

BAR LIST - EACH FOUNDATION

Bar	Number	Size	Length	Shape
v4(E)	24	#9	F less 5"	—
#4 bar spiral (E) - see Side Elevation				

NOTES:

The foundation dimensions shown are based on the presence of mostly cohesive soils with an average Unconfined Compressive Strength (Qu) of at least 1.25 tsf, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data will be included in the plans and the foundation dimensions shown will be the result of site specific designs.

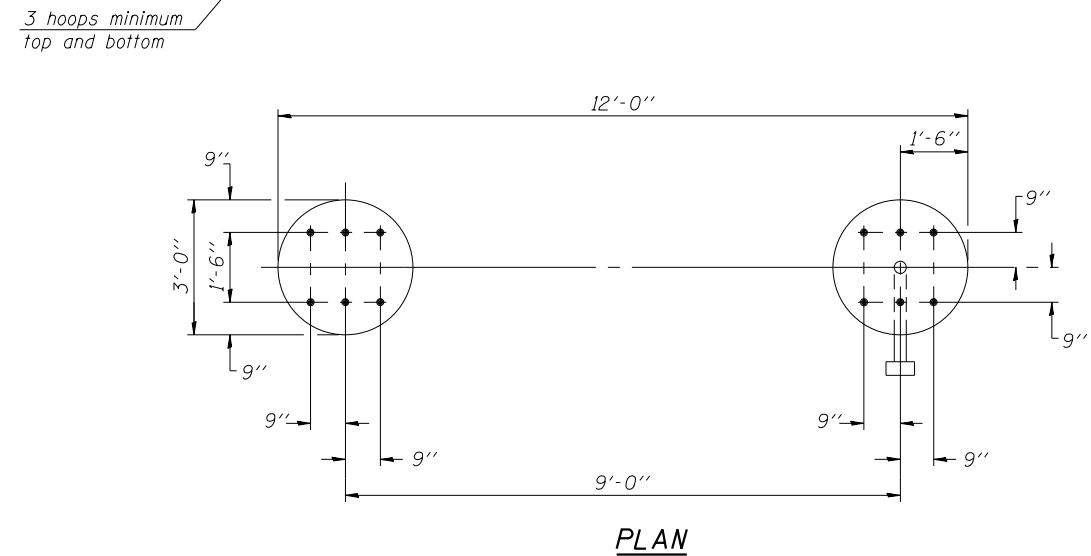
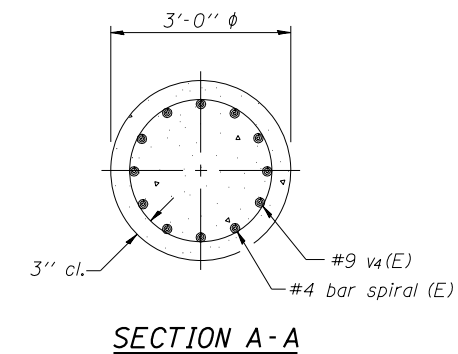
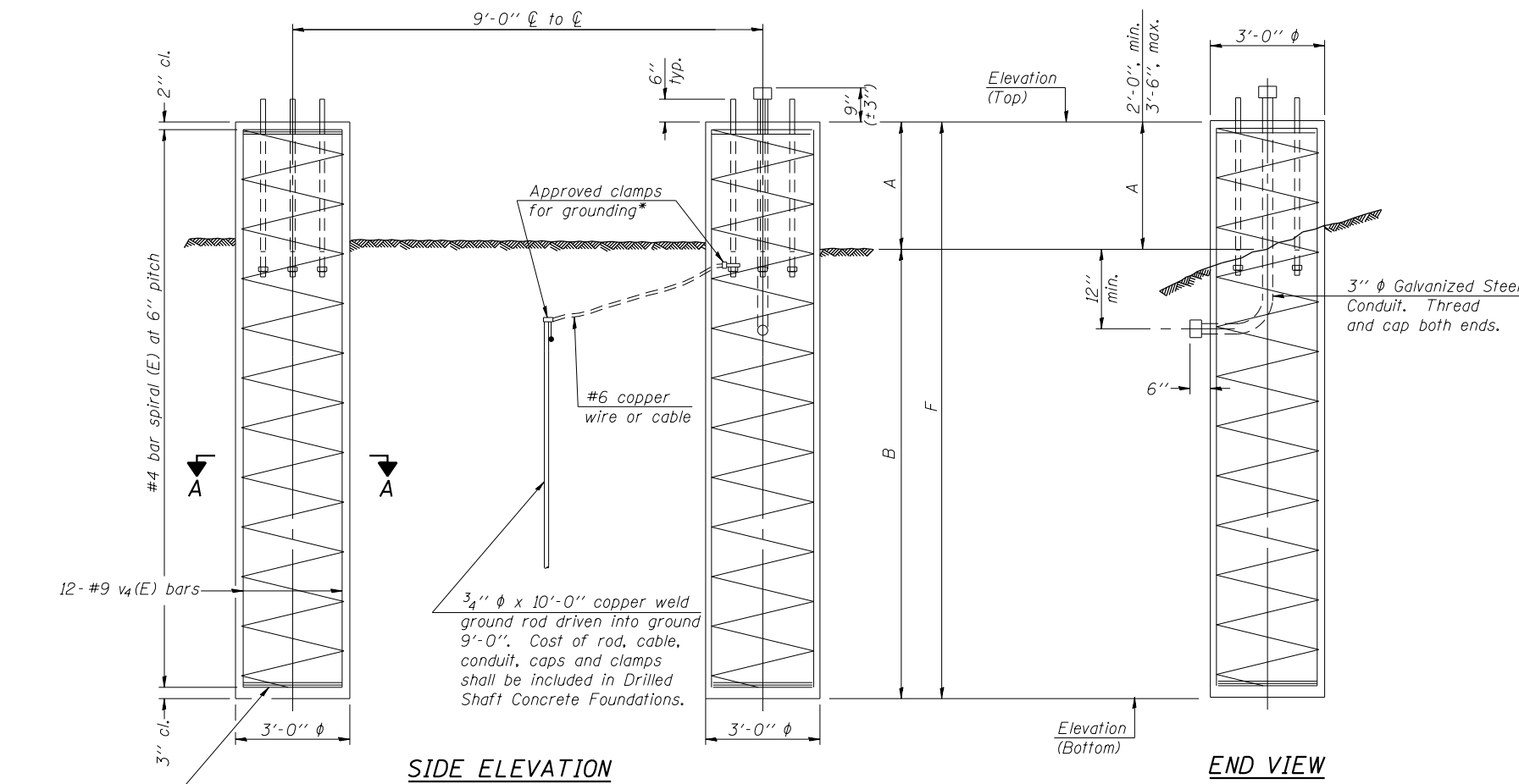
If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference.

No sonotubes or decomposable forms shall be used below the lower conduit entrance. Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.

Concrete shall be placed monolithically, without construction joints.

Backfill shall be placed per Article 502 of Standard Specification and prior to erection of support column.

A normal surface finish followed by a Concrete Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.



For anchor rod size and placement, see Support Frame Detail Sheet.

* Anchor rod shall be ground or filed to bright metal at clamp and cable connection location.

DETAILS FOR 12" φ SUPPORT FRAME TYPE III-A TRUSS

Structure Number	Station	Left Foundation					Right Foundation					Class DS Concrete (Cu. Yds.)
		Elevation Top	Elevation Bottom	A	B	F	Elevation Top	Elevation Bottom	A	B	F	
IS049S120R000.0-000	426+85	751.40	730.90	2'-6"	18'-0"	20'-6"	752.50	732.00	2'-6"	18'-0"	20'-6"	10.74
IS049S120R000.0-001	450+86	719.80	699.30	2'-6"	18'-0"	20'-6"	720.40	699.90	2'-6"	18'-0"	20'-6"	10.74

OS4-F4

8-21-13

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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**ALUMINUM SPAN SIGN TRUSS; STEEL SUPPORT
DRILLED SHAFT DETAILS**

SHEET NO. 59 OF 29 SHEETS

F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 101
*12(VB-182)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

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GENERAL NOTES

DESIGN: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. ("AASHTO Specifications")

CONSTRUCTION: Current (at time of letting) Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Supplemental Specifications and Special Provisions. ("Standard Specifications")

LOADING: 90 M.P.H. WIND VELOCITY

WALKWAY LOADING: Dead load plus 500 lbs. concentrated live load.

DESIGN STRESSES:

Field Units
 $f_c = 3,500$ p.s.i.
 $f_y = 60,000$ p.s.i. (reinforcement)

WELDING: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 and D1.2 Structural Welding Codes (Steel and Aluminum) and the Standard Specifications.

MATERIALS: Aluminum Alloys as shown throughout plans. All Structural Steel Pipe shall be ASTM A53 Grade B or A500 Grade B or C. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53.

All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 or Gr. 50W. If M270 Gr. 50W (M222) steel is proposed, chemistry for plate to be used shall first be approved by the Engineer as suitable for galvanizing and welding. Stainless steel for shims, sleeves and handhole covers shall be ASTM A240, Type 302 or 304, or another alloy suitable for exterior exposure and acceptable to the Engineer. The steel pipe and stiffening ribs at the base plate for the column shall have a minimum longitudinal Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. (Zone 2) before galvanizing.

FASTENERS FOR ALUMINUM TRUSSES: All bolts noted as "high strength" must satisfy the requirements of AASHTO M164 (ASTM A325), or approved alternate, and must have matching lock nuts. Threaded studs for splices (if Members interfere) must satisfy the requirements of ASTM A449, ASTM A193, Grade B7, or approved alternate, and must have matching lock nuts. Bolts and lock nuts not required to be high strength must satisfy the requirements of ASTM A307. All bolts and lock nuts must be hot dip galvanized per AASHTO M232. The lock nuts must have nylon or steel inserts. A stainless steel flat washer conforming to ASTM A240 Type 302 or 304, is required under both head and nut or under both nuts where threaded studs are used. High strength bolt installation shall conform to Article 505.04 (f) (2)d of the IDOT Standard Specifications for Road and Bridge Construction. Rotational capacity ("ROCAP") testing of bolts will not be required.

U-BOLTS AND EYEBOLTS: U-Bolts and Eyebolts must be produced from ASTM A276 Type 304, 304L, 316 or 316L, Condition A, cold finished stainless steel, or an equivalent material acceptable to the Engineer. All nuts for U-Bolts and Eyebolts must be lock nuts equivalent to ASTM A307 with nylon or steel inserts and hot dip galvanized per AASHTO M232. A stainless steel flat washer conforming to ASTM A240, Type 302 or 304, is required under each U-Bolt and Eyebolt lock nut.

GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

ANCHOR RODS: Shall conform to ASTM F1554 Gr. 105.

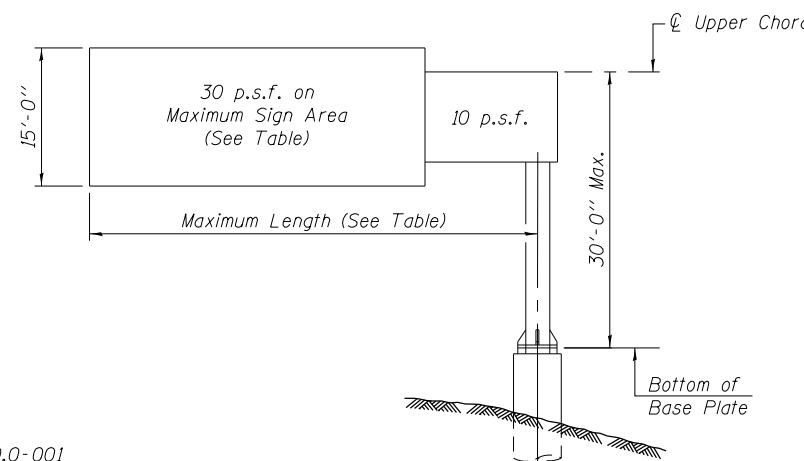
CONCRETE SURFACES: All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Concrete Sealer in accordance with the Standard Specifications.

REINFORCEMENT BARS: Reinforcement Bars designated (E) shall be epoxy coated in accordance with the Standard Specifications.

FOUNDATIONS: The contract unit price for Drilled Shaft Concrete Foundations shall include reinforcement bars complete in place.

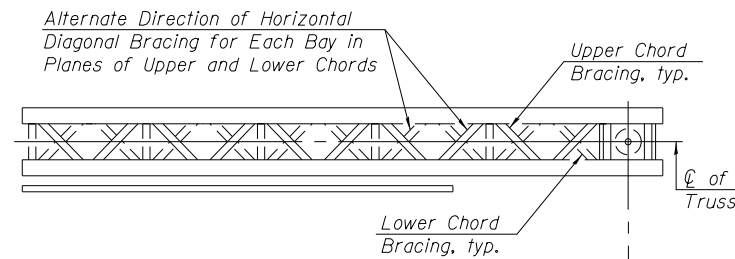
Structure Number	Station	Design Truss Type	Cantilever Length (L)	Elev. A	Dim. D	D _s	Total Sign Area sq. ft.
IC049S120R000.0-002	476+08	III-C-A	33'-0"	728.96	11'-3 ⁵ / ₈ "	12'-6"	181.25
IC049S120L000.0-001	181+91.5	III-C-A	35'-0"	722.35	10'-6"	12'-0"	291.00

Truss Type	Maximum Sign Area	Maximum Length
I-C-A	170 Sq. Ft.	25 Ft.
II-C-A	340 Sq. Ft.	30 Ft.
III-C-A	400 Sq. Ft.	40 Ft.

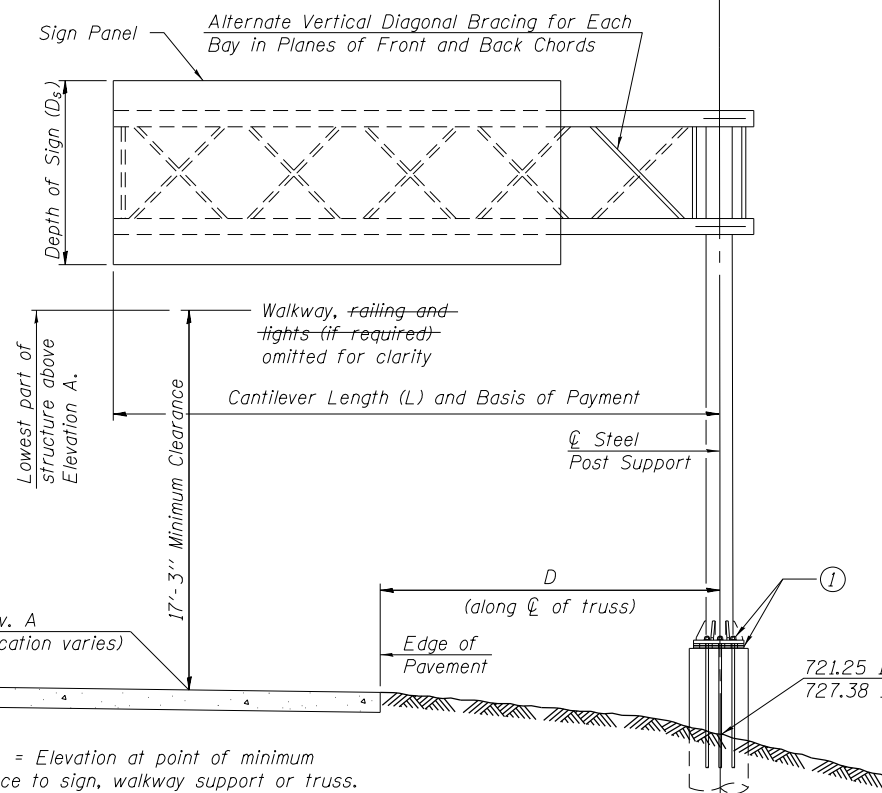


DESIGN WIND LOADING DIAGRAM

Parameters shown are basis for I.D.O.T. Standards. Installations not within dimensional limits shown require special analysis for all components.



TYPICAL PLAN
(Walkway not shown)



TYPICAL ELEVATION

Looking in Direction of Traffic

Elev. A = Elevation at point of minimum clearance to sign, walkway support or truss.

Sign support structures may be subject to damaging vibrations and oscillations when sign panels are not in place during erection or maintenance of the structure. To avoid these vibrations and oscillations, consideration should be given to attaching temporary blank sign panels to the structure.

NOTES

- Trusses shall be shipped individually with adequate provision to prevent detrimental motion during transport. This may require ropes between horizontals and diagonals or energy dissipating (elastic) ties to the vehicle. The contractor is responsible for maintaining the configuration and protection of the trusses.
- After adjustments to level truss and insure adequate vertical clearance, all top and leveling nuts shall be tightened against the base plate with a minimum torque of 200 lb.-ft. Stainless steel mesh shall then be placed around the perimeter of the base plate. Secure to base plate with stainless steel banding.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE III-C-A (3'-0"x 7'-0")	Foot	68.0
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	19.61

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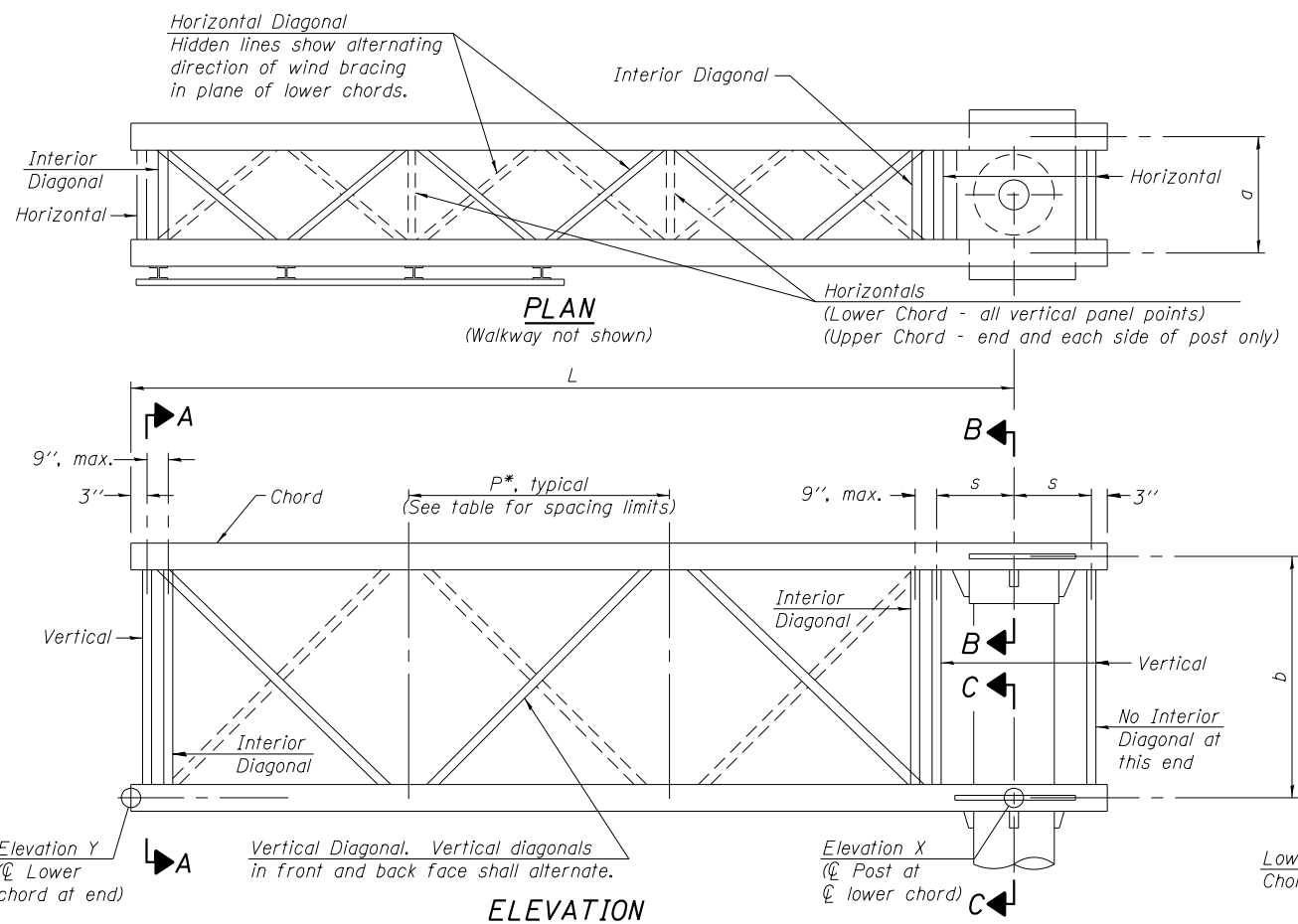
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 DEPARTMENT OF TRANSPORTATION**

**CANTILEVER SIGN STRUCTURES - GENERAL PLAN & ELEVATION
 ALUMINUM TRUSS & STEEL POST**

SHEET NO. S10 OF 29 SHEETS

F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 102
*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



TYPICAL TRUSS UNIT
(Sign and walkway omitted for clarity)

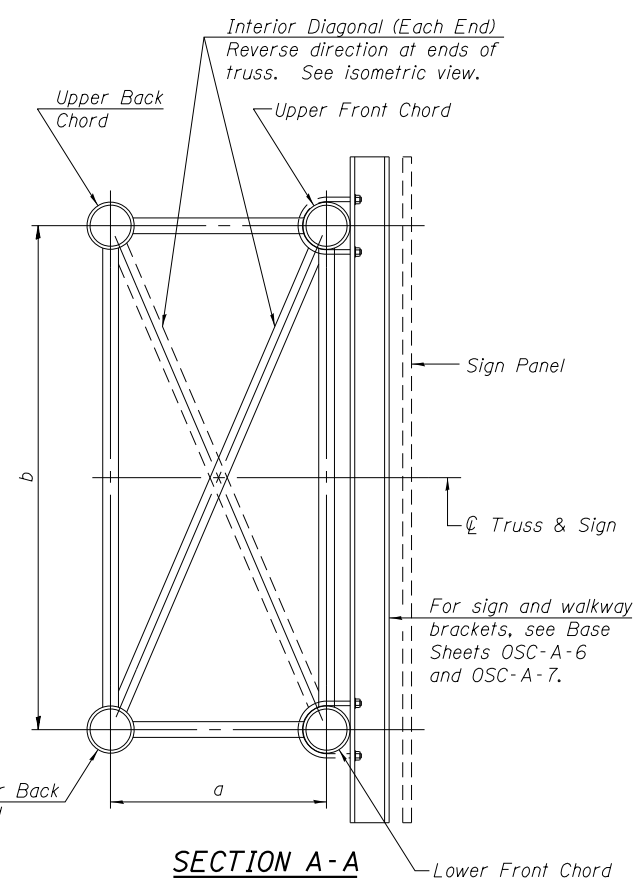
Note: For Section B-B and Section C-C, see Base Sheet OSC-A-3.
There are twice as many horizontal diagonals as there are vertical diagonals.

TRUSS UNIT TABLE

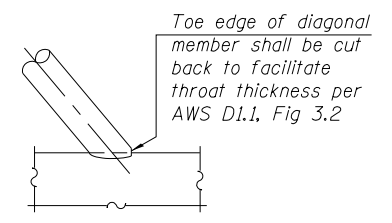
Truss Type	Dimension "a"	Dimension "b"	Dimension "s"	Limits for Panel Spacing (P)*	Up. & Low. Chord		Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals	
					O.D.	Wall	O.D.	Wall
I-C-A	24"	54"	16"	36" min. to 48" max.	5"	5/16"	2 1/2"	5/16"
II-C-A	36"	66"	21"	42" min. to 54" max.	6 1/2"	5/16"	3 1/4"	5/16"
III-C-A (35' Max.)	36"	84"	21"	48" min. to 66" max.	7"	3/8"	3 1/2"	3/8"
III-C-A (>35' to 40')	36"	84"	21"	48" min. to 66" max.	8"	3/8"	3 1/2"	3/8"

*P = $\frac{L-s-3''}{\# \text{ Panels}}$

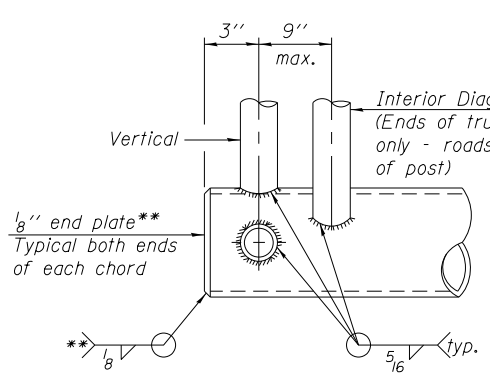
Structure Number	Station	Truss Type	Design Length (L)	Number of Panels Per Unit	Panel Length (P)*
1C049S120R000.0-002	476+08	III-C-A	33'-0"	7	4'-5 1/8"
1C049S120L000.0-001	181+91.5	III-C-A	35'-0"	7	4'-8 9/16"



SECTION A-A

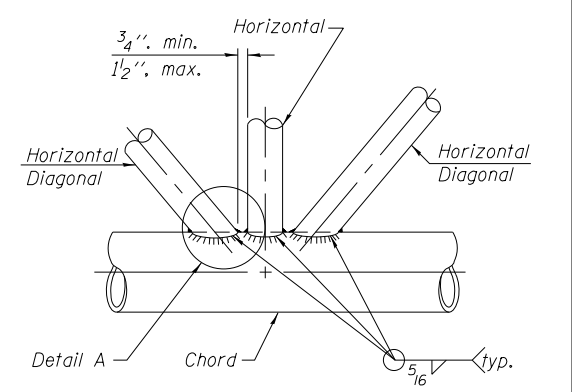


DETAIL A

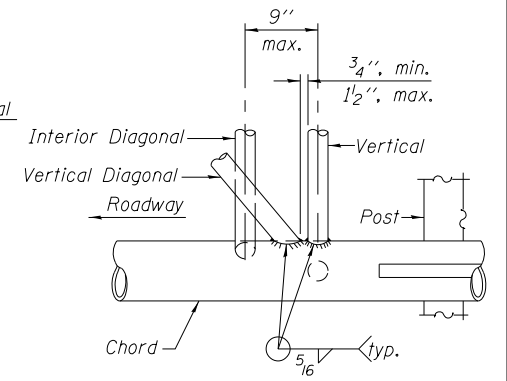


CANTILEVER END JOINT DETAIL

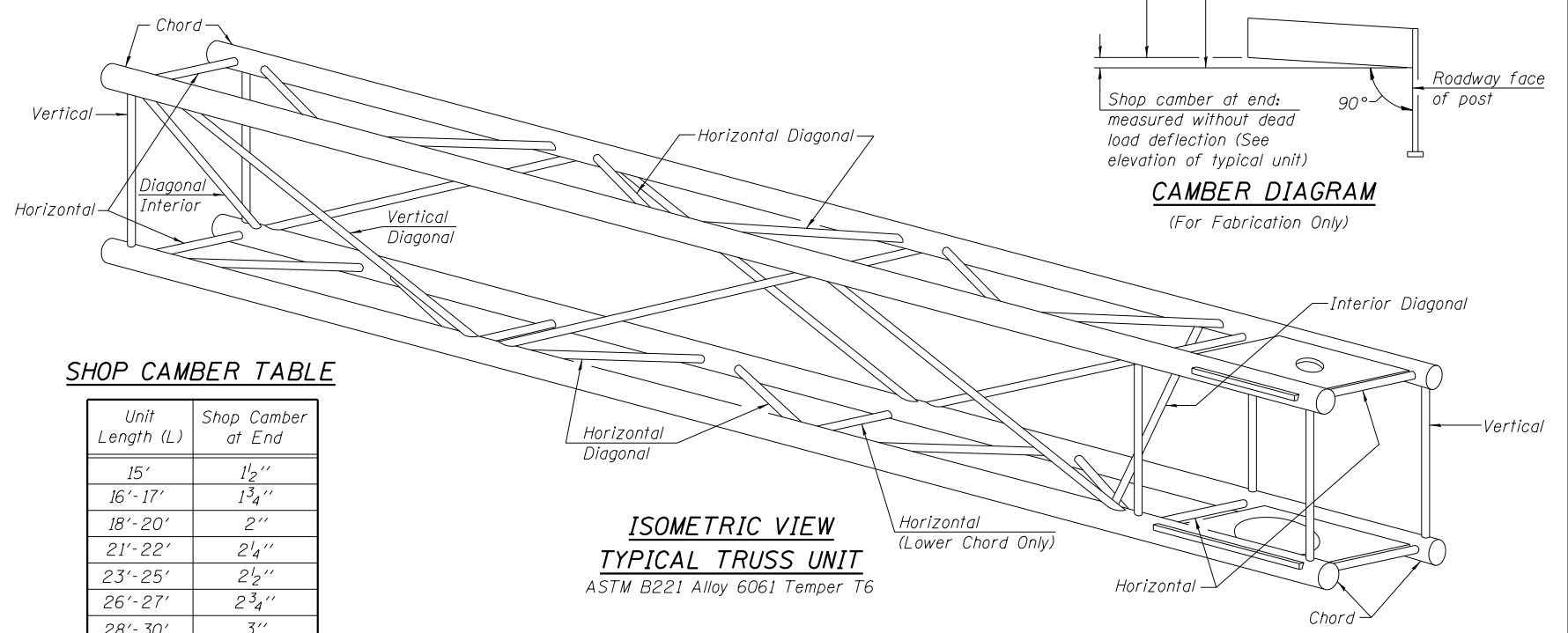
** Contractor may alternatively use standard aluminum drive-fit cap to close ends. 1/2" ϕ Drain hole in end plate / drive-fit cap.



TRUSS INTERIOR JOINT DETAIL



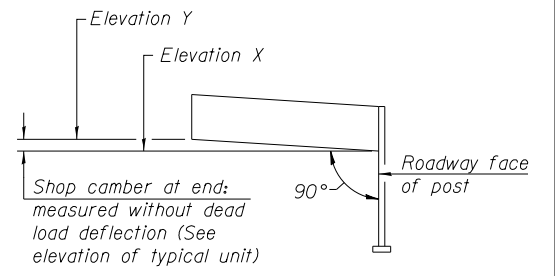
POST END JOINT DETAIL



ISOMETRIC VIEW TYPICAL TRUSS UNIT
ASTM B221 Alloy 6061 Temper T6

SHOP CAMBER TABLE

Unit Length (L)	Shop Camber at End
15'	1 1/2"
16'-17'	1 3/4"
18'-20'	2"
21'-22'	2 1/4"
23'-25'	2 1/2"
26'-27'	2 3/4"
28'-30'	3"
31'-32'	3 1/4"
33'-35'	3 1/2"
36'-37'	4"
38'-40'	4 1/2"



CAMBER DIAGRAM
(For Fabrication Only)

OSC-A-2

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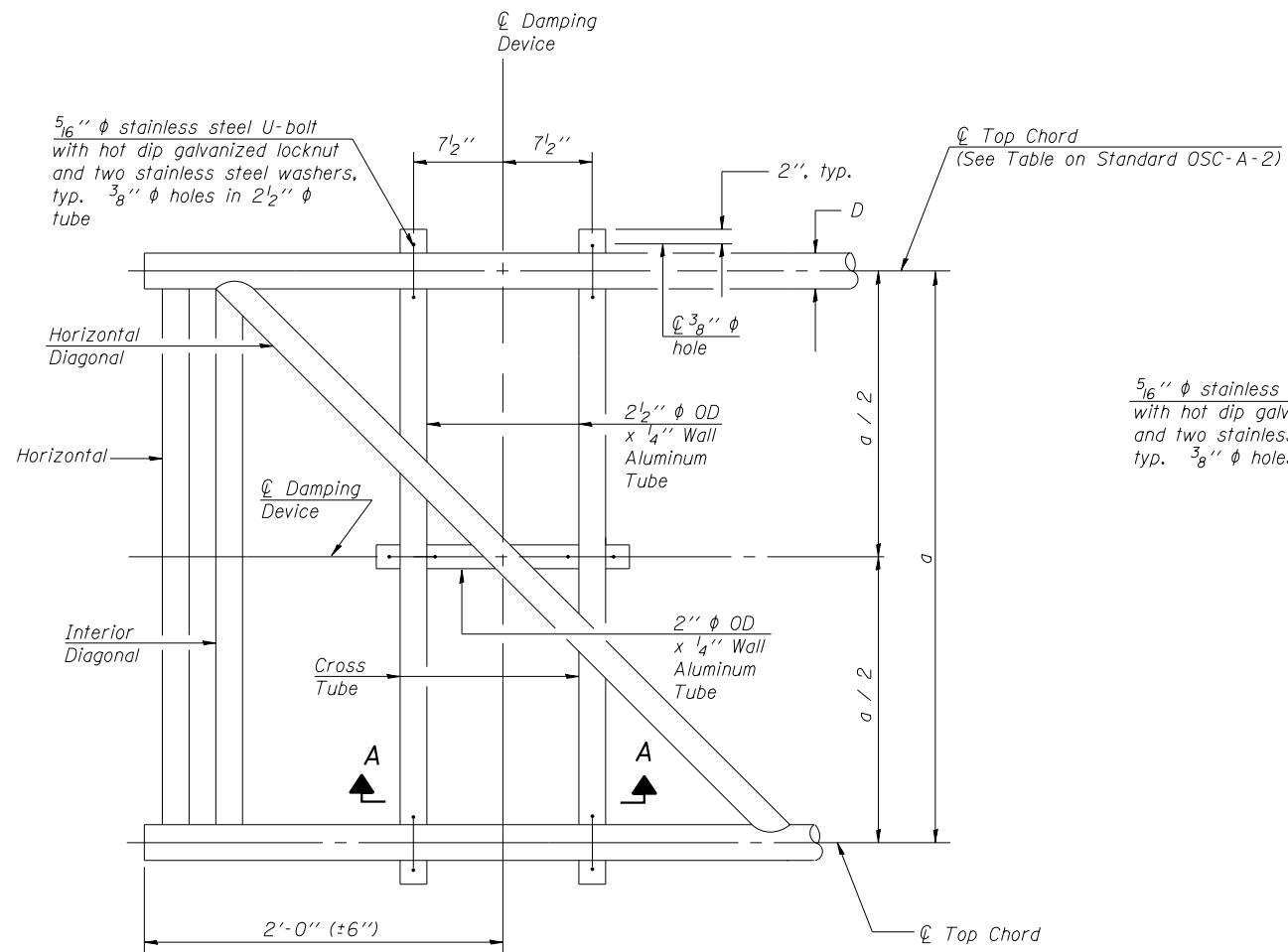
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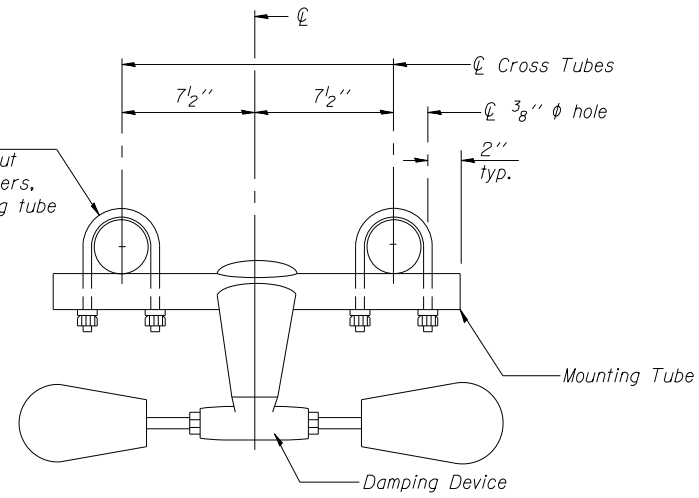
CANTILEVER SIGN STRUCTURES - TRUSS DETAILS ALUMINUM TRUSS & STEEL POST

SHEET NO. S11 OF 29 SHEETS

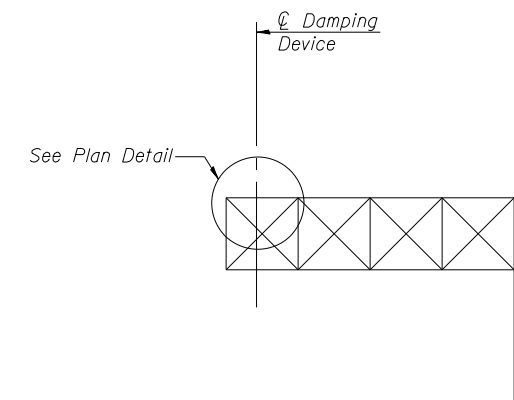
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	103
*121VB-1&2&12R-1HB-21BR&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



PLAN DETAIL



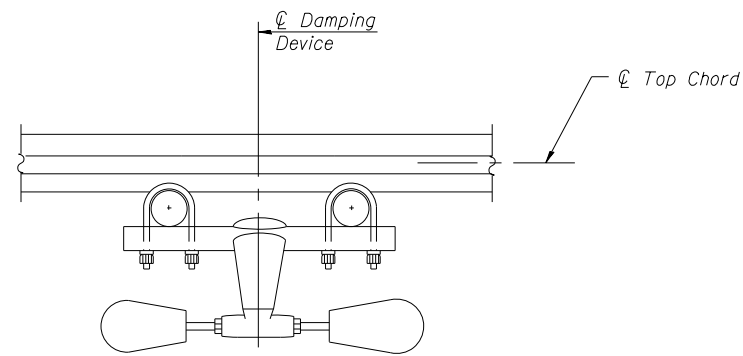
TRUSS DAMPING DEVICE CONNECTION DETAIL



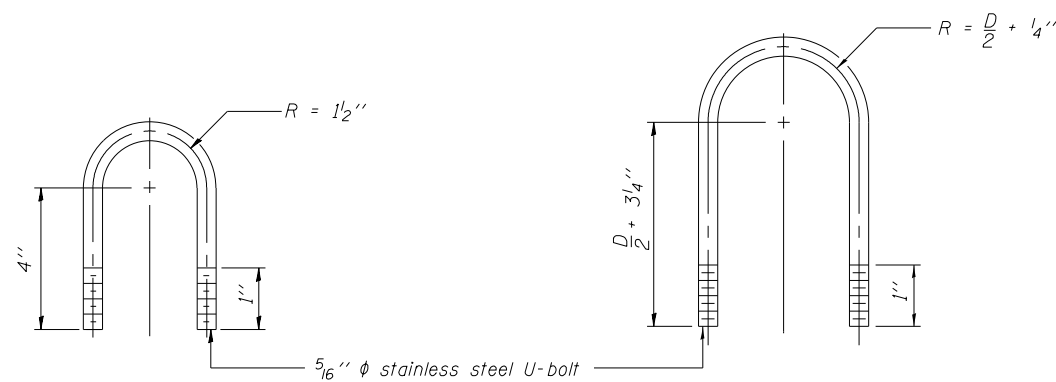
ELEVATION
Aluminum Cantilever Sign Structure

GENERAL NOTES

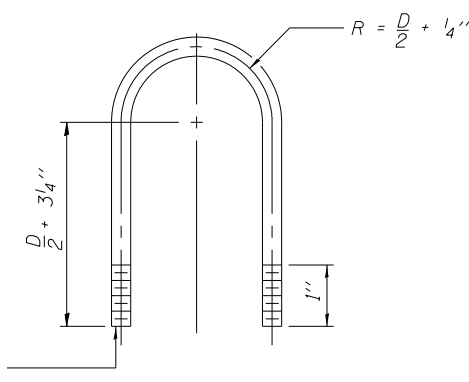
- Damper: One damper per truss. (31 lbs. Stockbridge-Type Aluminum-29" minimum between ends of weights)
- Materials: Aluminum tubes shall be ASTM B221 alloy 6061 temper T6



SECTION A-A



DAMPING DEVICE MOUNTING TUBE U-BOLT DETAIL
(Typical)



TOP CHORD TO CROSS TUBE U-BOLT DETAIL
(Typical)

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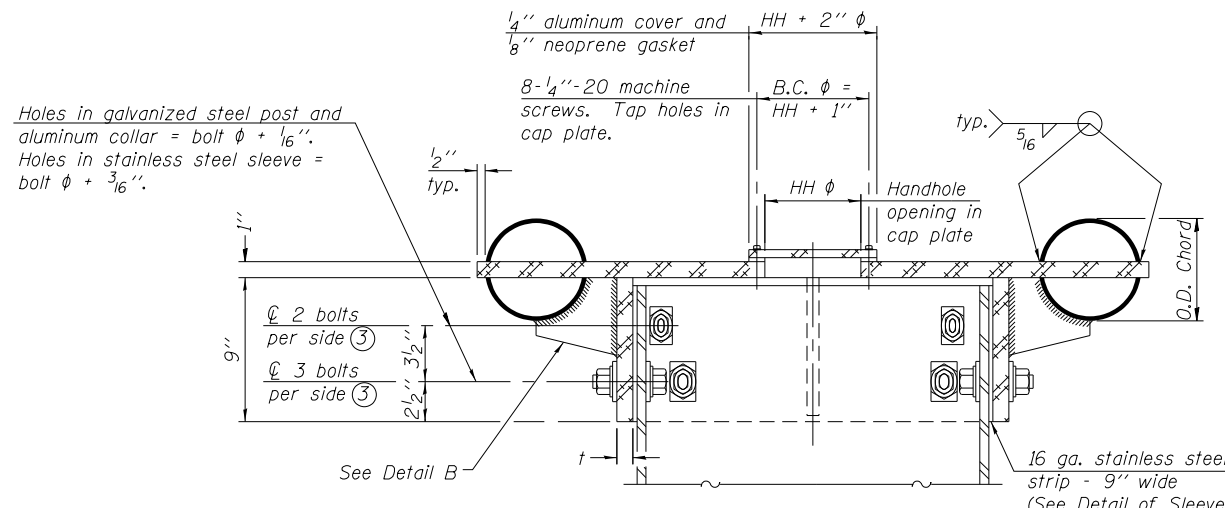
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**CANTILEVER SIGN STRUCTURE
DAMPING DEVICE**

SHEET NO. S12 OF 29 SHEETS

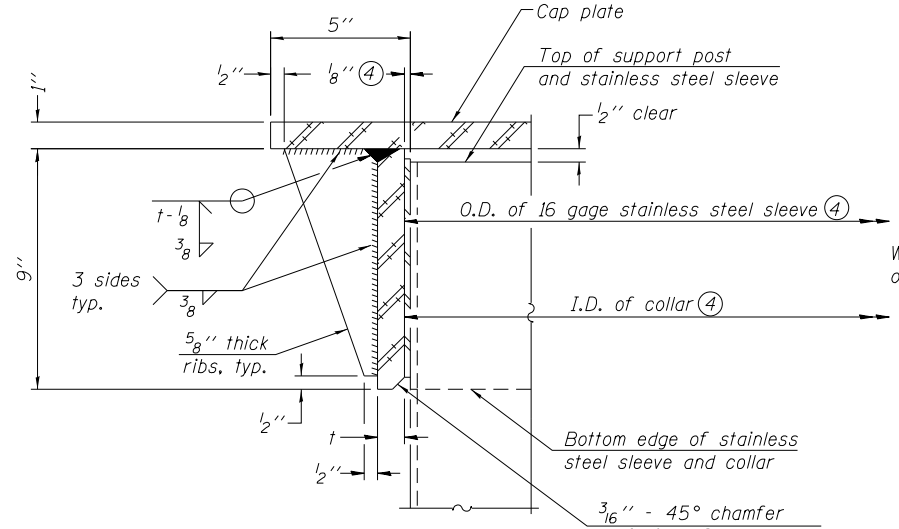
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ILLINOIS FED. AID PROJECT				



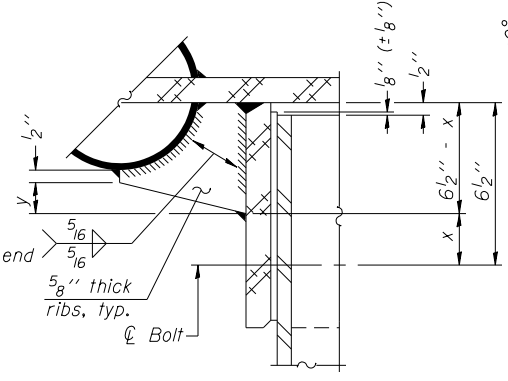
④ Collar I.D. shall be manufactured to correspond to O.D. of actual galvanized post and stainless steel sleeve plus 1/8" (+/- 1/16"). Maximum gap between post and collar at any location equals 1/8" before tightening bolts.

SECTION B-B

Bolts, washers (including contoured washers), and locknuts shall be stainless steel.

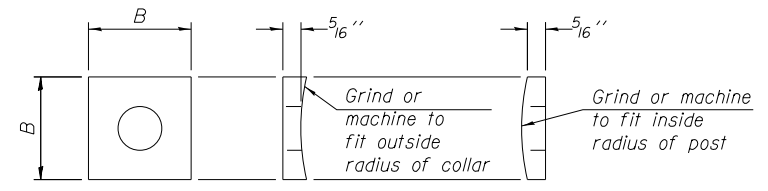


DETAIL A
(Two locations)



DETAIL B

Two locations (For details not shown, see Detail C)

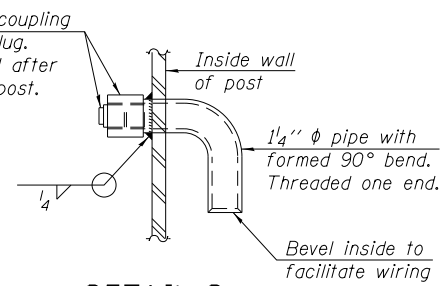
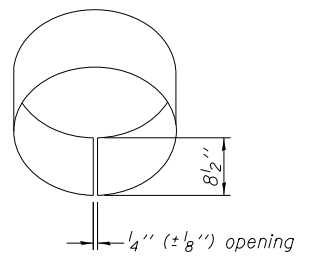


CONTOURED WASHERS

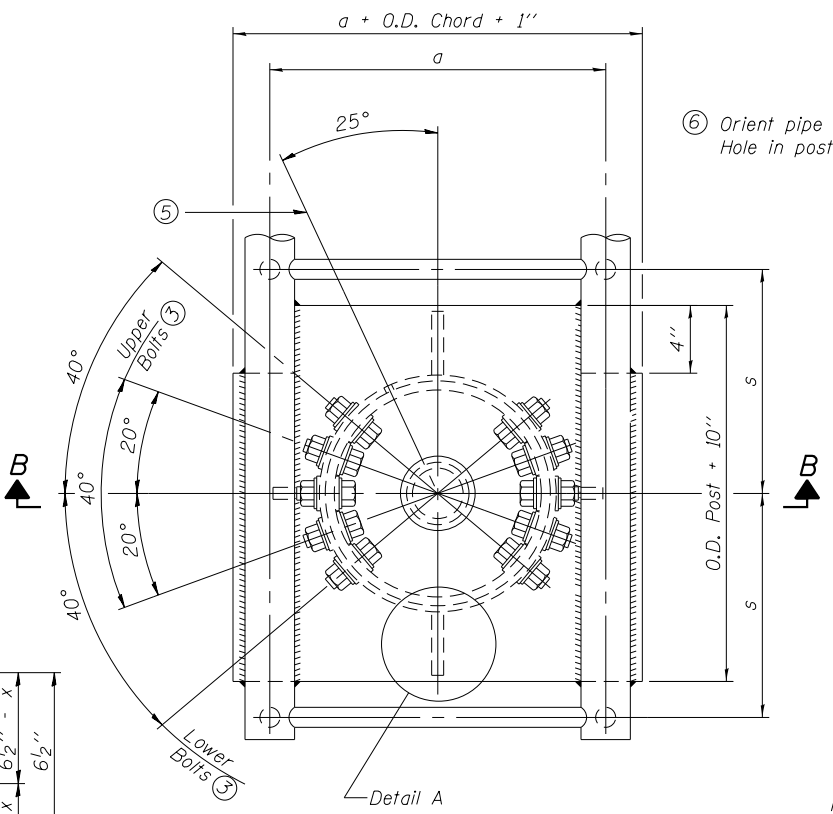
Bolt Size	Contoured Washers	
	Hole Dia.	B
7/8"	1"	2 1/2"
1"	1 1/8"	3"
1 1/4"	1 3/8"	3 1/4"

DETAIL OF STAINLESS STEEL SLEEVE

Weld to post after galvanizing. (Prepare post surface to insure tight, uniform fit and allow welding.) Welds to be 1 1/2" long at 6" cts. along top edge and at 1/4" opening.

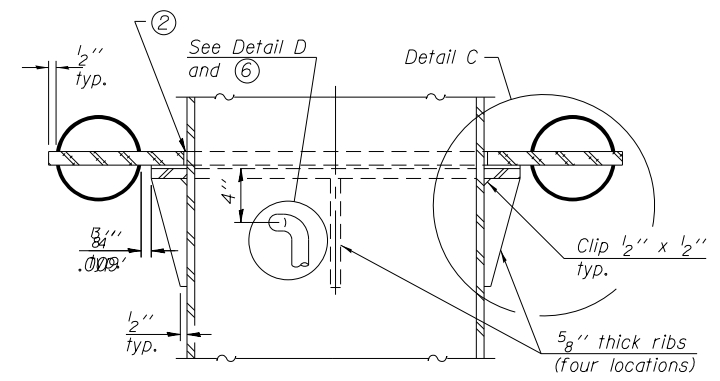


DETAIL D

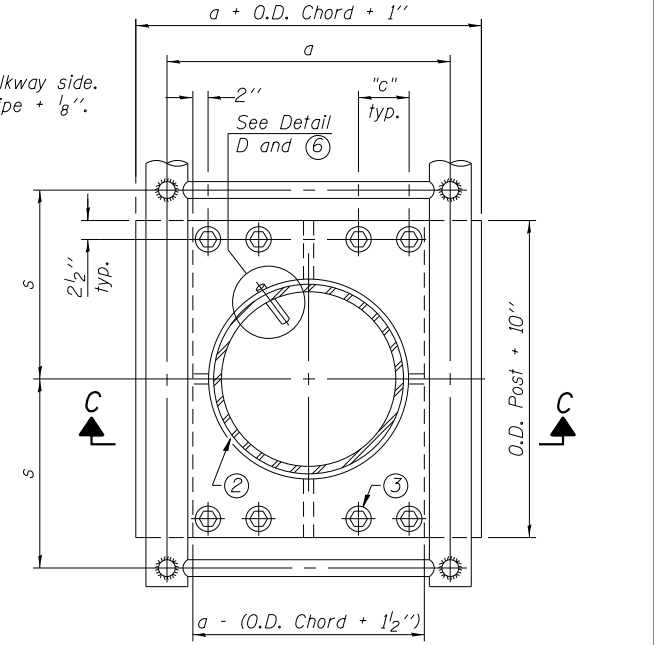


PLAN VIEW - TOP OF COLUMN

⑤ Optional full penetration weld in collar. (Two locations maximum....(180° apart)....X-ray or UT 100%)

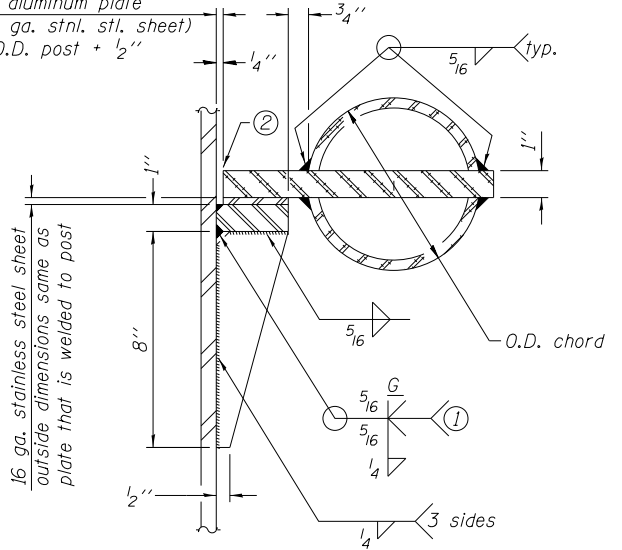


SECTION C-C



SECTION THRU POST ABOVE LOWER CHORDS

Hole in aluminum plate (and 16 ga. stnl. stl. sheet) to be O.D. post + 1/2"



DETAIL C

NOTES

- Grind top if required to fully seat aluminum plate and stainless steel sheet.
- After tightening lower connection bolts, fill gap with non-hardening, silicone caulk suitable for exterior exposure and acceptable to the Engineer. Cost is included in Overhead Sign Structure Cantilever.
- Upper and lower connection bolts in collar and bolts at lower chord connection shall be high strength with matching locknuts. Connection bolts shall have 2 stainless steel flat washers each.

Truss Type	Post Size	Upper & Lower Connection Bolt Diameter ③	Lower Juncture Bolt Spacing Dimension "c" ③	Opening in Cap Plate "HH"	Collar Thickness (t)	Side Ribs	
						x	y
I-C-A	16" phi (83#/')	7/8"	3 1/4"	8"	5/8"	1 3/4"	2 1/4"
II-C-A	24" phi (125#/')	1"	3 1/2"	12"	7/8"	2"	1 1/4"
III-C-A (35' max.)	24" phi (125#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"
III-C-A (>35' to 40')	24" phi (171#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"

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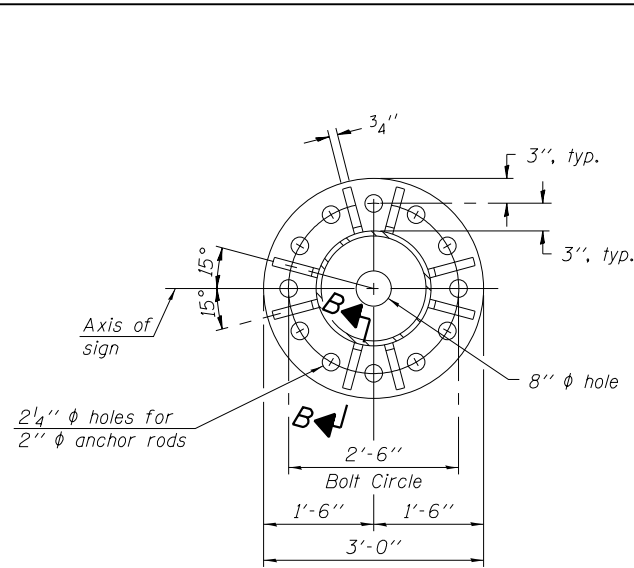
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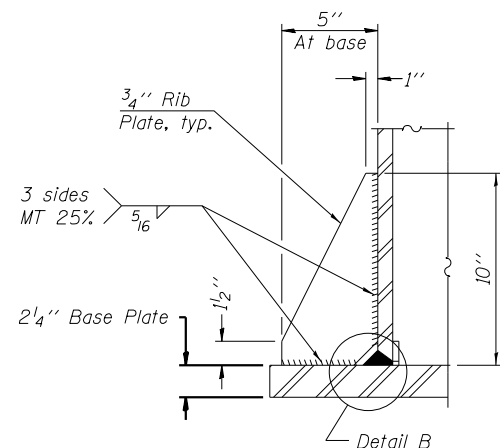
CANTILEVER SIGN STRUCTURES - JUNCTURE DETAILS
ALUMINUM TRUSS & STEEL POST

SHEET NO. S13 OF 29 SHEETS

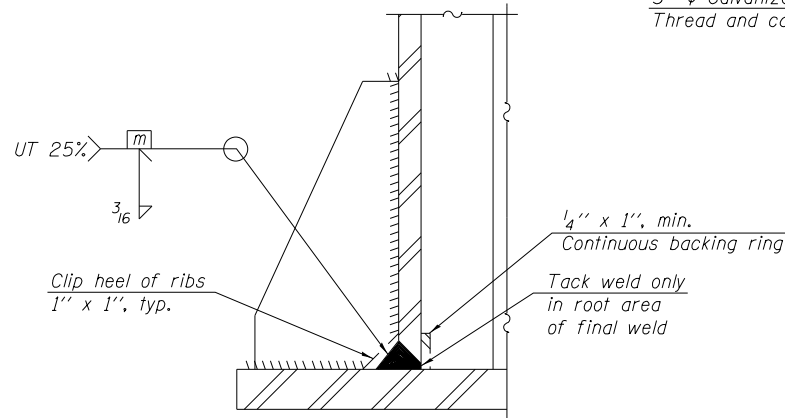
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*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
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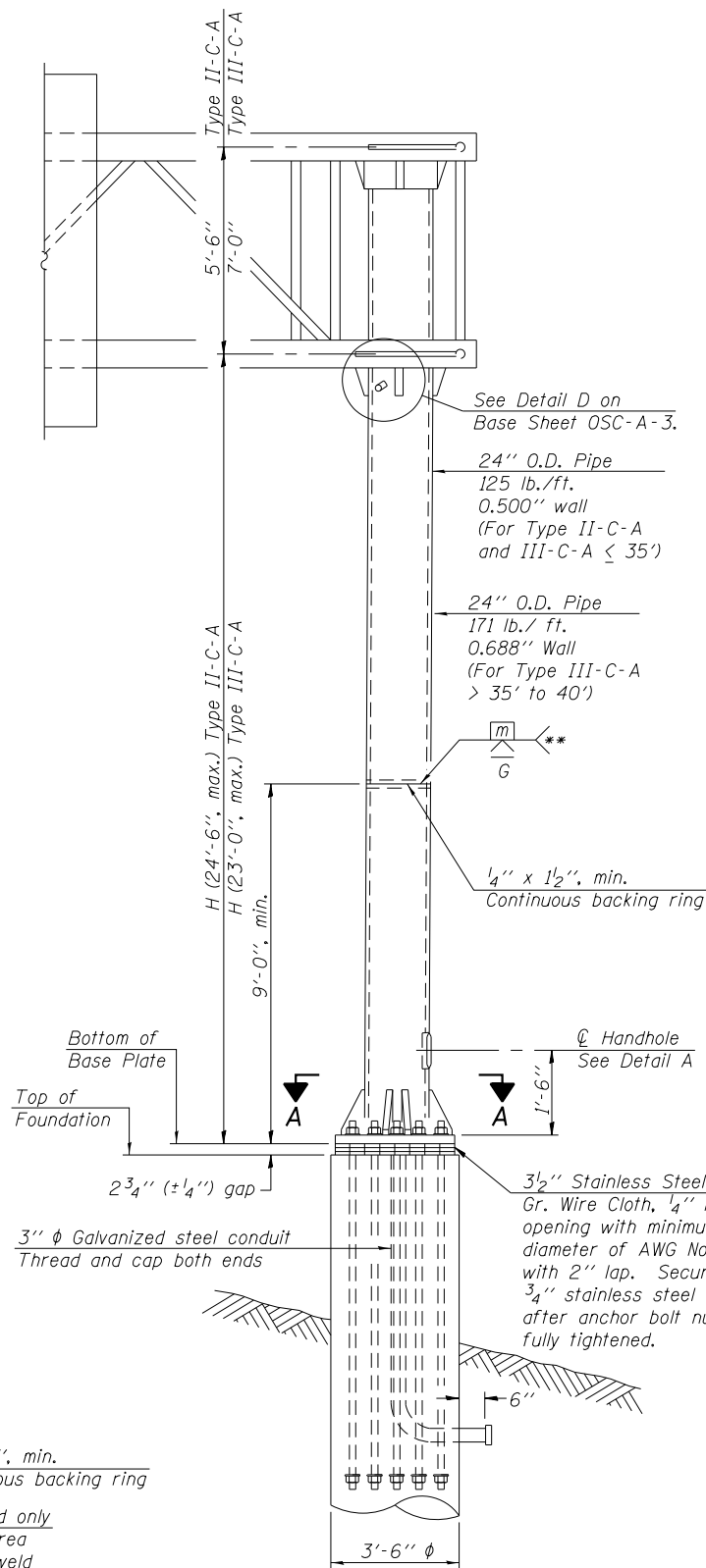
SECTION A-A



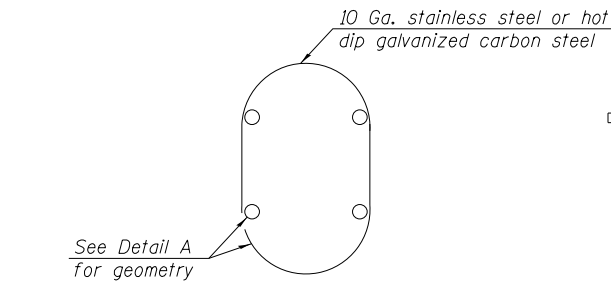
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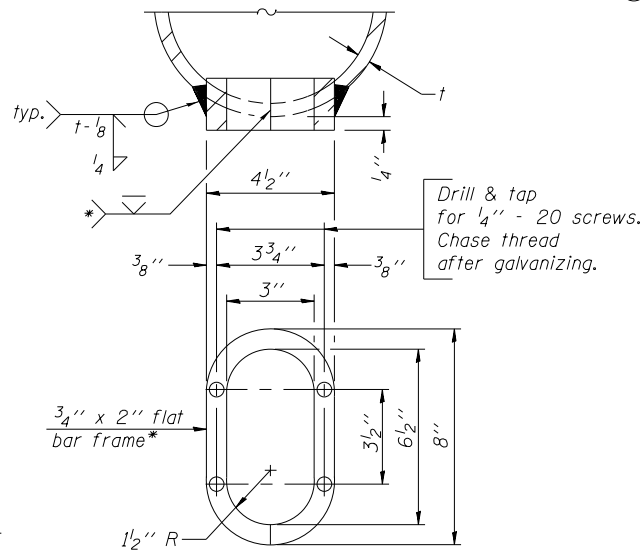
DETAIL B
(Typical rib)



FRONT ELEVATION
For Foundation Details
see Base Sheet OSC-A-9.

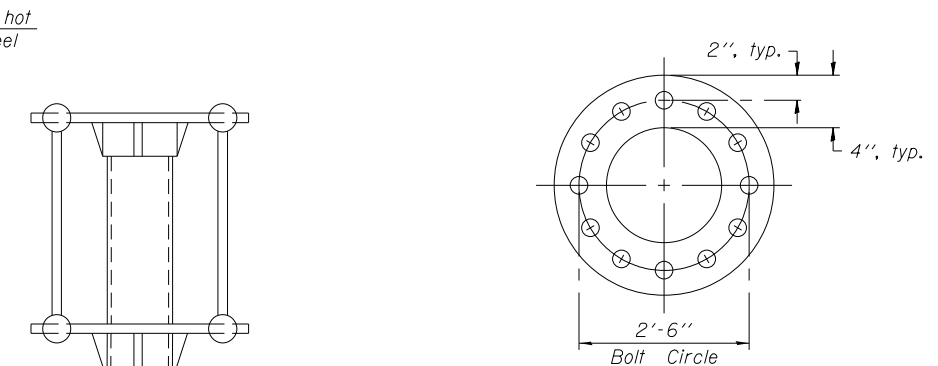


HANDHOLE COVER

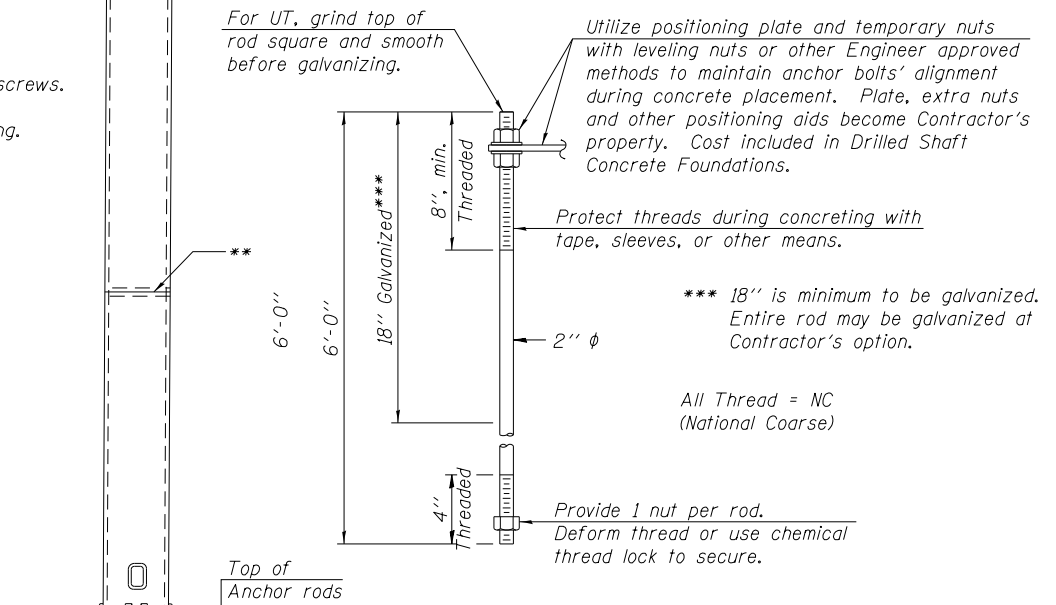


DETAIL A

- * Bent bars may be butt welded top and bottom or bottom only. In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500m in or less.
- ** Butt welded joint in post is only allowed for post heights (H) over 20 ft. in length. If used, weld procedure must be preapproved by Engineer and joint shall receive 100% RT or UT (tension criteria) at Contractor's expense.



SUGGESTED POSITIONING PLATE



ANCHOR ROD DETAIL

Anchor rods shall conform to ASTM F1554 Grade 105. Galvanize the upper 18" (minimum***) and associated AASHTO M291, Grade A, C or DH heavy hex nuts and hardened washers per AASHTO M232. No welding shall be permitted on rods. Provide a nut at bottom, a hexagon locknut and washer above base plate and a leveling nut and washer below base plate. Nuts shall each be tightened with 200 lb.-ft. minimum torque against base plate. Before or after threading, but before galvanizing, each anchor rod shall be ultrasonically tested (UT) by a Level II or III Inspector, qualified in accord with ANSI guidelines, to insure no rejectable flaws exist in the upper 18" (tension criteria). Cost of testing included in Drilled Shaft Concrete Foundations.

Structure Number	Station	H
IC049S120R000.0-002	476+08	20'-10 1/2"
IC049S120L000.0-001	181+91.5	20'-5"

Note: "H" based on 15'-0" or actual sign height, whichever is greater.

OSC-A-5

6-1-12

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JAZ	JAZ	
DLG	DLG	
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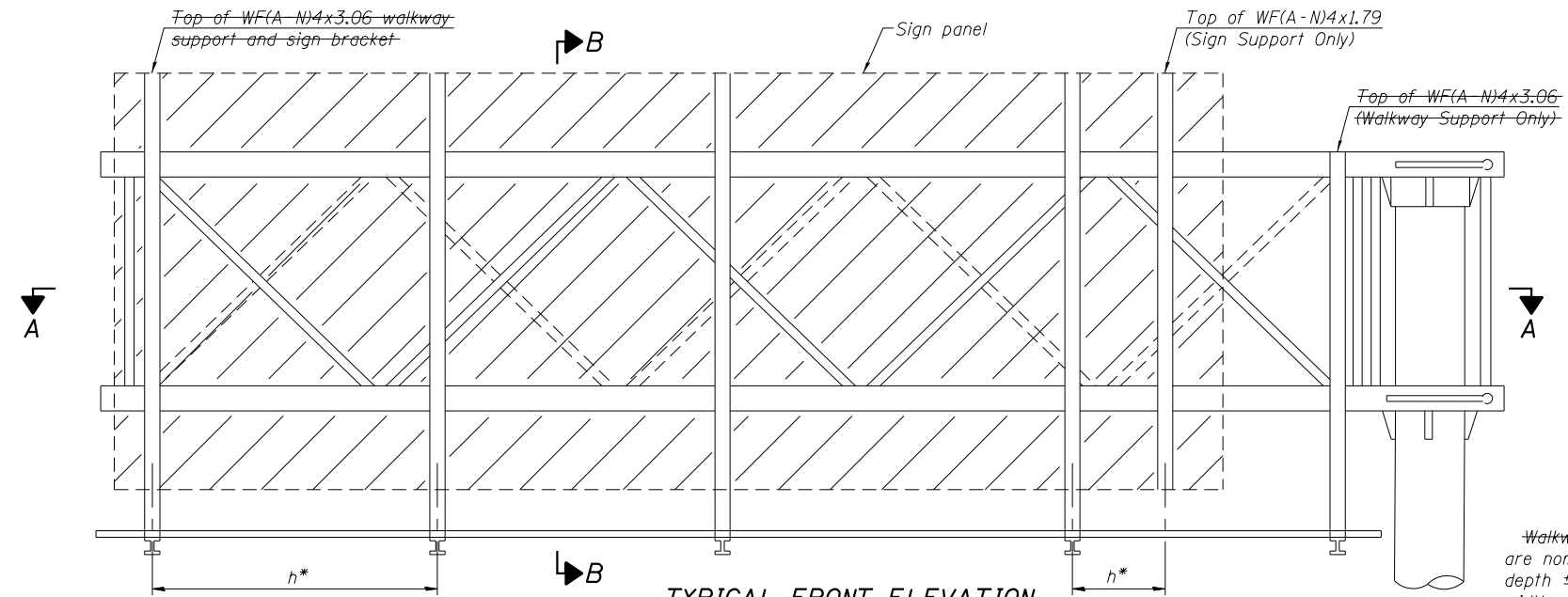
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES - TYPE II-C-A & III-C-A
TRUSS SUPPORT POST - ALUMINUM TRUSS & STEEL POST

SHEET NO. S14 OF 29 SHEETS

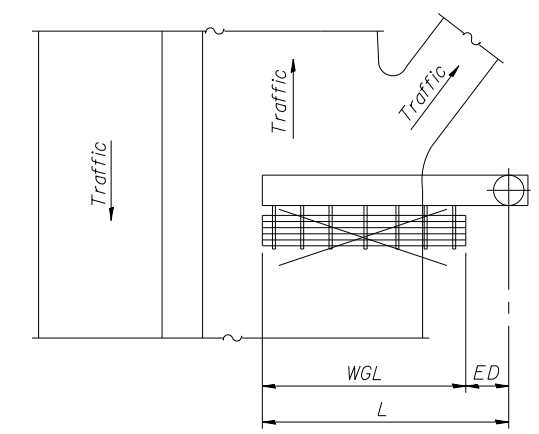
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	106
*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

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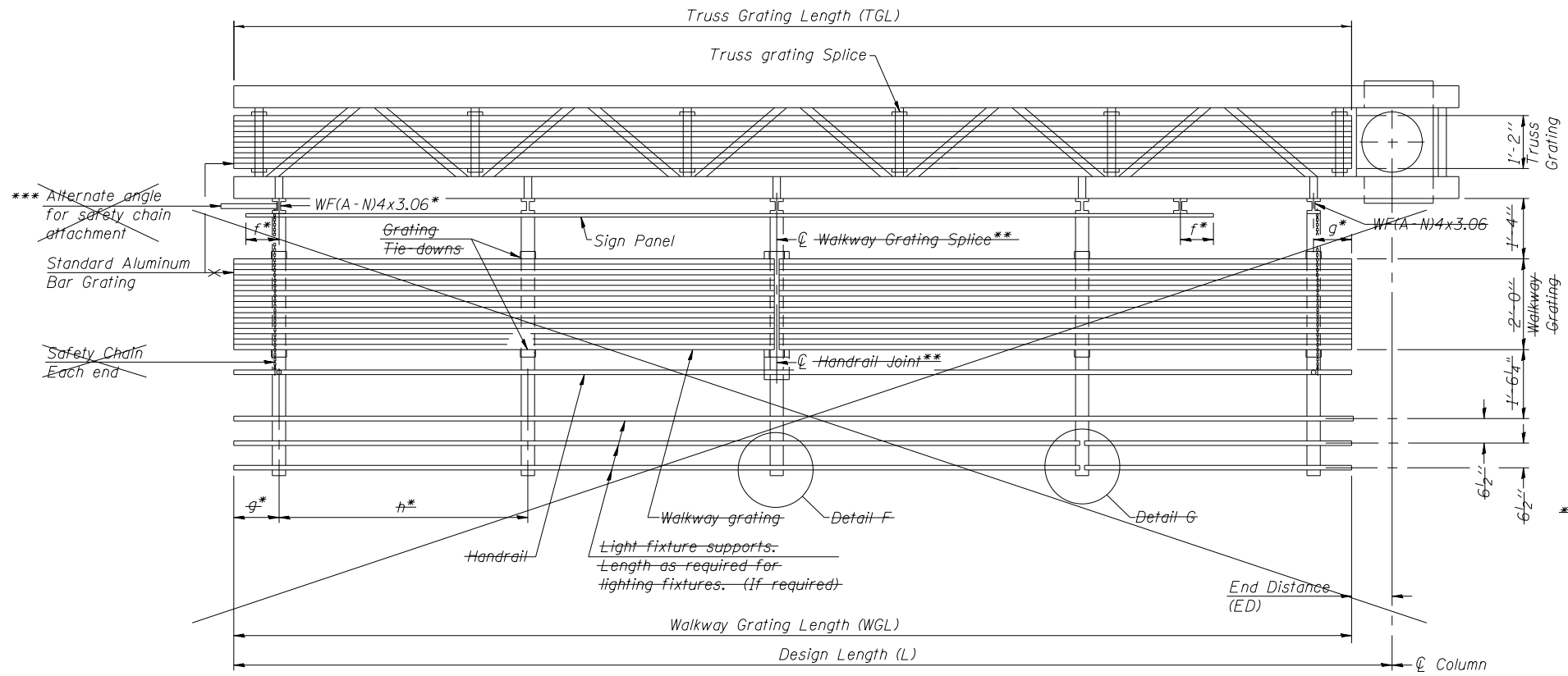


TYPICAL FRONT ELEVATION
With lights and handrail omitted for clarity.

Walkway and truss grating dimensions are nominal and may vary (width ±1/2", depth ±1/2") based on available standard widths.



PLAN
WALKWAY AND HANDRAIL SKETCH
(Road plan beneath truss varies)



SECTION A-A

Truss grating to facilitate inspection shall run full length of cantilevers. Cost of truss grating is included in Overhead Sign Structure Cantilever.

Handrail and walkway grating shall span a minimum of three brackets between splices.
*** Use and location of handrail joints or grating splices are optional, based on lengths needed and material availability.

$$TGL = L - \left(\frac{\text{Post O.D.}}{2} + 6'' \right)$$

Structure Number	Station	WGL	ED	TGL
K049SI20R000.0-002	476+08	N/A	N/A	31'-6"
K049SI20L000.0-001	181+91.5	N/A	N/A	33'-6"

Notes:
* Space walkway brackets WF(A-N)4x3.06 and sign brackets WF(A-N)4x1.79 for efficiency and within limits shown:
 $f = 12''$ maximum, $4''$ minimum (End of sign to C of nearest bracket)
 $g = 12''$ maximum, $4''$ minimum (End of walkway to C of nearest bracket)
 $h = 6'-0''$ maximum (C to C sign and/or walkway support brackets, WF(A-N)4x1.79 or WF(A-N)4x3.06)
*** If walkway bracket at safety chain location is behind sign, add angle to bracket. See alternate safety chain attachment on base sheet OSC-A-8.
For details of sign placement, sign/walkway brackets, truss and walkway gratings, grating splices and Section B-B, see Base Sheet OSC-A-7.
For details of handrail, handrail joint, safety chain and Details F and G, see Base Sheet OSC-A-8.

BRACKET TABLE

Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
	8'-0"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	6

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OSC-A-6

6-1-12

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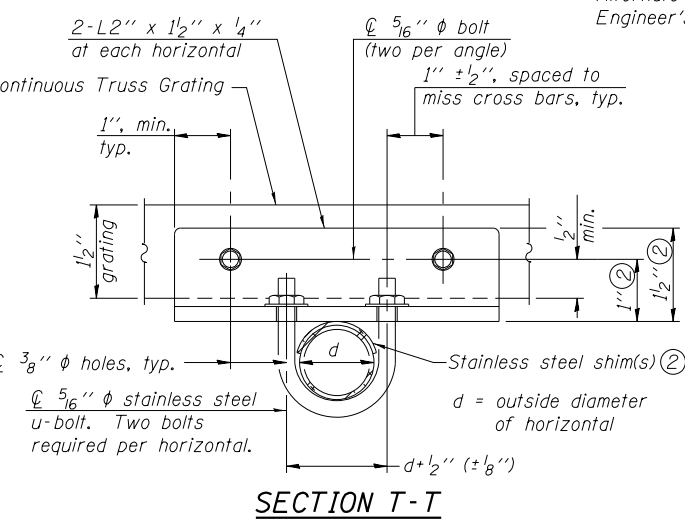
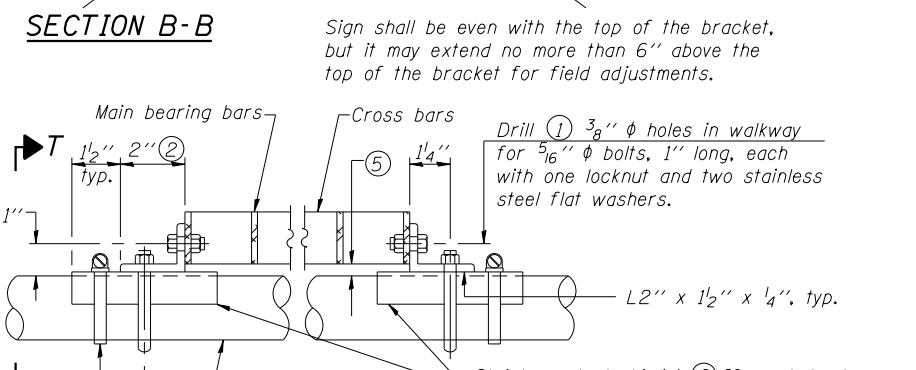
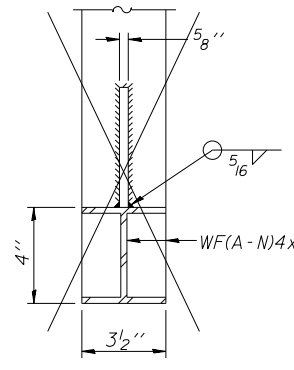
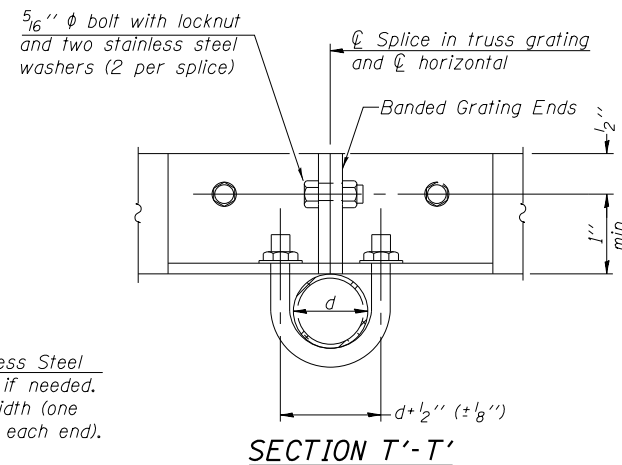
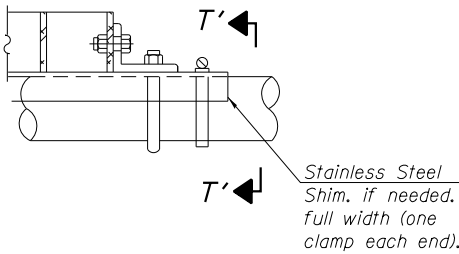
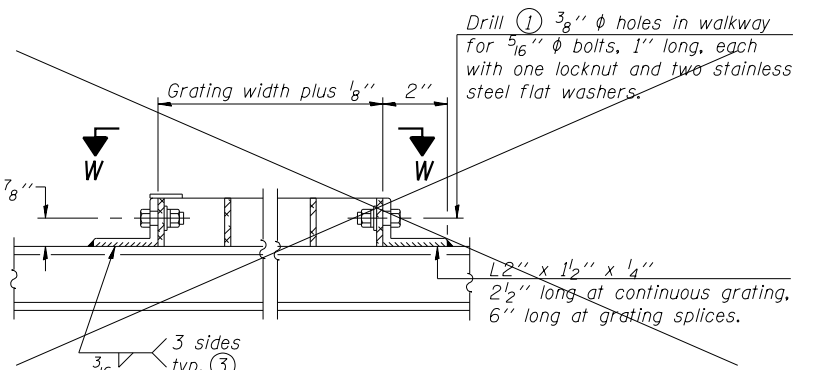
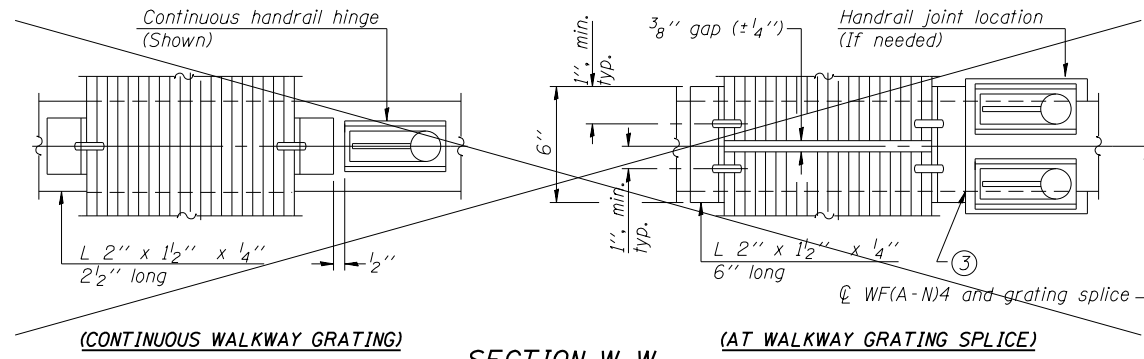
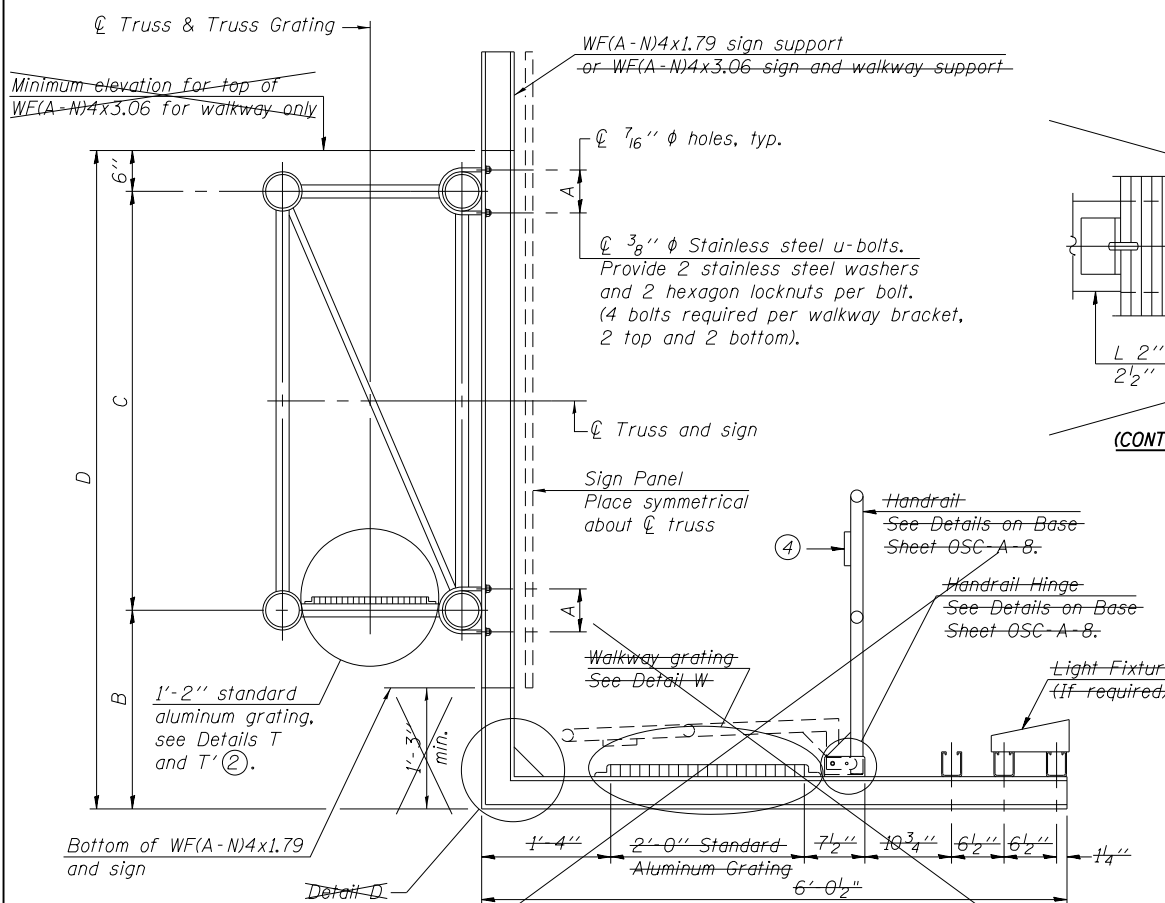
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES - TYPE II-C-A & III-C-A
TRUSS SUPPORT POST - ALUMINUM TRUSS & STEEL POST

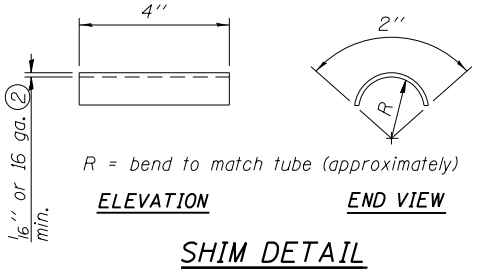
SHEET NO. S15 OF 29 SHEETS

F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 107
*121VB-1&2&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				



DETAIL T'

(Truss grating splice)
Details not shown same as Detail T. Alternate materials may be used subject to the Engineer's review and approval.



SPECIFICATIONS FOR STANDARD ALUMINUM GRATING
Main Bearing Bars (MBB) shall be 3/16" x 1 1/2" on 1 3/16" centers and conform to ASTM B211 Alloy 6061-T6.
Cross bars (CB) shall be 3/16" x 1 1/2" on 4" centers and conform to ASTM B221 Alloy 6063-T5 or 6061-T6.

OR
Aluminum Grating with modified "t" sections for main bearing bars shall meet the following requirements:
Main bars shall conform to ASTM B221 Alloy 6061-T6 and have a minimum section modulus equal to 0.0705 in.³ per bar, a depth of 1 1/2", spaced on 1 3/16" centers.
Cross bars shall conform to ASTM B221 Alloy 6063-T5 or T-42 and spaced on 4" centers.

- ① Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
- ② Stainless steel shims shall be placed as shown in Detail T if needed to compensate for alignment variations between horizontal and diagonal pipes beyond adjustment provided by angles. Thicker shims may be used subject to shims performing properly.
- ③ If Handrail Joint present, weld angle to WF(A-N)4 and 1/4" extension bars. (See Base Sheet OSC-A-8.)
- ④ 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
- ⑤ Tube to grating gap may vary from 0 to 1/2", max. to align walkway, allow for camber, etc.
- ⑥ Based on actual sign height, D_s, given on OSC-A-1.

Structure Number	Station	A	⑥ B	C	⑥ D
IC049S120R000.0-002	476+08	7 1/2"	N/A	7'-0"	N/A
IC049S120L000.0-001	181+91.5	7 1/2"	N/A	7'-0"	N/A

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OSC-A-7

6-1-12

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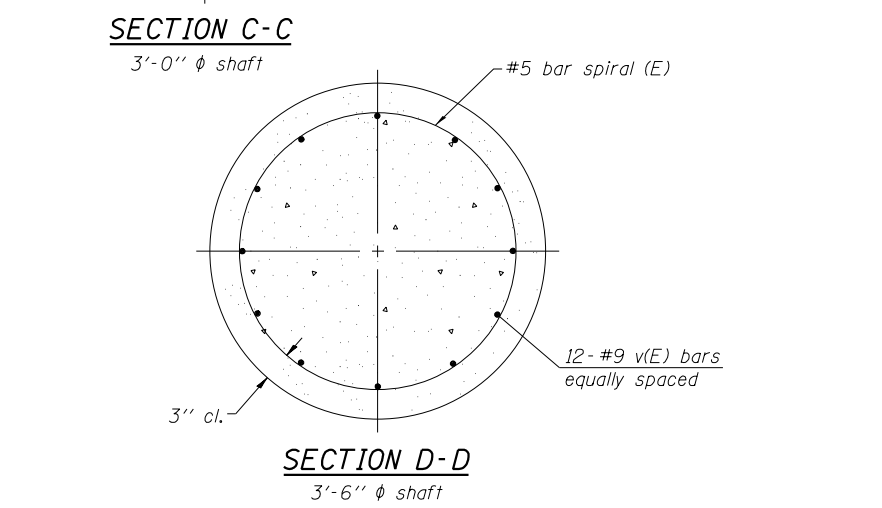
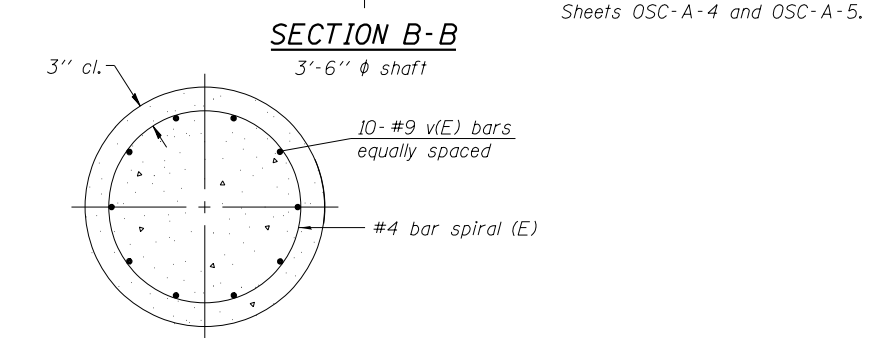
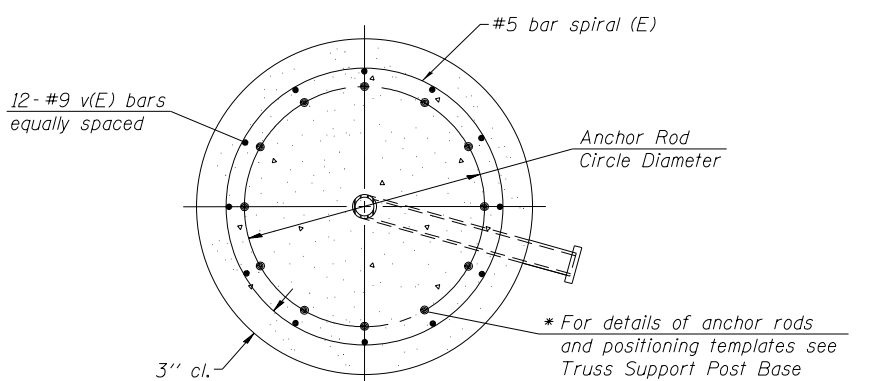
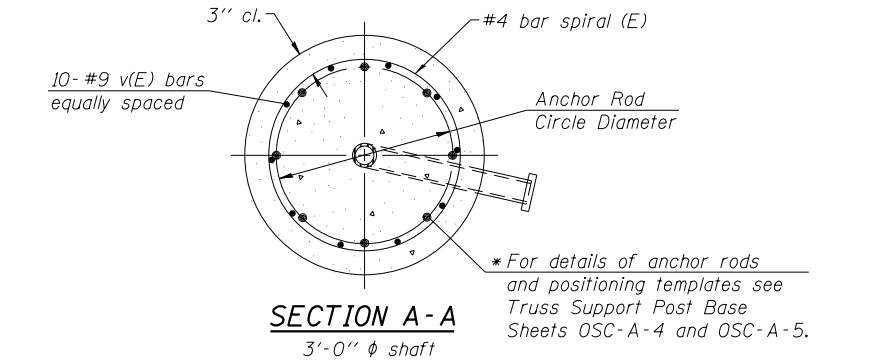
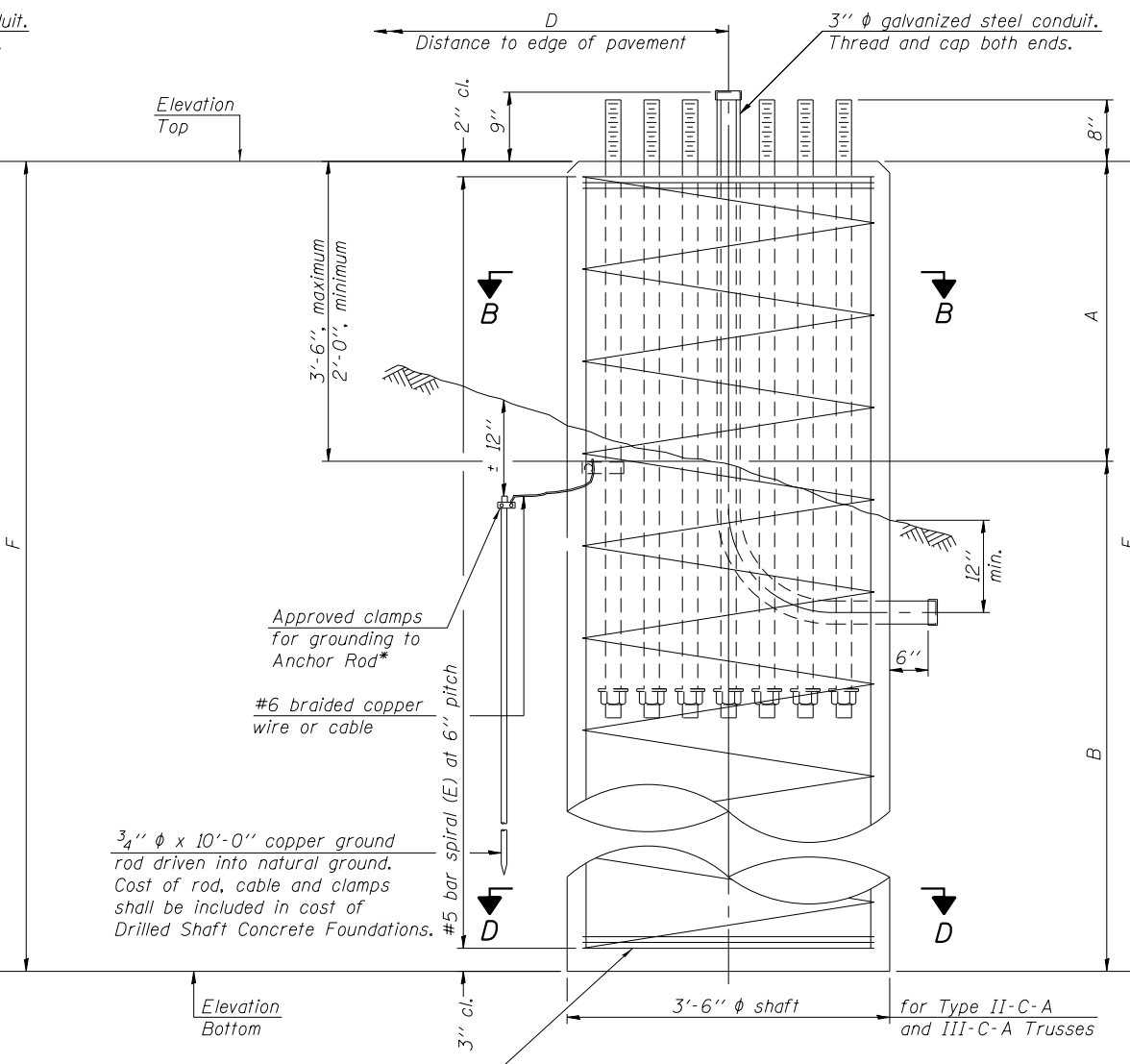
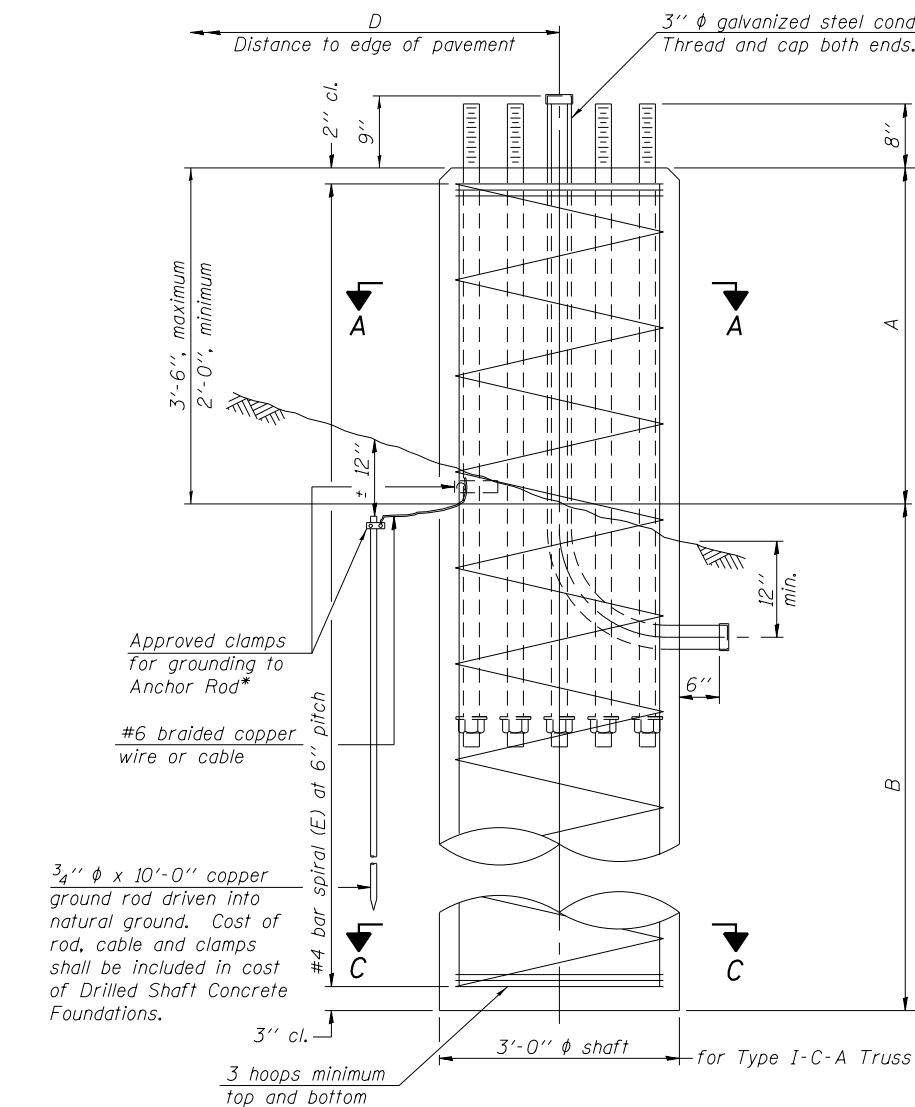
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CANTILEVER SIGN STRUCTURES - WALKWAY DETAILS
ALUMINUM TRUSS & STEEL POST

SHEET NO. S16 OF 29 SHEETS

F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 108
*121VB-1&2&12R-1HB-21BR&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				

* Grind anchor rod to bright finish at ground clamp location before installing clamp.



NOTES

- ① The foundation dimensions shown are based on the presence of mostly cohesive soils with an average Unconfined Compressive Strength (Q_u) of at least 1.25 tsf, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data will be included in the plans and the foundation dimensions shown will be the result of site specific designs.
- ② If the conditions encountered are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified. If dimensions "B" or "F" are revised by more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference.
- ③ No sonotubes or decomposable forms shall be used below the lower conduit entrance.
- ④ Permanent metal forms or other shielding may not be left in place below that elevation without the Engineer's written permission.
- ⑤ Concrete shall be placed monolithically, without construction joints.
- ⑥ Backfill shall be placed per Article 502 of Standard Specification and prior to erection of support column.
- ⑦ A normal surface finish followed by a Concrete Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.

Truss Type	Post Base Sheet	Maximum Cantilever Length (ft)	Maximum Total Sign Area (sq ft)	Shaft Diameter (in)	"B" Depth (ft)	Anchor Rods		Anchor Rod Circle Diameter (in)
						No.	Diameter (in)	
I-C-A	OSC-A-4	25	170	3.0	16.0	8	2	22
II-C-A	OSC-A-5	30	170	3.5	17.0	12	2	30
II-C-A	OSC-A-5	30	340	3.5	21.5	12	2	30
III-C-A	OSC-A-5	35	170	3.5	19.0	12	2	30
III-C-A	OSC-A-5	35	250	3.5	22.5	12	2	30
III-C-A	OSC-A-5	35	400	3.5	26.5	12	2	30
III-C-A	OSC-A-5	40	400	3.5	32.0	12	2	30

Structure Number	Station	Truss Type	Shaft Diameter	Elevation Top	Elevation Bottom	Q_u (T/F ²)	A	B	F	Class DS Concrete Cubic Yards
IC049S120R000.0-002	476+08	III-C-A	3.5'	730.38	704.88	3.85	3'-0"	22'-6"	25'-6"	9.10
IC049S120L000.0-001	181+91.5	III-C-A	3.5'	724.25	694.75	3.85	3'-0"	26'-6"	29'-6"	10.51

OSC-A-9

8-21-13

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	DATE - 08/26/2015	REVISED -

STATE OF ILLINOIS
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CANTILEVER SIGN STRUCTURES - DRILLED SHAFT
ALUMINUM TRUSS & STEEL POST

SHEET NO. S17 OF 29 SHEETS

F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 109
*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

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SOIL BORING LOG

ROUTE FAP 342 DESCRIPTION Illinois Route 120 LOGGED BY Esposito, Jr.

SECTION 12(VB-1&2)&12R-1HB-2(BR) LOCATION S 1/2, SEC. 26, TWP. 45, RNG. 11, 3rd PM

COUNTY Lake DRILLING METHOD CME 750, 3.24" I.D. HSA HAMMER TYPE AUTOMATIC

Table with columns for DEPTH, BLOW, UCS, MOIST, and soil descriptions. Includes data for Hot-Mix Asphalt Shoulder, Very Stiff Brown SILTY CLAY, Medium Stiff Gray LOAM, Very Stiff Gray SILTY CLAY, Dense Gray GRAVEL, and Hard Brown SILTY CLAY.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

ROUTE FAP 342 DESCRIPTION Illinois Route 120 LOGGED BY Esposito, Jr.

SECTION 12(VB-1&2)&12R-1HB-2(BR) LOCATION S 1/2, SEC. 26, TWP. 45, RNG. 11, 3rd PM

COUNTY Lake DRILLING METHOD CME 750, 3.24" I.D. HSA HAMMER TYPE AUTOMATIC

Table with columns for DEPTH, BLOW, UCS, MOIST, and soil descriptions. Includes data for Stiff Gray SILTY CLAY and End of Boring.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-99)

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Table with columns for USER NAME, DESIGNED, CHECKED, DRAWN, PLOT DATE, REVISED, and AMDATE.

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS - 1

SHEET NO. S18 OF 29 SHEETS

Table with columns for F.A.P. RTE., SECTION, COUNTY, TOTAL SHEETS, SHEET NO., and CONTRACT NO.



SOIL BORING LOG

ROUTE FAP 342 DESCRIPTION RAMP EK TO L LOGGED BY Esposito, Jr.

SECTION 12(VB-1&2)&12R-1HB-2(BR) LOCATION S 1/2, SEC. 26, TWP. 45, RNG. 11, 3rd PM

COUNTY Lake DRILLING METHOD CME 750, 3.24" I.D. HSA HAMMER TYPE AUTOMATIC

STRUCT. NO. IC049S120L000.0-001
Station _____

BORING NO. BD-2
Station 168+10
Offset 40.00ft LT BL
Ground Surface Elev. 721.57 ft

D E P T H ft	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. _____ ft	D E P T H ft	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
			17	Hard Brown SILTY CLAY		4		
						6	4.6	23
						10	B	
	4					4		
	5	4.8	14			8	6.0	21
	6	B				13	B	
-5	4				-25	4		
	5	4.3	15			7	4.6	21
	6	B				11	B	
	4					4		18
	5	1.5	20			12	3.1	7
	7	B				15	B	
	8					2		
	6	3.9	16			4	0.7	23
	8	B				4	B	
	5					2		
	7	8.4	20			3	1.4	15
	14	B				4	B	
	6							
	9	5.7	22					
	11	B						

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)



SOIL BORING LOG

ROUTE FAP 342 DESCRIPTION RAMP EK TO L LOGGED BY Esposito, Jr.

SECTION 12(VB-1&2)&12R-1HB-2(BR) LOCATION S 1/2, SEC. 26, TWP. 45, RNG. 11, 3rd PM

COUNTY Lake DRILLING METHOD CME 750, 3.24" I.D. HSA HAMMER TYPE AUTOMATIC

STRUCT. NO. IC049S120L000.0-001
Station _____

BORING NO. BD-2
Station 168+10
Offset 40.00ft LT BL
Ground Surface Elev. 721.57 ft

D E P T H ft	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)	Surface Water Elev. _____ ft	D E P T H ft	B L O W S (/6")	U C S Qu (tsf)	M O I S T (%)
				Hard Brown SILTY CLAY		4		
						6	4.6	23
						10	B	
	4					4		
	5	4.8	14			8	6.0	21
	6	B				13	B	
-5	4				-25	4		
	5	4.3	15			7	4.6	21
	6	B				11	B	
	4					4		18
	5	1.5	20			12	3.1	7
	7	B				15	B	
	8					2		
	6	3.9	16			4	0.7	23
	8	B				4	B	
	5					2		
	7	8.4	20			3	1.4	15
	14	B				4	B	
	6							
	9	5.7	22					
	11	B						

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

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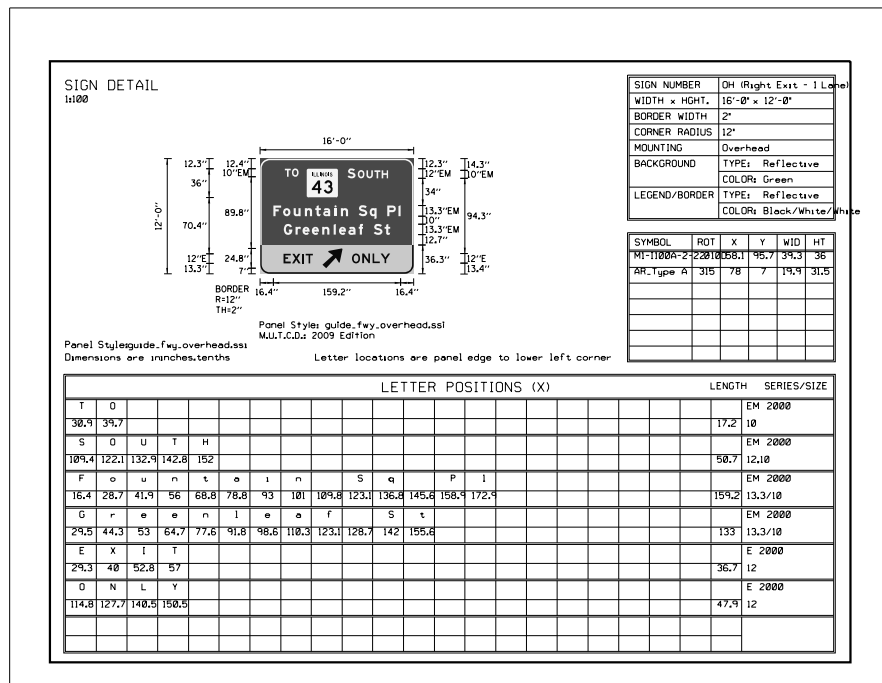
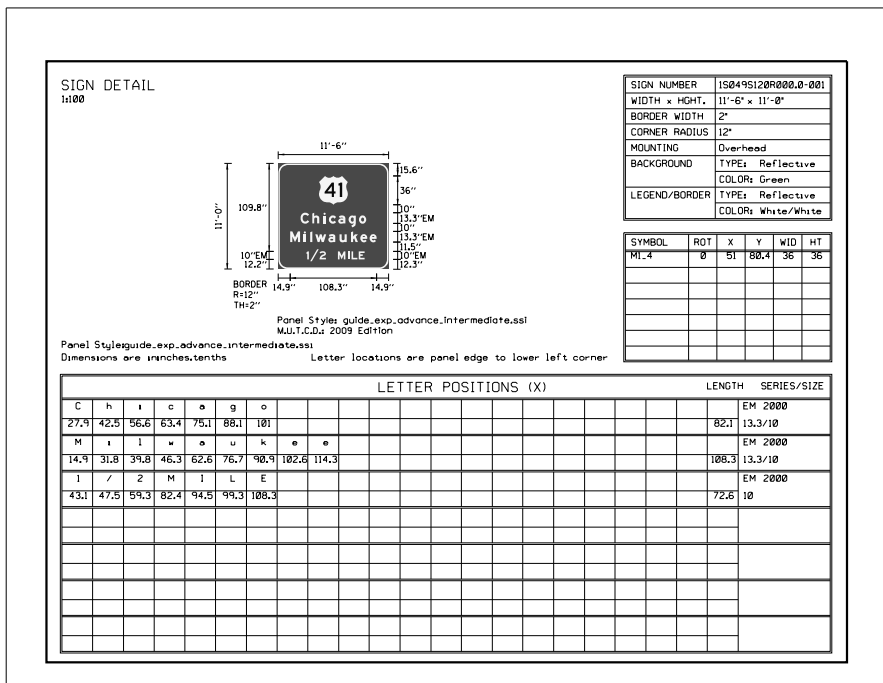
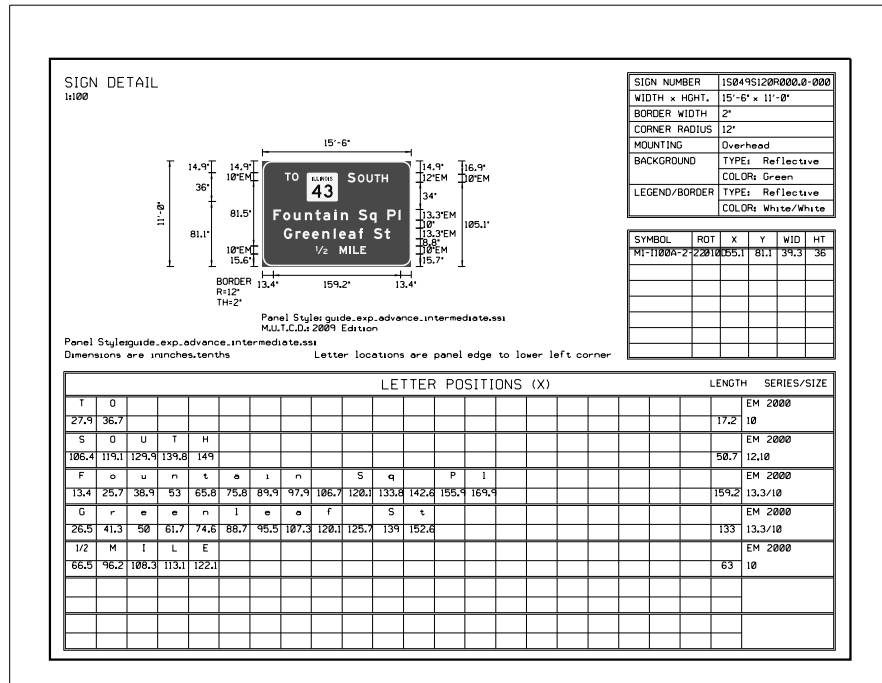
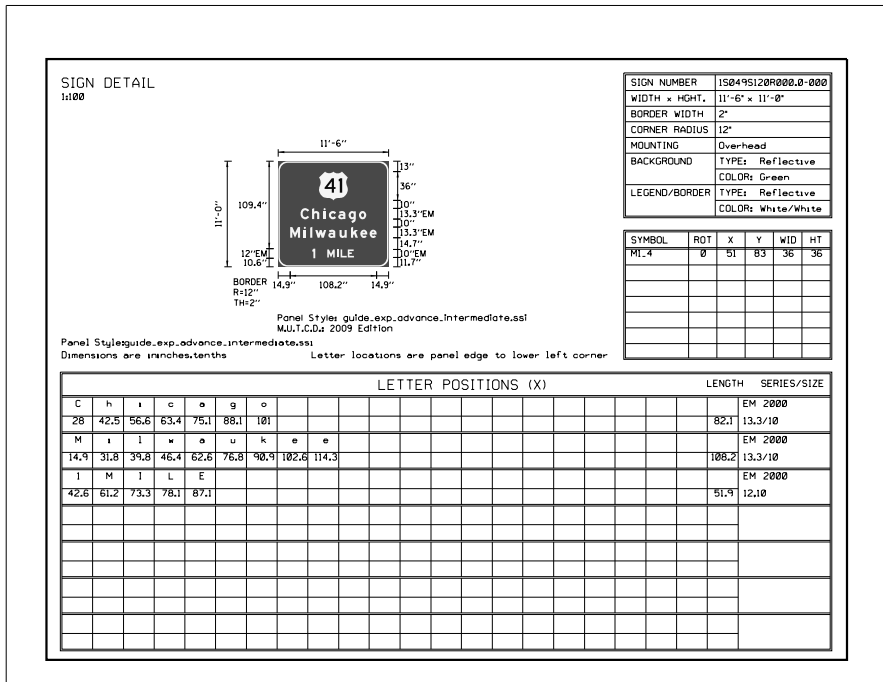
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SOIL BORING LOGS - 3

SHEET NO. S20 OF 29 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	112
*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				



H:\projects\2015\2015301A\CAD\Sheet\dgm\00_D160X40-shr-stn-sign_panel.dgn 3/21/2017 10:45:08 AM

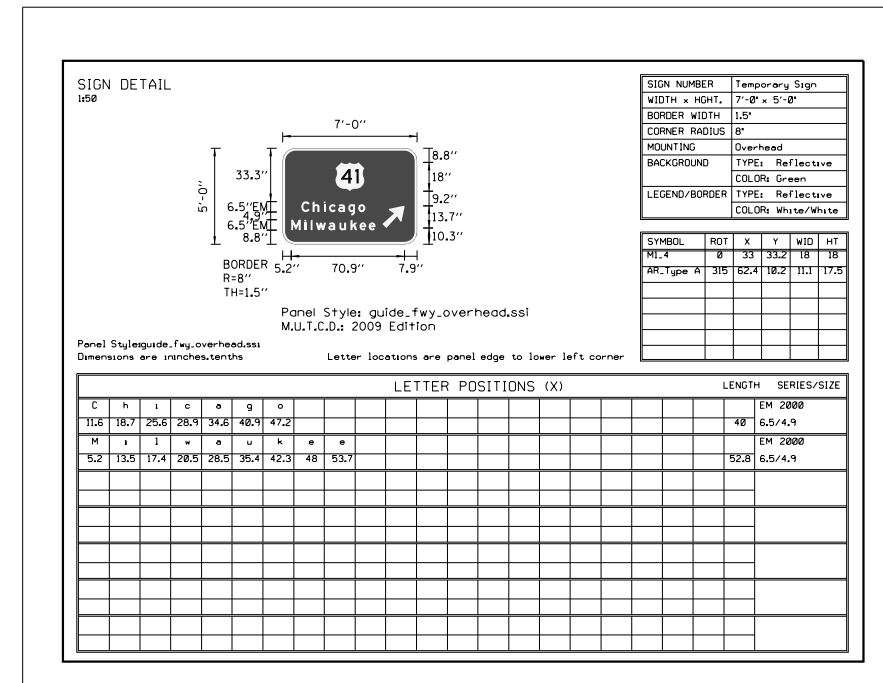
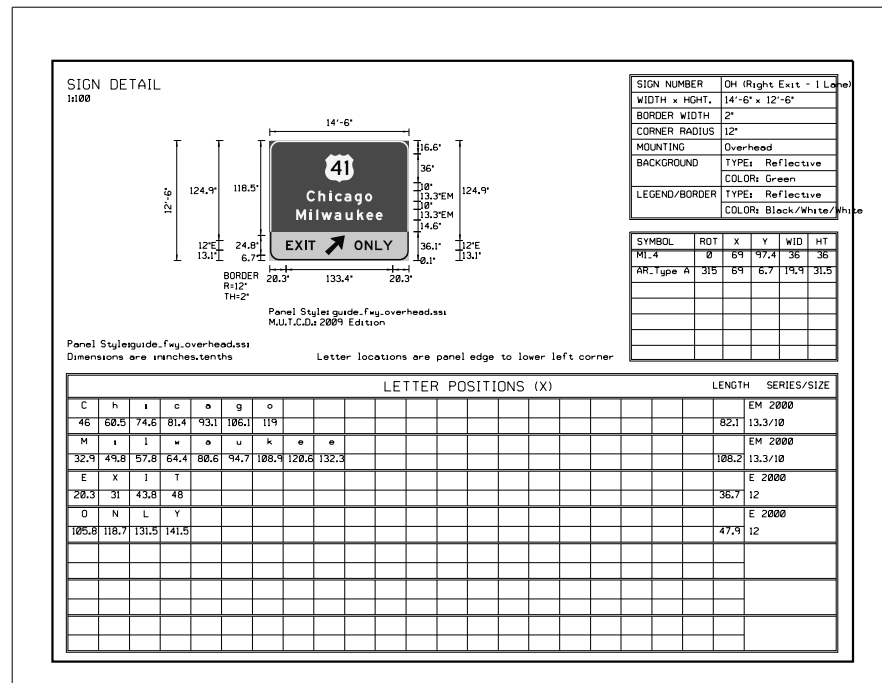
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

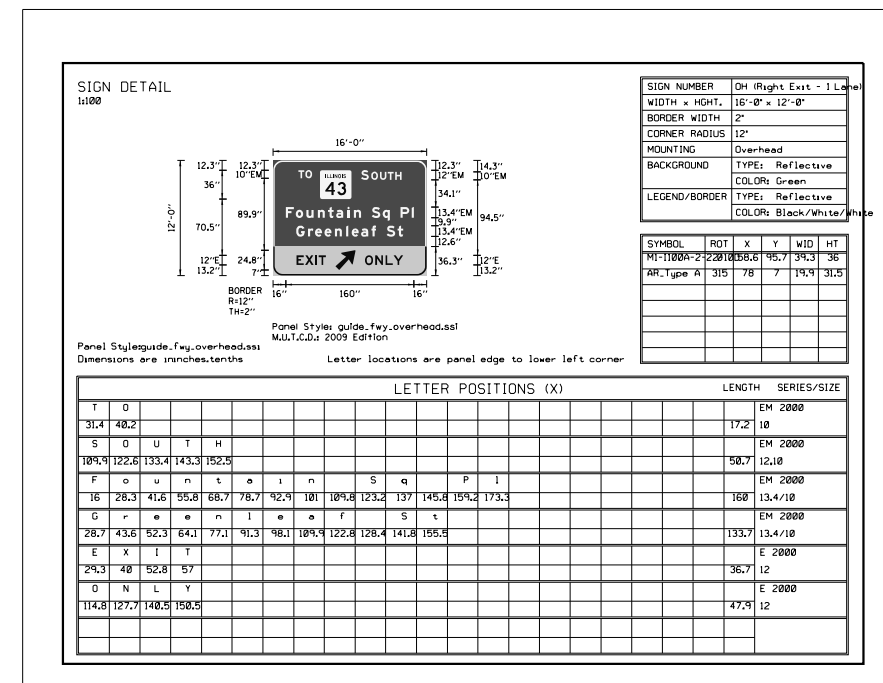
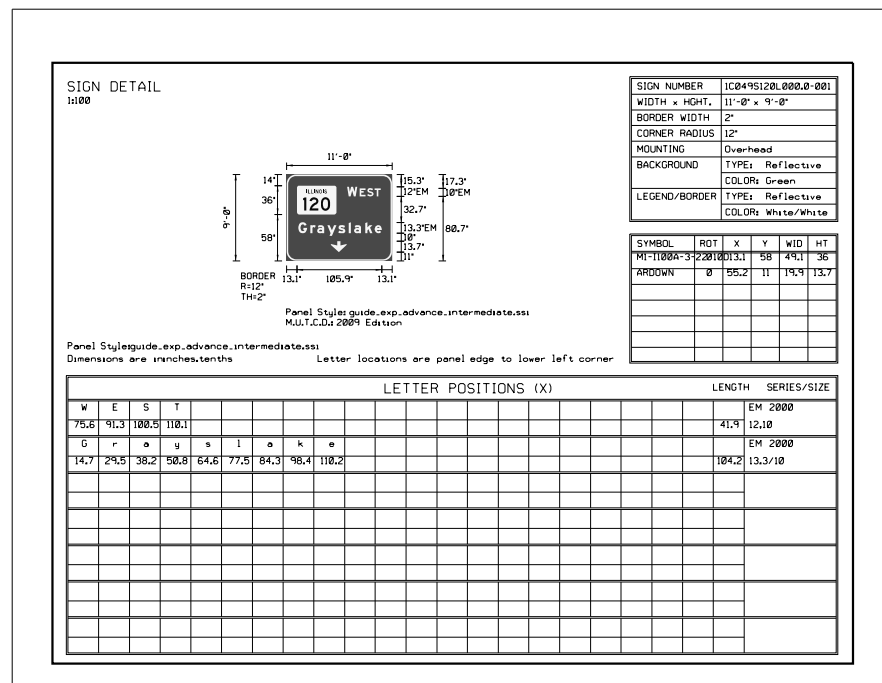
**IL ROUTE 120 OVER CP RR, GREENLEAF STREET, AND RAMPS
SIGN PANEL LAYOUTS**

SCALE: 1"=50' SHEET S25 OF 29 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	*	LAKE	288	117
* 121VB-1&2&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



TEMPORARY SIGN
AT STA. 460+50

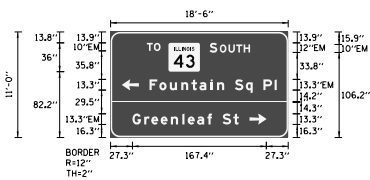


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	DATE 08/26/2015	REVISED -

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	*	LAKE	288	118
* 121VB-1&2&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

SIGN DETAIL
1:100



SIGN NUMBER	IC0495120L000.0-002
WIDTH x HGT.	18'-6" x 11'-0"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: Green / Green
LEGEND/BORDER	TYPE: Reflective
	COLOR: White/White

SYMBOL	ROT	X	Y	WID	HT
M1-1100A-2	270	107.2	82.2	39.3	36
AR_Type A	90	14.3	59.1	13.3	20.9
AR_Type A	270	173.8	16.3	13.3	20.9

Panel Style: guide.exp.advance.intermediate.asl
MULT.C.D.: 2009 Edition

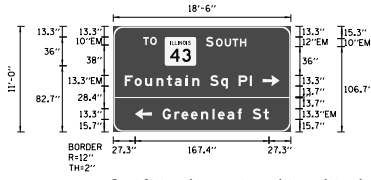
Panel Style: guide.exp.advance.intermediate.asl
MULT.C.D.: 2009 Edition

Letter locations are panel edge to lower left corner
Dimensions are in inches, tenths

LETTER POSITIONS (X) LENGTH SERIES/SIZE

T	O	S	O	U	T	H	F	O	U	N	T	S	Q	P	L
45.2	54														
123.7	136.4	147.2	157.1	166.3											
48.6	60.8	74	88.2	101	111	125.1	133.1	141.9	155.2	168.9	177.7	191.1	205.1		
27.3	42.1	50.8	62.5	75.4	89.6	96.4	108.1	120.9	126.5	139.8	153.4				

SIGN DETAIL
1:100



SIGN NUMBER	IC0495120R000.0-000
WIDTH x HGT.	18'-6" x 11'-0"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: Green / Green
LEGEND/BORDER	TYPE: Reflective
	COLOR: White/White

SYMBOL	ROT	X	Y	WID	HT
M1-1100A-2	270	107.2	82.2	39.3	36
AR_Type A	270	186.8	57.4	13.3	20.9
AR_Type A	90	27.3	15.7	13.3	20.9

Panel Style: guide.exp.advance.intermediate.asl
MULT.C.D.: 2009 Edition

Panel Style: guide.exp.advance.intermediate.asl
MULT.C.D.: 2009 Edition

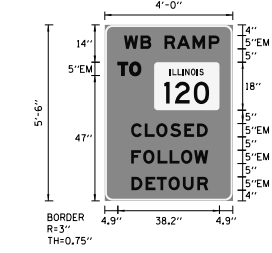
Letter locations are panel edge to lower left corner
Dimensions are in inches, tenths

LETTER POSITIONS (X) LENGTH SERIES/SIZE

T	O	S	O	U	T	H	F	O	U	N	T	S	Q	P	L
37.2	46														
115.7	128.4	139.2	149.1	158.3											
14.3	26.6	39.8	53.9	66.7	76.7	88.8	98.8	107.5	120.9	134.7	143.5	156.8	170.8		
61.7	76.5	85.1	96.8	109.8	123.9	138.7	142.4	155.2	160.8	174.2	187.8				

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SIGN DETAIL
1:30



SIGN NUMBER	Temporary Sign
WIDTH x HGT.	4'-0" x 5'-6"
BORDER WIDTH	0.75"
CORNER RADIUS	3"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/White

SYMBOL	ROT	X	Y	WID	HT
M1-1100A-3	270	18.5	54	24.6	18

Panel Style: Construction.asl
MULT.C.D.: 2009 Edition

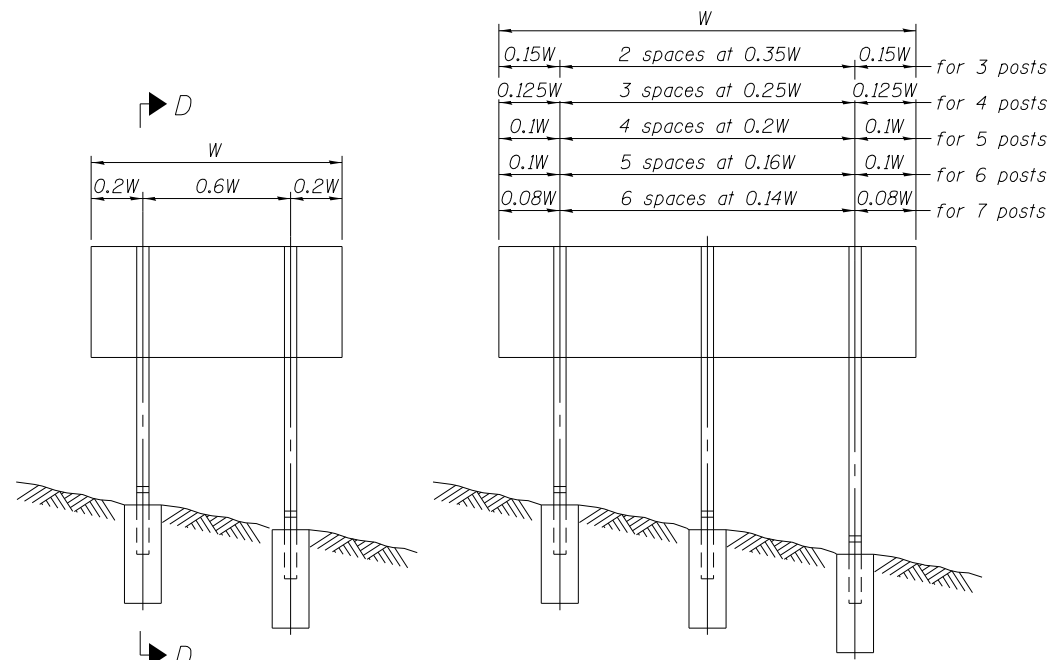
Panel Style: Construction.asl
MULT.C.D.: 2009 Edition

Letter locations are panel edge to lower left corner
Dimensions are in inches, tenths

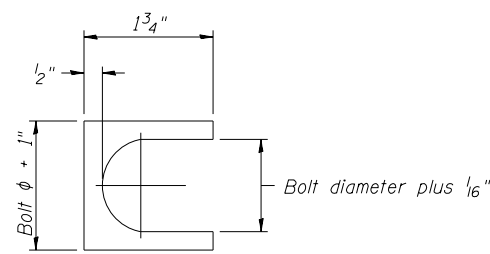
LETTER POSITIONS (X) LENGTH SERIES/SIZE

W	B	R	A	M	P
7.2	13.4	17.4	22.4	27	33
4.9	5.3				
4.9	15	19.3	24.6	29.9	34.6
4.9	14.4	19.8	24.3	28.6	33.5
10	15.3	19.5	23.9	29.3	34.8

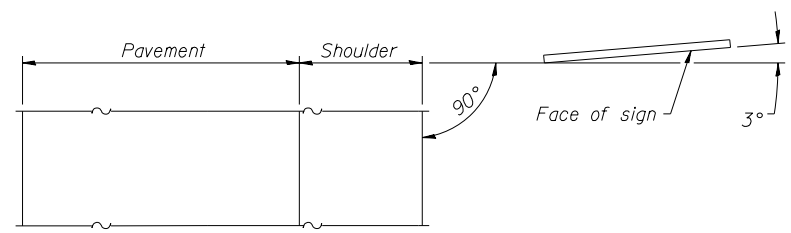
TEMPORARY INFORMATION SIGNING
SEE DETOUR PLAN STAGE 1
FOR LOCATION
(4 REQUIRED)



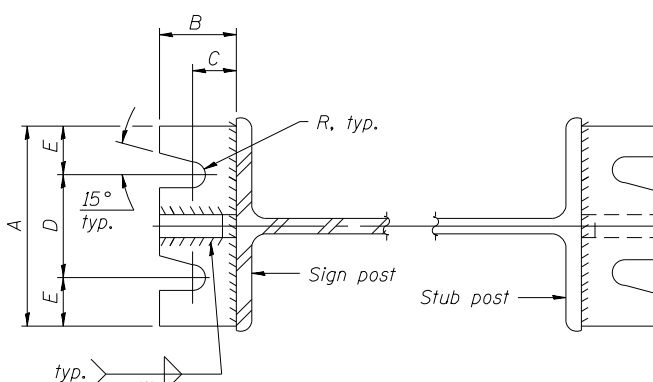
ELEVATION



SHIM DETAIL

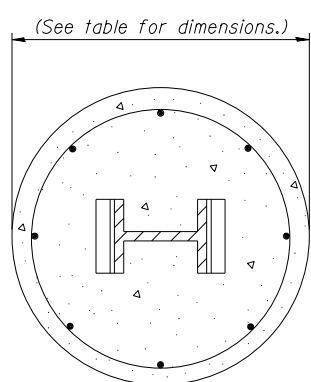


LOCATION SKETCH

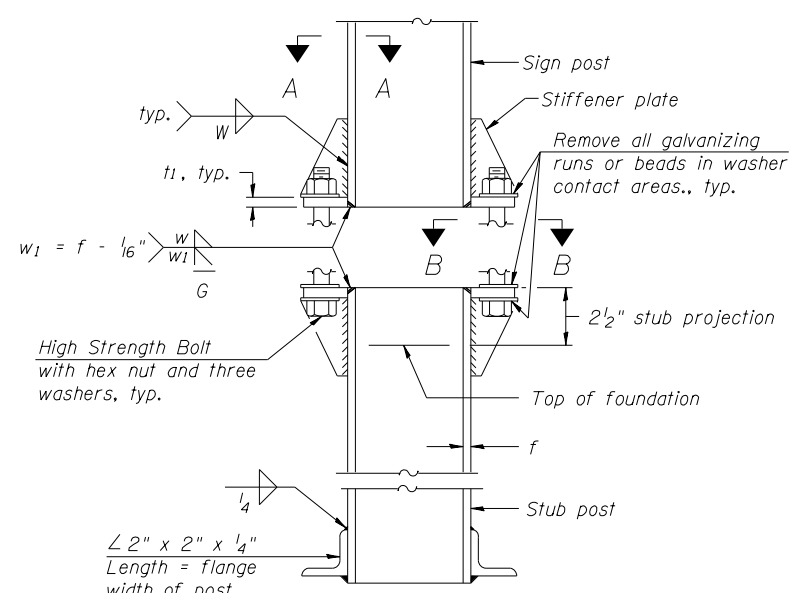


SECTION A-A

SECTION B-B

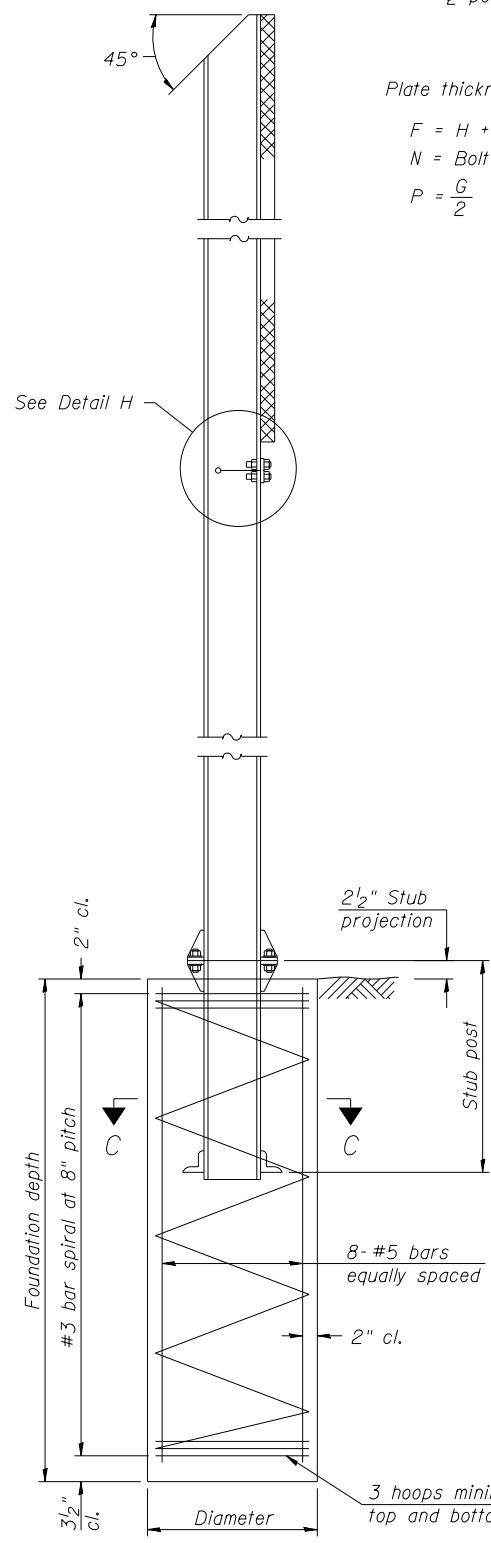


SECTION C-C

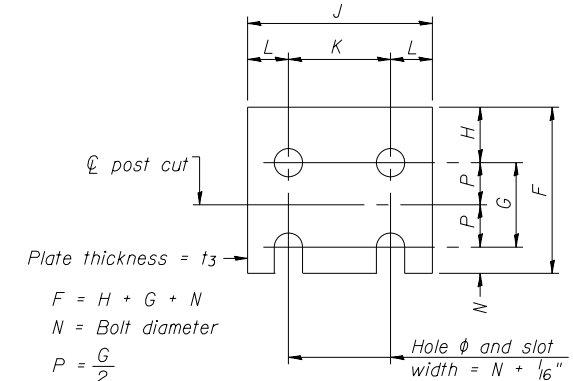


ELEVATION

SIGN POST & STUB POST

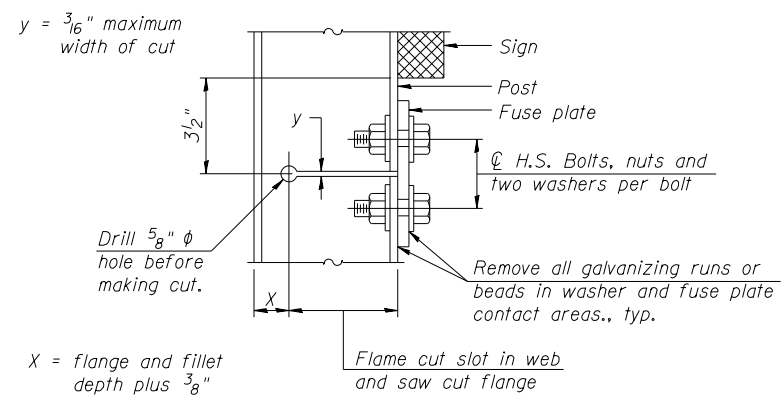


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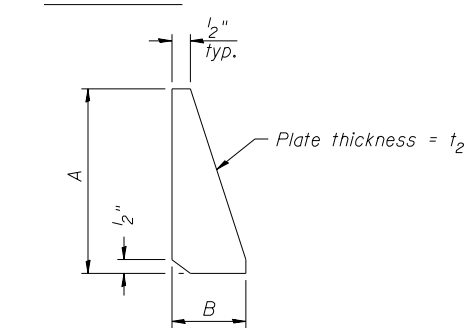


FUSE PLATE DETAIL

FUSE PLATE DATA		
N = Bolt Diameter	G	H
1/2"	2"	1 1/8"
5/8"	2 1/4"	1 1/4"
3/4"	2 1/2"	1 3/8"
7/8"	2 3/4"	1 1/2"
1"	3"	1 5/8"
1 1/8"	3 1/4"	1 3/4"
1 1/4"	3 1/2"	1 7/8"



DETAIL H



STIFFENER PLATE DETAIL

GENERAL NOTES

Posts shall be plumbed by using shims with post-to-stub post connection bolts snug tight only. Final tightening of all High Strength Bolts shall be in accordance with Article 727.05 and threads at the junction of the bolt and nut shall be burred or center punched to prevent the nut from loosening.

LOADING: 80 m.p.h. wind with 30% gust factor, normal to sign.

DESIGN STRESSES:
Structural steel - 20,000 p.s.i.
Reinforcing steel - 20,000 p.s.i.
Concrete - 1,400 p.s.i.
Footing soil pressure - 2,000 p.s.f.

After fabrication, the post, fuse plate and upper 6", min. of the stub post shall be hot-dip galvanized in accordance with AASHTO M111. All bolts, nuts and washers shall be hot-dip galvanized in accordance with AASHTO M232.

Work this sheet with Base Sheet BAW-A-2.

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BAW-A-1

6-1-12



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DESIGNED - JO
DRAWN - ED
PLOT SCALE = 24.0000' / ft.
PLOT DATE = 3/21/2017 - 10:45:20 AM

REVISER -
REVISER -
REVISER -
REVISER -

DATE - 08/26/2015

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

IL ROUTE 120 OVER CP RR, GREENLEAF STREET & RAMPS
BREAK-AWAY WIDE FLANGE STEEL SIGN POST DETAILS

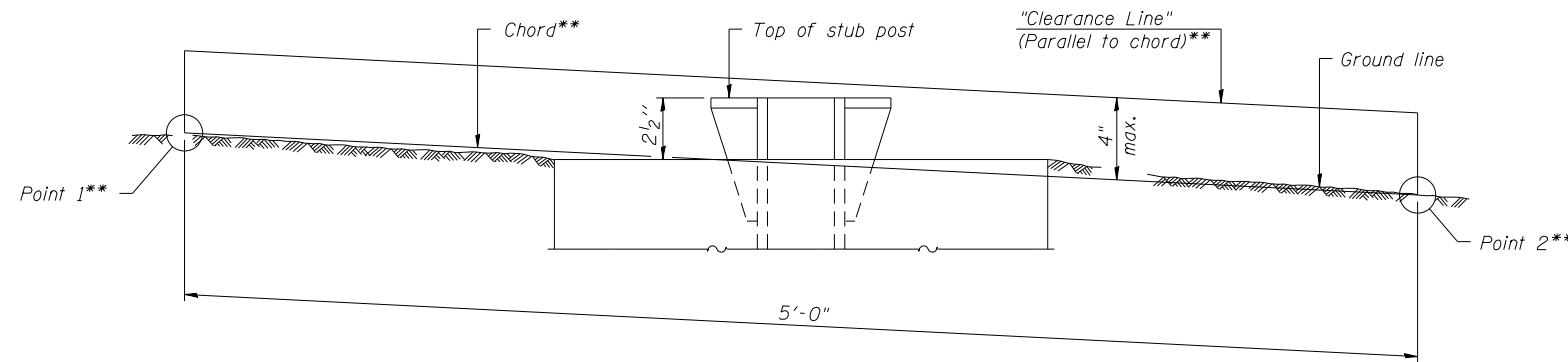
SCALE: NONE SHEET S28 OF 29 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333 342	*	LAKE	288	120
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

POST	CONCRETE FOUNDATION TABLE								POST TO STUB POST CONNECTION DATA								FUSE PLATE DATA					
	Foundation			Reinforcement			Stub Post Length	Bolt Size	A	B	C	D	E	t ₁	t ₂	R	W	J	K	L	t ₃	
	Diameter	* Minimum Depth	Concrete (1) cu. yds.)	Vertical Bars Length	Bar Spirals Diameter Length	lbs. (2)																
W6x9	2'-0"	6'-0"	0.70	5'-9"	1'-8 1/2"	79'-0"	78	2'-3"	5/8" x 3/4"	6"	2 1/4"	1 1/4"	3 1/2"	1 1/4"	3/4"	1/2"	11/32"	1 1/4"	4"	2 1/4"	7/8"	1/4"
W6x15	2'-0"	6'-0"	0.70	5'-9"	1'-8 1/2"	79'-0"	78	2'-6"	5/8" x 3/4"	6"	2 1/4"	1 1/4"	3 1/2"	1 1/4"	3/4"	1/2"	11/32"	1 1/4"	6"	3 1/2"	1 1/4"	3/8"
W8x18	2'-0"	6'-0"	0.70	5'-9"	1'-8 1/2"	79'-0"	78	2'-6"	3/4" x 3/4"	6"	2 1/2"	1 3/8"	3 1/4"	1 3/8"	1"	1/2"	13/32"	5/16"	5 1/4"	2 3/4"	1 1/4"	3/8"
W10x22	2'-6"	6'-6"	1.18	6'-3"	2'-2 1/2"	105'-0"	92	3'-0"	3/4" x 3/4"	6"	2 1/2"	1 3/8"	3 1/4"	1 3/8"	1"	1/2"	13/32"	5/16"	5 3/4"	2 3/4"	1 1/2"	1/2"
W10x26	2'-6"	7'-0"	1.27	6'-9"	2'-2 1/2"	112'-0"	98	3'-0"	7/8" x 4"	7"	2 3/4"	1 1/2"	4"	1 1/2"	1"	3/4"	15/32"	3/8"	5 3/4"	2 3/4"	1 1/2"	5/8"
W12x26	2'-6"	7'-9"	1.41	7'-6"	2'-2 1/2"	119'-0"	107	3'-0"	7/8" x 4"	7"	2 3/4"	1 1/2"	4"	1 1/2"	1"	3/4"	15/32"	3/8"	6 1/2"	3 1/2"	1 1/2"	5/8"
W14x30	3'-0"	7'-3"	1.90	7'-0"	2'-8 1/2"	145'-0"	113	3'-0"	7/8" x 4"	7"	2 3/4"	1 1/2"	4"	1 1/2"	1"	3/4"	15/32"	3/8"	6 3/4"	3 1/2"	1 5/8"	1/2"
W14x38	3'-0"	8'-0"	2.09	7'-9"	2'-8 1/2"	153'-0"	122	3'-6"	1" x 4 1/2"	7 1/2"	3"	1 3/4"	4"	1 3/4"	1 1/4"	3/4"	17/32"	3/8"	6 3/4"	3 1/2"	1 5/8"	1/2"
W16x45	3'-0"	8'-6"	2.23	8'-3"	2'-8 1/2"	162'-0"	130	3'-6"	1" x 4 1/2"	7 1/2"	3"	1 3/4"	4"	1 3/4"	1 1/4"	3/4"	17/32"	3/8"	7"	3 1/2"	1 3/4"	1/2"

*Dimensional changes required for varying site conditions shall be approved by the Engineer.

POST	FUSE PLATE BOLT SIZE																					
	Sign Height																					
	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18'-0"	19'-0"	20'-0"	21'-0"	22'-0"	23'-0"	24'-0"	
W6x9	1/2" x 1 1/2"	1/2" x 1 1/2"	1/2" x 1 1/2"	1/2" x 1 1/2"	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
W6x15	1/2" x 1 3/4"	1/2" x 1 3/4"	1/2" x 1 3/4"	5/8" x 2"	5/8" x 2"	3/4" x 2"	3/4" x 2"	3/4" x 2"	3/4" x 2"	—	—	—	—	—	—	—	—	—	—	—	—	
W8x18	1/2" x 1 3/4"	1/2" x 1 3/4"	1/2" x 1 3/4"	1/2" x 1 3/4"	5/8" x 2"	5/8" x 2"	5/8" x 2"	3/4" x 2"	3/4" x 2"	3/4" x 2"	—	—	—	—	—	—	—	—	—	—	—	
W10x22	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2"	5/8" x 2"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	—	—	—	—	—	—	—	—	
W10x26	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2 1/4"	5/8" x 2 1/4"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	—	—	—	—	—	—	—	
W12x26	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2 1/4"	5/8" x 2 1/4"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	—	—	—	—	—	—	
W14x30	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2"	5/8" x 2"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	—	—	—	—	—	—	
W14x38	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2 1/4"	5/8" x 2 1/4"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	7/8" x 2 1/2"	7/8" x 2 1/2"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"
W16x45	—	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2 1/4"	5/8" x 2 1/4"	5/8" x 2 1/4"	5/8" x 2 1/4"	3/4" x 2 1/2"	3/4" x 2 1/2"	7/8" x 2 1/2"	7/8" x 2 1/2"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"	1" x 2 3/4"



ELEVATION
GROUND LINE & STUB POST

** For all "Point 1" and "Point 2" locations, "Clearance Line" must be at or above top of stub post.

- (1) Quantity includes all concrete necessary for one foundation.
- (2) Includes reinforcement bars and spiral hooping for one foundation.

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BAW-A-2
6-1-12

GR&EF 8501 N. Higgins Road Suite 280
Chicago, Illinois 60631
(773) 399-0112

USER NAME = *USER*	DESIGNED - JO	REVISED -
DRAWN - ED	REVISED -	
PLOT SCALE = 24.0000' / ft.	CHECKED - RS	REVISED -
PLOT DATE = 3/21/2017 10:45:20 AM	DATE - 08/26/2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

IL ROUTE 120 OVER CP RR, GREENLEAF STREET & RAMPS
BREAK-AWAY WIDE FLANGE STEEL SIGN POST DETAILS
SCALE: NONE SHEET S29 OF 29 SHEETS STA. TO STA.

F.A.P. RTE. 333 342	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 121
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

Bench Mark BM #5: Chiseled "□" cut in West end of S.W. wing wall of S.N. 049-0049. Elev. 737.11

Existing Structures: Structure Numbers 049-0048 E.B. and 049-0049 W.B. built in 1960 as F.A. Route 21, Section 12-VB-1. Existing dual structures each consist of three span, reinforced concrete decks supported on steel WF beams. The beams are supported on stub abutments on concrete piles and hammer head type piers supported on wooden piles. The back to back abutments length is 157'-8" and the out-to-out bridge deck dimension is 34'-4" in the existing conditions. Traffic is to be maintained using cross-overs to allow for full bridge closure during deck replacement.

No salvage.

No deck drains will be permitted in the span over tracks or within 10' of crossarms of a railroad pole line.

STATION 461+96.51
RE-BUILT 20... BY
STATE OF ILLINOIS
F.A.P. RT. 333
SEC. 12(VB-1&2) &
12R-1HB-2(BR)
LOADING HS20
STR. NO. 049-0048

STATION 461+96.51
RE-BUILT 20... BY
STATE OF ILLINOIS
F.A.P. RT. 333
SEC. 12(VB-1&2) &
12R-1HB-2(BR)
LOADING HS20
STR. NO. 049-0049

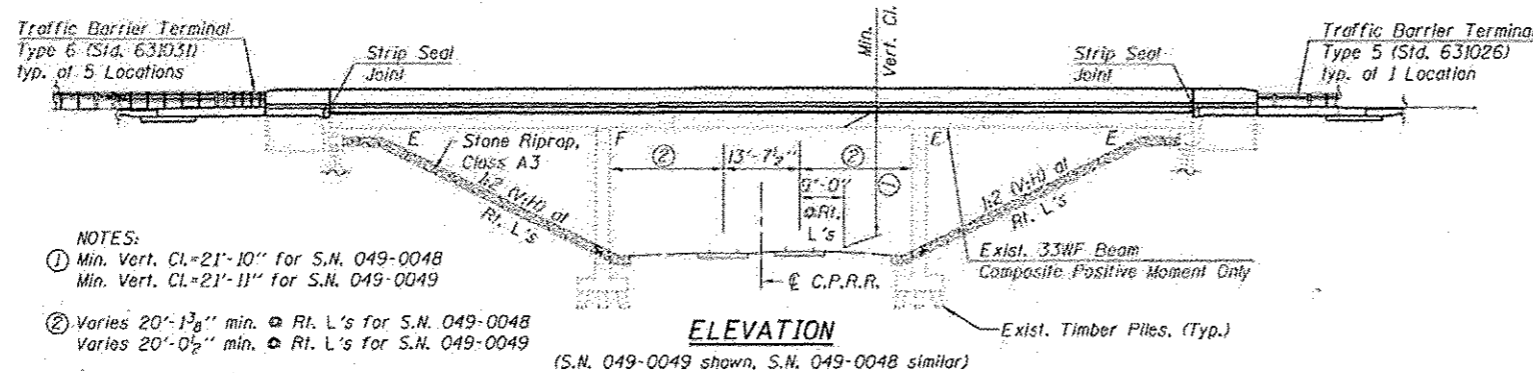
DESIGN SPECIFICATIONS
2002 AASHTO
Standard Specifications for Highway Bridges,
17th Edition

LOADING HS 20-44
Allow 50#/sq. ft. for future wearing surface.

SEISMIC DATA
Seismic Performance Category (SPC) = A
Horizontal Bedrock Acceleration Coefficient (A) = 0.035g
Site Coefficient (S) = 1.0

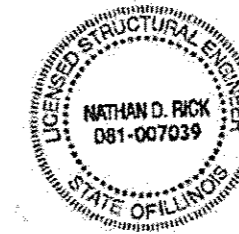
DESIGN STRESSES
FIELD UNITS (Existing Construction)
f_c = 8000 psi (substructure)
f_s = 20,000 psi (reinforcement)
f_s = 18,000 psi (structural steel)
FIELD UNITS (New Construction)
f_c = 3,500 psi
f_y = 60,000 psi (Reinforcement)
f_y = 36,000 psi (M270 Grade 36)

NAME PLATES
See Sta. 515001

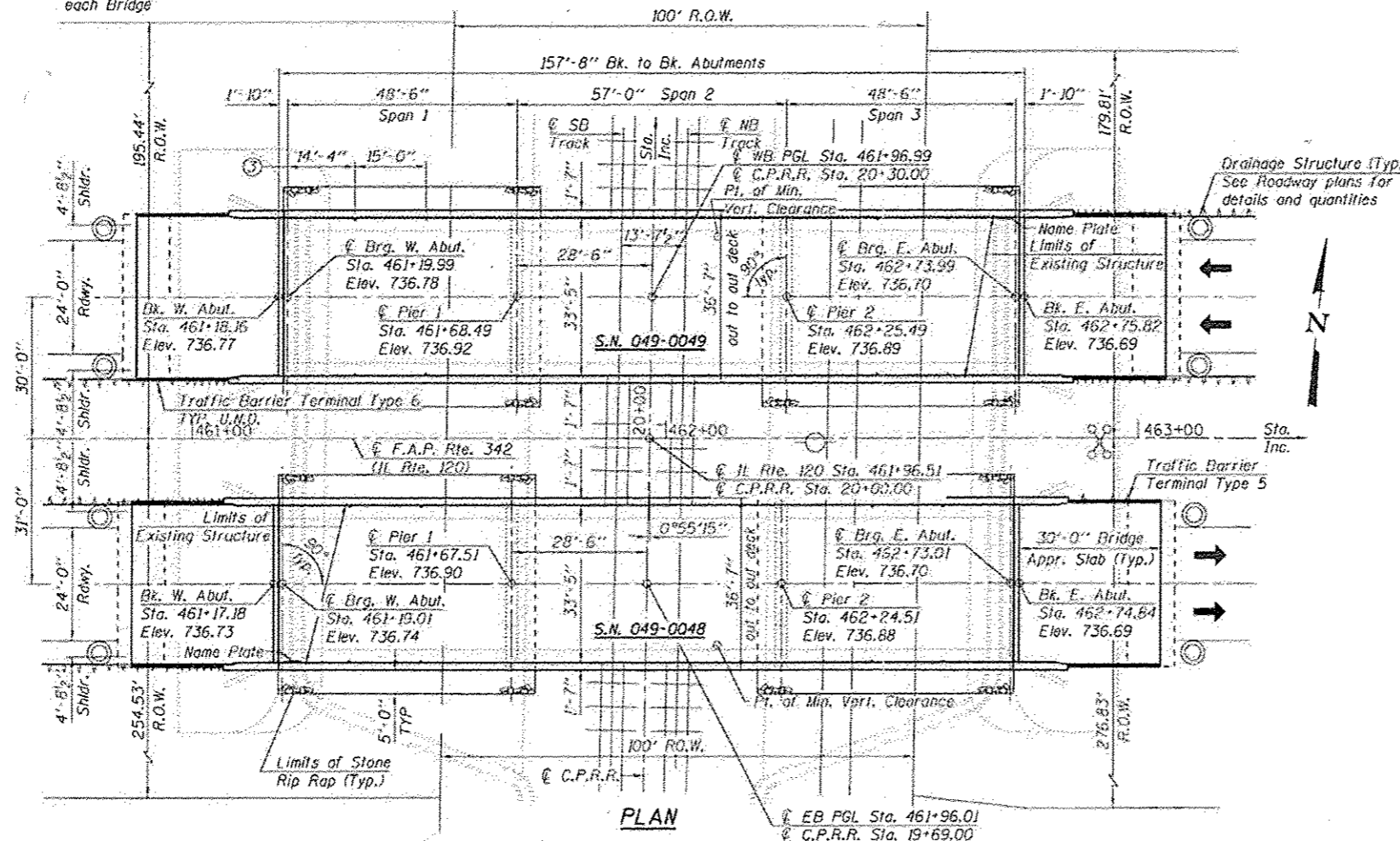


- NOTES:**
- Min. Vert. Cl. = 21'-10" for S.N. 049-0048
Min. Vert. Cl. = 21'-11" for S.N. 049-0049
 - Varies 20'-13 1/2" min. @ Rt. L's for S.N. 049-0048
Varies 20'-0 1/2" min. @ Rt. L's for S.N. 049-0049
 - 6" # Floor Drain Spacing, (Typ.) each end, each side, each Bridge

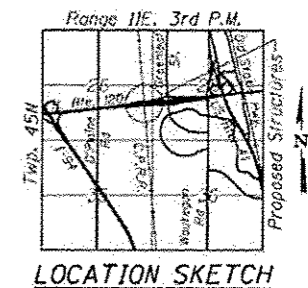
APPROVED
For Structural Adequacy Only
Nathan D. Rick
Engineer of Bridges & Structures



Signed *Nathan D. Rick*
Nathan D. Rick, GRAEF II, Lic. No. 081-007039
Expires 11-30-2018
Date 3/22/17
For Sheets S-01 Thru S-31
(Total of 31 Sheets)



- LEGEND**
- Access Control and ROW
 - Aerial Line
 - Telephone Line
 - Existing High Mast Light Tower



GENERAL PLAN
ILLINOIS ROUTE 120 OVER C.P.R.R.
F.A.P. RTE. 333
SEC. 12(VB-1&2) & 12R-1HB-2(BR)
LAKE COUNTY
STATION 461+96.51
STRUCTURE NO. 049-0048 & 049-0049

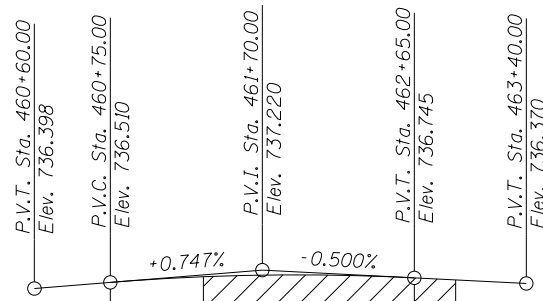
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GRAEF 8501 W. Higgins Road, Suite 280 Chicago, Illinois 60631; (773) 399-0112	USER NAME =	DESIGNED - JZ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN S.N. 049-0048 AND S.N. 049-0049	F.A.P. RTE. =	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLLOT SCALE =	CHECKED - NDR	REVISED -			333	120	LAKE	288	122
	PLLOT DATE = 3/21/2017 3:05:46 PM	DRAWN - DLG	REVISED -			* 12(VB-1&2)&12R-1HB-2(BR)A12-RS-2 CONTRACT NO. 60X40 ILLINOIS FED. AID PROJ. CT				

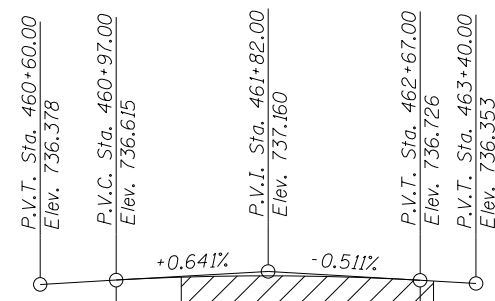
BRIDGE GENERAL NOTES

- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 3/4 in. Diameter, holes 7/8 in. diameter, unless otherwise noted.
- No field welding is permitted as except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

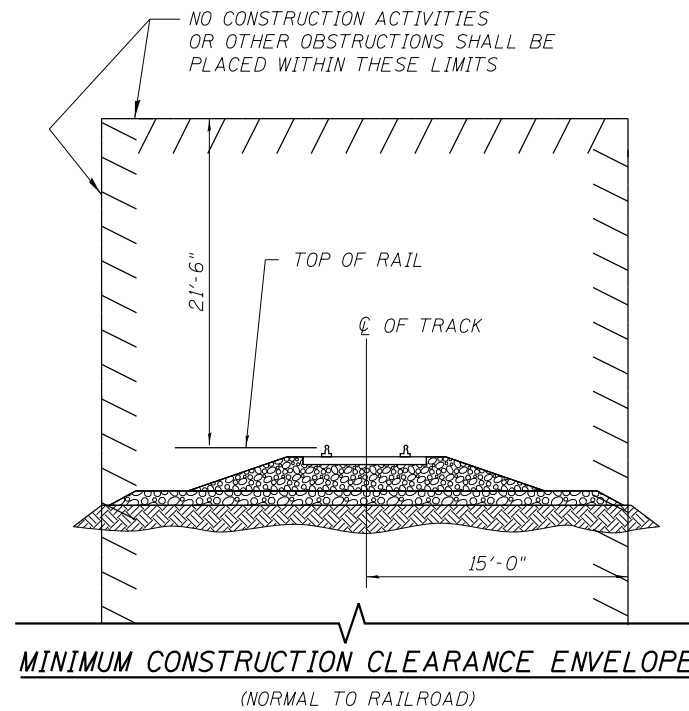
As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding 1/4" inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.
- If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.
- Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction 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 scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Cleaning and field painting of structural steel shall be done under a separate painting contract.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
- Existing structural steel shall only be cleaned and painted as required by the special provisions for Cleaning and Painting Contact Surface Areas of Existing Steel Structures.
- All new structural steel shall be shop painted with an inorganic zinc rich primer per AASHTO M 300, Type 1.
- Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.
- In addition to the requirements of Article 501.03 of the Standard Specifications, the Contractor shall evaluate the condition of the existing protective shield. Such evaluation shall be performed by and Illinois-licensed Structural Engineer. The cost of this evaluation is included with Protective Shield. If structurally adequate, the existing protective shield shall remain in place for the demolition of the existing bridge deck. The Contractor shall be paid for this work based on the total quantity of existing and new protective shield actually required at the contract unit price per Square yard for Protective Shield.
- Slipforming of the parapets is not allowed.
- Protective shield shall be provided in all spans, face-to-face of piers and abutment beam seats, out-to-out of proposed structure.



**PROFILE GRADE LINE
IL RTE. 120 (WB)**



**PROFILE GRADE LINE
IL RTE. 120 (EB)**



****EXISTING PROFILE GRADE
T/RAIL SB RR TRACK**

West Track		East Track	
Station	Elev.	Station	Elev.
21+17.19	711.04	21+16.83	711.05
20+86.62	710.99	20+86.74	710.99
20+45.48	710.91	20+44.97	710.91
20+15.61	710.85	20+15.36	710.85
19+82.92	710.82	19+83.42	710.82
19+53.52	710.82	19+54.18	710.79
19+14.48	710.78	19+14.48	710.78
18+83.88	710.78	18+83.40	710.80

****EXISTING PROFILE GRADE
T/RAIL NB RR TRACK**

West Track		East Track	
Station	Elev.	Station	Elev.
21+16.20	711.26	21+15.76	711.25
20+86.26	711.25	20+85.96	711.23
20+44.62	711.23	20+44.71	711.21
20+15.64	711.22	20+15.53	711.20
19+84.01	711.21	19+83.65	711.21
19+54.15	711.21	19+54.26	711.20
19+14.22	711.23	19+13.87	711.21
18+83.97	711.26	18+84.11	711.24

** Information based on surveyed Top Of Rail Elevations.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A3	SQ YD		446	446
Filter Fabric	SQ YD		508	508
Concrete Removal	CU YD		76	76
Removal of Existing Concrete Deck No. 1	EACH	1		1
Removal of Existing Concrete Deck No. 2	EACH	1		1
Protective Shield	SQ YD	1,186		1,186
Structure Excavation	CU YD		486	486
Floor Drains	EACH	16		16
Concrete Structures	CU YD		176	176
Concrete Superstructures	CU YD	420		420
Bridge Deck Grooving	SQ YD	1,500		1,500
Protective Coat	SQ YD	1,968		1,968
Concrete Superstructure (Approach Slab)	CU YD	202		202
Furnishing & Erecting Structural Steel	POUND	8,090		8,090
Stud Shear Connectors	EACH	4,930		4,930
Reinforcement Bars, Epoxy Coated	POUND	154,310	20,220	174,530
Bar Splicers	EACH	128		128
Name Plates	EACH	2		2
Preformed Joint Strip Seal	FOOT	142		142
Elastometric Bearing Assembly, Type I	EACH	20		20
Anchor Bolts, 1"	EACH		80	80
Geocomposite Wall Drain	SQ YD		104	104
Granular Backfill for Structures	CU YD		210	210
Jack and Remove existing Bearings	EACH	20		20
Structural Steel Removal	POUND	3,480		3,480
Cleaning Bridge Seats	SQ FT		154	154
Structural Repair of Concrete (depth equal to or less than 5 inches)	SQ FT		13	13
Pipe Underdrains for Structures 4"	FOOT		240	240

INDEX OF SHEETS

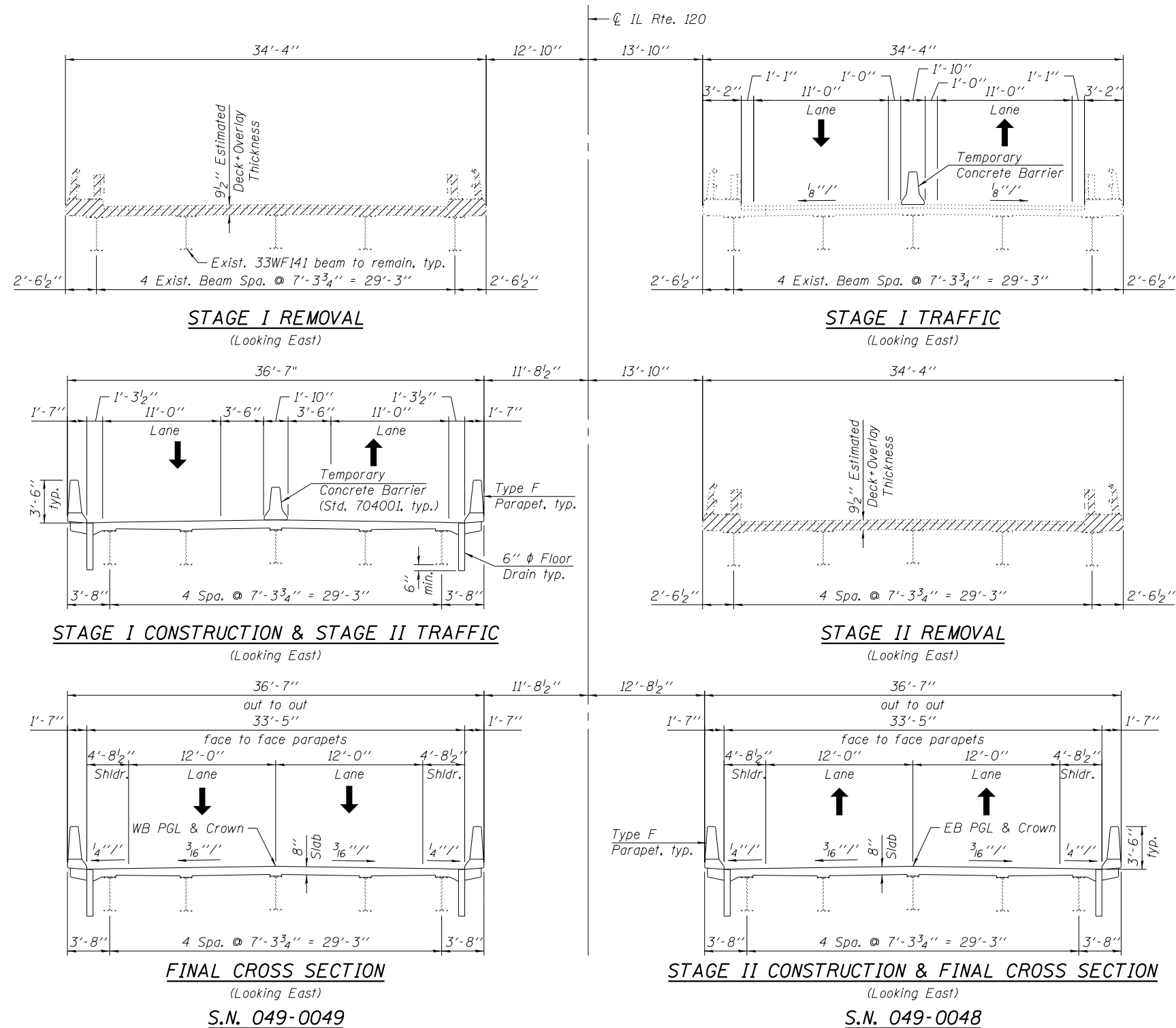
- S1 GENERAL PLAN & ELEVATION
- S2 GENERAL NOTES & TOTAL BILL OF MATERIAL
- S3 STAGE CONSTRUCTION DETAILS
- S4 TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
- S5 TOP OF DECK SLAB ELEVATIONS LAYOUT
- S6 TOP OF DECK SLAB ELEVATIONS I
- S7 TOP OF DECK SLAB ELEVATIONS II
- S8 TOP OF DECK SLAB ELEVATIONS III
- S9 TOP OF DECK SLAB ELEVATIONS IV
- S10 TOP OF APPROACH SLAB ELEVATIONS I
- S11 TOP OF APPROACH SLAB ELEVATIONS II
- S12 TOP OF APPROACH SLAB ELEVATIONS III
- S13 TOP OF APPROACH SLAB ELEVATION IV
- S14 DECK PLAN
- S15 DECK CROSS SECTION AND DETAILS
- S16 PARAPETS & DECK REINFORCING DETAILS
- S17 PREFORMED JOINT STRIP SEAL
- S18 APPROACH SLABS DETAILS I
- S19 APPROACH SLAB DETAILS II
- S20 FRAMING PLAN & DIAPHRAGM DETAILS
- S21 BEAM ELEVATION
- S22 EXPANSION BEARING & BOLSTER DETAILS
- S23 ABUTMENT REMOVAL
- S24 ABUTMENT DETAILS I
- S25 ABUTMENT DETAILS II
- S26 ABUTMENT UNDERDRAIN & RIPRAP SLOPE DETAILS
- S27 PIER REPAIR I
- S28 PIER REPAIR II
- S29 PIER REPAIR III
- S30 PIER REPAIR IV
- S31 BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS

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* 12(VB-1&2)&12R-1(B)&12R-2(S)			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

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S.N. 049-0049

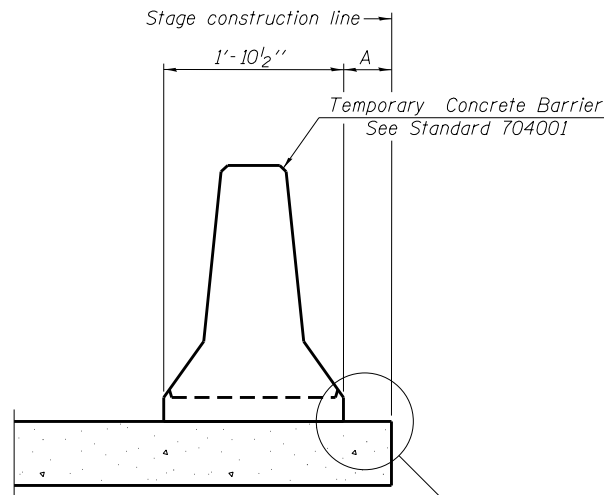
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NOTES

- See roadway plans for quantity of temporary concrete barrier.

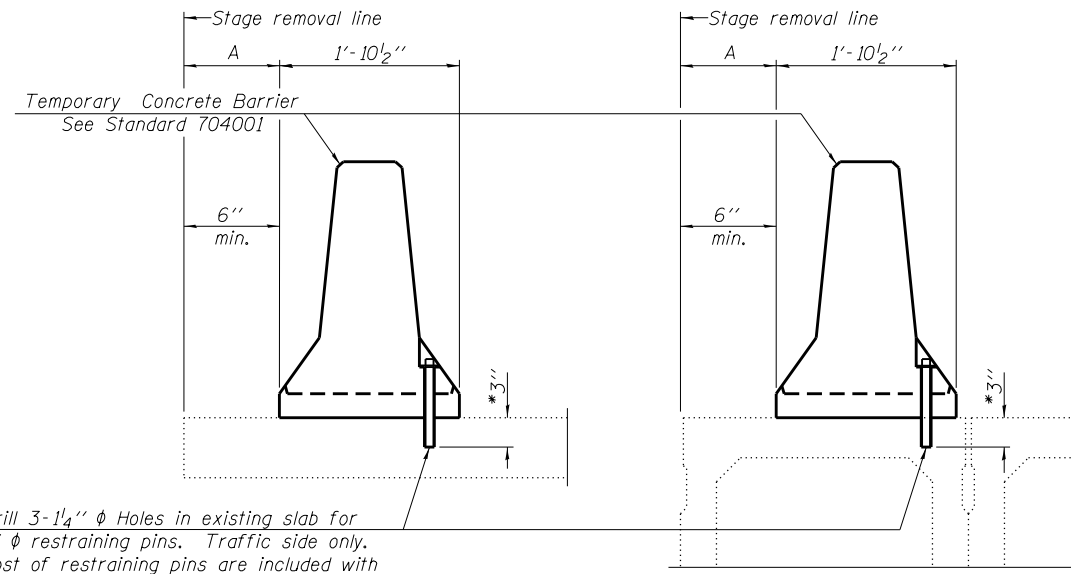
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333	*	LAKE	288	124
* 12(IVB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				



When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1". See Detail I, II or III

NEW SLAB OR NEW DECK BEAM



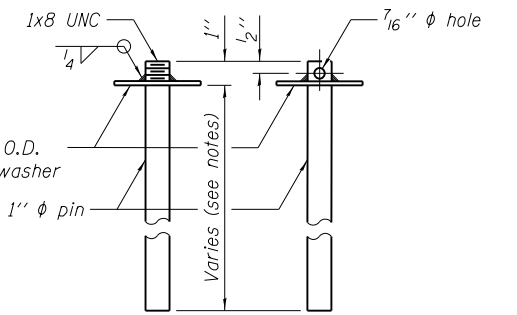
Drill 3-1/4" ϕ Holes in existing slab for 1" ϕ restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING SLAB

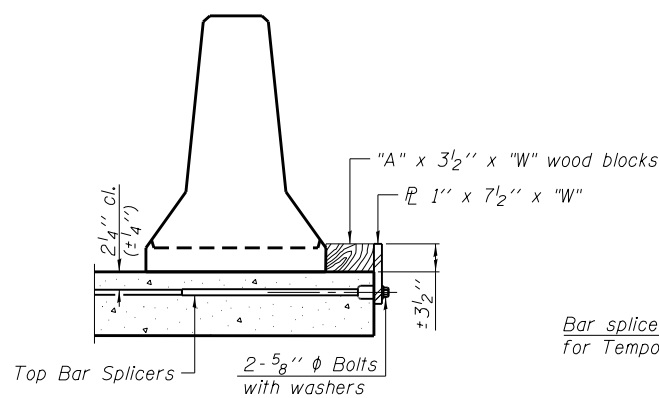
EXISTING DECK BEAM

SECTIONS THRU SLAB OR DECK BEAM

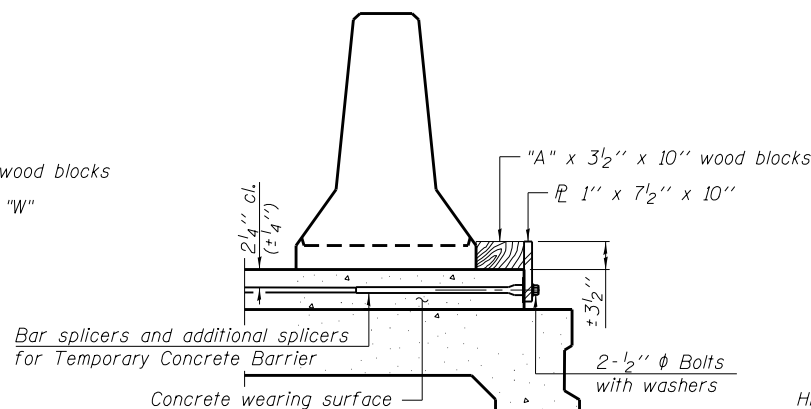


US Std. 1/16" I.D. x 2 1/2" O.D. x approx. 8 gauge thick washer

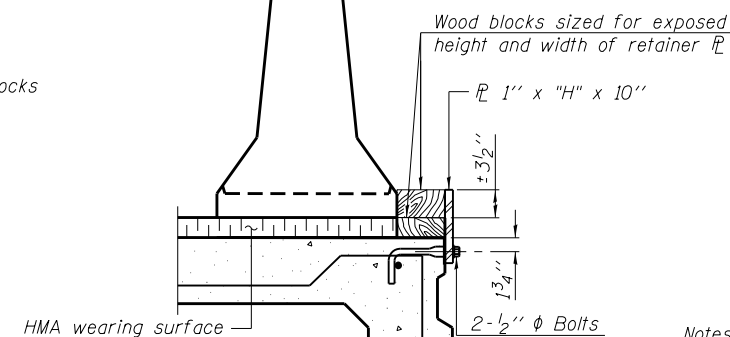
RESTRAINING PIN



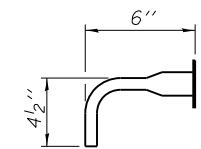
DETAIL I



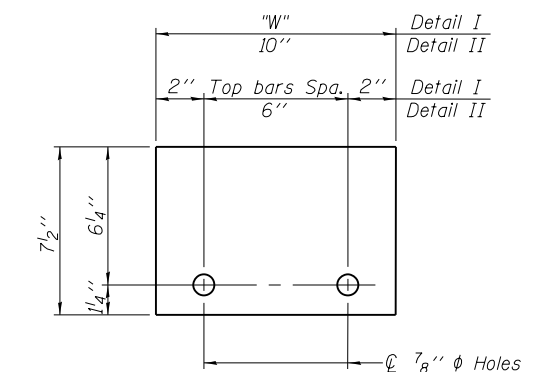
DETAIL II



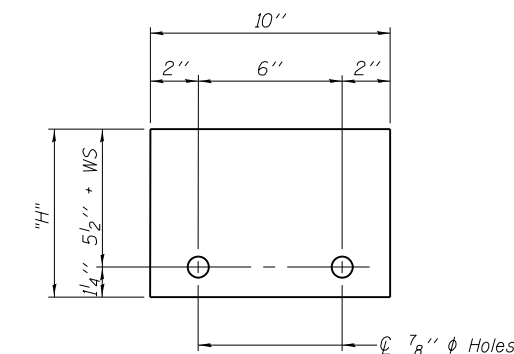
DETAIL III



BAR SPLICER FOR #4 BAR - DETAIL III



STEEL RETAINER 1" x 7 1/2" x "W"
(Detail I and II)



STEEL RETAINER 1" x "H" x 10"
(Detail III)

Notes:
 Cost of retainer assembly is included with Temporary Concrete Barrier.
 A retainer assembly shall be located at the approximate ϕ of each temporary concrete barrier.
 The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.
 When the 'A' dimension is less than 1'2", the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6" to accommodate the shear key clamping device.

Detail I - Installation for a new bridge deck or bridge slab.
 Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.
 Detail III - Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.

R-27

11-22-2016

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GR&E
 8501 W. Higgins Road, Suite 280
 Chicago, Illinois 60631 (773) 399-0112

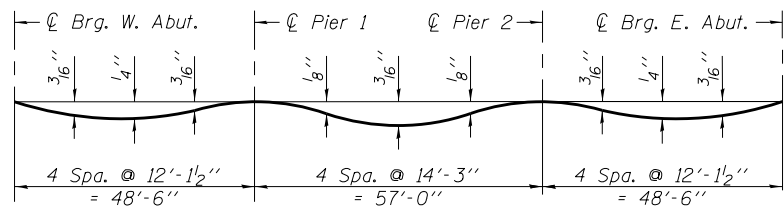
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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
 S.N. 049-0048 & S.N. 049-0049**

SHEET NO. S04 OF 37 SHEETS

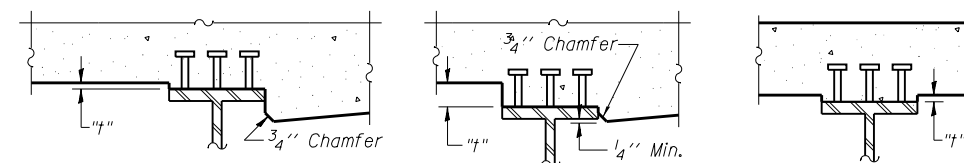
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333	*	LAKE	288	125
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on Sheets S6 thru S9.

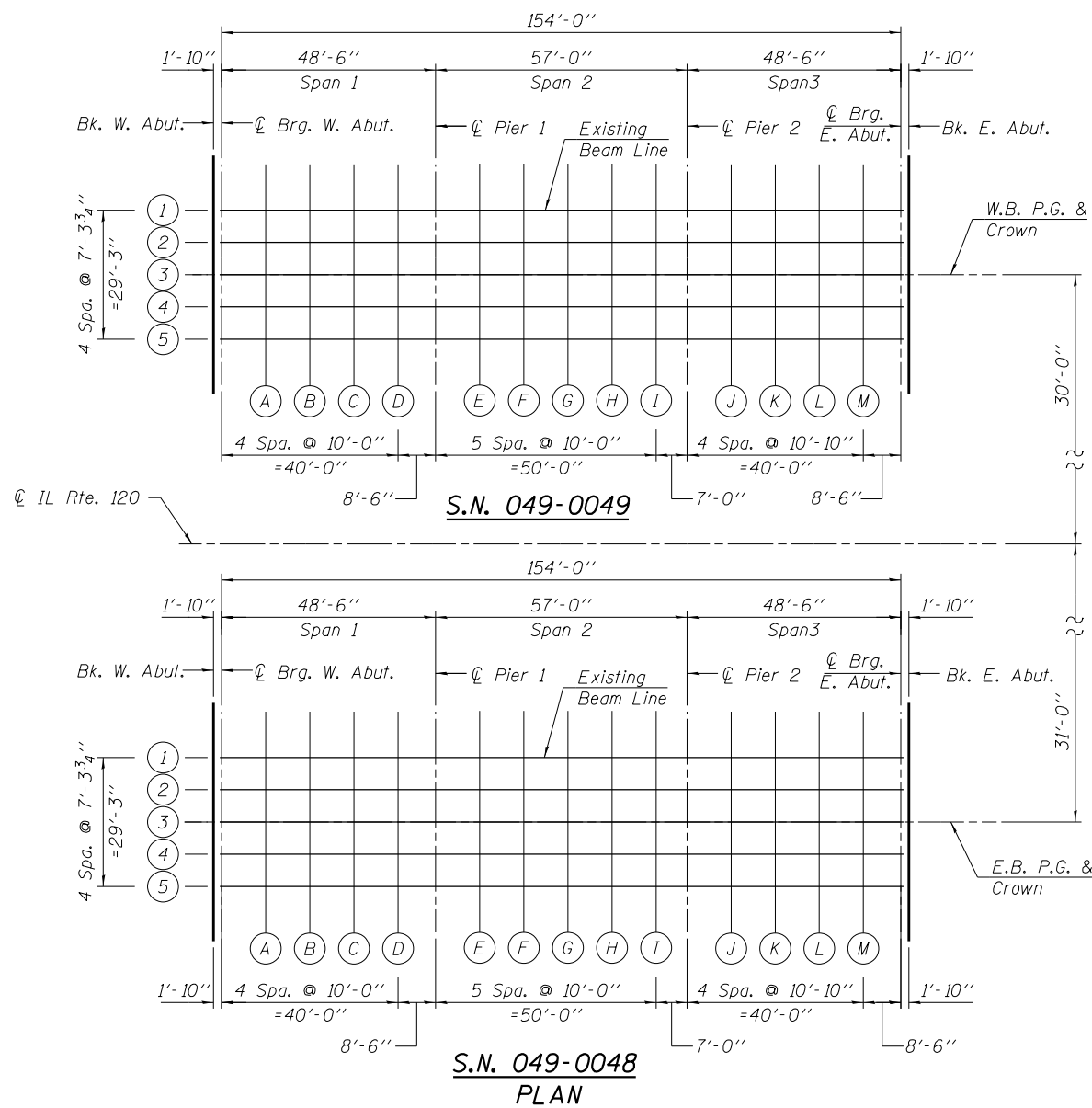


EXTERIOR BEAMS

INTERIOR BEAMS

To determine "t": After all structural steel has been erected, elevations of the top flanges of the girder shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on Sheets S6 thru S9, minus slab thickness, equals the fillet heights "t" above top flange of girder.

FILLET HEIGHTS



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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	126
* 121VB-1&2&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

BEAM 1

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+17.18	16.38	736.49	736.49
CL. BRG. W. ABUT.	461+19.01	16.38	736.50	736.50
A	461+29.01	16.38	736.54	736.56
B	461+39.01	16.38	736.58	736.60
C	461+49.01	16.38	736.61	736.64
D	461+59.01	16.38	736.64	736.65
CL. BRG. PIER 1	461+67.51	16.38	736.66	736.66
E	461+77.51	16.38	736.67	736.67
F	461+87.51	16.38	736.68	736.69
G	461+97.51	16.38	736.67	736.69
H	462+07.51	16.38	736.67	736.68
I	462+17.51	16.38	736.65	736.66
CL. BRG. PIER 2	462+24.51	16.38	736.64	736.64
J	462+34.51	16.38	736.61	736.62
K	462+44.51	16.38	736.58	736.60
L	462+54.51	16.38	736.54	736.56
M	462+64.51	16.38	736.50	736.51
CL. BRG. E. ABUT.	462+73.01	16.38	736.45	736.45
BK. E. Abut.	462+74.84	16.38	736.44	736.44

BEAM 2

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+17.18	23.69	736.62	736.62
CL. BRG. W. ABUT.	461+19.01	23.69	736.63	736.63
A	461+29.01	23.69	736.67	736.69
B	461+39.01	23.69	736.71	736.73
C	461+49.01	23.69	736.74	736.76
D	461+59.01	23.69	736.77	736.78
CL. BRG. PIER 1	461+67.51	23.69	736.78	736.78
E	461+77.51	23.69	736.80	736.80
F	461+87.51	23.69	736.80	736.82
G	461+97.51	23.69	736.80	736.82
H	462+07.51	23.69	736.80	736.81
I	462+17.51	23.69	736.78	736.79
CL. BRG. PIER 2	462+24.51	23.69	736.77	736.77
J	462+34.51	23.69	736.74	736.75
K	462+44.51	23.69	736.71	736.72
L	462+54.51	23.69	736.67	736.69
M	462+64.51	23.69	736.62	736.64
CL. BRG. E. ABUT.	462+73.01	23.69	736.58	736.58
BK. E. Abut.	462+74.84	23.69	736.57	736.57

CL ROADWAY, PROFILE GRADE LINE & BEAM 3

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+17.18	31.00	736.73	736.73
CL. BRG. W. ABUT.	461+19.01	31.00	736.74	736.74
A	461+29.01	31.00	736.79	736.80
B	461+39.01	31.00	736.82	736.85
C	461+49.01	31.00	736.86	736.88
D	461+59.01	31.00	736.88	736.89
CL. BRG. PIER 1	461+67.51	31.00	736.90	736.90
E	461+77.51	31.00	736.91	736.92
F	461+87.51	31.00	736.92	736.93
G	461+97.51	31.00	736.92	736.93
H	462+07.51	31.00	736.91	736.92
I	462+17.51	31.00	736.90	736.90
CL. BRG. PIER 2	462+24.51	31.00	736.88	736.88
J	462+34.51	31.00	736.86	736.86
K	462+44.51	31.00	736.82	736.84
L	462+54.51	31.00	736.78	736.80
M	462+64.51	31.00	736.74	736.75
CL. BRG. E. ABUT.	462+73.01	31.00	736.70	736.70
BK. E. Abut.	462+74.84	31.00	736.69	736.69

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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TOP OF DECK SLAB ELEVATIONS I
S.N. 049-0048**

SHEET NO. S06 OF 37 SHEETS

F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 127
* 121VB-1&2&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

BEAM 4

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+17.18	38.31	736.62	736.62
CL. BRG. W. ABUT.	461+19.01	38.31	736.63	736.63
A	461+29.01	38.31	736.67	736.69
B	461+39.01	38.31	736.71	736.73
C	461+49.01	38.31	736.74	736.76
D	461+59.01	38.31	736.77	736.78
CL. BRG. PIER 1	461+67.51	38.31	736.78	736.78
E	461+77.51	38.31	736.80	736.80
F	461+87.51	38.31	736.80	736.82
G	461+97.51	38.31	736.80	736.82
H	462+07.51	38.31	736.80	736.81
I	462+17.51	38.31	736.78	736.79
CL. BRG. PIER 2	462+24.51	38.31	736.77	736.77
J	462+34.51	38.31	736.74	736.75
K	462+44.51	38.31	736.71	736.72
L	462+54.51	38.31	736.67	736.69
M	462+64.51	38.31	736.62	736.64
CL. BRG. E. ABUT.	462+73.01	38.31	736.58	736.58
BK. E. Abut.	462+74.84	38.31	736.57	736.57

BEAM 5

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+17.18	45.63	736.49	736.49
CL. BRG. W. ABUT.	461+19.01	45.63	736.50	736.50
A	461+29.01	45.63	736.54	736.56
B	461+39.01	45.63	736.58	736.60
C	461+49.01	45.63	736.61	736.64
D	461+59.01	45.63	736.64	736.65
CL. BRG. PIER 1	461+67.51	45.63	736.66	736.66
E	461+77.51	45.63	736.67	736.67
F	461+87.51	45.63	736.68	736.69
G	461+97.51	45.63	736.67	736.69
H	462+07.51	45.63	736.67	736.68
I	462+17.51	45.63	736.65	736.66
CL. BRG. PIER 2	462+24.51	45.63	736.64	736.64
J	462+34.51	45.63	736.61	736.62
K	462+44.51	45.63	736.58	736.60
L	462+54.51	45.63	736.54	736.56
M	462+64.51	45.63	736.50	736.51
CL. BRG. E. ABUT.	462+73.01	45.63	736.45	736.45
BK. E. Abut.	462+74.84	45.63	736.44	736.44

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BEAM 1

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+18.16	-44.63	736.53	736.53
CL. BRG. W. ABUT.	461+19.99	-44.63	736.54	736.54
A	461+29.99	-44.63	736.58	736.59
B	461+39.99	-44.63	736.61	736.64
C	461+49.99	-44.63	736.64	736.66
D	461+59.99	-44.63	736.67	736.68
CL. BRG. PIER 1	461+68.49	-44.63	736.68	736.68
E	461+78.49	-44.63	736.69	736.69
F	461+88.49	-44.63	736.69	736.71
G	461+98.49	-44.63	736.69	736.71
H	462+08.49	-44.63	736.68	736.69
I	462+18.49	-44.63	736.66	736.67
CL. BRG. PIER 2	462+25.49	-44.63	736.65	736.65
J	462+35.49	-44.63	736.62	736.63
K	462+45.49	-44.63	736.59	736.60
L	462+55.49	-44.63	736.55	736.57
M	462+65.49	-44.63	736.50	736.51
CL. BRG. E. ABUT.	462+73.99	-44.63	736.46	736.46
BK. E. Abut.	462+75.82	-44.63	736.45	736.45

BEAM 2

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+18.16	-37.31	736.66	736.66
CL. BRG. W. ABUT.	461+19.99	-37.31	736.67	736.67
A	461+29.99	-37.31	736.71	736.72
B	461+39.99	-37.31	736.74	736.76
C	461+49.99	-37.31	736.77	736.79
D	461+59.99	-37.31	736.79	736.81
CL. BRG. PIER 1	461+68.49	-37.31	736.81	736.81
E	461+78.49	-37.31	736.82	736.82
F	461+88.49	-37.31	736.82	736.83
G	461+98.49	-37.31	736.82	736.83
H	462+08.49	-37.31	736.81	736.82
I	462+18.49	-37.31	736.79	736.80
CL. BRG. PIER 2	462+25.49	-37.31	736.78	736.78
J	462+35.49	-37.31	736.75	736.75
K	462+45.49	-37.31	736.72	736.73
L	462+55.49	-37.31	736.67	736.70
M	462+65.49	-37.31	736.63	736.64
CL. BRG. E. ABUT.	462+73.99	-37.31	736.59	736.59
BK. E. Abut.	462+75.82	-37.31	736.58	736.58

CL ROADWAY, PROFILE GRADE LINE & BEAM 3

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+18.16	-30.00	736.77	736.77
CL. BRG. W. ABUT.	461+19.99	-30.00	736.78	736.78
A	461+29.99	-30.00	736.82	736.84
B	461+39.99	-30.00	736.86	736.88
C	461+49.99	-30.00	736.89	736.91
D	461+59.99	-30.00	736.91	736.92
CL. BRG. PIER 1	461+68.49	-30.00	736.92	736.92
E	461+78.49	-30.00	736.93	736.94
F	461+88.49	-30.00	736.94	736.95
G	461+98.49	-30.00	736.93	736.95
H	462+08.49	-30.00	736.92	736.94
I	462+18.49	-30.00	736.91	736.91
CL. BRG. PIER 2	462+25.49	-30.00	736.89	736.89
J	462+35.49	-30.00	736.86	736.87
K	462+45.49	-30.00	736.83	736.84
L	462+55.49	-30.00	736.79	736.81
M	462+65.49	-30.00	736.74	736.76
CL. BRG. E. ABUT.	462+73.99	-30.00	736.70	736.70
BK. E. Abut.	462+75.82	-30.00	736.69	736.69

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	129
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

BEAM 4

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+18.16	-22.69	736.66	736.66
CL. BRG. W. ABUT.	461+19.99	-22.69	736.67	736.67
A	461+29.99	-22.69	736.71	736.72
B	461+39.99	-22.69	736.74	736.76
C	461+49.99	-22.69	736.77	736.79
D	461+59.99	-22.69	736.79	736.81
CL. BRG. PIER 1	461+68.49	-22.69	736.81	736.81
E	461+78.49	-22.69	736.82	736.82
F	461+88.49	-22.69	736.82	736.83
G	461+98.49	-22.69	736.82	736.83
H	462+08.49	-22.69	736.81	736.82
I	462+18.49	-22.69	736.79	736.80
CL. BRG. PIER 2	462+25.49	-22.69	736.78	736.78
J	462+35.49	-22.69	736.75	736.75
K	462+45.49	-22.69	736.72	736.73
L	462+55.49	-22.69	736.67	736.70
M	462+65.49	-22.69	736.63	736.64
CL. BRG. E. ABUT.	462+73.99	-22.69	736.59	736.59
BK. E. Abut.	462+75.82	-22.69	736.58	736.58

BEAM 5

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	461+18.16	-15.38	736.53	736.53
CL. BRG. W. ABUT.	461+19.99	-15.38	736.54	736.54
A	461+29.99	-15.38	736.58	736.59
B	461+39.99	-15.38	736.61	736.64
C	461+49.99	-15.38	736.64	736.66
D	461+59.99	-15.38	736.67	736.68
CL. BRG. PIER 1	461+68.49	-15.38	736.68	736.68
E	461+78.49	-15.38	736.69	736.69
F	461+88.49	-15.38	736.69	736.71
G	461+98.49	-15.38	736.69	736.71
H	462+08.49	-15.38	736.68	736.69
I	462+18.49	-15.38	736.66	736.67
CL. BRG. PIER 2	462+25.49	-15.38	736.65	736.65
J	462+35.49	-15.38	736.62	736.63
K	462+45.49	-15.38	736.59	736.60
L	462+55.49	-15.38	736.55	736.57
M	462+65.49	-15.38	736.50	736.51
CL. BRG. E. ABUT.	462+73.99	-15.38	736.46	736.46
BK. E. Abut.	462+75.82	-15.38	736.45	736.45

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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TOP OF DECK SLAB ELEVATIONS IV
S.N. 049-0049**

SHEET NO. S09 OF 37 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	130
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

NORTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+87.18	13.88	736.26
A1	460+97.18	13.88	736.32
A2	461+07.18	14.29	736.39
E. End West Appr. Pav't	461+17.18	14.29	736.44

NORTH EDGE OF LINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+87.18	19.00	736.36
A1	460+97.18	19.00	736.43
A2	461+07.18	19.00	736.49
E. End West Appr. Pav't	461+17.18	19.00	736.54

CL ROADWAY AND PROFILE GRADE LINE

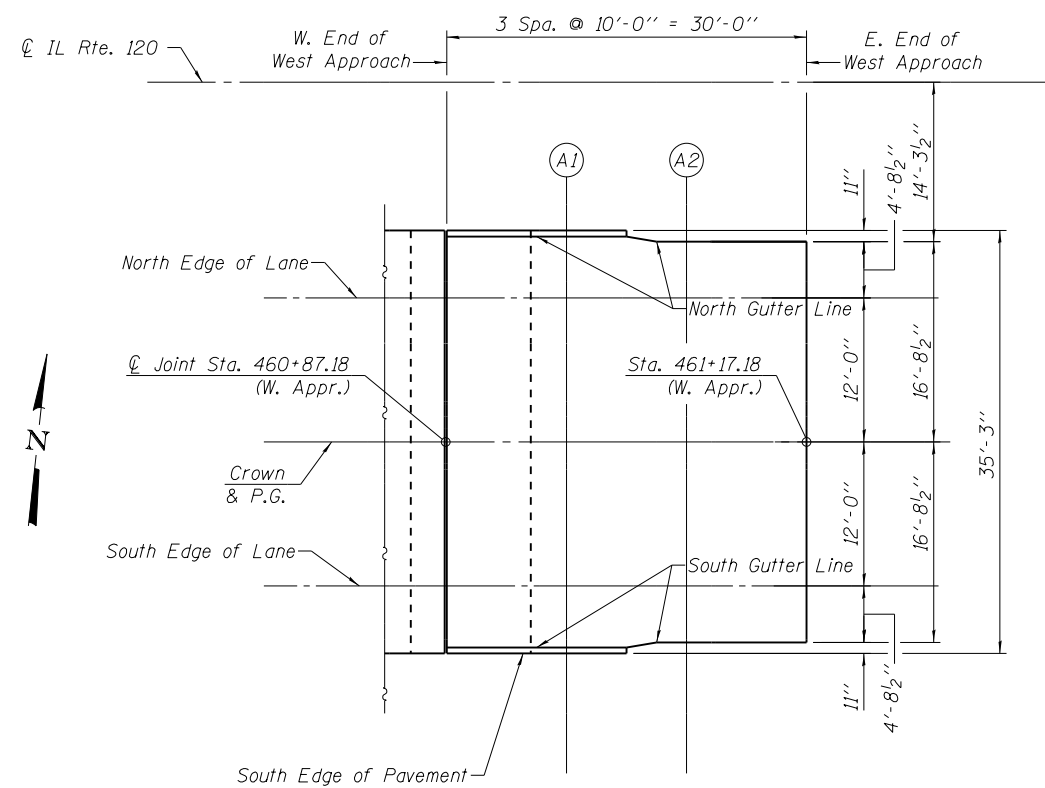
Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+87.18	31.00	736.55
A1	460+97.18	31.00	736.62
A2	461+07.18	31.00	736.68
E. End West Appr. Pav't	461+17.18	31.00	736.73

SOUTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+87.18	43.00	736.36
A1	460+97.18	43.00	736.43
A2	461+07.18	43.00	736.49
E. End West Appr. Pav't	461+17.18	43.00	736.54

SOUTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+87.18	48.13	736.26
A1	460+97.18	48.13	736.32
A2	461+07.18	47.71	736.39
E. End West Appr. Pav't	461+17.18	47.71	736.44



WEST APPROACH PLAN

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	131
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

NORTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+74.84	14.29	736.40
A3	462+84.84	14.29	736.35
A4	462+94.84	13.88	736.29
E. End East Appr. Pav't	463+04.84	13.88	736.24

NORTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+74.84	19.00	736.50
A3	462+84.84	19.00	736.45
A4	462+94.84	19.00	736.40
E. End East Appr. Pav't	463+04.84	19.00	736.35

CL ROADWAY AND PROFILE GRADE LINE

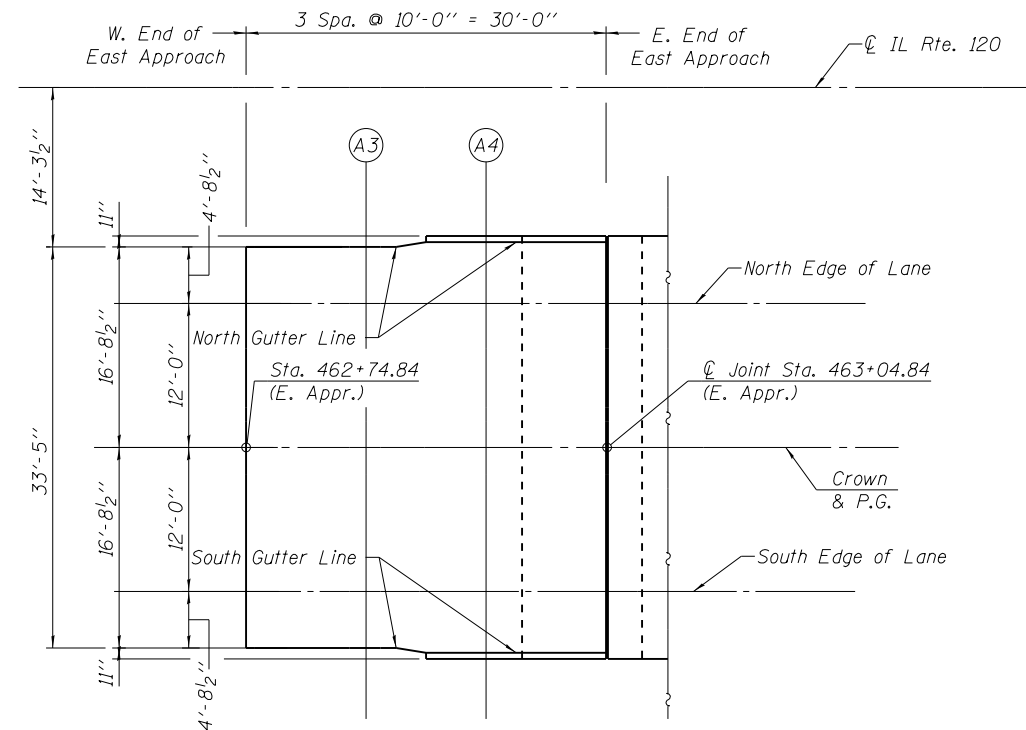
Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+74.84	31.00	736.69
A3	462+84.84	31.00	736.63
A4	462+94.84	31.00	736.58
E. End East Appr. Pav't	463+04.84	31.00	736.53

SOUTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+74.84	43.00	736.50
A3	462+84.84	43.00	736.45
A4	462+94.84	43.00	736.40
E. End East Appr. Pav't	463+04.84	43.00	736.35

SOUTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+74.84	47.71	736.40
A3	462+84.84	47.71	736.35
A4	462+94.84	48.13	736.29
E. End East Appr. Pav't	463+04.84	48.13	736.24



EAST APPROACH PLAN

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	132
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

NORTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+88.16	-47.13	736.31
A1	460+98.16	-47.13	736.37
A2	461+08.16	-46.71	736.44
E. End West Appr. Pav't	461+18.16	-46.71	736.49

NORTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+88.16	-42.00	736.42
A1	460+98.16	-42.00	736.48
A2	461+08.16	-42.00	736.53
E. End West Appr. Pav't	461+18.16	-42.00	736.58

CL ROADWAY AND PROFILE GRADE LINE

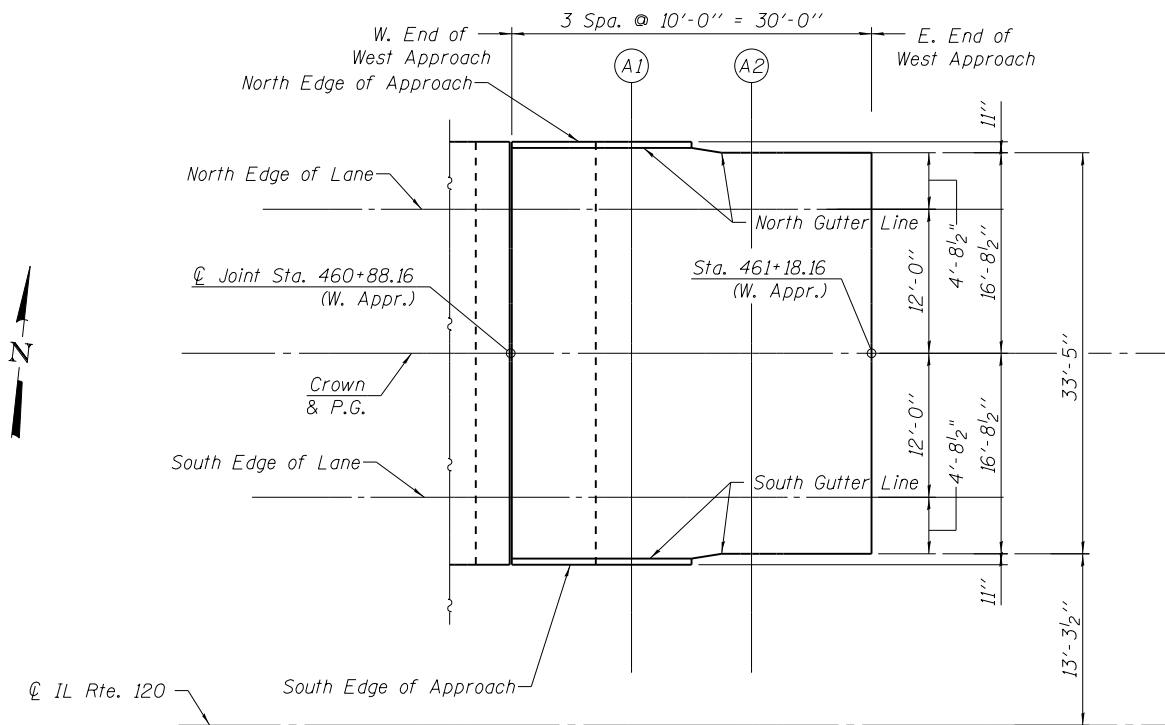
Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+88.16	-30.00	736.60
A1	460+98.16	-30.00	736.67
A2	461+08.16	-30.00	736.72
E. End West Appr. Pav't	461+18.16	-30.00	736.77

SOUTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+88.16	-18.00	736.42
A1	460+98.16	-18.00	736.48
A2	461+08.16	-18.00	736.53
E. End West Appr. Pav't	461+18.16	-18.00	736.58

SOUTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	460+88.16	-12.88	736.31
A1	460+98.16	-12.88	736.37
A2	461+08.16	-13.29	736.44
E. End West Appr. Pav't	461+18.16	-13.29	736.49



WEST APPROACH PLAN

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	133
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

NORTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+75.82	-46.71	736.41
A3	462+85.82	-46.71	736.36
A4	462+95.82	-47.13	736.30
E. End East Appr. Pav't	463+05.82	-47.13	736.25

NORTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+75.82	-42.00	736.50
A3	462+85.82	-42.00	736.45
A4	462+95.82	-42.00	736.40
E. End East Appr. Pav't	463+05.82	-42.00	736.35

CL ROADWAY AND PROFILE GRADE LINE

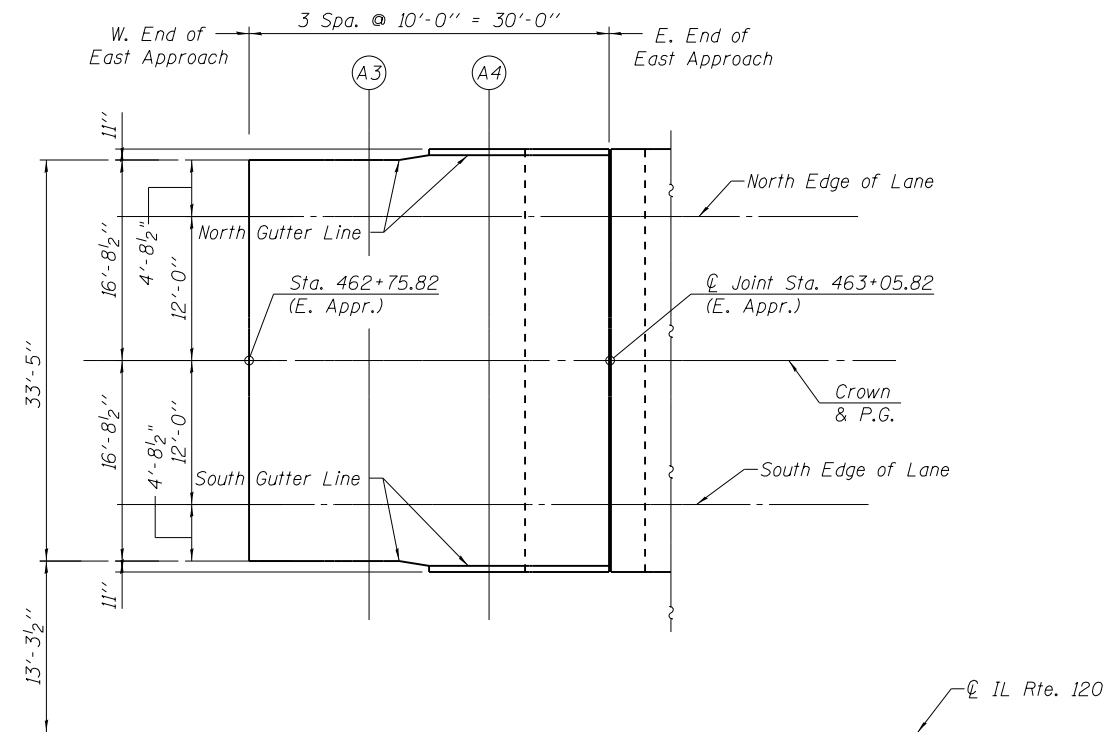
Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+75.82	-30.00	736.69
A3	462+85.82	-30.00	736.64
A4	462+95.82	-30.00	736.59
E. End East Appr. Pav't	463+05.82	-30.00	736.54

SOUTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+75.82	-18.00	736.50
A3	462+85.82	-18.00	736.45
A4	462+95.82	-18.00	736.40
E. End East Appr. Pav't	463+05.82	-18.00	736.35

SOUTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	462+75.82	-13.29	736.41
A3	462+85.82	-13.29	736.36
A4	462+95.82	-12.88	736.30
E. End East Appr. Pav't	463+05.82	-12.88	736.25

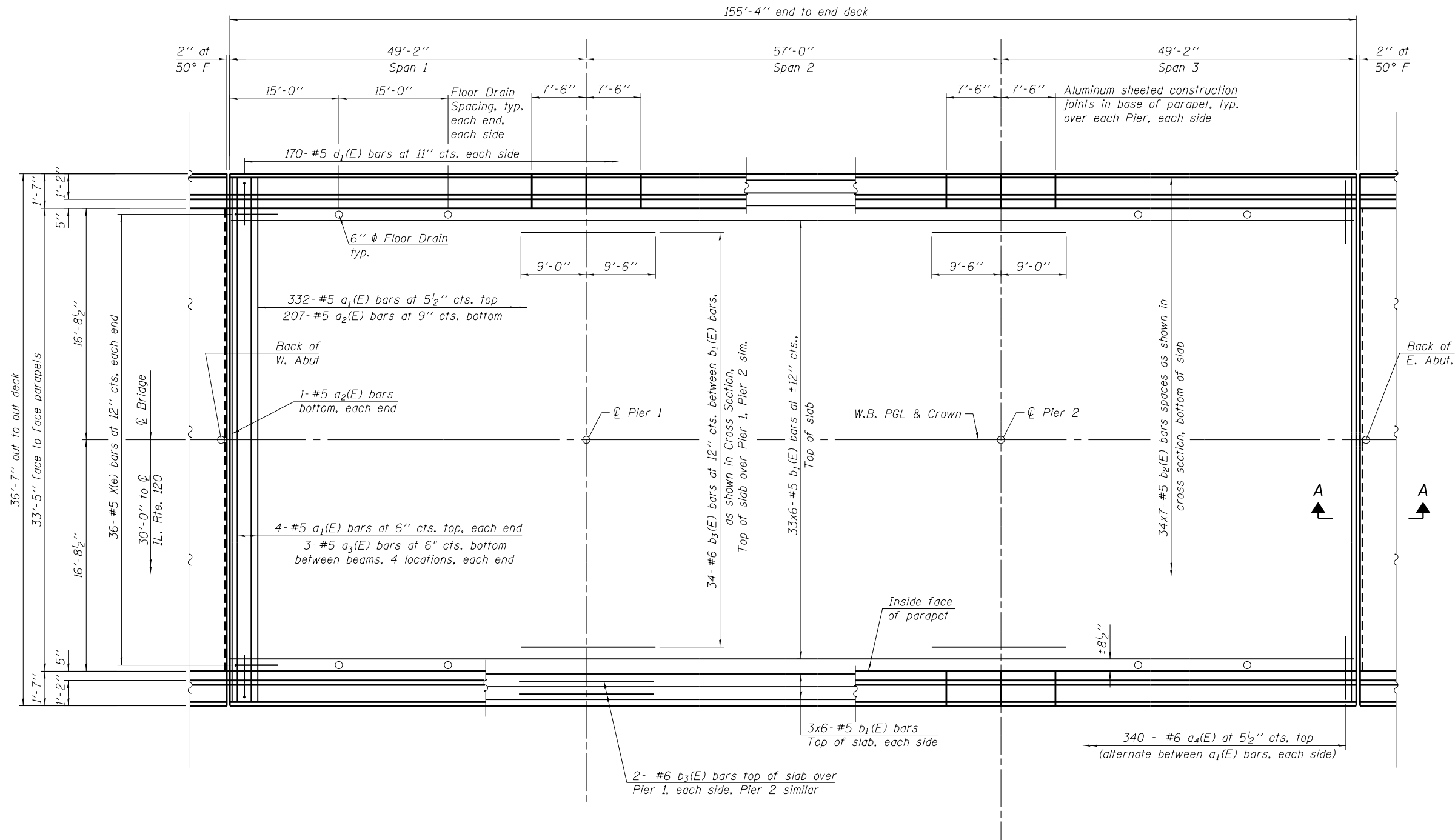


EAST APPROACH PLAN

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	134
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



DECK PLAN

(W.B. shown, E.B. similar)

NOTES

1. Work this sheet with sheets S15 thru S17.
2. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
3. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Base Sheet EJ-SSJ.

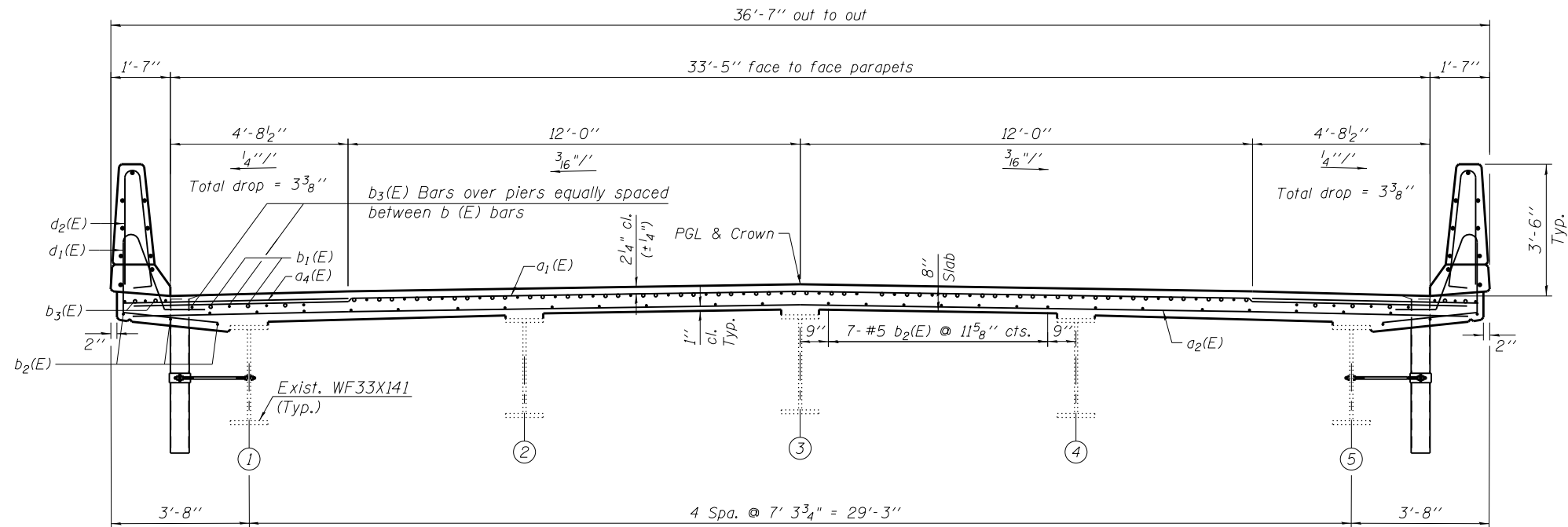
MINIMUM BAR LAP

#5 bar = 3'-6"

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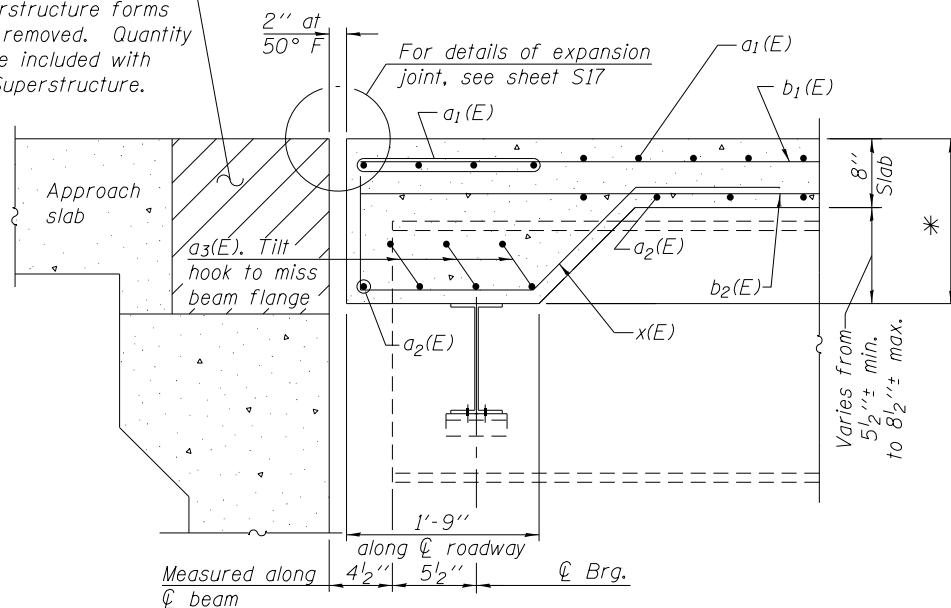
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	CHECKED - NDR	REVISED -
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	135
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



CROSS SECTION (STAGE I & STAGE II CONSTRUCTION)
(Looking East)

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



SECTION A-A
(Proposed diaphragm shown, Existing diaphragm to remain similar)

*** S.N. 049-0048**

Varies from 1'-1 1/2" to 1'-4 3/8" at West Abutment

Varies from 1'-1 1/2" to 1'-4 1/2" at East Abutment

*** S.N. 049-0049**

Varies from 1'-2" to 1'-4 7/8" at West Abutment

Varies from 1'-1 5/8" to 1'-4 1/2" at East Abutment

NOTES

1. Work this sheet with Sheets S14, S16 and S17.

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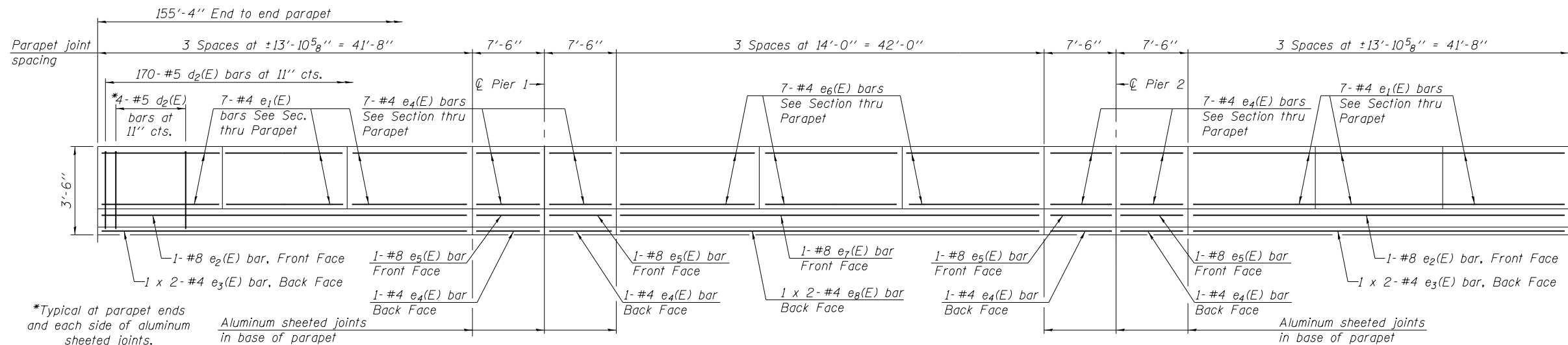
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	136
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

SN 049-0048 & SN 049-0049
SUPERSTRUCTURE
BILL OF MATERIAL

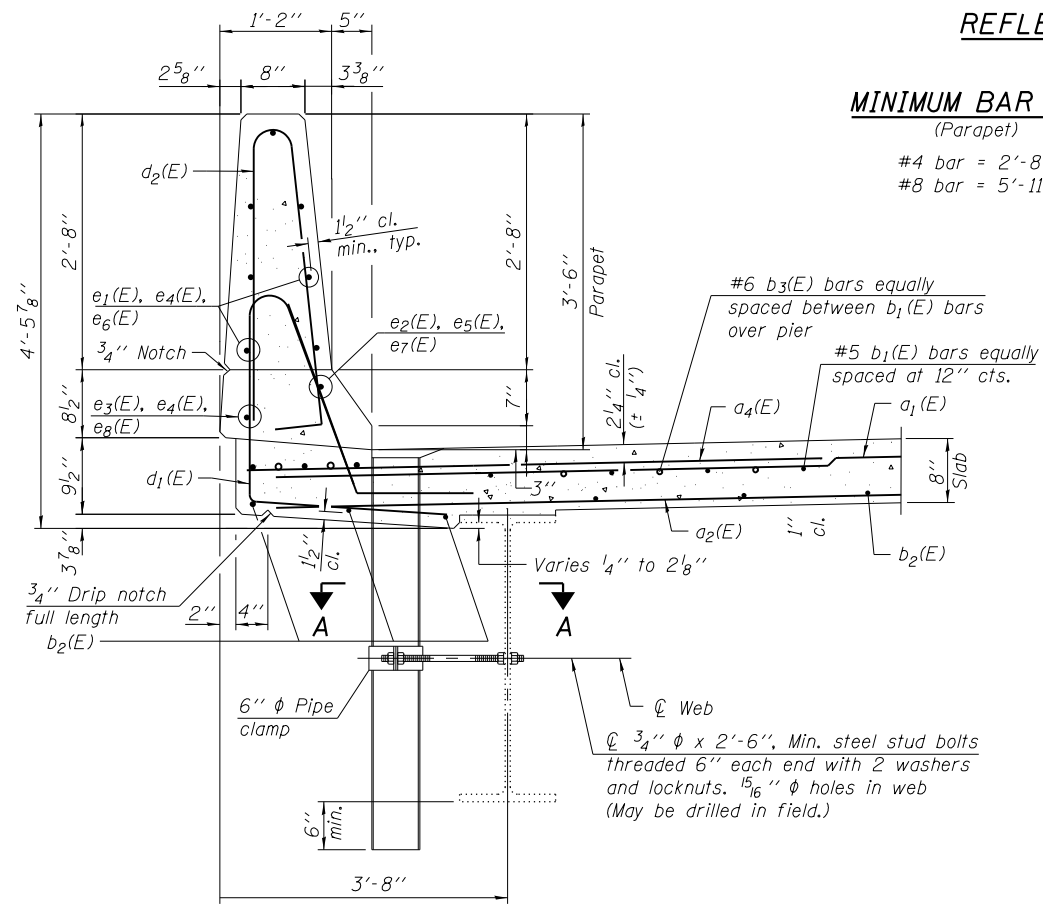
Bar	No.	Size	Length	Shape
a1(E)	680	#5	35'-11"	—
a2(E)	418	#5	35'-3"	—
a3(E)	48	#5	8'-2"	⌋
a4(E)	1,360	#6	6'-6"	—
b1(E)	468	#5	28'-9"	—
b2(E)	476	#5	25'-2"	—
b3(E)	152	#6	18'-6"	—
d1(E)	680	#5	8'-4"	⌋
d2(E)	904	#5	6'-10"	⌋
e1(E)	168	#4	13'-7"	—
e2(E)	8	#8	41'-4"	—
e3(E)	16	#4	22'-0"	—
e4(E)	128	#4	7'-2"	—
e5(E)	16	#8	7'-2"	—
e6(E)	84	#4	13'-8"	—
e7(E)	4	#8	41'-8"	—
e8(E)	8	#4	22'-2"	—
x(E)	144	#5	6'-5"	⌋
Concrete Superstructure		Cu. Yd.	420.0	
Bridge Deck Grooving		Sq. Yd.	1,084	
Protective Coat		Sq. Yd.	1,454	
Reinforcement Bars, Epoxy Coated		Pound	103,490	

Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line.



INSIDE ELEVATION OF NORTH PARAPET
REFLECTED INSIDE ELEVATION OF SOUTH PARAPET

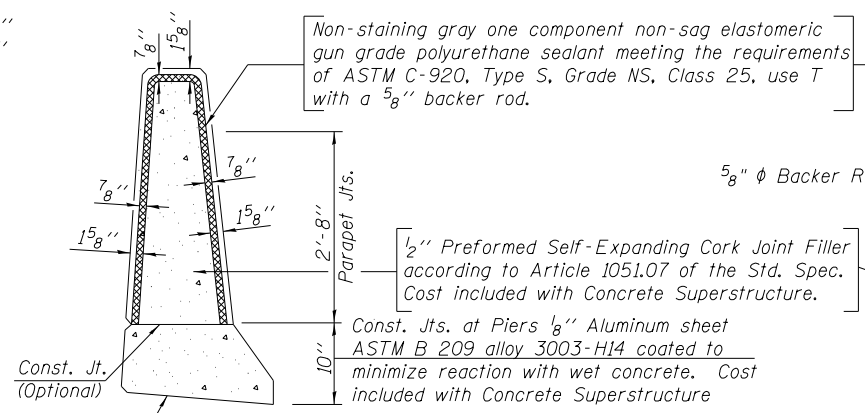
MINIMUM BAR LAP
 (Parapet)
 #4 bar = 2'-8"
 #8 bar = 5'-11"



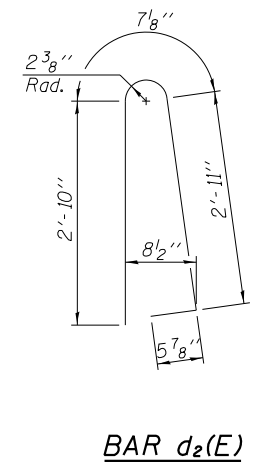
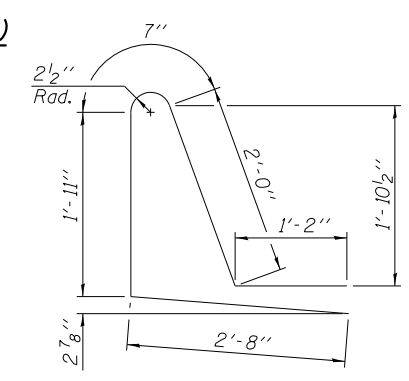
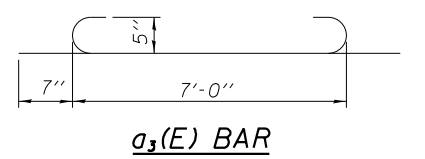
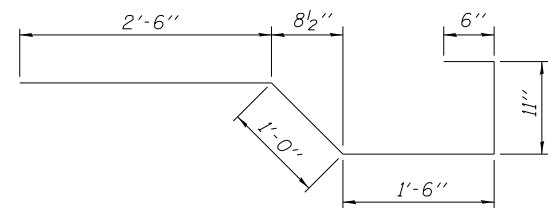
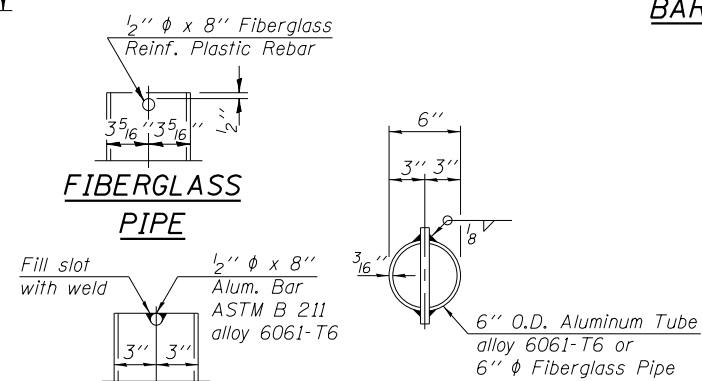
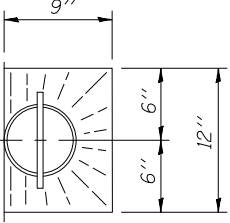
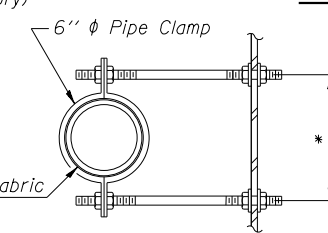
SECTION THRU PARAPET

NOTES

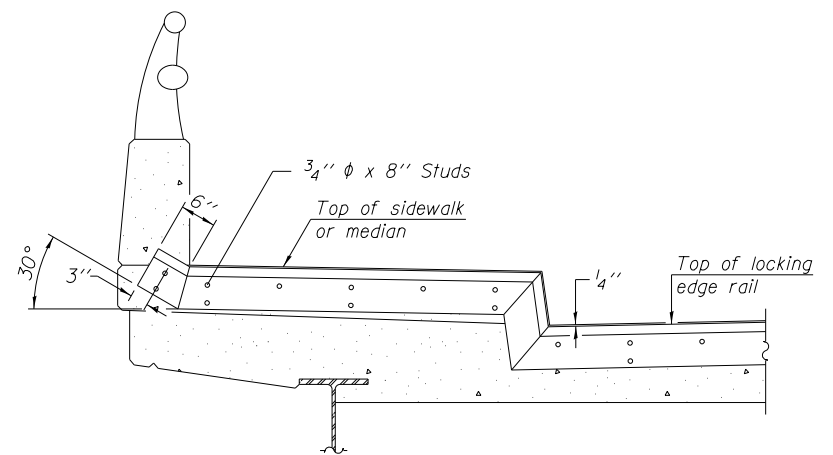
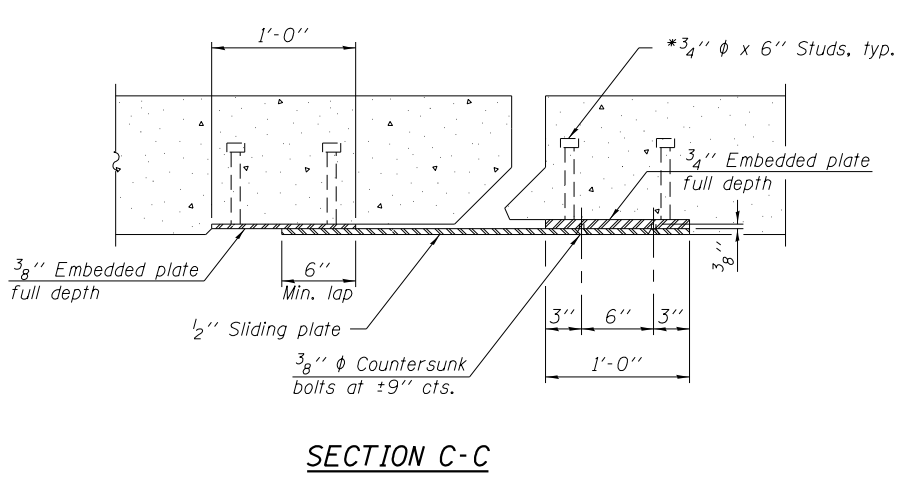
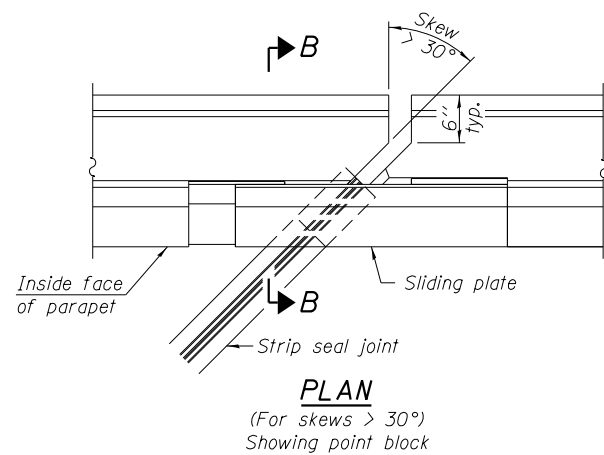
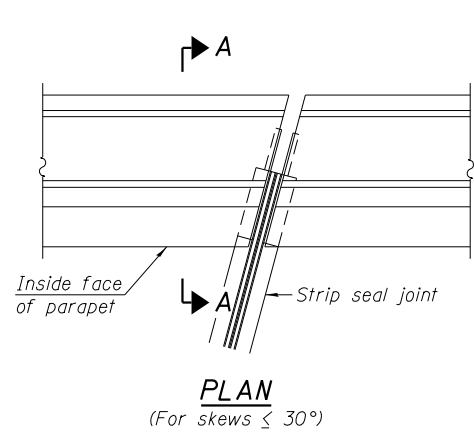
- Floor drains need not be painted.
- Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.
- Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.



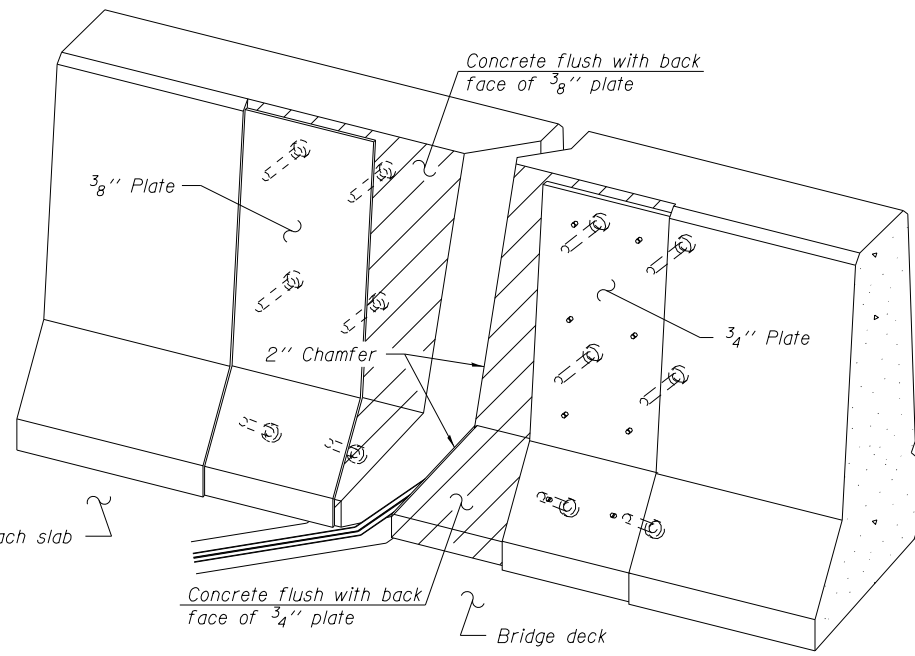
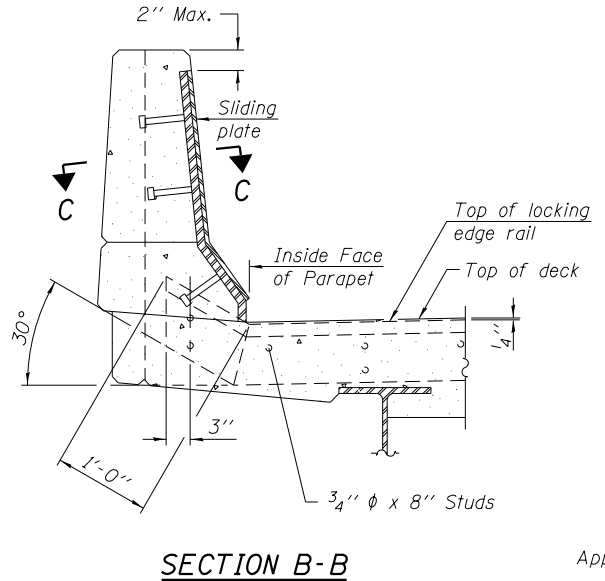
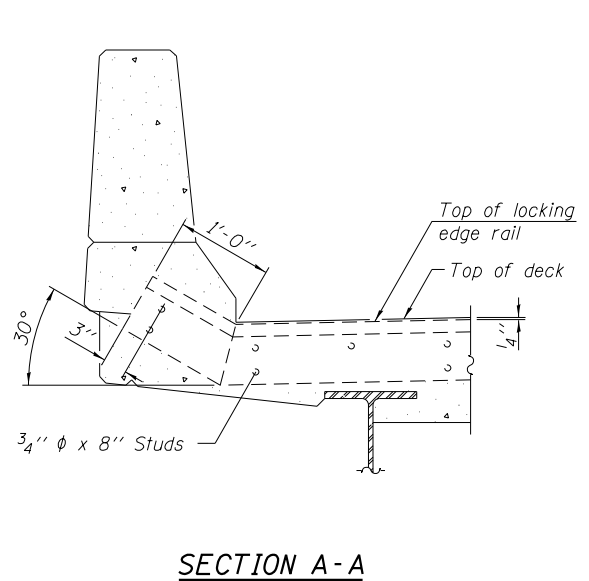
PARAPET JOINT DETAILS



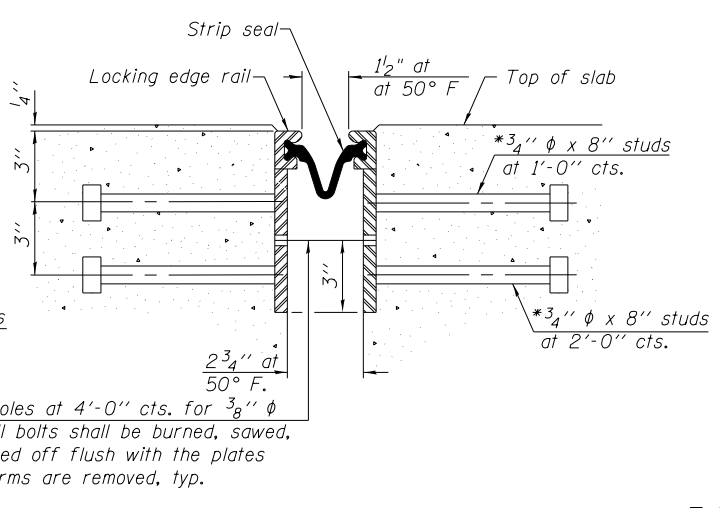
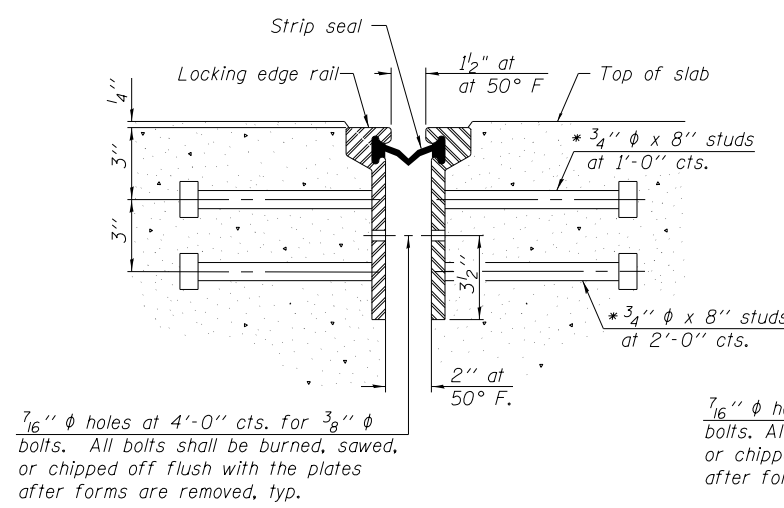
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Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.



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. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.
The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. 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.
The manufacturer's recommended installation methods shall be followed.
The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion 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.
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications. Maximum space between rail segments shall be 3/16", sealed with a suitable sealant. Joints in rails within 10 ft. of curbs shall be welded.
Parapet plates and anchorage studs for skews $> 30^\circ$ included in the cost of Preformed Joint Strip Seal.



ROLLED EXTRUDED RAIL

WELDED RAIL

LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue.
Rolled rail shown, welded rail similar.

7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

*** Back gouge not required if complete joint penetration is verified by mock-up.

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

LOCKING EDGE RAILS

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	

EJ-SSJ 11-22-2016

GRÄEF
8501 W. Higgins Road, Suite 280
Chicago, Illinois 60631; (773) 399-0112

USER NAME =	DESIGNED - JZ	REVISED -
PLOT SCALE =	CHECKED - NDR	REVISED -
PLOT DATE = 3/21/2017 - 10:45:31 AM	DRAWN - DLG	REVISED -
	DATE - 08/26/2015	REVISED -

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

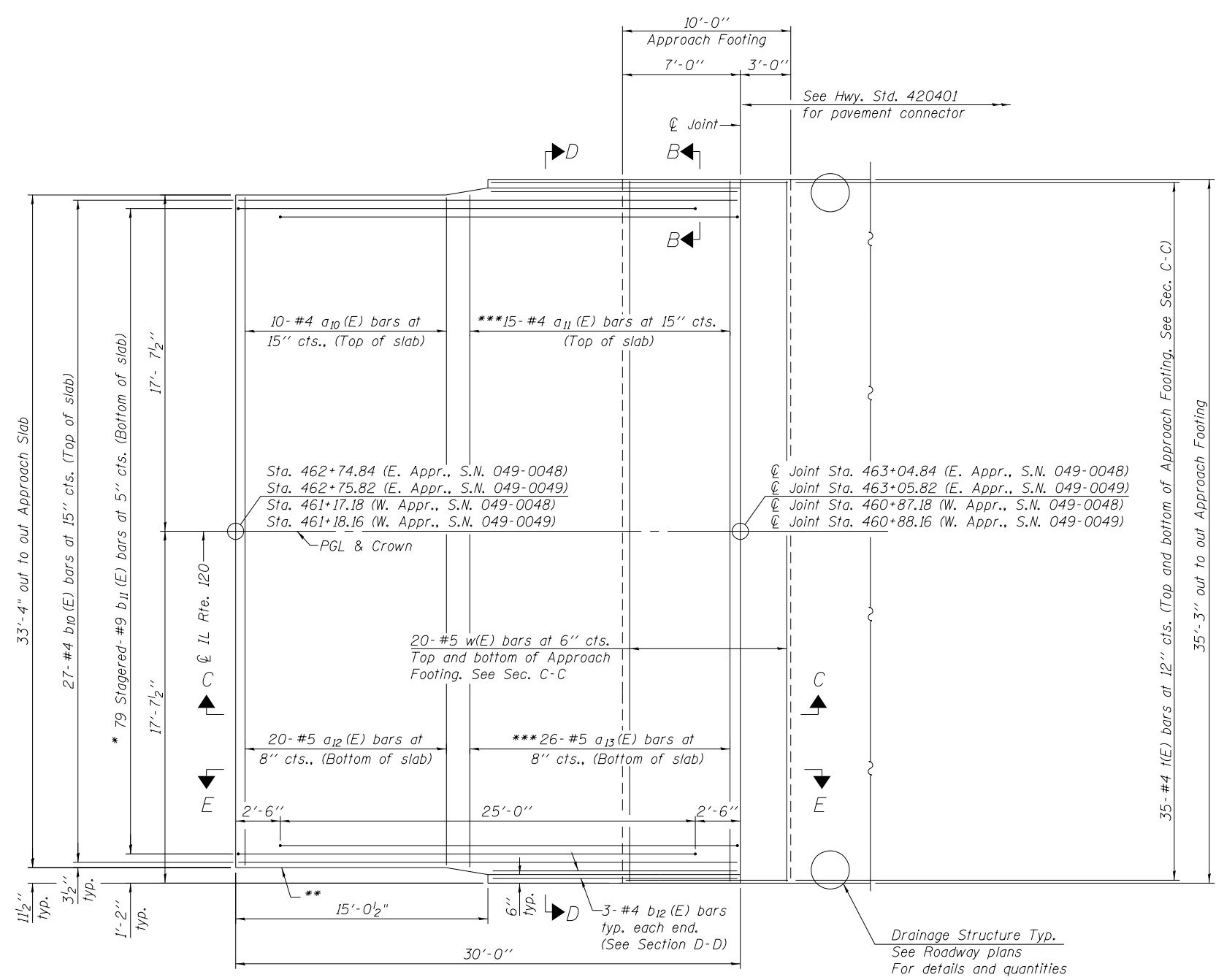
PREFORMED JOINT STRIP SEAL
S.N. 049-0048 & S.N. 049-0049

SHEET NO. 517 OF 37 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	138
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				

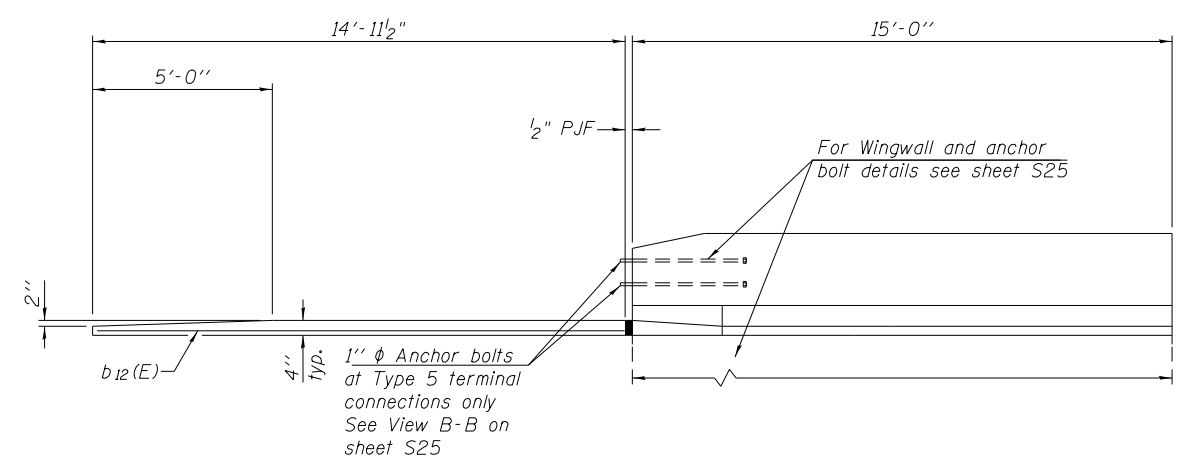
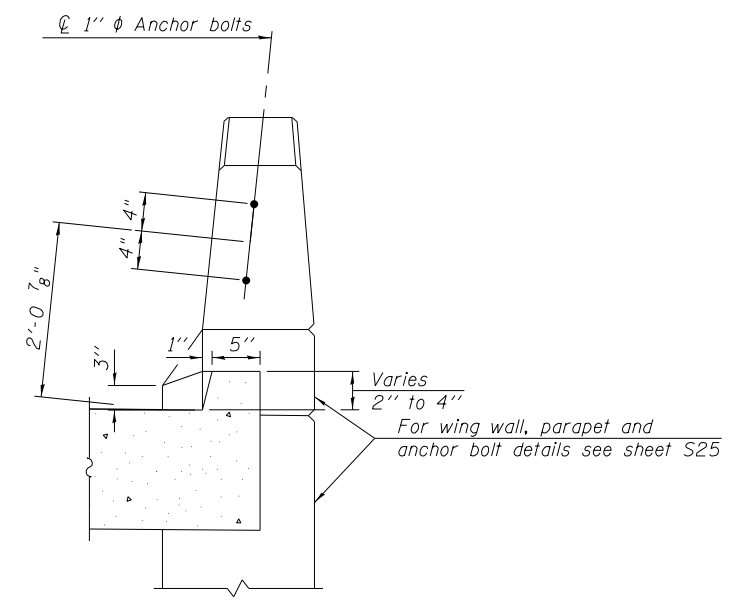
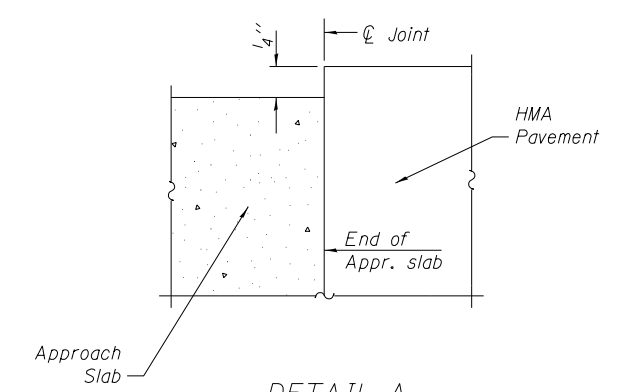
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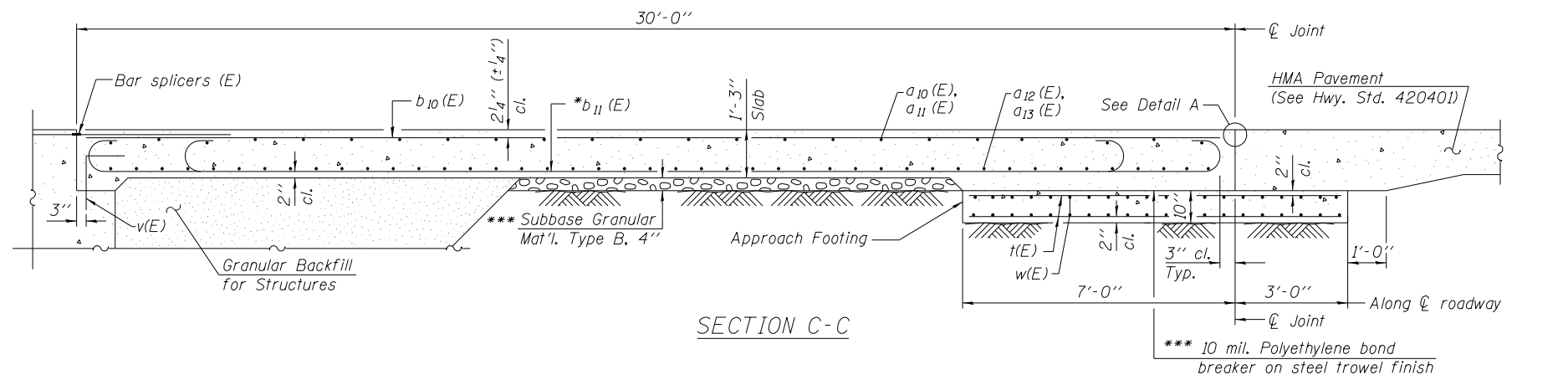
- * Tilt #9 b₁₁(E) bars as required to maintain clearance.
- ** 1/2" Preformed Expansion Joint filler according to Article 1051 of the Std. Specifications; Full depth of slab, full length of parapet. Typ., each parapet.
- *** Cut bars a₁₁(E) and a₁₃(E) to fit taper in field.

NOTES
 See sheet S19 for Sections C-C & D-D.
 a₁₀(E) and a₁₁(E) bar spacings measured along @ Rdwy.

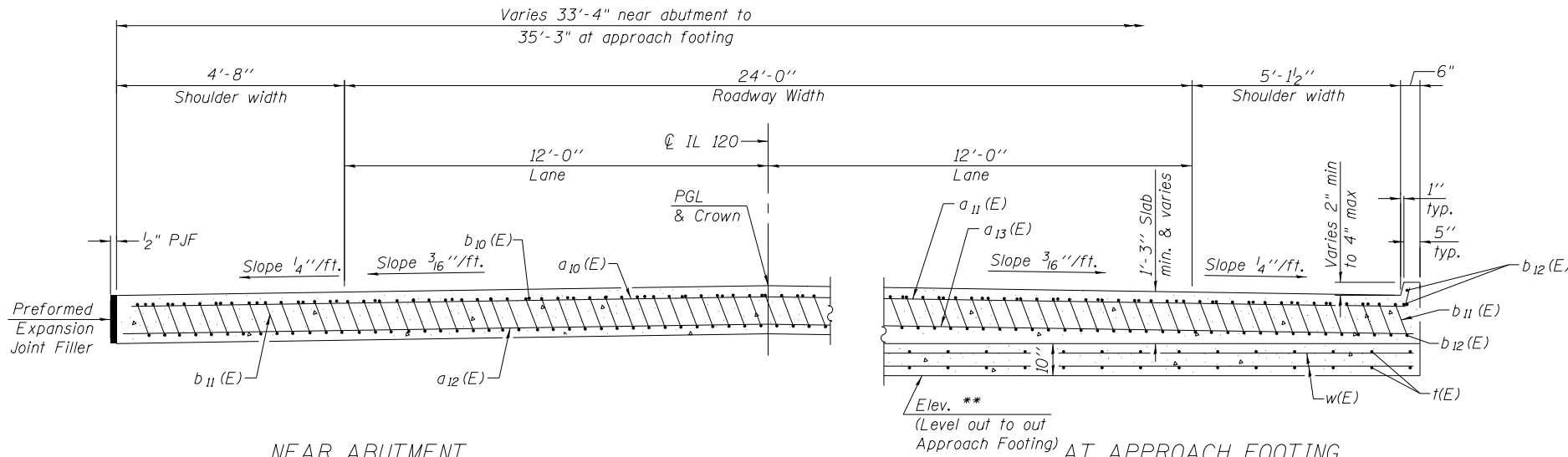


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CHECKED - NDR	REVISED -	
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	139
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				



SECTION C-C



NEAR ABUTMENT

SECTION D-D

(See Plan for dimensions not shown)

AT APPROACH FOOTING

**733.84 W. Appr. S.N. 049-0048
 733.82 E. Appr. S.N. 049-0048
 733.92 W. Appr. S.N. 049-0049
 733.93 E. Appr. S.N. 049-0049

NOTES

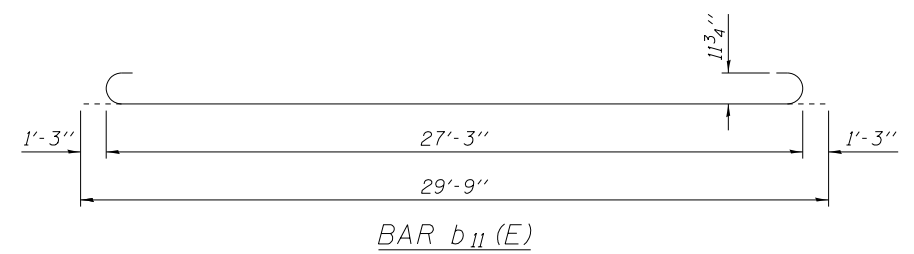
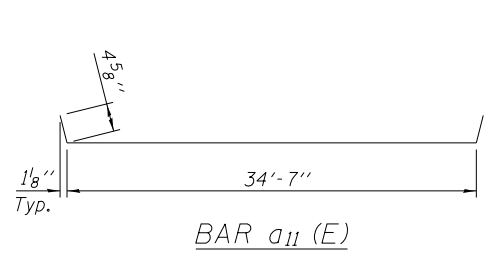
1. See sheet S18 for Detail A.
2. Approach slab shall be paid for as Concrete Superstructure.
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
5. For v(E) bar details, see sheet S25.
6. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
7. Cost of excavation for approach footing included with Concrete Structures.
8. For Granular Backfill for Structures and drainage treatment details, see sheet S26.
9. For additional parapet details, see sheet S25.

* Tilt #9 b₁₁(E) bars as required to maintain clearance.

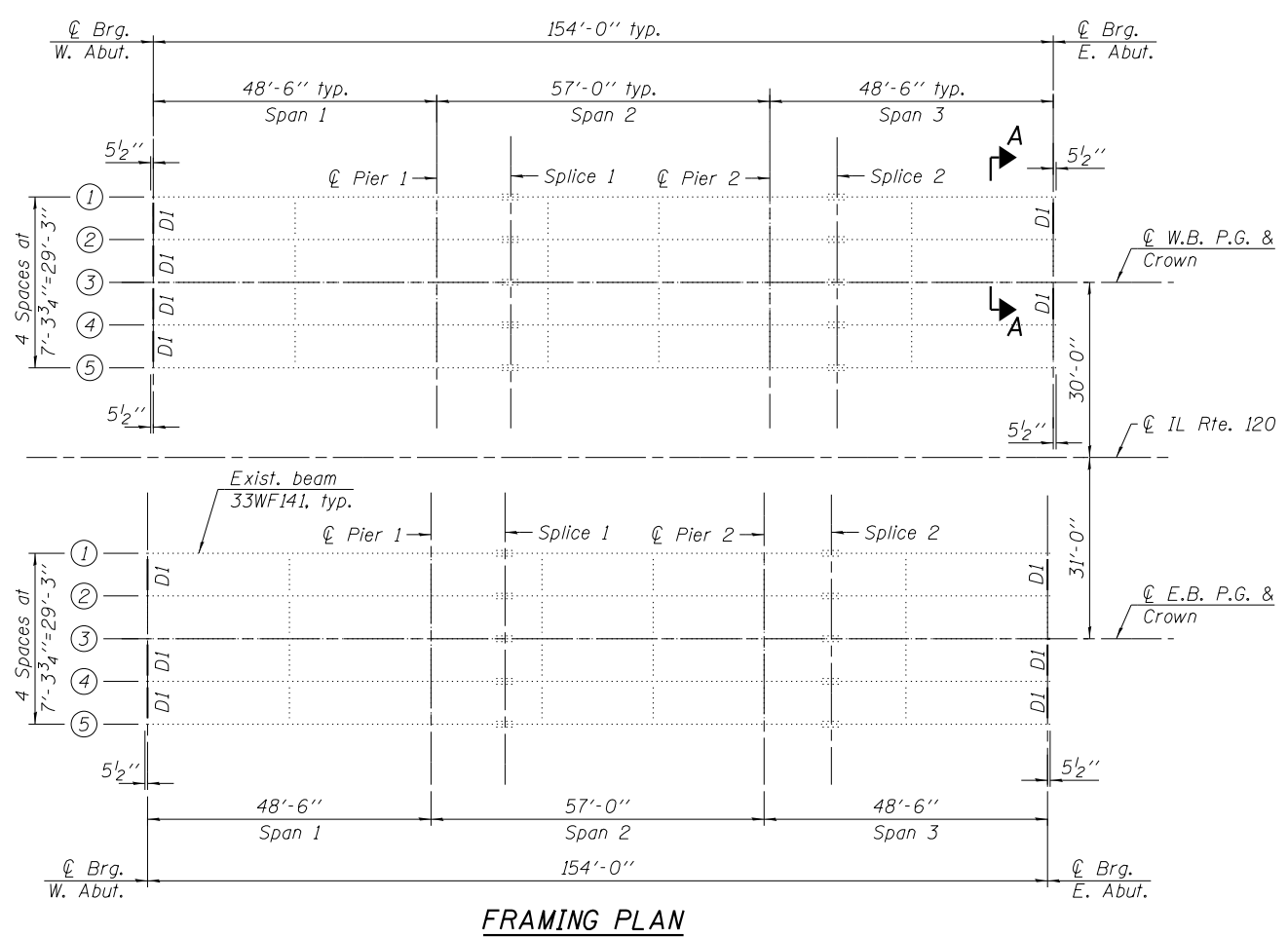
*** Cost included with Concrete Superstructure.

S.N. 049-0048 & S.N. 049-0049
 FOUR APPROACH SLABS
 BILL OF MATERIAL

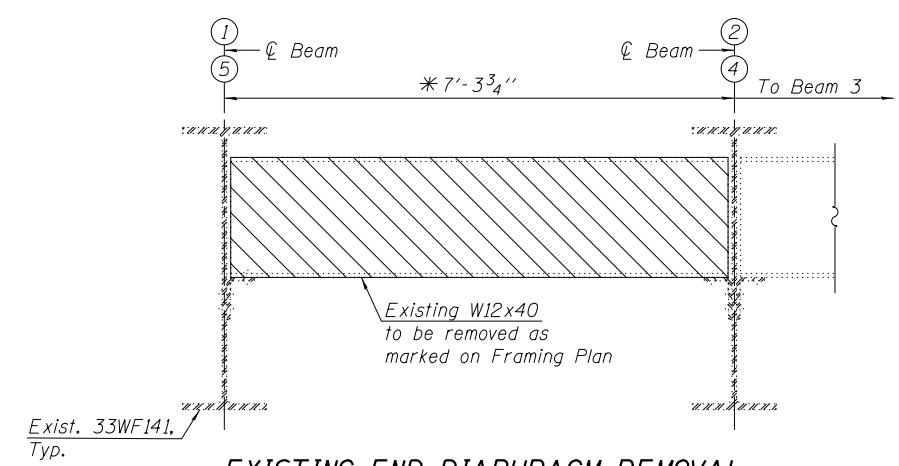
Bar	No.	Size	Length	Shape
a ₁₀ (E)	40	#4	33' - 0"	—
a ₁₁ (E)	60	#4	35' - 5"	—
a ₁₂ (E)	80	#5	33' - 0"	—
a ₁₃ (E)	104	#5	34' - 11"	—
b ₁₀ (E)	108	#4	29' - 8"	—
b ₁₁ (E)	316	#9	29' - 9"	—
b ₁₂ (E)	24	#4	14' - 8"	—
t(E)	280	#4	9' - 8"	—
w(E)	160	#5	34' - 11"	—
Concrete Structures			Cu. Yd.	44
Bridge Deck Grooving			Sq. Yd.	416
Protective Coat			Sq. Yd.	452
Concrete Superstructure (Approach Slab)			Cu. Yd.	202
Reinforcement Bars, Epoxy Coated			Pound	50,820



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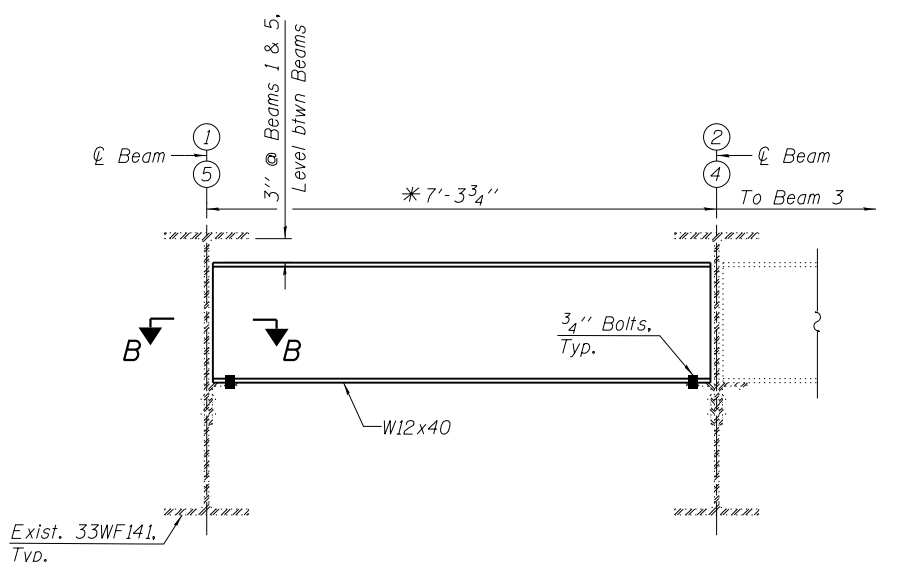


FRAMING PLAN



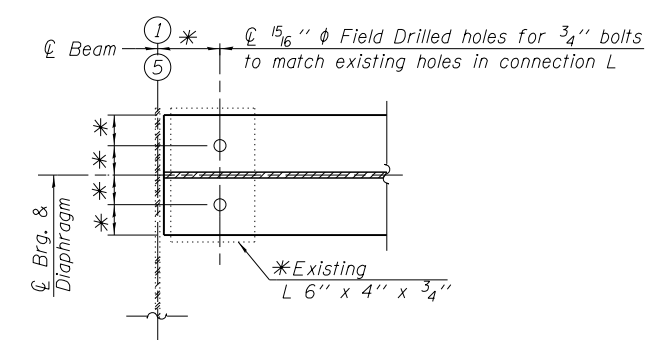
EXISTING END DIAPHRAGM REMOVAL

(Drawn for fascia beam, interior beam detail similar)



VIEW A-A END DIAPHRAGM-D1 ELEVATION

(Drawn for fascia beam, interior beam detail similar)
(12 Required)



SECTION B-B

*Contractor to field verify dimensions prior to ordering materials and repairing diaphragms.

S.N. 049-0048 & S.N. 049-0049

BILL OF MATERIAL

Item	Unit	Quantity
Furnishing & Erecting Structural Steel	Pound	3,480
Structural Steel Removal	Pound	3,480

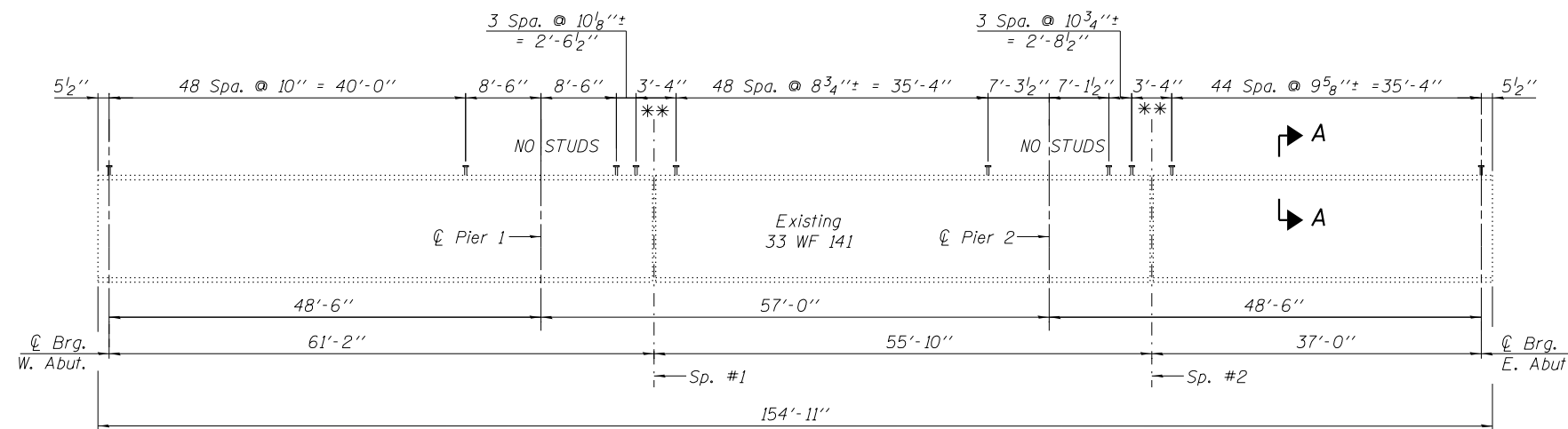
NOTES

1. Work this sheet with sheet S21.

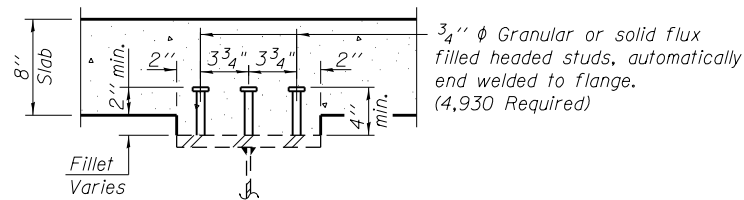
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	CHECKED - NDR	REVISED -
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PLOT DATE = 3/21/2017 - 10:45:33	DATE - 08/26/2015	REVISED -

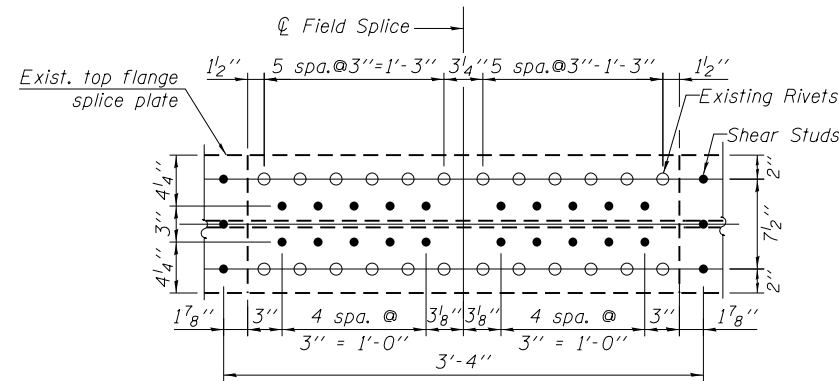
F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 141
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



BEAM ELEVATION



SECTION A-A



**** STUDS AT EXISTING SPLICE**

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 & 0.6 Sp. 3	0.5 Sp. 2	Pier 1 & Pier 2
I_s	(in ⁴)	7,450	7,450	7,450
$I_c(n)$	(in ⁴)	22,406	22,406	-
$I_c(3n)$	(in ⁴)	16,163	16,163	-
S_s	(in ³)	447.4	447.4	447.4
$S_c(n)$	(in ³)	705.7	705.7	-
$S_c(3n)$	(in ³)	632.6	632.6	-
Z	(in ³)	-	-	-
$\bar{\rho}$	(k/')	0.94	0.94	1.48
$M\bar{\rho}$	('k)	161.8	121.3	402.9
$s\bar{\rho}$	(k/')	0.542	0.542	-
$M_s\bar{\rho}$	('k)	93.3	73.4	-
$M\bar{\rho}_L$	('k)	327.9	318.6	235.4
$M\bar{\rho}_I$	('k)	94.4	87.6	64.7
$\bar{\rho}_3 [M\bar{\rho}_L + \bar{\rho}_I]$	('k)	703.9	677.1	500.2
$M\bar{\rho}_a$	('k)	1,247	1,133	1,174
$M\bar{\rho}_u$	('k)	2,773	2,773	1,414
$\bar{f}_s \bar{\rho}$ non-comp	(ksi)	4.33	3.25	10.80
$\bar{f}_s \bar{\rho}$ (comp)	(ksi)	1.76	1.39	-
$\bar{f}_s \bar{\rho}_3 [M\bar{\rho}_L + M\bar{\rho}_I]$	(ksi)	11.97	11.51	13.42
\bar{f}_s (Overload)	(ksi)	18.1	16.2	24.21
VR	(k)	43.6	45.0	-

* Compact section

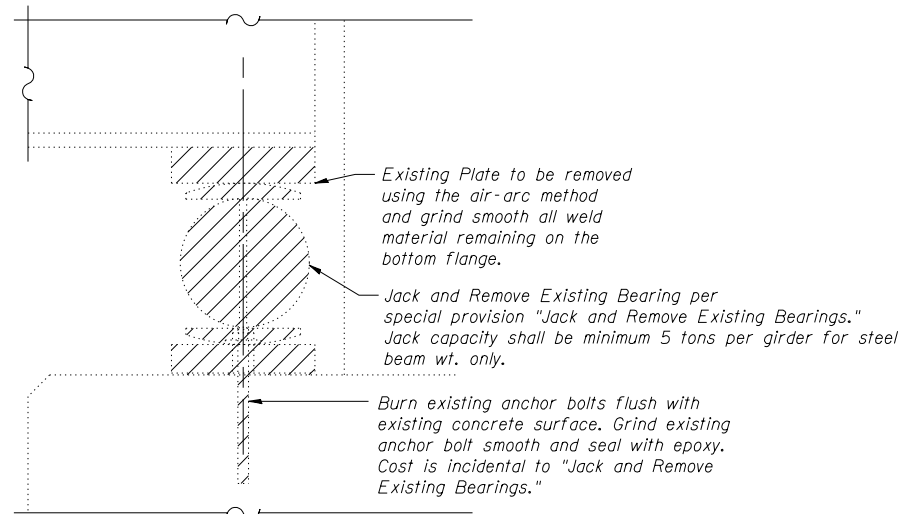
INTERIOR GIRDER REACTION TABLE			
		E. & W. Abut.	Piers 1 & 2
$R\bar{\rho}$	(k)	28.6	87.2
$R\bar{\rho}_L$	(k)	39.6	49.3
$R\bar{\rho}_I$	(k)	11.4	10.7
R_{Total}	(k)	79.6	147.2

- I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing \bar{f}_s (Total and Overload) due to non-composite dead loads (in.⁴ and in.³).
- $I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing \bar{f}_s (Total and Overload) due to short-term composite live loads (in.⁴ and in.³).
- $I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing \bar{f}_s (Total and Overload) due to long-term composite (superimposed) dead loads (in.⁴ and in.³).
- $\bar{\rho}$: Un-factored non-composite dead load (kips/ft.).
- $M\bar{\rho}$: Un-factored moment due to non-composite dead load (kip-ft.).
- $s\bar{\rho}$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
- $M_s\bar{\rho}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
- $M\bar{\rho}_L$: Un-factored live load moment (kip-ft.).
- $M\bar{\rho}_I$: Un-factored moment due to impact (kip-ft.).
- $M\bar{\rho}_a$: Factored design moment (kip-ft.).
 $1.3 [M\bar{\rho} + M_s\bar{\rho} + \frac{5}{3} (M\bar{\rho}_L + M\bar{\rho}_I)]$
- $M\bar{\rho}_u$: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
- \bar{f}_s (Overload): Sum of stresses as computed from the moments below (ksi).
 $M\bar{\rho} + M_s\bar{\rho} + \frac{5}{3} (M\bar{\rho}_L + M\bar{\rho}_I)$
- VR: Maximum $\bar{\rho}_L$ + impact shear range within the composite portion of the span for stud shear connector design (kips).

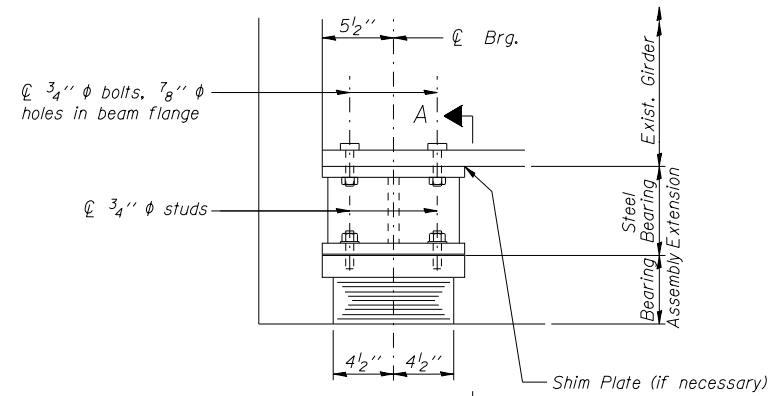
NOTES

1. Work this sheet with sheet S20.

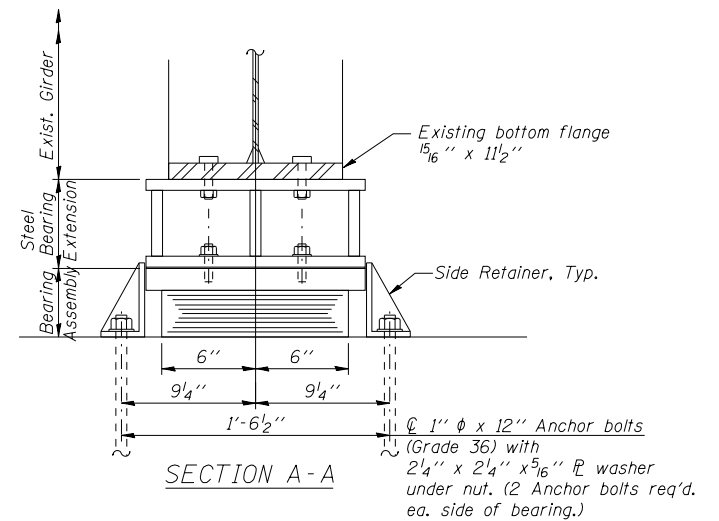
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**EXISTING BEARING REMOVAL DETAIL
AT ABUTMENT**
(20 Total)

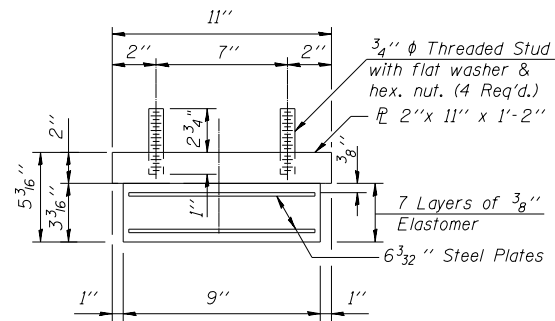


ELEVATION AT ABUT.



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG. AT ABUT.
(20 Required)

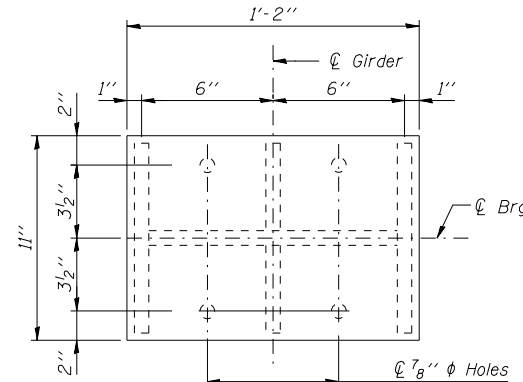


BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.

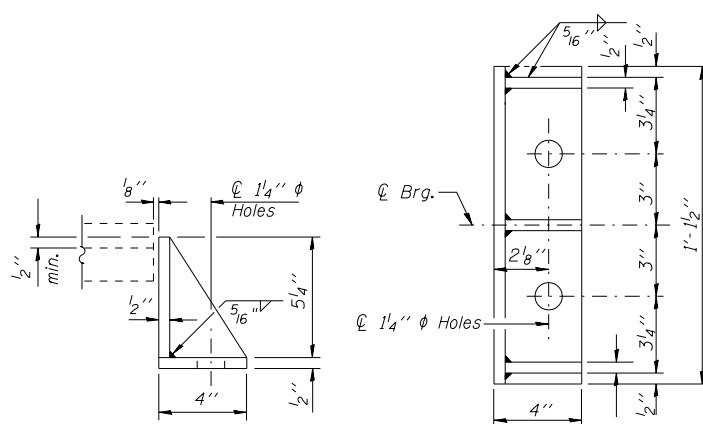
*h (in.)

	S.N. 049-0048		S.N. 049-0049	
Beam	W. Abut.	E. Abut.	W. Abut.	E. Abut.
1	8 1/4"	9"	8 1/4"	8 7/8"
2	8 1/8"	8 3/4"	8 1/4"	8 5/8"
3	9"	9 9/16"	9 1/16"	9 7/16"
4	8 1/4"	8 7/8"	9"	8 7/8"
5	8 1/4"	9 1/16"	8 7/8"	8 5/8"



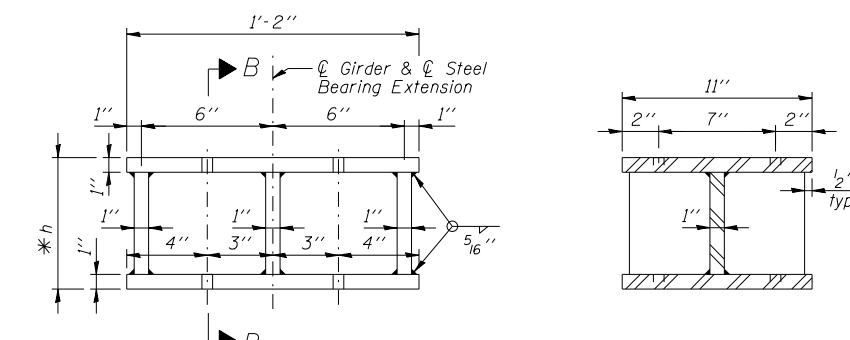
PLAN STEEL BEARING EXTENSION

- NOTES**
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
 - Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
 - Side retainers shall be included in the cost of Elastomeric Bearing Assembly, Type I.
 - Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
 - * Prior to ordering any material, the Contractor shall verify in the field for all steel bearing extension height and shim thickness dimensions.
 - Beyond the work shown on sheet S20, diaphragm removal and installation may be required to facilitate drilling holes. Cost included with Anchor Bolts.
 - New Steel extensions, shim plates and connection bolts are included with Furnishing and Erecting Structural Steel.
 - For Interior Girder Reaction table see sheet S21.

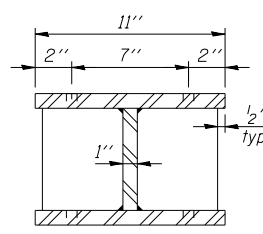


SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



ELEVATION STEEL BEARING EXTENSION



SECTION B-B

STEEL BEARING EXTENSION



S.N. 049-0048 & S.N. 049-0049

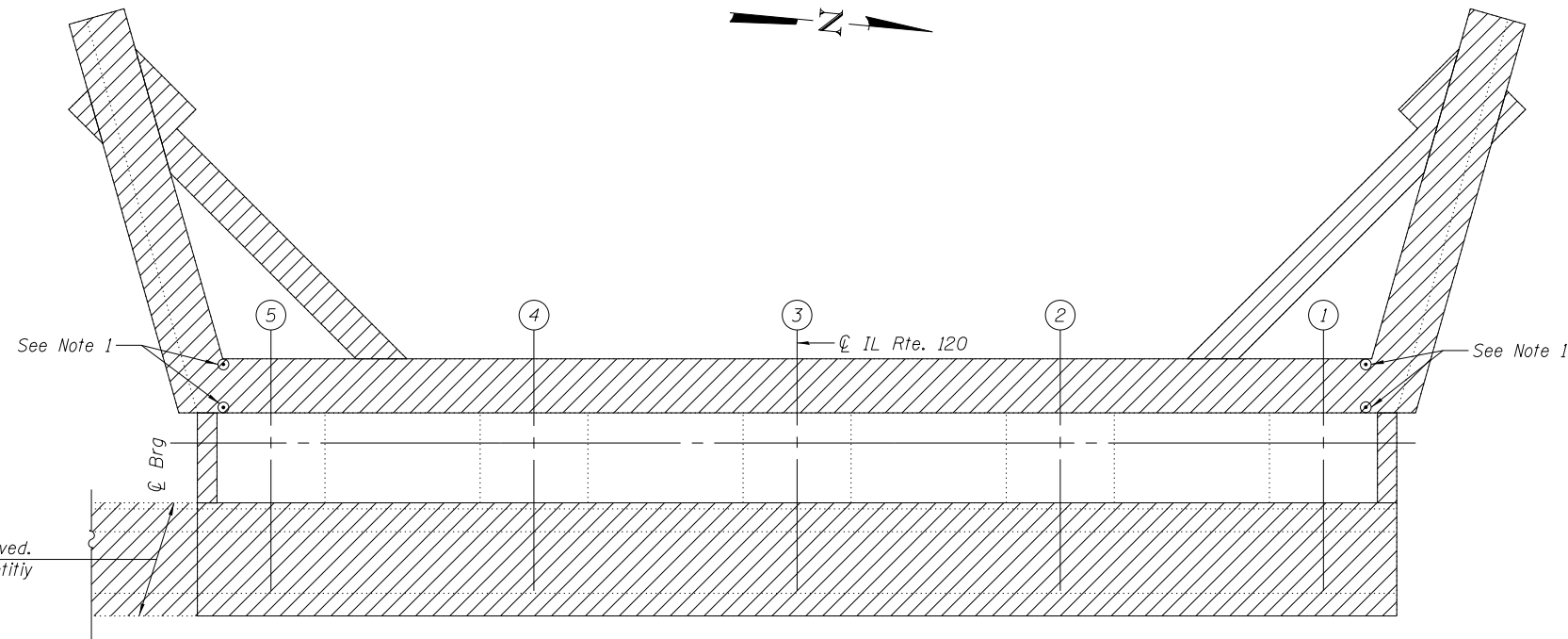
BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	4,610
Elastomeric Bearing Assembly, Type I	Each	20
Anchor Bolts, 1"	Each	80
Jack and Remove Existing Bearings	Each	20

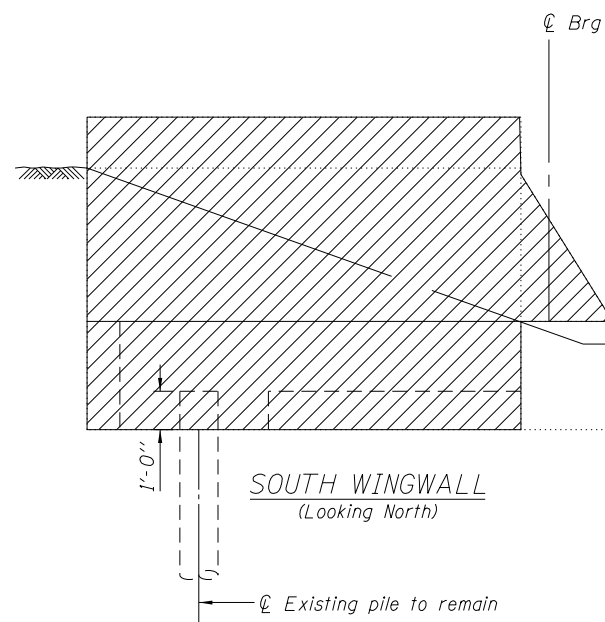
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LEGEND:

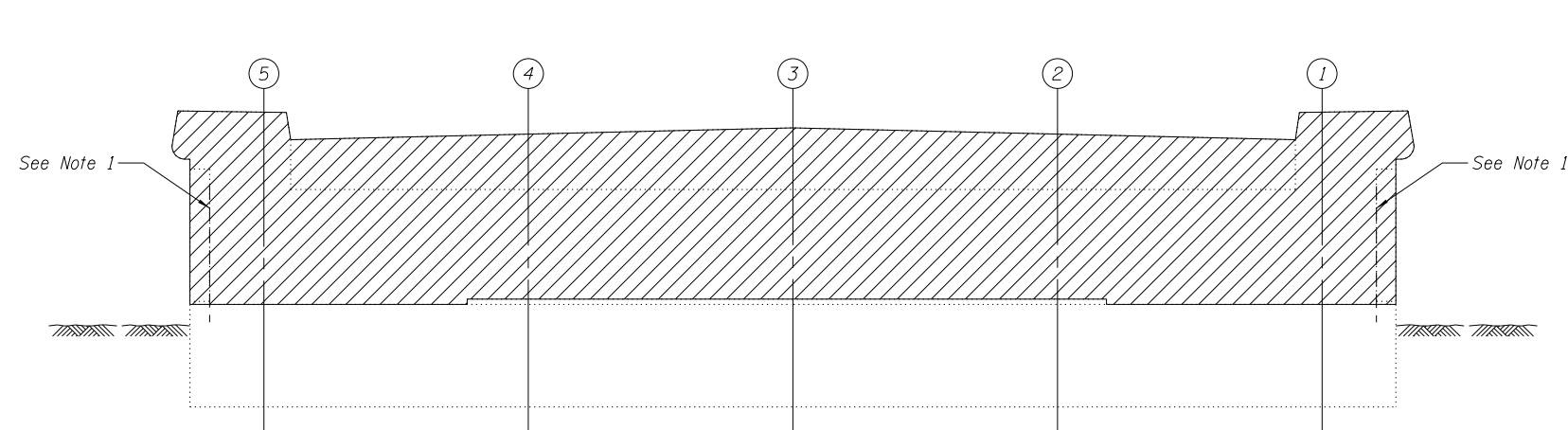
-  Concrete Removal
-  Existing Beam Line



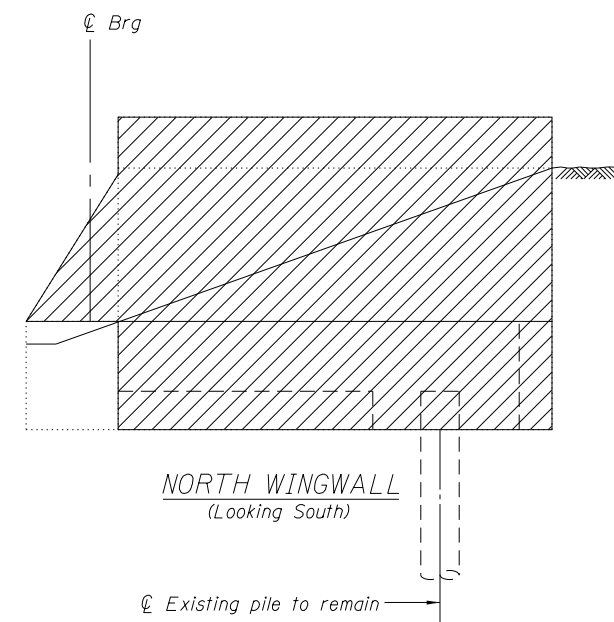
TOP PLAN



SOUTH WINGWALL
(Looking North)



ELEVATION AT ABUTMENT
(Looking West, Channel not shown for clarity)



NORTH WINGWALL
(Looking South)

S.N. 049-0048 & S.N. 049-0049
BILL OF MATERIAL

Item	Unit	Quantity
Concrete Removal	cu. yd.	76

NOTES

1. Existing vertical reinforcement in back wall shall be cleaned and incorporated into new construction. Cost included in the cost of "Concrete Removal".
2. Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost included in the cost of "Concrete Removal".
3. Contractor to take care not to damage pile or pile anchorage during concrete removal.

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**ABUTMENT
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	40	#5	33' - 1"	—
h ₁ (E)	16	#6	33' - 1"	—
h ₂ (E)	112	#5	7' - 5"	└
h ₃ (E)	64	#4	15' - 8"	—
h ₄ (E)	96	#4	15' - 8"	—
n(E)	112	#6	14' - 6"	└
n ₁ (E)	48	#6	7' - 3"	└
p(E)	72	#7	18' - 2"	—
p ₁ (E)	40	#7	15' - 8"	—
p ₂ (E)	40	#7	6' - 4"	—
s(E)	136	#5	14' - 7"	└
s ₁ (E)	40	#5	11' - 8"	└
s ₂ (E)	128	#5	4' - 11"	└
s ₃ (E)	48	#5	6' - 0"	└
v(E)	128	#4	3' - 11"	└
v ₁ (E)	256	#4	4' - 3"	└
v ₂ (E)	136	#6	8' - 8"	└
v ₃ (E)	24	#6	7' - 4"	└
v ₄ (E)	112	#6	8' - 8"	└
Structure Excavation			Cu. Yd.	486
Concrete Structures			Cu. Yd.	132
Protective Coat			Sq. Yd.	62
Reinforcement Bars, Epoxy Coated			Pound	20,220
Cleaning Bridge Seats			Sq. Ft.	154

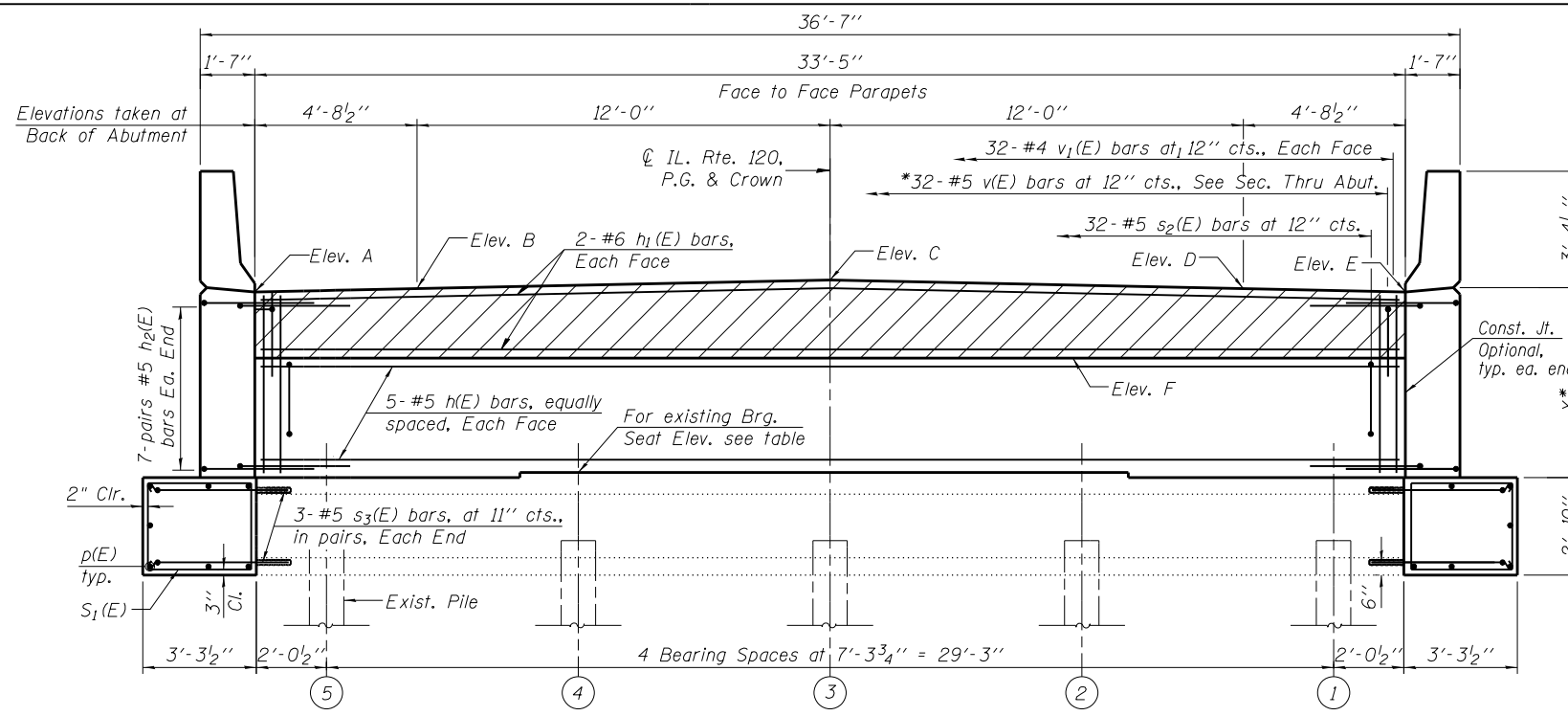
For details of "Bar Splicers", see sheet S31.
For details of "Pipe Underdrains for Structures 4", see sheet S26.

Back of Abutment Elevations				
Elev.	S.N. 049-0048		S.N. 049-0049	
	W. Abut	E. Abut	W. Abut	E. Abut
A	736.44	736.40	736.51	736.43
B	736.54	736.50	736.58	736.35
C	736.73	736.69	736.77	736.69
D	736.54	736.50	736.58	736.35
E	736.44	736.40	736.51	736.43
F	735.11	735.07	735.18	735.10

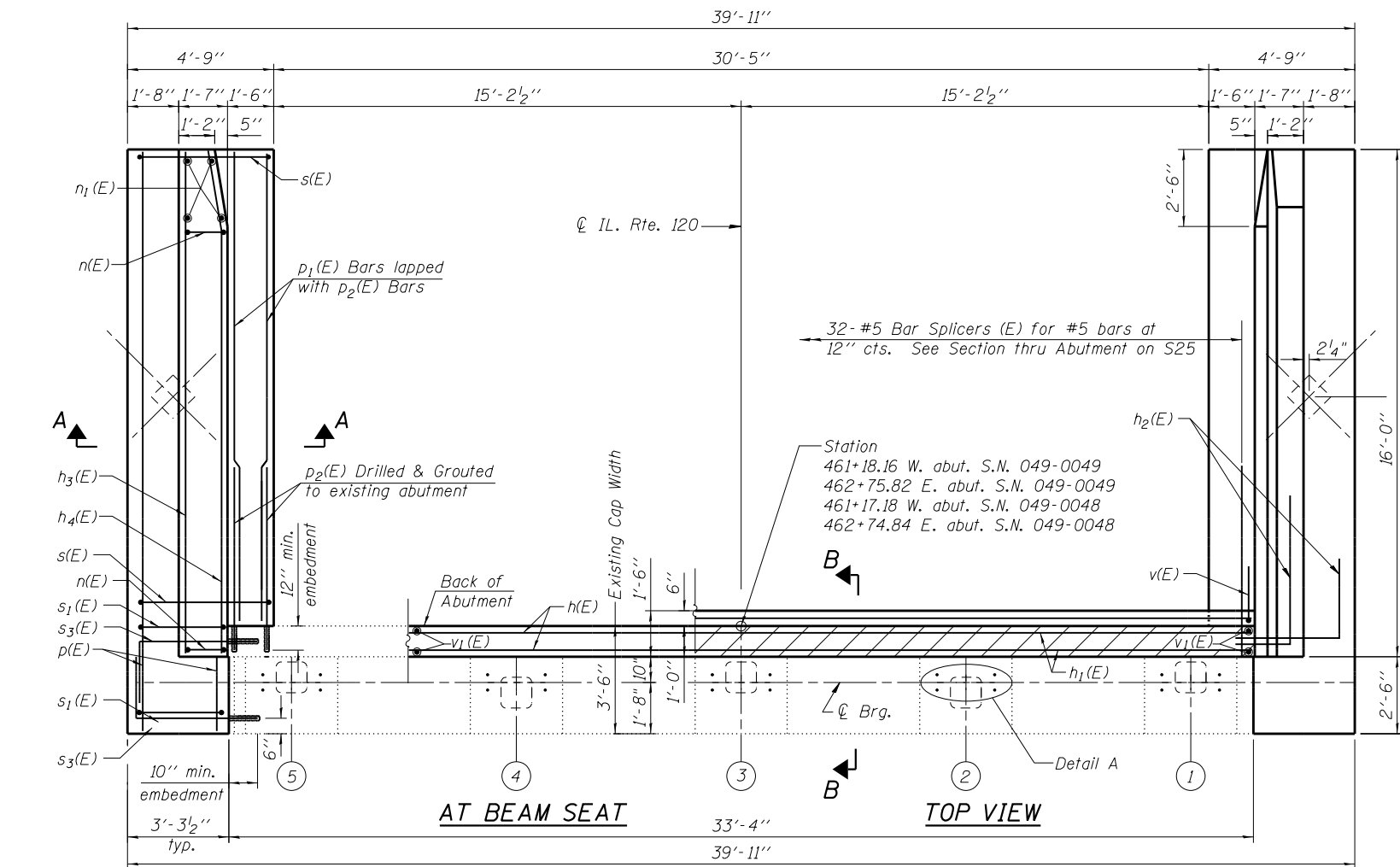
Bearing Seat Elevations				
Beam No.	S.N. 049-0048		S.N. 049-0049	
	W. Abut	E. Abut	W. Abut	E. Abut
Beam 1	731.81	731.70	731.81	731.73
Beam 2	731.97	731.87	731.94	731.87
Beam 3	731.97	731.84	731.95	731.88
Beam 4	731.95	731.83	731.95	731.86
Beam 5	731.77	731.69	731.78	731.73

NOTES

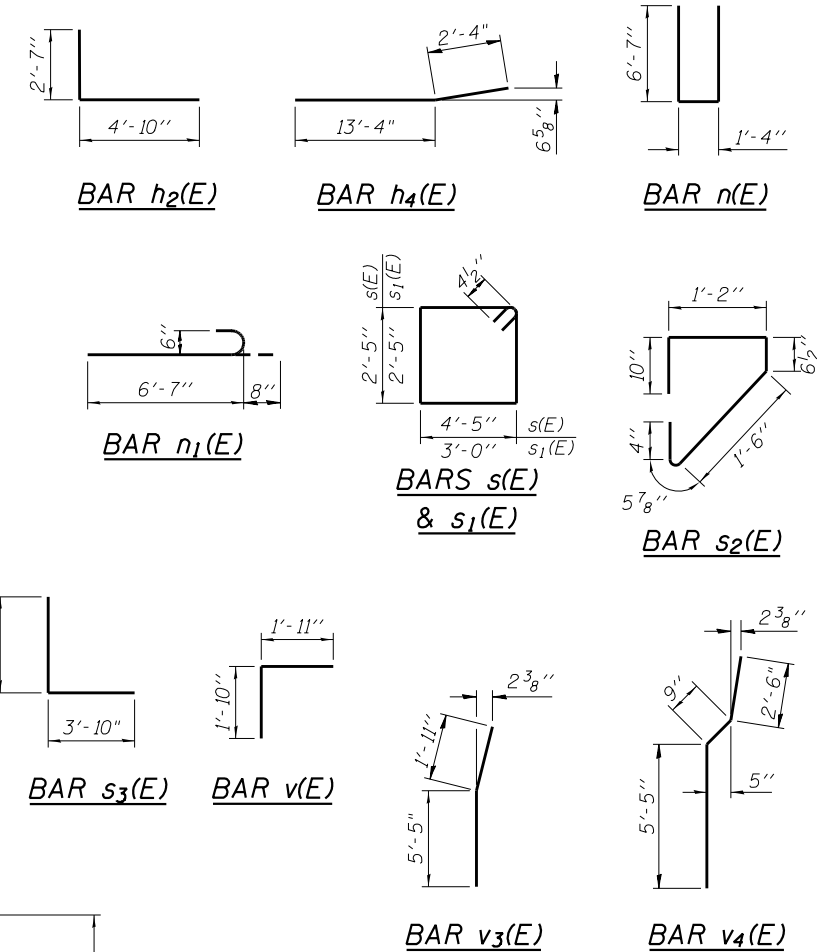
- The dimensions and elevations are based on existing plan and field measurements. The Contractor shall verify in field and make necessary adjustments prior to construction and ordering of materials.
- *See sheet S25 for Y dimensions and sections thru abutment and wingwall.



ELEVATION
(W. Abutment shown, E. Abutment opp. hand)



PLAN VIEW AT ABUTMENT
(W. Abutment shown, E. Abutment opp. hand)

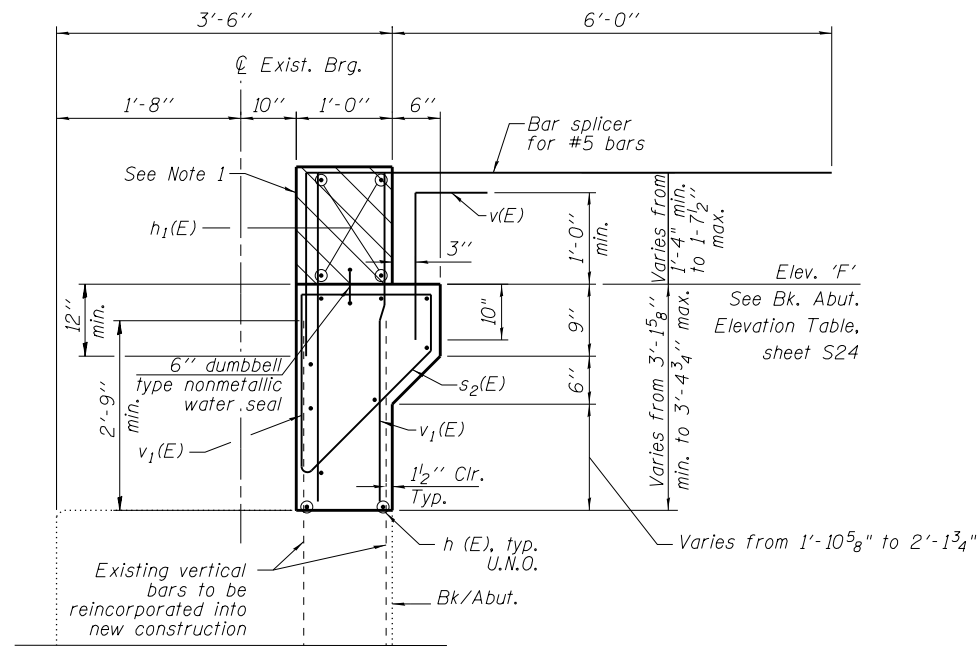


**ANCHOR BOLT LOCATION PLAN
DETAIL A**

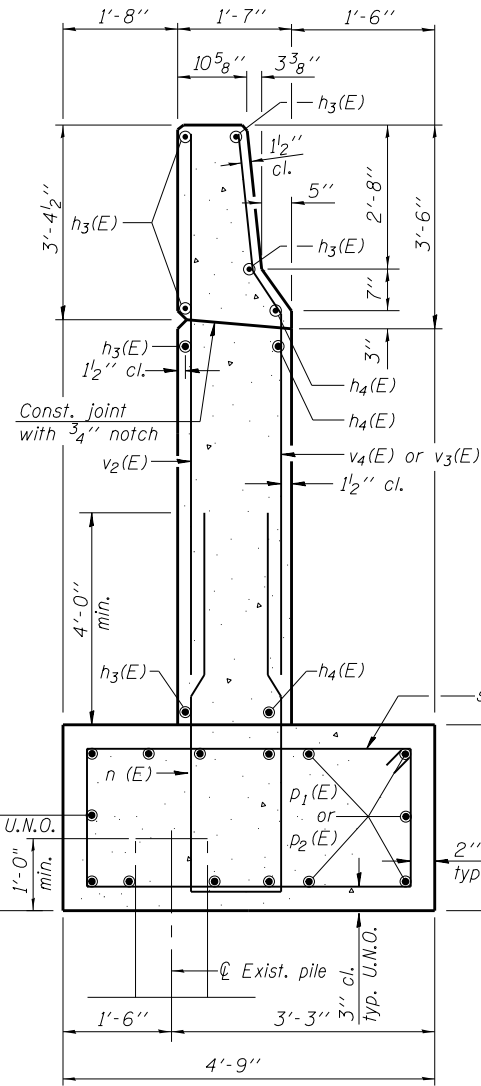
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NOTES

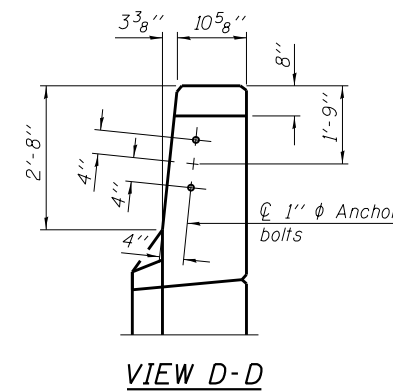
- Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
- *No taper at N.W. wall of West abutment of S.N. 049-0049
No taper at S.E. wall of East abutment of S.N. 049-0048
- ***Taper at S.W. wall of West abutment of S.N. 049-0049
Taper at walls of East abutment of S.N. 049-0049
Taper at walls of West abutment of S.N. 049-0048
Taper at N.E. wall of East abutment of S.N. 049-0048



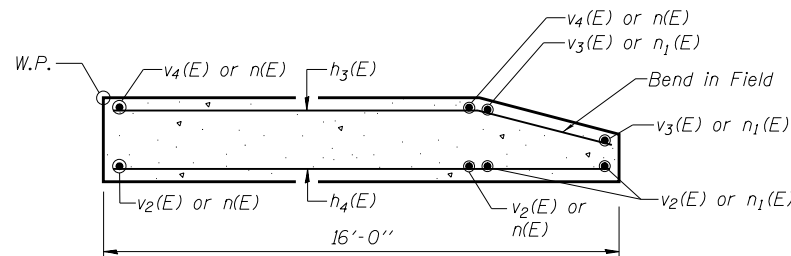
SEC. THRU ABUT.



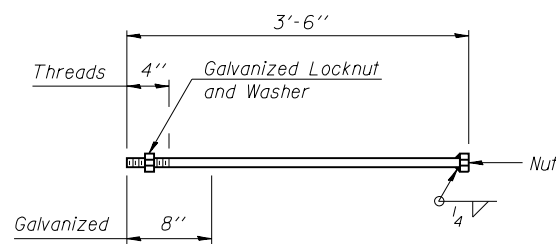
SECTION A-A



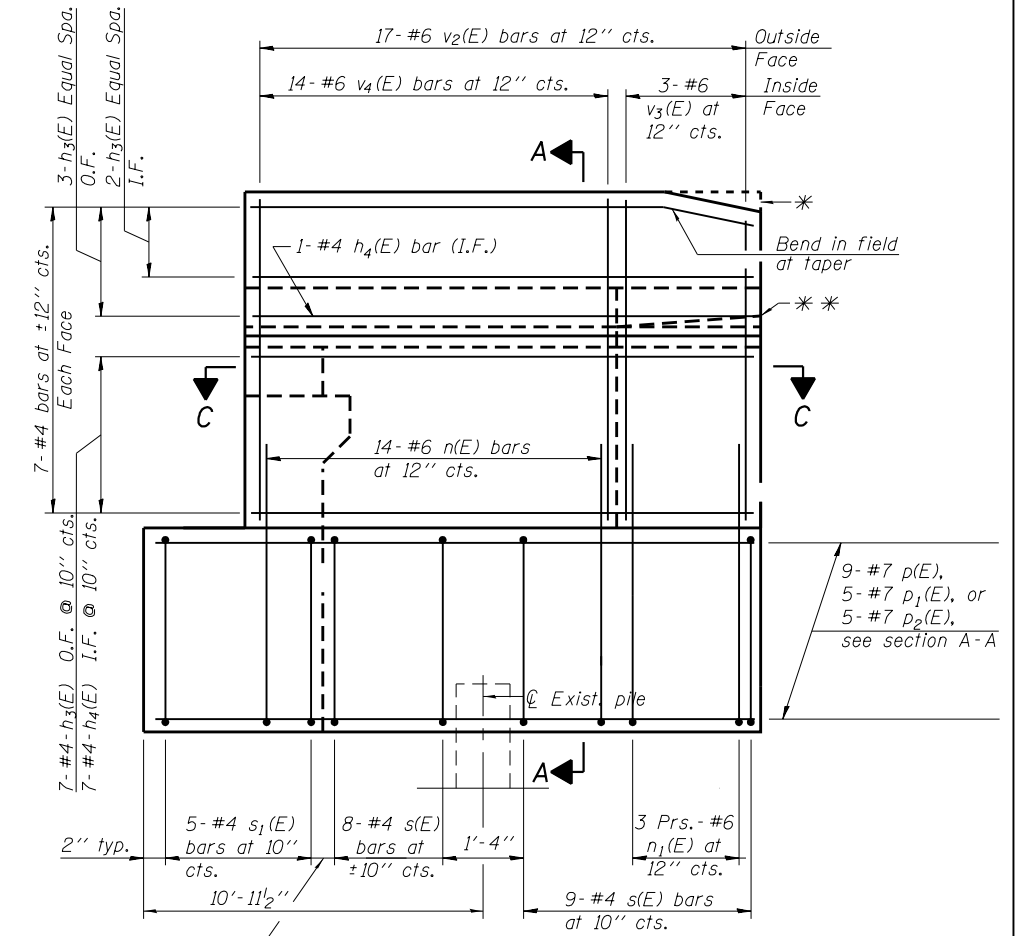
VIEW D-D



SECTION C-C

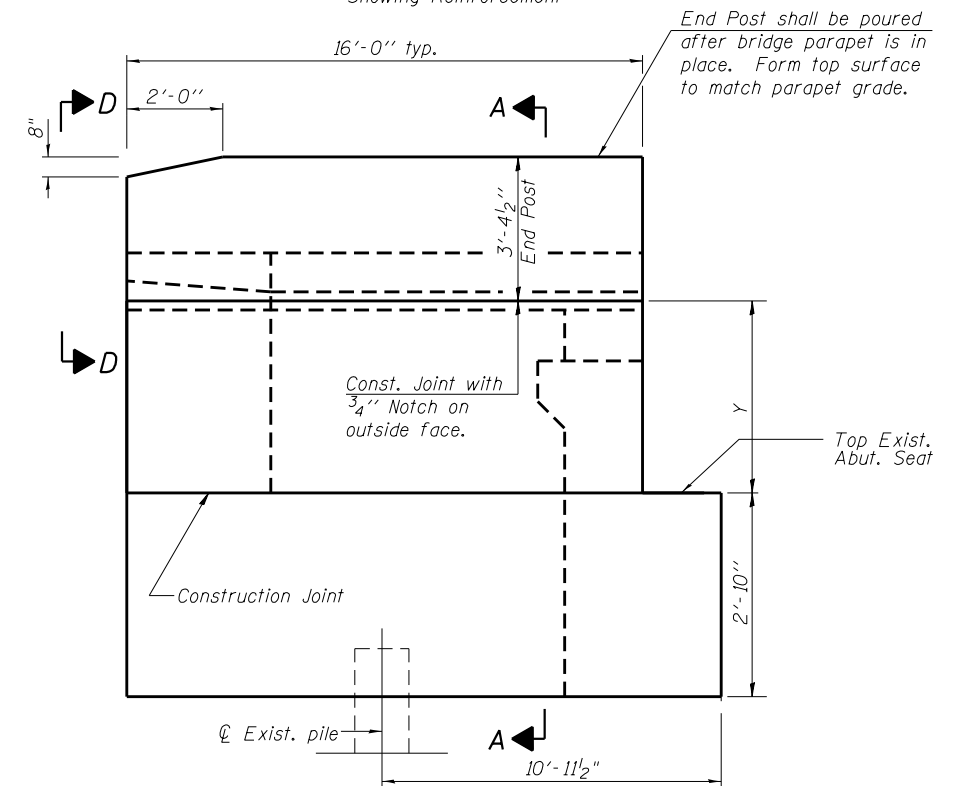


1" phi ANCHOR BOLT



WING WALL ELEVATION

Showing Reinforcement



WING WALL ELEVATION

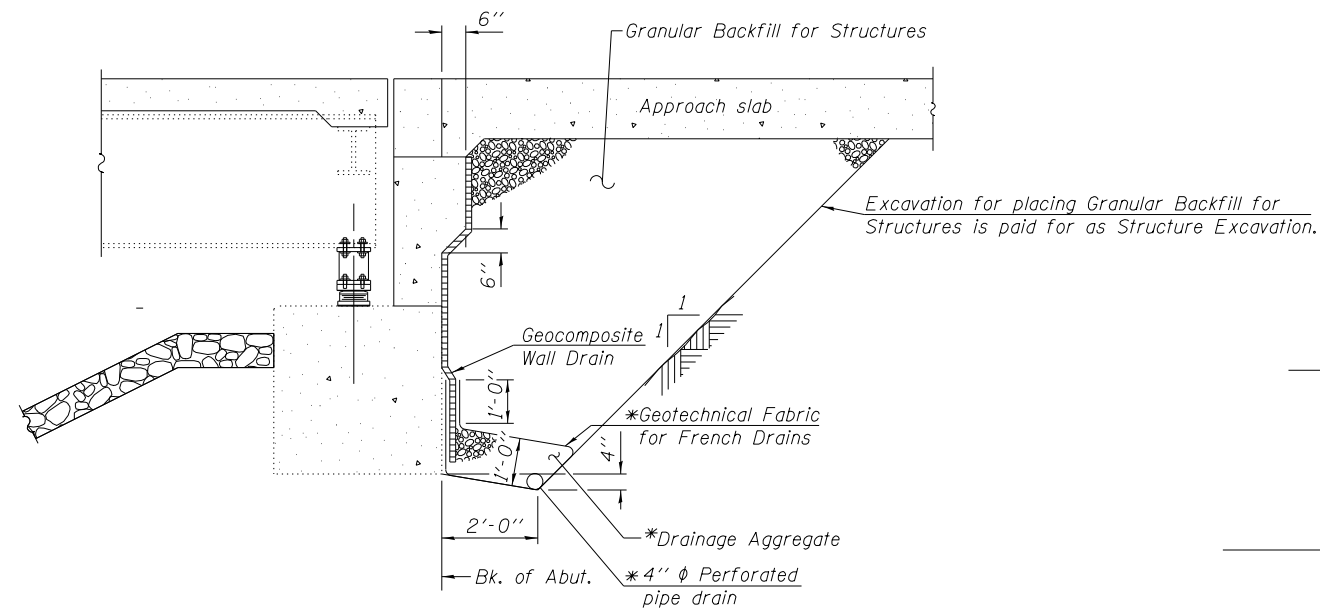
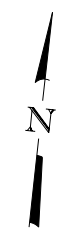
Showing Dimensions

S.N. 049-0048

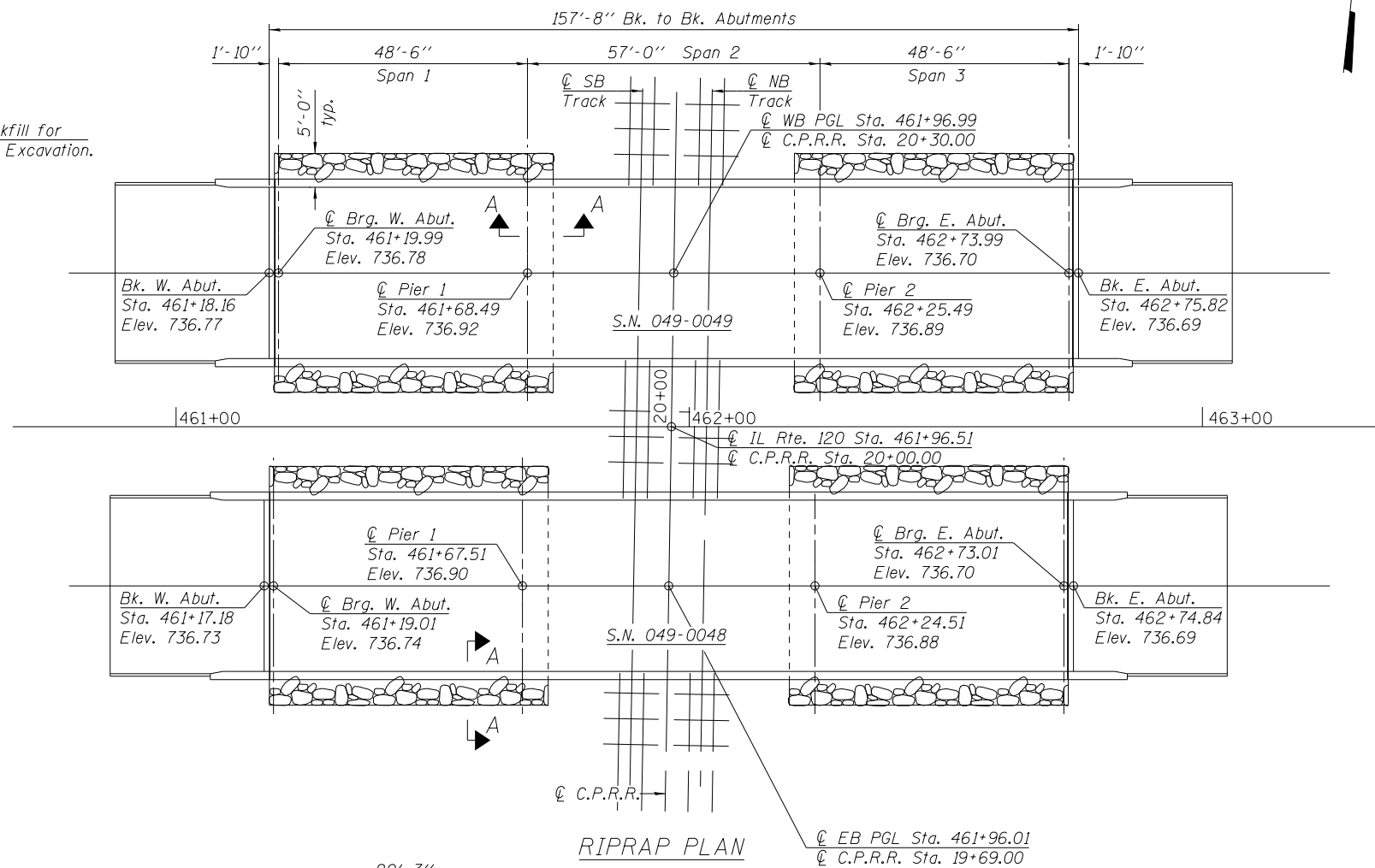
	Y
N.W. Wingwall	5'-5 5/8"
S.W. Wingwall	5'-6 1/8"
N.E. Wingwall	5'-6"
S.E. Wingwall	5'-6 1/8"

S.N. 049-0049

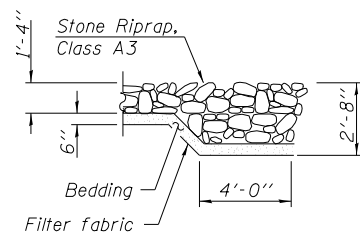
	Y
N.W. Wingwall	5'-5 3/4"
S.W. Wingwall	5'-6 1/8"
N.E. Wingwall	5'-6 1/8"
S.E. Wingwall	5'-6 1/2"



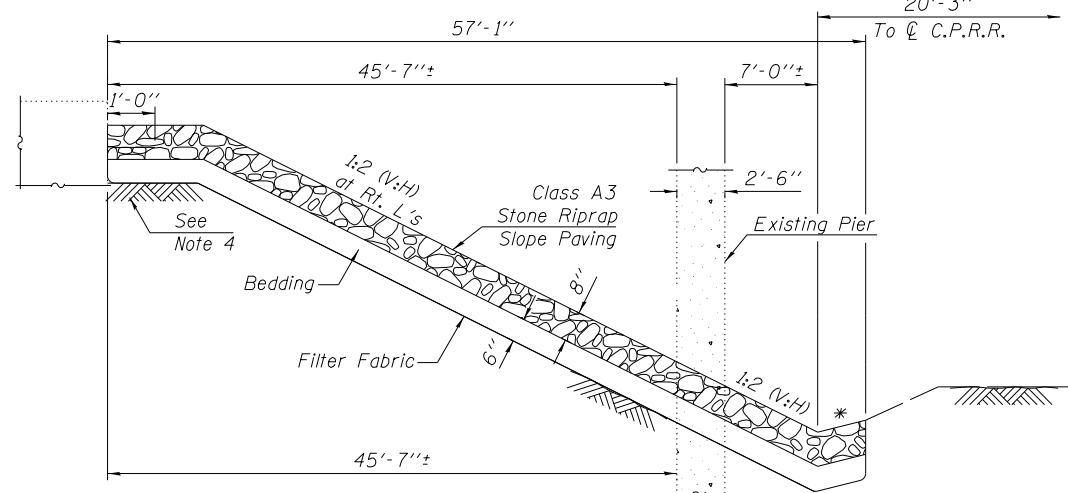
SECTION THRU PILE SUPPORTED STUB ABUTMENT
(Horiz. dim. @ Rt. L's)



RIPRAP PLAN



SECTION A-A



SECTION THRU AGGREGATE SLOPEWALL

*1:4 (V:H)

LEGEND

- Indicates Stone Riprap, Class A3
- Indicates Granular Backfill for Structures

NOTES

1. All Pipe Underdrain components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101)
2. * Items included in the cost of Pipe Underdrains for Structures 4".
3. Work sheets S24 thru S26 together.
4. Rutting and washed out embankment to be repaired or replaced prior to placement of Aggregate Slope wall, through placement of additional bedding material. Cost included in the cost of "Stone Riprap Class A3".

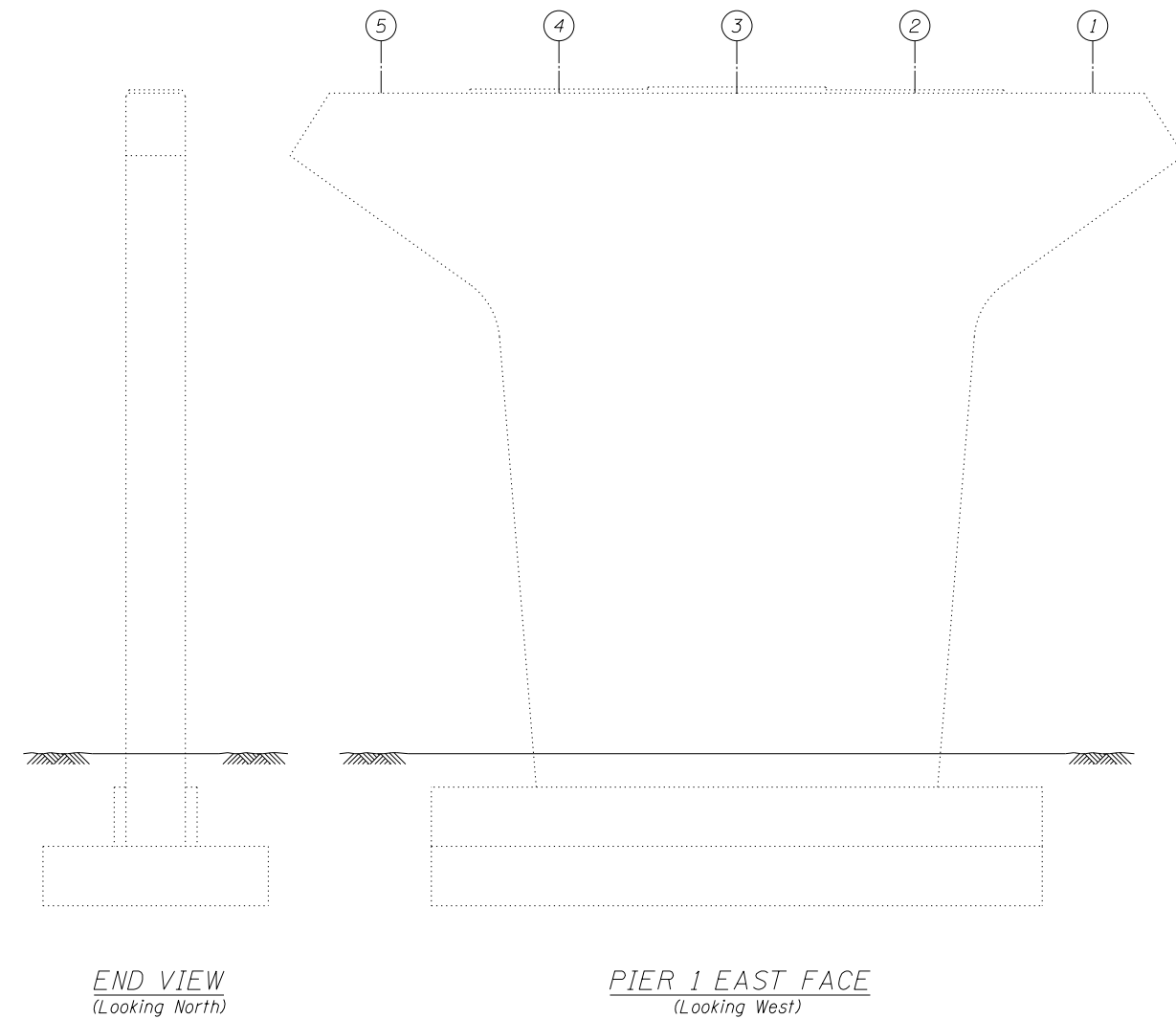
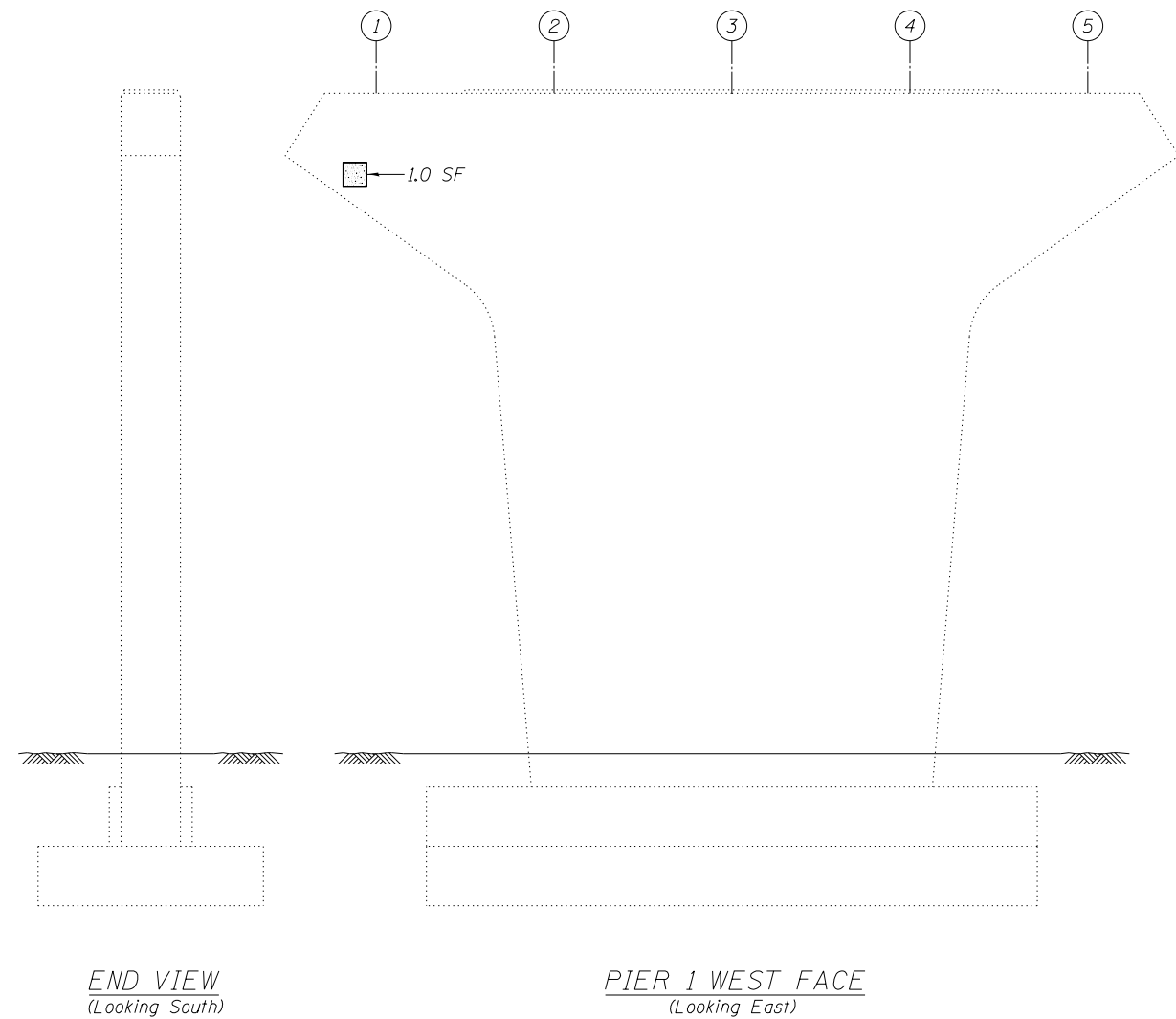
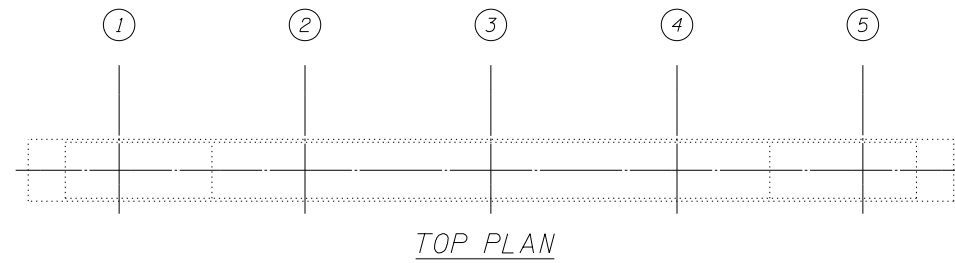
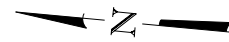
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CHECKED - NDR	REVISED -	
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	147
*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				

LEGEND:

 Structural Repair of Concrete



BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	1.0

NOTES

Quantities for Structural Repair of Concrete are approximate. Structural Repair of Concrete (Depth Equal to or less than 5") were estimated from field observations and the current Bridge Condition Report. Access Restriction with the CPRR prevented inspection of the Pier Caps and Bearings at the Pier. The actual repair areas will be determined by the Resident Engineer. Actual repair locations shall be shown on the as-built plans. The Contractor will be paid for the quantity furnished.

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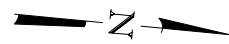
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER REPAIR I
S.N. 049-0048

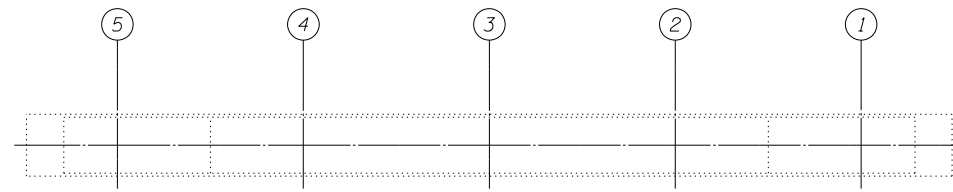
SHEET NO. S27 OF 37 SHEETS

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* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



LEGEND:

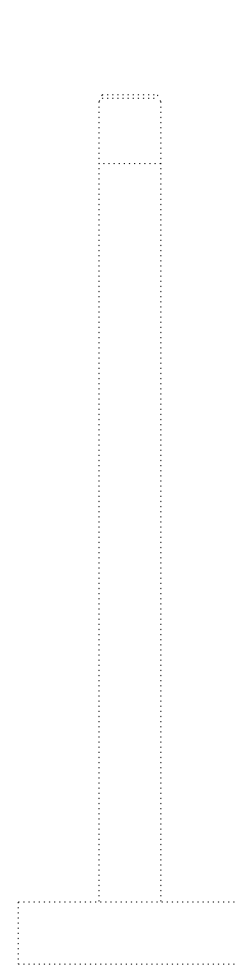
 Structural Repair of Concrete



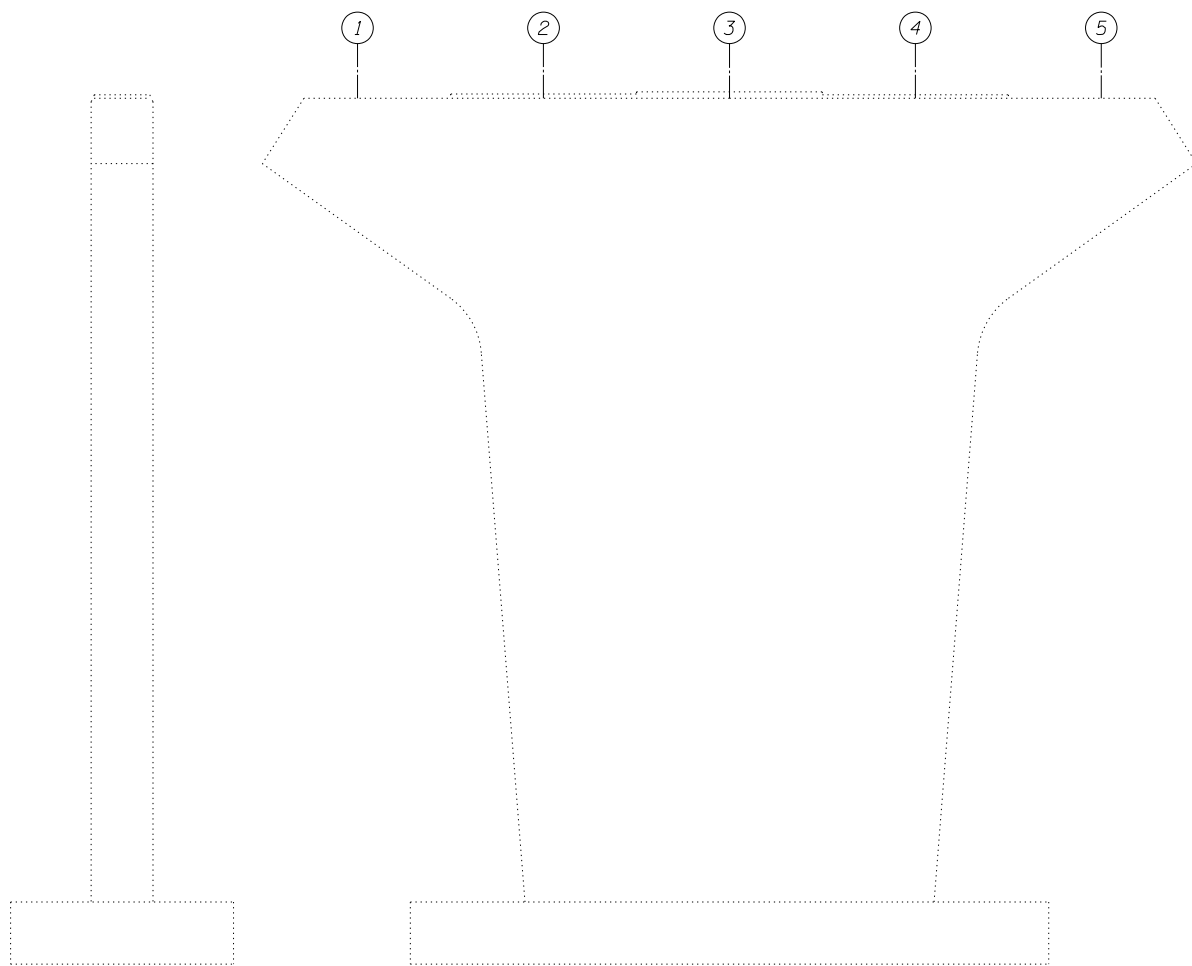
TOP PLAN



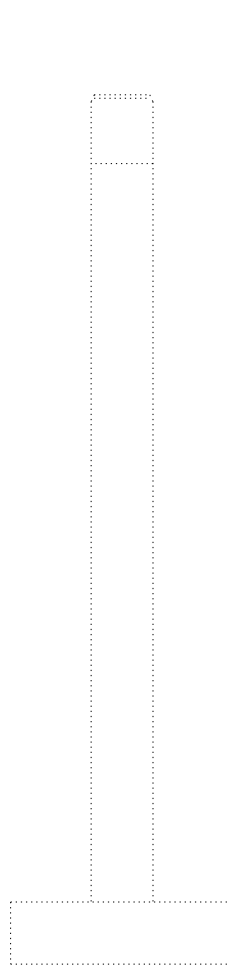
PIER 2 EAST FACE
(Looking West)



END VIEW
(Looking North)



PIER 2 WEST FACE
(Looking East)



END VIEW
(Looking South)

BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	1.0

NOTES

Quantities for Structural Repair of Concrete are approximate. Structural Repair of Concrete (Depth Equal to or less than 5") were estimated from field observations and the current Bridge Condition Report. Access Restriction with the CRRR prevented inspection of the Pier Caps and Bearings at the Pier. The actual repair areas will be determined by the Resident Engineer. Actual repair locations shall be shown on the as-built plans. The Contractor will be paid for the quantity furnished.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

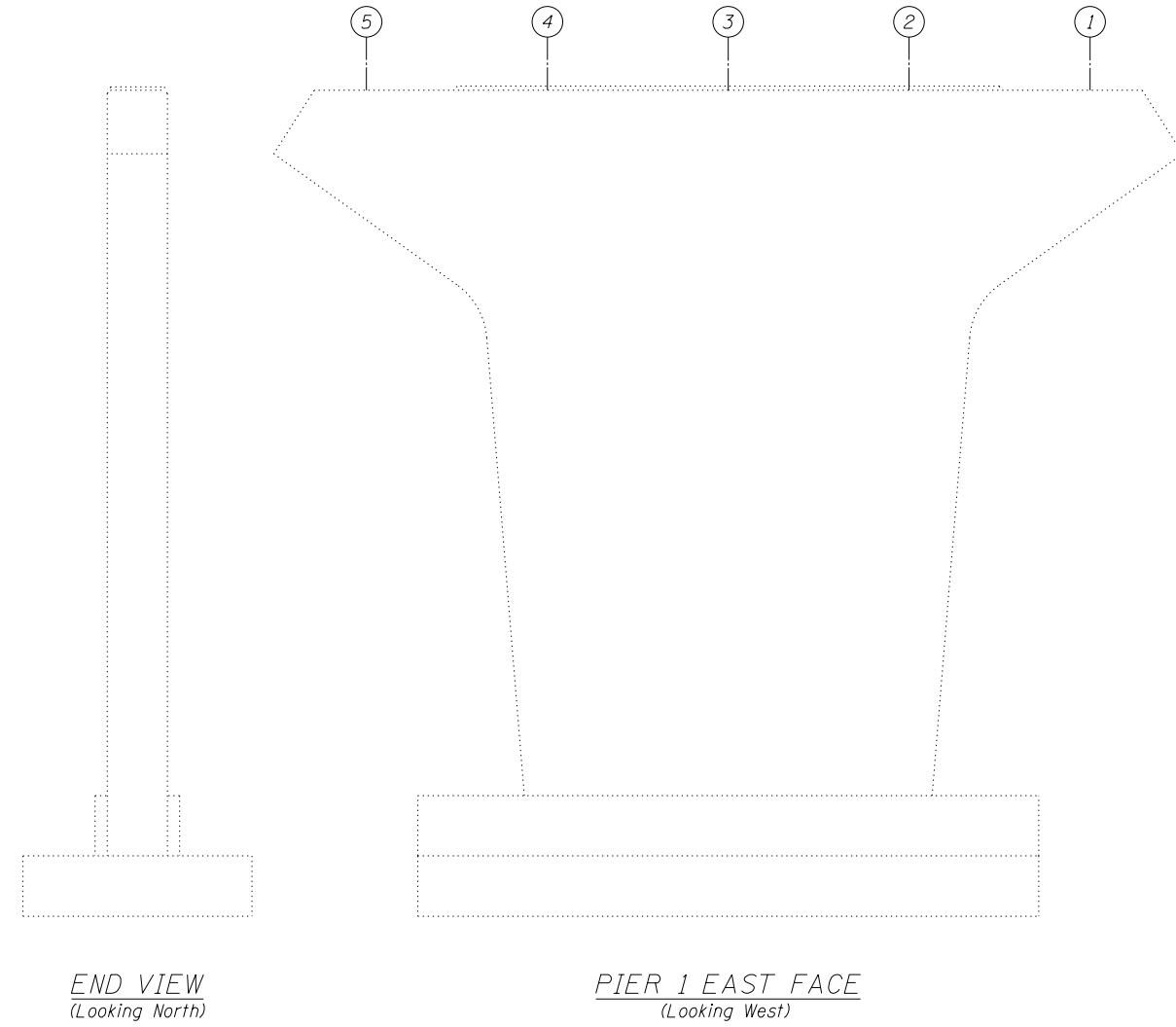
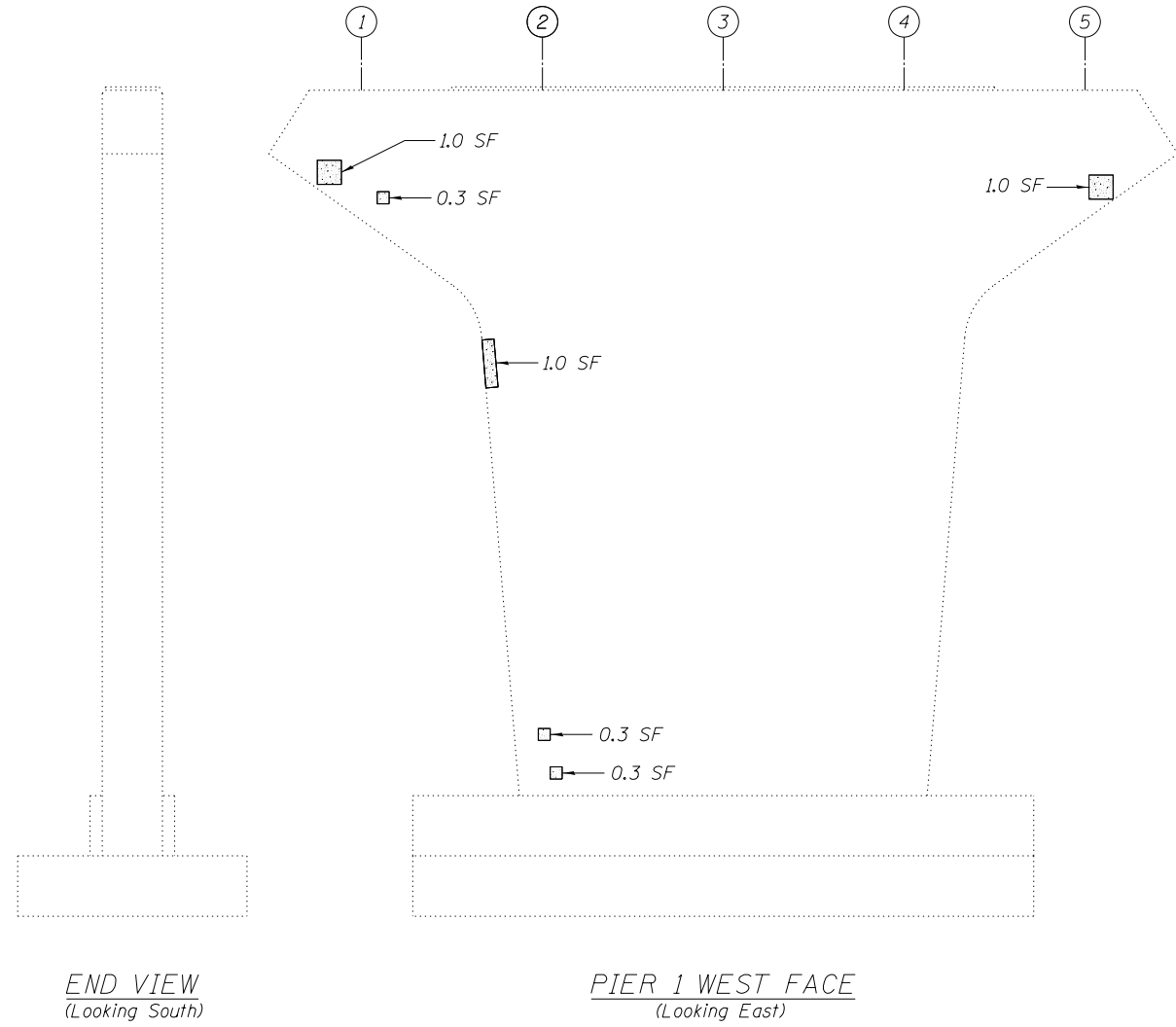
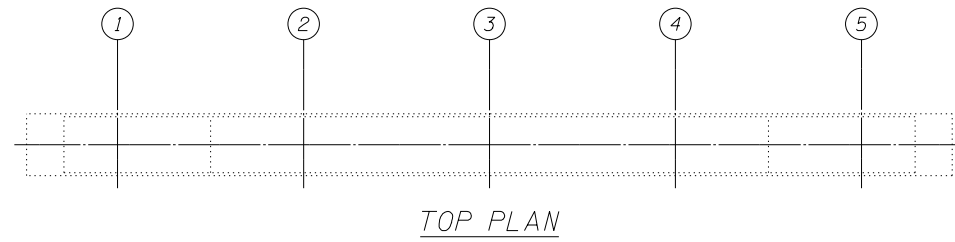
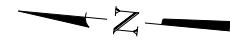
PIER REPAIR II
S.N. 049-0048

SHEET NO. S28 OF 37 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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* 121VB-1&2&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

LEGEND:

 Structural Repair of Concrete



BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	3.9

NOTES

Quantities for Structural Repair of Concrete are approximate. Structural Repair of Concrete (Depth Equal to or less than 5") were estimated from field observations and the current Bridge Condition Report. Access Restriction with the CPRR prevented inspection of the Pier Caps and Bearings at the Pier. The actual repair areas will be determined by the Resident Engineer. Actual repair locations shall be shown on the as-built plans. The Contractor will be paid for the quantity furnished.

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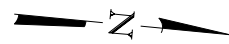
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER REPAIR III
S.N. 049-0049

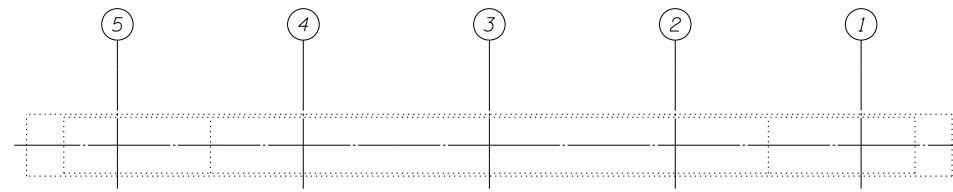
SHEET NO. S29 OF 37 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	150
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

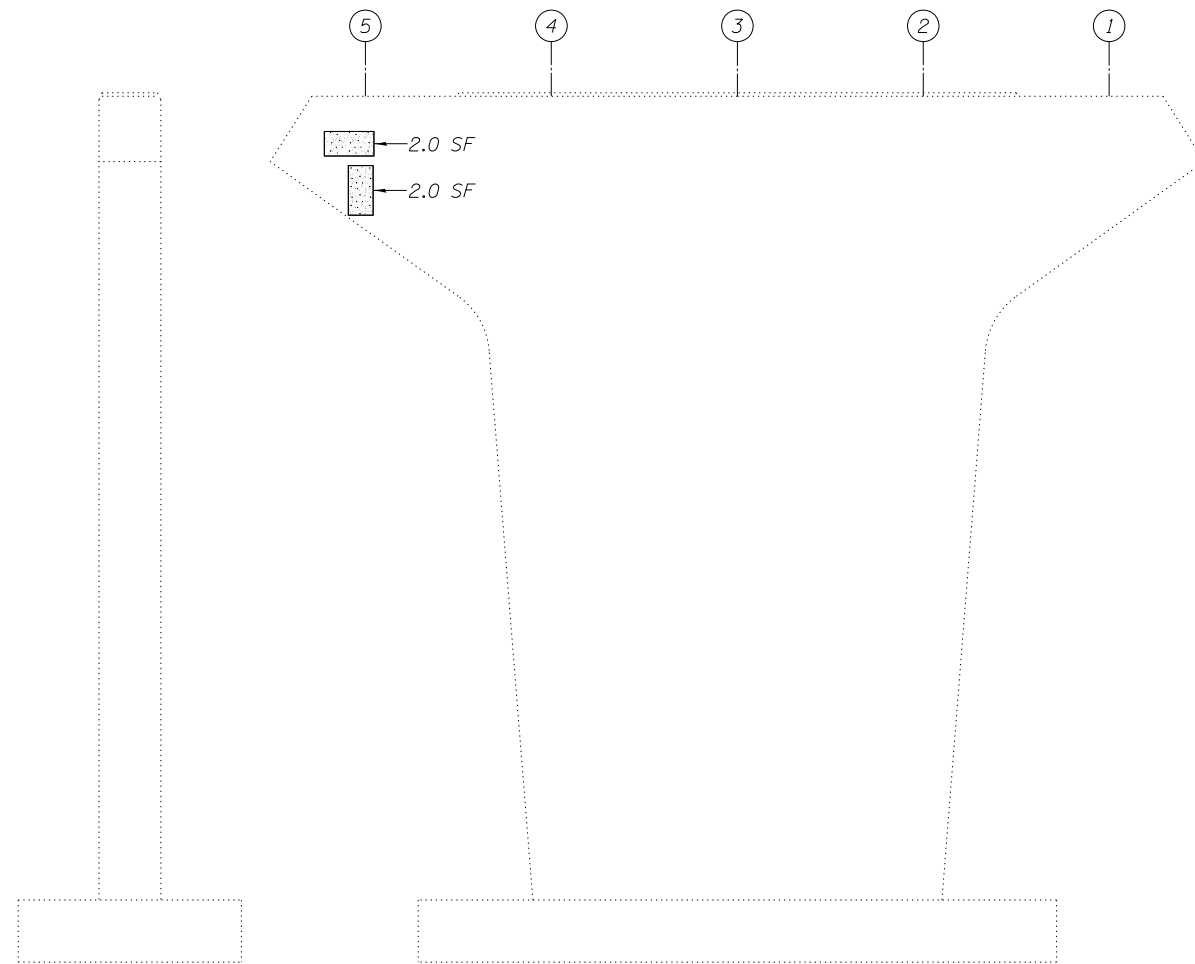


LEGEND:

Structural Repair of Concrete

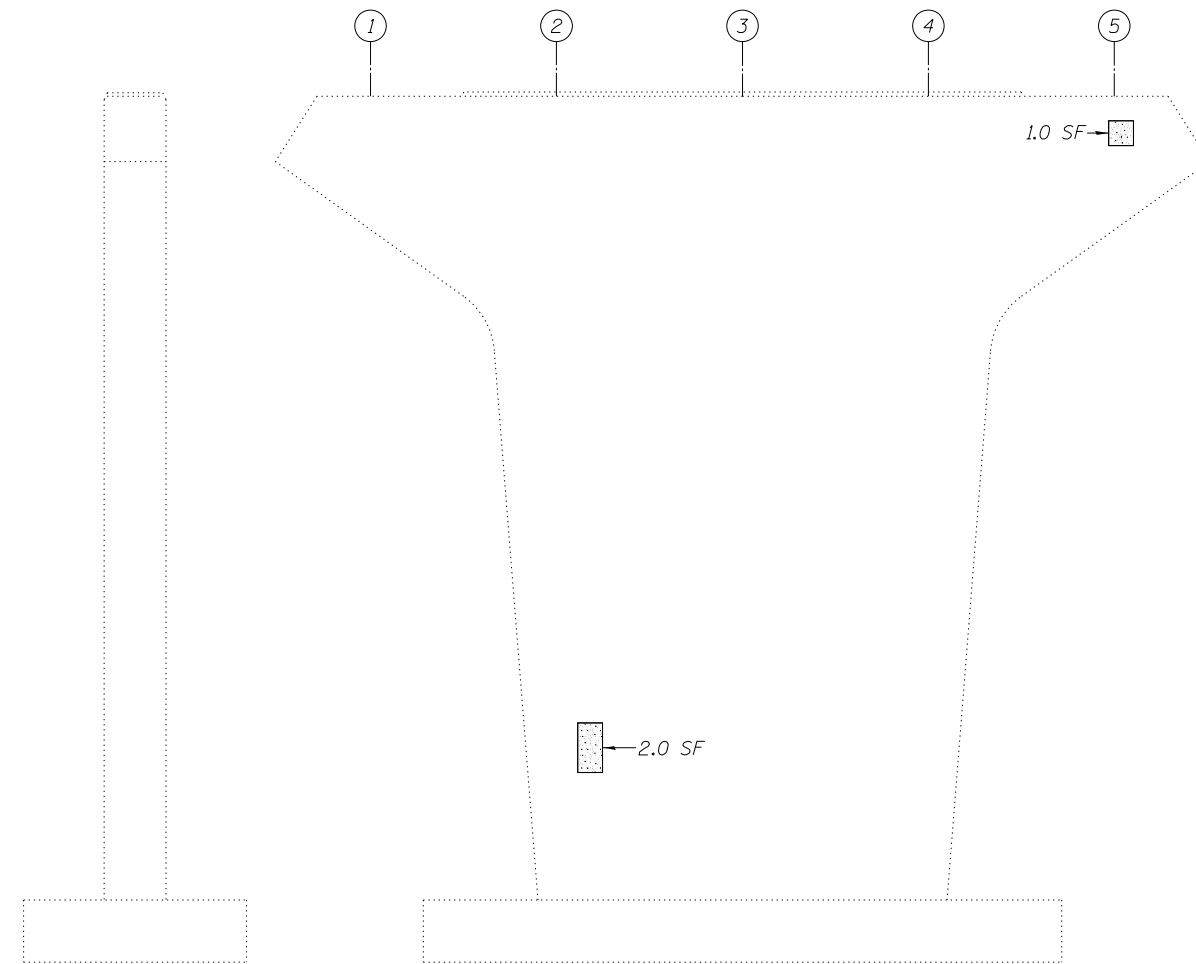


TOP PLAN



END VIEW
(Looking North)

PIER 2 EAST FACE
(Looking West)



END VIEW
(Looking South)

PIER 2 WEST FACE
(Looking East)

BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	7.0

NOTES

Quantities for Structural Repair of Concrete are approximate. Structural Repair of Concrete (Depth Equal to or less than 5") were estimated from field observations and the current Bridge Condition Report. Access Restriction with the CPRR prevented inspection of the Pier Caps and Bearings at the Pier. The actual repair areas will be determined by the Resident Engineer. Actual repair locations shall be shown on the as-built plans. The Contractor will be paid for the quantity furnished.

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8501 W. Higgins Road, Suite 280
Chicago, Illinois 60631; (773) 399-0112

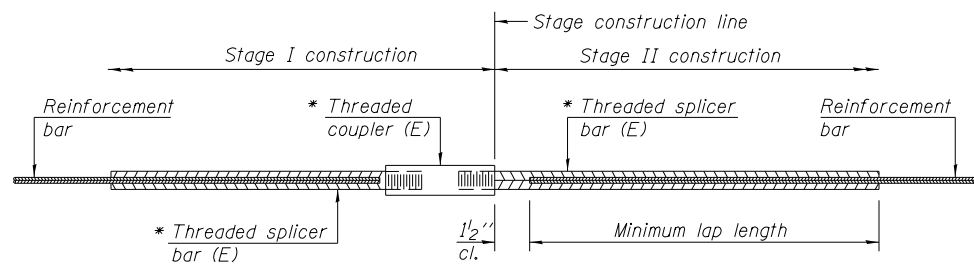
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	CHECKED - NDR	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER REPAIR IV
S.N. 049-0049

SHEET NO. S30 OF 37 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	151
* 121VB-1&2&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

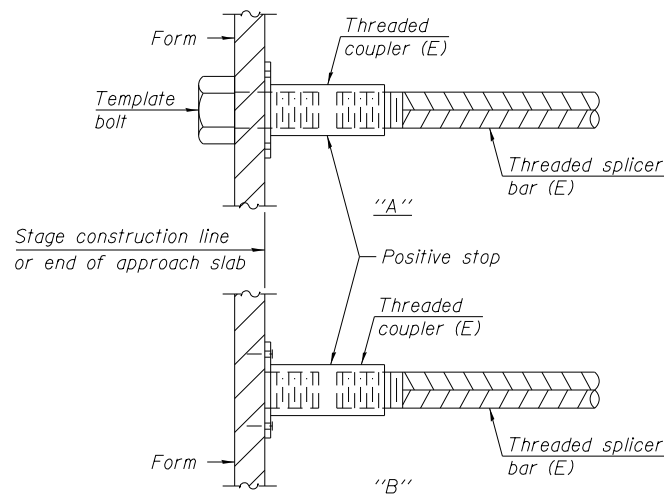


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1/2" + thread length

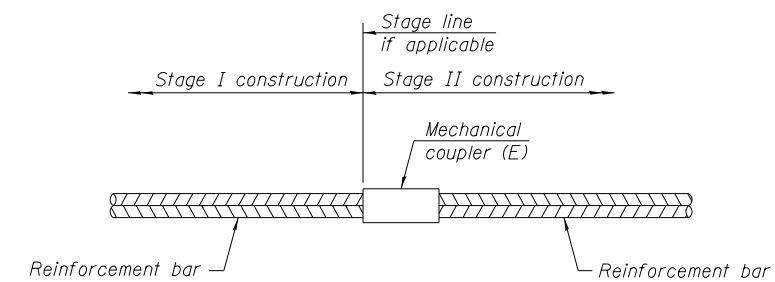
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length



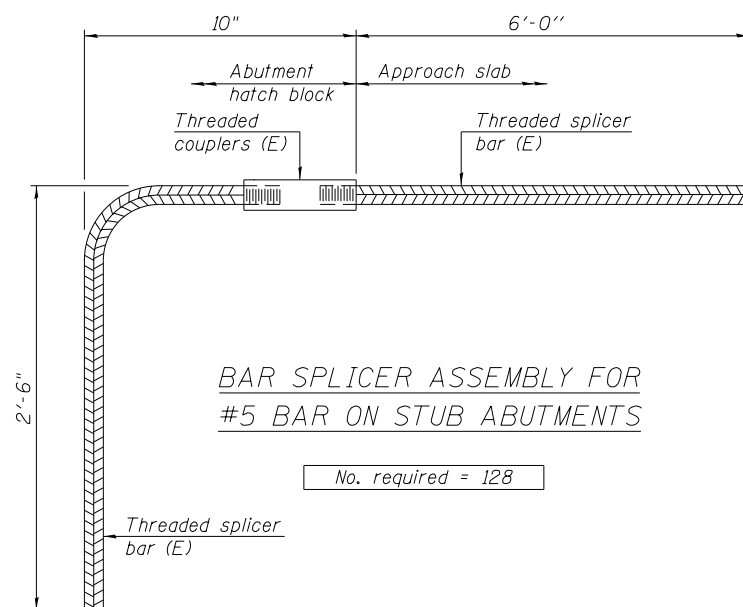
INSTALLATION AND SETTING METHODS

"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.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required = 128

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
 All reinforcement shall be lapped and tied to the splicer bars.
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

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6-8-15

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	CHECKED - NDR	REVISED -
PLOT SCALE =	DRAWN - DLG	REVISED -
PLOT DATE = 3/21/2017 10:45:42 AM	DATE - 08/26/2015	REVISED -

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	152
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FAP RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	(G&12) 1-RS-1	LAKE	66	1

D-91-355-96

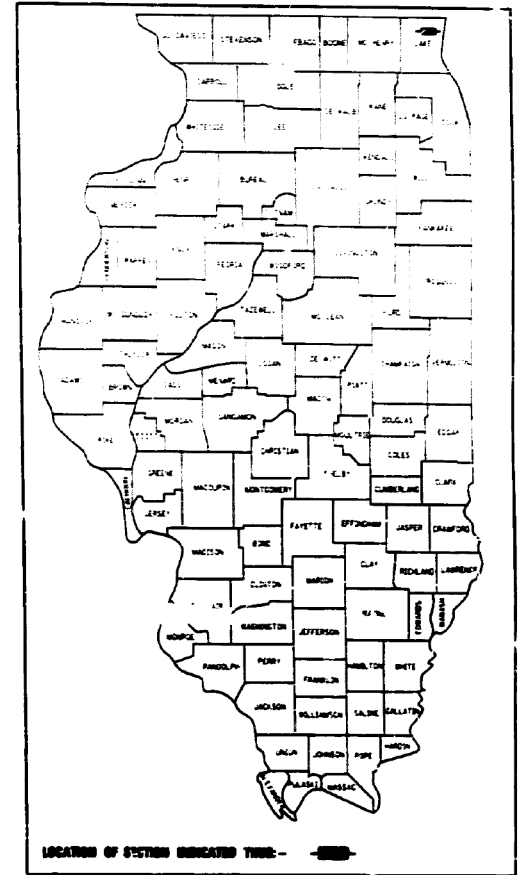
PLANS FOR PROPOSED HIGHWAY

FOR INDEX OF SHEETS, SEE SHEET NO. 2

IMPROVEMENT LOCATED IN
THE VILLAG OF GURNEE AND
THE CITIES OF WAUKEGAN AND
PARK CITY

FAP 342 - IL ROUTE 120 (BELVIDERE ROAD)
SECTION: (G&12) 1-RS-1
ALMOND ROAD TO GREENLEAF STREET
RESURFACING (MAINTENANCE), BRIDGE
REHABILITATION AND LOOP DETECTORS
LAKE COUNTY
C-91-355-96

FOR INFORMATION ONLY

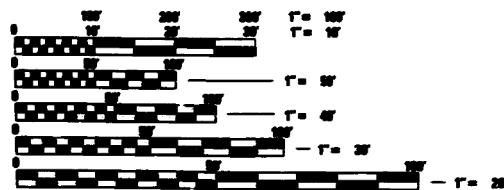


STRUCTURE INFORMATION

STA. 350+63 LENGTH = 31.6 FT S.N. = 049-0044	STA. 367+16.86 LENGTH = 175.0 FT S.N. = 049-0046	STA. 367+16.86 LENGTH = 175.0 FT S.N. = 049-0047
STA. 461+95.54 LENGTH = 157.7 FT S.N. = 049-0048	STA. 461+95.54 LENGTH = 157.7 FT S.N. = 049-0049	
STA. 461+96.29 (ONRAMP FROM GREENLEAF TO WB IL 120) LENGTH = 158.1 FT S.N. = 049-0129	STA. 461+96.29 (OFFRAMP FROM EB IL 120 TO GREENLEAF) LENGTH = 158.1 FT S.N. = 049-0130	
STA. 473+43.17 LENGTH = 143.4 FT S.N. = 049-0125	STA. 473+43.17 LENGTH = 143.4 FT S.N. = 049-0126	
N.W. RAMP IL 120 & IL 21 LENGTH = 29.5 FT S.N. = 049-0053		

OMISSION
STA. 414+40 TO
STA. 416+53.5

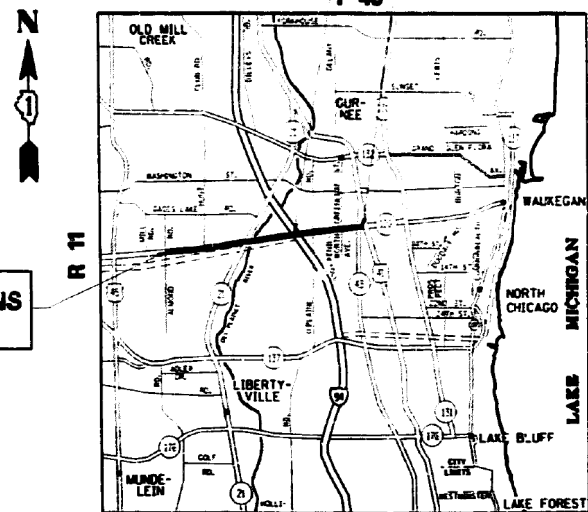
IMPROVEMENT ENDS
STA. 499+07



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD
ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT
CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS
ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.L.L.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
230-982-9123

CONTRACT NO. 60183



IMPROVEMENT BEGINS
STA. 259+95

ADT (1996)

ALMOND RD TO HUNT CLUB RD	25,000
HUNT CLUB RD TO IL 21	27,600
IL 21 TO I 94	30,500
I 94 TO GREENLEAF ST	33,000

POSTED SPEED LIMITS = 50 MPH
55 MPH

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED December 19, 2000

John L. Hill DISTRICT ENGINEER

February 2, 2001

Michael Hill
CHIEF OF DESIGN AND ENVIRONMENT

February 2, 2001

James R. Slayton
DIRECTOR, DIVISION OF HIGHWAYS

PRINTED BY AUTHORITY OF THE
STATE OF ILLINOIS

GROSS LENGTH: 22,947 FEET = 4.346 MILES
NET LENGTH: 22,947 FEET = 4.346 MILES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

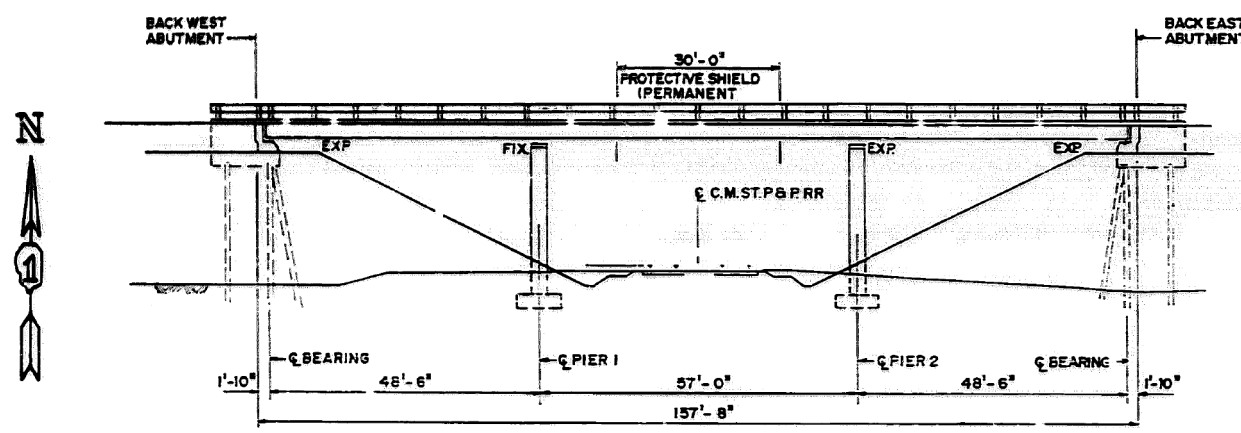
S.N. 049-0048 & S.N. 049-0049

SHEET NO. S32 OF 37 SHEETS

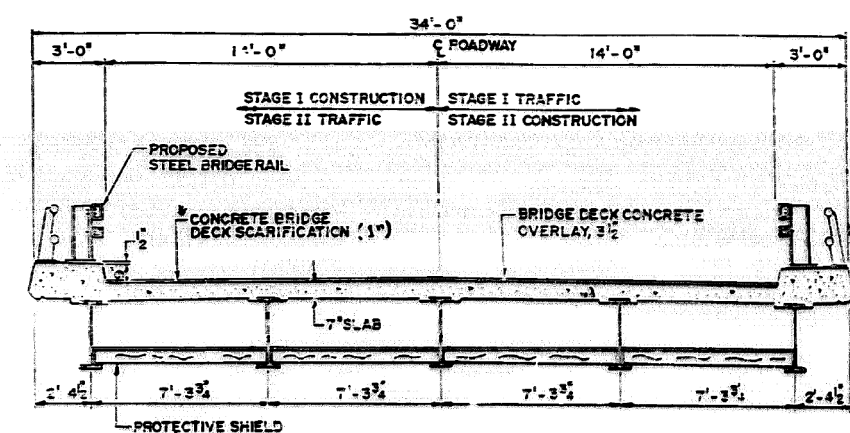
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	153
* 12(VB-1&2)&12R-1(BB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

USER NAME =	DESIGNED -	REVISED -
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	DATE - 08/26/2015	REVISED -

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
34-16012H-1	LAKE	66	35
STA TO STA		FED. ROAD DIST. NO. X. ILLINOIS	
		FED. AID PROJECT	



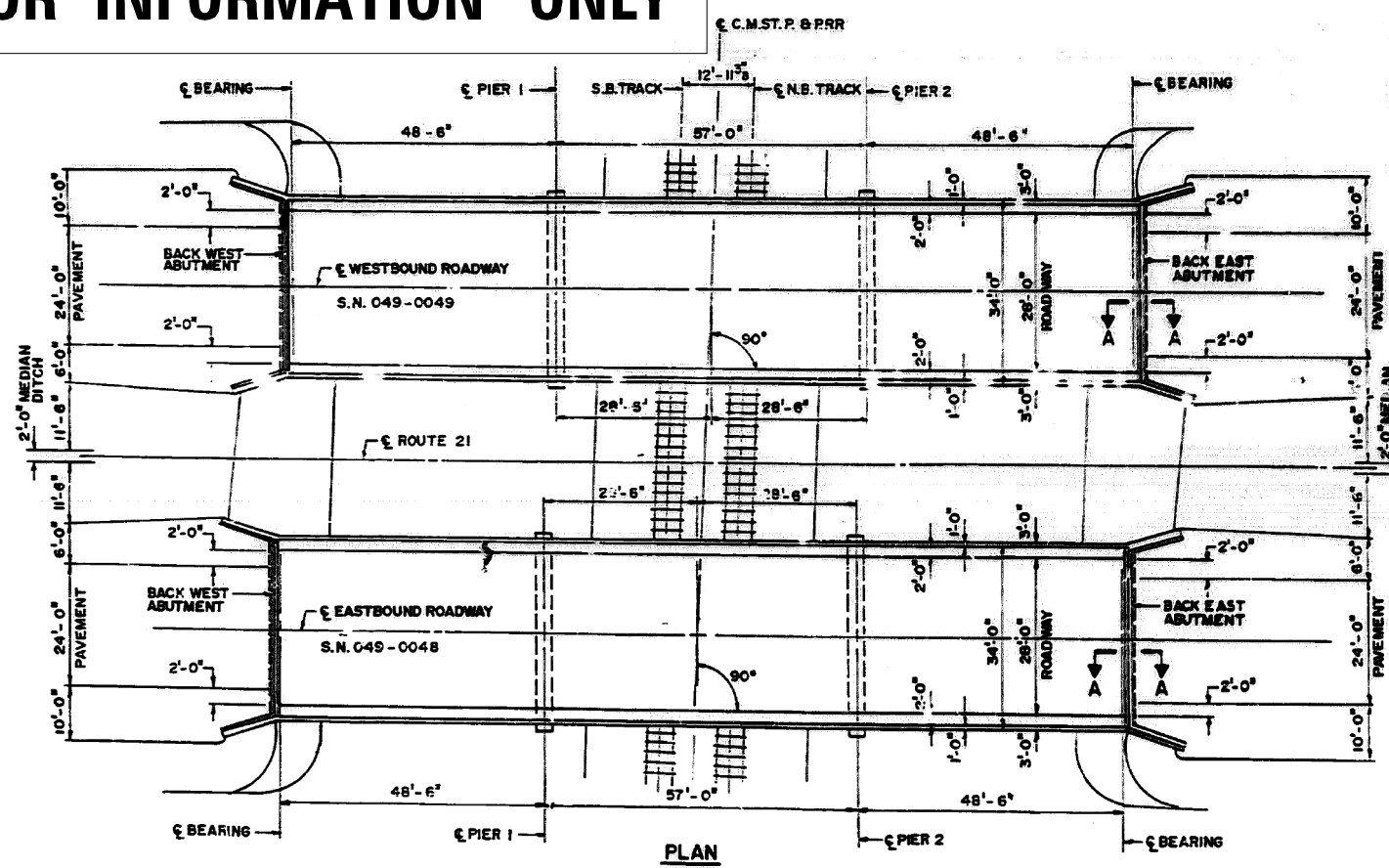
ELEVATION



CROSS SECTION

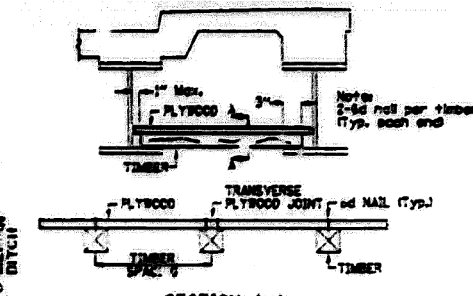
ITEM	UNIT	QUANTITY
STEEL BRIDGE RAIL	FOOT	631
FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	4,120
CONCRETE REPAIR (FULL DEPTH, TYPE I)	SG. YD	50
PROTECTIVE SHIELD (PERMANENT)	90.YD	195
CONCRETE REMOVAL	CU. YD	18
CONCRETE SUPERSTRUCTURE	CU. YD	17.3
REINFORCEMENT BARS (EPOXY COATED)	POUND	3440
CONCRETE BRIDGE DECK SCARIFICATION	SG. YD	981
BRIDGE DECK CONCRETE OVERLAY, 3 1/2"	SG. YD	981
BRIDGE DECK GROOVING	SG. YD	900
PREFORMED JOINT SEAL, 2 1/2"	FOOT	60
PREFORMED JOINT SEAL, 4"	FOOT	60
BAR SPLICER	EACH	48

FOR INFORMATION ONLY



PLAN

SPAN SPACING (FT.)	TIMBER SIZES (CU)				
	12	12	12	12	12
7.5	8	12	12	12	15



SECTION A-A
PROTECTIVE SHIELD DETAIL

GENERAL NOTES

PLAN DIMENSIONS AND DETAILS RELATIVE TO THE 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 DIMENSION AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATION SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF WORK, HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE ACTUAL QUANTITY FURNISHED AT THE UNIT BID PRICE FOR THE WORK.

ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M-270, GR.36 UNLESS OTHERWISE SPECIFIED.

REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31, M-42 OR M-53 GRADE EC.

THE REINSTALLATION OF THE EXISTING HANDRAIL IN THE CONCRETE REMOVAL AREA IS INCLUDED IN THE COST OF "CONCRETE SUPERSTRUCTURE".

BEFORE POURING THE NEW CONCRETE FOR THE DECK, ALL LOOSE RUST, LOOSE MILL SCALE AND ALL OTHER LOOSE, DETRIMENTAL FOREIGN MATERIAL SHALL BE REMOVED FROM THE PORTIONS OF FLANGES OF BEAMS IN CONTACT WITH CONCRETE. THE REMOVAL SHALL BE ACCOMPLISHED ACCORDING TO THE REQUIREMENTS OF THE SSCC SURFACE PREPARATION SPECIFICATIONS SP-3 FOR POWER TOOL CLEANING OR SP-3 FOR HAND TOOL CLEANING. COST SHALL BE INCLUDED IN THE COST OF "CONCRETE SUPERSTRUCTURE".

THE EXISTING STRUCTURAL STEEL COATING CONTAINS LEAD. THE CONTRACTOR SHOULD TAKE APPROPRIATE PRECAUTIONS TO DEAL WITH THE PRESENCE OF LEAD ON THIS PROJECT.

ALL STRUCTURAL STEEL SHALL BE SHOP PAINTED WITH THE INORGANIC ZINC RICH PRIMER PER AASHTO M 300, TYPE 1. COST SHALL BE INCLUDED IN THE COST OF "FURNISHING AND ERECTING STRUCTURAL STEEL".

ANY REINFORCEMENT BARS THAT ARE DAMAGED DURING THE CONCRETE REMOVAL SHALL BE REPLACED WITH AN APPROVED BAR SPLICER OR ANCHORAGE SYSTEM. COST INCLUDED IN THE COST OF "CONCRETE REMOVAL".

ALL CONCRETE REMOVAL SHALL BE PERFORMED BY THE HYDRODEMOLITION METHOD.

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 of the beams or girders in contact 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 of the Standard Specifications.

NAME	DATE
Thomas M. Stornery	5/1999
TMS	4/2000

ILLINOIS DEPARTMENT OF TRANSPORTATION
**IL 120 (EASTBOUND AND WESTBOUND)
 OVER SOO LINE RAILROAD
 PLAN, ELEVATION, CROSS SECTION
 S.N.049-0048 AND S.N.049-0049**

SCALE: VERT. HORIZ. DATE: FEBRUARY 1999 DRAWN BY: MVT CHECKED BY: TMS

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	DATE - 08/26/2015	REVISED -

049-0048.9

049-0048
049-0049

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS AND BUILDINGS
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
FEDERAL AID HIGHWAY

FEDERAL AID ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
FA. 21 12-VF-1	18	LAKE	18	1
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	CG-43 (12)	

INDEX OF SHEETS
SEC. 12VF-1

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	GENERAL PLAN & SUMMARY OF QUANTITIES
SHEET NO. 3	GENERAL NOTES
SHEET NO. 4	STRUCTURAL AND REINFORCEMENT PLAN
SHEET NO. 5	STRUCTURAL STEEL PLAN & DETAILS
SHEET NO. 6	HANDRAIL DETAILS
SHEET NO. 7	ABUTMENTS AND WINGWALLS
SHEET NO. 8 & 9	ROAD PLANS AND PROFILE

SCALES

PLAN	1 INCH	30 FT.
PROFILE, HOR.	1 INCH	50 FT.
PROFILE, VERT.	1 INCH	10 FT.
CROSS-SECTIONS	1 INCH	5 FT.

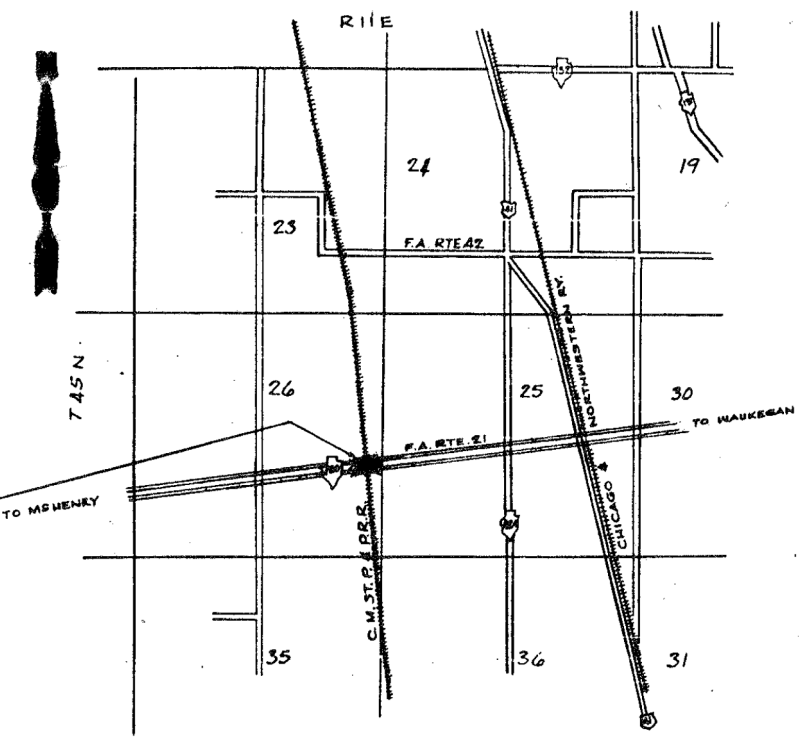
F.A. ROUTE 21 SECTION 12-VB-1 & 12-VF-1
PROJECT FG - 43 (12)
LAKE COUNTY



FOR INFORMATION ONLY

INDEX OF SHEETS
SEC. 12VB-1

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	GENERAL PLAN, ELEVATION & SUMMARY OF QUANTITIES
SHEET NO. 3	PROFILES, BORINGS, & NAME PLATES
SHEET NO. 4	DECK REINFORCEMENT PLAN
SHEET NO. 5	STRUCTURAL STEEL PLAN & DETAILS
SHEET NO. 6	HANDRAIL DETAILS
SHEET NO. 7	ABUTMENTS & WINGWALLS
SHEET NO. 8	PIER 1
SHEET NO. 9	PIER 2
SHEET NO. 10	REINFORCEMENT BAR LISTS
SHEET NO. 11	PILING DETAILS
SHEET NO. 12	ROAD PLANS & PROFILES
SHEET NO. 13	ROAD PLANS & PROFILES
SHEET NO. 14	CROSS SECTIONS
SHEET NO. 15	STD. 1686 R & 2113
SHEET NO. 16	STD. 2123, 1971S, 1972 R & 2114
SHEET NO. 16A	STD. 2136



SECTION 12-VF-1 INCLUDES FURNISHING AND FABRICATING STRUCTURAL STEEL AND METAL HANDRAIL, FURNISHING AND APPLYING SHOP COAT OF PAINT, AND DELIVERY OF STRUCTURAL STEEL AND METAL HANDRAIL AS SPECIFIED IN NOTE BELOW FOR TWO PARALLEL I-BEAM BRIDGES, SPANS 2 AT 48'-6" AND 1 AT 57'-0" AT STA. 461+95.34 OVER THE CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC R.R.

NOTE: STRUCTURAL STEEL AND METAL HANDRAIL SHALL BE DELIVERED F.O.B. THE CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILROAD SHOPS AT BUNYON, ILLINOIS EXCEPT THAT DELIVERY MAY BE MADE F.O.B. SAID SHOPS BY TRUCK IF SUITABLE ARRANGEMENTS ARE MADE WITH THE CONTRACTOR FOR SECTION 12-VB-1.

SECTION 12-VB-1 INCLUDES THE CONSTRUCTION OF TWO PARALLEL I-BEAM BRIDGES SPANS 2 AT 48'-6" AND 1 AT 57'-0" AT STA. 461+95.34 OVER THE CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC R.R. WITH THE EXCEPTION OF FURNISHING, FABRICATING, AND SHOP PAINTING STRUCTURAL STEEL AND METAL HANDRAIL AS SPECIFIED IN NOTE ABOVE.

NET LENGTH OF PROJECT = 157.66 ± .030 MILE
GROSS LIMIT OF CONTRACT = 1642.30 ± .310 MILE
NET LIMIT OF CONTRACT = 1630.00 ± .3088 MILE

SCALE : 3" = 1 MILE

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS AND BUILDINGS
DIVISION OF HIGHWAYS

SUBMITTED NOV 23 1956

EXAMINED January 18 1957

PASSED January 18 1957

APPROVED January 18 1957

APPROVED January 18 1957

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

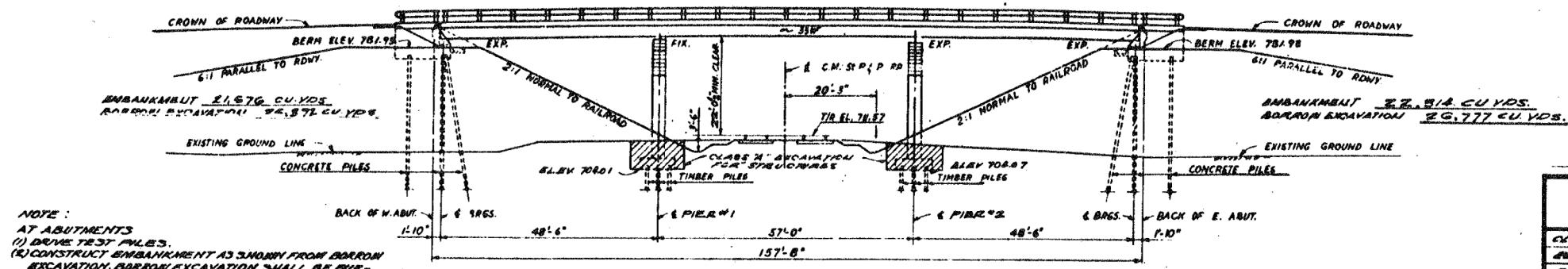
APPROVED

DISTRICT ENGINEER DATE

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DM #17 - SPKLE IN ROOT OF 25" MAPLE
 85' L.P. OF STA. 4617 - ELEV. 708.68
 NO EXISTING STRUCTURE

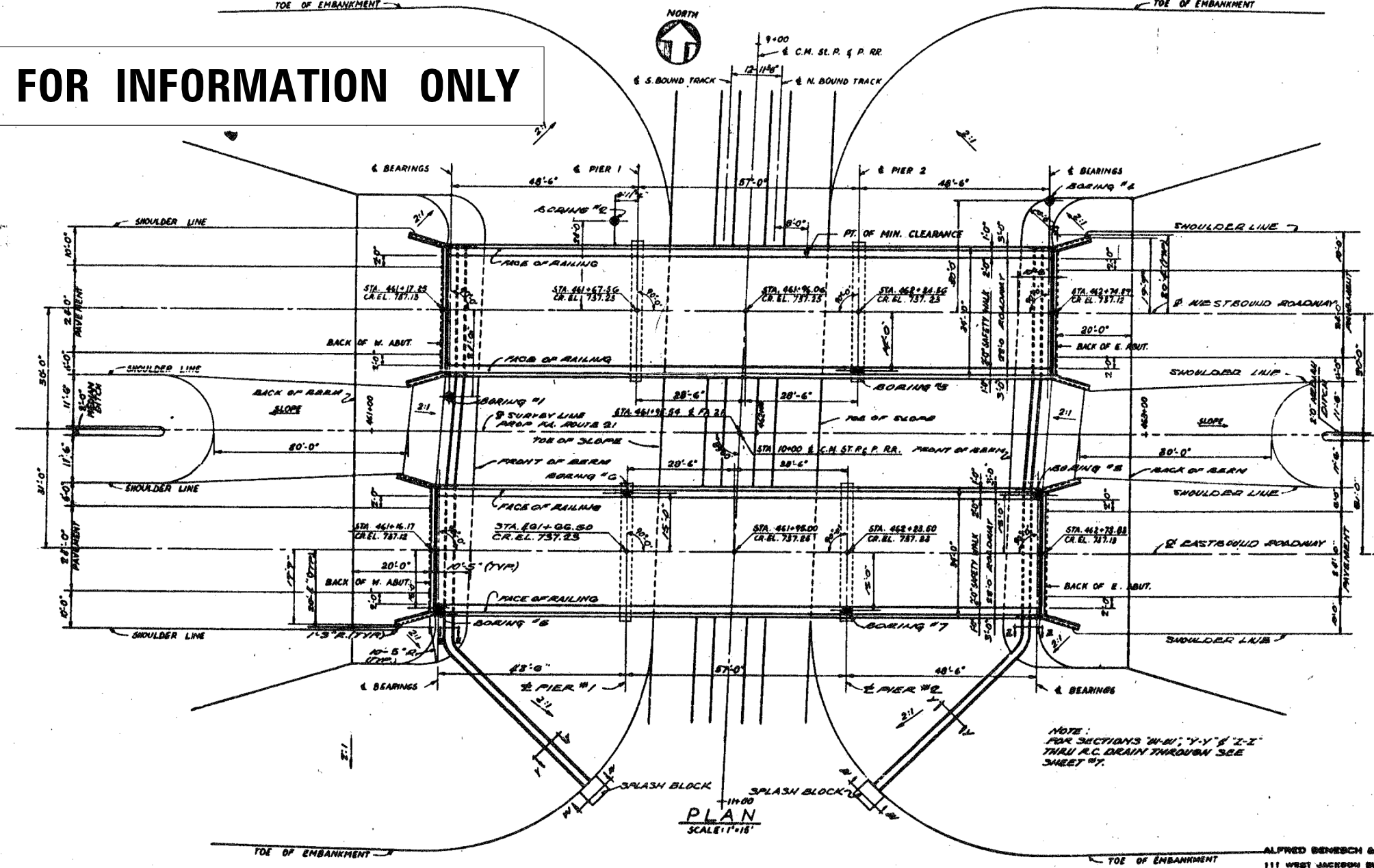
FEDERAL AID DISTRICT	STATE	COUNTY	TOTAL SHEETS	SHEET NO.
1A 21	ILLINOIS	LAKE	16	2
STA.		TO STA.		
740 ROAD DIV. 4		ILLINOIS FED. AID DISTRICT 1A-21		



NOTE:
 AT ABUTMENTS
 (1) DRIVE TEST PILES.
 (2) CONSTRUCT EMBANKMENT AS SHOWN FROM BORROW EXCAVATION. BORROW EXCAVATION SHALL BE FURNISHED BY CONTRACTOR FOR SECTION 12-VB-1.
 (3) DRIVE REMAINDER OF PILES THROUGH EMBANKMENTS. SEE SPECIAL PROVISIONS.

ELEVATION
 SCALE: 1"=18'

FOR INFORMATION ONLY



PLAN
 SCALE: 1"=18'

SUMMARY OF QUANTITIES - SECTION 12-VB-1

ITEM	UNIT	QUANTITY			TOTAL
		N. BRIDGE	S. BRIDGE	2 BRIDGES	
CLASS "X" CONCRETE	CU. YDS.	188.5	216.5	405.0	708.6
REINFORCING BARS	LBS	28,990	18,740	47,730	71,460
ERECTING METAL HANDRAIL	LIN. FT.	807.2	85.8	893.0	706.0
MANHOLE	EACH	1	1	2	2
REINFORCING CONCRETE PILES	LIN. FT.	780	780	1560	1560
DRIVING CONCRETE PILES	LIN. FT.	780	780	1560	1560
TEST PILES (CONCRETE)	EACH	2	2	4	4
TEST PILES (TIMBER)	EACH	2	2	4	4
CLASS "B" CONCRETE	CU. YDS.	106	106	212	212
REINFORCING BARS	LBS	1775	1775	3550	3550
BORROW EXCAVATION	CU. YDS.	—	—	—	26,009
ERTH EXCAVATION	CU. YDS.	—	—	—	1381
REINFORCING CONCRETE	YDS.	—	—	—	268
REINFORCING CONCRETE SURFACE COURSE	YDS.	—	—	—	248
REINFORCING CONCRETE	YDS.	—	—	—	1676
REINFORCING CONCRETE	YDS.	—	—	—	158
REINFORCING CONCRETE	YDS.	—	—	—	56
REINFORCING CONCRETE	YDS.	—	—	—	48
REINFORCING CONCRETE	YDS.	—	—	—	32
REINFORCING CONCRETE	YDS.	—	—	—	92
REINFORCING CONCRETE	YDS.	—	—	—	18
REINFORCING CONCRETE	YDS.	—	—	—	87
REINFORCING CONCRETE	YDS.	—	—	—	1304
REINFORCING CONCRETE	YDS.	—	—	—	80
GUIDE POSTS	EACH	—	—	—	20

SUMMARY OF QUANTITIES - SECTION 12-VF-1

ITEM	UNIT	QUANTITY		
		N. BRIDGE	S. BRIDGE	TOTAL
FURNISHING STRUCTURAL STEEL	LBS	18,475.0	13,475.0	31,950.0
FURNISHING METAL HANDRAIL	LIN. FT.	853.0	366.0	706.0

LOADING:
 H 20-56-44

STRESSES:

- S STRUCTURAL STEEL • 18,000 PSI
- R REINFORCING STEEL • 20,000 PSI
- K CONCRETE - SUPERSTR. • 1,400 PSI
- L CONCRETE - ABUTMENTS & PIERS • 800 PSI

MAX. PILE LOADS:
 ABUTMENTS - 35 TONS
 PIERS - 20 TONS

EXAMINED DEC. 7 1956
 [Signature]
 [Signature]
 [Signature]

GENERAL PLAN, ELEVATION & QUANTITIES
 GRADE SEPARATION
 F.A. ROUTE 21 OVER
 CHICAGO, MILWAUKEE, ST. PAUL
 & PACIFIC R.R.
 PROJECT # 49(12)
 F.A. ROUTE 21 SECTION 12-VB-1 & 12-VF-1
 LAKE COUNTY
 STATION 461+95.54

049-0048 & 0049

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GR&E
 8501 W. Higgins Road, Suite 280
 Chicago, Illinois 60631; (773) 399-0112

USER NAME =	DESIGNED -	REVISED -
PLOT SCALE =	CHECKED -	REVISED -
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	DATE - 08/26/2015	REVISED -

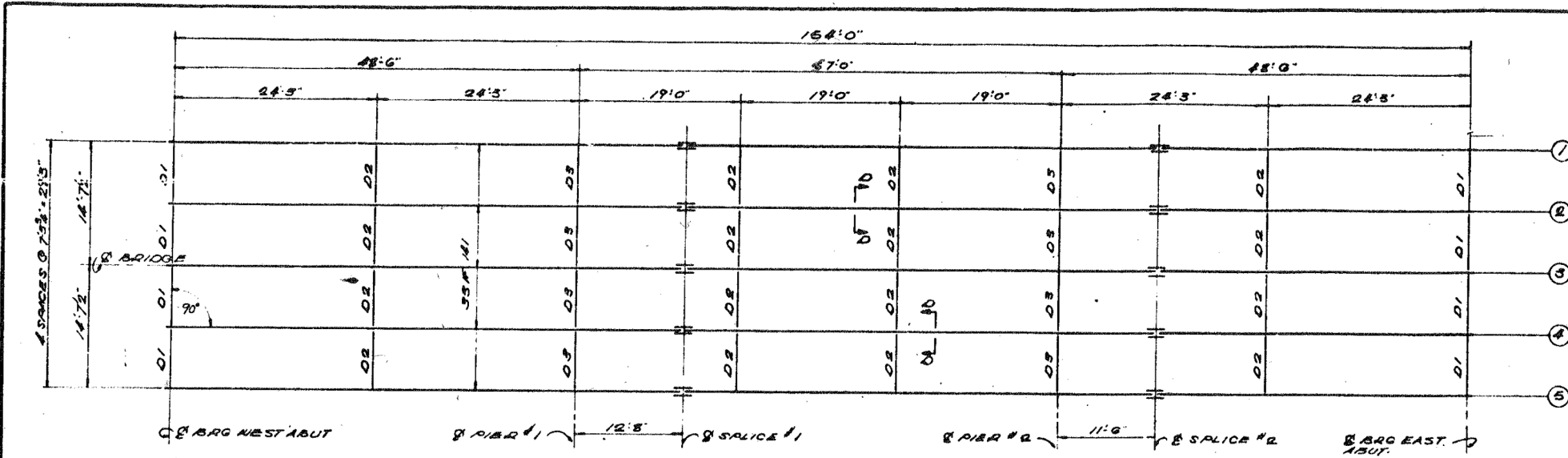
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

S.N. 049-0048 & S.N. 049-0049

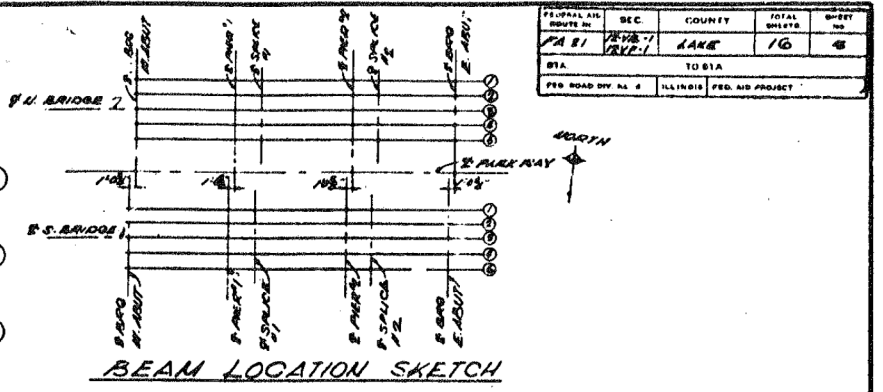
SHEET NO. S35 OF 37 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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* 12(VB-1&2)&12R-1(BB-2)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				

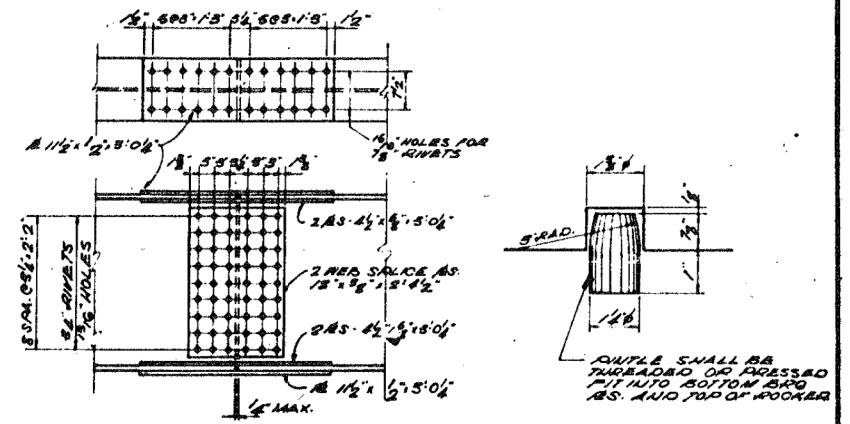
FEDERAL AID ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
PA 21	212	LAKE	16	5
TO STA.				
FED. ROAD DIST. NO. 4				
ILLINOIS FED. AID PROJECT				



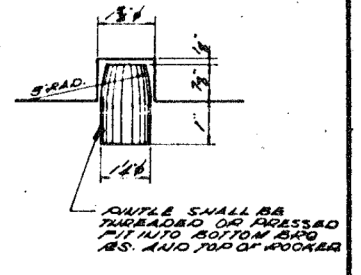
PLAN OF NORTH BRIDGE STRUCTURAL STEEL
SOUTH BRIDGE SIMILAR
SCALE: 1/8" = 1'-0"



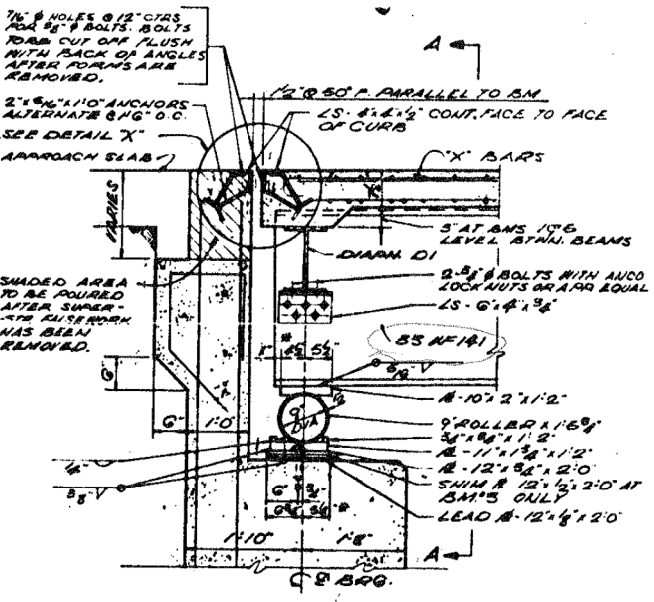
BEAM LOCATION SKETCH



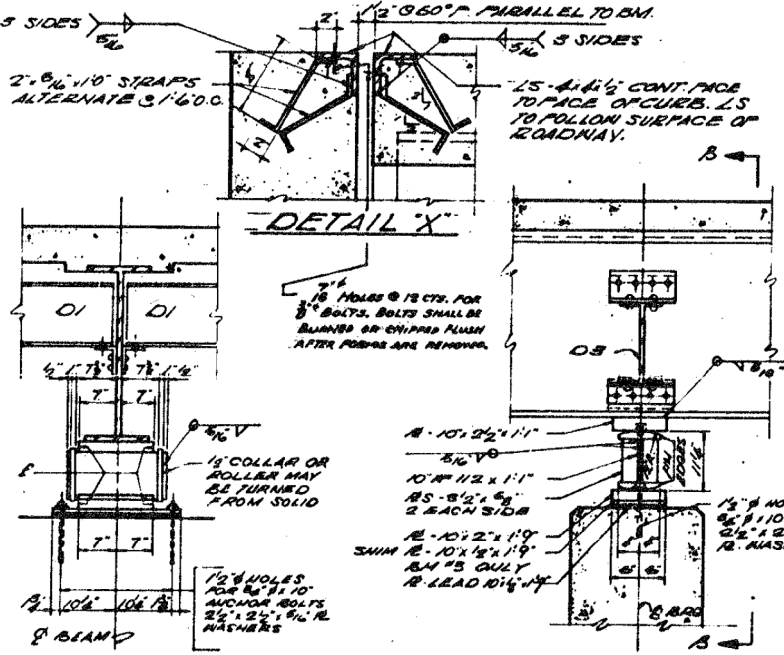
FIELD SPLICE DETAIL



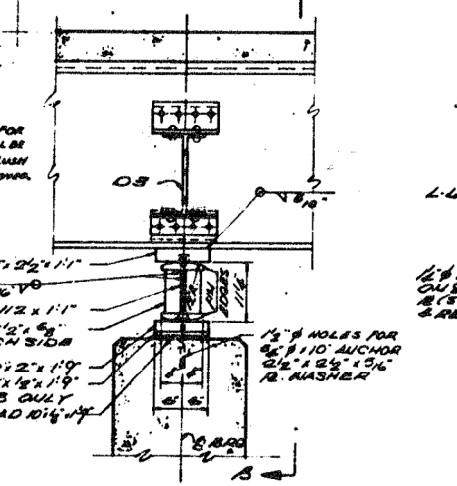
PINNACLE DETAIL



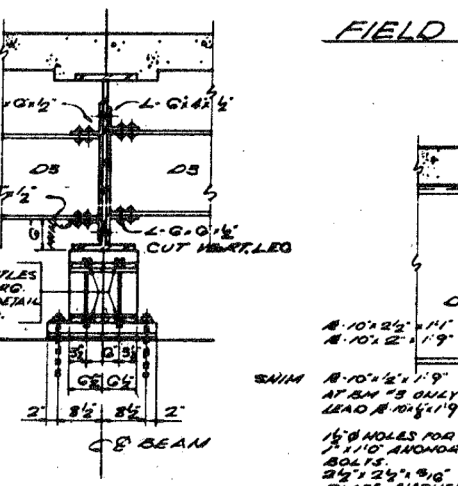
SECTION AT ABUTMENTS



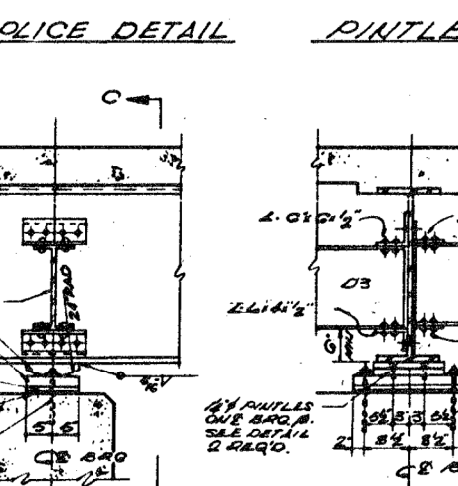
SECTION A-A



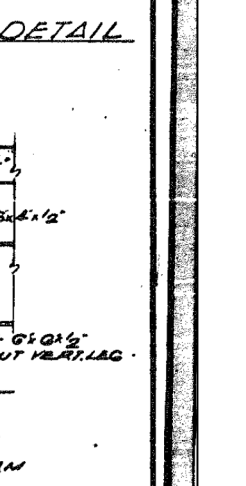
SECTION AT PIER #2



SECTION B-B



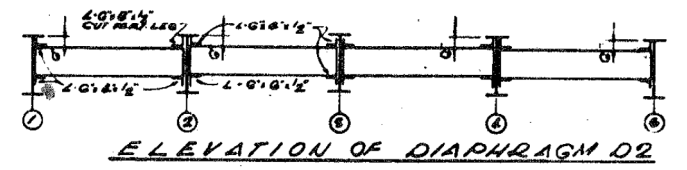
SECTION AT PIER #1



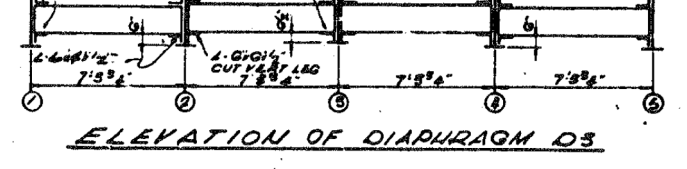
SECTION C-C

NOTE TO ERECTOR:
INCREASE EACH DIMENSION MARKED
THUS BY SAME AMOUNT IF ABUT. HAS
MOVED OR TEMP. IS ABOVE 50°F. INCREASE
EACH BY SAME AMOUNT IF TEMP. IS BELOW 50°F.

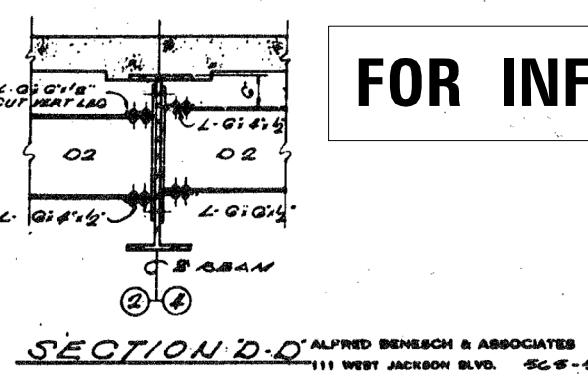
LOCAL	NORTH BRIDGE					SOUTH BRIDGE				
	BM 1	BM 2	BM 3	BM 4	BM 5	BM 1	BM 2	BM 3	BM 4	BM 5
B BRG. WEST ABUT.	736.326	736.400	736.508	736.600	736.826	736.328	736.463	736.505	736.623	736.323
B PIER #1	736.415	736.555	736.617	736.578	736.415	736.415	736.555	736.577	736.555	736.415
B SPLICE #1	736.438	736.578	736.620	736.578	736.438	736.438	736.578	736.620	736.578	736.438
B PIER #2	736.416	736.556	736.598	736.556	736.416	736.417	736.557	736.599	736.557	736.417
B SPLICE #2	736.410	736.550	736.592	736.550	736.410	736.412	736.552	736.594	736.552	736.412
B BRG. EAST ABUT.	736.328	736.463	736.505	736.463	736.328	736.326	736.466	736.508	736.466	736.326



ELEVATION OF DIAPHRAGM D2



ELEVATION OF DIAPHRAGM D3



SECTION D-D

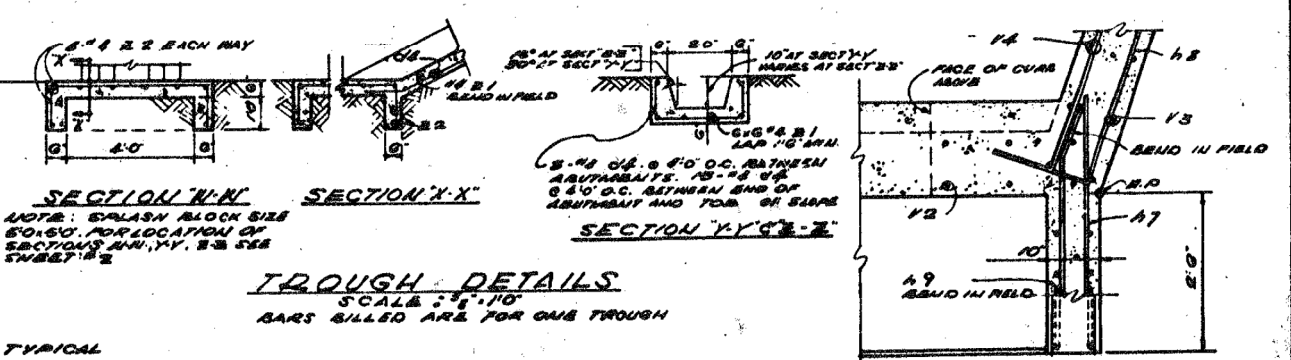
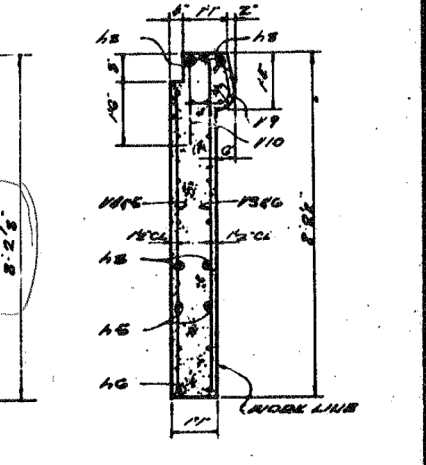
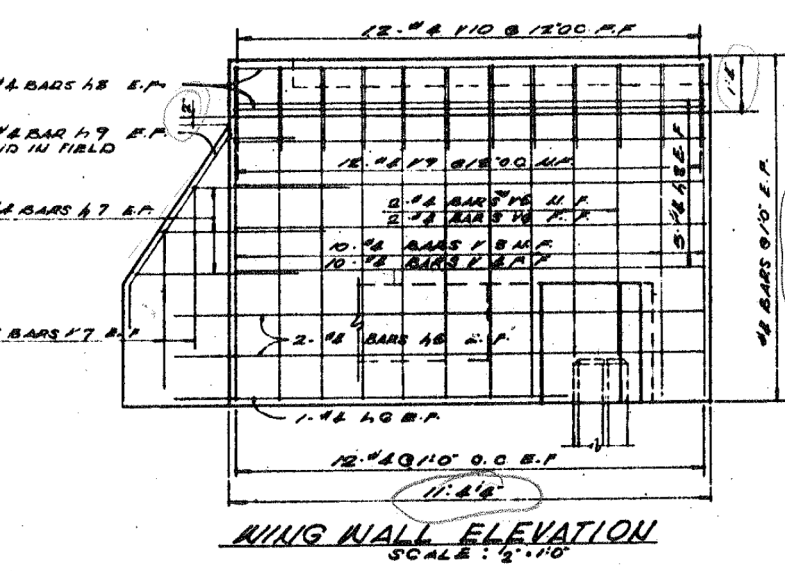
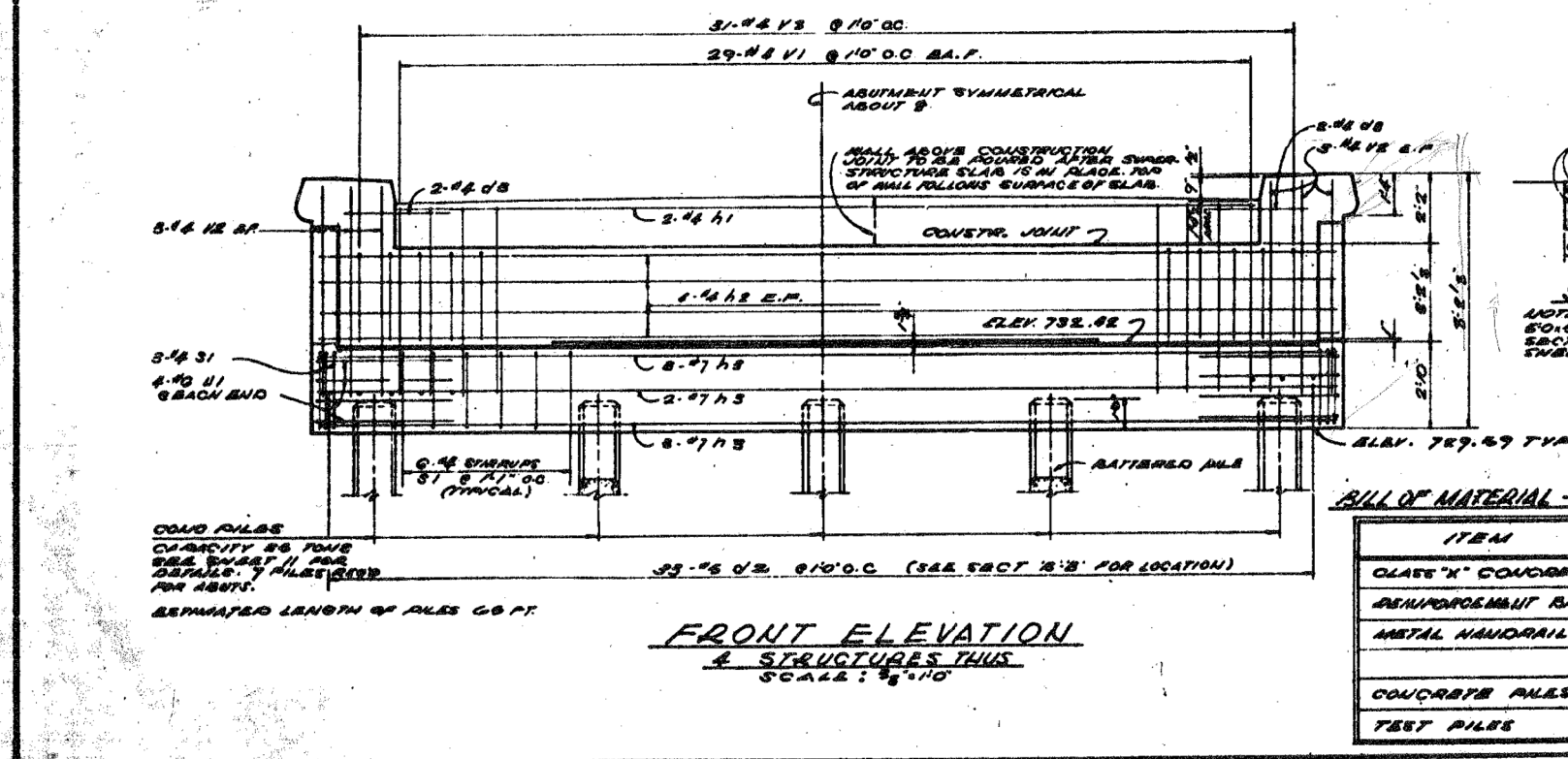
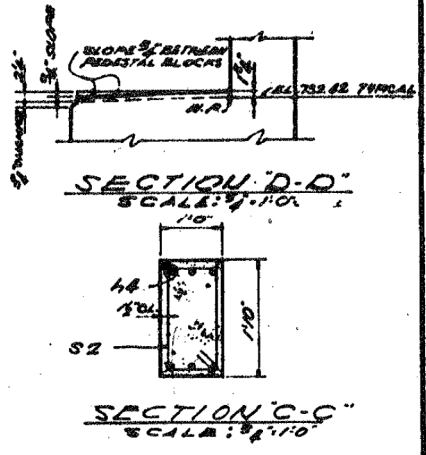
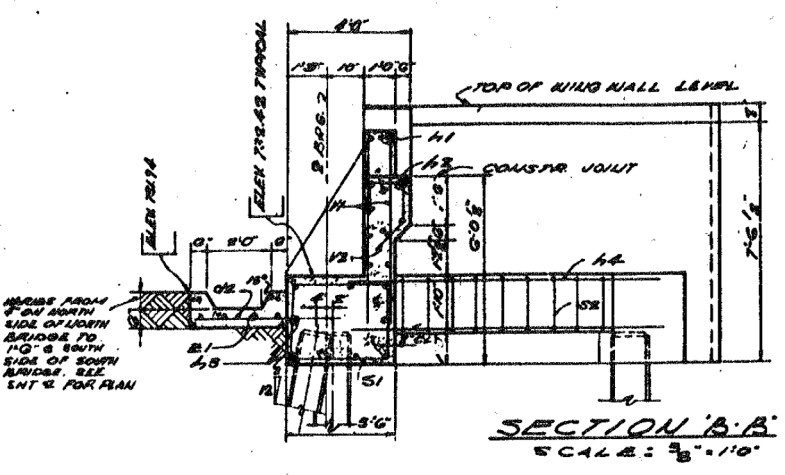
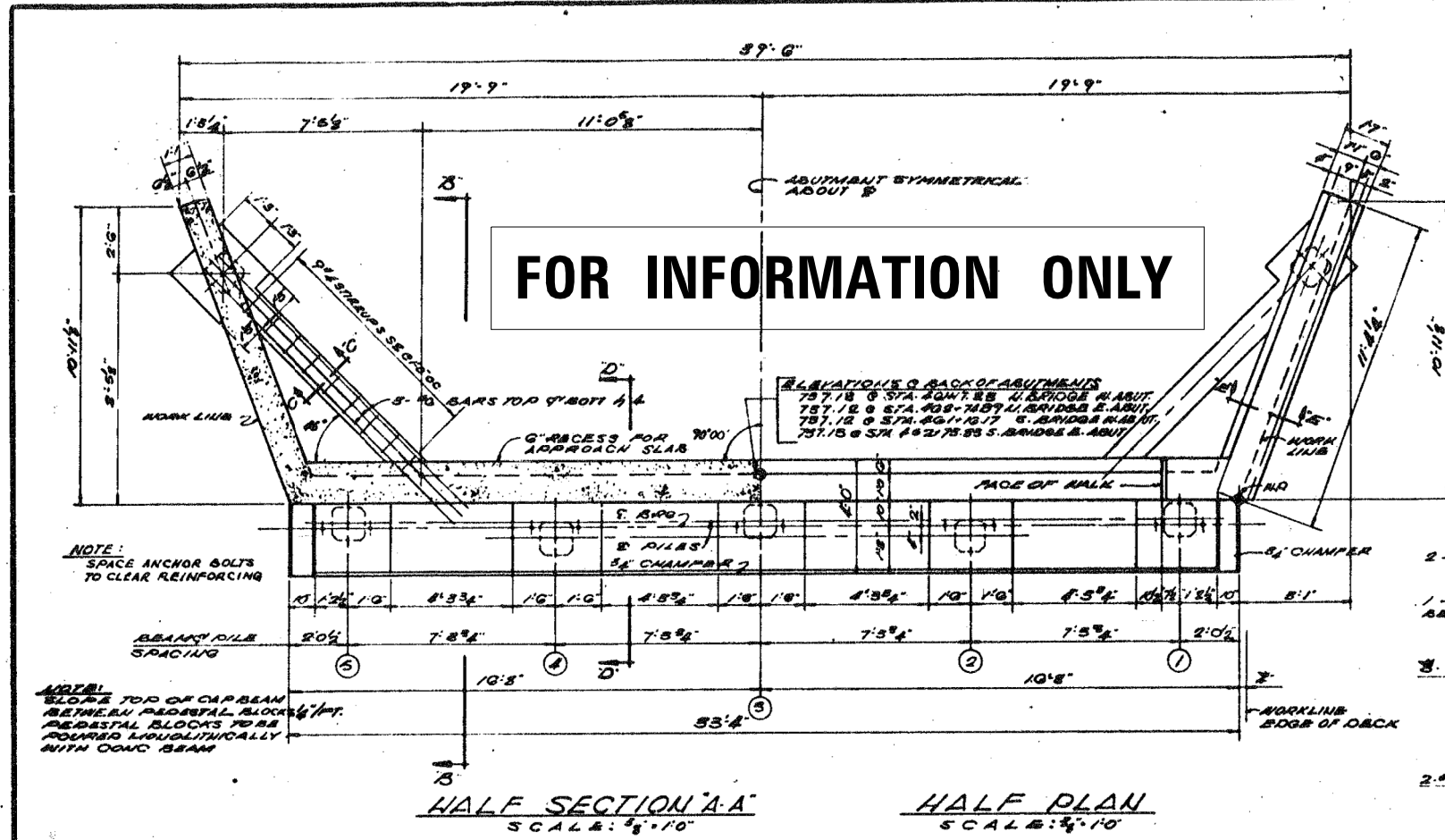
FOR INFORMATION ONLY

STRUCTURAL STEEL PLAN & DETAILS
GRADE SEPARATION
F.A. ROUTE 21 OVER
CHICAGO, MILWAUKEE ST. PAUL
& PACIFIC R.R.
F.A. ROUTE 21 SECTION 12-VB-1 & 12-VF-1
LAKE COUNTY
STATION 4G1-95.54

049-0048 & 0049

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PROJECT NO.	DEC.	DATE	TOTAL SHEETS	SHEET NO.
PA 81	7/21/17	LAKE	16	7
STA.	TO BIA			
FOR ROAD NO. 21 ALONG I-55 AND FRONT				



BILL OF MATERIAL - EFN ABUT. & WING WALLS

ITEM	UNIT	QUANTITY	AMOUNT
CLASS 'X' CONCRETE	CU. YDS.	57.8	57.8
REINFORCEMENT BARS	LBS.	6161	6160
METAL HANDRAIL	LN. FT.	45.8	45.8
CONCRETE PILES	LN. FT.	780	780
TEST PILES	EACH	2	2

BILL OF MATERIAL DRAINAGE TROUGHS

ITEM	UNIT	QUANTITY	AMOUNT
CLASS 'X' CONCRETE	CU. YDS.	94.8	94.8
REINFORCEMENT BARS	LBS.	1620	1620

NOTE: BILL OF MATERIAL TOTAL IS FOR 12 TROUGHS

ABUTMENTS & WING WALLS

GRADE SEPARATION
F.A. ROUTE 21 OVER
CHICAGO MILWAUKEE ST. PAUL
& PACIFIC R.R.

F.A. ROUTE 21 SECTION 12-VB-1 & 12-VB-1
LAKE COUNTY
STATION 40+96.54

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GR&E
8501 W. Higgins Road, Suite 280
Chicago, Illinois 60631; (773) 399-0112

USER NAME =	DESIGNED -	REVISED -
PLOT SCALE =	CHECKED -	REVISED -
PLOT DATE =	DRAWN - DLG	REVISED -
	DATE - 08/26/2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S.N. 049-0048 & S.N. 049-0049
SHEET NO. 337 OF 37 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	158
* 12(VB-1&2)&12R-1(B)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

Bench Mark BM #5: Chiseled "□" cut in West end of S.W. wing wall of S.N 049-0049, Elev. 737.11

Existing Structures: Structure Numbers 049-0130 E.B. Ramp to Illinois Route 120 and 049-0129 W.B. Ramp to Greenleaf Avenue built in 1977 as F.A. Route 420, Section 12-VB-2. The Existing structures each consist of three span, reinforced concrete decks supported on steel W36 beams. The beams are supported on stub abutments on concrete piles and hammer head type piers supported on wooden piles. The back to back abutments length is 161'-6" and the out-to-out bridge deck dimension is 36'-0" in the existing conditions. Traffic is to be maintained using detour routes to allow for full bridge closure during deck replacement.

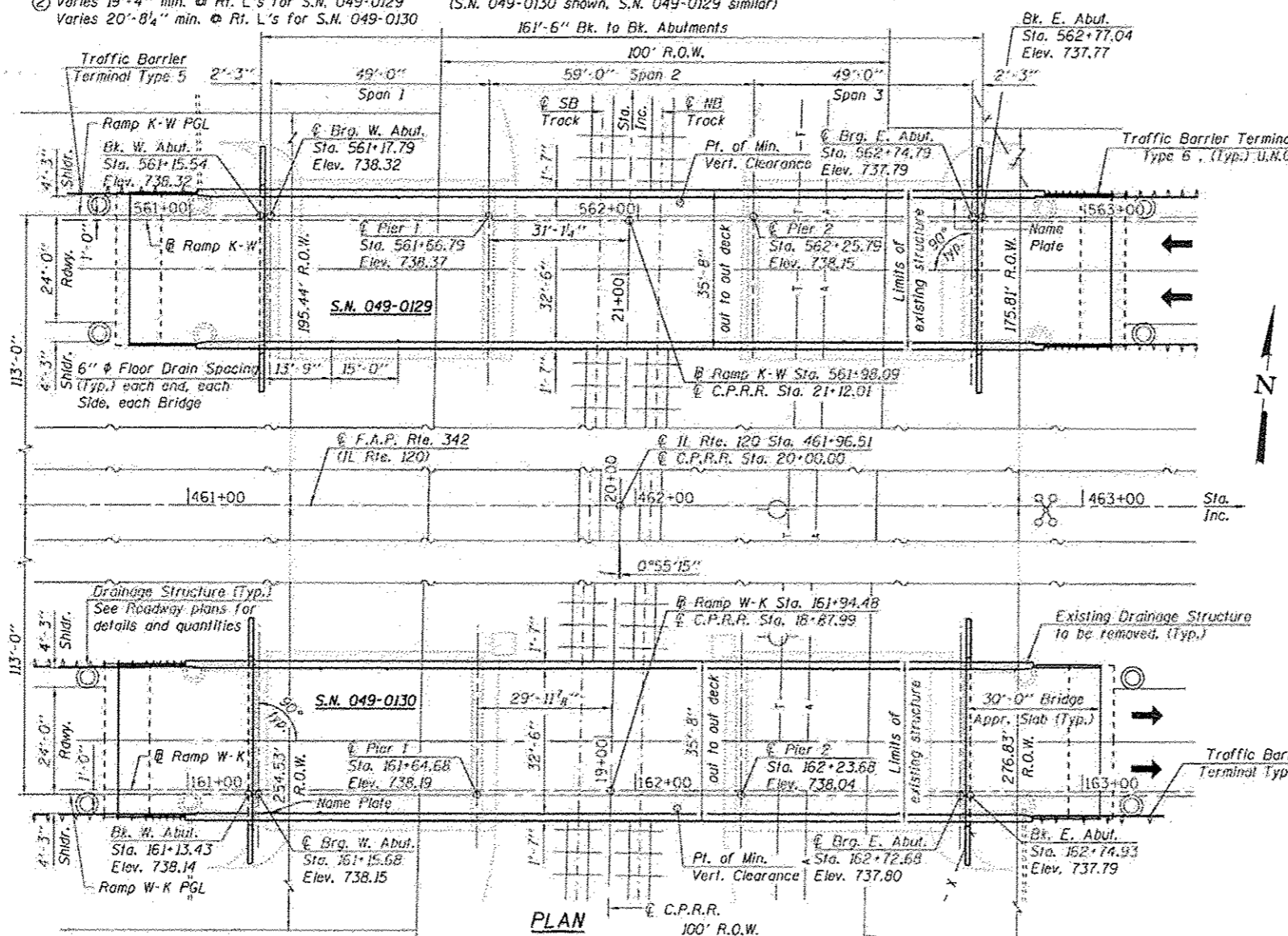
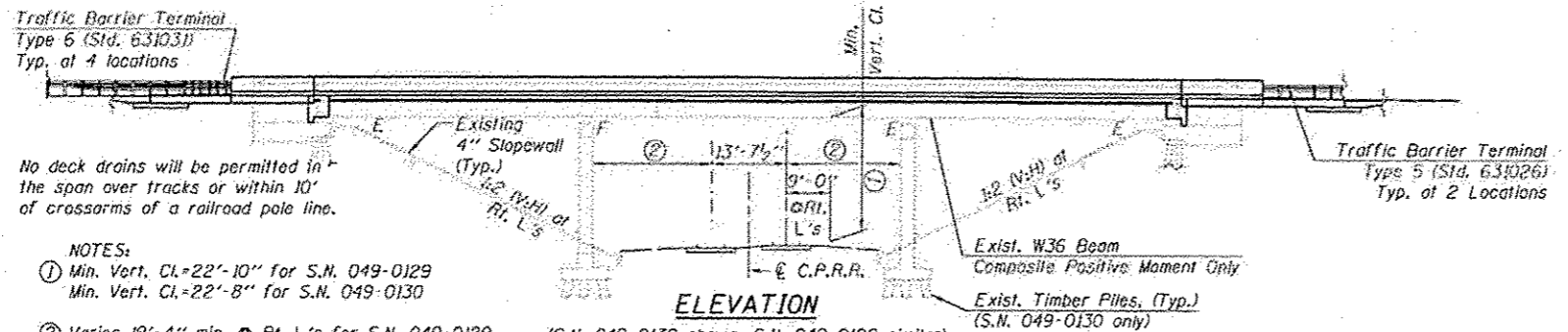
No salvage.

DESIGN SPECIFICATIONS
2002 AASHTO
Standard Specifications for Highway Bridges,
17th Edition

LOADING HS 20-44
Allow 50#/sq. ft. for future wearing surface.

SEISMIC DATA
Seismic Performance Category (SPC) = A
Horizontal Bedrock Acceleration Coefficient (A) = 0.035g
Site Coefficient (S) = 1.0

DESIGN STRESSES
FIELD UNITS (Existing Construction)
f_c = 1,400 psi (substructure)
f_s = 20,000 psi (reinforcement)
f_s = 18,000 psi (structural steel)
FIELD UNITS (New Construction)
f_c = 3,500 psi
f_y = 60,000 psi (Reinforcement)
f_y = 36,000 psi (M270 Grade 36)

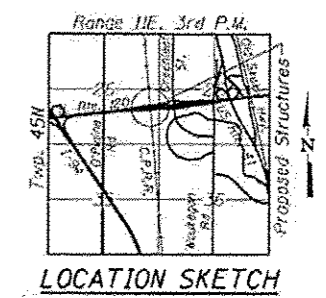


APPROVED
For Structural Adequacy Only
Nathan D. Rick
Engineer of Bridges & Structures



Signed *Nathan D. Rick*
Nathan D. Rick, GRAEF II. Lic. No. 081-007039
Expires 11-30-2018
Date 3/22/17
For Sheets S-01 Thru S-31
(Total of 31 Sheets)

LEGEND
--- Access Control and ROW
--- Aerial Line
--- Telephone Line
--- Existing High Mast Light Tower
--- Existing Fence



GENERAL PLAN
GREENLEAF ST. RAMPS TO IL. RTE. 120 OVER C.P.R.R.
F.A.P. RTE. 333 - SEC. 12(VB-1 & 2) & 12R-1HB-2(BR)
LAKE COUNTY
STATION 461+96.51
STRUCTURE NO. 049-0129 & 049-0130

GRÆF 8501 W. Higgins Road Suite 280 Chicago, Illinois 60631 (773) 399-0112	USER NAME	DESIGNED - JZ	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN S.N. 049-0129 & S.N. 049-0130	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE	CHECKED - NDR	REVISED -			342	121VB-1&2&12R-1HB-2(BR)	LAKE	288	159
	PLOT DATE	DRAWN - DLG	REVISED -			121VB-1&2&12R-1HB-2(BR)	CONTRACT NO. 60X40			
	3/21/2017 - 3:05:47 P.M.	DATE - 08/26/2015	REVISED -			ILLINOIS FED. AID PROJECT				

BRIDGE GENERAL NOTES

- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts $\frac{3}{4}$ in. diameter, holes $\frac{1}{8}$ in. diameter, unless otherwise noted.
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.
- Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction 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 scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Cleaning and field painting of structural steel shall be done under a separate painting contract.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
- All new structural steel shall be shop painted with an inorganic zinc rich primer per AASHTO M 300, Type 1.
- Existing Name Plate shall be cleaned and relocated next to new Name plate. Cost included with Name Plates. For Nameplate Location see Plan.
- Slipforming of the parapets is not allowed.
- Protective shield shall be provided in all spans, face-to-face of piers and abutment beam seats, out-to-out of proposed structure.

As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding $\frac{1}{4}$ " inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

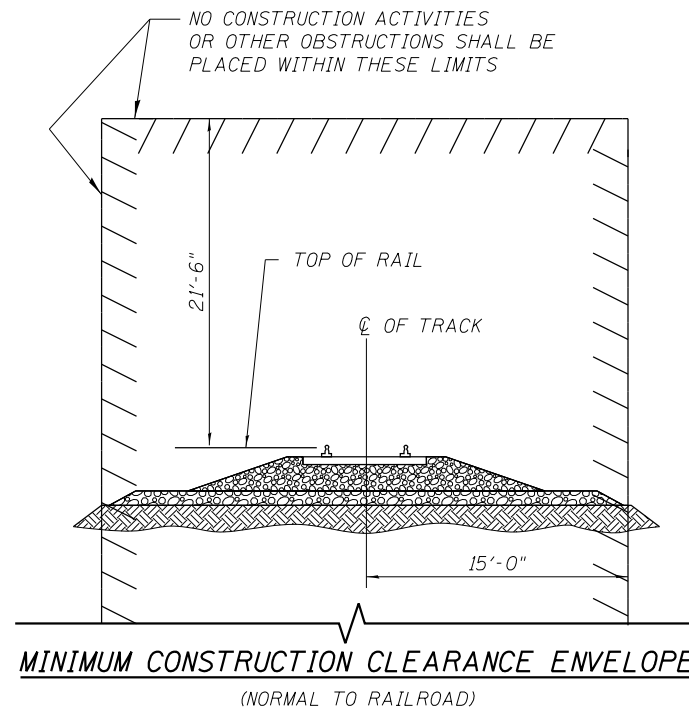
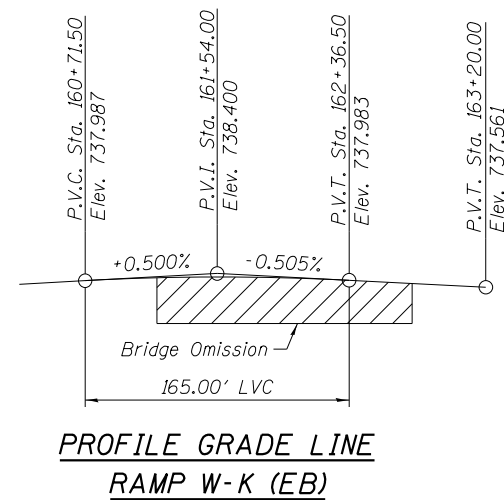
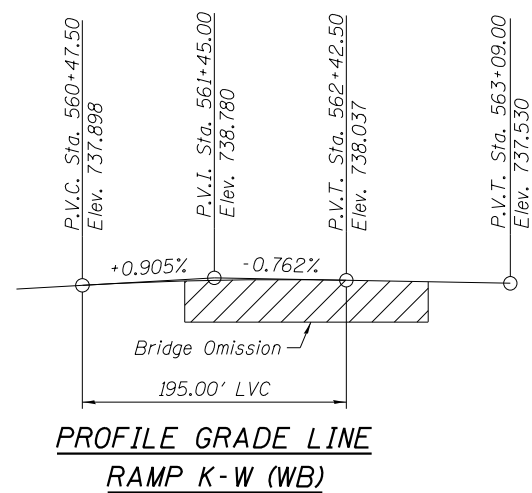
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Concrete Removal	CU YD		54	54
Removal Of Existing Concrete Deck No. 3	EACH	1		1
Removal Of Existing Concrete Deck No. 4	EACH	1		1
Protective Shield	SQ YD	1,176		1,176
Structure Excavation	CU YD		324	324
Floor Drains	EACH	16		16
Concrete Structures	CU YD		68	68
Concrete Superstructure	CU YD	434		434
Bridge Deck Grooving	SQ YD	1,484		1,484
Protective Coat	SQ YD	1,922		1,922
Concrete Superstructure (Approach Slab)	CU YD	206		206
Furnishing And Erecting Structural Steel	POUND	5,700		5,700
Stud Shear Connectors	EACH	5,210		5,210
Reinforcement Bars, Epoxy Coated	POUND	164,200	4,040	168,240
Name Plates	EACH	2		2
Elastomeric Bearing Assembly, Type I	EACH	20		20
Anchor Bolts, 1"	EACH		80	80
Geocomposite Wall Drain	SQ YD		110	110
Granular Backfill For Structures	CU YD		222	222
Jack And Remove Existing Bearings	EACH	20		20
Cleaning Bridge Seats	SQ FT		170	170
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	SQ FT		82	82
Pipe Underdrains For Structures 4"	FOOT		348	348

INDEX OF SHEETS

- S1 GENERAL PLAN & ELEVATION
- S2 GENERAL NOTES & TOTAL BILL OF MATERIAL
- S3 STAGE CONSTRUCTION DETAILS
- S4 TOP OF DECK SLAB ELEVATIONS LAYOUT
- S5 TOP OF DECK SLAB ELEVATIONS I
- S6 TOP OF DECK SLAB ELEVATIONS II
- S7 TOP OF DECK SLAB ELEVATIONS III
- S8 TOP OF DECK SLAB ELEVATIONS IV
- S9 TOP OF APPROACH SLAB ELEVATIONS I
- S10 TOP OF APPROACH SLAB ELEVATIONS II
- S11 TOP OF APPROACH SLAB ELEVATIONS III
- S12 TOP OF APPROACH SLAB ELEVATIONS IV
- S13 DECK PLAN
- S14 DECK CROSS SECTION AND DETAILS
- S15 PARAPETS & DECK REINFORCING DETAILS
- S16 APPROACH SLAB DETAILS I
- S17 APPROACH SLAB DETAILS II
- S18 FRAMING PLAN
- S19 BEAM ELEVATION
- S20 EXPANSION BEARING & BOLSTER DETAILS
- S21 ABUTMENT REMOVAL & REPAIR I
- S22 ABUTMENT REMOVAL & REPAIR II
- S23 ABUTMENT REMOVAL & REPAIR III
- S24 ABUTMENT REMOVAL & REPAIR IV
- S25 ABUTMENT DETAILS I
- S26 ABUTMENT DETAILS II
- S27 ABUTMENT UNDERDRAIN & RIPRAP SLOPE DETAILS
- S28 PIER REPAIR I
- S29 PIER REPAIR II
- S30 PIER REPAIR III
- S31 PIER REPAIR IV

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STATION 561+98.09
RE-BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 333
SEC. 12(VB-1&2) &
12R-1HB-2(BR)
LOADING HS20
STR. NO. 049-0129

STATION 161+94.48
RE-BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RT. 333
SEC. 12(VB-1&2) &
12R-1HB-2(BR)
LOADING HS20
STR. NO. 049-0130

NAME PLATES
See Std. 515001

****EXISTING PROFILE GRADE
T/RAIL SB RR TRACK**

West Track		East Track	
Station	Elev.	Station	Elev.
21+17.19	711.04	21+16.83	711.05
20+86.62	710.99	20+86.74	710.99
20+45.48	710.91	20+44.97	710.91
20+15.61	710.85	20+15.36	710.85
19+82.92	710.82	19+83.42	710.82
19+53.52	710.82	19+54.18	710.79
19+14.48	710.78	19+14.48	710.78
18+83.88	710.78	18+83.40	710.80

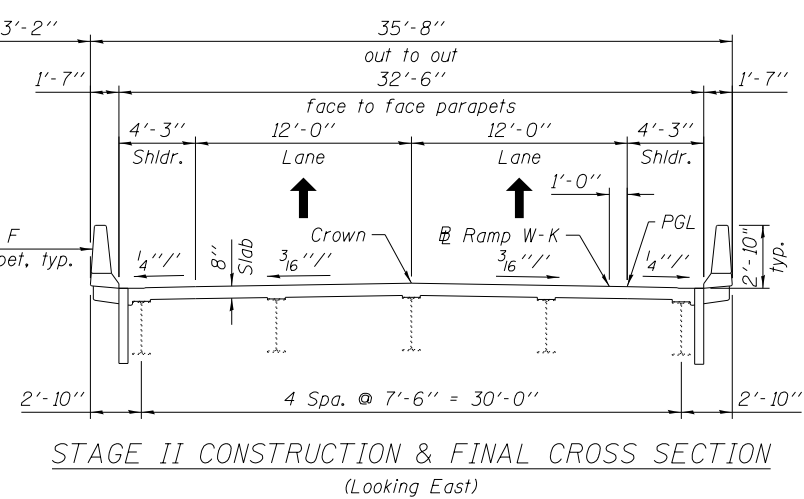
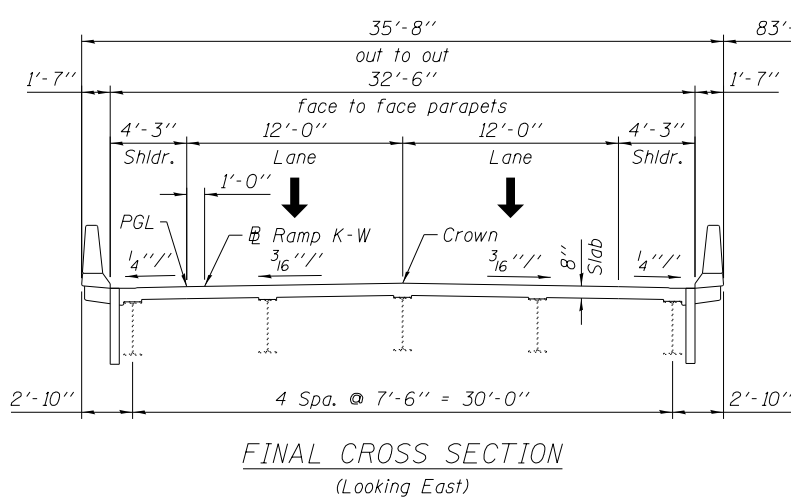
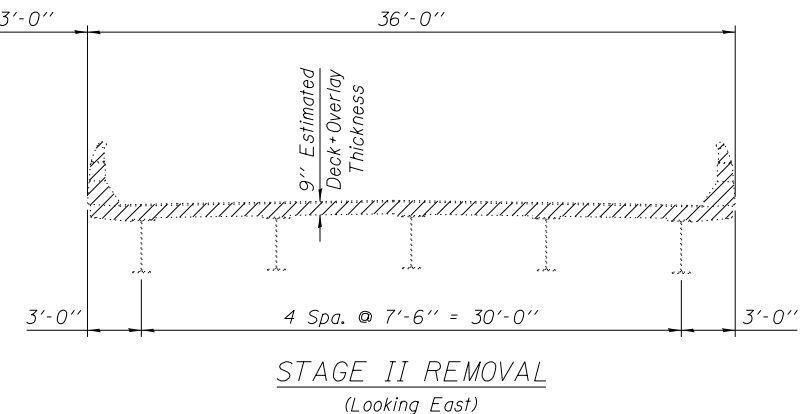
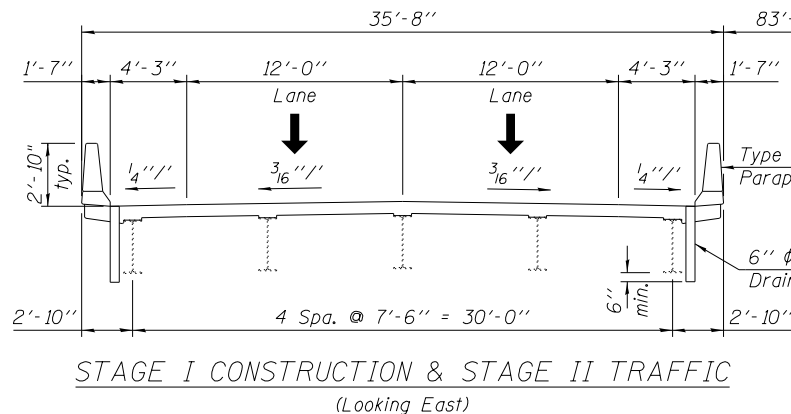
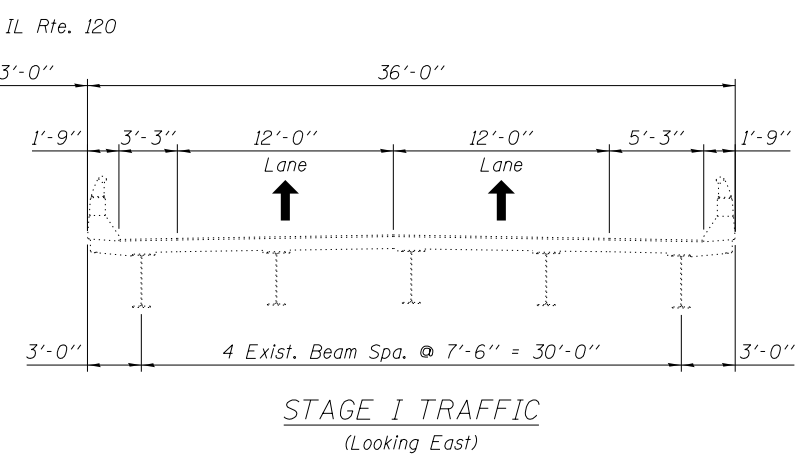
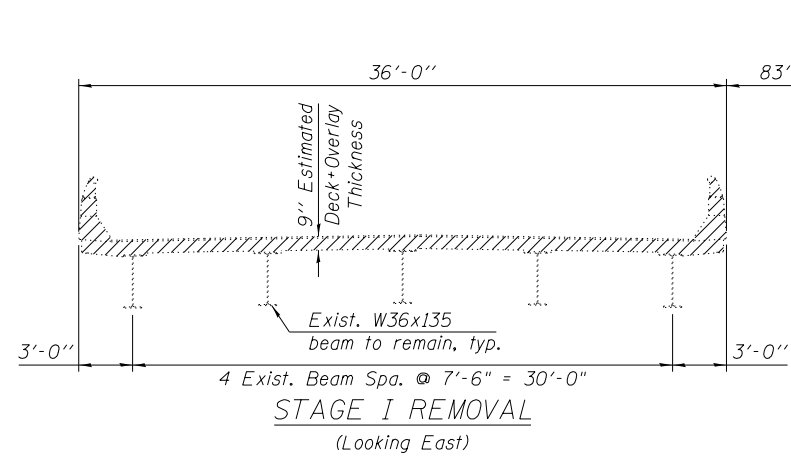
****EXISTING PROFILE GRADE
T/RAIL NB RR TRACK**

West Track		East Track	
Station	Elev.	Station	Elev.
21+16.20	711.26	21+15.76	711.25
20+86.26	711.25	20+85.96	711.23
20+44.62	711.23	20+44.71	711.21
20+15.64	711.22	20+15.53	711.20
19+84.01	711.21	19+83.65	711.21
19+54.15	711.21	19+54.26	711.20
19+14.22	711.23	19+13.87	711.21
18+83.97	711.26	18+84.11	711.24

** Information based on surveyed Top Of Rail Elevations.

USER NAME =	DESIGNED - JZ	REVISED -
CHECKED - NDR	REVISED -	
PLOT SCALE =	DRAWN - DLG	REVISED -
PLOT DATE = 3/21/2017 10:46:49 AM	DATE - 08/26/2015	REVISED -

F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 160
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				



S.N. 049-0129

S.N. 049-0130

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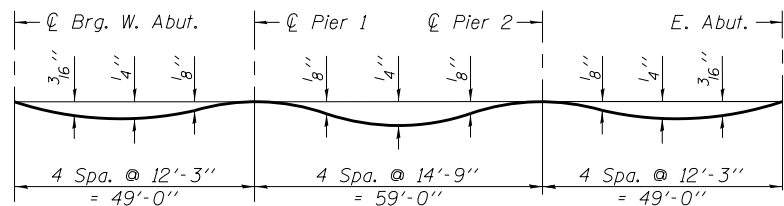
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	CHECKED - NDR	REVISED -
PLOT SCALE =	DRAWN - DLG	REVISED -
PLOT DATE = 3/21/2017 10:46:50	DATE - 08/26/2015	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**STAGE CONSTRUCTION DETAILS
S.N. 049-0129 & S.N. 049-0130**

SHEET NO. 53 OF 38 SHEETS

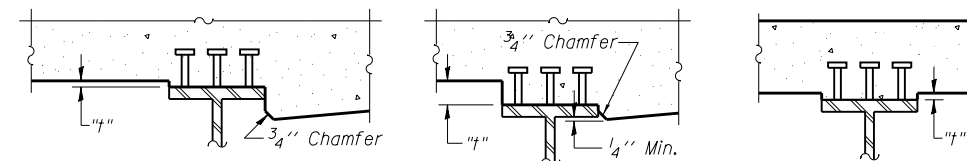
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	161
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on Sheets S5 thru S8.

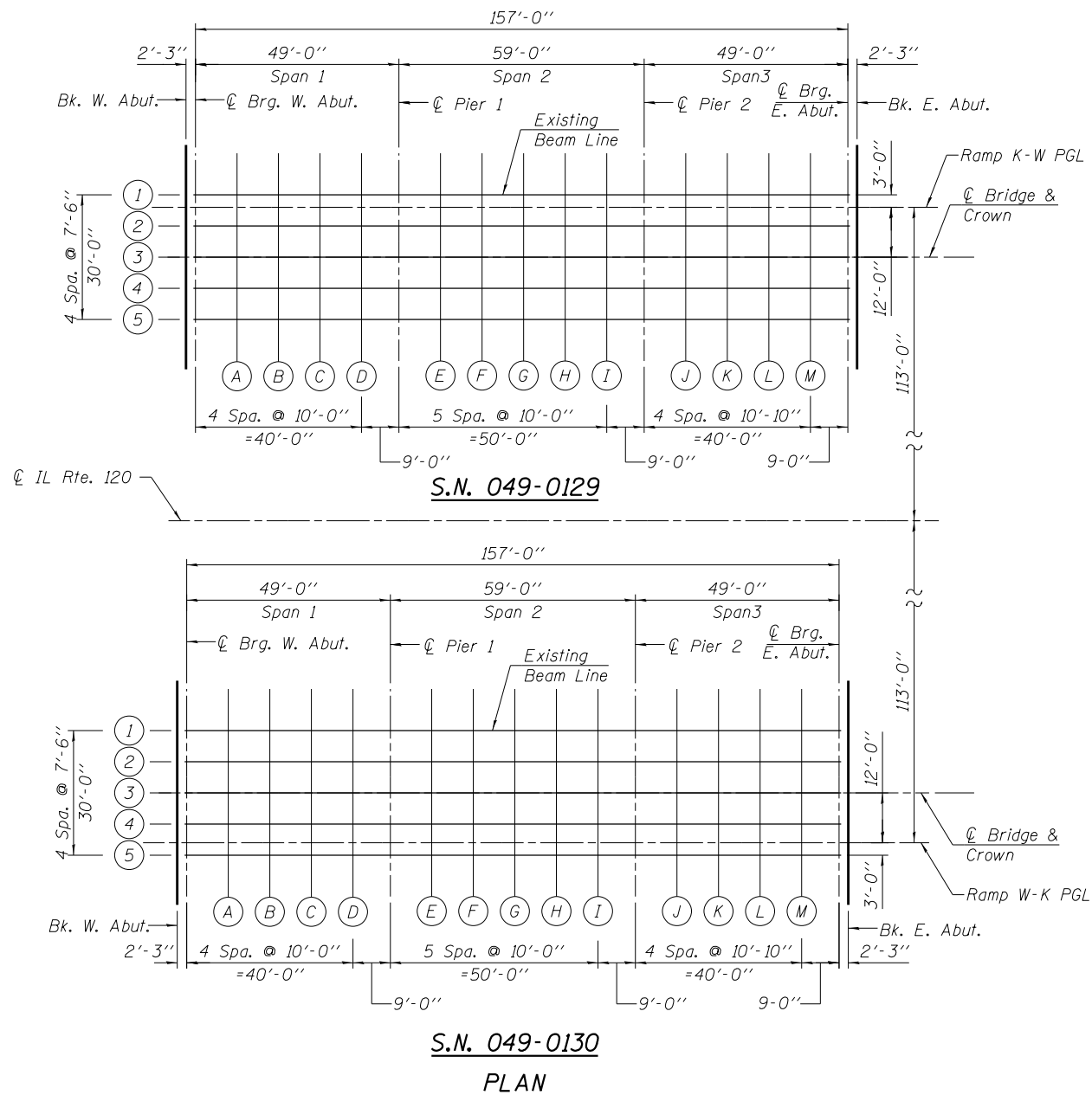


EXTERIOR BEAMS

INTERIOR BEAMS

To determine "t": After all structural steel has been erected, elevations of the top flanges of the girder shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on Sheets S5 thru S8, minus slab thickness, equals the fillet heights "t" above top flange of girder.

FILLET HEIGHTS



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PLOT SCALE =	DRAWN - DLG	REVISED -
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	162
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

BEAM 1

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	561+15.54	-116.00	738.07	738.07
W. End of Deck	561+16.54	-116.00	738.07	738.07
CL. BRG. W. ABUT.	561+17.79	-116.00	738.07	738.07
A	561+27.79	-116.00	738.10	738.11
B	561+37.79	-116.00	738.12	738.14
C	561+47.79	-116.00	738.13	738.14
D	561+57.79	-116.00	738.13	738.13
CL. BRG. PIER 1	561+66.79	-116.00	738.12	738.12
E	561+76.79	-116.00	738.10	738.11
F	561+86.79	-116.00	738.08	738.09
G	561+96.79	-116.00	738.05	738.06
H	562+06.79	-116.00	738.01	738.02
I	562+16.79	-116.00	737.96	737.96
CL. BRG. PIER 2	562+25.79	-116.00	737.90	737.90
J	562+35.79	-116.00	737.84	737.84
K	562+45.79	-116.00	737.76	737.78
L	562+55.79	-116.00	737.69	737.70
M	562+65.79	-116.00	737.61	737.62
CL. BRG. E. ABUT.	562+74.79	-116.00	737.54	737.54
E. End of Deck	562+76.04	-116.00	737.53	737.53
BK. E. Abut.	562+77.04	-116.00	737.52	737.52

RAMP K-W PGL

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	561+15.54	-113.00	738.13	738.13
W. End of Deck	561+16.54	-113.00	738.13	738.13
CL. BRG. W. ABUT.	561+17.79	-113.00	738.14	738.14
A	561+27.79	-113.00	738.16	738.18
B	561+37.79	-113.00	738.18	738.20
C	561+47.79	-113.00	738.19	738.20
D	561+57.79	-113.00	738.19	738.20
CL. BRG. PIER 1	561+66.79	-113.00	738.18	738.18
E	561+76.79	-113.00	738.17	738.17
F	561+86.79	-113.00	738.14	738.16
G	561+96.79	-113.00	738.11	738.13
H	562+06.79	-113.00	738.07	738.08
I	562+16.79	-113.00	738.02	738.03
CL. BRG. PIER 2	562+25.79	-113.00	737.97	737.97
J	562+35.79	-113.00	737.90	737.90
K	562+45.79	-113.00	737.82	737.84
L	562+55.79	-113.00	737.75	737.77
M	562+65.79	-113.00	737.67	737.69
CL. BRG. E. ABUT.	562+74.79	-113.00	737.60	737.60
E. End of Deck	562+76.04	-113.00	737.59	737.59
BK. E. Abut.	562+77.04	-113.00	737.59	737.59

BEAM 2

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation
BK. W. Abut.	561+15.54	-108.50	738.20	738.20
W. End of Deck	561+16.54	-108.50	738.20	738.20
CL. BRG. W. ABUT.	561+17.79	-108.50	738.21	738.21
A	561+27.79	-108.50	738.23	738.25
B	561+37.79	-108.50	738.25	738.27
C	561+47.79	-108.50	738.26	738.28
D	561+57.79	-108.50	738.26	738.27
CL. BRG. PIER 1	561+66.79	-108.50	738.25	738.25
E	561+76.79	-108.50	738.24	738.24
F	561+86.79	-108.50	738.21	738.23
G	561+96.79	-108.50	738.18	738.20
H	562+06.79	-108.50	738.14	738.15
I	562+16.79	-108.50	738.09	738.10
CL. BRG. PIER 2	562+25.79	-108.50	738.04	738.04
J	562+35.79	-108.50	737.97	737.98
K	562+45.79	-108.50	737.89	737.91
L	562+55.79	-108.50	737.82	737.84
M	562+65.79	-108.50	737.74	737.76
CL. BRG. E. ABUT.	562+74.79	-108.50	737.67	737.67
E. End of Deck	562+76.04	-108.50	737.66	737.66
BK. E. Abut.	562+77.04	-108.50	737.66	737.66

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CL ROADWAY & BEAM 3

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	561+15.54	-101.00	738.32	738.32
W. End of Deck	561+16.54	-101.00	738.32	738.32
CL. BRG. W. ABUT.	561+17.79	-101.00	738.32	738.32
A	561+27.79	-101.00	738.35	738.36
B	561+37.79	-101.00	738.37	738.39
C	561+47.79	-101.00	738.38	738.39
D	561+57.79	-101.00	738.38	738.39
CL. BRG. PIER 1	561+66.79	-101.00	738.37	738.37
E	561+76.79	-101.00	738.35	738.36
F	561+86.79	-101.00	738.33	738.35
G	561+96.79	-101.00	738.30	738.32
H	562+06.79	-101.00	738.26	738.27
I	562+16.79	-101.00	738.21	738.22
CL. BRG. PIER 2	562+25.79	-101.00	738.15	738.15
J	562+35.79	-101.00	738.09	738.09
K	562+45.79	-101.00	738.01	738.03
L	562+55.79	-101.00	737.94	737.96
M	562+65.79	-101.00	737.86	737.87
CL. BRG. E. ABUT.	562+74.79	-101.00	737.79	737.79
E. End of Deck	562+76.04	-101.00	737.78	737.78
BK. E. Abut.	562+77.04	-101.00	737.77	737.77

BEAM 4

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	561+15.54	-93.50	738.20	738.20
W. End of Deck	561+16.54	-93.50	738.20	738.20
CL. BRG. W. ABUT.	561+17.79	-93.50	738.21	738.21
A	561+27.79	-93.50	738.23	738.25
B	561+37.79	-93.50	738.25	738.27
C	561+47.79	-93.50	738.26	738.28
D	561+57.79	-93.50	738.26	738.27
CL. BRG. PIER 1	561+66.79	-93.50	738.25	738.25
E	561+76.79	-93.50	738.24	738.24
F	561+86.79	-93.50	738.21	738.23
G	561+96.79	-93.50	738.18	738.20
H	562+06.79	-93.50	738.14	738.15
I	562+16.79	-93.50	738.09	738.10
CL. BRG. PIER 2	562+25.79	-93.50	738.04	738.04
J	562+35.79	-93.50	737.97	737.98
K	562+45.79	-93.50	737.89	737.91
L	562+55.79	-93.50	737.82	737.84
M	562+65.79	-93.50	737.74	737.76
CL. BRG. E. ABUT.	562+74.79	-93.50	737.67	737.67
E. End of Deck	562+76.04	-93.50	737.66	737.66
BK. E. Abut.	562+77.04	-93.50	737.66	737.66

BEAM 5

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	561+15.54	-86.00	738.07	738.07
W. End of Deck	561+16.54	-86.00	738.07	738.07
CL. BRG. W. ABUT.	561+17.79	-86.00	738.07	738.07
A	561+27.79	-86.00	738.10	738.11
B	561+37.79	-86.00	738.12	738.14
C	561+47.79	-86.00	738.13	738.14
D	561+57.79	-86.00	738.13	738.13
CL. BRG. PIER 1	561+66.79	-86.00	738.12	738.12
E	561+76.79	-86.00	738.10	738.11
F	561+86.79	-86.00	738.08	738.09
G	561+96.79	-86.00	738.05	738.06
H	562+06.79	-86.00	738.01	738.02
I	562+16.79	-86.00	737.96	737.96
CL. BRG. PIER 2	562+25.79	-86.00	737.90	737.90
J	562+35.79	-86.00	737.84	737.84
K	562+45.79	-86.00	737.76	737.78
L	562+55.79	-86.00	737.69	737.70
M	562+65.79	-86.00	737.61	737.62
CL. BRG. E. ABUT.	562+74.79	-86.00	737.54	737.54
E. End of Deck	562+76.04	-86.00	737.53	737.53
BK. E. Abut.	562+77.04	-86.00	737.52	737.52

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 Chicago, Illinois 60631; (773) 399-0112

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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TOP OF DECK SLAB ELEVATIONS II
 S.N. 049-0129**

SHEET NO. 56 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	164
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

BEAM 1

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	161+13.43	86.00	738.08	738.08
W. End of Deck	161+14.43	86.00	738.08	738.08
CL. BRG. W. ABUT.	161+15.68	86.00	738.09	738.09
A	161+25.68	86.00	738.11	738.12
B	161+35.68	86.00	738.12	738.14
C	161+45.68	86.00	738.13	738.14
D	161+55.68	86.00	738.13	738.14
CL. BRG. PIER 1	161+64.68	86.00	738.13	738.13
E	161+74.68	86.00	738.12	738.12
F	161+84.68	86.00	738.10	738.11
G	161+94.68	86.00	738.08	738.10
H	162+04.68	86.00	738.05	738.07
I	162+14.68	86.00	738.02	738.03
CL. BRG. PIER 2	162+23.68	86.00	737.98	737.98
J	162+33.68	86.00	737.93	737.94
K	162+43.68	86.00	737.88	737.90
L	162+53.68	86.00	737.83	737.85
M	162+63.68	86.00	737.78	737.80
CL. BRG. E. ABUT.	162+72.68	86.00	737.74	737.74
E. End of Deck	162+73.93	86.00	737.73	737.73
BK. E. Abut.	162+74.93	86.00	737.73	737.73

BEAM 2

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	161+13.43	93.50	738.21	738.21
W. End of Deck	161+14.43	93.50	738.22	738.22
CL. BRG. W. ABUT.	161+15.68	93.50	738.22	738.22
A	161+25.68	93.50	738.24	738.25
B	161+35.68	93.50	738.25	738.27
C	161+45.68	93.50	738.26	738.28
D	161+55.68	93.50	738.26	738.27
CL. BRG. PIER 1	161+64.68	93.50	738.26	738.26
E	161+74.68	93.50	738.25	738.25
F	161+84.68	93.50	738.23	738.25
G	161+94.68	93.50	738.21	738.23
H	162+04.68	93.50	738.18	738.20
I	162+14.68	93.50	738.15	738.16
CL. BRG. PIER 2	162+23.68	93.50	738.11	738.11
J	162+33.68	93.50	738.07	738.07
K	162+43.68	93.50	738.02	738.03
L	162+53.68	93.50	737.97	737.99
M	162+63.68	93.50	737.92	737.93
CL. BRG. E. ABUT.	162+72.68	93.50	737.87	737.87
E. End of Deck	162+73.93	93.50	737.86	737.86
BK. E. Abut.	162+74.93	93.50	737.86	737.86

CL ROADWAY & BEAM 3

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	161+13.43	101.00	738.33	738.33
W. End of Deck	161+14.43	101.00	738.33	738.33
CL. BRG. W. ABUT.	161+15.68	101.00	738.34	738.34
A	161+25.68	101.00	738.36	738.37
B	161+35.68	101.00	738.37	738.39
C	161+45.68	101.00	738.38	738.40
D	161+55.68	101.00	738.38	738.39
CL. BRG. PIER 1	161+64.68	101.00	738.38	738.38
E	161+74.68	101.00	738.37	738.37
F	161+84.68	101.00	738.35	738.37
G	161+94.68	101.00	738.33	738.35
H	162+04.68	101.00	738.30	738.32
I	162+14.68	101.00	738.27	738.28
CL. BRG. PIER 2	162+23.68	101.00	738.23	738.23
J	162+33.68	101.00	738.18	738.19
K	162+43.68	101.00	738.13	738.15
L	162+53.68	101.00	738.08	738.10
M	162+63.68	101.00	738.03	738.05
CL. BRG. E. ABUT.	162+72.68	101.00	737.99	737.99
E. End of Deck	162+73.93	101.00	737.98	737.98
BK. E. Abut.	162+74.93	101.00	737.98	737.98

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BEAM 4

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	161+13.43	108.50	738.21	738.21
W. End of Deck	161+14.43	108.50	738.22	738.22
CL. BRG. W. ABUT.	161+15.68	108.50	738.22	738.22
A	161+25.68	108.50	738.24	738.25
B	161+35.68	108.50	738.25	738.27
C	161+45.68	108.50	738.26	738.28
D	161+55.68	108.50	738.26	738.27
CL. BRG. PIER 1	161+64.68	108.50	738.26	738.26
E	161+74.68	108.50	738.25	738.25
F	161+84.68	108.50	738.23	738.25
G	161+94.68	108.50	738.21	738.23
H	162+04.68	108.50	738.18	738.20
I	162+14.68	108.50	738.15	738.16
CL. BRG. PIER 2	162+23.68	108.50	738.11	738.11
J	162+33.68	108.50	738.07	738.07
K	162+43.68	108.50	738.02	738.03
L	162+53.68	108.50	737.97	737.99
M	162+63.68	108.50	737.92	737.93
CL. BRG. E. ABUT.	162+72.68	108.50	737.87	737.87
E. End of Deck	162+73.93	108.50	737.86	737.86
BK. E. Abut.	162+74.93	108.50	737.86	737.86

RAMP W-K PGL

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	161+13.43	113.00	738.14	738.14
W. End of Deck	161+14.43	113.00	738.15	738.15
CL. BRG. W. ABUT.	161+15.68	113.00	738.15	738.15
A	161+25.68	113.00	738.17	738.18
B	161+35.68	113.00	738.18	738.20
C	161+45.68	113.00	738.19	738.21
D	161+55.68	113.00	738.19	738.20
CL. BRG. PIER 1	161+64.68	113.00	738.19	738.19
E	161+74.68	113.00	738.18	738.18
F	161+84.68	113.00	738.16	738.18
G	161+94.68	113.00	738.14	738.16
H	162+04.68	113.00	738.11	738.13
I	162+14.68	113.00	738.08	738.09
CL. BRG. PIER 2	162+23.68	113.00	738.04	738.04
J	162+33.68	113.00	738.00	738.00
K	162+43.68	113.00	737.95	737.96
L	162+53.68	113.00	737.90	737.92
M	162+63.68	113.00	737.85	737.86
CL. BRG. E. ABUT.	162+72.68	113.00	737.80	737.80
E. End of Deck	162+73.93	113.00	737.79	737.79
BK. E. Abut.	162+74.93	113.00	737.79	737.79

BEAM 5

Location	Station	Offset	Theoretical Grade Elevation	Theoretical Grade Elevation Adjusted for Dead Load Deflection
BK. W. Abut.	161+13.43	116.00	738.08	738.08
W. End of Deck	161+14.43	116.00	738.08	738.08
CL. BRG. W. ABUT.	161+15.68	116.00	738.09	738.09
A	161+25.68	116.00	738.11	738.12
B	161+35.68	116.00	738.12	738.14
C	161+45.68	116.00	738.13	738.14
D	161+55.68	116.00	738.13	738.14
CL. BRG. PIER 1	161+64.68	116.00	738.13	738.13
E	161+74.68	116.00	738.12	738.12
F	161+84.68	116.00	738.10	738.11
G	161+94.68	116.00	738.08	738.10
H	162+04.68	116.00	738.05	738.07
I	162+14.68	116.00	738.02	738.03
CL. BRG. PIER 2	162+23.68	116.00	737.98	737.98
J	162+33.68	116.00	737.93	737.94
K	162+43.68	116.00	737.88	737.90
L	162+53.68	116.00	737.83	737.85
M	162+63.68	116.00	737.78	737.80
CL. BRG. E. ABUT.	162+72.68	116.00	737.74	737.74
E. End of Deck	162+73.93	116.00	737.73	737.73
BK. E. Abut.	162+74.93	116.00	737.73	737.73

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NORTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	560+86.54	-118.17	738.26
A1	560+96.54	-118.17	738.48
A2	561+06.54	-118.83	738.32
E. End West Appr. Pav't	561+16.54	-118.83	738.36

NORTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	560+86.54	-117.67	738.09
A1	560+96.54	-117.67	738.14
A2	561+06.54	-117.25	738.19
E. End West Appr. Pav't	561+16.54	-117.25	738.23

NORTH EDGE OF LANE AND RAMP K-W PGL

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	560+86.54	-113.00	738.19
A1	560+96.54	-113.00	738.24
A2	561+06.54	-113.00	738.28
E. End West Appr. Pav't	561+16.54	-113.00	738.32

CL ROADWAY

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	560+86.54	-101.00	738.37
A1	560+96.54	-101.00	738.43
A2	561+06.54	-101.00	738.47
E. End West Appr. Pav't	561+16.54	-101.00	738.51

SOUTH EDGE OF LANE

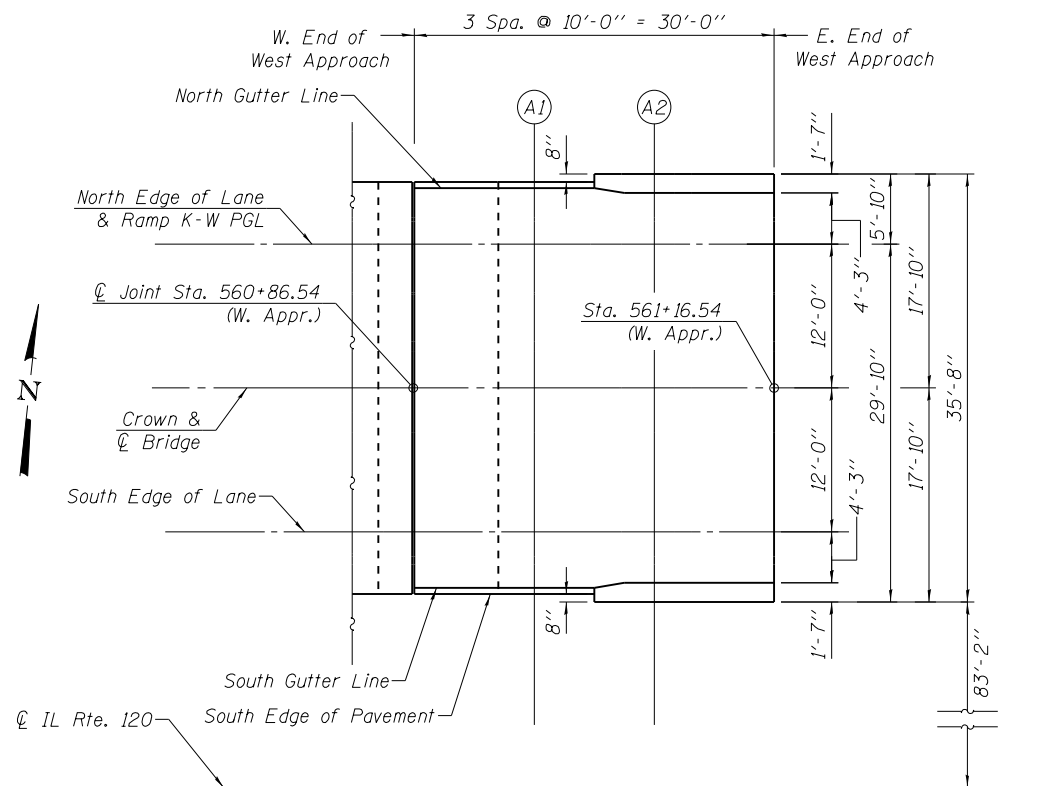
Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	560+86.54	-89.00	738.19
A1	560+96.54	-89.00	738.24
A2	561+06.54	-89.00	738.28
E. End West Appr. Pav't	561+16.54	-89.00	738.32

SOUTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	560+86.54	-84.33	738.09
A1	560+96.54	-84.33	738.14
A2	561+06.54	-84.75	738.19
E. End West Appr. Pav't	561+16.54	-84.75	738.23

SOUTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	560+86.54	-83.83	738.26
A1	560+96.54	-83.83	738.48
A2	561+06.54	-83.17	738.32
E. End West Appr. Pav't	561+16.54	-83.17	738.36



WEST APPROACH PLAN

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F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 167
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

NORTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	562+76.04	-118.83	737.82
A3	562+86.04	-118.83	737.74
A4	562+96.04	-118.17	737.87
E. End East Appr. Pav't	563+06.04	-118.17	737.62

NORTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	562+76.04	-117.25	737.69
A3	562+86.04	-117.25	737.62
A4	562+96.04	-117.67	737.53
E. End East Appr. Pav't	563+06.04	-117.67	737.46

NORTH EDGE OF LANE AND RAMP K-W PGL

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	562+76.04	-113.00	737.78
A3	562+86.04	-113.00	737.71
A4	562+96.04	-113.00	737.63
E. End East Appr. Pav't	563+06.04	-113.00	737.55

CL ROADWAY

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	562+76.04	-101.00	737.97
A3	562+86.04	-101.00	737.89
A4	562+96.04	-101.00	737.82
E. End East Appr. Pav't	563+06.04	-101.00	737.74

SOUTH EDGE OF LANE

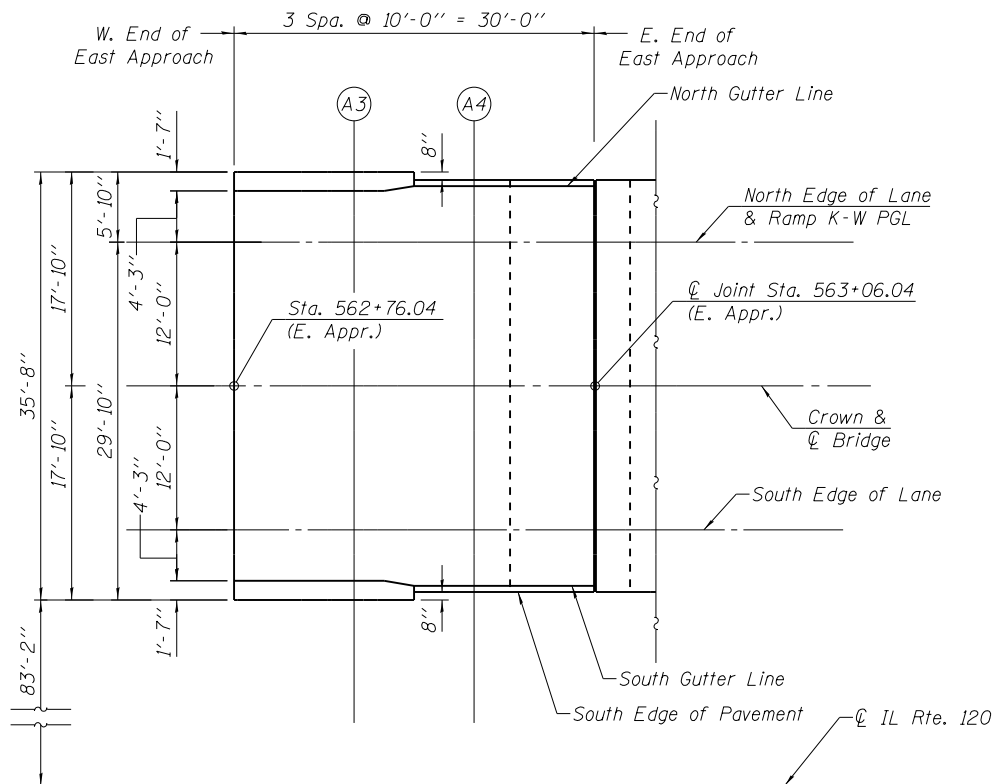
Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	562+76.04	-89.00	737.78
A3	562+86.04	-89.00	737.71
A4	562+96.04	-89.00	737.63
E. End East Appr. Pav't	563+06.04	-89.00	737.55

SOUTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	562+76.04	-84.75	737.69
A3	562+86.04	-84.75	737.62
A4	562+96.04	-84.33	737.53
E. End East Appr. Pav't	563+06.04	-84.33	737.46

SOUTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	562+76.04	-83.17	737.82
A3	562+86.04	-83.17	737.74
A4	562+96.04	-83.83	737.87
E. End East Appr. Pav't	563+06.04	-83.83	737.62



EAST APPROACH PLAN

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F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 168
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

NORTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	160+84.43	83.83	738.12
A1	160+94.43	83.83	738.32
A2	161+04.43	83.17	738.16
E. End West Appr. Pav't	161+14.43	83.17	738.18

NORTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	160+84.43	84.33	737.95
A1	160+94.43	84.33	737.99
A2	161+04.43	84.75	738.03
E. End West Appr. Pav't	161+14.43	84.75	738.06

NORTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	160+84.43	89.00	738.05
A1	160+94.43	89.00	738.09
A2	161+04.43	89.00	738.12
E. End West Appr. Pav't	161+14.43	89.00	738.15

CL ROADWAY

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	160+84.43	101.00	738.23
A1	160+94.43	101.00	738.27
A2	161+04.43	101.00	738.31
E. End West Appr. Pav't	161+14.43	101.00	738.33

SOUTH EDGE OF LANE AND RAMP W-K PGL

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	160+84.43	113.00	738.05
A1	160+94.43	113.00	738.09
A2	161+04.43	113.00	738.12
E. End West Appr. Pav't	161+14.43	113.00	738.15

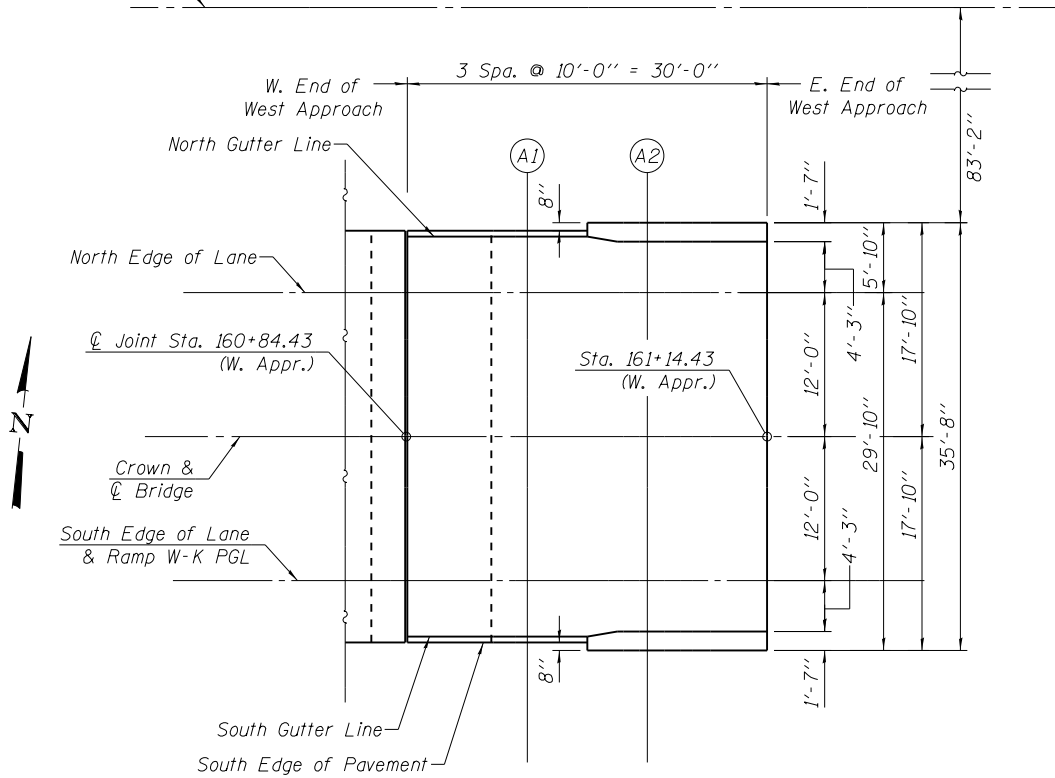
SOUTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	160+84.43	117.67	737.95
A1	160+94.43	117.67	737.99
A2	161+04.43	117.25	738.03
E. End West Appr. Pav't	161+14.43	117.25	738.06

SOUTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End West Appr. Pav't	160+84.43	118.17	738.12
A1	160+94.43	118.17	738.32
A2	161+04.43	118.83	738.16
E. End West Appr. Pav't	161+14.43	118.83	738.18

IL Rte. 120



WEST APPROACH PLAN

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	169
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

NORTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	162+73.93	83.17	737.83
A3	162+83.93	83.17	737.78
A4	162+93.93	83.83	737.93
E. End East Appr. Pav't	163+03.93	83.83	737.71

NORTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	162+73.93	84.75	737.71
A3	162+83.93	84.75	737.65
A4	162+93.93	84.33	737.60
E. End East Appr. Pav't	163+03.93	84.33	737.55

NORTH EDGE OF LANE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	162+73.93	89.00	737.79
A3	162+83.93	89.00	737.74
A4	162+93.93	89.00	737.69
E. End East Appr. Pav't	163+03.93	89.00	737.64

CL ROADWAY

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	162+73.93	101.00	737.98
A3	162+83.93	101.00	737.93
A4	162+93.93	101.00	737.88
E. End East Appr. Pav't	163+03.93	101.00	737.83

SOUTH EDGE OF LANE AND RAMP W-K PGL

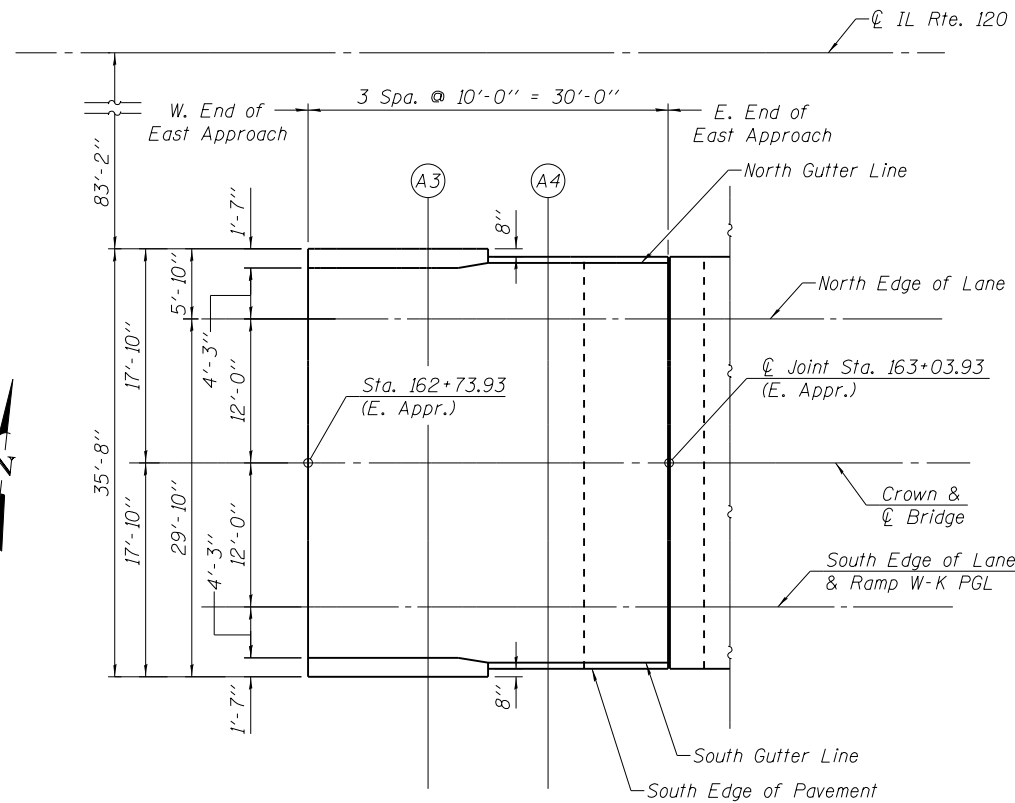
Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	162+73.93	113.00	737.79
A3	162+83.93	113.00	737.74
A4	162+93.93	113.00	737.69
E. End East Appr. Pav't	163+03.93	113.00	737.64

SOUTH GUTTERLINE

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	162+73.93	117.25	737.71
A3	162+83.93	117.25	737.65
A4	162+93.93	117.67	737.60
E. End East Appr. Pav't	163+03.93	117.67	737.55

SOUTH EDGE OF APPROACH

Location	Station	Offset	Theoretical Grade Elevation
W. End East Appr. Pav't	162+73.93	118.83	737.83
A3	162+83.93	118.83	737.78
A4	162+93.93	118.17	737.93
E. End East Appr. Pav't	163+03.93	118.17	737.71

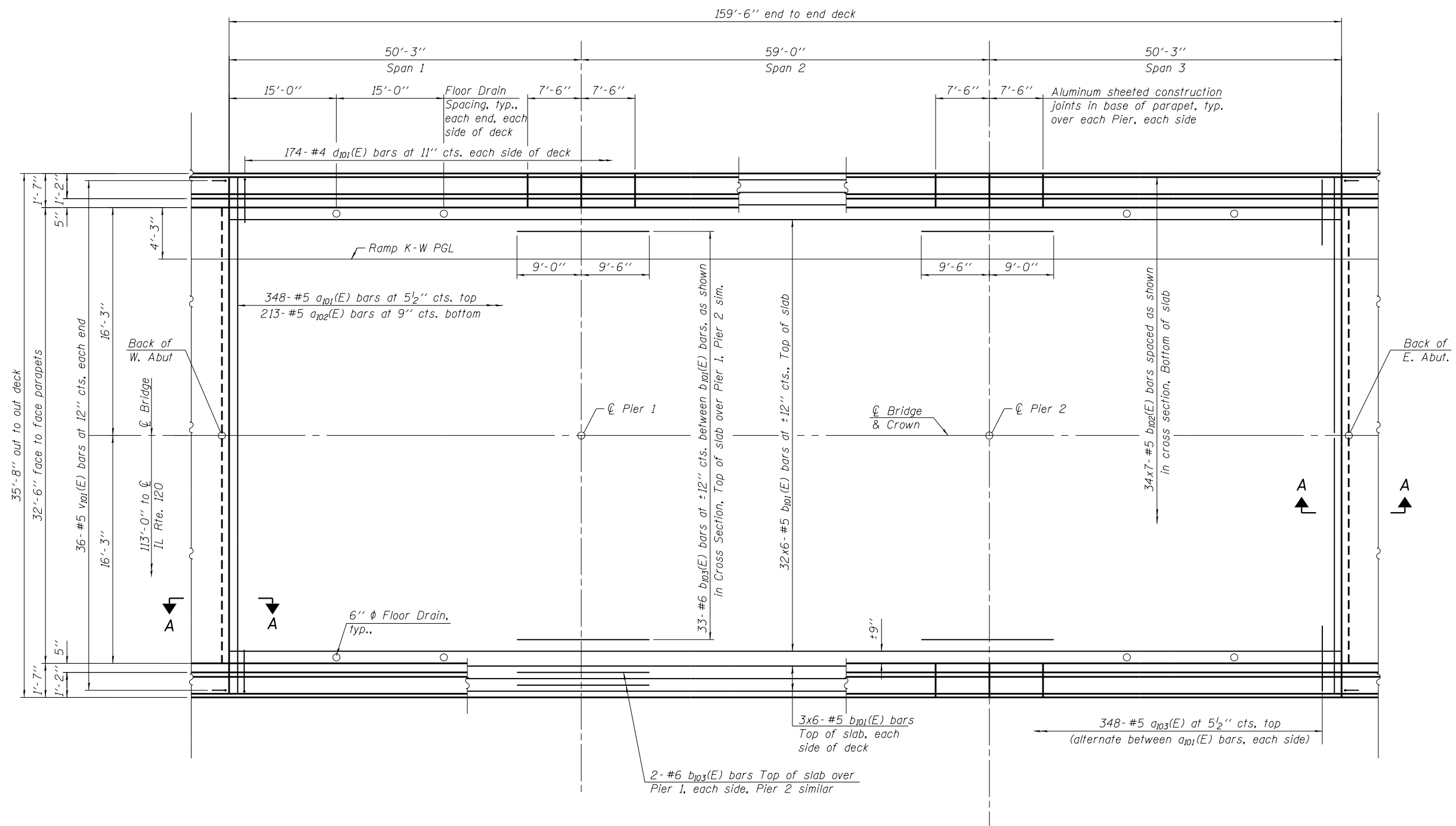
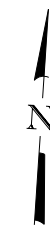


EAST APPROACH PLAN

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	170
* 121VB-1&21&12R-1HB-21BR1&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



DECK PLAN

(Ramp K-W shown, Ramp W-K similar)

MINIMUM BAR LAP

#5 bar = 3'-6"

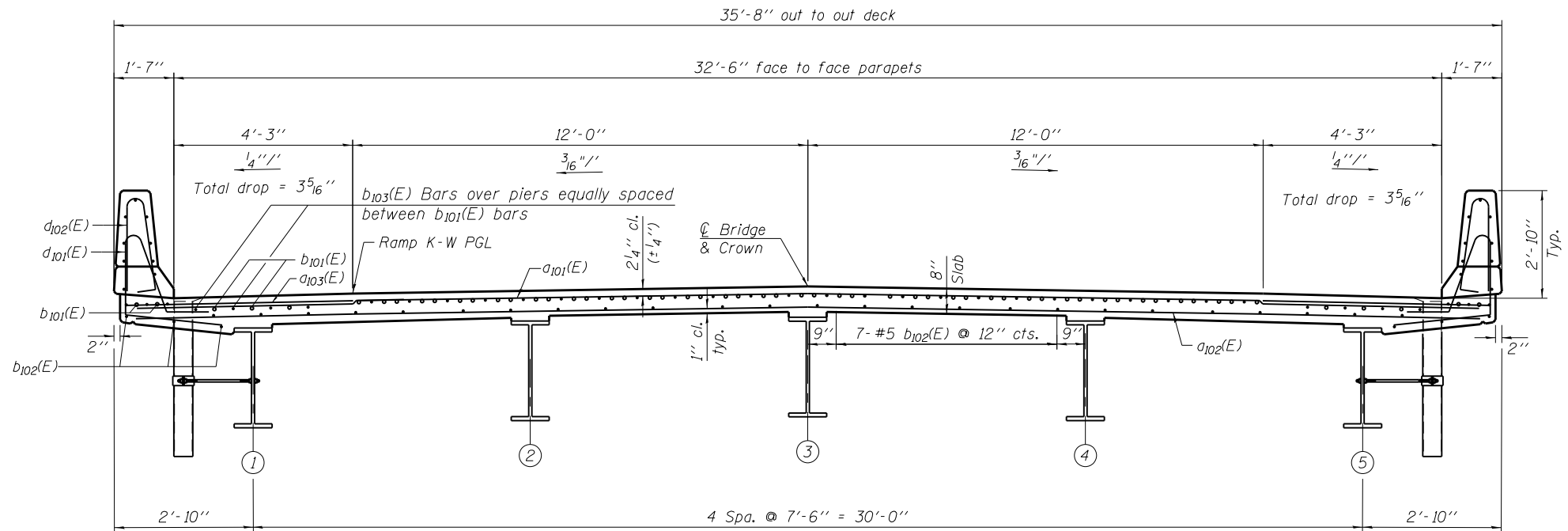
NOTES

1. Work this sheet with sheets S14 thru S15.
2. See sheet S25 for Section A-A.
3. Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	171
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



CROSS SECTION
 (Looking East)
 (Ramp K-W shown, Ramp W-K opp. hand)

NOTES
 1. Work this sheet with Sheets S15, S16 and S17.

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GR&EF
 8501 W. Higgins Road, Suite 280
 Chicago, Illinois 60631 (773) 399-0112

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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**DECK CROSS SECTION & DETAILS
 S.N. 049-0129 & S.N. 049-0130**

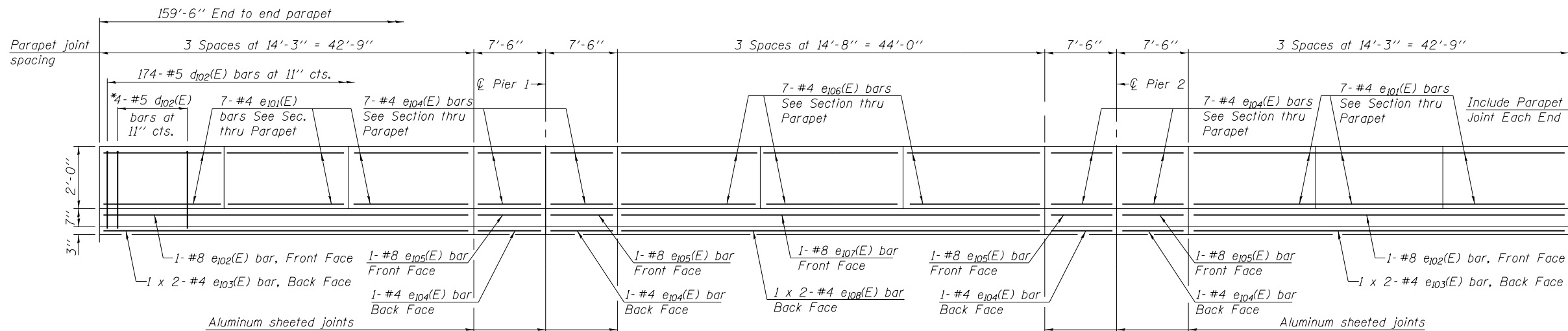
SHEET NO. S14 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	172
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

SN 049-0129 & SN 049-0130
SUPERSTRUCTURE
BILL OF MATERIAL

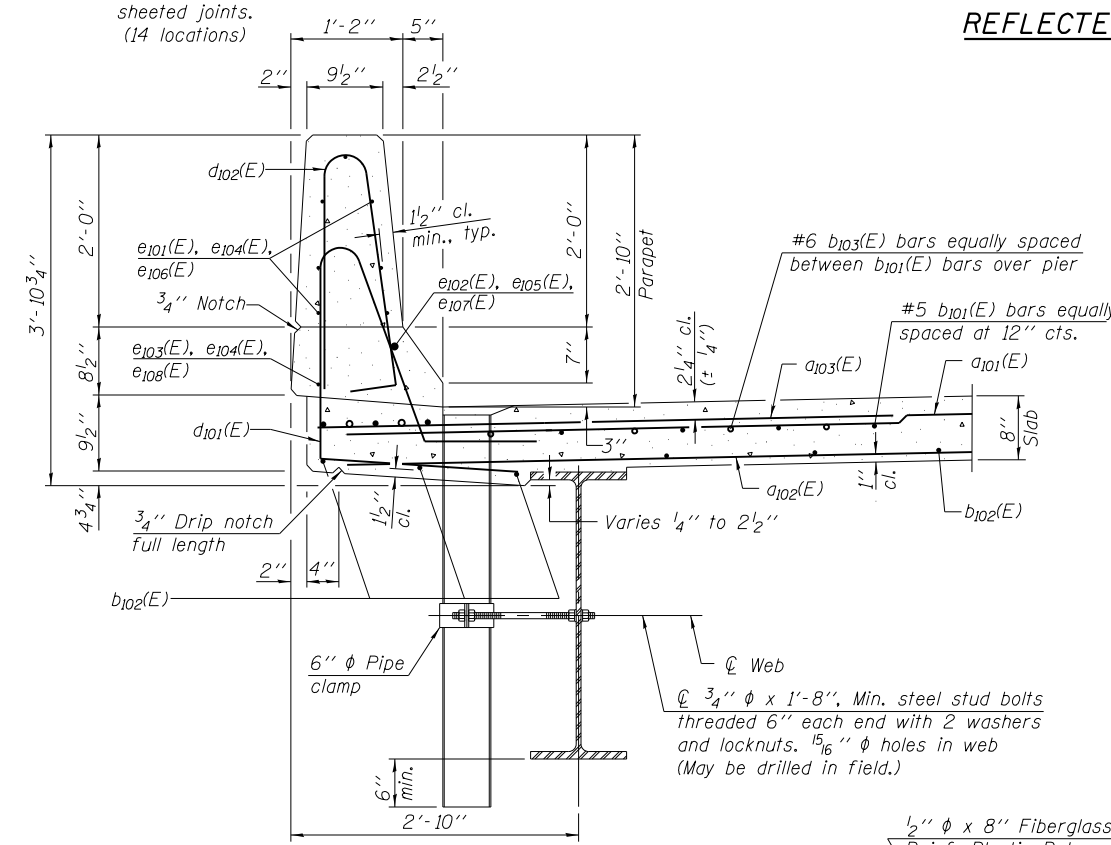
Bar	No.	Size	Length	Shape
d101(E)	696	#5	35' - 0"	—
d102(E)	426	#5	34' - 4"	—
d103(E)	1,392	#6	6' - 6"	—
b101(E)	456	#5	29' - 6"	—
b102(E)	476	#5	25' - 9"	—
b103(E)	148	#6	18' - 6"	—
s101(E)	696	#5	7' - 6"	L
s102(E)	920	#5	5' - 7"	L
u101(E)	168	#4	13' - 11"	—
u102(E)	8	#8	42' - 5"	—
u103(E)	16	#4	22' - 7"	—
u104(E)	128	#4	7' - 2"	—
u105(E)	16	#8	7' - 2"	—
u106(E)	84	#4	14' - 4"	—
u107(E)	4	#8	43' - 8"	—
u108(E)	8	#4	23' - 2"	—
m101(E)	60	#5	4' - 0"	—
m102(E)	80	#6	7' - 2"	—
m103(E)	40	#6	2' - 4"	—
m104(E)	36	#6	35' - 0"	—
s101(E)	136	#5	9' - 8"	U
s102(E)	136	#5	8' - 0"	U
u101(E)	136	#5	7' - 4"	U
v101(E)	144	#5	3' - 9"	L
Concrete Superstructure		Cu. Yd.	461.4	
Bridge Deck Grooving		Sq. Yd.	1,488	
Protective Coat		Sq. Yd.	1,420	
Reinforcement Bars, Epoxy Coated		Pound	108,260	

Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line.

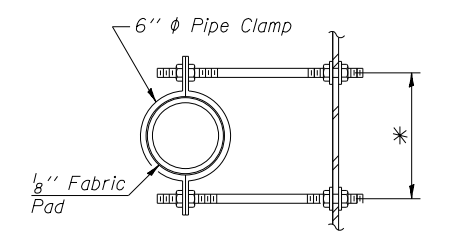


INSIDE ELEVATION OF NORTH PARAPET
REFLECTED INSIDE ELEVATION OF SOUTH PARAPET

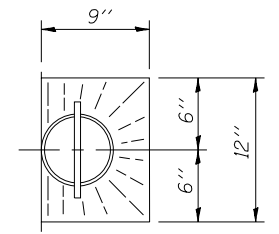
MINIMUM BAR LAP
 (Parapet)
 #4 bar = 2'-8"
 #8 bar = 5'-11"



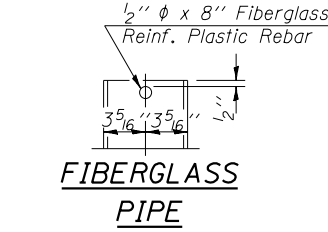
SECTION THRU PARAPET



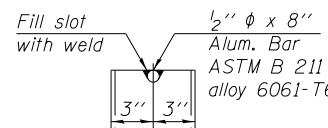
SECTION A-A
 *Dimension as required by Pipe Clamp



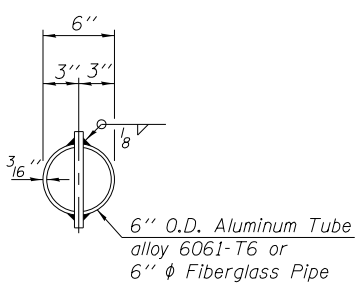
TOP PLAN



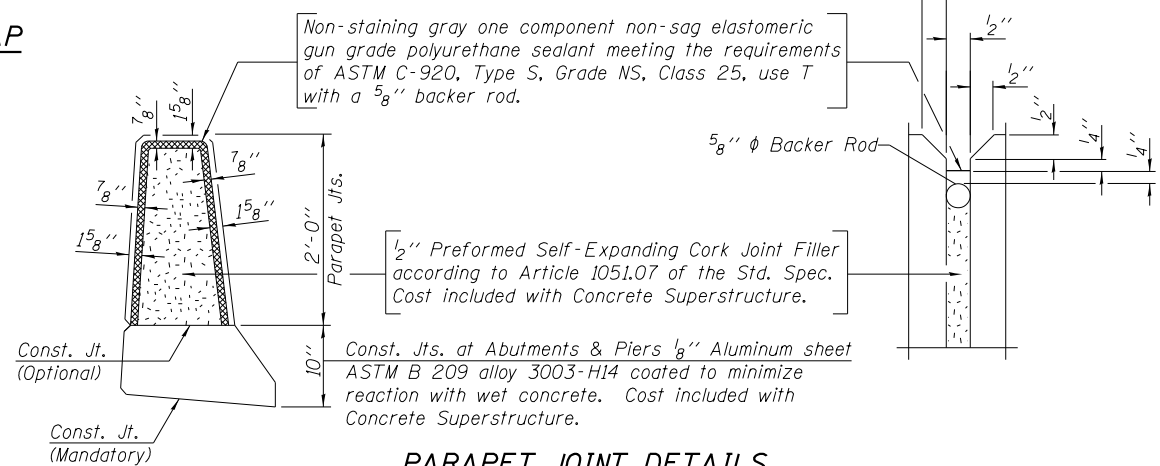
FIBERGLASS PIPE



ALUMINUM TUBE



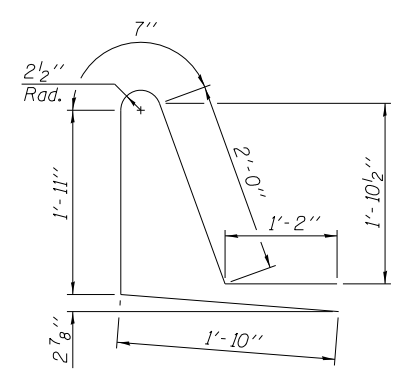
TOP PLAN (Showing Aluminum Tube)



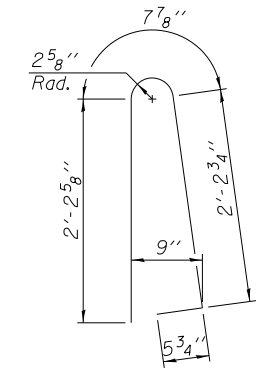
PARAPET JOINT DETAILS

NOTES

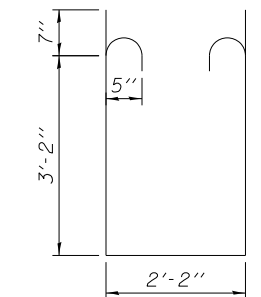
1. Floor drains need not be painted.
2. Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.
3. Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.
4. Drains shall be located clear of all diaphragms.



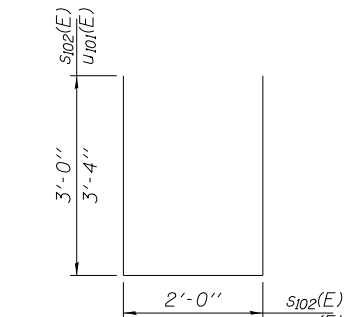
BAR d101(E)



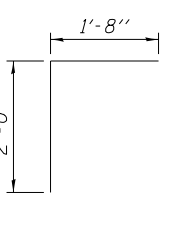
BAR d102(E)



BAR s101(E)



BARS s102(E) & u101(E)



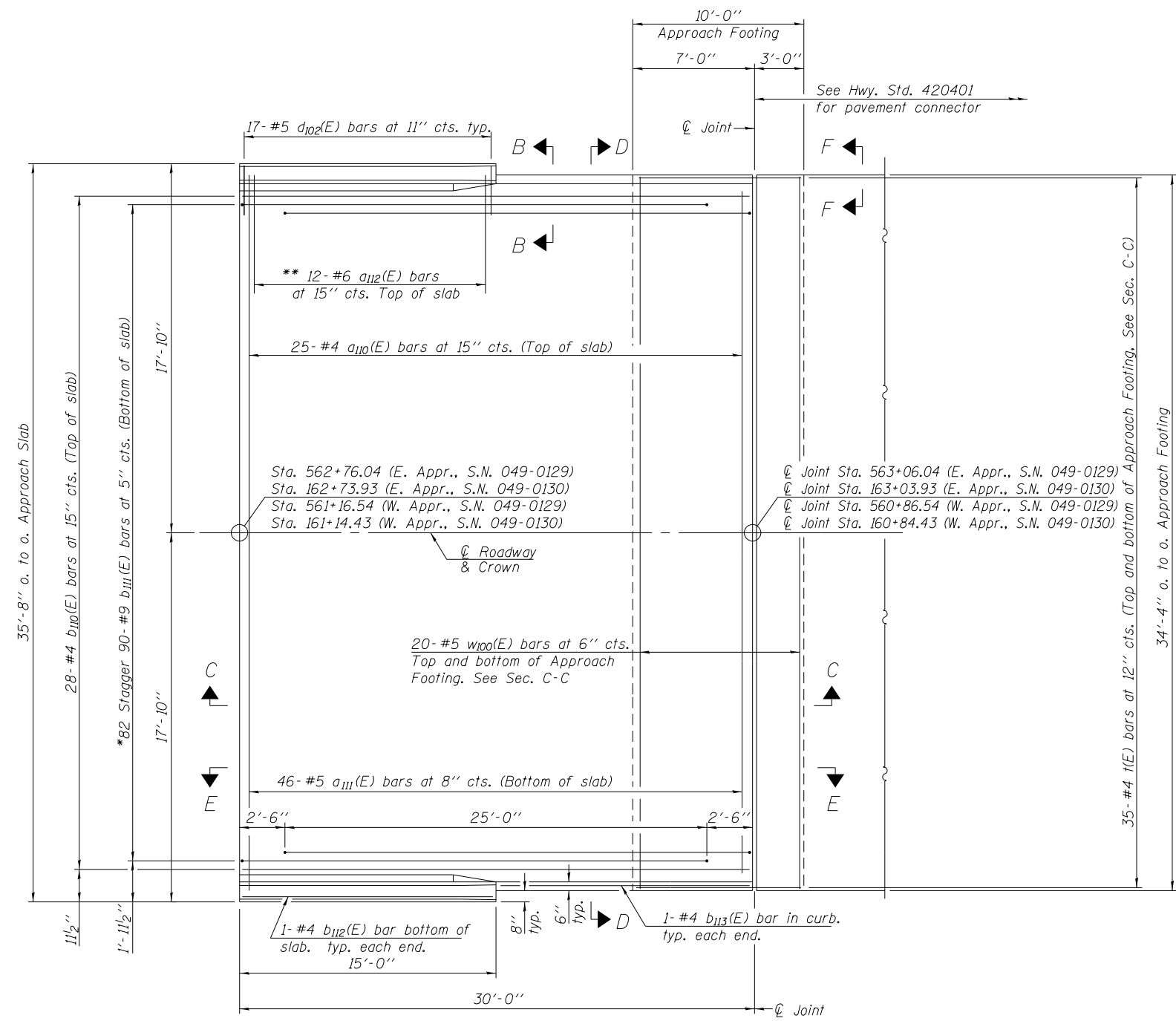
BAR v101(E)

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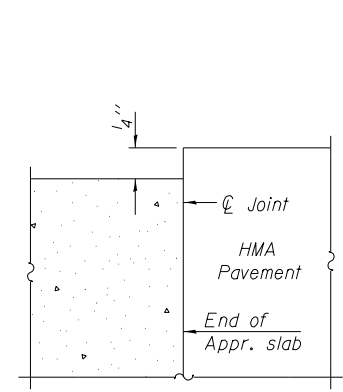
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	173
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				

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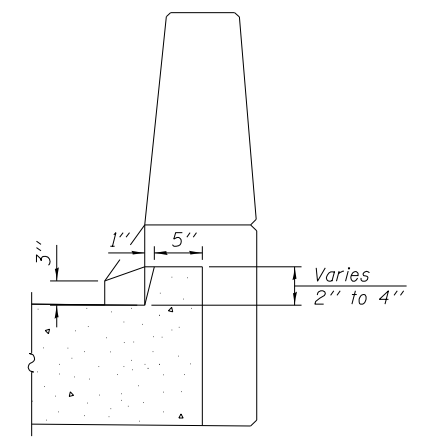


PLAN
(East approach slab shown, West approach slab similar)

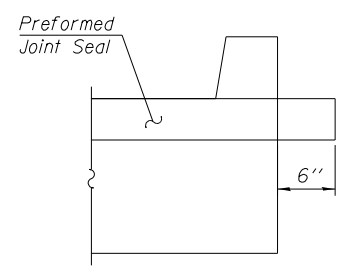
* Tilt #9 b111(E) bars as required to maintain clearance.
 ** Space between a110(E) bars, typ. ea. parapet.



FLEXIBLE PAVEMENT
DETAIL A



VIEW B-B



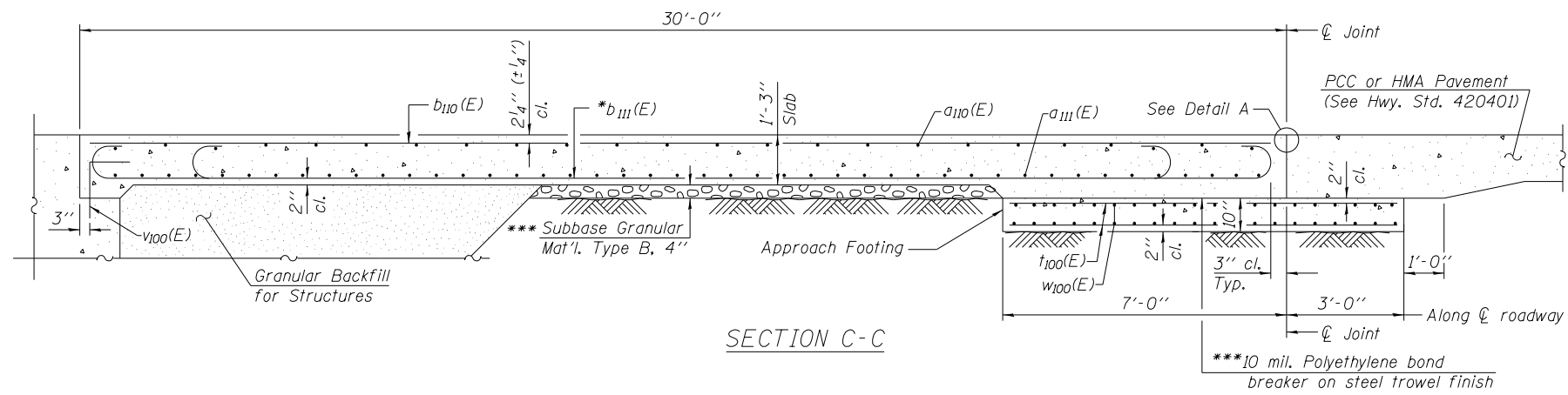
VIEW F-F

NOTES

- See sheet S17 for Sections C-C & D-D and View E-E. a105(E) thru a108(E) bar spacings measured along ϕ Rdwy.

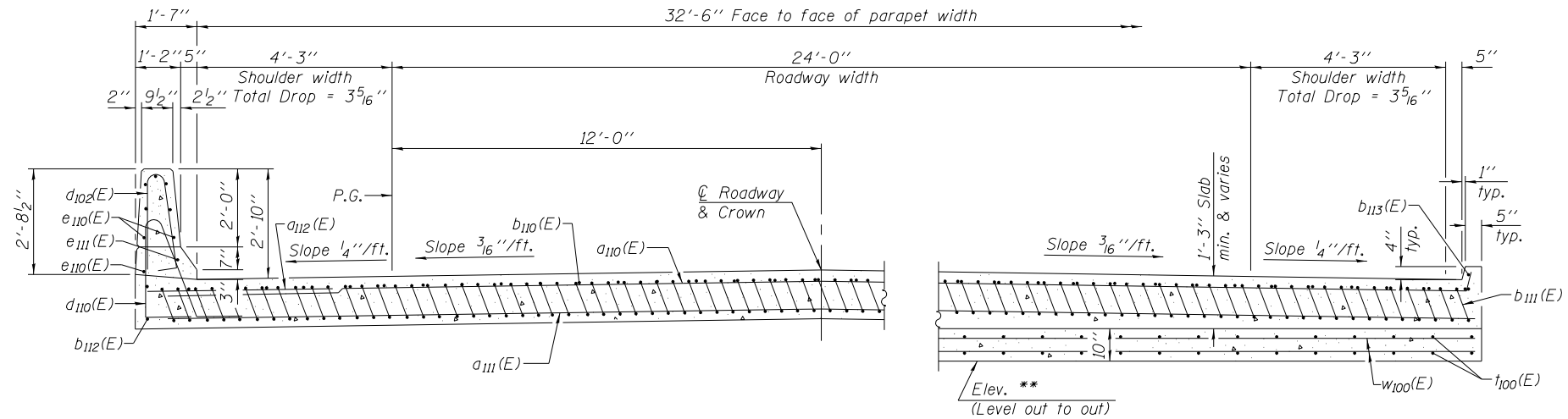
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	174
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



NOTES

1. See sheet S16 for Detail A.
2. Approach slab and parapet concrete shall be paid for as Concrete Superstructure (Approach Slab).
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
5. For v100(E) bar details, see Sheet S25.
6. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
7. Cost of excavation for approach footing included with Concrete Structures.
8. For Granular Backfill for Structures and drainage treatment details, see Sheet S27.
9. For additional Parapet details, see Sheet S15.



* Tilt #9 b111(E) bars as required to maintain clearance.
 *** Cost included with Concrete Superstructure.

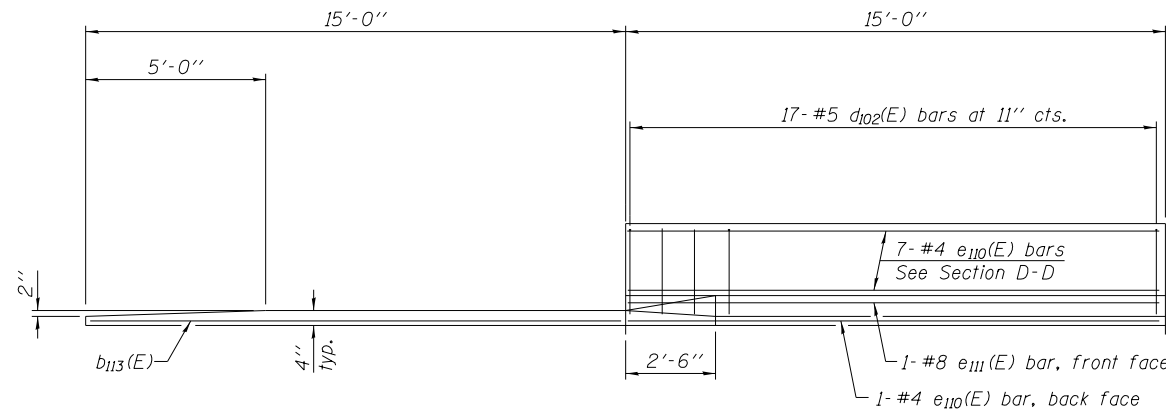
**** ELEVATION AT BOTTOM OF APPROACH FOOTING**

- 736.00 W. Appr. S.N. 049-0129
- 735.38 E. Appr. S.N. 049-0129
- 735.87 W. Appr. S.N. 049-0130
- 735.47 E. Appr. S.N. 049-0130

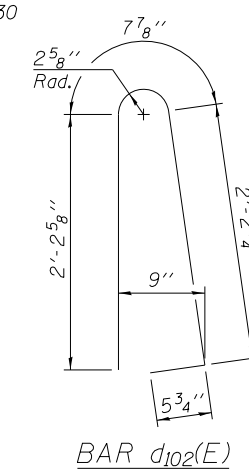
NEAR ABUTMENT

SECTION D-D

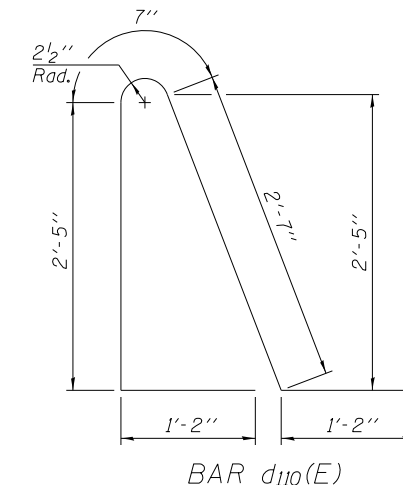
(See Plan for dimensions not shown)



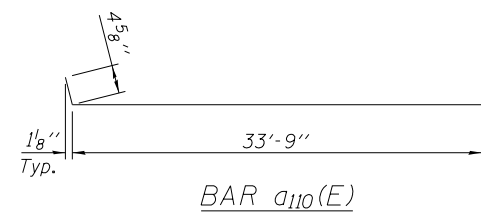
VIEW E-E



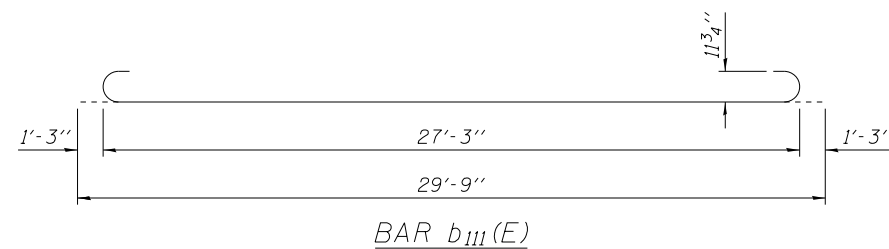
BAR d102(E)



BAR d110(E)



BAR a110(E)

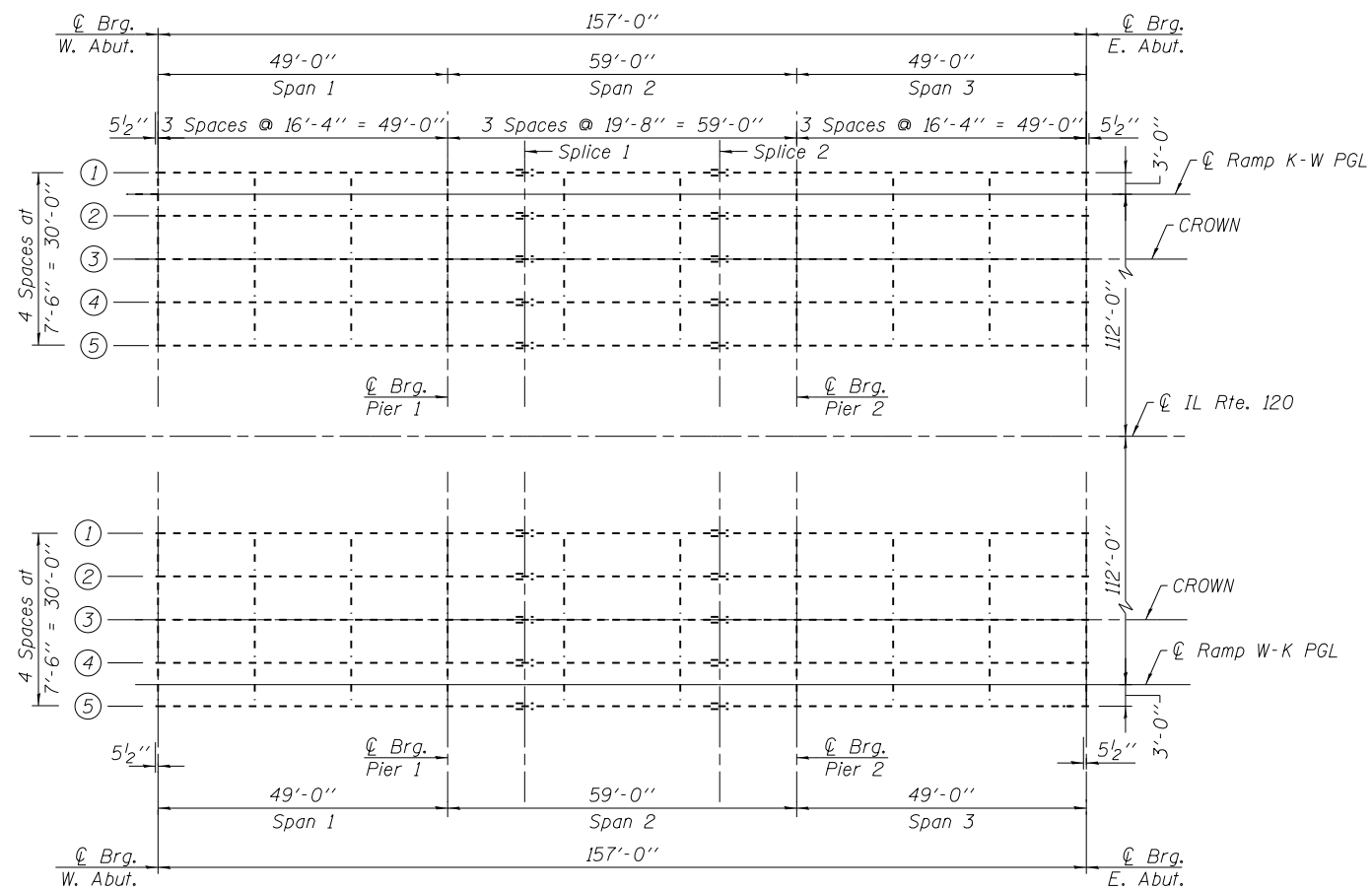


BAR b111(E)

**S.N. 049-0129 & 049-0130
 FOUR APPROACHES
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a110(E)	100	#4	34' - 7"	—
a111(E)	184	#5	35' - 4"	—
a112(E)	96	#6	6' - 6"	—
b110(E)	112	#4	29' - 8"	—
b111(E)	328	#9	29' - 9"	—
b112(E)	8	#4	14' - 8"	—
b113(E)	8	#4	17' - 7"	—
d102(E)	136	#5	5' - 7"	⌒
d110(E)	136	#5	7' - 11"	⌒
e110(E)	64	#4	14' - 8"	—
e111(E)	8	#8	14' - 8"	—
t100(E)	280	#4	9' - 8"	—
w100(E)	160	#5	34' - 0"	—
Concrete Structures			Cu. Yd.	44
Bridge Deck Grooving			Sq. Yd.	404
Protective Coat			Sq. Yd.	502
Concrete Superstructure (Approach Slab)			Cu. Yd.	206
Reinforcement Bars, Epoxy Coated			Pound	55,940

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FRAMING PLAN

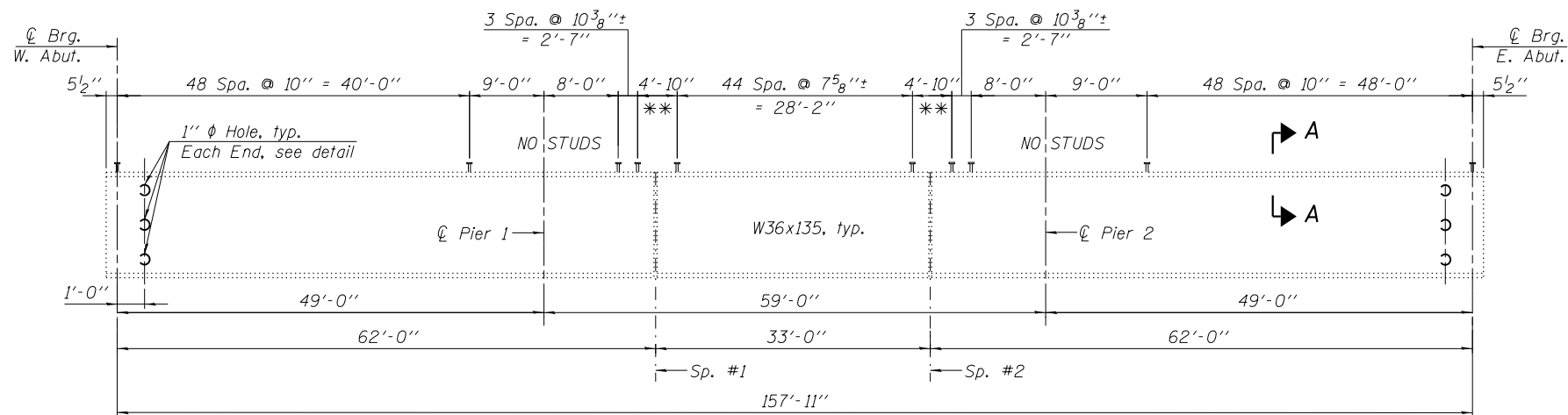
NOTES

1. Work this sheet with sheet S19.

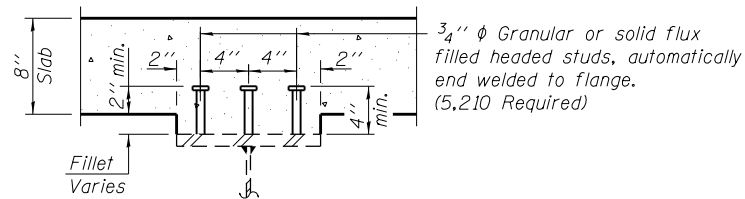
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	176
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



BEAM ELEVATION

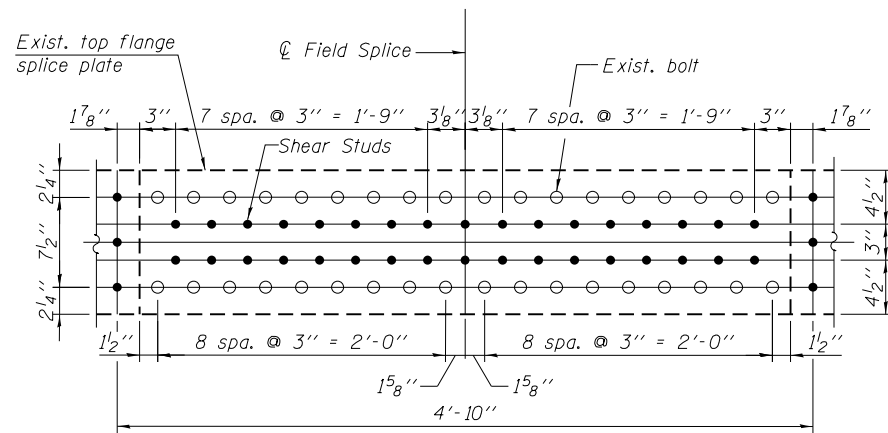


SECTION A-A

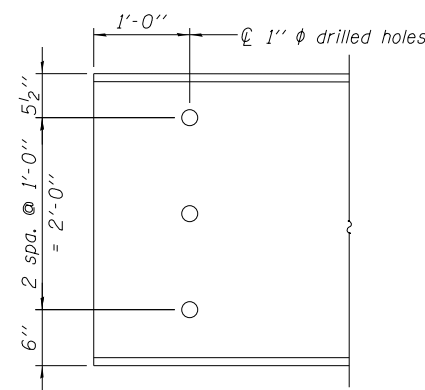
INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 & 0.6 Sp. 3	0.5 Sp. 2	Pier 1 & Pier 2
I_s	(in ⁴)	7,800	7,800	7,800
$I_c(n)$	(in ⁴)	24,513	24,513	-
$I_c(3n)$	(in ⁴)	17,733	17,733	-
S_s	(in ³)	439	439	439
$S_c(n)$	(in ³)	714.0	714.0	-
$S_c(3n)$	(in ³)	639.5	639.5	-
\bar{Q}	(k/')	0.98	0.98	1.513
$M\bar{Q}$	(k)	171.5	141.6	431.7
$s\bar{Q}$	(k/')	0.533	0.533	-
$M_s\bar{Q}$	(k)	95.5	84.7	-
$M\bar{L}$	(k)	350.5	348.7	235.3
M_{IM}	(k)	100.6	94.8	65.6
$\bar{S}_3 [M\bar{L} + I]$	(k)	751.8	739.2	501.5
M_a	(k)	1,324	1,255	1,213
M_u	(k)	3,078	3,078	1,527
$f_s \bar{Q}$ non-comp	(ksi)	4.69	3.87	11.8
$f_s \bar{Q}$ (comp)	(ksi)	1.79	1.59	-
$f_s \bar{S}_3 [M\bar{L} + I]$	(ksi)	12.64	12.42	13.7
f_s (Overload)	(ksi)	19.11	17.88	25.5
VR	(k)	41.0	45.2	-

* Compact section

INTERIOR GIRDER REACTION TABLE			
		E. & W. Abut.	Piers 1 & 2
$R\bar{Q}$	(k)	62.9	91.7
$R\bar{L}$	(k)	40.3	50.2
$R\bar{I}$	(k)	11.6	10.8
R_{Total}	(k)	114.8	152.7



**** STUDS AT EXISTING SPLICE**



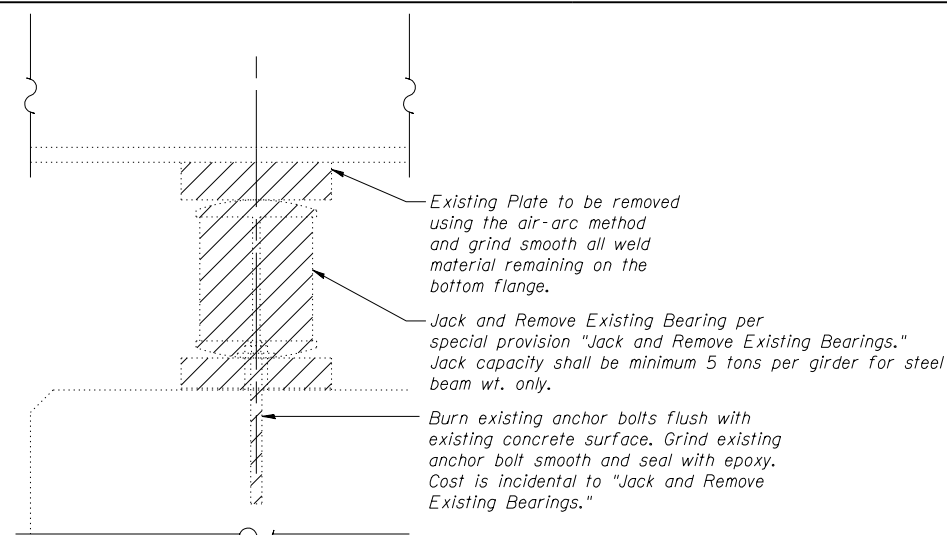
WEB HOLES DETAIL

- I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) due to non-composite dead loads (in⁴ and in³).
- $I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) due to short-term composite live loads (in⁴ and in³).
- $I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).
- \bar{Q} : Un-factored non-composite dead load (kips/ft.).
- $M\bar{Q}$: Un-factored moment due to non-composite dead load (kip-ft.).
- $s\bar{Q}$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
- $M_s\bar{Q}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
- $M\bar{L}$: Un-factored live load moment (kip-ft.).
- M_I : Un-factored moment due to impact (kip-ft.).
- M_a : Factored design moment (kip-ft.).
- $1.3 [M\bar{Q} + M_s\bar{Q} + \frac{5}{3} (M\bar{L} + M_I)]$
- M_u : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
- f_s (Overload): Sum of stresses as computed from the moments below (ksi).
- $M\bar{Q} + M_s\bar{Q} + \frac{5}{3} (M\bar{L} + M_I)$
- VR: Maximum $\bar{L} +$ impact shear range within the composite portion of the span for stud shear connector design (kips).

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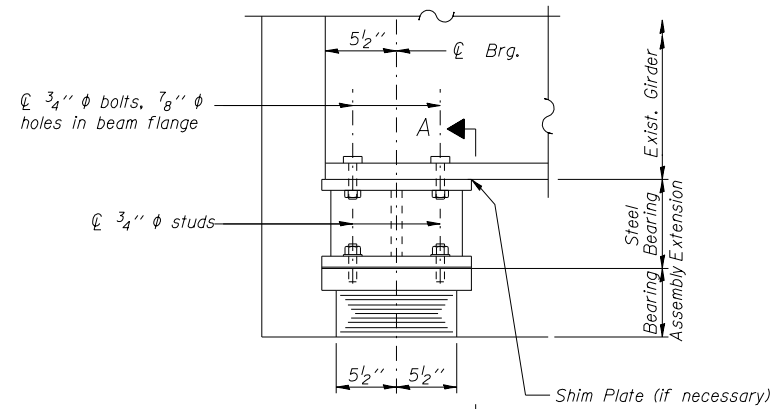
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	177
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



EXISTING BEARING REMOVAL DETAIL
AT ABUTMENT

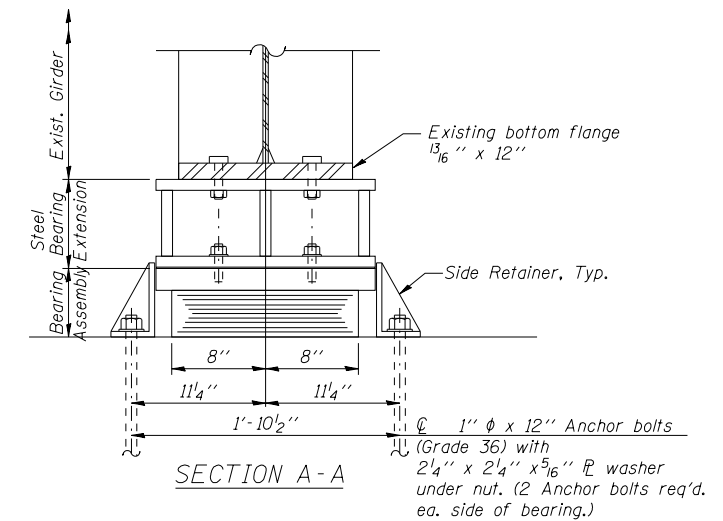
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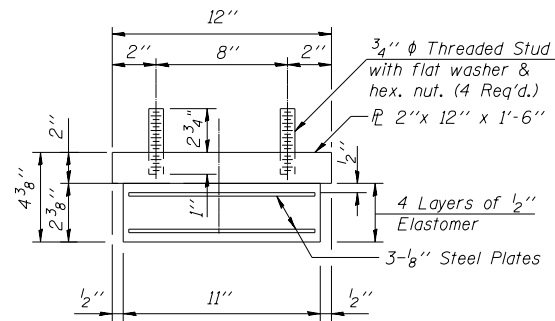
ELEVATION AT ABUT.

TYPE I ELASTOMERIC EXP. BRG. AT ABUT.

(20 Required)



SECTION A-A

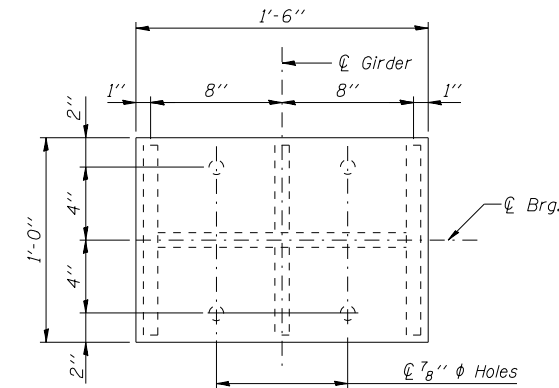


BEARING ASSEMBLY

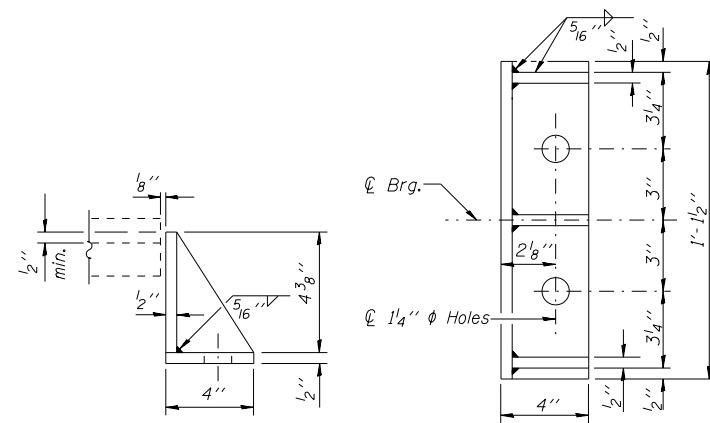
Note:
Shim plates shall not be placed under Bearing Assembly.

* h (in.)

	S.N. 049-0129		S.N. 049-0130	
Beam	W. Abut.	E. Abut.	W. Abut.	E. Abut.
1	9 1/6"	10 3/8"	9 9/16"	9 1/6"
2	10 1/8"	10 5/8"	10 1/4"	10"
3	10 3/8"	10 1/2"	10 1/8"	10 1/4"
4	10 1/8"	10 1/4"	10 1/8"	10 1/8"
5	10 1/8"	10"	9 7/8"	9 7/8"

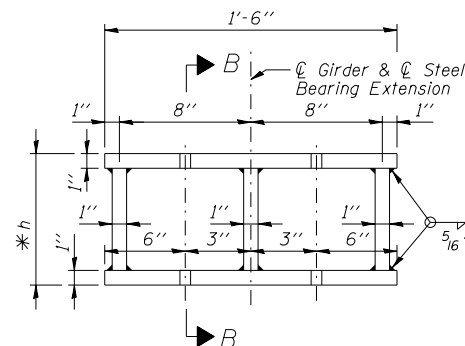


PLAN STEEL BEARING EXTENSION

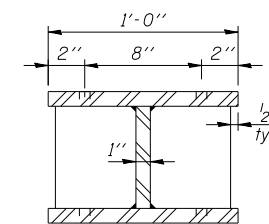


SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



ELEVATION STEEL BEARING EXTENSION



SECTION B-B

STEEL BEARING EXTENSION

NOTES

- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
- Side retainers shall be included in the cost of Elastomeric Bearing Assembly, Type I.
- The structural steel plates of the Bearing Assembly and the Steel Bearing Extension shall conform to the requirements of AASHTO M 270 Grade 36.
- Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
- * Prior to ordering any material, the Contractor shall verify in the field for all steel bearing extension heights and shim thickness dimensions.
- Diaphragm removal and reinstallation may be required to facilitate drilling holes. Cost included with Furnishing and Erecting Structural Steel.
- New Steel extensions, shim plates and connection bolts are included with Furnishing and Erecting Structural Steel.
- For Interior Girder Reaction table, see Sheet S19.

S.N. 049-0129 & S.N. 049-0130
BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	5,700
Elastomeric Bearing Assembly, Type I	Each	20
Anchor Bolts, 1"	Each	80
Jack and Remove Existing Bearings	Each	20

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GRÄEF

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	DATE - 08/26/2015	REVISED -



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

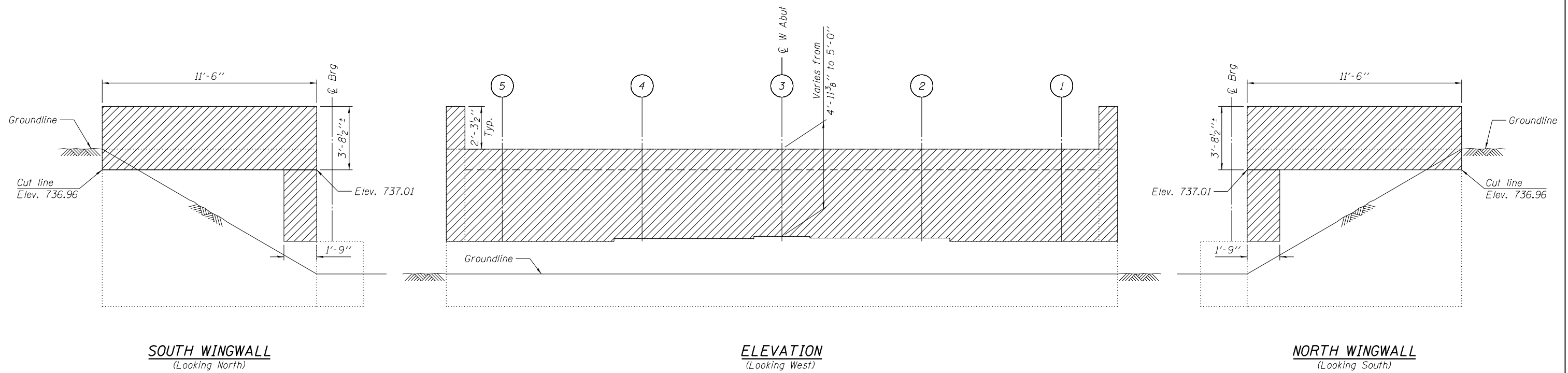
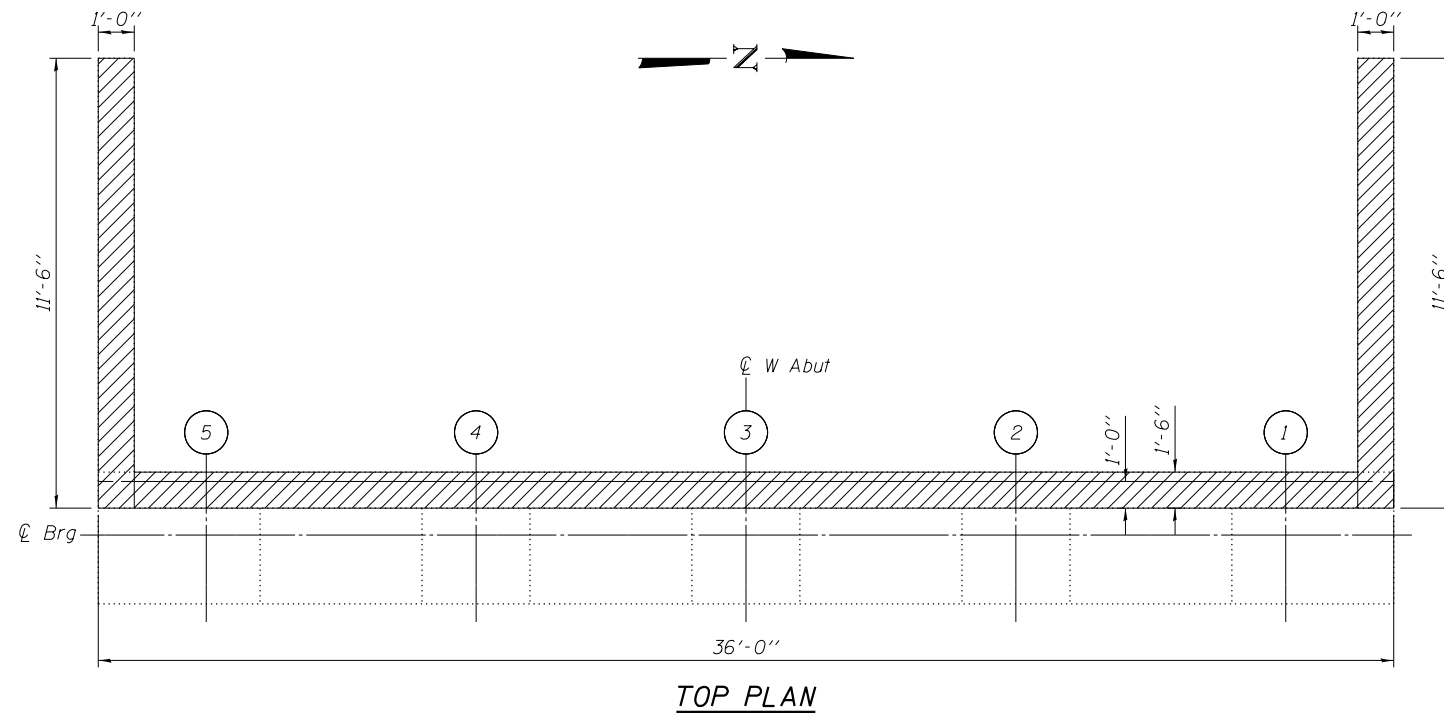
EXPANSION BEARING AND BOLSTER DETAILS
S.N. 049-0129 & S.N. 049-0130

SHEET NO. S20 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	178
* 12(VB-1&2)&12R-1(B-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

LEGEND:

-  Concrete Removal
-  Existing Beam Line



BILL OF MATERIAL

Item	Unit	Quantity
Concrete Removal	cu. yd.	13.5

NOTES

1. Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal"

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


**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

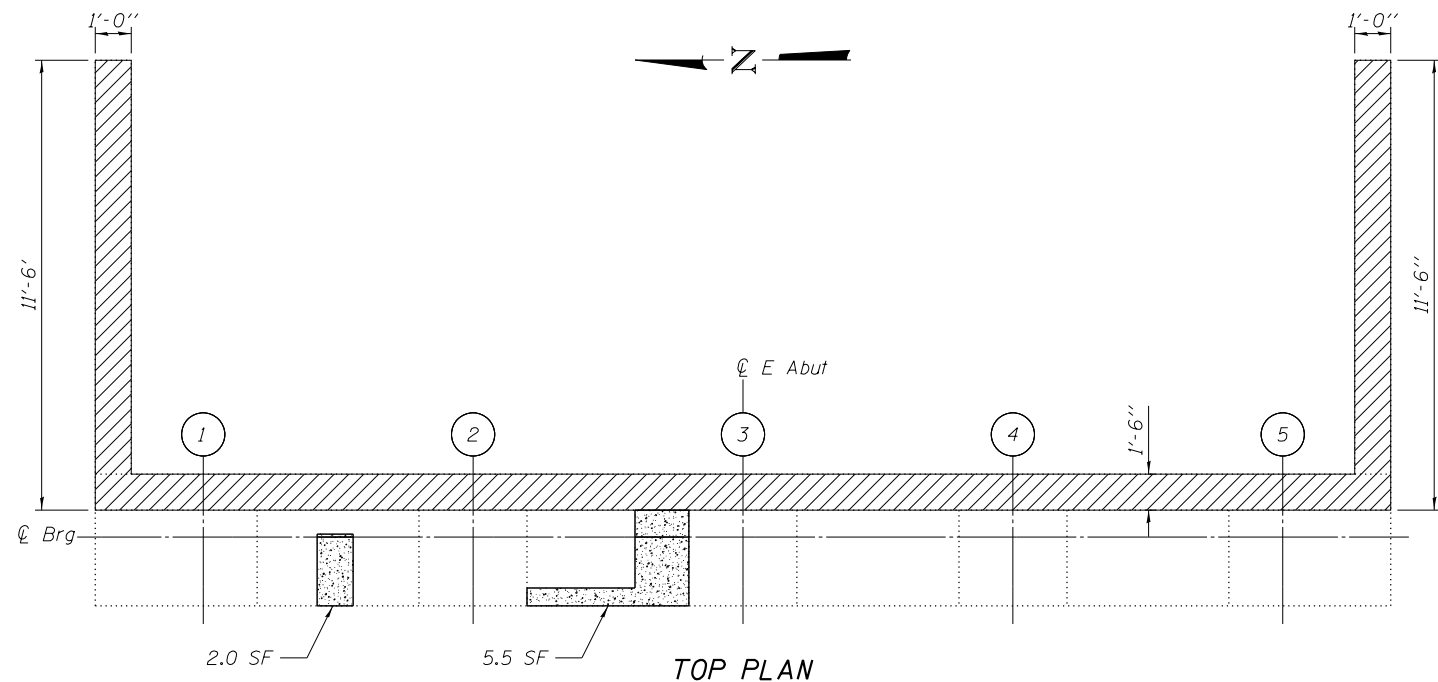
**ABUTMENT REMOVAL AND REPAIR I
S.N. 049-0129**

SHEET NO. S21 OF 38 SHEETS

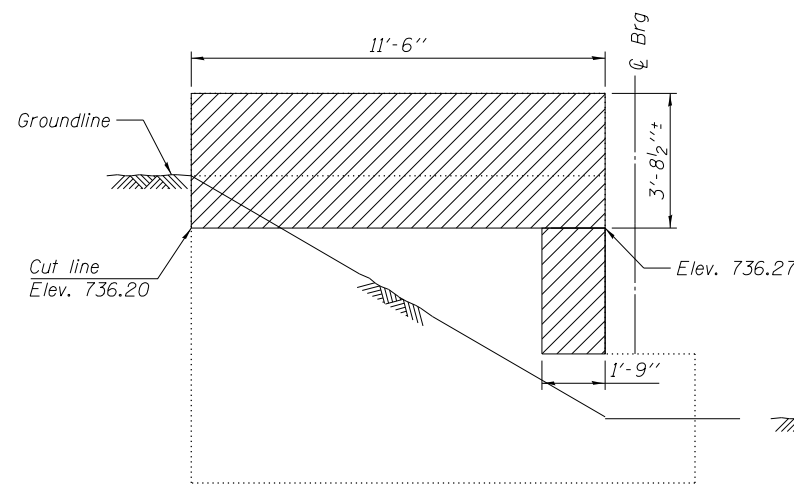
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* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

LEGEND:

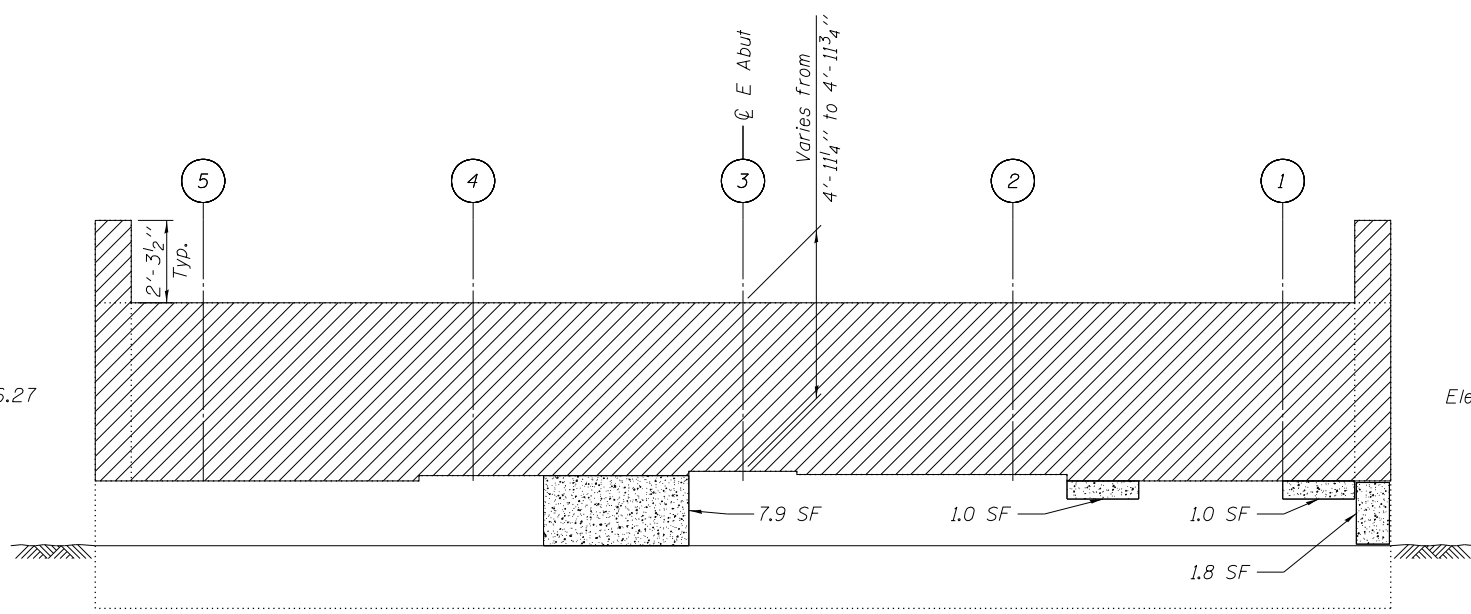
-  Concrete Removal
-  Structural Repair of Concrete
-  Existing Beam Line



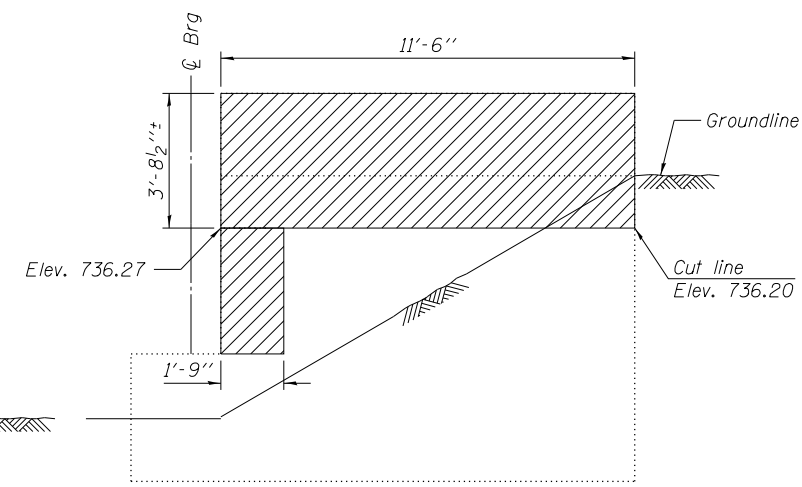
TOP PLAN



NORTH WINGWALL
(Looking South)



ELEVATION
(Looking East)



SOUTH WINGWALL
(Looking North)

BILL OF MATERIAL

Item	Unit	Quantity
Concrete Removal	cu. yd.	13.5
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	29.2

NOTES

- Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal"

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


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

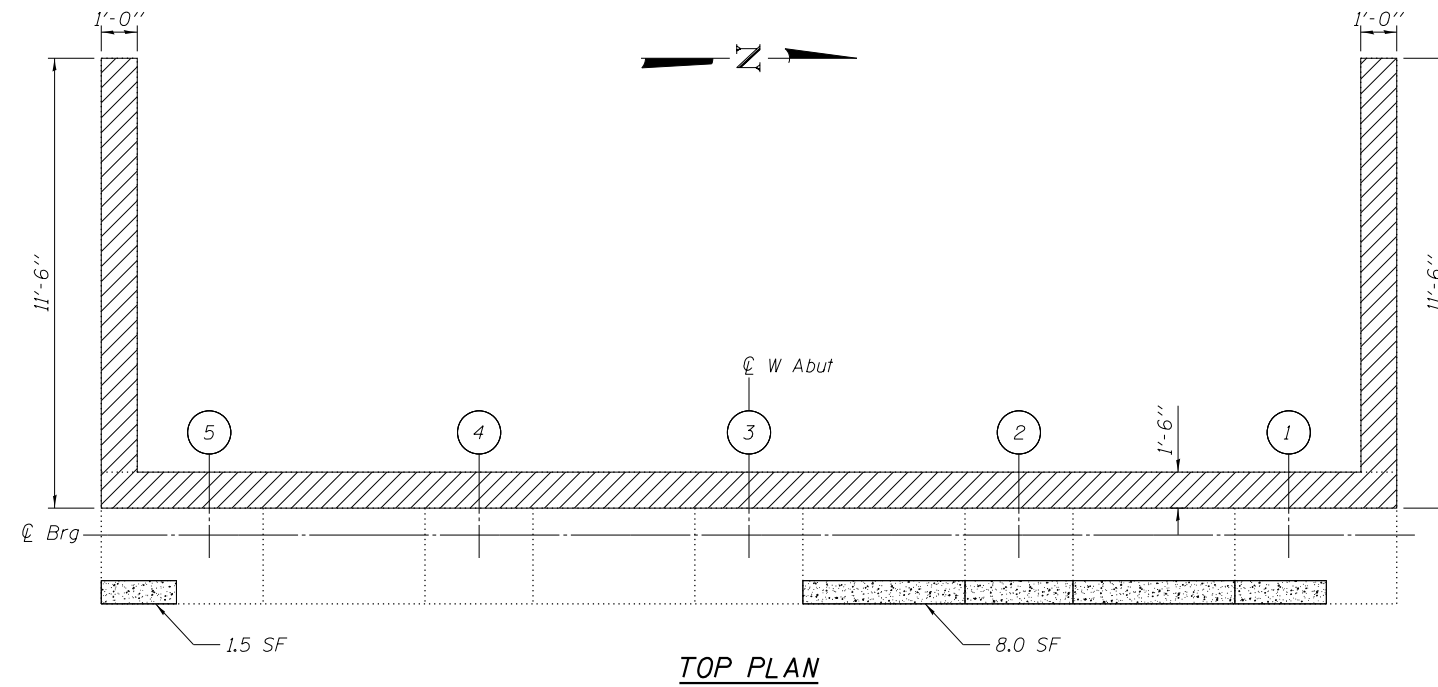
ABUTMENT REMOVAL AND REPAIR II
S.N. 049-0129

SHEET NO. S22 OF 38 SHEETS

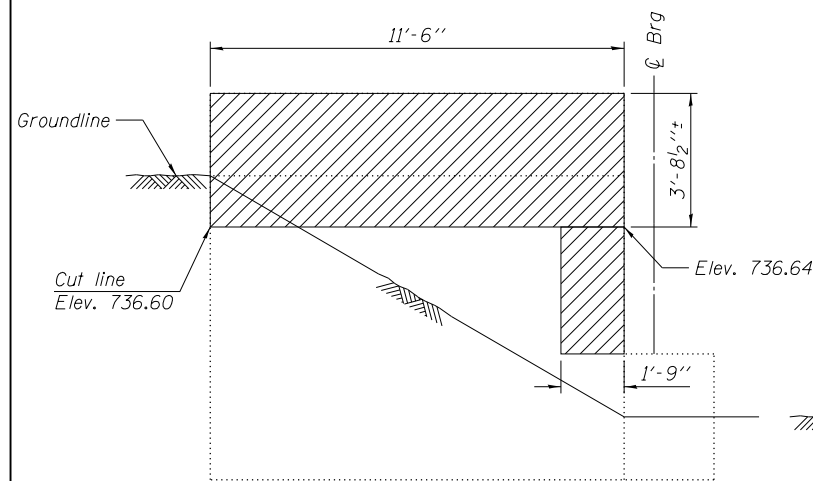
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	180
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

LEGEND:

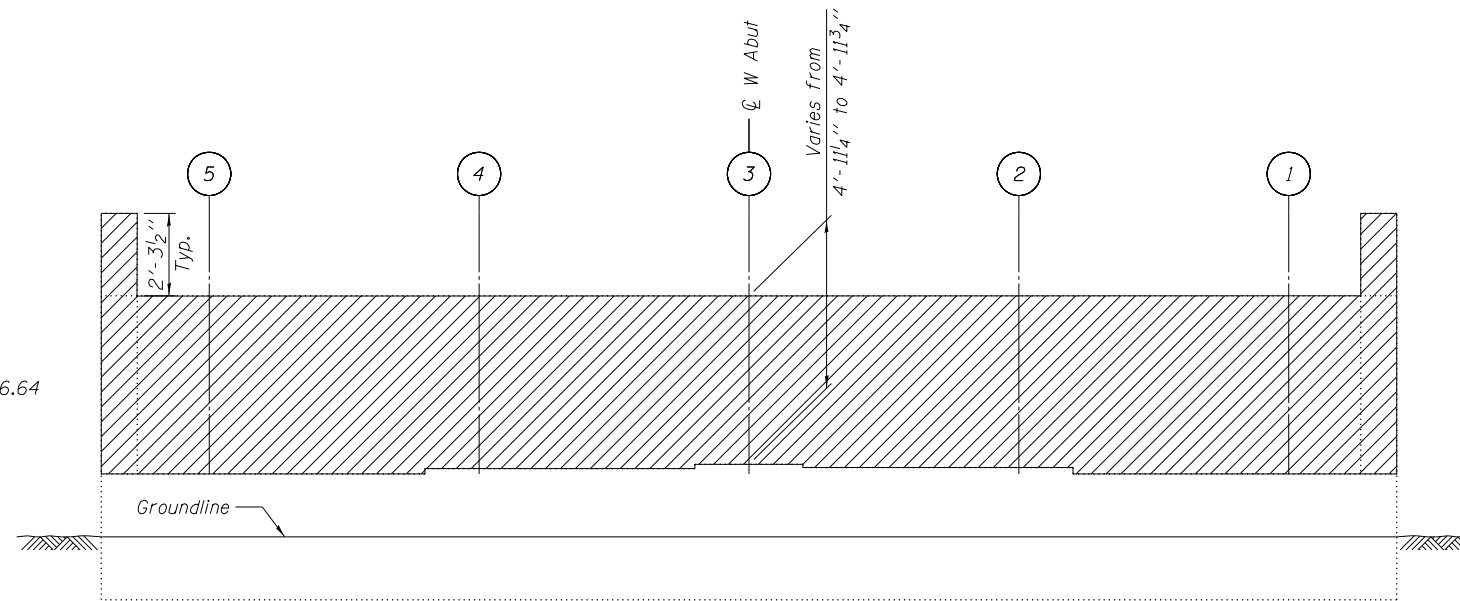
-  Concrete Removal
-  Existing Beam Line
-  Structural Repair of Concrete



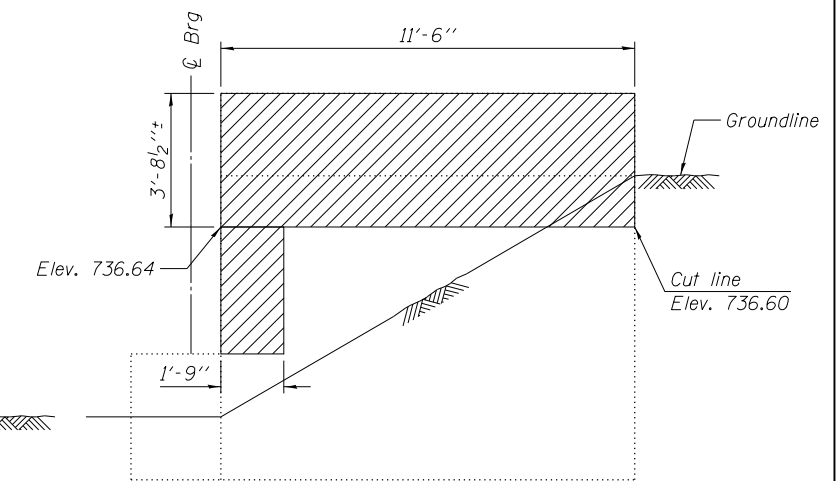
TOP PLAN



SOUTH WINGWALL
(Looking North)



ELEVATION
(Looking West)



NORTH WINGWALL
(Looking South)

BILL OF MATERIAL

Item	Unit	Quantity
Concrete Removal	cu. yd.	13.5
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	9.5

NOTES

- Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal"

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


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

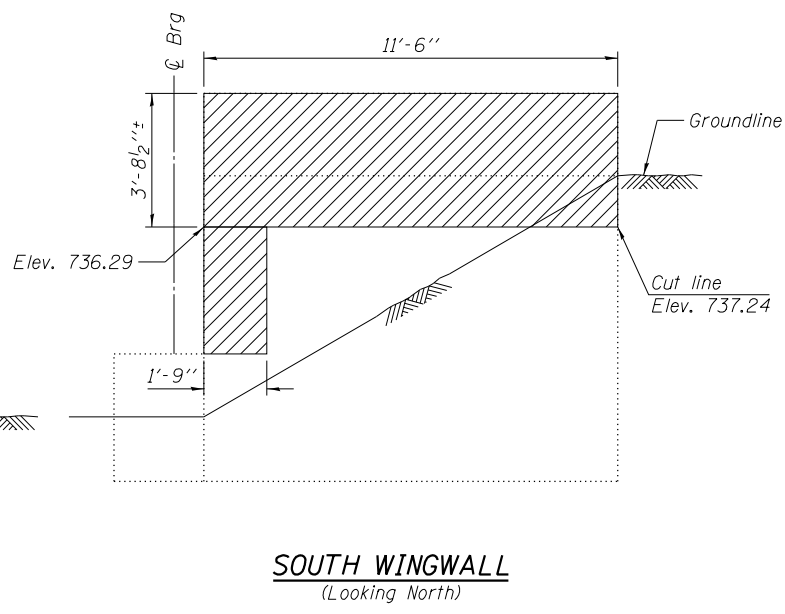
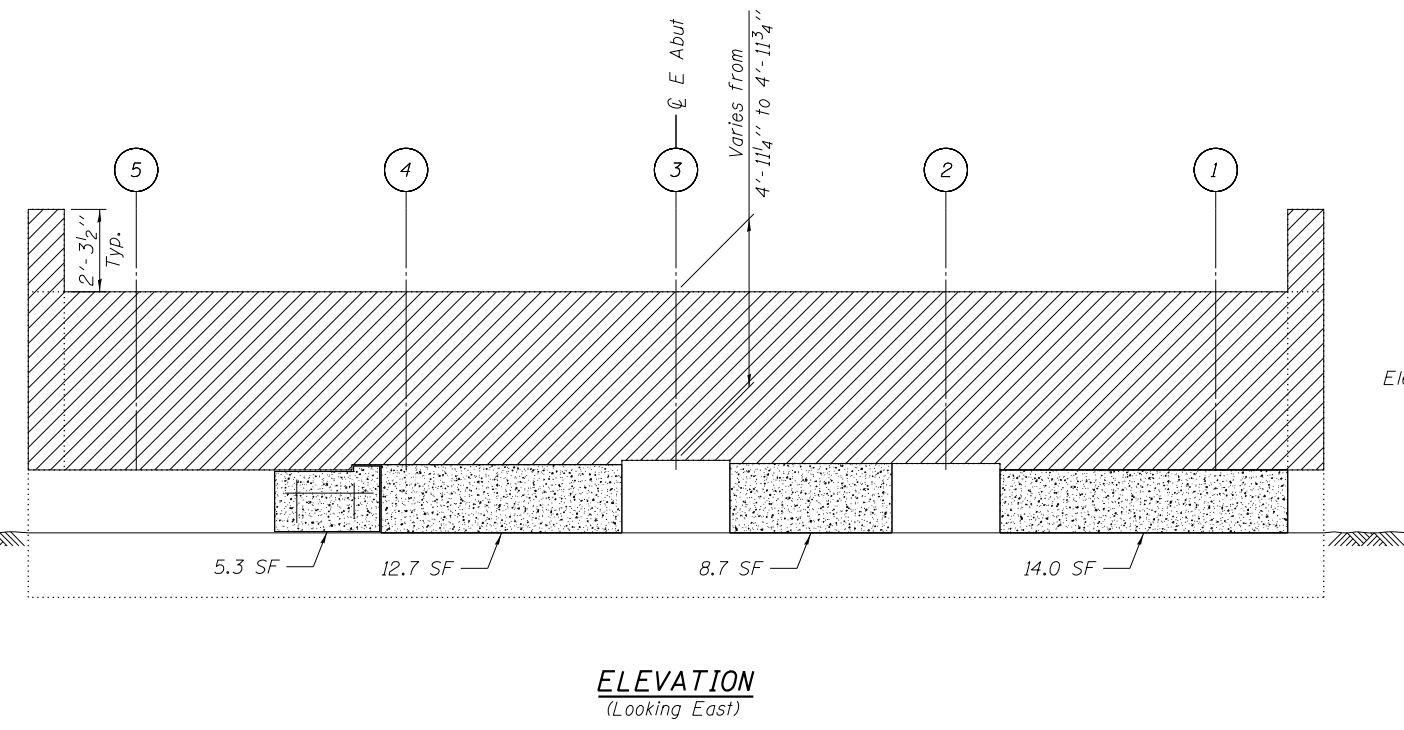
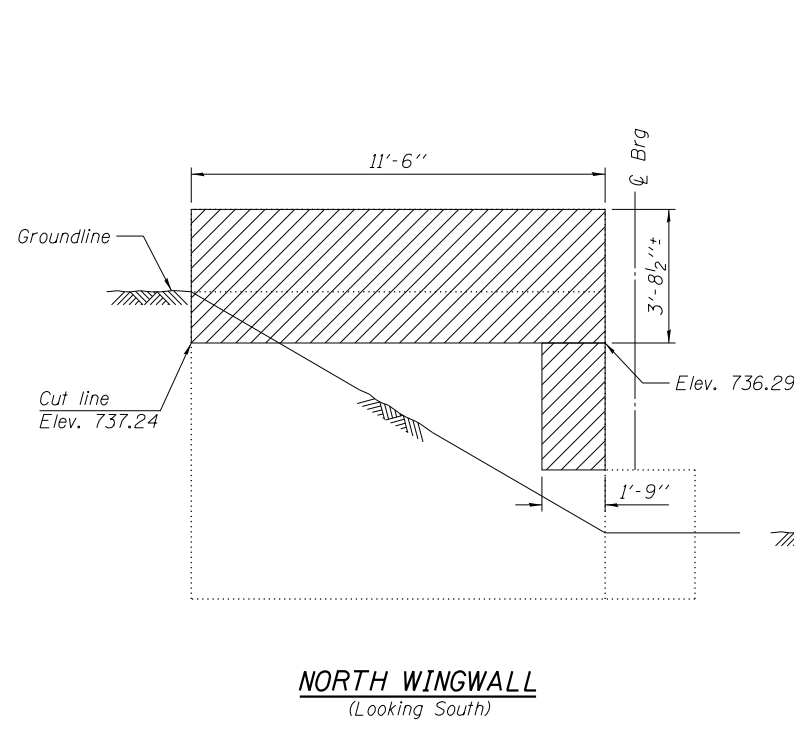
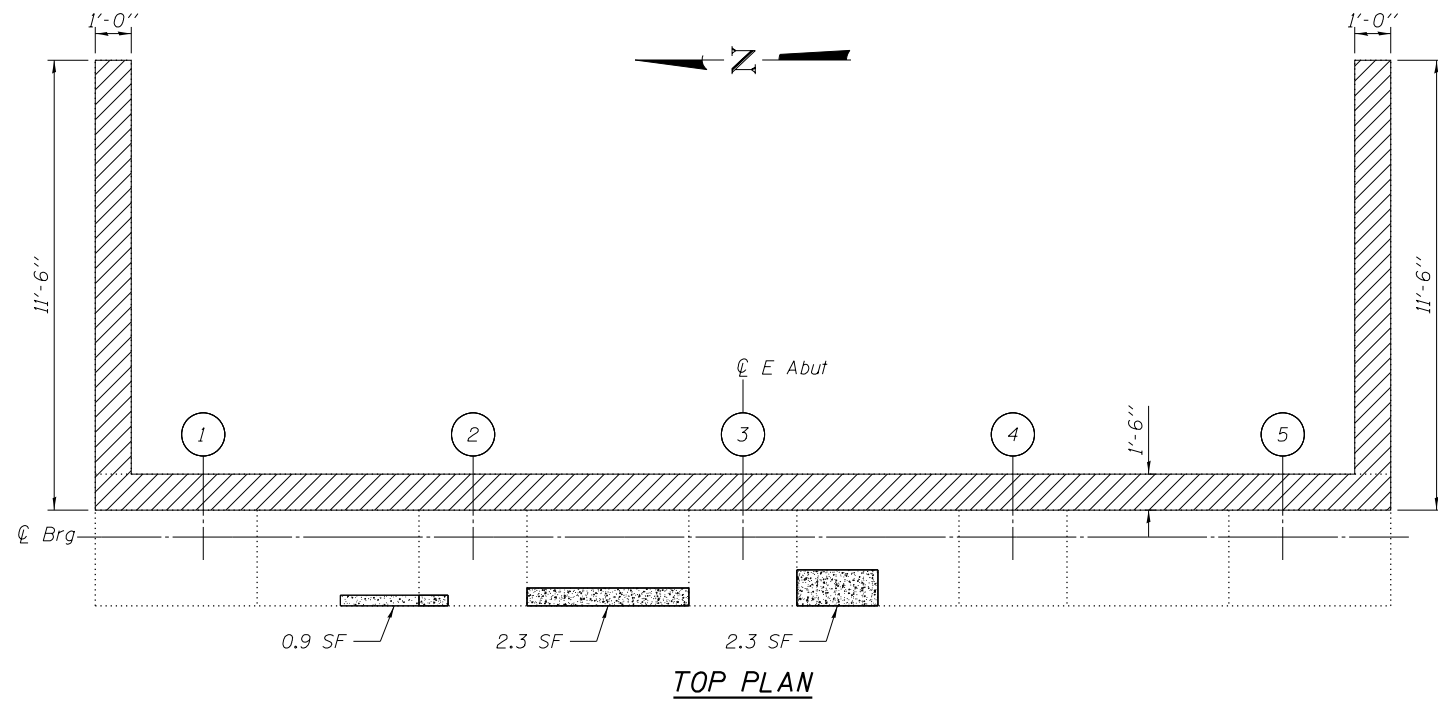
ABUTMENT REMOVAL AND REPAIR III
S.N. 049-0130

SHEET NO. S23 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	181
* 12(VB-1&2)&12R-1(BB-2(BR))&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

LEGEND:

-  Concrete Removal
-  Structural Repair of Concrete
-  Existing Beam Line



BILL OF MATERIAL

Item	Unit	Quantity
Concrete Removal	cu. yd.	13.5
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	46.2

NOTES

- Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal"

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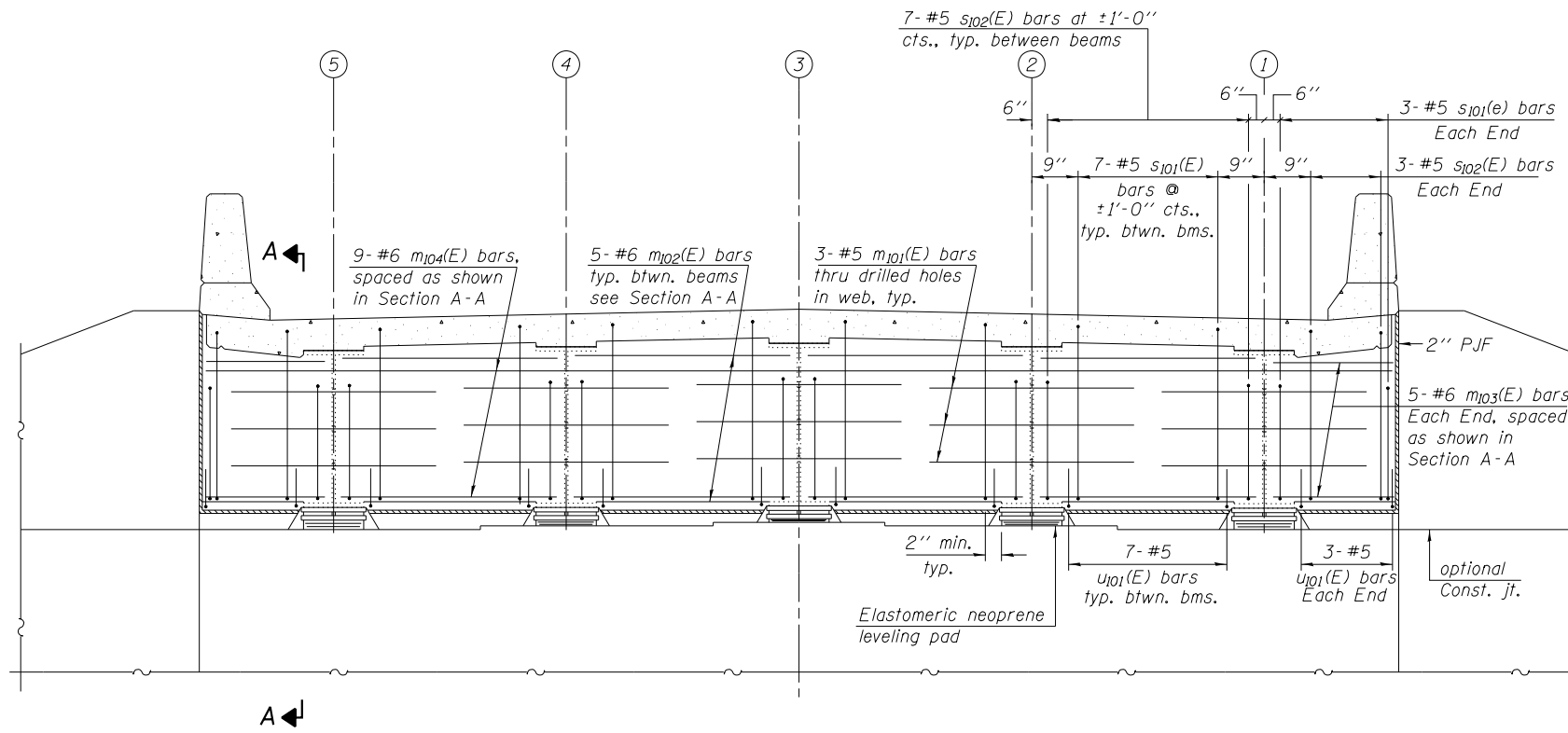
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CHECKED - NDR	REVISOR -	
PLOT SCALE =	DRAWN - DLG	REVISOR -
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

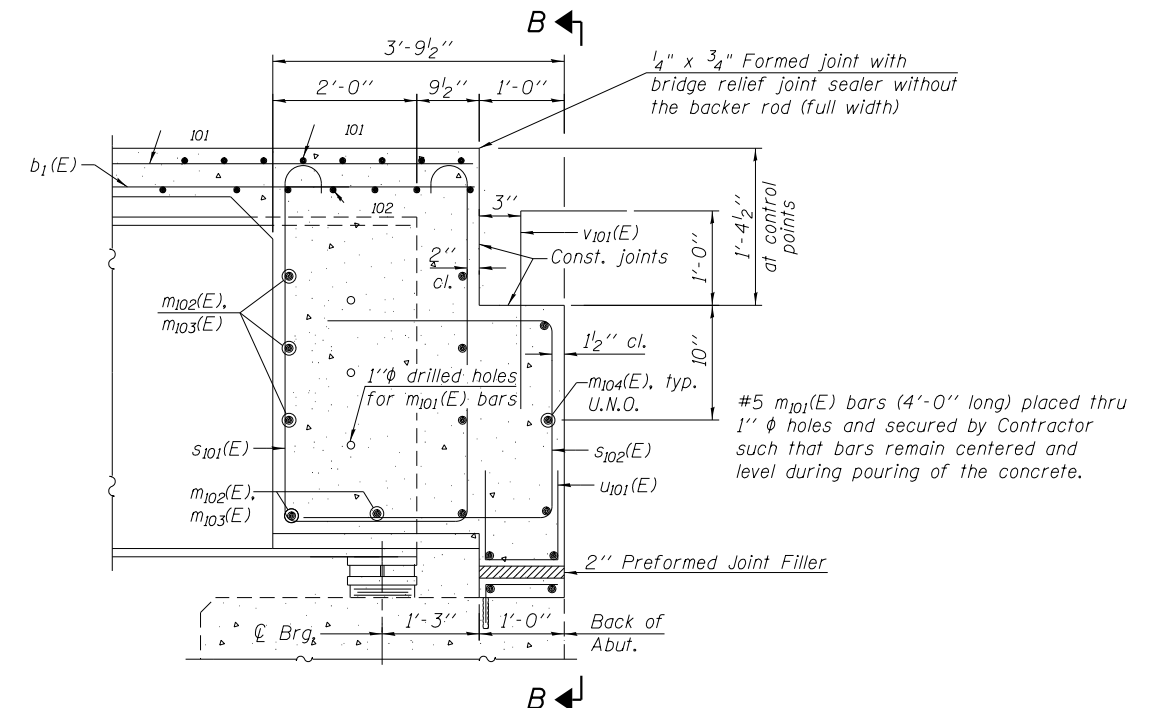
**ABUTMENT REMOVAL AND REPAIR IV
S.N. 049-0130**

SHEET NO. S24 OF 38 SHEETS

F.A.P. RTE. 333	SECTION *	COUNTY LAKE	TOTAL SHEETS 288	SHEET NO. 182
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



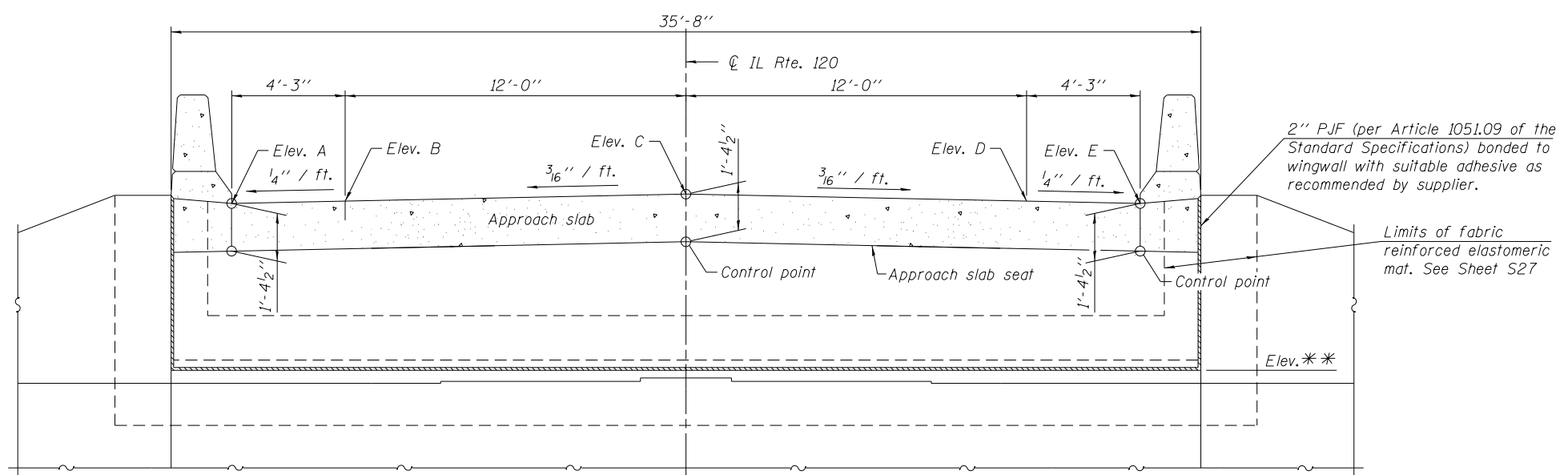
DIAPHRAGM ELEVATION AT WEST ABUTMENT
(Opp. hand view at East abutment)



SECTION A-A

Elev.	Back of Abutment Elevations			
	S.N. 049-0129		S.N. 049-0130	
	W. Abut	E. Abut	W. Abut	E. Abut
A	738.23	737.69	738.06	737.71
B	738.32	737.78	738.15	737.79
C	738.51	737.97	738.33	737.98
D	738.32	737.78	738.15	737.79
E	738.23	737.69	738.06	737.71

Beam No.	Bearing Seat Elevations			
	S.N. 049-0129		S.N. 049-0130	
	W. Abut	E. Abut	W. Abut	E. Abut
Beam 1	733.25	732.67	733.06	732.66
Beam 2	733.33	732.76	733.17	732.74
Beam 3	733.49	732.93	733.26	732.83
Beam 4	733.43	732.84	733.14	732.70
Beam 5	733.28	732.72	733.02	732.61



VIEW B-B
(Opp. hand view at East abutment)

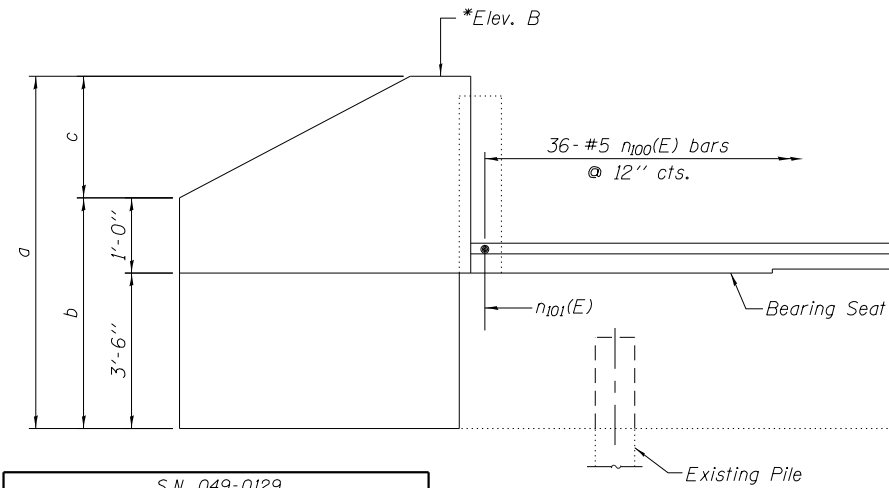
** Elevation at base of 2" PJF
733.65 W. Abutment, S.N. 049-0129
733.20 E. Abutment, S.N. 049-0129
733.45 W. Abutment, S.N. 049-0130
733.10 E. Abutment, S.N. 049-0130

NOTES

1. Reinforcement bars in diaphragm are billed with superstructure on Sheet S15.
2. Concrete in diaphragm is included with Concrete Superstructure on Sheet S15.
3. For details of bars s101(E), s102(E), u101(E) and v101(E) see Sheet S15.
4. The s101(E), s102(E) and u101(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.
5. The approach slab seat shall have a constant slope determined from the control points shown.
6. For bearing details see Sheet S20.
7. For location of holes for m101(E) bars see Sheet S19.

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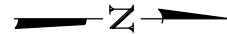
Elev.	S.N. 049-0129		S.N. 049-0130	
	W. Abut.	E. Abut.	W. Abut.	E. Abut.
A	733.99	733.43	733.76	733.33
B	738.53	737.80	738.17	737.82
C	738.34	738.79	738.17	737.81
D	729.75	729.17	729.52	729.11



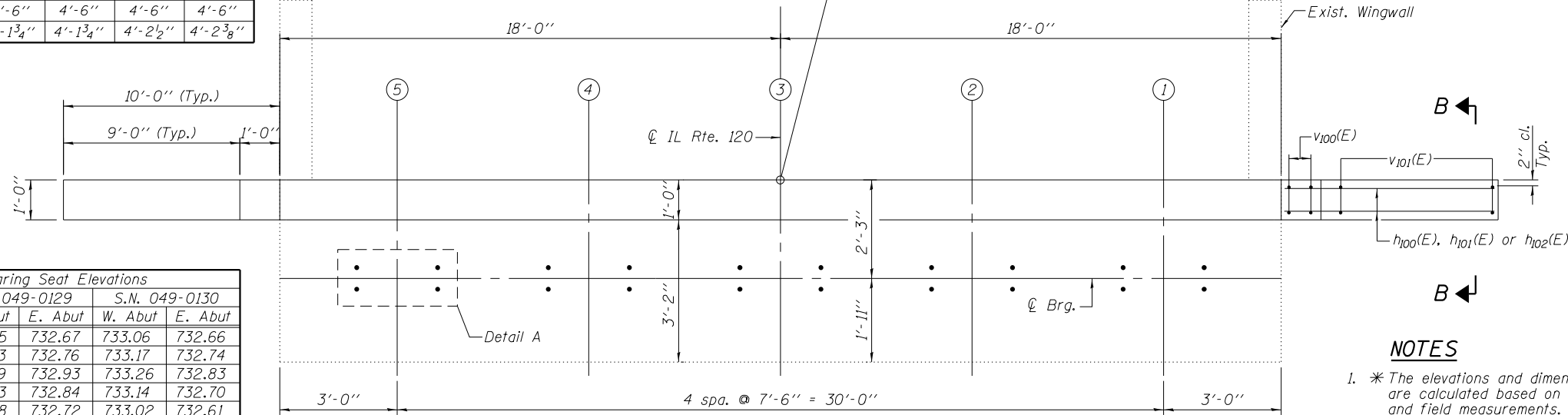
ELEVATION AT WEST ABUTMENT
(E. Abutment Similar)

Dim.	S.N. 049-0129			
	W. Abut.		E. Abut.	
	N. Wall	S. Wall	N. Wall	S. Wall
a	8'-7 ³ / ₈ "	8'-9 ³ / ₈ "	8'-7 ³ / ₄ "	8'-8 ³ / ₈ "
b	4'-6"	4'-6"	4'-6"	4'-6"
c	4'-1 ¹ / ₈ "	4'-3 ³ / ₈ "	4'-1 ³ / ₄ "	4'-2 ³ / ₈ "

Dim.	S.N. 049-0130			
	W. Abut.		E. Abut.	
	N. Wall	S. Wall	N. Wall	S. Wall
a	8'-7 ³ / ₄ "	8'-7 ³ / ₄ "	8'-8 ¹ / ₂ "	8'-8 ³ / ₈ "
b	4'-6"	4'-6"	4'-6"	4'-6"
c	4'-1 ³ / ₄ "	4'-1 ³ / ₄ "	4'-2 ¹ / ₂ "	4'-2 ³ / ₈ "

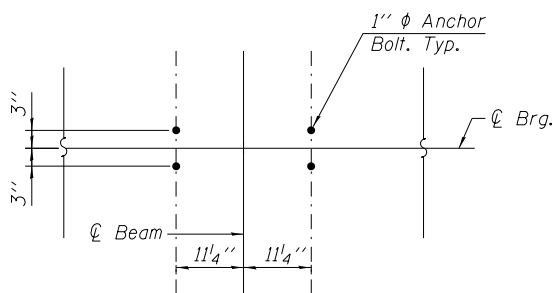


Back of Abutment
Sta. 561+15.54 W. Abut. S.N. 049-0129
Sta. 562+77.04 E. Abut. S.N. 049-0129
Sta. 161+13.43 W. Abut. S.N. 049-130
Sta. 162+74.93 E. Abut. S.N. 049-130

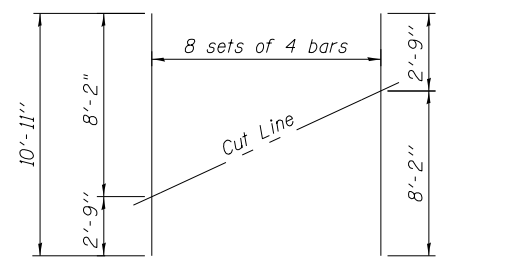


PLAN

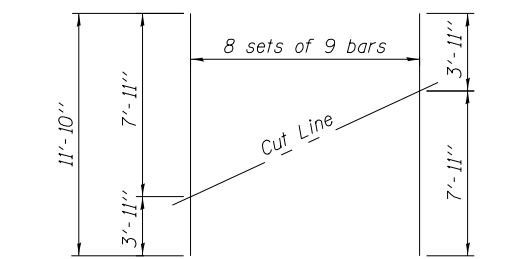
Beam No.	* Bearing Seat Elevations			
	S.N. 049-0129 W. Abut	S.N. 049-0130 E. Abut	S.N. 049-0129 W. Abut	S.N. 049-0130 E. Abut
Beam 1	733.25	732.67	733.06	732.66
Beam 2	733.33	732.76	733.17	732.74
Beam 3	733.49	732.93	733.26	732.83
Beam 4	733.43	732.84	733.14	732.70
Beam 5	733.28	732.72	733.02	732.61



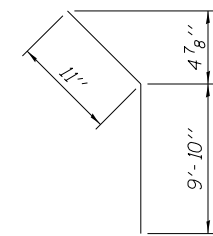
ANCHOR BOLT LOCATION PLAN
DETAIL A



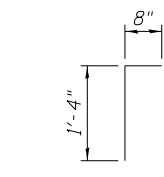
BAR h₁₀₂(E) FIELD CUTTING DIAGRAM
Order h₁₀₂(E) full length. Cut as shown and use remainder of bars in opposite face, opposite end.



BAR v₁₀₁(E) FIELD CUTTING DIAGRAM
Order v₁₀₁(E) full length. Cut as shown and use remainder of bars in opposite face, opposite end.



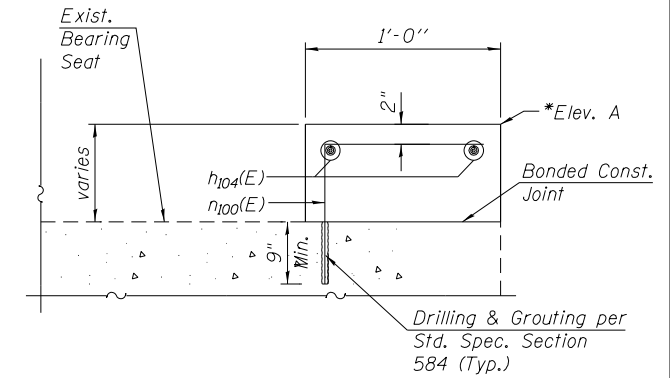
BAR h₁₀₃(E)



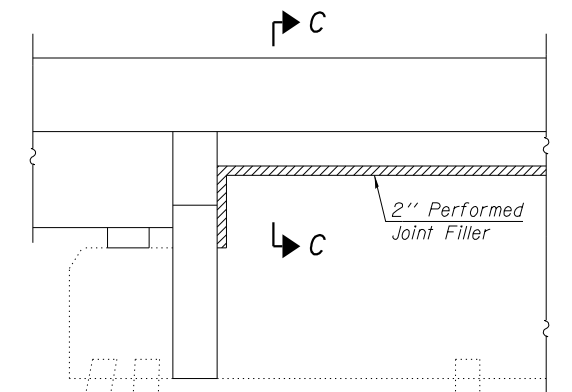
BAR n₁₀₀(E)

NOTES

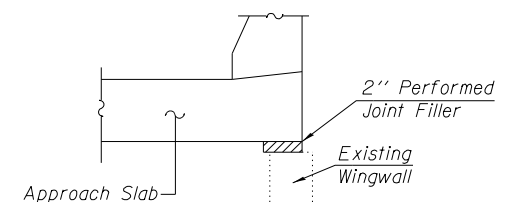
- * The elevations and dimensions shown are calculated based on existing plans and field measurements. The Contractor shall verify in field and make necessary approved adjustments prior to construction and ordering of materials.



SECTION A-A



SECTION B-B

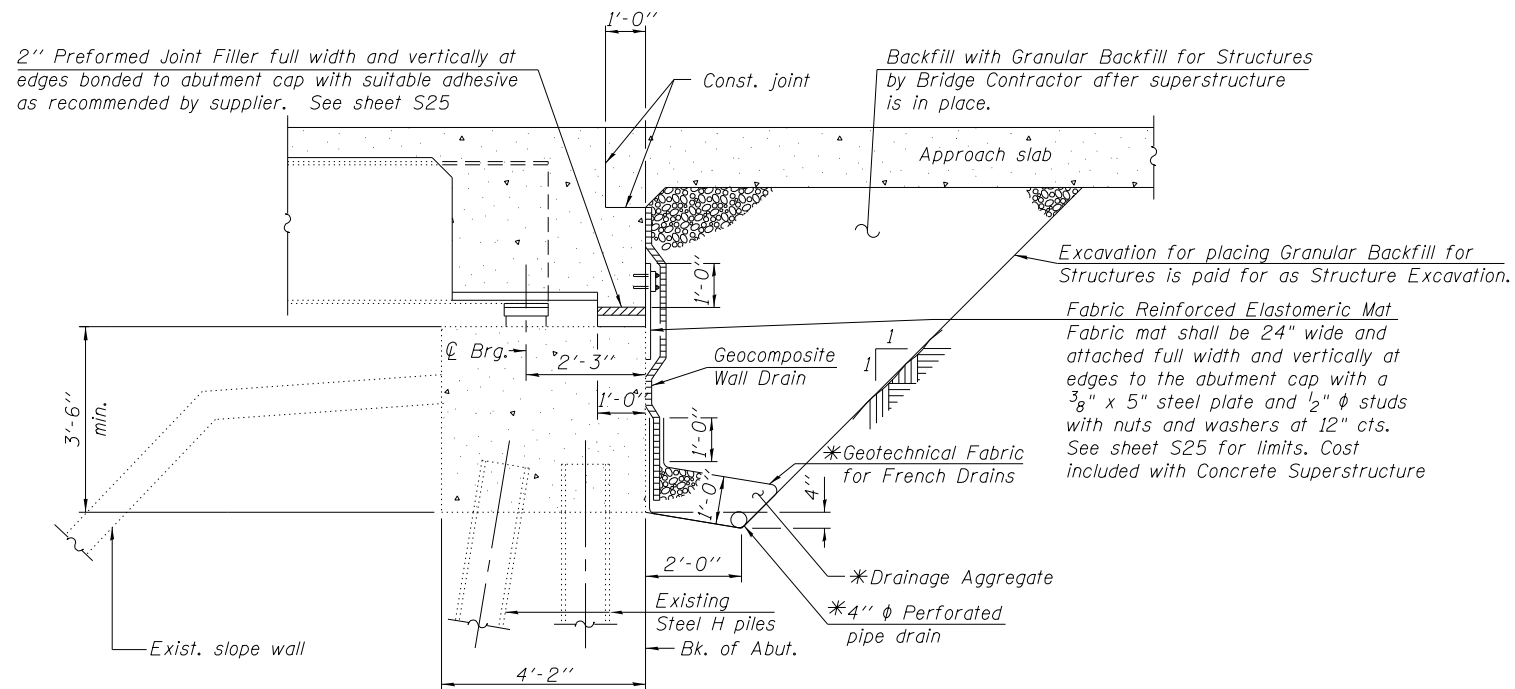
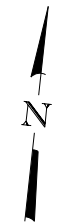


SECTION C-C

S.N. 049-0129 & S.N. 040-0130
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h ₁₀₀ (E)	64	#7	10' - 9"	—
h ₁₀₁ (E)	32	#5	9' - 8"	—
h ₁₀₂ (E)	32	#5	10' - 11"	—
h ₁₀₃ (E)	16	#5	10' - 9"	—
h ₁₀₄ (E)	8	#5	35' - 8"	—
n ₁₀₀ (E)	144	#5	2' - 0"	—
v ₁₀₀ (E)	32	#5	8' - 4"	—
v ₁₀₁ (E)	72	#5	11' - 10"	—
Structure Excavation			Cu. Yd.	324
Concrete Structures			Cu. Yd.	24
Reinforcement Bars, Epoxy Coated			Pound	4,040
Cleaning Bridge Seats			Sq. Ft.	170

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SECTION THRU EAST OR WEST ABUTMENT

(Horiz. dim. @ Rt. L's)

*Items included in the cost of Pipe Underdrains for Structures 4''

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

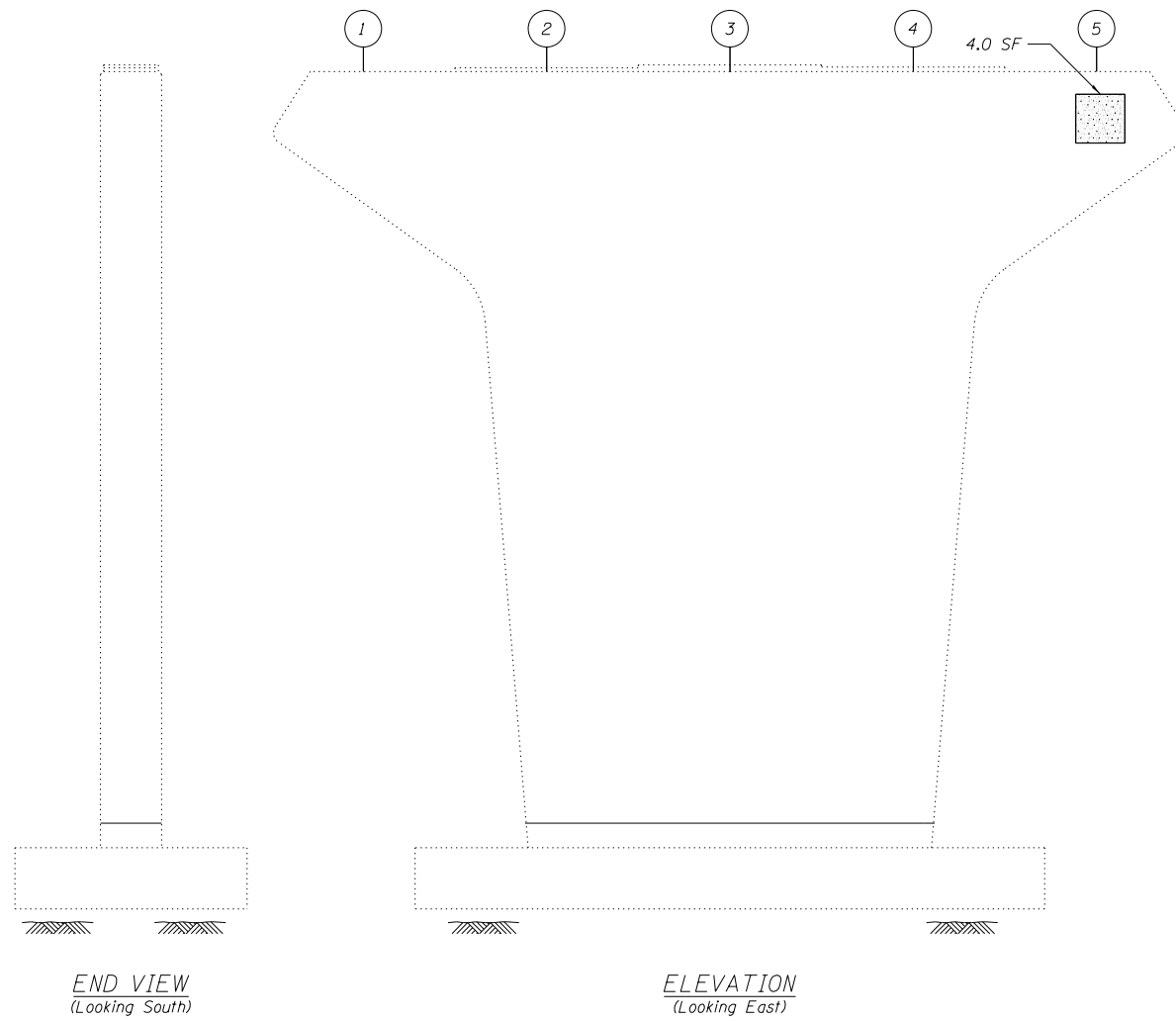
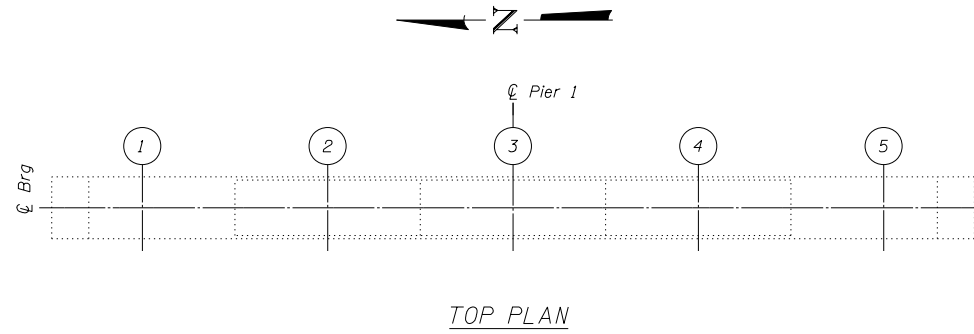
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	185
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

LEGEND:

 Structural Repair of Concrete



BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	4.0

NOTES

Quantities for Structural Repair of Concrete are approximate. Structural Repair of Concrete (Depth Equal to or less than 5") were estimated from field observations and the current Bridge Condition Report. Access Restriction with the CPRR prevented inspection of the Pier Caps and Bearings at the Pier. The actual repair areas will be determined by the Resident Engineer. Actual repair locations shall be shown on the as-built plans. The Contractor will be paid for the quantity furnished.

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 3/21/2017 10:47:06 AM



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Chicago, Illinois 60631; (773) 399-0112

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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

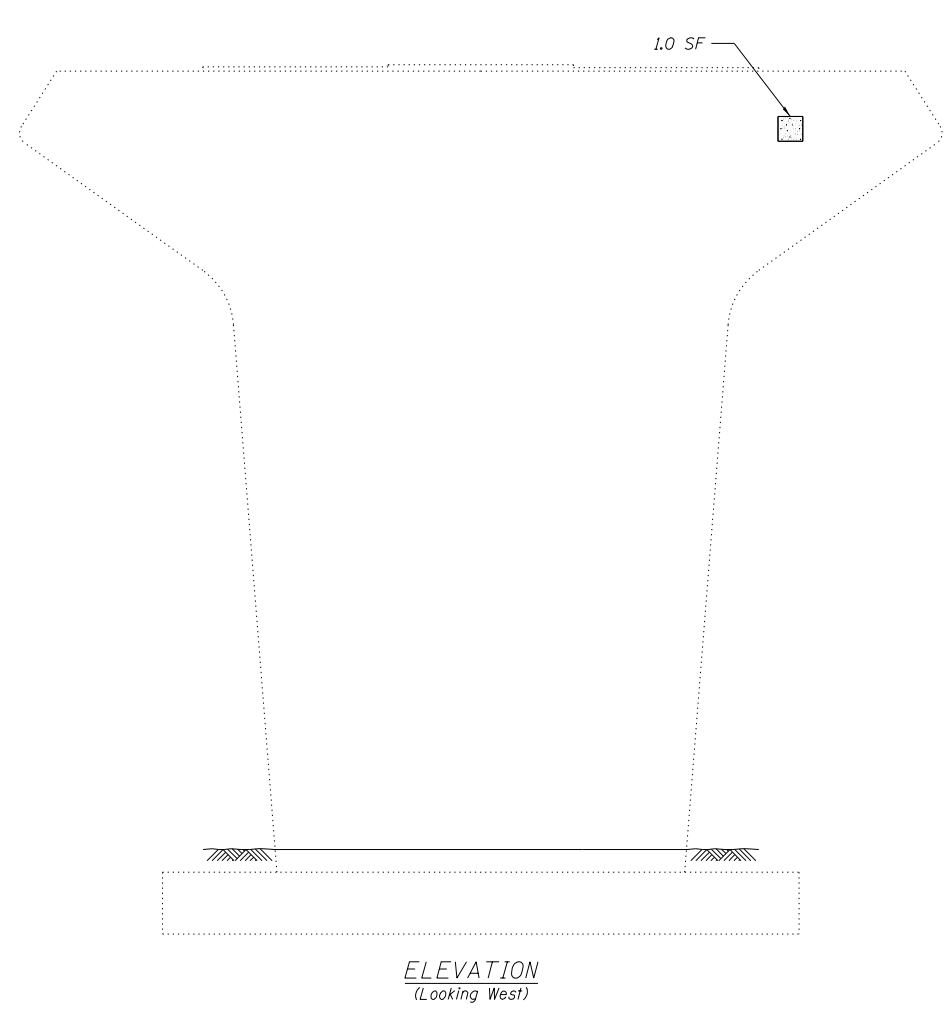
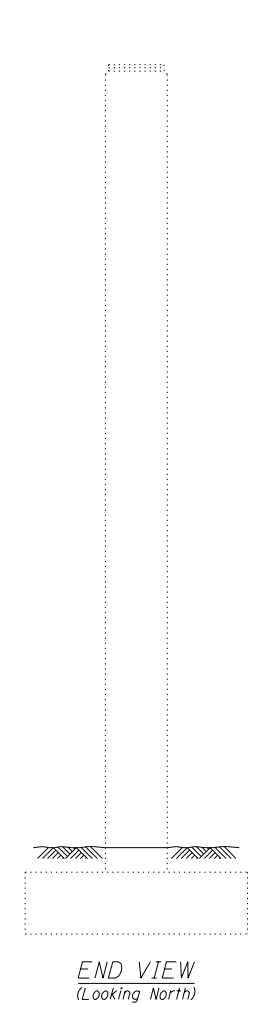
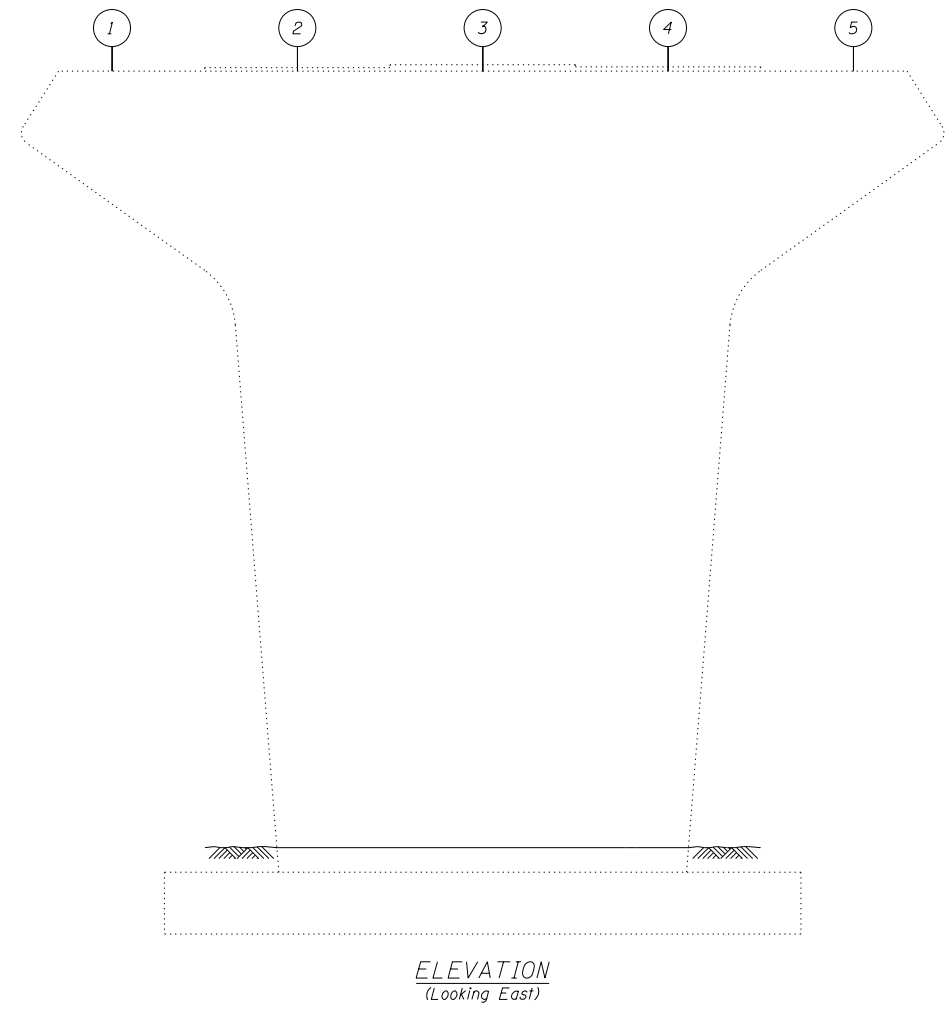
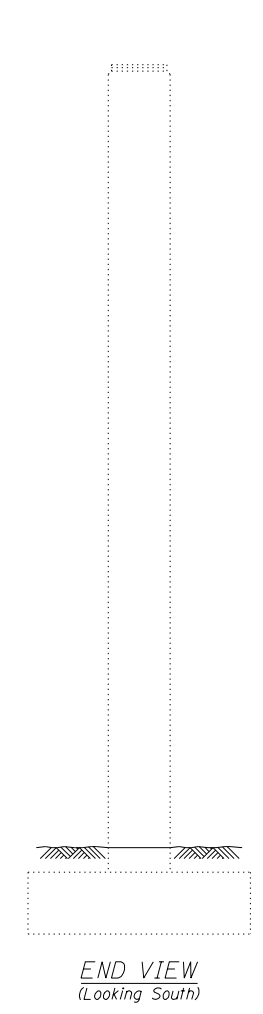
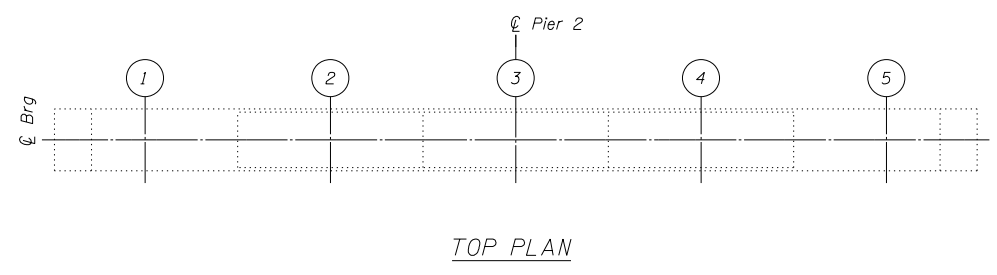
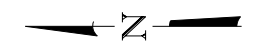
**PIER REPAIR I
S.N. 049-0129**

SHEET NO. S28 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	186
* 12(VB-1&2)&12R-1(BB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

LEGEND:

 Structural Repair of Concrete



BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	1.0

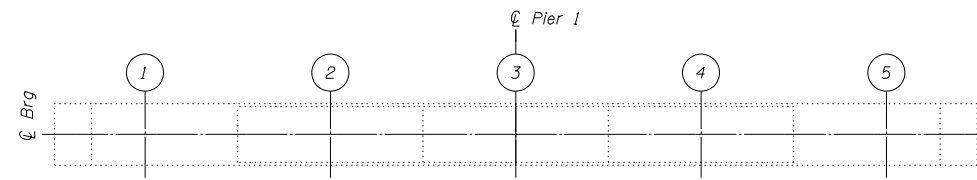
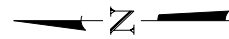
NOTES

Quantities for Structural Repair of Concrete are approximate. Structural Repair of Concrete (Depth Equal to or less than 5") were estimated from field observations and the current Bridge Condition Report. Access Restriction with the CRRR prevented inspection of the Pier Caps and Bearings at the Pier. The actual repair areas will be determined by the Resident Engineer. Actual repair locations shall be shown on the as-built plans. The Contractor will be paid for the quantity furnished.

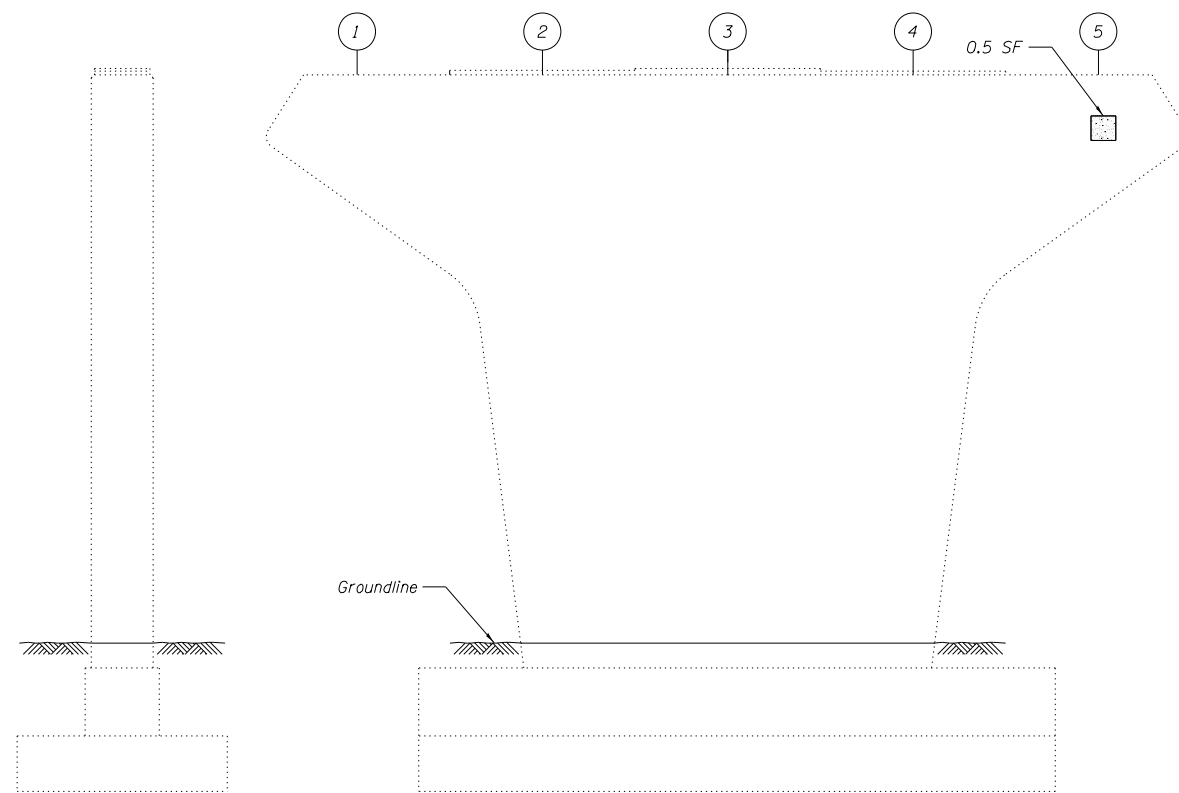
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LEGEND:

 Structural Repair of Concrete

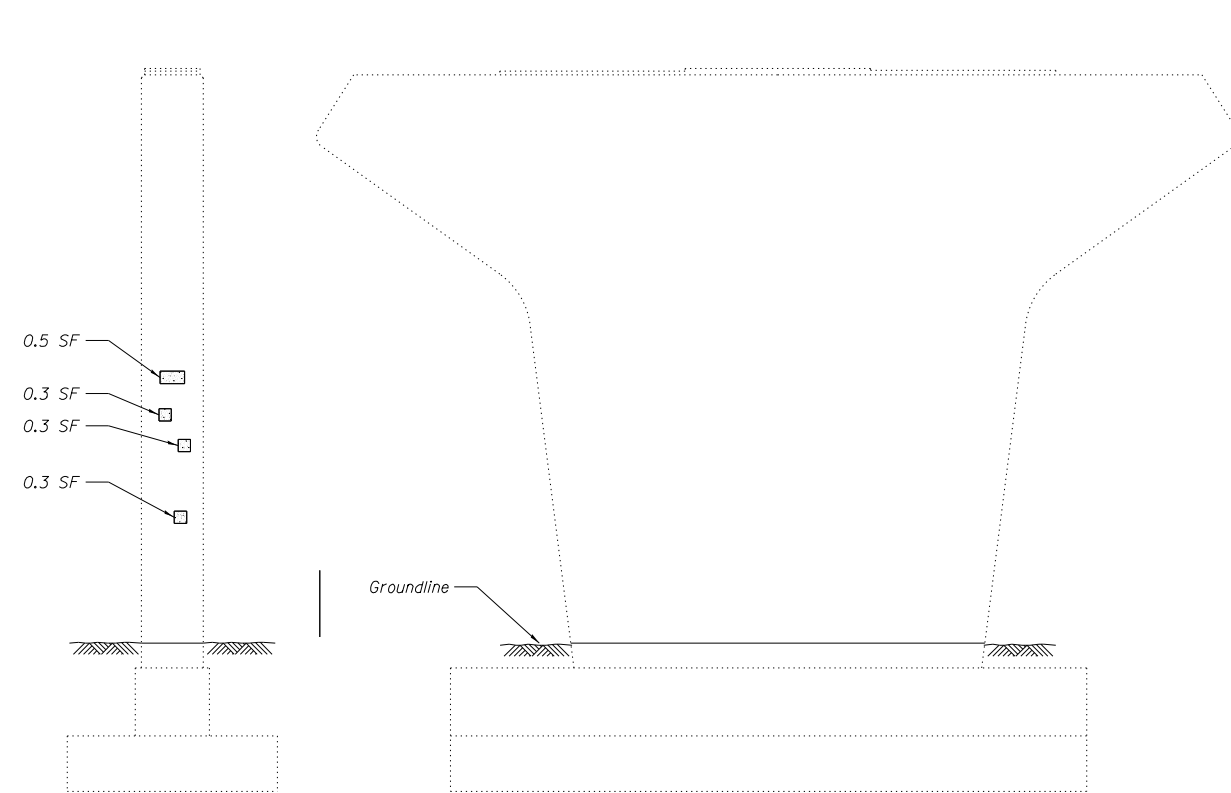


TOP PLAN



END VIEW
(Looking South)

ELEVATION
(Looking East)



END VIEW
(Looking North)

ELEVATION
(Looking West)

BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	1.9

NOTES

Quantities for Structural Repair of Concrete are approximate. Structural Repair of Concrete (Depth Equal to or less than 5") were estimated from field observations and the current Bridge Condition Report. Access Restriction with the CRRR prevented inspection of the Pier Caps and Bearings at the Pier. The actual repair areas will be determined by the Resident Engineer. Actual repair locations shall be shown on the as-built plans. The Contractor will be paid for the quantity furnished.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

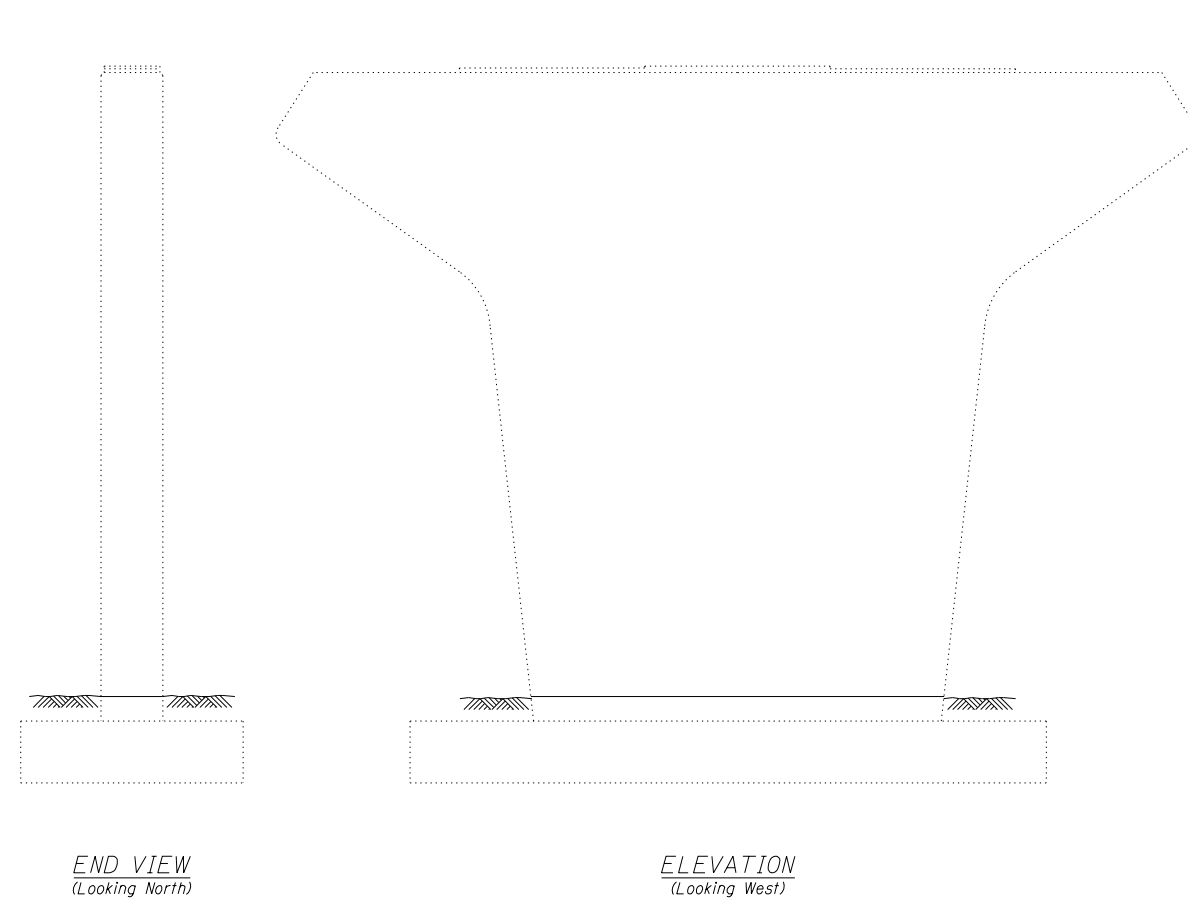
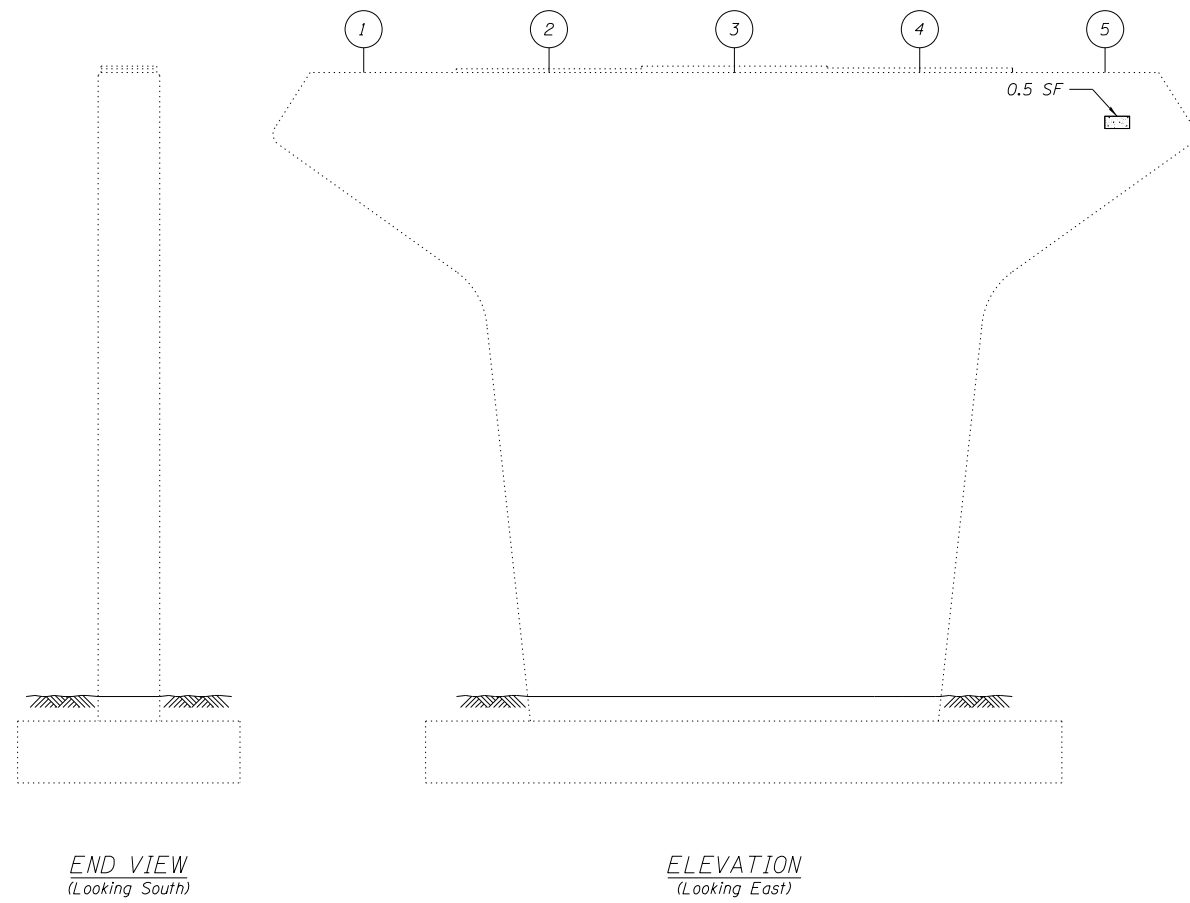
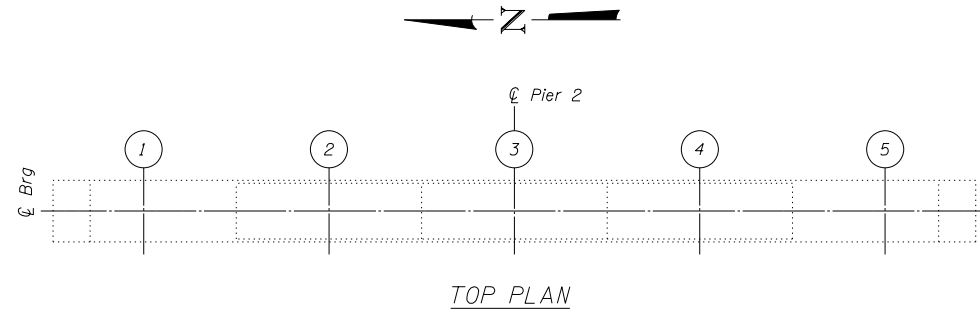
PIER REPAIR III
S.N. 049-0130

SHEET NO. S30 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
333	*	LAKE	288	188
* 12(VB-1&2)&12R-1(HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

LEGEND:

 Structural Repair of Concrete



BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth less than or equal to 5")	sq. ft.	0.5

NOTES

Quantities for Structural Repair of Concrete are approximate. Structural Repair of Concrete (Depth Equal to or less than 5") were estimated from field observations and the current Bridge Condition Report. Access Restriction with the CRRR prevented inspection of the Pier Caps and Bearings at the Pier. The actual repair areas will be determined by the Resident Engineer. Actual repair locations shall be shown on the as-built plans. The Contractor will be paid for the quantity furnished.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	(G&12) 1-RS-1	LAKE	66	1

D-91-355-96

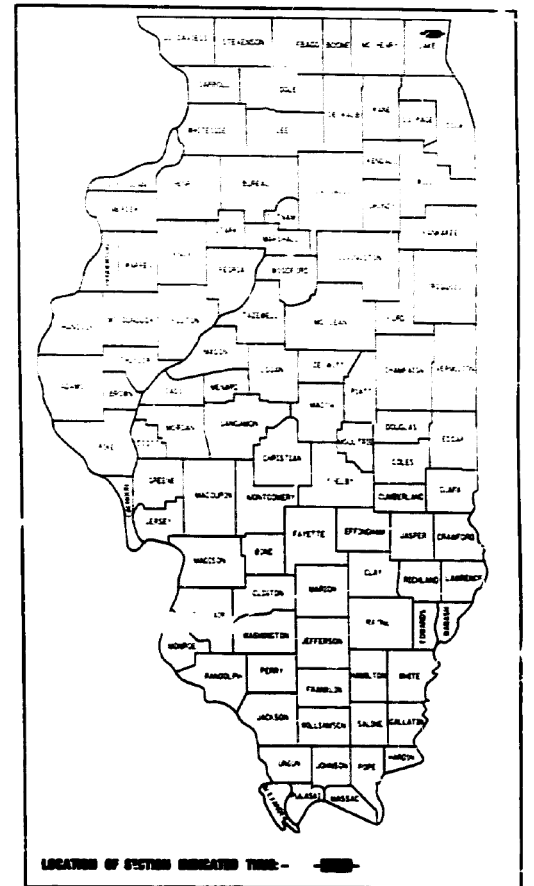
PLANS FOR PROPOSED HIGHWAY

FOR INDEX OF SHEETS, SEE SHEET NO. 2

IMPROVEMENT LOCATED IN
THE VILLAG OF GURNEE AND
THE CITIES OF WAUKEGAN AND
PARK CITY

FAP 342 - IL ROUTE 120 (BELVIDERE ROAD)
SECTION: (G&12) 1-RS-1
ALMOND ROAD TO GREENLEAF STREET
RESURFACING (MAINTENANCE), BRIDGE
REHABILITATION AND LOOP DETECTORS
LAKE COUNTY
C-91-355-96

FOR INFORMATION ONLY

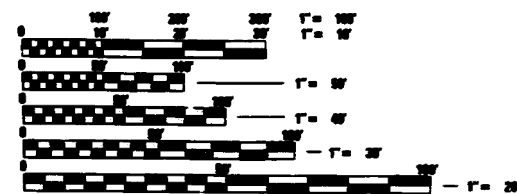


STRUCTURE INFORMATION

STA. 350+63 LENGTH = 31.6 FT S.N. = 049-0044	STA. 367+16.86 LENGTH = 175.0 FT S.N. = 049-0046	STA. 367+16.86 LENGTH = 175.0 FT S.N. = 049-0047
STA. 461+95.54 LENGTH = 157.7 FT S.N. = 049-0048	STA. 461+95.54 LENGTH = 157.7 FT S.N. = 049-0049	
STA. 461+96.29 (ONRAMP FROM GREENLEAF TO WB IL 120) LENGTH = 158.1 FT S.N. = 049-0129	STA. 461+96.29 (OFFRAMP FROM EB IL 120 TO GREENLEAF) LENGTH = 158.1 FT S.N. = 049-0130	
STA. 473+43.17 LENGTH = 143.4 FT S.N. = 049-0125	STA. 473+43.17 LENGTH = 143.4 FT S.N. = 049-0126	
N.W. RAMP IL 120 & IL 21 LENGTH = 29.5 FT S.N. = 049-0053		

OMISSION
STA. 414+40 TO
STA. 416+53.5

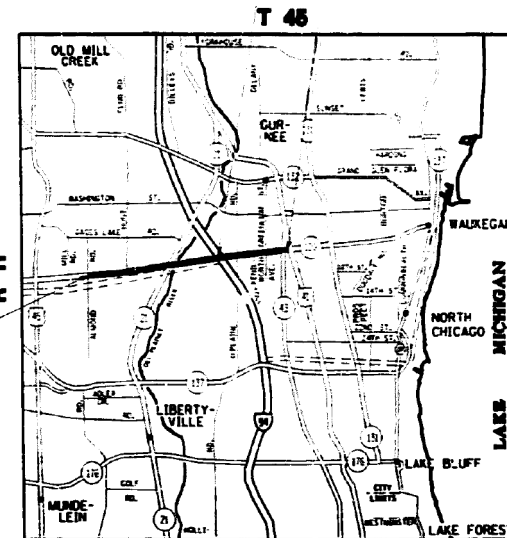
IMPROVEMENT ENDS
STA. 499+07



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD
ENGINEERING SCALES, REDUCED SIZE PLANS WILL NOT
CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS
ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.M.L.L.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
200-882-0123

CONTRACT NO. 60183



IMPROVEMENT BEGINS
STA. 259+95

WARREN TOWNSHIP

GROSS LENGTH: 22,947 FEET = 4.346 MILES
NET LENGTH: 22,947 FEET = 4.346 MILES

ADT (1986)

ALMOND RD TO HUNT CLUB RD	25,000
HUNT CLUB RD TO IL 21	27,600
IL 21 TO I 94	30,500
I 94 TO GREENLEAF ST	33,000

POSTED SPEED LIMITS = 50 MPH
55 MPH

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED December 19, 2000
John L. Hill DISTRICT ENGINEER

FEBRUARY 2, 2001
Michael Klein
DIRECTOR OF DESIGN AND ENVIRONMENT

FEBRUARY 2, 2001
James R. Sklar
DIRECTOR, DIVISION OF HIGHWAYS

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STATE OF ILLINOIS

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DIST. 1 DESIGN - PLAN PREP ENGINEER : KEN ENG /MANNY GOMEZ (847) 705-4432



8501 W. Higgins Road, Suite 280
Chicago, Illinois 60631; (773) 399-0112

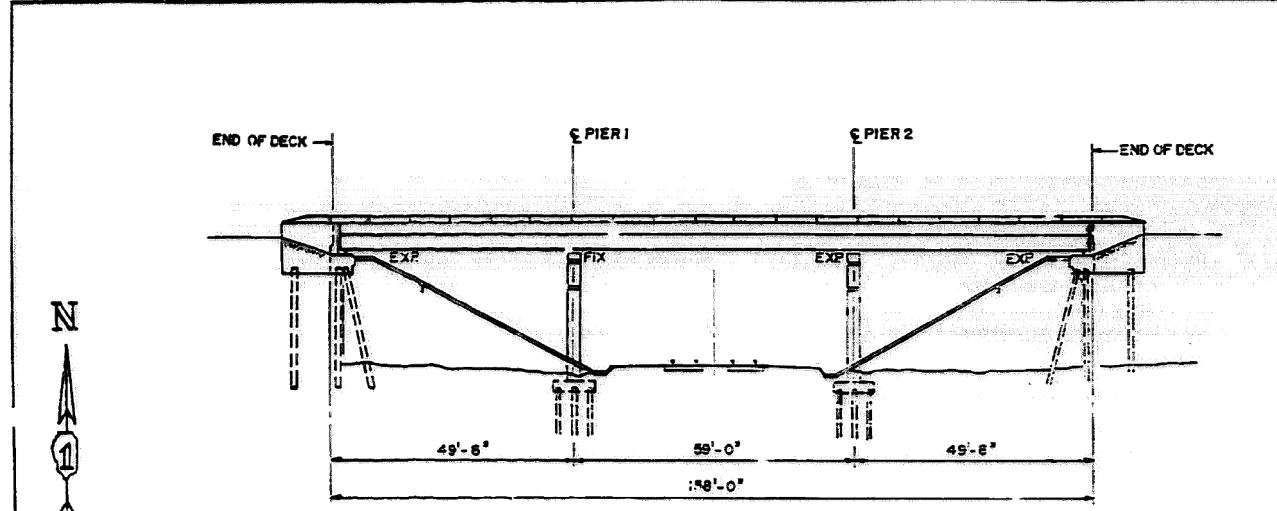
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

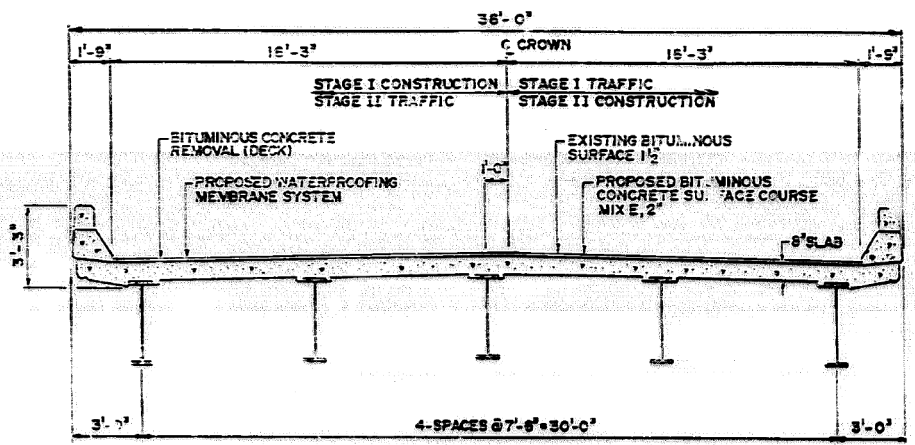
S.N. 049-0129 & S.N. 049-0130

SHEET NO. S32 OF 38 SHEETS

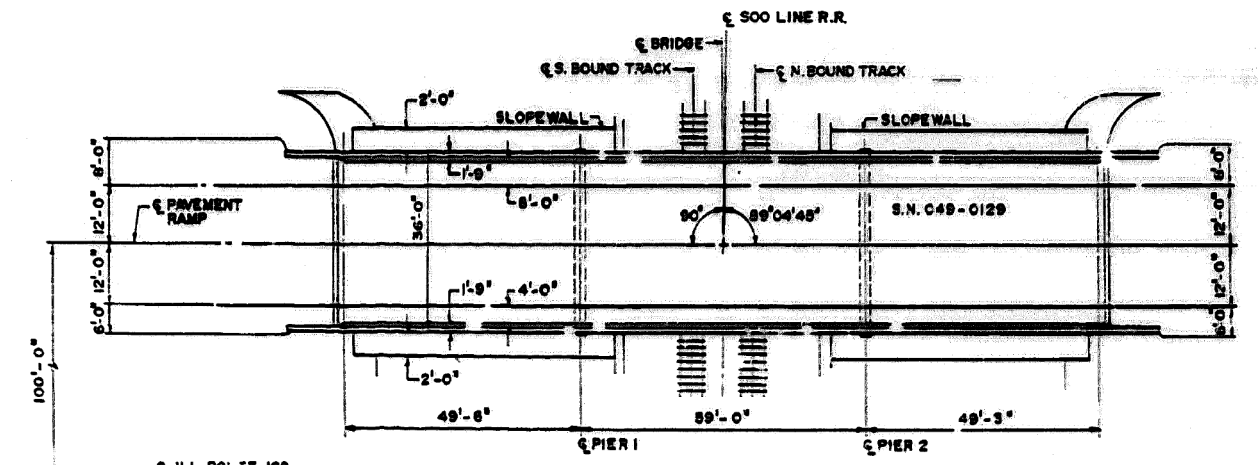
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	190
* 12(WB-1&2)&12R-1(BB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				



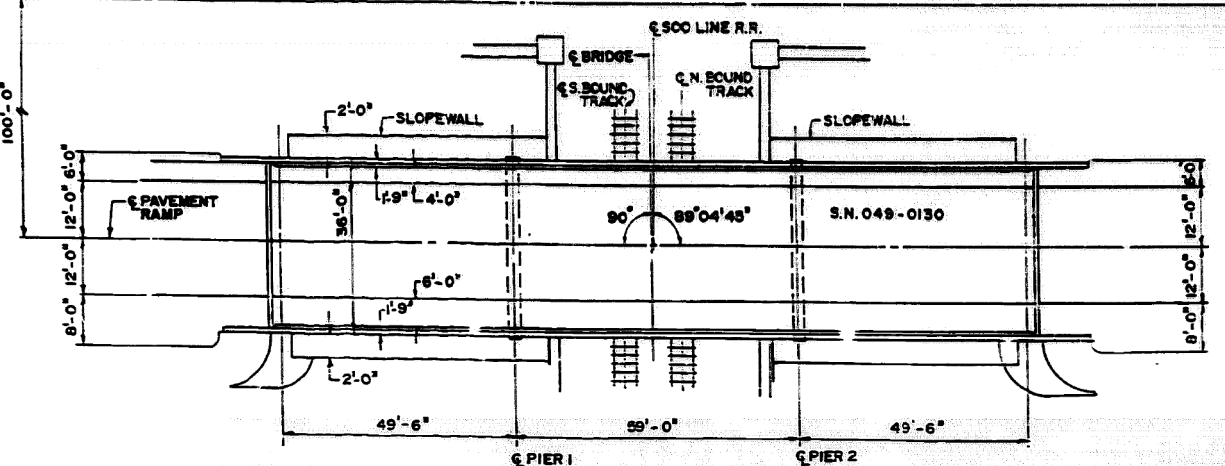
ELEVATION



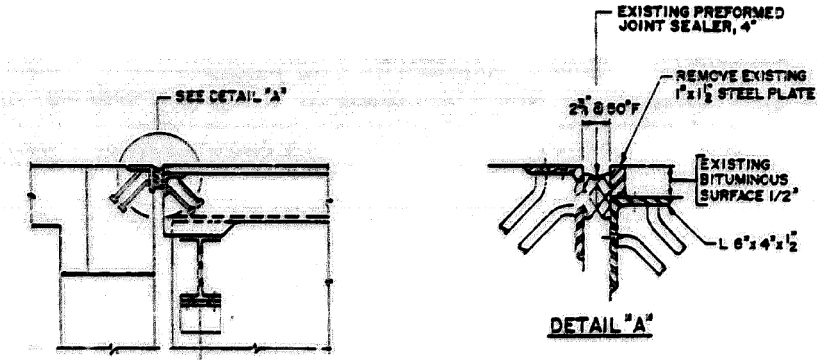
CROSS SECTION
(LOOKING EAST)



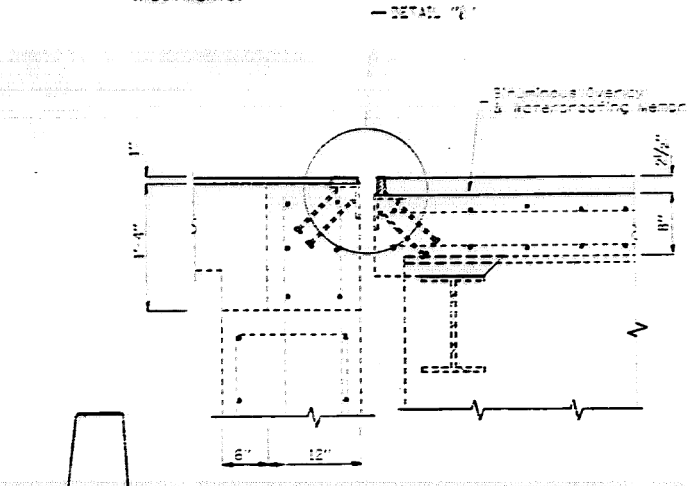
PLAN



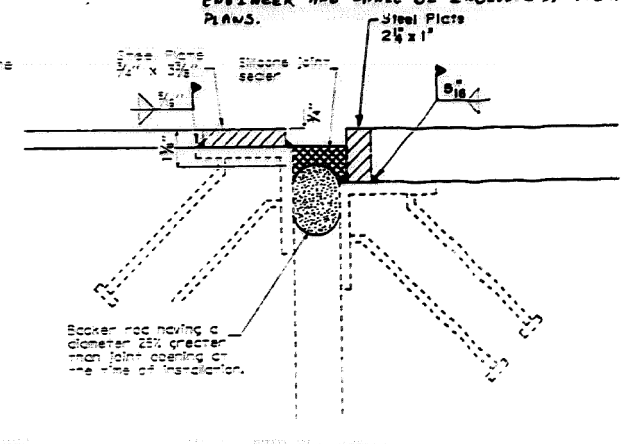
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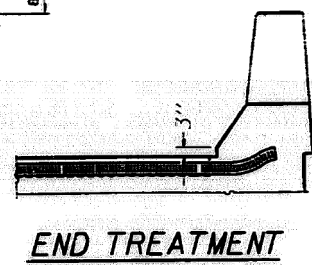
EXISTING JOINT DETAIL
(ABUTMENTS)



PROPOSED ABUTMENT EXPANSION JOINT



DETAIL "C"



END TREATMENT

SHEET 51	OF 51	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	16B121-RS-4	LAKE	66	44	
STA	TO STA	FED. ROAD DIST. NO.	ILL. ROUTE	FED. AID PROJECT	

ITEM	UNIT	QUANTITY
WATERPROOFING MEMBRANE SYSTEM	SQ.YDS	1142
POLYMERIZED BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE MIX "E", N90	TON	125
BITUMINOUS CONCRETE REMOVAL (DECK)	SQ.YDS	1142
DECK SLAB REPAIR (PARTIAL REPAIR)	SQ.YDS	60
DECK SLAB REPAIR (FULL REPAIR, TYPE I)	SQ.YDS	20
PROTECTIVE SHIELD	SQ.YDS	30
FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	2120
SILICONE JOINT SEALER	FOOT	144

GENERAL NOTES

PLAN DIMENSIONS AND DETAILS RELATIVE TO THE 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 DIMENSION AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATION SHALL NOT BECAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF WORK. HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE ACTUAL QUANTITY FURNISHED AT THE UNIT BID PRICE FOR THE WORK.

ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M-270, GR.36 UNLESS OTHERWISE SPECIFIED.

PROTECTIVE SHIELD IS TO BE USED UNDER THE FULL DEPTH PATCHING LOCATIONS AS DIRECTED BY THE ENGINEER.

DATE OF SURVEY MAY, 1999.

REMOVAL OF THE EXISTING PREFORMED JOINT SEAL IS INCLUDED IN THE COST OF "SILICONE JOINT SEALER".

REMOVAL OF THE EXISTING STEEL PLATES IS INCLUDED IN THE COST OF FURNISHING AND ERECTING STRUCTURAL STEEL.

* DECK REPAIRS ARE ESTIMATED, ACTUAL QUANTITIES AND LOCATIONS TO BE DETERMINED BY THE ENGINEER AND SHALL BE INCLUDED IN THE AS-BUILT PLANS.

NAME	DATE
Thomas M. Staffery	5/1999

ILLINOIS DEPARTMENT OF TRANSPORTATION
 IL 120 (EASTBOUND AND WESTBOUND)
 TO GREENLEAF OVER SOO LINE R.R.
 PLAN, ELEVATION, CROSS SECTION
 AND DETAILS
 S.N. 049-0129 AND S.N. 049-0130
 SCALE: VERT. HORIZ.
 DAT. FEBRUARY, 1999
 DRAWN BY MVT
 CHECKED BY TMS

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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

S.N. 049-0129 & S.N. 049-0130

SHEET NO. S33 OF 38 SHEETS

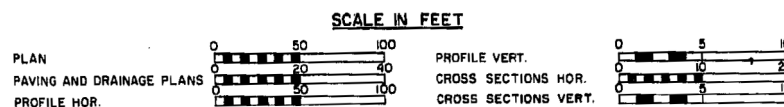
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	191
* 12VB-1&2I&2R-1HB-2(BR)1&2-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
**PLANS FOR PROPOSED
 FEDERAL AID HIGHWAY**

FEDERAL AID ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
420	12R-2, 12R-1HB-2, 12VB-2	LAKE	278	1
PROJECT F-420-1(9)				

P-91-561-68

INDEX OF SHEETS ON SHEET NO. 6



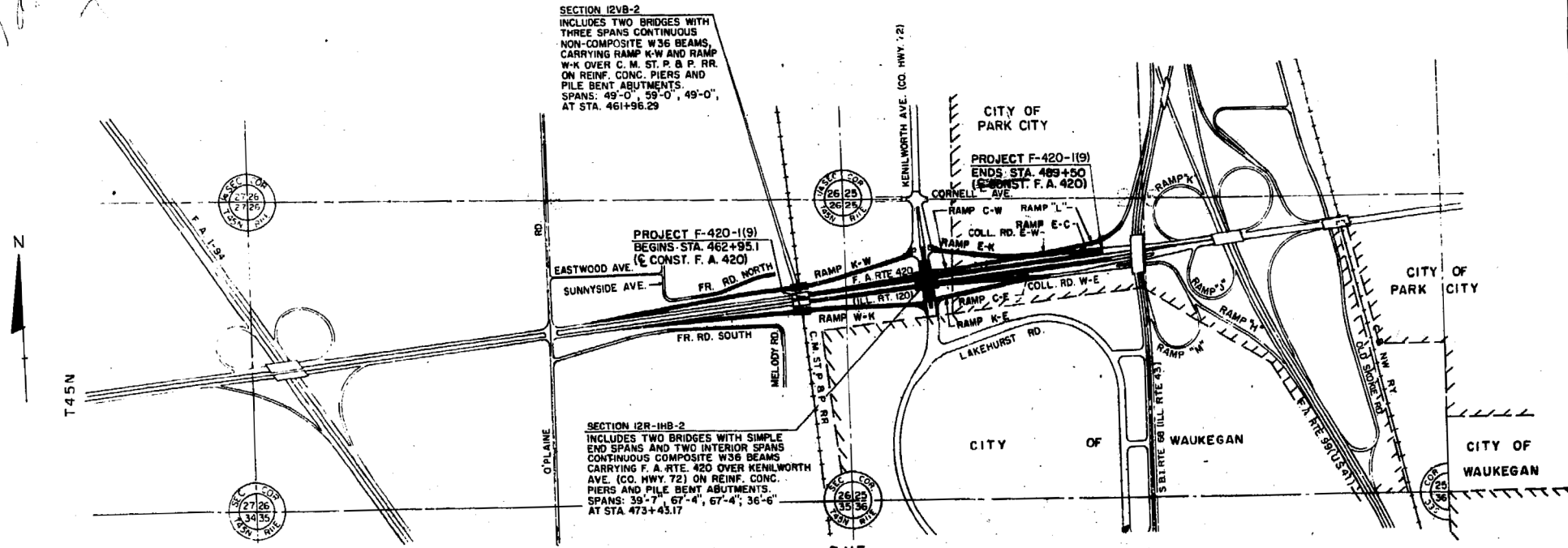
**F. A. ROUTE 420(ILL. 120)
 SECTION 12R-2, 12R-1HB-2, 12VB-2, 12R-L&SG
 PROJECT F-420-1(9)**

FOR INFORMATION ONLY

**LAKE COUNTY
 C-91-120-71
 WAUKEGAN SECTION 76-00150-00-RP
 SPECIAL ASSESSMENT NO. 1050**



12VB-2



ROAD CLASSIFICATION
 6082-(90) · T2 · (7.12)(PCC 20)

LAYOUT
 0 600 1200 1800 FEET
 NET LENGTH OF PROJECT: 2654.9 LIN. FT. = 0.503 MILES



PLANS PREPARED BY
 CONSOER, TOWNSEND & ASSOCIATES
 CONSULTING ENGINEERS - CHICAGO
 Robert L. Munson
 ROBERT L. MUNSON

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SUBMITTED _____
 EXAMINED _____
 PASSED _____
 APPROVED _____

DISTRICT ENGINEER
 ENGINEER OF PLANS AND CONTRACTS
 ENGINEER OF DESIGN
 DIRECTOR OF HIGHWAYS

DEPARTMENT OF TRANSPORTATION
 DISTRICT ADMINISTRATION

APPROVED _____
 DIVISION ENGINEER
 DATE _____

COUNTY LAKE SECTION 12R-2, 12R-1HB-2, 12VB-2 F. A. ROUTE 420

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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

S.N. 049-0129 & S.N. 049-0130

SHEET NO. S34 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	192
* 12VB-1&2&12R-1HB-2(BR)&12-RS-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

F.A.P. RT. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
120	12-VB-2	LAKE	276	14
FEDERAL ROAD DISTRICT NO.			ILLINOIS PROJ.	
			P-91-661-18	

DESIGN DATA

DESIGN SPECIFICATIONS:
 AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 11TH EDITION, DATED 1973.

CONSTRUCTION SPECIFICATIONS:
 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF ILLINOIS DEPARTMENT OF PUBLIC WORKS AND BUILDINGS, DIVISION OF HIGHWAYS, DATED JULY 2, 1978.

DESIGN LOAD: HS 20-44

SUPERSTRUCTURE, SUBSTRUCTURE AND ABUTMENTS:

STRUCTURAL STEEL:
 A.A.S.H.O. M183 $f_y = 20,000$ PSI

REINFORCING STEEL: $f_y = 20,000$ PSI

CONCRETE:

ULTIMATE COMPRESSION (14 DAYS) $f'_c = 8,500$ PSI

ALLOWABLE COMPRESSION (WITHOUT EARTH PRESSURE) $f_c = 4,900$ PSI

ALLOWABLE COMPRESSION (DECK SLAB) $f_c = 1,200$ PSI

ALLOWABLE COMPRESSION (WITH EARTH PRESSURE) $f_c = 1,000$ PSI

MODULAR RATIO $n = 10$

ALLOWABLE SHEAR: BEAMS WITHOUT WEB REINFORCEMENT $v = 90$ PSI

LONGITUDINAL BAR ANCHORED $v = 75$ PSI

PIER FOOTING $v = 75$ PSI

HORIZONTAL EARTH PRESSURE = EQUIV. FLUID PRESSURE: 40 P/CF

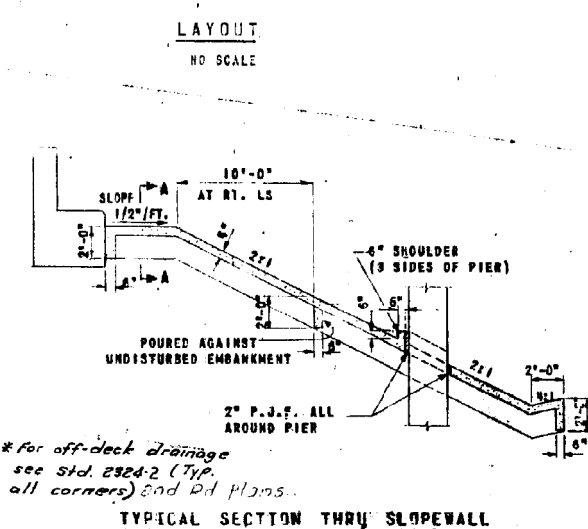
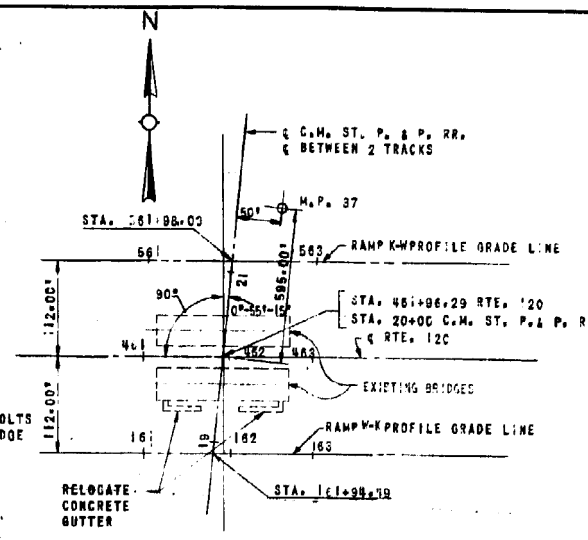
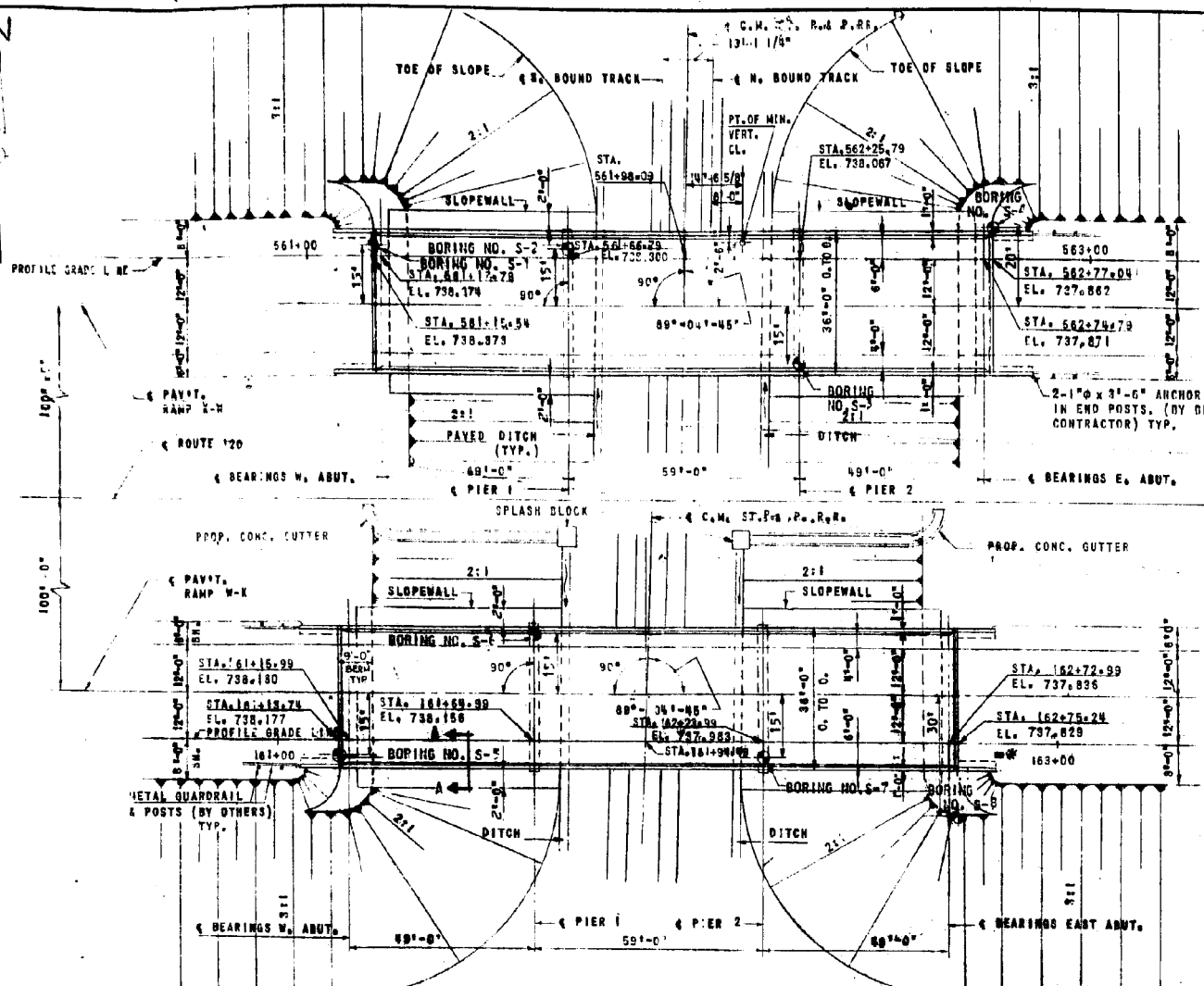
PILES, CONCRETE 25 TONS

TIMBER PILE CAPACITY: 6 PIERS 24 TONS

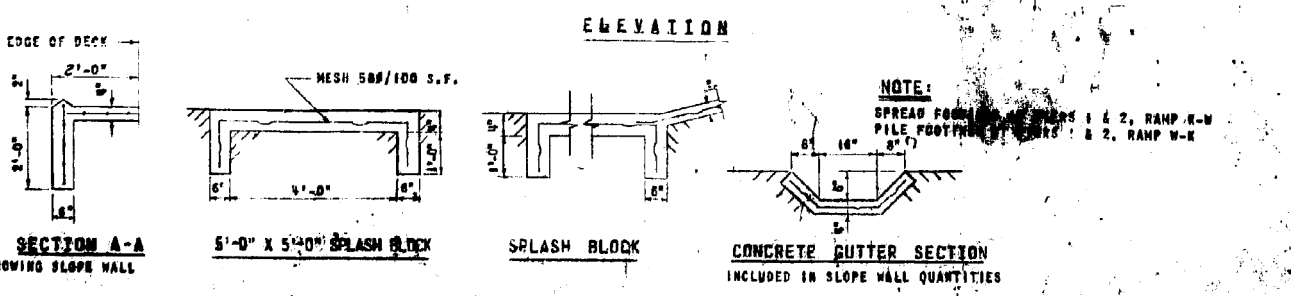
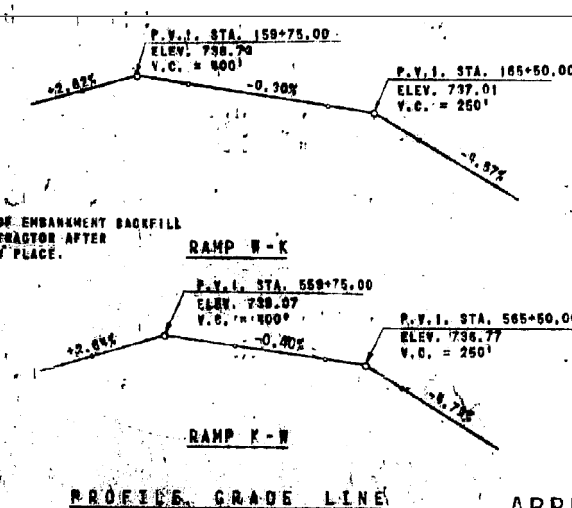
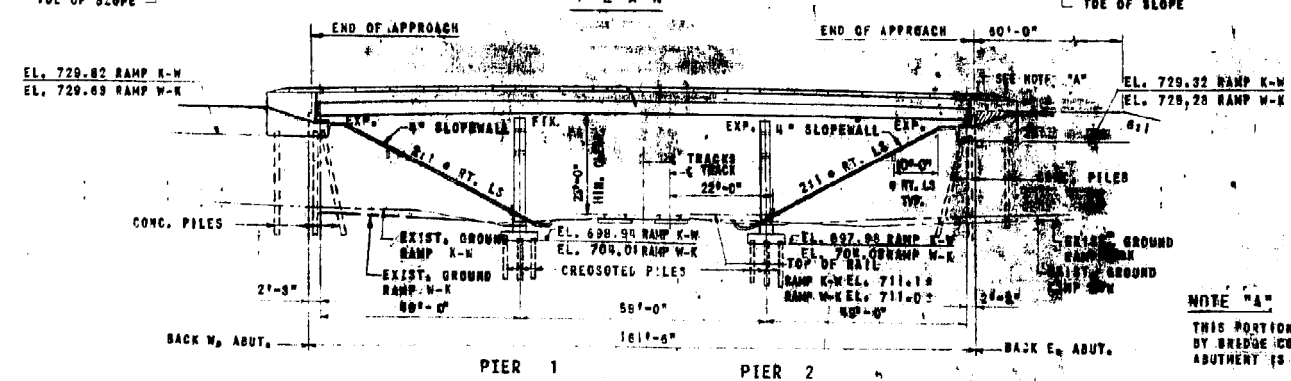
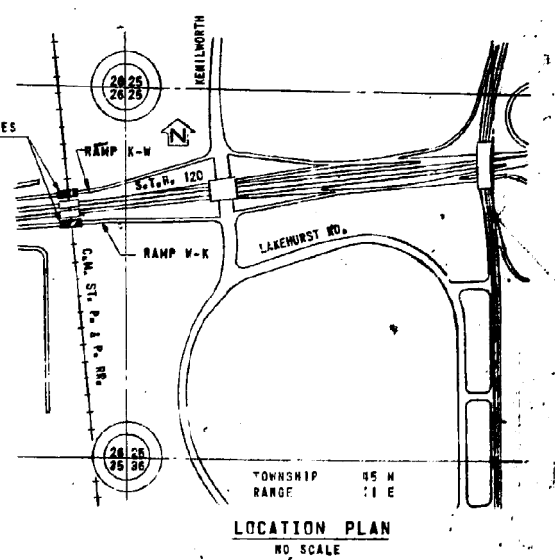
ALLOWABLE LIVE LOAD DEFLECTION: 1/1000 SPAN

FUT., WEARING SURFACE 25 LBS./SQ.FT.

3 SPANS CONTINUOUS NON-COMPOSITE W36 BEAMS



FOR INFORMATION ONLY



NOTE "A"
 THIS PORTION OF EMBANKMENT BACKFILL BY BRIDGE CONTRACTOR AFTER ABUTMENT IS IN PLACE.

CONSOER, TOWNSEND & ASSOCIATES
 CONSULTING ENGINEERS
 CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
 F.A. RT. 120 (ILL. RT. 120)
 RAMP K-W & W-K OVER C.M. ST. P. & P. RR.
 SECTION 12-VB-2 NORTH, 12-WB-2 SOUTH

GENERAL PLAN AND ELEVATION

DESIGNED	DRAWN	TRACED	CHECKED	REVISED	DATE
E.J.F.	M.W.H.		E.J.F.		

APPROVED
 FOR STRUCTURAL ADOPTATION ONLY

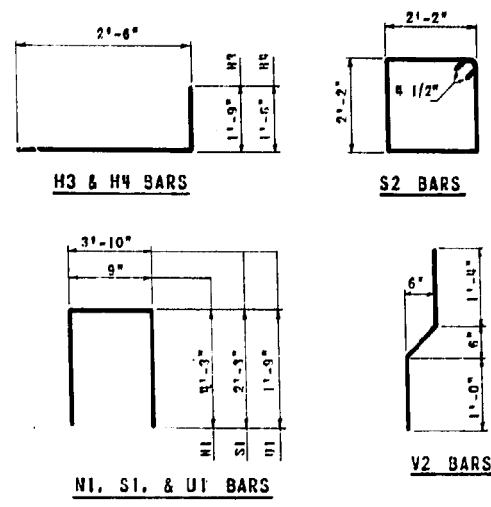
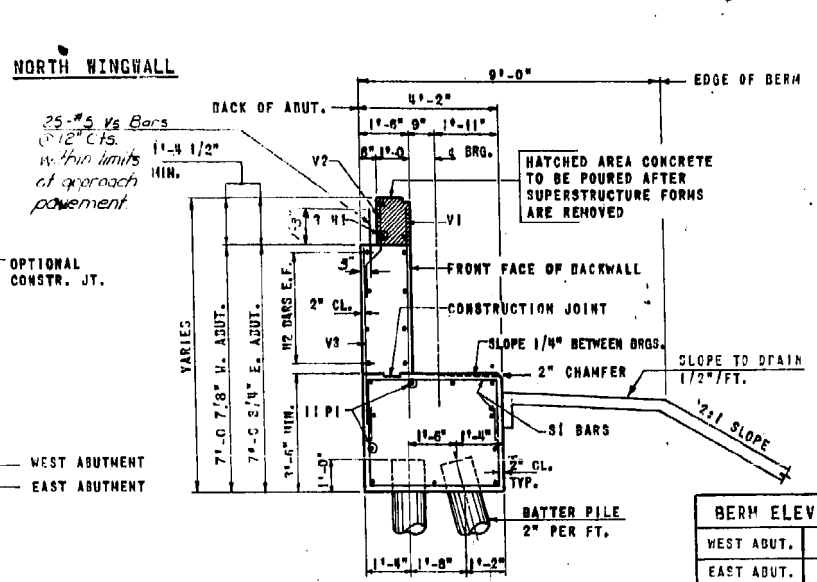
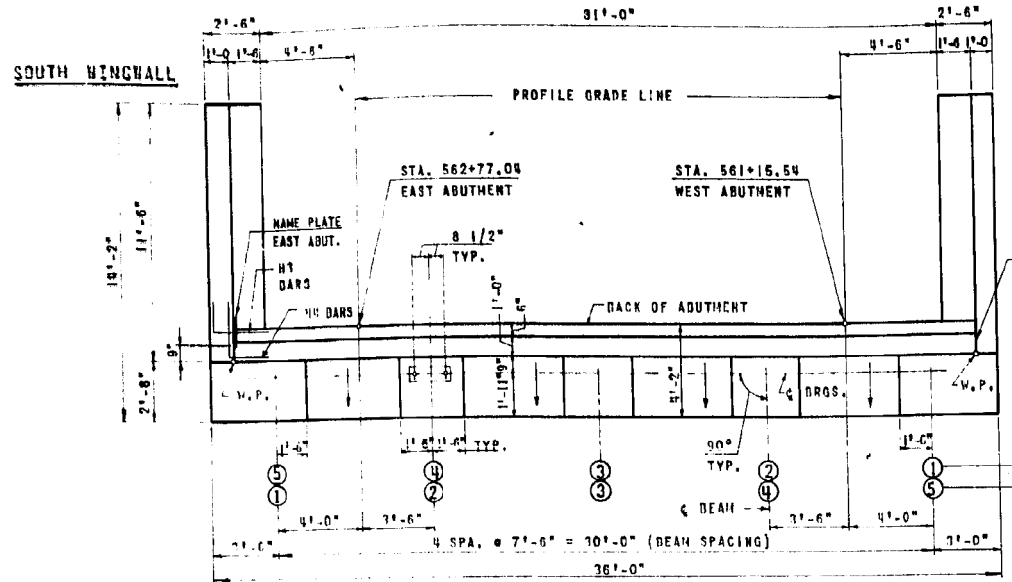
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	DATE - 08/26/2015	REVISED -

F.A.P. R.T.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	193
* 12VB-1&2&12R-1&B-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				

F.A. RTE. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
420	12-VB-2	LAKE	278	22
FEDERAL ROAD DISTRICT NO.		ILLINOIS PROJ.		

WEST ABUTMENT				
BILL OF REINFORCEMENT				
BAR NO.	NO.	SIZE	LENGTH	SHAPE
H1	1	8	32'-10"	
H2	8	5	33'-10"	
H3	6	6	8'-9"	
H4	16	5	8'-0"	
H5	36	4	11'-2"	
N1	24	6	9'-3"	
P1	11	7	35'-6"	
P2	12	7	11'-2"	
S1	80	4	8'-6"	
S2	22	4	9'-5"	
U1	8	6	7'-4"	
V1	34	4	8'-3"	
V2	38	4	3'-0"	
V3	34	4	5'-0"	
V4	48	4	2'-11"	
V5	25	5		

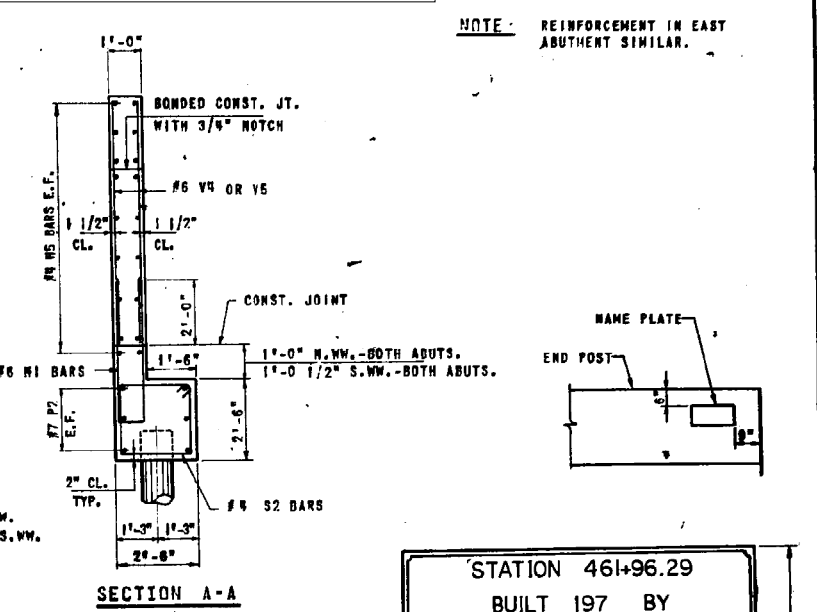
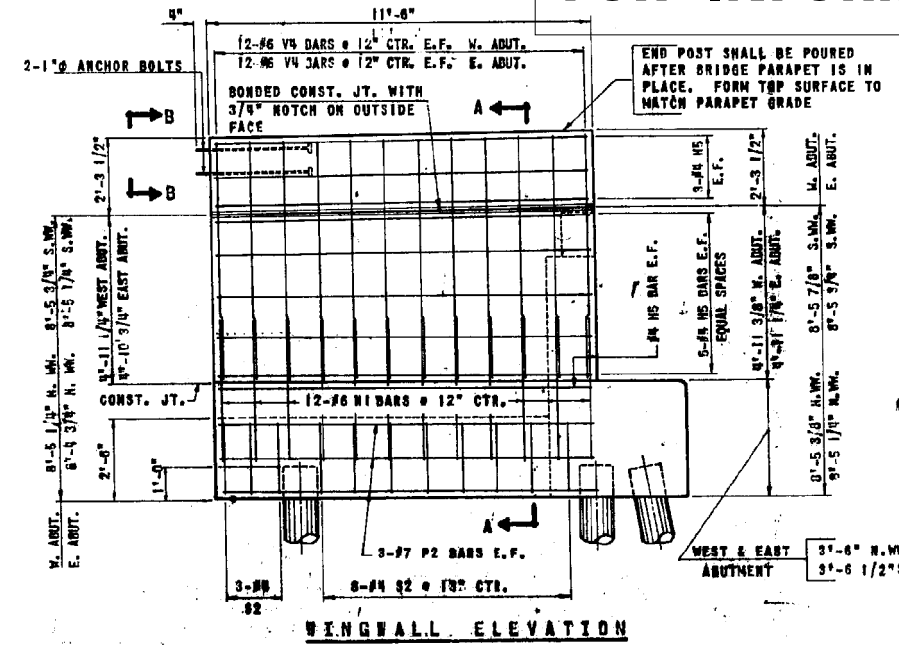
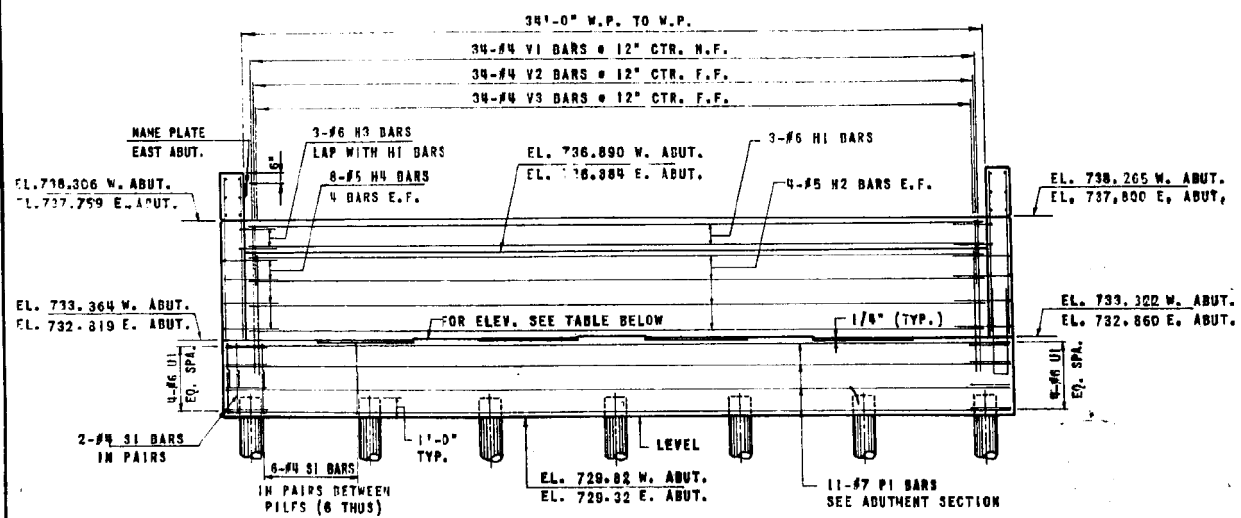


BERM ELEVATIONS	
WEST ABUT.	732.79
EAST ABUT.	732.31

FOR INFORMATION ONLY

PLAN
WEST ABUTMENT SHOWN - EAST ABUTMENT SIMILAR EXCEPT AS NOTED

NOTES: SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS. POUR STEPS MONOLITHICALLY WITH CAP.



NOTE: REINFORCEMENT IN EAST ABUTMENT SIMILAR.

BEAM BEAT ELEVATIONS		
BEAM	WEST ABUT.	EAST ABUT.
1	733,304	732,792
2	733,337	732,823
3	733,554	733,351
4	733,666	732,869
5	733,698	732,894

PILE DATA
8 CONC. PILES 45'-0" LONG. - W. ADUT.
9 CONC. PILES 45'-0" LONG. - E. ADUT.
CAPACITY = 35 TONS

LEGEND
W.P. - WORK POINT
E.F. - EACH FACE
N.F. - NEAR FACE
F.F. - FAR FACE
N.W. - NORTH WINGWALL
S.W. - SOUTH WINGWALL

QUANTITIES - BOTH ABUTMENTS		
CLASS X CONCRETE	CU. YDS.	80.2
REINFORCEMENT BARS	LBS.	7,550
CONCRETE PILES	LIN. FT.	765
TEST PILE (WEST ABUTMENT)	EACH	1

STATION 461+96.29
BUILT 197 BY
STATE OF ILLINOIS
F.A. RT. 420 SEC. 12-VB-2
F.A. PROJECT U-UG-420-1(17)
LOADING HS 20

NAME PLATE
(STD. 2115)

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS

ILLINOIS DIVISION OF HIGHWAYS
F.A. RT. 420 (ILL. RT. 120)
RAMP K-W & M-K OVER C.N. ST.P. & P.B.R.
SECTION 12-VB-2 NORTH, 12-VB-2 SOUTH

WEST & EAST ABUTMENT - RAMP K-W

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
E.J.F.	Z.B.	Z.B.	E.J.F.			

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S.N. 049-0129 & S.N. 049-0130

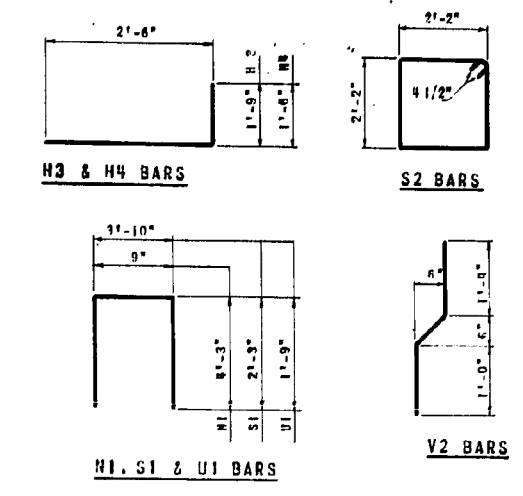
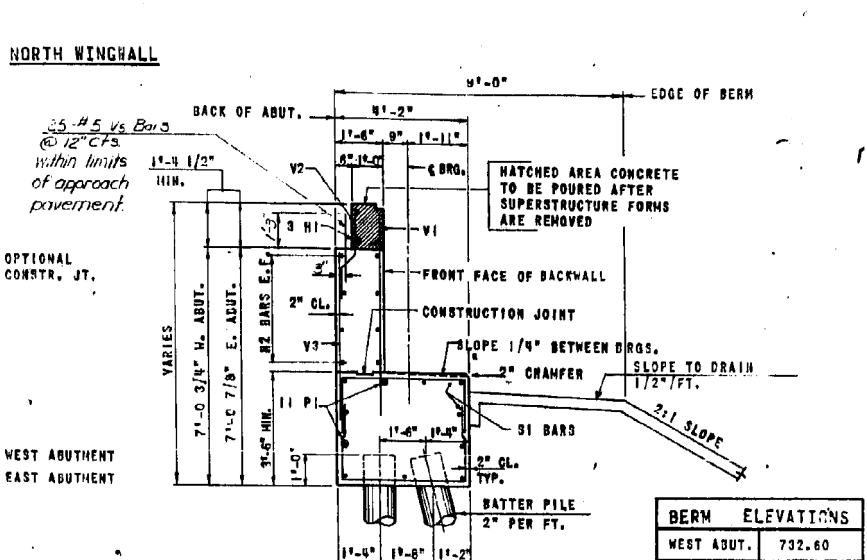
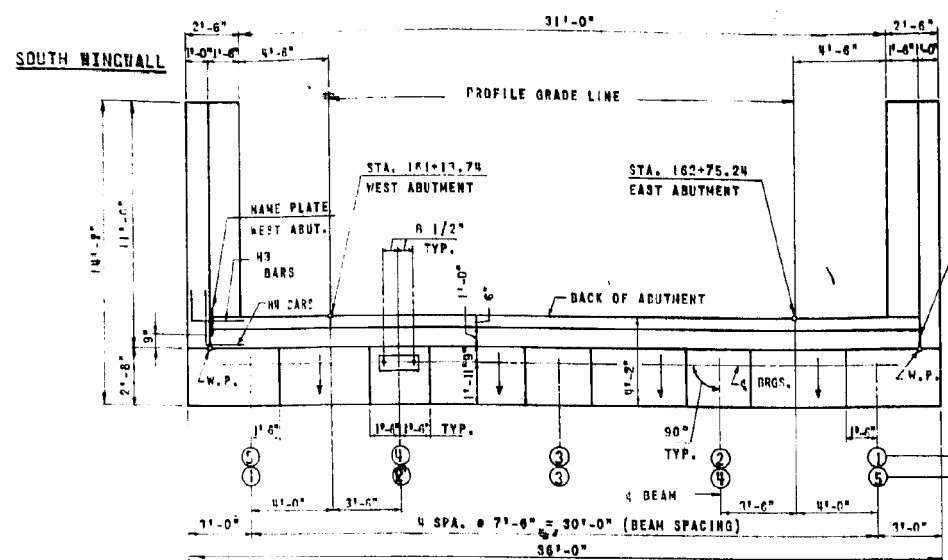
SHEET NO. S36 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	194
* 12VB-1&2&12R-1&2&12R-2&12R-2&12R-2			CONTRACT NO. 60X40	
ILLINOIS FED. AID PROJECT				

F.A. RTE. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
420	12-VB-2	LAKE	278	89
FEDERAL ROAD DISTRICT NO. ILL/NOIS PROJ.				

WEST ABUTMENT				
BILL OF REINFORCEMENT				
BAR NO.	SIZE	LENGTH	SHAPE	
H1	7	8	29'-10"	
H2	8	5	17'-10"	
H3	2	6	8'-5"	
H4	14	5	8'-0"	
H5	16	4	11'-2"	
H1	24	6	9'-1"	
P1	11	7	15'-8"	
P2	12	7	11'-2"	
S1	80	4	8'-4"	
S2	77	4	9'-5"	
U1	8	6	7'-4"	
V1	16	4	8'-1"	
V2	14	5	1'-0"	
V3	14	4	5'-0"	
V4	13	6	4'-11"	
V5	25	5	2'-0"	

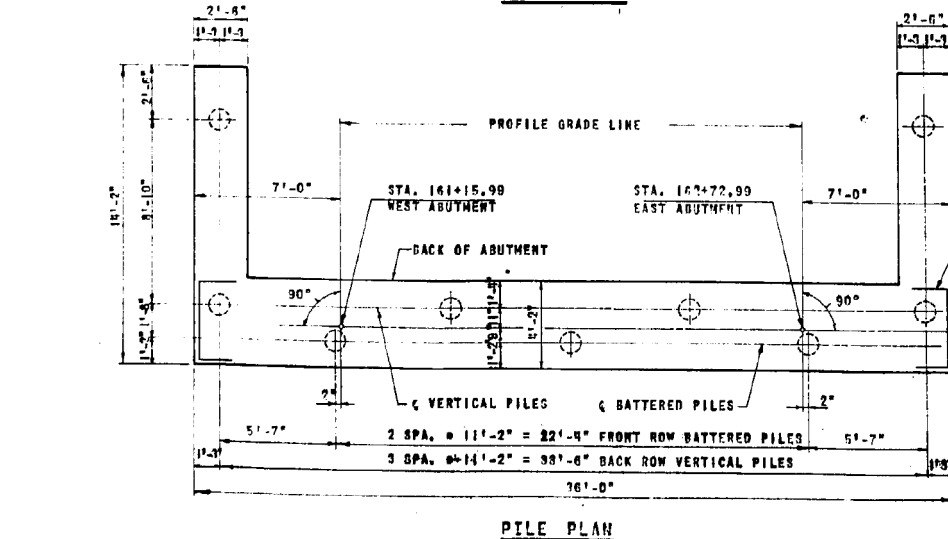
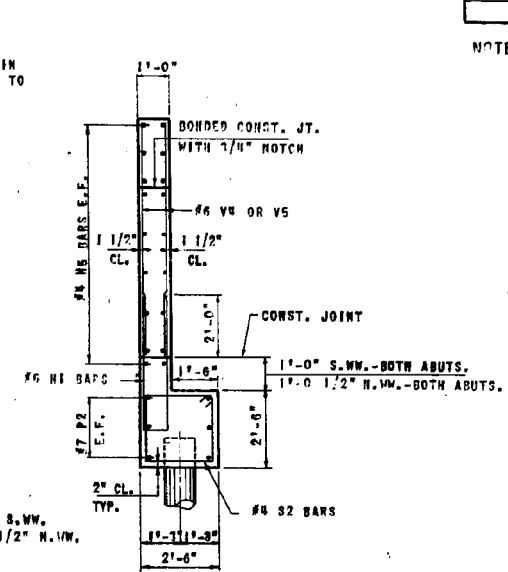
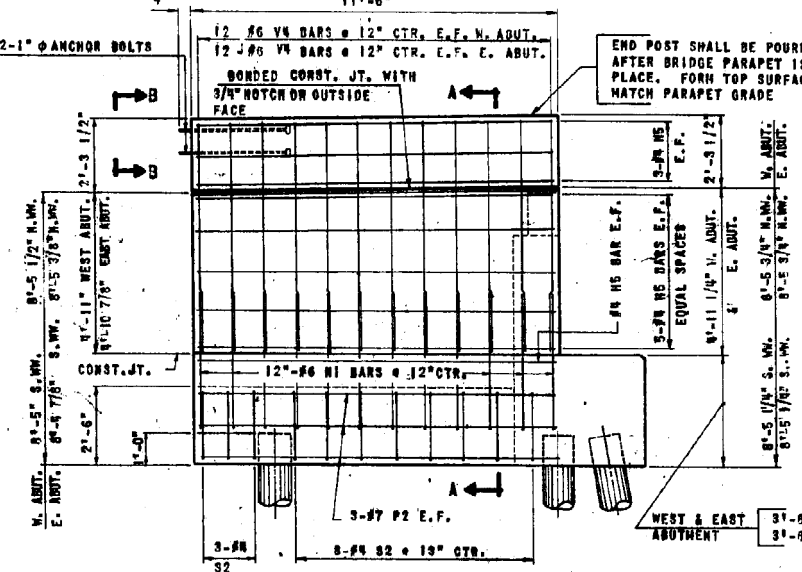
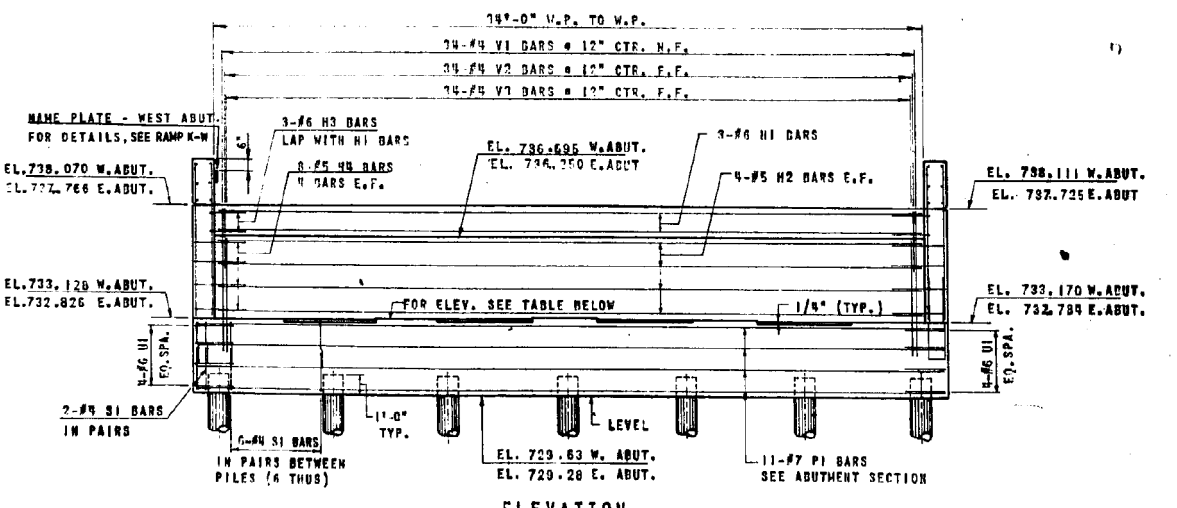
NOTE: REINFORCEMENT IN EAST ABUTMENT SIMILAR.



BLEM ELEVATIONS	
WEST ADUT.	732.60
EAST ADUT.	732.27

W. ADUT.
E. ADUT.
WEST ABUTMENT SHOWN - EAST ABUTMENT SIMILAR EXCEPT AS NOTED

NOTES: SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS. POUR STEPS MONOLITHICALLY WITH CAP.



BEAM SEAT ELEVATIONS		
BEAM	WEST ADUT.	EAST ADUT.
1	789.107	732.763
2	793.237	732.883
3	783.323	732.879
4	793.206	732.862
5	793.065	732.721

PILE DATA
9 CONC. PILES 60'-0" LONG. - W. ADUT.
8 CONC. PILES 53'-0" LONG. - E. ADUT.
CAPACITY = 35 TONS
* Plus 1 Test Pile

FOR INFORMATION ONLY
Note: For electrical conduit details see sh. #2.

QUANTITIES - BOTH ABUTMENTS	
CLASS X CONCRETE	CU. YDS. 80.2
REINFORCEMENT BARS	LB. 7,550
CONCRETE PILES	LIN. FT. 964
Test Pile (East Abut.)	Co. 1

CONSOER. TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS
ILLINOIS DIVISION OF HIGHWAYS
F.A. RT. 420 (ILL. RT. 120)
RAMP K-W & W-K OVER C.H. ST. P. & P.R.R.
SECTION 12-VB-2 NORTH, 12-VB-2 SOUTH
WEST & EAST ABUTMENT - RAMP W-K

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
E.J.F.	Z.S.	Z.S.	E.J.F.			

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8501 W. Higgins Road, Suite 280
Chicago, Illinois 60631; (773) 399-0112

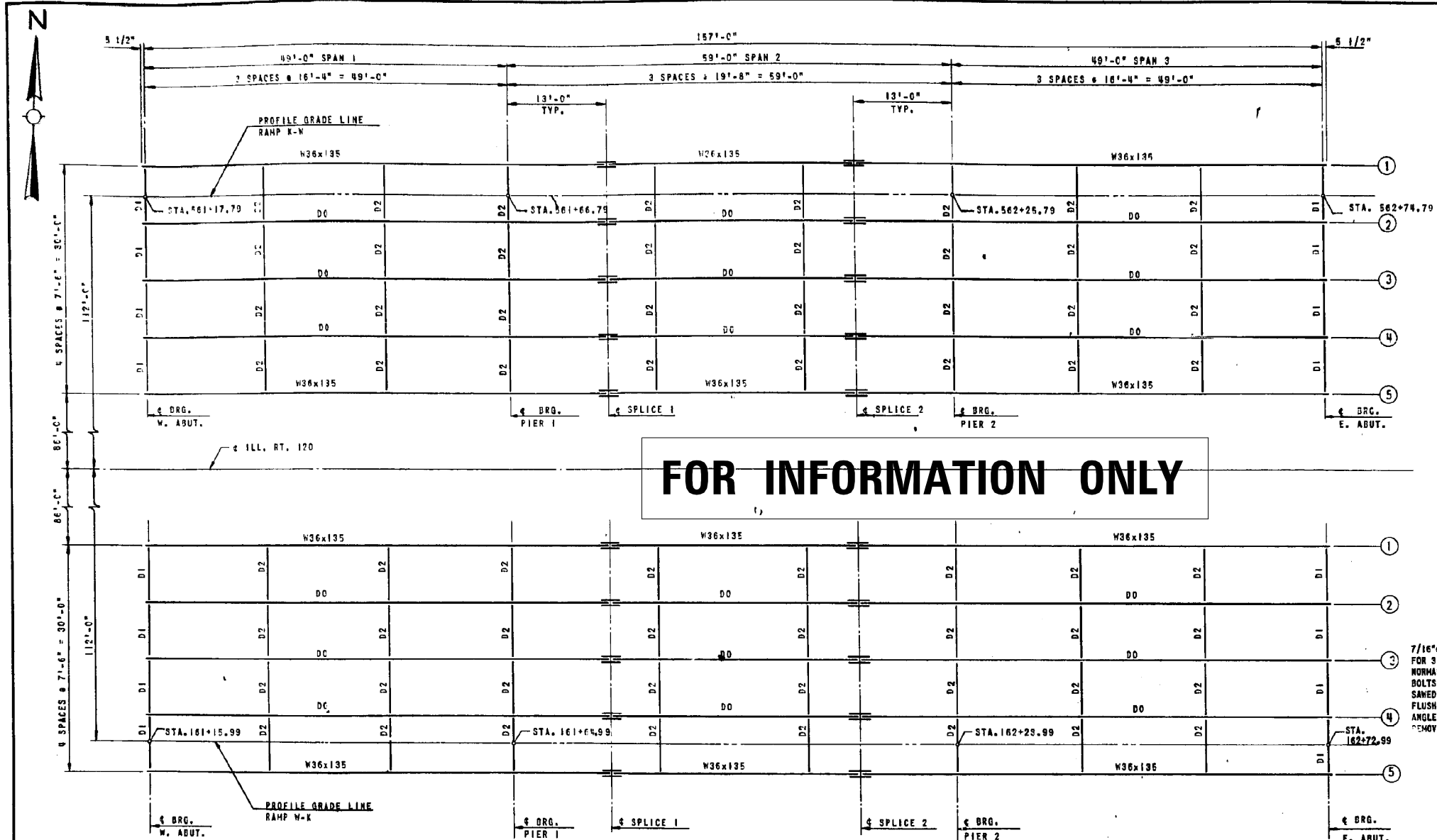
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	DATE - 08/26/2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

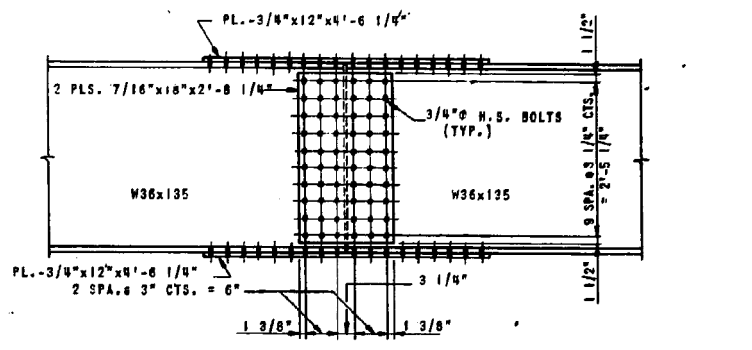
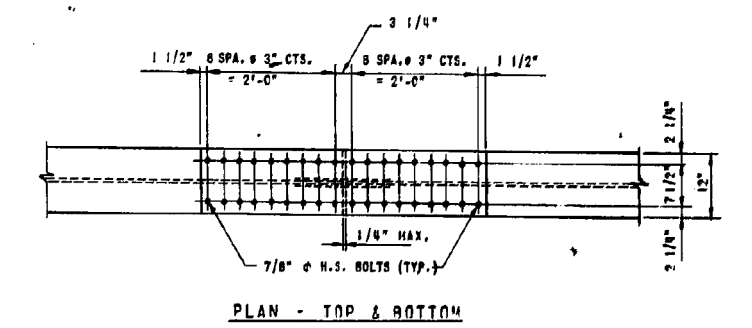
S.N. 049-0129 & S.N. 049-0130
SHEET NO. S37 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	195
* 12VB-1&2&12R-1HB-2(BR)&12-RS-2 CONTRACT NO. 60X40				
ILLINOIS FED. AID PROJECT				

F.A.P. RTE. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
420	12-VB-2	LAKE	278	84
FEDERAL ROAD DISTRICT NO.		ILLINOIS PROJ.		

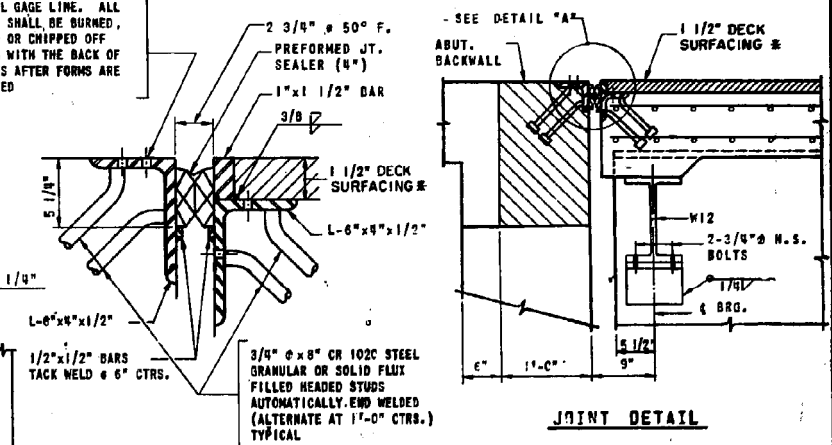


FOR INFORMATION ONLY



**ELEVATION
SPLICES 1 & 2**

7/16" HOLES @ 12" CTRS. FOR 3/8" @ BOLTS SET ON NORMAL GAGE LINE. ALL BOLTS SHALL BE BURNED, SAVED OR CHIPPED OFF FLUSH WITH THE BACK OF ANGLES AFTER FORMS ARE REMOVED



* DECK SURFACE = 1/2 INCH WATERPROOFING MEMBRANE SYSTEM + 1 INCH BIT. CONC. SURFACE COURSE CLASS I

CALCULATED WEIGHT OF STRUCT. STEEL

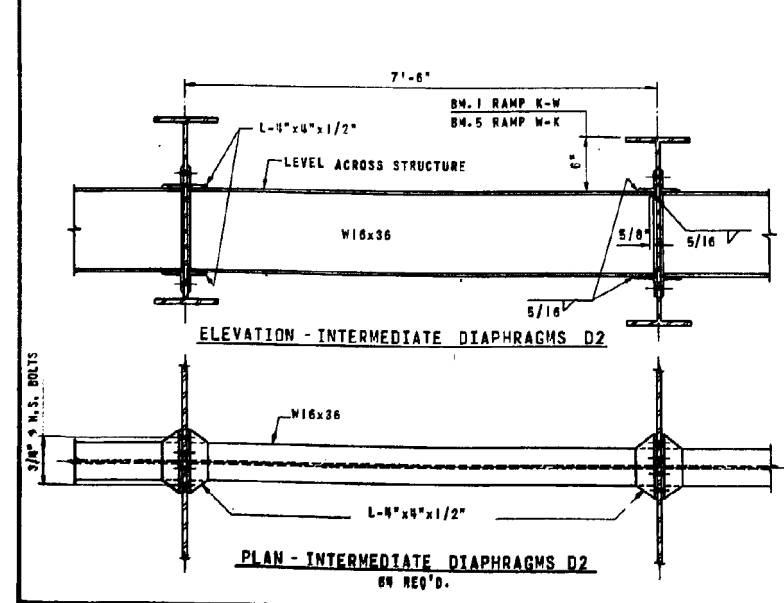
FRAMING	255,260	LBS.
BEARINGS & SHIMS	12,600	LBS.
TOTAL	267,860	LBS.

WEIGHT DOES NOT INCLUDE H.S. BOLTS

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS CHICAGO, ILLINOIS
ILLINOIS DIVISION OF HIGHWAYS
F.A. RT. 420 (ILL. RT. 120)
RAMP K-W & W-K OVER C.M. ST. P. & P. R.R.
SECTION 12-VB-2 NORTH, 12-VB-2 SOUTH

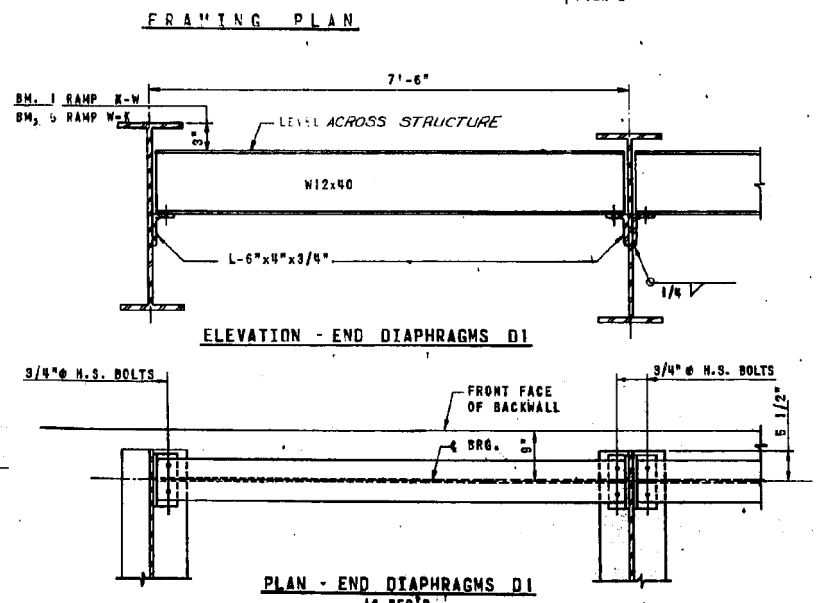
FRAMING PLAN, SPLICE, STEEL DETAILS.

SEARCHED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Y.S.W.	B.H.	B.H.	E.J.F.			



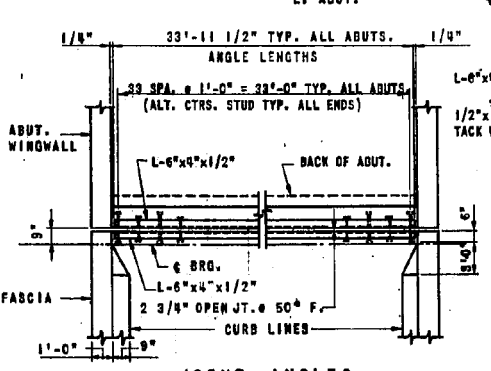
ELEVATION - INTERMEDIATE DIAPHRAGMS D2

PLAN - INTERMEDIATE DIAPHRAGMS D2

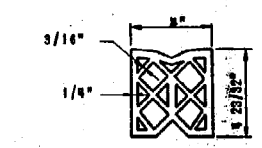


ELEVATION - END DIAPHRAGMS D1

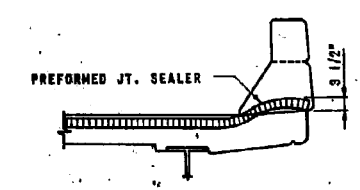
PLAN - END DIAPHRAGMS D1



**JOINT ANGLES
PLAN AT ABUT.**



PREFORMED JOINT SEALER (4\"/>



TYPICAL END OF SEALER TREATMENT

Note: Hardened washers shall be used over 1/2\"/>

H:\p\2015\2015301A\CAD\Structural\049-0129-0130-Ramps_FINAL\007-0490129-60X40-0BP7.dgn 3/21/2017 10:43:04 AM

GRAEF
8501 W. Higgins Road, Suite 280
Chicago, Illinois 60631; (773) 399-0112

USER NAME =	DESIGNED -	REVISIONS -
PLOT SCALE =	CHECKED -	REVISIONS -
PLOT DATE = 3/21/2017 - 10:48:34	DRAWN - DLG	REVISIONS -
	DATE - 08/26/2015	REVISIONS -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

S.N. 049-0129 & S.N. 049-0130

SHEET NO. S38 OF 38 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
342	*	LAKE	288	196
* 12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		CONTRACT NO. 60X40		
ILLINOIS FED. AID PROJECT				

Benchmark BM #6: Chiseled cut in East end of SE Wingwall of EB IL-120 (S.N. 049-0126) over Greenleaf Street. Elevation 731.85.

Existing Structure: S.N. 049-0125 (WB) and 049-0126 (EB) were originally constructed in 1977 as two structures carrying three lanes of eastbound and three lanes of westbound IL Route 120 traffic over Greenleaf Street as F.A. Route 420 (IL Rt. 120) Project F-420-119, Section 12R-1HB-2 at Sta. 473+43.17. The existing dual structures are four-span (37'-4", 67'-4", 67'-4" and 34'-3") bridges with a reinforced concrete deck on steel beams. The fascia beams supporting the Deck and all interior beams for spans 2 and 3 are steel W36 sections. The interior beams for span 1 are steel W33 sections. The interior beams for span 4 are steel W30 sections. The reinforced concrete deck is 8" thick in addition of a 2" bituminous concrete overlay which was placed in 2000. Spans 1 and 4 are simply-supported, non-composite spans. Spans 2 and 3 are continuous, composite spans. S.N. 049-0125 (WB) measures 210'-9" back-to-back of abutments with an out-to-out width varying from 54'-9 1/2" to 58'-11 3/8". S.N. 049-0126 (EB) measures 210'-9" (back-to-back of abutments) with an out-to-out constant width of 58'-0". Both structures were built on a skew of 1°20'17". The substructures consist of open stub abutments founded on two staggered lines of circular concrete piles. Piers 1 & 2 for both structures and Pier 3 for S.N. 049-0125 (WB) founded on two lines of circular concrete piles, while Pier 3 for S.N. 049-0126 (EB) is founded on spread footing only. Traffic is to be maintained utilizing crossovers. However, the sidewalks for Greenleaf Street will be closed to pedestrian traffic during construction.

SEISMIC DATA

Seismic Performance Category (SPC) = A
Horizontal Bedrock Acceleration Coefficient (A) = 0.035g
Site Coefficient (S) = 1.0

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications
For Highway Bridges, 17th Edition

LOADING HS 20-44

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

DESIGN STRESSES

FIELD UNITS (Existing Construction)
f_c = 3,500 psi (Substructure)
f_s = 20,000 psi (Reinforcement)
f_s = 20,000 psi AASHTO M183 (Structural Steel)
f_s = 27,000 psi AASHTO M188 (Structural Steel at Pier 2)

FIELD UNITS (New Construction)
f_c = 3,500 psi
f_y = 60,000 psi (Reinforcement)
f_y = 50,000 psi (M270 Grade 50)

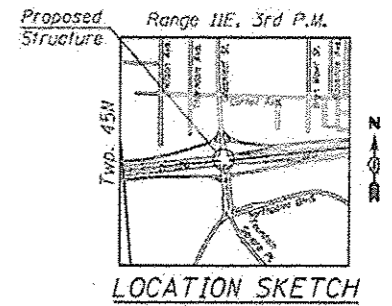
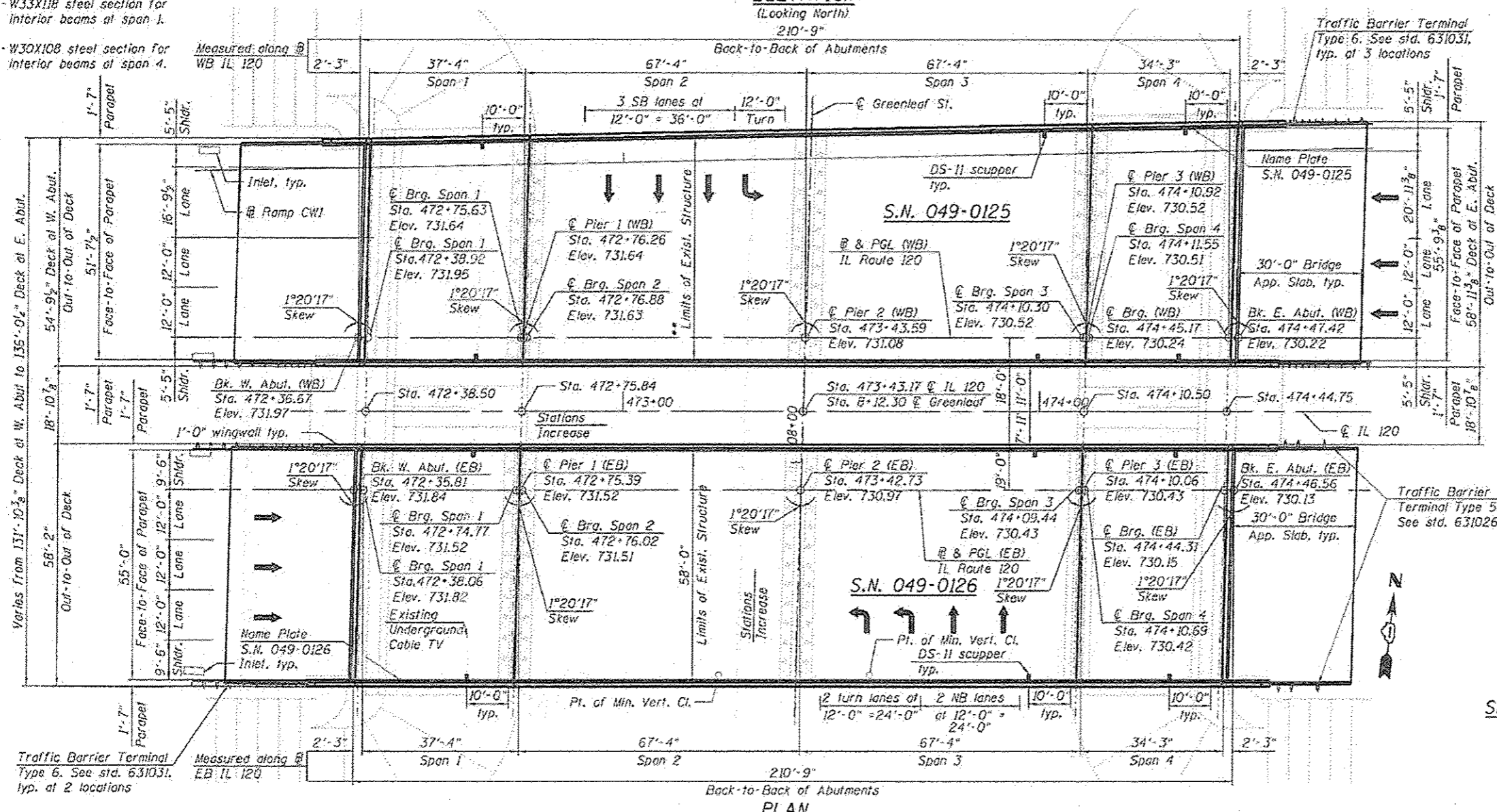
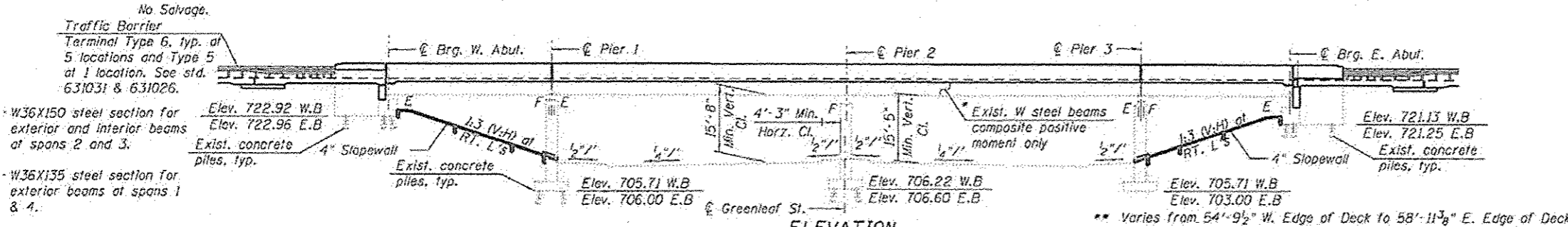
APPROVED

For Structural Adequacy Only

Signature
Engineer of Bridges & Structures



Signed *Moussa A. Issa*
Moussa A. Issa, HBM IL Lic. No. 081-005738
Expires 11-30-2018
Date *03/20/2017*
For Sheets S-01 Thru S-55
(Total of 55 Sheets)



GENERAL PLAN AND ELEVATION
IL-120 OVER GREENLEAF STREET
F.A.P. ROUTE 333 / 342
LAKE COUNTY
STATION 473+43.17
STRUCTURE NO. 049-0125 (WB)
STRUCTURE NO. 049-0126 (EB)

FILE PATH: I:\2017\03\01\120 River Greenleaf\049-0125-0126-0126-0126.dwg

HBM ENGINEERING GROUP, LLC 445 WEST HARRISON STREET, SUITE 231 MILLSBURG, IL 60132 PHONE: (318) 234-9999 FAX: (318) 234-9991	USER NAME: mstafovalabou PLOT SCALE: 2000 1" = 100' PLOT DATE: 03/20/2017	DESIGNED: MA, JVG DRAWN: MA CHECKED: MAL, MI DATE: 03/20/2017	REVISED REVISED REVISED REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SCALE: SHEET 5-01 OF 5-55 SHEETS STA. TO STA.	SECTION: LAKE COUNTY CONTRACT NO. 60X40 SHEET NO. 197	
	PROJECT: 049-0125-0126-0126-0126			SHEET: 5-01 OF 5-55 SHEETS			TOTAL SHEETS: 288
	PROJECT: 049-0125-0126-0126-0126			SHEET: 5-01 OF 5-55 SHEETS			TOTAL SHEETS: 197
	PROJECT: 049-0125-0126-0126-0126			SHEET: 5-01 OF 5-55 SHEETS			TOTAL SHEETS: 197

GENERAL NOTES:

- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in. φ, holes 15/16 in. φ, unless otherwise noted.
- Calculated weight of Structural Steel = 18,730 lbs, AASHTO M270 Grade 50.
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.
- As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that can not be removed by grinding 1/4 in. deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.
- Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction 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 scope of the work; however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Concrete Sealer shall be applied to the designated areas of the Piers, Abutments and Wingwalls.
- Cleaning and field painting of structural steel shall be done under a separate painting contract.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
- Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost included with "Concrete Removal".
- Slipforming of the parapets is not allowed.
- Based on existing plans and visual inspection, there were no observed utility conduits passing thru concrete deck and bridge parapets. The Contractor shall field verify the existence of such conduits. If proven otherwise, the Contractor shall inform the Engineer for any approved adjustments needed prior to construction and ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work; however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

INDEX OF SHEETS

- S-01 General Plan and Elevation
- S-02 General Notes, Index of Sheets and Total Bill of Material
- S-03 Stage Construction
- S-04 Temporary Concrete Barrier for Stage Construction
- S-05 Removal Plan and Elevation
- S-06 Removal Sections and Details
- S-07 Top of Slab Elevations Layout (WB)
- S-08 Top of Slab Elevations (Sheet 1 of 2) (WB)
- S-09 Top of Slab Elevations (Sheet 2 of 2) (WB)
- S-10 Top of Slab Elevations Layout (EB)
- S-11 Top of Slab Elevations (Sheet 1 of 2) (EB)
- S-12 Top of Slab Elevations (Sheet 2 of 2) (EB)
- S-13 Top of West Approach Slab Elevations (WB)
- S-14 Top of East Approach Slab Elevations (WB)
- S-15 Top of West Approach Slab Elevations (EB)
- S-16 Top of East Approach Slab Elevations (EB)
- S-17 Deck Plan (WB)
- S-18 Deck Cross Section (WB)
- S-19 Parapet Elevations (WB)
- S-20 Deck Details, Bar List and Bill of Material (WB)
- S-21 Deck Plan (EB)
- S-22 Deck Cross Section (EB)
- S-23 Parapet Elevations (EB)
- S-24 Deck Details, Bar List and Bill of Material (EB)
- S-25 West Approach Slab (WB)
- S-26 West Approach Slab Sections and Details (WB)
- S-27 East Approach Slab (WB)
- S-28 East Approach Slab Sections and Details (WB)
- S-29 West Approach Slab (EB)
- S-30 West Approach Slab Sections and Details (EB)
- S-31 East Approach Slab (EB)
- S-32 East Approach Slab Sections and Details (EB)
- S-33 Preformed Joint Strip Seal
- S-34 Drainage Scupper, DS-11
- S-35 Drainage System
- S-36 Existing Framing Plan
- S-37 Beam Elevations (Spans 1 and 4)
- S-38 Girder Moment and Reaction Tables (WB)
- S-39 Girder Moment and Reaction Tables (EB)
- S-40 Bearing Details I
- S-41 Bearing Details II
- S-42 West Abutment Modifications (WB)
- S-43 East Abutment Modifications (WB)
- S-44 Wingwalls Modifications (WB)
- S-45 West Abutment Modifications (EB)
- S-46 East Abutment Modifications (EB)
- S-47 Wingwalls Modifications (EB)
- S-48 Pier 1 Repairs (WB)
- S-49 Pier 2 Repairs (WB)
- S-50 Pier 3 Repairs (WB)
- S-51 Pier 1 Repairs (EB)
- S-52 Pier 2 Repairs (EB)
- S-53 Pier 3 Repairs (EB)
- S-54 Slope Wall Construction
- S-55 Bar Splicer Assembly and Mechanical Splicer Details

TOTAL BILL OF MATERIAL

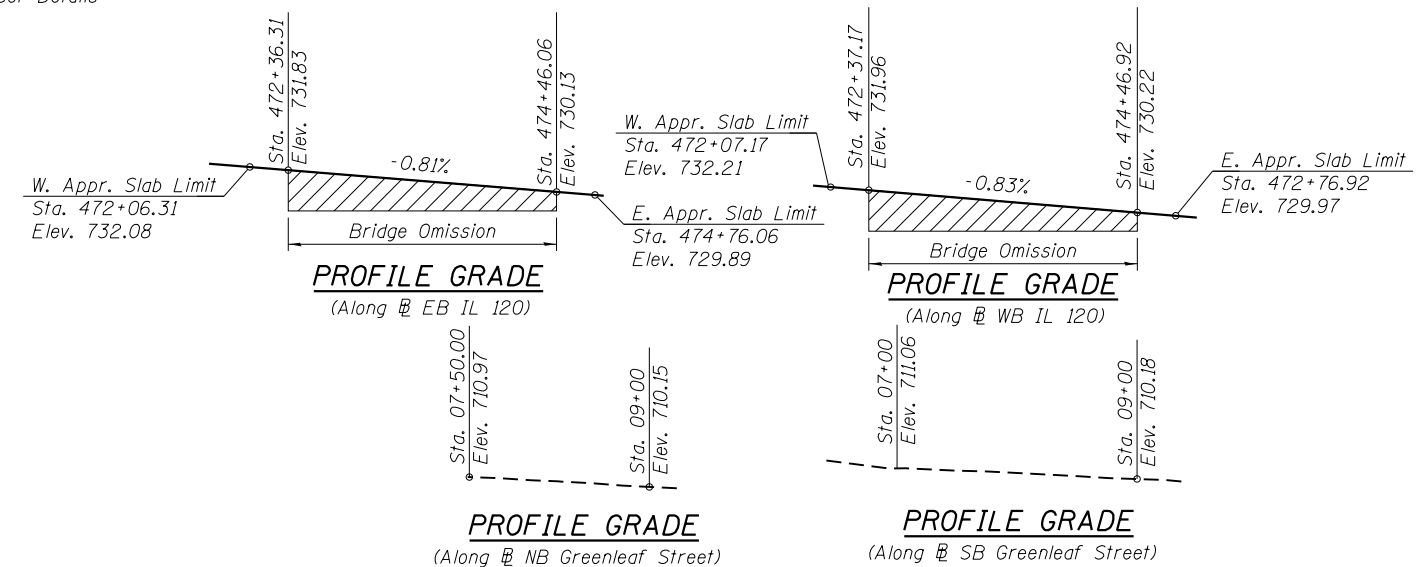
ITEM	UNIT	SUPER.	SUB.	TOTAL QUANTITY
Concrete Removal	CU YD	-	61	61
Bridge Rail Removal	FOOT	1,040	-	1,040
Slope Wall Removal	SQ YD	-	1,152	1,152
Removal of Existing Concrete Deck No. 5	EACH	1	-	1
Removal of Existing Concrete Deck No. 6	EACH	1	-	1
Protective Shield	SQ YD	2,640	-	2,640
Structure Excavation	CU YD	-	400	400
Concrete Structures	CU YD	-	115.0	115.0
Concrete Superstructure	CU YD	754.5	-	754.5
Bridge Deck Grooving	SQ YD	3,271	-	3,271
Protective Coat	SQ YD	3,719	-	3,719
Concrete Superstructure (Approach Slab)	CU YD	331.6	-	331.6
Furnishing and Erecting Structural Steel	POUND	18,730	-	18,730
Stud Shear Connectors	EACH	4,320	-	4,320
Reinforcement Bars, Epoxy Coated	POUND	280,731	9,909	290,640
Bar Splicers	EACH	-	234	234
Slope Wall 4 Inch	SQ YD	-	1,200	1,200
Name Plates	EACH	2	-	2
Preformed Joint Strip Seal	FOOT	461	-	461
Elastomeric Bearing Assembly, Type I	EACH	64	-	64
Anchor Bolts, 1"	EACH	384	-	384
Concrete Sealer	SQ FT	-	818	818
Epoxy Crack Injection	FOOT	-	67	67
Geocomposite Wall Drain	SQ.YD.	-	229	229
Granular Backfill for Structures	CU YD	-	435	435
Jack and Remove Existing Bearings	EACH	96	-	96
Cleaning Bridge Seats	SQ FT	-	1,207	1,207
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	SQ FT	-	299	299
Structural Repair of Concrete (Depth Greater Than 5 Inches)	SQ FT	-	129	129
Drainage System	L SUM	1	-	1
Drainage Scuppers, DS-11	EACH	12	-	12
Pipe Underdrains for Structures 4"	FOOT	-	297	297

STATION 473+43.17
RE-BUILT 20-- BY
STATE OF ILLINOIS
F.A.P. RTE. 333
SEC. 12R-1HB-2
LOADING HS-20
STRUCTURE NO. 049-0125

STATION 473+43.17
RE-BUILT 20-- BY
STATE OF ILLINOIS
F.A.P. RTE. 333
SEC. 12R-1HB-2
LOADING HS-20
STRUCTURE NO. 049-0126

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

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



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HBM
ENGINEERING GROUP, LLC
4415 WEST HARRISON STREET, SUITE 231
HILLSIDE, IL 60162
PHONE: (708) 236-0900 FAX: (708) 236-0901

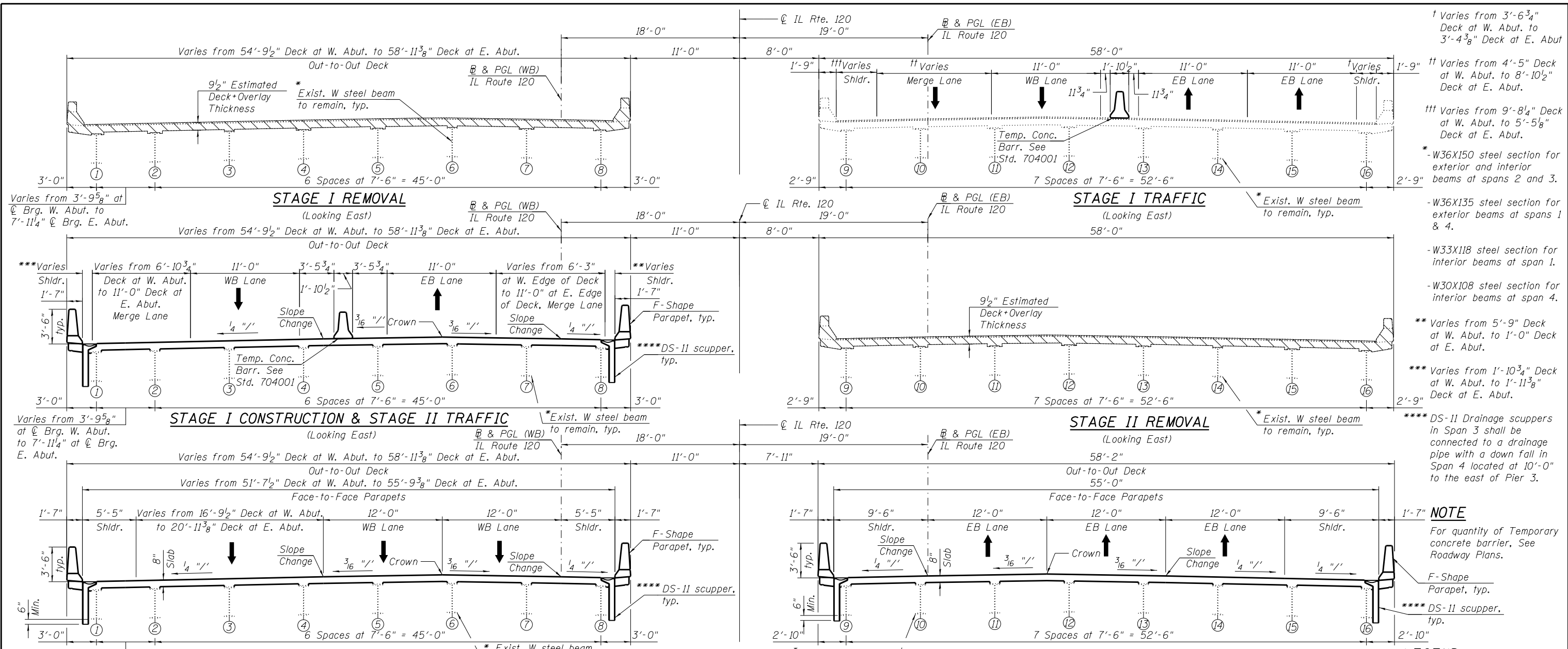
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PLOT DATE = 3/20/2017	DATE - 03/20/2017	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS AND TOTAL BILL OF MATERIAL
STRUCTURE NOS. 049-0125 (WB) & 049-0126 (EB)

SCALE: SHEET S-02 OF S-55 SHEETS STA. TO STA.

F.A.P. RTE. 333	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		LAKE	288	198
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60X40	



† Varies from 3'-6 3/4" Deck at W. Abut. to 3'-4 3/8" Deck at E. Abut.

‡ Varies from 4'-5" Deck at W. Abut. to 8'-10 1/2" Deck at E. Abut.

‡‡ Varies from 9'-8 1/4" Deck at W. Abut. to 5'-5 1/8" Deck at E. Abut.

* -W36X150 steel section for exterior and interior beams at spans 2 and 3.

-W36X135 steel section for exterior beams at spans 1 & 4.

-W33X118 steel section for interior beams at span 1.

-W30X108 steel section for interior beams at span 4.

** Varies from 5'-9" Deck at W. Abut. to 1'-0" Deck at E. Abut.

*** Varies from 1'-10 3/4" Deck at W. Abut. to 1'-11 3/8" Deck at E. Abut.

**** DS-II Drainage scuppers in Span 3 shall be connected to a drainage pipe with a down fall in Span 4 located at 10'-0" to the east of Pier 3.

NOTE
 For quantity of Temporary concrete barrier, See Roadway Plans.

LEGEND
 Removal of Existing Deck

- SUGGESTED STAGE I REMOVAL**
1. Install temporary concrete barrier to relocate the traffic to EB S.N. 049-0126 existing structure.
 2. Remove all existing concrete bridge deck, parapet and fence within limits of WB S.N. 049-0125.
 3. Remove the west and east abutments' backwall for WB S.N. 049-0125.
 4. Remove the top portion of wingwalls at west and east abutments of WB S.N. 049-0125.
 5. Remove existing expansion joints within limits of WB S.N. 049-0125.
 6. Remove existing approach slabs within limits of WB S.N. 049-0125.
 7. Jack and crib the existing beams and remove bearings at the abutments and piers 1 & 3 for WB S.N. 049-0125.
 8. Remove the west and east slope walls for WB S.N. 049-0125 and the portions in between both structures, see Note 5 in Sheet S-5.

- SUGGESTED STAGE I CONSTRUCTION**
- The following construction items will be performed within the limits of Stage I Construction:
1. Replace the expansion bearings at the abutments and expansion and fixed bearings at piers 1 & 3 with elastomeric bearing assembly with fabricated steel extension to reach the desired elevation.
 2. Make new deck composite at the positive moment regions by adding shear studs to all existing beams where not already installed.
 3. Install deck forms and reinforcement and place inserts (hangers) in deck for utility support.
 4. Construct reinforced concrete deck, parapet, and drainage scuppers.
 5. Construct 42" F-shaped parapet at wingwalls of WB S.N. 049-0125.
 6. Install drainage system.
 7. Construct East and West bridge approach pavements for WB S.N. 049-0125.
 8. Perform bridge deck grooving for the bridge deck.
 9. Apply protective coat for the bridge deck.

- SUGGESTED STAGE II REMOVAL**
1. Install temporary concrete barrier as relocate the traffic on WB S.N. 049-0125 new structure.
 2. Remove all existing concrete bridge deck, parapet and fence within limits of EB S.N. 049-0126.
 3. Remove the west and east abutments' backwall for EB S.N. 049-0126.
 4. Remove the top portion of wingwalls at west and east abutments of EB S.N. 049-0126.
 5. Remove existing expansion joints within limits of EB S.N. 049-0126.
 6. Remove existing approach slabs within limits of EB S.N. 049-0126.
 7. Jack and crib the existing beams and remove bearings at the abutments and piers 1 & 3 for EB S.N. 049-0126.
 8. Remove the west and east slope walls for EB S.N. 049-0126, see Note 5 in Sheet S-5.
- SUGGESTED STAGE II CONSTRUCTION**
- The following construction items will be performed within the limits of Stage II Construction:

1. Replace the expansion bearings at the abutments and expansion and fixed bearings at piers 1 & 3 with elastomeric bearing assembly with fabricated steel extension to reach the desired elevation.
2. Make new deck composite at the positive moment regions by adding shear studs to all existing beams where not already installed.
3. Install deck forms and reinforcement and place inserts (hangers) in deck for utility support.
4. Construct reinforced concrete deck, parapet, and drainage scuppers.
5. Construct 42" F-shaped parapet at wingwalls of EB S.N. 049-0126.
6. Install drainage system.
7. Construct all slope walls for both structures (S.N. 049-0125 & S.N. 049-0126) and the portions in between both structures, see Note 5 in Sheet S-5.
8. Construct for EB S.N. 049-0126 East and West bridge approach pavements.
9. Perform bridge deck grooving for the bridge deck.
10. Apply protective coat for the bridge deck.

HBM
 ENGINEERING GROUP, LLC
 4415 WEST HARRISON STREET, SUITE 231
 HILLSIDE, IL 60162
 PHONE: (708) 236-0900 FAX: (708) 236-0901

03-0490125&26-60X40-StageDet1.dgn
 USER NAME = mustafa.lobaidi
 PLOT SCALE = 1/8" = 1'-0"
 PLOT DATE = 3/20/2017

DESIGNED - MA, JMG
 DRAWN - MA
 CHECKED - MAI, MI
 DATE - 03/20/2017

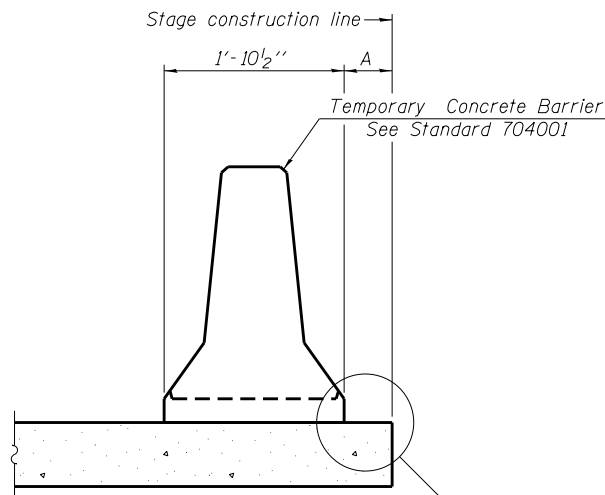
REVISED
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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

STAGE CONSTRUCTION
 STRUCTURE NOS. 049-0125 (WB) & 049-0126 (EB)
 SCALE: SHEET S-03 OF S-55 SHEETS STA. TO STA.

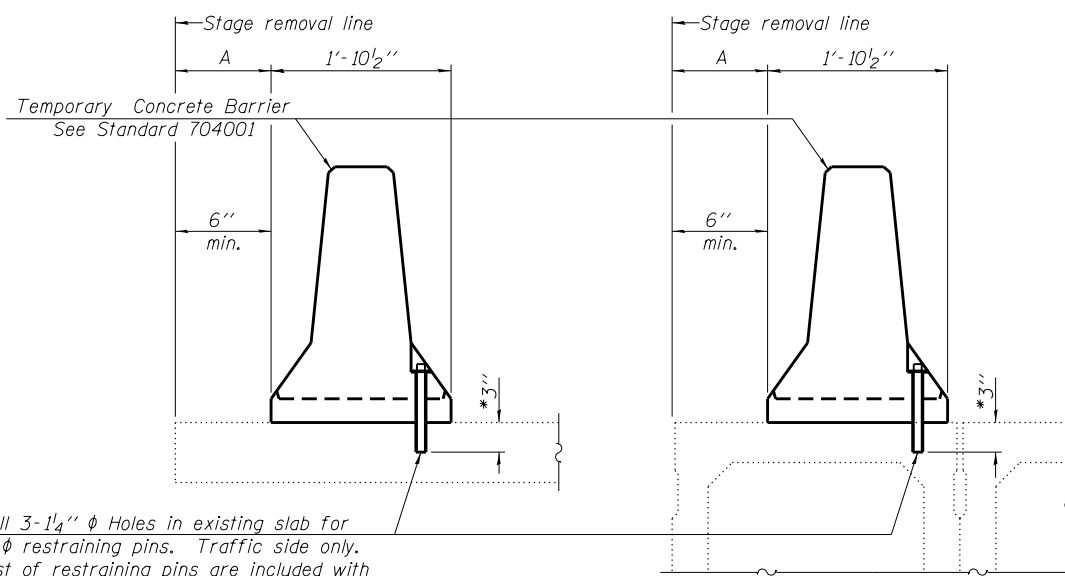
F.A.P. RTE. 333/342	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		LAKE	288	199
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60X40	

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When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM

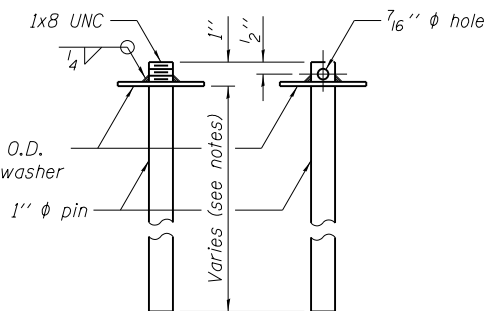


Drill 3-1/4" ϕ Holes in existing slab for 1" ϕ restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

EXISTING DECK BEAM

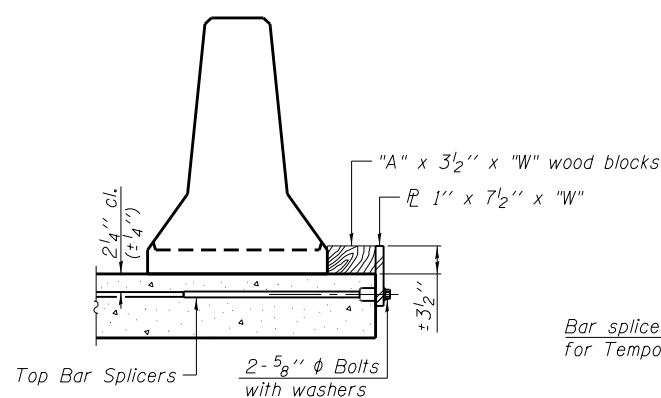
SECTIONS THRU SLAB OR DECK BEAM



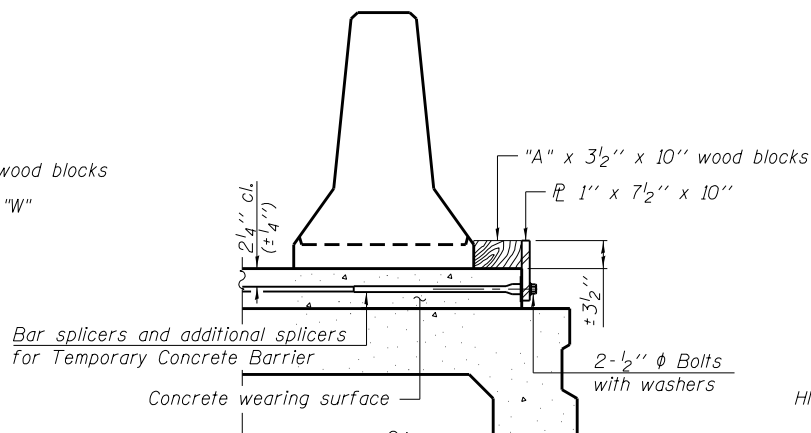
RESTRAINING PIN

US Std. 1/16" I.D. x 2 1/2" O.D. x approx. 8 gauge thick washer

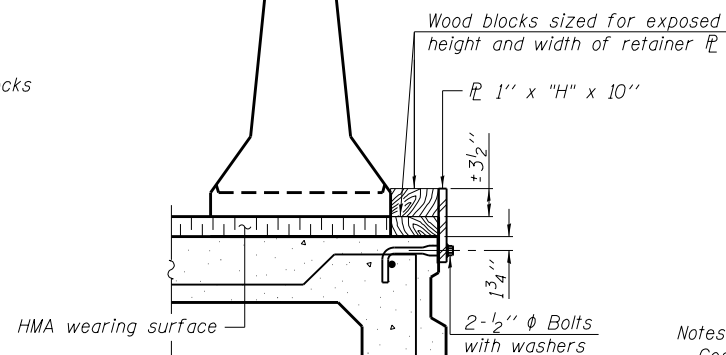
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.



DETAIL I

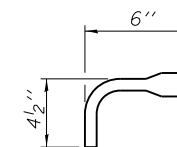


DETAIL II



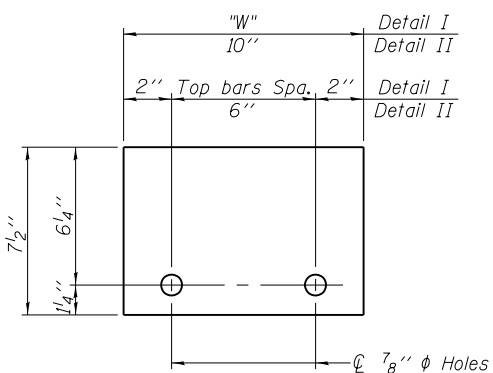
DETAIL III

BAR SPLICER FOR #4 BAR - DETAIL III



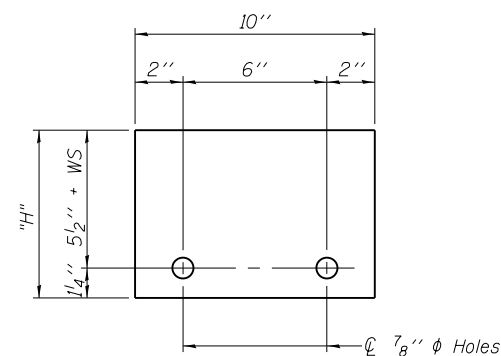
Notes:
 Cost of retainer assembly is included with Temporary Concrete Barrier.
 A retainer assembly shall be located at the approximate \bar{C} of each temporary concrete barrier.
 The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.
 When the 'A' dimension is less than 1/2", the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6" to accommodate the shear key clamping device.

Detail I - Installation for a new bridge deck or bridge slab.
 Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.
 Detail III - Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.



STEEL RETAINER 1" x 7 1/2" x "W"

(Detail I and II)



STEEL RETAINER 1" x "H" x 10"

(Detail III)

R-27

11-22-2016

FILE PATH = F:\1305-591_IL_120_Dwr_GreenLeaf\CADD_Sheets\04-0490125&26-60X40-TempConcBarr.dgn

HBM
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04-0490125&26-60X40-TempConcBarr.dgn	DESIGNED - SK	REVISED
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PLOT DATE = 3/20/2017	DATE - 03/20/2017	REVISED

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
 STRUCTURE NOS. 049-0125 (WB) & 049-0126 (EB)**

SCALE: SHEET S-04 OF S-55 SHEETS STA. TO STA.

F.A.P. RTE. 333 342	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*12(VB-1&2)&12R-1HB-2(BR)&12-RS-2		LAKE	288	200
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60X40	