

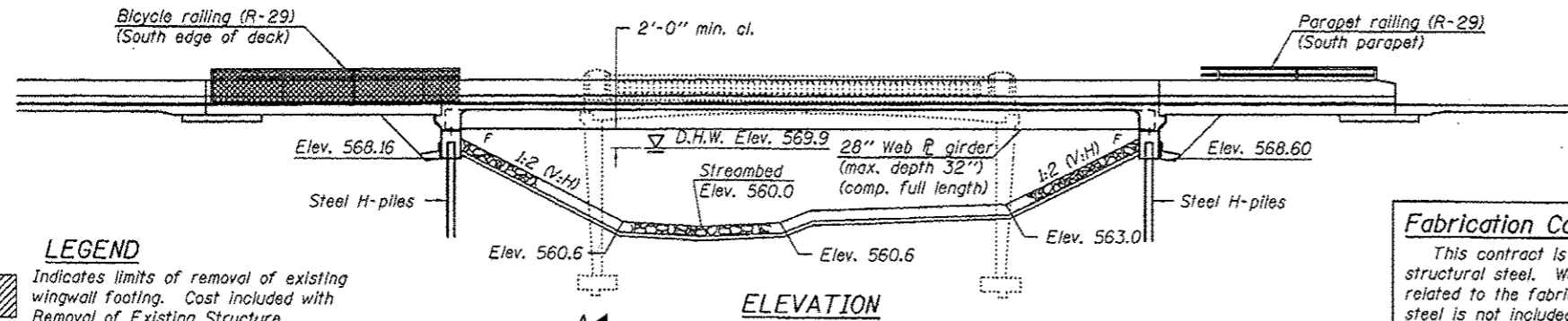
Benchmark: U.S.G.S. datum "a" cut in the center and top of South headwall of concrete culvert Sta. 387+50, Rt. 30'-8", Elev. 569.31.

Existing structure: Structure no. 081-0061, built in 1937 as F.A. Rte. 138, Section 40B, Station 325+35, as a single span 54'-8" back-to-back abutment, 47'-4" out-to-out reinforced concrete haunched slab and rigid frame. The existing structure is to be replaced with a single span bridge on integral abutments. Traffic is to be maintained utilizing stage construction.

No salvage.

**INDEX OF SHEETS**

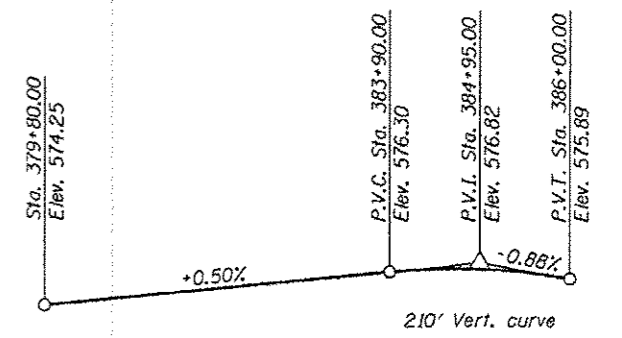
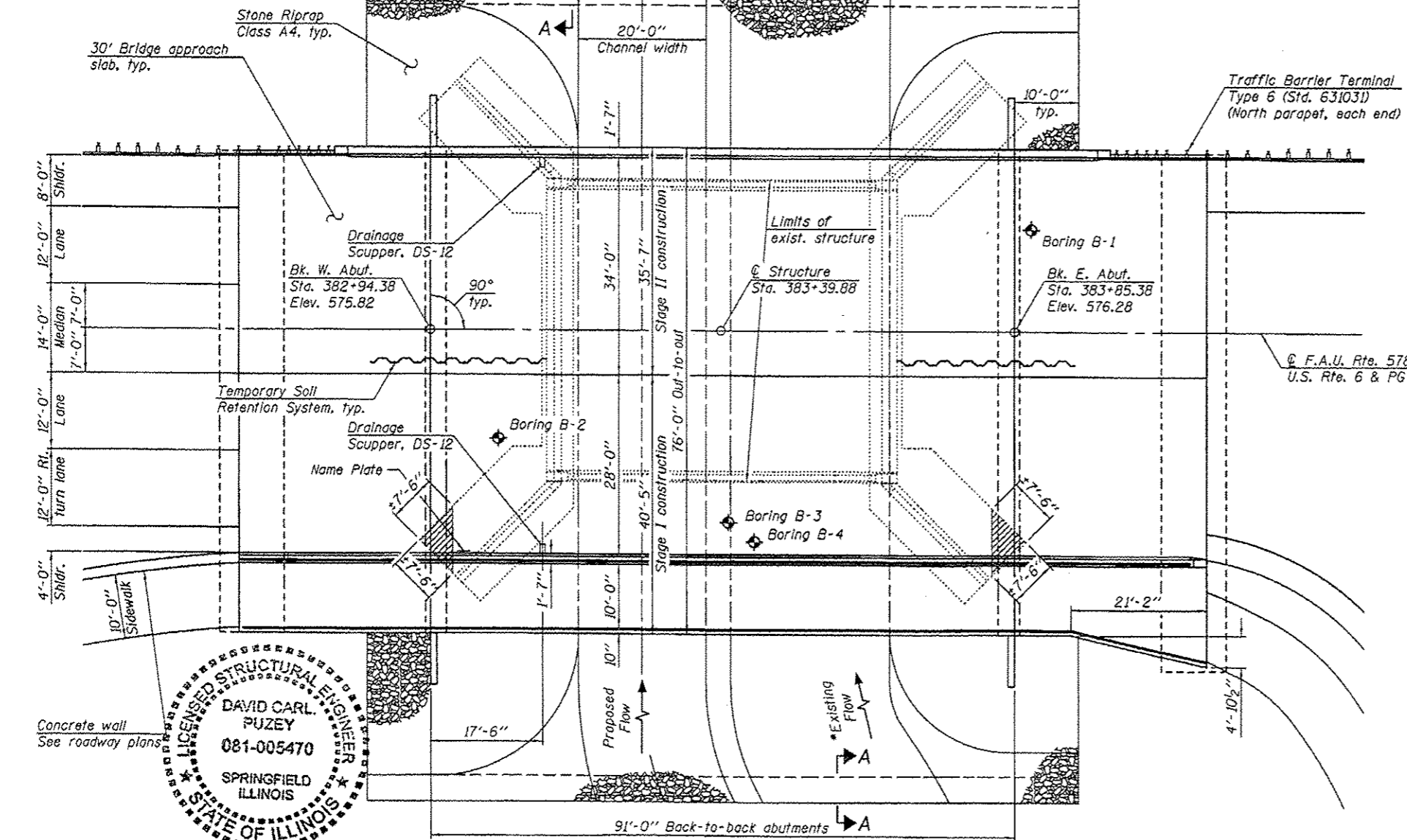
- 1 General Plan and Elevation
- 2 General Data & Temporary Soil Retention System Details
- 3 Stage Construction Details
- 4-6 Top of Slab Elevations
- 7 Superstructure
- 8-9 Diaphragm Details
- 10 Structural Steel
- 11 Structural Steel Details
- 12 West Abutment
- 13 East Abutment



**Fabrication Contract:**  
This contract is for the furnishing of structural steel. Work shown that is not related to the fabrication of the structural steel is not included in this contract (N.I.C.) and is for information only.

**LEGEND**  
Indicates limits of removal of existing wingwall footing. Cost included with Removal of Existing Structure.

Existing buried gas line



**DESIGN SPECIFICATIONS**

2010 AASHTO LRFD Bridge Design Specifications, 5th Edition, with 2010 Interims

**DESIGN STRESSES**

**FIELD UNITS**  
f'c = 3,500 psi  
fy = 60,000 psi (Reinforcement)  
fy = 50,000 psi (M270 Grade 50W)

**LOADING HL-93**

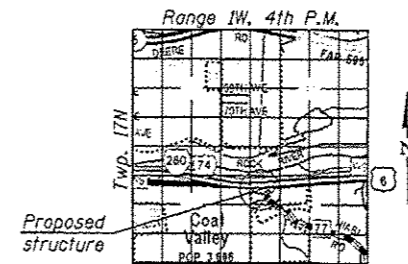
Allow 50#/sq. ft. for future wearing surface.

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. (S<sub>01</sub>) = 0.06g  
Design Spectral Acceleration at 0.2 sec. (S<sub>05</sub>) = 0.10g  
Soil Site Class = C

STATION 383+39.88  
BUILT 20 BY  
STATE OF ILLINOIS  
F.A.U. RTE. 5789 SEC. 40 BR  
LOADING HL-93  
STRUCTURE NO. 081-0163

**NAME PLATE**  
See Std. 515001



DAVID CARL PUZEY  
081-005470  
SPRINGFIELD ILLINOIS  
STATE OF ILLINOIS  
Exp. 11/30/14

PLAN **REVIS**ED SHEET 1-11-13

DESIGNED - Ryan	EXAMINED - Puze	DATE - 11/20/12
CHECKED - Puze	PASSED - Puze	
DRAWN - Puze		
CHECKED - Puze		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION  
STRUCTURE NO. 081-0163  
SHEET NO. 1 OF 13 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5789	40 BR-F	ROCK ISLAND	15	3
			CONTRACT NO. 64J44	

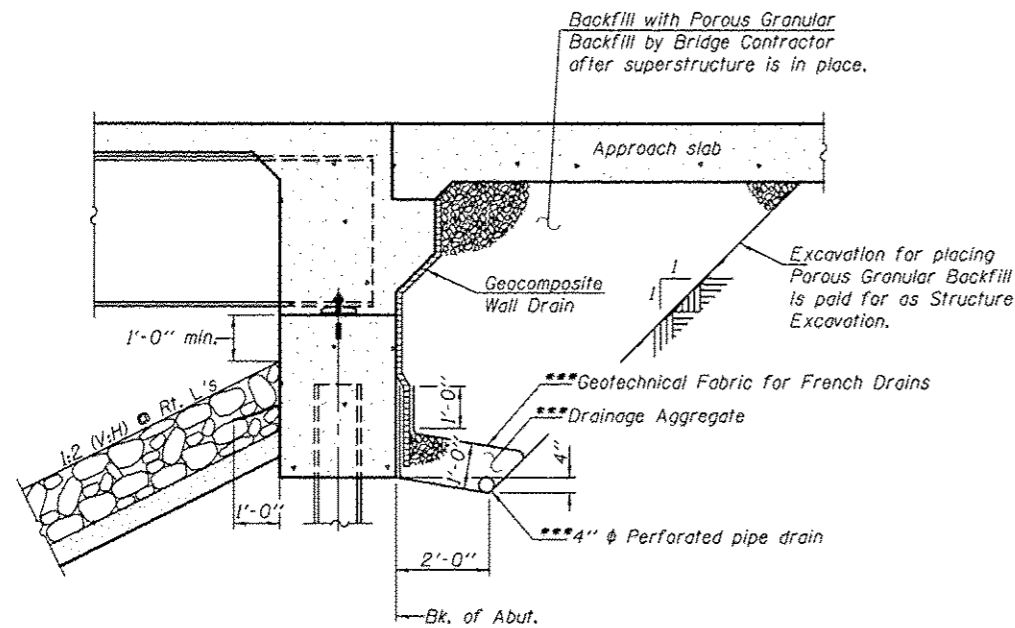
ILLINOIS FED. AID PROJECT

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Furnishing Structural Steel	L. Sum	1		1
Storage of Structural Steel	Cal. Da.			60

**GENERAL NOTES**

Fasteners shall be ASTM A325 Type 3. Bolts 3/4" in.  $\phi$ , holes 5/16"  $\phi$ , unless otherwise noted.  
 Calculated weight of Structural Steel to be furnished = 288,130 lbs (M 270 Grade 50W).  
 All structural steel shall be AASHTO M 270 Grade 50W.  
 No field welding is permitted except as specified in the contract documents.  
 Structural steel shall only be painted for a distance equal to the depth of embedment into the concrete cap plus 3 inches. Painted areas shall be primed in the shop with a Department approved zinc rich primer. Field painting will not be required.

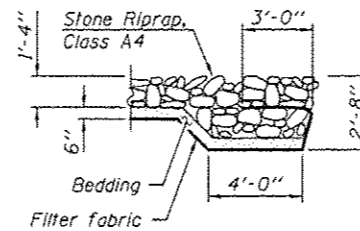


**SECTION THRU INTEGRAL ABUTMENT**

\*\*\*Included in the cost of Pipe Underdrains for Structures.

Note:

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).



**SECTION A-A**

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	W. Abut.	E. Abut.
	568.16	568.60

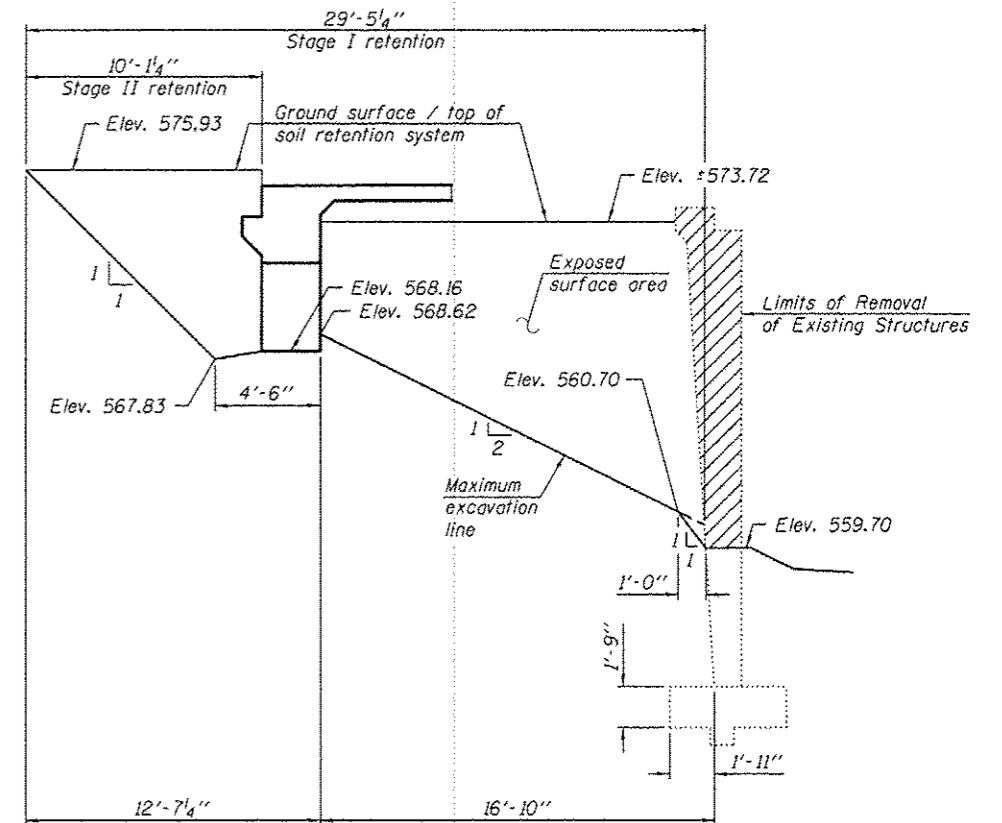
**WATERWAY INFORMATION**

Flood	Freq. Yr.	* Q C.F.S.	Opening Sq. Ft.		** Nat. H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.	
Design	10	1050	313	503	569.5	0.1	0.0	569.6	569.5	
Base	50	1300	333	535	569.9	0.1	0.1	570.0	570.0	
Overtopping	100	1350	338	543	570.0	0.1	0.1	570.1	570.1	
Max. Calc.	500	1550	353	567	570.3	0.2	0.1	570.5	570.4	

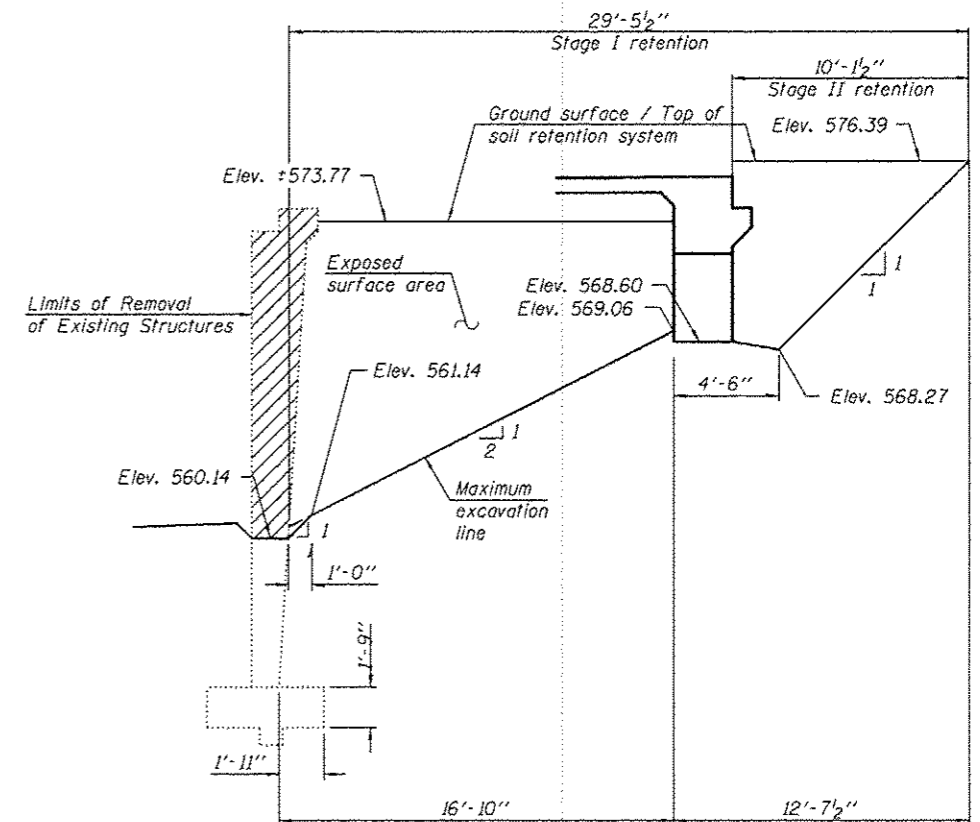
Existing Low Grade Elev. 573.6 @ Sta. 382+25  
 Proposed Low Grade Elev. 574.0 @ Sta. 382+50  
 10 Year velocity through existing bridge = 3.4 ft./sec.  
 10 Year velocity through proposed bridge = 2.1 ft./sec.

- \* Total discharge reduced by amount lost to storage after overtopping Niabi Zoo Road.
- \*\* Shaffer Creek is under the control of the tailwaters of the Rock River at this location.

**REVISIONS**  
 1-11-13



**TEMPORARY SOIL RETENTION SYSTEM (West Abutment)**



**TEMPORARY SOIL RETENTION SYSTEM (East Abutment)**

DESIGNED - STEPHEN M. RYAN  
 CHECKED - RAY AHANCHI  
 DRAWN - h.t. duong  
 CHECKED - S.M.R. / N.R.B. / C.R.A.

EXAMINED - *James F. Jaffe*  
 ACTING ENGINEER OF BRIDGE DESIGN  
 PASSED - *Carl [Signature]*  
 ACTING ENGINEER OF BRIDGES AND STRUCTURES

DATE - NOVEMBER 20, 2012  
 REVISED  
 REVISED

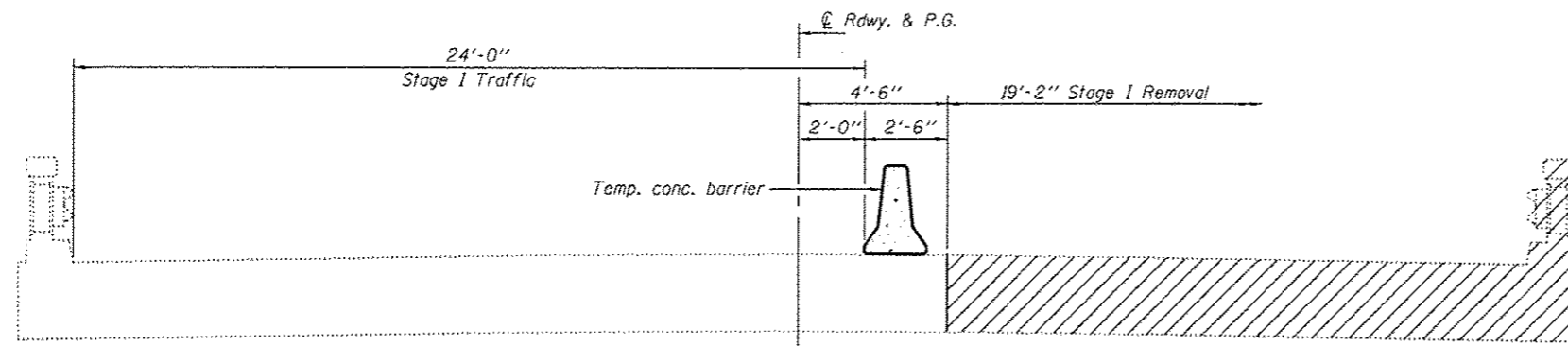
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GENERAL DATA & TEMPORARY SOIL RETENTION SYSTEM DETAILS  
 STRUCTURE NO. 081-0163**

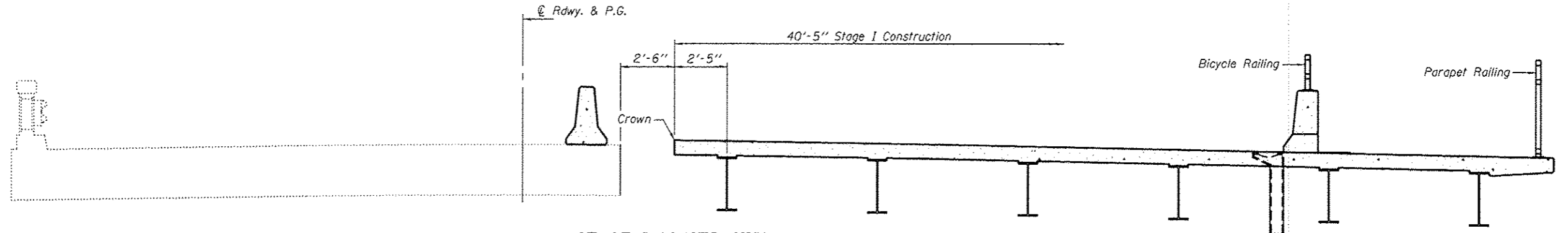
SHEET NO. 2 OF 13 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5769	40 BR-F	ROCK ISLAND	15	4

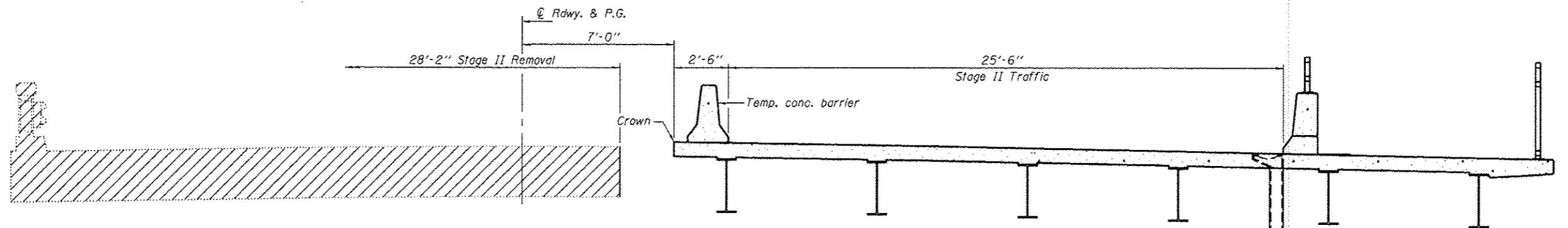
CONTRACT NO. 64J44  
 ILLINOIS FED. AID PROJECT



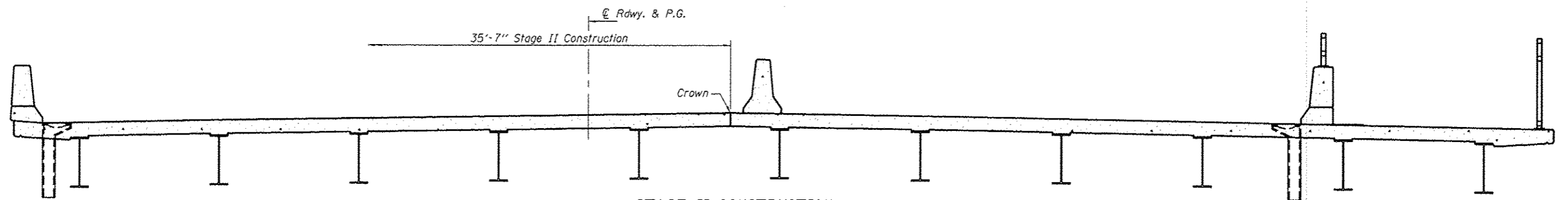
**STAGE I REMOVAL**



**STAGE I CONSTRUCTION**



**STAGE II REMOVAL**



**STAGE II CONSTRUCTION**

Notes: All sections are looking east.  
 Hatched area indicates removal of existing superstructure.  
 For quantity of temporary concrete barrier, see Roadway Plans.

**REVIS**ED SHEET 1-11-13

For information only.

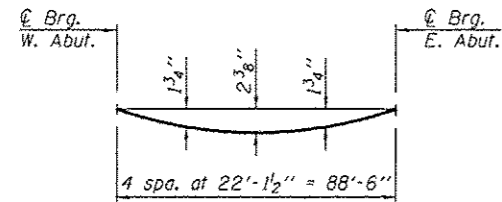
DESIGNED - STEPHEN M. RYAN	EXAMINED - <i>James F. [Signature]</i>	DATE - NOVEMBER 20, 2012
CHECKED - RAY AHANCHI	PASSED - <i>Carl [Signature]</i>	REVISED -
DRAWN - h.t. duong	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED -
CHECKED - S.M.R. / N.R.B. / C.R.A.		

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION DETAILS  
 STRUCTURE NO. 081-0163

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5789	40 BR-F	ROCK ISLAND	15	5
			CONTRACT NO. 64J44	
ILLINOIS FED. AID PROJECT				

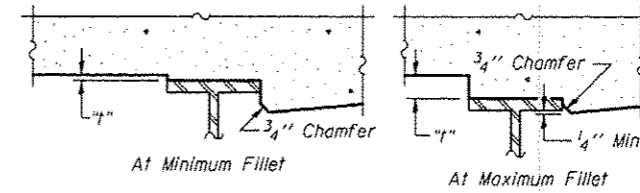
SHEET NO. 3 OF 13 SHEETS



**DEAD LOAD DEFLECTION DIAGRAM**

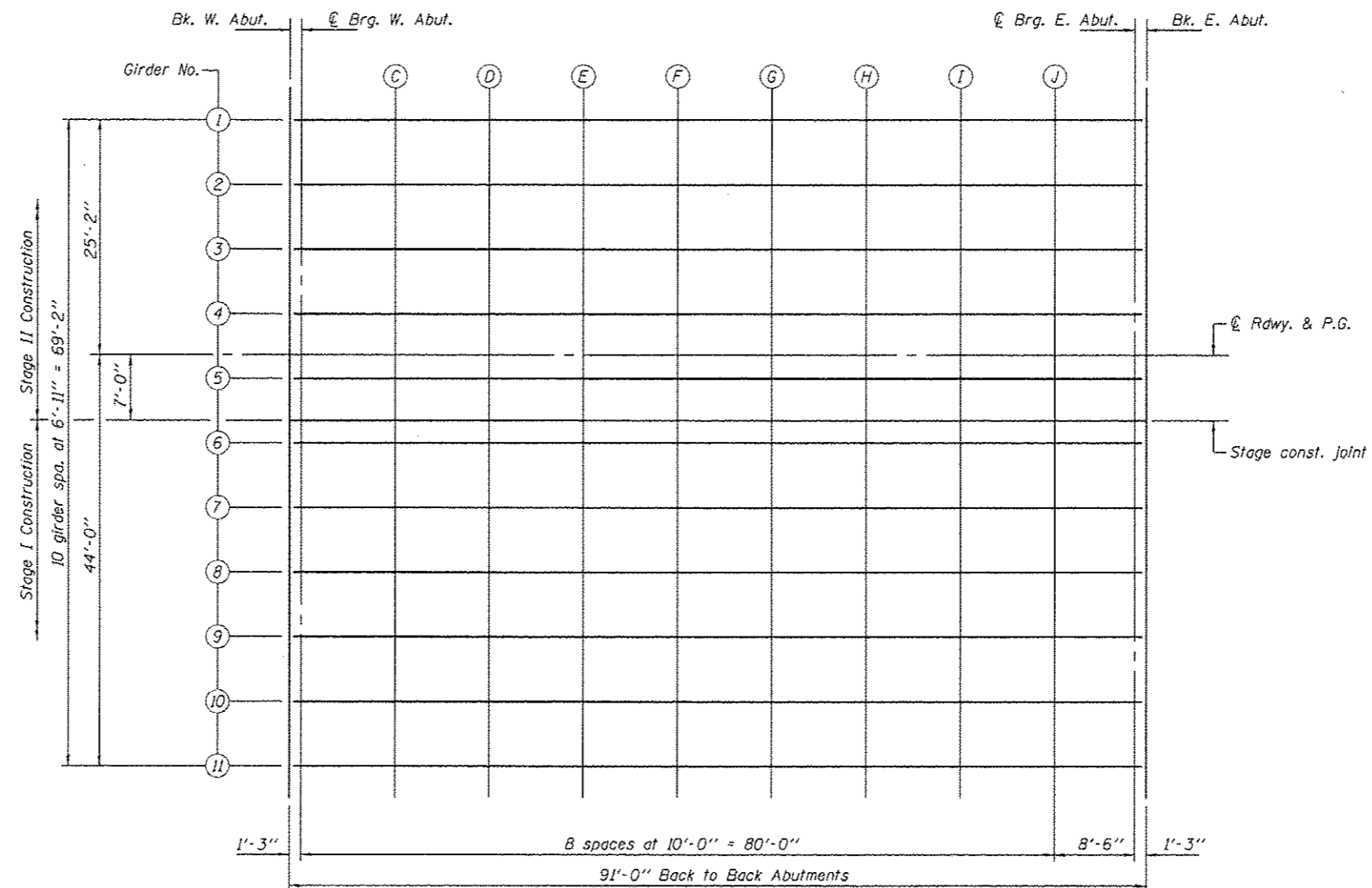
(Includes weight of concrete only.)

Note: The above deflections are not to be used in the field if the Engineer is working from the grade elevations adjusted for dead load deflections as shown on sheets 5 & 6 of 13.

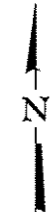


To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 5 & 6 of 13, minus 8" slab thickness, equals the fillet heights "t" above top flange of girders.

**FILLET HEIGHTS**



**PLAN**



REVISI**ON** SHEET 1-11-13

For information only.

DESIGNED - STEPHEN M. RYAN	EXAMINED - <i>Jaime F. Jaffe</i> ACTING ENGINEER OF BRIDGE DESIGN	DATE - NOVEMBER 20, 2012	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TOP OF SLAB ELEVATIONS STRUCTURE NO. 081-0163</b>	F.A.U. RTE. 5789	SECTION 40 BR-F	COUNTY ROCK ISLAND	TOTAL SHEETS 15	SHEET NO. 6	
CHECKED - RAY AHANCHI	PASSED - <i>Carl Perry</i> ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED -			SHEET NO. 4 OF 13 SHEETS		CONTRACT NO. 64J44			
DRAWN - h.t. duong		REVISED -			ILLINOIS FED. AID PROJECT					
CHECKED - S.M.R. / N.R.B. / C.R.A.										

**GIRDER 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	38+294.38	-25.17	575.40	575.40
CL. Brg. W. Abut.	382+95.63	-25.17	575.40	575.40
C	383+05.63	-25.17	575.45	575.52
D	383+15.63	-25.17	575.50	575.63
E	383+25.63	-25.17	575.55	575.72
F	383+35.63	-25.17	575.60	575.79
G	383+45.63	-25.17	575.65	575.84
H	383+55.63	-25.17	575.70	575.86
I	383+65.63	-25.17	575.75	575.87
J	383+75.63	-25.17	575.80	575.86
CL. Brg. E. Abut.	383+84.13	-25.17	575.85	575.85
Bk. E. Abut.	383+85.38	-25.17	575.85	575.85

**GIRDER 2**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	-18.25	575.54	575.54
CL. Brg. W. Abut.	382+95.63	-18.25	575.54	575.54
C	383+05.63	-18.25	575.59	575.66
D	383+15.63	-18.25	575.64	575.77
E	383+25.63	-18.25	575.69	575.86
F	383+35.63	-18.25	575.74	575.93
G	383+45.63	-18.25	575.79	575.98
H	383+55.63	-18.25	575.84	576.00
I	383+65.63	-18.25	575.89	576.01
J	383+75.63	-18.25	575.94	576.00
CL. Brg. E. Abut.	383+84.13	-18.25	575.99	575.99
Bk. E. Abut.	383+85.38	-18.25	575.99	575.99

**GIRDER 3**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	-11.33	575.65	575.65
CL. Brg. W. Abut.	382+95.63	-11.33	575.65	575.65
C	383+05.63	-11.33	575.70	575.77
D	383+15.63	-11.33	575.75	575.88
E	383+25.63	-11.33	575.80	575.96
F	383+35.63	-11.33	575.85	576.04
G	383+45.63	-11.33	575.90	576.09
H	383+55.63	-11.33	575.95	576.11
I	383+65.63	-11.33	576.00	576.12
J	383+75.63	-11.33	576.05	576.11
CL. Brg. E. Abut.	383+84.13	-11.33	576.09	576.09
Bk. E. Abut.	383+85.38	-11.33	576.10	576.10

**GIRDER 4**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	-4.42	575.75	575.75
CL. Brg. W. Abut.	382+95.63	-4.42	575.76	575.76
C	383+05.63	-4.42	575.81	575.87
D	383+15.63	-4.42	575.86	575.99
E	383+25.63	-4.42	575.91	576.07
F	383+35.63	-4.42	575.96	576.15
G	383+45.63	-4.42	576.01	576.19
H	383+55.63	-4.42	576.06	576.22
I	383+65.63	-4.42	576.11	576.23
J	383+75.63	-4.42	576.16	576.21
CL. Brg. E. Abut.	383+84.13	-4.42	576.20	576.20
Bk. E. Abut.	383+85.38	-4.42	576.21	576.21

**ROADWAY & PROFILE GRADE**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	0.00	575.82	575.82
CL. Brg. W. Abut.	382+95.63	0.00	575.83	575.83
C	383+05.63	0.00	575.88	575.94
D	383+15.63	0.00	575.93	576.06
E	383+25.63	0.00	575.98	576.14
F	383+35.63	0.00	576.03	576.22
G	383+45.63	0.00	576.08	576.26
H	383+55.63	0.00	576.13	576.29
I	383+65.63	0.00	576.18	576.30
J	383+75.63	0.00	576.23	576.28
CL. Brg. E. Abut.	383+84.13	0.00	576.27	576.27
Bk. E. Abut.	383+85.38	0.00	576.28	576.28

**GIRDER 5**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	2.50	575.86	575.86
CL. Brg. W. Abut.	382+95.63	2.50	575.87	575.87
C	383+05.63	2.50	575.92	575.98
D	383+15.63	2.50	575.97	576.10
E	383+25.63	2.50	576.02	576.18
F	383+35.63	2.50	576.07	576.26
G	383+45.63	2.50	576.12	576.30
H	383+55.63	2.50	576.17	576.33
I	383+65.63	2.50	576.22	576.34
J	383+75.63	2.50	576.27	576.32
CL. Brg. E. Abut.	383+84.13	2.50	576.31	576.31
Bk. E. Abut.	383+85.38	2.50	576.32	576.32

**STAGE CONSTRUCTION JOINT**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	7.00	575.93	575.93
CL. Brg. W. Abut.	382+95.63	7.00	575.94	575.94
C	383+05.63	7.00	575.99	576.05
D	383+15.63	7.00	576.04	576.17
E	383+25.63	7.00	576.09	576.25
F	383+35.63	7.00	576.14	576.33
G	383+45.63	7.00	576.19	576.37
H	383+55.63	7.00	576.24	576.40
I	383+65.63	7.00	576.29	576.41
J	383+75.63	7.00	576.34	576.39
CL. Brg. E. Abut.	383+84.13	7.00	576.38	576.38
Bk. E. Abut.	383+85.38	7.00	576.39	576.39

▲ REVISSED SHEET 1-11-13

For Information only.

DESIGNED - STEPHEN M. RYAN	EXAMINED - <i>James F. [Signature]</i>	DATE - NOVEMBER 20, 2012	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TOP OF SLAB ELEVATIONS STRUCTURE NO. 081-0163</b>		F.A.U. RTE. 5789	SECTION 40 BR-F	COUNTY ROCK ISLAND	TOTAL SHEETS 15	SHEET NO. 7
CHECKED - RAY AHANCHI	PASSED - <i>[Signature]</i>	REVISED -				CONTRACT NO. 64J44				
DRAWN - h.t. duong	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED -				ILLINOIS FED. AID PROJECT				
CHECKED - S.M.R. / N.R.B. / G.R.A.						SHEET NO. 5 OF 13 SHEETS				

**GIRDER 6**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	9.42	575.89	575.89
CL. Brg. W. Abut.	382+95.63	9.42	575.90	575.90
C	383+05.63	9.42	575.95	576.01
D	383+15.63	9.42	576.00	576.13
E	383+25.63	9.42	576.05	576.21
F	383+35.63	9.42	576.10	576.29
G	383+45.63	9.42	576.15	576.34
H	383+55.63	9.42	576.20	576.36
I	383+65.63	9.42	576.25	576.37
J	383+75.63	9.42	576.30	576.35
CL. Brg. E. Abut.	383+84.13	9.42	576.34	576.34
Bk. E. Abut.	383+85.38	9.42	576.35	576.35

**GIRDER 7**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	16.33	575.79	575.79
CL. Brg. W. Abut.	382+95.63	16.33	575.79	575.79
C	383+05.63	16.33	575.84	575.91
D	383+15.63	16.33	575.89	576.02
E	383+25.63	16.33	575.94	576.11
F	383+35.63	16.33	575.99	576.18
G	383+45.63	16.33	576.04	576.23
H	383+55.63	16.33	576.09	576.25
I	383+65.63	16.33	576.14	576.26
J	383+75.63	16.33	576.19	576.25
CL. Brg. E. Abut.	383+84.13	16.33	576.23	576.23
Bk. E. Abut.	383+85.38	16.33	576.24	576.24

**GIRDER 8**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	23.25	575.66	575.66
CL. Brg. W. Abut.	382+95.63	23.25	575.66	575.66
C	383+05.63	23.25	575.71	575.78
D	383+15.63	23.25	575.76	575.89
E	383+25.63	23.25	575.81	575.98
F	383+35.63	23.25	575.86	576.05
G	383+45.63	23.25	575.91	576.10
H	383+55.63	23.25	575.96	576.12
I	383+65.63	23.25	576.01	576.13
J	383+75.63	23.25	576.06	576.12
CL. Brg. E. Abut.	383+84.13	23.25	576.10	576.10
Bk. E. Abut.	383+85.38	23.25	576.11	576.11

**GIRDER 9**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	30.17	575.51	575.51
CL. Brg. W. Abut.	382+95.63	30.17	575.52	575.52
C	383+05.63	30.17	575.57	575.63
D	383+15.63	30.17	575.62	575.75
E	383+25.63	30.17	575.67	575.83
F	383+35.63	30.17	575.72	575.91
G	383+45.63	30.17	575.77	575.95
H	383+55.63	30.17	575.82	575.98
I	383+65.63	30.17	575.87	575.99
J	383+75.63	30.17	575.92	575.97
CL. Brg. E. Abut.	383+84.13	30.17	575.96	575.96
Bk. E. Abut.	383+85.38	30.17	575.97	575.97

**GIRDER 10**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	37.08	575.37	575.37
CL. Brg. W. Abut.	382+95.63	37.08	575.37	575.37
C	383+05.63	37.08	575.42	575.49
D	383+15.63	37.08	575.47	575.60
E	383+25.63	37.08	575.52	575.69
F	383+35.63	37.08	575.57	575.76
G	383+45.63	37.08	575.62	575.81
H	383+55.63	37.08	575.67	575.83
I	383+65.63	37.08	575.72	575.84
J	383+75.63	37.08	575.77	575.83
CL. Brg. E. Abut.	383+84.13	37.08	575.82	575.82
Bk. E. Abut.	383+85.38	37.08	575.82	575.82

**GIRDER 11**

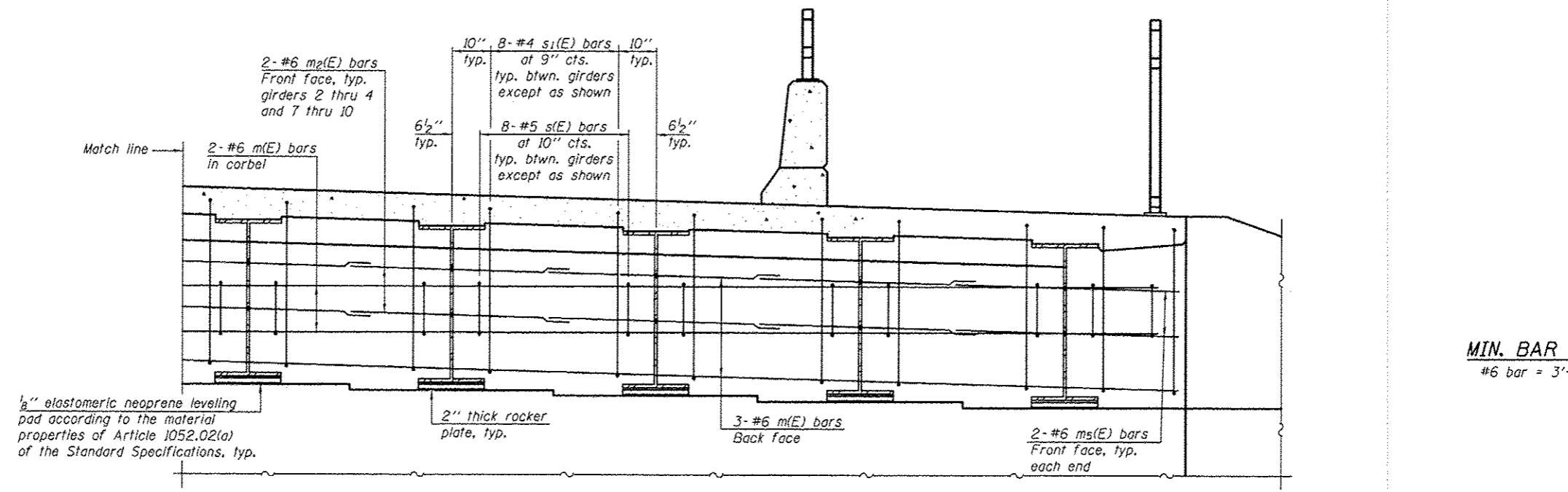
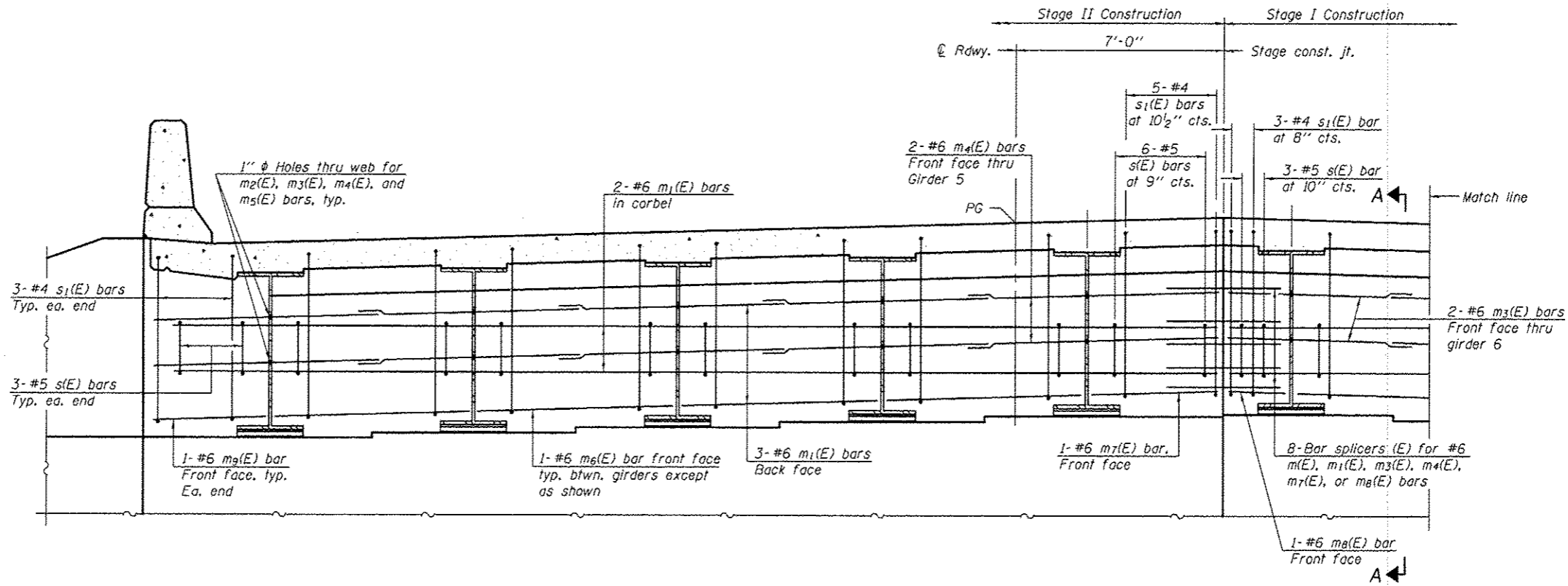
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	382+94.38	44.00	575.22	575.22
CL. Brg. W. Abut.	382+95.63	44.00	575.23	575.23
C	383+05.63	44.00	575.28	575.34
D	383+15.63	44.00	575.33	575.46
E	383+25.63	44.00	575.38	575.54
F	383+35.63	44.00	575.43	575.62
G	383+45.63	44.00	575.48	575.67
H	383+55.63	44.00	575.53	575.69
I	383+65.63	44.00	575.58	575.70
J	383+75.63	44.00	575.63	575.68
CL. Brg. E. Abut.	383+84.13	44.00	575.67	575.67
Bk. E. Abut.	383+85.38	44.00	575.68	575.68

▲ REVISED SHEET 1-11-13

For information only.

DESIGNED - STEPHEN M. RYAN	EXAMINED - <i>James F. J. [Signature]</i>	DATE - NOVEMBER 20, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TOP OF SLAB ELEVATIONS STRUCTURE NO. 081-0163	SHEET NO. 6 OF 13 SHEETS	F.A.U. / R.T.E. / 5789	SECTION / 40 BR-F	COUNTY / ROCK ISLAND	TOTAL SHEETS / 15	SHEET NO. / B
CHECKED - RAY AHANCHI	PASSED - <i>Carl [Signature]</i>	REVISED -				CONTRACT NO. 64J44				
DRAWN - h.t. duong	ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED -								
CHECKED - S.M.R. / N.R.B. / C.R.A.						ILLINOIS FED. AID PROJECT				





**MIN. BAR LAP**  
#6 bar = 3'-4"

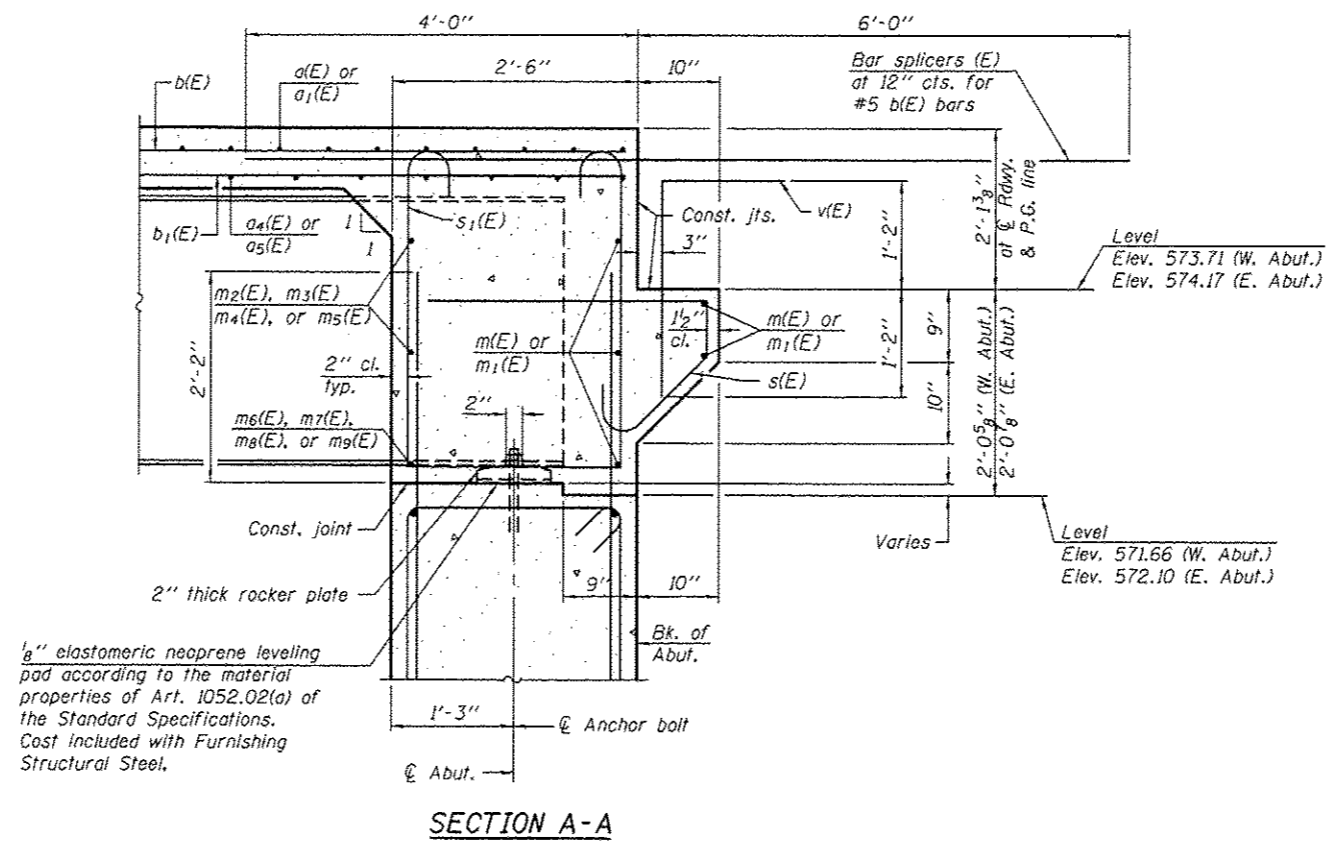
**DIAPHRAGM ELEVATION AT EAST ABUTMENT**  
(Looking east - West abutment similar)

REVISIONS SHEET 1-11-13

For Information only.

DESIGNED - STEPHEN M. RYAN	EXAMINED - <i>James F. [Signature]</i> ACTING ENGINEER OF BRIDGE DESIGN	DATE - NOVEMBER 20, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DIAPHRAGM DETAILS STRUCTURE NO. 081-0163	F.A.U. R.I.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED - RAY AHANCHI	PASSED - <i>[Signature]</i> ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED -			5789	40 BR-F	ROCK ISLAND	15	10
DRAWN - h.t. duong		REVISED -			CONTRACT NO. 64J44		ILLINOIS FED. AID PROJECT		
CHECKED - S.M.R. / N.R.B. / G.R.A.			SHEET NO. 8 OF 13 SHEETS						



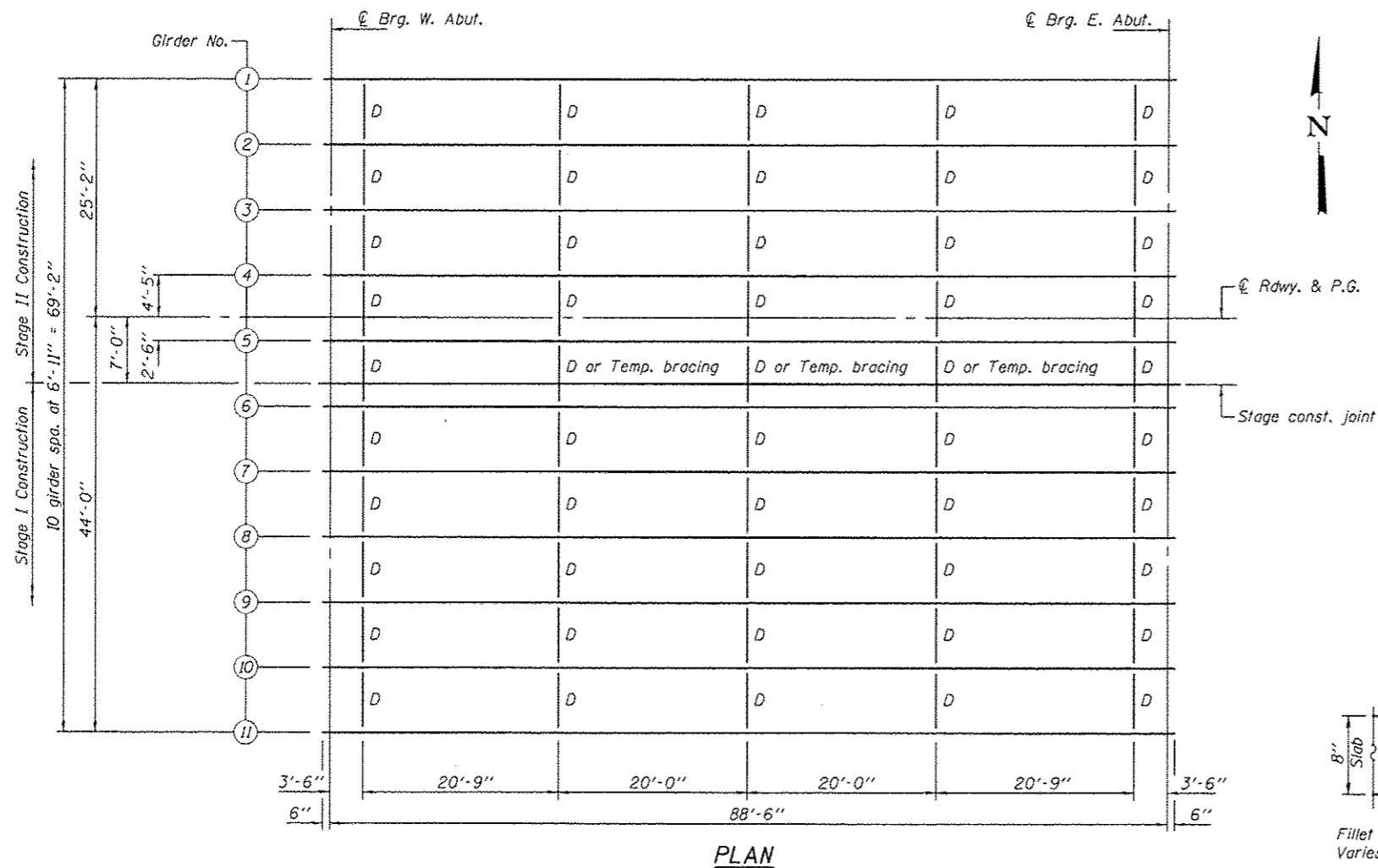


**MIN. BAR LAP**  
#6 bar = 3'-4"

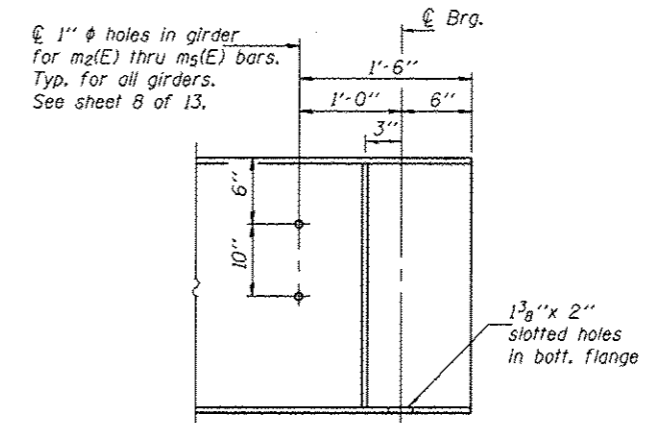
REVISIED SHEET 1-11-13

For Information only.

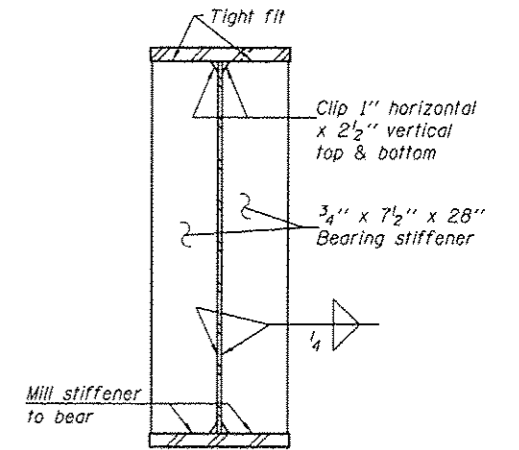
DESIGNED - STEPHEN M. RYAN	EXAMINED	DATE - NOVEMBER 20, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	DIAPHRAGM DETAILS STRUCTURE NO. 081-0163	F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED - RAY AHANCHI	PASSED	REVISIED			5789	40 BR-F	ROCK ISLAND	15	11	
DRAWN - h.t. duong		REVISIED			CONTRACT NO. 64J44					
CHECKED - S.M.R. / N.R.B. / G.R.A.		REVISIED			SHEET NO. 9 OF 13 SHEETS					
				ILLINOIS FED. AID PROJECT						



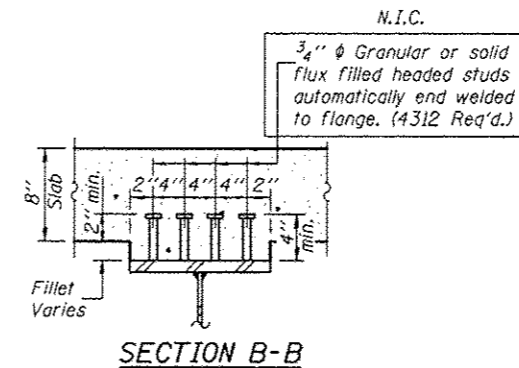
PLAN



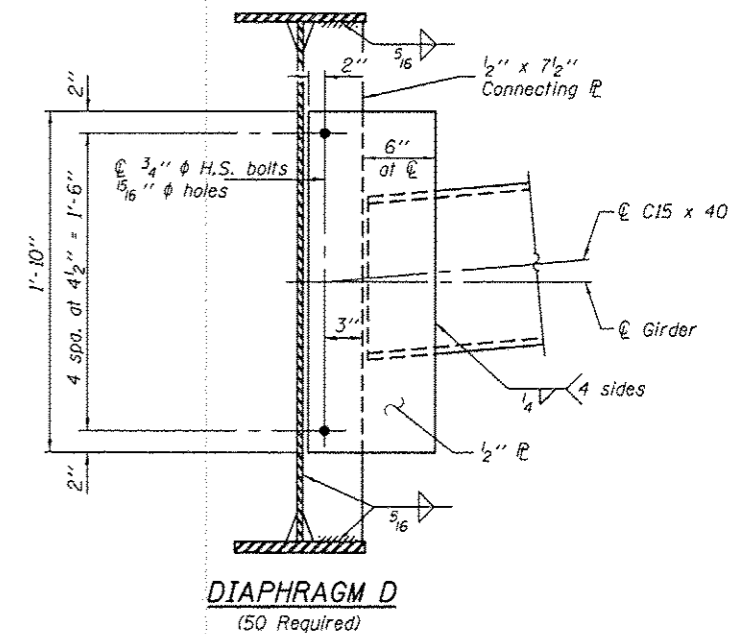
END OF GIRDER ELEVATION



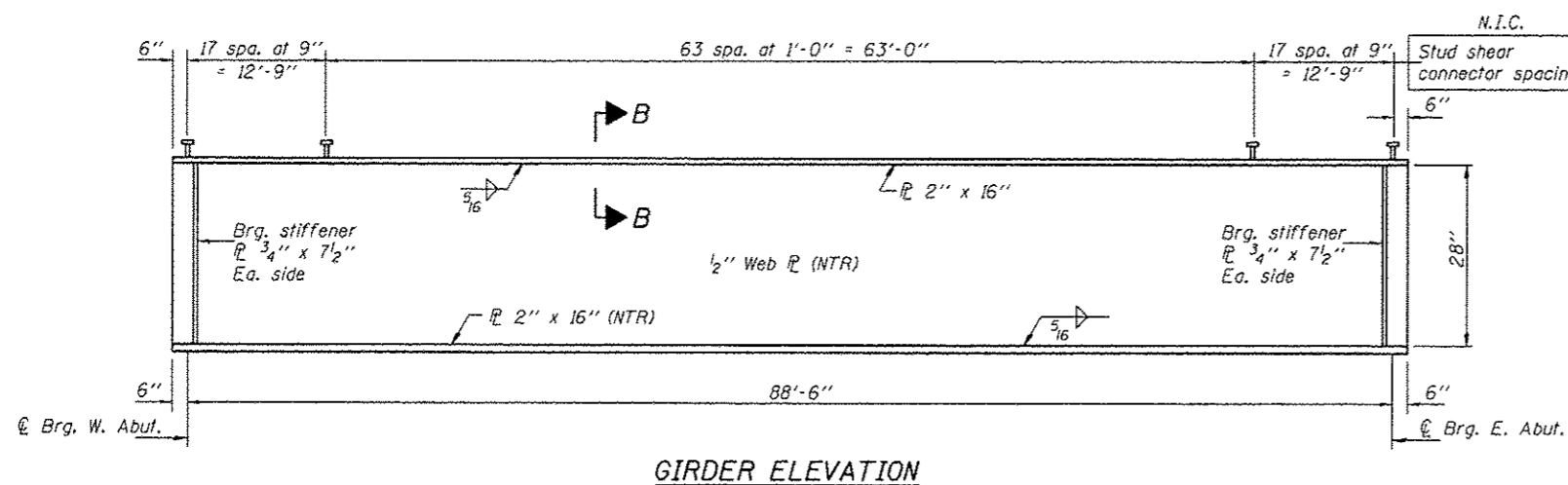
SECTION AT ABUTMENT



SECTION B-B



DIAPHRAGM D  
(50 Required)

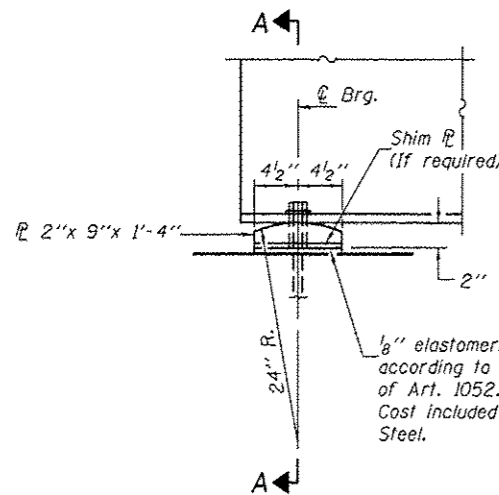


GIRDER ELEVATION

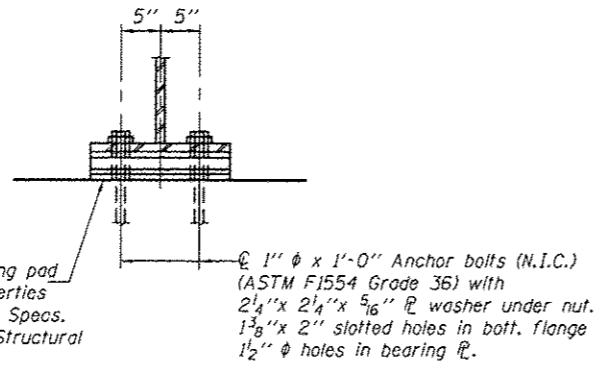
Notes: Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.  
Omit connecting plates on exterior side of exterior girder.  
All structural steel shall be AASHTO M 270, Grade 50W.  
All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts.  
Two hardened washers shall be required for all oversized holes in diaphragms.  
Alternate channels C15x50 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on lighter section. The alternate, if utilized, shall be provided at no cost to the department.

REVISI... SHEET 1-11-13

DESIGNED - STEPHEN M. RYAN	EXAMINED - <i>Joanna F. [Signature]</i> ACTING ENGINEER OF BRIDGE DESIGN	DATE - NOVEMBER 20, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STRUCTURAL STEEL STRUCTURE NO. 081-0163	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED - RAY AHANCHI	PASSED - <i>[Signature]</i> ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			5789	40 BR-F	ROCK ISLAND	15	12	
DRAWN - h.t. duong		REVISED			CONTRACT NO. 64J44					
CHECKED - S.M.R. / N.R.B. / G.R.A.					SHEET NO. 10 OF 13 SHEETS					



ELEVATION AT ABUTMENTS



SECTION A-A

ABUTMENT BEARING  
(22 Required)

SHIM PLATE LOCATION

	W. Abut.	E. Abut.
Girder 6	3/8"	3/8"
Girder 6	3/8"	3/8"

INTERIOR GIRDER MOMENT TABLE		0.5 Span
$I_s$	(in <sup>4</sup> )	15336
$I_c(n)$	(in <sup>4</sup> )	32054
$I_c(3n)$	(in <sup>4</sup> )	23518
$S_s$	(in <sup>3</sup> )	959
$S_c(n)$	(in <sup>3</sup> )	1229
$S_c(3n)$	(in <sup>3</sup> )	1121
DC1	(k/ft)	1.016
MDC1	(k)	1014
DC2	(k/ft)	.150
MDC2	(k)	147
DW	(k/ft)	0.346
MDW	(k)	339
$M_L + IM$	(k)	1331
$M_u$ (Strength I)	(k)	4289
$\phi_r M_n$	(k)	5409
$f_s$ DC1	(ksi)	12.7
$f_s$ DC2	(ksi)	1.6
$f_s$ DW	(ksi)	3.6
$f_s$ ( $\frac{1}{2}IM$ )	(ksi)	13.0
$f_s$ (Service II)	(ksi)	34.8
$0.95R_n F_y$	(ksi)	47.5
$V_r$	(k)	52.4

INTERIOR GIRDER REACTION TABLE		Abuts.
$R_{DC1}$	(k)	45.8
$R_{DC2}$	(k)	6.6
$R_{DW}$	(k)	15.3
$R_L + IM$	(k)	84.0
$R_{Total}$	(k)	151.7

$I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total-Strength I, and Service II) due to non-composite dead loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$  (Total-Strength I, and Service II) in uncracked sections due to short-term composite live loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$  (Total-Strength I, and Service II) in uncracked sections, due to long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).

DC1: Un-factored non-composite dead load (kips/ft.).

MDC1: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

MDW: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

$M_L + IM$ : Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).

$1.25(M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_L + IM$

$\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

$M_{DC1} / S_{sc}$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_{c(3n)}$  or  $M_{DC2} / S_{c(cr)}$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_{c(3n)}$  or  $M_{DW} / S_{c(cr)}$  as applicable.

$f_s$  ( $\frac{1}{2}IM$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

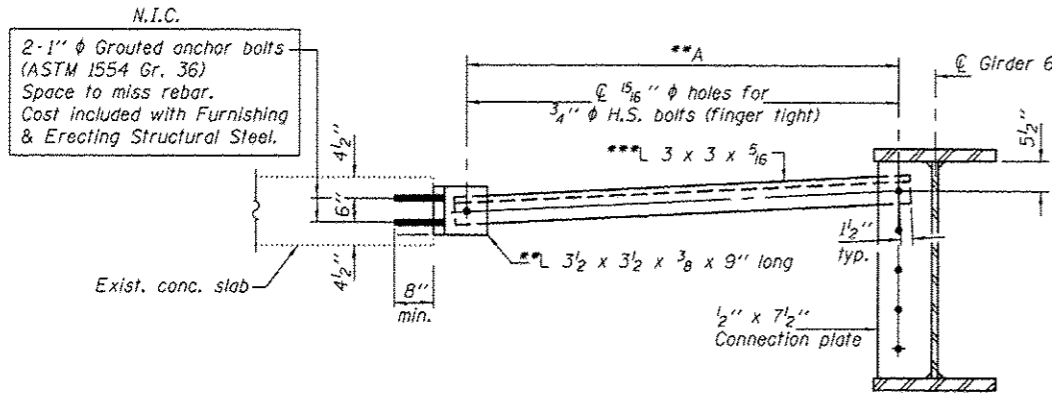
$M_L + IM / S_c(n)$  or  $M_{DW} / S_{c(cr)}$  as applicable.

$f_s$  (Service II): Sum of stresses as computed below (ksi).

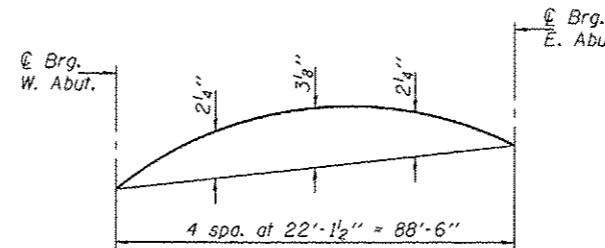
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s(\frac{1}{2}IM)$

$0.95R_n F_y$ : Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

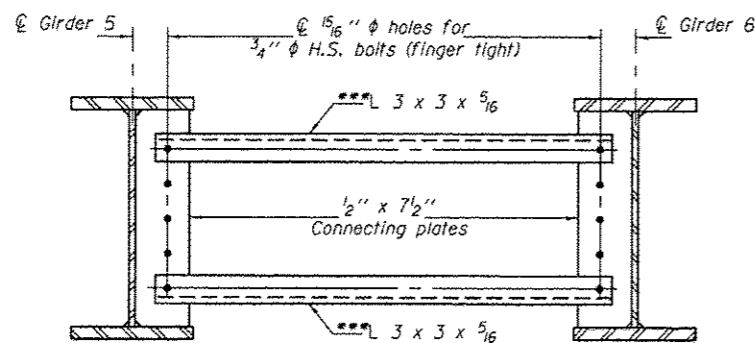
$V_r$ : Maximum factored shear range in span computed according to Article 6.10.10.



TEMPORARY BRACING FOR STAGE I CONSTRUCTION  
(3 Required)



CAMBER DIAGRAM



TEMPORARY BRACING FOR STAGE II CONSTRUCTION  
(3 Required)

Notes:

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 ( $F_y=36$ ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

Drilled and set anchor bolts shall be installed according to Article 5.21.06 of the Standard Specifications.

Two hardened washers required for each set of oversized holes.

\*\*The horizontal dimension A between the holes in the diaphragm connection plate and L 3 1/2 x 3 1/2 shall be measured in the field. The holes in the L 3 1/2 x 3 1/2 shall be field drilled at this dimension. Cost included with Furnishing Structural Steel.

\*\*\*L 3 x 3 x 5/16 to be used as temporary during Stage I and Stage II deck pour. Remove and replace with diaphragm D after Stage II deck pour is complete. Use between Girders 5 & 6 only. Cost included with Furnishing Structural Steel.

\*TOP OF WEB ELEVATIONS

	© Brg. W. Abut.	© Brg. E. Abut.
Girder 1	574.50	574.95
Girder 2	574.64	575.09
Girder 3	574.75	575.19
Girder 4	574.86	575.30
Girder 5	574.97	575.41
Girder 6	575.00	575.44
Girder 7	574.89	575.33
Girder 8	574.76	575.20
Girder 9	574.62	575.06
Girder 10	574.47	574.92
Girder 11	574.33	574.77

\*For fabrication use only.

REVISIONS SHEET 1-11-13

DESIGNED - STEPHEN M. RYAN	EXAMINED - <i>Joanne F. Hoff</i> ACTING ENGINEER OF BRIDGES REGION	DATE - NOVEMBER 20, 2012
CHECKED - RAY AHANCHI	PASSED - <i>Carl Perry</i> ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED -
DRAWN - h.t. duong		REVISED -
CHECKED - S.M.R. / N.R.B. / G.R.A.		

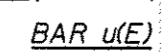
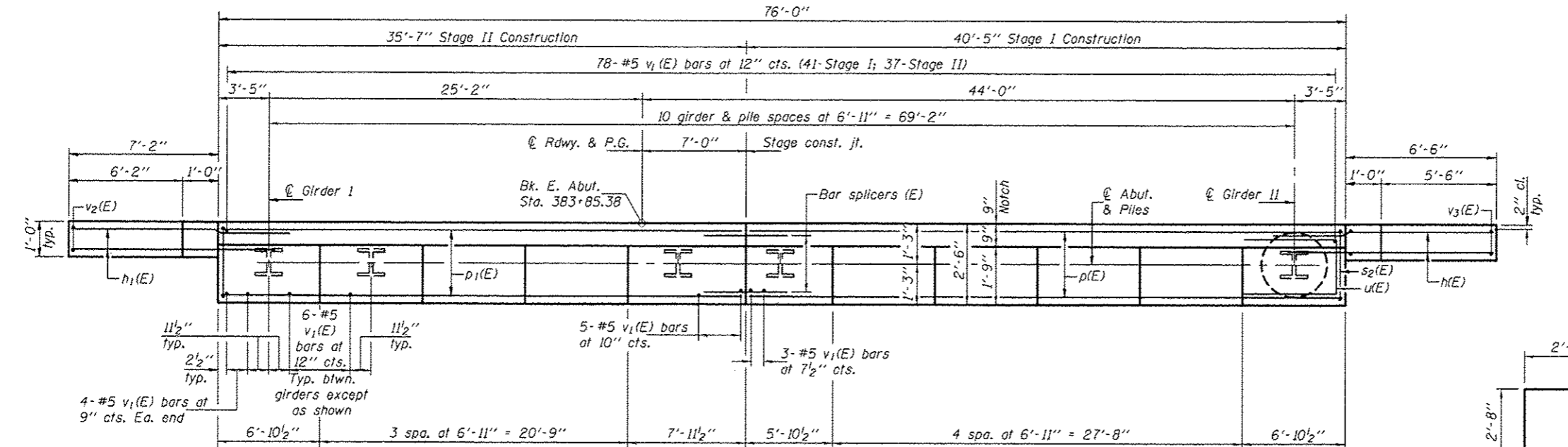
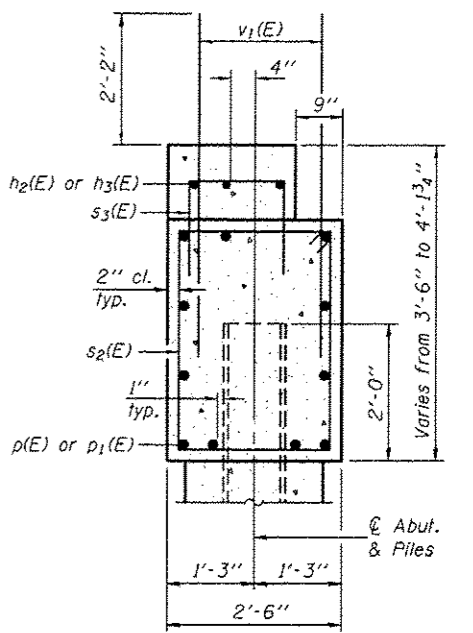
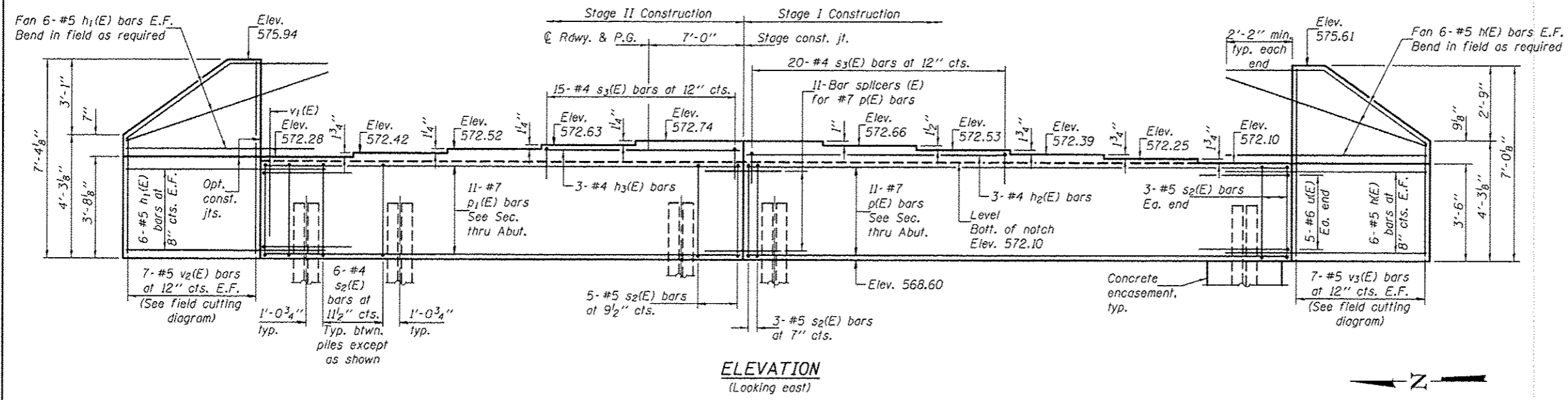
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS  
STRUCTURE NO. 081-0163

SHEET NO. 11 OF 13 SHEETS

F.A.U. RTE. 5789	SECTION 40 BR-F	COUNTY ROCK ISLAND	TOTAL SHEETS 15	SHEET NO. 13
CONTRACT NO. 64J44			ILLINOIS FED. AID PROJECT	



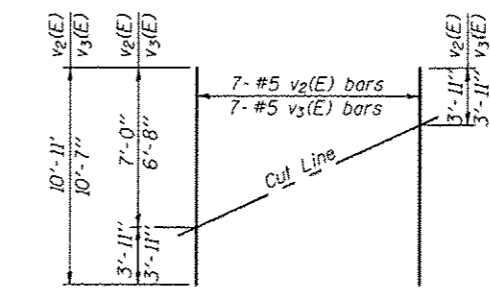
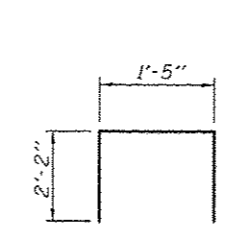
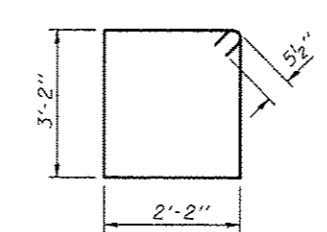
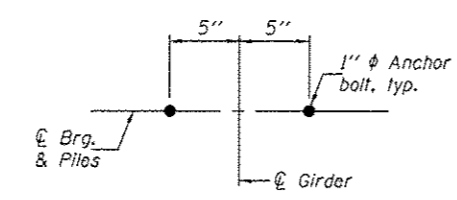


**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h <sub>1</sub> (E)	24	#5	9'-2"	—
h <sub>1</sub> (E)	24	#5	9'-11"	—
h <sub>2</sub> (E)	3	#4	19'-5"	—
h <sub>3</sub> (E)	3	#4	14'-7"	—
p(E)	11	#7	40'-1"	—
p <sub>1</sub> (E)	11	#7	35'-3"	—
s <sub>2</sub> (E)	68	#4	11'-7"	□
s <sub>3</sub> (E)	35	#4	5'-9"	□
u(E)	10	#6	7'-5"	□
v <sub>1</sub> (E)	148	#5	4'-4"	—
v <sub>2</sub> (E)	7	#5	10'-11"	—
v <sub>3</sub> (E)	7	#5	10'-7"	—
Structure Excavation	Cu. Yd.		59.0	
Concrete Structures	Cu. Yd.		29.5	
Reinforcement Bars, Epoxy Coated	Pound		3840	
Furnishing Steel Piles HPI0x42	Foot		230	
Driving Piles	Foot		230	
Test Pile Steel HPI0x42	Each		1	
Concrete Encasement	Cu. Yd.		3.8	
Anchor Bolts 1"	Each		22	

**PILE DATA**

Type: Steel HPI0x42  
 Nominal Required Bearing: 335 Kips  
 Factored Resistance Available: 184 Kips  
 Est. Length: 23'  
 No. Production Piles: 10  
 No. Test Piles: 1



REVISIONS SHEET 1-11-13

For information only.

DESIGNED - STEPHEN M. RYAN	EXAMINED - <i>Joanne F. Hoff</i> ACTING ENGINEER OF BRIDGE DESIGN	DATE - NOVEMBER 20, 2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EAST ABUTMENT STRUCTURE NO. 081-0163	SHEET NO. 13 OF 13 SHEETS
CHECKED - RAY AHANCHI	PASSED - <i>Carl</i> ACTING ENGINEER OF BRIDGES AND STRUCTURES	REVISED			
DRAWN - h.t. duong	REVISED				
CHECKED - S.M.R. / N.R.B. / C.R.A.	REVISED				