

| F.A.S. RTE.           | SECTION        | COUNTY                      | TOTAL SHEETS | SHEET NO. |
|-----------------------|----------------|-----------------------------|--------------|-----------|
| 343                   | 20-00199-04-BR | LIVINGSTON                  | 21           | 1         |
| FED. ROAD DIST. NO. 7 |                | ILLINOIS CONTRACT NO. 87820 |              |           |

**INDEX OF SHEETS**

04-26-2024 LETTING ITEM 164

| SHEET NO. | DESCRIPTION  |
|-----------|--|
| 1.        | COVER SHEET  |
| 2.        | GENERAL NOTES, TYPICAL SECTIONS, PAVEMENT DESIGN INFORMATION |
| 3.        | SUMMARY OF QUANTITIES, SCHEDULES OF QUANTITIES               |
| 4.        | PLAN AND PROFILE   |
| 5.        | SHOULDER & GUARDRAIL LAYOUT                                  |
| 6-16.     | BRIDGE PLANS SN 053-3463                                     |
| 17-21.    | STATION CROSS SECTIONS                                       |

**HIGHWAY STANDARDS:**

|           |   |
|-----------|---|
| 000001-08 | STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS   |
| 280001-07 | TEMPORARY EROSION CONTROL SYSTEMS   |
| 515001-04 | NAME PLATE FOR BRIDGES  |
| 601001-05 | PIPE UNDERDRAINS  |
| 601101-02 | CONCRETE HEADWALL FOR PIPE UNDERDRAINS  |
| 630201-07 | PCC/HMA STABILIZATION AT STEEL PLATE BEAM GUARDRAIL                                     |
| 630301-09 | SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS                              |
| 631032-10 | TRAFFIC BARRIER TERMINAL, TYPE 6A   |
| 701901-09 | TRAFFIC CONTROL DEVICES   |
| 725001-01 | OBJECT AND TERMINAL MARKERS   |
| 782006-01 | GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS                                   |
| BLR 21-9  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS |

**UTILITIES**

COMED  
PUBLIC RELOCATION DEPT.  
ONE LINCOLN CENTRE, SUITE 600  
OAKBROOK TERRACE, IL 60181

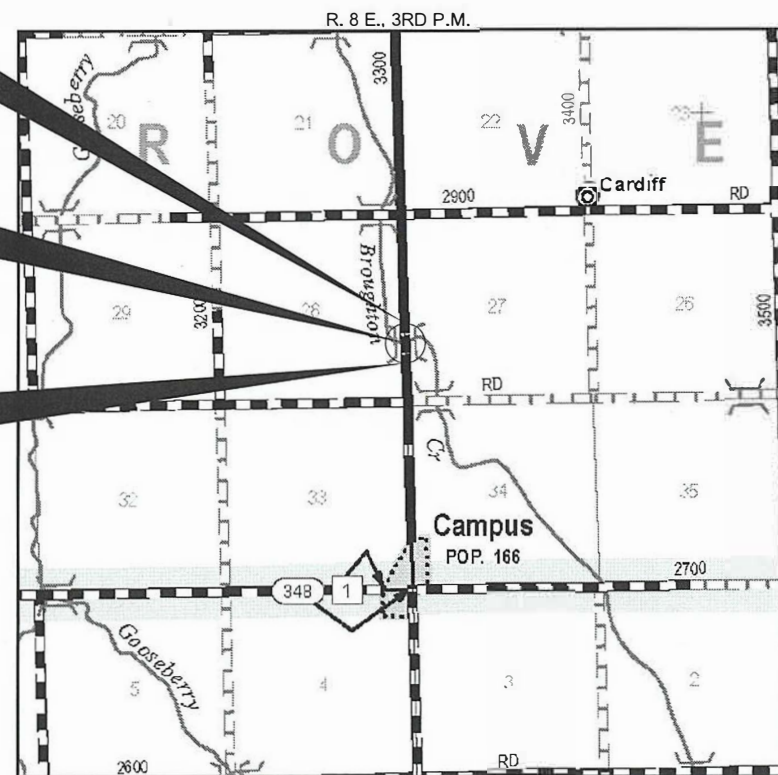
FRONTIER COMMUNICATIONS  
109 E MARKET ST., 2ND FLOOR  
BLOOMINGTON IL, 61701

METRO COMMUNICATIONS  
8 SOUTH WASHINGTON ST., PO BOX 555  
SULIVAN, IL 61951

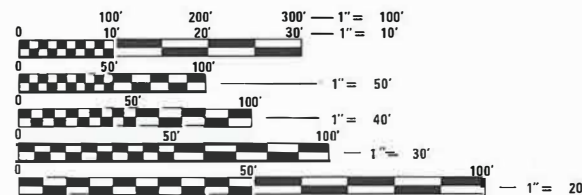
STA. 195+51  
THREE SPAN REINFORCED CONCRETE SLAB BRIDGE  
SUPPORTED ON SPILL-THRU CONCRETE INTEGRAL  
ABUTMENTS AND INDIVIDUAL ENCASED PILE BENT PIERS.  
89'-0" BK.-BK. ABUTMENTS  
32'-0" O.-O. DECK, NO SKEW.  
EXISTING STRUCTURE NO. 053-0102  
PROPOSED STRUCTURE NO. 053-3463

IMPROVEMENT BEGINS  
STATION 193+50

IMPROVEMENT ENDS  
STATION 198+00



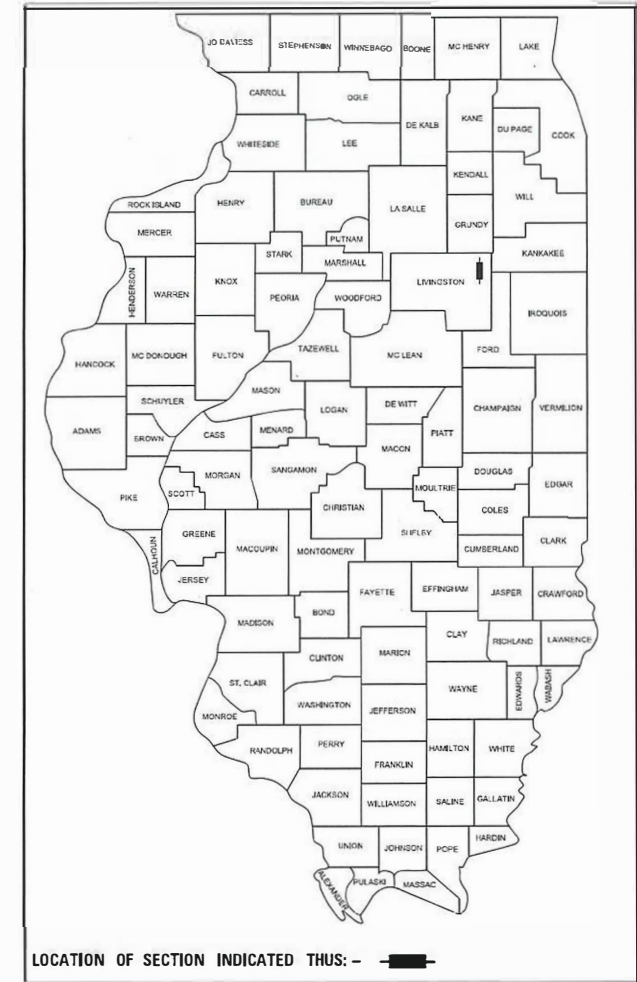
**LOCATION MAP**



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

APPROXIMATE SCALE: 0 1/2 MILE  
GROSS LENGTH OF SECTION = 450 FEET = 0.085 MILES  
NET LENGTH OF SECTION = 450 FEET = 0.085 MILES  
FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR (NON-URBAN)  
DESIGN SPEED = 50 MPH  
DESIGN TRAFFIC = 900 ADT  
3R DESIGN GUIDELINES ARE USED

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
**PLANS FOR PROPOSED  
BRIDGE REPLACEMENT  
LOCAL BRIDGE FORMULA PROGRAM**  
F.A.S. 343 (COUNTY HIGHWAY 3)  
FEEHRY BRIDGE  
PROPOSED STRUCTURE NO. 053-3463  
SECTION 20-00199-04-BR  
PROJECT YV6Z(673)  
LIVINGSTON COUNTY  
C-93-007-24



CONTRACT NO. 87820 PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

**ILLINOIS DEPARTMENT OF TRANSPORTATION**

APPROVED 02/09/2024  
*Clay Metcalf*  
COUNTY ENGINEER

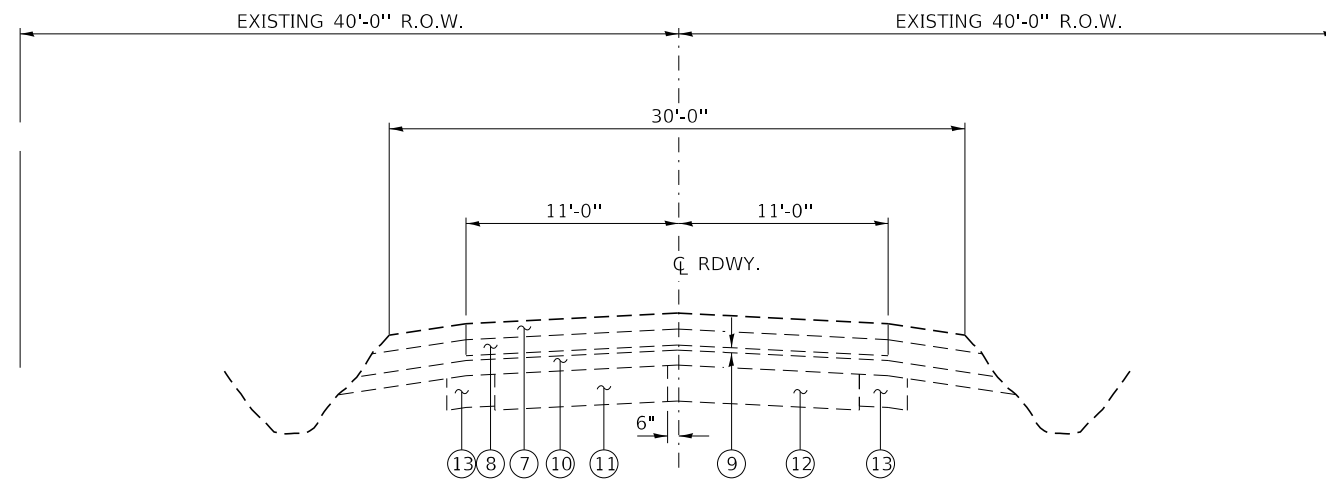
PASSED FEBRUARY 21, 2024  
*[Signature]*  
DISTRICT THREE ENGINEER OF LOCAL ROADS & STREETS  
FEBRUARY 21, 2024  
*Stephen Kravitz*  
REGION TWO ENGINEER

Releasing For Bid Based on Limited Review

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

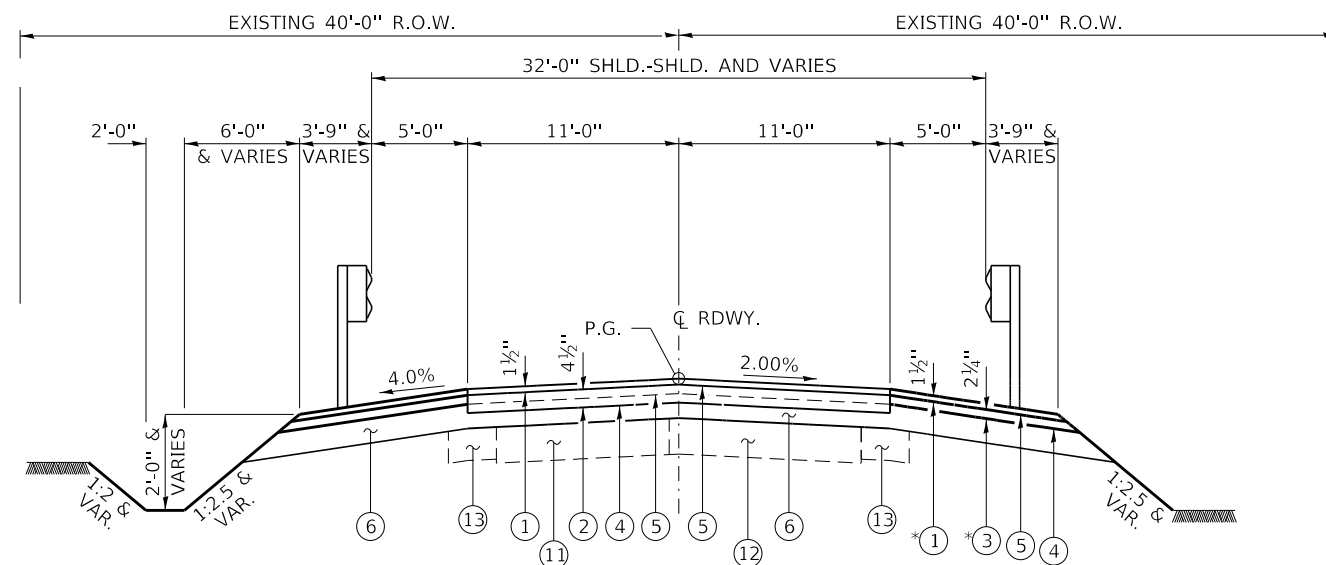


**HAMPTON, LENZINI AND RENWICK, INC.**  
CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS  
**HLR**  
3085 STEVENSON DRIVE, SUITE 201  
SPRINGFIELD, ILLINOIS 62703  
217.546.3400 www.hlrengineering.com  
184.000953  
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION



**EXISTING TYPICAL CROSS SECTION**

(LOOKING SOUTH)  
 STA. 193+50.00 TO 198+00.00  
 (SEE SPECIAL PROVISIONS FOR  
 EXISTING TYPICAL CROSS SECTION DETAILS)



**PROPOSED TYPICAL CROSS SECTION**

(LOOKING SOUTH)  
 STA. 193+50.00 TO STA. 195+06.50  
 STA. 195+95.50 TO STA. 198+00.00  
 BRIDGE OMMISION  
 STA. 195+06.50 TO STA. 195+95.50

**LEGEND**

- ① HMA SURFACE COURSE, IL-9.5, MIX C, N50 (1½" THICKNESS)
- ② HMA BINDER COURSE, IL-19.0, N50 (4½" THICKNESS & VAR.) SHALL BE DONE IN 2 LIFTS (2¼" THICKNESS)
- ③ HMA BINDER COURSE, IL-19.0, N50 (2¼" THICKNESS)
- ④ BITUMINOUS MATERIALS (PRIME COAT)
- ⑤ BITUMINOUS MATERIALS (TACK COAT)
- ⑥ AGGREGATE BASE COURSE, TYPE B (THICKNESS VARIES 0" TO 9")
- ⑦ EXISTING HMA BINDER AND SURFACE (±4")
- ⑧ EXISTING BITUMINOUS STAB. BASE (±4")
- ⑨ EXISTING CONC. BINDER COURSE (±1¼")
- ⑩ EXISTING AGGREGATE BASE COURSE (4" MIN & VAR.)
- ⑪ 9"-6"-9" P.C.C. PAVEMENT
- ⑫ A-3 SURFACE OVER 9" AGG. BASE
- ⑬ BIT. CONC. BASE CSE WIDENING (±8")

NOTES:  
 THE TYPICAL CROSS SECTION DETAILS SHALL EXTEND TO THE EDGE OF GUARDRAIL SHOULDER WIDENING. CONSTRUCT GUARDRAIL SHOULDER WIDENING IN ACCORDANCE WITH STD. 630301.  
 A 2" MIN. SAW CUT SHALL BE MADE AT EACH END OF IMPROVEMENT. THIS SHALL BE CONSIDERED INCIDENTAL AND INCLUDED INTO THE COST OF THE PROJECT.  
 \*AGGREGATE SHOULDERS, TYPE B 6" SHALL BE USED IN THE TAPERED TRANSITIONS. SEE SHEET 5 OF 21 FOR PLAN VIEW DETAILS.

**GENERAL NOTES**

- 1) ALL CLEARING, GRUBBING, FENCE REMOVAL, PAVEMENT REMOVAL, AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
  - 2) WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
  - 3) ANY REFERENCE TO STANDARDS THROUGHOUT THE PLANS OR SPECIAL PROVISIONS SHALL BE INTERPRETED TO BE THE LATEST STANDARD OF THE DEPARTMENT.
  - 4) THE LOCATION ON THE PLANS OF EXISTING DRAINAGE STRUCTURES, TELEPHONE LINES, ELECTRIC LINES, WATER SERVICE LINES, GAS MAINS, AND OTHER UTILITY FACILITIES AS SHOWN ON THE PLANS ARE BASED ON FIELD INVESTIGATIONS AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTION.
  - 5) THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES
 

|                                |                 |
|--------------------------------|-----------------|
| AGGREGATE BASE COURSE & SHLDRS | 2.05 TON/CU YD  |
| POROUS GRANULAR EMBANKMENT     | 2.00 TON/CU YD  |
| HOT-MIX ASPHALT                | 112 LB/SQ YD/IN |
- | BITUMINOUS MATERIALS APPLICATION RATES |                |
|--|----------------|
| SURFACE TYPE                           | RESIDUAL RATE  |
| AGGREGATE BASE (PRIME COAT)            | 0.250 LB/SQ FT |
| MILLED HMA OR PCC (TACK COAT)          | 0.050 LB/SQ FT |
| EXISTING PAVEMENT (TACK COAT)          | 0.050 LB/SQ FT |
| TACK COAT (BETWEEN LIFTS)              | 0.025 LB/SQ FT |
- 6) THE FINAL SURFACE OF ALL EMBANKMENT AREAS SHALL BE SEEDED. THE TOP 4 INCHES OF THE SEEDED AREAS SHALL BE TOPSOIL SUBJECT TO THE APPROVAL OF THE ENGINEER. THE COST OF SHAPING THE SLOPES AND PROVIDING TOP SOIL WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
  - 7) THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY OR AS DIRECTED BY THE ENGINEER.
 

SEEDING, CLASS 2 (SPECIAL) = 0.4 ACRES
  - 8) ALL WASTE MATERIAL FROM EXCAVATIONS SHALL BE DISPOSED OF BY THE CONTRACTOR. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
  - 9) ONLY SUITABLE MATERIAL FROM EXCAVATIONS MAY BE USED IN THE EMBANKMENT. EXCESS AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR. SAID DISPOSAL SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. NO ADDITIONAL
  - 10) COMMITMENTS: NONE

**HOT-MIX ASPHALT MIXTURE REQUIREMENTS**

| LOCATIONS(S)                                | C.H. 3        | C.H. 3        |
|---|---------------|---------------|
| MIXTURE USE(S):                             | HMA BINDER    | HMA SURFACE   |
| PG:   | PG 64-22      | PG 64-22      |
| DESIGN AIR VOIDS:                           | 4% @ 50 Gyr.  | 4% @ 50 Gyr.  |
| MIXTURE COMPOSITION:<br>(MIXTURE GRADATION) | IL 19.0       | IL 9.5        |
| FRICTION AGGREGATE:                         | NONE          | MIXTURE C     |
| MIXTURE WEIGHT:                             | 112 LB/SY/IN  | 112 LB/SY/IN  |
| QUALITY MANAGEMENT PROGRAM                  | QC/QA         | QC/QA         |
| SUBLOT SIZE                                 | NA            | NA            |
| DENSITY TEST METHOD                         | CORES/NUCLEAR | CORES/NUCLEAR |
| MATERIAL TRANSFER DEVICE (REQUIRED)         | NO            | NO            |

|  |                      |                   |           |
|--|----------------------|-------------------|-----------|
| FILE NAME = 210318-shl-typsections.dgn   | USER NAME = smierzwa | DESIGNED - J.W.F. | REVISED - |
| HAMPTON, LENZINI AND RENWICK, INC.<br>3035 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>LS / PE / SE CORP. 184.000959 | PLOT SCALE =         | CHECKED - S.T.M.  | REVISED - |
| PLOT DATE = 2/6/2024   |                      | DRAWN - D.M.F.    | REVISED - |
|  |                      | CHECKED - S.T.M.  | REVISED - |

STATE OF ILLINOIS  
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT

GENERAL NOTES, TYPICAL SECTIONS,  
 PAVEMENT DESIGN INFORMATION

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. 193+50.00 TO STA. 198+00.00

| F.A.S. RTE.                         | SECTION        | COUNTY             | TOTAL SHEETS | SHEET NO. |
|-------------------------------------|----------------|--------------------|--------------|-----------|
| 343                                 | 20-00199-04-BR | LIVINGSTON         | 21           | 2         |
| FEEHERRY BRIDGE                     |                | CONTRACT NO. 87820 |              |           |
| ILLINOIS FED. AID PROJECT YV62(673) |                |                    |              |           |

**SUMMARY OF QUANTITIES**

| CODE NO.   | ITEM   | CONSTRUCTION TYPE CODE 0010 |                |
|------------|--|-----------------------------|----------------|
|            |  | UNIT                        | TOTAL QUANTITY |
| 20200100   | EARTH EXCAVATION                                     | CU YD                       | 485            |
| 20300100   | CHANNEL EXCAVATION                                   | CU YD                       | 130            |
| 20700110   | POROUS GRANULAR EMBANKMENT                           | TON                         | 95             |
| 28100107   | STONE RIPRAP, CLASS A4                               | SQ YD                       | 620            |
| 28200200   | FILTER FABRIC  | SQ YD                       | 620            |
| 35101400   | AGGREGATE BASE COURSE, TYPE B                        | TON                         | 478            |
| 40600275   | BITUMINOUS MATERIALS (PRIME COAT)                    | POUND                       | 3,021          |
| 40600290   | BITUMINOUS MATERIALS (TACK COAT)                     | POUND                       | 501            |
| 40603080   | HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50          | TON                         | 291            |
| 40604050   | HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N50 | TON                         | 120            |
| 48101200   | AGGREGATE SHOULDERS, TYPE B                          | TON                         | 40             |
| 50100100   | REMOVAL OF EXISTING STRUCTURES                       | EACH                        | 1              |
| 50200100   | STRUCTURE EXCAVATION                                 | CU YD                       | 80             |
| 50300225   | CONCRETE STRUCTURES                                  | CU YD                       | 46.4           |
| 50300255   | CONCRETE SUPERSTRUCTURE                              | CU YD                       | 142.4          |
| 50300260   | BRIDGE DECK GROOVING                                 | SQ YD                       | 316            |
| 50300280   | CONCRETE ENCASEMENT                                  | CU YD                       | 25.2           |
| 50300300   | PROTECTIVE COAT                                      | SQ YD                       | 369            |
| 50800205   | REINFORCEMENT BARS, EPOXY COATED                     | POUND                       | 60,340         |
| * 50900209 | STEEL RAILING, TYPE SMX                              | FOOT                        | 177            |
| 51200957   | FURNISHING METAL SHELL PILES 12" X 0.250"            | FOOT                        | 765            |
| 51202305   | DRIVING PILES  | FOOT                        | 765            |
| 51203200   | TEST PILE METAL SHELLS                               | EACH                        | 2              |
| 51500100   | NAME PLATES  | EACH                        | 1              |
| * 63100087 | TRAFFIC BARRIER TERMINAL, TYPE 6A                    | EACH                        | 4              |
| * 63100167 | TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT   | EACH                        | 4              |
| 63200310   | GUARDRAIL REMOVAL                                    | FOOT                        | 734            |
| 67100100   | MOBILIZATION   | L SUM                       | 1              |
| * 72501000 | TERMINAL MARKER - DIRECT APPLIED                     | EACH                        | 4              |
| * 78200005 | GUARDRAIL REFLECTORS, TYPE A                         | EACH                        | 6              |
| X2501000   | SEEDING, CLASS 2 (SPECIAL)                           | ACRE                        | 0.4            |

\*SPECIALTY ITEMS

**EARTHWORK SCHEDULE**

| LOCATION                         | EARTH EXCAVATION | CHANNEL EXCAVATION | SHRINKAGE FACTOR | PERCENT USED | EXCAVATION ADJUSTED FOR SHRINKAGE | EMBANKMENT REQUIRED | EARTHWORK BALANCE |
|----------------------------------|------------------|--------------------|------------------|--------------|-----------------------------------|---------------------|-------------------|
|                                  | CU.YD.           | CU.YD.             |                  |              | CU.YD.                            | CU.YD.              | CU.YD.            |
| C.H. 3                           |                  |                    |                  |              |                                   |                     |                   |
| STA. 193+50.00 TO STA. 195+06.50 | 204              |                    | 25.00%           | 100.00%      | 153                               | 100                 | 53                |
| STA. 195+06.50 TO STA. 195+95.50 |                  | 130                | 25.00%           | 70.00%       | 68                                |                     | 68                |
| STA. 195+95.50 TO STA. 198+00.00 | 279              |                    | 25.00%           | 100.00%      | 209                               | 170                 | 39                |
| TOTAL                            | 483              | 130                |                  |              | 430                               | 270                 | 160               |
| USE                              | 485              | 130                |                  |              |                                   |                     | 160               |

WASTE 160 CU YDS

**ROADWAY SCHEDULE**

| LOCATION                         | AGGREGATE BASE COURSE, TYPE B | BITUMINOUS MATERIALS (PRIME COAT) | BITUMINOUS MATERIALS (TACK COAT) | HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50 | HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N50 |
|----------------------------------|-------------------------------|-----------------------------------|----------------------------------|---|--|
|                                  | 35101400                      | 40600275                          | 40600290                         | 40603080                                    | 40604050   |
| C.H. 3                           | TON                           | POUND                             | POUND                            | TON   | TON  |
| STA. 193+50.00 TO STA. 195+06.50 | 168                           | 1,376                             | 224                              | 126   | 53   |
| STA. 195+95.50 TO STA. 198+00.00 | 310                           | 1,645                             | 278                              | 165   | 67   |
| TOTAL                            | 478                           | 3,021                             | 501                              | 291   | 120  |

**AGGREGATE SHOULDERS, TYPE B**

| STATION TO STATION     | SIDE | LENGTH | WIDTH      | TON |
|------------------------|------|--------|------------|-----|
| 193+50.00 TO 193+85.35 | RT   | 35.35' | 4.09' AVG. | 6   |
| 193+50.00 TO 193+85.35 | LT   | 35.35' | 3.70' AVG. | 5   |
| 197+16.65 TO 197+50.00 | RT   | 33.35' | 5.00'      | 7   |
| 197+16.65 TO 197+50.00 | LT   | 33.35' | 5.00'      | 7   |
| 197+50.00 TO 198+00.00 | RT   | 50.00' | 3.71' AVG. | 8   |
| 197+50.00 TO 198+00.00 | LT   | 50.00' | 3.65' AVG. | 7   |
| TOTAL                  |      |        |            | 40  |

**TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT**

| STATION TO STATION     | SIDE | EACH |
|------------------------|------|------|
| 194+19.46 TO 194+69.46 | RT   | 1    |
| 194+19.46 TO 194+69.46 | LT   | 1    |
| 196+32.54 TO 196+82.54 | RT   | 1    |
| 196+32.54 TO 196+82.54 | LT   | 1    |
| TOTAL                  |      | 4    |

**TRAFFIC BARRIER TERMINAL, TYPE 6A**

| STATION TO STATION     | SIDE | EACH |
|------------------------|------|------|
| 194+69.46 TO 195+06.96 | RT   | 1    |
| 194+69.46 TO 195+06.96 | LT   | 1    |
| 195+95.04 TO 196+32.54 | RT   | 1    |
| 195+95.04 TO 196+32.54 | LT   | 1    |
| TOTAL                  |      | 4    |

**GUARDRAIL REMOVAL**

| STATION TO STATION | SIDE | FOOT |
|--------------------|------|------|
| 192+77 TO 195+17   | RT   | 240  |
| 193+90 TO 195+17   | LT   | 127  |
| 195+84 TO 197+11   | RT   | 127  |
| 195+84 TO 198+24   | LT   | 240  |
| TOTAL              |      | 734  |

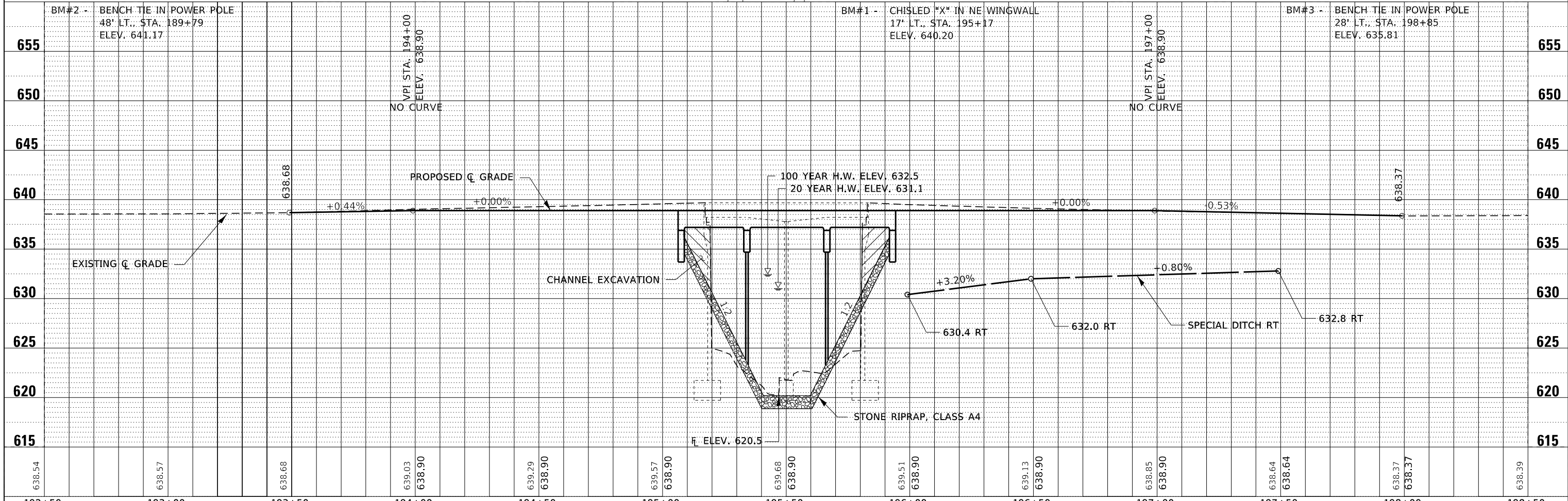
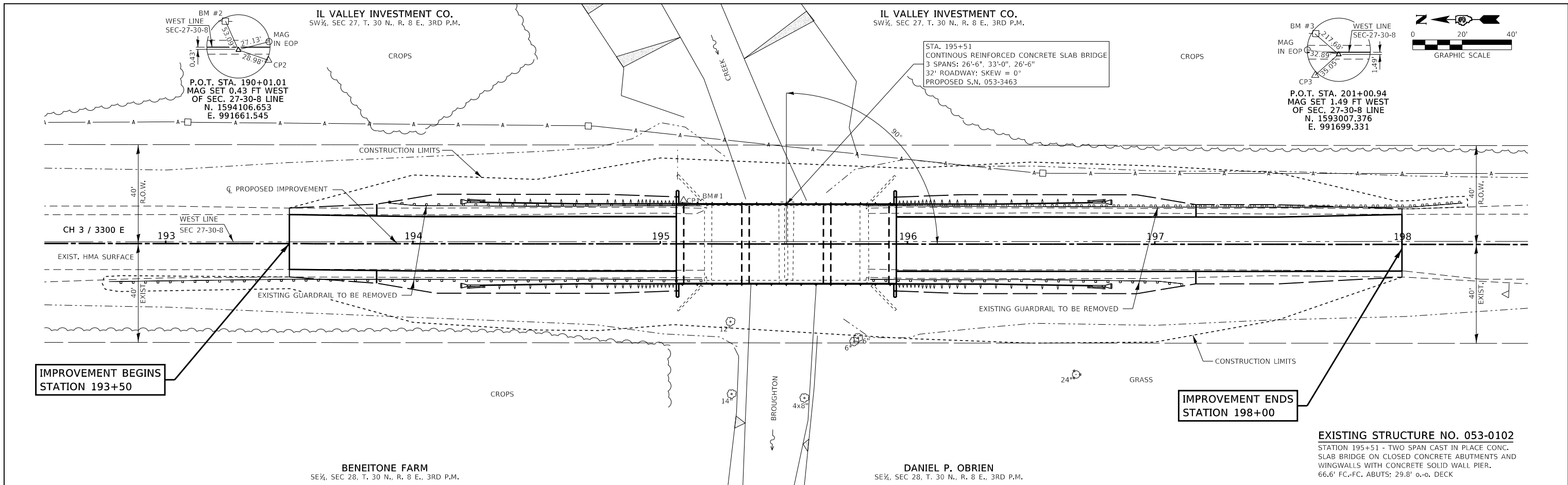
**GUARDRAIL REFLECTORS, TYPE A**

| STATION TO STATION     | SIDE | EACH |
|------------------------|------|------|
| 194+19.46 TO 196+82.54 | RT   | 3    |
| 194+19.46 TO 196+82.54 | LT   | 3    |
| TOTAL                  |      | 6    |

ALL GUARDRAIL REFLECTORS SHALL BE BI-DIRECTIONAL

|          |  |
|----------|--|
| DATE     |  |
| BY       |  |
| REVIEWED |  |
| PLANNED  |  |
| ALIGNED  |  |
| CHECKED  |  |
| DESIGNED |  |
| NO.      |  |

|          |  |
|----------|--|
| DATE     |  |
| BY       |  |
| REVIEWED |  |
| PLANNED  |  |
| ALIGNED  |  |
| CHECKED  |  |
| DESIGNED |  |
| NO.      |  |



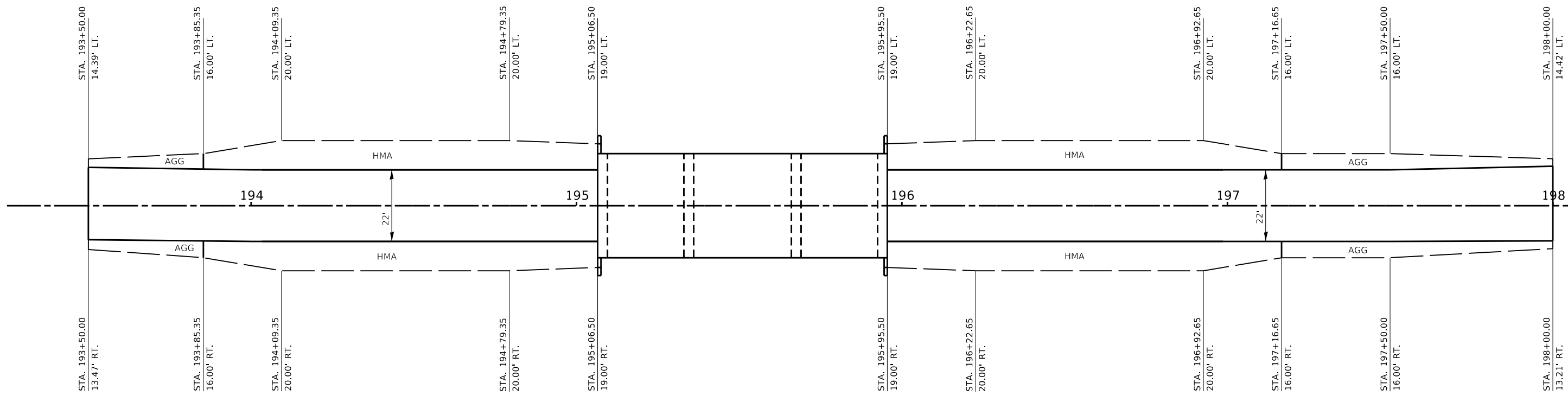
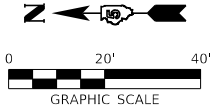
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| HAMPTON, LENZINI AND RENWICK, INC.<br>3085 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62710<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>L.S. / P.E. / S.E. CORP. 184.000959 | DESIGNED - S.A.A.<br>DRAWN - J.B.L.<br>CHECKED - J.F.W./S.T.M.<br>DATE - 12/18/2023 | REVISIONS -<br>REVISIONS -<br>REVISIONS -<br>REVISIONS - | SCALE: 20H:5V |

**STATE OF ILLINOIS  
LIVINGSTON COUNTY HIGHWAY DEPARTMENT**

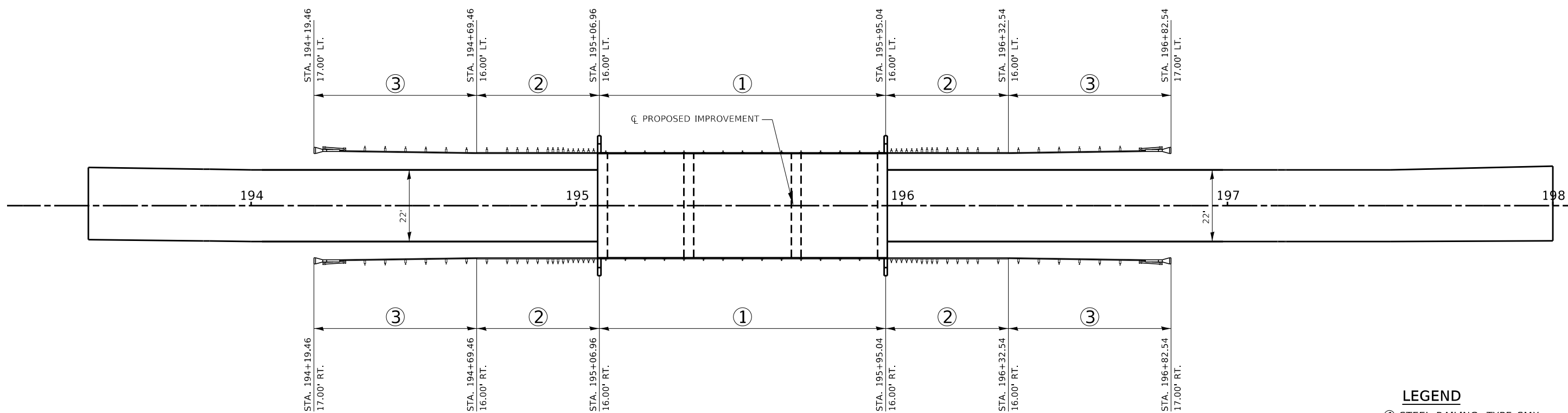
**PLAN & PROFILE**

SCALE: 20H:5V SHEET NO. 1 OF 1 SHEETS STA. 192+50.00 TO STA. 198+50.00

|                                     |                        |                    |                 |             |
|-------------------------------------|------------------------|--------------------|-----------------|-------------|
| F.A.S. RTE. 343                     | SECTION 20-00199-04-BR | COUNTY LIVINGSTON  | TOTAL SHEETS 21 | SHEET NO. 4 |
| FEEHERY BRIDGE                      |                        | CONTRACT NO. 87820 |                 |             |
| ILLINOIS FED. AID PROJECT YV62(673) |                        |                    |                 |             |



SHOULDER LAYOUT



GUARDRAIL LAYOUT

- LEGEND**
- ① STEEL RAILING, TYPE SMX
  - ② TBT TY 6A = 4 EACH
  - ③ TBT TY 1, SPECIAL TANGENT = 4 EACH

|  |                      |                   |           |   |                                      |           |                 |                        |                         |                 |                                  |                            |
|--|----------------------|-------------------|-----------|---|--------------------------------------|-----------|-----------------|------------------------|-------------------------|-----------------|----------------------------------|----------------------------|
| FILE NAME = 210318-esht-shdgrd.dgn   | USER NAME = smierzwa | DESIGNED - J.W.F. | REVISED - | <b>STATE OF ILLINOIS<br/>LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b> | <b>SHOULDER AND GUARDRAIL LAYOUT</b> |           | F.A.S. RTE. 343 | SECTION 20-00199-04-BR | COUNTY LIVINGSTON       | TOTAL SHEETS 21 | SHEET NO. 5                      |                            |
|  |                      |                   |           |   | DRAWN - G.D.M.                       | REVISED - | FEEHERY BRIDGE  |                        | CONTRACT NO. 87820      |                 | ILLINOIS                         | FED. AID PROJECT YV62(673) |
|  |                      |                   |           |   | CHECKED - S.T.M.                     | REVISED - | SCALE: 1"=20'   |                        | SHEET NO. 1 OF 1 SHEETS |                 | STA. 193+50.00 TO STA. 198+00.00 |                            |
| 3035 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>L.S./P.E./S.E. CORP. 184.000959 |                      |                   |           |   | DATE - 12/18/2023                    | REVISED - |                 |                        |                         |                 |                                  |                            |



BENCHMARK: Chiseled "X" in NE Wingwall. 17' Lt., Sta. 195+17. Elev. 640.20

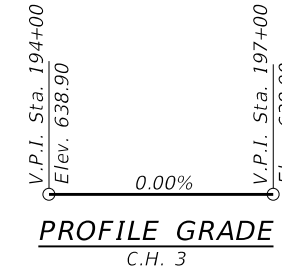
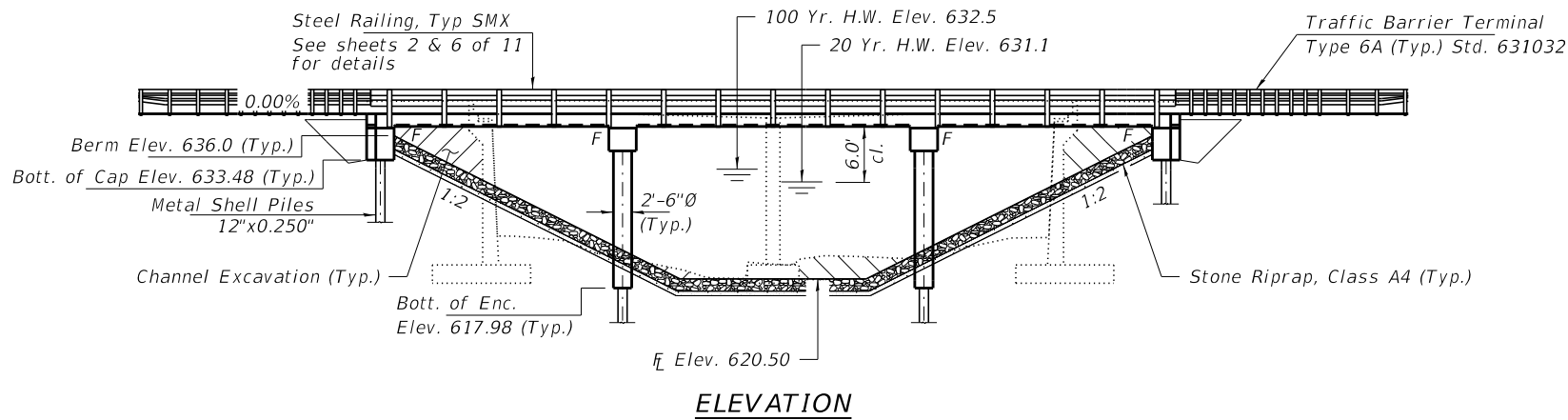
EXISTING STRUCTURE NO. 053-0102: Sta. 195+51 - Two span cast-in-place concrete slab bridge on closed concrete abutments and wingwalls with an encased concrete pier wall. 66.6' fc.-fc. abuts., 29.8' o.-o. deck.

Structure closed to traffic during construction.

No Salvage

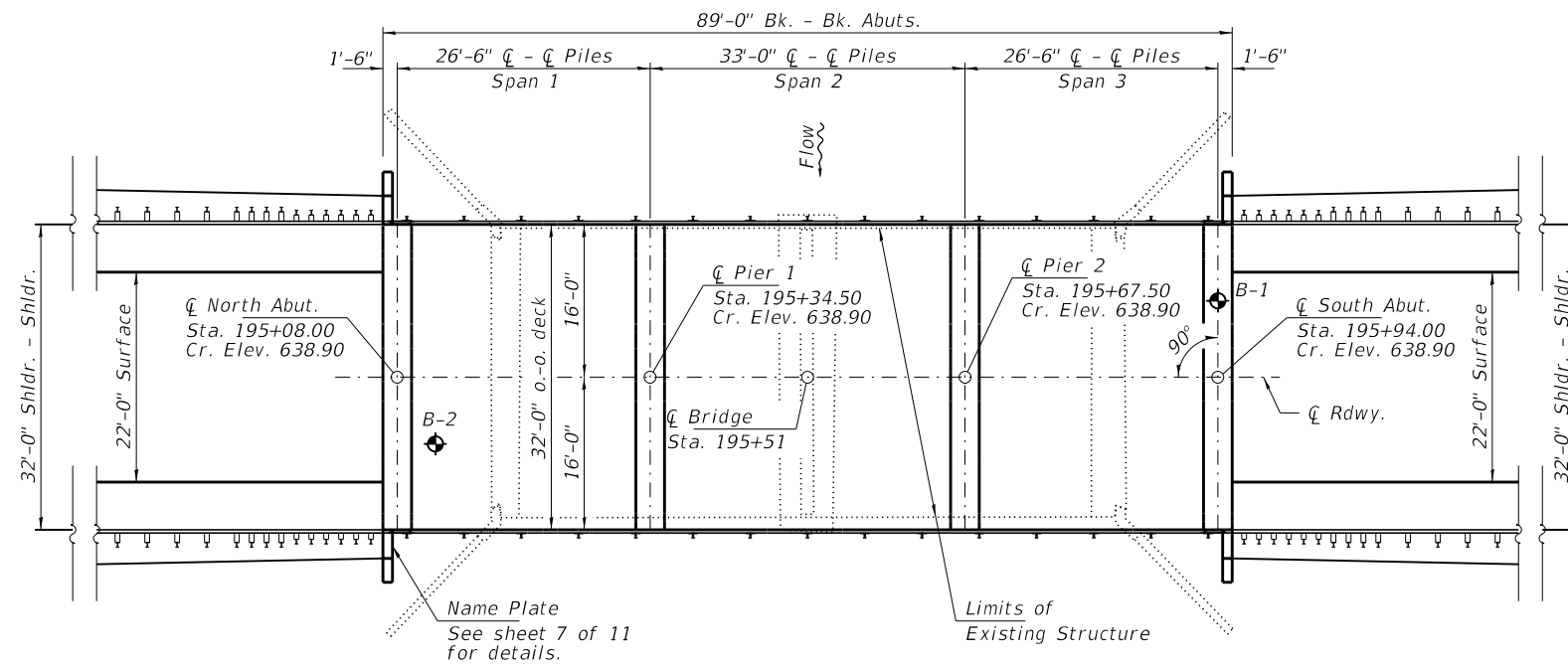
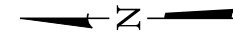
**GENERAL NOTES**

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.  
 Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.  
 The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at South Abutment and Pier 1 or approved by the Engineer before ordering the remainder of piles.  
 All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act.  
 The Contractor shall make allowance for the deflection of forms, shrinkage, and settlement of falsework, in addition to allowance for dead load deflection.  
 Protective Coat shall be applied to the top surface and the fascia of the concrete deck and exposed faces of the wingwalls.  
 Reinforcement bars designated (E) shall be epoxy coated.



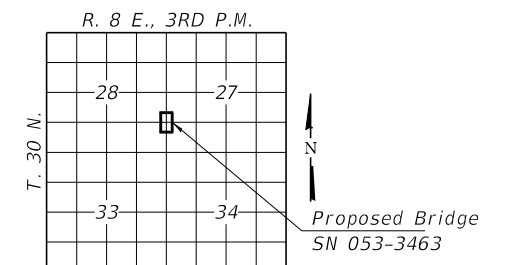
**INDEX OF STRUCTURE SHEETS**

1. General Plan & Elevation
2. General Details
3. Top of Slab Elevations
4. Superstructure
5. Superstructure Details
6. Steel Railing, Type SMX
7. Abutments
8. Piers
9. HP Pile Details
- 10-11. Borings



BROUGHTON CREEK  
 BUILT 202 BY  
 LIVINGSTON COUNTY  
 SEC. 20-00199-04-BR  
 STR. NO. 053-3463  
 LOADING HL-93

**NAME PLATE**  
 See Std. 515001



**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec. (SD1) = 0.044g  
 Design Spectral Acceleration at 0.2 sec. (SDS) = 0.108g  
 Soil Site Class = B

**DESIGN SPECIFICATIONS**

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition with all interims.

**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

**DESIGN STRESSES**

**FIELD UNITS**

f'c = 5,000 psi (Superstructure)  
 f'c = 3,500 psi (Substructure)  
 fy = 60,000 psi (Reinf.)  
 fy = 50,000 psi (Steel H-Pile) (M270 Gr. 50)

**WATERWAY INFORMATION**

Drainage Area = 20.4 Sq. Mi. Existing Low Grade Elev. 638.4 @ Sta. 198+50  
 Proposed Low Grade Elev. 638.4 @ Sta. 198+50

| Flood       | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. |       | Nat. H.W.E. |       | Head - Ft. |       | Headwater El. |       |
|-------------|-----------|----------|-----------------|-------|-------------|-------|------------|-------|---------------|-------|
|             |           |          | Exist.          | Prop. | Exist.      | Prop. | Exist.     | Prop. | Exist.        | Prop. |
| Ten-Year    | 10        | 976      | 330             | 340   | 630.2       | 1.2   | 1.2        | 631.4 | 631.4         |       |
| Design      | 20        | 1180     | 390             | 390   | 631.1       | 1.2   | 1.2        | 632.3 | 632.3         |       |
| Base        | 100       | 1630     | 470             | 470   | 632.5       | 1.2   | 1.1        | 633.7 | 633.6         |       |
| Scour Check | 200       | 1820     | 490             | 500   | 632.9       | 1.1   | 1.1        | 634.0 | 634.0         |       |
| Max. Calc.  | 500       | 2080     | 520             | 530   | 633.4       | 1.0   | 1.0        | 634.4 | 634.4         |       |

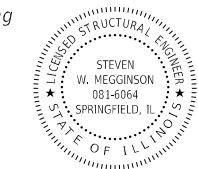
10 Year Velocity through Existing Bridge = 3.0 fps    10 Year Velocity through Proposed Bridge = 2.9 fps

**DESIGN SCOUR ELEVATION TABLE**

| Event/Limit State | Design Scour Elevations (ft.) |        |        |          | Item 113 |
|-------------------|-------------------------------|--------|--------|----------|----------|
|                   | N. Abut.                      | Pier 1 | Pier 2 | S. Abut. |          |
| Q100              | 633.7                         | 618.5  | 617.9  | 633.5    | 8        |
| Q200              | 633.7                         | 617.7  | 617.1  | 633.5    |          |
| Design            | 633.7                         | 617.5  | 617.5  | 633.5    |          |
| Check             | 633.7                         | 617.5  | 617.1  | 633.5    |          |

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Specifications."

*Steven W. Megginson* 02/06/2024  
 ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



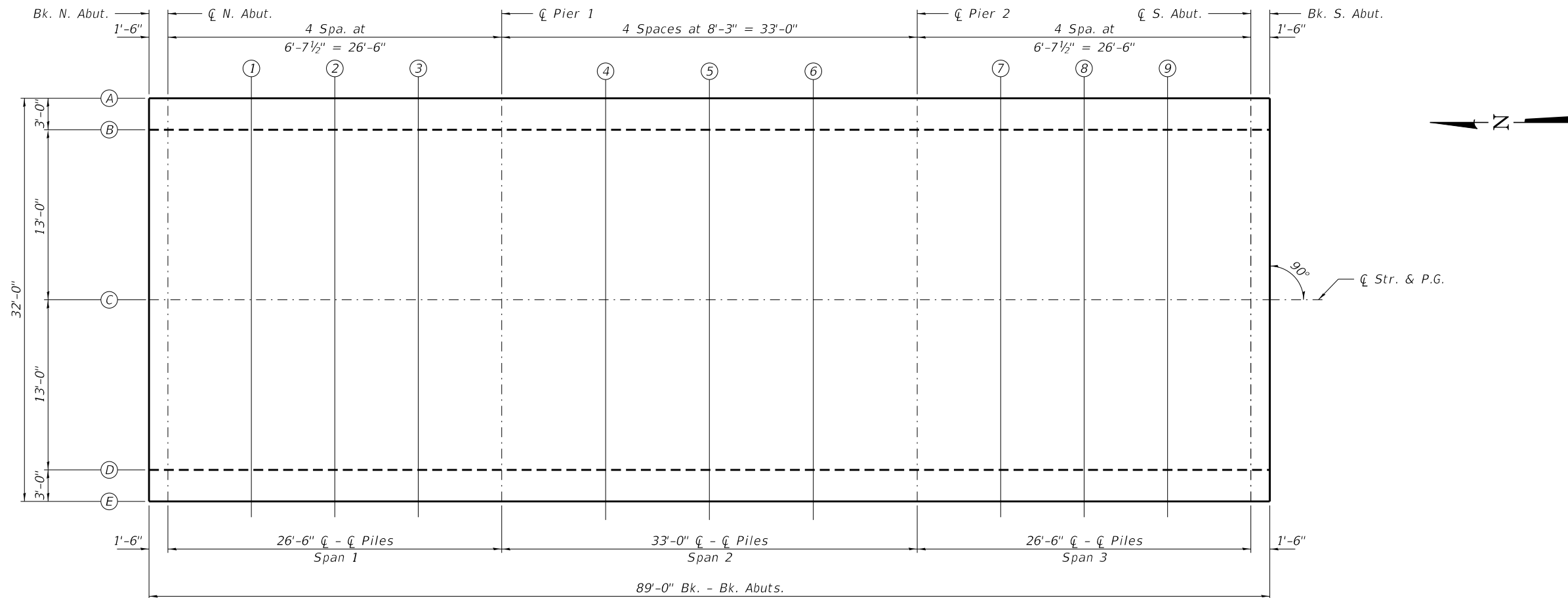
Expires 11-30-2024

**GENERAL PLAN & ELEVATION**

C.H. 3 / 330E  
 OVER BROUGHTON CREEK  
 SECTION 20-00199-04-BR  
 LIVINGSTON COUNTY  
 STATION 195+51.00  
 STRUCTURE NO. 053-3463

|  |                      |                         |           |   |  |                          |                            |                   |                 |             |
|--|----------------------|-------------------------|-----------|---|--|--------------------------|----------------------------|-------------------|-----------------|-------------|
| FILE NAME = 210318-shl-bridge.dgn  | USER NAME = smlerzwa | DESIGNED - S.T.M.       | REVISED - | STATE OF ILLINOIS<br>LIVINGSTON COUNTY HIGHWAY DEPARTMENT | GENERAL PLAN AND ELEVATION<br>STRUCTURE NO. 053-3463 | F.A.S. RTE. 343          | SECTION 20-00199-04-BR     | COUNTY LIVINGSTON | TOTAL SHEETS 21 | SHEET NO. 6 |
| HAMPTON, LENZINI AND RENWICK, INC.<br>3035 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>L5 / PE / SE CORP. 184.000959 | PLOT SCALE =         | CHECKED - S.W.M.        | REVISED - |   |  | FEEHERRY BRIDGE          | CONTRACT NO. 87820         |                   |                 |             |
| PLOT DATE = 2/6/2024   | DRAWN - R.D.H.       | CHECKED - S.T.M./S.W.M. | REVISED - |   |  | ILLINOIS                 | FED. AID PROJECT YV6Z(673) |                   |                 |             |
|  |                      |                         |           |   |  | SHEET NO. 1 OF 11 SHEETS |                            |                   |                 |             |





PLAN

| LOCATION      |      | BK. N.  | CL N.   | SPAN 1  |         |         | CL      | SPAN 2  |         |         | CL      | SPAN 3  |         |         | CL S.   | BK. S.  |
|---------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| LINE          | T.   | ABUT.   | ABUT.   | 1       | 2       | 3       | PIER 1  | 4       | 5       | 6       | PIER 2  | 7       | 8       | 9       | ABUT.   | ABUT.   |
| A             | ADJ. | 638.567 | 638.567 | 638.608 | 638.567 | 638.567 | 638.567 | 638.567 | 638.567 | 638.608 | 638.567 | 638.567 | 638.588 | 638.619 | 638.567 | 638.567 |
| Bott. of Slab |      | 637.150 | 637.150 | 637.192 | 637.202 | 637.171 | 637.150 | 637.192 | 637.223 | 637.192 | 637.150 | 637.171 | 637.202 | 637.192 | 637.150 | 637.150 |

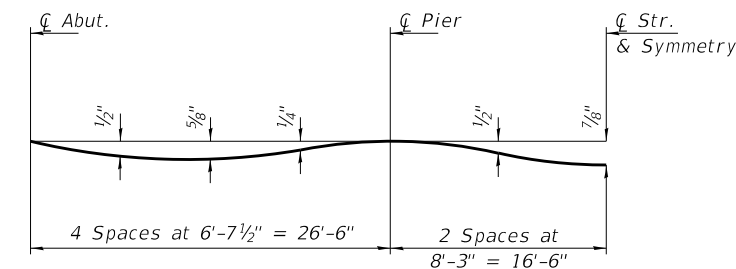
| LOCATION      |      | BK. N.  | CL N.   | SPAN 1  |         |         | CL      | SPAN 2  |         |         | CL      | SPAN 3  |         |         | CL S.   | BK. S.  |
|---------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| LINE          | T.   | ABUT.   | ABUT.   | 1       | 2       | 3       | PIER 1  | 4       | 5       | 6       | PIER 2  | 7       | 8       | 9       | ABUT.   | ABUT.   |
| B             | ADJ. | 638.629 | 638.629 | 638.671 | 638.681 | 638.650 | 638.629 | 638.671 | 638.702 | 638.671 | 638.629 | 638.650 | 638.681 | 638.671 | 638.629 | 638.629 |
| Bott. of Slab |      | 637.379 | 637.379 | 637.421 | 637.431 | 637.400 | 637.379 | 637.421 | 637.452 | 637.421 | 637.379 | 637.400 | 637.431 | 637.421 | 637.379 | 637.379 |

| LOCATION      |      | BK. N.  | CL N.   | SPAN 1  |         |         | CL      | SPAN 2  |         |         | CL      | SPAN 3  |         |         | CL S.   | BK. S.  |
|---------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| LINE          | T.   | ABUT.   | ABUT.   | 1       | 2       | 3       | PIER 1  | 4       | 5       | 6       | PIER 2  | 7       | 8       | 9       | ABUT.   | ABUT.   |
| C             | ADJ. | 638.900 | 638.900 | 638.942 | 638.952 | 638.921 | 638.900 | 638.942 | 638.973 | 638.942 | 638.900 | 638.921 | 638.952 | 638.942 | 638.900 | 638.900 |
| Bott. of Slab |      | 637.650 | 637.650 | 637.692 | 637.702 | 637.671 | 637.650 | 637.692 | 637.723 | 637.692 | 637.650 | 637.671 | 637.702 | 637.692 | 637.650 | 637.650 |

| LOCATION      |      | BK. N.  | CL N.   | SPAN 1  |         |         | CL      | SPAN 2  |         |         | CL      | SPAN 3  |         |         | CL S.   | BK. S.  |
|---------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| LINE          | T.   | ABUT.   | ABUT.   | 1       | 2       | 3       | PIER 1  | 4       | 5       | 6       | PIER 2  | 7       | 8       | 9       | ABUT.   | ABUT.   |
| D             | ADJ. | 638.629 | 638.629 | 638.671 | 638.681 | 638.650 | 638.629 | 638.671 | 638.702 | 638.671 | 638.629 | 638.650 | 638.681 | 638.671 | 638.629 | 638.629 |
| Bott. of Slab |      | 637.379 | 637.379 | 637.421 | 637.431 | 637.400 | 637.379 | 637.421 | 637.452 | 637.421 | 637.379 | 637.400 | 637.431 | 637.421 | 637.379 | 637.379 |

| LOCATION      |      | BK. N.  | CL N.   | SPAN 1  |         |         | CL      | SPAN 2  |         |         | CL      | SPAN 3  |         |         | CL S.   | BK. S.  |
|---------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| LINE          | T.   | ABUT.   | ABUT.   | 1       | 2       | 3       | PIER 1  | 4       | 5       | 6       | PIER 2  | 7       | 8       | 9       | ABUT.   | ABUT.   |
| E             | ADJ. | 638.567 | 638.567 | 638.608 | 638.619 | 638.588 | 638.567 | 638.608 | 638.640 | 638.608 | 638.567 | 638.588 | 638.619 | 638.608 | 638.567 | 638.567 |
| Bott. of Slab |      | 637.150 | 637.150 | 637.192 | 637.202 | 637.171 | 637.150 | 637.192 | 637.223 | 637.192 | 637.150 | 637.171 | 637.202 | 637.192 | 637.150 | 637.150 |

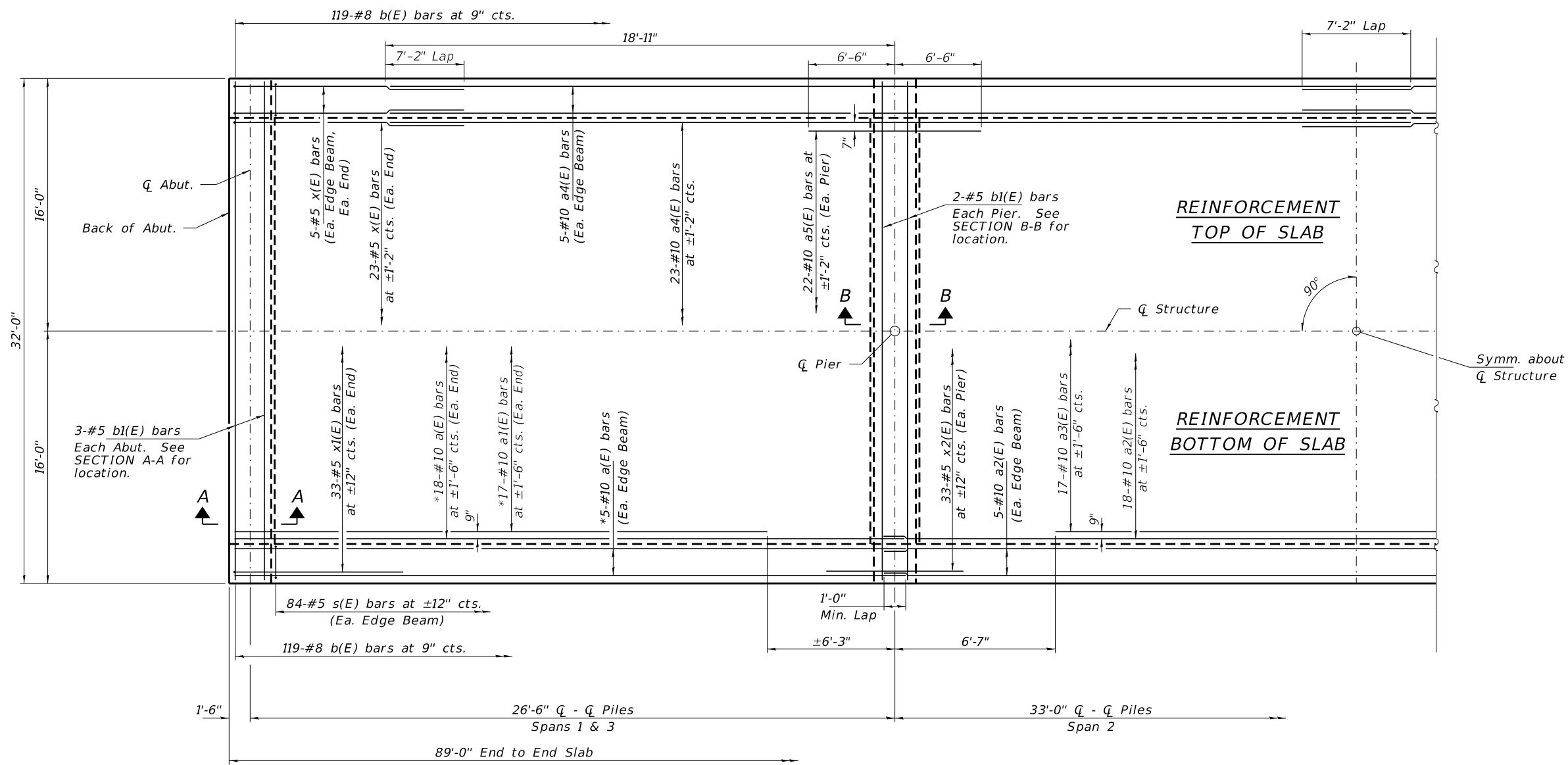
T. - Theoretical elevation at top of slab  
 Adj. - T adjusted for dead load deflection  
 \* Bottom of slab elevation equals bottom of edge beam



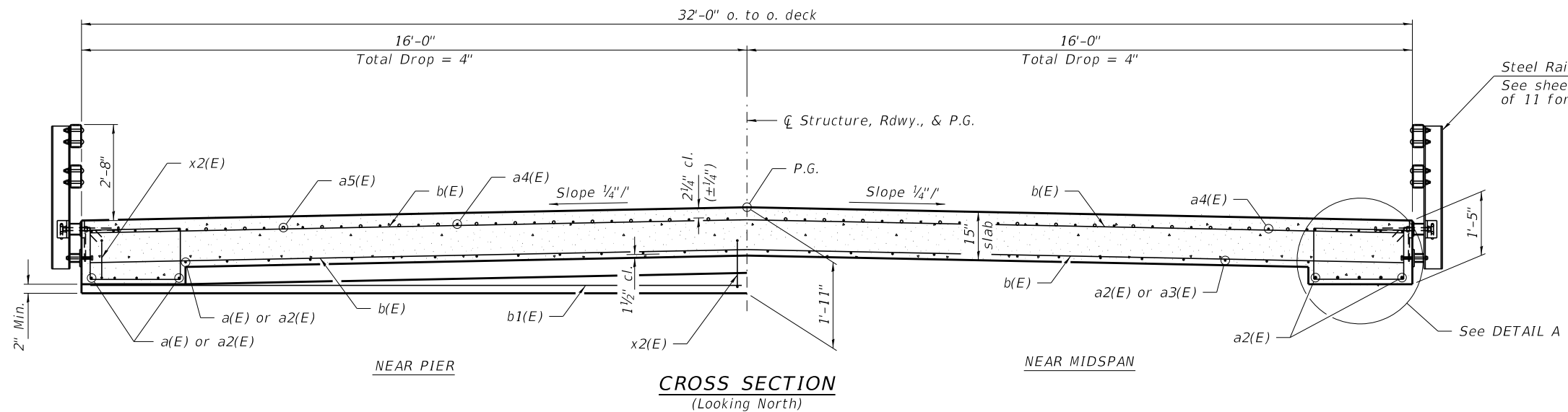
DEAD LOAD DEFLECTION DIAGRAM  
 (Includes weight of concrete only.)

Notes:  
 The deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown.  
 The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework in addition to allowance for dead load deflection.





HALF PLAN

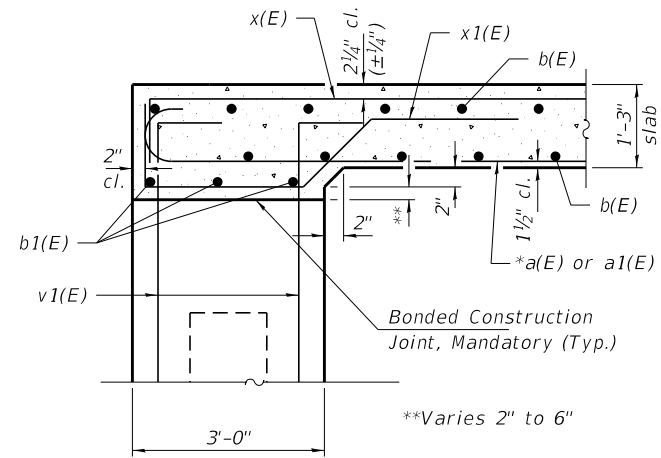


CROSS SECTION  
(Looking North)

Notes:  
 See sheet 5 of 11 for Superstructure Details and Bill of Material.  
 See sheet 5 of 11 for SECTION A-A, SECTION B-B and DETAIL A.  
 \*a(E) & a1(E) bars may be tilted to provide clearance for hooked ends.

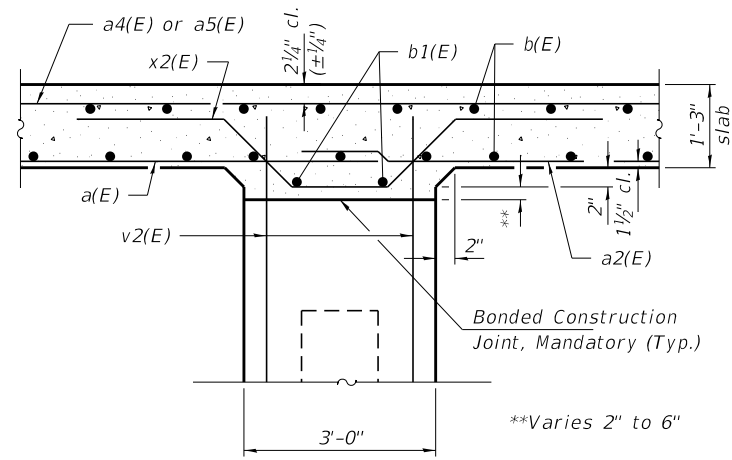
MIN. BAR LAP  
 #10 = 7'-2"

|  |                       |                         |           |   |  |                          |                |                    |                            |           |  |
|--|-----------------------|-------------------------|-----------|---|--|--------------------------|----------------|--------------------|----------------------------|-----------|--|
| FILE NAME = 210318-shl-bridge.dgn  | USER NAME = smierzwa  | DESIGNED - S.T.M.       | REVISED - | <b>STATE OF ILLINOIS<br/>LIVINGSTON COUNTY HIGHWAY DEPARTMENT</b> | <b>SUPERSTRUCTURE<br/>STRUCTURE NO. 053-3463</b> | F.A.S. RTE.              | SECTION        | COUNTY             | TOTAL SHEETS               | SHEET NO. |  |
| HAMPTON, LENZINI AND RENWICK, INC.<br>3035 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>L.S./P.E./S.E. CORP. 184.000959 | PLOT SCALE =          | CHECKED - S.W.M.        | REVISED - |   |  | 343                      | 20-00199-04-BR | LIVINGSTON         | 21                         | 9         |  |
| HLR  | PLOT DATE = 2/21/2024 | DRAWN - R.D.H.          | REVISED - |   |  | FEEHERRY BRIDGE          |                | CONTRACT NO. 87820 |                            |           |  |
|  |                       | CHECKED - S.T.M./S.W.M. | REVISED - |   |  | SHEET NO. 4 OF 11 SHEETS |                | ILLINOIS           | FED. AID PROJECT YV6Z(673) |           |  |

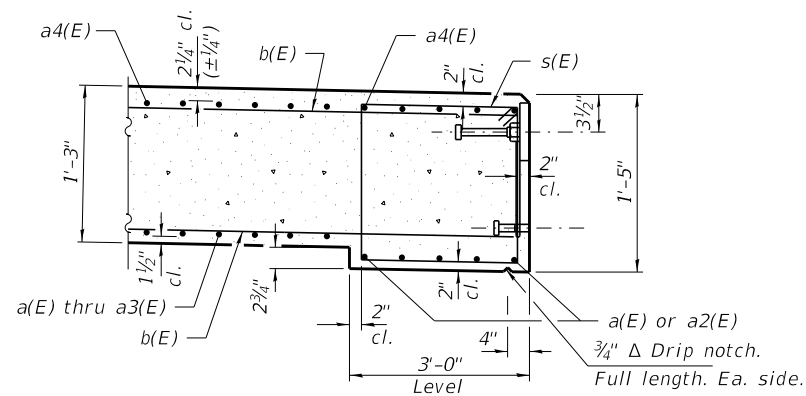


**SECTION A-A**

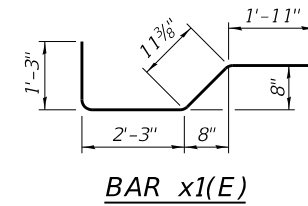
\*Tilt a(E) or a1(E) bars if needed.



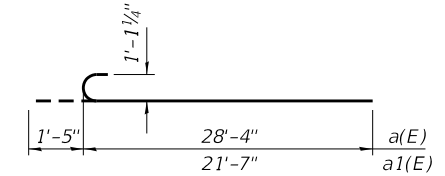
**SECTION B-B**



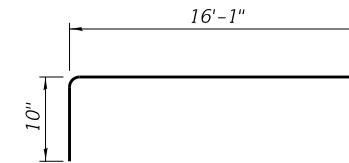
**DETAIL A**



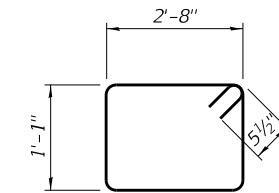
**BAR x1(E)**



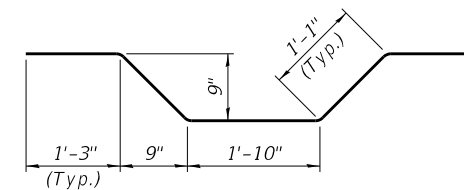
**BARS a(E) & a1(E)**



**BAR x(E)**



**BAR s(E)**



**BAR x2(E)**

**SUPERSTRUCTURE  
BILL OF MATERIAL**

| BAR                              | NO. | SIZE | LENGTH  | SHAPE  |
|----------------------------------|-----|------|---------|--------|
| a(E)                             | 56  | #10  | 29'-9"  | C      |
| a1(E)                            | 34  | #10  | 23'-0"  | C      |
| a2(E)                            | 28  | #10  | 34'-0"  | —      |
| a3(E)                            | 17  | #10  | 19'-10" | —      |
| a4(E)                            | 66  | #10  | 39'-0"  | —      |
| a5(E)                            | 44  | #10  | 13'-0"  | —      |
| b(E)                             | 238 | #8   | 31'-8"  | —      |
| b1(E)                            | 10  | #5   | 31'-8"  | —      |
| s(E)                             | 168 | #5   | 8'-5"   | □      |
| x(E)                             | 66  | #5   | 16'-11" | L      |
| x1(E)                            | 66  | #5   | 6'-5"   | L      |
| x2(E)                            | 66  | #5   | 6'-6"   | W      |
| Concrete Superstructure          |     |      | Cu. Yd. | 142.4  |
| Bridge Deck Grooving             |     |      | Sq. Yd. | 316    |
| Protective Coat                  |     |      | Sq. Yd. | 345    |
| Reinforcement Bars, Epoxy Coated |     |      | Pound   | 53,600 |

Notes:  
See Sheet 7 of 11 for v1(E) placement.  
See Sheet 8 of 11 for v2(E) placement.

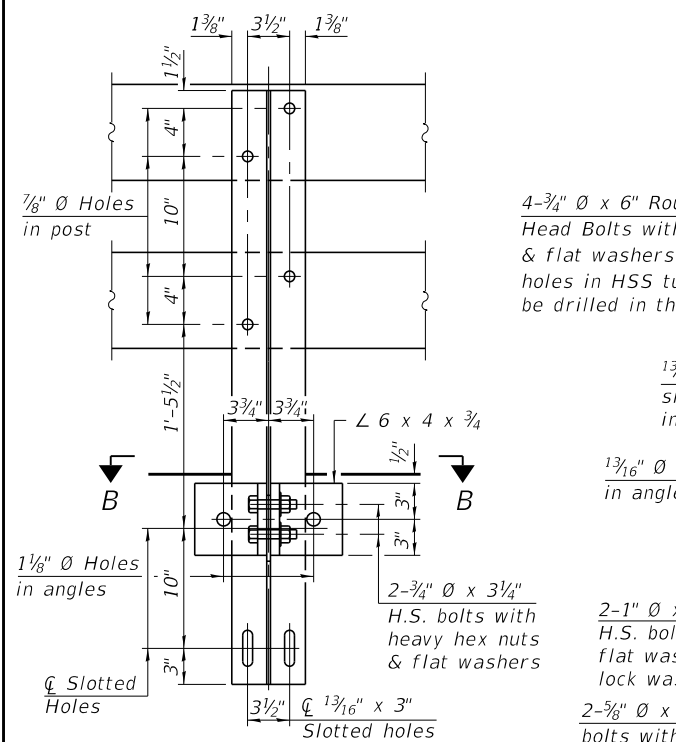
|  |                      |                         |           |
|--|----------------------|-------------------------|-----------|
| FILE NAME = 210318-shl-bridge.dgn  | USER NAME = smlerzwa | DESIGNED - S.T.M.       | REVISED - |
| HAMPTON, LENZINI AND RENWICK, INC.<br>3035 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>L.S./P.E./S.E. CORP. 184.000959 | PLOT SCALE =         | CHECKED - S.W.M.        | REVISED - |
| PLOT DATE = 2/21/2024  |                      | DRAWN - R.D.H.          | REVISED - |
|  |                      | CHECKED - S.T.M./S.W.M. | REVISED - |

STATE OF ILLINOIS  
LIVINGSTON COUNTY HIGHWAY DEPARTMENT

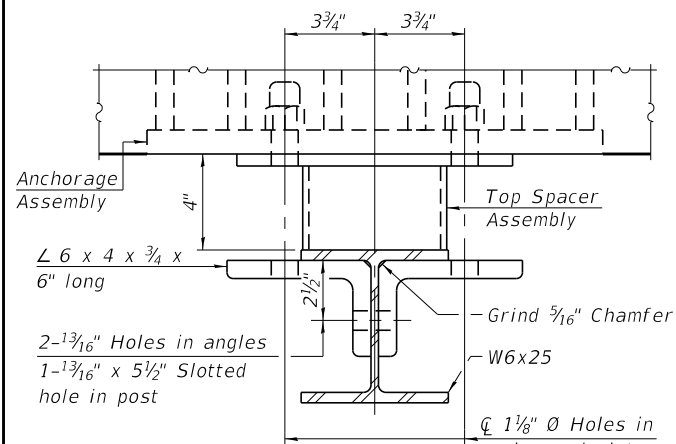
SUPERSTRUCTURE DETAILS  
STRUCTURE NO. 053-3463

SHEET NO. 5 OF 11 SHEETS

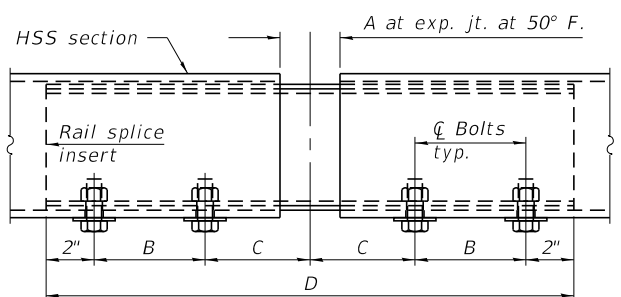
|                 |                |                            |              |           |
|-----------------|----------------|----------------------------|--------------|-----------|
| F.A.S. RTE.     | SECTION        | COUNTY                     | TOTAL SHEETS | SHEET NO. |
| 343             | 20-00199-04-BR | LIVINGSTON                 | 21           | 10        |
| FEEHERRY BRIDGE |                | CONTRACT NO. 87820         |              |           |
| ILLINOIS        |                | FED. AID PROJECT YV6Z(673) |              |           |



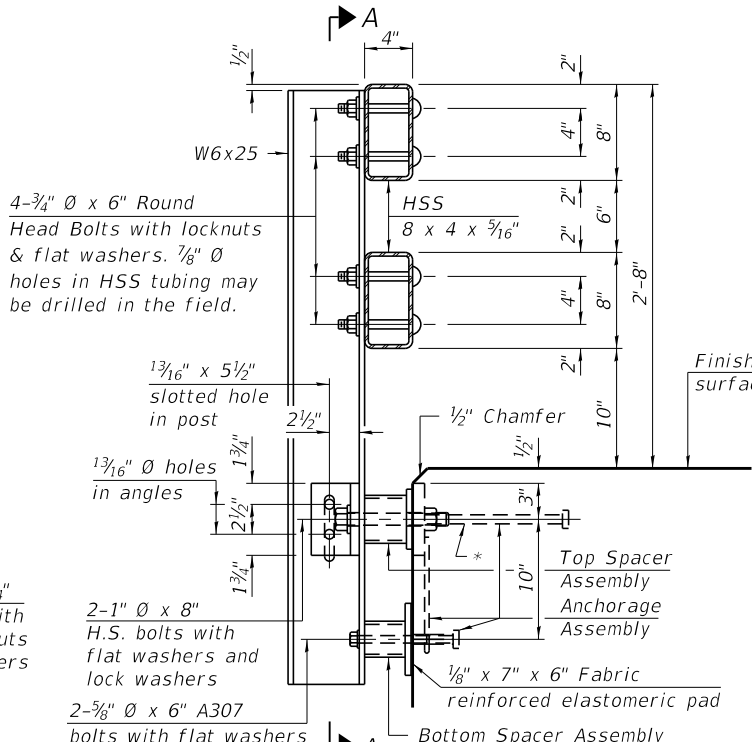
SECTION A-A



SECTION B-B

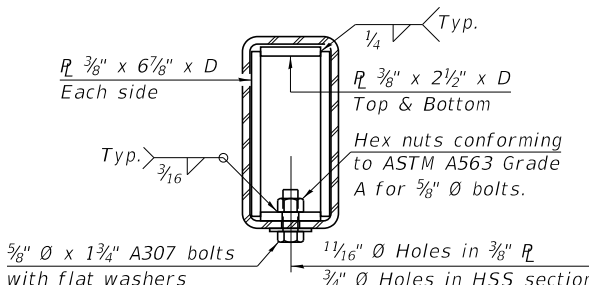


RAIL SPLICE ELEVATION

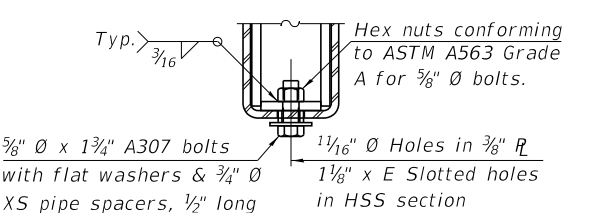


SECTION AT RAIL POST

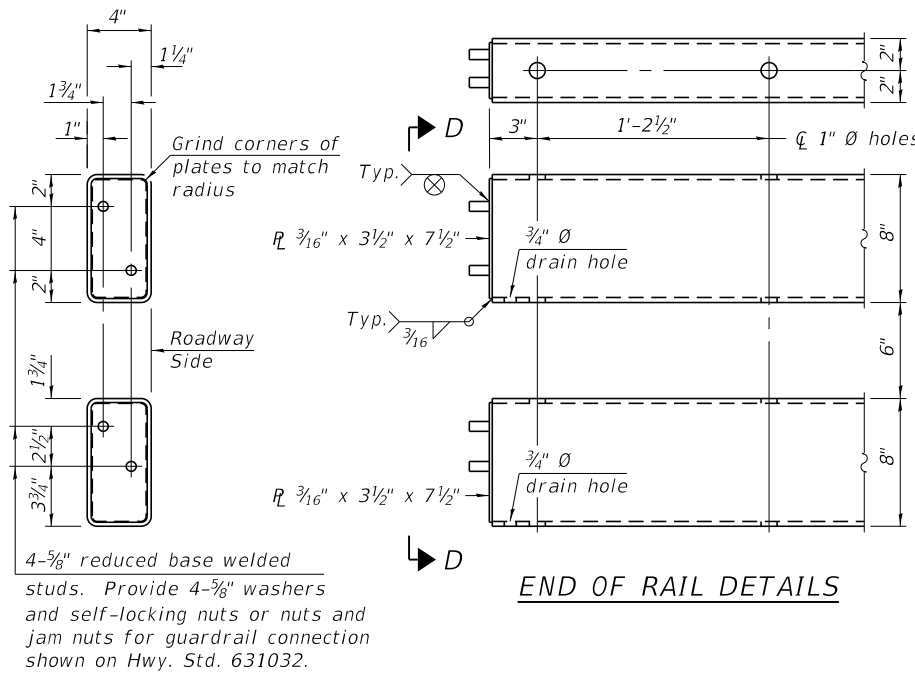
\* The outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchorage assembly. The anchorage studs may be bent down 1/2\"/>



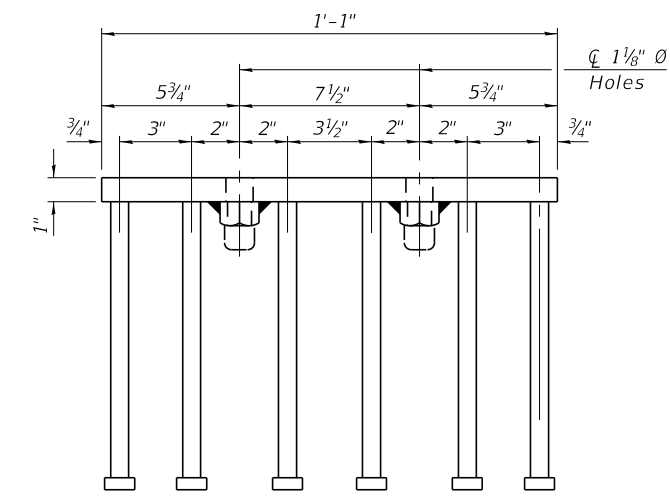
SECTION AT RAIL SPLICE



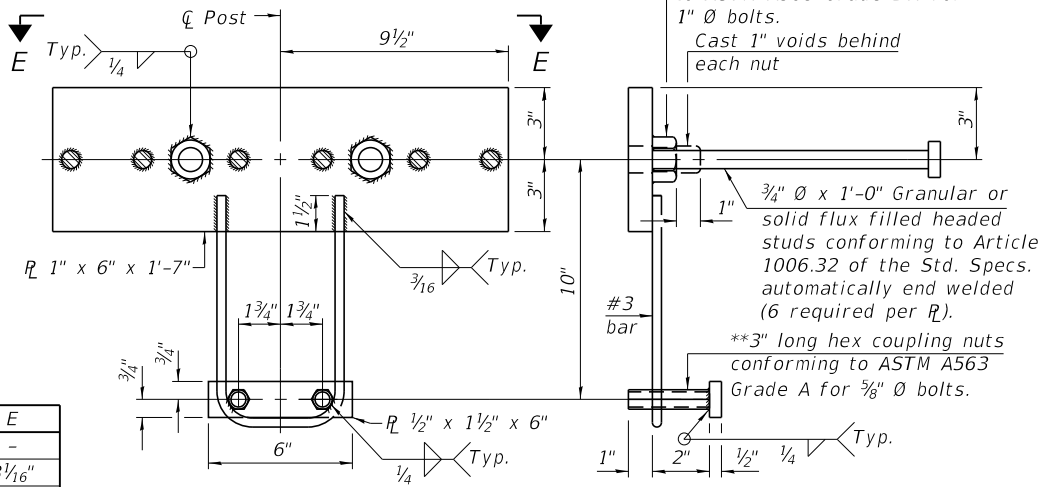
RAIL SPLICE CONNECTION AT EXPANSION JT.



VIEW D-D



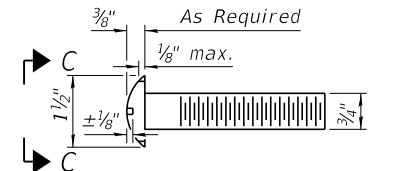
VIEW E-E



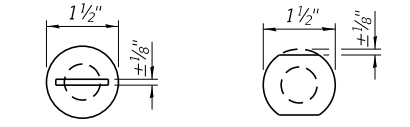
ANCHORAGE ASSEMBLY

\*\* Threaded areas shall be plugged or blocked off during casting of concrete.

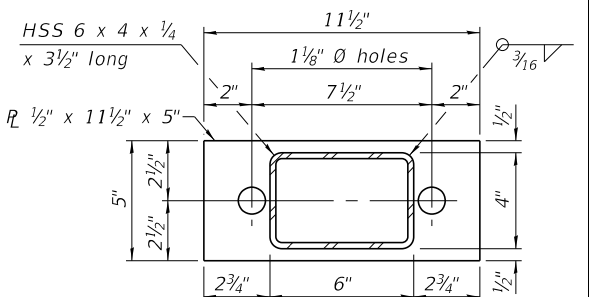
Notes:  
 A sufficient number of shims of various thicknesses, sized to fit behind the top spacer assembly, 5" x 11 1/2", and bottom spacer assembly, 6" x 7", shall be provided to adjust posts for proper alignment. If the summation of shims is greater than 1/4" (top) or 1/2" (bottom), longer bolts are required. Cost included with Steel Railing, Type SMX.  
 All steel rail elements including shims shall be galvanized according to Article 509.05 of the Standard Specifications.  
 All HSS tubing serving as railing shall be CVN tested according to Article 1006.34(b) of the Standard Specifications.  
 Rail splice inserts may be built out of 2 - 3/8" bent plates in lieu of the 4 plate rail splice inserts shown, provided the outside dimensions are matched.  
 All round head bolts shall be ASTM A307 with locknuts according to ASTM A563 grade A.



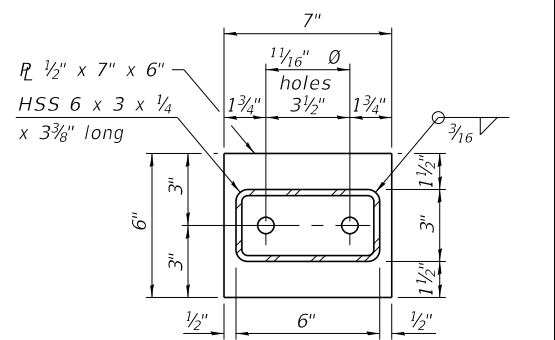
ROUND HEAD BOLT DETAIL



VIEW C-C



TOP SPACER ASSEMBLY



BOTTOM SPACER ASSEMBLY

BILL OF MATERIAL

| Item                    | Unit | Quantity |
|-------------------------|------|----------|
| Steel Railing, Type SMX | Foot | 177      |

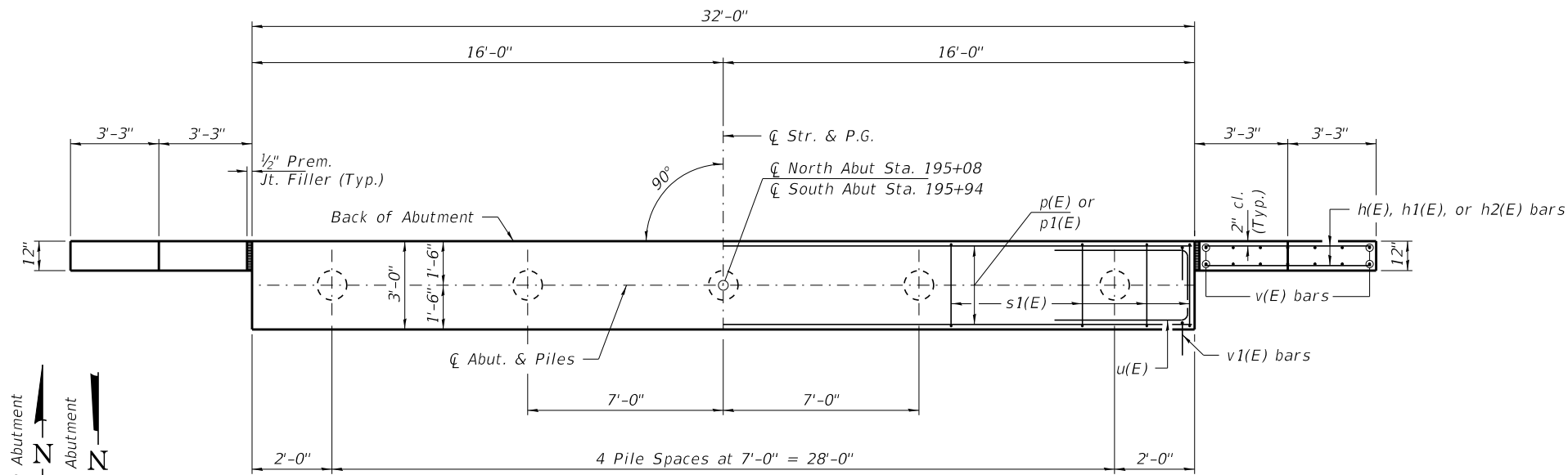
RAILING CRITERIA

|                                  |               |
|----------------------------------|---------------|
| MASH 2016 Conditional Test Level | 3             |
| Railing Weight (plf)             | 90            |
| Min f'c (psi)                    | 5,000         |
| Max Post Spacing                 | 6'-3"         |
| HMA thickness range (in)         | 1 1/4 - 3 1/8 |

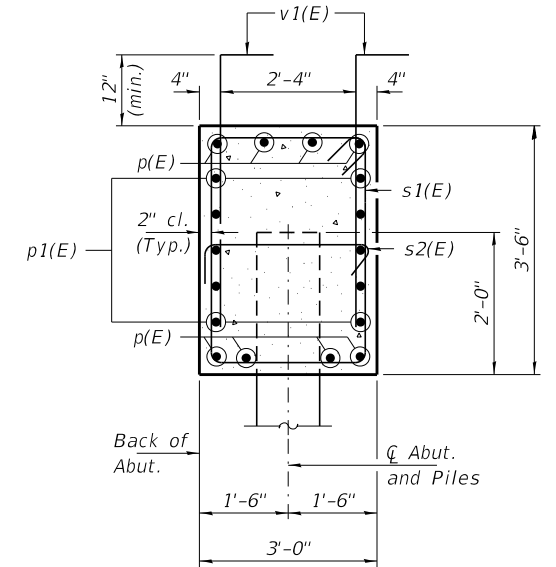
SPLICE DIMENSIONS

| Location                     | T       | A      | B       | C      | D         | E         |
|------------------------------|---------|--------|---------|--------|-----------|-----------|
| All locs. not over exp. jts. | 0       | 1/4"   | 4"      | 4"     | 1'-8"     | -         |
| Over Strip Seal Jt.          | ≤4"     | 2 1/2" | 4 3/8"  | 4 3/8" | 1'-10"    | 3 1/2 6"  |
| Over Finger or Modular Jt.   | ≤9 1/2" | 5 1/2" | 7 3/8"  | 7 1/4" | 2'-9 1/4" | 5 1 3/16" |
| Over Finger or Modular Jt.   | ≤15"    | 8 1/4" | 10 1/8" | 10"    | 3'-8 1/4" | 8 3/16"   |

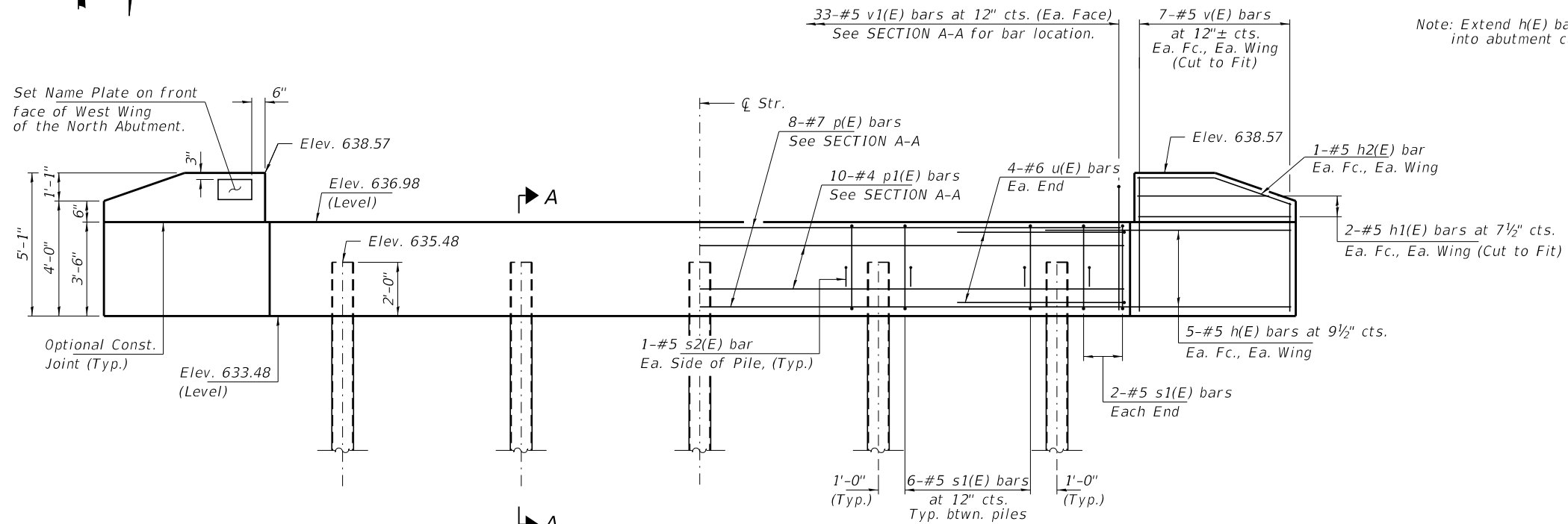
T = ; total movement along centerline of roadway at expansion joint.



**PLAN**



**SECTION A-A**



**ELEVATION**

Note: Extend h(E) bars into abutment cap.

**BILL OF MATERIAL - 2 ABUTS.**

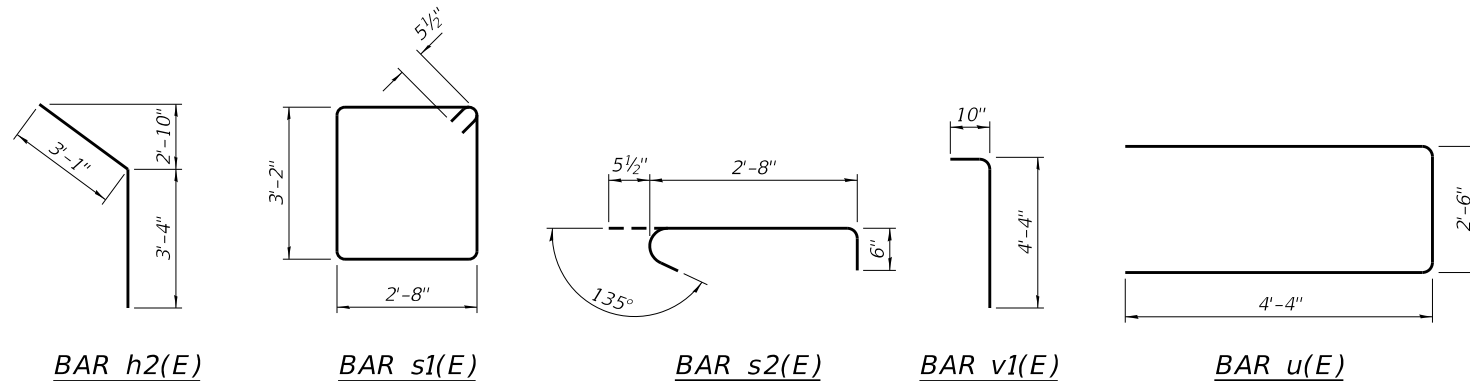
| BAR                                     | NO. | SIZE | LENGTH  | SHAPE |
|---|-----|------|---------|-------|
| h(E)                                    | 40  | #5   | 9'-9"   | —     |
| h1(E)                                   | 16  | #5   | 6'-2"   | —     |
| h2(E)                                   | 8   | #5   | 6'-5"   | —     |
| p(E)                                    | 16  | #7   | 31'-8"  | —     |
| p1(E)                                   | 20  | #4   | 31'-8"  | —     |
| s1(E)                                   | 56  | #5   | 12'-7"  | □     |
| s2(E)                                   | 20  | #5   | 3'-8"   | ┌     |
| u(E)                                    | 16  | #6   | 11'-2"  | —     |
| v(E)                                    | 56  | #5   | 4'-10"  | —     |
| v1(E)                                   | 132 | #5   | 5'-2"   | —     |
| Structure Excavation                    |     |      | Cu. Yd. | 80    |
| Concrete Structures                     |     |      | Cu. Yd. | 28.9  |
| Protective Coat                         |     |      | Sq. Yd. | 21    |
| Reinf. Bars, Epoxy Coated               |     |      | Pound   | 4,100 |
| Furnishing Metal Shell Piles 12"x0.250" |     |      | Foot    | 225   |
| Driving Piles                           |     |      | Foot    | 225   |
| Test Pile Metal Shells                  |     |      | Each    | 1     |
| Name Plates                             |     |      | Each    | 1     |

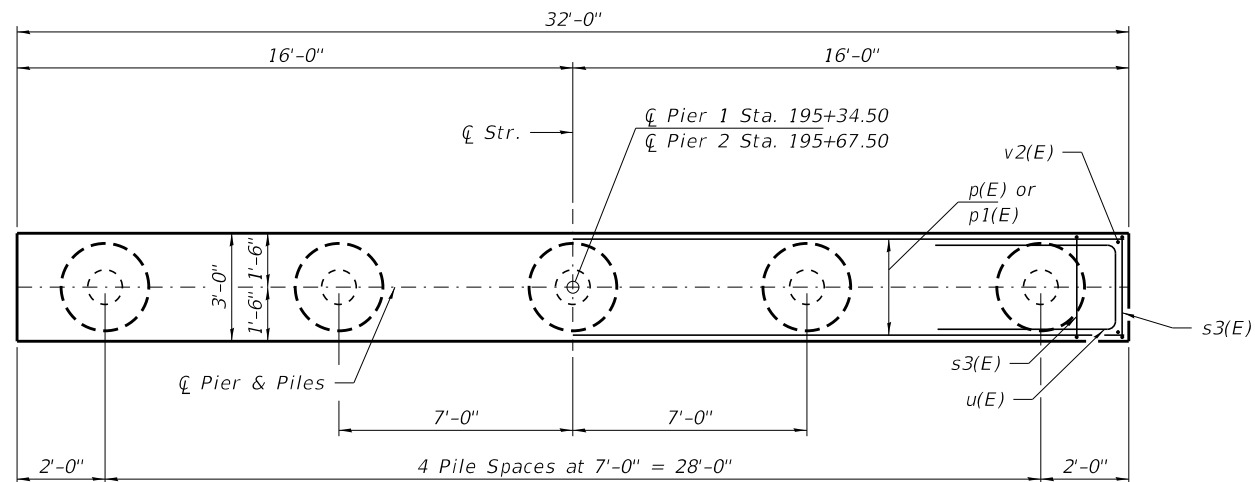
Notes:  
 For details of piles, see Sheet 9 of 11.  
 All edges shall have standard 3/4" chamfer.  
 Protective Coat shall be applied to the abutments ends, front face and top of wingwalls.

**PILE DATA**

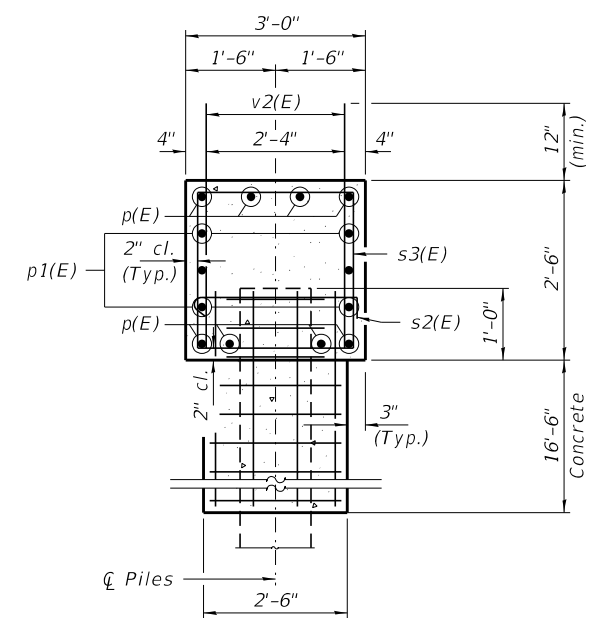
Type: Metal Shell Piles 12"x0.250" Walls  
 Nominal Required Bearing: 145 Kips/Pile  
 Factored Resistance Available: 80 Kips/Pile  
 Est. Length: 25 Ft/Pile  
 No. Production Piles: 9  
 No. Test Piles: 1

Notes: Includes one test pile to be driven permanently at the west end location in the South Abutment.

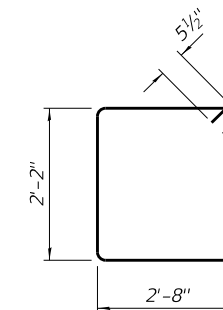




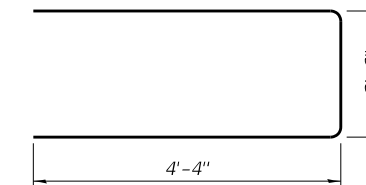
**PLAN**



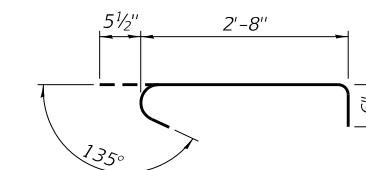
**SECTION B-B**



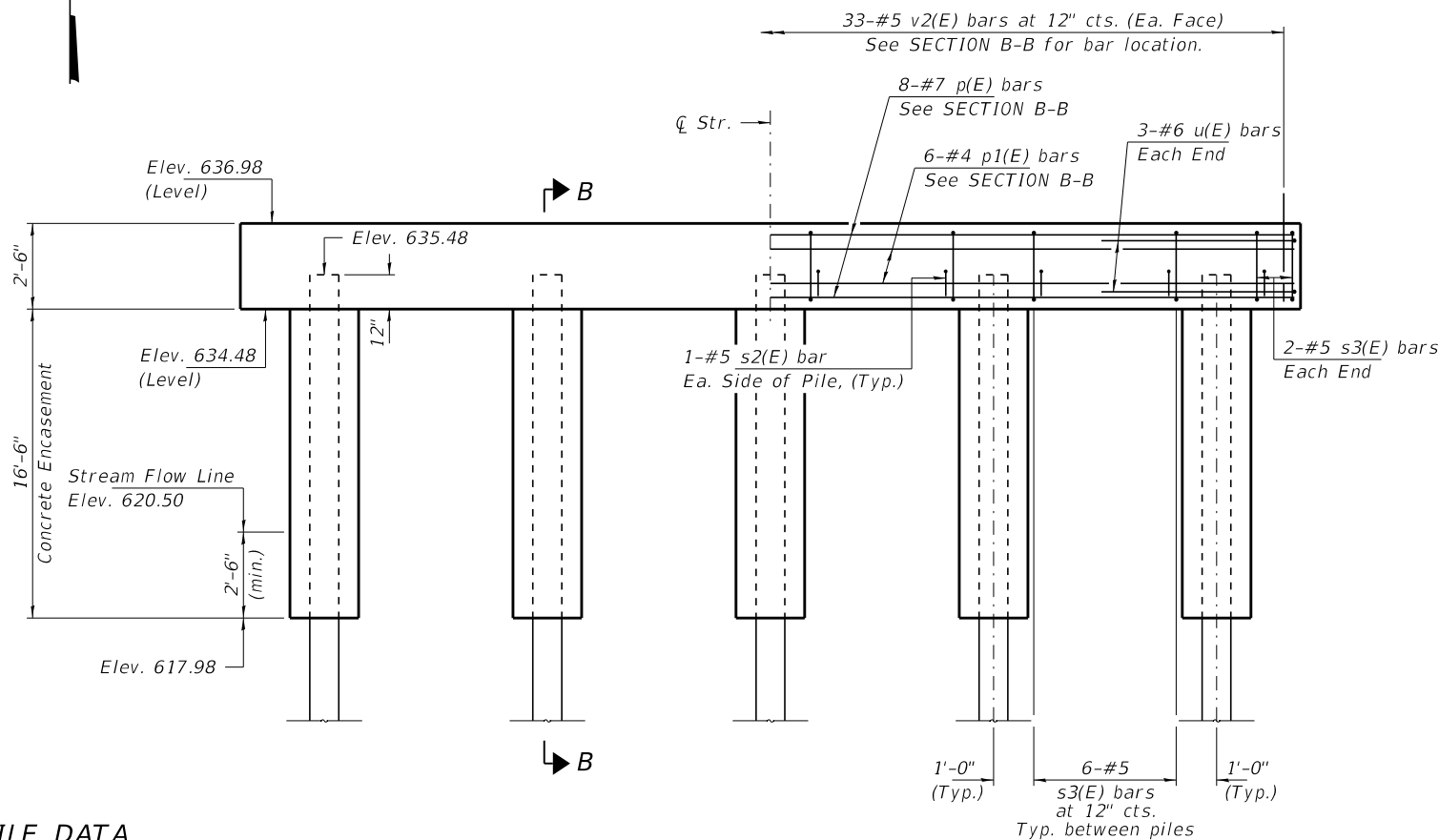
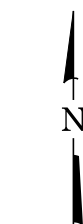
**BAR s3(E)**



**BAR u(E)**



**BAR s2(E)**



**ELEVATION**  
(Looking North)

**PILE DATA**

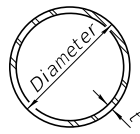
Type: ----- Metal Shell Piles 12"x0.250" Walls  
 Nominal Required Bearing: ----- 275 Kips/Pile  
 Factored Resistance Available: ----- 150 Kips/Pile  
 Est. Length: ----- 60 Ft/Pile  
 No. Production Piles: ----- 9  
 No. Test Piles: ----- 1

Notes: Includes one test pile to be driven permanently at the east end location in Pier 1.

**BILL OF MATERIAL - 2 PIERS**

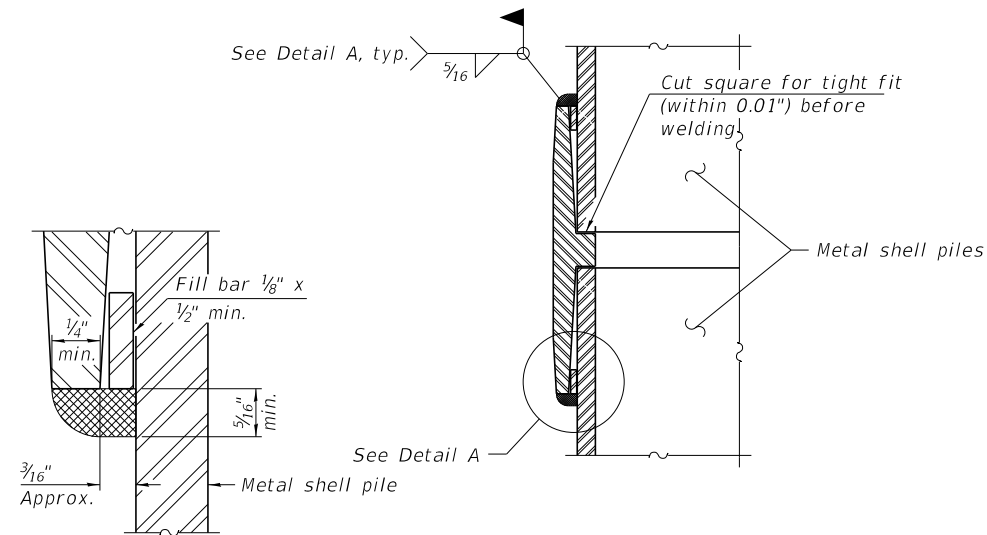
| BAR                                     | NO. | SIZE | LENGTH  | SHAPE |
|---|-----|------|---------|-------|
| p(E)                                    | 16  | #7   | 31'-8"  | —     |
| p1(E)                                   | 12  | #4   | 31'-8"  | —     |
| s2(E)                                   | 20  | #5   | 3'-8"   | ┌     |
| s3(E)                                   | 56  | #5   | 10'-7"  | □     |
| u(E)                                    | 12  | #6   | 11'-2"  | U     |
| v2(E)                                   | 132 | #5   | 3'-4"   | —     |
| Concrete Structures                     |     |      | Cu. Yd. | 17.5  |
| Concrete Encasement                     |     |      | Cu. Yd. | 25.2  |
| Protective Coat                         |     |      | Sq. Yd. | 3     |
| Reinf. Bars, Epoxy Coated               |     |      | Pound   | 2,640 |
| Furnishing Metal Shell Piles 12"x0.250" |     |      | Foot    | 540   |
| Driving Piles                           |     |      | Foot    | 540   |
| Test Pile Metal Shells                  |     |      | Each    | 1     |

Notes:  
 For details of piles, see Sheet 9 of 11.  
 For details of concrete encasement reinforcement, see Sheet 9 of 11.  
 All edges shall have standard 3/4" chamfer.  
 Protective Coat shall be applied to the end fascias of the pier caps.

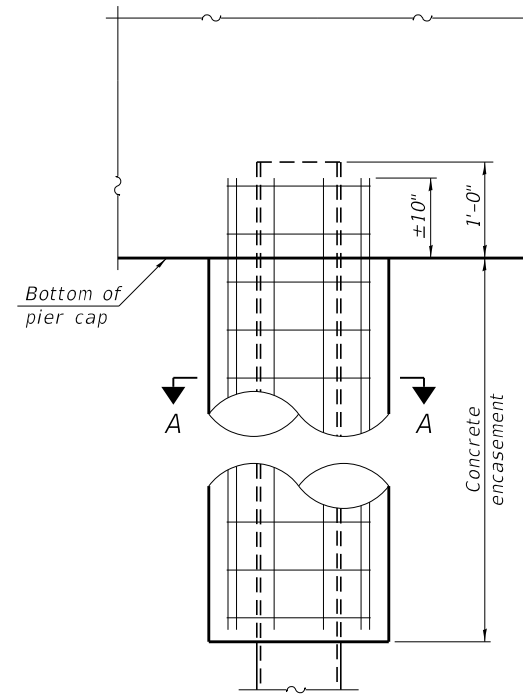


**METAL SHELL PILE TABLE**

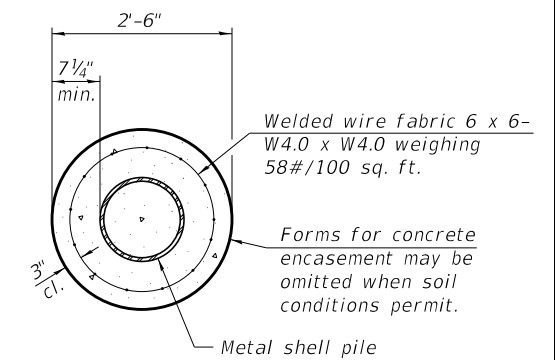
| Designation and outside diameter | Wall thickness t | Weight per foot (Lbs./ft.) | Inside volume (yd. <sup>3</sup> /ft.) |
|----------------------------------|------------------|----------------------------|---------------------------------------|
| PP12                             | 0.250"           | 31.40                      | 0.0267                                |
| PP14                             | 0.250"           | 36.75                      | 0.0368                                |
| PP14                             | 0.312"           | 45.65                      | 0.0361                                |
| PP16                             | 0.312"           | 52.32                      | 0.0478                                |
| PP16                             | 0.375"           | 62.64                      | 0.0470                                |



**DETAIL A**

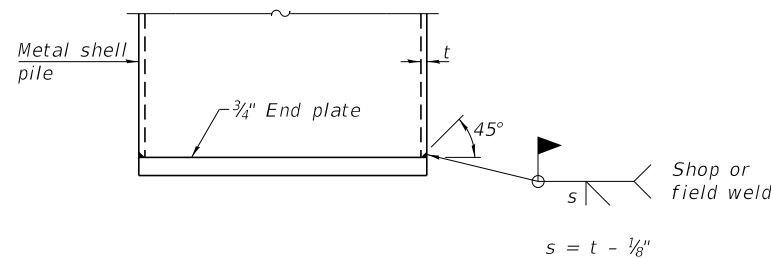


**ELEVATION**



**SECTION A-A**

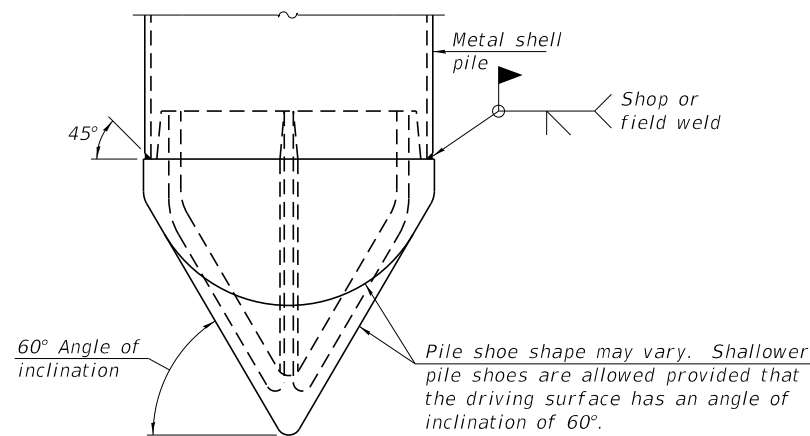
**INDIVIDUAL PILE CONCRETE ENCASUREMENT (At Piers)**



**END PLATE ATTACHMENT**

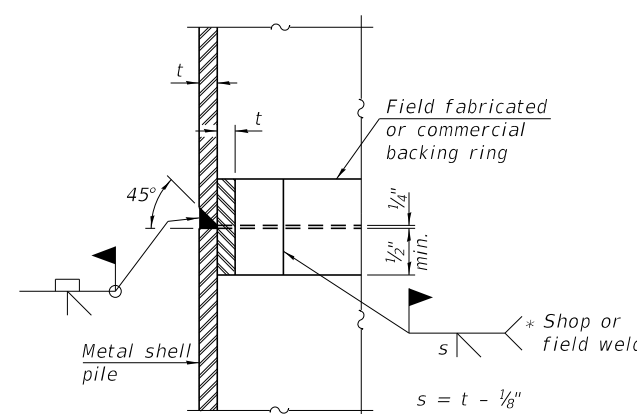
**WELDED COMMERCIAL SPLICE**

Notes:  
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.



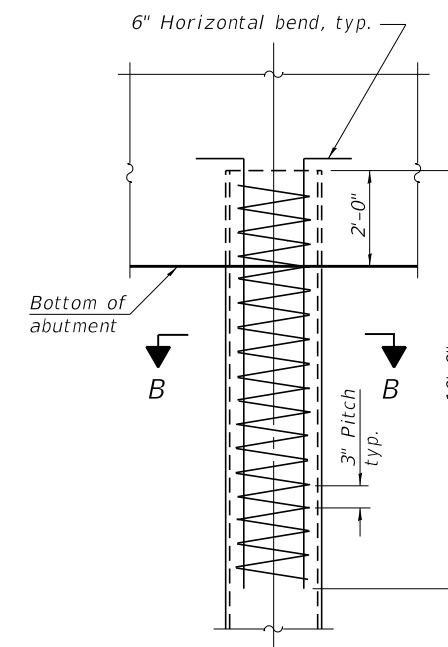
**PILE SHOE ATTACHMENT**

(When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 80-50 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld).



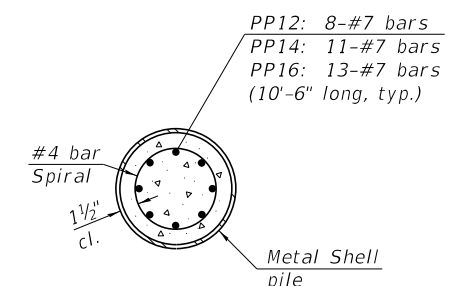
**COMPLETE PENETRATION WELD SPLICE**

\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



**ELEVATION**

**REINFORCEMENT AT ABUTMENTS (Omit when concrete encasement is specified)**



**SECTION B-B**

Note:  
 The metal shell piles shall be according to Article 1006.05 of the Standard Specifications.

F-MS 5-15-2023

|  |                      |                         |           |
|--|----------------------|-------------------------|-----------|
| FILE NAME = 210318-shi-bridge.dgn  | USER NAME = smierzwa | DESIGNED - S.T.M.       | REVISED - |
| HAMPTON, LENZINI AND RENWICK, INC.<br>3035 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>LS / PE / SE CORP. 184.009959 | PLOT SCALE =         | CHECKED - S.W.M.        | REVISED - |
| PLOT DATE = 2/6/2024   |                      | DRAWN - R.D.H.          | REVISED - |
|  |                      | CHECKED - S.T.M./S.W.M. | REVISED - |

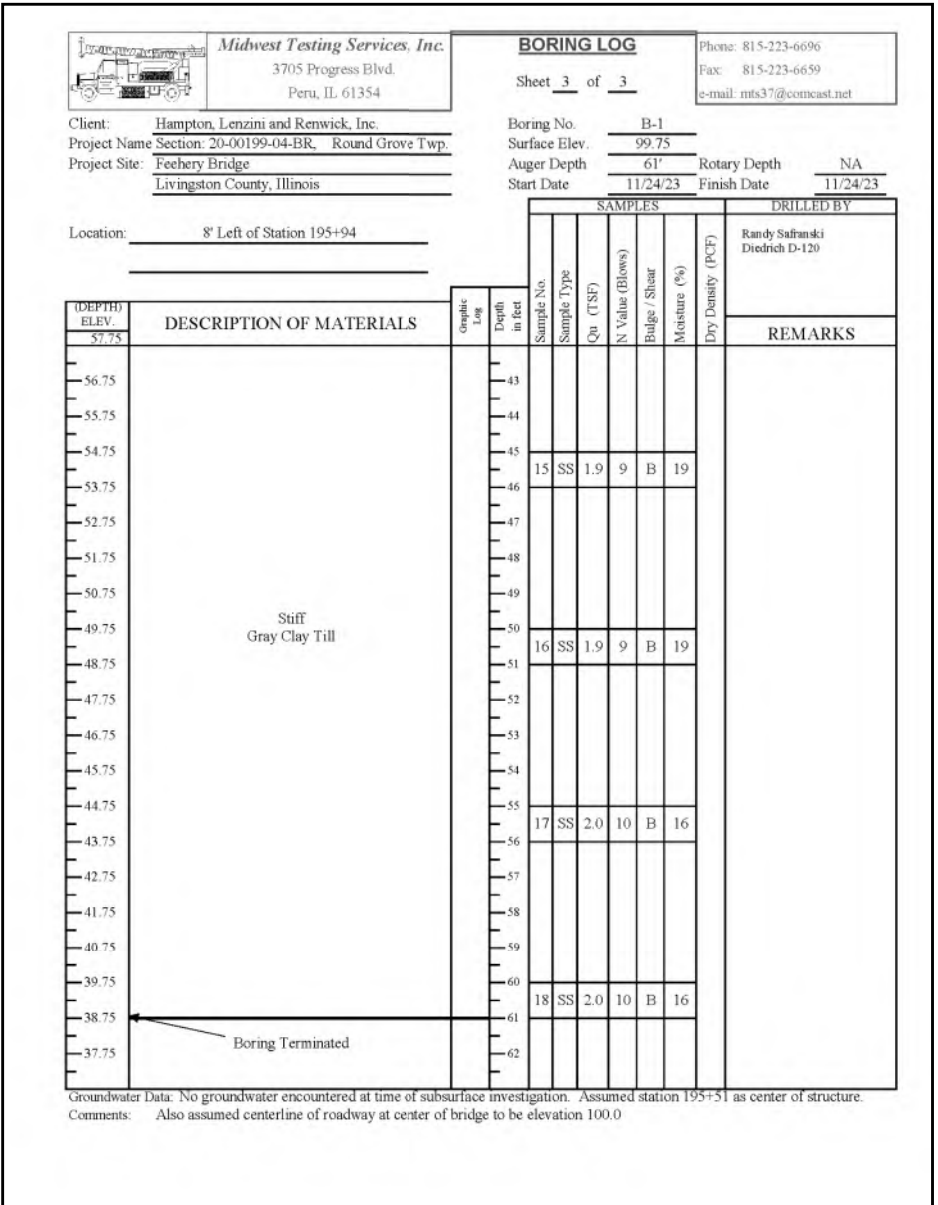
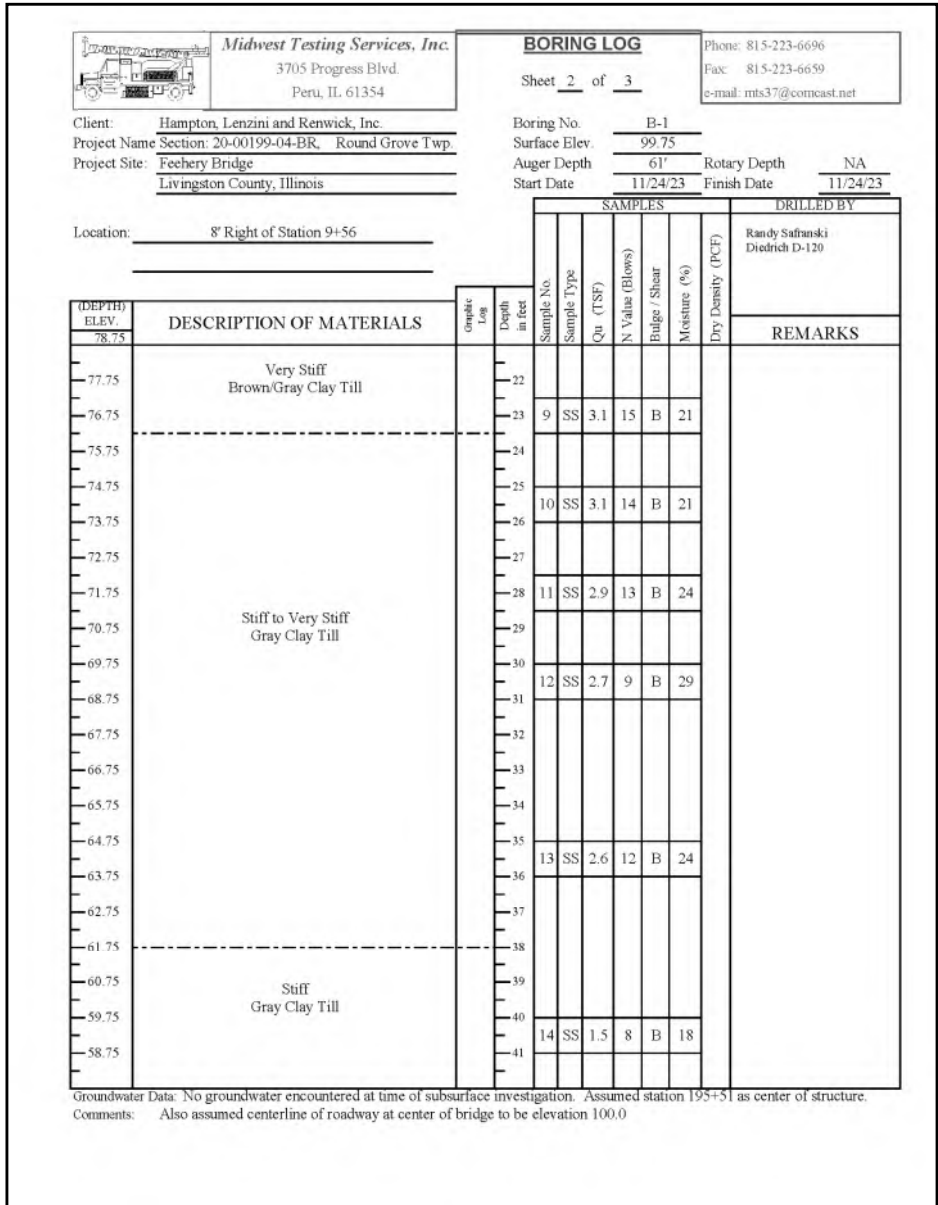
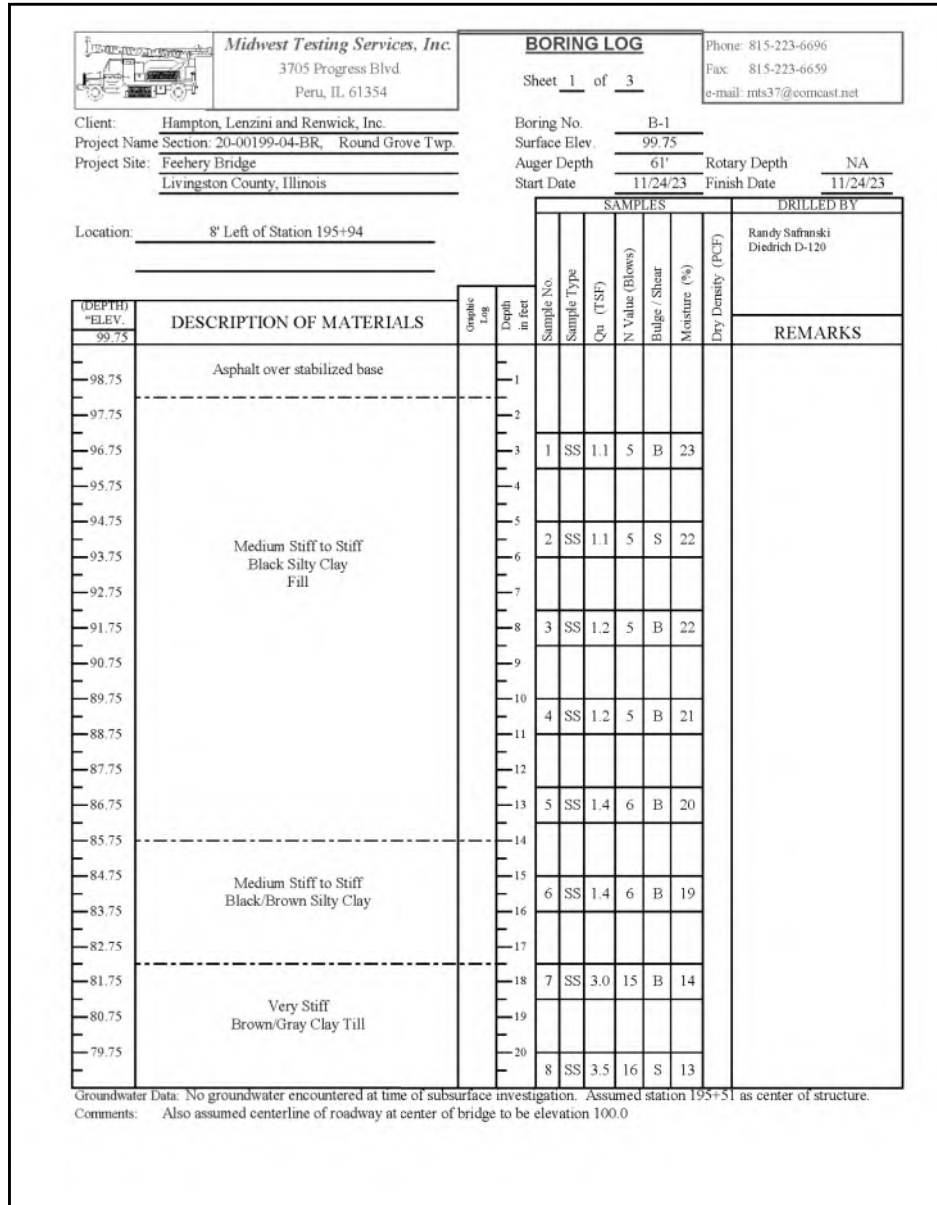
STATE OF ILLINOIS  
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT

METAL SHELL PILE DETAILS  
 STRUCTURE NO. 053-3463

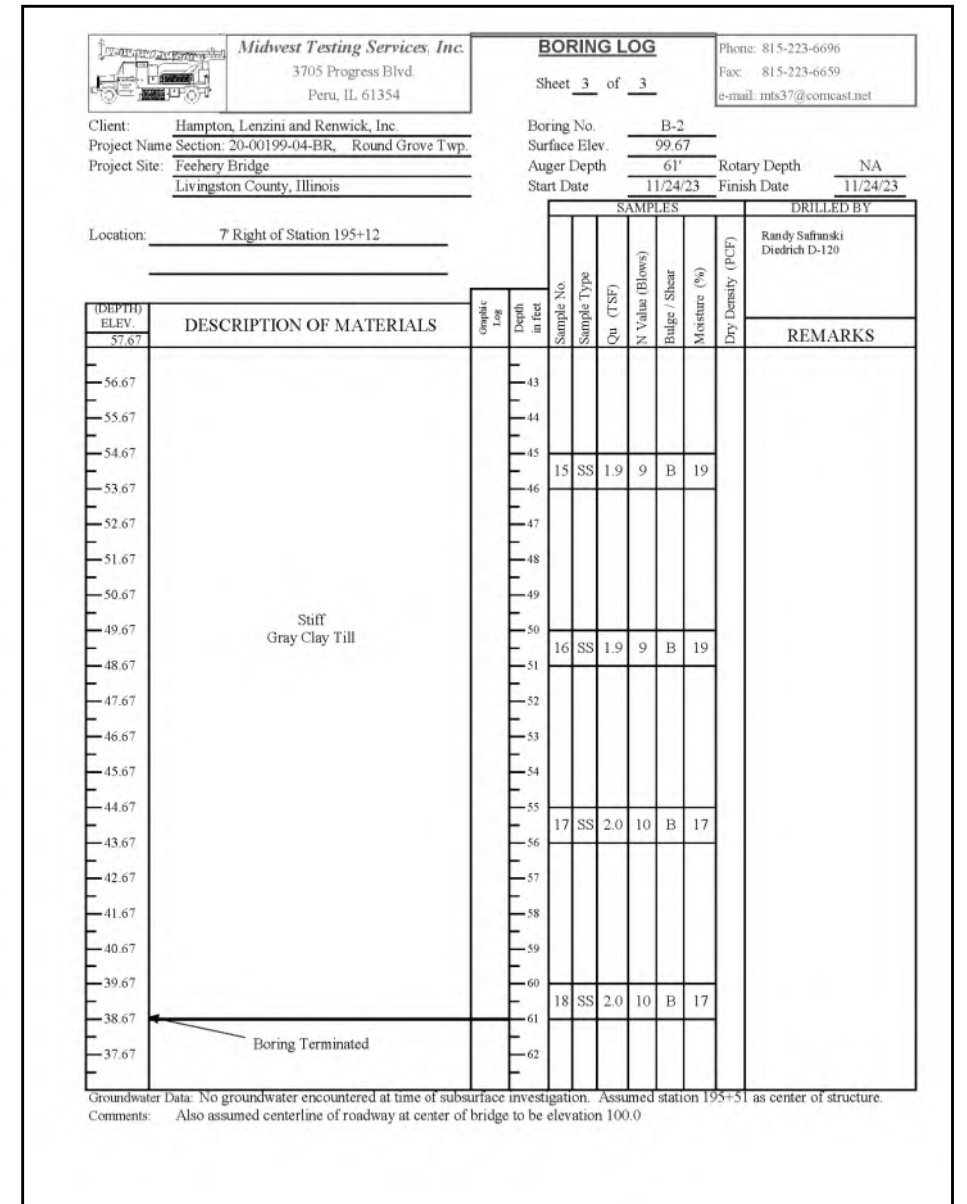
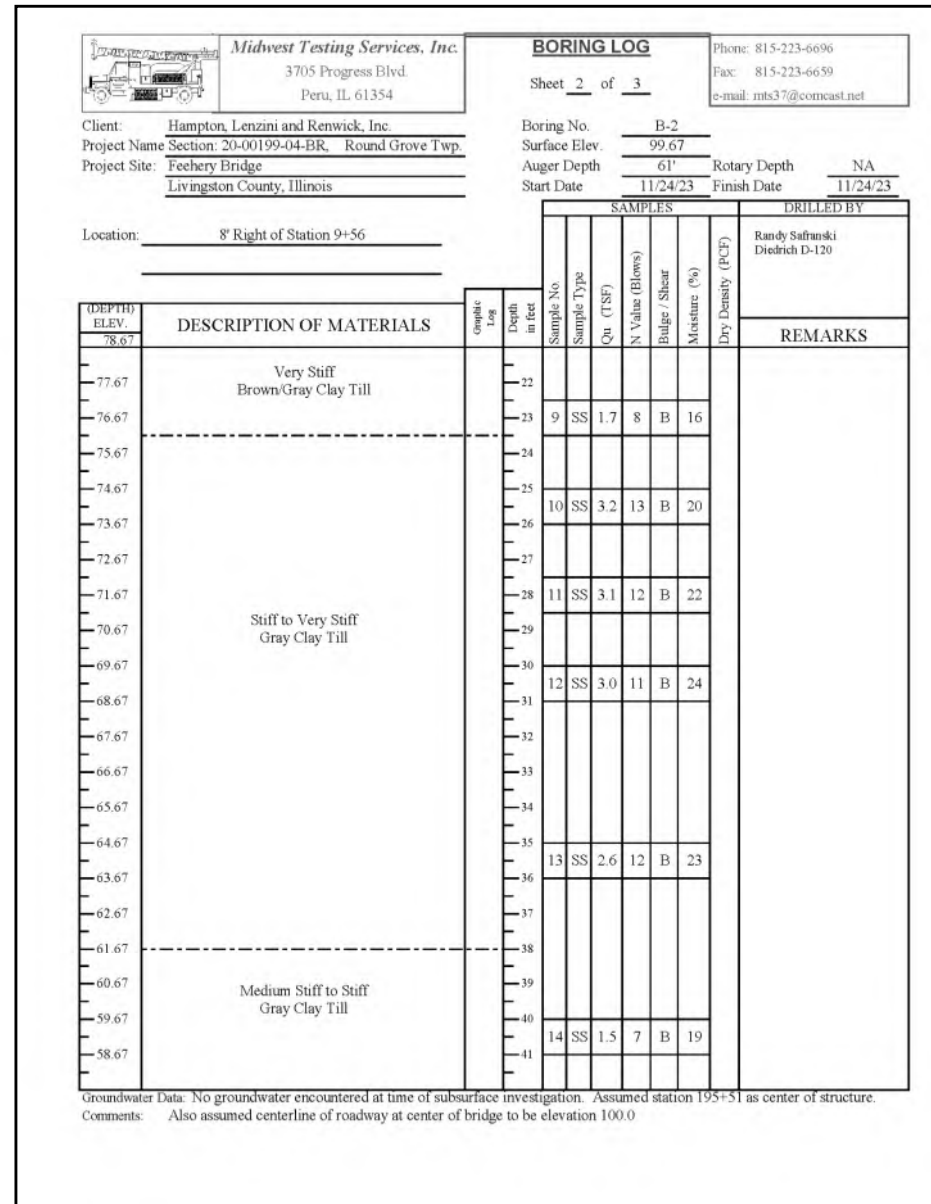
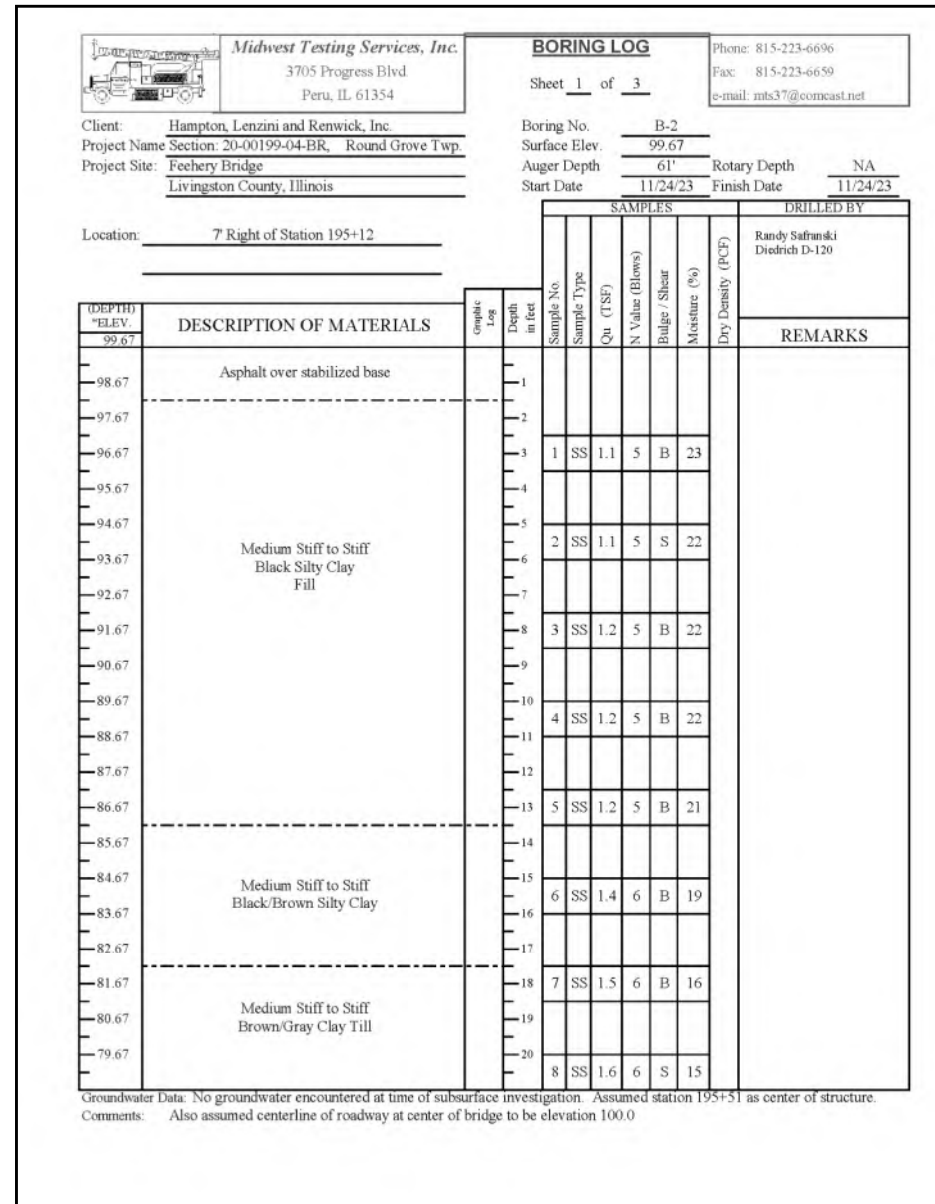
SHEET NO. 9 OF 11 SHEETS

|                 |                |                            |              |           |
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| 343             | 20-00199-04-BR | LIVINGSTON                 | 21           | 14        |
| FEEHERRY BRIDGE |                | CONTRACT NO. 87820         |              |           |
| ILLINOIS        |                | FED. AID PROJECT VV6Z(673) |              |           |





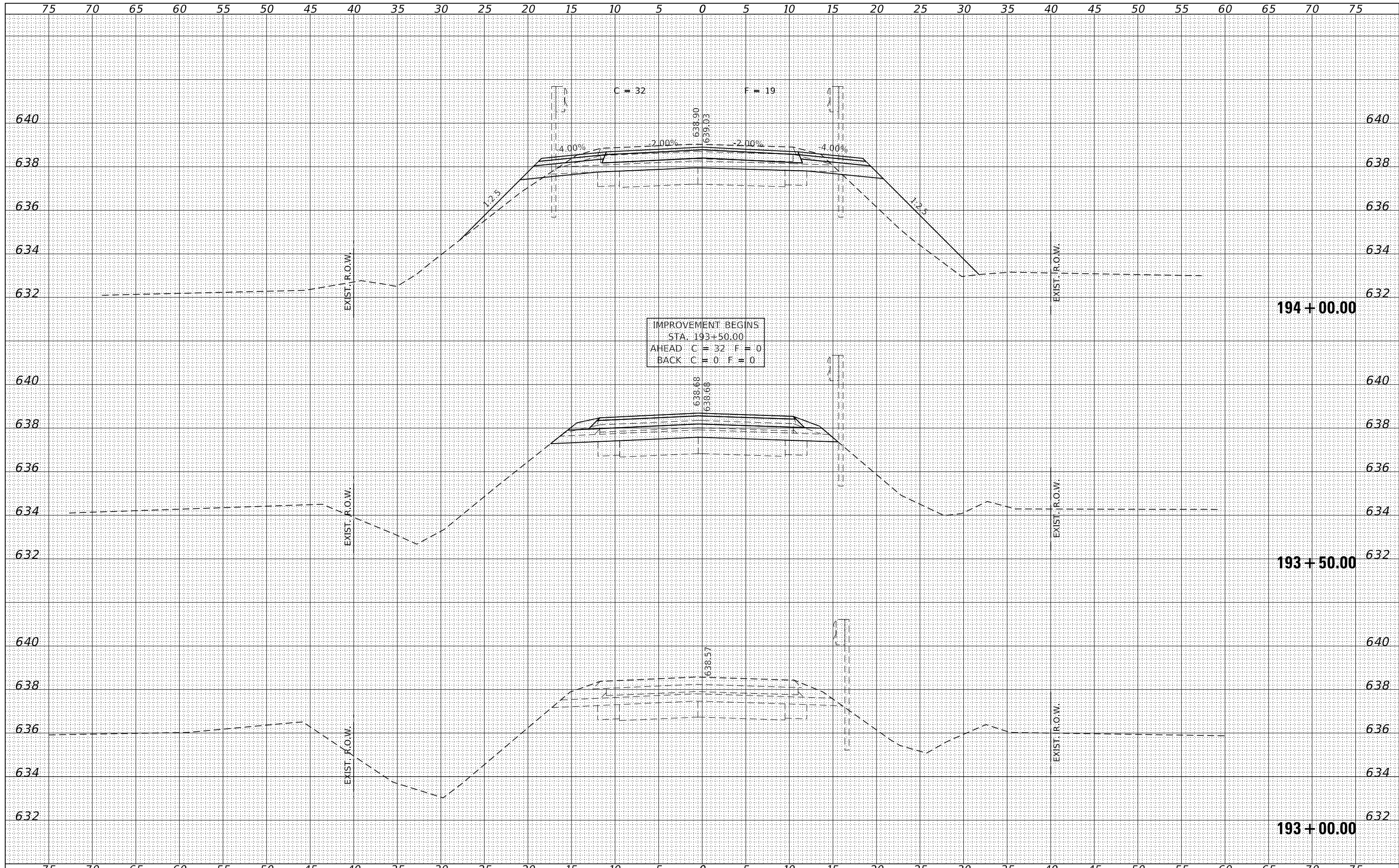
**BORING-1**



**BORING-2**

|                 |  |
|-----------------|--|
| DATE            |  |
| BY              |  |
| ORIGINAL SURVEY |  |
| SURVEYED        |  |
| PLOTTED         |  |
| TEMPLATE        |  |
| AREAS           |  |
| CHECKED         |  |
| NO.             |  |

|                 |  |
|-----------------|--|
| DATE            |  |
| BY              |  |
| ORIGINAL SURVEY |  |
| SURVEYED        |  |
| PLOTTED         |  |
| TEMPLATE        |  |
| AREAS           |  |
| CHECKED         |  |
| NO.             |  |



FILE NAME = 210318-sh1-xssheets.dgn  
 DESIGNED - S.A.A.  
 DRAWN - T.W.K.  
 CHECKED - S.T.M.  
 DATE - 12/18/2023  
 USER NAME = smlerzwa  
 PLOT SCALE = \$SCALES  
 PLOT DATE = 2/6/2024

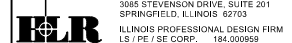
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 DRAWN - T.W.K.  
 CHECKED - S.T.M.  
 DATE - 12/18/2023  
 REVISIONS:  
 REVISION NO. | DATE | DESCRIPTION  
 1 | |  
 2 | |  
 3 | |  
 4 | |  
 5 | |

**STATE OF ILLINOIS  
 LIVINGSTON COUNTY HIGHWAY DEPARTMENT**

**STATION CROSS SECTIONS**

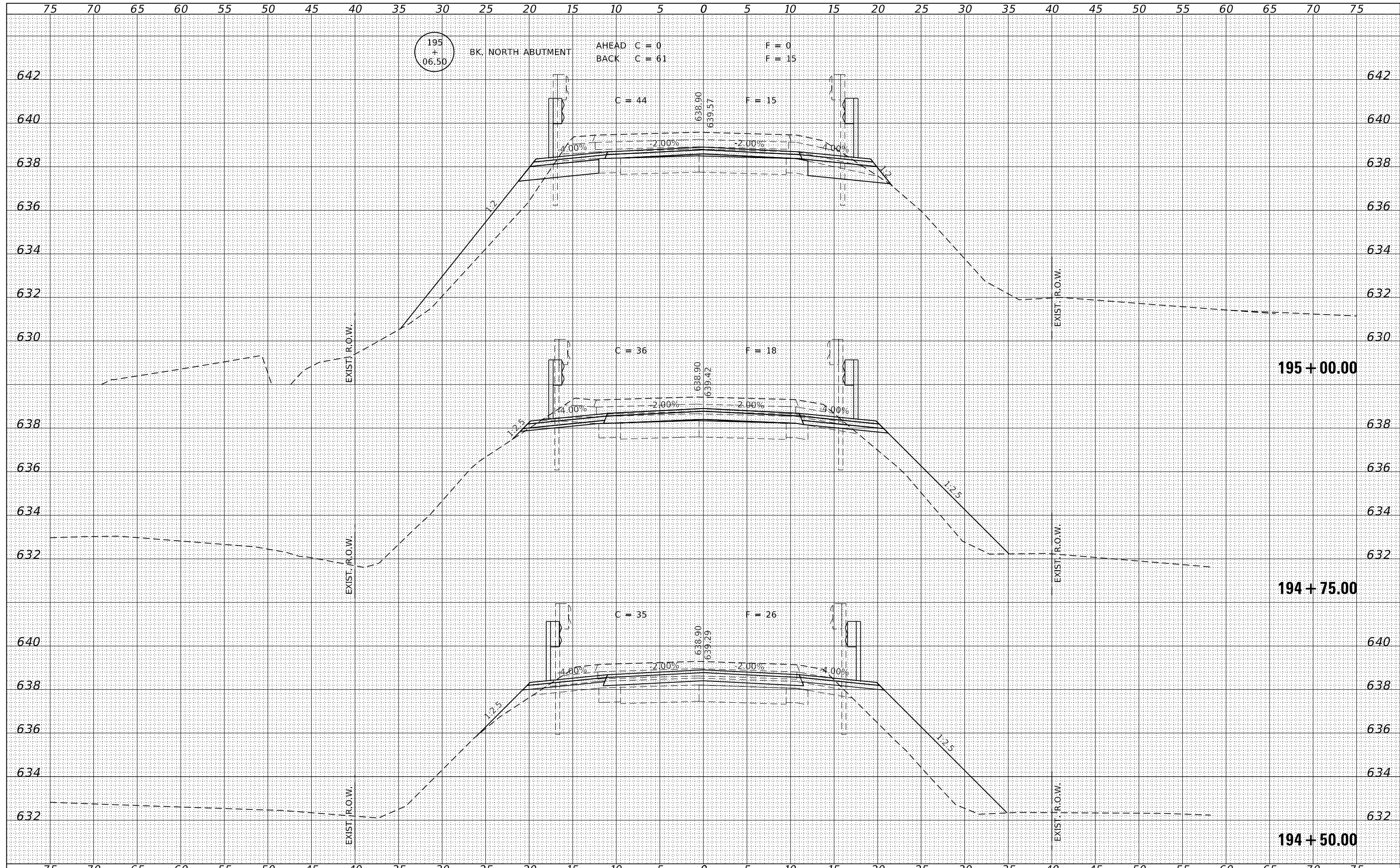
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| F.A.S. RTE.                         | SECTION        | COUNTY             | TOTAL SHEETS | SHEET NO. |
|-------------------------------------|----------------|--------------------|--------------|-----------|
| 343                                 | 20-00199-04-BR | LIVINGSTON         | 21           | 17        |
| FEEHERRY BRIDGE                     |                | CONTRACT NO. 87820 |              |           |
| ILLINOIS FED. AID PROJECT YV62(673) |                |                    |              |           |



|                 |  |
|-----------------|--|
| DATE            |  |
| BY              |  |
| FINISHED SURVEY |  |
| PLOTTED         |  |
| TEMPLATE        |  |
| NOTE BOOK       |  |
| AREAS CHECKED   |  |
| NO.             |  |

|                 |  |
|-----------------|--|
| DATE            |  |
| BY              |  |
| ORIGINAL SURVEY |  |
| PLOTTED         |  |
| TEMPLATE        |  |
| NOTE BOOK       |  |
| AREAS CHECKED   |  |
| NO.             |  |



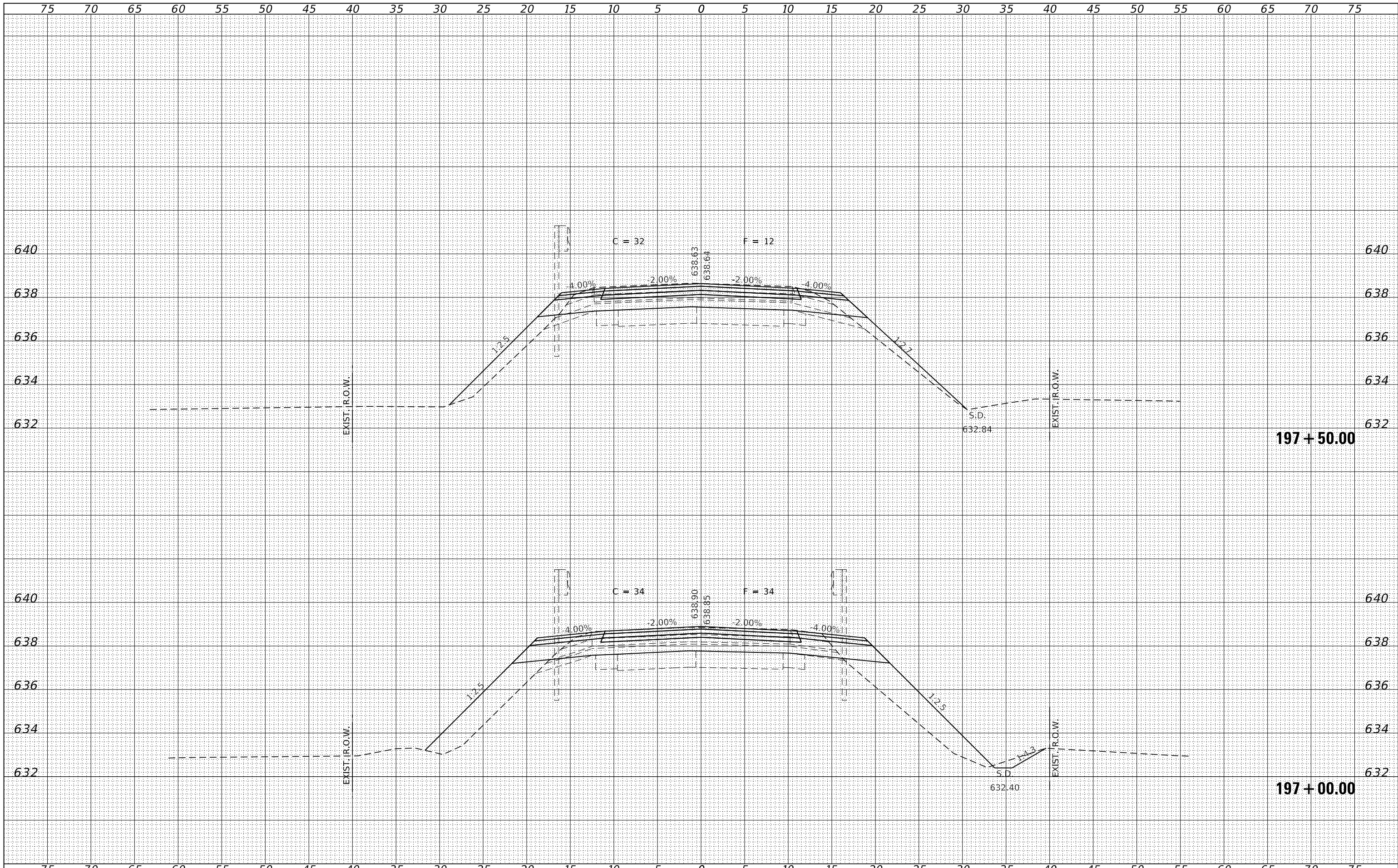
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| HAMPTON, LENZINI AND RENWICK, INC.<br>3888 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>L/S / P.E. / S.E. CORP. 184.000958 | PLOT SCALE = \$S\$CALES | DRAWN - T.W.K.    | REVISED - |  | 343             | 20-00199-04-BR | LIVINGSTON              | 21           | 18                               |
| PLOT DATE = 2/6/2024  | DATE - 12/18/2023       | CHECKED - S.T.M.  | REVISED - |  | FEEHERRY BRIDGE |                | CONTRACT NO. 87820      |              |                                  |
|   |                         | DATE - 12/18/2023 | REVISED - |  | SCALE: 5H:2V    |                | SHEET NO. 2 OF 5 SHEETS |              | STA. 194+50.00 TO STA. 195+00.00 |





|              |          |
|--------------|----------|
| DATE         |          |
| BY           |          |
| FINAL SURVEY | SURVEYED |
| NOTE BOOK    | PLOTTED  |
| NO.          | TEMPLATE |
|              | AREAS    |
|              | CHECKED  |

|                 |          |
|-----------------|----------|
| DATE            |          |
| BY              |          |
| ORIGINAL SURVEY | SURVEYED |
| NOTE BOOK       | PLOTTED  |
| NO.             | TEMPLATE |
|                 | AREAS    |
|                 | CHECKED  |



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| HAMPTON, LENZINI AND RENWICK, INC.<br>3888 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703<br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>L5 / PE / SE CORP. 184.009958 |                      | DRAWN - T.W.K.    | REVISED - |   | 343                           | 20-00199-04-BR          | LIVINGSTON                       | 21                                  | 20     |              |           |
| PLOT SCALE = \$SCALES  |                      | CHECKED - S.T.M.  | REVISED - |   | FEEHERY BRIDGE                |                         |                                  | CONTRACT NO. 87820                  |        |              |           |
| PLOT DATE = 2/6/2024   |                      | DATE - 12/18/2023 | REVISED - |   | SCALE: 5H:2V                  | SHEET NO. 4 OF 5 SHEETS | STA. 197+00.00 TO STA. 197+50.00 | ILLINOIS FED. AID PROJECT YV62(673) |        |              |           |



