



# LOT 2 - CLAREMONT BUSINESS PARK 2, FILING NO. 2

## COUNTY OF EL PASO, STATE OF COLORADO

# GRADING AND EROSION CONTROL PLANS

AUGUST 2023

### STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVENESS OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE MAINTAINED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- DURING Dewatering operations of uncontaminated ground water may be discharged on site, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE Dewatering PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, 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 ENTECH ENGINEERING, INC., TITLED "SOIL, GEOLOGY, AND GEOLOGIC HAZARD STUDY COPPER CHASE AT STERLING RANCH", DATED MARCH 7, 2022, REVISED \_\_\_\_\_ 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

Correct and update to correct report

### STANDARD CONSTRUCTION NOTES FOR EL PASO COUNTY:

- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO SPRINGS.
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIME INCLUDING THE FOLLOWING:
  - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
  - CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERIA MANUAL VOLUMES 1 AND 2.
  - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
  - CDOT M&S STANDARDS.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMP'S 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.
- IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORM WATER QUALITY CONTROL PERMIT (ESQCP), US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE CONSTRUCTION SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DPW AND MUTCD CRITERIA.
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRE BY EL PASO COUNTY DPW INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.
- 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. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY TO DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD.
- CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- ALL STORM DRAIN PIP SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
- CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AN PAVEMENT.
- SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.

### ADDITIONAL NOTES:

STAGING AREA TO BE DETERMINED/MODIFIED 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.

TEMPORARY SEDIMENT TRAP LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR IN THE FIELD.

EXISTING SITE TERRAIN GENERALLY SLOPES FROM NORTHEAST TO SOUTHWEST AT GRADE RATES THAT VARY BETWEEN 1% TO 4%.

THERE ARE NO BATCH PLANTS ON SITE.

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

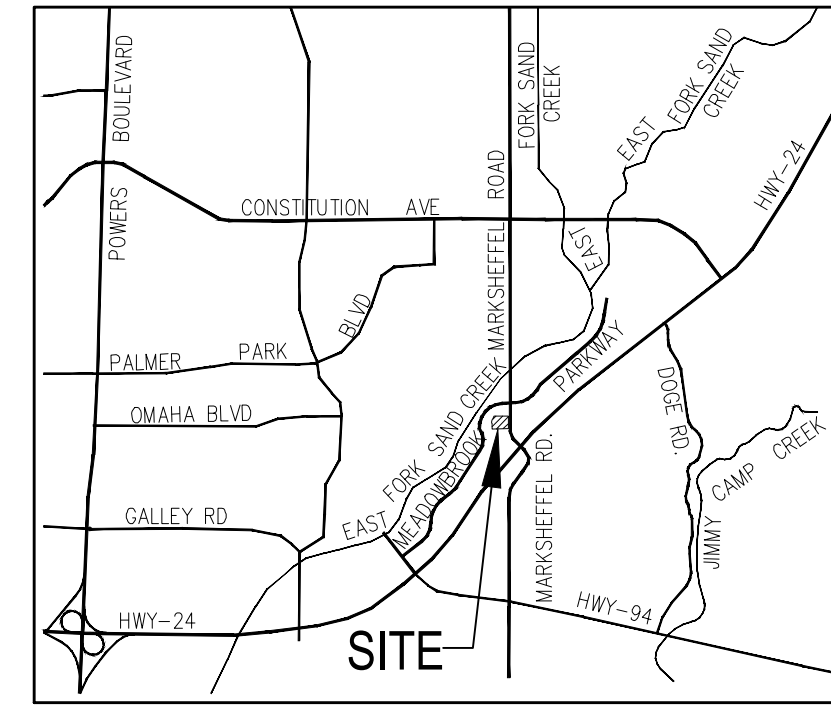
NO PORTION OF THIS PROPERTY IS LOCATED WITHIN A DESIGNATED FEMA FLOODPLAIN IN ACCORDANCE WITH FLOOD INSURANCE RATE MAPS (FIRM) 08041C0533G, EFFECTIVE DATE DECEMBER 7, 2018.

**EXISTING VEGETATION:**

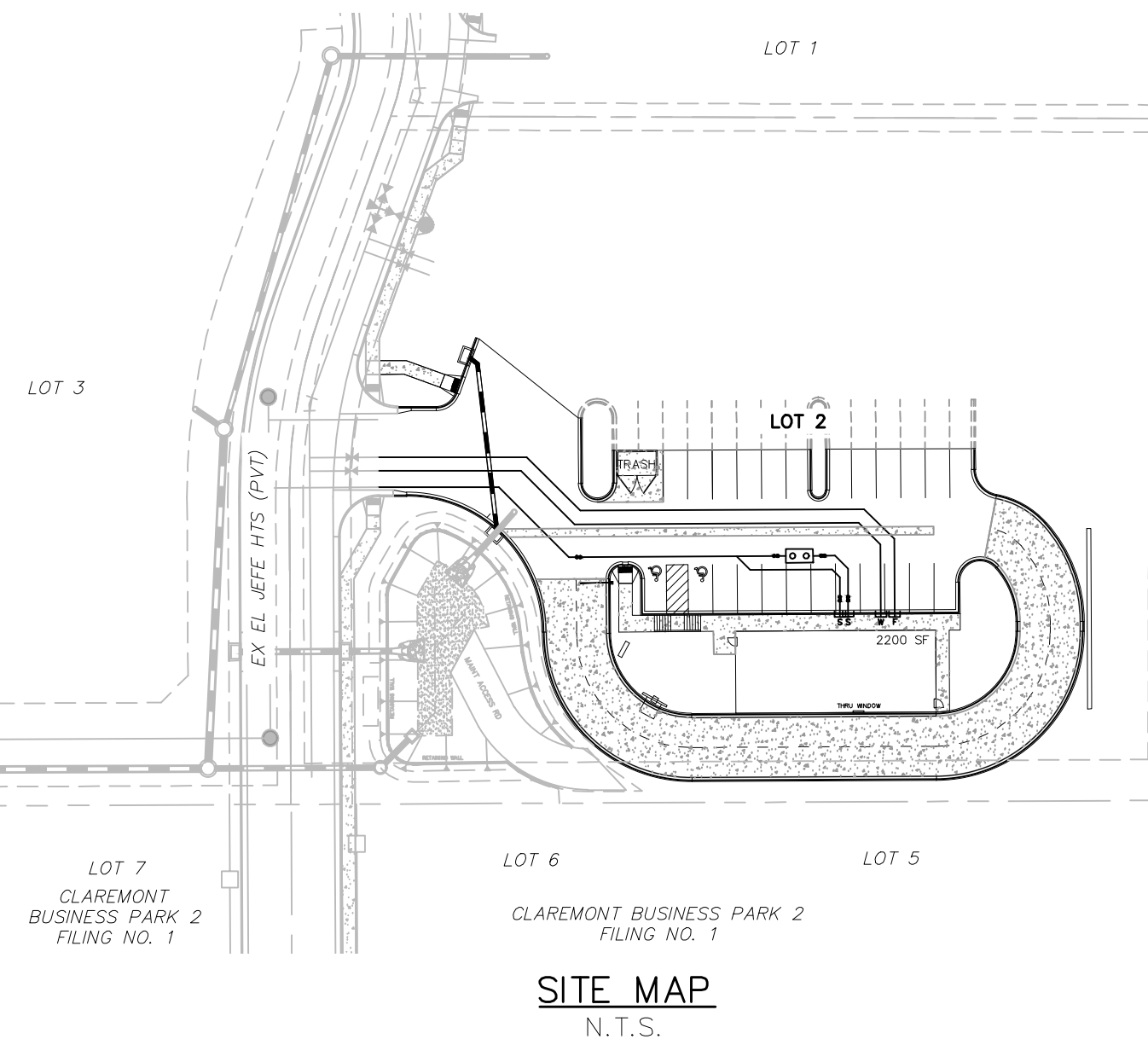
THE SITE HAS RECENTLY BEEN RESEEDDED WITH THE OVERLOT GRADING PERFORMED UNDER EPC PROJECT NO. SF \_\_\_\_\_ BY M&S CIVIL CONSULTANTS, INC.

TIMING: **FALL 2023-FALL 2024**  
 ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING: \_\_\_\_\_  
 EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED: \_\_\_\_\_

AREAS: 1,808 AC  
 TOTAL AREA OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED: \_\_\_\_\_  
 RECEIVING WATERS: SAND CREEK



VICINITY MAP  
N.T.S.



SITE MAP  
N.T.S.

### SHEET INDEX

SHEET 1	TITLE SHEET
SHEET 2	INITIAL GRADING AND EROSION CONTROL PLAN
SHEET 3	INTERIM GRADING AND EROSION CONTROL PLAN
SHEET 4	FINAL GRADING AND EROSION CONTROL PLAN
SHEET 5	DETAILED GRADING PLAN
SHEET 6	PEDESTRIAN RAMP AND VALLEY GUTTER DETAILS
SHEET 7	EROSION CONTROL DETAILS
SHEET 8	EROSION CONTROL DETAILS
SHEET 9	EROSION CONTROL DETAILS
SHEET 10	EROSION CONTROL DETAILS

### BENCHMARKS:

- BL33 BEING A BERNTSEN TOP SECURITY MONUMENT IN RANGE BOX 5' SOUTH OF SOUTHWEST CORNER OF HWY 24 UNDER CENTERLINE OF TRANSMISSION LINE.  
ELEVATION = 6372.26' PLATTE AVENUE
- CONTROL POINT 1, SET PK NAIL IN NE CORNER OF ELECTRIC TRANSFORMER PAD  
ELEVATION = 6372.26'

### BASIS OF BEARINGS

THE NORTH LINE OF LOTS 5, 6 AND 7 "CLAREMONT BUSINESS PARK 2 FILING NO. 1" AS RECORDED UNDER RECEPTION NO. 221714714 OF THE RECORDS OF EL PASO COUNTY, COLORADO, MONUMENTED AT THE NORTHEAST CORNER OF LOT 5 WITH A NO. 5 REBAR WITH ORANGE SURVEYOR'S CAP STAMPED "M&S CIVIL PLS 25966", FROM WHICH THE NORTHWEST CORNER OF LOT 7, MONUMENTED WITH A NO. 5 REBAR WITH ORANGE SURVEYOR'S CAP STAMPED "M&S CIVIL PLS 25966, BEARS S89°44'12"W, A DISTANCE OF 578.27 U.S. SURVEY FEET.

### AGENCIES:

OWNER/DEVELOPER: DOUBLETREE VENTURES  
BRIAN ZUREK, MANAGING PARTNER  
106 S. KYRENE RD. #2  
CHANDLER, AZ 85226  
(480) 313-2724

CIVIL ENGINEER: M & S CIVIL CONSULTANTS, INC.  
212 N. WAHSATCH, SUITE 305  
COLORADO SPRINGS, CO 80903  
VIRGIL A. SANCHEZ P.E. (719) 955-5485

COUNTY ENGINEERING: EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT  
2880 INTERNATIONAL CIRCLE, SUITE 110  
COLORADO SPRINGS, CO 80910  
(719) 520-6300

TRAFFIC ENGINEERING: EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS  
3275 AKERS DRIVE  
COLORADO SPRINGS, CO 80922  
JOSHUA PALMER, P.E. (719) 520-6460

WATER RESOURCES: CHEROKEE METROPOLITAN DISTRICT  
6250 PALMER PARK BOULEVARD  
COLORADO SPRINGS, CO 80915-1721  
JEFF MUNGER (719) 597-5080

FIRE DISTRICT: CIMARRON HILLS FIRE DEPARTMENT  
1835 TUSKEGEE PLACE  
COLORADO SPRINGS, CO 80915  
(719) 591-0960

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 80947  
TIM WENDT (719) 668-3556

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

### 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 NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

VIRGIL A. SANCHEZ, COLORADO P.E. #37160  
FOR AND ON BEHALF OF M & S CIVIL CONSULTANTS, INC. DATE \_\_\_\_\_

### OWNER/DEVELOPER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS IN THESE DETAILED PLANS AND SPECIFICATIONS.

BRIAN ZUREK, MANAGING PARTNER

### 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 DIRECTORS DISCRETION.

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

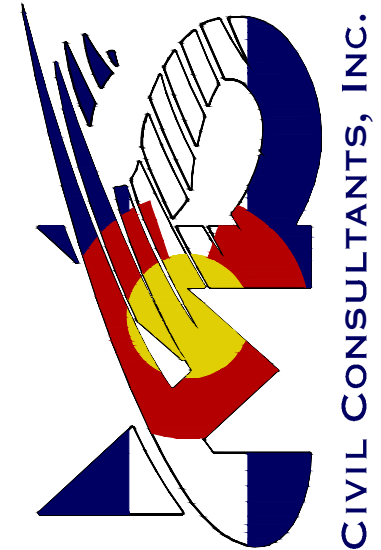
EL PASO COUNTY FILE NO. \_\_\_\_\_

LOT 2 CLAREMONT BUSINESS PARK 2 FIL. NO. 2

COVER SHEET

PROJECT NO. 10-025  
SCALE: HORIZONTAL: N/A  
VERTICAL: N/A  
DATE: 08/22/23  
DESIGNED BY: GT  
DRAWN BY: GT  
CHECKED BY: VAS  
SHEET 1 OF 10  
GEC01

212 N. WAHSATCH AVE. STE 305  
COLORADO SPRINGS, CO 80903  
PHONE: 719-955-5485



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

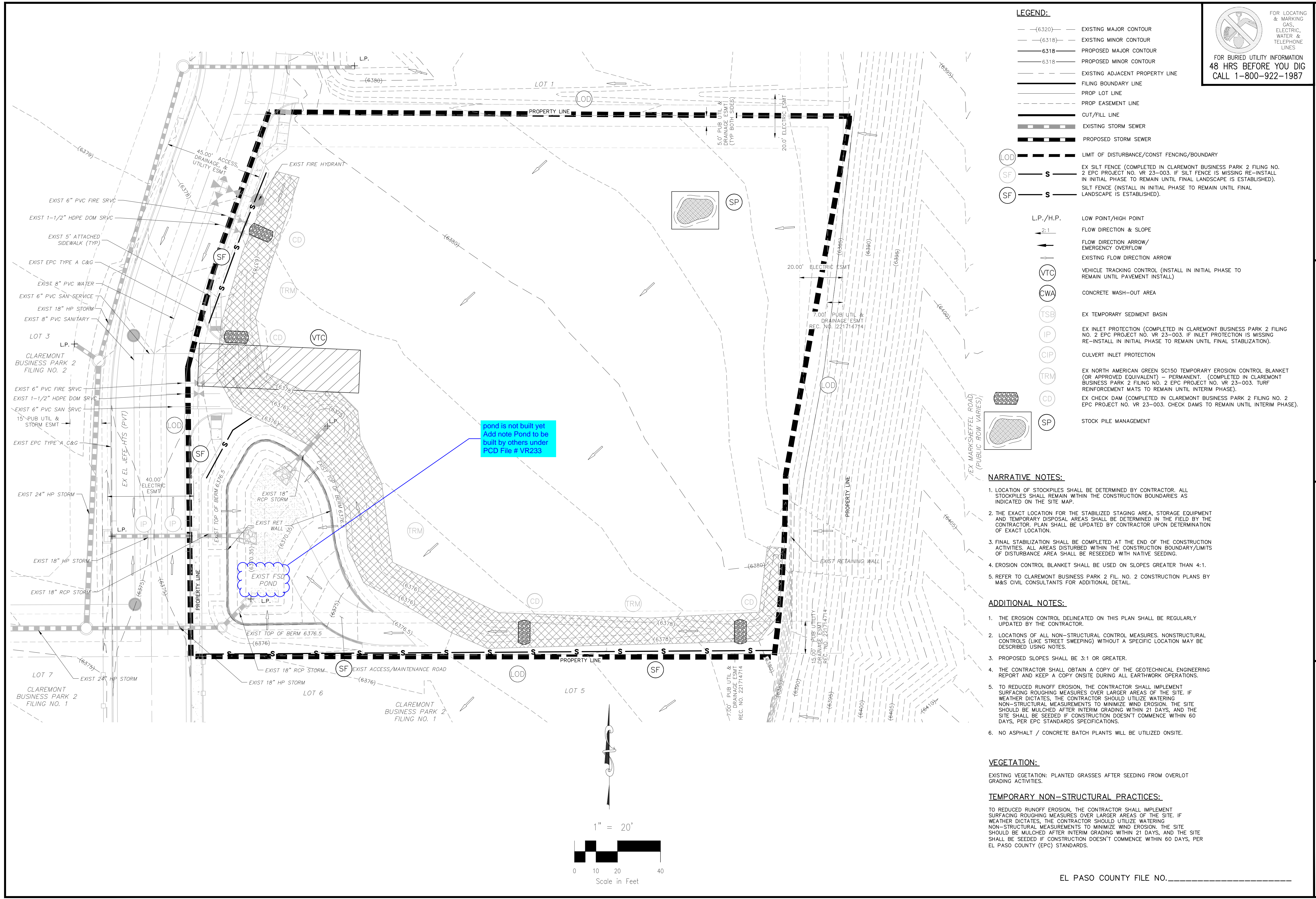
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS: NO. DATE: BY: DESCRIPTION:

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

CAUTION

PCD File # PPR2345



**LEGEND:**

- (6320)--- EXISTING MAJOR CONTOUR
- (6318)--- EXISTING MINOR CONTOUR
- 6318 PROPOSED MAJOR CONTOUR
- 6318 PROPOSED MINOR CONTOUR
- --- EXISTING ADJACENT PROPERTY LINE
- --- FILING BOUNDARY LINE
- --- PROP LOT LINE
- --- PROP EASEMENT LINE
- --- CUT/FILL LINE
- --- EXISTING STORM SEWER
- --- PROPOSED STORM SEWER
- LOD --- --- LIMIT OF DISTURBANCE/CONST FENCING/BOUNDARY
- SF --- S --- EX SILT FENCE (COMPLETED IN CLAREMONT BUSINESS PARK 2 FILING NO. 2 EPC PROJECT NO. VR 23-003; IF SILT FENCE IS MISSING RE-INSTALL IN INITIAL PHASE TO REMAIN UNTIL FINAL LANDSCAPE IS ESTABLISHED).
- SF --- S --- SILT FENCE (INSTALL IN INITIAL PHASE TO REMAIN UNTIL FINAL LANDSCAPE IS ESTABLISHED).
- L.P./H.P. --- --- LOW POINT/HIGH POINT
- 2:1 --- --- FLOW DIRECTION & SLOPE
- --- FLOW DIRECTION ARROW/ EMERGENCY OVERFLOW
- --- EXISTING FLOW DIRECTION ARROW
- VTC --- --- VEHICLE TRACKING CONTROL (INSTALL IN INITIAL PHASE TO REMAIN UNTIL PAVEMENT INSTALL)
- CWA --- --- CONCRETE WASH-OUT AREA
- TSE --- --- EX TEMPORARY SEDIMENT BASIN
- IP --- --- EX INLET PROTECTION (COMPLETED IN CLAREMONT BUSINESS PARK 2 FILING NO. 2 EPC PROJECT NO. VR 23-003; IF INLET PROTECTION IS MISSING RE-INSTALL IN INITIAL PHASE TO REMAIN UNTIL FINAL STABILIZATION).
- CIP --- --- CULVERT INLET PROTECTION
- TRM --- --- EX NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUIVALENT) - PERMANENT. (COMPLETED IN CLAREMONT BUSINESS PARK 2 FILING NO. 2 EPC PROJECT NO. VR 23-003. TURF REINFORCEMENT MATS TO REMAIN UNTIL INTERIM PHASE).
- CD --- --- EX CHECK DAM (COMPLETED IN CLAREMONT BUSINESS PARK 2 FILING NO. 2 EPC PROJECT NO. VR 23-003. CHECK DAMS TO REMAIN UNTIL INTERIM PHASE).
- SP --- --- STOCK PILE MANAGEMENT

**NARRATIVE NOTES:**

1. LOCATION OF STOCKPILES SHALL BE DETERMINED BY CONTRACTOR. ALL STOCKPILES SHALL REMAIN WITHIN THE CONSTRUCTION BOUNDARIES AS INDICATED ON THE SITE MAP.
2. THE EXACT LOCATION FOR THE STABILIZED STAGING AREA, STORAGE EQUIPMENT AND TEMPORARY DISPOSAL AREAS SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR. PLAN SHALL BE UPDATED BY CONTRACTOR UPON DETERMINATION OF EXACT LOCATION.
3. FINAL STABILIZATION SHALL BE COMPLETED AT THE END OF THE CONSTRUCTION ACTIVITIES. ALL AREAS DISTURBED WITHIN THE CONSTRUCTION BOUNDARY/LIMITS OF DISTURBANCE AREA SHALL BE RESEED WITH NATIVE SEEDING.
4. EROSION CONTROL BLANKET SHALL BE USED ON SLOPES GREATER THAN 4:1.
5. REFER TO CLAREMONT BUSINESS PARK 2 FIL. NO. 2 CONSTRUCTION PLANS BY M&S CIVIL CONSULTANTS FOR ADDITIONAL DETAIL.

**ADDITIONAL NOTES:**

1. THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.
2. LOCATIONS OF ALL NON-STRUCTURAL CONTROL MEASURES, NONSTRUCTURAL CONTROLS (LIKE STREET SWEEPING) WITHOUT A SPECIFIC LOCATION MAY BE DESCRIBED USING NOTES.
3. PROPOSED SLOPES SHALL BE 3:1 OR GREATER.
4. THE CONTRACTOR SHALL OBTAIN A COPY OF THE GEOTECHNICAL ENGINEERING REPORT AND KEEP A COPY ONSITE DURING ALL EARTHWORK OPERATIONS.
5. TO REDUCED RUNOFF EROSION, THE CONTRACTOR SHALL IMPLEMENT SURFACING ROUGHING MEASURES OVER LARGER AREAS OF THE SITE. IF WEATHER DICTATES, THE CONTRACTOR SHOULD UTILIZE WATERING NON-STRUCTURAL MEASUREMENTS TO MINIMIZE WIND EROSION. THE SITE SHOULD BE MULCHED AFTER INTERIM GRADING WITHIN 21 DAYS, AND THE SITE SHALL BE SEEDDED IF CONSTRUCTION DOESN'T COMMENCE WITHIN 60 DAYS, PER EPC STANDARDS SPECIFICATIONS.
6. NO ASPHALT / CONCRETE BATCH PLANTS WILL BE UTILIZED ONSITE.

**VEGETATION:**

EXISTING VEGETATION: PLANTED GRASSES AFTER SEEDING FROM OVERLOT GRADING ACTIVITIES.

**TEMPORARY NON-STRUCTURAL PRACTICES:**

TO REDUCED RUNOFF EROSION, THE CONTRACTOR SHALL IMPLEMENT SURFACING ROUGHING MEASURES OVER LARGER AREAS OF THE SITE. IF WEATHER DICTATES, THE CONTRACTOR SHOULD UTILIZE WATERING NON-STRUCTURAL MEASUREMENTS TO MINIMIZE WIND EROSION. THE SITE SHOULD BE MULCHED AFTER INTERIM GRADING WITHIN 21 DAYS, AND THE SITE SHALL BE SEEDDED IF CONSTRUCTION DOESN'T COMMENCE WITHIN 60 DAYS, PER EL PASO COUNTY (EPC) STANDARDS.

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES  
 FOR BURIED UTILITY INFORMATION  
 48 HRS BEFORE YOU DIG  
 CALL 1-800-922-1987

**LOT 2 CLAREMONT BUSINESS PARK 2 FIL. NO. 2**  
**INITIAL GRADING AND EROSION CONTROL PLANS**  
 PROJECT NO. 10-025  
 SCALE: HORIZONTAL: 1"=20'  
 VERTICAL: N/A  
 DATE: 08/22/23  
 SHEET 2 OF 10  
**GEOC2**

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

**M&S CIVIL CONSULTANTS, INC.**

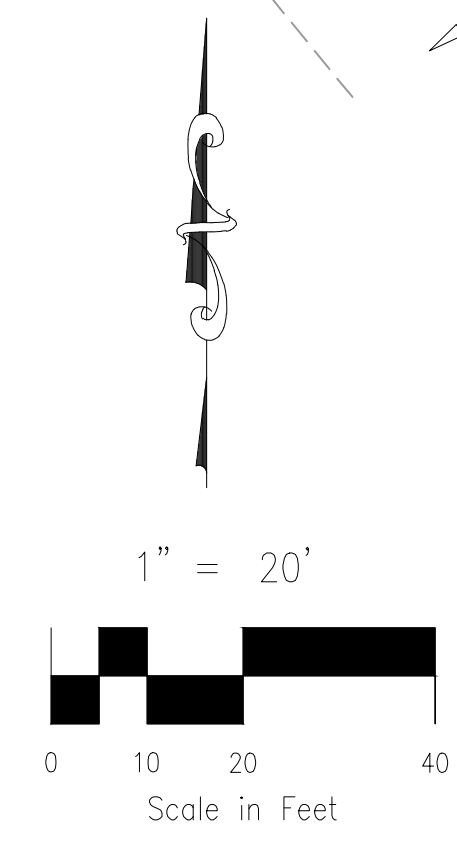
FOR AND ON BEHALF OF  
 M&S CIVIL CONSULTANTS, INC.

REV. NO.	DATE	BY	DESCRIPTION

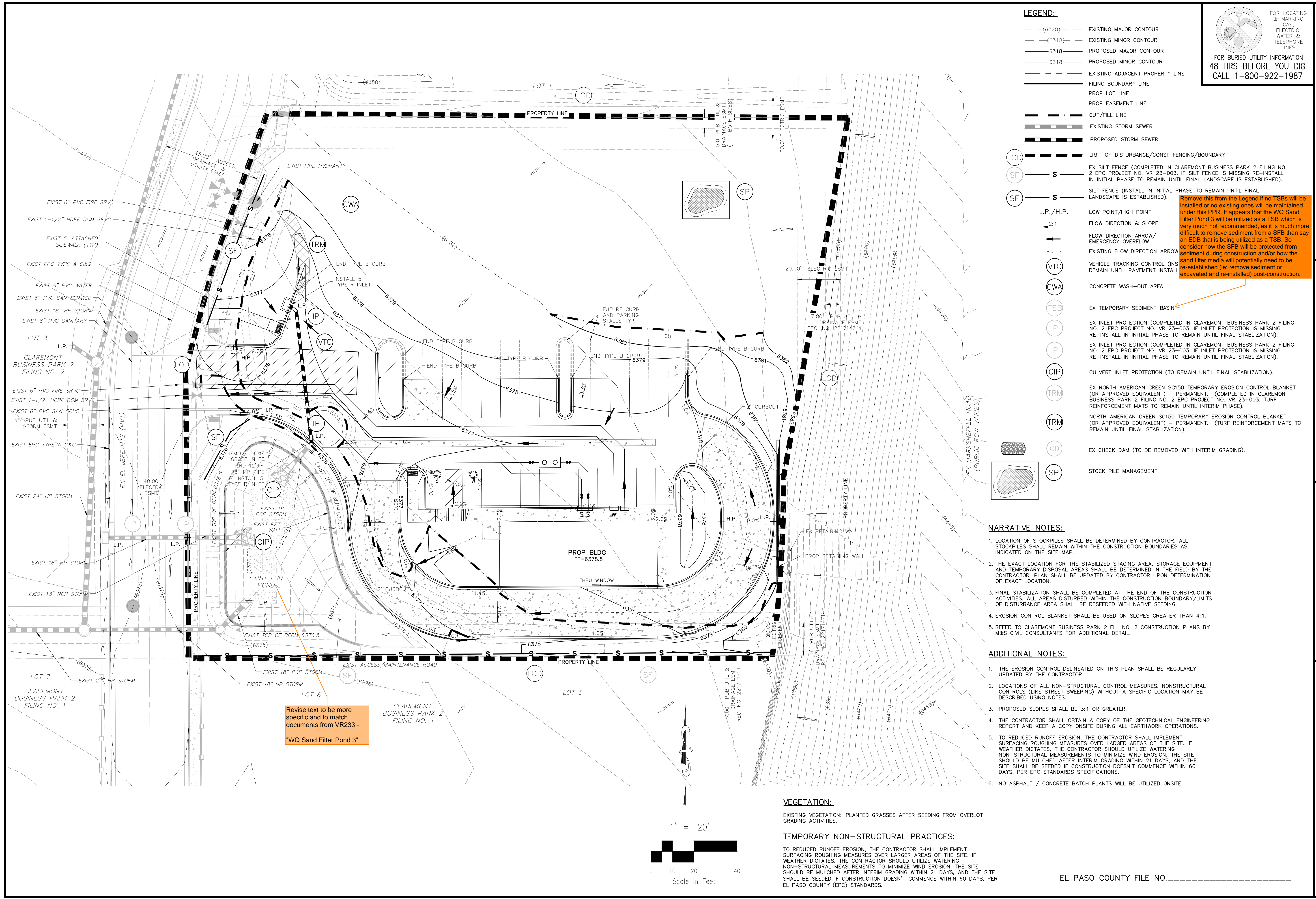
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 APPROV'D. BY: \_\_\_\_\_

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**CAUTION**



EL PASO COUNTY FILE NO. \_\_\_\_\_



Revise text to be more specific and to match documents from VR233 - "WQ Sand Filter Pond 3"

**LEGEND:**

- (6320)--- EXISTING MAJOR CONTOUR
- (6318)--- EXISTING MINOR CONTOUR
- 6318--- PROPOSED MAJOR CONTOUR
- 6318--- PROPOSED MINOR CONTOUR
- --- EXISTING ADJACENT PROPERTY LINE
- --- FILING BOUNDARY LINE
- --- PROP LOT LINE
- --- PROP EASEMENT LINE
- --- CUT/FILL LINE
- --- EXISTING STORM SEWER
- --- PROPOSED STORM SEWER
- LOD --- LIMIT OF DISTURBANCE/CONST FENCING/BOUNDARY
- SF --- EX SILT FENCE (COMPLETED IN CLAREMONT BUSINESS PARK 2 FILING NO. 2 EPC PROJECT NO. VR 23-003. IF SILT FENCE IS MISSING RE-INSTALL IN INITIAL PHASE TO REMAIN UNTIL FINAL LANDSCAPE IS ESTABLISHED).
- SF --- SILT FENCE (INSTALL IN INITIAL PHASE TO REMAIN UNTIL FINAL LANDSCAPE IS ESTABLISHED).
- L.P./H.P. --- LOW POINT/HIGH POINT
- 2:1 --- FLOW DIRECTION & SLOPE
- --- FLOW DIRECTION ARROW/ EMERGENCY OVERFLOW
- --- EXISTING FLOW DIRECTION ARROW
- VTC --- VEHICLE TRACKING CONTROL (INS REMAIN UNTIL PAVEMENT INSTALL)
- CWA --- CONCRETE WASH-OUT AREA
- TSE --- EX TEMPORARY SEDIMENT BASIN
- IP --- EX INLET PROTECTION (COMPLETED IN CLAREMONT BUSINESS PARK 2 FILING NO. 2 EPC PROJECT NO. VR 23-003. IF INLET PROTECTION IS MISSING RE-INSTALL IN INITIAL PHASE TO REMAIN UNTIL FINAL STABILIZATION).
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- CIP --- CULVERT INLET PROTECTION (TO REMAIN UNTIL FINAL STABILIZATION).
- TRM --- EX NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUIVALENT) - PERMANENT. (COMPLETED IN CLAREMONT BUSINESS PARK 2 FILING NO. 2 EPC PROJECT NO. VR 23-003. TURF REINFORCEMENT MATS TO REMAIN UNTIL INTERIM PHASE).
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- SP --- STOCK PILE MANAGEMENT

**NARRATIVE NOTES:**

1. LOCATION OF STOCKPILES SHALL BE DETERMINED BY CONTRACTOR. ALL STOCKPILES SHALL REMAIN WITHIN THE CONSTRUCTION BOUNDARIES AS INDICATED ON THE SITE MAP.
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4. EROSION CONTROL BLANKET SHALL BE USED ON SLOPES GREATER THAN 4:1.
5. REFER TO CLAREMONT BUSINESS PARK 2 FIL. NO. 2 CONSTRUCTION PLANS BY M&S CIVIL CONSULTANTS FOR ADDITIONAL DETAIL.

**ADDITIONAL NOTES:**

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2. LOCATIONS OF ALL NON-STRUCTURAL CONTROL MEASURES. NONSTRUCTURAL CONTROLS (LIKE STREET SWEEPING) WITHOUT A SPECIFIC LOCATION MAY BE DESCRIBED USING NOTES.
3. PROPOSED SLOPES SHALL BE 3:1 OR GREATER.
4. THE CONTRACTOR SHALL OBTAIN A COPY OF THE GEOTECHNICAL ENGINEERING REPORT AND KEEP A COPY ONSITE DURING ALL EARTHWORK OPERATIONS.
5. TO REDUCED RUNOFF EROSION, THE CONTRACTOR SHALL IMPLEMENT SURFACING ROUGHING MEASURES OVER LARGER AREAS OF THE SITE. IF WEATHER DICTATES, THE CONTRACTOR SHOULD UTILIZE WATERING NON-STRUCTURAL MEASUREMENTS TO MINIMIZE WIND EROSION. THE SITE SHOULD BE MULCHED AFTER INTERIM GRADING WITHIN 21 DAYS, AND THE SITE SHALL BE SEEDDED IF CONSTRUCTION DOESN'T COMMENCE WITHIN 60 DAYS, PER EPC STANDARDS SPECIFICATIONS.
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FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES  
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 CALL 1-800-922-1987**

**LOT 2 CLAREMONT BUSINESS PARK 2 FIL. NO. 2**

**INITIAL GRADING AND EROSION CONTROL PLANS**

PROJECT NO. 10-025  
 SCALE: HORIZONTAL: 1"=20'  
 VERTICAL: N/A  
 DATE: 08/22/23  
 DESIGNED BY: GT  
 DRAWN BY: GT  
 CHECKED BY: VAS

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

**CIVIL CONSULTANTS, INC.**

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

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

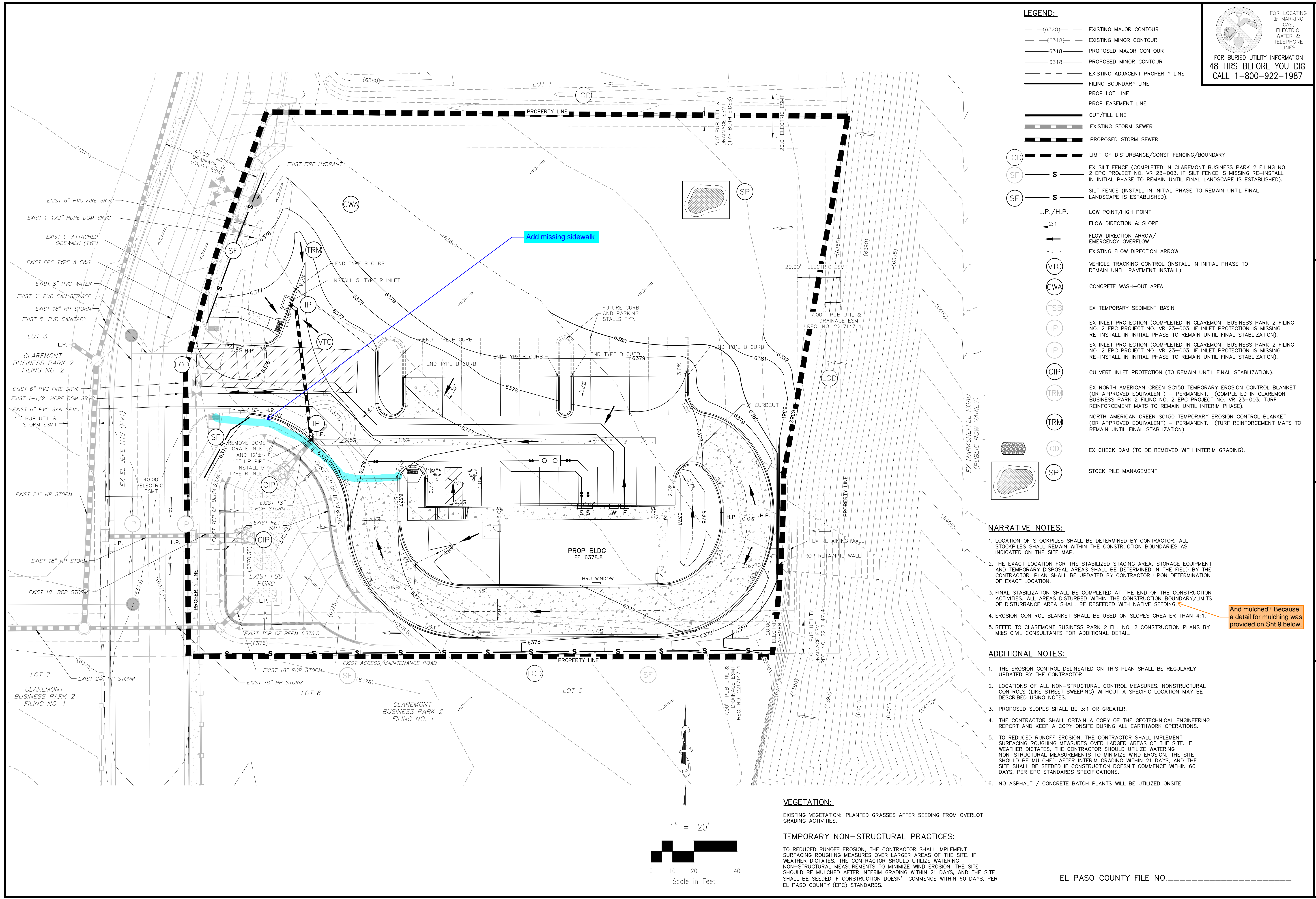
REV. NO.	DATE	BY	DESCRIPTION

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CAUTION

EL PASO COUNTY FILE NO. \_\_\_\_\_

File: 0:\10025A-CBP2 - Lot 2\Bran Zurek\DWG\Const\DWG\Grading\GEO04.dwg Plotstamp: 8/23/2023 10:50 AM



**FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES**  
**FOR BURIED UTILITY INFORMATION**  
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  - FILING BOUNDARY LINE
  - PROP LOT LINE
  - PROP EASEMENT LINE
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And mulched? Because a detail for mulching was provided on Sht 9 below.

**ADDITIONAL NOTES:**

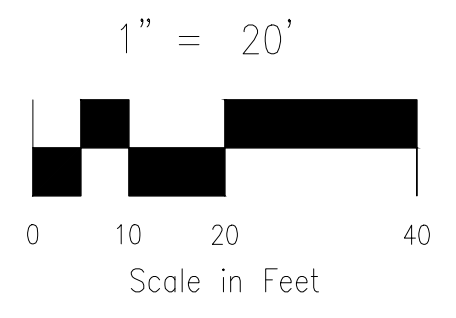
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**LOT 2 CLAREMONT BUSINESS PARK 2 FIL. NO. 2**  
**FINAL GRADING AND EROSION CONTROL PLANS**  
 PROJECT NO. 10-025  
 SCALE: HORIZONTAL: 1"=20' VERTICAL: N/A  
 DATE: 08/22/23  
 DESIGNED BY: GT  
 DRAWN BY: GT  
 CHECKED BY: VAS

2120 N. WASHCATCH AVE. STE 305  
 COLORADO SPRINGS, CO 80903  
 PHONE: 719.955.5466

**CIVIL CONSULTANTS, INC.**

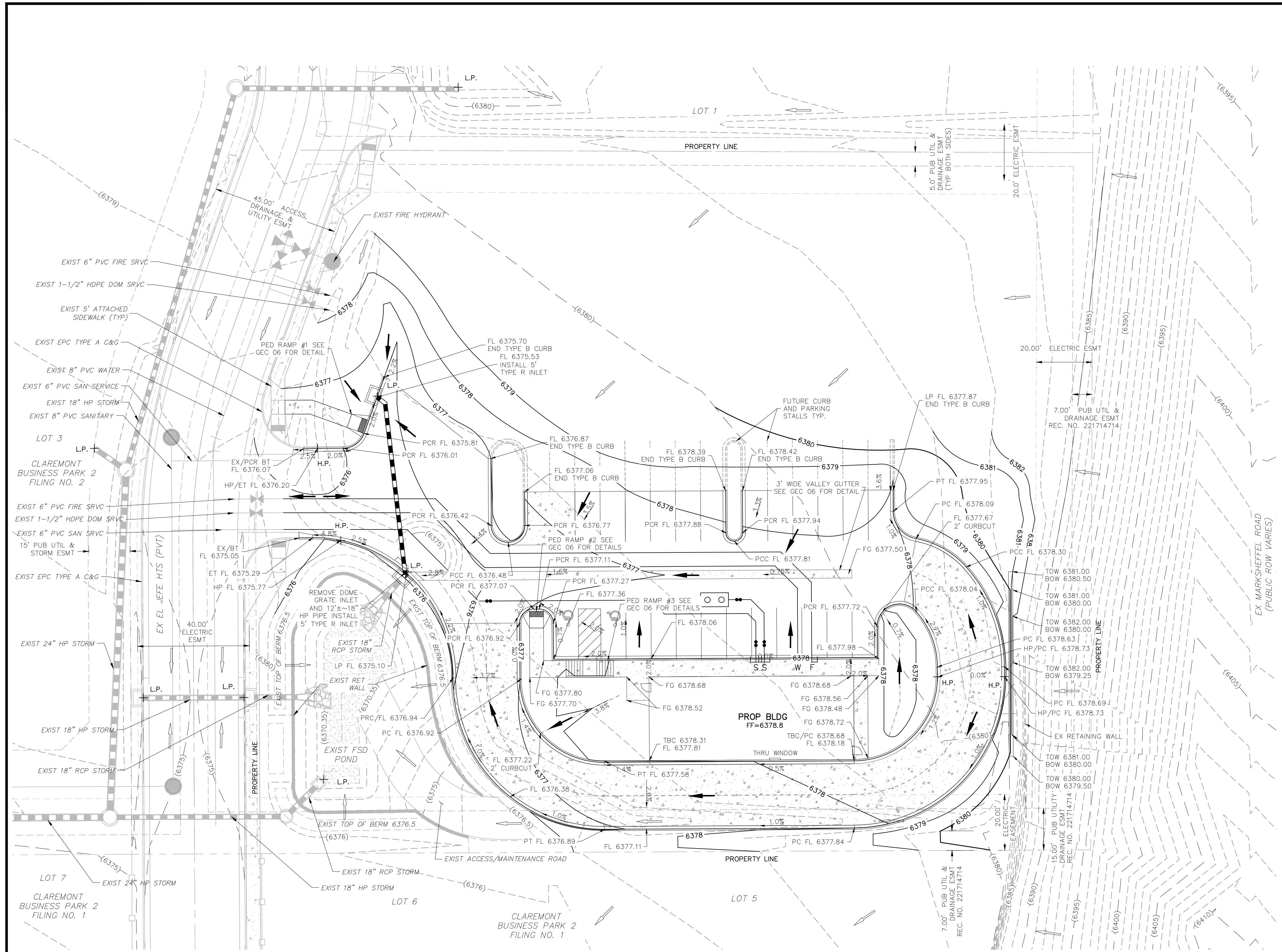
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

REVISIONS:  
 NO. DATE BY DESCRIPTION

EL PASO COUNTY FILE NO. \_\_\_\_\_

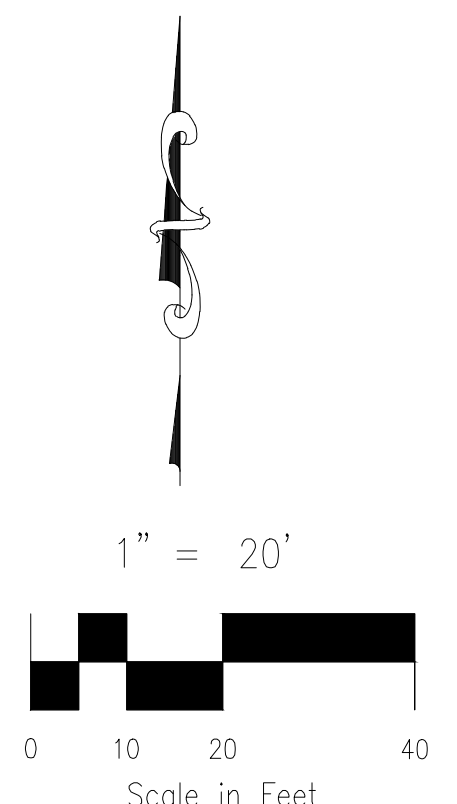
CAUTION

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**LEGEND**

- (6920)--- EXISTING MAJOR CONTOUR
- (6918)--- EXISTING MINOR CONTOUR
- 6920— PROPOSED MAJOR CONTOUR
- 6918— PROPOSED MINOR CONTOUR
- — — EXISTING/FUTURE STORM DRAIN
- — — PROPOSED STORM DRAIN
- — — PROPOSED CURB & GUTTER
- — — PROPOSED SPILL CURB & GUTTER
- — — PROPOSED LOT LINE
- — — PROPOSED DRAINAGE EASEMENT
- — — PROPOSED ACCESS, UTILITY, IMPROVEMENT & DRAINAGE ESMT
- L.P./H.P. LOW POINT/HIGH POINT
- 2.1% FLOW DIRECTION & SLOPE
- FLOW DIRECTION ARROW
- ← EXISTING FLOW DIRECTION ARROW
- FG FINISH GRADE
- SW SIDEWALK
- TOW TOP OF WALL
- BOW BOTTOM OF WALL
- TBC TOP BACK CURB
- FL FLOWLINE
- FF FINISH FLOOR
- EX/EXIST EXISTING
- ESMT EASEMENT
- PVT PRIVATE
- U/G UNDERGROUND
- LS LANDSCAPE



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

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LOT 2 CLAREMONT BUSINESS PARK 2 FIL. NO. 2

**DETAILED GRADING PLAN**

PROJECT NO. 10-025 DATE: 08/22/23

SCALE: HORIZONTAL: 1"=20' VERTICAL: N/A

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

GEC05

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

**CIVIL CONSULTANTS, INC.**

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

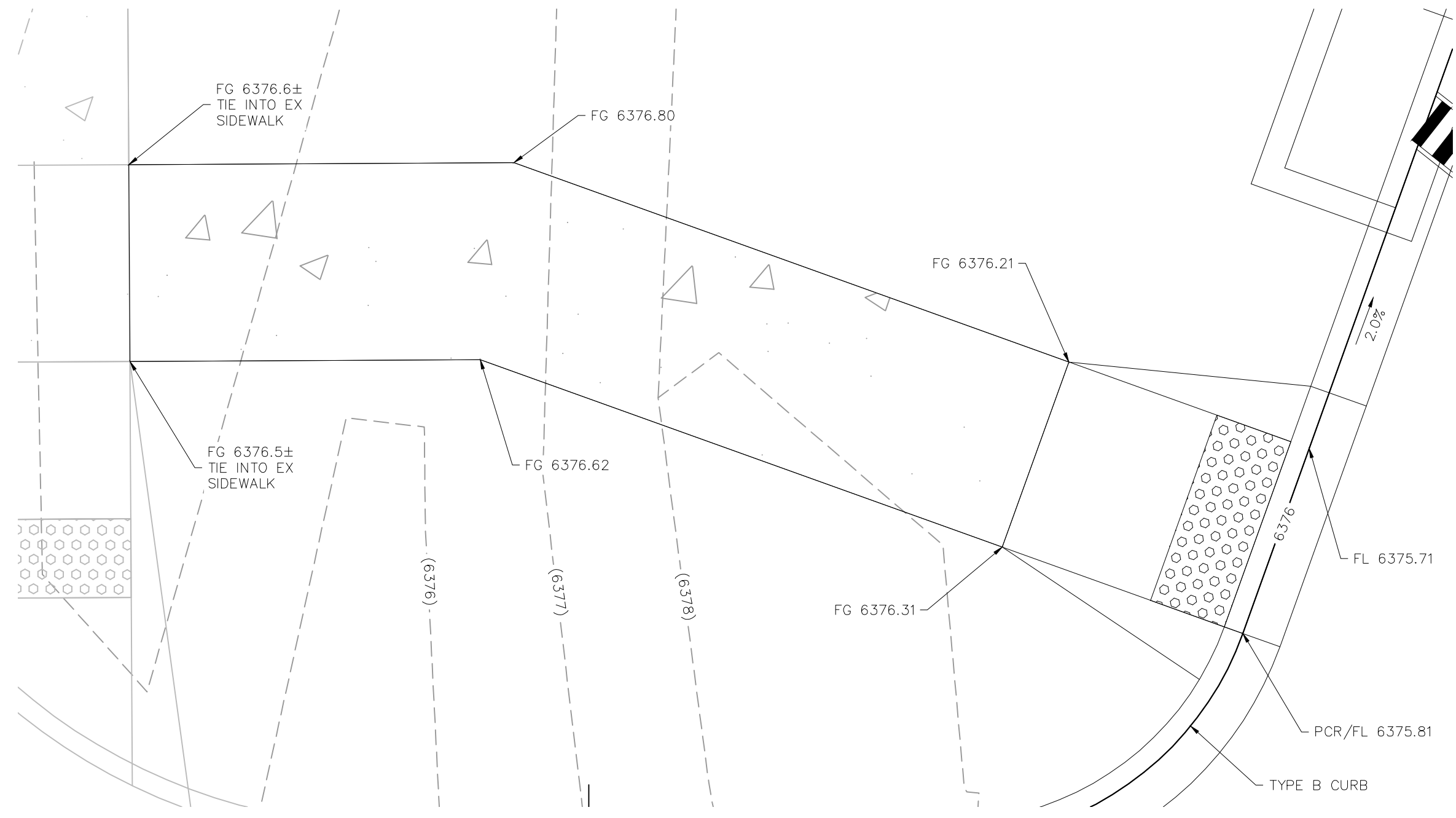
FOR AND ON BEHALF OF CIVIL CONSULTANTS, INC.

NO.	DATE	BY	DESCRIPTION

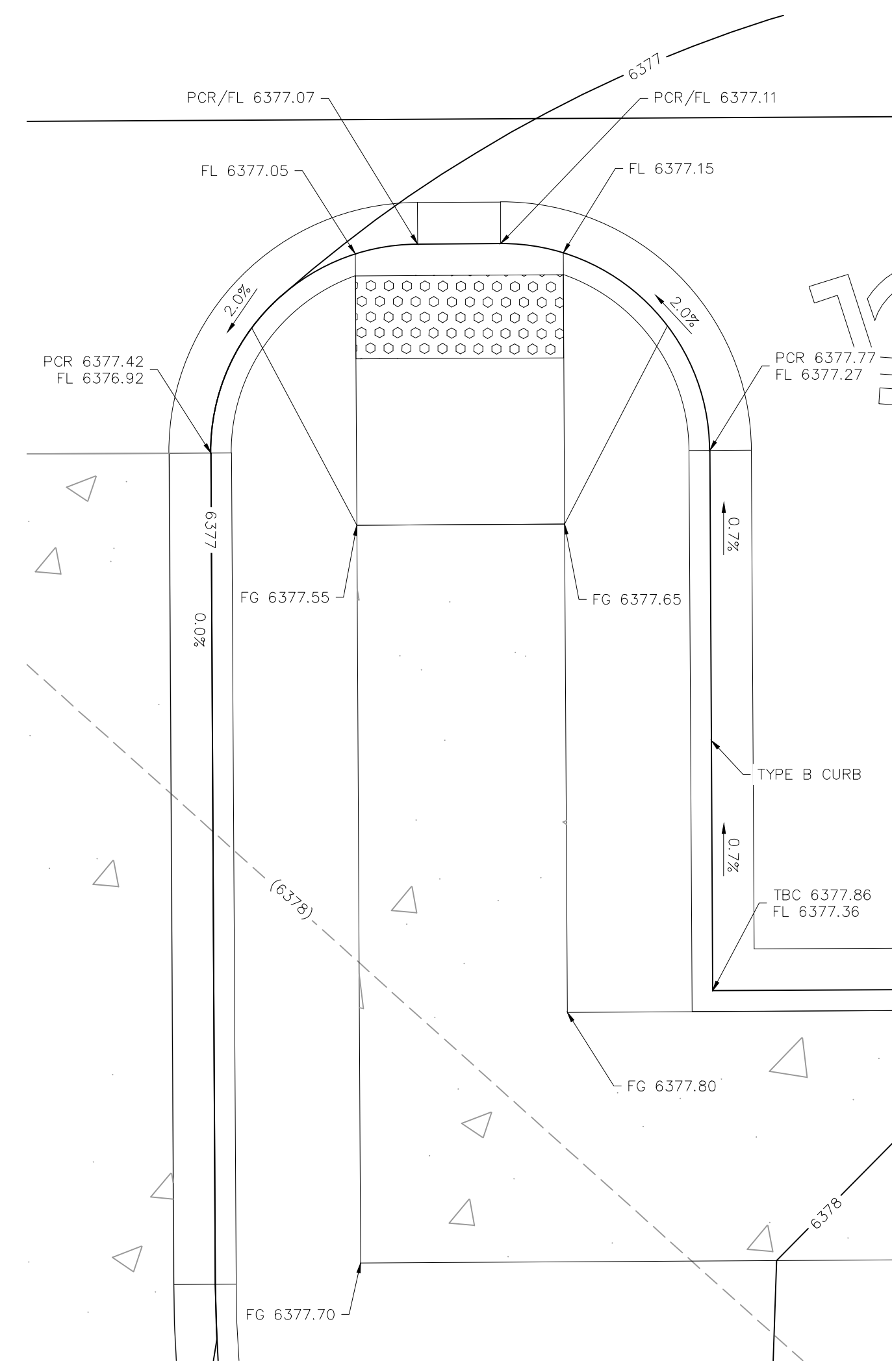
EL PASO COUNTY FILE NO. \_\_\_\_\_

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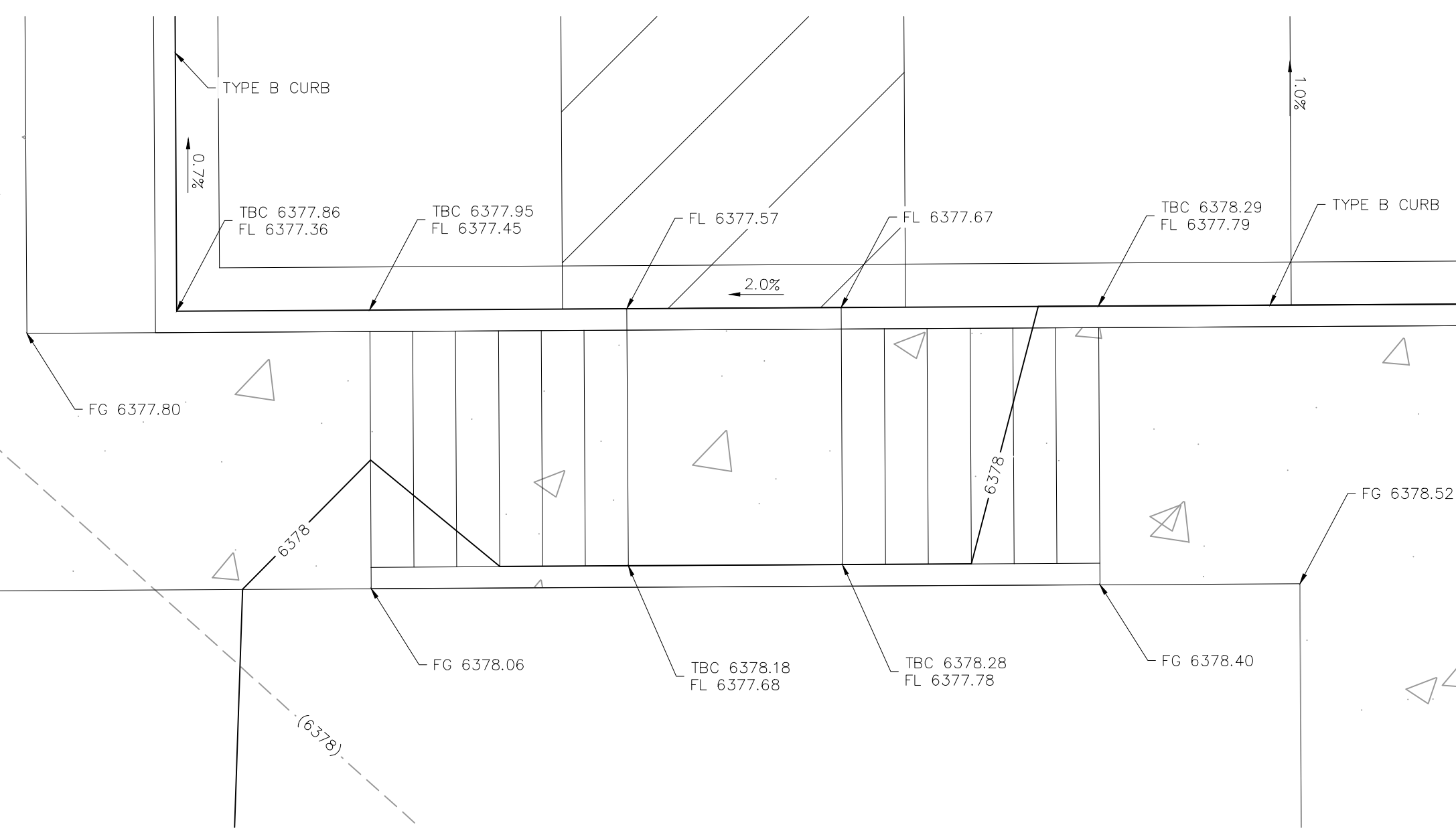
CAUTION



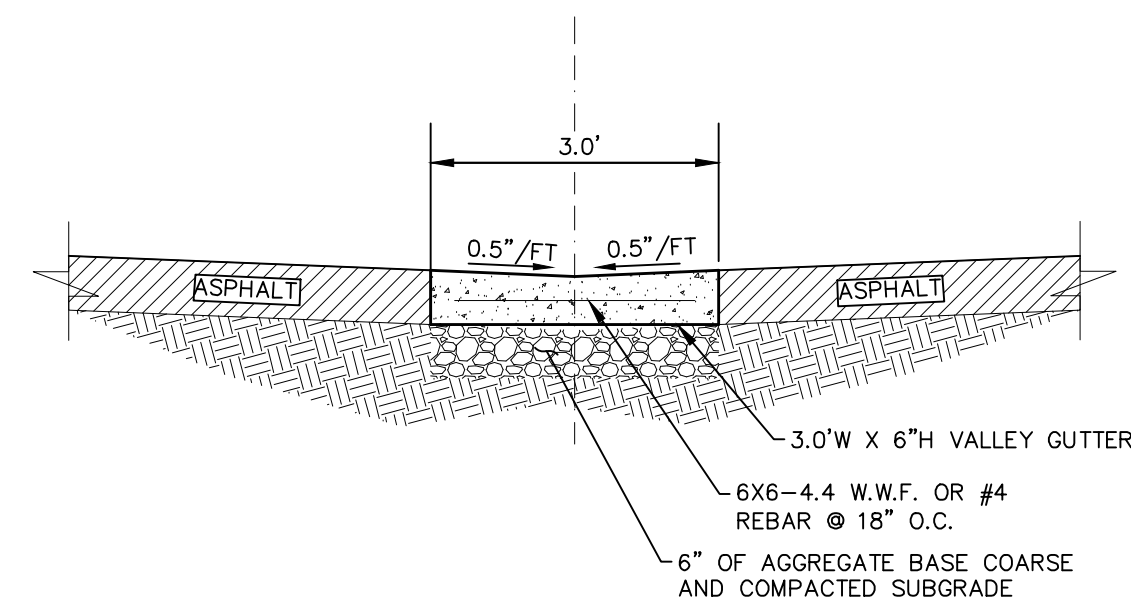
**PEDESTRIAN RAMP #1 FROM EL JEFE HEIGHTS**  
SCALE 1"=3'



**PEDESTRIAN RAMP #2**  
SCALE 1"=3'



**DUAL PEDESTRIAN RAMP #3**  
SCALE 1"=3'



**3' WIDE VALLEY GUTTER**  
SCALE 1"=2'

**LEGEND**

- (6920)--- EXISTING MAJOR CONTOUR
- (6918)--- EXISTING MINOR CONTOUR
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- 6918— PROPOSED MINOR CONTOUR
- — — EXISTING/FUTURE STORM DRAIN
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- ESMT EASEMENT
- PVT PRIVATE
- U/G UNDERGROUND
- LS LANDSCAPE

LOT 2 CLAREMONT BUSINESS PARK 2 FIL. NO. 2  
**PEDESTRIAN RAMP & VALLEY GUTTER DETAILS**  
 PROJECT NO. 10-025 DATE: 08/22/23  
 SCALE: HORIZONTAL: N/A VERTICAL: N/A  
 DESIGNED BY: GT DRAWN BY: GT CHECKED BY: VAS  
**GEC06**  
 SHEET 6 OF 10

212 N. WABATCH AVE. STE 305  
 COLORADO SPRINGS, CO 80903  
 PHONE: 719.555.5466

**CIVIL CONSULTANTS, INC.**

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

NO.	DATE	BY	DESCRIPTION

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CAUTION

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**FOR BURIED UTILITY INFORMATION**  
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**CALL 1-800-922-1987**

EL PASO COUNTY FILE NO. \_\_\_\_\_

**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  
Urban Storm Drainage Criteria Manual Volume 3

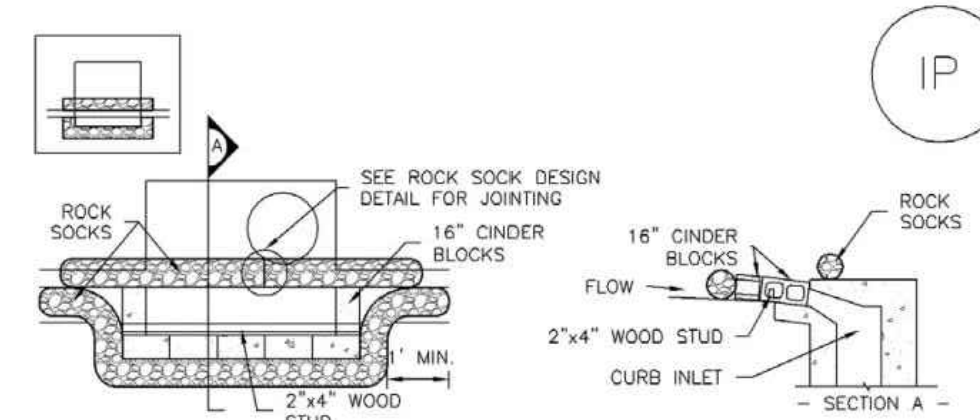
**Inlet Protection (IP) SC-6**

- 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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Urban Storm Drainage Criteria Manual Volume 3

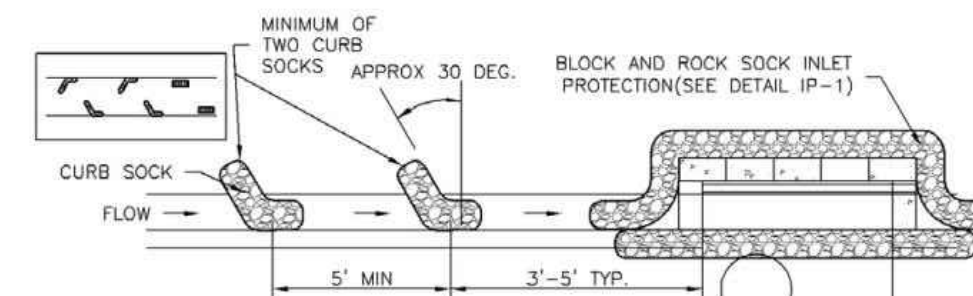
**SC-6 Inlet Protection (IP)**



**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 JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



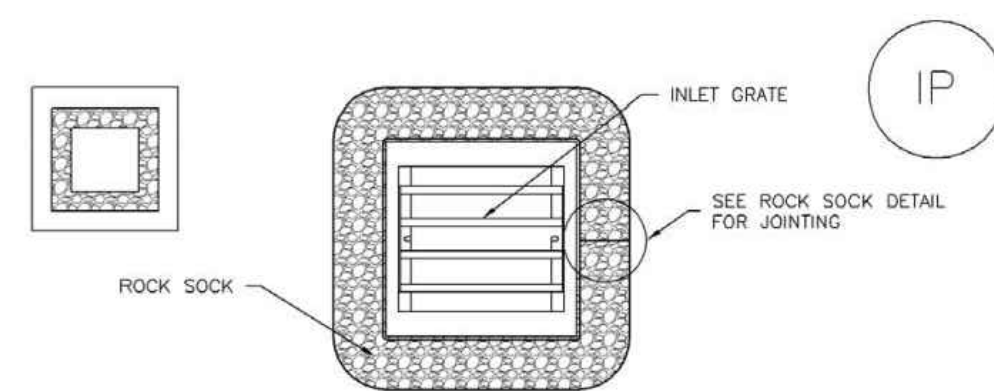
**IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION**

**CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES**

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

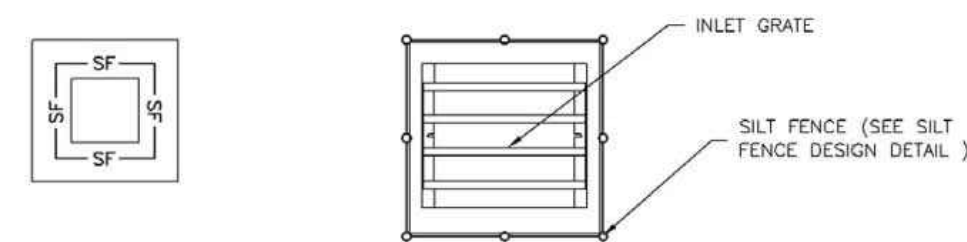
IP-4 Urban Drainage and Flood Control District August 2013  
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**Inlet Protection (IP) SC-6**



**IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION**

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

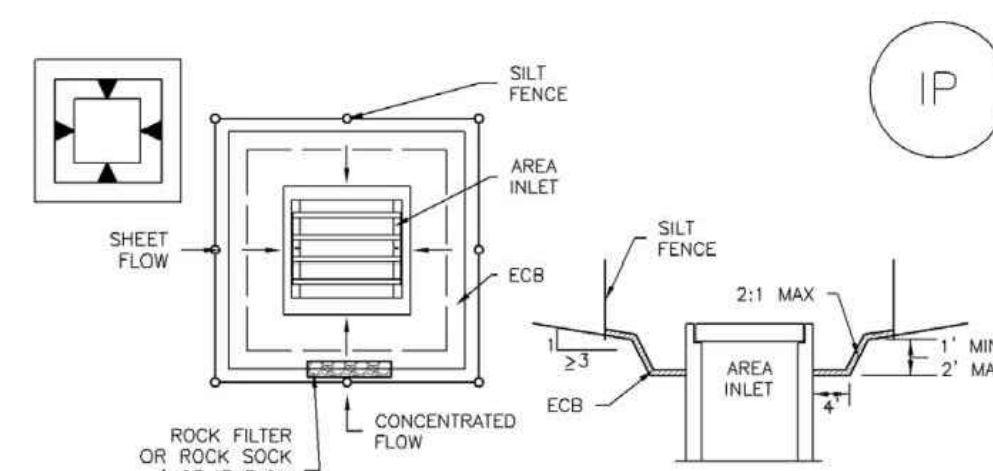


**IP-4. SILT FENCE FOR SUMP INLET PROTECTION**

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

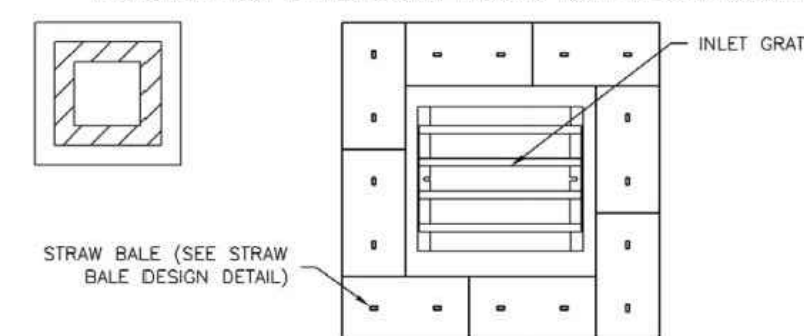
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**SC-6 Inlet Protection (IP)**



**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.

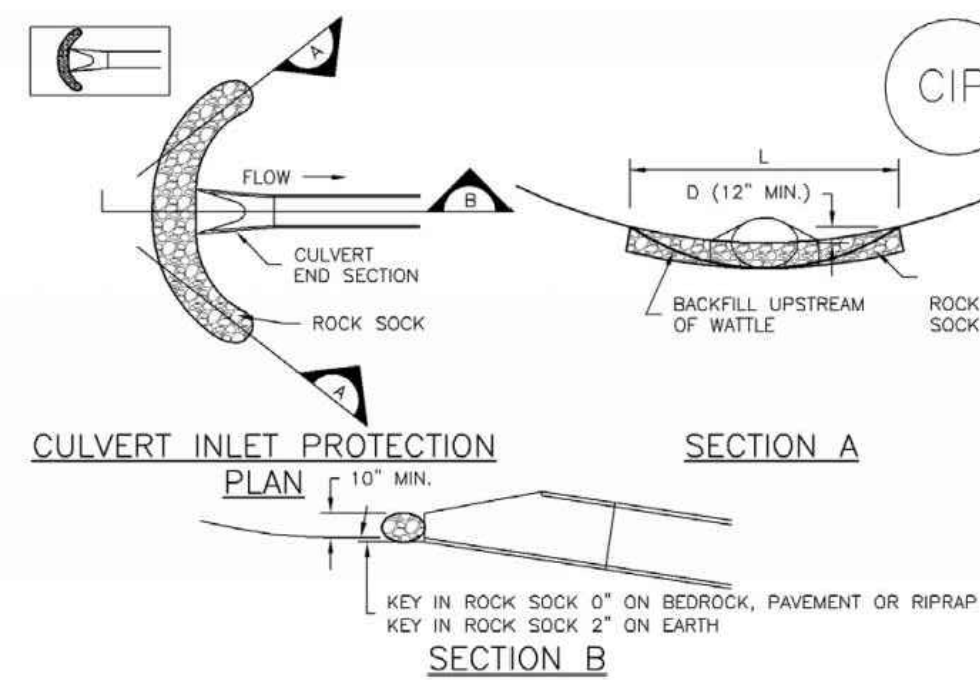


**IP-6. STRAW BALE FOR SUMP INLET PROTECTION**

- 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.

IP-6 Urban Drainage and Flood Control District August 2013  
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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 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.

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

**INLET PROTECTION MAINTENANCE NOTES**

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6\"/>

(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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LOT 2 CLAREMONT BUSINESS PARK 2 FIL. NO. 2

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

GRADING AND EROSION CONTROL DETAILS

PROJECT NO. 10-025 DATE: 08/22/23

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

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

SHEET 7 OF 10 GEC07

FOR AND ON BEHALF OF MKS CIVIL CONSULTANTS, INC.

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

REV. NO.	DATE	BY	DESCRIPTION

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

CAUTION

File: 0:\10025A-CBP2 - Lot 2\Bion Zurek\DWG\Const\DWG\Grading\GEC07.dwg Plotstamp: 8/22/2023 10:50 AM





**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. The rooting depth of most native grasses in the semi-arid Denver metropolitan area is 6 to 18 inches. At a minimum, the upper 6 inches of topsoil should be stripped, 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 surface prior to placing topsoil. If adding compost to the existing soil surface, rototilling is necessary. Surface roughening will assist in placement of a stable topsoil layer on steeper slopes, and allow infiltration and root penetration to greater depth.

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-to-soil contact is the key to good germination.

**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. Annual grasses suitable for the Denver metropolitan area are listed in Table TS/PS-1. 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.

**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. 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 Table TS/PS-2 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.

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. In riparian zones, planting root stock of such species as American plum (*Prunus americana*), woods rose (*Rosa woodsii*), plains cottonwood (*Populus sargentii*), and willow (*Populus spp.*) may be considered. On non-topsoiled upland sites, a legume such as Ladak alfalfa at 1 pound PLS/acre can be included as a source of nitrogen for perennial grasses.

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**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. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

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

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

<sup>a</sup> 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.

<sup>b</sup> See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

<sup>c</sup> Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

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

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

Common Name	Botanical Name	Growth Season <sup>a</sup>	Growth Form	Seeds/Pound	Pounds of PLS/acre
<b>Alkalali Soil Seed Mix</b>					
Alkali sacaton	<i>Sporobolus airoides</i>	Cool	Bunch	1,750,000	0.25
Basin willow	<i>Elymus cinereus</i>	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	<i>Agropyron riparium 'Sodar'</i>	Cool	Sod	170,000	2.5
Jose tall wheatgrass	<i>Agropyron elongatum 'Jose'</i>	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
<b>Total</b>					<b>17.75</b>
<b>Fertile Loamy Soil Seed Mix</b>					
Ephriam crested wheatgrass	<i>Agropyron cristatum 'Ephriam'</i>	Cool	Sod	175,000	2.0
Dural hard fescue	<i>Festuca ovina 'duriscula'</i>	Cool	Bunch	565,000	1.0
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	<i>Agropyron riparium 'Sodar'</i>	Cool	Sod	170,000	2.5
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	7.0
<b>Total</b>					<b>15.5</b>
<b>High Water Table Soil Seed Mix</b>					
Meadow foxtail	<i>Alopecurus pratensis</i>	Cool	Sod	900,000	0.5
Redtop	<i>Agrostis alba</i>	Warm	Open sod	5,000,000	0.25
Reed canarygrass	<i>Phalaris arundinacea</i>	Cool	Sod	68,000	0.5
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Pathfinder switchgrass	<i>Panicum virgatum 'Pathfinder'</i>	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	<i>Agropyron elongatum 'Alkar'</i>	Cool	Bunch	79,000	5.5
<b>Total</b>					<b>10.75</b>
<b>Transition Turf Seed Mix<sup>b</sup></b>					
Ruebens Canadian bluegrass	<i>Poa compressa 'Ruebens'</i>	Cool	Sod	2,500,000	0.5
Dural hard fescue	<i>Festuca ovina 'duriscula'</i>	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	<i>Lolium perenne 'Citation'</i>	Cool	Sod	247,000	3.0
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
<b>Total</b>					<b>7.5</b>

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

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

Common Name	Botanical Name	Growth Season <sup>a</sup>	Growth Form	Seeds/Pound	Pounds of PLS/acre
<b>Sandy Soil Seed Mix</b>					
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	<i>Schizachyrium scoparium 'Camper'</i>	Warm	Bunch	240,000	1.0
Prairie sandreed	<i>Calamovilfa longifolia</i>	Warm	Open sod	274,000	1.0
Sand dropseed	<i>Sporobolus cryptendrus</i>	Cool	Bunch	5,298,000	0.25
Vaughn sidecoats grama	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
<b>Total</b>					<b>10.25</b>
<b>Heavy Clay, Rocky Foothill Seed Mix</b>					
Ephriam crested wheatgrass <sup>b</sup>	<i>Agropyron cristatum 'Ephriam'</i>	Cool	Sod	175,000	1.5
Oahe intermediate wheatgrass	<i>Agropyron intermedium 'Oahe'</i>	Cool	Sod	115,000	5.5
Vaughn sidecoats grama <sup>c</sup>	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
<b>Total</b>					<b>17.5</b>

<sup>a</sup> 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. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

<sup>b</sup> See Table TS/PS-3 for seeding dates.

<sup>c</sup> If site is to be irrigated, the transition turf seed rates should be doubled.

<sup>d</sup> Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

<sup>e</sup> Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sidecoats grama.

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

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

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1–March 15			✓	✓
March 16–April 30	4	1,2,3	✓	✓
May 1–May 15	4		✓	
May 16–June 30	4,5,6,7			
July 1–July 15	5,6,7			
July 16–August 31				
September 1–September 30		8,9,10,11		
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 Mulching BMP Fact Sheet for additional guidance.

**Maintenance and Removal**

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

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

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

Protect seeded areas from construction equipment and vehicle access.

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



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

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

**Appropriate Uses**

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective 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, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

**Design and Installation**

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

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

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

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**EC-4 Mulching (MU)**

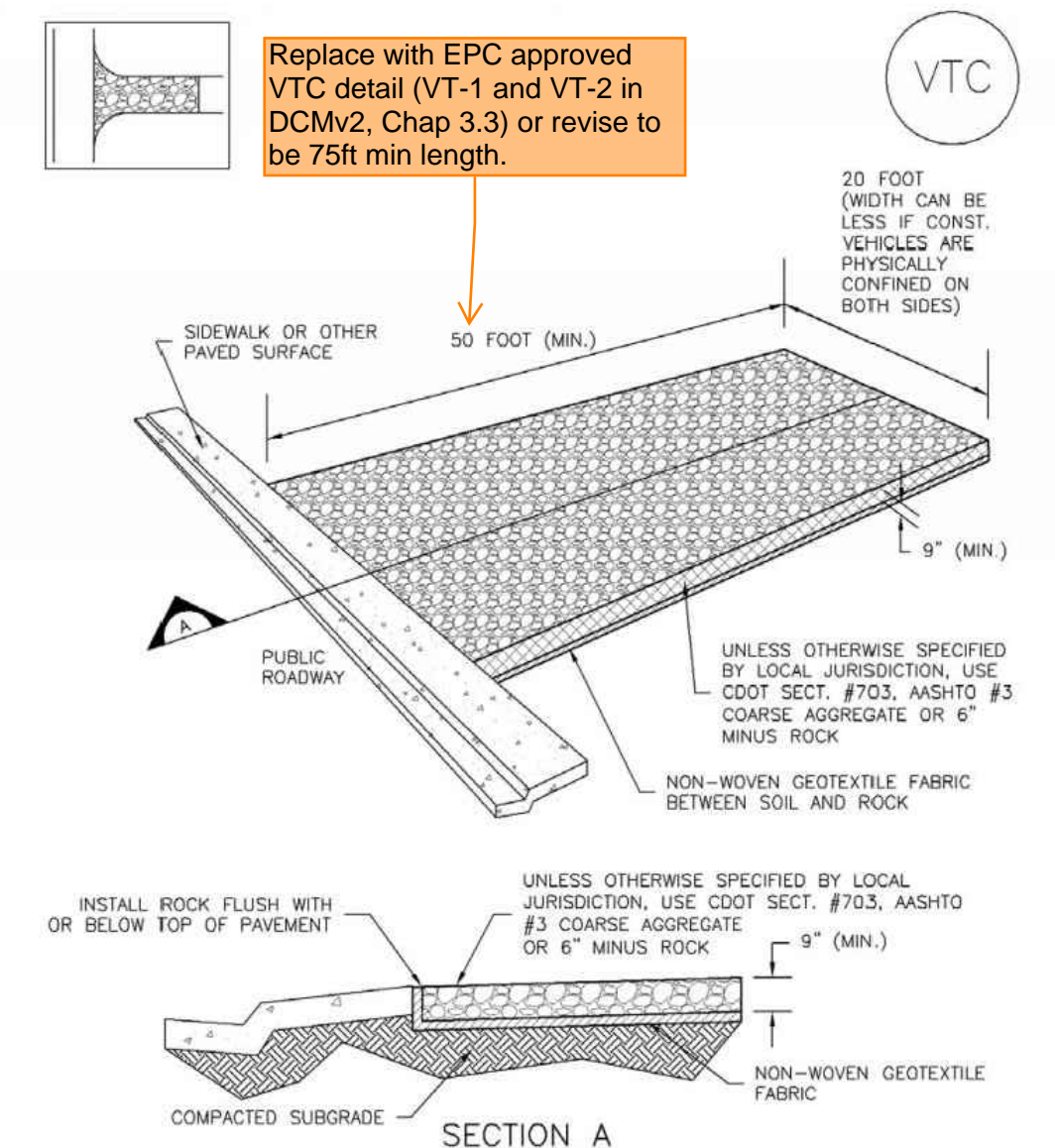
- Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping 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 crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.
- Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above).
- On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.
- Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydros seeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.
- Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

**Maintenance and Removal**

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

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

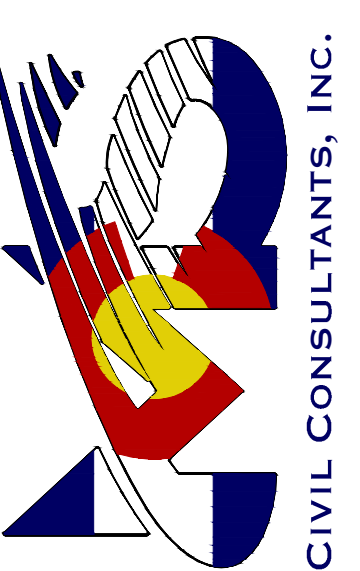


**VTC-1. AGGREGATE VEHICLE TRACKING CONTROL**

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LOT 2 CLAREMONT BUSINESS PARK 2 FIL. NO. 2  
 GRADING AND EROSION CONTROL DETAILS  
 PROJECT NO. 10-025  
 SCALE: HORIZONTAL: N/A  
 VERTICAL: N/A  
 DATE: 08/22/23  
 SHEET 9 OF 10  
 GEC09

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



FOR AND ON BEHALF OF  
 MKS CIVIL CONSULTANTS, INC.

REVISIONS:	NO.	DATE:	BY:	DESCRIPTION:

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

CAUTION

