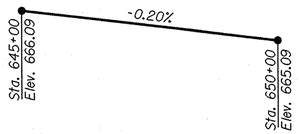
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	30
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

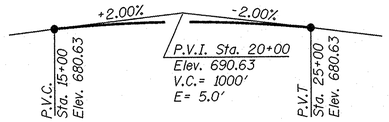
Sheet 1 of 48 Sheets

Benchmark: Chiseled "□" cut in W. headwall of culvert
Sta. 647+07 F.A.I. 57, 83' Lt.
Elevation = 661.09

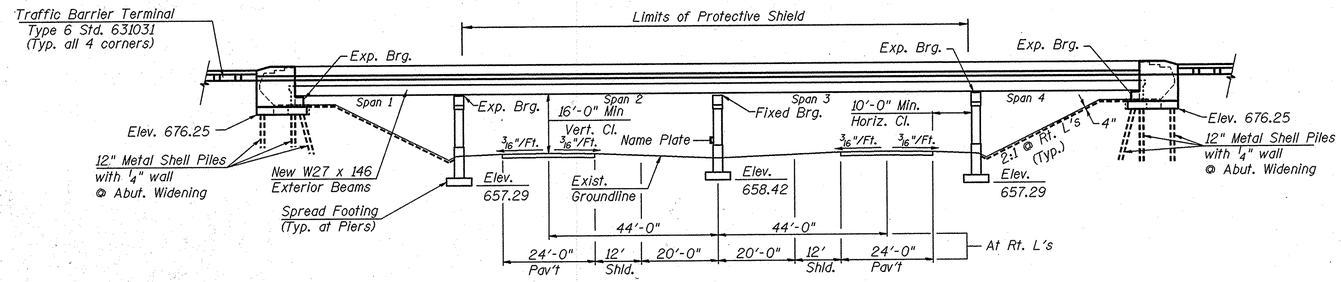
Existing Structure: No. 038-0031. Built as F.A.I. Route 57, Sec. 38-5HB-2 1966. The Superstructure consists of a reinforced concrete deck 222'-0" Bk. to Bk. abutments by 57'-8" out to out deck supported by a four span continuous wide flange beam. Traffic shall be maintained, during rehabilitation of the structure, by stage construction. The Contractor shall salvage the Existing Steel Bridge Railing and Posts and deliver them to the District Maintenance Yard in Ashkum, IL.



PROFILE GRADE F.A.I. RTE. 57
UNDER U.S. 24



PROFILE GRADE U.S. 24
OVER F.A.I RTE 57

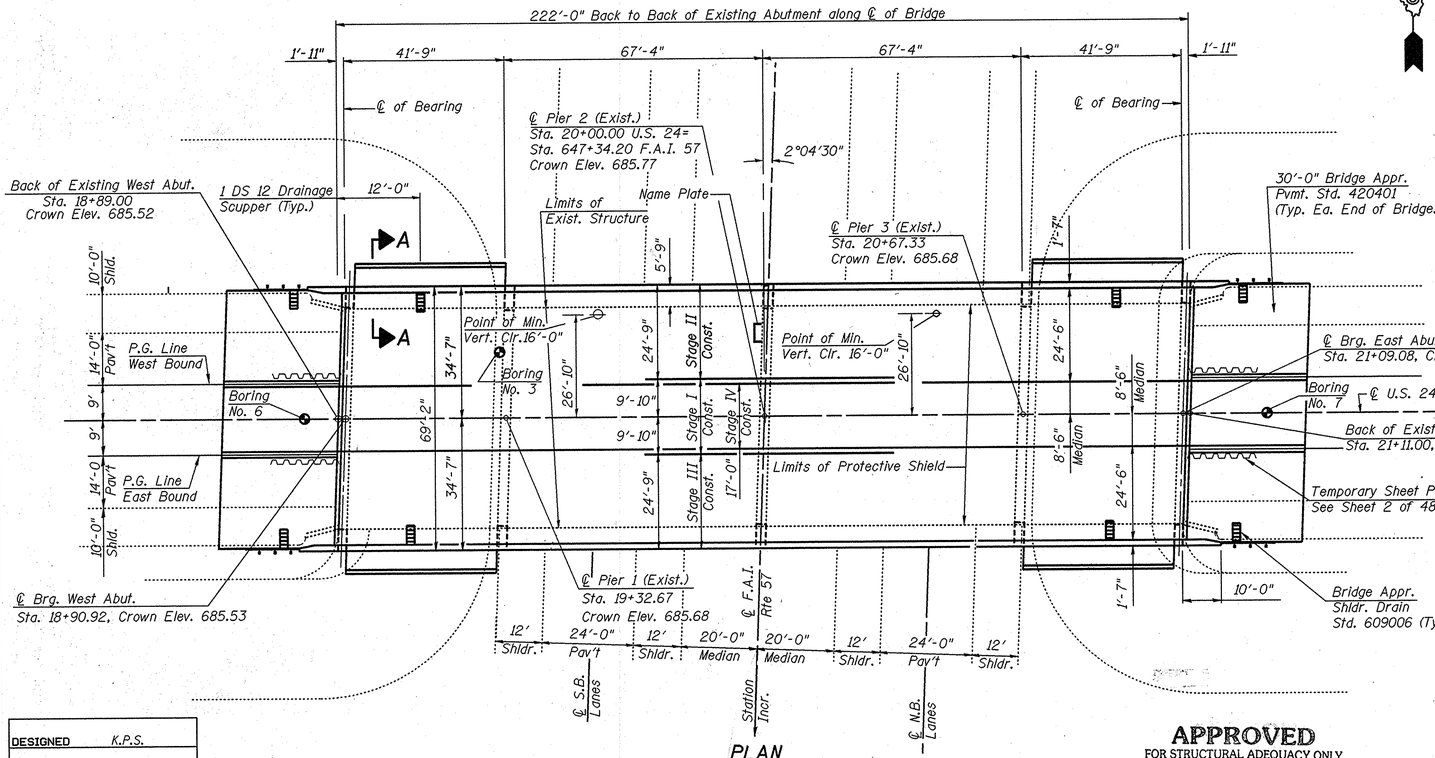


Note: For Slopewall Detail see sheet 2 of 48

ELEVATION

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Structure Excavation	Cu. Yd.		520	520
Removal of Existing Conc. Deck	L. S.	1		1
Concrete Removal	Cu. Yd.		38	38
Concrete Superstructure	Cu. Yd.	520.1		520.1
Concrete Structures	Cu. Yd.		253.4	253.4
Protective Coat	Sq. Yd.	1850		1850
Bridge Deck Grooving	Sq. Yd.	1090		1090
Furn.and Erect. Structural Steel	Pound	82,070		82,070
Stud Shear Connectors	Each	9270		9270
Reinforcement Bars, Epoxy Coated	Pound	107,090	25,150	132,240
Porous Granular Embankment	Cu. Yd.		328	328
Elastomeric Bearing Assembly Type II	Each	24		24
Name Plates	Each	1		1
Drainage Scuppers DS-12	Each	4		4
Bridge Joint System (Expansion) (5")	Lin. Ft.	140		140
Slopewall Removal	Sq. Yd.		590	590
Slopewall 4"	Sq. Yd.		757	757
Furnishing Metal Shell Piles 12"	Ft		420	420
Driving and Filling Shells	Ft		420	420
Temporary Sheet Piling	Sq. Ft.		704	704
Protective Shield	Sq. Yd.		847	847
Bar Splicers	Each	1288	52	1340
Jack and Remove Existing Bearings	Each	20		20
Test Pile, Metal Shells	Each		1	1
Cleaning and Painting Steel Bridge	L. S.	1		1
Containment and Disposal of Lead Paint Cleaning Residues	L. S.	1		1
Bridge Seat Sealer	Sq. Ft.		303	303
Rubbed Finish (Modified)	Sq. Ft.	1613		1613



PLAN

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

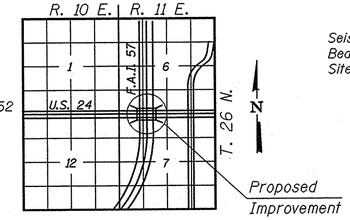
APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

STATION 647+34.20
REBUILT 20__ BY
STATE OF ILLINOIS
U.S. ROUTE 24
SECTION 38-5 HBR-2
LOADING HS20-44
STR. NO. 038-0031

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

NAME PLATE
See Std. 515001

LOCATION SKETCH



DESIGN SPECIFICATIONS
1996 AASHTO with 1997 & 1999 Interims

LOADING HS20-44
Allow 25 #/sq.ft for future wearing surface.

DESIGN STRESSES
f'_c = 3,500 psi (New Concrete)
f_y = 60,000 psi (New Reinforcement)
f_y = 50,000 psi (New Structural Steel M270 GR50)
f_y = 36,000 psi (Existing ASTM A-36 Steel)

SEISMIC DATA
Seismic Performance Category (S.P.C.) - A
Bedrock Acceleration Coefficient (A) - 0.043g
Site Coefficient (S) - 1.0

GERMAN RONCANCIO
081-003091
LICENSED STRUCTURAL ENGINEER OF SPRINGFIELD ILLINOIS

ILLINOIS STRUCTURAL NO. 3091 EXPIRES 11-30-2002

Note: See sheet No. 2 of 48 for Section A-A

GENERAL PLAN AND ELEVATION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

g:\98-76\038-0031\9876gpe.dgn May. 06, 2002 21:31:48

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	31
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 2 of 48 Sheets

GENERAL NOTES

Fasteners shall be high strength bolts. Bolts $\frac{7}{8}$" ϕ, open holes $\frac{15}{16}$" ϕ, unless otherwise noted.

Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.

Anchor bolts shall be set before bolting diaphragms over supports.

The structural steel bearing plates of the Elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.

The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams and all splice plate material except fill plates.

Reinforcement bars shall conform to the requirements of AASHTO M 31, M 42 or M 53 Grade 60.

Slope wall shall be reinforced with welded wire fabric, 6" x 6" - W4.0 x W4.0, weighing 58 lbs. per 100 sq. ft.

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field 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 the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $\frac{1}{8}$ inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two $\frac{1}{8}$" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

Prior to pouring the new concrete deck, all loose rust, loose mill scale and other loose potentially detrimental foreign material shall be removed from the surfaces of the beams or girders in contact with concrete. The cost of this work will be included in the pay item covering removal of the existing concrete. All heavy rust and other tightly adhered potentially detrimental foreign matter shall also be removed from the surfaces os the beams or girders in contac with concrete. Tightly adhered paint may remain unless otherwise noted. This removal shall be accomplished by methods that will not damage the steel. The cost of this work will be paid for according to Article 109.04

All the existing construction accessories welded to the top flange over the pier(s) between the points of the beams or girders shall be removed. The remaining weld shall be ground smooth and inspected for cracks using magnetic particle testing. Any cracks that can not be removed by grinding approximately $\frac{1}{4}$" deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of this work will be paid for according to article 109.04.

Cleaning and painting the existing structural steel shall be as specified in the Special Provision for "Cleaning and Painting Existing Steel Structures". All existing steel shall be cleaned per Near White Blast Cleaning - SSPC-SP10. All existing steel shall be painted according to the requirements of Paint System I - OZ/E/U. The color of the final finish coat for all interior steel surface shall be Gray. Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Redish Brown Munsell No. 2.5 YR 3/4

The SSPC-QP1 and SSPC-QP2 Painting Contractor certifications will not be required for this bridge.

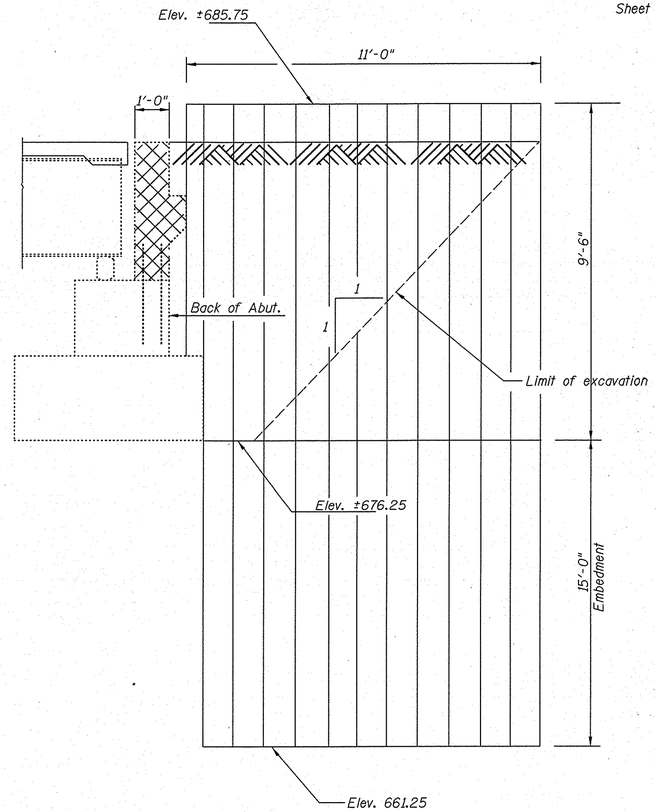
The existing structural steel coating contains lead. The Contractor should take appropriate precautions to deal with the presence of lead on this project.

Bridge Seat Sealer shall be applied to the seat area of the new concrete at abutments and piers.

The inorganic zinc rich primer / Epoxy / Urethane Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for the exterior and botton flange of the fascia beams shall be Interstate Green, Munsell No. 7.5G 1/2.

A minimun of two Air Monitors will be required to monitor abrasive blasting operators at the site, See Special Provision for Containment and Disposal of Lead Paint Cleaning Residues.

The contractor shall drive One Metal Shell test pile in a permanent location at West Abutment as directed by Engineer before ordering the remainder of piles.

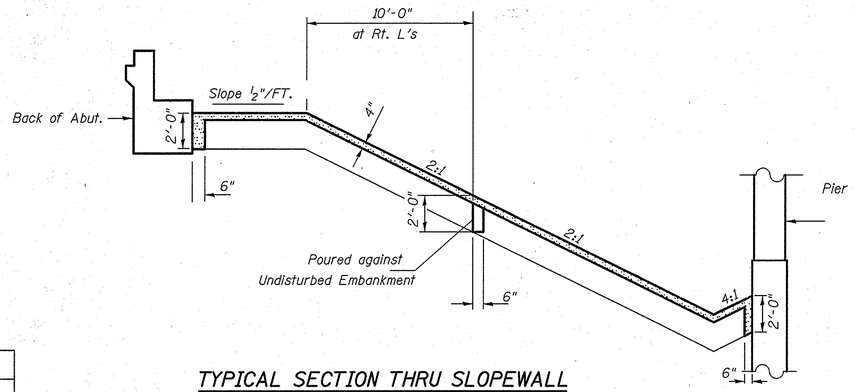


TEMPORARY SHEET PILING AT ABUTMENTS

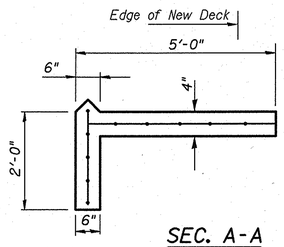
Min. Section Modulus = 11.9 in3 / Ft

If the contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans for lesser design requirements, then full design submittals with the required seals will be expected by the Department, for review and approval.

Sheet Piling within the limits of the existing footing shall be driven to the top of the footing and anchored to the existing abutment wall. The connection shall be approved by the Engineer



TYPICAL SECTION THRU SLOPEWALL



SEC. A-A

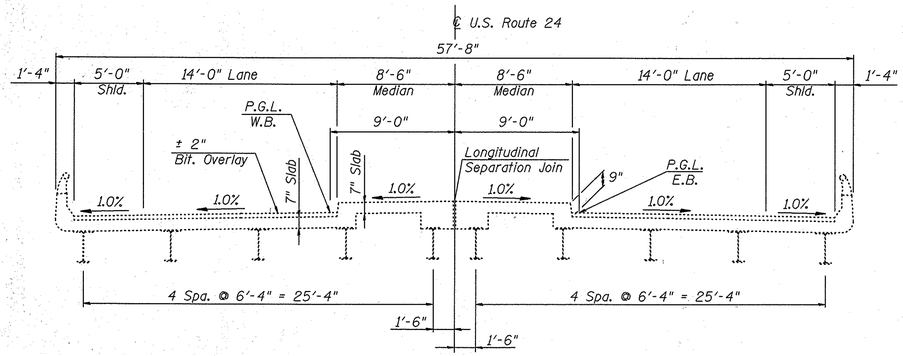
DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

GENERAL NOTES AND DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION (38-5) HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

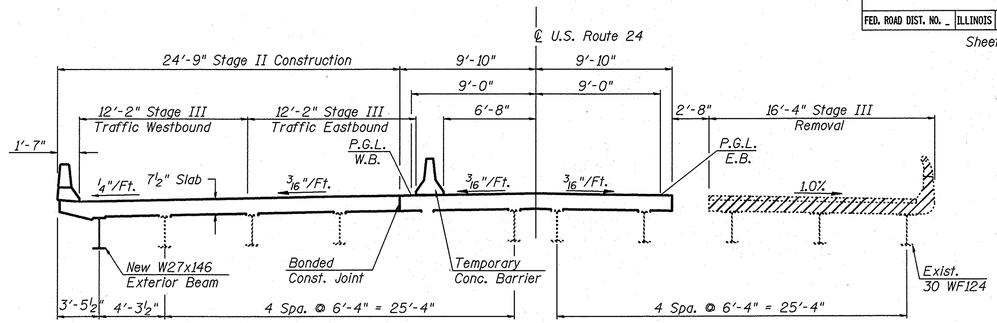
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	3
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 3 of 48 Sheets



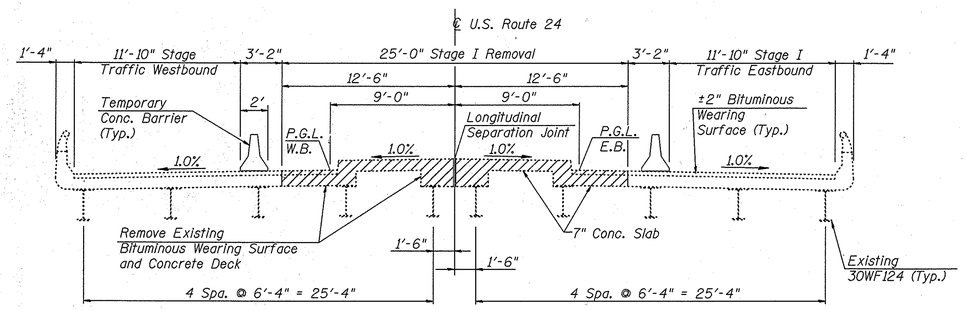
EXISTING BRIDGE CROSS SECTION

(Looking East)



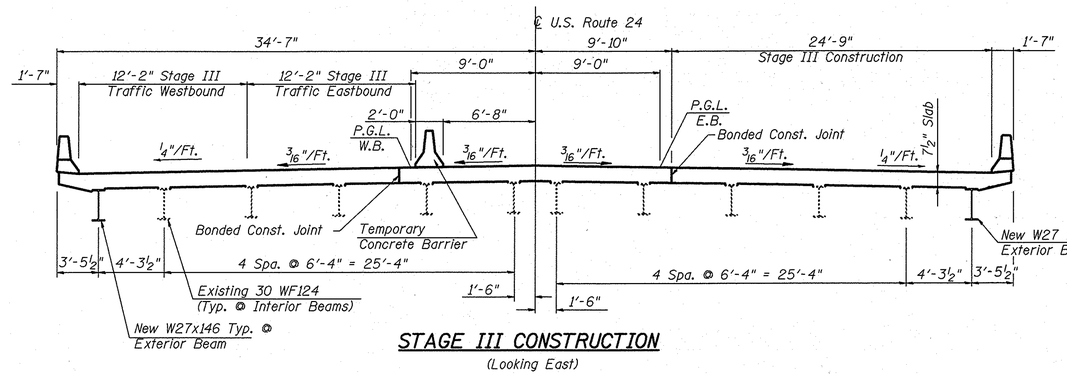
STAGE II CONSTRUCTION & STAGE III REMOVAL

(Looking East)



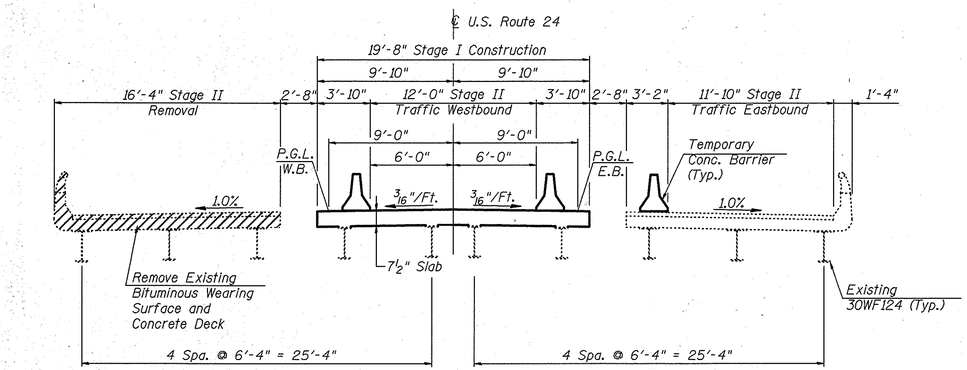
STAGE I REMOVAL

(Looking East)



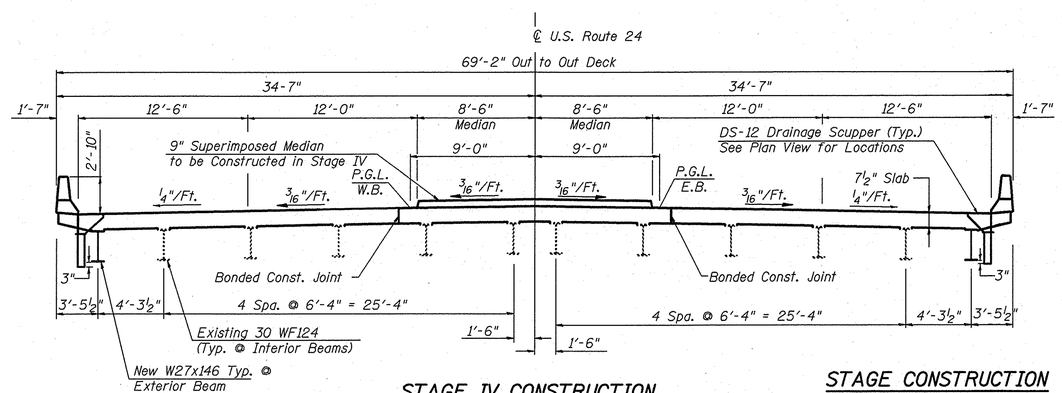
STAGE III CONSTRUCTION

(Looking East)



STAGE I CONSTRUCTION & STAGE II REMOVAL

(Looking East)



STAGE IV CONSTRUCTION & FINAL CROSS SECTION

(Looking East)

STAGE CONSTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

Note: Hatched areas indicates "Removal of Existing Concrete Deck".
For details of Temporary Concrete Barrier, see sheet No. 4 of 48.
For quantity of Temporary Concrete Barrier, see Roadway plans.

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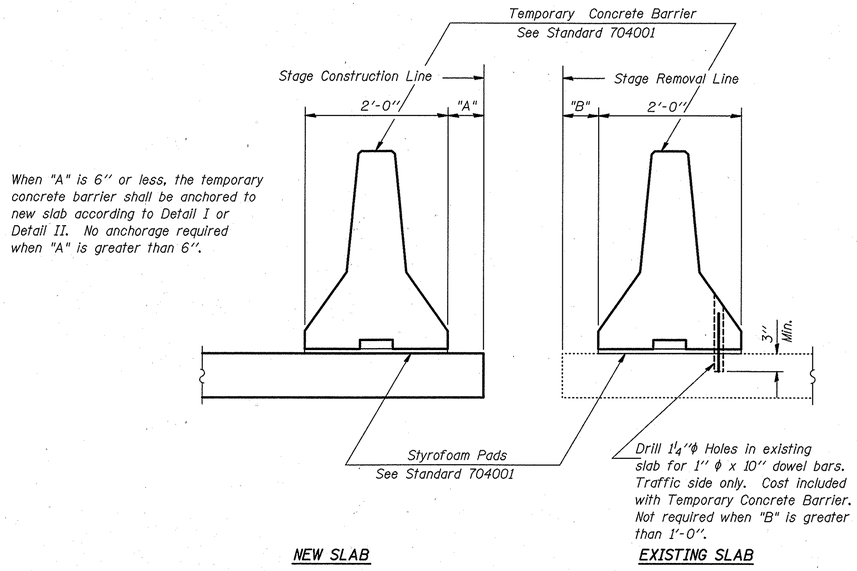
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	59	33
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 4 of 48 Sheets



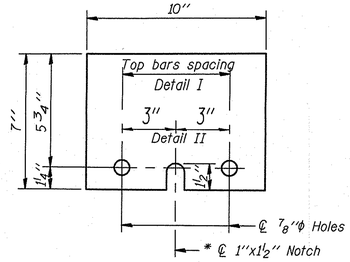
SECTIONS THRU SLAB

NOTES

Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x7"x10" steel ℙ to the top layer of couplers with 2-5/8"ϕ bolts screwed to coupler at approximate ℄ of each 10'-0" barrier panel.

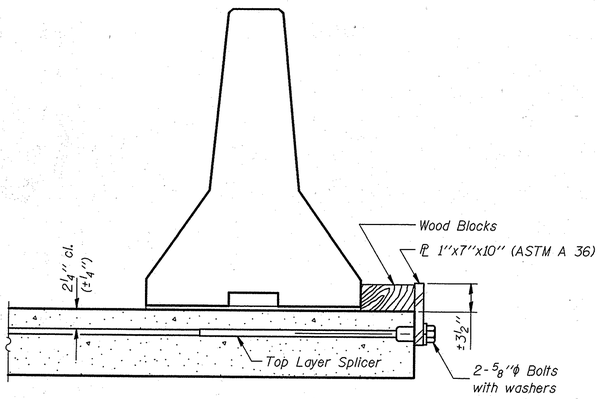
Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x10" steel ℙ to the concrete slab with 2-5/8"ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each 10'-0" barrier panel.

Cost of anchorage is included with Temporary Concrete Barrier.



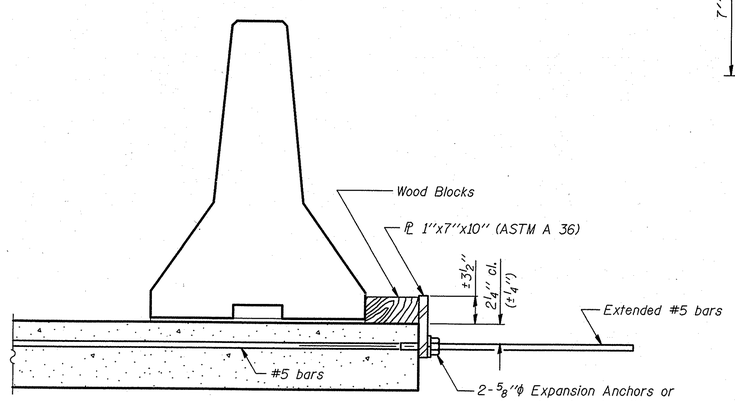
ℙ 1"x7"x10"

* Required only with Detail II



DETAIL I

The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.



DETAIL II

The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

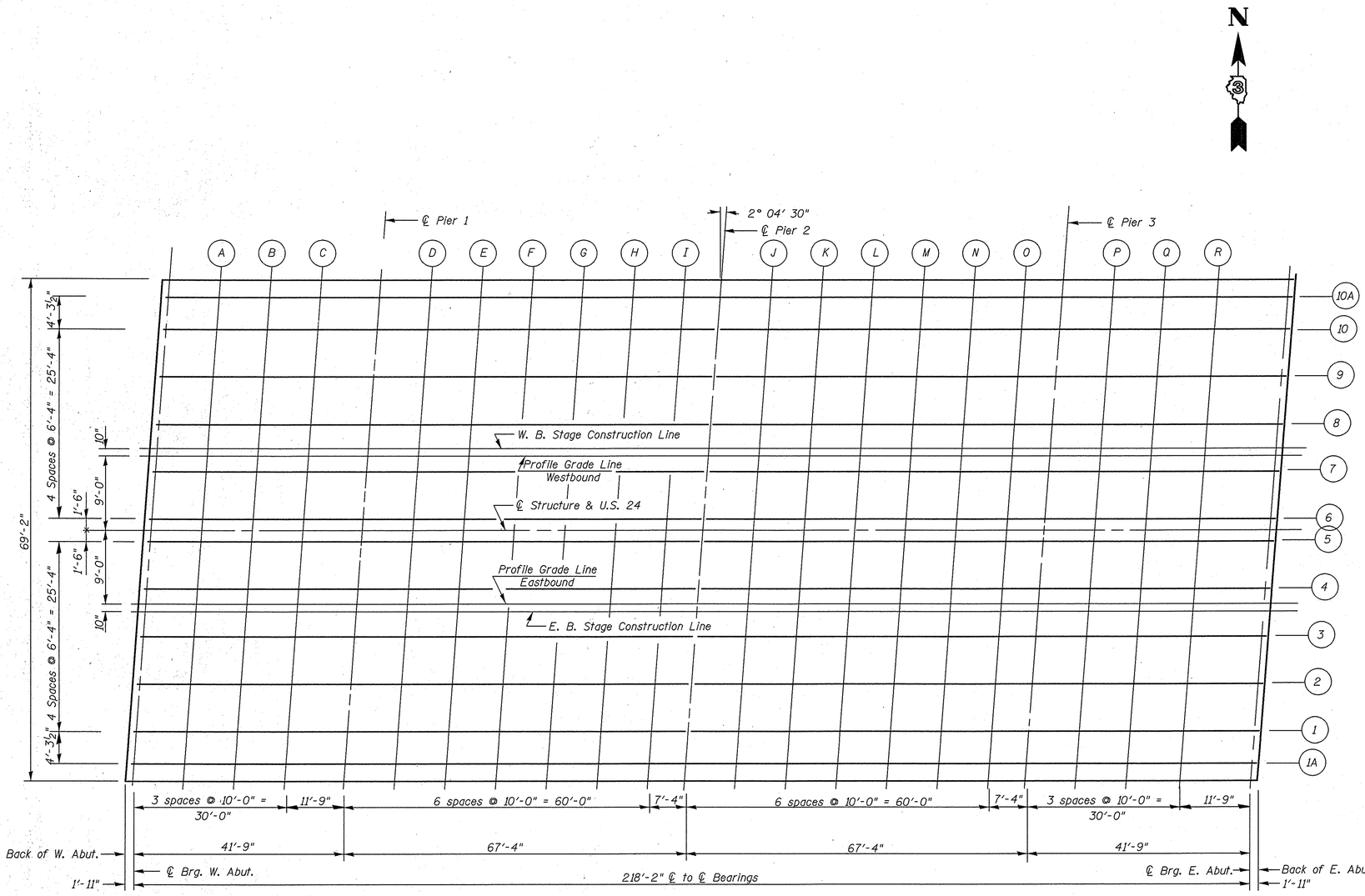
DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	Mar
CHECKED	G.R.

TEMPORARY CONCRETE BARRIER
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	49	34
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 5 of 48 Sheets.



PLAN

℄ BEAM 1A

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1887.872	31.125	684.977	684.977
CL Brg. West Abut.	1889.789	31.125	684.986	684.986
A	1899.789	31.125	685.028	685.033
B	1909.789	31.125	685.066	685.071
C	1919.789	31.125	685.100	685.101
CL Brg. Pier # 1	1931.539	31.125	685.135	685.135
D	1941.539	31.125	685.161	685.175
E	1951.539	31.125	685.182	685.213
F	1961.539	31.125	685.199	685.239
G	1971.539	31.125	685.213	685.248
H	1981.539	31.125	685.222	685.243
I	1991.539	31.125	685.228	685.233
CL Brg. Pier # 2	1998.872	31.125	685.229	685.229
J	2008.872	31.125	685.227	685.232
K	2018.872	31.125	685.222	685.243
L	2028.872	31.125	685.212	685.248
M	2038.872	31.125	685.199	685.238
N	2048.872	31.125	685.181	685.213
O	2058.872	31.125	685.160	685.174
CL Brg. Pier # 3	2066.206	31.125	685.141	685.141
P	2076.206	31.125	685.113	685.112
Q	2086.206	31.125	685.080	685.081
R	2096.206	31.125	685.044	685.049
CL Brg. East Abut.	2107.956	31.125	684.996	684.996
Bk. East Abut.	2109.872	31.125	684.987	684.987

TOP OF SLAB ELEVATIONS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

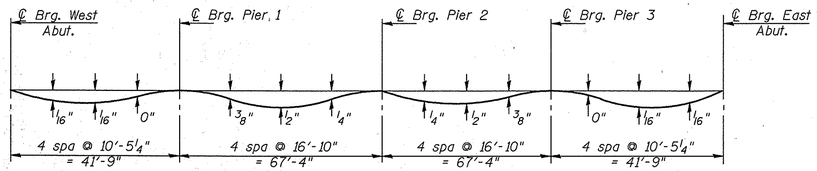
DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

Work this sheet with sheet No. 6 thru No. 9 of 48.

RC ENGINEERS LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	35
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

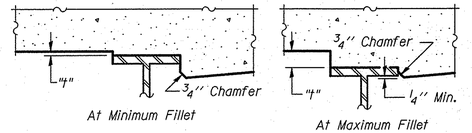
Sheet 6 of 48 Sheets



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 below.



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 below, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

℄ BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1888.028	26.833	685.068	685.068
CL Brg. West Abut.	1889.944	26.833	685.076	685.076
A	1899.944	26.833	685.118	685.123
B	1909.944	26.833	685.156	685.161
C	1919.944	26.833	685.190	685.191
CL Brg. Pier # 1	1931.694	26.833	685.225	685.225
D	1941.694	26.833	685.250	685.265
E	1951.694	26.833	685.272	685.303
F	1961.694	26.833	685.289	685.329
G	1971.694	26.833	685.302	685.338
H	1981.694	26.833	685.312	685.333
I	1991.694	26.833	685.317	685.322
CL Brg. Pier # 2	1999.028	26.833	685.318	685.318
J	2009.028	26.833	685.317	685.322
K	2019.028	26.833	685.311	685.332
L	2029.028	26.833	685.301	685.337
M	2039.028	26.833	685.288	685.327
N	2049.028	26.833	685.270	685.302
O	2059.028	26.833	685.249	685.263
CL Brg. Pier # 3	2066.361	26.833	685.230	685.230
P	2076.361	26.833	685.202	685.201
Q	2086.361	26.833	685.169	685.170
R	2096.361	26.833	685.133	685.138
CL Brg. East Abut.	2108.111	26.833	685.085	685.085
Bk. East Abut.	2110.028	26.833	685.076	685.076

℄ BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1888.257	20.5000	685.201	685.201
CL Brg. West Abut.	1890.174	20.5000	685.209	685.209
A	1900.174	20.5000	685.251	685.256
B	1910.174	20.5000	685.289	685.294
C	1920.174	20.5000	685.323	685.324
CL Brg. Pier # 1	1931.924	20.5000	685.358	685.358
D	1941.924	20.5000	685.383	685.397
E	1951.924	20.5000	685.404	685.435
F	1961.924	20.5000	685.421	685.461
G	1971.924	20.5000	685.435	685.470
H	1981.924	20.5000	685.444	685.465
I	1991.924	20.5000	685.449	685.454
CL Brg. Pier # 2	1999.257	20.5000	685.450	685.450
J	2009.257	20.5000	685.449	685.454
K	2019.257	20.5000	685.443	685.464
L	2029.257	20.5000	685.433	685.468
M	2039.257	20.5000	685.419	685.459
N	2049.257	20.5000	685.402	685.433
O	2059.257	20.5000	685.380	685.394
CL Brg. Pier # 3	2066.591	20.5000	685.362	685.362
P	2076.591	20.5000	685.333	685.332
Q	2086.591	20.5000	685.300	685.301
R	2096.591	20.5000	685.264	685.269
CL Brg. East Abut.	2108.341	20.5000	685.216	685.216
Bk. East Abut.		20.5000	685.207	685.207

℄ BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1888.487	14.1667	685.301	685.301
CL Brg. West Abut.	1890.403	14.1667	685.309	685.309
A	1900.403	14.1667	685.351	685.356
B	1910.403	14.1667	685.389	685.394
C	1920.403	14.1667	685.423	685.423
CL Brg. Pier # 1	1932.153	14.1667	685.457	685.457
D	1942.153	14.1667	685.482	685.497
E	1952.153	14.1667	685.503	685.535
F	1962.153	14.1667	685.521	685.560
G	1972.153	14.1667	685.534	685.569
H	1982.153	14.1667	685.543	685.564
I	1992.153	14.1667	685.548	685.553
CL Brg. Pier # 2	1999.487	14.1667	685.549	685.549
J	2009.487	14.1667	685.547	685.553
K	2019.487	14.1667	685.542	685.563
L	2029.487	14.1667	685.532	685.567
M	2039.487	14.1667	685.518	685.558
N	2049.487	14.1667	685.500	685.532
O	2059.487	14.1667	685.478	685.493
CL Brg. Pier # 3	2066.820	14.1667	685.460	685.460
P	2076.820	14.1667	685.431	685.430
Q	2086.820	14.1667	685.398	685.399
R	2096.820	14.1667	685.362	685.367
CL Brg. East Abut.	2108.570	14.1667	685.313	685.313
Bk. East Abut.	2110.487	14.1667	685.305	685.305

EB STAGE CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1888.644	9.8333	685.369	685.369
CL Brg. West Abut.	1890.560	9.8333	685.377	685.377
A	1900.560	9.8333	685.419	685.424
B	1910.560	9.8333	685.457	685.462
C	1920.560	9.8333	685.491	685.491
CL Brg. Pier # 1	1932.310	9.8333	685.679	685.679
D	1942.310	9.8333	685.704	685.718
E	1952.310	9.8333	685.571	685.603
F	1962.310	9.8333	685.589	685.628
G	1972.310	9.8333	685.602	685.637
H	1982.310	9.8333	685.611	685.632
I	1992.310	9.8333	685.616	685.621
CL Brg. Pier # 2	1999.644	9.8333	685.617	685.617
J	2009.644	9.8333	685.615	685.620
K	2019.644	9.8333	685.609	685.630
L	2029.644	9.8333	685.532	685.567
M	2039.644	9.8333	685.586	685.625
N	2049.644	9.8333	685.500	685.531
O	2059.644	9.8333	685.546	685.560
CL Brg. Pier # 3	2066.977	9.8333	685.527	685.527
P	2076.977	9.8333	685.498	685.497
Q	2086.977	9.8333	685.466	685.466
R	2096.977	9.8333	685.429	685.434
CL Brg. East Abut.	2108.727	9.8333	685.381	685.381
Bk. East Abut.		9.8333	685.372	685.372

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

TOP OF SLAB ELEVATIONS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet No. 5, 7, 8 and 9 of 48 sheets.

R C ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	36
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

PROFILE GRADE LINE EASTBOUND

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1888.674	9.0000	685.382	685.382
CL Brg. West Abut.	1890.591	9.0000	685.391	685.391
A	1900.591	9.0000	685.432	685.437
B	1910.591	9.0000	685.470	685.475
C	1920.591	9.0000	685.504	685.505
CL Brg. Pier # 1	1932.341	9.0000	685.538	685.538
D	1942.341	9.0000	685.563	685.578
E	1952.341	9.0000	685.585	685.616
F	1962.341	9.0000	685.602	685.641
G	1972.341	9.0000	685.615	685.650
H	1982.341	9.0000	685.624	685.645
I	1992.341	9.0000	685.629	685.634
CL Brg. Pier # 2	1999.674	9.0000	685.630	685.630
J	2009.674	9.0000	685.628	685.633
K	2019.674	9.0000	685.622	685.643
L	2029.674	9.0000	685.612	685.648
M	2039.674	9.0000	685.598	685.638
N	2049.674	9.0000	685.581	685.612
O	2059.674	9.0000	685.559	685.573
CL Brg. Pier # 3	2067.007	9.0000	685.540	685.540
P	2077.007	9.0000	685.511	685.510
Q	2087.007	9.0000	685.479	685.479
R	2097.007	9.0000	685.442	685.447
CL Brg. East Abut.	2108.757	9.0000	685.393	685.393
Bk. East Abut.	2110.674	9.0000	685.385	685.385

℄ BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1888.716	7.8333	685.401	685.401
CL Brg. West Abut.	1890.633	7.8333	685.409	685.409
A	1900.633	7.8333	685.451	685.456
B	1910.633	7.8333	685.488	685.494
C	1920.633	7.8333	685.522	685.523
CL Brg. Pier # 1	1932.383	7.8333	685.557	685.557
D	1942.383	7.8333	685.582	685.596
E	1952.383	7.8333	685.603	685.634
F	1962.383	7.8333	685.620	685.659
G	1972.383	7.8333	685.633	685.668
H	1982.383	7.8333	685.642	685.663
I	1992.383	7.8333	685.647	685.652
CL Brg. Pier # 2	1999.716	7.8333	685.648	685.648
J	2009.716	7.8333	685.646	685.651
K	2019.716	7.8333	685.640	685.661
L	2029.716	7.8333	685.631	685.666
M	2039.716	7.8333	685.617	685.656
N	2049.716	7.8333	685.599	685.630
O	2059.716	7.8333	685.577	685.591
CL Brg. Pier # 3	2067.049	7.8333	685.558	685.558
P	2077.049	7.8333	685.529	685.528
Q	2087.049	7.8333	685.497	685.497
R	2097.049	7.8333	685.460	685.465
CL Brg. East Abut.	2108.799	7.8333	685.411	685.411
Bk. East Abut.	2110.716	7.8333	685.403	685.403

℄ BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1888.946	1.5000	685.501	685.501
CL Brg. West Abut.	1890.862	1.5000	685.509	685.509
A	1900.862	1.5000	685.551	685.556
B	1910.862	1.5000	685.588	685.593
C	1920.862	1.5000	685.622	685.623
CL Brg. Pier # 1	1932.612	1.5000	685.656	685.656
D	1942.612	1.5000	685.681	685.696
E	1952.612	1.5000	685.702	685.734
F	1962.612	1.5000	685.719	685.759
G	1972.612	1.5000	685.732	685.767
H	1982.612	1.5000	685.741	685.762
I	1992.612	1.5000	685.746	685.751
CL Brg. Pier # 2	1999.946	1.5000	685.747	685.747
J	2009.946	1.5000	685.745	685.750
K	2019.946	1.5000	685.739	685.760
L	2029.946	1.5000	685.729	685.765
M	2039.946	1.5000	685.715	685.755
N	2049.946	1.5000	685.697	685.729
O	2059.946	1.5000	685.675	685.690
CL Brg. Pier # 3	2067.279	1.5000	685.657	685.657
P	2077.279	1.5000	685.628	685.627
Q	2087.279	1.5000	685.595	685.596
R	2097.279	1.5000	685.558	685.563
CL Brg. East Abut.	2109.029	1.5000	685.509	685.509
Bk. East Abut.	2110.946	1.5000	685.501	685.501

℄ ROADWAY

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1889.000	0.0000	685.524	685.524
CL Brg. West Abut.	1890.917	0.0000	685.533	685.533
A	1900.917	0.0000	685.574	685.579
B	1910.917	0.0000	685.612	685.617
C	1920.917	0.0000	685.646	685.646
CL Brg. Pier # 1	1932.667	0.0000	685.680	685.680
D	1942.667	0.0000	685.705	685.719
E	1952.667	0.0000	685.726	685.757
F	1962.667	0.0000	685.743	685.782
G	1972.667	0.0000	685.756	685.791
H	1982.667	0.0000	685.765	685.785
I	1992.667	0.0000	685.770	685.775
CL Brg. Pier # 2	2000.000	0.0000	685.771	685.771
J	2010.000	0.0000	685.769	685.774
K	2020.000	0.0000	685.763	685.783
L	2030.000	0.0000	685.753	685.788
M	2040.000	0.0000	685.739	685.778
N	2050.000	0.0000	685.721	685.752
O	2060.000	0.0000	685.699	685.713
CL Brg. Pier # 3	2067.333	0.0000	685.680	685.680
P	2077.333	0.0000	685.651	685.650
Q	2087.333	0.0000	685.618	685.619
R	2097.333	0.0000	685.581	685.586
CL Brg. East Abut.	2109.083	0.0000	685.533	685.533
Bk. East Abut.	2111.000	0.0000	685.524	685.524

TOP OF SLAB ELEVATIONS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

Work this sheet with sheet No. 5, 6, 8 and 9 of 48.

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	37
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 8 of 48 Sheets

℄ BEAM 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1889.054	-1.5000	685.501	685.501
CL Brg. West Abut.	1890.971	-1.5000	685.509	685.509
A	1900.971	-1.5000	685.551	685.556
B	1910.971	-1.5000	685.589	685.594
C	1920.971	-1.5000	685.622	685.623
CL Brg. Pier # 1	1932.721	-1.5000	685.657	685.657
D	1942.721	-1.5000	685.682	685.696
E	1952.721	-1.5000	685.702	685.734
F	1962.721	-1.5000	685.719	685.759
G	1972.721	-1.5000	685.732	685.768
H	1982.721	-1.5000	685.741	685.762
I	1992.721	-1.5000	685.746	685.751
CL Brg. Pier # 2	2000.054	-1.5000	685.747	685.747
J	2010.054	-1.5000	685.745	685.750
K	2020.054	-1.5000	685.739	685.760
L	2030.054	-1.5000	685.729	685.764
M	2040.054	-1.5000	685.715	685.755
N	2050.054	-1.5000	685.697	685.728
O	2060.054	-1.5000	685.675	685.689
CL Brg. Pier # 3	2067.388	-1.5000	685.656	685.656
P	2077.388	-1.5000	685.627	685.626
Q	2087.388	-1.5000	685.594	685.595
R	2097.388	-1.5000	685.557	685.563
CL Brg. East Abut.	2109.138	-1.5000	685.509	685.509
Bk. East Abut.	2111.054	-1.5000	685.501	685.501

℄ BEAM 7

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1889.284	-7.8333	685.403	685.403
CL Brg. West Abut.	1891.201	-7.8333	685.411	685.411
A	1901.201	-7.8333	685.453	685.458
B	1911.201	-7.8333	685.490	685.496
C	1921.201	-7.8333	685.524	685.525
CL Brg. Pier # 1	1932.951	-7.8333	685.558	685.558
D	1942.951	-7.8333	685.583	685.598
E	1952.951	-7.8333	685.604	685.635
F	1962.951	-7.8333	685.621	685.660
G	1972.951	-7.8333	685.634	685.669
H	1982.951	-7.8333	685.642	685.663
I	1992.951	-7.8333	685.647	685.652
CL Brg. Pier # 2	2000.284	-7.8333	685.648	685.648
J	2010.284	-7.8333	685.646	685.651
K	2020.284	-7.8333	685.640	685.661
L	2030.284	-7.8333	685.630	685.665
M	2040.284	-7.8333	685.616	685.655
N	2050.284	-7.8333	685.598	685.629
O	2060.284	-7.8333	685.576	685.590
CL Brg. Pier # 3	2067.617	-7.8333	685.557	685.557
P	2077.617	-7.8333	685.528	685.527
Q	2087.617	-7.8333	685.495	685.495
R	2097.617	-7.8333	685.458	685.463
CL Brg. East Abut.	2109.367	-7.8333	685.409	685.409
Bk. East Abut.	2111.284	-7.8333	685.401	685.401

PROFILE GRADE LINE WESTBOUND

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1889.326	-9.0000	685.385	685.385
CL Brg. West Abut.	1891.243	-9.0000	685.393	685.393
A	1901.243	-9.0000	685.435	685.440
B	1911.243	-9.0000	685.472	685.478
C	1921.243	-9.0000	685.506	685.507
CL Brg. Pier # 1	1932.993	-9.0000	685.540	685.540
D	1942.993	-9.0000	685.565	685.579
E	1952.993	-9.0000	685.586	685.617
F	1962.993	-9.0000	685.603	685.642
G	1972.993	-9.0000	685.615	685.651
H	1982.993	-9.0000	685.624	685.645
I	1992.993	-9.0000	685.629	685.634
CL Brg. Pier # 2	2000.326	-9.0000	685.630	685.630
J	2010.326	-9.0000	685.628	685.633
K	2020.326	-9.0000	685.622	685.643
L	2030.326	-9.0000	685.612	685.647
M	2040.326	-9.0000	685.597	685.637
N	2050.326	-9.0000	685.579	685.611
O	2060.326	-9.0000	685.557	685.572
CL Brg. Pier # 3	2067.659	-9.0000	685.538	685.538
P	2077.659	-9.0000	685.509	685.508
Q	2087.659	-9.0000	685.476	685.477
R	2097.659	-9.0000	685.439	685.444
CL Brg. East Abut.	2109.409	-9.0000	685.391	685.391
Bk. East Abut.	2111.326	-9.0000	685.382	685.382

WB STAGE CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1889.356	-9.8333	685.372	685.372
CL Brg. West Abut.	1891.273	-9.8333	685.381	685.381
A	1901.273	-9.8333	685.422	685.427
B	1911.273	-9.8333	685.460	685.465
C	1921.273	-9.8333	685.493	685.494
CL Brg. Pier # 1	1933.023	-9.8333	685.527	685.527
D	1943.023	-9.8333	685.552	685.566
E	1953.023	-9.8333	685.573	685.604
F	1963.023	-9.8333	685.590	685.629
G	1973.023	-9.8333	685.602	685.638
H	1983.023	-9.8333	685.611	685.632
I	1993.023	-9.8333	685.616	685.621
CL Brg. Pier # 2	2000.356	-9.8333	685.617	685.617
J	2010.356	-9.8333	685.615	685.620
K	2020.356	-9.8333	685.609	685.630
L	2030.356	-9.8333	685.599	685.634
M	2040.356	-9.8333	685.584	685.624
N	2050.356	-9.8333	685.566	685.598
O	2060.356	-9.8333	685.544	685.558
CL Brg. Pier # 3	2067.690	-9.8333	685.525	685.525
P	2077.690	-9.8333	685.496	685.495
Q	2087.690	-9.8333	685.463	685.464
R	2097.690	-9.8333	685.426	685.431
CL Brg. East Abut.	2109.440	-9.8333	685.377	685.377
Bk. East Abut.	2111.356	-9.8333	685.369	685.369

TOP OF SLAB ELEVATIONS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

Work this sheet with sheet No. 5, 6, 7 and 9 of 48.

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	38
FED. ROAD DIST. NO. -	ILLINOIS	FED. AID PROJECT		

Sheet 9 of 48 Sheets

℄ BEAM 8

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1889.513	-14.1667	685.305	685.305
CL Brg. West Abut.	1891.430	-14.1667	685.313	685.313
A	1901.430	-14.1667	685.355	685.360
B	1911.430	-14.1667	685.392	685.397
C	1921.430	-14.1667	685.426	685.427
CL Brg. Pier # 1	1933.180	-14.1667	685.460	685.460
D	1943.180	-14.1667	685.485	685.499
E	1953.180	-14.1667	685.505	685.537
F	1963.180	-14.1667	685.522	685.562
G	1973.180	-14.1667	685.535	685.570
H	1983.180	-14.1667	685.544	685.564
I	1993.180	-14.1667	685.548	685.553
CL Brg. Pier # 2	2000.513	-14.1667	685.549	685.549
J	2010.513	-14.1667	685.547	685.552
K	2020.513	-14.1667	685.541	685.562
L	2030.513	-14.1667	685.531	685.566
M	2040.513	-14.1667	685.516	685.556
N	2050.513	-14.1667	685.498	685.530
O	2060.513	-14.1667	685.476	685.490
CL Brg. Pier # 3	2067.847	-14.1667	685.457	685.457
P	2077.847	-14.1667	685.428	685.427
Q	2087.847	-14.1667	685.395	685.396
R	2097.847	-14.1667	685.358	685.363
CL Brg. East Abut.	2109.597	-14.1667	685.309	685.309
Bk. East Abut.	2111.513	-14.1667	685.301	685.301

℄ BEAM 9

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1889.743	-20.5000	685.207	685.207
CL Brg. West Abut.	1891.659	-20.5000	685.216	685.216
A	1901.659	-20.5000	685.257	685.262
B	1911.659	-20.5000	685.294	685.299
C	1921.659	-20.5000	685.328	685.328
CL Brg. Pier # 1	1933.409	-20.5000	685.362	685.362
D	1943.409	-20.5000	685.386	685.401
E	1953.409	-20.5000	685.407	685.438
F	1963.409	-20.5000	685.424	685.463
G	1973.409	-20.5000	685.436	685.471
H	1983.409	-20.5000	685.445	685.466
I	1993.409	-20.5000	685.449	685.454
CL Brg. Pier # 2	2000.743	-20.5000	685.450	685.450
J	2010.743	-20.5000	685.448	685.453
K	2020.743	-20.5000	685.442	685.463
L	2030.743	-20.5000	685.431	685.467
M	2040.743	-20.5000	685.417	685.457
N	2050.743	-20.5000	685.399	685.430
O	2060.743	-20.5000	685.376	685.391
CL Brg. Pier # 3	2068.076	-20.5000	685.358	685.358
P	2078.076	-20.5000	685.328	685.327
Q	2088.076	-20.5000	685.295	685.296
R	2098.076	-20.5000	685.258	685.263
CL Brg. East Abut.	2109.826	-20.5000	685.209	685.209
Bk. East Abut.	2111.743	-20.5000	685.201	685.201

℄ BEAM 10

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1889.972	-26.8333	685.076	685.076
CL Brg. West Abut.	1891.889	-26.8333	685.085	685.085
A	1901.889	-26.8333	685.126	685.131
B	1911.889	-26.8333	685.163	685.168
C	1921.889	-26.8333	685.196	685.197
CL Brg. Pier # 1	1933.639	-26.8333	685.230	685.230
D	1943.639	-26.8333	685.255	685.269
E	1953.639	-26.8333	685.275	685.307
F	1963.639	-26.8333	685.292	685.331
G	1973.639	-26.8333	685.304	685.340
H	1983.639	-26.8333	685.313	685.334
I	1993.639	-26.8333	685.318	685.323
CL Brg. Pier # 2	2000.972	-26.8333	685.318	685.318
J	2010.972	-26.8333	685.316	685.321
K	2020.972	-26.8333	685.310	685.330
L	2030.972	-26.8333	685.299	685.334
M	2040.972	-26.8333	685.285	685.324
N	2050.972	-26.8333	685.266	685.298
O	2060.972	-26.8333	685.244	685.258
CL Brg. Pier # 3	2068.306	-26.8333	685.225	685.225
P	2078.306	-26.8333	685.196	685.195
Q	2088.306	-26.8333	685.162	685.163
R	2098.306	-26.8333	685.125	685.130
CL Brg. East Abut.	2110.056	-26.8333	685.076	685.076
Bk. East Abut.	2111.972	-26.8333	685.068	685.068

℄ BEAM 10A

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. West Abut.	1890.128	-31.1250	684.987	684.987
CL Brg. West Abut.	1892.044	-31.1250	684.996	684.996
A	1902.044	-31.1250	685.037	685.042
B	1912.044	-31.1250	685.074	685.079
C	1922.044	-31.1250	685.107	685.108
CL Brg. Pier # 1	1933.794	-31.1250	685.141	685.141
D	1943.794	-31.1250	685.166	685.180
E	1953.794	-31.1250	685.186	685.218
F	1963.794	-31.1250	685.203	685.242
G	1973.794	-31.1250	685.215	685.250
H	1983.794	-31.1250	685.224	685.245
I	1993.794	-31.1250	685.228	685.233
CL Brg. Pier # 2	2001.128	-31.1250	685.229	685.229
J	2011.128	-31.1250	685.226	685.232
K	2021.128	-31.1250	685.220	685.241
L	2031.128	-31.1250	685.210	685.245
M	2041.128	-31.1250	685.195	685.235
N	2051.128	-31.1250	685.177	685.208
O	2061.128	-31.1250	685.154	685.169
CL Brg. Pier # 3	2068.461	-31.1250	685.135	685.135
P	2078.461	-31.1250	685.106	685.105
Q	2088.461	-31.1250	685.072	685.073
R	2098.461	-31.1250	685.035	685.040
CL Brg. East Abut.	2110.211	-31.1250	684.986	684.986
Bk. East Abut.	2112.128	-31.1250	684.977	684.977

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

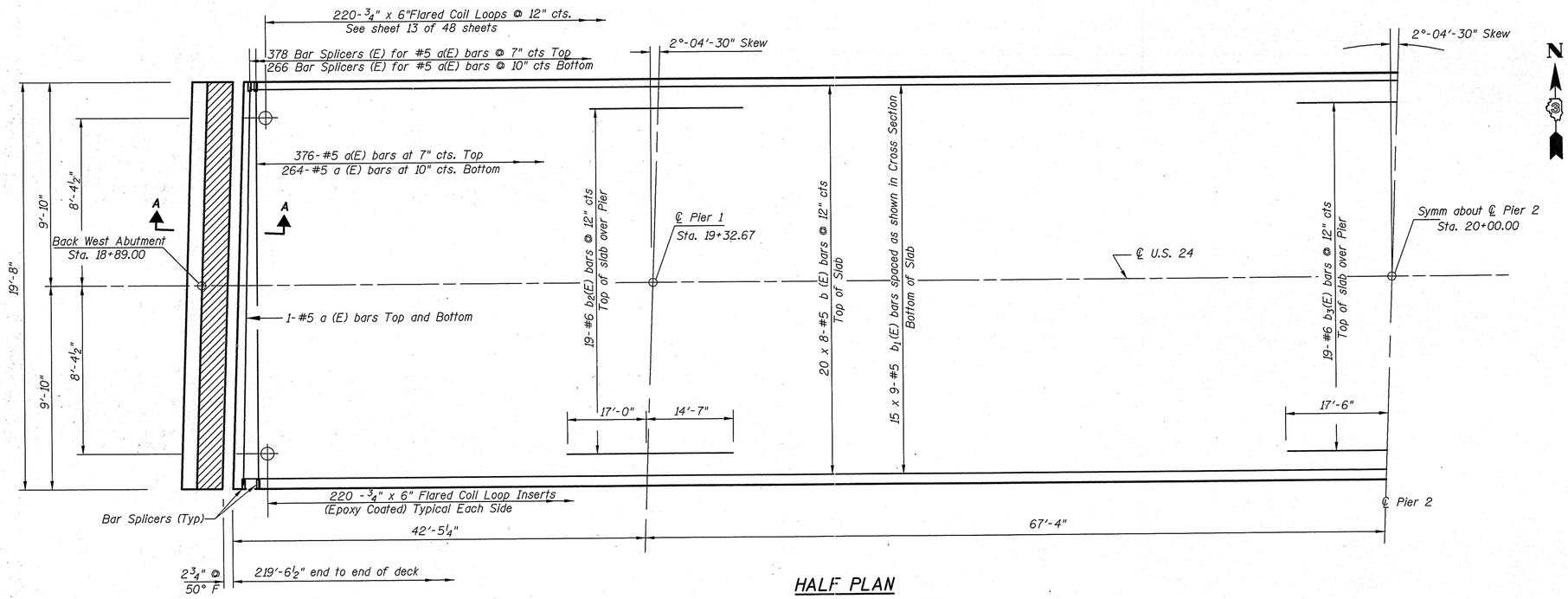
TOP OF SLAB ELEVATIONS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet No. 5 thru 8 of 48.

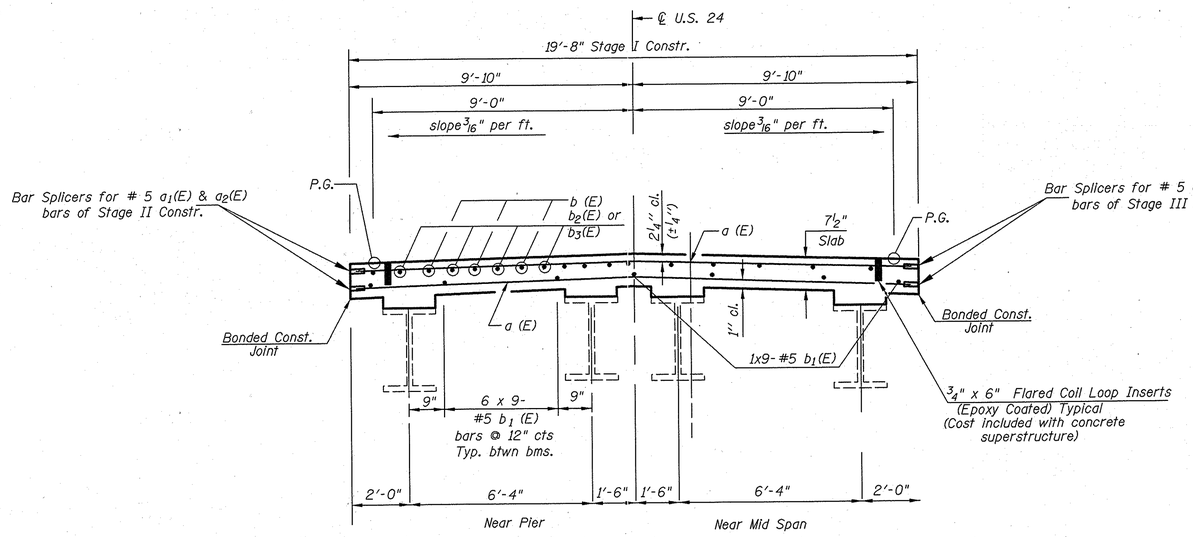
R C ENGINEERS LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	39
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 10 of 48 Sheets



HALF PLAN
STAGE I CONSTRUCTION



CROSS SECTION STAGE CONSTR.
Looking East

Notes:
Dimensions are based on a PJS joint. If the contractor elects to use the alternate strip seal, the dimensions may require adjustments as detailed on the joint base sheet.

For Section A-A, See sheet No. 15 of 48.

For bar splicer details see sheet No. 38 Of 48.

MIN. BAR LAPS
#5 = 2'-2"

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

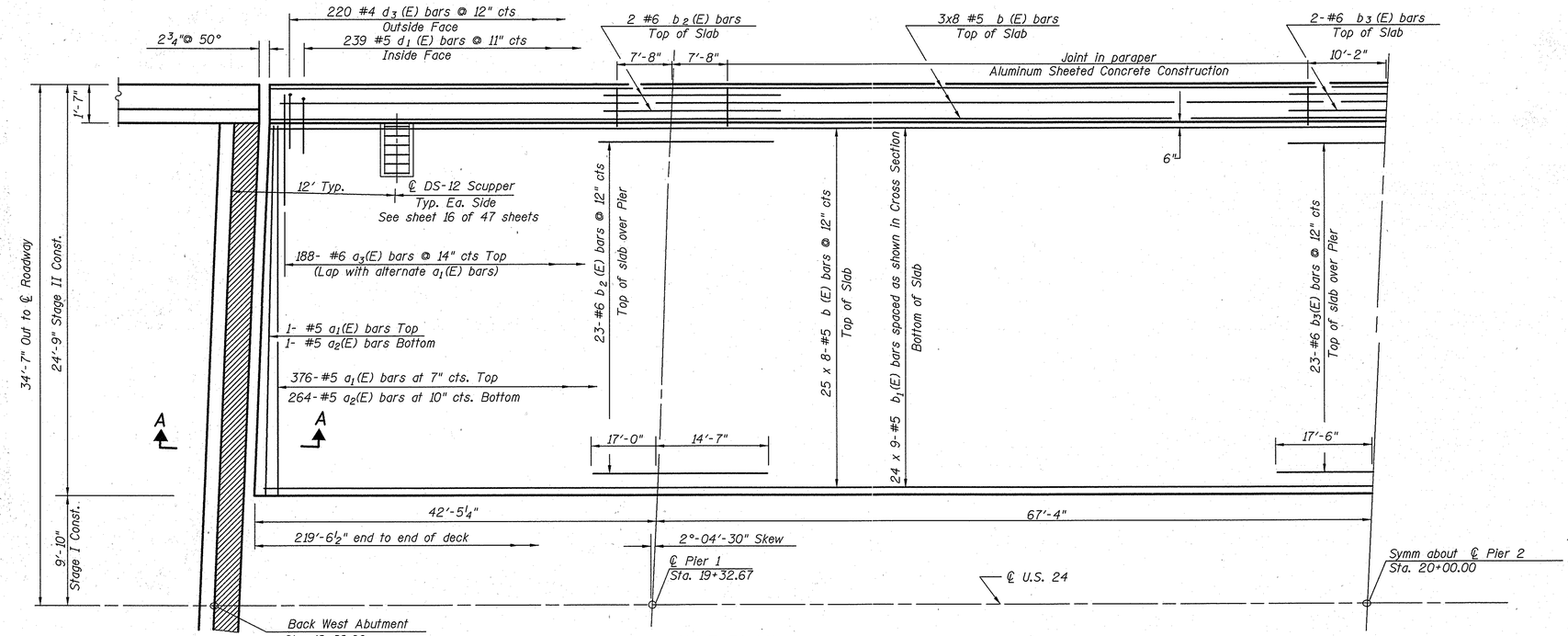
SUPERSTRUCTURE STAGE I
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet No. 13, 14 and 15 of 48.

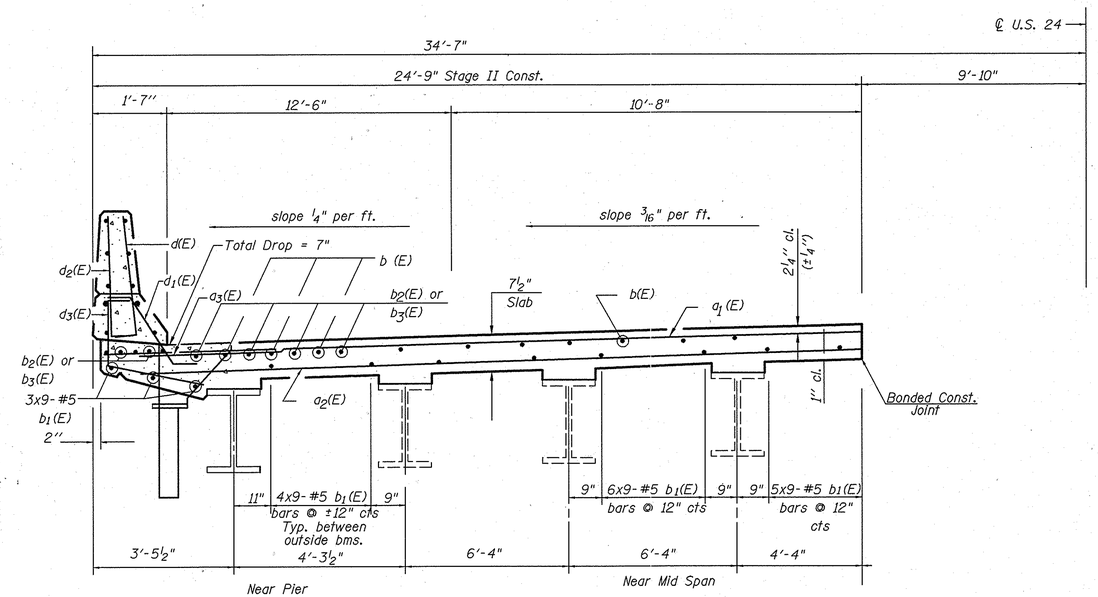
RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	40
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 11 of 48 Sheets



HALF PLAN
STAGE II CONSTRUCTION



CROSS SECTION STAGE II CONSTR.
Looking East

Notes: Dimensions are based on a PJS joint. If the contractor elects to use the alternate strip seal, the dimensions may require adjustments as detailed on the joint base sheet.

Cut longitudinal bars to clear drainage Scupper.

For Bar Splicer details, see sheet No. 38 of 48.

For reinforcement bars, concrete and complete cross section, see sheet No. 14 of 48.

See sheet No. 15 of 48 for Section A-A

MIN BAR LAPS
#5 = 2'-2"

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

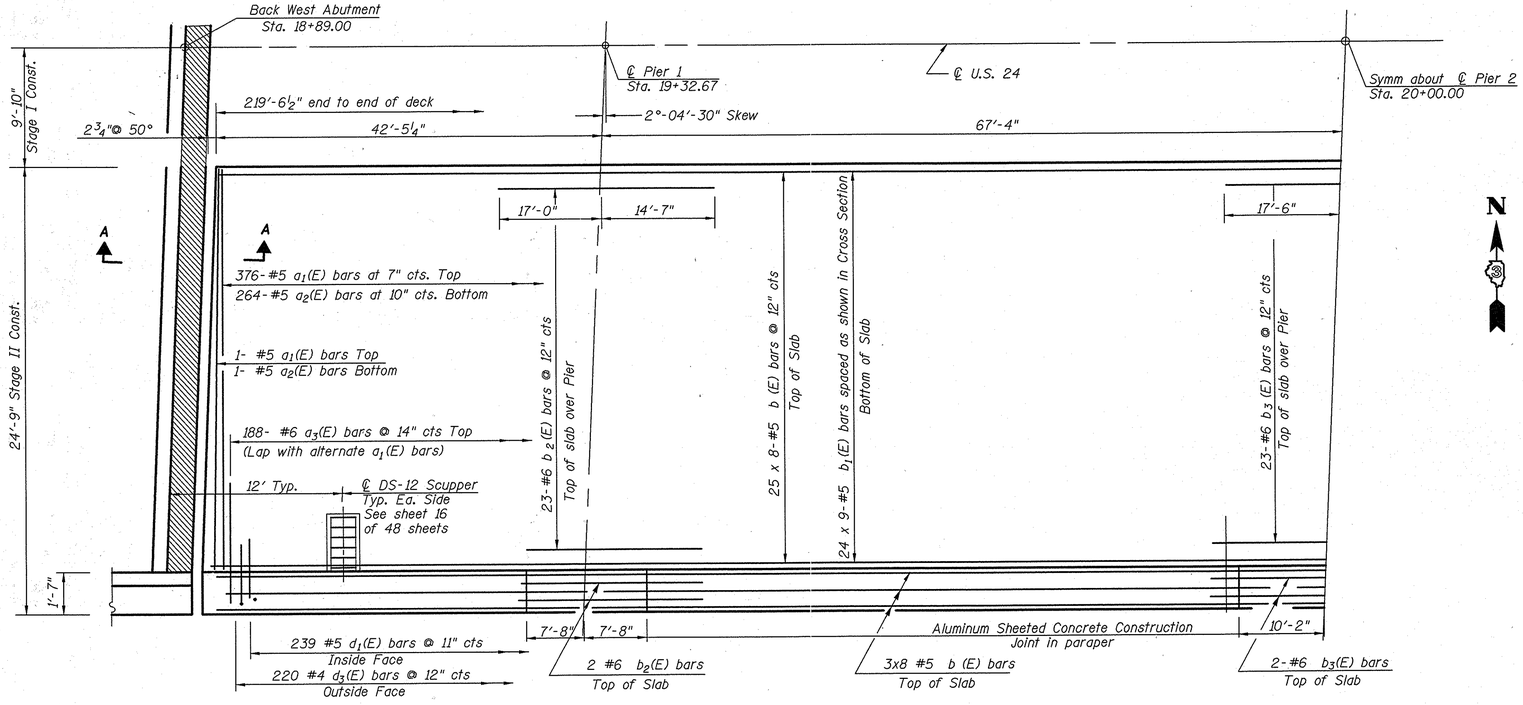
SUPERSTRUCTURE STAGE II
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet 14 and 15 of 48

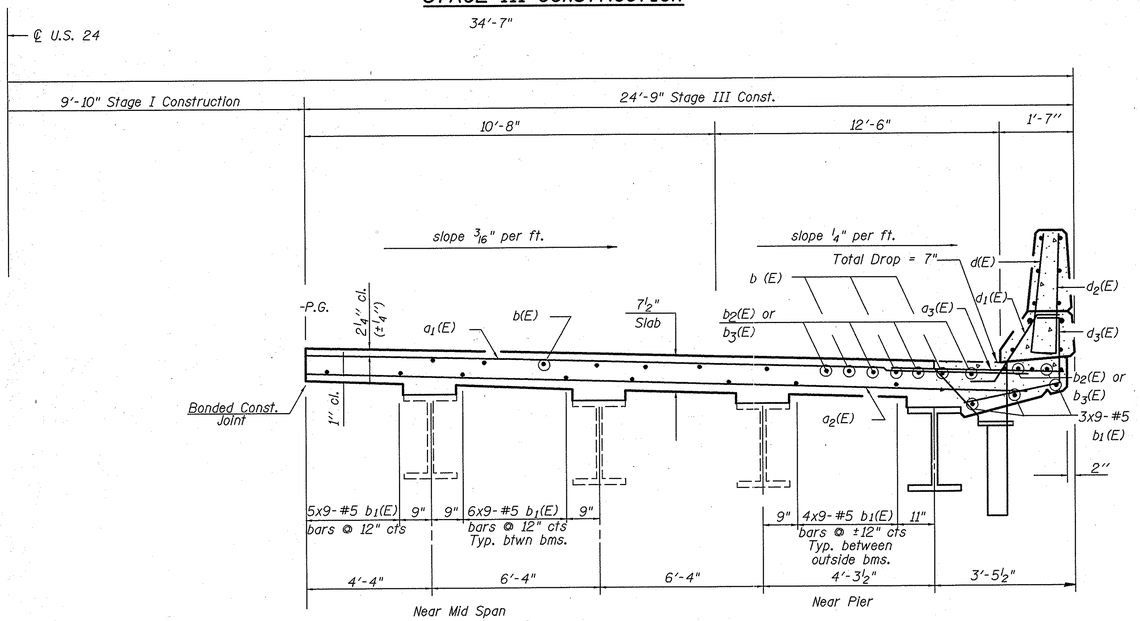
R C ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5) BR-2	IROQUOIS	89	41
STA.	TO STA.			
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT _____		

Sheet 12 of 48 Sheets



HALF PLAN
STAGE III CONSTRUCTION



Notes: Dimensions are based on a PJS joint. If the contractor elects to use the alternate strip seal, the dimensions may require adjustments as detailed on the joint base sheet.

Cut longitudinal bars to clear drainage Scupper.

For Bar Splicer details, see sheet No. 38 of 48.

For reinforcement bars, concrete and complete cross section, see sheet No. 14 of 48.

See sheet No. 15 of 48 for Section A-A

Min Bar Laps
#5 = 2'-2"

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	Mar
CHECKED	G.R.

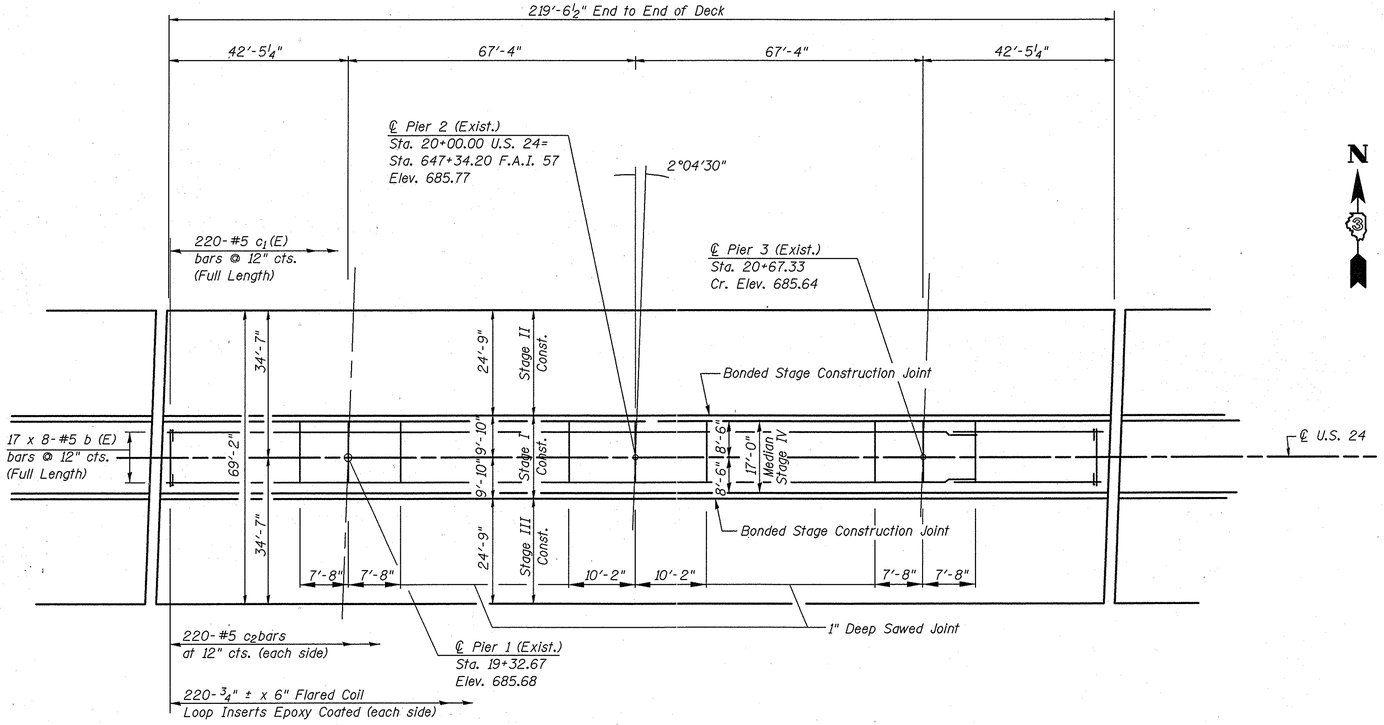
SUPERSTRUCTURE STAGE III
U.S. 24 SEC 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet 14 and 15 of 48

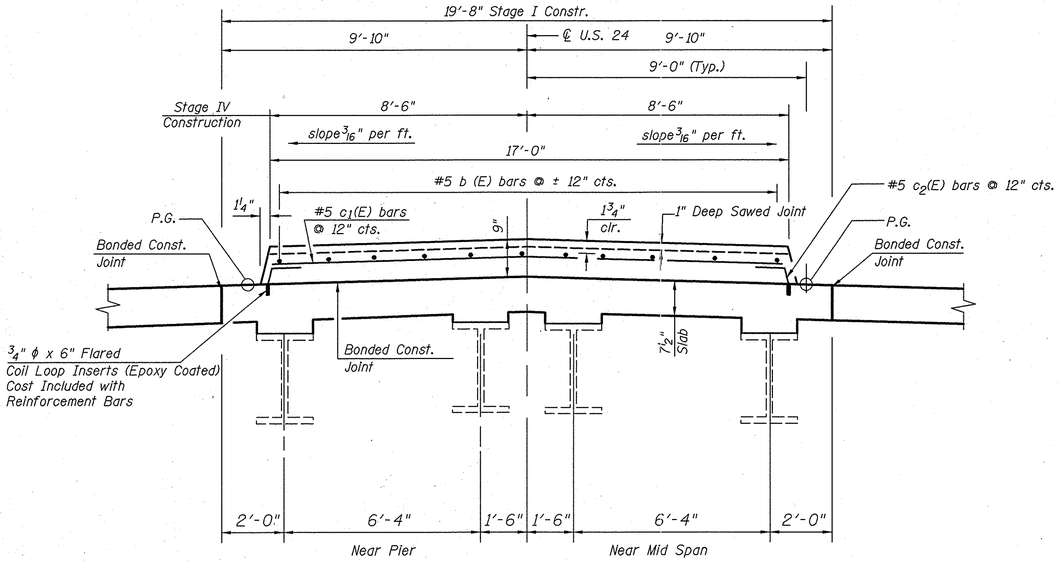
RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	42
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

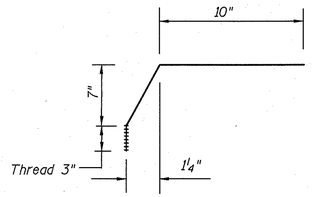
Sheet 13 of 48 Sheets



STAGE IV MEDIAN CONSTR.



CROSS SECTION STAGE IV CONSTR.



BAR $c_2(E)$

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

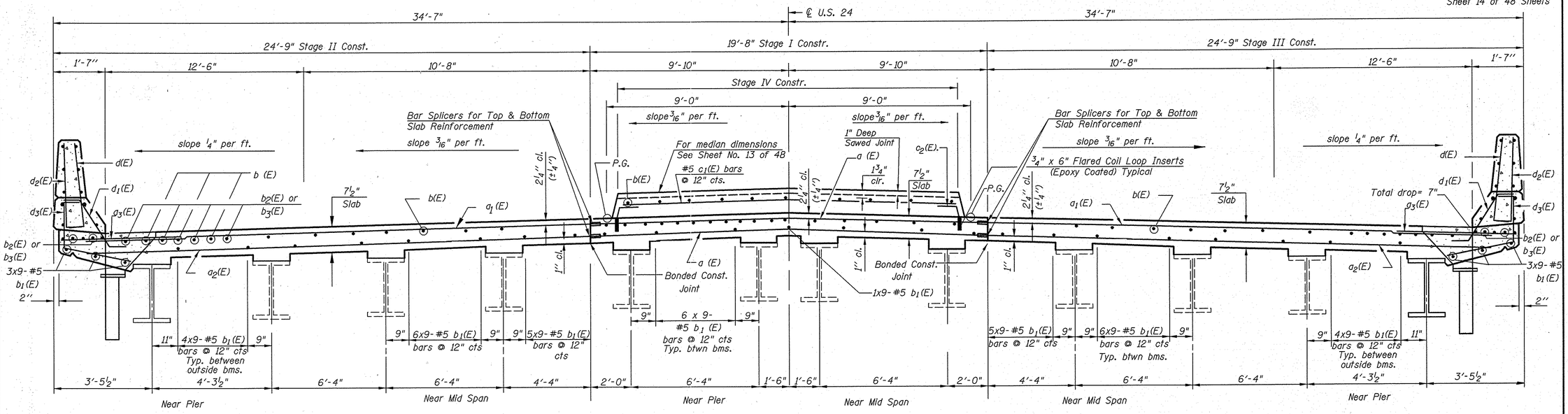
Work this sheet with sheet No. 10 and 14 of 48.

SUPERSTRUCTURE STAGE IV
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	13
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 14 of 48 Sheets



CROSS SECTION

Looking East

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a (E)	644	#5	19'-6"	——
a_1(E)	756	#5	24'-5"	——
a_2(E)	532	#5	23'-7	——
a_3(E)	376	#6	4'-0"	——
b (E)	744	#5	29'-3"	——
b_1(E)	567	#5	26'-3"	——
b_2(E)	69	#6	31'-7"	——
b_3(E)	69	#6	35'-0"	——
c_1 (E)	220	#5	16'-3"	——
c_2 (E)	440	#5	1'-8"	⌜
d (E)	478	#5	3'-0"	⌟
d_1(E)	478	#5	2'-7"	⌝
d_2(E)	440	#4	3'-0"	⌟
d_3(E)	440	#4	4'-6"	⌜
e (E)	48	#4	18'-1"	——
e_1(E)	48	#4	7'-5"	——
e_2(E)	24	#4	25'-6"	——
e_3(E)	24	#4	9'-11"	——
e_4(E)	16	#8	19'-6"	——
e_5(E)	16	#8	7'-5"	——
e_6(E)	16	#8	26'-11"	——
e_7(E)	8	#8	9'-11"	——
e_8(E)	16	#5	18'-4"	——
e_9(E)	8	#5	7'-5"	——
e_{10}(E)	16	#5	25'-8"	——
e_{11} (E)	8	#5	9'-11"	——
Reinforcement Bars, Epoxy Coated			Pound	107,090
Concrete Superstructure			CU YD	520.1

Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 25 x 8-#5 etc. indicates 25 lines of bars with 8 lengths per line.
Note: The cost of Epoxy Coated Flared Coil Loop Inserts is incidental to "Concrete Superstructure"

Note:
Dimensions are based on a PJS joint. If the contractor elects to use the alternate strip seal, the dimensions may require adjustments as detailed on the joint base sheets.

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

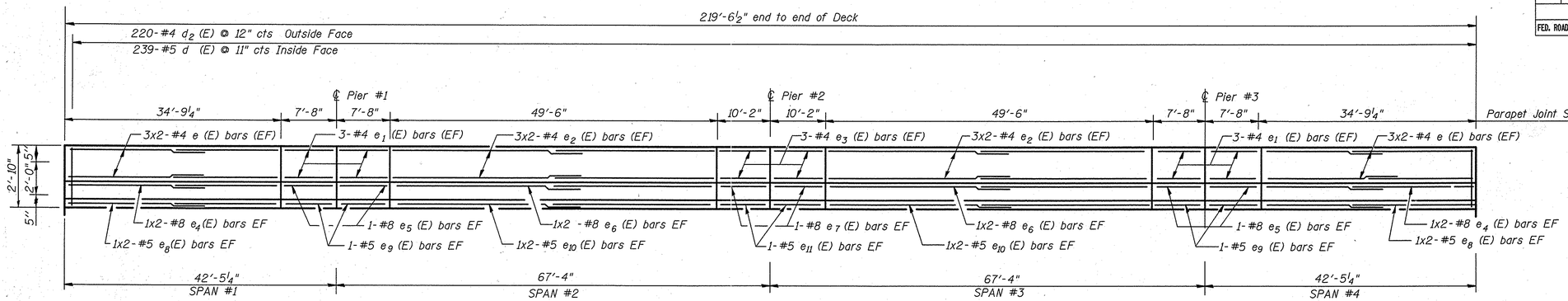
SUPERSTRUCTURE CROSS SECTION AND BILL OF MATERIALS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet No. 10 thru 13 and 15 of 48

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

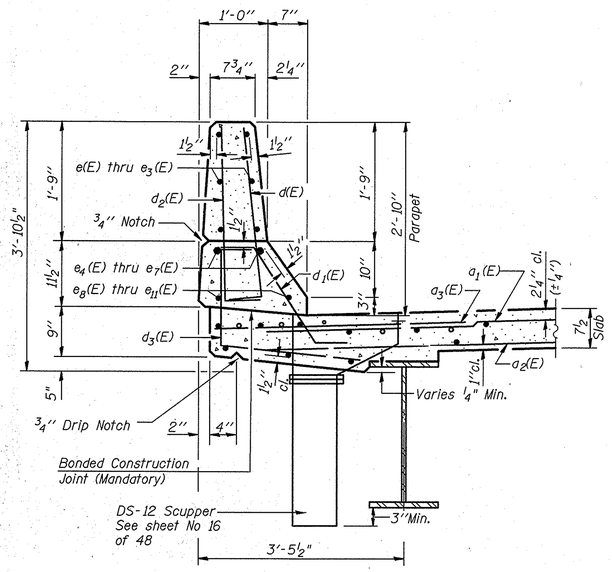
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	44
FED. ROAD DIST. NO. -	ILLINOIS	FED. AID PROJECT		

Sheet 15 of 48 Sheets

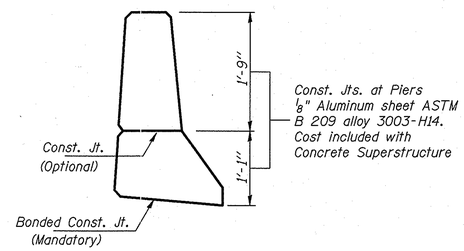


INSIDE ELEVATION OF PARAPET

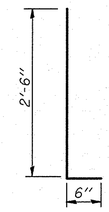
North Parapet looking north Shown.
South Parapet looking south Similar



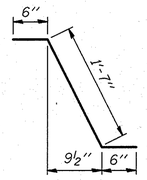
SECTION THRU PARAPET



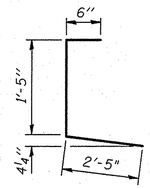
PARAPET JOINT DETAILS



BARS d(E) & d_2(E)

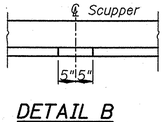


BAR d_1(E)

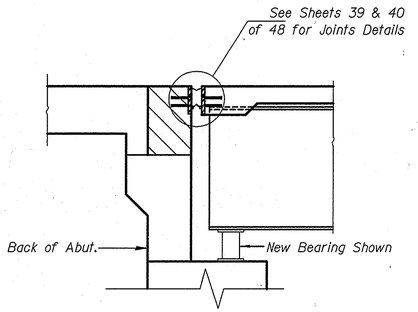


BAR d_3(E)

MIN BAR LAP
#4 = 1'-8"
#5 = 2'-2"
#8 = 4'-6"

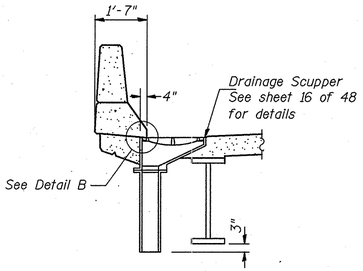


DETAIL B

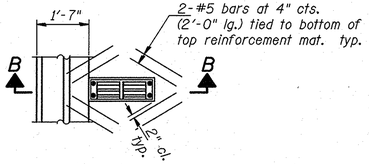


Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included in Concrete Superstructure.

SECTION A-A



SECTION B-B



PLAN

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

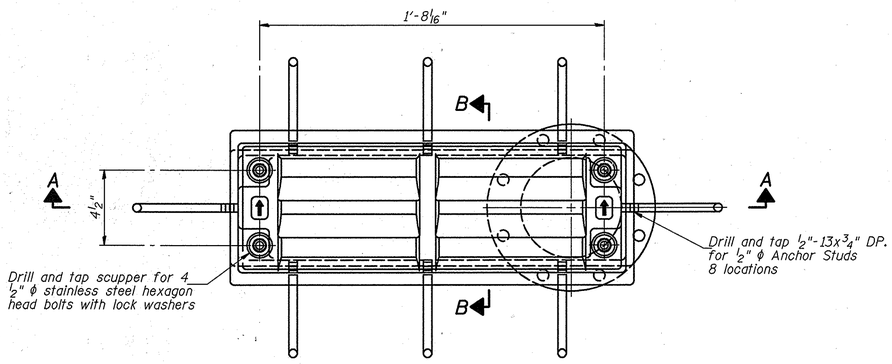
SUPERSTRUCTURE DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet No. 11, 12 and 14 of 48.

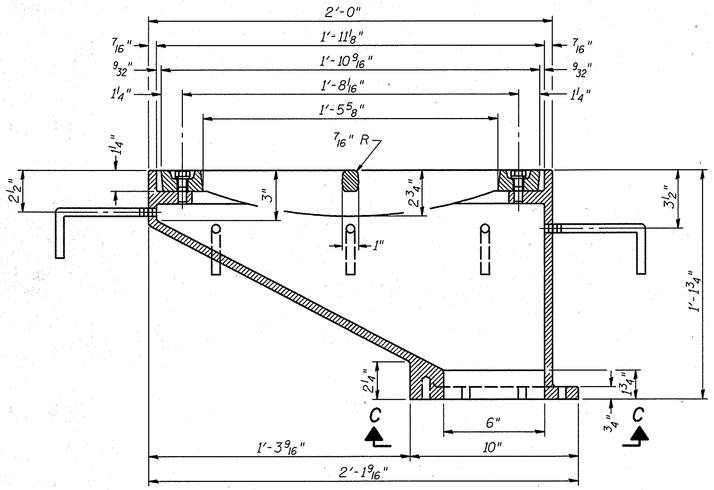
RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	45
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 16 of 48 Sheets

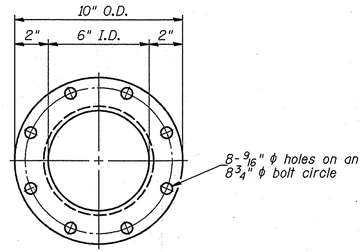


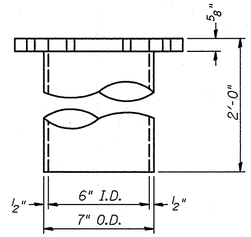
PLAN



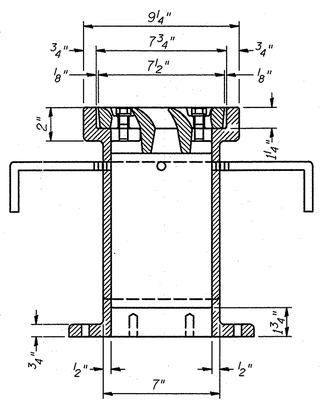
SECTION A-A

See sheet 1 and 15 of 48 for scupper location relative to parapet.

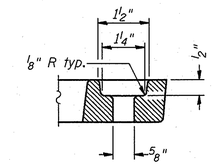




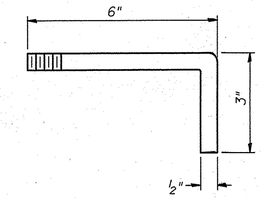
DOWNSPOUT



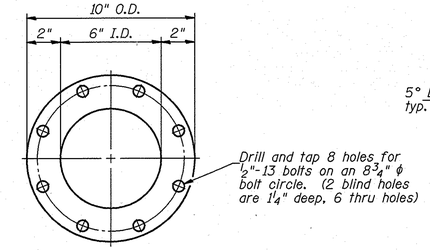
SECTION B-B



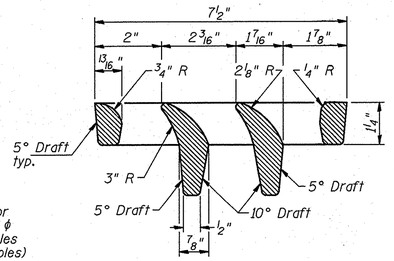
BOLT HOLE DETAIL



ANCHOR STUD DETAIL



VIEW C-C



VANE GRATE DETAIL

Notes: All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

The grate, frame and downspout shall be galvanized according to AASHTO M 111 and ASTM A 385. Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for cast iron. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval.

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-12.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-12	Each	4

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

8/1/2000

Work this sheet with sheet No. 15 of 48.

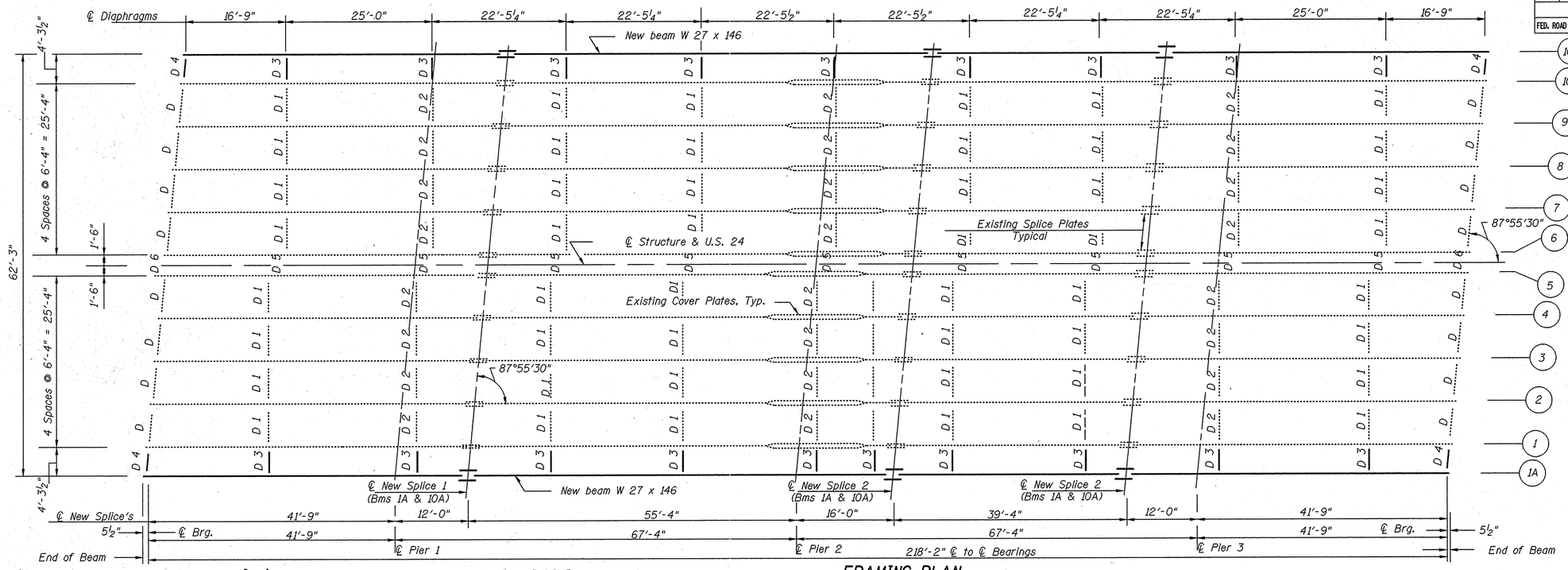
DRAINAGE SCUPPER, DS-12

SCUPPER DS-12
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

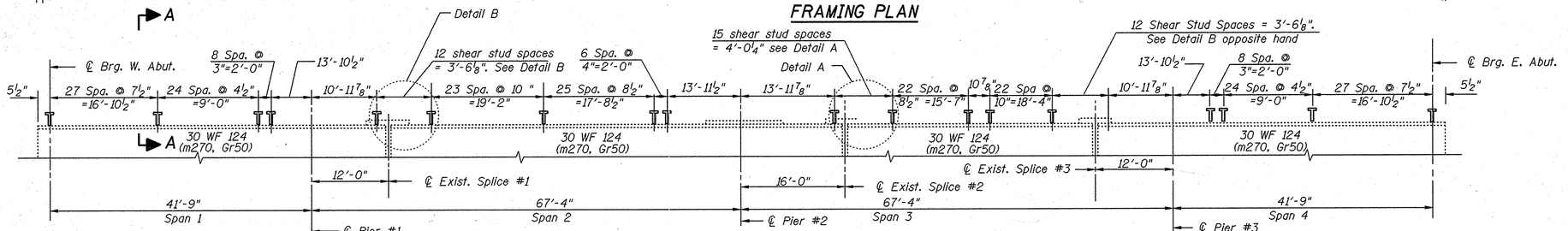
RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	48	16
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 17 of 48 Sheets

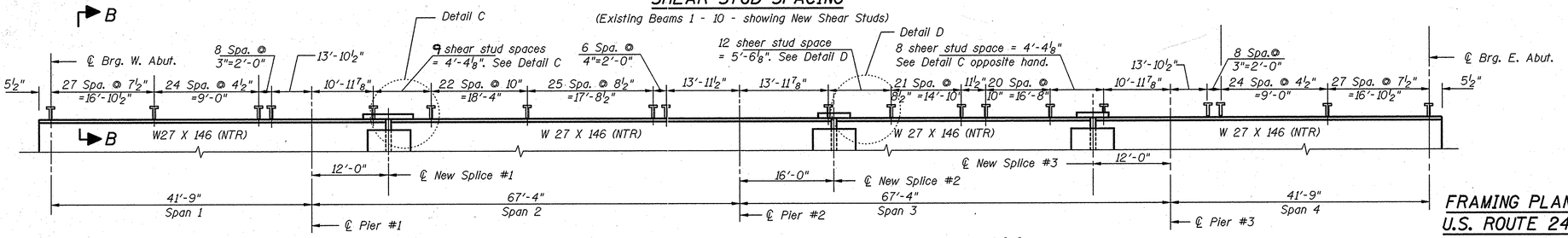


FRAMING PLAN



SHEAR STUD SPACING

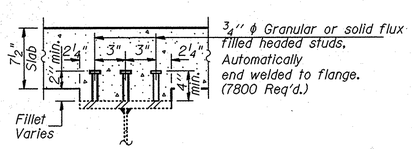
(Existing Beams 1 - 10 - showing New Shear Studs)



SHEAR STUD SPACING

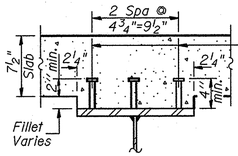
(New Beams 1A and 10A)

"NTR" denotes Notch Toughness Requirement are applicable



¾" ϕ Granular or solid flux filled headed studs, Automatically end welded to flange. (7800 Req'd.)

SECTION A-A



¾"ϕ Granular or solid flux filled headed studs, Automatically end welded to flange. (1470 Req'd.)

SECTION B-B

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

FRAMING PLAN AND BEAM DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

See sheet No. 18 of 48 for Detail A thru D.

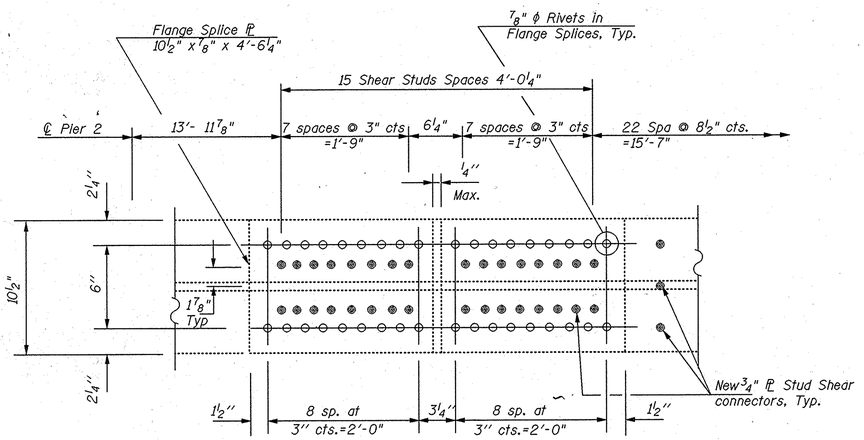
Work this sheet with sheet 19 of 48 sheets

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

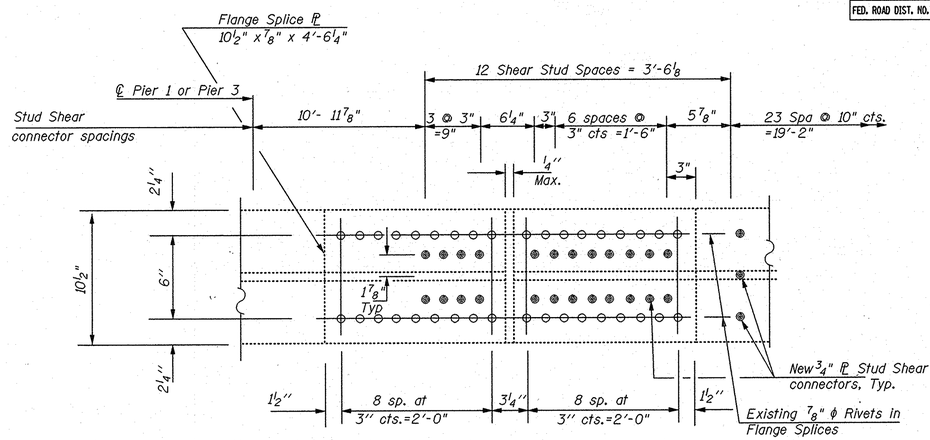
...\038-0031\framing-plan.dgn May. 06, 2002 21:28:41

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	69	47
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

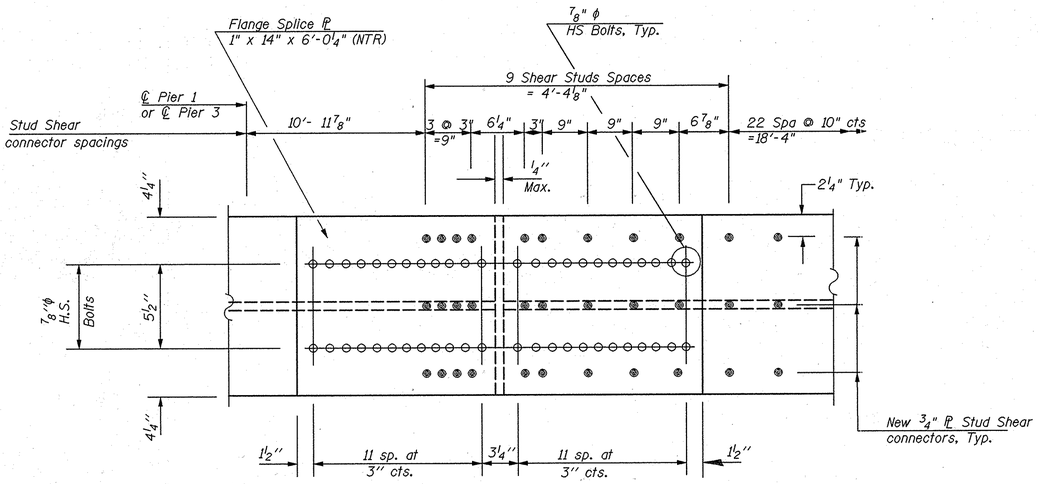
Sheet 18 of 48 Sheets



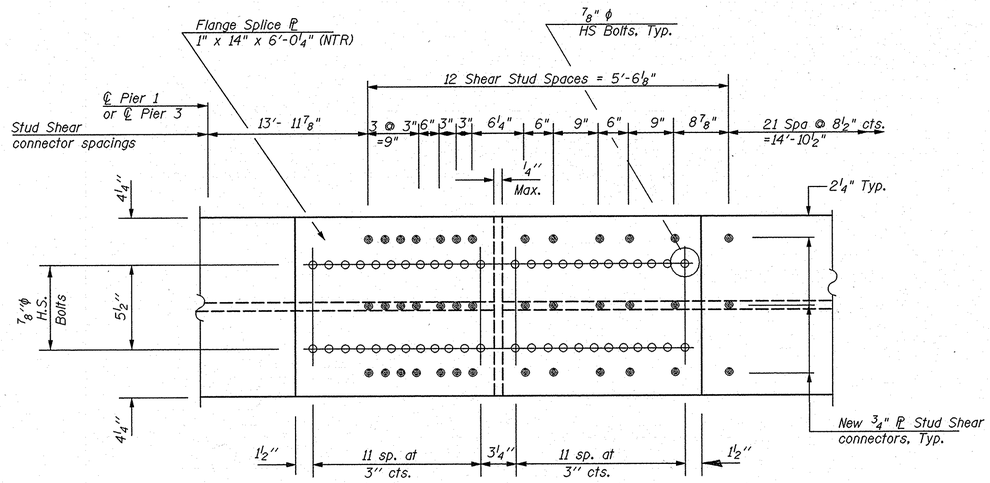
DETAIL A



DETAIL B



DETAIL C



DETAIL D

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

STRUCTURAL STEEL DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet No. 17 of 48.

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

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F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	48	19
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 19 of 48 Sheets

EXTERIOR GIRDER MOMENT TABLE						
		0.4 Sp. 1	Piers #1 or #3	0.5 Sp. #2 or Sp. #3	Pier #2	0.6 Sp. #4
Is	(in^4)	5630	5630	5630	5630	5630
Ic (n)	(in^4)	12735		12735		12735
Ic (3n)	(in^4)	9150		9150		9150
Ss	(in^3)	411	411	411	411	411
Sc (n)	(in^3)	562		562		562
Sc (3n)	(in^3)	503		503		503
Z	(in^3)					
D_ℓ	(k/ft.)	0.729	0.8996	0.729	0.8996	0.729
M_ℓ	('k)	63	269	142	365	63
s_ℓ	(k/ft.)	0.1706		0.1706		0.1706
Ms_ℓ	('k)	17		42		17
M_L	('k)	159	129	255	156	159
M (Imp)	('k)	48	36	66	40	48
$5/3[M_L+M(Imp)]$	('k)	345	275	535	326	345
Ma	('k)	552	707	935	898	552
Mu	('k)	2267		2267		2267
fs_ℓ non-comp	(k.s.i.)	1.8	7.9	4.1	10.6	1.8
fs_ℓ (comp)	(k.s.i.)	0.5		1.2		0.5
$fs\,5/3(L+Imp)$	(k.s.i.)	7.4	8.0	11.4	9.5	7.4
fs (Overload)	(k.s.i.)	9.7	15.9	16.7	20.1	9.7
fs (Total)	(k.s.i.)		20.7		26.1	
VR	(k)	46.9		42.1		46.9

INTERIOR GIRDER MOMENT TABLE						
		0.4 Sp. 1	Piers #1 or #3	0.5 Sp. #2 or Sp. #3	Pier #2	0.6 Sp. #4
Is	(in^4)	5347	5347	5347	7345	5347
Ic (n)	(in^4)	14294		14294		14294
Ic (3n)	(in^4)	10454		10454		10454
Ss	(in^3)	355	355	355	471	355
Sc (n)	(in^3)	522		522		522
Sc (3n)	(in^3)	471		471	542	471
Z	(in^3)					
D_ℓ	(k/ft.)	0.753	1.082	0.753	1.082	0.753
M_ℓ	('k)	71	305	145	466	71
s_ℓ	(k/ft.)	0.3298		0.3298		0.3298
Ms_ℓ	('k)	35		79		35
M_L	('k)	243	180	380	248	243
M (Imp)	('k)	73	50	99	65	73
$5/3[M_L+M(Imp)]$	('k)	527	383	799	522	527
Ma	('k)	823	894	1329	1286	823
Mu	('k)	2089		2084		2089
fs_ℓ non-comp	(k.s.i.)	2.4	10.3	4.9	11.9	2.4
fs_ℓ (comp)	(k.s.i.)	0.9		2.0		0.9
$fs\,5/3(L+Imp)$	(k.s.i.)	12.1	13.0	18.4	13.3	12.1
fs (Overload)	(k.s.i.)	15.4	23.3	25.3	25.1	15.4
fs (Total)	(k.s.i.)		30.3		32.7	
VR	(k)	31		37		31

EXTERIOR GIRDER REACTION TABLE						
		W. Abut.	Pier #1	Pier #2	Pier #3	E. Abut.
R_ℓ	(k)	12.3	54.1	63.4	54.1	12.3
R_L	(k)	21.0	26.7	28.5	26.7	21.0
Imp.	(k)	5.0	8.0	7.4	8.0	5.0
R (Total)	(k)	38.3	88.8	99.3	88.8	38.3

INTERIOR GIRDER REACTION TABLE						
		W. Abut.	Pier #1	Pier #2	Pier #3	E. Abut.
R_ℓ	(k)	15.4	63.7	77.8	63.7	15.4
R_L	(k)	31.2	39.3	42.4	39.3	31.2
Imp.	(k)	9.4	10.9	11.0	10.9	9.4
R (Total)	(k)	56.0	113.9	131.3	113.9	56.0

Is and *Ss* are the moment of inertia and section modulus of the steel section used in computing fs (Total & Overload).

$Ic_{(n)}$ and $Sc_{(n)}$ are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

$Ic_{(3n)}$ and $Sc_{(3n)}$ are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)

VR is the maximum Live Load + Impact shear range in span.

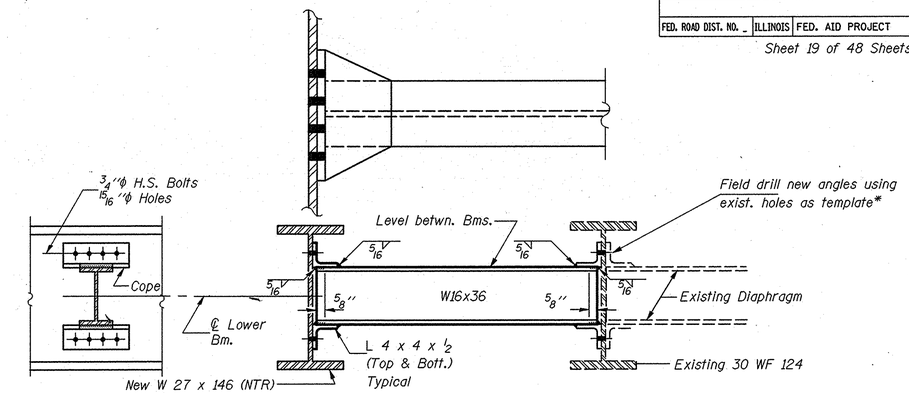
Z is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

Ma (Applied Moment)$=1.3[M_\ell + Ms_\ell + 5/3(M_L + M(Imp))]$.

The Plastic Moment capacity (Mu) is computed according to AASHTO 10.48.1 and 10.50.1.1.

fs (Overload) is the sum of the stresses due to $M_\ell + Ms_\ell + 5/3(M_L + M(Imp))$.

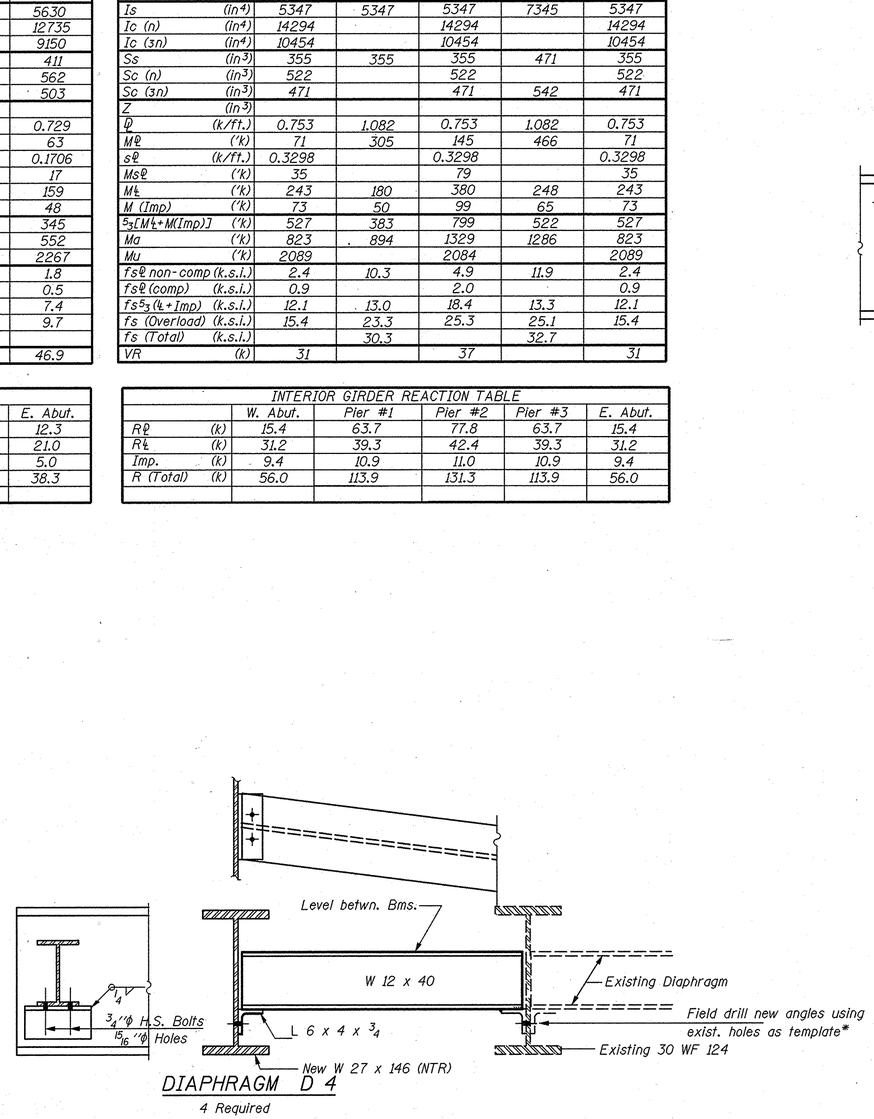
fs (Total) (Non-compact section) is the sum of the stresses due to $1.3[M_\ell + Ms_\ell + 5/3(M_L + M(Imp))]$.



DIAPHRAGM D 3

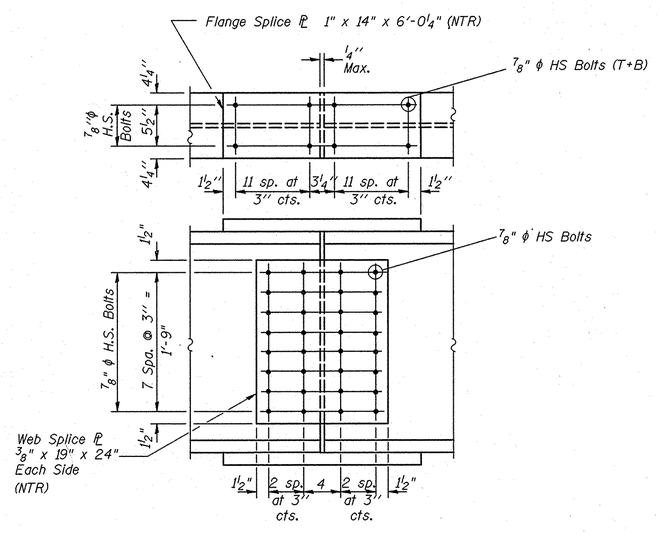
19 Required

* Cost included with furnishing and erecting Structural Steel



DIAPHRAGM D 4

4 Required



NEW SPLICE

(All Splice material shall be M270 Gr. 50)

TOP OF BEAM ELEVATIONS

Location	Beam 1A	Beam 10A
CL Brg. W. Abut.	684.11	684.20
CL Pier #1	684.42	684.40
CL Splice #1	684.43	684.43
CL Pier #2	684.59	684.58
CL Splice #2	684.48	684.48
CL Splice #3	684.43	684.43
CL Pier #3	684.47	684.48
CL Brg. E. Abut.	684.25	684.25

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

STRUCTURAL STEEL DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet No. 17 of 48.

RC ENGINEERS LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

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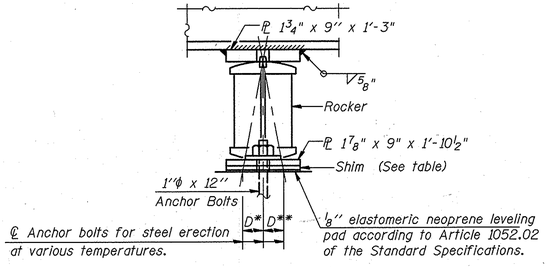
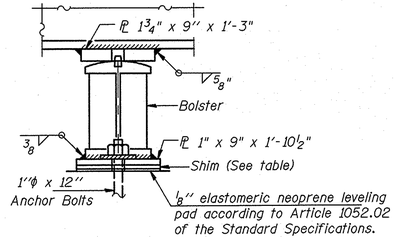
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	49
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 20 of 48 Sheets



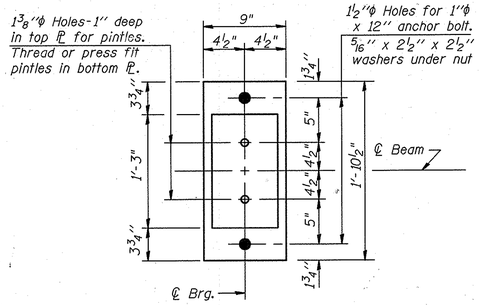
PIERS 1 & 3 BEAMS 1A & 10A



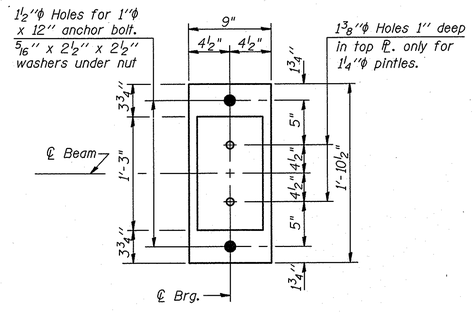
PIER 2 BEAMS 1A & 10A

*D=1/8"/100 ft. of exp. for every 15° below the normal temp. of 50°F.

**D=1/8"/100 ft. of exp. for every 15° above the normal temp. of 50°F.



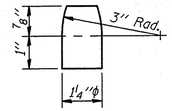
PLAN



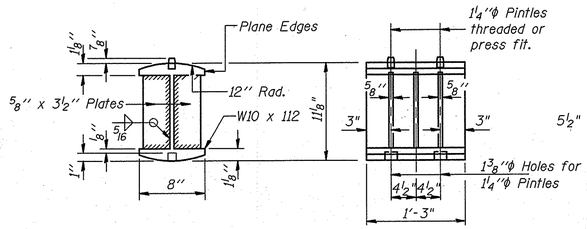
PLAN

THICKNESS - SHIM ℄

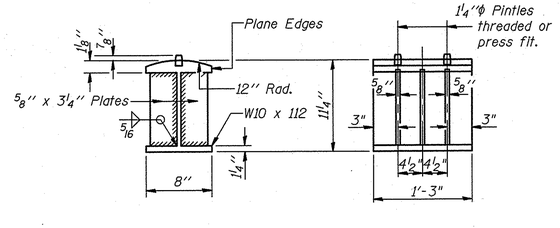
Beams 2, 4, 7	3/4"
Beams 1A, 10A	2 "



DETAIL OF PINTLE



DETAIL OF ROCKER AT PIERS 1 & 3



DETAIL OF BOLSTER AT PIER 2

NOTE See sheet 38 and 39 of 48 sheets for anchor bolt installation and details.
Anchor bolts at fixed bearings may be built into the masonry.
Work this sheet with sheet No. 19, 21, 26, 28, 30, 32, and 41 of 48.

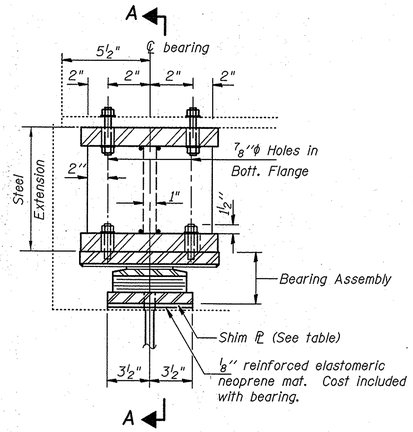
DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

BEARING DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

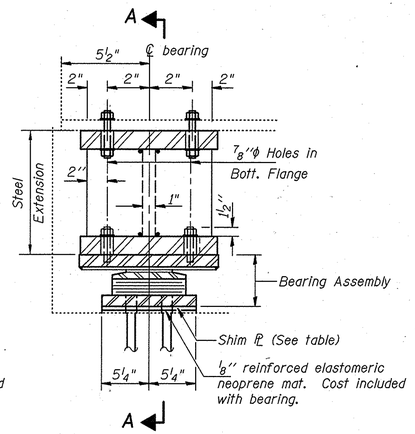
R C ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	50
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

Sheet 21 of 48 Sheets

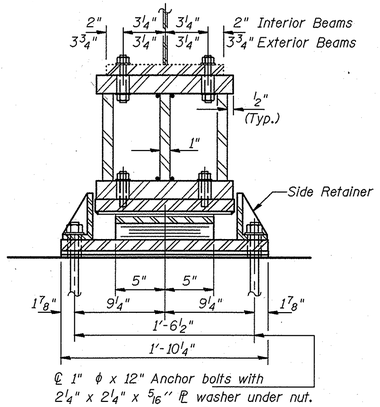


ELEVATION AT ABUT. EXTERIOR BEAMS

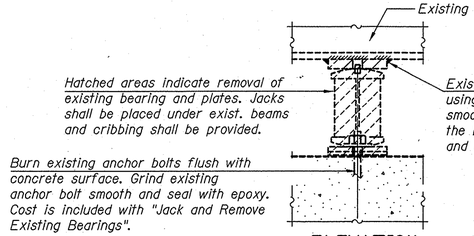


ELEVATION AT ABUT. INTERIOR BEAMS

TYPE II ELASTOMERIC EXP. BRG.



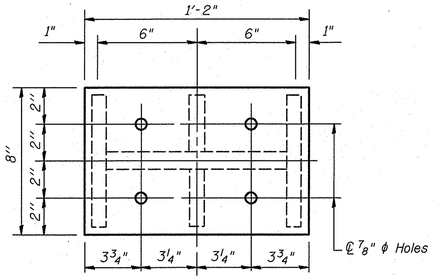
SECTION A-A



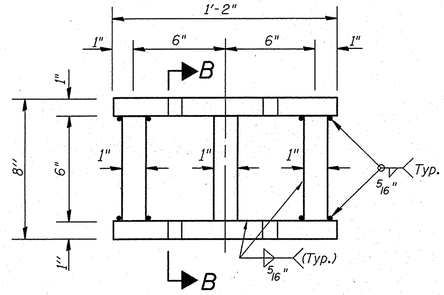
ELEVATION

THICKNESS - SHIM ℙ

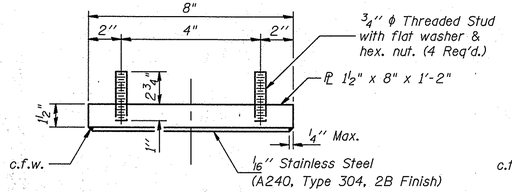
Beams 2, 4, 7	¾"
Beams 1A, 10A	1⅜"



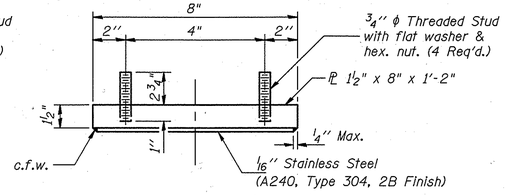
PLAN TOP AND BOTTOM PLATE



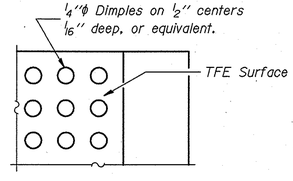
STEEL EXTENSION DETAIL



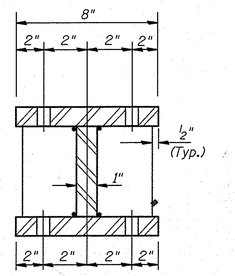
TOP BEARING ASSEMBLY EXTERIOR BEAMS



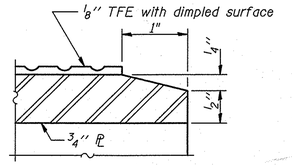
TOP BEARING ASSEMBLY INTERIOR BEAMS



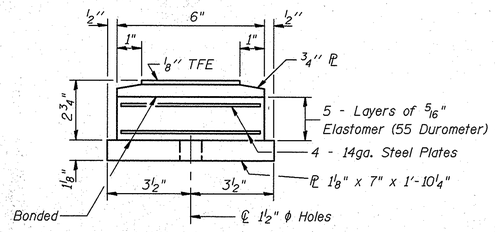
PLAN-TFE SURFACE



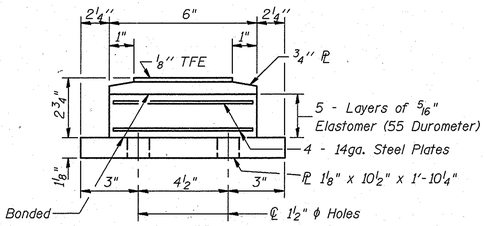
SECTION B-B



SECTION THRU TFE



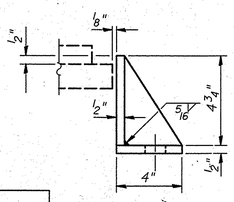
BOTTOM BEARING ASSEMBLY EXTERIOR BEAMS

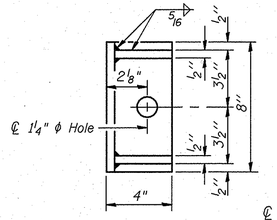


BOTTOM BEARING ASSEMBLY INTERIOR BEAMS

Note: The ⅛" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

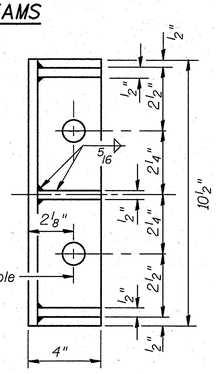
Bonding of ⅛" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

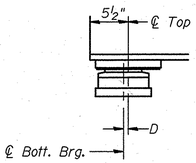




SIDE RETAINER

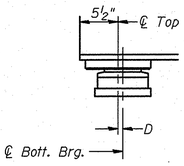
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Structural Steel.





BELOW 50°F.

(Move bott. brg. away from fixed brg.)



ABOVE 50°F.

(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D=⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

BEARING REPLACEMENT PROCEDURE

1. The Contractor shall submit for approval by the Engineer, plans for jacking and cribbing prior to commencing replacement of the abutment bearings.
2. Jacking and removing existing bearing shall be done after existing deck removal is completed and before a new deck is poured.
3. Jacking shall be limited to a maximum diferential of ⅛" transversally between adjacent beams and ¼" longitudinally between adjacent supports to remove and install new bearings.
5. The maximum dead load reaction with deck removed (per bearing) at each abutment is 4 kips. Minimum jack capacity at the abutments is 20 kips (per bearing).
6. The new bearings and steel extensions ~~shall be placed~~ shall be in place and the jacks shall be lowered before the new concrete deck is poured.
7. The bottom flange area of existing beams shall be cleaned as specified by the special Provisions "Cleaning and Painting Adjacent Areas of Existing Steel Structures" prior to installing top bearing plate.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type II	Each	24

NOTE: See sheet 41 of 48 sheets for anchor bolt installation and details.

Anchor bolts at fixed bearings may be built into the masonry.

Work this sheet with sheet No. 19 20, 26, 28, 30, 32, and 41 of 48.

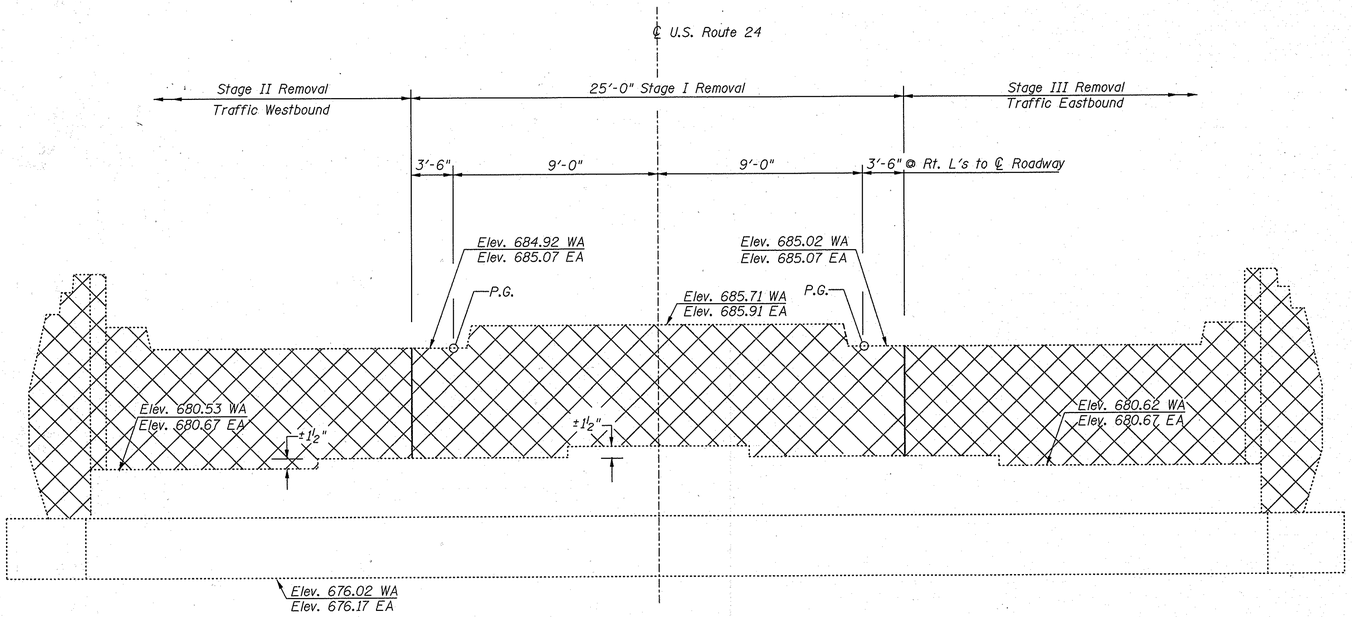
DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D. / T.F.
CHECKED	G.R.

BEARING DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

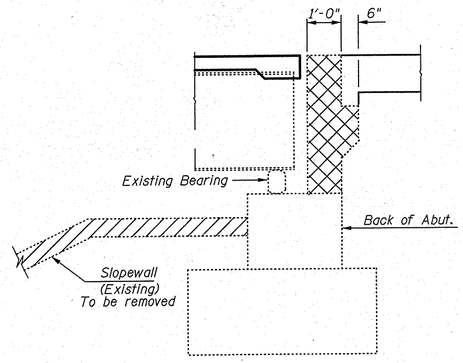
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	51
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 22 of 48 Sheets



ELEVATION

WA (Looking East)
EA (Looking West)



CROSS SECTION THRU ABUTMENT

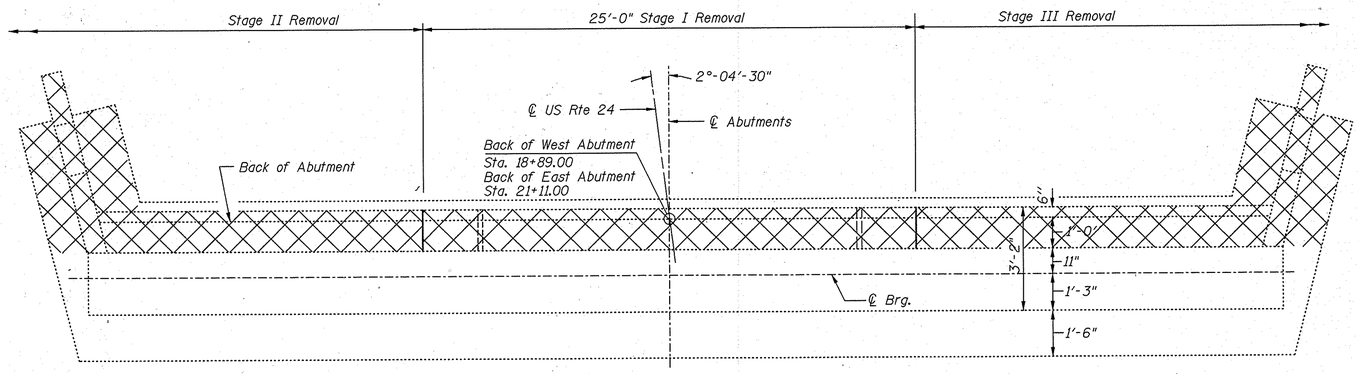
Dimensions given are at Rt. L's.

Denotes Concrete Removal

Slope Wall Removal

East Abutment

West Abutment



PLAN VIEW

BILL OF MATERIAL

West & East Abutment

Item	Unit	Total
Concrete Removal	Cu. Yd.	9.2
Slopewall Removal	Cu. Yd.	590

NOTES:
Existing elevations shall be field verified.

For Concrete Removal see sheet 33 of 48.

Existing reinforcement extending into removed area shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.
Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced usind an approved bar splicer or anchorage system. Cost included with Concrete Removal.

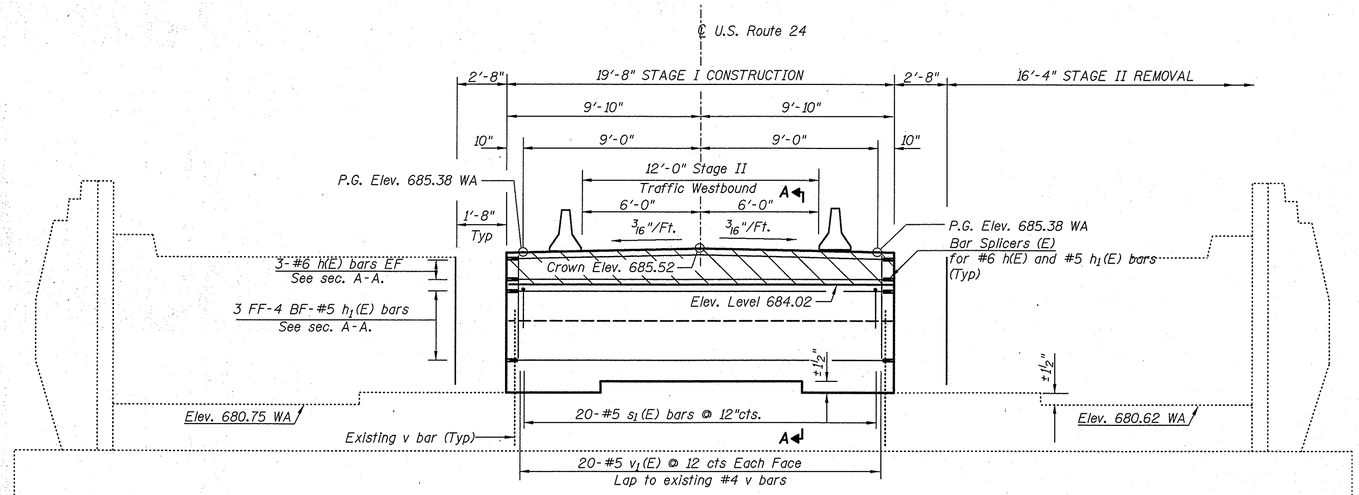
WEST AND EAST ABUTMENTS CONCRETE REMOVAL U.S. ROUTE 24 OVER F.A.I. RTE. 57 SECTION 38-5 HBR-2 IROQUOIS COUNTY STATION 20+00 STRUCTURE NO. 038-0031

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

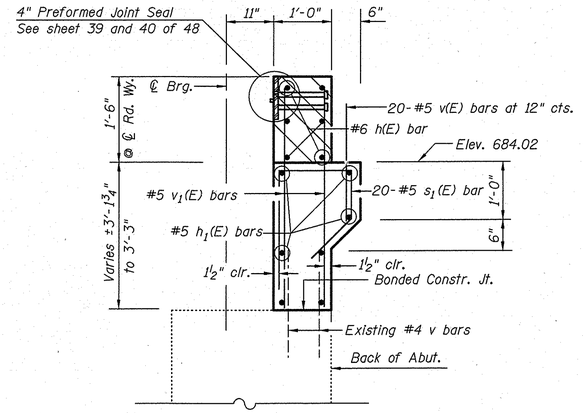
RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	52
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 23 of 48 Sheets

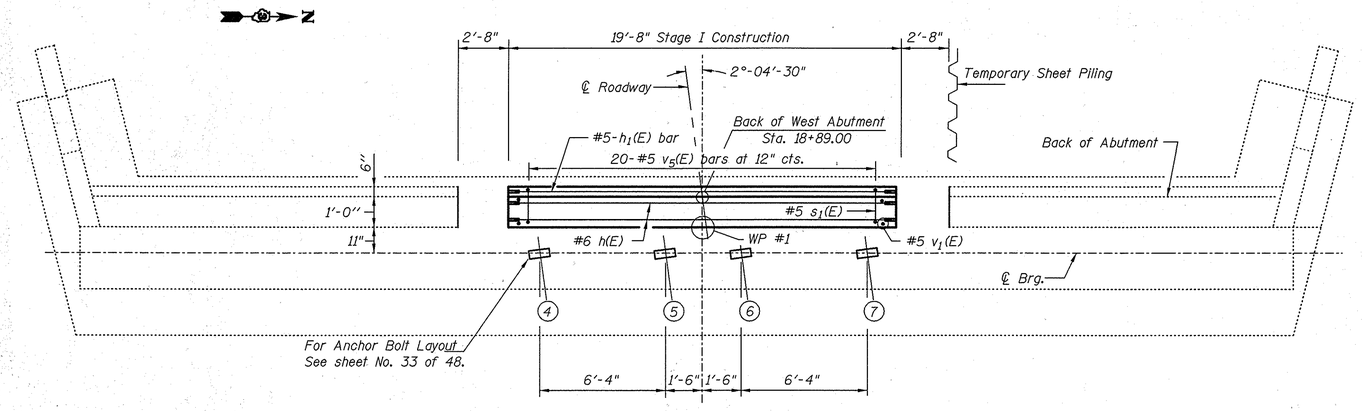


ELEVATION



SEC. A-A

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure on sheet No. 14 of 48.



PLAN VIEW

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

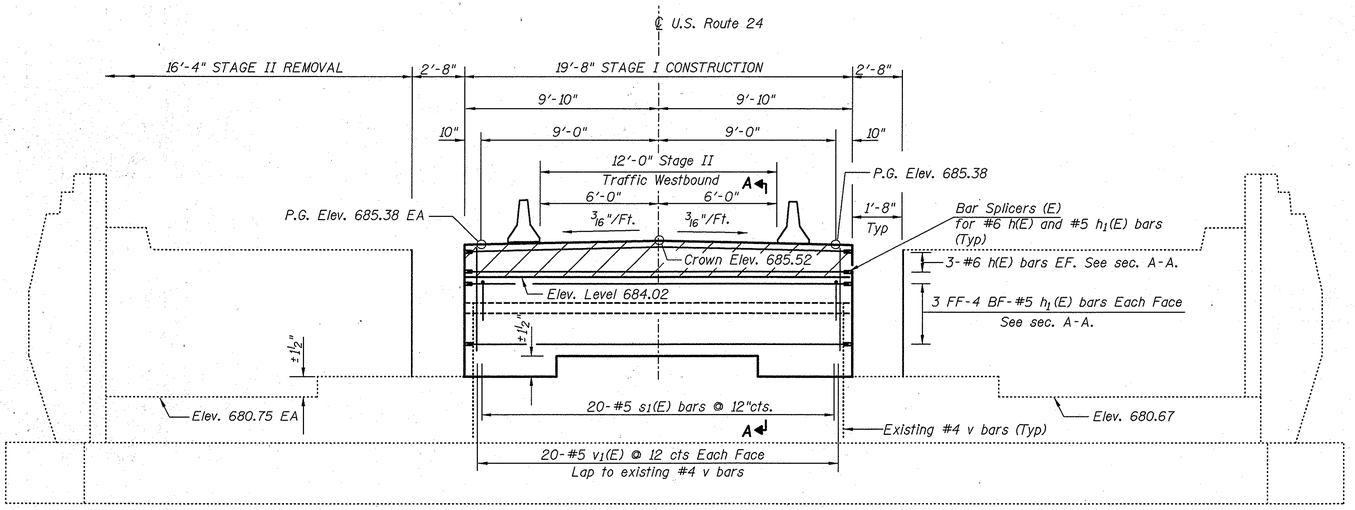
WEST ABUTMENT
STAGE I CONSTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet No. 33, 38 and 41 of 48

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

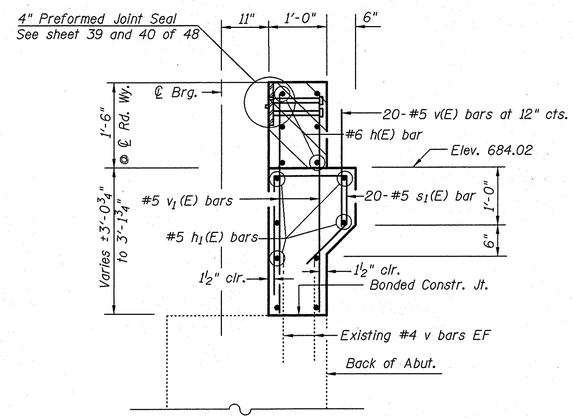
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	53
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 24 of 48 Sheets



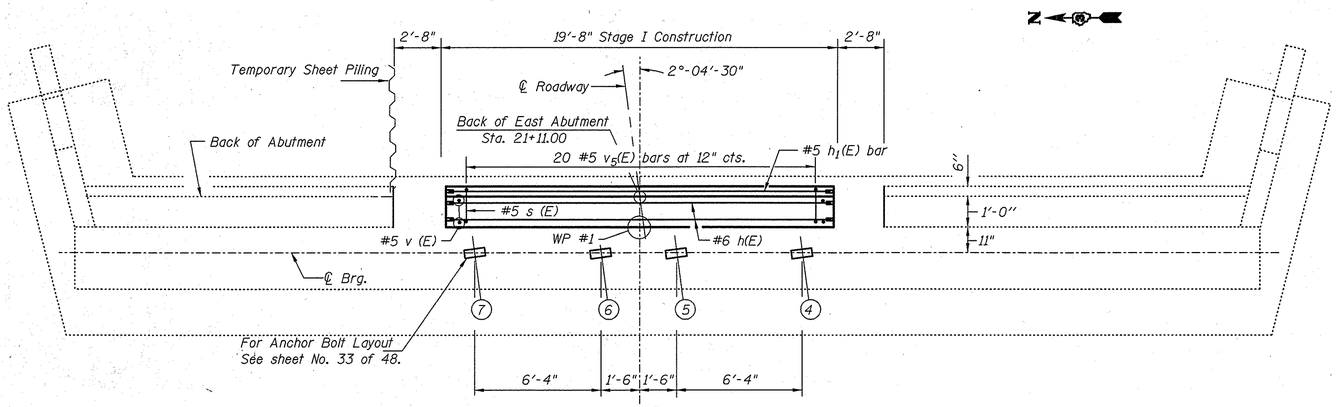
ELEVATION

(SHOWING E. ABUT)



SEC. A-A

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure on sheet No. 14 of 48.



PLAN VIEW

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

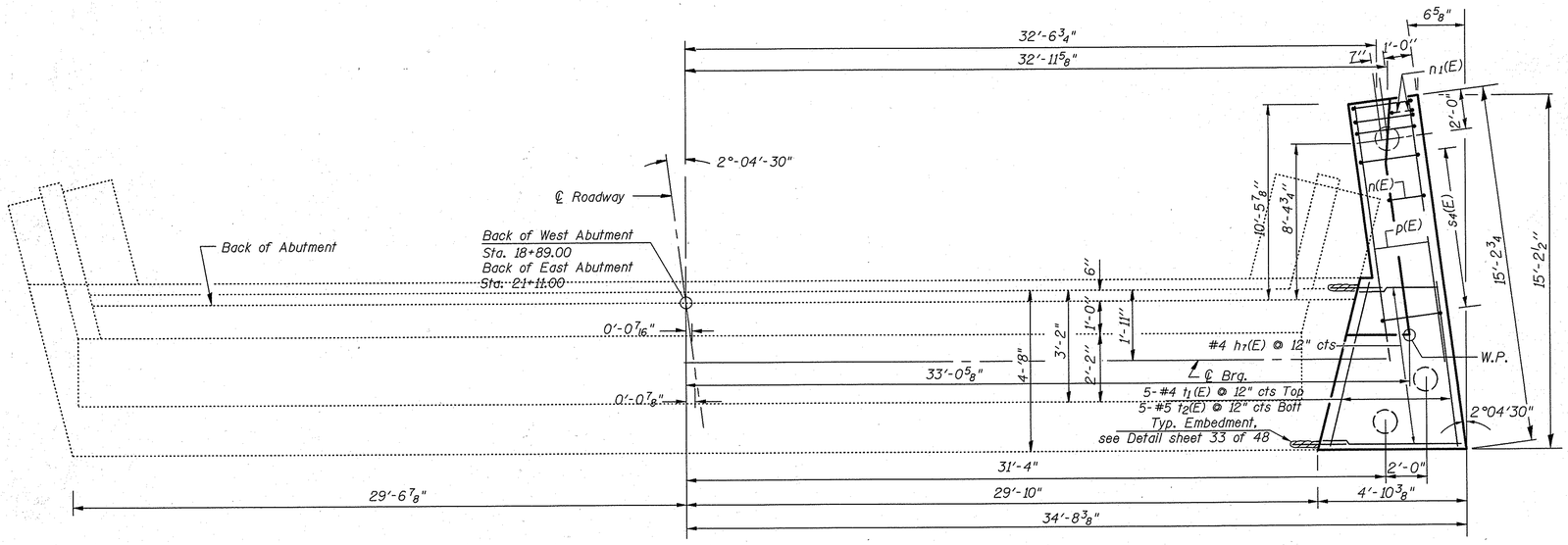
EAST ABUTMENT
STAGE I CONSTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet No. 33, 38 and 41 of 48

RC ENGINEERS LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

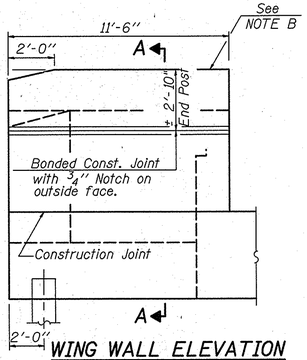
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	54
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 25 of 48



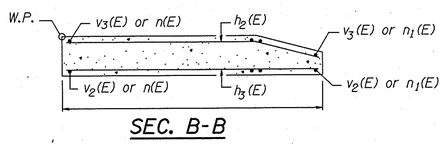
FOOTING PLAN TOP VIEW

West



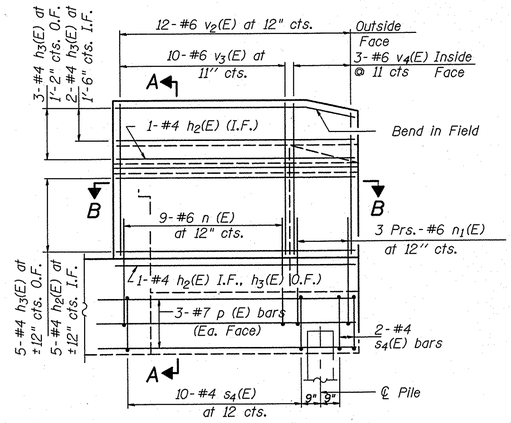
WING WALL ELEVATION

Showing Dimensions



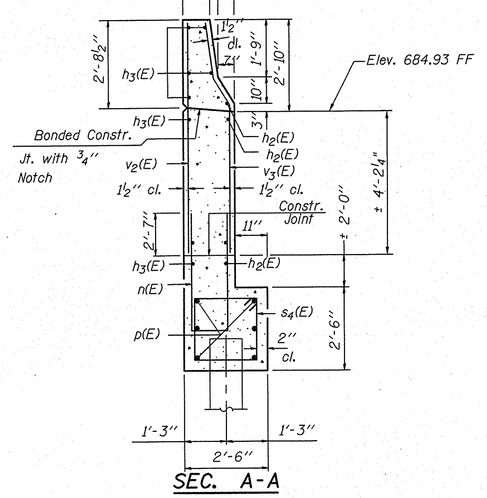
SEC. B-B

NOTE B:
End Post shall be poured after bridge parapet is in place. Form top surface to match parapet grade.



WING WALL ELEVATION

Showing Reinforcement



SEC. A-A

PILE DATA

Type: 12" Metal Shell Piles
Capacity: 30 Ton.
Est Length: 35 ft
No. Req'd: 2
Test Pile: 1 Req'd

Notes: Concrete and reinforcement of Footing and Wingwall included with Abutments Details. See sheet No. 33 of 48
Reinforcement bars designated (E) shall be epoxy coated.

WEST ABUTMENT
FOOTING PLAN & DETAILS
STAGE II CONSTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

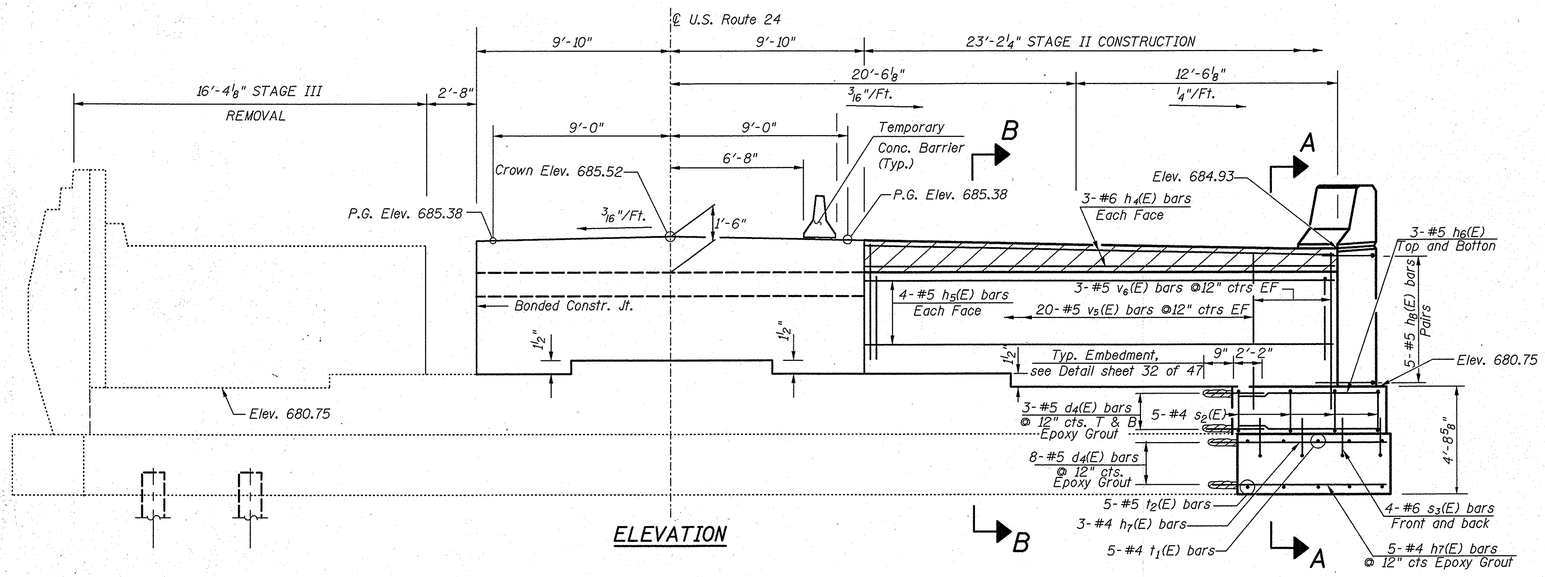
DESIGNED	KPS
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

Work this sheet with sheet 33 and 34 of 48 sheets.

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

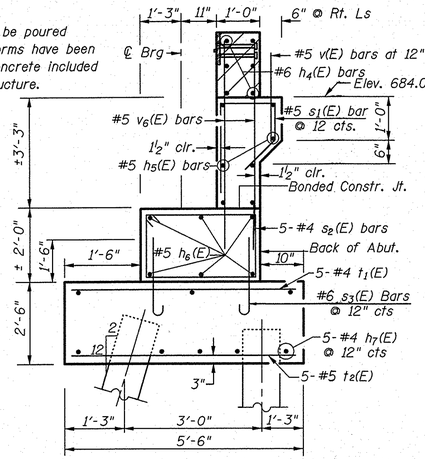
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	99	56
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 26 of 48 Sheets

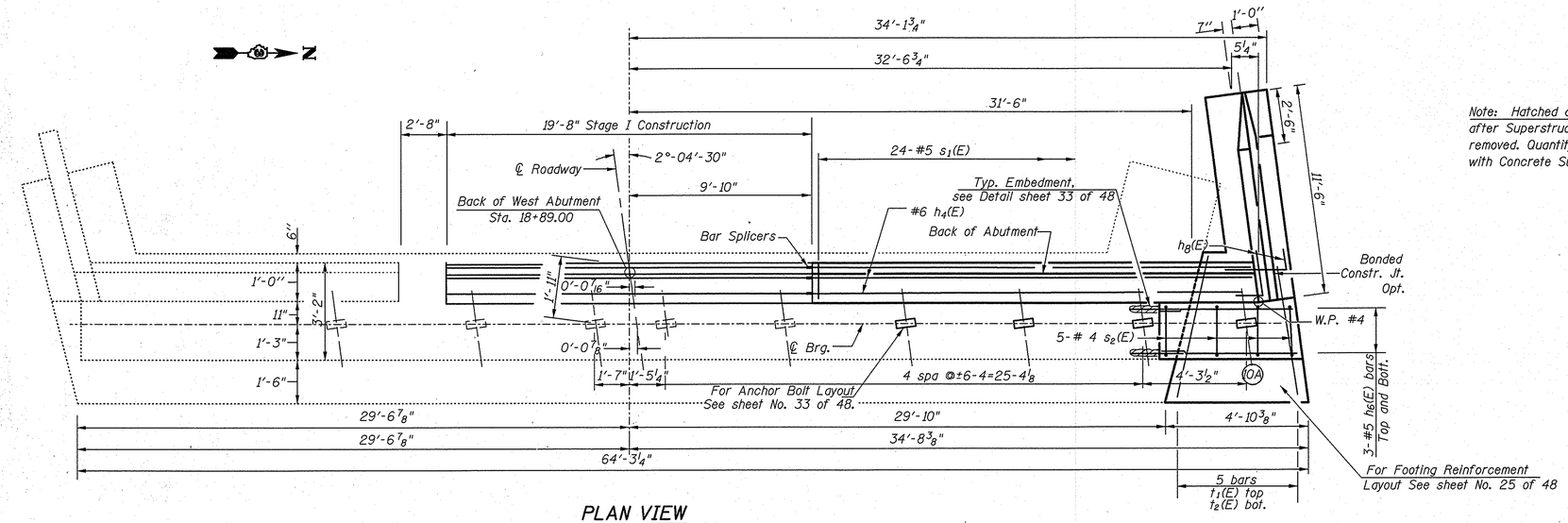


ELEVATION

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.

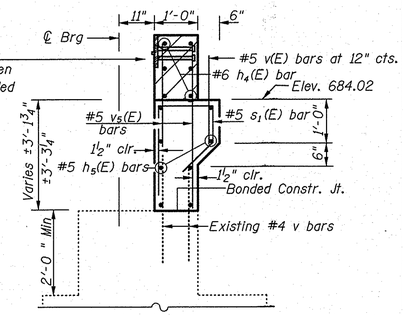


SECTION A-A



PLAN VIEW

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECT B-B

WEST ABUTMENT
STAGE II CONTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION (38-5) BR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

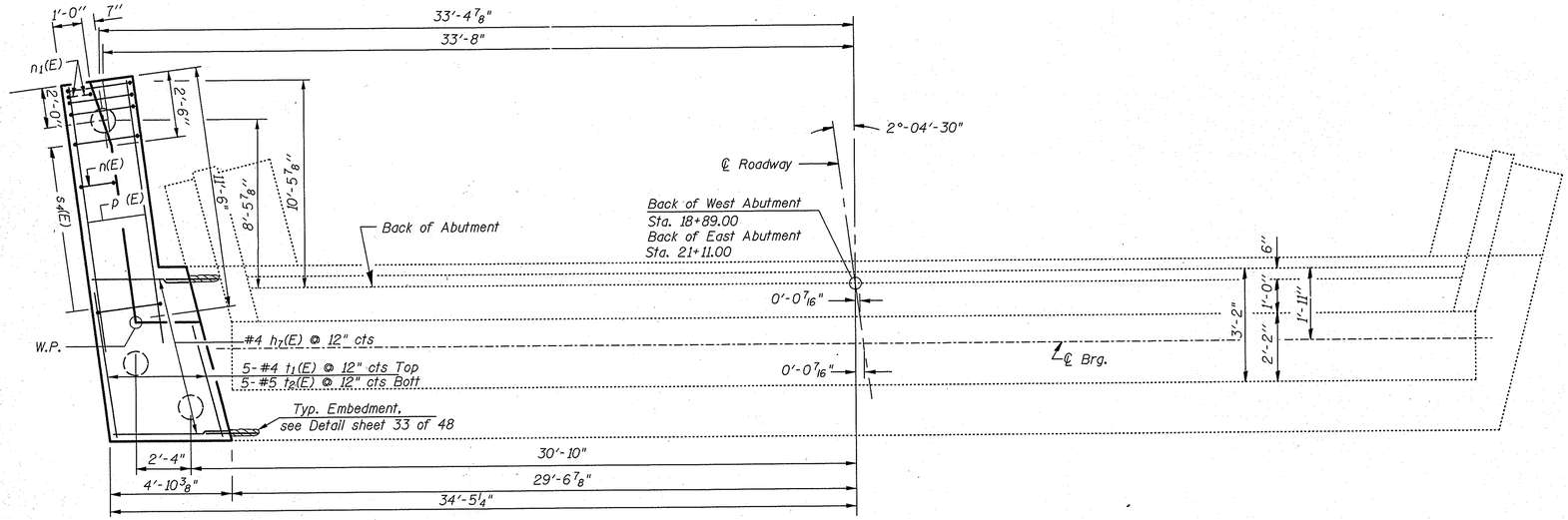
Work this Sheet with Sheet No. 33, 38 and 41 of 48

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	56
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 27 of 48 Sheets

East Abutment



FOOTING PLAN TOP VIEW

PILE DATA

Type: 12" Metal Shell Piles
Capacity: 30 Ton.
Est Length: 35 ft
No. Req'd: 3

Notes: Concrete and reinforcement of Footing and Wingwall included with Abutments Details.
See sheet No. 33 of 48
Reinforcement bars designated (E) shall be epoxy coated.
For wing walls details See sheet No. 25 of 48 sheets.

Work this sheet with sheet 33 and 34 of 48 sheets.

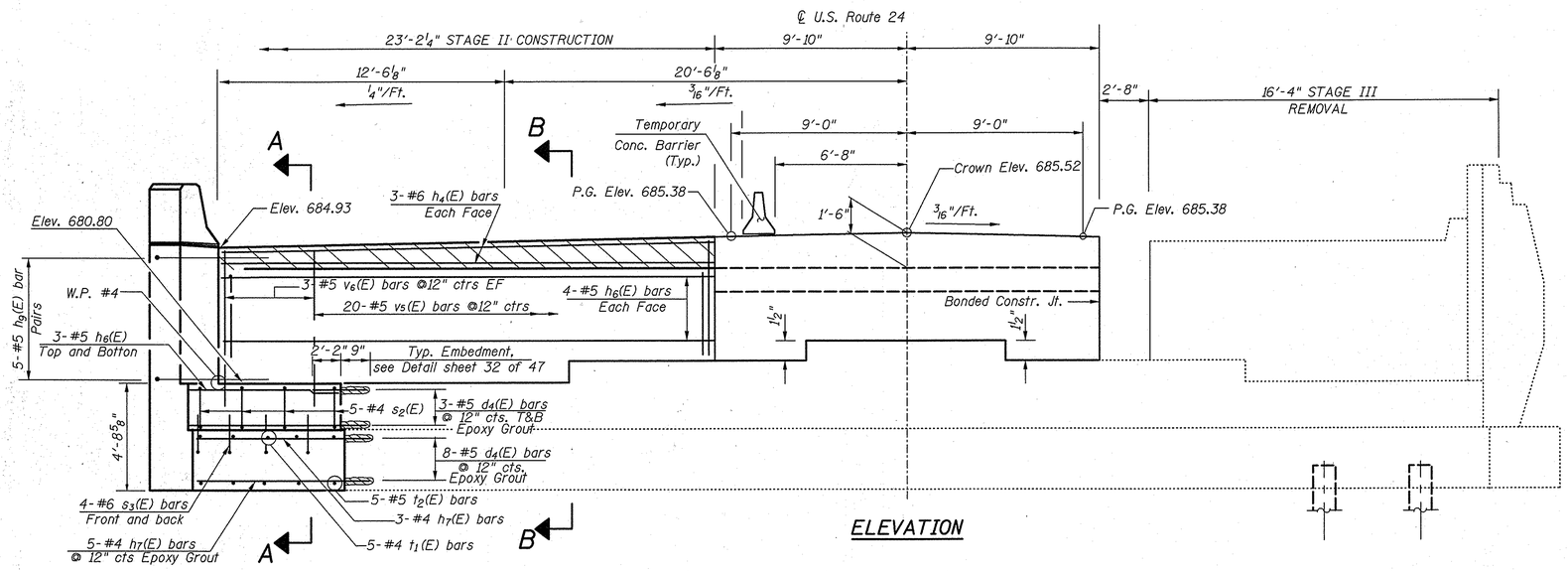
DESIGNED	KPS
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

EAST ABUTMENT
FOOTING PLAN & DETAILS
STAGE II CONSTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

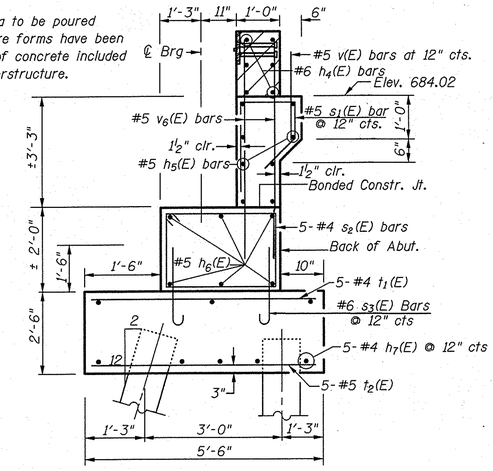
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	57
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 28 of 48 Sheets

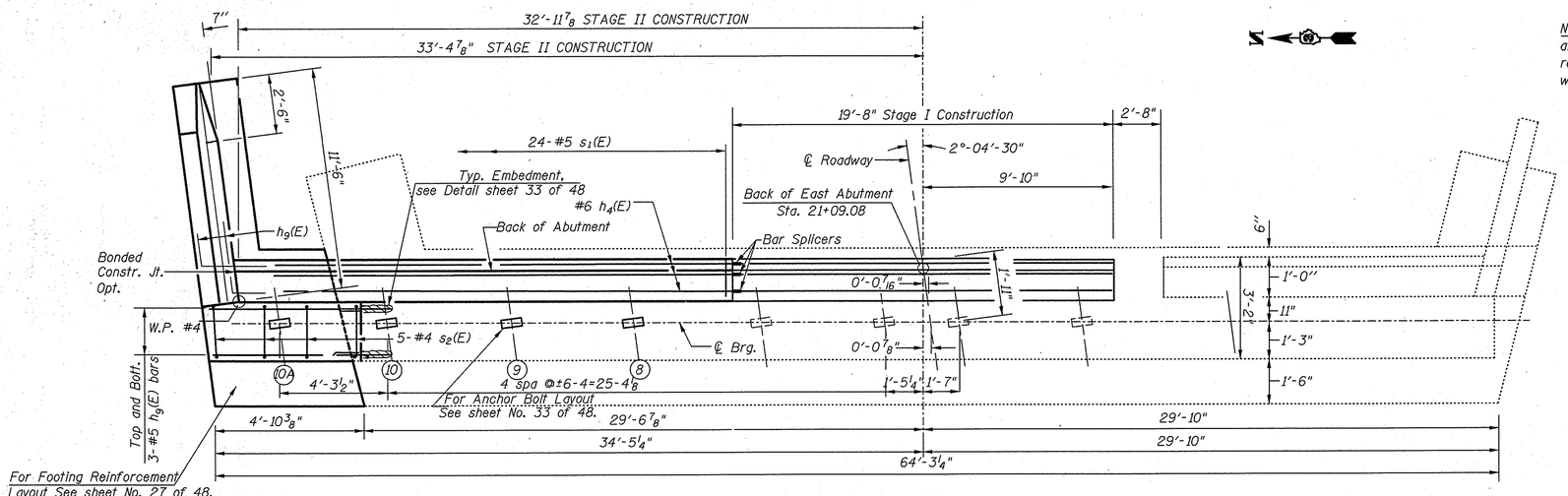


ELEVATION

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.

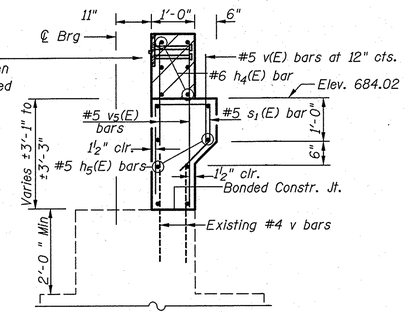


SECTION A-A.



PLAN VIEW

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECTION B-B

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

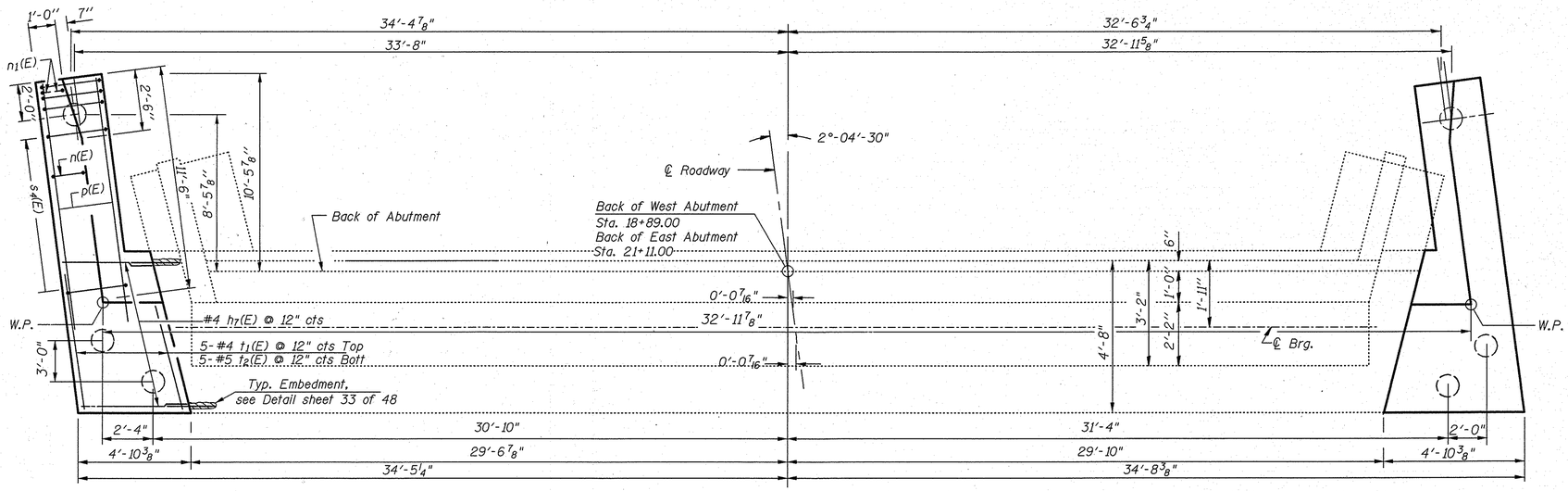
EAST ABUTMENT
STAGE II CONTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this Sheet with Sheet No. 33, 36 and 41 of 48

R C ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	50
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 29 of 48 Sheets



FOOTING PLAN TOP VIEW

West

PILE DATA

Type: 12" Metal Shell Piles
Capacity: 30 Ton.
Est Length: 35 ft
No. Req'd: 3

Notes: Concrete and reinforcement of Footing and Wingwall included with Abutments Details.
See sheet No. 33 of 48
Reinforcement bars designated (E) shall be epoxy coated.
For Wing Walls details, see sheet No. 25 of 48 sheets.

DESIGNED	KPS
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

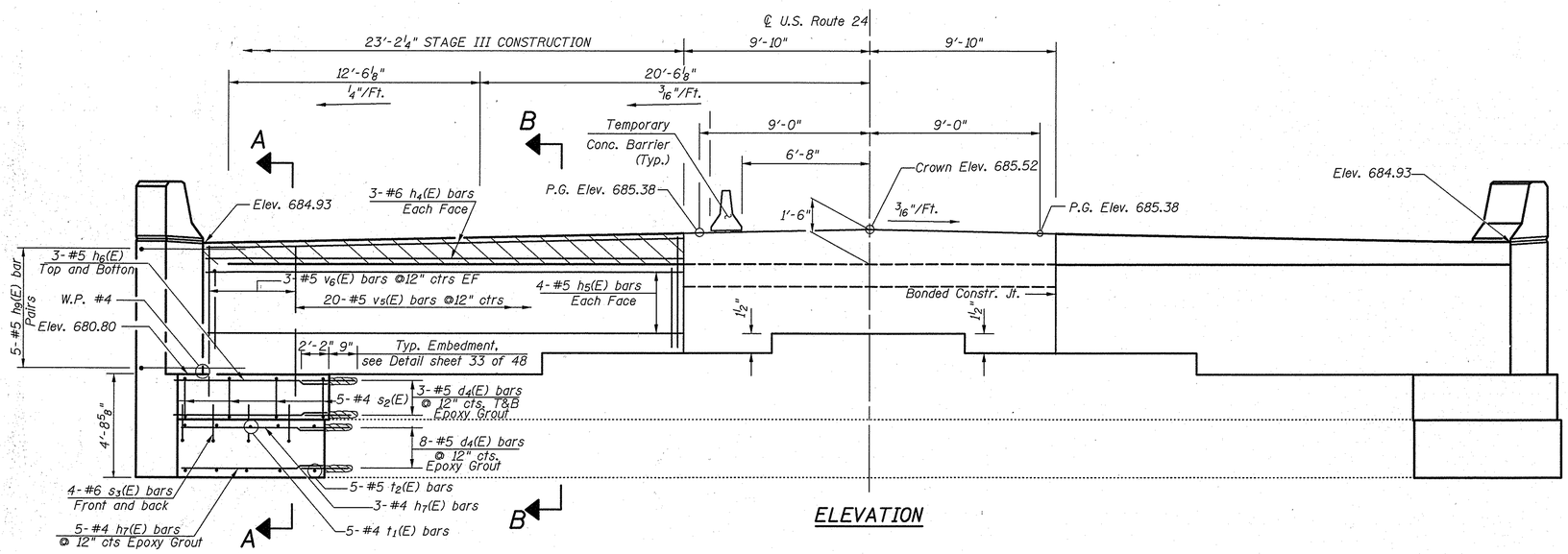
Work this sheet with sheet 33 and 34 of 48 sheets.

WEST ABUTMENT
FOOTING PLAN & DETAILS
STAGE III CONSTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

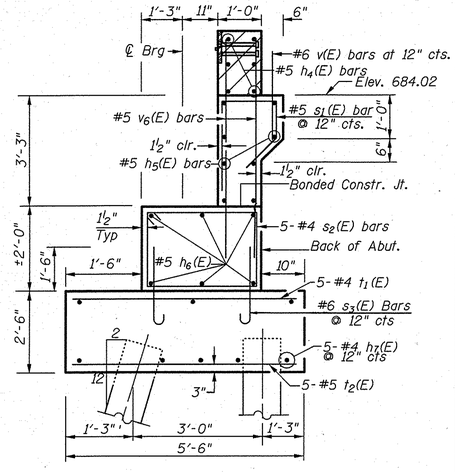
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	59
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 30 of 48 Sheets

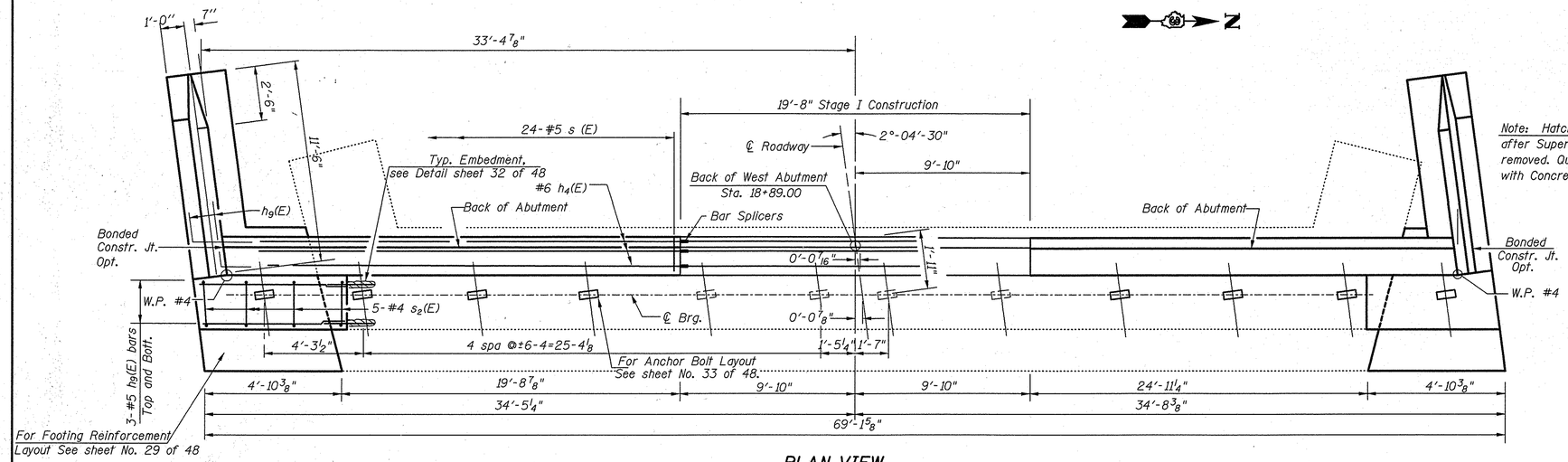


ELEVATION

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.

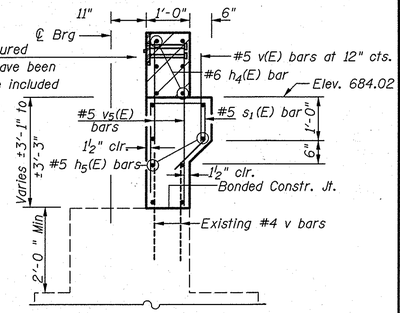


SECTION A-A.



PLAN VIEW

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECTION B-B

WEST ABUTMENT
STAGE III CONTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

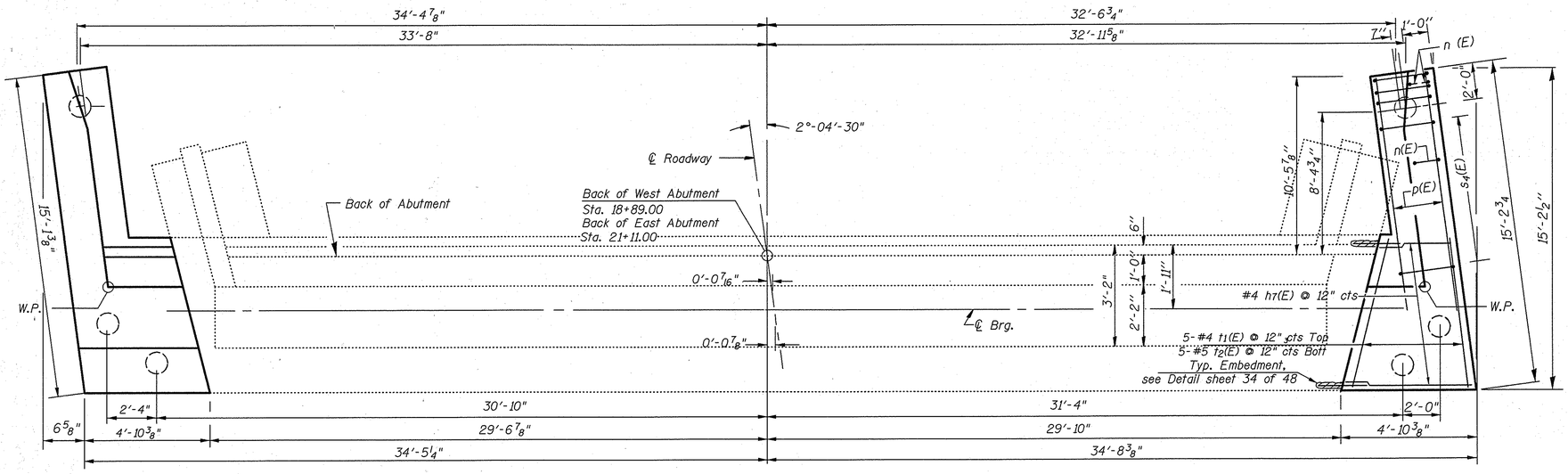
For Section thru Abut. See Sheet No. 26 of 48

Work this Sheet with Sheet No. 33, 38 and 41 of 48

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	60
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 31 of 48 Sheets



FOOTING PLAN TOP VIEW

(EAST SHOWED)

PILE DATA

Type: 12" Metal Shell Piles
Capacity: 30 Ton.
Est Length: 35 ft
No. Req'd: 3

Notes: Concrete and reinforcement of Footing and Wingwall included with Abutments Details.
See sheet No. 33 of 48
Reinforcement bars designated (E) shall be epoxy coated.
For Wing walls details, see sheet No. 25 of 48.

DESIGNED	KPS
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

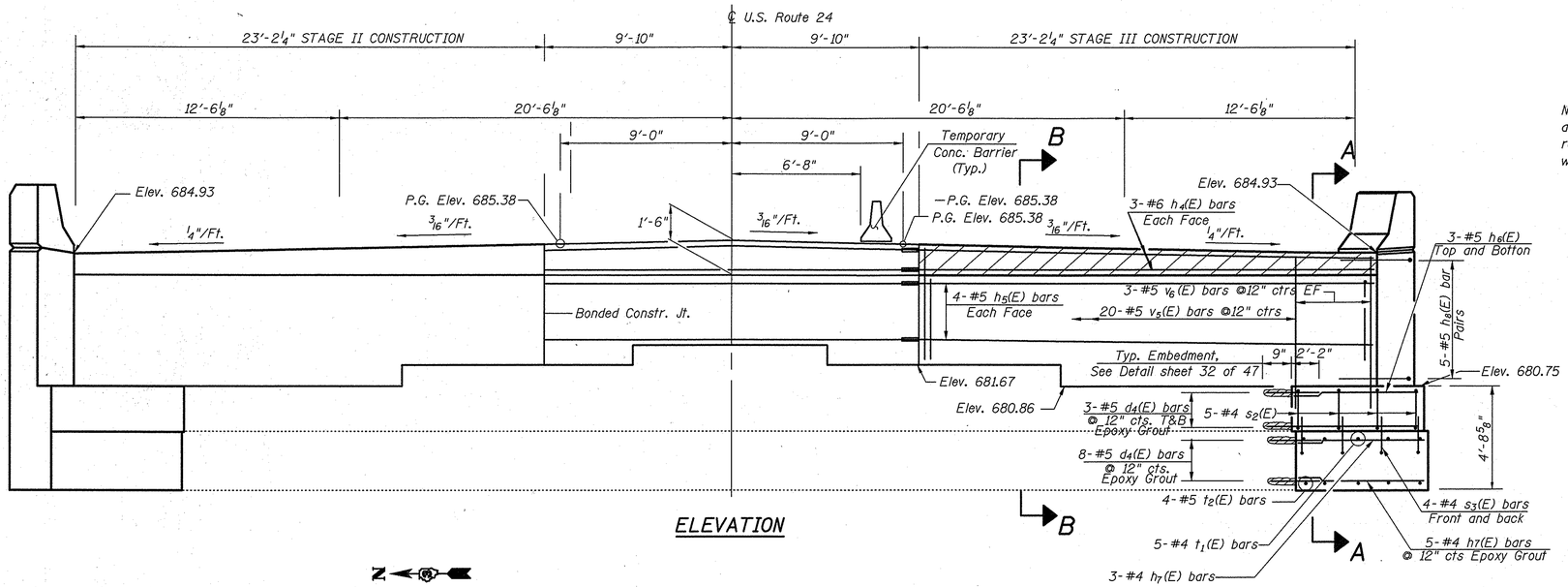
EAST ABUTMENT
FOOTING PLAN & DETAILS
STAGE III CONSTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this sheet with sheet 33 and 34 of 48 sheets.

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	61
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

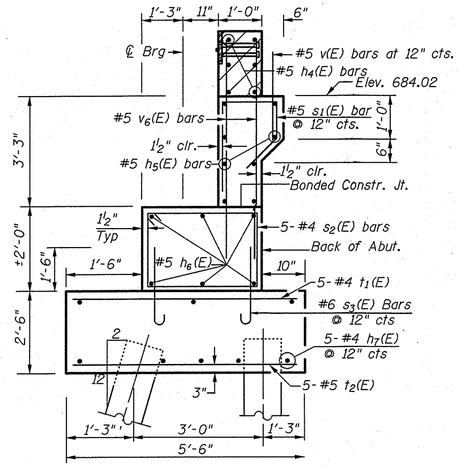
Sheet 32 of 48 Sheets



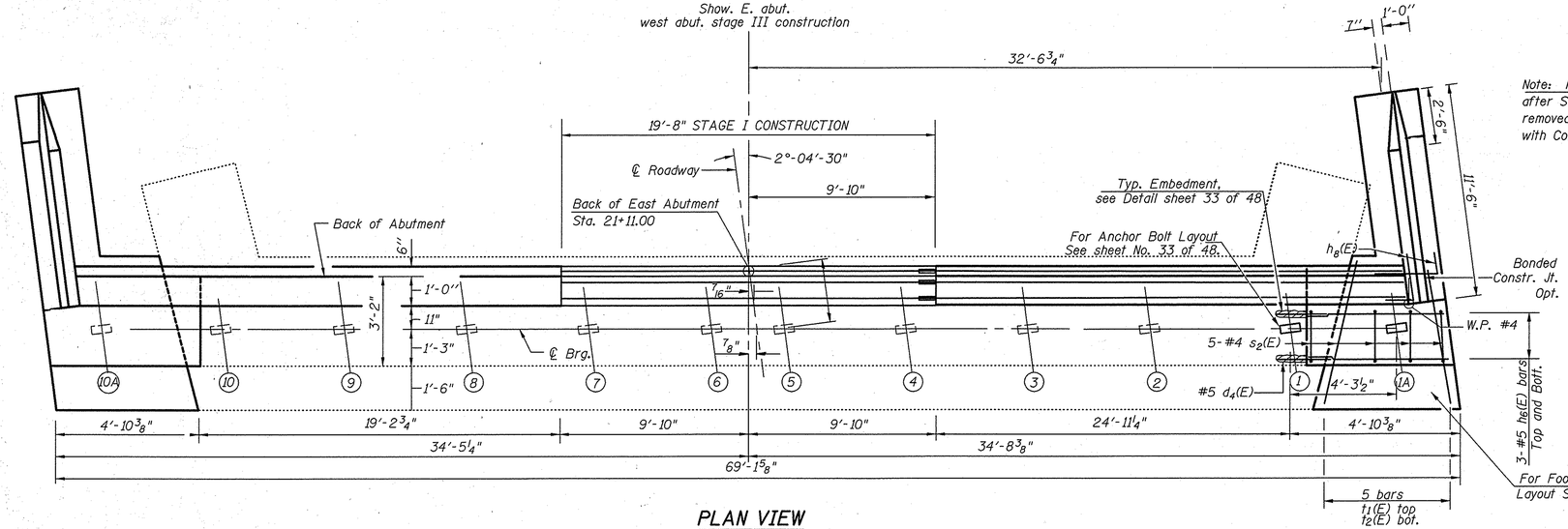
ELEVATION

East Abutment

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.

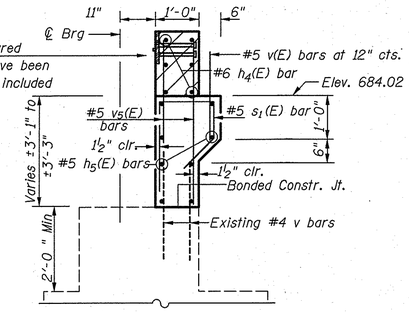


SECTION A-A.



PLAN VIEW

Note: Hatched area to be poured after Superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECTION B-B

EAST ABUTMENT
STAGE III CONSTRUCTION
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

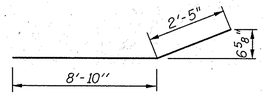
For section thru abut. See sheet No. 26 of 48.

Work this sheet with sheet No. 33, 38 and 41 of 48.

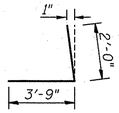
RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	~~89~~	62
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

Sheet 33 of 48 Sheets

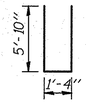


BAR $h_2(E)$

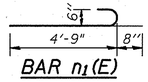


BAR $h_8(E)$

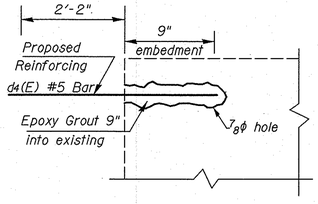
BAR $h_9(E)$



BAR n(E)

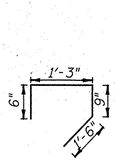


BAR $n_1(E)$

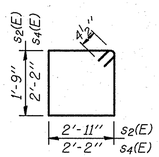


EPOXY GROUT ANCHOR BARS

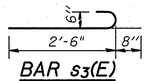
SEE ART. 584 OF THE STANDARD SPECS



BAR $s_1(E)$



BARS $s_2(E)$ & $s_4(E)$



BAR $s_3(E)$

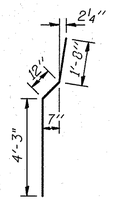
Min. Bar Lap

#7= 3'-5"

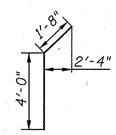
BILL OF MATERIAL
WEST & EAST ABUTMENT

Bar	No.	Size	Length	Shape
$d_4(E)$	56	#5	2'-11"	
h(E)	12	#6	19'-5"	
$h_1(E)$	14	#5	19'-5"	
$h_2(E)$	28	#4	11'-3"	
$h_3(E)$	44	#4	11'-3"	
$h_4(E)$	24	#6	22'-10"	
$h_5(E)$	32	#5	22'-10"	
$h_6(E)$	24	#5	4'-7"	
$h_7(E)$	32	#4	4'-8"	
$h_8(E)$	20	#5	5'-9"	
$h_9(E)$	20	#5	5'-9"	
n(E)	36	#6	13'-0"	
$n_1(E)$	24	#6	5'-5"	
p(E)	24	#7	14'-0"	
$s_1(E)$	136	#5	4'-0"	
$s_2(E)$	20	#4	10'-1"	
$s_3(E)$	32	#6	3'-2"	
$s_4(E)$	48	#4	9'-5"	
$t_1(E)$	20	#4	6'-3"	
$t_2(E)$	20	#5	6'-3"	
v (E)	40	#6	1'-10"	
$v_1(E)$	80	#6	4'-3"	
$v_2(E)$	48	#6	6'-6"	
$v_3(E)$	40	#6	6'-11"	
$v_4(E)$	12	#6	5'-8"	
$v_5(E)$	160	#5	4'-2"	
$v_6(E)$	24	#5	6'-0"	
Concrete Structures		Cu. Yd.	127.4	
Reinforcement Bars, Epoxy Coated		Pound	8610	
Structure Excavation		Cu. Yd.	328	
Furnishing Metal Pile Shells		Foot	420	
Driving and Filling Shells		Foot	420	

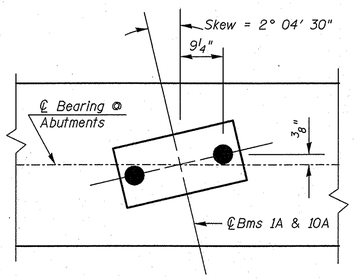
Reinforcement bars designated (E) shall be epoxy coated.

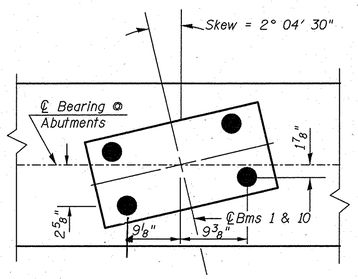


BAR $v_3(E)$



BAR $v_4(E)$





ANCHOR BOLT LAYOUT

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

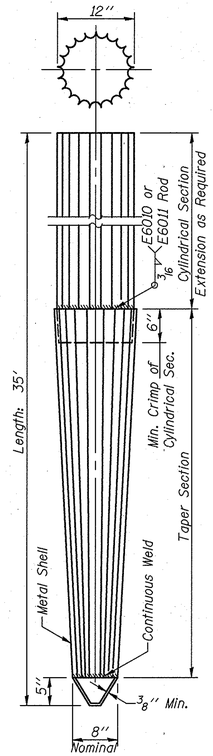
ABUTMENTS DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

Work this Sheet with Sheet 23 thru 32 of 48.

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	63
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 34 of 48 Sheets

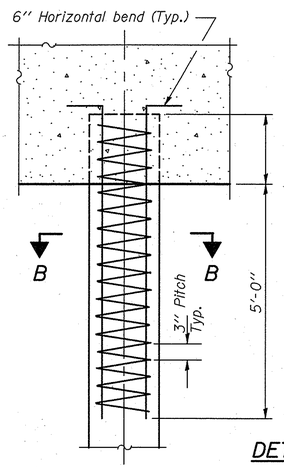


ALLOWABLE TAPER SECTIONS

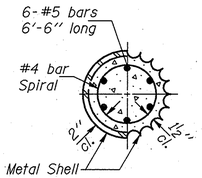
10' Length-Taper 1'' in 2'-6''
17' Length-Taper 1'' in 4'-0''
25' Length-Taper 1'' in 7'-0''
30' Length-Taper 1'' in 7'-0''

Note: The thickness of the shell shall be 1/4 inches with a tolerance of 5%. The shell shall be according to Article 1006.05(a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 p.s.i.

DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES



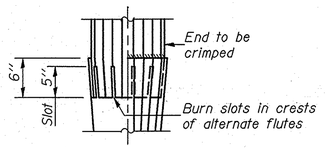
The cost of Reinforcement is included with furnishing piles.



SECTION B-B

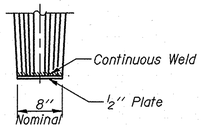
Reinforcement in top of pile shall be omitted under pier footings when placed in natural ground.

DETAIL OF REINFORCEMENT FOR METAL SHELLS



FIELD CRIMP DETAIL

Note: 6'' Crimp shall either be supplied on the cylindrical section or made in the field as detailed.



OPTIONAL FLAT END

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

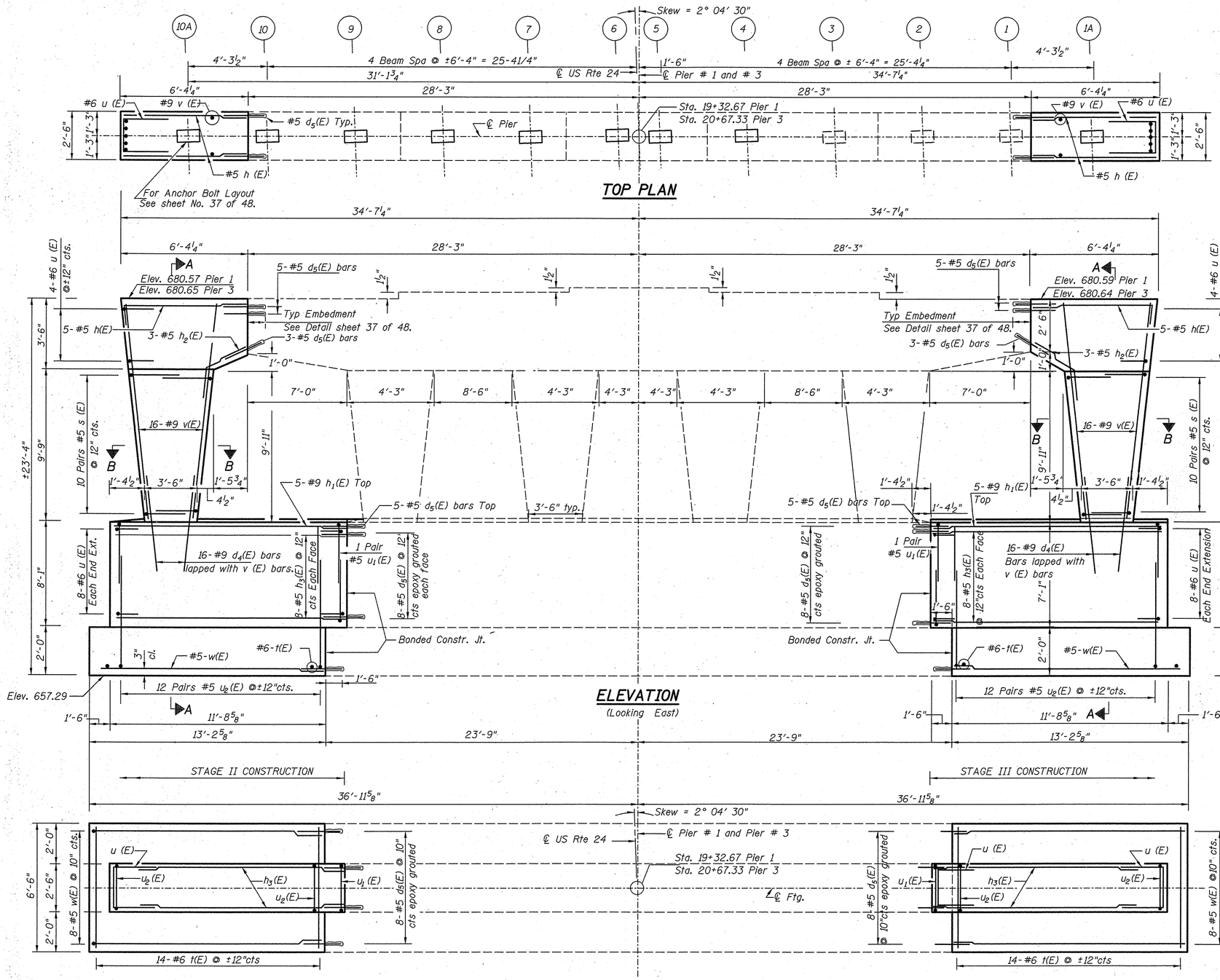
Work this sheet with sheet 25, 27, 29, and 31 of 48 sheets.

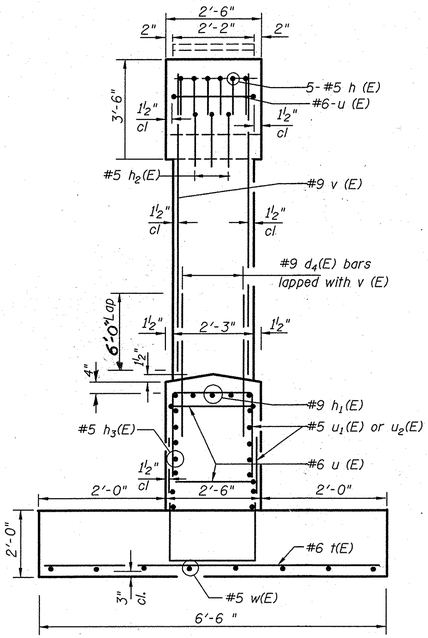
PILE DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

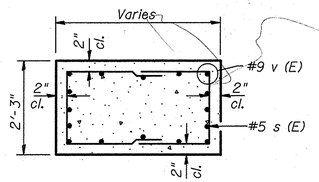
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	64
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 35 of 48 Sheets





SECTION A-A



SECTION B-B

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

Max Soil Pressure = 2.3 Tons/Sq Ft.

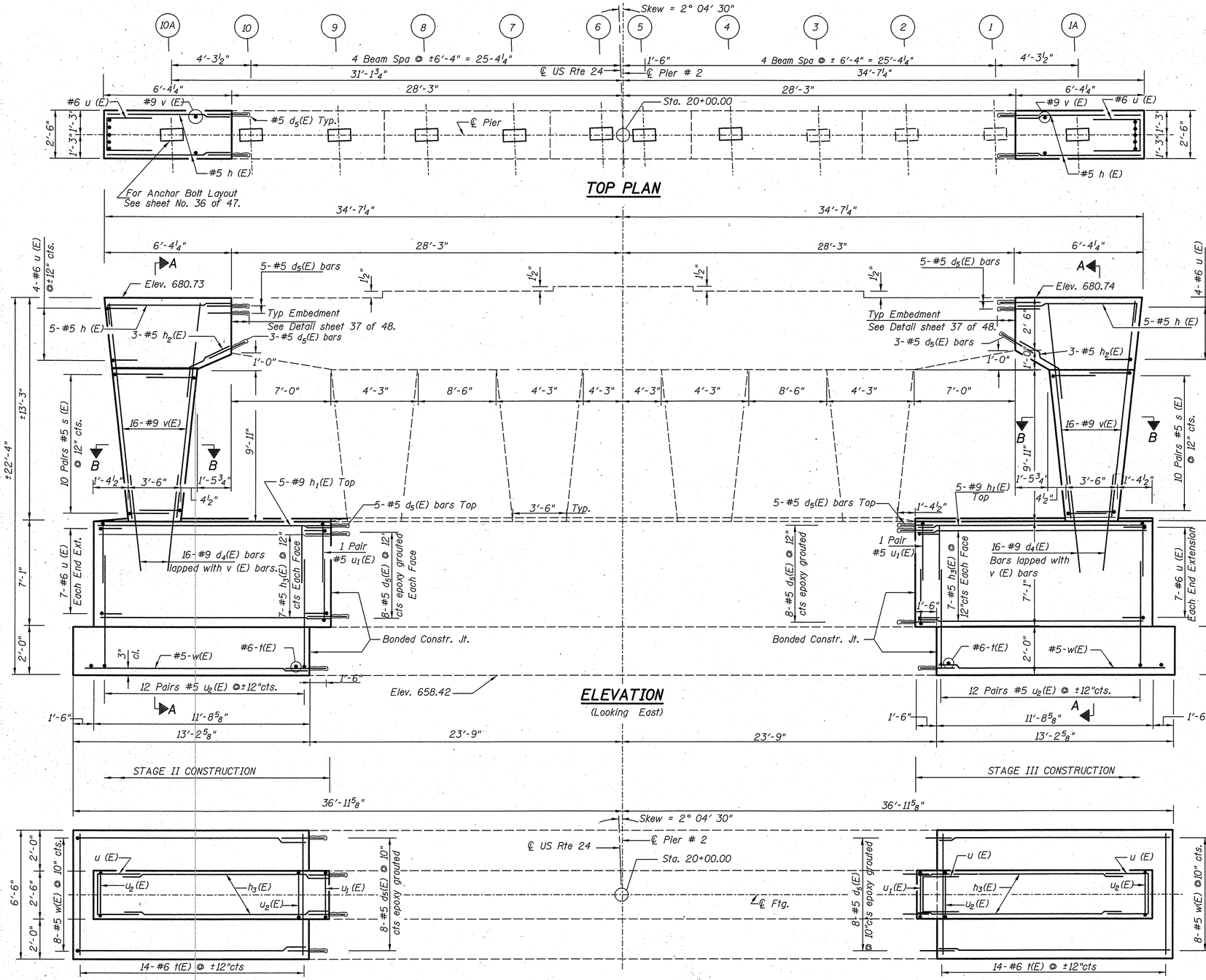
For Details and Bill of Material See Sheet 37 of 48.

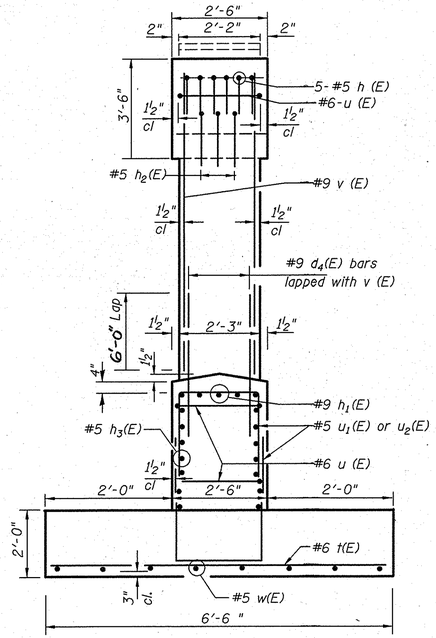
PIERS 1 AND 3
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

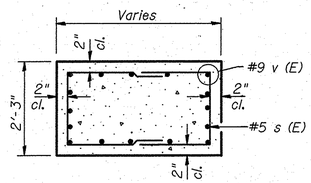
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	69
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 36 of 48 Sheets





SECTION A-A



SECTION B-B

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

Max. Soil Pressure = 2.5 Tons/Sq Ft.
Space reinforcement to miss existing reiforcement

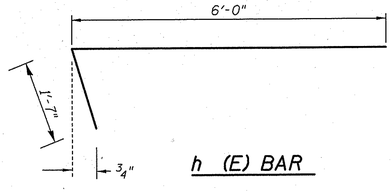
For Details and Bill of Material See Sheet 37 of 48.

PIER 2
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

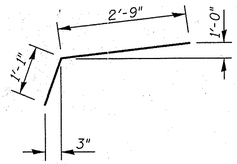
RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	66
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

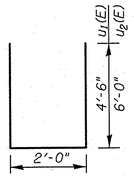
Sheet 37 of 48 Sheets



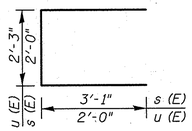
h (E) BAR



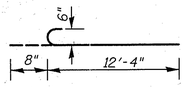
h 2 (E) BAR



u 1 (E) BAR
u 2 (E) BAR



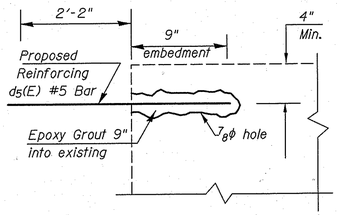
s (E) BAR
u (E) BAR



w(E) BAR

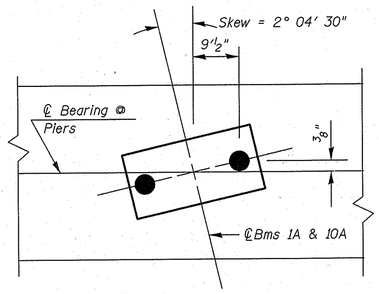
MIN. BAR LAP

#5 = 2'-2"
#6 = 2'-7"



EPOXY GROUT ANCHOR BARS

SEE ART. 584 OF THE STANDART SPECS.



ANCHOR BOLT LAYOUT

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

PIER #1

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d_4(E)	32	9	9'-4"	
d_5(E)	84	5	2'-11"	
h (E)	10	5	7'-7"	
h_1(E)	10	9	13'-0"	
h_2(E)	6	5	3'-10"	
h_3(E)	32	5	12'-11"	
s (E)	40	5	8'-2"	
t (E)	28	6	6'-3"	
u (E)	40	6	6'-3"	
u_1(E)	4	5	11'-0"	
u_2(E)	48	5	14'-0"	
v (E)	32	9	13'-3"	
w (E)	16	5	13'-0"	
Structure Excavation			Cu. Yd.	64
Concrete Structures			Cu. Yd.	42.8
Reinforcement Bars, Epoxy Coated			Pound	5640

Reinforcement Bars designated (E) shall be epoxy coated.

PIER #2

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d_4(E)	32	9	9'-4"	
d_5(E)	80	5	2'-11"	
h (E)	10	5	7'-7"	
h_1(E)	10	9	13'-0"	
h_2(E)	6	5	3'-10"	
h_3(E)	28	5	12'-11"	
s (E)	40	5	8'-2"	
t (E)	28	6	6'-3"	
u (E)	36	6	6'-3"	
u_1(E)	4	5	11'-0"	
u_2(E)	48	5	14'-0"	
v (E)	32	9	13'-3"	
w (E)	16	5	13'-0"	
Structure Excavation			Cu. Yd.	64
Concrete Structures			Cu. Yd.	40.4
Reinforcement Bars, Epoxy Coated			Pound	5260

Reinforcement Bars designated (E) shall be epoxy coated.

PIER #3

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d_4(E)	32	9	9'-4"	
d_5(E)	84	5	2'-11"	
h (E)	10	5	7'-7"	
h_1(E)	10	9	13'-0"	
h_2(E)	6	5	3'-10"	
h_3(E)	32	5	12'-11"	
s (E)	40	5	8'-2"	
t (E)	28	6	6'-3"	
u (E)	40	6	6'-3"	
u_1(E)	4	5	1'-0"	
u_2(E)	48	5	14'-0"	
v (E)	32	9	13'-3"	
w (E)	16	5	13'-0"	
Structure Excavation			Cu. Yd.	64
Concrete Structures			Cu. Yd.	42.8
Reinforcement Bars, Epoxy Coated			Pound	5640

Reinforcement Bars designated (E) shall be epoxy coated.

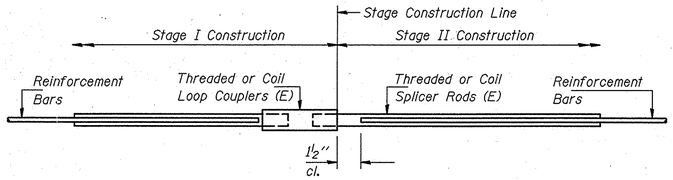
Work this sheet with sheets No. 35 and 36 of 48.

PIER DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

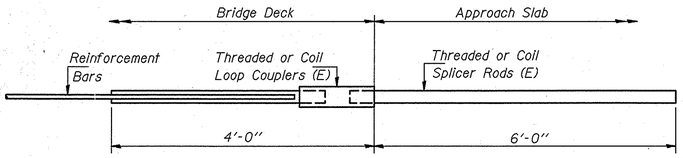
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	67
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

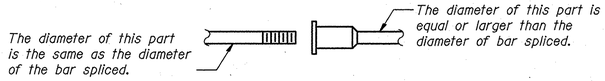
Sheet 38 of 48 Sheets



SPLICER DETAIL

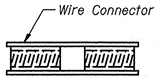
Bar Size	No. Assemblies Required	Location
#5	756	Top Slab
#5	532	Bot slab
#6	24	Abutments
#5	28	Abutments





ROLLED THREAD DOWEL BAR

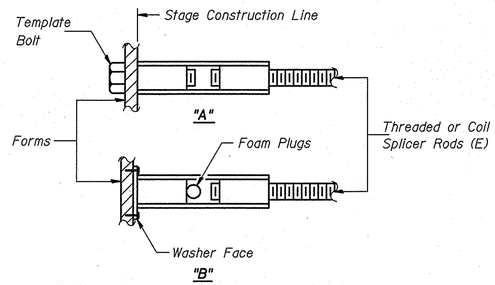
** ONE PIECE



WELDED SECTIONS

BAR SPLICER ASSEMBLY ALTERNATIVES

** Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

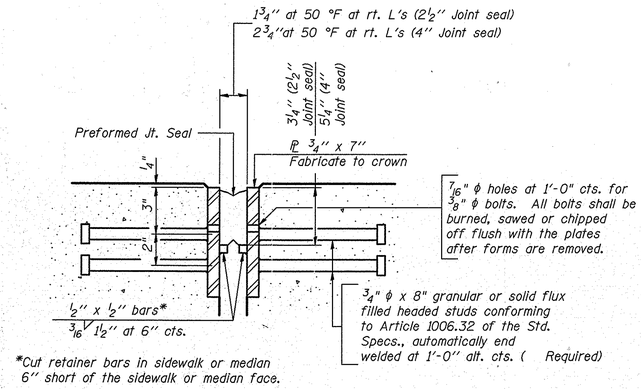
BSD-1 4-30-99

BAR SPLICER DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	68
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

Sheet 39 of 48 Sheets



*Cut retainer bars in sidewalk or median 6" short of the sidewalk or median face.

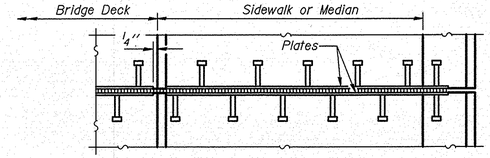
SECTION THRU EXPANSION JOINT

(2 1/2" and 4" joint seals)

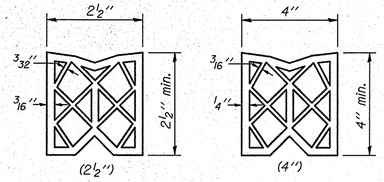
Bridge Joint System (Expansion)	Required Preformed Joint Seal Size	Required Strip Seal rated movement
1"	2 1/2"	1"
1 5/8"	4"	2"

GENERAL NOTES

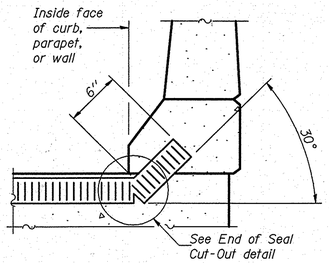
Furnish steel plates in segments of 20 feet maximum length. Maximum space between installed segments shall be 3/16". Seal space with silicone sealant suitable for structural steel.



PLAN AT SIDEWALK OR MEDIAN

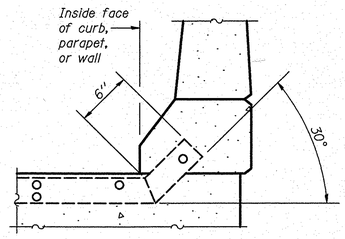


PREFORMED JOINT SEAL



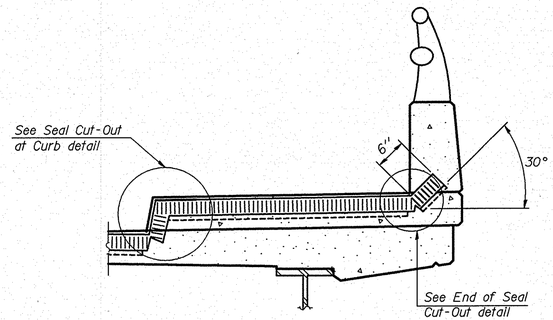
AT CURB, PARAPET, OR WALL

(Showing seal)



AT CURB, PARAPET, OR WALL

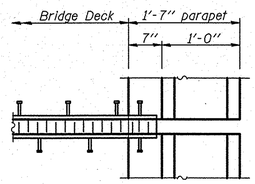
(Showing plate)



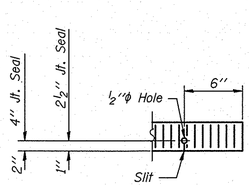
AT SIDEWALK OR MEDIAN

(Showing plate and seal)

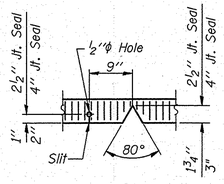
TYPICAL END TREATMENTS



PLAN AT PARAPET



END OF SEAL CUT-OUT



SEAL CUT-OUT AT CURB

BILL OF MATERIAL

Item	Unit	Total
Bridge Joint System (Expansion) (1 5/8")	foot	140

EJ-BJS

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

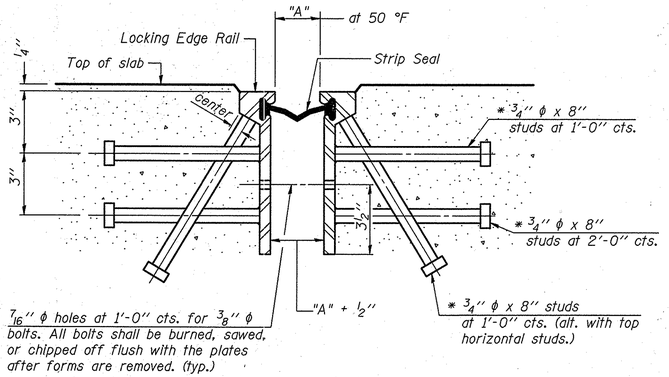
(Sheet 1 of 2)

BRIDGE JOINT SYSTEM - EXPANSION
(PREFORMED JOINT SEAL)
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	69
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

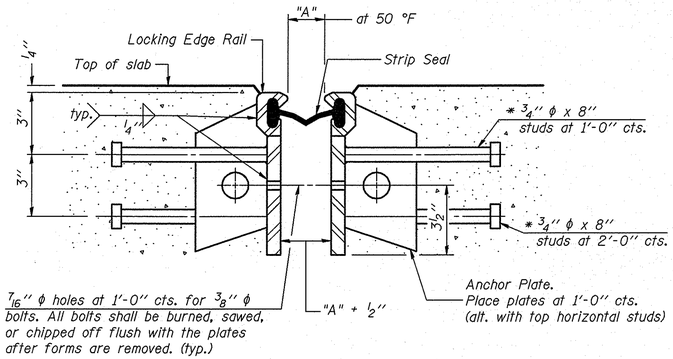
Sheet 40 of 48 Sheets



Required Strip Seal rated movement	"A"
1"	1 1/8"
2"	1 3/4"

SECTION THRU ROLLED RAIL EXP. JOINT

(Studs Required)



SECTION THRU WELDED RAIL EXP. JOINT

(Studs Required)
(Anchor Plates Required)

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.

GENERAL NOTES

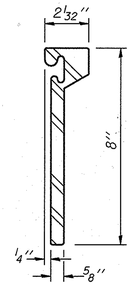
The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails.

The height and thickness of the Locking Edge Rails shown are minimum dimensions. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed.

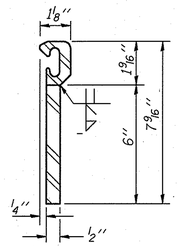
Locking Edge Rails may be spliced at slope discontinuities and stage construction joints.

The manufacturer's recommended installation methods shall be followed.

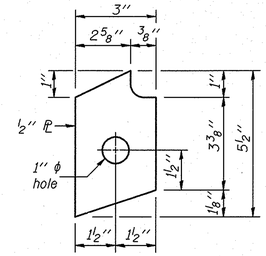
The joint opening and deck dimensions detailed on the superstructure are based on a preformed joint seal. If the contractor elects to use the alternate strip seal joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.



ROLLED (EXTRUDED) RAIL

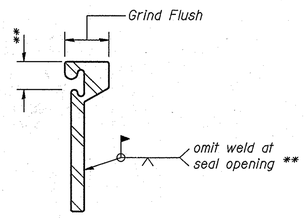


WELDED RAIL



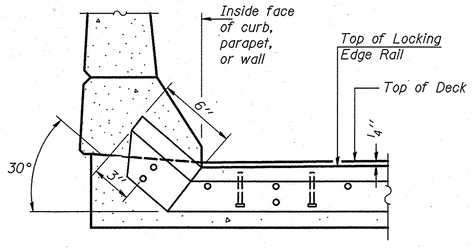
ANCHOR PL
(for welded rail)

LOCKING EDGE RAILS

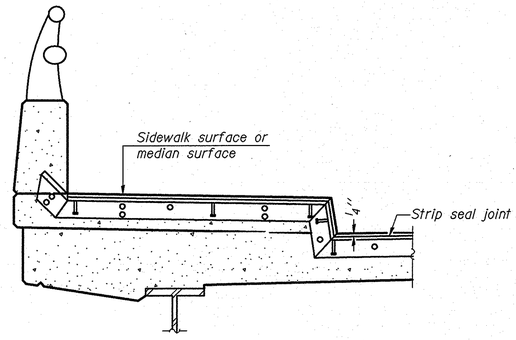


LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue.



AT CURB, PARAPET, OR WALL



AT SIDEWALK OR MEDIAN

TYPICAL END TREATMENTS

EXPANSION JOINTS (M)

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

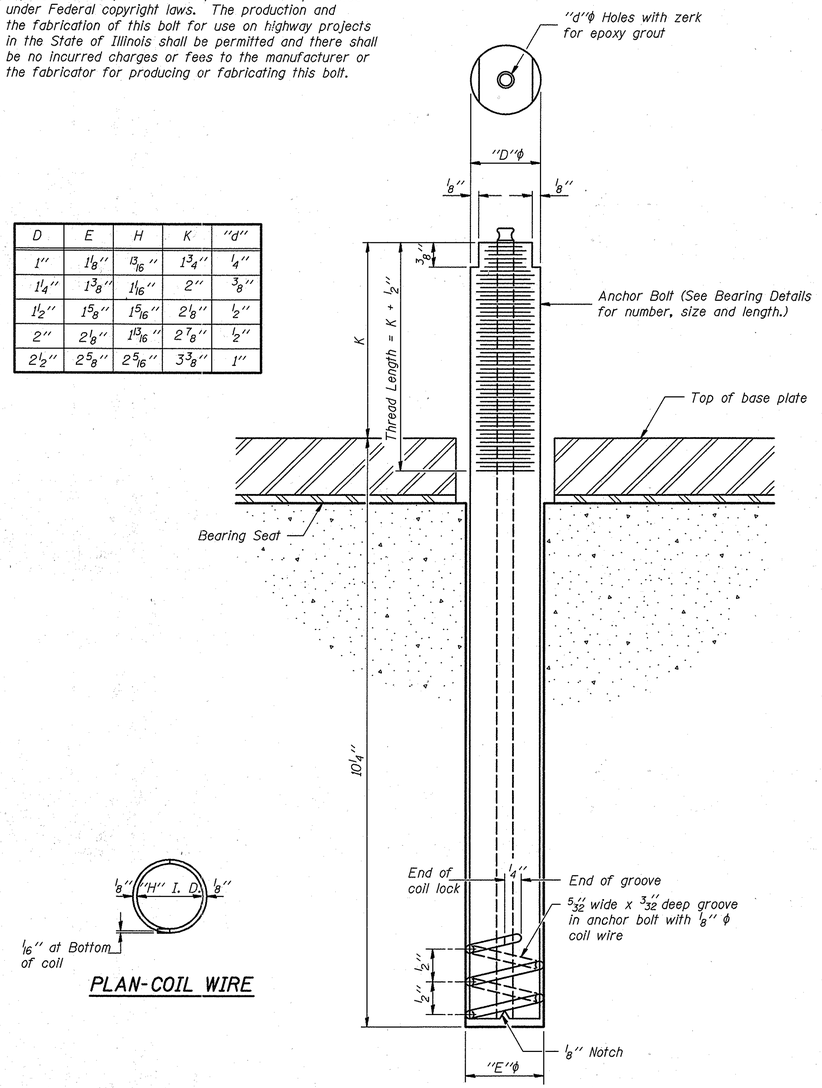
(Sheet 2 of 2)

BRIDGE JOINT SYSTEM - EXPANSION
(ALTERNATE-STRIP SEAL)
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	(38-5)BR-2	IROQUOIS	89	70
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

D	E	H	K	"d"
1"	1 1/8"	13/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/16"	2"	3/8"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 13/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



PLAN-COIL WIRE

ILLINOIS COIL-LOCK ANCHOR BOLT

MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers.

The coil wire shall be made of any suitable soft steel wire.

The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.

The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.

The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:

1. A threaded rod stud with nut and washer of the type specified.
2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
Abutments	A 307
Piers	A 307

ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

GENERAL NOTES

Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.

Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.

The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for "Furnishing and Erecting Structural Steel".

DESIGNED	K.P.S.
CHECKED	G.R.
DRAWN	M.D.
CHECKED	G.R.

ABB-1 4-30-99

ANCHOR BOLT DETAILS
U.S. ROUTE 24 OVER F.A.I. RTE. 57
SECTION 38-5 HBR-2
IROQUOIS COUNTY
STATION 20+00
STRUCTURE NO. 038-0031

RC ENGINEERS, LTD.
CONSULTING ENGINEERS - SPRINGFIELD, ILLINOIS