

FILE NAME: V:\1785\ACTIVE\17856\008 ROADWAY\SECTION 4\PLANS\SHEETS\RO0100LS.DGN  
USER: rpfoster  
DATE PLOTTED: October 27, 2014  
E-SHEET NAME:  
MicroStation v8.11.7.443

| INDEX OF SHEETS    |                                        |
|--------------------|----------------------------------------|
| SHEET NO.          | DESCRIPTION                            |
| R1                 | LAYOUT SHEET                           |
| R2 - R2F           | TYPICAL SECTIONS-SUMMARY OF QUANTITIES |
| R2G - R2H          | GENERAL NOTES                          |
| R3 - R12           | PLAN AND PROFILE SHEETS                |
| R13                | WASTE AREA PLAN                        |
| R14 - R16          | RIGHT OF WAY SUMMARY SHEETS            |
| R17 - R22          | RIGHT OF WAY STRIP MAP SHEETS          |
| R23 - R25          | DETAIL SHEETS                          |
| R26 - R26K         | SEPIAS                                 |
| R27 - R29          | TRAFFIC CONTROL SHEETS                 |
| R30 - R36          | EROSION CONTROL SHEETS                 |
| R37 - R39          | COORDINATE CONTROL SHEETS              |
| R40                | RIGHT OF WAY SHEETS                    |
| R41 - R54          | GEOTECHNICAL SHEETS                    |
| R55 - R58          | PIPE DRAINAGE SHEETS                   |
| S1 - S31           | STRUCTURE PLANS 25294                  |
| S1 - S4            | STRUCTURE PLANS 25358                  |
| S1 - S22           | STRUCTURE PLANS 25289                  |
| S1 - S21           | STRUCTURE PLANS 25292                  |
| S1 - S21           | STRUCTURE PLANS 25291                  |
| S1 - S23           | STRUCTURE PLANS 25290                  |
| S1 - S4            | STRUCTURE PLANS 25359                  |
| T                  | TRAFFIC PLANS                          |
| U                  | UTILITY RELOCATION PLANS               |
| X1 - X86           | CROSS SECTION SHEETS                   |
| TOTAL SHEETS - 169 |                                        |

SHEETS NOT INCLUDED IN TOTAL SHEETS  
R2A-R2H, R3A, R5A, R6A, R6B, R7A, R9A, R11A, R26A - R26K  
NOT USED - R21

| STANDARD DRAWINGS<br>(ENGLISH) |            |            |
|--------------------------------|------------|------------|
| NUMBER                         |            |            |
| RBB-001-07                     | RDP-007-03 | TTC-160-01 |
| RBC-002-02                     | RDP-010-08 | TTD-120-01 |
| RBI-001-10                     | RDX-210-02 | TTS-100-01 |
| RBI-002-06                     | RDX-215    | TTS-105-01 |
| RBI-004-04                     | RDX-220-04 | TTS-130-01 |
| RBR-010-05                     | RFG-001-06 | TTS-135-01 |
| RBR-016-04                     | RFW-001-05 |            |
| RBR-020-05                     | RFX-005-07 |            |
| RDI-001-09                     | RGX-001-05 |            |
| RDI-020-08                     | RGX-010-03 |            |
| RDI-021                        | RGX-100-05 |            |
| RDI-025-04                     | RGX-105-07 |            |
| RDP-001-05                     | RPM-110-06 |            |
| RDP-005-04                     | RRP-001-04 |            |
| RDP-006-03                     | TTC-105-02 |            |
|                                | TTC-135-01 |            |
|                                | TTC-155-01 |            |

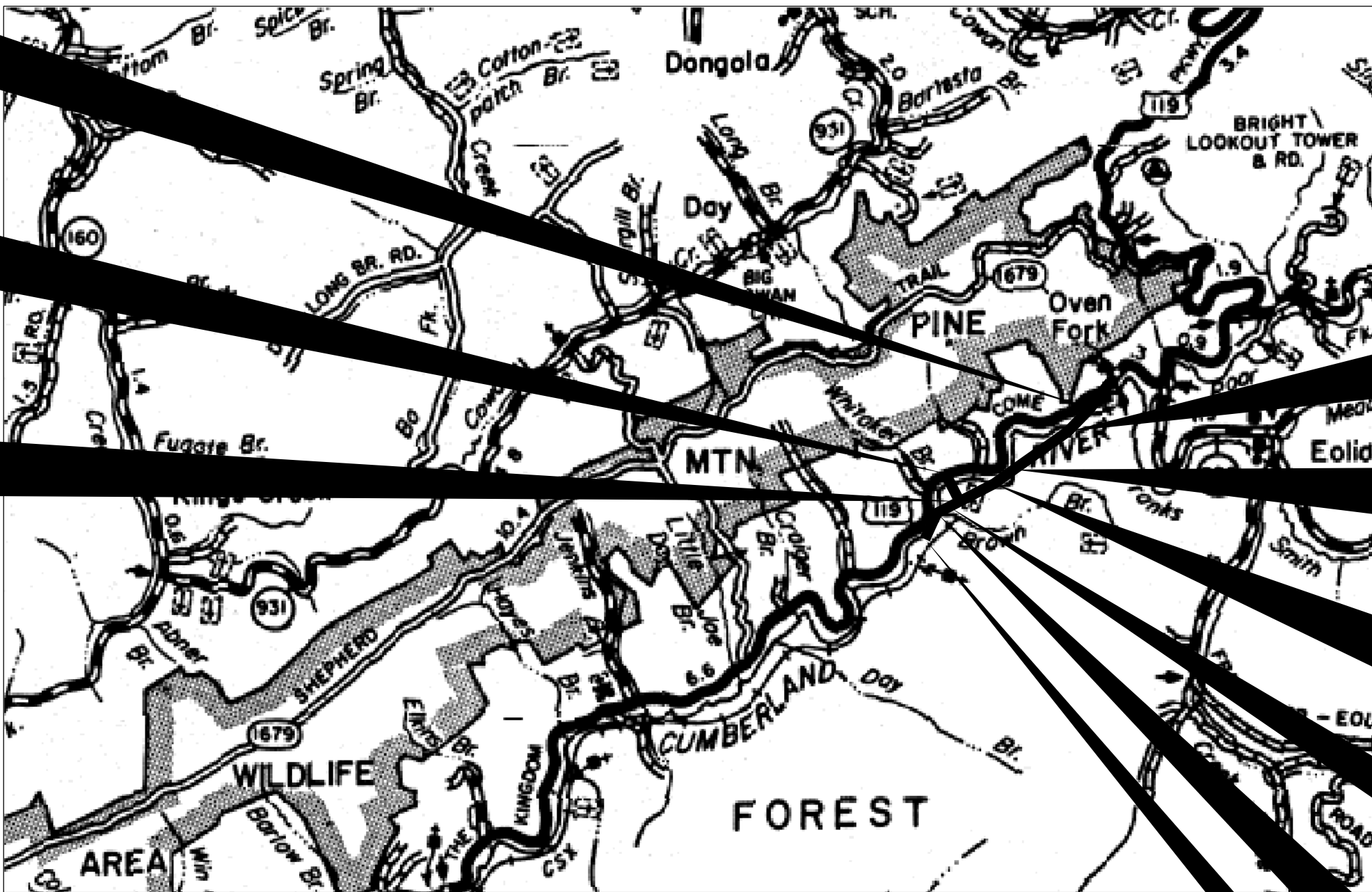
| SEPIAS |                                                      |
|--------|------------------------------------------------------|
| NUMBER | DESCRIPTION                                          |
| 002    | DELINEATORS FOR GUARDRAIL                            |
| 004    | DELINEATORS FOR CONCRETE BARRIERS                    |
| 005    | RIGHT-OF-WAY MONUMENTS                               |
| 008    | GUARDRAIL COMPONENTS                                 |
| 012    | STEEL BEAM GUARDRAIL (*W* BEAM)                      |
| 013    | GUARDRAIL POSTS                                      |
| 014    | GUARDRAIL CONN TO BRIDGE END TYPE A & A-1 COMPONENTS |
| 016    | SILT TRAP TYPE B                                     |
| 017    | LANE CLOSURE TWO-LANE HIGHWAY                        |
| 021    | GUARDRAIL END TREATMENT TYPE 7 ALTERNATE END ANCHOR  |
| 022    | GUARDRAIL END TREATMENT TYPE 7                       |
| 026    | GUARDRAIL CONNECTOR TO BRIDGE END TYPE A             |

|                           |                                        |
|---------------------------|----------------------------------------|
| DESIGN CRITERIA           |                                        |
| CLASS OF HIGHWAY          | RURAL ARTERIAL                         |
| TYPE OF TERRAIN           | MOUNTAINOUS                            |
| DESIGN SPEED              | 100 KM/HR                              |
| REQUIRED NPSD             | 185 M                                  |
| REQUIRED PSD              | 320 M                                  |
| LEVEL OF SERVICE          | C                                      |
| ADT PRESENT ( 2011 )      | 2,426                                  |
| ADT FUTURE ( 2026 )       | 7,800                                  |
| DHV                       | 900                                    |
| D %                       | 5.0%                                   |
| T %                       | 8.8% DHV                               |
| GEOGRAPHIC COORDINATES    |                                        |
| LATITUDE                  | 37 DEGREES 03 MINUTES 00 SECONDS NORTH |
| LONGITUDE                 | 82 DEGREES 49 MINUTES 20 SECONDS WEST  |
| DESIGNED                  |                                        |
| % RESTRICTED SD           |                                        |
| LEVEL OF SERVICE          |                                        |
| MAX. DISTANCE W/O PASSING |                                        |

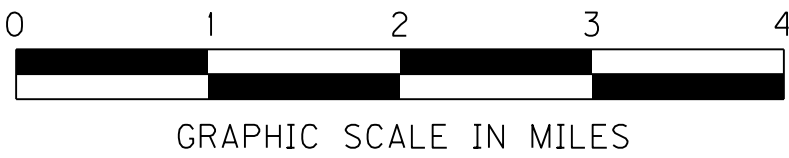
|                                                        |                                                        |                                                        |                                                        |                                                        |
|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| LENGTH 2,222.347 METERS 2.222 KM                       | LENGTH 7,291.15 LIN. FT. 1.381 MILES                   | LENGTH _____ LIN. FT. _____ MILES                      | LENGTH _____ LIN. FT. _____ MILES                      | LENGTH _____ LIN. FT. _____ MILES                      |
| ADDED _____ DEDUCTED _____ FOR EQUALITIES NOT INCLUDED | ADDED _____ DEDUCTED _____ FOR EQUALITIES NOT INCLUDED | ADDED _____ DEDUCTED _____ FOR EQUALITIES NOT INCLUDED | ADDED _____ DEDUCTED _____ FOR EQUALITIES NOT INCLUDED | ADDED _____ DEDUCTED _____ FOR EQUALITIES NOT INCLUDED |
| RAILROAD CROSSINGS NO. _____ LIN. FT. _____            | RAILROAD CROSSINGS NO. _____ LIN. FT. _____            | RAILROAD CROSSINGS NO. _____ LIN. FT. _____            | RAILROAD CROSSINGS NO. _____ LIN. FT. _____            | RAILROAD CROSSINGS NO. _____ LIN. FT. _____            |
| BRIDGES _____ LIN. FT. _____                           | BRIDGES _____ LIN. FT. _____                           | BRIDGES _____ LIN. FT. _____                           | BRIDGES _____ LIN. FT. _____                           | BRIDGES _____ LIN. FT. _____                           |

# Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS

## PLANS OF PROPOSED PROJECT LETCHER COUNTY US 119 SECTION 4 PARTRIDGE TO KY 932 APD 1191 (043) FD52 067 0119 NEW LOC



### LAYOUT MAP



THIS PROJECT IS A PARTIALLY  
CONTROLLED ACCESS HIGHWAY.  
ACCESS SHALL BE PROVIDED ONLY  
WHERE SPECIFICALLY INDICATED  
ON PLANS.

THESE PLANS ARE FOR  
GRADE, DRAIN, AND  
INCIDENTAL SURFACING

THE MAINLINE WILL BE CONSTRUCTED UP TO AND INCLUDING  
THE ROCK ROADBED. THE APPROACHES AND ENTRANCES WILL  
BE PAVED INCLUDING PAVING ACROSS THE MAINLINE. THE  
PAVEMENT ACROSS THE MAINLINE WILL BE REMOVED DURING  
THE SURFACING PHASE.

THIS PROJECT WAS DEVELOPED IN METRIC UNITS.  
STATIONS, OFFSETS, ELEVATIONS AND COORDINATES  
ARE SHOWN IN METRIC UNITS ON THESE PLANS.  
BID ITEMS, PIPE SIZES, STRUCTURE DIMENSIONS,  
AND QUANTITIES ARE SHOWN IN ENGLISH UNITS.

END CONSTRUCTION  
STA. 52+372.933

STA. 51+708.5 CONSTRUCT  
90 FT - 90 FT - 90 FT  
P.C.I. BEAM TYPE 4 BRIDGE

STA. 51+515.5 CONSTRUCT  
90 FT - 90 FT - 90 FT  
P.C.I. BEAM TYPE 4 BRIDGE

STA. 51+024.4 CONSTRUCT  
14' X 5' RCBC

STA. 50+340 CONSTRUCT  
87 FT - 107 FT - 87 FT  
P.C.I. BEAM TYPE 5 BRIDGE

BEGIN CONSTRUCTION  
STA. 50+150.586

NATIONAL  
HIGHWAY  
SYSTEM

METRIC

### Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS COUNTY OF LETCHER

ITEM NO. 12-311.77  
PROJECT FD52 067 0119 NEW LOC  
NUMBER: APD 1191 (043)  
LETTING DATE: \_\_\_\_\_

RECOMMENDED BY: SAM HALE 11-3-14  
PROJECT MANAGER DATE:

PLAN APPROVED BY: 11-3-14  
STATE HIGHWAY ENGINEER DATE:

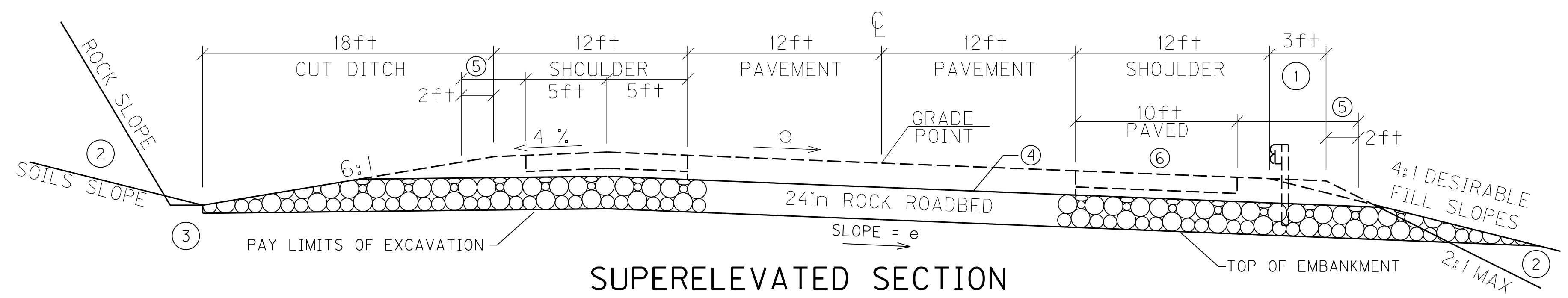
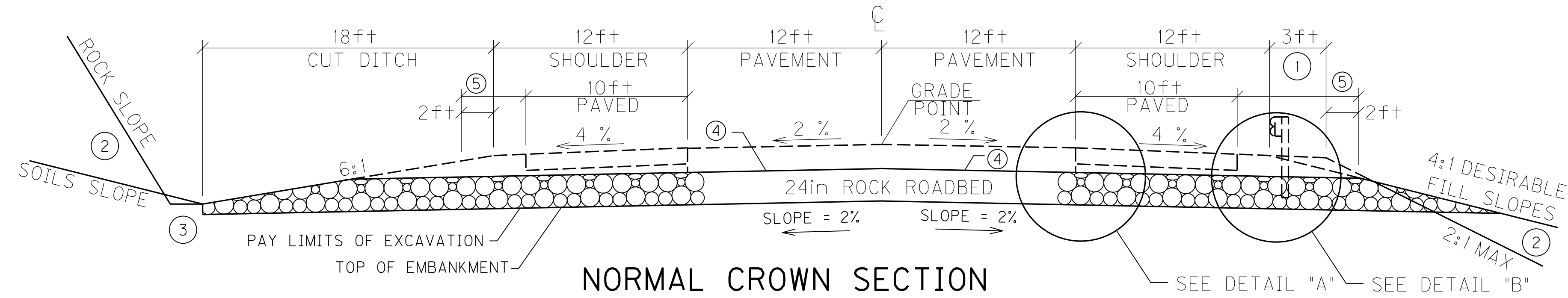
PLANS PREPARED BY:



bill.morris@stantec.com  
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Digitally signed by  
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DN:  
cn=bill.morris@stantec.com  
Date: 2014.10.27 08:41:27  
-04'00'



TYPICAL SECTIONS  
US 119 &  
US 119 TEMPORARY TIE

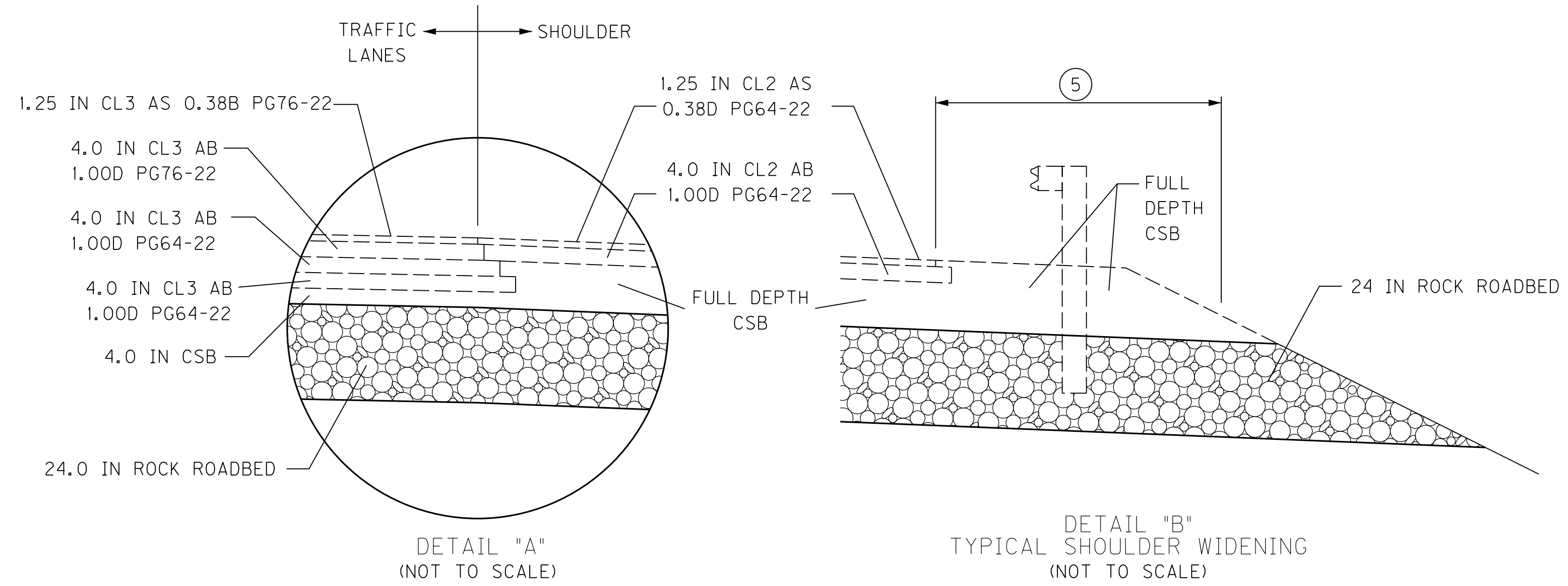


CONSTRUCTION NOTES

- ① SHOULDER SHALL BE WIDENED 3 FT WHERE GUARDRAIL IS TO BE INSTALLED.
- ② SEE X-SECTIONS FOR SLOPES OUTSIDE THE SHOULDERS.
- ③ 2 FT DITCH BENCH. SEE X-SECTIONS FOR VARIATIONS IN DITCH BENCH SIZE.
- ④ TOP OF ROCK ROADBED. SLOPE AT 2.0% DURING NORMAL CROWN SECTIONS AND AT e DURING SUPERELEVATED SECTIONS.
- ⑤ ASPHALT SEAL REQUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT 2 FT DOWN THE DITCH OR FILL SLOPE. APPLY 2 APPLICATIONS OF THE FOLLOWING:  
ASPHALT SEAL COAT APPLY @ 2.4 LB/SY/COURSE  
ASPHALT SEAL AGGREGATE SIZE 8 OR 9 APPLY @ 20 LB/SY/COURSE.
- ⑥ SUPERELEVATED SHOULDERS, SHALL BE CONSTRUCTED TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SHOULDER SLOPES.

METRIC

FUTURE PAVEMENT BY OTHERS (FOR INFORMATION ONLY)

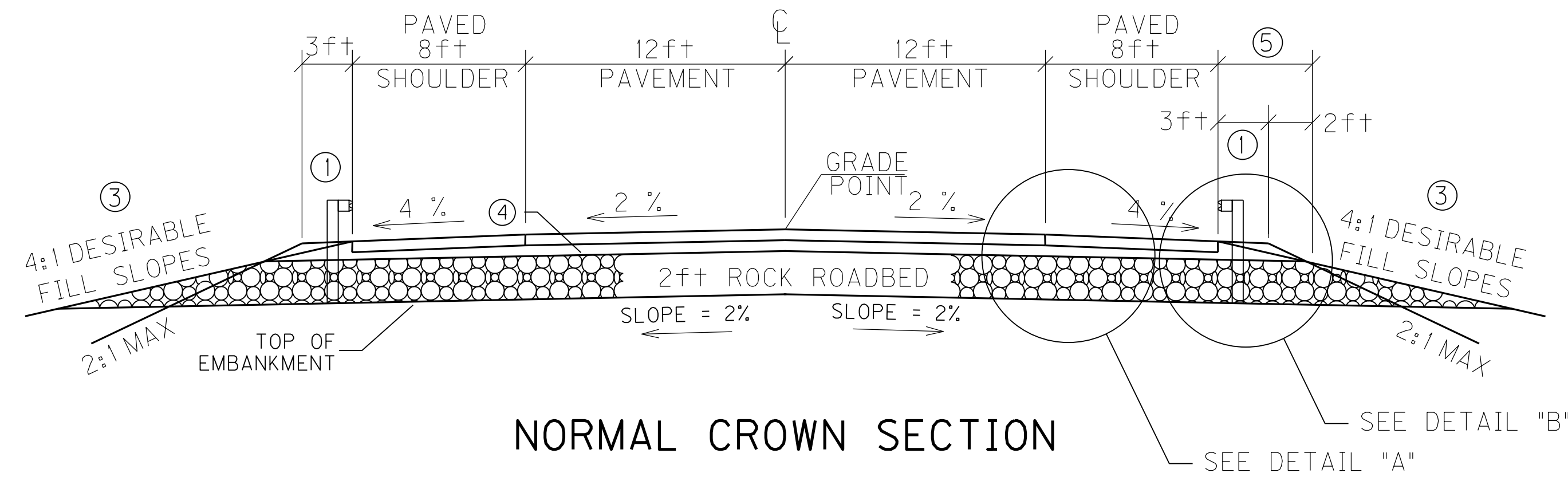


PAVEMENT DESIGN (FOR INFORMATION ONLY)  
TO BE CONSTRUCTED BY OTHERS

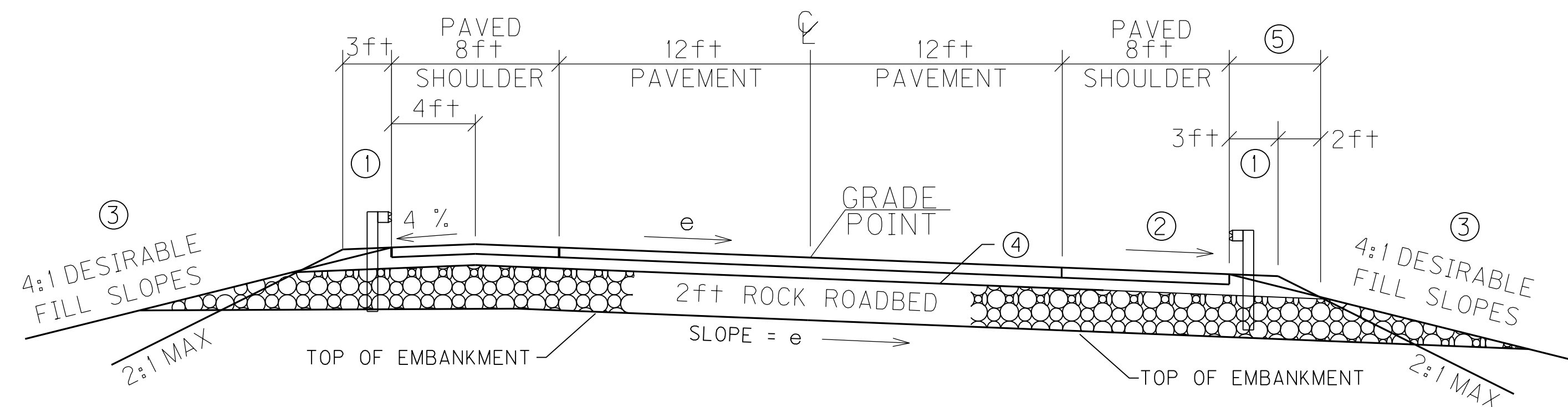
| TRAFFIC LANES              |               |
|----------------------------|---------------|
| CRUSHED STONE BASE         | 4.00 IN DEPTH |
| CL3 AB 1.00D PG64-22       | 4.00 IN DEPTH |
| CL3 AB 1.00D PG64-22       | 4.00 IN DEPTH |
| CL3 AB 1.00D PG76-22       | 4.00 IN DEPTH |
| CL3 AS 0.38B PG76-22       | 1.25 IN DEPTH |
| SHOULDERS                  |               |
| CRUSHED STONE BASE         | FULL DEPTH    |
| CL2 AB 1.00D PG64-22       | 4.00 IN DEPTH |
| CL2 AS 0.38D PG64-22       | 1.25 IN DEPTH |
| ASPHALT SEAL COAT REQUIRED | ⑤             |



TYPICAL SECTIONS  
APPROACH LT STA 50+600



NORMAL CROWN SECTION

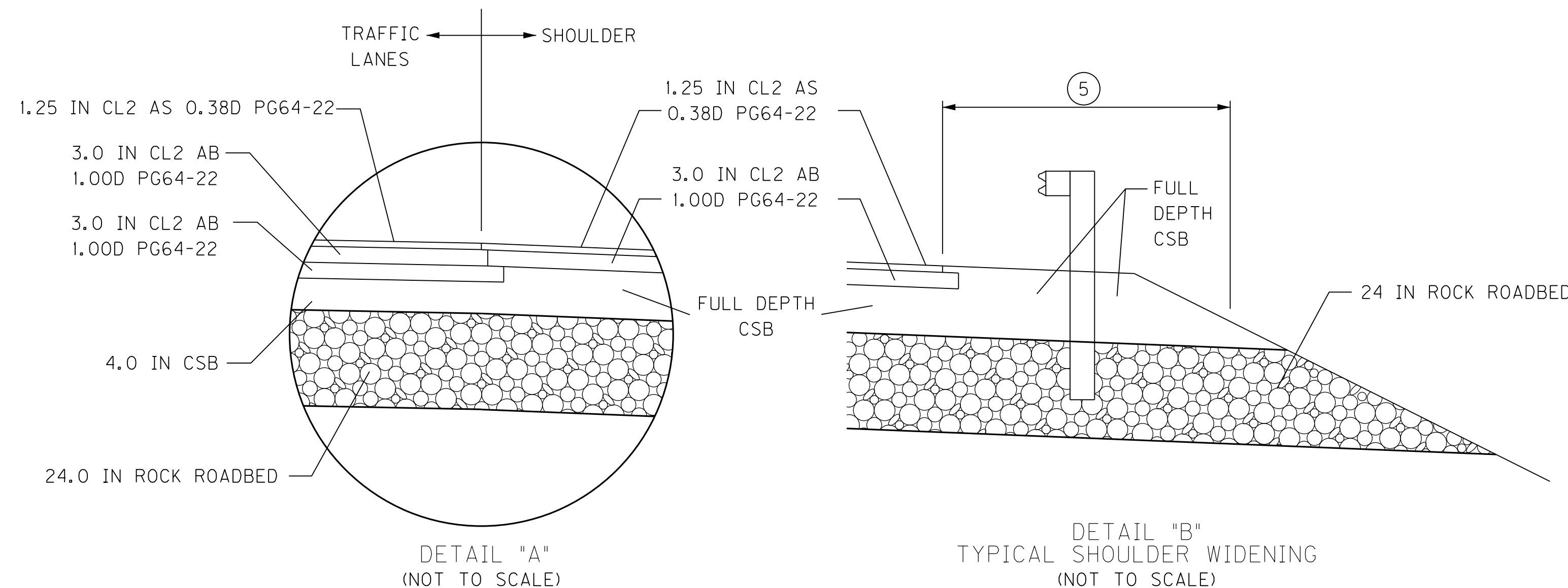


SUPERELEVATED SECTION

CONSTRUCTION NOTES

- ① SHOULDER SHALL BE WIDENED 3 FT WHERE GUARDRAIL IS TO BE INSTALLED.
- ② SUPERELEVATED SHOULDERS, SHALL BE CONSTRUCTED TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SHOULDER SLOPES.
- ③ SEE X-SECTIONS FOR SLOPES OUTSIDE THE SHOULDERS.
- ④ TOP OF ROCK ROADBED, SLOPE AT 2.0% DURING NORMAL CROWN SECTIONS AND AT  $e$  DURING SUPERELEVATED SECTIONS.
- ⑤ ASPHALT SEAL REQUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT 2 FT DOWN THE DITCH OR FILL SLOPE. APPLY 2 APPLICATIONS OF THE FOLLOWING:  
ASPHALT SEAL COAT APPLY @ 2.4 LB/SY/COURSE  
ASPHALT SEAL AGGREGATE SIZE 8 OR 9 APPLY @ 20 LB/SY/COURSE.
- ⑥ THE ESTIMATED QUANTITY OF 4 IN. CRUSHED STONE BASE REQUIRED TO CONSTRUCT THE MAINLINE PAVEMENT HAS BEEN INCREASED BY 10% TO ALLOW FOR CONSTRUCTION ON A ROCK SUBGRADE.

METRIC



PAVEMENT DESIGN

TRAFFIC LANES

CRUSHED STONE BASE . . . . . 4.00 IN DEPTH  
CL2 AB 1.00D PG64-22 . . . . . 6.00 (3.00 + 3.00) IN DEPTH  
CL2 AS 0.38D PG64-22 . . . . . 1.25 IN DEPTH

SHOULDERS

CRUSHED STONE BASE . . . . . FULL DEPTH  
CL2 AB 1.00D PG64-22 . . . . . 3.00 IN DEPTH  
CL2 AS 0.38D PG64-22 . . . . . 1.25 IN DEPTH  
ASPHALT SEAL COAT REQUIRED ⑤











GENERAL SUMMARY

|           |            |           |
|-----------|------------|-----------|
| COUNTY OF | ITEM NO.   | SHEET NO. |
| LETCHER   | 12-311. 77 | R2D       |

| ITEM CODE  | ITEM                                    | NOTE | UNIT   | QUANTITY  |
|------------|-----------------------------------------|------|--------|-----------|
| 00078      | CRUSHED AGGREGATE SIZE NO. 2            | ⓪    | TON    | 8         |
| 01000      | PERFORATED PIPE - 4 IN                  | ⓪    | LF     | 490       |
| 01002      | PERFORATED PIPE - 8 IN                  | ⓪    | LF     | 200       |
| 01010      | NON-PERFORATED PIPE - 4 IN              | ⓪    | LF     | 60        |
| 01020      | PERFORATED PIPE HEADWALL TYPE 1 - 4 IN  | ⓪    | EACH   | 4         |
| 01028      | PERFORATED PIPE HEADWALL TYPE 3 - 4 IN  | ⓪    | EACH   | 1         |
| 01032      | PERFORATED PIPE HEADWALL TYPE 4 - 4 IN  | ⓪    | EACH   | 1         |
| 01034      | PERFORATED PIPE HEADWALL TYPE 4 - 8 IN  | ⑦    | EACH   | 2         |
| 01711      | FILL AND CAP WELL                       | ⑩    | EACH   | 1         |
| 01786      | FILL AND CAP MANHOLE                    | ⑩    | EACH   | 1         |
| 01891      | ISLAND HEADER CURB TYPE 2               |      | LF     | 50        |
| 01987      | DELINEATOR FOR GUARDRAIL B/W            |      | EACH   | 36        |
| 01990      | DELINEATOR FOR BARRIER WALL - B/W       |      | EACH   | 30        |
| 02014      | BARRICADE-TYPE III                      | ⑭    | EACH   | 4         |
| 02159      | TEMP DITCH                              |      | LF     | 9,678     |
| 02200      | ROADWAY EXCAVATION                      |      | CUYD   | 4,621,080 |
| 02242      | WATER                                   | ②    | MGAL   | 3,000     |
| 02262      | FENCE-WOVEN WIRE TYPE I                 |      | LF     | 20,010    |
| 02351      | GUARDRAIL-STEEL W BEAM-S FACE           | ⑩    | LF     | 2,600     |
| 02360      | GUARDRAIL TERMINAL SECTION NO 1         |      | EACH   | 12        |
| 02363      | GUARDRAIL CONNECTOR TO BRIDGE END TY A  |      | EACH   | 4         |
| 02371      | GUARDRAIL END TREATMENT TYPE 7          |      | EACH   | 2         |
| 02429      | RIGHT OF WAY MONUMENT TYPE 1            |      | EACH   | 52        |
| 02431      | WITNESS R/W MONUMENT TYPE 2             |      | EACH   | 6         |
| 02432      | WITNESS POST                            | ⑪    | EACH   | 58        |
| 02483      | CHANNEL LINING CLASS II                 |      | TON    | 208       |
| 02488      | CHANNEL LINING CLASS IV                 | ⑤    | CUYD   | 1,048     |
| 02542      | CEMENT                                  | ⑦    | TON    | 100       |
| 02545      | CLEARING AND GRUBBING                   | ③    | LS     | 1         |
| 02562      | SIGNS                                   | ⑭    | SOFT   | 144       |
| 02568      | MOBILIZATION                            |      | LS     | 1         |
| 02569      | DEMOBILIZATION                          |      | LS     | 1         |
| 02598      | FABRIC - GEOTEXTILE TYPE III            | ④    | SOYD   | 38,016    |
| 02600      | FABRIC-GEOTEXTILE TY IV FOR PIPE        |      | SOYD   | 1,374     |
| 02650      | MAINTAIN AND CONTROL TRAFFIC            |      | LS     | 1         |
| 02690      | SAFEOLOADING                            | ⑲    | CUYD   | 56        |
| 02692      | SETTLEMENT PLATFORM                     | ⑦    | EACH   | 6         |
| 02701      | TEMP SILT FENCE                         |      | LF     | 9,678     |
| 02703      | SILT TRAP TYPE A                        |      | EACH   | 107       |
| 02704      | SILT TRAP TYPE B                        |      | EACH   | 50        |
| 02706      | CLEAN SILT TRAP TYPE A                  |      | EACH   | 321       |
| 02707      | CLEAN SILT TRAP TYPE B                  |      | EACH   | 150       |
| 02709      | CLEAN TEMP SILT FENCE                   |      | LF     | 29,034    |
| 02711      | SEDIMENTATION BASIN                     |      | CUYD   | 2625      |
| 02712      | CLEAN SEDIMENTATION BASIN               |      | CUYD   | 7,875     |
| 02726      | STAKING                                 |      | LS     | 1         |
| 03340      | STEEL PIPE - 2 1/2 IN                   | ⑦    | LF     | 210       |
| 03343      | STEEL PIPE - 4 IN                       | ⑦    | LF     | 210       |
| 05950      | EROSION CONTROL BLANKET                 | ⑧    | SOYD   | 11,238    |
| 05952      | TEMP MULCH                              |      | SOYD   | 516,115   |
| 05953      | TEMP SEEDING AND PROTECTION             |      | SOYD   | 516,115   |
| 05963      | INITIAL FERTILZER                       |      | TON    | 27        |
| 05964      | 20-10-10 FERTILIZER                     |      | TON    | 16        |
| 05985      | SEEDING AND PROTECTION                  | ⑨    | SOYD   | 806,515   |
| 05992      | AGRICULTURAL LIMESTONE                  |      | TON    | 320       |
| 06514      | PAVE STRIPING -PERM PAINT - 4 IN        | ⑰    | LF     | 1,160     |
| 06567      | PAVE STRIPING - THERMO STOP BAR - 12 IN | ⑰    | LF     | 12        |
| 08100      | CONCRETE - CLASS A                      | ⑳    | CUYD   | 2         |
| 08150      | STEEL REINFORCEMENT                     | ⑳    | LB     | 150       |
| 10020NS    | FUEL ADJUSTMENT                         |      | DOLLAR | 706,418   |
| 20000ES724 | TREE (BARE ROOT SEEDLINGS)              | ⑥    | EACH   | 600       |
| 20209EP69  | GRANULAR PILE CORE                      |      | CUYD   | 4,619     |
| 20667ED    | PNEUMATIC BACKSTOWING                   | ⑦    | TON    | 4,500     |
| 23131ER701 | PIPELINE VIDEO INSPECTION               |      | LF     | 407       |
| 23649 EC   | DRAIN POND                              |      | LS     | 1         |

THE CONTRACTOR IS ADVISED THAT THE EARTHWORK FIGURES ABOVE ARE SHOWN FOR INFORMATION PURPOSES ONLY. ASSUMPTIONS FOR SHRINK AND SWELL FACTORS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

NOTES:

- ① FOR TRANSVERSE AND EMBANKMENT BENCH DRAINAGE (SEE GEOTECHNICAL NOTES)
- ② FOR CONTROLLING DUST CAUSED BY MAINTAINING TRAFFIC ONLY
- ③ INCLUDES 100 ACRES FOR THE PROPOSED ROADWAY AND 60 ACRES FOR WASTE SITE #4
- ④ FOR USE WHERE REMOVAL OF EXIST. SOFT SOILS MAY BE NEEDED AND FOR POND STABILIZATION AS DIRECTED BY THE ENGINEER (SEE GEOTECHNICAL NOTES)
- ⑤ FOR PROTECTING TOES OF EMBANKMENT ALONG FLOODPLAIN AREAS (SEE GEOTECH NOTES SHEET R42) INCLUDES 537 CU YD FOR DITCHES
- ⑥ SEE REVEGETATION PLAN ON SHEET R24 FOR DETAILS
- ⑦ SEE GEOTECHNICAL NOTES
- ⑧ 10,000 SY SLOPE PROTECTION AND 1,238 SY FOR DITCH PROTECTION
- ⑨ INCLUDES PERMANENT EROSION CONTROL FOR WASTE SITE #4
- ⑩ THIS QUANTITY IS SHOWN FOR BIDDING PURPOSES ONLY
- ⑪ ONE WITNESS POST IS ASSUMED FOR EACH RIGHT OF WAY MONUMENT
- ⑫ 48324 CU YD IS AN ESTIMATE FOR REMOVAL OF EXIST. SOFT SOILS THAT MAY BE NEEDED AS DIRECTED BY THE ENGINEER BASED ON AN ESTIMATED DEPTH OF 3 FEET (SEE GEOTECHNICAL NOTES). ACTUAL QUANTITY TO BE PAID WILL BE DETERMINED IN THE FIELD DURING CONSTRUCTION. THE BACKFILL FOR THE REMOVED MATERIAL WILL BE BUILT AS PART OF THE ROADWAY ROCK EMBANKMENT
- ⑬ FOR REMOVAL OF THE SEDIMENTATION BASIN DAM AT THE FOOT OF WASTE SITE #4 (SEE SHEET R13)
- ⑭ FOR MAINTENANCE OF TRAFFIC
- ⑮ NOT USED
- ⑯ SHOP CURVED GUARDRAIL LENGTHS HAVE BEEN INCREASED BY 1.3 TIMES THE ACUTAL LENGTH
- ⑰ FOR STRIPING APPROACH ROAD LT STA 50+600
- ⑱ NOT USED
- ⑲ ESTIMATED AT 7 SEPTIC TANKS
- ㉑ FOR CAPPING VERTICAL MINE OR AIR SHAFTS - GEOTECHNICAL NOTE 18 - EST. AT 10 SY
- ㉒ ADDITIONAL ESTIMATED EMBANKMENT NEEDED TO BUILD THE PROJECT PER TYPICAL SECTIONS TO PROVIDE AN ADDITIONAL 1.0 FT OF WIDENING ALONG GUARDRAIL EMBANKMENT AREAS TO PROVIDE AN ADDITIONAL 1.0 FT OF WIDENING ALONG GUARDRAIL EMBANKMENT AREAS TO PROVIDE AN ADDITIONAL 1.0 FT OF WIDENING ALONG GUARDRAIL EMBANKMENT AREAS

EARTHWORK TOTALS

|                                     |   |                 |
|-------------------------------------|---|-----------------|
| COMMON                              |   | 790,167 CU YD   |
| ROCK                                |   | 3,771,319 CU YD |
| SURF DITCH                          |   | 0 CU YD         |
| EMB BENCH                           |   | 4,055 CU YD     |
| TRANS. BENCH                        |   | 4,590 CU YD     |
| DITCH EXCAV. FROM PIPE SECTIONS     |   | 0 CU YD         |
| SOFT SOIL REMOVAL                   | ⑫ | 48,324 CU YD    |
| SEDIMENTATION BASIN DAM REMOVAL     | ⑬ | 2,625 CU YD     |
| TOTAL EXCAVATION                    |   | 4,621,080 CU YD |
| ROCK ROADBED                        |   | 48,229 CU YD    |
| EMBANKMENT                          |   | 468,496 CU YD   |
| ADDITIONAL EMBANKMENT FOR GUARDRAIL | ② | 1,973 CU YD     |
| BACKFILL FOR BENCHING               |   | 8,645 CU YD     |
| BACKFILL OF SOFT SOIL REMOVAL       | ⑫ | 48,324 CU YD    |
| TOTAL EMBANKMENT                    |   | 527,438 CU YD   |
| TOTAL EMBANKMENT                    |   | 586,380 CU YD   |

METRIC







DRAINAGE SUMMARY

|                           | SKEW           | DESIGN PH LEVEL | COVER HEIGHT | ENTRANCE PIPE-15 IN | CULVERT PIPE-18 IN | CULVERT PIPE-24 IN | 18" PIPE HEADWALL | 24" PIPE HEADWALL | SLOPED BOX OUTLET<br>TYPE 1 - 18 IN | DROP BOX INLET<br>TYPE 3 | FABRIC-GEOTEXTILE<br>TY IV FOR PIPE• | REMARKS                                                               |
|---------------------------|----------------|-----------------|--------------|---------------------|--------------------|--------------------|-------------------|-------------------|-------------------------------------|--------------------------|--------------------------------------|-----------------------------------------------------------------------|
| ITEM CODE                 |                |                 |              | 00440               | 00462              | 00464              | 01204             | 01208             | 01433                               | 01496                    | 02600                                |                                                                       |
| UNIT TO BID               |                |                 | FT           | LF                  | LF                 | LF                 | EACH              | EACH              | EACH                                | EACH                     | SOYD                                 |                                                                       |
| MAINLINE                  |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
| 50+340.000                |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      | 87ft + - 107ft + - 87ft PCI BEAM TYPE 5 BRIDGE<br>SEE STRUCTURE PLANS |
| 51+024.420                | 61° 15' 35" LT |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      | 14ft X 5ft RCBC<br>SEE STRUCTURE PLANS                                |
| 51+515.500                |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      | 90ft + - 90ft + - 90ft PCI BEAM TYPE 4 BRIDGE<br>SEE STRUCTURE PLANS  |
| 51+708.500                |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      | 90ft + - 90ft + - 90ft PCI BEAM TYPE 4 BRIDGE<br>SEE STRUCTURE PLANS  |
|                           |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
| APPROACH LT STA 50+600    |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
| 9+985.214                 |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      | 59ft + - 59ft + - 59ft PCI BEAM TYPE 3 BRIDGE<br>SEE STRUCTURE PLANS  |
|                           |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
| TEMPORARY US 119 TIE      |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
| 25+580.000                |                | M               | 8            |                     | III                |                    |                   |                   | I                                   | I                        | 345                                  |                                                                       |
| 25+932.750                |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      | 61ft + - 61ft + - 61ft PCI BEAM TYPE 3 BRIDGE<br>SEE STRUCTURE PLANS  |
|                           |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
| ENTRANCE STA 51+147.87    |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
| 9+883.255                 | 49°54' 45" RT  |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      | 14ft X 5ft RCBC<br>SEE STRUCTURE PLANS                                |
| 9+970.761                 | 6°17' 24" RT   | M               | 23           |                     |                    | 131                |                   | 2                 |                                     |                          | 466                                  |                                                                       |
| 10+023.621                | 26° 43' 50" RT | M               | 15           |                     |                    | III                |                   | 2                 |                                     |                          | 395                                  |                                                                       |
| 10+093.000                | 0 °            | M               | 6            |                     | 54                 |                    | 2                 |                   |                                     |                          | 168                                  |                                                                       |
| RALEIGH CEMETERY ENTRANCE |                |                 |              | 44                  |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
|                           |                |                 |              |                     |                    |                    |                   |                   |                                     |                          |                                      |                                                                       |
| TOTAL PROJECT             |                |                 |              | 44                  | 165                | 242                | 2                 | 4                 | 1                                   | 1                        | 1,374                                |                                                                       |

• QUANTITY CARRIED TO GENERAL SUMMARY

METRIC



# PROJECT NOTES

|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.37 | R2G       |

## GENERAL NOTES

### USE OF COMBINED METRIC AND ENGLISH UNITS

THIS PROJECT WAS DEVELOPED IN METRIC UNITS. STATIONS, OFFSETS, ELEVATIONS AND COORDINATES ARE SHOWN IN METRIC UNITS ON THESE PLANS. BID ITEMS, PIPE SIZES, STRUCTURE DIMENSIONS, AND QUANTITIES ARE SHOWN IN ENGLISH UNITS.

### N.G.S. (U.S.G.S.) BENCH MARKS

DO NOT DISTURB N.G.S. (U.S.G.S.) BENCH MARKS IN ANY MANNER UNLESS DIRECTED BY THE ENGINEER.

### BEFORE YOU DIG

THE CONTRACTOR IS INSTRUCTED TO CALL 1-800-752-6007 TO REACH THE KY 811, THE ONE-CALL SYSTEM FOR INFORMATION ON THE LOCATION OF EXISTING UNDERGROUND UTILITIES. THE CALL IS TO BE MADE A MINIMUM OF TWO (2) AND NO MORE THAN TEN (10) BUSINESS DAYS PRIOR TO EXCAVATION. THE CONTRACTOR SHOULD BE AWARE THAT OWNERS OF THE UNDERGROUND FACILITIES ARE NOT REQUIRED TO BE MEMBERS OF THE KY 811 ONE-CALL BEFORE-U-DIG (BUD) SERVICE. THE CONTRACTOR MUST COORDINATE EXCAVATION WITH THE UTILITY OWNERS, INCLUDING THOSE WHOM DO NOT SUBSCRIBE TO KY 811. IT MAY BE NECESSARY FOR THE CONTRACTOR TO CONTACT THE COUNTY COURT CLERK TO DETERMINE WHAT UTILITY COMPANIES HAVE FACILITIES IN THE AREA.

### DEPARTMENT OF THE ARMY PERMIT AND WATER QUALITY CERTIFICATION APPROVALS

A DEPARTMENT OF THE ARMY (DA) PERMIT, WHICH MAY REQUIRE APPROVAL OF A STATE WATER QUALITY CERTIFICATION FROM THE KENTUCKY DIVISION OF WATER, REGULATES THIS PROJECT AT ONE OR MORE LOCATIONS. PERFORM ALL APPLICABLE WORK IN COMPLIANCE WITH THE CONDITIONS STATED IN THE DA PERMIT AND THE APPROVED WATER QUALITY CERTIFICATION. POST A COPY OF THE DA PERMIT AND THE WATER QUALITY CERTIFICATION IN A CONSPICUOUS PLACE AT THE PROJECT SITE. IF A DA PERMIT OR WATER QUALITY CERTIFICATION APPROVAL IS PENDING, DO NOT WORK IN OR DISTURB THE DESIGNATED AREA(S) UNTIL OBTAINING THE APPROPRIATE APPROVAL(S). REFER TO NOTICE(S) CONTAINED IN THE CONTRACT BID PROPOSAL FOR DESIGNATED AREA(S) WHERE WORK IS PROHIBITED BY THE ABSENCE OF APPROVAL.

### STANDARD DRAWINGS

STANDARD DRAWINGS ARE NOT ATTACHED TO THESE PLANS. A STANDARD DRAWING BOOK AND THE HEADWALL SUPPLEMENTAL BOOK MAY BE OBTAINED FROM THE POLICY SUPPORT BRANCH OF THE DEPARTMENT OF ADMINISTRATIVE SERVICES IN FRANKFORT, KY AT (502) 564-3670. STANDARD DRAWINGS ARE IN ENGLISH UNITS.

### HEADWALL AND PIPE REMOVAL

HEADWALL AND PIPE REMOVAL IS CONSIDERED INCIDENTAL TO ROADWAY EXCAVATION ON THIS PROJECT.

### EXISTING PIPES VERIFICATION

CONTRACTOR MUST VERIFY THAT ALL EXISTING PIPES THAT ARE TO BE EXTENDED AND OTHER EXISTING PIPES INDICATED IN THE PLANS ARE CLEAN AND OPERATIONAL.

### WASTE SITES

CONTRACTOR MUST USE ALL WASTE SITES SHOWN IN THESE PLANS AS DIRECTED BY THE ENGINEER.

CONTRARY TO KYTC STANDARD DRAWING RBR-020-05 THE GUARDRAIL END TREATMENT ET-PLUS MANUFACTURED BY TRINITY INDUSTRIES WILL NOT BE PERMITTED AS AN OPTION FOR BID ITEM “GUARDRAIL END TREATMENT TYPE 1”.

## GRAY BAT MITIGATION AND MINIMIZATION MEASURES

In order to offset potential impacts to *M. grisescens* and to further the conservation and protection of the species, KYTC agrees to adhere to the following measures:

With the exception of bridge deck-pouring, construction activities within the riparian zone will occur only during daylight hours in order to minimize disturbance to foraging and travel activities.

Water quality and in-stream habitat will be protected through the implementation of erosion and sediment control methods. These methods will minimize turbidity and embeddedness within the aquatic substrate, which is habitat for *M. grisescens* prey. KYTC will use the methods and guidelines as outlined in the U.S. Army Corps of Engineers (USACE) Individual Permit, Kentucky Division of Water (KDOW) General Water Quality Certification, KPDES Permit KYR10, Chapter 10 of the Drainage Manual entitled “Erosion Control”, KYTC Design Memorandum 3-0, Section 213.03.01 of the KYTC Standard Specifications, and the project Erosion Control Plan (ECP). The site specific ECP will outline Disturbed Drainage Areas (DDAs) where construction site effluent will be discharged off-site or into waters of the Commonwealth. Sediment control structures will be marked at each DDA discharge point shown on the ECP. Site effluent will be directed through temporary sediment control structures (e.g., detention ponds, silt traps, grass-lined ditches, etc.) to allow sediment to settle out before the effluent is discharged into Poor Fork. These structures are suggestions based on good engineering practices developed by the Design Engineer. According to Section 213.03.01 of the KYTC Standard Specifications, a BMP Plan (in accordance with KPDES permit No. KYR10) will be developed jointly by the Resident Engineer and contractor prior to the Preconstruction Conference. The BMP Plan will be developed utilizing information contained within the ECP. Through progression of the project, the BMP Plan will be updated in order to address the ever-changing on-site conditions to assure the overall goal of erosion control and sediment containment. The BMP Plan shall be modified when there is a change in design, construction, operation or maintenance of the site, which has a significant effect on the potential for the discharge of pollutants to waters of the Commonwealth. Inspections shall be conducted by the Resident Engineer and contractor simultaneously every 7 days or after rain events greater than 0.5 inches. The BMP Plan shall also be amended if any aspect is determined to be ineffective in controlling the discharge of pollutants to waters of the Commonwealth. Any changes in the BMP Plan shall be implemented within 7 days of the monitoring or action event. Appropriate documentation of changes in the BMP Plan will be maintained throughout the duration of the project. Further, appropriate documentation (pictures, monitoring log, etc.) of inspections will be maintained on the construction site.

The area of existing forested riparian corridor along Poor Fork that could be disturbed by bridge construction, temporary crossings, or road construction, as discussed in Sec VII.B of this document, is approximately 25 acres. This acreage assumes complete clearing of trees within right-of-way limits at each crossing Prior to disturbance of the riparian corridor, the resident engineer and contractor will meet at the project site to determine which trees will be removed in order to minimize riparian disturbance. Following construction, the area of riparian zone suitable for tree planting (i.e., areas along Poor Fork that are not under bridges, outside of clear zone, and not steeply sloped) is approximately 17 acres. Once construction activities have ceased, riparian areas will be replanted in accordance with a revegetation plan defined by KYTC-DEA. Revegetating the riparian corridor is critical for the establishment and maintenance of streambank stability. Trees, in particular, will reduce water temperatures, which is vital in the stability of macroinvertebrate communities.

Pouring of concrete for piers and/or decking will be done such that spills into the stream do not occur. Concrete spills into Poor Fork could affect *M. grisescens* prey habitat. In the unforeseen event that spillage does occur, the Frankfort USFWS office will be notified and the resident engineer shall halt the activity immediately. Construction activity will not resume until appropriate remedial actions have been implemented. Equipment cleaning/staging areas will be located such that runoff from these areas will not directly enter the stream. Filtration of effluent from equipment cleaning/staging areas will be located such that effluent will be filtered through vegetated areas and proper sediment control structures located between thestaging area and Poor Fork; therefore, minimizing the potential for stream impacts such as sedimentation and pollution.

The proposed bridges have been designed to reduce impacts to Poor Fork by spanning the normal flow channel. Of the nine bridges designed for the project, no structures will be located in Poor Fork; however, a bridge at the project beginning requires the placement of a pier in an overflow channel of Poor Fork. During footer/pier construction, coffer dams may be utilized. If so, water removed from inside the coffer dam will be pumped into detention basins for sediment filtration prior to release into Poor Fork.

Although construction of a temporary crossing temporarily reduces stream substrate, this impact is significantly less than that of the alternative, allowing equipment directly into Poor Fork. Placement of clean fill rock, appropriately sized, shall be placed in-stream to form the crossing and limit the amount of substrate disturbance.

Culverts will be placed on the bottom of the stream and at the same slope as the bottom of the stream in order to allow continuous flow during construction and to ensure macroinvertebrate and fish passage. Upon project completion, the temporary crossing will be removed. During removal of the temporary crossing, temporary stream substrate disturbance is anticipated. However, this impact is short-term in nature and is thought to be less impinging (by allowing natural stream flow, increased stream fauna habitat, etc.) than allowing the structure to remain in place.

KYTC District 12 Environmental Coordinator will notify USFWS at least one week prior to the start of construction of the proposed project.

METRIC



|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.37 | R2H       |

# PROJECT NOTES

## SPECIAL NOTES

### SPECIAL NOTE FOR DISRUPTION TO MINING OPERATIONS

It is very important that any disruption to the coal haul truck traffic and emergency access be kept to an absolute minimum. Any claims for down time due to the action or inaction of the Contractor that is made by the coal company will be made directly to the Contractor and not the Department of Highways. The Department will not consider any additional payments or claims resulting from any action or inaction by the Contractor which causes delays to the coal company. This note will apply even in the event that mining operations were to restart at a later date. The contact for the coal company will be provided:

### SPECIAL NOTE FOR ARCHITECTURAL TREATMENT OF BRIDGE BARRIERS

This special note applies to the bridges on the project. It is to be used with the contract structure drawings, general notes and the current Edition of The Standard Specifications for Road and Bridge Construction.

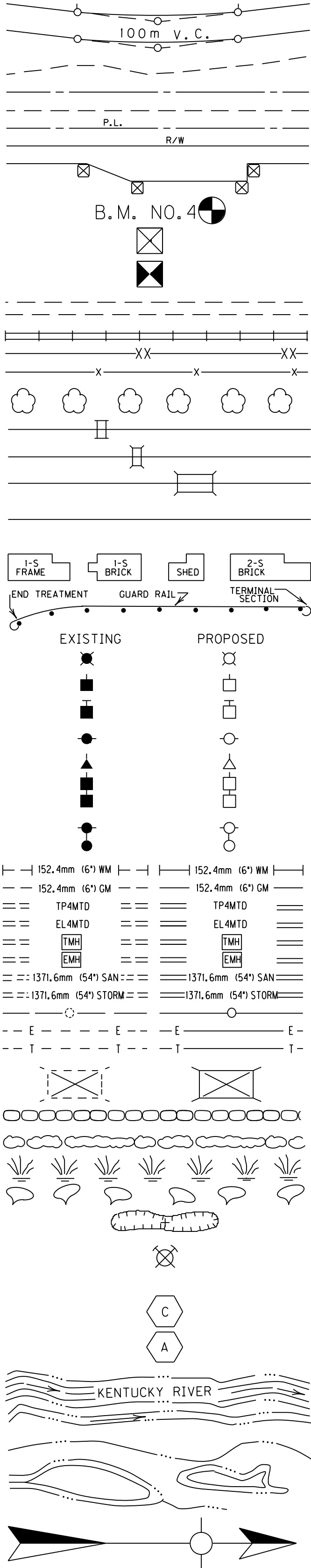
- 1.0 DESCRIPTION. Contrary to the bridge drawings and general notes, the concrete barriers on the bridges are to have an architectural treatment and not the stone veneer as shown. All references to the "Stone Masonry Veneer" are to be deleted.
- 2.0 MATERIALS. The architectural treatment will consist of a form liner finish, #330 "Ashlar Stone" as manufactured by Greenstreak of St. Louis, Missouri, or approved equal. Masonry coating shall comply with SECTION 828 of the Standard Specifications.
- 3.0 CONSTRUCTION. The minimum dimensions of the of the concrete barrier at the formed mortar joints of the form liner will remain the same as shown in the typical barrier section before the addition of the stone masonry veneer. The form liner will be applied to the inside face of the barrier above the nine inch sloped face to the top of the wall, and to the outside face beginning at the double V groove at the top of the slab to the top of the wall. The horizontal top of the barrier wall will receive a normal float finish without any type of texturing. The barrier wall will be coated with normal masonry coating as required by SECTION 601.03.18B of The Standard Specifications for Road and Bridge Construction.
- 4.0 MEASUREMENT AND PAYMENT. No direct measurements for architectural treatment will be made and all costs associated with this item, labor, materials including the required masonry coating are INCIDENTAL TO THE ITEM, Class AA Concrete.

METRIC



CONVENTIONAL SIGNS

- SURVEY LINE  
GRADE LINE  
GROUND LINE  
COUNTY LINE  
CORPORATE LIMITS  
PROPERTY LINE  
PROPOSED RIGHT OF WAY  
RIGHT OF WAY MARKERS  
BENCH MARK  
RURAL RIGHT OF WAY MARKER  
MUNICIPAL RIGHT OF WAY MARKER  
EXISTING ROAD  
RAILROAD  
FENCE (CONTROLLED ACCESS)  
FENCE (EXCEPT STONE AND HEDGE)  
TREES  
PIPE CULVERT  
CULVERT  
BRIDGE  
NORMAL ROADWAY DITCH  
BUILDINGS  
GUARDRAIL  
LIGHTING POLE  
POWER POLE  
JOINT POWER & TELEPHONE POLE  
TELEPHONE & TELEGRAPH POLE  
ANCHOR, POWER OR TELEPHONE  
STUB POWER  
STUB TELEPHONE  
WATER MAIN  
GAS MAIN  
TELEPHONE DUCT  
ELECTRIC DUCT  
TELEPHONE MANHOLE  
ELECTRIC MANHOLE  
SANITARY SEWER  
STORM SEWER  
SEWER MANHOLE  
DIRECT BURIAL ELECTRIC CABLE  
DIRECT BURIAL TELEPHONE CABLE  
TOWER  
STONE FENCE  
HEDGE FENCE  
SWAMP OR MARSH  
SPRINGS  
SINKHOLE  
QUARRY SITE  
SILT CHECK  
SILT TRAP  
LARGE STREAM  
SMALL STREAM  
INTERMITTENT STREAM  
LAKES OR PONDS  
NORTH POINT



| GUARDRAIL |          |          |              |                |   |
|-----------|----------|----------|--------------|----------------|---|
| SIDE      | STATION  |          | GUARDRAIL SF | END TREATMENTS |   |
|           | FROM     | TO       |              | 1              | 7 |
| RT        | 50+582.2 | 50+590.0 | 125.0        |                | 2 |
| RT        | 50+470.0 | 50+615.0 | 525.0        |                | 2 |

**BEFORE YOU DIG**

The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

UTILITY OWNERS

AT&T of KY  
20 WILLIS BRANCH RD  
PRESTONSBURG, KY 41653  
PHONE: (606) 874-2715  
CELL: (606) 424-9328  
ATTN: JACKIE SALYER

INTERMOUNTAIN CABLE COMPANY  
P.O. BOX 159  
HAROLD, KY 41653  
PHONE: (606) 478-3401 EXT. 222  
ATTN: ROY HARLOW

WINDSTREAM COMMUNICATIONS CO.  
719 NORTH MAIN STREET  
LONDON, KY 40741  
OFFICE: (606) 878-3258  
CELL: (606) 524-0058  
ATTN: BOWMAN HAIL

CUMBERLAND VALLEY RECC  
P.O. BOX 440  
GRAY, KY 40734  
606-528-2677  
ATTN: DONALD LYNCH

EAST KENTUCKY POWER COOPERATIVE  
P.O. BOX 707  
WINCHESTER, KY 40392  
OFFICE: (859) 745-9605  
ATTN: NICHOLAS ADAMS

CHESAPEAKE APPALACHIAN GAS LLC  
P.O. BOX 150  
PRESTONSBURG, KY 41653  
OFFICE: (606) 298-3400  
CELL: (606) 794-3042  
ATTN: MICHAEL FLANERY

UNLESS OTHERWISE NOTED, GUARDRAIL TO BE INSTALLED ON SEPARATE CONTRACT BY OTHERS.

| DITCH CHART |                 |              |          |       |
|-------------|-----------------|--------------|----------|-------|
| SIDE        | STA TO STA      | SHAPE        | LINER    | DEPTH |
| RT.         | 50+340 - 50+440 | 2' F.B. SURF | CLASS IV | 1.00  |
| RT.         | 50+440 - 50+578 | SPCL "V"     | SEED     | 1.00  |

| WOVEN WIRE FENCE CONSTRUCTION |          |          |                   |
|-------------------------------|----------|----------|-------------------|
| SIDE                          | FROM     | TO       | WWF TY 1 LIN. FT. |
| LT                            | 50+131.0 | 50+335.0 | 1,059             |
| LT                            | 50+294.0 | 50+307.0 | 156               |
| LT                            | 50+390.8 | 50+600.0 | 798               |
| RT                            | 50+131.0 | 50+285.3 | 610               |
| RT                            | 50+382.6 | 50+575.0 | 690               |
| RT                            | 50+595.0 | 50+600.0 | 16                |

CONSTRUCT RIGHT-OF-WAY MONUMENTS AS SHOWN: TYPE 1 - 6 EACH

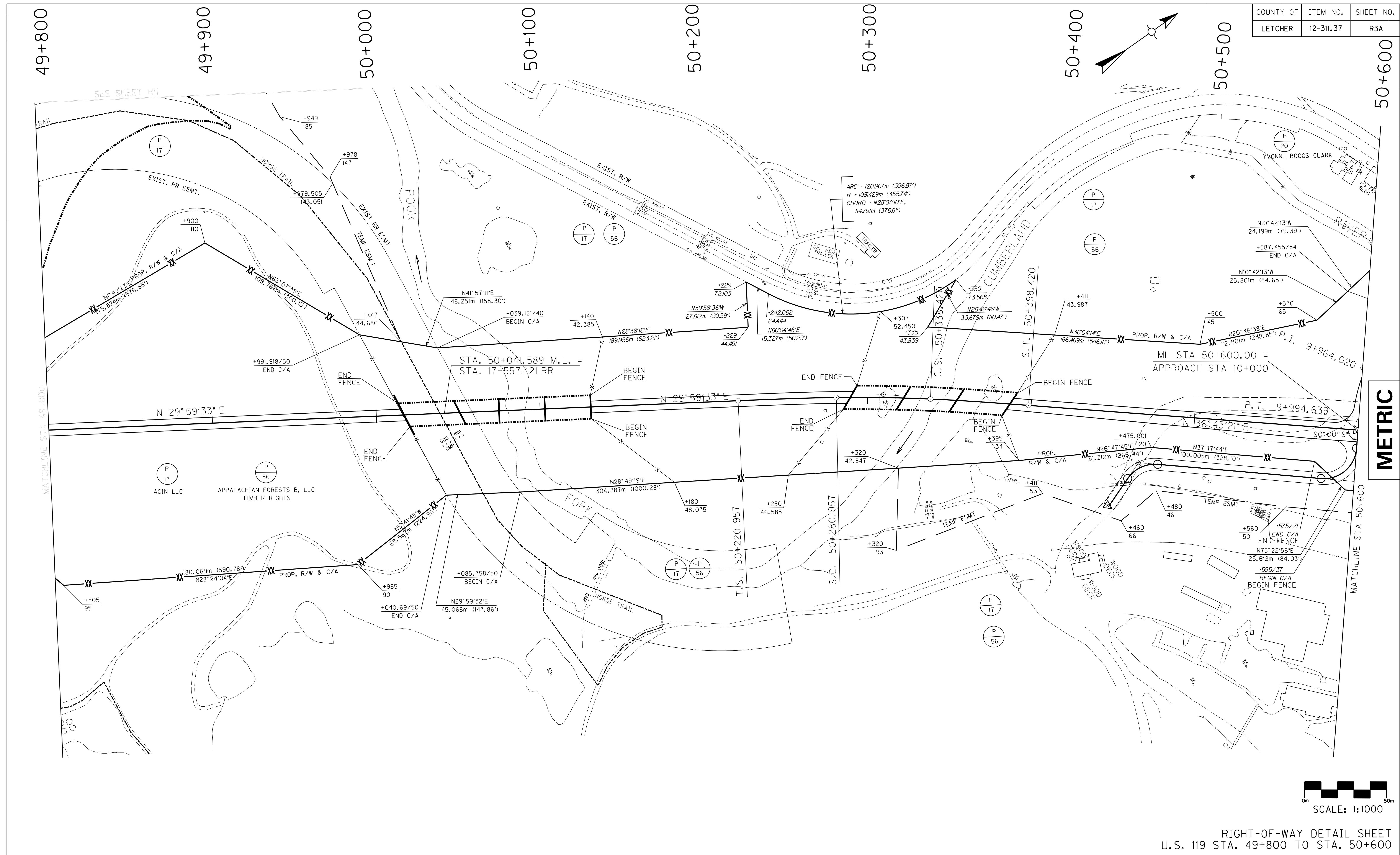
STA. 50+390 TO STA. 50+410  
REMOVE EXISTING SOFT SOIL AREAS AND STABILIZE EMBANKMENT FOUNDATION USING 5711 SQ YD OF TYPE III GEOTEXTILE AND 6246 CU YD OF ADDITIONAL ROCK ROADWAY EMBANKMENT OR AS DIRECTED BY THE ENGINEER

STA. 50+150 TO STA. 50+330  
REMOVE EXISTING SOFT SOIL AREAS AND STABILIZE EMBANKMENT FOUNDATION USING 12215 SQ YD OF TYPE III GEOTEXTILE AND 13361 CU YD OF ADDITIONAL ROCK ROADWAY EMBANKMENT OR AS DIRECTED BY THE ENGINEER

SCALE: 1:1000



|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.37 | R3A       |





\$\$\$DATE\$\$\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

[illegible]



| DITCH CHART                       |        |   |        |              |          |                |
|-----------------------------------|--------|---|--------|--------------|----------|----------------|
| ENTRANCE LT. & RT. STA. 51+147.87 |        |   |        |              |          |                |
| RT.                               | 9+872  | - | 9+958  | 2' F.B. SURF | CLASS II | 1.00 125 TONS  |
| LT.                               | 10+036 | - | 10+093 | 2' F.B. SURF | CLASS II | 1.00 83 TONS   |
| RT.                               | 10+018 | - | 10+108 | 2' F.B. SURF | ECB      | 1.00 209 SQ YD |
| RT.                               | 10+118 | - | 10+134 | 2' F.B. SURF | ECB      | 1.00 37 SQ YD  |
| RALEIGH CEMETERY ENTRANCE         |        |   |        |              |          |                |
| RT.                               | 10+820 | - | 10+900 | SPCL. "V"    | ROCK CUT | 1.00 -         |
| LT.                               | 10+815 | - | 10+920 | SPCL. "V"    | ROCK CUT | 1.00 -         |

STA. 50+824 TO STA. 51+046  
DRAIN EXISTING PONDS AND STABILIZE  
AS DIRECTED ON THIS SHEET (SEE  
GEOTECH NOTES SHEET R42)

STA. 50+824 TO STA. 51+046  
REMOVE EXISTING SOFT SOIL AREAS AND  
STABILIZE EMBANKMENT FOUNDATION USING  
18908 SQ. YD. OF TYPE III GEOTEXTILE AND  
27425 CU YD OF ADDITIONAL ROCK ROADWAY  
EMBANKMENT OR AS DIRECTED BY THE ENGINEER.

APPROACH LT 50+600 CURVE DATA  
P.I. 9+964.0199  
 $\Delta = 36^{\circ}21'27.36''$  L+.  
R = 100.000m  
T = 32.8373m  
L = 63.4560m  
E = 5.2535m  
e = 2.0%  
Runoff = SEE X-SECTIONS  
Runout = SEE X-SECTIONS

APPR. STA. 9+985.214 CONSTRUCT  
59ft - 59ft - 59ft  
P.C.I. BEAM TYPE 3 BRIDGE

APPR. STA. 10+113.1  
ENT. STA. STA. 10+798.2  
(RALEIGH CEMETERY RD)

| ENTRANCE SUMMARY |                     |      |             |               |           |
|------------------|---------------------|------|-------------|---------------|-----------|
| SIDE             | STATION             | TYPE | WIDTH<br>FT | ASPHALT<br>SY | TBB<br>SY |
| LT               | 51+147.87           | COM  | 20          | 1575          |           |
| LT               | RALEIGH CEMETERY RD | COM  | 18          | 811           |           |
| RT               | 51+147.87           | COM  | 24          |               | 1268      |

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | R5        |

CEMETERY ENTRANCE CURVE DATA  
P.I. 10+856.7186  
 $\Delta = 85^{\circ}24'16.05''$  R+.  
R = 30.000m  
T = 27.6854m  
L = 44.7177m  
E = 10.8255m  
e = NC

ENTRANCE LT STA 51+147.872 CURVE DATA  
P.I. STA. 10+019.25  
 $\Delta = 13^{\circ}17'40.29''$  LT  
R = 75.00m  
T = 8.74m  
Lc = 17.40m  
E = 0.51m

ENTRANCE RT STA 51+147.872 CURVE DATA  
P.I. STA. 9+875.75  
 $\Delta = 39^{\circ}20'10.62''$  LT  
R = 85.00m  
T = 30.38m  
Lc = 58.36m  
E = 5.27m

| DITCH CHART |            |   |        |              |          |                |
|-------------|------------|---|--------|--------------|----------|----------------|
| SIDE        | STA TO STA |   | SHAPE  | LINER        | DEPTH    | QUANTITY       |
| LT.         | 50+970     | - | 51+118 | 2' F.B. SURF | CLASS IV | 1.00 231 CU YD |
| LT.         | 51+160     | - | 51+250 | 2' F.B. SURF | CLASS IV | 1.00 141 CU YD |
| LT.         | 51+250     | - | 51+400 | NORM         | ROCK     | 1.00 -         |
| RT.         | 50+620     | - | 51+040 | 2' F.B. SURF | ECB      | 1.00 992 SQ YD |
| RT.         | 51+040     | - | 51+080 | 2' F.B. SURF | CLASS IV | 1.00 63 CU YD  |
| RT.         | 51+090     | - | 51+130 | 2' F.B. SURF | CLASS IV | 1.00 63 CU YD  |
| RT.         | 51+174     | - | 51+250 | 2' F.B. SURF | CLASS IV | 1.00 119 CU YD |
| RT.         | 51+250     | - | 51+400 | NORM         | ROCK     | 1.00 -         |

| GUARDRAIL                  |         |        |              |                |   |                          |                         |
|----------------------------|---------|--------|--------------|----------------|---|--------------------------|-------------------------|
|                            | STATION |        | GUARDRAIL SF | END TREATMENTS |   | BRIDGE END<br>CON. TY. A | TERMINAL<br>SECT. NO. 1 |
| SIDE                       | FROM    | TO     | LF           | 1              | 7 |                          |                         |
|                            |         |        |              |                |   |                          |                         |
| APPROACH LT. 50+600        |         |        |              |                |   |                          |                         |
| LT                         | 9+870   | 9+852  | 62.5         |                | 1 | 1                        |                         |
| LT                         | 9+919   | 9+988  | 237.5        |                |   | 1                        | 1                       |
| RT                         | 9+861   | 9+871  | 62.5         |                | 1 | 1                        |                         |
| RT                         | 9+920   | 9+993  | 275.0        |                |   | 1                        | 1                       |
| ENTRANCE RT & LT 51+147.87 |         |        |              |                |   |                          |                         |
| LT                         | 9+858   | 9+995  | 462.5        |                |   |                          | 2                       |
| RT                         | 9+858   | 9+989  | 475.0        |                |   |                          | 2                       |
| LT                         | 10+011  | 10+099 | 375.0        |                |   |                          | 2                       |

UNLESS OTHERWISE NOTED, GUARDRAIL  
TO BE INSTALLED ON SEPARATE  
CONTRACT BY OTHERS.

| WOVEN WIRE FENCE CONSTRUCTION |          |          |                      |
|-------------------------------|----------|----------|----------------------|
| SIDE                          | STATION  |          | WWF TY I<br>LIN. FT. |
|                               | FROM     | TO       |                      |
| LT                            | 50+600.0 | 50+619.1 | 65                   |
| LT                            | 50+630.5 | 50+959.1 | 1,141                |
| LT                            | 50+968.3 | 51+118.0 | 596                  |
| LT                            | 51+149.0 | 51+400.0 | 926                  |
| RT                            | 50+600.0 | 51+082.0 | 1,633                |
| RT                            | 51+091.2 | 51+114.0 | 185                  |
| RT                            | 51+166.0 | 51+400.0 | 789                  |

WASTE AREA #4  
SEE SHEET R13

SCALE: 1:1000

PLAN SHEET  
U.S. 119 STA. 50+600 TO STA. 51+400

METRIC







APPROACH ROAD PROFILE  
US 119 TIE LEFT STA. 50+600

V.P.I. 9+875.325  
Elev. 491.060m  
40m V.C.  
H.L.S.D. = 47m  
BEGIN CONST.  
STA. 9+855.325  
+0.00%  
BRIDGE  
Hw100  
Hw50  
POOR FORK  
+5.339%  
END CONST.  
STA. 9+996.4  
+2.00%  
V.P.I. 9+970  
Elev. 496.115m  
40m V.C.  
N.P.S.D. = 81m  
STA. 10+000 APPROACH =  
STA. 50+600 MAINLINE

| FLOOD EVALUATION DATA      |        |        |        |
|----------------------------|--------|--------|--------|
| HEC-RAS DATA: PROP. BRIDGE |        |        |        |
| FREQ.                      | DESIGN | BASIC  | RECORD |
| 50                         | 100    |        |        |
| Q (cms)                    | 146.79 | 168.09 | -      |
| ELEV. (m)                  | 487.05 | 487.34 | -      |

STA. 9+895.214 (TIE TO US 119)  
PROP. 59ft + 59ft + 59ft  
P.C.I. BEAM TYPE 3 BRIDGE

9+840 489.65 491.075 485.72 491.466 483.11 492.577 489.11 493.445 492.32 494.513 493.29 495.539 493.01 496.273 10+000

V.P.I. 50+775  
Elev. 495.619m  
400m V.C.  
H.L.S.D. = Unlimited

LOW POINT STA. 50+741.4  
CONST. 80 LF OF 4" PERF. PIPE  
10 LF OF 4" NON-PERF. PIPE  
1-TYPE 1 HDWL. AND 1 TON  
CRUSHED AGGREGATE NO. 2  
SEE SHEET R42, GEOTECH NOTE 16

LOW POINT STA 50+741.387  
ELEV. 496.343

| FLOOD DATA |            |                |                    |
|------------|------------|----------------|--------------------|
|            | STORM (YR) | RUNOFF (cu.ms) | HEADWATER ELEV (m) |
| DESIGN     | 25         | 12.17          | 488.18             |
| CHECK      | 100        | 16.68          | 488.58             |

METRIC

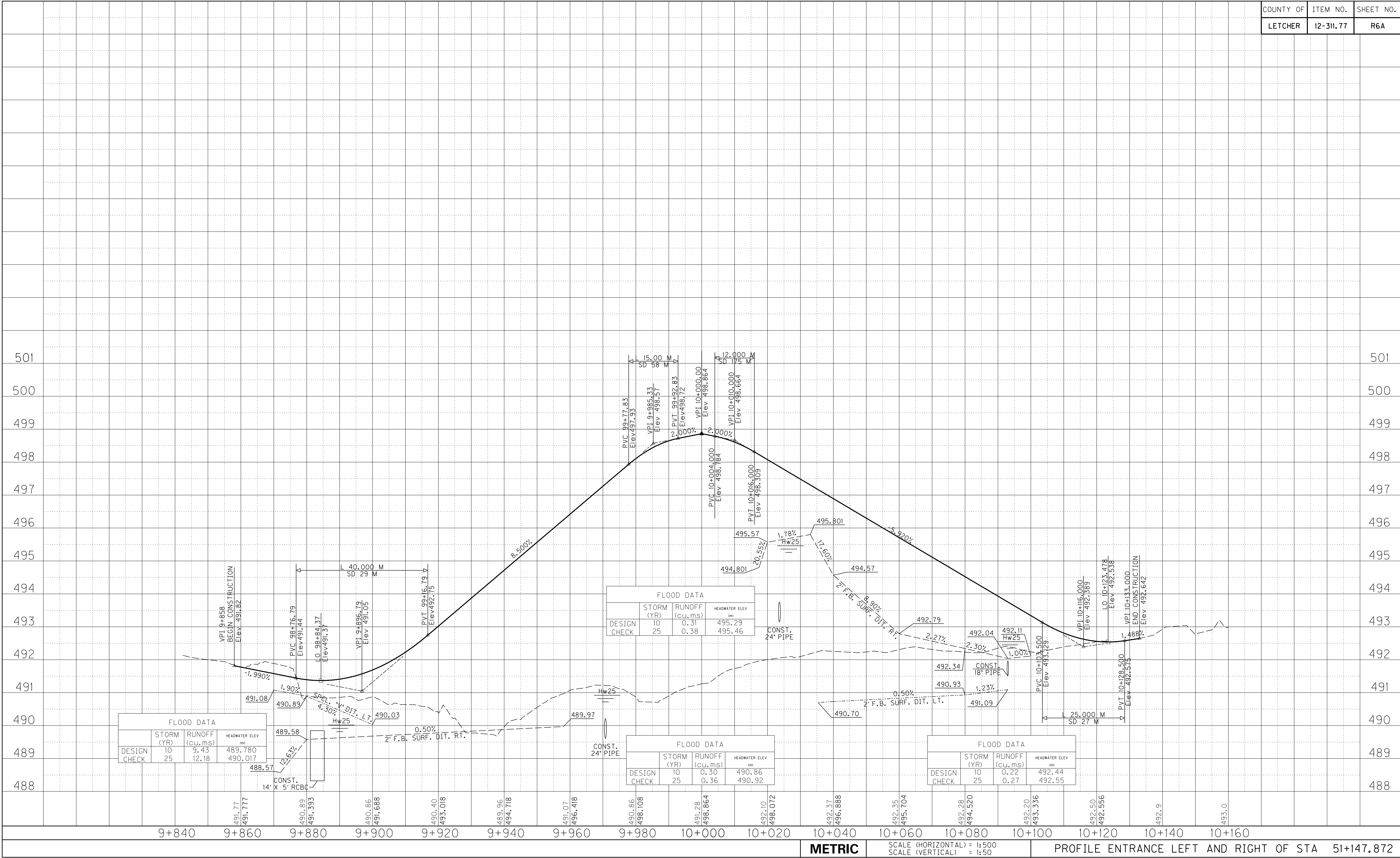
SCALE (HORIZONTAL) = 1:1000  
SCALE (VERTICAL) = 1:100

U.S. 119 STA. 50+600 TO STA. 51+400

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | R6        |

520  
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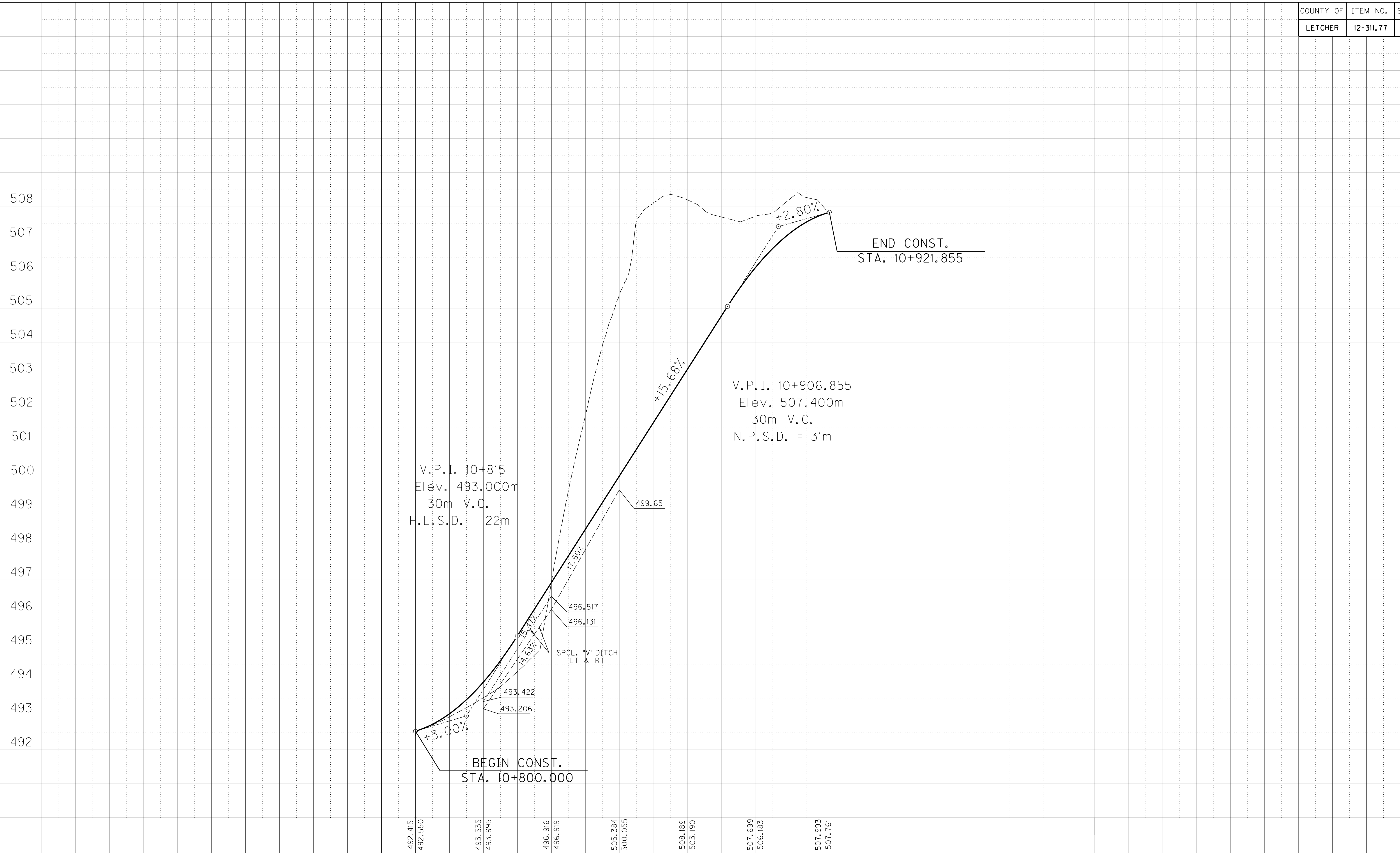
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| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | R6B       |



METRIC

SCALE (HORIZ): 1:500  
SCALE (VERTIC): 1:50

PROFILE ENTRANCE TO RALEIGH CEMETERY



51+400

51+500

51+600

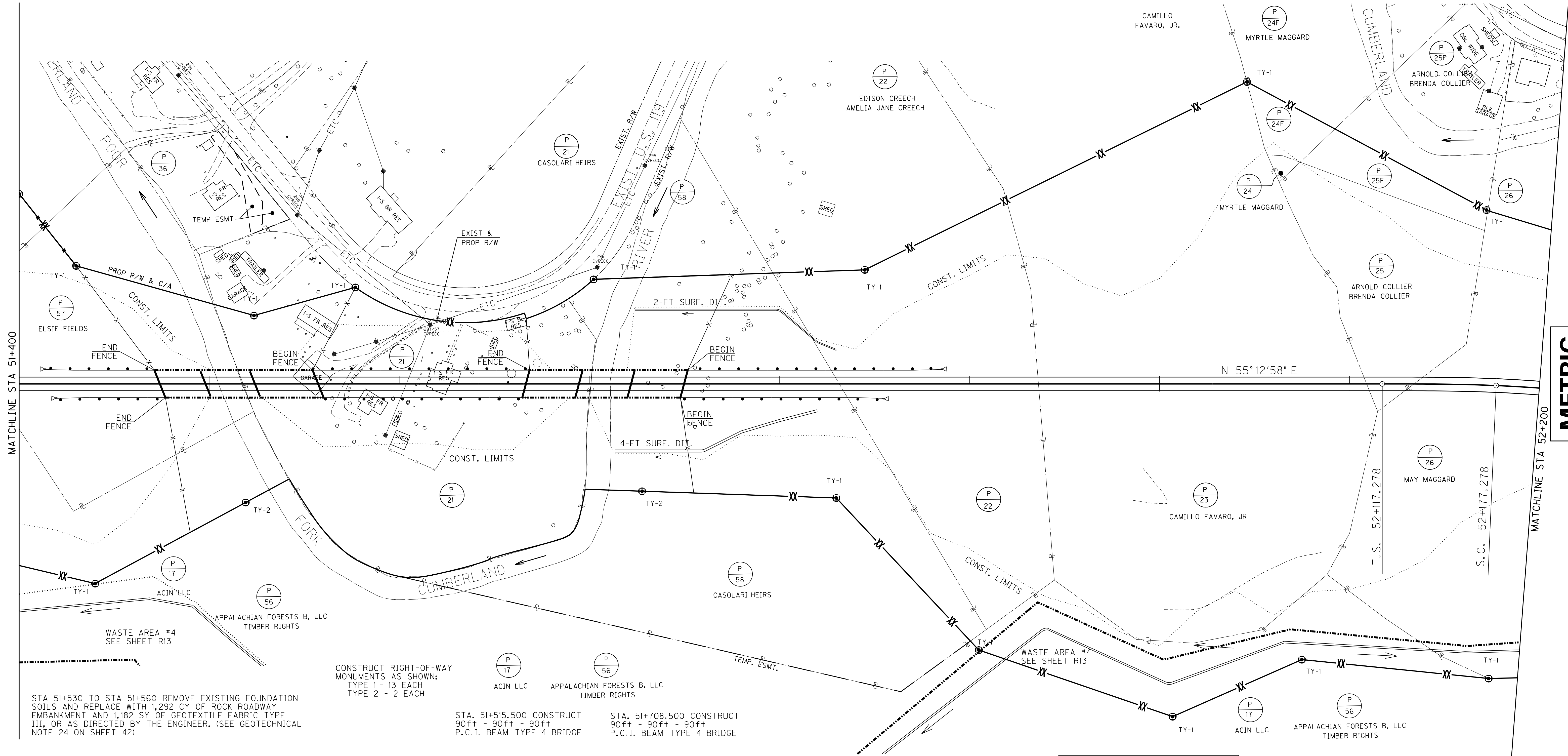
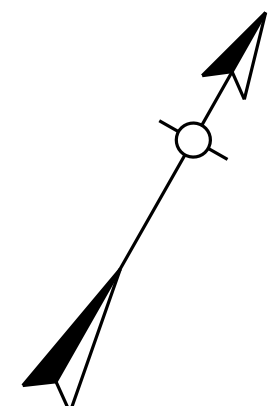
51+700

51+800

51+900

52+000

52+100



| DITCH CHART |                 |              |          |       |           |
|-------------|-----------------|--------------|----------|-------|-----------|
| SIDE        | STA TO STA      | SHAPE        | LINER    | DEPTH | QUANTITY  |
| LT.         | 51+400 - 51+480 | NORM         | ROCK CUT |       | -         |
| LT.         | 51+724 - 51+830 | 2' F.B. SURF | CLASS IV | 1.00  | 166 CU YD |
| LT.         | 51+830 - 52+200 | NORM         | ROCK CUT |       | -         |
| RT.         | 51+400 - 51+480 | NORM         | ROCK CUT |       | -         |
| RT.         | 51+714 - 51+800 | 4' F.B. SURF | CLASS IV | 1.00  | 215 CU YD |
| RT.         | 51+800 - 52+200 | NORM         | ROCK CUT |       | -         |

| WOVEN WIRE FENCE CONSTRUCTION |          |          |                   |
|-------------------------------|----------|----------|-------------------|
| SIDE                          | STATION  |          | WWF TY I LIN. FT. |
|                               | FROM     | TO       |                   |
| LT                            | 51+400.0 | 51+471.2 | 384               |
| LT                            | 51+554.5 | 51+668.6 | 566               |
| LT                            | 51+751.8 | 52+200.0 | 1,733             |
| RT                            | 51+400.0 | 51+477.0 | 558               |
| RT                            | 51+748.0 | 52+200.0 | 1,744             |



51+400

51+500

51+600

51+700

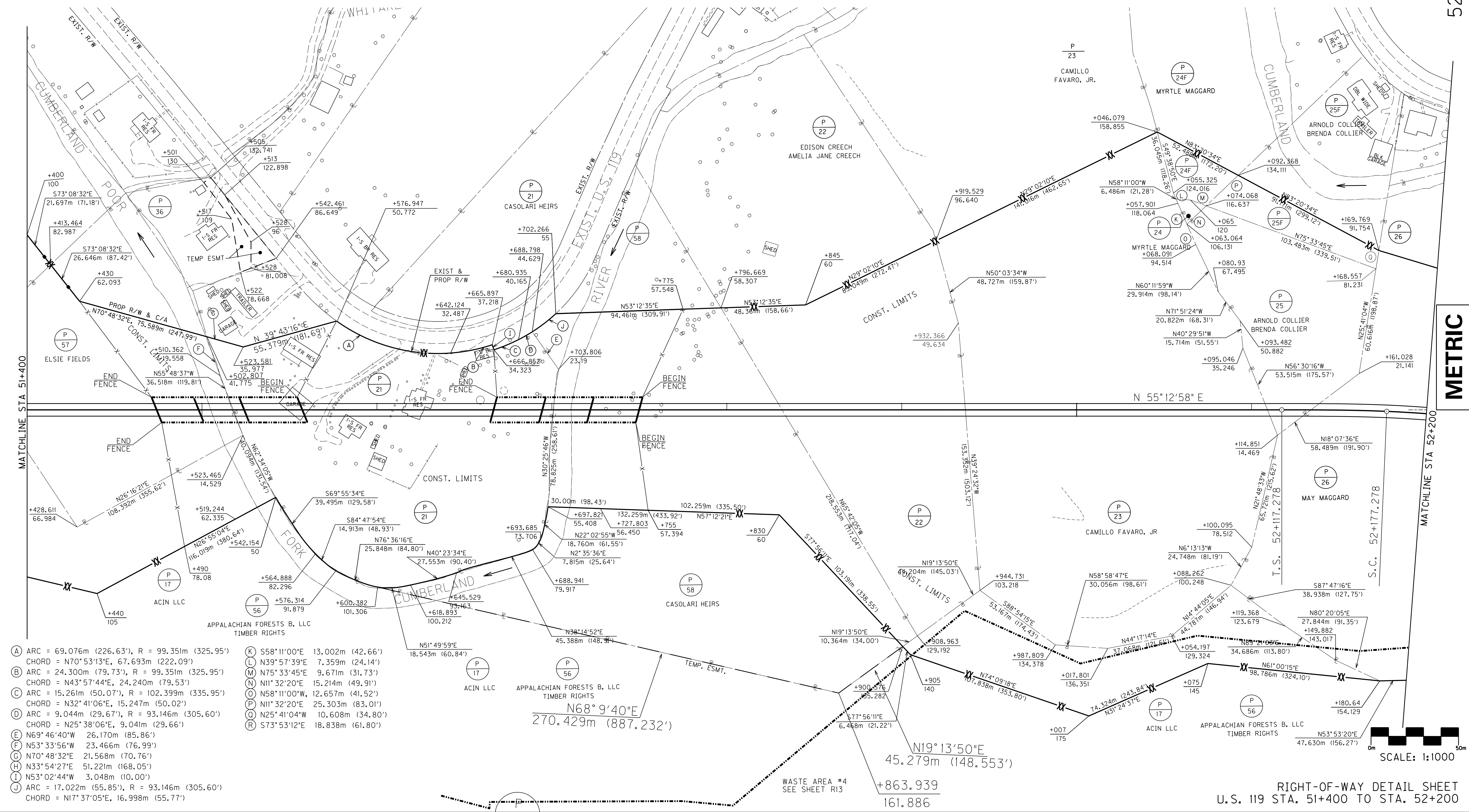
51+800

51+900

52+000

52+100

52+200



- (A) ARC = 69.076m (226.63'), R = 99.351m (325.95')  
CHORD = N70°53'13"E, 67.693m (222.09')
- (B) ARC = 24.300m (79.73'), R = 99.351m (325.95')  
CHORD = N43°57'44"E, 24.240m (79.53')
- (C) ARC = 15.261m (50.07'), R = 102.399m (335.95')  
CHORD = N32°41'06"E, 15.247m (50.02')
- (D) ARC = 9.044m (29.67'), R = 93.146m (305.60')  
CHORD = N25°38'06"E, 9.041m (29.66')
- (E) N69°46'40"W 26.170m (85.86')
- (F) N53°33'56"W 23.466m (76.99')
- (G) N70°48'32"E 21.568m (70.76')
- (H) N33°54'27"E 51.221m (168.05')
- (I) N53°02'44"W 3.048m (10.00')
- (J) ARC = 17.022m (55.85'), R = 93.146m (305.60')  
CHORD = N17°37'05"E, 16.998m (55.77')
- (K) S58°11'00"E 13.002m (42.66')
- (L) N39°57'39"E 7.359m (24.14')
- (M) N75°33'45"E 9.671m (31.73')
- (N) N11°32'20"E 15.214m (49.91')
- (O) N58°11'00"W 12.657m (41.52')
- (P) N11°32'20"E 25.303m (83.01')
- (Q) N25°41'04"W 10.608m (34.80')
- (R) S73°53'12"E 18.838m (61.80')

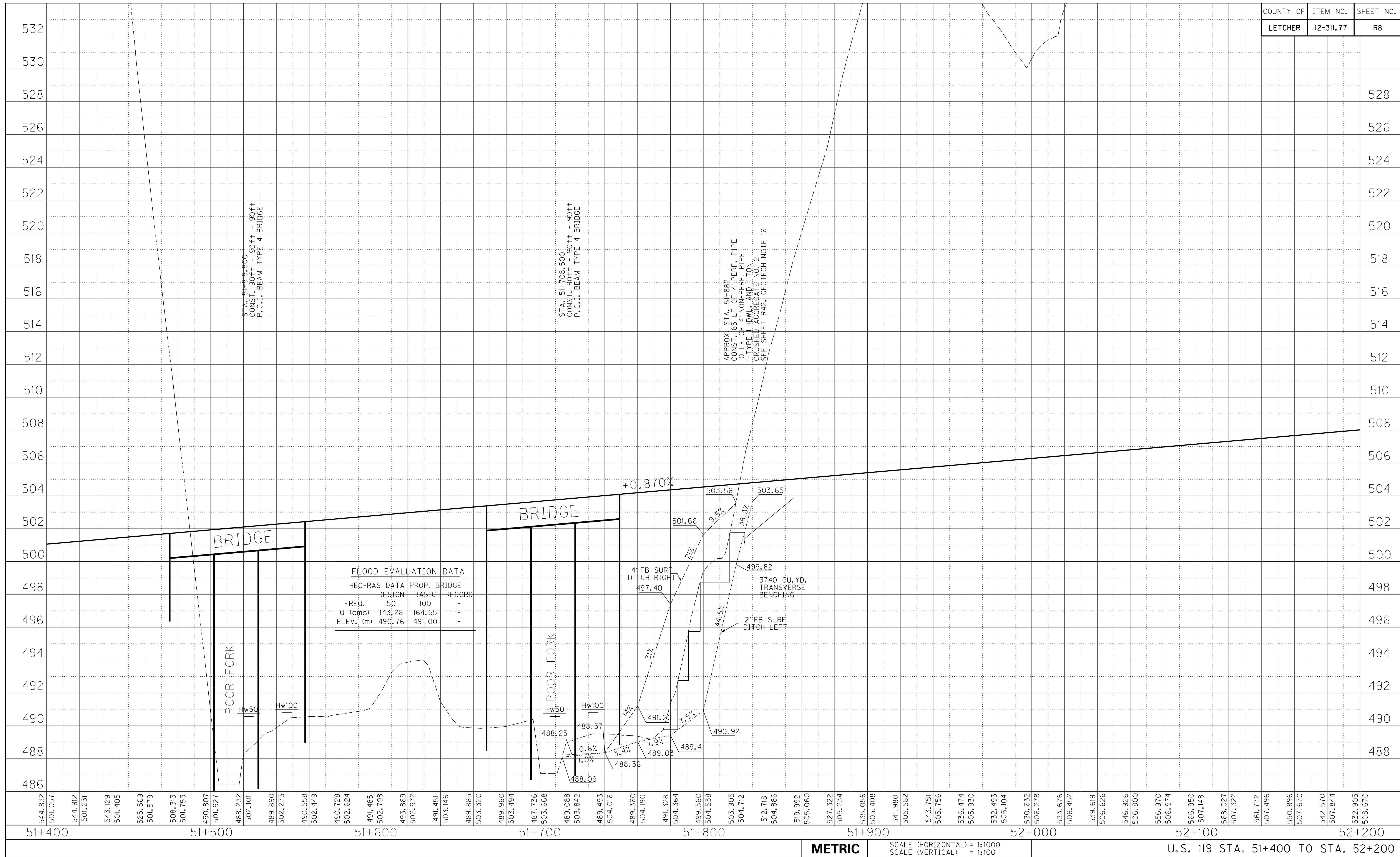


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PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_





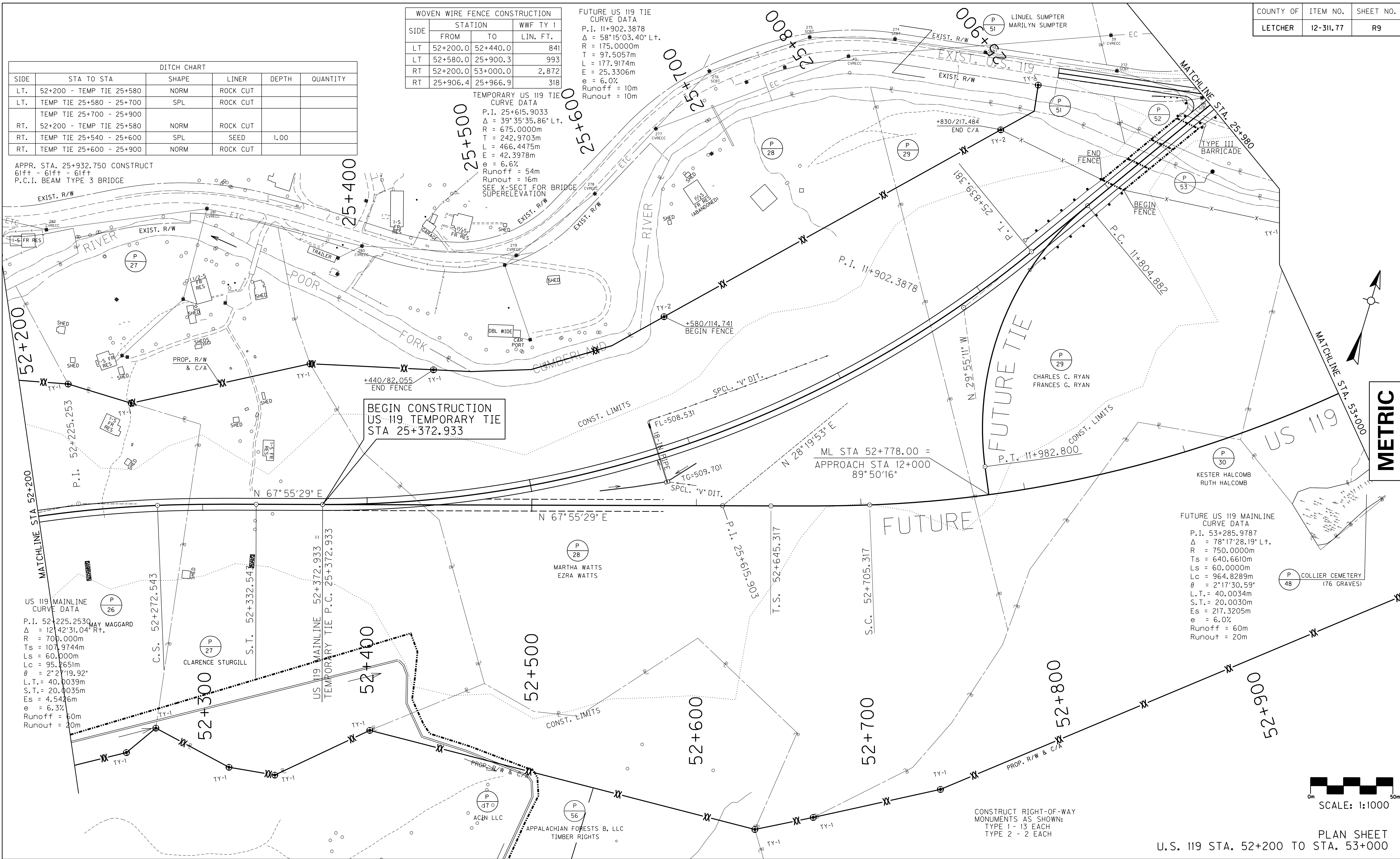
| DITCH CHART |                          |       |          |       |          |
|-------------|--------------------------|-------|----------|-------|----------|
| SIDE        | STA TO STA               | SHAPE | LINER    | DEPTH | QUANTITY |
| LT.         | 52+200 - TEMP TIE 25+580 | NORM  | ROCK CUT |       |          |
| LT.         | TEMP TIE 25+580 - 25+700 | SPL   | ROCK CUT |       |          |
| RT.         | TEMP TIE 25+700 - 25+900 |       |          |       |          |
| RT.         | 52+200 - TEMP TIE 25+580 | NORM  | ROCK CUT |       |          |
| RT.         | TEMP TIE 25+540 - 25+600 | SPL   | SEED     | 1.00  |          |
| RT.         | TEMP TIE 25+600 - 25+900 | NORM  | ROCK CUT |       |          |

APPR. STA. 25+932.750 CONSTRUCT  
61ft - 61ft - 61ft  
P.C.I. BEAM TYPE 3 BRIDGE

| WOVEN WIRE FENCE CONSTRUCTION |          |          |          |
|-------------------------------|----------|----------|----------|
| SIDE                          | STATION  | WWF TY I |          |
|                               | FROM     | TO       | LIN. FT. |
| LT                            | 52+200.0 | 52+440.0 | 841      |
| LT                            | 52+580.0 | 25+900.3 | 993      |
| RT                            | 52+200.0 | 53+000.0 | 2,872    |
| RT                            | 25+906.4 | 25+966.9 | 318      |

FUTURE US 119 TIE  
CURVE DATA  
P.I. 11+902.3878  
 $\Delta = 58^{\circ}15'03.40''$  L.T.  
R = 175.0000m  
T = 97.5057m  
L = 177.9174m  
E = 25.3306m  
e = 6.0%  
Runoff = 10m  
Runout = 10m

TEMPORARY US 119 TIE  
CURVE DATA  
P.I. 25+615.9033  
 $\Delta = 39^{\circ}35'35.86''$  L.T.  
R = 675.0000m  
T = 242.9703m  
L = 466.4475m  
E = 42.3978m  
e = 6.6%  
Runoff = 54m  
Runout = 16m  
SEE X-SECT FOR BRIDGE  
SUPERELEVATION



METRIC

FUTURE US 119 MAINLINE  
CURVE DATA  
P.I. 53+285.9787  
 $\Delta = 78^{\circ}17'28.19''$  L.T.  
R = 750.0000m  
Ts = 640.6610m  
Ls = 60.0000m  
Lc = 964.8289m  
 $\theta = 2^{\circ}17'30.59''$   
L.T. = 40.0034m  
S.T. = 20.0030m  
Es = 217.3205m  
e = 6.0%  
Runoff = 60m  
Runout = 20m

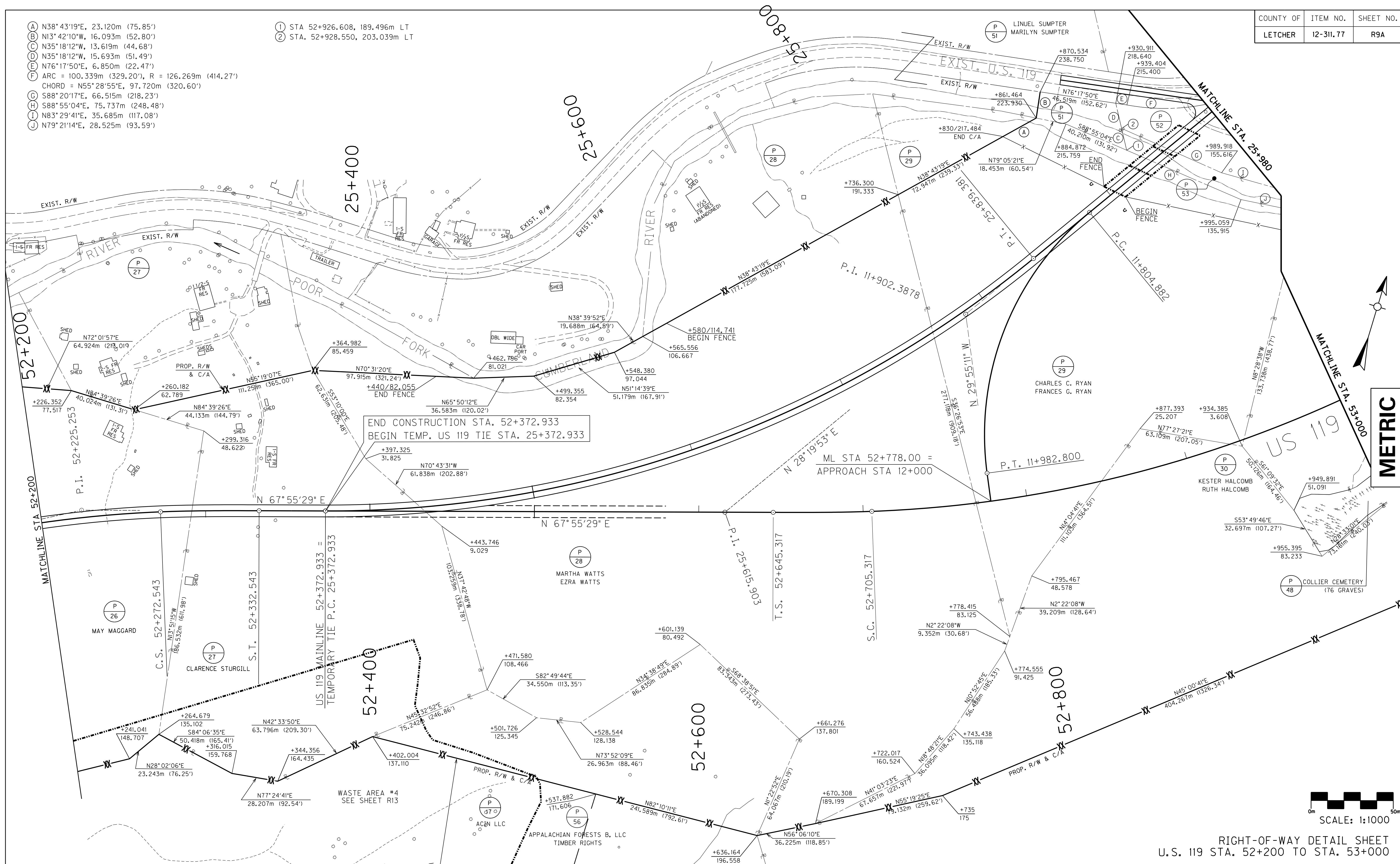
US 119 MAINLINE  
CURVE DATA  
P.I. 52+225.2530  
 $\Delta = 12^{\circ}42'31.04''$  R.T.  
R = 700.0000m  
Ts = 107.9744m  
Ls = 60.0000m  
Lc = 95.2651m  
 $\theta = 2^{\circ}27'19.92''$   
L.T. = 40.0039m  
S.T. = 20.0035m  
Es = 4.5446m  
e = 6.3%  
Runoff = 60m  
Runout = 20m



- (A) N38°43'19"E, 23.120m (75.85')  
(B) N13°42'10"W, 16.093m (52.80')  
(C) N35°18'12"W, 13.619m (44.68')  
(D) N35°18'12"W, 15.693m (51.49')  
(E) N76°17'50"E, 6.850m (22.47')  
(F) ARC = 100.339m (329.20'), R = 126.269m (414.27')  
CHORD = N55°28'55"E, 97.720m (320.60')  
(G) S88°20'17"E, 66.515m (218.23')  
(H) S88°55'04"E, 75.737m (248.48')  
(I) N83°29'41"E, 35.685m (117.08')  
(J) N79°21'14"E, 28.525m (93.59')

- (1) STA 52+926.608, 189.496m LT  
(2) STA. 52+928.550, 203.039m LT

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | R9A       |



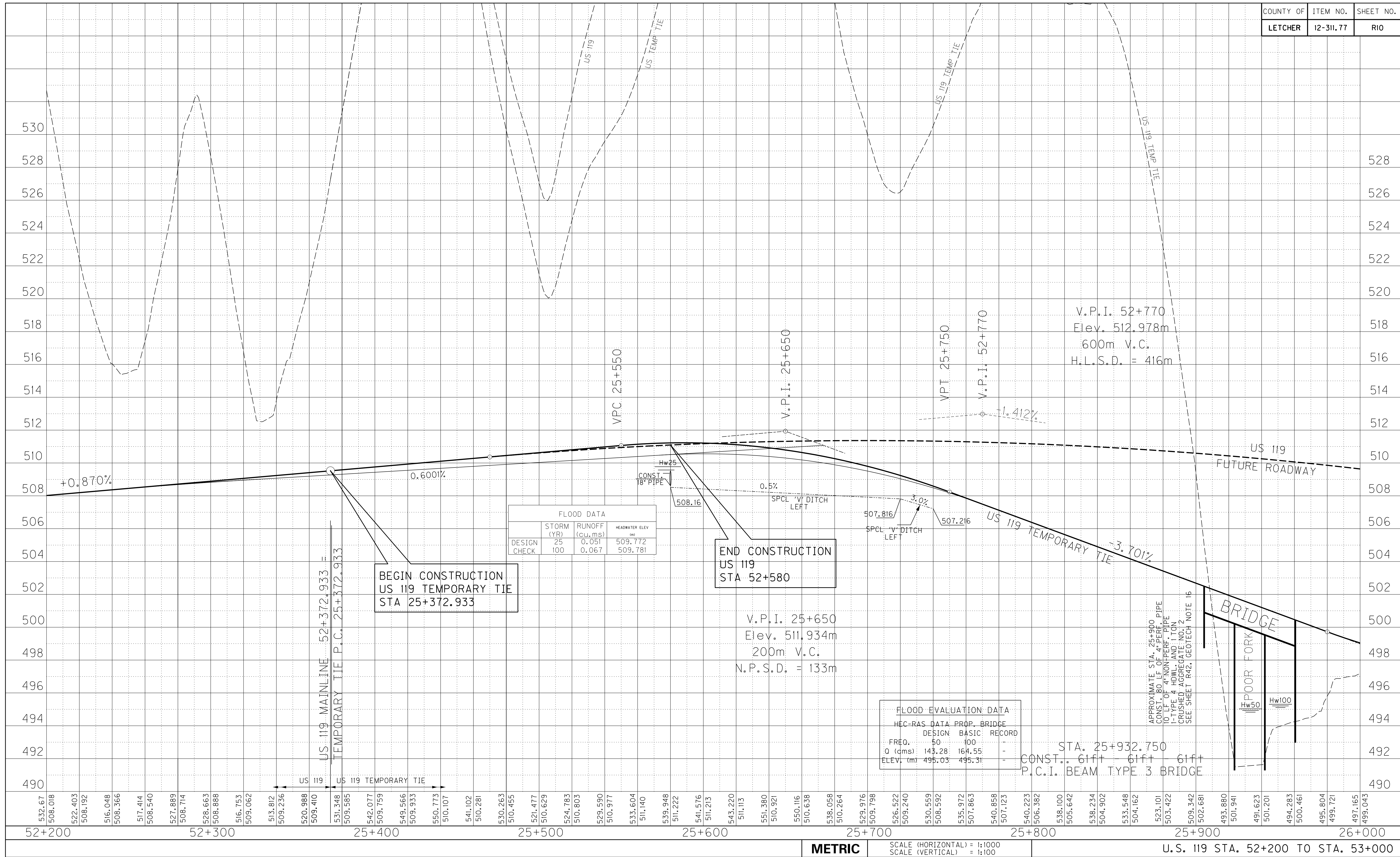
METRIC

SCALE: 1:1000

RIGHT-OF-WAY DETAIL SHEET  
U.S. 119 STA. 52+200 TO STA. 53+000



|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | R10       |

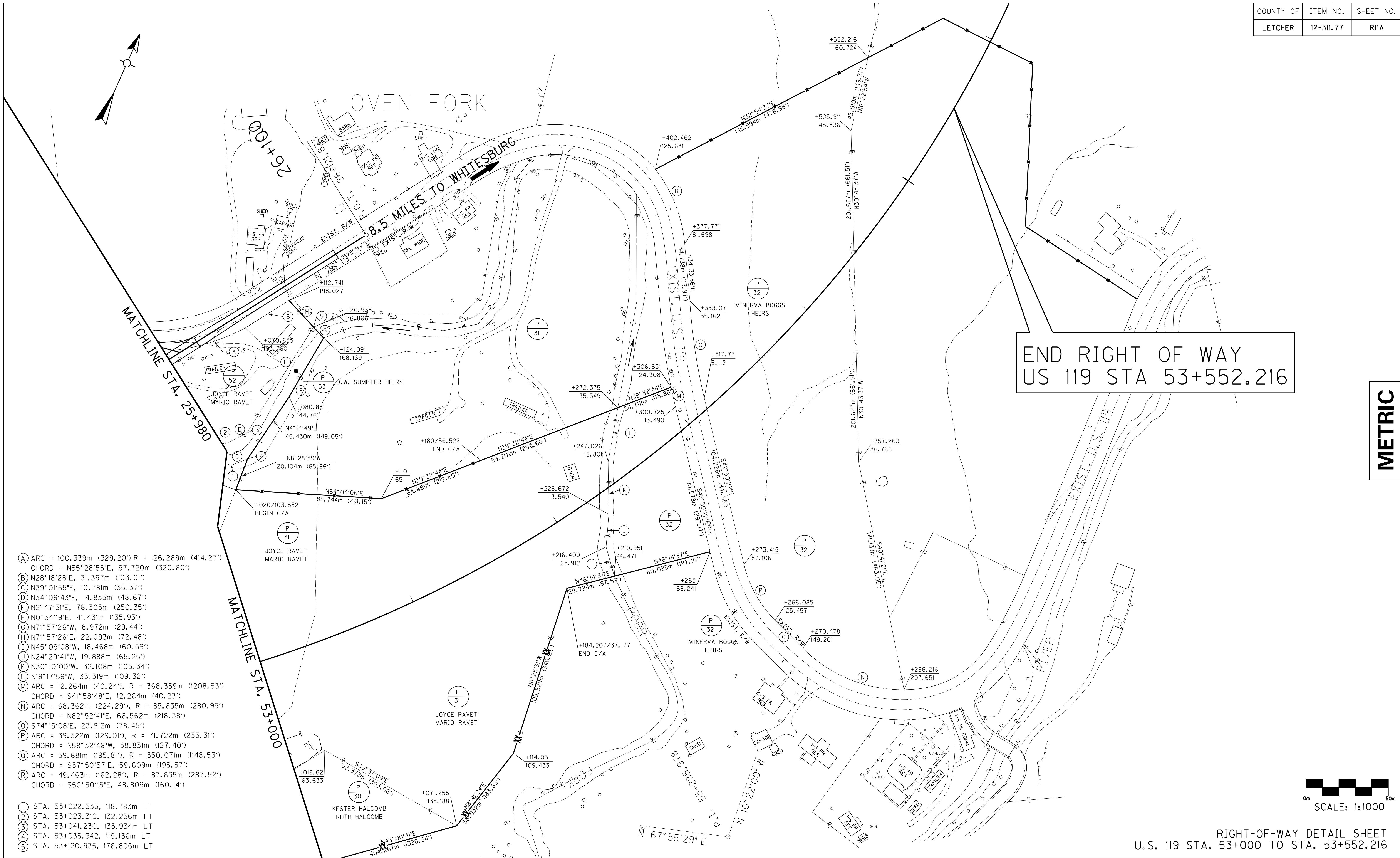








METRIC



- (A) ARC = 100.339m (329.20') R = 126.269m (414.27')  
CHORD = N55°28'55"E, 97.720m (320.60')
- (B) N28°18'28"E, 31.397m (103.01')
- (C) N39°01'55"E, 10.781m (35.37')
- (D) N34°09'43"E, 14.835m (48.67')
- (E) N2°47'51"E, 76.305m (250.35')
- (F) N0°54'19"E, 41.431m (135.93')
- (G) N71°57'26"W, 8.972m (29.44')
- (H) N71°57'26"E, 22.093m (72.48')
- (I) N45°09'08"W, 18.468m (60.59')
- (J) N24°29'41"W, 19.888m (65.25')
- (K) N30°10'00"W, 32.108m (105.34')
- (L) N19°17'59"W, 33.319m (109.32')
- (M) ARC = 12.264m (40.24'), R = 368.359m (1208.53')  
CHORD = S41°58'48"E, 12.264m (40.23')
- (N) ARC = 68.362m (224.29'), R = 85.635m (280.95')  
CHORD = N82°52'41"E, 66.562m (218.38')
- (O) S74°15'08"E, 23.912m (78.45')
- (P) ARC = 39.322m (129.01'), R = 71.722m (235.31')  
CHORD = N58°32'46"W, 38.831m (127.40')
- (Q) ARC = 59.681m (195.81'), R = 350.071m (1148.53')  
CHORD = S37°50'57"E, 59.609m (195.57')
- (R) ARC = 49.463m (162.28'), R = 87.635m (287.52')  
CHORD = S50°50'15"E, 48.809m (160.14')

- (1) STA. 53+022.535, 118.783m LT
- (2) STA. 53+023.310, 132.256m LT
- (3) STA. 53+041.230, 133.934m LT
- (4) STA. 53+035.342, 119.136m LT
- (5) STA. 53+120.935, 176.806m LT

0m 50m  
SCALE: 1:1000

RIGHT-OF-WAY DETAIL SHEET  
U.S. 119 STA. 53+000 TO STA. 53+552.216



PREPARED BY

CHECKED BY

APPROVED BY

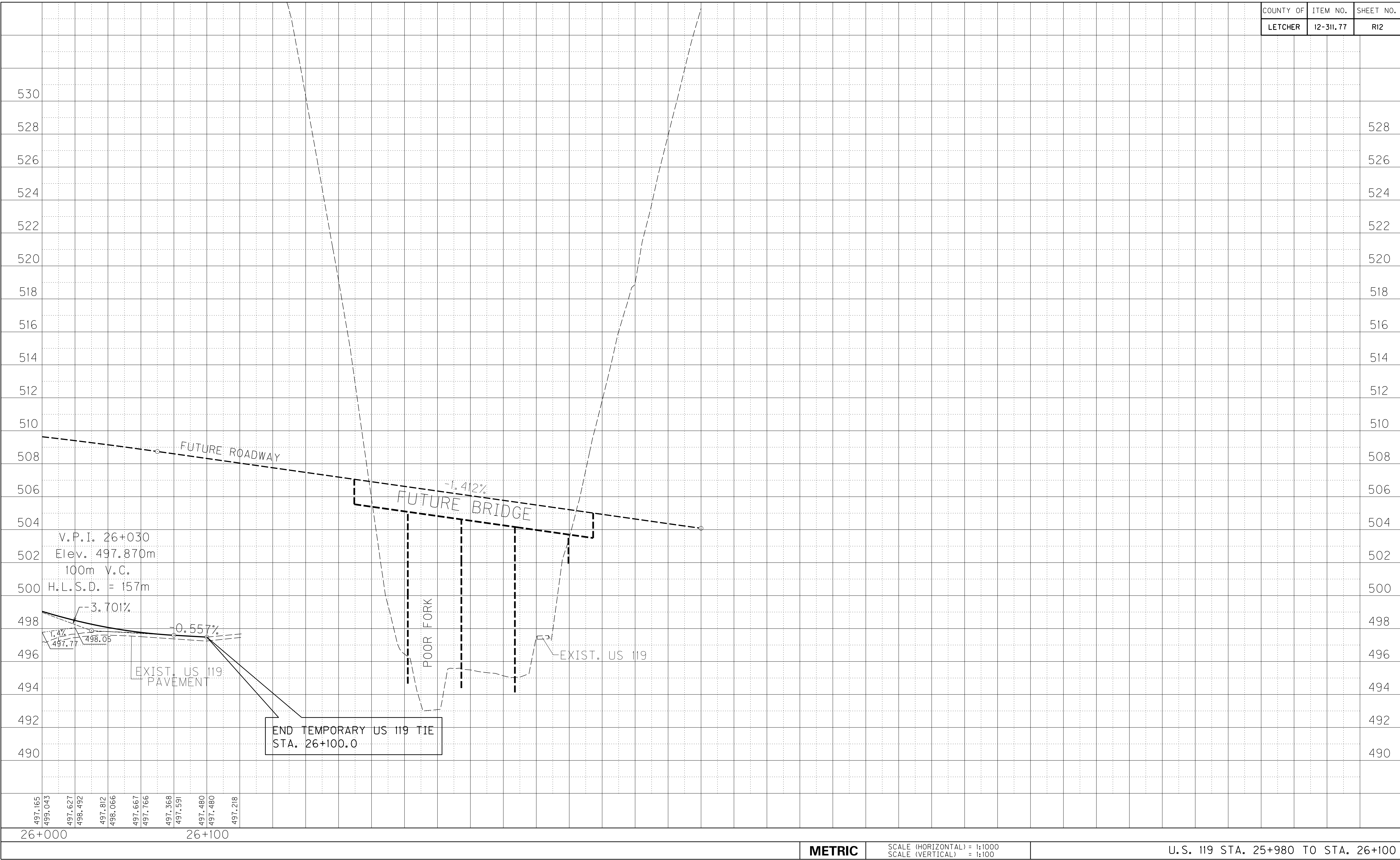
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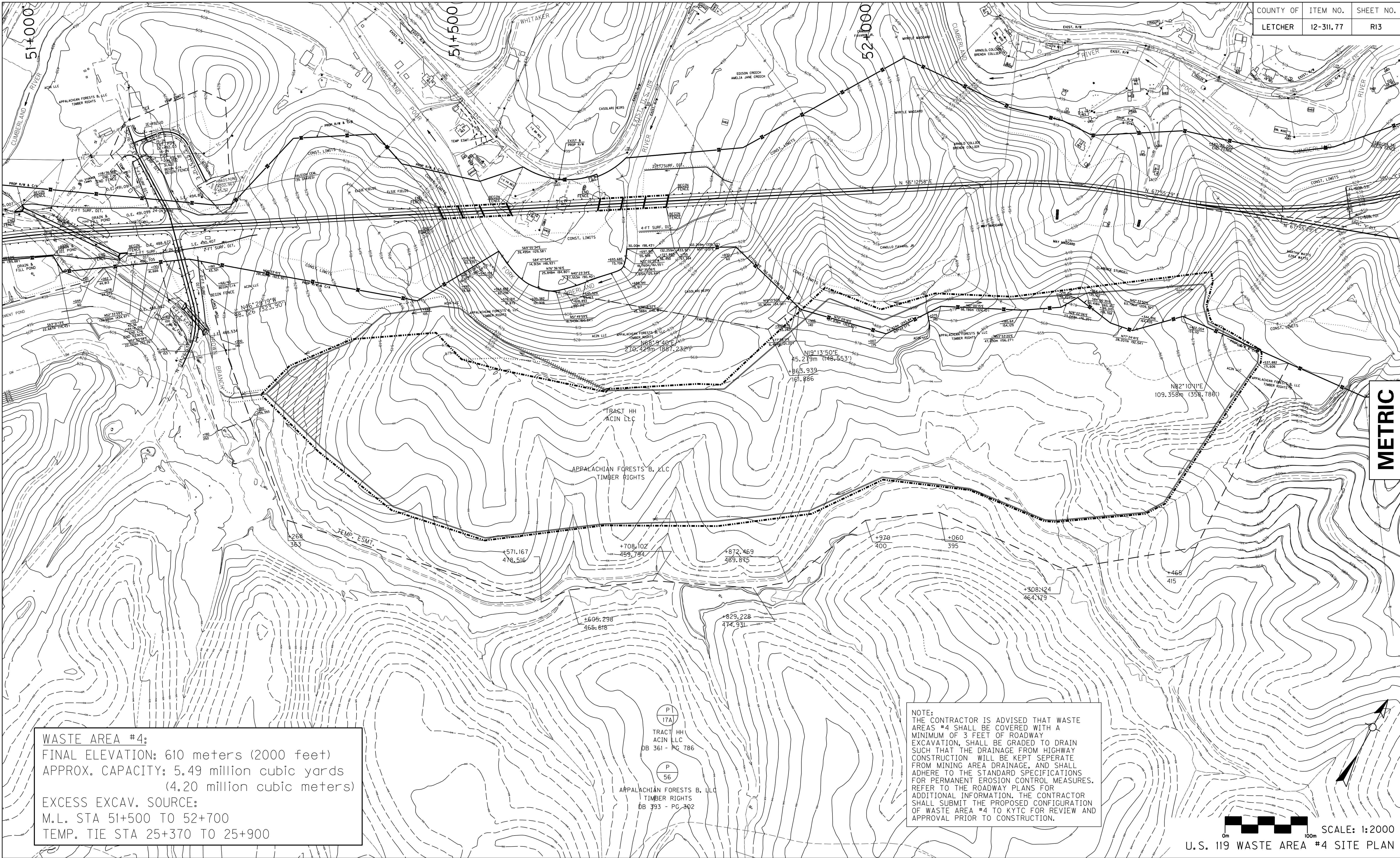
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METRIC

SCALE (HORIZONTAL) = 1:1000  
SCALE (VERTICAL) = 1:100





WASTE AREA #4:  
FINAL ELEVATION: 610 meters (2000 feet)  
APPROX. CAPACITY: 5.49 million cubic yards  
(4.20 million cubic meters)  
EXCESS EXCAV. SOURCE:  
M.L. STA 51+500 TO 52+700  
TEMP. TIE STA 25+370 TO 25+900

NOTE:  
THE CONTRACTOR IS ADVISED THAT WASTE AREAS #4 SHALL BE COVERED WITH A MINIMUM OF 3 FEET OF ROADWAY EXCAVATION, SHALL BE GRADED TO DRAIN SUCH THAT THE DRAINAGE FROM HIGHWAY CONSTRUCTION WILL BE KEPT SEPERATE FROM MINING AREA DRAINAGE, AND SHALL ADHERE TO THE STANDARD SPECIFICATIONS FOR PERMANENT EROSION CONTROL MEASURES. REFER TO THE ROADWAY PLANS FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL SUBMIT THE PROPOSED CONFIGURATION OF WASTE AREA #4 TO KYTC FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.



|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311-77 | R14       |

| PARCEL NO. | NAME                                       | TOTAL AREA OF TRACT | PERMANENT R/W ACQUIRED | EASEMENTS |            | AREA SEVERED |       | EXCESS PURCHASED | PORTION REMAINING | SEWER SYSTEM | SEWER SYSTEM AFFECTED BY PROJECT |         | BUILDINGS ACQUIRED NUMBER |    |   |   | HAZARDOUS WASTE                                                       | REMARKS |   |   |
|------------|--------------------------------------------|---------------------|------------------------|-----------|------------|--------------|-------|------------------|-------------------|--------------|----------------------------------|---------|---------------------------|----|---|---|-----------------------------------------------------------------------|---------|---|---|
|            |                                            | HECTARE             | HECTARE                | PERMANENT | TEMPORARY  | LEFT         | RIGHT |                  |                   |              | HECTARE                          | HECTARE | YES                       | NO | C | R |                                                                       |         | F | S |
|            |                                            | ① ACRE              | ACRE                   | sq ft     | sq ft      | ACRE         | ACRE  |                  |                   |              | ACRE                             | ACRE    | TYPE                      |    |   |   |                                                                       |         |   |   |
| 17         | ACIN LLC                                   | 6372                | 93.676                 | 8,126     | 1,662,085  |              |       |                  | 6,278             | 5            |                                  |         |                           |    |   |   | DB 361 PG 786<br>Refer to Sheets 35A-35C for Individual Tract Details |         |   |   |
|            |                                            | 15746               | 231.481                | 87,463    | 17,890,528 |              |       |                  | 15,515            |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 18         | CENTRAL HYDRAULICS MACHINE & MANUFACTURING | 2.18                | 2.18                   |           |            | TOTAL TAKE   |       |                  |                   | 1            |                                  | X       | 1                         | 1  |   | 2 | DB 348, PG 321<br>Area also includes parcel 18X                       |         |   |   |
|            |                                            | 5.394               | 5.394                  |           |            |              |       |                  |                   |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 19         | SEE SHEET 32A                              |                     |                        |           |            |              |       |                  |                   |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
|            |                                            |                     |                        |           |            |              |       |                  |                   |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
|            |                                            |                     |                        |           |            |              |       |                  |                   |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 20         | YVONNE BOGGS CLARK                         | 0.40                | 0.090                  |           |            | 0.31         |       |                  | 0.31              | 1            |                                  | X       |                           |    |   |   | DB 299, PG 30                                                         |         |   |   |
|            |                                            | 1.00                | 0.223                  |           |            | 0.78         |       |                  | 0.78              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 21         | CASOLARI HEIRS                             | 3.33                | 2.178                  |           |            | 0.909        | 0.243 |                  | 1.152             | 1            | X                                |         |                           | 5  |   | 8 | DB 313, PG 145                                                        |         |   |   |
|            |                                            | 8.22                | 5.382                  |           |            | 2.237        | 0.601 |                  | 2.838             |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 22         | EDISON CREECH<br>AMELIA JANE CREECH        | 3.39                | 1.744                  |           |            | 1.65         |       |                  | 1.65              | 1            |                                  | X       |                           |    |   |   | DB 202, PG 254<br>DB 202, PG 257                                      |         |   |   |
|            |                                            | 8.38                | 4.310                  |           |            | 4.07         |       |                  | 4.07              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 23         | CAMILLO FAVARO, JR.                        | 6.76                | 3.999                  |           |            | 2.76         |       |                  | 2.76              | 4            |                                  |         |                           |    |   |   | DB 108, PG 54<br>DB 151, PG 71                                        |         |   |   |
|            |                                            | 16.71               | 9.882                  |           |            | 6.83         |       |                  | 6.83              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 24         | MYRTLE MAGGARD                             | 1.57                | 0.011                  |           |            | 1.56         |       |                  | 1.56              | 1            |                                  | X       |                           |    |   |   | WB 16, PG 100                                                         |         |   |   |
|            |                                            | 3.88                | 0.028                  |           |            | 3.85         |       |                  | 3.85              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 24F        | MYRTLE MAGGARD                             | 1.56                | 0.095                  |           |            | 1.47         |       |                  | 1.47              | 1            |                                  | X       |                           |    |   |   | WB 16, PG 100                                                         |         |   |   |
|            |                                            | 3.85                | 0.235                  |           |            | 3.62         |       |                  | 3.62              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 25         | ARNOLD COLLIER<br>BRENDA COLLIER (WF)      | 1.47                | 0.760                  |           |            | 0.71         |       |                  | 0.71              | 1            |                                  | X       |                           |    |   |   | DB 189, PG 383<br>DB 258, PG 609                                      |         |   |   |
|            |                                            | 3.63                | 1.877                  |           |            | 1.75         |       |                  | 1.75              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 25F        | ARNOLD COLLIER<br>BRENDA COLLIER (WF)      | 0.71                | 0.163                  |           |            | 0.55         |       |                  | 0.55              | 1            |                                  | X       |                           |    |   |   | DB 189, PG 383<br>DB 258, PG 609                                      |         |   |   |
|            |                                            | 1.75                | 0.404                  |           |            | 1.35         |       |                  | 1.35              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 26         | MAY MAGGARD                                | 3.57                | 3.314                  |           |            | 0.26         |       |                  | 0.26              | 1            |                                  | X       |                           |    |   |   | DB 150, PG 159                                                        |         |   |   |
|            |                                            | 8.81                | 8.188                  |           |            | 0.62         |       |                  | 0.62              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 27         | CLARENCE STURGILL                          | 4.82                | 3.360                  |           |            | 1.46         |       |                  | 1.46              | 1            | X                                |         |                           | 1  |   | 4 | DB 197, PG 66                                                         |         |   |   |
|            |                                            | 11.92               | 8.302                  |           |            | 3.62         |       |                  | 3.62              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 28         | MARTHA WATTS<br>EZRA WATTS                 | 10.08               | 8.498                  |           |            | 1.58         |       |                  | 1.58              | 1            |                                  | X       |                           |    |   |   | DB 184, PG 77<br>DB 186, PG 486                                       |         |   |   |
|            |                                            | 24.90               | 20.998                 |           |            | 3.90         |       |                  | 3.90              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 29         | CHARLES C. RYAN<br>FRANCES G. RYAN         | 4.45                | 4.150                  |           |            | 0.30         |       |                  | 0.30              | 1            |                                  | X       |                           |    |   |   | DB 281, PG 578                                                        |         |   |   |
|            |                                            | 10.99               | 10.255                 |           |            | 0.74         |       |                  | 0.74              |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |
| 30         | KESTER HALCOMB<br>RUTH HALCOMB (WF)        | 23.56               | 3.436                  |           |            |              | 20.12 |                  | 20.12             | 1            |                                  | X       |                           |    |   |   | DB 287, PG 277<br>DB 173, PG 497                                      |         |   |   |
|            |                                            | 58.22               | 8.489                  |           |            |              | 49.73 |                  | 49.73             |              |                                  |         |                           |    |   |   |                                                                       |         |   |   |

METRIC

① ALL AREAS CALCULATED UNLESS NOTED BY "\*".  
THIS AREA IS FROM THE DEED.

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ACCESS HIGHWAY. ACCESS SHALL BE PROVIDED  
ONLY WHERE SPECIFICALLY INDICATED ON PLANS.

HAZARDOUS WASTE  
UST - UNDERGROUND STORAGE TANK

RIGHT OF WAY SUMMARY



PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

\$\$\$PRF\$\$\$  
\$\$\$TIME\$\$\$

RIGHT OF WAY SUMMARY

|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | R15       |

| PARCEL NO. | NAME                                       | TOTAL AREA OF TRACT | PERMANENT R/W ACQUIRED | EASEMENTS |           | AREA SEVERED |         | EXCESS PURCHASED | PORTION REMAINING | SEWER SYSTEM | SEWER SYSTEM AFFECTED BY PROJECT | BUILDINGS ACQUIRED NUMBER |         |   |   |   |   | HAZARDOUS WASTE | REMARKS                                                                                |
|------------|--------------------------------------------|---------------------|------------------------|-----------|-----------|--------------|---------|------------------|-------------------|--------------|----------------------------------|---------------------------|---------|---|---|---|---|-----------------|----------------------------------------------------------------------------------------|
|            |                                            | HECTARE             | HECTARE                | PERMANENT | TEMPORARY | LEFT         | RIGHT   |                  |                   |              |                                  | HECTARE                   | HECTARE |   |   |   |   |                 |                                                                                        |
|            |                                            | ① ACRE              | ACRE                   | sq m      | sq m      | HECTARE      | HECTARE |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        | sq ft     | sq ft     | ACRE         | ACRE    | ACRE             | ACRE              | TYPE         | YES                              | NO                        | C       | R | F | S |   |                 |                                                                                        |
| 31         | MARIO RAVET<br>JOYCE RAVET                 | 6.84                | 4.302                  |           |           | 2.54         |         |                  | 2.54              | 1            |                                  | X                         |         |   |   |   | 1 |                 | DB 267, PG 448                                                                         |
|            |                                            | 16.90               | 10.631                 |           |           | 6.27         |         |                  | 6.27              |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 32         | MINERVA BOGGS<br>HEIRS                     | 10.12               | 3.664                  |           |           | 3.91         | 2.55    |                  | 6.46              | 2            | X                                |                           |         |   |   |   |   |                 | DB 177, PG 155<br>DB 177, PG 160<br>DB 177, PG 163<br>DB 177, PG 167<br>DB 179, PG 109 |
|            |                                            | 25.00•              | 9.054                  |           |           | 9.66         | 6.31    |                  | 15.95             |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 33         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 34         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 35         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 36         | LAWRENCE J. CASOLARI, JR.<br>JUNE CASOLARI | 0.30                |                        |           | 563       |              |         |                  | 0.30              | 1            |                                  | X                         |         |   |   |   |   |                 | DB 381, PG 558                                                                         |
|            |                                            | 0.74                |                        |           | 6,060     |              |         |                  | 0.74              |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 37         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 38         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 39         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 40         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 41         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 42         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 43         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 44         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 45         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
| 46         | NOT USED                                   |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |
|            |                                            |                     |                        |           |           |              |         |                  |                   |              |                                  |                           |         |   |   |   |   |                 |                                                                                        |

NOTE: PERMANENT R/W ACQUIRED + PERMANENT EASEMENT  
+ AREA SEVERED = TOTAL AREA OF TRACT.

① ALL AREAS CALCULATED UNLESS NOTED BY "\*".  
THIS AREA IS FROM THE DEED.

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TYPE SEWER SYSTEM  
1. PRIVATE - INDIVIDUAL  
2. PRIVATE - MULTI PARTY  
3. PUBLIC  
4. NONE  
5. NOT APPLICABLE

BUILDINGS ACQUIRED CODE  
C - COMMERICAL  
R - RESIDENTIAL  
F - FARM  
S - STORAGE

HAZARDOUS WASTE  
UST - UNDERGROUND STORAGE TANK



PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

RIGHT OF WAY SUMMARY

|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311-77 | R16       |

| PARCEL NO. | NAME                                        | TOTAL AREA OF TRACT | PERMANENT R/W ACQUIRED | EASEMENTS |            | AREA SEVERED |         | EXCESS PURCHASED | PORTION REMAINING | SEWER SYSTEM | SEWER SYSTEM AFFECTED BY PROJECT |         | BUILDINGS ACQUIRED NUMBER |    |   |   | HAZARDOUS WASTE | REMARKS                                                              |   |   |
|------------|---------------------------------------------|---------------------|------------------------|-----------|------------|--------------|---------|------------------|-------------------|--------------|----------------------------------|---------|---------------------------|----|---|---|-----------------|----------------------------------------------------------------------|---|---|
|            |                                             | HECTARE             | HECTARE                | PERMANENT | TEMPORARY  | LEFT         | RIGHT   |                  |                   |              | HECTARE                          | HECTARE | YES                       | NO | C | R |                 |                                                                      | F | S |
|            |                                             | ① ACRE              | ACRE                   | sq m      | sq m       | HECTARE      | HECTARE |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 47         | BERRY CEMETERY                              | FOR GRAVE LOCATION  | PURPOSES ONLY          |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 | PART OF PARCEL 17                                                    |   |   |
|            |                                             |                     |                        |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
|            |                                             |                     |                        |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 48         | COLLIER CEMETERY                            | FOR GRAVE LOCATION  | PURPOSES ONLY          |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 | PART OF PARCEL 31                                                    |   |   |
|            |                                             |                     |                        |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 49         | RALEIGH CEMETERY                            | 0.15                | 0.013                  |           | 135        | 0.14         |         |                  | 0.14              | 5            |                                  |         |                           |    |   |   |                 | DB 163, PG 331<br>WB 24, PG 61 (HARLAN CO.)                          |   |   |
|            |                                             | 0.38                | 0.033                  |           | 1,451      | 0.35         |         |                  | 0.35              |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 50         | NOT USED                                    |                     |                        |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
|            |                                             |                     |                        |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 51         | LINUEL SUMPTER<br>MARILYN SUMPTER           | 4.95                | 0.102                  |           |            | 4.85         |         |                  | 4.85              | 4            |                                  | X       |                           |    |   |   |                 | DB 274, PG 164                                                       |   |   |
|            |                                             | 12.23 *             | 0.252                  |           |            | 11.98        |         |                  | 11.98             |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 52         | MARIO RAVET<br>JOYCE RAVET                  | 0.579               | 0.579                  |           |            |              |         |                  | TOTAL TAKING      | 1            | X                                |         | 1                         |    |   |   |                 | DB 267, PG 479<br>*Alford Gross - Tenant                             |   |   |
|            |                                             | 1.432               | 1.432                  |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 53         | D.W. SUMPTER HEIRS                          | 0.38                | 0.208                  |           |            | 0.17         |         |                  | 0.17              | 5            |                                  | X       |                           |    |   |   |                 | DB 79, PG 179<br>DB 245, PG 183 (AOD)                                |   |   |
|            |                                             | 0.94                | 0.513                  |           |            | 0.43         |         |                  | 0.43              |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 54         | BLACK MOUNTAIN RESOURCES                    | 14.003              | 4.441                  |           |            | 9.562        |         |                  | 9.562             | 4            |                                  |         |                           |    |   |   |                 | LEASEE OF SURFACE &<br>MINERAL RIGHTS FROM<br>PARCEL 17, ACIN LLC    |   |   |
|            |                                             | 34.602              | 10.973                 |           |            | 23.629       |         |                  | 23.629            |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 55         | ETHEL HALCOMB                               | 0.117               | 0.117                  |           |            |              |         |                  |                   | 1            | X                                |         | 1                         |    | 1 |   |                 | DB 317, PG 176                                                       |   |   |
|            |                                             | 0.289               | 0.289                  |           |            |              |         |                  | TOTAL TAKING      |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 56         | APPALACHIAN FORESTS B, LLC                  | 6373                | 94.081                 | 8,126     | 1,662,085  |              |         |                  | 6,279             | 5            |                                  |         |                           |    |   |   |                 | OWNER OF TIMBER RIGHTS<br>FROM PARCEL 17, ACIN LLC<br>DB 393, PG 302 |   |   |
|            |                                             | 15748               | 232.482                | 87,463    | 17,890,528 |              |         |                  | 15,516            |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 57         | ELSIE FIELDS                                | 1.681               | 1.322                  |           |            |              |         |                  | 0.359             |              |                                  |         |                           |    |   |   |                 | DB 185, PG 73                                                        |   |   |
|            |                                             | 4.153               | 3.267                  |           |            |              |         |                  | 0.886             |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 58         | Mike Casolari<br>Anna Mae Casolari Heirs    | 3.754               | 1.712                  |           |            | 0.366        | 1.675   |                  | 2.042             |              |                                  |         |                           |    |   |   |                 | DB 108, PG 68<br>AOD DB 178 PG 30<br>AOD DB 288 PG 355               |   |   |
|            |                                             | 9.277               | 4.232                  |           |            | 0.905        | 4.140   |                  | 5.045             |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 59         | PAT SURBER                                  | 0.643               | 0.048                  |           |            |              |         |                  | 0.595             |              |                                  |         |                           |    |   |   |                 | DB 349 PG 212                                                        |   |   |
|            |                                             | 1.59                | 0.12                   |           |            |              |         |                  | 1.47              |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 60         | ROBERTA BLEDSOE                             | 1.684               | 0.150                  |           |            |              |         |                  | 1.534             |              |                                  |         |                           |    |   |   |                 | DB 207 PG 393                                                        |   |   |
|            |                                             | 4.16                | 0.37                   |           |            |              |         |                  | 3.79              |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 61         | CHESAPEAKE ENERGY<br>CORPORATION (GAS WELL) |                     |                        |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 | WELL 824040<br>(PLUGGED 11/8/2012)                                   |   |   |
|            |                                             |                     |                        |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
|            |                                             |                     |                        |           |            |              |         |                  |                   |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |
| 62         | CONNIE MAGGARD (WIDOW)                      | 0.152               |                        |           | 242        |              |         |                  | 0.152             | 1            |                                  | X       |                           |    |   |   |                 | DB 409 PG 678                                                        |   |   |
|            |                                             | 0.377               |                        |           | 2609       |              |         |                  | 0.377             |              |                                  |         |                           |    |   |   |                 |                                                                      |   |   |

METRIC

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S - STORAGE

HAZARDOUS WASTE  
UST - UNDERGROUND STORAGE TANK







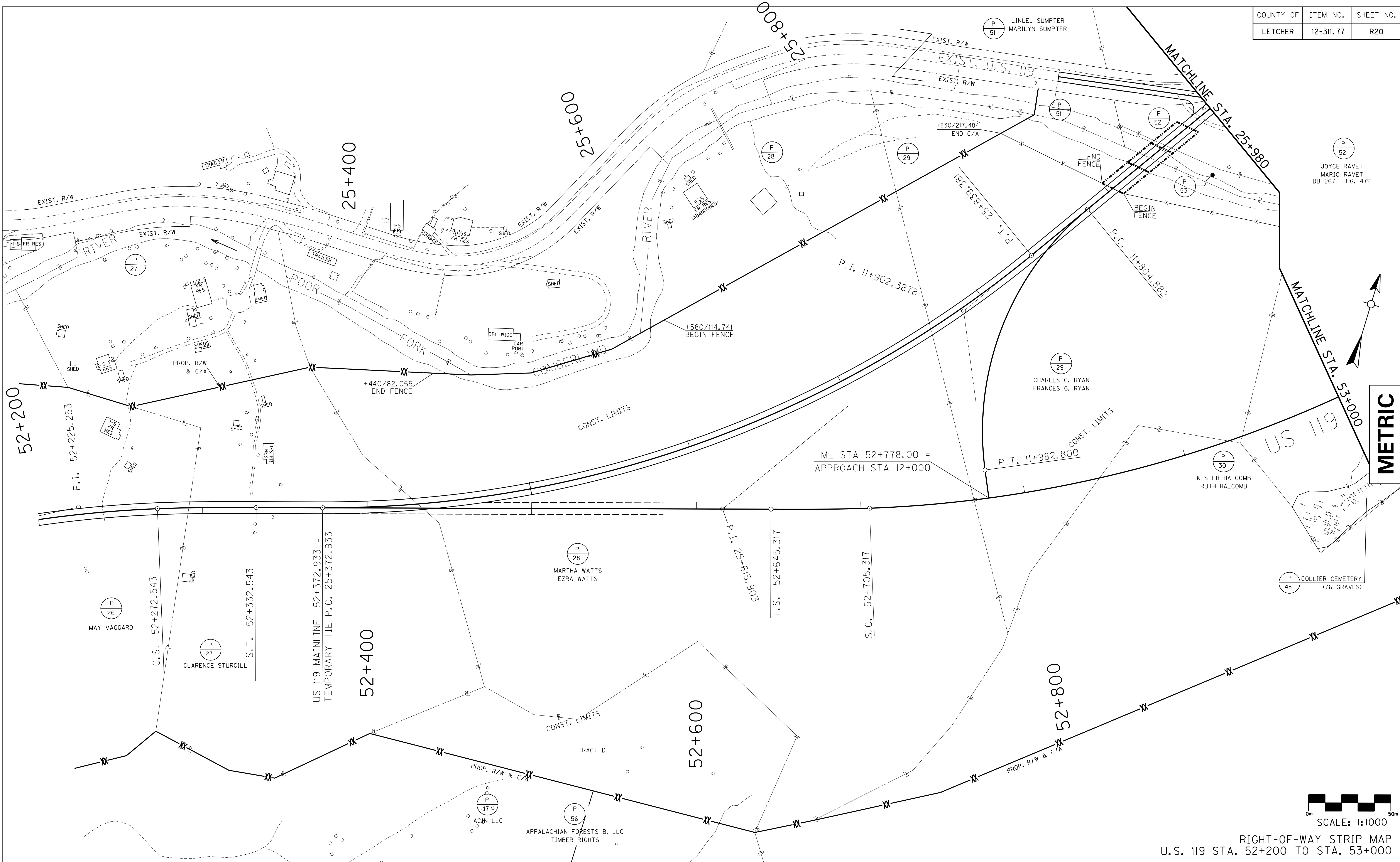








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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | R20       |



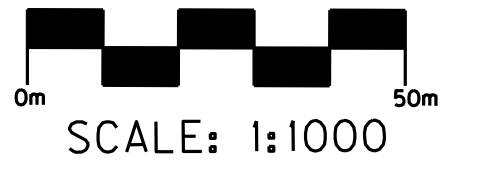
RIGHT-OF-WAY STRIP MAP  
U.S. 119 STA. 52+200 TO STA. 53+000



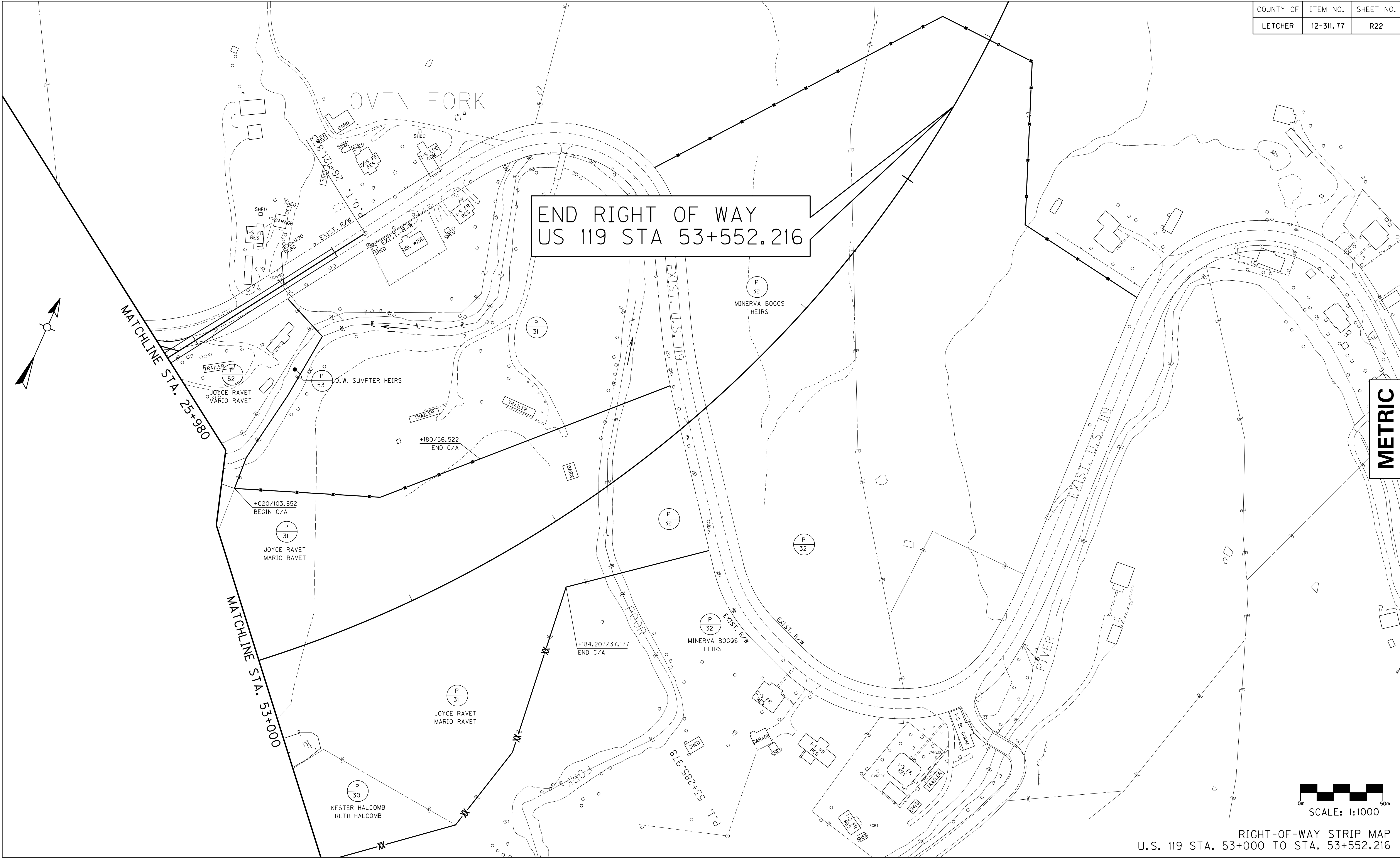
| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | R22       |

END RIGHT OF WAY  
US 119 STA 53+552.216

METRIC

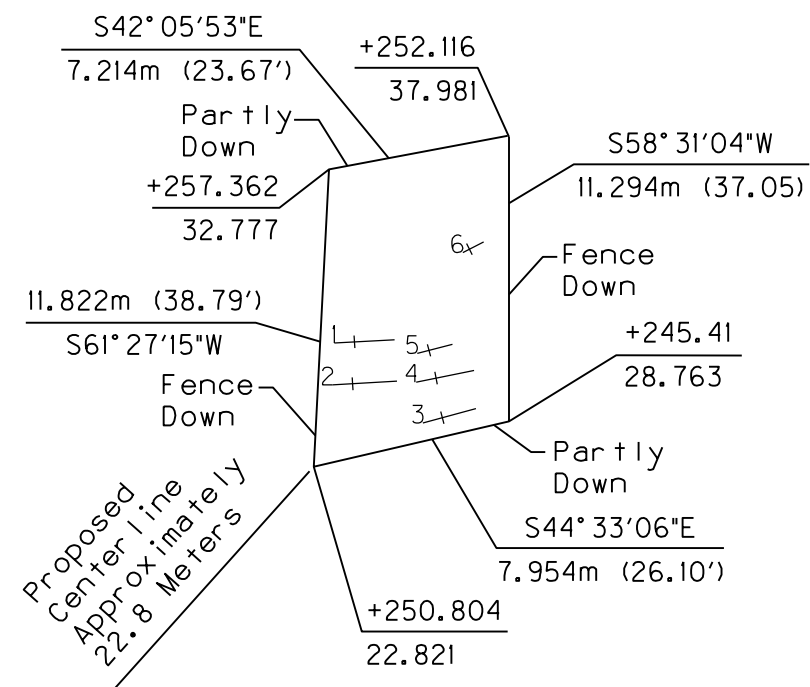
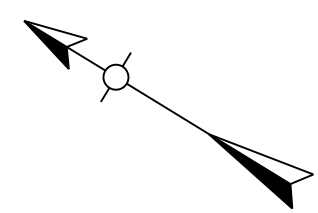


RIGHT-OF-WAY STRIP MAP  
U.S. 119 STA. 53+000 TO STA. 53+552.216



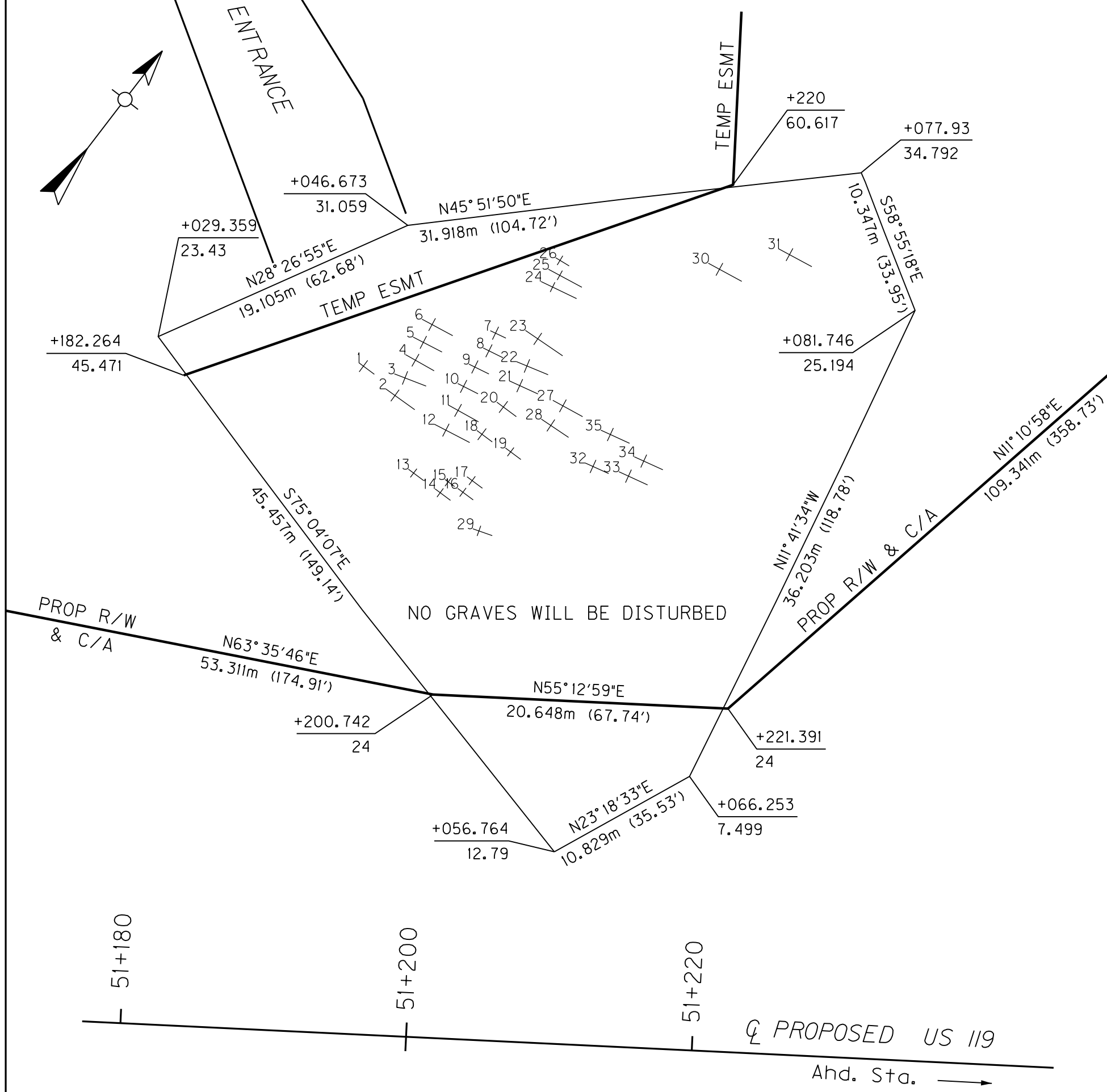
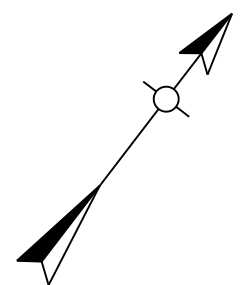


PLAT OF BERRY CEMETERY  
RIGHT OF STATION 46+250  
RIGHT-OF-WAY PLANS PARCEL #47  
SCALE 1:300



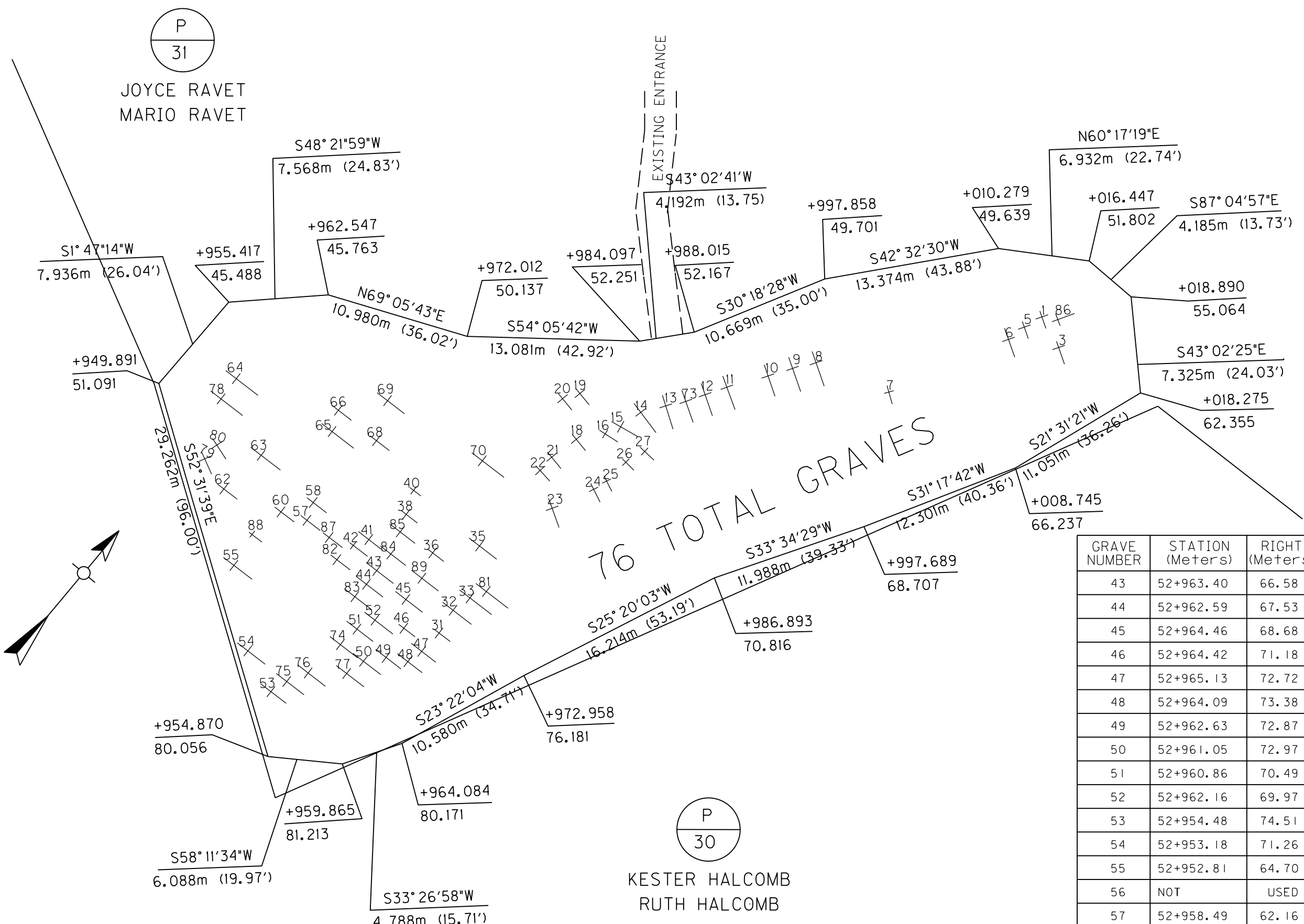
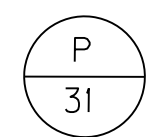
| GRAVE NUMBER | STATION (Meters) | RIGHT (Meters) | NAME (Headstone)                                     |
|--------------|------------------|----------------|------------------------------------------------------|
| 1            | 46+253.04        | 27.30          | Charlotte Maggard August 16, 1862 - March 27, 1950   |
| 2            | 46+252.11        | 25.90          | James Maggard September 26, 1852 - November 29, 1938 |
| 3            | 46+248.22        | 26.74          | Set Field Stone                                      |
| 4            | 46+249.40        | 27.92          | Father James Berry May 30, 1899 - June 18, 1932      |
| 5            | 46+250.04        | 28.87          | Rough Cut Stone No Name Or Date (U.S.) On Footstone  |
| 6            | 46+250.91        | 33.18          | Set Field Stone                                      |

PLAT OF RALEIGH CEMETERY  
LEFT OF STATION 51+200  
RIGHT-OF-WAY PLANS PARCEL #49  
SCALE 1:300



| GRAVE NUMBER | STATION (Meters) | LEFT (Meters) | NAME (Headstone)                      |
|--------------|------------------|---------------|---------------------------------------|
| 1            | 51+194.45        | 46.94         | Grady Moretz Jr.                      |
| 2            | 51+196.41        | 45.21         | Martha R. Parsons                     |
| 3            | 51+196.96        | 46.29         | Emil Parsons                          |
| 4            | 51+197.68        | 47.66         | John W. Parsons                       |
| 5            | 51+198.16        | 48.91         | Zion Parsons                          |
| 6            | 51+198.72        | 50.20         | Nora E. Parsons                       |
| 7            | 51+203.53        | 49.62         | Grady Jr. Moretz                      |
| 8            | 51+203.08        | 48.38         | Set Field Stone                       |
| 9            | 51+202.15        | 47.21         | Barbara Dorlene Moretz                |
| 10           | 51+201.43        | 45.82         | Raleigh Edward Moretz                 |
| 11           | 51+200.82        | 44.30         | Hazel E. Moretz                       |
| 12           | 51+199.93        | 42.89         | Edward M. Moretz                      |
| 13           | 51+198.27        | 39.66         | Betty Lois Moretz                     |
| 14           | 51+200.19        | 38.38         | Set Field Stone                       |
| 15           | 51+200.86        | 39.07         | Set Field Stone                       |
| 16           | 51+201.77        | 38.49         | Set Field Stone                       |
| 17           | 51+202.38        | 39.33         | Set Field Stone                       |
| 18           | 51+202.91        | 42.61         | Set Field Stone                       |
| 19           | 51+204.98        | 41.47         | Set Field Stone                       |
| 20           | 51+204.22        | 44.65         | Flora M. Raleigh                      |
| 21           | 51+205.02        | 46.18         | H. K. Raleigh                         |
| 22           | 51+205.45        | 47.55         | Louisa J. Raleigh                     |
| 23           | 51+205.97        | 49.75         | Augustus E. Raleigh & Ocie M. Raleigh |
| 24           | 51+206.90        | 53.23         | Eldon L. Raleigh                      |
| 25           | 51+207.38        | 54.11         | Florence C. Raleigh                   |
| 26           | 51+207.85        | 54.93         | Terry Lee Raleigh                     |
| 27           | 51+208.13        | 44.96         | Sampson Lee Moretz                    |
| 28           | 51+207.38        | 43.61         | Martha Rebecca Moretz                 |
| 29           | 51+202.97        | 35.72         | Henrietta Flo Raleigh                 |
| 30           | 51+218.53        | 55.06         | Set Field Stone                       |
| 31           | 51+223.38        | 56.31         | Set Field Stone                       |
| 32           | 51+210.59        | 40.70         | Set Field Stone                       |
| 33           | 51+212.98        | 40.19         | Set Field Stone                       |
| 34           | 51+214.00        | 41.29         | Set Field Stone                       |
| 35           | 51+211.58        | 43.04         | Set Field Stone                       |

PLAT OF COLLIER CEMETERY  
RIGHT OF STATION 52+950  
RIGHT-OF-WAY PLANS PARCEL #48  
SCALE 1:300



| GRAVE NUMBER | STATION (Meters) | RIGHT (Meters) | NAME (Headstone)                  |
|--------------|------------------|----------------|-----------------------------------|
| 1            | 53+011.99        | 54.84          | Set Field Stone                   |
| 2            | NOT              | USED           |                                   |
| 3            | 53+012.89        | 58.36          | Set Field Stone                   |
| 4            | NOT              | USED           |                                   |
| 5            | 53+010.63        | 55.36          | Set Field Stone                   |
| 6            | 53+009.32        | 55.64          | Set Field Stone                   |
| 7            | 53+000.48        | 58.43          | Hester Jane Elmore 1964-1965      |
| 8            | 52+995.66        | 54.97          | Moses Collier 1860-1936           |
| 9            | 52+993.95        | 55.11          | Mary Elizabeth Brown 1864-1936    |
| 10           | 52+992.16        | 55.39          | Dianah Collier 1873-1917          |
| 11           | 52+989.16        | 55.77          | Ester Collier 1837-1911           |
| 12           | 52+987.57        | 56.09          | M. D. Collier 1837-1901           |
| 13           | 52+984.75        | 56.54          | Curtis E. Collier 1935-1991       |
| 14           | 52+982.69        | 56.85          | Robert Collier 1910-1981          |
| 14A          | 52+982.69        | 56.85          | Clara R. Collier 1909-1998        |
| 15           | 52+980.94        | 57.98          | Hubert Collier 1943-1944          |
| 16           | 52+980.02        | 58.51          | Huey Collier 1950-1950            |
| 17           | NOT              | USED           |                                   |
| 18           | 52+978.08        | 58.53          | Robert Jr. Collier 1939-1959      |
| 19           | 52+978.76        | 55.12          | Leslie R. Collier 1931-1968       |
| 20           | 52+977.49        | 55.33          | James L. Collier 1933-1962        |
| 21           | 52+976.19        | 59.62          | Linda Jeanette Sturgill 1953-1953 |

| GRAVE NUMBER | STATION (Meters) | RIGHT (Meters) | NAME (Headstone)                     |
|--------------|------------------|----------------|--------------------------------------|
| 22           | 52+975.25        | 60.52          | Mollie Sturgill 1931-1931            |
| 23           | 52+975.84        | 63.11          | James P. Collier 1871-1940           |
| 23A          | 52+975.84        | 63.11          | Martha Collier 1881-1939             |
| 24           | 52+978.90        | 62.41          | Moses Collier 1900-1901              |
| 25           | 52+979.90        | 61.97          | James Monroe Collier 1913-1914       |
| 26           | 52+981.34        | 60.90          | Set Field Stone                      |
| 27           | 52+982.99        | 60.18          | Set Field Stone                      |
| 28           | NOT              | USED           |                                      |
| 29           | NOT              | USED           |                                      |
| 30           | NOT              | USED           |                                      |
| 31           | 52+966.79        | 71.85          | Set Field Stone- J.d.d. Aug 14, 1903 |
| 32           | 52+967.62        | 69.91          | Set Stone- Rebecca Dingus            |
| 33           | 52+968.88        | 69.14          | Set Field Stone                      |
| 34           | NOT              | USED           |                                      |
| 35           | 52+969.98        | 65.32          | Set Field Stone                      |
| 36           | 52+967.01        | 65.76          | Set Field Stone- M D                 |
| 37           | NOT              | USED           |                                      |
| 38           | 52+965.50        | 62.62          | F. M. Blair WB                       |
| 39           | NOT              | USED           |                                      |
| 40           | 52+966.31        | 60.98          | Set Field Stone                      |
| 41           | 52+963.59        | 65.17          | Set Field Stone                      |
| 42           | 52+962.71        | 65.66          | Set Field Stone- M P                 |

| GRAVE NUMBER | STATION (Meters) | RIGHT (Meters) | NAME (Headstone)                  |
|--------------|------------------|----------------|-----------------------------------|
| 43           | 52+963.40        | 66.58          | Set Field Stone- E A C 1884       |
| 44           | 52+962.59        | 67.53          | Set Field Stone                   |
| 45           | 52+964.46        | 68.68          | Set Field Stone                   |
| 46           | 52+964.42        | 71.18          | Set Field Stone                   |
| 47           | 52+965.13        | 72.72          | Set Field Stone                   |
| 48           | 52+964.09        | 73.38          | Martha Cooper 1924-1924           |
| 49           | 52+962.63        | 72.87          | Samantha Cooper 1889-1936         |
| 50           | 52+961.05        | 72.97          | Luther Cooper 1879-1941           |
| 51           | 52+960.86        | 70.49          | Set Field Stone                   |
| 52           | 52+962.16        | 69.97          | Set Field Stone                   |
| 53           | 52+954.48        | 74.51          | Set Field Stone                   |
| 54           | 52+953.18        | 71.26          | Set Field Stone                   |
| 55           | 52+952.81        | 64.70          | Dewey Dingus 1935-1946            |
| 56           | NOT              | USED           |                                   |
| 57           | 52+958.49        | 62.16          | Set Field Stone                   |
| 58           | 52+959.06        | 60.87          | Set Field Stone                   |
| 59           | NOT              | USED           |                                   |
| 60           | 52+956.74        | 61.31          | Set Field Stone                   |
| 61           | NOT              | USED           |                                   |
| 62           | 52+952.92        | 59.92          | Set Field Stone                   |
| 63           | 52+955.50        | 56.61          | Rejina D. Blair 1838-1908         |
| 64           | 52+954.31        | 50.63          | Junior Dingus 1928-1964           |
| 65           | 52+960.65        | 55.40          | Set Field Stone- SYL. J. CAU      |
| 66           | 52+961.53        | 54.13          | Set Field Stone- R d c            |
| 67           | NOT              | USED           |                                   |
| 68           | 52+963.96        | 56.74          | Set Field Stone                   |
| 69           | 52+964.79        | 53.55          | Set Field Stone                   |
| 70           | 52+970.92        | 58.94          | Set Field Stone                   |
| 71           | NOT              | USED           |                                   |
| 72           | NOT              | USED           |                                   |
| 73           | 52+985.27        | 57.38          | Doyle Green Collier 1944-2002     |
| 74           | 52+960.64        | 72.20          | Set Field Stone                   |
| 75           | 52+956.67        | 74.56          | Set Field Stone                   |
| 76           | 52+958.22        | 74.07          | Set Field Stone                   |
| 77           | 52+960.85        | 74.44          | Set Field Stone- Tabetha Meade    |
| 78           | 52+954.16        | 52.74          | Set Field Stone- PAT D            |
| 79           | 52+952.60        | 57.12          | Set Field Stone                   |
| 80           | 52+953.54        | 56.17          | Set Field Stone                   |
| 81           | 52+971.11        | 69.51          | Set Field Stone                   |
| 82           | 52+961.06        | 65.78          | Set Field Stone                   |
| 83           | 52+962.01        | 68.71          | Set Field Stone                   |
| 84           | 52+964.84        | 65.82          | Set Field Stone                   |
| 85           | 52+965.66        | 64.24          | Set Field Stone- H B May 12, 1865 |
| 86           | 53+013.52        | 55.74          | Set Field Stone                   |
| 87           | 52+960.29        | 63.62          | Set Field Stone                   |
| 88           | 52+955.16        | 62.99          | Set Field Stone                   |
| 89           | 52+966.12        | 67.21          | Set Field Stone                   |

METRIC



# REVEGETATION PLAN

TREE SPECIES DEEMED SUITABLE FOR BAT HABITAT THAT PRODUCE SLOUGHING BARK WILL BE PLANTED TO THE MAXIMUM EXTENT POSSIBLE IN ALL DISTURBED AREAS. THESE SPECIES ARE LISTED BELOW.

DISTURBED AREAS AT STREAM CROSSINGS WILL BE RE-VEGETATED WITH TREE SPECIES THAT PRODUCE SLOUGHING BARK. PLANTING LISTS WILL INCLUDE A MINIMUM OF **SIX DIFFERENT TREE SPECIES**. SPECIES SELECTION SHOULD BE DETERMINED BY SITE-SPECIFIC CHARACTERISTICS (SOIL MOISTURE, SUN EXPOSURE, ETC.) AND SEEDLING AVAILABILITY. A STOCKING SUCCESS RATE OF **NO LESS THAN 300 STEMS PER ACRE** WILL BE REQUIRED. A MINIMUM OF FOUR SPECIES IDENTIFIED AS “EXFOLIATING BARK SPECIES”MUST BE PLANTED AND **EQUAL AT LEAST 40 PERCENT OF THE MINIMUM STEMS PER ACRE**. TREE SPECIES WILL BE PLANTED AT APPROXIMATELY EQUAL RATES. “EXFOLIATING BARK SPECIES”(SUITABLE FOR PLANTING IN THE PROJECT AREA) ARE LISTED BELOW. AN HERBACEOUS GROUND COVER OF NATIVE SPECIES WILL BE ESTABLISHED.

**EXFOLIATING BARK TREE SPECIES**

*ACER SACCHARUM* SUGAR MAPLE  
*CARYA CORDIFORMIS* BITTERNUT HICKORY  
*CARYA GLABRA* PIGNUT HICKORY  
*CARYA LACINIOSA* SHELLBARK HICKORY  
*CARYA OVATA* SHAGBARK HICKORY  
*CARYA TOMENTOSA* MOCKERNUT HICKORY  
*FRAXINUS AMERICANA* WHITE ASH  
*FRAXINUS PENNSYLVANICA* GREEN ASH  
*OXYDENDRON ARBOREUM* SOURWOOD  
*PINUS ECHINATA* SHORTLEAF PINE  
*POPULUS DETLOIDES* COTTONWOOD  
*QUERCUS ALBA* WHITE OAK  
*QUERCUS COCCINEA* SCARLET OAK  
*QUERCUS FALCATA* SOUTHERN RED OAK  
*QUERCUS IMBRICARIA* SHINGLE OAK  
*QUERCUS PRINUS* CHESTNUT OAK  
*QUERCUS RUBRA* NORTHERN RED OAK  
*QUERCUS STELLATA* POST OAK  
*QUERCUS VELUTINA* BLACK OAK  
*SASSAFRAS ALBIDUM* SASSAFRAS  
*ULMUS AMERICANA* AMERICAN ELM  
*ULMUS RUBRA* SLIPPERY ELM

DO NOT MOW OR SPRAY SIGNS WILL BE POSTED ALONG THE RIGHT-OF-WAY BY OTHERS FOR SELECTED AREAS OF WOODY RE-VEGETATION.

CONSTRUCTION AND LANDSCAPING TECHNIQUES SHOULD BE USED THAT WILL MINIMIZE THE SPREAD OF INVASIVE PLANT SPECIES, PARTICULARLY IN AREAS WHERE STEEP SLOPES ARE INVOLVED. ATTENTION SHALL ALSO BE GIVEN TO MINIMIZING SOIL DISTURBANCE DURING VEGETATION MANAGEMENT ACTIVITIES. INVASIVE-FREE MULCHES, TOPSOIL AND SEED MIXTURES WILL BE REQUIRED.

**TREE PLANTING ZONES**

TREE PLANTING ZONES ARE NOT SHOWN IN THE PLANS. APPROPRIATE TREE PLANTING ZONES WILL BE DETERMINED IN THE FIELD AND SHALL BE APPROVED BY THE ENGINEER.

**PLANTING SPECIFICATIONS - BARE-ROOT MATERIAL**

1. BARE-ROOT SEEDLINGS WILL BE PLANTED BY HAND IN THE DORMANT SEASON (NOVEMBER TO MID-MARCH).

2. A PLANTING BAR OR OTHER APPROPRIATE TOOL SHALL BE USED TO PLANT THE BARE-ROOT SEEDLINGS.

3. CARRY SEEDLINGS IN A CANVAS BAG, BUCKET, ETC. TO PROTECT THE ROOTS; BE SURE ROOTS ARE VISIBLY MOIST. DO NOT PRUNE ROOTS.

4. WITH THE APPROPRIATE TOOL, MAKE A STRAIGHT HOLE 8 TO 10 INCHES DEEP, SO THAT HOLE IS OF SUFFICIENT DEPTH TO FIT ENTIRE ROOT MASS WITHOUT BENDING, TWISTING, OR BREAKING.

5. INSERT ROOT SYSTEM TO BOTTOM OF HOLE AND LIFT SEEDLING TO PROPER PLANTING DEPTH. PLANT ROOT COLLARS 2 TO 3 INCHES BELOW THE GROUND LINE.

6. PLANT SEEDLINGS VERTICAL.

7. CLOSE HOLE TIGHTLY. MAKE SURE HOLE IS CLOSED AT BOTTOM AND TOP.

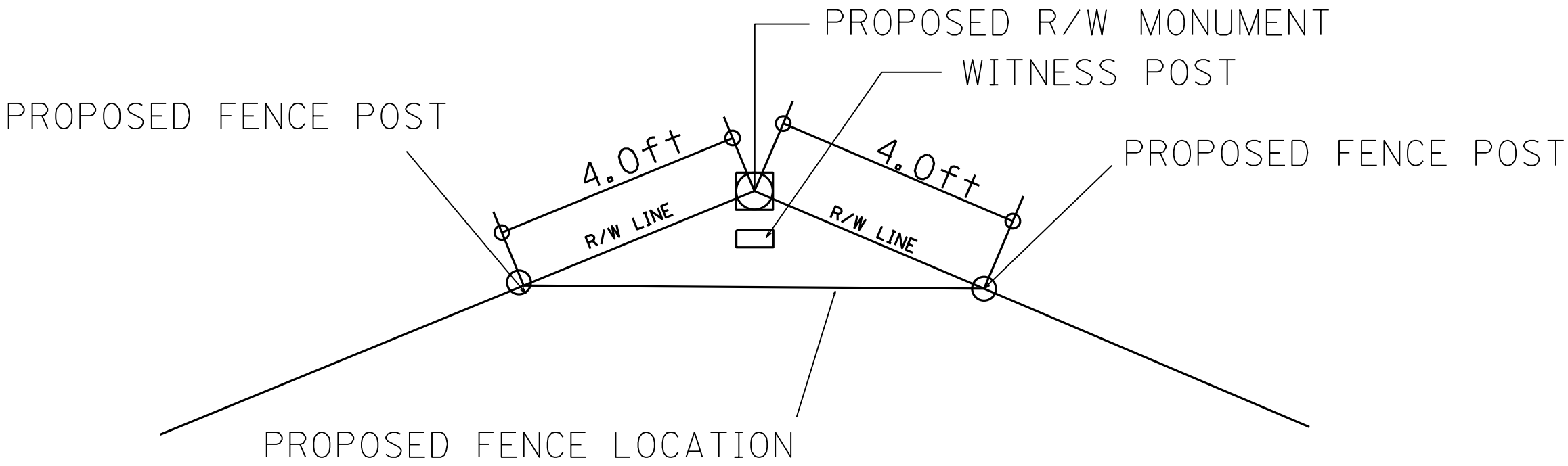
**TREE PLANTING**

SITE PREPARATION: THE DISTURBED/GRADED AREAS OF THE SITE SHOULD BE PREPARED BY LOOSENING THE TOP SOIL TO A DEPTH OF 5 INCHES. AREAS NEXT TO STREAMS OR OTHERWISE SUBJECTED TO HEAVY TRAFFIC SHALL BE RIP TILLED PRIOR TO PLANTING. ANY DISTURBED AREAS CONTAINING UNSUITABLE SOIL FOR PLANT GROWTH SHALL BE AMENDED WITH 6 INCHES OF CLEAN TOPSOIL.

METRIC



DETAIL SHEET



R / W MONUMENT DETAIL  
(NOT TO SCALE)

METRIC

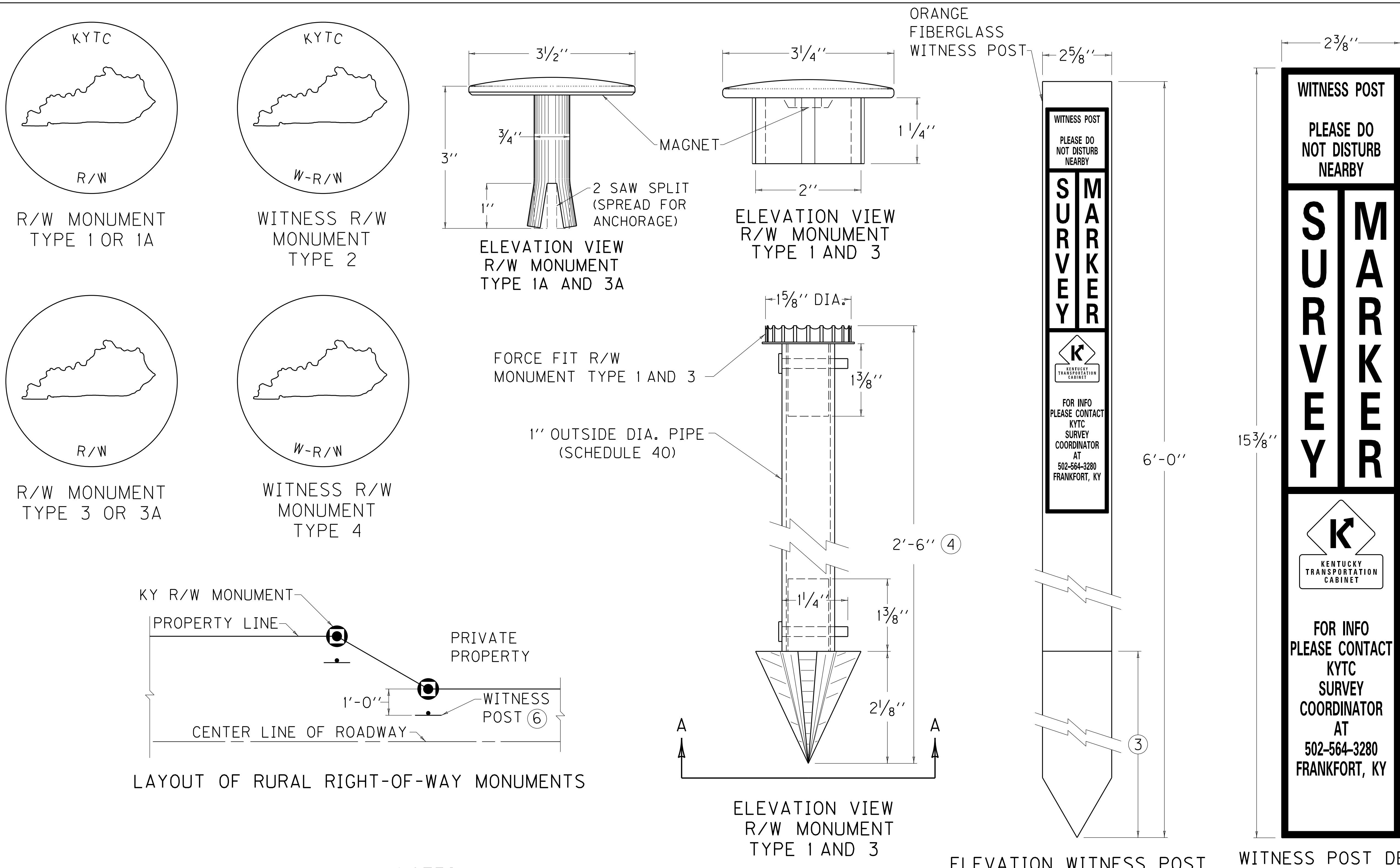










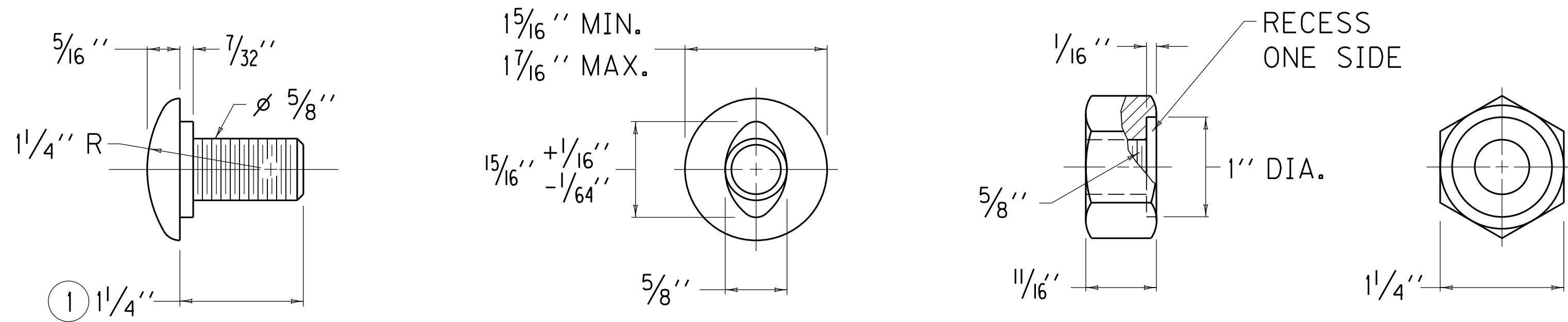


- NOTES
1. MANUFACTURE R/W MONUMENTS FROM ALUMINUM ALLOY.
  2. TYPE 1A AND 3A MONUMENTS SHALL BE MOUNTED FLUSH IN EXISTING PAVEMENT, DRAINAGE BOXES, ETC. DRILL A 1 1/16 inch DIAMETER HOLE AND EPOXY (COMMERCIAL GRADE) INTO EXISTING CONCRETE.
  - ③ WITNESS POST SHALL BE BURIED 1'-6" TO 2'-0" IN GROUND.
  - ④ WHEN ROCK IS ENCOUNTERED LENGTH MAY BE REDUCED.
  5. SET ALL R/W MONUMENTS FLUSH WITH GROUND OR ADJOINING SURFACE.
  - ⑥ THE LAND SURVEYOR IN CHARGE OF MONUMENTATION IS ENCOURAGED TO PLACE A WITNESS POST FOR THE RIGHT-OF-WAY MONUMENTS WHERE PRACTICAL AND FEASIBLE. IF POSSIBLE, A MINIMUM OF THREE WITNESS POSTS PER PROJECT SHOULD BE PLACED.

|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | R26B      |

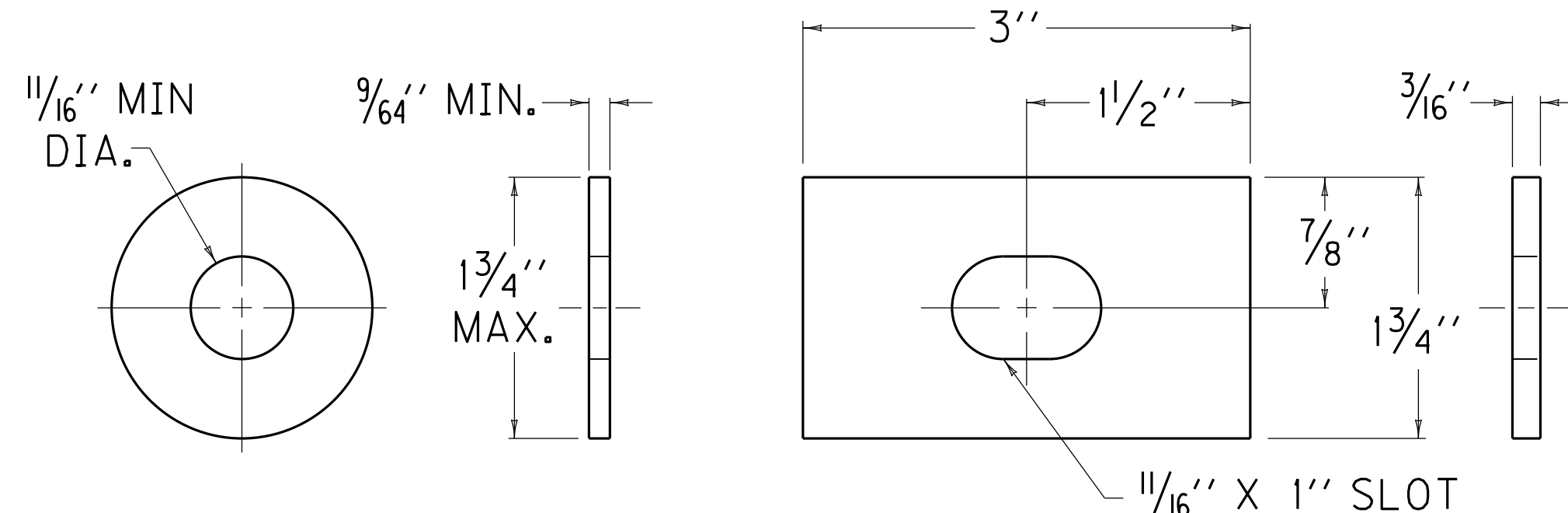
METRIC





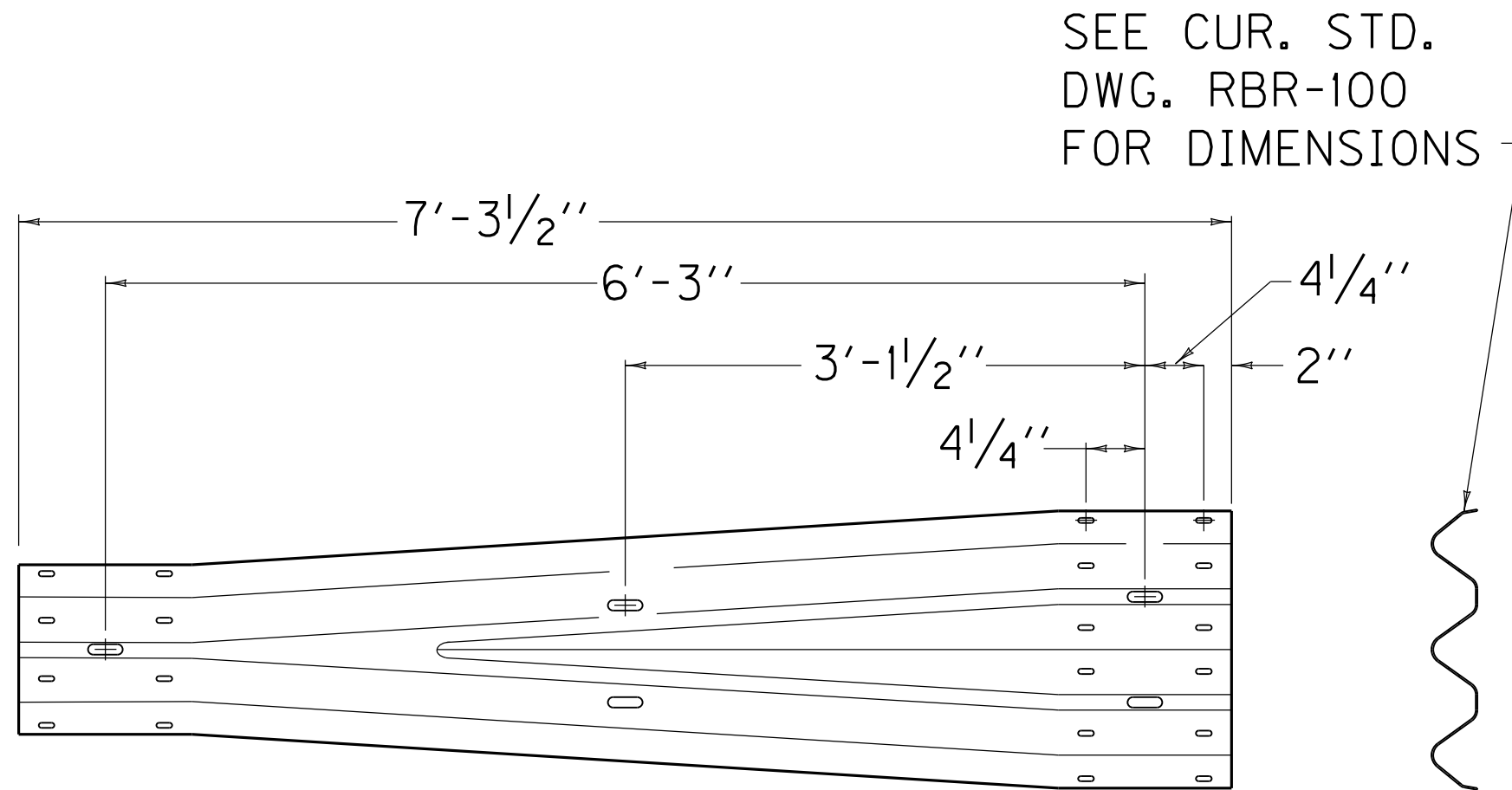
5/8" BUTTON HEAD BOLT AND RECESSED NUT

- NOTES
- ① RAIL BOLT SIMILAR EXCEPT LENGTH.
  - ② THE THRIE BEAM TO "W" BEAM CONNECTOR SHALL COMPLY WITH AASHTO M-180 CLASS A, TYPE 2 EXCEPT WHERE IN CONFLICT WITH THIS DETAIL.

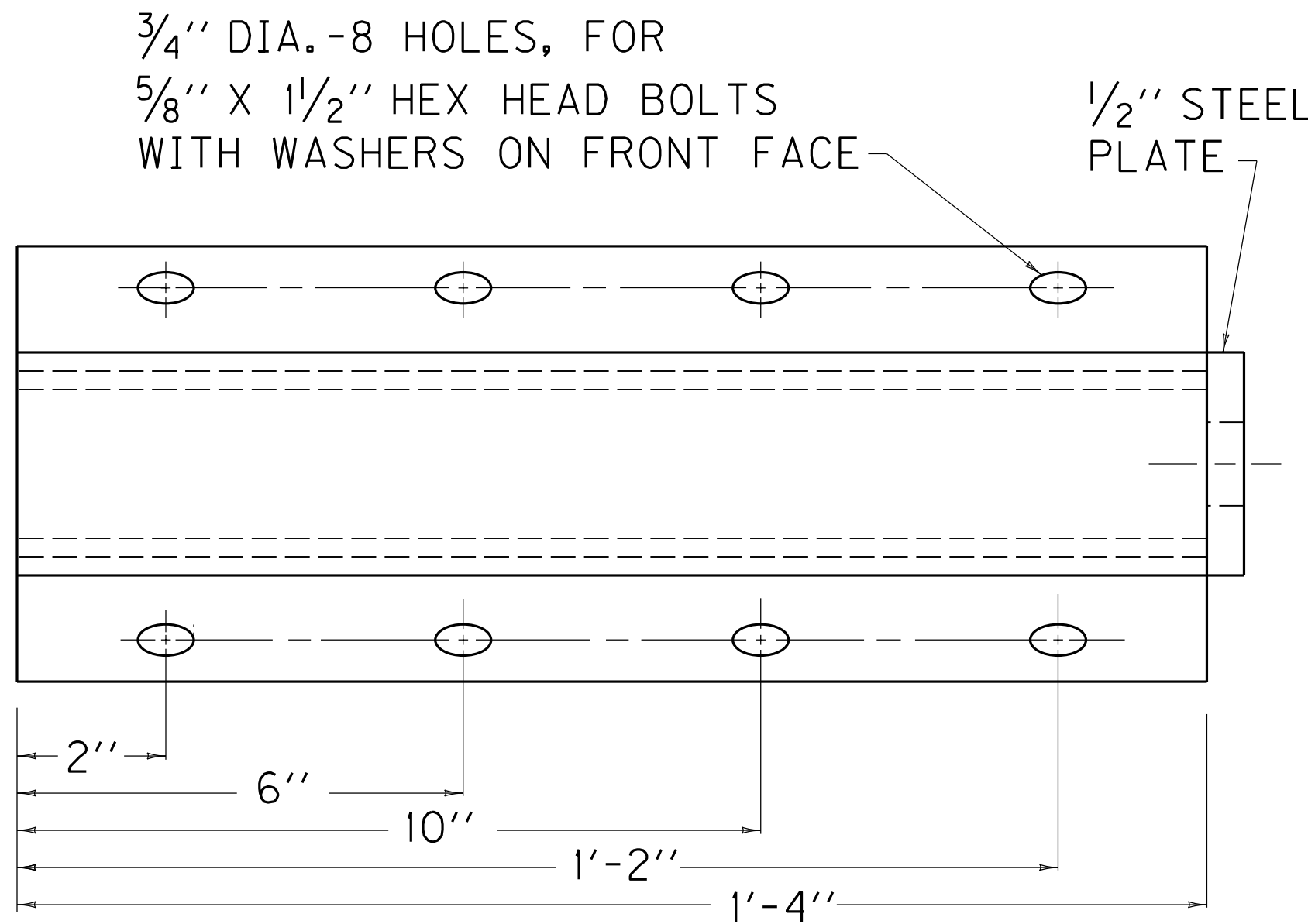


ROUND WASHER AND RECTANGULAR PLATE WASHER

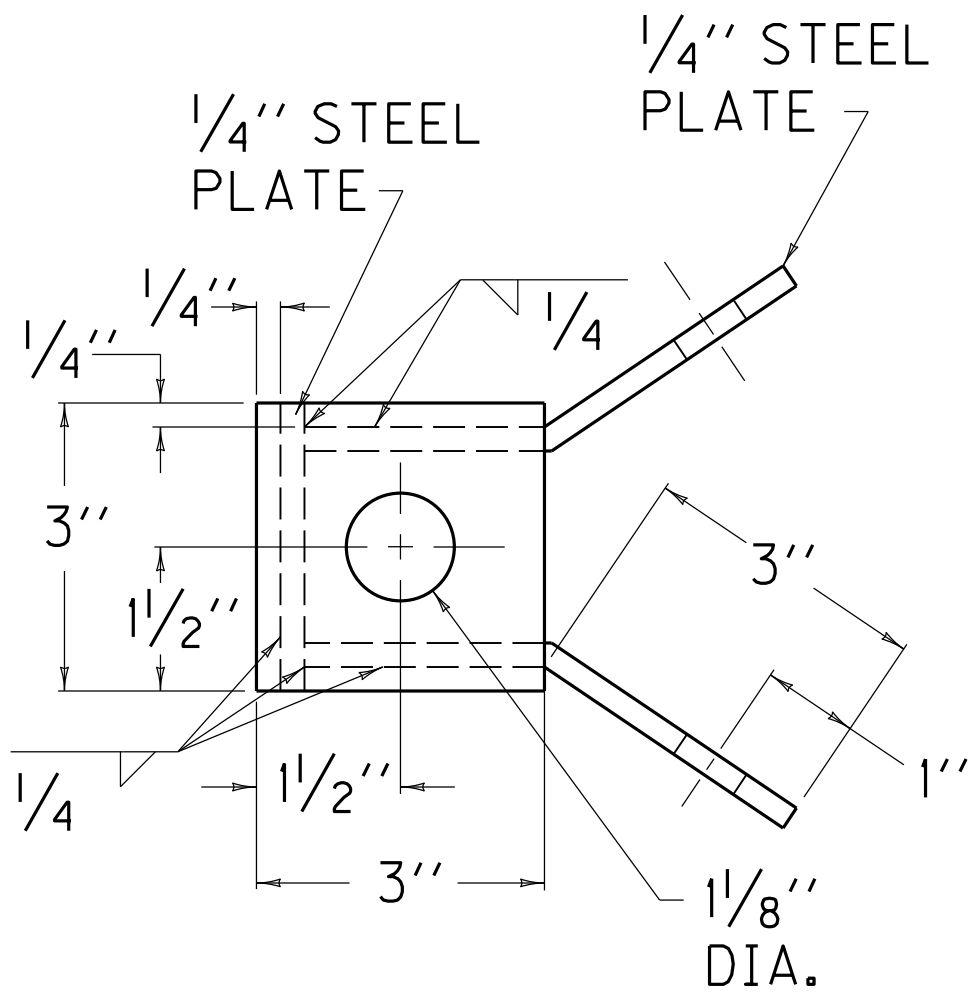
SEE CUR. STD.  
DWG. RBR-001  
FOR DIMENSIONS



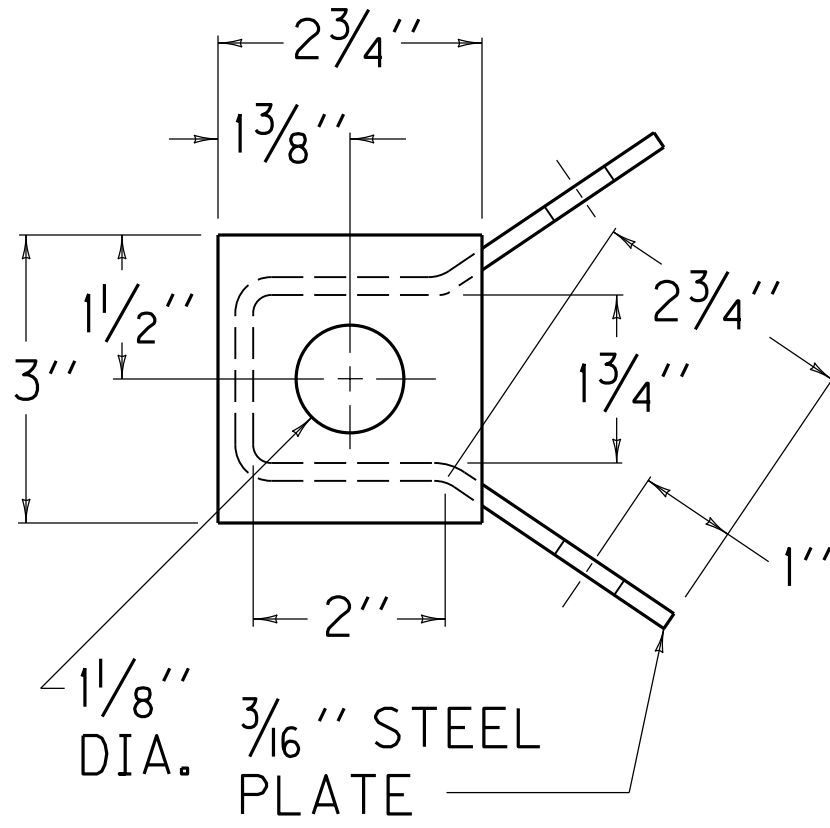
THRIE BEAM TO "W" BEAM CONNECTOR ②



RAIL ANCHOR ASSEMBLY



ALTERNATE NO. 1



ALTERNATE NO. 2



|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | R26D      |

## NOTES

THE CONTRACT UNIT PRICE BID SHALL BE:  
GUARDRAIL-STEEL W BEAM-SINGLE FACE - LIN. FT.

OR  
GUARDRAIL-STEEL W BEAM-DOUBLE FACE - LIN. FT.

DIMENSIONAL TOLERANCES NOT SHOWN OR IMPLIED ARE INTENDED TO BE THOSE CONSISTENT WITH THE PROPER FUNCTIONING OF THE PART, INCLUDING ITS APPEARANCE AND ACCEPTED MANUFACTURING PRACTICES.

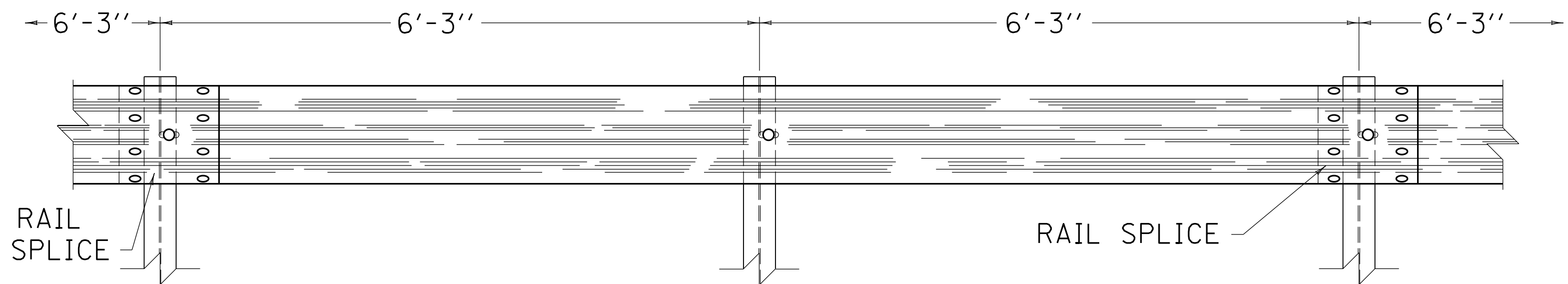
THE RAIL ELEMENT SHALL COMPLY WITH AASHTO M-180 -CLASS A, TYPE II.

ALL LAPS SHALL BE PLACED IN THE DIRECTION OF TRAFFIC FLOW.

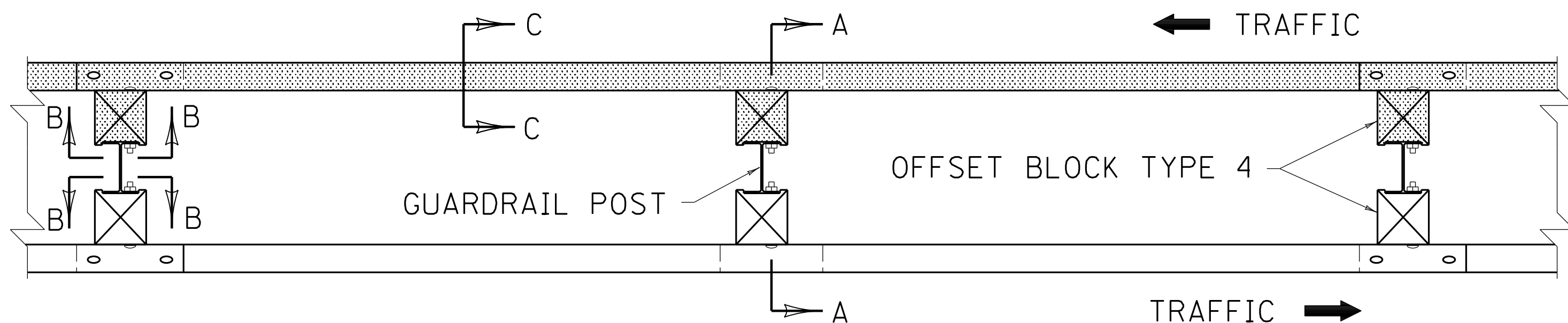
- ① TOLERANCE + 1 1/4", -1/4"
- ② 8 -5/8"x 1 1/4" LONG BUTTON HEAD BOLTS AND HEX HEAD RECESS NUTS REQUIRED FOR EACH RAIL SPLICE.
- ③ LENGTH EQUALS POST AND BLOCK WIDTH PLUS: 2" FOR BOLT OR 2 1/4" FOR THREADED ROD.
- ④ GALVANIZED STEEL 10d COMMON COATED NAIL (DRIVE NAIL AT THE TOP OR BOTTOM CENTER OF BLOCK AND POST AFTER BOLT IS INSTALLED).
- ⑤ 5/8"x ③ STEEL THREADED ROD AND TWO (2) HEX HEAD NUTS OR 5/8"x ③ BUTTON OR HEX HEAD BOLT AND HEX HEAD NUT.
- ⑥ 5/8"x8" BUTTON HEAD BOLT, HEX HEAD RECESS NUT AND ONE 5/8" ROUND WASHER (TYP.). BOLT SHALL HAVE A MINIMUM THREAD LENGTH OF 2".

REQUIRED FOR DOUBLE RAIL

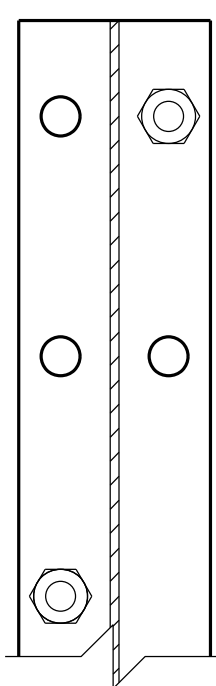
- 7 BOTH 12'-6" AND 25' LENGTHS OF "W" BEAM GUARDRAIL SECTIONS WILL BE PERMITTED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.



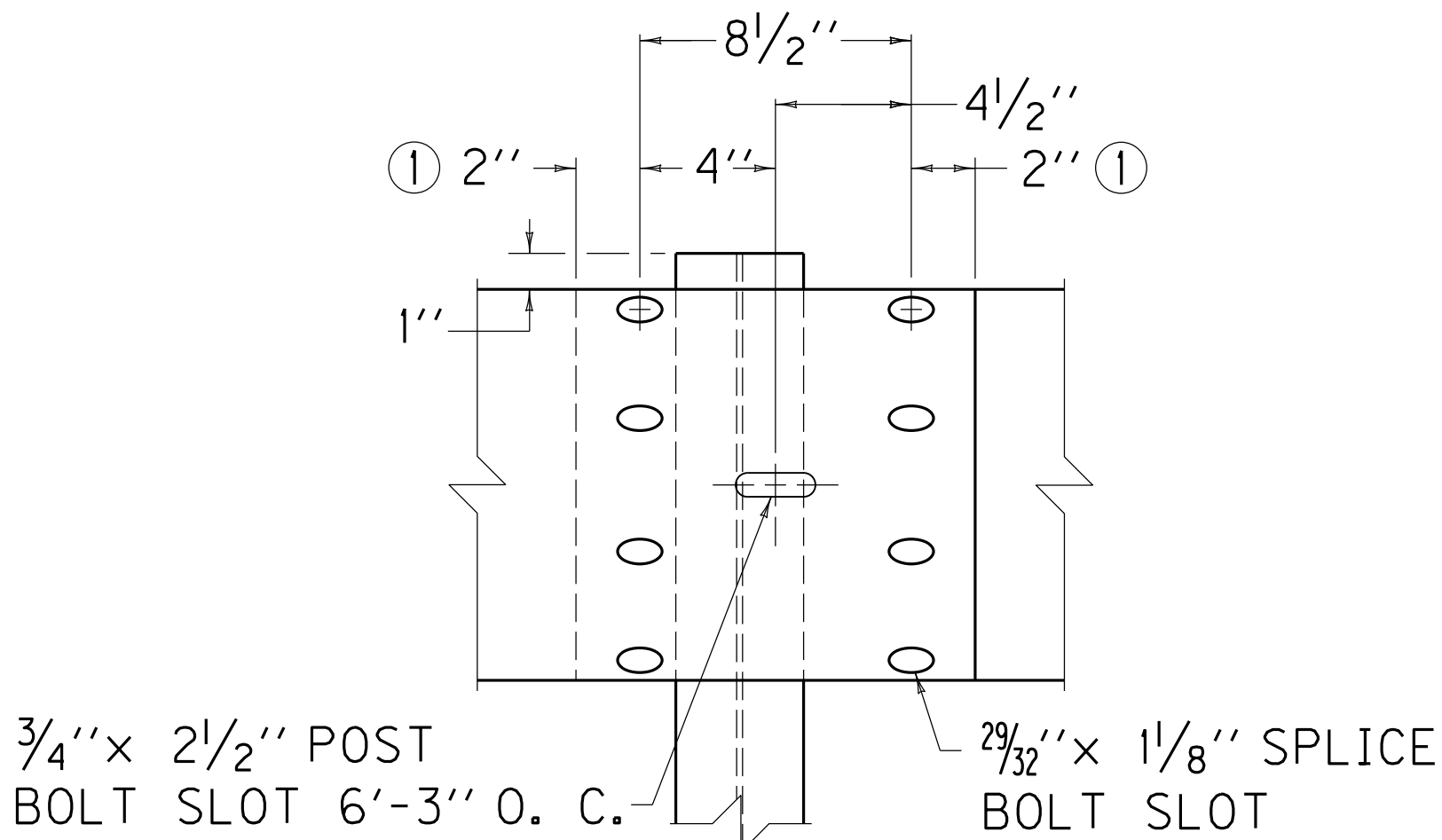
ELEVATION VIEW



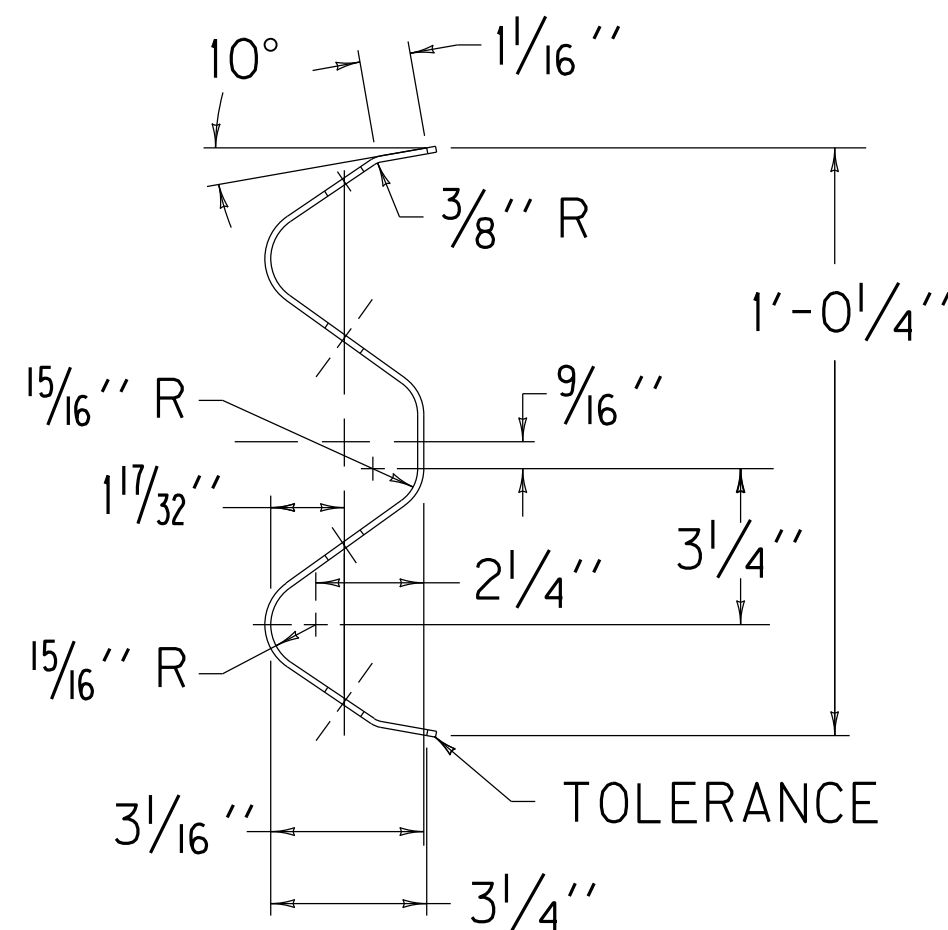
PLAN VIEW  
(DOUBLE FACE RAIL OR SINGLE FACE RAIL)



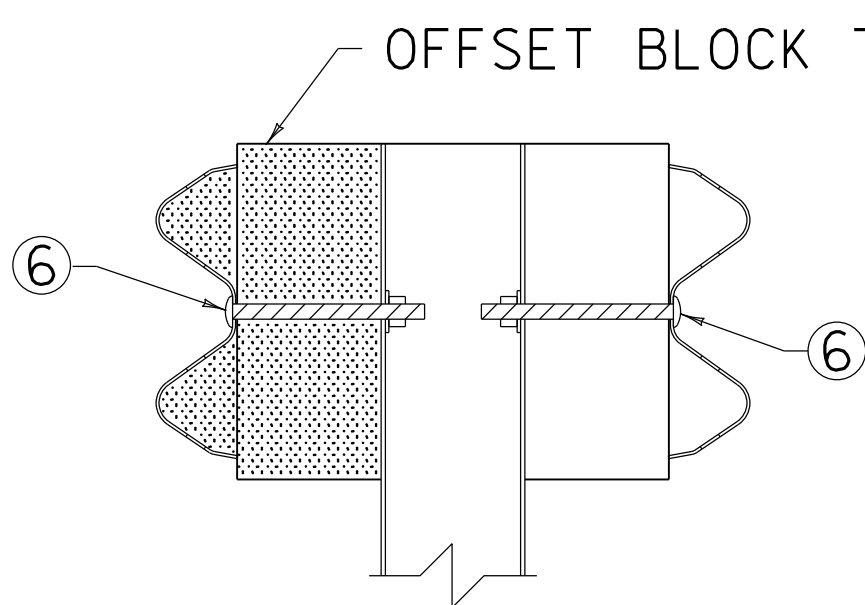
SECTION B-B



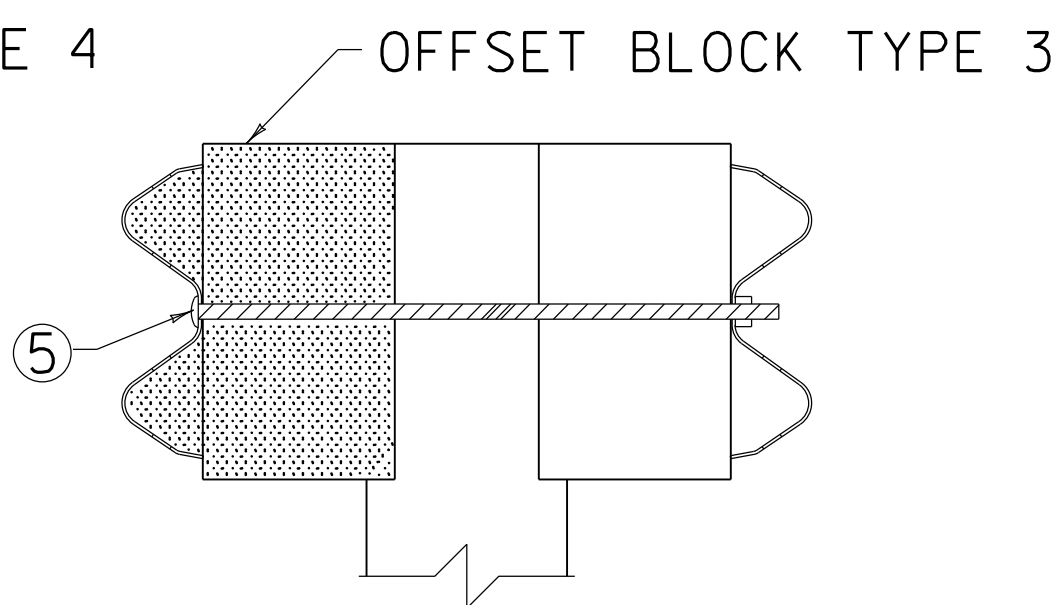
RAIL SPLICE ②



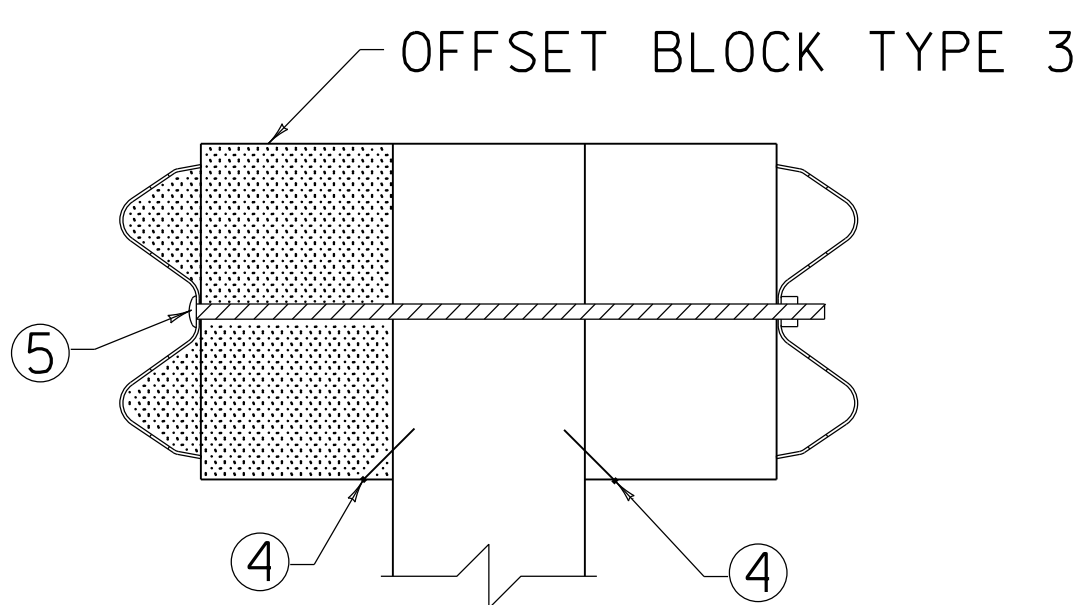
SECTION C-C  
(RAIL CORRUGATED  
SHEET STEEL BEAM)



SECTION A-A  
DOUBLE FACE RAIL WITH  
STEEL POST (W6x9 )  
(TIMBER OFFSET BLOCK )



SECTION A-A  
DOUBLE FACE RAIL WITH  
ROUND TIMBER POST



SECTION A-A  
DOUBLE FACE RAIL WITH  
TIMBER POST

KENTUCKY  
DEPARTMENT OF HIGHWAYS

STEEL BEAM  
GUARDRAIL  
( "W" BEAM )

SUBMITTED  12-11-12  
DIRECTOR DIVISION OF DESIGN DATE  
012

FILE NAME: V:\1785\ACTIVE\17856\008\ROADWAY\SECTION 4\PLANSHEETS\R02600DS - SEP14 012 STEEL BEAM GUARDRAIL (W BEAM).DGN

USER: rpfoster  
DATE PLOTTED: October 27, 2014

E-SHEET NAME:

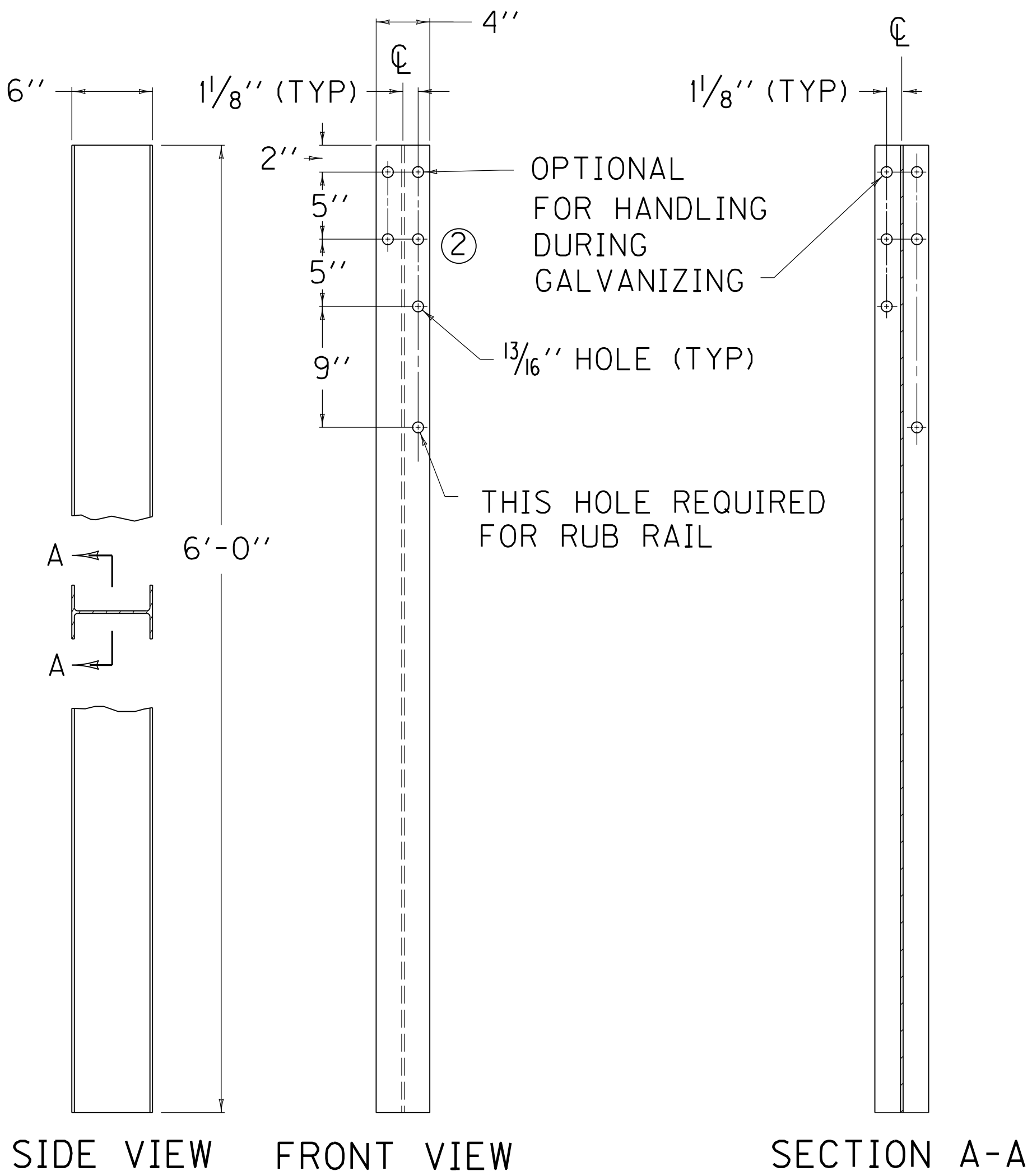
MicroStation v8.11.7.443



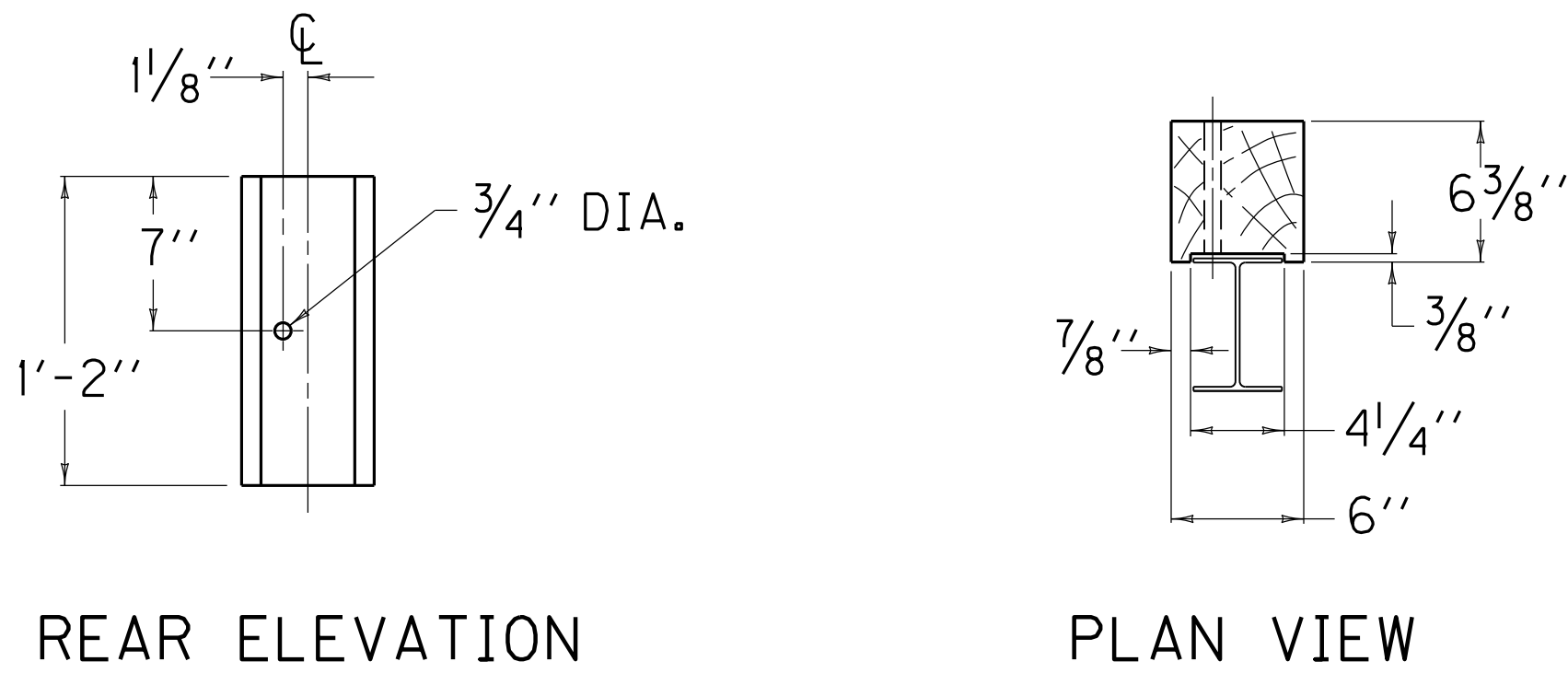
|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | R26E      |

~ NOTES ~

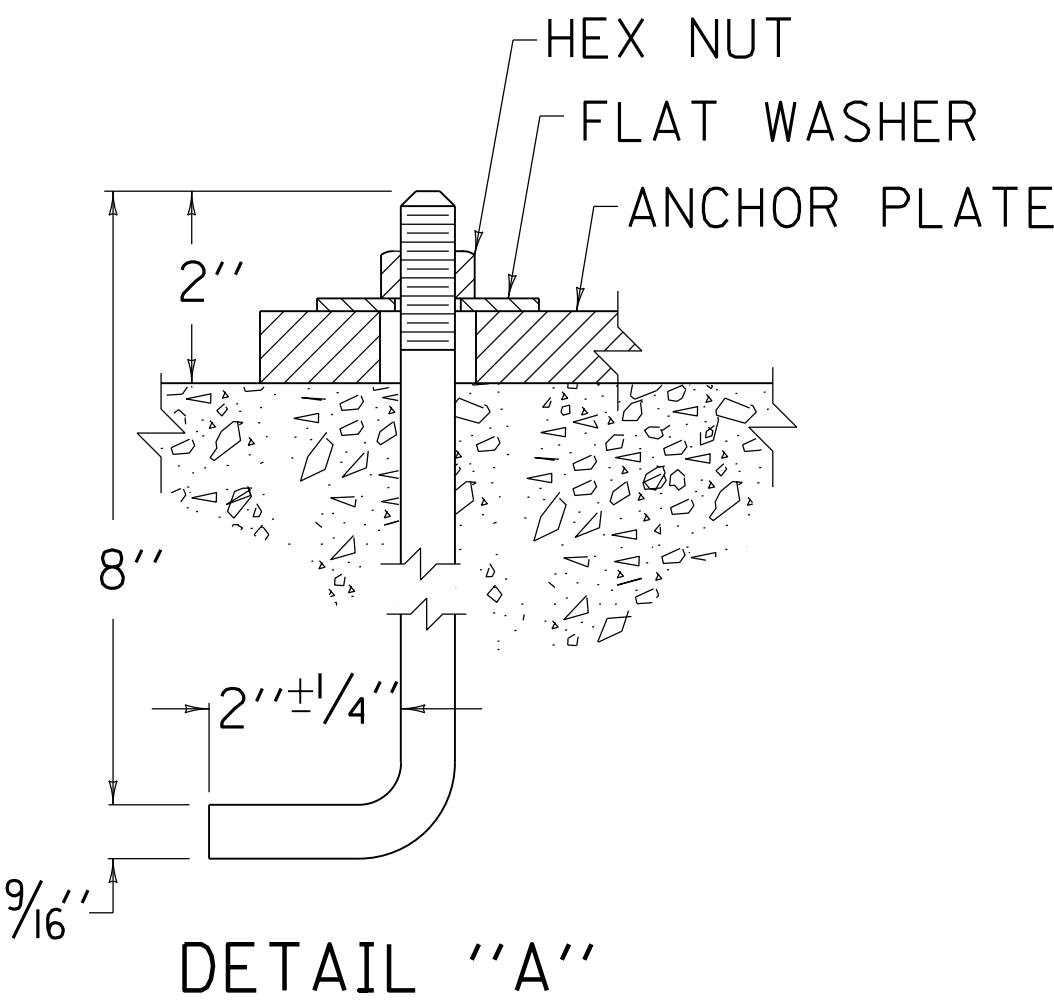
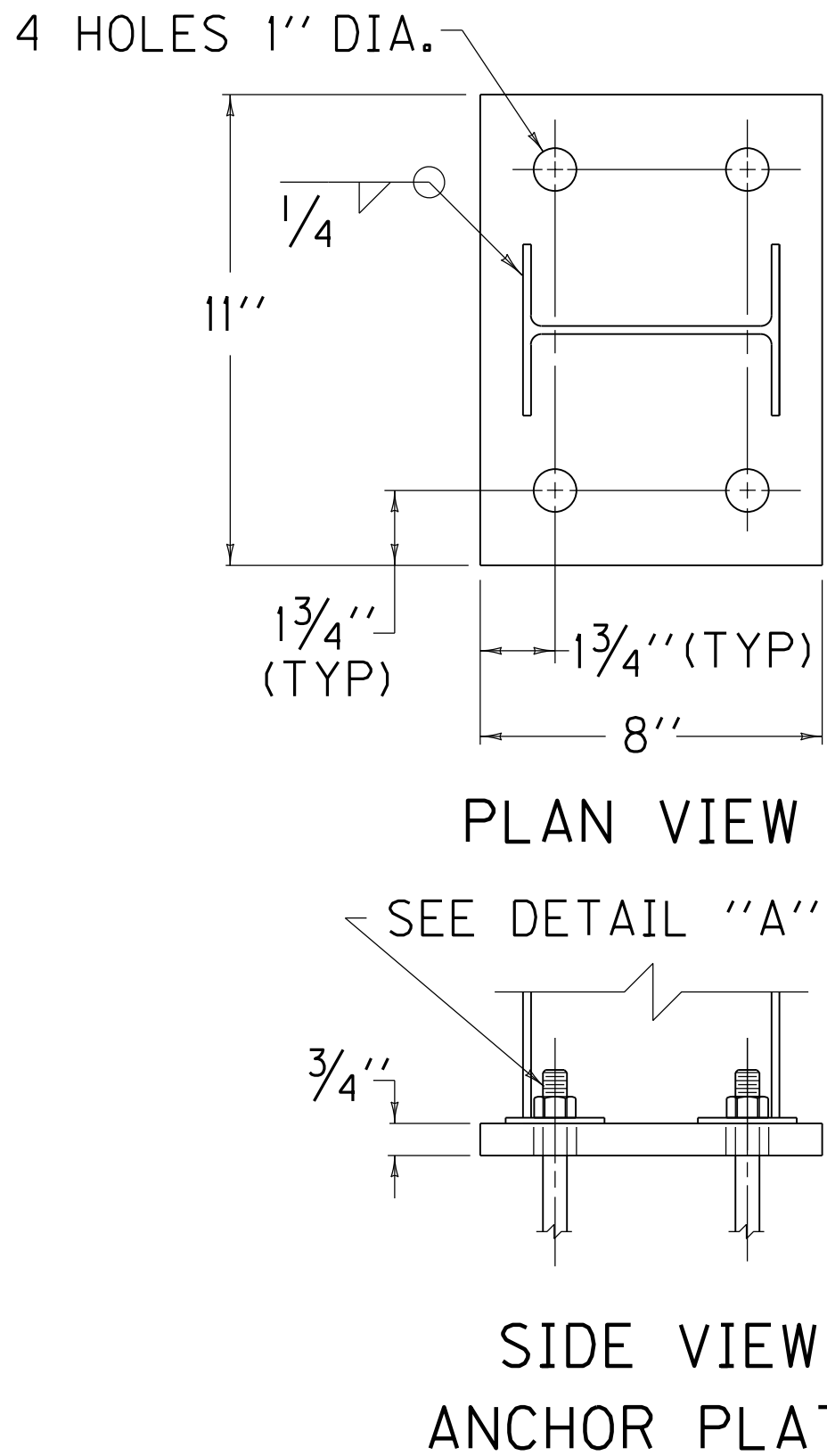
- ① W6 X 8.5 IS AN ACCEPTABLE ALTERNATE.  
② THESE HOLES REQUIRED FOR ATTACHING RAIL.



~ W6 X 9.0 STEEL POST ① ~

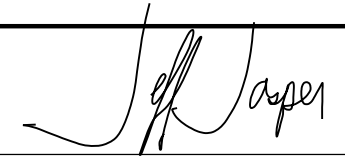


OFFSET BLOCK TYPE 4  
(TIMBER)  
(FOR USE WITH STEEL POST ONLY)



KENTUCKY  
DEPARTMENT OF HIGHWAYS

GUARDRAIL POSTS

SUBMITTED  9-27-13  
DATE  
013

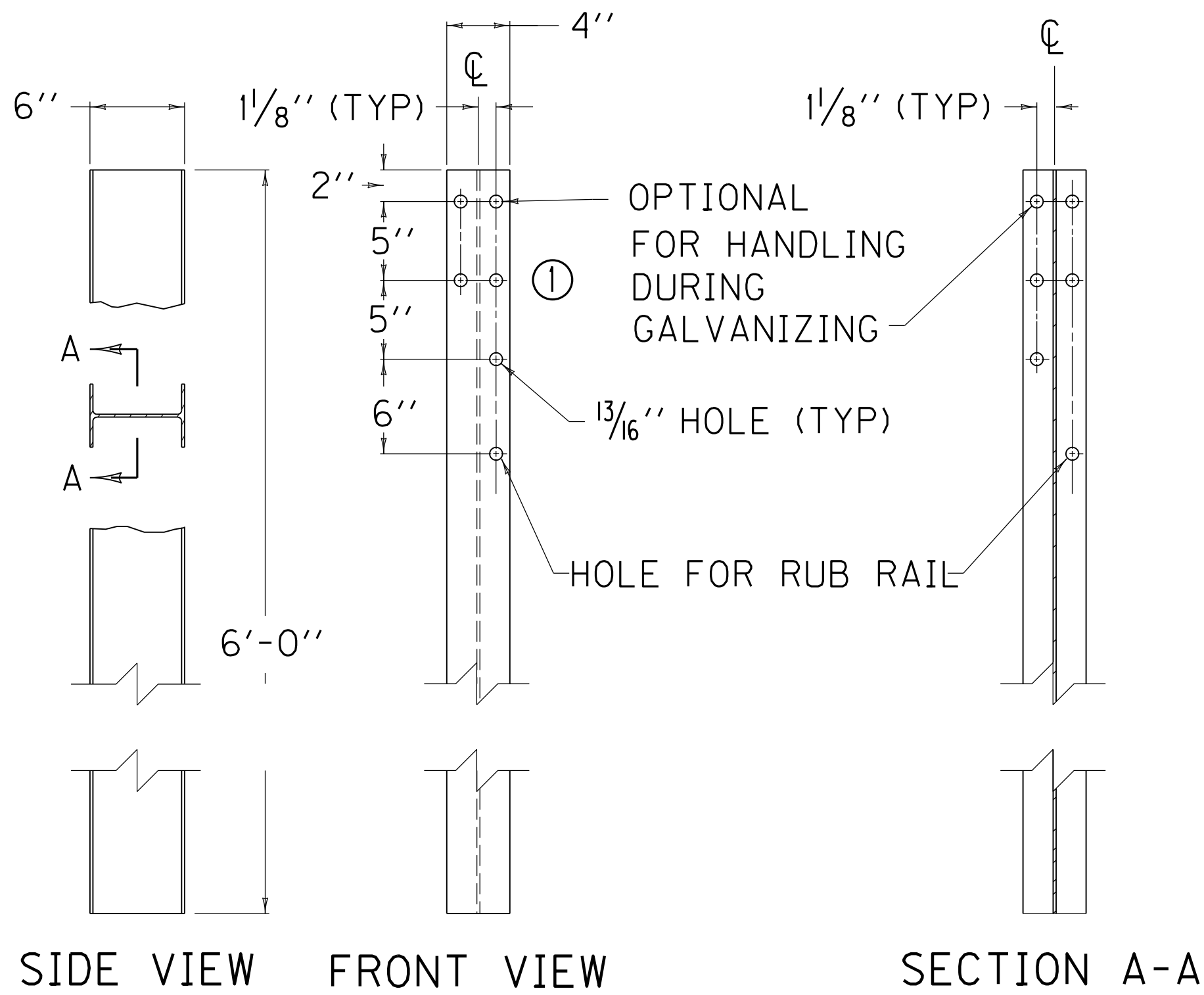


FILE NAME: V:\1785\ACTIVE\178561008\ROADWAY\SECTION 4\PLANSHEETS\RO260FDS - SEP14 014 GUARDRAIL CONNECTOR TO BRIDGE.DGN

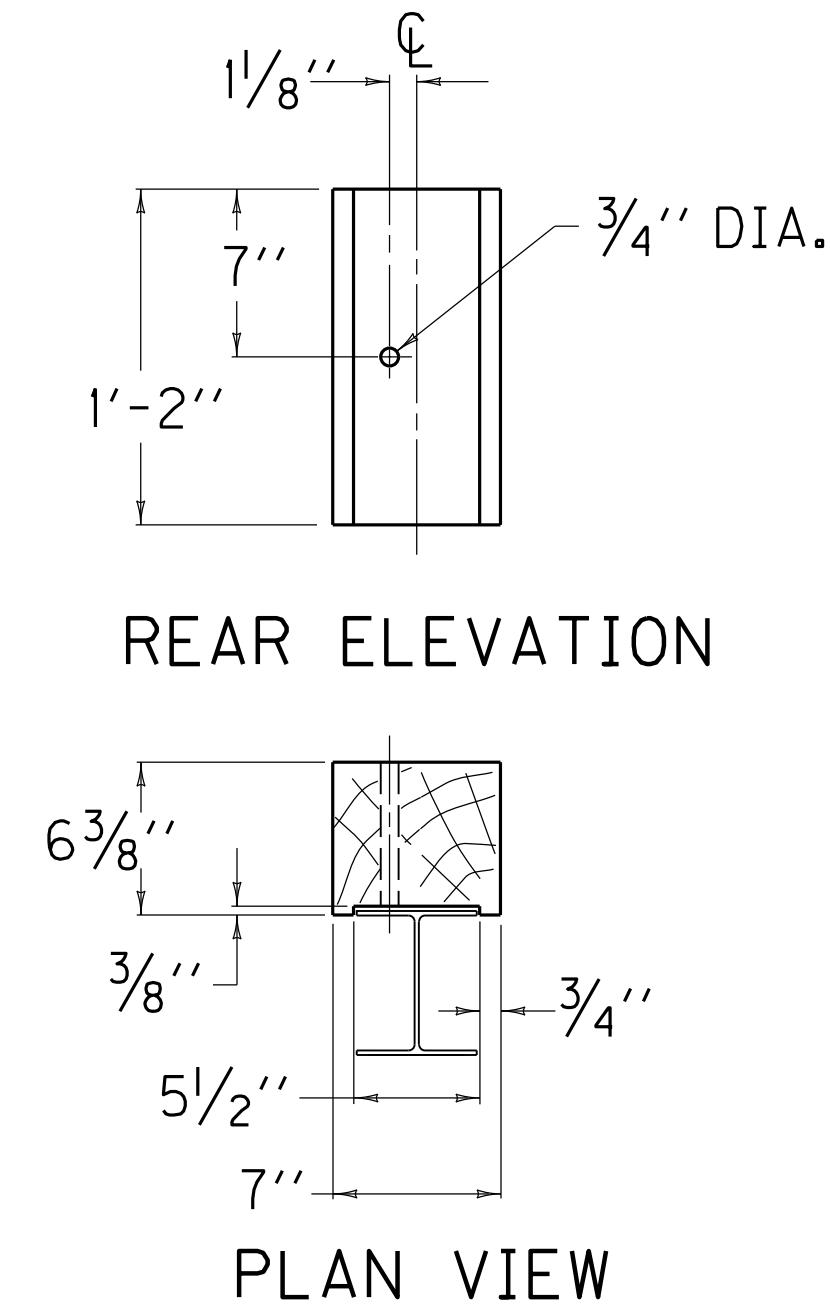
USER: rpfoster  
DATE PLOTTED: October 27, 2014

E-SHEET NAME:

MicroStation v8.11.7.443

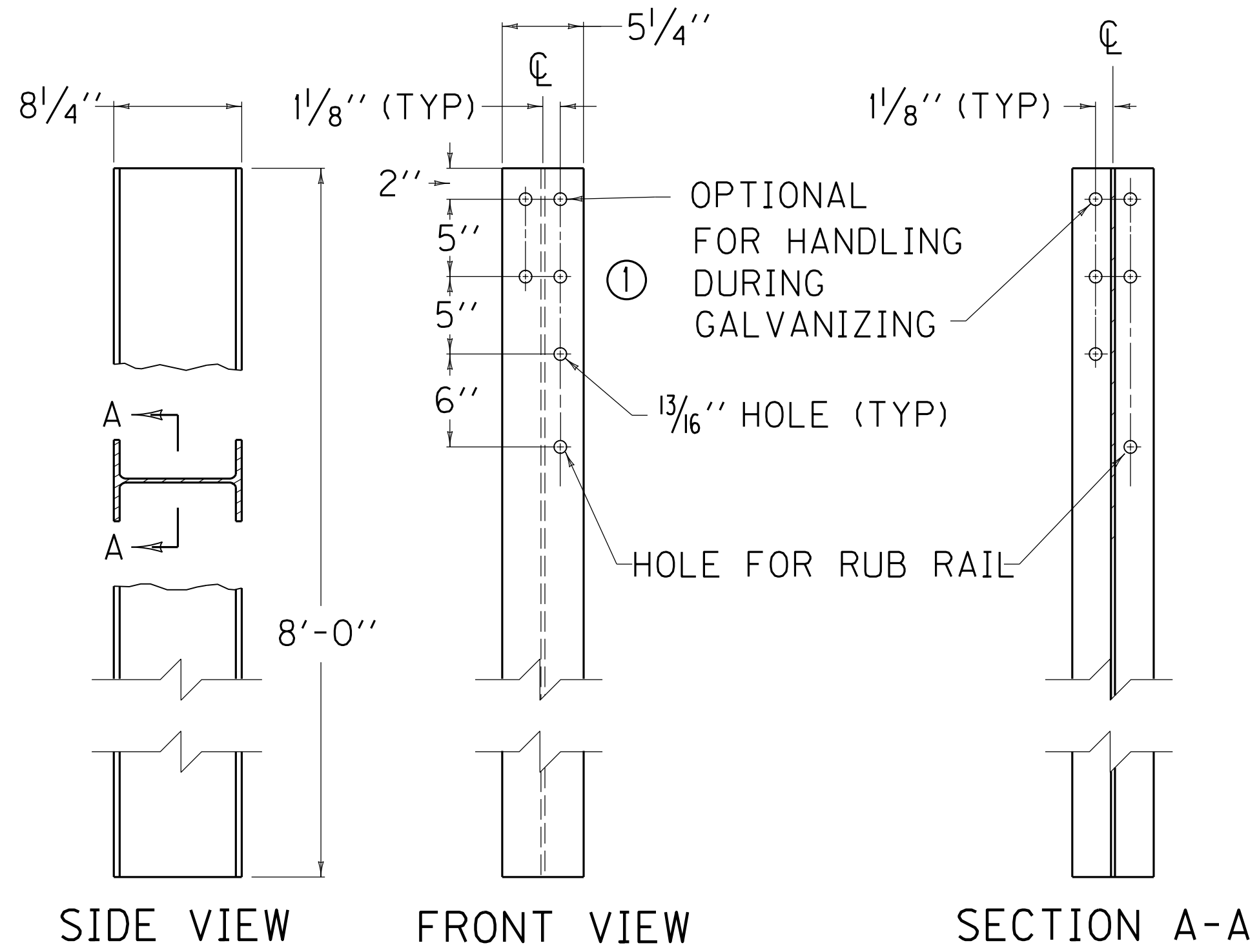


~ W6 X 9.0 STEEL GUARDRAIL POST ~  
(USED WITH C6 X 8.2 RUB RAIL)



OFFSET BLOCK TYPE 6  
(TIMBER)

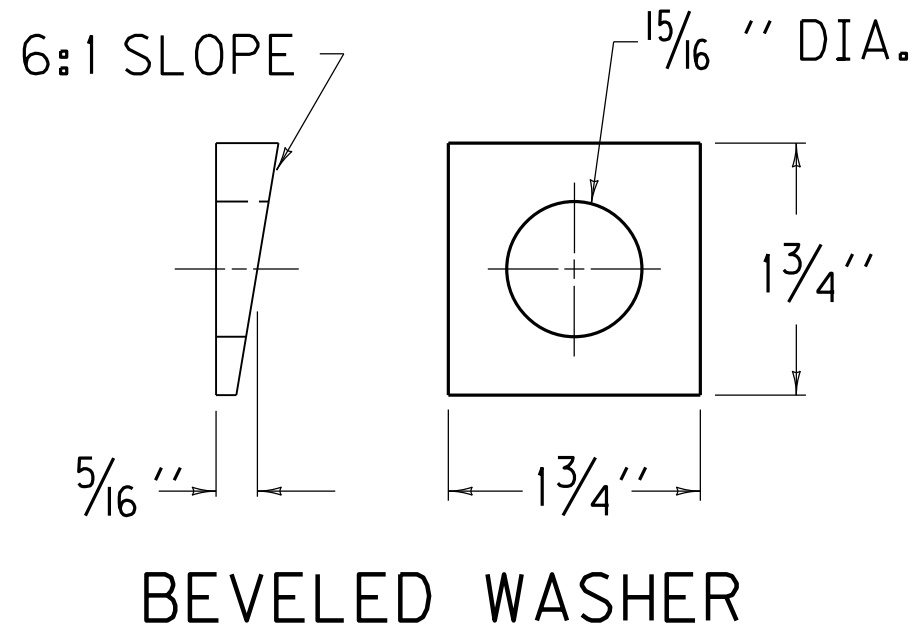
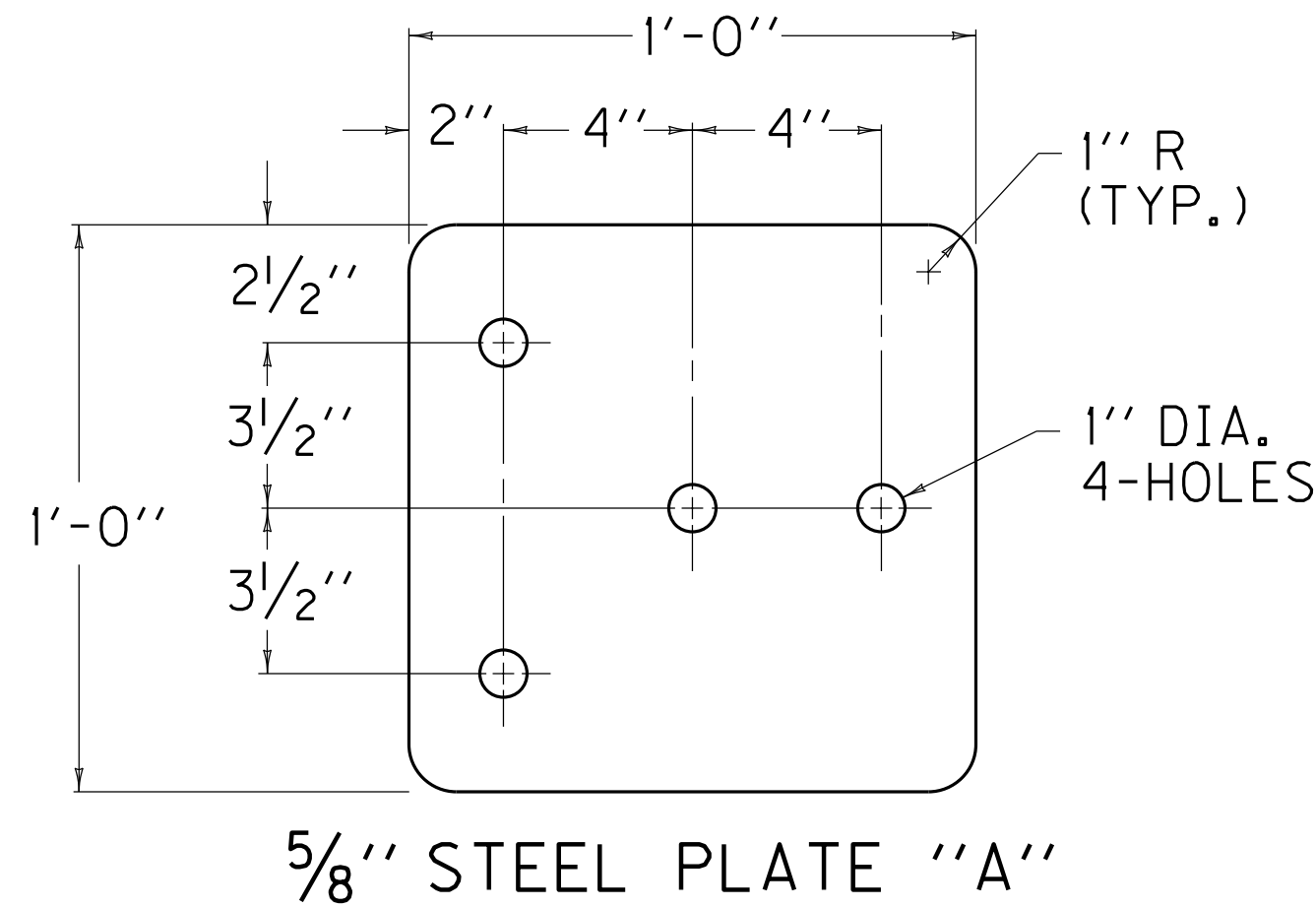
(FOR USE WITH W8 X 21 STEEL POST ONLY)



~ W8 X 21 STEEL GUARDRAIL POST ~

~ NOTES ~

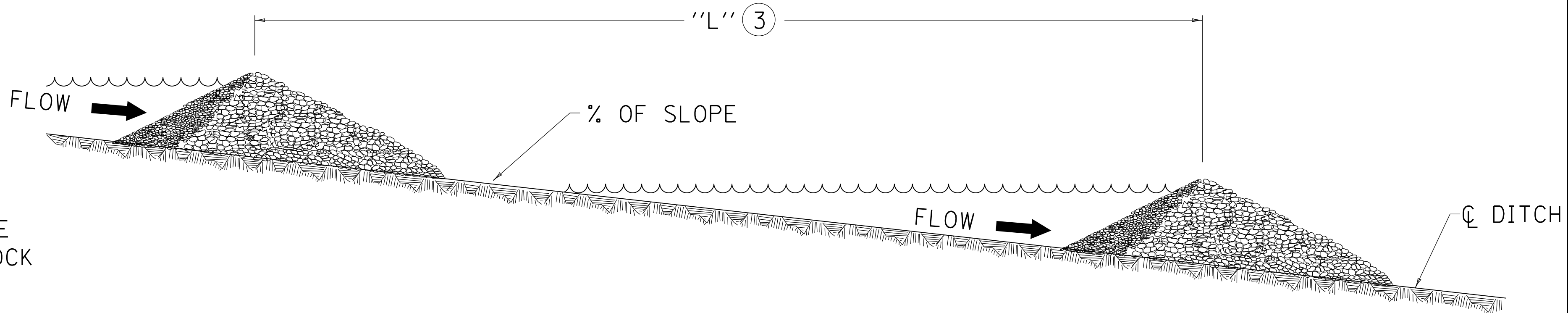
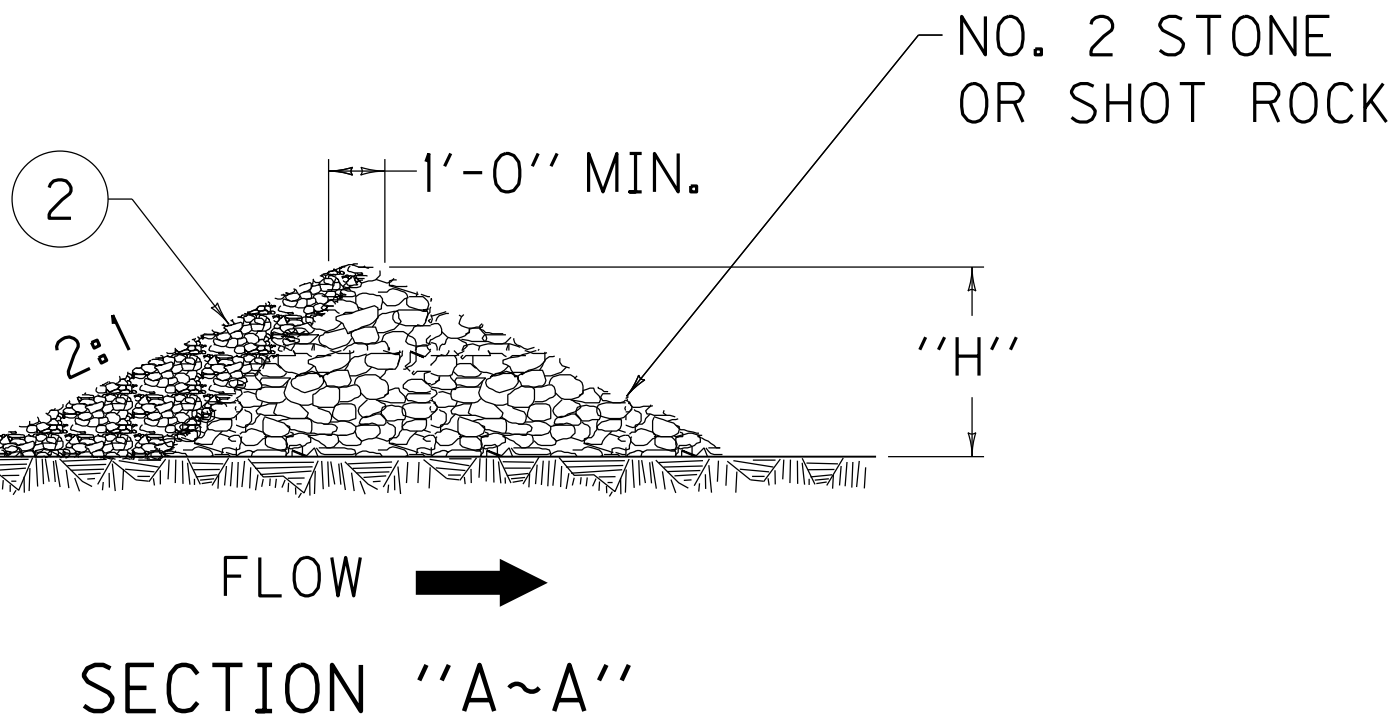
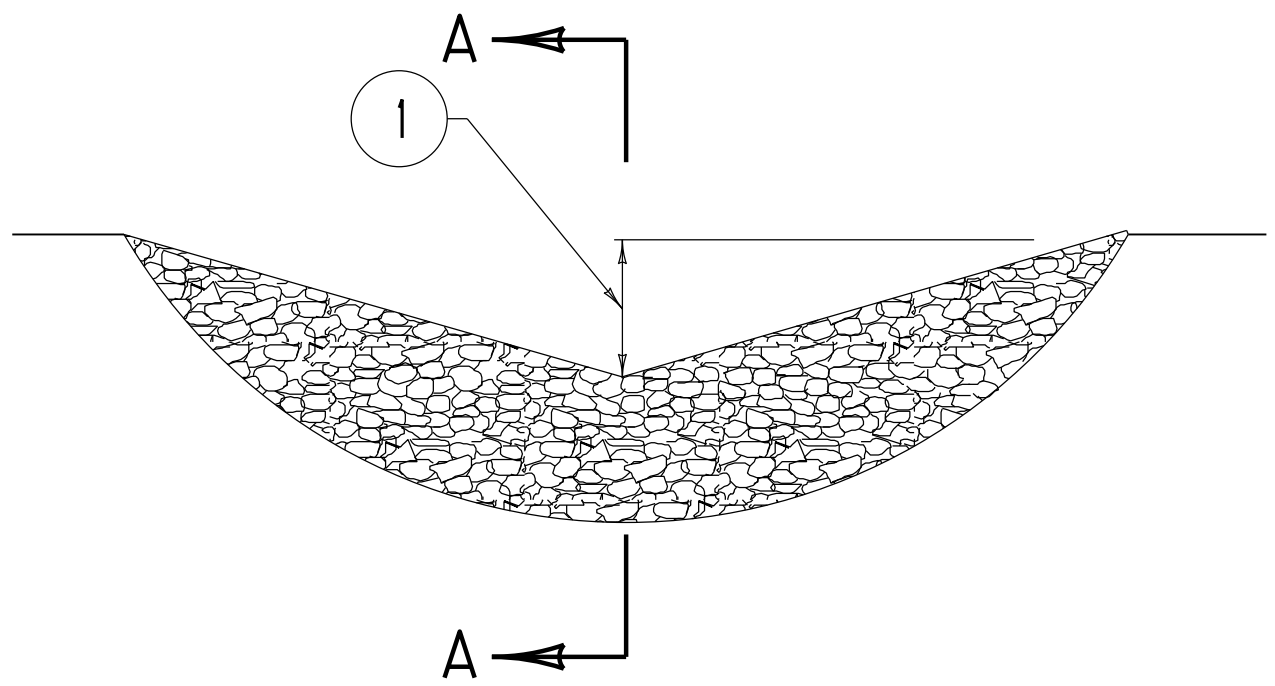
① THESE HOLES REQUIRED FOR ATTACHING RAIL.



KENTUCKY  
DEPARTMENT OF HIGHWAYS  
GUARDRAIL CONNECTOR  
TO BRIDGE END  
TYPE A AND A-1  
COMPONENTS

SUBMITTED  9-27-13  
DATE  
014



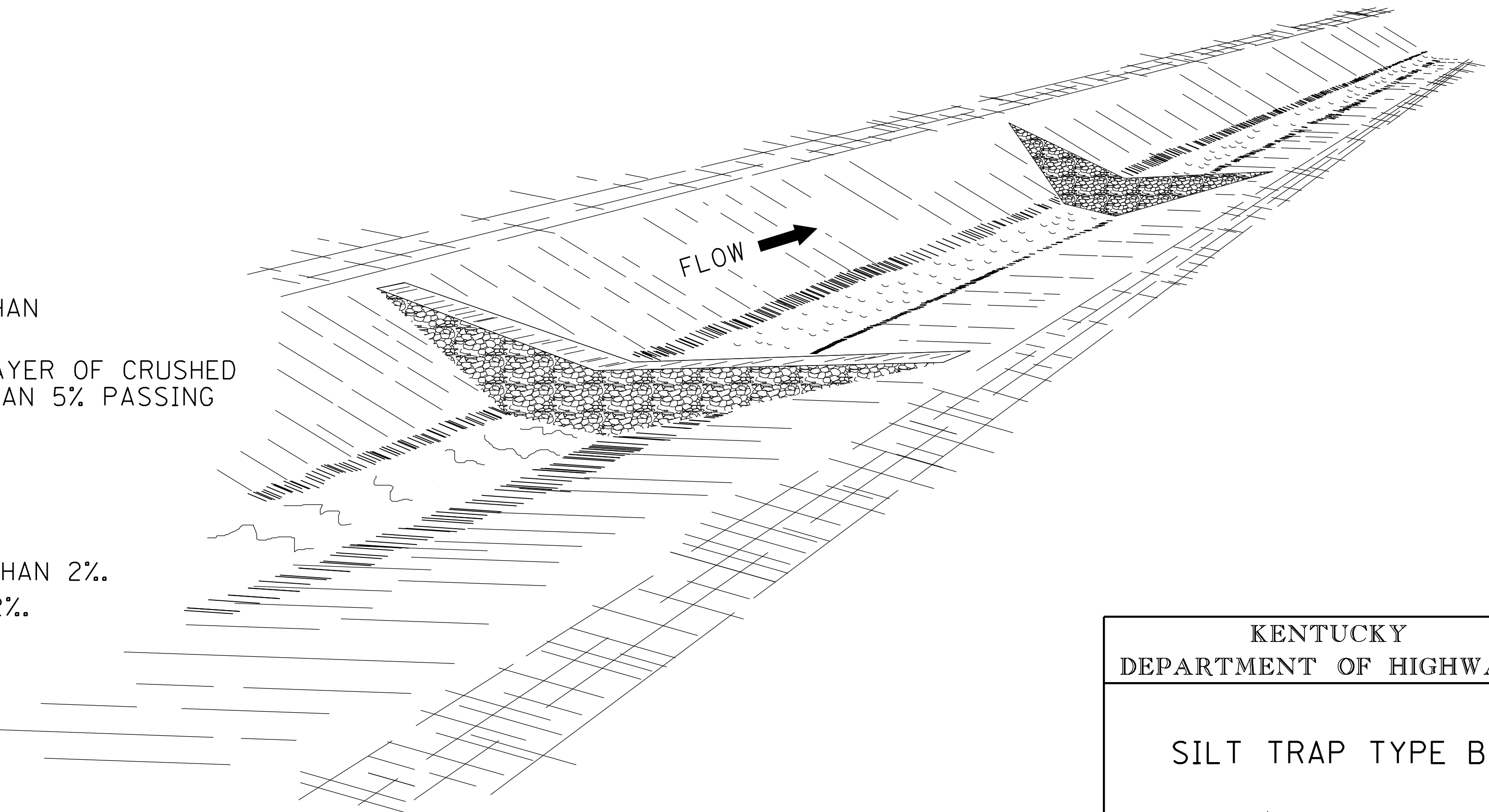


~NOTES~

BID ITEM AND UNIT TO BID:

| CODE | PAY ITEM               | PAY UNIT |
|------|------------------------|----------|
| 2704 | SILT TRAP TYPE B       | EACH     |
| 2707 | CLEAN SILT TRAP TYPE B | EACH     |

- MIDDLE OF SILT TRAP SHALL BE A MINIMUM OF 1'-0" LOWER THAN SIDES SO FLOW WILL NOT BYPASS TRAP OR ERODE BANKS.
- UPSTREAM FACE OF SILT TRAP SHALL BE A FOUR INCH MIN. LAYER OF CRUSHED AGGREGATE HAVING 100% PASSING A 3" SIEVE AND NO MORE THAN 5% PASSING A NO. 8 SIEVE (SEE SECTION "A-A").
- $$L = \frac{H}{\text{SLOPE OF DITCH}}$$
- SPACE SILT TRAPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- SILT TRAP TYPE B SHALL BE USED ON ALL SLOPES GREATER THAN 2%.
- SILT TRAP TYPE B MAY BE USED ON ALL SLOPES LESS THAN 2%.



KENTUCKY  
DEPARTMENT OF HIGHWAYS

SILT TRAP TYPE B

SUBMITTED  7-18-13  
DATE  
016

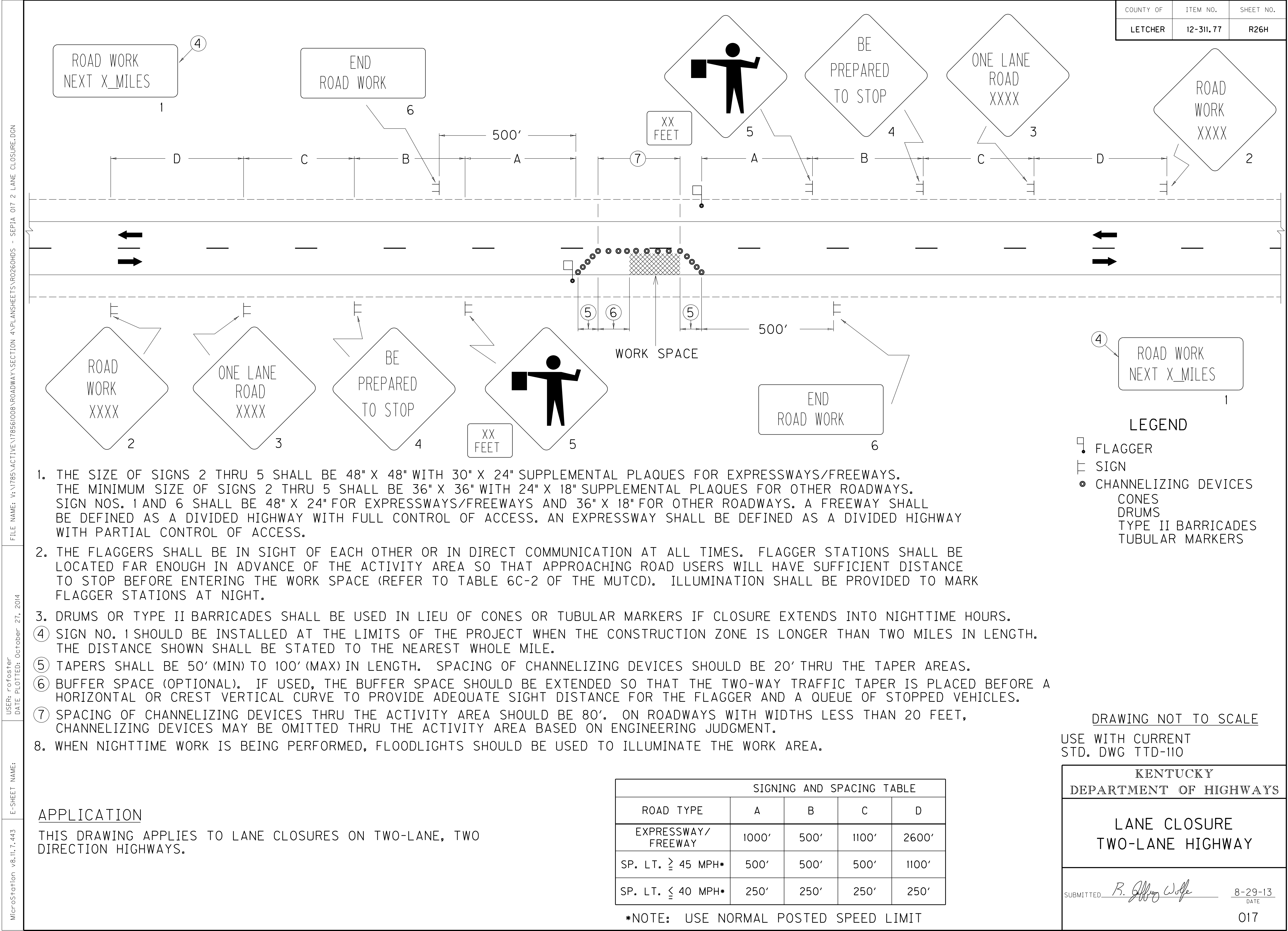
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USER: rpfoster  
DATE PLOTTED: October 27, 2014

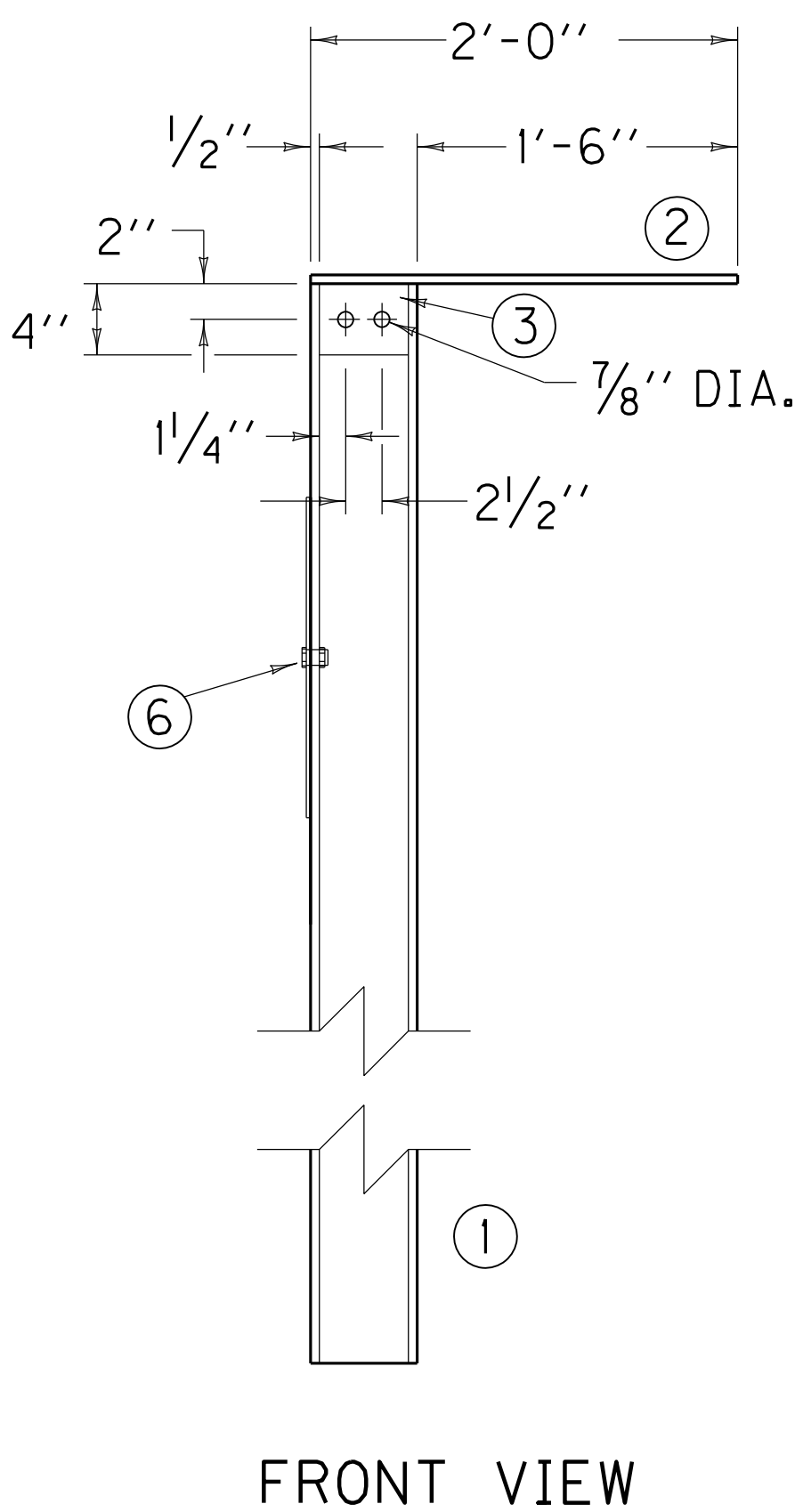
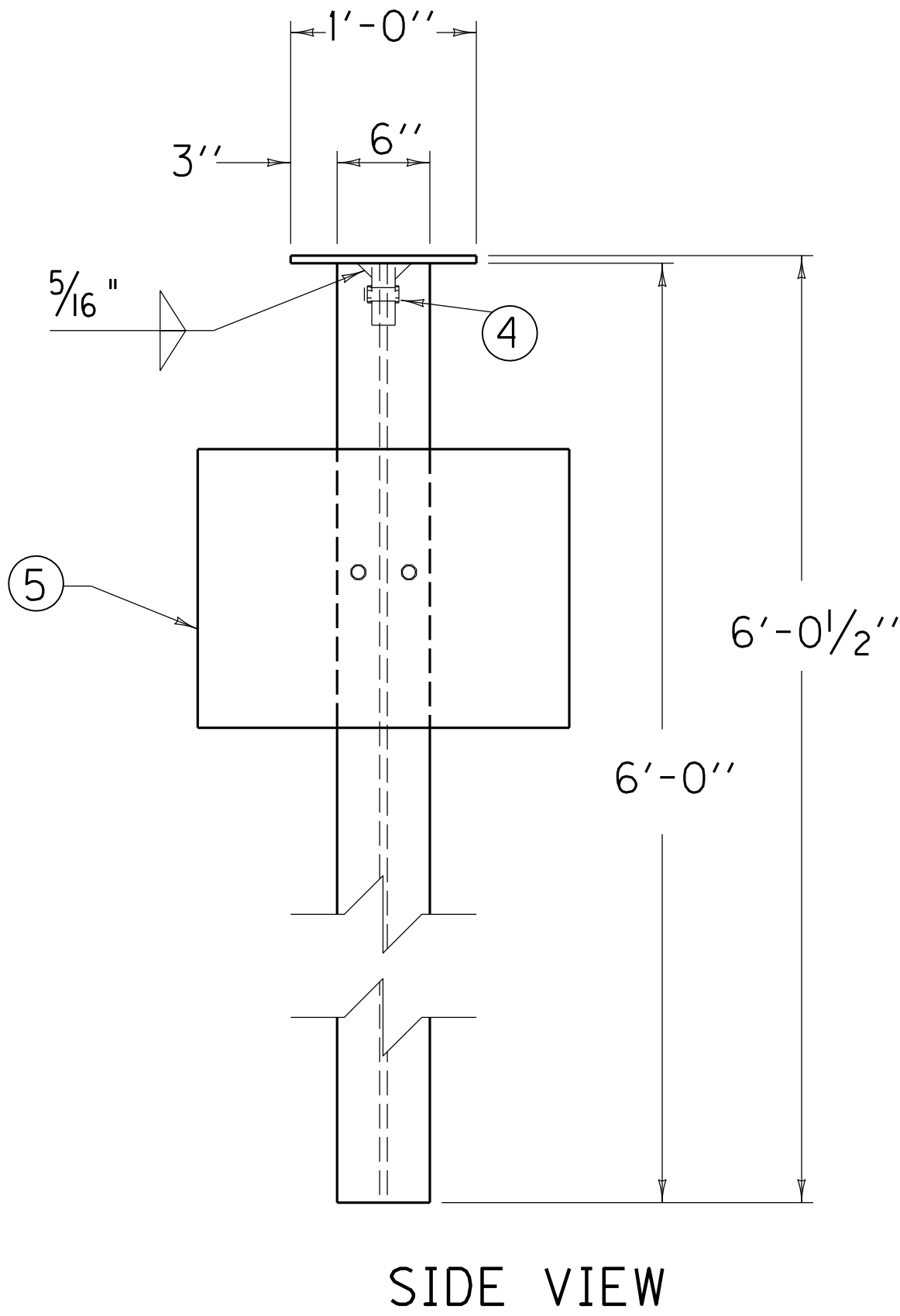
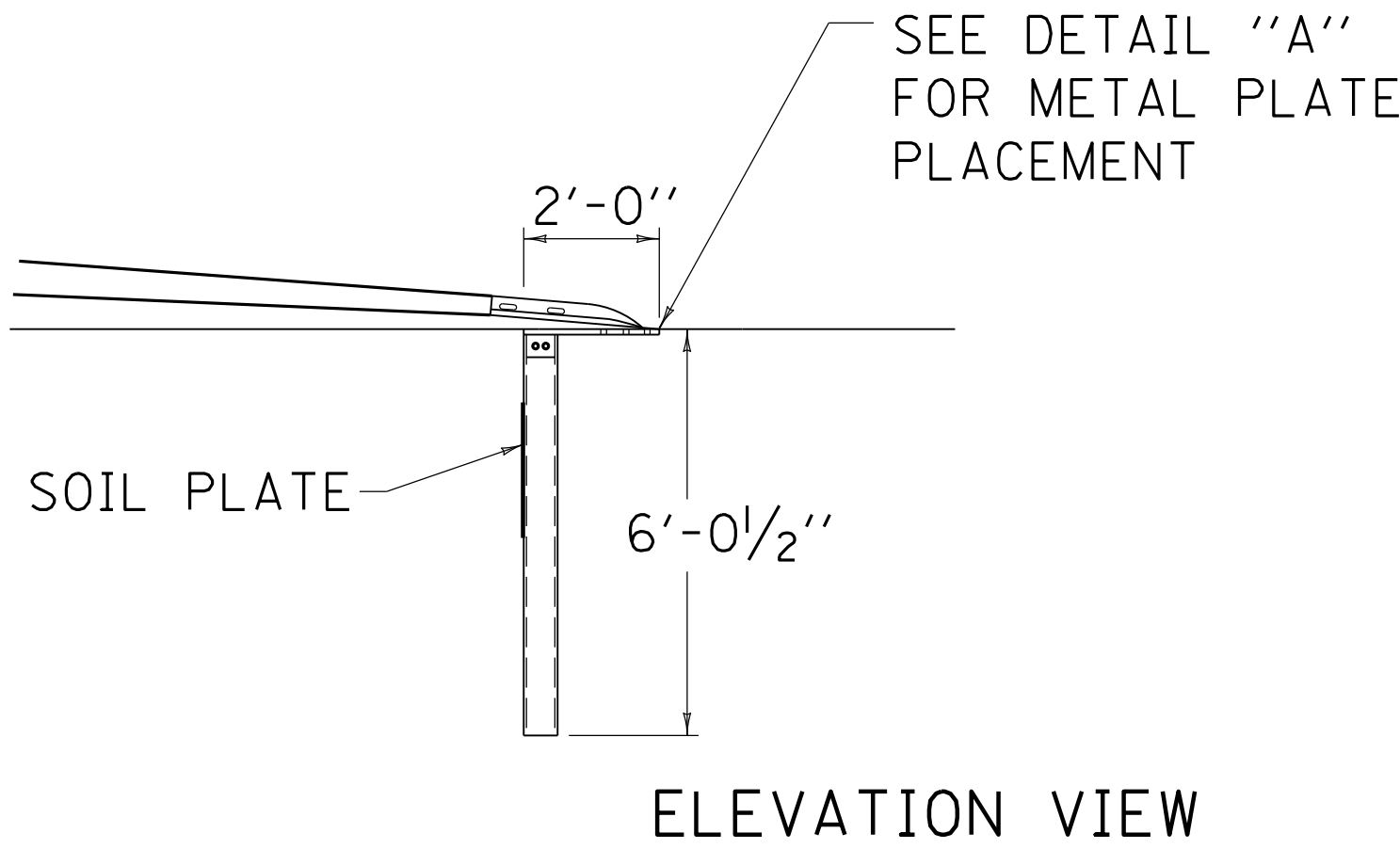
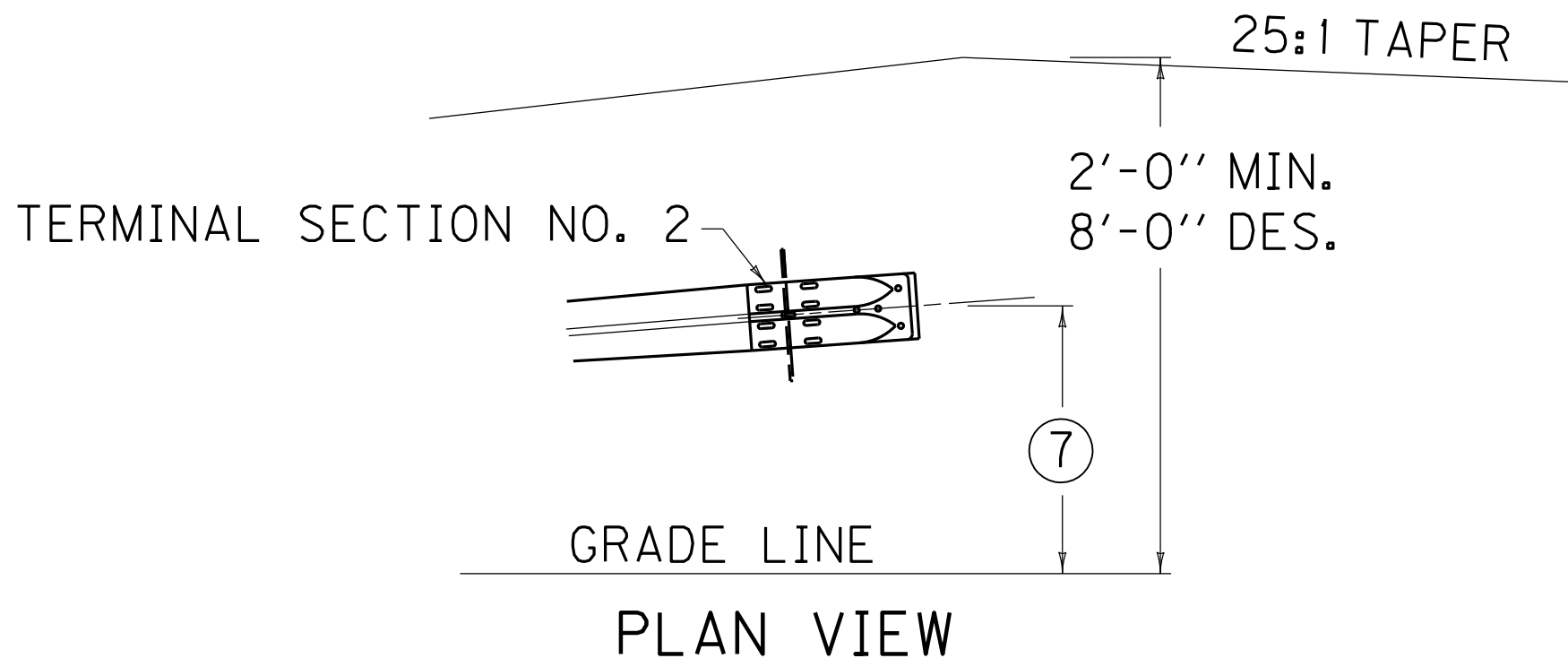
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MicroStation v8.11.7.443

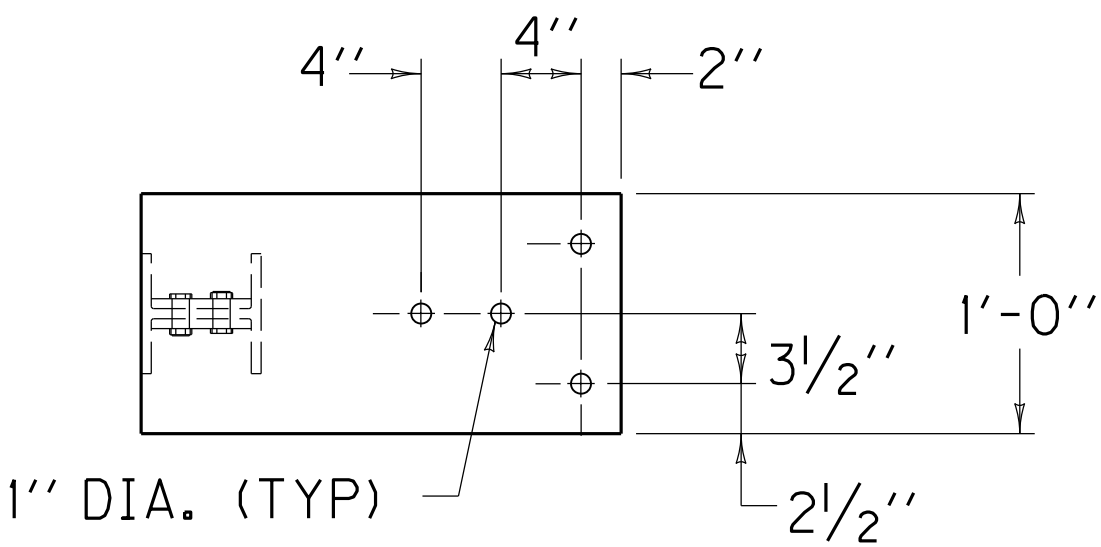








DETAIL "A"



TOP VIEW

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

GUARDRAIL END TREATMENT TYPE 7 SHALL BE TO THE PAY LIMITS AS DETAILED AND THE CONTRACT UNIT PRICE EACH SHALL INCLUDE TERMINAL SECTION NO. 2, STEEL "W" BEAM GUARDRAIL (SINGLE FACE), GUARDRAIL POSTS MI, STEEL ANCHOR PLATE AND POST, SOIL PLATE, EXCAVATION, LABOR HARDWARE AND INCIDENTALS NECESSARY FOR THE INSTALLATION.

BID ITEM AND UNIT TO BID:  
GUARDRAIL END TREATMENT TYPE 7 - EACH

CONSTRUCTION REQUIREMENTS

SPLICE BOLTS AT TERMINAL SECTION NO. 2 SHALL BE LOOSELY TIGHTENED AND CENTERED TO ALLOW MAXIMUM MOVEMENT DUE TO EXPANSION. ONE (1) 1 1/16 " ROUND WASHER AND (1) RECTANGULAR PLATE WASHER REQUIRED FOR EACH SPLICE BOLT, AT TERMINAL SECTION NO. 2.

⑦ THE DESIREABLE OFFSET DISTANCE FROM THE NORMAL GUARDRAIL LINE SHALL BE 4'-0". THE MINIMUM OFFSET DISTANCE FROM THE NORMAL GUARDRAIL LINE IS ZERO FEET.

MATERIAL REQUIREMENTS

SEE CURRENT STD. DWG. RBR-001, RBR-005, RBR-010 AND RBR-015 FOR APPLICABLE DETAILS AND SPECIFICATIONS.

| BILL OF MATERIAL |      |                                                               |
|------------------|------|---------------------------------------------------------------|
| NO.              | QTY. | DESCRIPTION                                                   |
| ①                | 1    | W6x15 W-BEAM                                                  |
| ②                | 1    | 2' x 1' x 1/2" PLATE                                          |
| ③                | 2    | 4" x 5" x 1/2" PLATE                                          |
| ④                | 2    | 3/4" DIA. x 2 1/2" HEAVY HEX HD BOLT w/NUT & (2) FLAT WASHERS |
| ⑤                | 1    | 2' x 18" x 1/4" PLATE                                         |
| ⑥                | 2    | 3/4" DIA. x 2" HEAVY HEX HD BOLT w/NUT & (2) FLAT WASHERS     |

KENTUCKY  
DEPARTMENT OF HIGHWAYS

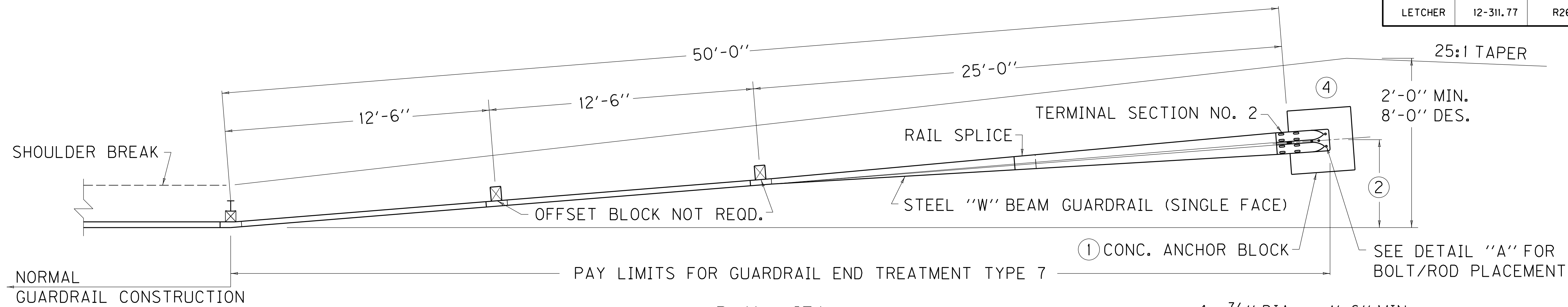
GUARDRAIL END  
TREATMENT TYPE 7  
ALTERNATE ANCHOR

SUBMITTED *William S. Salick* 7-22-14  
DATE

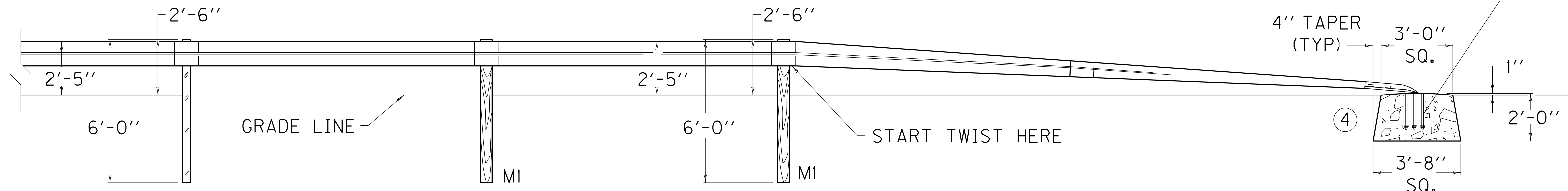
021



|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | R26J      |



PLAN VIEW



ELEVATION VIEW

NOTES

**METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

GUARDRAIL END TREATMENT TYPE 7 SHALL BE TO THE PAY LIMITS AS DETAILED AND THE CONTRACT UNIT PRICE EACH SHALL INCLUDE TERMINAL SECTION NO. 2, STEEL "W" BEAM GUARDRAIL (SINGLE FACE), GUARDRAIL POSTS M1, CONCRETE ANCHOR BLOCK, EXCAVATION, LABOR, HARDWARE AND INCIDENTALS NECESSARY FOR THE INSTALLATION.

BID ITEM AND UNIT TO BID:  
GUARDRAIL END TREATMENT TYPE 7 - EACH

**CONSTRUCTION REQUIREMENTS**

SPLICE BOLTS AT TERMINAL SECTION NO. 2 SHALL BE LOOSELY TIGHTENED AND CENTERED TO ALLOW MAXIMUM MOVEMENT DUE TO EXPANSION. ONE (1) 1 1/16" ROUND WASHER AND ONE (1) RECTANGULAR PLATE WASHER REQUIRED FOR EACH SPLICE BOLT, AT TERMINAL SECTION NO. 2.

- ① THE CONCRETE ANCHOR BLOCK MAY BE PRECAST OR CAST-IN-PLACE. WHEN THE CONCRETE ANCHOR BLOCK IS CAST-IN-PLACE FORMING OF THE SIDES SHALL BE REQUIRED.
- ② THE DESIREABLE OFFSET DISTANCE FROM THE NORMAL GUARDRAIL LINE SHALL BE 4'-0". THE MINIMUM OFFSET DISTANCE FROM THE NORMAL GUARDRAIL LINE IS ZERO FEET.

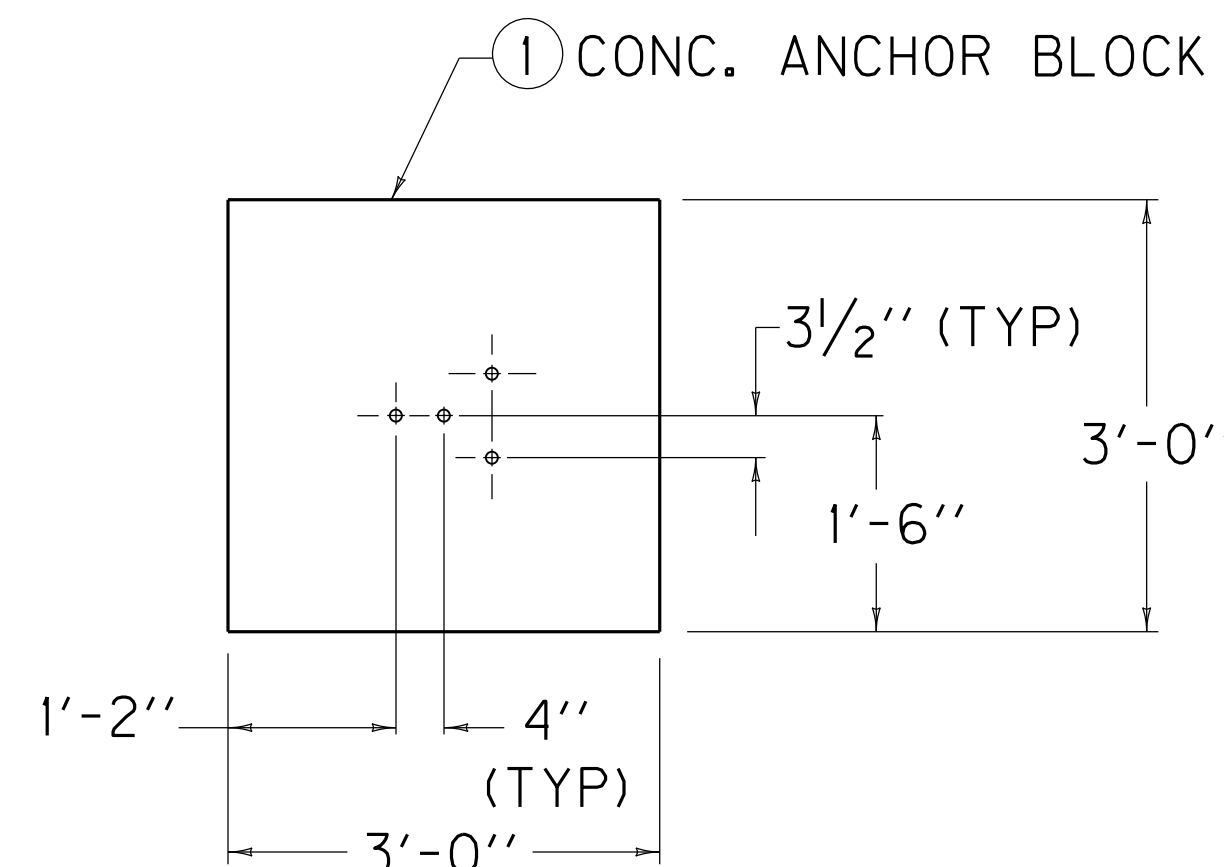
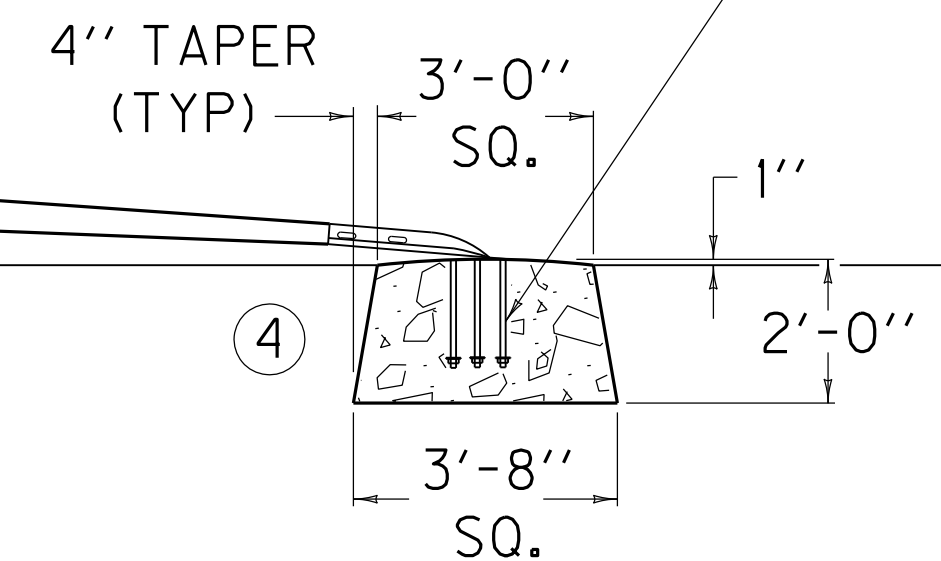
**MATERIAL REQUIREMENTS**

SEE CURRENT STD. DWG. RBR-001, RBR-005, RBR-010, AND RBR-015 FOR APPLICABLE DETAILS AND SPECIFICATIONS.

APPROX. QUANTITY FOR ANCHOR BLOCK: 0.83 CU. YD. CLASS "A" CONCRETE FOR TYPE 7 INSTALLATON.

3. THIS GUARDRAIL END TREATMENT IS NOT FOR USE ON APPROACH END ON HIGH SPEED NHS
- ④ SEE STANDARD DRAWING RBR-051 FOR ALTERNATE END ANCHOR.

4 - 7/8" DIA. x 1'-6" MIN.  
ANCHOR BOLTS  
---OR---  
THREADED RODS (HEX NUTS  
AND FLAT WASHERS)



DETAIL "A"

USE WITH CUR. STD. DWG.  
RBR-051

KENTUCKY  
DEPARTMENT OF HIGHWAYS

GUARDRAIL  
END TREATMENT  
TYPE 7

SUBMITTED *William S. Salter* 7-22-14  
DATE

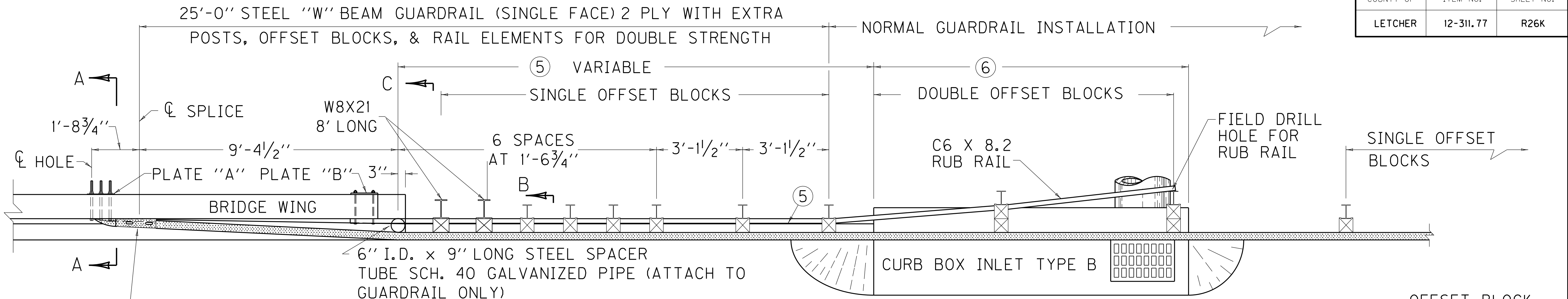
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USER: rpfoster  
DATE PLOTTED: October 27, 2014

E-SHEET NAME:

MicroStation v8.11.7.443



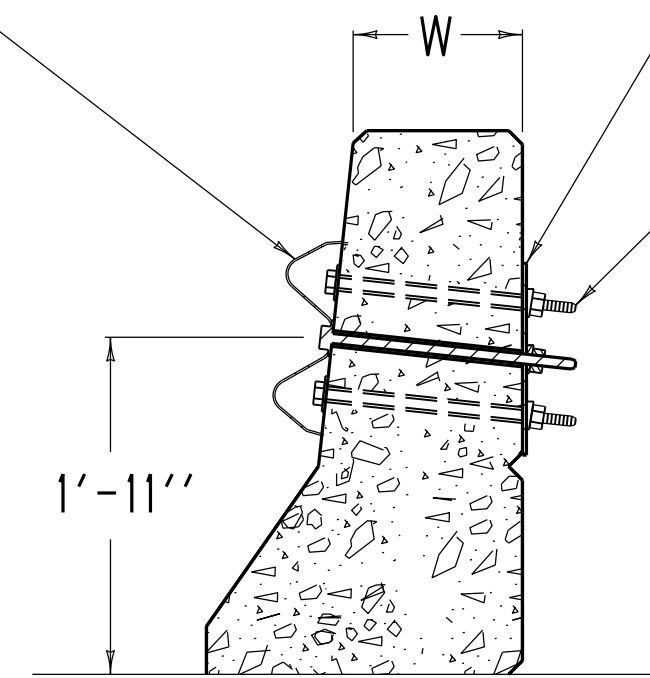


TERMINAL SECT. NO. 2; FOR RECTANGULAR PLATE WASHER  
REQUIRMENTS AT SPLICE SEE CUR. STD. DWG. RBR-010

~ NOTES ~

PLAN VIEW  
TYPE A

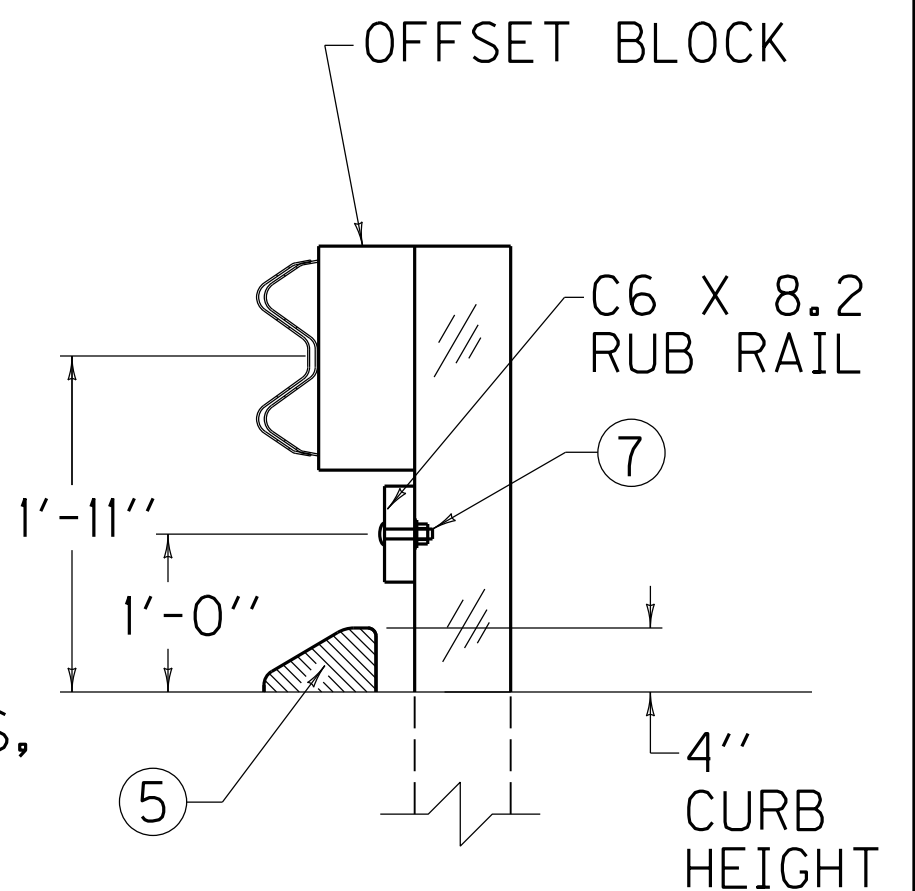
TERMINAL SECT. NO. 2



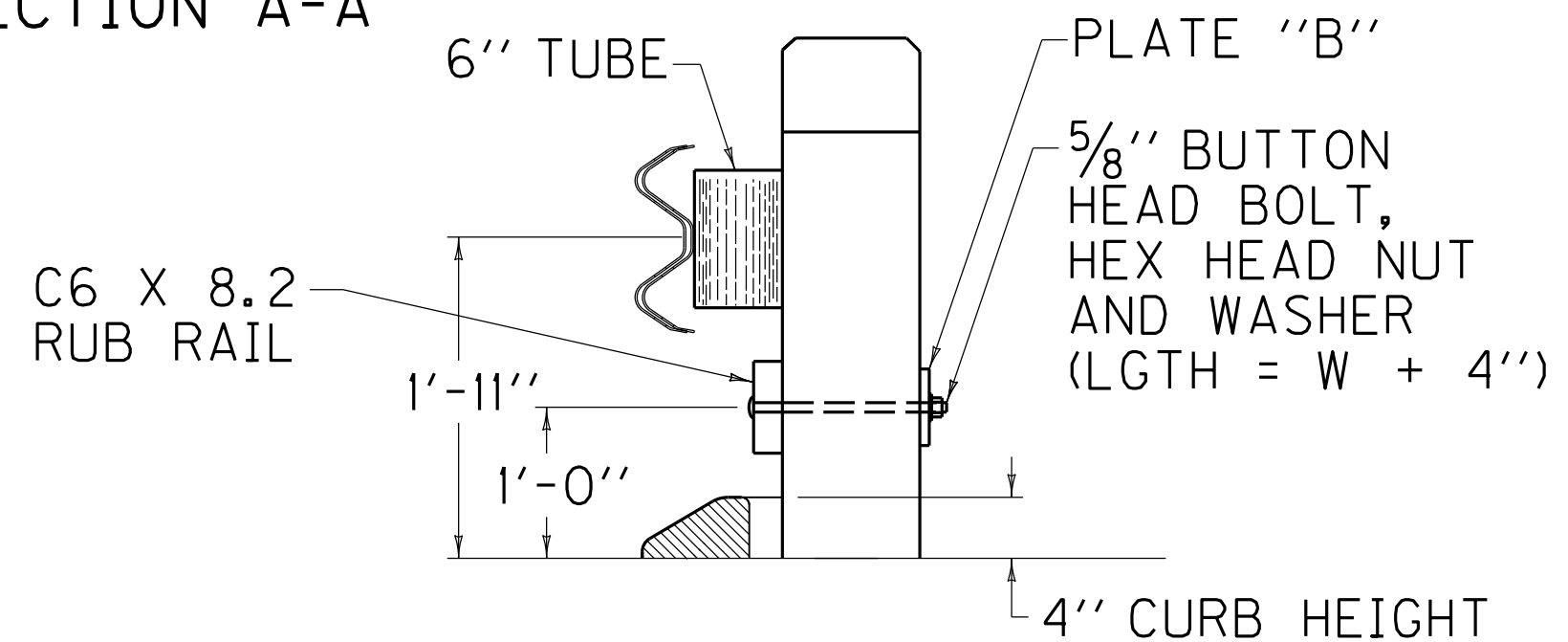
SECTION A-A

PLATE "A"

4 -  $\frac{7}{8}$ " HEX HEAD BOLTS  
(LENGTH  $W + 6''$ ), 4 NUTS,  
4 BEVELED WASHERS AND  
4 FLAT WASHERS.  
~ OR ~  
4 -  $\frac{7}{8}$ " STEEL THREADED  
RODS (LENGTH  $W + 8''$ ), 8 NUTS,  
4 BEVELED WASHERS AND  
4 FLAT WASHERS.



SECTION B-B



SECTION C-C

1. GENERAL

- SEE CUR. STD. DWGS. IN THE RBB, RBI, RBR, AND RPM-SERIES FOR OTHER RELATED GUARDRAIL DETAILS AND BRIDGE PLANS FOR BRIDGE WING DETAIL.
- SEE CUR. STD. DWG. RDB-SERIES FOR CURB BOX INLET TYPE B.
- GUARDRAIL CONNECTOR TO BRIDGE END TYPE A IS FOR USE ON BOTH BRIDGE ENDS OF AN UNDIVIDED HIGHWAY AND ON THE APPROACH BRIDGE ENDS OF A DIVIDED HIGHWAY.

2. MATERIAL REQUIREMENTS

ALL HARDWARE SHALL BE GALVANIZED. (AASHTO M-232)

$\frac{5}{8}$ " STEEL PLATE "A" (AASHTO M-270)

$\frac{7}{8}$ " HEX HEAD BOLTS OR STEEL THREADED RODS (LENGTH AS SHOWN)

$\frac{7}{8}$ " HEAVY HEX NUTS ( $\frac{7}{8}$ " THICK) (AASHTO M-291)

$\frac{7}{8}$ " FLAT WASHERS ( $\frac{3}{16}$ " THICK) (AASHTO M-293)

$\frac{7}{8}$ " BEVELED WASHERS ( $\frac{5}{16}$ " MEAN THICKNESS) (AASHTO M-293)

BOTH THE BOLT AND THREADED ROD SHALL HAVE A MINIMUM OF 50,000 LBS. TENSILE STRENGTH AT THE NARROWEST POINT.

3. CONSTRUCTION METHODS

- ELIMINATE EXTRA OFFSET BLOCKS WHEN CURB BOX INLET TYPE B IS NOT REQUIRED.
- HOLES TO BE FORMED THROUGH BRIDGE WING WITH 1" I.D. PLASTIC PIPE FOR  $\frac{7}{8}$ " BOLTS AND  $\frac{3}{4}$ " I.D. PLASTIC PIPE FOR  $\frac{5}{8}$ " BOLTS, PIPE SHALL REMAIN IN PLACE.

4. METHOD OF MEASUREMENT AND BASIS OF PAYMENT

- GUARDRAIL CONNECTOR TO BRIDGE END TYPE A SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, AND INCLUDES: TERMINAL SECTION NO. 2; ALL ITEMS WHICH ARE IN ADDITION TO THE NORMAL INSTALLATION OF STEEL BEAM GUARDRAIL (EXTRA POSTS, OFFSET BLOCKS, RAIL ELEMENTS, SPACER TUBE, HARDWARE, RUB RAIL, ETC.), AND OTHER INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION AS DETAILED. STEEL "W" BEAM GUARDRAIL (SINGLE FACE) AND ISLAND HEADER CURB ARE SEPARATE BID ITEMS WHICH ARE ALWAYS REQUIRED. CURB BOX INLET TYPE B IS A SEPARATE BID ITEM THAT WILL BE USED WHEN REQUIRED FOR BRIDGE END DRAINAGE.

PAY ITEM

GUARDRAIL CONNECTOR TO BRIDGE END TY A

GUARDRAIL-STEEL "W" BEAM-S FACE

ISLAND HEADER CURB TYPE 1 OR 2

CURB BOX INLET TYPE B (AS REQUIRED)

PAY UNIT

EACH

LF

LF

EACH

- THE PLASTIC PIPE AND COST OF FORMING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR BRIDGE SUPERSTRUCTURE CONCRETE.

- ISLAND HEADER CURB. TRANSITION FROM ISLAND CURB SHAPE TO SHAPE ON BRIDGE WING WITHIN 7'-3". LENGTH OF CURB VARIABLE (22'-3" WHEN  $L=5'-0''$ ) (17'-3" WHEN  $L=10'-0''$ ) (12'-3" WHEN  $L=15'-0''$ ) (7'-3" WHEN  $L=20'-0''$ ). ON APPROACH END CONSTRUCT 25'-0" OF ISLAND HEADER CURB EVEN WHEN CURB BOX INLET TYPE B IS NOT REQUIRED.
- 6'-4" WHEN  $L=5'-0''$   
11'-4" WHEN  $L=10'-0''$  ★  
16'-4" WHEN  $L=15'-0''$   
21'-4" WHEN  $L=20'-0''$
- $\frac{5}{8}$ " X  $3\frac{1}{2}$ " BUTTON HEAD BOLT, HEX HEAD NUT.
- CURB BOX NOT REQUIRED UNLESS NEEDED FOR DRAINAGE.
- ★ 10'-0" LENGTH IS REQUIRED UNLESS OTHERWISE NOTED.  
L EQUALS THROAT LENGTH OF BOX.

USE WITH CUR. STD. DWGS.  
BHS-008, RBC-002 AND RBC-003

KENTUCKY  
DEPARTMENT OF HIGHWAYS

GUARDRAIL CONNECTOR  
TO BRIDGE END  
TYPE A

SUBMITTED *William S. Galt* 7-22-14  
DATE



|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | R27       |

SPECIAL NOTES

BLASTING OPERATIONS  
During blasting operations, traffic may be halted for a maximum of twenty minutes per hour to allow execution of the shot and allow for removal of rock fragments and debris. Traffic stoppage will not be permitted between the hours of 6:30 A.M. and 8:30 A.M. or 3:00 P.M. and 5:30 P.M.

TRAFFIC STOPPAGE  
Traffic may be halted for a maximum of twenty minutes per hour. Traffic stoppage will not be permitted between the hours of 6:30 A.M. and 8:30 A.M. or 3:00 P.M. and 5:30 P.M.

LANE WIDTHS  
The contractor shall maintain a two-lane traveled way with a minimum lane width of 3.0 meters. However, during working hours, one-lane traffic may be allowed at the discretion of the engineer, provided adequate traffic control is in place at the location.

PAVEMENT EDGE DROP-OFFS  
Difference in Elevation for Travel Lanes  
A pavement edge that traffic is expected to cross in a lane change situation shall not have an elevation difference greater than 40 mm. This may be increased to 50 mm for low speed situations. Warning signs shall be placed in advance and throughout the drop-off area when drop-offs are greater than 12.5 mm. Modifications will be as directed by the engineer.

Pavement Drop-Offs  
Pavement edges that traffic is not expected to cross, shall be treated as follows; or, as directed by the engineer:

Less than 1/2 inch - No protection required.

1/2 to 2 inches - Warning signs shall be placed in advance and throughout the drop-off area.

2 to 4 inches - Plastic drums, vertical panels, or barricades shall be placed every 15 meters for speeds less than 80 kilometer per hour and every 30 meters for speeds of 80 Kilometers per hour and greater. Cones may be used in place of plastic drums, vertical panels, and barricades during daylight hours. Spacing for tapers shall be in accordance with the Manual on Uniform Traffic Control Devices.

4 inches and Greater - Positive separation needed or wedge with 1:3 or flatter slope. If there is 2.40 meters or more distance between the edge of pavement and drop-off, plastic drums, vertical panels or barricades may be used. If concrete barriers are used, special reflective devices or steady burn lights shall be used for overnight installations.

For temporary conditions, drop-offs 4 inches and greater may be protected with plastic drums, vertical panels, or barricades for short distances during daylight hours while work is being done in the drop-off area.

Payment will be allowed for DGA material used for wedging.

REMOVAL OF PAVEMENT MARKINGS  
Pavement markings shall be removed by either an abrasive or burning process to the satisfaction of the engineer. If the abrasive method is used, the area affected is to be coated with black (or more precisely, a color similar to that of the adjacent pavement surface) traffic paint. Painting of existing markings with bituminous or other materials to obliterate the markings shall not be allowed.

GENERAL NOTES

All traffic control devices shall comply with the current Standard Drawings and the current Manual on Uniform Traffic Control Devices.

Reasonable means of ingress and egress shall be maintained to all properties within the project limits at all times. The contractor will keep access available to the contractor for Section 3B to existing US 119 between the bridges at Sta. 51+024.4 and Sta. 51+515.5.

Phasing Notes

Phase I

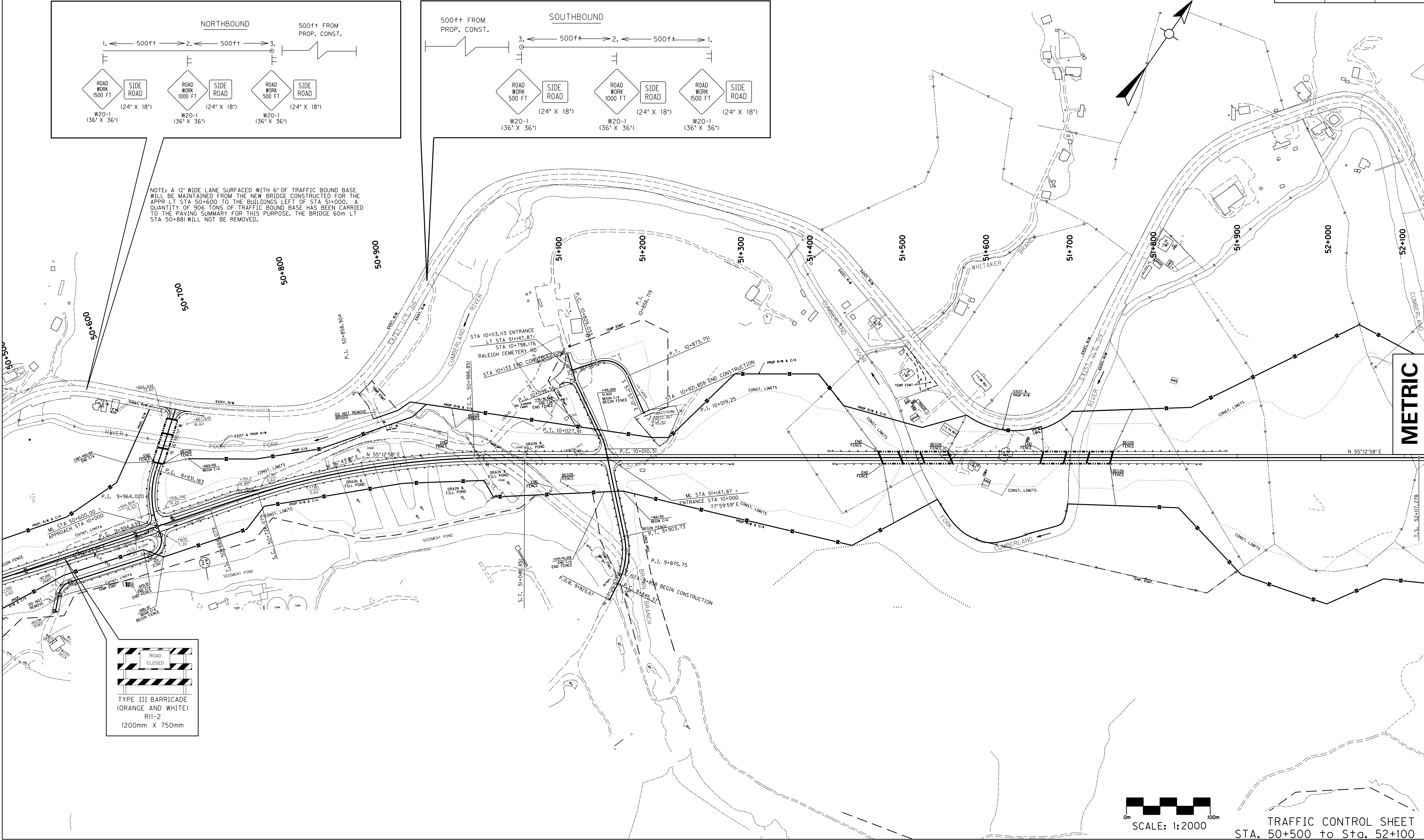
Place barricades at begin and end construction locations. Place all construction signs. Close northbound shoulder of existing US 119 at Approach Road at Sta. 9+855 and Temporary Tie Sta. 26+000 using - Shoulder Closure - (TTC-135) and construct new bridges and approaches to existing pavement. Construct mainline of proposed US 119. Maintain access at all times to local residences, cemeteries, and Coal Company.

Phase II

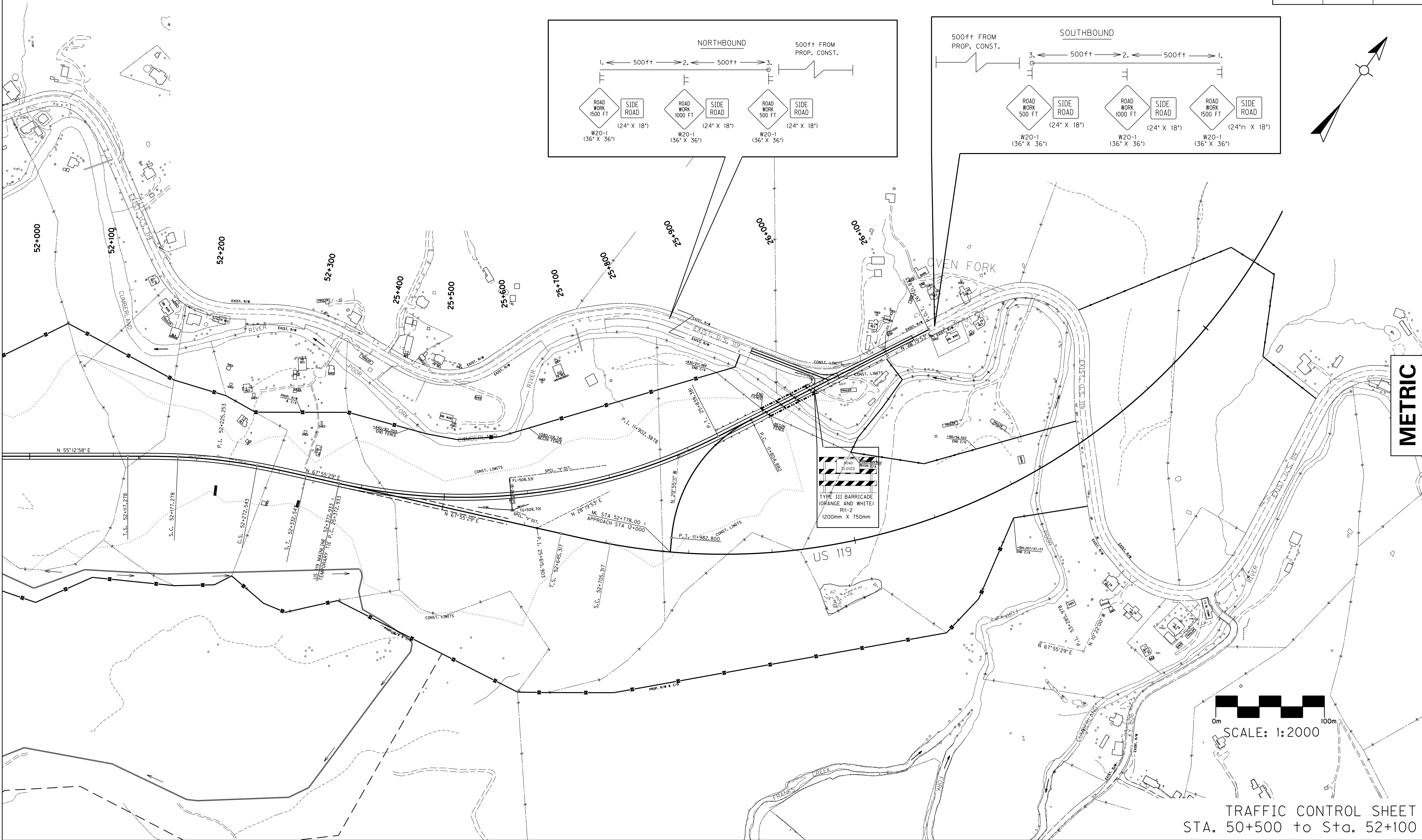
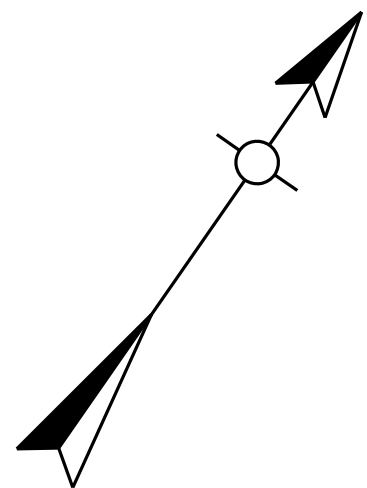
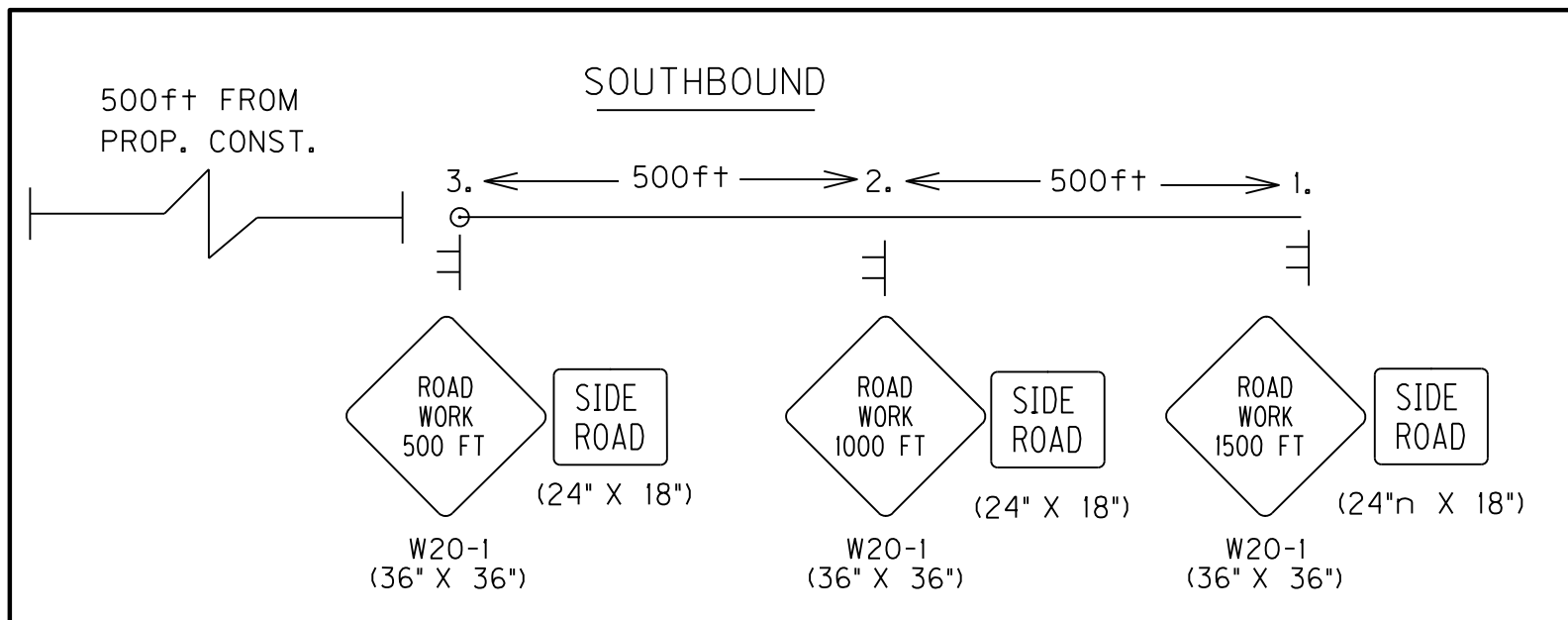
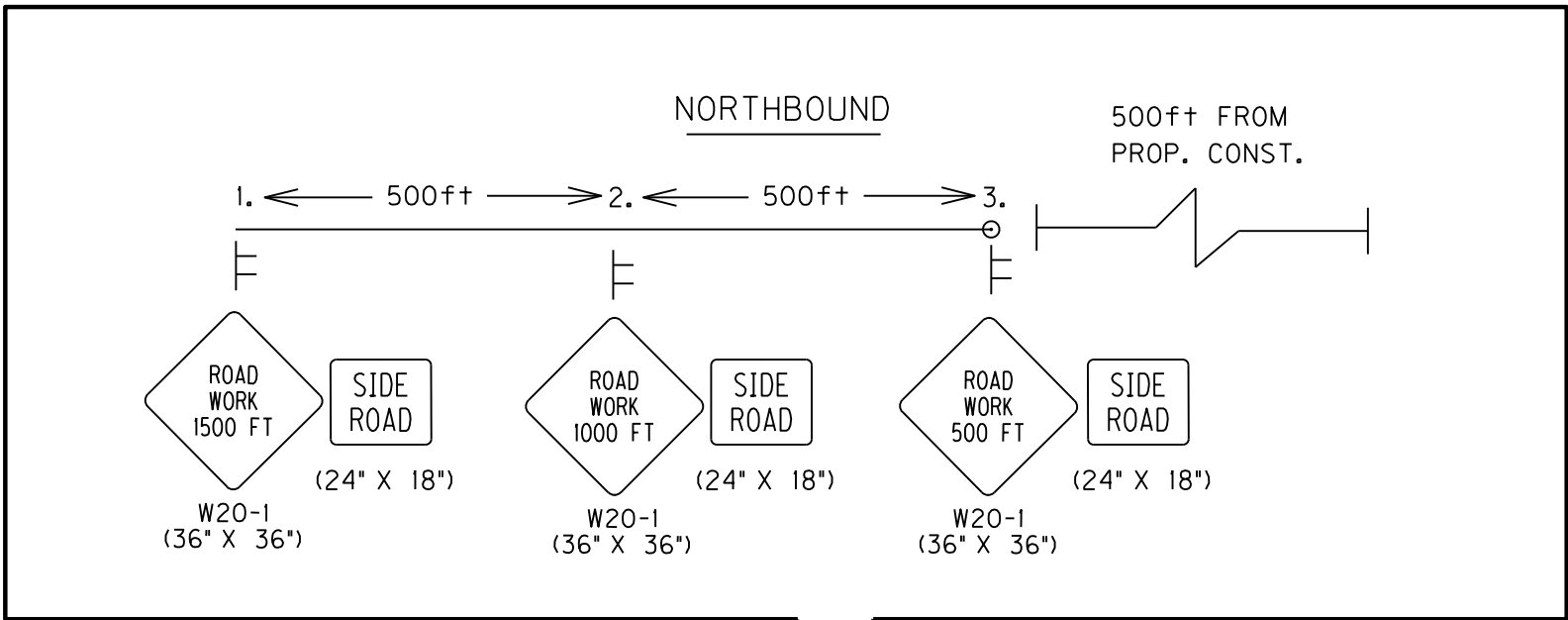
Construct tie in of Approach Road at Sta. 9+855 and Temporary Tie Sta. 26+100 using temporary traffic control items. Provide adequate drop-offs to reopen shoulder and mainline traffic. Open proposed US 119 to traffic and close northbound shoulder of existing US 119 at existing bridge. Remove existing bridge.

METRIC









METRIC

0m 100m  
SCALE: 1:2000

TRAFFIC CONTROL SHEET  
STA. 50+500 to Sta. 52+100



EROSION CONTROL NOTES

ALL SILT CONTROL DEVICES SHALL BE SIZED TO RETAIN A VOLUME OF 3,600 CUBIC FEET PER DISTURBED CONTRIBUTING ACRE.

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS TO MINIMIZE THE AMOUNT OF DISTURBED GROUND DURING EACH PHASE OF CONSTRUCTION. THE CONTRACTOR SHALL COMPUTE THE VOLUME NECESSARY TO CONTROL SEDIMENT DURING EACH PHASE OF CONSTRUCTION. AS WORK PROCEEDS, SILT TRAPS MAY BE ADDED OR REMOVED IN ORDER TO ACHIEVE THE BEST MANAGEMENT PLAN. THE REQUIRED VOLUME AT EACH ADDED SILT TRAP SHALL BE COMPUTED AS UP GRADIENT CONTRIBUTING AREAS ARE DISTURBED OR ARE STABILIZED TO THE SATISFACTION OF THE ENGINEER. THE REQUIRED VOLUME CALCULATION FOR EACH SILT TRAP SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER. THE REQUIRED VOLUME AT EACH SILT TRAP MAY BE REDUCED BY THE FOLLOWING AMOUNTS:

- UP GRADIENT AREAS NOT DISTURBED (ACRES).
- UP GRADIENT AREAS THAT HAVE BEEN RECLAIMED AND PROTECTED BY EROSION CONTROL BLANKET OR OTHER GROUND PROTECTION MATERIAL SUCH AS TEMPORARY MULCH.(ACRES).
- THE USE OF TEMPORARY MULCH IS ENCOURAGED.
- UP GRADIENT AREAS THAT HAVE BEEN PROTECTED BY SILT FENCE (ACRES). AREAS PROTECTED BY SILT FENCE SHALL BE COMPUTED AT A MAXIMUM RATE OF 100 SQUARE FOOT PER LINEAR FOOT OF SILT FENCE.
- UP GRADIENT AREAS THAT HAVE BEEN PROTECTED BY SILT TRAPS (ACRES).

THE EROSION CONTROL PLAN SHALL BE ANNOTATED AS THE WORK PROCEEDS BY THE CONTRACTOR TO DETAIL THE SELECTION OF EACH EROSION CONTROL DEVICE USED AND THE VOLUME PROVIDED BY EACH SILT TRAP IN ACCORDANCE WITH THE DOCUMENTATION PROCEDURES ESTABLISHED BY THE DIVISION OF CONSTRUCTION.

IF A SILT BASIN IS NOT USED THEN ONE SILT TRAP TYPE A, ALTERNATE NUMBER 2 OR SILT TRAP TYPE B SHALL ALWAYS BE PLACED AT THE MOST REMOTE DOWNSTREAM COLLECTION POINT PRIOR TO DISCHARGING INTO A BLUE LINE STREAM OR ONTO AN ADJACENT PROPERTY OWNER. WHERE OVERLAND FLOW EXISTS, A SILT FENCE OR OTHER FILTER DEVICES MAY BE USED OR THE OVERLAND FLOW MAY BE DIVERTED TO ONE OF THE AFOREMENTIONED SILT BASIN OR TRAPS.

THE EROSION CONTROL PLANS DO NOT CONSTITUTE A BMP BY THEMSELVES. THEY PROVIDE A STARTING POINT FOR THE CONTRACTOR AND SECTION ENGINEER TO DEVELOP THE BMP ACCORDING TO SECTION 213.03.01 OF THE CURRENT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE SUPPLEMENTAL SPECS.

EROSION CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONING PRIOR TO ANY EXCAVATION OR DISTURBANCE WITHIN A DRAINAGE AREA.

THE CONTRACTOR SHALL BE REQUIRED TO CLEAN OUT (REMOVE SEDIMENT FROM) SILT TRAPS AND SILT FENCES WHENEVER THEY BECOME ONE- HALF FULL AND PROPERLY DISPOSE OF THE MATERIAL AT SITES APPROVED BY THE SECTION ENGINEER.

EROSION CONTROL MEASURES EMPLOYED BY THE CONTRACTOR WILL BE UNIQUE TO THE PROJECT AND WORK CONDITIONS AND SHALL BE APPROVED BY THE SECTION ENGINEER. THE DEVELOPMENT AND UTILIZATION OF THESE MEASURES WILL BE RECORDED AS PART OF THE BMP, KEPT ON SITE, AND AVAILABLE FOR PUBLIC INSPECTION.

| ITEM NO. | ITEMS                                             | QUANTITIES |      |
|----------|---------------------------------------------------|------------|------|
| 02703    | SILT TRAP TYPE A                                  | 107        | EACH |
| 02706    | CLEAN SILT TRAP TYPE A                            | 321        | EACH |
| 02704    | SILT TRAP TYPE B                                  | 50         | EACH |
| 02707    | CLEAN SILT TRAP TYPE B                            | 150        | EACH |
| 02701    | TEMP SILT FENCE                                   | 9,678      | LF   |
| 02709    | CLEAN TEMP SILT FENCE                             | 29,034     | LF   |
| 02159    | TEMP DITCH                                        | 9,678      | LF   |
| 05952    | TEMP MULCH                                        | 516,115    | SQYD |
| 05950    | EROSION CONTROL BLANKET (DT LINING & ROADWAY EMB) | 1238       | SQYD |
|          |                                                   |            |      |
| 05953    | TEMP SEEDING & PROTECTION                         | 516,115    | SQYD |
| 05964    | 20-10-10 FERTILIZER                               | 16         | TON  |
| 02711    | SEDIMENT BASIN                                    | 2,625      | CUYD |
| 02712    | CLEAN SEDIMENT BASIN                              | 7,875      | CUYD |
| 05963    | INITIAL FERTILIZER                                | 27         | TON  |
| 05992    | AGRICULTURAL LIMESTONE                            | 320        | TON  |

NOTE: THE SEDIMENTATION BASIN FOR WASTE SITE #4 IS SIZED TO ACCEPT RUNOFF FROM 20 AC OF DISTURBED AREA AT A TIME.

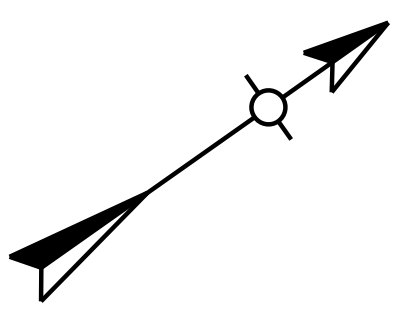
METRIC

| POINT DISCHARGES |            |         |        |           |                     |            |                         |            |                        |           |
|------------------|------------|---------|--------|-----------|---------------------|------------|-------------------------|------------|------------------------|-----------|
| NO.              | CENTERLINE | STATION | OFFSET | DIRECTION | PROJECT COORDINATES |            | STATE PLANE COORDINATES |            | GEOGRAPHIC COORDINATES |           |
|                  |            |         |        |           | NORTH (Y)           | X (EAST)   | NORTH (Y)               | X (EAST)   | LATITUDE               | LONGITUDE |
| PD21             | US 119     | 504+49  | 46     | RT        | 582,908.57          | 759,679.03 | 582,976.65              | 759,767.76 | 33.39401               | 88.62908  |
| PD23             | US 119     | 509+82  | 23     | LT        | 583,355.01          | 759,976.88 | 583,423.15              | 760,065.65 | 33.39526               | 88.62816  |
| PD26             | US 119     | 510+93  | 35     | RT        | 583,372.03          | 760,101.85 | 583,440.17              | 760,190.63 | 33.39532               | 88.62775  |
| PD28             | US 119     | 514+07  | 88     | LT        | 583,651.59          | 760,289.23 | 583,719.76              | 760,378.03 | 33.39610               | 88.62716  |
| PD32             | US 119     | 519+54  | 112    | LT        | 583,983.39          | 760,725.63 | 584,051.60              | 760,814.48 | 33.39704               | 88.62577  |
| PD34             | US 119     | 522+59  | 63     | LT        | 584,114.23          | 761,017.32 | 584,182.45              | 761,106.21 | 33.39743               | 88.62483  |
| PD35             | US 119     | 523+31  | 76     | LT        | 584,156.72          | 761,081.85 | 584,224.95              | 761,170.74 | 33.39755               | 88.62463  |
| PD37             | US 119     | 526+79  | 169    | LT        | 584,372.86          | 761,367.38 | 584,441.11              | 761,456.31 | 33.39816               | 88.62371  |

EROSION CONTROL ONLY

EROSION CONTROL NOTES AND SUMMARY





**BEFORE YOU DIG**

The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

BEGIN CONSTRUCTION  
STA. 50+150.586

ML STA 50+600.00 = DDA 22  
APPROACH STA 10+000

DDA 20

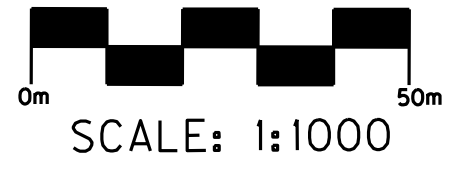
DDA 21

POINT DISCHARGE (DDA 21)

| EROSION CONTROL LEGEND       |  |
|------------------------------|--|
| SILT TRAP TYPE A ALTERNATE 1 |  |
| SILT TRAP TYPE A ALTERNATE 2 |  |
| SILT TRAP TYPE B             |  |
| SILT TRAP TYPE C             |  |
| SILT FENCE                   |  |
| TEMPORARY SILT DITCH         |  |
| DISTURBED DRAINAGE AREA      |  |
| OVERLAND SHEET FLOW          |  |
| PROPOSED R/W                 |  |
| PROPOSED EASEMENT            |  |

| DISTURBED DRAINAGE AREAS |                        |                                 |
|--------------------------|------------------------|---------------------------------|
| SECTION                  | DISTURBED AREA (ACRES) | MAXIMUM SEDIMENT VOLUME (CU FT) |
| DDA20                    | 2.345                  | 8,442                           |

**EROSION CONTROL ONLY**



METRIC



CEMETERY ENTRANCE CURVE DATA  
P.I. 10+856.7186  
 $\Delta = 85^{\circ}24'16.05''$  R+.  
R = 30.000m  
T = 27.6854m  
L = 44.7177m  
E = 10.8255m  
e = NC

APPROACH LT 50+600 CURVE DATA  
P.I. 9+964.0199  
 $\Delta = 36^{\circ}21'27.36''$  L+.  
R = 100.000m  
T = 32.8373m  
L = 63.4560m  
E = 5.2535m  
e = 2.0%  
Runoff = SEE X-SECTIONS  
Runout = SEE X-SECTIONS

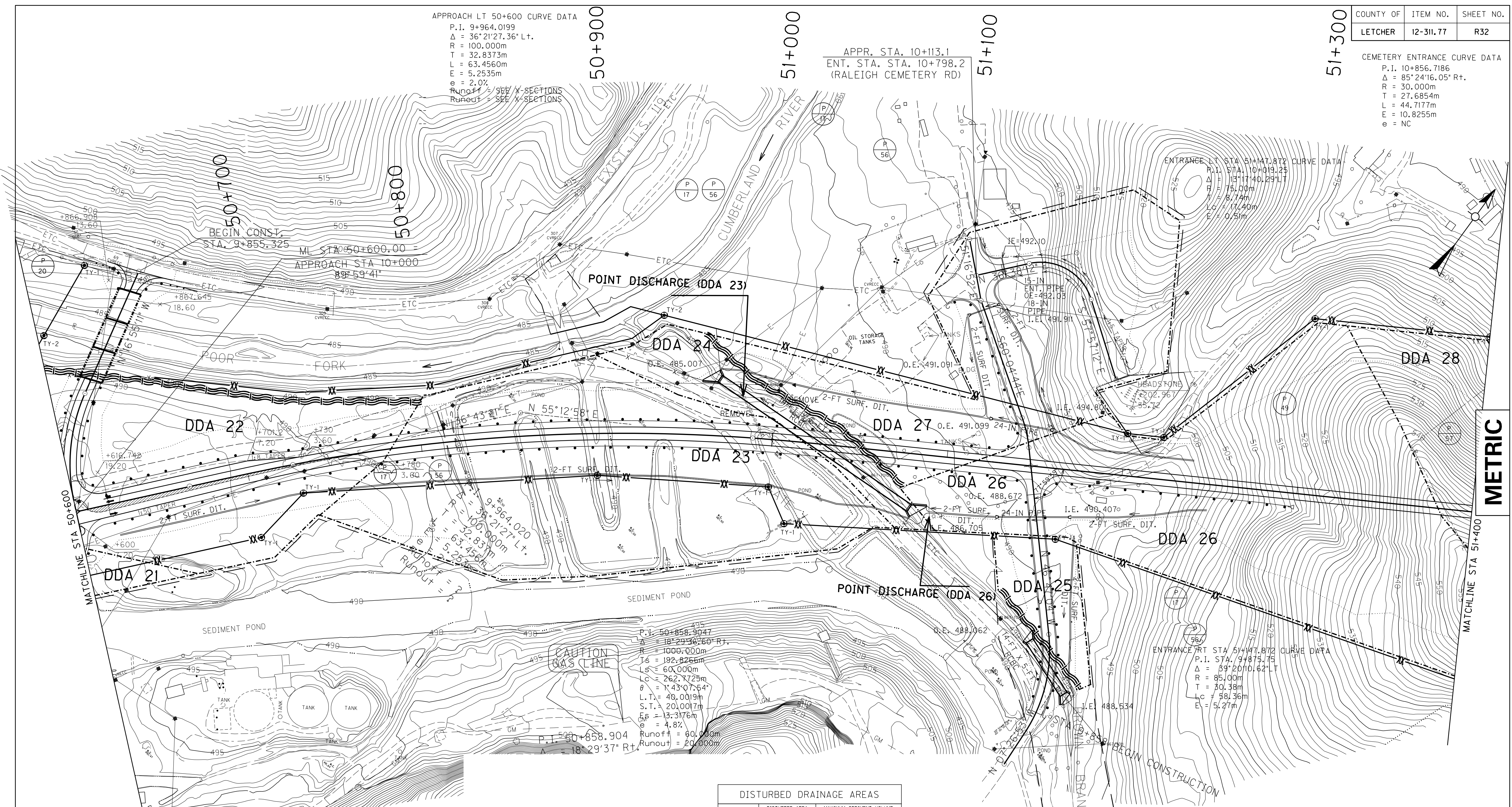
ENTRANCE LT STA 51+147.872 CURVE DATA  
P.I. STA. 10+019.25  
 $\Delta = 113^{\circ}17'40.29''$  LT  
R = 75.00m  
T = 8.714m  
Lc = 17.40m  
E = 0.51m

ENTRANCE RT STA 51+147.872 CURVE DATA  
P.I. STA. 9+875.75  
 $\Delta = 39^{\circ}20'10.62''$  LT  
R = 85.00m  
T = 30.38m  
Lc = 58.36m  
E = 5.27m

P.I. 50+858.9047  
 $\Delta = 18^{\circ}29'38.60''$  R+.  
R = 1000.000m  
Ts = 192.8266m  
Ls = 60.000m  
Lc = 262.7725m  
 $\theta = 1^{\circ}43'07.64''$   
L.T. = 40.0019m  
S.T. = 20.0017m  
Ts = 13.3176m  
e = 4.8%  
Runoff = 60.000m  
Runout = 20.000m

| DISTURBED DRAINAGE AREAS |                        |                                 |
|--------------------------|------------------------|---------------------------------|
| SECTION                  | DISTURBED AREA (ACRES) | MAXIMUM SEDIMENT VOLUME (CU FT) |
| DDA21                    | 1.619                  | 5,827                           |
| DDA22                    | 5.601                  | 20,163                          |
| DDA23                    | 6.462                  | 23,263                          |
| DDA24                    | 10.466                 | 37,679                          |
| DDA25                    | 0.738                  | 2,657                           |
| DDA27                    | 4.919                  | 17,708                          |

**EROSION CONTROL ONLY**



**METRIC**









METRIC

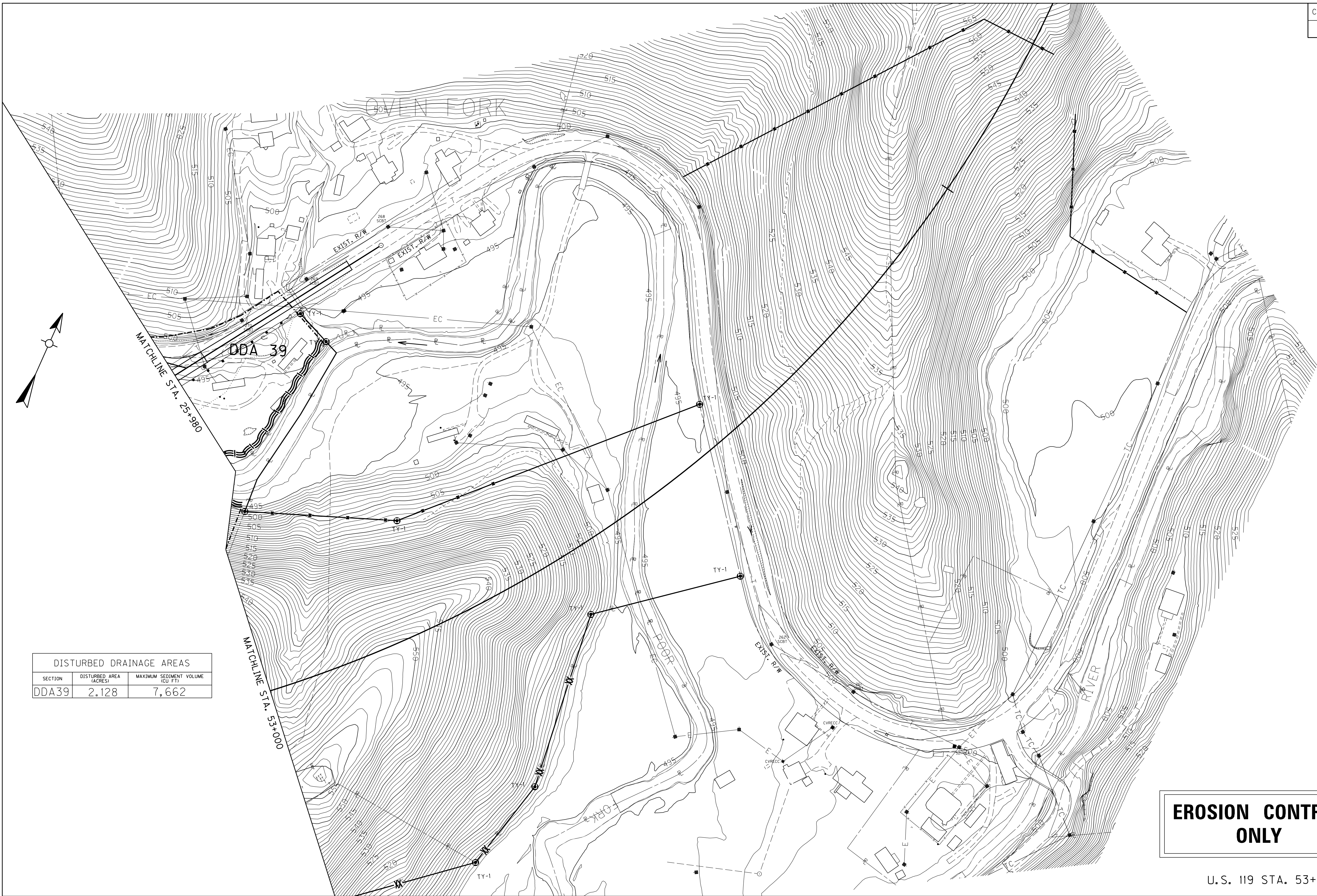
| DISTURBED DRAINAGE AREAS |                           |                                    |
|--------------------------|---------------------------|------------------------------------|
| SECTION                  | DISTURBED AREA<br>(ACRES) | MAXIMUM SEDIMENT VOLUME<br>(CU FT) |
| DDA33                    | 3.063                     | 11,026                             |
| DDA34                    | 7.421                     | 26,716                             |
| DDA35                    | 8.092                     | 29,130                             |
| DDA36                    | 9.630                     | 34,668                             |
| DDA37                    | 11.904                    | 42,856                             |
| DDA38                    | 6.402                     | 23,046                             |

**EROSION CONTROL  
ONLY**



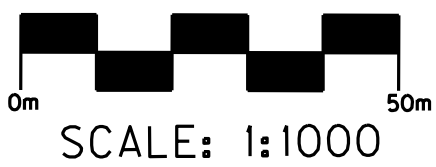


METRIC



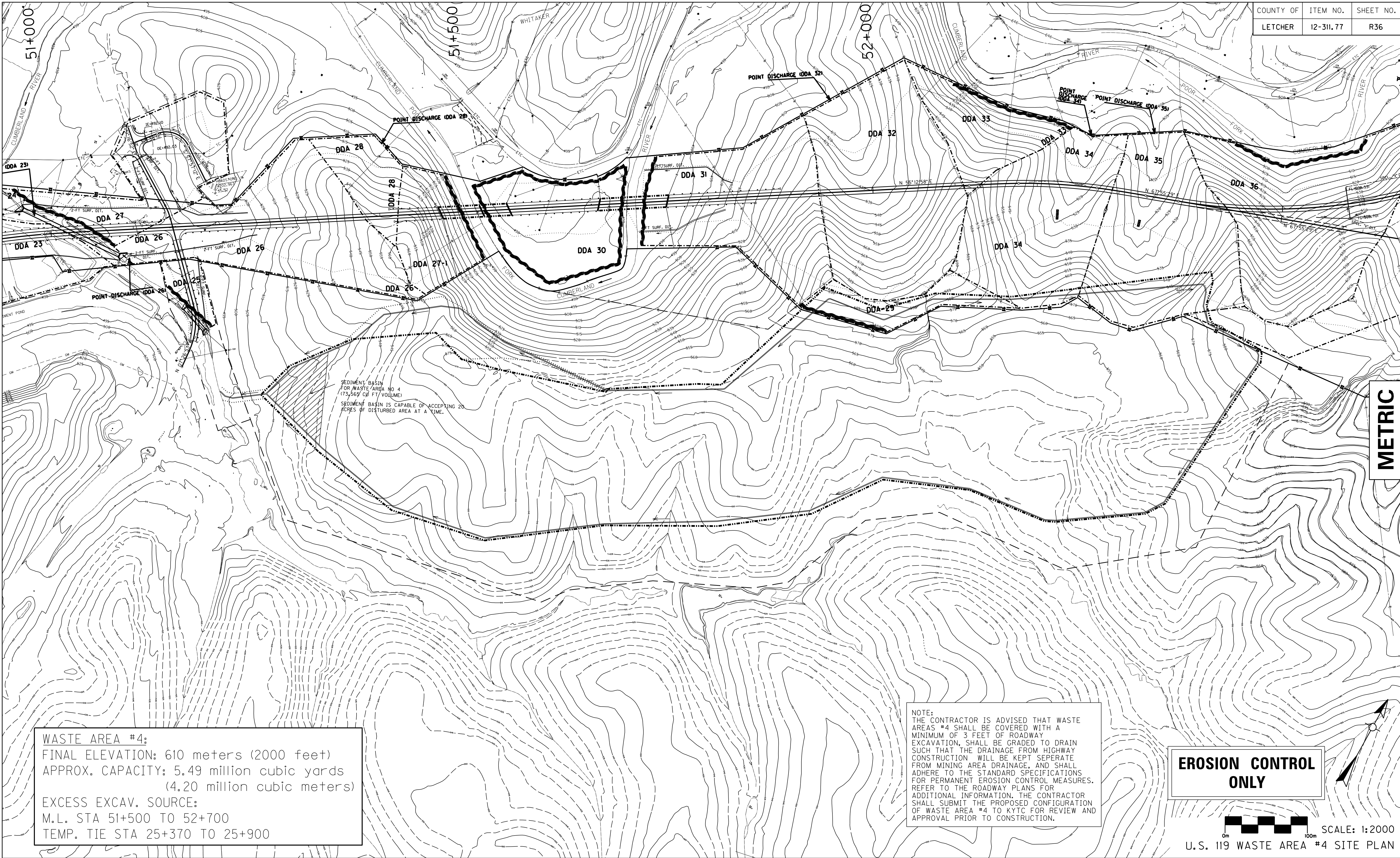
| DISTURBED DRAINAGE AREAS |                        |                                 |
|--------------------------|------------------------|---------------------------------|
| SECTION                  | DISTURBED AREA (ACRES) | MAXIMUM SEDIMENT VOLUME (CU FT) |
| DDA39                    | 2.128                  | 7,662                           |

**EROSION CONTROL ONLY**



PLAN SHEET  
U.S. 119 STA. 53+000 TO STA. 53+500





WASTE AREA #4:  
FINAL ELEVATION: 610 meters (2000 feet)  
APPROX. CAPACITY: 5.49 million cubic yards  
(4.20 million cubic meters)  
EXCESS EXCAV. SOURCE:  
M.L. STA 51+500 TO 52+700  
TEMP. TIE STA 25+370 TO 25+900

SEDIMENT BASIN  
FOR WASTE AREA NO 4  
(73,569 CU FT VOLUME)  
SEDIMENT BASIN IS CAPABLE OF ACCEPTING 20  
ACRES OF DISTURBED AREA AT A TIME.

NOTE:  
THE CONTRACTOR IS ADVISED THAT WASTE  
AREAS #4 SHALL BE COVERED WITH A  
MINIMUM OF 3 FEET OF ROADWAY  
EXCAVATION, SHALL BE GRADED TO DRAIN  
SUCH THAT THE DRAINAGE FROM HIGHWAY  
CONSTRUCTION WILL BE KEPT SEPERATE  
FROM MINING AREA DRAINAGE, AND SHALL  
ADHERE TO THE STANDARD SPECIFICATIONS  
FOR PERMANENT EROSION CONTROL MEASURES.  
REFER TO THE ROADWAY PLANS FOR  
ADDITIONAL INFORMATION. THE CONTRACTOR  
SHALL SUBMIT THE PROPOSED CONFIGURATION  
OF WASTE AREA #4 TO KYTC FOR REVIEW AND  
APPROVAL PRIOR TO CONSTRUCTION.

**EROSION CONTROL  
ONLY**

0m 100m SCALE: 1:2000  
U.S. 119 WASTE AREA #4 SITE PLAN

METRIC



COORDINATE CONTROL POINTS

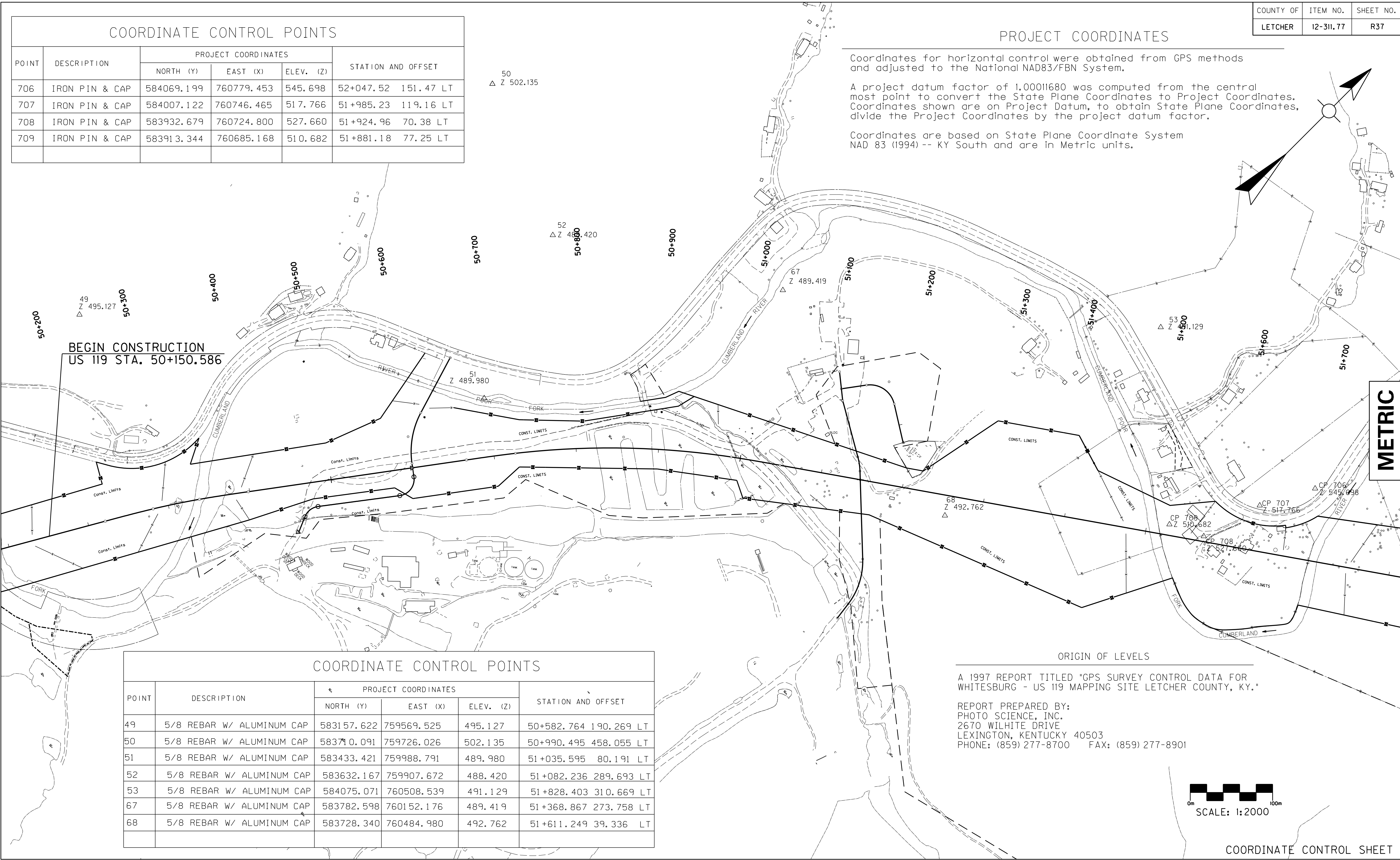
| POINT | DESCRIPTION    | PROJECT COORDINATES |            |           | STATION AND OFFSET  |
|-------|----------------|---------------------|------------|-----------|---------------------|
|       |                | NORTH (Y)           | EAST (X)   | ELEV. (Z) |                     |
| 706   | IRON PIN & CAP | 584069.199          | 760779.453 | 545.698   | 52+047.52 151.47 LT |
| 707   | IRON PIN & CAP | 584007.122          | 760746.465 | 517.766   | 51+985.23 119.16 LT |
| 708   | IRON PIN & CAP | 583932.679          | 760724.800 | 527.660   | 51+924.96 70.38 LT  |
| 709   | IRON PIN & CAP | 583913.344          | 760685.168 | 510.682   | 51+881.18 77.25 LT  |
|       |                |                     |            |           |                     |

PROJECT COORDINATES

Coordinates for horizontal control were obtained from GPS methods and adjusted to the National NAD83/FBN System.

A project datum factor of 1.00011680 was computed from the central most point to convert the State Plane Coordinates to Project Coordinates. Coordinates shown are on Project Datum, to obtain State Plane Coordinates, divide the Project Coordinates by the project datum factor.

Coordinates are based on State Plane Coordinate System NAD 83 (1994) -- KY South and are in Metric units.



METRIC

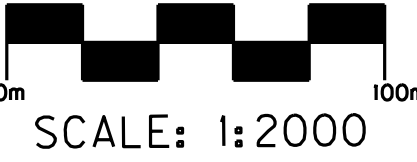
COORDINATE CONTROL POINTS

| POINT | DESCRIPTION               | PROJECT COORDINATES |            |           | STATION AND OFFSET    |
|-------|---------------------------|---------------------|------------|-----------|-----------------------|
|       |                           | NORTH (Y)           | EAST (X)   | ELEV. (Z) |                       |
| 49    | 5/8 REBAR W/ ALUMINUM CAP | 583157.622          | 759569.525 | 495.127   | 50+582.764 190.269 LT |
| 50    | 5/8 REBAR W/ ALUMINUM CAP | 583710.091          | 759726.026 | 502.135   | 50+990.495 458.055 LT |
| 51    | 5/8 REBAR W/ ALUMINUM CAP | 583433.421          | 759988.791 | 489.980   | 51+035.595 80.191 LT  |
| 52    | 5/8 REBAR W/ ALUMINUM CAP | 583632.167          | 759907.672 | 488.420   | 51+082.236 289.693 LT |
| 53    | 5/8 REBAR W/ ALUMINUM CAP | 584075.071          | 760508.539 | 491.129   | 51+828.403 310.669 LT |
| 67    | 5/8 REBAR W/ ALUMINUM CAP | 583782.598          | 760152.176 | 489.419   | 51+368.867 273.758 LT |
| 68    | 5/8 REBAR W/ ALUMINUM CAP | 583728.340          | 760484.980 | 492.762   | 51+611.249 39.336 LT  |
|       |                           |                     |            |           |                       |

ORIGIN OF LEVELS

A 1997 REPORT TITLED "GPS SURVEY CONTROL DATA FOR WHITESBURG - US 119 MAPPING SITE LETCHER COUNTY, KY."

REPORT PREPARED BY:  
PHOTO SCIENCE, INC.  
2670 WILHITE DRIVE  
LEXINGTON, KENTUCKY 40503  
PHONE: (859) 277-8700 FAX: (859) 277-8901





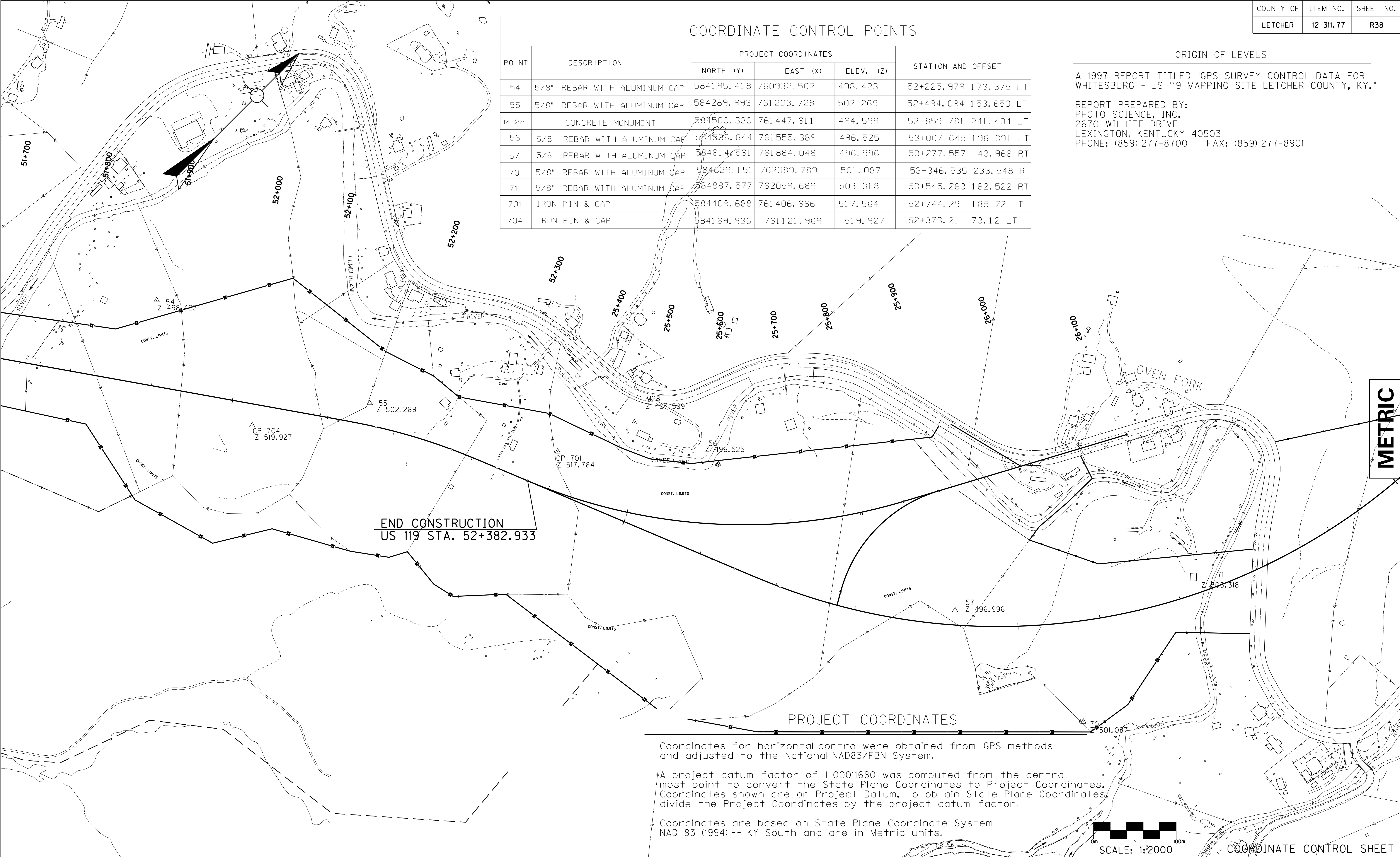
COORDINATE CONTROL POINTS

| POINT | DESCRIPTION                  | PROJECT COORDINATES |            |           | STATION AND OFFSET    |
|-------|------------------------------|---------------------|------------|-----------|-----------------------|
|       |                              | NORTH (Y)           | EAST (X)   | ELEV. (Z) |                       |
| 54    | 5/8" REBAR WITH ALUMINUM CAP | 584195.418          | 760932.502 | 498.423   | 52+225.979 173.375 LT |
| 55    | 5/8" REBAR WITH ALUMINUM CAP | 584289.993          | 761203.728 | 502.269   | 52+494.094 153.650 LT |
| M 28  | CONCRETE MONUMENT            | 584500.330          | 761447.611 | 494.599   | 52+859.781 241.404 LT |
| 56    | 5/8" REBAR WITH ALUMINUM CAP | 584526.644          | 761555.389 | 496.525   | 53+007.645 196.391 LT |
| 57    | 5/8" REBAR WITH ALUMINUM CAP | 584614.561          | 761884.048 | 496.996   | 53+277.557 43.966 RT  |
| 70    | 5/8" REBAR WITH ALUMINUM CAP | 584629.151          | 762089.789 | 501.087   | 53+346.535 233.548 RT |
| 71    | 5/8" REBAR WITH ALUMINUM CAP | 584887.577          | 762059.689 | 503.318   | 53+545.263 162.522 RT |
| 701   | IRON PIN & CAP               | 584409.688          | 761406.666 | 517.564   | 52+744.29 185.72 LT   |
| 704   | IRON PIN & CAP               | 584169.936          | 761121.969 | 519.927   | 52+373.21 73.12 LT    |

ORIGIN OF LEVELS

A 1997 REPORT TITLED "GPS SURVEY CONTROL DATA FOR WHITESBURG - US 119 MAPPING SITE LETCHER COUNTY, KY."

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2670 WILHITE DRIVE  
LEXINGTON, KENTUCKY 40503  
PHONE: (859) 277-8700 FAX: (859) 277-8901



METRIC



PROPOSED US 119 (MAINLINE)

|                 | STATION     | BEARING           | EASTING                    | NORTHING                   |
|-----------------|-------------|-------------------|----------------------------|----------------------------|
| P. I.           | 50+309.7647 |                   | 759558.7060                | 582824.9112                |
| T. S.           | 50+220.9575 | N 29°59' 32.51" E | 759514.3127                | 582747.9961                |
| S. C.           | 50+280.9575 | N 31°42' 40.45" E | 759544.8227                | 582799.6570                |
| C. S.           | 50+338.4207 | N 35°00' 13.08" E | 759576.4151                | 582847.6469                |
| S. T.           | 50+398.4207 | N 36°43' 21.03" E | 759611.8073                | 582896.0937                |
| M. O. C. Rad Pt | 50+309.6894 |                   | 759560.2741<br>760395.5307 | 582823.8789<br>582274.0185 |
| Spiral Pl In    |             |                   | 759534.3090                | 582782.6414                |
| Spiral Pl Out   |             |                   | 759587.8886                | 582864.0306                |

P. I. = 50+309.7647  
Delta = 6°43' 48.52" Right  
C = 5°43' 46.48"  
Ts = 88.8071  
Ls = 60.0000  
Lc = 57.4632  
Theta = 1°43' 07.94"  
L. T. = 40.0019  
S. T. = 20.0017  
R = 1000.0000  
Es = 1.8774  
x = 59.9946  
y = .6000  
K = 29.9991  
p = .1500

|                 |             |                   |                            |                            |
|-----------------|-------------|-------------------|----------------------------|----------------------------|
| P. I.           | 50+858.9047 |                   | 759887.1492                | 583265.1905                |
| T. S.           | 50+666.0791 | N 36°43' 21.03" E | 759771.8510                | 583110.6329                |
| S. C.           | 50+726.0791 | N 38°26' 28.97" E | 759808.2051                | 583158.3623                |
| C. S.           | 50+988.8516 | N 53°29' 49.68" E | 759996.5867                | 583340.4757                |
| S. T.           | 51+048.8516 | N 55°12' 57.63" E | 760045.5186                | 583375.1945                |
| M. O. C. Rad Pt | 50+857.4656 |                   | 759896.4055<br>760591.4497 | 583255.6156<br>582536.6486 |
| Spiral Pl In    |             |                   | 759795.7698                | 583142.6960                |
| Spiral Pl Out   |             |                   | 760012.6647                | 583352.3740                |

P. I. = 50+858.9047  
Delta = 18°29' 36.60" Right  
C = 5°43' 46.48"  
Ts = 132.8256  
Ls = 60.0000  
Lc = 262.7725  
Theta = 1°43' 07.94"  
L. T. = 40.0019  
S. T. = 20.0017  
R = 1000.0000  
Es = 13.3176  
x = 59.9946  
y = .6000  
K = 29.9991  
p = .1500

|                 |             |                   |                            |                            |
|-----------------|-------------|-------------------|----------------------------|----------------------------|
| P. I.           | 52+225.2530 |                   | 761011.7072                | 584046.3128                |
| T. S.           | 52+117.2786 | N 55°12' 57.63" E | 760923.0269                | 583984.7151                |
| S. C.           | 52+177.2786 | N 57°40' 17.55" E | 760972.7853                | 584018.2340                |
| C. S.           | 52+272.5437 | N 65°28' 08.75" E | 761056.4969                | 584063.5528                |
| S. T.           | 52+332.5437 | N 67°55' 28.67" E | 761111.7661                | 584086.8924                |
| M. O. C. Rad Pt | 52+224.9114 |                   | 761013.8699<br>761347.1257 | 584042.3180<br>583426.7366 |
| Spiral Pl In    |             |                   | 760955.8824                | 584007.5367                |
| Spiral Pl Out   |             |                   | 761074.6949                | 584071.8579                |

P. I. = 52+225.2530  
Delta = 12°42' 31.04" Right  
C = 8°11' 06.40"  
Ts = 107.9744  
Ls = 60.0000  
Lc = 95.2651  
Theta = 2°27' 19.92"  
L. T. = 40.0039  
S. T. = 20.0035  
R = 700.0000  
Es = 4.5426  
x = 59.9890  
y = .8570  
K = 29.9982  
p = .2143

|                 |             |                   |                            |                            |
|-----------------|-------------|-------------------|----------------------------|----------------------------|
| P. I.           | 53+285.9787 |                   | 761995.3050                | 584445.2180                |
| T. S.           | 52+645.3176 | N 67°55' 28.67" E | 761401.6107                | 584204.4410                |
| S. C.           | 52+705.3176 | N 65°37' 58.07" E | 761456.9026                | 584227.7282                |
| C. S.           | 53+670.1466 | N 8°04' 28.93" W  | 761890.0296                | 585016.2663                |
| S. T.           | 53+730.1466 | N 10°21' 59.52" W | 761880.0215                | 585075.4214                |
| M. O. C. Rad Pt | 53+187.7324 |                   | 761804.8274<br>761147.4653 | 584549.8433<br>584910.9182 |
| Spiral Pl In    |             |                   | 761438.6814                | 584219.4753                |
| Spiral Pl Out   |             |                   | 761887.2199                | 585036.0710                |

P. I. = 53+285.9787  
Delta = 78°17' 23.19" Left  
C = 7°38' 21.97"  
Ts = 640.6610  
Ls = 60.0000  
Lc = 964.8289  
Theta = 2°17' 30.59"  
L. T. = 40.0034  
S. T. = 20.0030  
R = 750.0000  
Es = 2117.3205  
x = 59.9904  
y = .7999  
K = 29.9984  
p = .2000

PROJECT CENTERLINE DATA  
(ALL COORDINATES SHOWN ARE PROJECT COORDINATES)

TEMPORARY TIE LT 52+400  
(Oven Fork)

|                 | STATION     | BEARING            | EASTING                    | NORTHING                   |
|-----------------|-------------|--------------------|----------------------------|----------------------------|
| P. O. B.        | 25+332.5430 | N 67°55' 28.56" E  | 761111.7660                | 584086.8924                |
| P. I.           | 25+615.9033 |                    | 761374.3532                | 584193.3867                |
| P. C.           | 25+372.9330 | N 67°55' 28.56" E  | 761149.1950                | 584102.0720                |
| P. T.           | 25+839.3805 | N 28°19' 52.69" E  | 761489.6594                | 584407.2536                |
| M. O. C. Rad Pt | 25+606.1567 |                    | 761346.0540<br>760895.5122 | 584224.9577<br>584727.5878 |
| P. I.           | 25+615.9033 |                    | 761374.3532                | 584193.3867                |
| Delta           | =           | 39°35' 35.86" Left |                            |                            |
| C               | =           | 8°29' 17.75"       |                            |                            |
| T               | =           | 242.9703           |                            |                            |
| L               | =           | 466.4475           |                            |                            |
| R               | =           | 675.0000           |                            |                            |
| E               | =           | 42.3978            |                            |                            |
| P. O. E.        | 26+121.8731 | N 28°19' 52.69" E  | 761623.7217                | 584655.9087                |

FUTURE TIE LT 52+778.000  
(Oven Fork)

|                 | STATION     | BEARING            | EASTING                    | NORTHING                   |
|-----------------|-------------|--------------------|----------------------------|----------------------------|
| P. O. B.        | 11+566.5446 | S 28°19' 52.45" W  | 761623.7217                | 584655.9087                |
| P. I.           | 11+902.3878 |                    | 761464.3412                | 584360.2932                |
| P. C.           | 11+804.8821 | S 28°19' 52.45" W  | 761510.6143                | 584446.1195                |
| P. T.           | 11+982.7995 | S 29°55' 10.95" E  | 761512.9757                | 584275.7826                |
| M. O. C. Rad Pt | 11+893.8408 |                    | 761489.6694<br>761664.6526 | 584360.6443<br>584363.0701 |
| P. I.           | 11+902.3878 |                    | 761464.3412                | 584360.2932                |
| Delta           | =           | 58°15' 03.40" Left |                            |                            |
| C               | =           | 32°44' 25.60"      |                            |                            |
| T               | =           | 97.5057            |                            |                            |
| L               | =           | 177.9174           |                            |                            |
| R               | =           | 175.0000           |                            |                            |
| E               | =           | 25.3306            |                            |                            |
| P. O. E.        | 12+000.0000 | S 29°55' 10.95" E  | 761521.5550                | 584260.8745                |

APPROACH LT STA 50+600

|                 | STATION     | BEARING            | EASTING                    | NORTHING                   |
|-----------------|-------------|--------------------|----------------------------|----------------------------|
| P. O. B.        | 9+855.3247  | S 16°55' 11.16" E  | 759670.0884                | 583184.4986                |
| P. I.           | 9+964.0199  |                    | 759701.7222                | 583080.5085                |
| P. C.           | 9+931.1825  | S 16°55' 11.16" E  | 759692.1655                | 583111.9244                |
| P. T.           | 9+994.6385  | S 53°16' 38.52" E  | 759728.0426                | 583060.8737                |
| M. O. C. Rad Pt | 9+962.9105  |                    | 759706.0204<br>759787.8368 | 583083.5292<br>583141.0276 |
| P. I.           | 9+964.0199  |                    | 759701.7222                | 583080.5085                |
| Delta           | =           | 36°21' 27.36" Left |                            |                            |
| C               | =           | 57°17' 44.81"      |                            |                            |
| T               | =           | 32.8373            |                            |                            |
| L               | =           | 63.4560            |                            |                            |
| R               | =           | 100.0000           |                            |                            |
| E               | =           | 5.2535             |                            |                            |
| P. O. E.        | 10+000.0000 | S 53°16' 38.52" E  | 759732.3401                | 583057.6678                |

ENTRANCE RT STA 50+600

|                           | STATION          | NORTHING  | EASTING   |
|---------------------------|------------------|-----------|-----------|
| POB                       | 10+000.00        | 583057.67 | 759732.34 |
| Tangent Direction         | S 53°16' 54" E   |           |           |
| Tangent Length            | 11.15            |           |           |
| PC                        | 10+011.15        | 583051.00 | 759741.28 |
| PI                        | 10+031.39        | 583038.90 | 759757.50 |
| PT                        | 10+042.81        | 583022.82 | 759745.21 |
| Radius                    | 20.00            |           |           |
| Delta                     | 90°41' 02" Right |           |           |
| Degree of Curvature (Arc) | 286°28' 44"      |           |           |
| Length                    | 31.65            |           |           |
| Tangent                   | 20.24            |           |           |
| Chord                     | 28.45            |           |           |
| Middle Ordinate           | 5.94             |           |           |
| External                  | 8.45             |           |           |
| Tangent Direction         | S 53°16' 54" E   |           |           |
| Radial Direction          | S 36°43' 06" W   |           |           |
| Chord Direction           | S 7°56' 23" E    |           |           |
| Radial Direction          | N 52°35' 52" W   |           |           |
| Tangent Direction         | S 37°24' 08" W   |           |           |

|                           |                 |           |           |
|---------------------------|-----------------|-----------|-----------|
| Tangent Direction         | S 37°24' 08" W  |           |           |
| Tangent Length            | 100.12          |           |           |
| PC                        | 10+142.93       | 582943.29 | 759684.40 |
| PI                        | 10+154.63       | 582933.99 | 759677.29 |
| PT                        | 10+164.11       | 582923.23 | 759681.91 |
| Radius                    | 20.00           |           |           |
| Delta                     | 60°40' 52" Left |           |           |
| Degree of Curvature (Arc) | 286°28' 44"     |           |           |
| Length                    | 21.18           |           |           |
| Tangent                   | 11.71           |           |           |
| Chord                     | 20.21           |           |           |
| Middle Ordinate           | 2.74            |           |           |
| External                  | 3.17            |           |           |
| Tangent Direction         | S 37°24' 08" W  |           |           |
| Radial Direction          | N 52°35' 52" W  |           |           |
| Chord Direction           | S 7°03' 42" W   |           |           |
| Radial Direction          | S 66°43' 16" W  |           |           |
| Tangent Direction         | S 23°16' 44" E  |           |           |

|                   |                |           |           |
|-------------------|----------------|-----------|-----------|
| POE               | 10+184.70      | 582904.32 | 759690.05 |
| Tangent Direction | S 23°16' 44" E |           |           |
| Tangent Length    | 20.60          |           |           |

ENTRANCE LT & RT  
STA 51+147.872

|                           | STATION         | NORTHING  | EASTING   |
|---------------------------|-----------------|-----------|-----------|
| POB                       | 9+823.67        | 583293.31 | 760225.90 |
| PC                        | 9+845.37        | 583314.83 | 760223.09 |
| Tangent Direction         | N 7°26' 53" W   |           |           |
| Tangent Length            | 21.70           |           |           |
| PI                        | 9+875.75        | 583344.95 | 760219.15 |
| PT                        | 9+903.73        | 583365.76 | 760197.01 |
| Radius                    | 85.00           |           |           |
| Delta                     | 39°20' 11" Left |           |           |
| Degree of Curvature (Arc) | 67°24' 24"      |           |           |
| Length                    | 58.36           |           |           |
| Tangent                   | 30.38           |           |           |
| Chord                     | 57.22           |           |           |
| Middle Ordinate           | 4.96            |           |           |
| External                  | 5.27            |           |           |
| Tangent Direction         | N 7°26' 53" W   |           |           |
| Radial Direction          | N 82°33' 07" E  |           |           |
| Chord Direction           | N 27°06' 58" W  |           |           |
| Radial Direction          | N 43°12' 56" E  |           |           |
| Tangent Direction         | N 46°47' 04" W  |           |           |
| Tangent Length            | 106.78          |           |           |

|                           |                 |           |           |
|---------------------------|-----------------|-----------|-----------|
| PC                        | 10+010.51       | 583438.88 | 760119.19 |
| PI                        | 10+019.25       | 583444.86 | 760112.82 |
| PT                        | 10+027.91       | 583449.22 | 760105.24 |
| Radius                    | 75.00           |           |           |
| Delta                     | 13°17' 40" Left |           |           |
| Degree of Curvature (Arc) | 76°23' 40"      |           |           |
| Length                    | 17.40           |           |           |
| Tangent                   | 8.74            |           |           |
| Chord                     | 17.36           |           |           |
| Middle Ordinate           | 0.50            |           |           |
| External                  | 0.51            |           |           |
| Tangent Direction         | N 46°47' 04" W  |           |           |
| Radial Direction          | N 43°12' 57" E  |           |           |
| Chord Direction           | N 53°25' 54" W  |           |           |
| Radial Direction          | N 29°55' 16" E  |           |           |
| Tangent Direction         | N 60°04' 44" W  |           |           |

|                   |                |           |           |
|-------------------|----------------|-----------|-----------|
| PI                | 10+098.56      | 583484.46 | 760044.01 |
| Tangent Direction | N 60°04' 44" W |           |           |
| Tangent Length    | 70.64          |           |           |

|                   |                |           |           |
|-------------------|----------------|-----------|-----------|
| POE               | 10+200.28      | 583548.09 | 759964.65 |
| Tangent Direction | N 51°16' 52" W |           |           |
| Tangent Length    | 101.72         |           |           |

RALEIGH CEMETERY ENTRANCE

|                 | STATION     | BEARING             | EASTING                    | NORTHING                   |
|-----------------|-------------|---------------------|----------------------------|----------------------------|
| P. O. B.        | 10+800.0000 | N 36°38' 11.13" E   | 760033.7315                | 583495.0090                |
| P. I.           | 10+856.7186 |                     | 760067.5775                | 583540.5222                |
| P. C.           | 10+829.0333 | N 36°38' 11.13" E   | 760051.0567                | 583518.3064                |
| P. T.           | 10+873.7509 | S 57°57' 32.82" E   | 760091.0455                | 583525.8344                |
| M. O. C. Rad Pt | 10+851.3921 |                     | 760069.5797<br>760075.1298 | 583529.8865<br>583500.4044 |
| P. I.           | 10+856.7186 |                     | 760067.5775                | 583540.5222                |
| Delta           | =           | 85°24' 16.05" Right |                            |                            |
| C               | =           | 190°59' 09.35"      |                            |                            |
| T               | =           | 27.6854             |                            |                            |
| L               | =           | 44.7177             |                            |                            |
| R               | =           | 30.0000             |                            |                            |
| E               | =           | 10.8225             |                            |                            |
| P. O. E.        | 10+921.8548 | S 57°57' 32.82" E   | 760131.8217                | 583500.3142                |

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RIGHT OF WAY MONUMENTATION

| ALIGNMENT | DESCRIPTION  | TYPE | PROJECT COORDINATES |              | STA        | SIDE  | OFFSET  |
|-----------|--------------|------|---------------------|--------------|------------|-------|---------|
|           |              |      | X                   | Y            |            |       |         |
|           |              |      |                     |              |            |       |         |
| US 119    | R/W MONUMENT | 1    | 759,637.0165        | 582,873.0247 | 50+395.000 | RIGHT | 34.000  |
| US 119    | R/W MONUMENT | 1    | 759,673.6280        | 582,945.5165 | 50+475.001 | RIGHT | 20.000  |
| US 119    | R/W MONUMENT | 1    | 759,636.4765        | 583,004.4212 | 50+500.000 | LEFT  | 45.000  |
| US 119    | R/W MONUMENT | 1    | 759,662.3015        | 583,072.4877 | 50+570.000 | LEFT  | 65.000  |
| US 119    | R/W MONUMENT | 1    | 759,734.2236        | 583,025.0726 | 50+575.000 | RIGHT | 21.000  |
| US 119    | R/W MONUMENT | 1    | 759,759.0070        | 583,031.5364 | 50+595.000 | RIGHT | 37.000  |
| US 119    | R/W MONUMENT | 2    | 759,653.0150        | 583,121.6178 | 50+603.827 | LEFT  | 101.820 |
| US 119    | R/W MONUMENT | 1    | 759,644.4572        | 583,166.8928 | 50+635.000 | LEFT  | 135.751 |
| US 119    | R/W MONUMENT | 1    | 759,821.6640        | 583,115.3497 | 50+700.000 | RIGHT | 37.000  |
| US 119    | R/W MONUMENT | 1    | 759,823.3087        | 583,150.0395 | 50+729.000 | RIGHT | 17.000  |
| US 119    | R/W MONUMENT | 1    | 759,943.4055        | 583,266.7207 | 50+900.000 | RIGHT | 23.800  |
| US 119    | R/W MONUMENT | 2    | 759,912.8963        | 583,360.5694 | 50+937.000 | LEFT  | 67.371  |
| US 119    | R/W MONUMENT | 1    | 760,021.4237        | 583,325.1960 | 51+000.000 | RIGHT | 27.000  |
| US 119    | R/W MONUMENT | 1    | 760,041.7890        | 583,315.1987 | 51+011.000 | RIGHT | 47.000  |
| US 119    | R/W MONUMENT | 1    | 760,164.5532        | 583,409.1735 | 51+166.000 | RIGHT | 40.000  |
| US 119    | R/W MONUMENT | 1    | 760,156.5762        | 583,481.5572 | 51+200.742 | LEFT  | 24.000  |
| US 119    | R/W MONUMENT | 1    | 760,173.5349        | 583,493.3367 | 51+221.391 | LEFT  | 24.000  |
| US 119    | R/W MONUMENT | 1    | 760,194.7407        | 583,600.6017 | 51+300.000 | LEFT  | 100.000 |
| US 119    | R/W MONUMENT | 1    | 760,276.8715        | 583,657.6500 | 51+400.000 | LEFT  | 100.000 |
| US 119    | R/W MONUMENT | 1    | 760,323.1362        | 583,643.6310 | 51+430.000 | LEFT  | 62.093  |
| US 119    | R/W MONUMENT | 1    | 760,426.6732        | 583,512.1010 | 51+440.000 | RIGHT | 105.000 |
| US 119    | R/W MONUMENT | 2    | 760,467.4173        | 583,592.3501 | 51+519.244 | RIGHT | 62.335  |
| US 119    | R/W MONUMENT | 1    | 760,414.8940        | 583,675.5687 | 51+523.581 | LEFT  | 35.977  |
| US 119    | R/W MONUMENT | 1    | 760,450.2839        | 583,718.1640 | 51+576.947 | LEFT  | 50.772  |
| US 119    | R/W MONUMENT | 1    | 760,550.7970        | 583,793.1287 | 51+702.266 | LEFT  | 55.000  |
| US 119    | R/W MONUMENT | 2    | 760,635.3508        | 583,716.1629 | 51+727.803 | RIGHT | 56.450  |
| US 119    | R/W MONUMENT | 1    | 760,721.3117        | 583,771.5487 | 51+830.000 | RIGHT | 60.000  |
| US 119    | R/W MONUMENT | 1    | 760,665.1735        | 583,878.6630 | 51+845.000 | LEFT  | 60.000  |

| ALIGNMENT | DESCRIPTION  | TYPE | PROJECT COORDINATES |              | STA        | SIDE  | OFFSET  |
|-----------|--------------|------|---------------------|--------------|------------|-------|---------|
|           |              |      | X                   | Y            |            |       |         |
| US 119    | R/W MONUMENT | 1    | 760,828.5487        | 583,748.6302 | 51+905.000 | RIGHT | 140.000 |
| US 119    | R/W MONUMENT | 1    | 760,932.2890        | 583,778.0740 | 52+007.000 | RIGHT | 175.000 |
| US 119    | R/W MONUMENT | 1    | 760,773.9255        | 584,074.5660 | 52+046.079 | LEFT  | 158.855 |
| US 119    | R/W MONUMENT | 1    | 760,971.0237        | 583,841.5060 | 52+075.000 | RIGHT | 145.000 |
| US 119    | R/W MONUMENT | 1    | 760,916.6157        | 584,091.2200 | 52+169.769 | LEFT  | 91.754  |
| US 119    | R/W MONUMENT | 1    | 761,057.4272        | 583,889.3922 | 52+180.640 | RIGHT | 154.129 |
| US 119    | R/W MONUMENT | 1    | 760,978.3735        | 584,111.2475 | 52+226.352 | LEFT  | 77.517  |
| US 119    | R/W MONUMENT | 1    | 761,095.9062        | 583,917.4630 | 52+241.041 | RIGHT | 148.707 |
| US 119    | R/W MONUMENT | 1    | 761,018.2237        | 584,114.9742 | 52+260.182 | LEFT  | 62.789  |
| US 119    | R/W MONUMENT | 1    | 761,106.8305        | 583,937.9782 | 52+264.679 | RIGHT | 135.102 |
| US 119    | R/W MONUMENT | 1    | 761,156.9825        | 583,932.8042 | 52+316.015 | RIGHT | 159.768 |
| US 119    | R/W MONUMENT | 1    | 761,184.5115        | 583,938.9520 | 52+344.356 | RIGHT | 164.435 |
| US 119    | R/W MONUMENT | 1    | 761,109.7087        | 584,178.2775 | 52+364.982 | LEFT  | 85.459  |
| US 119    | R/W MONUMENT | 1    | 761,227.6640        | 583,985.9392 | 52+402.004 | RIGHT | 137.110 |
| US 119    | R/W MONUMENT | 1    | 761,180.5065        | 584,203.3173 | 52+440.000 | LEFT  | 82.055  |
| US 119    | R/W MONUMENT | 2    | 761,297.9591        | 584,286.2222 | 52+580.000 | LEFT  | 114.741 |
| US 119    | R/W MONUMENT | 1    | 761,467.0000        | 584,018.8530 | 52+636.164 | RIGHT | 196.558 |
| US 119    | R/W MONUMENT | 1    | 761,497.0680        | 584,039.0557 | 52+670.308 | RIGHT | 189.199 |
| US 119    | R/W MONUMENT | 1    | 761,562.1445        | 584,084.0770 | 52+735.000 | RIGHT | 175.000 |
| US 119    | R/W MONUMENT | 2    | 761,444.4136        | 584,468.8833 | 52+830.000 | LEFT  | 217.484 |
| US 119    | R/W MONUMENT | 1    | 761,455.0634        | 584,502.5562 | 52+870.534 | LEFT  | 238.750 |
| US 119    | R/W MONUMENT | 1    | 761,630.7074        | 584,481.9840 | 53+020.000 | LEFT  | 103.852 |
| US 119    | R/W MONUMENT | 1    | 761,848.0620        | 584,369.8797 | 53+071.255 | RIGHT | 135.188 |
| US 119    | R/W MONUMENT | 1    | 761,710.5160        | 584,520.7914 | 53+110.000 | LEFT  | 65.000  |
| US 119    | R/W MONUMENT | 1    | 761,602.3173        | 584,598.2145 | 53+112.741 | LEFT  | 198.027 |
| US 119    | R/W MONUMENT | 1    | 761,856.5277        | 584,425.2682 | 53+114.050 | RIGHT | 109.433 |
| US 119    | R/W MONUMENT | 1    | 761,623.3239        | 584,591.3716 | 53+120.935 | LEFT  | 176.806 |
| US 119    | R/W MONUMENT | 1    | 761,835.6232        | 584,528.7062 | 53+184.207 | RIGHT | 37.177  |
| US 119    | R/W MONUMENT | 1    | 761,900.4984        | 584,590.8248 | 53+263.000 | RIGHT | 68.241  |
| US 119    | R/W MONUMENT | 1    | 761,830.7071        | 584,666.3589 | 53+306.651 | LEFT  | 24.308  |

METRIC



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# GEOTECHNICAL SYMBOL SHEET

|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.35 | R41       |

AASHTO Classification of Soils and Soil-Aggregate Mixtures

| General Classification                                   | Granular Materials<br>(35% or less passing 0.075 mm) |        |        |        |        |        |        | Silt-Clay Materials<br>(More than 35% passing 0.075 mm) |        |        |                |
|----------------------------------------------------------|------------------------------------------------------|--------|--------|--------|--------|--------|--------|---------------------------------------------------------|--------|--------|----------------|
| Group Classification                                     | A-1                                                  |        | A-3    | A-2    |        |        |        | A-4                                                     | A-5    | A-6    | A-7            |
|                                                          | A-1-a                                                | A-1-b  |        | A-2-4  | A-2-5  | A-2-6  | A-2-7  |                                                         |        |        | A-7-5<br>A-7-6 |
| Sieve Analysis, Percent Passing                          |                                                      |        |        |        |        |        |        |                                                         |        |        |                |
| 2.00 mm (No. 10)                                         | 50 max                                               | ---    | ---    | ---    | ---    | ---    | ---    | ---                                                     | ---    | ---    | ---            |
| 0.425 mm (No. 40)                                        | 30 max                                               | 50 max | 51 min | ---    | ---    | ---    | ---    | ---                                                     | ---    | ---    | ---            |
| 0.075 mm (No. 200)                                       | 15 max                                               | 25 max | 10 max | 35 max | 35 max | 35 max | 35 max | 36 min                                                  | 36 min | 36 min | 36 min         |
| Characteristics of Fraction<br>Passing 0.425 mm (No. 40) |                                                      |        |        |        |        |        |        |                                                         |        |        |                |
| Liquid Limit                                             | ---                                                  |        | ---    | 40 max | 41 min | 40 max | 41 min | 40 max                                                  | 41 min | 40 max | 41 min         |
| Plasticity Index                                         | 6 max                                                |        | N.P.   | 10 max | 10 max | 11 min | 11 min | 10 max                                                  | 10 max | 11 min | 11 min         |

Unified Soil Classifications

| MAJOR DIVISIONS       |                                       | SYMBOL |  | NAME                                                                                                               |
|-----------------------|---------------------------------------|--------|--|--------------------------------------------------------------------------------------------------------------------|
| COARSE GRAINED SOILS  | GRAVEL AND GRAVELLY SOILS             | GW     |  | Well-graded gravels or gravel-sand mixtures, little or no fines.                                                   |
|                       |                                       | GP     |  | Poorly graded gravels or gravel-sand mixtures, little or no fines.                                                 |
|                       |                                       | GM     |  | Silty gravels,gravel-sand-silt mixtures.                                                                           |
|                       |                                       | GC     |  | Clayey gravels,gravel-sand-clay mixtures.                                                                          |
|                       | SAND AND SANDY SOILS                  | SW     |  | Well graded sands or gravelly sands, little or no fines.                                                           |
|                       |                                       | SP     |  | Poorly graded sands or gravelly sands, little or no fines.                                                         |
|                       |                                       | SM     |  | Silty sands,sand-silt mixtures.                                                                                    |
|                       |                                       | SC     |  | Clayey sands,sand-clay mixtures.                                                                                   |
| FINE GRAINED SOILS    | SILTS AND CLAYS LL IS LESS THAN 50    | ML     |  | Inorganic silts and very fine sands,rock flour, silty or clayey fine sands or clayey silts with slight plasticity. |
|                       |                                       | CL     |  | Inorganic clays of low to medium plasticity, gravelly clays,sandy clays silty clays, lean clays.                   |
|                       | SILTS AND CLAYS LL IS GREATER THAN 50 | MH     |  | Inorganic silts,micaceous or diatomaceous fine sandy or silty soils,elastic silts.                                 |
|                       |                                       | CH     |  | Inorganic clays of high plasticity,fat clays.                                                                      |
| UNCLASSIFIED MATERIAL |                                       | NONE   |  | Non-classified material(i.e. overburden,pave-ment, slag, etc.) Include visual description.                         |

- AIActivity Index
- LIliquidity Index
- S+C  
Silt + Clay (% finer than .075 mm Sieve)
- Rockline Soundings
- Disturbed Sample Boring
- Undisturbed Sample Boring
- Undisturbed Sample Boring & Rock Core
- Rock Core
- Slope Inclinometer Installation  
typical applications:

OWObservation Well

(Date) Water Elevation

VS (kPa)Field Vane Shear Strength

Thin-walled Tube Sample

Standard Penetration Test Sample

NPenetration Resistance

Qu (kPa)Unconfined Compressive Strength

UU (kPa)Unconsolidated Undrained Triaxial Strength

w%Moisture Content

KY RQDRock Quality Designation (Kentucky Method)

STN RQDRock Quality Designation (Standard Method)

SDI(JS)Slake Durability Index (Jar Slake Test)

RECCore Recovery

Angle of Internal Friction (Total Stress)

Angle of Internal Friction (Effective Stress)

c (kPa)Cohesion (Total Stress)

$\bar{c}$  (kPa)Cohesion (Effective Stress)

$\gamma$  (kN/m<sup>3</sup>)Total Unit Weight

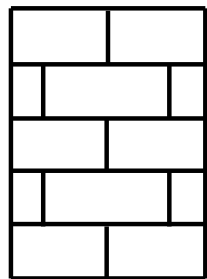
RDZRock Disintegration Zone

OBOverburden Bench

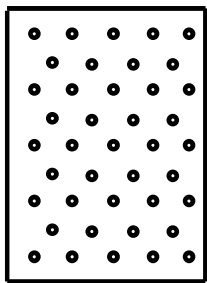
IBIntermediate Bench

RRefusal

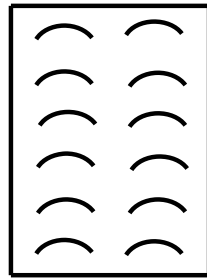
NRRefusal Not Encountered



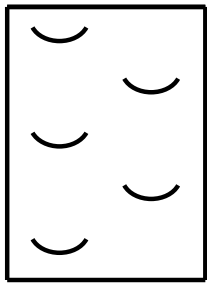
LIMESTONE



SANDSTONE



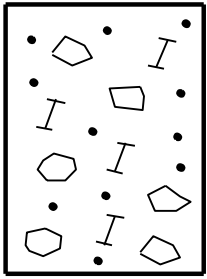
DURABLE SHALE  
(SDI ≥ 95)



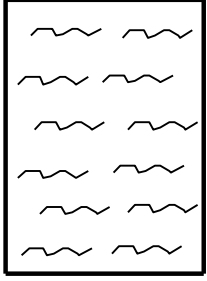
NONDURABLE SHALE  
(SDI < 95)



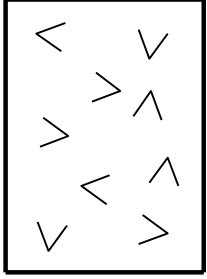
COAL



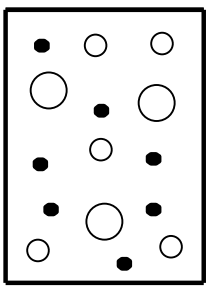
TALUS,  
MINE WASTE,  
FILL MATERIAL,  
BOULDERS, & ETC.



GRANULAR  
EMBANKMENT



STRUCTURE  
GRANULAR  
BACKFILL



SLOPE PROTECTION

METRIC



# GEOTECHNICAL NOTES

|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | I2-31I.77 | R42       |

1. Clearing and grubbing of embankment areas shall be completed in accordance with Section 202 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction.
2. Removal of existing structures and other obstructions shall be completed in accordance with Section 203 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction.
3. All water wells within the limits of construction, whether shown on the plans or not, shall be plugged in accordance with requirements of Section 708 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction.
4. All catch basins and manholes shall be filled and capped, and all septic tanks shall be cleaned and filled in accordance with Section 708 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction.
5. Procedures shall be performed as required to control erosion and water pollution in accordance with sections 212 and 213 of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction.
6. All channel changes and special ditches shall be constructed prior to placement of any embankment materials adjacent to them in accordance with Section 206 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. At the direction of the Engineer, materials excavated from these areas may be utilized in construction of the embankments, but may require aeration to the proper moisture contents prior to compaction operations. No extra payment shall be permitted for rehandling, hauling, stockpiling and/or manipulating these materials. Only sandstones and durable shales shall be utilized for Class IV channel lining. All non-durable shales shall be excluded from use as channel lining.
7. In accordance with Section 206 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, the moisture content of embankment material shall not vary from the optimum moisture content, as determined by KM 64-51I, by more than plus or minus two percent. This moisture content requirement shall have equal weight with the density requirement when determining the acceptability of embankment or subgrade construction. Refer to the Family of Curves for moisture-density relationships.
8. All soils, whether from roadway excavation or borrow, may require manipulation to obtain proper moisture content prior to compaction. Direct payment shall not be permitted for rehandling, hauling, stockpiling and/or manipulating soils.
9. The Contractor is responsible for conducting any operations necessary (such as construction of temporary drainage ditches, etc.) in order to excavate the cut areas to the required typical sections. These operations shall be incidental to the roadway excavation price
10. Any saturated, soft, unstable areas encountered within embankment foundation limits and/or any other areas as specified by the Engineer shall be drained and stabilized with a minimum of one meter (vertical thickness) of durable sandstone from roadway excavation, underlain with Type III Geotextile Fabric in accordance with sections 214 and 843 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. Actual locations requiring such treatment, and the depths of stabilization necessary, shall be determined by the Engineer during construction. In addition positive drainage of all abandoned ditches and swales shall be maintained to reduce the possibility of trapping water within the roadway embankments. For use in establishing bid quantities, it is recommended that the quantities of fabric based on stabilizing the embankment foundation areas at the following approximate locations:

Approximate Station Limits  
50+130 - 50+330  
50+390 - 50+410

11. The Contractor shall conduct grading operations in such a manner that durable sandstone and durable shale (SDI >95) obtained from roadway excavation shall be stockpiled separately or otherwise manipulated so that ample quantities are available for those areas requiring said materials. No direct payment will be allowed for such necessary manipulation as stockpiling and/or soluble handling the material. Durable sandstone and durable shale (SDI >95) shall not be wasted unless prior approval is obtained from the Engineer.
12. All roadway embankments shall be constructed using durable shale (SDI >95) and/or durable sandstone, obtained from roadway excavation, from groundline up to roadway grade. Non-durable shales, coal and underclays shall be wasted and not utilized in the roadway embankments.
13. The ponds identified below shall be drained and any soft/saturated material shall be removed prior to construction of the embankments. A minimum of 1.5 m of durable sandstone or durable shale shall be placed in the bottom portion of the embankment in these areas underlain with Type III Geotextile Fabric in accordance with sections 214 and 843 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. Additional rock may be required to stabilize soft soils and to maintain positive drainage. Such operations shall be considered incidental to roadway excavation. Direct payment shall not be permitted for such efforts.
14. Any coal encountered at planned grade or within a zone 1.2 m below planned grade shall be removed to a depth of 1.2 m below planned grade. The Contractor shall not perform additional undercutting to recover coal unless prior approval of the Engineer has been obtained. Any such undercutting at or near grade for recovery of coal shall be backfilled with durable sandstone in 0.6 m lifts, and positive drainage shall be maintained through the cut using 200 mm perforated underdrains, as applicable. Potential coal at or within 1.2 m of planned grade exists near these approximate stations. An exact determination can not be made due to the dipping lithology throughout the project corridor.
15. Transverse benches shall be constructed and perforated pipe underdrains shall be installed at the following approximate locations in accordance with Kentucky Department of Highways Standard Drawings RDP-005 and RDP-006, project cross-sections, and as directed by the Engineer. Contrary to Standard Drawing RDP-006, transverse benches and perforated pipe underdrains shall be installed in both uphill and downhill transition areas between cuts and fills.

Approximate Stations  
51+250  
51+488  
51+822

16. Perforated pipes for subgrade drainage shall be installed at vertical sags and at the upgrade ends of structures, in accordance with Standard Drawing RDP-005 and/or as directed by the Engineer. Contrary to Standard Drawing RDP-005, such drains shall be installed even when a rock roadbed is being constructed. These drainage features shall be installed at the following approximate locations.

Approximate Station  
Mainline  
50+284  
50+750  
Approach Lt Sta. 50+600 - Sta. 9+922  
Temporary Tie  
25+905  
25+960

17. Colluvial/mine spoil materials are present at the following approximate locations:

Approximate Station Limits  
51+340 - 51+370  
52+070 - 52+120

Cut slopes constructed in these materials have been found to be relatively unstable for long term performance. Construction in these areas shall be performed as shown on the project cross-sections and as directed by the Engineer.

The station intervals presented above will be constructed in hillside cuts, large quantities of colluvial soils and/or mine spoil materials. 1:2 (V:H) or flatter cut slopes shall be constructed within these intervals.

18. Any vertical mine or air shaft under a proposed embankment, whether shown on the plans or not, shall be filled with broken stone (durable sandstone or durable shale) from roadway excavation and capped with a 200 mm reinforced concrete slab. The slab shall be in accordance with Section 708 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction.

19. Any mine tunnels or horizontal auger openings in mined-out areas below grade which show signs of subsidence, whether shown on the plans or not, shall be thoroughly investigated at the direction of the Engineer by rock coring, probing or other means. The openings shall be collapsed or undercut and backfilled with broken stone (durable sandstone or durable shale - SDI 95 or greater) from roadway excavation. The material shall be backfilled in accordance with Section 206. At the direction of the Engineer, pneumatic backstowing of crushed stone (maximum size 40mm with no more than 5% passing the No. 100 sieve) may be utilized to backfill openings which are inaccessible or difficult to backfill by other means. If feasible, positive drainage of the tunnels or openings shall be provided through use of pipe underdrains or other suitable drainage features. Pipes and other materials used for drainage shall be paid for at the unit bid price for those items. Pneumatic backstowing or other special equipment shall be paid for at the unit bid price per ton of backstowed material. Potential mine tunnels or horizontal auger openings in mined-out areas below grade have been identified within the following station intervals.

Approximate Station Limits  
51+150 - 51+500

20. Any mine tunnels or horizontal auger openings which are exposed in cut slopes, whether shown on the plans or not, shall be backfilled a minimum distance of 6 m from the face of the cut. Pneumatic backstowing with broken stone (durable sandstone or durable shale - SDI 95 or greater, maximum size 40 mm with no more than 5% passing the No. 100 sieve) shall be required in an effort to completely fill any voids. At a minimum, the last 0.6m, horizontally, of backstowed material shall be shotcrete. If feasible, positive drainage of the tunnels or openings shall be provided through the use of pipe underdrains, surface ditches or other suitable drainage facilities. Pipes and other material used for drainage shall be paid for at the unit bid price for those items. Pneumatic backstowing and other materials, or special equipment, shall be paid for at the unit bid price per ton of backstowed material. Potential mine tunnels or horizontal auger openings which may be exposed in cut slopes have been identified within the following station intervals.

Approximate Station Limits  
51+150 - 51+500

21. Settlement platforms shall be installed at the following approximate locations in accordance with Section 216 of the Standard Specifications for Road and Bridge Construction, and Standard Drawing RGX-015, prior to beginning embankment construction:

| Station | Offset   |
|---------|----------|
| 50+136  | 7 m Left |
| 50+285  | 7 m Left |
| 50+387  | 7 m Left |
| 51+561  | 7 m Left |
| 51+663  | 7 m Left |
| 51+754  | 7 m Left |

The platform locations shall be established such that they are immediately outside of foundation element footprints and/or guardrail, as applicable. The Engineer shall be responsible for reading the instrumentation. A pre-qualified Engineer or the KYTC Geotechnical Branch shall be responsible for evaluation of the settlement data. The contractor shall be responsible for replacing all damaged settlement platforms at no extra cost. Once the settlement platforms have been installed, embankment construction in this area may begin. Based upon the results of the settlement data, KYTC Geotechnical Branch will determine when enough settlement has occurred to permit installation of the piles. It is estimated that a one month waiting period will be required before piles may be installed at all of the bridge locations, except the bridge at Station 50+338. Settlement calculations for the bridge approach embankment at Station 50+338 has been estimated to be 1067 mm (42 inches). It is estimated that a four month waiting period for the bridge approach near Station 50+338 will be required before piles may be installed. The waiting periods may be increased or decreased as required. All other roadway and bridge construction shall be scheduled to accommodate this time requirement. The mainline embankments within the footprint of these bridges shall be placed as one of the first efforts of roadway construction.

22. The approach embankments shall include 'pile cores' at all substructure element locations to facilitate installation of the foundation systems. The core material shall consist of Granular Embankment and shall be free of rock fragments larger than 75 mm (3 inches) maximum dimension, and any other obstructions which would interfere with foundation installation. Construction of the pile cores shall be in accordance with KYTC Special Provision No. 69, Standard Drawing Nos. RGX-100 and RGX-105, at Section 206 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. Erodible materials shall not be used in construction of pile cores.
23. Class IV channel lining shall be utilized to construct the outer portions of the approach embankments at the bridges. A 0.6 m (2-foot) layer of Class IV channel lining shall be placed as an integral part of the embankment, and not as an additional thickness on the outside face of final embankment geometrics. The channel lining shall extend from the toes of the embankments upwardly to the 100-year high water elevation. At the approach slopes to the bridges, the size and thicknesses of channel lining shall be designed for applicable flow velocities. The channel lining shall be placed in general concordance with Section 703 of the current KYTC Standard Specifications for Road and Bridge Construction, and as directed by the Engineer.
24. Existing foundation soils shall be excavated and replaced with durable shale and/or durable sandstone near the toe of the bridge approach embankment at Station 51+530 as shown on the project plans and cross-sections. This effort is required to maintain embankment stability within this interval.

KENTUCKY  
DEPARTMENT OF HIGHWAYS  
COUNTY OF  
LETCHER

PROJECT APD 1191 (043)  
NUMBERS FD52 067 0119 NEW LOC

METRIC



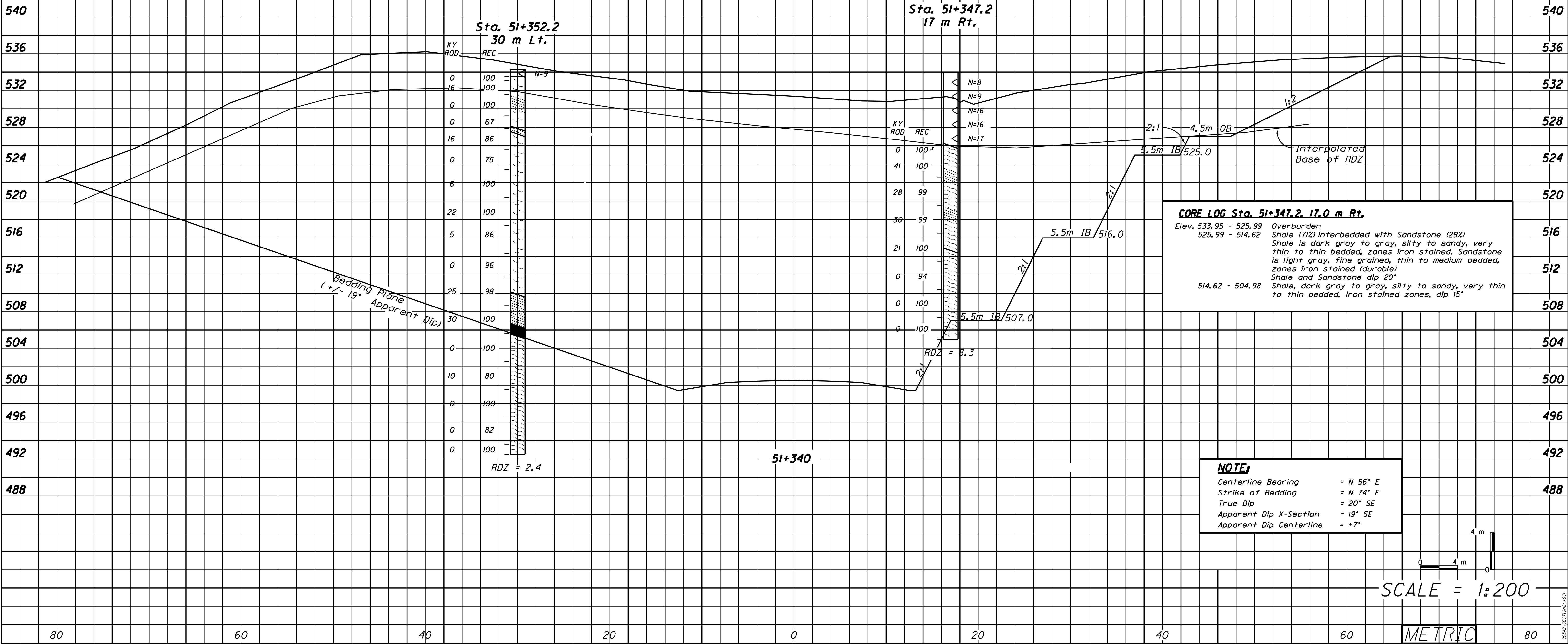
CUT LIMITS FROM +/- STATION 51+175 TO +/- STATION 51+475  
CORE LOG Sta. 51+352.2, 30.0 m Lt.

|                       |                                                                                                                                                                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elev. 535.02 - 534.28 | Overburden                                                                                                                                                                                                                                                                                                    |
| 534.28 - 528.62       | Shale (55%) interbedded with Sandstone (45%)<br>Shale is brown, silty to sandy, laminated to thin bedded, earthy, highly weathered to weathered, fractured throughout. Sandstone is brown, fine grained, very thin to thin bedded, highly weathered to weathered, fractured throughout, dip 30° (non-durable) |
| 528.62 - 528.01       | Sandstone, gray, fine grained, very thin bedded, shale partings, dip 30° (durable)                                                                                                                                                                                                                            |
| 528.01 - 510.61       | Shale, dark gray to gray, silty, very thin to thin bedded, weathered, dip 32°                                                                                                                                                                                                                                 |
| 510.61 - 507.19       | Sandstone, gray to light gray, medium grained, very thin to thin bedded, micaceous, dip 35° (durable);<br>Shale partings noted from 507.44 to 507.19                                                                                                                                                          |
| 507.19 - 506.06       | Coal, black, boney to argillaceous                                                                                                                                                                                                                                                                            |
| 506.06 - 493.57       | Shale, dark gray to gray, silty, very thin to thin bedded, carbonaceous zones sandy zones, dip 25°                                                                                                                                                                                                            |

NOTES:

- 1.) This sheet presents geotechnical data and recommendations. Refer to project plans, profiles and cross sections for final alignment and grade.
- 2.) The following rock cores and boring logs were made available by the Kentucky Transportation Cabinet. The rock cores were inspected and relugged by FMSM personnel. Locations are approximate (Stations, offset and elevations were converted to meters).
- 3.) Refer to Geotechnical Note 14 for removal of coal.
- 4.) Refer to Geotechnical Note 17 for colluvial/ mine spoil materials.
- 5.) Refer to Geotechnical Note 19 for backfilling mine tunnels/horizontal auger openings below grade.
- 6.) Refer to Geotechnical Note 20 for backfilling mine tunnels/horizontal auger openings in cut slopes.

| Current Station | Current Offset | Original Station | Original Offset | Original Hole No. | Date Drilled |
|-----------------|----------------|------------------|-----------------|-------------------|--------------|
| 51+347.2        | 17R            | 1693+70          | 122R            | 15                | 10/75        |
| 51+352.2        | 30L            | 1693+70          | 38L             | 14                | 10/75        |





CUT LIMITS FROM +/- STATION 51+175 TO +/- STATION 51+475  
CORE LOG Sta. 51+432.2, 60.0 m Rt.

Elev. 563.06 - 561.65 Overburden  
561.65 - 554.52 Sandstone, brown to gray-brown, fine to medium grained, thin to medium bedded, micaceous, water stained, zones cross-bedded, weathered, zones fractured, with occasional shale and coal partings, dip 16° (non-durable);  
Becomes less weathered below 555.90  
554.52 - 547.55 Shale, dark gray to gray, clayey zones, laminated to thin bedded, dip 16°  
547.55 - 547.42 Coal, black  
547.42 - 539.22 Sandstone, gray, fine to medium grained thin to medium bedded, micaceous, zones water stained, with occasional coal stringers, dips 8° to 15° (durable)  
539.22 - 536.75 Shale, dark gray, thin bedded, weathered zones, dip 18°;  
Boney coal noted from 538.65 to 538.58  
536.75 - 534.07 Sandstone, gray, fine grained, thin bedded, micaceous, cross-bedded, with carbonaceous shale and coal partings; partings often concentrated in 0.1 bands, dip 18° (durable)  
534.07 - 509.72 Sandstone (50%) interbedded with Shale (50%) Sandstone is gray, fine grained, very thin to thin bedded, micaceous, cross-bedded, with shale stringers and partings. Shale is gray, silty to sandy, very thin to medium bedded, Sandstone and Shale dip 20°.  
Becomes 90% Shale (Siltstone) and 10% Sandstone with beds dipping 15° below 525.97; becomes 55% Sandstone and 45% Shale with beds dipping at 14° below 512.77.

564

560

556

552

548

544

540

536

532

528

524

520

516

512

508

504

500

496

Interpolated  
Base of RDZ

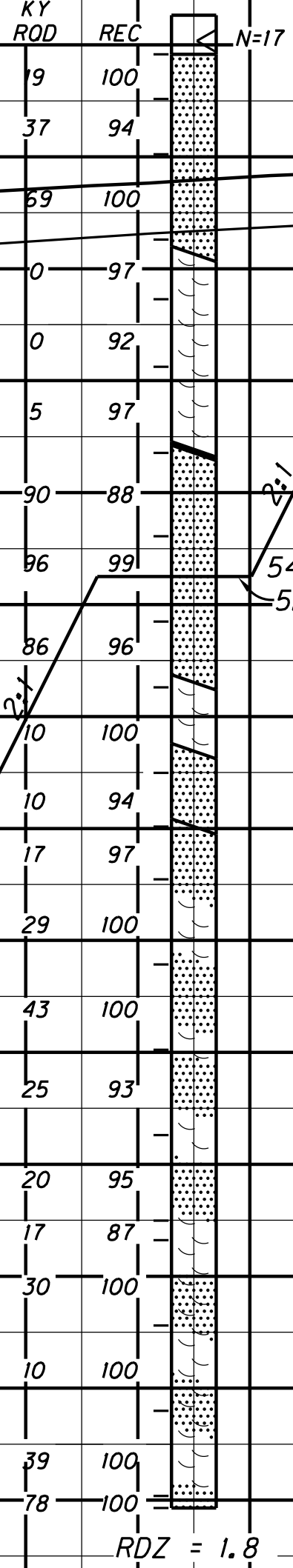
Bedding Plane  
(+/- 19° Apparent Dip)

51+440

NOTE:

Centerline Bearing = N 56° E  
Strike of Bedding = N 74° E  
True Dip = 20° SE  
Apparent Dip X-Section = 19° SE  
Apparent Dip Centerline = +6°

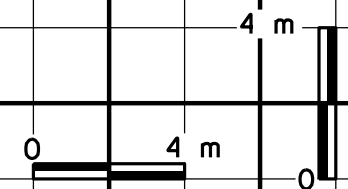
Sta. 51+432.2  
60 m Rt.



NOTES:

- 1.) This sheet presents geotechnical data and recommendations. Refer to project plans, profiles and cross sections for final alignment and grade.
- 2.) Refer to Geotechnical Note 19 for backfilling mine tunnels/ horizontal auger openings below grade.
- 3.) Refer to Geotechnical Note 20 for backfilling mine tunnels/ horizontal auger openings in cut slopes.
- 4.) The following rock core and boring log was made available by the Kentucky Transportation Cabinet. The rock core was inspected and relogged by FMSM personnel. Location is approximate (Station, offset and elevations were converted to meters).

| Current Station | Current Offset | Original Station | Original Offset | Original Hole No. | Date Drilled |
|-----------------|----------------|------------------|-----------------|-------------------|--------------|
| 51+432.2        | 60R            | 1696+70          | 260R            | 16                | 11/75        |



SCALE = 1:200

METRIC 100



**NOTES:**

- 1.) This sheet presents geotechnical data and recommendations. Refer to project plans, profiles and cross sections for final alignment and grade.
- 2.) Refer to Geotechnical Note 13 for drainage of ponds.
- 3.) The following rock cores and boring logs were made available by the Kentucky Transportation Cabinet. The rock cores were inspected and relogged by FMSM personnel. Locations are approximate (Stations, offset and elevations were converted to meters).

| Current Station | Current Offset | Original Station | Original Offset | Original Hole No. | Date Drilled |
|-----------------|----------------|------------------|-----------------|-------------------|--------------|
| 51+952.2        | 34R            | 1713+00          | 80L             | J                 | 1/79         |
| 51+952.2        | CL             | 1713+00          | 60L             | I                 | 1/79         |
| 51+952.2        | 98R            | 1713+00          | 260L            | N                 | 1/79         |

**CORE LOG Sta. 51+952.2, 34.0 m Rt.**

Elev. 555.35 - 555.01 Overburden  
555.01 - 547.73 Sandstone (74%) Interbedded with Shale (26%) Sandstone is light gray to gray, fine to medium grained, thin to medium bedded, micaceous, with shale streaks and shaly zones (durable). Shale is gray to dark gray, silty to sandy, thin bedded, occasional iron staining, with sandy streaks and sandy zones; Sandstone and Shale dip 28° Shale, gray, silty to sandy, laminated to thin bedded, with occasional iron stained streaks, dips 22° to 32°; Shale is very sandy from 547.73 to 544.53; Becomes less sandy with depth. Thin coal layers noted from 526.45 to 526.36, 524.11 to 524.08 and 521.24 to 521.21. Interbedded with a fine grained sandstone from 528.83 to 527.55, 525.66 to 525.45 and 525.08 to 524.96. Siderite zone noted from 517.86 to 517.62. Zones are very sandy below 517.62. Bedrock dips 18° below 517.62

**CORE LOG Sta. 51+935.2, 63.0 m Rt.**

Elev. 570.38 - 568.86 Clay, silty, brown, damp to dry, weathered shale  
568.86 - 565.61 Sandstone (72%) Interbedded with Shale (28%). Sandstone is brown, fine to medium grained, thin bedded, micaceous, weathered, and water stained (durable). Shale is brown, silty to sandy, very thin bedded, weathered, water stained, zones fractured, dip 26°  
565.61 - 559.78 Sandstone, brown, gray and light gray, fine to medium grained, very thin to thin bedded, micaceous, zones weathered and water stained, with shale stringers and partings (durable). Grades into shale or rock unit below, dip 27°  
559.78 - 558.60 Shale, brown to gray brown, sandy, highly weathered, fractured, dip 27°  
558.60 - 547.05 Shale, gray to dark gray, silty to sandy, very thin to thin bedded, carbonaceous zones, with sandy stringers and partings, and coal stringers and partings, dips 16° to 25°  
547.05 - 533.65 Sandstone (48%) Interbedded with Shale (52%) Sandstone is light gray to gray, fine to medium grained, very thin to thin bedded, micaceous, with shale stringers and partings (durable). Shale is gray to black, silty to sandy, very thin to thin bedded, carbonaceous zones, with sandy stringers and partings, dips 20° to 25°

**CUT LIMITS FROM +/- STATION 51+810 TO +/- STATION 52+372**

**CORE LOG Sta. 51+952.2, 98.0 m Rt.**  
Elev. 580.34 - 578.57 Overburden  
578.57 - 574.61 Shale, light brown to gray, silty to sandy, thin bedded, weathered, zones iron stained, with sandy stringers and partings, dip 20°  
574.61 - 572.78 Sandstone, light gray, medium grained, thin to medium bedded, micaceous, iron stained zones weathered, dip 22° (durable)  
572.78 - 570.89 Shale, gray to dark gray, silty to sandy, very thin to thin bedded, carbonaceous, dip 22°  
570.89 - 570.74 Coal, black  
570.74 - 567.93 Sandstone, light gray, medium grained, medium to thick bedded, micaceous, carbonaceous, dip 20°  
567.93 - 564.25 Shale, black to gray, silty, very thin to thin bedded, carbonaceous, dip 16°  
564.25 - 559.67 Sandstone (50%) Interbedded with Shale (50%) Sandstone is light gray, fine grained thin bedded, micaceous (durable). Shale is gray, silty to sandy, thin bedded, Sandstone and Shale dip 20°  
559.67 - 555.80 Sandstone, light gray, fine grained, thin to medium bedded, micaceous, with carbonaceous partings and stringers, dip 24° (durable)  
555.80 - 539.89 Shale, gray, silty to sandy, thin to medium bedded, iron stained zones, with sandy partings, dip 20°; Sandstone noted at 542.58 to 542.27, 541.36 to 541.26 and 539.95 to 539.68  
539.89 - 533.40 Shale (60%) Interbedded with Sandstone (40%). Shale is gray to dark gray, silty to sandy, very thin to thin bedded. Sandstone is light gray, fine to medium grained, very thin to thin bedded (durable); Sandstone and Shale dip 21°; Becomes more sandy with depth

**CORE LOG Sta. 51+952.2, Centerline**

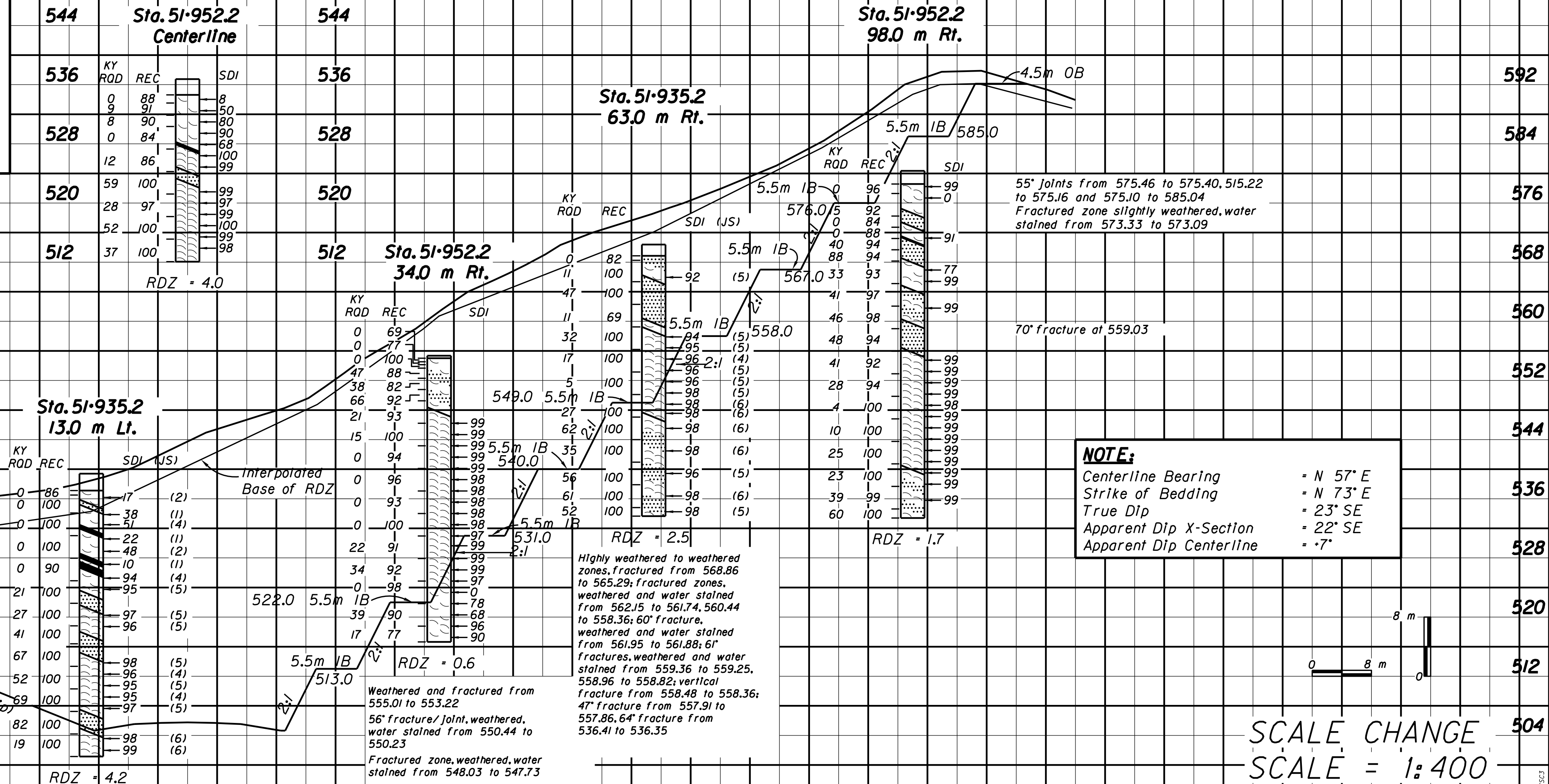
Elev. 536.75 - 534.62 Overburden  
534.62 - 527.61 Shale, light brown to gray, silty to sandy, laminated to very thin bedded, dip 16°; Sandstone layers noted from 532.42 to 532.30 and 532.09 to 531.75  
527.61 - 527.30 Coal, black  
527.30 - 524.25 Shale, gray, silty to sandy, laminated to very thin bedded, dip 17°; Sandstone layer noted from 525.41 to 525.23, grades into sandstone  
524.25 - 523.70 Sandstone, light gray, fine grained, thin to medium bedded, micaceous, carbonaceous stringers, dip 16° (durable)  
522.70 - 512.06 Shale, gray to dark gray, silty to sandy, very thin to thin bedded, iron staining in stringers and partings, dip 18°

**CORE LOG Sta. 51+935.2, 13.0 m Lt.**

Elev. 539.40 - 537.11 Clay, silty, brown, weathered shale, medium stiff, coal chips  
537.11 - 535.24 Shale, brown and gray, silty to sandy, very thin to thin bedded, weathered, earthy zones  
535.24 - 534.57 Sandstone, light gray to gray, fine grained, very thin to thin bedded, micaceous, with shale stringers and partings, with weathered and water stained zones, dip 22° (non-durable)  
534.57 - 531.84 Shale, gray, silty to sandy, very thin to thin bedded, weathered, sandstone partings, earthy zones, dip 23°  
531.84 - 531.33 Coal, black, fractured  
531.33 - 527.97 Shale, brown and dark gray, silty to sandy, very thin to thin bedded, weathered, sandstone partings in zones, dip 12°  
527.97 - 527.41 Coal, black, fractured  
527.41 - 526.86 Shale (Underclay), gray brown to gray, thin bedded, earthy, clay-like, carbonaceous, dips 22°  
526.86 - 526.03 Coal, black, fractured, boney  
526.03 - 522.97 Shale, gray to dark gray, silty to sandy, very thin to thin bedded, with sandy stringers and partings, dip 22°  
522.97 - 521.00 Sandstone, light gray, medium grained, thin to medium bedded, micaceous, dips 17° (durable)  
521.00 - 517.40 Shale, dark gray to gray, silty to sandy, very thin to thin bedded, with sandy stringers and partings, dip 22°  
517.40 - 512.57 Sandstone, light gray, very fine to fine grained, thin bedded, micaceous, shaly with stringers and partings, dips 18° (durable)  
512.57 - 506.86 Shale, gray to dark gray, silty to sandy, very thin to thin bedded, zones churned, zones very sandy, dip 14°  
506.86 - 504.34 Sandstone, light gray, fine to medium grained, thin to medium bedded, micaceous, dips 20°  
504.34 - 501.14 Shale, gray to dark gray, silty to sandy, very thin to thin bedded, with sandy stringers and partings, dip 22°

Highly weathered to weathered from 537.11 to 535.24, slightly weathered to weathered from 535.24 to 532.77, 52° fracture from 532.30 to 532.24, slickensides at 525.92 and 518.13, 40° fracture from 522.89 to 522.84, 47° fracture from 522.68 to 522.63, 47° fracture from 522.58 to 522.53, 74° fracture from 522.30 to 522.16, shale rip-up clasts from 506.86 to 506.60, 57° fracture from 505.84 to 505.79, 59° fracture from 504.74 to 504.69

Bedding Plane  
1° to 22° Apparent Dip



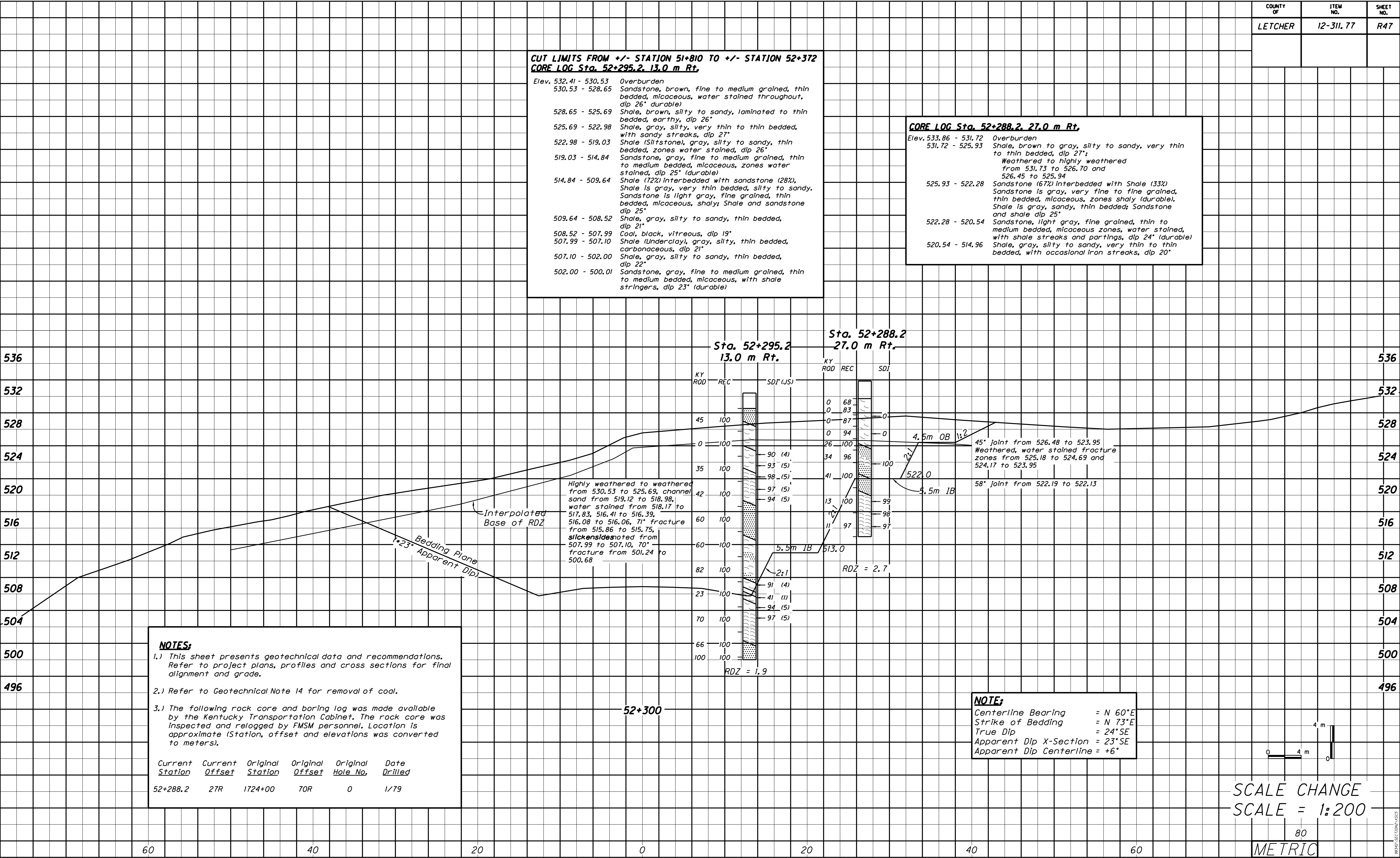
**NOTE:**  
Centerline Bearing = N 57° E  
Strike of Bedding = N 73° E  
True Dip = 23° SE  
Apparent Dip X-Section = 22° SE  
Apparent Dip Centerline = 7°

SCALE CHANGE  
SCALE = 1:400  
METRIC















**CORE LOG Sta. 25+591, 18.0 m Rt.**  
**CORE BOX LABELED AS Sta. 52+595.2, 13.0 m Lt.**

| Elev.           | 561.09 - 558.56                                                                                                                                                                   | 558.56 - 554.76                                                                                                              |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
|                 | Overburden                                                                                                                                                                        | Shale, brown and gray, silty to sandy, thin bedded, earthy, clay-like; Coal zones from 556.26 to 556.17 and 555.85 to 555.76 |
| 554.76 - 545.68 | Sandstone, gray, fine to medium grained, thin to medium bedded, micaceous, with occasional shale and coal streaks and partings, zones water stained, dip 16" (durable)            |                                                                                                                              |
| 545.68 - 540.51 | Shale, gray, silty to sandy, thin bedded, with sandy stringers and partings, dip 23"                                                                                              |                                                                                                                              |
| 540.51 - 539.85 | Sandstone, gray, fine to medium grained, medium bedded, micaceous, turbid, churned, with shaly zones (durable)                                                                    |                                                                                                                              |
| 539.85 - 538.98 | Shale, gray, silty to sandy, thin bedded, dip 17"                                                                                                                                 |                                                                                                                              |
| 538.98 - 534.79 | Sandstone, gray, fine to medium grained, thin to medium bedded, micaceous, with shale stringers and partings, dip 20" (durable); Rippled above 535.59                             |                                                                                                                              |
| 534.79 - 532.95 | Shale, gray, silty to sandy, thin bedded, zones very sandy, with sandy streaks and partings, dip 18"                                                                              |                                                                                                                              |
| 532.95 - 526.22 | Shale, gray, silty to sandy, thin to medium bedded, with streaks and partings, dip 19"                                                                                            |                                                                                                                              |
| 526.22 - 525.30 | Sandstone, gray, fine to medium grained, thin bedded, micaceous, with shale and coal streaks and partings, becomes less sandy and more carbonaceous with depth, dip 21" (durable) |                                                                                                                              |
| 525.30 - 520.01 | Sandstone, gray, fine to medium grained, thin bedded, micaceous, with shale and coal streaks and partings, dip 21" (durable); Grades into shale below.                            |                                                                                                                              |
| 520.01 - 516.31 | Shale, gray, silty to sandy, laminated to thin bedded, zones very sandy, dip 10"                                                                                                  |                                                                                                                              |
| 516.31 - 516.06 | Coal, black, vitreous                                                                                                                                                             |                                                                                                                              |
| 516.06 - 515.80 | Shale (Underclay), dark gray, silty, thin bedded, rooted, carbonaceous, dip 19"                                                                                                   |                                                                                                                              |
| 515.80 - 515.53 | Shale, gray, silty to sandy, thin bedded, with carbonaceous streaks, dip 16"                                                                                                      |                                                                                                                              |
| 515.53 - 515.41 | Coal, black, boney                                                                                                                                                                |                                                                                                                              |
| 515.41 - 514.80 | Shale (Underclay), gray, silty, thin bedded, rooted, dip 17"                                                                                                                      |                                                                                                                              |
| 514.80 - 513.63 | Shale, gray to dark gray, silty to sandy, thin to medium bedded, zones carbonaceous, zones clay-like, dip 17"                                                                     |                                                                                                                              |
| 513.63 - 505.38 | Sandstone, gray, fine to medium grained, thin to medium bedded, micaceous, with occasional shale, coal streaks and partings, dip 18" (durable)                                    |                                                                                                                              |

**CUT LIMITS FROM +/- STATION 25+372 TO +/- STATION 25+908**  
**CORE LOG Sta. 25+591, 93.0 m Rt.**  
**CORE BOX LABELED AS Sta. 52+625, 55.0 m Rt.**

| Elev.           | 603.58 - 602.21                                                                                                                                                                                                                                              | 602.21 - 596.03 |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                 | Overburden                                                                                                                                                                                                                                                   | Overburden      |
| 596.03 - 591.15 | Shale, brown to gray-brown, silty to sandy, thin bedded, earthy, clay-like, highly weathered to weathered, zones fractured, dip 20"                                                                                                                          |                 |
| 591.15 - 590.40 | Sandstone, gray, very fine to fine grained, thin to medium bedded, micaceous, dip 20" (durable)                                                                                                                                                              |                 |
| 590.40 - 589.48 | Shale, dark gray to gray, silty to sandy, zones very sandy, thin bedded, dip 18"                                                                                                                                                                             |                 |
| 589.48 - 553.35 | Sandstone, gray, very fine to fine grained, thin to medium bedded, micaceous, with shale stringers, partings, shaly zones, dip 18" (durable)                                                                                                                 |                 |
| 553.35 - 552.06 | Shale dark gray to gray, silty to sandy, laminated to thin bedded, with sandy streaks, partings and zones, carbonaceous partings and zones with occasional iron streaks and concretions; becomes less sandy, generally lesser dip with depth, dip 11" to 18" |                 |
| 552.06 - 551.49 | Sandstone, gray, fine grained, thin to medium bedded, micaceous, with shale streaks and stringers, dip 15" (durable)                                                                                                                                         |                 |
| 551.49 - 551.12 | Shale, gray, silty to sandy, thin bedded, dip 13"                                                                                                                                                                                                            |                 |
| 551.12 - 549.14 | Coal, black, vitreous                                                                                                                                                                                                                                        |                 |
| 549.14 - 537.62 | Shale (Underclay), gray, silty, thin bedded, rooted, churned; Coal layer noted from 550.71 to 550.46                                                                                                                                                         |                 |
| 537.62 - 536.93 | Sandstone, gray, fine to medium grained, thin to thick bedded, micaceous, zones cross bedded, zones carbonaceous, with coal stringers, partings, coal spars and inclusions, dip 14" (durable); Coal layers noted from 541.97 to 541.94 and 541.59 to 541.56  |                 |
| 536.93 - 535.45 | Shale, gray to dark gray, silty to sandy, thin bedded, zones carbonaceous, dip 14"                                                                                                                                                                           |                 |
| 535.45 - 534.24 | Sandstone, gray, very fine to fine grained, thin bedded, micaceous, with shale streaks and shaly zones, dip 14" (durable)                                                                                                                                    |                 |
| 534.24 - 533.73 | Shale, dark gray, silty to sandy, laminated, dip 14"                                                                                                                                                                                                         |                 |
| 533.73 - 532.51 | Coal, black, boney                                                                                                                                                                                                                                           |                 |
| 532.51 - 532.12 | Shale (Underclay), gray, silty, thin bedded, partially clay-like, churned                                                                                                                                                                                    |                 |
| 532.12 - 530.86 | Coal, black, boney                                                                                                                                                                                                                                           |                 |
| 530.86 - 523.58 | Shale, gray, silty to sandy, thin bedded, zones slickensides, dip 19"                                                                                                                                                                                        |                 |
|                 | Sandstone, gray, fine to medium grained, thin to thick bedded, micaceous, with shale streaks, partings and layers, dip 12" (durable); Occasional coal stringers and partings below 529.78                                                                    |                 |

**CORE LOG Sta. 25+550, 124.0 m Rt.**  
**CORE BOX LABELED AS Sta. 52+595.2, 102.0 m Rt.**

| Elev.           | 606.16 - 604.64                                                                                                                      | 604.64 - 603.79 |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                 | Overburden                                                                                                                           | Overburden      |
| 603.79 - 603.30 | Shale, brown and gray, silty to sandy, laminated to thin bedded, weathered zones, earthy, dip 15"                                    |                 |
| 603.30 - 601.39 | Sandstone, gray, fine grained, thin bedded, micaceous, dip 14" (durable)                                                             |                 |
| 601.39 - 588.14 | Shale, gray, silty, thin bedded, zones partially clay-like, dip 17"                                                                  |                 |
| 588.14 - 587.40 | Sandstone, gray, fine to medium grained, thin to medium bedded, micaceous, dip 17" (durable)                                         |                 |
| 587.40 - 587.01 | With numerous shale, coal stringers, partings, and shaly zones to 596.31, occasional shale, coal stringers and partings below 596.31 |                 |
| 587.01 - 585.83 | Shale, dark gray, silty to sandy, thin bedded, dip 12"                                                                               |                 |
| 585.83 - 583.52 | Sandstone, gray, very fine to fine grained, thin bedded, shaly, with shale streaks, dip 15" (durable)                                |                 |
| 583.52 - 581.01 | Shale, dark gray to gray, silty to sandy, laminated to thin bedded, dip 14"                                                          |                 |
| 581.01 - 577.16 | Sandstone, gray, fine grained, thin bedded, micaceous, with shale partings and streaks, dip 17" (durable)                            |                 |
|                 | Shale (Siltstone), dark gray, silty to sandy, thin bedded, micaceous, dip 17"                                                        |                 |
|                 | Sandstone, gray, fine grained, thin to medium bedded, micaceous, dip 15" (durable)                                                   |                 |

**NOTE:**  
This sheet presents geotechnical data and recommendations. Refer to project plans, profiles, and cross sections for final alignment and grade.

**NOTE:**  
Centerline Bearing = N 54°E  
Strike of Bedding = N 71°E  
True Dip = 19°SE  
Apparent Dip X-Section = 18°SE  
Apparent Dip Centerline = 6°

**SCALE CHANGE**  
**SCALE = 1:400**

**25+600**

**616**  
**608**  
**600**  
**592**  
**584**  
**576**  
**568**  
**560**  
**552**  
**544**  
**536**  
**528**  
**520**  
**512**  
**504**  
**496**

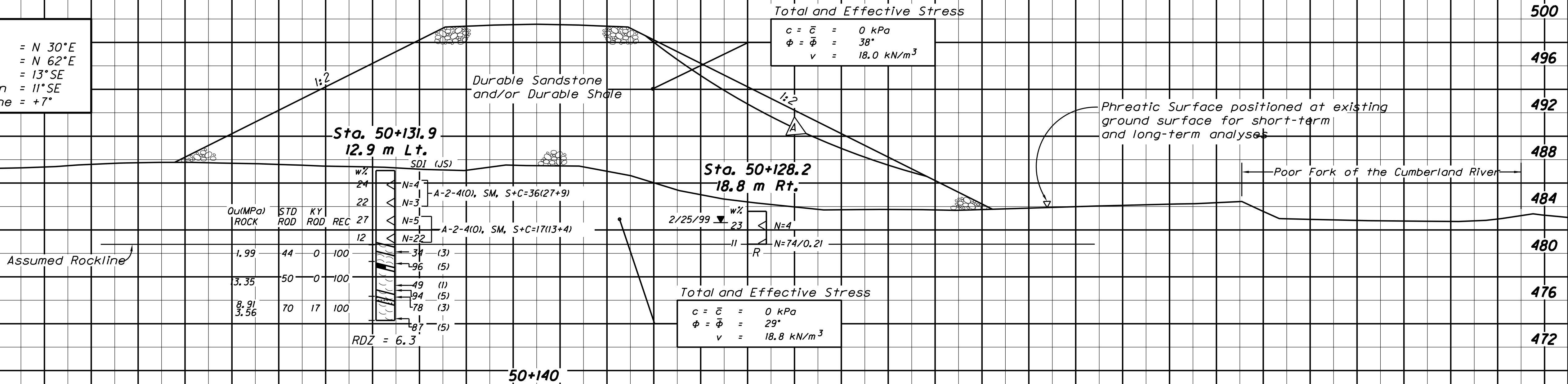


**FILL LIMITS FROM +/- STATION 50+131 TO +/- STATION 50+321**  
**CORE LOG Sta. 50+131.9, 12.9 m Lt.**

|                       |                                                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------|
| Elev. 487.07 - 480.73 | Overburden                                                                                                          |
| 480.73 - 479.98       | Shale, gray, silty to sandy, thin bedded, dip 6°                                                                    |
| 479.98 - 478.98       | Shale, dark gray to black, silty to sandy, laminated to thin bedded, carbonaceous, dip 6°                           |
| 478.98 - 478.64       | Coal, black vitreous                                                                                                |
| 478.64 - 476.69       | Shale(underclay), gray, silty, thin bedded, rooted                                                                  |
| 476.69 - 476.12       | Shale, dark gray, silty to sandy, thin bedded, dip 11°                                                              |
| 476.12 - 475.77       | Sandstone, gray, fine grained, thin bedded, crossbedded with shale stringers, clay partings noted at 475.93, dip 8° |
| 475.77 - 474.28       | Shale, dark gray, silty to sandy, thin bedded, inclusions noted, coal layer from 475.65 to 475.63, dip 8°           |

**FACTORS OF SAFETY**  
△ Short- and Long-Term (Rotational) 1.6

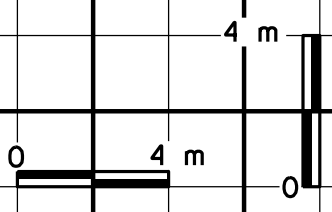
**NOTE:**  
Centerline Bearing = N 30°E  
Strike of Bedding = N 62°E  
True Dip = 13°SE  
Apparent Dip X-Section = 11°SE  
Apparent Dip Centerline = +7°



**NOTES:**

1. This sheet presents geotechnical data and recommendations. Refer to project plans, profiles, and cross sections for final alignment and grade.
2. Auger Refusal indicates rock-like resistance to advancement of the augers. This may indicate the presence of weathered bedrock, boulders or rock remnants. An exact determination cannot be made without performing rock coring.
3. Refer to Geotechnical Note 10 for saturated areas.

SCALE CHANGE



SCALE = 1:200

FILL LIMITS FROM +/- STATION 45+131 TO +/- STATION 50+321

METRIC



FILL LIMITS FROM +/- STATION 50+220 TO +/- STATION 51+000  
CORE LOG Sta. 50+375.6, 8.0 m Lt.  
Elev. 488.67 - 480.90 Overburden  
480.90 - 475.61 Sandstone, gray, medium grained, thin to medium bedded, micaceous, with coal stringers and partings, dip 10°  
475.61 - 474.28 Shale, gray to dark gray, silty to sandy, thin bedded, with sandy streaks, dip 10°

FACTORS OF SAFETY  
Short- and Long-Term (Rotational) 1.5

Total and Effective Stress  
 $c = \bar{c} = 0 \text{ kPa}$   
 $\phi = \bar{\phi} = 38^\circ$   
 $v = 18.0 \text{ kN/m}^3$

Phreatic Surface positioned at existing ground surface for short-term and long-term analyses

NOTE:  
Centerline Bearing = N 37°E  
Strike of Bedding = N 56°E  
True Dip = 15°SE  
Apparent Dip X-Section = 14°SE  
Apparent Dip Centerline = +5°

Total and Effective Stress  
 $c = \bar{c} = 0 \text{ kPa}$   
 $\phi = \bar{\phi} = 27^\circ$   
 $v = 18.8 \text{ kN/m}^3$

Assumed Rockline

RDZ = 7.8

50+400

FILL LIMITS FROM +/- STATION 50+131 TO +/- STATION 50+321  
CORE LOG Sta. 50+297.0, 5.3 m Rt.  
Elev. 487.39 - 483.49 Coal Refuse, sand, silt, damp, soft, black  
483.49 - 481.75 Silty Sand, brown, wet, soft  
481.75 - 478.38 Shale, gray to dark gray, silty to sandy, thin bedded, weathered  
478.38 - 475.07 Sandstone, gray, fine to medium grained, thin to medium bedded, micaceous, with coal spars

FACTORS OF SAFETY  
Short- and Long-Term (Rotational) 1.4

Total and Effective Stress  
 $c = \bar{c} = 0 \text{ kPa}$   
 $\phi = \bar{\phi} = 38^\circ$   
 $v = 18.0 \text{ kN/m}^3$

Phreatic Surface positioned at existing ground surface for short-term and long-term analyses

Poor Fork of the Cumberland River

NOTES:  
1. This sheet presents geotechnical data and recommendations. Refer to project plans, profiles, and cross sections for final alignment and grade.  
2. Auger Refusal indicates rock-like resistance to advancement of the augers. This may indicate the presence of weathered bedrock, boulders or rock remnants. An exact determination cannot be made without performing rock coring.  
3. Refer to Geotechnical Note 10 for saturated areas.

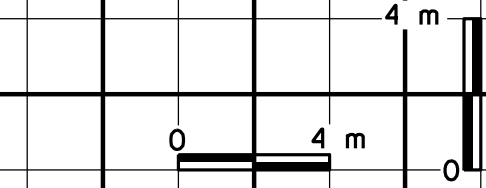
Assumed Rockline

Total and Effective Stress  
 $c = \bar{c} = 0 \text{ kPa}$   
 $\phi = \bar{\phi} = 30^\circ$   
 $v = 18.8 \text{ kN/m}^3$

RDZ = 5.8

50+280

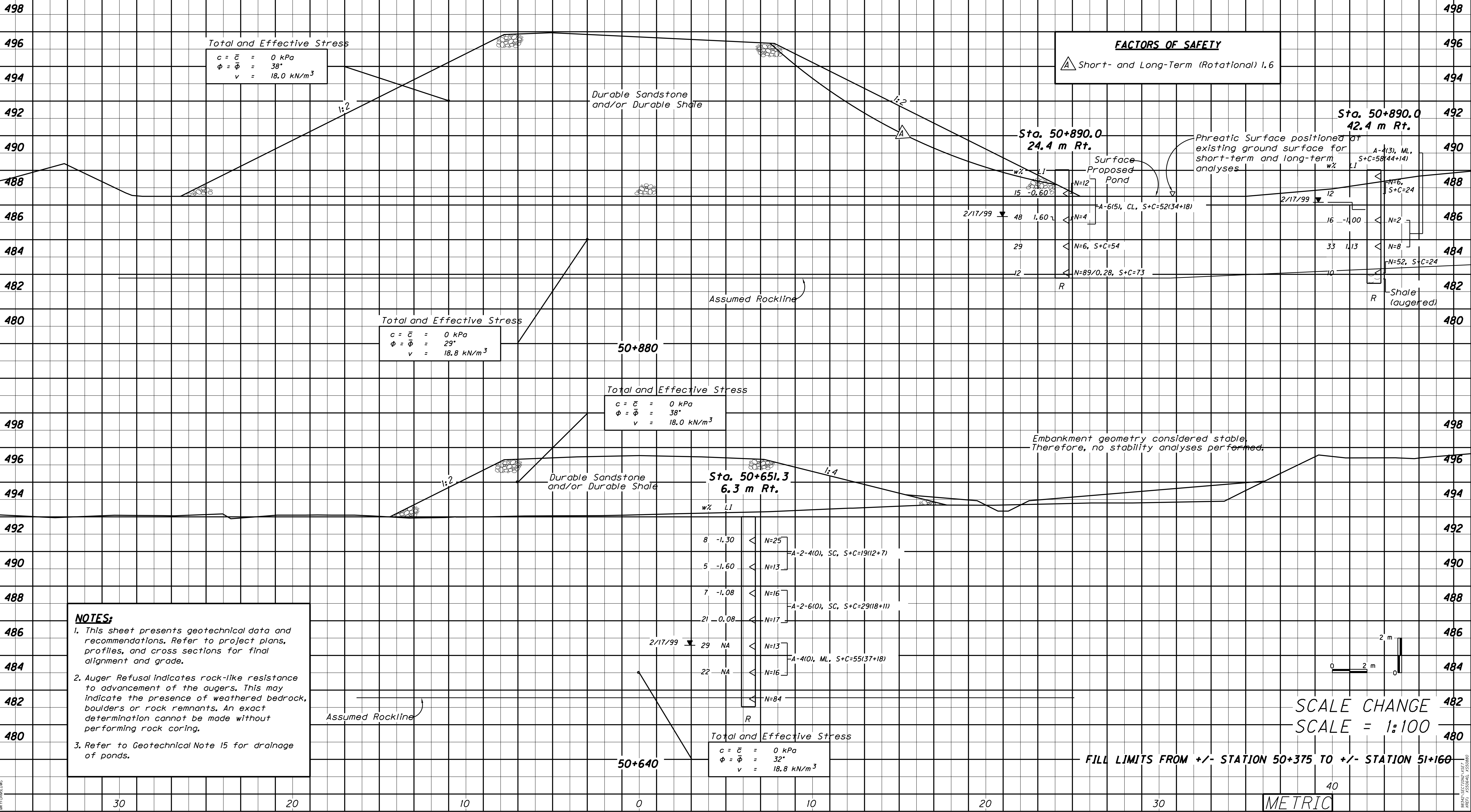
NOTE:  
Centerline Bearing = N 37°E  
Strike of Bedding = N 56°E  
True Dip = 15°SE  
Apparent Dip X-Section = 14°SE  
Apparent Dip Centerline = +5°



SCALE = 1:200

METRIC







FILL LIMITS FROM +/- STATION 51+545 TO +/- STATION 51+670  
CORE LOG Sta. 51+545.2, 8.0 m Rt.

|                       |                                                                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Elev. 490.32 - 485.81 | Overburden                                                                                                                        |
| 485.81 - 485.75       | Shale, brown, sandy, highly weathered and water stained                                                                           |
| 485.75 - 480.47       | Shale, dark gray, silty, laminated to thin bedded, zones clay-like, fractured throughout, dip 14°                                 |
| 480.47 - 479.37       | Shale, gray, silty to sandy, laminated to thin bedded, with numerous sandy streaks and partings, dip 24°                          |
| 479.37 - 477.52       | Sandstone, gray, fine to medium grained, thin to medium bedded, micaceous, with occasional, shale stringers, and streaks, dip 20° |

|  |                            |
|--|----------------------------|
|  | Total and Effective Stress |
|--|----------------------------|

|                     |     |                       |
|---------------------|-----|-----------------------|
| $c = \bar{c}$       | $=$ | $0 \text{ kPa}$       |
| $\phi = \bar{\phi}$ | $=$ | $38^\circ$            |
| $v$                 | $=$ | $18.0 \text{ kN/m}^3$ |

### FACTORS OF SAFETY

**A** Short- and Long-Term (Rotational) 1.6

Sta. 51+545.2  
8.0 m Rt.

Sta. 51+545.2  
30.0 m Rt.

Phreatic Surface positioned at existing ground surface for short-term and long-term analyses

Assumed Rockline

*Total and Effective Stress*

|                     |     |                       |
|---------------------|-----|-----------------------|
| $c = \bar{c}$       | $=$ | $0 \text{ kPa}$       |
| $\phi = \bar{\phi}$ | $=$ | $30^\circ$            |
| $v$                 | $=$ | $18.8 \text{ kN/m}^3$ |

**NOTES:**

1. This sheet presents geotechnical data and recommendations. Refer to project plans, profiles, and cross sections for final alignment and grade.

2. Auger Refusal indicates rock-like resistance to advancement of the augers. This may indicate the presence of weathered bedrock, boulders or rock remnants. An exact determination cannot be made without performing rock coring.

**NOTE:**

|                         |           |
|-------------------------|-----------|
| Centerline Bearing      | = N 57° E |
| Strike of Bedding       | = N 74° E |
| True Dip                | = 20° SE  |
| Apparent Dip X-Section  | = 19° SE  |
| Apparent Dip Centerline | = +6°     |


  
 SCALE = 1:100

METRIC

**EMBANKMENT STABILITY SECTION STATION 51+560**



**FILL LIMITS FROM +/- STATION 51-760 TO +/- STATION 51-820**  
**CORE LOG Sta. 51-755.2 8.0 m Rt.**  
Elev. 489.43 - 485.76 Overburden  
485.76 - 481.01 Shale, gray to dark gray, silty to sandy, thin bedded, with sandy streaks and chert, dip 22°  
481.01 - 478.52 Sandstone, gray, fine to medium grained, thin to medium bedded, micaceous, with shale streaks, partings and shaly zones, dip 19°

**FACTORS OF SAFETY**  
Short- and Long-Term (Rotational) 1.6

508

508

504

504

500

500

496

496

492

492

488

488

484

484

480

480

476

476

472

472

Phreatic Surface positioned at existing ground surface for short-term and long-term analyses

Assumed Rockline

**Total and Effective Stress**  
 $c = \bar{c} = 0 \text{ kPa}$   
 $V = \bar{V} = 30\%$   
 $v = 18.8 \text{ kN/m}^3$

| Qu(MPa) | STD | KY | REC | 24 | NA | 28 | NA | SDI (JS) | 47 | (2) | 88 | (5) | 84 | (5) |
|---------|-----|----|-----|----|----|----|----|----------|----|-----|----|-----|----|-----|
| 0.53    | 62  | 0  | 96  |    |    |    |    |          |    |     |    |     |    |     |
| 19.33   | 22  | 0  | 100 |    |    |    |    |          |    |     |    |     |    |     |
| 10.63   | 73  | 63 | 100 |    |    |    |    |          |    |     |    |     |    |     |
| 51.53   |     |    |     |    |    |    |    |          |    |     |    |     |    |     |

RDZ = 4.2

51-760

**FACTORS OF SAFETY**

Short- and Long-Term (Rotational) 1.6

504

504

500

500

496

496

492

492

488

488

484

484

480

480

476

476

472

472

**NOTES:**

1. This sheet presents geotechnical data and recommendations. Refer to project plans, profiles, and cross sections for final alignment and grade.
2. Auger Refusal indicates rock-like resistance to advancement of the augers. This may indicate the presence of weathered bedrock, boulders or rock remnants. An exact determination cannot be made without performing rock coring.

**Total and Effective Stress**  
 $c = \bar{c} = 0 \text{ kPa}$   
 $V = \bar{V} = 38\%$   
 $v = 18.0 \text{ kN/m}^3$

Assumed Rockline

**Total and Effective Stress**  
 $c = \bar{c} = 0 \text{ kPa}$   
 $V = \bar{V} = 30\%$   
 $v = 18.8 \text{ kN/m}^3$

| Qu(MPa) | STD | KY  | REC | 23 | 0.50 | NA | 22 | NA | SDI (JS) | 51 | (2) | 97 | (6) | 97 | (6) |
|---------|-----|-----|-----|----|------|----|----|----|----------|----|-----|----|-----|----|-----|
| 31.23   | 48  | 99  |     |    |      |    |    |    |          |    |     |    |     |    |     |
| 58.56   | 36  | 100 |     |    |      |    |    |    |          |    |     |    |     |    |     |
| 103.05  |     |     |     |    |      |    |    |    |          |    |     |    |     |    |     |

RDZ = 4.5

51-660

**Sta. 51-667.2**  
8.0 m Rt.**Sta. 51-667.2**  
33.0 m Rt.

**FILL LIMITS FROM +/- STATION 51-560 TO +/- STATION 51-660**  
**CORE LOG Sta. 51-667.2 8.0 m Rt.**  
Elev. 489.78 - 486.27 Overburden  
486.27 - 485.46 Shale, gray, silty, laminated to thin bedded, weathered, zones clay-like, dip 18°  
485.46 - 483.59 Sandstone, light gray, fine to medium grained, medium bedded, micaceous, with shale and coal stringers and partings, dip 21°  
483.59 - 480.18 Shale, gray to dark gray, silty to sandy, laminated to thin bedded, with numerous sandy stringers, streaks, and partings, dip 18°

Phreatic Surface positioned at existing ground surface for short-term and long-term analyses

**NOTE:**

Centerline Bearing = N 57°E  
Strike of Bedding = N 74°E  
True Dip = 20°SE  
Apparent Dip X-Section = 19°SE  
Apparent Dip Centerline = 6°

SCALE CHANGE  
SCALE = 1:200

METRIC



PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

Engineering drawing showing a plan view of a culvert structure and a stream profile.

**Plan View (Top):**

- Scale: 1:200 (HORIZ), 1:200 (VERT)
- Channel sections are shown with elevations ranging from 484 to 492.
- Channel sections are labeled: 6+080, 6+060, 6+040, 6+020, 5+980, 5+960, 5+940, 5+920.
- Channel sections are shown with elevations ranging from 484 to 492.
- Channel sections are labeled: 6+080, 6+060, 6+040, 6+020, 5+980, 5+960, 5+940, 5+920.

**Stream Profile (Bottom):**

- Scale: 1:2000 HORIZ. & 1:200 VERT.
- Profile shows elevation (476 to 496) versus stationing (6+080 to 5+920).
- Profile includes a dashed line for the existing channel and a solid line for the proposed structure.
- Profile includes a dashed line for the existing channel and a solid line for the proposed structure.

**Culvert Section (Bottom):**

- Scale: 1:200 (HORIZ), 1:200 (VERT)
- Structure is a 14' x 5' RCBC culvert.
- Structure is shown with a 61°15'35" skew.
- Structure is shown with a 61°15'35" skew.

**Culvert Situation (Bottom Right):**

- STA. 51+024.42
- 14ft x 5ft RCBC
- 61°15'35" SKEW LT.

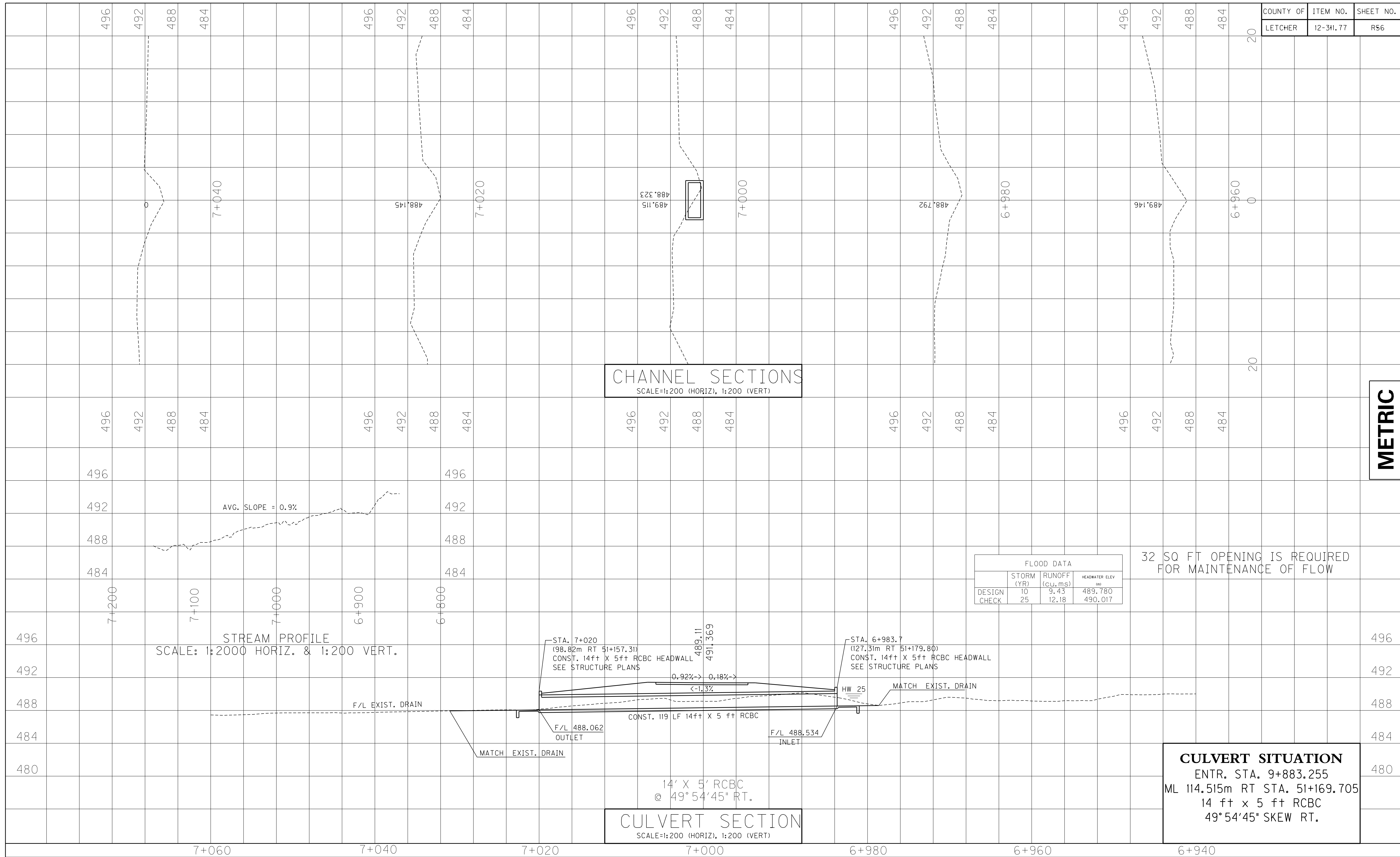
**Flood Data Table:**

| FLOOD DATA |            |                |                    |
|------------|------------|----------------|--------------------|
|            | STORM (YR) | RUNOFF (cu.ms) | HEADWATER ELEV (m) |
| DESIGN     | 25         | 12.17          | 488.18             |
| CHECK      | 100        | 16.68          | 488.58             |

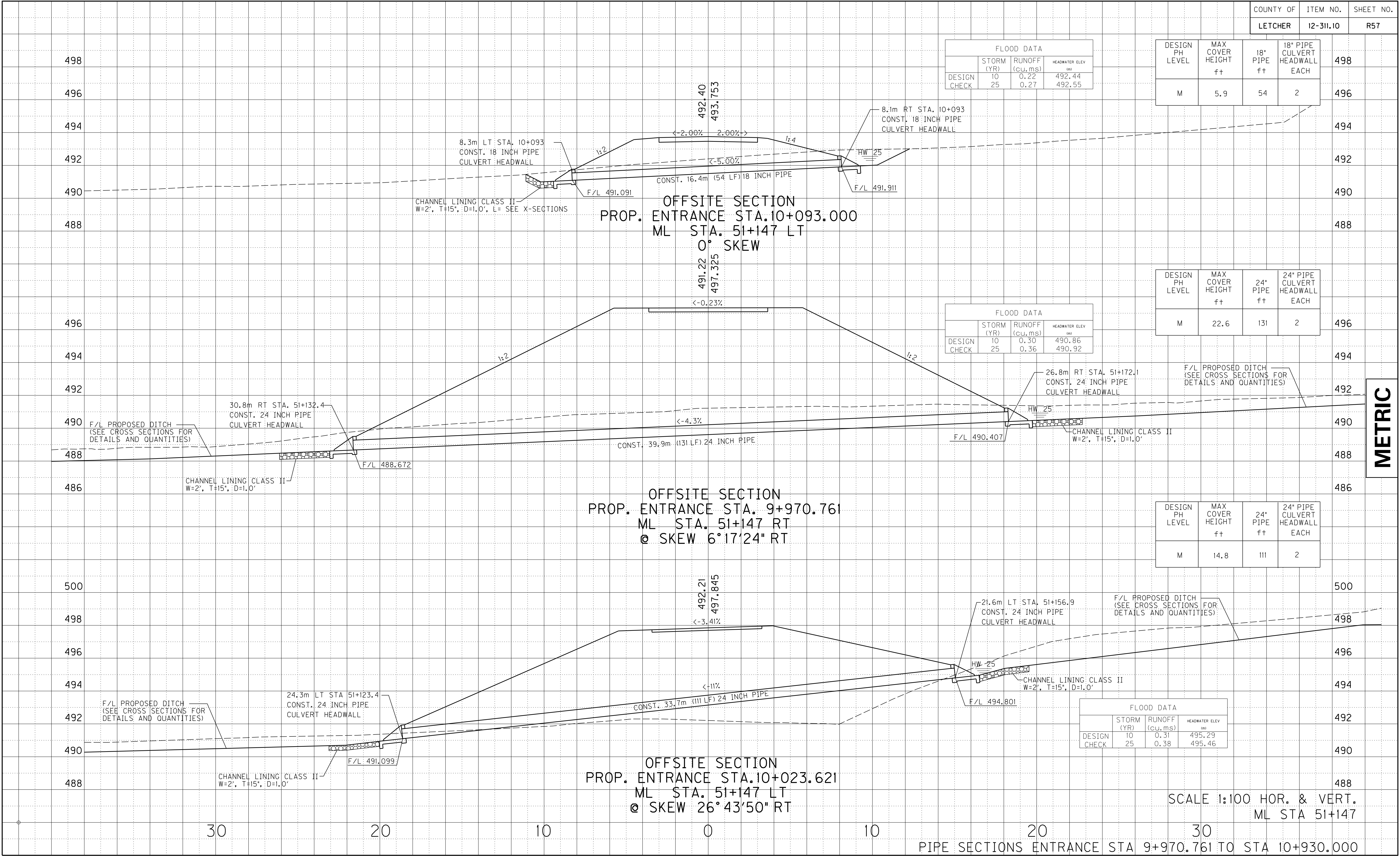
METRIC



PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_







METRIC



\$\$\$PRF\$\$\$

\$\$TIME\$\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

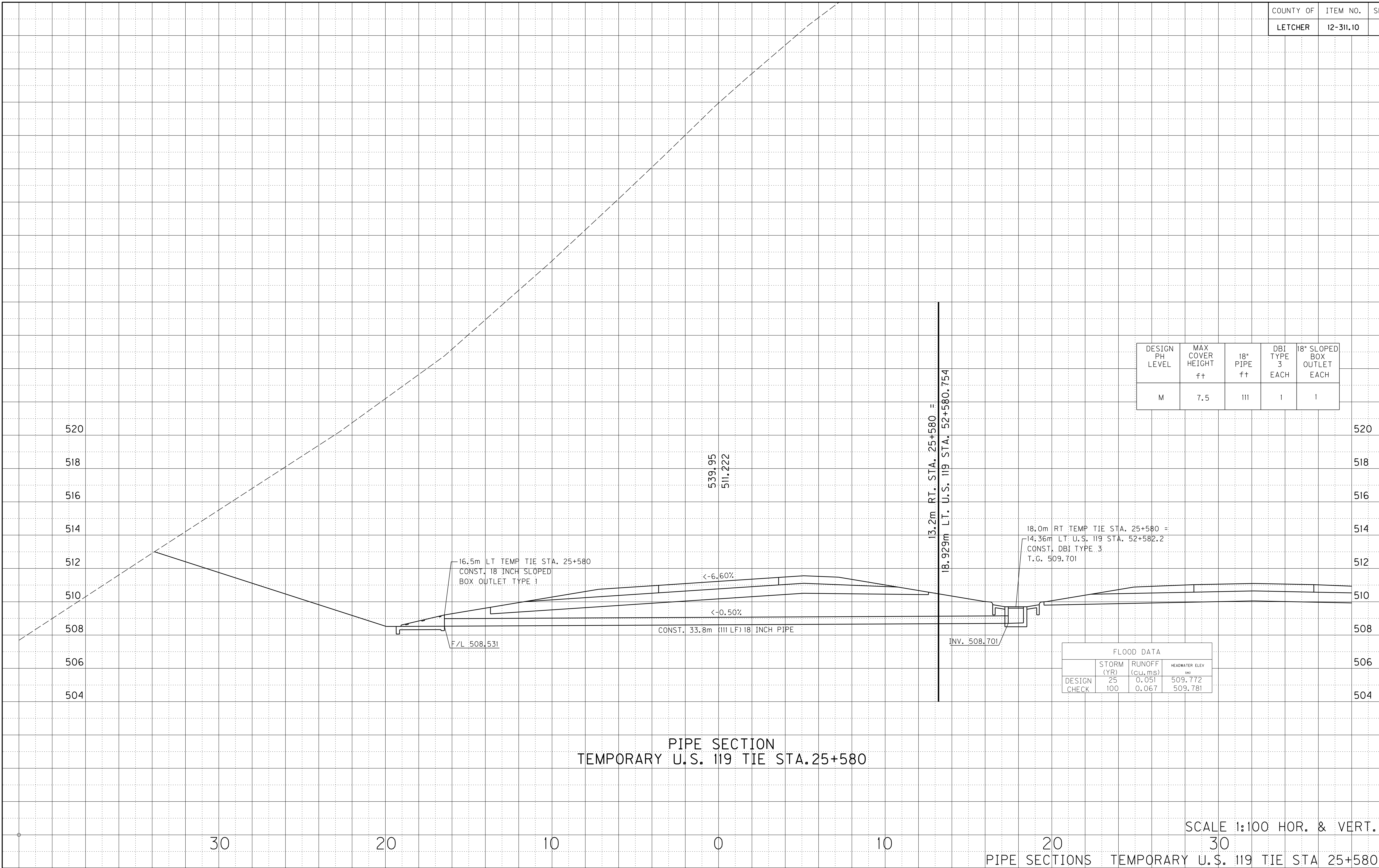
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.10 | R58       |

| DESIGN<br>PH<br>LEVEL | MAX<br>COVER<br>HEIGHT<br>ft | 18"<br>PIPE<br>ft | DBI<br>TYPE<br>3<br>EACH | 18" SLOPED<br>BOX<br>OUTLET<br>EACH |
|-----------------------|------------------------------|-------------------|--------------------------|-------------------------------------|
| M                     | 7.5                          | 111               | 1                        | 1                                   |

| FLOOD DATA |               |                      |                        |
|------------|---------------|----------------------|------------------------|
|            | STORM<br>(YR) | RUNOFF<br>(cu. ft/s) | HEADWATER ELEV<br>(ft) |
| DESIGN     | 25            | 0.051                | 509.772                |
| CHECK      | 100           | 0.067                | 509.781                |

METRIC





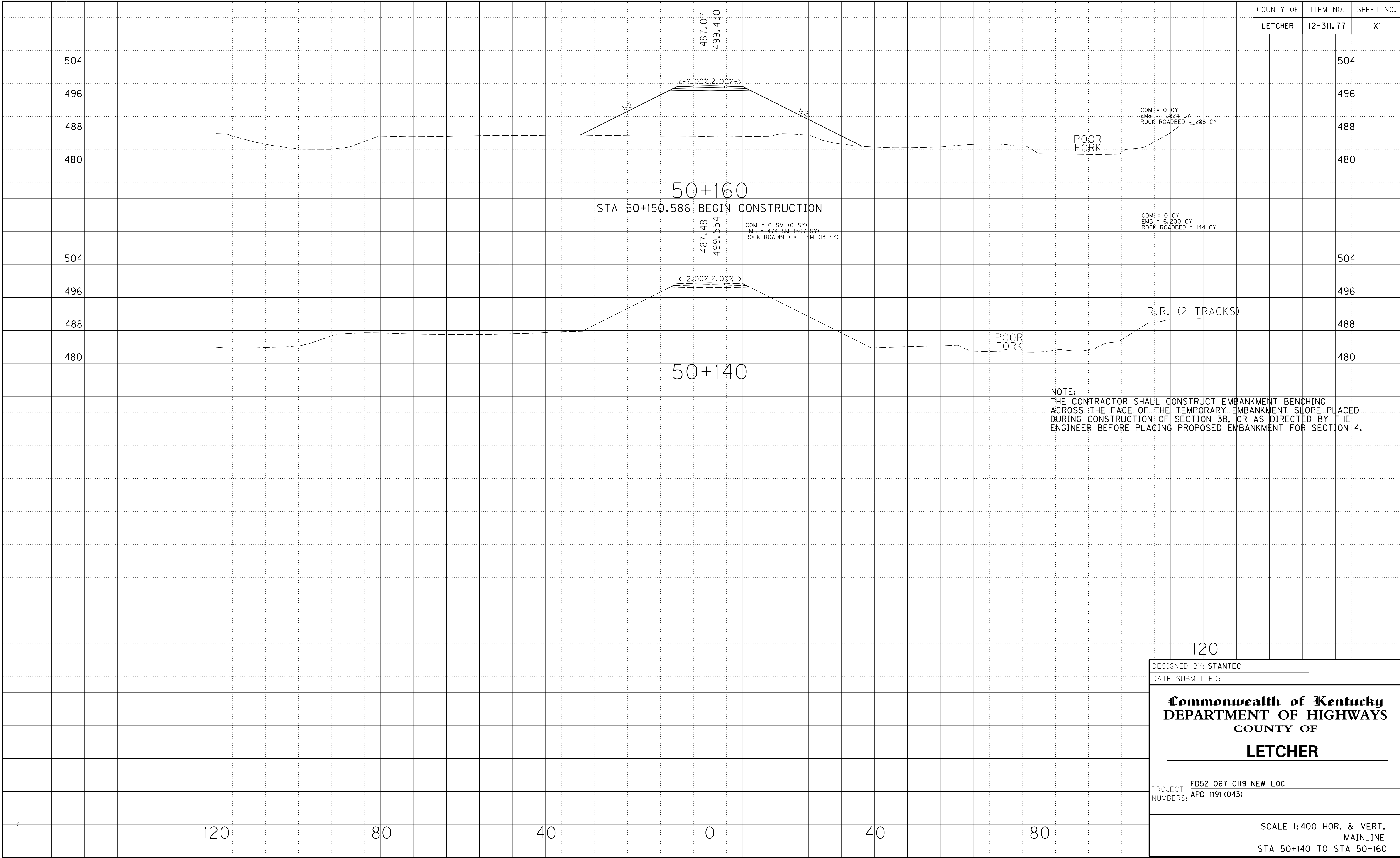
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CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

\$\$\$DONS\$

\$\$\$DATE\$



120

DESIGNED BY: STANTEC

DATE SUBMITTED:

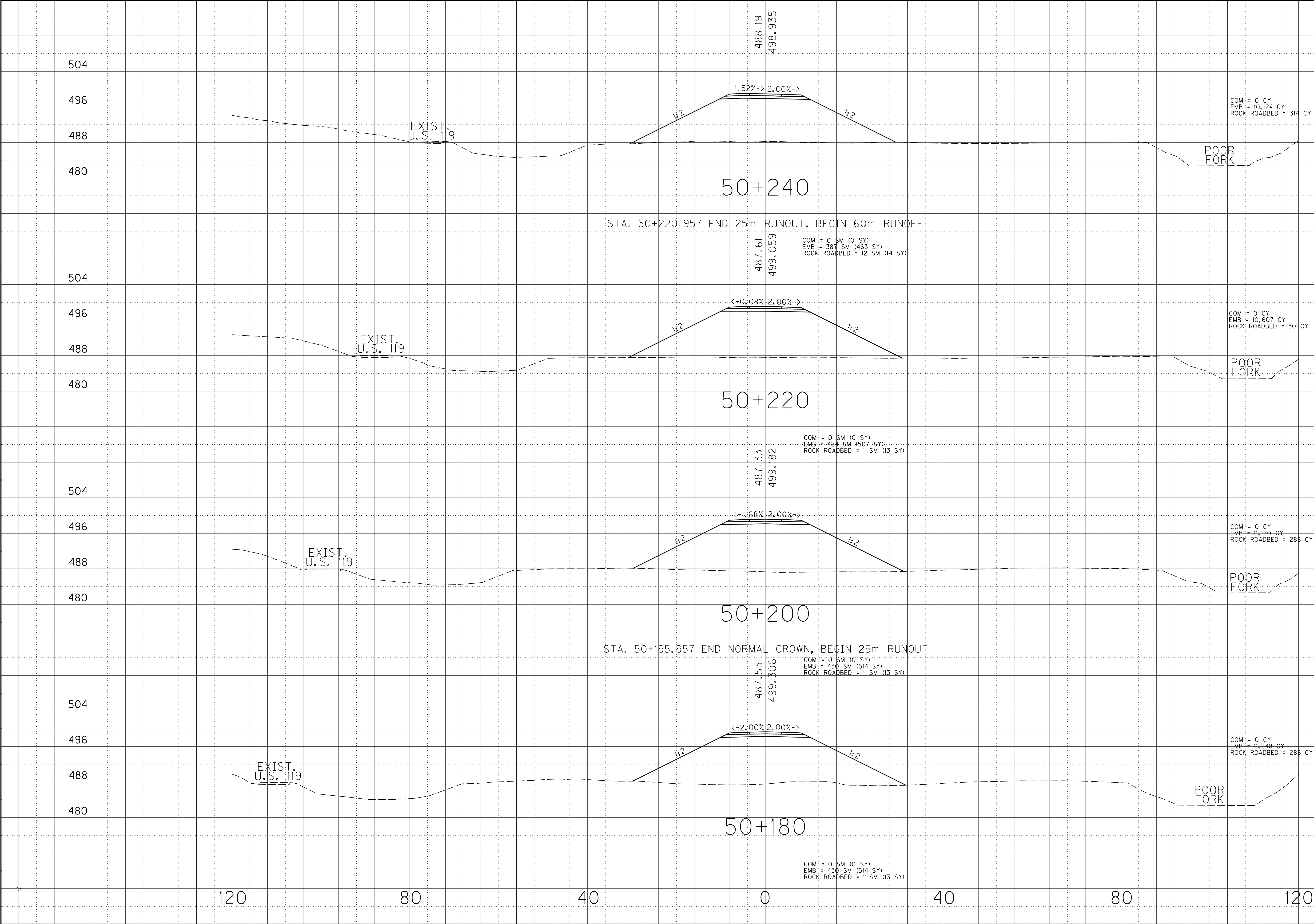
Commonwealth of Kentucky  
DEPARTMENT OF HIGHWAYS  
COUNTY OF  
**LETCHER**

PROJECT  
NUMBERS: FD52 067 0119 NEW LOC  
APD 1191 (043)

SCALE 1:400 HOR. & VERT.  
MAINLINE  
STA 50+140 TO STA 50+160



| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X2        |





| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X3        |

STA. 50+338.420 END FULL SUPER, BEGIN 60m RUNOFF

487.53  
498.439

4.80%->

BRIDGE

COM = 458 CY  
EMB = 39 CY

R.R. (8 TRACKS)

POOR  
FORK

COM = 0 SM (0 SY)  
EMB = 0 SM (0 SY)

487.39  
498.563

4.80%->

BRIDGE

COM = 0 CY  
EMB = 3,649 CY

R.R. (2 TRACKS)

POOR  
FORK

COM = 0 SM (0 SY)  
EMB = 279 SM (334 SY)

487.45  
498.687

4.72%->

BRIDGE

COM = 0 CY  
EMB = 9,912 CY  
ROCK ROADBED = 157 CY

R.R. (2 TRACKS)

POOR  
FORK

COM = 0 SM (0 SY)  
EMB = 410 SM (490 SY)  
ROCK ROADBED = 12 SM (14 SY)

488.04  
498.811

3.12%->

BRIDGE

COM = 0 CY  
EMB = 10,424 CY  
ROCK ROADBED = 314 CY

POOR  
FORK

COM = 0 SM (0 SY)  
EMB = 387 SM (463 SY)  
ROCK ROADBED = 12 SM (14 SY)

488.04  
498.811

3.12%->

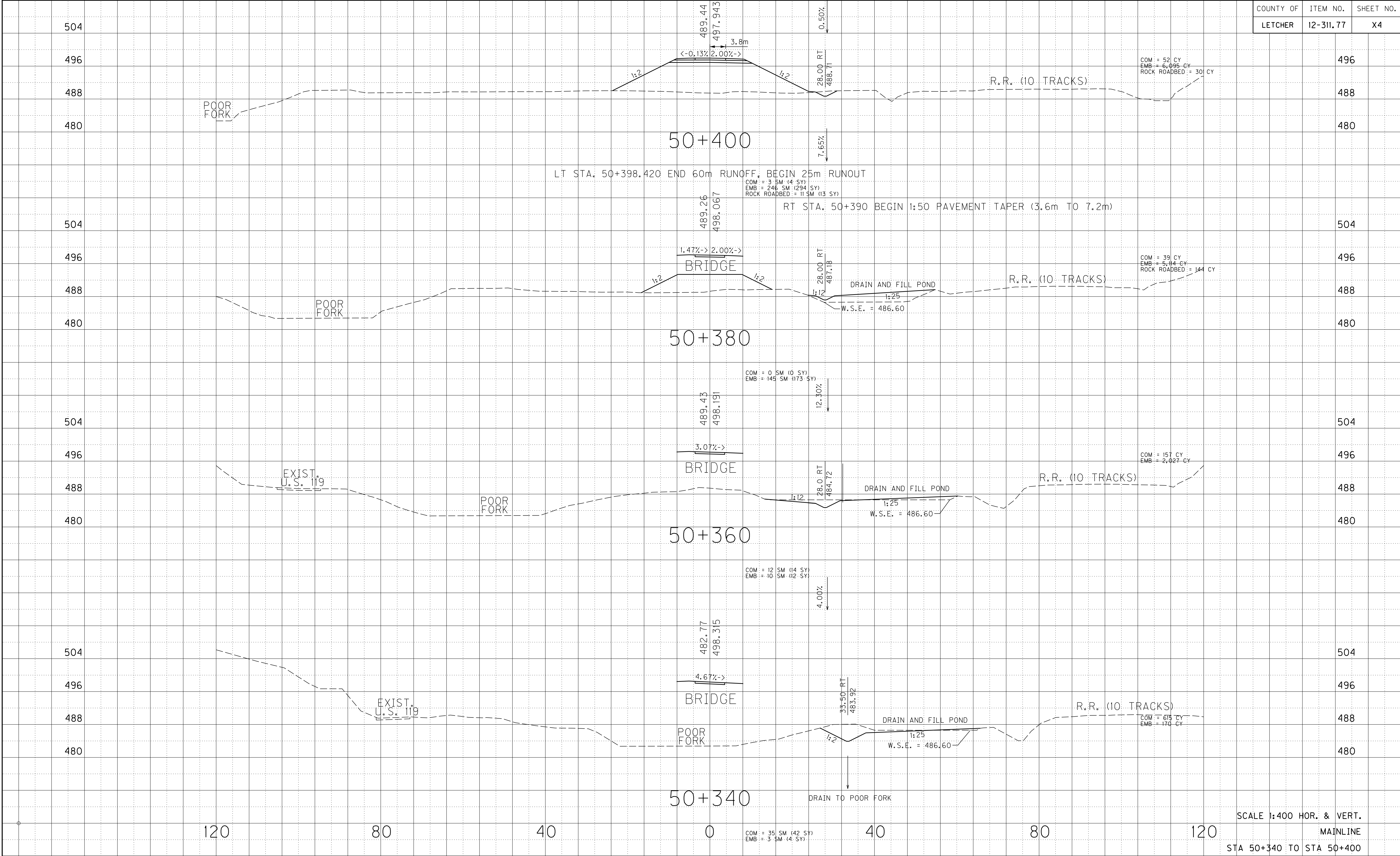
BRIDGE

SCALE 1:400 HOR. & VERT.

MAINLINE

STA 50+260 TO STA 50+320







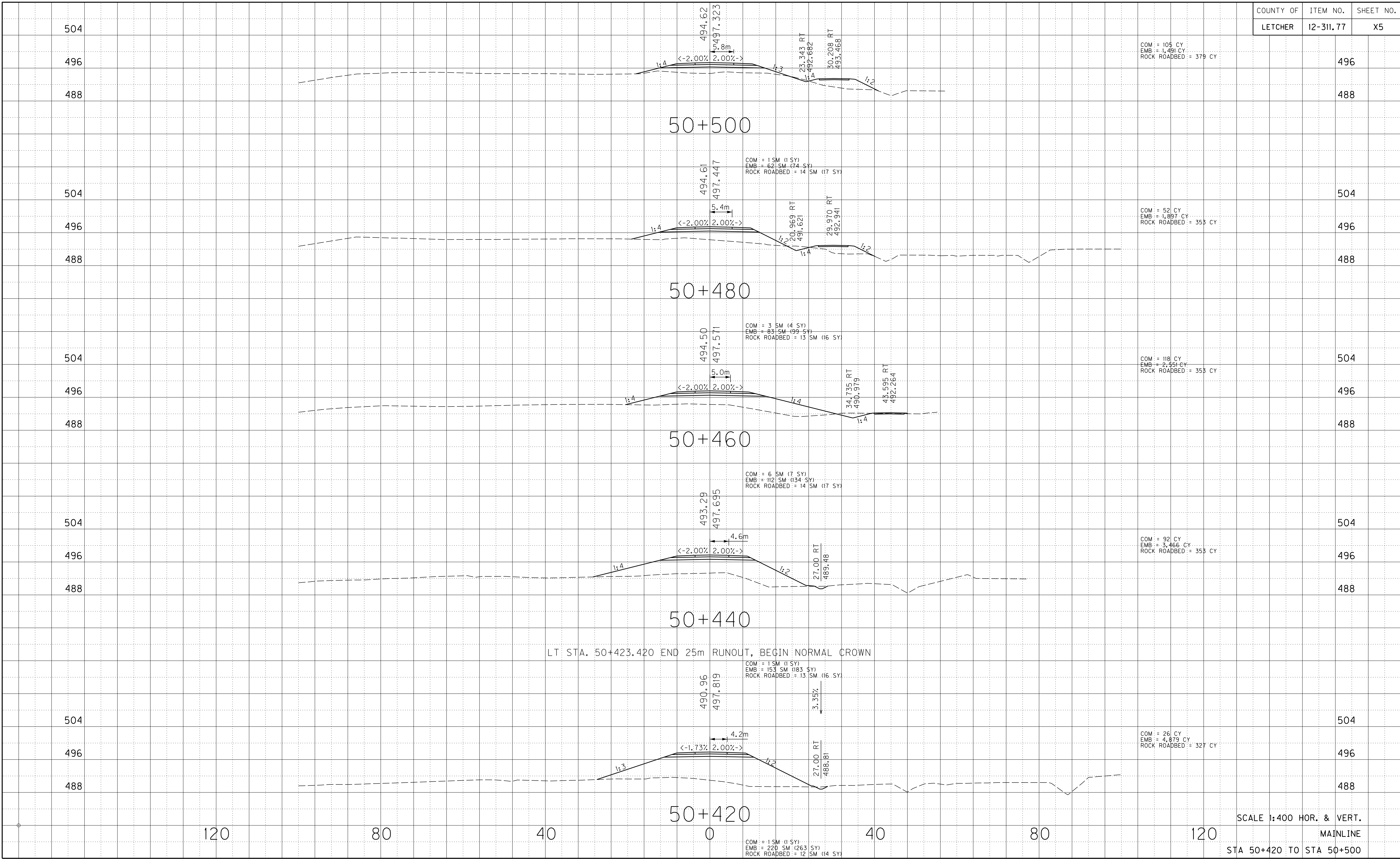
PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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\$\$\$DATE\$\$\$



| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X5        |



PREPARED BY

CHECKED BY

APPROVED BY

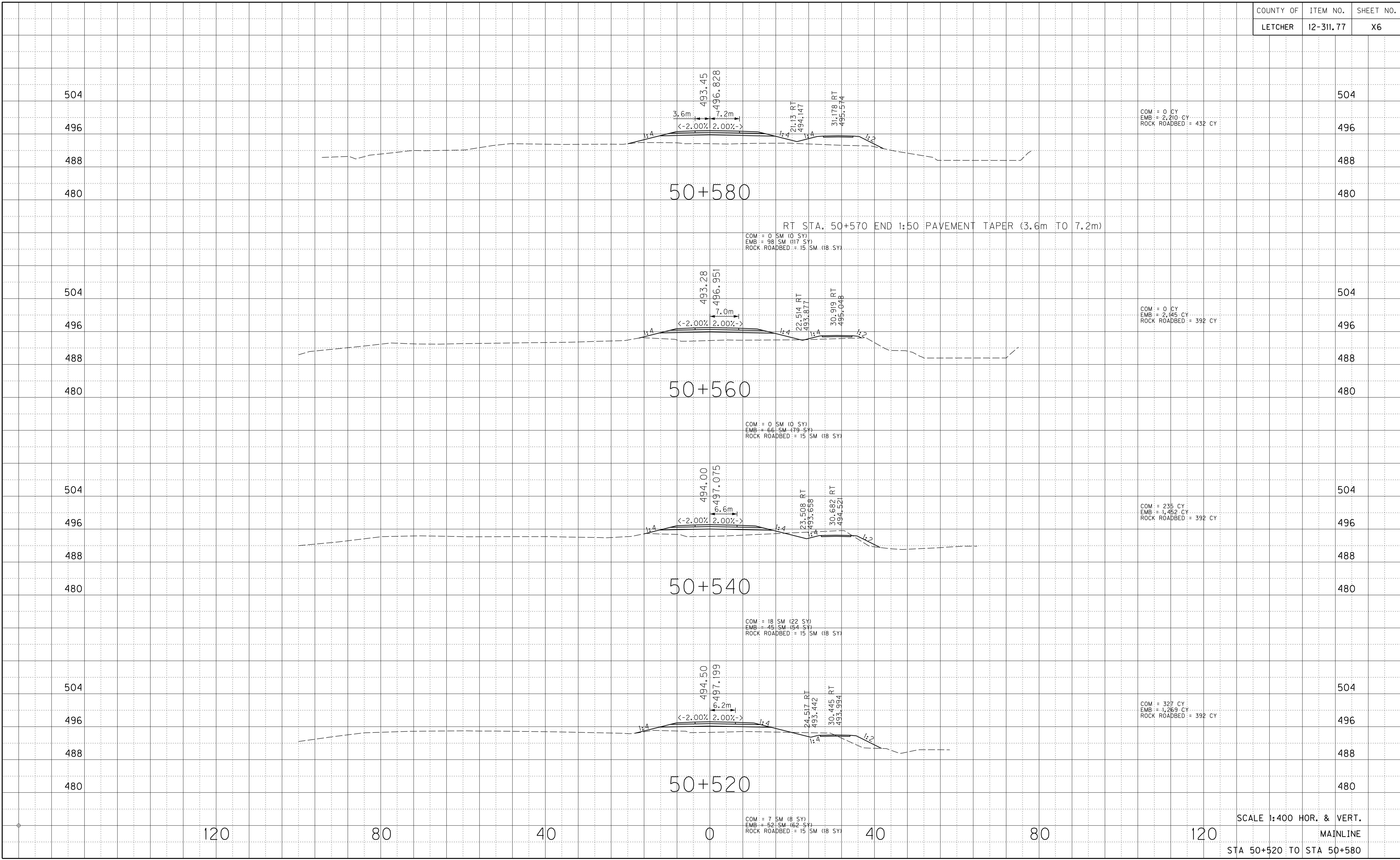
DATE

DATE

DATE

\$\$\$DONES\$

\$\$\$DATE\$\$\$





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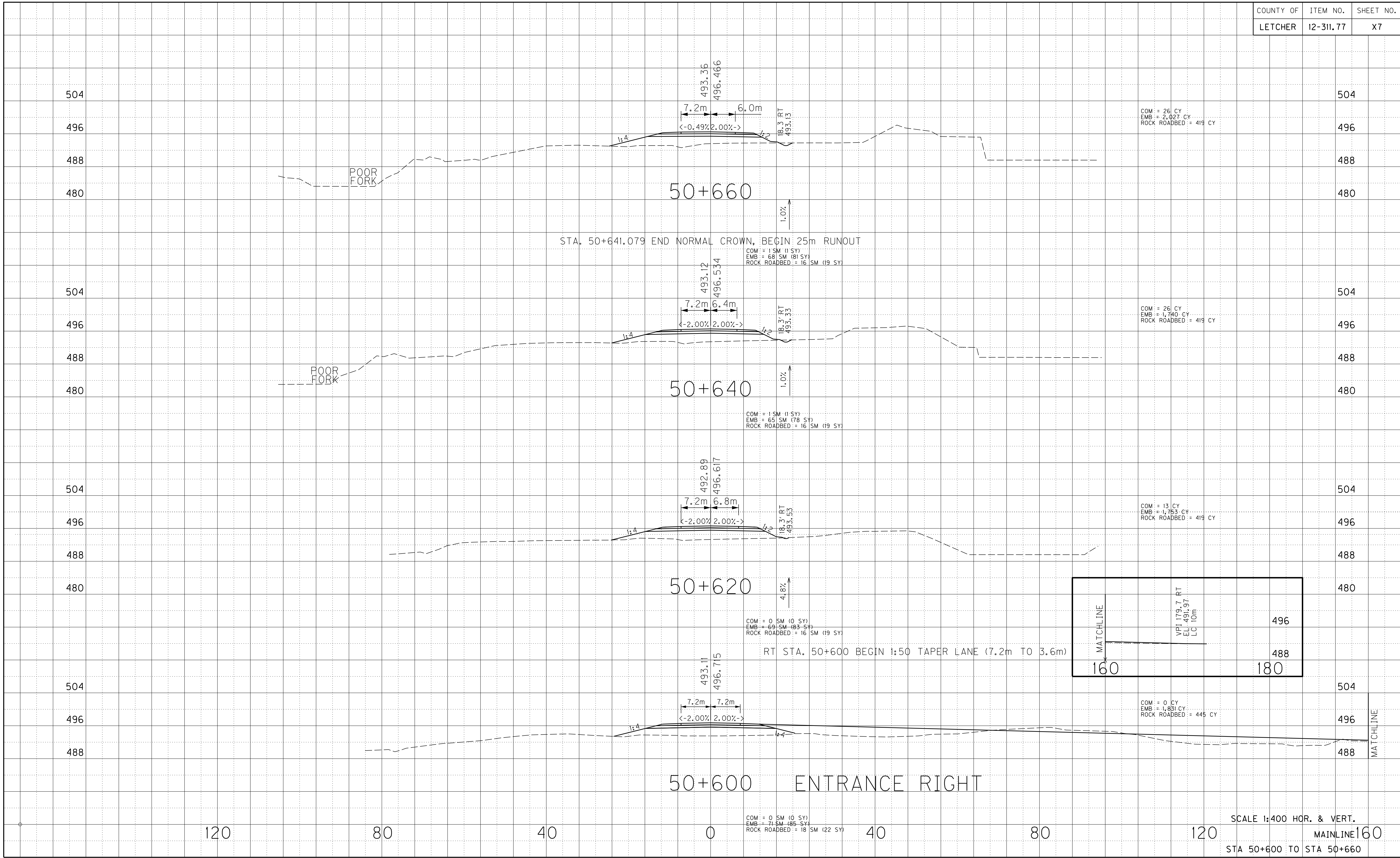
\$\$\$DATE\$\$\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X7        |



MATCHLINE

MATCHLINE

160

160

496

488

180

VPI 179.7 RT  
EL. 491.97  
LC 10m

COM = 0 CY  
EMB = 1,831 CY  
ROCK ROADBED = 445 CY

COM = 26 CY  
EMB = 2,027 CY  
ROCK ROADBED = 419 CY

COM = 26 CY  
EMB = 1,740 CY  
ROCK ROADBED = 419 CY

COM = 13 CY  
EMB = 1,753 CY  
ROCK ROADBED = 419 CY

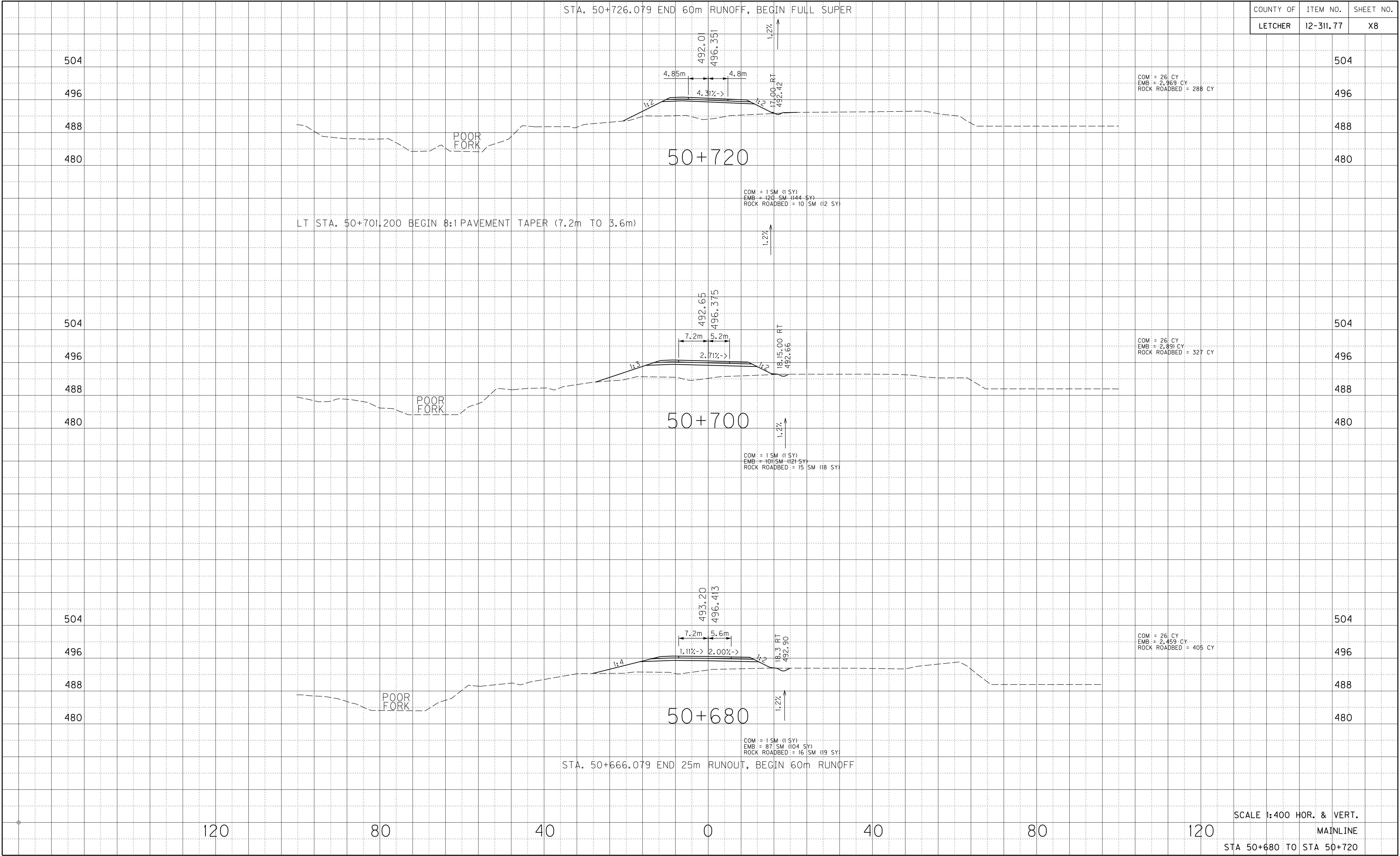
COM = 0 SM (0 SY)  
EMB = 71 SM (85 SY)  
ROCK ROADBED = 18 SM (22 SY)

COM = 0 SM (0 SY)  
EMB = 69 SM (83 SY)  
ROCK ROADBED = 16 SM (19 SY)

COM = 1 SM (1 SY)  
EMB = 65 SM (78 SY)  
ROCK ROADBED = 16 SM (19 SY)

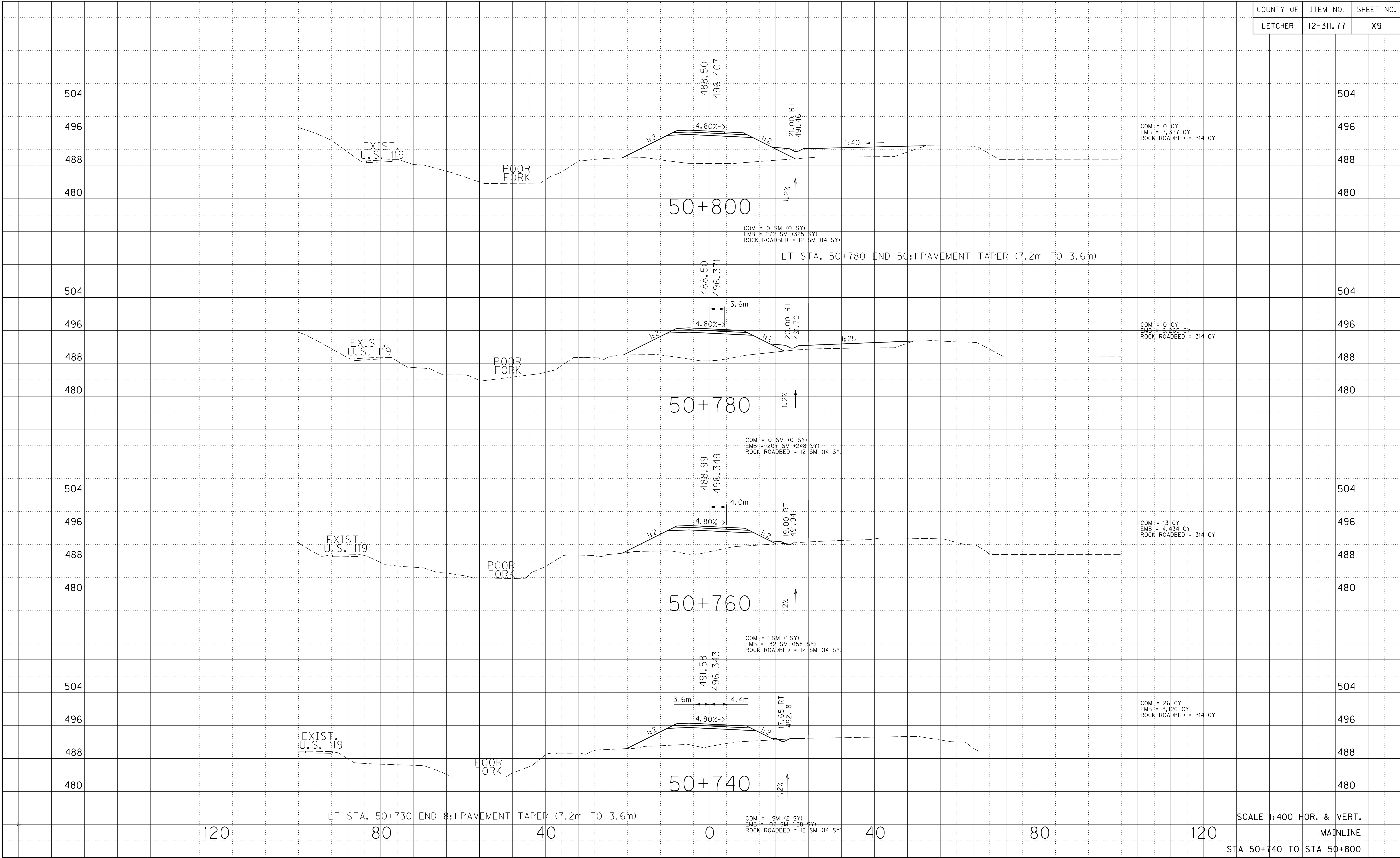
COM = 1 SM (1 SY)  
EMB = 68 SM (81 SY)  
ROCK ROADBED = 16 SM (19 SY)







| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X9        |





\$\$\$DONS\$

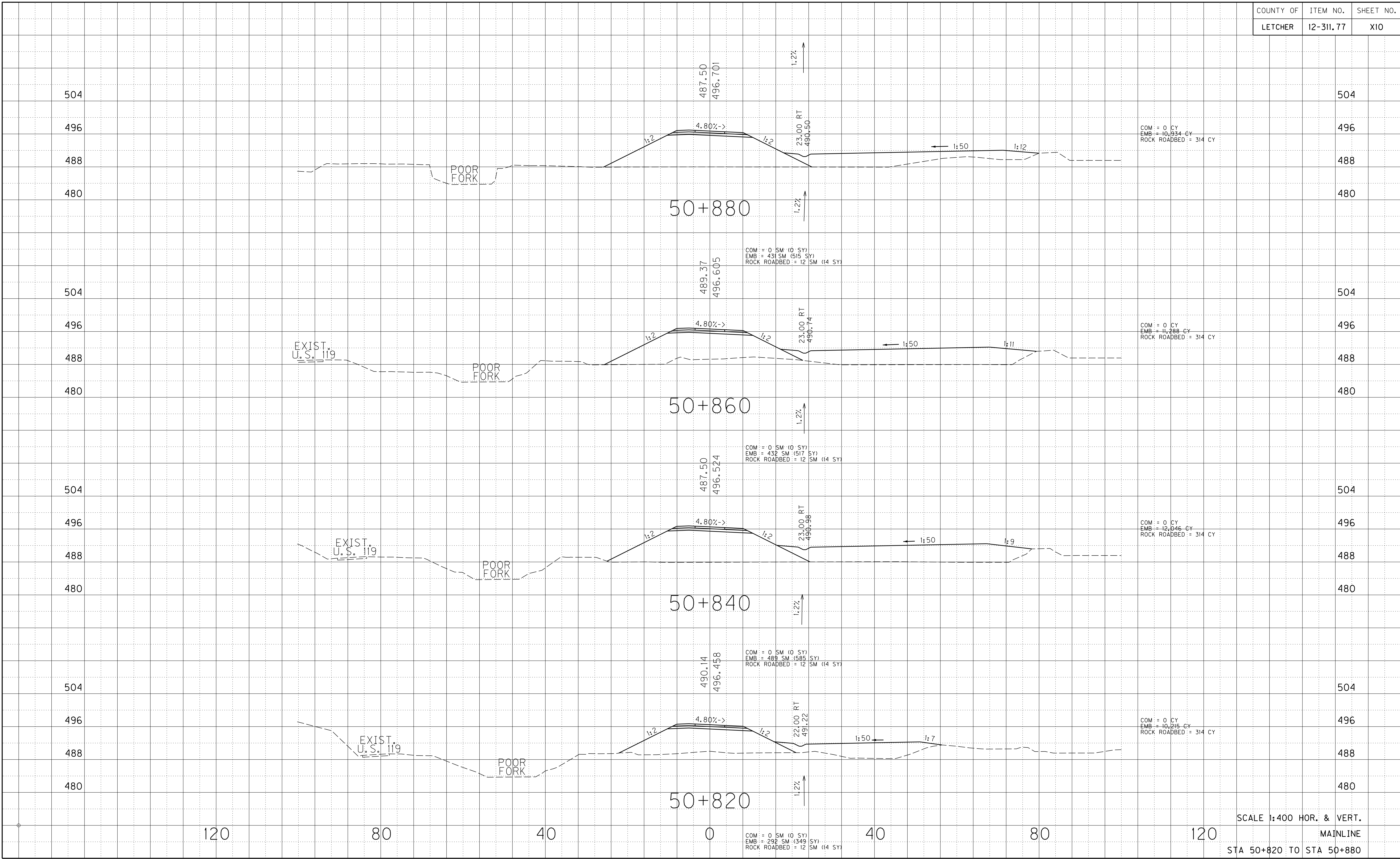
\$\$\$DATE\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X10       |



SCALE 1:400 HOR. & VERT.

MAINLINE

STA 50+820 TO STA 50+880



\$\$\$DONS\$

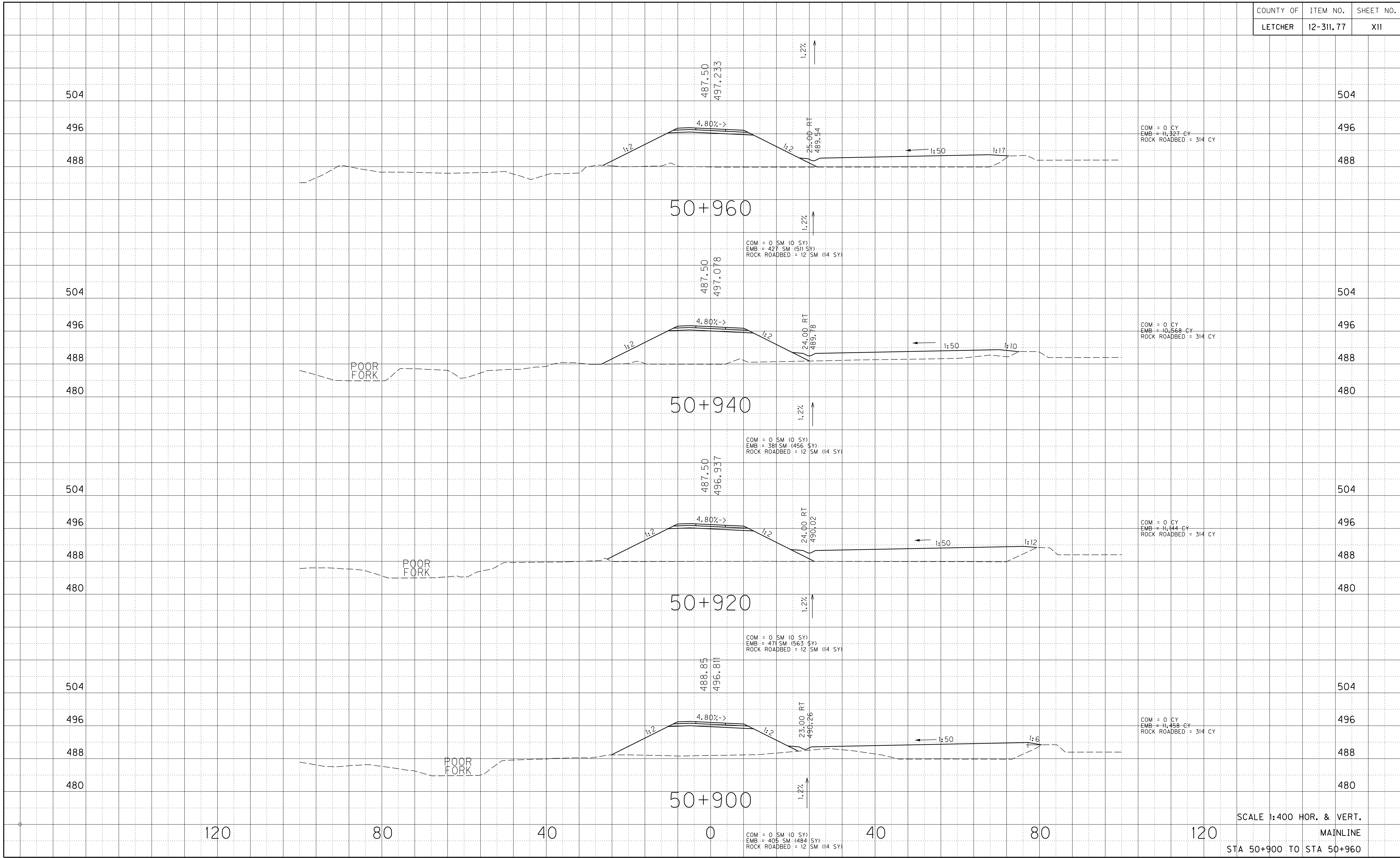
\$\$\$DATE\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

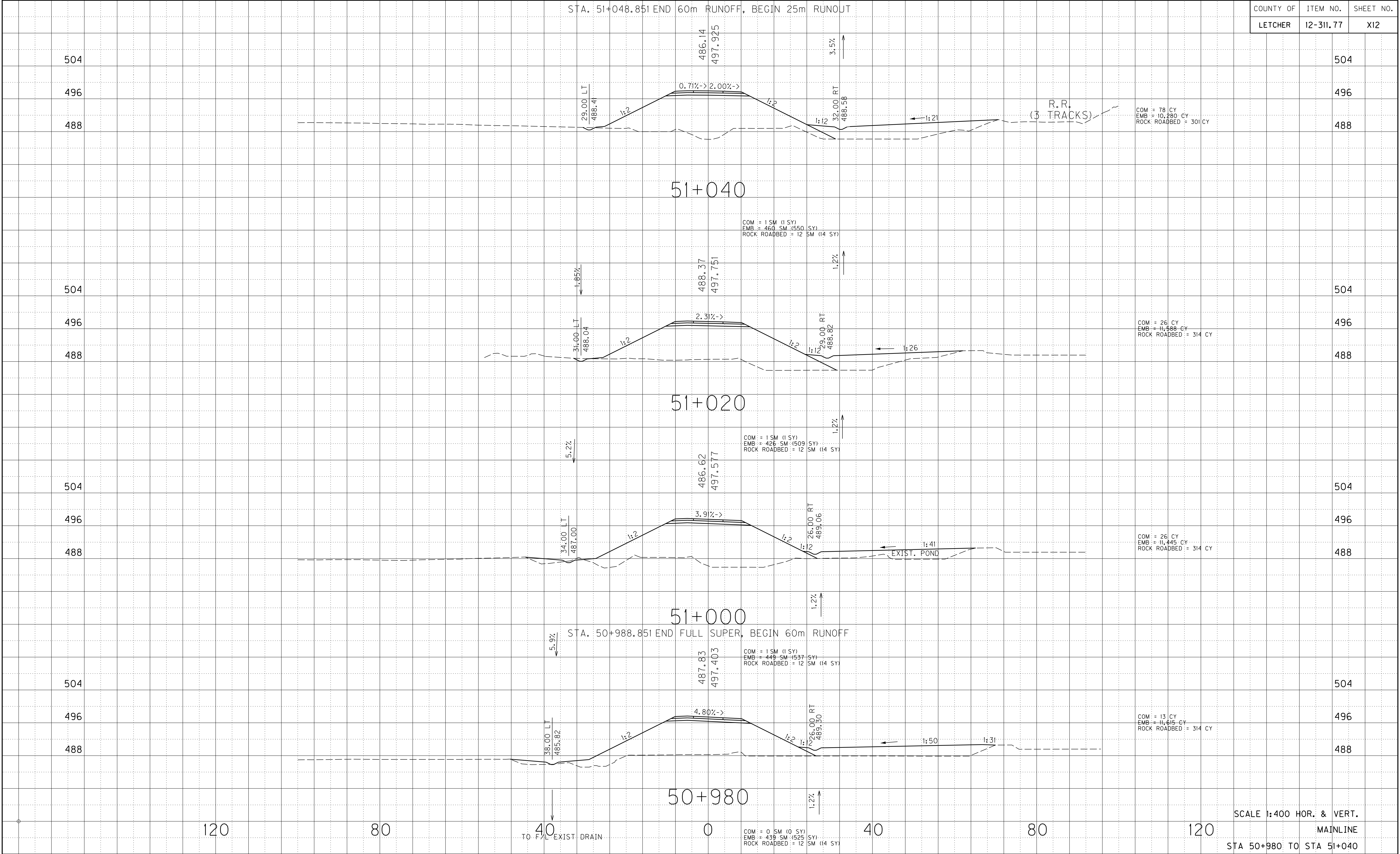
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | XII       |









\$\$\$DONES\$

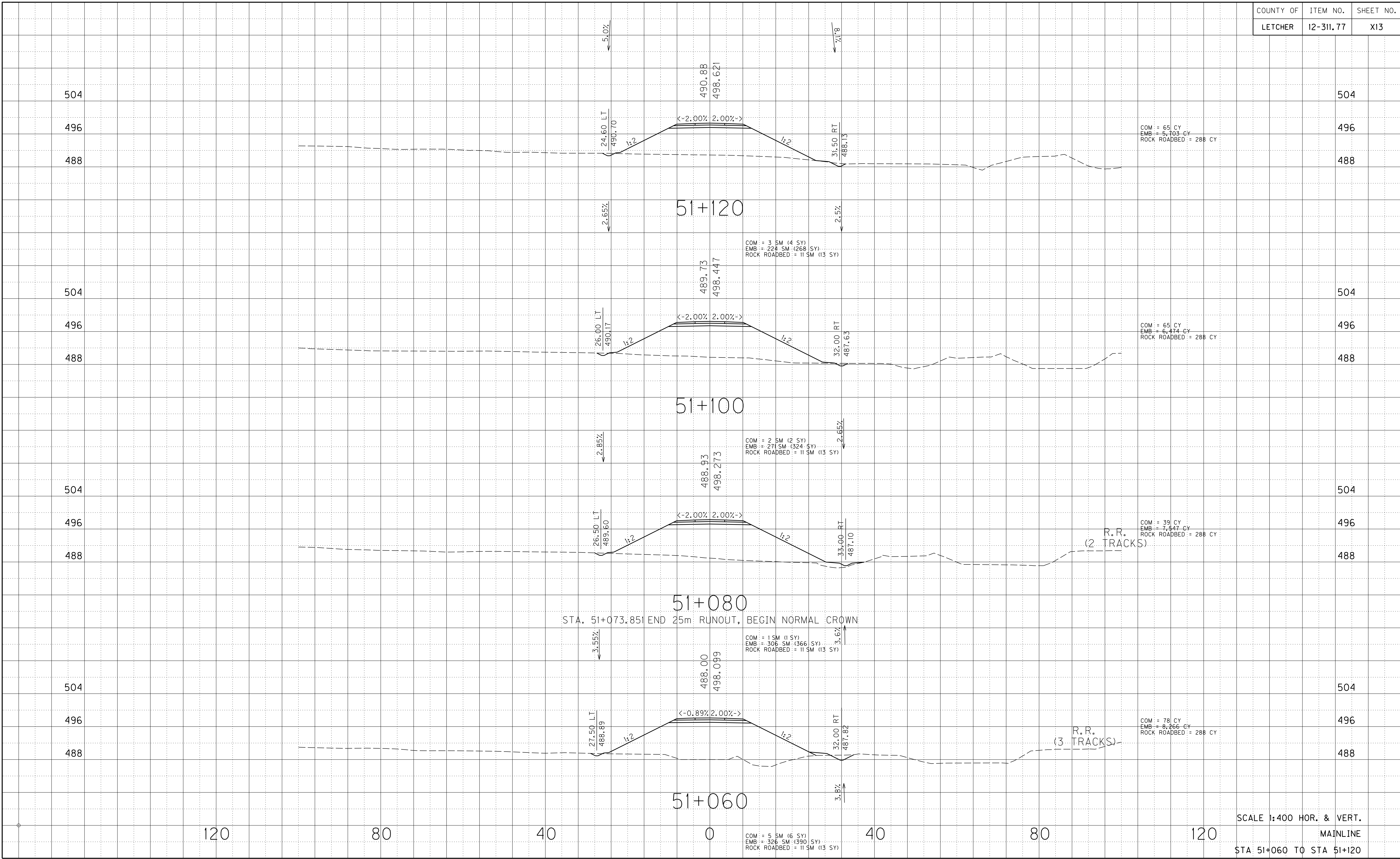
\$\$\$DATE\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X13       |



504

496

488

504

496

488

504

496

488

504

496

488

504

496

488

504

496

488

504

496

488

504

496

488

COM = 65 CY  
EMB = 5,703 CY  
ROCK ROADBED = 288 CY

COM = 65 CY  
EMB = 6,474 CY  
ROCK ROADBED = 288 CY

COM = 39 CY  
EMB = 7,547 CY  
ROCK ROADBED = 288 CY

COM = 78 CY  
EMB = 8,266 CY  
ROCK ROADBED = 288 CY

51+120

51+100

51+080

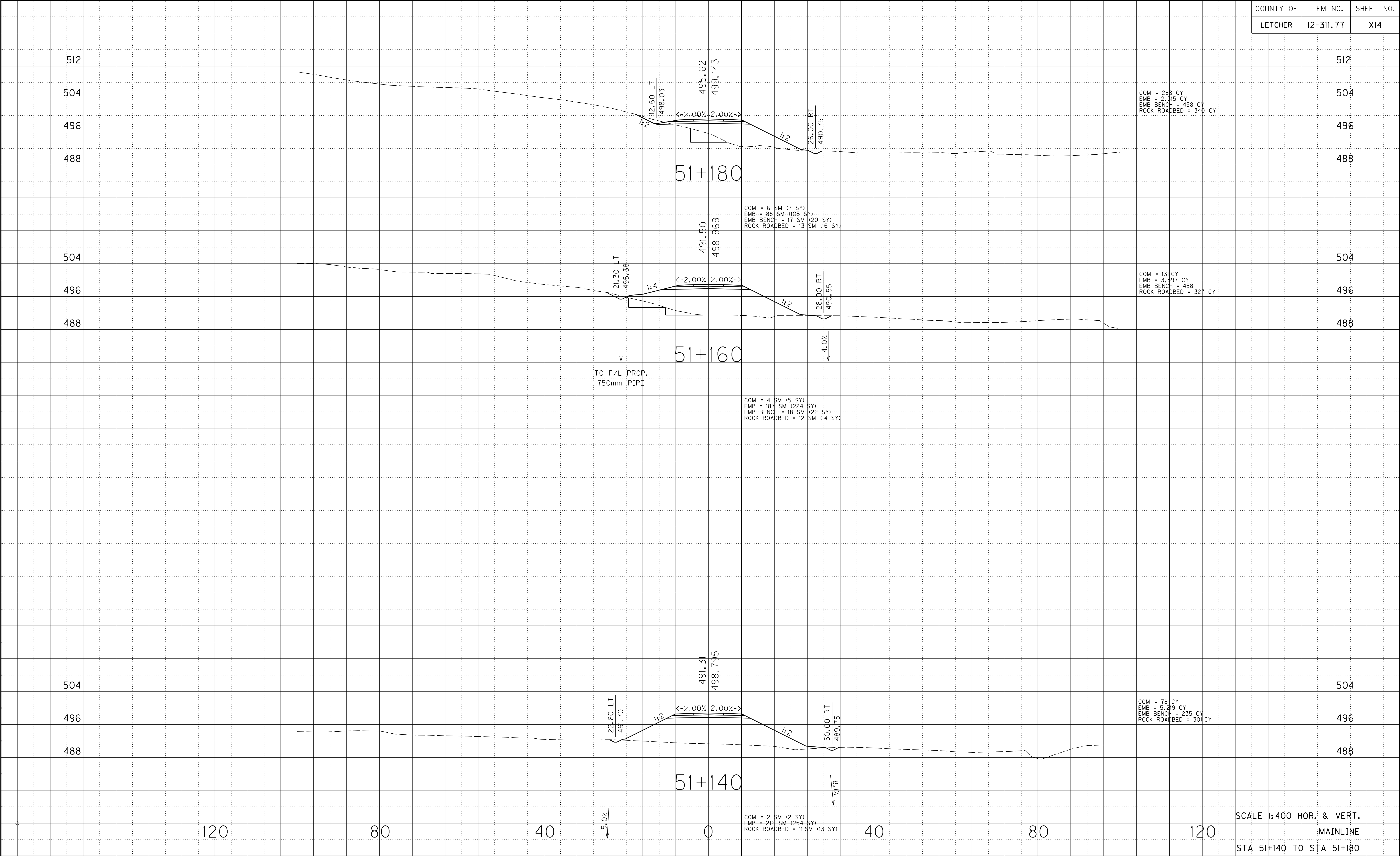
51+060

STA. 51+073.851 END 25m RUNOUT, BEGIN NORMAL CROWN

R.R.  
(2 TRACKS)

R.R.  
(3 TRACKS)







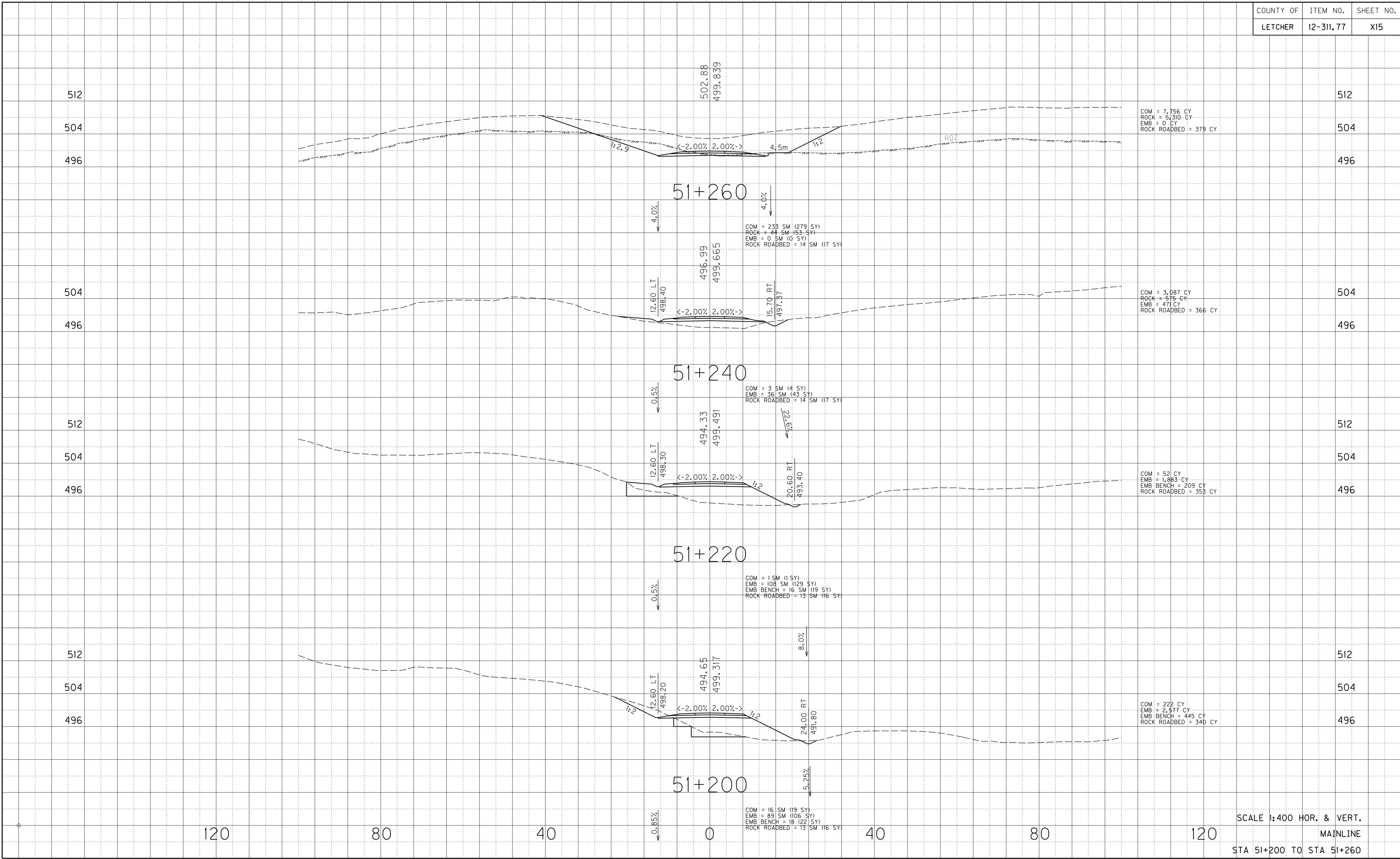
\$\$\$DON\$\$\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

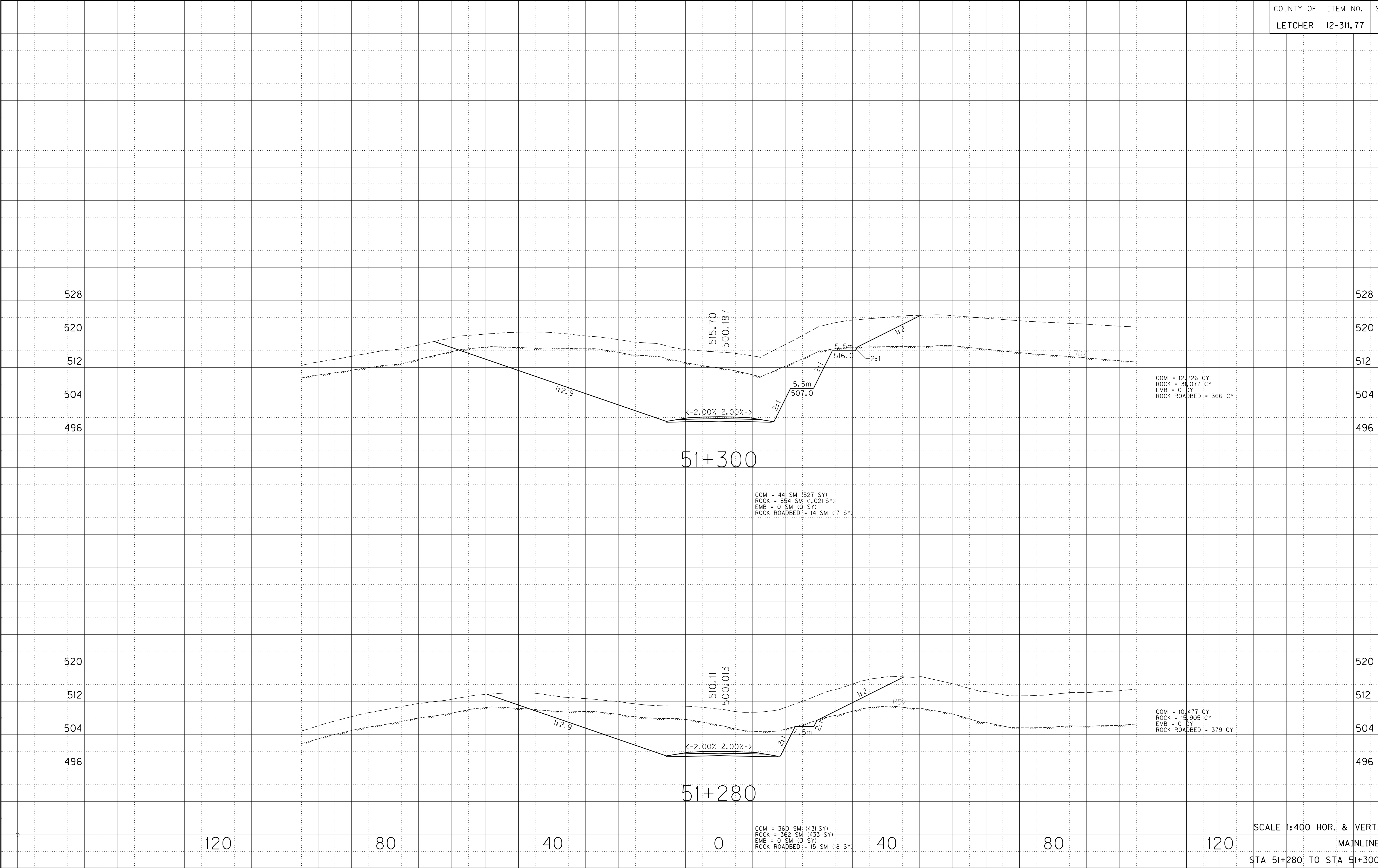
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SCALE 1:400 HOR. & VERT.  
MAINLINE  
STA 51+200 TO STA 51+260



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|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X16       |





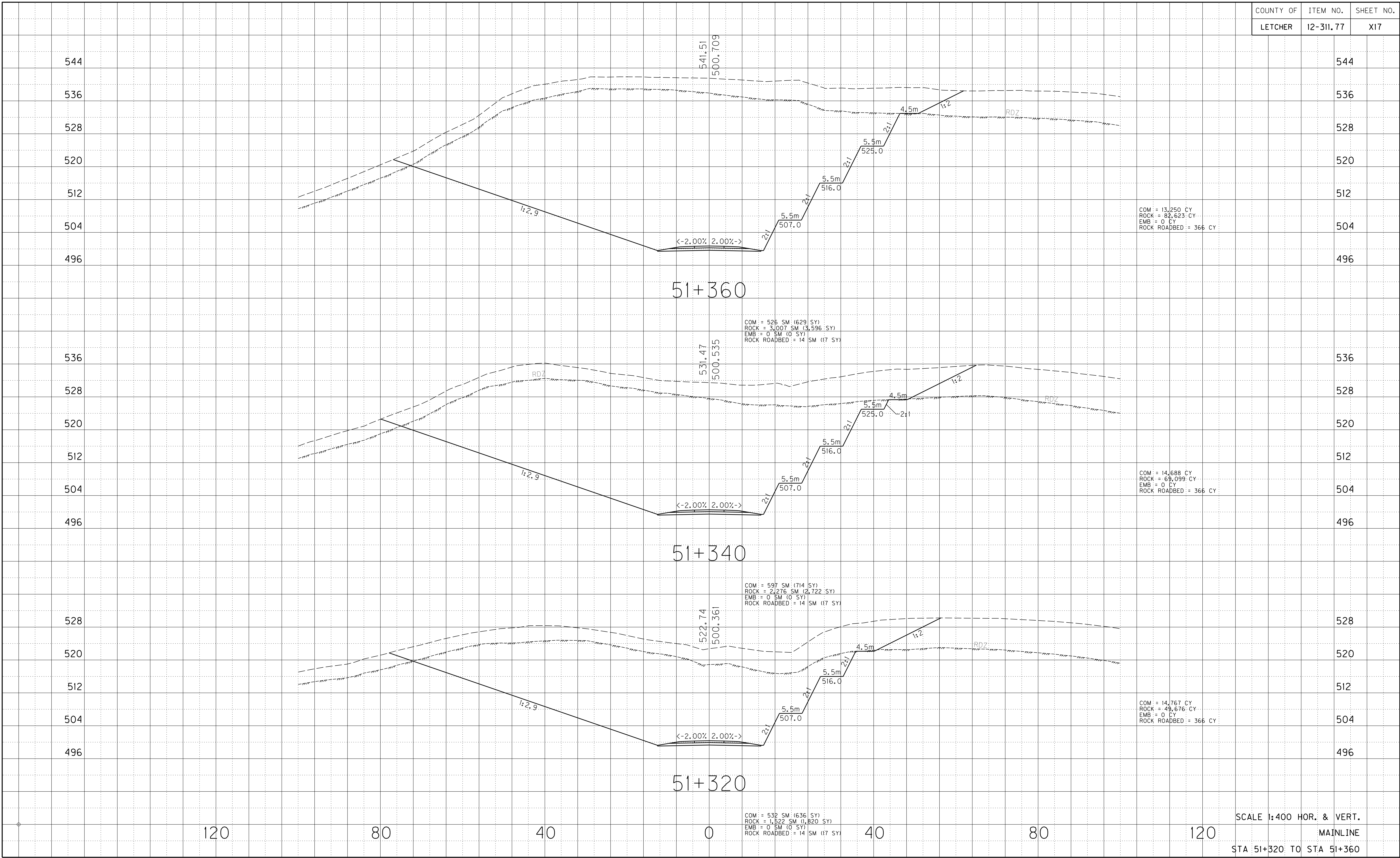
\$\$\$DONS\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

\$\$\$DATE\$





\$\$\$DONS\$

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X18       |

552

544

536

528

520

512

504

496

552

544

536

528

520

512

504

496

COM = 9,980 CY  
ROCK = 87,842 CY  
EMB = 0 CY  
ROCK ROADBED = 379 CY

51+400

552

544

536

528

520

512

504

496

552

544

536

528

520

512

504

496

COM = 415 SM (496 SY)  
ROCK = 3,201 SM (3,828 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)

51+380

COM = 487 SM (582 SY)  
ROCK = 3,310 SM (3,959 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)

COM = 11,798 CY  
ROCK = 85,161 CY  
EMB = 0 CY  
ROCK ROADBED = 366 CY

SCALE 1:400 HOR. & VERT.

MAINLINE

STA 51+380 TO STA 51+400

120

80

40

0

40

80

120

\$\$\$DATE\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_



\$\$\$DON\$

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X19       |

560

552

544

536

528

520

512

504

496

560

552

544

536

528

520

512

504

496

51+440

COM = 6,501 CY  
ROCK = 60,663 CY  
EMB = 0 CY  
ROCK ROADBED = 392 CY

COM = 273 SM (327 SY)  
ROCK = 3,129 SM (3,742 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 15 SM (18 SY)

560

552

544

536

528

520

512

504

496

560

552

544

536

528

520

512

504

496

51+420

COM = 8,122 CY  
ROCK = 86,900 CY  
EMB = 0 CY  
ROCK ROADBED = 392 CY

COM = 348 SM (416 SY)  
ROCK = 3,515 SM (4,204 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 15 SM (18 SY)

SCALE 1:400 HOR. & VERT.

MAINLINE

STA 51+420 TO STA 51+440

120

80

40

0

40

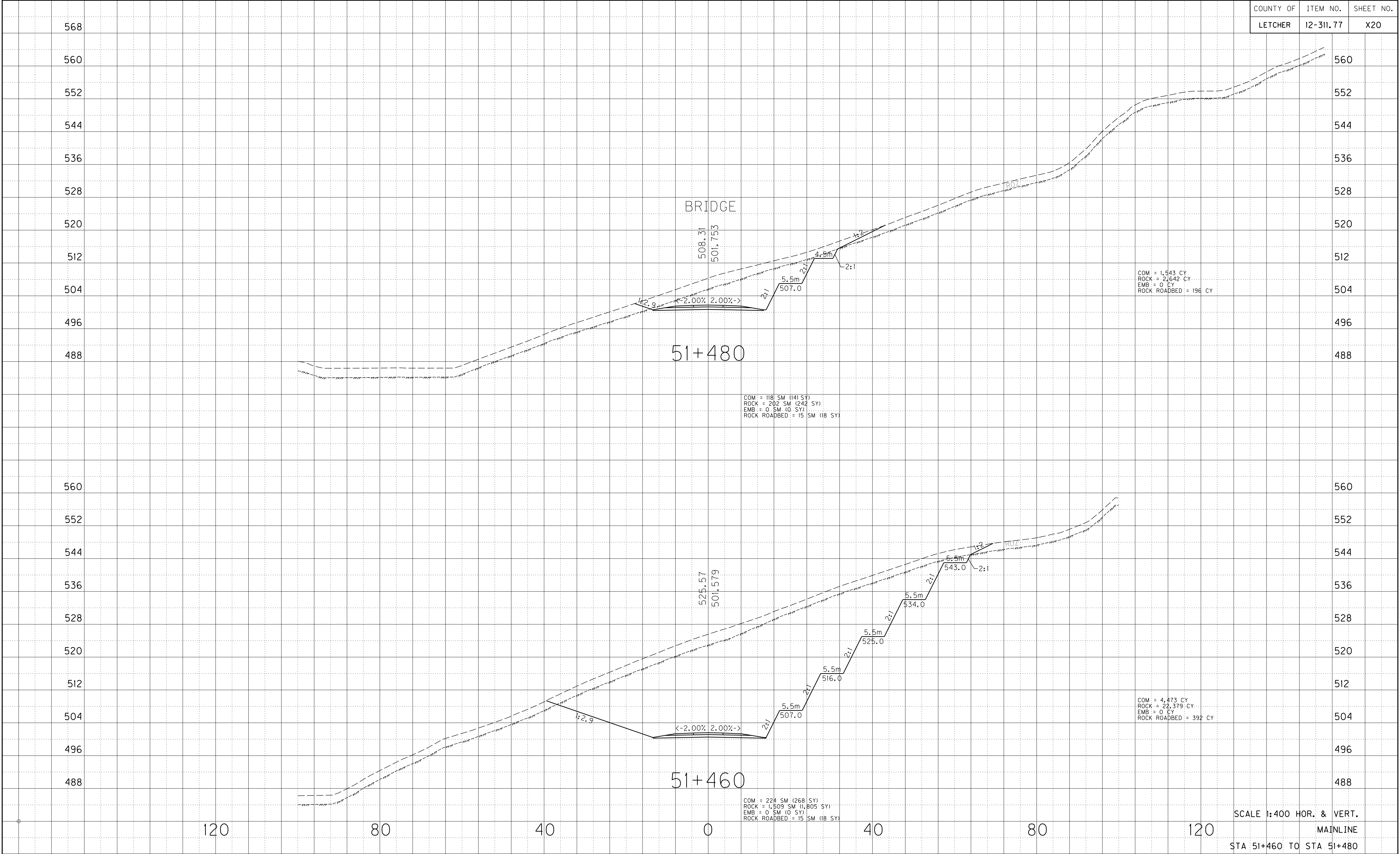
80

120

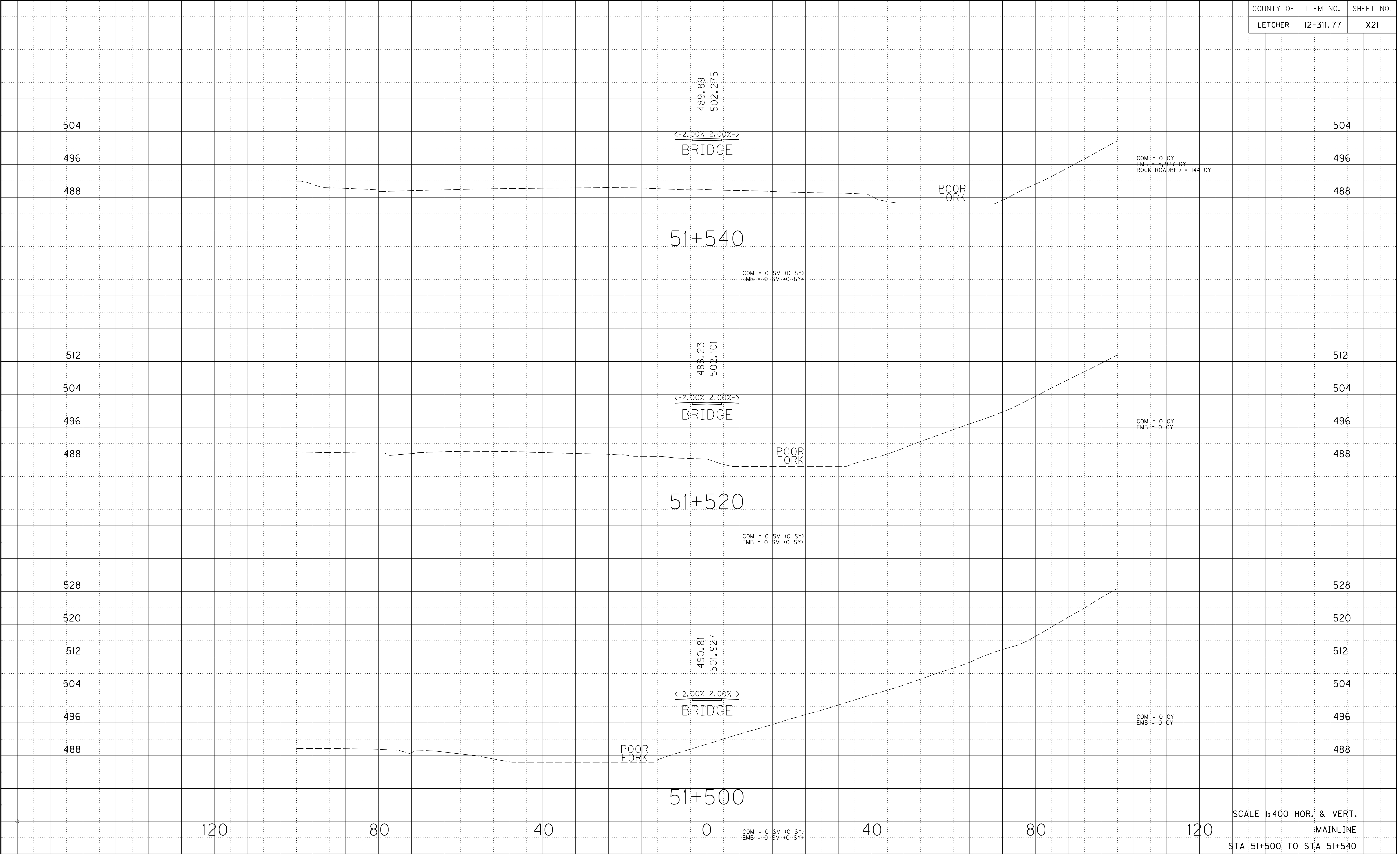
PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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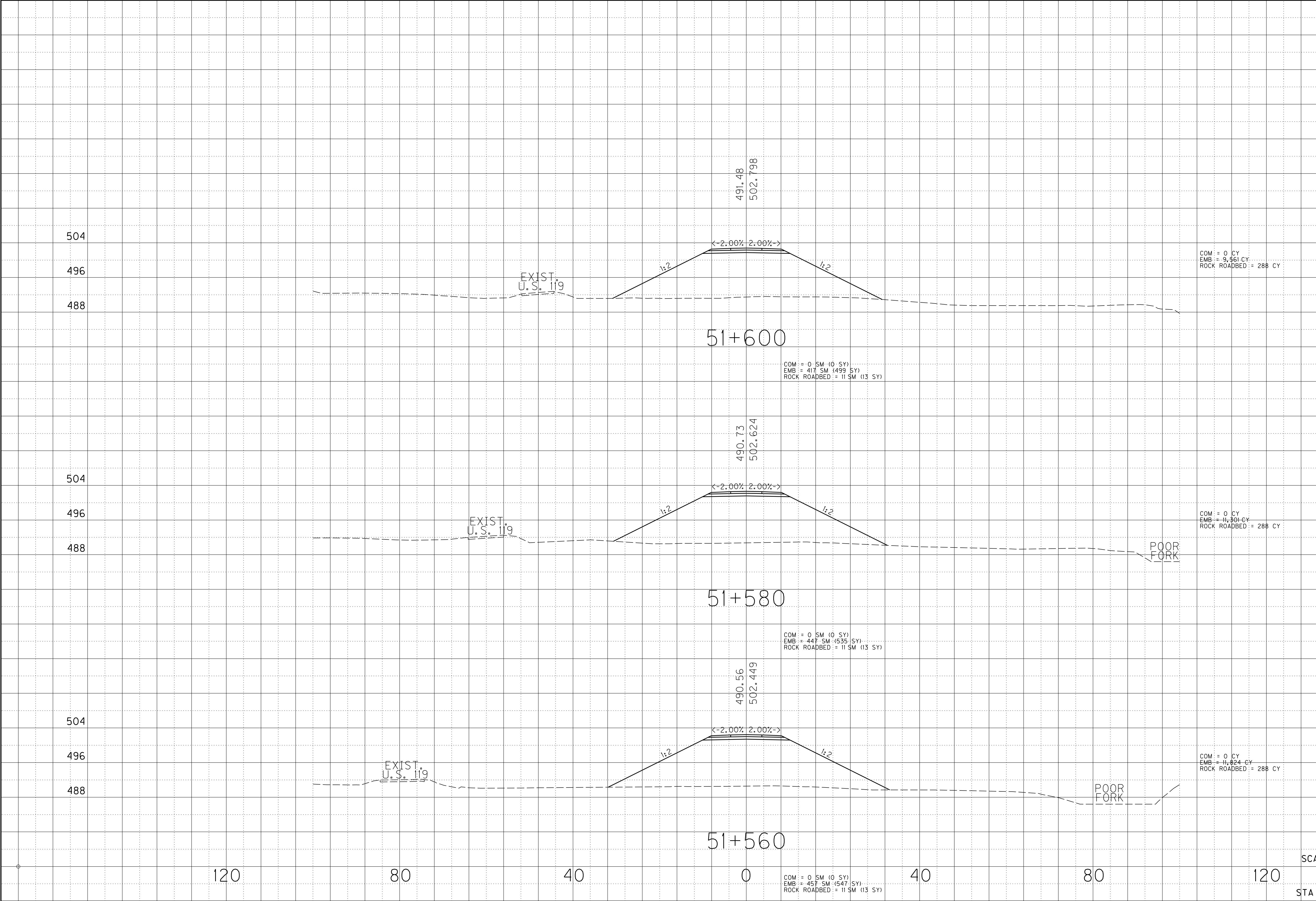






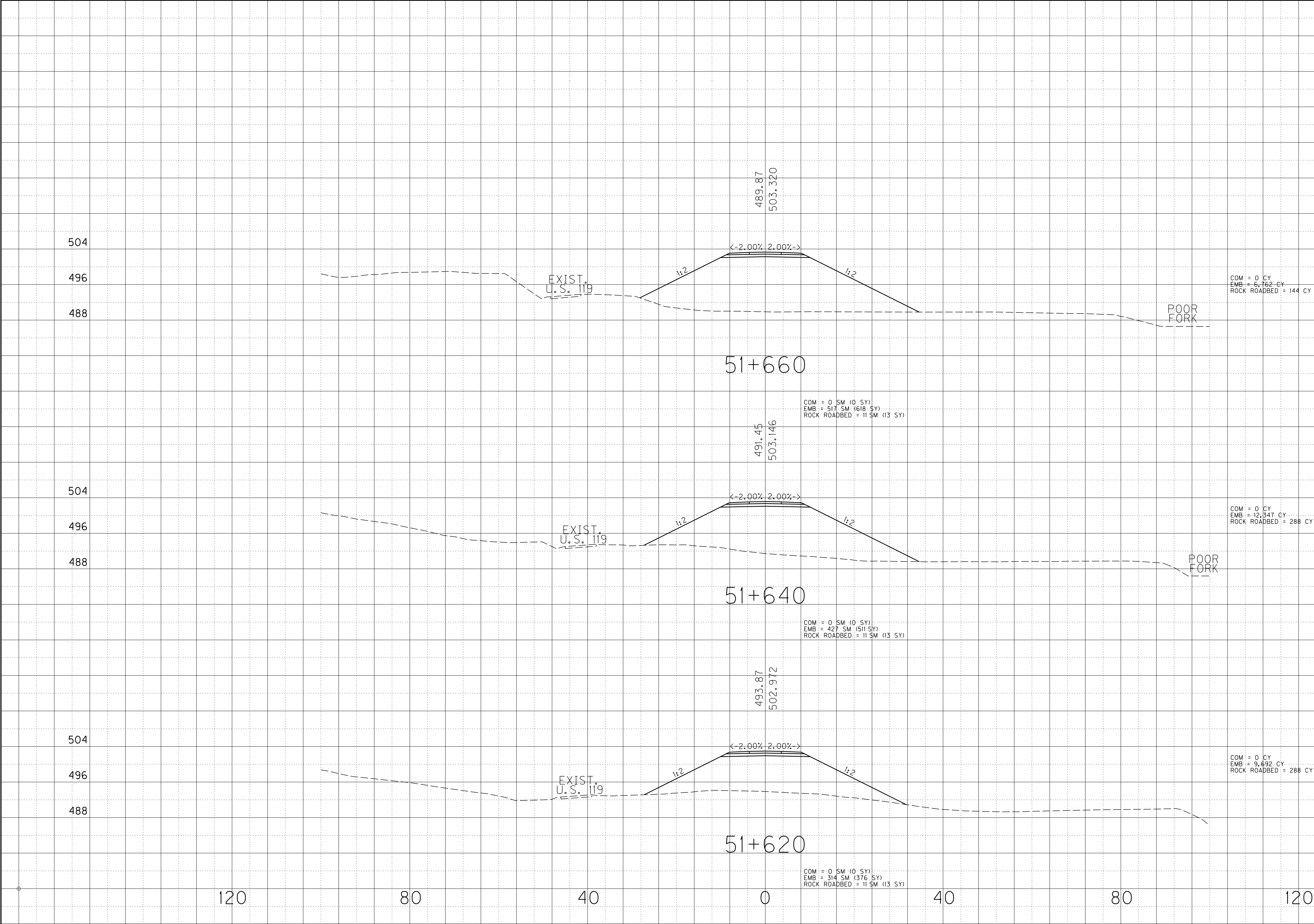


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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X22       |





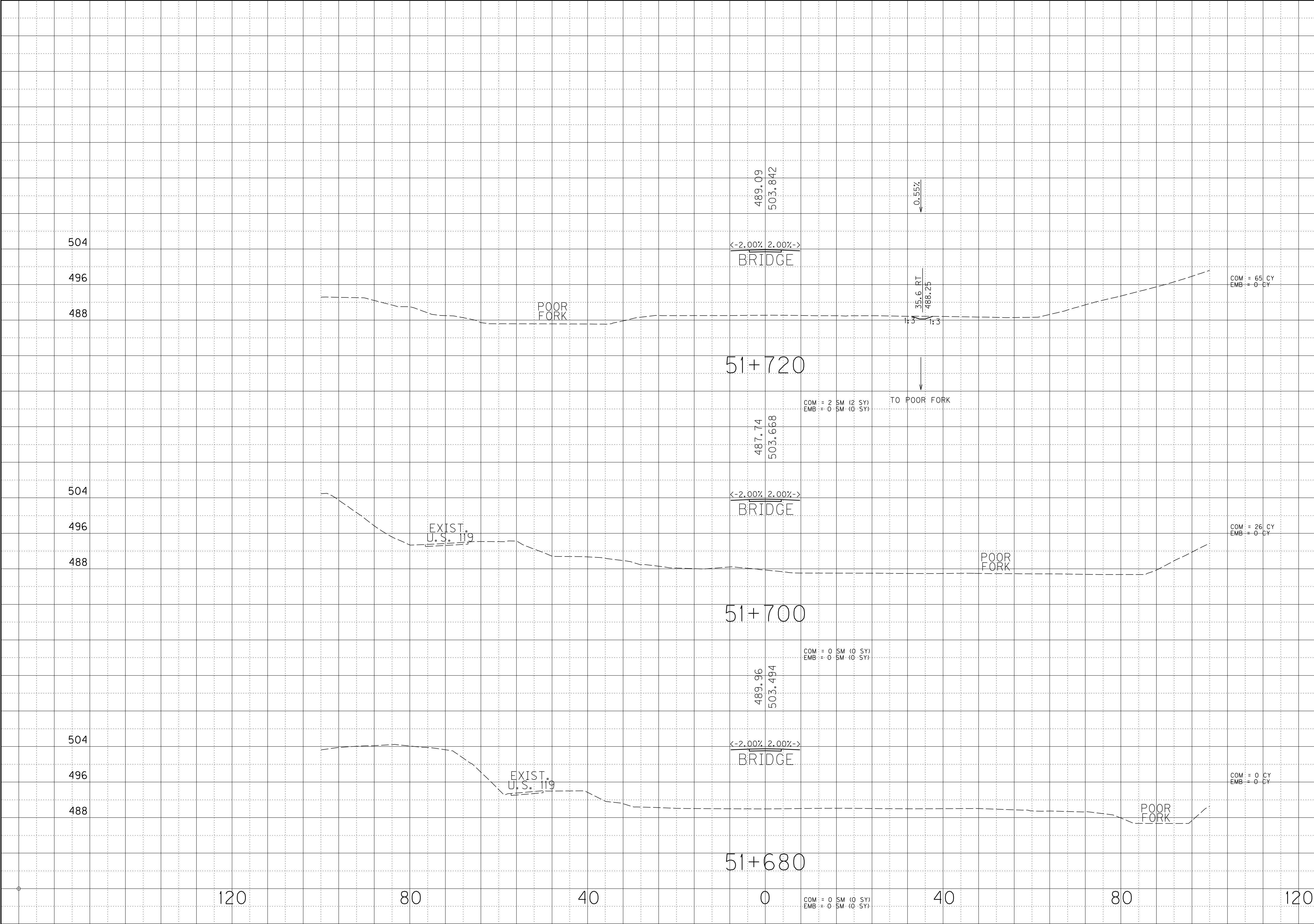
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|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X23       |



|     |     |
|-----|-----|
| 504 | 504 |
| 496 | 496 |
| 488 | 488 |
| 504 | 504 |
| 496 | 496 |
| 488 | 488 |
| 504 | 504 |
| 496 | 496 |
| 488 | 488 |



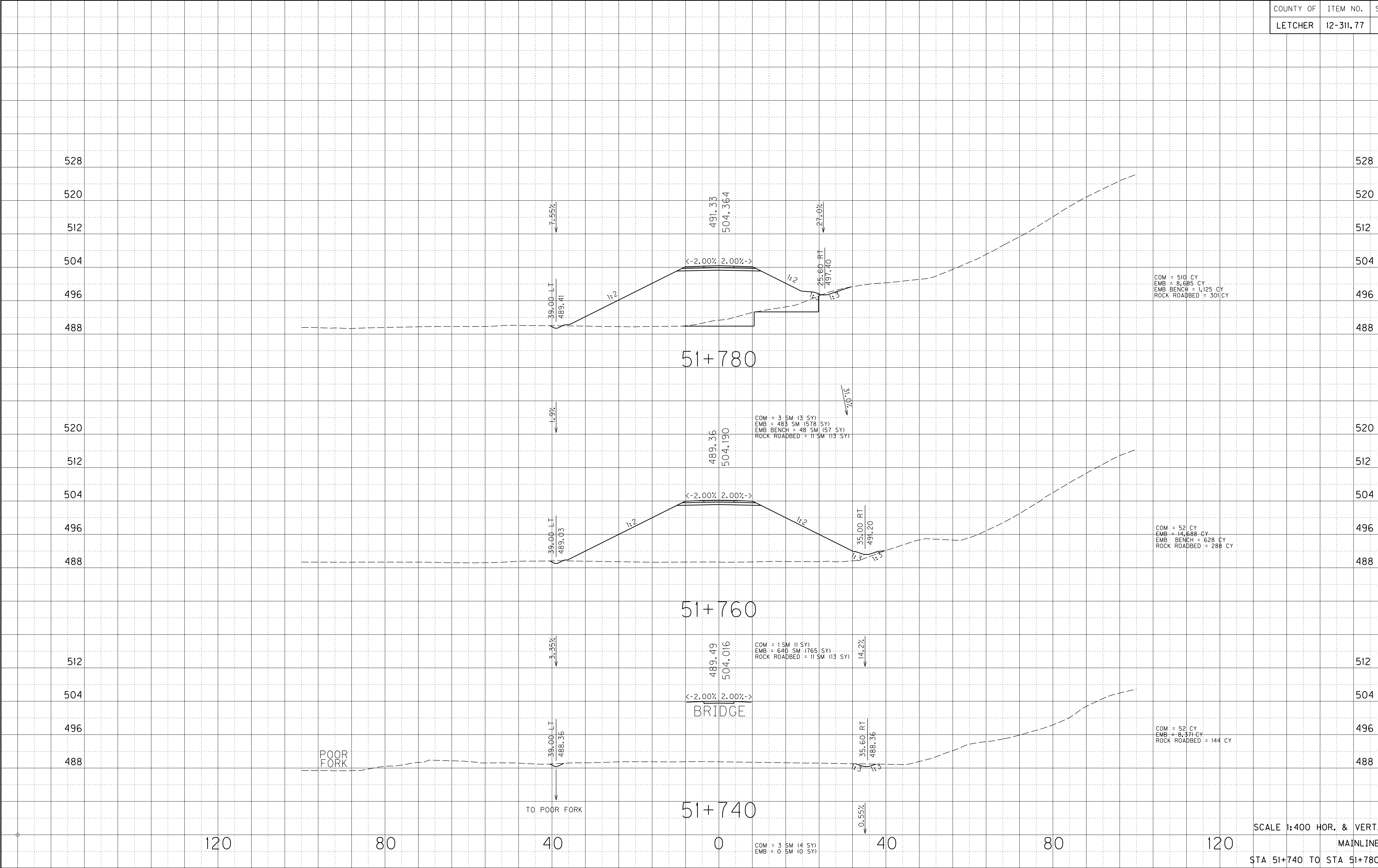
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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X24       |



SCALE 1:400 HOR. & VERT.  
MAINLINE  
STA 51+680 TO STA 51+720

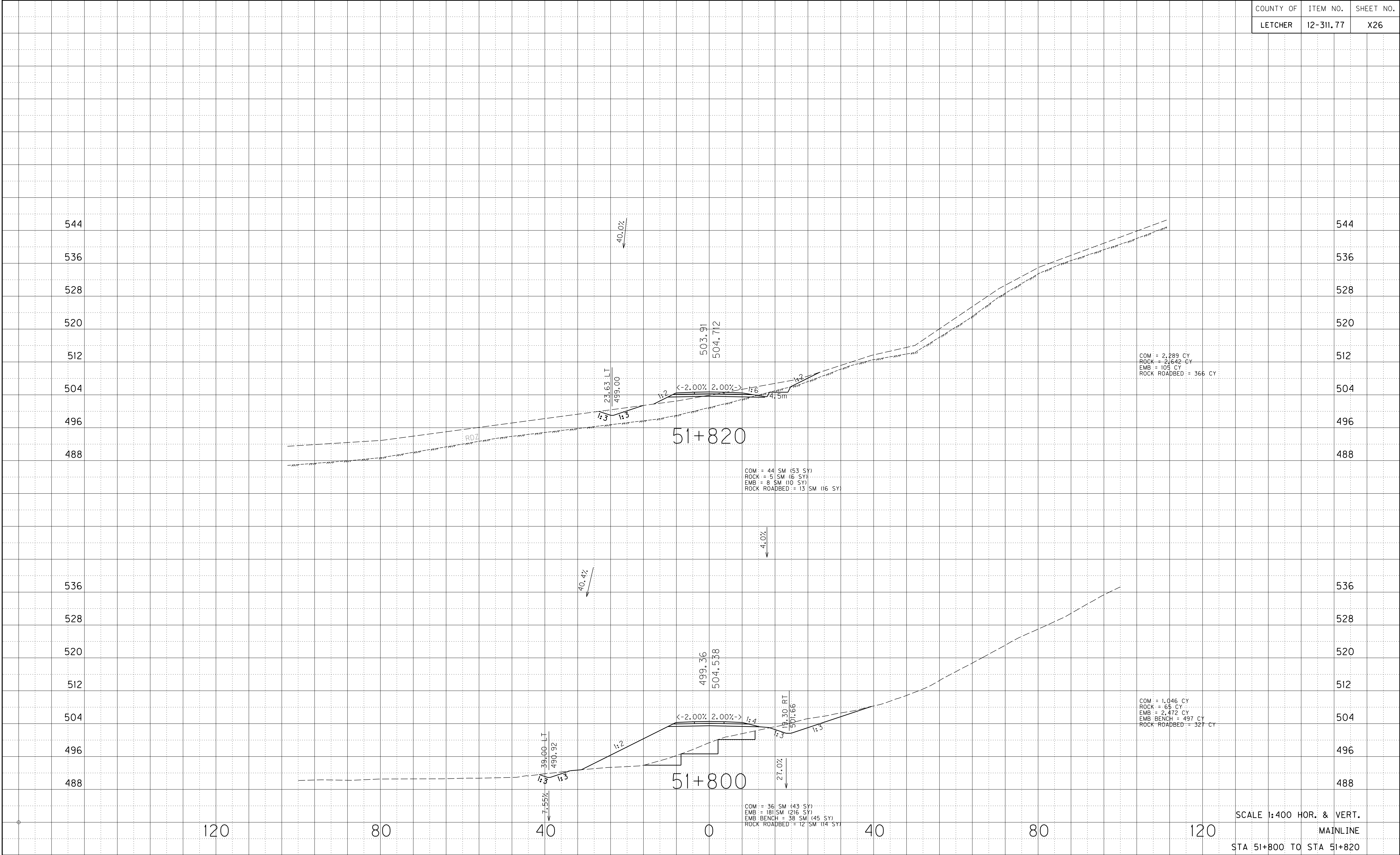


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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X25       |



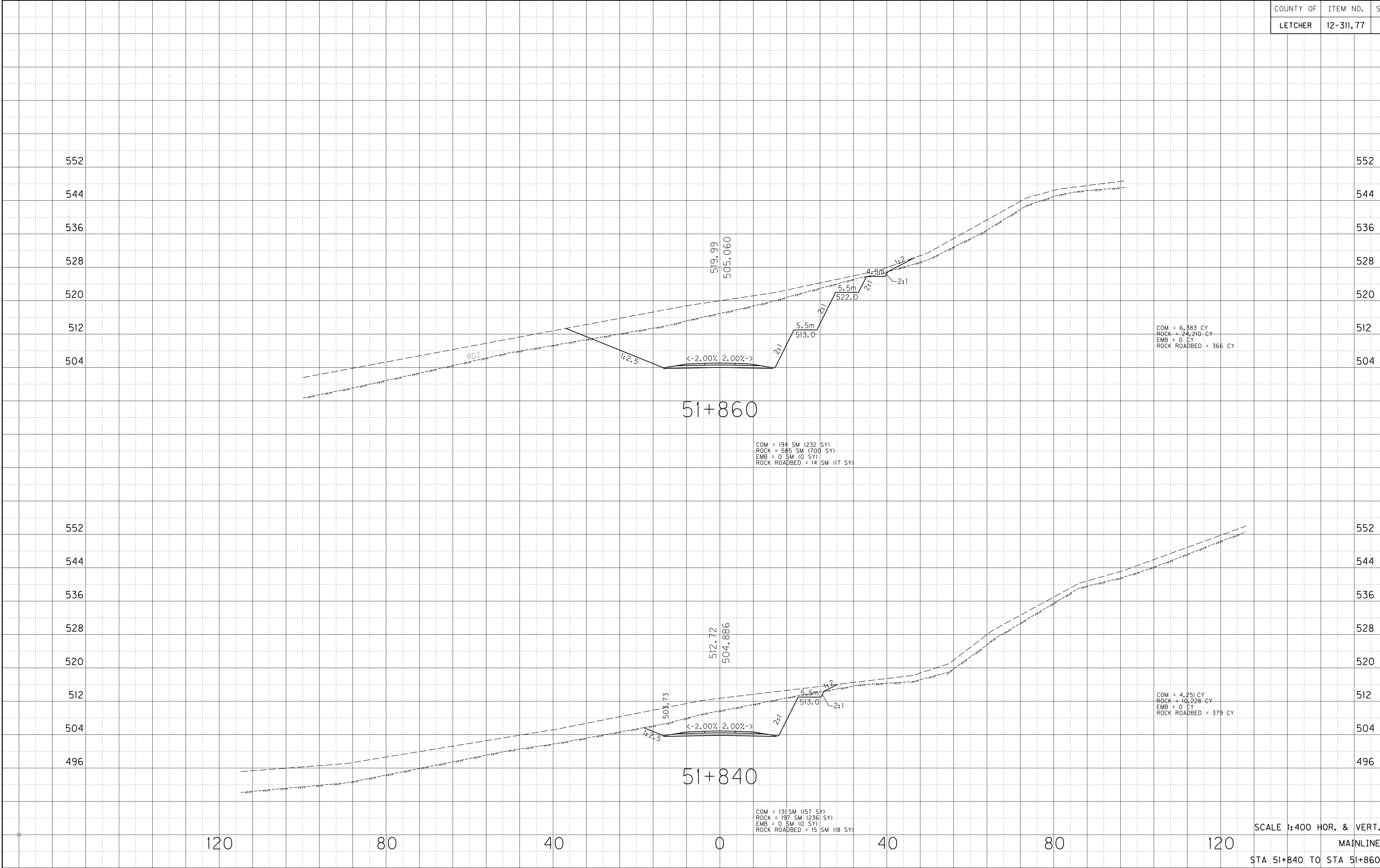


| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X26       |



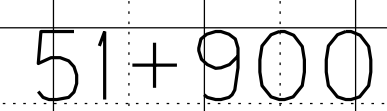
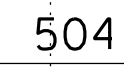
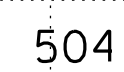


| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X27       |

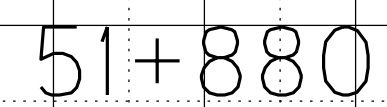




|            |       |            |          |
|------------|-------|------------|----------|
| SCALE      | 1:400 | HOR. &     | VERT.    |
|            |       |            | MAINLINE |
| STA 51+880 | TO    | STA 51+900 |          |



COM = 347 SM (415 SY)  
ROCK = 2,296 SM (2,746 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)



```
COM = 294 SM (352 SY)
ROCK = 1,266 SM (1,514 SY)
EMB = 0 SM (0 SY)
ROCK ROADBED = 14 SM (17 SY)
```



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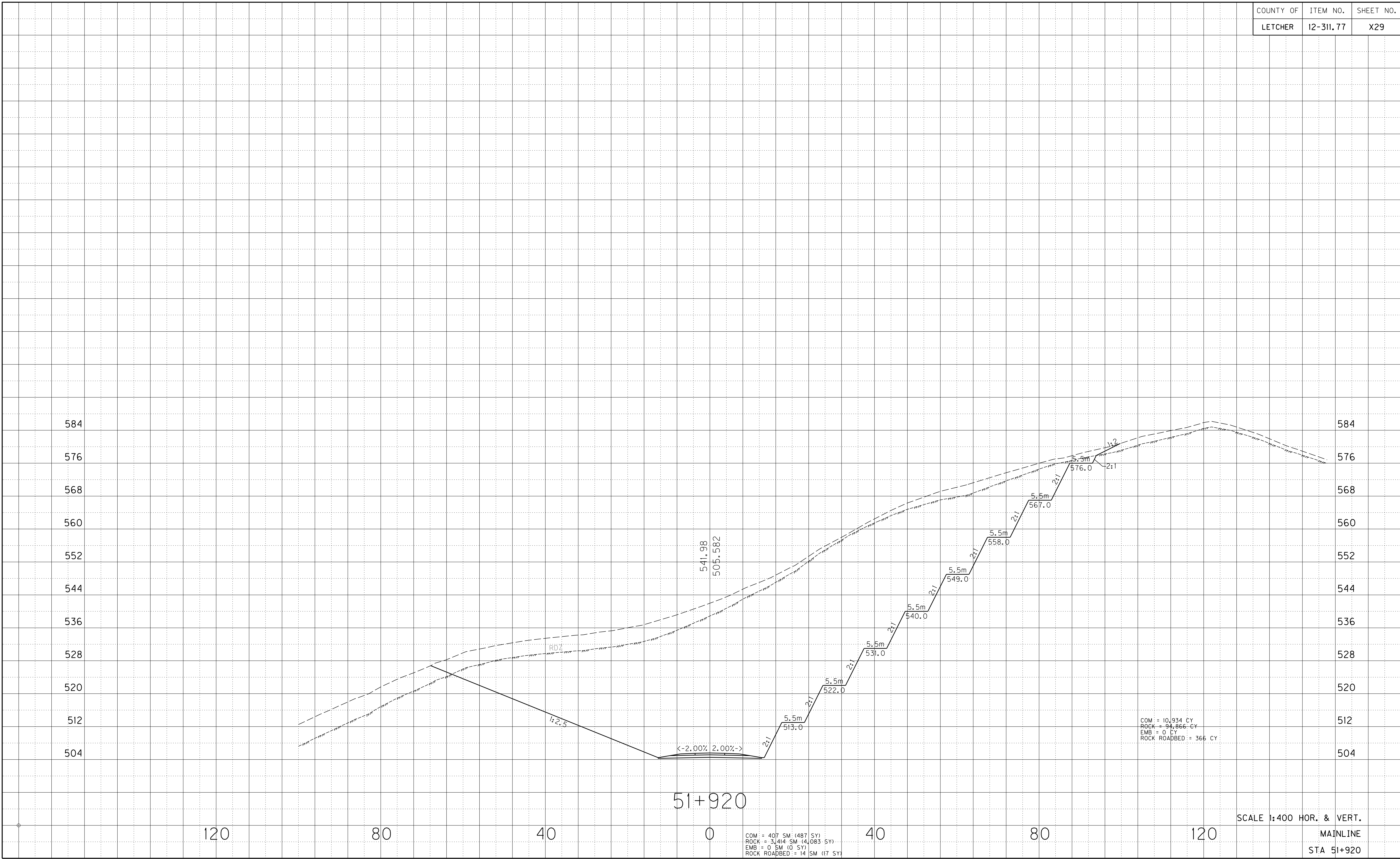
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PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X29       |





\$\$\$DONS\$

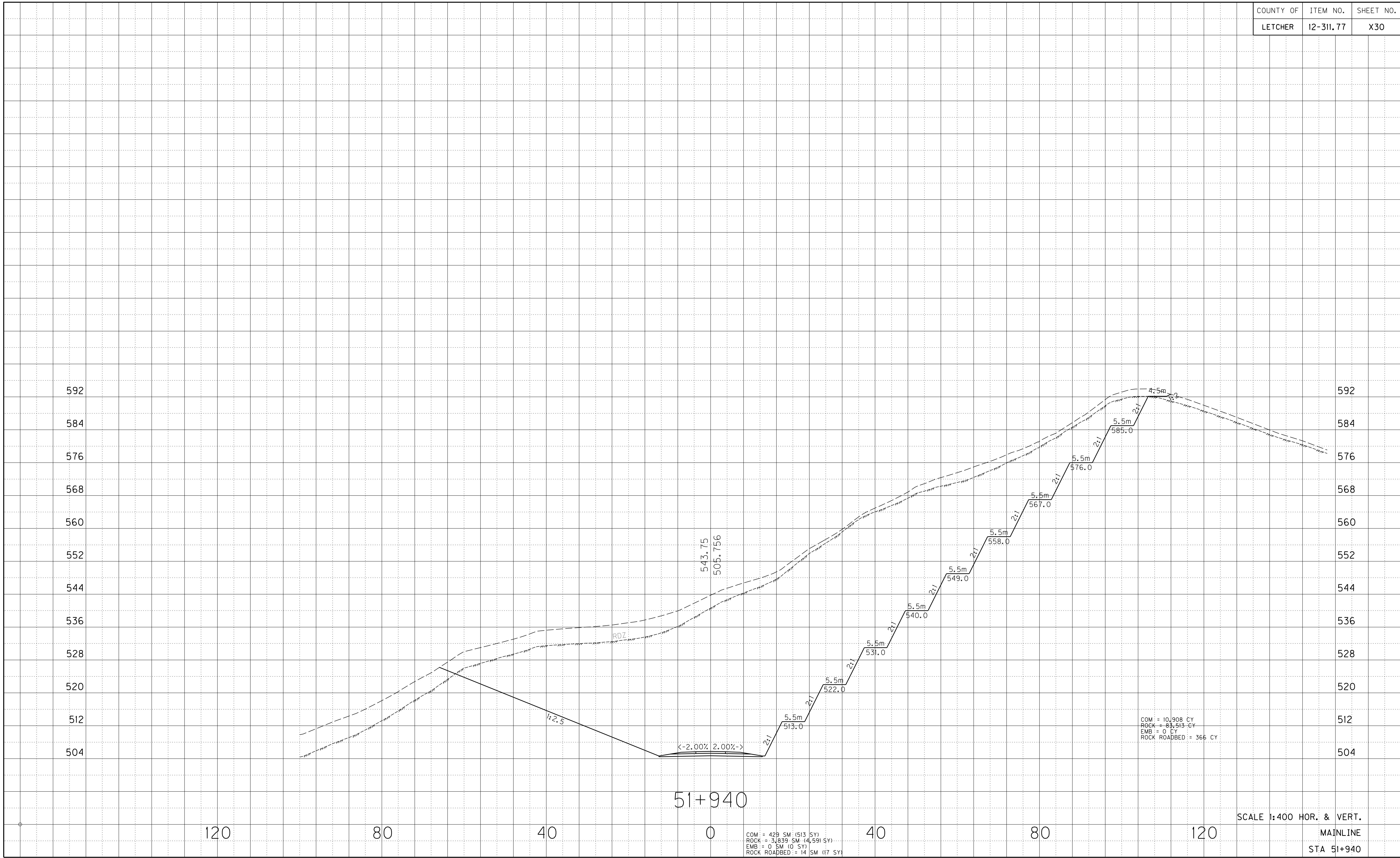
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CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X30       |





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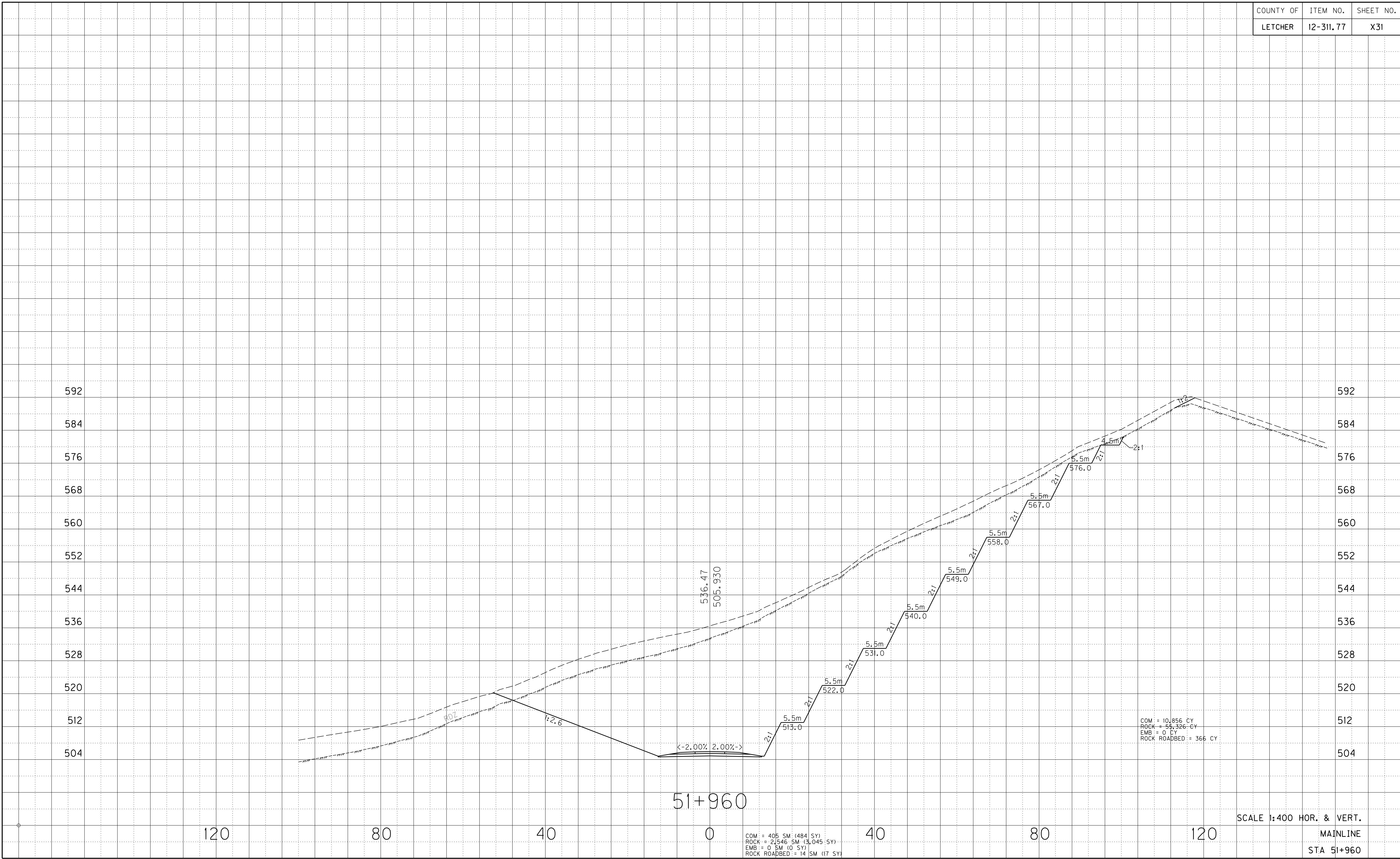
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PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X31       |





\$\$\$DONS\$

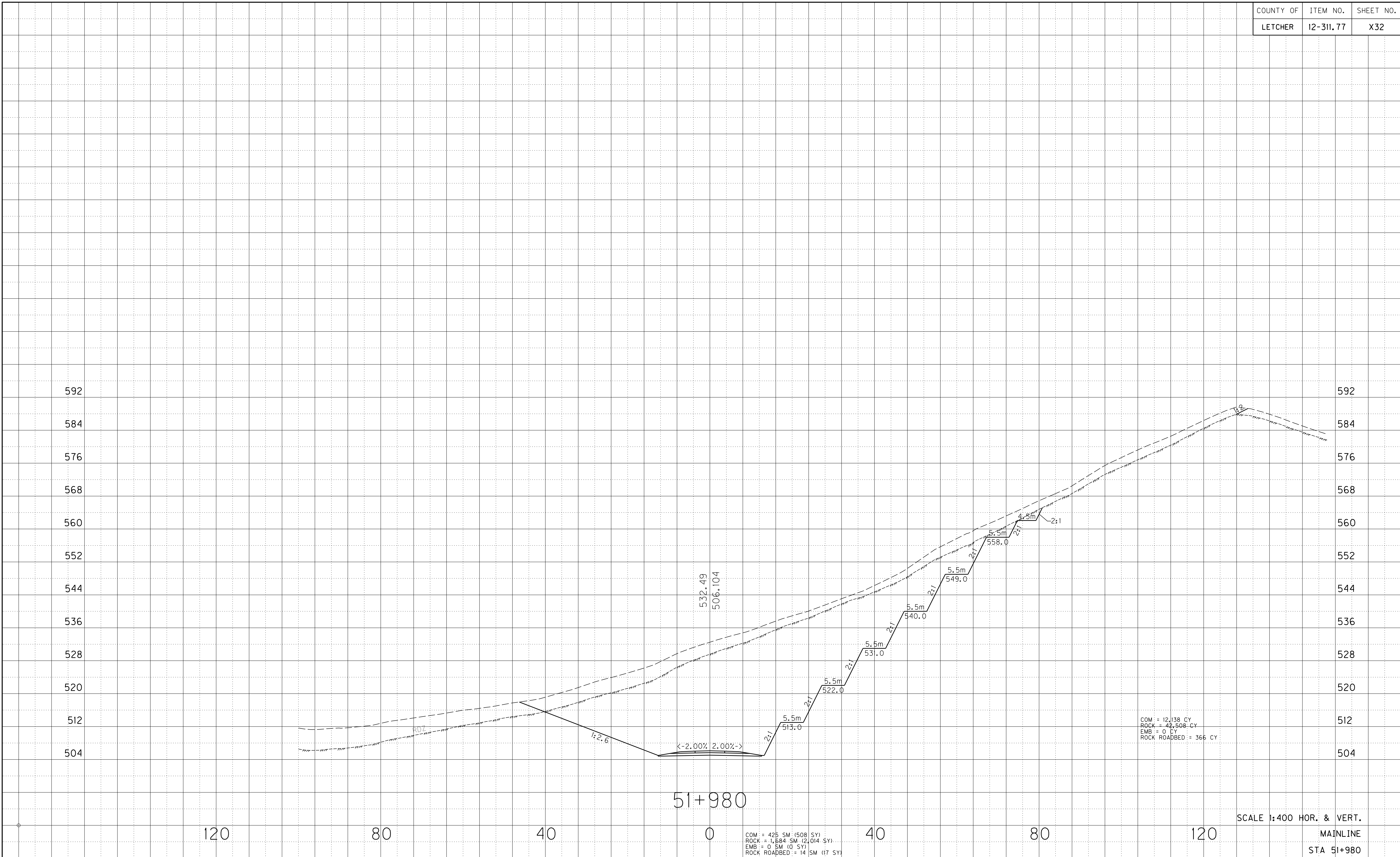
\$\$\$DATE\$

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CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X32       |



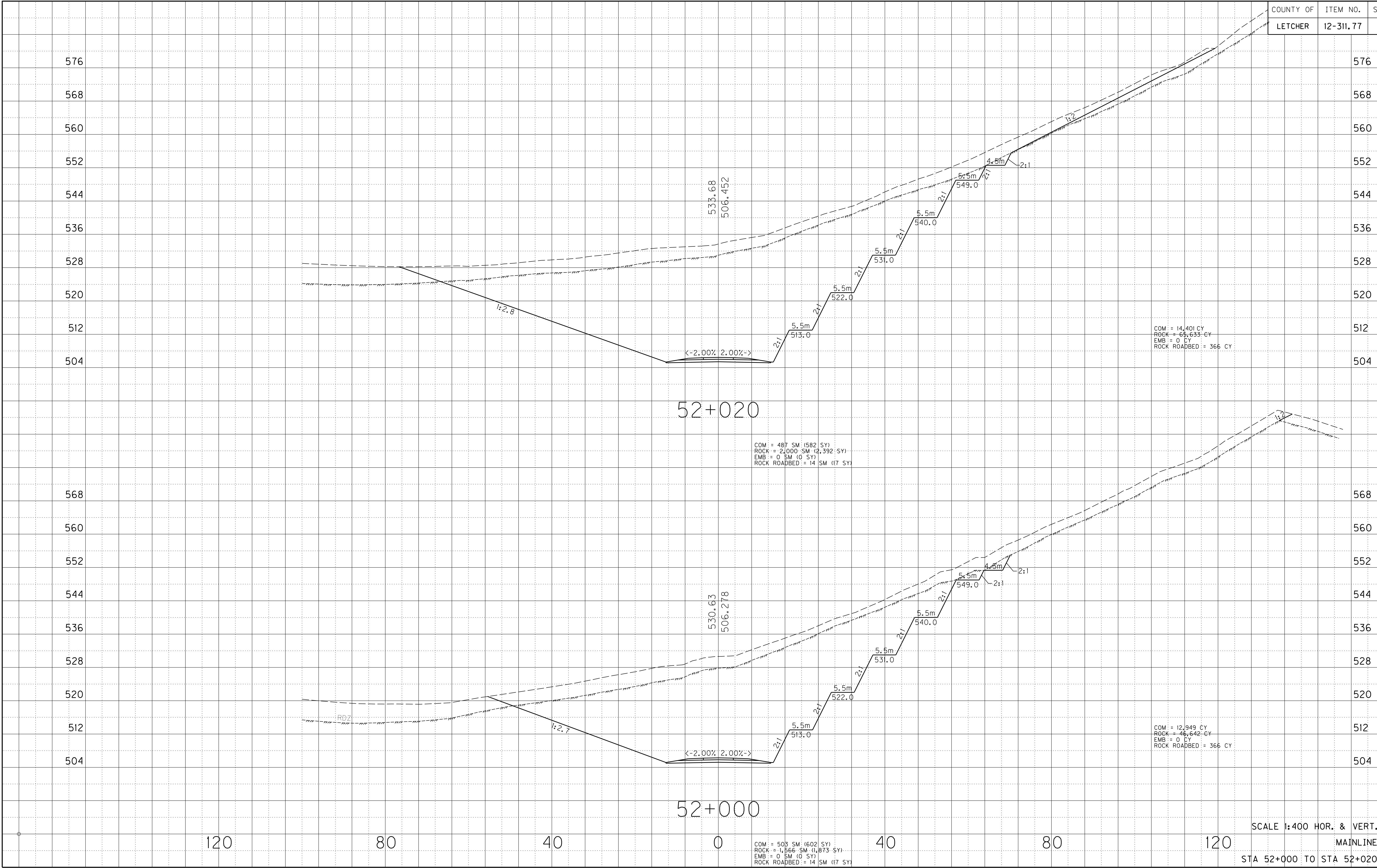
COM = 12,138 CY  
ROCK = 42,508 CY  
EMB = 0 CY  
ROCK ROADBED = 366 CY

COM = 425 SM (508 SY)  
ROCK = 1,684 SM (2,014 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)

SCALE 1:400 HOR. & VERT.  
MAINLINE  
STA 51+980



| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X33       |





\$\$\$DONS\$

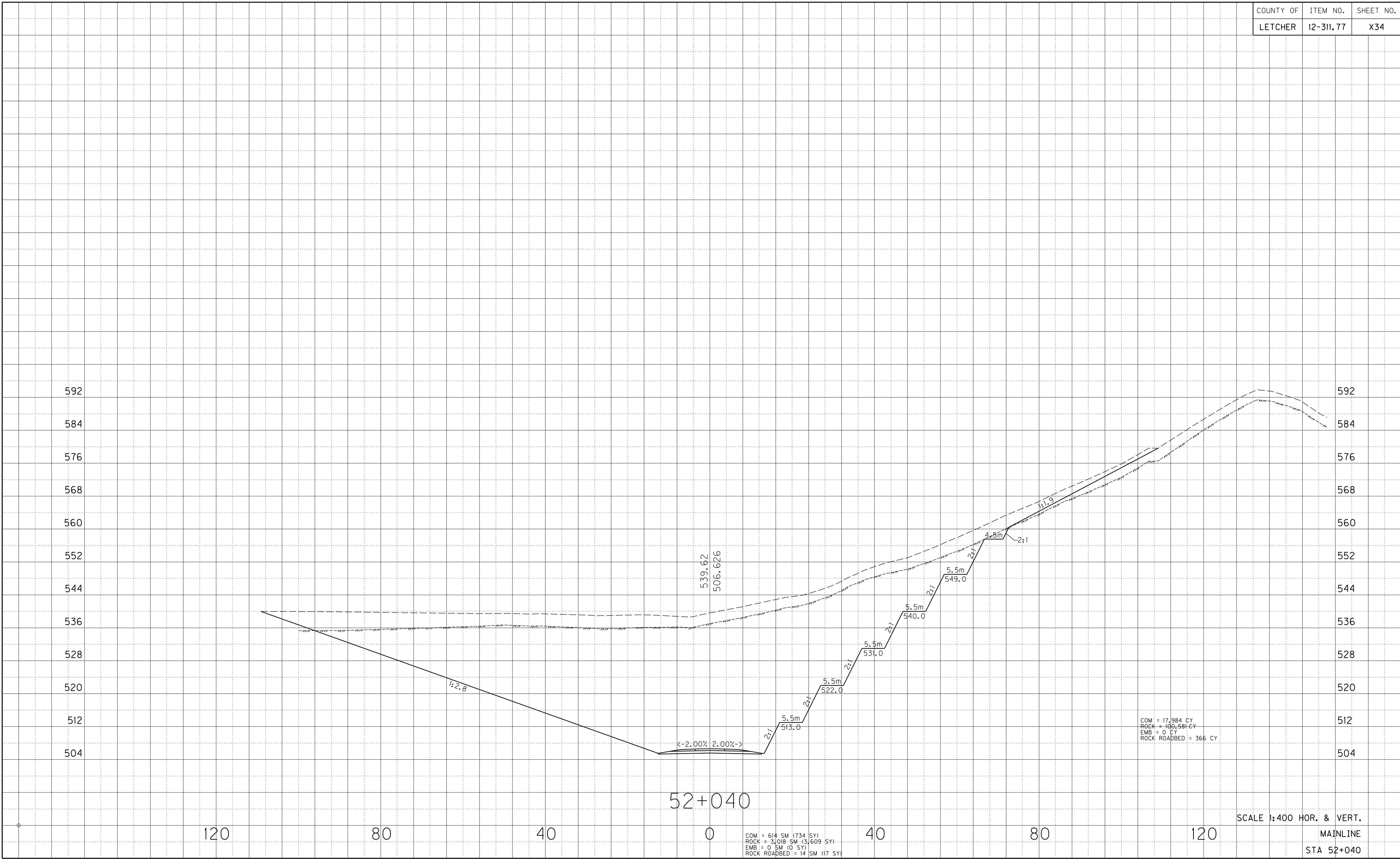
\$\$\$DATE\$

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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X34       |



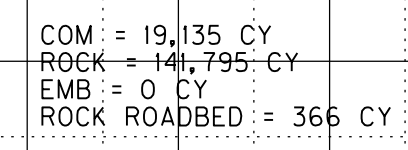
SCALE 1:400 HOR. & VERT.

MAINLINE  
STA 52+040



\$\$\$DATE\$\$\$

|  |  |  |            |  |  |
|--|--|--|------------|--|--|
|  |  |  | MAINLINE   |  |  |
|  |  |  | STA 52+060 |  |  |



|                          |
|--------------------------|
| SCALE 1:400 HOR. & VERT. |
| MAINLINE                 |
| STA 52+060               |

|              |   |       |    |        |     |
|--------------|---|-------|----|--------|-----|
| COM          | = | 76    | SM | (910   | SY) |
| ROCK         | = | 4,672 | SM | (5,588 | SY) |
| EMB          | = | 0     | SM | (0     | SY) |
| ROCK ROADBED | = | 14    | SM | (17    | SY) |



\$\$\$DONS\$

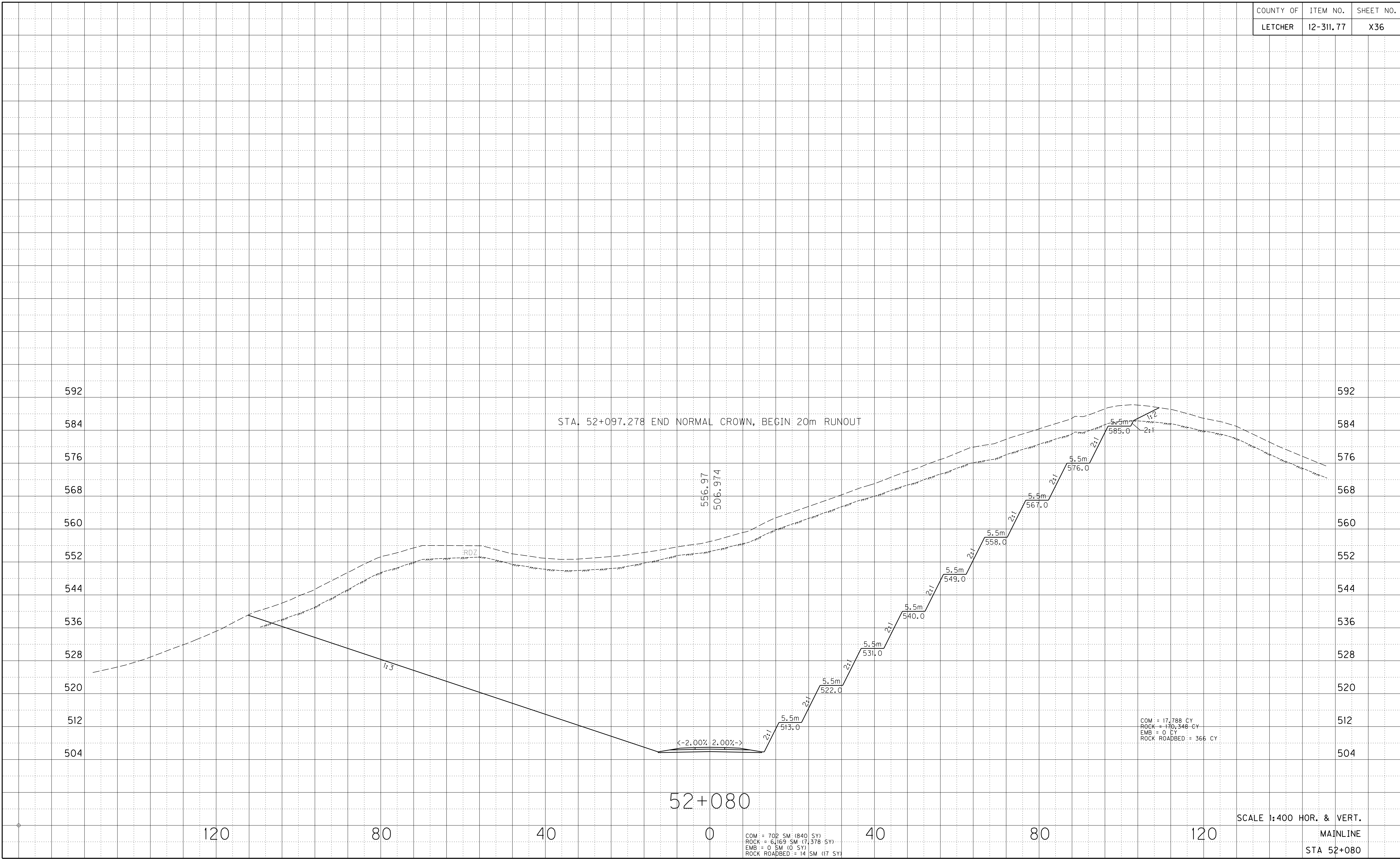
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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X36       |





\$\$\$DONS\$

\$\$\$DATE\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X37       |

STA. 52+117.278 END 20m RUNOUT, BEGIN 60m RUNOFF

592  
584  
576  
568  
560  
552  
544  
536  
528  
520  
512  
504

592  
584  
576  
568  
560  
552  
544  
536  
528  
520  
512  
504

566.95  
507.148

807

1:3

<-1.73% 2.00%->

5.5m

513.0

5.5m

522.0

5.5m

531.0

5.5m

540.0

5.5m

549.0

5.5m

558.0

5.5m

567.0

5.5m

576.0

5.5m

585.0

COM = 16,206 CY  
ROCK = 165,704 CY  
EMB = 0 CY  
ROCK ROADBED = 366 CY

52+100

COM = 658 SM (787 SY)  
ROCK = 6,855 SM (8,199 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)

SCALE 1:400 HOR. & VERT.

MAINLINE  
STA 52+100



\$\$\$DONS\$

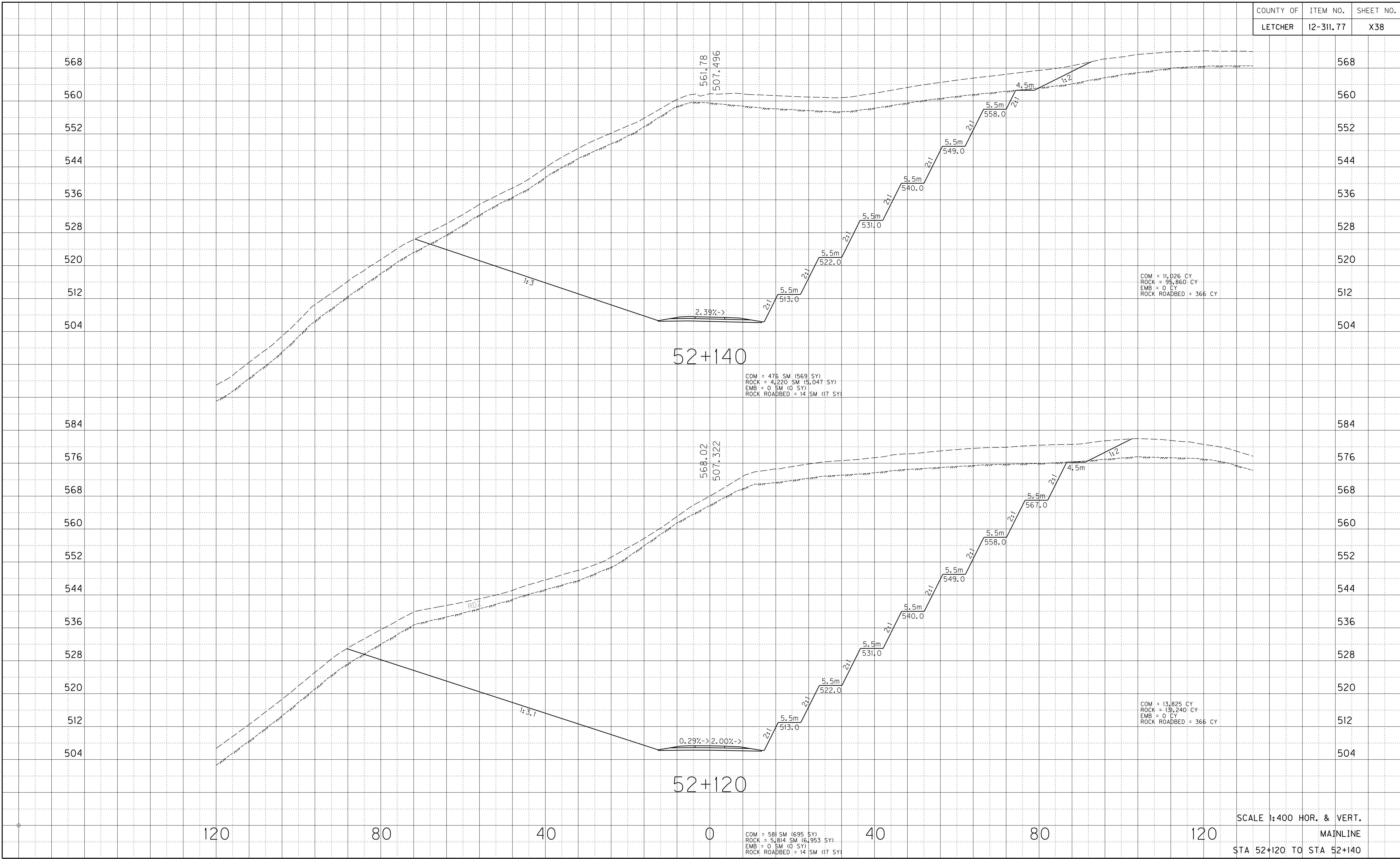
\$\$\$DATE\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X38       |



SCALE 1:400 HOR. & VERT.

MAINLINE

STA 52+120 TO STA 52+140



\$\$\$DGN\$\$\$

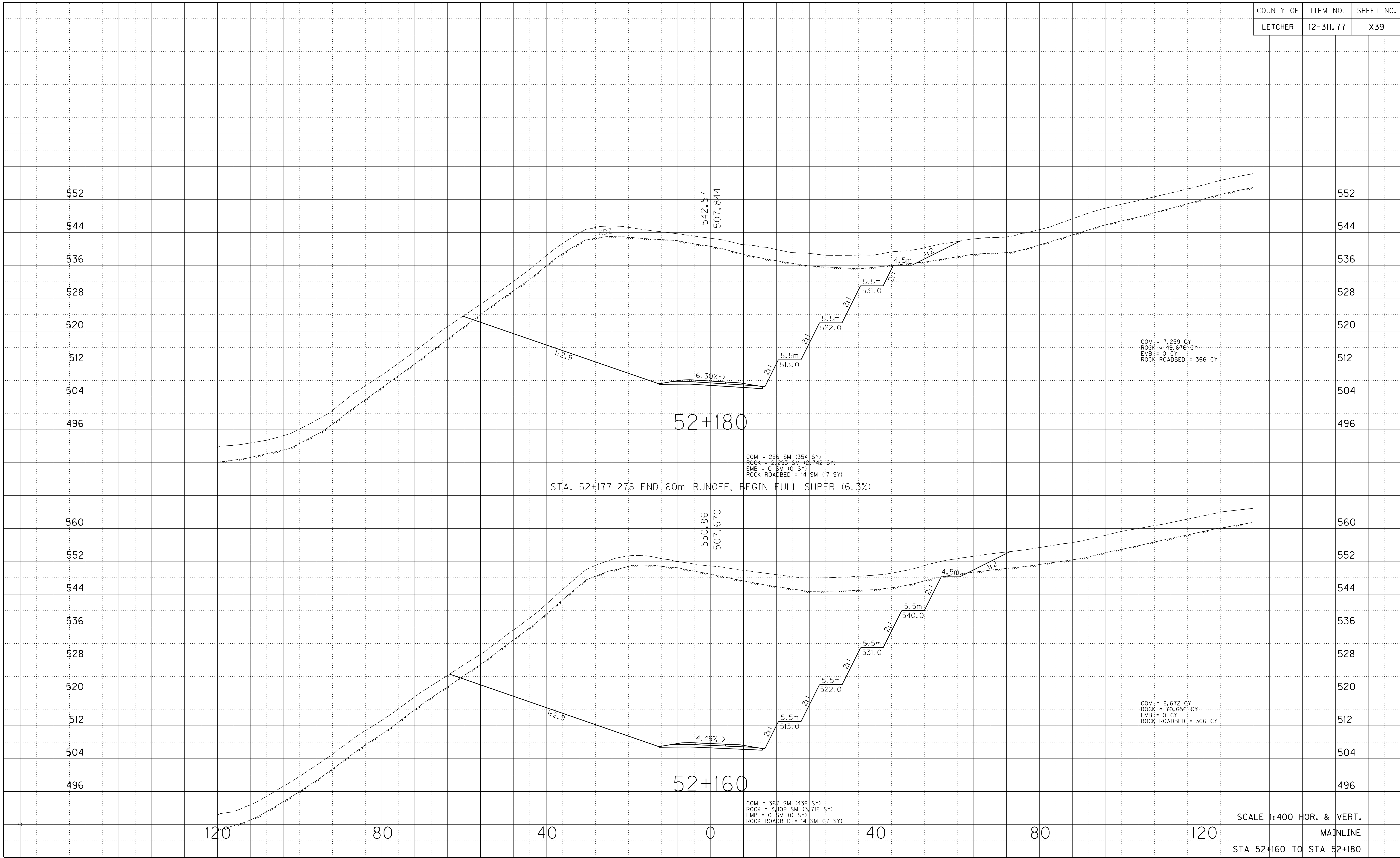
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PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X39       |



SCALE 1:400 HOR. & VERT.  
MAINLINE  
STA 52+160 TO STA 52+180



\$\$\$DONS\$

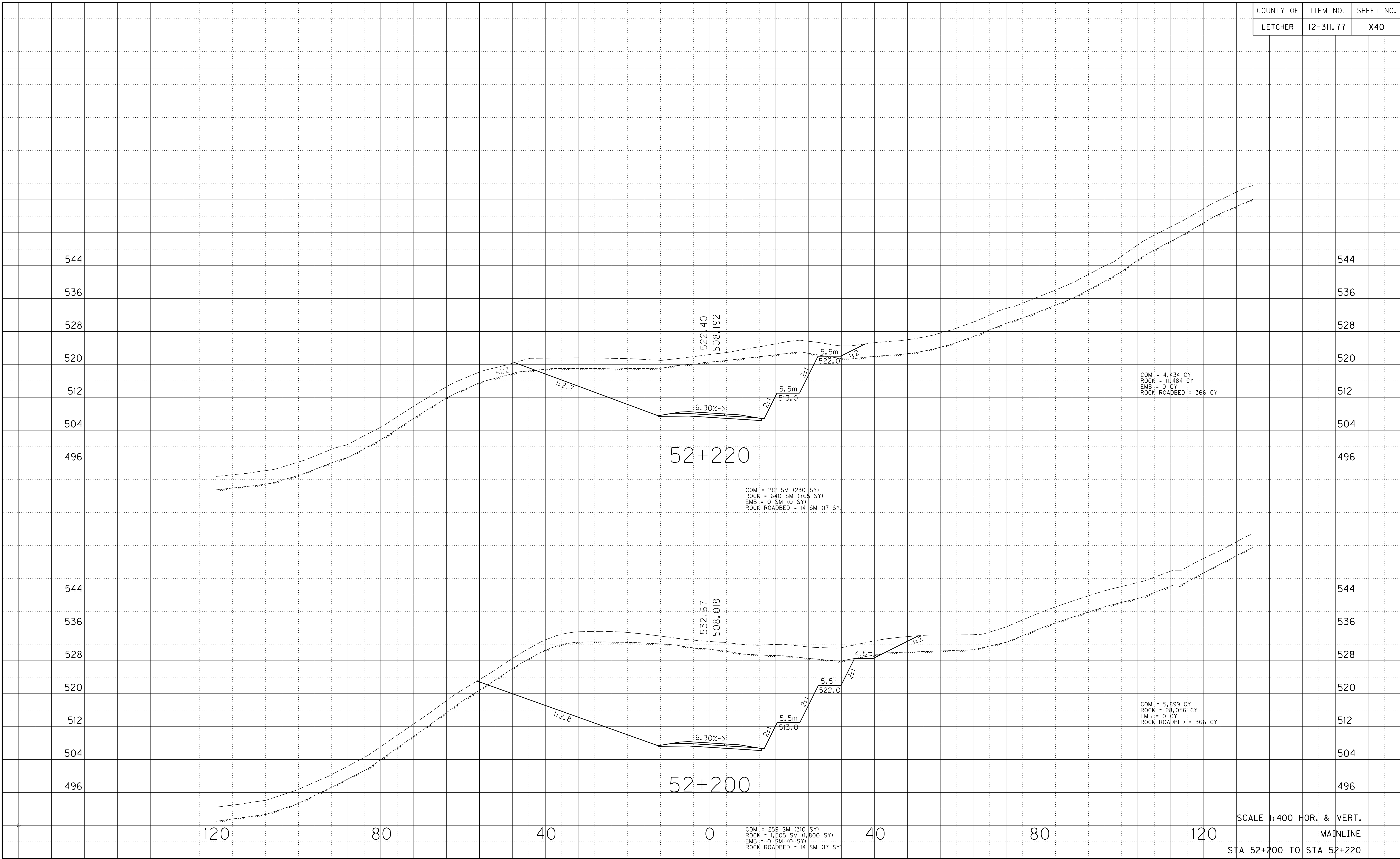
| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X40       |

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

\$\$\$DATE\$





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PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X41       |

552

552

544

544

536

536

528

528

520

520

512

512

504

504

496

496

STA. 52+272.543 END FULL SUPER (6.3%), BEGIN 60m SUPERELEVATION TRANSITION TO FLAT (0.0%)

517.41  
508.540

5.5m  
522.0

5.5m  
513.0

1:2.6

6.30%->

2:1

1:2

COM = 4,094 CY  
ROCK = 15,578 CY  
EMB = 0 CY  
ROCK ROADBED = 379 CY

52+260

COM = 134 SM (160 SY)  
ROCK = 329 SM (393 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)

576

576

568

568

560

560

552

552

544

544

536

536

528

528

520

520

512

512

504

504

496

496

516.05  
508.366

4.5m

5.5m  
513.0

1:2.6

6.30%->

1:2

1:2

COM = 3,675 CY  
ROCK = 7,416 CY  
EMB = 0 CY  
ROCK ROADBED = 366 CY

52+240

COM = 147 SM (176 SY)  
ROCK = 238 SM (285 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)

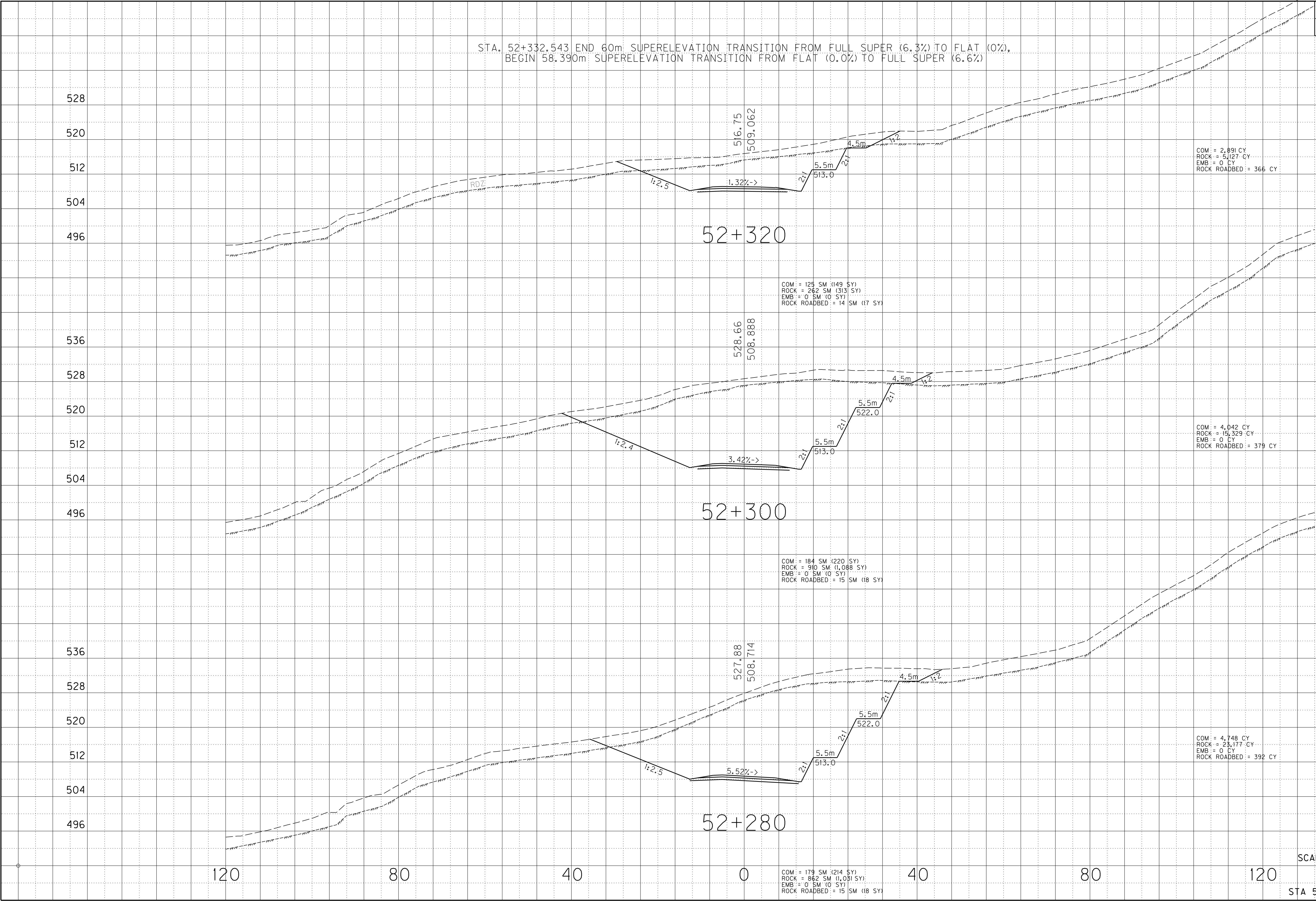
SCALE 1:400 HOR. & VERT.

MAINLINE

STA 52+240 TO STA 52+260



| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X42       |



COM = 2.891 CY  
ROCK = 5.127 CY  
EMB = 0 CY  
ROCK ROADBED = 366 CY

COM = 125 SM (149 SY)  
ROCK = 262 SM (313 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)

COM = 4.042 CY  
ROCK = 15.329 CY  
EMB = 0 CY  
ROCK ROADBED = 379 CY

COM = 184 SM (220 SY)  
ROCK = 910 SM (1,088 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 15 SM (18 SY)

COM = 4.748 CY  
ROCK = 23.177 CY  
EMB = 0 CY  
ROCK ROADBED = 392 CY

COM = 179 SM (214 SY)  
ROCK = 862 SM (1,031 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 15 SM (18 SY)



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PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X43       |

EQUATION: US 119 MAINLINE STA. 52+372.933 = US 119 TEMPORARY TIE STA. 25+372.933

536 536

528 528

520 520

512 512

504 504

52+360

COM = 4,761 CY  
ROCK = 22,117 CY  
EMB = 0 CY  
ROCK ROADBED = 392 CY

COM = 156 SM (187 SY)  
ROCK = 486 SM (581 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 15 SM (18 SY)

528 528

520 520

512 512

504 504

496 496

52+340

COM = 3,296 CY  
ROCK = 8,057 CY  
EMB = 0 CY  
ROCK ROADBED = 379 CY

COM = 96 SM (115 SY)  
ROCK = 130 SM (155 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 14 SM (17 SY)

SCALE 1:400 HOR. & VERT.  
MAINLINE  
STA 52+340 TO STA 52+360



PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

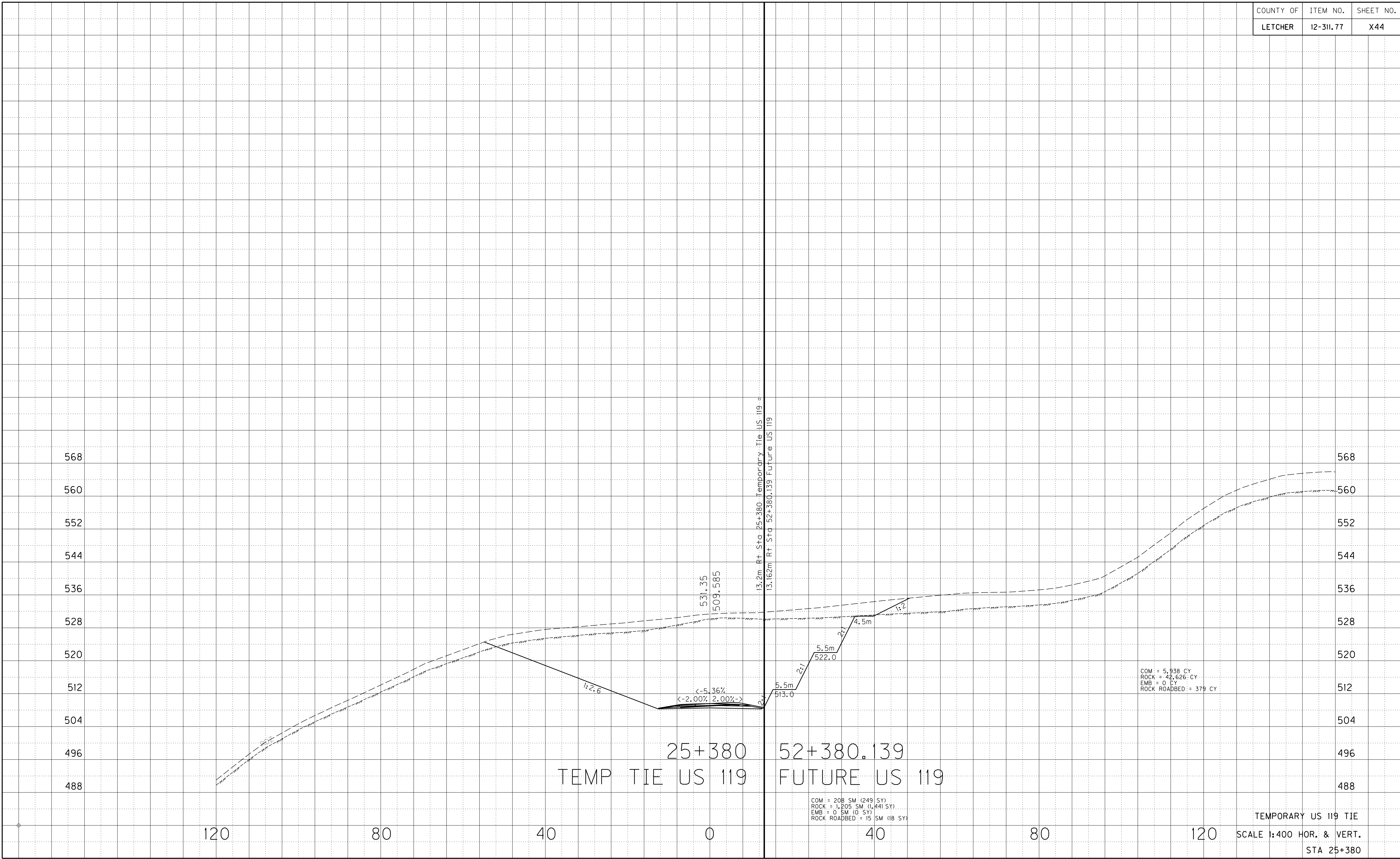
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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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\$\$\$DATE\$

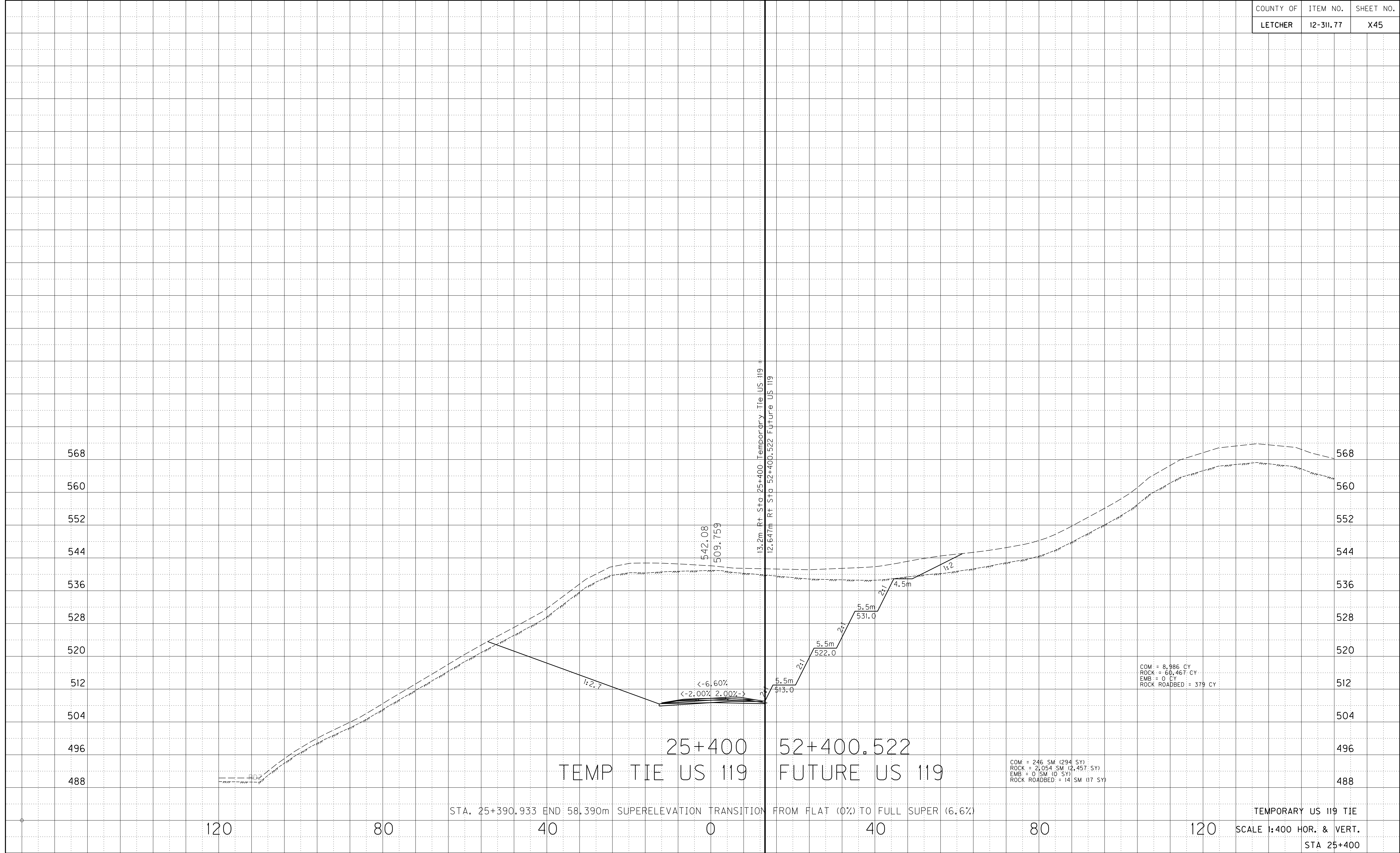
| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X44       |





\$\$\$DATE\$\$\$

|                      |  |
|----------------------|--|
| TEMPORARY US 119 TIE |  |
| 1:400 HOR. & VERT.   |  |
| STA 25+400           |  |





\$\$\$DONS\$

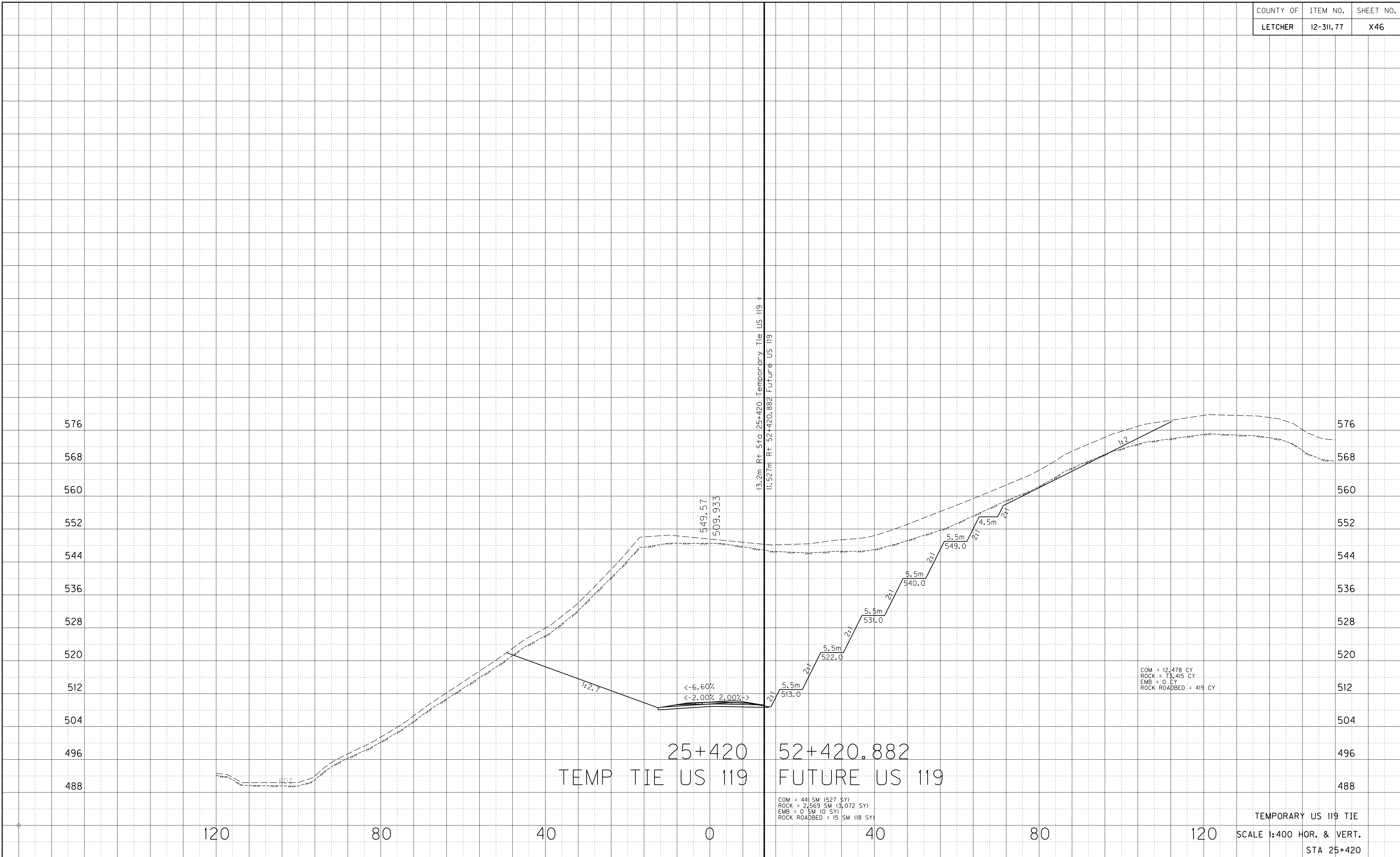
PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X46       |





\$\$\$DONS\$

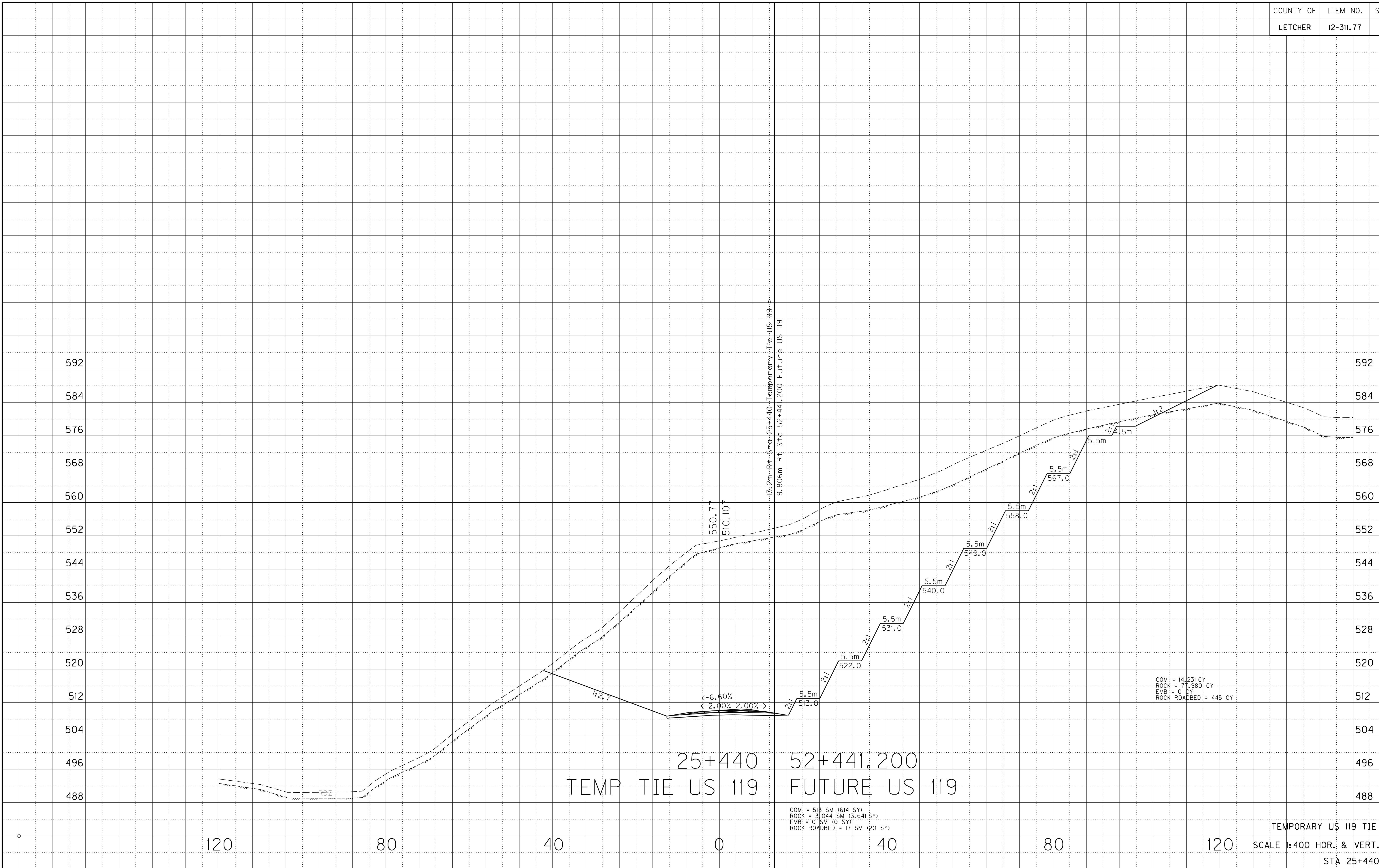
PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X47       |





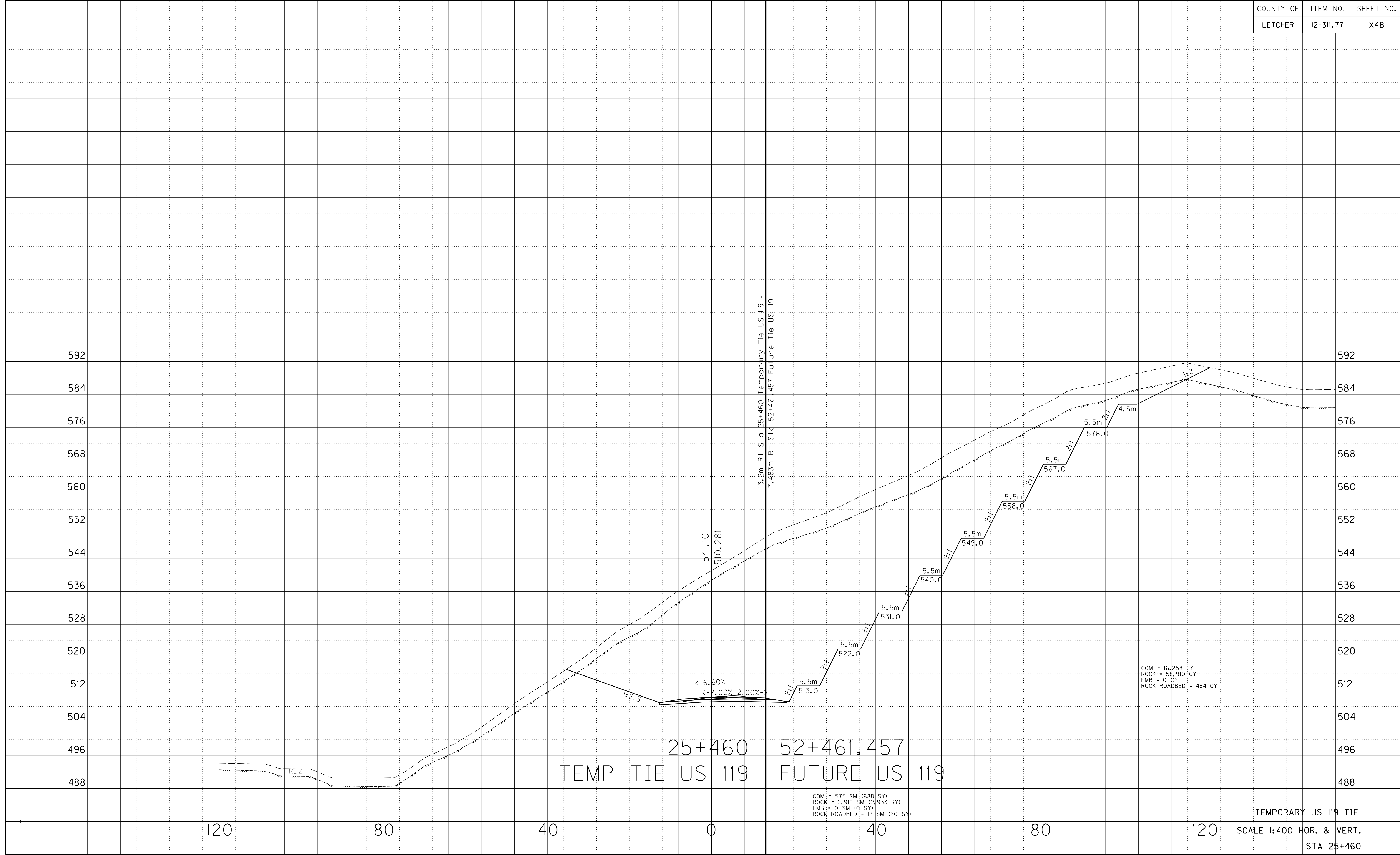
\$\$\$DATE\$\$\$

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CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X48       |





\$\$\$DONS\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

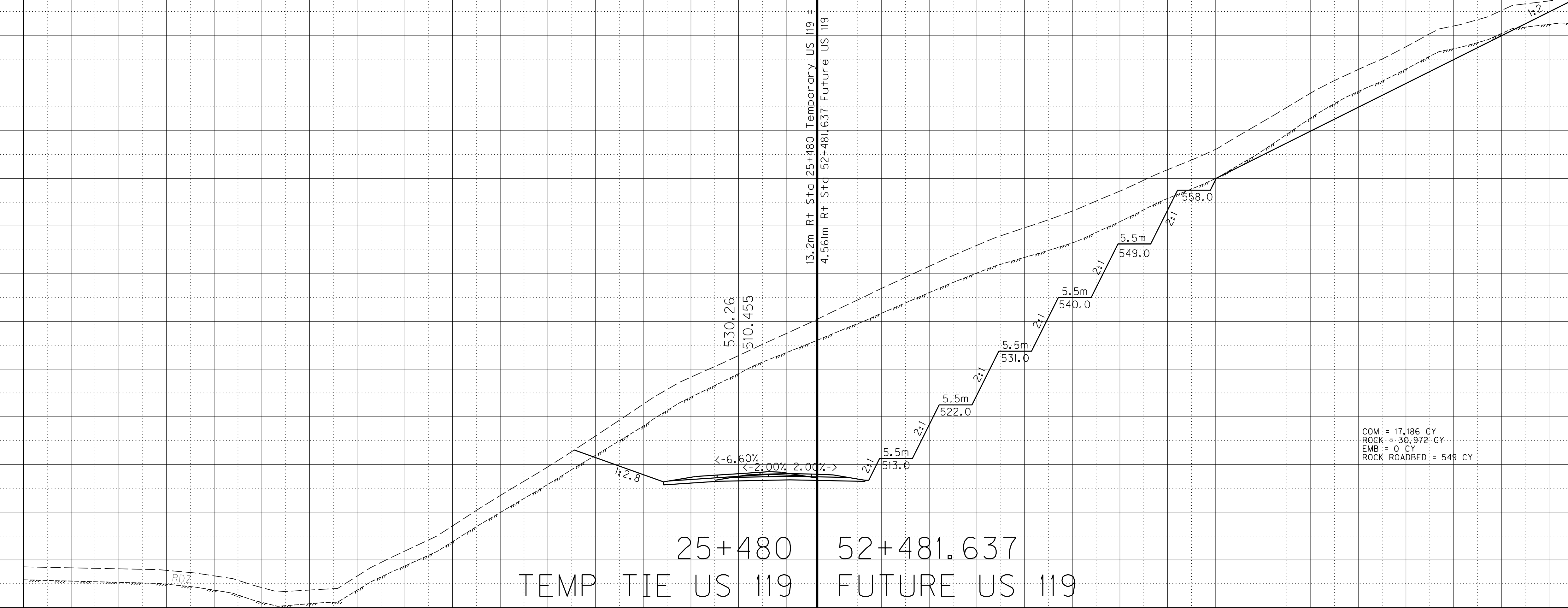
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X49       |

592  
584  
576  
568  
560  
552  
544  
536  
528  
520  
512  
504  
496  
488

592  
584  
576  
568  
560  
552  
544  
536  
528  
520  
512  
504  
496  
488



25+480 52+481.637  
TEMP TIE US 119 FUTURE US 119

COM = 17,186 CY  
ROCK = 30,972 CY  
EMB = 0 CY  
ROCK ROADBED = 549 CY

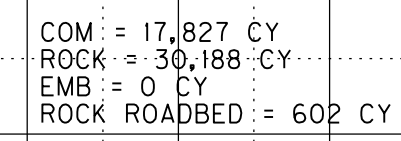
COM = 668 SM (799 SY)  
ROCK = 1,586 SM (1,897 SY)  
EMB = 0 SM (0 SY)  
ROCK ROADBED = 20 SM (24 SY)

TEMPORARY US 119 TIE  
SCALE 1:400 HOR. & VERT.  
STA 25+480



\$\$\$DATE\$\$\$

|                      |  |  |
|----------------------|--|--|
| TEMPORARY US 119 TIE |  |  |
| 1:400 HOR. & VERT.   |  |  |
| STA 25+500           |  |  |



|                         |            |
|-------------------------|------------|
| TEMPORARY US 119 TIE    |            |
| ABLE 1:400 HOR. & VERT. |            |
|                         | STA 25+500 |



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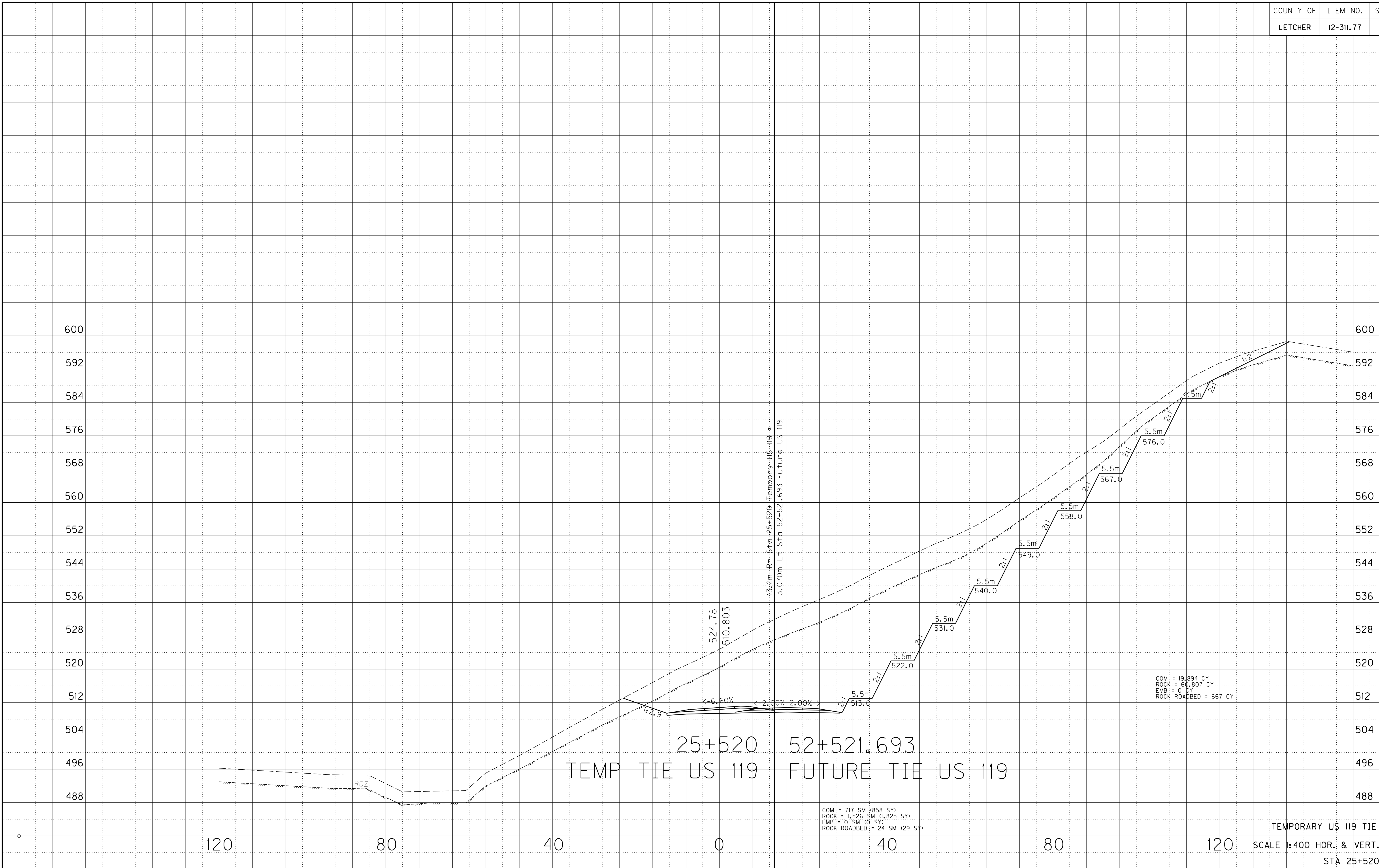
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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X51       |





\$\$\$DONS\$

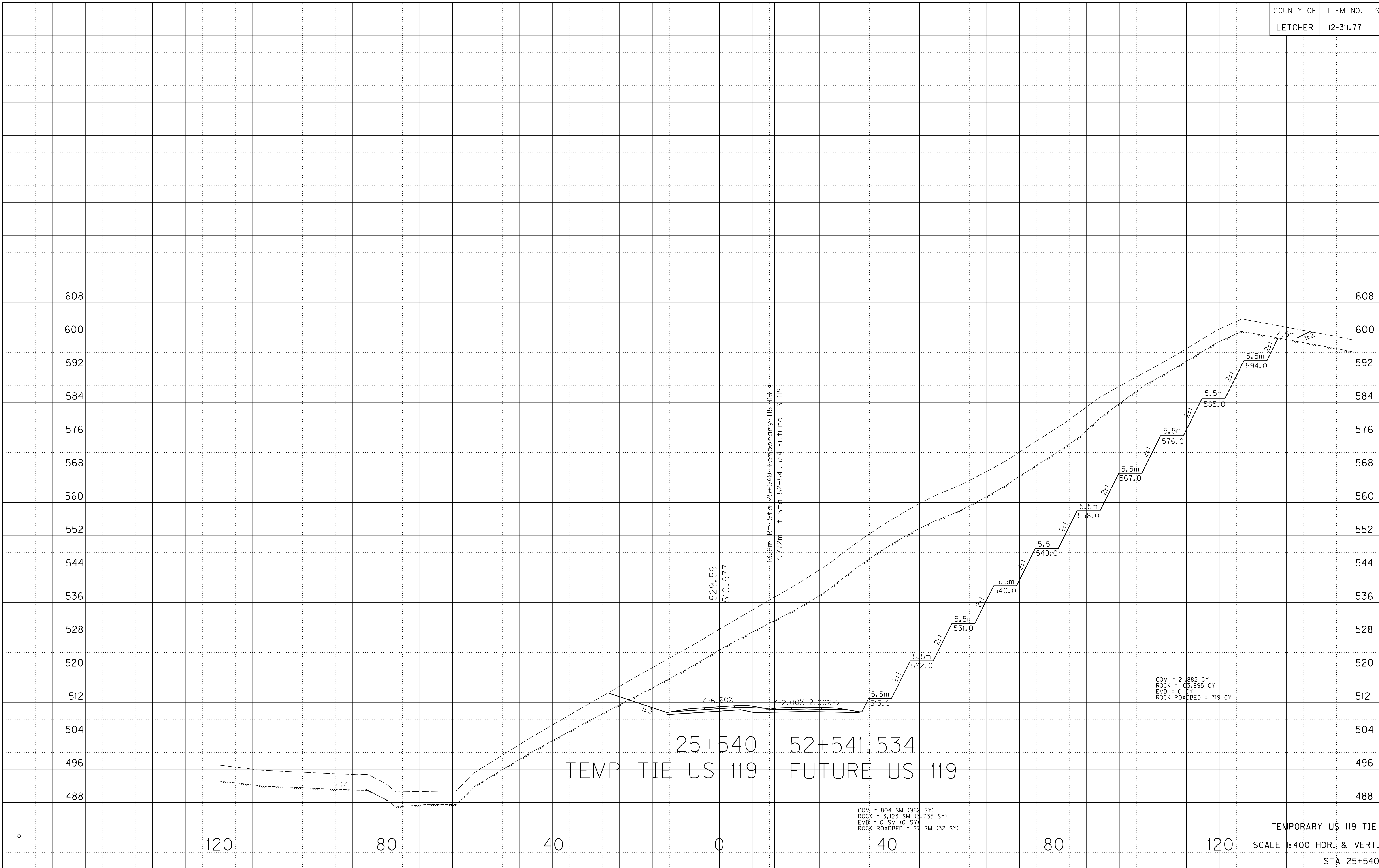
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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X52       |





\$\$\$DONS\$

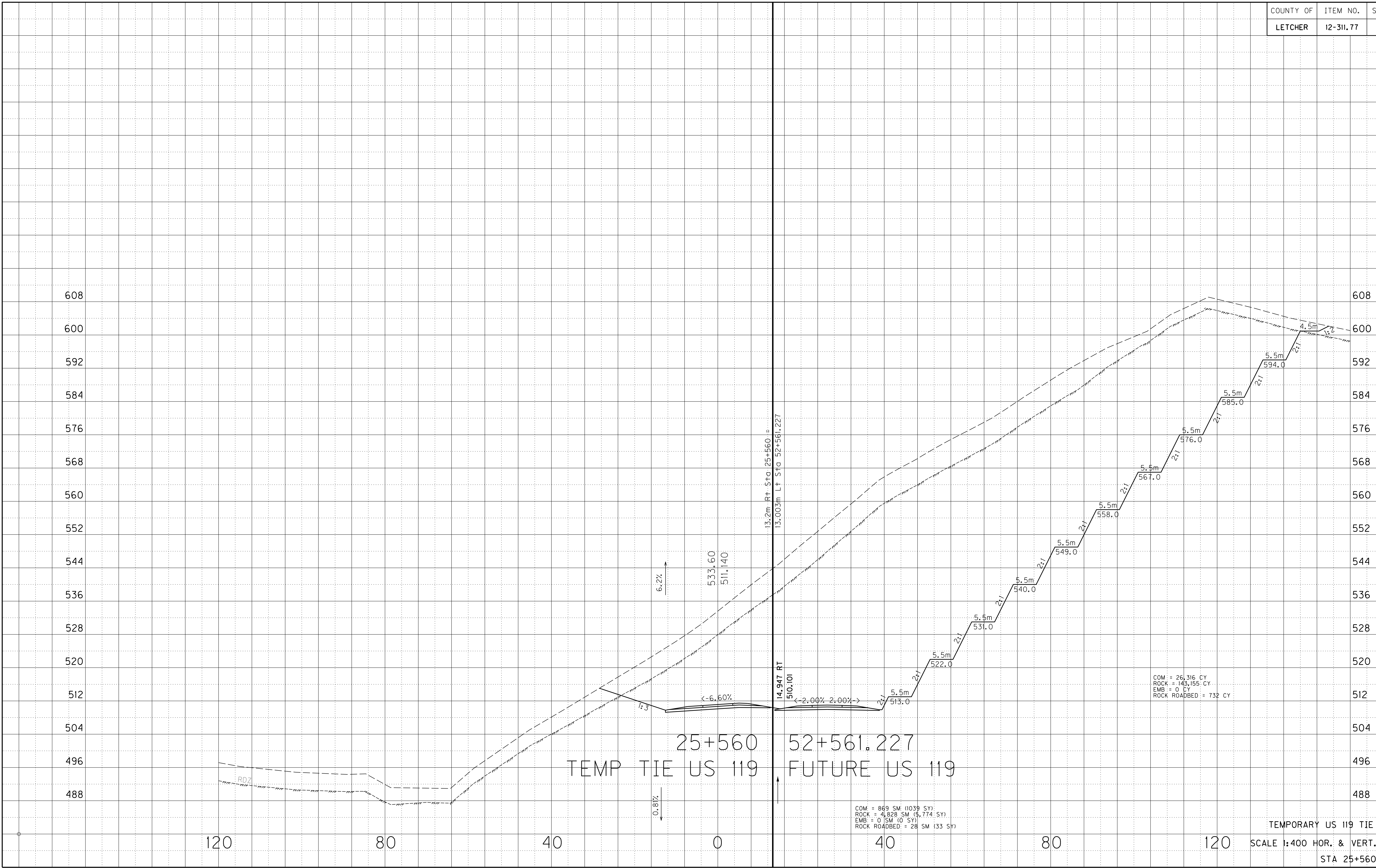
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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X53       |





\$\$\$DONS\$

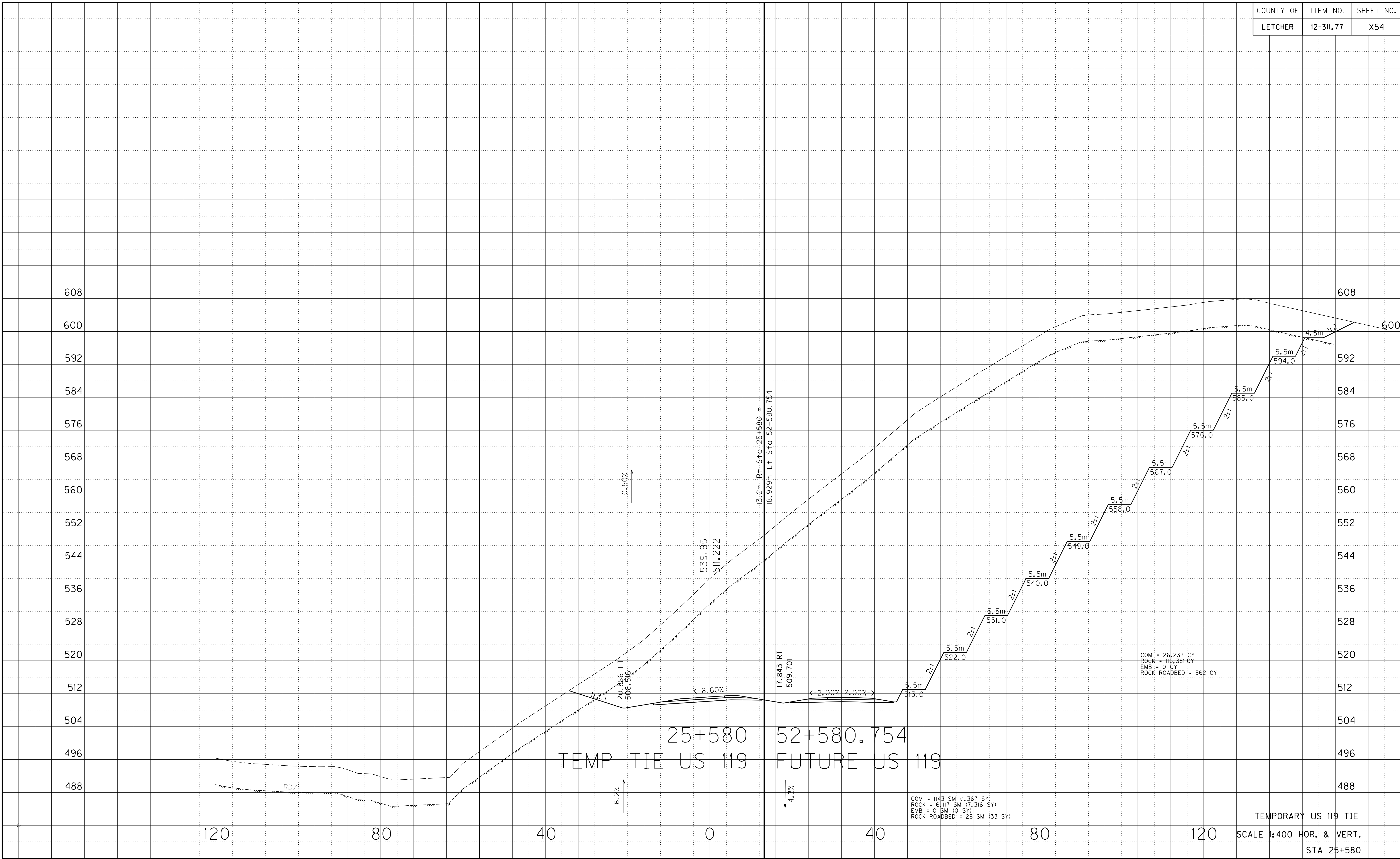
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| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X54       |





\$\$\$DONS\$

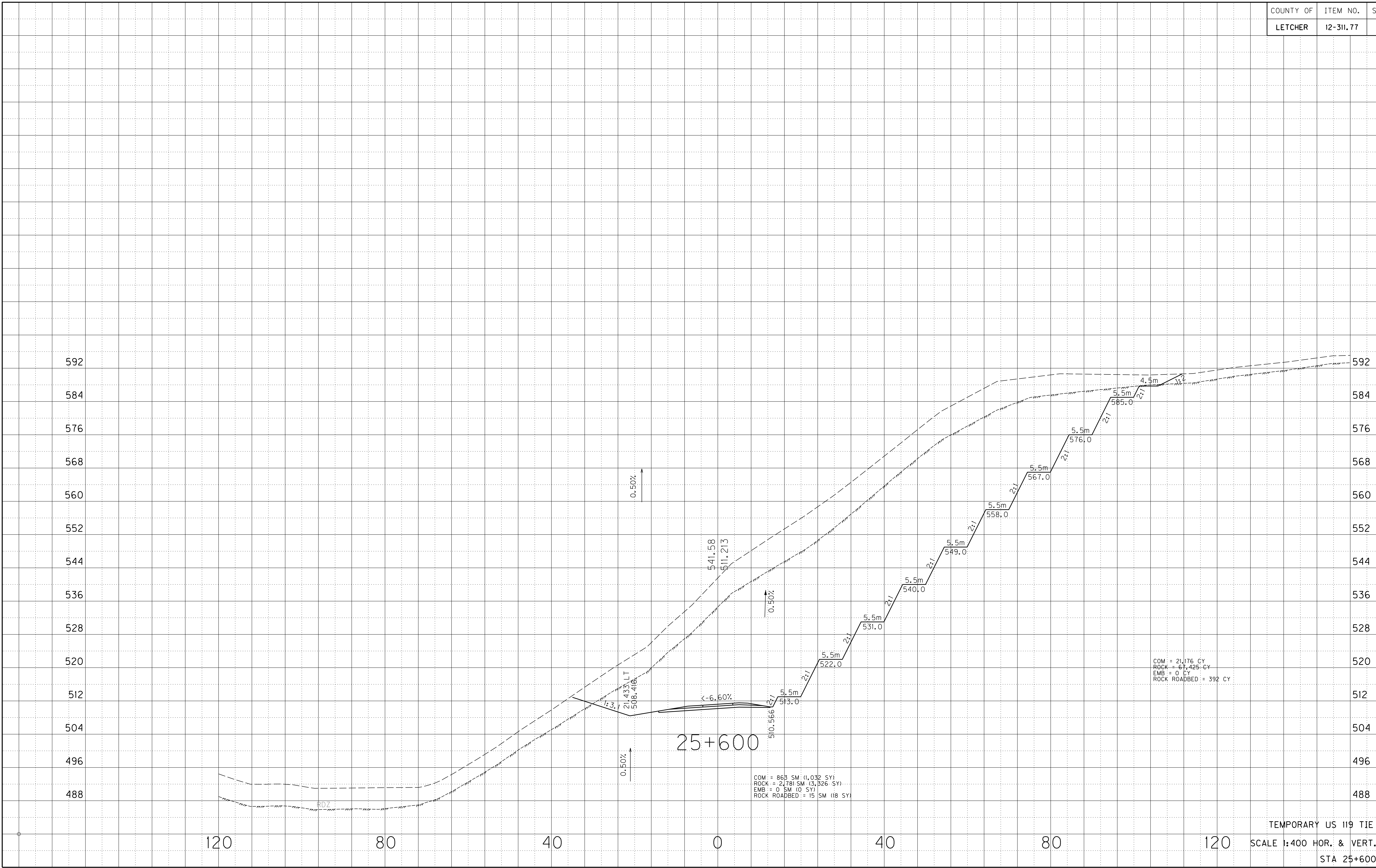
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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

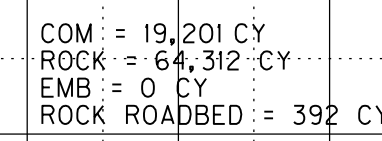
| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X55       |





\$\$\$DATE\$\$\$

|                         |  |  |
|-------------------------|--|--|
| TEMPORARY US 119 TIE    |  |  |
| PALE 1:400 HOR. & VERT. |  |  |
| STA 25+620              |  |  |

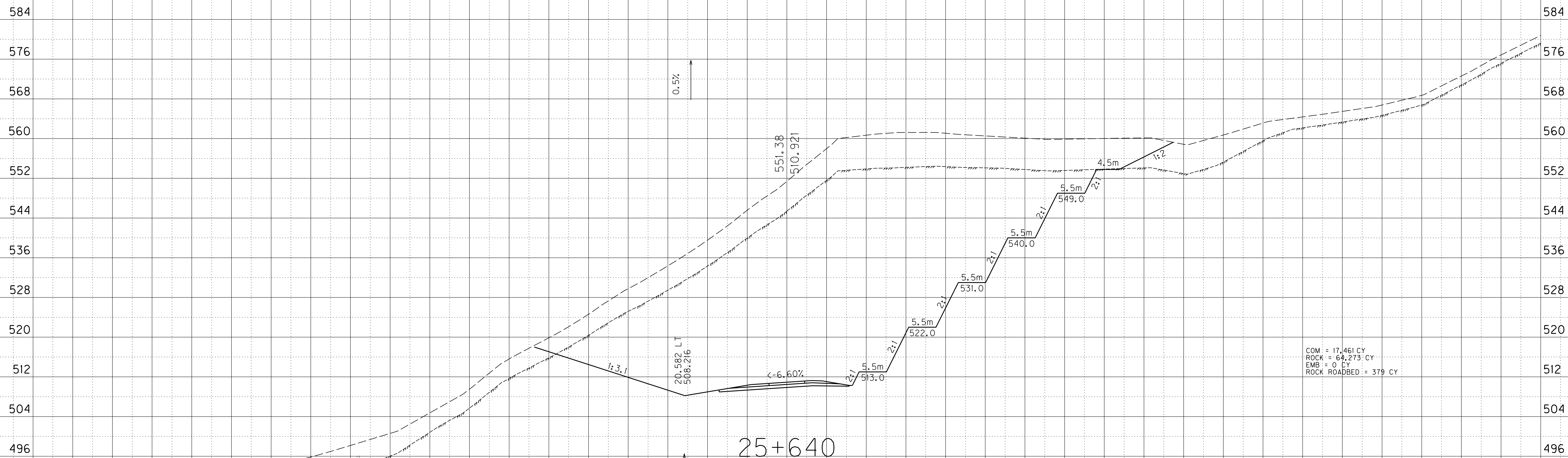


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|                          |            |
|--------------------------|------------|
| TEMPORARY US 119 TIE     |            |
| SCALE 1:400 HOR. & VERT. | STA 25+640 |



|              |   |        |    |
|--------------|---|--------|----|
| COM          | = | 17,461 | CY |
| ROCK         | = | 64,273 | CY |
| EMB          | = | 0      | CY |
| ROCK ROADBED | = | 379    | CY |

|              |   |       |    |        |     |
|--------------|---|-------|----|--------|-----|
| COM          | = | 712   | SM | (852   | SY) |
| ROCK         | = | 2,543 | SM | (3,041 | SY) |
| EMB          | = | 0     | SM | (0     | SY) |
| ROCK ROADBED | = | 15    | SM | (18    | SY) |

TEMPORARY US 119 TIE

|       |       |        |       |
|-------|-------|--------|-------|
| SCALE | 1:400 | HOR. & | VERT. |
|-------|-------|--------|-------|

STA 25+640



\$\$\$DONS\$

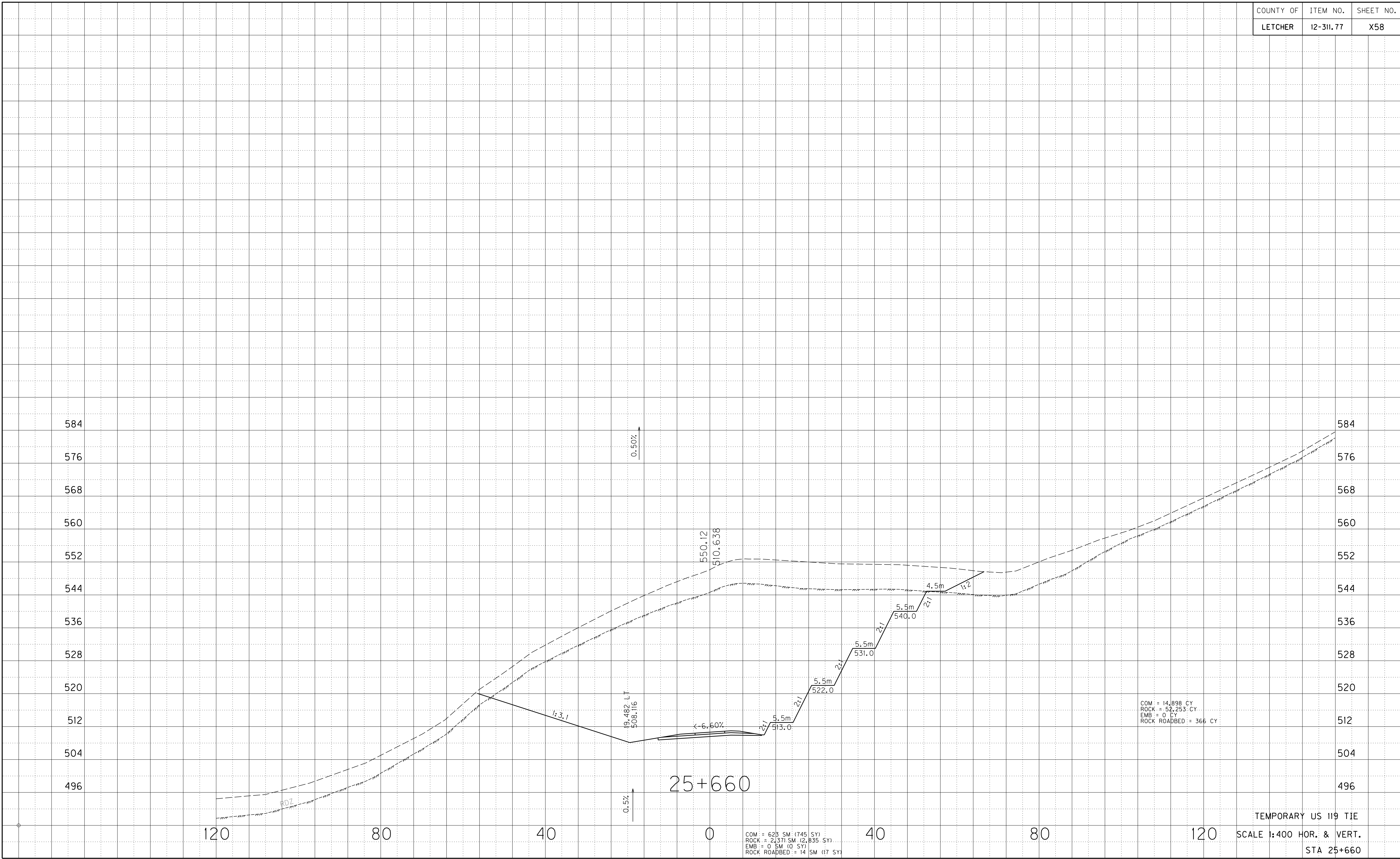
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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X58       |





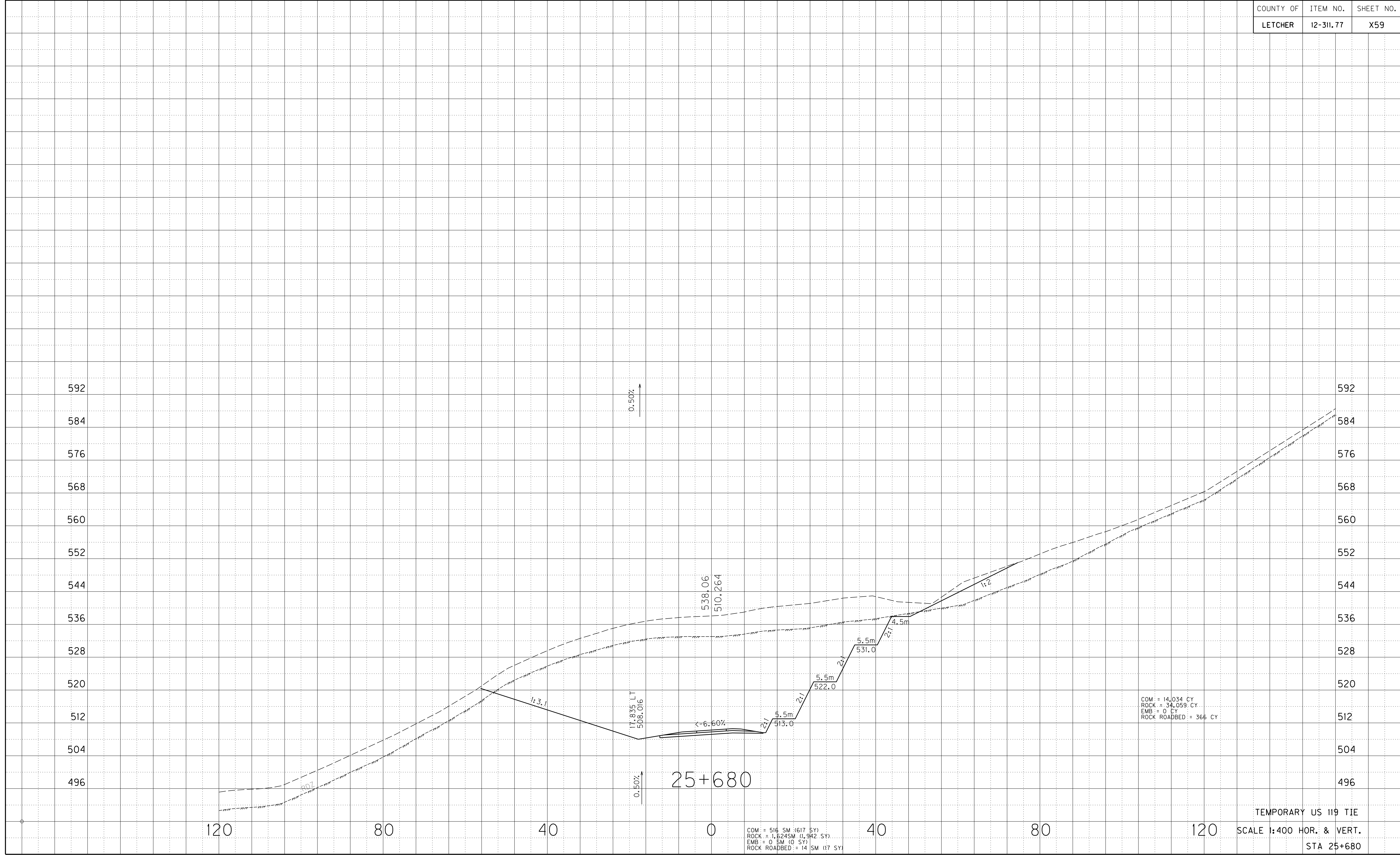
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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X59       |





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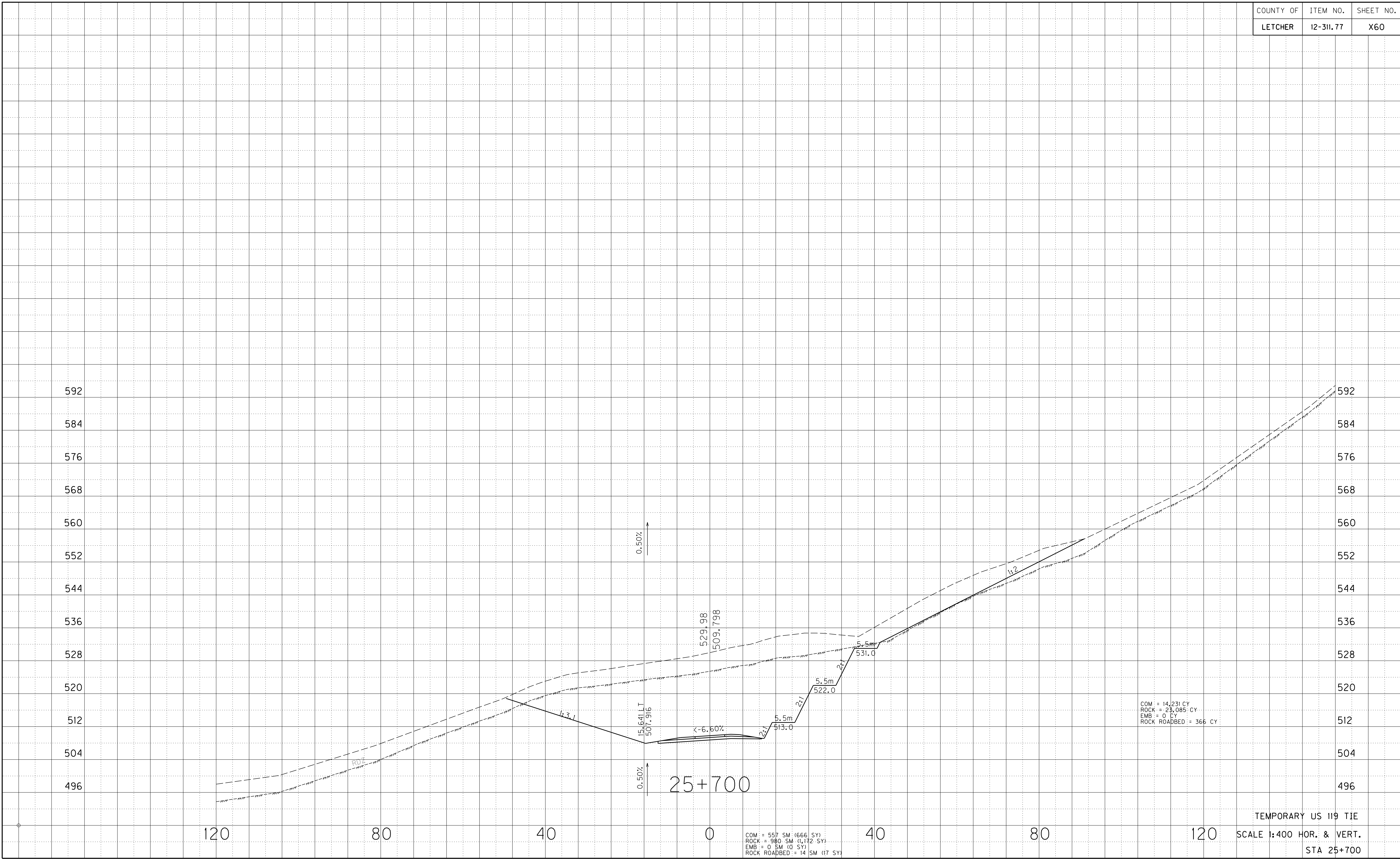
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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X60       |



TEMPORARY US 119 TIE  
SCALE 1:400 HOR. & VERT.  
STA 25+700



\$\$\$DONS\$

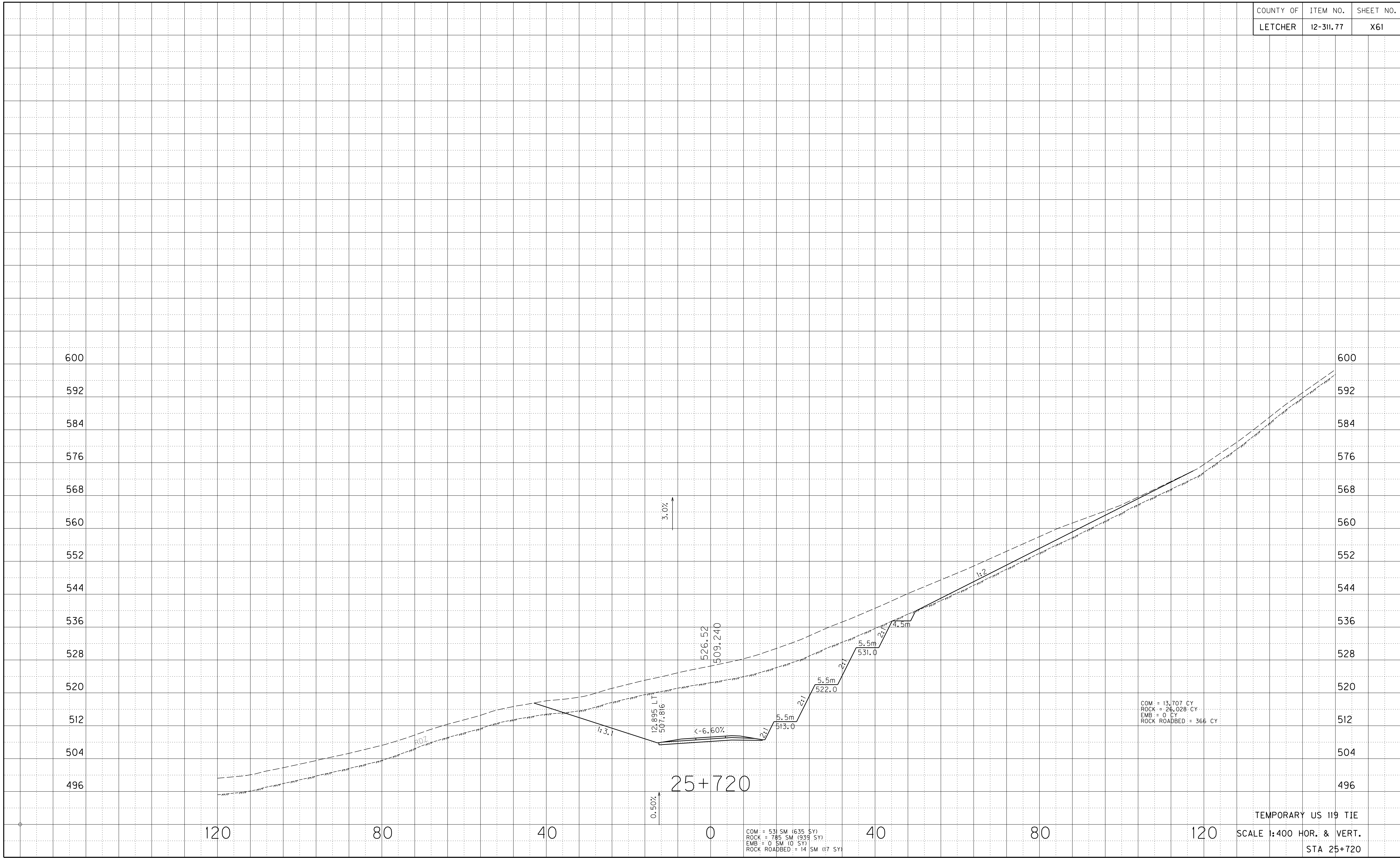
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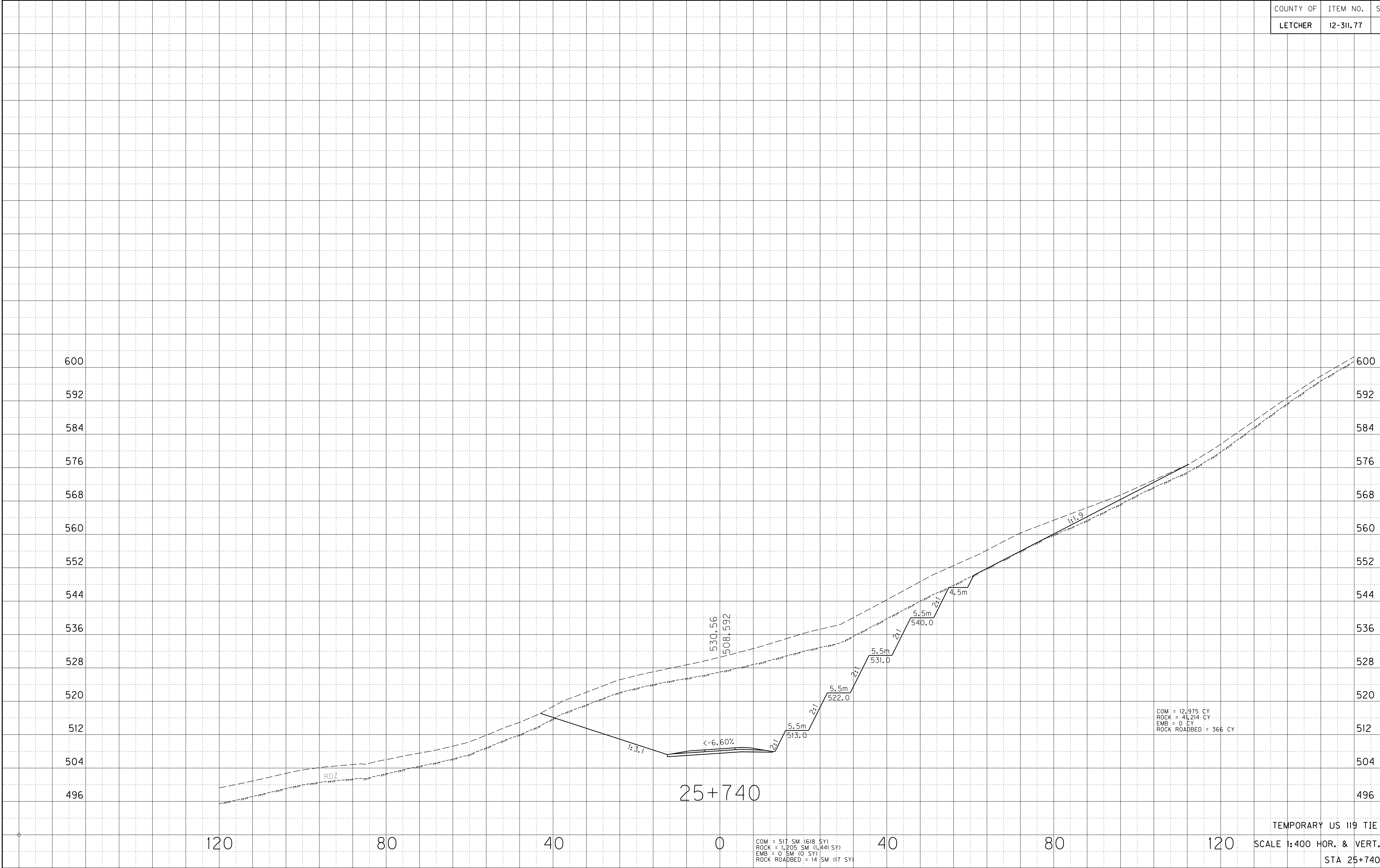
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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X61       |









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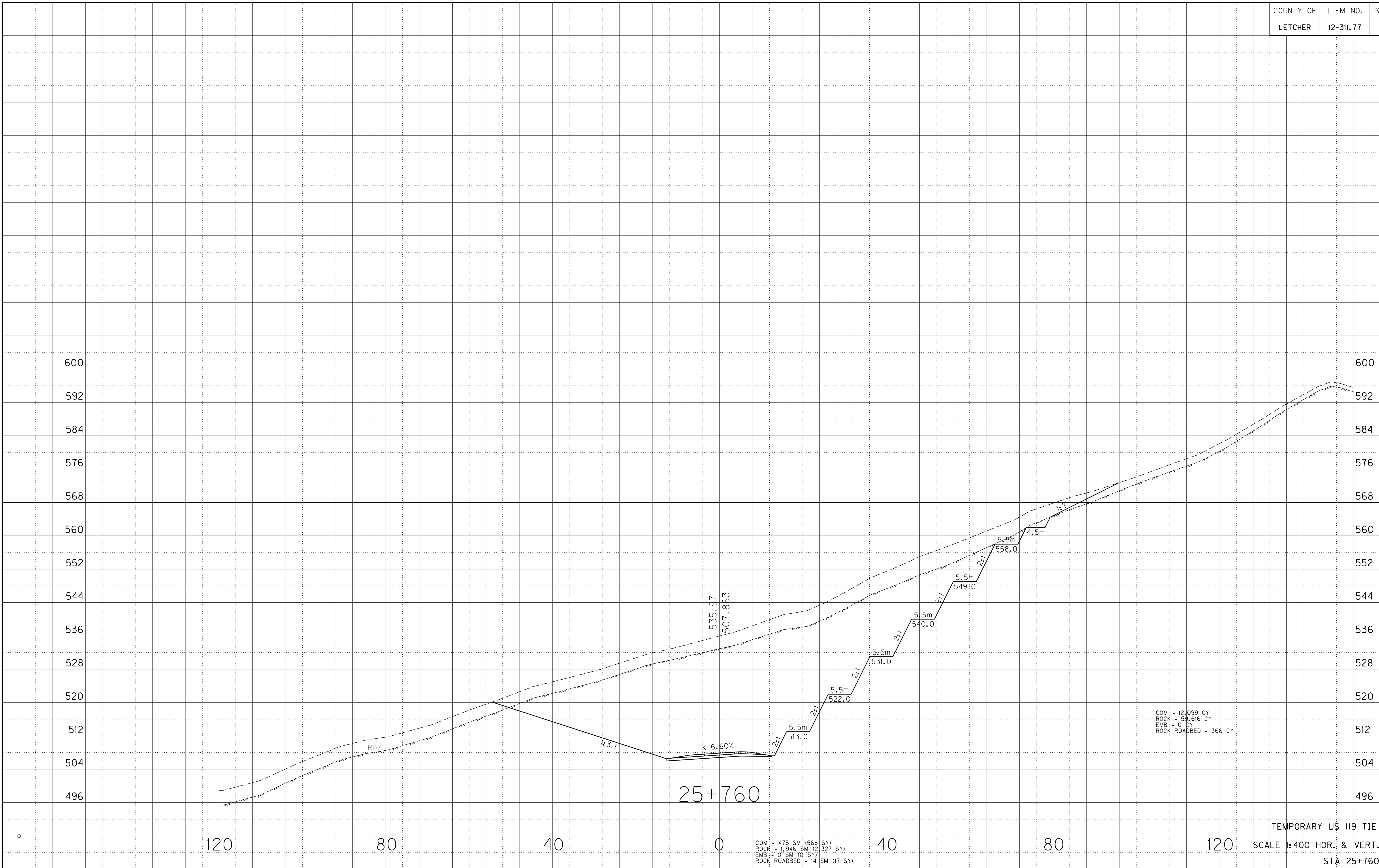
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| COUNTY OF  | ITEM NO.  | SHEET NO. |
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| LETCHESTER | 12-311.77 | X63       |





\$\$\$DONS\$

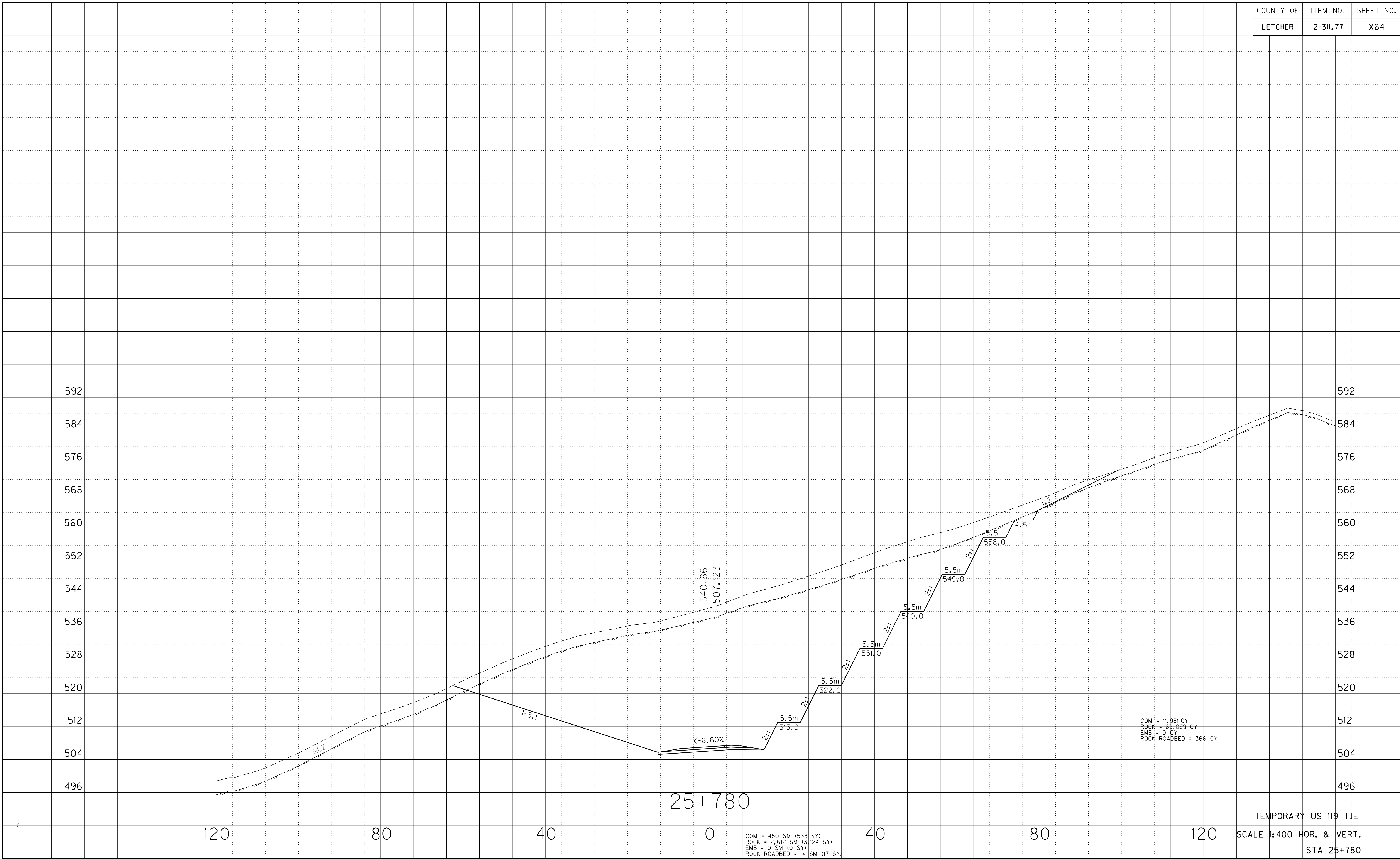
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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X64       |





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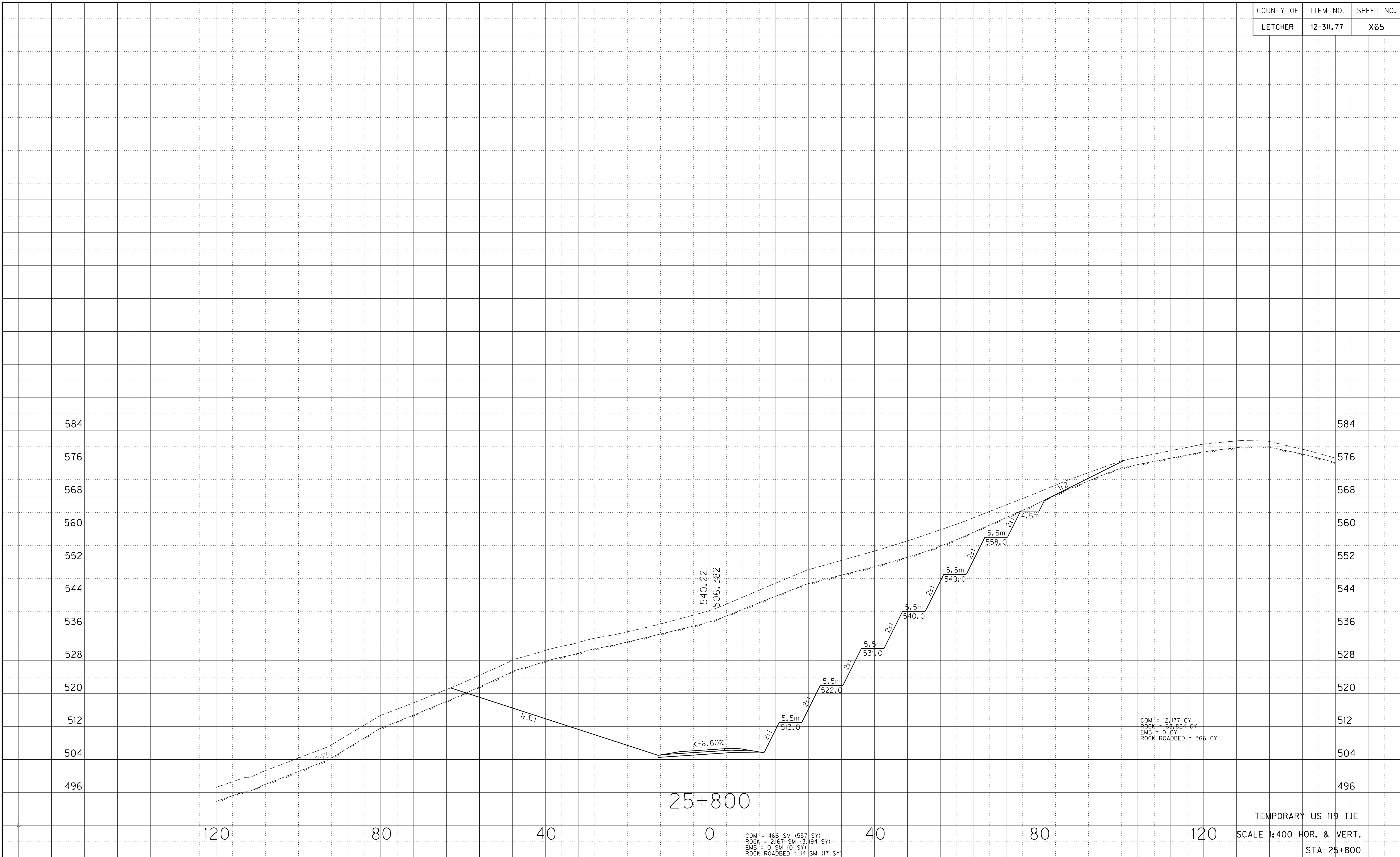
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CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X65       |





\$\$\$DONS\$

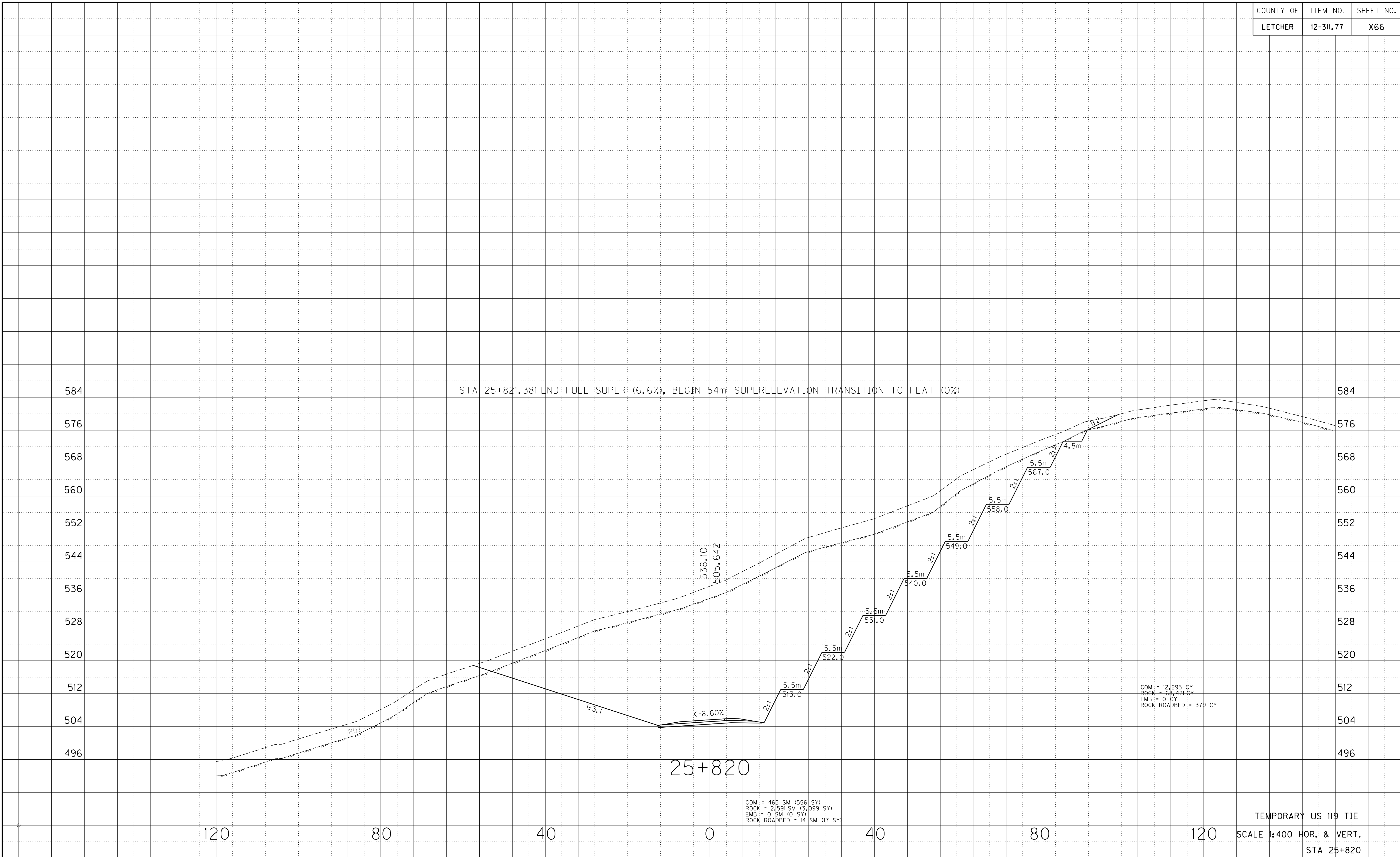
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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X66       |





\$\$\$DONS\$

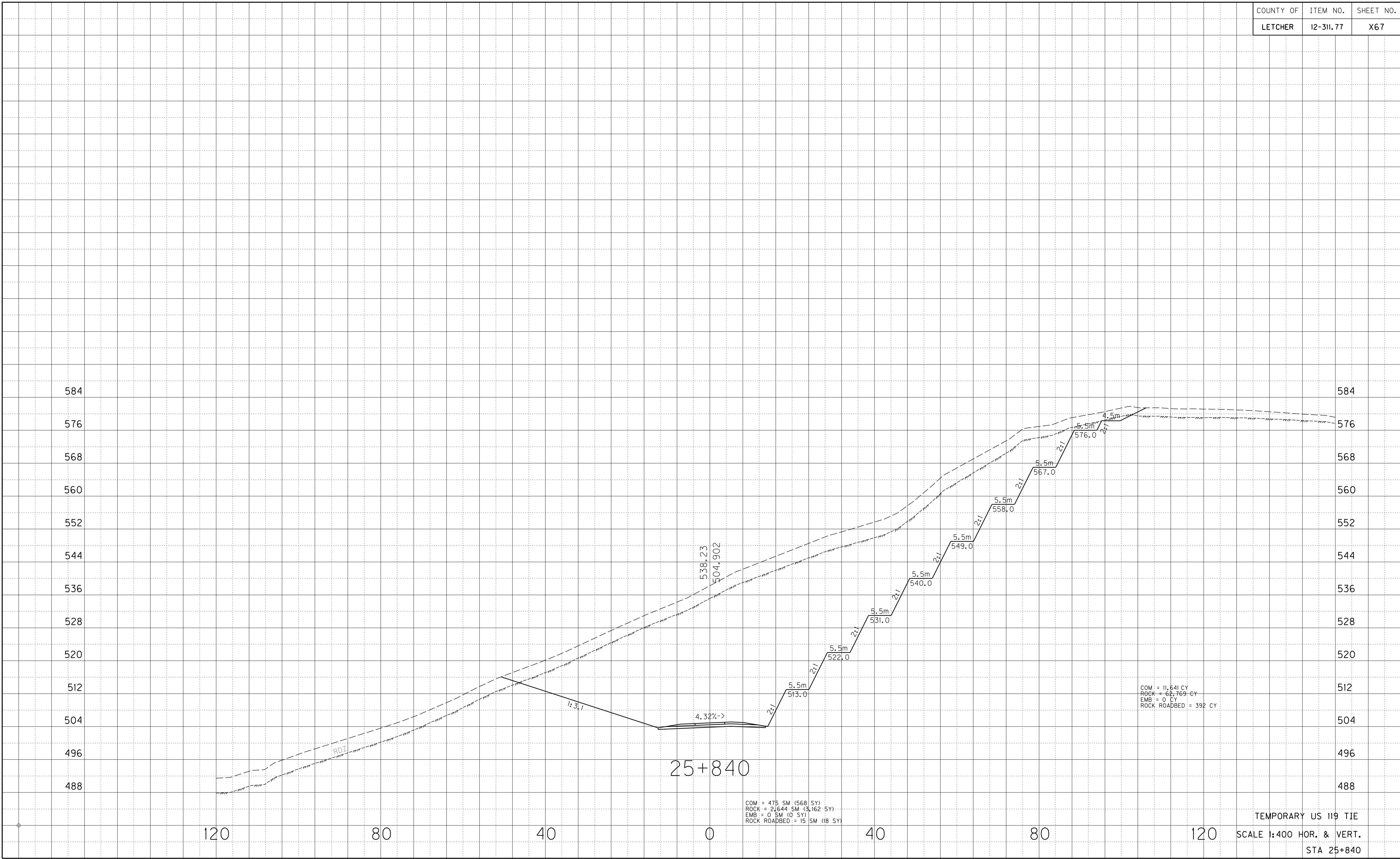
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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X67       |





\$\$\$DONS\$

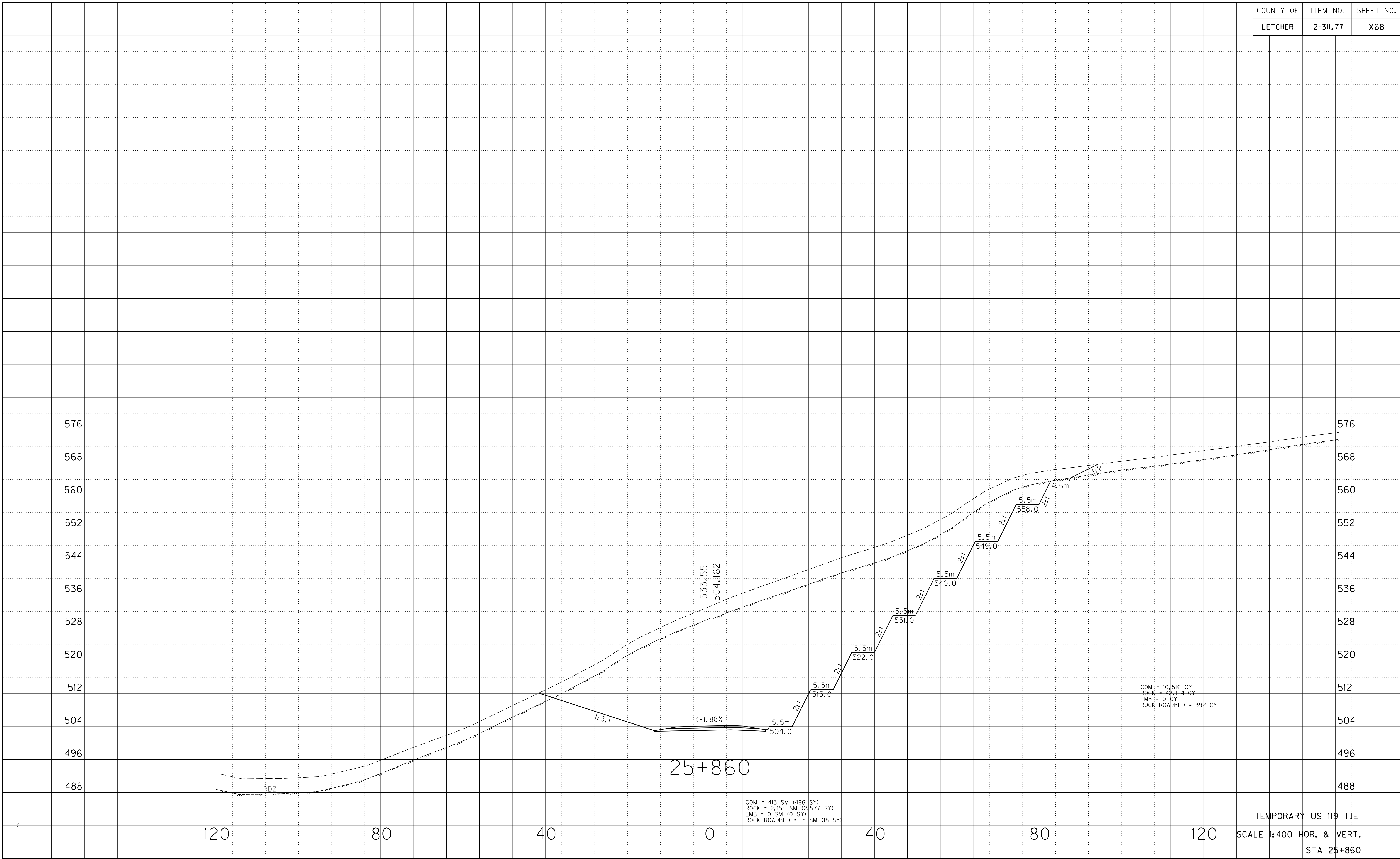
| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X68       |

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

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APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X69       |

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

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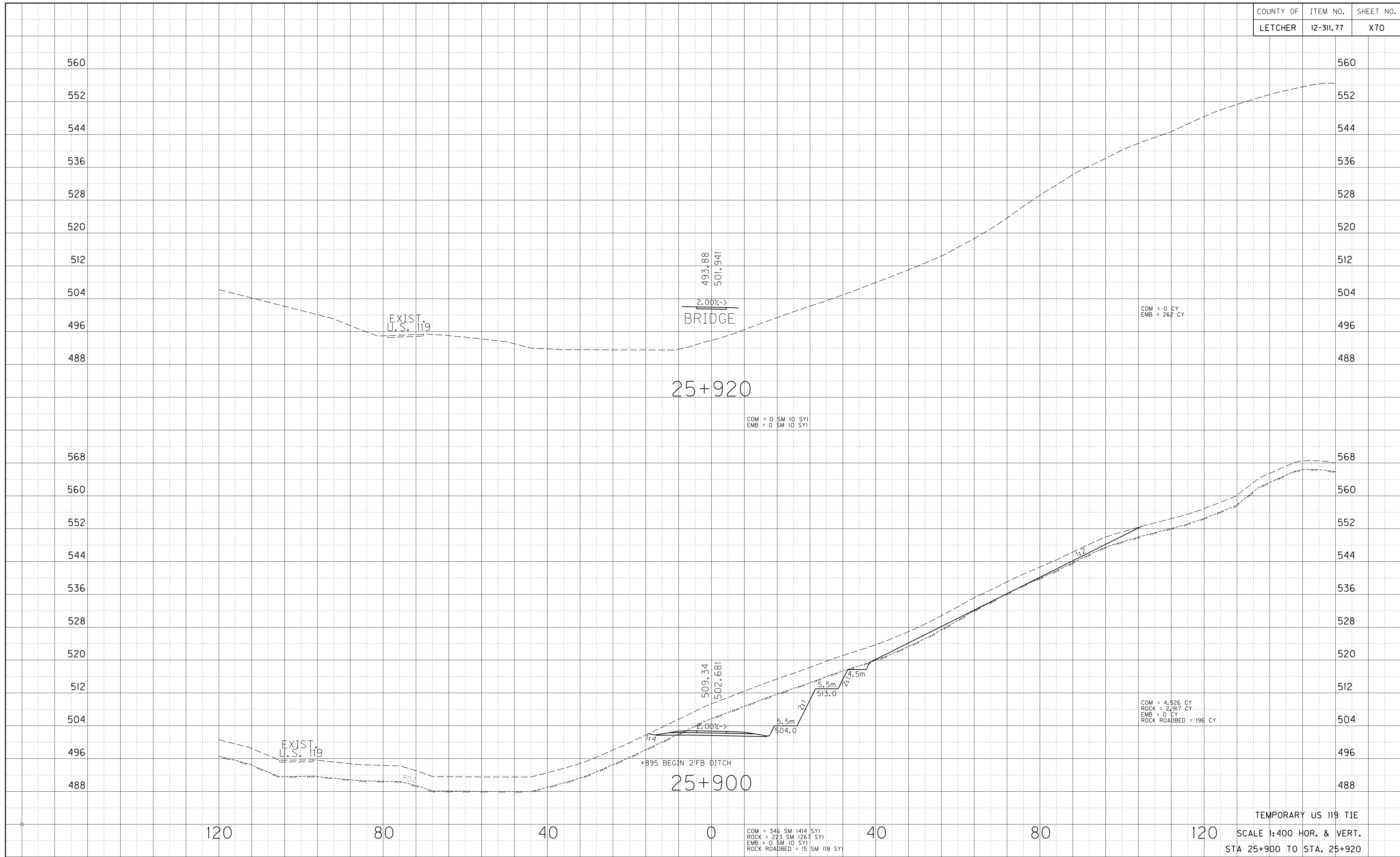
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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X70       |





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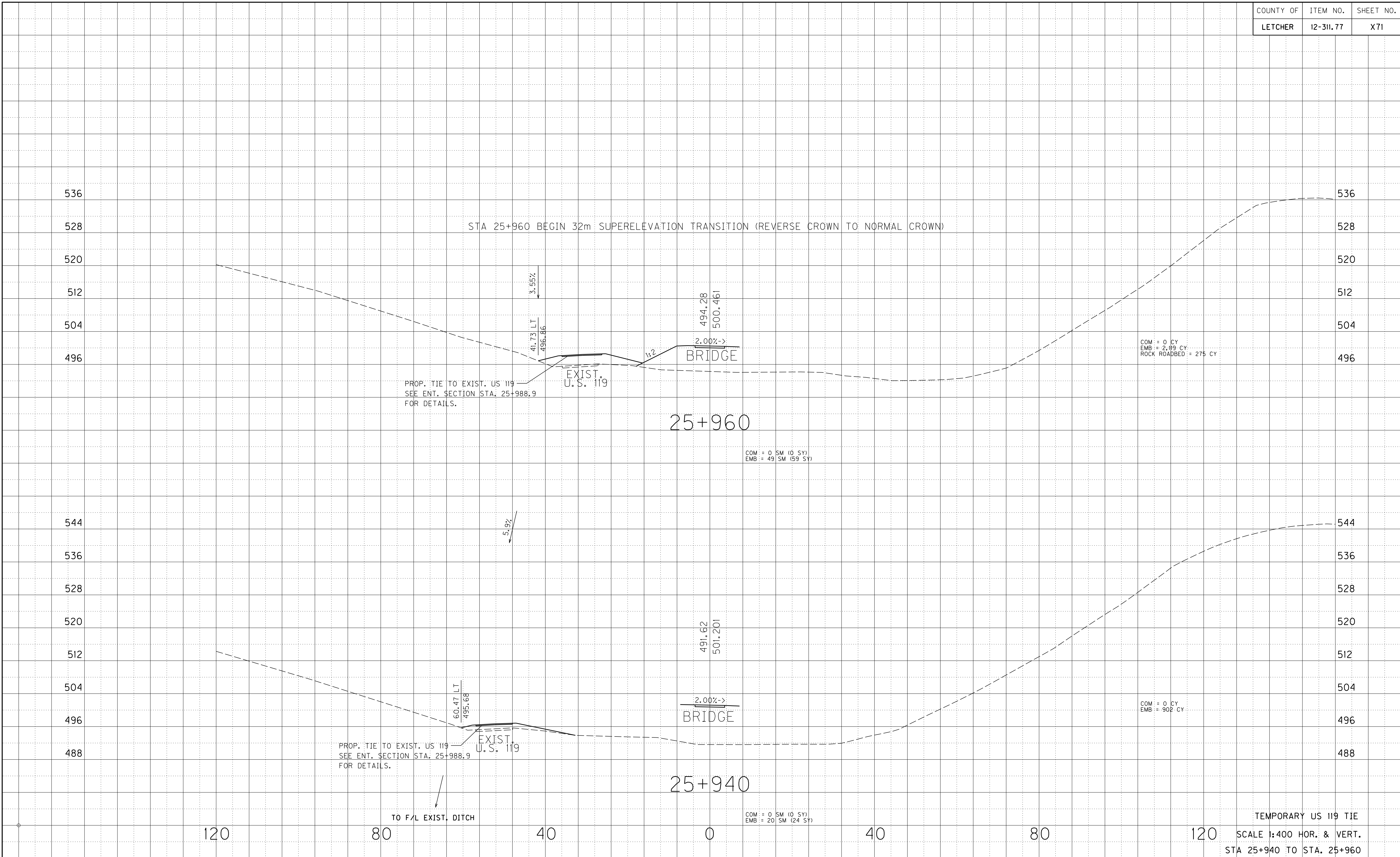
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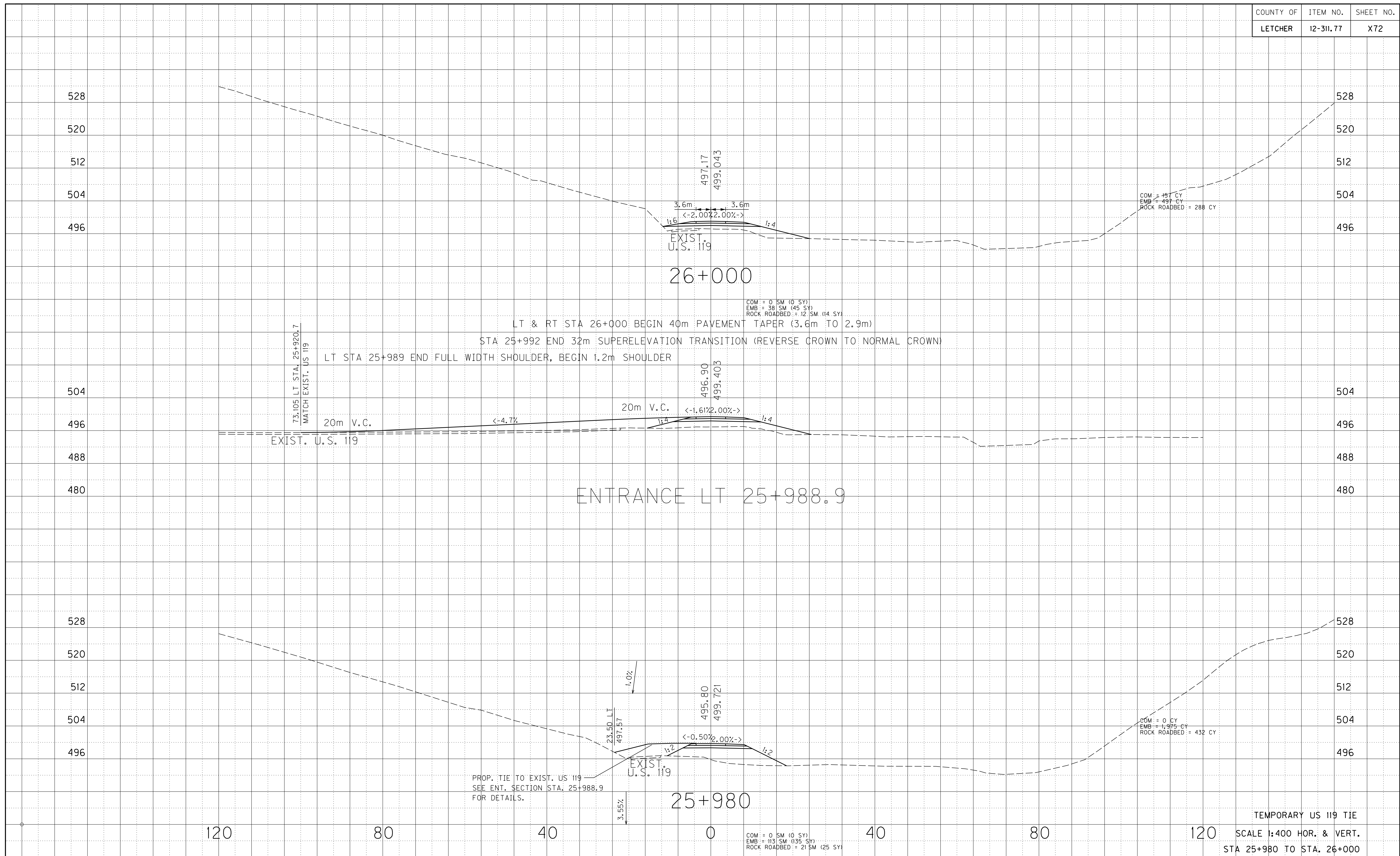
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| COUNTY OF  | ITEM NO.  | SHEET NO. |
|------------|-----------|-----------|
| LETCHESTER | 12-311.77 | X71       |





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| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X72       |

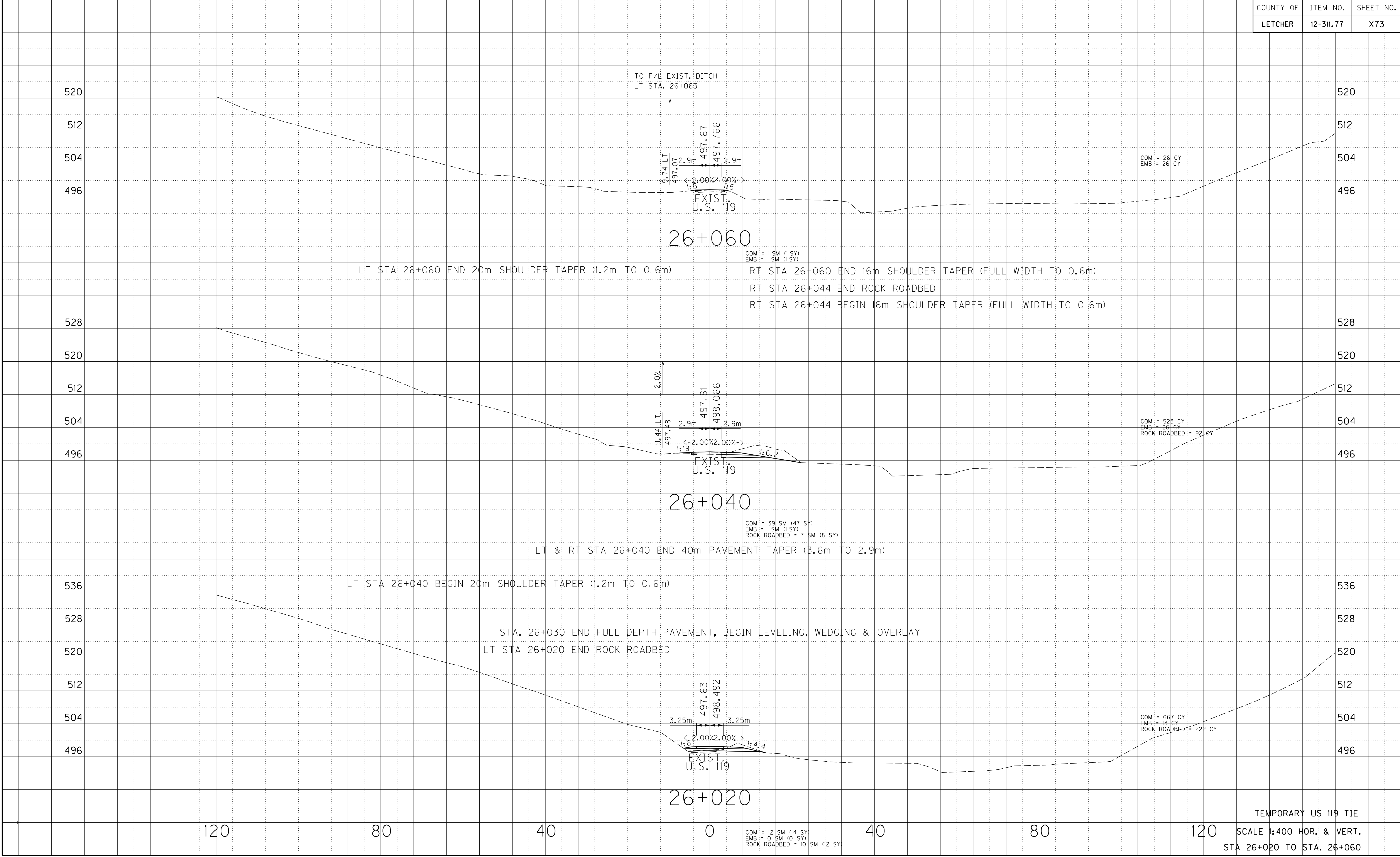




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 APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

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 \$\$\$DATE\$\$\$

| COUNTY OF | ITEM NO.  | SHEET NO. |
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| LETCHER   | 12-311.77 | X73       |





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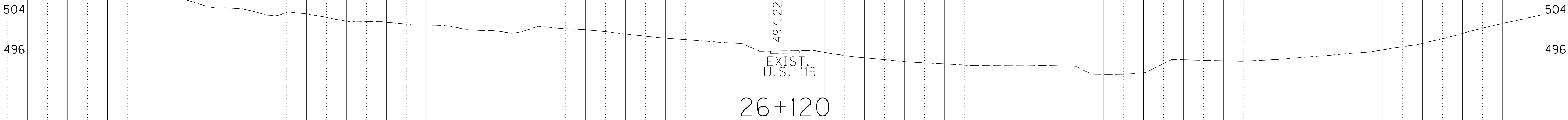
PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

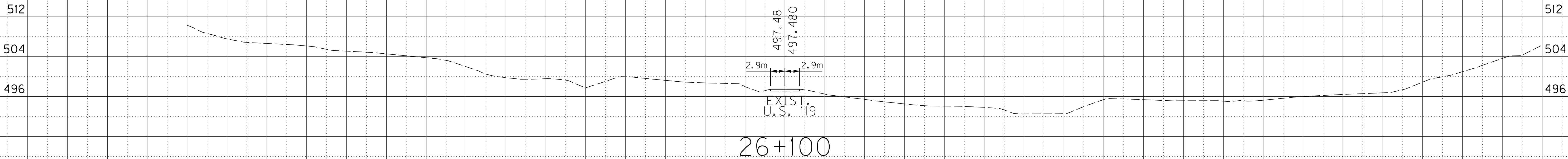
APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X74       |

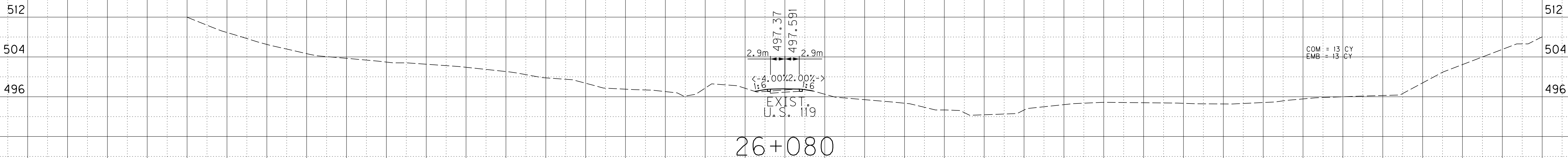
TOTAL MAINLINE & TEMPORARY US 119 TIE  
COM = 778,778 CY  
ROCK = 3,771,319  
EMB = 441,513 CY  
ROCK ROADBED = 47,391



STA 26+100 END CONSTRUCTION



COM = 0 SM (0 SY)  
EMB = 0 SM (0 SY)

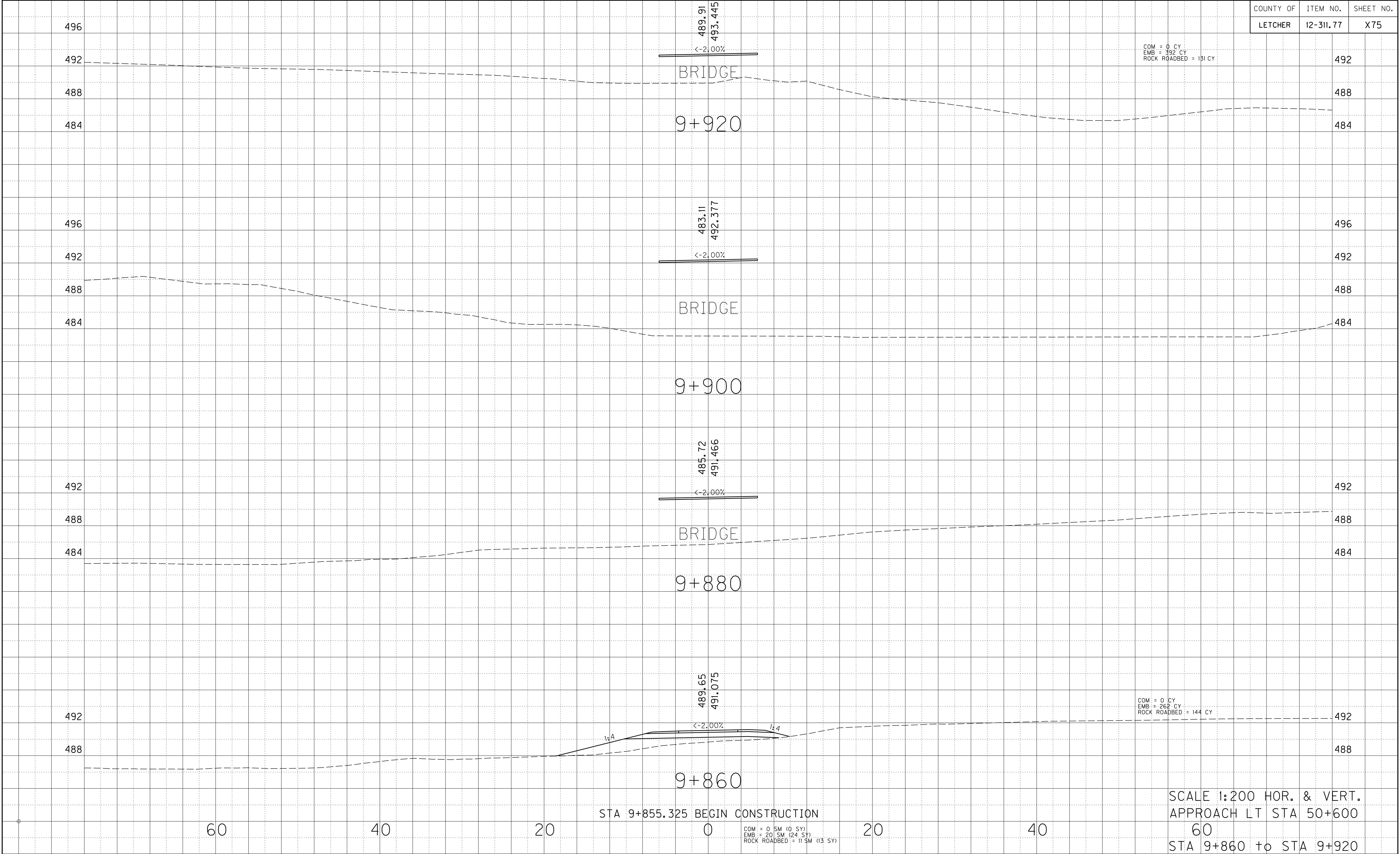


COM = 13 CY  
EMB = 13 CY

COM = 1 SM (1 SY)  
EMB = 1 SM (1 SY)

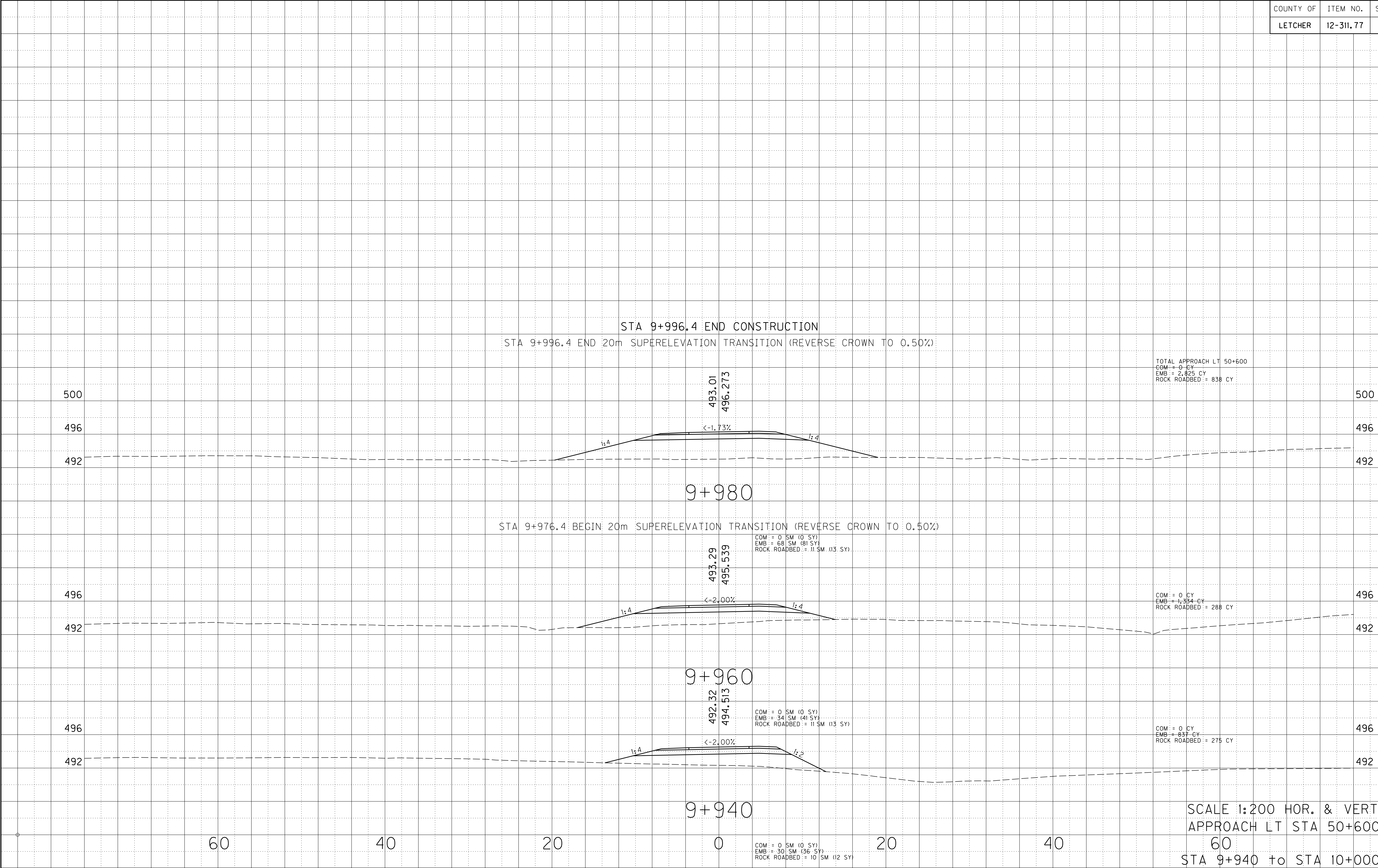
TEMPORARY US 119 TIE  
SCALE 1:400 HOR. & VERT.  
STA 26+080 TO STA. 26+120







|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X76       |





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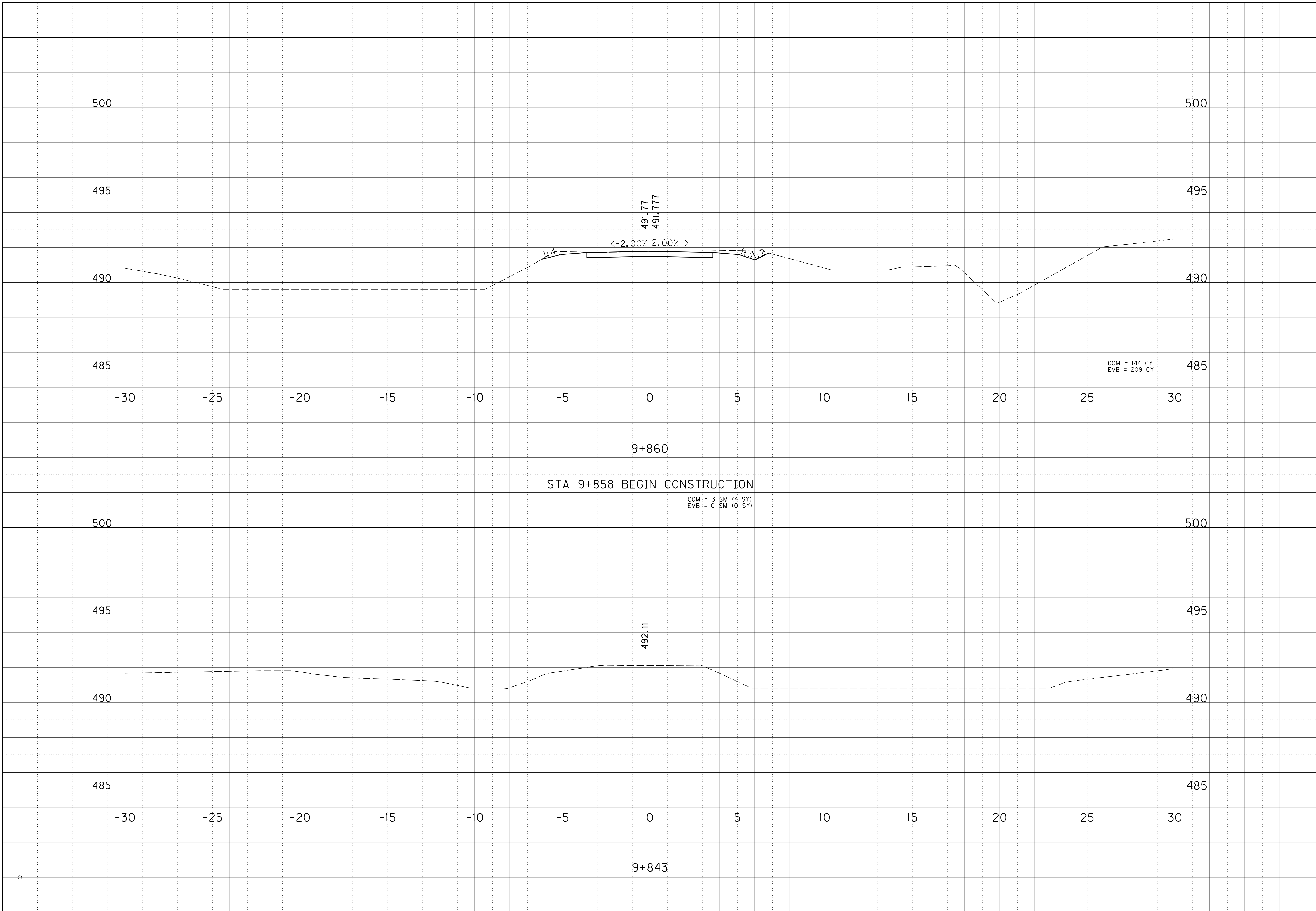
\$\$\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X77       |



SCALE 1:50 HOR. & VERT.  
ENTRANCE RT. STA 51+147.872  
STA 9+843 TO 9+860



\$\$\$DONES\$

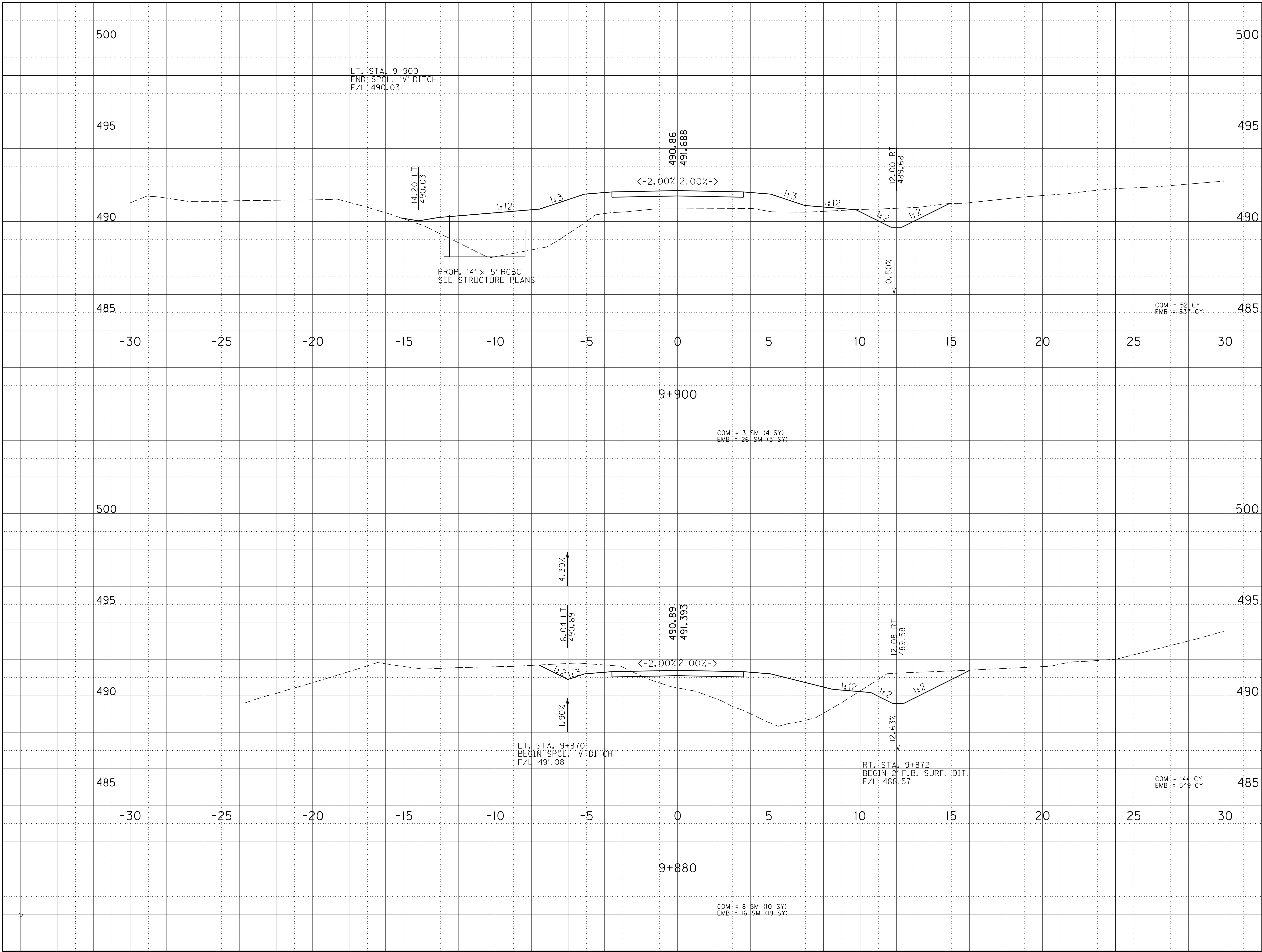
\$\$\$DATE\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X78       |



SCALE 1:50 HOR. & VERT.  
ENTRANCE RT STA 51+147.872  
STA 9+880 TO STA 9+900



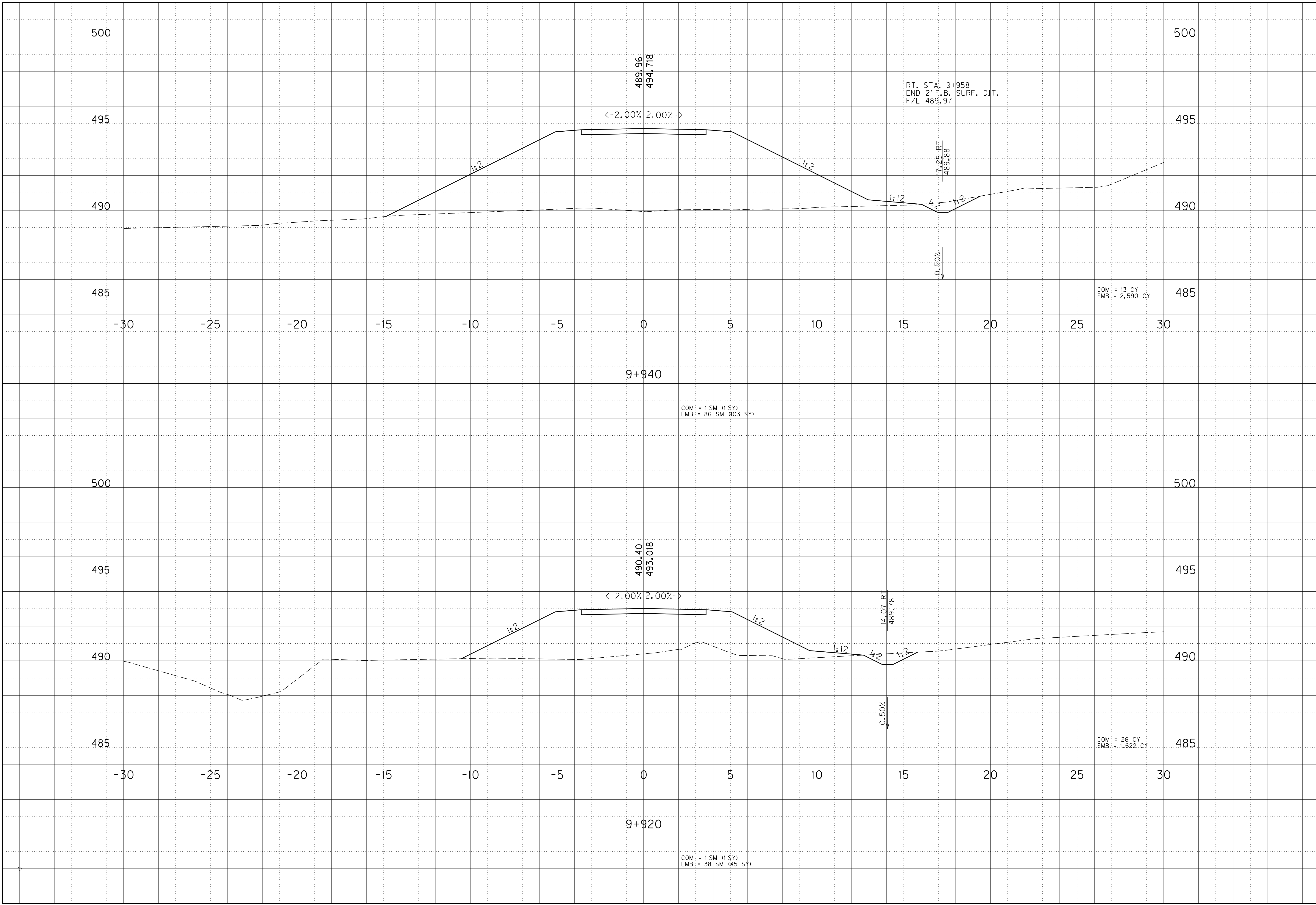
PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

\$\$\$DONES\$

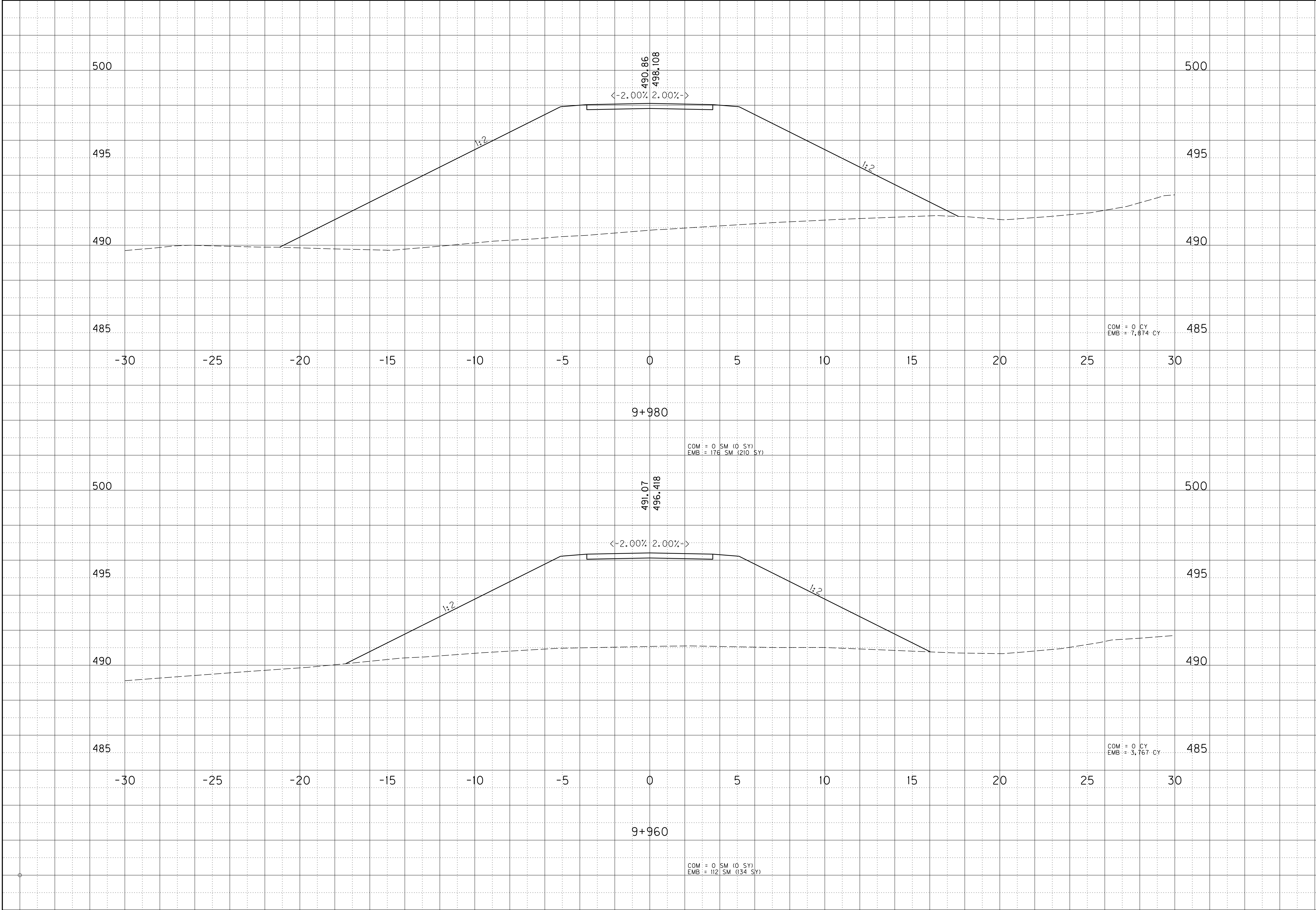
\$\$\$DATE\$\$\$



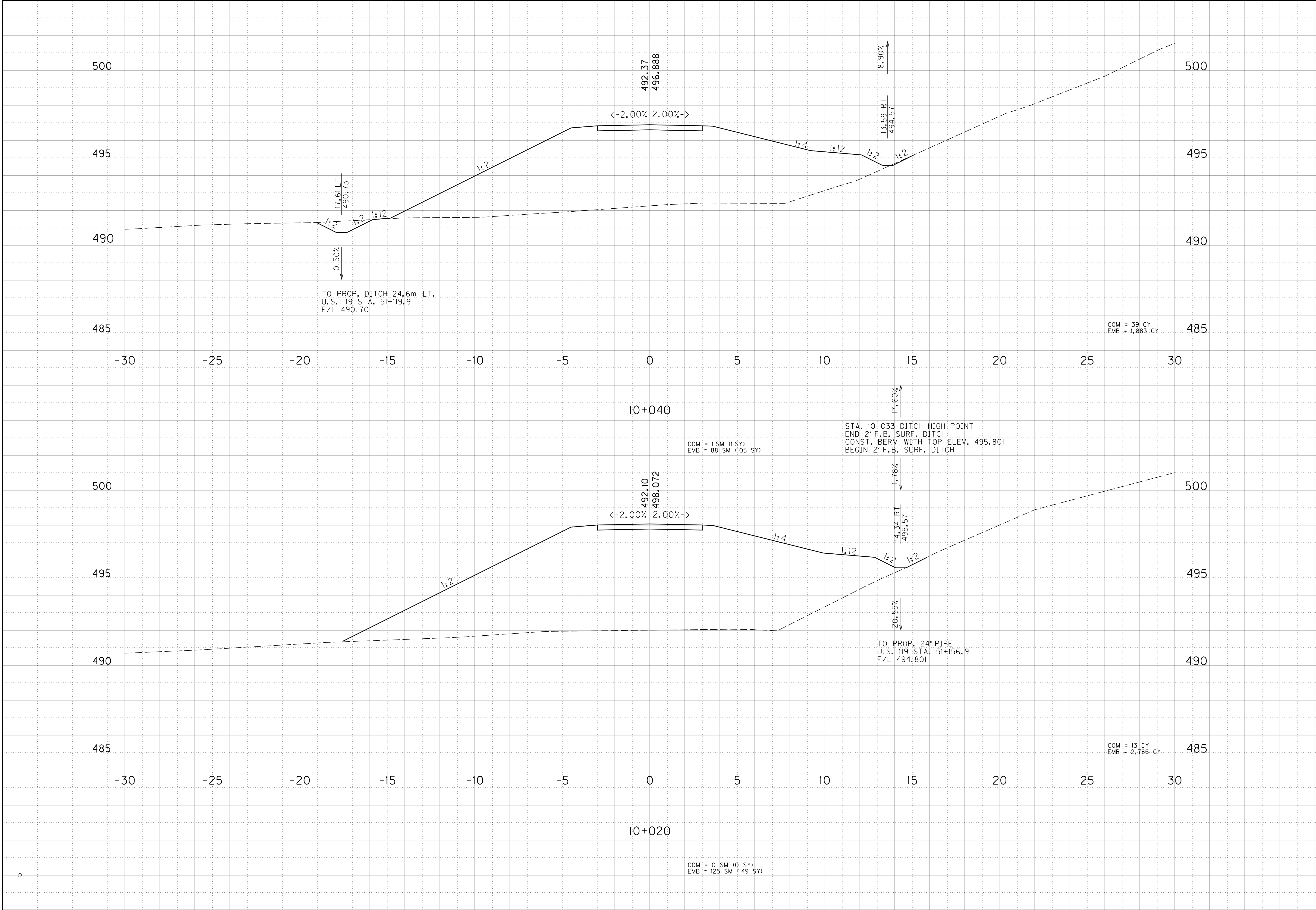
| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X79       |

SCALE 1:50 HOR. & VERT.  
ENTRANCE RT STA 51+147.872  
STA 9+920 TO STA 9+940





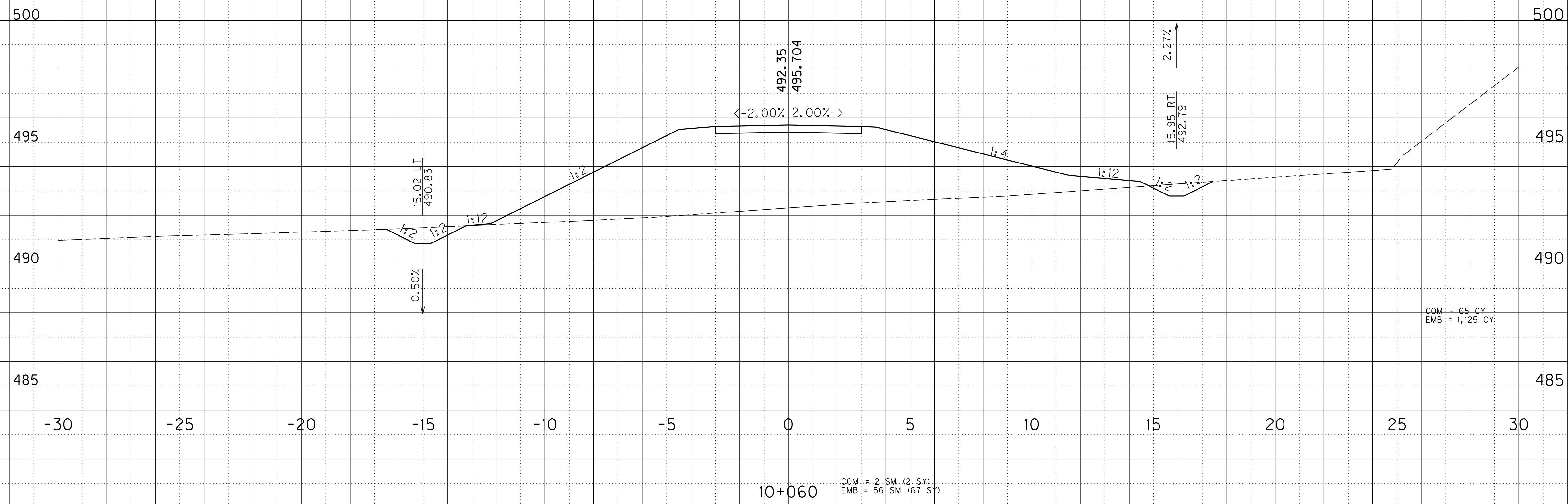






\$\$\$DATE\$\$\$

|             |                |            |       |
|-------------|----------------|------------|-------|
| SCALE       | 1:50           | HOR. &     | VERT. |
| ENTRANCE LT | STA 51+147.872 |            |       |
| STA 10+060  | TO             | STA 10+080 |       |





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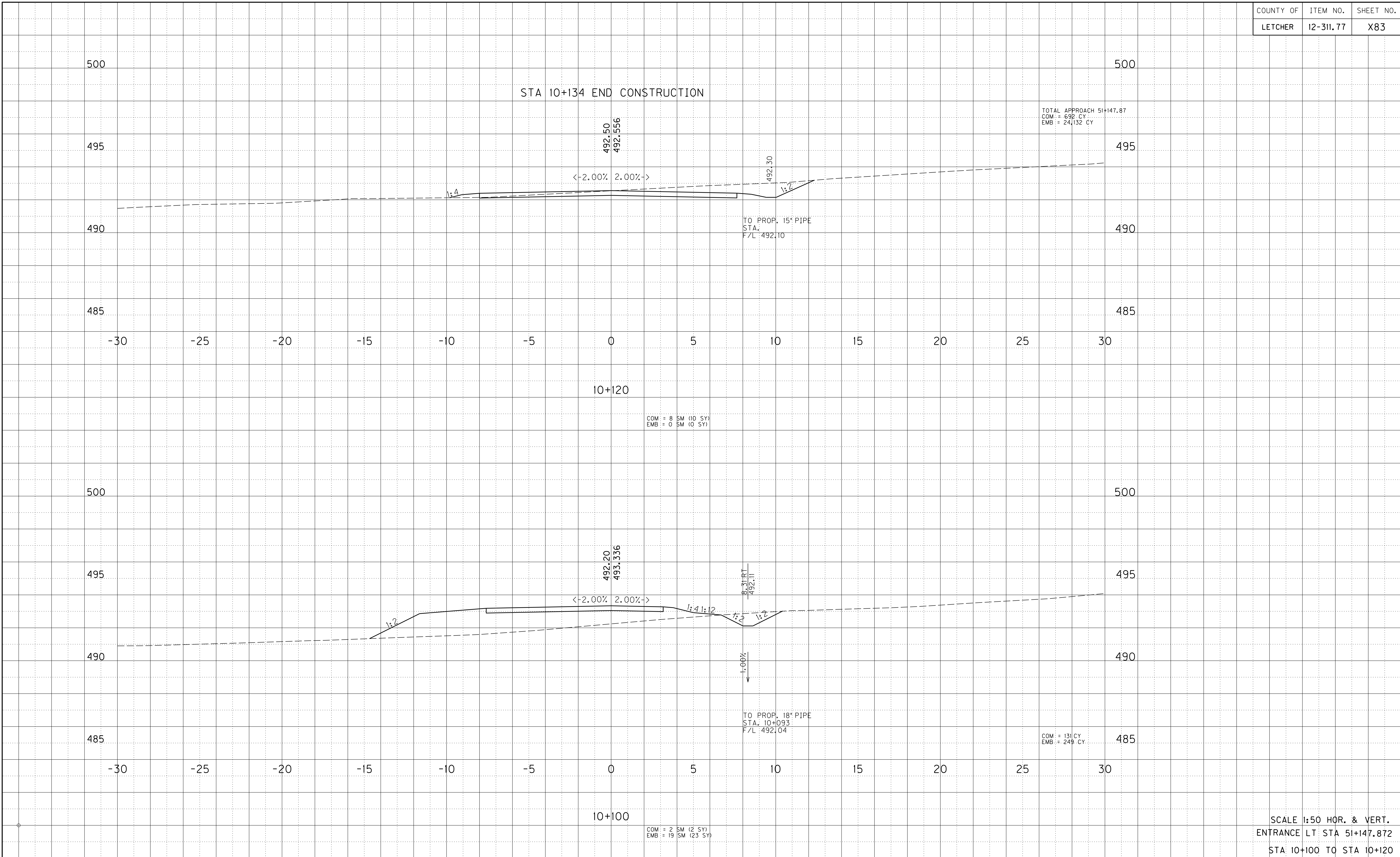
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PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X83       |





\$\$\$DONS\$

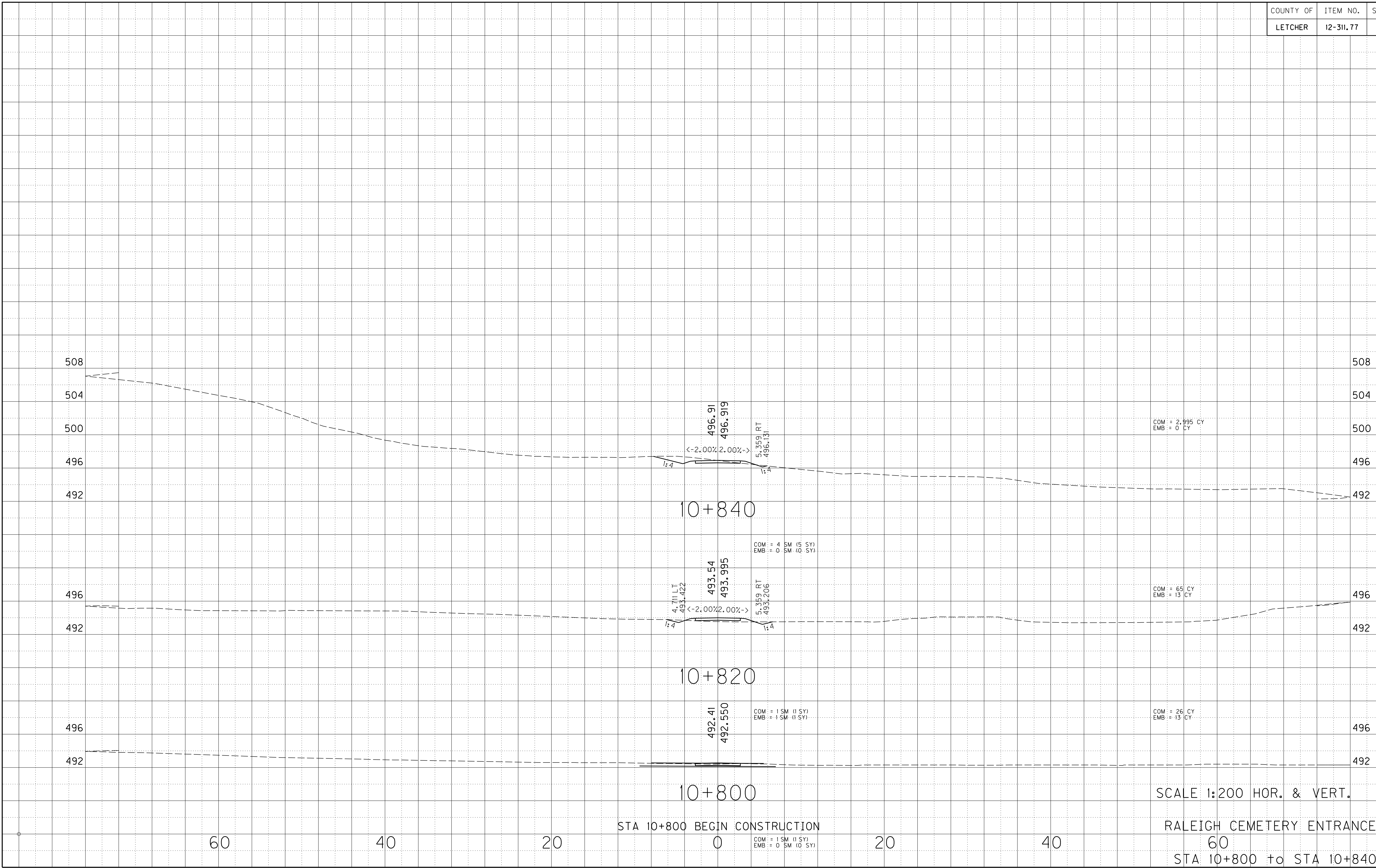
\$\$\$DATE\$

PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X84       |





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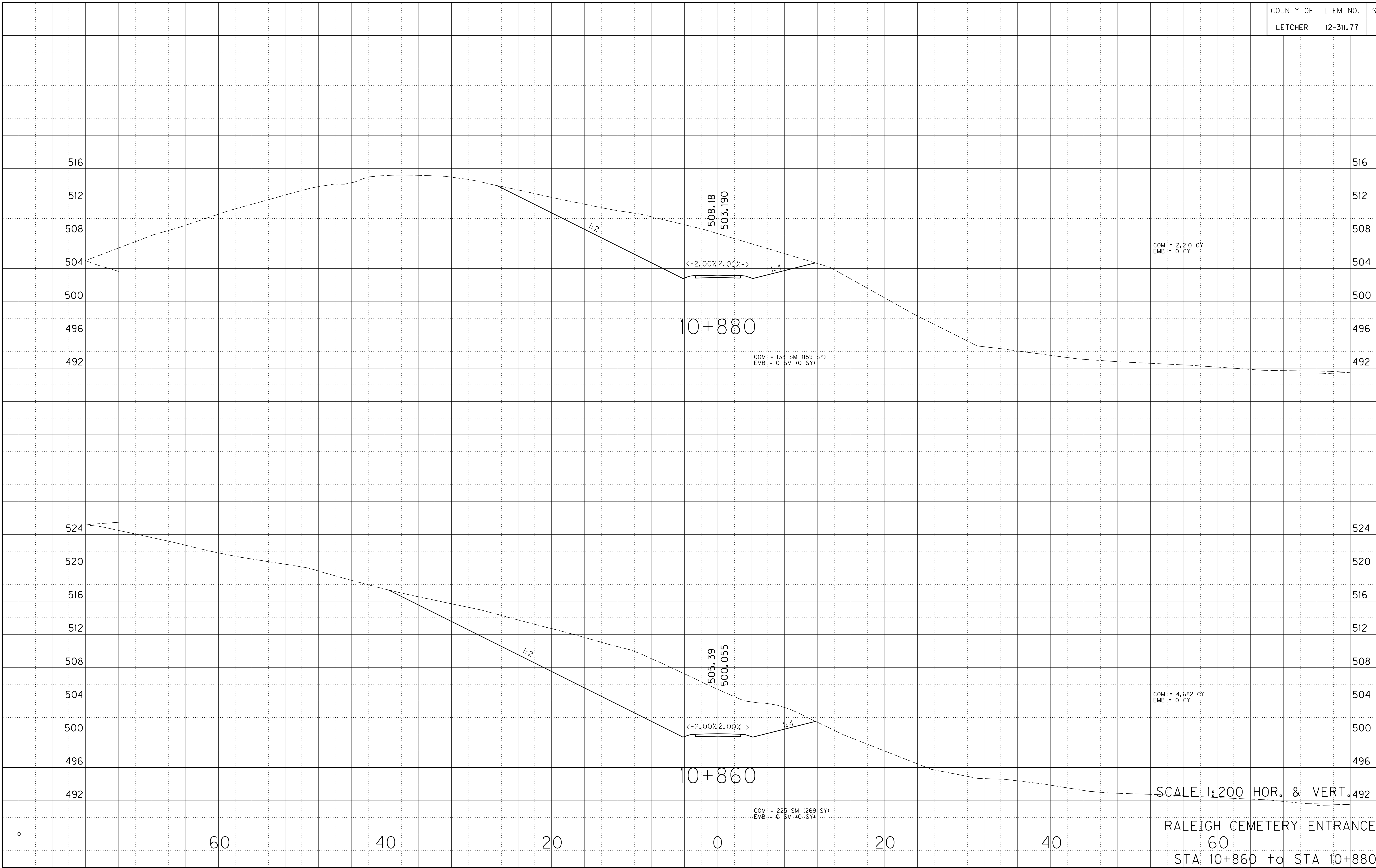
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PREPARED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

| COUNTY OF | ITEM NO.  | SHEET NO. |
|-----------|-----------|-----------|
| LETCHER   | 12-311.77 | X85       |





|           |           |           |
|-----------|-----------|-----------|
| COUNTY OF | ITEM NO.  | SHEET NO. |
| LETCHER   | 12-311.77 | X86       |

TOTAL PROJECT  
COM = 790,167 CY  
ROCK = 31,771,319 CY  
EMB = 468,496 CY  
EMB BENCH = 4,055 CY  
ROCK ROADBED = 48,229 CY

TOTAL RALEIGH CEMETERY ROAD  
COM = 10,697 CY  
EMB = 26 CY

STA 10+921.855 END CONSTRUCTION

507.99  
507.761

10+920

COM = 19 SM (23 SY)  
EMB = 0 SM (0 SY)

LT STA. 10+912 END 1:5 PAVEMENT TAPER (2.7m TO 7.2m)

507.70  
506.183

10+900

COM = 36 SM (43 SY)  
EMB = 0 SM (0 SY)

LT STA. 10+889.5 BEGIN 1:5 PAVEMENT TAPER (2.7m TO 7.2m)

COM = 719 CY  
EMB = 0 CY

SCALE 1:200 HOR. & VERT.

RALEIGH CEMETERY ENTRANCE

STA 10+900 to STA 10+920