

Bench Mark: Chiseled "□" on top of the N.W. wingwall S.N. 096-0016. Elevation 391.97.

Existing Structure: S.N. 096-0016 was originally built in 1921 as a single span RC Girder and was reconstructed in 1954 as SBI Rt. 15 Station 301+63.5. The structure is a two span reinforced concrete deck bridge which measures 34'-4" out to out and 55'-7 1/2" back to back of abutments with a 30° skew on closed concrete abutments and pile bent pier. Road is to remain open and traffic will be staged during construction. No salvage.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts in painted areas and M164 Type 3 in unpainted areas. Bolts 3/4 in. φ, holes 1 1/16 in. φ, unless otherwise noted.

Calculated weight of Structural Steel = 92,740lbs.

All structural steel shall be AASHTO M270 Grade 50W.

No field welding is permitted except as specified in the contract documents.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.

Structural steel shall only be painted for a distance equal to the depth of embedment into the concrete cap plus 3". Those areas shall be primed in the shop with a Department approved zinc rich primer. No field painting shall be required. All structural steel shall be cleaned as specified in the Special Provision for "Surface Preparation and Painting Requirements for Weathering Steel".

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at substructures specified or approved by the Engineer before ordering the remainder of piles.

All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

Silpforming of parapets is not allowed.

TOTAL BILL OF MATERIAL

| ITEM | UNIT | SUPER | SUB | TOTAL |
|---|---------|-------|------|-------|
| Porous Granular Embankment, Special | Cu. Yd. | | 170 | 170 |
| Stone Riprap, Class A4 | Sq. Yd. | | 784 | 784 |
| Filter Fabric | Sq. Yd. | | 784 | 784 |
| Removal of Existing Structures | Each | 1 | | 1 |
| Structure Excavation | Cu. Yd. | | 173 | 173 |
| Concrete Structures | Cu. Yd. | | 36.4 | 36.4 |
| Concrete Superstructure | Cu. Yd. | 122.3 | | 122.3 |
| Bridge Deck Grooving | Sq. Yd. | 273 | | 273 |
| Concrete Encasement | Cu. Yd. | | 5.6 | 5.6 |
| Protective Coat | Sq. Yd. | 361 | | 361 |
| Furnishing and Erecting Structural Steel Bridge No. 1 | L. Sum | 1 | | 1 |
| Reinforcement Bars, Epoxy Coated | Pound | 23520 | 4940 | 28460 |
| Furnishing Steel Piles HP 14 x 102 | Foot | | 1120 | 1120 |
| Driving Piles | Foot | | 1120 | 1120 |
| Test Pile Steel HP 14x102 | Each | | 2 | 2 |
| Name Plates | Each | 1 | | 1 |
| Anchor Bolts, 1" | Each | 24 | | 24 |
| Geocomposite Wall Drain | Sq. Yd. | | 93 | 93 |
| Pipe Underdrains for Structures 4" | Foot | | 273 | 273 |
| Stud Shear Connectors | Each | 1188 | | 1188 |
| Bar Splicers | Each | 324 | 12 | 336 |
| Temporary Soil Retention System | Sq. Ft. | | 432 | 432 |
| Jack and Reposition Bearings | Each | | 1 | 1 |

SEISMIC DATA

Seismic Performance Zone (SPZ)=2
Design Spectral Acceleration at 1.0 sec. (SD1)=0.278
Design Spectral Acceleration at 0.2 sec. (SDs)=0.618
Soil Site Class=D

LOADING HL 93

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

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications with 2008 Interims

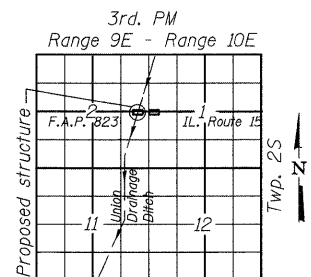
DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (reinforcement)
fy = 50,000 psi (M270 Grade 50W)

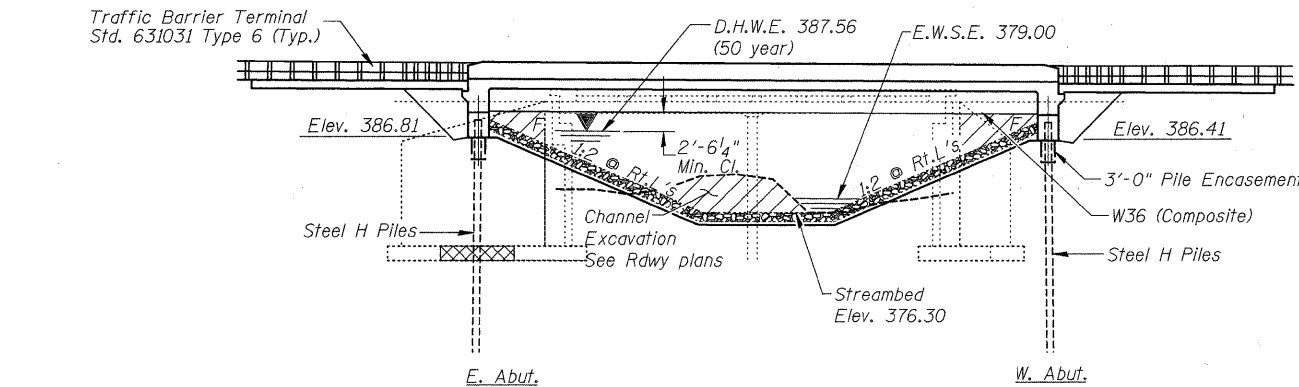
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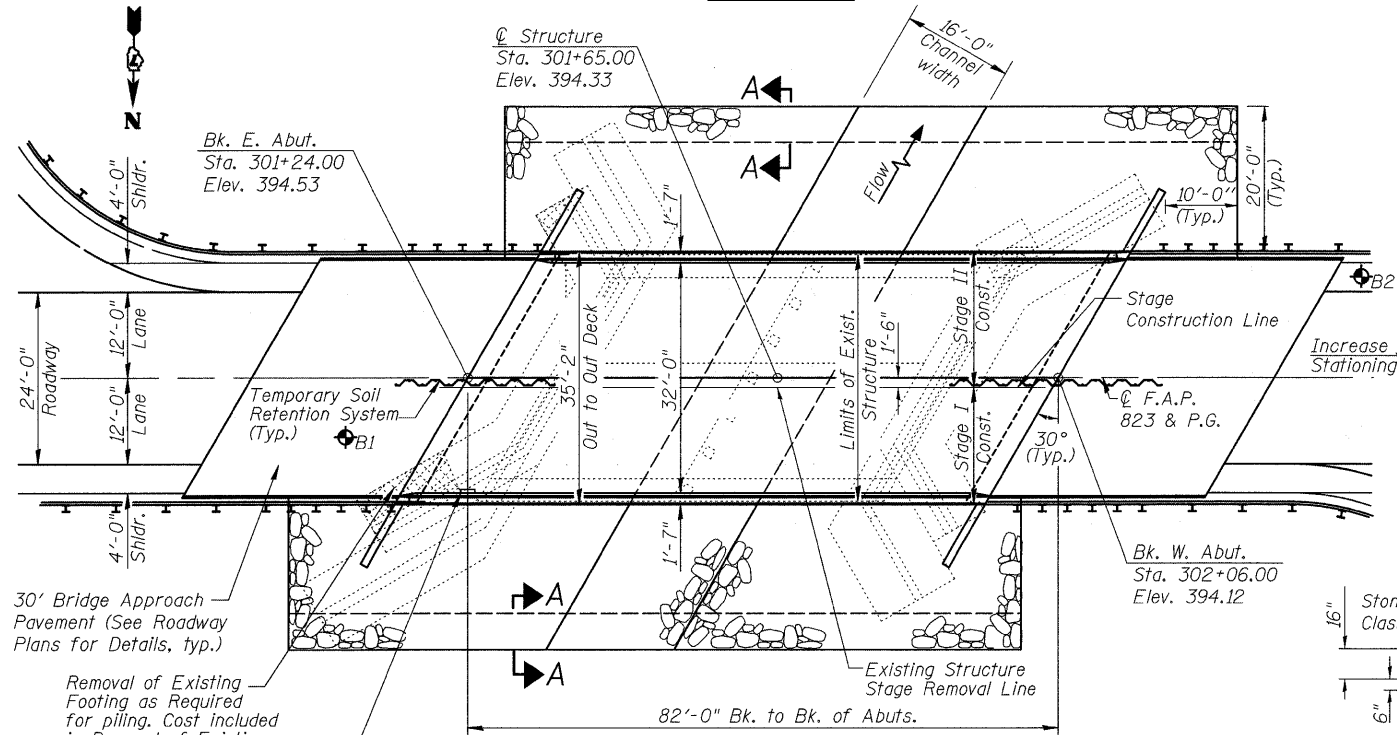


LOCATION SKETCH

GENERAL PLAN
IL 15 OVER UNION
DRAINAGE DITCH
WAYNE COUNTY
STATION 301+65.00
STRUCTURE NO. 096-0071



ELEVATION



PLAN

WATERWAY INFORMATION

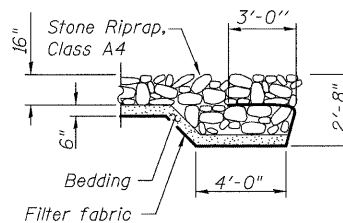
Drainage Area = 1802.67 mi² Exist. Low Grade Elev. 390.59 @ Sta. 290+50
Prop. Low Grade Elev. 390.59 @ Sta. 290+50

| 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. |
| Design | 10 | 772 | 299 | 299 | 385.92 | 0.50 | 0.49 | 386.42 | 386.41 | |
| Base | 50 | 1416 | 366 | 385 | 387.56 | 0.57 | 0.56 | 388.13 | 388.12 | |
| Max. Calc. | 100 | 1645 | 391 | 426 | 388.16 | 0.64 | 0.63 | 388.80 | 388.79 | |
| | 500 | 2015 | 446 | 506 | 389.49 | 0.64 | 0.63 | 390.13 | 390.12 | |

10 year velocity through existing bridge = 2.55 fps
10 year velocity through prop. bridge = 2.53 fps

DESIGN SCOUR ELEVATION TABLE

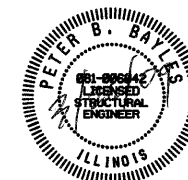
| | E. Abut. | W. Abut. |
|------------------------|----------|----------|
| Design Scour Elevation | 386.81 | 386.41 |



SECTION A-A

STATION 301+65.00
BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 823 SEC. (22BY-1) B-1
LOADING HL93
STR. NO. 096-0071

NAME PLATE
See Std. 515001



Peter B. Bayles, P.E., S.E.
Structural Engineer License No. 081-006042
Expiration Date: 11/30/2010

APPROVED
FOR STRUCTURAL ADEQUACY ONLY

ENGINEER OF BRIDGES AND STRUCTURES

| SHEET NO. 1 | F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|-------------|--------------|--------|--------------|-----------|
| 20 SHEETS | 823 | (22BY-1) B-1 | WAYNE | 142 | 61 |
| CONTRACT NO. 74238 | | | | | |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT | | | | | |

PROFILE GRADE
(along roadway)