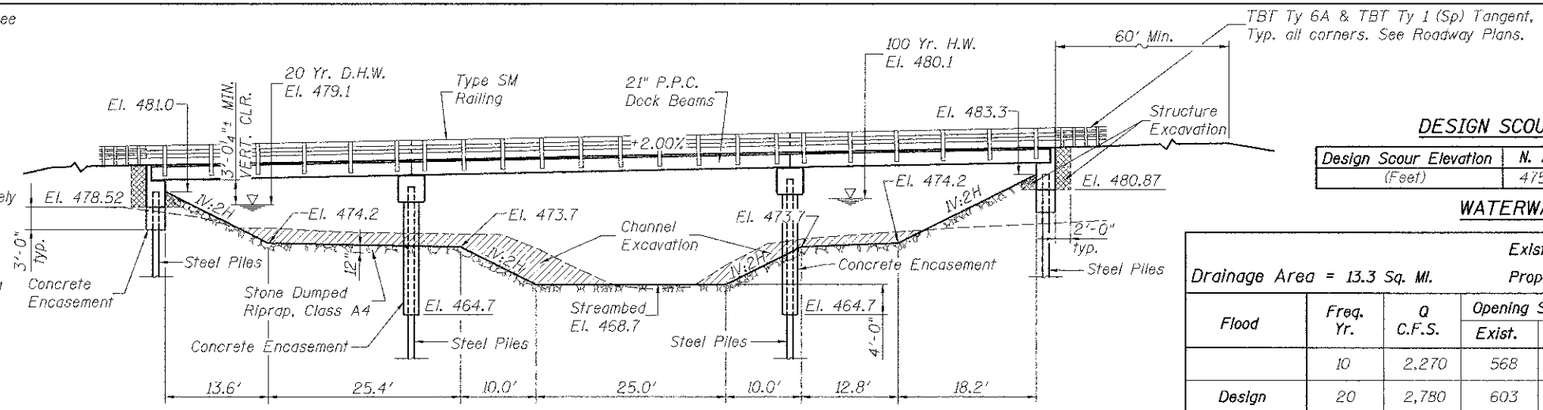
BENCHMARK: TBM R.R. Spike in 16" Elm Tree
Sta. 19+38.4, 60' Lt.
El. 477.58

EXISTING STRUCTURE SN 003-3405

Existing structure consists of a three span precast concrete bridge deck supported on pile bent piers and closed pile bent abutments measuring 83.3' back to back of abutments and 22.7' out to out of bridge deck. Approximately 100' of approach guardrail shall be removed as part of Removal of Existing Structures.

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

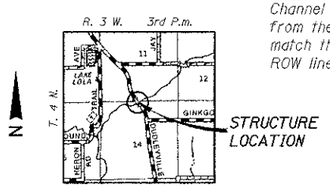
The existing roadway will be closed to traffic during the construction period.



ELEVATION

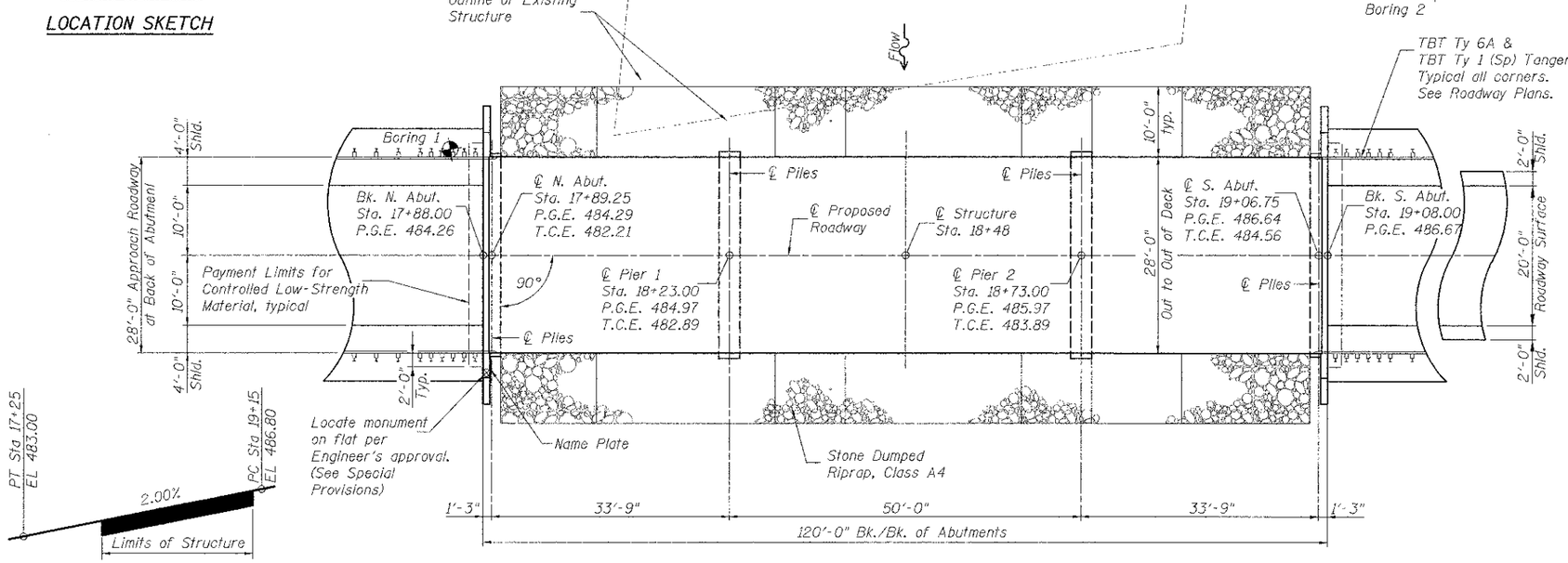
SALVAGE: No Salvage

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



LOCATION SKETCH

The contractor shall note the close proximity of the 12" gas line to the existing abutment and exercise care in existing structure removal and proposed construction. Consult Ameren and the Engineer as required.



PROFILE GRADE

Along Proposed ℄ TR 156 (Dudleyville Rd.)

T.C.E. = Top of Cap Elevation

PLAN

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation	N. Abut.	Pier 1	Pier 2	S. Abut.
(Feet)	475.52	464.70	464.70	477.87

WATERWAY INFORMATION

Drainage Area = 13.3 Sq. Mi.
Existing Overtopping El. = 480.2 @ Sta. 14+50
Proposed Overtopping El. = 480.57 @ Sta. 13+75

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	2,270	568	616	478.6	0.2	0.1	478.8	478.7
Design	20	2,780	603	659	479.1	0.3	0.2	479.4	479.3
Base	100	4,230	706	766	480.1	0.7	0.5	480.8	480.6
Overtop Exist.	23±	2,950	613	N/A	479.2	0.3	N/A	479.5	N/A
Overtop Prop.	50±	3,650	N/A	723	479.7	N/A	0.3	N/A	480.0
Max. Calc.	N/A								

INDEX OF BRIDGE SHEETS

1. General Plan & Elevation
2. General Data
3. Superstructure
4. 21" x 48" P.P.C. Deck Beam
5. 21" x 48" P.P.C. Deck Beam Details
6. Pile Bent Abutment
7. Pier Details
8. Steel Railing, Type SM with Hot-Mix Asphalt Wearing Surface
9. HP Pile Details
10. Soil Boring Logs

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER.	SUB.	TOTAL
Channel Excavation	Cu. Yd.	—	—	901
Stone Dumped Riprap, Class A4	Ton	—	—	345
Hot-Mix Asphalt Surface Course, Mix "C", N50	Ton	62	—	62
Removal of Existing Structures	Each	—	—	1
Structure Excavation	Cu. Yd.	—	74	74
Concrete Structures	Cu. Yd.	—	53.8	53.8
Concrete Encasement	Cu. Yd.	—	32.7	32.7
Prec. Pres. Conc. Dk. Bms. (21" Depth)	Sq. Ft.	3,318	—	3,318
Reinforcement Bars, Epoxy Coated	Pound	—	7,560	7,560
Steel Railing, Type SM	Foot	240	—	240
Furnishing Steel Piles HP 10x42	Foot	—	370	370
Furnishing Steel Piles HP 12x63	Foot	—	368	368
Driving Piles	Foot	—	738	738
Test Pile Steel HP 10x42	Each	—	1	1
Test Pile Steel HP 12x63	Each	—	1	1
Name Plates	Each	—	—	1
Waterproofing Membrane System	Sq. Yd.	370	—	370
Portland Cement Mortar Fairing Course	Foot	712	—	712
Controlled Low-Strength Material	Cu. Yd.	—	—	23.8
Asbestos Bearing Pad Removal	Foot	—	42	42

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications
LOADING HL-93
Allow 50 p.s.f. for future wearing surface

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.
f'si = 201,960 p.s.i.

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)

SEISMIC DATA
Seismic Performance Zone (SPZ): 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}): = 0.242 g
Design Spectral Acceleration at 2.0 sec. (S_{DS}): = 0.546 g
Soil Site Class = D

"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: 4/8/13
Bradley G. Hummert
Licensed Structural Engineer
in Illinois No. 081-005428
Expires: November 30, 2014

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

GENERAL PLAN & ELEVATION
TR 156 (DUDLEYVILLE ROAD)
OVER LITTLE BEAVER CREEK
SECTION 02-04116-00-BR
BOND COUNTY
STATION 18+48
SN 003-3414

FILE NAME	USER NAME = USERDESIGN	DESIGNED - K.M.M	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN & ELEVATION
	PLOT SCALE = 10.0000 ' / IN.	DRAWN - K.H.L.	REVISED -		
	PLOT DATE = 4/8/2013	CHECKED - L.D.G.	REVISED -		
		DATE -	REVISED -		

SCALE: | SHEET NO. 1 OF 10 SHEETS | STA. TO STA.

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
156	02-04116-00-BR	BOND	28	13
	SN 003-3414	CONTRACT NO. 97521		
		ILLINOIS FED. AID PROJECT		

HMG NO 5119