

BENCHMARK: T.B.M. Nail in Power Pole
Sta. 94+39.36, 49.6' Lt.
El. 465.910

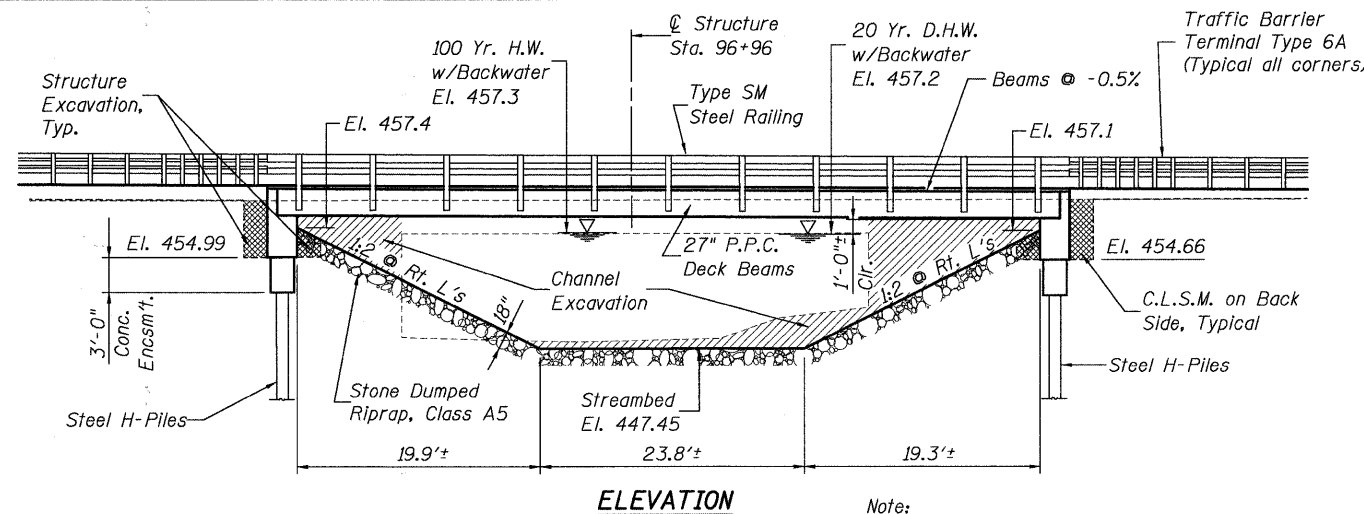
EXISTING STRUCTURE S.N. 003-3019

The existing structure, constructed in 1955, consists of a single span concrete deck and steel beams on closed abutments with timber piles. The structure has an overall length of 42'-6" back-to-back of abutments and a width of 26'-0" out to out of the deck.

The Contractor shall remove and dispose of the existing structure in accordance with Section 501 of the Standard Specifications.

The existing roadway will be closed to traffic during the construction period.

SALVAGE: No salvage



Note:
Channel excavation shall be transitioned from the edge of the proposed deck to match the existing channel at the R.O.W. line.

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications

DESIGN STRESSES

PRECAST PRESTRESSED UNITS

$f'_c = 6,000$ p.s.i.
 $f'_{ci} = 5,000$ p.s.i.
 $f'_s = 270,000$ p.s.i. ($\frac{1}{2}$ " ϕ Strands)
 $f'_{si} = 201,960$ p.s.i. ($\frac{1}{2}$ " ϕ Strands)

FIELD UNITS

$f'_c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i. (reinf.)
 $f_y = 50,000$ p.s.i. (M270 Grade 50)

LOADING HL-93

Allow 50 p.s.f. for future wearing surface

SEISMIC DATA

Seismic Performance Zone (SPZ): 2
Design Spectral Acceleration at 1.0 sec (S_{D1}) = 0.250 g
Design Spectral Acceleration at 0.2 sec (S_{D5}) = 0.572 g
Soil Site Class = D

INDEX OF BRIDGE SHEETS

1. General Plan & Elevation
2. Superstructure
3. 27" x 48" P.P.C. Deck Beam
4. 27" x 48" P.P.C. Deck Beam Details
5. Pile Bent Abutment
6. Steel Railing, Type SM with Hot-Mix Asphalt Wearing Surface
7. HP Pile Details
8. Soil Boring Logs

GENERAL NOTES

1. The Contractor shall drive test piles to 110% of the nominal required bearing specified in production location at substructures specified or approved by the Engineer before ordering remaining piles.
2. Hot-mix asphalt surface course overlay for the bridge deck shall be constructed in accordance with applicable portions of Section 582 of the Standard Specifications.
3. Waterproofing membrane system for the bridge shall be in accordance with material and construction requirements of the applicable portions of Section 581 of the Standard Specifications.
4. Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
5. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60 (IL Modified). See Special Provisions.
6. Reinforcement bars designated (E) shall be epoxy coated.
7. Deck beams shall be cleaned to the satisfaction of the Engineer before placing the waterproofing membrane system.
8. Structure Excavation shall not be paid for separately, but shall be included in cost of Concrete Structures. See Standard Specifications.

DESIGN SCOUR ELEVATION TABLE

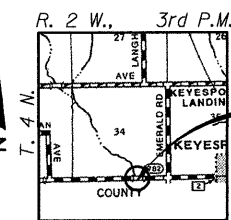
Design Scour Elevation (Feet)	W. Abut.	E. Abut.
	451.99	451.66

WATERWAY INFORMATION

Drainage Area = 7.35 Sq.Mi.		Low Grade Elev. = 459.60		Sta. 100+24					
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exlst.	Prop.		Exlst.	Prop.	Exlst.	Prop.
Base	10	1,200	316	418	457.2	0.1	0.1	457.3	457.3
Design	20	1,460	317	417	457.2	0.2	0.1	457.4	457.3
Base	100	2,200	317	415	457.3	1.1	0.2	458.4	457.5
Overtopping	N/A								
Max. Calc.	500	2,940	317	412	457.4	1.7	0.5	459.1	457.9

TOTAL BILL OF MATERIAL

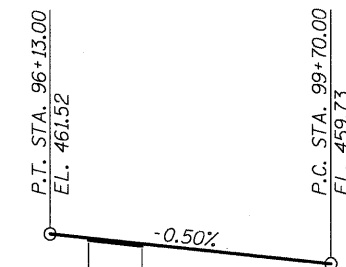
ITEM	UNIT	SUPER.	SUB.	TOTAL
Channel Excavation	Cu. Yd.			149
Stone Dumped Riprap, Class A5	Ton			302
Hot-Mix Asphalt Surface Course, Mix "C", N70	Ton	35		35
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		29.0	29.0
Concrete Encasement	Cu. Yd.		2.8	2.8
Prec. Pres. Conc. Dk. Bms. (27" Depth)	Sq. Ft.	1,867		1,867
Reinforcement Bars, Epoxy Coated	Pound		5,560	5,560
Steel Railing, Type SM	Foot	136		136
Furnishing Steel Piles HP 12x63	Foot		168	168
Driving Steel Piles	Foot		168	168
Test Pile Steel HP 12x63	Each		2	2
Name Plates	Each			1
Waterproofing Membrane System	Sq. Yd.	208		208
Portland Cement Mortar Fairing Course	Foot	400		400
Controlled Low-Strength Material	Cu. Yd.			24



STRUCTURE LOCATION

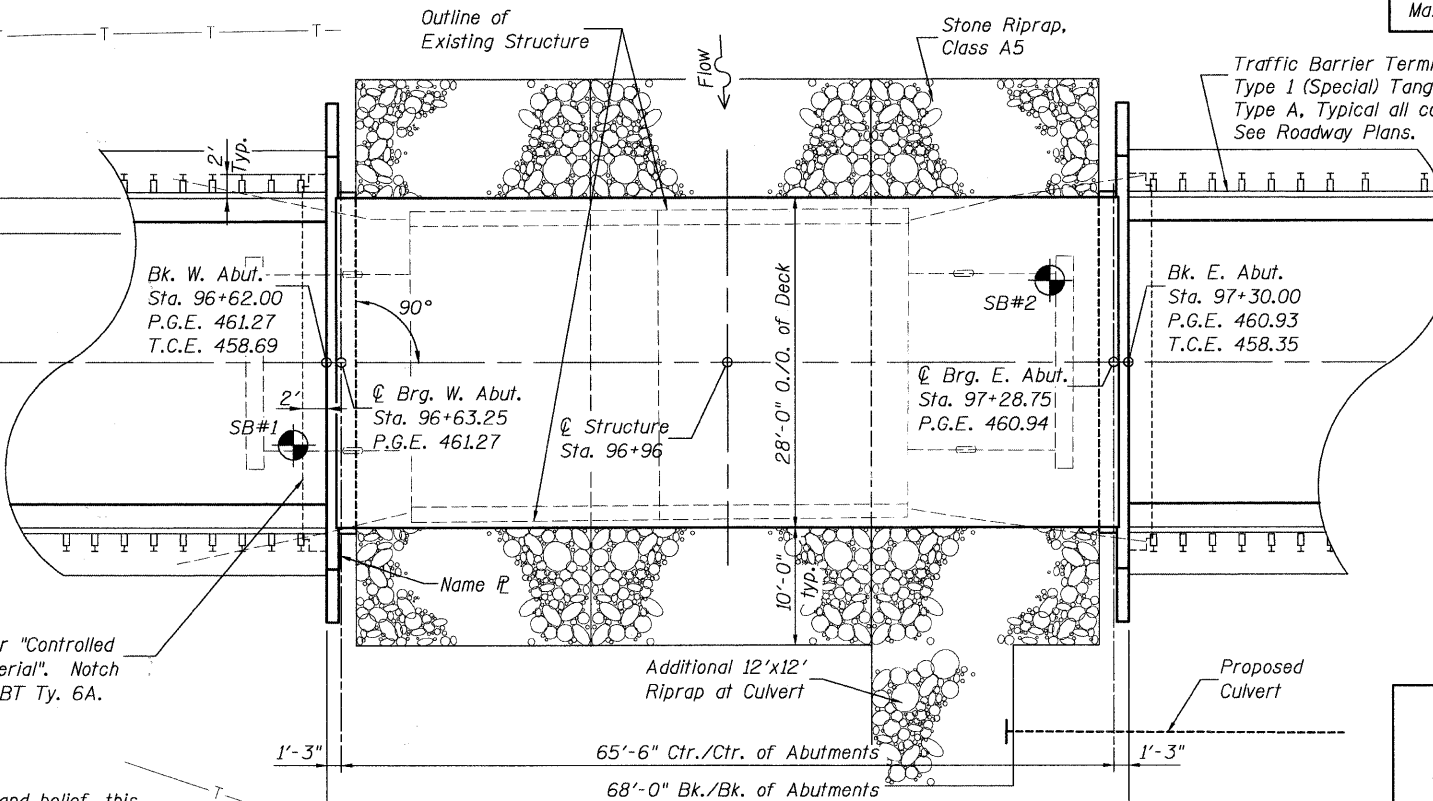
PROFILE GRADE

Along ϕ F.A.S. 782 (C.H. 10/Keyesport Road)



Limits of Structure

Payment Limits for "Controlled Low-Strength Material". Notch as required for TBT Ty. 6A.

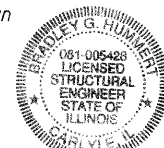


Note:
The Existing Structure has Deadman Anchors behind the abutments. These Deadmen shall be removed and disposed of as part of Removal of Existing Structures.

"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 Bridge Design Specifications' including seismic design."

Bradley G. Hummert Date: 4/12/11

Bradley G. Hummert
Licensed Structural Engineer
In Illinois No. 081-005428 Expires: November 30, 2012



FILE NAME = ha\5789\07.gpe\15789.dgr
USER NAME = _USERDESCR.
PLOT SCALE = 8.0000' / IN.
PLOT DATE = 4/12/2011

DESIGNED - B.I.B.
CHECKED - L.D.G.
DRAWN - K.H.L.
CHECKED - B.G.H.

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION

SHEET NO. 1 OF 8 SHEETS

GENERAL PLAN & ELEVATION
F.A.S. 782 (C.H. 10/KEYESPORT RD.)
OVER TRIBUTARY TO CARLYLE LAKE
SECTION 07-00084-00-BR
BOND COUNTY
SECTION 07-00088-00-BR
CLINTON COUNTY
STATION 96+96
STRUCTURE NO. 003-3051

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
782	07-00084-00-BR/07-00088-00-BR	BOND/CLINTON	19	7
S.N. 003-3051			CONTRACT NO. 97469	