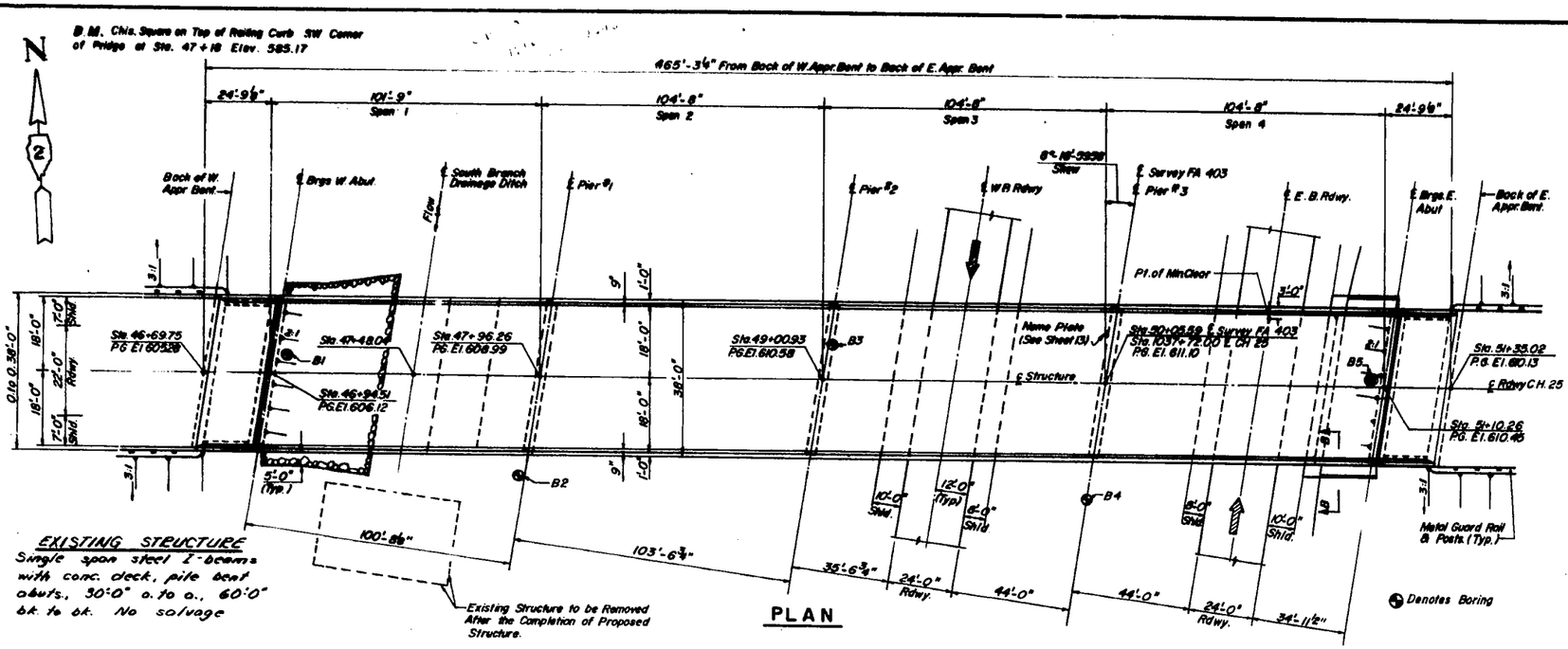
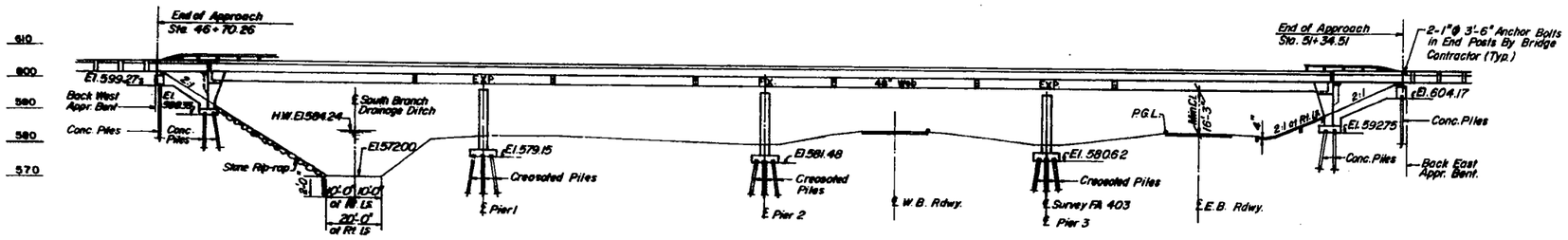
098 0055

COUNTY CODE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
D.A.H.	195-1	WHITESIDE	248	249
D.A. 403	HB-1			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SHEET NO. 1
19 SHEETS



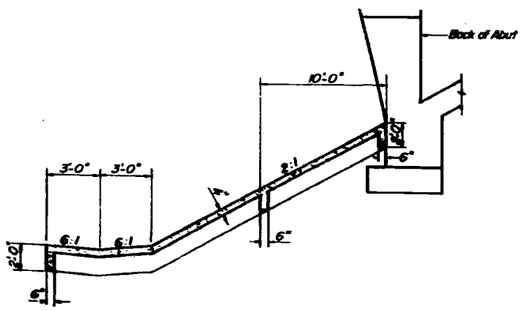
EXISTING STRUCTURE
Single span steel I-beams with conc. deck, pile bent abuts., 30'-0" c. to c., 60'-0" bk. to bk. No salvage



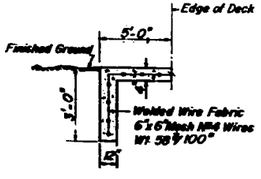
ELEVATION

WATERWAY DATA

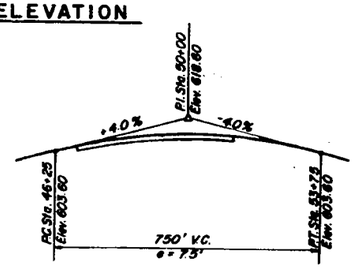
Drainage Area ---------- 12240 Acres
Character ---------- Level
Required Opening ------- 511 Sq. Ft.
Bottom of Channel Elev. --- 572.0
Q 50 ---------- 2350 Cfs.
Proposed Opening ------- 545 Sq. Ft.



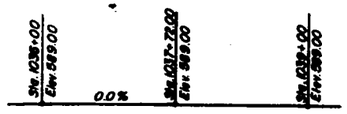
SECTION THRU SLOPEWALL AT EAST ABUTMENT



SECTION B-B



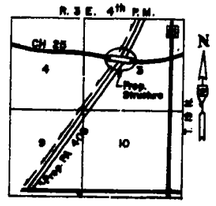
PROFILE CH 25
(Top of Class 1)



PROFILE FA 403 ALONG L SURVEY

STATION 50+05.59
BUILT 197 BY
STATE OF ILLINOIS
FART 403 SEC. 195-1 HB-1
FA PROJ
LOADING H S 20

NAME PLATE
(See Standard 2113)



LOCATION MAP

GENERAL NOTES:

All reinforcement bars shall be lapped 24 diameters unless otherwise shown.

Field connections shall be bolted using high strength bolts. Bolts 7/8"ø, open holes 15/16" ø, unless otherwise noted.

The basic lead silico chromate paint system shall be used for shop & field painting of Structural Steel.

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

Ancho. . .its shall be set before bolting diaphragms over supports.

Slope Wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 58# per 100 sq. ft.

The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

The Contractor shall drive two concrete test piles at each abutment, and one timber test pile at pier No. 2 in permanent locations as directed by the Engineer before ordering the remainder of the piles.

The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.

Protective Coat shall not be applied to surfaces to which Water Proofing Membrane System is applied.

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 6" adjusted shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in additional to all other plates of shims.

The main load carrying member components subject to the Supplemental Requirements for Notch Toughness are the flanges, webs, and splice plates of the steel girders.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER STRUCT.	SUB STRUCT.	TOTAL
Structure Excavation	Cu. Yd.	—	490	490
Removal of Existing Structure	Each			1
Protective Coat	Sq. Yd	330.0	—	330.0
Class X Concrete	Cu. Yd	568.5	373.0	941.5
Structural Steel	L. Sum	L.S.	—	L.S.
Aluminum Railing	Lin. Ft	927	—	927
Reinforcement Bars	Pound	131,830	58,860	190,690
Concrete Piles	Lin. Ft.	—	2894	2894
Test Pile Concrete	Each	—	2	2
Creosoted Piles (20.1 to 38)	Lin. Ft.	—	1216	1876
Test Pile Timber	Each	—	1	1
Neoprene Expansion Joint (4")	Lin. Ft.	77	—	77
Name Plates	Each	—	1	1
Slope Wall 4"	Sq. Yd.	—	240	240
Water-Proofing Membrane System	Sq. Yd.	1777	—	1777
Stud Shear Connectors.	Each	3000	—	3000
Bituminous Conc. Surface Course, Class I	Ton	144	—	144
Sand Backfill	Cu. Yd.	—	286	286
Stone Rip-rap	Sq. Yd.		198	198
Conc. Piles over 38'	Lin. Ft		6440	6440

Calculated Weight of Structural Steel = 463,530 Pounds

NOTES:

DESIGN LOADING
HS 18-44 And Allowance For 25 P.S.F. Future Wearing Surface

DESIGN STRESSES
f_c = 1400 P.S.I. Except As Follows
f_c = 1200 P.S.I. For Deck Slab
f_c = 1000 P.S.I. For Conc. in Contact With Earth
f_s = 20,000 P.S.I. - M 183 Structural Steel
f_s = 20,000 P.S.I. Reinforcement Steel
v = 75 P.S.I. - Allowable Shear in Footings
n = 10
Allowable Live Load Deflection = L/1200 (Composite)

DESIGNED	N. Gavlin
CHECKED	K.M. CHANDRATHIL
DRAWN	A. RAFIEE
CHECKED	Kumar K. Chandrathil

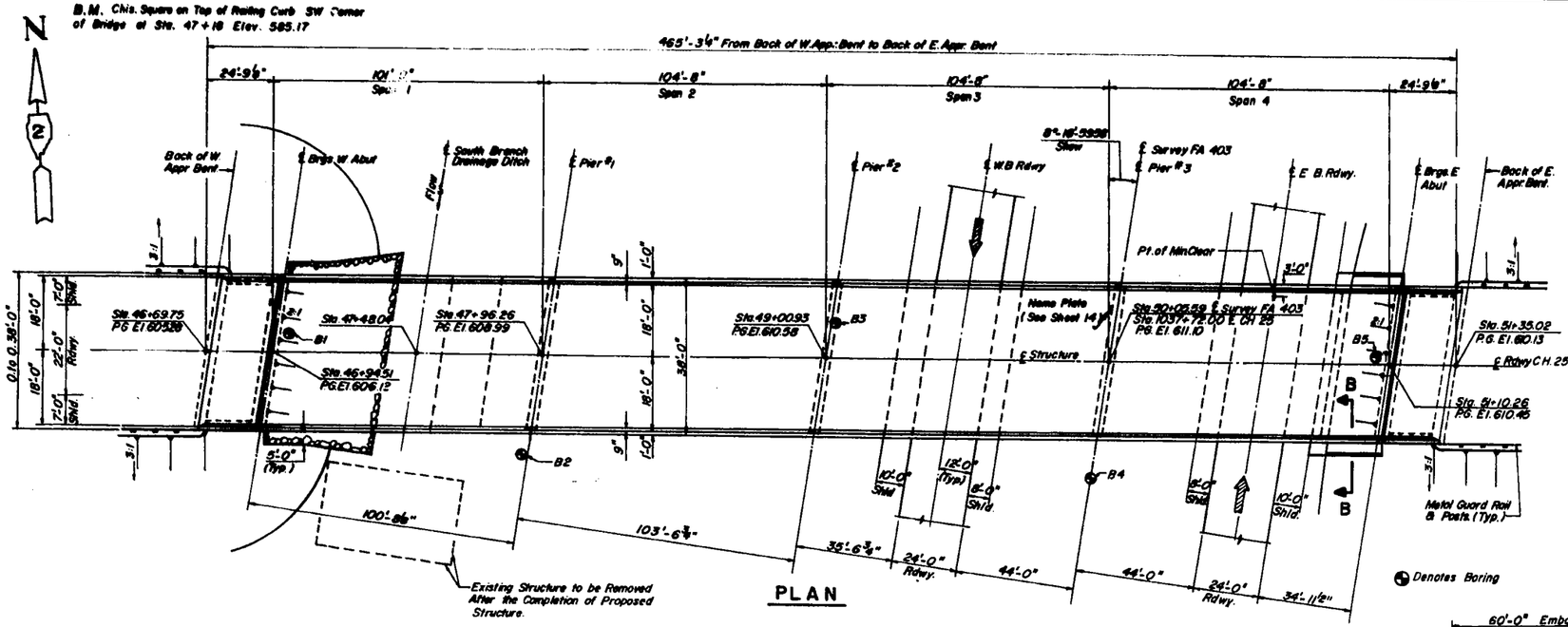
ILLINOIS DEPARTMENT OF TRANSPORTATION
GENERAL PLAN & ELEVATION
FA 403 SECTION 195-1HB-1
CH 25 OVER FA RT. 403
WHITESIDE COUNTY
STATION 1037+72.00

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F. A. R.	195-1	WHITESIDE	265	80A
P. A. 403	HB-1			
PROJ. ROAD DIST. NO. 7	ILLINOIS	PROJ. AND PROJECT		

SHEET NO. 1A
19 SHEETS

P-94-103-73

B.M. Chis. Square on Top of Railing Curb SW Corner of Bridge at Sta. 47+18 Elev. 585.17



PLAN

Denotes Boring

GENERAL NOTES:

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Anchor Bolts shall be set before bolting diaphragms over supports.

Slope Wall shall be reinforced with welded wire fabric 6"x6" mesh, weighing 58 # per 100 sq. ft.

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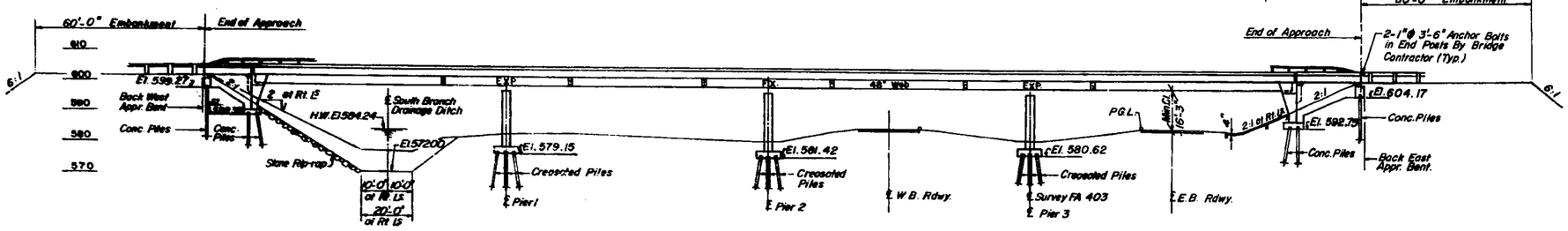
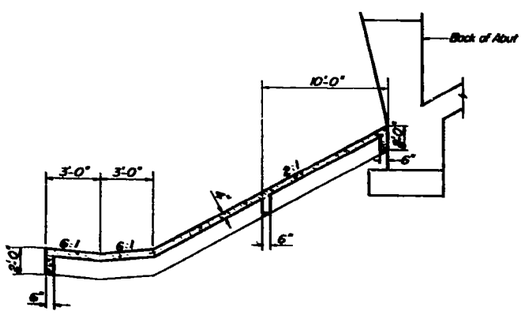
Protective Coat shall not be applied to surfaces to which Water Proofing Membrane System is applied.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of ± ½ inch Adjustment shall be made either by grinding the surface or by shimming the bearing. Two ½" adjusted shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims.

The main load carrying member components subject to the Supplemental Requirements for Notch Toughness are the flanges, webs, and splice plates of the steel girders.



ELEVATION

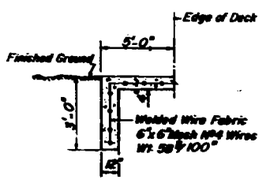


SECTION THRU SLOPEWALL AT EAST ABUTMENT

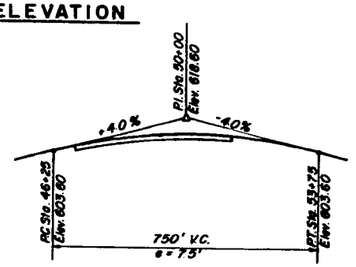
DESIGNED	N. GAVLIN
CHECKED	K.M. CHANDRATHIL
DRAWN	A. RAFIEE
CHECKED	

WATERWAY DATA

Drainage Area ---------- 12240 Acres
Character ---------- Level
Required Opening ------- 511 Sq. Ft.
Bottom of Channel Elev. --- 572.0
Q 50 ---------- 2350 Cfs.
Proposed Opening ------- 545 Sq. Ft.



SECTION B-B

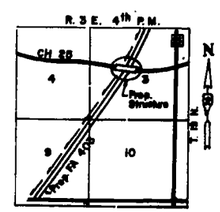


PROFILE CH 25
(Top of Class I)

PROFILE FA 403 ALONG ℄ SURVEY

STATION 50+05.59
BUILT 197 BY
STATE OF ILLINOIS
FA RT 403 SEC. 195-1 HB-1
FA PROJ
LOADING H S 15

NAME PLATE
(See Standard 2113)



LOCATION MAP

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER STRUCT.	SUB STRUCT.	TOTAL
Structure Excavation	Cu. Yd.	—	450	450
Removal of Existing Structure	Each		1	1
Protective Coat	Sq. Yd.	330.0	—	330.0
Class X Concrete	Cu. Yd.	568.5	373.0	941.5
Structural Steel	L. Sum	L.S.	—	L.S
Aluminum Railing	Lin. Ft	925	—	925
Reinforcement Bars	Pound	135,850	53,650	189,490
Concrete Piles	Lin. Ft.	—	2594	2594
Test Pile Concrete	Each	—	2	2
Creosoted Piles 20.1' to 38'	Lin. Ft.	—	1216	1216
Test Pile Timber	Each	—	1	1
Neoprene Expansion Joint (4")	Lin. Ft.	77	—	77
Name Plates	Each	—	1	1
Slope Wall 4"	Sq. Yd.	—	240	240
Water-Proofing Membrane System	Sq. Yd.	1777	—	1777
Stud Shear Connectors	Each	3000	—	3000
Bituminous Conc. Surface Course, Class I	Ton	144	—	144
Sand Backfill	Cu. Yd.	—	286	286
Stone Riprap	Sq. Yd.		195	195
Creosoted Piles Over 38'	Lin. Ft.		2640	2640

Calculated Weight of Structural Steel = 470,500 Pounds

NOTES:

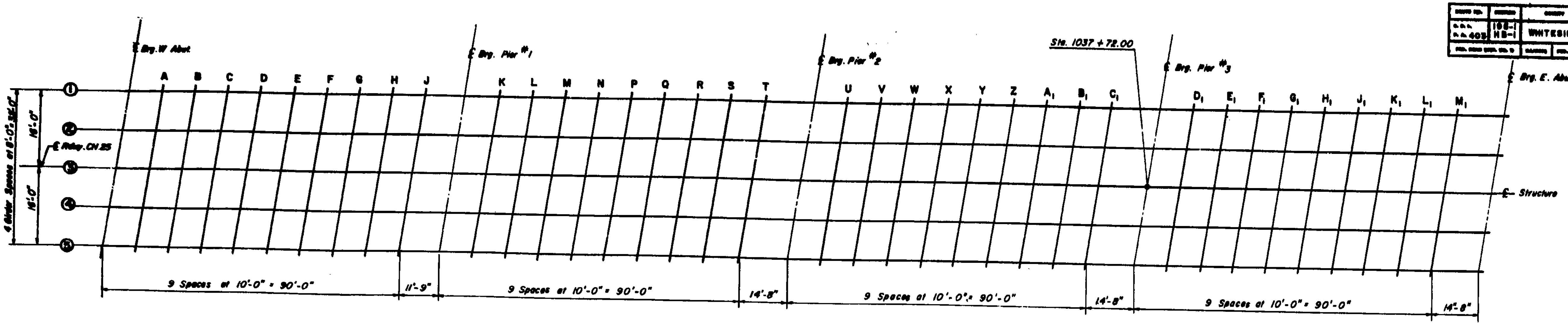
DESIGN LOADING
HS 15-44 And Allowance For 25 P.S.F. Future Wearing Surface

DESIGN STRESSES
f_c = 1400 P.S.I. Except As Follows
f_c = 1200 P.S.I. For Deck Slab
f_c = 1000 P.S.I. For Conc. In Contact With Earth
f_s = 20,000 P.S.I. - M 183 Structural Steel
f_s = 20,000 P.S.I. Reinforcement Steel
v = 75 P.S.I. - Allowable Shear In Footings
n = 10
Allowable Live Load Deflection = L/1200 (Composite)

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Chief of Bridges & Traffic Structures

ILLINOIS DEPARTMENT OF TRANSPORTATION
GENERAL PLAN & ELEVATION
FA 403 SECTION 195-1HB-1
CH 25 OVER FA RT 403
WHITESIDE COUNTY
STATION 1037+72.00

MURPHY ENGINEERING INC.
CONSULTING ENGINEERS

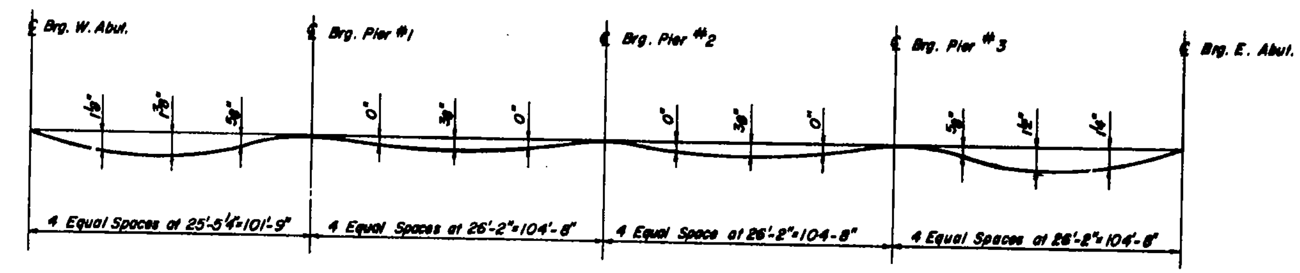


PLAN

LOCATION	GIRDER	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	DEFL CONC	THEORETICAL ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
℄ Brg W.Abut.	1	46+96.848	16.000	605.7025		605.793
	2	46+95.679	8.000	605.9057		605.906
	3	46+94.509	0.000	605.9927		605.993
	4	46+93.340	-8.000	605.8295		605.830
	5	46+92.171	-16.000	605.6401		605.640
A	1	47+ 6.848	16.000	606.1106	0.0466	606.157
	2	47+ 5.679	8.000	606.2250	0.0466	606.272
	3	47+ 4.509	0.000	606.3132	0.0466	606.360
	4	47+ 3.340	-8.000	606.1513	0.0466	606.198
	5	47+ 2.171	-16.000	605.9631	0.0466	606.010
B	1	47+16.848	16.000	606.4179	0.0858	606.504
	2	47+15.679	8.000	606.5336	0.0858	606.620
	3	47+14.509	0.000	606.6230	0.0858	606.709
	4	47+13.340	-8.000	606.4624	0.0858	606.548
	5	47+12.171	-16.000	606.2755	0.0858	606.361
C	1	47+26.848	16.000	606.7146	0.1125	606.827
	2	47+25.679	8.000	606.8315	0.1125	606.944
	3	47+24.509	0.000	606.9222	0.1125	607.035
	4	47+23.340	-8.000	606.7620	0.1125	606.875
	5	47+22.171	-16.000	606.5772	0.1125	606.690
D	1	47+36.848	16.000	607.0007	0.1250	607.126
	2	47+35.679	8.000	607.1188	0.1250	607.244
	3	47+34.509	0.000	607.2108	0.1250	607.336
	4	47+33.340	-8.000	607.0526	0.1250	607.178
	5	47+32.171	-16.000	606.8682	0.1250	606.993

LOCATION	GIRDER	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	DEFL CONC	THEORETICAL ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
E	1	47+46.848	16.000	607.2760	0.1208	607.397
	2	47+45.679	8.000	607.3954	0.1208	607.516
	3	47+44.509	0.000	607.4886	0.1208	607.610
	4	47+43.340	-8.000	607.3317	0.1208	607.453
	5	47+42.171	-16.000	607.1485	0.1208	607.269
F	1	47+56.848	16.000	607.5407	0.1041	607.645
	2	47+55.679	8.000	607.6613	0.1041	607.766
	3	47+54.509	0.000	607.7558	0.1041	607.860
	4	47+53.340	-8.000	607.6001	0.1041	607.704
	5	47+52.171	-16.000	607.4182	0.1041	607.522
G	1	47+66.848	16.000	607.7947	0.0766	607.872
	2	47+65.679	8.000	607.9166	0.0766	607.993
	3	47+64.509	0.000	608.0123	0.0766	608.089
	4	47+63.340	-8.000	607.8579	0.0766	607.935
	5	47+62.171	-16.000	607.6772	0.0766	607.754
H	1	47+76.848	16.000	608.0381	0.0458	608.084
	2	47+75.679	8.000	608.1612	0.0458	608.207
	3	47+74.509	0.000	608.2582	0.0458	608.304
	4	47+73.340	-8.000	608.1050	0.0458	608.151
	5	47+72.171	-16.000	607.9256	0.0458	607.972
J	1	47+86.848	16.000	608.2700	0.0183	608.289
	2	47+85.679	8.000	608.3952	0.0183	608.414
	3	47+84.509	0.000	608.4934	0.0183	608.512
	4	47+83.340	-8.000	608.3414	0.0183	608.360
	5	47+82.171	-16.000	608.1633	0.0183	608.182

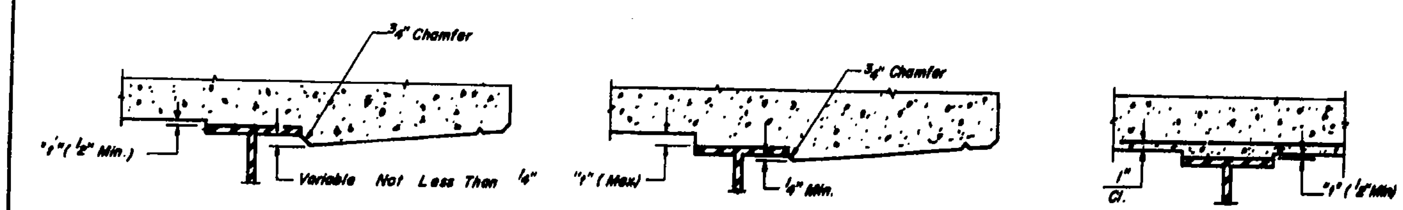
WORK THIS SHEET WITH SHEETS Nº 3 & 4



DEAD LOAD DEFLECTION DIAGRAM

(Includes Weight of Concrete Slab & Initial Deck Surfacing)

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



AT MINIMUM FILLET

AT MAXIMUM FILLET

INTERIOR BEAM

EXTERIOR BEAM

FILLET HEIGHTS

NOTES:

To determine "t" after all Structural Steel has been erected, elevations of the top flanges of the girders shall be taken at the intervals shown above. These elevations subtracted from the "Theoretical grade elevations adjusted for dead load deflection" above minus 7½" inches equals the fillet heights "t" above top flange of girder.

Elevations are given at top of concrete slab.

Offsets are from profile grade line. Negative values to the right and Positive values to the left.

[redacted]	H.G.
[redacted]	K.M.C.
[redacted]	J.B.J.
[redacted]	[illegible]

F.A.R. 403	195-I HB-I	WHITESIDE	[illegible]	[illegible]

SHEET NO. 2

ILLINOIS DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS

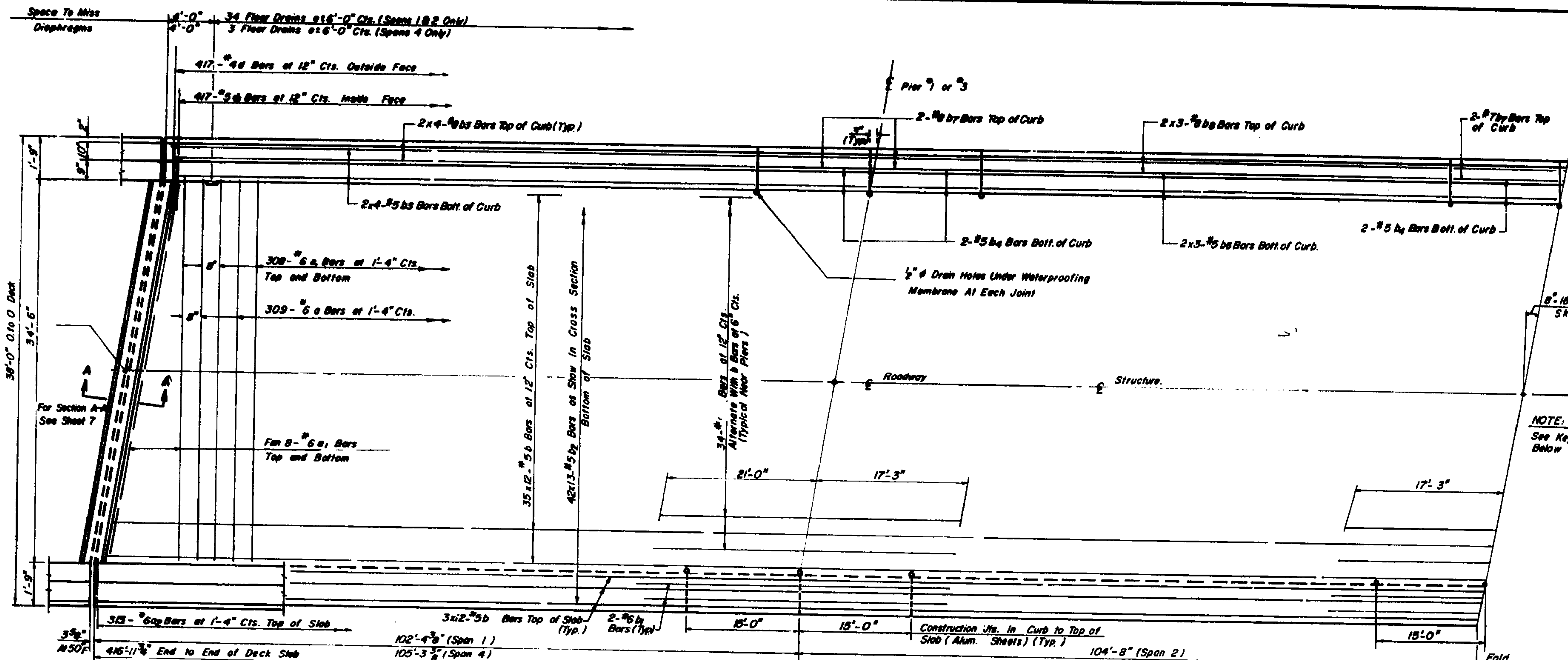
FA ROUTE 403 SECTION 195 I HB-I

CH 25 OVER FA ROUTE 403

WHITESIDE COUNTY

Route No.	Section	County	Total Sheets	Sheet No.
F.A.R. F.A. 403	195-I H B-I	WHITESIDE	269	84

SHEET NO. 5
10 SHEETS



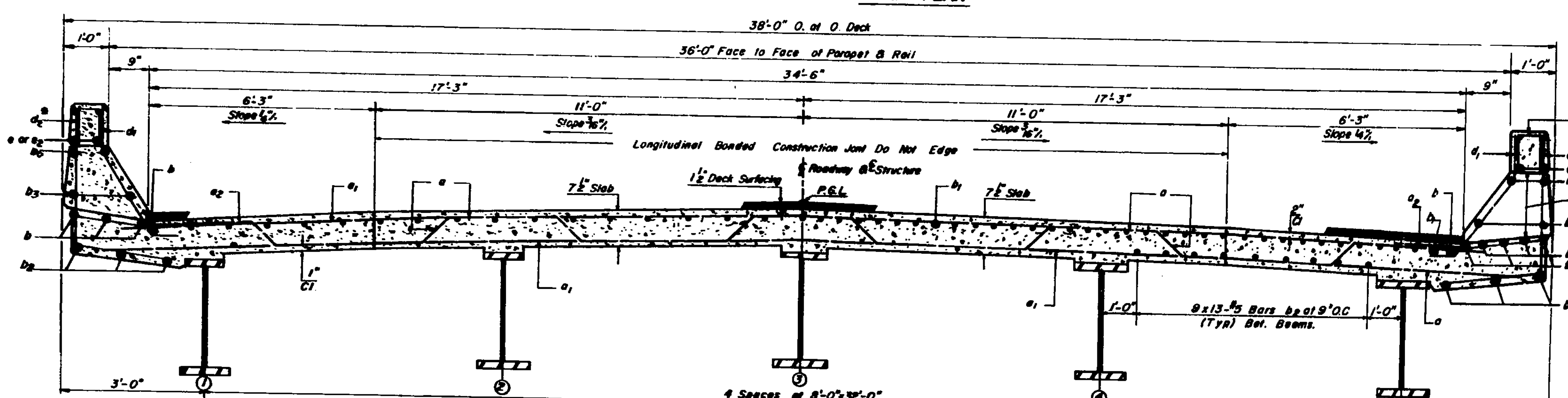
HALF PLAN

BILL OF MATERIAL

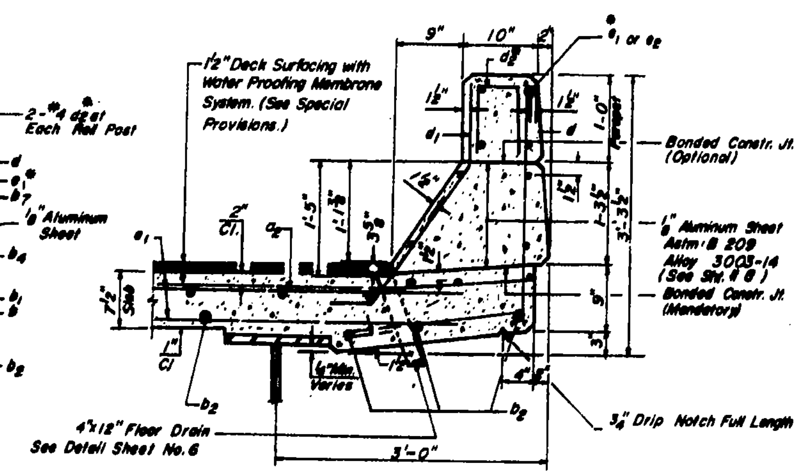
Bar	No	Size	Length	Shape
a	309	#6	36'-0"	
a_1	626	#6	35'-6"	
a_2	616	#6	4'-0"	
b	492	#5	36'-0"	
b_1	114	#8	38'-3"	
b_2	546	#5	33'-3"	
b_3	32	#5	23'-6"	
b_4	24	#5	14'-9"	
b_5	24	#5	25'-9"	
b_6	32	#8	24'-0"	
b_7	24	#8	14'-9"	
b_8	24	#8	26'-3"	
d	834	#4	4'-7"	
d_1	834	#5	3'-3"	

Class X Concrete	Cu. Yd.	448.0
Reinforcement Bar	Pound	108,200
Bit. Conc. Surf. Course	Ton	129.5

* Parpet Reinforcement and Class X Concrete Billed on Sheet 8

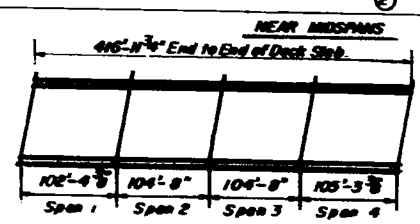


CROSS SECTION
LOOKING EAST

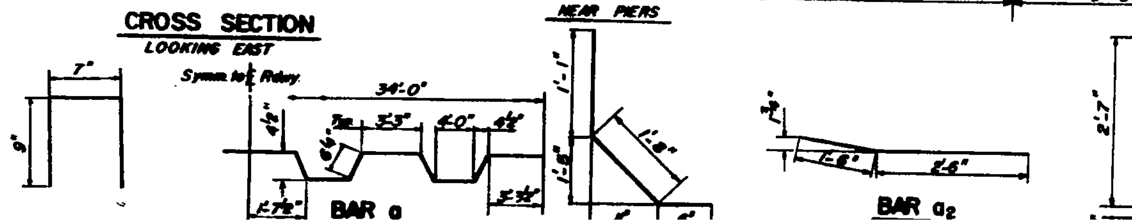


CURB SECTION

Cost of Aluminum Sheet Shall be Incidental to Class X Concrete.



KEY PLAN



DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	J.B.J.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE

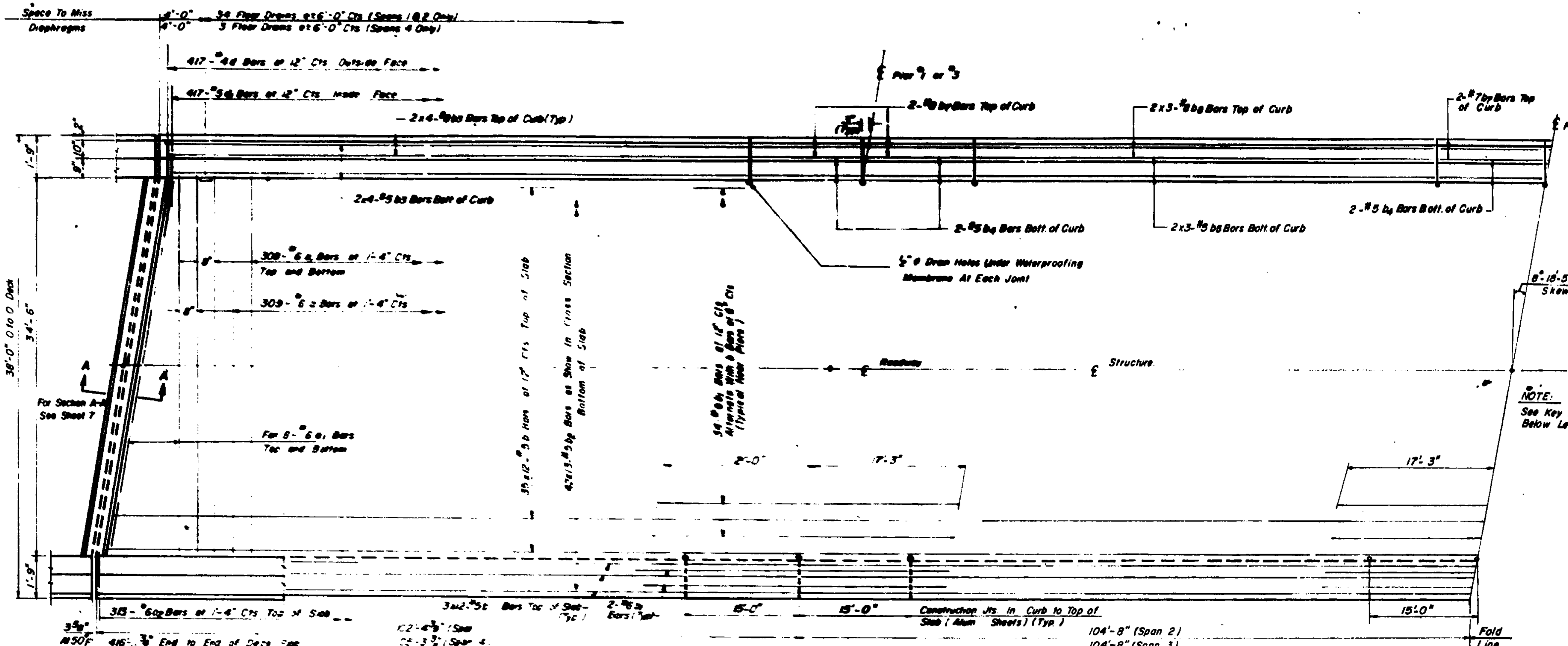
FA 403 SECTION 195-I H B-I

CH 25 OVER FA RT 403

WHITESIDE COUNTY

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 403	195-1 H B-1	WHITESIDE	265	84A
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 5 A
10 SHEETS



HALF PLAN

BILL OF MATERIAL

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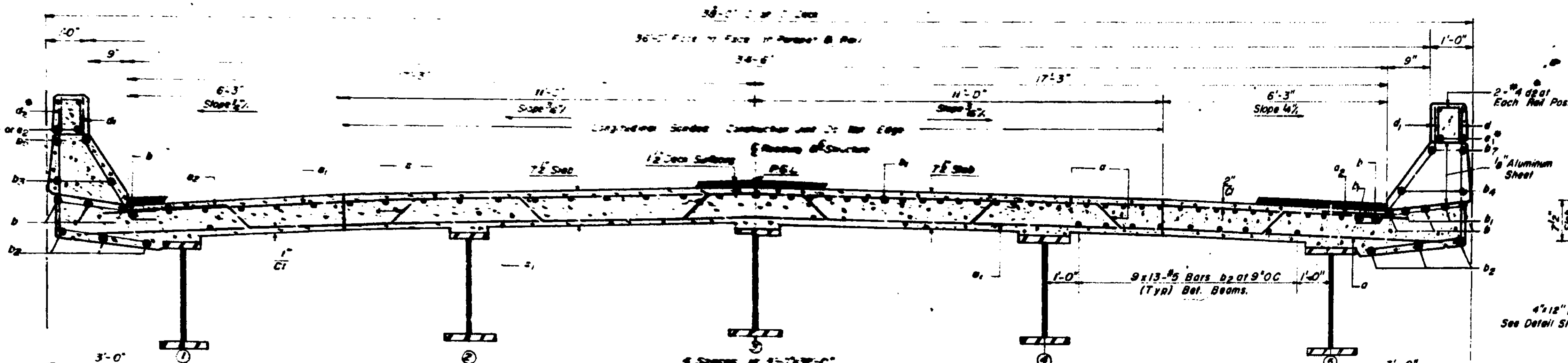
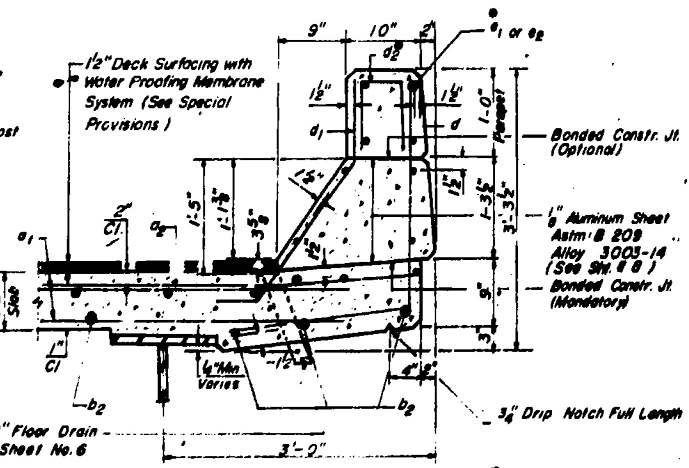
a2	616	#6	4'-0"	
b	492	#5	36'-0"	
b1	114	#6	38'-3"	
b2	546	#5	33'-3"	
b3	32	#5	23'-6"	
b4	24	#5	14'-9"	
b5	24	#5	25'-9"	
b6	32	#8	24'-0"	
b7	24	#8	14'-9"	
b8	24	#8	26'-3"	
d	834	#4	4'-7"	
d1	834	#5	3'-3"	
Class X Concrete			Cu Yd	448.0
Reinforcement Bar			Pound	*111,320
Bit. Conc Surf. Course			Ton	129.5

* Parpet Reinforcement and Class X Concrete Billed on Sheet 8



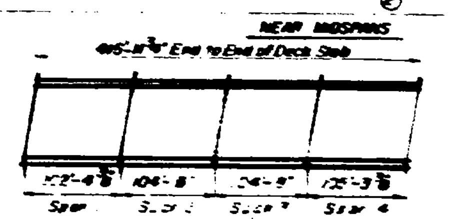
CROSS SECTION
LOOKING EAST



CURB SECTION

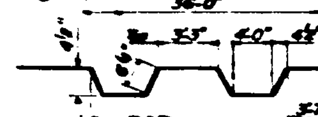
Cost of Aluminum Sheet Shall be Incidental to Class X Concrete.

DESIGNED	N G
CHECKED	K.M.C.
DRAWN	J.B.J.
CHECKED	

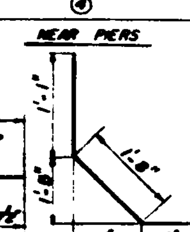


KEY PLAN

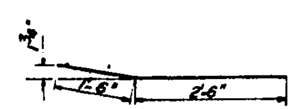
BAR d2



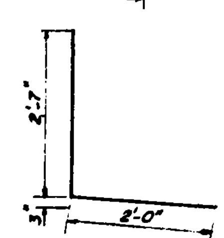
BAR a



BAR d1



BAR a2



BAR d

ILLINOIS DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE

FA 403 SECTION 195-1 H B-1

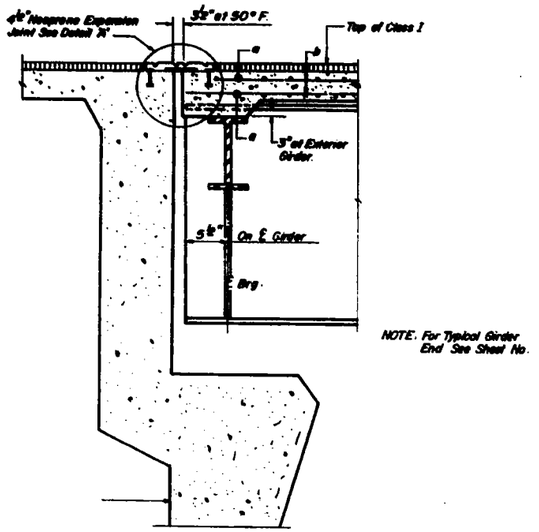
CH 25 OVER FA RT 403

WHITESIDE COUNTY

STATION 1037 + 72.00

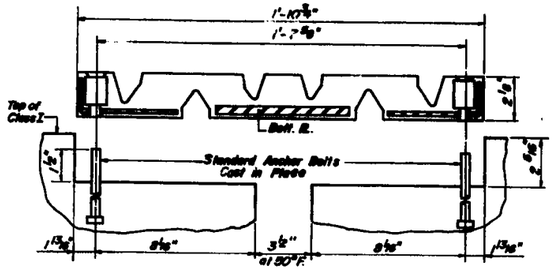
STATE OF ILL.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.R. F.A. 403	195-1 HB-1	WHITESIDE	245	86
FED. ROAD DIST. NO. 9	ILLINOIS	FED. AID PROJECT		

SHEET NO. 6
19 SHEETS

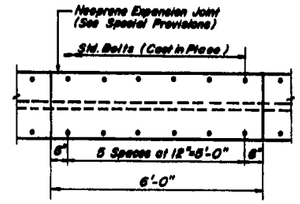


NOTE. For Typical Girder End See Sheet No.

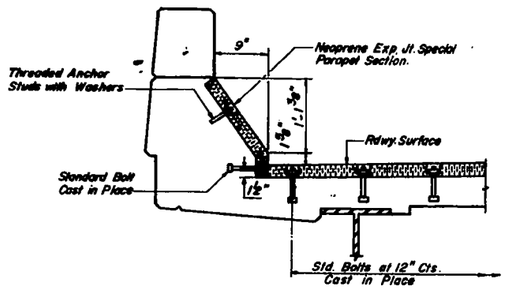
SECTION A-A



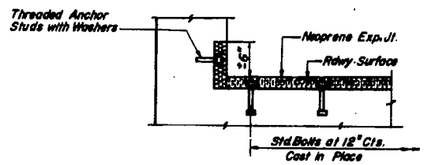
DETAIL 'A'



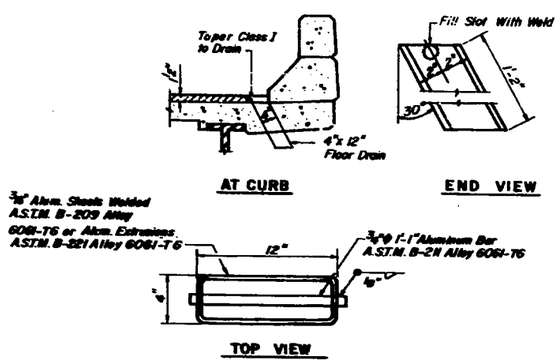
PLAN



CURB INSTALLATION



ABUTMENT INSTALLATION



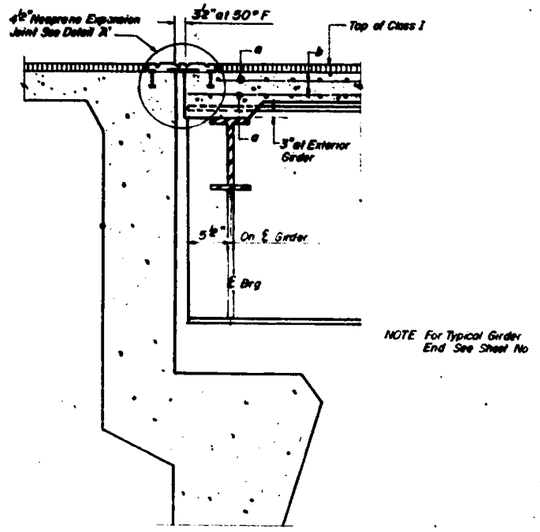
FLOOR DRAINS
(Cost Incidental)

DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION
SUPERSTRUCTURE DETAILS
FA ROUTE 403 SECTION 195-1HB-1
CH 25 OVER FA ROUTE 403
WHITESIDE COUNTY
STATION

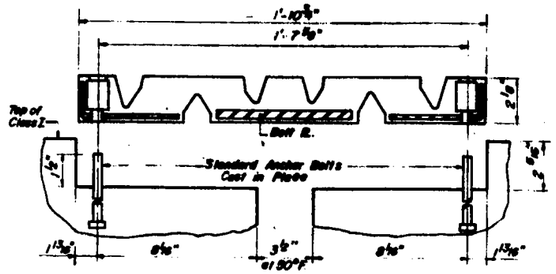
STATE SHEET NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 403	195-1 HB-1	WHITESIDE	265	86A
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 6 A
19 SHEETS

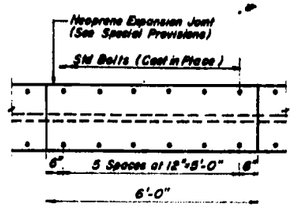


NOTE For Typical Girder End See Sheet No

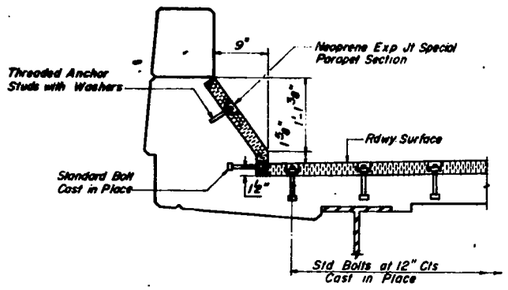
SECTION A-A



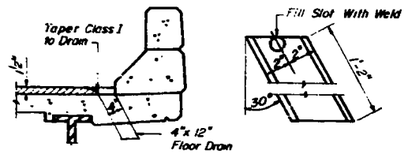
DETAIL 'A'



PLAN

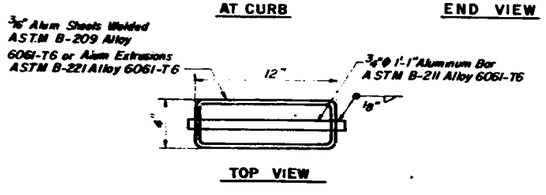


CURB INSTALLATION



AT CURB

END VIEW



TOP VIEW

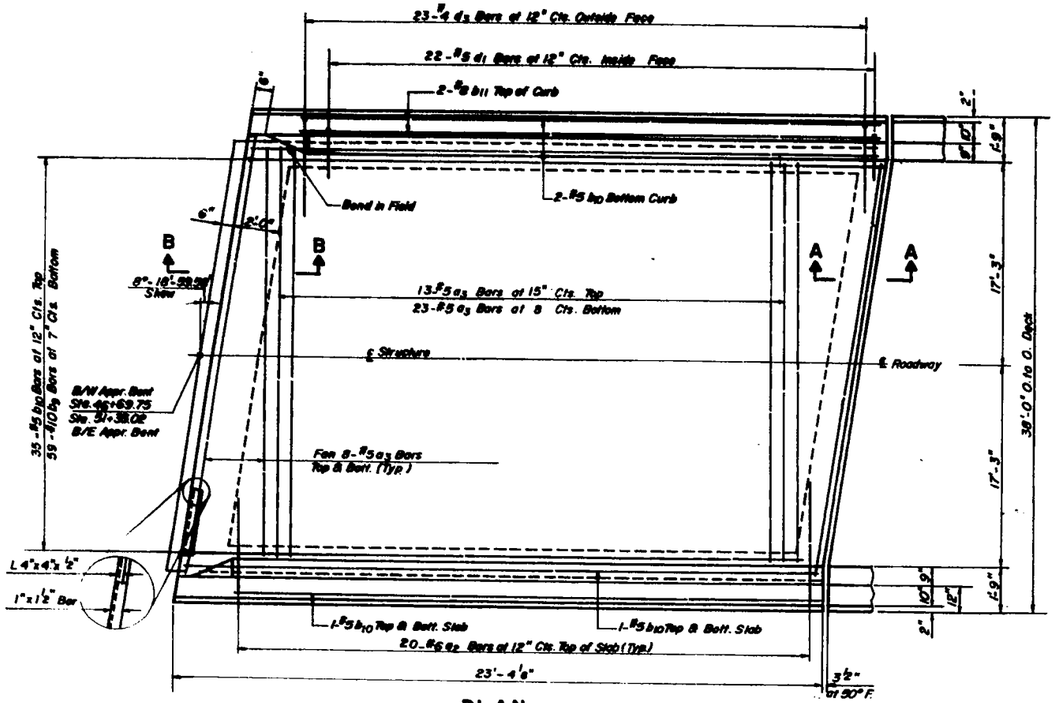
FLOOR DRAINS
(Cost Incidental)

DESIGNED	N G
CHECKED	K M C
DRAWN	A R
CHECKED	

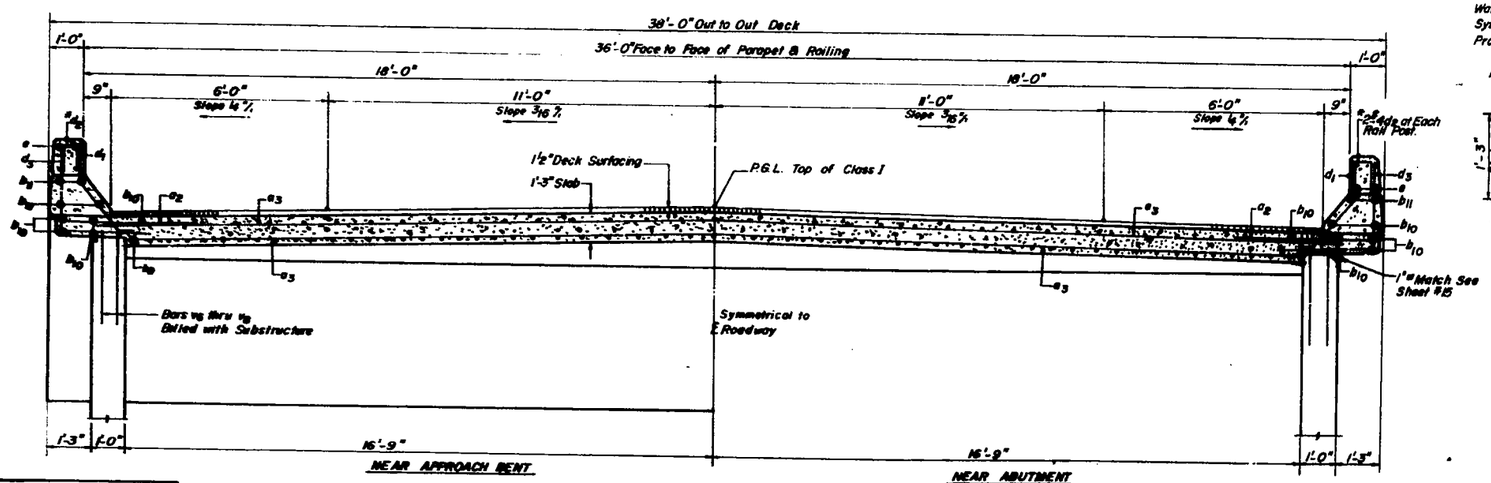
ILLINOIS DEPARTMENT OF TRANSPORTATION
SUPERSTRUCTURE DETAILS
FA ROUTE 403 SECTION 195-1HB-1
CH 25 OVER FA ROUTE 403
WHITESIDE COUNTY

DIST. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F. A. I. 403	195-1 HB-1	WHITESIDE	245	84a
FED. ROAD DIST. NO. 7	PLANNING	FED. AID PROJECT		

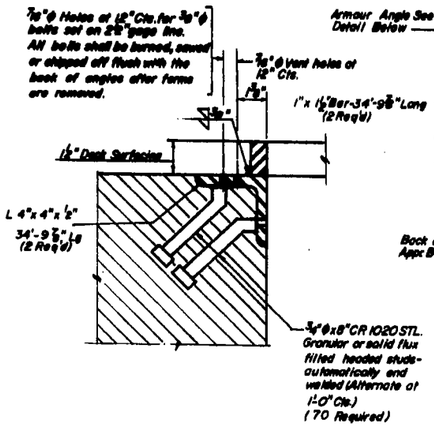
SHEET NO. 7
10 SHEETS



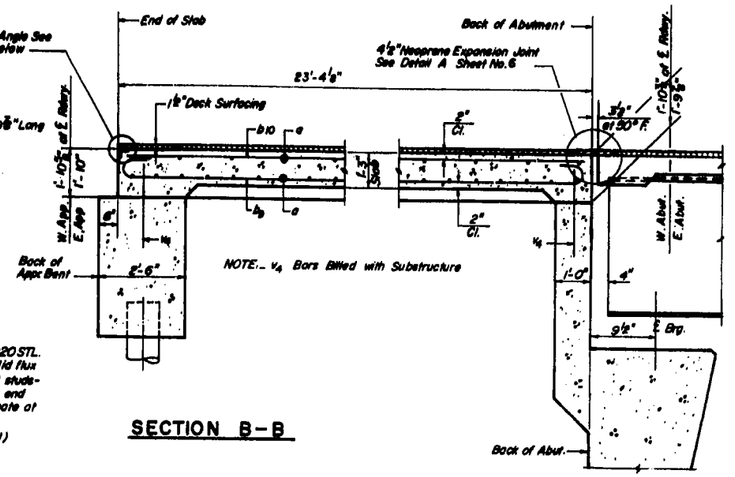
PLAN



CROSS SECTION

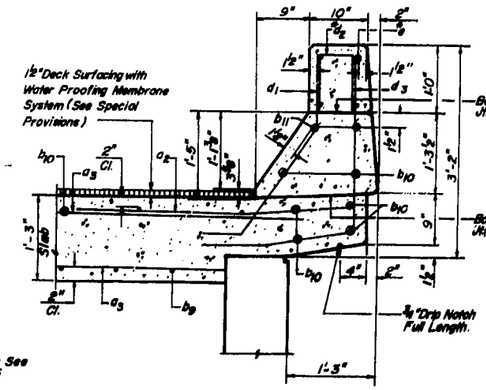


DETAIL OF ARMOUR ANGLE



SECTION B-B

SECTION A-A

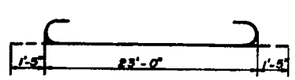


CURB SECTION

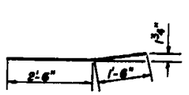
TWO APPROACH SPANS
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
a_2	80	#6	4'-0"	
a_3	104	#5	34'-0"	
b_9	118	#10	25'-10"	
b_{10}	94	#5	23'-0"	
b_{11}	8	#8	23'-0"	
d_1	88	#5	3'-3"	
d_3	92	#4	5'-9"	
Reinforcement Bars			Lbs.	20,680
Class X Concrete			Cu. Yds.	90.5
Bit. Conc. Surf. Course Class I			Tons	14.5

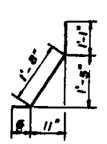
* Parapet Reinforcement and Class X Concrete Billed on Sheet 8



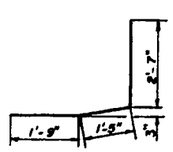
BAR b_9



BAR a_2



BAR d_1



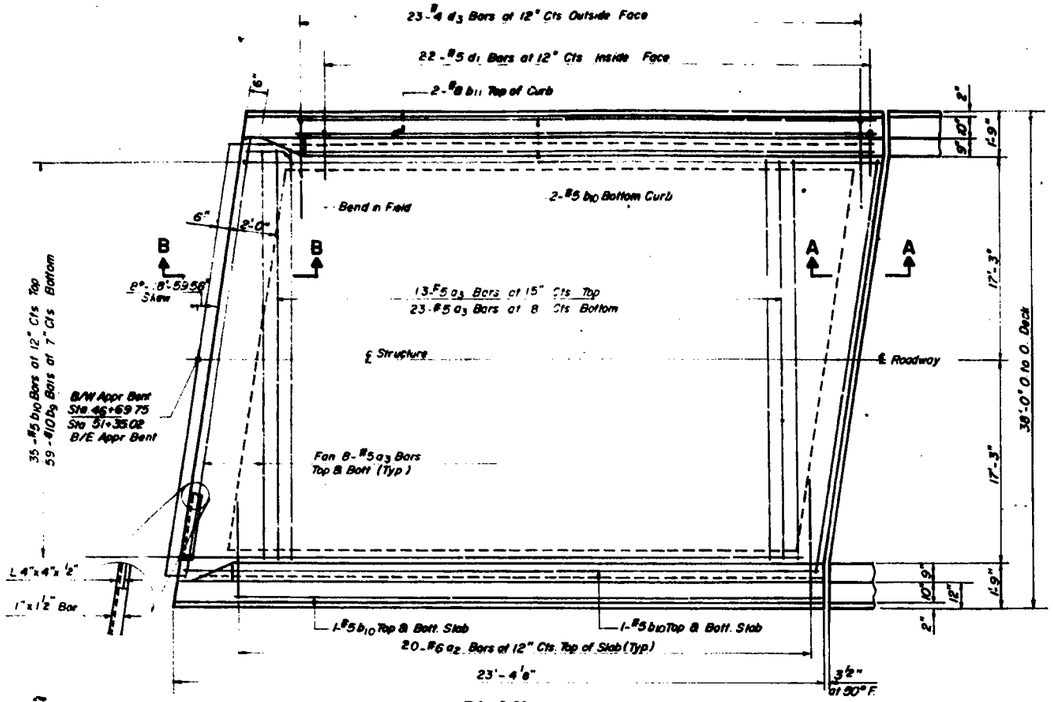
BAR d_3

DESIGNED	N. G.
CHECKED	K. M. C.
DRAWN	A. R.
CHECKED	

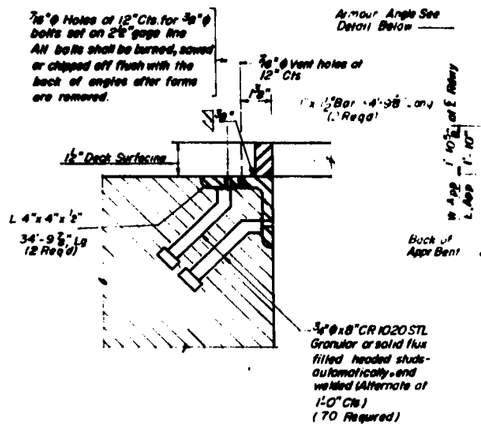
ILLINOIS DEPARTMENT OF TRANSPORTATION
APPROACH SPANS
FA ROUTE 403 SECTION 195 1 HB-1
CH 25 OVER FA ROUTE 403
WHITESIDE COUNTY
STATION 1037+73.00

		WHITESIDE		

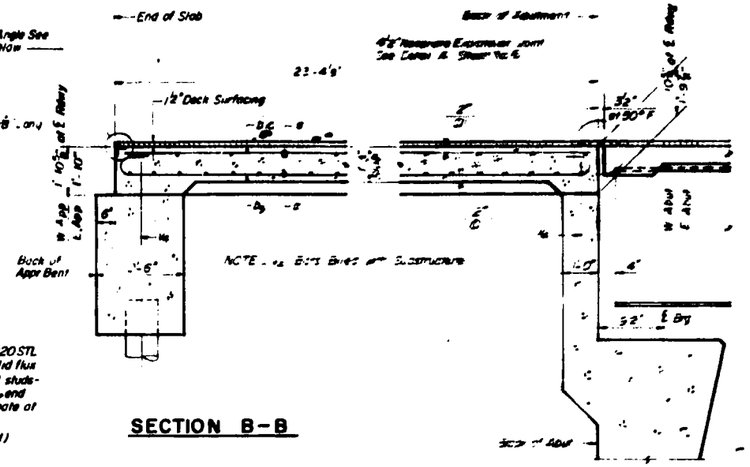
SHEET NO. 7 A
10 SHEETS



PLAN

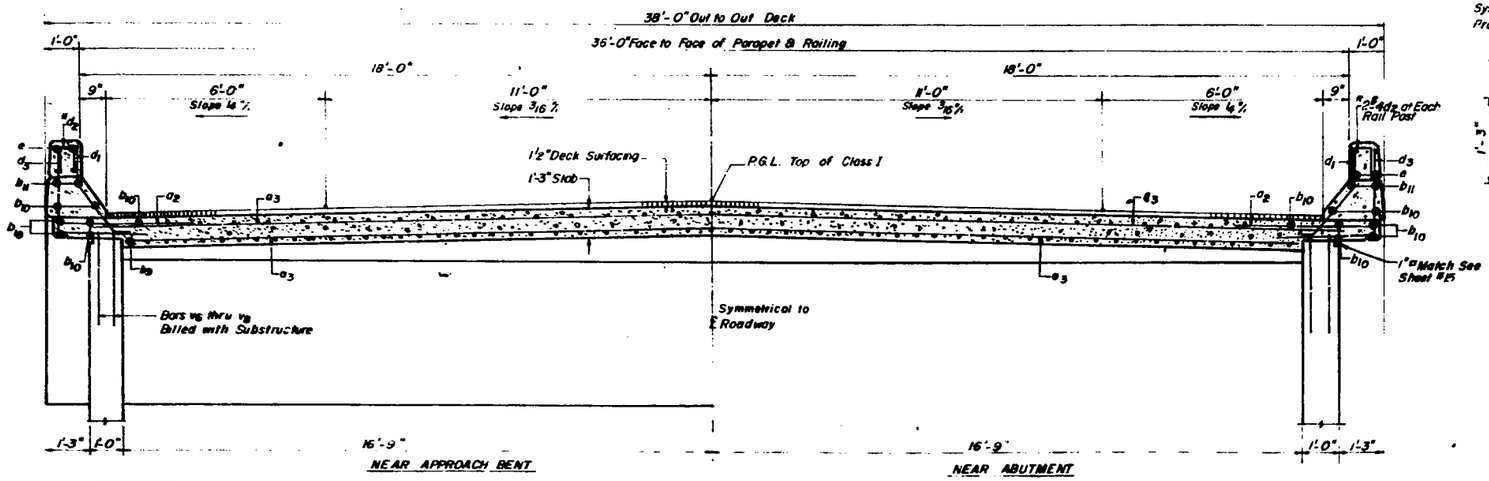


DETAIL OF ARMOUR ANGLE

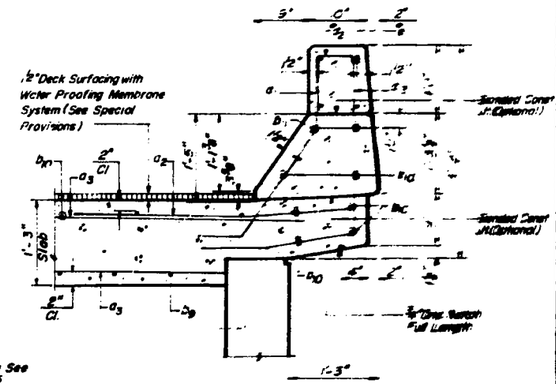


SECTION B-B

SECTION A-A



CROSS SECTION

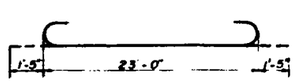


CURB SECTION

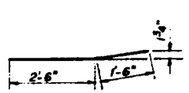
TWO APPROACH SPANS
BILL OF MATERIAL

BAR	NO	SIZE	LENGTH	SHAPE
a_2	80	#6	4'-0"	
a_3	136	#5	33'-3"	
b_9	118	#10	85'-10"	
b_{10}	94	#5	23'-0"	
b_{11}	8	#8	23'-0"	
d_1	88	#5	3'-5"	
d_3	92	#4	5'-9"	
Reinforcement Bars			Lbs	21,730
Class X Concrete			Cu Yds	90.5
Bit Conc Surf Course Class I			Tons	14.5

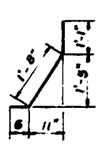
* Parapet Reinforcement and Class X Concrete Billed on Sheet 8



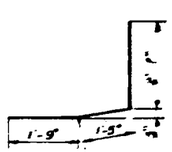
BAR b_9



BAR a_2



BAR d_1



BAR d_3

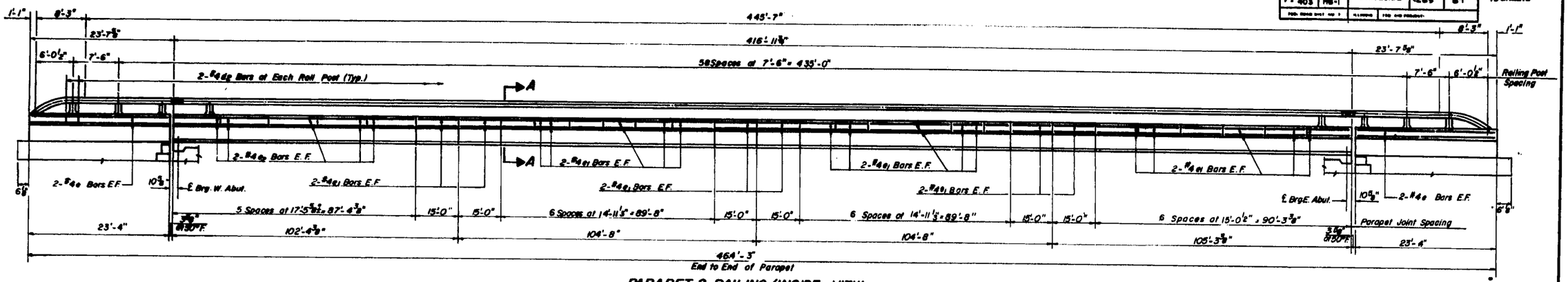
DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION

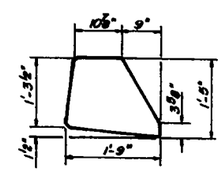
APPROACH SPANS

FA ROUTE 403 SECTION 195 1 HB-1
CH 25 OVER FA ROUTE 403
WHITESIDE COUNTY
STATION 1037+72.00

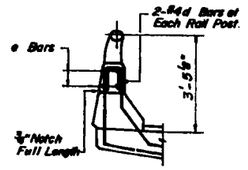
				SHEET NO. 8
	195-1	WHITESIDE	1465	8A
F.A.P. 403	HB-1			18 SHEETS



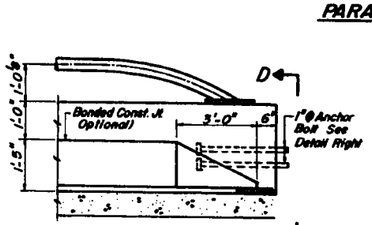
PARAPET & RAILING (INSIDE VIEW)



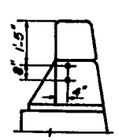
⅛" ALUMINUM SHEET



SECTION A-A

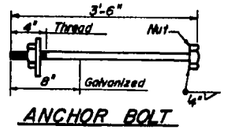


INSIDE VIEW OF PARAPET

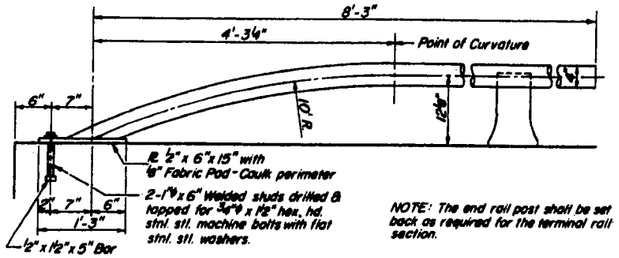


VIEW D-D

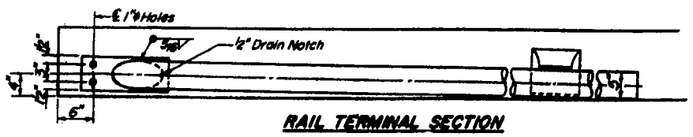
NOTE: Cost of furnishing and installing Anchor Bolts shall be incidental to Cost of Class X Concrete.



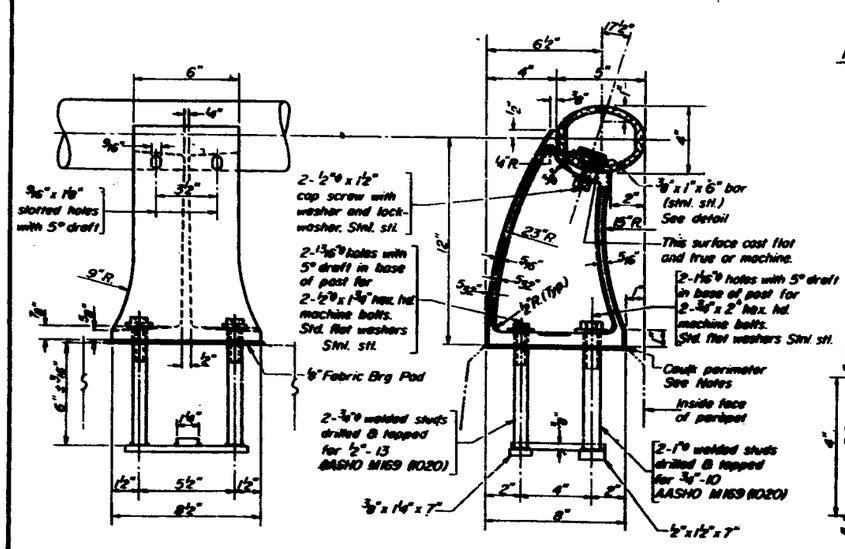
ANCHOR BOLT



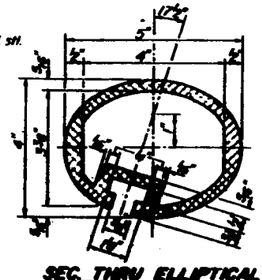
NOTE: The end rail post shall be set back as required for the terminal rail section.



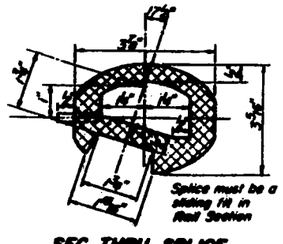
RAIL TERMINAL SECTION



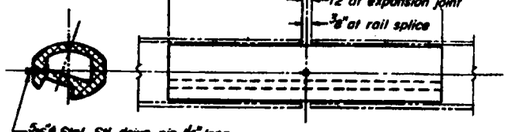
RAIL POST DETAILS



SEC. THRU ELLIPTICAL RAIL SECTION

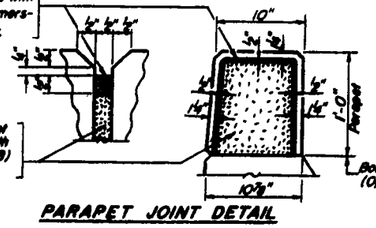


SEC. THRU SPLICE



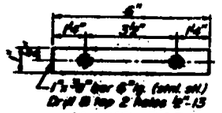
RAIL SPLICE

Two component non-staining gray sealing compound with polysulfide liquid polymers-gun grade with primer.



½" Preformed Cork Joint Filler (In accordance with Articles 715.07 or 715.08) Cost incidental.

PARAPET JOINT DETAIL



CLAMP BAR

NOTES:

All Aluminum Alloy Extruded Rail shall be supplied in modular lengths of 30 feet, except at the end of bridge or over open joints in bridge deck where the rail shall be attached to a minimum of 2 posts. If the rail is on a horizontal curve of 2300 feet radius or less, the modular lengths may be reduced but shall be attached to a minimum of 2 posts.

All joints in rail shall be spliced per detail.

Provide 1 - ⅜" and 2 - ⅛" Aluminum Shims for 25% of the Posts. Rail element shall be parallel to Grade - high spots shall be ground and low spots shimmed.

Seal perimeter of base of post to parapet with two component non-staining gray sealing compound with polysulfide liquid polymers, gun grade with primer. Fabric Bearing Pad shall have same dimensions as base of post.

Aluminum alloy rail shall conform to ASTM B221 alloy 6061-T6 or 6351-T5 with min. yield 35 ksi, min. tensile 38 ksi and

PARAPETS & RAILS BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d_2	244	#4	8'-1"	
e	16	#4	23'-3"	
e_1	192	#4	14-9"	
e_2	40	#4	17'-3"	
Reinforcement Bars		Lbs.	2980	
Class X Concrete		Cu. Yds.	30	
Aluminum Railing		L.in. Ft.	924	

DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION

ALUMINUM RAILING

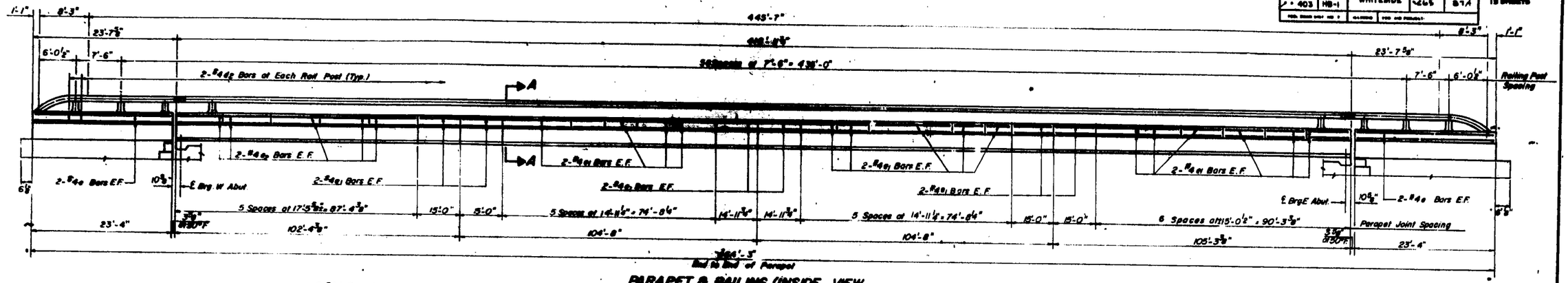
FA ROUTE SECTION 195-1 HB-1

CH 25 OVER ROUTE 403

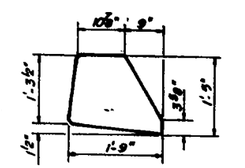
WHITESIDE COUNTY

	196-1 HB-1	WHITESIDE	1466	81A
403				

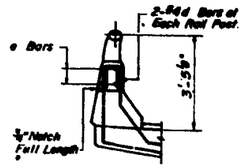
SHEET NO. 8A
18 SHEETS



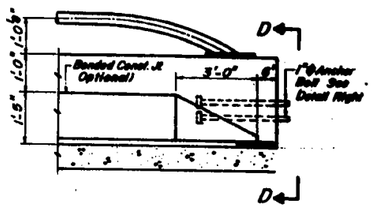
PARAPET & RAILING (INSIDE VIEW



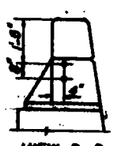
½" ALUMINUM SHEET



SECTION A-A

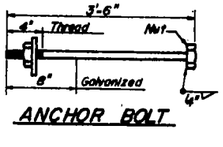


INSIDE VIEW OF PARAPET

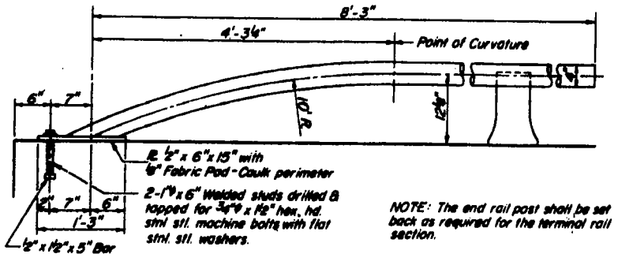


VIEW D-D

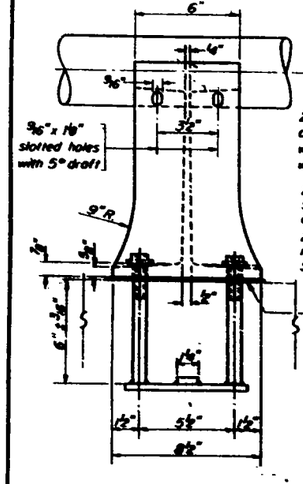
NOTE: Cost of furnishing and installing Anchor Bolts shall be incidental to Cost of Class X Concrete



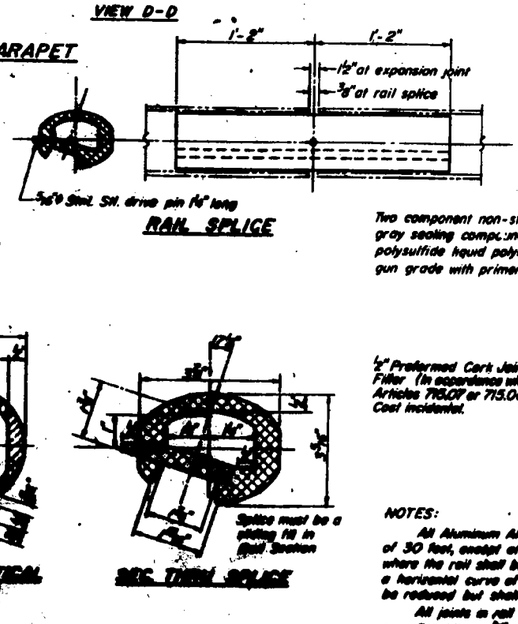
ANCHOR BOLT



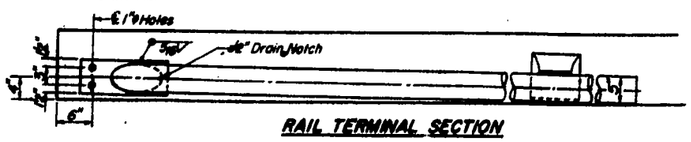
NOTE: The end rail post shall be set back as required for the terminal rail section.



RAIL POST DETAILS



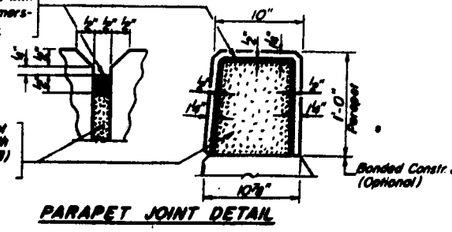
RAIL SPLICE



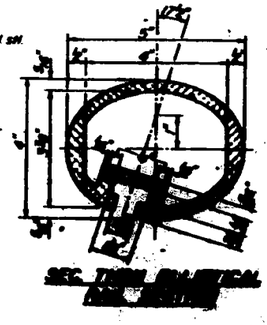
RAIL TERMINAL SECTION

Two component non-staining gray sealing compound with polysulfide liquid polymers-gun grade with primer.

½" Preformed Cork Joint Filler (In accordance with Articles 718.07 or 719.08) Cost incidental.

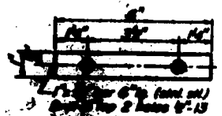


PARAPET JOINT DETAIL



SEC. THRU VERTICAL

SEC. THRU SPLICE



DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

PARAPETS & RAILS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d_2	244	#4	2'-1"	
e	16	#4	23'-3"	
e_1	176	#4	14'-9"	
e_2	40	#4	17'-3"	
Reinforcement Bars		Lbs.	2780	
Class X Concrete		Cu. Yds.	30	
Aluminum Railing		Lin. Ft.	888	

NOTES:

All Aluminum Alloy Extruded Rail shall be supplied in modular lengths of 30 feet, except at the end of bridge or over open joints in bridge deck where the rail shall be attached to a minimum of 2 posts. On the rail on a horizontal curve of 2900 feet radius or less, the modular lengths may be reduced but shall be attached to a minimum of 2 posts.

All joints in rail shall be spliced per detail.

Provide 1 - ⅜" and 2 - ½" Aluminum Shims for 25% of the Posts. Rail element shall be parallel to Grade - high spots shall be ground and low spots shimmed.

Seal perimeter of base of post to parapet with two component non-staining gray sealing compound with polysulfide liquid polymers, gun grade with primer. Fabric Bearing Pad shall have same dimensions as base of post.

Aluminum alloy rail shall conform to ASTM B221 alloy 6061-T6 or 6351-T5 with min. yield 35 ksi, min. tensile 38 ksi and

ILLINOIS DEPARTMENT OF TRANSPORTATION

ALUMINUM RAILING

FA ROUTE SECTION 196-1 HB-1

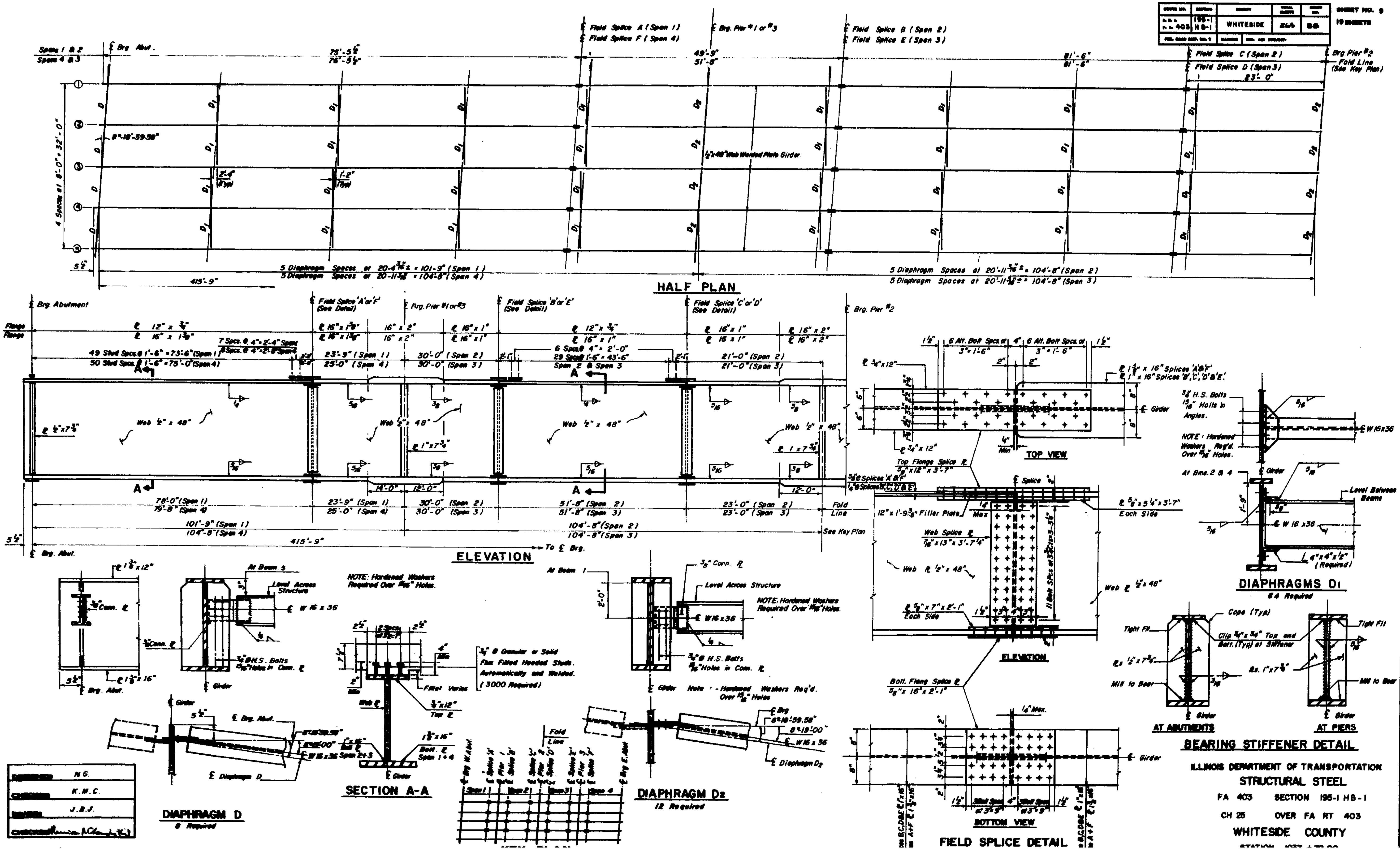
CH 25 OVER ROUTE 40S

WHITESIDE COUNTY

SHEET NO. 9

19 SHEETS

F.A.I. F.A. 403	196-1 HB-1	WHITESIDE	2&5	88



DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	J.B.J.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL

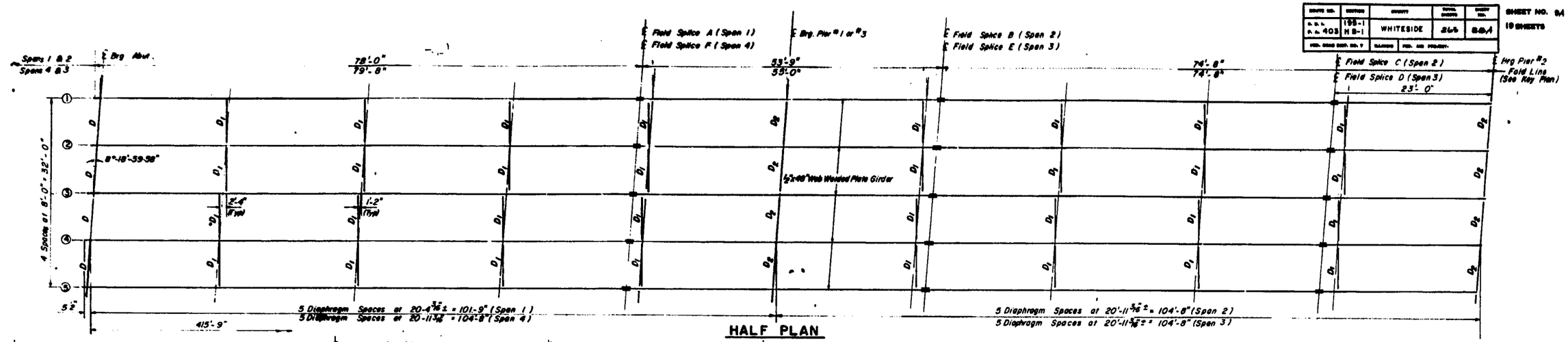
FA 403 SECTION 196-1 HB-1

CH 25 OVER FA RT 403

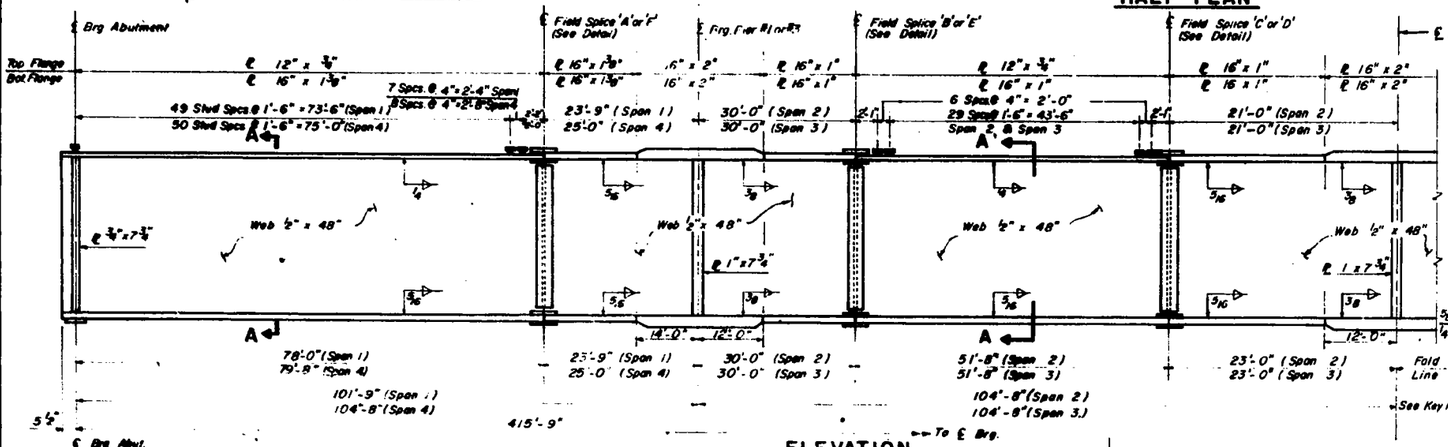
WHITESIDE COUNTY

STATE SEC.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. No. 403	195-1 HB-1	WHITESIDE	265	88A
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT.		

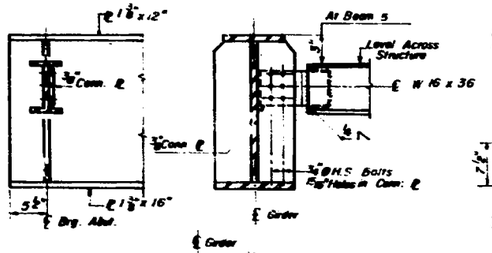
SHEET NO. 94
19 SHEETS



HALF PLAN

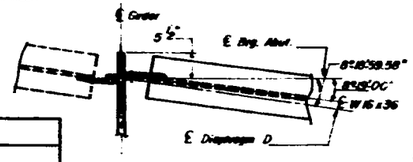


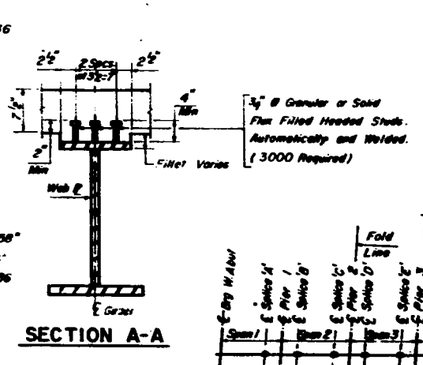
ELEVATION



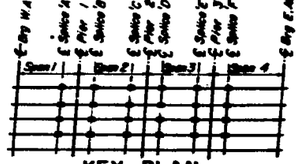
DIAPHRAGM D

8 Required

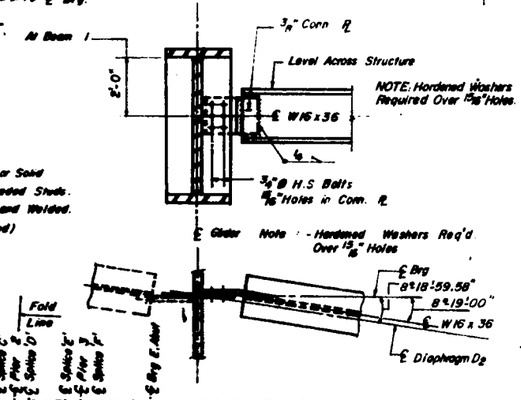




SECTION A-A

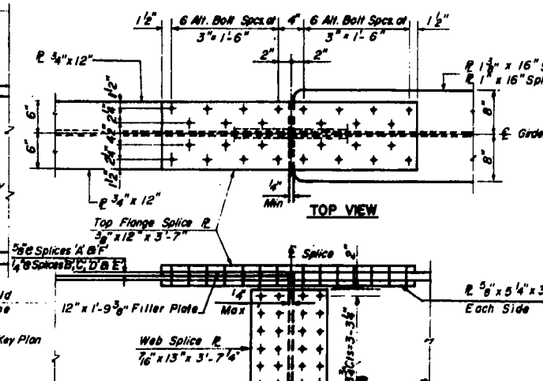


KEY PLAN

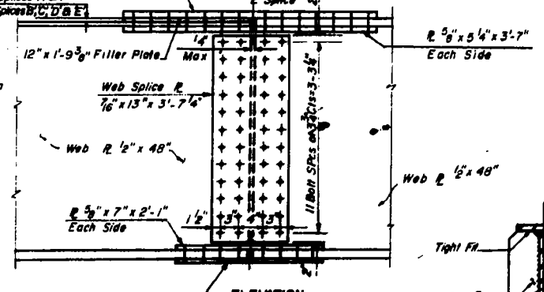


DIAPHRAGM D2

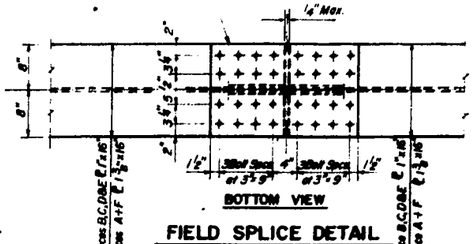
12 Required



TOP VIEW



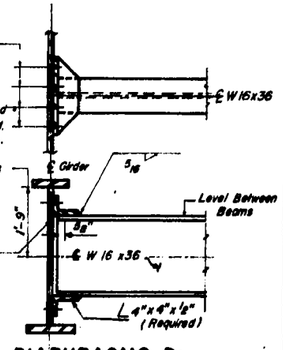
ELEVATION



BOTTOM VIEW

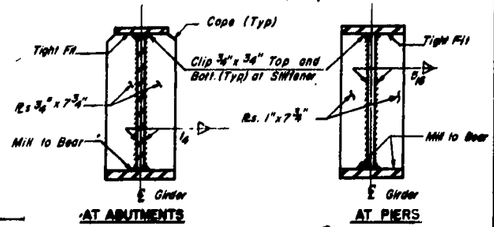
FIELD SPLICE DETAIL

All Fasteners are ¾"ø H.S. Bolts



DIAPHRAGMS D1

64 Required



AT ABUTMENTS — AT PIERS

BEARING STIFFENER DETAIL

DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	J.B.J.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL

FA 403 SECTION 195-1 HB-1

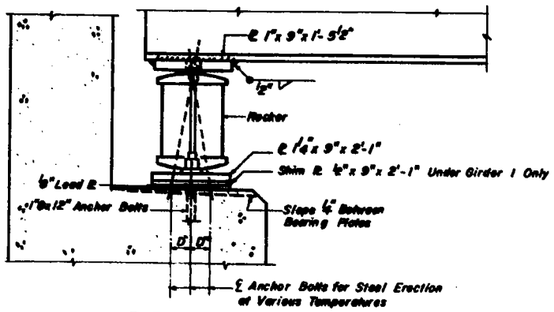
CH 25 OVER FA RT 403

WHITESIDE COUNTY

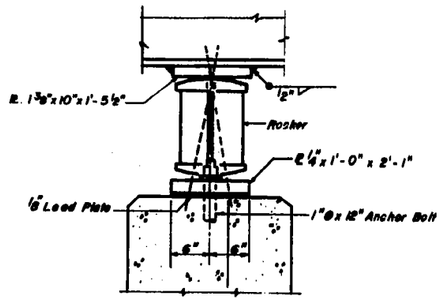
STATION 1037 +72.00

DIVISION NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.R. F.A. 403	195-1 HB-1	WHITESIDE	249	89
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT.		

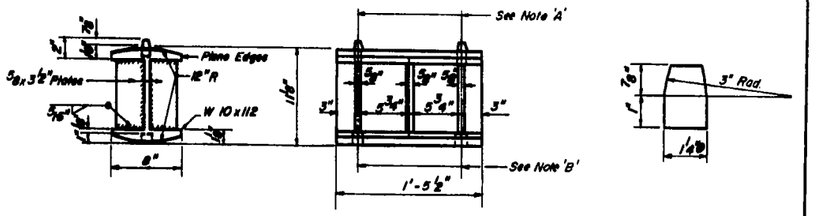
SHEET NO. 10
19 SHEETS



ELEVATION
AT ABUTMENTS

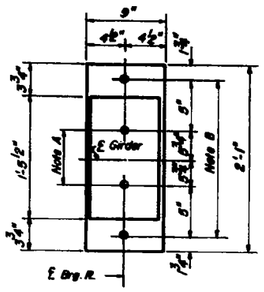


ELEVATION
AT PIERS 1 & 2



ROCKER

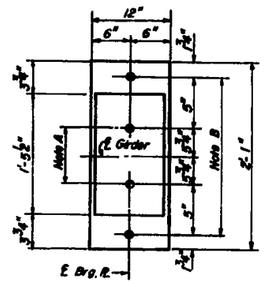
PINTLE



PLAN
AT ABUTMENTS

NOTE A
1⅜"Ø Holes -1" Deep in Top ℝ. for Pintles Thread or Press Fit Pintles into Bottom ℝ.

NOTE B
1½"Ø Holes for 1"Ø Anchor Bolts ⅝"x 2"x 2½" ℝ. Washers Under Nut



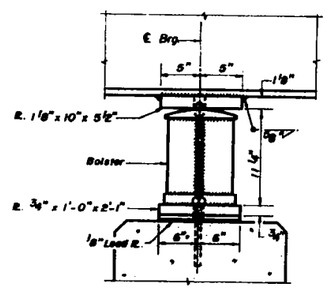
PLAN
AT PIERS

BEARING ASSEMBLY DETAILS

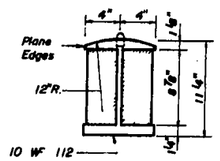
NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

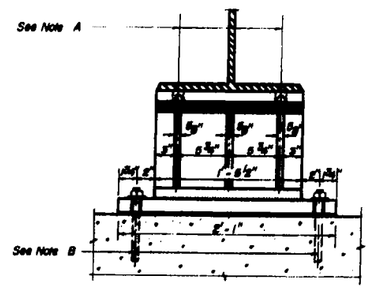
a) D' (Side of brg. away from fixed brg.)
D' = ⅛" per each 100° of expansion for every 15° fall below the normal temp. of 50°F.
D'' (Side of brg. toward fixed brg.)
every 15° rise above the normal temp of 50°F.

b) After beams have been erected and dimensions D' or D'' determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.



ELEVATION
AT PIER 2





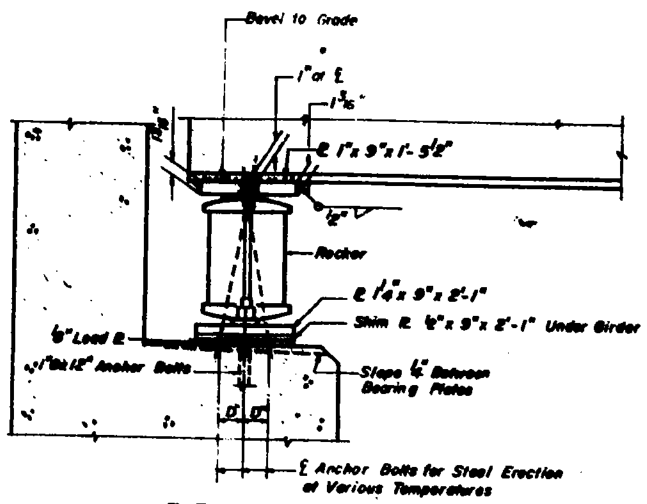
BOLSTER

DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	L.K.
CHECKED	R.O.

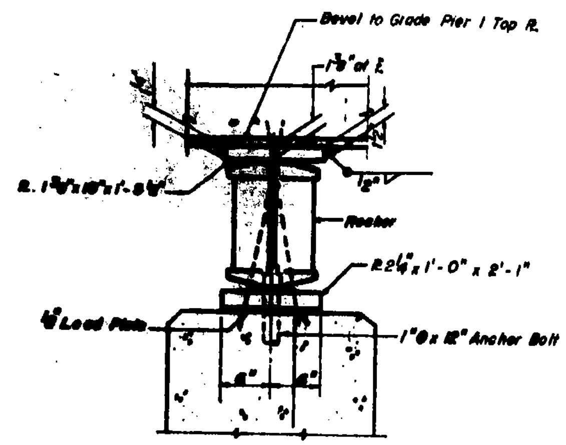
ILLINOIS DEPARTMENT OF TRANSPORTATION
STRUCTURAL STEEL DETAILS
FA ROUTE 403 SECTION 195-1HB-1
CH 25 OVER FA ROUTE 403
WHITESIDE COUNTY

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
F.A. 403	195-1 HB-1	WHITESIDE	[illegible]	89A

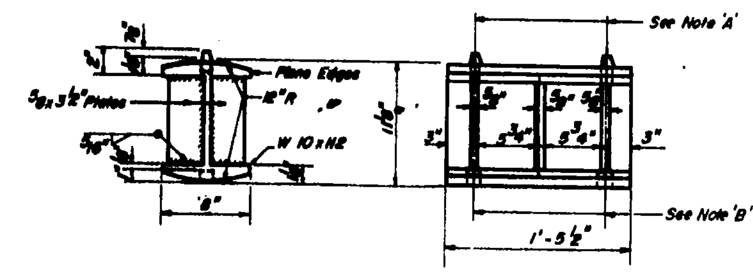
SHEET NO. 10 A
19 SHEETS



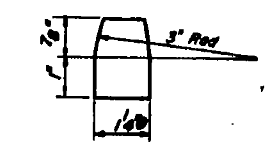
ELEVATION
AT ABUTMENTS



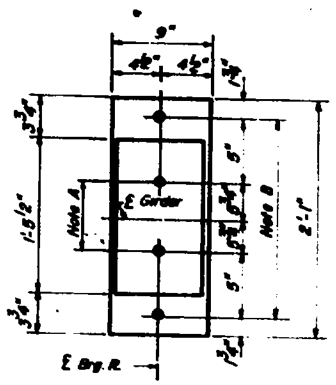
ELEVATION
AT PIERS 1 & 3



ROCKER



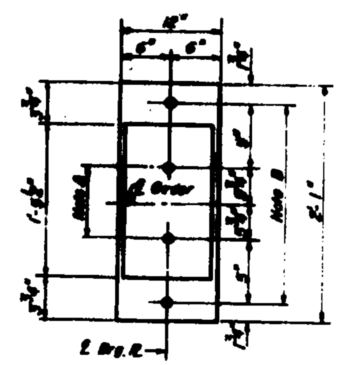
PINTLE



PLAN
AT ABUTMENTS

NOTE A
1 1/8" Ø Holes - 1" Deep in Top Pl. for Pintles. Thread or Press Fit Pintles into Bottom Pl.

NOTE B
1 1/2"Ø Holes for 1" Ø Anchor Bolts 5/16" x 2" x 2 1/2" Pl. Washers Under Nut



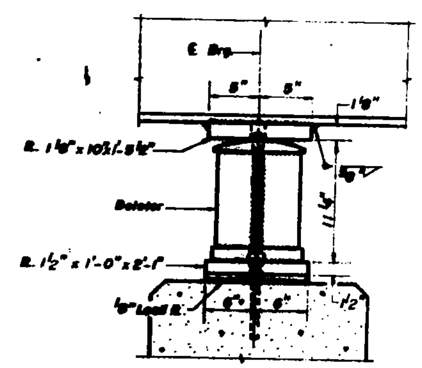
PLAN
AT PIERS

BEARING ASSEMBLY DETAILS

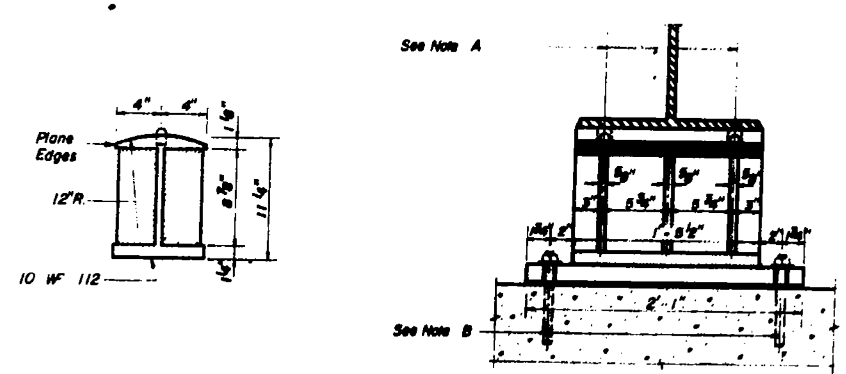
NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

a) D' (Side of brg. away from fixed brg.)
D' = 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50° F.
D'' (Side of brg. toward fixed brg.)
every 15° rise above the normal temp of 50° F.

b) After beams have been erected and dimensions D' or D'' determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.



ELEVATION
AT PIER 2



BOLSTER

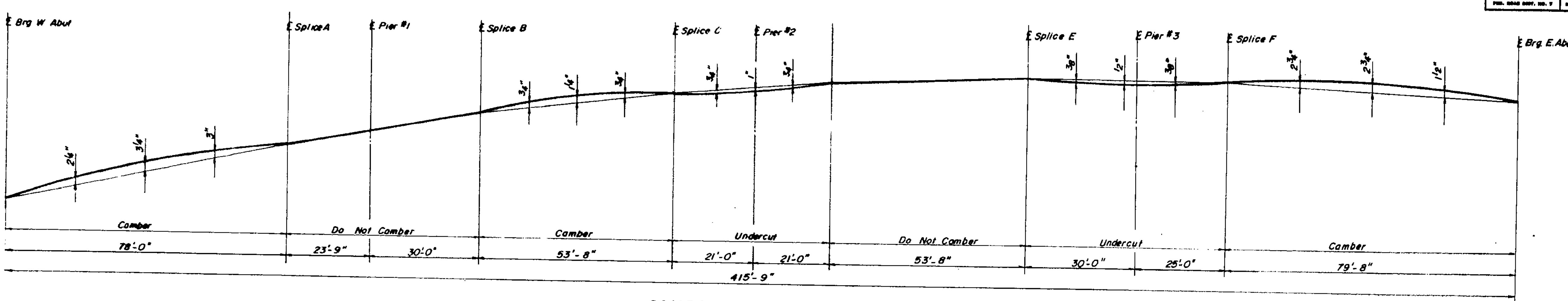
DESIGNED	NG
CHECKED	KMC
DRAWN	LK
CHECKED	[illegible]

ILLINOIS DEPARTMENT OF TRANSPORTATION
STRUCTURAL STEEL DETAILS
FA ROUTE 403 SECTION 195-1HB-1
CH 25 OVER FA ROUTE 403
WHITESIDE COUNTY

[redacted]

F.A. 403	195-1 HB-	WHITESIDE	265	90

SHEET NO. 11
19 SHEETS



CAMBER DIAPHRAGM

TOP OF WEB ELEVATION											
	℄ Brg W. Abut	℄ Splice A	℄ Pier #1	℄ Splice B	℄ Splice C	℄ Pier #2	℄ Splice D	℄ Splice E	℄ Pier #3	℄ Splice F	℄ Brg E. Abut
Girder #1	604.96	607.07	607.60	608.27	609.13	609.29	609.61	609.89	609.82	609.82	609.29
Girder #2	605.12	607.23	607.76	608.45	609.29	609.45	609.77	610.05	609.98	609.98	609.45
Girder #3	605.26	607.37	607.90	608.57	609.43	609.59	609.91	610.19	610.12	610.12	609.59
Girder #4	605.11	607.22	607.75	608.44	609.28	509.44	609.76	610.04	609.97	609.97	609.44
Girder #5	604.92	607.03	607.56	608.23	609.09	609.25	609.57	609.85	609.78	609.78	609.25

SEAT ELEVATION					
	℄ Brg. W. Abut.	℄ Pier #1	℄ Pier #2	℄ Pier #3	℄ Brg. E. Abut.
Girder #1	599.68*	602.19	604.02	604.41	604.01*
Girder #2	599.88	602.35	604.18	604.57	604.21
Girder #3	600.02	602.49	604.32	604.71	604.35
Girder #4	599.87	602.34	604.17	604.56	604.22
Girder #5	599.68	602.15	603.98	604.37	604.01

* See Sheet No. 10 for Shim Plate Requirement

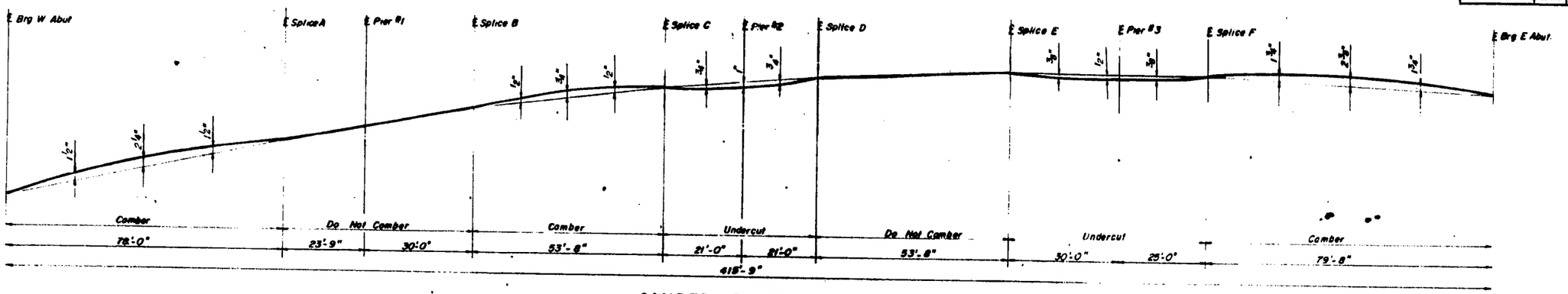
STRESS TABLE

INTERIOR GIRDER MOMENT TABLE								
		At 0.4 Span 1	At Pier #1	At 0.5 Span 2	At Pier #2	At 0.5 Span 3	At Pier #3	At 0.4 Span 4
Is	(in4)	21461.0	44629.0	18952.0	44629	18952.0	44629.0	21461.0
Ic	(in4)	58704.0	—	49336.0	—	49336.0	—	58704.0
Ss	(in3)	1101.24	1716.5	882.43	1716.5	882.43	1716.5	1101.2
Sc	(in3)	1516.04	—	1223.25	—	1223.25	—	1516.04
D	(K/')	.991	1.127	.967	1.127	.967	1.127	.991
M D	('K)	709.24	-1327.01	278.95	-806.59	271.6	-1375.44	762.06
Fs D	(Ksi)	7.72	9.27	3.79	5.64	[illegible]	[illegible]	[illegible]

INTERIOR GIRDER REACTION TABLE						
Reaction		W. Abutment	Pier #1	Pier #2	Pier #3	E. Abutment
R D	(K)	60.2	188.8	151.1	192.1	62.3
R L	(K)	38.6	60.4	57.9	60.9	38.6
Impact	(K)	8.4	13.1	12.5	13.2	8.4
R(Total)	(K)	107.2	262.3	221.5	266.2	109.3

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 403	195-1 HB-	WHITESIDE	146	90A
PROJ. ROAD DIST. NO. 7	ILLINOIS	PROJECT NO.		

SHEET NO. 11 A
19 SHEETS



CAMBER DIAPHRAGM

TOP OF WEB ELEVATION

	℄ Brg W Abut	℄ Splice A	℄ Pier #1	℄ Splice B	℄ Splice C	℄ Pier #2	℄ Splice D	℄ Splice E	℄ Pier #3	℄ Splice F	℄ Brg E Abut
Girder #1	604.96	607.07	607.60	608.27	609.13	609.29	609.61	609.89	609.82	609.82	609.29
Girder #2	605.12	607.23	607.76	608.45	609.29	609.45	609.77	610.05	609.98	609.98	609.45
Girder #3	605.26	607.37	607.90	608.57	609.43	609.59	609.91	610.19	610.12	610.12	609.59
Girder #4	605.11	607.22	607.75	608.44	609.28	609.44	609.76	610.04	609.97	609.97	609.44
Girder #5	604.92	607.03	607.56	608.23	609.09	609.25	609.57	609.85	609.78	609.78	609.25

STRESS TABLE

INTERIOR GIRDER MOMENT TABLE

	At 0.4 Span 1	At Pier #1	At 0.5 Span 2	At Pier #2	At 0.5 Span 3	At Pier #3	At 0.4 Span 4
Is (in⁴)	214610	446290	189520	44629	189520	446290	214610
Ic (in⁴)	58704.0	—	49336.0	—	49336.0	—	58704.0
Ss (in³)	1101.24	1716.5	882.43	1716.5	882.43	1716.5	1101.2
Sc (in³)	1516.04	—	1223.25	—	1223.25	—	1516.04
n (K/')	.991	1.127	.967	1.127	.967	1.127	.991
M D (' K)	709.24	-1327.01	278.95	-806.59	271.6	-1375.46	762.06
Fs D (Ksi)	7.72	9.27	3.79	564	3.69	9.61	8.3
S D (K/')	.957	.957	.957	.957	.957	.957	.957
MS D ('K)	460.66	-629.98	251.08	-454.93	239.73	651.67	491.99
M L (' K)	718.41	-589.81	568.37	-553.33	577.98	-600.82	731.47
M (Imp) ('K)	155.89	-127.99	133.33	-120.07	125.42	-130.38	158.73
Total ('K)	1334.96	-1347.38	942.78	-1128.33	943.13	-1382.87	1382.19
Fs L (Ksi)	10.57	9.42	9.25	7.88	9.25	9.67	10.94
Fs(Total)K (Ksi)	18.29	16.69	13.04	13.52	12.94	19.28	19.29
VR (K)	45.5	—	47.9	—	48.2	—	45.6

INTERIOR GIRDER REACTION TABLE

Reaction	W. Abutment	Pier #1	Pier #2	Pier #3	E. Abutment
R D (K)	60.2	188.8	151.1	192.1	62.3
R L (K)	38.6	60.4	57.9	60.9	38.6
Impact (K)	8.4	13.1	12.5	13.2	8.4
R(Total) (K)	107.2	262.3	221.5	266.2	109.3

DESIGNED	N.G.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	[illegible]

Revised 11,25,74 A.R.

ILLINOIS DEPARTMENT OF TRANSPORTATION

FABRICATION DETAILS

FA RT. 403 SECTION 195-1HB-1

CH 25 OVER FA RT. 403

WHITESIDE COUNTY

STATION 1037+72.00

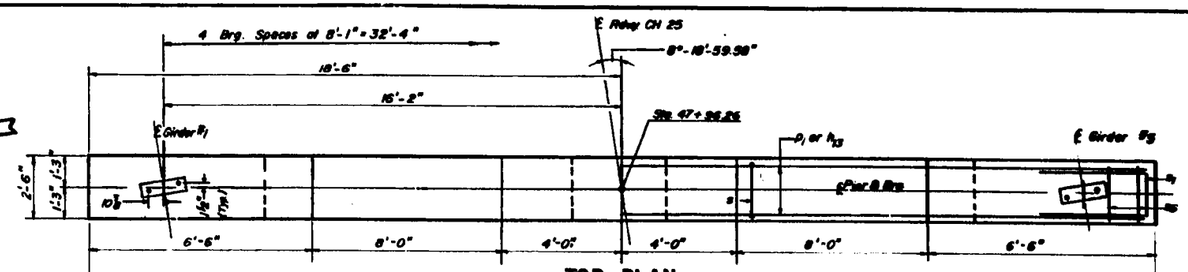
				SHEET NO. 12 OF 19 SHEETS
F.A.P. 403	BRS-1 HBR-1	WHITESIDE	266	91

NOTES:

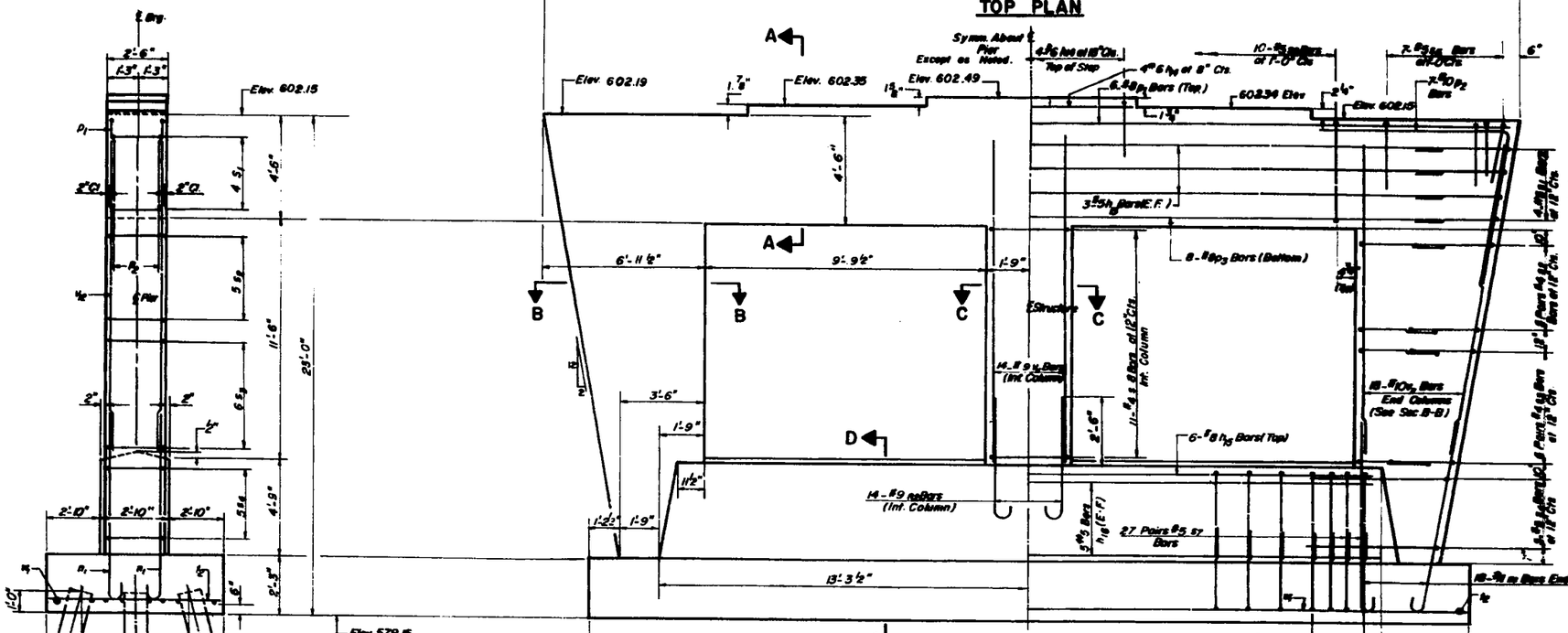
Space reinforcement in cap to miss anchor bolts.

All edges shall have standard $\frac{3}{4}$" chamfers except as noted.

Pour steps monolithically with cap.

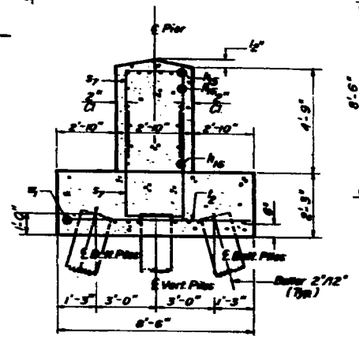


TOP PLAN

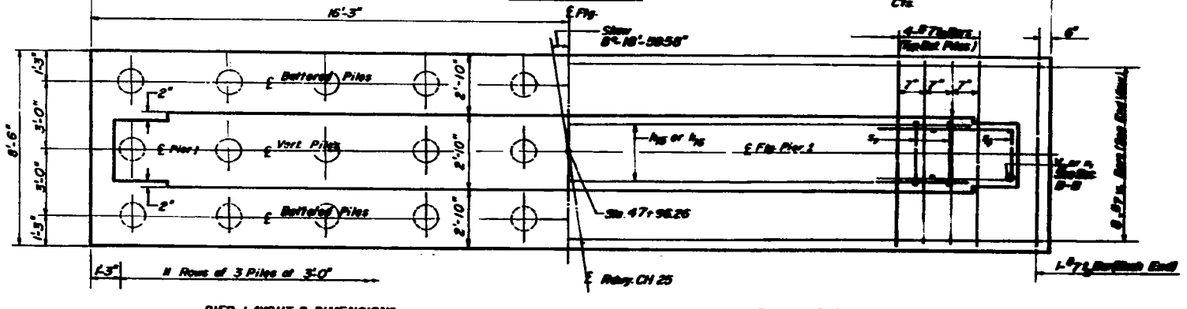


ELEVATION

END VIEW



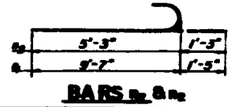
SECTION D-D



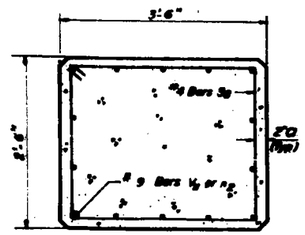
PIER LAYOUT & DIMENSIONS

FOOTING PLAN

REINFORCEMENT



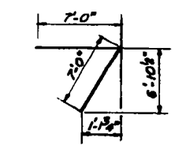
BARS q_{12} & q_6



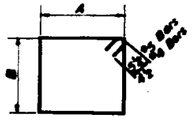
SECTION C-C

SECTION A-A

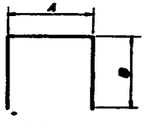
SECTION B-B



BAR p_2



BARS s_1, s_4, s_6, s_7, s_8 & s_9



BARS s_1, s_2, s_3, s_5, s_7 & s_9

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h_{12}	6	#5	32'-0"	—
h_{14}	4	#6	7'-9"	—
h_{15}	8	#8	24'-9"	—
h_{16}	10	#5	24'-9"	—
h_1	36	#10	11'-0"	→
h_2	28	#9	6'-6"	→
p_1	6	#8	36'-0"	—
p_2	14	#10	14'-0"	⌐
p_3	8	#8	32'-0"	—
s_1	8	#5	8'-9"	⊓
s_2	20	#4	11'-1"	⊓
s_3	26	#4	12'-1"	⊓
s_4	10	#5	13'-2"	⊓
s_5	14	#6	7'-6"	⊓
s_6	20	#5	7'-3"	⊓
s_7	54	#5	10'-8"	⊓
s_8	11	#5	11'-5"	⊓
s_9	4	#4	5'-8"	⊓
s_{10}	36	#10	15'-0"	—
s_{11}	14	#9	18'-0"	—
w_1	8	#7	32'-0"	—
Class X Concrete			Cu.Yds.	666
Reinforcement Bars			Lbs.	12,600
Cresented Piles			Lin. Ft.	1320

A & B DIMENSIONS

Bar	A	B
q_1	2'-1	3'-9
q_2	2'-2	3'-0
q_3	2'-2	2'-6
q_4	2'-2	5'-0
q_5	2'-2	2'-8
q_6	2'-2	6'-8
q_7	2'-2	4'-0
q_8	2'-2	2'-2
q_9	2'-2	1'-8

PILE DATA

Type ---------- Cresented
Capacity ---------- 24 Tons
Est Length ------- 40 Feet
Piles Required ------- 33

DESIGNED	R.J.L.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION

PIER #1

FA RT. 403 SECTION 195-1HB-1

CH 25 OVER FA RT. 403

WHITESIDE COUNTY

STATION 1087+72.00

STATE OF ILLINOIS	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. No. 403	185-1 HB-1	WHITESIDE	446	91A
FED. ROAD DIST. NO. 9	PLANS	FED. AID PROJECT		

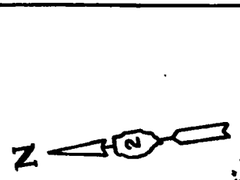
SHEET NO. 12 A
19 SHEETS

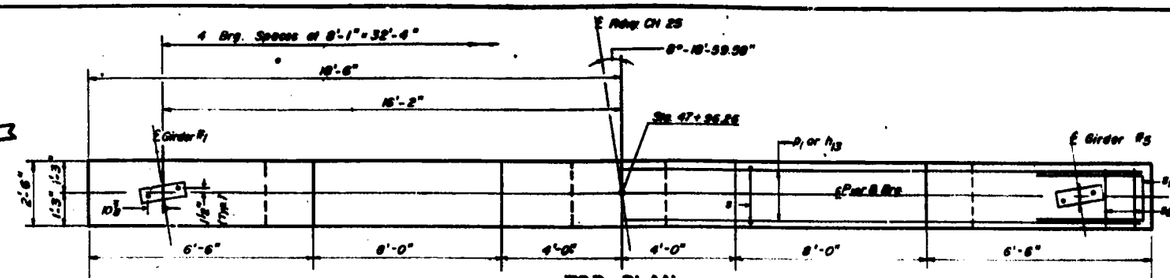
NOTES:

Space reinforcement in cap to miss anchor bolts.

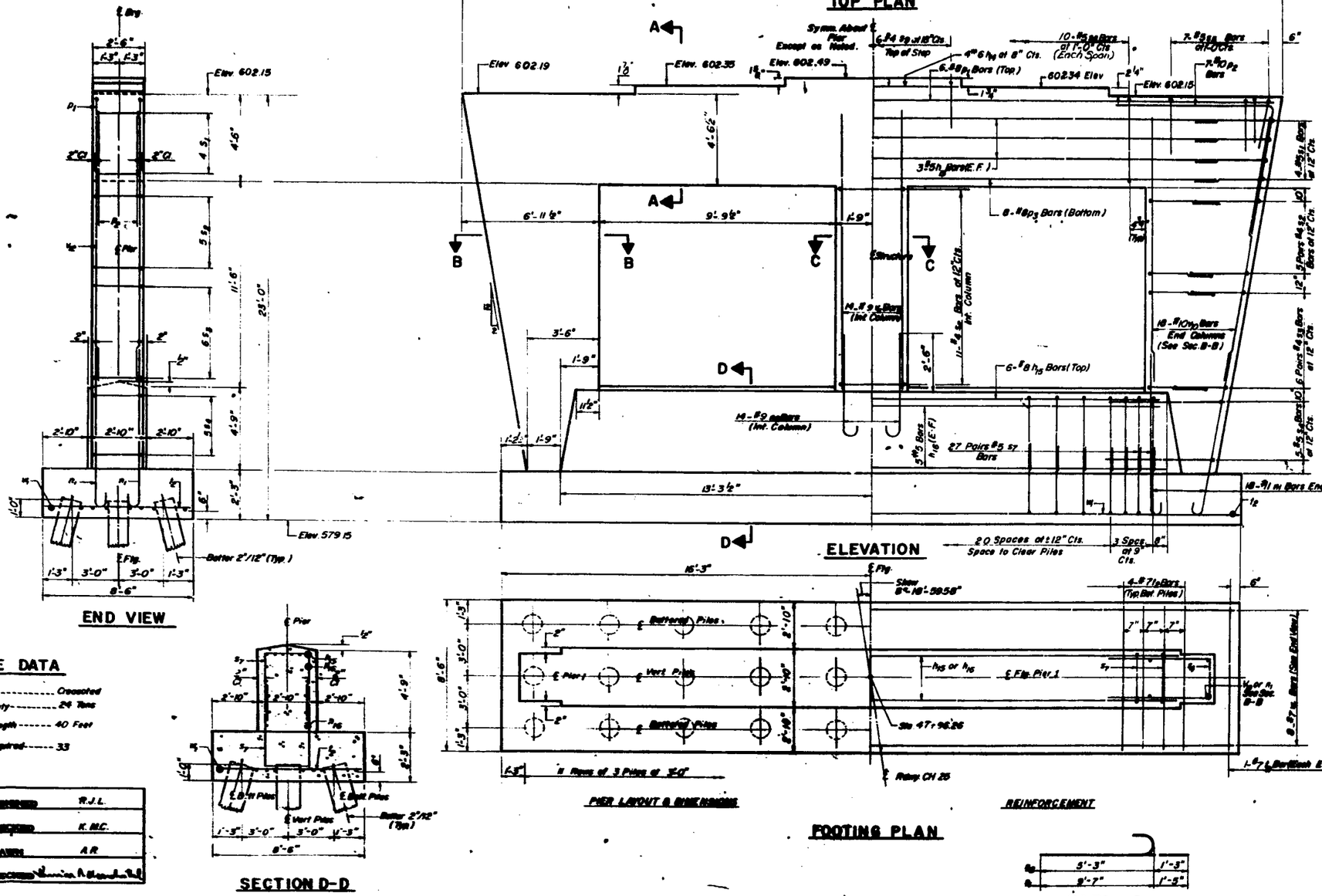
All edges shall have standard $\frac{3}{4}$" chamfers except as noted.

Pour steps monolithically with cap.





TOP PLAN



ELEVATION

END VIEW

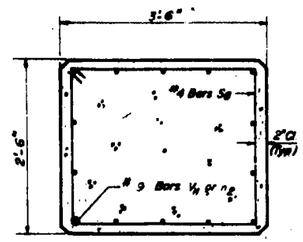
SECTION D-D

FOOTING PLAN

PIER LAYOUT & DIMENSIONS

REINFORCEMENT

BARS n_7 & n_8



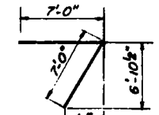
SECTION C-C

SECTION A-A

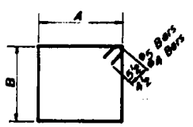
SECTION B-B

BILL OF MATERIAL

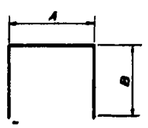
Bar	No.	Size	Length	Shape
h13	6	#5	35'-0"	
h14	4	#5	7'-9"	
h18	6	#8	24'-9"	
h19	10	#5	24'-8"	
n1	36	#11	11'-0"	
n2	14	#9	6'-6"	
P1	6	#8	36'-6"	
P2	14	#10	14'-0"	
P3	8	#8	32'-0"	
s1	8	#5	8'-9"	
s2	20	#4	11'-1"	
s3	24	#4	10'-1"	
s4	10	#5	12'-8"	
s5	14	#5	7'-6"	
s6	20	#8	13'-7"	
s7	54	#5	10'-6"	
s8	11	#5	11'-7"	
s9	6	#4	5'-6"	
t2	42	#7	8'-3"	
t10	36	#10	15'-0"	
t11	14	#9	18'-0"	
t1	8	#7	32'-0"	
Class X Concrete			Cu Yds.	68.6
Reinforcement Bars			Lbs.	11,210
Creosoted Piles			Lin. Ft.	1320



BAR p_2



BARS s2, s3, s6 & s8



BARS s_1, s_4, s_5, s_7 & s_9

A & B DIMENSIONS

Bar	A	B
s1	2'-1"	3'-6"
s2	2'-2"	3'-0"
s3	2'-2"	2'-6"
s4	2'-2"	5'-0"
s5	2'-2"	2'-6"
s6	2'-2"	2'-2"
s7	2'-6"	4'-0"
s8	3'-2"	2'-2"
s9	2'-2"	1'-8"

PILE DATA

Type ---------- Creosoted
Capacity ---------- 24 Tons
Est Length ------- 40 Feet
No Required ------ 33

DESIGNED	R.J.L.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION

PIER #1

FA RT. 403 SECTION 185-1HB-1

CH 25 OVER FA RT. 403

WHITESIDE COUNTY

STATION 1037+72.80

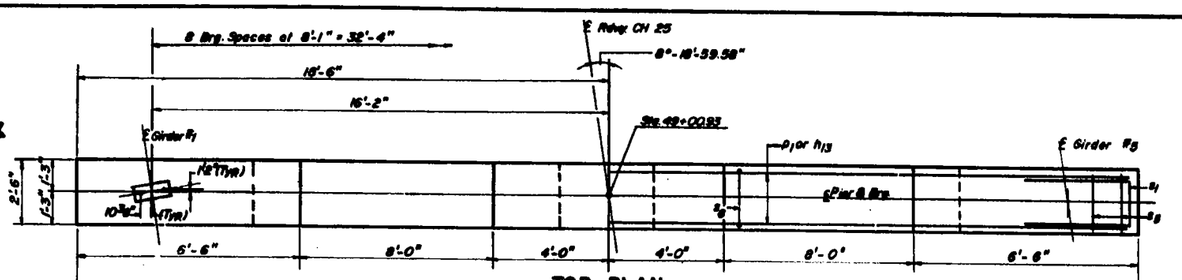
				SHEET NO. 13
S.N. 403	195-1HB-1	WHITESIDE	245	19 SHEETS

NOTES:

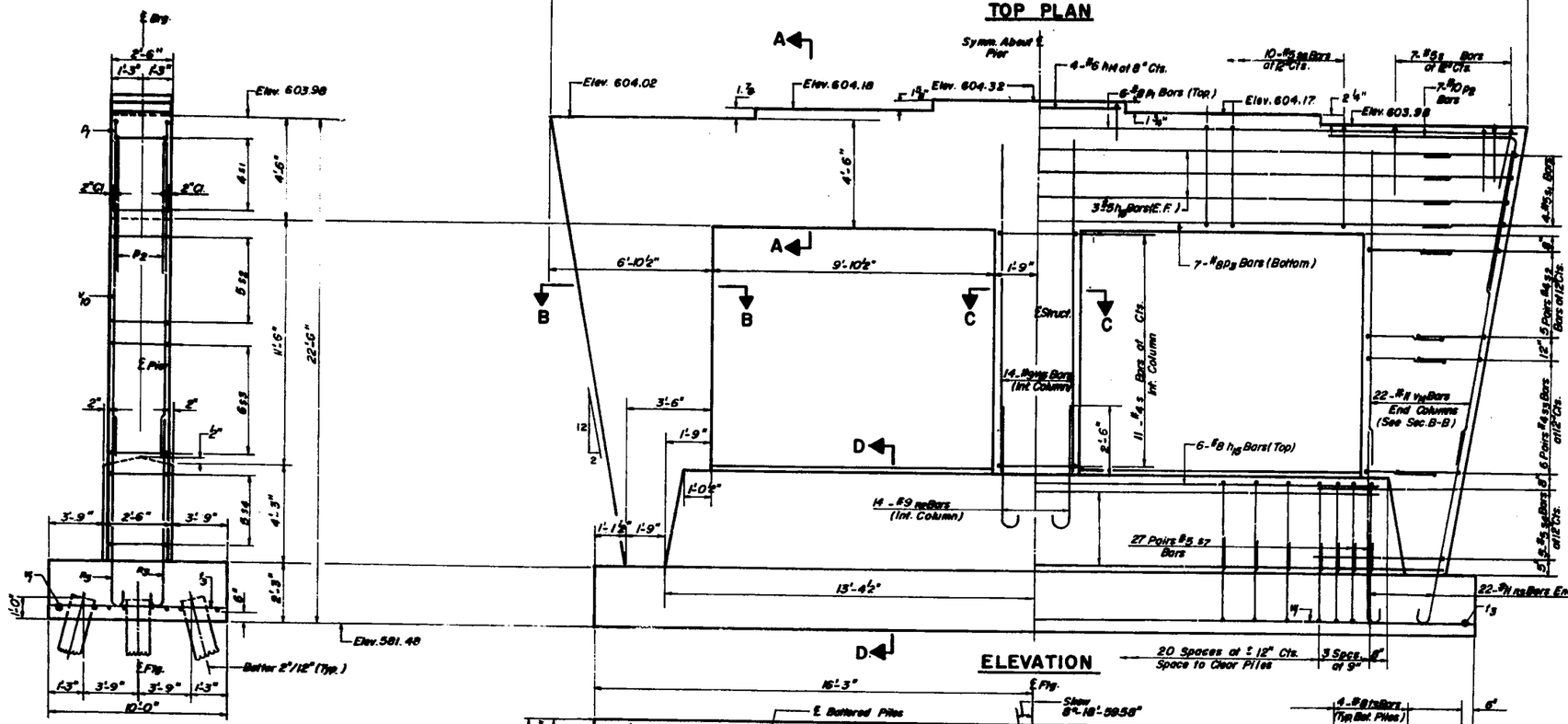
Space reinforcement in cap to miss anchor bolts.

All edges shall have standard ¾" handers except as noted.

Pour steps monolithically with cap.



TOP PLAN



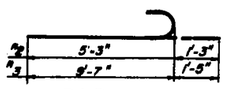
END VIEW

ELEVATION

PIER LAYOUT & DIMENSIONS

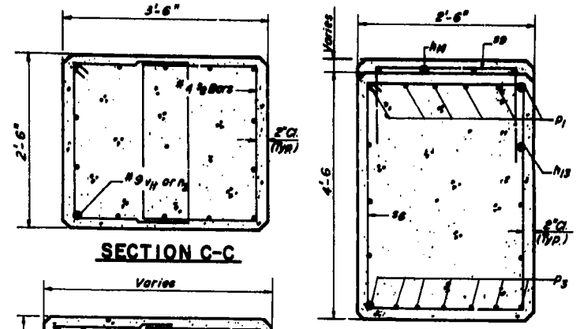
SECTION D-D

REINFORCEMENT



BAR n

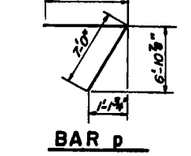
FOOTING PLAN



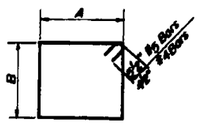
SECTION C-C

SECTION A-A

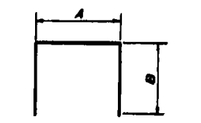
SECTION B-B



BAR p



BARS s2, s3, s4 & s8



BARS s1, s4, s5 & s7

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h13	6	#8	32'-0"	
h14	4	#8	7'-9"	
h15	8	#8	24'-9"	
h16	10	#5	24'-9"	
n2	28	#9	6'-6"	
n3	49	#11	11'-0"	
p1	6	#8	36'-0"	
p2	14	#10	14'-0"	
p3	8	#8	32'-0"	
s1	8	#5	8'-8"	
s2	20	#4	11'-1"	
s3	24	#4	10'-1"	
s4	10	#5	13'-2"	
s5	14	#5	7'-8"	
s6	20	#5	7'-3"	
s7	54	#5	10'-5"	
s8	11	#5	11'-8"	
s9	4	#4	6'-8"	
t3	122	#8	9'-9"	
v16	44	#11	14'-8"	
v18	14	#9	14'-6"	
w1	8	#7	32'-0"	
Class X Concrete		Cu.Yds.	70.8	
Reinforcement Bars		Lbs.	16,800	
Creosoted Piles		Lin. Ft.	1216	
Test Pile Timber		Each	1	

A & B DIMENSIONS

Bar	A	B
s1	8'-1"	9'-4"
s2	2'-6"	3'-0"
s3	2'-2"	2'-6"
s4	2'-2"	8'-0"
s5	2'-2"	2'-8"
s6	2'-2"	4'-2"
s7	2'-8"	4'-0"
s8	3'-2"	2'-2"
s9	2'-2"	1'-8"

PILE DATA

Type ---------- Creosoted

Capacity ---------- 22 Tons

Est. Length ------- 38 Feet

No. Required ------ 32 (Piles 1 Test Pile in Permanent Location)

DESIGNED	J.R.L.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

ILLINOIS DEPARTMENT OF TRANSPORTATION

PIER #2

FA RT. 403 SECTION 195-1HB-1

CH 25 OVER FA RT. 403

WHITESIDE COUNTY

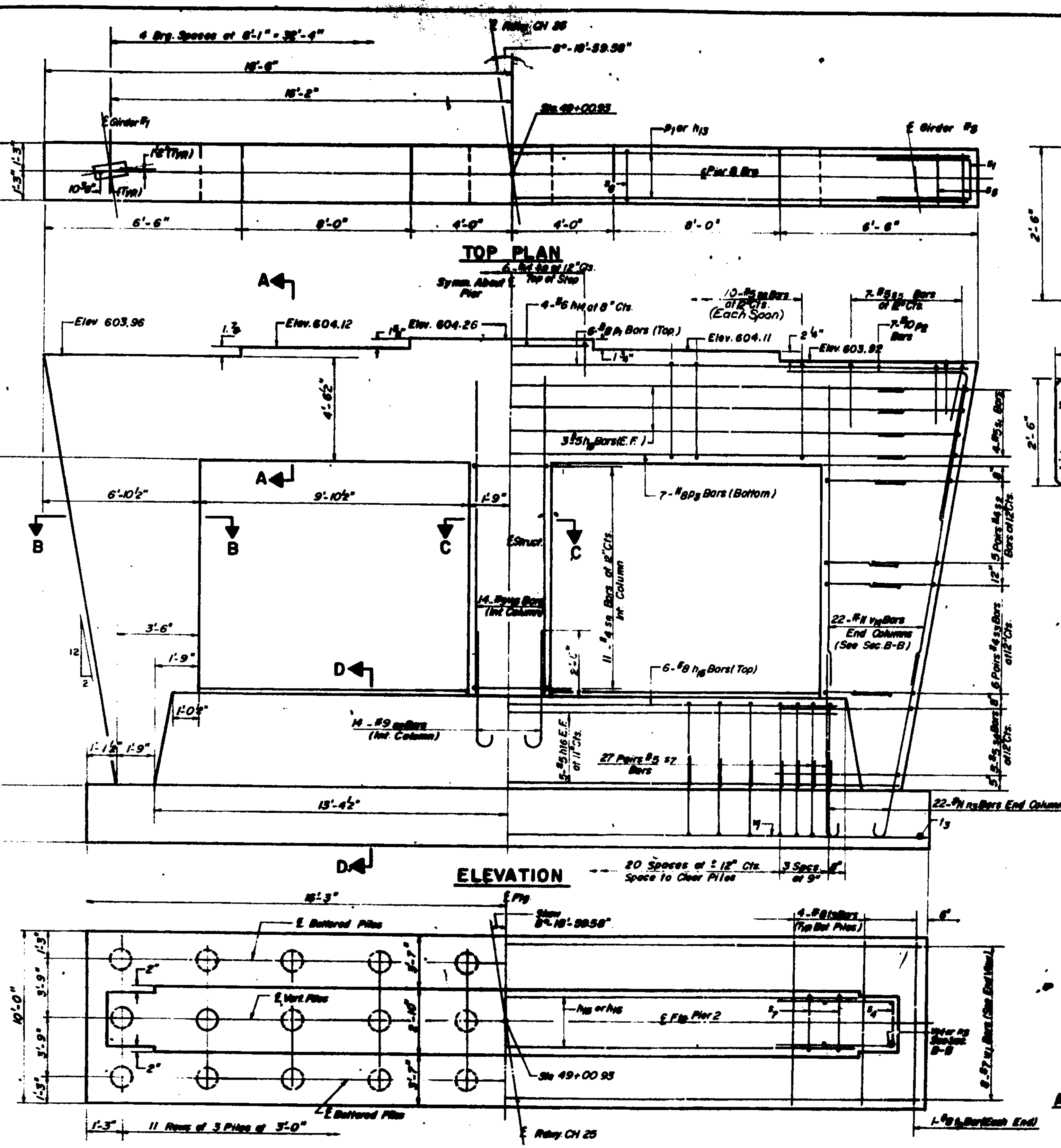
STATION 1037+72.00

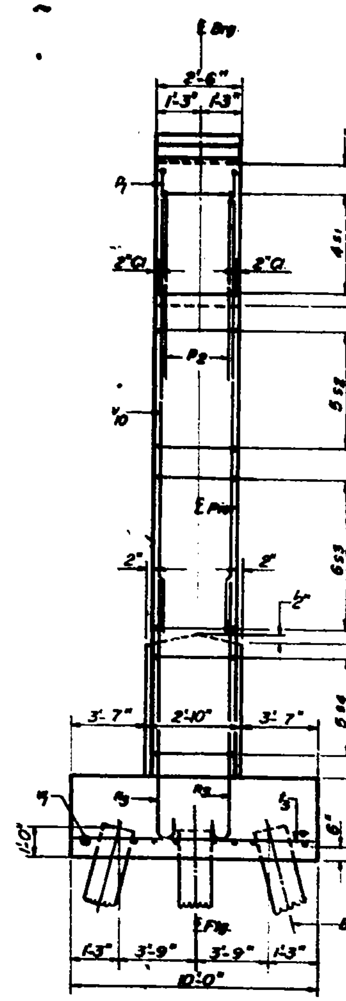
NOTES:

Space reinforcement in cap to miss anchor bolts.

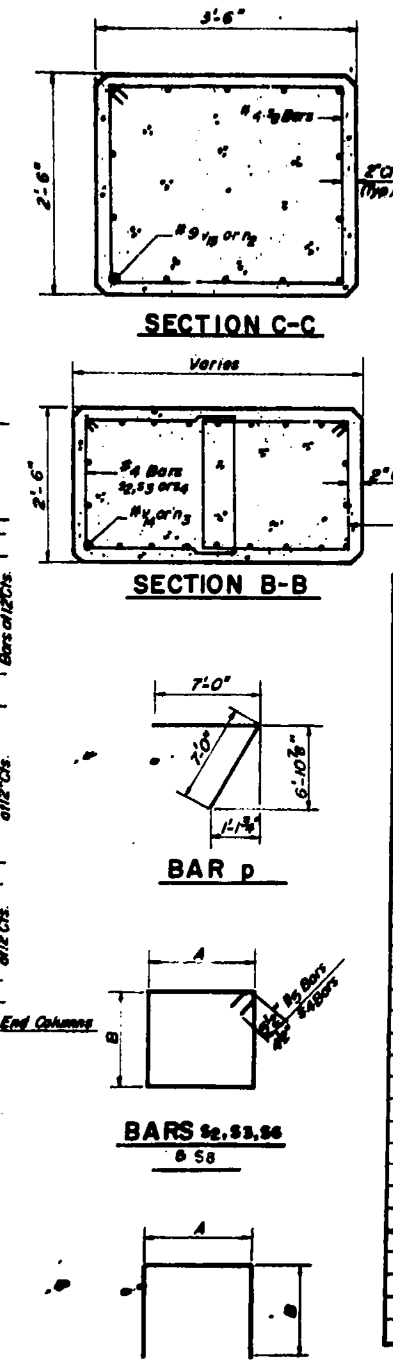
All edges shall have standard 3/4" chamfers except as noted.

Pour steps monolithically with cap





END VIEW

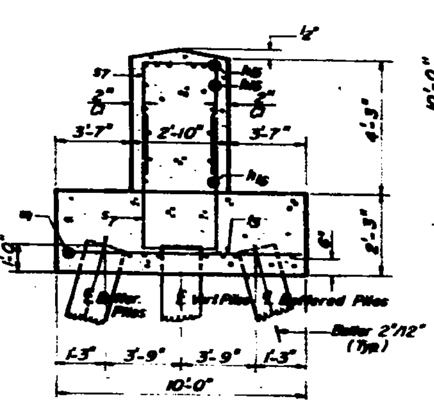


BILL OF MATERIAL

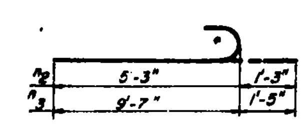
Bar	No.	Size	Length	Shape
h13	6	#8	32'-0"	
h14	4	#6	7'-9"	
h15	6	#8	24'-9"	
h16	10	#5	24'-9"	
n2	14	#9	6'-6"	
n3	44	#11	11'-0"	
p1	6	#8	36'-6"	
p2	14	#10	14'-0"	
p3	7	#8	32'-0"	
s1	8	#5	8'-9"	
s2	20	#4	11'-1"	
s3	24	#4	10'-1"	
s4	10	#5	12'-2"	
s5	14	#5	7'-6"	
s6	20	#5	13'-7"	
s7	54	#5	10'-6"	
s8	11	#5	11'-7"	
s9	6	#4	5'-6"	
l3	42	#8	9'-8"	
v14	44	#11	14'-6"	
v15	14	#9	14'-6"	
w1	8	#7	32'-0"	
Class X Concrete			Cu.Yds.	79.8
Reinforcement Bars			Lbs.	13,340
Creosoted Piles			Lin. Ft.	1216
Test Pile Timber			Each	1

PILE DATA

Type ------------ Creosoted
Capacity --------- 22 Tons
Est Length ------- 38 Feet
No Required ------ 32 (Plus 1 Test Pile in Permanent Location)



SECTION D-D



BAR n

A & B DIMENSIONS

Bar	A	B
s1	2'-1"	3'-4"
s2	2'-8"	3'-0"
s3	2'-2"	2'-6"
s4	2'-2"	5'-0"
s5	2'-2"	2'-8"
s6	2'-2"	4'-2"
s7	2'-6"	4'-0"
s8	3'-2"	2'-2"
s9	2'-2"	1'-8"

DESIGNED	J R L
CHECKED	K M C
DRAWN	A R
CHECKED	[signature]

ILLINOIS DEPARTMENT OF TRANSPORTATION

PIER #2

FA RT. 403 SECTION 196-1HB-1

CH 25 OVER FA RT. 403

WHITESIDE COUNTY

STATION 1037+72.00

Revised 11. 25, 74 A R.

ROUTE SEC.	CONTROL	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 403	195-1 HB-1	WHITESIDE	265	95
FED. ROAD DIST. NO. 9	ILLINOIS	FED. AID PROJECT		

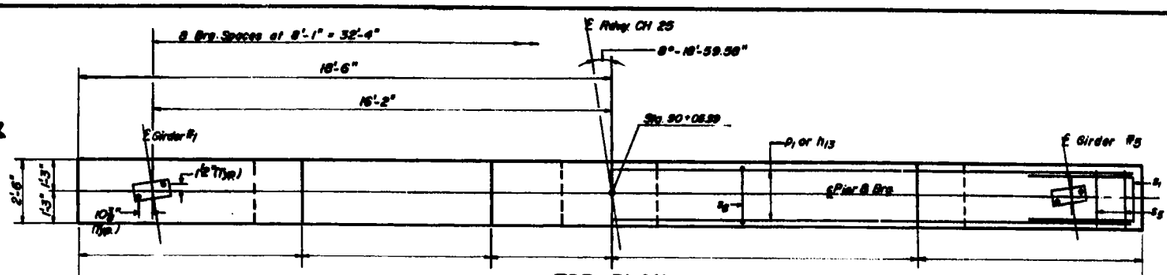
SHEET NO. 14
19 SHEETS

NOTES:

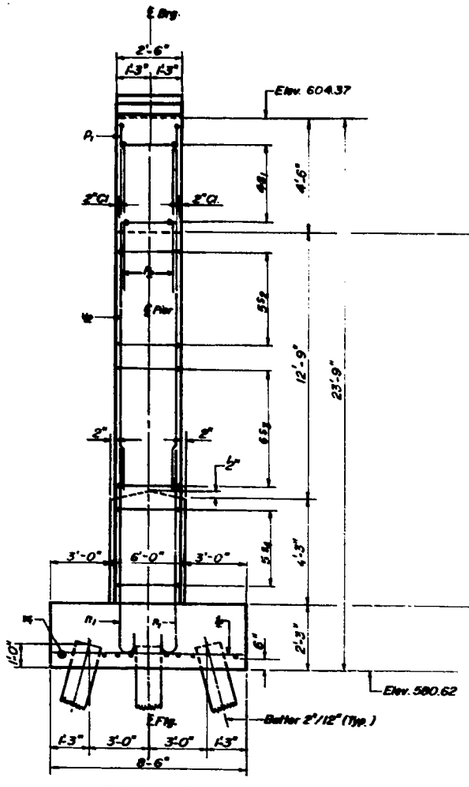
Space reinforcement in cap to miss anchor bolts.

All edges shall have standard $\frac{3}{4}$" chamfers except as noted.

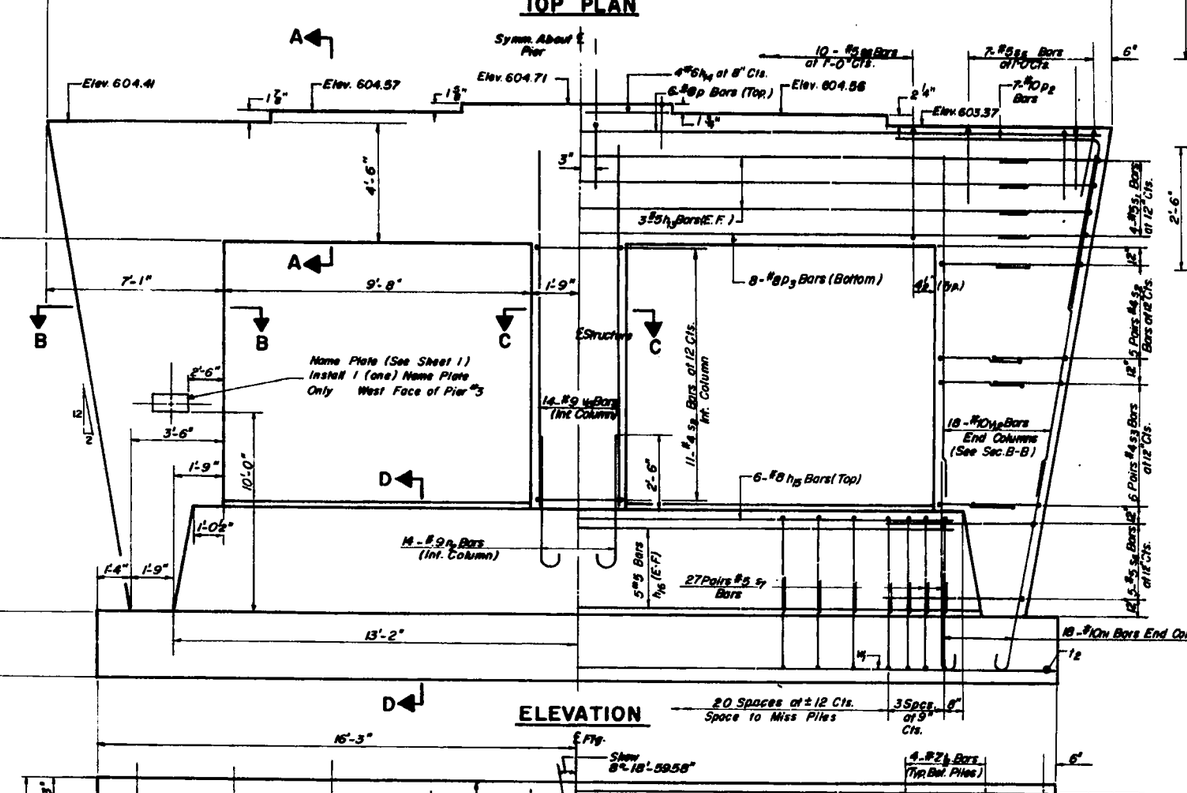
Pour steps monolithically with cap.



TOP PLAN

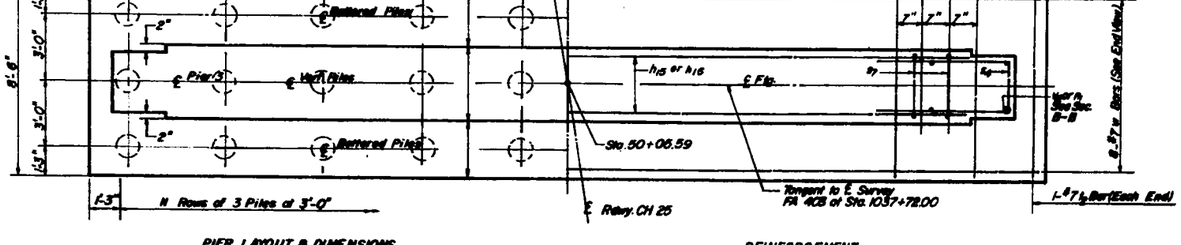


END VIEW



ELEVATION

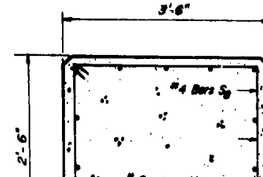
20 Spaces at ± 12 Cls. Space to Miss Piles
3 Spcs. at 9" Cls.
6"



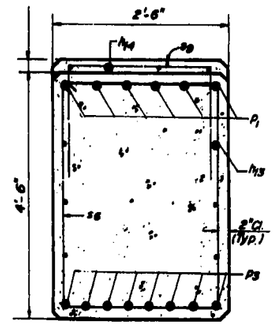
PIER LAYOUT & DIMENSIONS

REINFORCEMENT

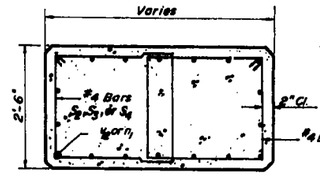
FOOTING PLAN



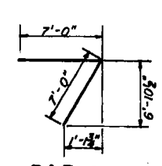
SECTION C-C



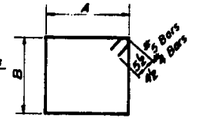
SECTION A-A



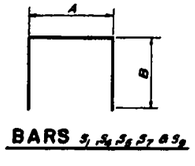
SECTION B-B



BAR p_2



BARS s_1, s_4, s_8, s_7, s_8 & s_9



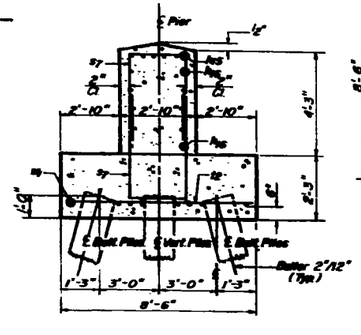
BARS s_1, s_4, s_5, s_7 & s_9

BILL OF MATERIAL

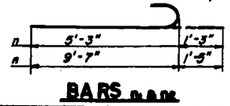
Bar	No.	Size	Length	Shape
h_{13}	6	#5	32'-0"	
h_{14}	4	#6	7'-9"	
h_{15}	8	#8	24'-9"	
h_{16}	10	#5	24'-9"	
n_1	36	#10	11'-0"	
n_2	28	#9	6'-6"	
p_1	6	#8	36'-0"	
p_2	14	#10	14'-0"	
p_3	8	#8	38'-0"	
s_1	8	#5	8'-8"	
s_2	20	#4	11'-1"	
s_3	24	#4	10'-1"	
s_4	10	#5	13'-2"	
s_5	14	#5	7'-6"	
s_6	20	#5	7'-3"	
s_7	54	#8	10'-6"	
s_8	11	#5	11'-9"	
s_9	4	#4	5'-6"	
t_2	122	#7	8'-3"	
$\frac{1}{2}$	36	#10	16'-6"	
$\frac{1}{2}$	14	#9	15'-6"	
w_1	8	#7	32'-0"	
Class X Concrete		Cu.Yds.	87.7	
Reinforcement Bars		Lbs.	12,700	
Creosoted Piles		Lin. Ft.	1320	

PILE DATA

Type ----------Creosoted
Capacity----------24 Tons
Est. Length-------40 Feet
No. Required------33



SECTION D-D



BARS n & n2

A & B DIMENSIONS

Bar	A	B
s_1	2'-1"	3'-4"
s_2	2'-2"	3'-0"
s_3	2'-2"	2'-8"
s_4	2'-8"	5'-0"
s_5	2'-8"	2'-8"
s_6	2'-2"	6'-2"
s_7	2'-8"	4'-0"
s_8	3'-2"	2'-2"
s_9	2'-2"	1'-8"

DESIGNED	J.R.L.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

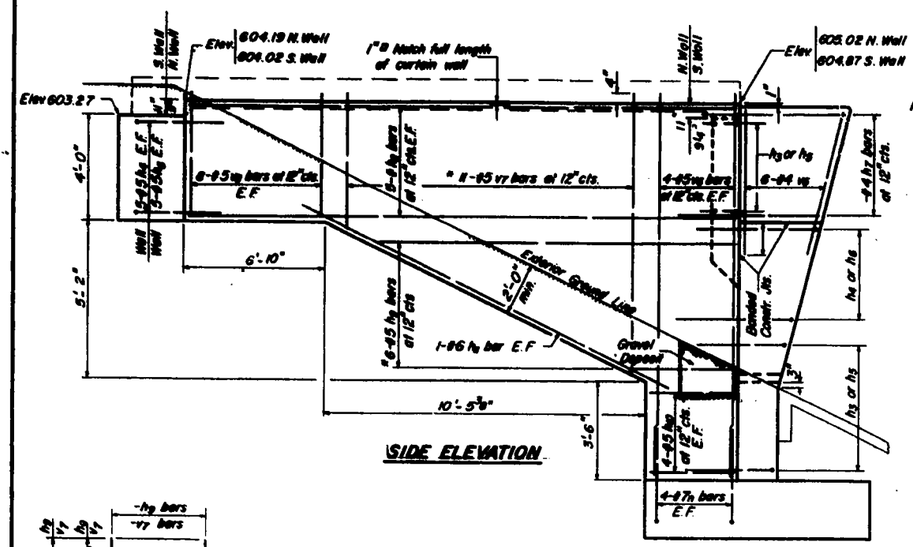
ILLINOIS DEPARTMENT OF TRANSPORTATION

PIER #3

FA RT. 403 SECTION 195-1HB-1
CH 25 OVER FA RT. 403
WHITESIDE COUNTY
STATION 1037+72.00

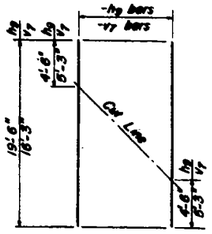
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 403	195-1 HB-1	WHITESIDE	249	95
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 16
19 SHEETS

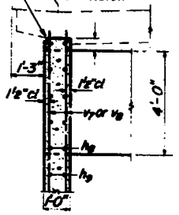


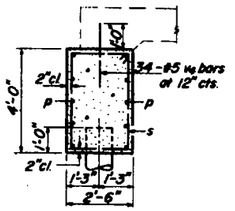
ABUT.-PILE DATA
Type Concrete
Capacity 36 tons
Est. Length 48 ft.
No. Reqd. 19 Plus One Test Pile in a Permanent Location.

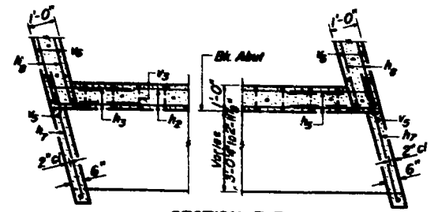
APPR. BENT-PILE DATA
Type Concrete
Capacity 25 tons
Est. Length 54 ft.
No. Reqd. 7

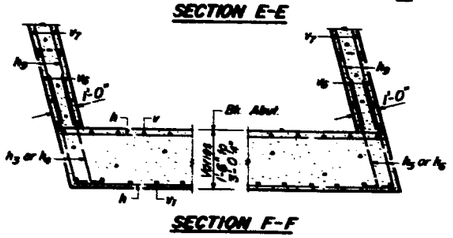


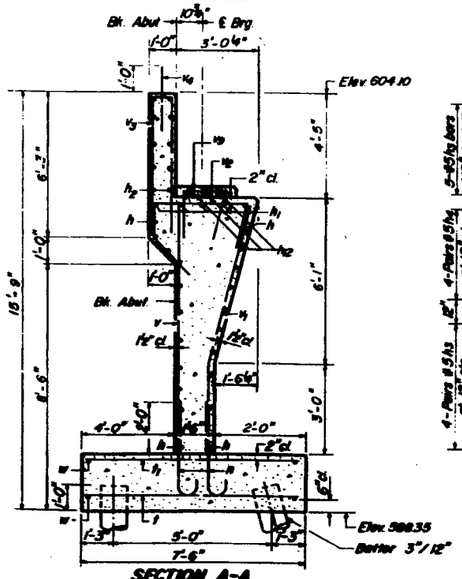
"Order h_3 & v_7 bars full length. Cut to fit as shown and use remainder of bars in other face.

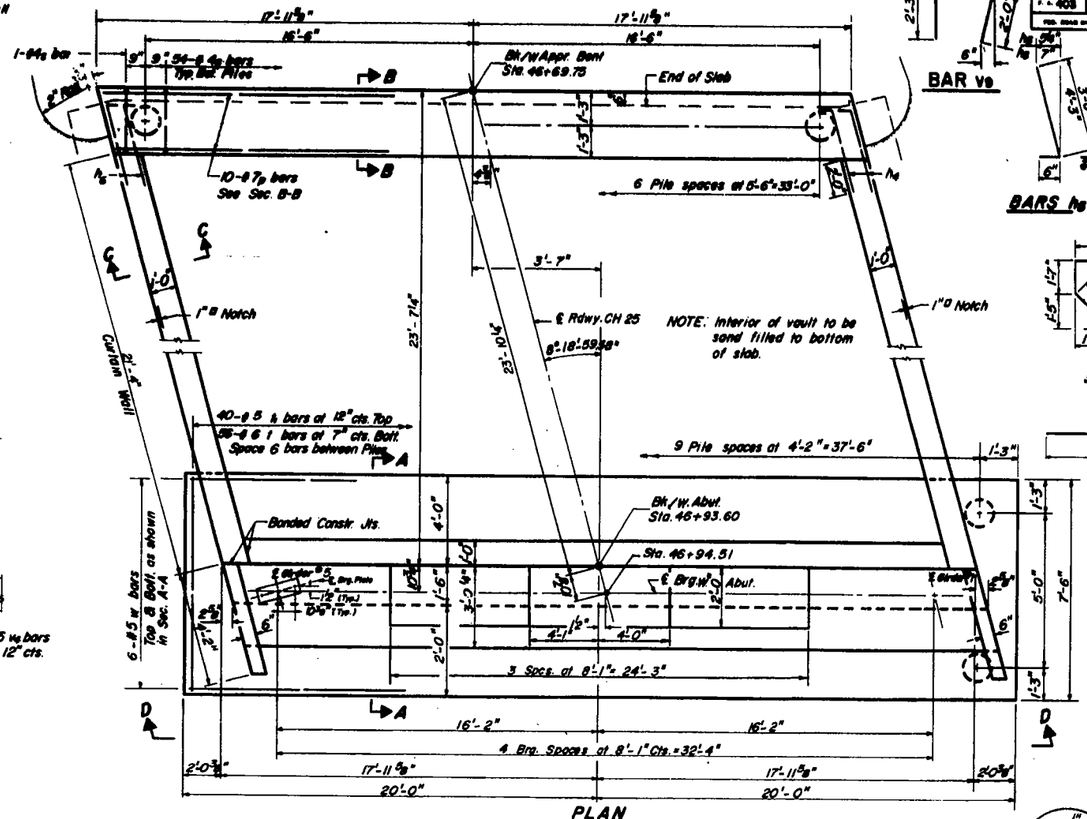


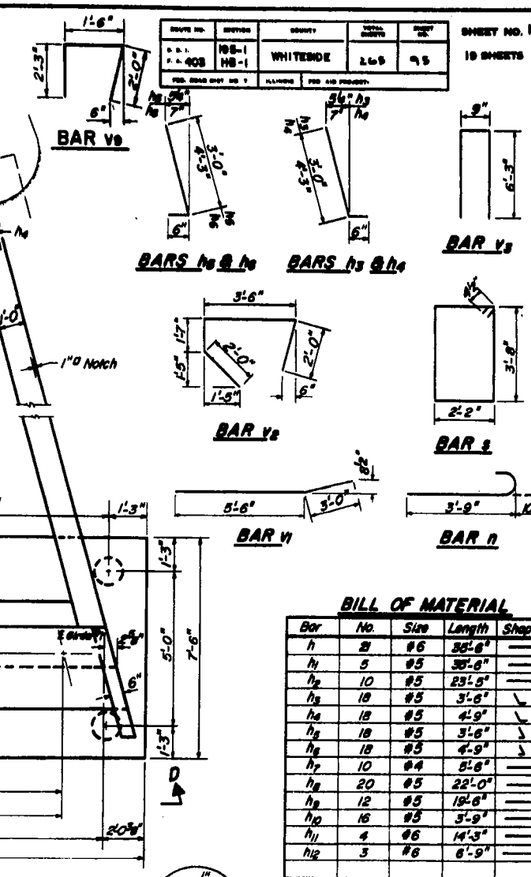






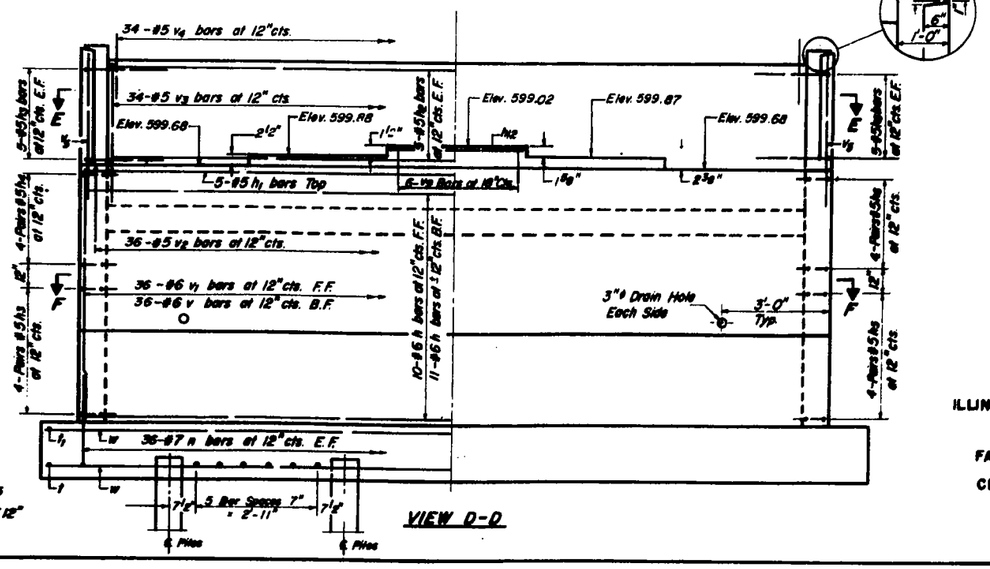






BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h	2	#6	36'-6"	
h_1	5	#5	38'-6"	
h_2	10	#5	23'-5"	
h_3	18	#5	3'-6"	
h_4	18	#5	4'-9"	
h_5	18	#5	3'-6"	
h_6	18	#5	4'-9"	
h_7	10	#4	5'-6"	
h_8	20	#5	22'-0"	
h_9	12	#5	19'-6"	
h_{10}	16	#5	3'-9"	
h_{11}	4	#6	14'-3"	
h_{12}	3	#6	6'-9"	
n	88	#7	4'-7"	
p	10	#7	38'-6"	
s	56	#4	12'-0"	
t	86	#6	7'-3"	
u	40	#5	7'-3"	
v	36	#6	8'-9"	
v_1	36	#6	9'-0"	
v_2	36	#5	9'-1"	
v_3	34	#5	13'-3"	
v_4	68	#5	2'-8"	
v_5	12	#4	6'-9"	
v_6	16	#5	14'-7"	
v_7	22	#5	16'-3"	
v_8	8	#5	5'-0"	
v_9	6	#6	6'-9"	
w	12	#5	39'-9"	
Reinforcement Bars			Lbs	9010
Class X Concrete			Cu Yds.	825
Concrete Piles			Lin. Ft.	1290
Test Pile Concrete			Each	1



DESIGNED N.S.
CHECKED K.W.C.
DRAWN A.R.
CHECKED

ILLINOIS DEPARTMENT OF TRANSPORTATION
WEST ABUTMENT
FA ROUTE 403 SECTION 195-1 HB-1
CH 25 OVER FA ROUTE 403
WHITESIDE COUNTY
STATION 1037+72.00

SIDE ELEVATION

FIELD CUTTING DIAGRAM

"Order h_9 & v_7 bars full length. Cut to fit as shown and use remainder of bars in other face.

ABUT-PILE DATA
Type Concrete
Capacity 36 tons
Est Length 48 ft.
No Reqd 19 Plus One Test Pile in a Permanent Location.

APPR. BENT-PILE DATA
Type Concrete
Capacity 23 tons
Est Length 54 ft.
No Reqd 7

SECTION C-C

SECTION B-B

SECTION E-E

SECTION F-F

PLAN

VIEW D-D

BAR v_3

BARS h_9 & h_{10}

BARS h_{11} & h_{12}

BAR v_5

BAR v_2

BAR s

BAR v_1

BAR a

BILL OF MATERIAL

Bar	No	Size	Length	Shape
A	38	06	38'-6"	
h_1	5	05	38'-6"	
h_2	10	05	33'-5"	
h_3	18	05	3'-6"	
h_4	18	05	4'-6"	
h_5	18	05	5'-6"	
h_6	18	05	6'-6"	
h_7	10	04	24'-6"	
h_8	20	05	22'-0"	
h_9	12	05	18'-6"	
h_{10}	18	05	3'-6"	
h_{11}	4	06	14'-3"	
h_{12}	3	06	6'-9"	
a	38	07	41'-7"	
b	10	07	38'-6"	
s	38	04	16'-8"	
t	38	06	7'-8"	
v	40	05	7'-8"	
v_1	36	06	8'-8"	
v_2	38	06	8'-6"	
v_3	38	05	5'-7"	
v_4	34	05	18'-9"	
v_5	38	05	2'-8"	
v_6	12	04	6'-8"	
v_7	18	05	14'-7"	
v_8	22	05	18'-3"	
v_9	38	05	8'-0"	
v_{10}	6	06	5'-9"	
a	12	05	38'-6"	

Reinforcement Bars	Lbs	9100
Class X Concrete	Cu Yds	868
Concrete Piles	Lin Ft	1290
Steel Pile Concrete Encased	Each	1

DESIGNED	N.S.
CHECKED	K.M.C.
DRAWN	A.R.
CHECKED	

Revised 11-25-74 A.R.

ILLINOIS DEPARTMENT OF TRANSPORTATION

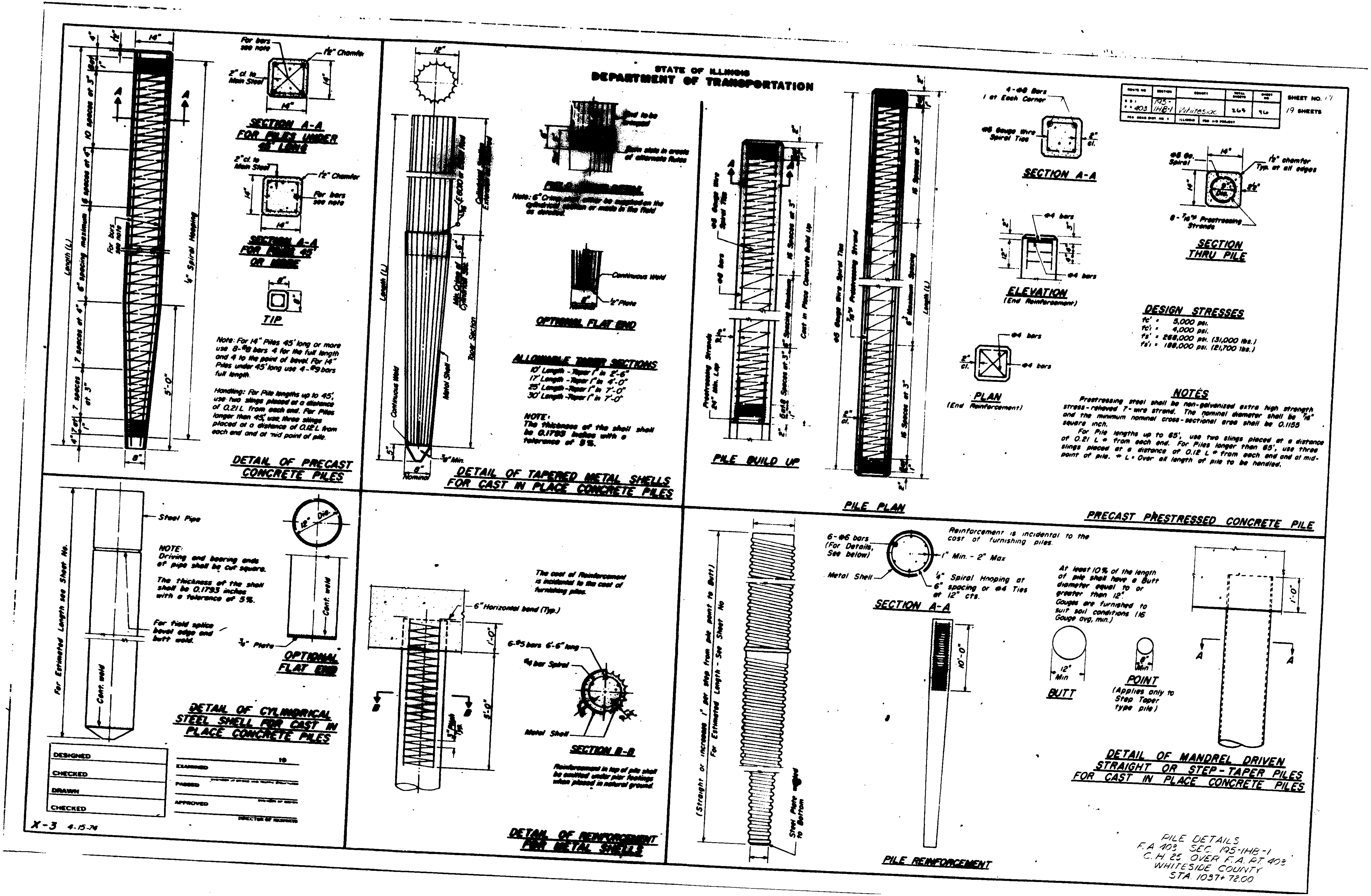
WEST ABUTMENT

FA ROUTE 403 SECTION 105-1 MB-1

CH 25 OVER FA ROUTE 403

WHITESIDE COUNTY

STATION 1067+72.00


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
SHEET NO. 17
19 SHEETS
Whiteside
SECTION A-A FOR PILES UNDER 45' LONG
SECTION A-A FOR PILES 45' OR MORE
TIP
Note: For 14" Piles 45' long or more use 8-#8 bars 4 for the full length and 4 to the point of bevel. For 14" Piles under 45' long use 4-#9 bars full length.
Handling: For Pile lengths up to 45', use two slings placed at a distance of 0.21 L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12 L from each end and at mid point of pile.
DETAIL OF PRECAST CONCRETE PILES
Length (L)
1/4" Spiral Hooping
DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES
Continuous Weld
Metal Shell
Taper Section
OPTIONAL FLAT END
ALLOWABLE TAPER SECTIONS
10' Length - Taper 1" in 2'-6"
17' Length - Taper 1" in 4'-0"
25' Length - Taper 1" in 7'-0"
30' Length - Taper 1" in 7'-0"
NOTE: The thickness of the shell shall be 0.1793 inches with a tolerance of 5%.
PILE BUILD UP
Cast in Place Concrete Build Up
PILE PLAN
SECTION A-A
ELEVATION (End Reinforcement)
PLAN (End Reinforcement)
SECTION THRU PILE
8 - 7/16" Prestressing Strands
DESIGN STRESSES
f'c = 5,000 psi.
f'ci = 4,000 psi.
f's = 248,000 psi. (31,000 lbs.)
f'si = 188,000 psi. (21,700 lbs.)
NOTES
Prestressing steel shall be non-galvanized extra high strength stress-relieved 7-wire strand. The nominal diameter shall be 7/16" and the minimum nominal cross-sectional area shall be 0.1155 square inch.
For Pile lengths up to 65', use two slings placed at a distance of 0.21 L * from each end. For Piles longer than 65', use three slings placed at a distance of 0.12 L * from each end and at mid-point of pile. * L = Over all length of pile to be handled.
PRECAST PRESTRESSED CONCRETE PILE
Steel Pipe
NOTE: Driving and bearing ends of pipe shall be cut square.
The thickness of the shell shall be 0.1793 inches with a tolerance of 5%.
For field splice bevel edge and butt weld.
Cont. weld
3/4" Plate
OPTIONAL FLAT END
For Estimated Length see Sheet No.
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES
The cost of Reinforcement is incidental to the cost of furnishing piles.
6" Horizontal band (Typ.)
6-#5 bars 6'-6" long
#4 bar Spiral
Metal Shell
SECTION B-B
Reinforcement in top of pile shall be omitted under pier footings when placed in natural ground.
DETAIL OF REINFORCEMENT FOR METAL SHELLS
6-#6 bars (For Details, See below)
Metal Shell
1" Min. - 2" Max
1/4" Spiral Hooping at 6" spacing or #4 Ties at 12" cts.
Reinforcement is incidental to the cost of furnishing piles.
SECTION A-A
PILE REINFORCEMENT
(Straight or increases 1" per step from pile point to Butt) For Estimated Length - See Sheet No.
Steel Plate welded to Bottom
At least 10% of the length of pile shall have a Butt diameter equal to or greater than 12". Gauges are furnished to suit soil conditions (16 Gauge avg. min.)
BUTT
POINT (Applies only to Step Taper type pile)
DETAIL OF MANDREL DRIVEN STRAIGHT OR STEP-TAPER PILES FOR CAST IN PLACE CONCRETE PILES
DESIGNED
CHECKED
DRAWN
CHECKED
EXAMINED
PASSED
APPROVED
X-3 4-15-74
PILE DETAILS
F.A. 403 SEC. 195-1HB-1
C.H. 25 OVER F.A. RT. 403
WHITESIDE COUNTY
STA. 1037+72.00