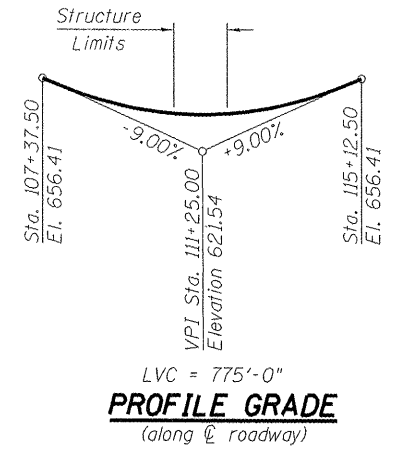
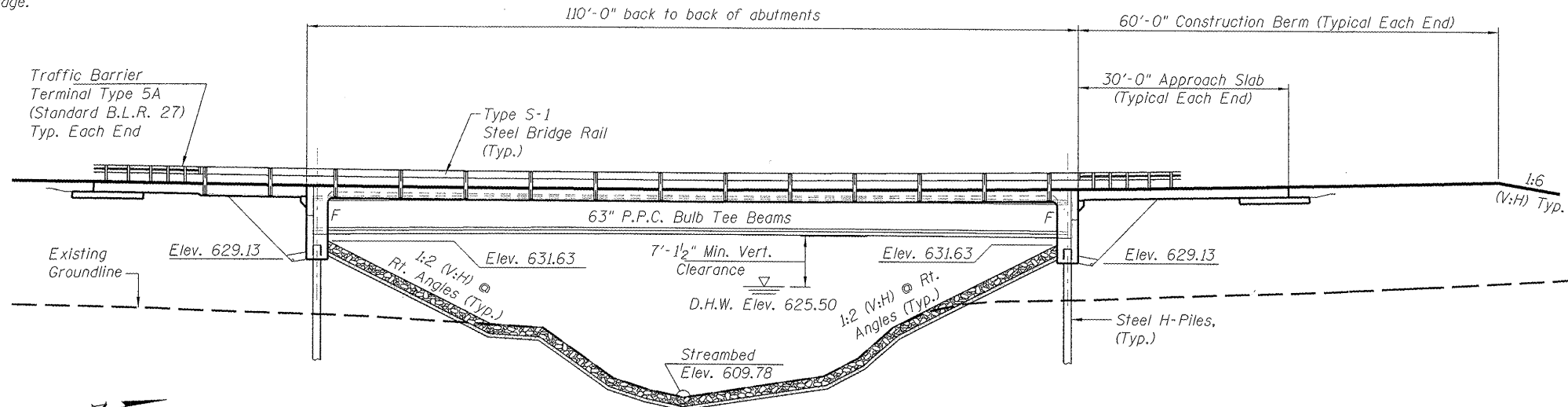


Bench Mark: Point 402 - Nail in east side of power pole west side of Barefoot Road approximately 45' North of Old Wagon Road @ - Elevation 631.51  
 Point 401 - Nail in west side of fence post on the east side of Barefoot Road approximately 235' south of existing south Creek Bridge abutment - Elevation 642.03

Existing Structure: Structure No. 048-3120. The existing three span structure (90 ft long by 21 ft wide) was constructed in 1964 and consists of seven lines of precast prestressed concrete deck beams covered with an oil and chip surface. The substructure consists of timber pile bents with cast-in-place concrete caps. Existing structure to be removed and replaced with bridge on new alignment ±60' upstream.

No Salvage.



LVC = 775'-0"  
**PROFILE GRADE**  
 (along  $\bar{C}$  roadway)

**ELEVATION**

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec ( $S_{D1}$ )=0.04  
 Design Spectral Acceleration at 0.2 sec ( $S_{D0.2}$ )=0.10  
 Soil Site Class = B

**LOADING HL-93**

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

**DESIGN SPECIFICATIONS**

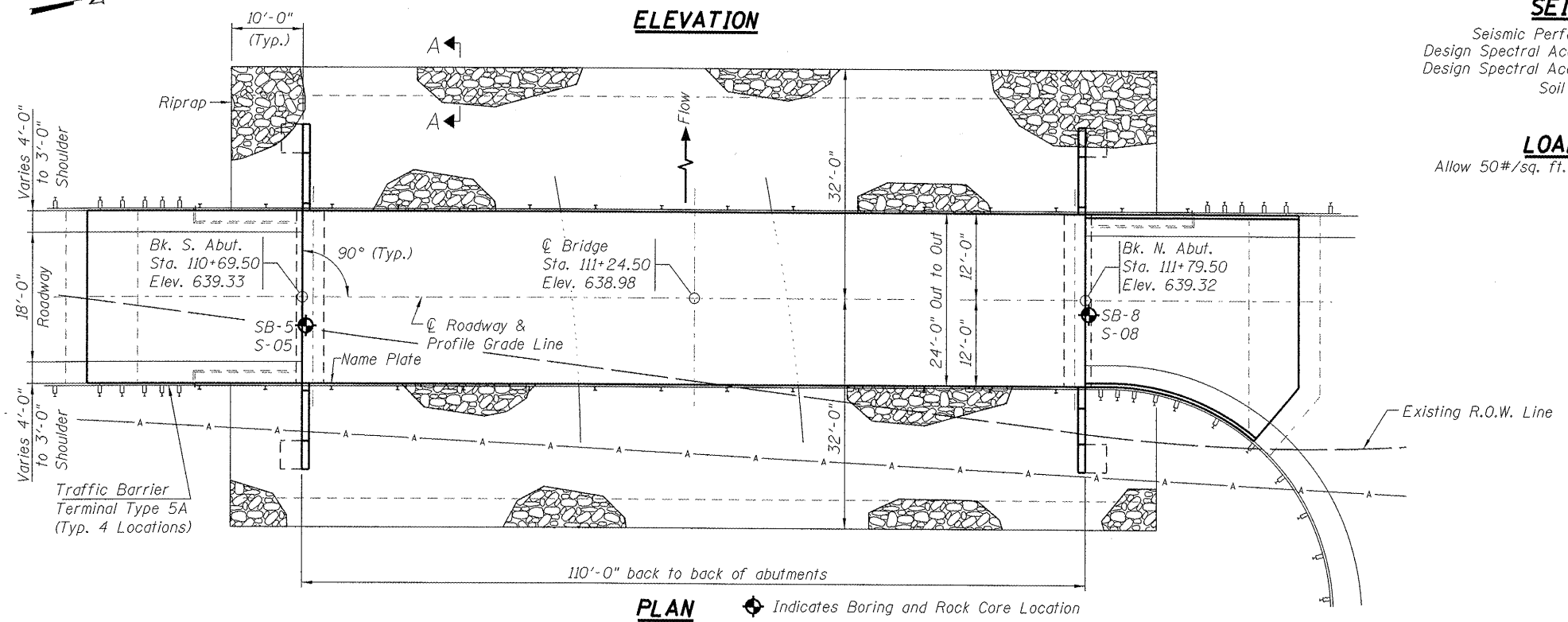
2010 AASHTO LRFD Bridge Design Specifications - 5th edition with 2010 Interims

**DESIGN STRESSES**

Field Units:  
 $f'_c$  = 3,500 p.s.i.  
 $f_y$  = 60,000 p.s.i. (reinforcement)  
 Precast Prestressed Units:  
 $f'_c$  = 7,000 p.s.i.  
 $f_{ci}$  = 6,000 p.s.i.  
 $f_{pu}$  = 270,000 p.s.i. ( $\frac{1}{2}$ "  $\phi$  low lax. strands)  
 $f_{ps}$  = 201,960 p.s.i. ( $\frac{1}{2}$ "  $\phi$  low lax. strands)  
 $f_y$  = 60,000 p.s.i. (reinforcement)



Michael N. Mendenhall  
 SIGNATURE  
 11-23-2011  
 DATE  
 LIC. EXP. DATE: 11-30-2012



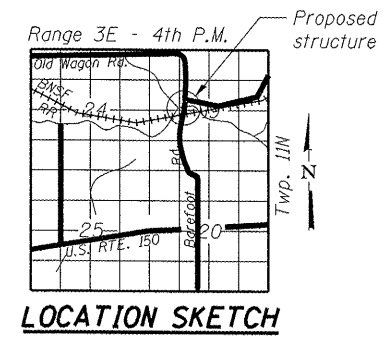
**PLAN** ♦ Indicates Boring and Rock Core Location

**WATERWAY INFORMATION**

| Drainage Area = 32.2 mi <sup>2</sup> |           | Exist. Low Grade Elev. 628.00 @ Sta. 111+25.00 |                              | Prop. Low Grade Elev. 638.98 @ Sta. 111+25.00 |                         |                            |
|--------------------------------------|-----------|--|------------------------------|---|-------------------------|----------------------------|
| Flood                                | Freq. Yr. | Q C.F.S.                                       | Opening Sq. Ft. Exist. Prop. | Nat. H.W.E.                                   | Head - Ft. Exist. Prop. | Headwater El. Exist. Prop. |
| Design                               | 15        | 4915   | 741.5 745.9                  | 625.50  | 0.17 0.10               | 625.67 625.60              |
| Base                                 | 100       | 7940   | 903 924                      | 627.62  | 0.22 0.32               | 627.84 627.94              |
| Max. Calc.                           |           |  |                              |   |                         |                            |

**DESIGN SCOUR ELEVATION TABLE**

|                              |                 |                 |
|------------------------------|-----------------|-----------------|
| Design Scour Elevation (ft.) | S. Abut. 629.13 | N. Abut. 629.13 |
|------------------------------|-----------------|-----------------|



**LOCATION SKETCH**

I certify that to the best of knowledge, information and belief, this bridge/box culvert 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 Standard Specifications for Highway Bridges

**GENERAL PLAN**  
**BAREFOOT ROAD (TR 176) OVER COURT CREEK**  
**SEC. 05-15106-01-BR**  
**KNOX COUNTY**  
**STATION 111+24.50**  
**STRUCTURE NO. 048-3387**

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|              |               |                |   |   |  |                |         |        |              |           |
|--------------|---------------|----------------|---|---|--|----------------|---------|--------|--------------|-----------|
| FILE NAME =  | USER NAME =   | DESIGNED - JGT | REVISD -                                | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | GENERAL PLAN<br>STRUCTURE NO. 048-3387 | F.A. RTE.      | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| PLOT SCALE = | CHECKED - MNM | REVISD -       | TR 176                                  |   |  | 05-15106-01-BR | KNOX    | 97     | 42           |           |
| PLOT DATE =  | DRAWN - DAP   | REVISD -       | CONTRACT NO. 89429                      |   |  |                |         |        |              |           |
|              | CHECKED - JGT | REVISD -       | ILLINOIS FED. AID PROJECT BROS 0095 127 |   |  |                |         |        |              |           |