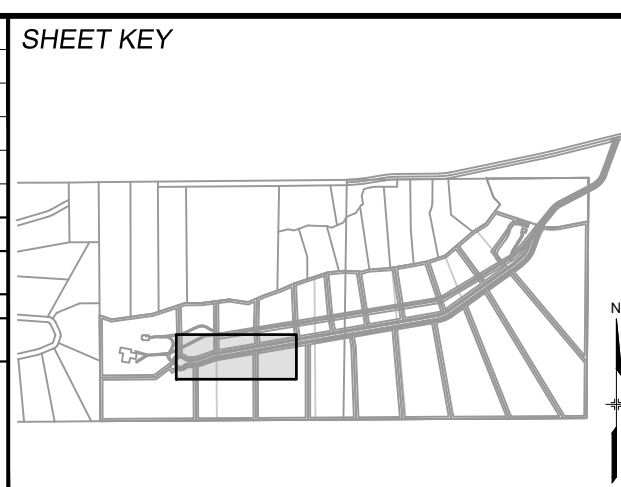
(PS)	PERMANENT SEEDING	(MU)	MULCHING
(SF)	SILT FENCE	(TSB)	TEMPORARY SEDIMENT BASIN
(ECB)	EROSION CONTROL BLANKET	(CWA)	CONCRETE WASHOUT
(OP)	OUTLET PROTECTION	(SSA)	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA
(IP)	INLET PROTECTION	(HP)	HIGH POINT / LOW POINT
(VTC)	VEHICLE TRACKING CONTROL	(LP)	LOW POINT / HIGH POINT
(RIP)	PROPOSED RIP RAP	(7050)	PROPOSED CONTOURS
(CD)	CHECK DAM	(X)	EXISTING FENCE
		(---)	PROPOSED STORM DRAIN
		(---)	NO BUILD ZONE (SLOPE GREATER THAN 29.99%)

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

PCD FILE #: SF2324

No.	DATE	DESCRIPTION	BY
REVISIONS			

COMPUTER FILE MANAGEMENT
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\GEC01.dwg
CTB FILE: Matrix.ctb
PLOT DATE: 1/26/2024 3:08 PM
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.



BENCHMARK
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BASIS OF BEARING
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PREPARED BY:
Matrix
Excellence by Design

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FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 22.886.076

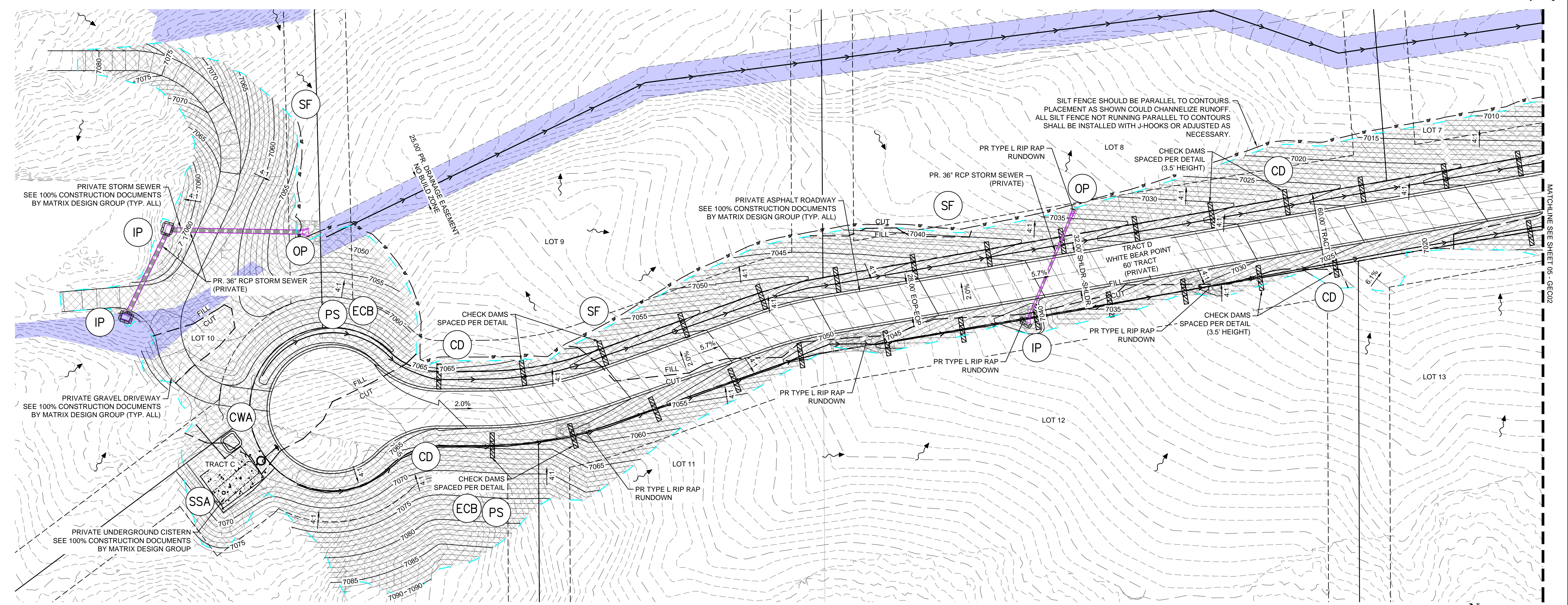
HAY CREEK VALLEY
EL PASO COUNTY, COLORADO
FINAL GRADING & EROSION CONTROL PLANS

GRADING & EROSION CONTROL PLAN

DESIGNED BY: CVW	SCALE: HORIZ 1"=40'	DATE ISSUED: JANUARY 2024	DRAWING No. GEC02
DRAWN BY: CVW	VERT. N/A	SHEET 05 OF 12	
CHECKED BY: JAO			



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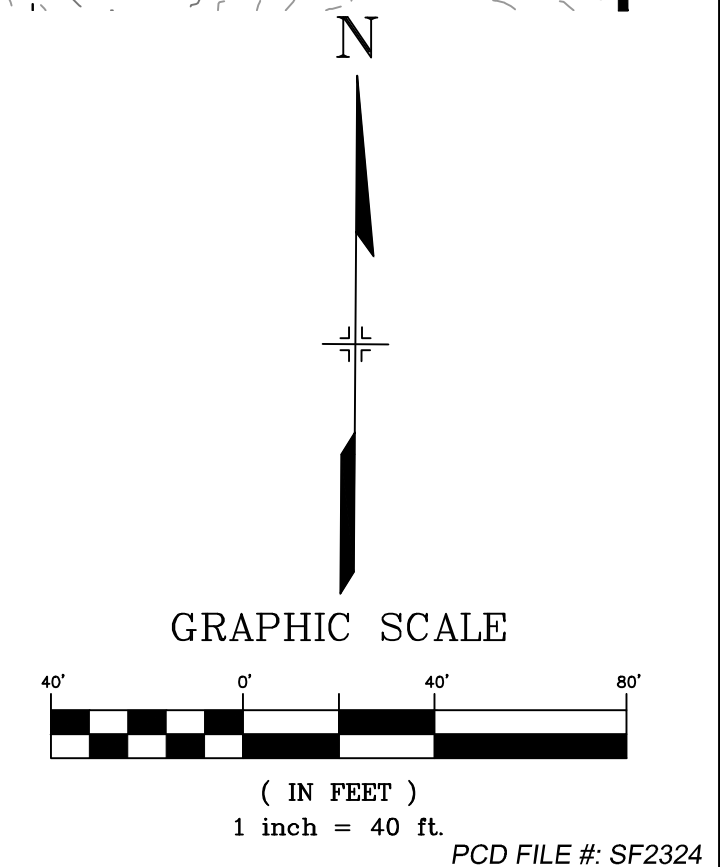


EROSION CONTROL LEGEND

Table with 3 columns: BMP SEQUENCING, INITIAL, INTERIM, FINAL. Rows describe erosion control measures like silt fence, check dams, and permanent seeding.

Legend symbols for erosion control measures: PS (Permanent Seeding), SF (Silt Fence), ECB (Erosion Control Blanket), OP (Outlet Protection), IP (Inlet Protection), VTC (Vehicle Tracking Control), CD (Check Dam), MU (Mulching), TSB (Temporary Sediment Basin), CWA (Concrete Washout), SSA (Stockpile Management), HP (High Point), LP (Low Point), and various line styles for contours and boundaries.

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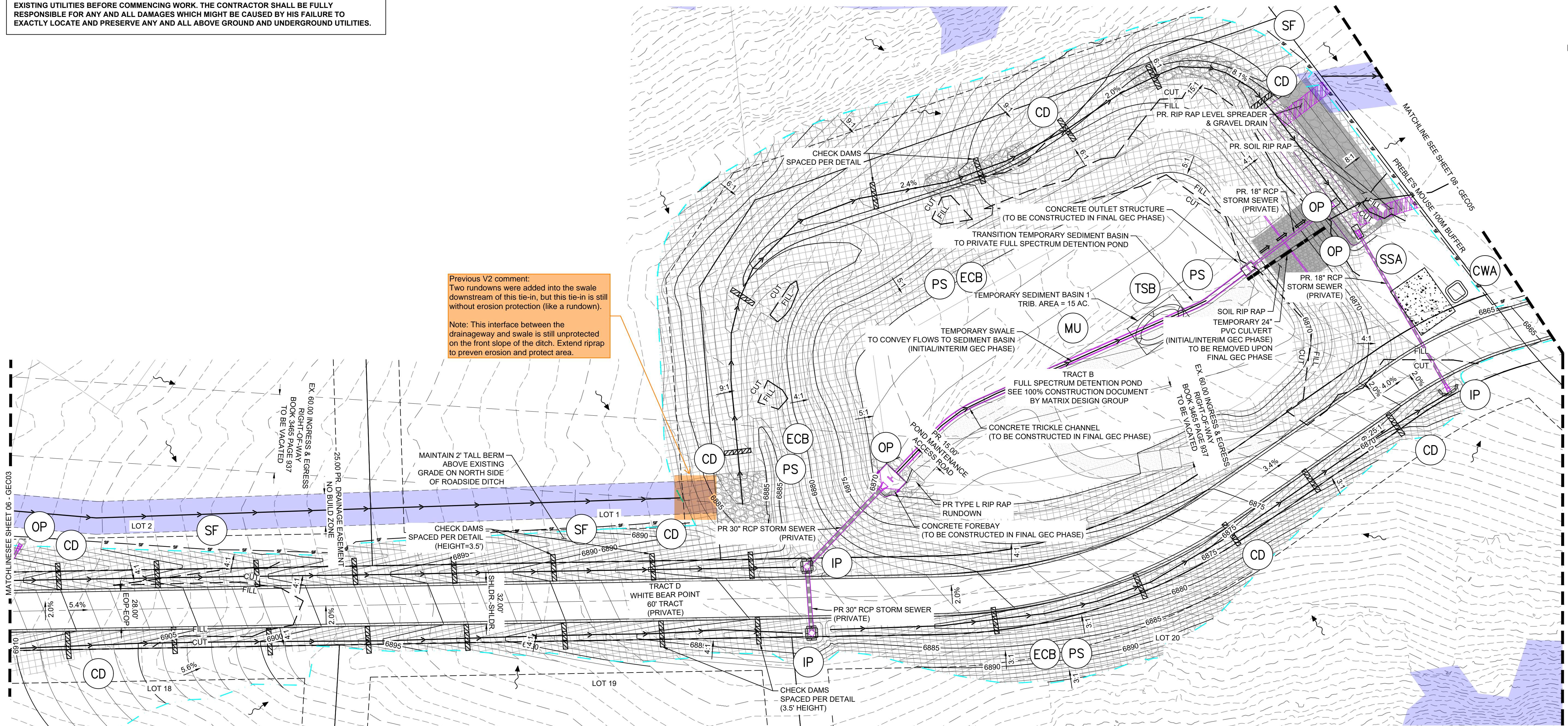
Project information block including: REFERENCE DRAWINGS, SHEET KEY, BENCHMARK (PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS...), BASIS OF BEARING (THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22...), PRELIMINARY stamp, HAY CREEK VALLEY EL PASO COUNTY, COLORADO FINAL GRADING & EROSION CONTROL PLANS, GRADING & EROSION CONTROL PLAN, Matrix logo, and project details like FILE NAME, PLOT DATE, and SHEET 04 OF 12.



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Previous V2 comment:
Two rundowns were added into the swale downstream of this tie-in, but this tie-in is still without erosion protection (like a rundown).

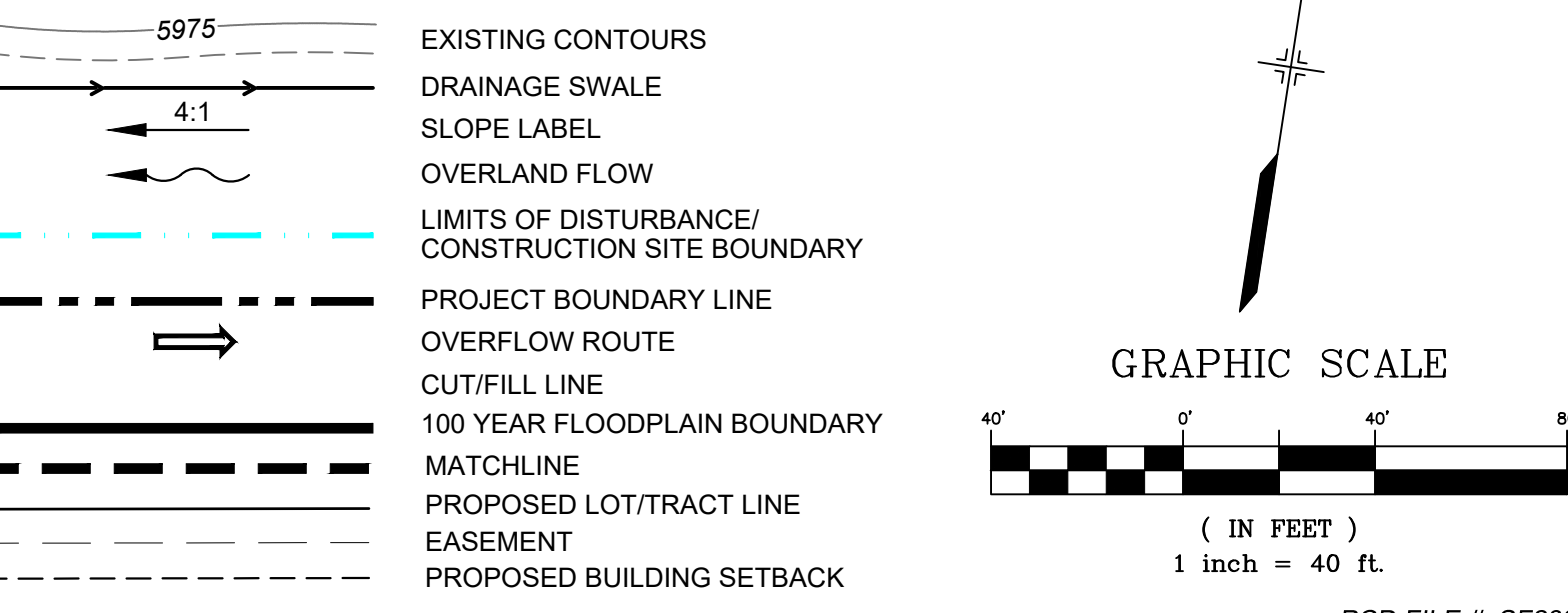
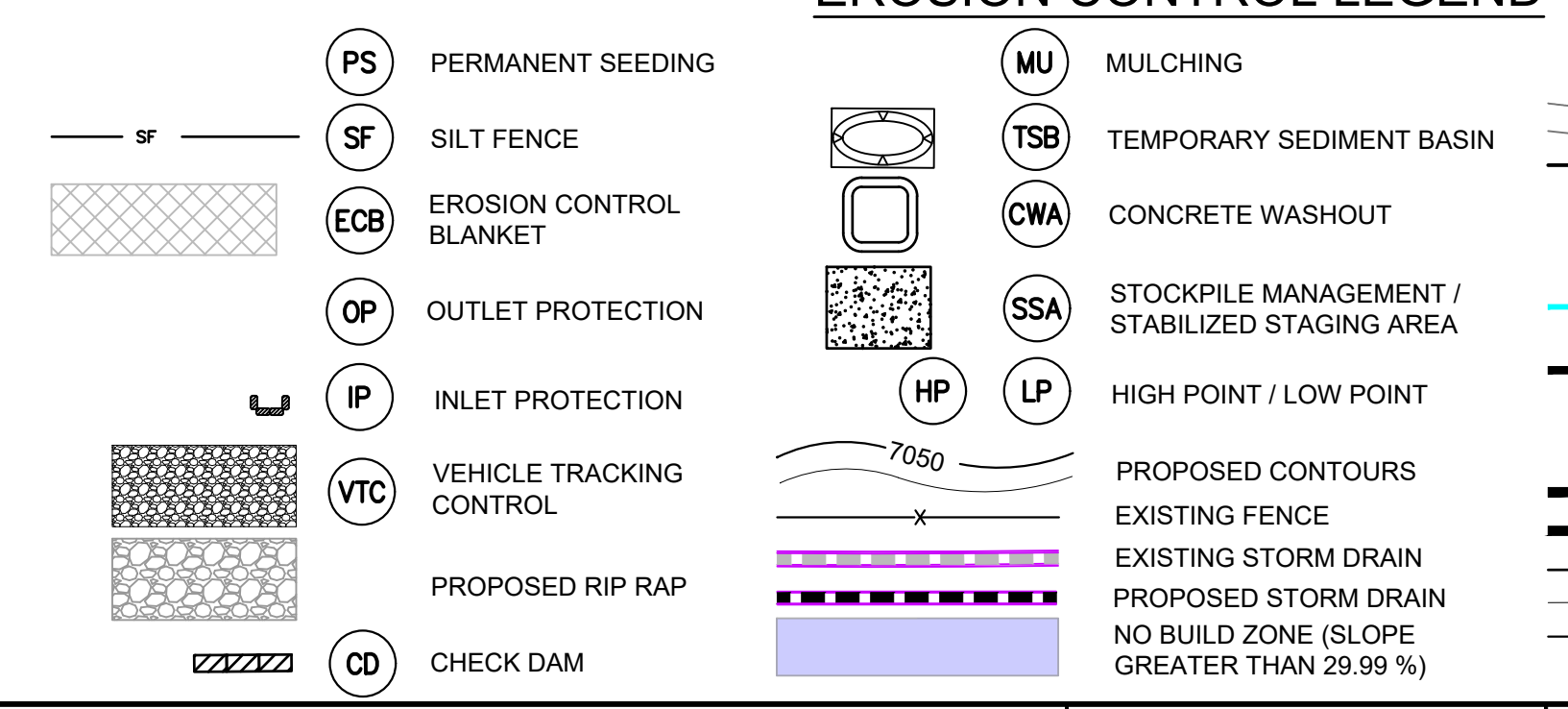
Note: This interface between the drainageway and swale is still unprotected on the front slope of the ditch. Extend riprap to prevent erosion and protect area.



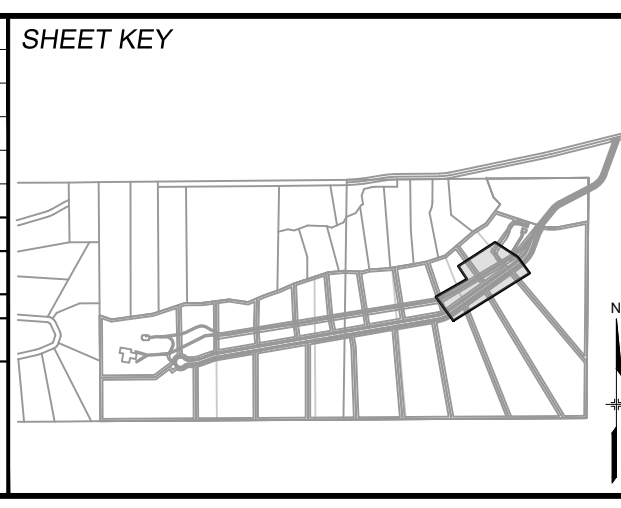
TEMPORARY SEDIMENT BASIN SUMMARY					
ID	BASIN BOTTOM WIDTH (FT)	SPILLWAY CREST LENGTH (FT)	HOLE DIAMETER (IN)	# ROWS OF HOLES	REQUIRED VOLUME (CF)
1	73.25	22	1 3/16	5	41,070

BMP SEQUENCING	
INITIAL	SILT FENCE, VEHICLE TRACKING, TEMP SEDIMENT BASINS
INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
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No.	DATE	DESCRIPTION	BY
COMPUTER FILE MANAGEMENT			
FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\GEC01.dwg			
CTB FILE: Matrix.ctb			
PLOT DATE: 1/26/2024 3:08 PM			
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BENCHMARK
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PREPARED BY:
Matrix
Excellence by Design

HAY CREEK VALLEY
EL PASO COUNTY, COLORADO
FINAL GRADING & EROSION CONTROL PLANS

GRADING & EROSION CONTROL PLAN

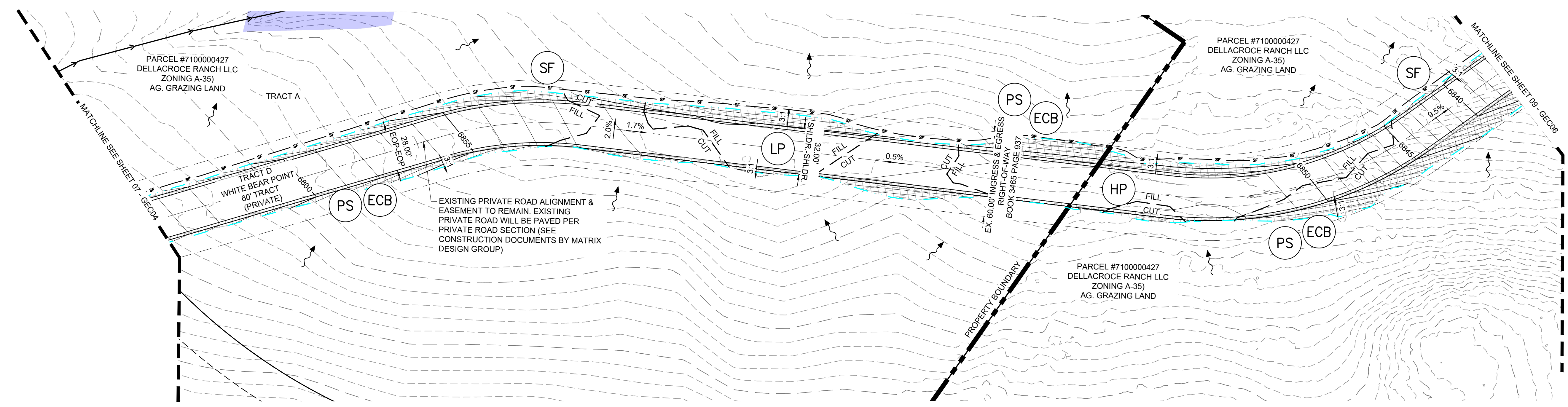
DESIGNED BY: CVW SCALE: HORIZ 1"=40' DATE ISSUED: JANUARY 2024 DRAWING No. GEC04
DRAWN BY: CVW VERT. N/A SHEET 07 OF 12
CHECKED BY: JAO PROJECT No. 22.886.076

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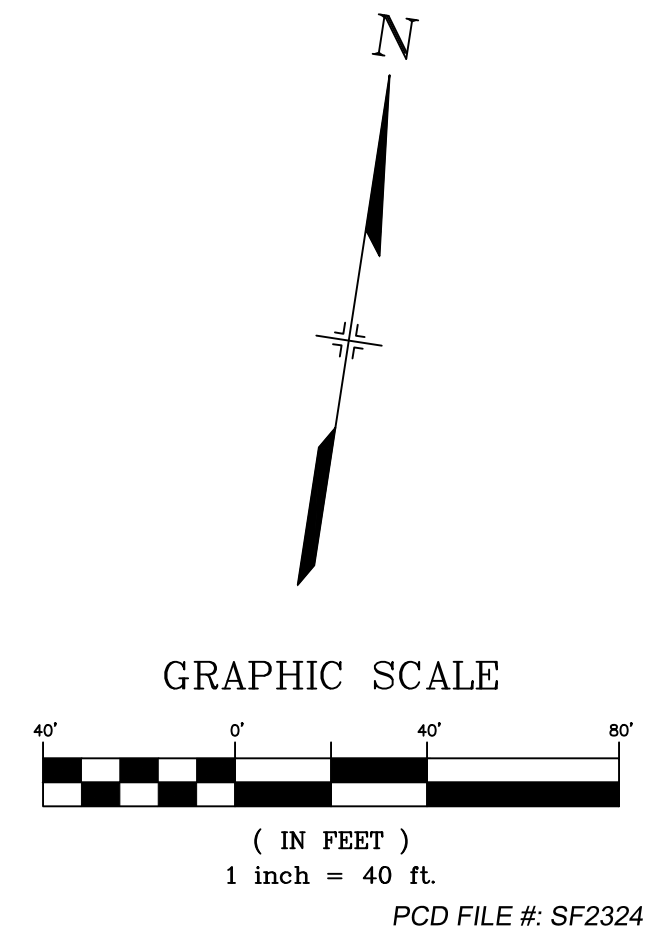


BMP SEQUENCING	
INITIAL	SILT FENCE, VEHICLE TRACKING, TEMP SEDIMENT BASINS
INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
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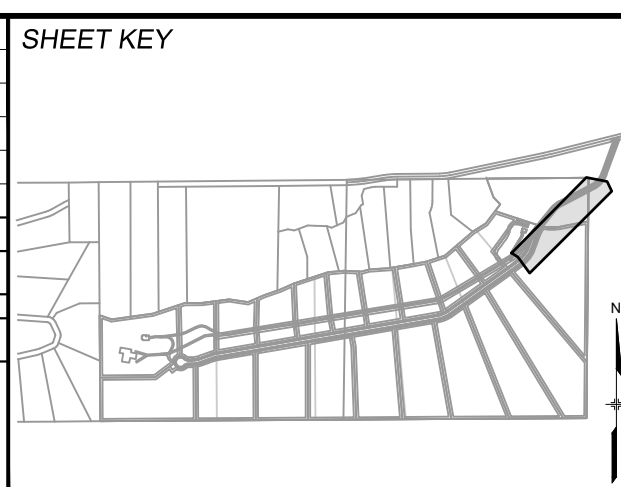
EROSION CONTROL LEGEND

PERMANENT SEEDING	MULCHING	EXISTING CONTOURS
SILT FENCE	TEMPORARY SEDIMENT BASIN	DRAINAGE SWALE
EROSION CONTROL BLANKET	CONCRETE WASHOUT	SLOPE LABEL
OUTLET PROTECTION	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA	OVERLAND FLOW
INLET PROTECTION	HIGH POINT / LOW POINT	LIMITS OF DISTURBANCE/ CONSTRUCTION SITE BOUNDARY
VEHICLE TRACKING CONTROL	PROPOSED CONTOURS	PROJECT BOUNDARY LINE
PROPOSED RIP RAP	EXISTING FENCE	OVERFLOW ROUTE
CHECK DAM	EXISTING STORM DRAIN	CUT/FILL LINE
	PROPOSED STORM DRAIN	100 YEAR FLOODPLAIN BOUNDARY
	NO BUILD ZONE (SLOPE GREATER THAN 29.99 %)	MATCHLINE
		PROPOSED LOT/TRACT LINE
		EASEMENT
		PROPOSED BUILDING SETBACK



No.	DATE	DESCRIPTION	BY
REVISIONS			

COMPUTER FILE MANAGEMENT
 FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\GEC01.dwg
 CTB FILE: Matrix.ctb
 PLOT DATE: 1/26/2024 3:08 PM
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PREPARED BY:
Matrix
 Excellence by Design

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FOR AND ON BEHALF OF
 MATRIX DESIGN GROUP, INC.
 PROJECT No. 22.886.076

HAY CREEK VALLEY
 EL PASO COUNTY, COLORADO
 FINAL GRADING & EROSION CONTROL PLANS

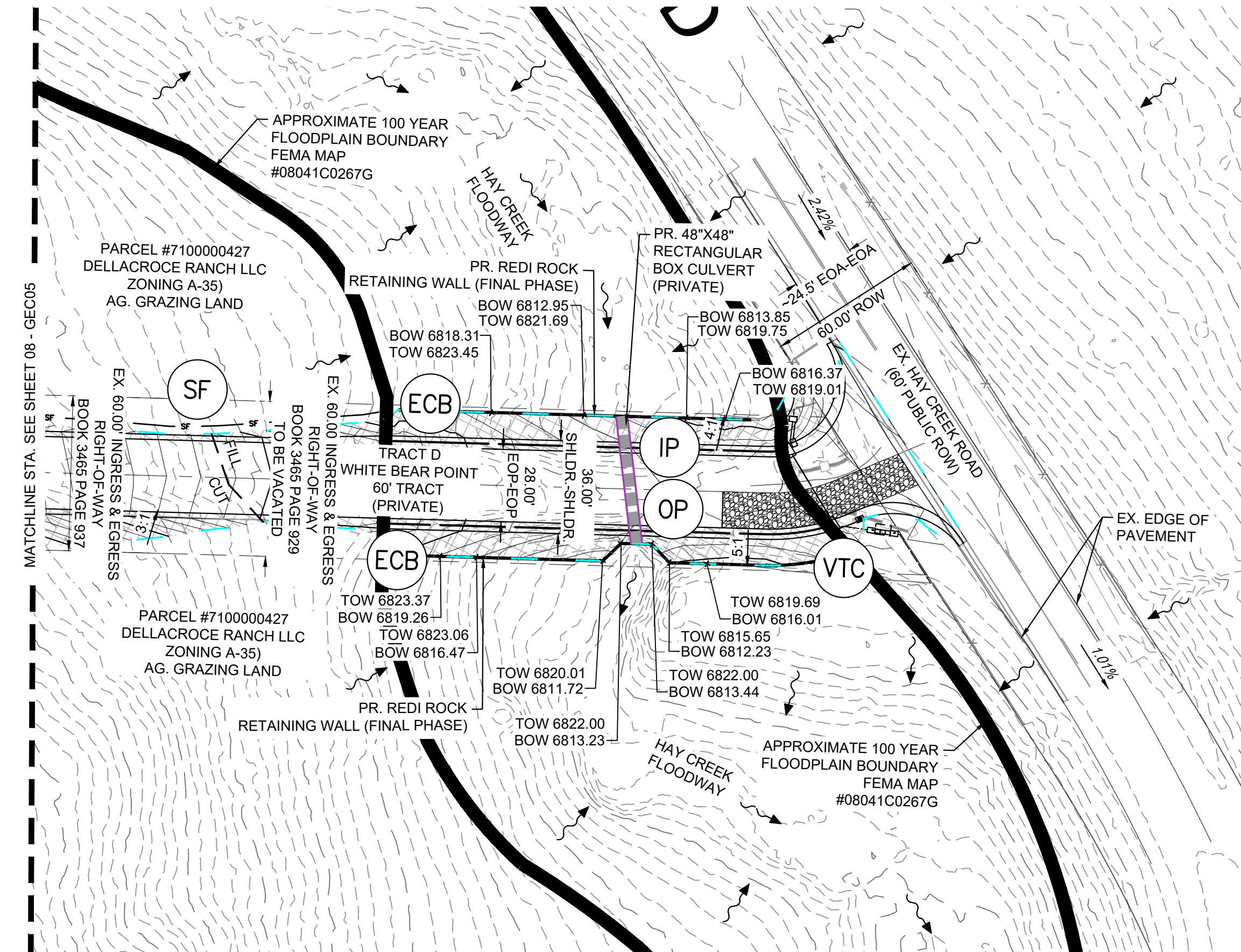
GRADING & EROSION CONTROL PLAN

DESIGNED BY: CVW	SCALE: 1" = 40'	DATE ISSUED: JANUARY 2024	DRAWING No. GEC05
DRAWN BY: CVW	HORIZ. N/A	SHEET 08 OF 12	
CHECKED BY: JAO	VERT. N/A		



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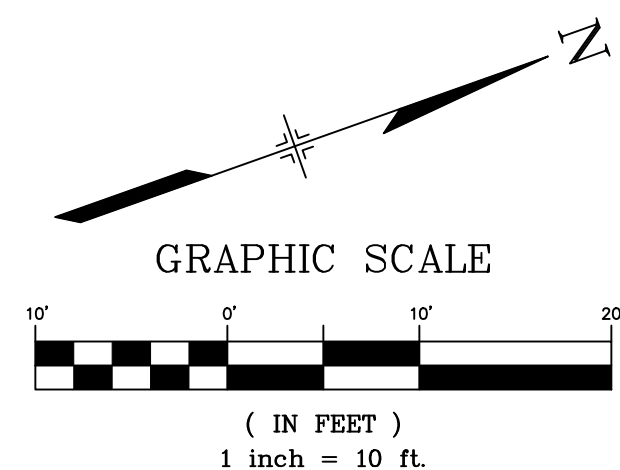


BMP SEQUENCING	
INITIAL	SILT FENCE, VEHICLE TRACKING, TEMP SEDIMENT BASINS
INTERIM	CHECK DAMS, CONCRETE WASHOUT, INLET/OUTLET PROTECTION, STOCKPILES, STAGING, ROUGH CUT STREET CONTROL
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EROSION CONTROL LEGEND

SF	SILT FENCE	PS	PERMANENT SEEDING	MU	MULCHING	5975	EXISTING CONTOURS
ECB	EROSION CONTROL BLANKET	IP	INLET PROTECTION	TSB	TEMPORARY SEDIMENT BASIN	4:1	DRAINAGE SWALE
OP	OUTLET PROTECTION	VTC	VEHICLE TRACKING CONTROL	CWA	CONCRETE WASHOUT		SLOPE LABEL
IP	INLET PROTECTION	CD	CHECK DAM	SSA	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA		OVERLAND FLOW
VTC	VEHICLE TRACKING CONTROL	HP	HIGH POINT / LOW POINT	SSA	STOCKPILE MANAGEMENT / STABILIZED STAGING AREA		LIMITS OF DISTURBANCE / CONSTRUCTION SITE BOUNDARY
	PROPOSED RIP RAP	LP	LOW POINT / HIGH POINT	HP	HIGH POINT / LOW POINT		PROJECT BOUNDARY LINE
	PROPOSED RIP RAP		EXISTING FENCE	7050	PROPOSED CONTOURS		OVERFLOW ROUTE
	PROPOSED RIP RAP		PROPOSED STORM DRAIN		EXISTING FENCE		CUT/FILL LINE
	PROPOSED RIP RAP		PROPOSED STORM DRAIN		PROPOSED STORM DRAIN		100 YEAR FLOODPLAIN BOUNDARY
	PROPOSED RIP RAP		NO BUILD ZONE (SLOPE GREATER THAN 29.99 %)		PROPOSED STORM DRAIN		MATCHLINE
	PROPOSED RIP RAP		PROPOSED BUILDING SETBACK		PROPOSED LOT/TRACT LINE		EASEMENT
	PROPOSED RIP RAP		PROPOSED BUILDING SETBACK		PROPOSED BUILDING SETBACK		PROPOSED BUILDING SETBACK

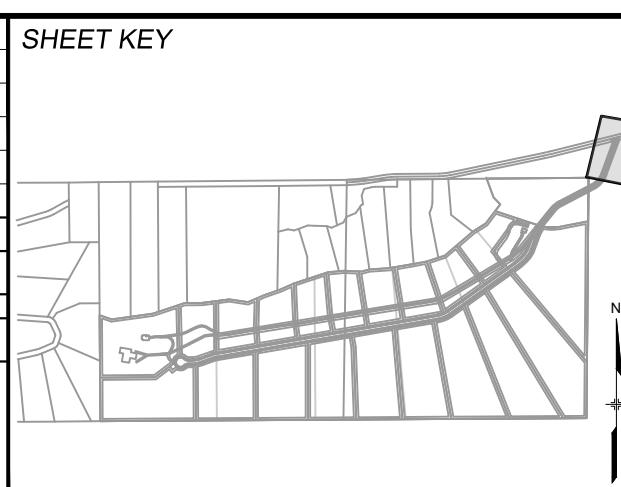


PCD FILE #: SF2324

REFERENCE DRAWINGS	
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X-886-PR-SITE	
FEMA_X3	
X-886-066-EX-MAP-1	
164022-01 Hay Creek Road BNDY	
X-886-ALTA-SURVEY	
Hay Creek BFEs	
2023-02-28 TOPO 164022-01	

No.	DATE	DESCRIPTION	BY
REVISIONS			

COMPUTER FILE MANAGEMENT	
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 PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.

BASIS OF BEARING
 THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PLS25955 C1/4 S22 T15S, R65W 1999, "AND THE WESTERLY END BY A2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T15S, R65W 2000, "BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.

PREPARED BY:

Excellence by Design

SEAL

PRELIMINARY
 THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE

HAY CREEK VALLEY

EL PASO COUNTY, COLORADO
 FINAL GRADING & EROSION CONTROL PLANS

GRADING & EROSION CONTROL PLAN

DESIGNED BY:	CWV	SCALE:	HORIZ 1" = 40'	DATE ISSUED:	JANUARY 2024	DRAWING No.	GEC06
DRAWN BY:	CWV	VERT:	N/A	SHEET:	09 OF 12		
CHECKED BY:	JAO						

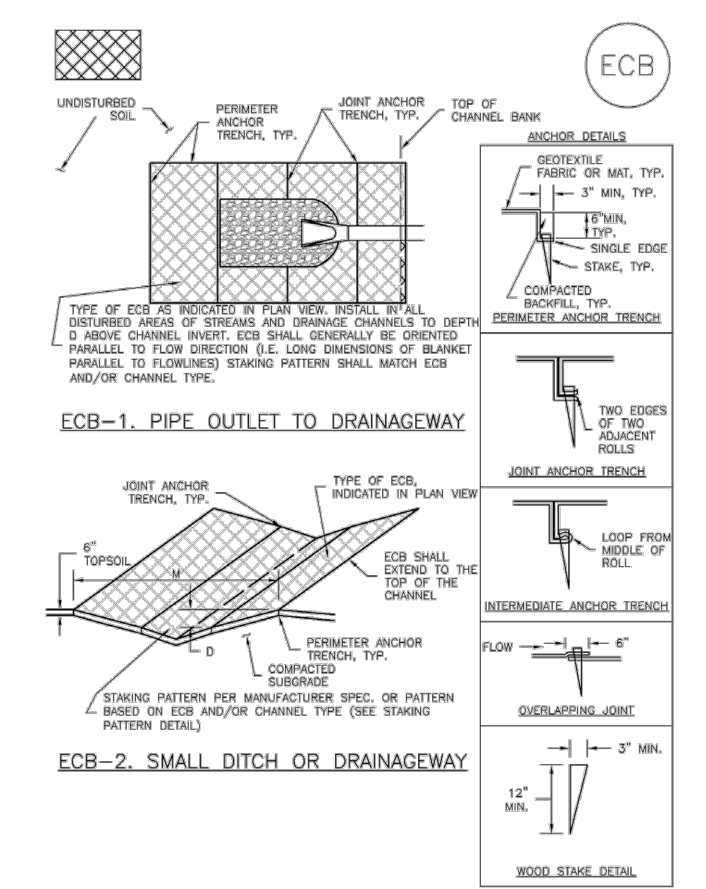


Know what's below. Call before you dig.

Rolled Erosion Control Products (RECP) EC-6

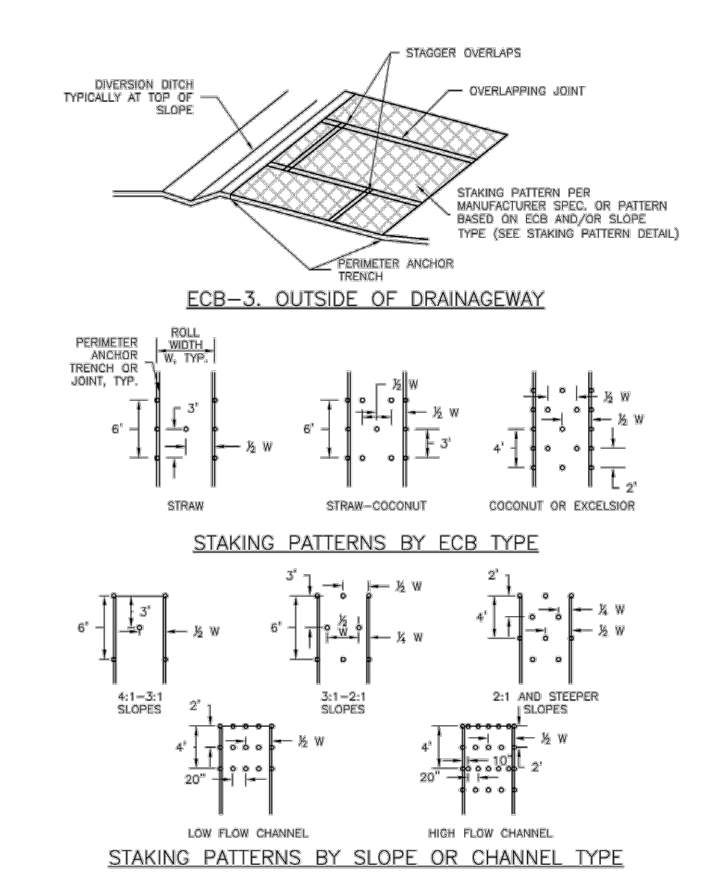
Staking patterns are also provided in the design details according to these factors:
• ECB type
• Slope or channel type
For other types of RECPs including TRMs, these design details are intended to serve as general guidelines for design and installation; however, engineers should adhere to manufacturer's installation recommendations.
Maintenance and Removal
Inspection of erosion control blankets and other RECPs include:
• 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 through the turf matrix. The turf reinforcement mat provides long-term stability and helps the established vegetation resist erosion forces.

EC-6 Rolled Erosion Control Products (RECP)



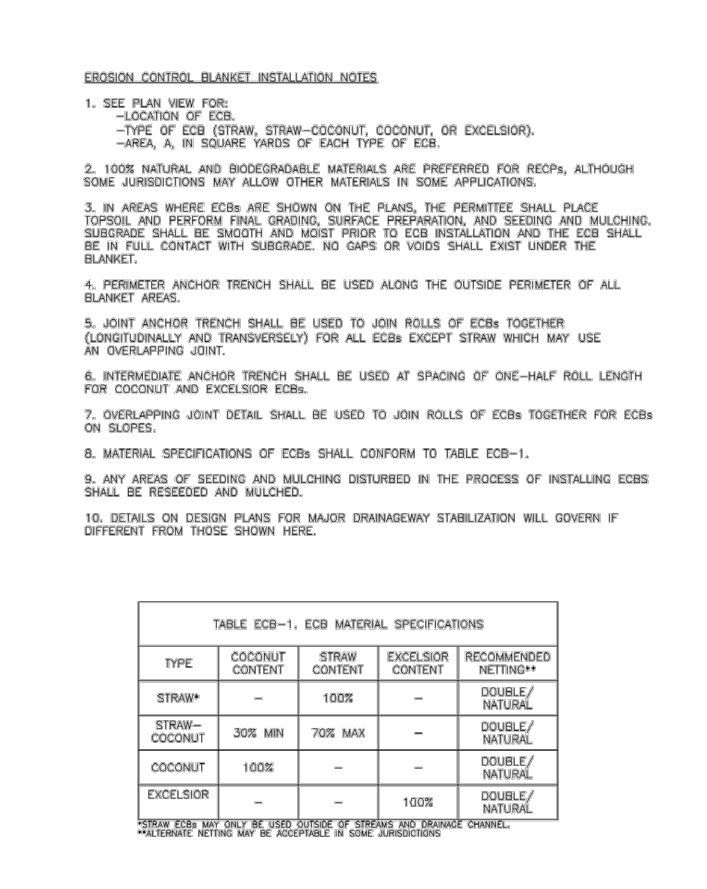
RECP-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Rolled Erosion Control Products (RECP) EC-6



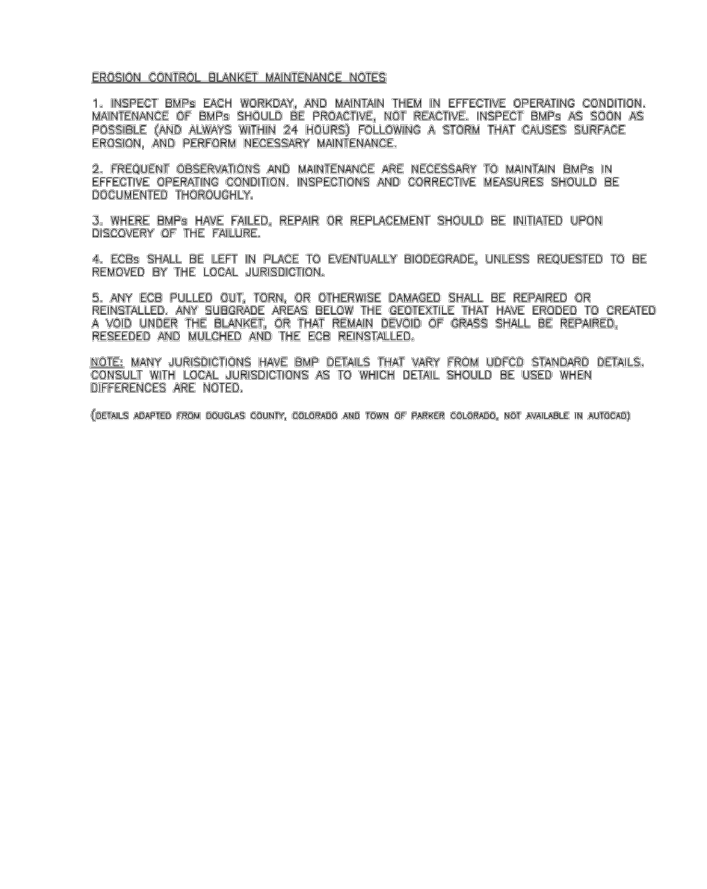
RECP-7 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

EC-6 Rolled Erosion Control Products (RECP)



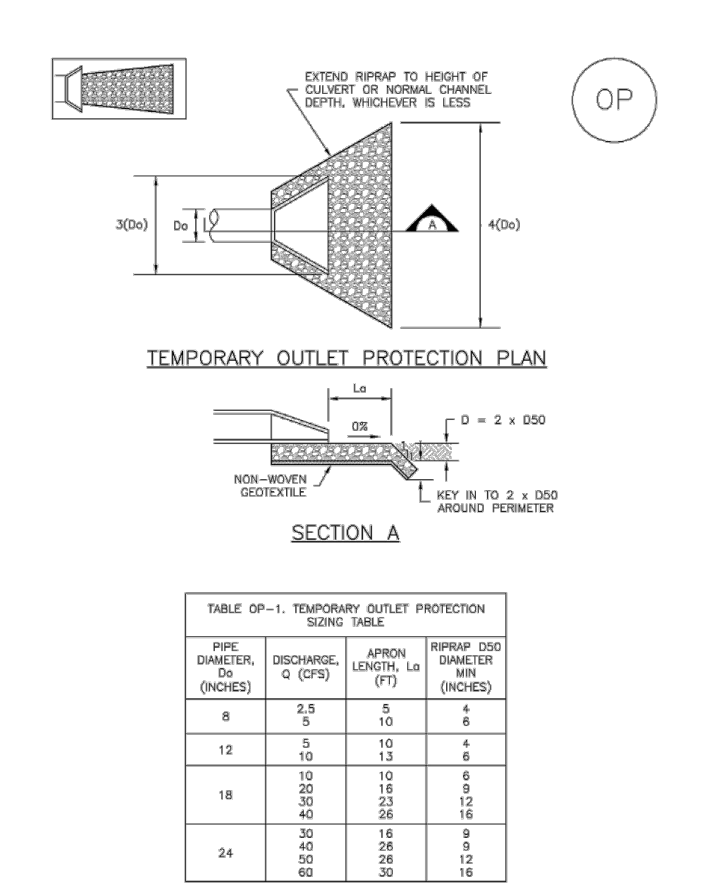
RECP-8 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Rolled Erosion Control Products (RECP) EC-6



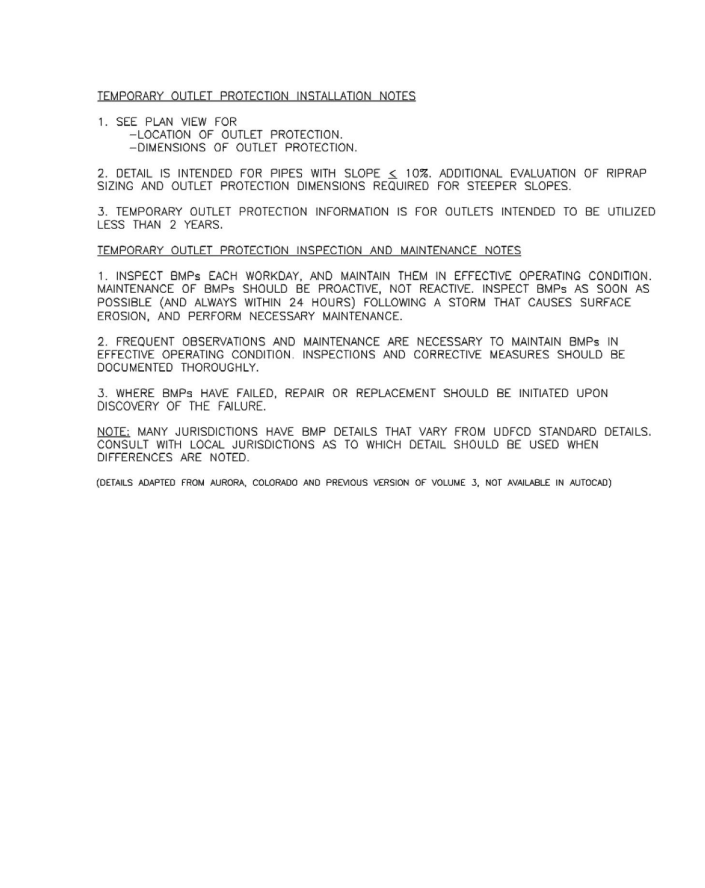
RECP-9 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

EC-8 Temporary Outlet Protection (TOP)



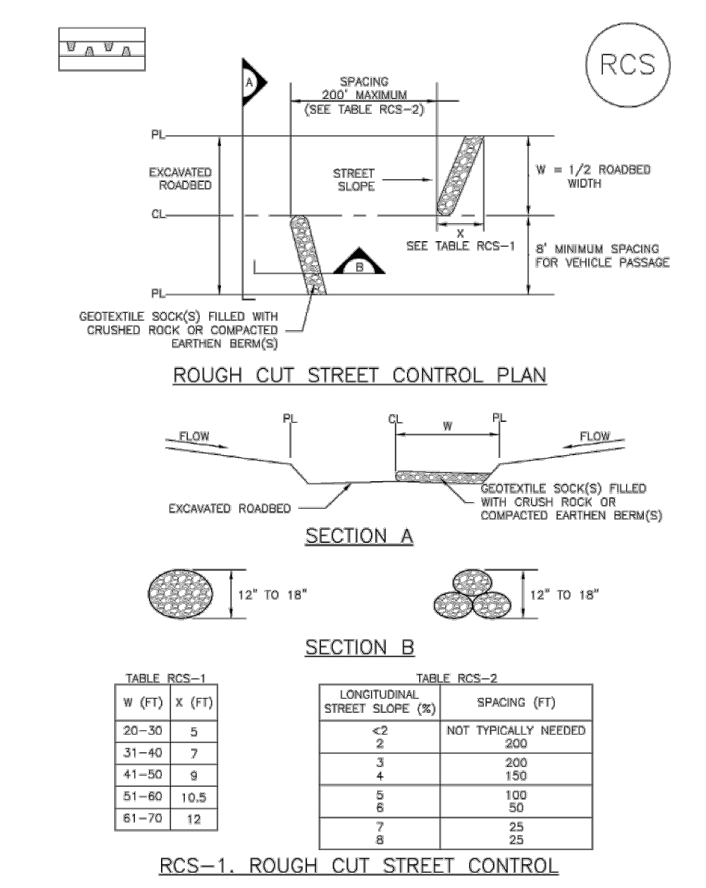
TOP-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Temporary Outlet Protection (TOP) EC-8



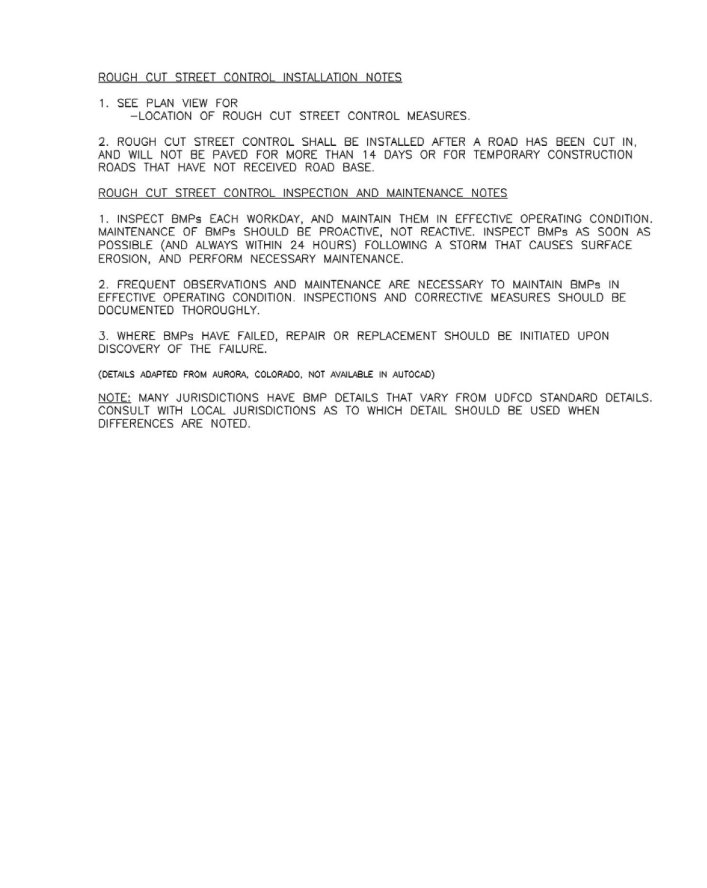
TOP-3 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

EC-9 Rough Cut Street Control (RCS)



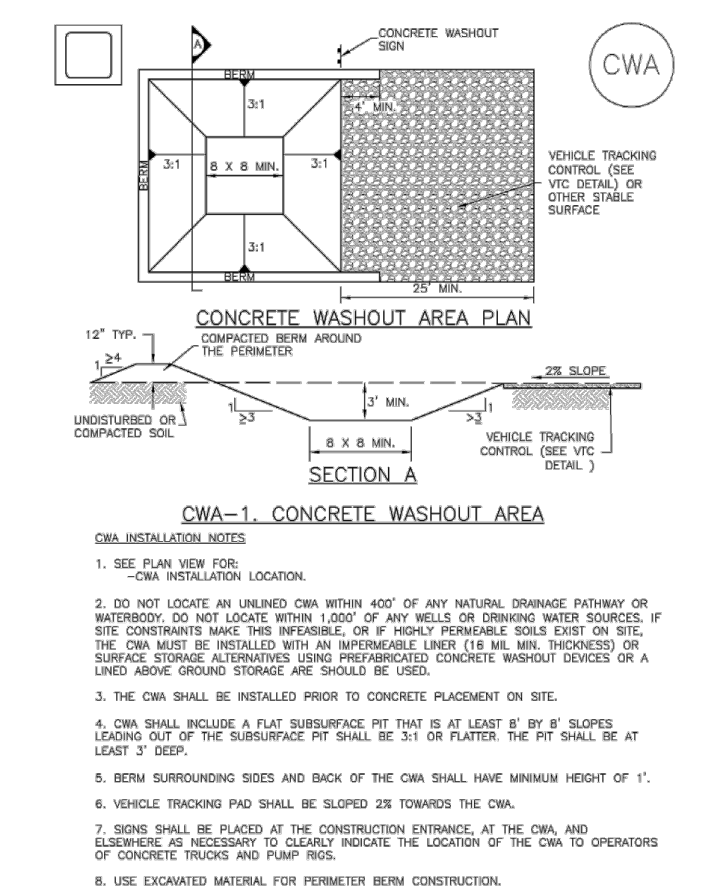
RCS-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Rough Cut Street Control (RCS) EC-9



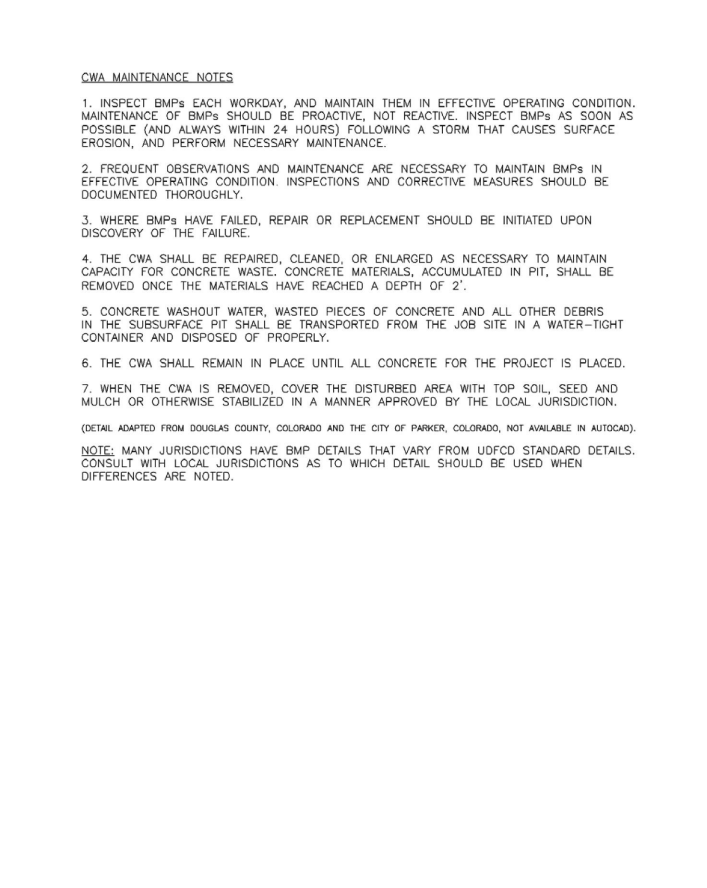
RCS-3 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Concrete Washout Area (CWA) MM-1



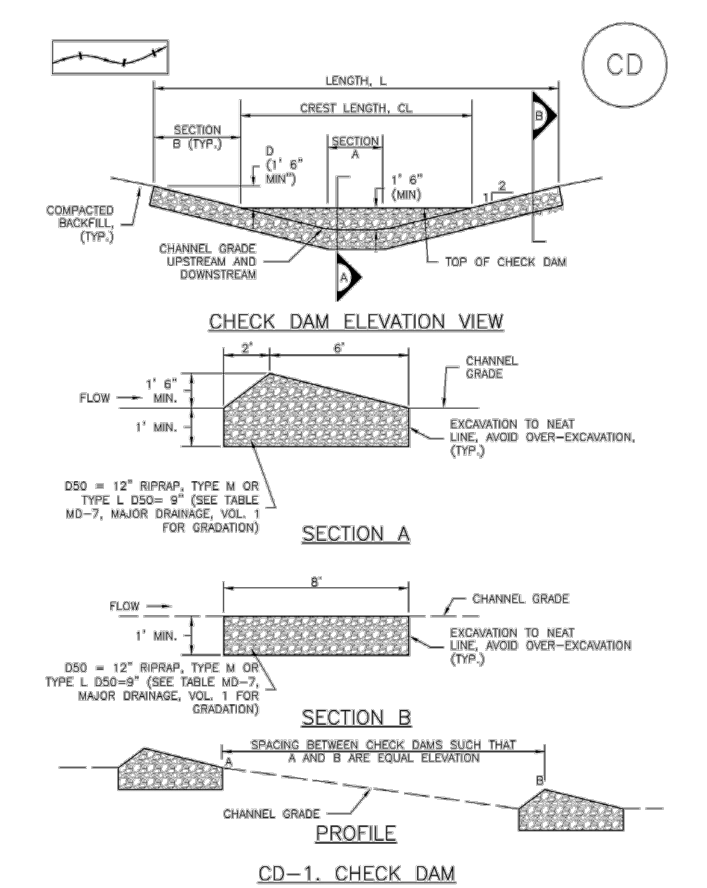
CWA-3 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

MM-1 Concrete Washout Area (CWA)



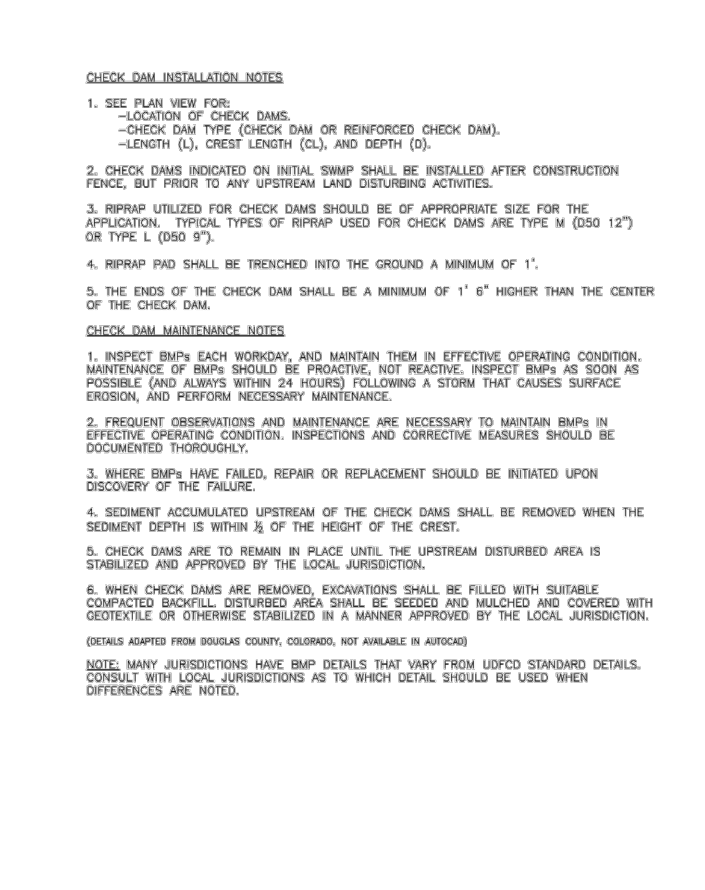
CWA-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Check Dams (CD) EC-12



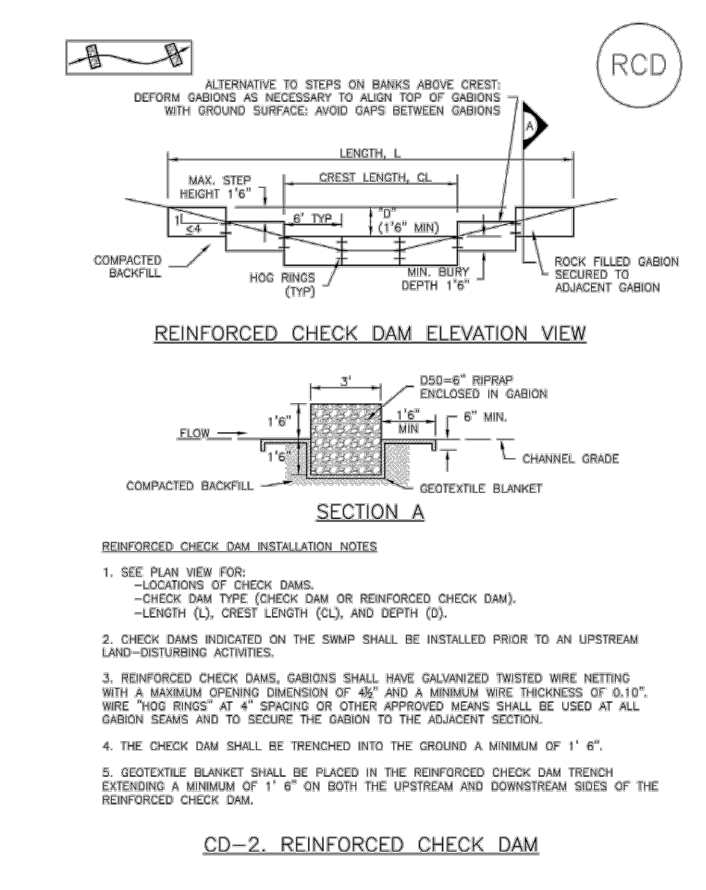
CD-3 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

EC-12 Check Dams (CD)



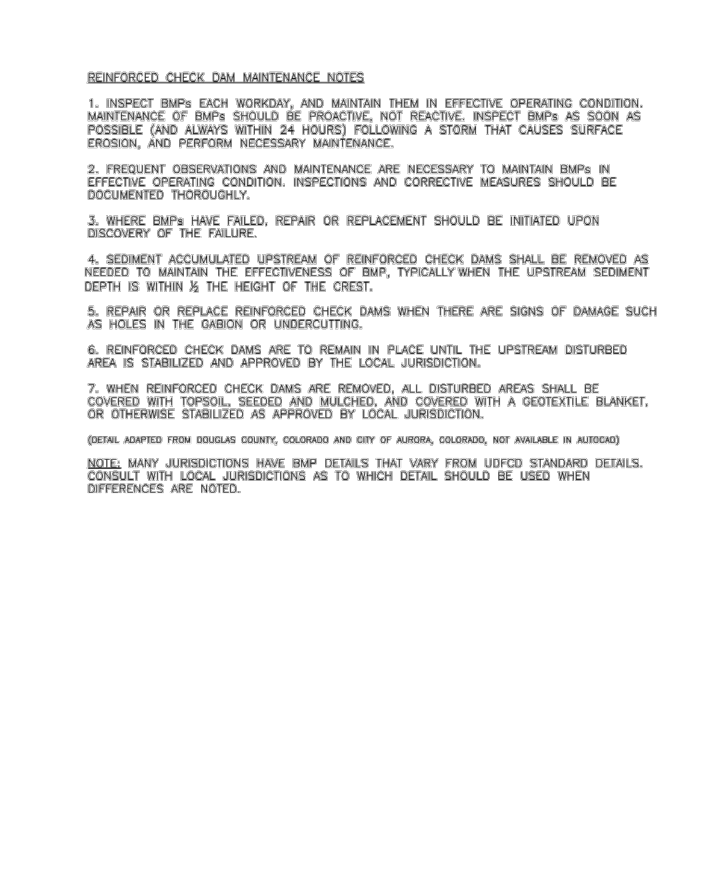
CD-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Check Dams (CD) EC-12



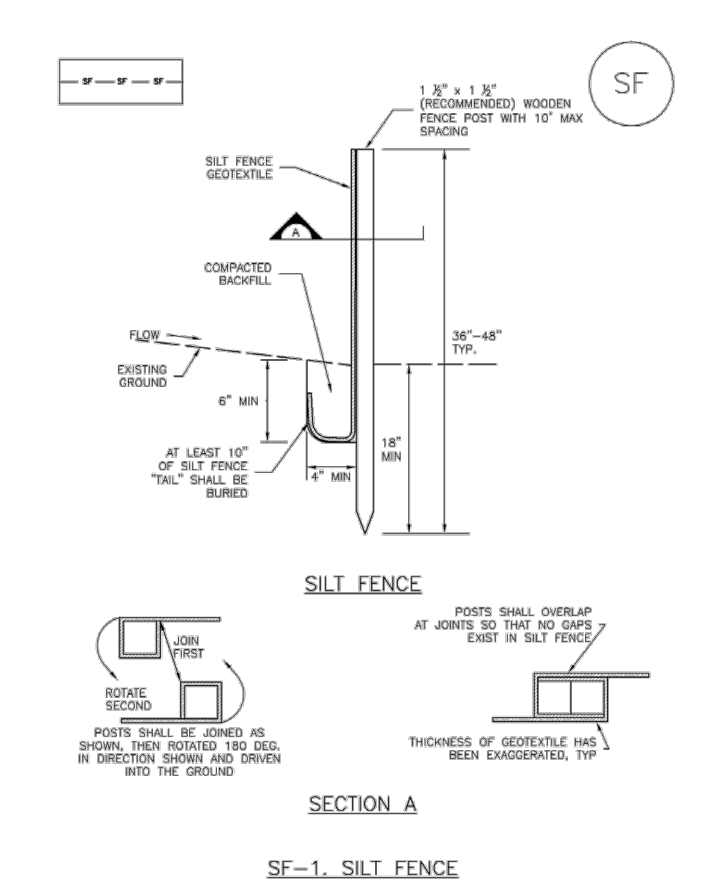
CD-5 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

EC-12 Check Dams (CD)



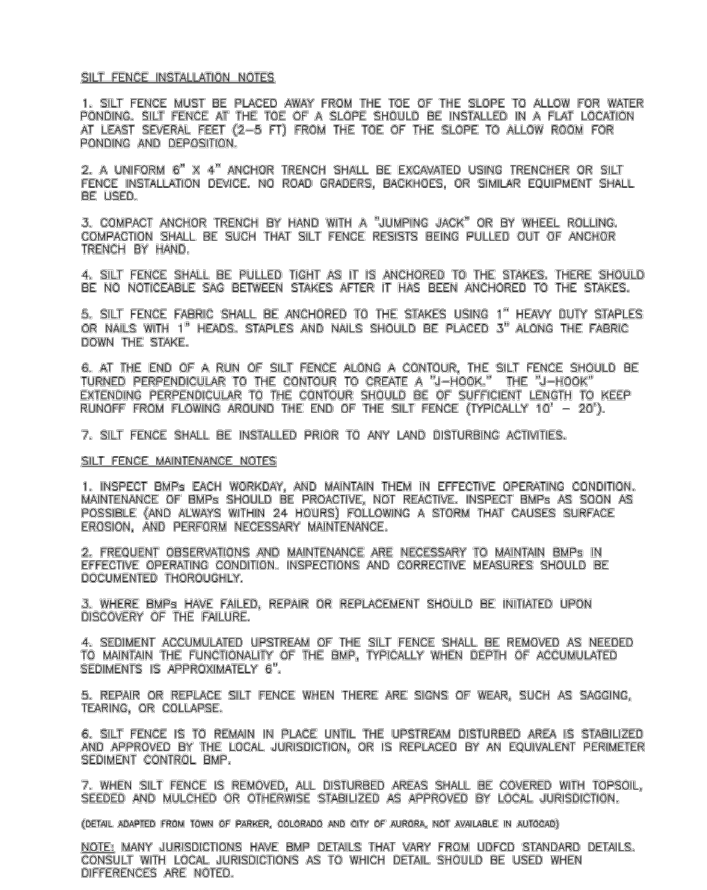
CD-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

Silt Fence (SF) SC-1



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

SC-1 Silt Fence (SF)



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

REFERENCE DRAWINGS, SHEET KEY, BENCHMARK, BASIS OF BEARING, SEAL, HAY CREEK VALLEY EL PASO COUNTY, COLORADO FINAL GRADING & EROSION CONTROL PLANS, PRELIMINARY THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE, DETAILS, FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 22.886.076



Know what's below. Call before you dig.

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 each inlet, 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 on a steep setting can be protected through the use of silt fence, concrete block and rock socks (on gravel surfaces), sediment control logs/trees, or other methods 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

Inspcet 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 unfiltered flows bypassing the BMP and directly entering the inlet or bypassing an unpermitted drainage inlet. For example, silt fence that has not been properly tensioned 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 can occur following heavy events even when BMPs are properly installed.
- Monitor sediment accumulation upgradient of the inlet protection.

IP-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

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 all 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 device 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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IP-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

SC-6 Inlet Protection (IP)

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

IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

IP-4. SILT FENCE FOR SUMP INLET PROTECTION

IP-5. OVER-EXCAVATION INLET PROTECTION

IP-6. STRAW BALE FOR SUMP INLET PROTECTION

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

Inlet Protection (IP) SC-6

IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

IP-4. SILT FENCE FOR SUMP INLET PROTECTION

IP-5. OVER-EXCAVATION INLET PROTECTION

IP-6. STRAW BALE FOR SUMP INLET PROTECTION

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

SC-6 Inlet Protection (IP)

IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

IP-4. SILT FENCE FOR SUMP INLET PROTECTION

IP-5. OVER-EXCAVATION INLET PROTECTION

IP-6. STRAW BALE FOR SUMP INLET PROTECTION

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

Inlet Protection (IP) SC-6

CIP-1. CULVERT INLET PROTECTION

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

SC-6 Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR -LOCATION OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
- INLET PROTECTION SHALL BE INSTALLED PROPERLY AFTER INLET CONSTRUCTION IS COMPLETE TO PREVENT DAMAGE TO THE INLET OR TO CAUSE SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDS AND MULCH, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

SC-7 Sediment Basin (SB)

Maintenance and Removal

Drudge sediment from the basin, as needed to maintain BMP effectiveness, typically when the design storage volume is no more than one-third full with sediment.

Inspect the sediment basin construction for stability and seepage.

Inspect the inlet and outlet of the basin, repair damage, and remove debris. Remove, clean and replace the gravel around the outlet on a regular basis to remove the accumulated sediment within it and keep the outlet functioning.

Be aware that removal of a sediment basin may require dewatering and associated permit requirements.

Do not remove a sediment basin until the upstream area has been stabilized with vegetation.

Final disposition of the sediment basin depends on whether the basin will be converted to a permanent post-construction stormwater basin or whether the basin area will be returned to grade. For basins being converted to permanent detention basins, remove accumulated sediment and reconfigure the basin and outlet to meet the requirements of the final design for the detention facility. If the sediment basin is not to be used as a permanent detention facility, fill the excavated area with soil and stabilize with vegetation.

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

Sediment Basin (SB) SC-7

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

SC-7 Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Basin Depth (ft)	Basin Length (ft)	Basin Width (ft)	Basin Area (sq ft)	Basin Volume (cu ft)
1	12.0	2.0	24.0	24.0
2	24.0	2.0	48.0	48.0
3	36.0	2.0	72.0	72.0
4	48.0	2.0	96.0	96.0
5	60.0	2.0	120.0	120.0
6	72.0	2.0	144.0	144.0
7	84.0	2.0	168.0	168.0
8	96.0	2.0	192.0	192.0
9	108.0	2.0	216.0	216.0
10	120.0	2.0	240.0	240.0
11	132.0	2.0	264.0	264.0
12	144.0	2.0	288.0	288.0
13	156.0	2.0	312.0	312.0
14	168.0	2.0	336.0	336.0
15	180.0	2.0	360.0	360.0
16	192.0	2.0	384.0	384.0
17	204.0	2.0	408.0	408.0
18	216.0	2.0	432.0	432.0
19	228.0	2.0	456.0	456.0
20	240.0	2.0	480.0	480.0

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

Sediment Basin (SB) SC-7

SEDIMENT BASIN MAINTENANCE NOTES

- INSPECT BASIN EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BASIN SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BASIN AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- WHEN BASIN HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- PROFOUND OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BASIN IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- SEDIMENT ACCUMULATED IN BASIN SHOULD BE REMOVED AS NECESSARY TO MAINTAIN BASIN IN EFFECTIVE OPERATING CONDITION. REMOVAL SHOULD BE PERFORMED BY THE LOCAL JURISDICTION. USE OF LOCAL JURISDICTION APPROVES GREATER REMOVAL OF SEDIMENT FROM BASIN.
- SEDIMENT BASINS ARE TO BE MAINTAINED 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 TOP SOIL, SEEDS AND MULCH, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

Vehicle Tracking Control (VTC) SM-4

VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

SM-4 Vehicle Tracking Control (VTC)

VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

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

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

Vehicle Tracking Control (VTC) SM-4

VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

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

VTC-5 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

- SEE PLAN VIEW FOR -LOCATION OF STABILIZED CONSTRUCTION ENTRANCE/EXIT (SCE) (WITH/OUT WASH MAT OR TRM)
- CONSTRUCTION MAT OR TRM SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DEVELOPING ACTIVITY THAT RESULTS IN SOIL EXPOSURE. MAT SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DEVELOPING ACTIVITY THAT RESULTS IN SOIL EXPOSURE.
- CONSTRUCTION MAT OR TRM SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DEVELOPING ACTIVITY THAT RESULTS IN SOIL EXPOSURE.
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VTC-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Stabilized Staging Area (SSA) SM-6

SSA-1. STABILIZED STAGING AREA

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

SM-6 Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO ACCOMMODATE PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
- THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE CONSTRUCTION MAT OR TRM SHALL BE REMOVED AND THE AREA COVERED WITH TOP SOIL, SEEDS AND MULCH, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOP SOIL, SEEDS AND MULCH, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

REFERENCE DRAWINGS

X-TITLE-CD
 X-888-FR-SITE
 FEMA-XS
 X-888-006-EX-MAP-1
 164022-01 Hay Creek Road BNBV
 X-888-ALTA-SURVEY
 Hay Creek BFEs

No.	DATE	DESCRIPTION
REVISIONS		

COMPUTER FILE MANAGEMENT

FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\ECN01.dwg
 CTB FILE: Matrix.ctb
 PLOT DATE: 1/26/2024 3:13 PM
 THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.

SHEET KEY

BENCHMARK

PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92.

BASIS OF BEARING

THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PL252955 C1/4 S22 T16S, R65W 1999," AND THE WESTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T16S, R65W 2000," BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.

PREPARED BY: Matrix Excellence by Design

SEAL

PRELIMINARY
 THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE

FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 22.886.076

DESIGNED BY: CVW SCALE: DATE ISSUED: JANUARY 2024 DRAWING No. ECN02
 DRAWN BY: CVW HORIZ. N/A SHEET 11 OF 12
 CHECKED BY: JAO VERT. N/A

HAY CREEK VALLEY

EL PASO COUNTY, COLORADO

FINAL GRADING & EROSION CONTROL PLANS

DETAILS

PCD FILE #: SF2324



Know what's below.
Call before you dig.

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

Description

Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Permanent seeding should be used to stabilize areas at final grade that will not be otherwise stabilized. Effective seeding includes preparing a seedbed, selecting an appropriate seed mixture, using proper seeding techniques, and protecting the seeded area with mulch, geotextiles, or other appropriate measures.



Photograph TS/PS-1: Equipment used to drill seed. Photo courtesy of Douglas County.

Appropriate Uses

When the soil surface is disturbed and will remain inactive for an extended period (typically determined by local government requirements), protective stabilization measures, including planting a temporary seed mix, should be implemented. If the inactive period is short-lived (on the order of two weeks), techniques such as surface roughening may be appropriate. For longer periods of inactivity of up to one year, temporary seeding and mulching can provide effective erosion control. Permanent seeding should be used on finished areas that have not been otherwise stabilized.

The USDCM Volume 2 *Revegetation* Chapter contains suggested annual grains and native seed mixes to use for temporary seeding. Alternatively, local governments may have their own seed mixes and timelines for seeding. Check jurisdictional guidelines for seeding of temporary stabilization.

Design and Installation

Effective seeding requires proper seedbed preparation, selecting an appropriate seed mixture, using appropriate seeding equipment to ensure proper coverage and density, and protecting seeded areas with mulch or fabric until plants are established.

The USDCM Volume 2 *Revegetation* Chapter contains detailed seed mixes, soil preparation practices, and seeding and mulching recommendations that should be referenced to supplement this sheet.

Drill seeding is the preferred seeding method. Hydroseeding is not recommended except in areas where steep slopes prevent use of drill seeding equipment, and even in those instances it is preferable to hand seed and mulch. Some jurisdictions do not allow hydroseeding or hydroseeding.

Seedbed Preparation

Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Overcut grading can result in loss of topsoil and compaction resulting in poor quality substrates at the ground surface that

Temporary and Permanent Seeding	
Function	Yes/No
Erosion Control	Yes
Sediment Control	No
Soil/Material Management	No

January 2021	Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3	TS/PS-1
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EC-2 Temporary and Permanent Seeding (TS/PS)

here low nutrient value, little organic matter content, few soil microorganisms, rooting restrictions, and conditions less conducive to infiltration of precipitation. As a result, it is typically necessary to provide stockpiled topsoil, compost, or other soil amendments and trowel 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. The rooting depth of most native grasses in the semi-arid Denver metropolitan area is 6 to 18 inches. If present, at a minimum of the upper 6 inches of topsoil should be stockpiled, and ultimately respread across areas that will be revegetated.

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. Other treatments can be used to adjust soil pH conditions when needed. Soil testing, which is typically inexpensive, should be completed to determine and optimize the types and amounts of amendments that are required.

If the disturbed ground surface is compacted, rip or rototill the upper 12 inches of the surface prior to placing topsoil. If adding compost to the existing soil surface, rototilling is necessary. Surface roughening will assist in placing a stable topsoil layer on steeper slopes, and allow infiltration and root penetration to greater depths. Topsoil should not be placed where either the salvaged topsoil or receiving ground are frozen or snow covered.

Prior to seeding, the soil surface should be rough and the seedbed should be firm, but not too loose nor compacted. The upper layer of soil should be in a condition suitable for seeding in the proper depth and orientation to plant growth. Seed-soil contact is the key to good germination.

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 match the planted area. Temporary grain seed mixes available for the Denver metropolitan area are listed in Table TS/PS-1. Native temporary seed mixes are provided in USDCM Volume 2, Chapter 13, Appendix A. These are to be considered only as general recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

Permanent Revegetation

To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established. Permanent seedings should be performed promptly (typically within 14 days) after reaching final grade. Each site will have different characteristics and a landscape professional or the local jurisdiction should be contacted to determine the most suitable seed mix for a specific site. In lieu of a specific recommendation, one of the perennial grass mixes appropriate for site conditions and growth season listed in seed mix tables in the USDCM Volume 2 *Revegetation* Chapter can be used. The pure live seed (PLS) rates of application recommended in these tables are considered to be absolute minimum rates for seed applied using proper drill-seeding equipment. These are to be considered only as general

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

recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

If desired for wildlife habitat or landscape diversity, shrubs such as rubber rabbitbrush (*Chrysothamnus nauseosus*), fourwing saltbush (*Atriplex canescens*) and shrubby sagebrush (*Artemisia tridentata*) could be added to the upland seed mixes at 0.25, 0.5 and 1 pound PLS/acre, respectively. In riparian zones, planting root stock of such species as American plum (*Prunus americana*), woody rose (*Rosa woodsii*), plains cottonwood (*Populus sargentii*), and willow (*Salix spp.*) may be considered. On non-opposed upland sites, a legume such as Ladak alfalfa at 1 pound PLS/acre can be included as a source of nitrogen for perennial grasses.

Timing of seeding is an important aspect of the revegetation process. For upland and riparian areas on the Colorado Front Range, the suitable timing for seeding is from October through May. The most favorable time to plant non-irrigated areas is during the fall, so that seed can take advantage of winter and spring moisture. Seed should not be planted if the soil is frozen, snow covered, or wet.

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. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-2 for appropriate seeding dates.

Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

Refer to MHD's Topsoil Management Guidance for detailed information on topsoil assessment, design, and construction.

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 match the planted area. Temporary grain seed mixes available for the Denver metropolitan area are listed in Table TS/PS-1. Native temporary seed mixes are provided in USDCM Volume 2, Chapter 13, Appendix A. These are to be considered only as general recommendations when specific design guidance for a particular site is not available. Local governments typically specify seed mixes appropriate for their jurisdiction.

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To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established. Permanent seedings should be performed promptly (typically within 14 days) after reaching final grade. Each site will have different characteristics and a landscape professional or the local jurisdiction should be contacted to determine the most suitable seed mix for a specific site. In lieu of a specific recommendation, one of the perennial grass mixes appropriate for site conditions and growth season listed in seed mix tables in the USDCM Volume 2 *Revegetation* Chapter can be used. The pure live seed (PLS) rates of application recommended in these tables are considered to be absolute minimum rates for seed applied using proper drill-seeding equipment. These are to be considered only as general

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

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

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

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

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

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

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

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

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

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

Mulch

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

Maintenance and Removal

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

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

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

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

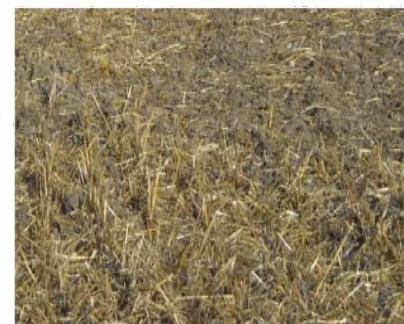
Protect seeded areas from construction equipment and vehicle access.

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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, tacking, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.



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

Mulch can be applied either using standard mechanical dry application methods or using hydroseeding 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. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

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

Do not apply mulch during windy conditions.

Design and Installation

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

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

Mulch	
Function	Yes/No
Erosion Control	Yes
Sediment Control	Moderate
Soil/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. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimping must be capable of tacking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.

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

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

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

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

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

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

Maintenance and Removal

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

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REFERENCE DRAWINGS X-TITLE-CD X-886-PR-SITE FEMA_XS X-886-066-EX-MAP-1 164022-01 Hay Creek Road BENEY X-886-ALTA-SURVEY Hay Creek BFEs	REVISIONS <table border="1"> <thead> <tr> <th>No.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			No.	DATE	DESCRIPTION	BY					SHEET KEY 	BENCHMARK PROJECT ELEVATIONS ARE NAVD 88 ELEVATIONS BASED ON AN OPUS DERIVED ELEVATION ON CONTROL POINT 10, A NO. 5 REBAR HAVING AN ELEVATION OF 5769.92. BASIS OF BEARING THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 22, TOWNSHIP 15 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO, BEING MONUMENTED ON THE EASTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "NOLTE PL325955 C1/4 S21 T165, R65W 1999," AND THE WESTERLY END BY A 2-1/2" ALUMINUM CAP STAMPED "SSS PLS 16154 1/4 S21 S22 T15S, R65W 2000," BEING ASSUMED TO BEAR S89°54'42"W, A DISTANCE OF 2,627.78 FEET.	PREPARED BY: Excellence by Design	SEAL <div style="border: 1px solid black; padding: 5px; text-align: center;"> PRELIMINARY THIS DRAWING HAS NOT BEEN APPROVED BY GOVERNING AGENCIES AND IS SUBJECT TO CHANGE </div>	HAY CREEK VALLEY EL PASO COUNTY, COLORADO FINAL GRADING & EROSION CONTROL PLANS DETAILS	DESIGNED BY: CWW DRAWN BY: CVW CHECKED BY: JAO SCALE: HORIZ. N/A VERT. N/A DATE ISSUED: JANUARY 2024 SHEET: 12 OF 12 DRAWING No. ECN03
	No.	DATE	DESCRIPTION	BY													
	COMPUTER FILE MANAGEMENT FILE NAME: S:\22.886.076 Hay Creek-Forest Manor-O'Leary Properties\500 CADD\504 Plan Sets\Construction Plans\GEC Plan\ECN01.dwg CTB FILE: Matrix.ctb PLOT DATE: 1/26/2024 3:13 PM THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.																
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 22.886.076																	
PCD FILE #: SF2324																	