BM #4376-2: Chiseled square located on the southeast corner of the southeast wingwall of S.N. 010-0010; Station 454+16, 23.8' Lt., Elev. 766.82

Existing Structure: S.N. 010-0010 (SB), was originally built in 1964 as F.A. Interstate 57 Section 10-33HVBR at Station 456+43.07 in Champaign County. The structure carries I-57 over IL 10 and the ICRR. The structure consists of a six span cast-in-place concrete deck on steel beams supported by hammerhead piers and pile bent abutments. Back to back of abutments is 303'-2" and out to out width of the deck is 36'-10". In 1977, the structure had a waterproofing membrane system installed, H.M.A. wearing surface placed, expansion joints reconstructed, and deck patched as Section District 5 Bridge Deck Waterproofing 1977-1. In 1988, the structure was rehabilitated as Section 10-33HVB-1&(10-33HB-2)1. The structure had a new deck, expansion joints, and parapets constructed, deck drains replaced, bearings repositioned, and slopewall repaired. In 2003, a new H.M.A. wearing surface was installed with Section 10(31,32)RS-1;33RS-4). In 2006, the preformed joints at the abutments were replaced with polymer concrete and silicone joints, and the preformed joint at the pier was replaced with a silicone joint by the District 5 Bridge Crew. In 2007, the District 5 Bridge Crew performed partial depth patching on the deck. The existing deck will be removed and replaced with a slightly wider deck; existing beams are to remain and have shear studs added in positive moment regions. Beam end repairs will be performed, and end diaphragms and bearings under open joints will be replaced. The substructure will be repaired, modified and reused. Traffic will be staged during construction. No Salvage.

SCOPE OF WORK

1. Remove deck and approach pavements.
2. Make deck composite in positive moment regions by installing stud shear connectors.
3. Perform steel superstructure repairs.
4. Remove and replace abutment backwalls.
5. Perform epoxy crack injection and formed concrete repairs at abutments and piers and perform Pier 3 repairs.
6. Remove expansion bearings at abutments and Pier 3 and replace with elastomeric bearings with steel extensions.
7. Pour new deck and approach slabs.

HIGHWAY CLASSIFICATION

Interstate 57 (F.A.I. 57)
Functional Class: Interstate
ADT: 24,200 (2014); 30,500 (2034)*
ADTT: 6,510 (2014); 8,204 (2034)*
DHV: 2,320 (2034)*
Design Speed: 70 m.p.h.
Posted Speed: 70 m.p.h.
2-Way Traffic
Directional Distribution: 50:50

*Total for SB and NB

IL 10
Functional Class: Principal Arterial
ADT: 9,350 (2014); 10,800 (2034)
ADTT: 430 (2014); 497 (2034)
DHV: 860 (2034)
Design Speed: 50 m.p.h.
Posted Speed: 45 m.p.h.
2-Way Traffic
Directional Distribution: 55:45

DESIGN STRESSES

FIELD UNITS (New Construction)

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)
fy = 36,000 psi (M270 Grade 36)

FIELD UNITS (Existing Construction)

fc = 1,400 psi (Substructure)
fy = 20,000 psi (Reinf. Substructure)
fs = 20,000 psi (Struct. A-36)

DESIGN SPECIFICATIONS

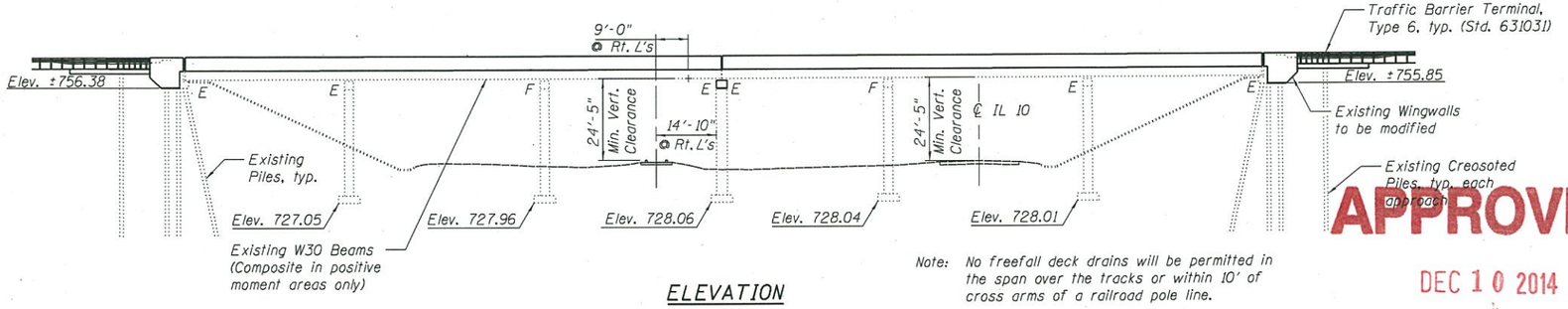
2002 AASHTO Standard Specifications for Highway Bridges

LOADING HS 20-44 & ALT. MILITARY

No future wearing surface allowed.

SEISMIC DATA

Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = .04g
Site Coefficient (S) = 1.5



ELEVATION

Note: No freefall deck drains will be permitted in the span over the tracks or within 10' of cross arms of a railroad pole line.

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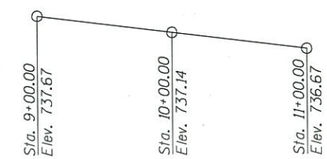
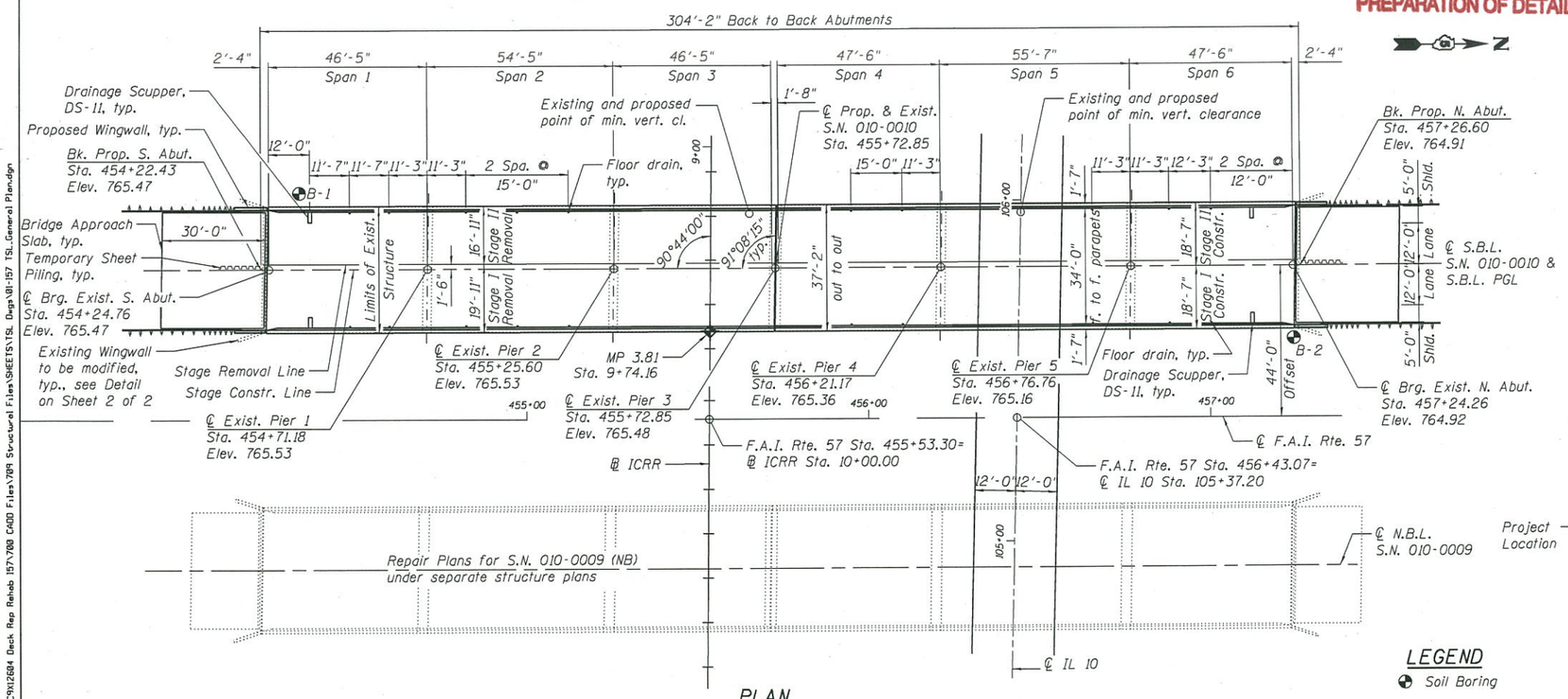
DEC 10 2014
AS A BASIS FOR PREPARATION OF DETAILED PLANS

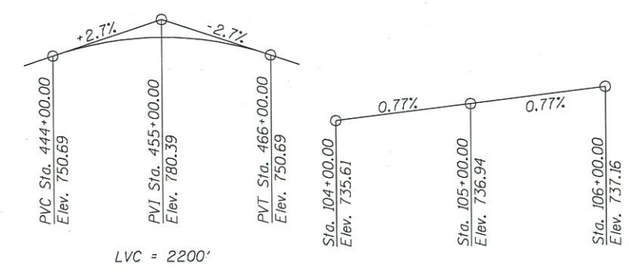


TOP OF RAIL ELEVATIONS

(along S. Rail ICRR)



PLAN



PROFILE GRADE

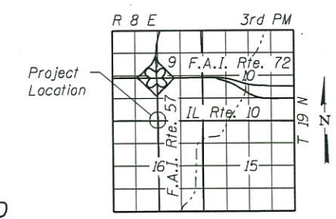
(along ℄ I-57 S.B.L.)
Note: The profile grade shows the final elevations after grinding.

PROFILE GRADE

(along ℄ IL 10)

LEGEND

Soil Boring



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
I-57 (SB) OVER IL 10 AND ICRR
F.A.I. 57 SECTION 10-33HVBR
CHAMPAIGN COUNTY
STATION 456+43.07
STRUCTURE NO. 010-0010 (SB)

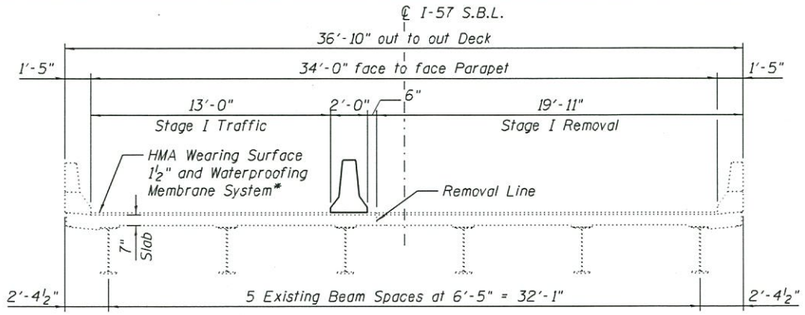
JACOBS	USER NAME = wellinkj	DESIGNED - JSD	REVISED -
		DRAWN - KJW	REVISED -
	PLOT SCALE =	CHECKED - JSD	REVISED -
	PLOT DATE = 12/4/2014	DATE - 12/14	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 2 SHEETS

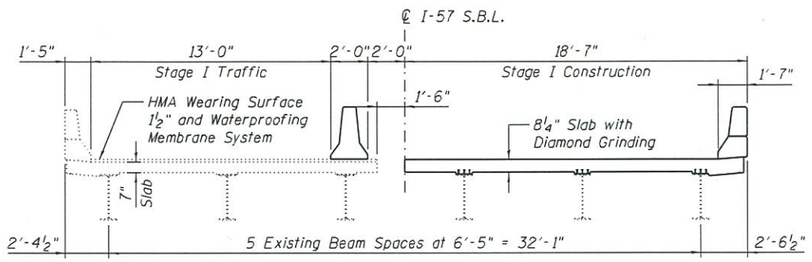
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	10-33HVBR	CHAMPAIGN	2	1
		CONTRACT NO. 90951		
		ILLINOIS FED. AID PROJECT		

FILE NAME = P:_2012\C90\12684 Deck Rep Rehab 157\700 CADD Files\709 Structural Files\SHEETS\1SL Degs\01-157 1SL_General Plan.dgn

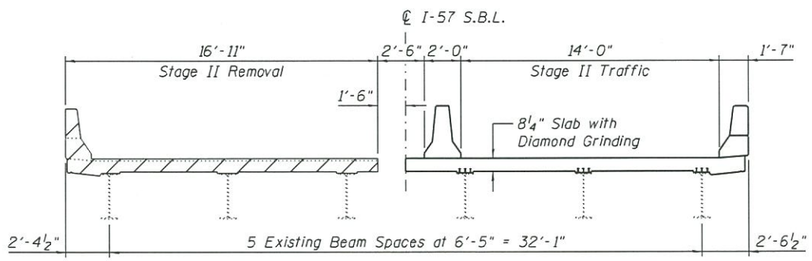


*HMA Wearing Surface shall be inlayed prior to Stage I Traffic

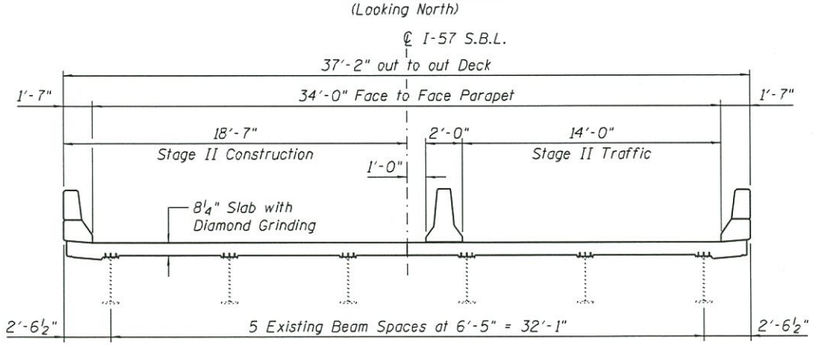
STAGE I REMOVAL
(Looking North)



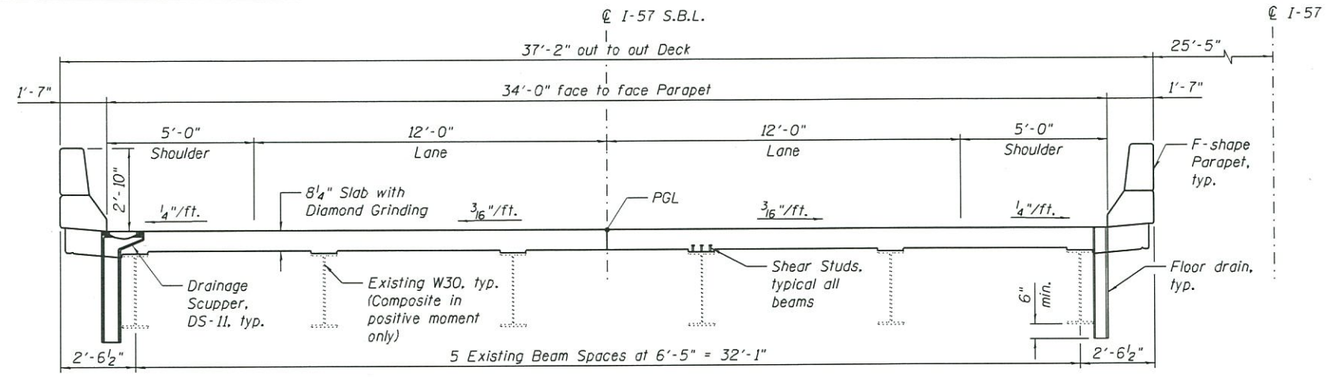
STAGE I CONSTRUCTION
(Looking North)



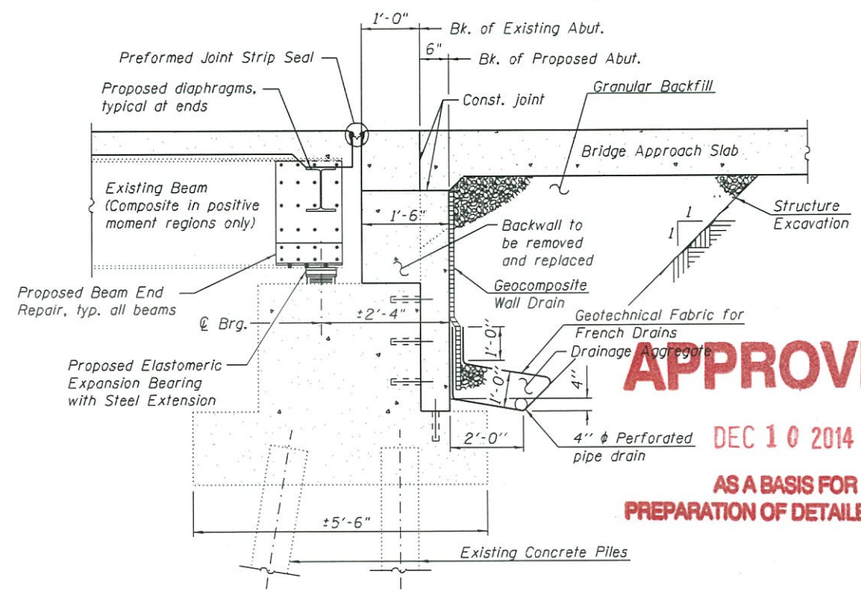
STAGE II REMOVAL
(Looking North)



STAGE II CONSTRUCTION
(Looking North)



CROSS SECTION
(Looking North)



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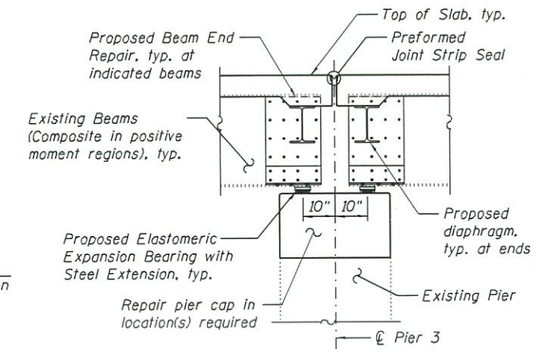
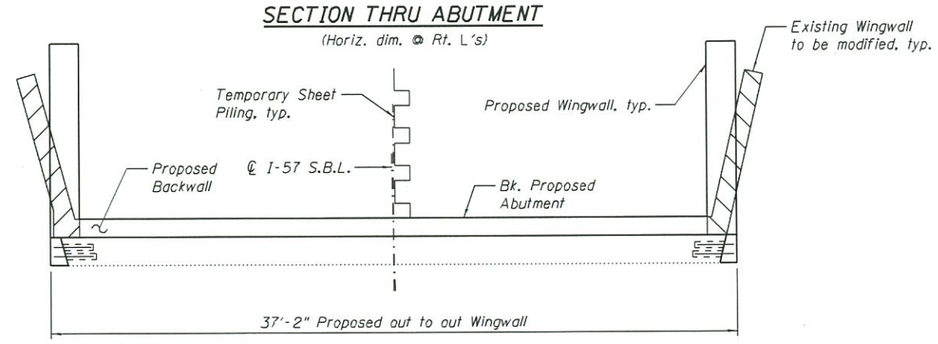
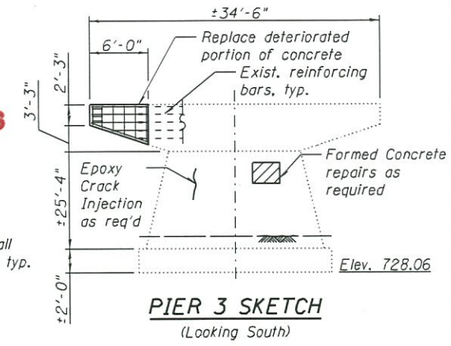
SECTION THRU ABUTMENT
(Horiz. dim. @ Rt. L's)



SECTION THRU PIER 3



WINGWALL DETAIL
(Typ. at both Abutments)



PIER 3 SKETCH
(Looking South)

SECTIONS AND DETAILS
I-57 (SB) OVER IL 10 AND ICRR
F.A.I. 57 SECTION 10-33HVBR
CHAMPAIGN COUNTY
STATION 456+43.07
STRUCTURE NO. 010-0010 (SB)

FILE NAME = P:_2012\C90\2084 Deck Rep Rehab 157\700 CADD Files\709 Structural Files\SHEETS\TSL_Sections and Details.dgn

JACOBS	USER NAME = wellinkj	DESIGNED - JSD	REVISED - ·
		DRAWN - KJW	REVISED - ·
	PLOT SCALE =	CHECKED - JSD	REVISED - ·
	PLOT DATE = 12/4/2014	DATE - 12/14	REVISED - ·

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 2 OF 2 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	10-33HVBR	CHAMPAIGN	2	2
		CONTRACT NO. 90951		
		ILLINOIS FED. AID PROJECT		