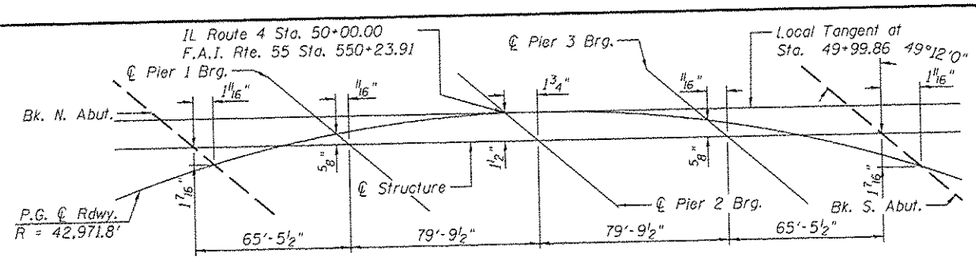
B.M.: BM#15; Chiseled Square in center of headwall of Double Box Culvert (SN 060-2015) at E. side of ramp for northbound I-55 to IL Rte. 4, Mile Marker ±33.08, Elev. 550.734'

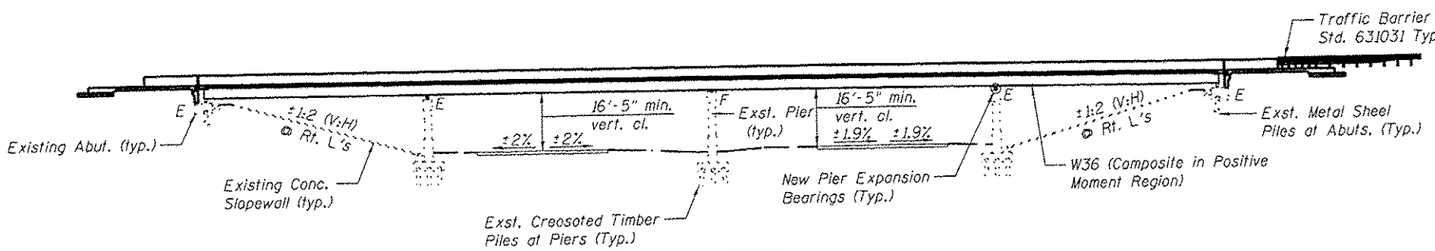
Traffic: Complete road closure with traffic detour routes will facilitate construction.

Existing Structure: SN 060-0104, 4 span Reinforced concrete slab on wide flange steel beams, Reinforced concrete multicolumn piers, Reinforced concrete abutments, Built as F.A.Rte. 5 Sec. 520-HB Sta. 20+00.00 over F.A.Rte. 55 Sta. 550+17.30 in 1955, Deck widened in 1973 as F.A.I. Rte. 4 Sta. 50+00 Sec. 60-2HBK-1, Deck Repairs & Joint Replacement 1986 as F.A.Rte. 670 Sec 60-2HBI, Abut. bearing replacement & longitudinal joint closure in 1998 as Sec. 60-(1,2)RS-1, Protective Shielding in 2007.

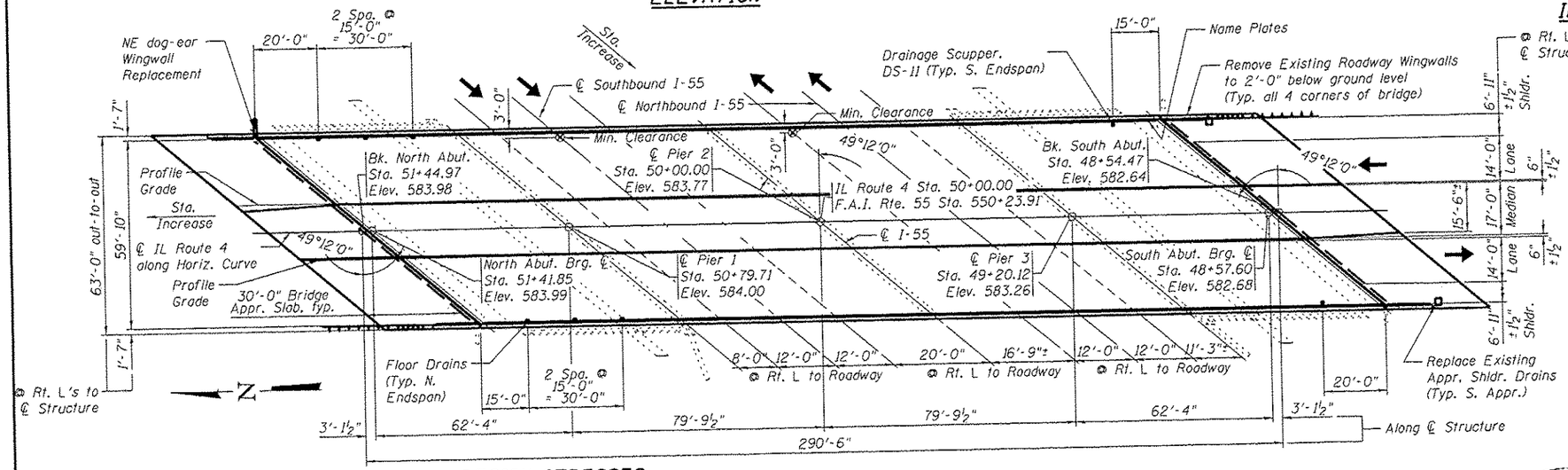
Salvage: None.



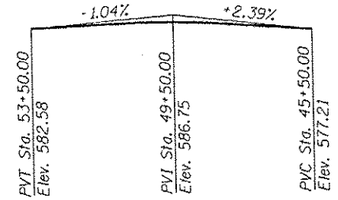
IL ROUTE 4 OFFSET SKETCH



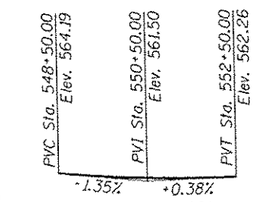
ELEVATION



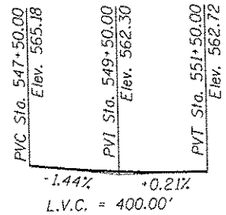
PLAN



PROFILE GRADE
IL ROUTE 4



PROFILE GRADE
F.A.I. Rte. 55 Northbound



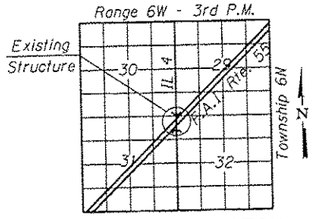
PROFILE GRADE
F.A.I. Rte. 55 Southbound

SHEET INDEX

General Plan & Elevation	1
General Data	2
Top of Slab Elevations	3-9
Superstructure	10
Superstructure Details	11-12
Drainage Scuppers	13
Parapet Slipforming Option	14
Preformed Joint Strip Seal	15
Approach Slab Details	16-17
Structural Steel	18-19
Bearing Details	20
Backwall Replacement	21-23
Pier Repairs	24-26
Slopewall Repairs	27
Wingwall Replacement	28
Bar Splicers	29

SCOPE OF WORK

1) Remove and replace deck and parapet.
2) Install shear studs in positive moment regions.
3) Remove and replace backwalls.
4) Remove all expansion joints.
5) Remove & replace Pier expansion bearings.
6) Remove & replace approach pavements.
7) Remove roadway wingwalls.
8) Remove & replace NE dog-ear wingwall.
9) Add drainage scuppers and floor drains.
10) Paint all exposed structural steel surfaces.
11) Formed concrete repairs on substructures and slopewall.
12) Remove and replace 3 select structural steel diaphragms.
13) Remove existing Protective Shielding.



LOCATION SKETCH

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges
1995 Seismic Retrofitting Manual (FHWA RD-94-052)

LOADING HS20-44

Allow 25#/sq. ft. for future wearing surface.

SEISMIC DATA

Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = .083
Site Coefficient (S) = 1.0

DESIGN STRESSES

FIELD UNITS

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

FIELD UNITS (Exist. Const.)

f'c superstructure = 2,800 psi
f'c substructure = 1,600 psi
fy substructure = 40,000 psi (Reinforcement)
fy = 33,000 psi (A7), Beam Strength limited to yield strength subject to bracing req.

HORIZONTAL CURVES

E.A. Rte. 55 Northbound Pavement
PI STA. = 549+00.00
Δ = 3° 06' 11"
D = 0° 31' 04"
R = 11,063.06'
T = 299.64'
L = 599.13'
E = 4.06'
S.E. = 0.019'/FT.
S.E. ATTAINED STA. = 545+20 TO STA. 546+22
S.E. REMOVED STA. = 551+83 TO STA. 552+85
P.C. STA. = 546+00.00
P.T. STA. = 552+00.00

E.A. Rte. 55 Southbound Pavement
NO CURVE FROM STA. 548+83.31 TO STA. 553+19.30

IL ROUTE 4
PI STA. = 51+03.80
Δ = 0° 52' 00"
D = 0° 08' 00"
R = 42971.8'
T = 325.01'
L = 650.00'
E = 1.23'
S.E. = NONE
P.C. STA. = 47+78.79
P.T. STA. = 54+28.79

APPROVED

For Structural Adequacy Only

P. Carl Lumpp IES
Engineer of Bridges & Structures

STATION 50+00.00
RE-BUILT 20__ BY
STATE OF ILLINOIS
IL RTE. 4 SEC. 60-2HB-2
LOADING HS20
STRUCTURE NO. 060-0104

NAME PLATE

See Std. 515001

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

REGINALD H. BENTON
081-004623
LICENSED
STRUCTURAL
ENGINEER
OF
JACKSONVILLE
ILLINOIS

Reginald H. Benton
7/10/2014
EXP 11/30/14

GENERAL PLAN & ELEVATION
IL ROUTE 4 OVER INTERSTATE 55
F.A.I. RTE. 55
SECTION 60-2HB-2
MADISON COUNTY
IL ROUTE 4 STA. 50+00.00
F.A.I. RTE. 55 STA. 550+23.91
STRUCTURE NO. 060-0104

BENTON & ASSOCIATES INC
BENTON & ASSOCIATES, INC.
Consulting Engineers / Land Surveyors
1970 West Lafayette Ave. Jacksonville, IL 62650
Phone: 217-245-4146 Fax: 217-245-4149
IL Design Firm Registration No. 184-000852

QUIGG ENGINEERING INC
2351 SOUTH DIRKSEN PARKWAY
SPRINGFIELD, ILLINOIS 62703
217-670-0563 (P) / 217-679-2204 (F)
www.quiggengineering.com

FILE NAME: 0600104-76G10-001-GPE.dgn	USER NAME =	DESIGNED - MBH	REVISED -
		CHECKED - DRB	REVISED -
	PLOT SCALE =	DRAWN - MBH	REVISED -
	PLOT DATE =	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN
STRUCTURE NO. 060-0104
SHEET NO. 1 OF 29 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	60-2HB-2	MADISON	52	19
		CONTRACT NO. 76G10		

FED. ROAD DIST. NO. 8 | ILLINOIS | FED. AID PROJECT