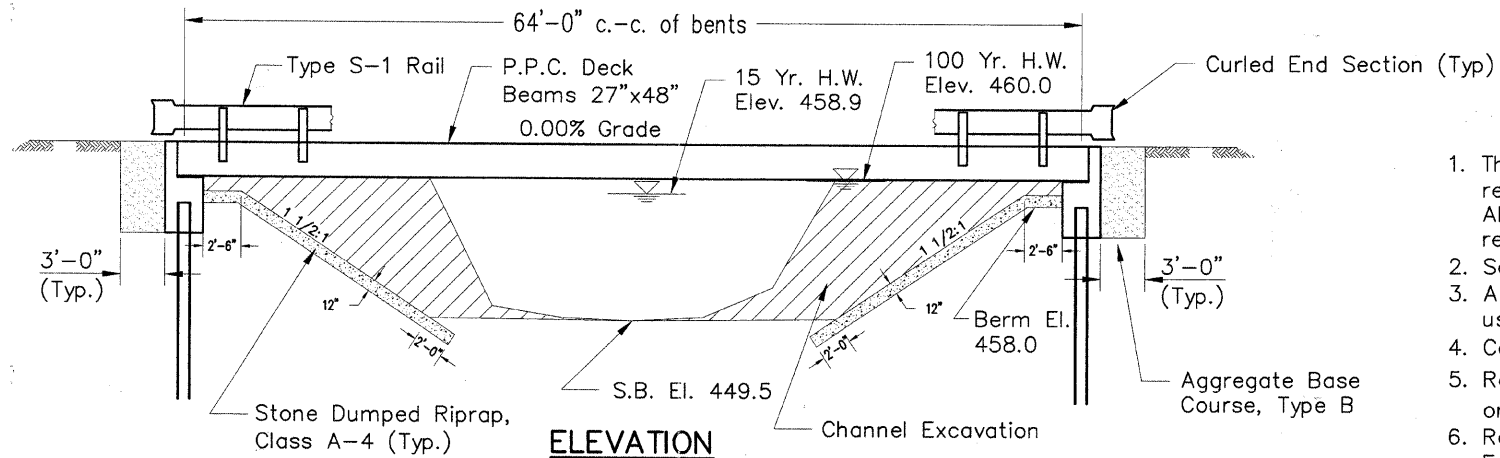


B.M.-Rt. Sta. 5+32, spike in power pole, Elev. 457.25

Existing Structure - Existing structure No. 096-3411 consists of a single span concrete deck on steel I-beams bearing on closed timber abutments. The bk. to bk. of abutments length is 26' and the out-to-out roadway width is 20'. The existing structure shall be completely removed. Road closure shall be used during construction.

Salvage - Any material deemed salvageable by the Engineer shall be stockpiled on the R.O.W. and shall become the property of Orchard Road District. The Contractor shall dispose of all remaining material.

| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-----------------------|----------------|----------|--------------|-----------|
| T.R. 165 | 05-18109-00-BR | WAYNE | 14 | 4 |
| ORCHARD ROAD DISTRICT | | ILLINOIS | | |



GENERAL NOTES

- The Contractor shall drive metal shell test pile to 110% of the nominal required bearing specified in production locations at the East Abutment as approved by the Engineer before ordering the remainder of piles. Test pile shall be equipped with metal shoe.
- See Sheet 11 for boring logs.
- A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- Concrete sealer shall be applied to exterior face of each fascia beam.
- Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Fr 60 (IL Modified). See Special Provisions.
- Reinforcement bars designated (E) shall be epoxy coated.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

| | | | |
|----------------------------|--------------|----------------------------|----------------------------|
| STA 3+73.00 ELEV 462.25 | 0.00 % Grade | STA 4+05.00 ELEV 462.25 | STA 4+37.00 ELEV 462.25 |
|----------------------------|--------------|----------------------------|----------------------------|

PROFILE GRADE
(along \bar{C} roadway)

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $F_y = 60,000$ psi (reinforcement)

PRECAST PRESTRESSED UNITS

$f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $F'_s = 270,000$ psi ($\frac{1}{2}$ " low relax. strands)
 $F_{si} = 201,960$ psi ($\frac{1}{2}$ " low relax. strands)

DESIGN SPECIFICATIONS

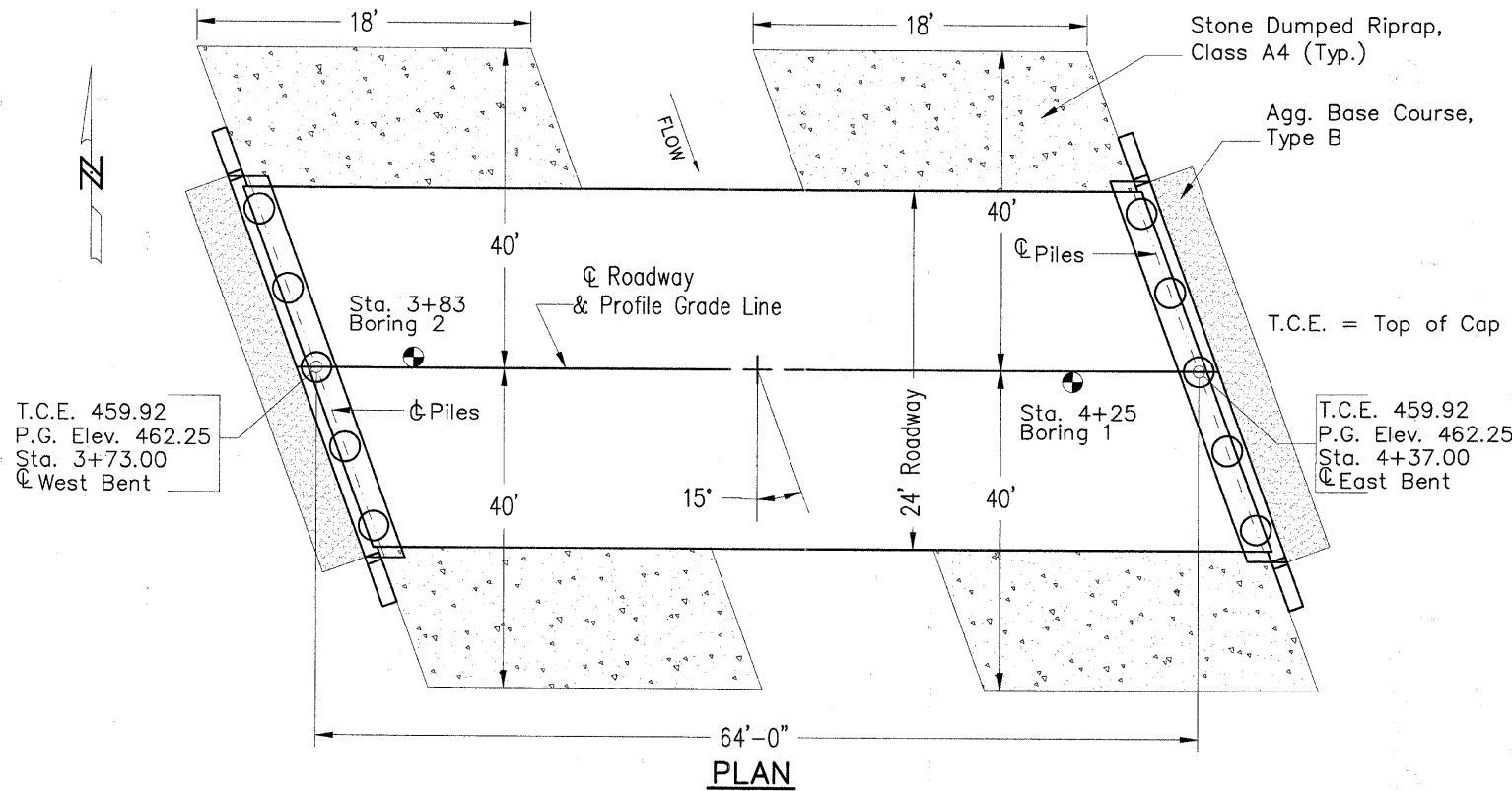
AASHTO LRFD Bridge Design Specifications - 5th ed.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.272g
Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.651g
Soil Site Class = D

PILE DATA (2-ABUTS.)

| | |
|-------------------------------|--------------------------------|
| Type | Metal Shell Piles 12" X 0.250" |
| Nominal Required Bearing | 294 kips |
| Factored Resistance Available | 162 kips |
| Estimated Pile Length | 60 Ft. West 65 Ft. East |
| Number of Production Piles | 9 |
| Number of Test Piles | 1 at East Abut. |



TOTAL BILL OF MATERIAL

| Item | Unit | Super | Sub. | | Total |
|---|---------|-------|-------|--------|-------|
| | | | Piers | Abuts. | |
| Removal of Existing Structures | Each | - | - | - | 1 |
| Concrete Structures | Cu. Yd. | - | - | 24.6 | 24.6 |
| Precast Prestressed Concrete Deck Beams (27" Depth) | Sq. Ft. | 1560 | - | - | 1560 |
| Steel Railing, Type S-1 | Foot | 130 | - | - | 130 |
| Reinforcement Bars, Epoxy Coated | Pound | - | - | 3310 | 3310 |
| Furnishing Metal Shell Piles 12" X 0.250" | Foot | - | - | 560 | 560 |
| Driving Piles | Foot | - | - | 560 | 560 |
| Test Pile Metal Shells | Each | - | - | 1 | 1 |
| Name Plates | Each | - | - | 1 | 1 |
| Aggregate Base Course, Type B | Tons | - | - | 65 | 65 |
| Stone Dumped Riprap, Class A4 | Tons | - | - | 180 | 180 |
| Channel Excavation | Cu. Yd. | - | - | 275 | 275 |
| Pile Shoes | Each | - | - | 9 | 9 |

I certify that to the best of 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 Standard Specifications for Highway Bridges.



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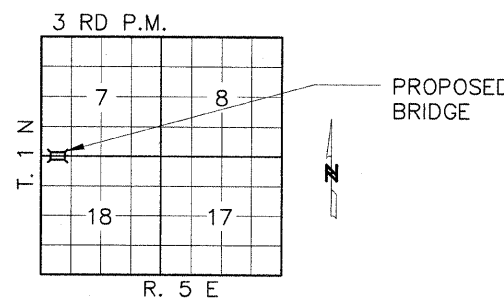
LOADING HL-93

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

STATION 4+05.00
POPLAR CREEK
SEC. 05-18109-00-BR BUILT 201
ORCHARD ROAD DISTRICT
WAYNE COUNTY
LOADING HL-93
STR. NO. 096-3458

LETTERING FOR NAME PLATE

Locate Name Plate at S.W. Corner of Bridge (See Std. 515001)



LOCATION SKETCH

WATERWAY INFORMATION

| Drainage Area = 6.6 SQ MI | | Low Grade Elev = 459.4 @ Sta. 6+00 | | | | | | | |
|---------------------------|-----------|------------------------------------|-----------------|-------|-----------------|-------|---------------|-------|-------|
| Flood | Freq. Yr. | Q. C.F.S. | Opening Sq. Ft. | | Nat. Head - Ft. | | Headwater El. | | |
| | | | Exist. | Prop. | H.W.E. Exist. | Prop. | Exist. | Prop. | |
| Design | 15 | 2050 | 191 | 385 | 458.9 | 0.3 | 0.0 | 459.2 | 458.9 |
| Base | 100 | 3430 | 222 | 450 | 460.0 | 0.5 | 0.1 | 460.5 | 460.1 |

INDEX OF SHEETS

- General Plan & Elevation
- Superstructure
- Superstructure Details
- Steel Railing, Type S-1
- West Abutment Details
- East Abutment Details
- Pile Details
- Boring Logs

GENERAL PLAN & ELEVATION

STRUCTURE NO. 096-3458

T.R. 165

OVER POPLAR CREEK

SECTION 05-18109-00-BR

WAYNE COUNTY

STATION 4+05.00