

089-0052



SHEET NO. 1
17 SHEETS

F. A RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
401	177-4B-2	STEPHENSON	119	26
STA.		TO STA.		
FED ROAD DIST NO 7		ILLINOIS	FED. AID PROJECT	



DESIGN SPECIFICATIONS

A.A.S.H.T.O. 1983 STANDARD SPECIFICATIONS
FOR HIGHWAY BRIDGES AND 1984 INTERIM

CONSTRUCTION SPECIFICATIONS

ILLINOIS DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATION FOR ROAD AND
BRIDGE CONSTRUCTION ADOPTED OCTOBER 1, 1983

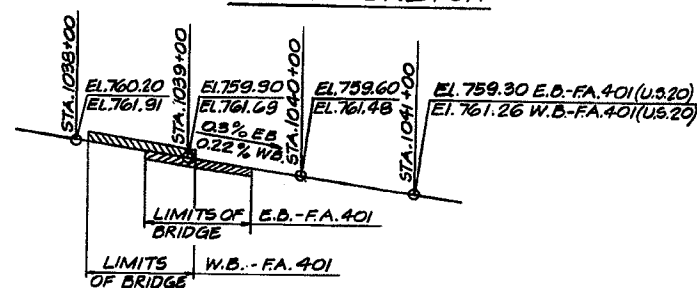
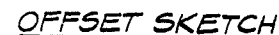
LOADING CRITERIA

HS 20-44
CALCULATED WEIGHT OF STRUCTURE PLUS 25 P.S.F.
FOR FUTURE WEARING SURFACE

DESIGN STRESSES

$f'_c = 3,500 \text{ P.S.I.}$
 $f_y = 60,000 \text{ P.S.I. (REINF. BARS)}$
 STRUCTURAL STEEL AASHTO M 183
 $F_y = 36,000 \text{ P.S.I.}$

NON-COMPOSITE 3-SPAN



PROFILE ALONG $\frac{\text{E EASTBOUND}}{\text{W WESTBOUND}}$ F.A. 401

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2
GENERAL PLAN AND ELEVATION
EASTBOUND AND WESTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1039+10.10 EB; STA. 1038+59.74 WB

SCALE: VERT.
HORIZ.

DATE _____



Edge of Pavement 50:1 Taper
from: E.B. Ramp
Sta. 213 + 61.77
44' Rt. Sta. 1033 + 74.25 E
to: 1' stub E.B. Ramp
Sta. 223 + 11.77
25' Rt. Sta. 1043 + 24.44 E

WB 401 CURVE DATA

PI Sta. 1028+43.06

$\Delta = 44^{\circ} - 22' - 10.19''$
 $D = 1^{\circ} - 45'$
 $R = 3274.04$
 $L = 2535.40$
 $T = 1335.10'$
 $E = 261.75$
 $SE = 0.048$

2 CURVE DATA

Pl Sta. 1028 + 80.65

$\Delta = 44^{\circ} 22' - 10.19''$
 $D = 1^{\circ} 45'$
 $R = 3274.04'$
 $L = 2535.40$
 $T = 1335.10$
 $E = 261.75$

EB 401 CURVE DATA

PI Sta. 1028 + 98.59

$\Delta = 44^{\circ}-22'-10.19''$
 $D = 1^{\circ}-43'-36.46''$
 $R = 3318.04'$
 $L = 2569.47'$
 $T = 1353.04'$
 $E = 265.27'$
 $SE = 0.048$

NOTE:

*-Boring B5 and B6
based upon Eastbound
Baseline

DESIGNED BY J.D.
DRAWN BY D.L.
CHECKED BY Z.B.
APPROVED BY _____

NELSON OSTROM BASKIN BERMAN & ASSOC., INC.
CONSULTING ENGINEERS CHICAGO, ILLINOIS

APPROVED

END STATE DATA - DEPARTURE ONLY

James T. Rayburn

STATION 1038+ 59.74
BUILT 198 BY
STATE OF ILLINOIS
F.A. ROUTE 401 SECTION 177-4B-2
F.A. PROJECT F-401-2 (21)
LOADING HS 20
STRUCTURE NO. ***

NAME PLATE

***089-0058 (E.B.), 089-0059 (W.B.)
(SEE STD. 2113)

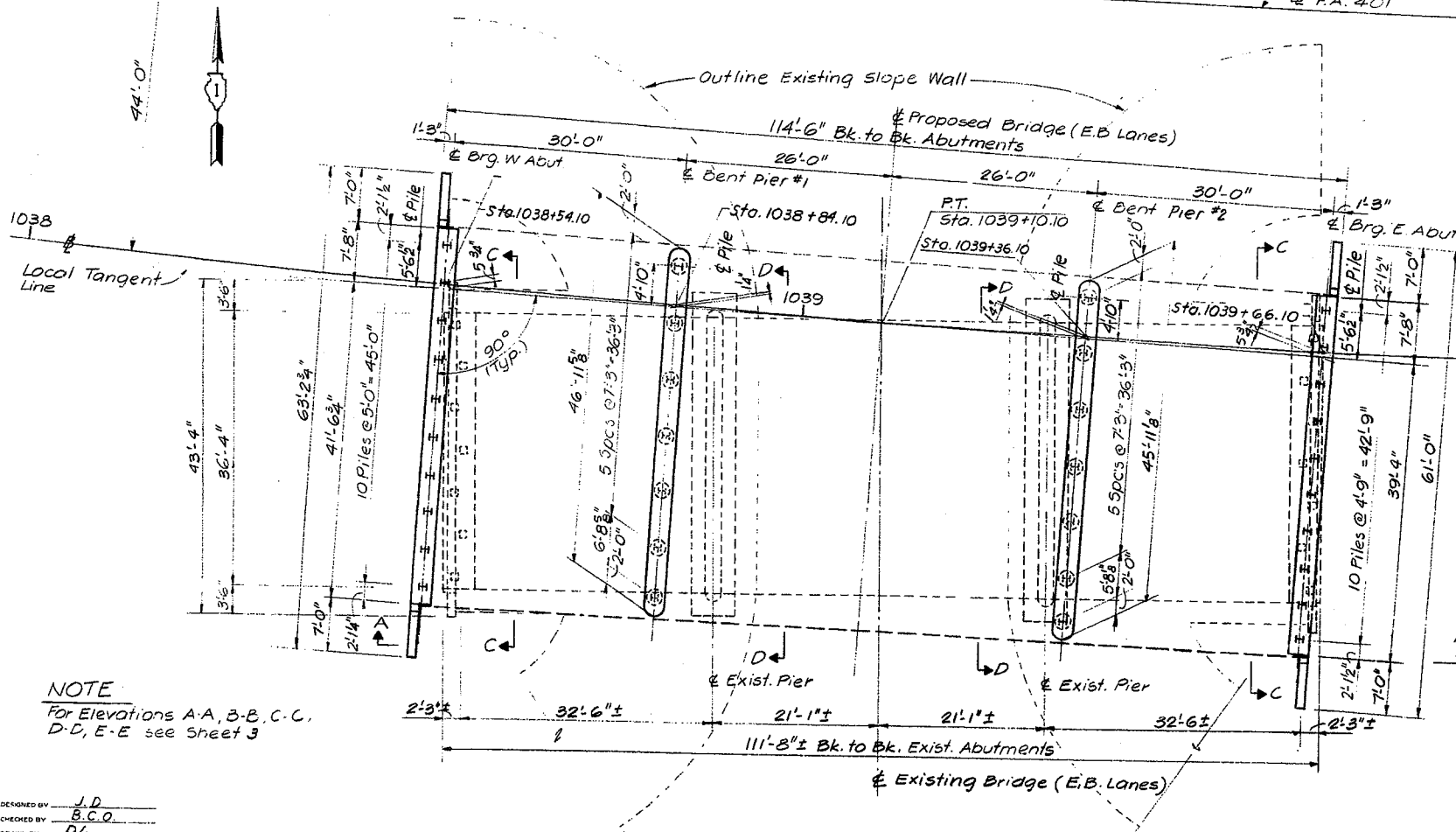
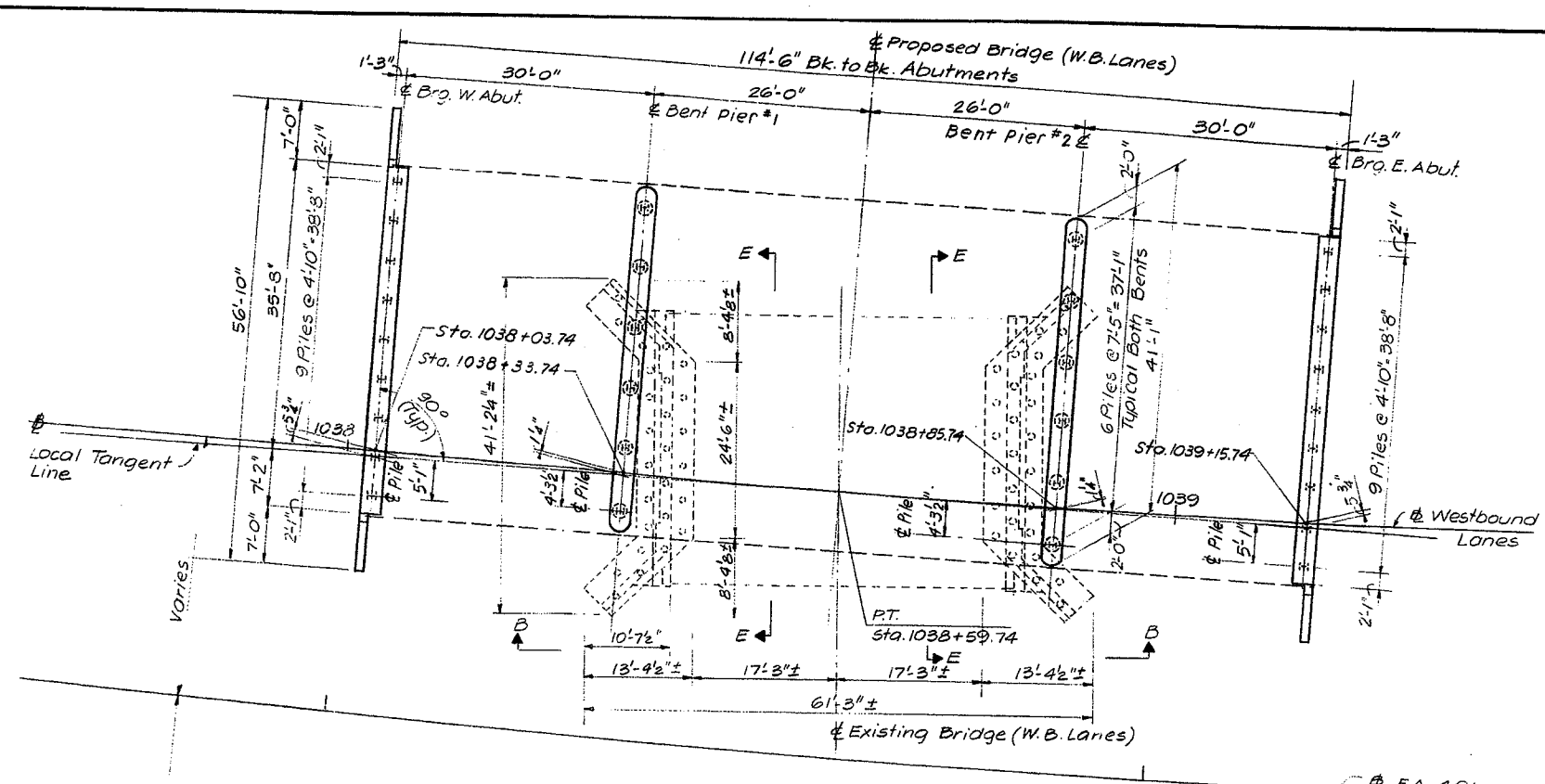


ZEVEL BERMAN
REGISTERED STRUCTURAL ENGINEER
STATE OF ILLINOIS No. 2092

DATE _____

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2

GENERAL PLAN AND ELEVATION
EASTBOUND AND WESTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F. A. 401 OVER SILVER CREEK
STA. 1039+10.10 EB ; STA. 1038+ 59. 74 WB



NOTE
For Elevations A-A, B-B, C-C, D-D, E-E see Sheet 3

DESIGNED BY: J.D.
CHECKED BY: B.C.O.
DRAWN BY: D.L.
CHECKED BY: Z.B.

NELSON OSTRUM BASKIN BERMAN & ASSOC., INC.
CONSULTING ENGINEERS
PARK RIDGE, ILLINOIS

TOTAL BILL OF MATERIAL								
ITEM	UNIT	WESTBOUND			EASTBOUND			TOTAL (WESTBOUND + EASTBOUND)
		SUPER	SUB.	TOTAL	SUPER	SUB.	TOTAL	
REMOVAL OF EXISTING STRUCTURES NO. 1	EACH	—	—	1	—	—	—	1
REMOVAL OF EXISTING STRUCTURES NO. 2	EACH	—	—	—	—	—	—	—
CLASS X CONCRETE	CU. YD.	175.5	46.6	222.1	190.4	51.1	241.5	463.6
REINFORCEMENT BARS	POUND	240	8460	8700	270	9040	9310	18,010
REINFORCEMENT BARS, (EPOXY COATED)	POUND	39 030	—	39 030	43 060	—	43 060	82 090
FURNISHING AND ERECTING STRUCTURAL STEEL	L. SUM	1	—	1	1	—	1	2
FLOOR DRAINS	EACH	4	—	4	4	—	4	8
TEST PILE STEEL HP10X42	EACH	—	3	3	—	3	3	6
STEEL PILES HP10X42	LIN. FT.	—	1532	1532	—	1965	1965	3497
NAME PLATES	EACH	1	—	1	1	—	1	2
STONE RIPRAP	SQ. YD.	—	—	736	—	—	736	1472
STRUCTURE EXCAVATION	CU. YD.	—	56	56	—	57	57	113
POROUS GRANULAR EMBANKMENT	CU. YD.	—	52	52	—	54	54	106
PROTECTIVE COAT	SQ. YD.	603	—	603	671	—	671	1274
CLASS X CONCRETE ENCASEMENT	CU. YD.	—	20	20	—	23	23	43

GENERAL NOTES

SEE PROPOSAL FOR BORING DATA.

FASTENERS SHALL BE HIGH STRENGTH BOLTS (AASHTO M 164). BOLTS 7/8" Ø, OPEN HOLES 15/16" Ø, UNLESS OTHERWISE NOTED.

CALCULATED WEIGHT OF STRUCTURAL STEEL: TOTAL = 193,849 LBS. (W.B. = 92,615 LBS., E.B. = 101,234 LBS.)

THE ZINC-SILICATE AND VINYL PAINT SYSTEM SHALL BE USED FOR SHOP AND FIELD PAINTING OF STRUCTURAL STEEL EXCEPT WHERE OTHERWISE NOTED.

FIELD WELDING OF CONSTRUCTION ACCESSORIES WILL NOT BE PERMITTED TO THE BOTTOM FLANGE OF BEAMS NOR TO THE TOP FLANGE FOR A DISTANCE EQUAL TO ONE-FOURTH THE SPAN LENGTH EACH WAY FROM THE PIER SUPPORTS. FIELD WELDING IN OTHER AREAS WILL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER.

ANCHOR BOLTS SHALL BE SET BEFORE BOLTING DIAPHRAGMS OVER PIERS.

THE MAIN LOAD CARRYING MEMBER COMPONENTS SUBJECT TO TENSILE STRESS SHALL CONFORM TO THE SUPPLEMENTAL REQUIREMENTS FOR NOTCH TOUGHNESS ZONE 2. THESE COMPONENTS ARE THE WIDE FLANGE BEAMS AND ALL SPLICE PLATE MATERIAL OF THE WIDE FLANGE BEAMS.

REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 OR M-53 GRADE 60.

LAYOUT OF STONE RIPRAP MAY BE VARIED IN THE FIELD TO SUIT GROUND CONDITIONS AS DIRECTED BY THE ENGINEER.

BEARING SEAT SURFACES SHALL BE CONSTRUCTED OR ADJUSTED TO THE DESIGNATED ELEVATIONS WITHIN A TOLERANCE OF 1/8 INCH. ADJUSTMENT SHALL BE MADE EITHER BY GRINDING THE SURFACE OR BY SHIMMING THE BEARING. TWO 1/8" ADJUSTING SHIMS, OF THE DIMENSIONS OF THE BOTTOM BEARING PLATE, SHALL BE PROVIDED FOR EACH BEARING IN ADDITION TO ALL OTHER PLATES OR SHIMS.

THE CONTRACTOR SHALL DRIVE ONE (1) TEST PILE STEEL HP 10x42 AT EACH ABUTMENT AND ONE (1) TEST PILE STEEL HP10x42 AT BENTS No. 1 FOR E.B. AND W.B. LANES IN A PERMANENT LOCATION AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF PILES.

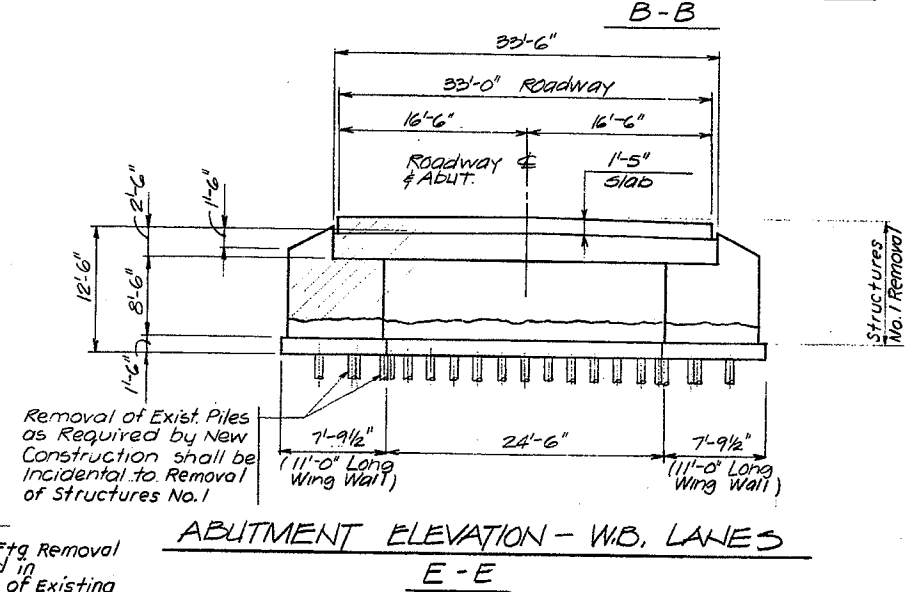
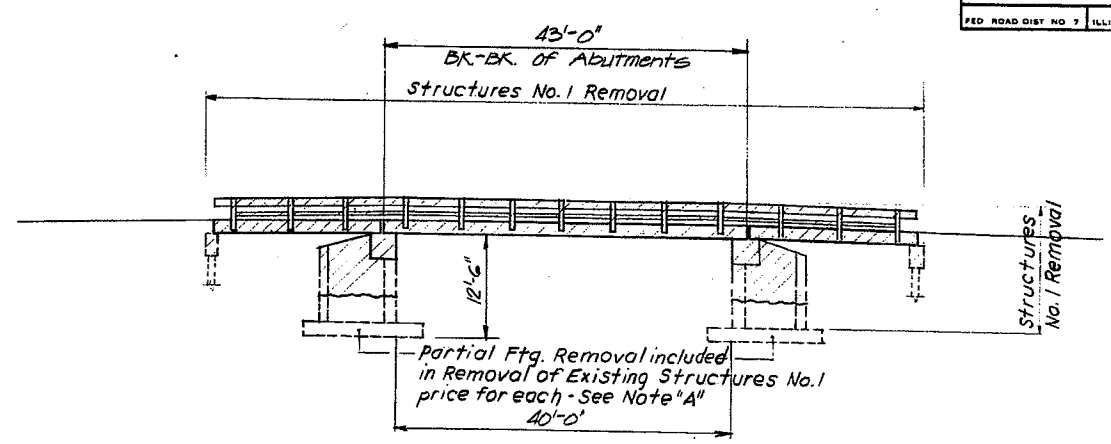
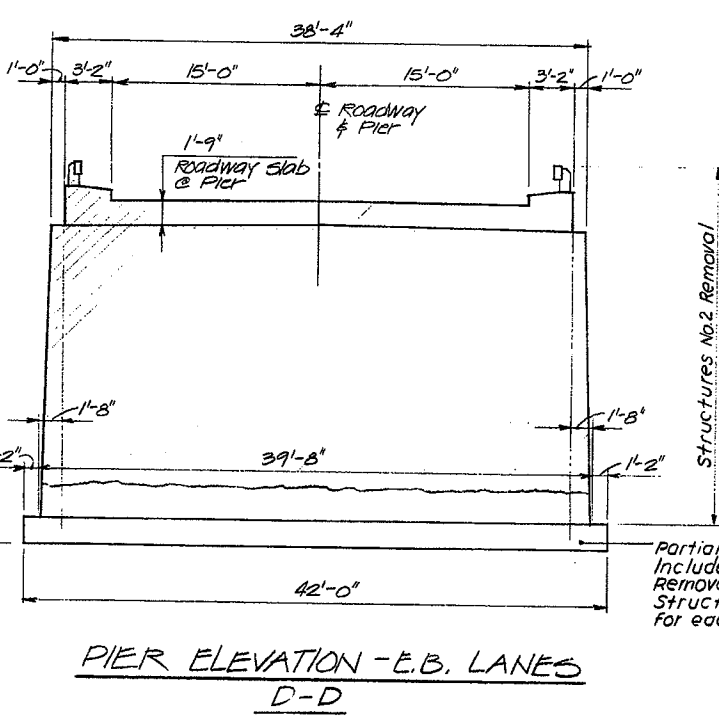
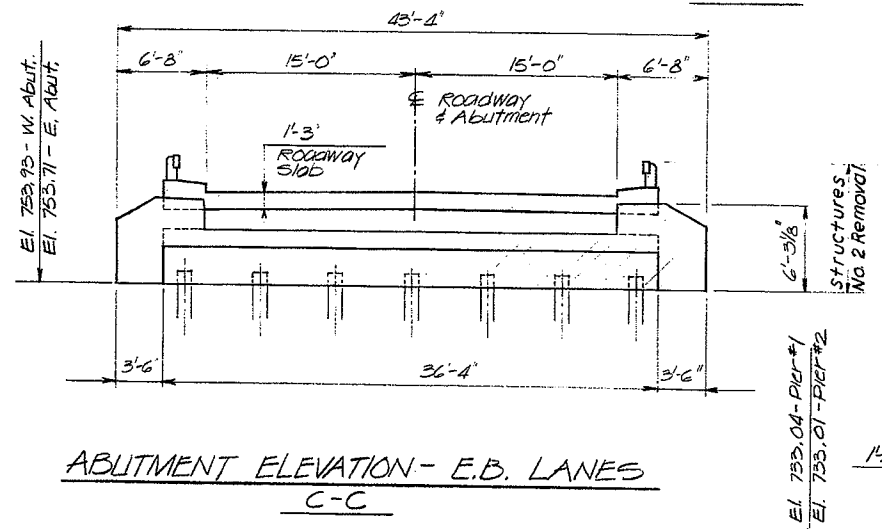
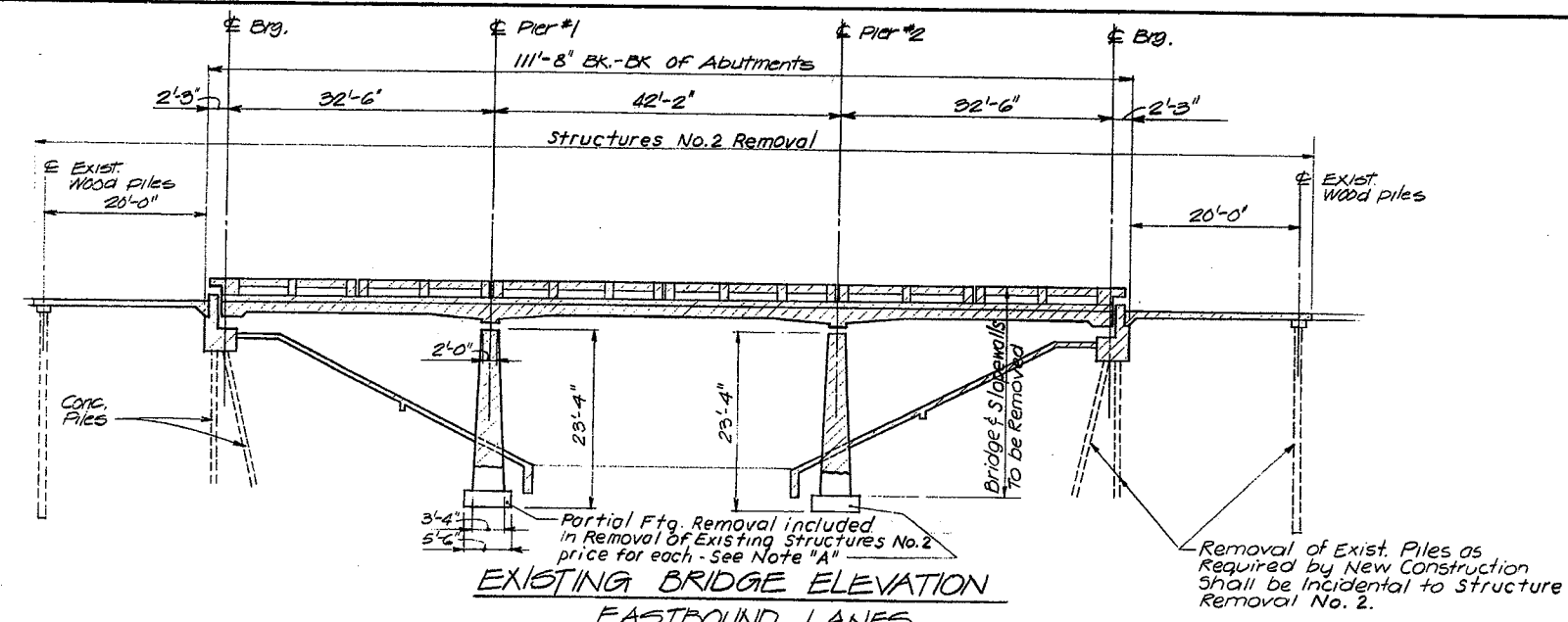
SECTION THRU INTEGRAL ABUTMENTS AND RIP-RAP



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2
TOTAL BILL OF MATERIALS
& SUBSTRUCTURE PLANS
EASTBOUND AND WESTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1039+10.10 EB; STA. 1038+59.74 WB

SCALE: VERT. HORIZ.
DATE



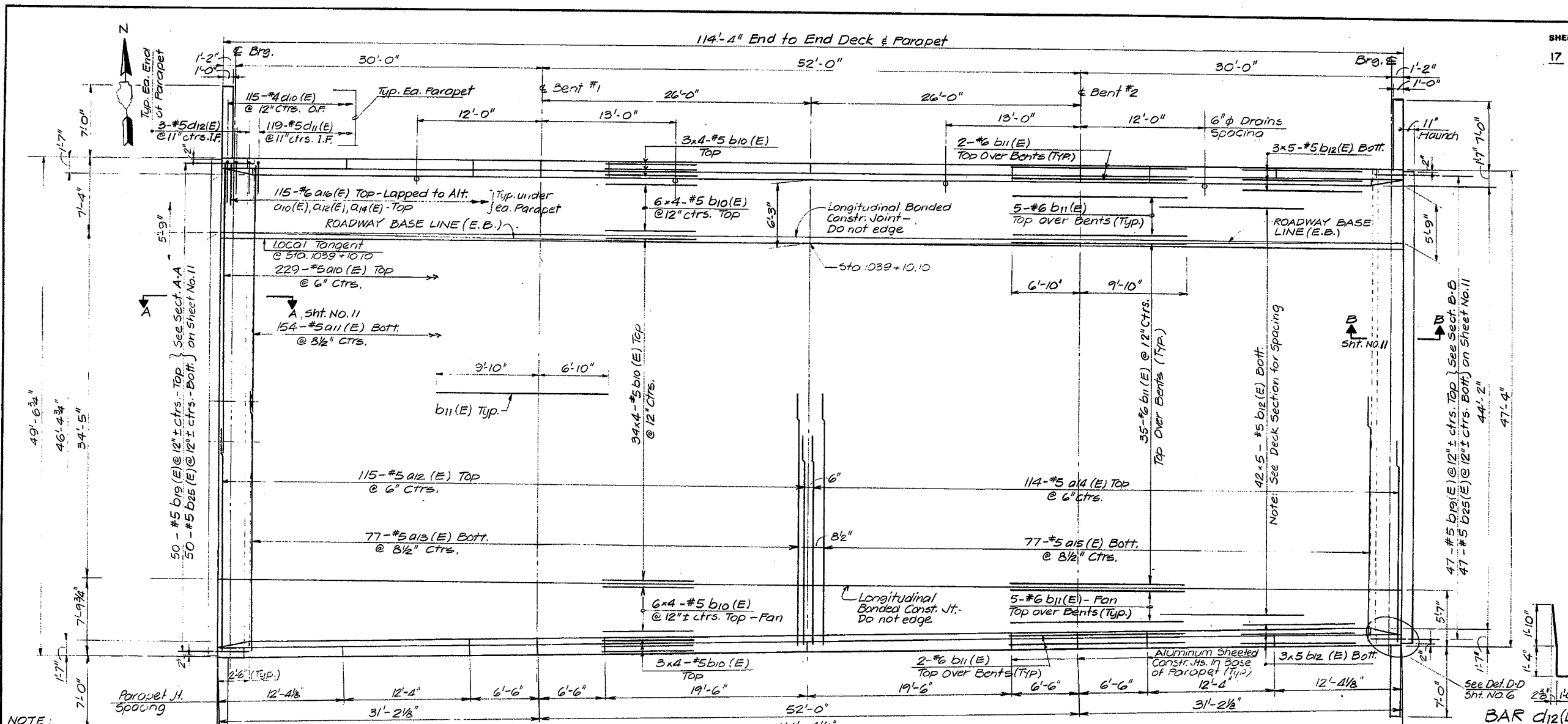
NOTE "A":
Removal of portions of Existing pier footings, as required for installation of new piles, shall be included in Removal of Existing Structures No. 1 or No. 2.

LEGEND
- Structure Removal

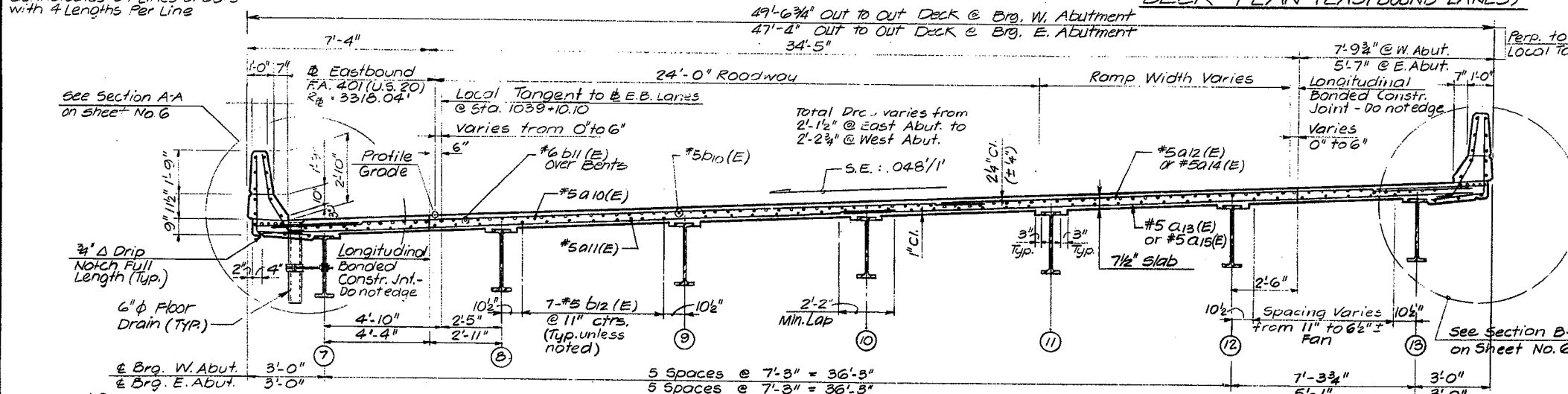
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2
EXISTING BRIDGES TO BE REMOVED
EASTBOUND AND WESTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1039+10.10 EB; STA. 1038+59.74 WB
SCALE: VERT. 1"=10'
HORIZ. 1"=40'

NEW STRUCTURE NO. 089-0059 WESTBOUND
OLD STRUCTURE NO. 089-0011 WESTBOUND
PROPOSED NEW STRUCTURE:
NEW 3 SPAN CONTINUOUS STEEL BEAM BRIDGE STRUCTURE
(30 FT., 52 FT. & 30 FT.) ON REINFORCED CONCRETE
PILE BENT PIERS AND PILE BENT ABUTMENTS.
EXISTING STRUCTURE:
ONE SPAN PRECAST PRESTRESSED CONCRETE STRUCTURE
ON CONCRETE ABUTMENTS, TO BE REMOVED.
ALL MATERIALS NON-SALVAGEABLE.
NEW STRUCTURE NO. 089-0058 EASTBOUND
OLD STRUCTURE NO. 089-0010 EASTBOUND
PROPOSED NEW STRUCTURE:
NEW 3 SPAN CONTINUOUS STEEL BEAM BRIDGE STRUCTURE
(30 FT., 52 FT. & 30 FT.) ON REINFORCED CONCRETE
PILE BENT PIERS AND PILE BENT ABUTMENTS.
EXISTING STRUCTURE:
3 SPAN CONTINUOUS REINFORCED CONCRETE BRIDGE ON
REINFORCED CONCRETE PIERS AND ABUTMENTS.
BUILT IN 1959, TO BE REMOVED.
ALL MATERIALS NON-SALVAGEABLE.



NOTE:
Bars indicated thus 34x4 #5 etc. indicates 34 Lines of Bars with 4 Lengths Per Line



NOTE:
For Location of bars d13(E), h7, h8, h10(E), h11(E), b25(E) and s7(E) - see Sheets No. 10 and No. 11

DECK CROSS SECTION
LOOKING EAST

Min. Lap:
#5 - 2'-2"

BAR	NO.	SIZE	LENGTH	SHAPE
a10(E)	229	#5	28'-10"	—
a11(E)	154	#5	25'-3"	—
a12(E)	115	#5	21'-9"	—
a13(E)	77	#5	25'-4"	—
a14(E)	114	#5	20'-8"	—
a15(E)	77	#5	24'-3"	—
a16(E)	230	#6	4'-0"	—
b10(E)	208	#5	30'-2"	—
b11(E)	98	#6	16'-8"	—
b12(E)	240	#5	24'-7"	—
b13(E)	8	#8	21'-2"	—
b14(E)	16	#8	6'-2"	—
b15(E)	4	#8	24'-4"	—
b16(E)	8	#5	20'-5"	—
b17(E)	16	#5	6'-2"	—
b18(E)	4	#5	24'-4"	—
b19(E)	97	#5	6'-0"	—
b20(E)	4	#5	24'-5"	—
b21(E)	4	#8	24'-4"	—
b25(E)	97	#5	3'-4"	—
d10(E)	230	#4	5'-3"	L
d11(E)	238	#5	3'-11"	L
d12(E)	12	#5	4'-2"	L
d13(E)	96	#4	4'-1"	7
e10(E)	40	#4	12'-0"	—
e11(E)	48	#4	6'-2"	—
e12(E)	24	#4	19'-2"	—
e13(E)	8	#4	12'-1"	—
h7	8	#4	25'-5"	—
h8	8	#4	24'-3"	—
h10(E)	8	#4	25'-5"	—
h11(E)	8	#4	24'-3"	—
s7(E)	94	#4	10'-0"	U

ITEM	UNIT	QUANT.
Class x Concrete	Cu. Yds.	190.4
Reinforcement Bars	Lbs.	270
Reinforcement Bars (Epoxy Coated)	Lbs.	43,060
Floor Drains	EO.	4

Reinforcement Bars Designated (E) shall be Epoxy Coated.

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2
DECK PLAN & SECTION
EASTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1039+10.10

SHEET NO. 5
17 SHEETS

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
401 177-4B-2	STEPHENSON	119	30

REVISIONS	NAME	DATE

SCALE: VERT. HORIZ.

SHEET NO. 7
17 SHEETS

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
401 177-4B-2	STEPHENSON	119	32
STA.	TO STA.		
FED. ROAD DIST. NO. 3	ILLINOIS	FED. AID PROJECT	

INTERIOR BEAM MOMENT TABLE
SYMMETRICAL NON-COMPOSITE 3 SPAN

	4 SPAN 1 OR 6 SPAN 3	BENT 1 or 2	5 SPAN 2
I_s (in ⁴)	4,470	4,470	4,470
S_s (in ³)	299	299	299
Z (in ³)	346	346	346
ϕ (k/i)	0.82	0.82	0.82
$M\phi$ (k)	25.0	-158.6	118.5
$S\phi$ (k/i)	0.29	0.29	0.29
$M_s\phi$ (k)	8.8	-56.0	41.8
M_u (k)	157.2	-203.2	245.7
M_{imp} (k)	47.2	-61.0	83.4
$\phi_s (M_u + I)$ (k)	340.7	-440.3	525.2
M_a (k)	486.9	-851.4	891.2
M_u (k)	1040.0	1040.0	1040.1
$f_s \phi$ (k.s.i.)	1.00	6.37	4.76
$f_{ss} \phi$ (k.s.i.)	0.35	2.25	1.68
$f_s \phi (4+I)$ (k.s.i.)	13.67	17.67	21.08
$f_s (overload)$ (k.s.i.)	15.02	26.29	27.52
$f_s (total)$ (k.s.i.)	19.54	34.17	35.77

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (total and overload)
 Z is the plastic section modulus used to determine the Fully Plastic Moments
 M_a (Applied Moment) = $1.3 [M_D + M_S D + \frac{5}{3} (M_L + I)]$
 M_u is the Full Plastic Moment Capacity for Compact, Braced section.
 f_s (Overload) is the sum of the stresses due to $M_D + M_S D + \frac{5}{3} (M_L + I)$
 f_s (Total) is the sum of the stresses due to $1.3 [M_D + M_S D + \frac{5}{3} (M_L + I)]$

EASTBOUND LANES

TOP OF BEAM ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	BRGS WEST ABUT	BRGS BENT #1	SPLICE	BRGS BENT #2	BRGS EAST ABUT
BEAM					
7	759.06	758.95	758.92	758.80	758.72
8	759.41	759.30	759.27	759.15	759.07
9	759.75	759.65	759.62	759.50	759.42
10	760.10	759.99	759.96	759.85	759.77
11	760.45	760.34	760.31	760.20	760.12
12	760.80	760.69	760.66	760.54	760.46
13	761.15	761.01	760.98	760.82	760.71

NOTE: N.T.R. designates Notch Toughness Requirement. See General Notes.

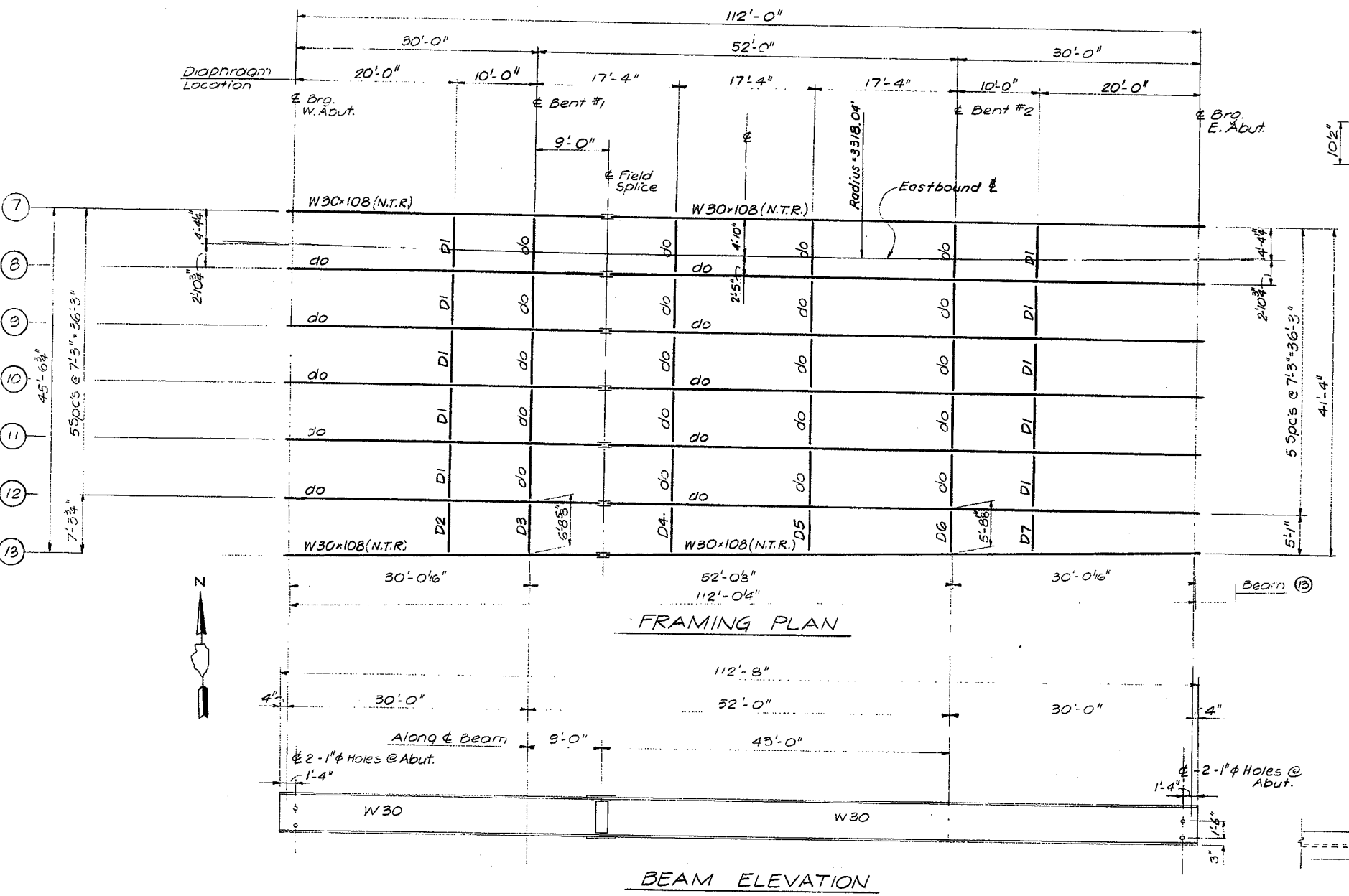
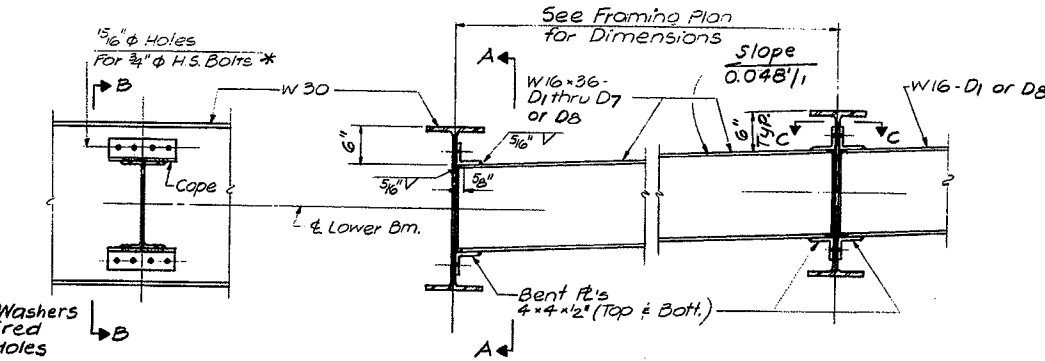
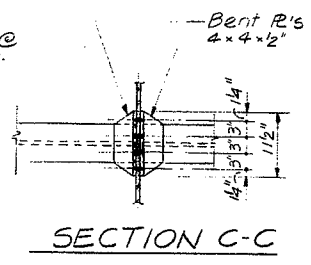
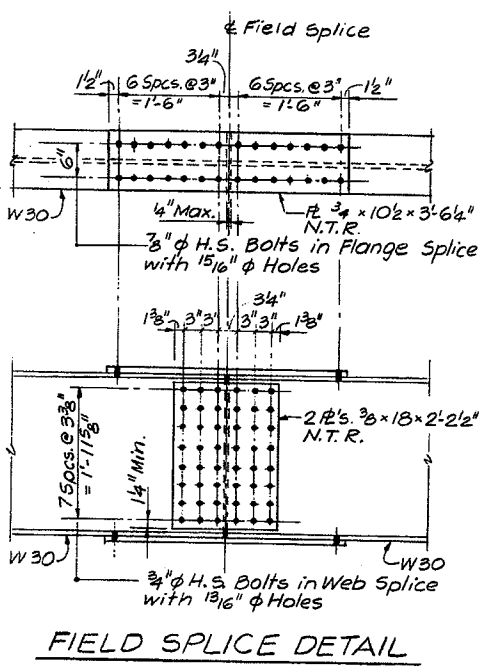
ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2

FRAMING PLAN
EASTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1039+10.10

SCALE: VERT. _____
HORIZ. _____
DATE _____

INTERIOR BEAM REACTION TABLE

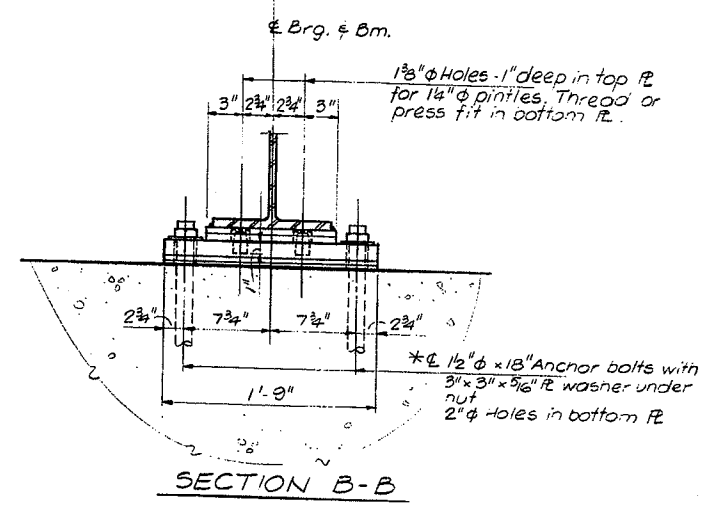
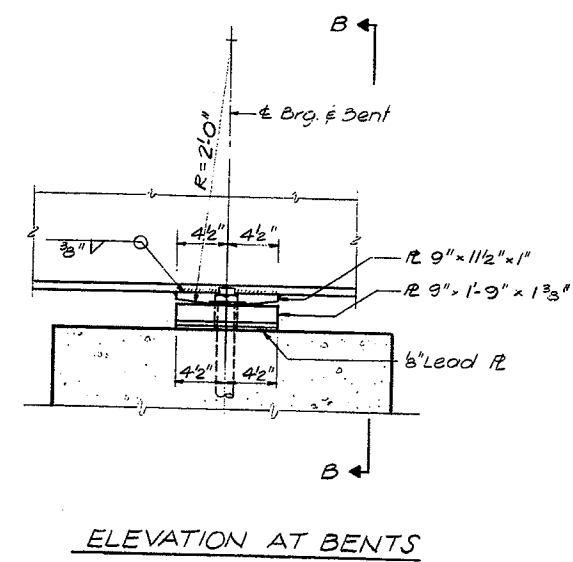
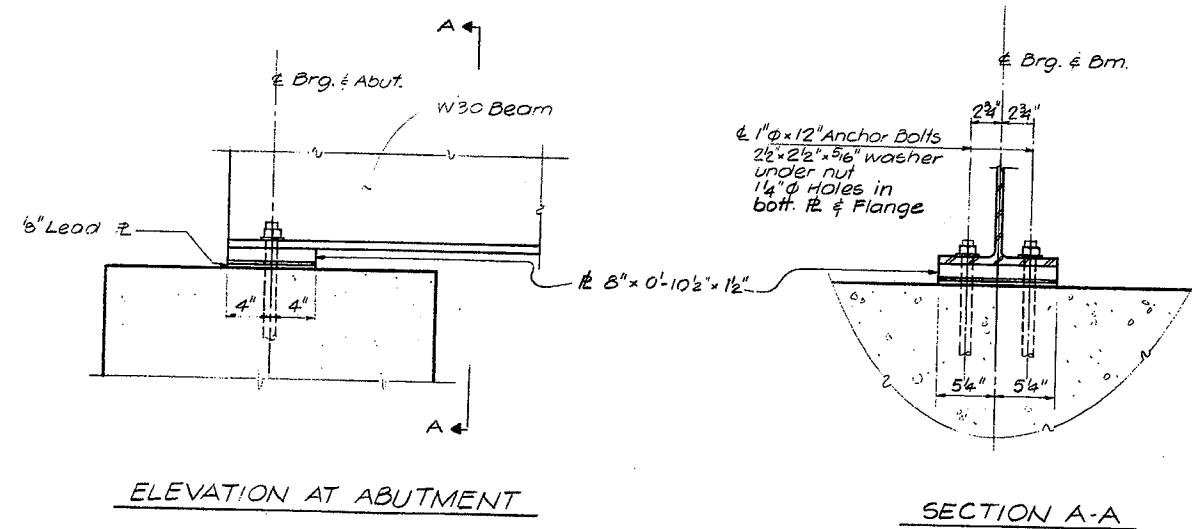
	ABUTMENT	BENT
R_D (k)	9.5	52.4
R_U (k)	31.0	44.3
Imp (k)	9.3	13.3
R_{TOTAL} (k)	49.8	110.0



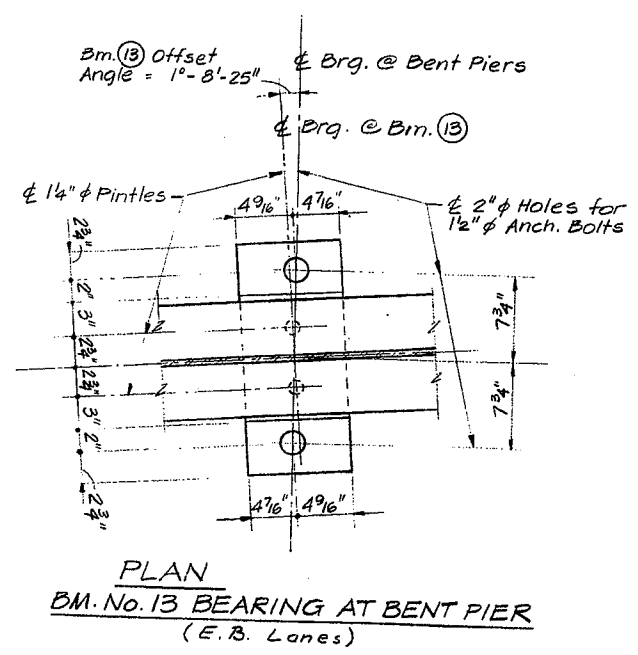
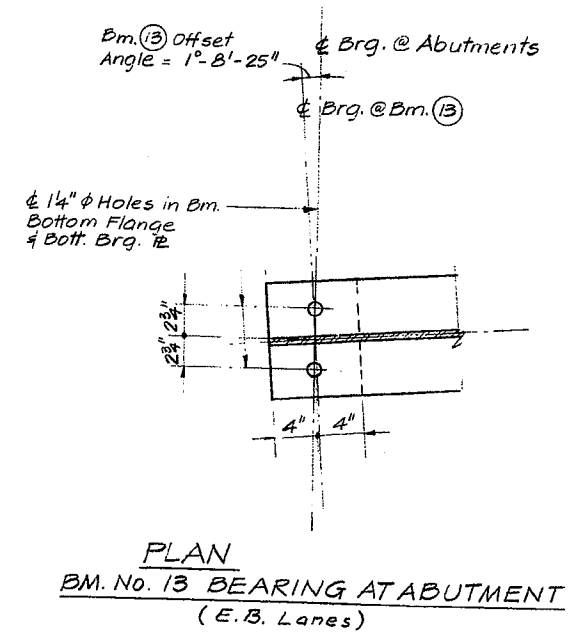
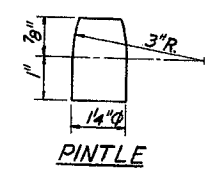
DESIGNED BY J.D.
 CHECKED BY B.C.O.
 DRAWN BY E.B.
 INCHES BY Z.B.

SON OSTRUM BASKIN BERMAN & ASSOC., INC.
 ULTRAFIX ENGINEERS
 PARK RIDGE, ILLINOIS





NOTE: After steel beams have been erected, holes at abutments and one pile bent pier shall be drilled and anchor bolts grouted in place. Anchor bolts at one pile bent pier may be built into the masonry. For anchor bolt installation see sheet 9.



DESIGNED BY: J.D.
CHECKED BY: B.C.O.
DRAWN BY: E.D.
CHECKED BY: E.B.

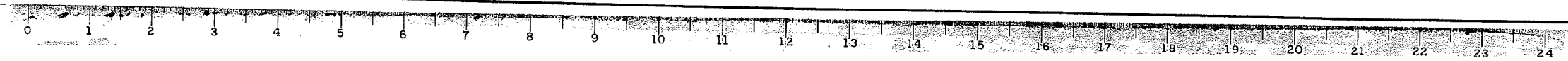
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CONSULTING ENGINEERS
PARK RIDGE, ILLINOIS

REVISIONS	
NAME	DATE

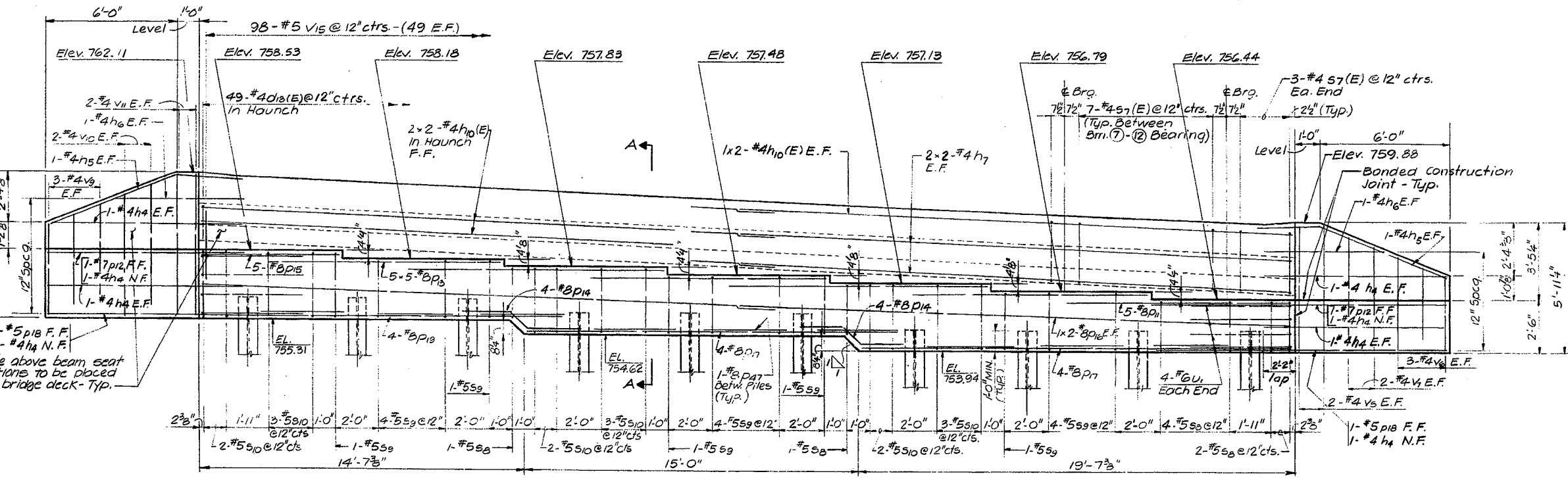
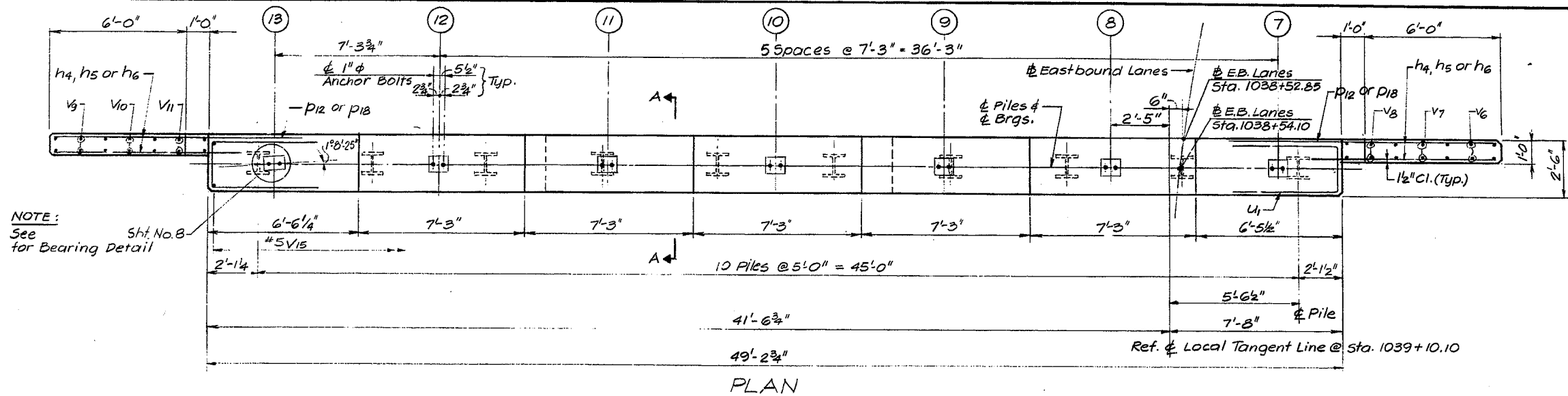
ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2

BEARING DETAILS
EASTBOUND AND WESTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1039 + 10.10 EB; STA. 1038 + 59.74 WB

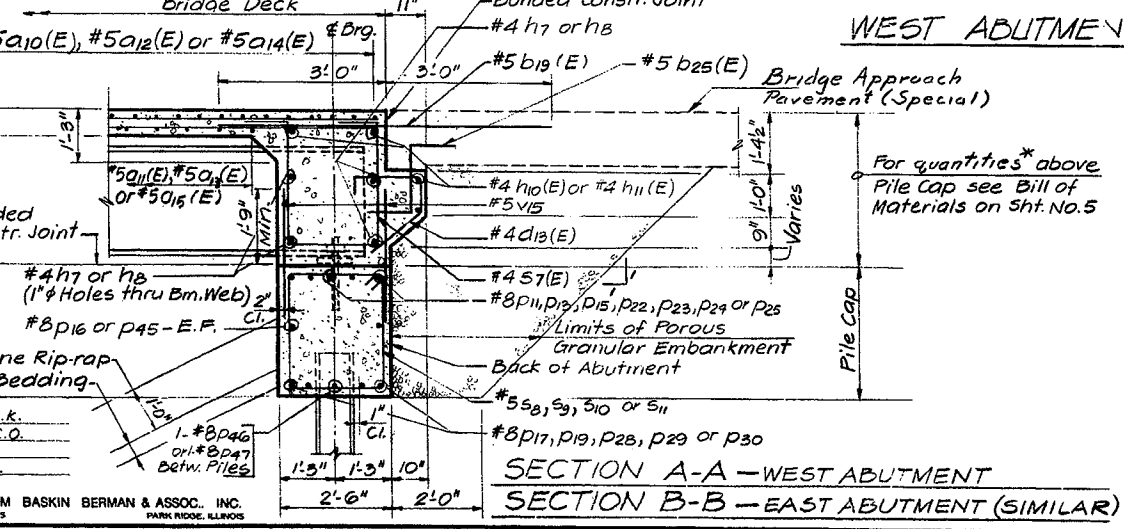
SCALE: VERT. DATE
HORIZ.



SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
401 177-4B-2	STEPHENSON	119	36
TO STA.			
FED. ROAD DIST. NO. 7 ILLINOIS			
FED. AID PROJECT			



BILL OF MATERIAL WEST ABUTMENT				
BAR	NO.	SIZE	LENGTH	SHAPE
h ₄	12	#4	8'-11"	—
h ₅	4	#4	9'-3"	—
h ₆	4	#4	5'-11"	—
p ₁₁	5	#8	9'-9"	—
p ₁₂	2	#7	10'-0"	—
p ₁₃	25	#8	10'-7"	—
p ₁₄	8	#8	6'-3"	—
p ₁₅	5	#8	6'-2"	—
p ₁₆	4	#8	26'-0"	—
p ₁₇	8	#8	19'-3"	—
p ₁₈	2	#5	10'-10"	—
p ₁₉	4	#8	18'-0"	—
p ₄₇	9	#8	4'-6"	—
s ₈	8	#5	9'-6"	□
s ₉	17	#5	10'-2"	□
s ₁₀	15	#5	10'-10"	□
u ₁	8	#6	11'-0"	—
v ₆	6	#4	3'-2"	—
v ₇	4	#4	4'-4"	—
v ₈	4	#4	5'-6"	—
v ₉	6	#4	4'-0"	—
v ₁₀	4	#4	5'-8"	—
v ₁₁	4	#4	6'-5"	—
v ₁₅	98	#5	3'-6"	—
ITEM	UNIT	QUANT.		
Class X Concrete	Cu. Yds.	14.8		
Reinforcement Bars	Lbs.	3220		
Structure Excavation	Cu. Yds.	29		
Porous Granular Embankment	Cu. Yds.	28		
Steel Piles HP 10×42	Lin. Ft.	495		
Test Pile Steel HP 10×42	Each	1		



PILE DATA WEST ABUTMENT	
PILE TYPE	HP 10×42
DESIGN CAPACITY	35 TONS **
NUMBER REQUIRED	10 ***
ESTIMATED LENGTH FT.	55 FT.

*** Includes One Test Pile
** Driven to 56 ton Bearing

NOTE: For pile cap and wingwall reinf. see Bill of Materials on this sheet. Quantities above pile cap between wingwalls see Bill of Materials on Sheet No. 5. Paint top 4'-0" of Steel Piles with zinc rich paint. Asphaltic cement coating is to be applied over the zinc rich paint - cost incidental to Steel Piles.

* Reinforcement Bars & Class X Concrete

MIN. LAPS
#4 = 1'-10"
#7 = 3'-2"
#9 = 4'-0"

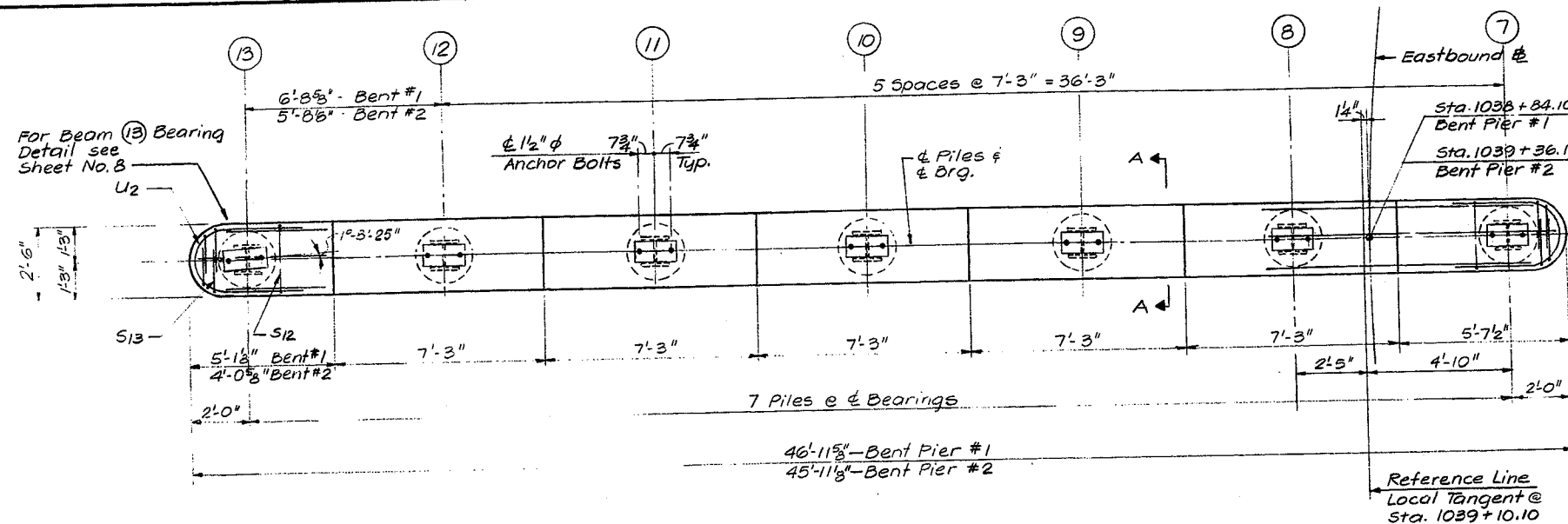
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2
WEST PILE BENT ABUTMENT
EASTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F. A. 401 OVER SILVER CREEK
STA. 1039+10.10
SCALE: VERT. HORIZ. DATE

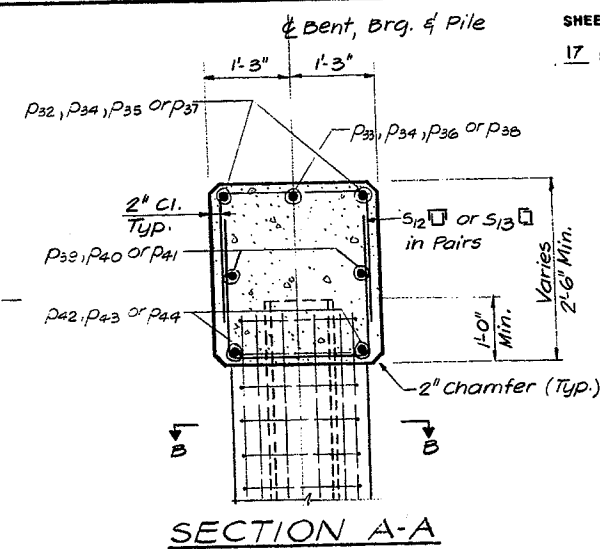
SHEET NO. 12

17 SHEETS

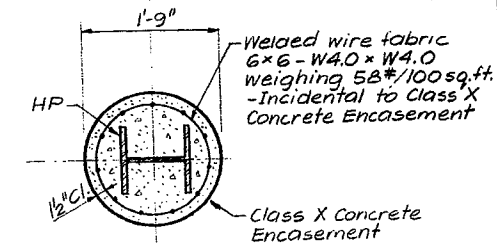
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
401 177-4B-2	STEPHENSON	119	37
STA.	TO STA.		
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT	



PLAN



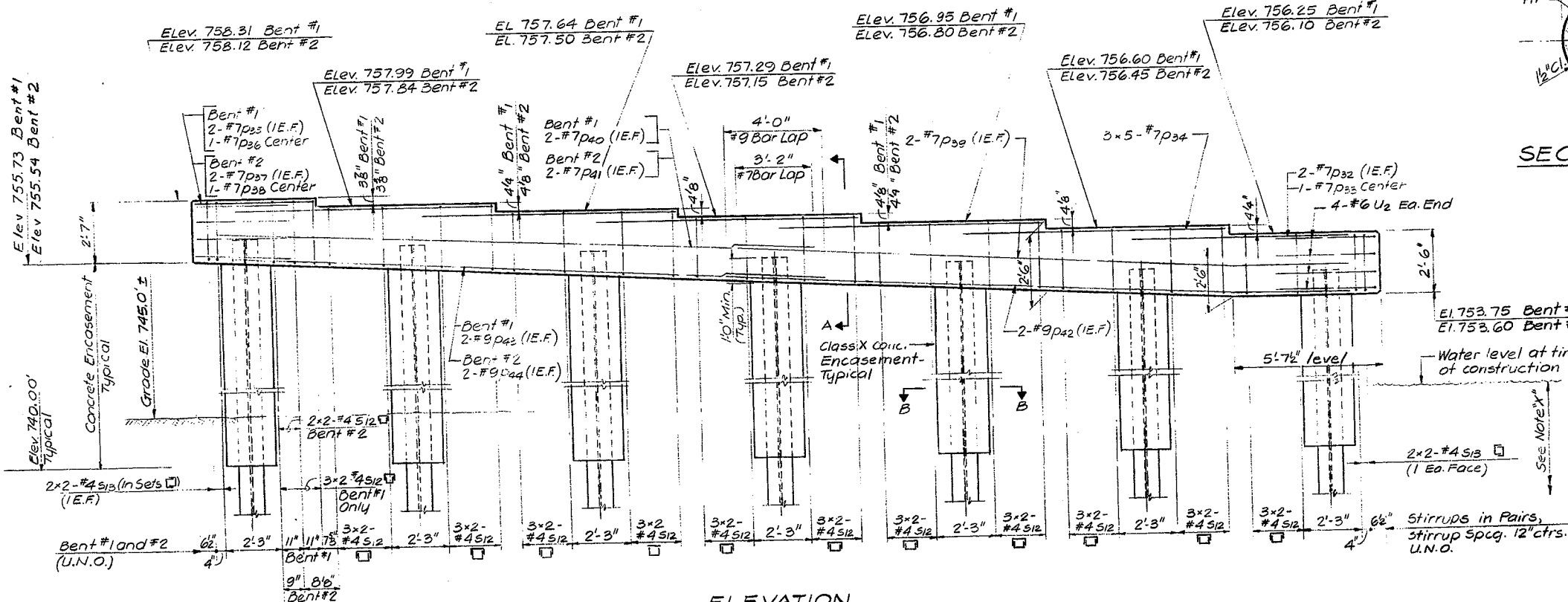
SECTION A-A



SECTION B-B

BAR LIST FOR TWO BENT PIERS				
BAR	NO.	SIZE	LENGTH	SHAPE
P32	4	#7	7'-8"	
P33	2	#7	8'-9"	
P34	30	#7	10'-5"	
P35	2	#7	3'-6"	
P36	1	#7	4'-7"	
P37	2	#7	2'-6"	
P38	1	#7	3'-7"	
P39	4	#7	24'-2"	
P40	2	#7	24'-4"	
P41	2	#7	23'-4"	
P42	4	#9	24'-7"	
P43	2	#9	23'-11"	
P44	2	#9	22'-11"	
S12	142	#4	6'-4"	□
S13	16	#4	5'-0"	□
U2	16	#6	8'-5"	□

QUANTITIES	
FOR BENT PIER #1	
CLASS X CONCRETE	11.3 Cu.Yds.
REINFORCEMENT BARS	1350 Lbs.
CLASS X CONC. ENCASUREMENT	12 Cu.Yds.
STEEL PILES HP 10x42	450 Lin. Ft.
TEST PILE STEEL HP 10x42	1 Each
FOR BENT PIER #2	
CLASS X CONCRETE	11.1 Cu.Yds.
REINFORCEMENT BARS	1330 Lbs.
CLASS X CONC. ENCASUREMENT	11 Cu.Yds.
STEEL PILES HP 10x42	525 Lin. Ft.



ELEVATION

NOTE "X":

The Contractor shall use tremie when placing concrete below water level.

NOTE:

Stirrups designated thus: 3x2-#4 S12 indicates 2 stirrup bars #4 S12 in each of 3 pairs.

PILE DATA

	BENT #1	BENT #2
PILE TYPE	HP 10x42	
DESIGN CAPACITY	55 TONS **	
NUMBER REQUIRED	7 *	7
ESTIMATED LENGTH FT	75	75

* Includes One Test Pile (Bent No.1 Only)
** Driven to refusal

REVISIONS

NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2

PILE BENT PIERS
EASTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1039+10.10

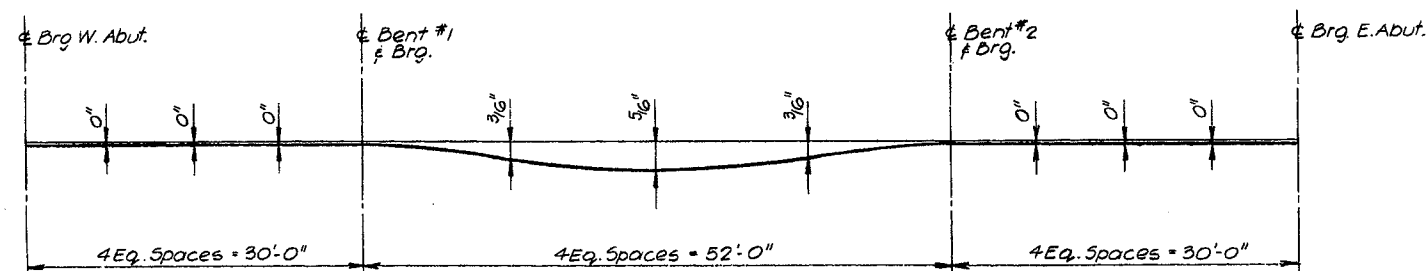
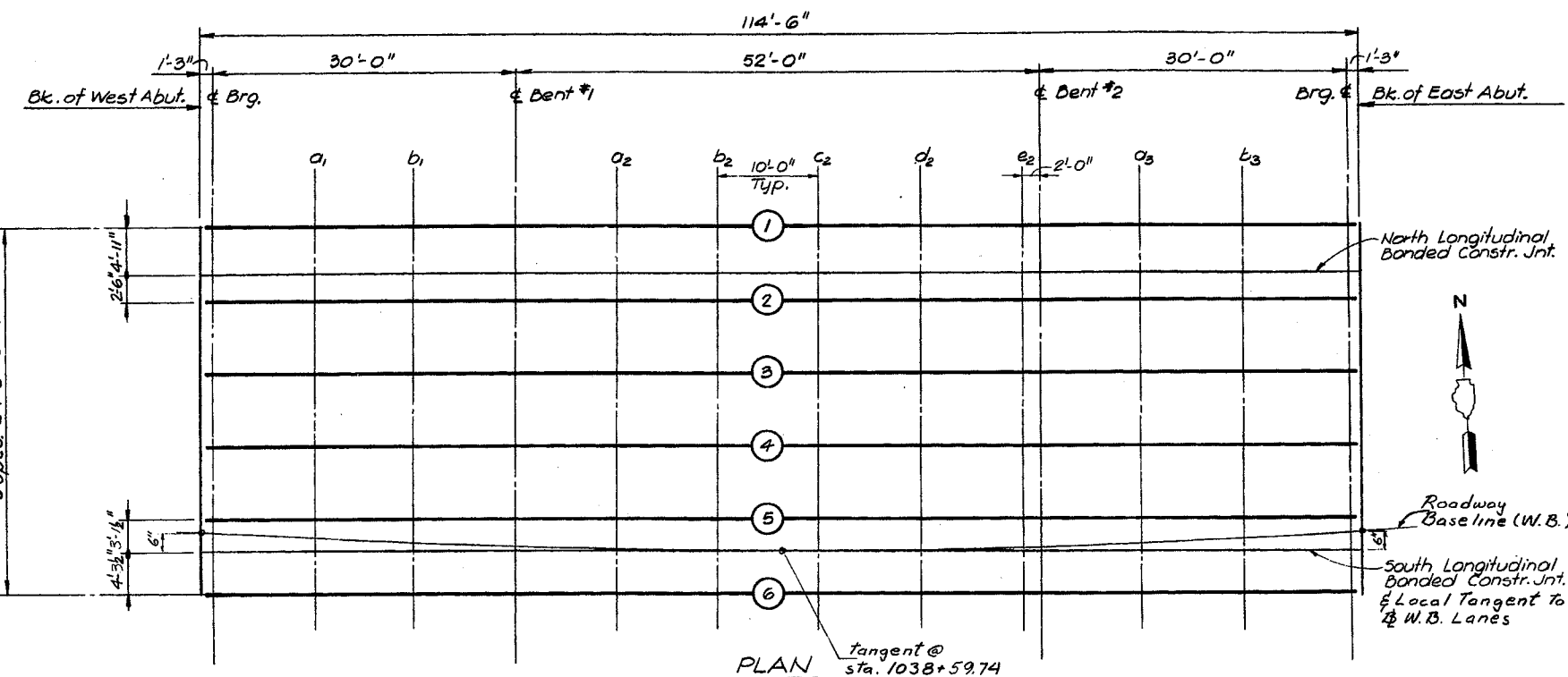
SCALE: VERT.
HORIZ.

DATE

DESIGNED BY J.D.
CHECKED BY Z.B.
DRAWN BY E.B.
CHECKED BY S.C.O.

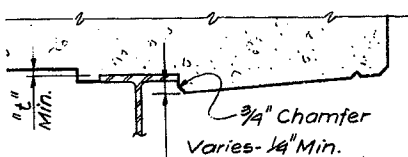
NELSON OSTRUM BASKIN BERMAN & ASSOC., INC.
CONSULTING ENGINEERS
PARK RIDGE, ILLINOIS

F.A. DIST.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
401	177-4B-2	STEPHENSON	119	38
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT

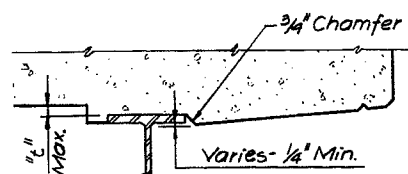


NOTE: The above deflections are not to be used in the field if the engineer is working from grade elevations adjusted for dead load deflections as shown on top slab elevations.

DEAD LOAD DEFLECTION DIAGRAM



EXTERIOR BEAM
AT MINIMUM FILLET



EXTERIOR BEAM
AT MAXIMUM FILLET

FILLET DETAILS

METHOD OF DETERMINING FILLET HEIGHTS "L":
After structural steel has been erected, elevation of the top flanges of the girders shall be taken at the points shown on this sheet. These elevations subtracted from the tabulated "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on this sheet, minus floor thickness equals the fillet heights above top flange of beams.

BEAM NO. 1					N. LONG. BONDED CONSTR. JNT.				
LOCATION	STATION	OFFSET	ELEV.	ADJ. ELEV.	LOCATION	STATION	OFFSET	ELEV.	ADJ. ELEV.
BK. W. ABUT.	103801.916	-32.286	760.356	760.356	BK. W. ABUT.	103802.004	-27.370	760.591	760.591
BRG. W. ABUT.	103803.179	-32.307	760.352	760.352	BRG. W. ABUT.	103803.264	-27.392	760.588	760.588
a1	103813.277	-32.465	760.322	760.322	a1	103813.348	-27.549	760.558	760.558
b1	103823.377	-32.591	760.294	760.294	b1	103823.432	-27.675	760.530	760.530
BENT 1	103833.477	-32.687	760.267	760.267	BENT 1	103833.517	-27.770	760.503	760.503
a2	103843.578	-32.752	760.242	760.254	a2	103843.602	-27.835	760.477	760.490
b2	103853.679	-32.786	760.218	760.239	b2	103853.688	-27.869	760.454	760.475
c2	103863.780	-32.789	760.195	760.218	c2	103863.774	-27.872	760.431	760.454
d2	103873.881	-32.761	760.174	760.185	d2	103873.860	-27.844	760.410	760.425
e2	103883.982	-32.702	760.155	760.157	e2	103883.945	-27.786	760.391	760.393
BENT 2	103886.002	-32.687	760.151	760.151	BENT 2	103885.962	-27.770	760.387	760.387
a3	103896.102	-32.591	760.134	760.134	a3	103896.047	-27.675	760.370	760.370
b3	103906.202	-32.465	760.118	760.118	b3	103906.131	-27.549	760.354	760.354
BRG. E. ABUT.	103916.300	-32.307	760.103	760.103	BRG. E. ABUT.	103916.215	-27.392	760.339	760.339
BK. E. ABUT.	103917.563	-32.286	760.101	760.101	BK. E. ABUT.	103917.475	-27.370	760.337	760.337

BEAM NO. 2					BEAM NO. 3				
LOCATION	STATION	OFFSET	ELEV.	ADJ. ELEV.	LOCATION	STATION	OFFSET	ELEV.	ADJ. ELEV.
BK. W. ABUT.	103802.048	-24.870	760.711	760.711	BK. W. ABUT.	103802.180	-17.455	761.067	761.067
BRG. W. ABUT.	103803.308	-24.892	760.707	760.707	BRG. W. ABUT.	103803.436	-17.476	761.063	761.063
a1	103813.383	-25.049	760.678	760.678	a1	103813.489	-17.633	761.033	761.033
b1	103823.460	-25.175	760.649	760.649	b1	103823.543	-17.759	761.005	761.005
BENT 1	103833.537	-25.270	760.623	760.623	BENT 1	103833.597	-17.854	760.979	760.979
a2	103843.615	-25.335	760.597	760.609	a2	103843.652	-17.918	760.953	760.965
b2	103853.693	-25.369	760.574	760.595	b2	103853.707	-17.952	760.930	760.951
c2	103863.771	-25.372	760.551	760.574	c2	103863.762	-17.955	760.907	760.930
d2	103873.849	-25.344	760.530	760.545	d2	103873.817	-17.928	760.887	760.901
e2	103883.927	-25.286	760.511	760.514	e2	103883.871	-17.869	760.867	760.870
BENT 2	103885.942	-25.270	760.507	760.507	BENT 2	103885.882	-17.854	760.864	760.864
a3	103896.019	-25.175	760.490	760.490	a3	103895.937	-17.759	760.846	760.846
b3	103906.096	-25.049	760.474	760.474	b3	103905.990	-17.693	760.830	760.830
BRG. E. ABUT.	103916.171	-24.892	760.459	760.459	BRG. E. ABUT.	103916.043	-17.476	760.815	760.815
BK. E. ABUT.	103917.431	-24.870	760.457	760.457	BK. E. ABUT.	103917.299	-17.455	760.814	760.814

BEAM NO. 4					BEAM NO. 5				
LOCATION	STATION	OFFSET	ELEV.	ADJ. ELEV.	LOCATION	STATION	OFFSET	ELEV.	ADJ. ELEV.
BK. W. ABUT.	103802.311	-10.039	761.423	761.423	BK. W. ABUT.	103802.441	-2.623	761.778	761.778
BRG. W. ABUT.	103803.564	-10.061	761.419	761.419	BRG. W. ABUT.	103803.692	-2.645	761.774	761.774
a1	103813.594	-10.217	761.389	761.389	a1	103813.699	-2.801	761.745	761.745
b1	103823.625	-10.343	761.361	761.361	b1	103823.707	-2.926	761.717	761.717
BENT 1	103833.656	-10.438	761.334	761.334	BENT 1	103833.715	-3.021	761.690	761.690
a2	103843.688	-10.502	761.309	761.321	a2	103843.724	-3.085	761.665	761.677
b2	103853.720	-10.536	761.286	761.307	b2	103853.734	-3.119	761.642	761.663
c2	103863.752	-10.539	761.263	761.286	c2	103863.743	-3.122	761.619	761.642
d2	103873.785	-10.511	761.243	761.257	d2	103873.753	-3.094	761.599	761.613
e2	103883.817	-10.453	761.223	761.226	e2	103883.762	-3.036	761.579	761.582
BENT 2	103885.823	-10.438	761.220	761.220	BENT 2	103885.764	-3.021	761.576	761.576
a3	103895.854	-10.343	761.202	761.202	a3	103895.772	-2.926	761.558	761.558
b3	103905.885	-10.217	761.186	761.186	b3	103905.780	-2.801	761.542	761.542
BRG. E. ABUT.	103915.915	-10.061	761.172	761.172	BRG. E. ABUT.	103915.788	-2.645	761.528	761.528
BK. E. ABUT.	103917.169	-10.039	761.170	761.170	BK. E. ABUT.	103917.038	-2.623	761.526	761.526

S. LONG. BONDED CONSTR. JNT.					BEAM NO. 6				
LOCATION	STATION	OFFSET	ELEV.	ADJ. ELEV.	LOCATION	STATION	OFFSET	ELEV.	ADJ. ELEV.
BK. W. ABUT.	103802.495	0.500	761.928	761.928	BK. W. ABUT.	103802.570	4.791	762.134	762.134
BRG. W. ABUT.	103803.745	0.478	761.924	761.924	BRG. W. ABUT.	103803.818	4.770	762.130	762.130
a1	103813.743	0.323	761.895	761.895	a1	103813.803	4.614	762.101	762.101
b1	103823.741	0.198	761.867	761.867	b1	103823.788	4.489	762.073	762.073
BENT 1	103833.740	0.103	761.840	761.840	BENT 1	103833.774	4.394	762.046	762.046
a2	103843.740	0.039	761.815	761.827	a2	103843.761	4.330	762.021	762.033
b2	103853.740	0.005	761.792	761.813	b2	103853.747	4.297	762.000	762.019
c2	103863.740	0.002	761.769	761.792	c2	103863.734	4.294	761.975	761.998
d2	103873.739	0.030	761.749	761.763	d2	103873.721	4.321	761.955	761.969
e2	103883.739	0.088	761.730	761.732	e2	103883.708	4.379	761.936	761.938
BENT 2	103885.739	0.103	761.726	761.726	BENT 2	103885.705	4.394	761.932	761.932
a3	103895.738	0.198	761.708	761.708	a3	103895.691	4.489	761.914	761.914
b3	103905.737	0.323	761.692	761.692	b3	103905.676	4.614	761.899	761.899
BRG. E. ABUT.	103915.734	0.478	761.678	761.678	BRG. E. ABUT.	103915.661	4.770	761.884	761.884
BK. E. ABUT.	103916.984	0.500	761.676	761.676	BK. E. ABUT.	103916.909	4.791	761.882	761.882

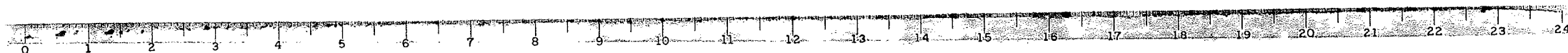
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2

DECK ELEVATIONS
WESTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1038+59.74

SCALE: VERT.
HORIZ.

DATE



SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
177-4B-2	STEPHENSON	119	43
TO STA.			
FED. ROAD DIST. NO. 7 ILLINOIS			
FED. AID PROJECT			

EASTBOUND APPROACH SLABS				
BILL OF MATERIAL				
BAR	NO.	SIZE	LENGTH	SHAPE
A	24	#9	31'-4"	U
A ₁	115	#9	28'-10"	U
A ₂	119	#4	29'-8"	—
A ₃	68	#5	3'-6"	—
B	160	#5	11'-8"	—
B ₁	32	#4	11'-8"	—
B ₂	40	#5	7'-10"	—
B ₃	8	#4	7'-10"	—
B ₄	40	#5	10'-8"	—
B ₅	8	#4	10'-8"	—
B ₇	10	#5	16'-8"	—
B ₈	10	#5	18'-5"	—
ITEM	UNIT	QUANT.		
Reinforcement Bars	Lbs.	19,870		
Bridge Approach Pavement (Special)	Sq. Yds.	222		
Class X Concrete	Cu. Yds.	9.9 *		

WESTBOUND APPROACH SLABS				
BILL OF MATERIAL				
BAR	NO.	SIZE	LENGTH	SHAPE
A	24	#9	31'-4"	U
A ₁	80	#9	28'-10"	U
A ₂	84	#4	29'-8"	—
A ₃	50	#5	3'-6"	—
B	160	#5	11'-8"	—
B ₁	32	#4	11'-8"	—
B ₆	20	#5	12'-11"	—
ITEM	UNIT	QUANT.		
Reinforcement Bars	Lbs.	14,710		
Bridge Approach Pavement (Special)	Sq. Yds.	160		
Class X Concrete	Cu. Yds.	7.1 *		

* - Support Slabs

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 2

BRIDGE APPROACH PAVEMENT
EASTBOUND AND WESTBOUND LANES
STEPHENSON COUNTY, SECTION 177-4B-2
F.A. 401 OVER SILVER CREEK
STA. 1039+10.10 EB; STA. 1038+59.74 WB

SCALE: VERT. _____
HORIZ. _____ DATE _____

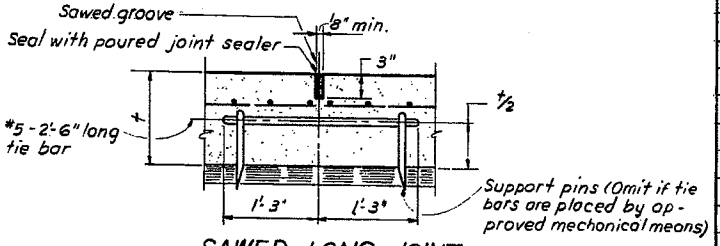
REVISIONS	
NAME	DATE

5/8" steel tie bars at 2'-6" cts.
Keyed long. const. jt. in accordance with details shown on Standard 2323.

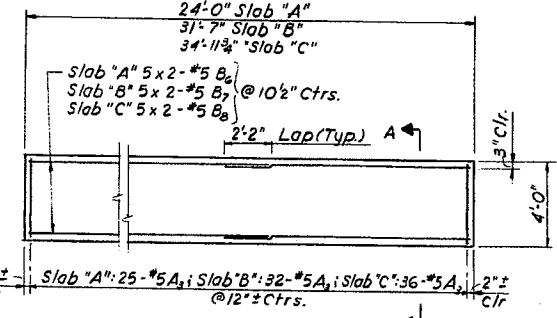


OPTIONAL LONG CONST. JOINT

As approved by the Engineer, the contractor may elect to reduce the widths by use of the Optional Longitudinal Construction Joint shown. Joint shall be located at the edge of Traffic Lane.



SAWED LONG JOINT



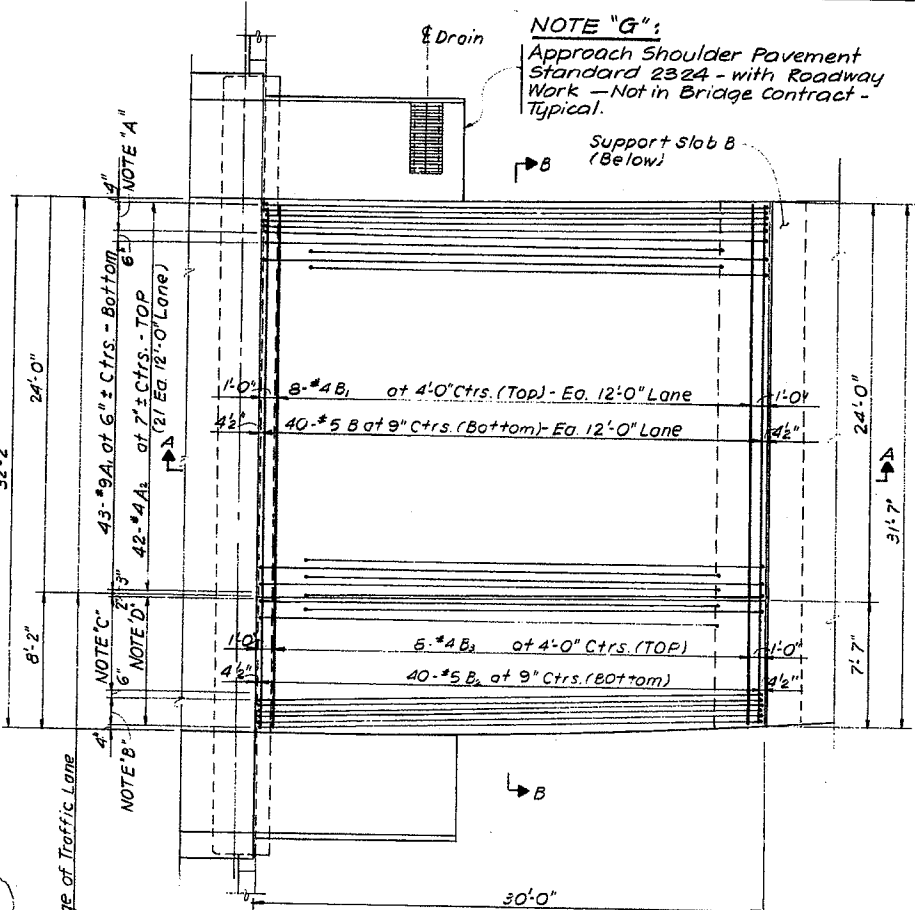
PLAN
BRIDGE APPROACH PAVEMENT
SUPPORT SLAB
(See Plans for Location)

NOTE 'A': 6-#9A at 4" Ctrs. - Bott.
NOTE 'B': Fan 6-#9A at 4" Ctrs. - Bott.
NOTE 'C': 11-#9A₁ at 6"± Ctrs. - Bott.
NOTE 'D': Fan 15-#4A₂ at 7"± Ctrs. - Top
NOTE 'E': 18-#9A₁ at 6"± Ctrs. - Bott.
NOTE 'F': Fan 20-#4A₂ at 7"± Ctrs. - Top

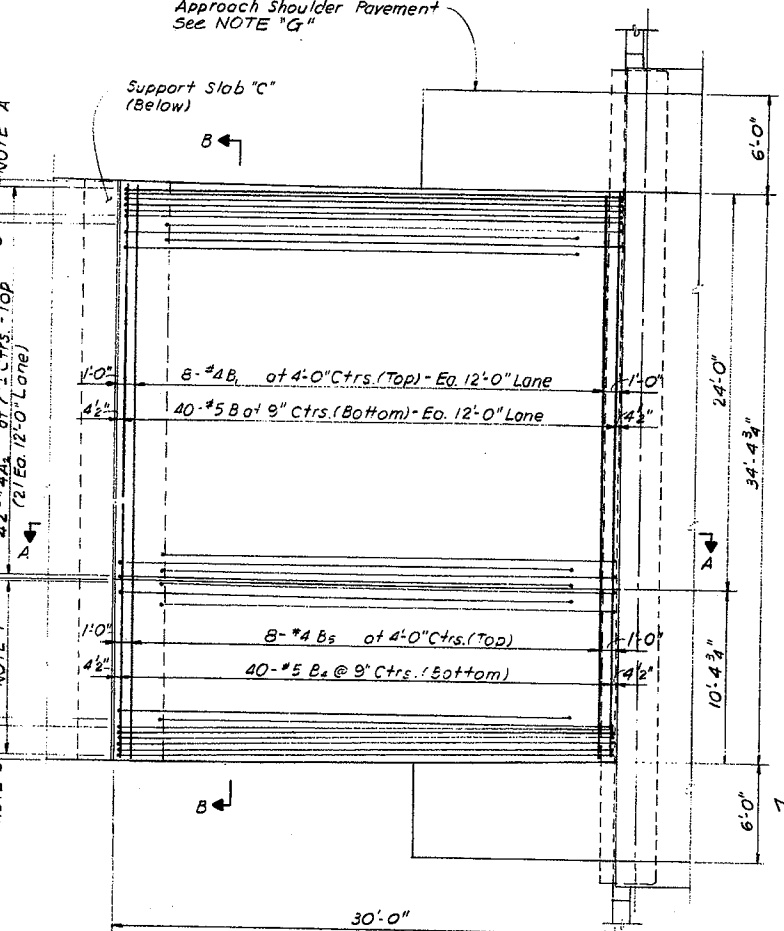
BAR	NO.	SIZE	LENGTH	SHAPE
A	1'-1"		29'-2"	1'-1"
A ₁	1'-1"		26'-8"	1'-1"

BARS A & A₁

NOTE 'G':
Approach Shoulder Pavement Standard 2324 - with Roadway Work - Not in Bridge Contract - Typical.

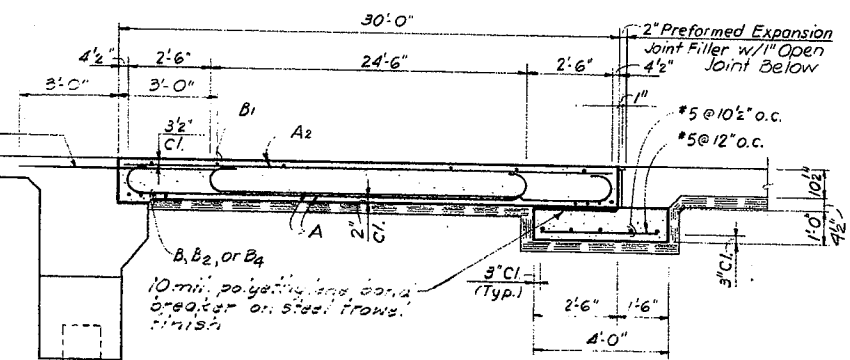


PLAN OF BRIDGE APPROACH AT EAST ABUTMENT

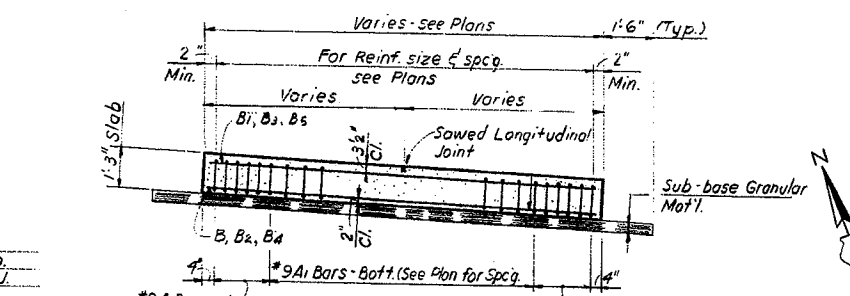


PLAN OF BRIDGE APPROACH AT WEST ABUTMENT

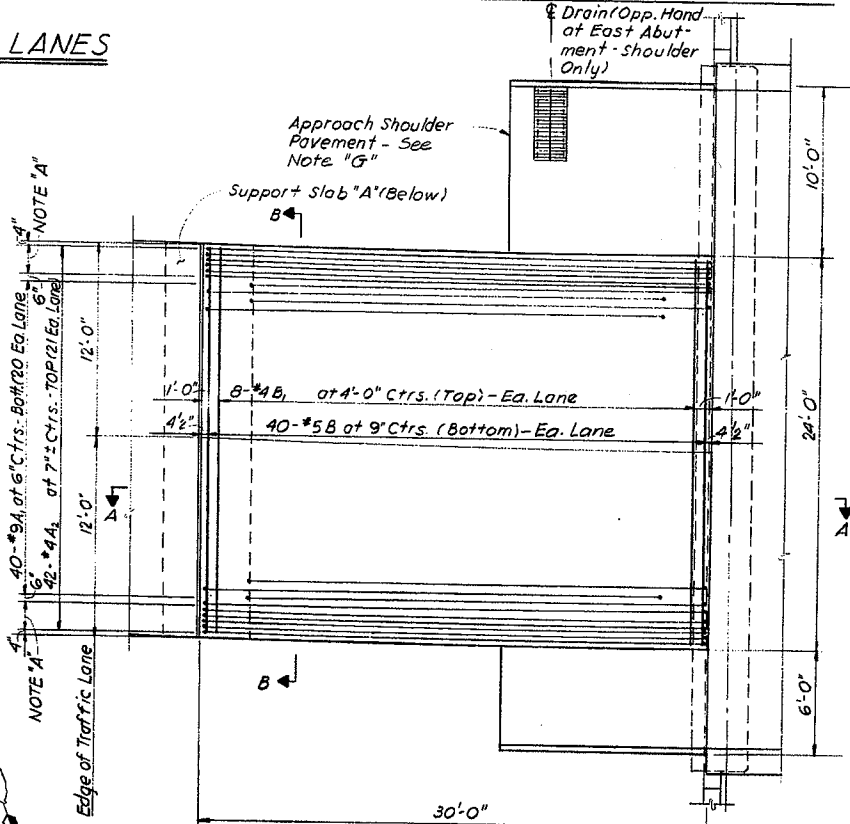
EASTBOUND LANES



SECTION A-A



SECTION B-B



PLAN OF APPROACH SLAB - WESTBOUND LANES

Slab at West Abutment as shown - Slab at East Abutment Opposite Hand

DESIGNED BY J.D.
CHECKED BY B.C.O.
DRAWN BY J.B.M.
CHECKED BY Z.B.

NELSON OSTROM BASKIN BERMAN & ASSOC., INC.
CONSULTING ENGINEERS
PARK RIDGE, ILLINOIS