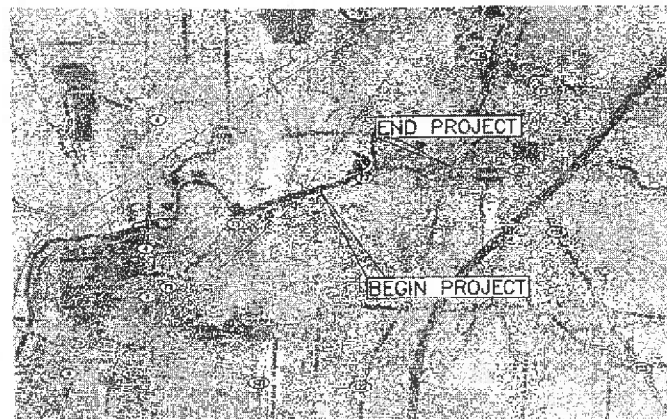


# STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUT/WAR GMR TRAIL EXTENSION CITY OF MIDDLETOWN BUTLER COUNTY, OHIO CITY OF FRANKLIN WARREN COUNTY, OHIO



LOCATION MAP

LATITUDE 39°32'56.36" LONGITUDE: -084°19'50.31"



**PROJECT DESCRIPTION:**  
CONSTRUCTION OF A 10' WIDE MULTI-USE TRAIL TO EXTEND THE EXISTING GREAT MIAMI RIVER SCENIC TRAIL. PROJECT INCLUDES CONSTRUCTION OF A RETAINING WALL FOR APPROXIMATELY 400 FEET, INSTALLATION OF GUARDRAIL, AND THE EXTENSION OF STORM SEWER.

**EARTH DISTURBED AREAS:**  
PROJECT EARTH DISTURBED AREA: 8.34 ACRES  
ESTIMATING CONTRACTOR EDA: 1.75 ACRES  
NOTICE OF INTENT EDA: 10.09 ACRES

**2019 SPECIFICATIONS:**  
THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISION FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

**INDEX OF SHEETS**

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ENGINEER'S SEAL  
WALL EXHIBIT, NOTE  
DETAILS AND SCHEDULE



SIGNED: *David Westendorf*  
DATE: 1/21/2020

ENGINEER'S SEAL  
PROJECT



SIGNED: *Timothy G. Brandstetter*  
DATE: 1/21/2020

APPROVED *Tammy K. Campbell*  
DATE: 1/28/2020 DISTRICT, DEPUTY DIRECTOR

APPROVED \_\_\_\_\_  
DATE: \_\_\_\_\_ DIRECTOR, DEPARTMENT OF TRANSPORTATION



PLAN PREPARED BY:  
BRANDSTETTER CARROLL, INC.  
308 EAST EIGHTH STREET  
CINCINNATI, OHIO 45202  
BCI JOB # 09078

| STANDARD CONSTRUCTION DRAWINGS |          |        |          |           |          |         |          | SUPPLEMENTAL SPECIFICATIONS | SPECIAL PROVISIONS       |
|--------------------------------|----------|--------|----------|-----------|----------|---------|----------|-----------------------------|--------------------------|
| ODOT                           |          |        |          |           |          |         |          | 800 01-17-20                | WATERWAY PERMIT 11/19/19 |
| CB-1.2                         | 01-15-16 | RM-5.2 | 01-17-14 | TC-41.20  | 10-18-13 | MGS-1.1 | 01-19-18 | 821 04-20-12                |                          |
| CB-4.2                         | 01-18-13 |        |          | TC-42.20  | 10-18-13 | MGS-2.1 | 01-19-18 | 866 04-21-17                |                          |
| HW-2.1                         | 07-21-17 | BP-7.1 | 07-20-18 | TC-52.10  | 10-18-13 | MGS-4.2 | 07-19-13 | 902 07-19-19                |                          |
| HW-2.2                         | 07-21-17 |        |          | TC-61.30  | 7-19-19  | MGS-5.3 | 07-15-16 | 921 04-20-12                |                          |
| MH-1.2                         | 01-15-16 | DM-1.1 | 07-21-17 |           |          |         |          |                             |                          |
|                                |          | DM-4.2 | 07-20-12 | MT-95.30  | 07-19-19 |         |          |                             |                          |
|                                |          | DM-4.3 | 01-15-16 | MT-95.45  | 4-19-19  |         |          |                             |                          |
|                                |          | DM-4.4 | 01-15-16 | MT-101.90 | 07-21-17 |         |          |                             |                          |
|                                |          |        |          | MT-103.10 | 01-19-18 |         |          |                             |                          |
|                                |          |        |          | MT-105.10 | 07-19-13 |         |          |                             |                          |

FEDERAL PROJECT NO.  
E160305

P.D. NO.  
100188

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT

NONE

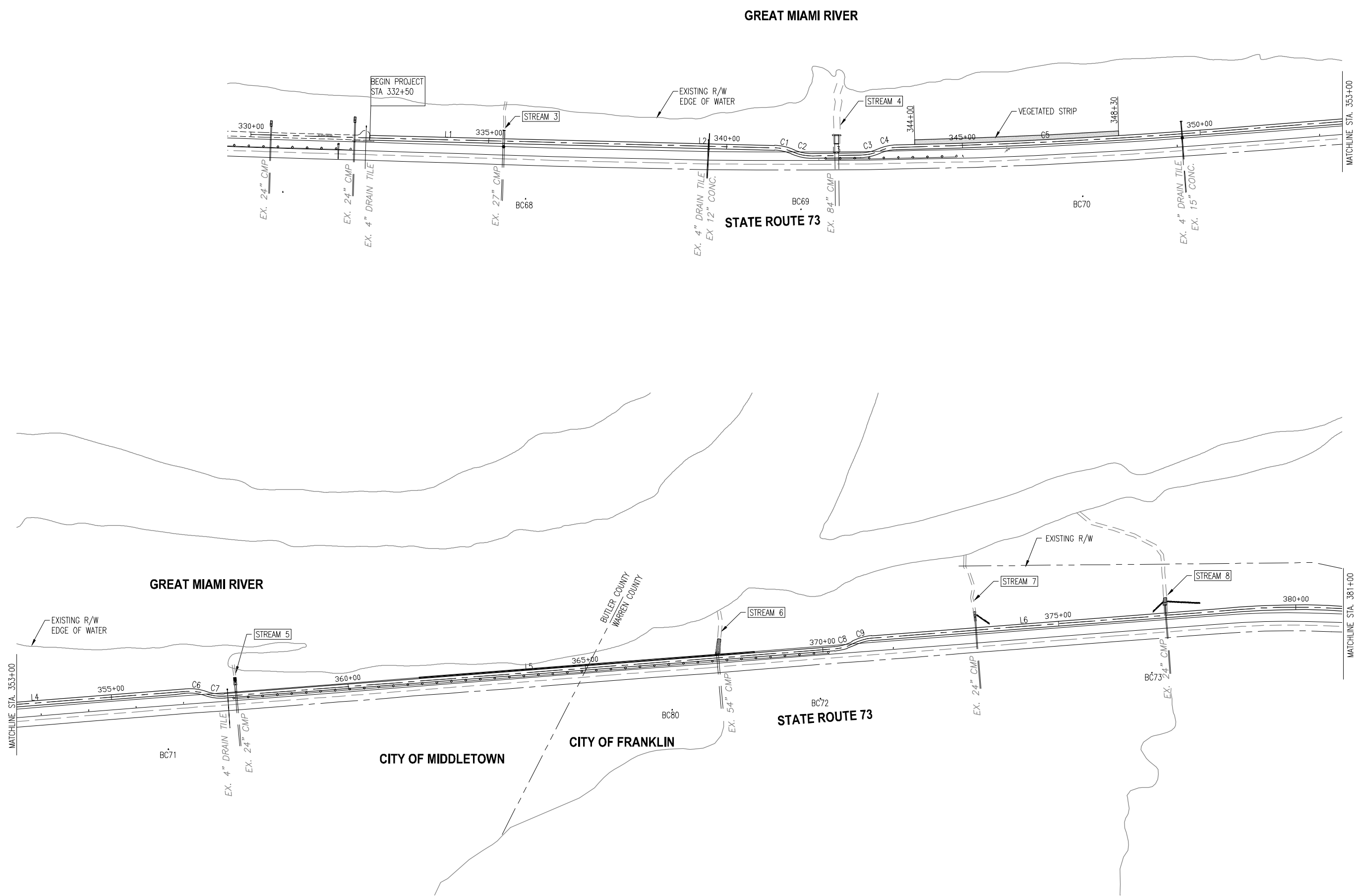
BUTWAR GMR TRAIL EXTENSION



CALCULATED  
LG  
CHECKED  
TCB

**SCHEMATIC PLAN**

**BUT/WAR GMR TRAIL EXTENSION**





CALCULATED LG CHECKED TCB

**SCHEMATIC PLAN**

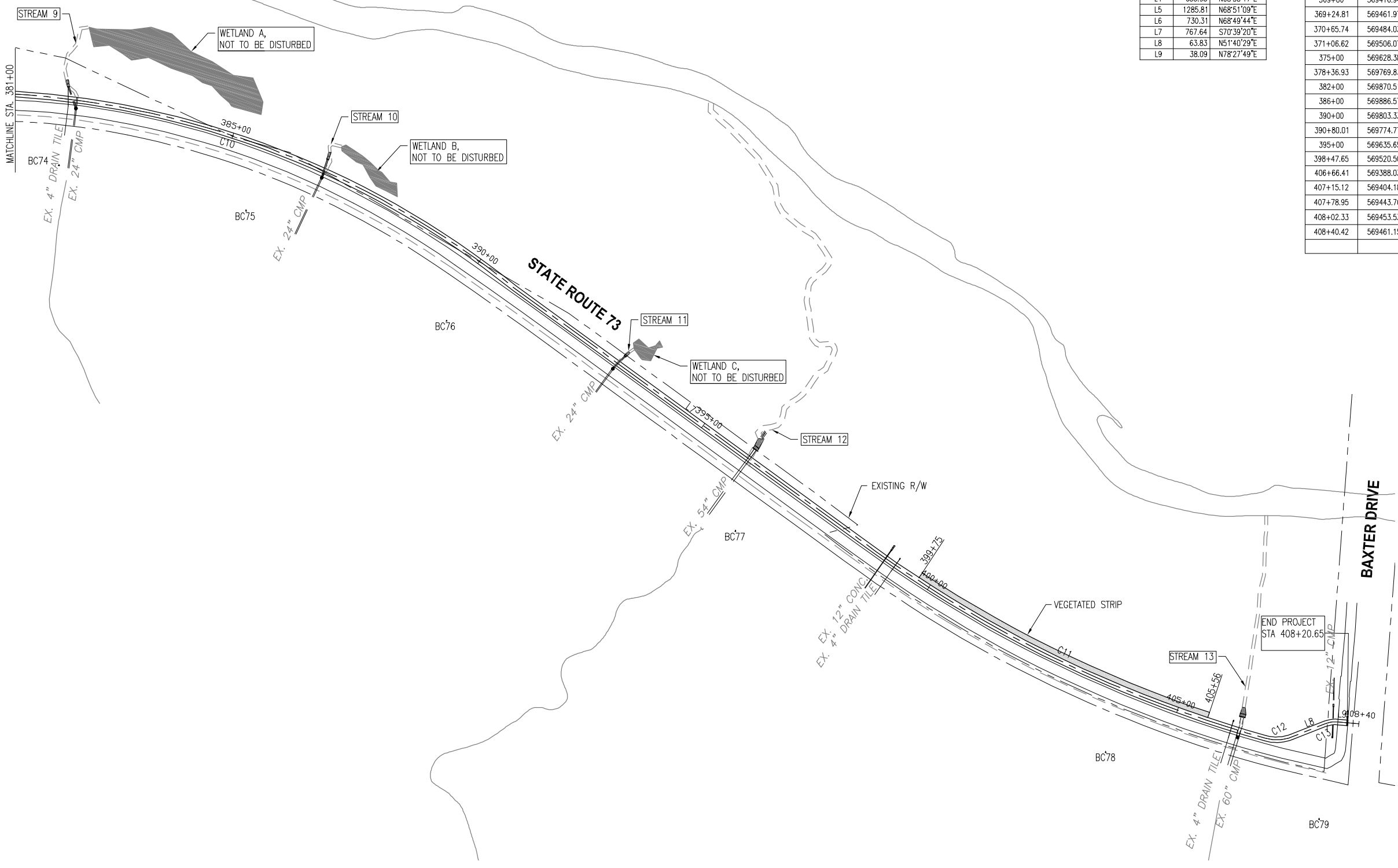
**BUT/WAR GMR TRAIL EXTENSION**

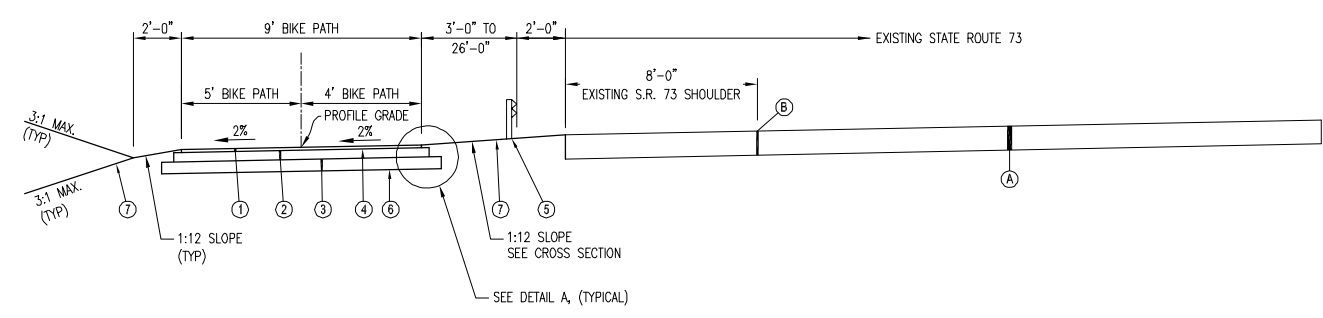
| CONTROL POINT | STATION/OFFSET     | NORTHING    | EASTING      | ELEVATION |
|---------------|--------------------|-------------|--------------|-----------|
| BC66          | 327+23.51, 119.15' | 567982.7442 | 1448449.2381 | 669.80    |
| BC67          | 330+70.71, 118.92' | 568072.8319 | 1448784.6730 | 670.39    |
| BC68          | 335+80.86, 118.31' | 568205.8651 | 1449277.1805 | 671.39    |
| BC69          | 341+70.92, 113.31' | 568351.2791 | 1449837.5109 | 669.93    |
| BC70          | 347+46.55, 117.99' | 568547.6589 | 1450396.6717 | 670.17    |
| BC71          | 356+10.76, 118.43' | 568857.2203 | 1451206.4208 | 671.09    |
| BC72          | 369+87.03, 101.82' | 569353.3789 | 1452487.7600 | 672.56    |
| BC73          | 376+87.75, 117.68' | 569606.2165 | 1453138.8987 | 675.00    |
| BC74          | 381+93.89, 120.28' | 569750.7124 | 1453597.9850 | 671.56    |
| BC75          | 385+69.70, 119.92' | 569769.1988 | 1453944.0977 | 670.03    |
| BC76          | 390+16.69, 121.35' | 569683.3866 | 1454346.7603 | 671.53    |
| BC77          | 396+58.68, 119.26' | 569470.5703 | 1454953.6419 | 673.86    |
| BC78          | 404+08.88, 117.12' | 569281.2393 | 1455706.4181 | 677.23    |
| BC79          | 407+20.17, 146.16' | 569276.4251 | 1456108.9822 | 677.04    |
| BC80          | 366+74.71, 101.18' | 569241.3071 | 1452196.2457 | 672.27    |

| CURVE TABLE |           |             |              |             |          |         |         |
|-------------|-----------|-------------|--------------|-------------|----------|---------|---------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS   | LENGTH  | TANGENT |
| C1          | 341+20.47 | 568362.6474 | 1449774.4500 | 22°90'17"   | 100.00   | 39.37   | 20.26   |
| C2          | 341+62.45 | 568561.1159 | 1449799.1533 | 24°81'22"   | 100.00   | 43.31   | 22.00   |
| C3          | 343+03.58 | 568591.5476 | 1449894.4103 | 22°42'54"   | 100.00   | 39.14   | 19.82   |
| C4          | 343+42.46 | 568438.6589 | 1450023.3485 | 22°13'46"   | 100.00   | 38.63   | 19.56   |
| C5          | 346+91.91 | 579945.9279 | 1446282.6587 | 3°15'41"    | 12000.00 | 660.60  | 330.38  |
| C6          | 356+78.58 | 568891.4861 | 1451243.8808 | 23°19'62"   | 100.00   | 40.49   | 20.52   |
| C7          | 357+19.05 | 569091.3600 | 1451250.9801 | 23°18'18"   | 100.00   | 40.46   | 20.51   |
| C8          | 370+45.56 | 569555.2420 | 1452450.1912 | 23°44'90"   | 100.00   | 40.93   | 20.75   |
| C9          | 370+86.47 | 569412.8286 | 1452590.6134 | 23°42'55"   | 100.00   | 40.89   | 20.73   |
| C10         | 384+92.22 | 568302.9010 | 1453847.3281 | 44°81'13"   | 1589.40  | 1243.08 | 655.29  |
| C11         | 402+61.66 | 571626.1229 | 1455931.2605 | 20°95'66"   | 2238.52  | 818.76  | 414.01  |
| C12         | 406+91.66 | 569463.0161 | 1455973.3456 | 37°21'08"   | 75.00    | 48.71   | 25.25   |
| C13         | 407+90.86 | 569404.5371 | 1456100.9376 | 26°78'91"   | 50.00    | 23.38   | 11.91   |

| LINE TABLE |         |             |
|------------|---------|-------------|
| LINE       | LENGTH  | BEARING     |
| L2         | 1100.48 | N7°44'43"E  |
| L3         | 100.00  | N72°16'58"E |
| L4         | 635.93  | N68°50'17"E |
| L5         | 1285.81 | N68°51'09"E |
| L6         | 730.31  | N68°49'44"E |
| L7         | 767.64  | S70°39'20"E |
| L8         | 63.83   | N51°40'29"E |
| L9         | 38.09   | N78°27'49"E |

| STATION   | NORTHING    | EASTING      | DESCRIPTION | RADIUS   |
|-----------|-------------|--------------|-------------|----------|
| 332+50    | 568234.4640 | 1448926.8819 | BEGIN       |          |
| 334+00    | 568273.1631 | 1449071.8041 | TANGENT     |          |
| 338+00    | 568377.0162 | 1449458.0871 | TANGENT     |          |
| 341+00.49 | 568458.8660 | 1449747.2109 | PC          | 100'     |
| 341+40.46 | 568461.8816 | 1449786.8016 | PRC         | 100'     |
| 341+83.76 | 568465.8588 | 1449829.5850 | PT          |          |
| 342+83.76 | 568496.2905 | 1449924.8421 | PC          | 100'     |
| 343+22.90 | 568515.1033 | 1449958.8794 | PRC         | 100'     |
| 343+61.53 | 568533.7603 | 1449992.4337 | PRC         | 1200'    |
| 350+22.13 | 568765.1670 | 1450614.7333 | PT          |          |
| 353+00    | 568855.7138 | 1450873.7786 | TANGENT     |          |
| 356+58.06 | 568984.7424 | 1451207.7801 | PC          | 100'     |
| 356+98.54 | 568991.4228 | 1451247.4373 | PRC         | 100'     |
| 357+39.00 | 568998.0946 | 1451287.0573 | PT          |          |
| 361+00    | 569128.5647 | 1451623.6510 | TANGENT     |          |
| 365+00    | 569272.6403 | 1451996.8028 | TANGENT     |          |
| 369+00    | 569416.9490 | 1452369.8645 | TANGENT     |          |
| 369+24.81 | 569461.9766 | 1452486.2683 | PC          | 100'     |
| 370+65.74 | 569484.0353 | 1452520.4023 | PRC         | 100'     |
| 371+06.62 | 569506.0792 | 1452554.4980 | PT          |          |
| 375+00    | 569628.3828 | 1452921.2362 | TANGENT     |          |
| 378+36.93 | 569769.8339 | 1453235.5173 | PC          | 1589.40' |
| 382+00    | 569870.5180 | 1453583.5545 | TANGENT     |          |
| 386+00    | 569886.5715 | 1453982.2081 | TANGENT     |          |
| 390+00    | 569803.3322 | 1454372.4050 | TANGENT     |          |
| 390+80.01 | 569774.7783 | 1454447.1462 | PT          |          |
| 395+00    | 569635.6594 | 1454843.4241 | TANGENT     |          |
| 398+47.65 | 569520.5025 | 1455171.4464 | PC          | 2238.52' |
| 406+66.41 | 569388.0300 | 1455974.8000 | PCC         | 75'      |
| 407+15.12 | 569404.1800 | 1456019.8600 | PT          |          |
| 407+78.95 | 569443.7600 | 1456069.9300 | PC          | 50'      |
| 408+02.33 | 569453.5300 | 1456090.9400 | PT          |          |
| 408+40.42 | 569461.1500 | 1456128.2600 | END         |          |

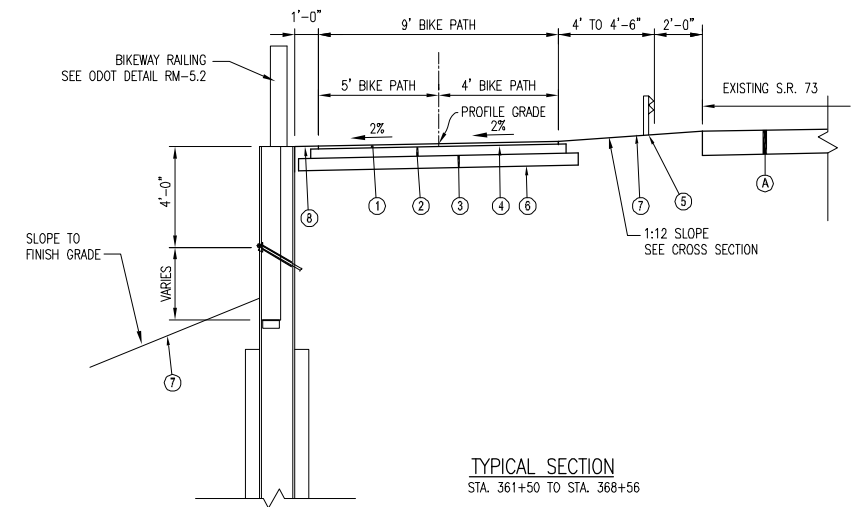




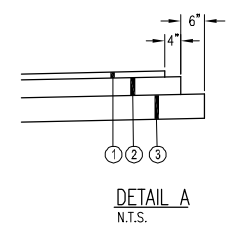
**TYPICAL SECTION**

STA. 341+83.00 TO STA. 344+47.00  
 STA. 356+70.00 TO STA. 361+50.00  
 STA. 368+56.00 TO STA. 371+20.00

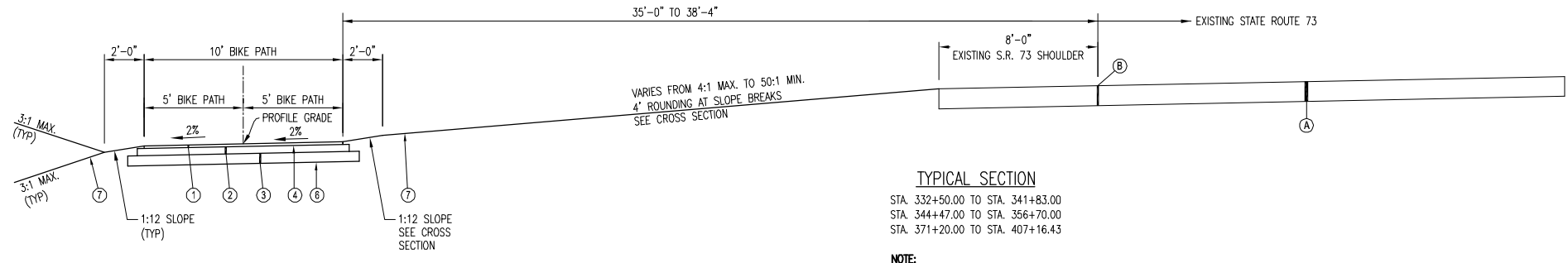
**NOTE:**  
 BIKE PATH TAPERS FROM 5' TO 4' ON RIGHT SIDE  
 FROM STA. 356+35.00 TO 356+55.00



**TYPICAL SECTION**  
 STA. 361+50 TO STA. 368+56



**DETAIL A**  
 N.T.S.

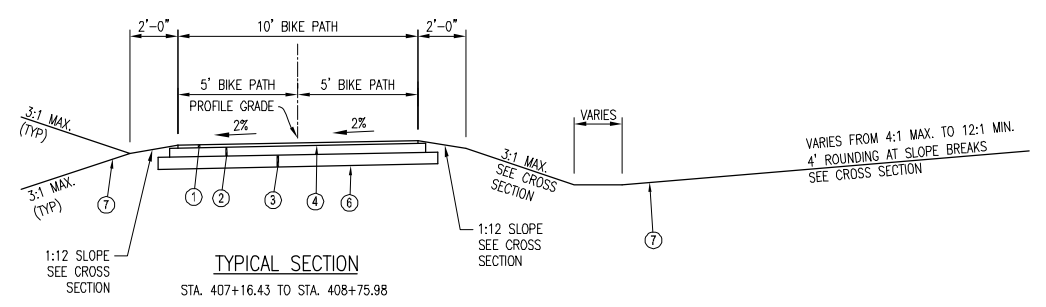


**TYPICAL SECTION**

STA. 332+50.00 TO STA. 341+83.00  
 STA. 344+47.00 TO STA. 356+70.00  
 STA. 371+20.00 TO STA. 407+16.43

**NOTE:**  
 STA. 382+00.00 TO STA. 385+00.00  
 HAVE SLOPES GREATER THAN 4:1  
 SEE CROSS SECTIONS

**NOTE:**  
 BIKE PATH TAPERS FROM 5' TO 4' ON RIGHT SIDE  
 FROM STA. 356+35.00 TO 356+55.00



**TYPICAL SECTION**

STA. 407+16.43 TO STA. 408+75.98

- ① ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448) PG 64-22 (1-1/4")
- ② ITEM 301 - ASPHALT CONCRETE BASE, PG 64-22 (3")
- ③ ITEM 304 - AGGREGATE BASE (6")
- ④ ITEM 407 - TACK COAT @ 0.055 GAL/SY
- ⑤ ITEM 606 - MGS GUARD RAIL
- ⑥ ITEM 204 - SUBGRADE COMPACTION  
ITEM 204 - PROOF ROLLING
- ⑦ ITEM 659 - SEEDING AND MULCHING
- ⑧ ITEM 617 - COMPACTED AGGREGATE, 2"

- Ⓐ EXISTING PAVEMENT
- Ⓑ EXISTING EDGE LINE



ITEM 614 – NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE THE SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE

| <u>ITEM</u>                                     | <u>DURATION OF CLOSURE</u> | <u>NOTICE DUE TO PERMITS &amp; PIO</u>   |
|---|----------------------------|--|
| RAMP & ROAD CLOSURES                            | >= 2 WEEKS                 | 21 CALENDAR DAYS PRIOR TO CLOSURE        |
|   | > 12 HOURS & < 2 WEEKS     | 14 CALENDAR DAYS PRIOR TO CLOSURE        |
|   | < 12 HOURS                 | 4 BUSINESS DAYS PRIOR TO CLOSURE         |
| LANE CLOSURES & RESTRICTIONS                    | >= 2 WEEKS                 | 14 CALENDAR DAYS PRIOR TO CLOSURE        |
|   | < 2 WEEKS                  | 5 BUSINESS DAYS PRIOR TO CLOSURE         |
| START OF CONSTRUCTION & TRAFFIC PATTERN CHANGES | N/A                        | 14 CALENDAR DAYS PRIOR TO IMPLEMENTATION |

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTICE TO OFFICE OF COMMUNICATIONS TIME TABLE.

POST CONSTRUCTION STORM WATER TREATMENT

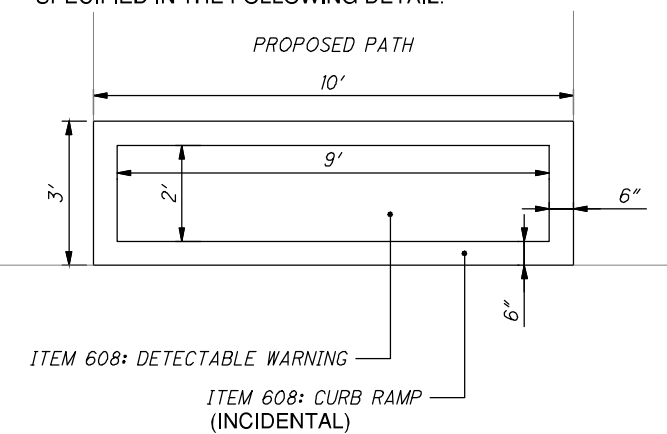
THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT.

VEGETATED FILTER STRIP

THIS PLAN UTILIZES VEGETATED FILTER STRIP(S) FOR POST CONSTRUCTION STORM WATER TREATMENT. PLACE EITHER ITEM 660 SODDING OR ITEM 659 SEEDING AND MULCHING WITH A 4 INCH LIFT OF TOPSOIL AND ITEM 670, SLOPE EROSION PROTECTION TO ALL DISTURBED AREAS DESIGNATED AS VEGETATED FILTER STRIPS, THE EDGE OF SHOULDER, AND THE FORESLOPE AS SPECIFIED IN THE PLANS.

ITEM 608 – DETECTABLE WARNINGS, AS PER PLAN

CONSTRUCT CURB RAMPS PER BP 7.1. ANY INCIDENTAL CONCRETE REQUIRED IS INCLUDED WITH THE COST OF DETECTABLE WARNINGS, AS PER PLAN. THIS QUANTITY INCLUDES PAYMENT AND PLACEMENT OF THE ITEMS SPECIFIED IN THE FOLLOWING DETAIL:



CALCULATED  
LG  
CHECKED  
TGB

GENERAL NOTES

BUT/WAR GMR TRAIL EXTENSION

5A  
67

| SHEET NUM.             |      |     |    |       |    |  |  | PART.     |           | ITEM | ITEM EXT. | GRAND TOTAL | UNIT | DESCRIPTION  | SEE SHEET NO. |
|------------------------|------|-----|----|-------|----|--|--|-----------|-----------|------|-----------|-------------|------|--|---------------|
| 5                      | 8    | 9   | 10 | 52    | 67 |  |  | 01/CMQ/OT | 02/CMQ/OT |      |           |             |      |  |               |
| <b>ROADWAY</b>         |      |     |    |       |    |  |  |           |           |      |           |             |      |  |               |
| LS                     |      |     |    |       |    |  |  | LS        | LS        | 201  | 11001     | LS          |      | CLEARING AND GRUBBING, AS PER PLAN                   | 5             |
|                        | 1    |     |    |       |    |  |  |           | 1         | 202  | 20010     | 1           | EACH | HEADWALL REMOVED                                     |               |
|                        | 65   |     |    |       |    |  |  |           | 65        | 202  | 35100     | 65          | FT   | PIPE REMOVED, 24" AND UNDER                          |               |
|                        | 21   |     |    |       |    |  |  |           | 21        | 202  | 35200     | 21          | FT   | PIPE REMOVED, OVER 24"                               |               |
|                        | 1562 |     |    |       |    |  |  | 1,562     |           | 202  | 38000     | 1,562       | FT   | GUARDRAIL REMOVED                                    |               |
|                        |      |     |    | 8398  |    |  |  | 3,929     | 4,469     | 203  | 10000     | 8,398       | CY   | EXCAVATION   |               |
|                        |      |     |    | 15026 |    |  |  | 6,145     | 8,881     | 203  | 20000     | 15,026      | CY   | EMBANKMENT   |               |
| 500                    |      |     |    |       |    |  |  | 215       | 285       | 204  | 13000     | 500         | CY   | EXCAVATION OF SUBGRADE                               |               |
| 3000                   |      |     |    |       |    |  |  | 1,290     | 1,710     | 204  | 13000     | 3,000       | CY   | EXCAVATION OF SUBGRADE 18" DEEP                      |               |
| 500                    |      |     |    |       |    |  |  | 215       | 285       | 204  | 20000     | 500         | CY   | EMBANKMENT   |               |
| 3000                   |      |     |    |       |    |  |  | 1,290     | 1,710     | 204  | 30020     | 3,000       | CY   | GRANULAR MATERIAL, TYPE C                            |               |
| 4                      |      |     |    |       |    |  |  | 2         | 2         | 204  | 45000     | 4           | HOUR | PROOF ROLLING  |               |
| 6000                   |      |     |    |       |    |  |  | 2,580     | 3,420     | 204  | 50000     | 6,000       | SY   | GEOTEXTILE FABRIC                                    |               |
|                        | 300  |     |    |       |    |  |  | 225       | 75        | 606  | 15050     | 300         | FT   | GUARDRAIL, TYPE MGS                                  |               |
|                        | 50   |     |    |       |    |  |  | 25        | 25        | 606  | 15150     | 50          | FT   | GUARDRAIL, TYPE MGS HALF POST SPACING                |               |
|                        | 1550 |     |    |       |    |  |  | 975       | 575       | 606  | 15250     | 1,550       | FT   | GUARDRAIL, TYPE MGS QUARTER POST SPACING             |               |
|                        | 2    |     |    |       |    |  |  | 1         | 1         | 606  | 26100     | 2           | EACH | ANCHOR ASSEMBLY, TYPE E, (MASH 2016)                 | 5             |
|                        | 2    |     |    |       |    |  |  | 2         |           | 606  | 26500     | 2           | EACH | ANCHOR ASSEMBLY, TYPE T                              |               |
|                        | 1805 |     |    |       |    |  |  | 860       | 945       | 607  | 98000     | 1,805       | FT   | FENCE, MISC.: RM 5.2 WOOD FENCE                      | 5             |
|                        | 708  |     |    |       |    |  |  | 357       | 351       | 607  | 98000     | 708         | FT   | FENCE, MISC.:RM 5.2 WOOD FENCE, AS PER PLAN          | 67            |
|                        | 12   |     |    |       |    |  |  |           | 12        | 608  | 53021     | 12          | SF   | DETECTABLE WARNING, AS PER PLAN                      | 5 A           |
|                        | 9    |     |    |       |    |  |  | 9         |           | 617  | 10100     | 9           | CY   | COMPACTED AGGREGATE, 2"                              |               |
| <b>EROSION CONTROL</b> |      |     |    |       |    |  |  |           |           |      |           |             |      |  |               |
|                        | 125  |     |    |       |    |  |  | 55        | 70        | 653  | 10000     | 125         | CY   | TOPSOIL FURNISHED AND PLACED, 4"                     |               |
|                        | 1123 |     |    | 20727 |    |  |  | 9,878     | 11,972    | 659  | 00510     | 21,850      | SY   | SEEDING AND MULCHING, CLASS 2                        |               |
|                        | 1123 |     |    |       |    |  |  | 478       | 645       | 670  | 00500     | 1,123       | SY   | SLOPE EROSION PROTECTION                             |               |
|                        |      |     |    |       |    |  |  | LS        | LS        | 832  | 15000     | LS          |      | STORM WATER POLLUTION PREVENTION PLAN                |               |
|                        |      |     |    |       |    |  |  | LS        | LS        | 832  | 15002     | LS          |      | STORM WATER POLLUTION PREVENTION INSPECTIONS         |               |
|                        |      |     |    |       |    |  |  | LS        | LS        | 832  | 15010     | LS          |      | STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE |               |
|                        |      |     |    |       |    |  |  | 50,224    | 66,576    | 832  | 30000     | 116,800     | EACH | EROSION CONTROL                                      |               |
| <b>DRAINAGE</b>        |      |     |    |       |    |  |  |           |           |      |           |             |      |  |               |
| LS                     |      |     |    |       |    |  |  | LS        | LS        | 503  | 11100     | LS          |      | COFFERDAMS AND EXCAVATION BRACING                    |               |
|                        |      | 12  |    |       |    |  |  | 4.9       | 7.1       | 601  | 11000     | 12          | SY   | RIPRAP, TYPE D, 6" SLAB                              |               |
|                        |      | 29  |    |       |    |  |  | 7         | 22        | 601  | 21050     | 29          | SY   | TIED CONCRETE BLOCK MAT, TYPE 1                      |               |
|                        |      | 15  |    |       |    |  |  | 0.0       | 15.0      | 601  | 21060     | 15          | SY   | TIED CONCRETE BLOCK MAT, TYPE 2                      |               |
|                        |      | 12  |    |       |    |  |  | 12        |           | 601  | 32100     | 12          | CY   | ROCK CHANNEL PROTECTION, TYPE B WITH FILTER          |               |
|                        |      | 67  |    |       |    |  |  | 43        | 24        | 601  | 32200     | 67          | CY   | ROCK CHANNEL PROTECTION, TYPE C WITH FILTER          |               |
|                        |      | 12  |    |       |    |  |  | 6.1       | 5.9       | 602  | 20000     | 12          | CY   | CONCRETE MASONRY                                     |               |
| 90                     |      |     |    |       |    |  |  | 40        | 50        | 605  | 98000     | 90          | FT   | UNDERDRAINS, MISC.:ENCOUNTERED                       | 5             |
|                        |      | 142 |    |       |    |  |  | 50        | 92        | 611  | 00406     | 142         | FT   | 4" CONDUIT, TYPE F, FOR UNDERDRAIN OUTLETS           |               |
|                        |      | 53  |    |       |    |  |  | 34        | 19        | 611  | 04200     | 53          | FT   | 12" CONDUIT, TYPE A, 706.02                          |               |
|                        |      | 55  |    |       |    |  |  |           | 55        | 611  | 04900     | 55          | FT   | 12" CONDUIT, TYPE D                                  |               |
|                        |      | 35  |    |       |    |  |  | 35        |           | 611  | 06400     | 35          | FT   | 15" CONDUIT, TYPE D                                  |               |
|                        |      | 139 |    |       |    |  |  |           | 139       | 611  | 10200     | 139         | FT   | 24" CONDUIT, TYPE A, 707.01, AL COATED               |               |
|                        |      | 15  |    |       |    |  |  | 15        |           | 611  | 16200     | 15          | FT   | 36" CONDUIT, TYPE A, 707.01, AL COATED               |               |
|                        |      | 36  |    |       |    |  |  | 36        |           | 611  | 16600     | 36          | FT   | 36" CONDUIT, TYPE C                                  |               |
|                        |      | 21  |    |       |    |  |  |           | 21        | 611  | 22200     | 21          | FT   | 54" CONDUIT, TYPE A, 707.01, AL COATED               |               |
|                        |      | 55  |    |       |    |  |  |           | 55        | 611  | 24300     | 55          | FT   | 60" CONDUIT, TYPE D, 707.01, AL COATED               |               |
|                        |      | 19  |    |       |    |  |  | 19        |           | 611  | 28000     | 19          | FT   | 84" CONDUIT, TYPE A, 707.03                          |               |
|                        |      | 1   |    |       |    |  |  |           | 1         | 611  | 98470     | 1           | EACH | CATCH BASIN, NO. 2-2B                                |               |
|                        |      | 6   |    |       |    |  |  | 2         | 4         | 611  | 99574     | 6           | EACH | MANHOLE, NO. 3                                       |               |
| 3                      |      | 4   |    |       |    |  |  | 3         | 4         | 611  | 99710     | 7           | EACH | PRECAST REINFORCED CONCRETE OUTLET                   |               |

CALCULATED  
 GAB  
 CHECKED  
 TGB  
**GENERAL SUMMARIES**  
**BUT/WAR GMR TRAIL EXTENSION**  
**6**  
**67**

| SHEET NUM. |   |     |      |    |      |  |  | PART.     |           | ITEM | ITEM EXT. | GRAND TOTAL | UNIT | DESCRIPTION  | SEE SHEET NO. |
|------------|---|-----|------|----|------|--|--|-----------|-----------|------|-----------|-------------|------|--|---------------|
| 5          | 8 | 9   | 10   | 52 | 67   |  |  | 01/CMQ/OT | 02/CMQ/OT |      |           |             |      |  |               |
|            |   |     |      |    |      |  |  |           |           |      |           |             |      |  |               |
|            |   |     | 9652 |    |      |  |  | 4150      | 5502      | 204  | 10000     | 9652        | SY   | <b>PAVEMENT</b>  |               |
|            |   |     | 734  |    |      |  |  | 315       | 419       | 301  | 46000     | 734         | CY   | SUBGRADE COMPACTION  |               |
|            |   |     | 1609 |    |      |  |  | 692       | 917       | 304  | 20000     | 1609        | CY   | ASPHALT CONCRETE BASE, PG64-22, 3"                             |               |
|            |   |     | 454  |    |      |  |  | 195       | 259       | 407  | 10000     | 454         | GAL  | AGGREGATE BASE, 6"   |               |
|            |   |     | 286  |    |      |  |  | 123       | 163       | 441  | 50000     | 286         | CY   | TACK COAT @ 0.055 GAL/SY                                       |               |
|            |   |     |      |    |      |  |  |           |           |      |           |             |      | ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22, 1.25" |               |
|            |   |     |      |    |      |  |  |           |           |      |           |             |      | <b>TRAFFIC CONTROL</b>   |               |
|            |   | 18  |      |    |      |  |  | 11        | 7         | 626  | 00110     | 18          | EACH | BARRIER REFLECTOR, TYPE 2, (ONE-WAY)                           |               |
|            |   | 312 |      |    |      |  |  | 228       | 96        | 630  | 03100     | 324         | FT   | GROUND MOUNTED SUPPORT, NO. 3 POST                             |               |
|            |   | 7   |      |    |      |  |  | 2         | 5         | 630  | 80100     | 7           | SF   | SIGN, FLAT SHEET   |               |
|            |   | 25  |      |    |      |  |  | 22        | 3         | 630  | 85100     | 25          | EACH | REMOVAL OF GROUND MOUNTED SIGN AND REERECTION                  |               |
|            |   | 25  |      |    |      |  |  | 19        | 6         | 630  | 86002     | 25          | EACH | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL            |               |
|            |   |     |      |    |      |  |  |           |           |      |           |             |      | <b>RETAINING WALLS (361+50 to 368+56)</b>                      |               |
| 555        |   |     |      |    |      |  |  | 277       | 278       | 203  | 20001     | 555         | CY   | EMBANKMENT, AS PER PLAN  |               |
|            |   |     |      |    | 485  |  |  | 242       | 243       | 204  | 50100     | 485         | SY   | GEOTEXTILE FABRIC, 712.09, TYPE A                              |               |
|            |   |     |      |    | 2848 |  |  | 1424      | 1424      | 507  | 00400     | 2,848       | FT   | STEEL PILES, MISC.:SOLDIER PILES                               |               |
| 1808       |   |     |      |    |      |  |  | 904       | 904       | 524  | 94602     | 1,808       | FT   | DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK                    |               |
|            |   |     |      |    | 712  |  |  | 356       | 356       | 524  | 94604     | 712         | FT   | DRILLED SHAFTS, 30" DIAMETER, INTO BEDROCK                     |               |
|            |   |     |      |    | 4350 |  |  | 2175      | 2175      | 610  | 50010     | 4,350       | SF   | RETAINING WALL, MISC.:PRECAST LAGGING                          |               |
|            |   |     |      |    | LS   |  |  | LS        | LS        | 610  | 60000     | LS          |      | RETAINING WALL, MISC.:CAST-IN-PLACE LAGGING                    |               |
|            |   |     |      |    | 89   |  |  | 44        | 45        | 866  | 00101     | 89          | EACH | GROUND ANCHOR, AS PER PLAN (80 KIP DESIGN LOAD AT 30 DEG)      |               |
|            |   |     |      |    |      |  |  |           |           |      |           |             |      | <b>INCIDENTALS</b>   |               |
| LS         |   |     |      |    |      |  |  | LS        | LS        | 614  | 11000     | LS          |      | MAINTAINING TRAFFIC  |               |
| LS         |   |     |      |    |      |  |  | LS        | LS        | 623  | 10000     | LS          |      | CONSTRUCTION LAYOUT STAKES AND SURVEYING                       |               |
| LS         |   |     |      |    |      |  |  | LS        | LS        | 624  | 10000     | LS          |      | MOBILIZATION   |               |

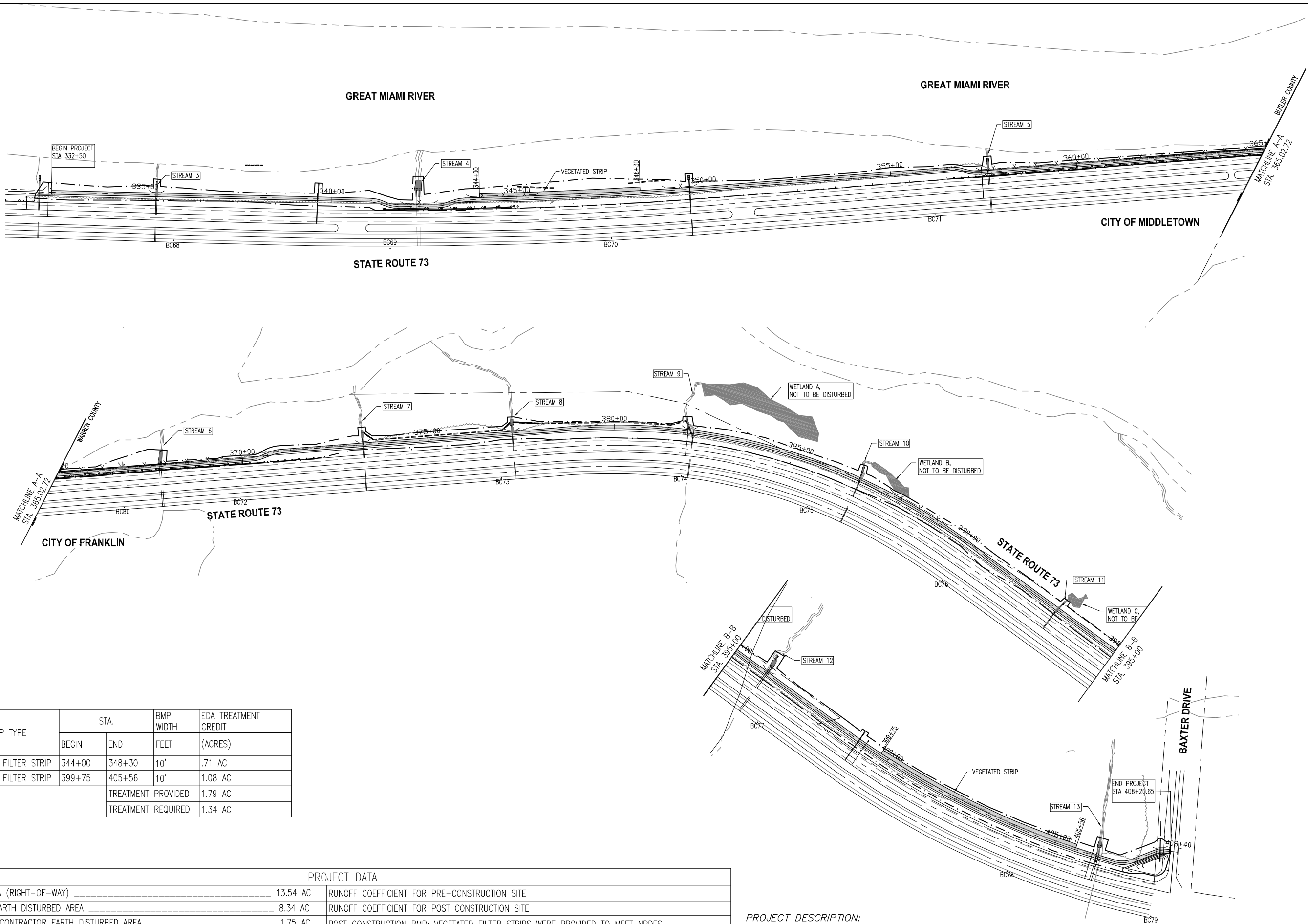
CALCULATED  
 GAB  
 CHECKED  
 TGB  
**GENERAL SUMMARIES**  
 BUT/WAR GMR TRAIL EXTENSION  
 7  
 67



| SHEET NO.                         | REFERENCE NO. | STATION |        | SIDE | 202              |                             |                        |                   | 606                 |  |   |   | 607                          |                                | 608   | 617                             | 626                     | 630                                  |   |   | 651              | 659                               | 670                              |                               |                          |
|-----------------------------------|---------------|---------|--------|------|------------------|-----------------------------|------------------------|-------------------|---------------------|--|---|---|------------------------------|--------------------------------|---|---------------------------------|-------------------------|--------------------------------------|---|---|------------------|-----------------------------------|----------------------------------|-------------------------------|--------------------------|
|                                   |               |         |        |      | HEADWALL REMOVED | PIPE REMOVED, 24" AND UNDER | PIPE REMOVED, OVER 24" | GUARDRAIL REMOVED | GAURDRAIL, TYPE MGS | GAURDRAIL, TYPE MGS, HALF POST SPACING | GAURDRAIL, TYPE MGS, QUARTER POST SPACING | ANCHOR ASSEMBLY, MGS, TYPE E, (MASH 2016) | ANCHOR ASSEMBLY, MGS, TYPE T | FENCE, MISC: RM-5.2 WOOD FENCE | FENCE, MISC: RM-5.2 WOOD FENCE, AS PER PLAN | DETECTABLE WARNING, AS PER PLAN | COMPACTED AGGREGATE, 2" | BARRIER REFLECTOR, TYPE 2, (ONE-WAY) | REMOVAL OF GROUND MOUNTED SIGN AND REERECTION | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL | SIGN, FLAT SHEET | GROUND MOUNTED SUPPORT, NO 3 POST | TOPSOIL FURNISHED AND PLACED, 4" | SEEDING AND MULCHING, CLASS 2 | SLOPE EROSION PROTECTION |
|                                   |               |         |        |      | EA               | FT                          | FT                     | FT                | FT                  | FT                                     | FT  | EACH                                      | EACH                         | FT                             | FT  | SF                              | CY                      | EACH                                 | EACH  | EACH  | SF               | FT                                | CY                               | SY                            | SY                       |
| 13                                | F-1           | 335+11  | 335+53 | L    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 14                                | S-1           | 341+40  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 14                                | GR-1          | 341+45  | 342+95 | R    |                  |                             |                        |                   |                     | 150                                    |   | 1   |                              |                                |   |                                 |                         |                                      |   |   | 2                | 2                                 |                                  | 12/12                         |                          |
| 14                                | F-2           | 341+87  | 342+85 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 101                            |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 14                                | R-2           | 341+95  | 345+01 | R    |                  |                             |                        | 307               |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 14                                | S-8           | 343+17  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 14                                | GR-2          | 342+95  | 344+95 | R    |                  |                             |                        |                   | 175                 | 25                                     |   | 1   |                              |                                |   |                                 | 3                       |                                      | 1   | 1   | 2                | 12                                |                                  |                               |                          |
| 14                                | F-3           | 343+63  | 345+61 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 200                            |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 14                                | S-2           | 343+85  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 15                                | V-1           | 344+00  | 348+29 | L    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 15                                | S-3           | 346+48  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 15                                | S-4           | 348+27  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 15                                | F-4           | 348+90  | 349+82 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 94                             |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 17                                | GR-3          | 356+70  | 357+10 | R    |                  |                             |                        |                   |                     | 25                                     |   | 1   |                              |                                |   |                                 |                         | 1                                    |   |   |                  |                                   |                                  |                               |                          |
| 17                                | GR-4          | 357+10  | 372+20 | R    |                  |                             |                        |                   | 75                  | 25                                     | 1400                                      | 1   |                              |                                |   |                                 |                         | 14                                   |   |   |                  |                                   |                                  |                               |                          |
| 17                                | F-5           | 357+31  | 361+50 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 421                            |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 17                                | S-12          | 357+55  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 17                                | R-3           | 357+57  | 370+12 | R    |                  |                             |                        | 1255              |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 17                                | S-13          | 358+63  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 17                                | S-9           | 359+82  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 18                                | S-14          | 360+70  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 18                                | S-15          | 361+38  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 18                                | F-6           | 361+50  | 365+07 | L    |                  |                             |                        |                   |                     |  |   |   |                              |                                | 357   |                                 | 4.5                     |                                      |   |   |                  |                                   |                                  |                               |                          |
| 19                                | S-11          | 362+15  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 18                                | S-16          | 363+29  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 18                                | S-17          | 363+67  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 18                                | S-18          | 364+45  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 19                                | R-4           | 366+80  | -      | L    | 1                |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 19                                | F-7           | 368+56  | 369+50 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 96                             |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 19                                | F-8           | 368+56  | 373+47 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 493                            |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 19                                | R-6           | 368+77  | -      | L    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 19                                | F-13          | 365+07  | 368+58 | L    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 20                                | S-5           | 374+54  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 21                                | F-9           | 377+06  | 377+47 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 43                             |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 21                                | F-10          | 381+79  | 382+20 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 43                             |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 21                                | R-5           | 382+12  | -      | L    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 22                                | S-6           | 384+84  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 22                                | F-13          | 387+60  | 389+50 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 190                            |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 23                                | R-7           | 393+08  | -      | -    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 24                                | F-11          | 395+81  | 396+23 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 44                             |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 24                                | R-8           | 396+00  | -      | -    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 25                                | V-2           | 399+75  | 404+50 | L    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  | 527                           |                          |
| 25                                | S-7           | 403+67  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  | 527                           |                          |
| 26                                | V-3           | 404+50  | 405+56 | L    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  | 118                           |                          |
| 26                                | R-9           | 406+18  | -      | -    |                  |                             |                        | 21                |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  | 118                           |                          |
| 26                                | S-10          | 406+50  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   | 2.25  | 12               |                                   |                                  |                               |                          |
| 26                                | S-19          | 408+27  | -      | R    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   | 2.25  | 12               |                                   |                                  |                               |                          |
| 26                                | F-12          | 407+79  | 408+13 | L    |                  |                             |                        |                   |                     |  |   |   |                              | 36                             |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| 26                                | D-1           | 408+18  | -      | -    |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  | 123                           |                          |
| <b>SUBTOTALS</b>                  |               |         |        |      |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
| <b>CARRIED TO GENERAL SUMMARY</b> |               |         |        |      |                  |                             |                        |                   |                     |  |   |   |                              |                                |   |                                 |                         |                                      |   |   |                  |                                   |                                  |                               |                          |
|                                   |               |         |        |      | 1                | 65                          | 21                     | 1,562             | 250                 | 75                                     | 1,550                                     | 2   | 2                            | 1,805                          | 708   | 12                              | 9                       | 18                                   | 25  | 25  | 6.5              | 324                               | 125                              | 1,123                         | 1,123                    |
|                                   |               |         |        |      | 1                | 65                          | 21                     | 1,562             | 250                 | 75                                     | 1,550                                     | 2   | 2                            | 1,805                          | 708   | 12                              | 9                       | 18                                   | 25  | 25  | 7                | 324                               | 125                              | 1,123                         | 1,123                    |

| SHEET NO.                         | REFERENCE NO. | STATION |   | SIDE | CODE | 601                      |  |  |                                 |                                 | 602              | 611  |                             |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   |   |   |   |
|-----------------------------------|---------------|---------|---|------|------|--------------------------|--|--|---------------------------------|---------------------------------|------------------|--|-----------------------------|---------------------|---------------------|--|---------------------|--|--|-----------------------------|-----------------------|----------------|------------------------------------|---|---|---|---|---|
|                                   |               |         |   |      |      | RIP RAP TYPE D - 6" SLAB | ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER | ROCK CHANNEL PROTECTION, TYPE C, WITH FILTER | TIED CONCRETE BLOCK MAT, TYPE 1 | TIED CONCRETE BLOCK MAT, TYPE 2 | CONCRETE MASONRY | 4" CONDUIT, TYPE F, FOR UNDERDRAIN OUTLETS | 12" CONDUIT, TYPE A, 706.02 | 12" CONDUIT, TYPE D | 15" CONDUIT, TYPE D | 24" CONDUIT, TYPE A, 707.01, AL COATED | 27" CONDUIT, TYPE C | 54" CONDUIT, TYPE A, 707.01, AL COATED | 60" CONDUIT, TYPE D, 707.01, AL COATED | 84" CONDUIT, TYPE A, 707.03 | CATCH BASIN, NO. 2-2B | MANHOLE, NO. 3 | PRECAST REINFORCED CONCRETE OUTLET |   |   |   |   |   |
|                                   |               |         |   |      |      | SY                       | CY   | CY   | SY                              | SY                              | CY               | FT   | FT                          | FT                  | FT                  | FT                                     | FT                  | FT                                     | FT                                     | EA                          | SY                    | EA             |                                    |   |   |   |   |   |
| 13                                | SD-1          | 335+31  | - | -    |      | 1.0                      |  | 3  |                                 |                                 | 0.76             |  |                             |                     |                     |  | 36                  |  |  |                             |                       |                |                                    |   |   | 1 |   |   |
| 14                                | SD-2          | 339+61  | - | -    |      |                          |  |  |                                 | 1.8                             |                  | 29   |                             |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   |   |   | 1 |
| 14                                | SD-3          | 339+62  | - | -    |      |                          |  | 3  |                                 |                                 | 0.58             |  | 34                          |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   |   |   |   |
| 14                                | SD-4          | 342+34  | - | -    |      | 2.5                      |  | 36   |                                 |                                 | 3.3              |  |                             |                     |                     |  |                     |  |  |                             |                       |                | 19                                 |   |   |   |   |   |
| 16                                | SD-5          | 349+61  | - | -    |      | 0.4                      |  | 1  |                                 |                                 | 0.27             | 10   |                             |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   | 1 |   |   |
| 17                                | SD-6          | 357+46  | - | -    |      |                          |  |  |                                 |                                 | 1.8              | 11   |                             |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   |   | 1 |   |
| 17                                | SD-7          | 357+51  | - | -    |      | 1.0                      |  |  | 6.7                             |                                 | 0.46             |  |                             |                     |                     |  | 15                  |  |  |                             |                       |                |                                    |   |   |   |   |   |
| 19                                | SD-9          | 367+78  | - | -    |      |                          |  | 5  |                                 |                                 |                  |  |                             |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   |   |   |   |
| 20                                | SD-10         | 373+26  | - | -    |      | 0.7                      |  | 2  |                                 |                                 | 0.46             |  |                             |                     |                     |  | 9                   |  |  |                             |                       |                |                                    |   |   |   |   |   |
| 21                                | SD-11         | 377+26  | - | -    |      | 0.7                      |  | 4  | 22.2                            |                                 | 0.46             |  |                             |                     |                     |  | 22                  |  |  |                             |                       |                |                                    |   |   |   |   |   |
| 21                                | SD-12         | 382+11  | - | -    |      | 0.7                      |  | 2  |                                 |                                 | 0.46             | 34   |                             |                     |                     |  | 42                  |  |  |                             |                       |                |                                    |   |   | 1 |   |   |
| 22                                | SD-13         | 386+77  | - | -    |      | 0.7                      |  | 2  |                                 |                                 | 0.46             |  |                             |                     |                     |  | 34                  |  |  |                             |                       |                |                                    |   |   | 1 |   |   |
| 23                                | SD-14         | 393+08  | - | -    |      | 0.7                      |  | 2  |                                 |                                 | 0.46             |  |                             |                     |                     |  | 32                  |  |  |                             |                       |                |                                    |   |   | 1 |   |   |
| 24                                | SD-15         | 396+01  | - | -    |      | 1.5                      |  | 5  |                                 |                                 | 1.33             |  |                             |                     |                     |  |                     | 21                                     |  |                             |                       |                |                                    |   |   |   |   |   |
| 25                                | SD-16         | 399+06  | - | -    |      | 0.3                      |  | 1  |                                 |                                 | 0.21             |  | 19                          |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   |   |   |   |
| 25                                | SD-17         | 399+30  | - | -    |      |                          |  |  |                                 | 1.8                             |                  | 27   |                             |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   |   | 1 |   |
| 26                                | SD-18         | 406+05  | - | -    |      |                          |  |  |                                 | 1.8                             |                  | 31   |                             |                     |                     |  |                     |  |  |                             |                       |                |                                    |   |   |   | 1 |   |
| 26                                | SD-19         | 406+17  | - | -    |      | 1.7                      | 11.7   |  |                                 |                                 | 1.78             |  |                             |                     |                     |  |                     | 38                                     |  |                             |                       |                |                                    |   | 1 |   |   |   |
| 26                                | SD-20         | 407+93  | - | -    |      |                          |  | 1  |                                 |                                 | 0.21             |  | 55                          |                     |                     |  |                     |  |  |                             |                       |                |                                    | 1 |   |   |   |   |
| <b>SUBTOTALS</b>                  |               |         |   |      |      | <b>11.9</b>              | <b>11.7</b>                                  | <b>67</b>                                    | <b>28.9</b>                     | <b>15.0</b>                     | <b>11.2</b>      | <b>142</b>                                 | <b>53</b>                   | <b>55</b>           | <b>35</b>           | <b>154</b>                             | <b>36</b>           | <b>21</b>                              | <b>38</b>                              | <b>19</b>                   | <b>1</b>              | <b>6</b>       | <b>4</b>                           |   |   |   |   |   |
| <b>CARRIED TO GENERAL SUMMARY</b> |               |         |   |      |      | <b>12</b>                | <b>12</b>                                    | <b>67</b>                                    | <b>29</b>                       | <b>15</b>                       | <b>11</b>        | <b>142</b>                                 | <b>53</b>                   | <b>55</b>           | <b>35</b>           | <b>154</b>                             | <b>36</b>           | <b>21</b>                              | <b>38</b>                              | <b>19</b>                   | <b>1</b>              | <b>6</b>       | <b>4</b>                           |   |   |   |   |   |

| SHEET NO.                         | LENGTH | STATION |        | 204                 | 301                                   | 304                | 407              | 441  |
|-----------------------------------|--------|---------|--------|---------------------|---------------------------------------|--------------------|------------------|--|
|                                   |        | FROM    | TO     | SUBGRADE COMPACTION | ASPHALT CONCRETE BASE,<br>PG64-22, 3" | AGGREGATE BASE' 6" | TACK COAT @ .055 | ASPHALT CONCRETE SURFACE<br>COURSE, TYPE 1, (448), PG64-22,<br>1.25" |
|                                   | FT     |         |        | SY                  | CY                                    | CY                 | GAL              | CY   |
| 12                                | 50     | 332+50  | 333+00 | 65                  | 5                                     | 11                 | 3                | 2  |
| 13                                | 550    | 333+00  | 338+50 | 713                 | 54                                    | 119                | 34               | 21   |
| 14                                | 550    | 338+50  | 344+00 | 713                 | 54                                    | 119                | 34               | 21   |
| 15                                | 550    | 344+00  | 349+50 | 713                 | 54                                    | 119                | 34               | 21   |
| 16                                | 550    | 349+50  | 355+00 | 713                 | 54                                    | 119                | 34               | 21   |
| 17                                | 550    | 355+00  | 360+50 | 664                 | 50                                    | 111                | 31               | 20   |
| 18                                | 550    | 360+50  | 366+00 | 652                 | 49                                    | 109                | 30               | 19   |
| 19                                | 550    | 366+00  | 371+50 | 661                 | 50                                    | 110                | 31               | 19   |
| 20                                | 550    | 371+50  | 377+00 | 713                 | 54                                    | 119                | 34               | 21   |
| 21                                | 550    | 377+00  | 382+50 | 713                 | 54                                    | 119                | 34               | 21   |
| 22                                | 550    | 382+50  | 388+00 | 713                 | 54                                    | 119                | 34               | 21   |
| 23                                | 550    | 388+00  | 393+50 | 713                 | 54                                    | 119                | 34               | 21   |
| 24                                | 550    | 393+50  | 399+00 | 713                 | 54                                    | 119                | 34               | 21   |
| 25                                | 550    | 399+00  | 404+50 | 713                 | 54                                    | 119                | 34               | 21   |
| 26                                | 370.65 | 404+50  | 408+21 | 480                 | 37                                    | 80                 | 23               | 14   |
| <b>SUBTOTALS</b>                  |        |         |        | <b>9652</b>         | <b>734</b>                            | <b>1609</b>        | <b>454</b>       | <b>286</b>   |
| <b>CARRIED TO GENERAL SUMMARY</b> |        |         |        | <b>9652</b>         | <b>734</b>                            | <b>1609</b>        | <b>454</b>       | <b>286</b>   |



| BMP TYPE               | STA.   |                    | BMP WIDTH<br>FEET | EDA TREATMENT<br>CREDIT<br>(ACRES) |
|------------------------|--------|--------------------|-------------------|------------------------------------|
|                        | BEGIN  | END                |                   |                                    |
| VEGETATED FILTER STRIP | 344+00 | 348+30             | 10'               | .71 AC                             |
| VEGETATED FILTER STRIP | 399+75 | 405+56             | 10'               | 1.08 AC                            |
|                        |        | TREATMENT PROVIDED |                   | 1.79 AC                            |
|                        |        | TREATMENT REQUIRED |                   | 1.34 AC                            |

| PROJECT DATA                                       |          |  |                   |
|--|----------|--|-------------------|
| TOTAL AREA (RIGHT-OF-WAY)                          | 13.54 AC | RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE                               |                   |
| PROJECT EARTH DISTURBED AREA                       | 8.34 AC  | RUNOFF COEFFICIENT FOR POST CONSTRUCTION SITE                              |                   |
| ESTIMATED CONTRACTOR EARTH DISTURBED AREA          | 1.75 AC  | POST CONSTRUCTION BMP: VEGETATED FILTER STRIPS WERE PROVIDED TO MEET NPDES |                   |
| NOTICE OF INTENT EARTH DISTURBED AREA              | 15.29 AC | POST-CONSTRUCTION REQUIREMENTS. SEE PLAN SHEETS FOR LOCATIONS.             |                   |
| IMPERVIOUS (PAVED) AREA FOR PRE-CONSTRUCTION SITE  | N/A      | IMMEDIATE RECEIVING WATERS   | GREAT MIAMI RIVER |
| IMPERVIOUS (PAVED) AREA FOR POST CONSTRUCTION SITE | 0.61 AC  | SUBSEQUANT RECEIVING WATER   | OHIO RIVER        |

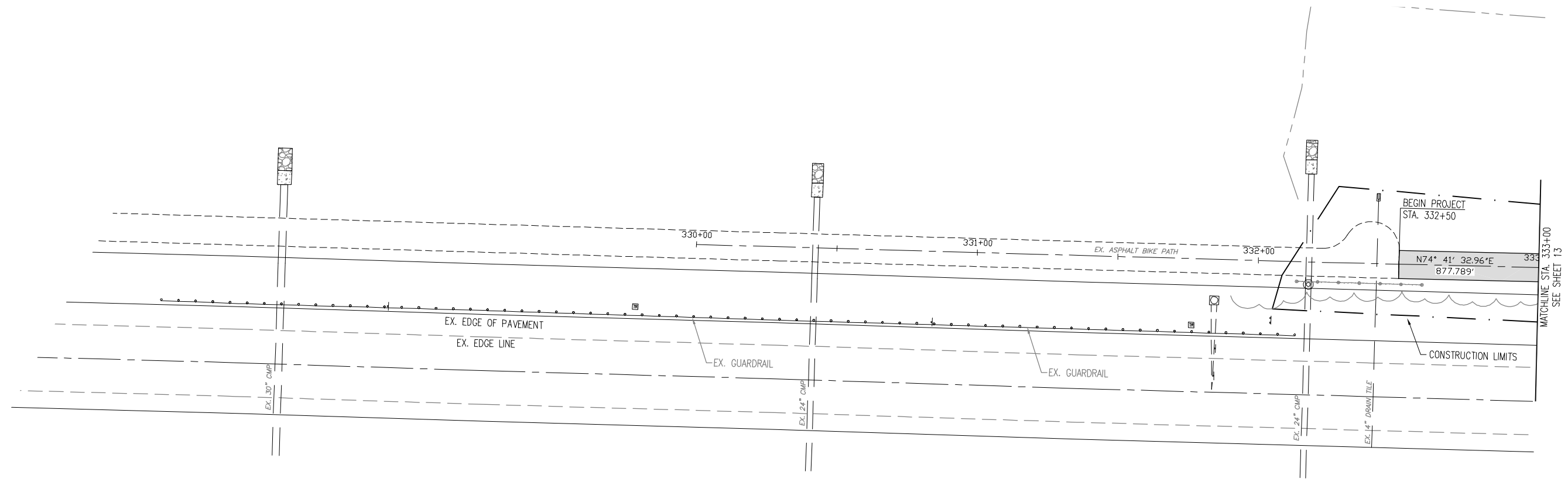
**PROJECT DESCRIPTION:**  
CONSTRUCTION OF A 10' WIDE MULTI-USE TRAIL TO EXTEND THE EXISTING GREAT MIAMI RIVER SCENIC TRAIL. PROJECT INCLUDES CONSTRUCTION OF A RETAINING WALL FOR APPROXIMATELY 400 FEET GUARDRAIL, AND THE EXTENSION OF STORM SEWER.



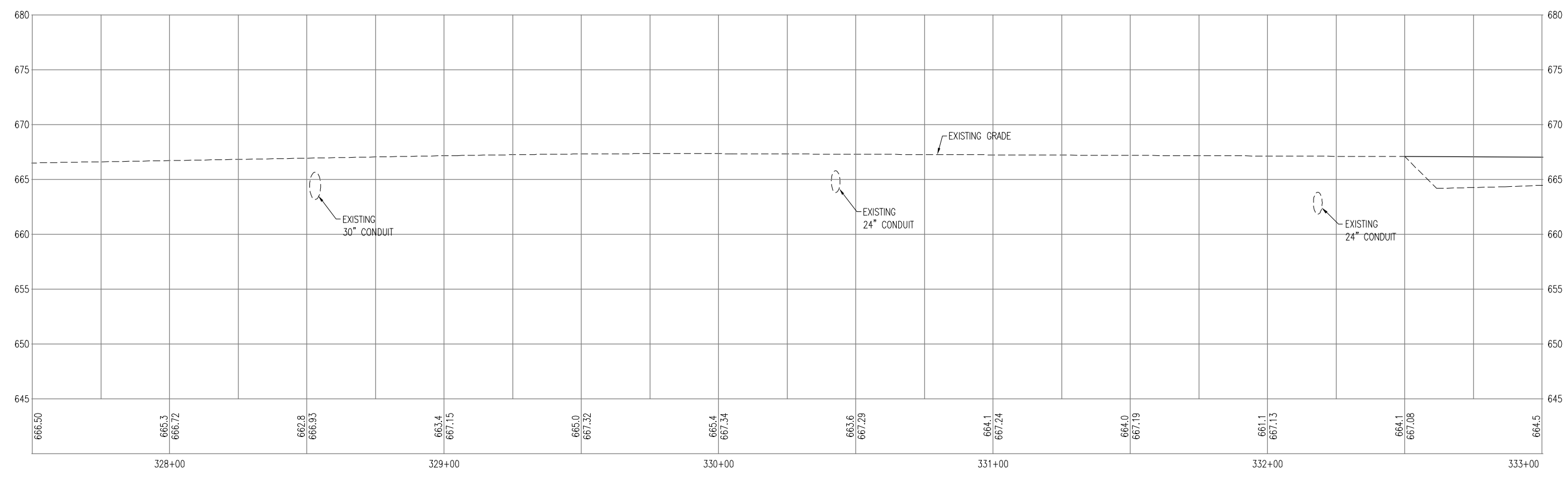
CALCULATED LG  
CHECKED TCB

**PLAN & PROFILE**  
**Sta. 327+50 to Sta. 333+00**

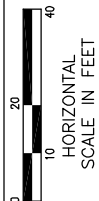
**BUT/WAR GMR TRAIL EXTENSION**



LEGEND  
 PROPOSED BIKE TRAIL



**Centerline Profile**  
 Scale  
 1" = 5' VERTICAL  
 1" = 20' HORIZONTAL

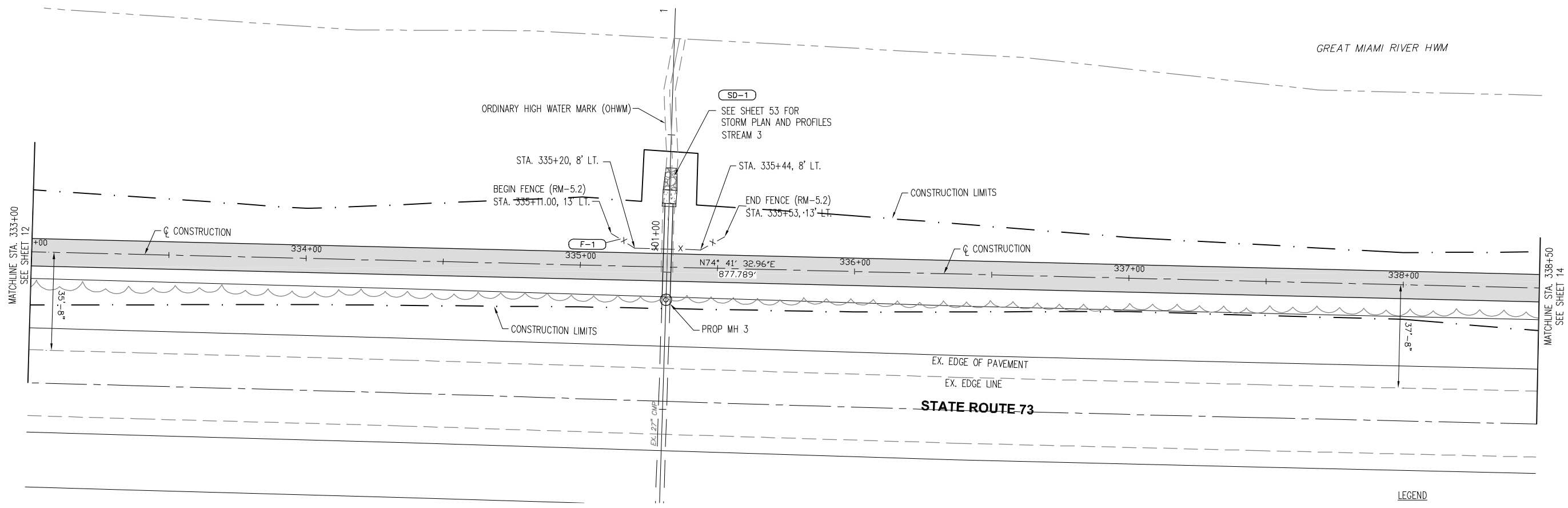


CALCULATED LG CHECKED TGB

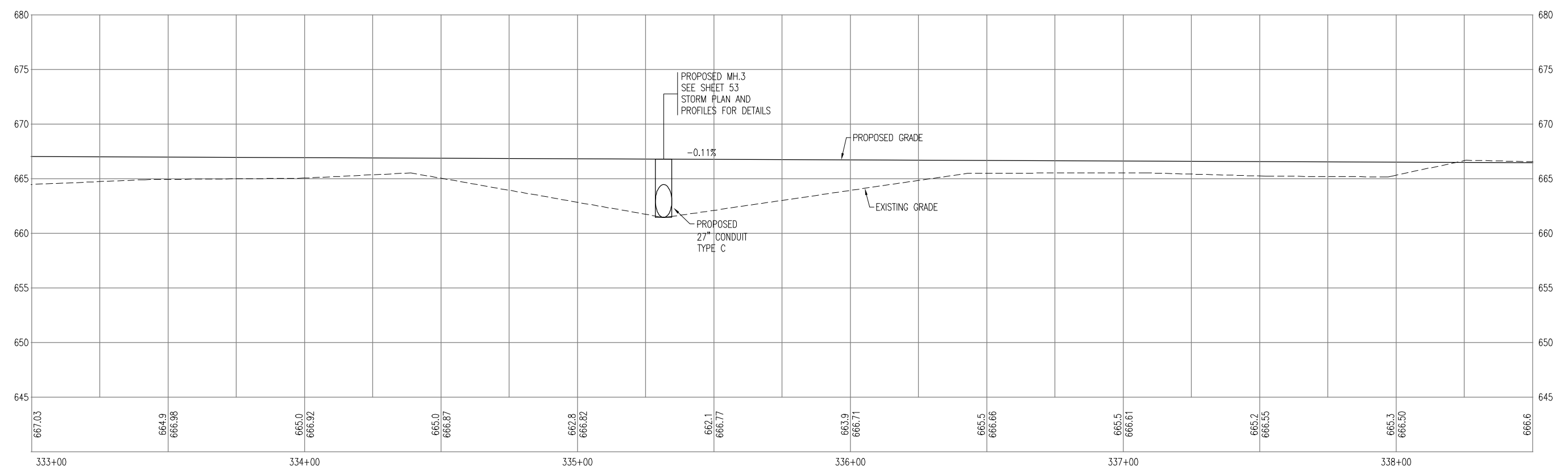
**PLAN & PROFILE**  
**Sta. 333+00 to Sta. 338+50**

**BUT/WAR GMR TRAIL EXTENSION**

GREAT MIAMI RIVER HWM



LEGEND  
 PROPOSED BIKE TRAIL



**Centerline Profile**

Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL



0 10 20 40  
HORIZONTAL SCALE IN FEET

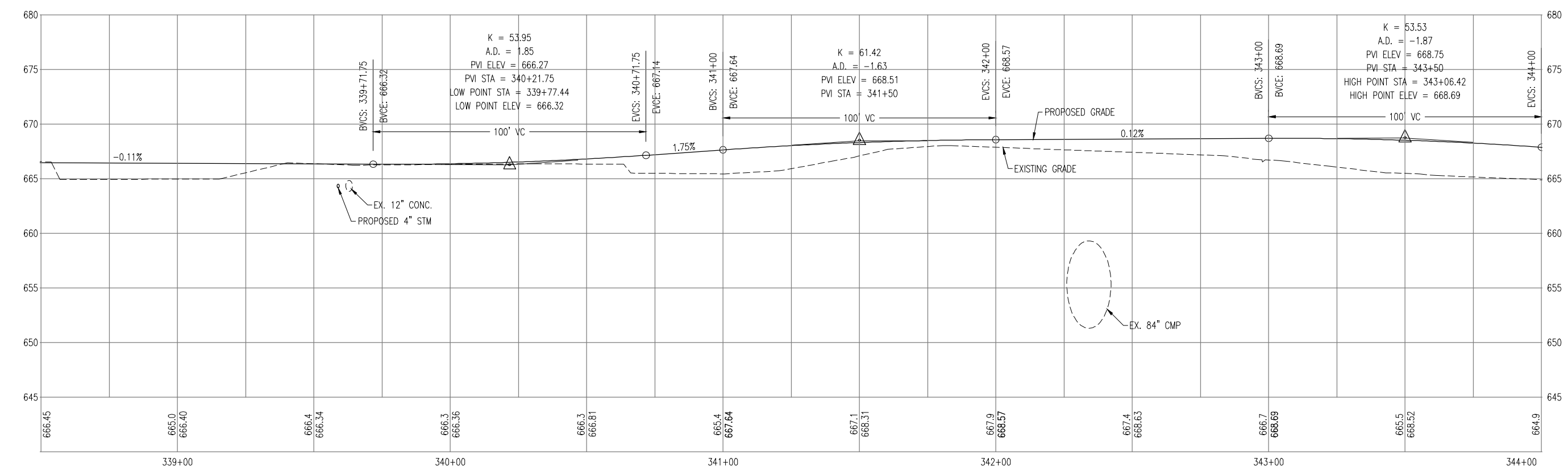
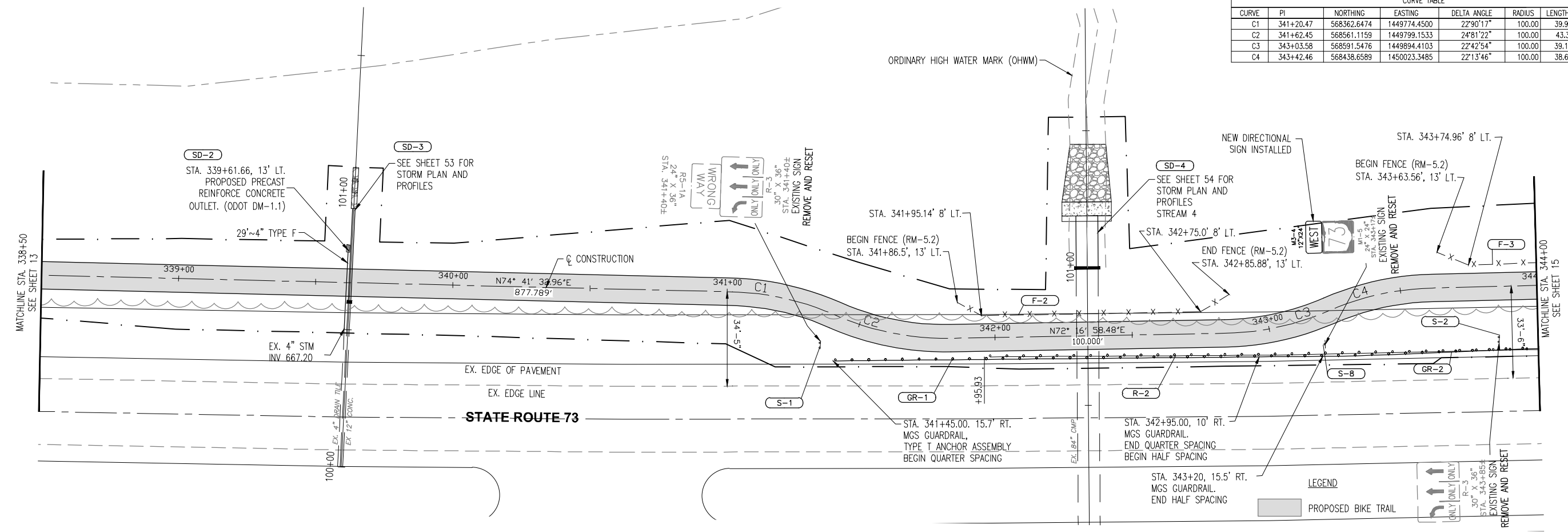
CALCULATED LG  
CHECKED TCB

PLAN & PROFILE  
Sta. 338+50 to Sta. 344+00

BUT/WAR GMR TRAIL EXTENSION

14  
67

| CURVE TABLE |           |             |              |             |        |        |
|-------------|-----------|-------------|--------------|-------------|--------|--------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS | LENGTH |
| C1          | 341+20.47 | 568362.6474 | 1449774.4500 | 22°90'17"   | 100.00 | 39.97  |
| C2          | 341+62.45 | 568561.1159 | 1449799.1533 | 24°81'22"   | 100.00 | 43.31  |
| C3          | 343+03.58 | 568591.5476 | 1449894.4103 | 22°42'54"   | 100.00 | 39.14  |
| C4          | 343+42.46 | 568438.6589 | 1450023.3485 | 22°13'46"   | 100.00 | 38.63  |

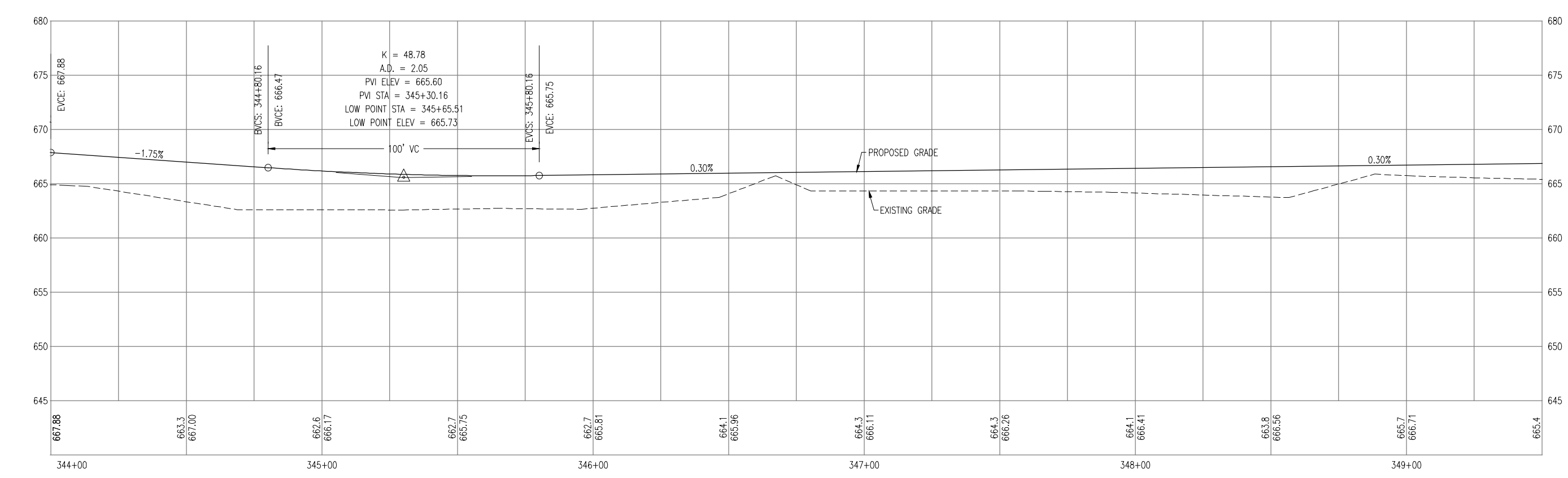
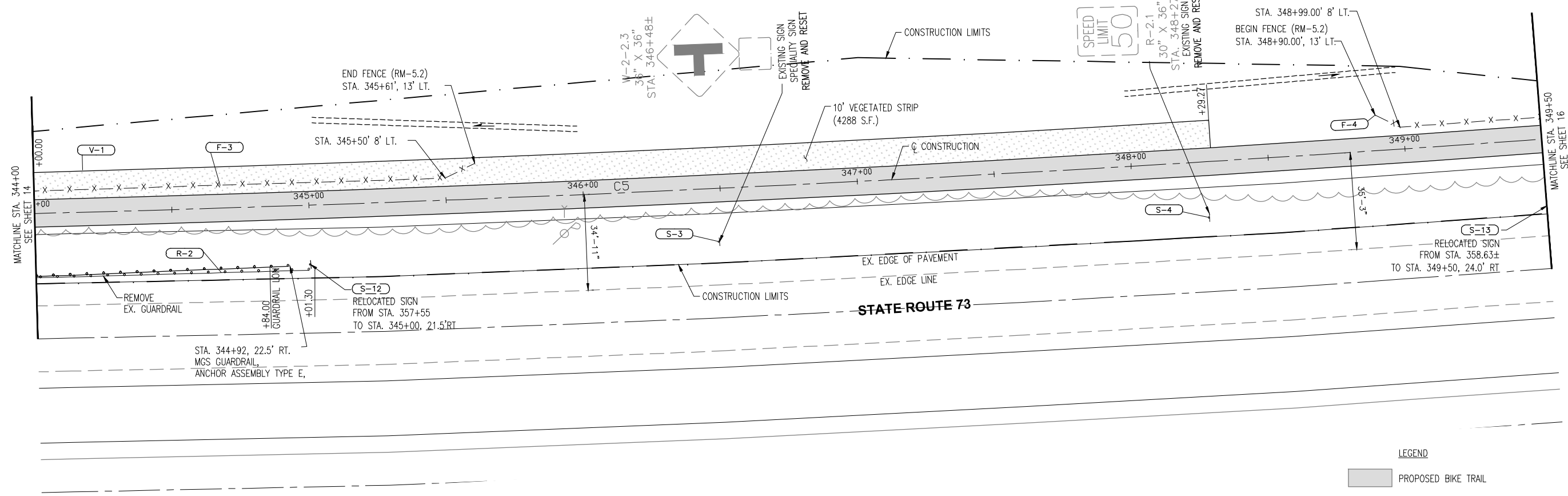


Centerline Profile  
Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL

| CURVE TABLE |           |             |              |             |          |        |
|-------------|-----------|-------------|--------------|-------------|----------|--------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS   | LENGTH |
| C5          | 346+91.91 | 579945.9279 | 1446282.6587 | 3°15'41"    | 12000.00 | 660.60 |
|             |           |             |              |             |          | 330.38 |



CALCULATED LG  
CHECKED TCB



LEGEND  
 PROPOSED BIKE TRAIL

Centerline Profile

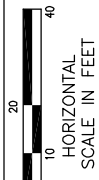
Scale  
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 1" = 20' HORIZONTAL

**PLAN & PROFILE**  
**Sta. 344+00 to Sta. 349+50**

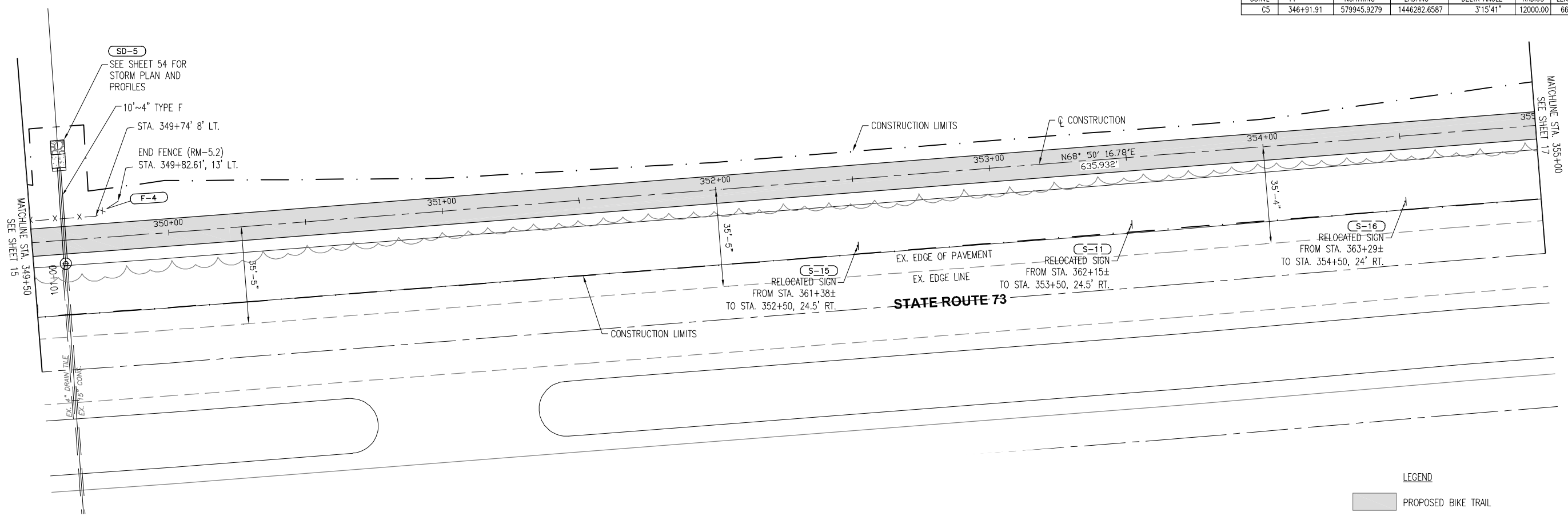
**BUT/WAR GMR TRAIL EXTENSION**



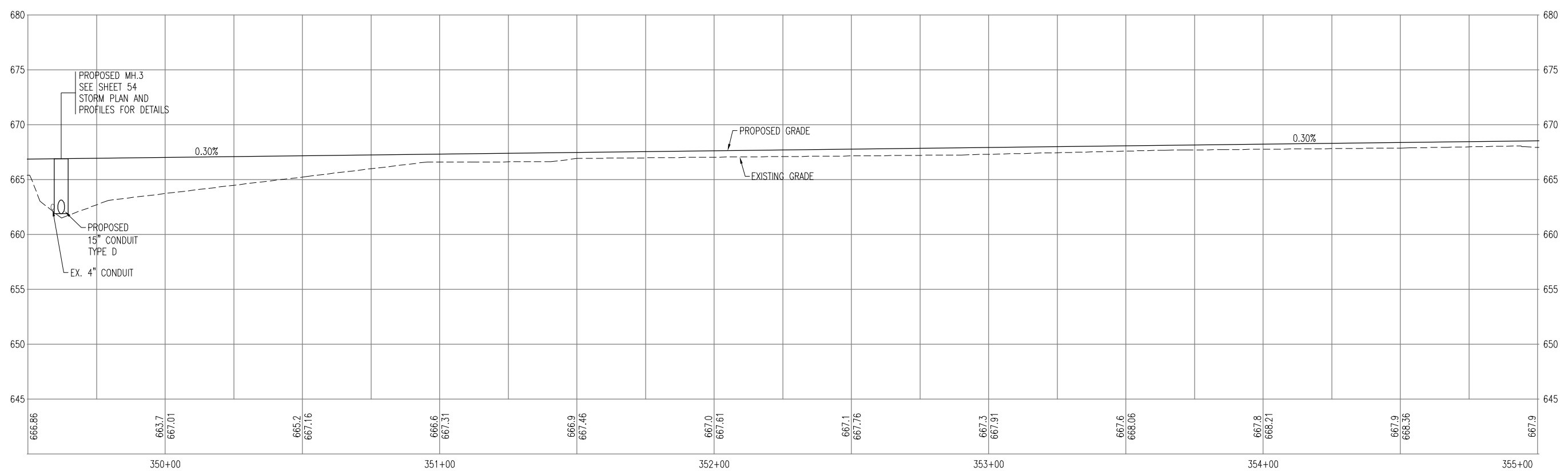
| CURVE TABLE |           |             |              |             |          |        |         |
|-------------|-----------|-------------|--------------|-------------|----------|--------|---------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS   | LENGTH | TANGENT |
| C5          | 346+91.91 | 579945.9279 | 1446282.6587 | 3°15'41"    | 12000.00 | 660.60 | 330.38  |



CALCULATED LG CHECKED TGB



LEGEND  
 PROPOSED BIKE TRAIL

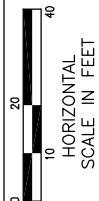


Centerline Profile  
 Scale  
 1" = 5' VERTICAL  
 1" = 20' HORIZONTAL

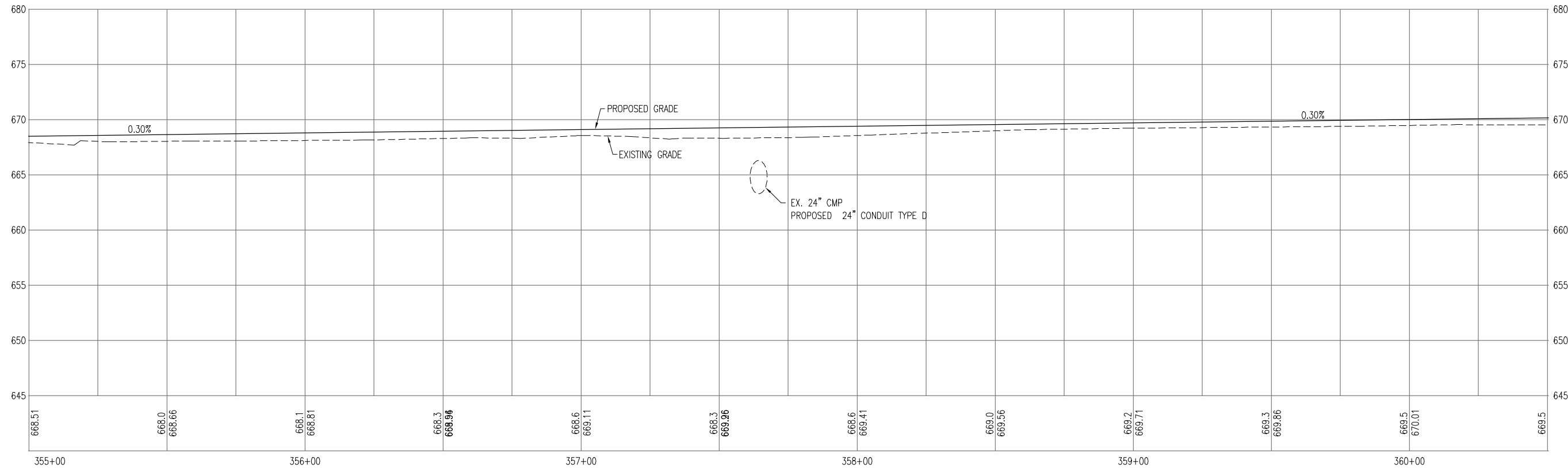
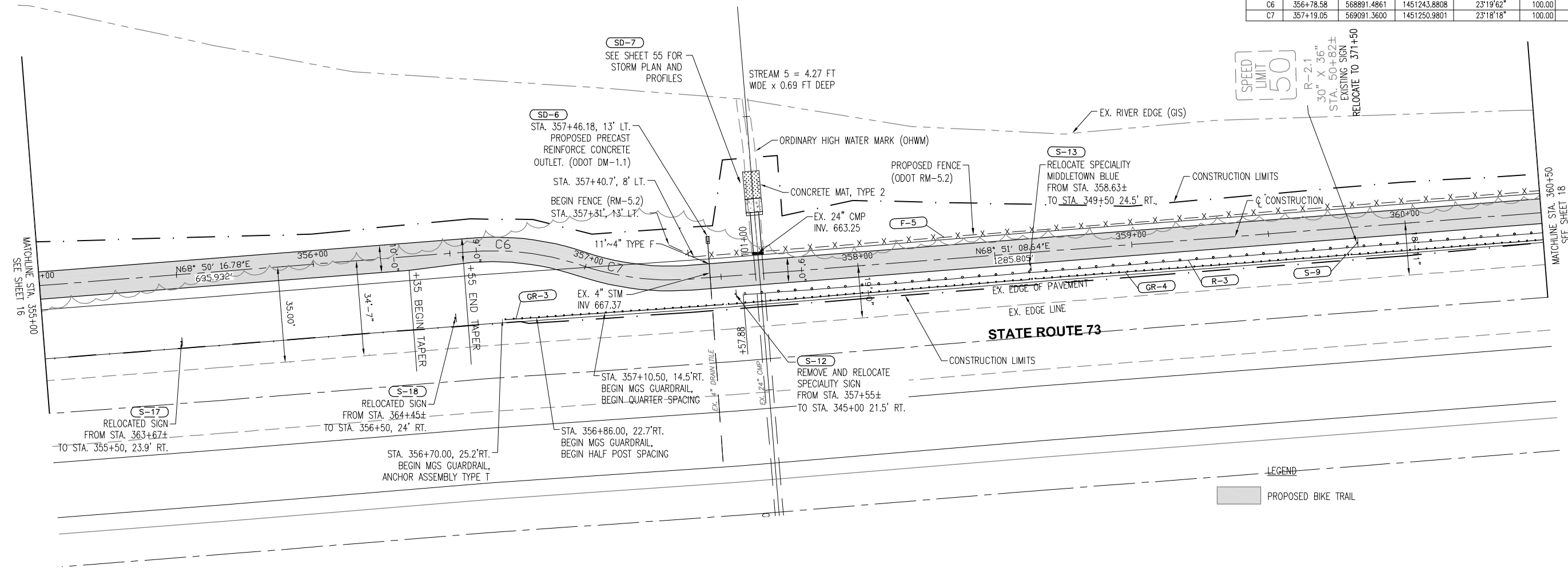
**PLAN & PROFILE**  
**Sta. 349+50 to Sta. 355+00**

**BUT/WAR GMR TRAIL EXTENSION**

| CURVE TABLE |           |             |              |             |        |        |         |
|-------------|-----------|-------------|--------------|-------------|--------|--------|---------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS | LENGTH | TANGENT |
| C6          | 356+78.58 | 568891.4861 | 1451243.8808 | 23°19'62"   | 100.00 | 40.49  | 20.52   |
| C7          | 357+19.05 | 569091.3600 | 1451250.9801 | 23°18'18"   | 100.00 | 40.46  | 20.51   |



CALCULATED LG CHECKED TCB



Centerline Profile  
 Scale  
 1" = 5' VERTICAL  
 1" = 20' HORIZONTAL

PLAN & PROFILE  
 Sta. 355+00 to Sta. 360+50

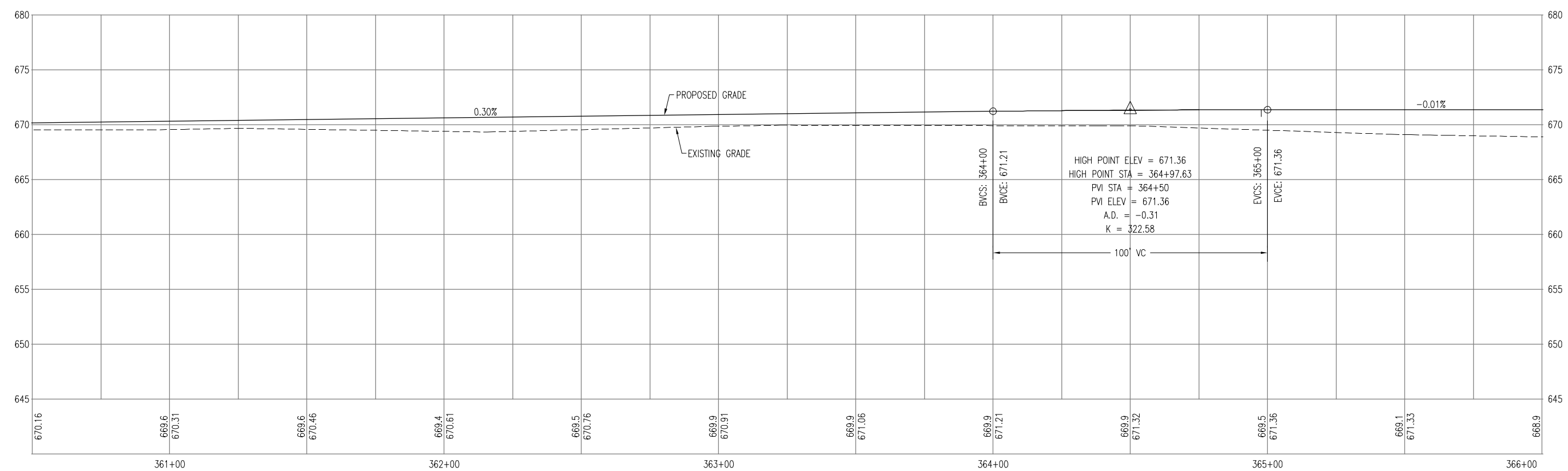
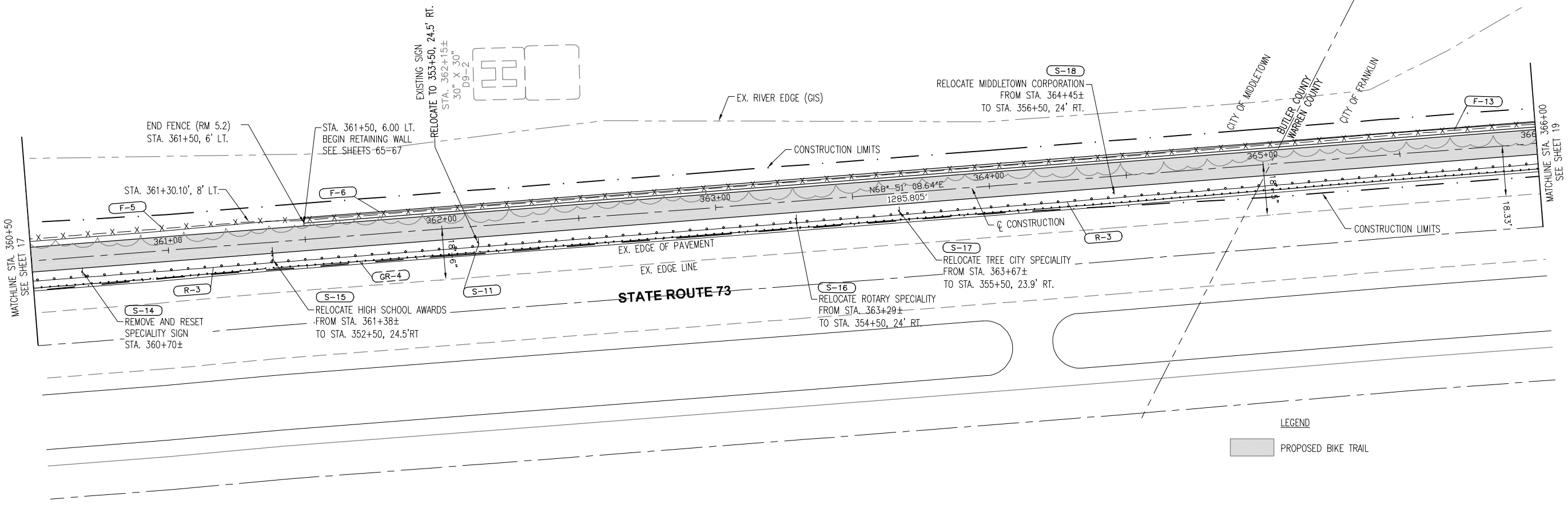
BUT/WAR GMR TRAIL EXTENSION



CALCULATED LG CHECKED TGB



**PLAN & PROFILE**  
**Sta. 360+50 to Sta. 366+00**

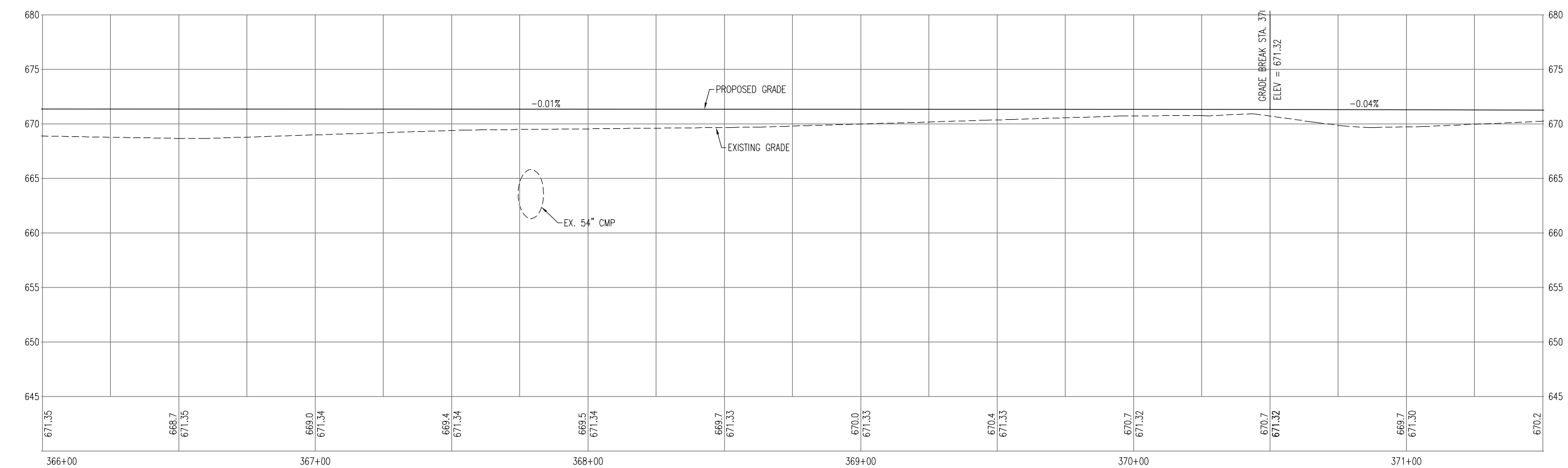
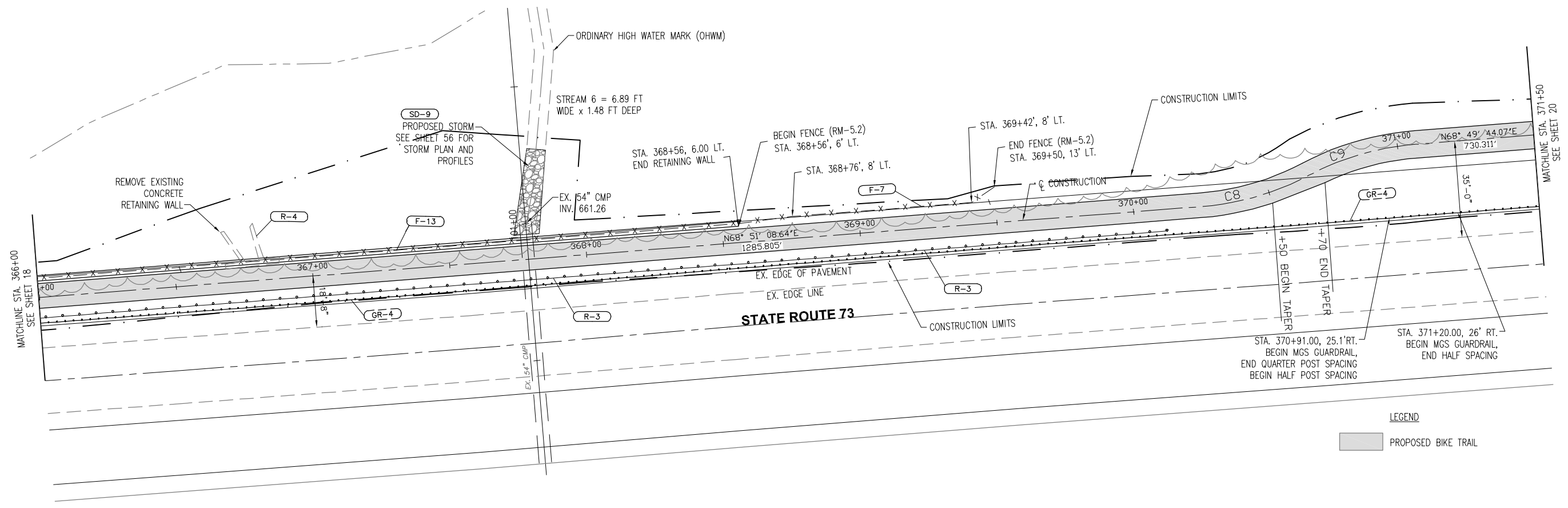
**BUT/WAR GMR TRAIL EXTENSION**



Centerline Profile  
Scale: 1" = 5' VERTICAL  
1" = 20' HORIZONTAL

| CURVE TABLE |           |             |              |             |        |        |         |
|-------------|-----------|-------------|--------------|-------------|--------|--------|---------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS | LENGTH | TANGENT |
| CB          | 370+45.56 | 569555.2420 | 1452450.1912 | 23°44'90"   | 100.00 | 40.93  | 20.75   |
| C9          | 370+86.47 | 569412.8286 | 1452590.6134 | 23°42'55"   | 100.00 | 40.89  | 20.73   |


  

  
 HORIZONTAL SCALE IN FEET



Centerline Profile  
 Scale  
 1" = 5' VERTICAL  
 1" = 20' HORIZONTAL

**PLAN & PROFILE**  
**Sta. 366+00 to Sta. 371+50**

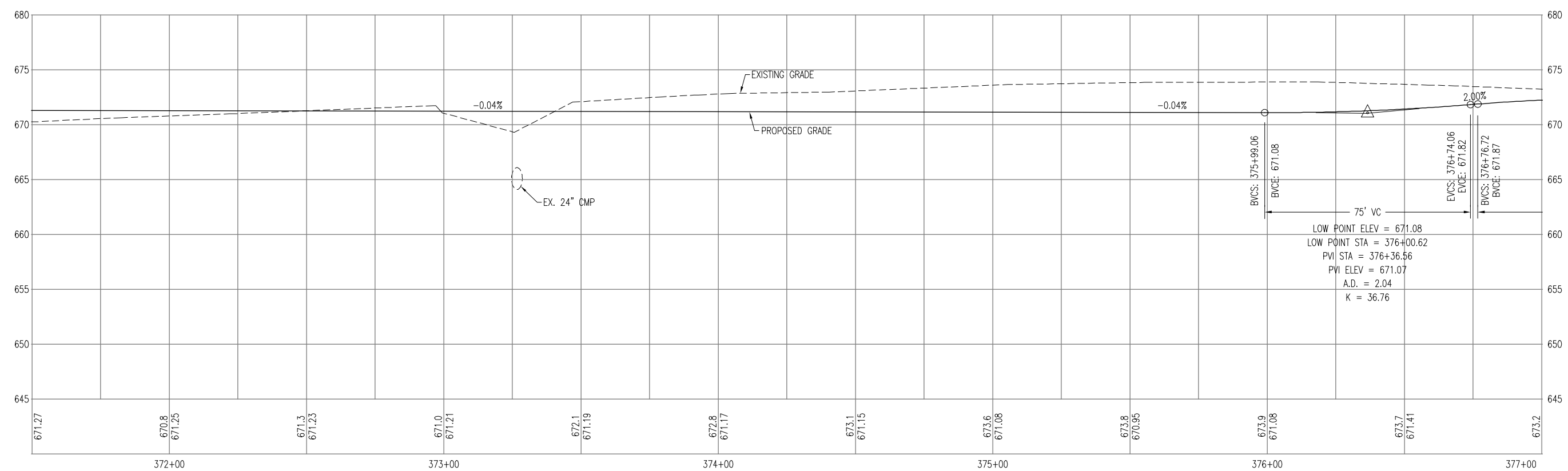
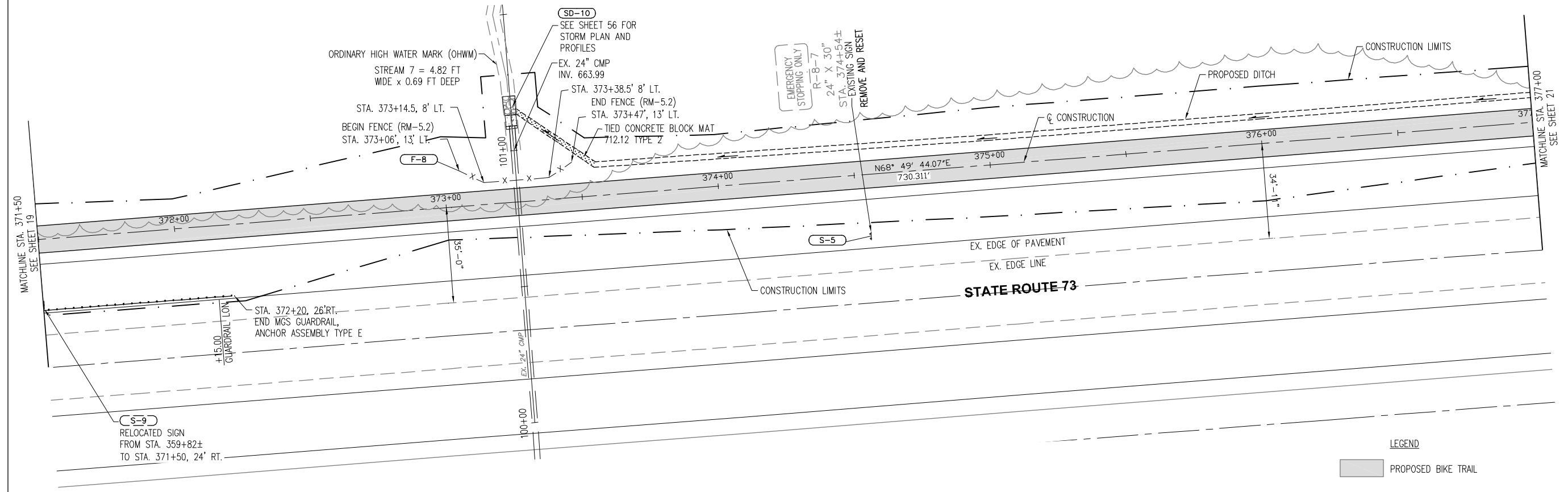
**BUT/WAR GMR TRAIL EXTENSION**



CALCULATED LG CHECKED TGB

**PLAN & PROFILE**  
**Sta. 371+50 to Sta. 377+00**

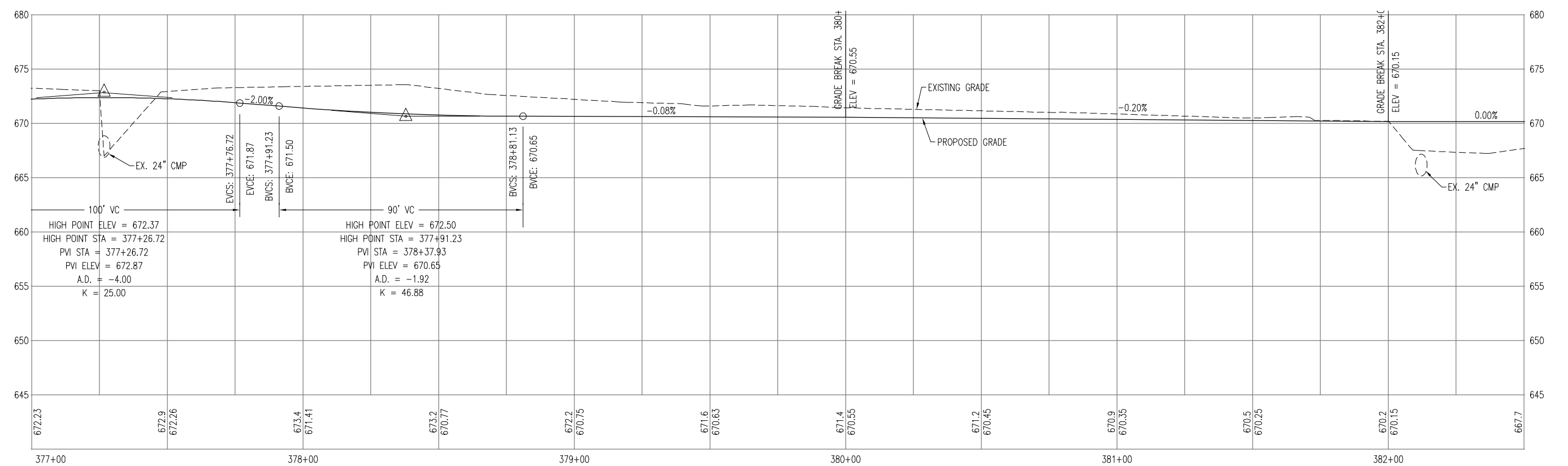
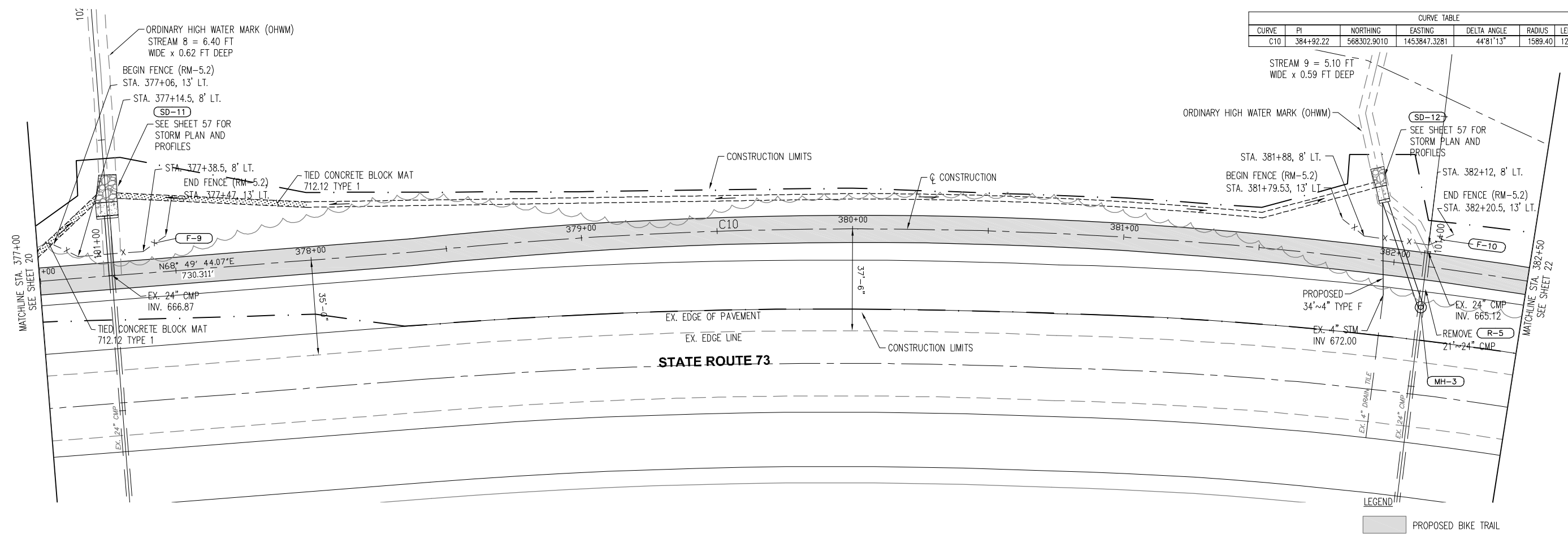
**BUT/WAR GMR TRAIL EXTENSION**



**Centerline Profile**

Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL

| CURVE TABLE |           |             |              |             |         |         |         |
|-------------|-----------|-------------|--------------|-------------|---------|---------|---------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS  | LENGTH  | TANGENT |
| C10         | 384+92.22 | 568302.9010 | 1453847.3281 | 44°8'13"    | 1589.40 | 1243.08 | 655.29  |



**Centerline Profile**  
 Scale:  
 1" = 5' VERTICAL  
 1" = 20' HORIZONTAL

CALCULATED LG CHECKED TGB

0 10 20 40  
 HORIZONTAL SCALE IN FEET

**PLAN & PROFILE**  
**Sta. 377+00 to Sta. 382+50**

**BUT/WAR GMR TRAIL EXTENSION**

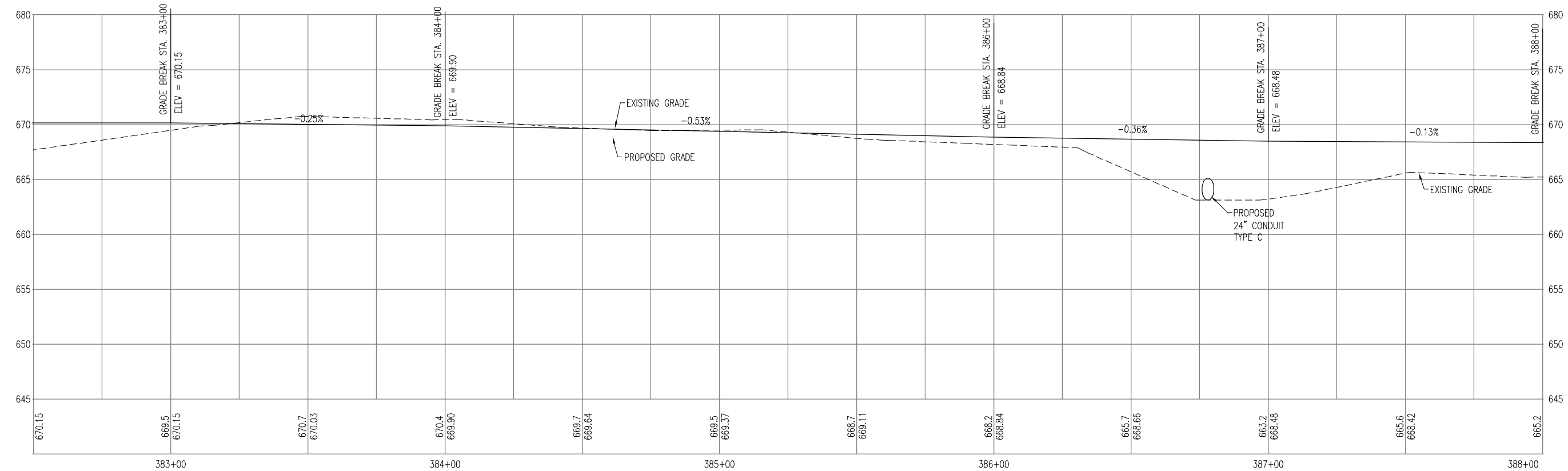
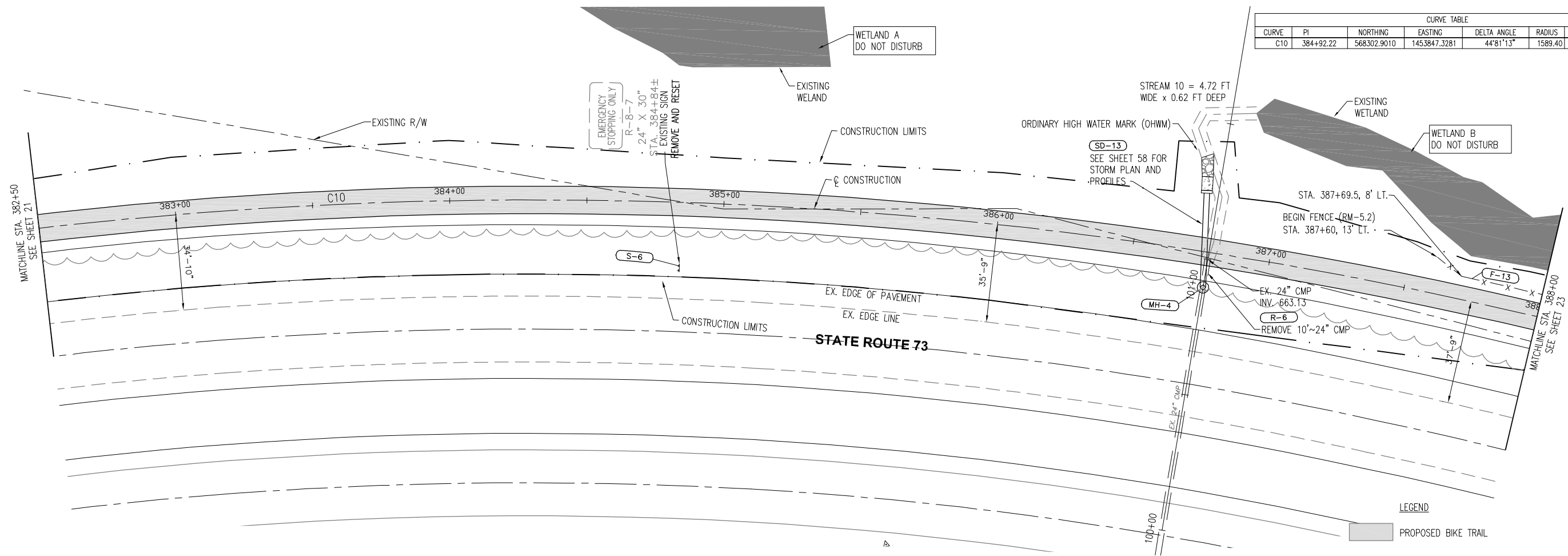
| CURVE TABLE |           |             |              |             |         |         |
|-------------|-----------|-------------|--------------|-------------|---------|---------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS  | LENGTH  |
| C10         | 384+92.22 | 568302.9010 | 1453847.3281 | 44°8'13"    | 1589.40 | 1243.08 |



CALCULATED LG  
CHECKED TCB

**PLAN & PROFILE**  
Sta. 382+50 to Sta. 388+00

**BUT/WAR GMR TRAIL EXTENSION**



**Centerline Profile**  
Scale: 1" = 5' VERTICAL  
1" = 20' HORIZONTAL

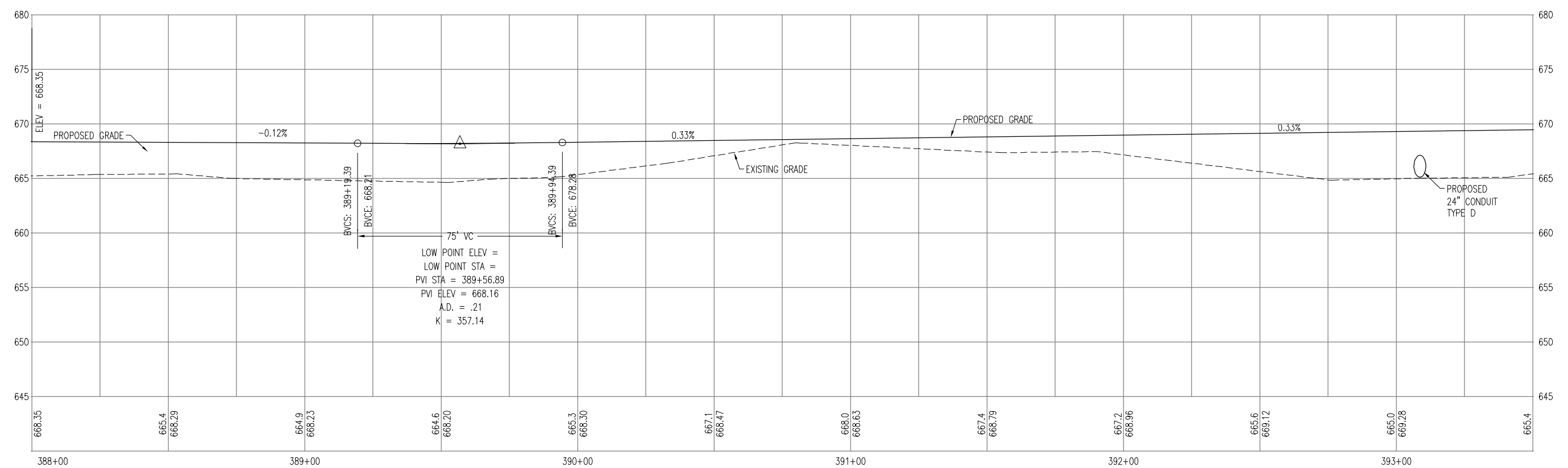
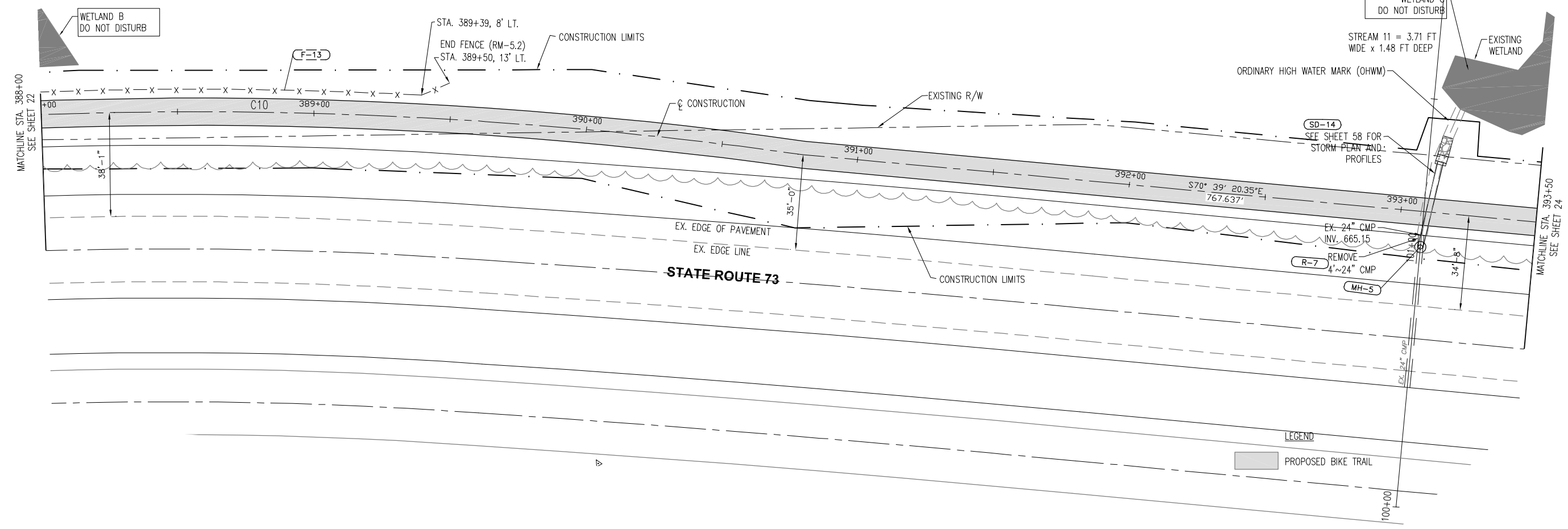
| CURVE TABLE |           |             |              |             |         |         |
|-------------|-----------|-------------|--------------|-------------|---------|---------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS  | TANGENT |
| C10         | 384+92.22 | 568302.9010 | 1453847.3281 | 44°8'13"    | 1589.40 | 1243.08 |



CALCULATED LG CHECKED TGB

**PLAN & PROFILE**  
Sta. 388+00 to Sta. 393+50

**BUT/WAR GMR TRAIL EXTENSION**



**Centerline Profile**

Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL

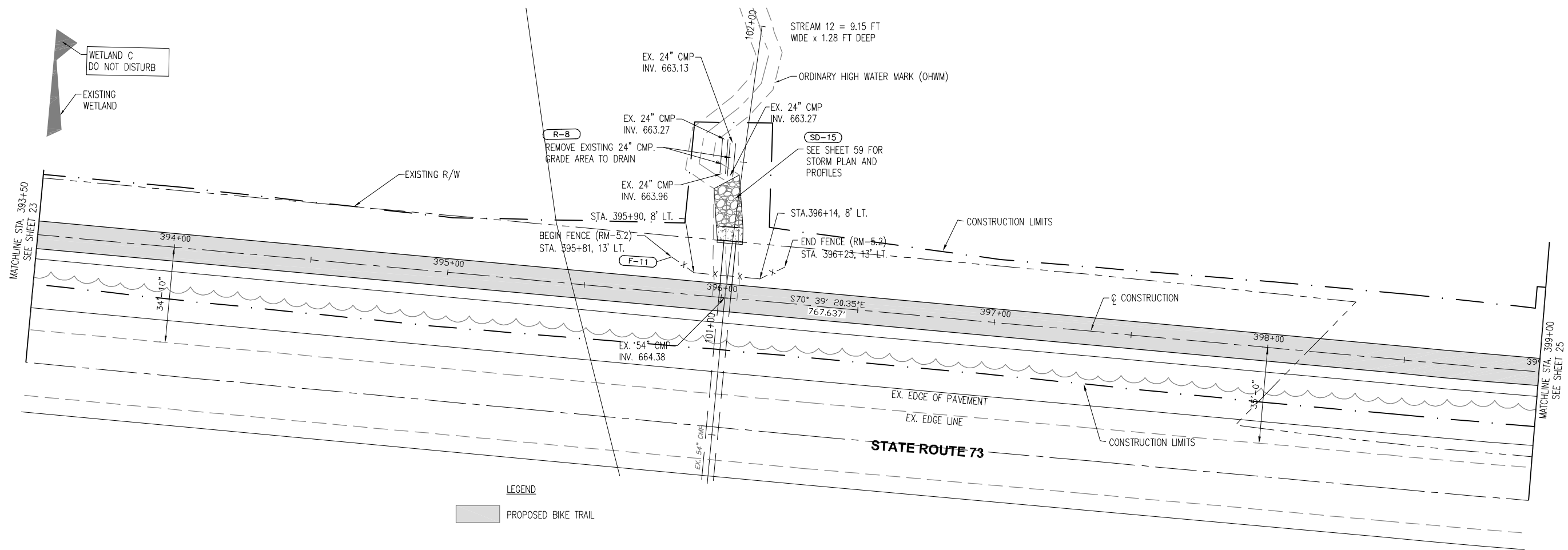




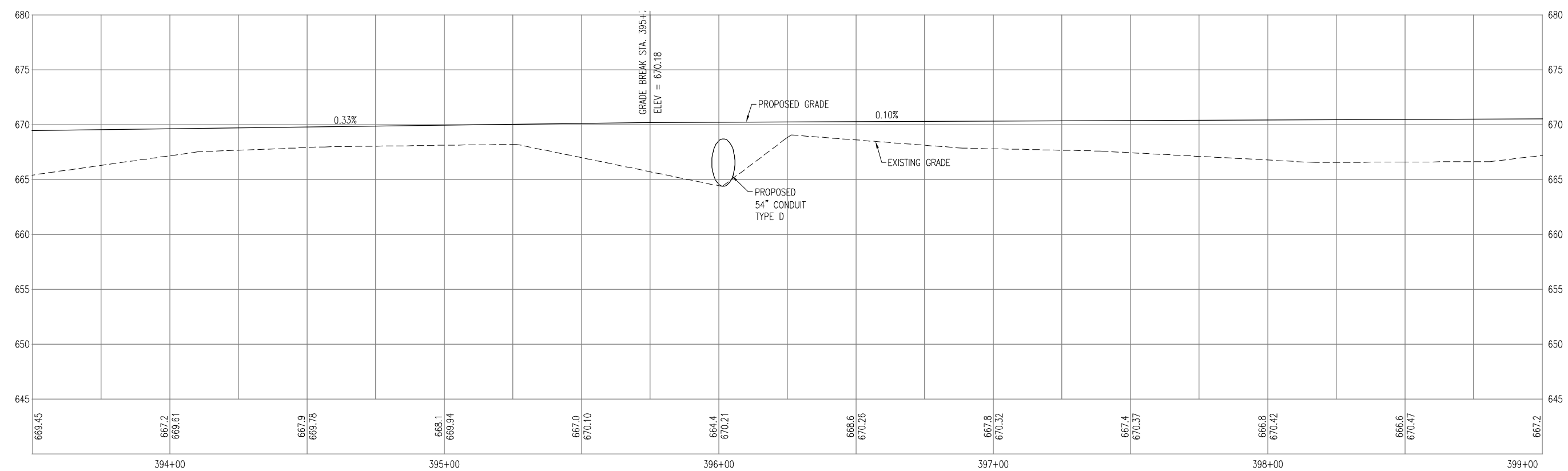
CALCULATED LG CHECKED TGB

**PLAN & PROFILE**  
**Sta. 393+50 to Sta. 399+00**

**BUT/WAR GMR TRAIL EXTENSION**

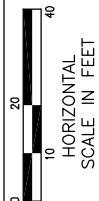


LEGEND  
 PROPOSED BIKE TRAIL

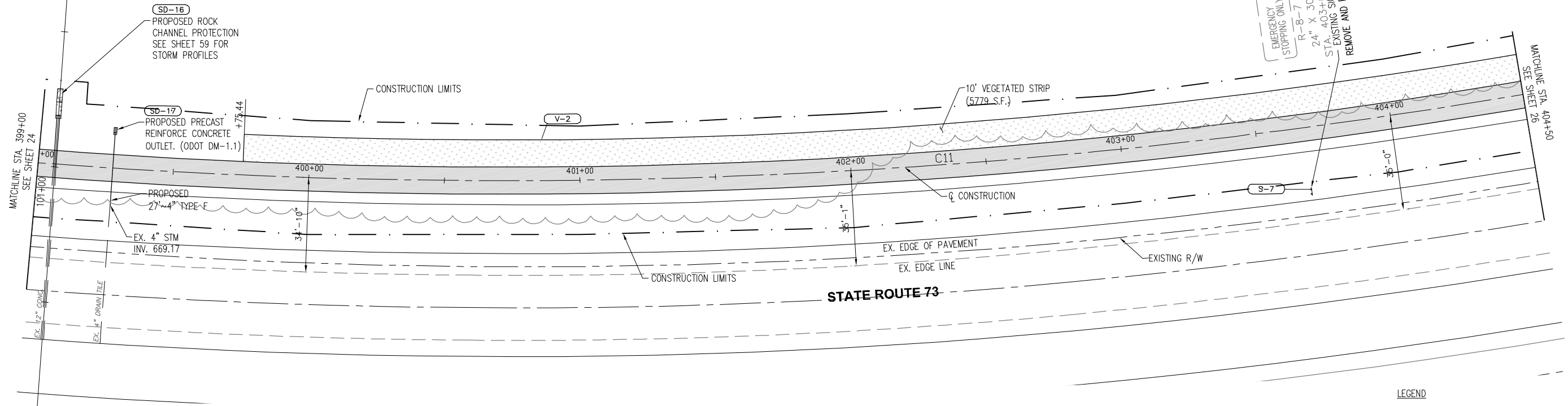


**Centerline Profile**  
Scale: 1" = 5' VERTICAL  
1" = 20' HORIZONTAL

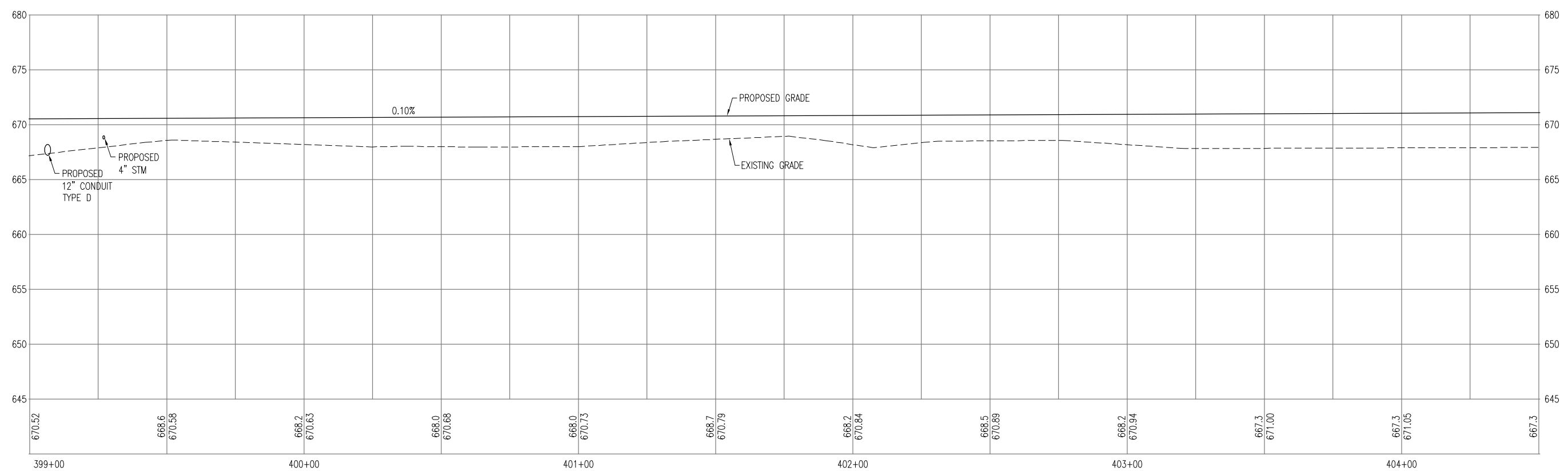
| CURVE TABLE |           |             |              |             |         |        |
|-------------|-----------|-------------|--------------|-------------|---------|--------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS  | LENGTH |
| C11         | 402+61.66 | 571626.1229 | 1455931.2605 | 20°9'56"    | 2238.52 | 818.76 |



CALCULATED LG CHECKED TGB



LEGEND  
 PROPOSED BIKE TRAIL



Centerline Profile  
 Scale  
 1" = 5' VERTICAL  
 1" = 20' HORIZONTAL

PLAN & PROFILE  
 Sta. 399+00 to Sta. 404+50

BUT/WAR GMR TRAIL EXTENSION

| CURVE TABLE |           |             |              |             |         |        |         |
|-------------|-----------|-------------|--------------|-------------|---------|--------|---------|
| CURVE       | PI        | NORTHING    | EASTING      | DELTA ANGLE | RADIUS  | LENGTH | TANGENT |
| C11         | 402+61.66 | 571626.1229 | 1455931.2605 | 20°95'66"   | 2238.52 | 818.76 | 414.01  |
| C12         | 406+91.66 | 569463.0161 | 1455973.3456 | 37°21'08"   | 75.00   | 48.71  | 25.25   |
| C13         | 407+90.86 | 569404.5371 | 1456100.9376 | 26°78'91"   | 50.00   | 23.38  | 11.91   |



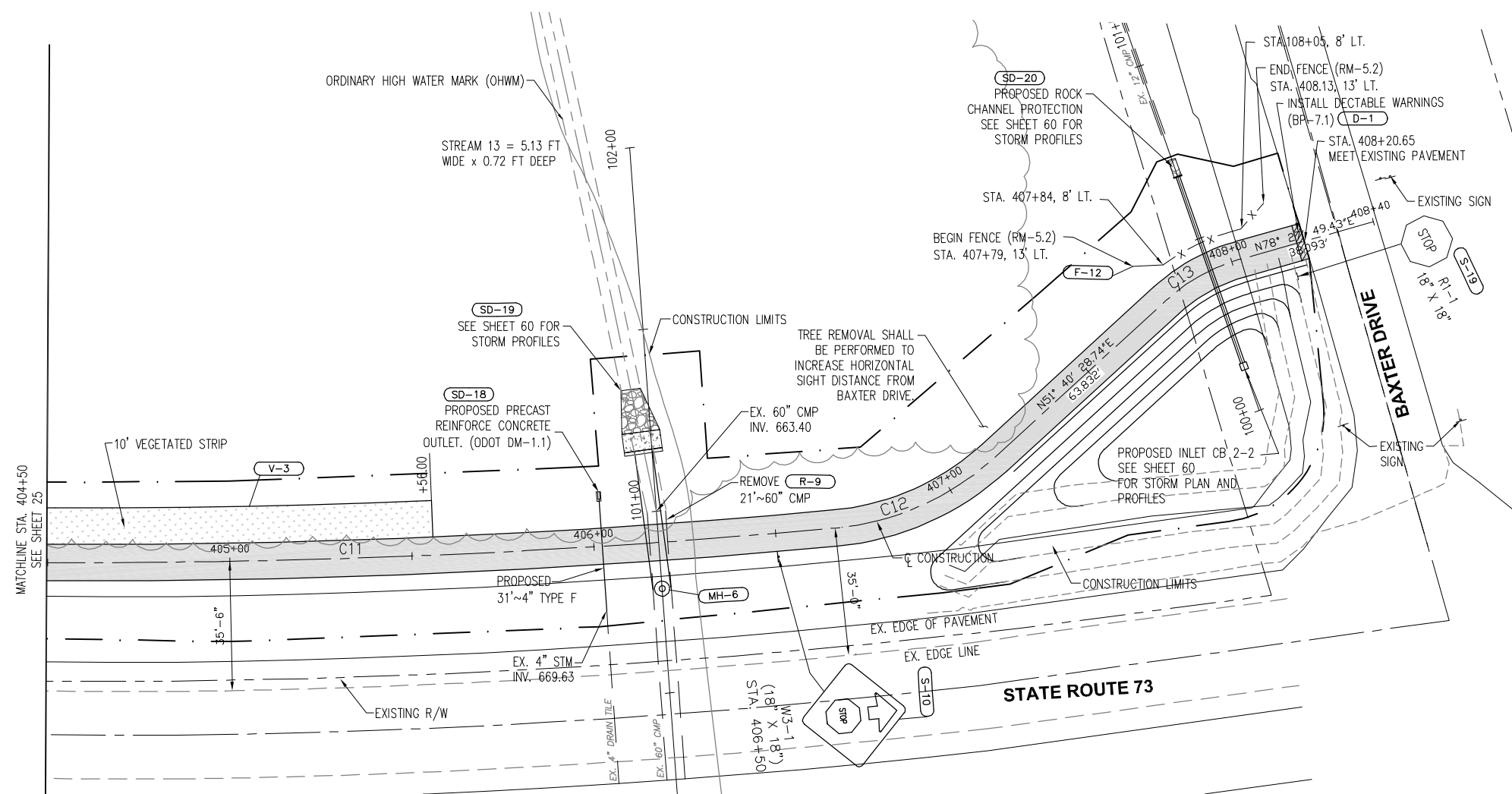
0 10 20 40  
HORIZONTAL SCALE IN FEET

CALCULATED LG  
CHECKED TCB

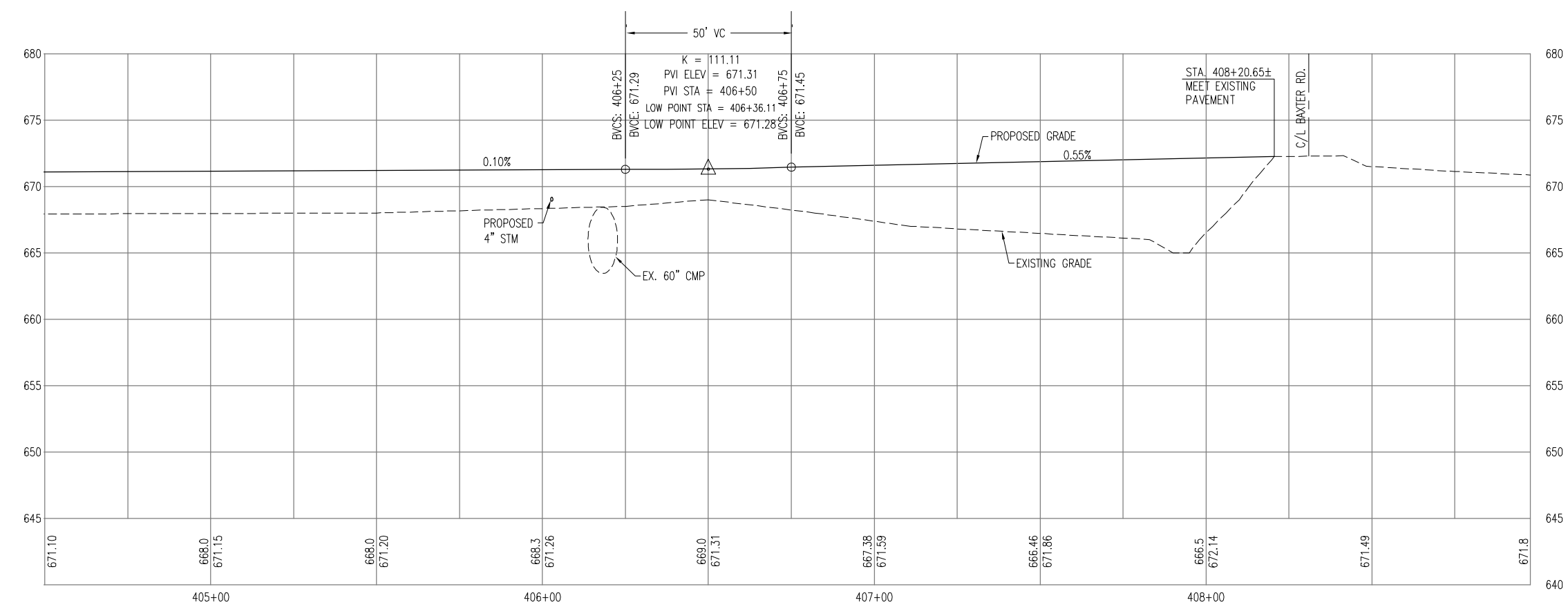
PLAN & PROFILE  
Sta. 404+50 to END

BUT/WAR GMR TRAIL EXTENSION

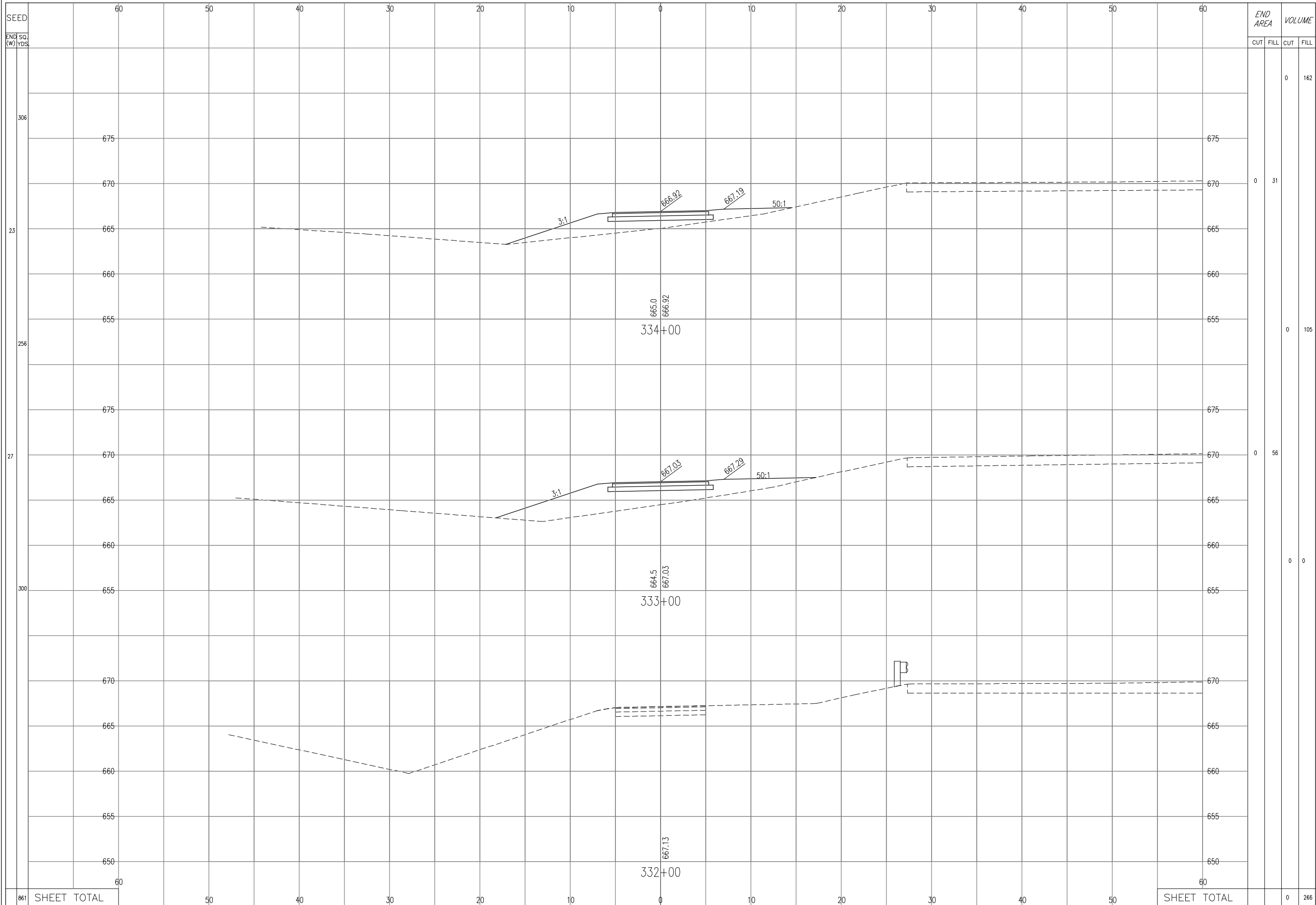
26  
67



LEGEND  
[Shaded Box] PROPOSED BIKE TRAIL



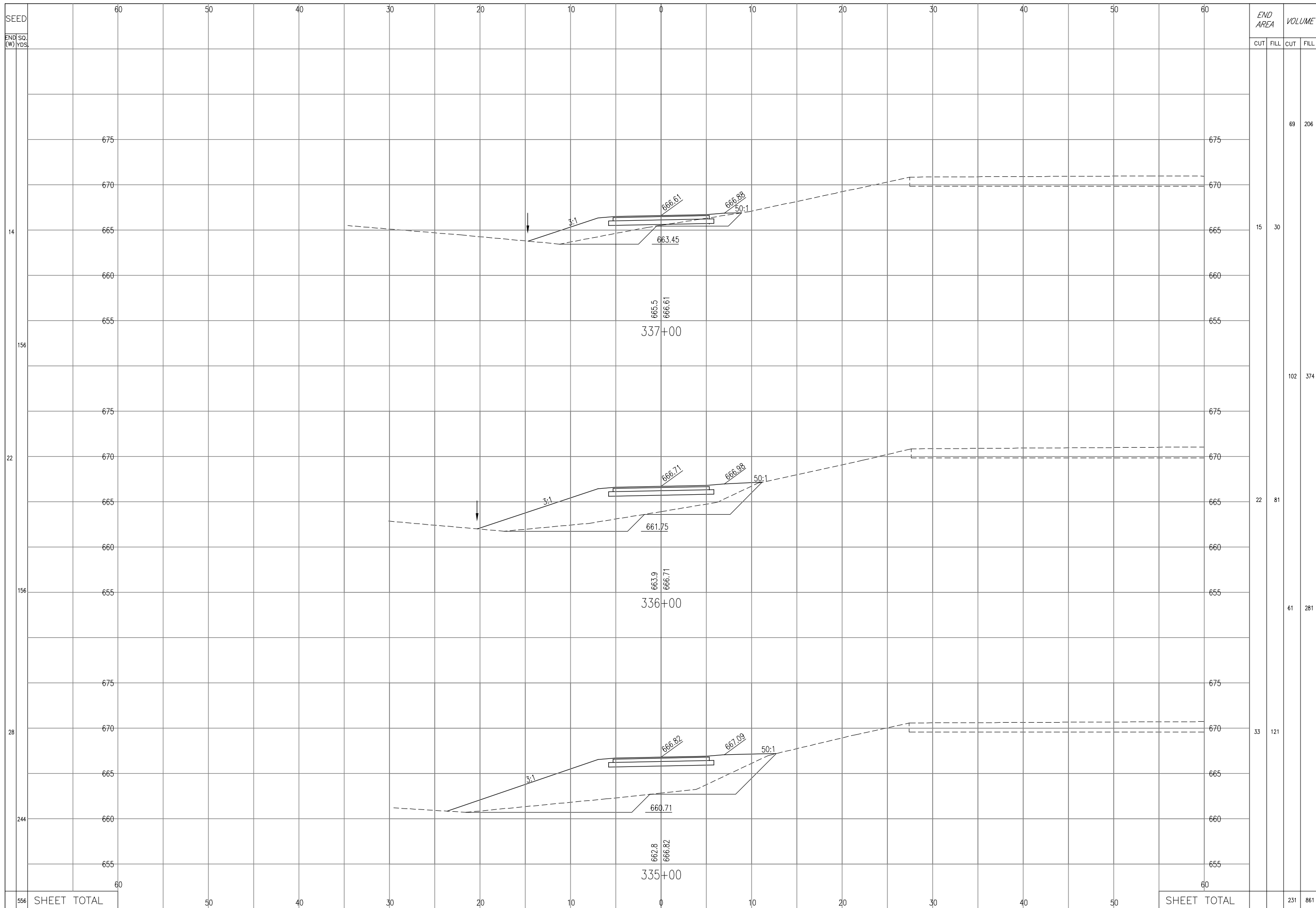
Centerline Profile  
Scale: 1" = 5' VERTICAL, 1" = 20' HORIZONTAL



CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 332+00 to STA. 334+00**

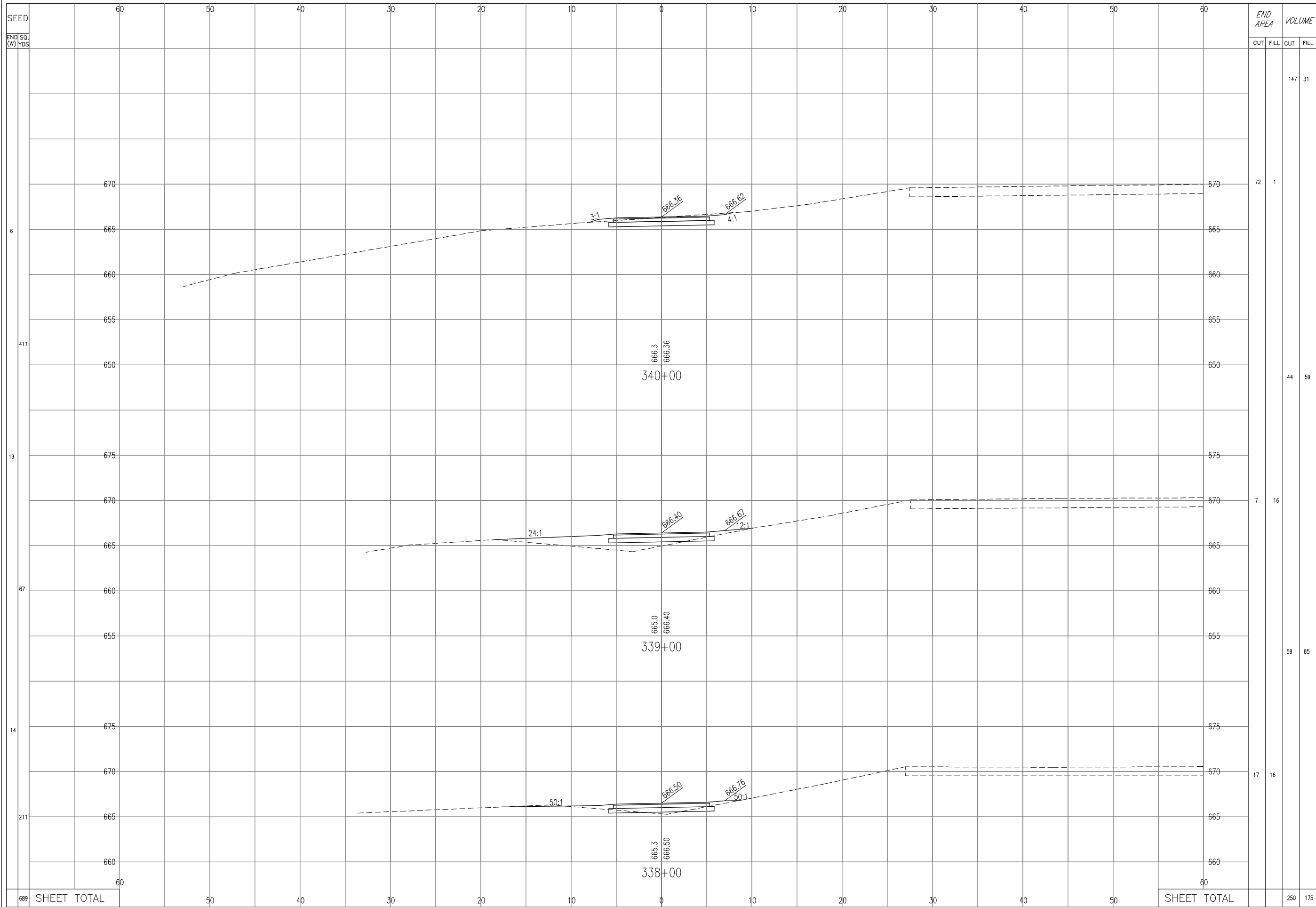
**BUT/WAR GMR TRAIL EXTENSION**



CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 335+00 to STA. 337+00**

**BUT/WAR GMR TRAIL EXTENSION**



| END AREA    | VOLUME |         |
|-------------|--------|---------|
|             | CUT    | FILL    |
| 72          | 1      | 147 31  |
| 44          | 59     |         |
| 7           | 16     |         |
| 59          | 85     |         |
| 17          | 16     |         |
| SHEET TOTAL |        | 250 175 |

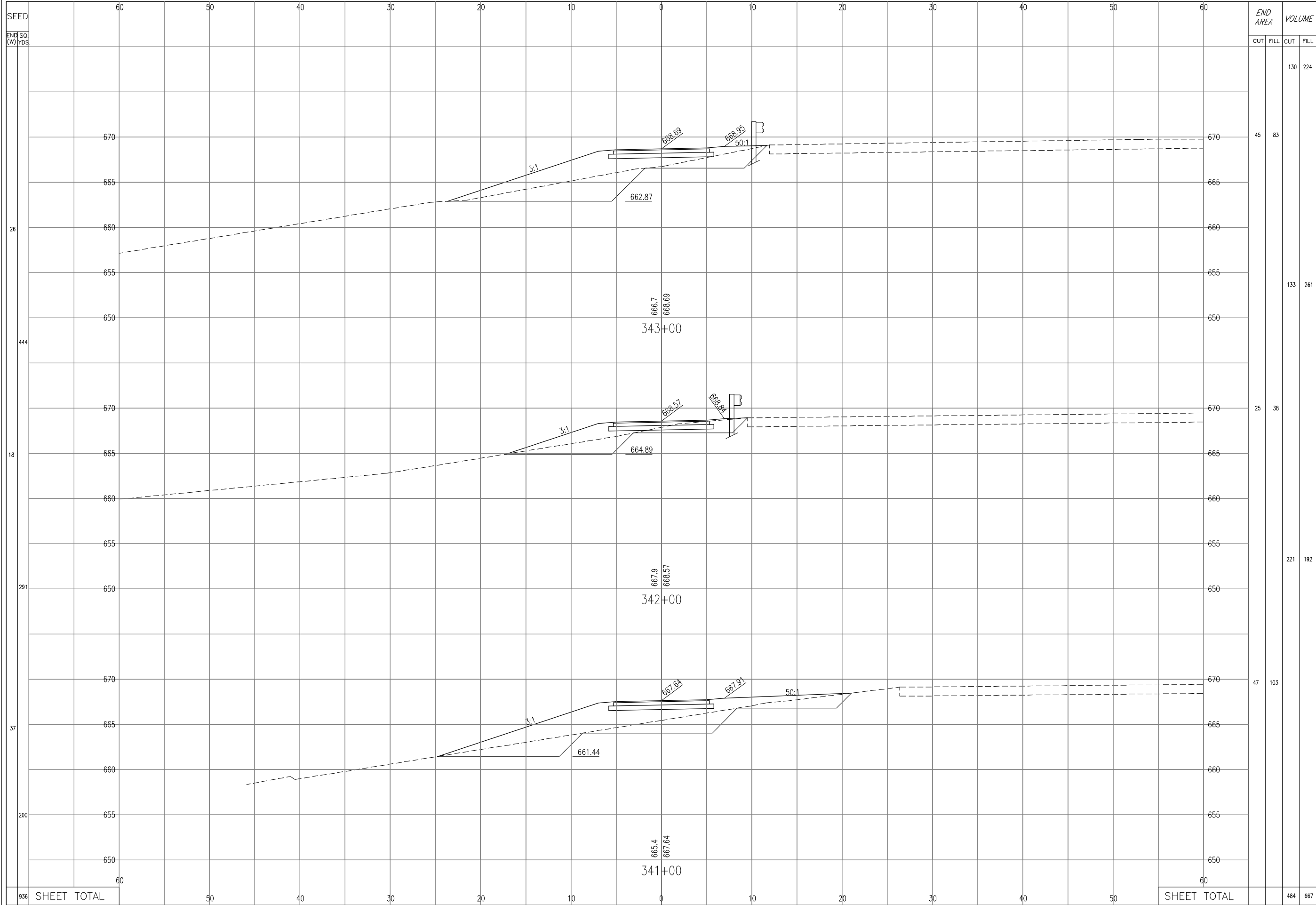
689 SHEET TOTAL

SHEET TOTAL

CALCULATED  
LG  
CHECKED  
TGB

CROSS SECTIONS  
STA. 338+00 to STA. 340+00

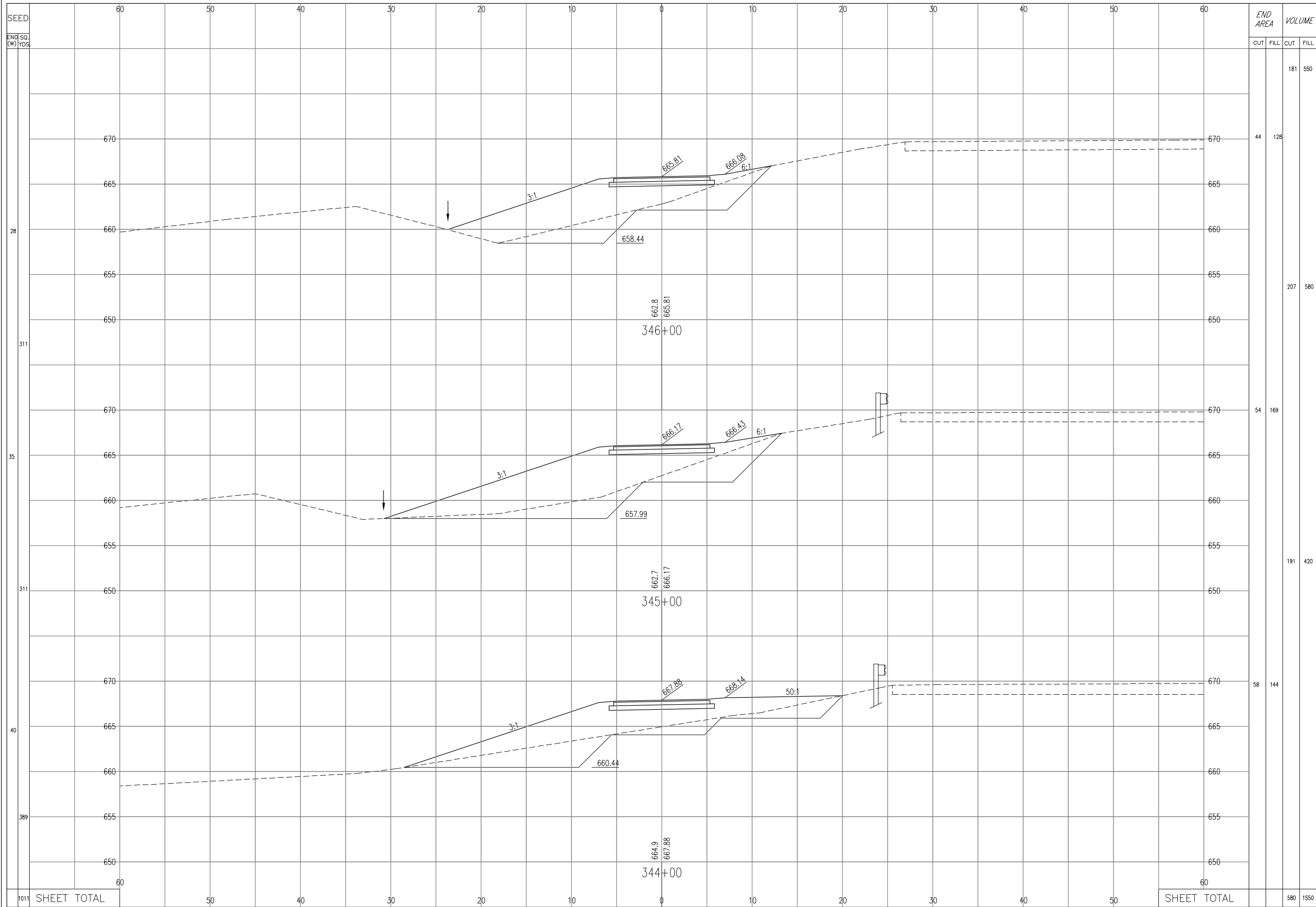
BUT/WAR GMR TRAIL EXTENSION



CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 341+00 to STA. 343+00**

**BUT/WAR GMR TRAIL EXTENSION**



| END AREA    |      | VOLUME |      |
|-------------|------|--------|------|
| CUT         | FILL | CUT    | FILL |
| 44          | 128  | 181    | 550  |
| 54          | 169  | 207    | 580  |
| 58          | 144  | 191    | 420  |
| SHEET TOTAL |      | 580    | 1550 |

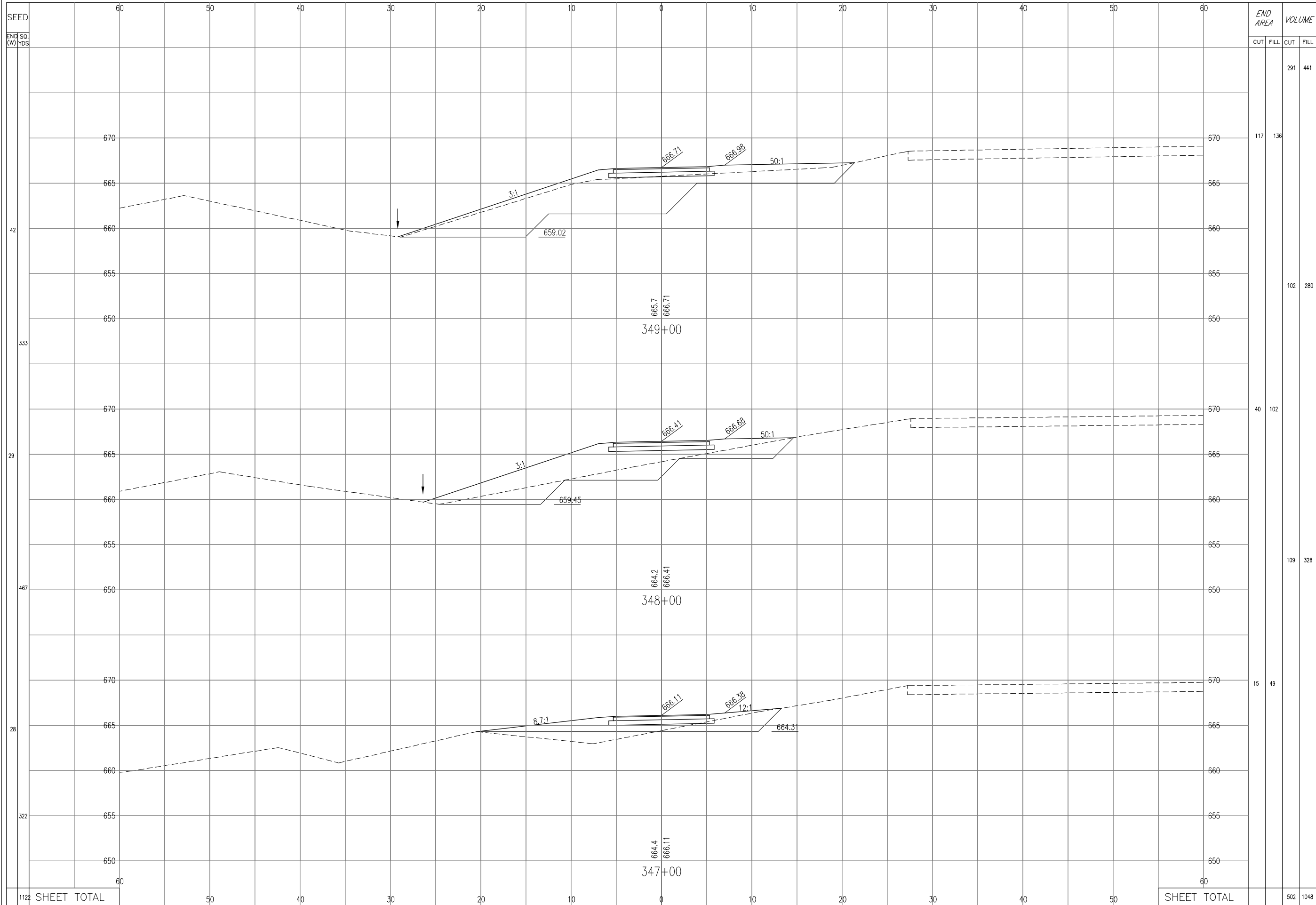
SEED  
END SQ. (W) YDS  
28  
311  
35  
311  
40  
389  
1011

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 344+00 to STA. 346+00**

**BUT/WAR GMR TRAIL EXTENSION**

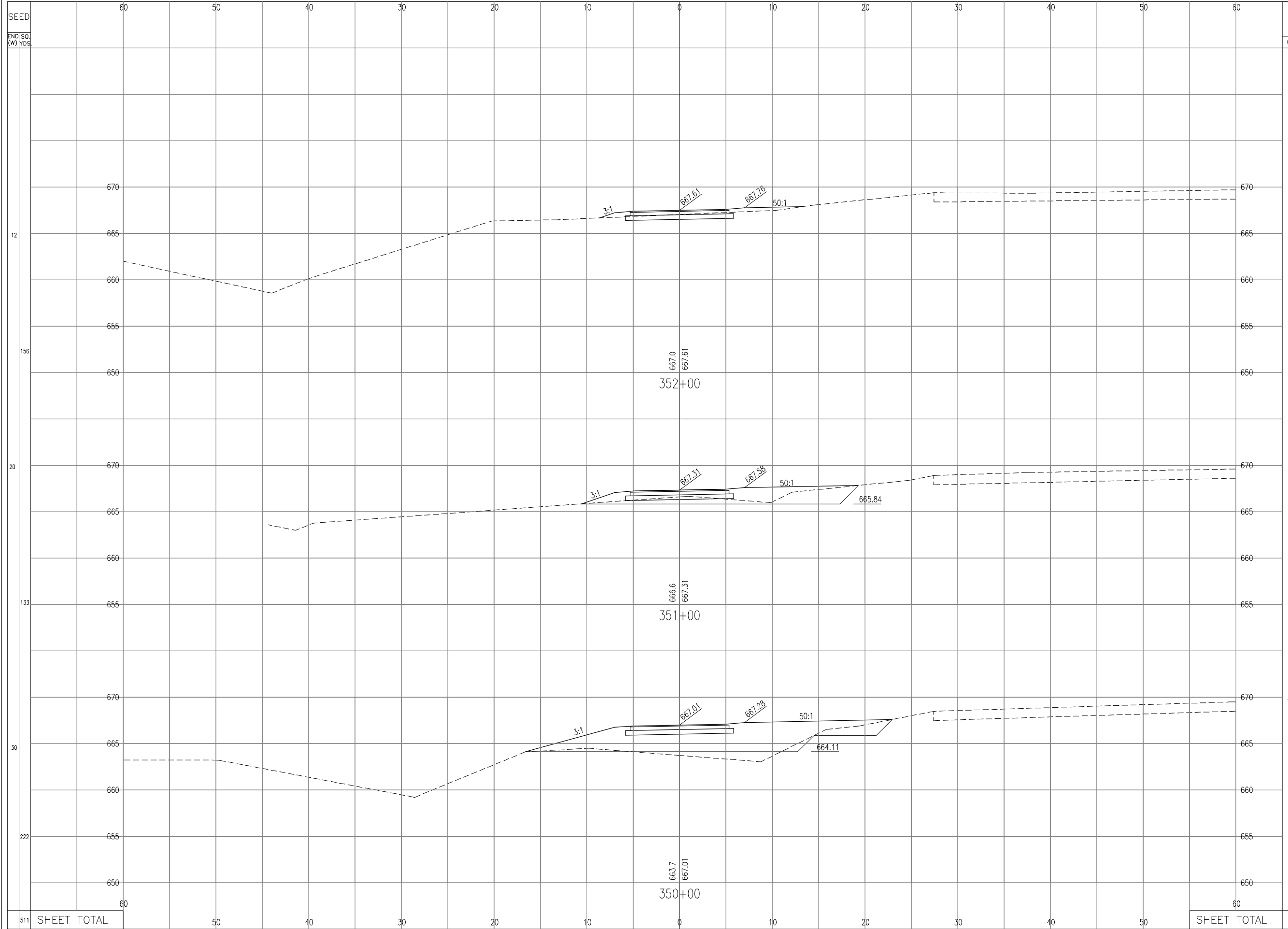




CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 347+00 to STA. 349+00**

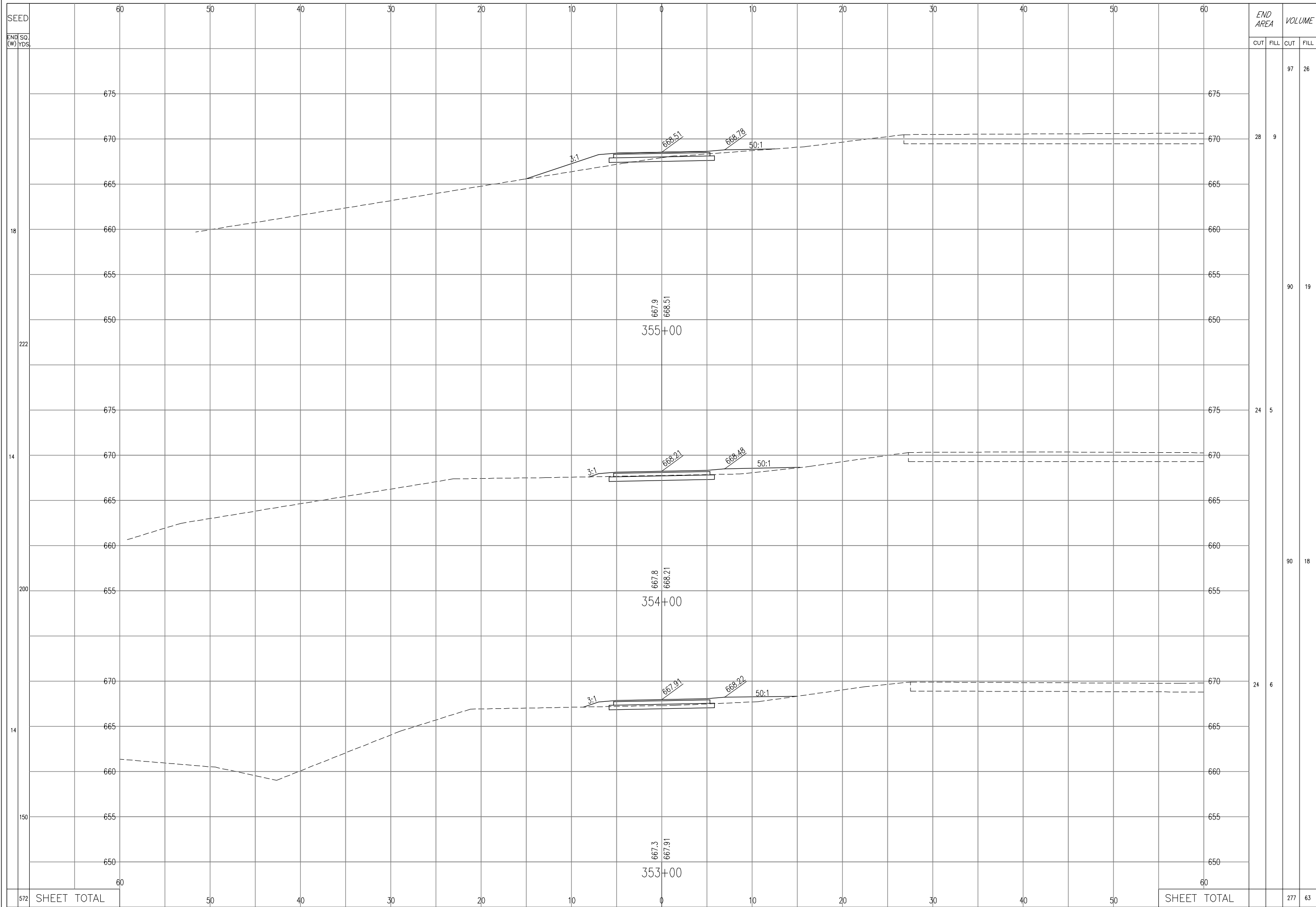
**BUT/WAR GMR TRAIL EXTENSION**



| END AREA           | VOLUME     |            |
|--------------------|------------|------------|
|                    | CUT        | FILL       |
| 24                 | 4          | 82         |
| 20                 | 33         | 57         |
| 11                 | 86         | 237        |
| <b>SHEET TOTAL</b> | <b>377</b> | <b>700</b> |

SEED  
 END SQ. YDS.  
 12  
 156  
 20  
 133  
 30  
 222  
 511

CALCULATED LG CHECKED TGB  
**CROSS SECTIONS STA. 350+00 to STA. 352+00**  
**BUT/WAR GMR TRAIL EXTENSION**  
**33**  
**67**



| END AREA    |      | VOLUME |      |
|-------------|------|--------|------|
| CUT         | FILL | CUT    | FILL |
|             |      | 97     | 26   |
| 28          | 9    |        |      |
|             |      | 90     | 19   |
| 24          | 5    |        |      |
|             |      | 90     | 18   |
| 24          | 6    |        |      |
| SHEET TOTAL |      | 277    | 63   |

SEED  
END SQ.  
(W) YDS.

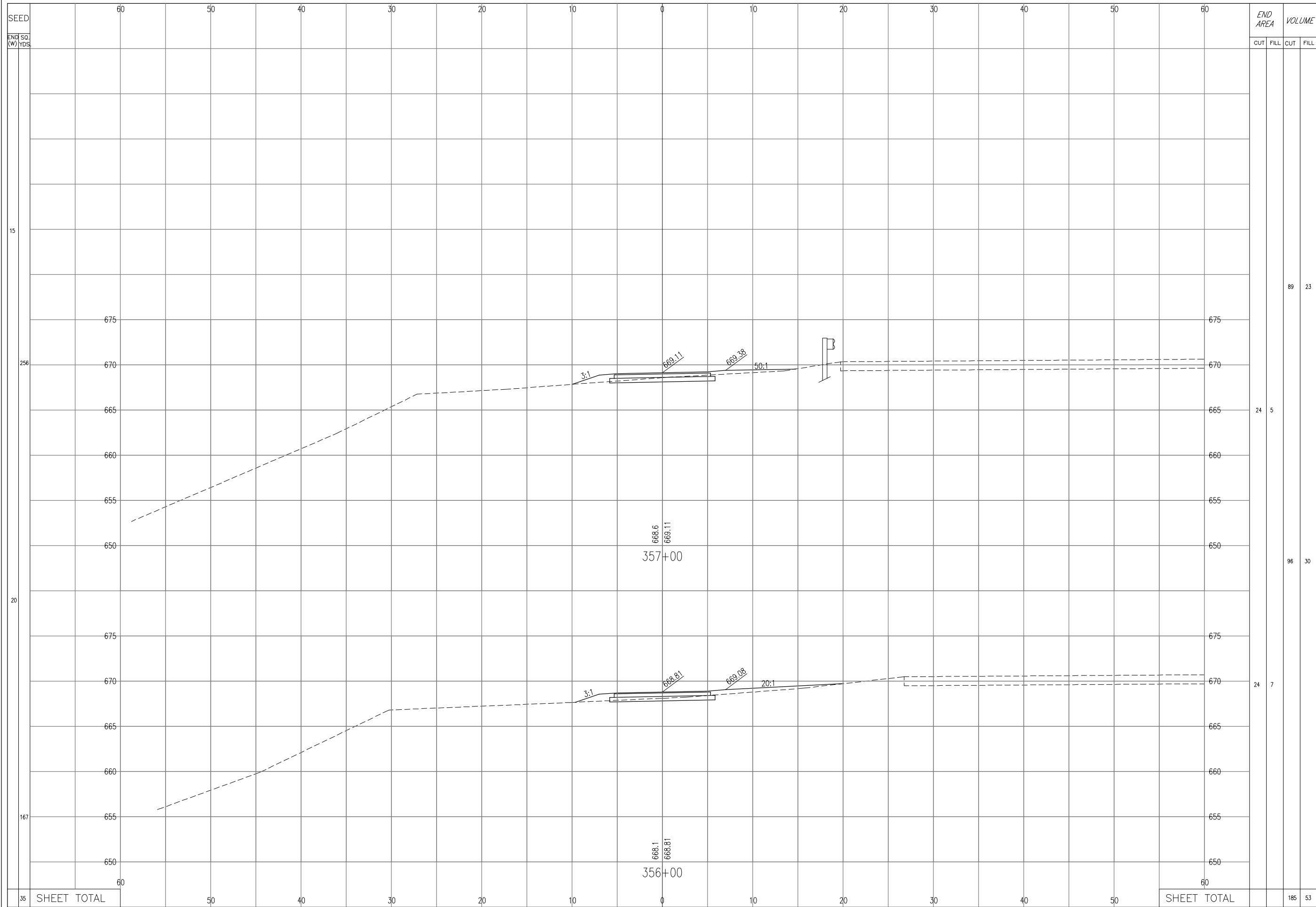
18  
222  
14  
200  
14  
150

572 SHEET TOTAL

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 353+00 to STA. 355+00**

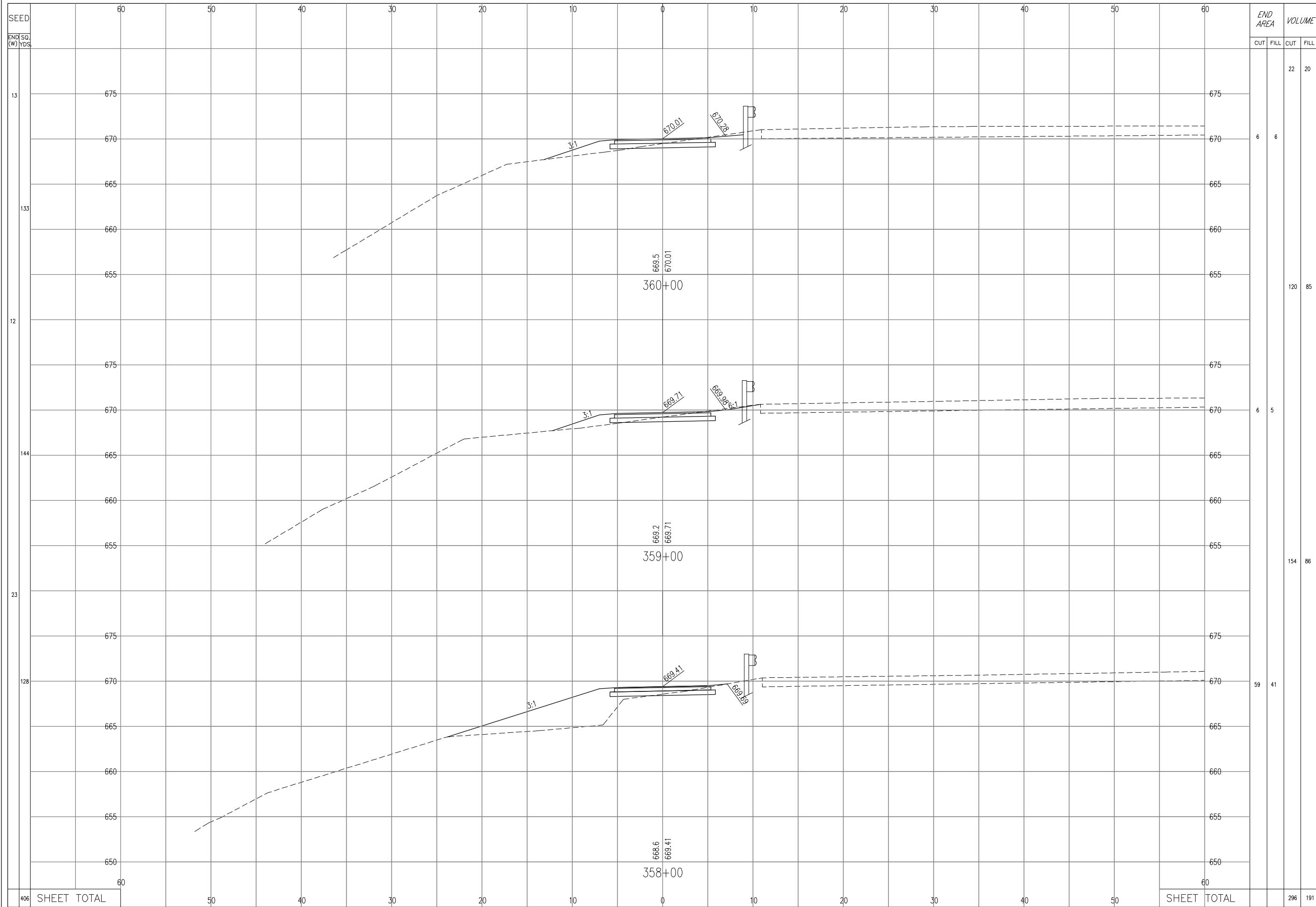
**BUT/WAR GMR TRAIL EXTENSION**



CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 356+00 to STA. 357+00**

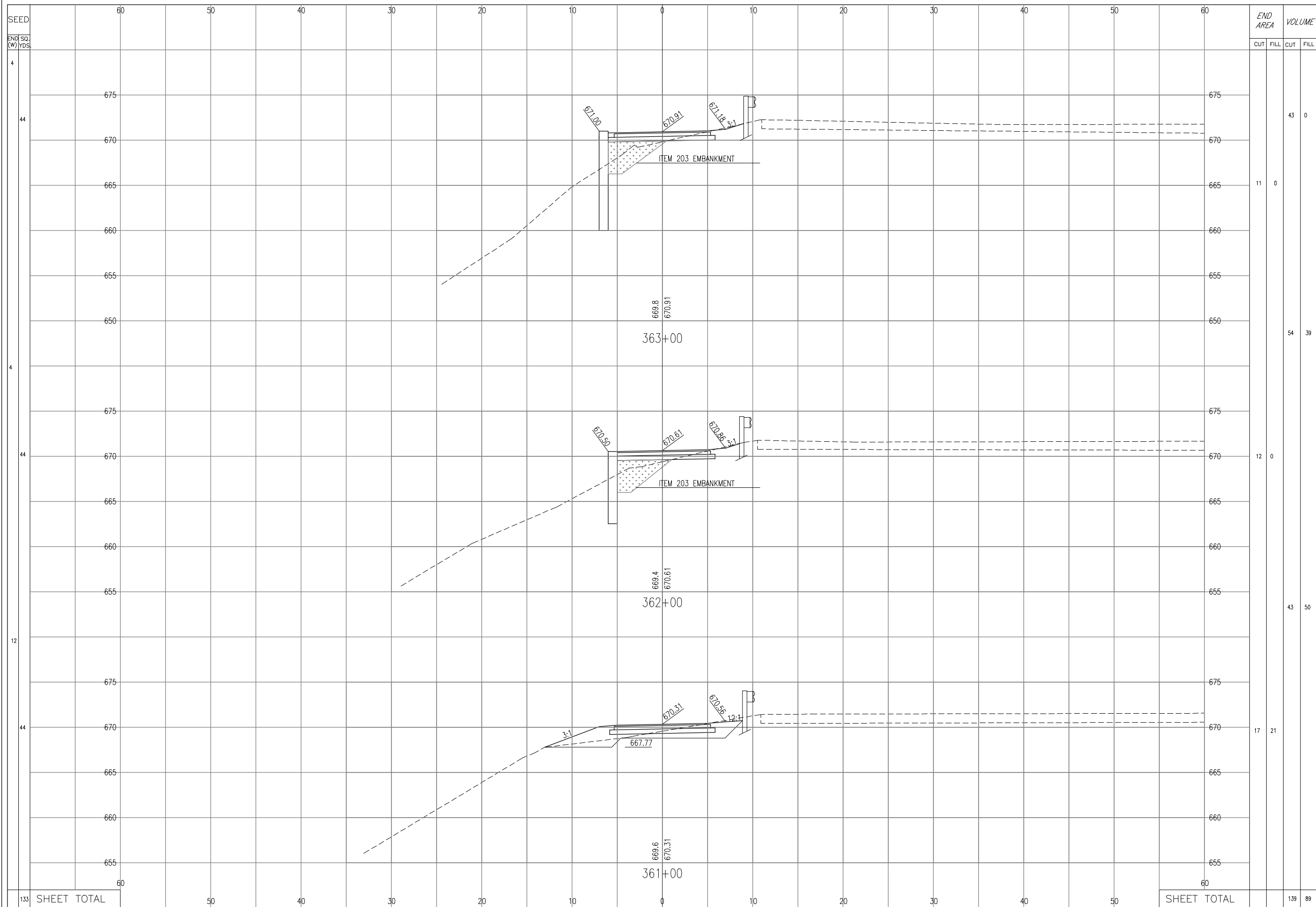
**BUT/WAR GMR TRAIL EXTENSION**



SEED  
 ENC SO.  
 (W) YDS  
 13  
 133  
 12  
 144  
 23  
 128  
 406 SHEET TOTAL

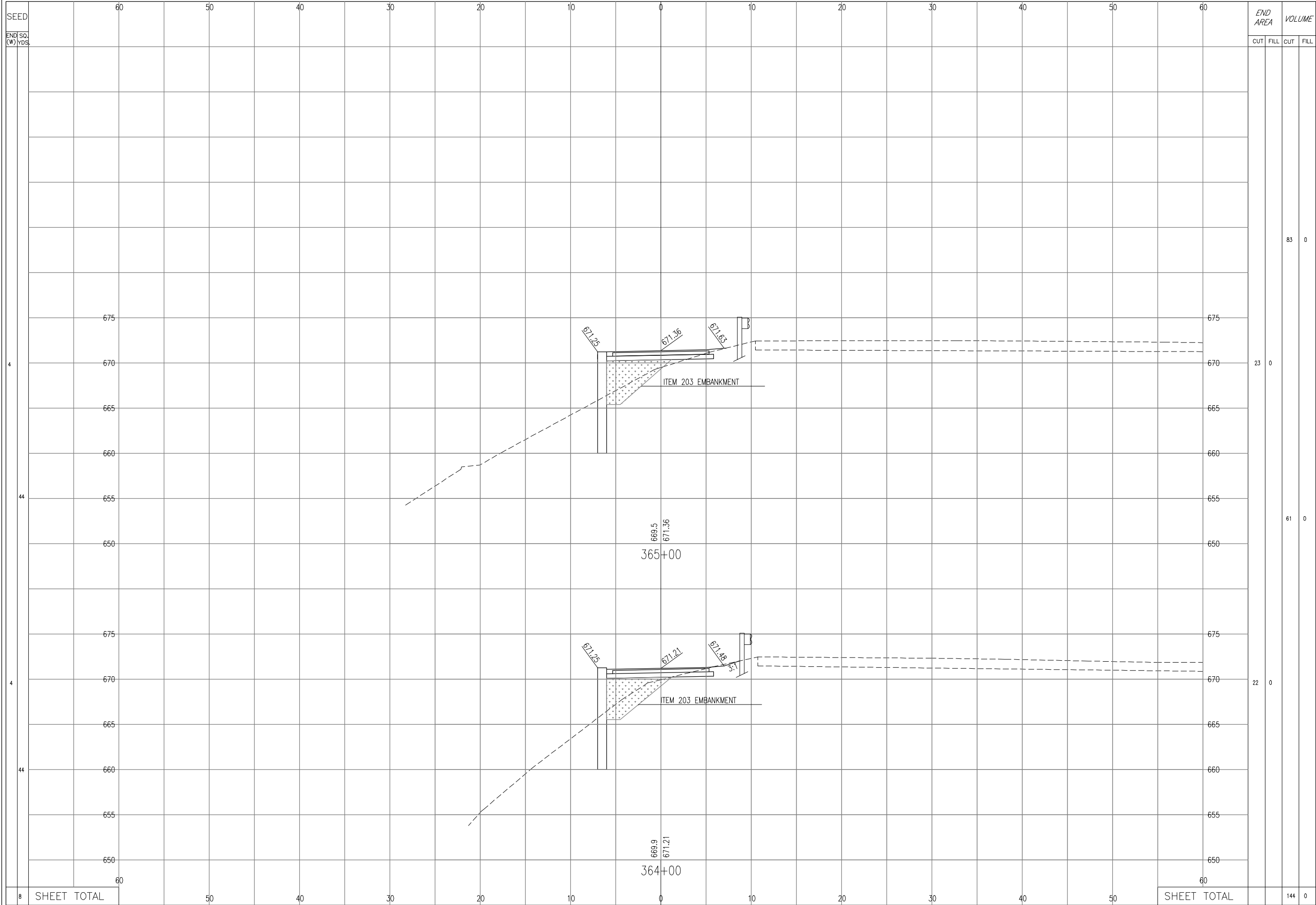
| END AREA           | VOLUME    |           |
|--------------------|-----------|-----------|
|                    | CUT       | FILL      |
| 6                  | 6         | 22 20     |
| 6                  | 5         | 120 85    |
| 6                  | 5         | 154 86    |
| 59                 | 41        | 296 191   |
| <b>SHEET TOTAL</b> | <b>65</b> | <b>52</b> |

CALCULATED LG CHECKED TGB  
**CROSS SECTIONS  
 STA. 358+00 to STA. 360+00**  
**BUT/WAR GMR TRAIL EXTENSION**  
**36  
 67**



| END STA. (W)    | END AREA |      | VOLUME |      |
|-----------------|----------|------|--------|------|
|                 | CUT      | FILL | CUT    | FILL |
| 4               |          |      |        |      |
| 44              |          |      | 43     | 0    |
| 4               |          |      |        |      |
| 44              |          |      | 54     | 39   |
| 4               |          |      |        |      |
| 44              |          |      | 43     | 50   |
| 12              |          |      |        |      |
| 44              |          |      | 17     | 21   |
| 4               |          |      |        |      |
| 133 SHEET TOTAL |          |      | 139    | 89   |

CALCULATED LG CHECKED TGB  
**CROSS SECTIONS  
 STA. 361+00 to STA. 363+00**  
**BUT/WAR GMR TRAIL EXTENSION**  
37  
67



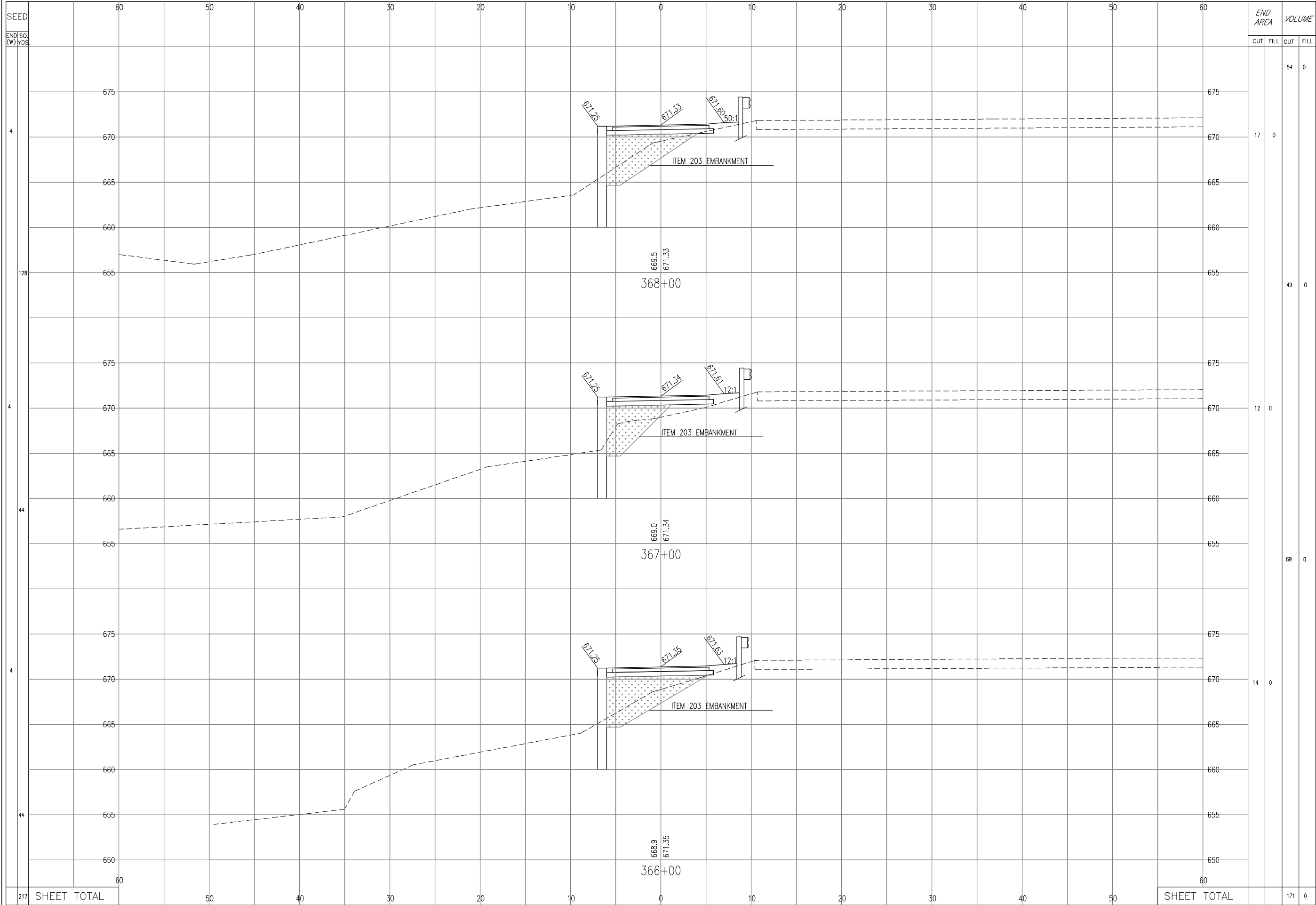
| END AREA    |      | VOLUME |      |
|-------------|------|--------|------|
| CUT         | FILL | CUT    | FILL |
|             |      | 83     | 0    |
|             |      | 23     | 0    |
|             |      | 61     | 0    |
|             |      | 22     | 0    |
| SHEET TOTAL |      | 144    | 0    |

SEED  
END SQ.  
(W) YDS.

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 364+00 to STA. 365+00**

**BUT/WAR GMR TRAIL EXTENSION**



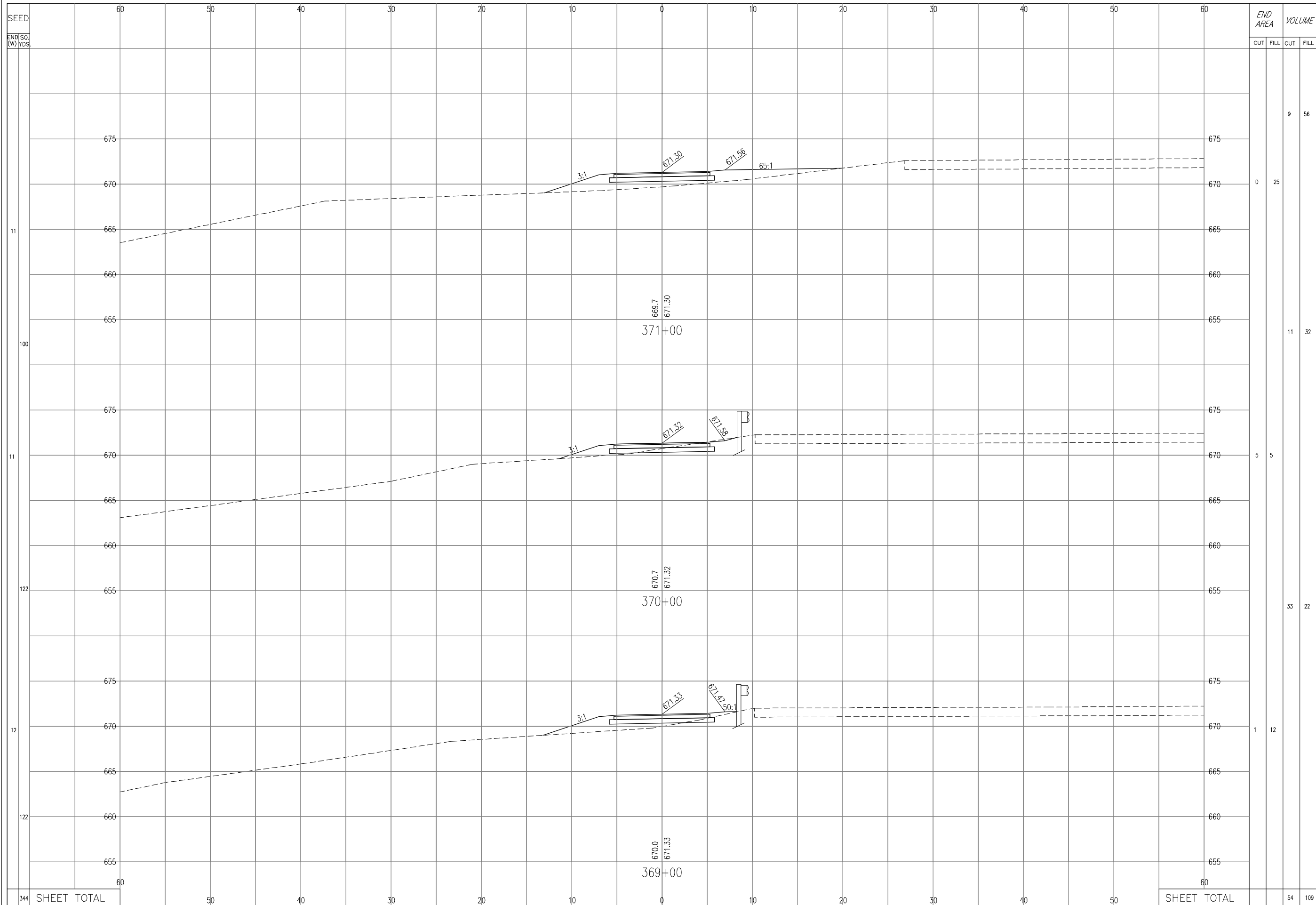
| END SQ. (W) YDS. | END AREA    |      | VOLUME |      |
|------------------|-------------|------|--------|------|
|                  | CUT         | FILL | CUT    | FILL |
| 4                |             |      | 54     | 0    |
| 128              | 17          | 0    | 49     | 0    |
| 44               |             |      | 69     | 0    |
| 44               |             |      | 14     | 0    |
| 217              | SHEET TOTAL |      | 171    | 0    |

CALCULATED  
LC  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 366+00 to STA. 368+00**

**BUT/WAR GMR TRAIL EXTENSION**

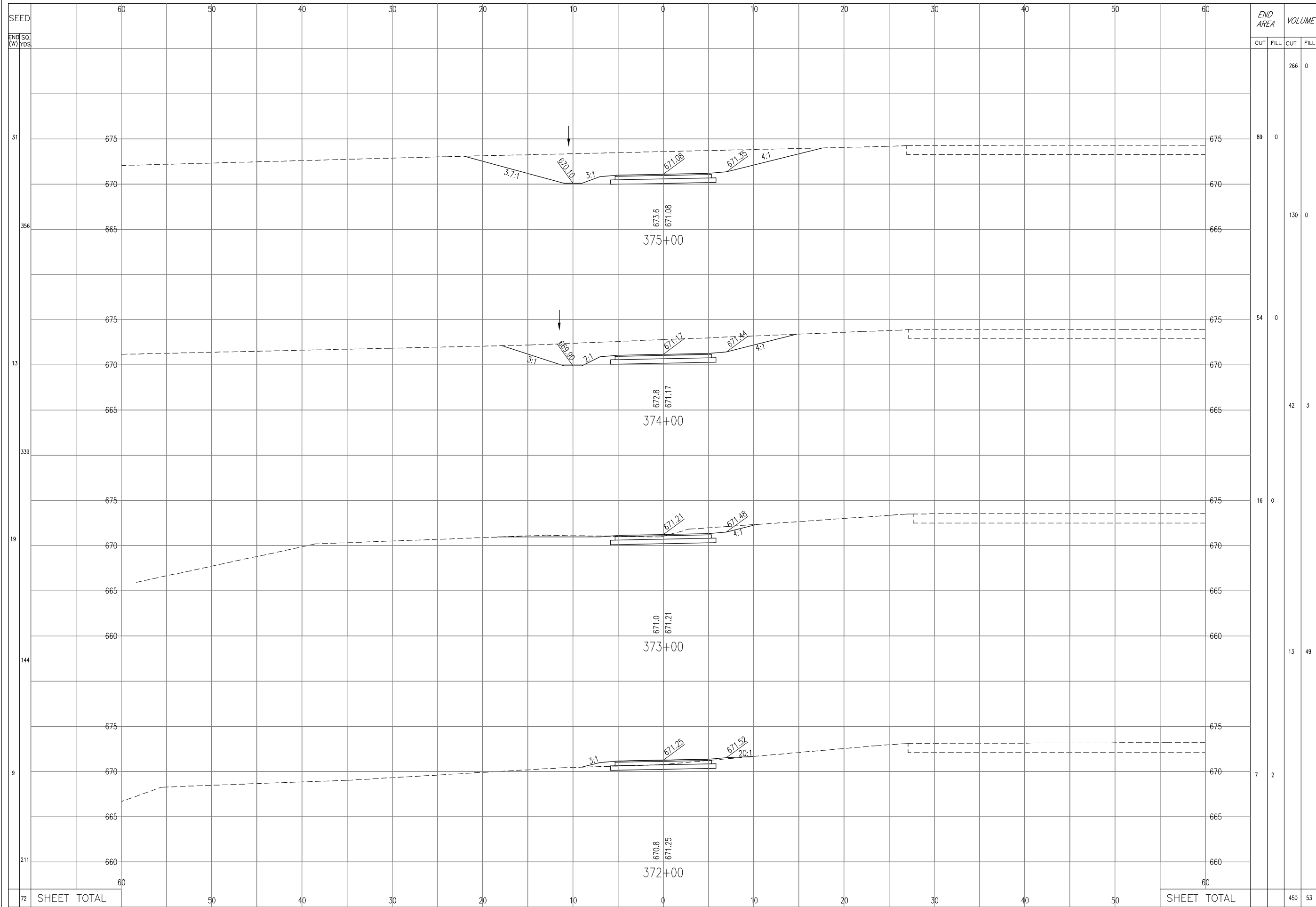




CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 369+00 to STA. 371+00**

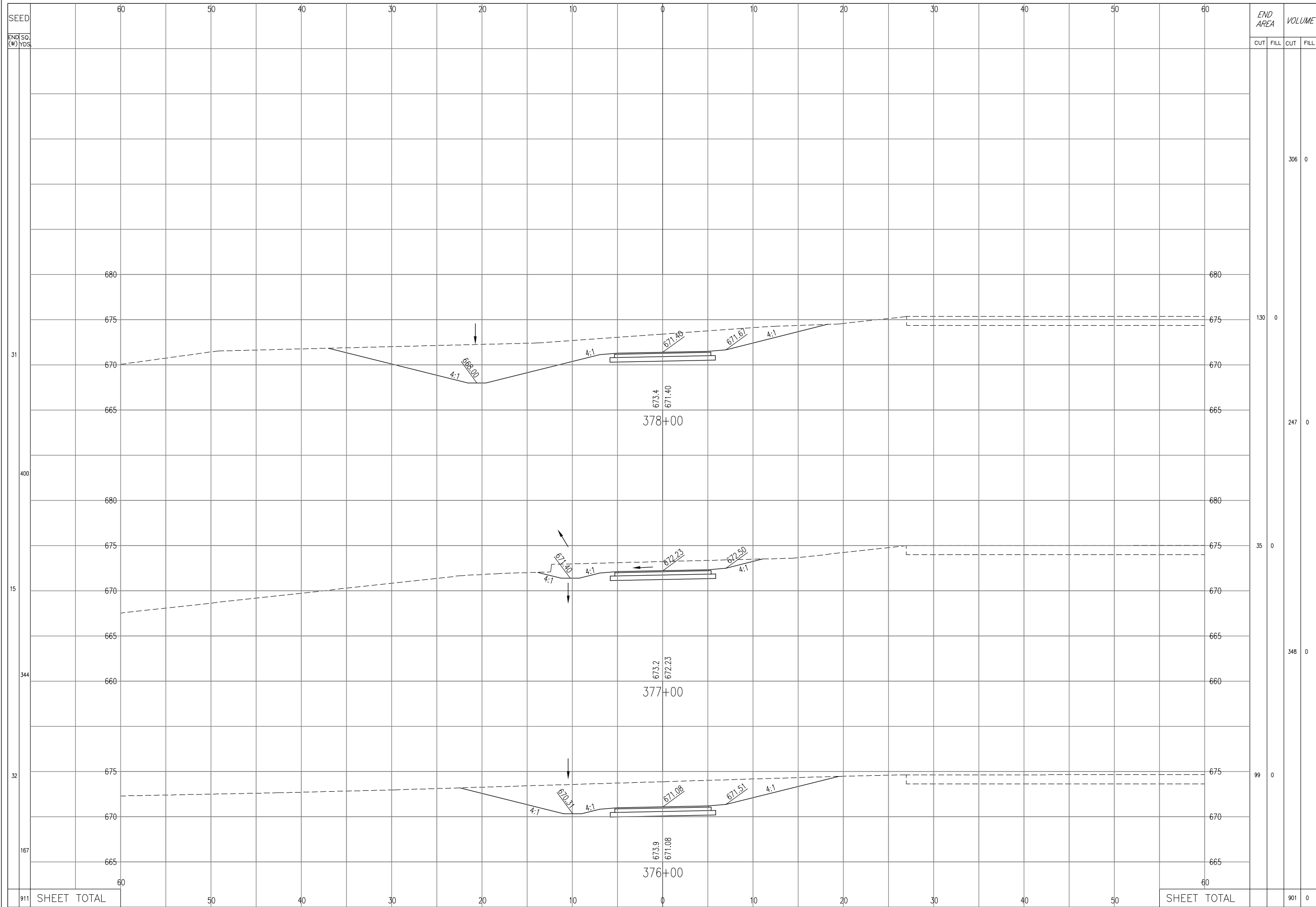
**BUT/WAR GMR TRAIL EXTENSION**



CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 372+00 to STA. 375+00**

**BUT/WAR GMR TRAIL EXTENSION**

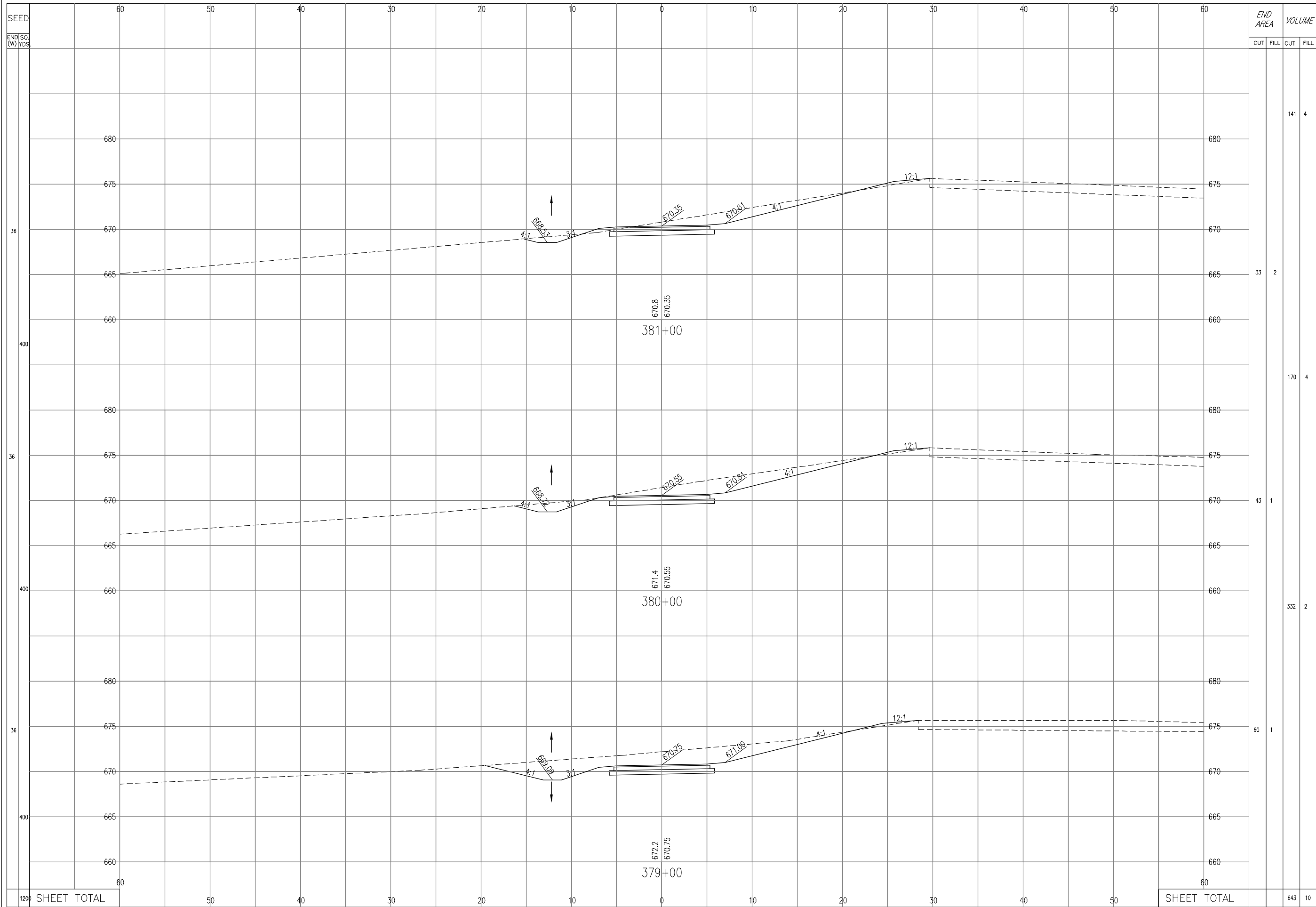


| END AREA |             | VOLUME |      |
|----------|-------------|--------|------|
| CUT      | FILL        | CUT    | FILL |
|          |             | 306    | 0    |
|          |             | 130    | 0    |
|          |             | 247    | 0    |
|          |             | 35     | 0    |
|          |             | 348    | 0    |
|          |             | 99     | 0    |
| 911      | SHEET TOTAL | 901    | 0    |

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 376+00 to STA. 378+00**

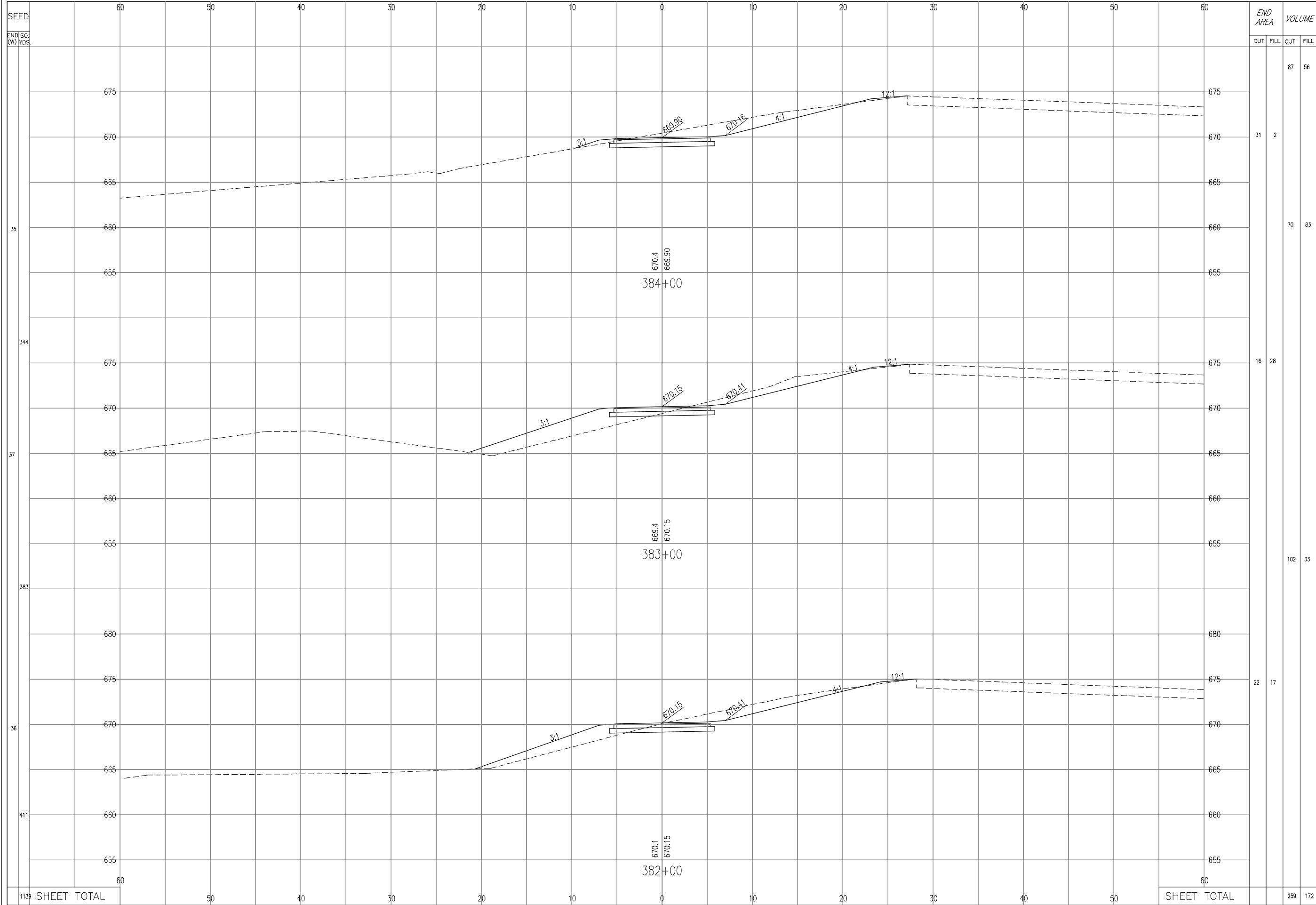
**BUT/WAR GMR TRAIL EXTENSION**



CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 379+00 to STA. 381+00**

**BUT/WAR GMR TRAIL EXTENSION**

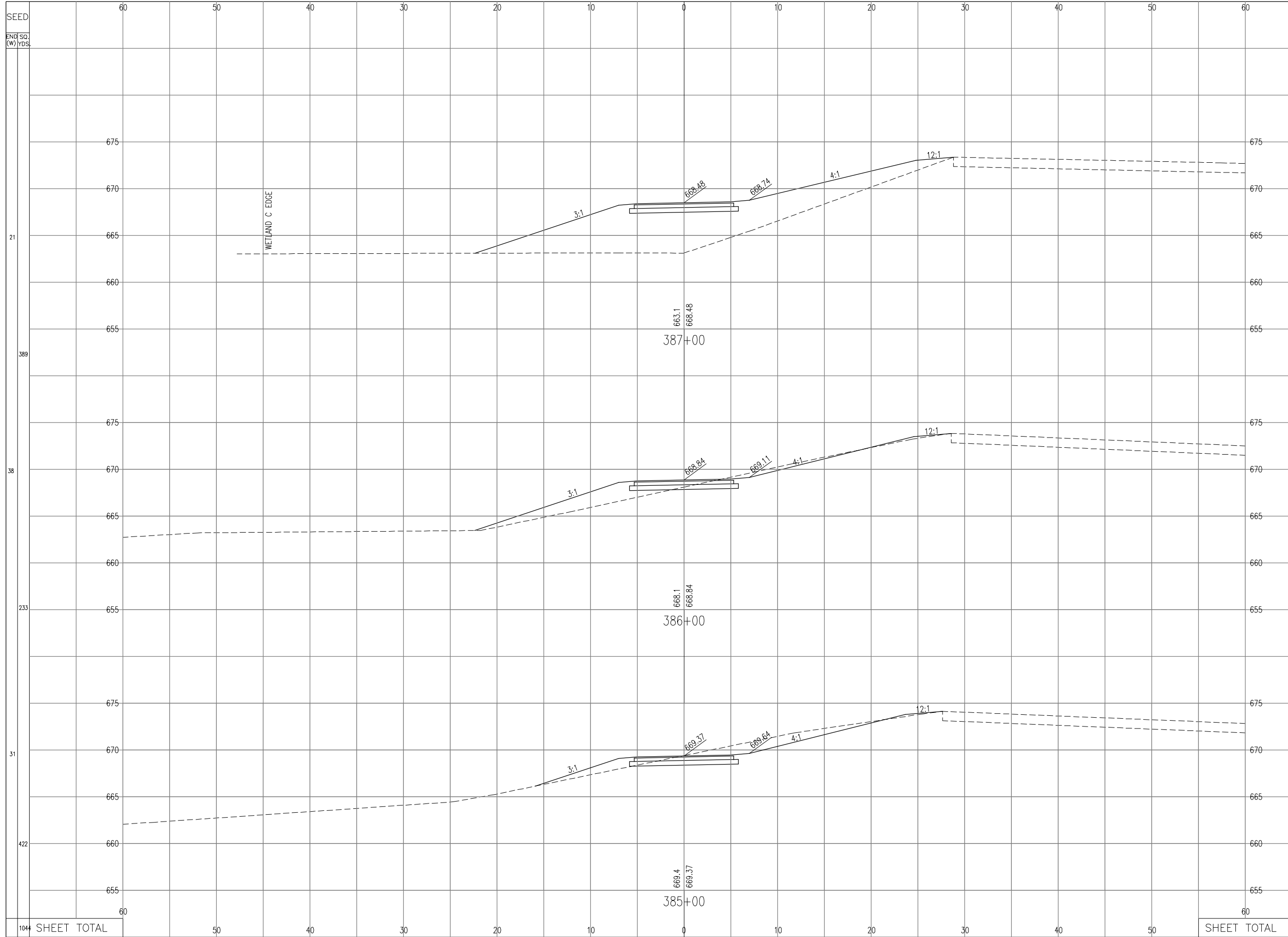


| END AREA | VOLUME      |      |
|----------|-------------|------|
|          | CUT         | FILL |
| 31       | 2           | 87   |
| 16       | 28          | 70   |
| 22       | 17          | 102  |
| 1139     | SHEET TOTAL | 259  |

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 382+00 to STA. 384+00**

**BUT/WAR GMR TRAIL EXTENSION**

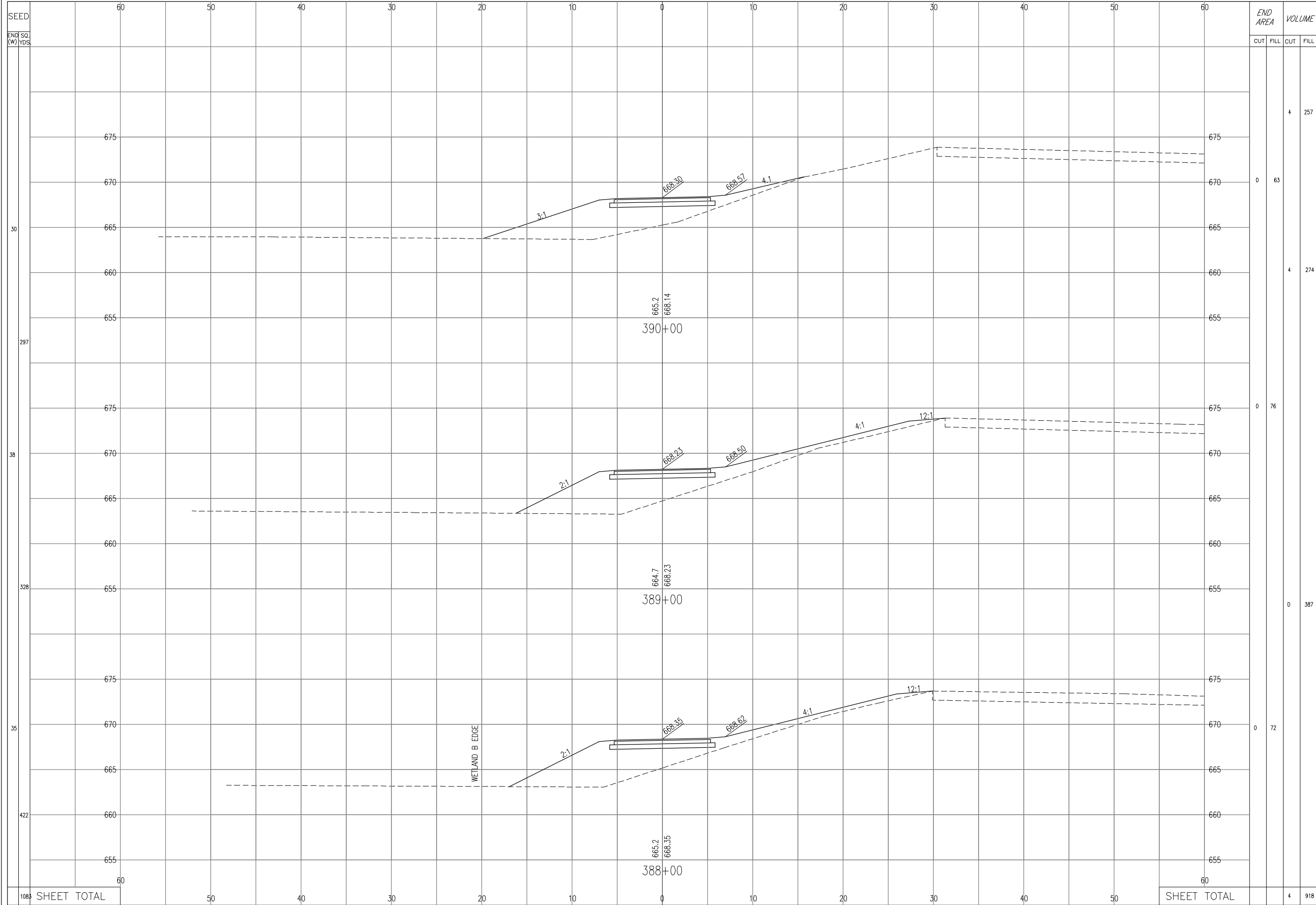


| END SO. (W) YDS. | END AREA |      | VOLUME |      |
|------------------|----------|------|--------|------|
|                  | CUT      | FILL | CUT    | FILL |
| 21               | 0        | 137  | 15     | 294  |
| 389              | 8        | 22   | 128    | 44   |
| 38               | 45       | 2    | 141    | 7    |
| 233              |          |      |        |      |
| 31               |          |      |        |      |
| 422              |          |      |        |      |
| 1044 SHEET TOTAL |          |      | 254    | 345  |

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 385+00 to STA. 387+00**

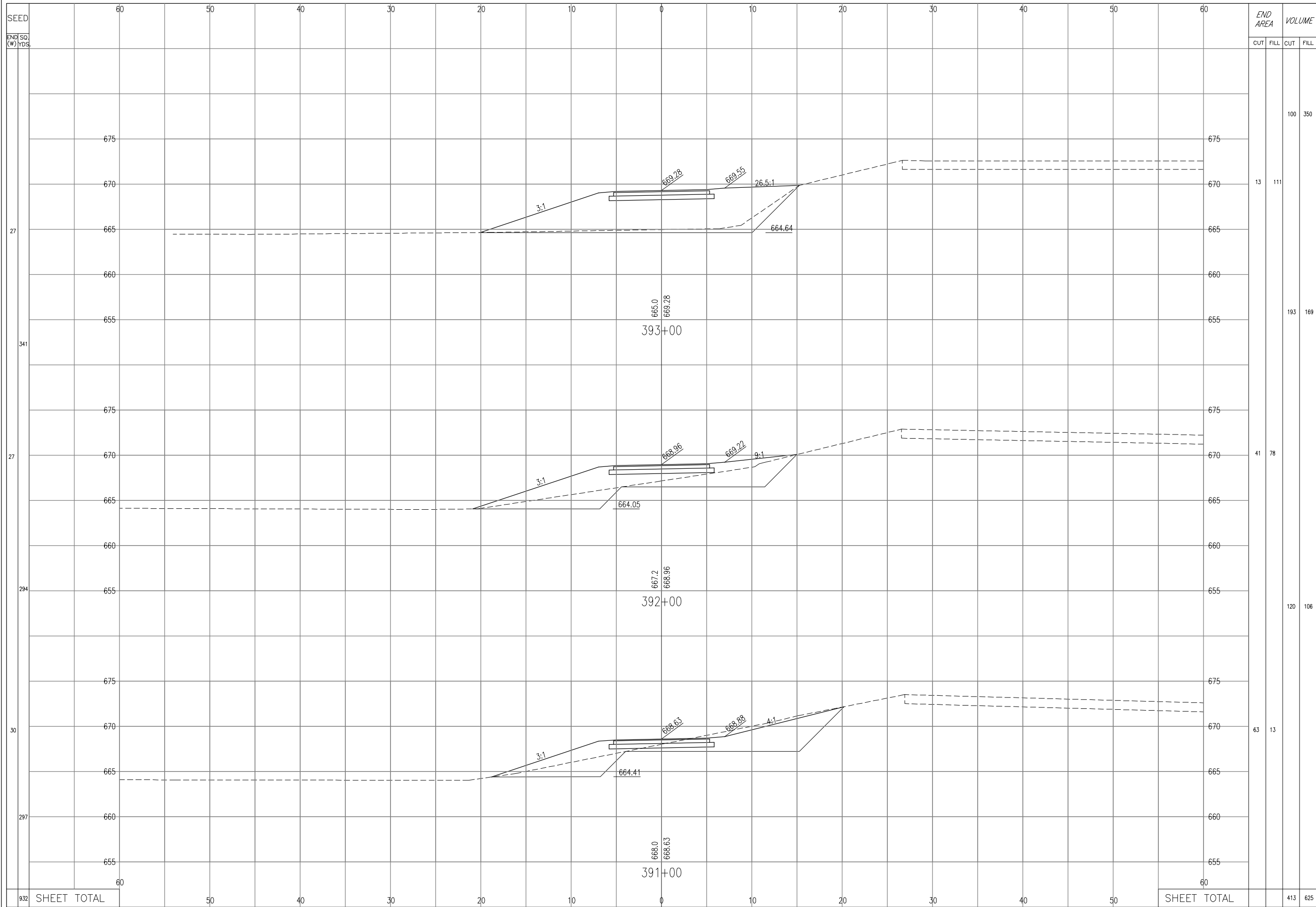
**BUT/WAR GMR TRAIL EXTENSION**



CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 388+00 to STA. 390+00**

**BUT/WAR GMR TRAIL EXTENSION**



| END AREA           | VOLUME     |            |
|--------------------|------------|------------|
|                    | CUT        | FILL       |
| 13                 | 111        | 100        |
| 41                 | 78         | 193        |
| 63                 | 13         | 106        |
| <b>SHEET TOTAL</b> | <b>413</b> | <b>625</b> |

SEED  
END SQ.  
(W) YDS.

27  
341  
27  
294  
30  
297

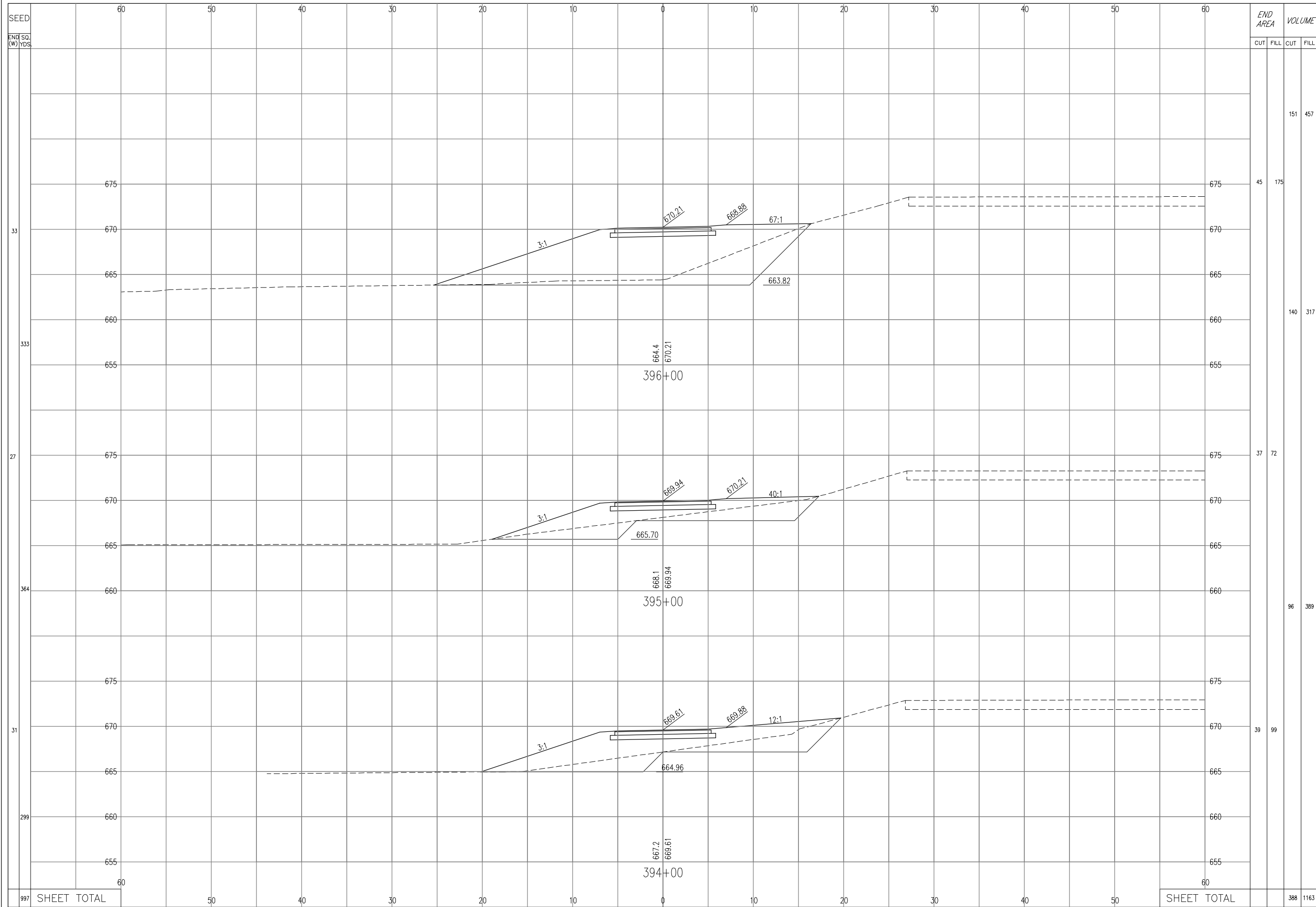
932 SHEET TOTAL

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 391+00 to STA. 393+00**

**BUT/WAR GMR TRAIL EXTENSION**





SEED  
END SQ. (W) YDS.  
33  
333  
27  
364  
31  
299

| END AREA    |      | VOLUME |      |
|-------------|------|--------|------|
| CUT         | FILL | CUT    | FILL |
|             |      | 151    | 457  |
| 45          | 175  | 140    | 317  |
| 37          | 72   | 96     | 389  |
| 39          | 99   |        |      |
| SHEET TOTAL |      | 388    | 1163 |

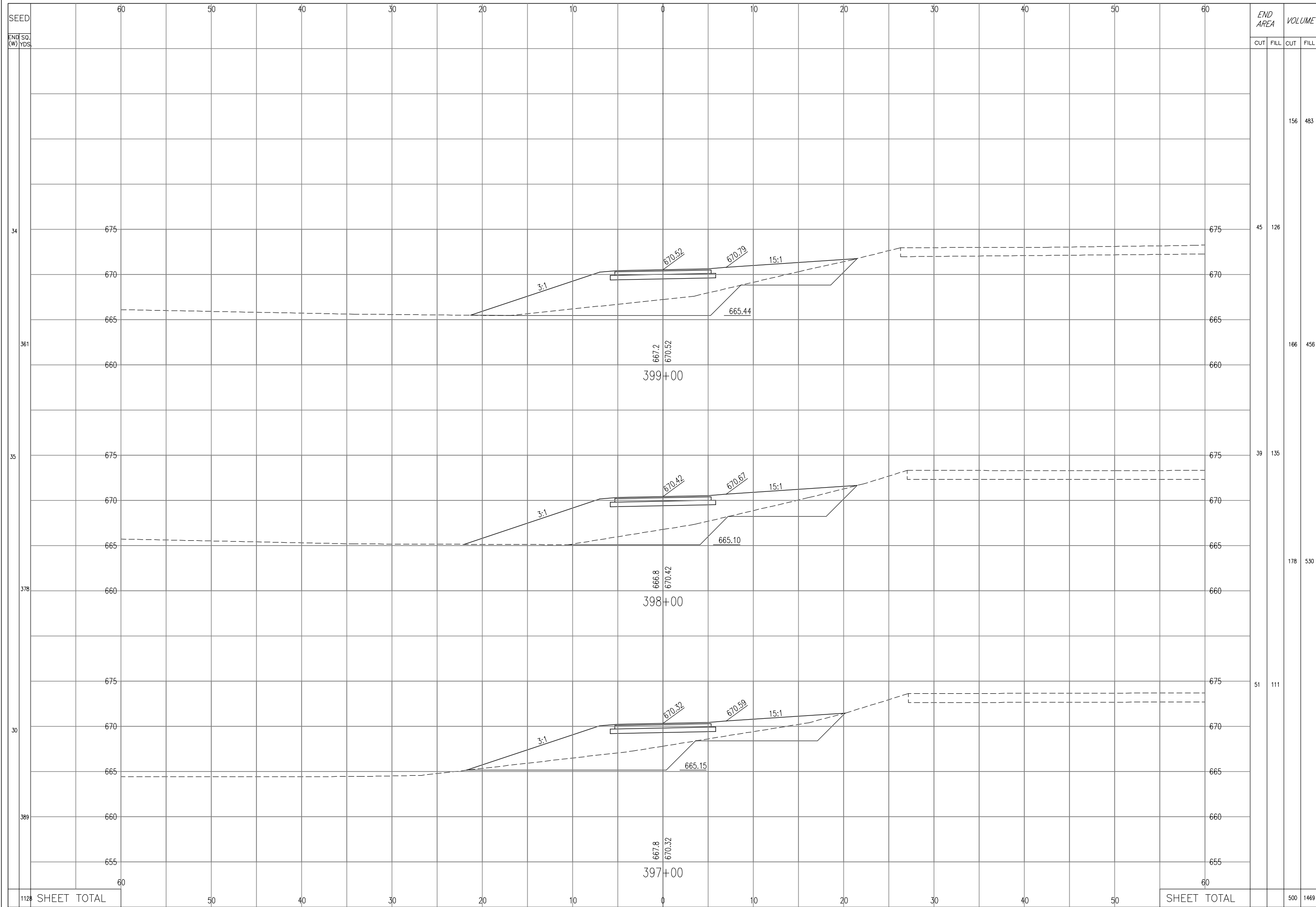
997 SHEET TOTAL

SHEET TOTAL

CALCULATED  
LG  
CHECKED  
TGB

CROSS SECTIONS  
STA. 394+00 to STA. 396+00

BUT/WAR GMR TRAIL EXTENSION

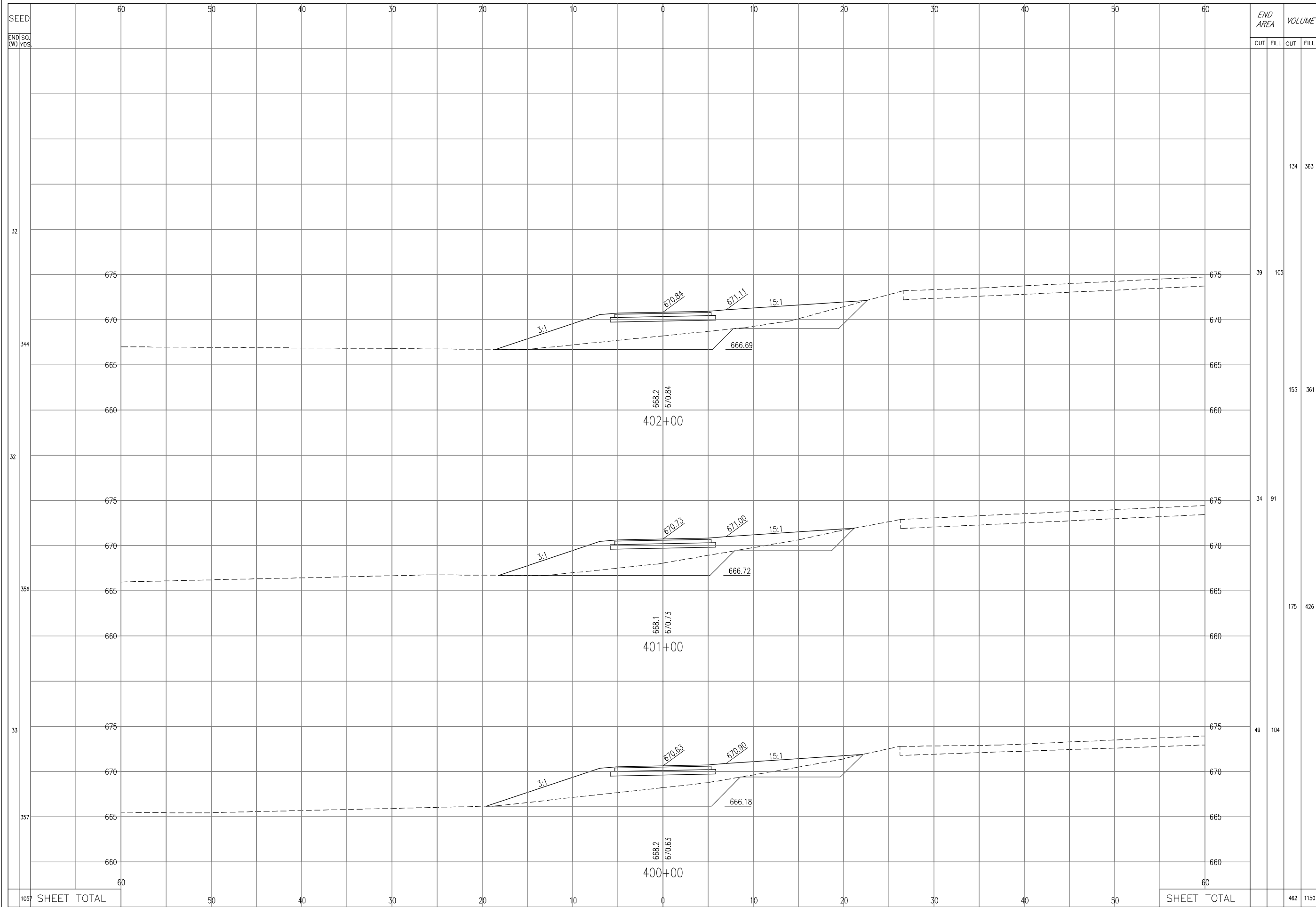


| END SO. (W) YDS. | END AREA |      | VOLUME |      |
|------------------|----------|------|--------|------|
|                  | CUT      | FILL | CUT    | FILL |
| 34               |          |      | 156    | 483  |
| 361              | 45       | 126  | 166    | 456  |
| 35               | 39       | 135  | 178    | 530  |
| 378              | 51       | 111  |        |      |
| 30               |          |      | 500    | 1469 |
| 389              |          |      |        |      |
| 1128 SHEET TOTAL |          |      |        |      |

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 397+00 to STA. 399+00**

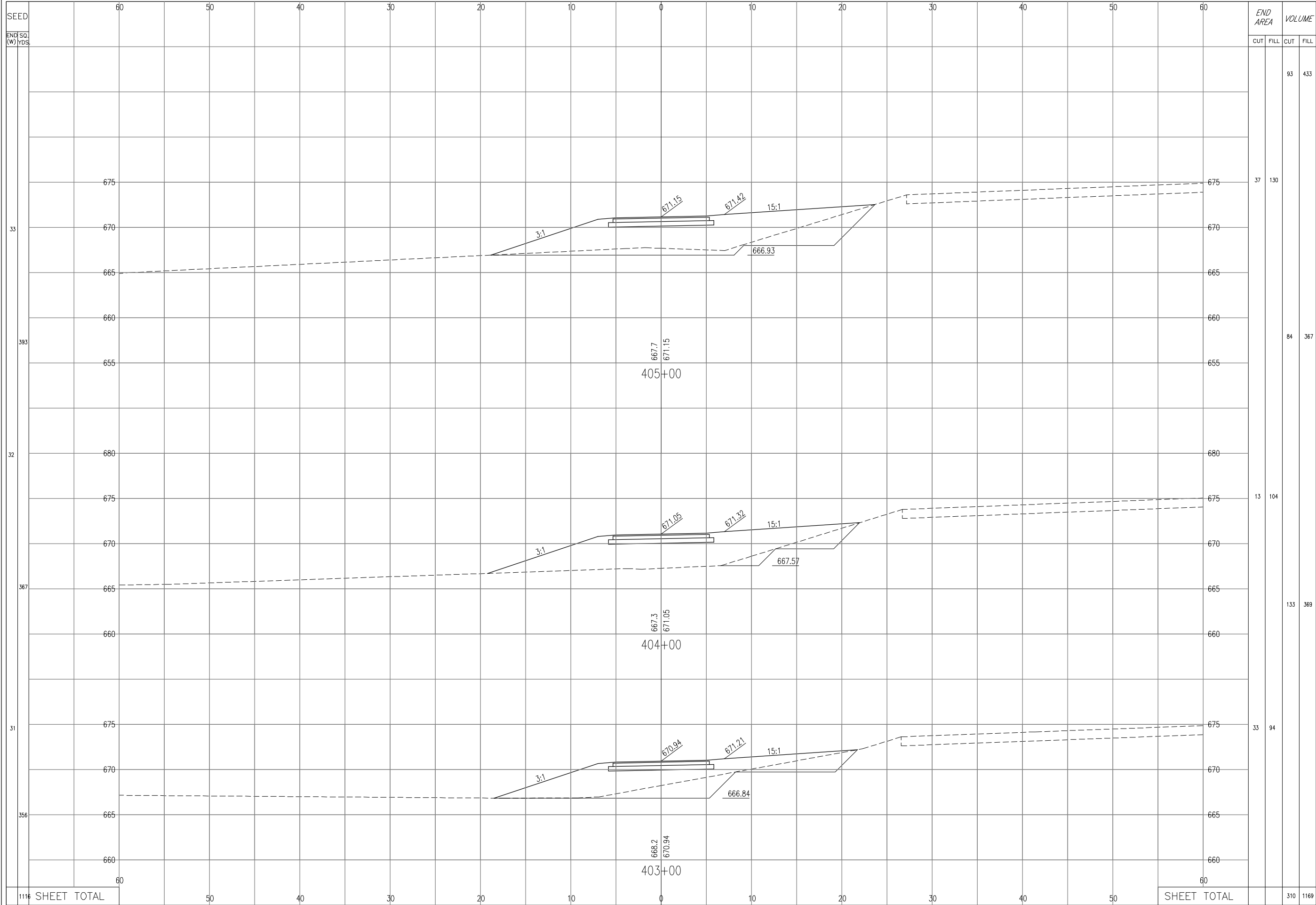
**BUT/WAR GMR TRAIL EXTENSION**



CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 400+00 to STA. 402+00**

**BUT/WAR GMR TRAIL EXTENSION**



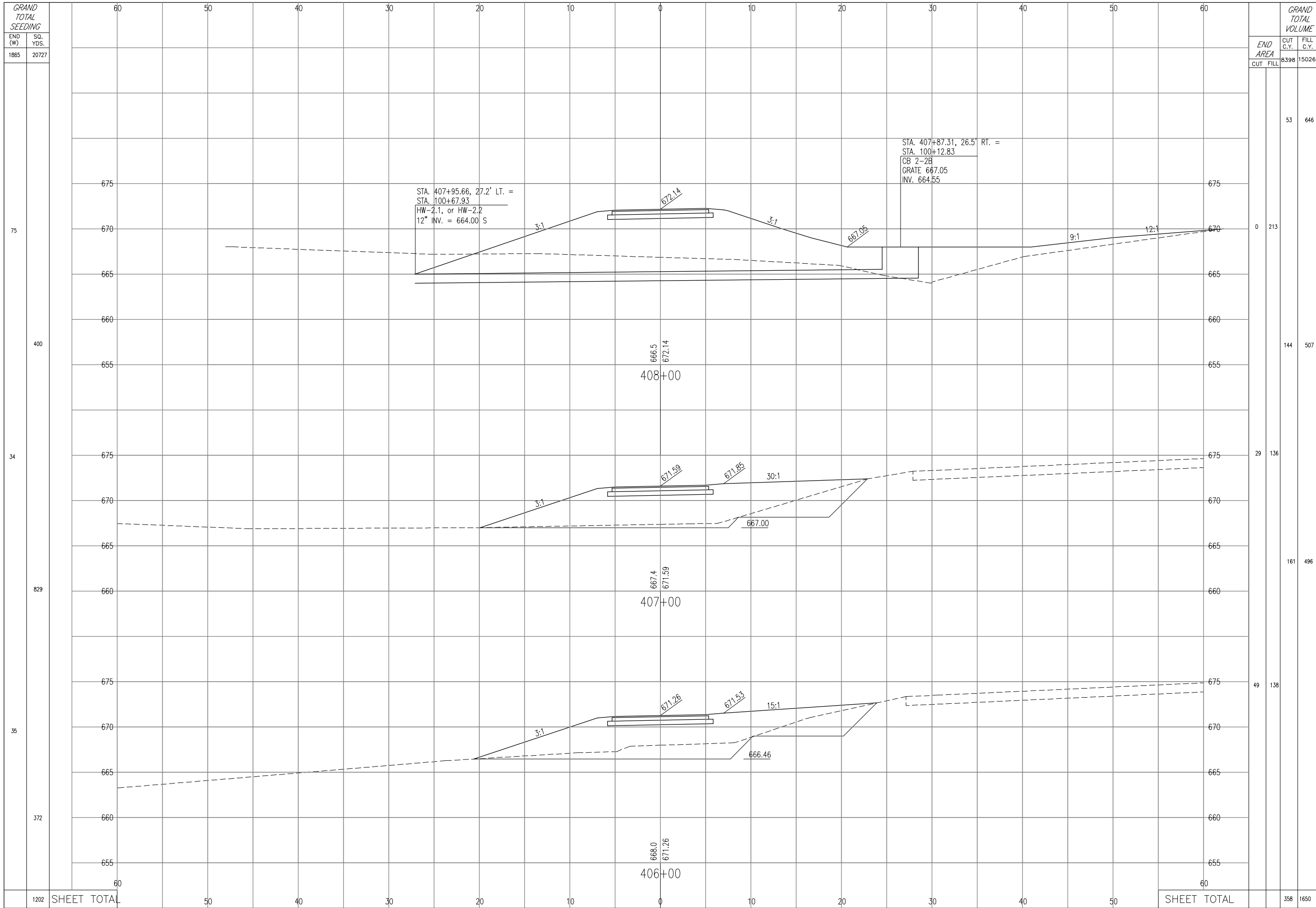
SEED  
END SQ. (W) YDS.  
33  
393  
32  
367  
31  
356  
1116 SHEET TOTAL

| END AREA    |      | VOLUME      |      |
|-------------|------|-------------|------|
| CUT         | FILL | CUT         | FILL |
| 37          | 130  | 93          | 433  |
| 84          | 367  | 84          | 367  |
| 13          | 104  | 133         | 369  |
| 33          | 94   | 310         | 1169 |
| SHEET TOTAL |      | SHEET TOTAL |      |

CALCULATED  
LG  
CHECKED  
TGB

**CROSS SECTIONS  
STA. 403+00 to STA. 405+00**

**BUT/WAR GMR TRAIL EXTENSION**



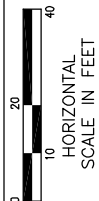
STA. 407+95.66, 27.2' LT. =  
 STA. 100+67.93  
 HW-2.1, or HW-2.2  
 12" INV. = 664.00 S

STA. 407+87.31, 26.5' RT. =  
 STA. 100+12.83  
 CB 2-2B  
 GRATE 667.05  
 INV. 664.55

CROSS SECTIONS  
 STA. 406+00 to STA. 408+00

BUT/WAR GMR TRAIL EXTENSION

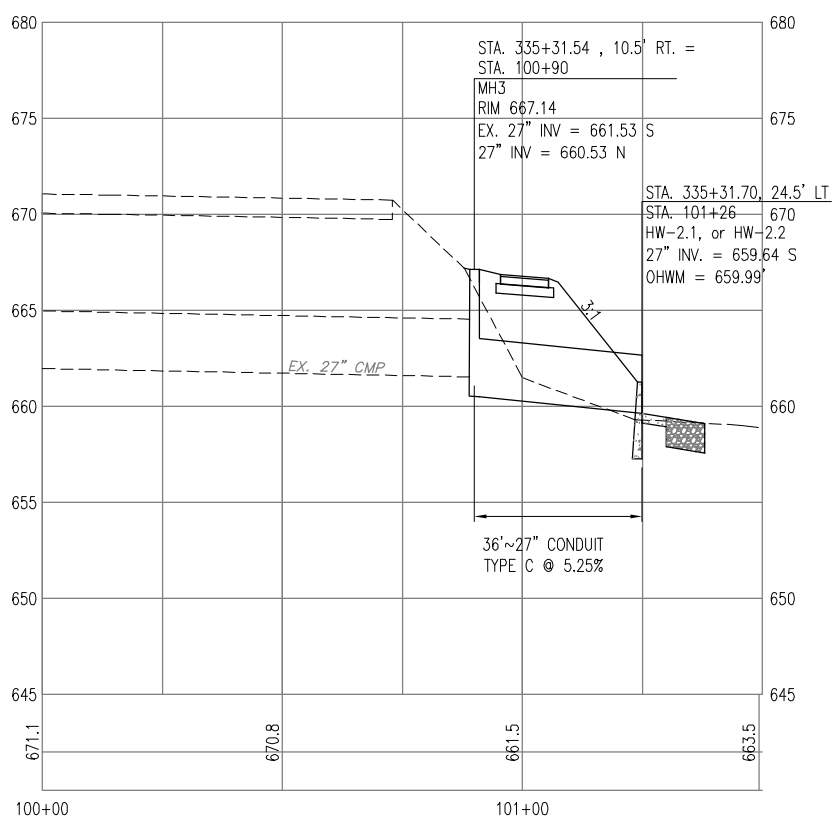
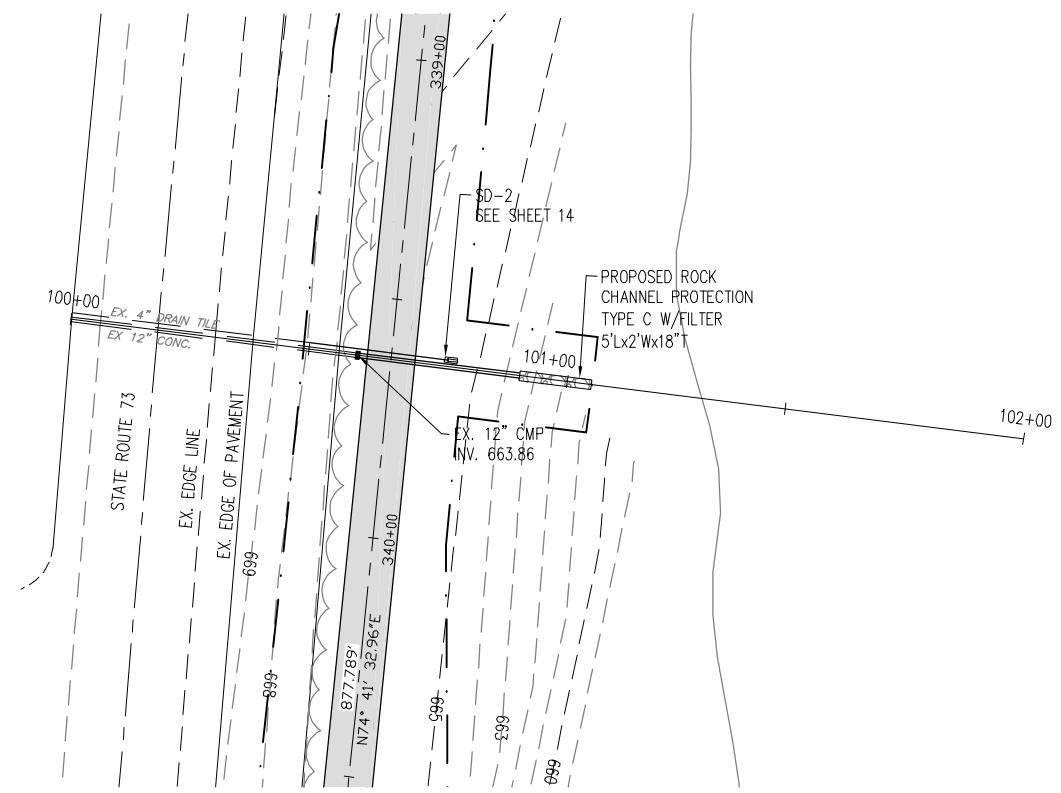
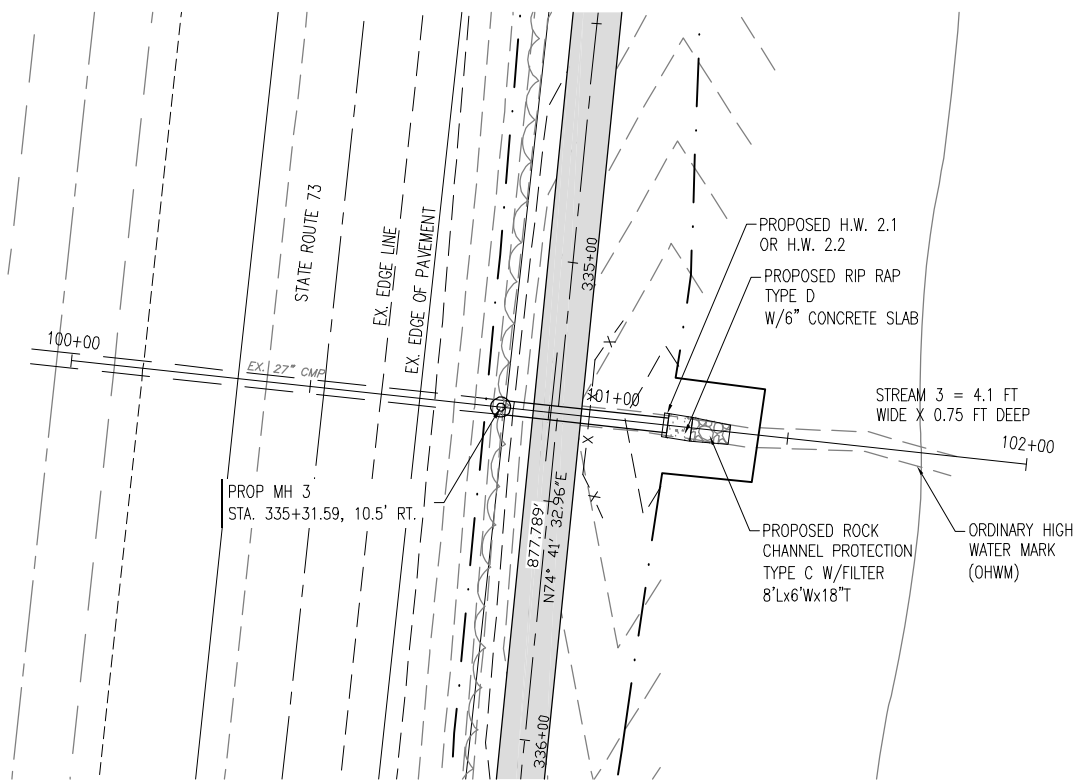
CALCULATED  
 LG  
 CHECKED  
 TGB



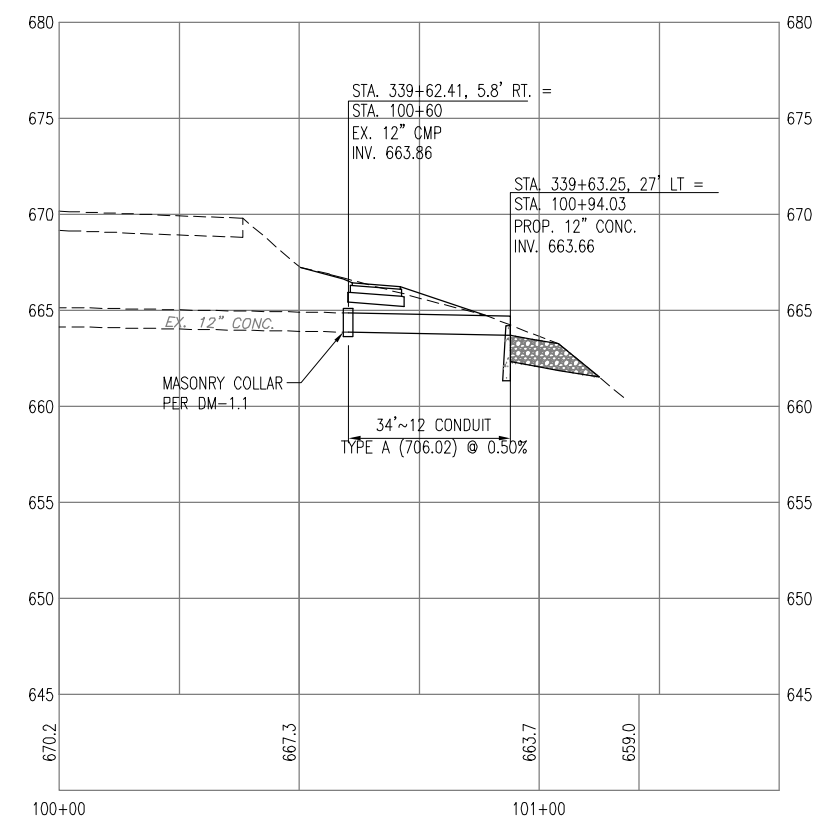
CALCULATED LG CHECKED TGB

STORM PROFILES

BUT/WAR GMR TRAIL EXTENSION

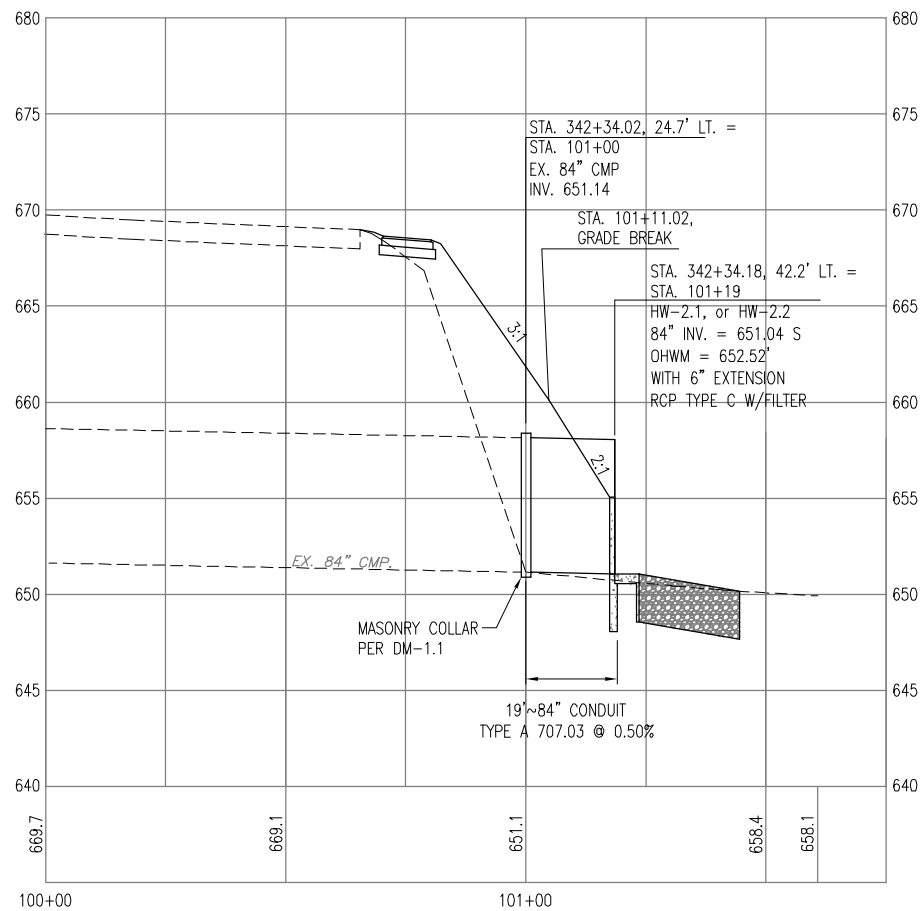
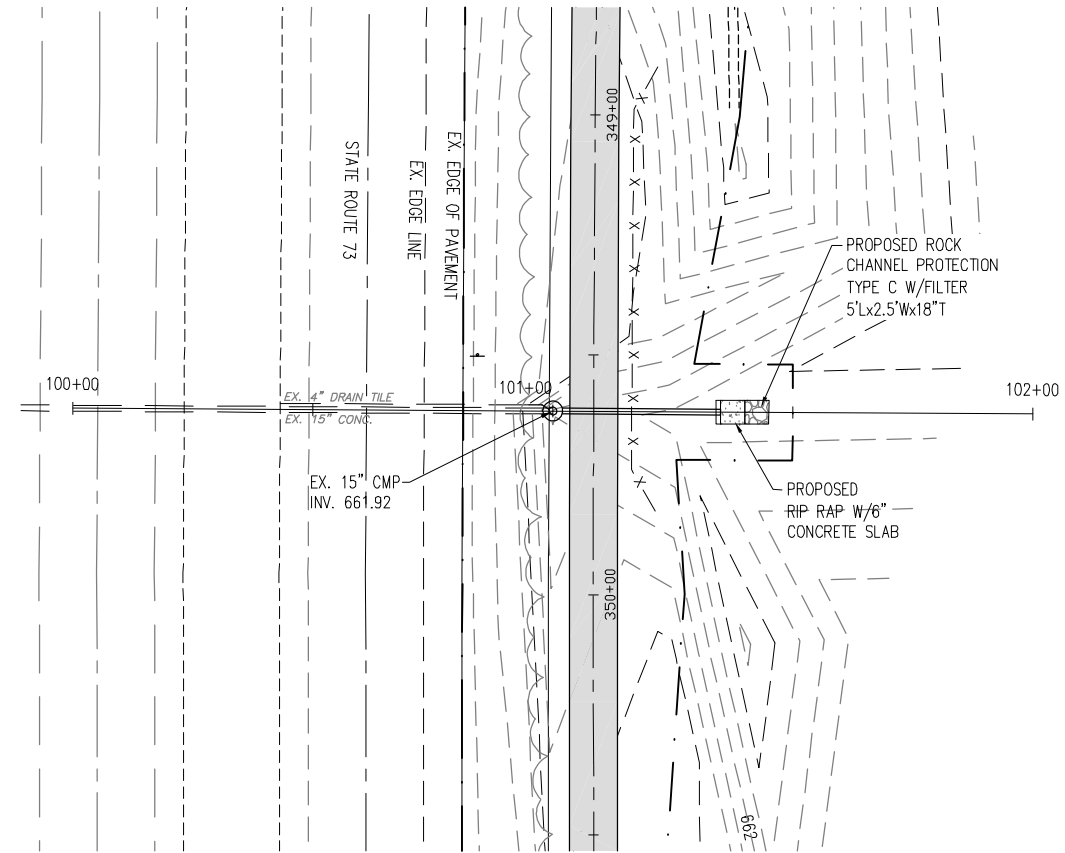
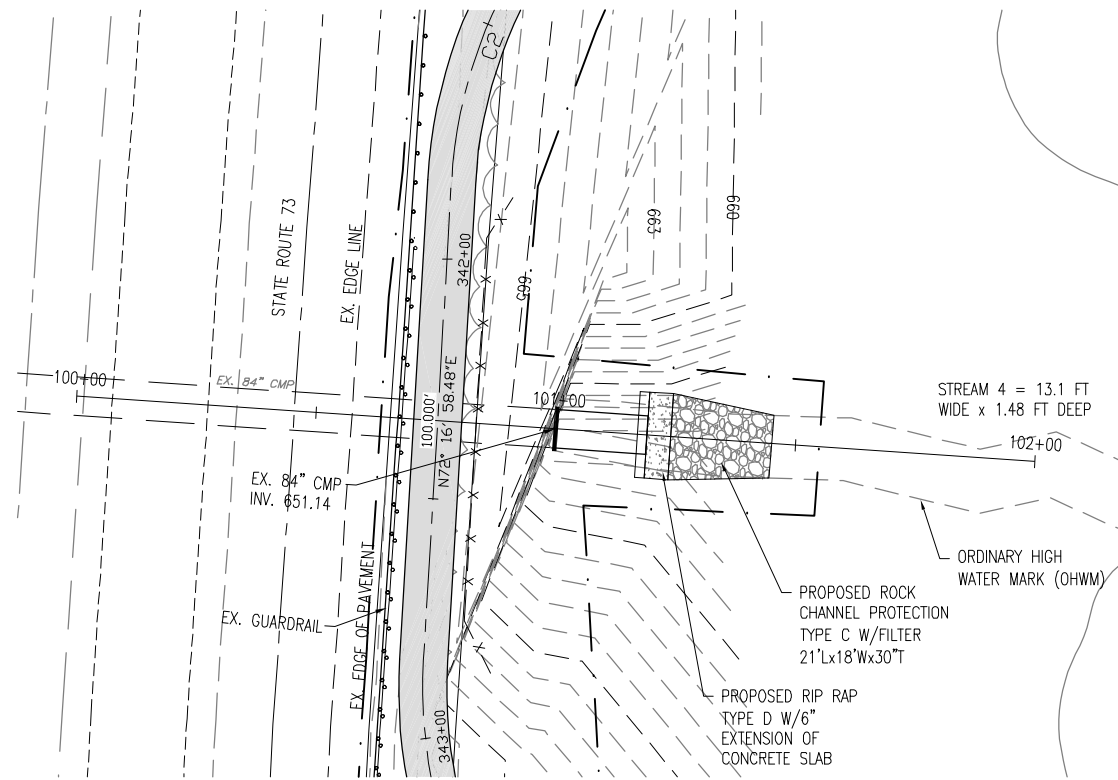


PROPOSED STORM PROFILE STA. 335+31.59  
STREAM 3

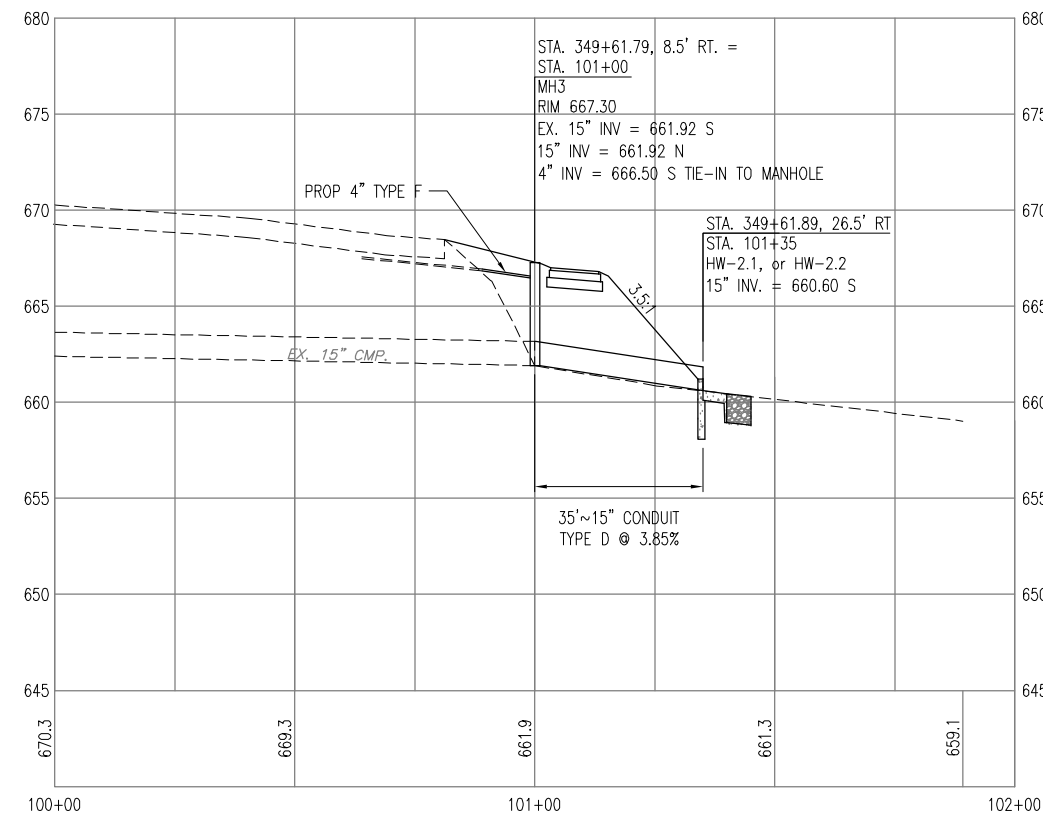


PROPOSED STORM PROFILE STA. 339+62.58

Centerline Profile  
Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL



PROPOSED STORM PROFILE STA. 342+34.18  
STREAM 4



PROPOSED STORM PROFILE STA. 349+61.79

Centerline Profile  
Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL



CALCULATED LG TCB  
CHECKED

STORM PROFILES

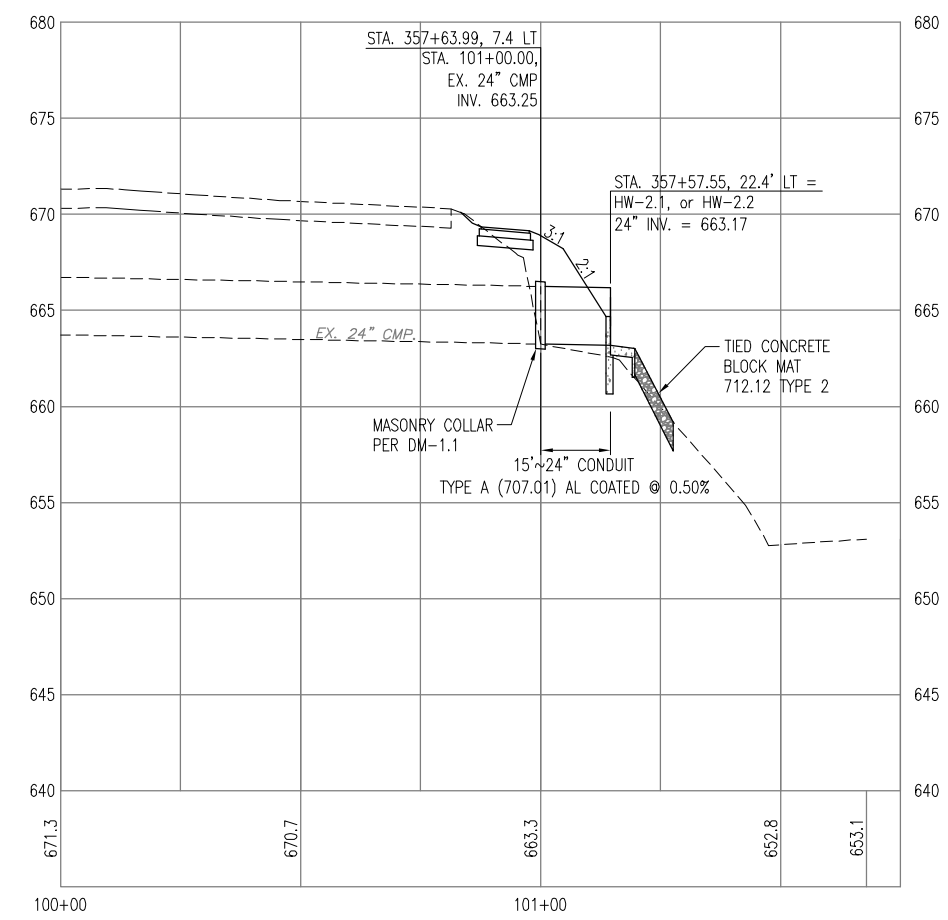
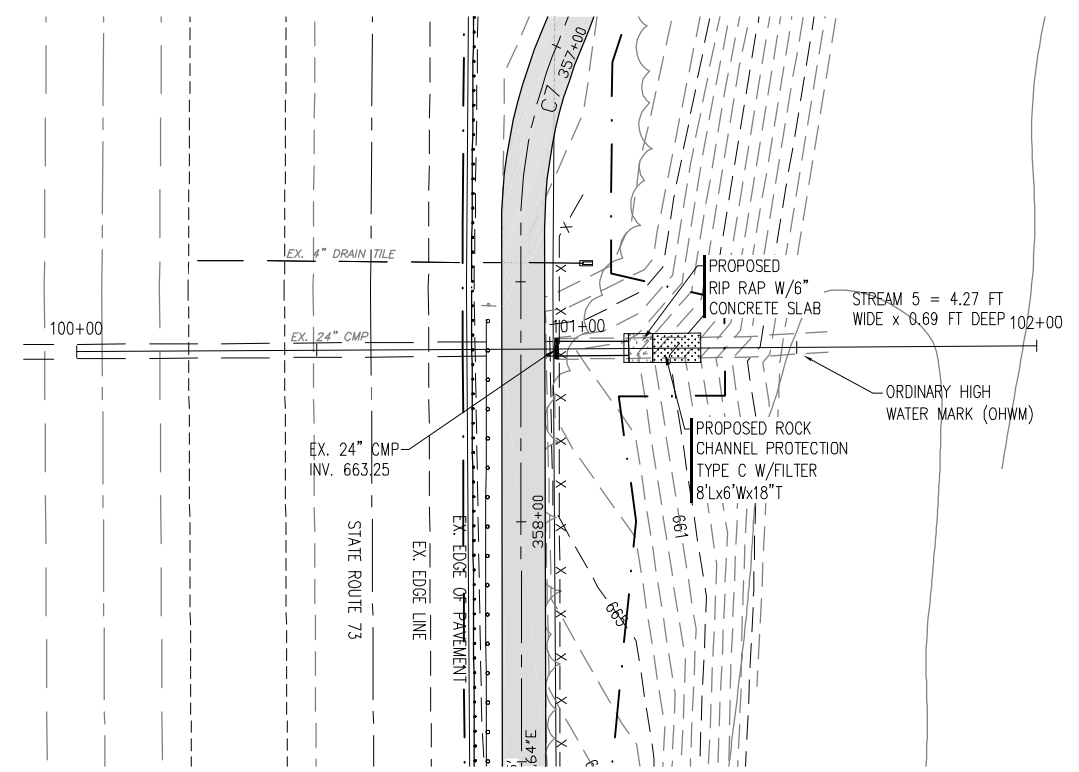
BUT/WAR GMR TRAIL EXTENSION



CALCULATED LG CHECKED TCB

**STORM PROFILES**

**BUT/WAR GMR TRAIL EXTENSION**



PROPOSED STORM PROFILE STA. 357+51.09  
STREAM 5

Centerline Profile  
Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL

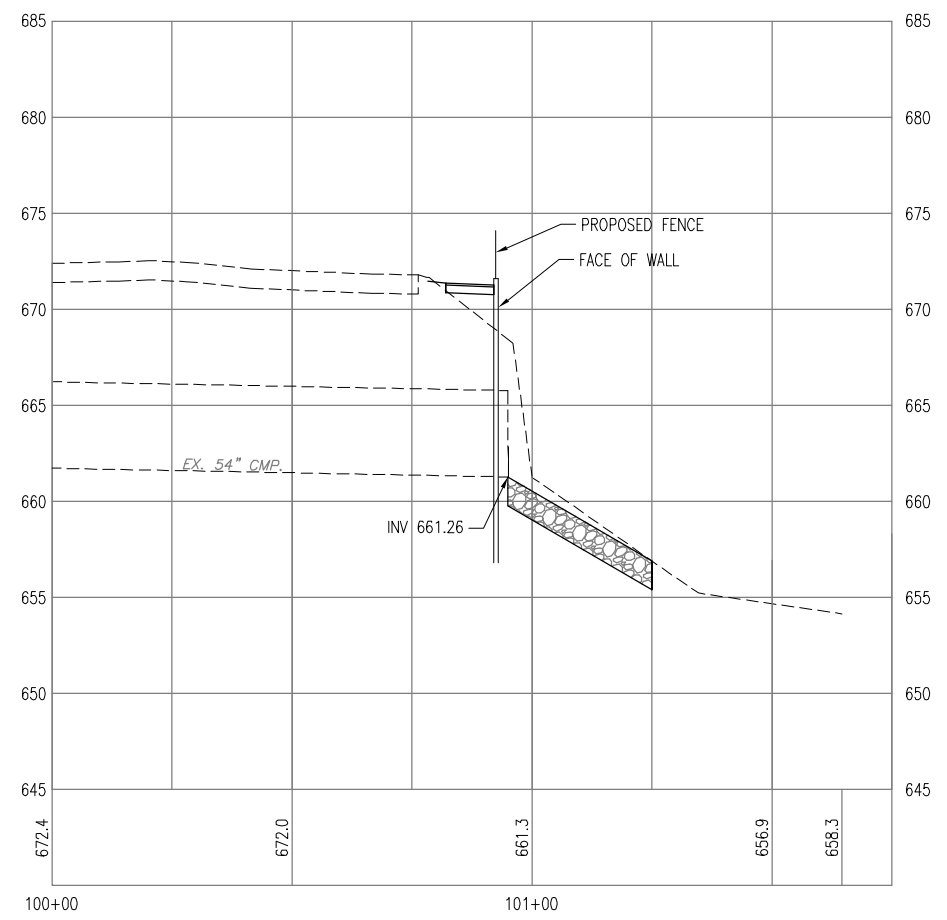
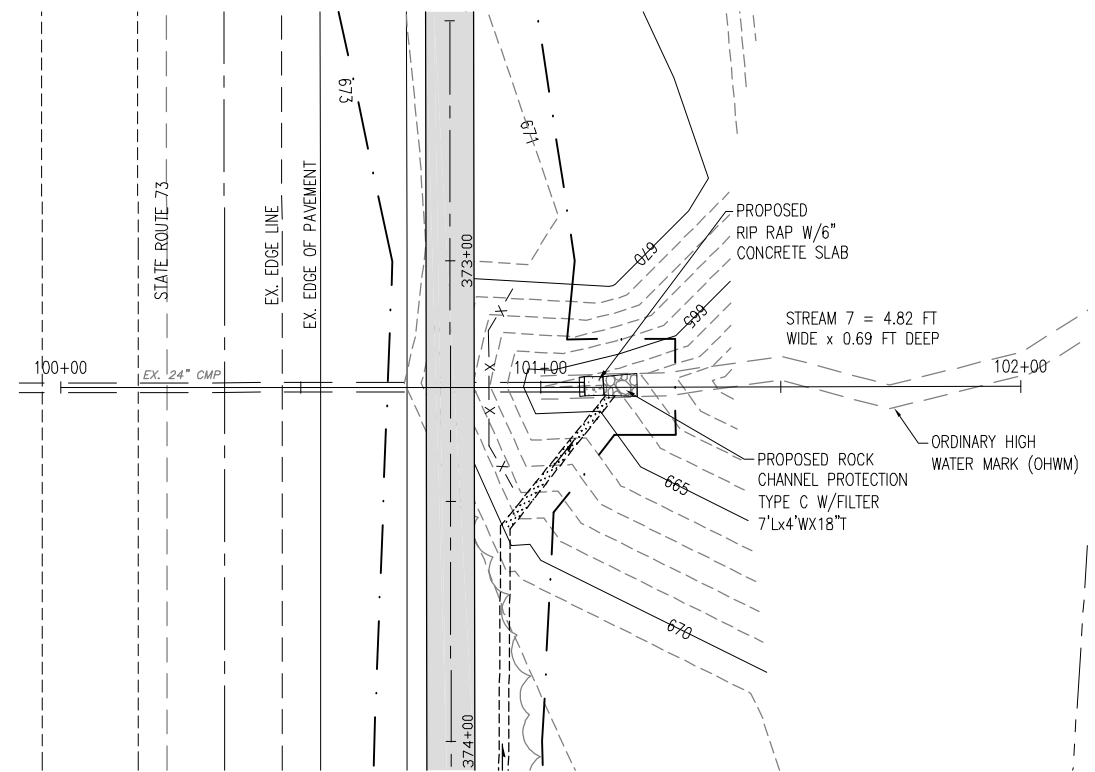
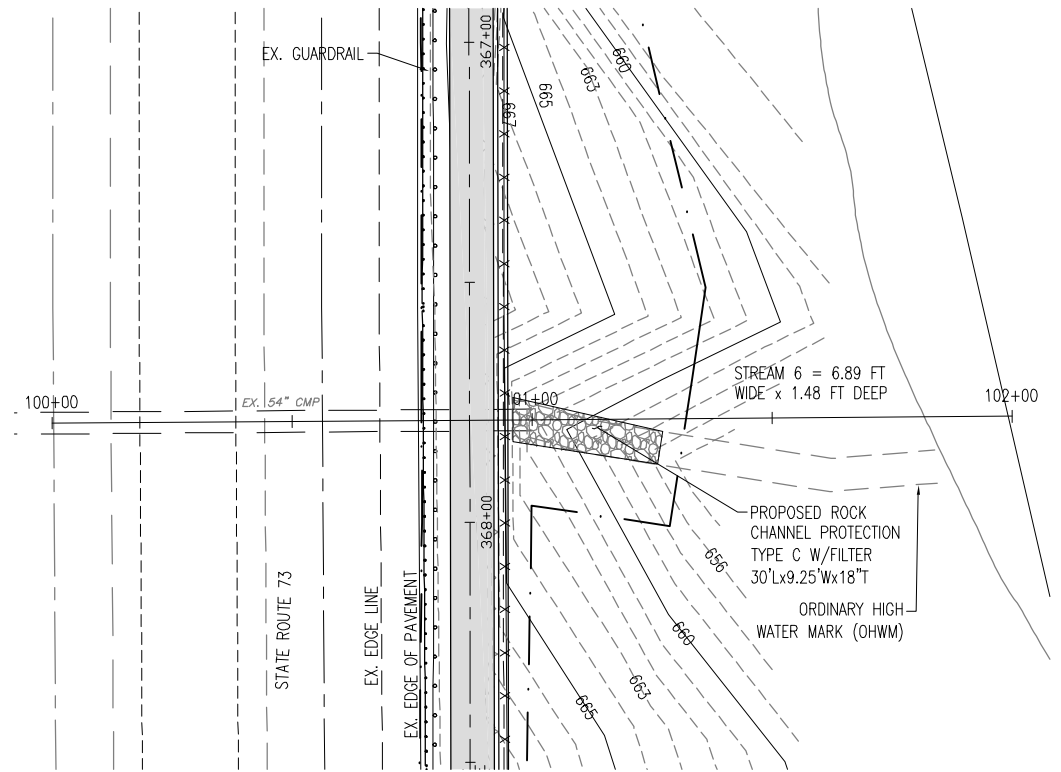




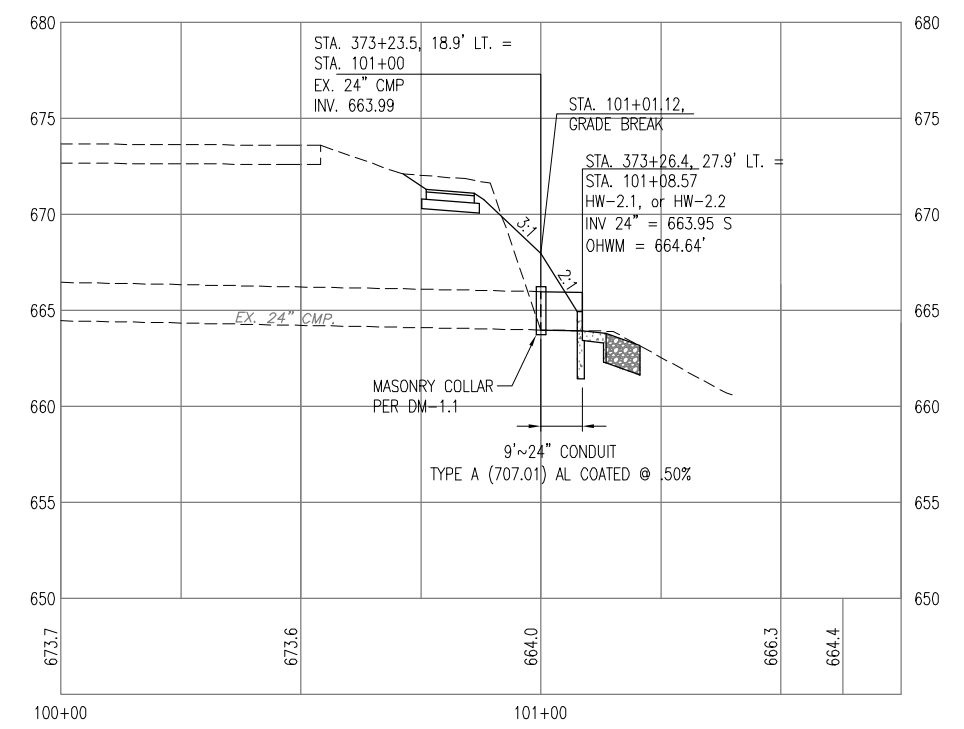
CALCULATED LG CHECKED TCB

STORM PROFILES

BUT/WAR GMR TRAIL EXTENSION

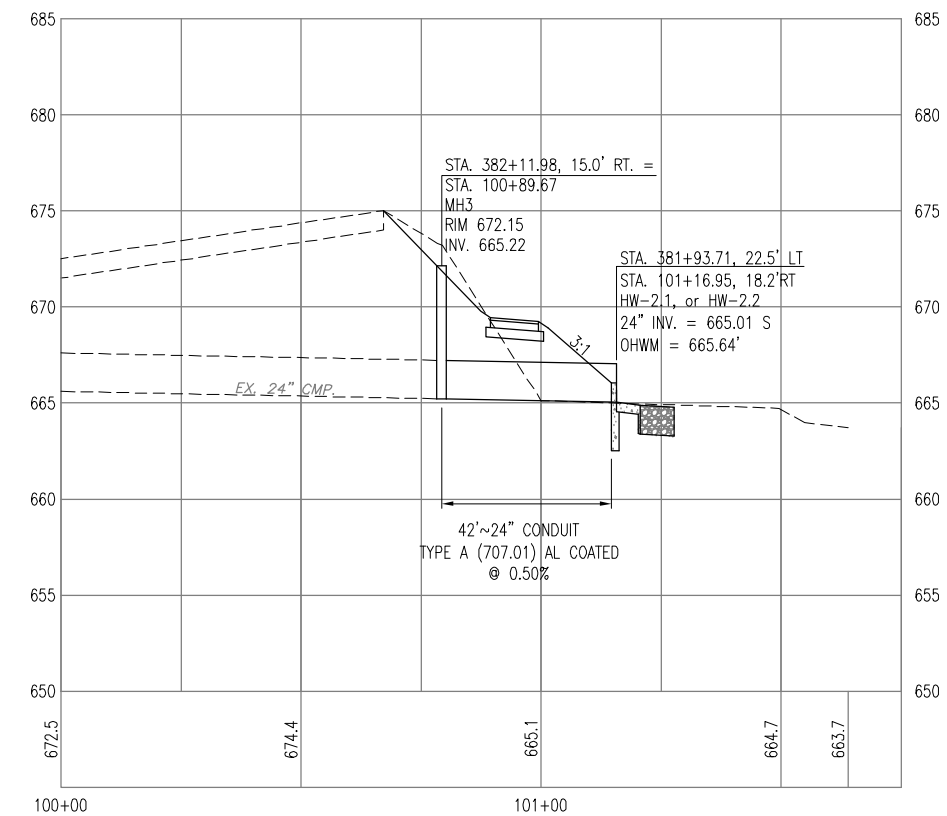
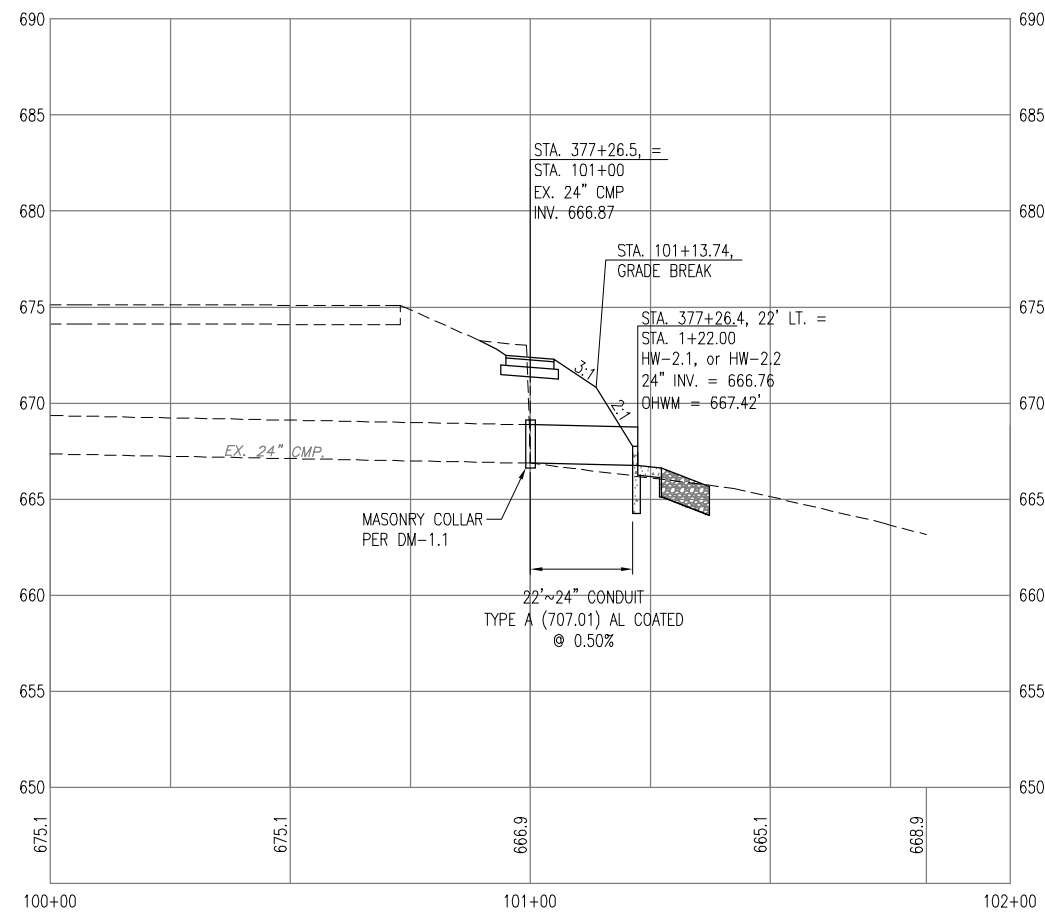
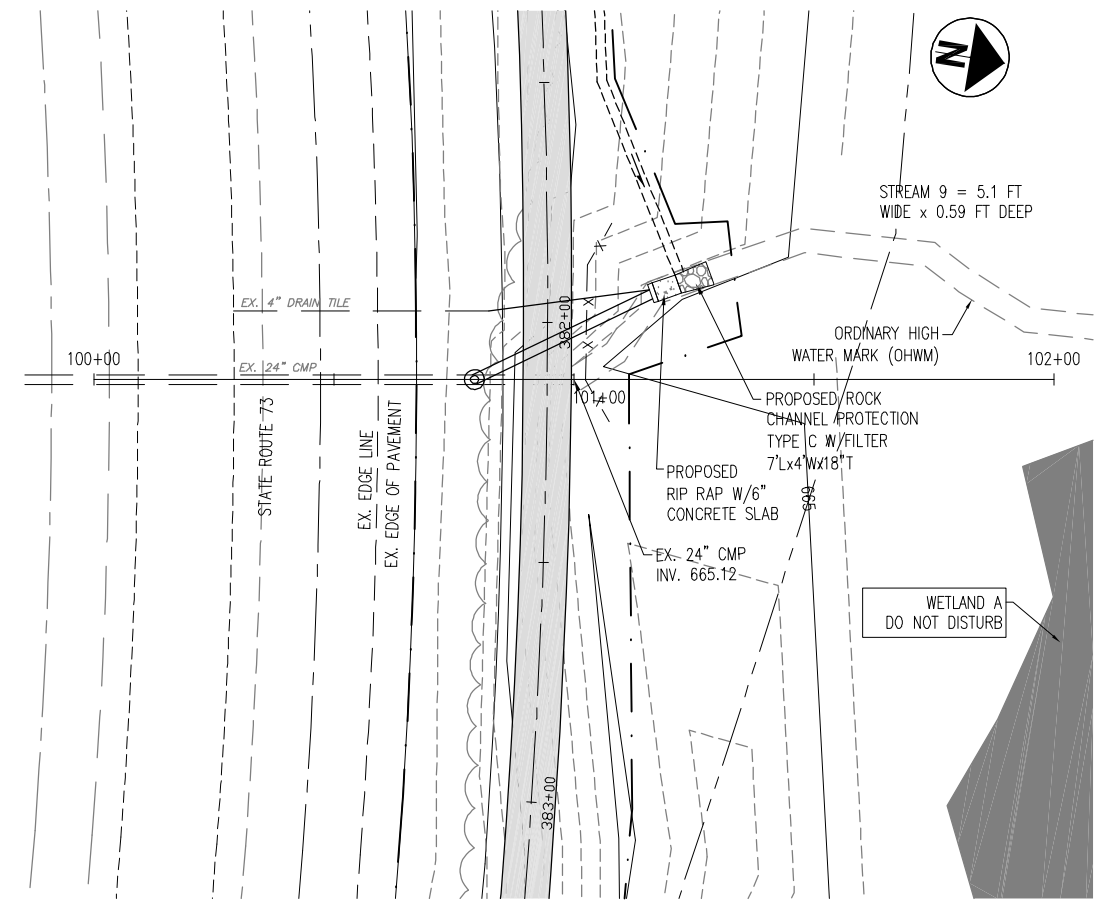
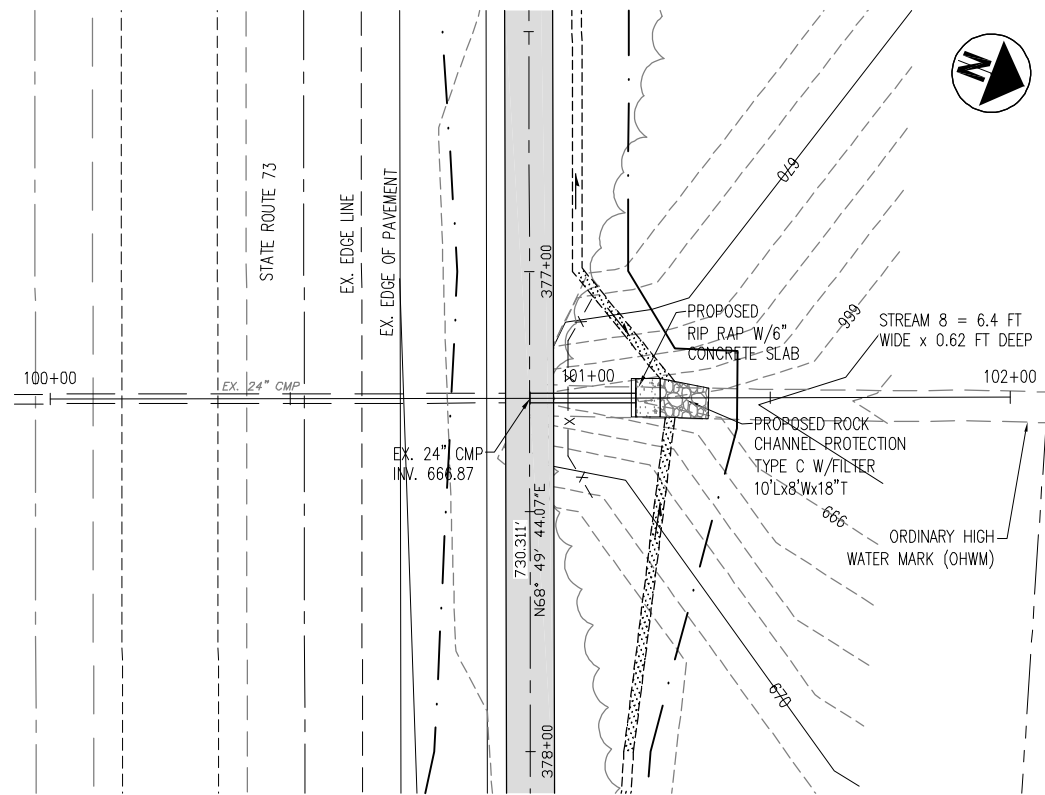


PROPOSED STORM PROFILE STA. 367+78.79  
STREAM 6



PROPOSED STORM PROFILE STA. 373+26.32  
STREAM 7

Centerline Profile  
Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL



PROPOSED STORM PROFILE STA. 377+26.39  
STREAM 8

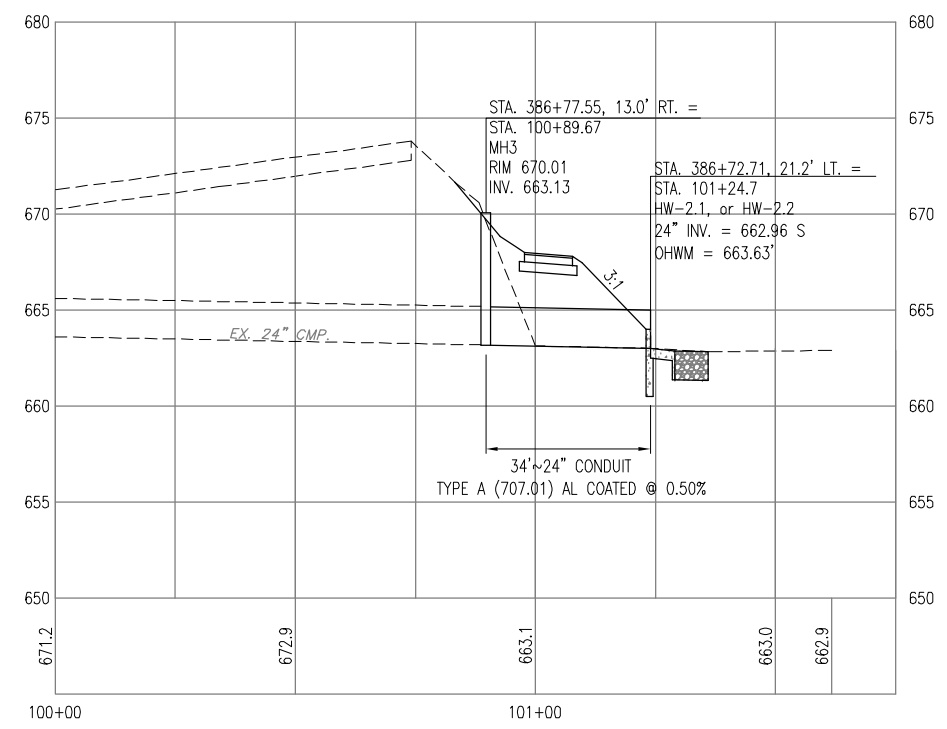
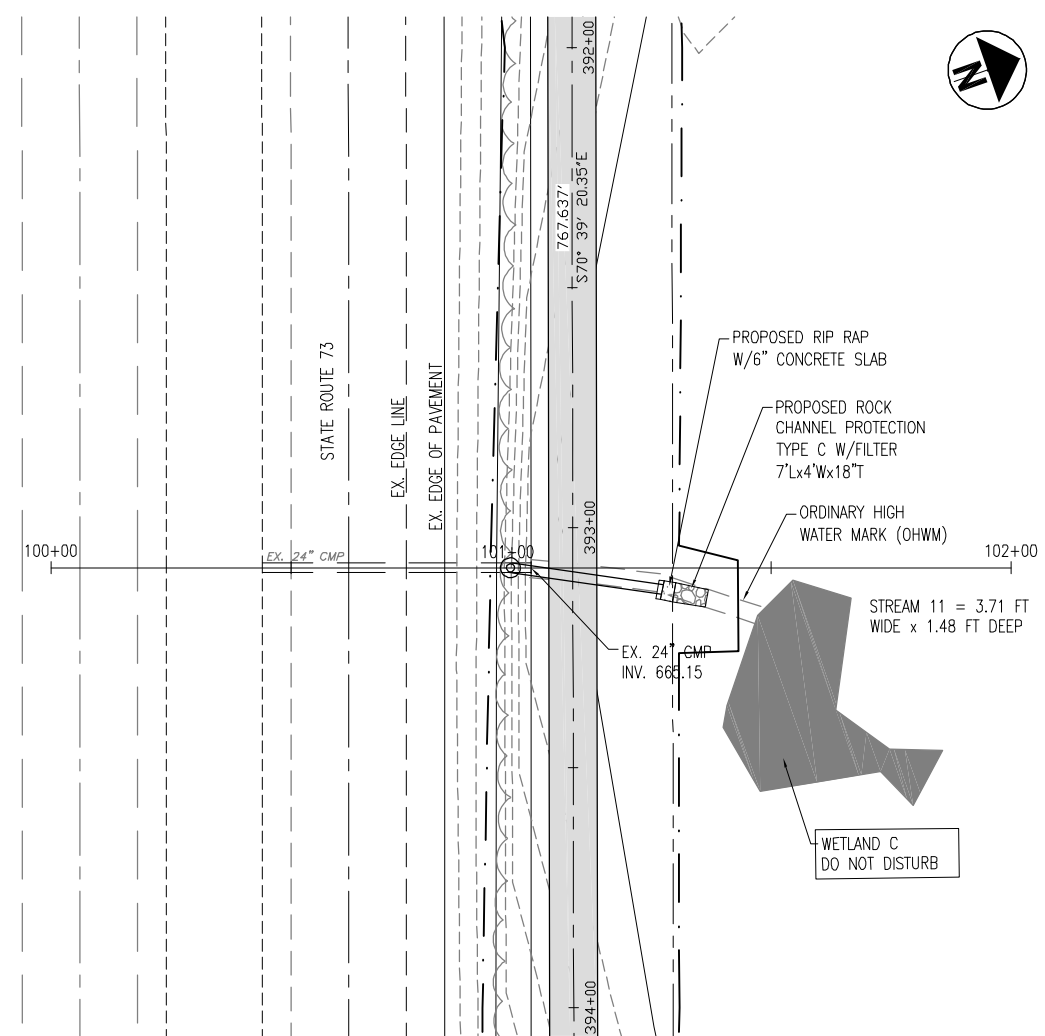
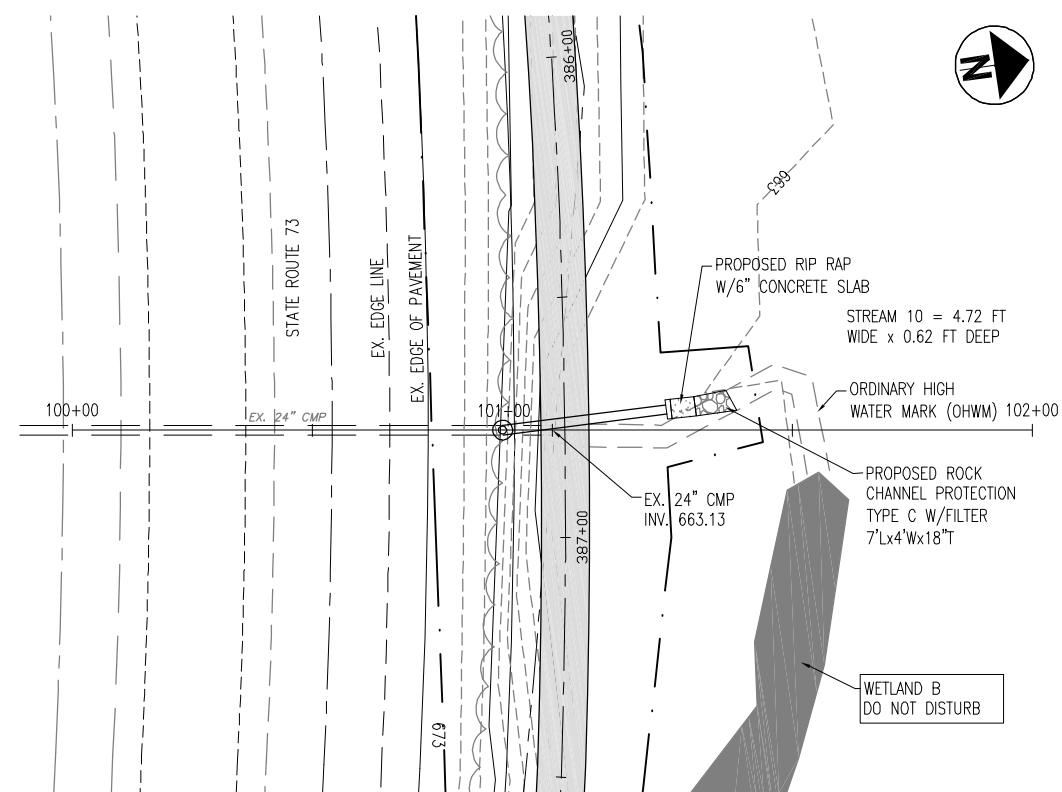
PROPOSED STORM PROFILE STA. 382+11.98  
STREAM 9

Centerline Profile  
Scale  
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1" = 20' HORIZONTAL

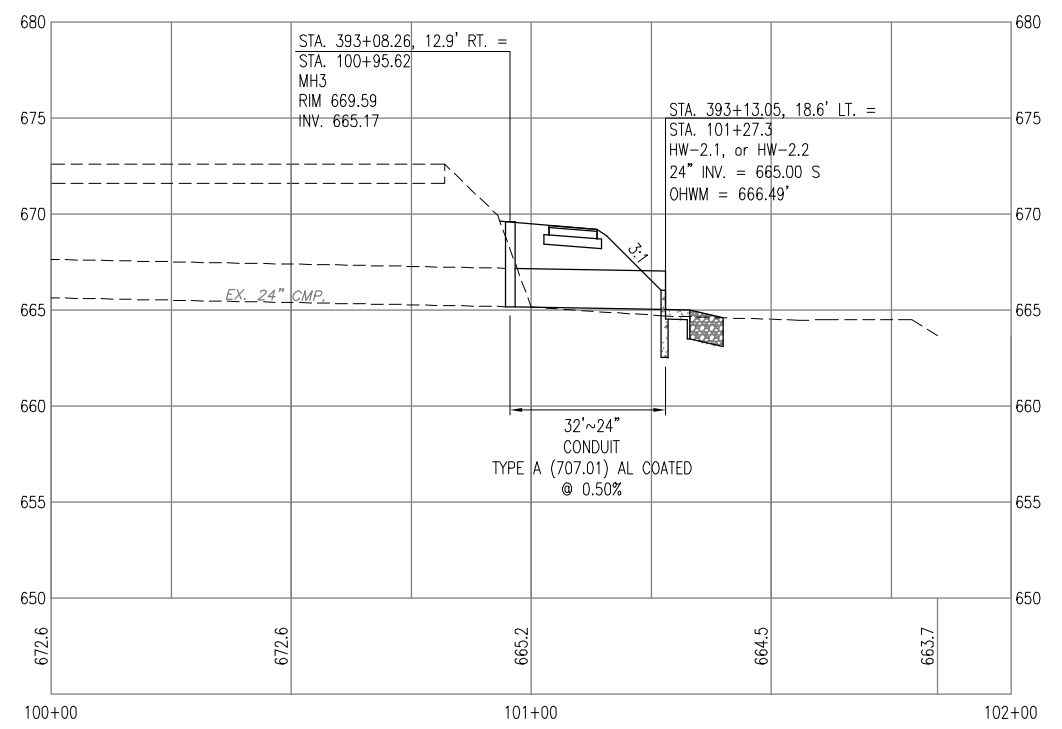
CALCULATED LG CHECKED TGB  
HORIZONTAL SCALE IN FEET  
0 10 20 40

STORM PROFILES

BUT/WAR GMR TRAIL EXTENSION

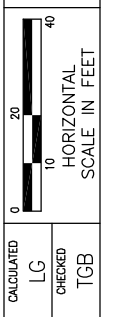


PROPOSED STORM PROFILE STA. 386+77.69  
STREAM 10



PROPOSED STORM PROFILE STA. 393+08.32  
STREAM 11

Centerline Profile  
Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL



STORM PROFILES

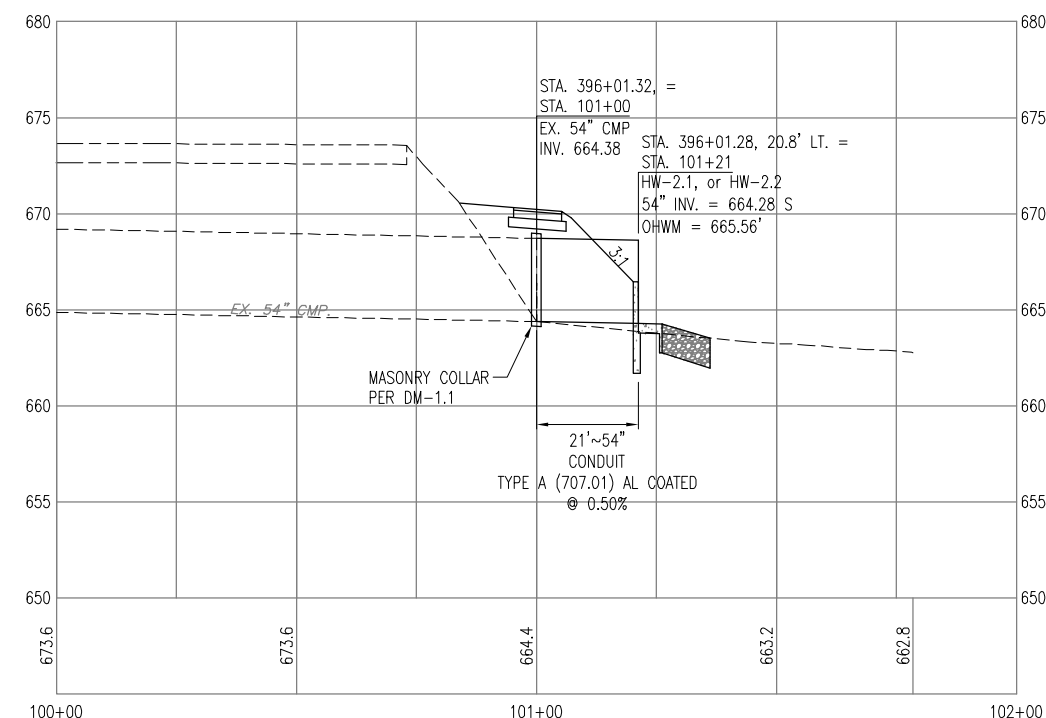
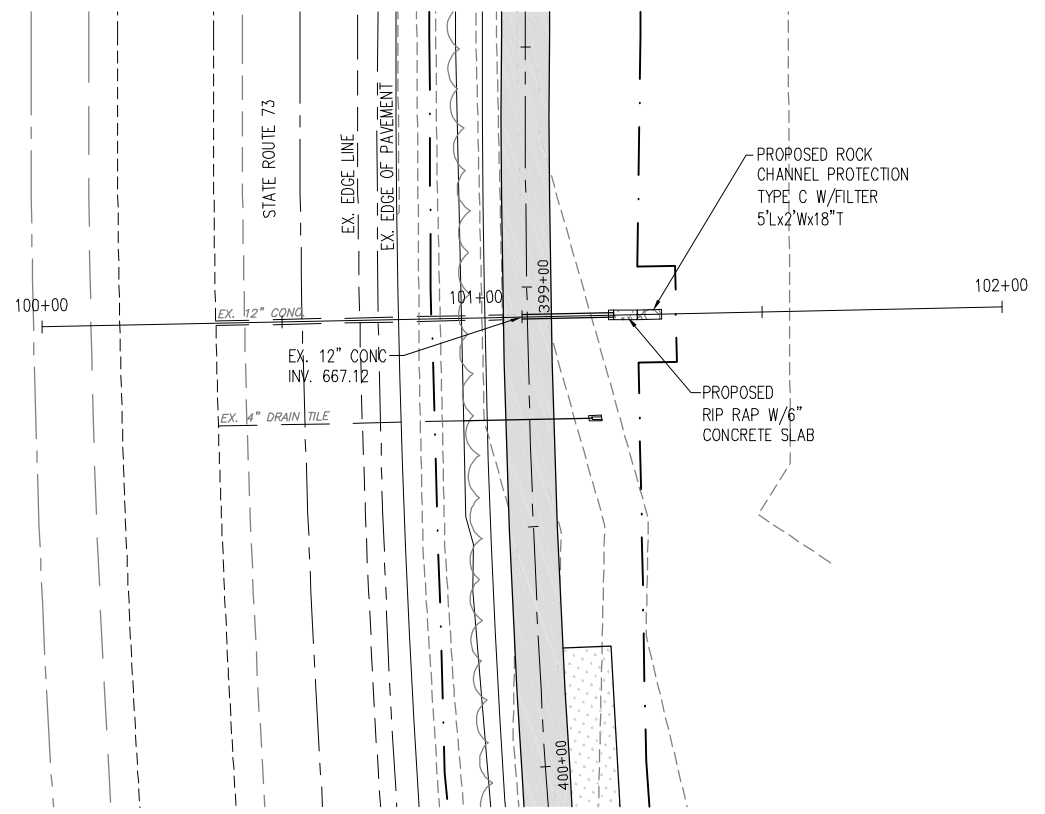
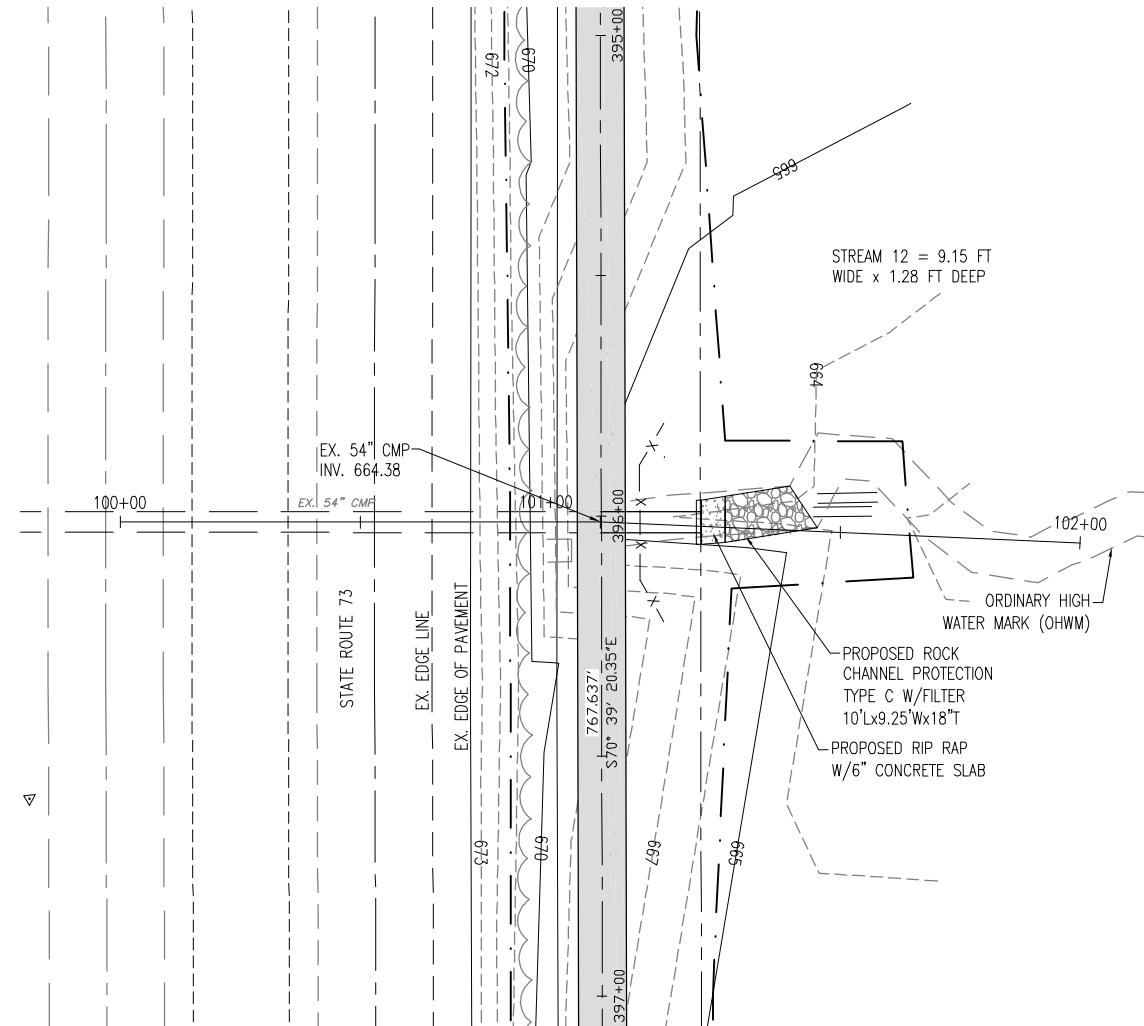
BUT/WAR GMR TRAIL EXTENSION



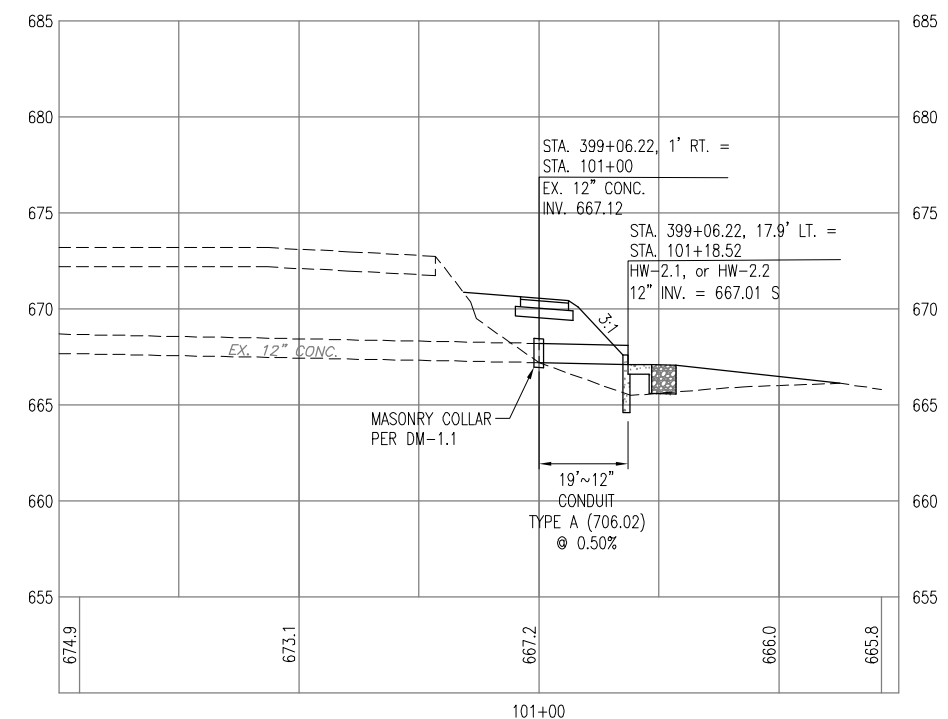
CALCULATED LG CHECKED TCB

**STORM PROFILES**

**BUT/WAR GMR TRAIL EXTENSION**

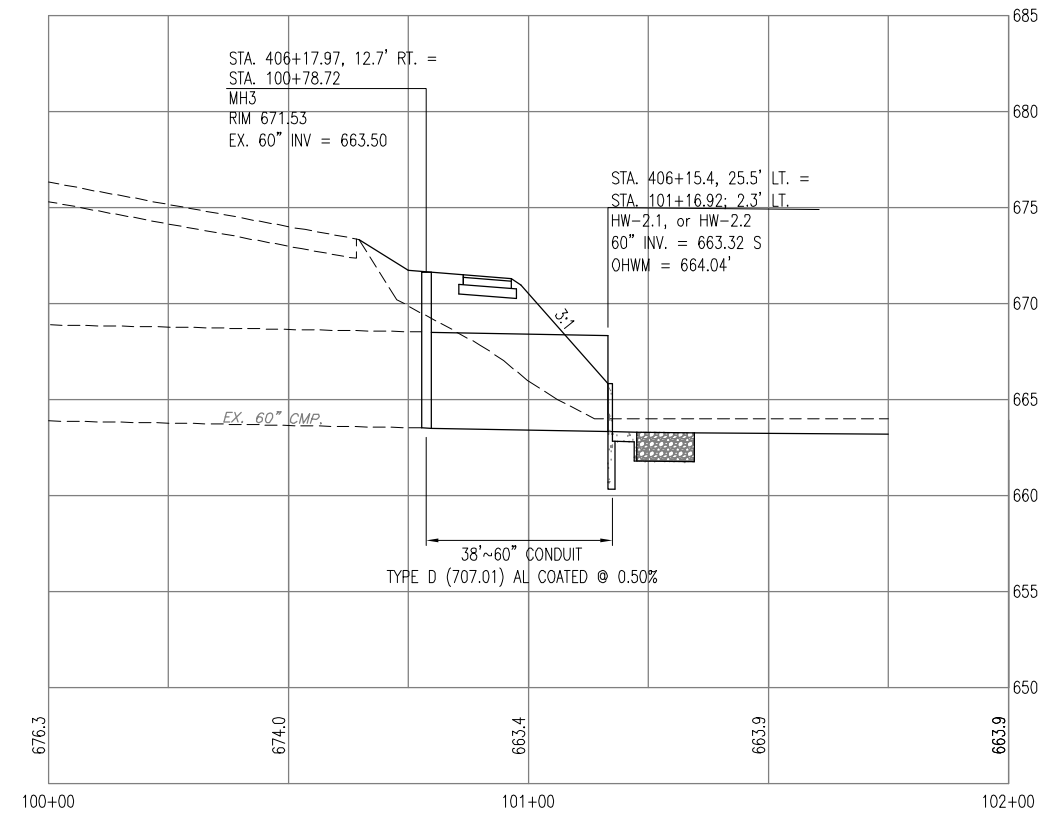
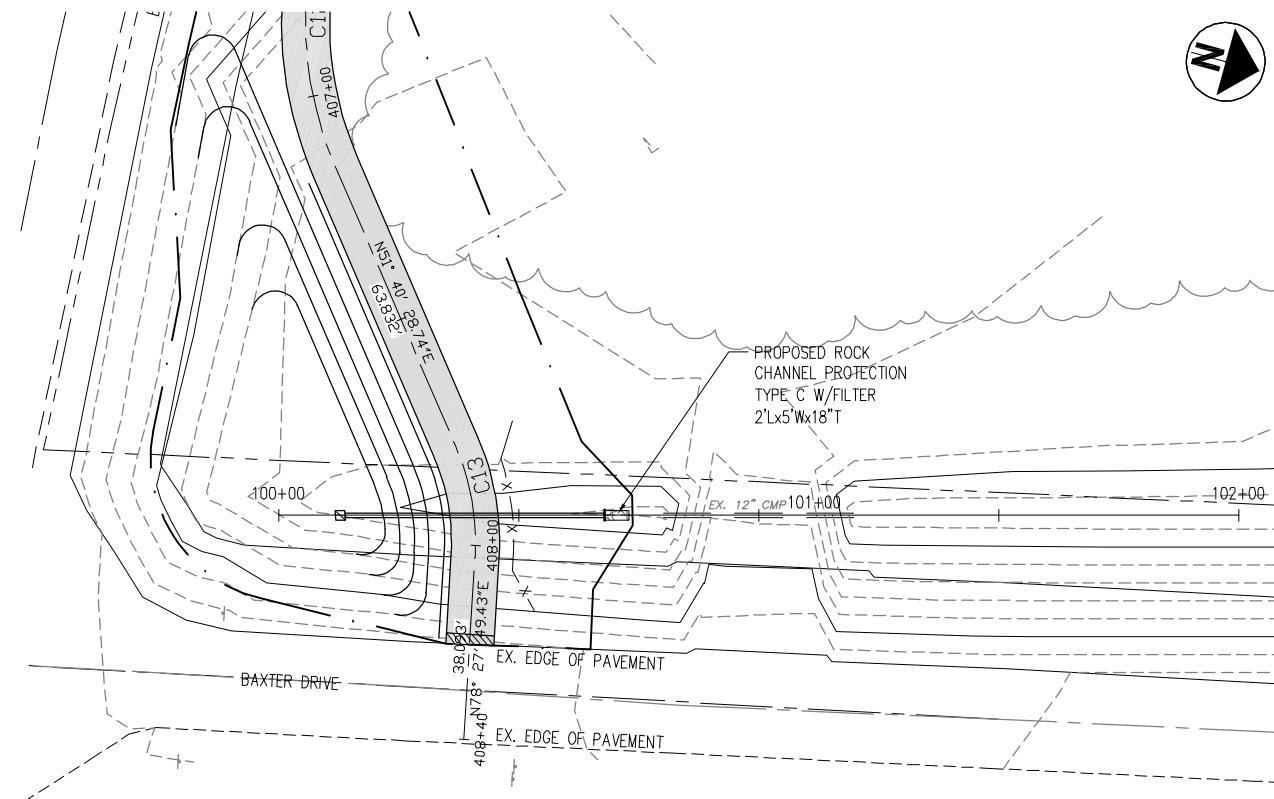
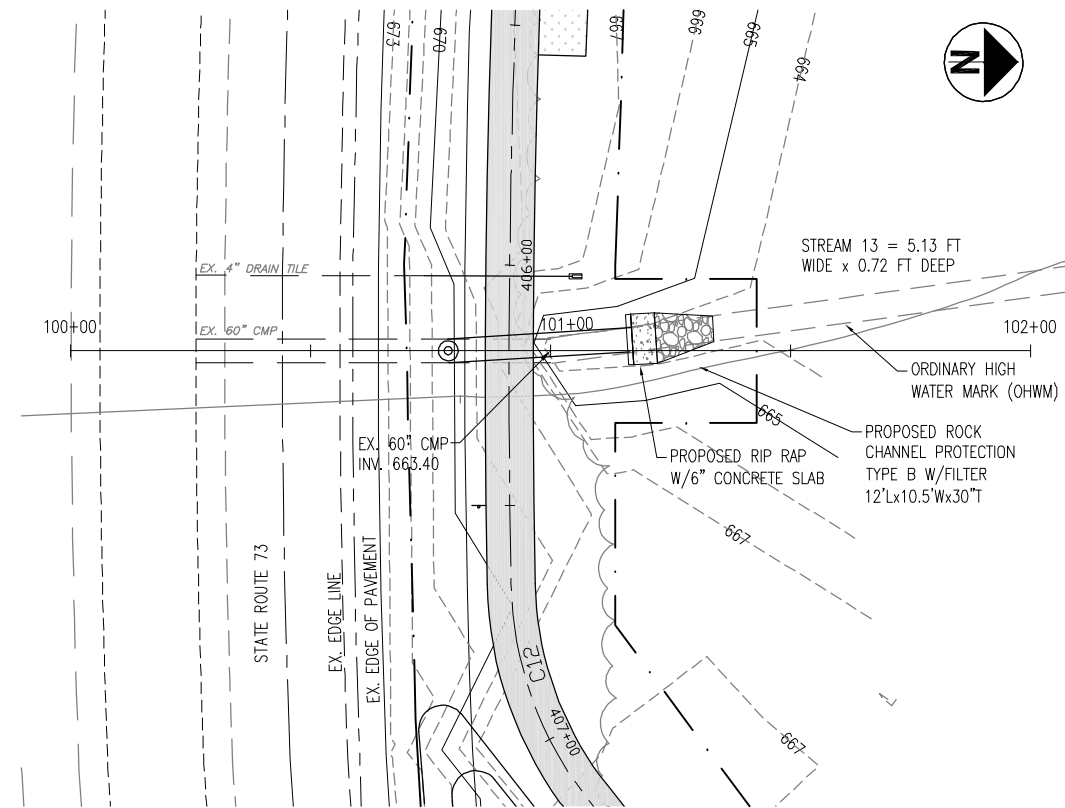


PROPOSED STORM PROFILE STA. 396+01.33  
STREAM 12

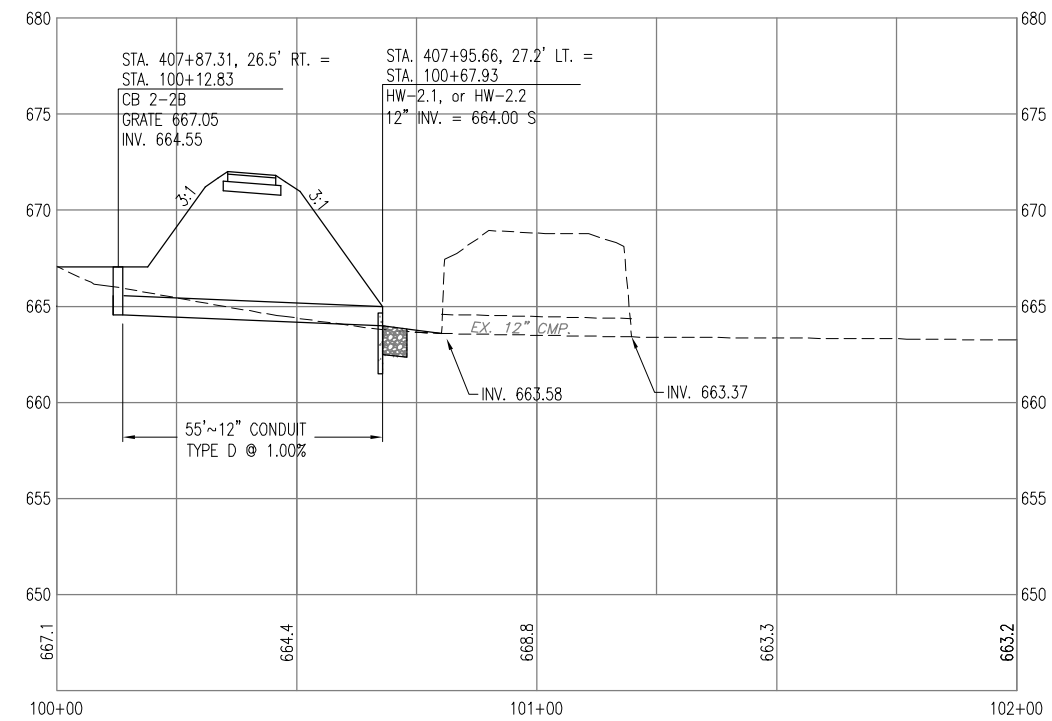


PROPOSED STORM PROFILE STA. 399+06.23

Centerline Profile  
Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL



PROPOSED STORM PROFILE STA. 406+17.84  
STREAM 13



PROPOSED STORM PROFILE STA. 407+93.70

Centerline Profile  
Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL

CALCULATED LG CHECKED TGB  
0 10 20 40  
HORIZONTAL SCALE IN FEET

STORM PROFILES

BUT/WAR GMR TRAIL EXTENSION

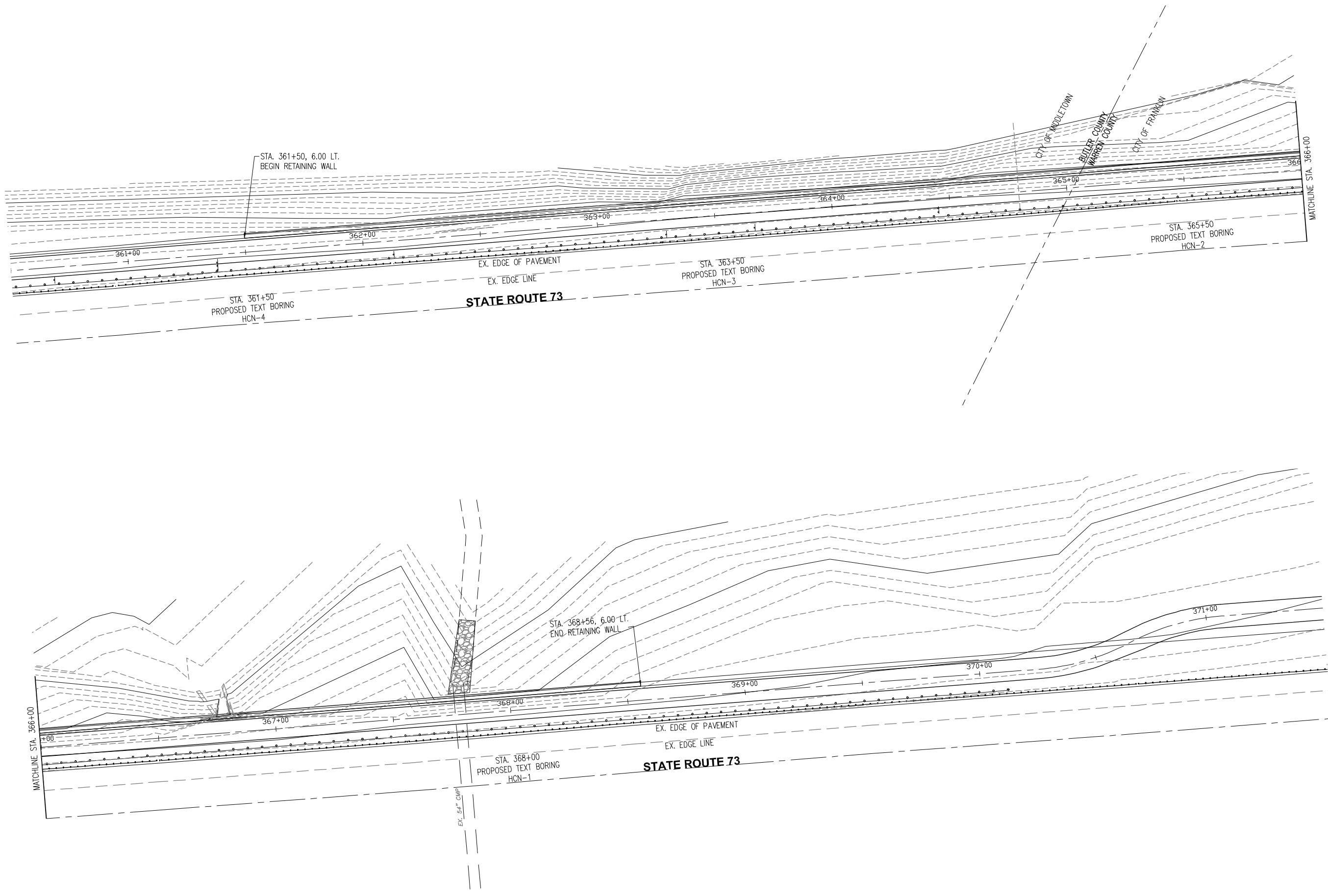
60  
67

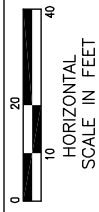
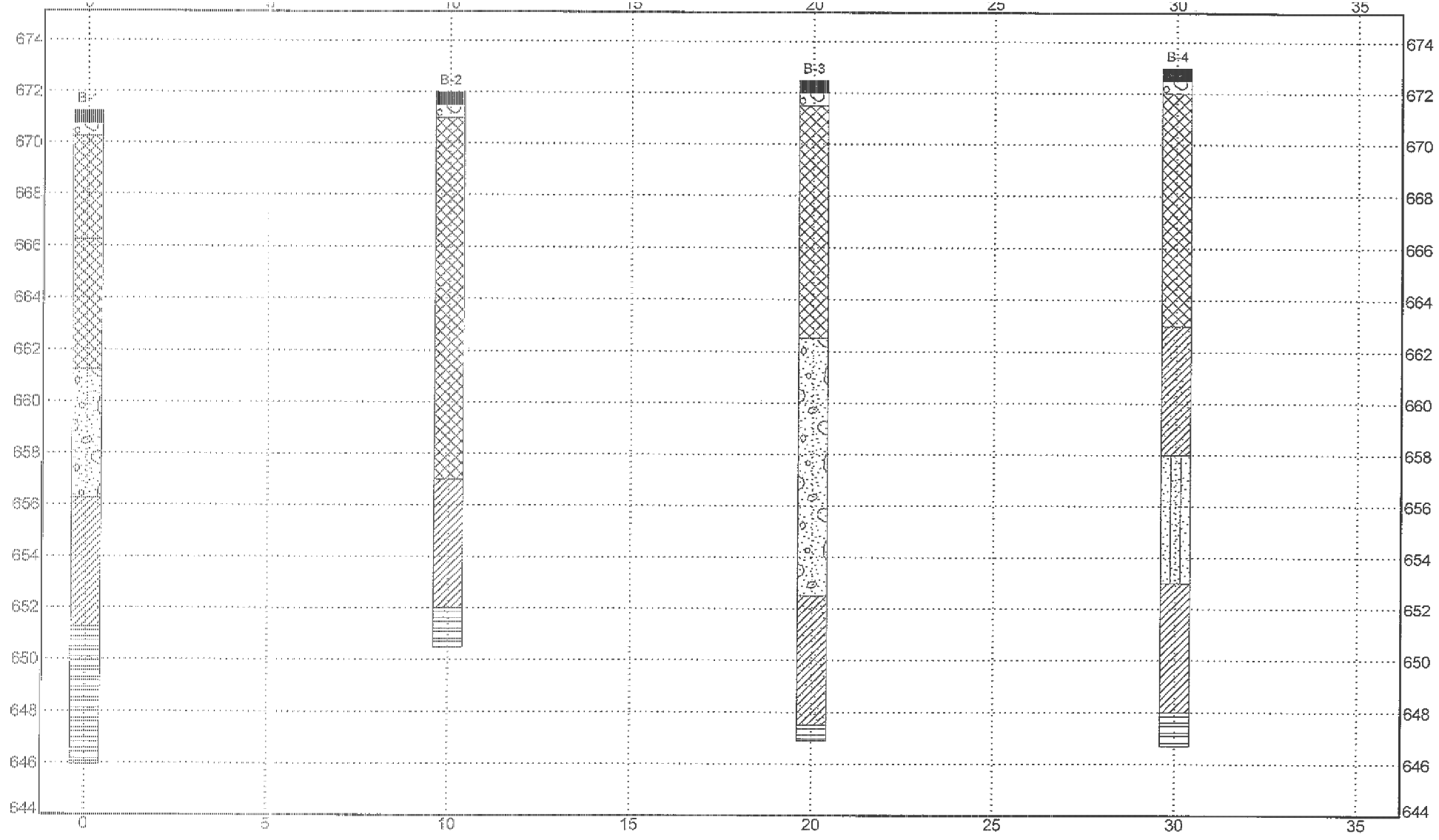


CALCULATED LG  
CHECKED TCB

**STRUCTURAL FOUNDATION EXPLORATION PLAN**  
Sta. 361+50 to Sta. 366+00

**BUT/WAR GMR TRAIL EXTENSION**





CALCULATED LG  
CHECKED TCB

**STRUCTURAL FOUNDATION EXPLORATION**

**BUT/WAR GMR TRAIL EXTENSION**

**LOG OF BORING NO. B-1**

|   |  |   |             |        |       |               |                        |                  |                      |
|---|--|---|-------------|--------|-------|---------------|------------------------|------------------|----------------------|
| CLIENT<br><b>City of Middletown, Ohio</b>                             |  | ELEVATION REFERENCE<br><b>Interpolated from 4-8-10 Brandstetter Carroll Dwg</b> |             |        |       |               |                        |                  |                      |
| SITE<br><b>SR 73<br/>Middletown, Ohio</b>                             |  | PROJECT<br><b>Great Miami River Trail Retaining Wall</b>                        |             |        |       |               |                        |                  |                      |
| GRAPHIC LOG<br>Boring Location: As Shown on Test Boring Location Plan | DESCRIPTION  | DEPTH, ft.  | SAMPLES     |        | TESTS |               |                        |                  |                      |
|   |  |   | USCS SYMBOL | NUMBER | TYPE  | RECOVERY, %   | BLOWS / 6in. (SPT - N) | WATER CONTENT, % | DRY UNIT WT pcf      |
|   | Approx. Surface Elev.: 671.25 ft   |   |             |        |       |               |                        |                  |                      |
|   | 0.5 ASPHALT PAVEMENT 670.8   |   |             |        |       |               |                        |                  |                      |
|   | 1 AGGREGATE BASE COURSE 670.3  |   | 1           | SS     | 67    | 12-14-18 (32) | 15                     |                  |                      |
|   | FILL, sandy lean clay with rock fragments, sand and gravel, brown and gray, very stiff |   |             |        |       |               |                        |                  |                      |
|   | 5 666.3  |   | 2           | SS     | 100   | 8-10-13 (23)  | 13                     |                  |                      |
|   | FILL, sandy lean clay, with shale and rock fragments, brown and gray, very stiff       |   |             |        |       |               |                        |                  |                      |
|   | 10 661.3   |   | 3           | SS     | 100   | 7-10-15 (25)  |                        |                  |                      |
|   | SAND AND GRAVEL, medium to coarse sand, brown, medium dense                            |   |             |        |       |               |                        |                  |                      |
|   | 15 656.3   |   | 4           | SS     | 100   | 1-4-2 (6)     |                        |                  | LL=45.0%<br>PI=23.0% |
|   | LEAN CLAY, with shale fragments (RESIDUUM), blue-gray, medium stiff                    |   | CL          |        |       |               |                        |                  |                      |
|   | 20 651.3   |   | 5           | SS     | 100   | 5-50/0.2      |                        |                  |                      |
|   | SHALE, very soft with limestone layers, gray, hard                                     |   |             |        |       |               |                        |                  |                      |
|   | 25.3 646   |   | 6           | SS     | 100   | 50/0.3        |                        |                  |                      |
|   | Boring Completed at 26.5 ft.   |   |             |        |       |               |                        |                  |                      |

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual. Exhibit A-4

| WATER LEVEL OBSERVATIONS, ft |      |
|------------------------------|------|
| WL ∇ 20.0                    | WD ∇ |
| WL ∇ 20.0                    | AB ∇ |
| WL                           |      |



|                  |                |
|------------------|----------------|
| BORING STARTED   | 7-26-10        |
| BORING COMPLETED | 7-26-10        |
| RIG 2295 Truck   | FOREMAN JM     |
| LOGGED JRB       | JOB # N1105173 |

**LOG OF BORING NO. B-2**

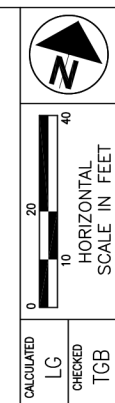
|   |   |   |             |        |       |               |                        |                  |                 |
|---|---|---|-------------|--------|-------|---------------|------------------------|------------------|-----------------|
| CLIENT<br><b>City of Middletown, Ohio</b>                             |   | ELEVATION REFERENCE<br><b>Interpolated from 4-8-10 Brandstetter Carroll Dwg</b> |             |        |       |               |                        |                  |                 |
| SITE<br><b>SR 73<br/>Middletown, Ohio</b>                             |   | PROJECT<br><b>Great Miami River Trail Retaining Wall</b>                        |             |        |       |               |                        |                  |                 |
| GRAPHIC LOG<br>Boring Location: As Shown on Test Boring Location Plan | DESCRIPTION   | DEPTH, ft.  | SAMPLES     |        | TESTS |               |                        |                  |                 |
|   |   |   | USCS SYMBOL | NUMBER | TYPE  | RECOVERY, %   | BLOWS / 6in. (SPT - N) | WATER CONTENT, % | DRY UNIT WT pcf |
|   | Approx. Surface Elev.: 672 ft                                 |   |             |        |       |               |                        |                  |                 |
|   | 0.5 ASPHALT PAVEMENT 671.5                                    |   |             |        |       |               |                        |                  |                 |
|   | AGGREGATE BASE COURSE 671                                     |   | 1           | SS     | 67    | 7-8-12 (20)   | 14                     |                  |                 |
|   | FILL, poorly graded gravel with sand, gray, medium dense      |   |             |        |       |               |                        |                  |                 |
|   | 5 666.3   |   | 2           | SS     | 67    | 10-8-6 (13)   | 8                      |                  |                 |
|   | GP GM   |   |             |        |       |               |                        |                  |                 |
|   | 10 661.3  |   | 3           | SS     | 33    | 5-5-8 (13)    | 7                      |                  |                 |
|   | LEAN CLAY, with gravel and rock fragments, gray, medium stiff |   |             |        |       |               |                        |                  |                 |
|   | 15 657  |   | 4           | SS     | 100   | 3-3-6 (9)     | 18                     |                  |                 |
|   | LEAN CLAY, with gravel and rock fragments, gray, medium stiff |   |             |        |       |               |                        |                  |                 |
|   | 20 652  |   | 5           | SS     | 67    | 5-49-65 (114) | 15                     |                  |                 |
|   | SHALE, gray, very soft, with limestone layers, gray, hard     |   |             |        |       |               |                        |                  |                 |
|   | 21.5 650.5  |   |             |        |       |               |                        |                  |                 |
|   | Boring Completed at 21.5 ft.                                  |   |             |        |       |               |                        |                  |                 |

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual. Exhibit A-5

| WATER LEVEL OBSERVATIONS, ft |      |
|------------------------------|------|
| WL ∇ 20.0                    | WD ∇ |
| WL ∇ 19.0                    | AB ∇ |
| WL                           |      |



|                  |                |
|------------------|----------------|
| BORING STARTED   | 7-26-10        |
| BORING COMPLETED | 7-26-10        |
| RIG 2295 Truck   | FOREMAN JM     |
| LOGGED JRB       | JOB # N1105173 |



STRUCTURAL FOUNDATION EXPLORATION  
TEXT BORES NUMBER B-1 AND B-2

BUT/WAR GMR TRAIL EXTENSION





CALCULATED LG CHECKED TCB

STRUCTURAL FOUNDATION EXPLORATION  
TEXT BORES NUMBER B-3 AND B-4

BUT/WAR GMR TRAIL EXTENSION

### LOG OF BORING NO. B-3

Page 1 of 1

|   |  |   |                 |
|---|--|---|-----------------|
| CLIENT<br><b>City of Middletown, Ohio</b> |  | ELEVATION REFERENCE<br><b>Interpolated from 4-8-10 Brandstetter Carroll Dwg</b> |                 |
| SITE<br><b>SR 73<br/>Middletown, Ohio</b> |  | PROJECT<br><b>Great Miami River Trail Retaining Wall</b>                        |                 |
| GRAPHIC LOG                               | Boring Location: As Shown on Test Boring Location Plan                     | DESCRIPTION   |                 |
|   |  | Approx. Surface Elev.: 672.5 ft   |                 |
| 0.5                                       | ASPHALT PAVEMENT   | 672   |                 |
|   | AGGREGATE BASE COURSE  | 671.5   |                 |
|   | FILL, lean clay with gravel and rock fragments, brown, stiff to very stiff |   |                 |
| 5   |  |   |                 |
|   | SM 2 SS  | 100   | 10-7-12 (19) 13 |
| 10  |  |   |                 |
|   | 3 SS   | 61  | 8-5-8 (13) 6    |
| 15  |  |   |                 |
|   | 4 SS   | 100   | 5-9-6 (15) 10   |
| 20  |  |   |                 |
|   | 5 SS   | 100   | 3-2-2 (4)       |
| 25  |  |   |                 |
|   | 6 SS   | 100   | 19-50/0.1       |

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual. Exhibit A-6

|                              |         |                             |                       |
|------------------------------|---------|-----------------------------|-----------------------|
| WATER LEVEL OBSERVATIONS, ft |         | BORING STARTED<br>7-26-10   |                       |
| WL                           | 20.0 WD | BORING COMPLETED<br>7-26-10 |                       |
| WL                           | N/E AB  | RIG                         | 2295 Truck FOREMAN JM |
| WL                           |         | LOGGED                      | JRB JOB # N1105173    |



### LOG OF BORING NO. B-4

Page 1 of 1

|   |  |   |                            |
|---|--|---|----------------------------|
| CLIENT<br><b>City of Middletown, Ohio</b> |  | ELEVATION REFERENCE<br><b>Interpolated from 4-8-10 Brandstetter Carroll Dwg</b> |                            |
| SITE<br><b>SR 73<br/>Middletown, Ohio</b> |  | PROJECT<br><b>Great Miami River Trail Retaining Wall</b>                        |                            |
| GRAPHIC LOG                               | Boring Location: As Shown on Test Boring Location Plan                           | DESCRIPTION   |                            |
|   |  | Approx. Surface Elev.: 673 ft   |                            |
| 0.5                                       | ASPHALT PAVEMENT   | 672.5   |                            |
|   | AGGREGATE BASE COURSE  | 672   |                            |
|   | FILL, lean clay with medium to coarse sand and gravel, brown to gray, very stiff |   |                            |
| 5   |  |   |                            |
|   | 2 SS   | 67  | 4-9-10 (19) 11             |
| 10  |  |   |                            |
|   | 3 SS   | 100   | 3-3-4 (7) LL=20.0% PI=6.0% |
| 15  |  |   |                            |
|   | 4 SS   | 100   | 3-4-6 (10)                 |
| 20  |  |   |                            |
|   | 5 SS   | 100   | 3-3-4 (7)                  |
| 25  |  |   |                            |
|   | 6 SS   | 100   | 48-50/0.3                  |

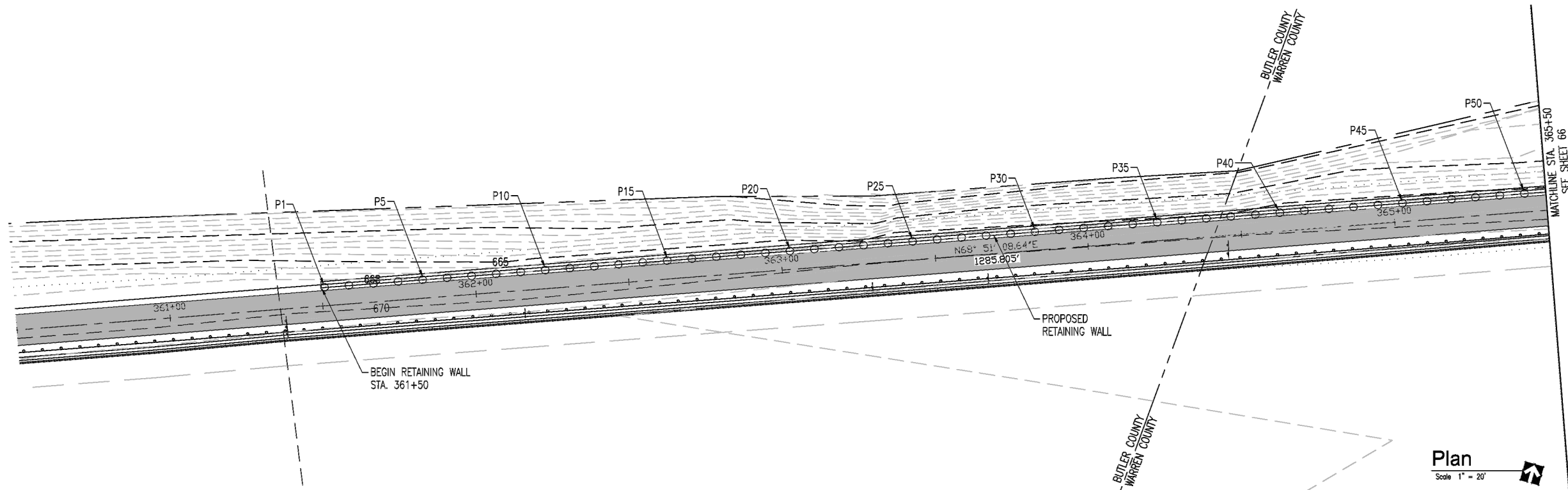
The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual. Exhibit A-7

|                              |         |                             |                       |
|------------------------------|---------|-----------------------------|-----------------------|
| WATER LEVEL OBSERVATIONS, ft |         | BORING STARTED<br>7-26-10   |                       |
| WL                           | 20.0 WD | BORING COMPLETED<br>7-26-10 |                       |
| WL                           | N/E AB  | RIG                         | 2295 Truck FOREMAN JM |
| WL                           |         | LOGGED                      | JRB JOB # N1105173    |

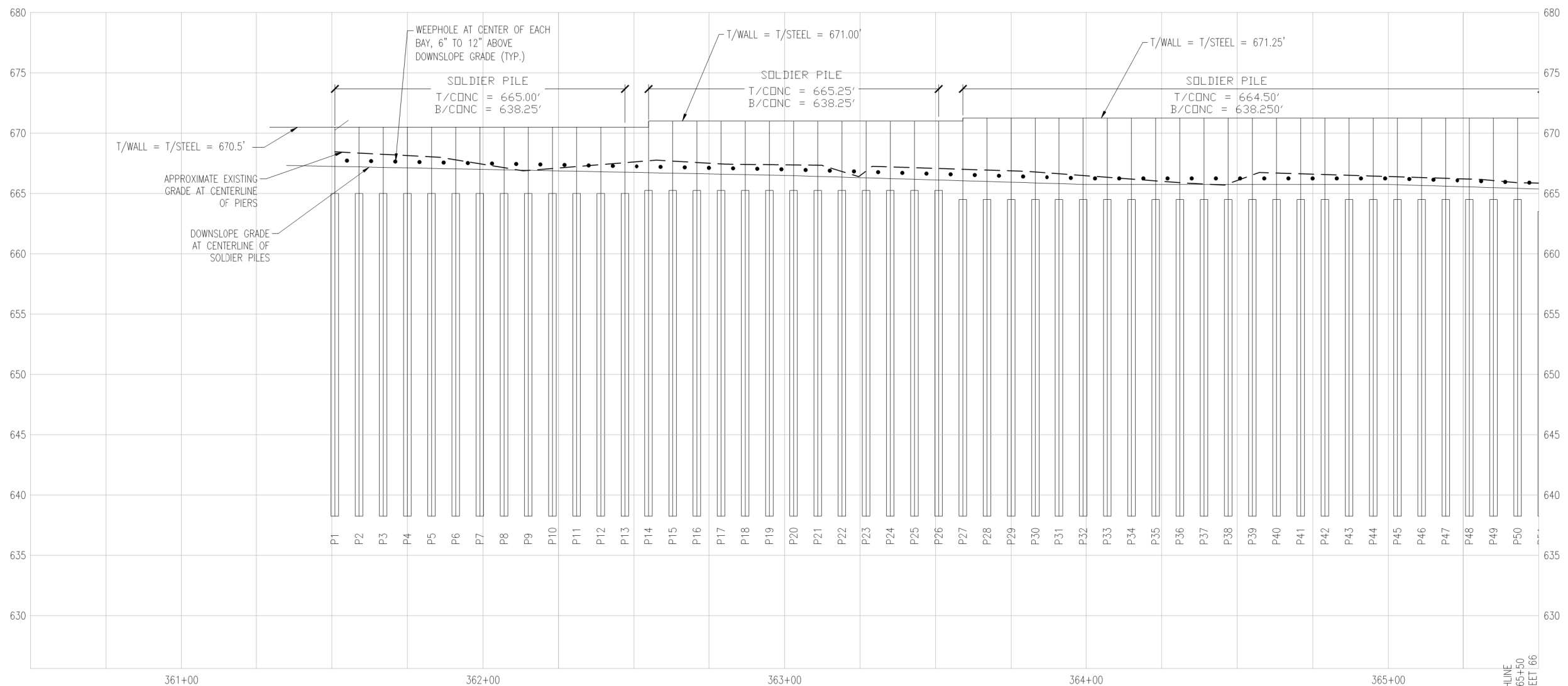


BOREHOLE 98 TEST BORING LOGS.GPJ TERRACON TEST.GDT 10/4/10

BOREHOLE 98 TEST BORING LOGS.GPJ TERRACON TEST.GDT 10/4/10



**Plan**  
Scale 1" = 20'



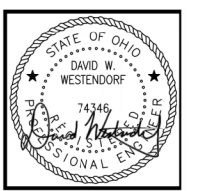
**Centerline Profile**

Scale  
1" = 5' VERTICAL  
1" = 20' HORIZONTAL

| REV. | DATE    | BY  | DESCRIPTION                                    |
|------|---------|-----|--|
| 1    | 2-12-19 | DWW | ADDED 18" CULVERT & REMOVED FENCE DETAIL       |
| 2    | 4-7-20  | DWW | ADJUSTED TOP OF WALL ELEVATIONS TO MATCH TRAIL |



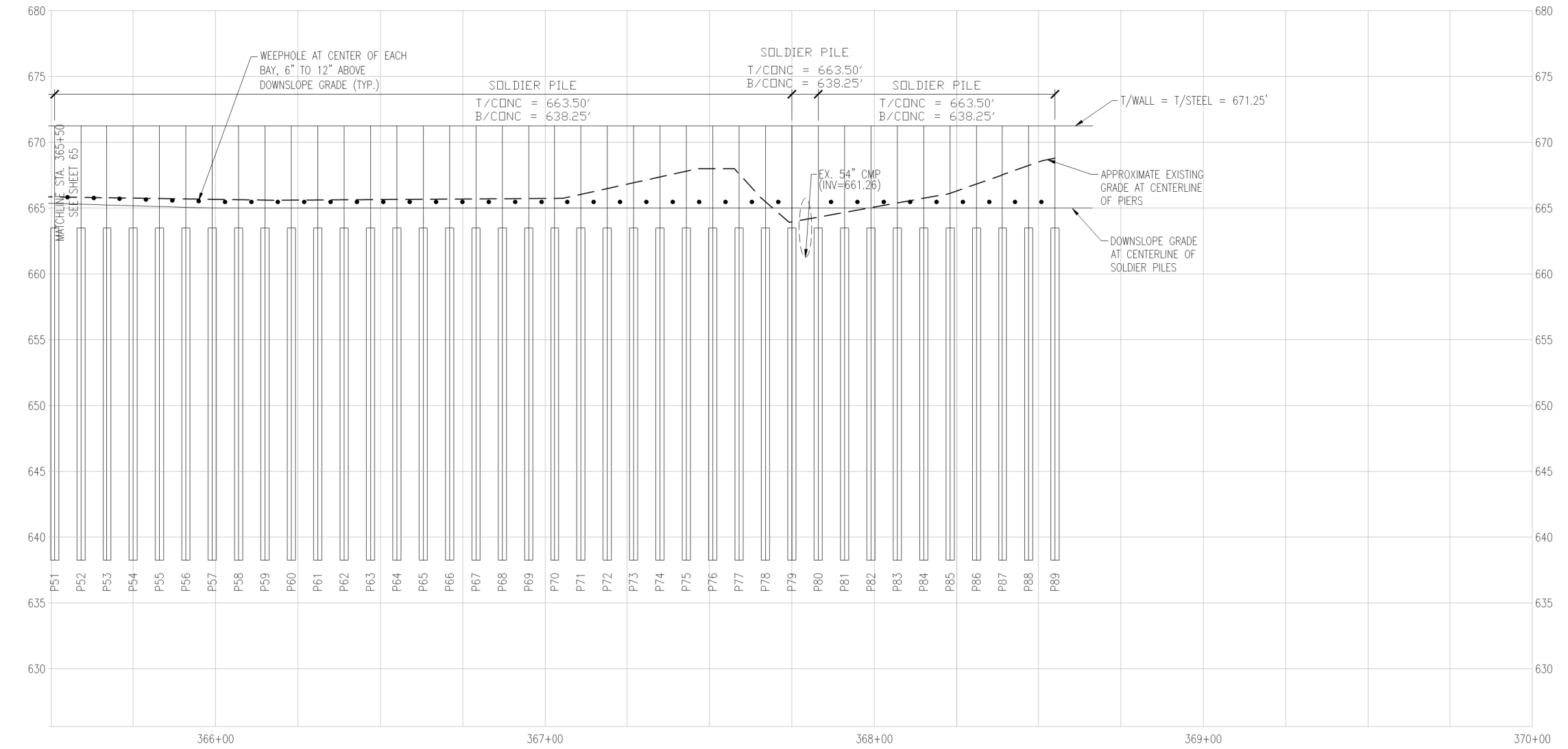
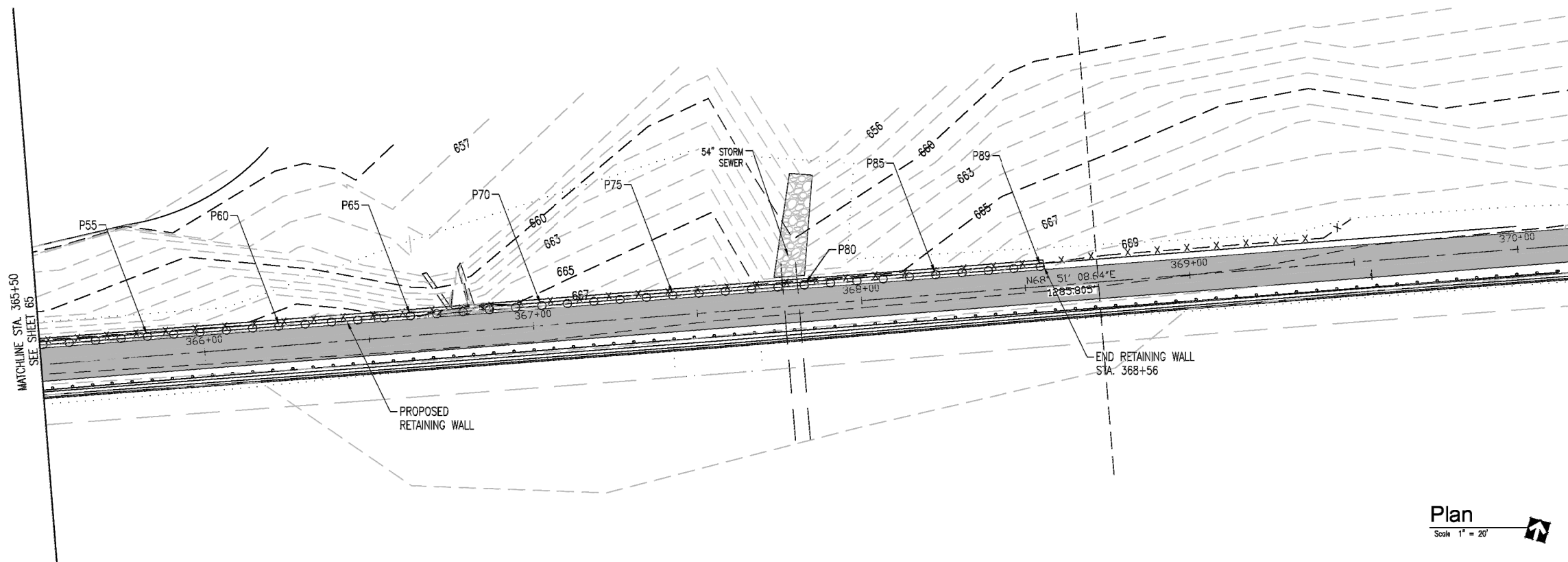
**RETAINING WALL PLAN & PROFILE**  
**STA. 361+50 TO STA. 365+50**



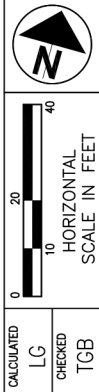
| EXHIBIT 1    |            |
|--------------|------------|
| DESIGNED BY: | DWW        |
| DRAWN BY:    | KM         |
| APP'D BY:    | DWW        |
| SCALE:       | AS SHOWN   |
| DATE:        | 04/07/2020 |
| JOB NO.:     | N1165434   |
| ACAD NO.:    | RW.DWG     |
| SHEET NO.:   | 1          |

WALL DESIGNED BY  
**Terracon**  
Consulting Engineers and Scientists  
611 LUNKEN PARK DRIVE CINCINNATI, OHIO 45226  
PH. (513) 321-5816 FAX. (513) 321-4540

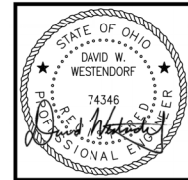
**BUT/WAR GMR TRAIL EXTENSION**  
**65**  
**67**



| REV. | DATE    | BY  | DESCRIPTION                                    |
|------|---------|-----|--|
| 1    | 2-12-19 | DWW | ADDED 18" CULVERT & REMOVED FENCE DETAIL       |
| 2    | 4-7-20  | DWW | ADJUSTED TOP OF WALL ELEVATIONS TO MATCH TRAIL |



Plan  
Scale 1" = 20'



| EXHIBIT 2    |            |
|--------------|------------|
| DESIGNED BY: | DWW        |
| DRAWN BY:    | KM         |
| APP'D. BY:   | DWW        |
| SCALE:       | AS SHOWN   |
| DATE:        | 04/07/2020 |
| JOB NO.:     | N1185434   |
| ACAD NO.:    | RW.DWG     |
| SHEET NO.:   | 2          |

WALL DESIGNED BY  
**Terracon**  
 Consulting Engineers and Scientists  
 611 LUNKEN PARK DRIVE CINCINNATI, OHIO 45226  
 PH. (513) 321-5816 FAX. (513) 321-4540

Centerline Profile  
 Scale  
 1" = 5' VERTICAL  
 1" = 20' HORIZONTAL

RETAINING WALL PLAN & PROFILE  
 STA. 361+50 TO STA. 365+50

BUT/WAR GMR TRAIL EXTENSION

| PIER # | STATION | OFFSET | TOP OF WALL/STEEL ELEV. | TOP OF CONCRETE ELEV. | TOTAL LENGTH | ESTIMATED BOTTOM OF PIER ELEV. |
|--------|---------|--------|-------------------------|-----------------------|--------------|--------------------------------|
| P1     | 361+51  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P2     | 361+59  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P3     | 361+67  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P4     | 361+75  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P5     | 361+83  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P6     | 361+91  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P7     | 361+99  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P8     | 362+07  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P9     | 362+15  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P10    | 362+23  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P11    | 362+31  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P12    | 362+39  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P13    | 362+47  | 6.0'L  | 670.5                   | 665.0                 | 32.25        | 638.25                         |
| P14    | 362+55  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P15    | 362+63  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P16    | 362+71  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P17    | 362+79  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P18    | 362+87  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P19    | 362+95  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P20    | 363+03  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P21    | 363+11  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P22    | 363+19  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P23    | 363+27  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P24    | 363+35  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P25    | 363+43  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P26    | 363+51  | 6.0'L  | 671.0                   | 665.25                | 32.75        | 638.25                         |
| P27    | 363+59  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P28    | 363+67  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P29    | 363+75  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P30    | 363+83  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P31    | 363+91  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P32    | 363+99  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P33    | 364+07  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P34    | 364+15  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P35    | 364+23  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P36    | 364+31  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P37    | 364+39  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P38    | 364+47  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P39    | 364+55  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P40    | 364+63  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P41    | 364+71  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P42    | 364+79  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P43    | 364+87  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P44    | 364+95  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P45    | 365+03  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P46    | 365+11  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P47    | 365+19  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P48    | 365+27  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P49    | 365+35  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P50    | 365+43  | 6.0'L  | 671.25                  | 664.5                 | 33           | 638.25                         |
| P51    | 365+51  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P52    | 365+59  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P53    | 365+67  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P54    | 365+75  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P55    | 365+83  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P56    | 365+91  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P57    | 365+99  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P58    | 366+07  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P59    | 366+15  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P60    | 366+23  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P61    | 366+31  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P62    | 366+39  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P63    | 366+47  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P64    | 366+55  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P65    | 366+63  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P66    | 366+71  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P67    | 366+79  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P68    | 366+87  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P69    | 366+95  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P70    | 367+03  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P71    | 367+11  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P72    | 367+19  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P73    | 367+27  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P74    | 367+35  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P75    | 367+43  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P76    | 367+51  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P77    | 367+59  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P78    | 367+67  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P79    | 367+75  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P80    | 367+83  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P81    | 367+91  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P82    | 367+99  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P83    | 368+07  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P84    | 368+15  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P85    | 368+23  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P86    | 368+31  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P87    | 368+39  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P88    | 368+47  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |
| P89    | 368+55  | 6.0'L  | 671.25                  | 663.5                 | 33           | 638.25                         |

**ITEM 324E94603 - DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN**  
**ITEM 324E94605 - DRILLED SHAFTS, 30" DIAMETER, INTO BEDROCK, AS PER PLAN**

THIS WORK CONSISTS OF FURNISHING AND INSTALLING DRILLED SHAFTS FOR A TIEBACK-ANCHORED RETAINING WALL. THE DRILLED SHAFTS ARE REINFORCED WITH STEEL SOLDER BEAMS. FURNISH AND INSTALL THE DRILLED SHAFTS AS SHOWN ON THE PLAN AND PROFILE DRAWINGS AS WELL AS CMS 524.

EXCAVATE THE HOLE FOR THE DRILLED SHAFT WITHIN 3 INCHES OF THE PLAN LOCATION. THE SHAFT SHALL BE PLUMB WITHIN ONE PERCENT (1%) OF ITS LENGTH. ANY SHAFTS VARYING BY MORE THAN THE ABOVE TOLERANCES SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE OWNER. THE DESIGN IS BASED ON A MAXIMUM DEPTH FROM FINISH PAVEMENT ELEVATION AS SUMMARIZED IN THE TABLE FOR SCHEDULE OF DRILLED SHAFTS. EACH SHAFT SHALL BE SOCKETED INTO SHALE BEDROCK A MINIMUM OF 8 FEET IN BROWN SHALE OR 6 FEET INTO GRAY SHALE. IF USED CONDITIONS INDICATE LOWER BOTTOM OF PIER ELEVATION OF 2 FEET OR GREATER, NOTIFY THE ENGINEER FOR FURTHER EVALUATION.

TEMPORARY STEEL CASING SHALL BE PROVIDED WHERE NECESSARY TO PREVENT CAVING OR SLIPPING OF THE SHAFT WALLS AND/OR TO CONTROL SEEPAGE. CASING SHALL BE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING SUFFICIENT HEAD OF CONCRETE WITHIN THE CASING TO PREVENT SOIL FROM ENTERING THE SHAFT THROUGH THE SIDES OF THE EXCAVATION AND MIXING WITH THE CONCRETE. DRILL CUTTINGS SHALL NOT BE TEMPORARILY STORED OR DISPOSED OF ON THE EXISTING SLOPE AT ANY TIME DURING CONSTRUCTION.

IT IS ANTICIPATED THAT WATER WILL ENTER SOME OF THE SHAFT EXCAVATIONS. THE DEPTH OF PONDED WATER AT THE BOTTOM OF THE SHAFT EXCAVATIONS SHOULD NOT EXCEED 2 INCHES. PRIOR TO PLACING CONCRETE, IF THE WATER CANNOT BE PUMPED DOWN, TREMIE PLACEMENT METHODS WILL BE REQUIRED.

IF FORMS ARE NEEDED, FORMS SHALL BE TRULY CYLINDRICAL IN SHAPE WITHOUT ANY BULGES OR DEPRESSIONS, AND BE PLUMB AND SECURELY CENTERED SO THAT THE CENTERLINE OF THE TOP-OF-PIER IS WITHIN TWO INCHES (2") OF PLAN LOCATION. TOP-OF-FORM SHALL BE CUT TO TOP OF CONCRETE ELEVATION FOR THE DRILLED SHAFT SO THE CONCRETE CAN BE FINISHED SMOOTH AND LEVEL.

DISPOSABLE CARDBOARD OR LAMINATED PAPER TUBE FORMS MAY BE USED. FORMS SHALL BE STRIPPED IN ACCORDANCE WITH THEIR MANUFACTURER'S RECOMMENDATIONS SO AS TO OBTAIN A SMOOTH AND CLEAN SHAFT SURFACE.

PROVIDE C01 CONCRETE WITH ENTRAINED AIR CONTENT BETWEEN FOUR (4%) TO SEVEN PERCENT (7%). PLACE CONCRETE TO THE TOP OF CONCRETE ELEVATION INDICATED ON THE PLANS. THE CONTRACTOR MAY PLACE CONCRETE USING THE FREE FALL METHOD PROVIDED THE DEPTH OF WATER IS LESS THAN 2 INCHES IN THE SHAFTS AND THE CONCRETE FALLS WITHOUT STRIKING THE SIDES OF THE EXCAVATION. CONCRETE SHALL BE PLACED IN THE DRILLED SHAFT EXCAVATIONS ON THE SAME DAY THE EXCAVATIONS ARE COMPLETED. ALL CONCRETE SHALL BE PLACED WITH MECHANICAL VIBRATION. NO HORIZONTAL CONSTRUCTION JOINTS WILL BE PERMITTED OTHER THAN THOSE SHOWN ON THE PLANS, WITHOUT THE APPROVAL OF THE ENGINEER.

FILL THE HOLE FROM THE TOP OF CONCRETE TO THE EXISTING GROUND SURFACE WITH ITEM 615 LOW STRENGTH MORTAR BACKFILL (LSM). REMOVE CONCRETE AND LSM AS NECESSARY FROM AROUND THE SOLDIER PILE IN ORDER TO PLACE THE PRECAST LAGGING.

CARE SHALL BE EXERCISED AS TO COVER UNATTENDED OPEN SHAFTS. TEMPORARY COVERS SHALL BE OF ADEQUATE STRENGTH TO PROTECT A PERSON OR ANIMAL FROM FALLING IN AN EXCAVATED SHAFT.

PRIOR TO CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING PUBLIC UTILITIES IN THE CONSTRUCTION AREA. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY UTILITY CONFLICTS WITH THE PROPOSED SHAFTS.

ANY TEMPORARY GRADING, AGGREGATE, DRAINAGE, ETC. NEEDED FOR ACCESS TO THE WORK AREA SHALL BE INCLUDED IN THE BID PRICE FOR DRILLED SHAFTS.

THE CONTRACTOR SHALL MAINTAIN A RECORD OF EACH SHAFT DRILLED, WHICH WILL INCLUDE AS A MINIMUM: SHAFT NUMBER, SHAFT TIP ELEVATION, ROCK SOCKET LENGTH AND MATERIAL ELEVATION OF THE TOP-OF-THE SHAFT CONCRETE; DATE DRILLED; DATE COMPLETED; AND WEATHER CONDITIONS.

PAYMENT IS FULL COMPENSATION FOR ALL FORMS, MOBILIZING AND REMOVING DRILLING EQUIPMENT, LAYOUT, SATISFACTORY REMOVAL OF DRILLING SPILLS, CONSTRUCTING THE DRILLED SHAFTS INCLUDING FURNISHING AND PLACING CONCRETE AND SOLDIER BEAMS (ITEM 507), TEMPORARY CASING, AND FORMS.

PAYMENT FOR THE ITEM 524 - DRILLED SHAFTS ABOVE BEDROCK AS PER PLAN WILL BE MADE BY FIELD MEASURING THE ACTUAL DRILLED DISTANCE FROM THE DRILLING PLATFORM TO THE TOP OF GRAY INTERBEDDED SHALE AND LIMESTONE. DRILLING IN BROWN WEATHER SHALE AND LIMESTONE WILL BE CONSIDERED OVERBURDEN. PAYMENT FOR ITEM 524 - DRILLED SHAFTS INTO BEDROCK AS PER PLAN WILL BE BASED ON THE ACTUAL DRILLED DISTANCE INTO GRAY INTERBEDDED SHALE AND LIMESTONE BEDROCK BELOW THE OVERBURDEN OR BROWN WEATHERED SHALE AND LIMESTONE.

**ITEM 507 - STEEL, PILES, MISC: SOLDIER PILES**

THIS WORK CONSISTS OF FURNISHING AND PLACING STEEL SOLDIER BEAMS (PILES) INTO DRILLED HOLES. FURNISH SOLDIER BEAMS CONSISTING OF STRUCTURAL STEEL MEMBERS THAT MEET THE PLAN REQUIREMENTS AND CONFORM TO ASTM A36, GRADE 50. ALL SOLDIER BEAMS SHALL BE HP 14X73 AND CENTERED WITHIN THE DRILLED SHAFT EXCAVATIONS. THE SOLDIER BEAMS SHALL BE ORIENTED IN THE DRILLED SHAFTS AS SHOWN ON THE PLANS.

GALVANIZE SOLDIER PILES FROM TOP OF SOLDIER PILE TO 3 FT. BELOW THE TOP OF CONCRETE, AND IN ACCORDANCE WITH CMS 114.02. DO NOT FIELD WELD OR SPICE STEEL SOLDIER PILES. FIELD REPAIR DAMAGED GALVANIZATION WITH COLD GALVANIZATION.

PAINTING OF SOLDIER PILES IS DIFFICULT, PROVIDE GALVANIZATION FROM TOP OF SOLDIER PILE TO 3 FT. BELOW THE TOP OF CONCRETE.

MEASUREMENT FOR PAYMENT WILL BE LIMITED TO THE DISTANCE BETWEEN THE TOP OF WALL ELEVATION AND THE BOTTOM OF THE DRILLED SHAFT, AS DETERMINED BY THE ENGINEER. THE DEPARTMENT WILL PAY FOR SOLDIER PILES AT THE CONTRACT UNIT PRICE PER FOOT FOR ITEM 607, STEEL PILES, MISC: SOLDIER PILES.

**ITEM 910E5010 - RETAINING WALL, MISC: PRECAST LAGGING**

THIS WORK CONSISTS OF FURNISHING AND PLACING PRECAST CONCRETE PANELS BETWEEN THE SOLDIER PILES TO FUNCTION AS LAGGING FOR THE RETAINING WALL AS SHOWN ON THE PLANS. FIELD VERIFY LAGGING DIMENSIONS BEFORE CASTING LAGGING SHOULD EXTEND A MINIMUM OF 30 INCHES BELOW FINAL GRADES IN FRONT OF WALL. PROVIDE PRECAST CONCRETE LAGGING FROM A QDOT CERTIFIED PRECAST MANUFACTURER. CONCRETE SHALL BE C01 PER QDOT CMS 499. PROVIDE EPOXY COATED REINFORCING STEEL PER 708.02. PERMANENTLY MARK EACH PANEL TO INDICATE WHICH FACE WILL BE PLACED AGAINST THE SOIL. PLACE THE PANEL BETWEEN THE FLANGES OF THE SOLDIER BEAMS AND BEARING AGAINST THE FLANGES OF THE DOWNHILL SIDE OF THE WALL. PAYMENT SHALL BE PER SQUARE FOOT AND INCLUDES MATERIAL SUPPLY AND INSTALLATION.

**ITEM 910E5000 - RETAINING WALL, MISC: CAST-IN-PLACE LAGGING (BETWEEN PIERS P79 & P80 AND P78 & P77)**

THIS WORK CONSISTS OF FURNISHING AND PLACING A CAST-IN-PLACE CONCRETE PANEL BETWEEN THE SOLDIER PILES TO FUNCTION AS LAGGING FOR THE RETAINING WALL AROUND THE EXISTING 54" DIAMETER STORM SEWER BETWEEN PIERS 78 AND 80, AND THE PROPOSED 18" STORM SEWER BETWEEN PIERS 78 AND 77, AS SHOWN ON THE PLANS AND DETAILS. PROVIDE C01 CONCRETE WITH A 28-DAY DESIGN STRENGTH OF AT LEAST 4,000 PSI AND AIR ENTRAINMENT OF BETWEEN FOUR (4%) TO SEVEN PERCENT (7%). PROVIDE EPOXY COATED REINFORCING STEEL. A FLEXIBLE RUBBER GASKET SHALL BE INCLUDED BETWEEN THE SEWER AND CAST-IN-PLACE CONCRETE AS SHOWN IN THE DETAIL. PAYMENT SHALL BE LUMP SUM AND INCLUDES MATERIAL SUPPLY AND INSTALLATION.

**ITEM 966E00101 - GROUND ANCHOR, AS PER PLAN**

THIS WORK CONSISTS OF DESIGNING AND FURNISHING TIEBACK GROUND ANCHORS WITH MINIMUM DESIGN LOADS AS SHOWN ON THE PLANS. WORK INCLUDES DESIGN OF TIEBACK ANCHORAGE AT BEAM (TYPICAL DETAIL IS SHOWN IN PLANS). TIEBACKS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER AND CONSTRUCTED ACCORDING TO QDOT SUPPLEMENTAL SPECIFICATION 888. PAYMENT IS PER TIEBACK AND INCLUDES DESIGN, MATERIALS, INSTALLATION, AND TESTING.

**ITEM 907E99000 - FENCE - MISC: WOOD FENCE**

CONTRACTOR TO SUPPLY AND INSTALL RAILING AS DEPICTED IN THE DRAWINGS AND QDOT STANDARD DRAWING RM-S-2. PAYMENT INCLUDES MATERIAL SUPPLY AND INSTALLATION.

**ITEM 903.08-203E20001 - EMBANKMENT, AS PER PLAN**

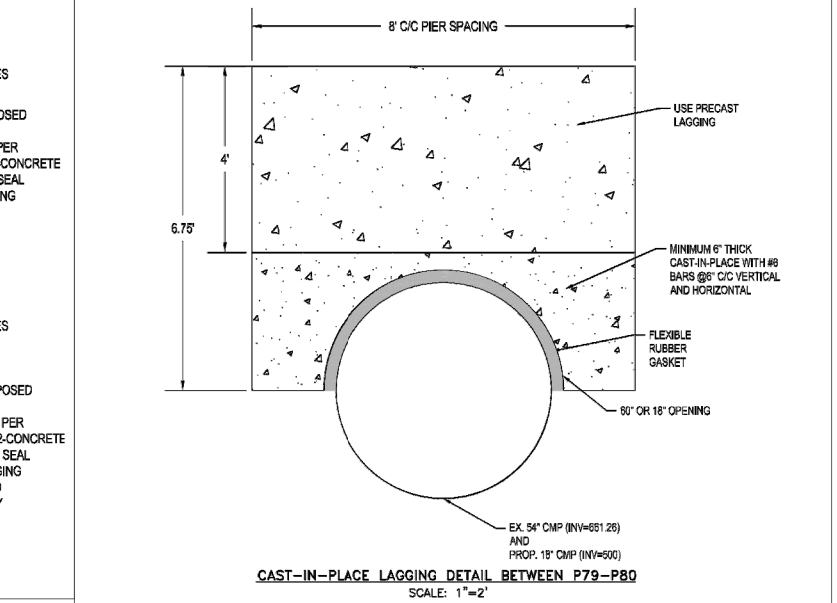
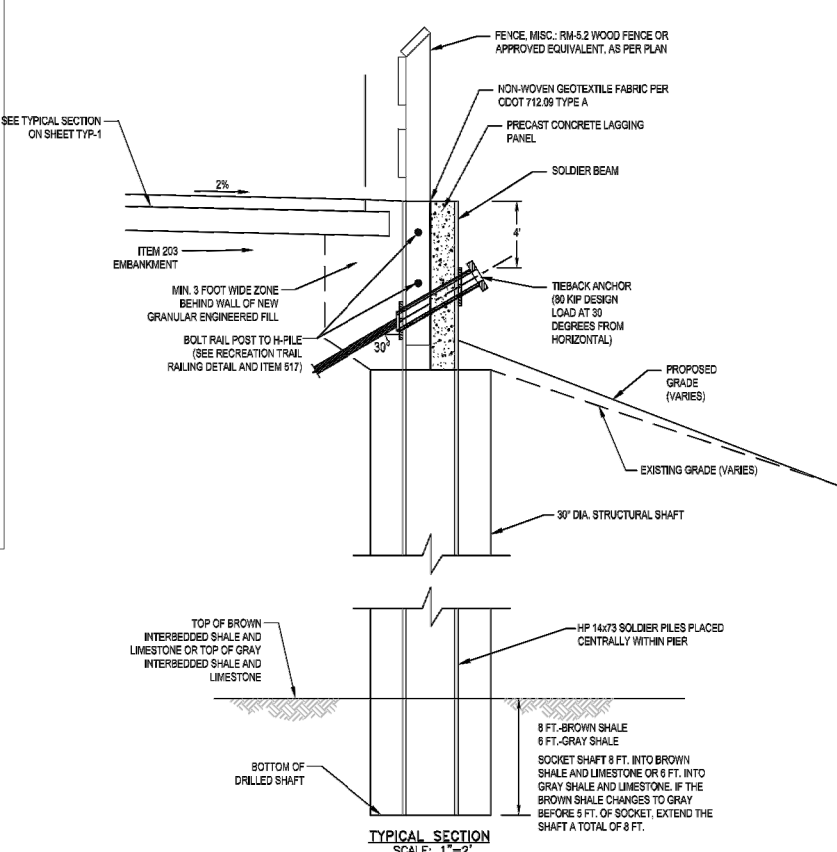
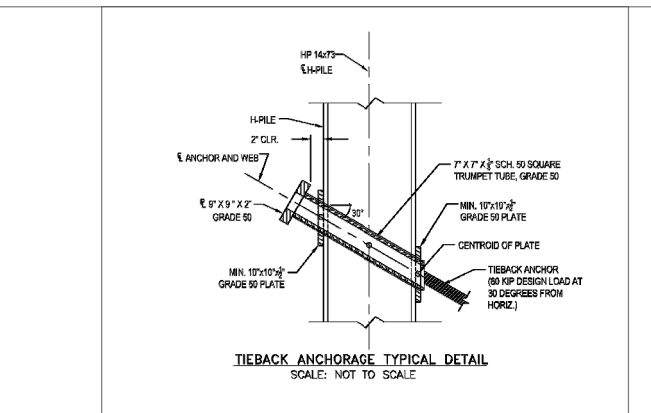
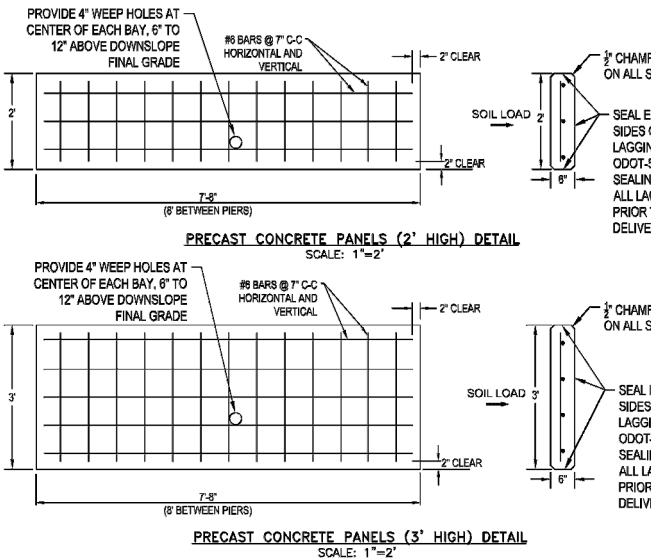
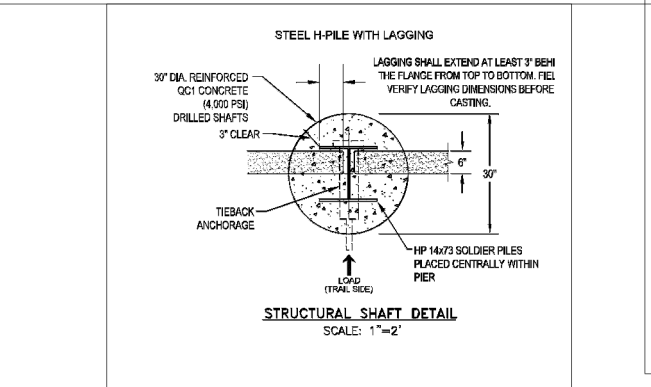
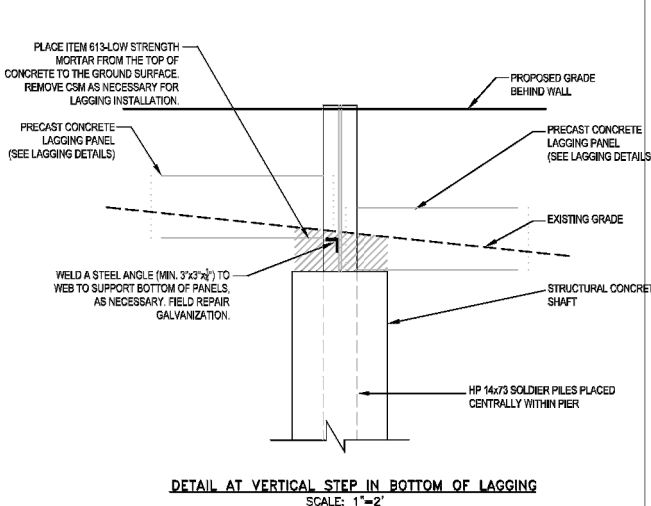
ENGINEER BACKFILL USED BEHIND THE RETAINING WALL SHALL CONSIST OF FREE DRAINING GRANULAR FILL CONSISTING OF CRUSHED CARBONATE STONE, MEETING THE REQUIREMENTS OF QDOT 304 STONE. PAYMENT INCLUDES MATERIAL SUPPLY AND INSTALLATION.

**ITEM 204E90100 - GEOTEXTILE FABRIC, 712.09, TYPE A**

PLACE A NON-WOVEN GEOTEXTILE FABRIC PER QDOT 712.09 TYPE A ON THE BACK FACE OF THE LAGGING PRIOR TO PLACING THE BACKFILL. ENGINEER BACKFILL USED BEHIND THE RETAINING WALL SHOULD BE PLACED IN MAXIMUM 8 INCH LIFTS AT MOISTURE CONTENTS OF WITHIN 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 98 PERCENT OF MAXIMUM DRY DENSITY. HAND OPERATED EQUIPMENT SHALL BE USED WITHIN 8 FEET OF THE WALL. PLACEMENT AND COMPACTION OF THE BACKFILL SHOULD BE WITNESSED BY OWNER'S TESTING AND INSPECTION AGENCY. PAYMENT INCLUDES MATERIAL SUPPLY AND INSTALLATION.

**REINFORCEMENT**

ALL REINFORCING STEEL SHALL BE PER CMS 708.00. PAYMENT INCLUDES MATERIAL SUPPLY AND INSTALLATION.



**EXHIBIT 3**  
DESIGNED BY: DWV  
DRAWN BY: KM  
APPR'D BY: DWV  
SCALE: AS SHOWN  
DATE: 04/07/2020  
JOB NO. N1165434  
ACAD NO. RW.DWG  
SHEET NO. 3

| REV. | DATE    | BY  | DESCRIPTION                                    |
|------|---------|-----|--|
| 1    | 2-12-19 | DWV | ADDED 18" CURVLT & REMOVED FENCE DETAIL        |
| 2    | 4-7-20  | DWV | ADJUSTED TOP OF WALL ELEVATIONS TO MATCH TRAIL |

WALL DESIGNED BY  
**Terracon**  
Consulting Engineers and Scientists  
611 LUNKEN PARK DRIVE CINCINNATI, OHIO 45226  
PH. (513) 321-5816 FAX. (513) 321-4540

RETAINING WALL NOTES & DETAILS

BUT/WAR GMR TRAIL EXTENSION

CALCULATED LG CHECKED TCB

SCALE IN FEET: 0, 10, 20, 40

07/07