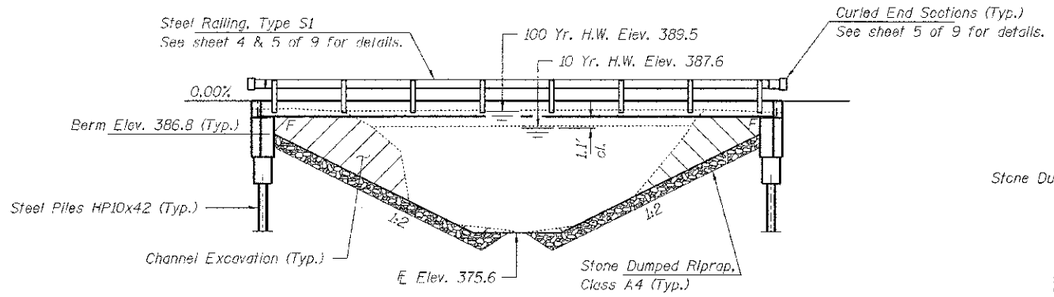
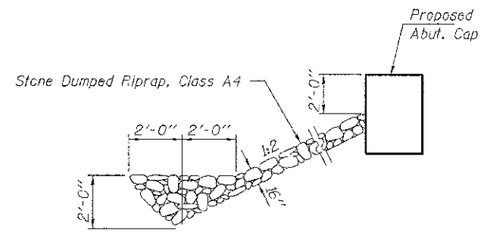
BENCHMARK: Rebar. 15' Lt., Sta. 9+16, Elev. 388.05

EXISTING STRUCTURE NO. 044-3025: Single span I-beam bridge with timber deck on closed concrete abutments and wingwalls. 40.0' bk.-bk. abuts.; 14.5' o.-o. deck.

Structure closed to traffic during construction.




## ELEVATION




## SECTION A-A

Note: See Special Provisions for Stone Dumped Riprap, Class A4.

## GENERAL NOTES

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

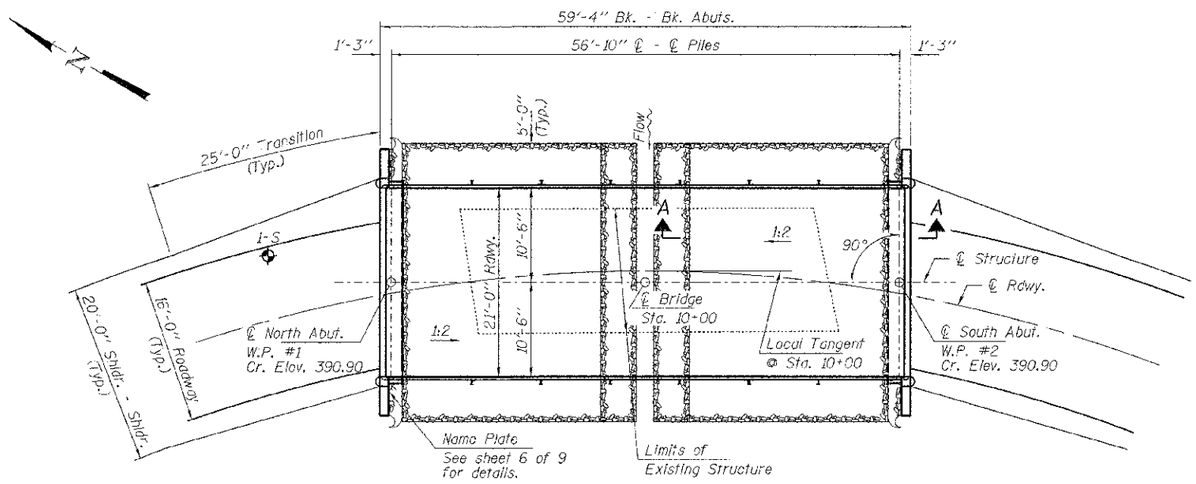
Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Excavation required to construct the Abutments shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation.

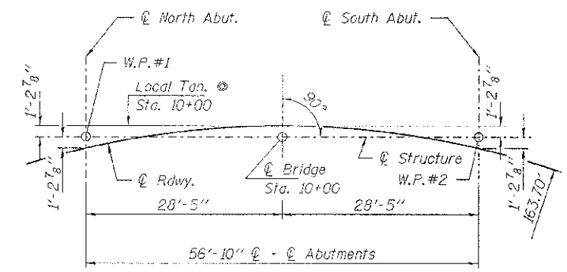
All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act. The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.

## INDEX OF STRUCTURE SHEETS

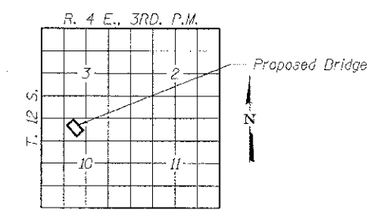

1. General Plan & Elevation
2. 21"x36" PPC Deck Beam
3. 21"x36" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S1
6-7. Abutments
8. HP Pile Details
9. Boring


## PLAN




## OFFSET SKETCH




## LOCATION SKETCH

BUILT 201_ BY
JOHNSON COUNTY
SEC. 10-0121B-00-BR
COUNTY UNIT ROAD DISTRICT
STR. NO. 044-3134
LOADING HL-93

## NAME PLATE

See Std. 515001

## DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinf.)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (½"ϕ low lax. strands)
fpbt = 201,960 psi (½"ϕ low lax. strands)
fy = 60,000 psi (Reinf.)

## LOADING HL-93

Design Specifications: 2010 AASHTO LRFD with all applicable interims.
50#/Sq. Ft. included in dead load for future wearing surface.

## SEISMIC DATA

Seismic Performance Zone (SPZ) = 4
Design Spectral Acceleration at 1.0 sec. ($S_{D1}$) = 0.656g
Design Spectral Acceleration at 0.2 sec. ($S_{DS}$) = 0.918g
Soil Site Class = E

## WATERWAY INFORMATION

Drainage Area = 10.3 Sq. Mi.
Existing Low Grade Elev. 386.7 @ Sta. 8+00
Proposed Low Grade Elev. 386.7 @ Sta. 8+00

| Flood | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. Exist. | Opening Sq. Ft. Prop. | Natural H.W.E. | Head - Ft. Exist. | Head - Ft. Prop. | Headwater El. Exist. | Headwater El. Prop. |
|---|---|---|---|---|---|---|---|---|---|
| Design | 10 | 3340 | 260 | 410 | 387.58 | 0.52 | 0.33 | 388.10 | 387.91 |
| Base | 100 | 5910 | 260 | 470 | 389.54 | 0.00 | 0.27 | 389.54 | 389.81 |
| | 500 | 7970 | 260 | 470 | 390.67 | 0.00 | 0.15 | 390.67 | 390.82 |

## DESIGN SCOUR ELEVATION TABLE

| Design Scour Elevation (ft.) | W. Abut. | E. Abut. |
|---|---|---|
| | 384.1 | 384.1 |

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. Muggenson 10/29/12
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064

LICENSED STRUCTURAL ENGINEER STEVEN W. MUGGENSON 081-6064 SPRINGFIELD, IL STATE OF ILLINOIS

Expires 11-30-2012

## TOTAL BILL OF MATERIAL

| ITEM | UNIT | SUPER | SUB | TOTAL |
|---|---|---|---|---|
| Channel Excavation | Cu. Yd. | | | 120 |
| Stone Dumped Riprap, Class A4 | Ton | | | 160 |
| Removal of Existing Structures | Each | | | 1 |
| Concrete Structures | Cu. Yd. | | 23.8 | 23.8 |
| Concrete Encasement | Cu. Yd. | | 2.8 | 2.8 |
| Precast Prestressed Concrete Deck Beams (21" Depth) | Sq. Ft. | 1,218 | | 1,218 |
| Reinforcement Bars | Pound | | 2,340 | 2,340 |
| Steel Railing, Type S1 | Foot | 113 | | 113 |
| Furnishing Steel Piles HP10x42 | Foot | | 360 | 360 |
| Driving Piles | Foot | | 360 | 360 |
| Name Plates | Each | | 1 | 1 |

| | | | |
|---|---|---|---|
| FILE NAME = 110138-sht-bridge.dgn | USER NAME = | DESIGNED - J.W.F. | REVISED - |
| HAMPTON, LENZINI AND RENWICK, INC. 5700 STEVENSON DRIVE, SUITE 231 SPRINGFIELD, IL. 62703 ILLINOIS PROFESSIONAL DESIGN FIRM 184.001650 | | CHECKED - S.W.M. | REVISED - |
| | PLOT SCALE = | DRAWN - D.A.B. | REVISED - |
| | PLOT DATE = 10/29/2012 | CHECKED - M.G.B. | REVISED - |

STATE OF ILLINOIS
JOHNSON COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN & ELEVATION
STRUCTURE NO. 044-3134
SHEET NO. 1 OF 9 SHEETS

| T.R. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 95 | 10-0121B-00-BR | JOHNSON | 19 | 11 |
| COUNTY UNIT ROAD DISTRICT | | CONTRACT NO. 99476 | | |
| | | ILLINOIS FED. AID PROJECT | | |