05-GPEL_5208.DGN MAR. 16, 2010

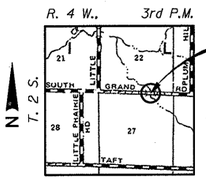
BENCHMARK: T.B.M. Iron Rod Set
Sta. 87+36.96, 7.6' Rt.
El. 459.02

EXISTING STRUCTURE No. 095-3077

Existing structure, built in 1930, consists of a single span timber deck and steel stringers on closed concrete abutments measuring 32'-0" back to back of abutments and 13'-9" out ot out of deck.

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

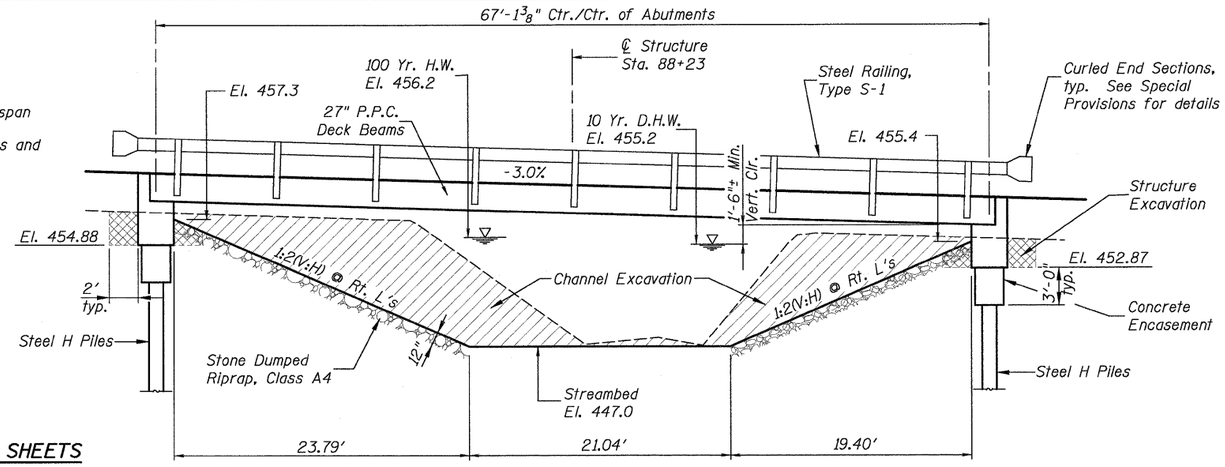
SALVAGE:
No salvage



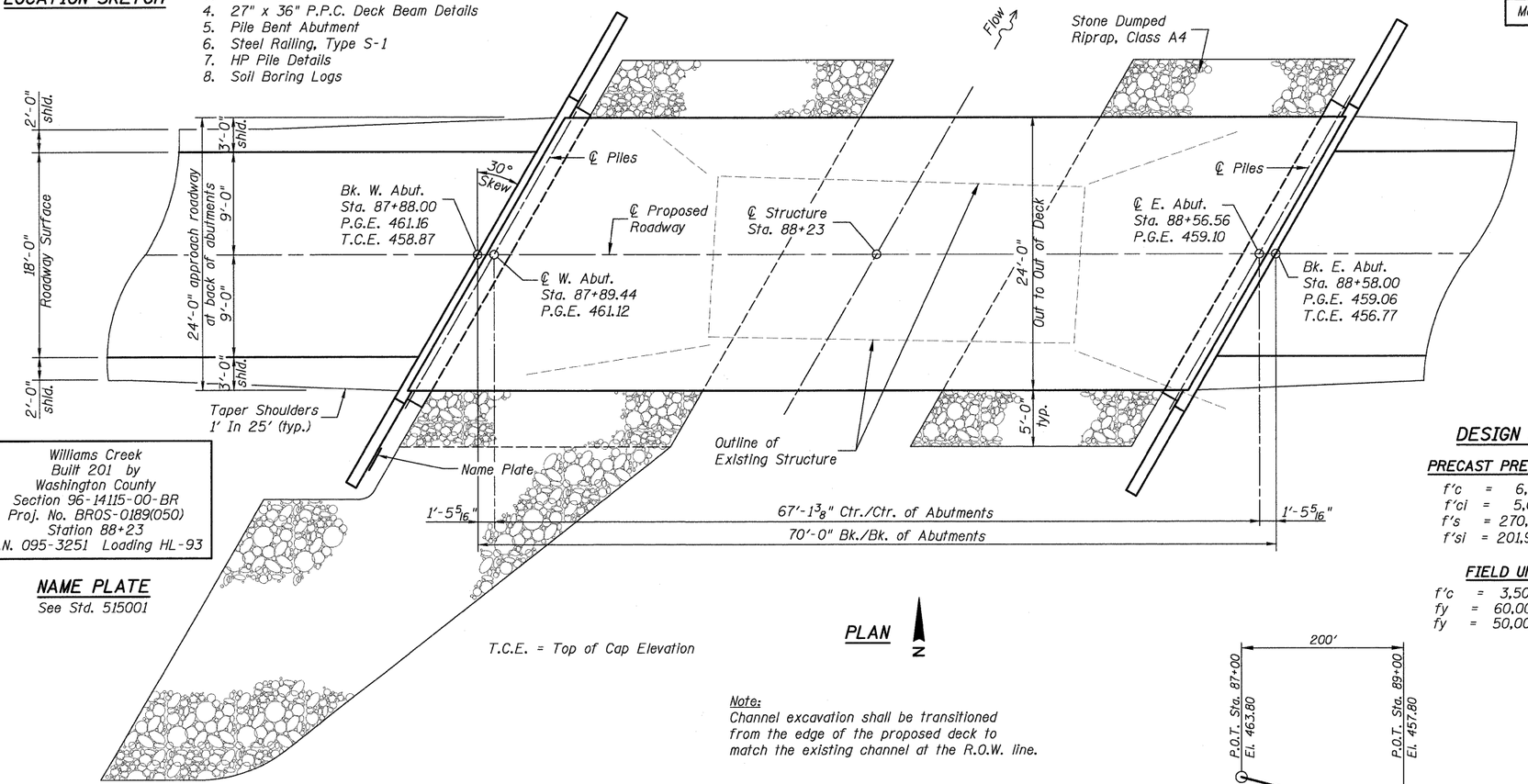
STRUCTURE LOCATION

LOCATION SKETCH

INDEX OF BRIDGE SHEETS



ELEVATION



T.C.E. = Top of Cap Elevation

PLAN

Williams Creek
Built 201 by
Washington County
Section 96-14115-00-BR
Proj. No. BROS-0189(050)
Station 88+23
S.N. 095-3251 Loading HL-93

NAME PLATE
See Std. 515001

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

PROFILE GRADE
Along ℄ T.R. 165 (South Grand Rd.)

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. Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
3. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60 (IL Modified). See Special Provisions.
4. Reinforcement bars designated (E) shall be epoxy coated.
5. 4'-0" wide P.P.C. Deck Beams shall not be used.

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation	W. Abut.	E. Abut.
(Feet)	451.88	449.87

WATERWAY INFORMATION

Drainage Area = 6.7 Sq. Mi. Low Grade Elev. = 454.09 @ Sta. 90+90

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	1,610	230	282	455.2	0.4	0.3	455.6	455.5
Base	100	3,080	240	338	456.2	0.2	0.4	456.4	456.6
Overtopping	<2	600	193	231	453.9	0.0	0.0	453.9	453.9
Max. Calc.	500	N/A							

TOTAL BILL OF MATERIAL

Item	Unit	Super.	Sub.	Total
Channel Excavation	Cu. Yd.	———	———	282
Stone Dumped Riprap, Class A4	Ton	———	———	137
Removal of Existing Structures	Each	———	———	1
Structure Excavation	Cu. Yd.	———	36	36
Concrete Structures	Cu. Yd.	———	31.4	31.4
Concrete Encasement	Cu. Yd.	———	2.8	2.8
Prec. Pres. Conc. Dk. Bms. (27" Depth)	Sq. Ft.	1,643	———	1,643
Reinforcement Bars, Epoxy Coated	Pound	———	5,160	5,160
Steel Railing, Type S1	Foot	138	———	138
Furnishing Steel Piles HP12x63	Foot	———	120	120
Driving Piles	Foot	———	120	120
Test Pile Steel HP12x63	Each	———	2	2
Name Plate	Each	———	———	1
Portland Cement Mortar Fairing Course	Foot	———	———	480

DESIGN SPECIFICATIONS
2007 AASHTO LRFD Bridge Design Specifications with 2008 Interims

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. (½" strands)
f'si = 201,960 p.s.i. (½" strands)

FIELD UNITS
f'c = 3,500 p.s.i.
fy = 60,000 p.s.i. (reinf.)
fy = 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}) = 0.206 g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.557 g
Soil Site Class = C

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

"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 and economical one for the style of structure and complies with the requirements of the current 'AASHTO LRFD Bridge Design Specifications' including seismic design."

Bradley G. Hummert Date: 3/17/10
Bradley G. Hummert
Licensed Structural Engineer
in Illinois No. 081-005428
Expires: November 30, 2010

BRADLEY G. HUMMERT 081-005428 LICENSED STRUCTURAL ENGINEER STATE OF ILLINOIS CARLYLE, IL

GENERAL PLAN & ELEVATION
T.R. 165 (SOUTH GRAND RD.)
OVER WILLIAMS CREEK
SECTION 96-14115-00-BR
WASHINGTON COUNTY
STATION 88+23
STRUCTURE NO. 095-3251

SHEET NO. 1	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
8 SHEETS	165	96-14115-00-BR	WASHINGTON	15	5
	S.N. 095-3251		CONTRACT NO. 97435		
	FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

H.M. & G. NO. 5208