Benchmark: Chiseled square located on the top of the SE wingwall of southbound bridge S.N. 020-0047, Sta. 1437+21.63, 14.79' Lt., Elev. 718.78.

Existing Structure: S.N. 020-0047 built as F.A. Rte. 412 - Sec. 54B-2 in 1986, is a single span P.P.C. deck beam bridge with bituminous wearing surface and waterproofing membrane system. The structure is 64'-5" back to back of closed abutments, and 42'-0" out to out of deck. The railing is Type T-1 steel railing and the skew is 6° 30' Lt. Fwd to F.A.P. 322. In 2011, 4 keyways were repaired under contract Number 70895 due to independent beam movement. In 2012 several loose plates between beams 3 & 4 were retightened and potholes above them filled with hot mix asphalt.

Deck beams to be replaced with PPC Deck Beams.

Traffic to be maintained utilizing Stage Construction.

No Salvage.

INDEX OF SHEETS

WATERWAY INFORMATION

Drainage Area = 8.3 Sq. Mi. Low Grade Elev. 717.26 @ Sta. 1435+57

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.
Design	50	1680	425	425	711.7	0.66	0.66	712.33	712.33
Base	100	1930	456	456	712.1	0.78	0.78	712.85	712.85
Overtopping	-	-	-	-	-	-	-	-	-
Max. Calc.	500	2504	534	534	713.1	0.96	0.96	714.03	714.03

Note: Information per 1985 as-built construction plans. Elevations adjusted from NGVD29 (assumed) to NAVD88.

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	N. Abut.	S. Abut.
	702.77	702.77

GENERAL NOTES

Reinforcement bars designated (E) shall be epoxy coated.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

LOADING HL-93

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

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition

1995 Seismic Retrofitting Manual for Highway Bridges FHWA-RD-94/052

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi

fy = 60,000 psi (Reinforcement)

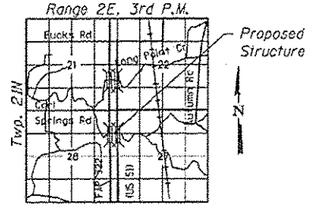
PRECAST PRESTRESSED UNITS

f'c = 6,000 psi

f'ci = 5,000 psi

fpu = 270,000 psi ($\frac{1}{2}$" ϕ low lax strands)

fpbt = 201,960 psi ($\frac{1}{2}$" ϕ low lax strands)



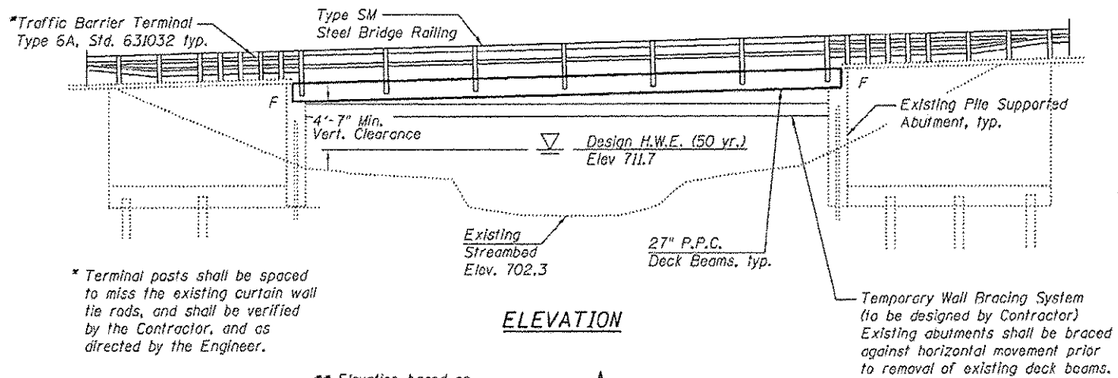
LOCATION SKETCH

STATION 1437+53.04
RE-BUILT 20 __ BY
STATE OF ILLINOIS
F.A.P. RT. 322 SEC. 54B-3
LOADING HL-93
STRUCTURE NO. 020-0047

NAME PLATE

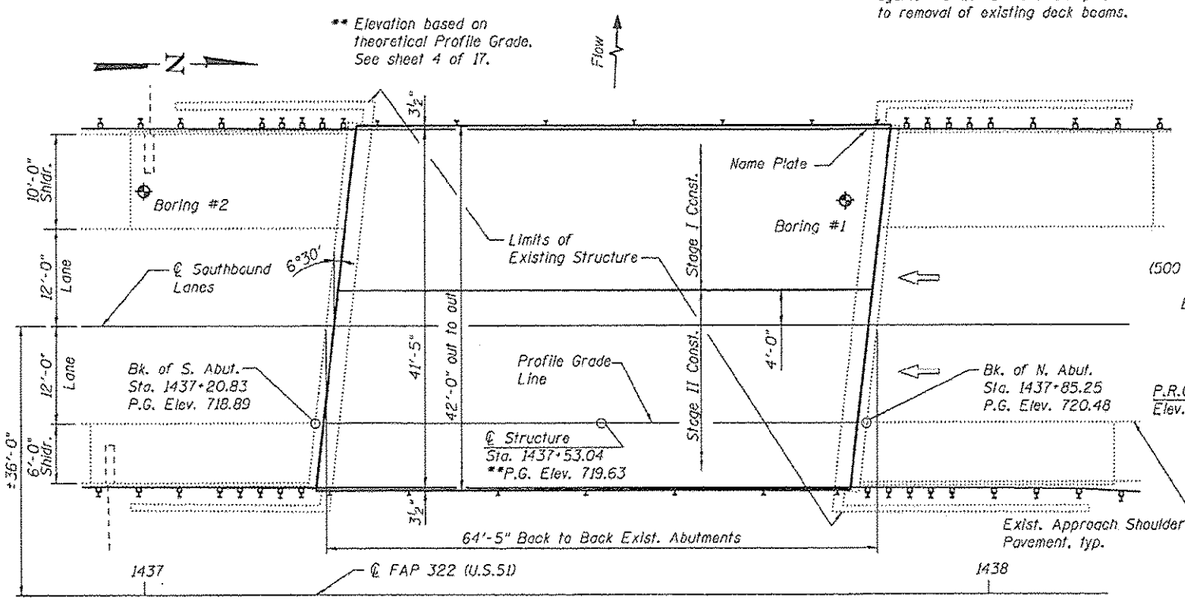
See Std. 515001

Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.



* Terminal posts shall be spaced to miss the existing curtain wall tie rods, and shall be verified by the Contractor, and as directed by the Engineer.

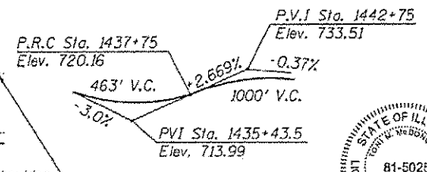
ELEVATION



PLAN

SEISMIC DATA

(500 Year return per AASHTO Standard Specifications)
Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = 0.046g
Site Coefficient (S) = 1.5



PROFILE GRADE

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Hot-Mix Asphalt Surface Course, Mix "D", N90	Ton	40.5	--	40.5
Removal of Existing Superstructures	Each	1	--	1
Concrete Removal	Cu Yd	--	0.4	0.4
Concrete Structures	Cu Yd	--	0.5	0.5
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq Ft	2650	--	2650
Reinforcement Bars, Epoxy Coated	Pound	--	60	60
Steel Railing, Type SM	Foot	126	--	126
Name Plates	Each	1	--	1
Waterproofing Membrane System	Sq Yd	296	--	296
Portland Cement Mortar Fairing Course	Foot	631	--	631
Temporary Wall Bracing System	L Sum	--	0.5	0.5

APPROVED
For Structural Adequacy Only

Engineer of Bridges & Structures

STATE OF ILLINOIS TONI M. McDONOUGH 81-5025 LICENSED STRUCTURAL ENGINEER

Date 3-19-2014

Toni M. McDonough
Illinois Structural Engineer
No. 81-5025
Exp. Date 11/30/14

GENERAL PLAN AND ELEVATION
F.A.P. 322 (S.B. US 51)
OVER TRIBUTARY OF
LONG POINT CREEK
SECTION 54B-3, 54B-2
DEWITT COUNTY
STA. 1437+53.04
S.N. 020-0047

McDonough-Whitlow, P.C.
Consulting Engineers & Land Surveyors
PROFESSIONAL DESIGN No. 184-002754

USER NAME = User1
PLOT SCALE = 852.0000 '/ in.
PLOT DATE = 3/19/2014

DESIGNED - CMF
CHECKED - TMM
DRAWN - JLM
CHECKED - TMM

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 020-0047
SHEET NO. 1 OF 17 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
322	54B-3, 54B-2	DEWITT	89	55
		CONTRACT NO. 70606		
	ILLINOIS FED. AID PROJECT			

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