

Engineering comments for Piling No. 1 & 2 have been provided in this document for 1st review.

EL PASO COUNTY PLANNING & COMMUNITY DEVELOPMENT NUMBER: ~~SF26X~~



|                                                                                                                                    |                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
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|               | EXISTING | PROPOSED |
|---------------|----------|----------|
| SECTION LINE  | -----    |          |
| RIGHT-OF-WAY  | -----    | -----    |
| PARCEL LINE   | -----    | -----    |
| EASEMENT LINE | -----    | -----    |
| BOUNDARY LINE | -----    | -----    |
| CENTER LINE   | -----    | -----    |

|                           | <i>EXISTING</i> | PROPOSED |
|---------------------------|-----------------|----------|
| C&G                       |                 |          |
| EDGE OF ASPHALT           |                 |          |
| CONCRETE                  |                 |          |
| SIDE WALK                 |                 |          |
| CROSS PAN                 |                 |          |
| PARKING LOT STRIPING      |                 |          |
| ROADWAY STRIPING — DHASED |                 |          |
| ROADWAY STRIPING — DOTTED |                 |          |
| GUARDRAIL                 |                 |          |
| FENCE                     |                 |          |
| SOUNDWALL                 |                 |          |
| DEMO                      |                 |          |
| GRAVEL                    |                 |          |
| RIPRAP                    |                 |          |
| DIRT                      |                 |          |
| TRAIL/PATH                |                 |          |
| RAIL LINE                 |                 |          |

If "limits of disturbance" and "construction limits" are shown, they shall be indicated by dashed lines.

EXISTING

PROPOSED

CONTOUR INTERMEDIATE

CONTOUR INDEX

TOP OF SLOPE

TOE OF SLOPE

CUT/FILL BOUNDARY

LIMITS OF GRADING

LIMITS OF DISTURBANCE

LOG LOG LOG LOG LOG

Revise to match line work on GEC sheets

|                                 | EXISTING                                                            | PROPOSED                                                 |
|---------------------------------|---------------------------------------------------------------------|----------------------------------------------------------|
| SANITARY SEWER                  | — SS — SS — SS — SS — SS —                                          | — SS — <b>●</b> — SS — SS — <b>●</b> —                   |
| SANITARY SEWER SERVICE          | — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — | — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — |
| POTABLE WATER MAIN              | — W — W — W — W — W — W —                                           | — W — W — W — W —                                        |
| POTABLE WATER SERVICE           | — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — | — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> — <b>⌋</b> —            |
| RAW WATER MAIN                  | — RAW — RAW — RAW — RAW —                                           | — RAW — RAW — RAW —                                      |
| IRRIGATION MAIN                 | — — — — —                                                           | — — — — —                                                |
| SANITARY FORCE MAIN             | — FM — FM — FM — FM —                                               | — FM — FM — FM — FM —                                    |
| UNDER-DRAIN                     | — UD — UD — UD — UD — UD —                                          | — UD — UD — UD — UD —                                    |
| GAS PIPE                        | — G — G — G — G — G — G —                                           | — G — G — G — G — G —                                    |
| HIGH PRESSURE GAS               | — HPG — HPG — HPG — HPG —                                           | — HPG — HPG — HPG — HPG —                                |
| OIL/PETROLEUM LINE              | — O — O — O — O — O — O —                                           | — O — O — O — O —                                        |
| UNDER-GROUND OVER-HEAD ELECTRIC | — UGE — UGE — UGE — UGE —                                           | — UGE — UGE — UGE — UGE —                                |
| FIBER OPTIC                     | — FO — FO — FO — FO — FO —                                          | — FO — FO — FO — FO —                                    |
| COMMUNICATION LINES MISC.       | — COM — COM — COM —                                                 | — COM — COM — COM —                                      |
| STORM PIPE                      | — <b>⊗</b> — <b>⊗</b> — <b>⊗</b> — <b>⊗</b> —                       | — <b>●</b> — <b>●</b> — <b>●</b> — <b>●</b> —            |
| HGL MINOR                       | — — — — —                                                           | — — — — —                                                |
| HGL MAJOR                       | — — — — —                                                           | — — — — —                                                |

|                            | EXISTING                            | PROPOSED                                        |
|----------------------------|-------------------------------------|-------------------------------------------------|
| BASE FLOOD ELEVATION       | ~~~~~                               | ~~~~~                                           |
| 100-YR FLOOD PLAIN         | -----100YR-----                     | -----100YR-----100YR-----                       |
| 500-YR FLOOD PLAIN         | -----500YR-----                     | -----500YR-----500YR-----                       |
| FLOODWAY                   | -----FLOOD-----                     | -----FLOOD-----FLOOD-----                       |
| SWALE/DITCH                | ----->----->----->----->-----       | ----->----->----->----->-----                   |
| THALWEG (STREAM/CREEK)     | -----○-----○-----○-----○-----       | ----->----->----->----->----->----->----->----- |
| LIMITS OF WETLANDS         | ----->----->----->----->----->----- | ----->----->----->----->----->----->----->----- |
| EDGE OF WATER              | -----○-----○-----○-----○-----       | -----○-----○-----○-----○-----                   |
| SILT FENCE                 | -----                               | -----                                           |
| CONSTRUCTION FENCE/MARKERS | -----                               | -----CF-----CF-----CF-----CF-----               |

|                        | EXISTING                                                                            | PROPOSED                                                                            |
|------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| STORM SEWER<br>MANHOLE |  |  |
| STORM INLET            |  |  |
| AREA INLET - SQUARE    |  |  |
| AREA INLET - ROUND     |  |  |
| FLARED END SECTION     |  |  |

|                       | EXISTING                                                                            | PROPOSED                                                                            |
|-----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| TRAFFIC SIGNAL BOX    |  |  |
| TRAFFIC SIGNAL POLE   |  |  |
| SIGN                  |  |  |
| STREET LIGHT          |  |  |
| STREET LIGHT - SINGLE |                                                                                     |  |
| STREET LIGHT - DOUBLE |                                                                                     |  |
| LUMINAIRE             |  |  |

|                      | EXISTING                                                                            | PROPOSED                                                                            |
|----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| TREE - CONIFEROUS    |  |  |
| TREE - DECIDUOUS     |  |  |
| SHRUB/BUSH           |  |  |
| SHRUBS AND BUSHES    |  |  |
| IRRIGATION BOX       |  |  |
| IRRIGATION SPRINKLER |  |                                                                                     |
| IRRIGATION VALVE     |  |                                                                                     |
| BOLLARD              |  |                                                                                     |
| FLAGPOLE             |  |                                                                                     |

| NAME,<br>W AS   | EXISTING                                                                                           | PROPOSED                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>SANITARY</b> |                                                                                                    |                                                                                     |
| LINE MARKER     | <i>Mkr San</i>  |                                                                                     |
| SERVICE MARKER  |                 |                                                                                     |
| CLEAN-OUT       |                 |  |
| MANHOLE         |                 |  |

|                      |                                                                                                   |                                                                                                   |
|----------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| LINE MARKER          | <i>Mkr W</i>   |                                                                                                   |
| SERVICE MARKER       |                                                                                                   |                                                                                                   |
| FIRE HYDRANT         |                |                |
| FIRE CONNECTION      |                                                                                                   |                |
| MANHOLE              |                |                |
| BEND                 |                                                                                                   |                |
| BLOW-OFF VALVE       |               |               |
| WELL                 |  <i>WELL</i> |  <i>WELL</i> |
| METER                |              |              |
| VALVE                |              |              |
| REDUCER              |                                                                                                   |              |
| THRUST BLOCK         |                                                                                                   |              |
| CROSS                |                                                                                                   |              |
| PLUG W/ THRUST BLOCK |              |              |
| TEE                  |              |              |
| REVERSE ANCHOR       |                                                                                                   |              |
| ANODE                |                                                                                                   |              |
| AIR & VACUUM VALVE   |                                                                                                   |              |
| ASSEMBLY             |                                                                                                   |                                                                                                   |

MARKER *Mkr*  $G^{\circ}$   
 SERVICE MARKER   
 METER  

|                           |                            |  |
|---------------------------|----------------------------|--|
| CABLE TV MARKER           | <i>Mkr</i> TV <sup>o</sup> |  |
| CABLE TELEVISION PEDESTAL |                            |  |
| ELECTRIC MARKER           | <i>Mkr</i> E <sup>o</sup>  |  |
| ELECTRIC SERVICE MARKER   |                            |  |
| ELECTRICAL PEDESTAL       |                            |  |
| ELECTRICAL METER          |                            |  |
| ELECTRICAL MANHOLE        |                            |  |
| FIBER—OPTIC MARKER        | <i>Mkr</i> FO <sup>o</sup> |  |
| IRRIGATION PEDESTAL       |                            |  |
| TELEPHONE MARKER          | <i>Mkr</i> T <sup>o</sup>  |  |
| TELEPHONE PEDESTAL        |                            |  |
| TELEPHONE MANHOLE         |                            |  |
| UTILITY POLE              |                            |  |
| GUY ANCHOR                |                            |  |
| GUY POLE                  |                            |  |

VENT PIPE

TEST HOLE DESIGNATOR

VP

TH#

FIRM

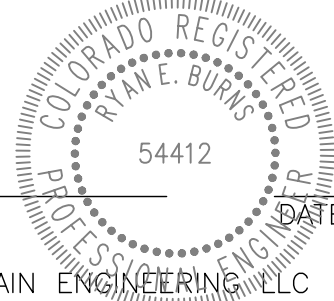
FIRM/AGENCY

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 CONSTRUCTION MANUAL, THE DRAINAGE CRITERIA MANUAL AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
3. A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE STABILIZATION, EROSION CONTROL AND SEDIMENT CONTROL MEASURES INDICATED ON THE APPROVED GENERAL 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 ANY DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY ANY CHANGES TO THOSE CONTROL MEASURES REQUIRED 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. FINAL STABILIZATION IS WHEN 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 AFFECT 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 UNFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND PREVENT 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, AND OTHER MATERIALS 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. ALL STORAGE OF LIQUIDS, OILS, FUELS, 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 OF 104-I, NPDES PERMIT PLAN, 404-A, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND FEDERAL, STATE, OR LOCAL LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING INC. AND SHALL BE CONSIDERED A PART OF THESE PLANS.
29. AT LEAST (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

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED MASTER DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS, SAID PLAN AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES WERE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING LLC



PO BOX 88010  
COLORADO SPRINGS, CO 80908  
ATTN: JAKE DECOTO  
206.419.4533  
DECOTOJ@GMAIL.COM

UNTIL SUCH TIME AS THESE  
DRAWINGS ARE APPROVED BY THE  
APPROPRIATE REVIEWING  
AGENCIES, ALL TERRAIN  
ENGINEERING APPROVES THEIR  
USE ONLY FOR THE PURPOSES  
DESIGNATED BY WRITTEN  
AUTHORIZATION.

OB NO: 25009 LOCATION: EPC

IRON RIDGE FIGLING NO. 1 & 2

LEGEND

DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26

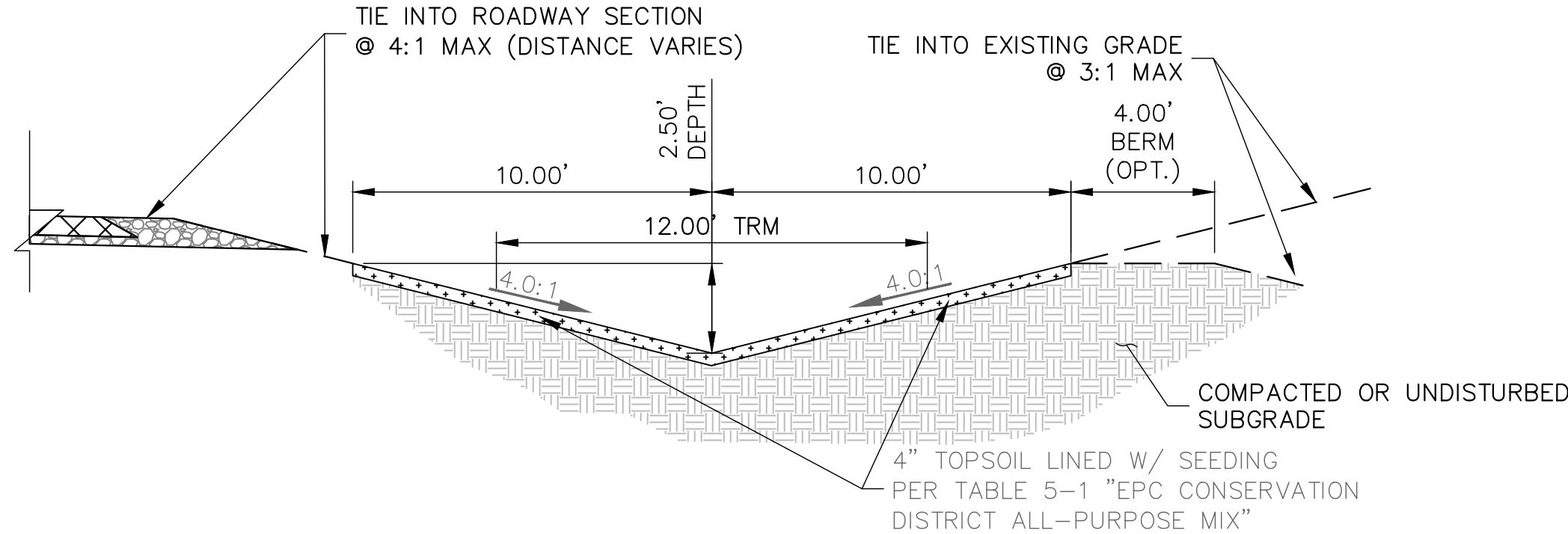
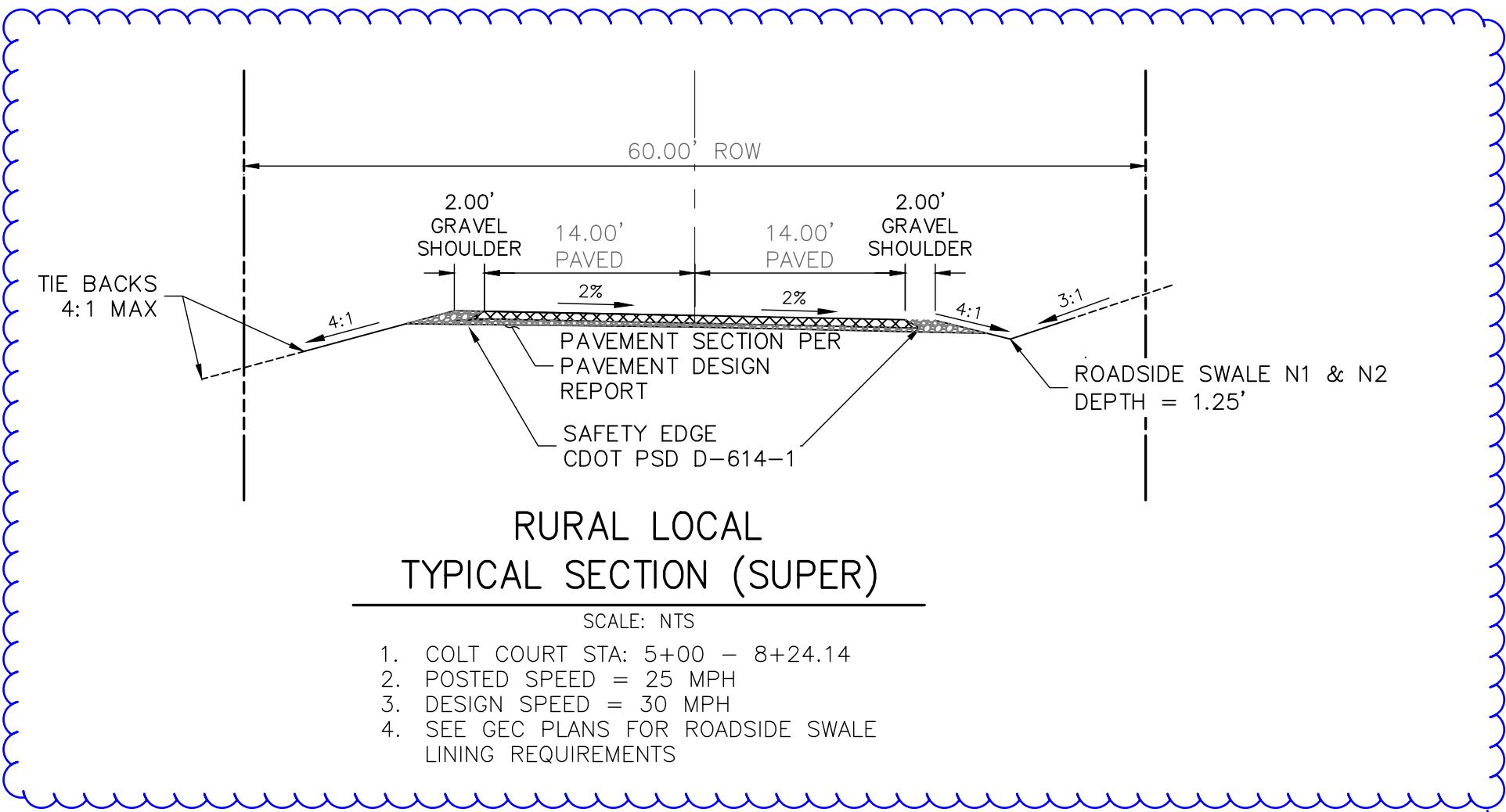
H-SCALE: 1" = 50'

V-SCALE: 1" = 5'

SHEET

02 OF 24



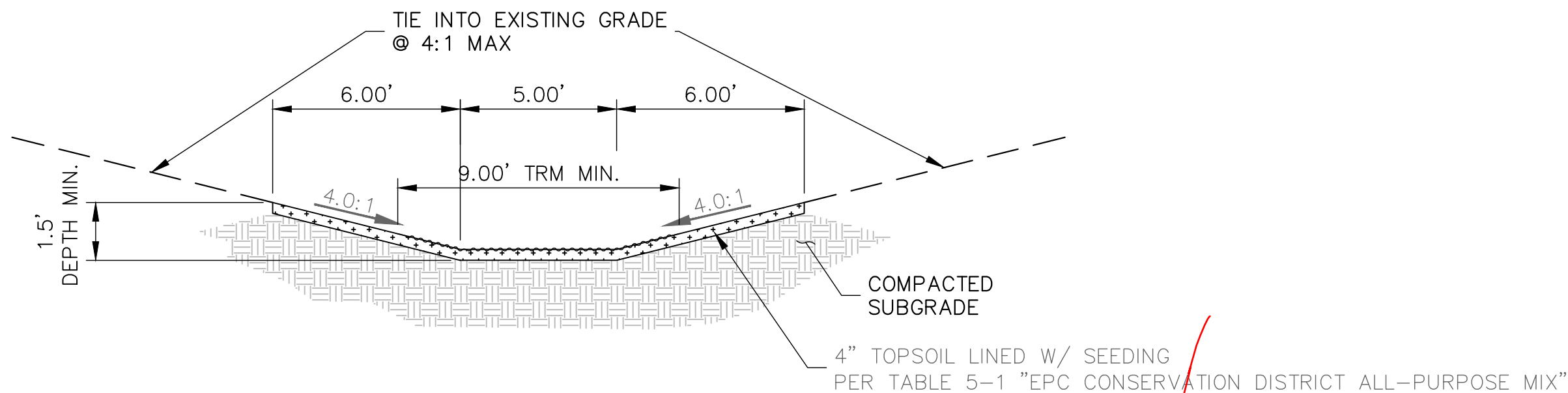


SWALE DP3 – DP3.1

---

SCALE: NTS

- 
- TIE INTO EXISTING GRADE  
@ 4:1 MAX
- 6.00' 5.00' 6.00'
- 9.00' TRM MIN.
- 4:1 4:1
- DP14.1 OUTFALL
- SCALE: NTS
1. TRM = TURF REINFORCEMENT MAT SHALL BE V-MAX S200 OR P300



DP14.1 OUTFALL

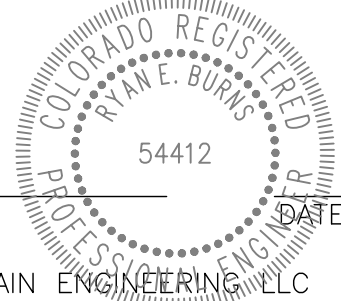
- SCALE: NTS
1. TRM - TURF REINFORCEMENT MAT  
SHALL BE V-MAX S200 OR P300

**SIGNING AND STRIPING NOTES:**

1. ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE PAVEMENT. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS. AT NO TIME WILL IT BE ACCEPTABLE TO PAINT OVER EXISTING PAVEMENT MARKINGS.
3. ANY DEVIATION FROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.
4. ALL SIGNS SHOWN ON THE SIGNING AND STRIPING PLAN SHALL BE NEW SIGNS. EXISTING SIGNS MAY REMAIN OR BE REUSED IF THEY MEET CURRENT EL PASO COUNTY AND MUTCD STANDARDS.
5. STREET NAME AND REGULATORY STOP SIGNS SHALL BE ON THE SAME POST AT INTERSECTIONS.
6. ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.
7. ALL STREET NAME SIGNS SHALL HAVE "R" SERIES LETTERS WITH LOCAL ROADWAY SIGNS BEING 4" UPPER-LOWER CASE LETTERING ON 8" BLANK AND NON-LOCAL ROADWAY SIGNS BEING 6" LETTERING, UPPER-LOWER CASE ON 12" BLANK WITH A WHITE BORDER THAT IS NOT RECESSED. MULTI-LANE ROADWAYS WITH SPEED LIMITS OF 40 MPH OR HIGHER SHALL HAVE 8" UPPER-LOWER CASE LETTERING ON 18" BLANK WITH A WHITE BORDER THAT IS NOT RECESSED. THE WIDTH OF THE NON-RECESSED WHITE BORDERS SHALL MATCH PAGE 255 OF THE 2012 MUTCD "STANDARD HIGHWAY SIGNS".
8. ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SHEETING.
9. ALL LOCAL RESIDENTIAL STREET SIGNS SHALL BE MOUNTED ON A 1.75" X 1.75" SQUARE TUBE SIGN POST AND STUB POST BASE. FOR OTHER APPLICATIONS, REFER TO THE CDOT STANDARD S-614-8 REGARDING USE OF THE P2 TUBULAR STEEL POST SLIPBASE DESIGN.
10. ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.100" MINIMUM THICKNESS.
11. ALL LIMIT LINES/STOP LINES, CROSSWALK LINES, PAVEMENT LEGENDS, AND ARROWS SHALL BE A MINIMUM 125 MIL THICKNESS PREFORMED THERMOPLASTIC PAVEMENT MARKINGS WITH TAPERED LEADING EDGES PER CDOT STANDARD S-627-1. WORD AND SYMBOL MARKINGS SHALL BE THE NARROW TYPE. STOP BARS SHALL BE 24" IN WIDTH. CROSSWALKS LINES SHALL BE 12" WIDE AND 8' LONG PER CDOT S-627-1.
12. ALL LONGITUDINAL LINES SHALL BE A MINIMUM 15 MIL THICKNESS EPOXY PAINT. NON-LOCAL RESIDENTIAL ROADWAYS SHALL INCLUDE BOTH RIGHT AND LEFT SIDE LINE STRIPING AND AN ADDITIONAL STRIPING REQUIREMENT TO CDOT.
13. THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (719) 520-6819 PRIOR TO AND UPON COMPLETION OF SIGNING AND STRIPING.
14. THE CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT FROM THE EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) PRIOR TO ANY SIGNAGE OR STRIPING WORK WITHIN AN EXISTING EL PASO COUNTY ROADWAY.

<https://epc-assets.elpasoco.com/wp-content/uploads/sites/13/Standard-Notes-Signing-and-Striping-2026-Accessible.pdf>

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COLORADO P.E. 54412  
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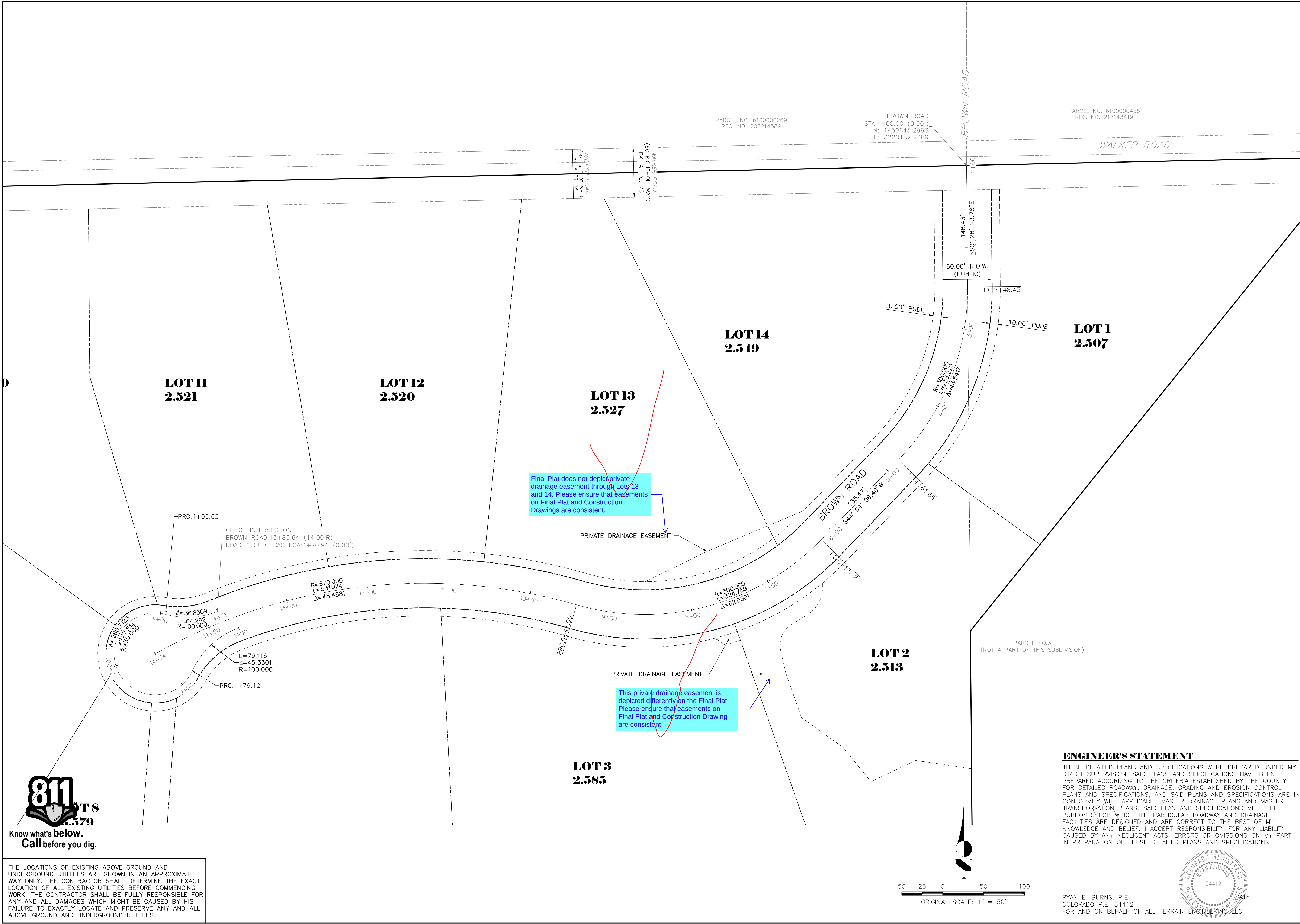
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TYPICAL SECTIONS

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03 OF 24





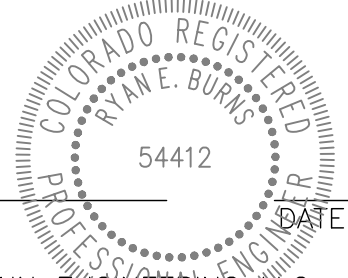


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DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26  
H-SCALE: 1" = 50'  
V-SCALE: 1" = 5'  
SHEET  
04 OF 24



ALL TERRAIN  
ENGINEERING

PREPARED FOR:  
ATTICUS LAND, LLC  
PO BOX 88010  
COLORADO SPRINGS, CO 80908  
ATTN: JAKE DECOTO  
206.419.4533  
DECOTO@GMAIL.COM

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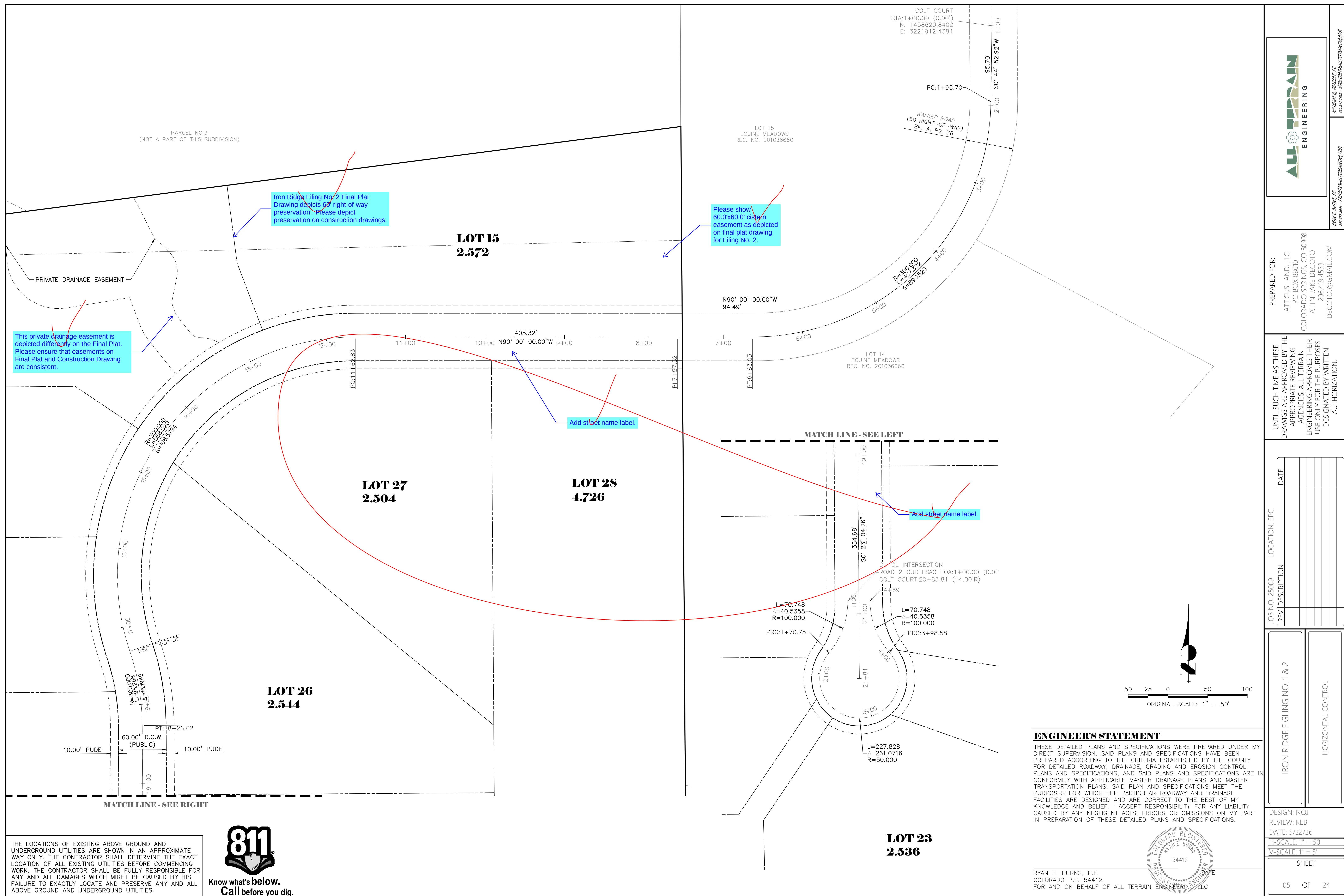
JOB NO.: 25009    LOCATION: EPC

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IRON RIDGE FIGLING NO. 1 & 2

HORIZONTAL CONTROL

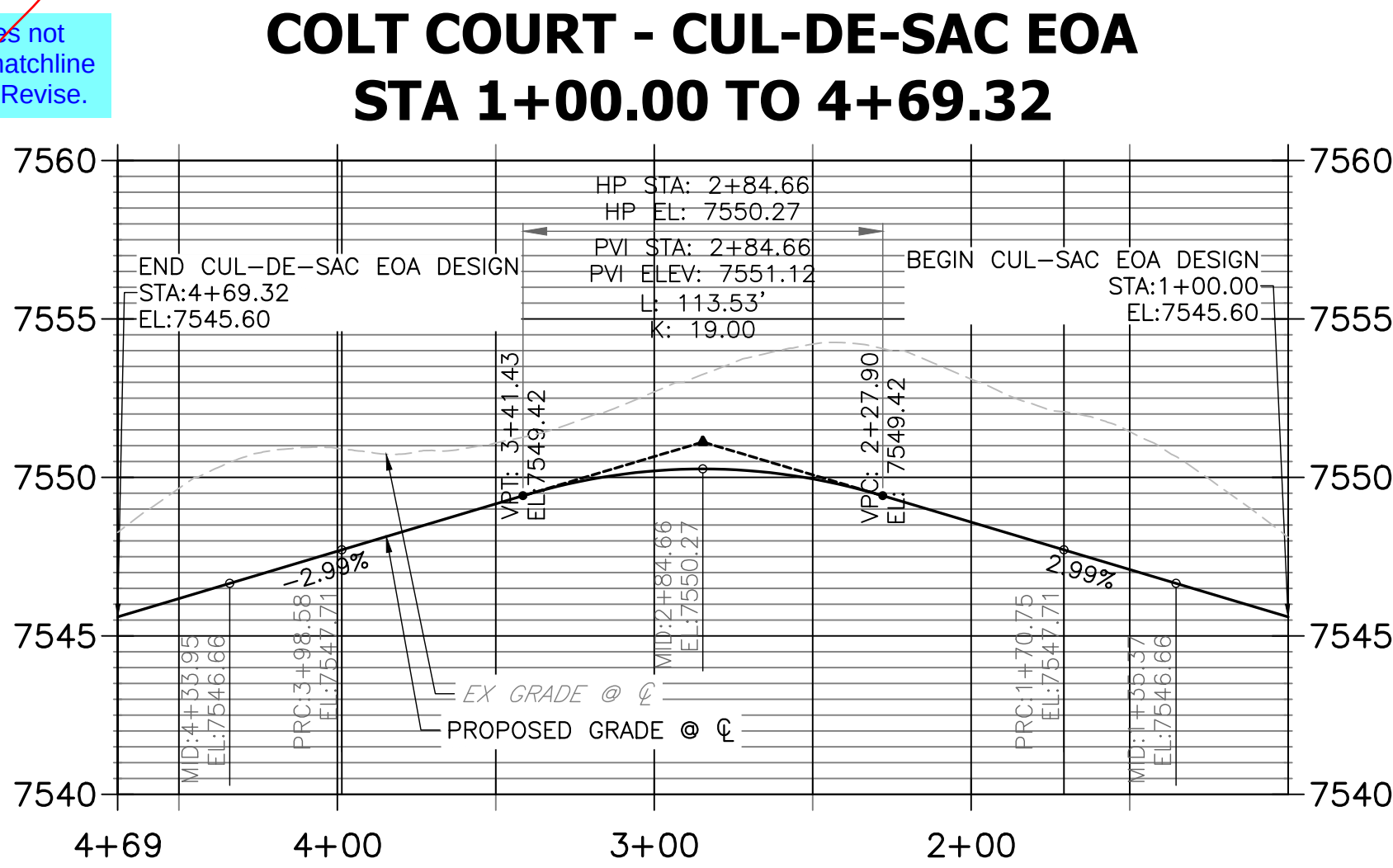
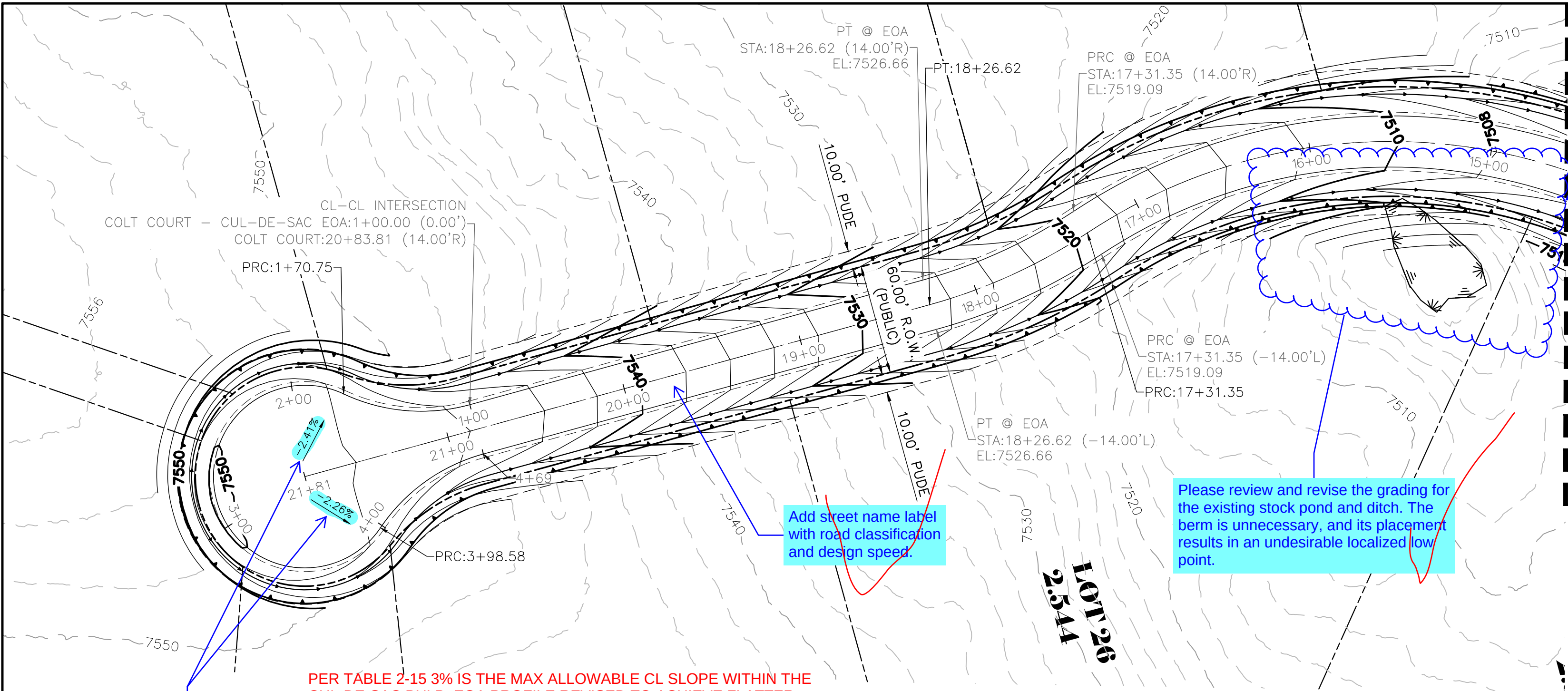








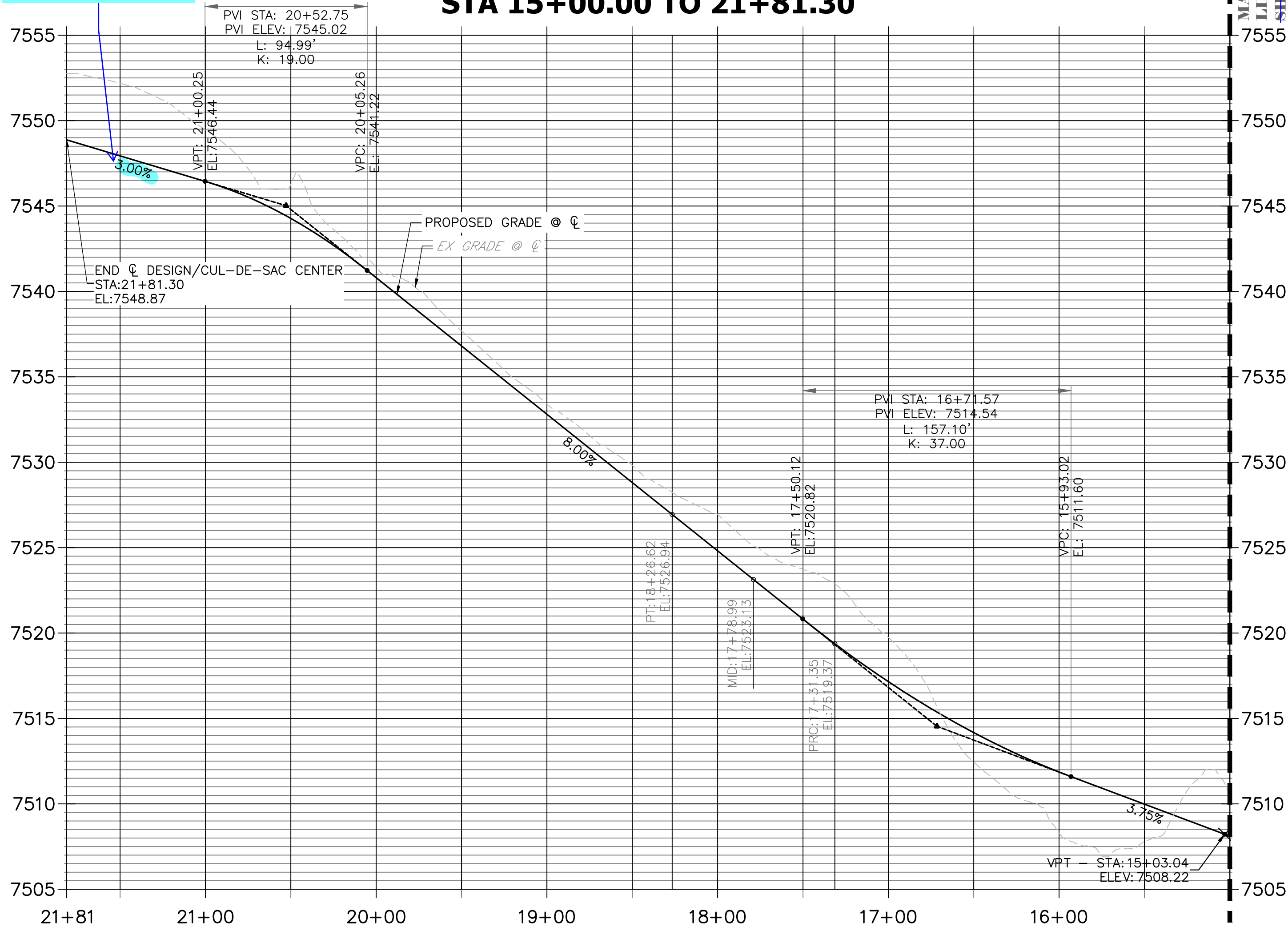




Per ECM Figure 2-31 Typical Cul-de-Sac Requirements (Urban and Rural), maximum slope for rural cul-de-sacs is 2%. Revise grading.

PER TABLE 2-15 3% IS THE MAX ALLOWABLE CL SLOPE WITHIN THE CUL-DE-SAC BULB. EOA PROFILE REVISED TO ACHIEVE FLATTER CROSS SLOPES

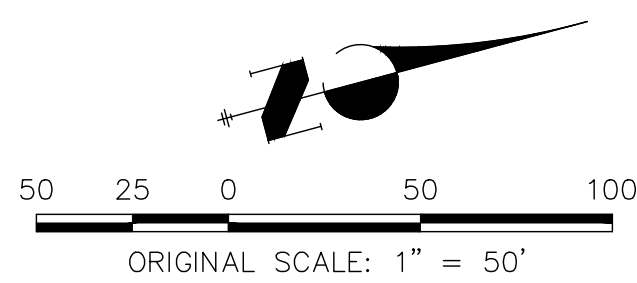
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#### NOTES:

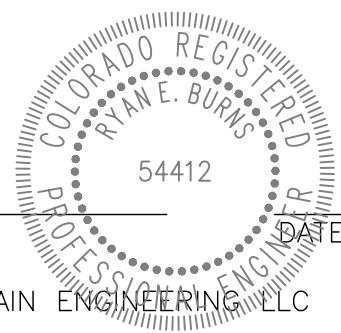
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#### ENGINEER'S STATEMENT

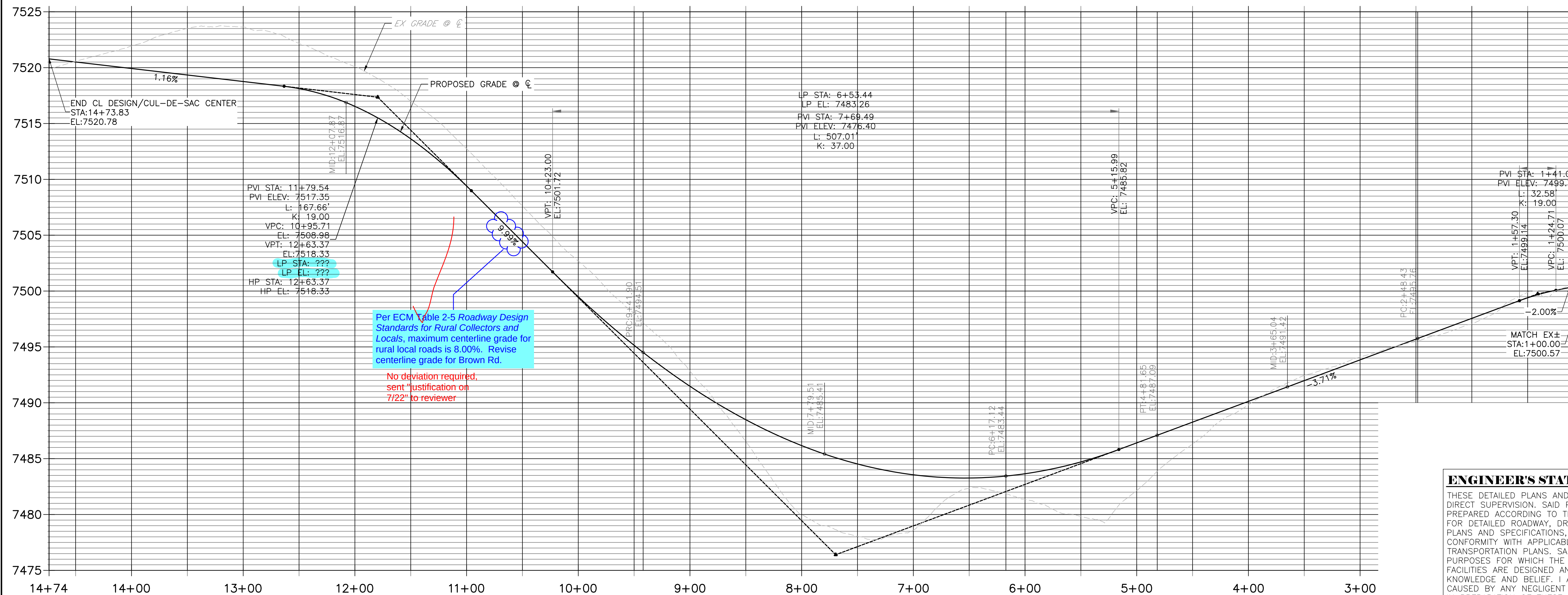
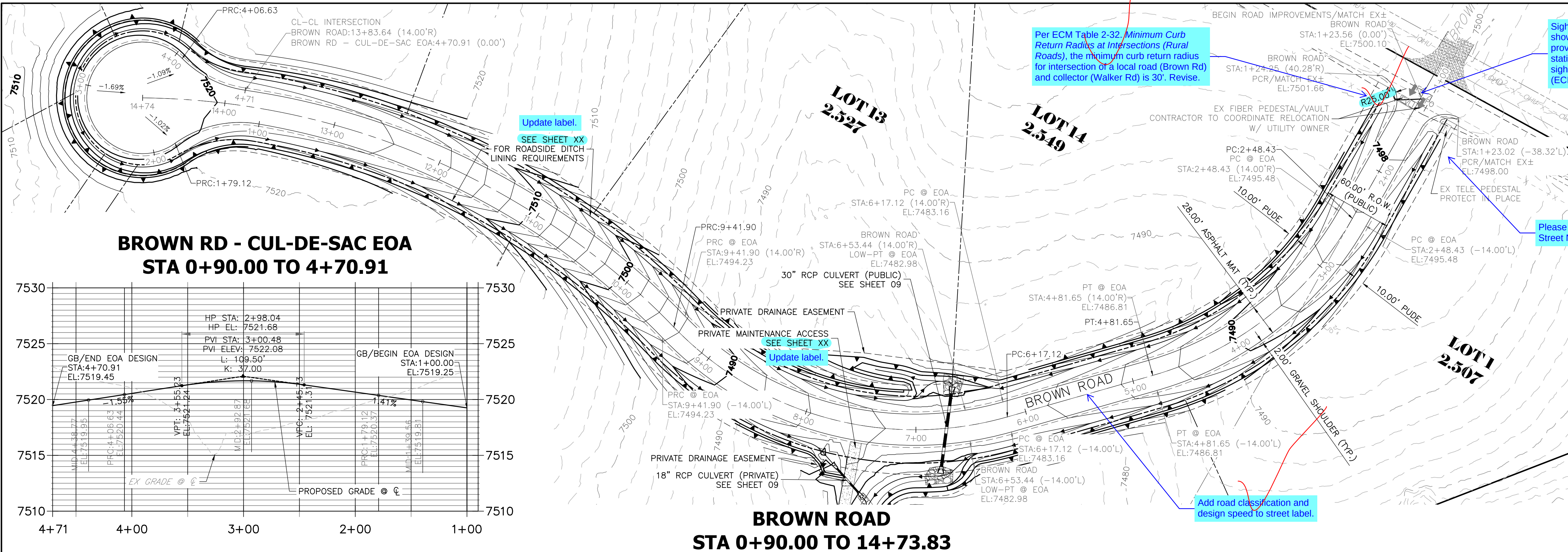
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RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

|                                                                                                                                                                                                                  |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|                                                                                                                                                                                                                  |               |
| PREPARED FOR:<br>ATTICUS LAND, LLC<br>PO BOX 88010<br>COLORADO SPRINGS, CO 80908<br>ATTN: JAKE DECOTO<br>206.419.4533<br>DECOTO@GMAIL.COM                                                                        |               |
| UNTIL SUCH TIME AS THESE<br>DRAWINGS ARE APPROVED BY THE<br>APPROPRIATE REVIEWING<br>AGENCIES, ALL TERRAIN<br>ENGINEERING APPROVES THEIR<br>USE ONLY FOR THE PURPOSES<br>DESIGNATED BY WRITTEN<br>AUTHORIZATION. |               |
| JOB NO.: 25009                                                                                                                                                                                                   | LOCATION: EPC |
| REV. DESCRIPTION                                                                                                                                                                                                 | DATE          |
| IRON RIDGE FIGLING NO. 1 & 2                                                                                                                                                                                     |               |
| STREET IMPROVEMENTS                                                                                                                                                                                              |               |
| DESIGN: NQJ<br>REVIEW: REB<br>DATE: 5/22/26<br>H-SCALE: 1" = 50'<br>V-SCALE: 1" = 5'                                                                                                                             |               |
| SHEET<br>07 OF 24                                                                                                                                                                                                |               |





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COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

COLOrado REGISTERED PROFESSIONAL ENGINEER  
54412  
DATE

DESIGN: NJQ  
REVIEW: REB  
DATE: 5/22/26  
H-SCALE: 1" = 50'  
V-SCALE: 1" = 5'  
SHEET  
08 OF 24

IRON RIDGE FIGLING NO. 1 & 2  
STREET IMPROVEMENTS

ORIGINAL SCALE: 1" = 50'

**ALL TERRAIN ENGINEERING**

PREPARED FOR:  
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JOB NO: 25009 LOCATION: EPC

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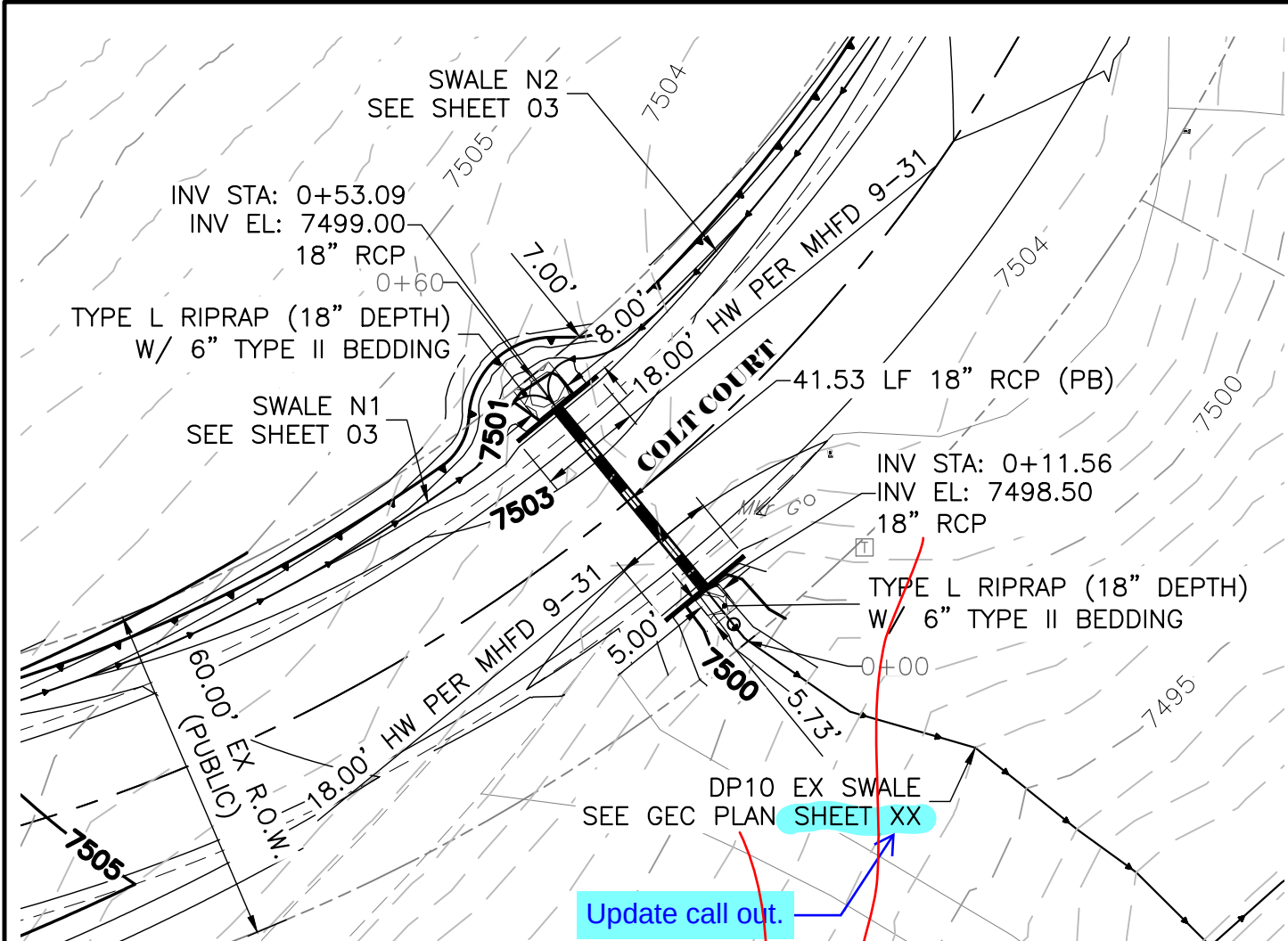
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08 OF 24

IRON RIDGE FIGLING NO. 1 & 2  
STREET IMPROVEMENTS







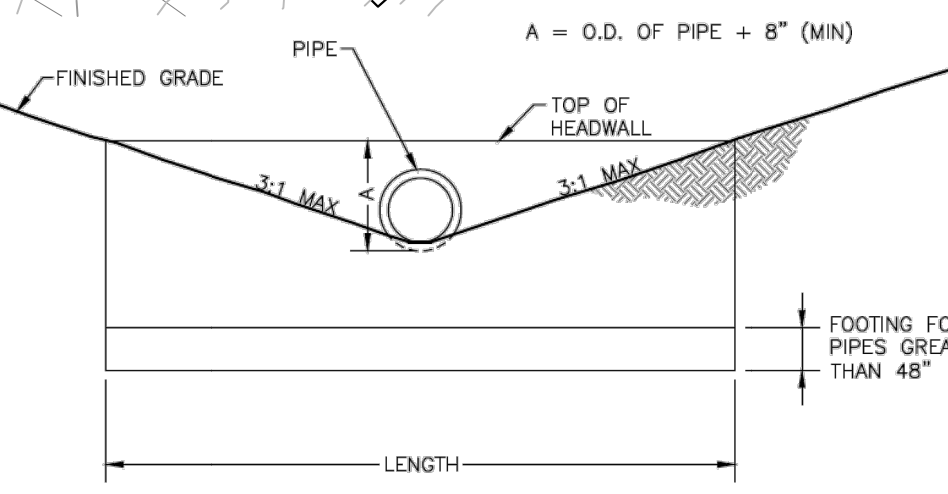
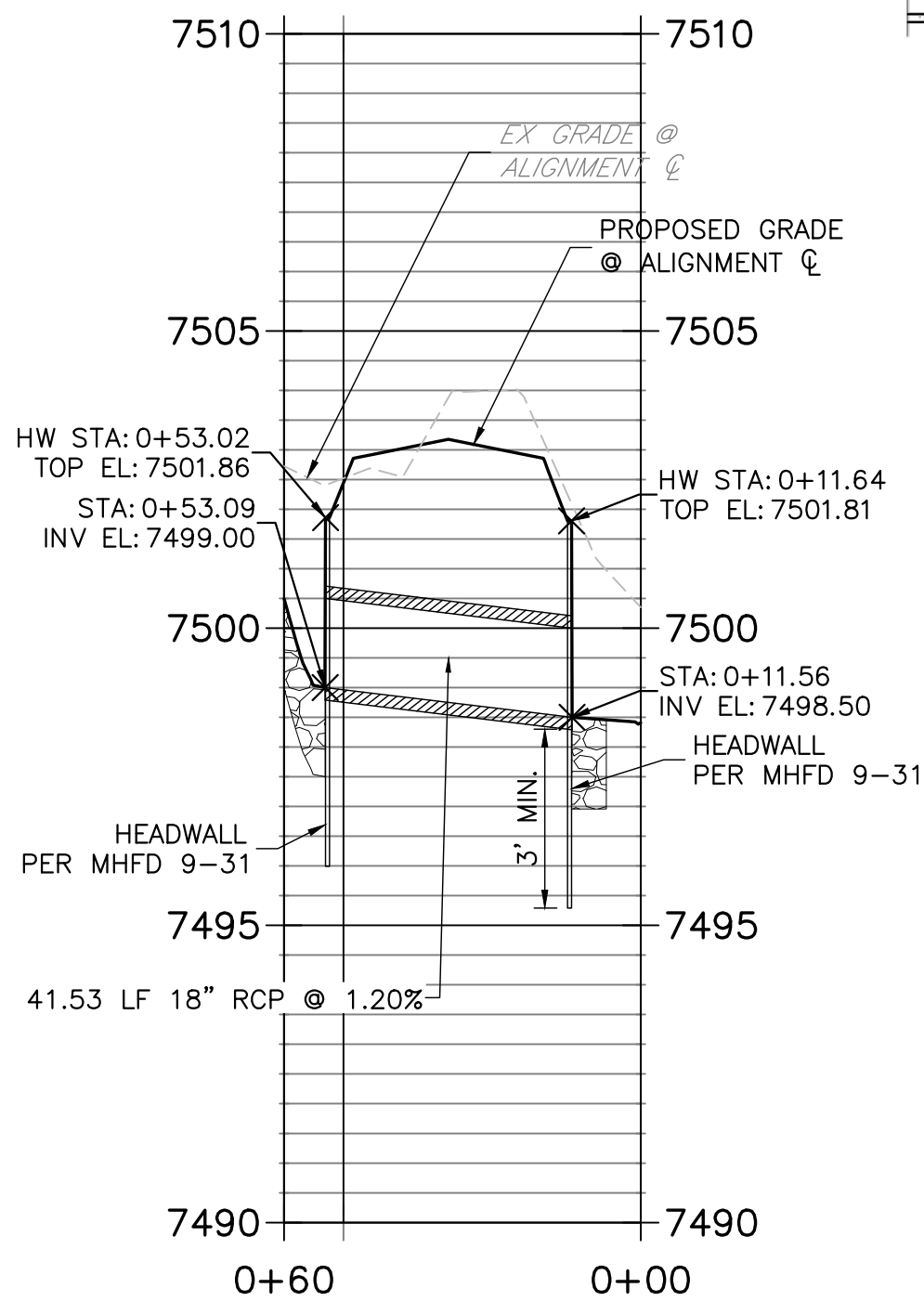


HEADWALL DESIGN TABLE

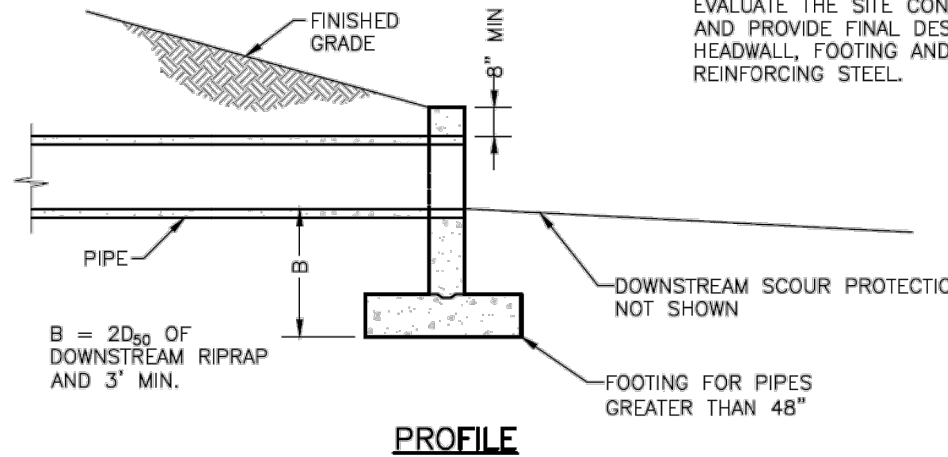
| PIPE SIZE | LENGTH, MIN |
|-----------|-------------|
| 18"       | 15'-9"      |
| 24"       | 19'-6"      |
| 30"       | 23'-4"      |
| 36"       | 27'-0"      |
| 42"       | 30'-9"      |
| 48"       | 34'-6"      |

Figure 9-31. Pipe headwall concept

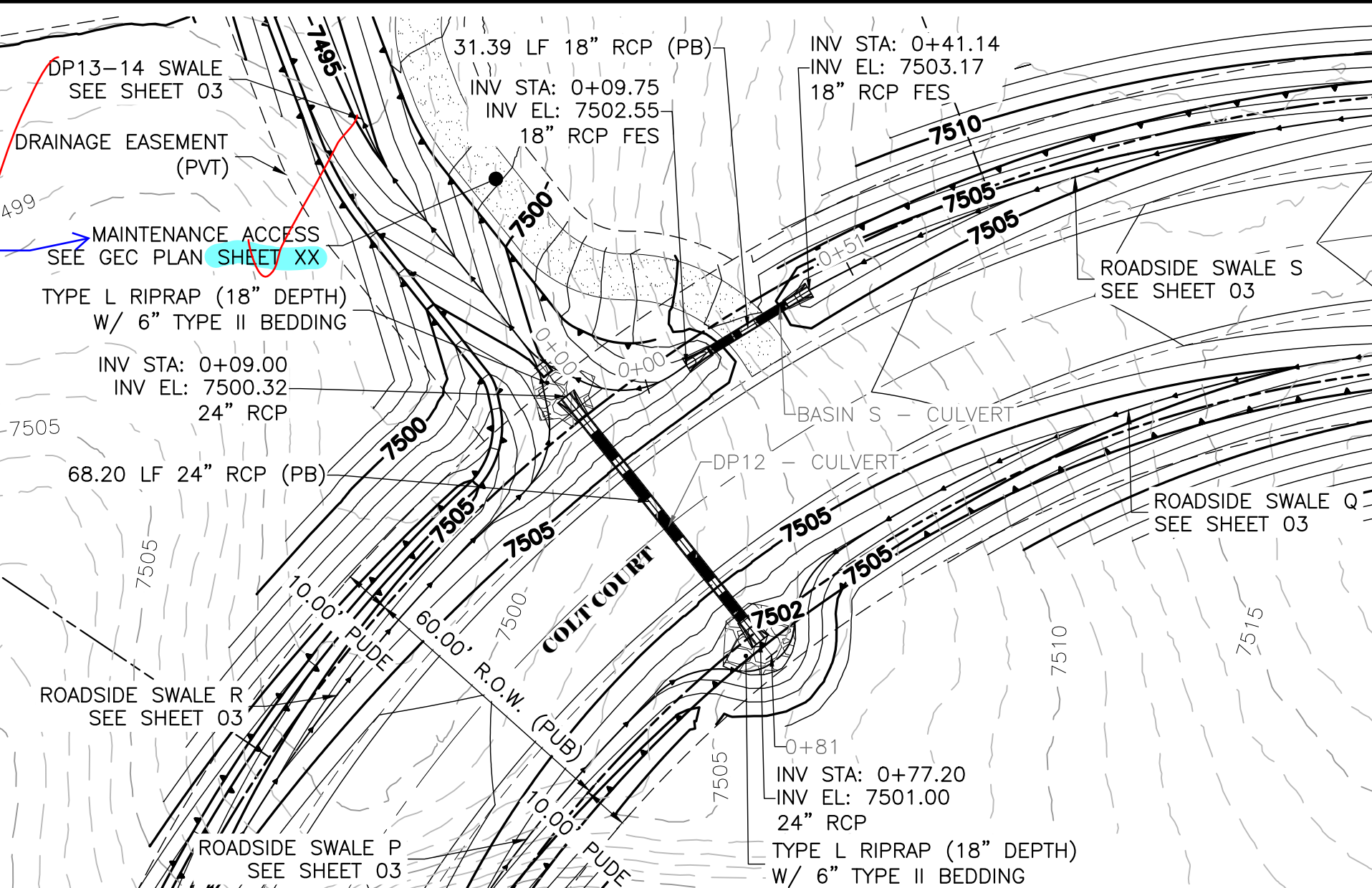
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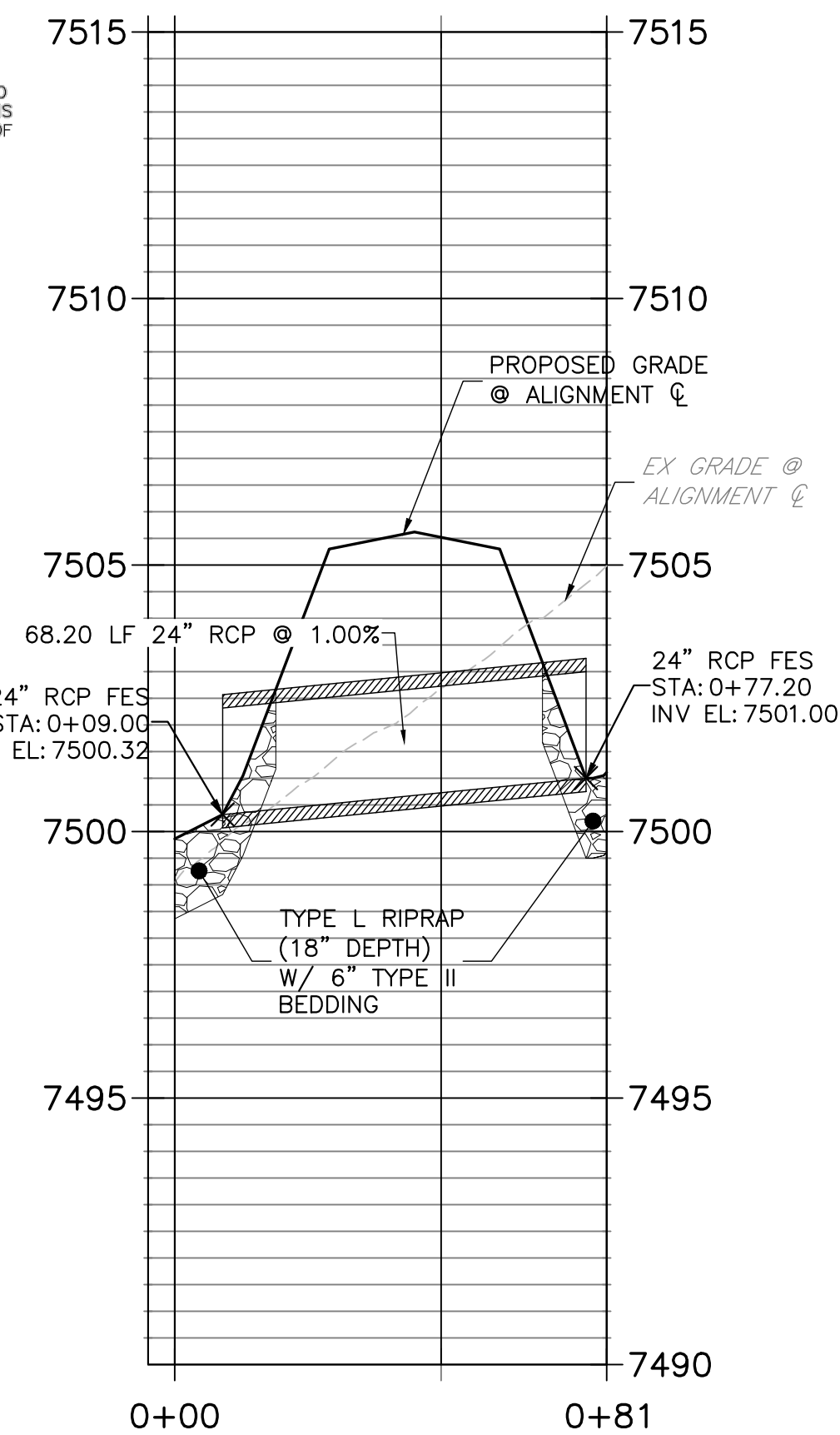
ELEVATION VIEW



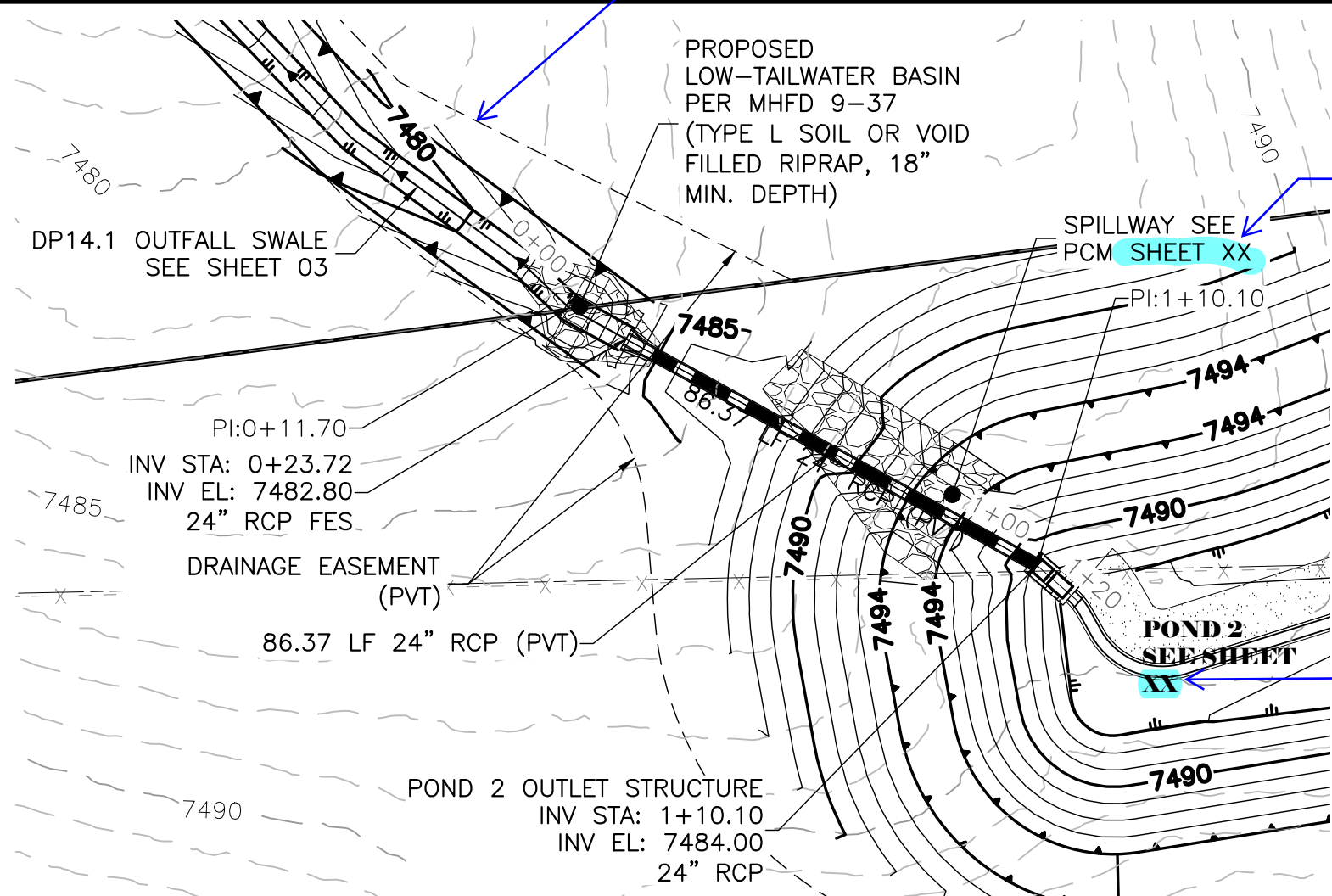
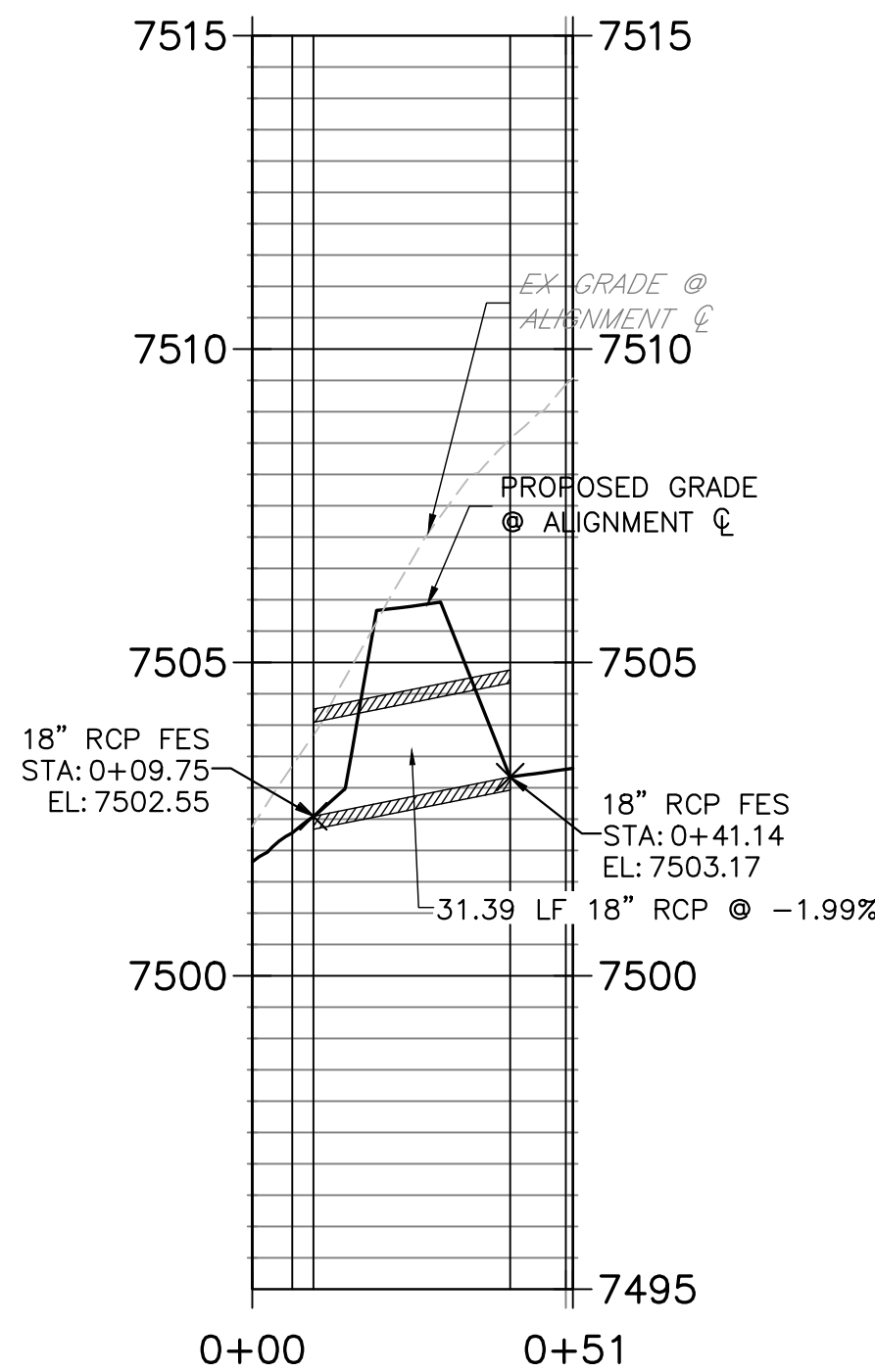
PROFILE



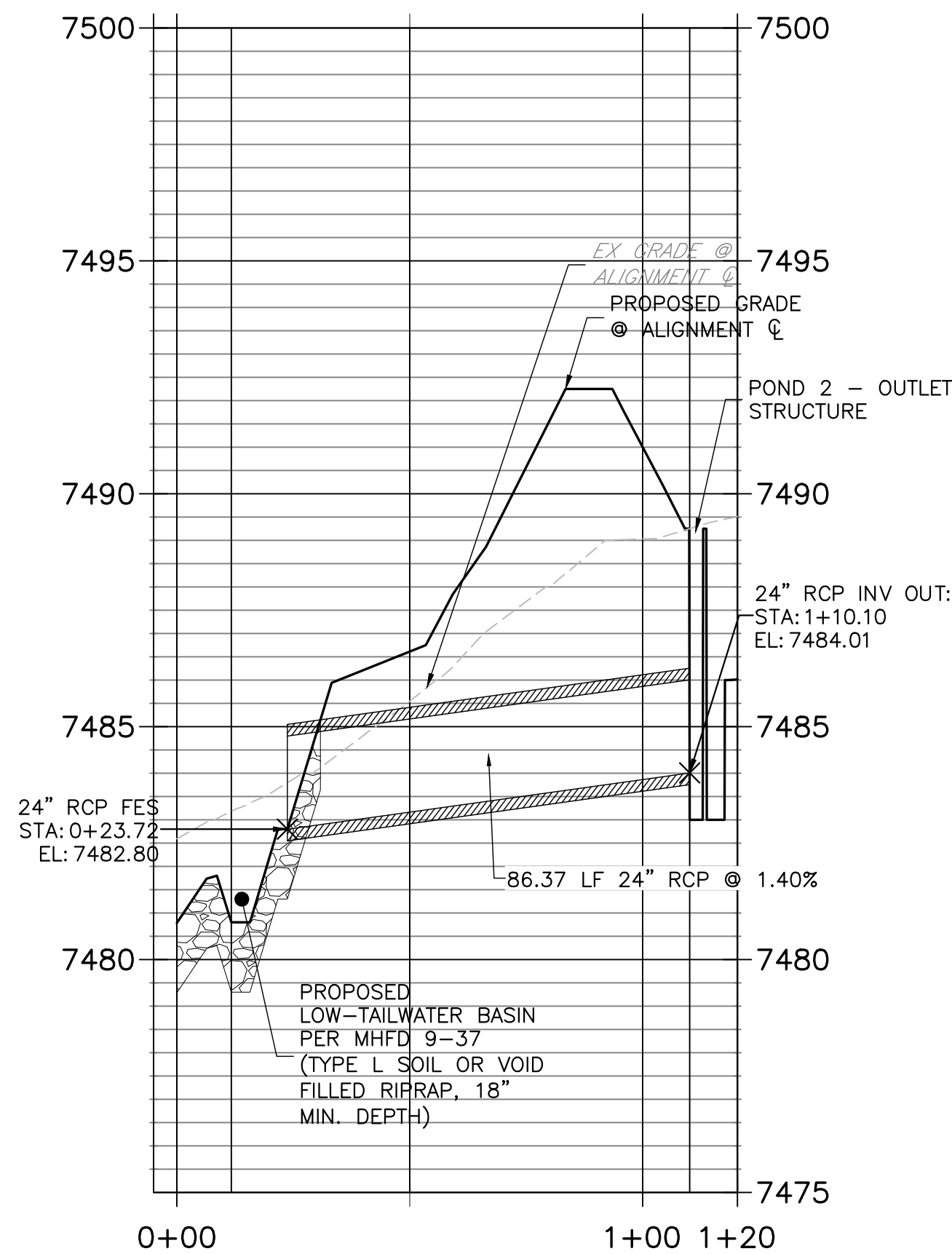
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BASIN S - CULVERT  
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DP14.1  
STA -0+05.00 TO 1+20.33



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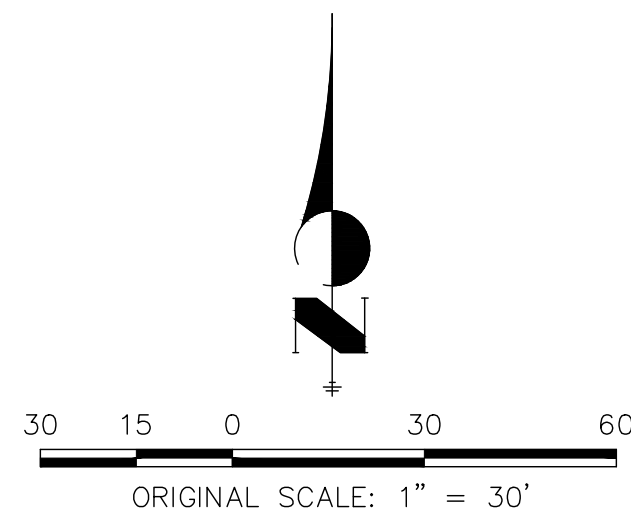
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STORM NOTES:

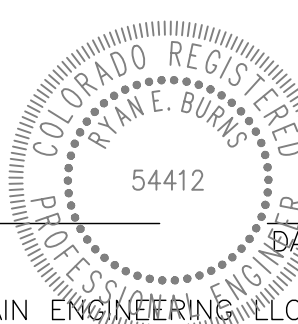
- FES' SHALL HAVE JOINT RESTRAINS FOR LAST (2) JOINTS
- WHERE TYPE II BEDDING IS SHOWN, SOIL RIPRAP CAN BE SUBSTITUTED FOR PLAIN RIPRAP AND THE BEDDING CAN BE ELIMINATED.
- RIPRAP AND BEDDING SHALL BE BE INSTALLED TO THE LIMITS SHOWN ON THE PLANS AND IN ACCORDANCE W/ MHFD SECTION 31-37-00
- HEADWALLS/TOE WALL REINFORCING SHALL BE PER CDOT M-601-10 & WALL SHALL BE CONSTRUCTED TO THE DIMENSION SHOWN @ A MINIMUM.



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IRON RIDGE FIGLING NO. 1 & 2

DESIGN: NJQ  
REVIEW: REB  
DATE: 5/22/26

H-SCALE: 1" = 50'  
V-SCALE: 1" = 5'

SHEET  
10 OF 24

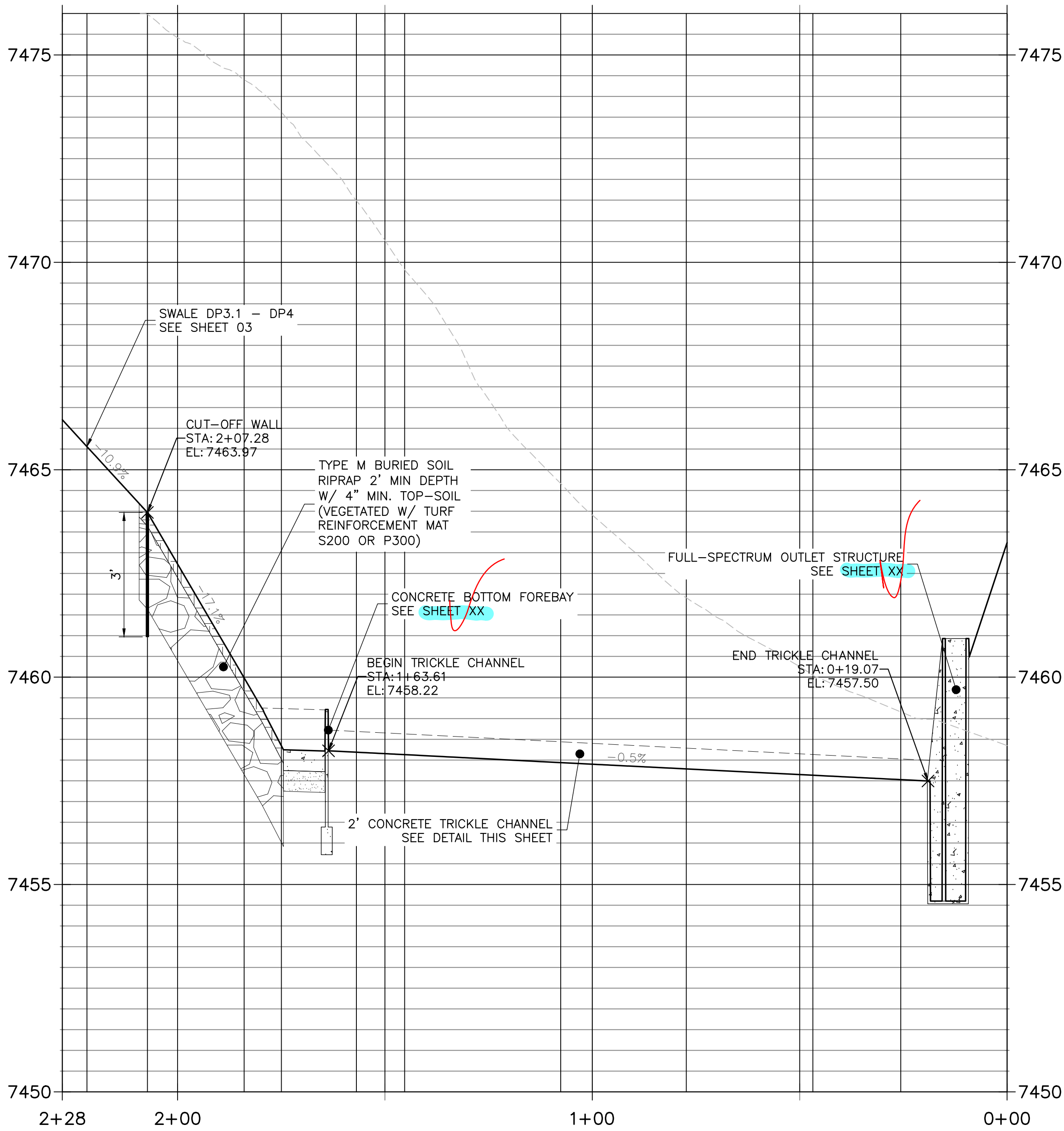


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20277 ROAD - FARMINGTON, UT 84201

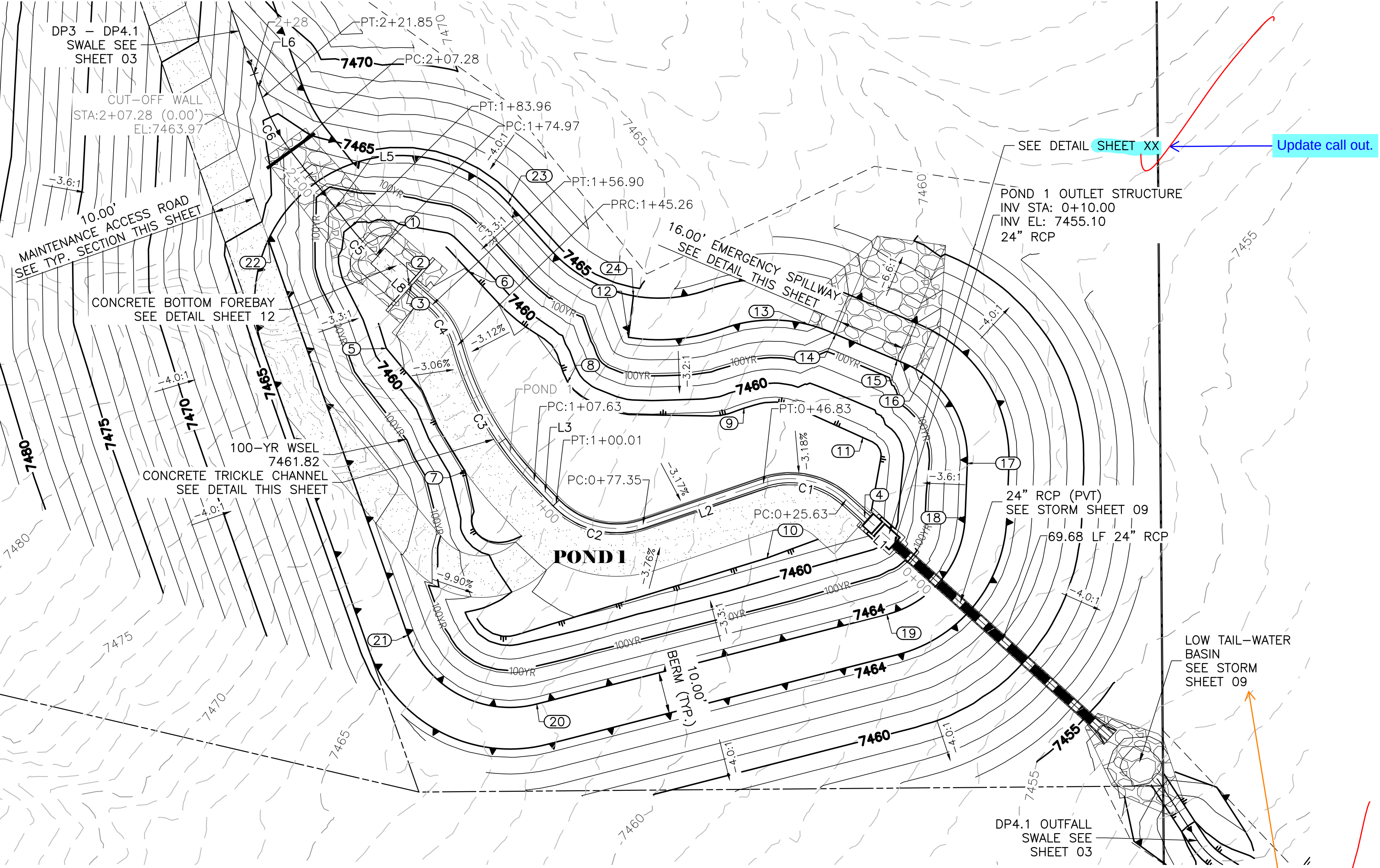
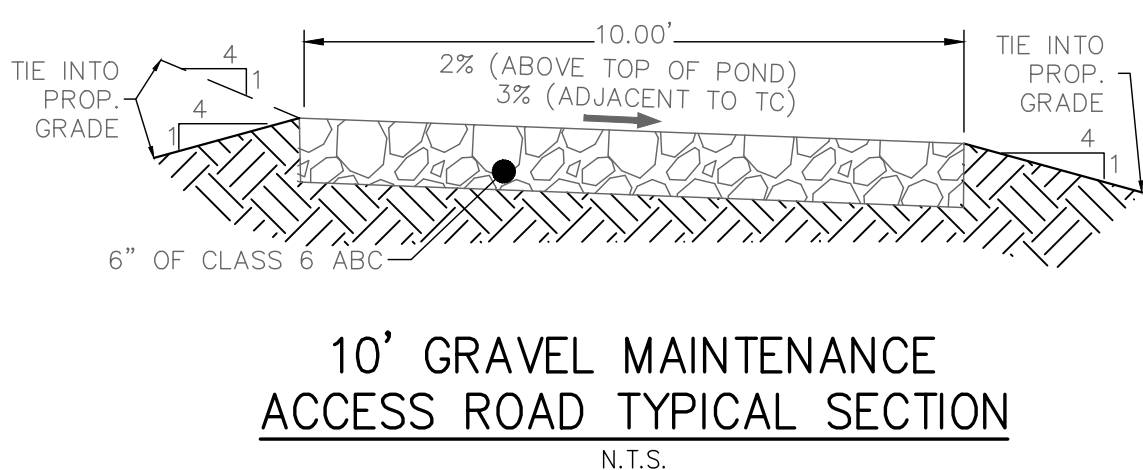
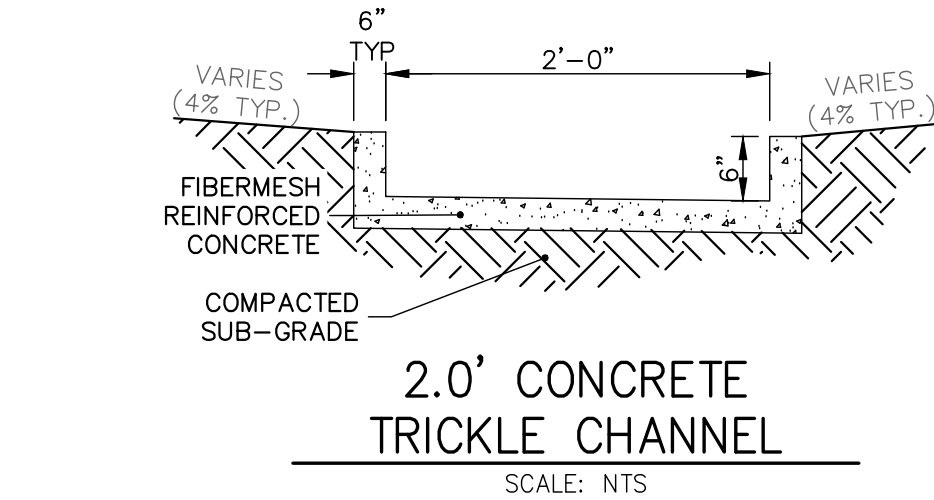


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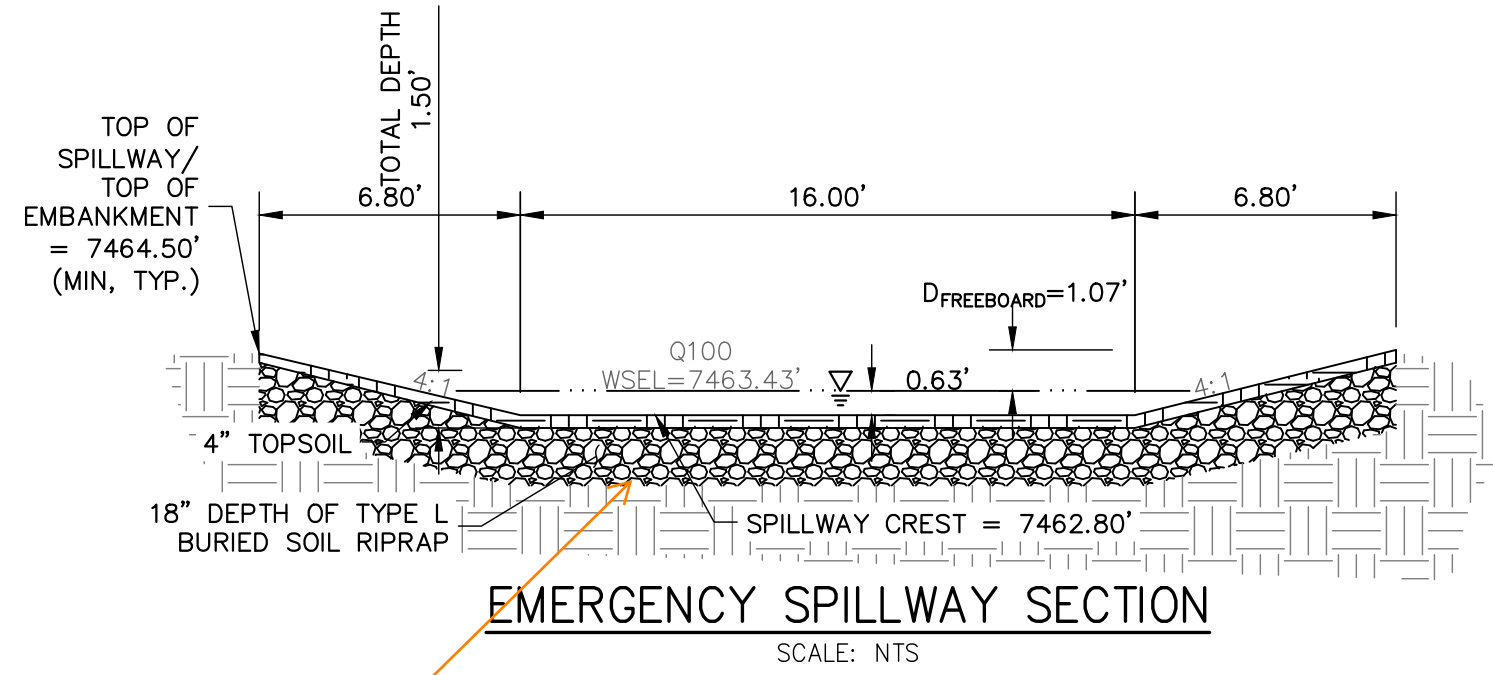


| LINE TABLE |                |          |
|------------|----------------|----------|
| LINE       | BEARING        | DISTANCE |
| L1         | N48°04'53.94"W | 25.63    |
| L2         | S71°12'18.29"W | 30.52    |
| L3         | N43°52'44.30"W | 7.62     |
| L8         | N48°28'19.89"W | 18.07    |
| L5         | N38°10'14.17"W | 23.32    |
| L6         | S19°24'46.20"E | 5.96     |

| CURVE TABLE |        |        |       |  |
|-------------|--------|--------|-------|--|
| CURVE       | LENGTH | RADIUS | DELTA |  |
| C1          | 21.19  | 20.00  | 60.71 |  |
| C2          | 22.66  | 20.00  | 64.92 |  |
| C3          | 37.63  | 75.00  | 28.75 |  |
| C4          | 11.64  | 20.00  | 33.34 |  |
| C5          | 8.99   | 50.00  | 10.30 |  |
| C6          | 14.57  | 50.00  | 16.70 |  |



| Structure Table |                           |           |            |           |
|-----------------|---------------------------|-----------|------------|-----------|
| #               | DESC.                     | NORTHING  | EASTING    | ELEVATION |
| 1               | FOREBAY BOTTOM            | 1458897.2 | 3220000.89 | 7458.25   |
| 2               | FOREBAY BOTTOM @ NOTCH    | 1458890.6 | 3220008.38 | 7458.22   |
| 3               | TC FL @ FOREBAY WEIR WALL | 1458890.1 | 3220008.97 | 7459.01   |
| 4               | TC FL @ OUTLET STRUCTURE  | 1458834.6 | 3220117.79 | 7457.50   |
| 5               | TOE/GB                    | 1458875.0 | 3220002.94 | 7459.11   |
| 6               | TOE/GB                    | 1458893.5 | 3220022.80 | 7459.00   |
| 7               | TOE/GB                    | 1458845.5 | 3220021.86 | 7458.80   |
| 8               | TOE/GB                    | 1458866.9 | 3220046.47 | 7458.97   |
| 9               | TOE/GB                    | 1458860.7 | 3220088.82 | 7458.66   |
| 10              | TOE/GB                    | 1458824.7 | 3220094.37 | 7458.58   |
| 11              | TOE/GB                    | 1458853.6 | 3220117.36 | 7458.46   |
| 12              | TOP EMBANKMENT            | 1458877.7 | 3220061.07 | 7464.50   |
| 13              | TOP EMBANKMENT/SPILLWAY   | 1458880.8 | 3220104.24 | 7464.50   |
| 14              | SPILLWAY CREST            | 1458878.4 | 3220110.84 | 7462.80   |
| 15              | SPILLWAY CREST            | 1458872.2 | 3220125.57 | 7462.80   |
| 16              | TOP EMBANKMENT/SPILLWAY   | 1458868.9 | 3220131.80 | 7464.50   |
| 17              | TOP EMBANKMENT            | 1458847.5 | 3220142.43 | 7464.50   |
| 18              | TOP EMBANKMENT            | 1458834.4 | 3220141.90 | 7464.50   |
| 19              | TOP EMBANKMENT            | 1458811.2 | 3220123.12 | 7464.50   |
| 20              | TOP EMBANKMENT            | 1458789.6 | 3220039.05 | 7464.50   |
| 21              | TOP EMBANKMENT            | 1458806.2 | 3220008.08 | 7464.50   |
| 22              | TOP/MAINT. EDGE           | 1458901.1 | 3219974.62 | 7464.50   |
| 23              | TOP                       | 1458909.9 | 3220032.26 | 7464.50   |
| 24              | TOP EMBANKMENT            | 1458887.6 | 3220062.26 | 7464.50   |



Provide bedding material/geotextile fabric between riprap and sub-base (per DCMv1 - Chap 10.10.5).

THIS SECTION DOES NOT APPLY TO SOIL RIPRAP, IT APPLIES TO PLAIN RIPRAP. SOIL RIPRAP BEDDING IS GENERALLY NOT REQUIRED OR RECOMMENDED BY MHFD.

**ENGINEER'S STATEMENT**

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLAN AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

DATE: 5/22/26

CH-SCALE: 1" = 50'

V-SCALE: 1" = 5'

SHEET 11 OF 24

ALL TERRAIN ENGINEERING

PREPARED FOR: ATTICUS LAND, LLC  
PO BOX 88010  
COLORADO SPRINGS, CO 80908  
ATTN: JAKE DECOTO  
206.419.4533  
DECOTO@GMAIL.COM

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, ALL TERRAIN ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

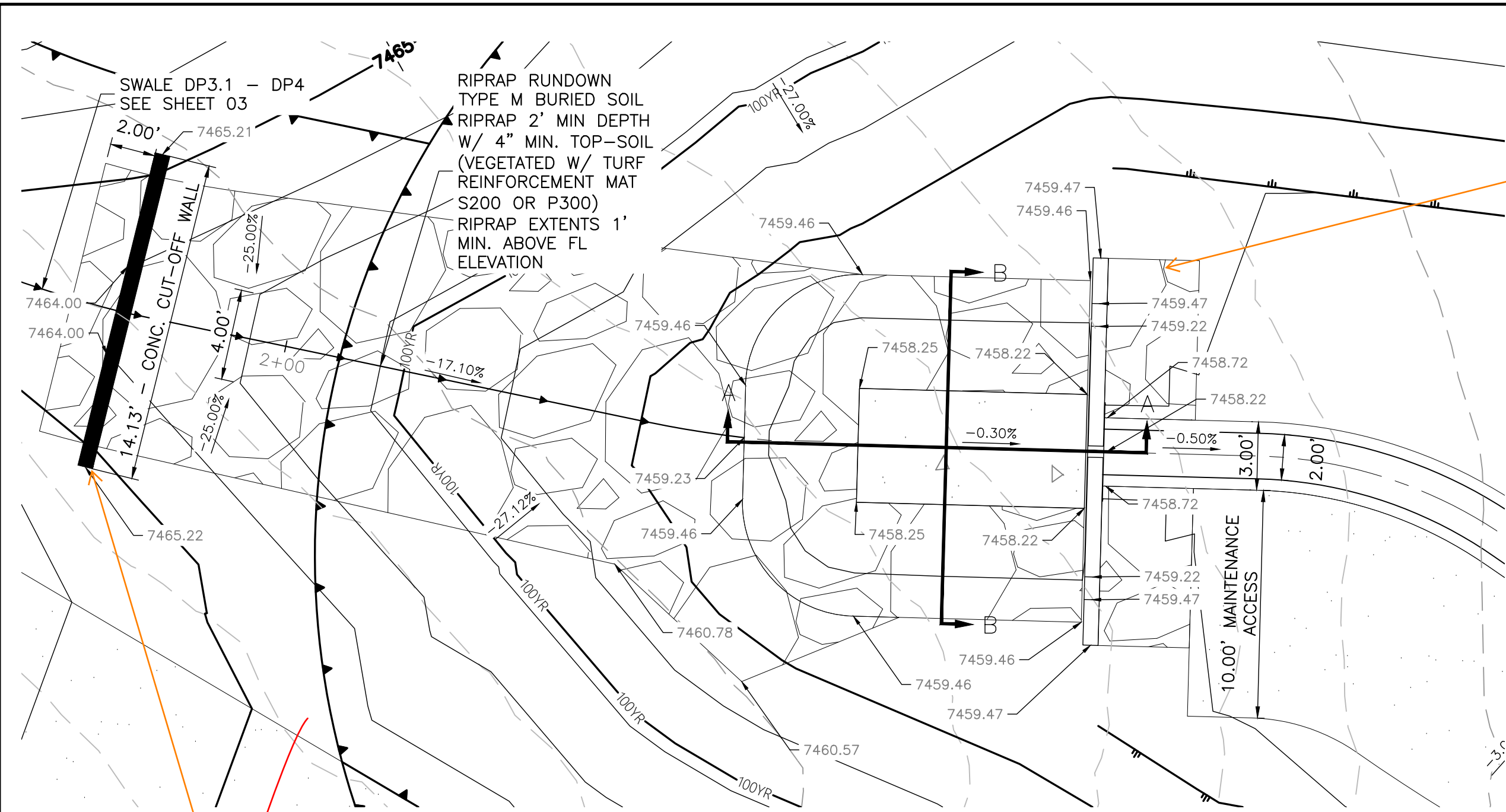
JOB NO: 25009 LOCATION: EPC

IRON RIDGE FIGING NO. 1 & 2

POND 1 GRADING

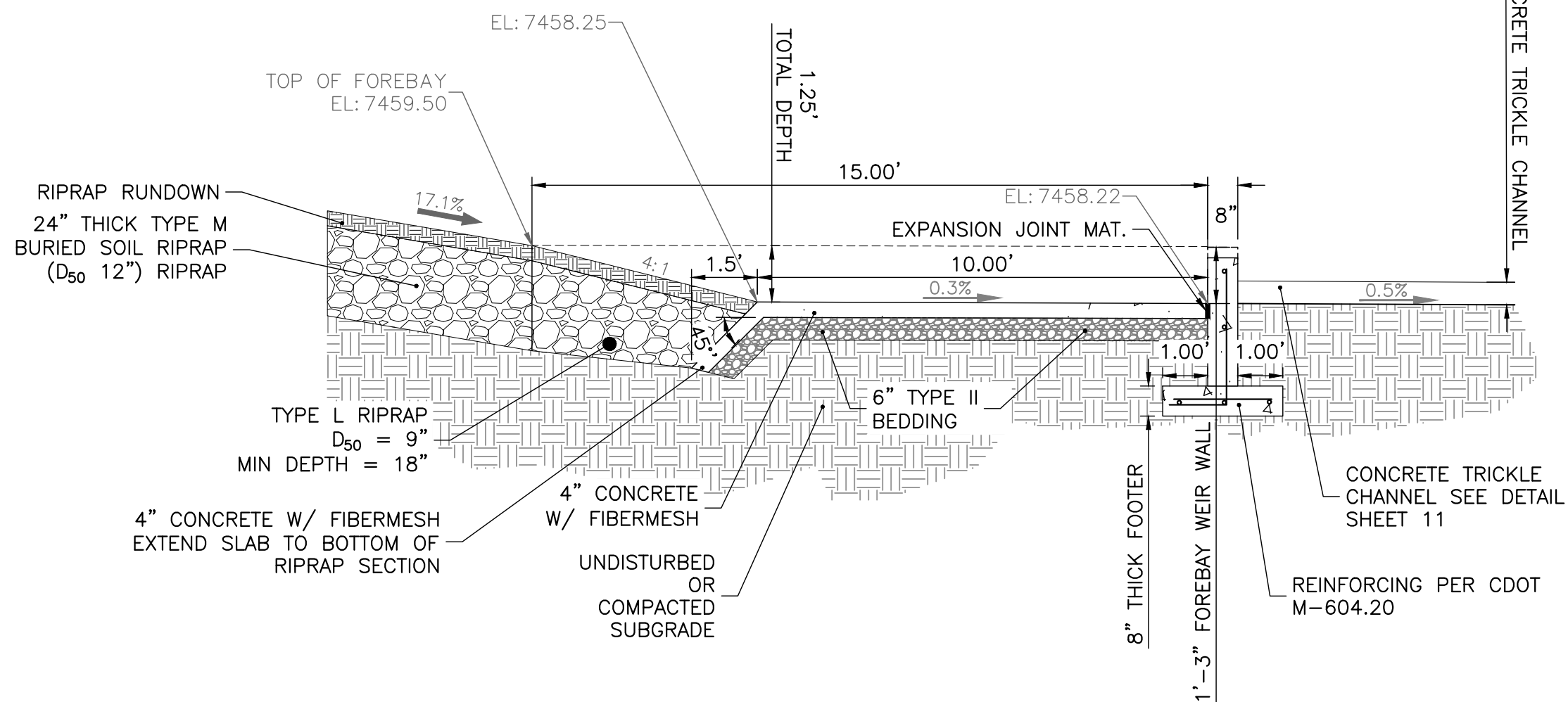
DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26  
CH-SCALE: 1" = 50'  
V-SCALE: 1" = 5'





Provide specifications for riprap downstream of forebay (dimensions, riprap type and depth, soil or conventional riprap).

Provide a detail for the cutoff wall. Does the top mirror the typ swale detail?



SECTION A-A  
SCALE: 1" = 3'

NO BEDDING IS SHOWN FOR THE FOREBAY RIPRAP (ITS SOIL RIPRAP) SO THIS NOTE DOES NOT APPLY BY DEFAULT. BEDDING SHOWN IS UNDER THE CONCRETE SLAB

I don't think this should apply to the forebay wall riprap because the soil riprap and vegetation are necessary to detain flows.

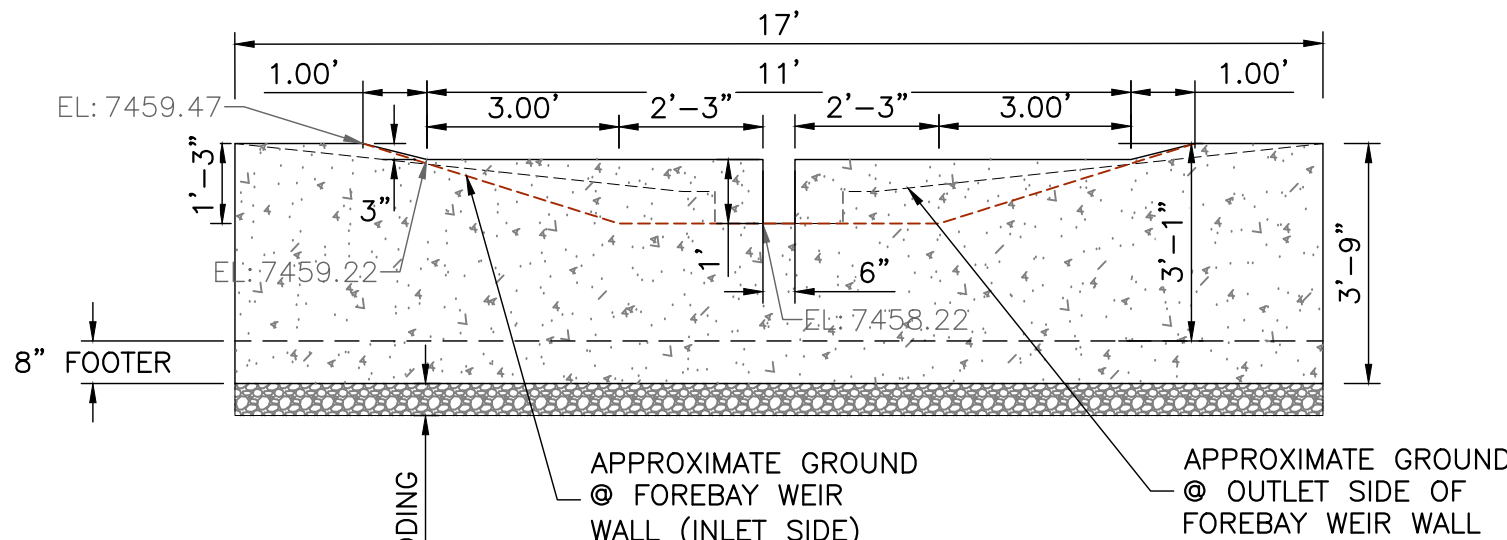
#### STORM NOTES:

1. FES' SHALL HAVE JOINT RESTRAINS FOR LAST (2) JOINTS
2. WHERE TYPE II BEDDING IS SHOWN, SOIL RIPRAP CAN BE SUBSTITUTED FOR PLAIN RIPRAP AND THE BEDDING CAN BE ELIMINATED.
3. RIPRAP AND BEDDING SHALL BE INSTALLED TO THE LIMITS SHOWN ON THE PLANS AND IN ACCORDANCE W/ MHFD SECTION 31-37-00
4. HEADWALLS/TOE WALL REINFORCING SHALL BE PER CDOT M-601-10 & WALL SHALL BE CONSTRUCTED TO THE DIMENSION SHOWN @ A MINIMUM.

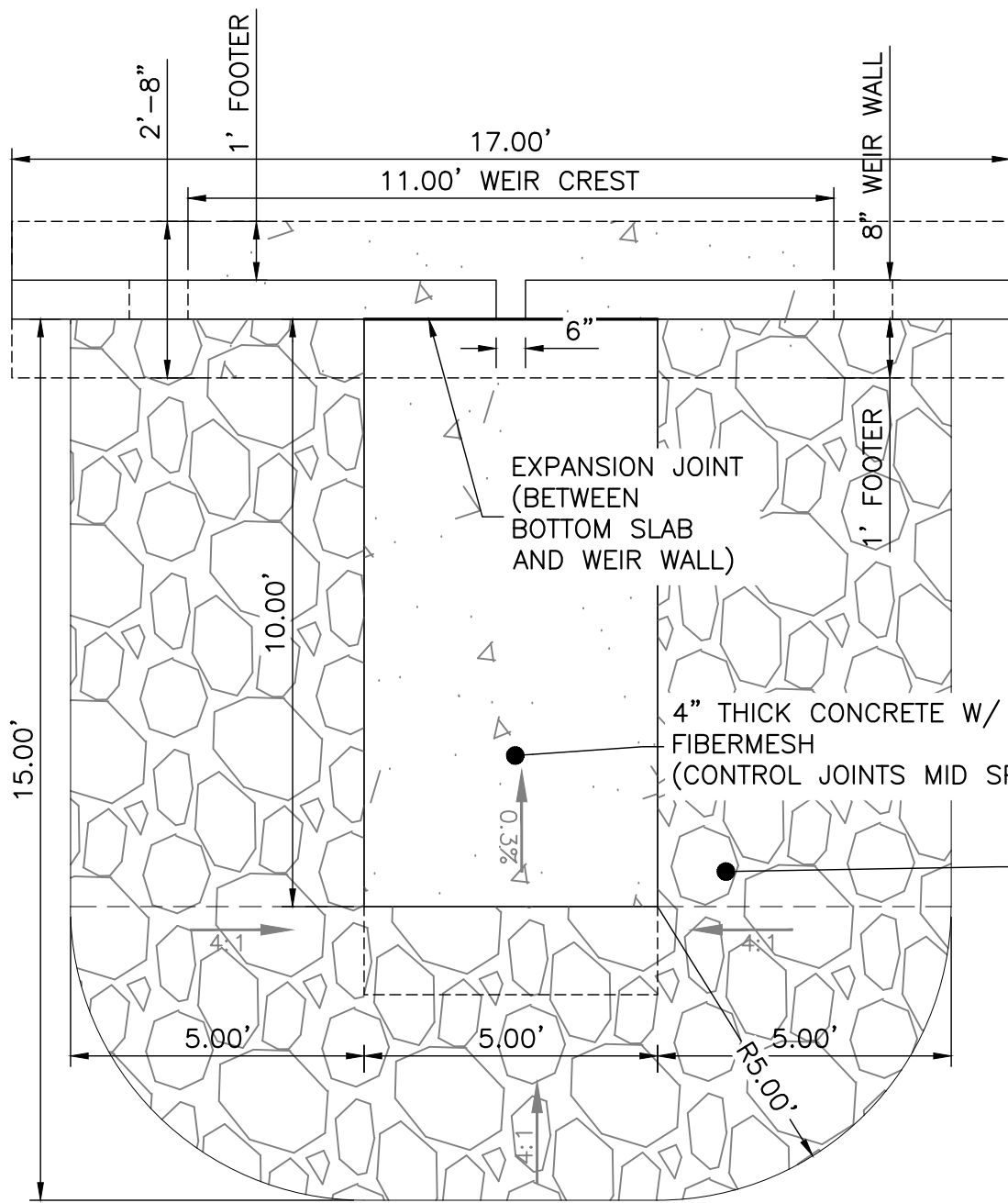
#### NOTES:

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2. SEE SHEET 2 FOR LINE TYPE LEGEND AND STANDARD NOTES.
3. SEE SHEET 3 FOR TYPICAL SECTIONS OF ROADWAYS AND SWALES.
4. CONTRACTOR TO FAMILIARIZE SELF WITH SITE, PLANS, EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY QUESTIONS, DISCREPANCIES, CONFLICTS, OR REQUIRED CHANGES PRIOR TO COMMENCING CONSTRUCTION.
5. PLEASE NOTE, EXISTING UTILITY LOCATIONS SHOULD BE VERIFIED PRIOR TO CONSTRUCTION AND MAY DIFFER THAN WHAT IS SHOWN IN THESE PLANS.

5 2.5 0 5 10  
ORIGINAL SCALE: 1" = 5'



SECTION B-B  
SCALE: 1" = 3'

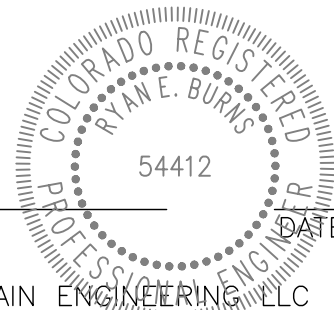


TOP VIEW  
SCALE: 1" = 3'

Are the forebay walls buried soil riprap? Please clarify.

#### ENGINEER'S STATEMENT

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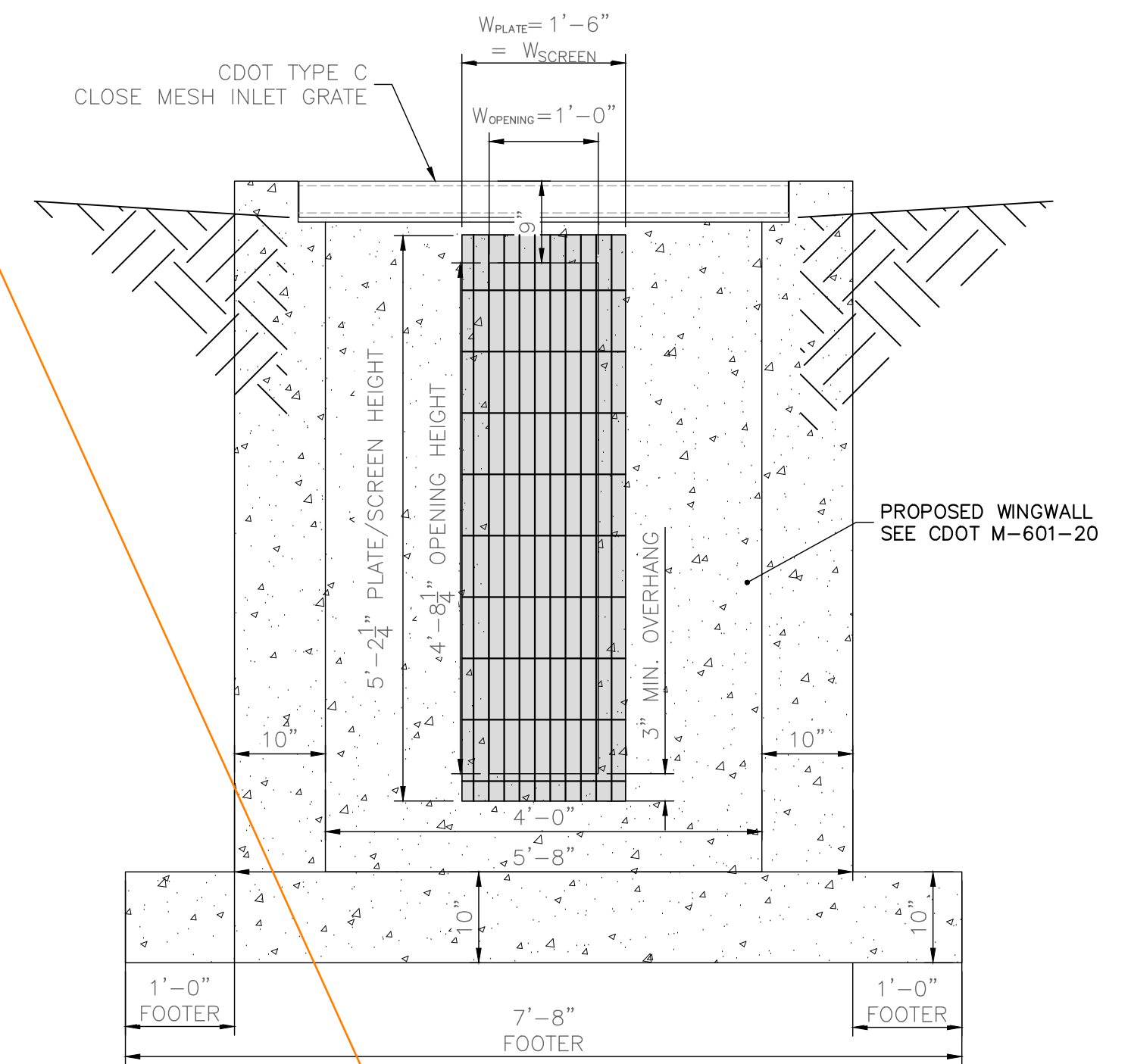
RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

| REV | DESCRIPTION | DATE |
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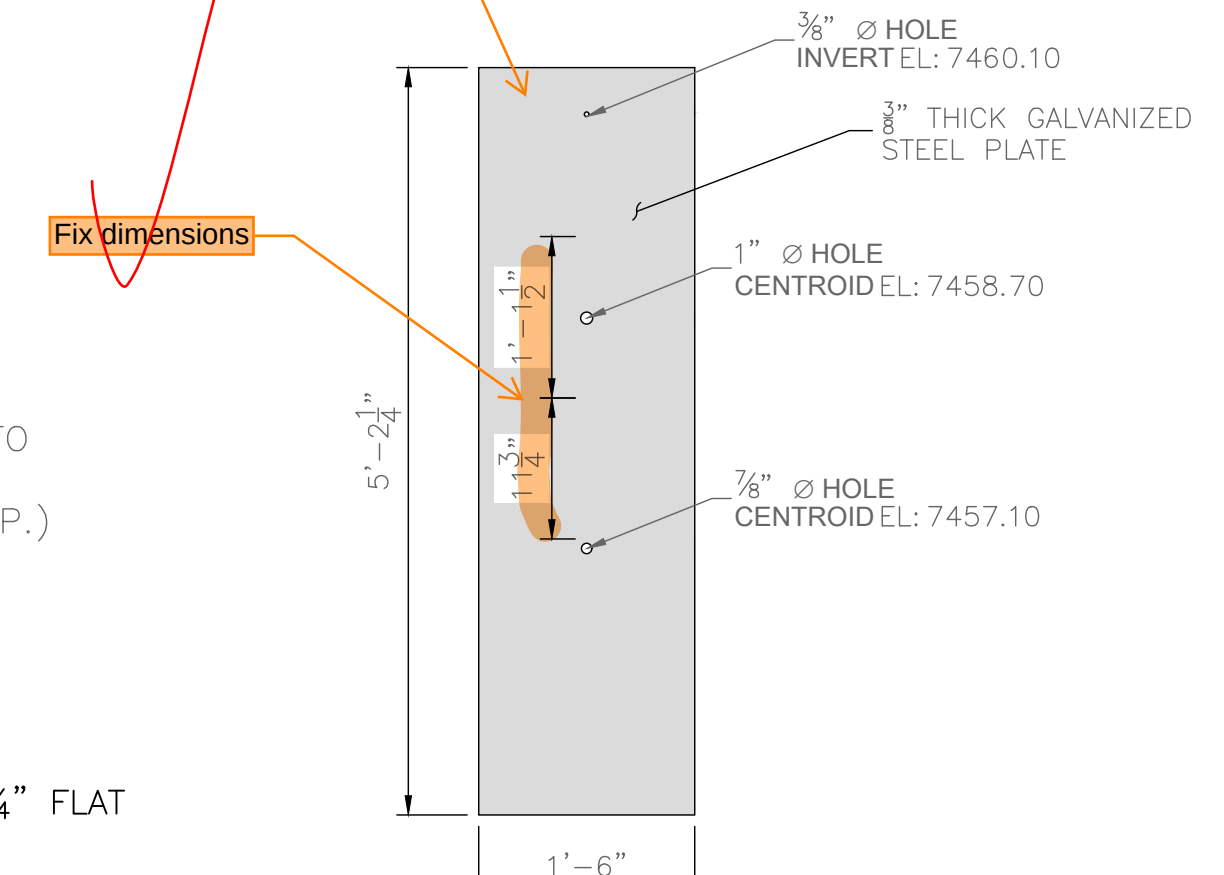
|                              |                |
|------------------------------|----------------|
| IRON RIDGE FIGLING NO. 1 & 2 | POND 1 FOREBAY |
|------------------------------|----------------|

|                                                                                      |                   |
|--------------------------------------------------------------------------------------|-------------------|
| DESIGN: NQJ<br>REVIEW: REB<br>DATE: 5/22/26<br>H-SCALE: 1" = 50'<br>V-SCALE: 1" = 5' | SHEET<br>12 OF 24 |
|--------------------------------------------------------------------------------------|-------------------|





 B-B SECTION  
SCALE: 3/4"=1'



TRASH RACK DETAILS  
N.T.S.

### ENGINEER'S STATEMENT

RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

1. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
2. ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
4. DO NOT BACKFILL UNTIL CONCRETE HAS REACHED DESIGN STRENGTH, F<sub>c</sub>.
5. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4".
6. CONTRACTOR SHALL SUBMIT STEEL REINFORCING SHOP DRAWINGS FOR ALL CAST-IN-PLACE STRUCTURES FOR THE ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION. REINFORCING SHOWN IS FOR INFORMATION ONLY.
7. HEADWALLS FOR PIPES SHALL BE CONSTRUCTED PER CDOT M-601-10.
8. WINGWALLS SHALL BE CONSTRUCTED PER CDOT M-601-20.
9. WINGWALL FOOTINGS AND FLOOR TO BE POURED MONOLITHICALLY.
10. REINFORCING STEEL SHALL BE GRADUATED & SIZED AS SHOWN. SLICE LEYTHS PER CDOT STANDARDS AND APPLICABLE M-STANDARD DRAWINGS FOR HEADWALLS AND WINGWALLS.
11. SEE GENERAL STRUCTURE NOTES ON SHEET #####. 3.7

3 OF 24



7500

7495

7490

7485

7480

0+00

1+00

1+85

SPILLWAY CREST EL: 7492.25

FULL-SPECTRUM OUTLET STRUCTURE  
SEE SHEET 16

CONCRETE BOTTOM FOREBAY  
SEE SHEET 15

2' CONCRETE TRICKLE CHANNEL  
SEE DETAIL THIS SHEET

INVERT EL: 7484.00

-86.37 LF 24" RCP @ 1.40%

0.6%

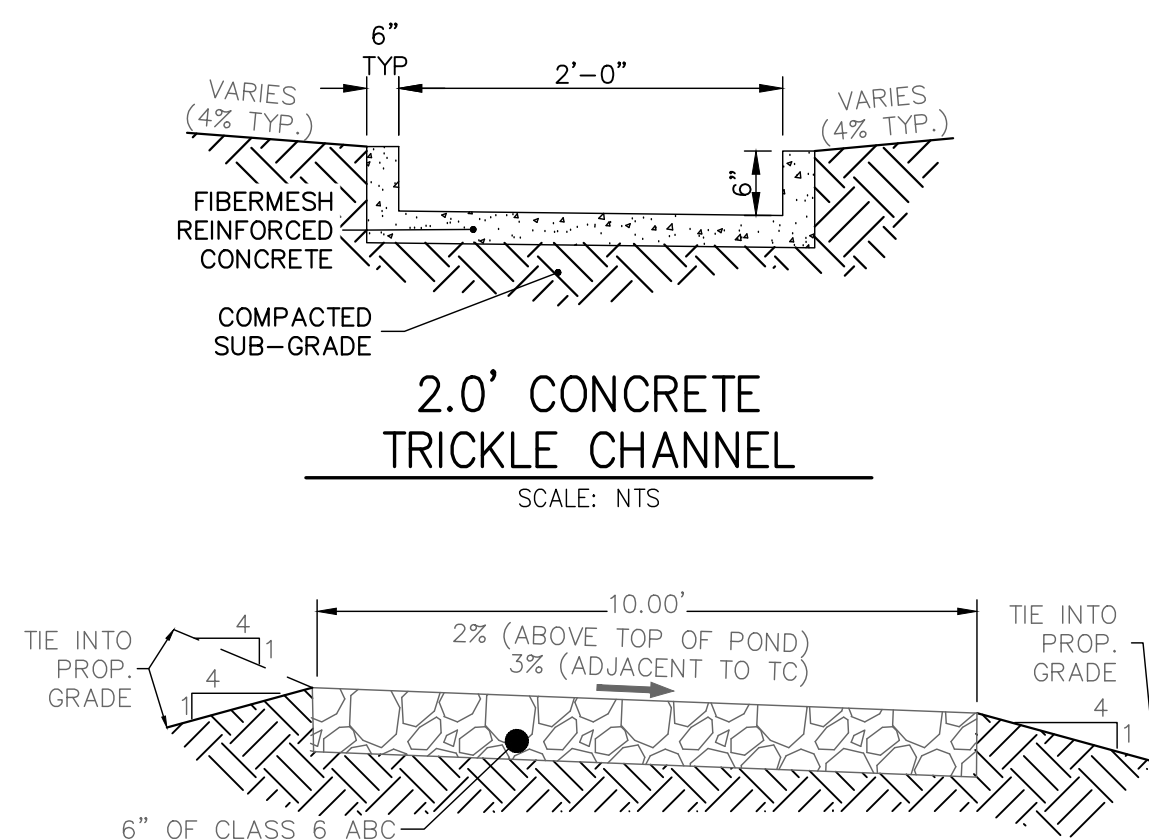
1.7%

SWALE DP13 ~ DP14  
SEE SHEET 03

CUT-OFF WALL  
STA: 1+76.68  
EL: 7494.08

TYPE M BURIED SOIL  
RIPRAP 2' MIN DEPTH  
W/ 4" MIN. TOP SOIL  
(VEGETATED W/ TURF  
REINFORCEMENT MAT  
S200 OR P300)

| CURVE TABLE |        |        |       |
|-------------|--------|--------|-------|
| CURVE       | LENGTH | RADIUS | DELTA |
| C1          | 4.04   | 12.00  | 19.27 |
| C2          | 19.06  | 14.00  | 77.99 |
| C3          | 6.04   | 13.00  | 26.61 |
| C4          | 6.45   | 10.00  | 36.96 |
| C5          | 7.18   | 54.60  | 7.53  |

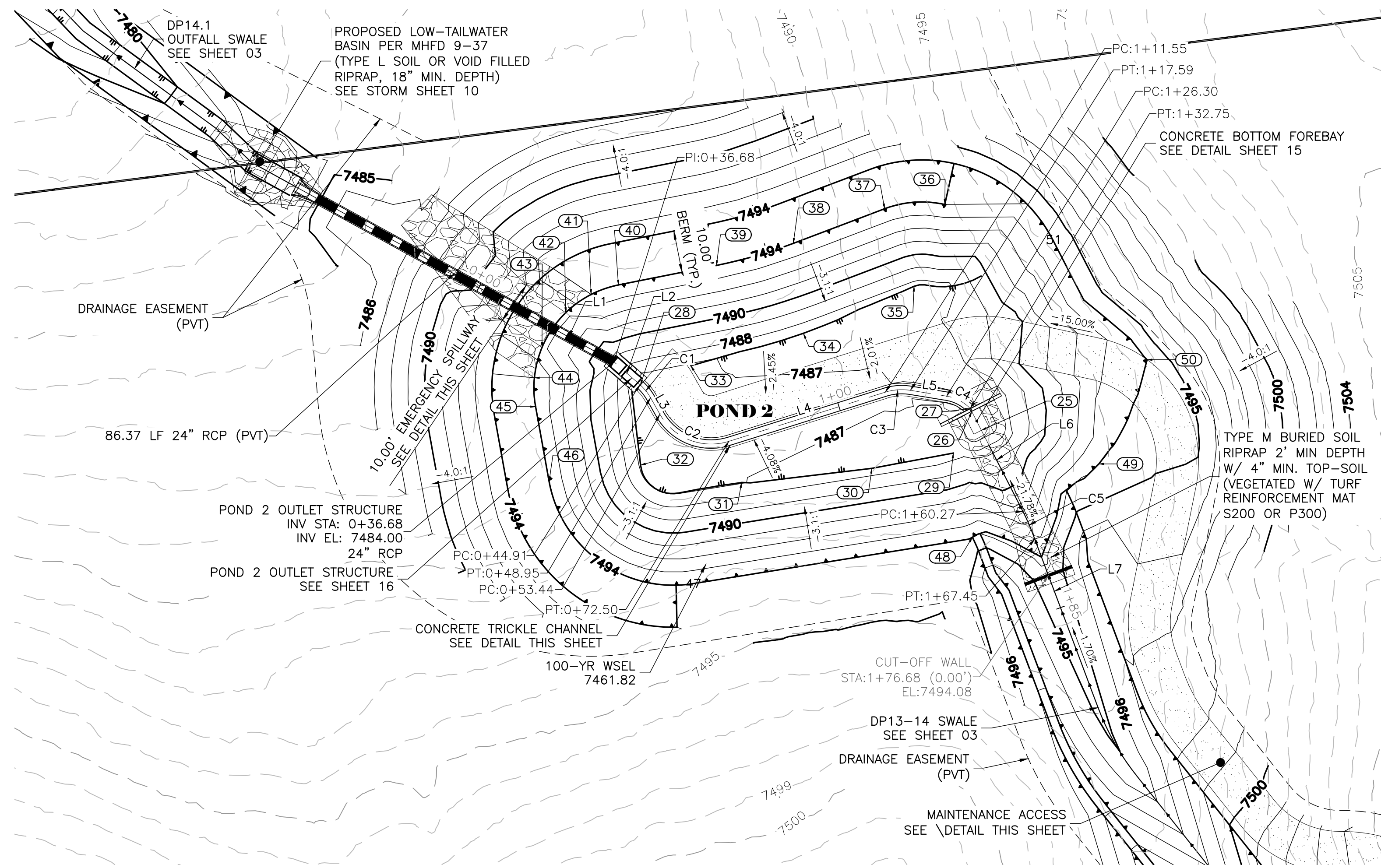


Now what's below.  
Call before you dig.

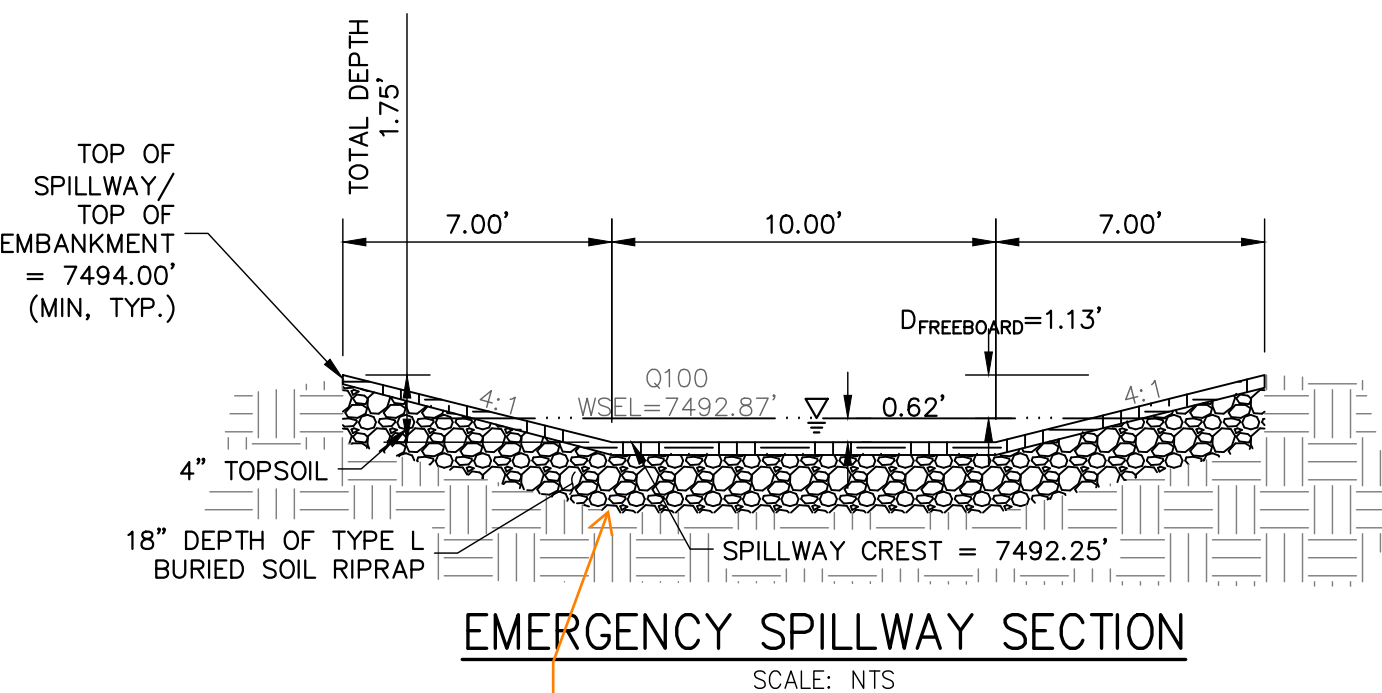
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2. SEE SHEET 2 FOR LINE TYPE LEGEND AND STANDARD NOTES.
3. SEE SHEET 3 FOR TYPICAL SECTIONS OF ROADWAYS AND SWALES.
4. CONDITIONS NOT FAMILIARIZE SEE THE SHEETS CONCERNING CONDITIONS AND NOTIFY ENGINEER OF ANY QUESTIONS, DISCREPANCIES, CONFLICTS, OR REQUIRED CHANGES PRIOR TO COMMENCING CONSTRUCTION.
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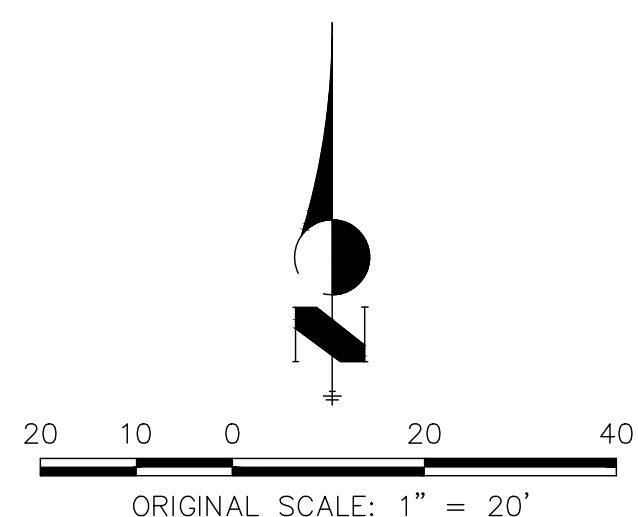


| Structure Table |                        |           |            |           |
|-----------------|------------------------|-----------|------------|-----------|
| #               | DESC.                  | NORTHING  | EASTING    | ELEVATION |
| 25              | FOREBAY BOTTOM         | 1458318.6 | 3220830.20 | 7486.55   |
| 26              | FOREBAY BOTTOM @ NOTCH | 1458323.1 | 3220827.92 | 7486.53   |
| 27              | BEGIN TRICKLE CHANNEL  | 1458323.8 | 3220827.54 | 7486.91   |
| 28              | END TRICKLE CHANNEL    | 1458329.4 | 3220749.09 | 7486.00   |
| 29              | TOE/GB                 | 1458313.2 | 3220823.54 | 7487.65   |
| 30              | TOE/GB                 | 1458309.6 | 3220804.17 | 7487.45   |
| 31              | TOE/GB                 | 1458306.2 | 3220773.18 | 7486.93   |
| 32              | TOE/GB                 | 1458310.4 | 3220749.11 | 7486.87   |
| 33              | TOE/GB                 | 1458334.0 | 3220761.07 | 7486.83   |
| 34              | TOE/GB                 | 1458341.7 | 3220787.87 | 7487.23   |
| 35              | TOE/GB                 | 1458352.9 | 3220814.18 | 7487.63   |
| 36              | TOP OF POND/BERM       | 1458372.4 | 3220821.49 | 7494.00   |
| 37              | TOP OF POND/BERM       | 1458371.4 | 3220807.18 | 7494.00   |
| 38              | TOP OF POND/BERM       | 1458363.1 | 3220785.44 | 7494.00   |
| 39              | TOP OF POND/BERM       | 1458357.9 | 3220767.16 | 7494.00   |
| 40              | TOP OF POND/BERM       | 1458353.2 | 3220743.86 | 7494.00   |
| 41              | TOP OF SPILLWAY/BERM   | 1458351.0 | 3220737.37 | 7494.00   |
| 42              | SPILLWAY CREST         | 1458346.6 | 3220731.31 | 7492.25   |
| 43              | SPILLWAY CREST         | 1458338.4 | 3220725.68 | 7492.25   |
| 44              | TOP OF SPILLWAY/BERM   | 1458331.1 | 3220723.86 | 7494.00   |
| 45              | TOP OF POND/BERM       | 1458324.3 | 3220724.15 | 7494.00   |
| 46              | TOP OF POND/BERM       | 1458306.4 | 3220727.37 | 7494.00   |
| 47              | TOP OF POND            | 1458282.1 | 3220761.68 | 7494.00   |
| 48              | TOP OF POND            | 1458293.2 | 3220828.06 | 7493.99   |
| 49              | TOP OF POND            | 1458310.6 | 3220858.15 | 7494.01   |
| 50              | TOP OF POND            | 1458335.4 | 3220869.60 | 7494.00   |
| 51              | TOP OF POND            | 1458364.0 | 3220847.16 | 7494.00   |



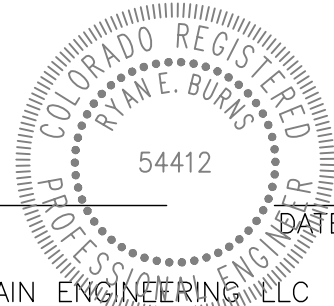
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RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC



PREPARED FOR:

PREPARED FOR:  
ATTICUS LAND, LLC  
PO BOX 88010  
COLORADO SPRINGS, CO 80908  
ATTN: JAKE DECOTO  
206.419.4533  
DECOTOJ@GMAIL.COM

UNTIL SUCH TIME AS THESE  
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ENGINEERING APPROVES THEIR  
USE ONLY FOR THE PURPOSES  
DESIGNATED BY WRITTEN  
AUTHORIZATION.

JOB NO: 25009      LOCATION: EPC

[illegible]

RON RIDGE FIGLING NO. 1 & 2

POND 2 - GRADING

DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26

V-SCALE: 1" = 5'

V-SCALE: 1" = 5'

SHEET

14 OF 24



RYAN E. BURNS, PE  
203.577.8656 - RBURNS@ALLTRAINING.COM

NICHOLAS Q. JOKERST, PE  
530.391.7635 - NJOKERST@ALLTRAINING.COM











17 OF 24



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#### NOTES:

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**LOT 8**  
**3.579**

**LOT 12**  
**2.520**

**LOT 13**  
**2.527**

**LOT 14**  
**2.549**

**LOT 1**  
**2.507**

**LOT 2**  
**2.513**

**LOT 3**  
**2.585**

**LOT 4**  
**5.985**

Provide a note describing the existing vegetation on the site.

Provide a phasing plan for the temporary control measures where each is identified by "initial," "interim," or "final."

Include SSA and placeholder SP area in LOD. Update disturbed area noted in ESQCP form and SWMP as necessary.

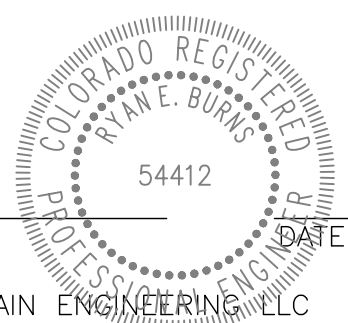
What's this line?

Show areas of cut and fill  
Provide flow flow direction arrows on and off-site

#### ENGINEER'S STATEMENT

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FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC



PREPARED FOR:

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| REV | DESCRIPTION | DATE |
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IRON RIDGE FIGLING NO. 1 & 2

GEC PLAN

DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26

H-SCALE: 1" = 50'

V-SCALE: 1" = 5'

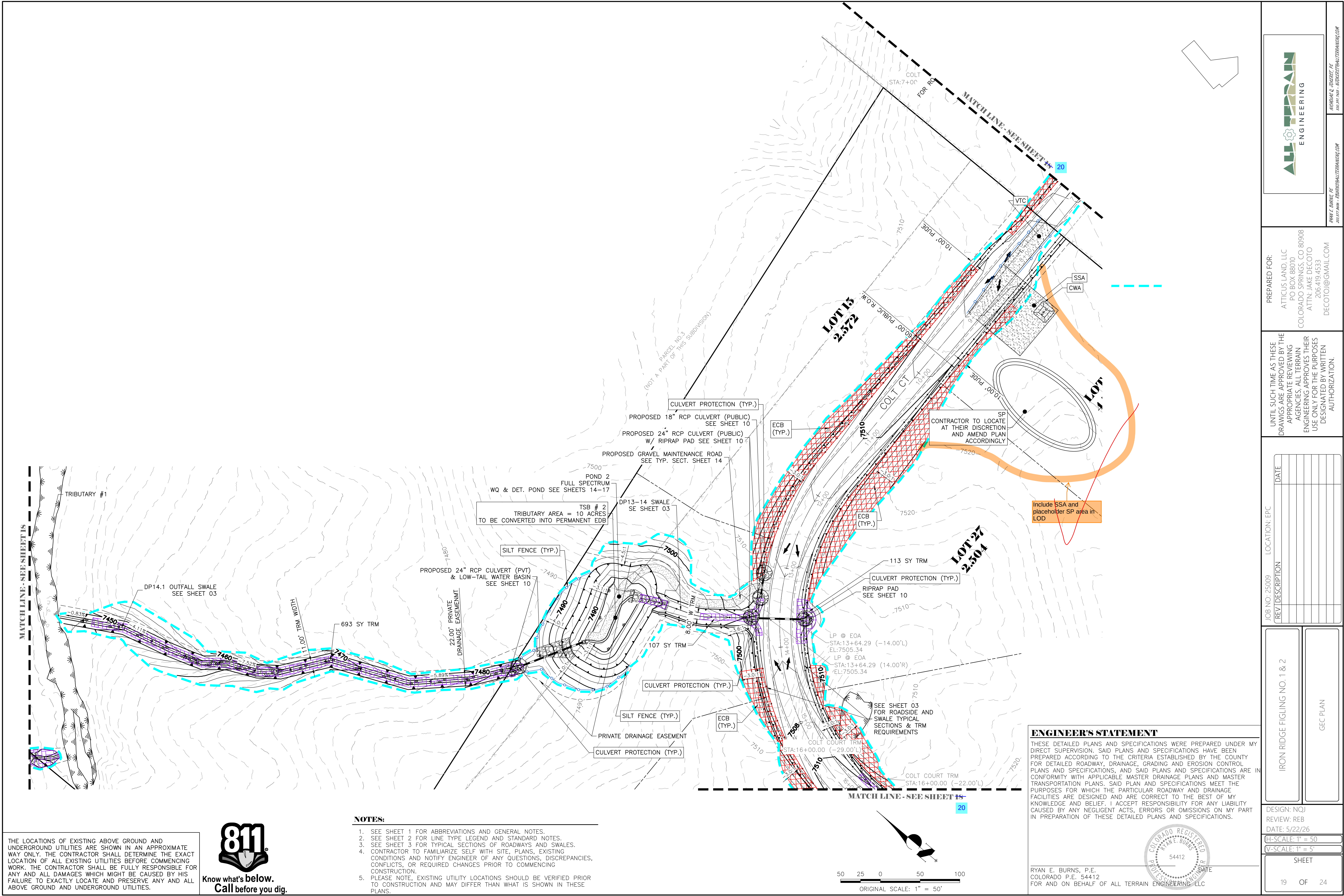
SHEET

18 OF 24



RYAN E. BURNS, P.E.  
54412  
ALLTERRAINENGINEERING.COM

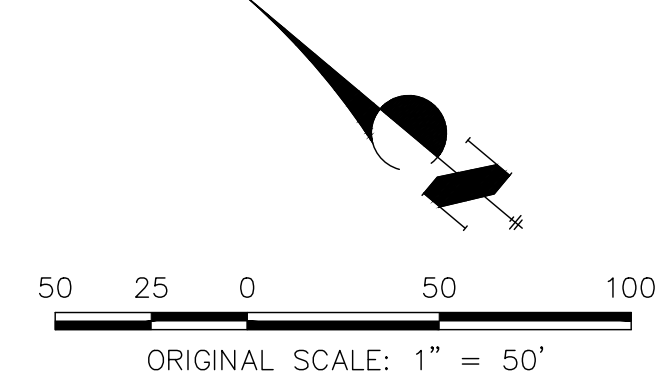




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COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

54412

DATE

ALL TERRAIN ENGINEERING

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DECOTO@GMAIL.COM

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JOB NO: 25009    LOCATION: EPC

IRON RIDGE FIGING NO. 1 & 2

GEC PLAN

DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26  
H-SCALE: 1" = 50'  
V-SCALE: 1" = 5'

SHEET  
19 OF 24

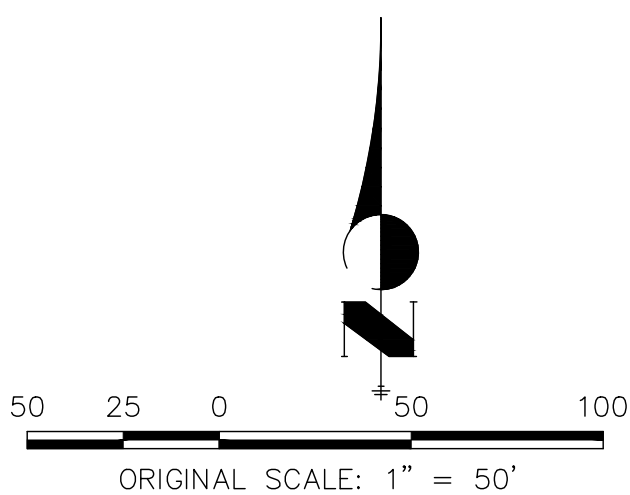
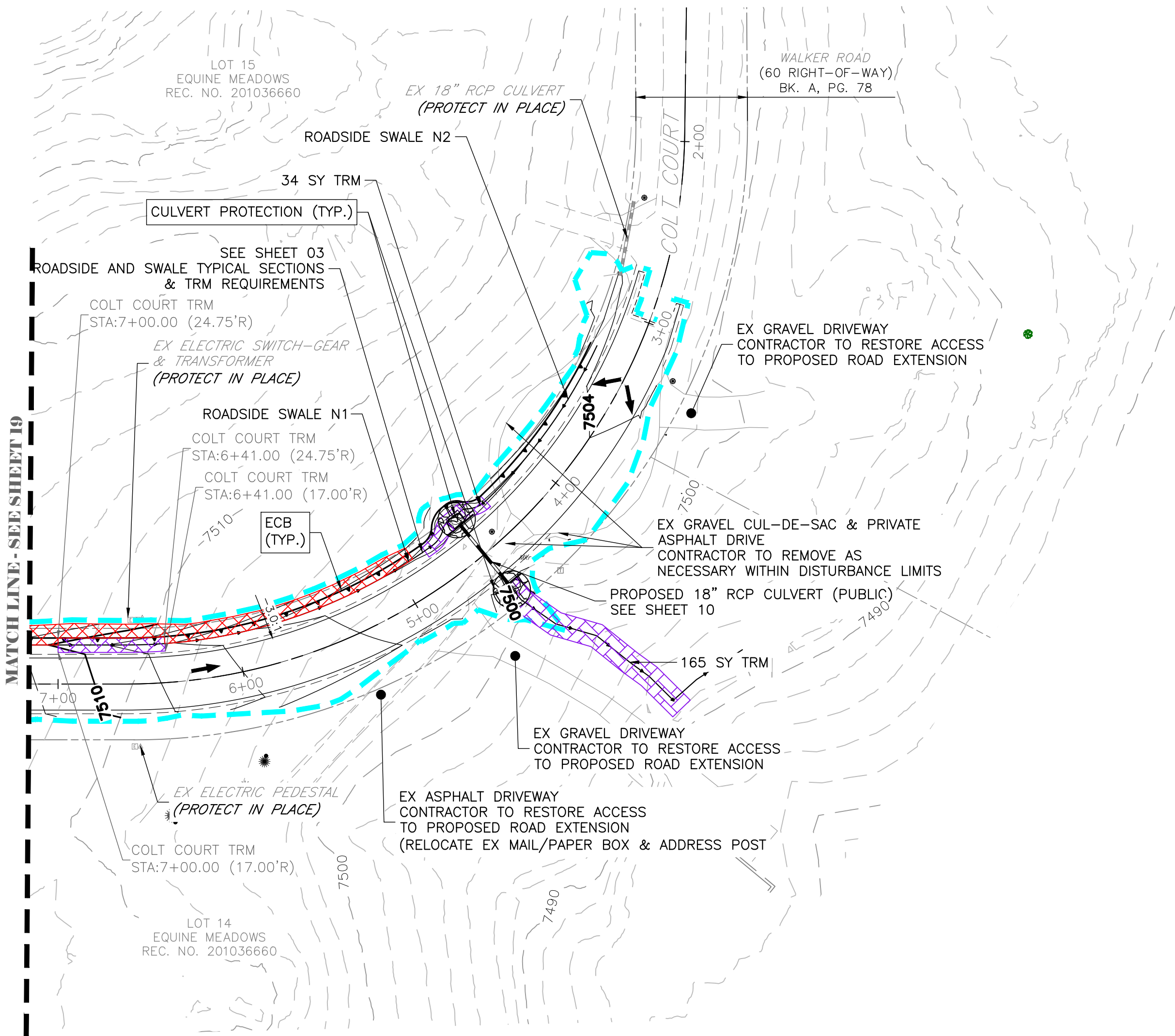
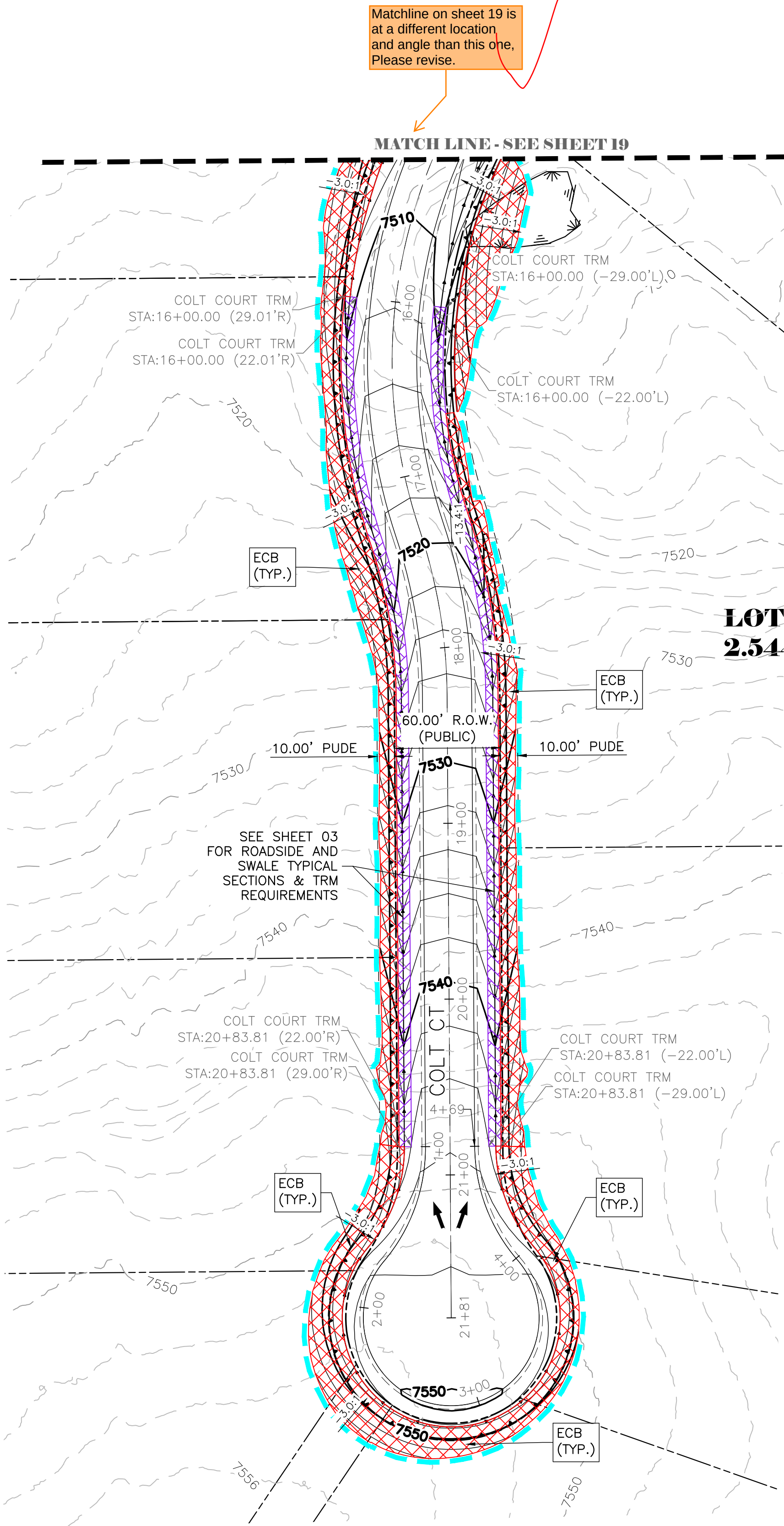


THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE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



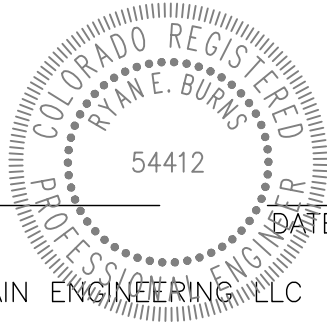
**NOTES:**

1. SEE SHEET 1 FOR ABBREVIATIONS AND GENERAL NOTES.
2. SEE SHEET 2 FOR LINE TYPE LEGEND AND STANDARD NOTES.
3. SEE SHEET 3 FOR TYPICAL SECTIONS OF ROADWAYS AND SWALES.
4. CONTRACTOR TO FAMILIARIZE SELF WITH SITE, PLANS, EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY QUESTIONS, DISCREPANCIES, CONFLICTS, OR REQUIRED CHANGES PRIOR TO COMMENCING CONSTRUCTION.
5. PLEASE NOTE, EXISTING UTILITY LOCATIONS SHOULD BE VERIFIED PRIOR TO CONSTRUCTION AND MAY DIFFER THAN WHAT IS SHOWN IN THESE PLANS.



**ENGINEER'S STATEMENT**

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLAN AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.



RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

IRON RIDGE FIGLING NO. 1 & 2

GEC PLAN

DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26

H-SCALE: 1" = 50'

V-SCALE: 1" = 5'

SHEET

20 OF 24

PREPARED FOR:  
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JOB NO: 25009 LOCATION: EPC



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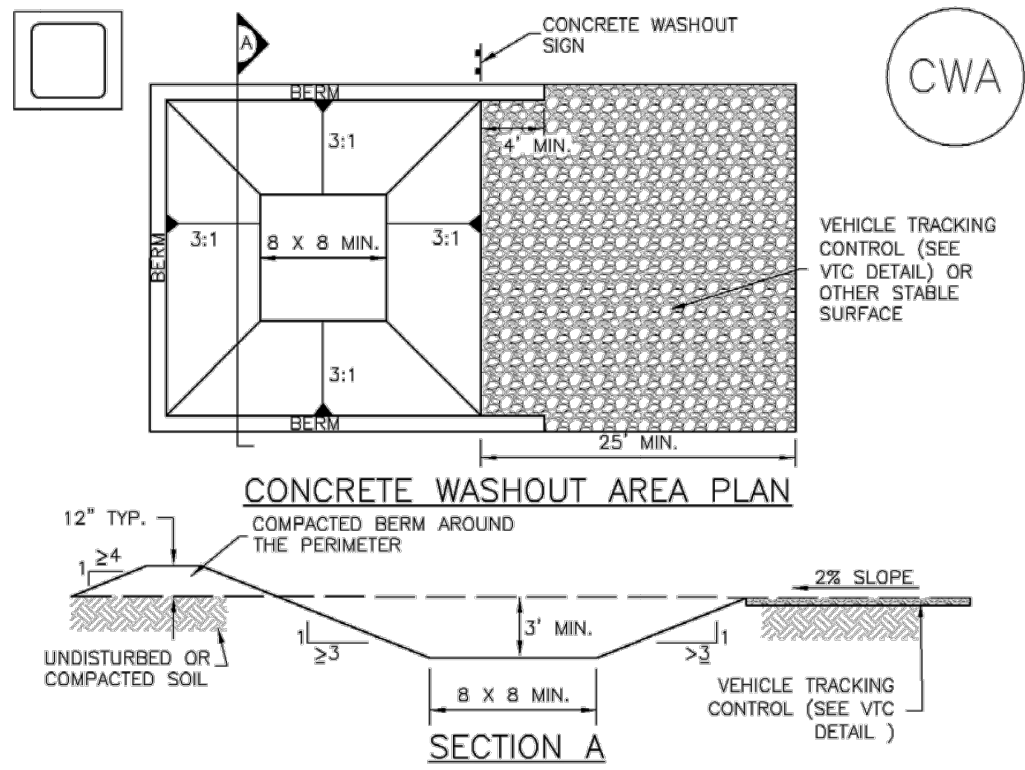






Concrete Washout Area (CWA)

MM-1



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

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

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CWA-3

MM-1

Concrete Washout Area (CWA)

CWA MAINTENANCE NOTES

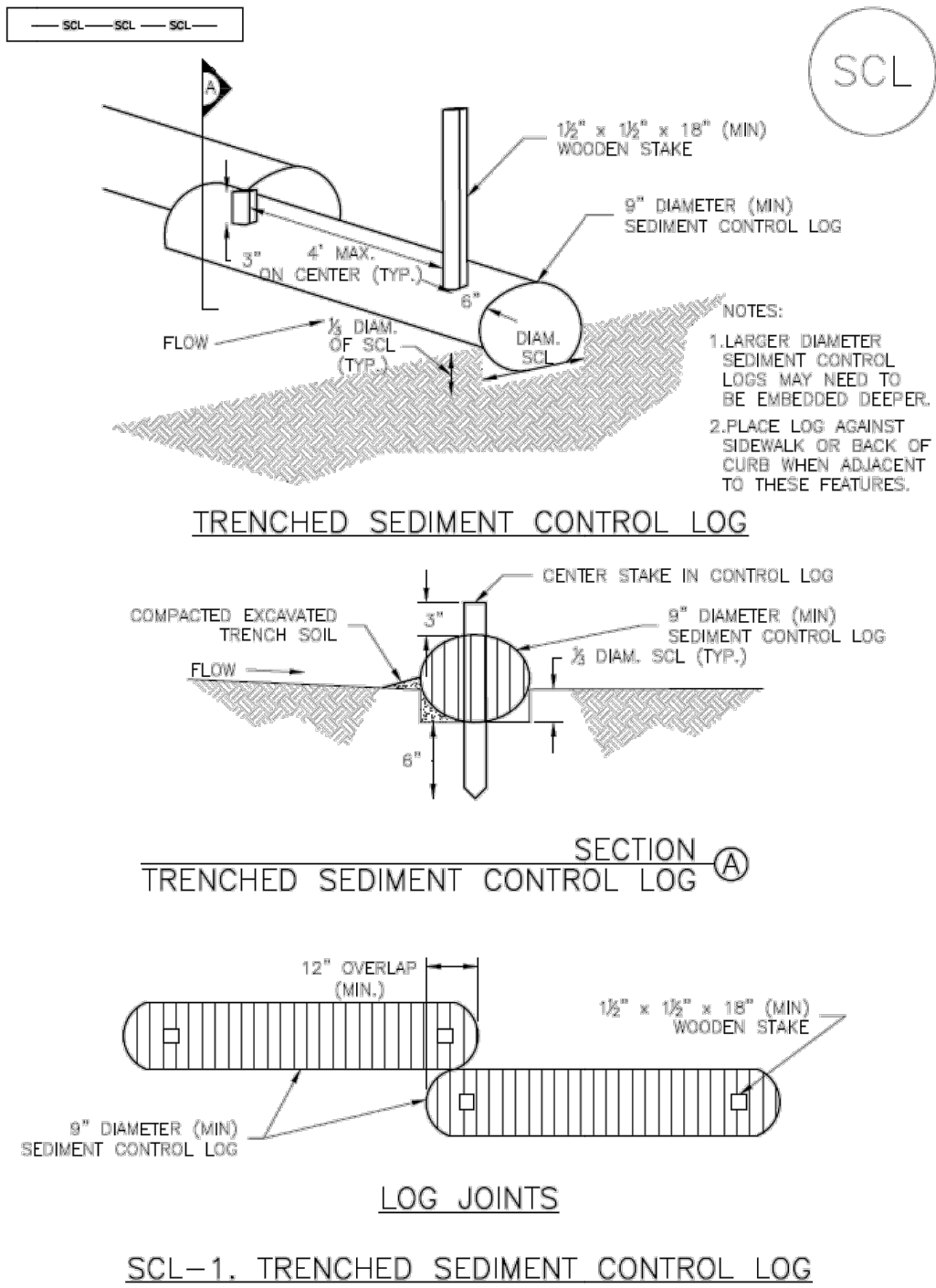
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
  5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
  6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
  7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).  
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

CWA-4 Urban Drainage and Flood Control District  
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Sediment Control Log (SCL)

SC-2



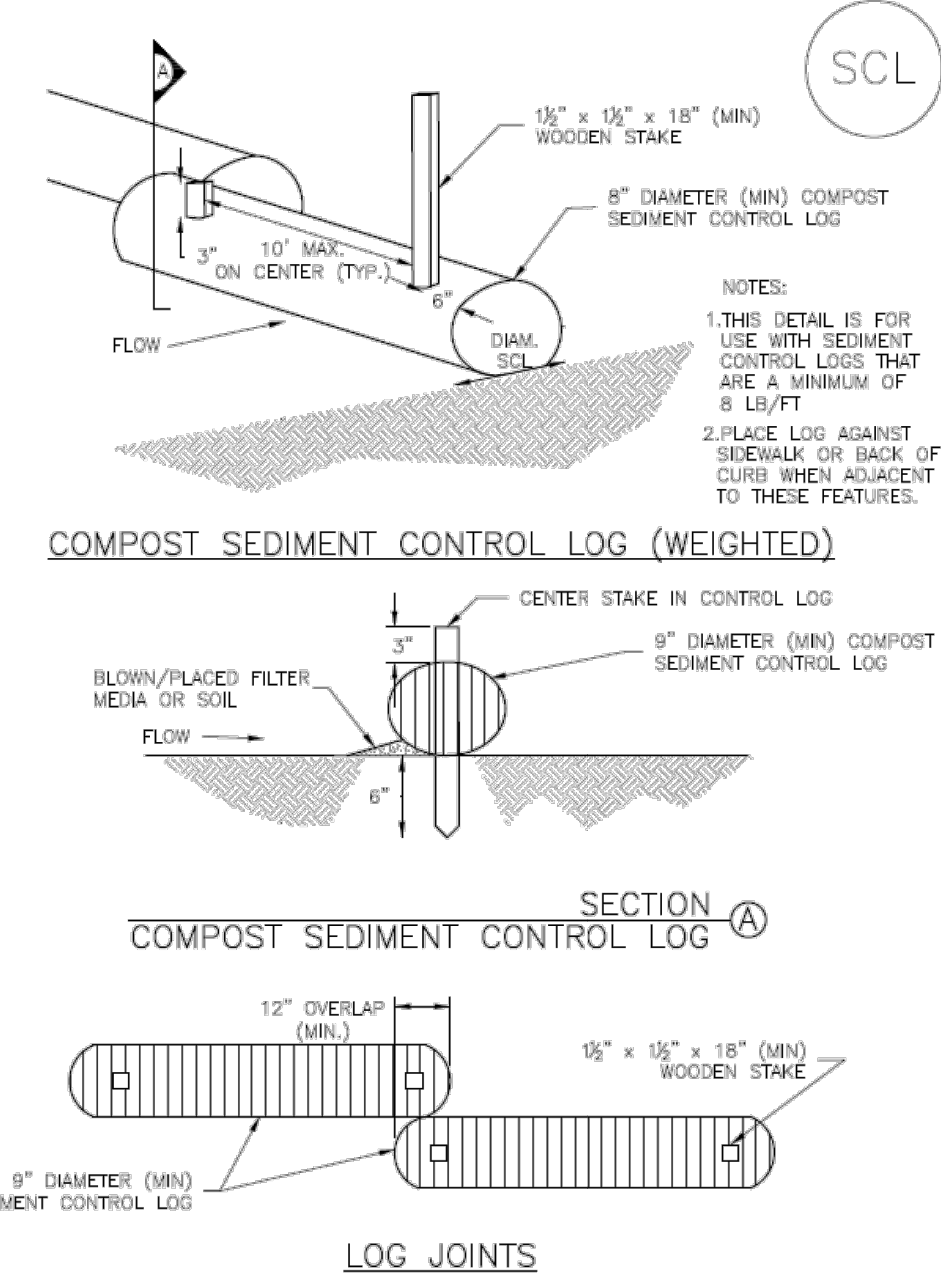
SCL-1. TRENCHED SEDIMENT CONTROL LOG

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Urban Storm Drainage Criteria Manual Volume 3

SCL-3

SC-2

Sediment Control Log (SCL)



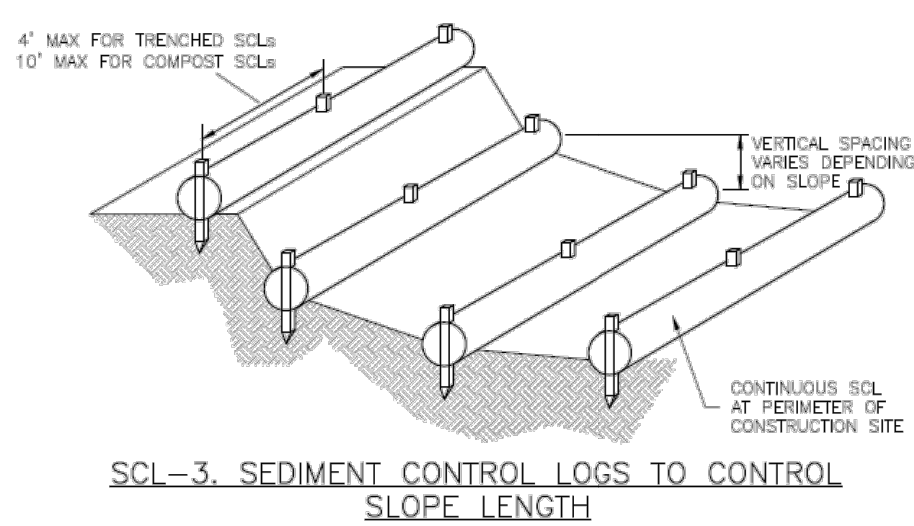
SCL-2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

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

November 2015

Sediment Control Log (SCL)

SC-2



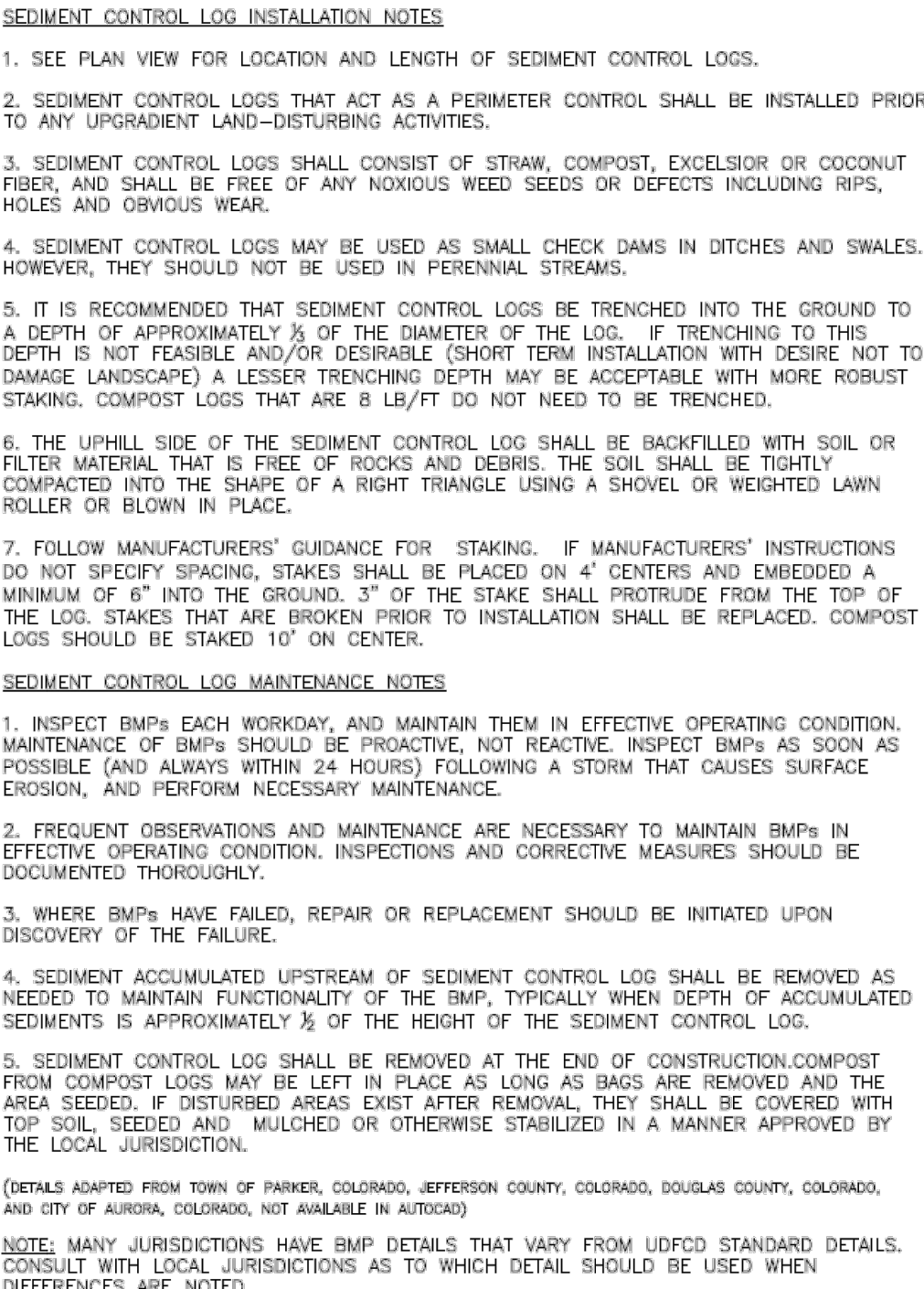
SCL-3. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

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

SCL-5

SC-2

Sediment Control Log (SCL)



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

November 2015

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC

DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26

H-SCALE: NA  
V-SCALE: NA

SHEET

22 OF 24

PREPARED FOR:  
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IRON RIDGE FIGING NO. 1 & 2

GEC DETAILS

DESIGN: NQJ  
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H-SCALE: NA  
V-SCALE: NA

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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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| TS/PS-2 | Urban Drainage and Flood Control District<br>Urban Storm Drainage Criteria Manual Volume 3 | June 2012 |
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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<br>(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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| TS/PS-6 | Urban Drainage and Flood Control District<br>Urban Storm Drainage Criteria Manual Volume 3 | June 2012 |
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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*<br>(Common name) | Growth Season <sup>b</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 moved closer than 8 inches.

Hydraulic mulching 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-4 Mulching (MU)

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

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

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

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

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

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

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

Maintenance and Removal

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

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| MU-2 | Urban Drainage and Flood Control District<br>Urban Storm Drainage Criteria Manual Volume 3 | June 2012 |
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EC-2 Temporary and Permanent Seeding (TS/PS)

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

| Common <sup>a</sup> Name                    | Botanical Name                       | Growth Season <sup>b</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 wildrye                               | <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>          |                                      |                            |             |              |                    |
| Ephrium crested wheatgrass                  | <i>Agropyron cristatum 'Ephrium'</i> | Cool                       | Sod         | 175,000      | 2.0                |
| Dural hard fescue                           | <i>Festuca ovina 'durtuscula'</i>    | Cool                       | Bunch       | 565,000      | 1.0                |
| Lincoln smooth brome                        | <i>Bromus inermis leys</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 leys 'Lincoln'</i> | Cool                       | Sod         | 130,000      | 3.0                |
| Pathfinder switchgrass                      | <i>Panicum virgatum 'Pathfinder'</i> | Warm                       | Sod         | 389,000      | 1.0                |
| Altair tall wheatgrass                      | <i>Agropyron elongatum 'Altair'</i>  | Cool                       | Bunch       | 79,000       | 5.5                |
| <b>Total</b>                                |                                      |                            |             |              | <b>10.75</b>       |
| <b>Transition Turf Seed Mix<sup>c</sup></b> |                                      |                            |             |              |                    |
| Ruebens Canadian bluegrass                  | <i>Poa compressa 'Ruebens'</i>       | Cool                       | Sod         | 2,500,000    | 0.5                |
| Dural hard fescue                           | <i>Festuca ovina 'durtuscula'</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 leys 'Lincoln'</i> | Cool                       | Sod         | 130,000      | 3.0                |
| <b>Total</b>                                |                                      |                            |             |              | <b>7.5</b>         |

|         |                                                                                            |           |
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| TS/PS-4 | Urban Drainage and Flood Control District<br>Urban Storm Drainage Criteria Manual Volume 3 | June 2012 |
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Chapter 5  
Native Vegetation Requirements and Guidelines

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

| Common Name                      | Scientific Name               | Growth Season / Form | % of Mix | Pounds PLS                                       |                                                                                 |                         |
|----------------------------------|-------------------------------|----------------------|----------|--------------------------------------------------|---------------------------------------------------------------------------------|-------------------------|
|                                  |                               |                      |          | • Irrigated broadcast<br>• Irrigated hydroseeded | • Non-irrigated broadcast<br>• Non-irrigated hydroseeded<br>• Irrigated drilled | • Non-irrigated drilled |
|                                  |                               |                      |          | 80 seeds/sq ft                                   | 40 seeds/sq ft                                                                  | 20 seeds/sq ft          |
| Bluestem, big                    | <i>Andropogon gerardi</i>     | Warm, sod            | 20       | 4.4                                              | 2.2                                                                             | 1.1                     |
| Gramma, blue                     | <i>Bouteloua gracilis</i>     | Warm, bunch          | 10       | 0.5                                              | 0.25                                                                            | 0.13                    |
| Green needlegrass <sup>2</sup>   | <i>Nassella viridula</i>      | Cool, bunch          | 10       | 2                                                | 1                                                                               | 0.5                     |
| Wheatgrass, western <sup>2</sup> | <i>Pascopyrum smithii</i>     | Cool, sod            | 20       | 6.4                                              | 3.2                                                                             | 1.6                     |
| Gramma, sideoats                 | <i>Bouteloua curtipendula</i> | Warm, bunch          | 10       | 2                                                | 1                                                                               | 0.5                     |
| Switchgrass <sup>2</sup>         | <i>Panicum virgatum</i>       | Warm, bunch/sod      | 10       | 0.8                                              | 0.4                                                                             | 0.2                     |
| Prairie sandreed                 | <i>Calamovilfa longifolia</i> | Warm, sod            | 10       | 1.2                                              | 0.6                                                                             | 0.3                     |
| Yellow indiagrass <sup>2</sup>   | <i>Sorghastrum nutans</i>     | Warm, sod            | 10       | 2                                                | 1                                                                               | 0.5                     |
| Seed rate (lbs PLS/acre)         |                               |                      |          | 19.3                                             | 9.7                                                                             | 4.8                     |

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

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

City of Colorado Springs  
Stormwater Enterprise

5-11

Stormwater Construction Manual  
December 2020

MUST BE USED IN ALL PCM AREAS

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>b</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 cryptandrus</i>           | Cool                       | Bunch                  | 5,298,000    | 0.25               |
| Vaughn sideoats 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> |                                         |                            |                        |              |                    |
| Ephrium crested wheatgrass <sup>a</sup>    | <i>Agropyron cristatum 'Ephrium'</i>    | Cool                       | Sod                    | 175,000      | 1.5                |
| Oahe Intermediate wheatgrass               | <i>Agropyron intermedium 'Oahe'</i>     | Cool                       | Sod                    | 115,000      | 5.5                |
| Vaughn sideoats grama <sup>a</sup>         | <i>Bouteloua curtipendula 'Vaughn'</i>  | Warm                       | Sod                    | 191,000      | 2.0                |
| Lincoln smooth brome                       | <i>Bromus inermis leys '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 power 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 sideoats grama.

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



Specification Sheet  
VMax® S200® Turf Reinforcement Mat

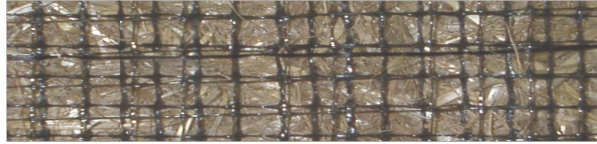
DESCRIPTION

The composite turf reinforcement mat (CTRM) shall be a machine-produced mat of 100% straw fiber matrix incorporated into permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between a heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an heavy UV stabilized, dramatically corrugated (crimped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, and covered by an heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form permanent three-dimensional turf reinforcement matting. All mats shall be manufactured with a colored thread stitched along both outer edges as an overlap guide for adjacent mats.

The S200 shall meet Type 5A, 5B, and 5C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FF-03 Section 713 118

| Material Content |                                                |                                    |
|------------------|------------------------------------------------|------------------------------------|
| Matrix           | 100% Straw Fiber                               | 0.50 lb/sq yd (0.19 kg/sm)         |
| Netting          | Top and Bottom, UV-Stabilized Polypropylene    | 3 lb/1000 sq ft (1.47 kg/100 sq m) |
|                  | Middle, Corrugated UV-Stabilized Polypropylene | 16 lb/1000 sf (7.81 kg/100 sq m)   |
|                  | Thread                                         | Polypropylene, UV Stable           |

| Standard Roll Sizes |                   |                    |
|---------------------|-------------------|--------------------|
| Width               | 6.5 ft (2.0 m)    | 8 ft (2.44m)       |
| Length              | 55.5 ft (16.9 m)  | 90 ft (27.4 m)     |
| Weight ± 10%        | 34 lbs (15.42 kg) | 70 lbs (31.8 kg)   |
| Area                | 40 sq yd (33.4 m) | 80 sq yd (66.8 sm) |



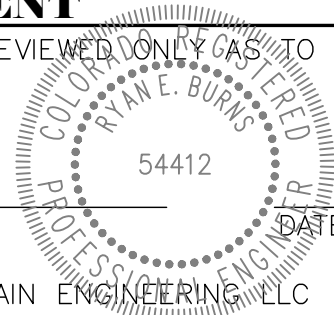
| Index Property        | Test Method        | Typical                |
|-----------------------|--------------------|------------------------|
| Thickness             | ASTM D6525         | 0.50 in. (12.70 mm)    |
| Resiliency            | ASTM 6524          | 70%                    |
| Density               | ASTM D792          | 0.91 g/cm³             |
| Mass/Unit Area        | ASTM 6566          | 12.0 oz/sy (408 g/sm)  |
| UV Stability          | ASTM D4355/1000 HR | 80%                    |
| Porosity              | ECTC Guidelines    | 99%                    |
| Light Penetration     | ASTM D5657         | 15%                    |
| Tensile Strength - MD | ASTM D6818         | 450 lbs/ft (6.67 kN/m) |
| Elongation - MD       | ASTM D6818         | 35%                    |
| Tensile Strength - TD | ASTM D6818         | 450 lbs/ft (6.67 kN/m) |
| Elongation - TD       | ASTM D6818         | 20%                    |

| Design Permissible Shear Stress |                   |                  |
|---------------------------------|-------------------|------------------|
| Short Duration                  |                   | Long Duration    |
| Phase 1: Unvegetated            | 2.3 psf (110 Pa)  | 2.3 psf (110 Pa) |
| Phase 2: Partially Veg.         | 7.5 psf (360 Pa)  | 7.5 psf (360 Pa) |
| Phase 3: Fully Veg.             | 10.0 psf (480 Pa) | 8.0 psf (383 Pa) |
| Unvegetated Velocity            | 8.5 fps (2.6 m/s) |                  |
| Vegetated Velocity              | 18 fps (5.5 m/s)  |                  |

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

RYAN E. BURNS, P.E.  
COLORADO P.E. 54412  
FOR AND ON BEHALF OF ALL TERRAIN ENGINEERING, LLC



PREPARED FOR:

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UNTIL SUCH TIME AS THESE  
DRAWINGS ARE APPROVED BY THE  
APPROPRIATE REVIEWING  
AGENCIES, ALL TERRAIN  
ENGINEERING APPROVES THEIR  
USE ONLY FOR THE PURPOSES  
DESIGNATED BY WRITTEN  
AUTHORIZATION.

JOB NO.: 25009 LOCATION: EPC

| DATE | REV | DESCRIPTION |
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IRON RIDGE FIGLING NO. 1 & 2

GEC DETAILS

DESIGN: NQJ  
REVIEW: REB  
DATE: 5/22/26

H-SCALE: NA

V-SCALE: NA

SHEET

24 OF 24