

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	LOT/AREA	SHEET NO.	SHEET NO. S1
F.A.P. 846	4-RB	WILL	B7	29	SHEETS S20
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT			

Bench Mark:
BM #7 Elevation = 570.41 (Feet)
A square cut in northeast wingwall of north bound Illinois route 53 bridge.

Existing Structure:
The existing structure No. 099-0090 (NB) was built in 1942 under construction route FA-5 and section 4-RB. The existing bridge consists of three continuous spans of reinforced concrete T-beams. The structure length is 108'-9" Bk. to Bk. of Abutments and 32'-10" Out to Out Deck. The substructure consists of two abutments, two piers, and two curtain walls between N.B. & S.B. structures. The concrete facing creates triple arches supported on two piers and the abutments (Historic Bridge). The deck and superstructure of existing bridge to be removed and replaced. Traffic shall be detoured by providing cross over away from the structure location, see roadway plans. No salvage.

DESIGN SPECIFICATIONS

Superstructure:
2007 AASHTO LRFD Bridge Design Specifications

Substructure:
AASHTO Standard Specifications For Highway Bridges 17th. Edition 2002.

LOADING HL-93 (Struct. Steel, Deck & Bearings)

LOADING HS20-44 (Substructure)

Allow 50 psf for future wearing surface.

DESIGN STRESSES

Existing

$f'_c = 3,500$ psi (concrete)
 $f_y = 33,000$ psi (reinforcement)

Proposed

$f'_c = 3,500$ psi (concrete)
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 50,000$ psi (structural steel) (M270 GR.50)
 $f_y = 36,000$ psi (diaphragms) (M270 GR.36)

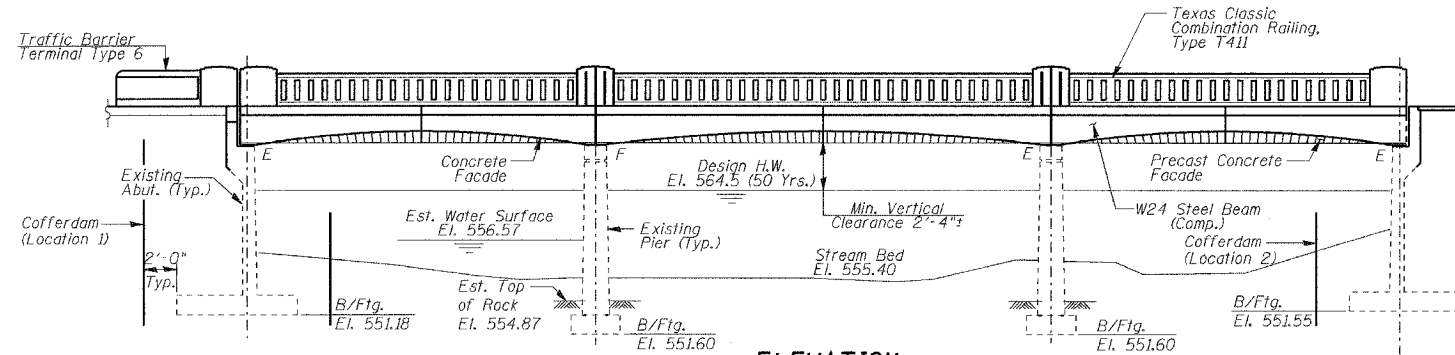
SEISMIC DATA

Seismic performance category (S.P.C.) = A
Bedrock acceleration coefficient (A) = .04g
Site coefficient (s) = 1.0

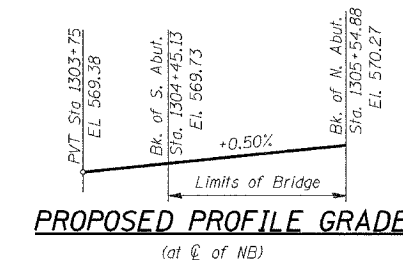
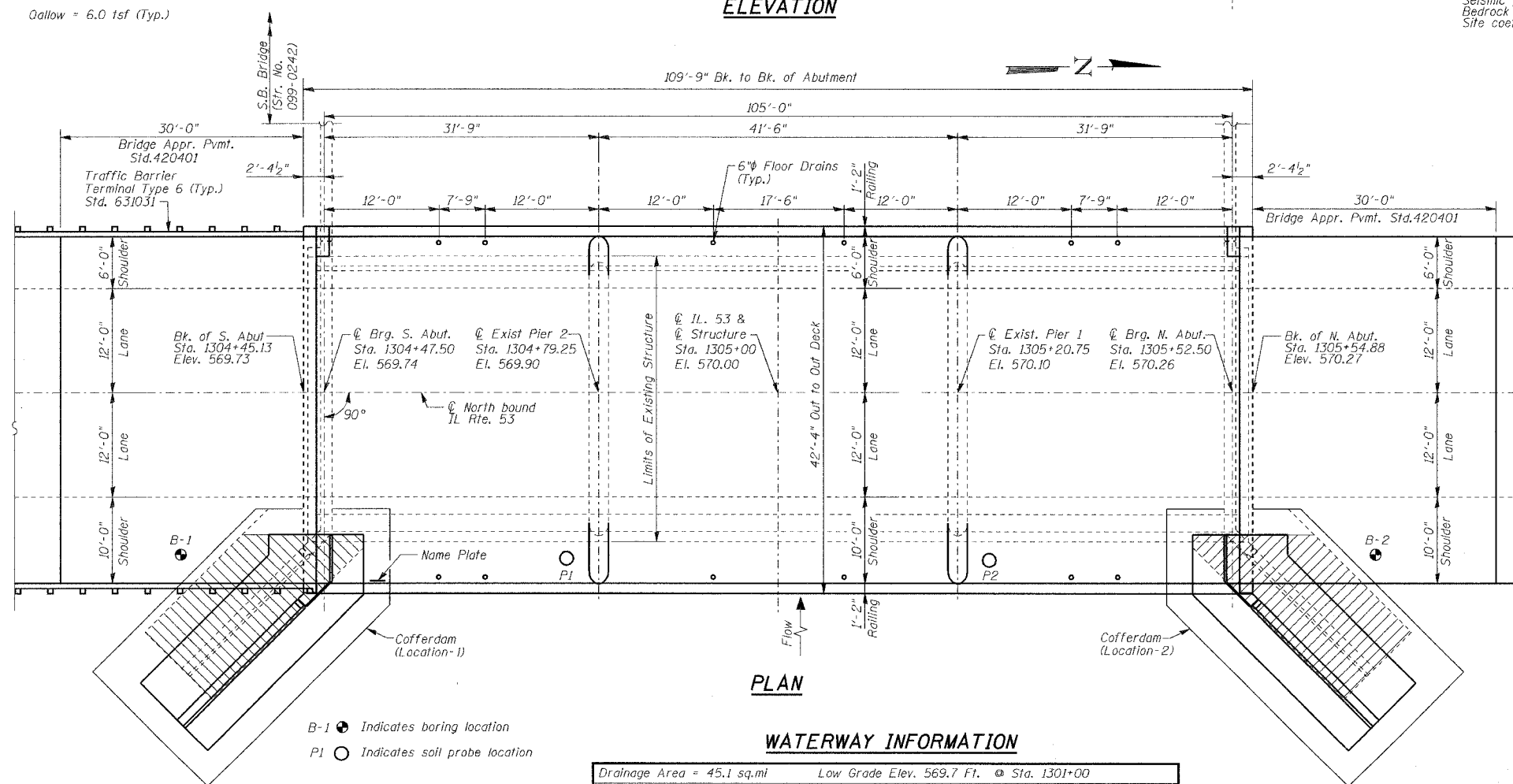
CONTRACT NO. 62269

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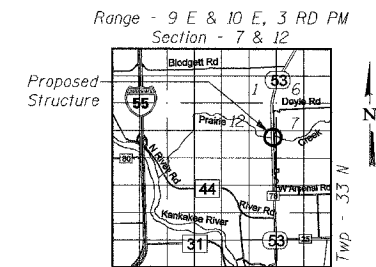
Gallow = 6.0 tsf (Typ.)



STATION 1305+00
RE-BUILT 20 BY
STATE OF ILLINOIS
F.A.P. 846 SEC. 4-RB
LOADING HL-93 (HS20)
STR. NO. 099-0090

NAME PLATE

See Std. 515001
Existing Name Plate shall be cleaned and relocated next to New Name Plate. Cost included with Name Plates.



WATERWAY INFORMATION

Drainage Area = 45.1 sq.mi Low Grade Elev. 569.7 Ft. @ Sta. 1301+00

Flood Yr.	Freq.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.		Head - Ft.		Headwater Et.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	50	2910	738	901	564.5	564.5	0.0	0.1	562.9	564.6
Base	100	3260	959	959	565.1	565.1	0.2	0.2	565.3	565.3
Overtopping										
Max. Calc.	500	4080	1095	1095	566.7	566.7	0.3	0.3	567.0	567.0

All elevations are in highway datum.

DESIGNED	NDS/GMK
CHECKED	MTP/SMK/GBC
DRAWN	NDS/DCB
CHECKED	SMK/GBC

APPROVED
FOR STRUCTURAL ADEQUACY ONLY

Ralph E. Anderson (TPE)
ENGINEER OF BRIDGES AND STRUCTURES



Syed M. Kazi
Licensed Structural Engineer
State of Illinois
License No. 081-004047
Expires: 11-30-2008

ILLINOIS DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION

FAP 846
NB IL. ROUTE 53 OVER PRAIRIE CREEK
STATION 1305+00 SECTION 4-RB
WILL COUNTY

STRUCTURE NO. 099-0090

SCALE: NONE
DATE: AUGUST 2007

DELTA ENGINEERING INC.
CONSULTING ENGINEERS, CHICAGO, ILLINOIS