

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

BRIDGE
F.A. ROUTE 151
SECTION 104HVB

MADISON COUNTY

C-98-200-66

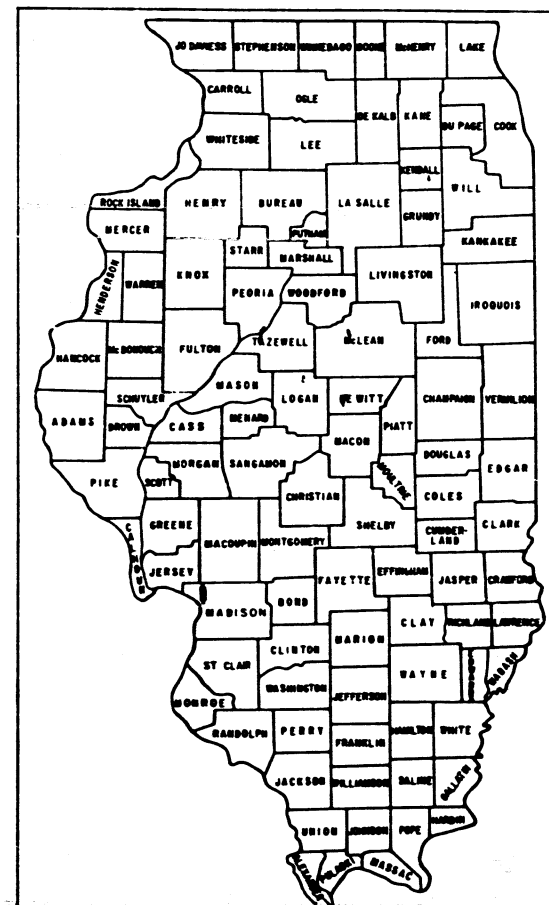
FOR INDEX OF SHEETS, SEE SHEET NO. 3

SECTION 104 HVB

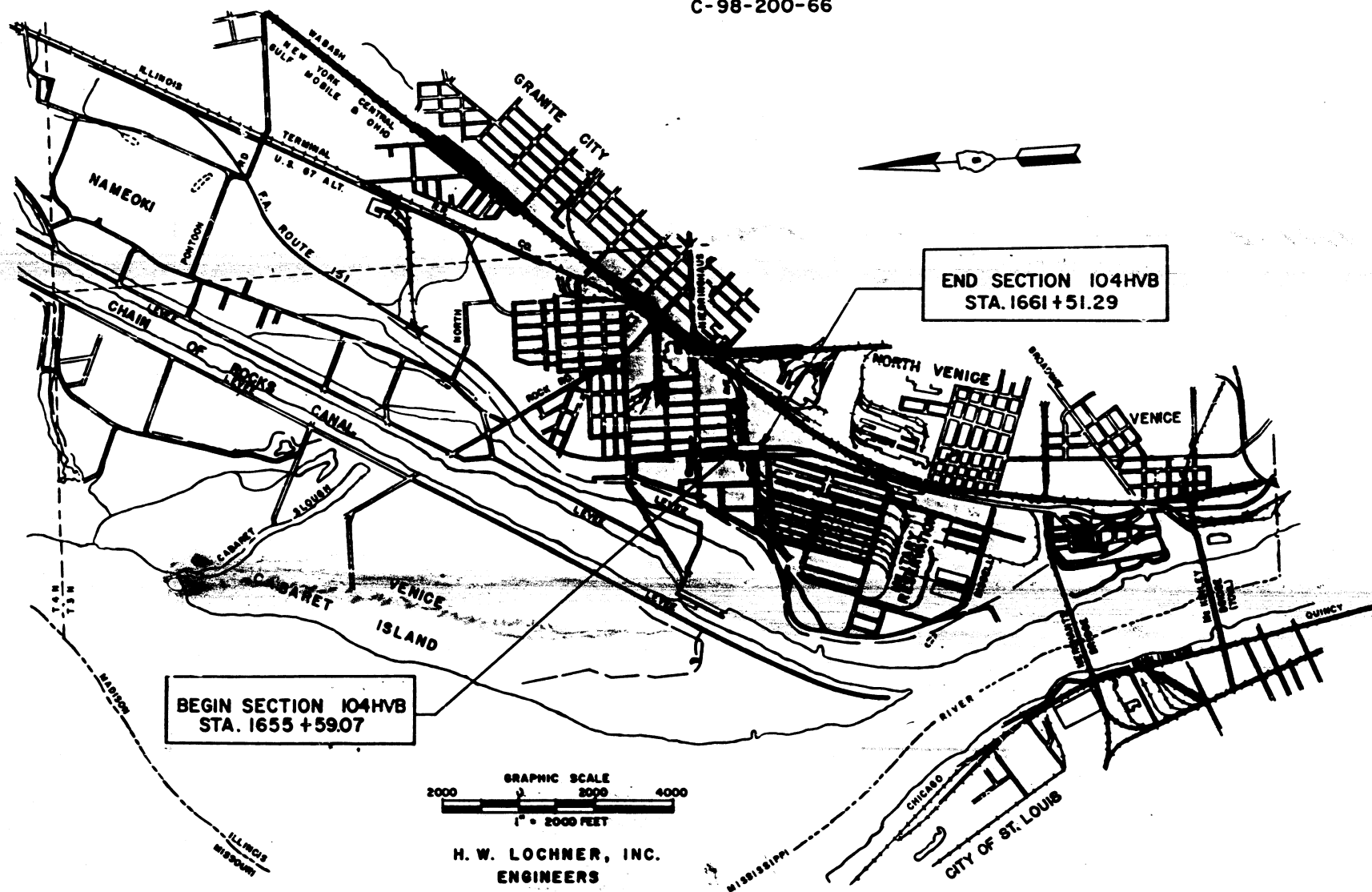
THIS WORK CONSISTS OF THE FURNISHING OF ALL MATERIALS INCLUDING PRECAST, PRESTRESSED CONCRETE 48" I-BEAMS AND ALUMINUM RAILING AND THE COMPLETE CONSTRUCTION OF THE 11-SPAN BRIDGE CARRYING F.A. ROUTE 151 OVER GRANITE CITY ENGINEERING DEPOT RAILROAD YARD AND CHICAGO AVENUE ON CONCRETE PILE BENT ABUTMENTS AND REINFORCED CONCRETE OPEN PIERS ON CRIPSTED TIMBER PILES AND ALL APPURTENANT AND COLLATERAL WORK NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS.

FEDERAL-AID ROUTE No.	SECTION	COUNTY	TOTAL SHEETS	SHEET No.
F.A. ROUTE 151	104 HVB	MADISON	42	1
FED. ROAD DIV. No. 4 ILLINOIS PROJECT				

P-98-282-00



LOCATION OF SECTION INDICATED THUS: [black rectangle]



LOCATION PLAN
SECTION LENGTH TO BE IMPROVED
592.22 FEET • 0.11 MILES
PROJECT LENGTH TO BE IMPROVED
592.22 FEET • 0.12 MILES

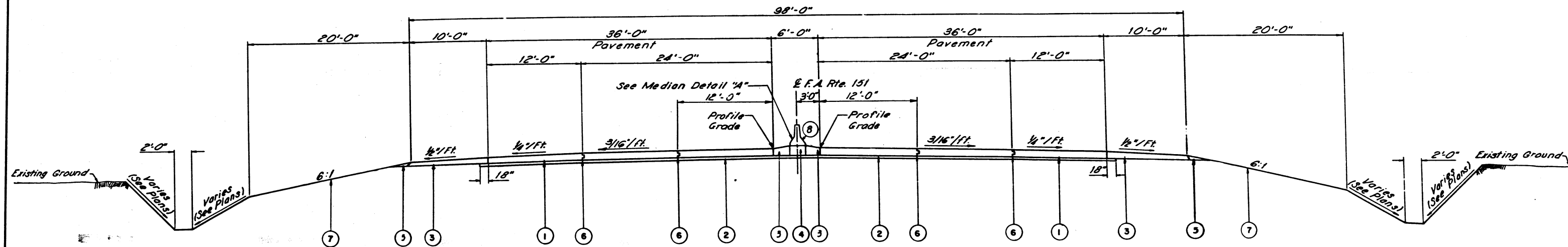
DESIGN DESIGNATION
F.A. ROUTE 151-4250(91)-MAJOR-388 (CRPCC-20)

STATE OF ILLINOIS
DIVISION OF HIGHWAYS
SUBMITTED *Sept 22 - 25*
EXAMINED *Sept 22 - 25*
PASSED *Sept 22 - 25*
APPROVED *Sept 22 - 25*
DIRECTOR OF HIGHWAYS

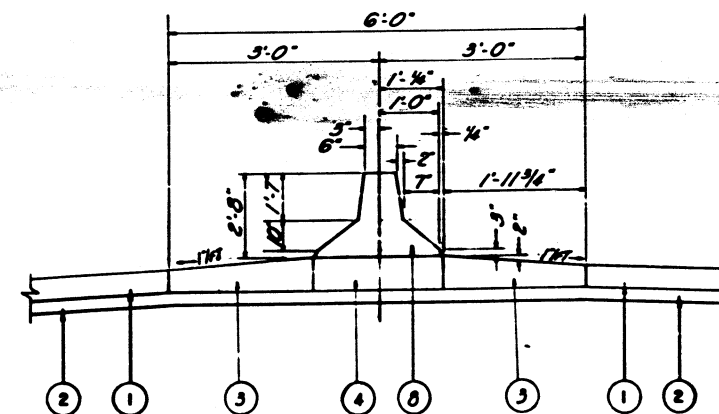
CONTRACT NO. 80332

MADISON COUNTY SECTION 104 HVB F.A. ROUTE 151

060-0202



F.A. ROUTE 151 - TANGENT
 STA. 1655+01.70 TO STA. 1655+19.57
 STA. 1661+50.74 TO STA. 1665+99.52
 STA. 1683+15.66 TO STA. 1696+55.37



MEDIAN DETAIL "A"

- ① CONTINUOUSLY REINFORCED P.C.C. PAVEMENT (8" THICK)
- ② STABILIZED SUB-BASE 4"
- ③ STABILIZED SHOULDER (B A M)
- ④ PCG BASE COURSE (10" THICK)
- ⑤ EARTH
- ⑥ LONGITUDINAL SAWED JOINT OR LONGITUDINAL CONSTRUCTION JOINT
- ⑦ SEEDING
- ⑧ PRECAST CONCRETE MEDIAN BARRIER

F.A. ROUTE 151
 STRUCTURAL DESIGN TRAFFIC: YEAR 1981; PC = 28,300
 S.U. = 1,502; M.U. = 150
 CLASS 1 ROADS AND STREET
 MINIMUM SOIL SUPPORT: CBR = 2.0
 PERCENT OF S.O.T. IN DESIGN LANE: $U_p = 50\%$; $U_s = 50\%$
 $U_M = 50\%$
 T.F. = 9.72
 PAVEMENT STRUCTURE MATERIALS:
 SURFACE COURSE TYPE: 8" CRPCC
 SUBBASE TYPE: 4" STABILIZED SUBBASE

FOR INFORMATION ONLY

STATE OF ILLINOIS
 DIVISION OF HIGHWAYS

TYPICAL CROSS SECTIONS

N. W. LOCHNER, INC.
 ENGINEERS
 CHICAGO, ILL.

FEDERAL-AID ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. ROUTE 151	104HWB	MADISON	42	3
FEB. ROAD DIV. No. 4 ILLINOIS PROJECT				

SUMMARY OF QUANTITIES				
CODE NUMBER	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE
201001	TREE REMOVAL (6 TO 15 INCH DIAMETER)	IN. DIA.	44	X581
201002	TREE REMOVAL (OVER 15 INCH DIAMETER)	IN. DIA.	168	X581
204001	BORROW EXCAVATION	CU. YDS.	68,370	X581
210001	TRENCH BACKFILL	CU. YDS.	333	X581
X50200	STRUCTURAL EXCAVATION	CU. YDS.	1926	X581
503004	PROTECTIVE COAT	SQ. YDS.	965	X581
504003	CLASS X CONCRETE	CU. YDS.	3,9817	X581
505010	FURNISHING & ERECTING PRECAST PRESTRESSED CONCRETE I-BEAMS (18")	LIN. FT.	8178	X581
507001	FURNISHING & ERECTING STRUCTURAL STEEL	POUND	22,020	X581
508005	ALUMINUM RAILING	LIN. FT.	1177	X581
512001	REINFORCEMENT BARS	LBS.	676,910	X581
513005	FURNISHING CREOSOTED PILES (20, 1' TO 38')	LIN. FT.	13080	X581
513021	FURNISHING CONCRETE PILES	LIN. FT.	3077	X581
513022	DRIVING TIMBER PILES	LIN. FT.	13080	X581
513027	DRIVING CONCRETE PILES	LIN. FT.	3077	X581
513028	TEST PILES TIMBER	EACH	2	X581
513041	TEST PILES CONCRETE	EACH	1	X581
514001	NAME PLATES	EACH	1	X581
603184	STORM SEWERS, TYPE 2, REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE, CLASS II 12"	LIN. FT.	21	X581
603193	STORM SEWERS, TYPE 2, REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE, CLASS II 42"	LIN. FT.	675	X581
603253	STORM SEWERS, TYPE 3, REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE, CLASS III 42"	LIN. FT.	370	X581
603311	STORM SEWERS, TYPE 4, REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE, CLASS III 42"	LIN. FT.	90	X581
612118	MANHOLES, TYPE A, 5'-DIAMETER, TYPE I FRAME, CLOSED LID	EACH	5	X581
617001	PAVEMENT REMOVAL	SQ. YDS.	30	X581
618001	SLOPE WALL 4"	SQ. YDS.	1343	X581
620003	PAVEMENT REMOVAL & REPLACEMENT, TYPE III 8"	SQ. YDS.	108	X581
628001	STEEL PLATE BEAM GUARD RAIL, SINGLE RAIL	LIN. FT.	25	X581
642000	SEEDING, CLASS II	ACRE	20	Y005
642004	NITROGEN FERTILIZER NUTRIENT	POUND	264	Y005
642005	PHOSPHORUS FERTILIZER NUTRIENT	POUND	158	Y005
642006	POTASSIUM FERTILIZER NUTRIENT	POUND	106	Y005
642007	AGRICULTURAL GROUND LIMESTONE	TON	06	Y005
644001	SODDING	SQ. YDS.	1,433	Y005
644002	SUPPLEMENTAL WATERING	UNIT	6.0	Y005
644001	ENGINEER'S FIELD OFFICE, TYPE A	EACH	1	X581
644003	ENGINEER'S FIELD LABORATORY	EACH	1	X581
X21057	PREFORMED JOINT SEALER 4"	LIN. FT.	223	X581
210191	CRIB WALL	SQ. FT.	302	X581
643001	MULCH	TON	4.0	Y005
643005	EMULSIFIED ASPHALT	GALLON	340	Y005
X62909	CHAIN LINK FENCE 7' (SPECIAL)	LIN. FT.	1177	X581
629104	CHAIN LINK FENCE TO BE REMOVED AND RE-ERECTED	LIN. FT.	450	X581

SUMMARY OF QUANTITIES				
CODE NUMBER	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE
XZ1090	NEOPRENE EXPANSION JOINT (2")	LIN. FT.	100	X581
XZ1093	NEOPRENE EXPANSION JOINT (4")	LIN. FT.	109	X581

GENERAL NOTES

WHEREVER IN THESE PLANS REFERENCE IS MADE TO THE SPECIFICATIONS, IT IS MEANT TO REFER TO THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" ADOPTED JULY 2, 1973.

ALL ELEVATIONS REFER TO U.S.G.S. MEAN SEA LEVEL DATUM.

THE STANDARDS WITH THE REVISION NUMBER LISTED IN THE INDEX OF SHEETS SHALL APPLY FOR THIS CONTRACT.

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, A CLASS I BARRICADE SHALL BE PLACED ON CDAR STREET AS SHOWN ON PLAN SHEET NO. 6.

THE FOLLOWING UTILITY COMPANIES HAVE FACILITIES WITHIN THE LIMITS OF CONSTRUCTION WHICH MAY REQUIRE ADJUSTMENT:

EAST ST. LOUIS AND INTERURBAN WATER COMPANY,
ILLINOIS POWER COMPANY,
SOUTHWESTERN BELL TELEPHONE COMPANY,
MISSISSIPPI RIVER FUEL COMPANY.

STATE OF ILLINOIS DIVISION OF HIGHWAYS INDEX OF SHEETS SUMMARY OF QUANTITIES GENERAL NOTES

H. W. LOCHNER, INC.
ENGINEERS
CHICAGO, ILL.

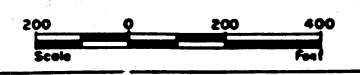
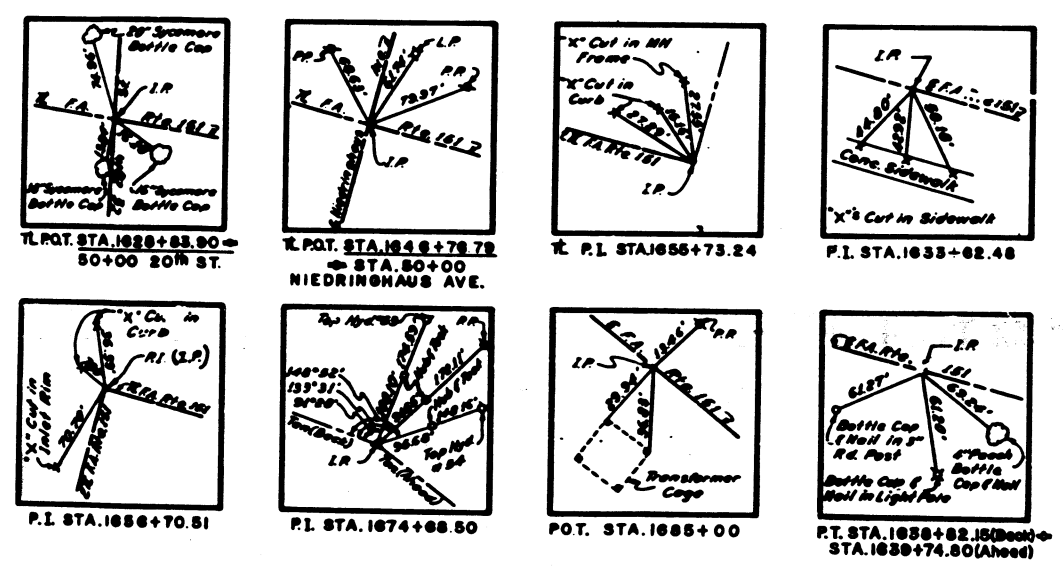
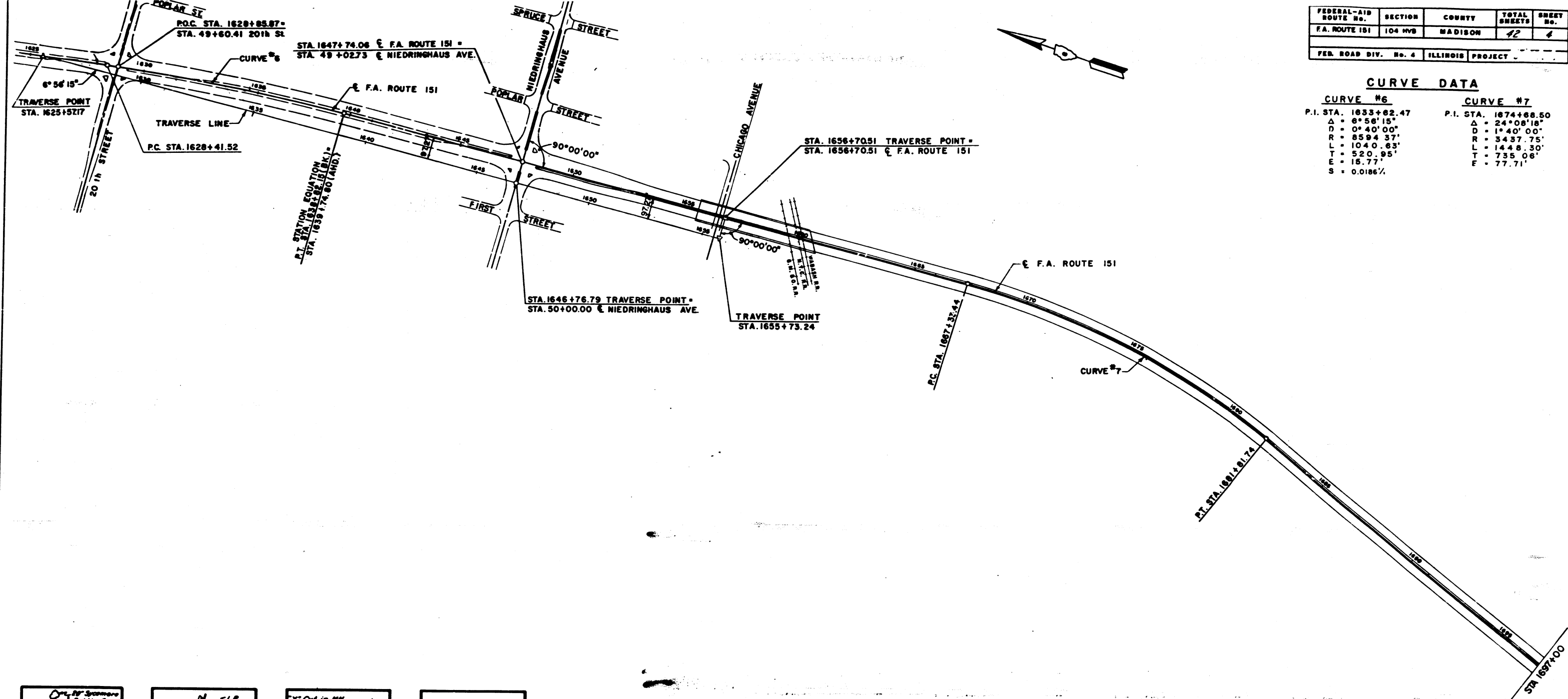
REV. 10-4-74 ZMW

SHEET NO.	TITLE
1.	TITLE SHEET
2.	TYPICAL CROSS SECTIONS
3.	INDEX OF SHEETS, GENERAL NOTES, SUMMARY OF QUANTITIES
4.	F.A. ROUTE 151 ALIGNMENT PLAN
5.	F.A. ROUTE 151 PLAN & PROFILE STA. 1648+00.06 TO STA. 1653+00
6.	F.A. ROUTE 151 PLAN & PROFILE STA. 1653+00 TO STA. 1665+00
7.	F.A. ROUTE 151 PLAN & PROFILE STA. 1665+00 TO STA. 1680+00
8-9.	CROSS SECTIONS
10-41.	BRIDGE PLANS - F.A. ROUTE 151 OVER GRANITE CITY ENG. DEPOT RAILROAD YARD & CHICAGO AVENUE
42.	MODIFIED STANDARD 2158
42A.	SEEDING DETAIL
STATE STANDARDS REQUIRED	
1527-5	1686-3, 2113-1,
2168-6	2213-4, 2230-8,
2298-4	2300-1, 2324-3
2299-5	

FEDERAL-AID ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. ROUTE 151	104 MVB	MADISON	12	4
FED. ROAD DIV. No. 4 ILLINOIS PROJECT				

CURVE DATA

CURVE #6	CURVE #7
P.I. STA. 1633+62.47	P.I. STA. 1674+68.50
$\Delta = 6^{\circ}56'15''$	$\Delta = 24^{\circ}08'18''$
$D = 0^{\circ}40'00''$	$D = 1^{\circ}40'00''$
$R = 8594.37'$	$R = 3437.75'$
$L = 1040.63'$	$L = 1448.30'$
$T = 520.95'$	$T = 735.06'$
$E = 15.77'$	$E = 77.71'$
$S = 0.0186\%$	



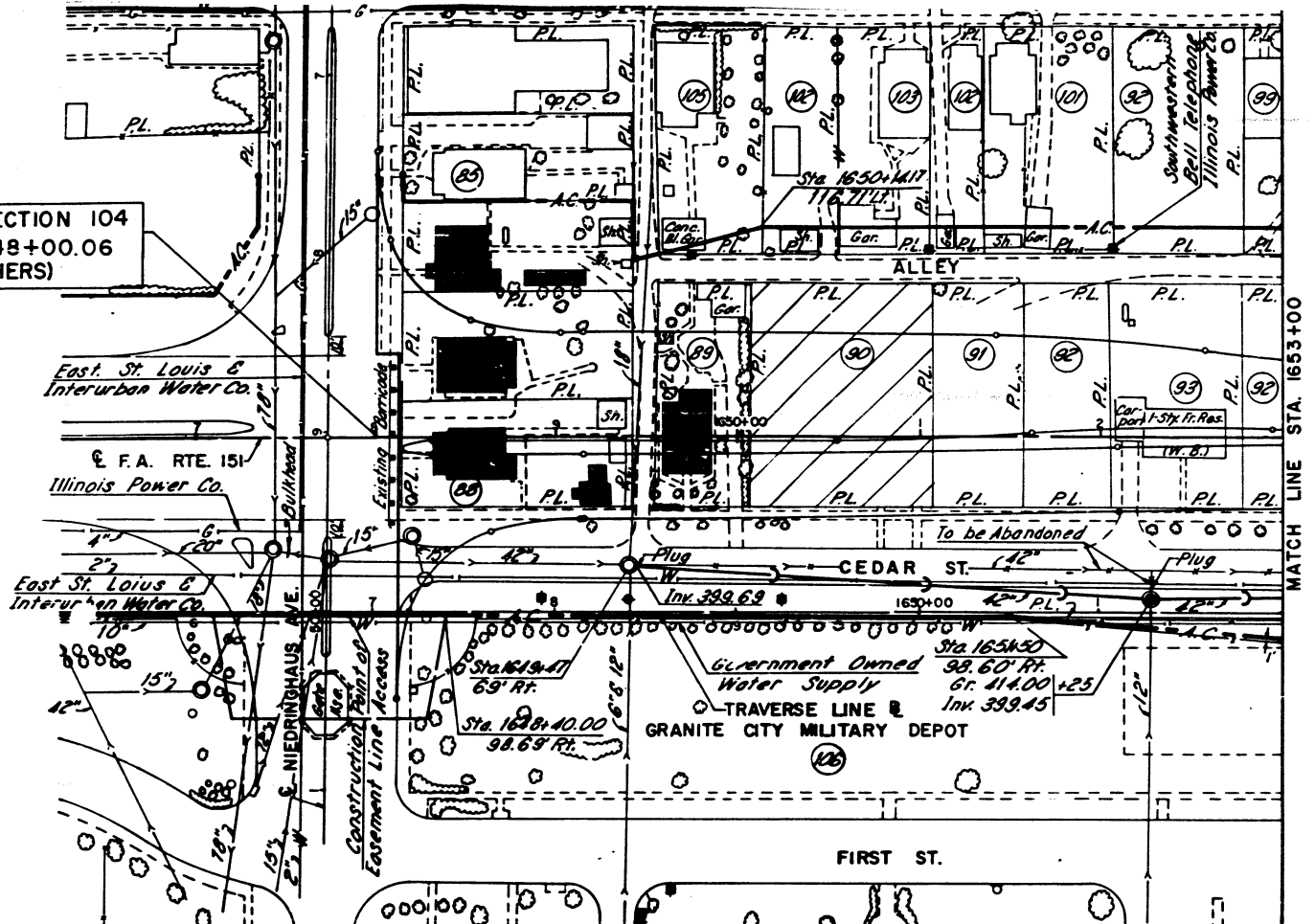
STATE OF ILLINOIS
DIVISION OF HIGHWAYS
F.A. ROUTE 151
ALIGNMENT PLAN

H. W. LOCHNER, INC.
ENGINEERS
CHICAGO, ILL.

PLAN
DATE
BY
REVIEWED
PLANNED
ALIGNED
CHECKED
NOTE BOOK
BY
NO.

- PROPERTY OWNERS**
- 85 James & Margaret Henderson
 - 86 John & Mary Veres
 - 87 Avedis & Ankie Parsaglian
 - 88 Margaret Dardarian
 - 89 Vasili G. & Marie Kefalas
 - 90 John & Elizabeth Malincheff
 - 91 Glen & Dorothy Beck
 - 92 Jim & Andronika Eftimoff
 - 93 Helen & Konstanty Christich
 - 99 Dimitri Eftimoff
 - 101 Charles Tatosian
 - 102 Christ D. & Helen Doucleff
 - 103 Michael & Mary Spaich
 - 105 Theresa Krause
 - 106 Corp of Engineers U.S Army

BEGIN SECTION 104
STA. 1648+00.06
(BY OTHERS)

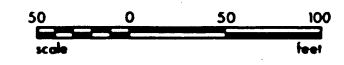


- Sta. 1652+25 (90' Rt.)
1-Manhole, Type A, 5' Dia. Type I
Frame & Closed Lid
284'-42" Storm Sewer, Type 2, R.C.P. (Class II)
281'-Cu Yds. Trench Backfill
89-Sq. Yds. Pavement Removal & Replacement, Type III 8"

150 Lin. Ft. Chain Link Fence to be Removed
and Re-erected Rt Sta 1651+50 to Sta. 1653+00

LEGEND

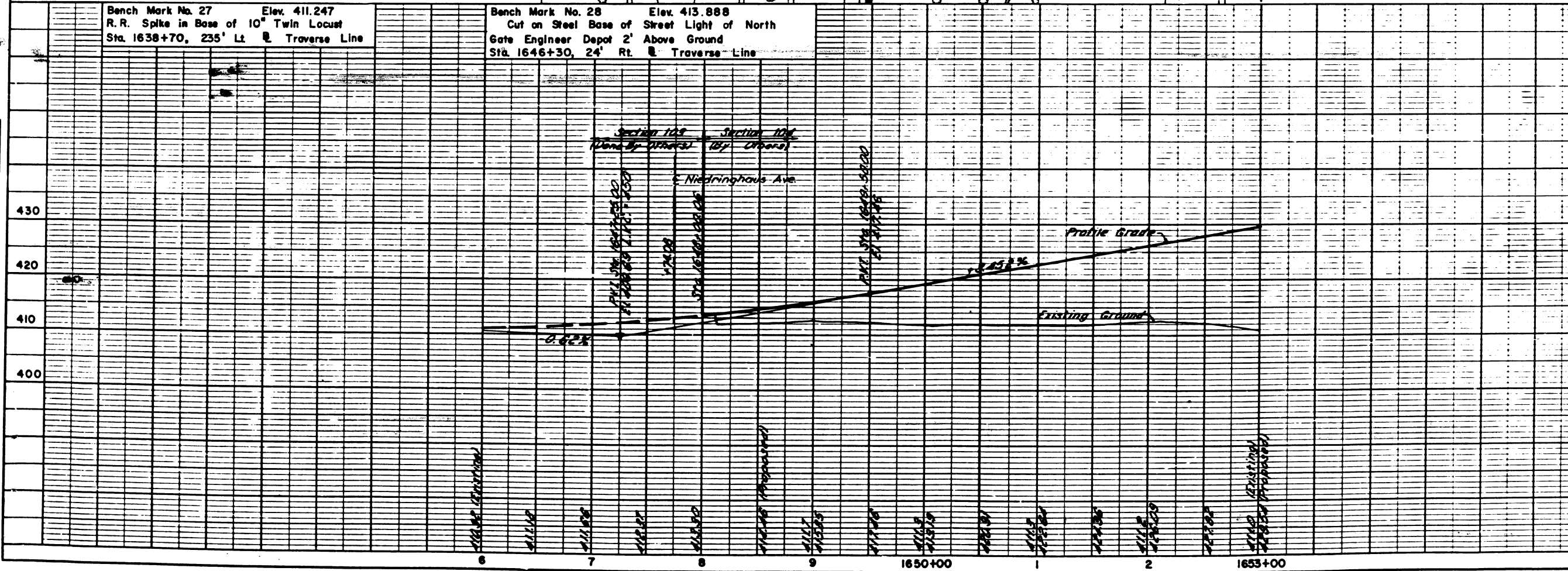
- Area Stockpiles 1,102 Cu. Yds. of Excess
Excavation From Sec. 103 (By Others)
- Building Gone or in Ruins



Bench Mark No. 27 Elev. 411.247
R.R. Spike in Base of 10" Twin Locust
Sta. 1638+70, 235' Lt. Traverse Line

Bench Mark No. 28 Elev. 413.888
Cut on Steel Base of Street Light of North
Gate Engineer Depot 2' Above Ground
Sta. 1646+30, 24' Rt. Traverse Line

PROFILE
DATE
BY
REVIEWED
PLANNED
CHECKED
NOTE BOOK
BY
NO.



STATE OF ILLINOIS
DIVISION OF HIGHWAYS
F.A. ROUTE 151
PLAN & PROFILE
STA. 1648+00.06 TO STA. 1653+00
H. W. LOCHNER, INC.
ENGINEERS
CHICAGO, ILL.

Sta 1656+00 (93' Rt.)
1- Manhole, Type A, 5' Dia. Type I
Frame & Closed Lid
370'-42" Storm Sewer, Type 3,
R.C.P. (Class III)

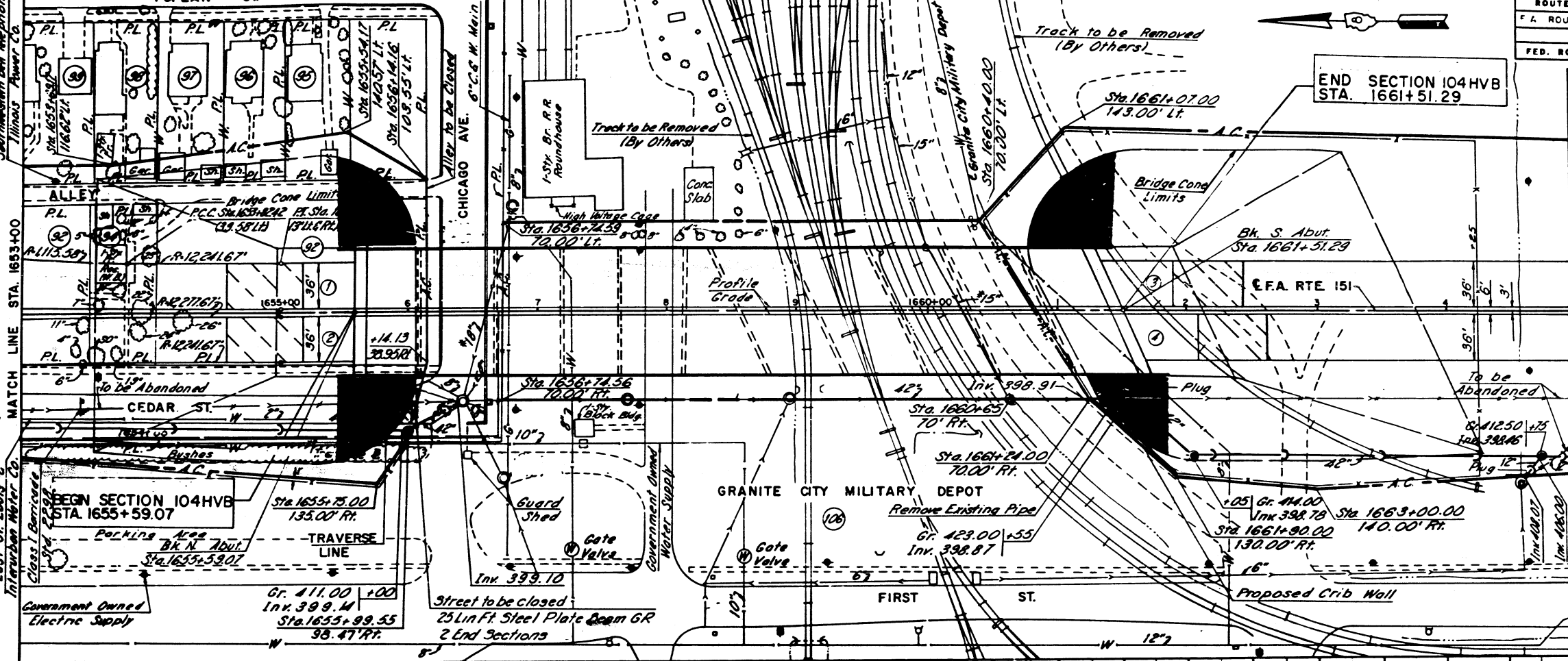
Sta 1656+48 (169' Rt.)
45'-42" Storm Sewer, Type 2,
R.C.P. (Class II)
52'-Cu. Yds. Trench Backfill
19'-Sq. Yds. Pavement Removal
Replacement, Type III
Sta 1656+08 (Rt.)
28 Lin. Ft. Steel Plate Beam
Guard Rail, Single Rail

Sta 1661+55 (170' Rt.)
1- Manhole, Type A, 5' Dia. Type I
Frame & Closed Lid
28'-42" Storm Sewer, Type 4,
R.C.P. (Class III) to Replace
Existing 42" Sewer Pipe

Sta 1662+05 (115' Rt.)
1- Manhole, Type A, 5' Dia. Type I
Frame & Closed Lid
62'-42" Storm Sewer, Type 4,
R.C.P. (Class III)

Sta 1664+75 (115' Rt.)
1- Manhole, Type A, 5' Dia. Type I
Frame & Closed Lid
265'-42" Storm Sewer, Type 2,
R.C.P. (Class II)
21'-12" Storm Sewer, Type 2,
R.C.P. (Class II)
Sta 1658+00 (Rt.)
30 Sq. Yds. Pavement Removal

* See Special Provisions

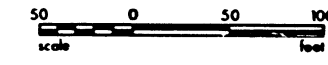


ROUTE NO.	SECTION	COUNTY	SHEETS	No.
F.A. ROUTE 51	104HVB	MADISON	42	6
FED. ROAD DIV. No. 4 ILLINOIS PROJECT				

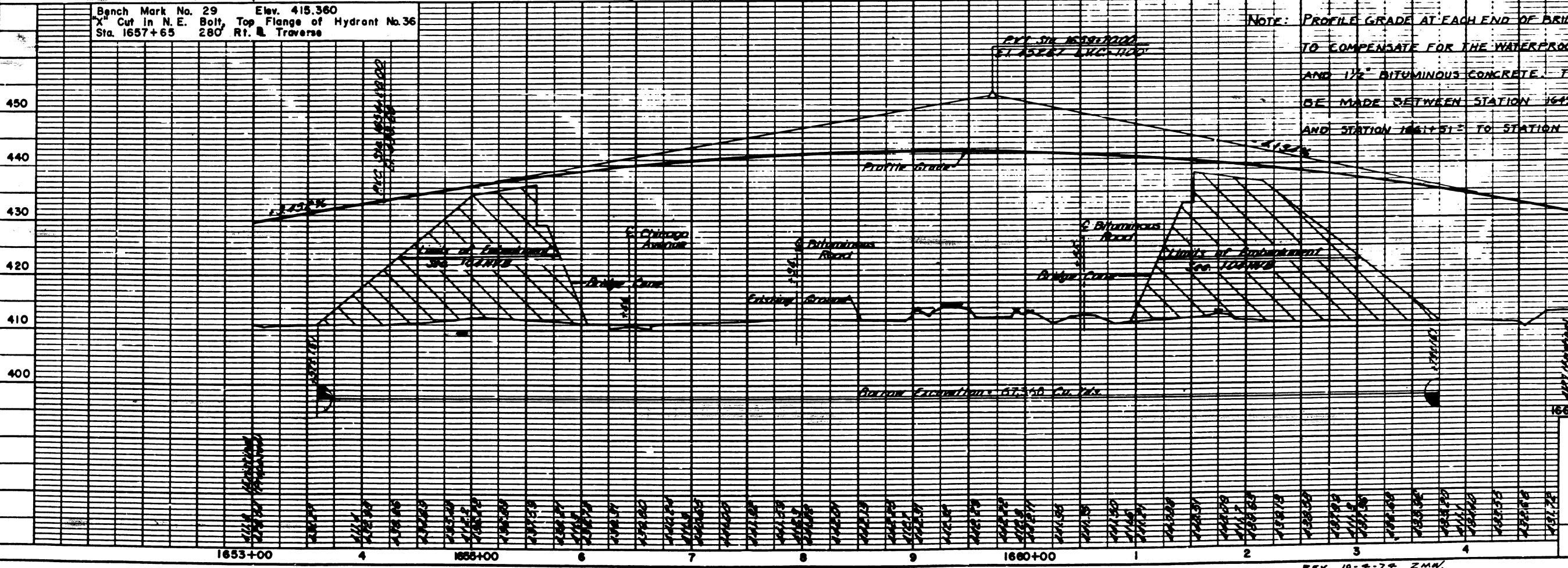
PROPERTY OWNERS
92 Jim & Andronika Effimoff
94 Frank Kreis
95 Gregory J. & Jennie Alvarado
96 Henry D. Smotherman & Wife
97 Joseph L. Jr. & Marie O'Sha
98 Mary & Paul Gages Jr.
99 Dimitri Effimoff
106 Corp of Engineers, U.S. Army

1160 Lin. Ft. "Chain Link Fence,
7' (Special)", Sta. 1660+50 to
Sta. 1664+25
17 Lin. Ft. "Chain Link Fence,
7' (Special)", Rt. Sta. 1655+88
to Sta. 1656+00

- End Anchorage Std. 2321 (By Others)
- Approach Slab (By Others)
- Pavement Removal
- Sodding
- Steel Plate Beam Guard Rail, Single Rail
- 300 Lin. Ft. "Chain Link Fence to be Removed and Re-erected" Rt. Sta. 1653+00 to Sta. 1655+88



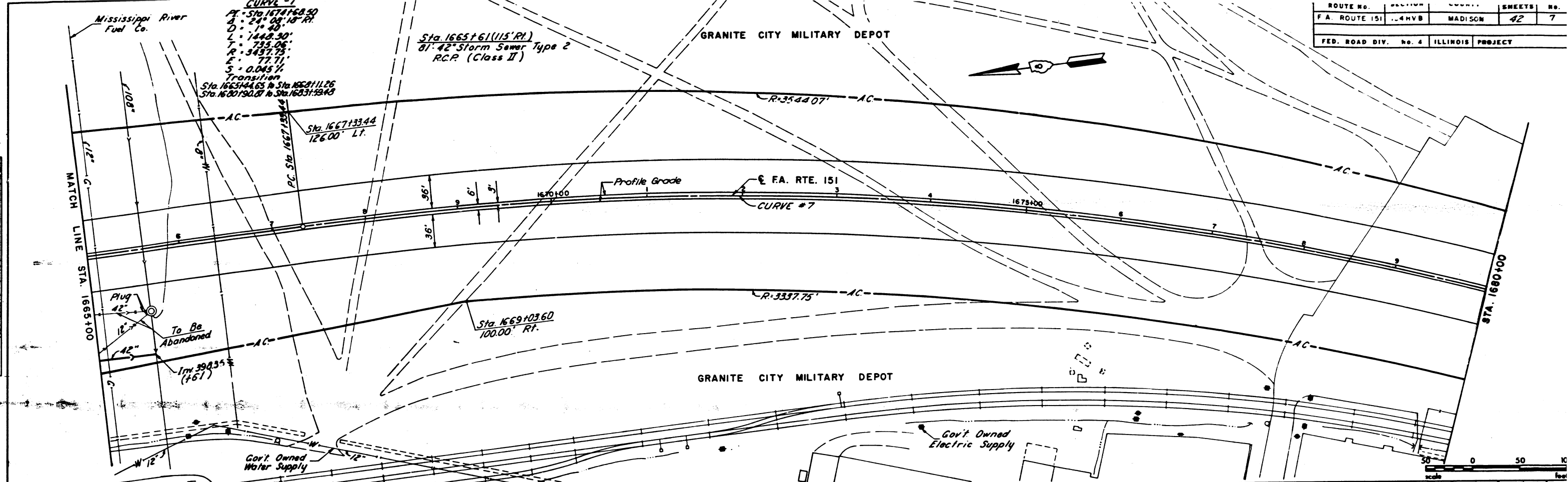
Bench Mark No. 29 Elev. 415.360
X Cut In N.E. Bolt, Top Flange of Hydrant No. 36
Sta. 1657+65 280' Rt. & Traverse



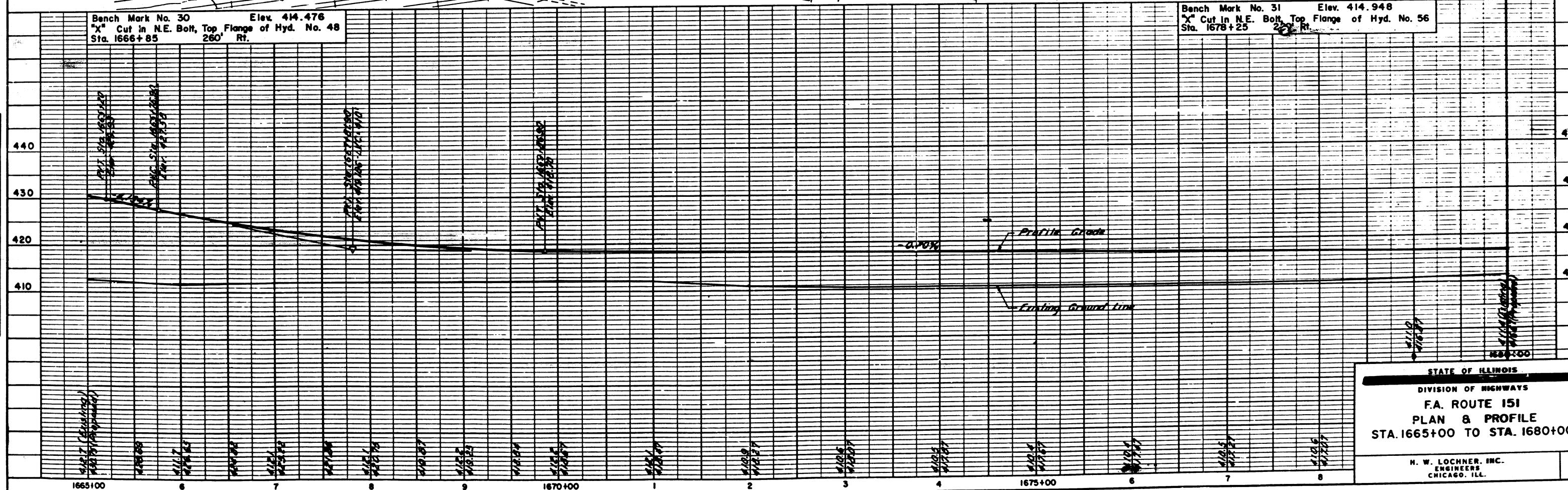
NOTE: PROFILE GRADE AT EACH END OF BRIDGE SHALL BE ADJUSTED TO COMPENSATE FOR THE WATERPROOFING MEMBRANE SYSTEM AND 1 1/2" BITUMINOUS CONCRETE. THESE ADJUSTMENTS SHALL BE MADE BETWEEN STATION 1657+52 TO STATION 1658+52 AND STATION 1661+51 TO STATION 1667+51.

STATE OF ILLINOIS
DIVISION OF HIGHWAYS
F.A. ROUTE 151
PLAN & PROFILE
STA. 1653+00 TO STA. 1665+00
H. W. LOCHNER, INC.
ENGINEERS
CHICAGO, ILL.

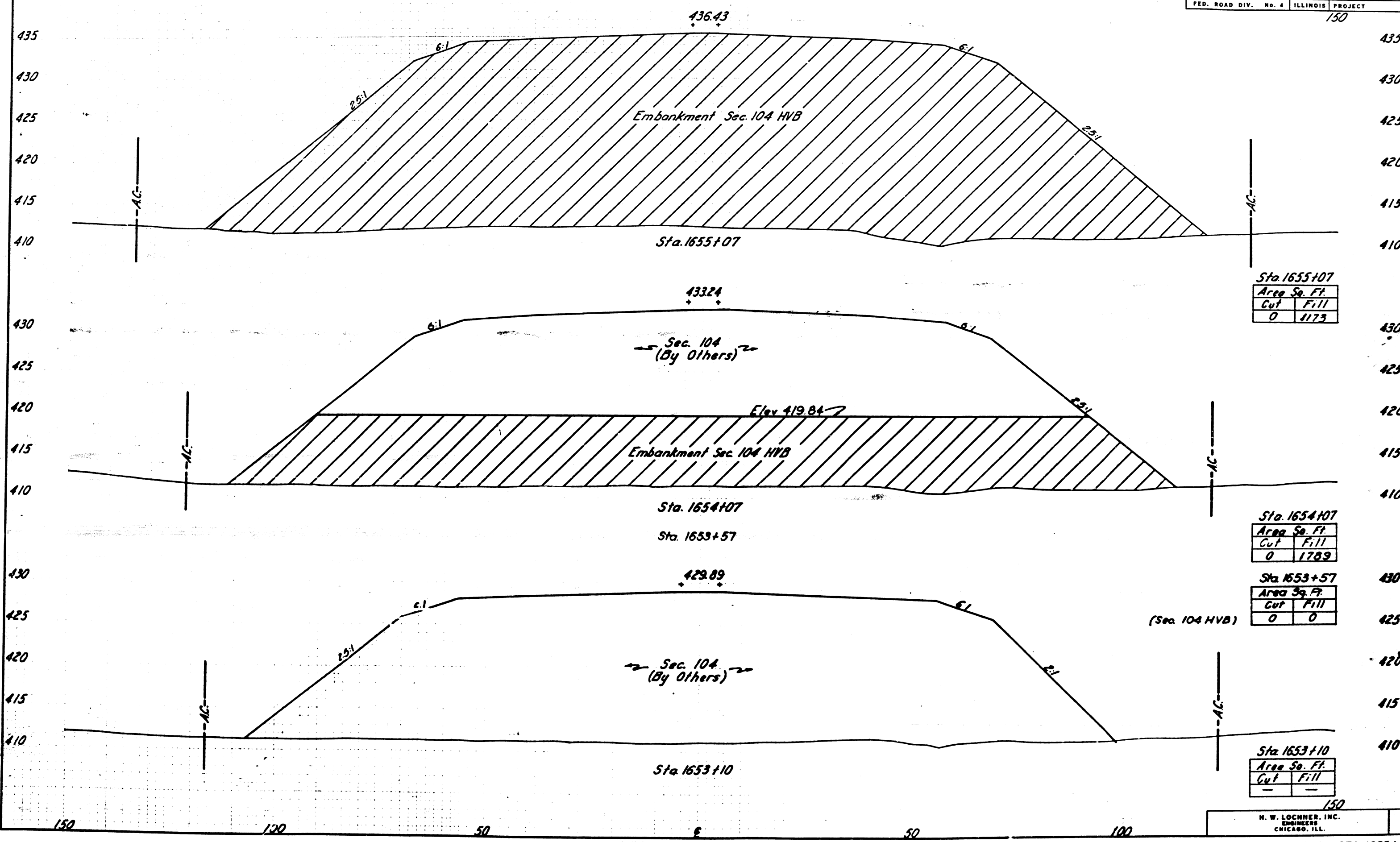
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STATE OF ILLINOIS
DIVISION OF HIGHWAYS
F.A. ROUTE 151
PLAN & PROFILE
STA. 1665+00 TO STA. 1680+00
H. W. LOCHNER, INC.
ENGINEERS
CHICAGO, ILL.



Sta. 1655+07

Area Sq. Ft.	
Cut	Fill
0	1173

Sta. 1654+07

Area Sq. Ft.	
Cut	Fill
0	1789

Sta. 1653+57

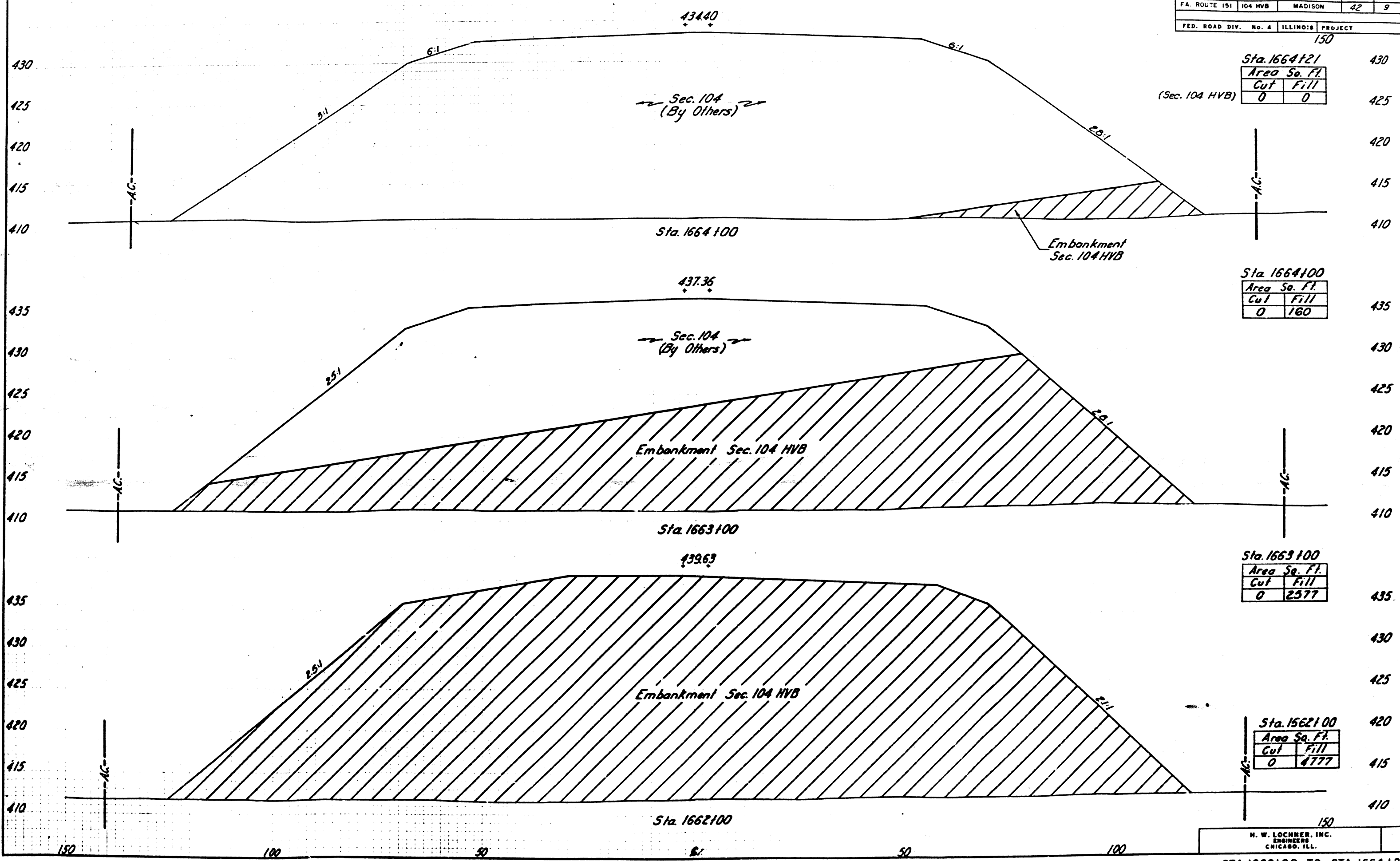
Area Sq. Ft.	
Cut	Fill
0	0

Sta. 1653+10

Area Sq. Ft.	
Cut	Fill
—	—

H. W. LOCHNER, INC.
ENGINEERS
CHICAGO, ILL.

STA. 1653+10 TO STA. 1655+07



Sta. 1664+21

Area Sq. Ft.	
Cut	Fill
0	0

(Sec. 104 HVB)

Sta. 1664+00

Area Sq. Ft.	
Cut	Fill
0	160

Sta. 1663+00

Area Sq. Ft.	
Cut	Fill
0	2377

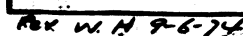
Sta. 1562+00

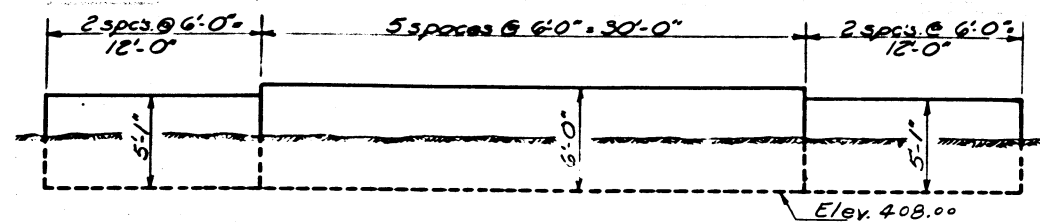
Area Sq. Ft.	
Cut	Fill
0	4777

150

N. W. LOCHNER, INC.
ENGINEERS
CHICAGO, ILL.

STA. 1662+00 TO STA. 1664+21





Slope wall shall be reinforced with welded wire fabric
G x G" mesh, weighing 58" per 100 sq.ft.
All reinforcement bars shall be lapped end to end unless shown.
Concrete piles at abutment: shall be driven in holes pre-
cured through the embankment in accordance with Article
513.09(c) of the Standard Specifications.
Protective Coat shall not be applied to surfaces to
which Waterproofing Membrane System is applied.

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.

The contractor shall drive three (3) test piles. One concrete test pile at North Abut in permanent location and two timber test piles one each near piers 3 & 9, as directed by the Engineer before ordering remainder of piles.

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

An alternate strand pattern using extra high strength prestressing strand (270 ksi) is permitted.

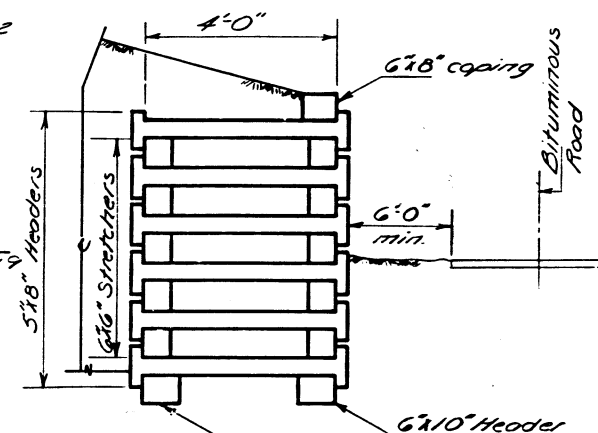
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

	Item	Unit	Super	Sub	Total
	Structure Excavation	Cu. Yds.		1926	1926
	Structural Steel	Lbs.	22,020		22,020
	Furnishing & Erecting Precast Prestressed I Beams (48")	Lin. Ft.	8178		8178
	Class X Concrete	Cu. Yds.	1882.7	2105	3987.7
	Protective Coat	Sq. Yds.	965		965
	Aluminum Railing	Lin. Ft.	1177		1177
	Reinforcement Bars	Lbs.	435,500	242,410	677,910
	Creosoted Piles (20.1' to 38')	Lin. Ft.		13,080	13,080
	Test Piles (Timber)	Ea.		2	2
	Concrete Piles	Lin. Ft.		3077	3077
	Test Piles (Concrete)	Ea.		1	1
	Name Plates	Ea.			116
	Slope Wall (4")	Sq. Yds.			1343
	Crib Wall	Sq. Ft.		302	302
	Preformed Joint Sealer (4")	Lin. Ft.	229		229
	Neoprene Expansion Jt. (2")	Lin. Ft.	100		100
	Neoprene Expansion Jt. (4")	Lin. Ft.	109		109
*	Waterproofing Membrane Sys.	Sq. Yds.	6250		6250
*	Bit. Conc. Surf. Cse. Cl. I	Tons	510		510

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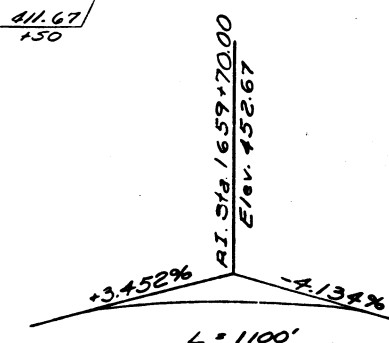
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** BY OTHERS



Edge of Deck
2'-0"
6"

PROPOSED GRADE PROFILE EA RT.151



F.A. RT. 151 SEC. 104 HVB
MADISON COUNTY
STA 1658 + 55.18

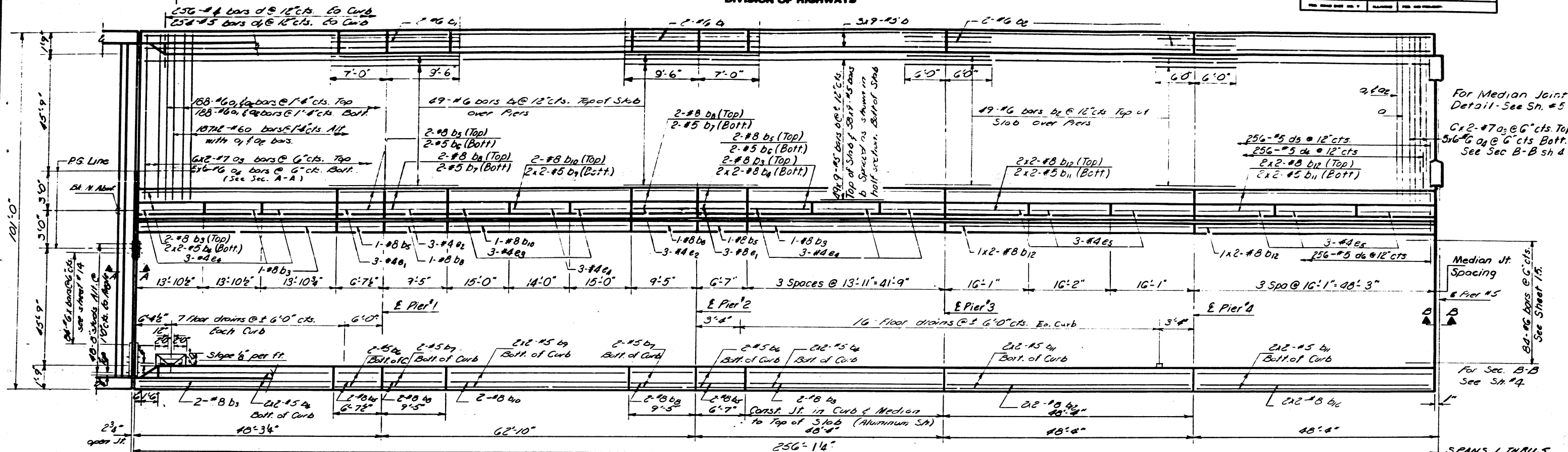
July 3 1968
EXAMINED
J. E. Thomas
PASSED
APPROVED

Notes:
All distances are to
gauge side of rails
Track elevations are
to top of rail.

6x9-#5 etc. indicates #6
lines of bars with 9 lengths 187-#6 of bars @ 1'-4" cts. to curb
per lane.

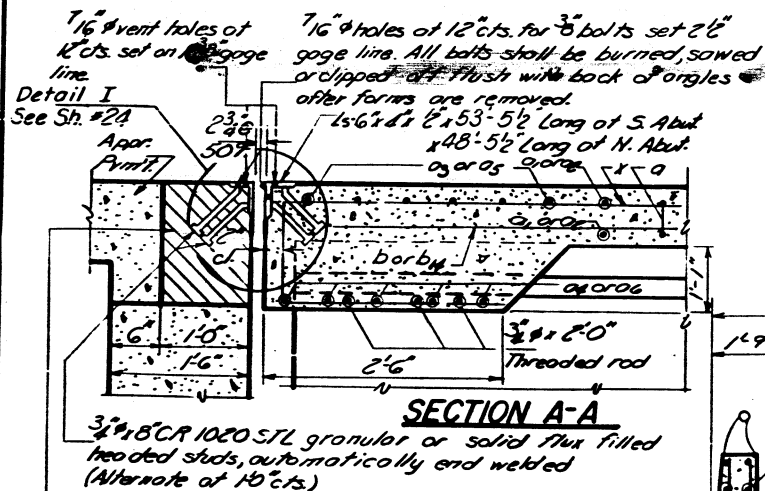
STATE OF ILLINOIS
DIVISION OF HIGHWAYS

PROJECT	DATE	BY	NO.	18
ST. 1658 + 55.18	1946	W. M. C.	42	
SHEETS				



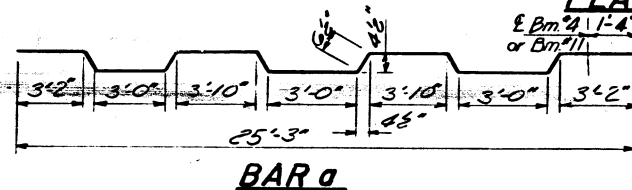
PLAN

For Median Detail
See Sheet #5

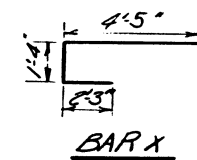


SECTION A-A

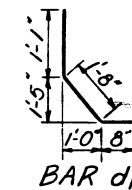
Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete included with Superstructure.



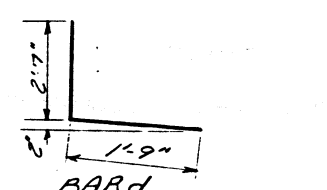
BAR a



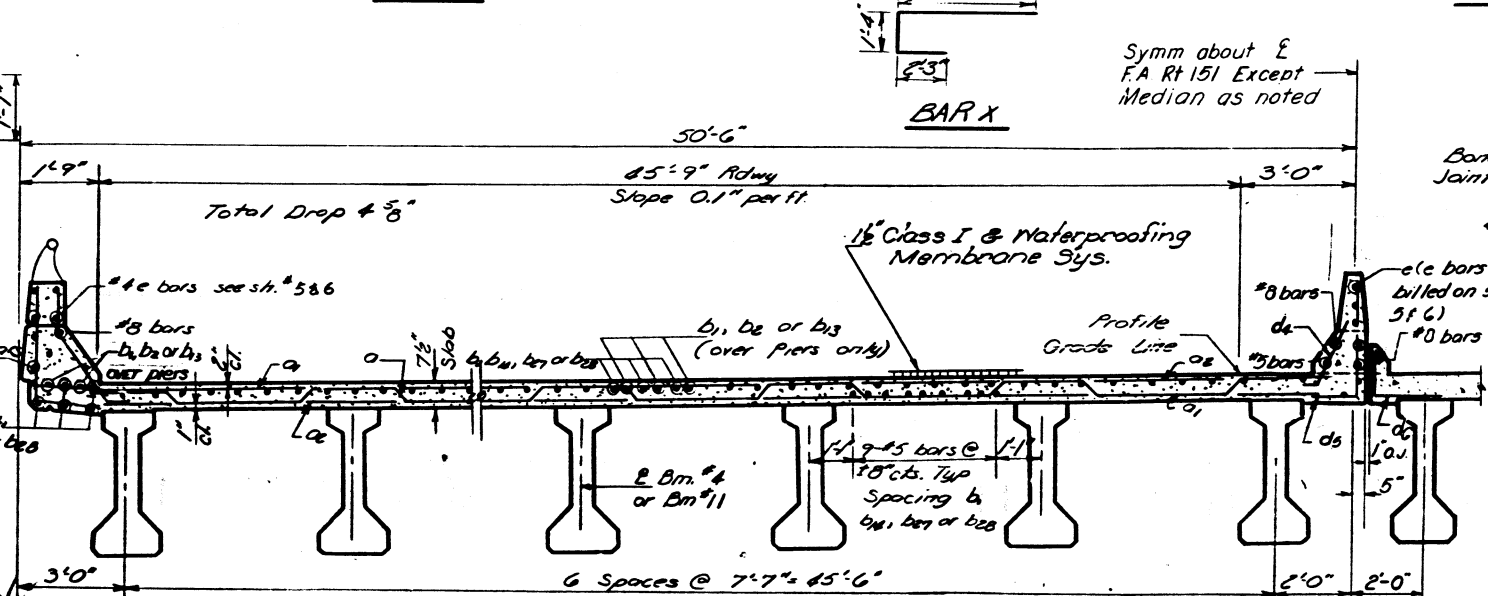
BAR x



BAR d1



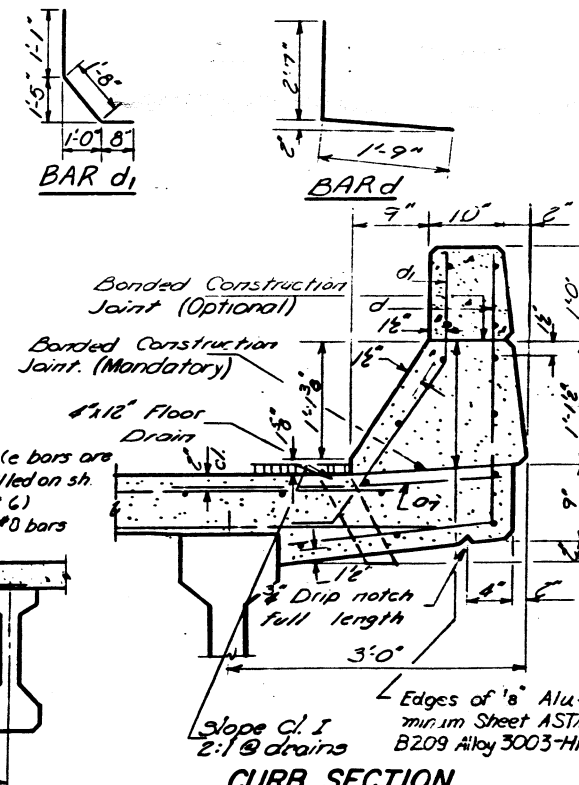
BAR d



HALF SECTION

For detail of bars see
sh. # 4 & 12

Laps for bars in top & bottom of slab
shall be alternately placed. Min lap = 2'-0"



CURB SECTION

Note: Cost of Aluminum Sheet Pile
Drains is incidental.

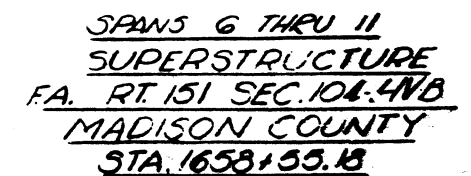
SPANS & THURS
BILL OF MATERIAL

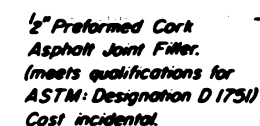
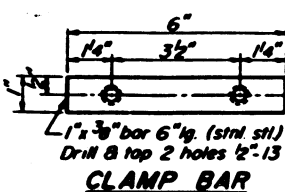
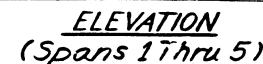
Bar	No.	Size	Length	Shape
a	748	#6	26'-3"	
a1	752	#6	21'-9"	
a2	752	#6	29'-0"	
a3	48	#7	25'-6"	
a4	120	#6	6'-6"	
a7	374	#6	4'-0"	
b	1980	#5	29'-3"	
b1	204	#6	16'-6"	
b2	204	#6	18'-0"	
b3	14	#8	41'-6"	
b4	24	#5	21'-8"	
b5	14	#8	6'-4"	
b6	12	#5	6'-4"	
b7	12	#5	9'-3"	
b8	14	#8	9'-3"	
b9	12	#5	22'-7"	
c	7	#8	23'-9"	
c1	24	#5	24'-8"	
d	512	#4	4'-4"	
d1	508	#5	3'-5"	
d2	256	#5	2'-6"	
d3	256	#5	2'-6"	
m	336	#4	6'-8"	
m1	96	#6	5'-7"	
m2	144	#4	5'-8"	
s	240	#4	11'-0"	
s1	360	#4	8'-8"	
x	336	#6	8'-0"	
Reinforcement Bars	Lbs		185,340	
Class X Concrete	Cu Yds.		8301	

Class X Concrete (Cu Yds.) 8301
SUPERSTRUCTURE (SPAN 1 THRU 5)
F.A. RT. 151 SEC. 104-HVB
MADISON COUNTY
STA. 1658 + 55.18

DESIGNED: *Chih-Yuan Kuo*
CHECKED: *Wen-Bu Chen*
DRAWN: *D. Derringer*
CHECKED: *W. M. C.*

EXAMINED: *[Signature]*
PASSED: *[Signature]*
APPROVED: *[Signature]*



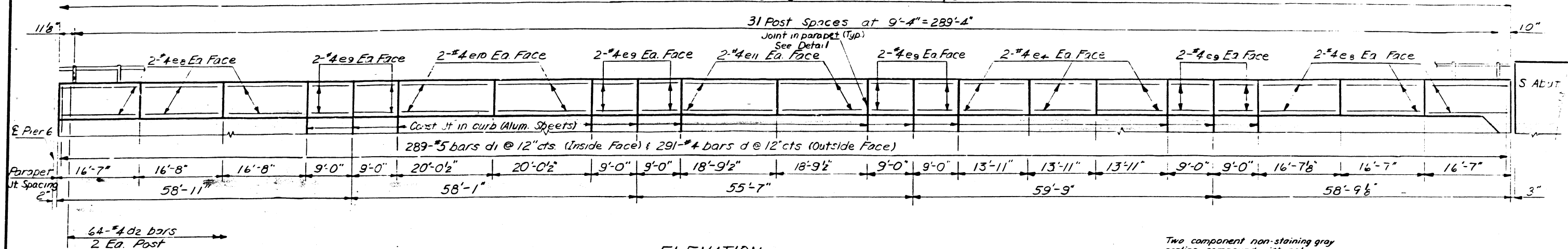


Aluminum alloy rail shall conform to ASTM B 221 alloy 6061-T6 or 6351-T6 with min. yield 35 k.s.i., min tensile 38 k.s.i. & elongation of 10% in 2 inches.

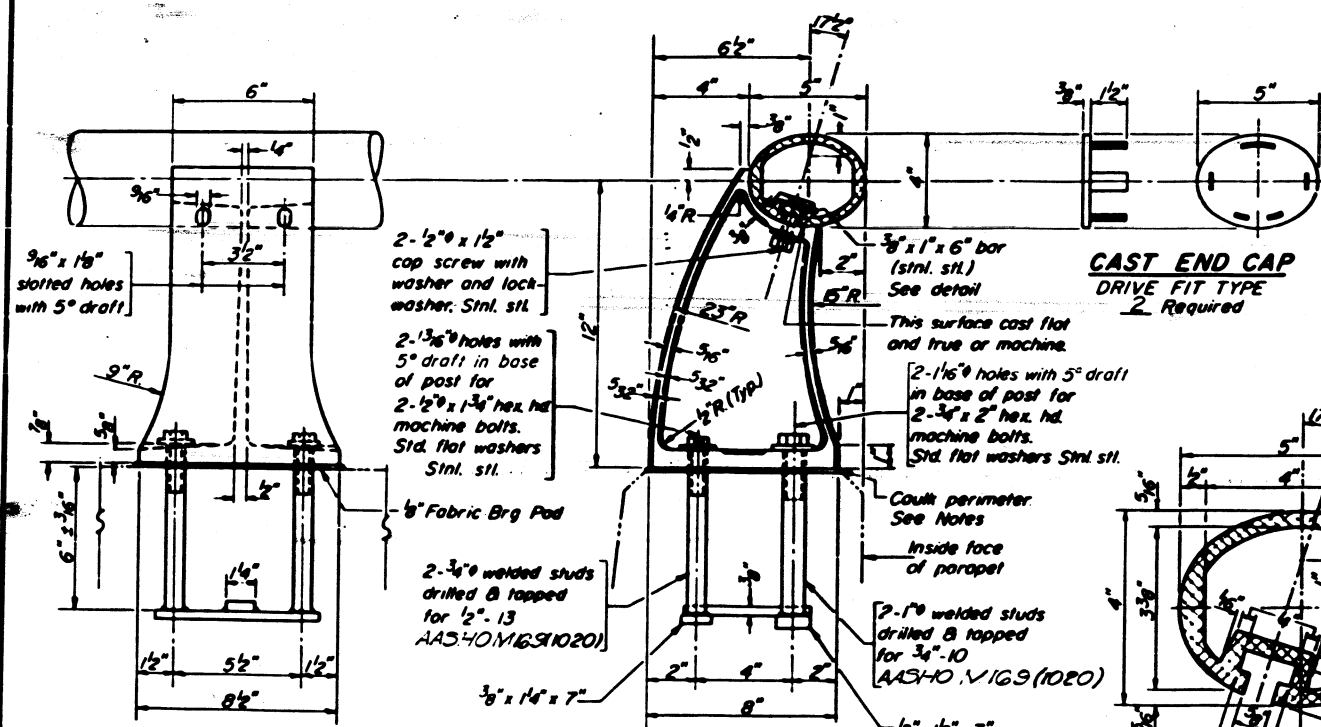
ALUMINUM RAILING
SPAN 1 THRU 6
F.A. RT. 151 SEC. 104-HVB
MADISON COUNTY
STA. 1658+55.18

July 3 1968
EXAMINED
PASSED
APPROVED

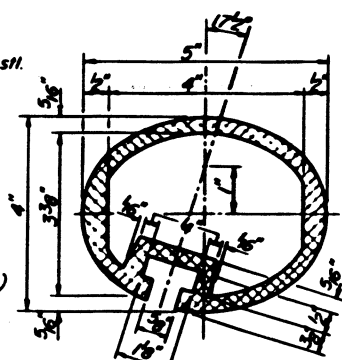
291'-1/8" End to End Rail & Porapet



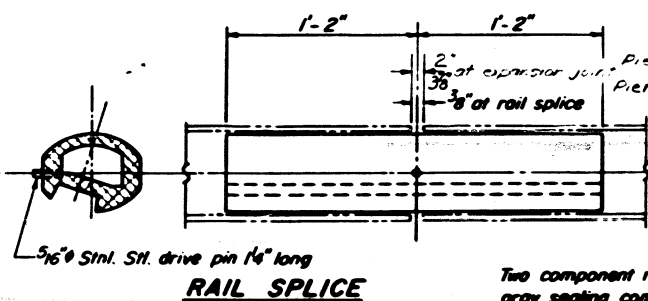
ELEVATION
(Inside View East Rail shown, West Rail Similar)



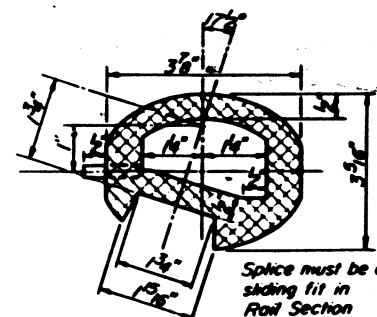
RAIL POST DETAILS



SEC. THRU ELLIPTICAL
RAIL SECTION



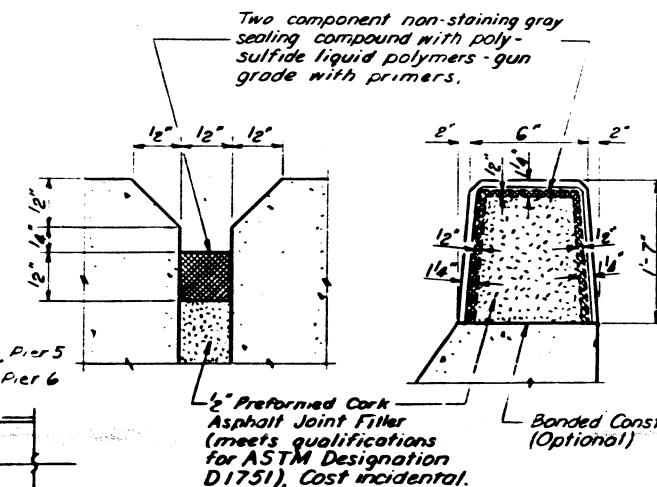
RAIL SPLICE



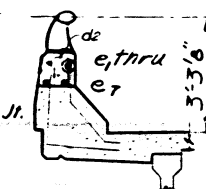
SEC THRU SPLICE



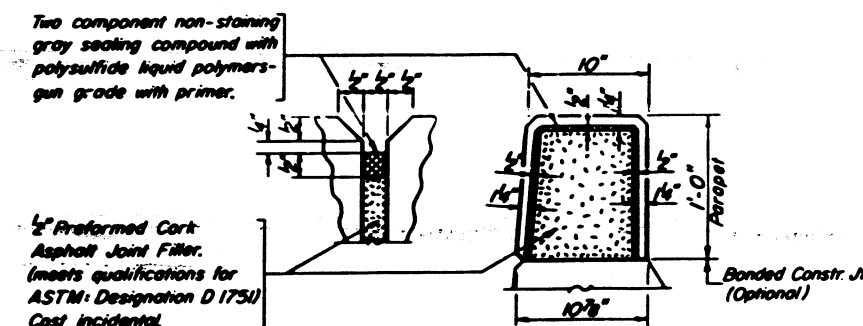
CLAMP BAR



MEDIAN JOINT DETAIL



SEC THRU CURB



PARAPET JOINT DETAIL

PARAPETS & RAILS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
E4	33	#4	13'-8"	—
E5	66	#4	16'-4"	—
E9	88	#4	8'-8"	—
E10	22	#4	19'-8"	—
E11	22	#4	18'-5"	—
d2	128	#4	2'-1"	□
Reinforcement Bars			Lbs.	3270
Aluminum Filing			Ln. Ft.	5233

NOTES:

Stainless steel machine bolts or cap screws shall be in accordance with Article 710.37(a) of the Standard Specifications except the tensile strength requirement shall be modified to 100,000 psi.

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 foot 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- $\frac{1}{8}$ " and 2- $\frac{1}{16}$ " 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 B 221 alloy 6061-T6 or 6351-T5 with min yield 35 ksi, min. tensile 38 ksi, & elongation of 10% in 2 inches.

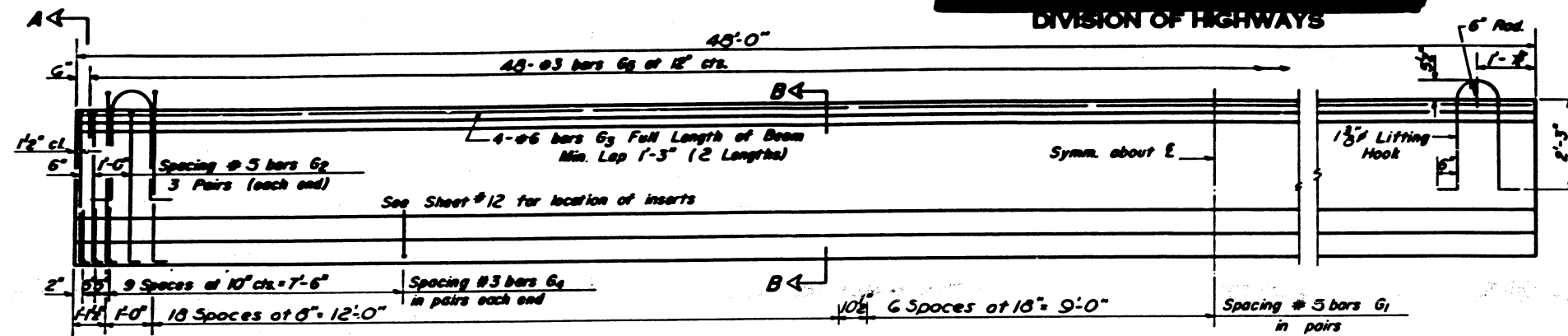
ALUMINUM RAILING
SPANS 7 THRU 11
FA. RT 151 SEC. 104-HVB
MADISON COUNTY
STA. 1658+55.18

DESIGNED *H. Y. Kuo*
CHECKED *W. M. C.*
DRAWN *C. E. Wilkins* ^{PcB}
CHECKED *W M C*

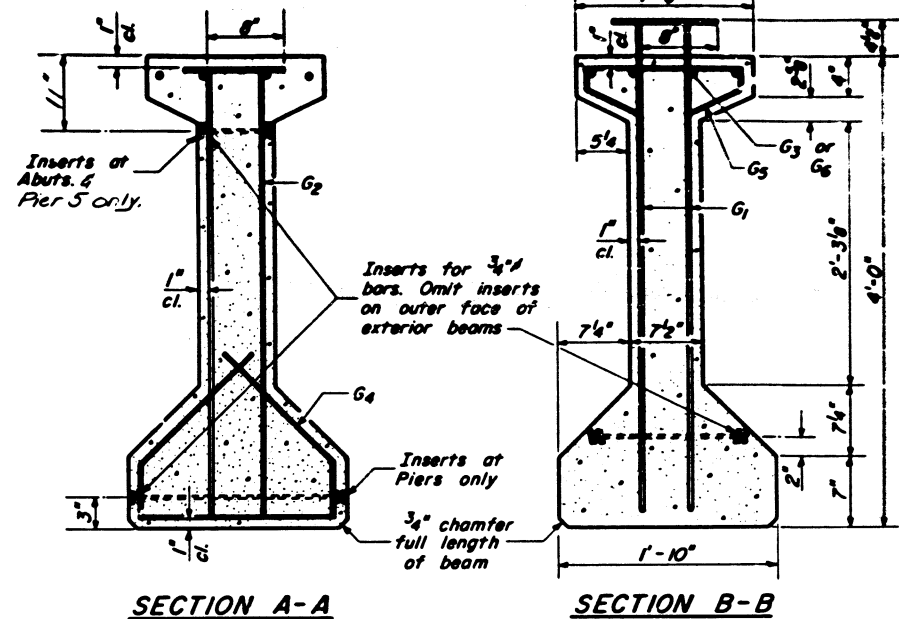
EXAMINED *Carl E. Thurman*
Signature of candidate and showing of score
 PASSED

 APPROVED Signature of approved

R-17 4-22-68

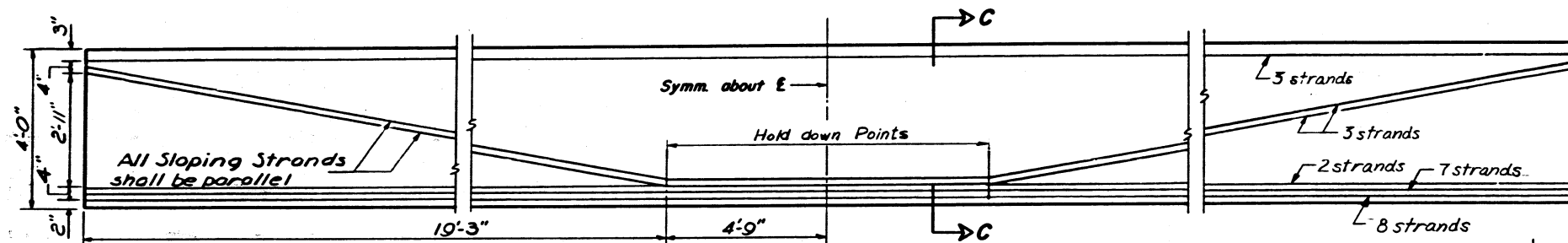


ELEVATION OF BEAMS - SPANS 1, 3, 4 & 5
Showing Reinforcement & Dimensions

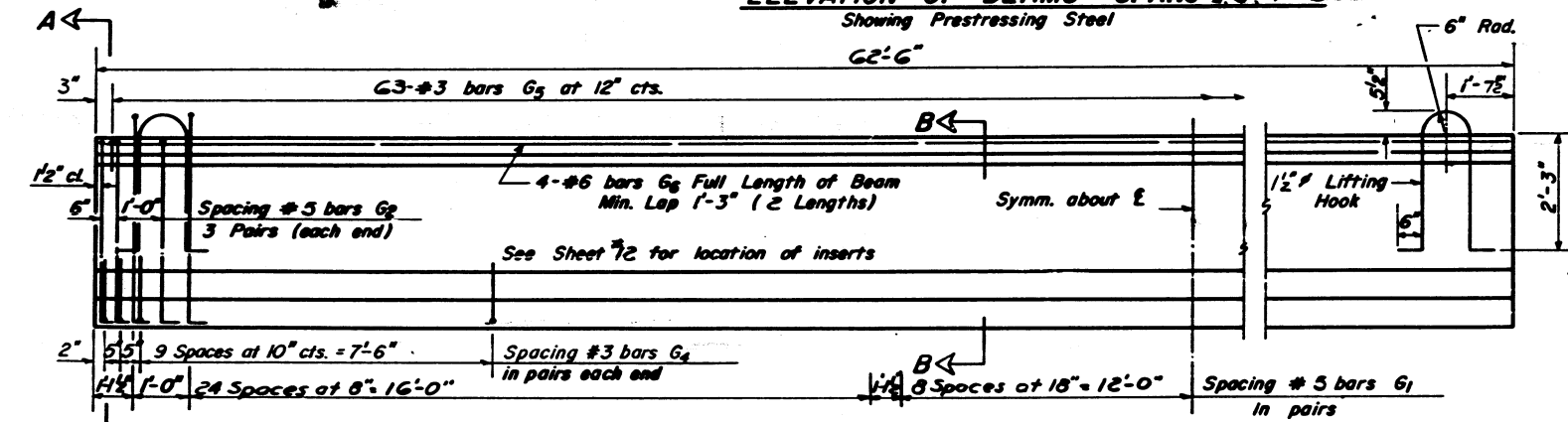


SECTION A-A

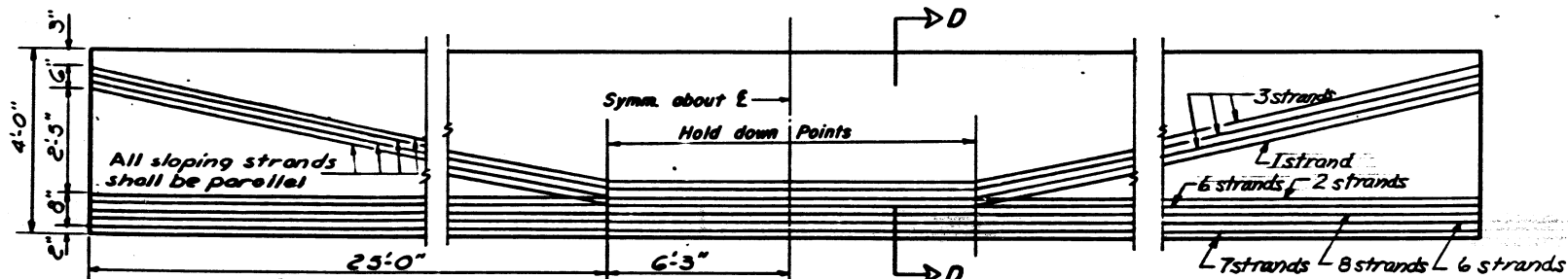
SECTION B-B



ELEVATION OF BEAMS - SPANS 1, 3, 4 & 5
Showing Prestressing Steel



ELEVATION OF BEAMS - SPAN 2
Showing Reinforcement & Dimensions



ELEVATION OF BEAMS - SPAN 2
Showing Prestressing Steel

DETAIL OF BEAM ENDS OVER PIERS 1, 2, 3 & 4

NOTES

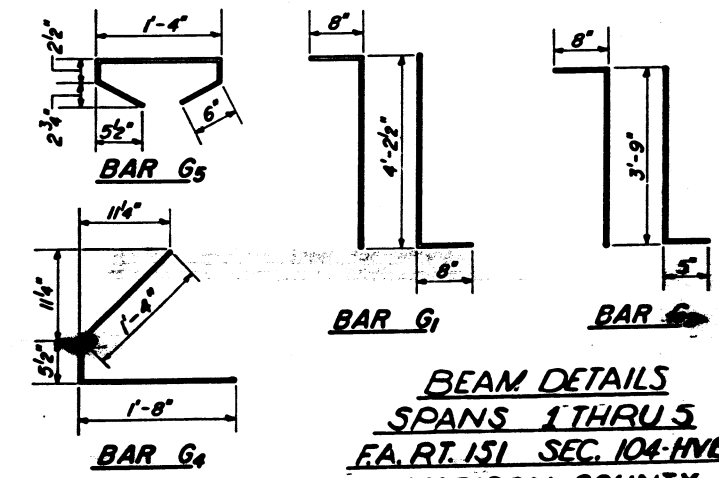
All inserts and threaded rods for inserts, reinforcing and Prestressing Steel, and other items which are cast into the Precast Concrete I-Beams shall be included in the contract unit price per linear foot of "Furnishing And Erecting Precast Prestressed Concrete I-Beams, 48 in. See Standard Specs. for additional information regarding materials, Prestressing equipment, construction and handling methods and other requirements for Precast Prestressed Concrete I-Beams. Prestressing Steel shall have a nominal diameter of 1/2". Inserts for 3/4" threaded rods are to be two strut, coil type for interior I-Beams and single coil, flared loop type for exterior I-Beams. Steel for lifting hooks shall be non-deformed bars 1/2" 40,000 psi. Ends of beams to be encased with cast in place concrete shall not be coated with asphalt paint.

BAR SCHEDULE

Bar	No.	Size	Length	Shape
G1	7868	#5	5'-6 1/2"	7L
G2	840	#5	4'-10"	7L
G3	448	#6	24'-6"	—
G4	3360	#3	3'-5 1/2"	—
G5	3570	#3	2'-9"	—
G6	112	#6	31'-9"	—

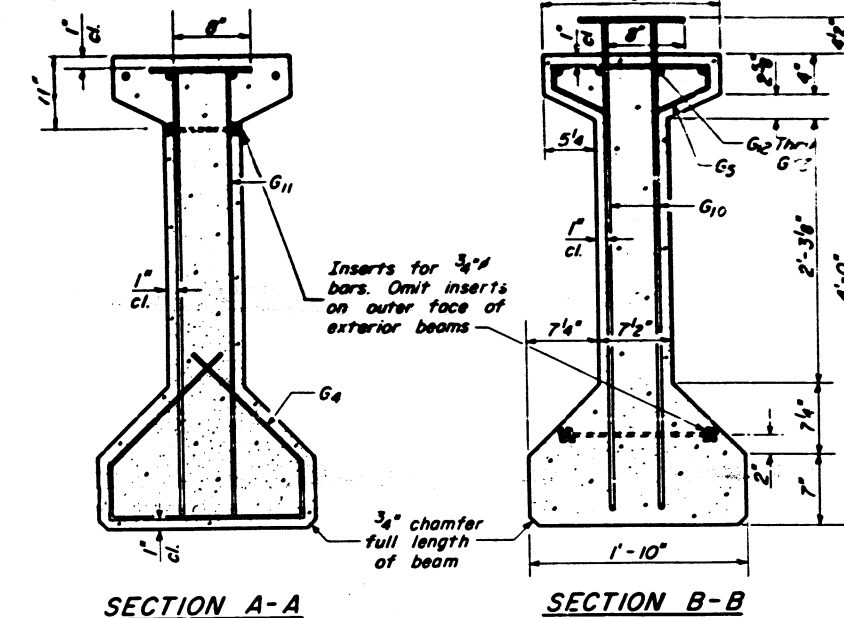
BILL OF MATERIAL

Item	Unit	Total
Furnishing & Erecting Precast Prestressed Concrete I-Beams, 48"	Lin. Ft.	3563



BEAM DETAILS SPANS 1 THRU 5
F.A.R.T. 151 SEC. 104-HVB
MADISON COUNTY
STA. 1658+55/8

DESIGNED: L.L.-Yuan Kao
CHECKED: Wen-Mo Chen
DRAWN: I.B. Fuller
CHECKED: W.M.C.



SECTION A-A



3" 3" 25.012" 3" 3" 25.012"

SECTION C-C SECTION D-D



Ant. No.		1	2	3	4	5	6	7	8	9	10	11
A	A	18°58'	22°08'	25°08'	29°16'	32°18'	36°2°	39°04'	41°63'	45°15'	48°73'	52°2°
	B	2°58'	6°6'	3°8'	6°6'	3°15'	7°	44°	3°6'	6°8'	3°8'	7°6'
	C	22°76'	22°8'	22°8'	23°16'	23°5'	23°2'	23°3'	13°15'	14°6'	14°8'	14°9'
Boia		G ₁₂	G ₁₃	G ₁₄	G ₁₅	G ₁₆	G ₁₇	G ₁₈	G ₁₉	G ₂₀	G ₂₁	G ₂₂
Boia	G ₅	19	22	26	29	33	36	40	42	40	49	52
	G ₁₀	26	30	34	38	42	46	50	54	54	58	62

For Notes, See Sh #7



Bar	N.O.	Size	Length	Shape
G ₄	520	#3	3'-5 1/2"	✓
G ₅	373	#3	2'-0"	✓
G ₁₀	494	#4	5'-6 1/2"	7L
G ₁₁	132	#4	4'-10"	7L
G ₁₂	4	#6	10'-2"	—
G ₁₃	4	#6	21'-8"	—
G ₁₄	4	#6	25'-3"	—
G ₁₅	4	#6	20'-9"	—
G ₁₆	4	#6	32'-4"	—
G ₁₇	4	#6	35'-11"	—
G ₁₈	4	#6	39'-5"	—
G ₁₉	4	#6	41'-3"	—
G ₂₀	8	#6	23'-3"	—
G ₂₁	8	#6	25'-0"	—
G ₂₂	8	#6	26'-9"	—

2 1/2"

1'-4"

5 1/2"

6"

BAR G₅

11 1/4"

11 1/4"

5 1/2"

1'-8"

BAR G₆

8"

4'-2 1/2"

8"

BAR G₁₀

8"

3'-9"

BAR G₆

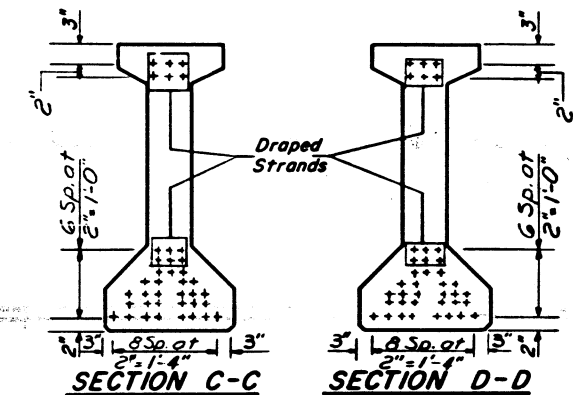
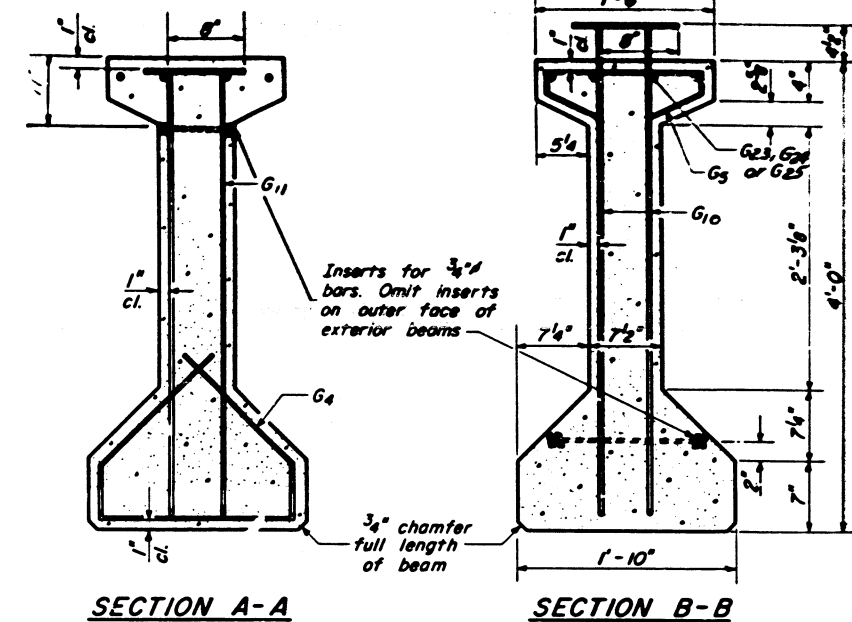
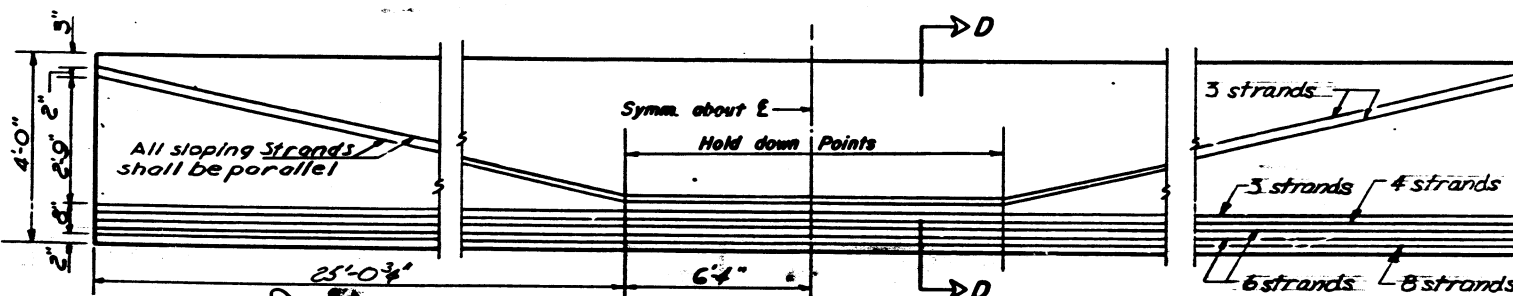
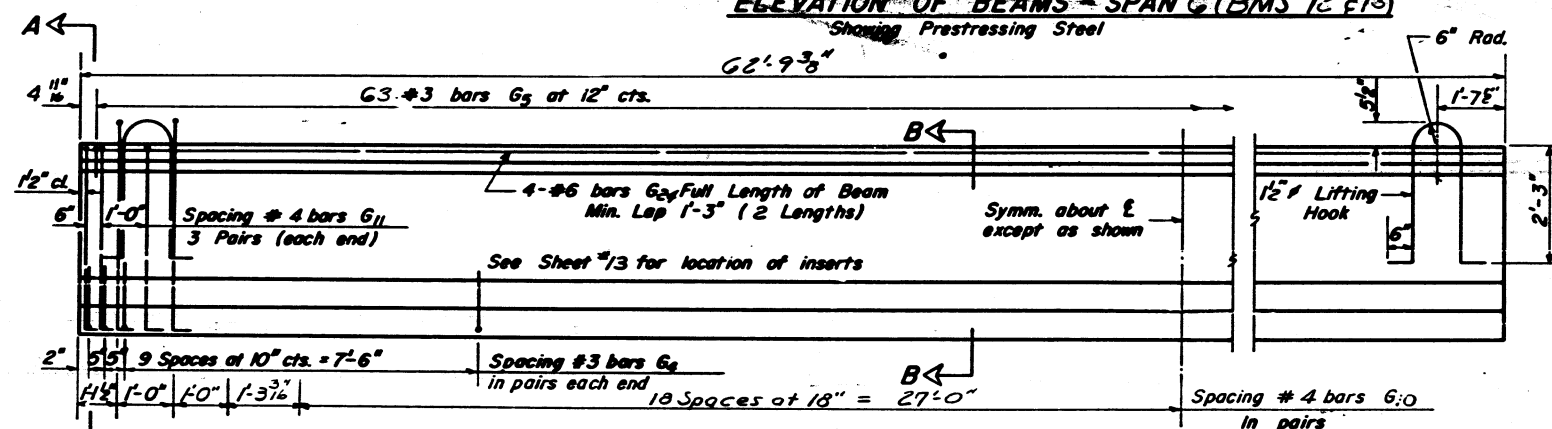
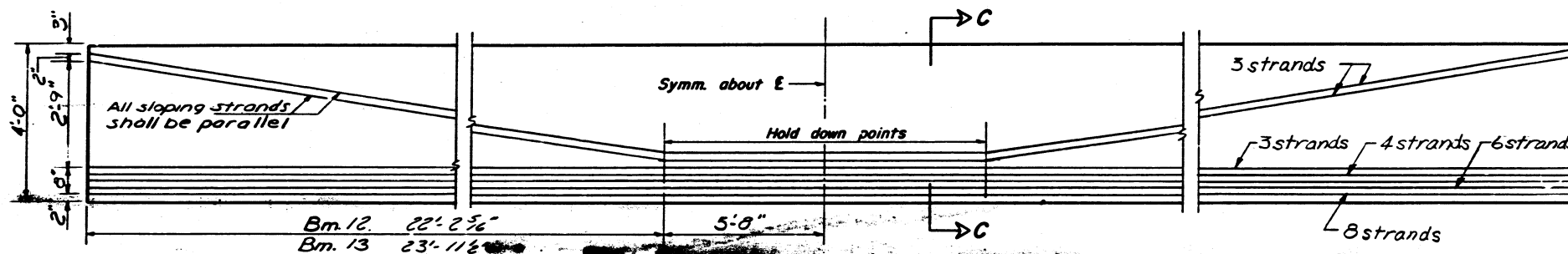
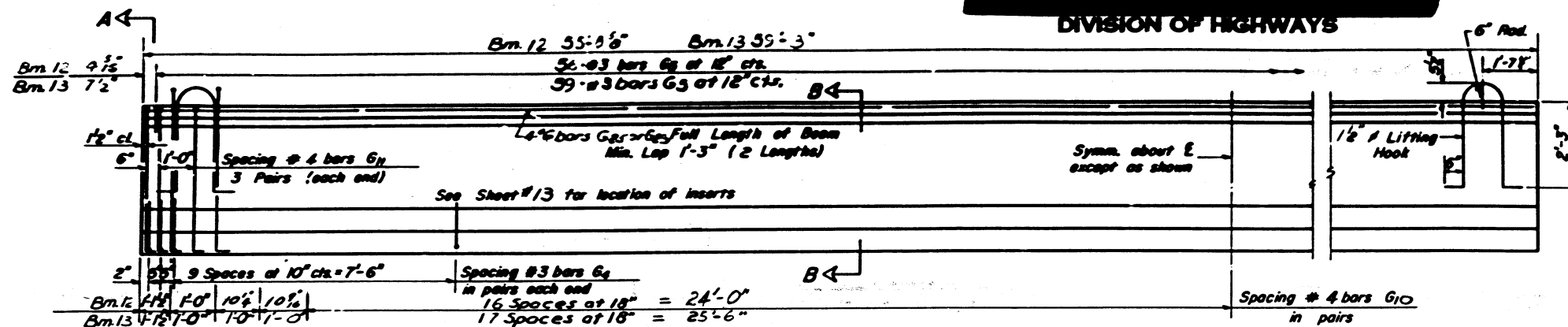
BEAM DETAILS
SPAN G (BMS. 1THRU)
F.A.R.T. 151 SEC. 104-M

BEAM DETAILS
SPAN 6 (BMS. 1 THRU 11)
F.A. RT. 151 SEC. 104 - HVB
MADISON COUNTY
STA. 1658-5518

DESIGNED *R.H. - 11-11-68*
CHECKED *Wen-ma Chen*
D. Derringer
DRAWN *I.B. Fuller*
CHECKED *W M C*

July 3, 1968
ELEVATION OF BEAMS - SPAN (BMS.9 THRU 11)
Showing Prestressing Steel

Item	Unit	Total
Furnishing & Erecting Precast Prestressed Concrete I-Beams, 48"	Lin. Ft.	371



**SPAN G BMS 12, 13 & 14
BAR SCHEDULE**

Bar	No.	Size	Length	Shape
G4	144	#3	3'-5 1/2"	L
G5	178	#3	2'-9"	()
G10	246	#4	5'-6 1/2"	7L
G11	36	#4	4'-10"	7L
G25	8	#6	28'-2"	—
G23	8	#6	30'-2"	—
G24	8	#6	31'-11"	—

NOTES

All inserts and threaded rods for inserts, reinforcing and Prestressing Steel, and other items which are cast into the Precast Concrete I-Beams shall be included in the contract unit price per linear foot of "Furnishing And Erecting Precast Prestressed Concrete I-Beams, 48 In.

See Standard Specs. for additional information regarding materials, Prestressing equipment, construction and handling methods and other requirements for Precast Prestressed Concrete I-Beams.

Prestressing Steel shall have a nominal diameter of 1/2".

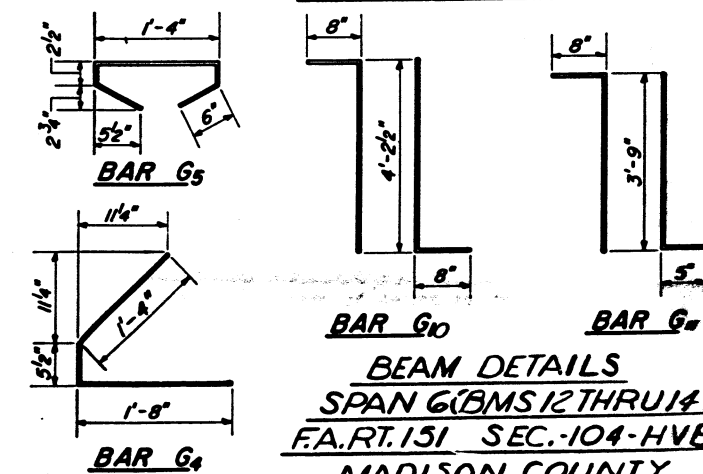
Inserts for 3/4" threaded rods are to be two strut, coil type for interior I-Beams and single coil, flared loop type for exterior I-Beams.

Steel for lifting hooks shall be non-deformed bars fy = 40,000 psi.

Ends of beams to be encased with cast in place concrete shall not be coated with asphalt paint.

BILL OF MATERIAL

Item	Unit	Total
Furnishing & Erecting Precast Prestressed Concrete I-Beams, 48"	Lin. Ft.	178

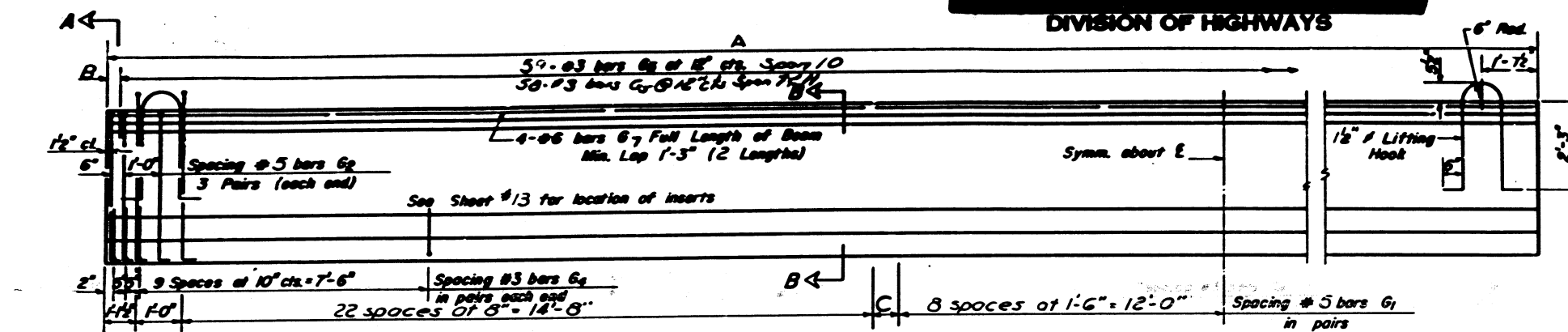


**BEAM DETAILS
SPAN G (BMS 12 THRU 14)
F.A.R.T. 151 SEC. 104-HVB
MADISON COUNTY
STA. 1658+55.18**

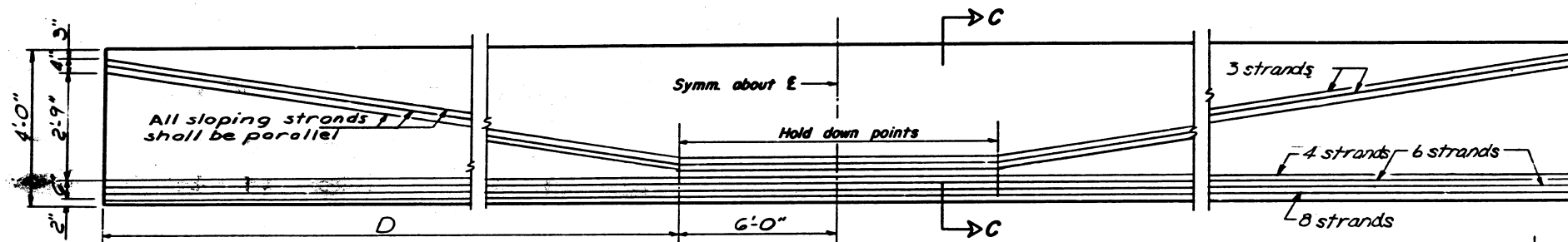
DESIGNED: Lih-Yuan Kao
CHECKED: Wen-mo Chen
DRAWN: T.B. Fuller
CHECKED: W.M.

DATE: July 3, 1963
PROJECT: F.A.R.T. 151 SEC. 104-HVB
SHEET NO. 9

ELEVATION OF BEAMS - SPAN G (BM 14)
Showing Prestressing Steel



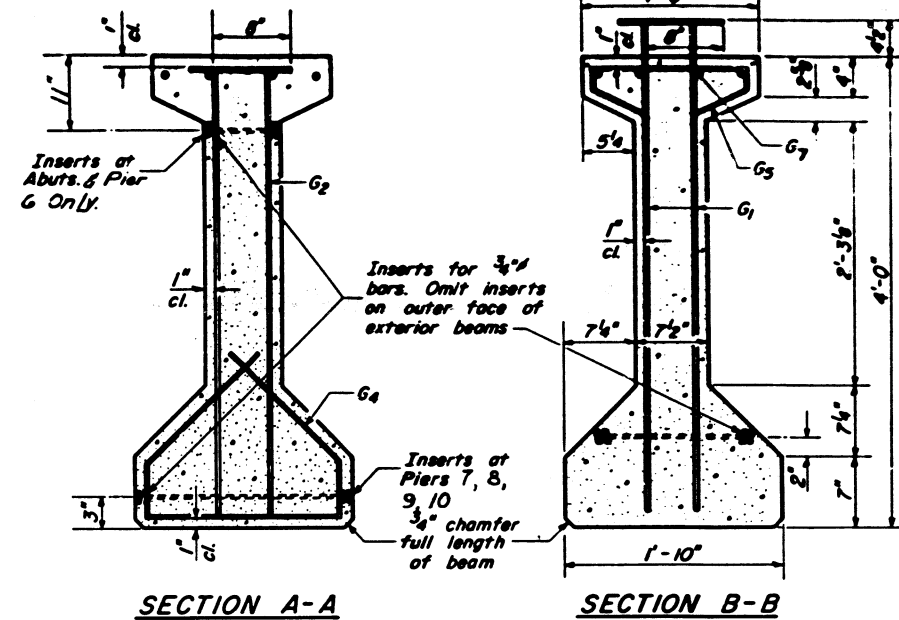
ELEVATION OF BEAMS - SPAN 7, 10, & 11
Showing Reinforcement & Dimensions



ELEVATION OF BEAMS - SPAN 7, 10, & 11
Showing Prestressing Steel

TABLE OF DIMENSIONS

Dim.	A	B	C	D
Loc.				
Span 7	58'-6"	9'	5 1/2"	23'-3"
Span 10	59'-5"	8 1/2"	11"	25'-8 1/2"
Span 11	58'-11"	6 1/2"	3"	23'-0 1/2"

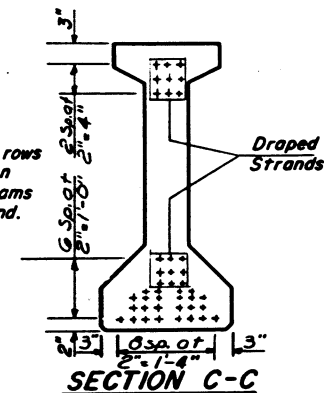


SECTION A-A

SECTION B-B



DETAIL OF
BEAM ENDS OVER PIERS 7, 9, & 10



SECTION C-C

BAR SCHEDULE

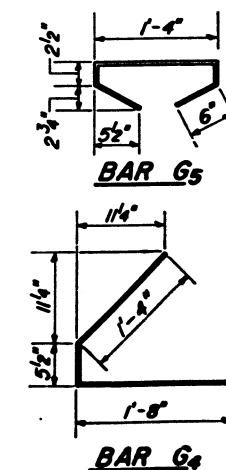
Bar	No.	Size	Length	Shape
G1	5860	#5	5'-6 1/2"	7L
G2	508	#5	4'-10"	7L
G4	2016	#3	3'-5 1/2"	L
G5	2850	#3	2'-9"	5
G7	336	#6	30'-3"	—

NOTES

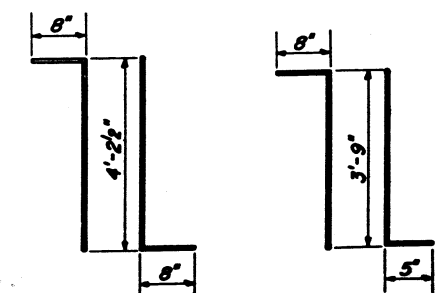
All inserts and threaded rods for inserts, reinforcing and Prestressing Steel, and other items which are cast into the Precast Concrete I-Beams shall be included in the contract unit price per linear foot of "Furnishing And Erecting Precast Prestressed Concrete I-Beams, 48 In. See Standard Specs. for additional information regarding materials, Prestressing equipment, construction and handling methods and other requirements for Precast Prestressed Concrete I-Beams. Prestressing Steel shall have a nominal diameter of 1/2". Inserts for 3/4" threaded rods are to be two strut, coil type for interior I-Beams and single coil, flared loop type for exterior I-Beams. Steel for lifting hooks shall be non-deformed bars fy = 60,000 psi. Ends of beams to be encased with cast in place concrete shall not be coated with asphalt paint.

SPANS 7, 10, & 11
BILL OF MATERIAL

Item	Unit	Total
Furnishing & Erecting Precast Prestressed Concrete I-Beams, 48"	Lin. Ft.	2464



BAR G4



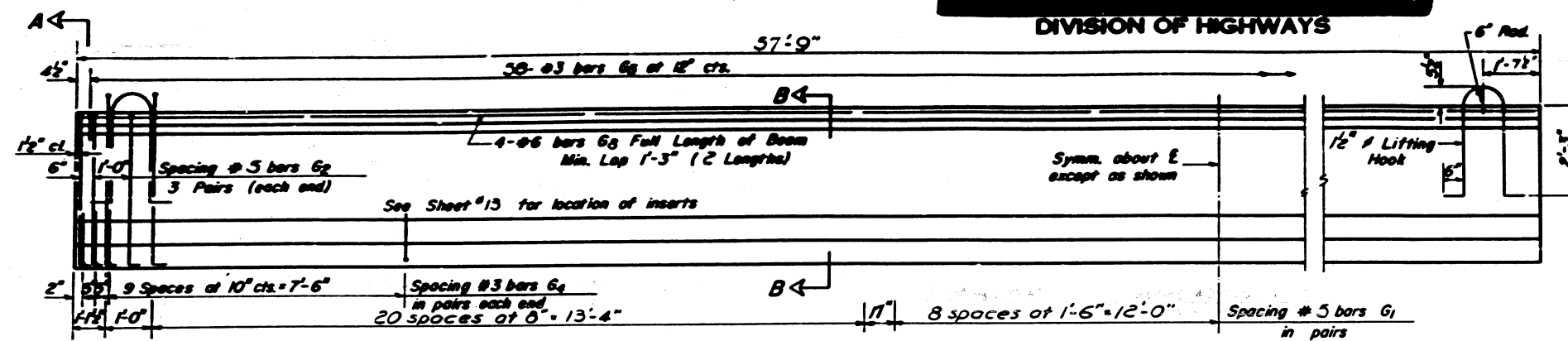
BAR G1

BAR G2

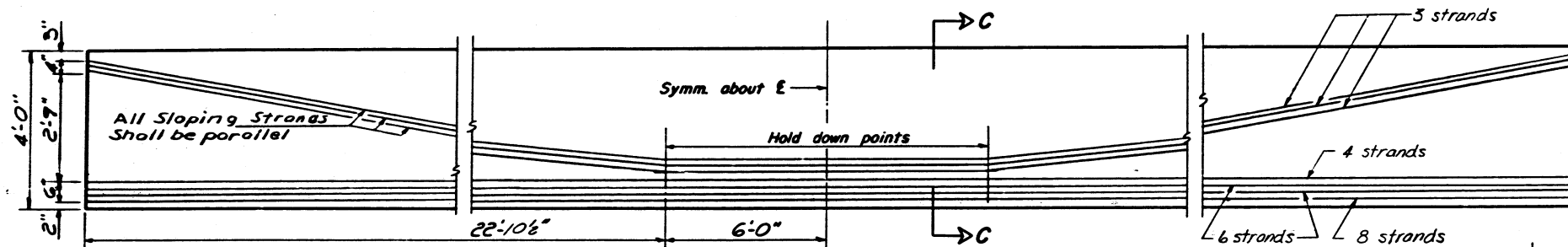
BEAM DETAILS
SPANS 7, 10, & 11
FA. RT. 151 SEC. 104-HVB
MADISON COUNTY
STA. 1658+55.18

DESIGNED: C. L. G. K. S.
CHECKED: W. H. C.
J. A. Zink
T. B. Fuller

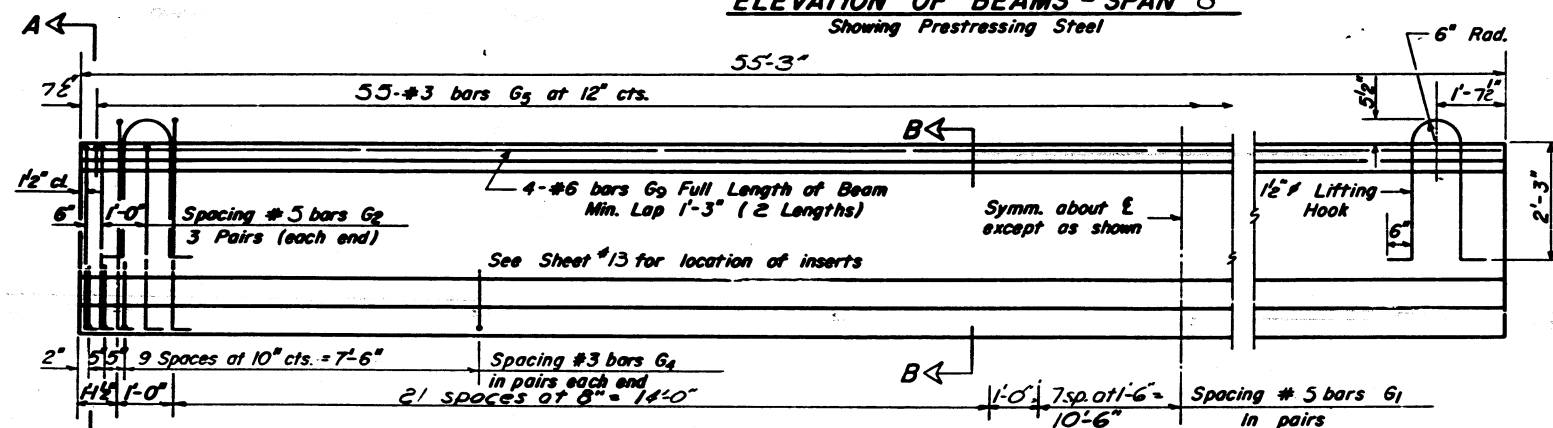
July 3, 1968
C. L. G. K. S.
W. H. C.



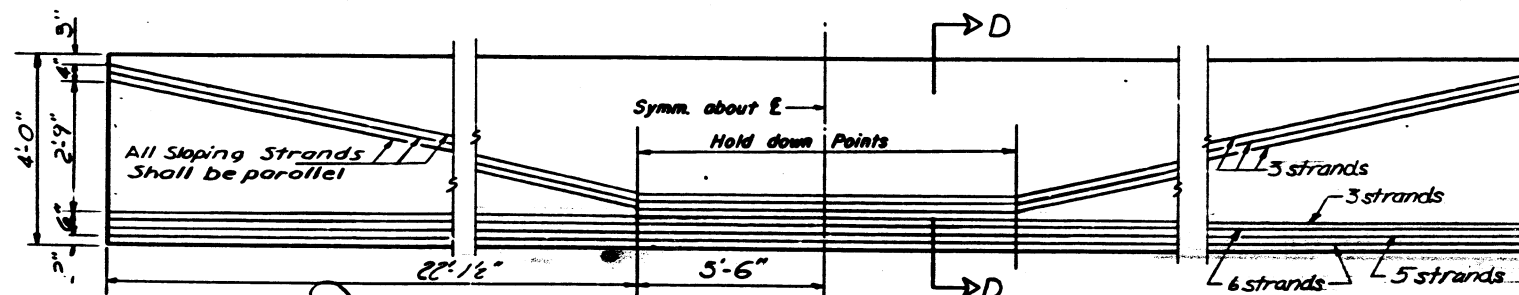
ELEVATION OF BEAMS - SPAN 8
Showing Reinforcement & Dimensions



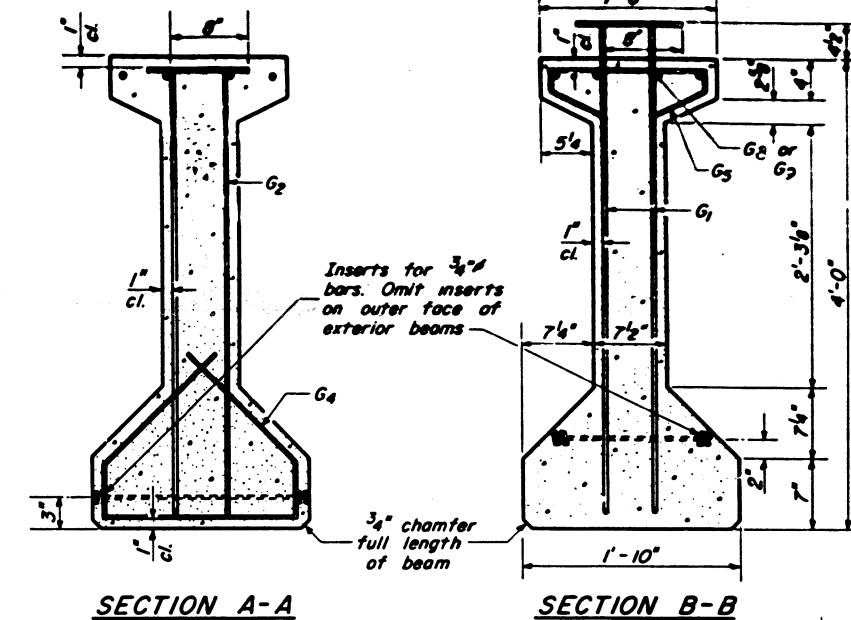
ELEVATION OF BEAMS - SPAN 8
Showing Prestressing Steel



ELEVATION OF BEAMS - SPAN 9
Showing Reinforcement & Dimensions

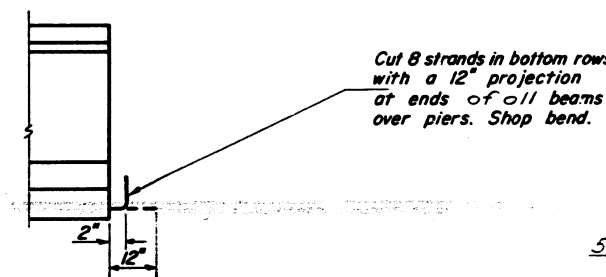


ELEVATION OF BEAMS - SPAN 9
Showing Prestressing Steel

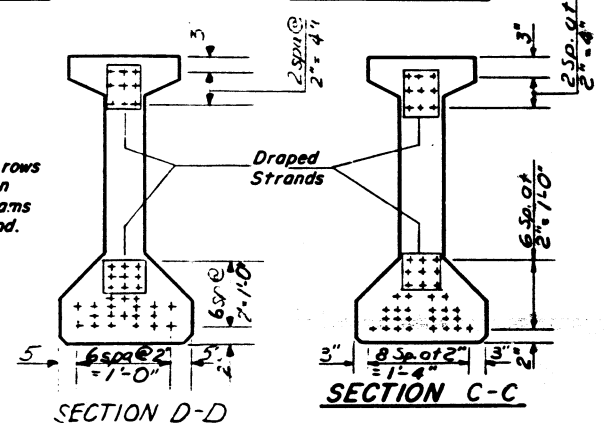


SECTION A-A

SECTION B-B



DETAIL OF BEAM ENDS OVER PIERS 7, 8, & 9



SECTION D-D

SECTION C-C

BAR SCHEDULE

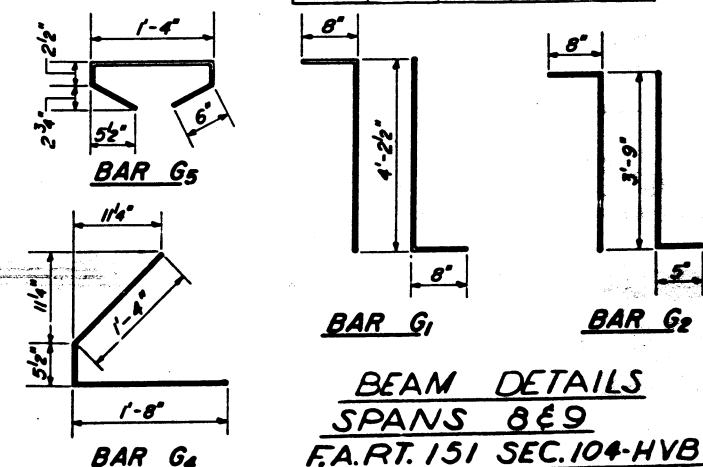
Bar	No.	Size	Length	Shape
G1	34-6	#5	5'-6 1/2"	7L
G2	33-6	#5	4'-10"	7L
G4	13-6	#3	3'-5 1/2"	L
G5	13-6	#3	2'-9"	O
G6	11-2	#6	2'-6"	—
G9	11-2	#6	2'-2"	—

NOTES

All inserts and threaded rods for inserts, reinforcing and Prestressing Steel, and other items which are cast into the Precast Concrete I-Beams shall be included in the contract unit price per linear foot of "Furnishing And Erecting Precast Prestressed Concrete I-Beams, 48 In. See Standard Specs. for additional information regarding materials, Prestressing equipment, construction and handling methods and other requirements for Precast Prestressed Concrete I-Beams. Prestressing Steel shall have a nominal diameter of 1/2". Inserts for 3/4" threaded rods are to be two strut, coil type for interior I-Beams and single coil, flared loop type for exterior I-Beams. Steel for lifting hooks shall be non-deformed bars fy = 40,000 psi. Ends of beams to be encased with cast in place concrete shall not be coated with asphalt paint.

SPANS 8 & 9
BILL OF MATERIAL

Item	Unit	Total
Furnishing & Erecting Precast Prestressed Concrete I-Beams, 48"	Lin. Ft.	1502

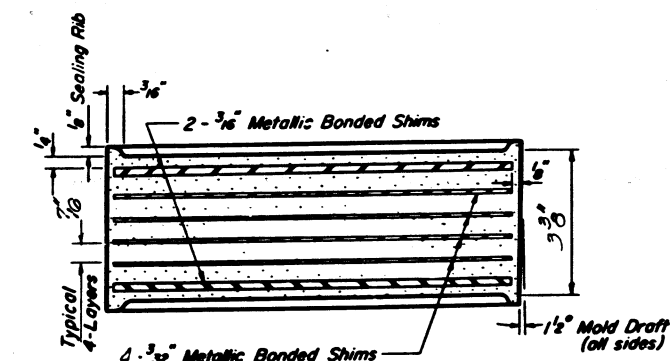
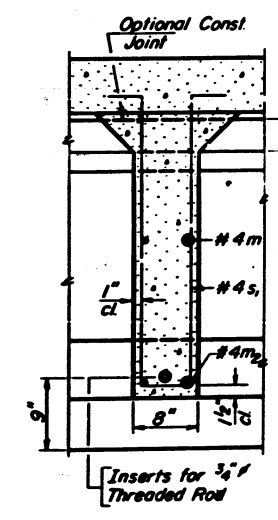
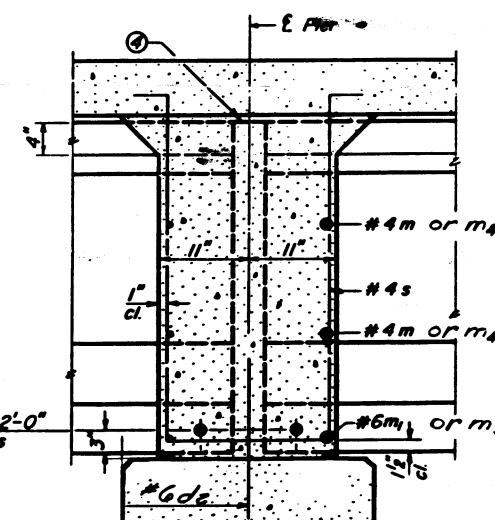
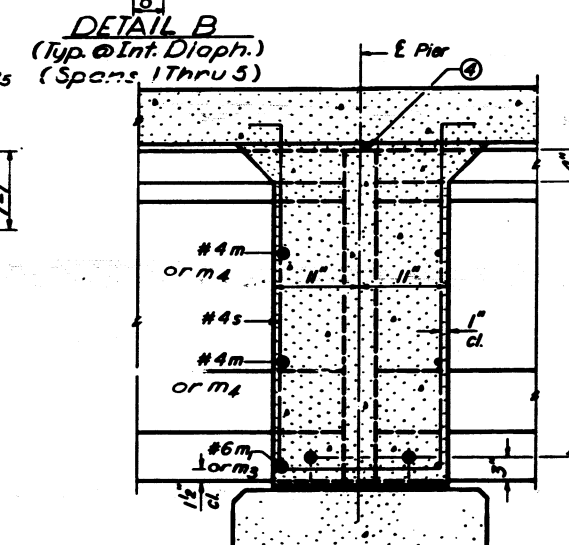
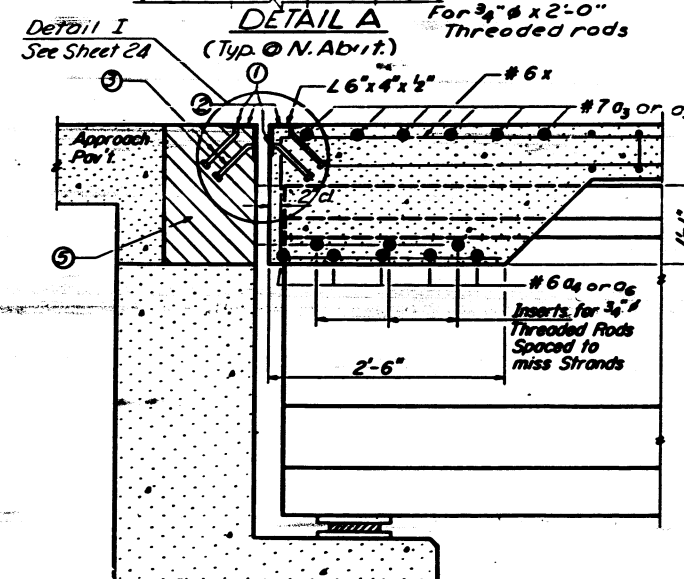
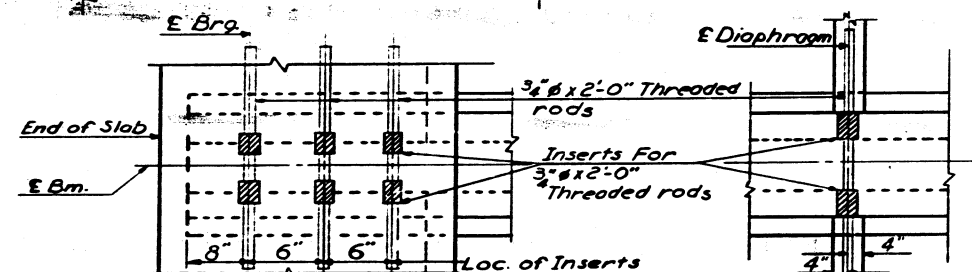
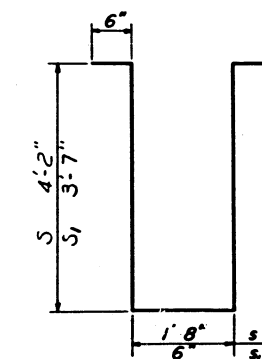
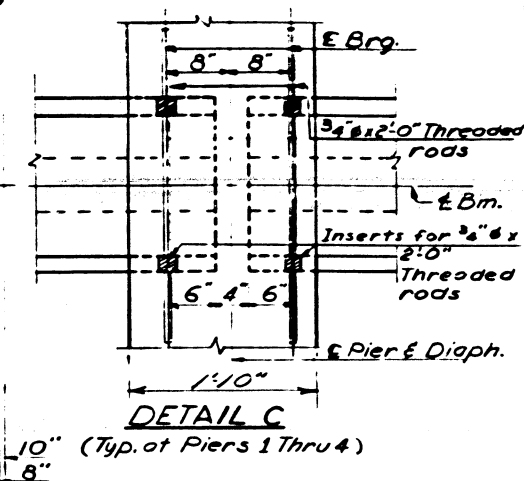
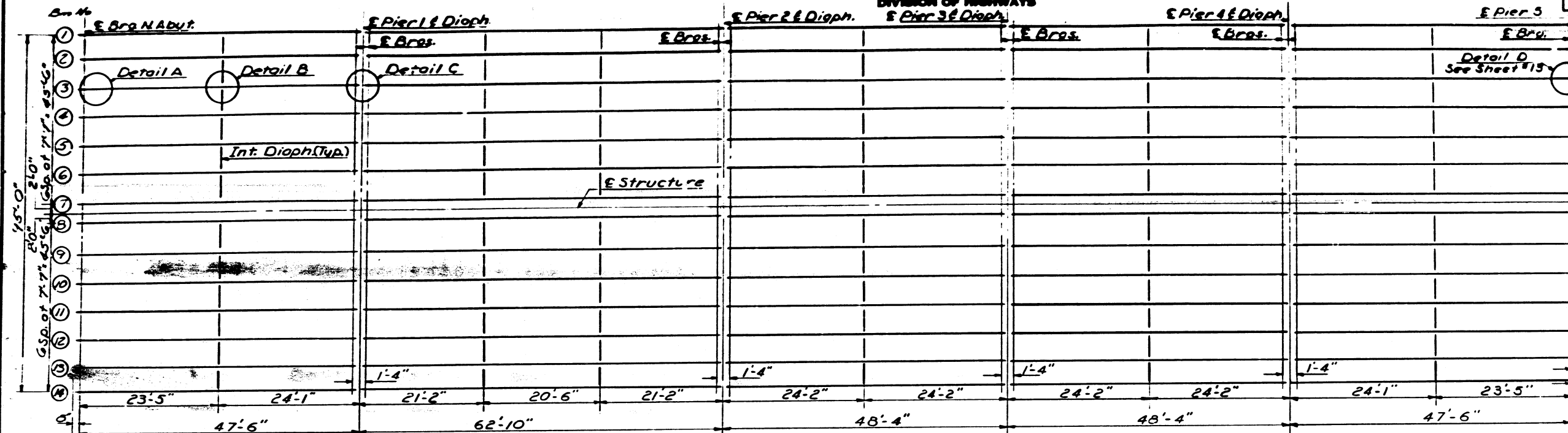


BEAM DETAILS
SPANS 8 & 9
F.A.R.T. 151 SEC. 104-HVB
MADISON COUNTY
STA. 1658+55.18

DESIGNED: Ch. L. Kuo
CHECKED: Wen-m. Chen
DRAWN: T.B. Fuller
CHECKED: W.H.C.

APPROVED: [Signature]
DATE: 8-1-63

151	1000	42	21
ADJ. 1000	ADJ. 1000	ADJ. 1000	ADJ. 1000

SECTION AT ABUTMENT
(At R.L. 25 to B.K. of Abut.)

PIERS 1, 3, 4, 7, 8 & 10

PIERS 2 & 9

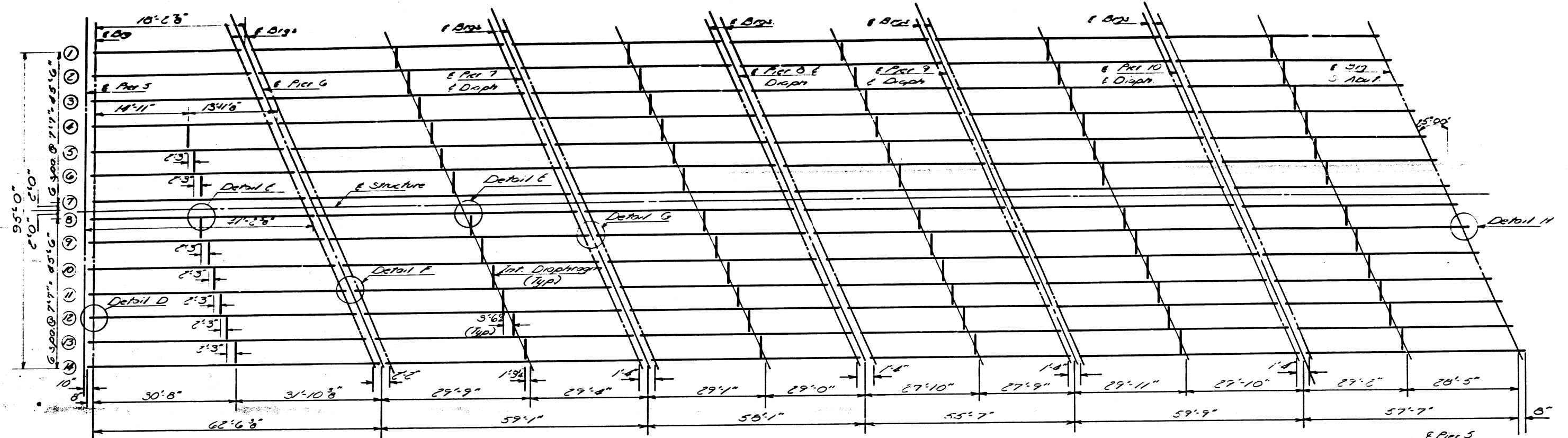
SEC. AT INT.
DIAPHRAGMELASTOMERIC BEARING DETAIL
(See Sheet # 14)

DESIGNED	W. H. C.
CHECKED	W. H. C.
DRAWN	W. H. C.
CHECKED	W. H. C.

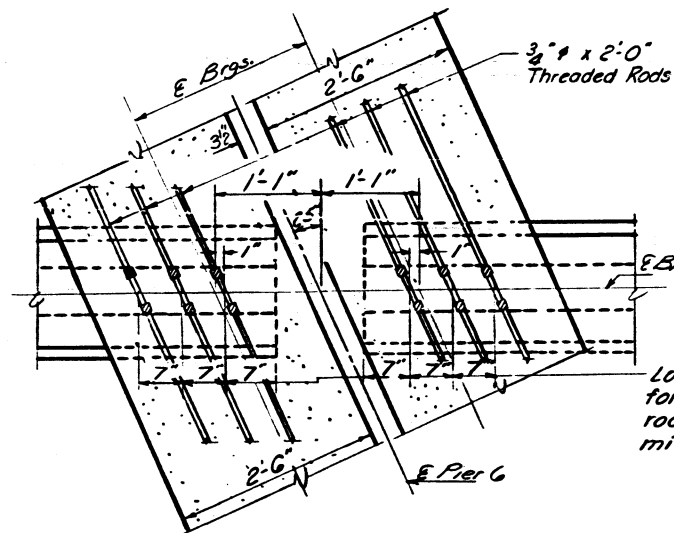
PI-2J 1-27-66

- 1" holes at 12" cts. for 3/8" bolts set on normal gage line. All bolts shall be burned, sawed or chipped off flush with the back of angles after forms are removed.
- 1" vent holes at 12" cts. set on 1" gage line.
- 3/4" x 8" CR 1020 STL granular or solid flux filled headed studs—automatically and welded. (alternate at 1'-0" cts.)
- Pour diaphragm flush with top of beam. Concrete in slab above this line shall be placed not less than 45 minutes nor more than 90 minutes after diaphragm has been poured.
- Hatched area to be poured after Superstructure forms have been removed. Quantity of Class X Concrete included with Superstructure.

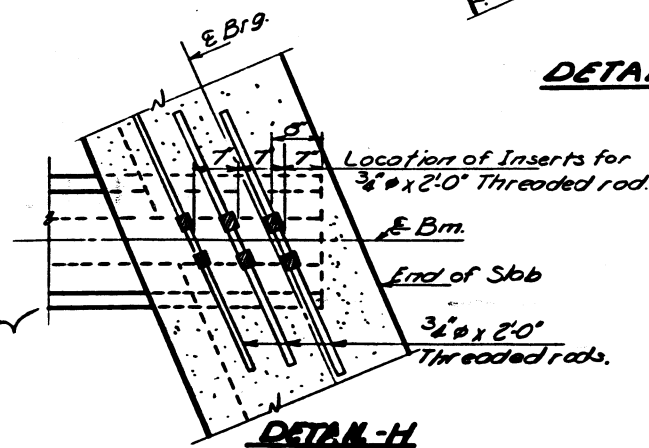
Bars a₃, a₄; m₁, m₂; m₃, m₄; s & s₁ are included in Bill of Material on Sheets # 3 & 4FRAMING DETAILS
F.A. RT. 151 SEC. 104-HVB
MADISON COUNTY
STA. 1658+55.18



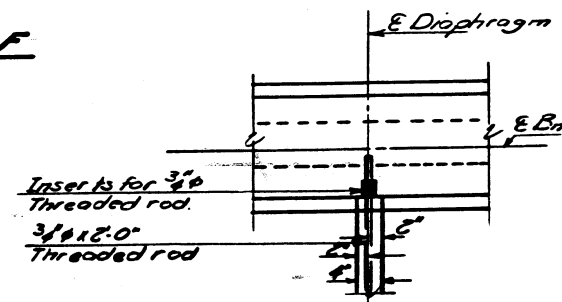
FRAMING PLAN



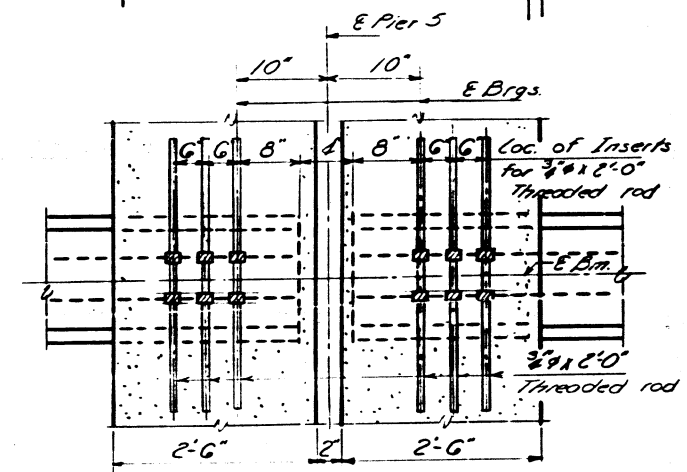
DETAIL-F



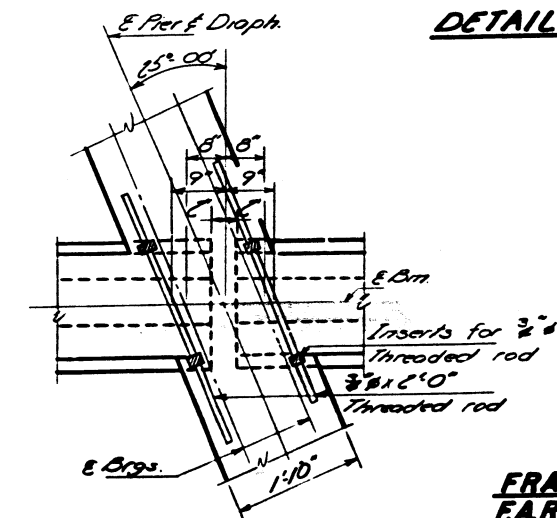
DETAIL-H



DETAIL-E



DETAIL-D

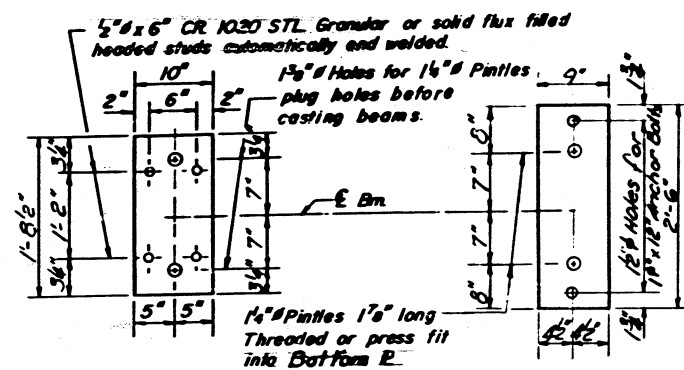
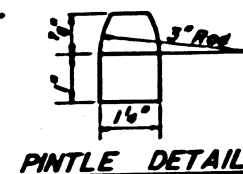
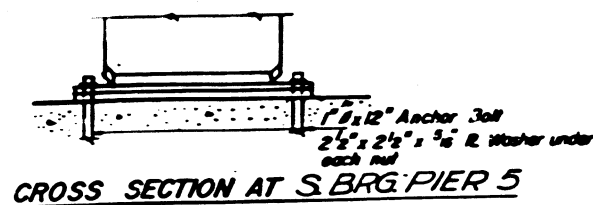


DETAIL-G

DESIGNED *Chih-Yuan Kuo*
CHECKED *Wen-Hy Chen*
DRAWN *D. Deringer*
CHECKED *W. H. C.*

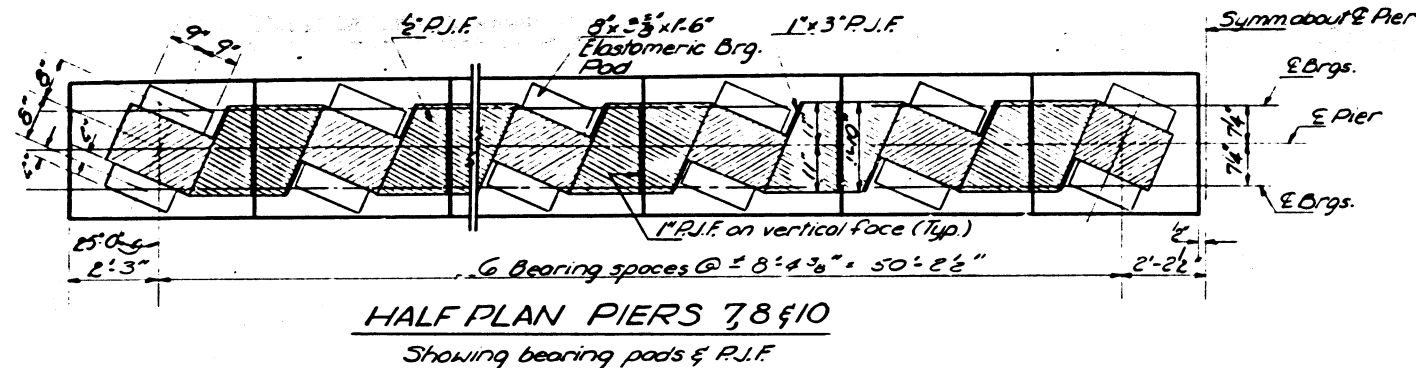
EXAMINED *July 3, 1968*
PASSED
APPROVED

FRAMING DETAILS
F.A.T. 151 SEC. 104 HYB
MADISON COUNTY
STA. 1658+55.18

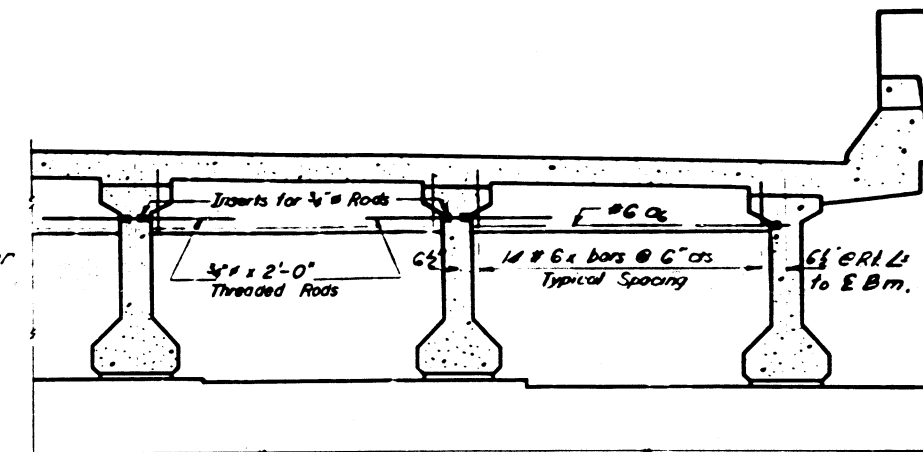


PLAN
BOTT. R.

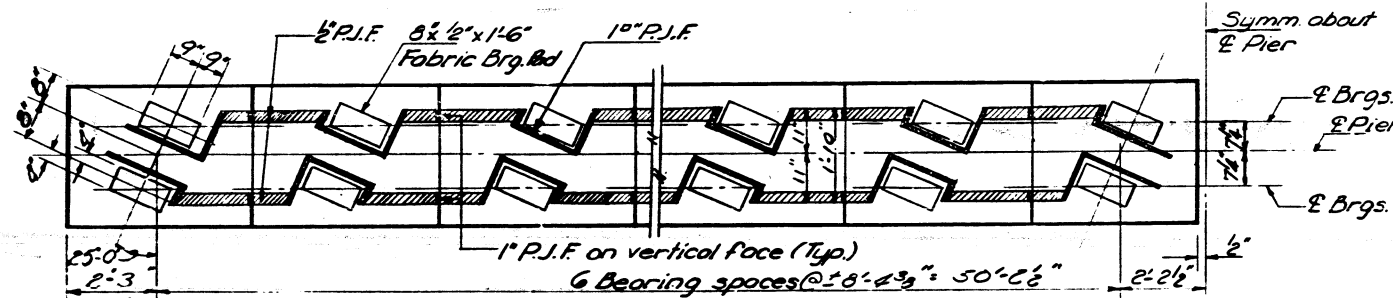
FIXED BRG. DETAILS



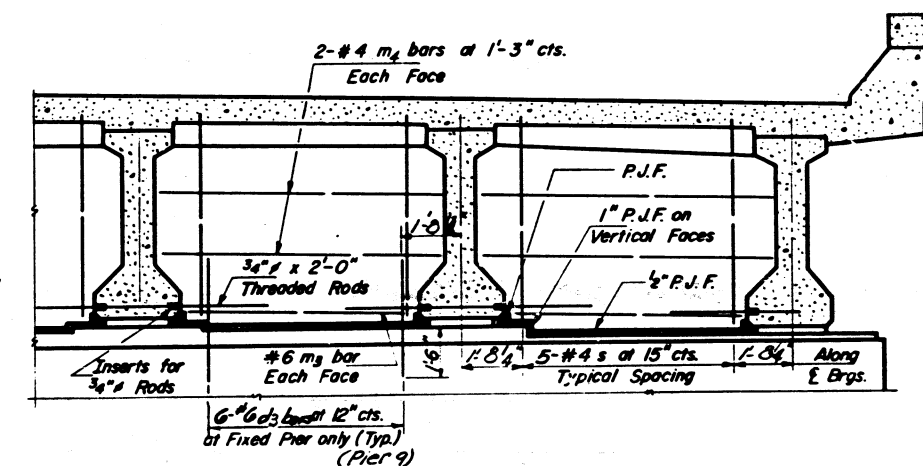
HALF PLAN PIERS 7, 8 & 10
Showing bearing pads & P.J.F.



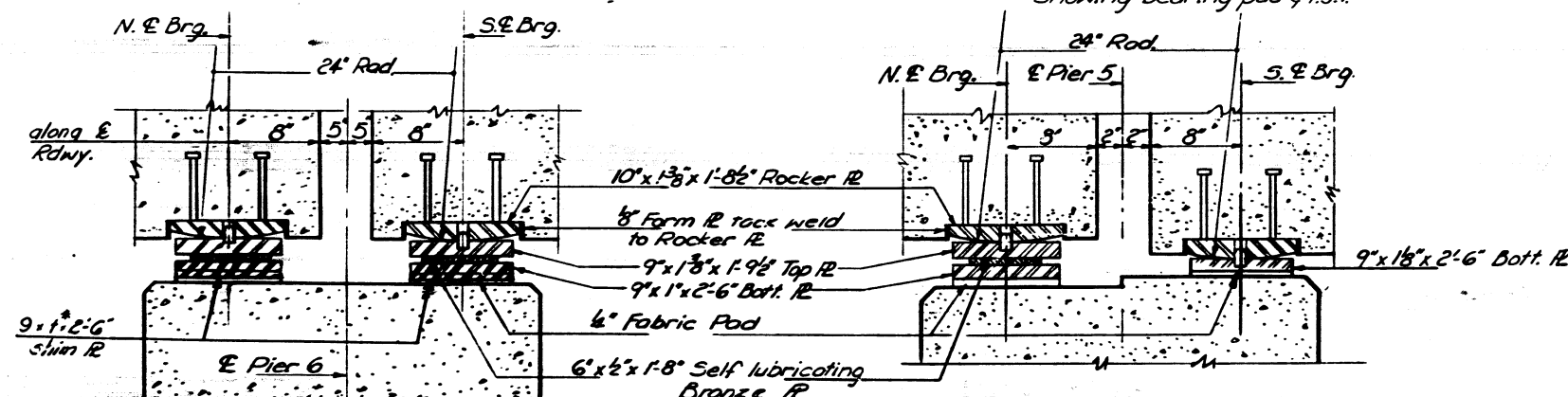
DIAPHRAGM AT PIERS 5 & 6



HALF PLAN PIER 9
Showing bearing pad & P.J.F.



DIAPHRAGM AT PIERS 7, 8, 9 & 10



SECTION AT PIER 5

SECTION AT PIER 6

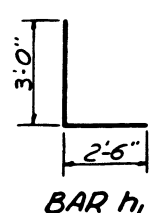
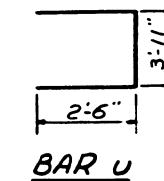
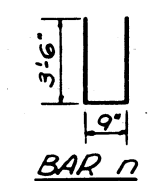
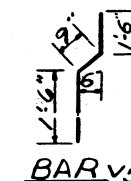
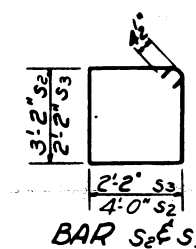
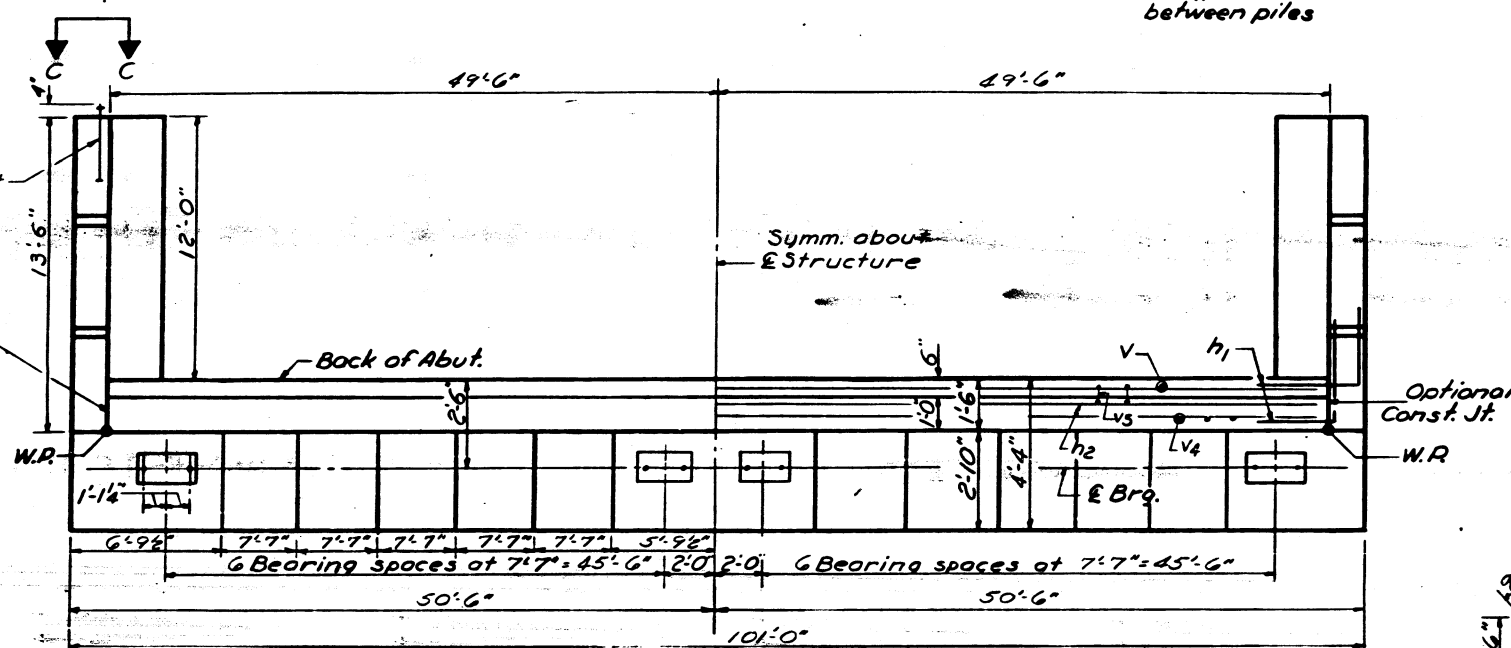
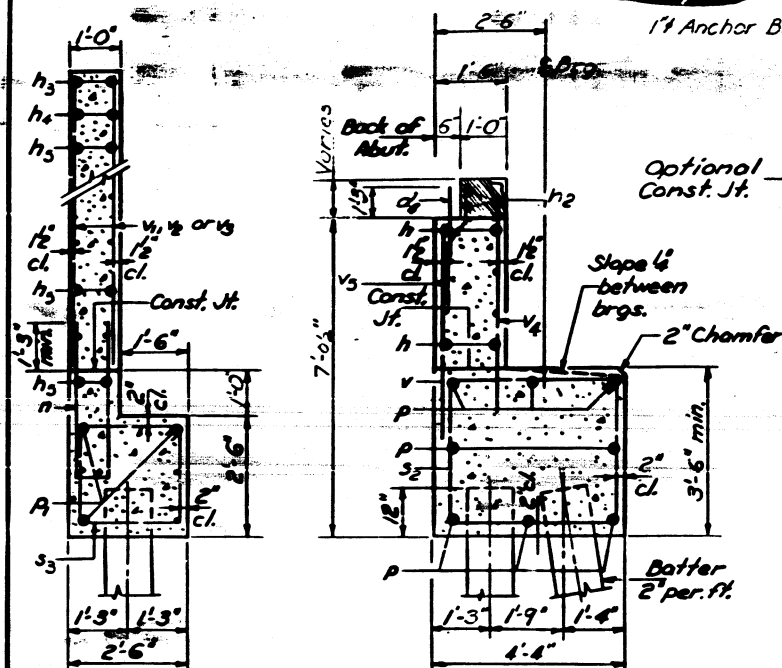
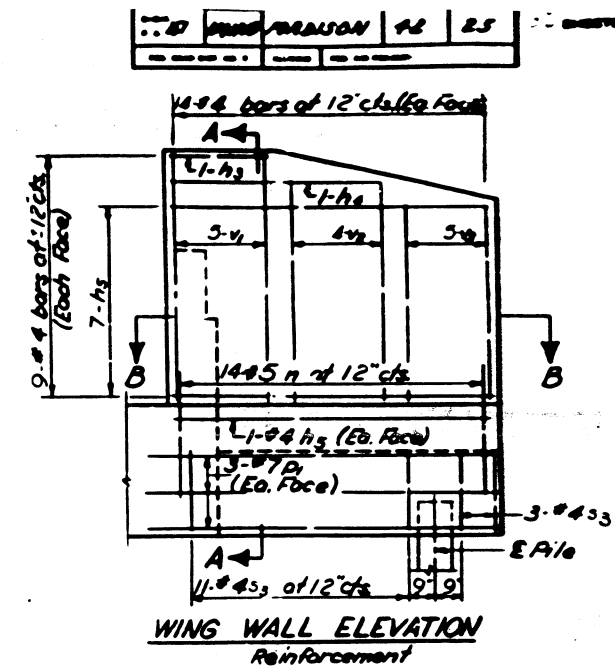
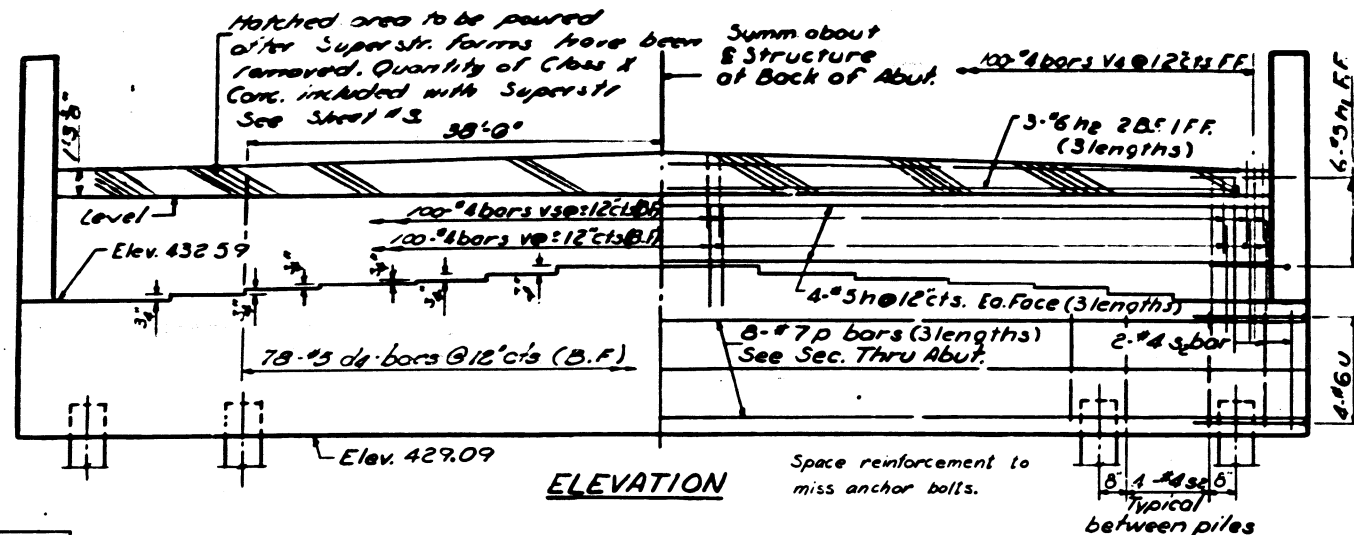
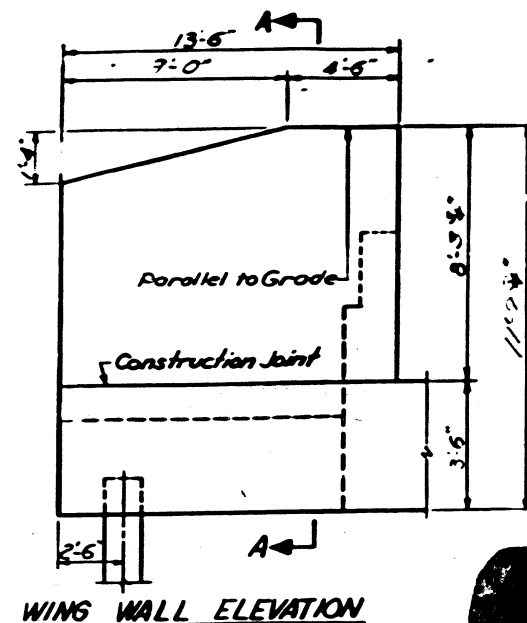
DESIGNED	Chin-Yuan Kuo
CHECKED	Wen-Ma Chen
DRAWN	William S. S.
CHECKED	W. M. C.

DATE 3/16/64
BY Carl E. Hummer
FOR THE DIVISION OF HIGHWAYS

Note:
Weight of Armor Angles and Studs; Top Plates, Bottom Plates, Bronze Plates and Shim Plates of Bearing Assemblies is included in the weight of Structural Steel.

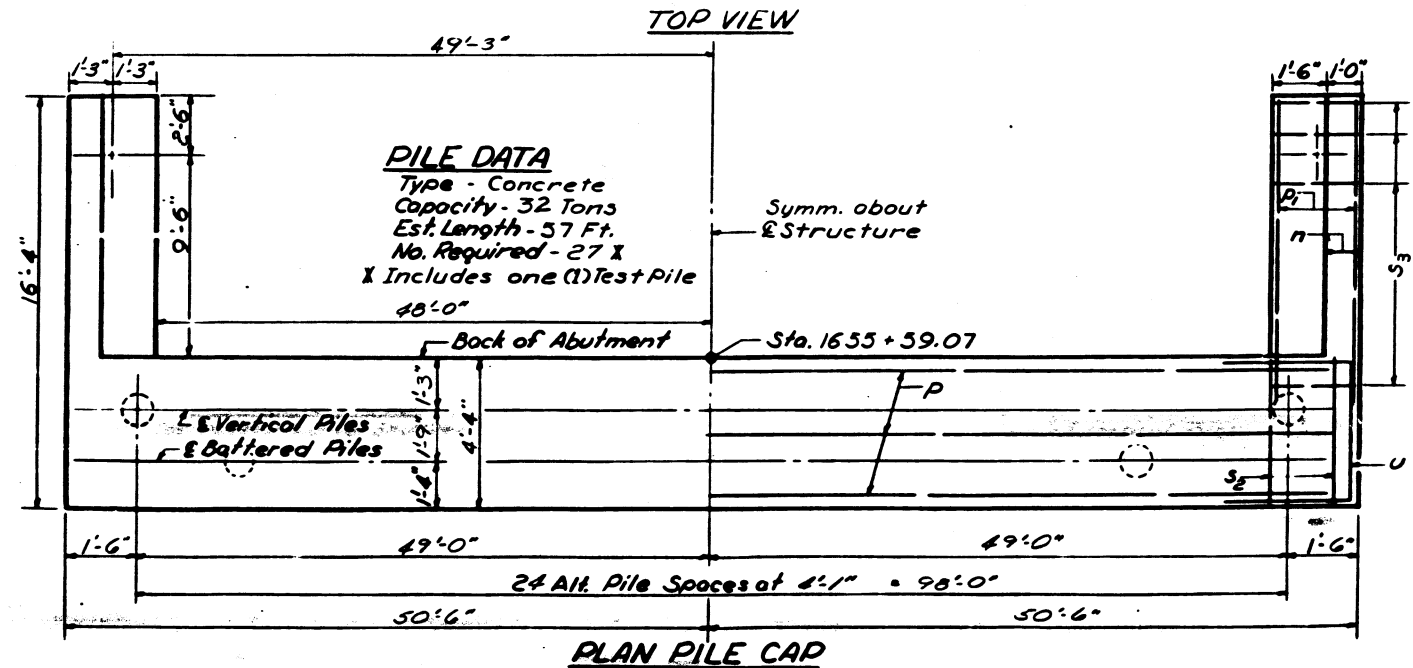
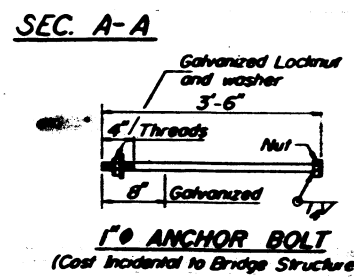
Cost of Rocker IR cast into beam is included in the cost of "Furnishing and Erecting Precast Prestressed Concrete I-Beams."

BEARING DETAILS
F.A. RT. 151 SEC. 104 HVB
MADISON COUNTY
STA. 1658+55.18



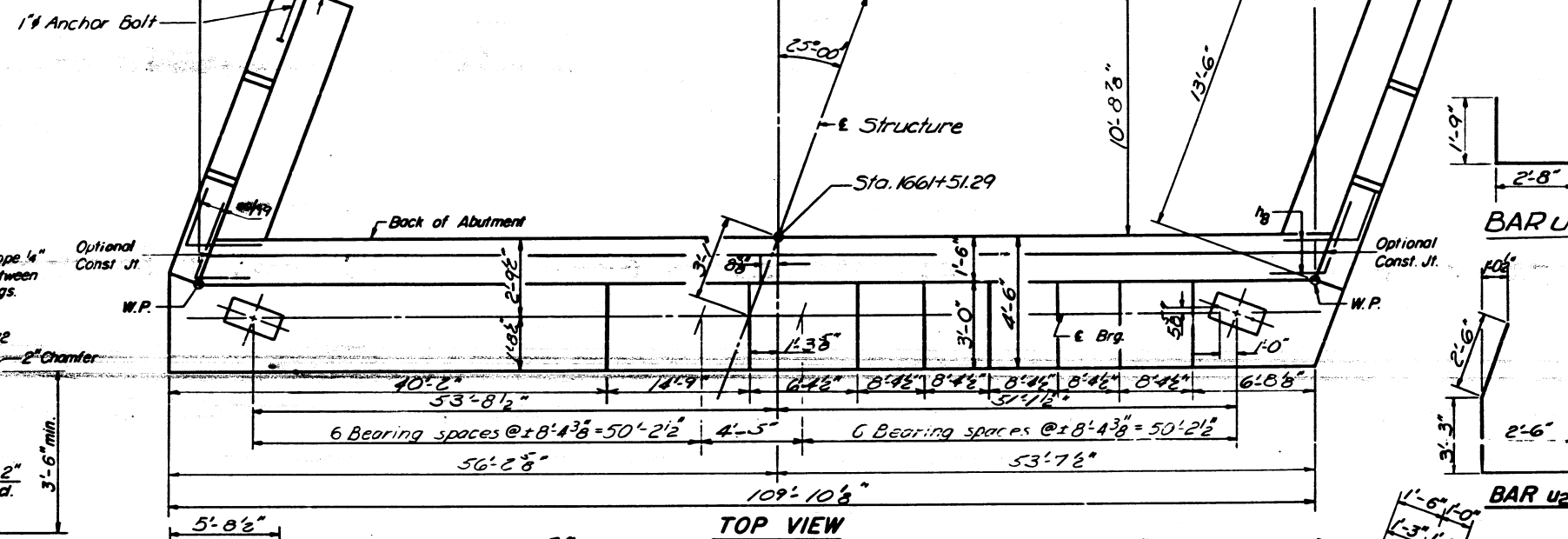
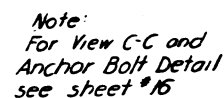
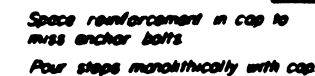
ONE ABUTMENT				
BILL OF MATERIAL				
Bar	No.	Size	Length	Shape
h	24	#5	34'-0"	—
h ₁	22	#5	5'-6"	J
h ₂	9	#6	34'-3"	—
h ₃	4	#4	4'-3"	—
h ₄	4	#4	8'-9"	—
h ₅	32	#4	13'-3"	—
dk	78	#5	2'-6"	—
n	28	#5	7'-9"	U
p	24	#7	34'-6"	—
p ₁	12	#7	13'-6"	—
se	100	#4	15'-1"	□
ss	28	#4	9'-5"	□
u	8	#6	8'-11"	□
v	100	#4	3'-0"	—
v ₁	20	#4	8'-2"	—
v ₂	16	#4	7'-6"	—
v ₃	20	#4	6'-10"	—
v ₄	100	#4	5'-6"	—
v ₅	100	#4	3'-5"	—
Class X Concrete			Cu. Yds.	91.5
Reinforcement Bars			Lbs.	6760
Concrete Piles			Lin. Ft.	1482
Total Piles (Concrete)			Ea.	1

NORTH ABUTMENT
E.A. RT. 151 SEC. 104-HVB
MADISON COUNTY
STA. 1638+55.18



DESIGNED *Chih-Yuan Kao*
CHECKED *Wen-ma Chen*
DRAWN *D. Derringer*
Thomas A. Lewis
CHECKED *W. M. C.*

July 3 1966
EXAMINED
FILED
FBI
APPROVED
SPECIAL AGENT IN CHARGE

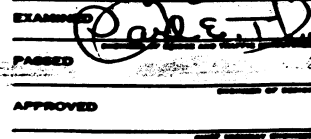


ONE. ABUTMENT

BILL OF MATERIAL

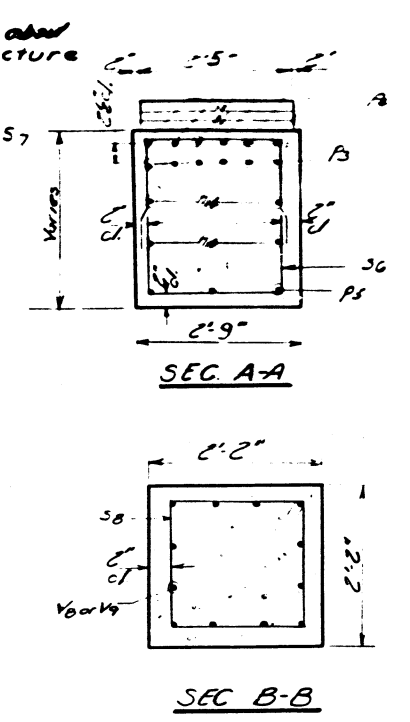
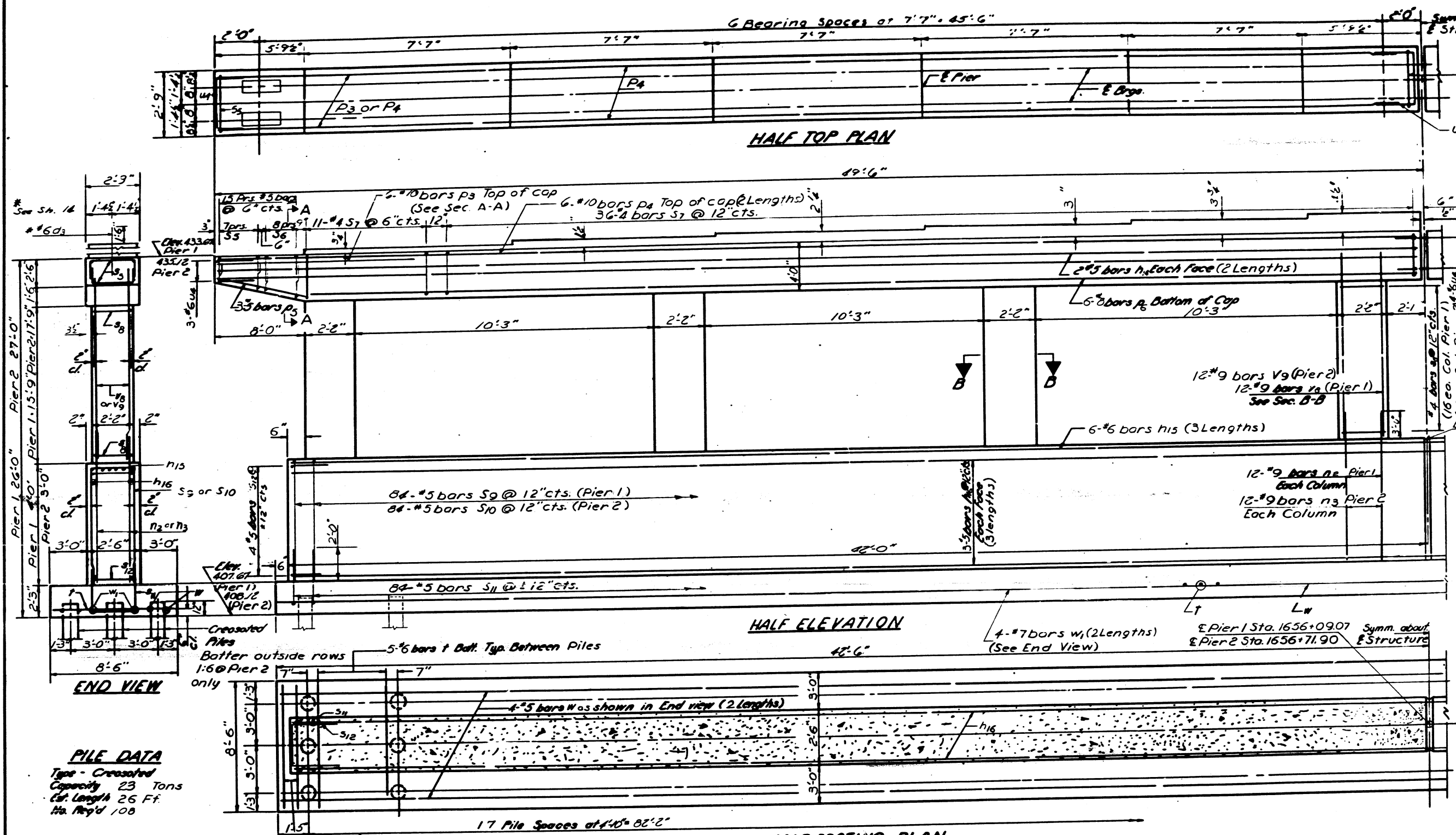
Bar	No.	Size	Length	Shape
h3	4	#4	4'-3"	—
h4	4	#4	8'-9"	—
h5	32	#4	13'-3"	—
h7	24	#5	37'-0"	—
h8	11	#5	5'-6"	—
h9	11	#5	5'-6"	—
h11	9	#6	37'-0"	—
h12	8	#5	20'-0"	—
o4	88	#5	2'-0"	—
n	14	#5	7'-9"	U
n1	14	#5	9'-5"	U
p2	24	#7	38'-6"	—
p3	12	#7	13'-6"	—
s3	28	#4	9'-5"	□
s4	108	#4	15'-5"	□
u1	4	#6	9'-6"	—
u2	5	#6	8'-3"	—
u3	57	#4	6'-2"	U
v	110	#4	5'-0"	—
v1	20	#4	8'-2"	—
v2	16	#4	7'-6"	—
v3	20	#4	6'-10"	—
v6	110	#4	6'-3"	—
v7	110	#4	4'-6"	—
Class X Concrete			Qty. Yds.	107.5
Reinforcement Bars			Lbs.	7890
Concrete Piles			Lin. Ft.	1595

SOUTH ABUTMENT
F.A. RT.151 SEC. 104 HVB
MADISON COUNTY
STA. 1658+55.18



A-9-R (15°-34°) 2-1-66

PLAN-PILE CAP



TWO PIERS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d3	72	#6	3'-0"	
h14	32	#5	25'-3"	
h15	36	#6	29'-0"	
h16	36	#5	28'-6"	
n2	96	#9	6'-9"	
n3	96	#9	6'-0"	
p3	24	#10	13'-0"	
p4	24	#10	13'-0"	
p5	12	#5	8'-0"	
p6	24	#8	41'-3"	
s5	36	#5	6'-5"	
s6	64	#5	7'-1"	
s7	108	#4	13'-0"	
s8	272	#4	8'-2"	
s9	84	#5	9'-0"	
s10	84	#5	7'-10"	
s11	168	#5	9'-8"	
s12	16	#5	7'-1"	
f	176	#6	8'-3"	
u4	28	#6	7'-4"	
v8	96	#9	17'-9"	
v9	96	#9	19'-9"	
w	16	#5	43'-0"	
w1	16	#7	23'-3"	
Class I Concrete			Cu. Yds.	300.0
Reinforcement Bars			Lbs.	41330
Crested Pile			Sq. Ft.	2808

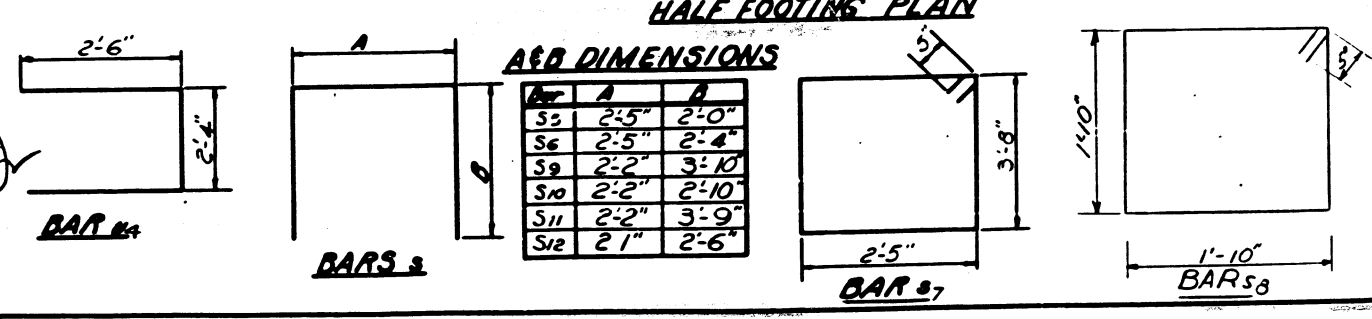
Note:
Pier Steps monolithically with Cap.
Min. lap for all bars is 20 diameters.
All edges shall have standard 1/4" chamfers.

PIERS 1&2
F.A. RT. 131 SEC. 104 HVB
MADISON COUNTY
STA. 1658+33.18

PILE DATA
Type - Crested
Capacity 23 Tons
Gr. Length 26 Ft.
No. Req'd 108

DESIGNED: Chih-Yuan Kuo
CHECKED: W. H. C.
DRAWN: J. T. Downing
APPROVED: W. H. C.

EXAMINED: [Signature]
PASSED: [Signature]
APPROVED: [Signature]





49:61



HALF FOOTING PLAN

FILE DATA

Type - Grouted
Capacity - 23 Tons
Est. Length - 22'-0"
No. Req'd - 108
Test Pile (Timber) - 1

TWO PIERS
DILL OF MATERIAL

Bar	No.	Size	Length	Same
n ₁₄	32	#5	25'-3"	—
n ₁₅	36	#6	29'-0"	—
n ₁₆	36	#5	28'-6"	—
n ₃	172	#9	6'-0"	—
P ₃	24	#10	13'-0"	—
P ₄	24	#10	49'-0"	—
P ₅	12	#5	8'-0"	—
P ₆	24	#8	4'-5"	—
S ₅	36	#5	6'-5"	□
S ₆	64	#5	7'-1"	□
S ₇	108	#4	13'-0"	□
S ₈	296	#4	8'-2"	□
S ₉	168	#5	7'-10"	□
S ₁₁	168	#5	9'-8"	□
S ₁₂	16	#5	7'-1"	□
T	174	#6	8'-5"	—
U ₄	28	#6	7'-4"	—
V _R	26	#9	20'-0"	—
V _H	56	#9	22'-6"	—
W	16	#5	43'-0"	—
W ₁	16	#7	23'-5"	—
Class 1 Concrete			Gr. Pile	296.4
Reinforcement Bars			Lb.	41692
Crescent Pile			Lin. Ft.	2376
Test Pile (Timber)			Each	1

PIERS 344
F.A. RT. 151 SEC. 104 HYB
MADISON COUNTY
STA. 1650-33.10

Note:
Four Slugs monolithically with Caps.
Min. top for all bars is 20 diameters
All edges shall have standard 1/4
chamfers.

ASB DIMENSIONS

Part	A	B
S5	2'-5"	2'-0"
S6	2'-5"	2'-4"
S10	2'-2"	2'-10"
S11	2'-2"	3'-9"
S12	2'-1"	2'-6"

BAR 37

BAR 58

49'6"

- Reference Line

6-8 bars p_g Bottom of Cap

12-9 bars VM

6-8 bars high (3 lengths)

12-9 bars n.s.
Each Column

Bevelled Const.

BILL OF MATERIAL

PIER 5
F.A. RT 151 SEC. 104 HVB
MADISON COUNTY
STA. 1658+55.18

Type - Crowsoted
Capacity - 22 Tons
Est. Length - 24 Ft.
No. Req'd - 54

42-6-

A&B DIMENSIONS

BAR 5/5

HALF STEP DIAGRAM

21-st St @ 12th Cts.
(So. Side only)

BAR Sig

EXAMINER
PASSED
APPROVE

BAR 45

BARS s

6 Bearing Spaces @ $\pm 8'4\frac{3}{4}" = 50'2\frac{1}{2}"$

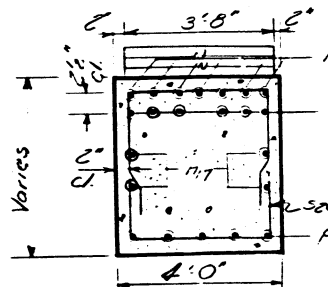
HALF TOP PLAN

54'-6"

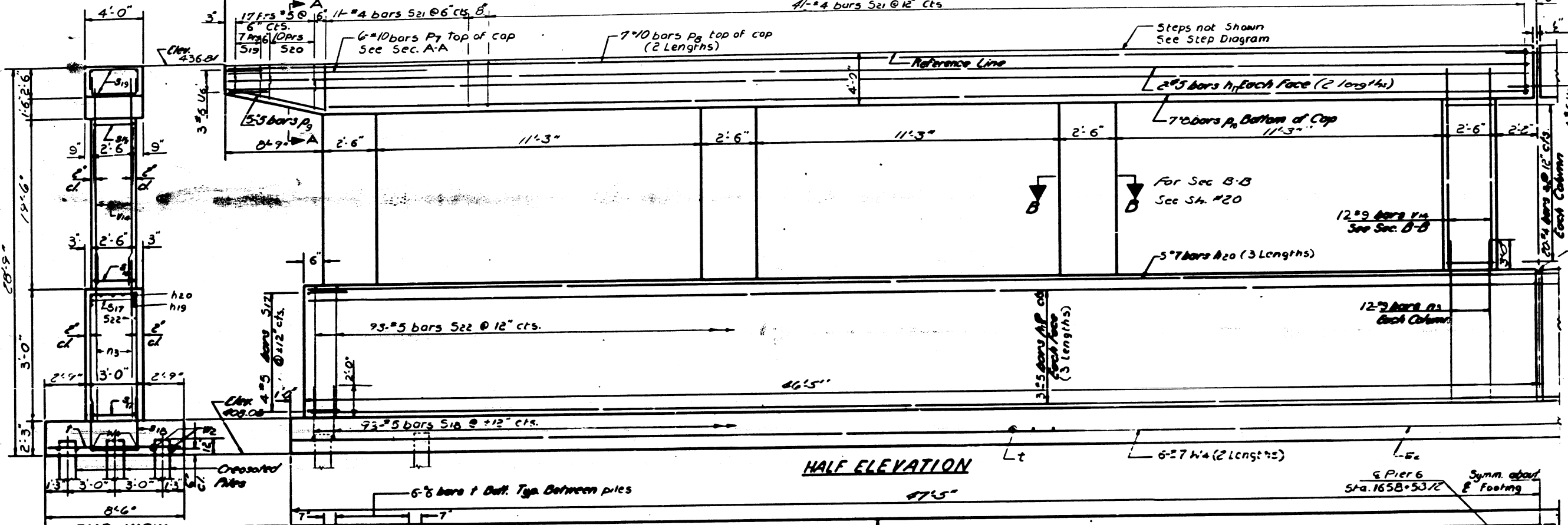
41'-4 bars S21 @ 12" Cts

Space reinf. to miss anchor bolts.

Location of Anchor Bolts (Typ)



SEC A-A



HALF ELEVATION

47'-5"

Symm. about E Footing

END VIEW

PILE DATA

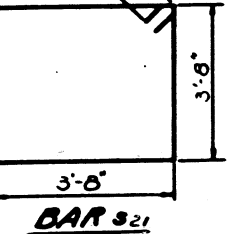
Type - Crossed
Capacity 24 Tons
Cl. Length 22 Ft.
No. Piles 60

HALF FOOTING PLAN

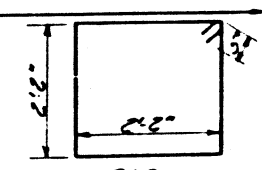
19 Pile Spaces of 4'-10" 9'-10"

A&B DIMENSIONS

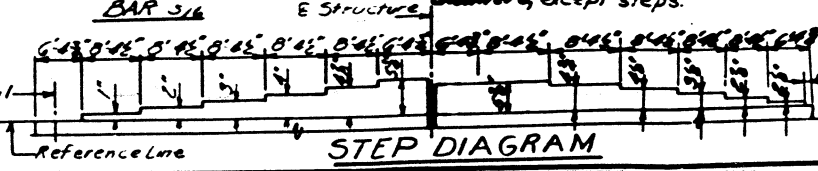
Bar	A	B
S17	2'-7"	2'-8"
S18	2'-8"	3'-9"
S19	3'-8"	2'-0"
S20	3'-8"	2'-4"
S22	2'-8"	2'-10"



BAR S21



BAR S16



STEP DIAGRAM

Note:
Pour Steps monolithically with Cap.
Min. lap for all bars is 20 diameters
All edges shall have standard 45° chamfers, except steps.

BILL OF MATERIAL

Bar	No.	Size	Length	Shade
h17	16	#5	27'-9"	—
h18	18	#5	31'-9"	—
h20	15	#7	35'-0"	—
P7	26	#9	6'-0"	—
P8	20	#10	15'-0"	—
P9	20	#10	28'-6"	—
P10	10	#5	8'-9"	—
P10	12	#9	25'-0"	—
S16	160	#4	9'-6"	□
S17	8	#5	7'-7"	□
S18	23	#5	10'-2"	□
S19	28	#5	7'-8"	□
S20	40	#5	8'-4"	□
S21	108	#4	15'-6"	□
S22	93	#5	8'-4"	□
T	110	#6	8'-3"	—
U6	14	#6	8'-7"	□
V12	26	#9	21'-6"	—
W2	12	#5	35'-6"	—
W4	12	#7	20'-3"	—
Class I Concrete	Cu. Yds.	199.7		
Reinforcement Bars	Lbs.	24,720		
Crossed Piles	Lin. Ft.	1320		

PIER 6
E.A. RT. 151 SEC. 104 HWY
MADISON COUNTY
STA. 1658+55.18

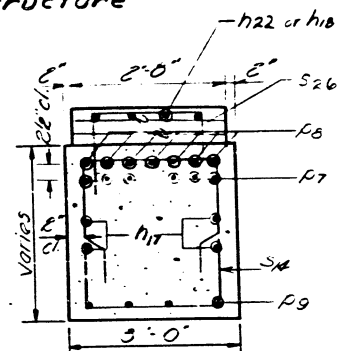
DESIGNED: Lih-Yuan Kuo
CHECKED: Wen-Mo Chen
DRAWN: J.T. Downing
CHECKED: W.M.C.

APPROVED: [Signature]
DATE: 3/1/68

BAR U6

BARS

	A	B
Pier 7	407.25	437.20
Pier 8	407.07	436.52
Pier 9	406.90	436.65



A diagram of a square plate with side length $2 \times 6''$. The plate is divided into four quadrants by a horizontal centerline (cl.) and a vertical centerline (v.l.). The boundary conditions are specified as follows:

- Top edge: $T = 0$
- Bottom edge: $T = 0$
- Left edge: $T = 0$
- Right edge: $T = 0$
- Centerline (cl.): $T = 0$
- Vertical line (v.l.): $T = 0$

 The plate is shown with a grid of dots representing a mesh or nodes.

SEC. B-B

THREE PIERS
BILL OF MATERIALS

Bar	No.	Size	Length	Shape
d3	72	#6	3'-0"	—
h17	48	#5	27'-9"	—
h18	27	#6	31'-9"	—
h19	198	#5	31'-9"	—
h22	8	#6	22'-9"	—
n3	208	#9	6'-0"	—
P7	36	#10	13'-0"	—
P8	24	#10	28'-6"	—
P9	24	#5	8'-9"	—
P10	42	#8	25'-9"	—
S13	563	#5	6'-8"	□
S14	120	#5	7'-4"	□
S15	312	#4	13'-6"	□
S16	312	#4	9'-6"	□
S17	72	#5	7'-7"	□
S18	279	#5	10'-2"	□
S26	46	#4	6'-4"	□
T	354	#6	8'-3"	—
U5	42	#6	7'-7"	□
V12	208	#9	14'-6"	—
V13	558	#5	10'-9"	—
W2	36	#5	38'-6"	—
W3	24	#6	23'-0"	—
Class 1 Concrete			Cr. No.	756 B
Reinforcement Bars			Lbs.	7308
Crested Pile			lin ft.	5960
Total Piles (Timber)			Feet	1

14 PIERS 7.8E9
F.A. RT. 151 SEC. 104-HV2
MADISON COUNTY
STA. 1658+33.18

Type - Creosoted
Capacity - 24 Tons
Est. Length - 22'-0"
No. Req'd - 180 ##

**** Does not include test pile**
Test Piles (Timber) - 1

DESIGNED	Chih-Yuan Kao
CHECKED	Wen-mo chen
DRAWN	PHILLIP W. S. ^{FCB}
CHECKED	W. M. C.

EXAMINATION

PASSED

ANCO

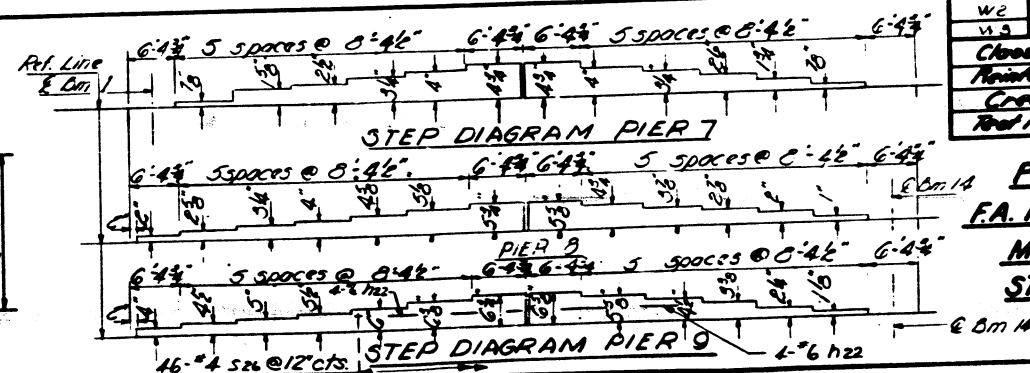
BAR #:
Note: For detail of
Sig bar See Sh.20

BARS 3

A&B DIMENSIONS

Part	A	B
S13	2'-8"	2'-0"
S14	2'-8"	2'-4"
S17	2'-7"	2'-6"
S18	2'-8"	3'-9"
S24	2'-4"	2'-0"

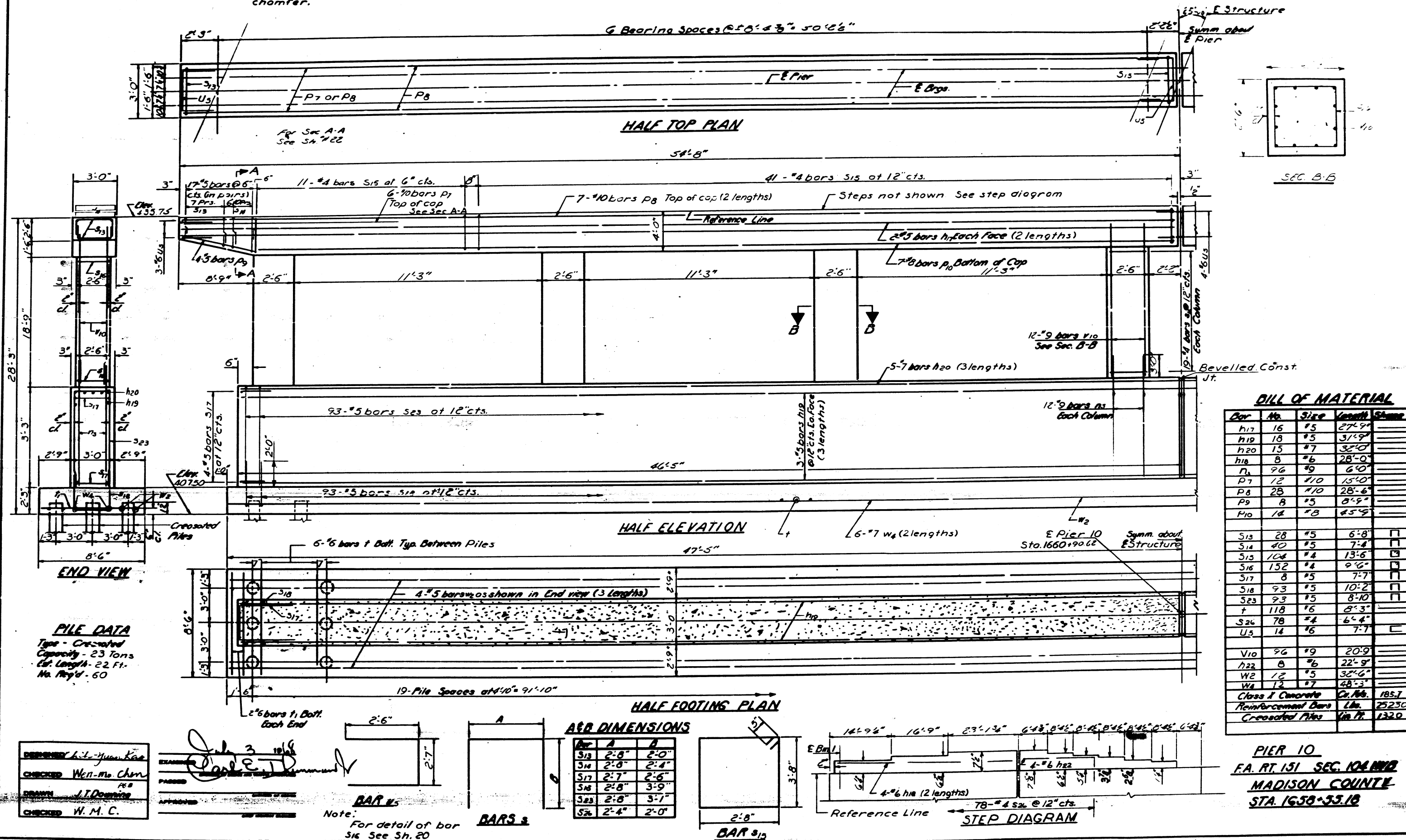
2-8
BAR 3/5



Note: Pour steps monolithically with cap
Min. lap for all bars is 20 diameters.
All edges shall have standard 3/8" chamfer.

STATE OF ILLINOIS
DIVISION OF HIGHWAYS

PROJECT NO.	DATE	BY	CHKD.	APP'D.
151 MADISON	72	32		



BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h ₁₇	16	#5	27'-9"	
h ₁₉	18	#5	31'-9"	
h ₂₀	15	#7	32'-0"	
h ₁₈	8	#6	28'-0"	
P ₈	96	#9	6'-0"	
P ₇	12	#10	15'-0"	
P ₉	28	#10	28'-6"	
P ₁₀	8	#5	8'-9"	
P ₁₀	14	#8	45'-9"	
S ₁₃	28	#5	6'-8"	□
S ₁₄	40	#5	7'-4"	□
S ₁₅	104	#4	13'-6"	□
S ₁₆	152	#4	9'-6"	□
S ₁₇	8	#5	7'-7"	□
S ₁₈	93	#5	10'-2"	□
S ₂₃	93	#5	8'-10"	□
T	118	#6	8'-3"	
S ₂₆	78	#4	6'-4"	
U ₅	14	#6	7'-7"	□
V ₁₀	96	#9	20'-9"	
h ₂₂	8	#6	22'-9"	
W ₂	12	#5	32'-6"	
W ₄	12	#7	48'-3"	
Class I Concrete	Ct. No.		185.7	
Reinforcement Bars	Lbs.		25230	
Crossed Piles	Lin Ft.		1320	

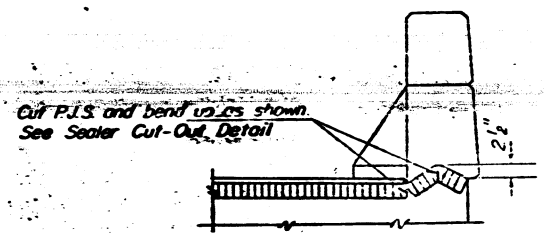
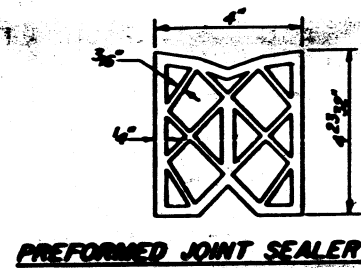
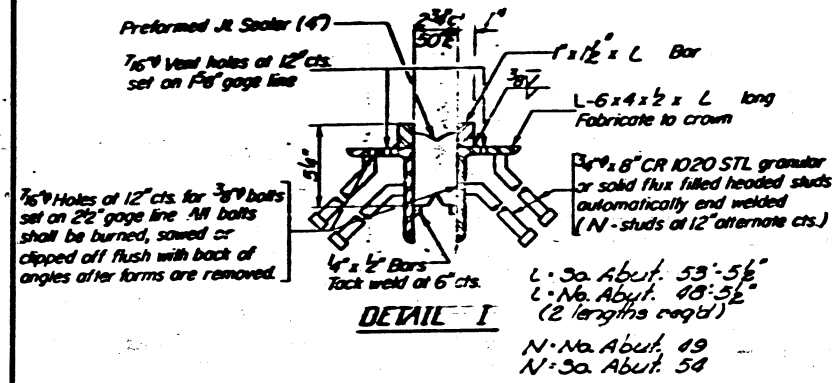
DESIGNED: L.T. Yuan, Kae
CHECKED: Wen-mo Chen
DRAWN: J.T. Downing
CHECKED: W.M.C.

July 3, 1966
APPROVED: [Signature]
APPROVED: [Signature]

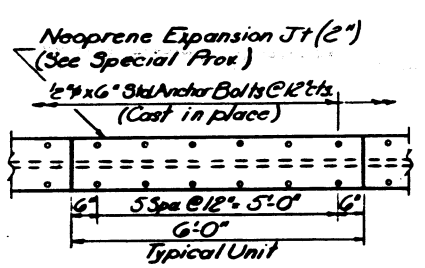
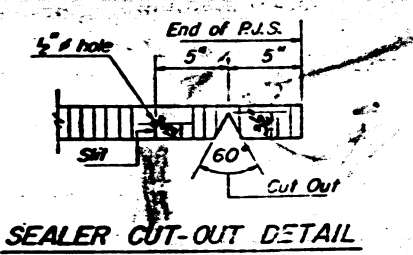
Note: For detail of bar
S₁₆ See Sh. 20

BAR 15

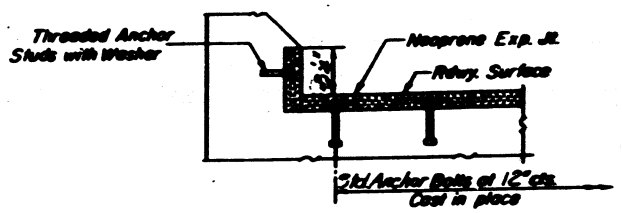
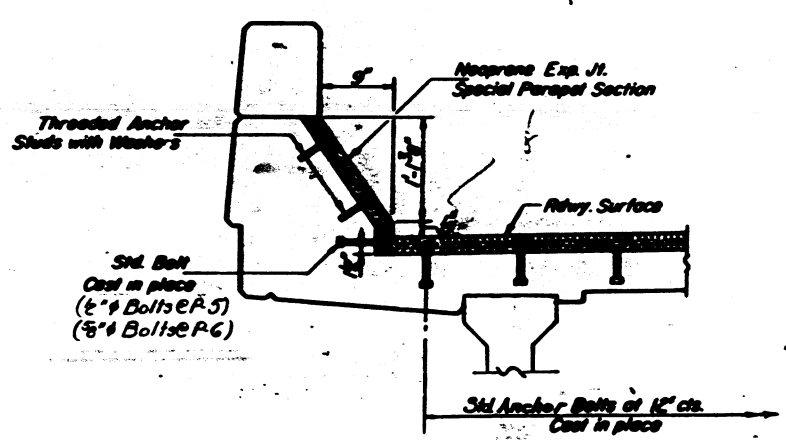
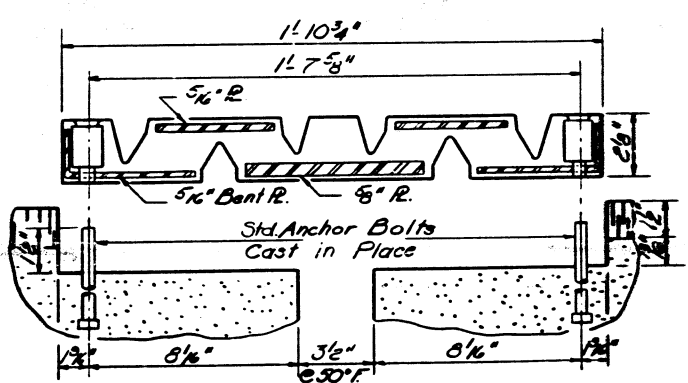
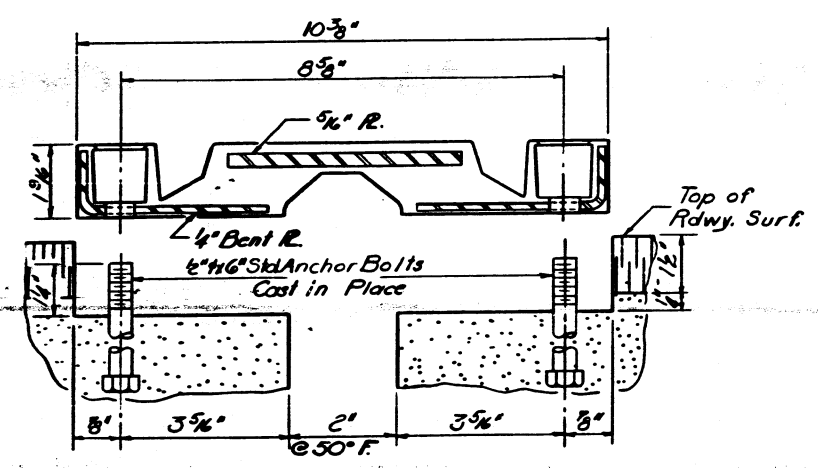
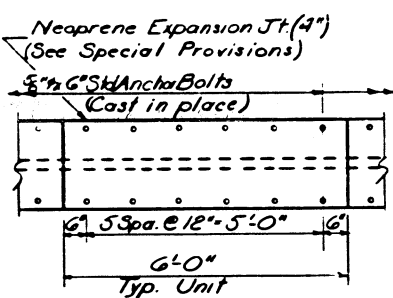
BAR 13



END OF SEALER TREATMENT

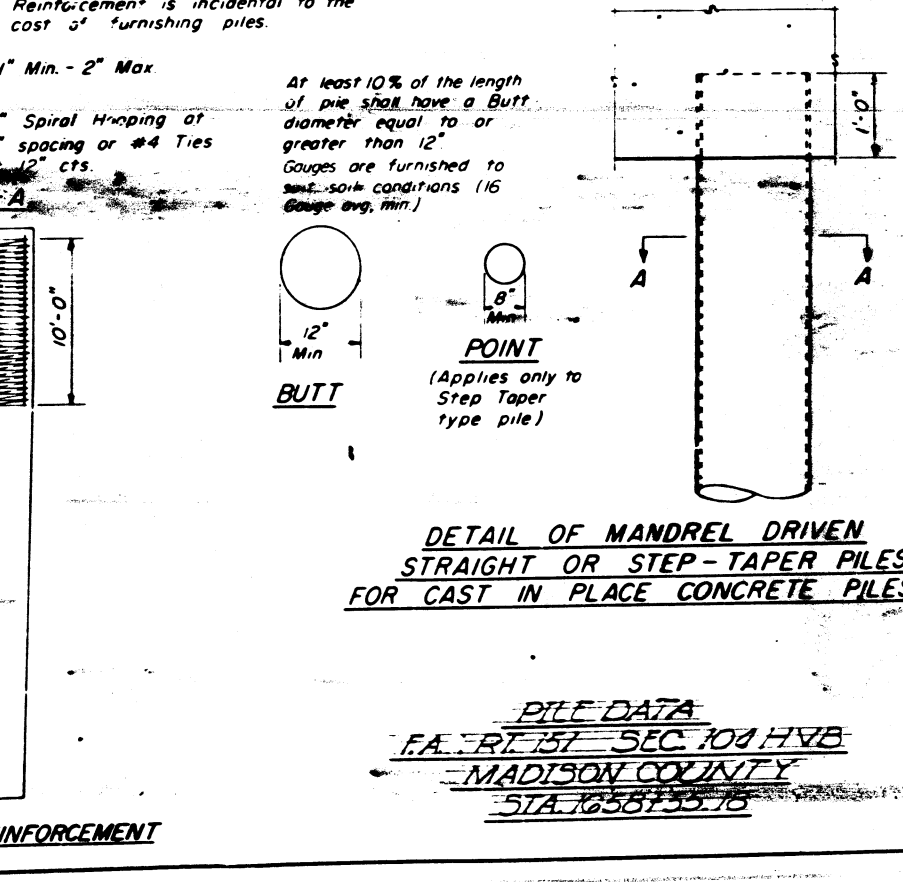
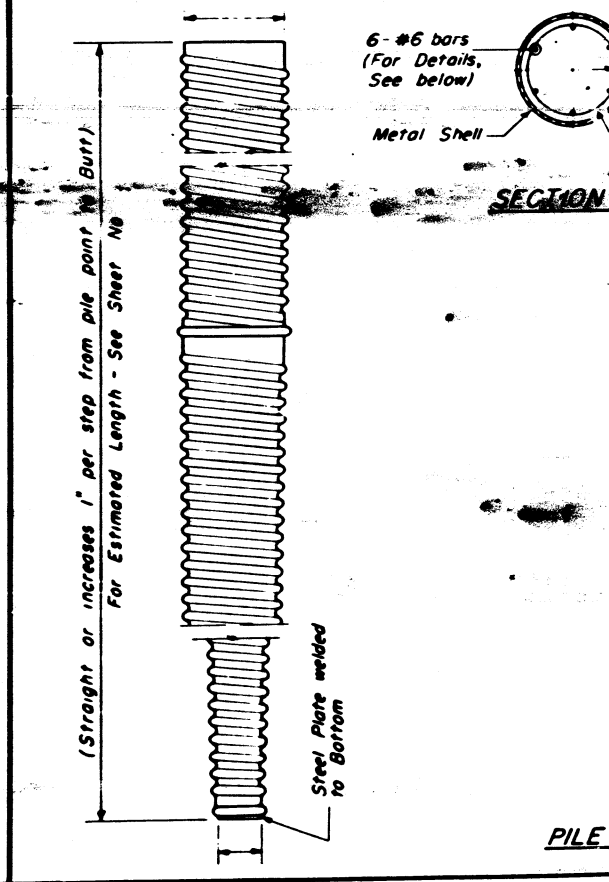
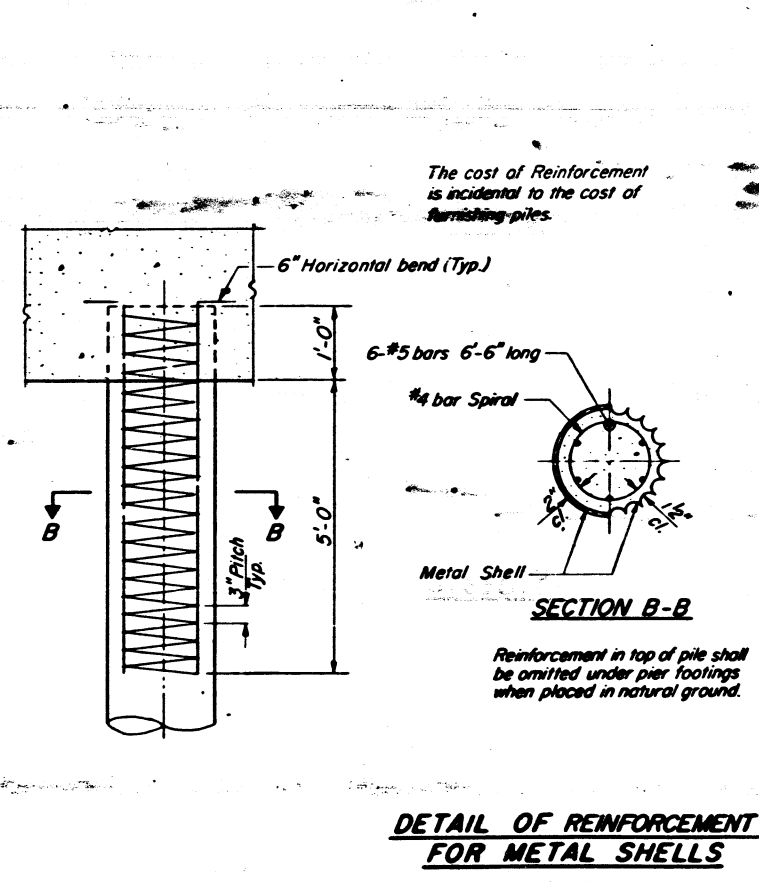
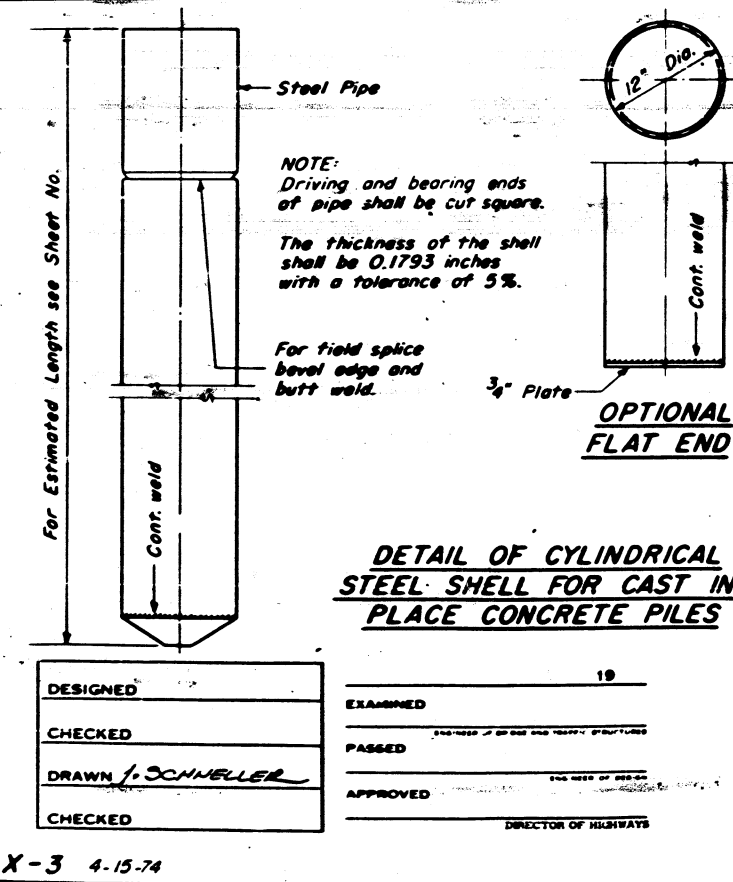
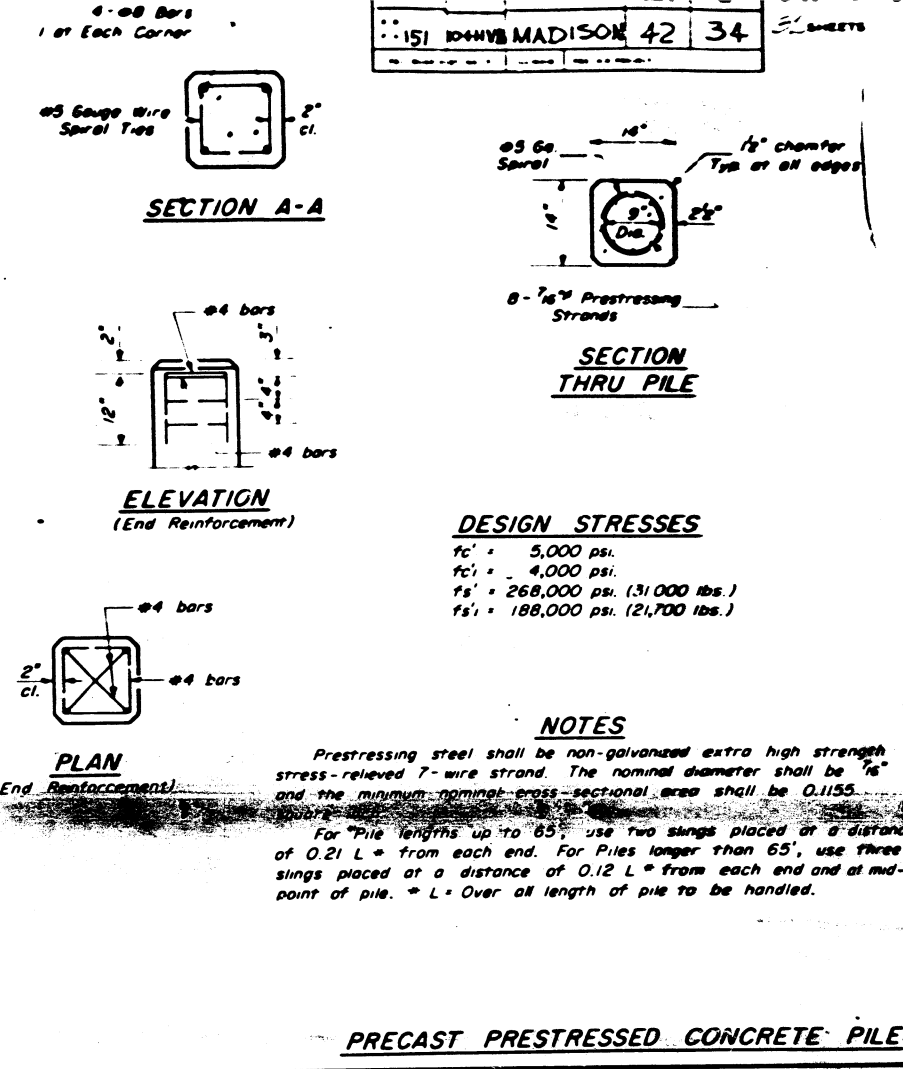
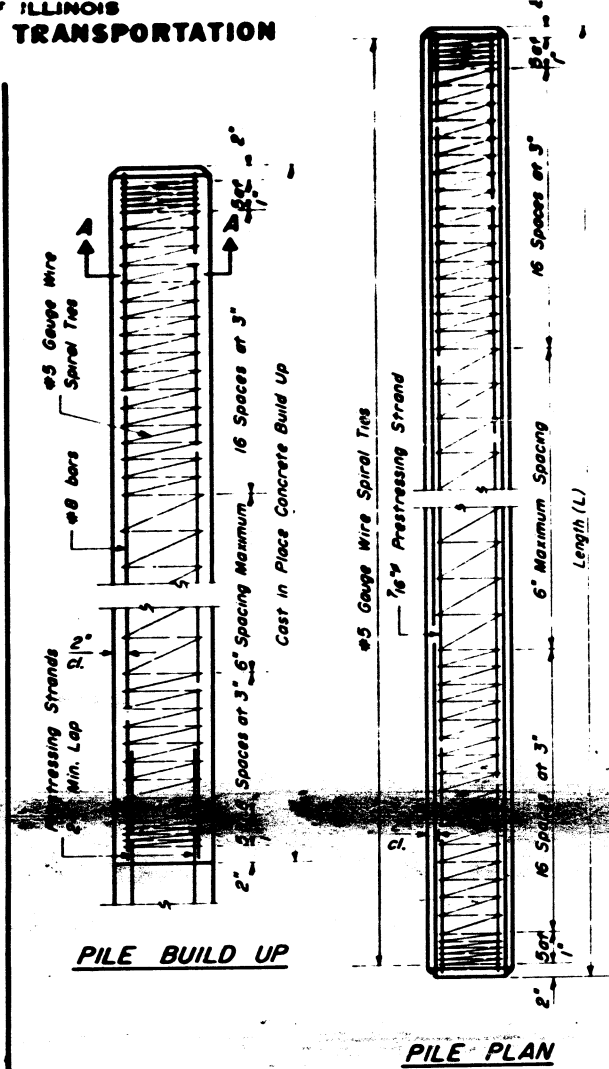
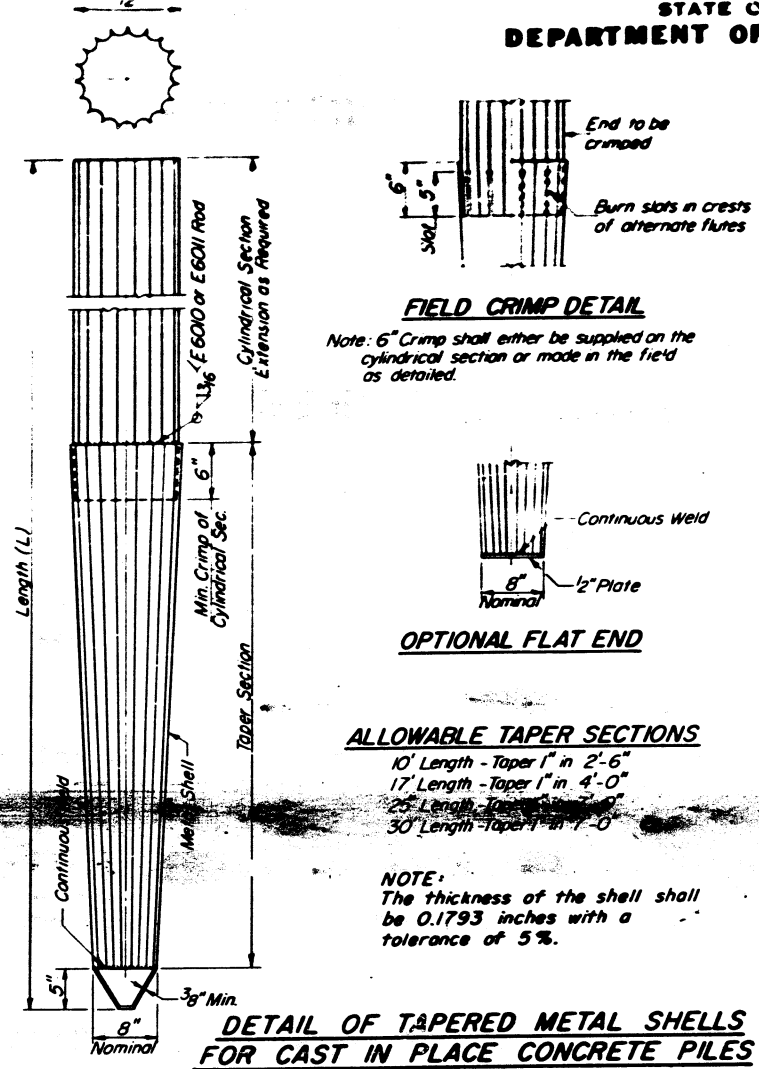
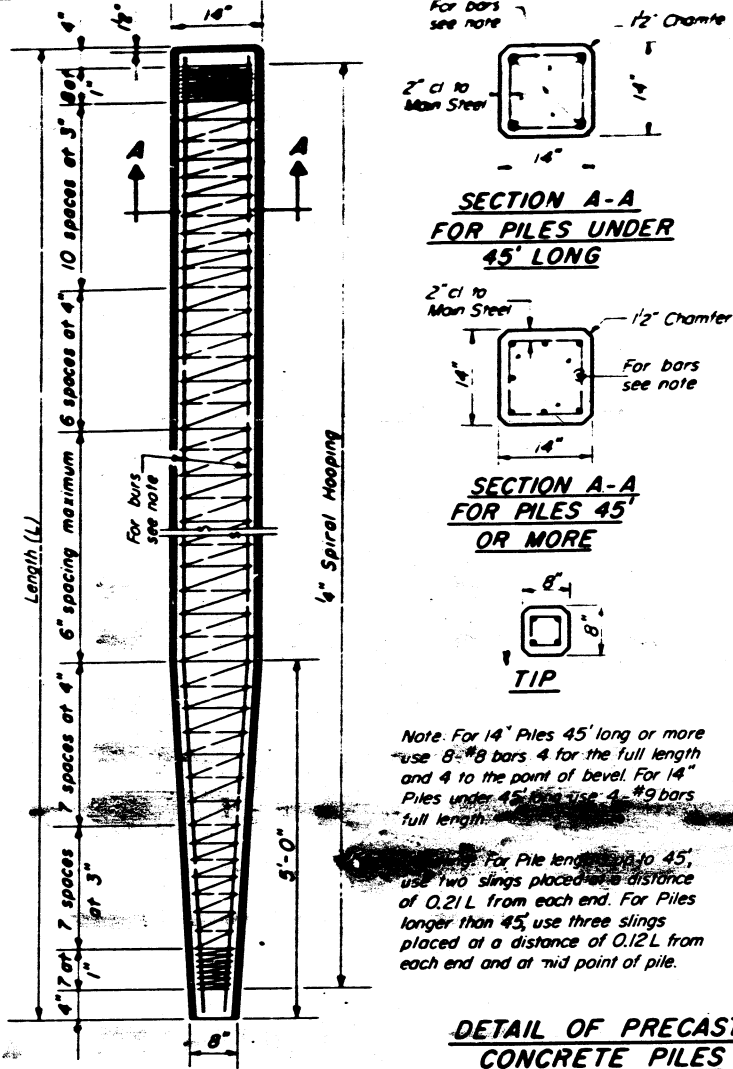


Note: Anchor Bolts require
a clipped washer, lock washer
and hex nut.



DESIGNED	19
CHECKED	
DRAWN	F. C. Miller
CHECKED	

EXPANSION DEVICE
F.A. RT. 151 SEC. 10 HVB
MADISON COUNTY
STA. 1636+33.15



Section	Depth (ft)	Soil Description	Moisture (%)	Temperature (°C)	Notes
BROWN SILTY CLAY, ORGANIC CEMENT FILL	408.0				
	407.0				
	406.5				
	405.5				
	404.5				
	403.0				
	402.0				
	401.2				
	400.5				
	399.5				
BROWN ALLUVIAL SAND	398.0				
	397.0				
	395.5				
	394.5				
	393.0				
	392.0				
	389.5				
	388.0				
	387.0				
	385.5				
GRAY ALLUVIAL SAND	384.5				
	383.0				
	382.0				
	380.5				
	378.5				
	378.0				
	377.0				
	375.5				
	374.5				
	373.0				
BROWN SILTY CLAY, ORGANIC CEMENT FILL	372.0				
	371.6				
	370.5				
	369.5				
	368.0				
	367.0				
	365.5				
	364.5				
	363.0				
	362.0				

Boring No. <u>15</u> <u>FEED 1</u> Station <u>1626 + 09.07</u> Date <u>27 JUL 61</u>		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823
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EXAMINED 3 1968
PASSED Good E. J. [Signature]
APPROVED _____
EXAMINER'S SIGNATURE

Type failure:
B-Bulge Failure
S-Shear Failure
E-Estimated Value
P-Penetrometer

BORINGS
F.A. RT 151 SEC 104 HWB
MADISON COUNTY
STA. 1658 + 55.18

DIVISION OF HIGHWAYS

Boring No. 1 PIER 5	Station	Offset	Ground Surface	Depth	Soil Description	N	Q _u /A ₁	W (%)
1657 + 20.23	22' RT 5		412.5	0				
					BROWN & RUST SILTY CLAY			
			407.9	-5				
			406.9	-10	DAMP-STIFF	10	1.0	1.0
			405.4	-15				
			404.4	-20	DAMP-STIFF	8	1.0	1.0
			403.4	-25				
			402.9	-30	BROWN, RUST SILT			
			401.9	-35	DAMP-MEDIUM	7	0.6	2.0
			400.4	-40				
			399.8	-45	DAMP-MEDIUM	28	NC	
			397.9	-50	BROWN SAND ALLUVIAL FINE			
			396.9	-55	DRY-MEDIUM	15	NC	
			395.4	-60				
			394.4	-65	DRY-MEDIUM	19	NC	
			392.9	-70				
			391.9	-75	DRY-MEDIUM	20	NC	
			390.4	-80				
			389.4	-85	DRY-DENSE	51	NC	
			388.6	-90				
			387.9	-95				
			386.9	-100	WET-MEDIUM	20	NC	
			385.4	-105				
			384.4	-110	WET-DENSE	24	NC	
			382.9	-115				
			381.9	-120	WET-VERY DENSE	76	NC	
			380.4	-125				
			379.4	-130	WET-VERY DENSE	100	NC	
			377.9	-135				
			376.9	-140	WET-DENSE	31	NC	
			375.4	-145				
			374.4	-150	WET-MEDIUM	18	NC	
			372.9	-155				
			371.9	-160	WET-MEDIUM	21	NC	
			370.4	-165				
			369.4	-170	WET-VERY DENSE	100	NC	
			367.9	-175				
			366.9	-180	WET-MEDIUM	7	NC	

Boring No. 2 PIER 6	Station	Offset	Ground Surface	Depth	Soil Description	N	Q _u /A ₁	W (%)
1657 + 68.57	22' LT 6		412.7	0				
					CINDER FILL			
			408.0	-5				
			407.0	-10	DAMP-STIFF	6	1.0	1.0
			405.4	-15				
			404.5	-20	DAMP-MEDIUM	8	0.7	1.0
			403.0	-25	BROWN SANDY SILT ALLUVIAL			
			402.0	-30	DAMP-MEDIUM	7	0.35	1.5
			400.5	-35				
			399.5	-40	DRY-DENSE	32	NC	
			398.0	-45	BROWN SAND ALLUVIAL FINE TO MEDIUM			
			397.0	-50	DRY-MEDIUM	22	NC	
			395.5	-55				
			394.5	-60	DRY-MEDIUM	25	NC	
			393.0	-65				
			392.0	-70	DRY-DENSE	37	NC	
			390.5	-75				
			389.5	-80	DRY-DENSE	31	NC	
			388.6	-85				
			388.0	-90				
			387.0	-95	WET-MEDIUM	17	NC	
			385.5	-100				
			384.5	-105	WET-MEDIUM	17	NC	
			382.6	-110				
			382.0	-115	WET-VERY DENSE	57	NC	
			380.5	-120				
			379.5	-125	WET-DENSE	40	NC	
			378.0	-130				
			377.0	-135	WET-DENSE	34	NC	
			375.5	-140				
			374.5	-145	WET-MEDIUM	20	NC	
			373.0	-150				
			372.0	-155	WET-MEDIUM	29	NC	

END OF BORING

Boring No. 3 PIER 5	Station	Offset	Ground Surface	Depth	Soil Description	N	Q _u /A ₁	W (%)
1658 + 16.90	22' RT 5		412.5	0				
					BROWN SILTY CLAY, RUST			
			407.5	-5				
			406.5	-10	DAMP-STIFF	6	1.0	1.0
			405.7	-15				
			405.0	-20	BROWN RUST SANDY SILT			
			404.0	-25	DAMP-MEDIUM	7	0.4	1.0
			402.5	-30				
			401.5	-35	DAMP-MEDIUM	8	0.6	1.0
			400.7	-40				
			400.0	-45	BROWN SAND ALLUVIAL MEDIUM			
			399.0	-50	DRY-MEDIUM	28	NC	
			397.5	-55				
			396.5	-60	DRY-MEDIUM	18	NC	
			395.0	-65				
			394.0	-70	DRY-DENSE	31	NC	
			392.5	-75				
			391.5	-80	DRY-MEDIUM	18	NC	
			390.0	-85				
			389.0	-90	DRY-MEDIUM	22	NC	
			388.5	-95				
			387.5	-100				
			386.5	-105	WET-MEDIUM	14	NC	
			385.0	-110				
			384.0	-115	WET-MEDIUM	15	NC	
			382.5	-120				
			381.5	-125	WET-MEDIUM	21	NC	
			380.0	-130				
			379.0	-135	WET-VERY DENSE	75	NC	
			377.5	-140				
			376.5	-145	WET-DENSE	40	NC	
			375.0	-150				
			374.0	-155	WET-DENSE	21	NC	
			372.5	-160				
			371.5	-165	WET-LOOSE	5	NC	
			370.0	-170	GRAY ALLUVIAL SAND FINE TO MEDIUM			
			369.0	-175	WET-MEDIUM	21	NC	
			367.5	-180				
			366.5	-185	WET-MEDIUM	15	NC	
			365.0	-190				
			364.0	-195	WET-MEDIUM	30	NC	
			362.5	-200				
			361.5	-205	WET-MEDIUM	25	NC	
			360.0	-210				
			359.0	-215	WET-VERY DENSE	52	NC	
			357.5	-220	SAND & GRAVEL, ALLUVIAL			
			356.5	-225	WET-VERY DENSE	71	NC	

END OF BORING

Boring No. 4 PIER 6	Station	Offset	Ground Surface	Depth	Soil Description	N	Q _u /A ₁	W (%)
1658 + 57.97	25' RT 6		412.0	0				
					BROWN, RUST SILTY CLAY			
			407.2	-5				
			405.2	-10	DAMP-STIFF	7	1.0	
			404.7	-15				
			403.7	-20	DAMP-STIFF	10	2.0	
			402.2	-25				
			401.2	-30	DAMP-MEDIUM	18	1.1	
			399.7	-35				
			398.7	-40	DRY-MEDIUM	23	NC	
			397.2	-45				
			396.2	-50	DRY-MEDIUM	22	NC	
			394.7	-55				
			393.7	-60	DRY-MEDIUM	23	NC	
			392.2	-65				
			391.2	-70	DRY-DENSE	32	NC	
			389.7	-75				
			388.7	-80	DRY-DENSE	35	NC	
			387.2	-85				
			386.2	-90	WET-MEDIUM	12	NC	
			384.7	-95				
			383.7	-100	WET-MEDIUM	25	NC	
			382.2	-105				
			381.2	-110	WET-MEDIUM	21	NC	
			379.7	-115				
			378.7	-120	WET-DENSE	40	NC	
			377.2	-125				
			376.2	-130	WET-DENSE	61	NC	
			374.7	-135				
			373.7	-140	WET-MEDIUM	14	NC	
			372.2	-145				
			371.2	-150	WET-MEDIUM	16	NC	
			369.7	-155				
			368.7	-160	WET-MEDIUM	21	NC	
			367.2	-165				
			366.2	-170	WET-VERY DENSE	82	NC	

END OF BORING

Boring No. 5 PIER 7	Station	Offset	Ground Surface	Depth	Soil Description	N	Q _u /A ₁	W (%)
1659 + 17.72	25' RT 7		412.8	0				
					BROWN RUST SILTY CLAY			
			407.8	-5				
			405.8	-10	DAMP-MEDIUM	5	0.4	1.0
			405.3	-15				
			404.3	-20	DAMP-MEDIUM	8	0.8	1.0
			403.8	-25				
			402.8	-30	SANDY SILT BROWN, ALLUVIAL			
			401.8	-35	DAMP-MEDIUM	15	0.5	1.0
			400.3	-40				
			399.3	-45	DRY-DENSE	46	NC	
			397.8	-50				
			396.8	-55	DRY-MEDIUM	22	NC	
			395.3	-60				
			394.3	-65	DRY-MEDIUM	27	NC	
			392.8	-70				
			391.8	-75	DRY-MEDIUM	29	NC	
			390.3	-80				
			389.3	-85	DRY-DENSE	33	NC	
			388.6	-90				
			387.8	-95				
			386.8	-100	WET-MEDIUM	22	NC	
			385.3	-105				
			384.3	-110	WET-MEDIUM	21	NC	
			382.8	-115				
			381.8	-120	WET-MEDIUM	25	NC	
			380.3	-125				
			379.3	-130	WET-VERY DENSE	50	NC	
			377.8	-135				
			376.8	-140	WET-DENSE	31	NC	
			375.3	-145				
			374.3	-150	WET-MEDIUM	22	NC	
			372.8	-155				
			371.8	-160	WET-MEDIUM	10	NC	
			370.3	-165				
			369.3	-170	WET-DENSE	31	NC	
			367.2	-175				
			366.2	-180	WET-DENSE	45	NC	

END OF BORING

DESIGNED *Chih-Yuan Kao*
 CHECKED *Wen-mo Chen*
 DRAWN *W. M. C.*
 CHECKED *W. M. C.*

EXAMINED
 PASSED
 APPROVED

July 3, 1968
Robert E. Thumman

N-Standard Penetration Test
 Blows per foot to drive 2"
 O.D. Split Spoon Sampler 12" with
 140# hammer falling 30"
 NC - Non Cohesive

Qu-Unconfined Compressive
 Strength - 1/2"
 w - Water Content - percentage
 of oven dry weight - %

Type failure:
 B-Bulge Failure
 S-Shear Failure
 E-Estimated Value
 P-Penetrometer

BORINGS
 E.A. RT. 151 SEC. 104 HVB
 MAD

Boring No. 6 PIER 8			
Station	1659 + 74.80		
Offset	25' RT S		
Ground Surface	412.1	0	
CINDER & ROCK OVER CLAY FILL			
	407.6		
DAMP-MEDIUM	405.6	5	1.1
	405.1		
	404.1	5	NR
	403.6		
BROWN ALLUVIAL SANDY SILT	402.6		
DAMP-MEDIUM	401.6	9	0.6
	400.6		
	400.1		
DRY-LOOSE	399.1	5	NC
BROWN SAND ALLUVIAL FINE TO MEDIUM	397.6		
DRY-LOOSE	396.6	2	NC
	395.1		
DRY-MEDIUM	394.1	23	NC
	392.6		
DRY-DENSE	391.6	23	NC
	390.1		
DRY-MEDIUM	389.1	20	NC
	388.1		
	387.6		
WET-MEDIUM	386.6	20	NC
	385.1		
WET-MEDIUM	384.1	24	NC
	382.6		
WET-MEDIUM	381.6	20	NC
	380.1		
WET-VERY DENSE	379.1	53	NC
	377.6		
WET-DENSE	376.6	27	NC
	375.1		
WET-MEDIUM	374.1	20	NC
	372.6		
WET-MEDIUM	371.6	19	NC
	370.1		
WET-MEDIUM	369.1	10	NC
	367.6		
GRAY SAND ALLUVIAL FINE TO MEDIUM	367.6		

Boring No. 6 C&W			
Station	1659 + 74.80		
Offset	25' RT S		
Ground Surface	0		
	367.6		
WET-MEDIUM	366.6	20	NC
	365.1		
WET-MEDIUM	364.1	15	NC
	362.6		
WET-MEDIUM	361.6	24	NC
	360.1		
WET-DENSE	354.1	13	NC
	357.6		
WET-DENSE	356.6	19	NC
END OF BORING			

Boring No. 7 PIER 9			
Station	1660 + 30.30		
Offset	25' RT S		
Ground Surface	412.4	0	
FILL SILT, ROCK, CINDER			
	407.2		
BROWN MIST CLAY, ALUVIAL	406.2	6	1.3
DAMP-MEDIUM	405.2		
	404.7		
DAMP-MEDIUM	403.7	8	0.8
BROWN ALUVIAL SANDY SILT	402.2		
DAMP	401.2	14	0.3
	400.5		
BROWN ALUVIAL SAND	399.7		
DRY	398.7	24	NC
	397.2		
DRY-MEDIUM	396.2	23	NC
	394.7		
DRY-MEDIUM	393.7	27	NC
	392.2		
DRY-MEDIUM	391.2	26	NC
	389.7		
DRY-DENSE	388.7	44	NC
	387.7		
	387.2		
WET-MEDIUM	386.2	23	NC
	384.7		
WET-MEDIUM	383.7	18	NC
	382.2		
WET-MEDIUM	381.2	14	NC
	379.7		
WET-DENSE	378.7	42	NC
	377.2		
WET-DENSE	376.2	36	NC
	374.7		
WET-MEDIUM	373.7	27	NC
	372.2		
WET-DENSE	371.2	36	NC
	369.7		
WET-VERY DENSE	368.7	100	NC
END OF BORING			

Boring No. 8 PIER 10			
Station	1660 + 59.70		
Offset	25' RT S		
Ground Surface	411.8	0	
BROWN CLAYEY SILT, FILL, ORGANIC			
	407.2		
	406.2	9	1.30
	404.7		
DAMP-STIFF	403.7	9	0.81
	403.0		
BROWN MIST ALUVIAL SILT	402.2		
DAMP-MEDIUM	401.2	13	0.61
	399.5		
DAMP-MEDIUM	398.7	20	0.41
BROWN ALUVIAL SAND FINE TO MEDIUM	397.2		
	396.2	16	NC
	394.7		
DRY-DENSE	393.7	33	NC
	392.2		
DRY-MEDIUM	391.2	20	NC
	389.7		
DRY-MEDIUM	388.7	22	NC
	387.2		
WET-MEDIUM	386.2	17	NC
	384.7		
WET-MEDIUM	383.7	23	NC
	382.2		
WET-LOOSE	381.2	9	NC
	379.7		
WET-DENSE	378.7	45	NC
	377.2		
WET-DENSE	376.2	38	NC
	374.7		
WET-MEDIUM	373.7	30	NC
	372.2		
WET-DENSE	371.2	40	NC
	369.7		
WET-MEDIUM	368.7	11	NC
	367.2		
WET-DENSE	366.2	45	NC
	364.7		
WET-MEDIUM	363.7	30	NC
GRAY ALUVIAL SAND FINE TO MEDIUM	362.2		
WET-MEDIUM	361.2	23	NC
	359.7		
WET-MEDIUM	358.7	25	NC
	357.2		
WET-DENSE	356.2	33	NC
END OF BORING			

Boring No. 9 S. ADJ.			
Station	1661 + 31.20		
Offset	25' RT S		
Ground Surface	411.9	0	
BROWN MIST SILTY ORGANIC CLAY FILL			
	407.2		
DAMP-MEDIUM	406.1	6	1.1
	405.4		
	404.6		
BROWN ALUVIAL SILT	403.6	6	NC
	402.1		
DAMP-MEDIUM	401.6	12	0.42
	399.6		
DAMP-MEDIUM	398.6	17	NC
	397.1		
DAMP-MEDIUM	396.1	19	NC
	394.6		
DRY-DENSE	393.6	33	NC
	392.1		
DRY-DENSE	391.1	36	NC
	389.6		
DRY-MEDIUM	388.6	26	NC
	387.1		
WET-MEDIUM	386.1	12	NC
	384.6		
WET-MEDIUM	383.6	12	NC
	382.1		
WET-MEDIUM	381.1	15	NC
GRAY ALUVIAL SAND FINE	379.6		
WET-MEDIUM	378.6	10	NC
	377.1		
WET-LOOSE	376.1	8	NC
	374.6		
WET-DENSE	373.6	44	NC
	372.1		
WET-DENSE	371.1	29	NC
	369.6		
WET-VERY DENSE	368.6	70	NC
	367.1		
WET-DENSE	366.1	43	NC
END OF BORING			

DESIGNED *Chit-Yuan Kuo*
 CHECKED *Wen-mo Chen*
 DRAWN *W.M.C.*
 CHECKED *W.M.C.*

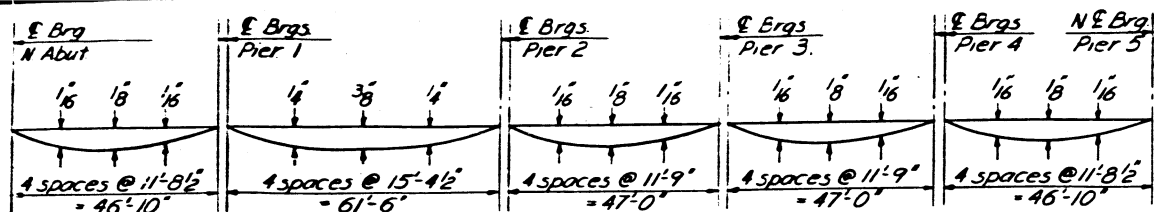
EXAMINED *John E. Therman Jr.*
 PASSED
 APPROVED
 ENGINEER OF HIGHWAYS

H-Standard Penetration Test
 Blows per foot to drive 2"
 O.D. Split Spoon Sampler 12" with
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BORINGS
 F.A. RT 151 SEC. 104 HVB
 MADISON COUNTY
 STA. 165B+55-16



DEAD LOAD DEFLECTION DIAGRAM SPANS 1-5

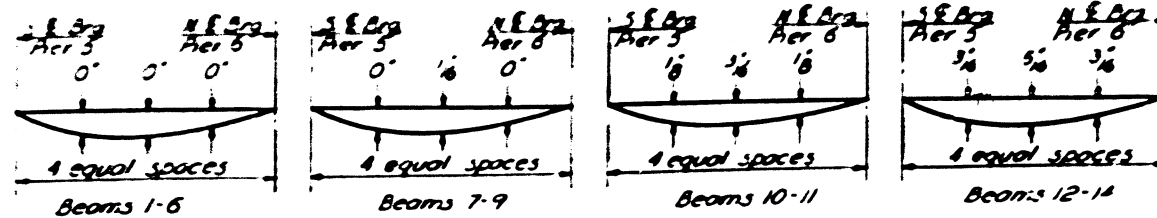
(Includes weight of concrete only)
Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. N. Abut.	11/4	165528.070	47.500	437.447	437.447
	24/13	165528.070	38.917	437.510	437.510
	36/12	165528.070	32.334	437.573	437.573
	44/11	165528.070	24.751	437.637	437.637
	51/10	165528.070	17.168	437.700	437.700
	61/9	165528.070	9.585	437.763	437.763
E Brg. N. Abut.	71/8	165528.070	2.002	437.818	437.818
	E	165528.070	.001	437.818	437.818
	165581.520	47.500	437.508	437.508	437.508
	165581.520	38.917	437.572	437.572	437.572
	165581.520	32.334	437.636	437.636	437.636
	165581.520	24.751	437.699	437.699	437.699
A-1	165581.520	17.168	437.762	437.762	437.762
	165581.520	9.585	437.825	437.825	437.825
	165581.520	2.002	437.880	437.880	437.880
	165581.520	.001	437.880	437.880	437.880
	165581.520	47.500	437.683	437.683	437.683
	165581.520	38.917	437.756	437.756	437.756
B-1	165581.520	32.334	437.819	437.819	437.819
	165581.520	24.751	437.882	437.882	437.882
	165581.520	17.168	437.946	437.946	437.946
	165581.520	9.585	438.009	438.009	438.009
	165581.520	2.002	438.074	438.074	438.074
	165581.520	.001	438.084	438.084	438.084
C-1	165581.520	47.500	437.941	437.941	437.941
	165581.520	38.917	437.985	437.985	437.985
	165581.520	32.334	438.050	438.050	438.050
	165581.520	24.751	438.121	438.121	438.121
	165581.520	17.168	438.185	438.185	438.185
	165581.520	9.585	438.248	438.248	438.248
D-1	165581.520	2.002	438.308	438.308	438.308
	165581.520	.001	438.308	438.308	438.308
	165581.520	47.500	438.184	438.184	438.184
	165581.520	38.917	438.227	438.227	438.227
	165581.520	32.334	438.289	438.289	438.289
	165581.520	24.751	438.353	438.353	438.353
E-1	165581.520	17.168	438.417	438.417	438.417
	165581.520	9.585	438.480	438.480	438.480
	165581.520	2.002	438.538	438.538	438.538
	165581.520	.001	438.538	438.538	438.538
	165581.520	47.500	438.388	438.388	438.388
	165581.520	38.917	438.452	438.452	438.452
E-2	165581.520	32.334	438.515	438.515	438.515
	165581.520	24.751	438.579	438.579	438.579
	165581.520	17.168	438.642	438.642	438.642
	165581.520	9.585	438.705	438.705	438.705
	165581.520	2.002	438.768	438.768	438.768
	165581.520	.001	438.768	438.768	438.768

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
E Pier 1	11/4	165608.070	47.500	438.607	438.607
	24/13	165608.070	38.917	438.671	438.671
	36/12	165608.070	32.334	438.734	438.734
	44/11	165608.070	24.751	438.797	438.797
	51/10	165608.070	17.168	438.860	438.860
	61/9	165608.070	9.585	438.923	438.923
A-2	71/8	165608.070	2.002	438.978	438.978
	E	165608.070	.001	438.978	438.978
	165618.070	47.500	438.819	438.819	438.819
	165618.070	38.917	438.882	438.882	438.882
	165618.070	32.334	438.945	438.945	438.945
	165618.070	24.751	439.008	439.008	439.008
B-2	165618.070	17.168	439.071	439.071	439.071
	165618.070	9.585	439.135	439.135	439.135
	165618.070	2.002	439.198	439.198	439.198
	165618.070	.001	439.198	439.198	439.198
	165618.070	47.500	439.023	439.023	439.023
	165618.070	38.917	439.086	439.086	439.086
C-2	165618.070	32.334	439.149	439.149	439.149
	165618.070	24.751	439.213	439.213	439.213
	165618.070	17.168	439.276	439.276	439.276
	165618.070	9.585	439.339	439.339	439.339
	165618.070	2.002	439.402	439.402	439.402
	165618.070	.001	439.402	439.402	439.402
D-2	165618.070	47.500	439.221	439.221	439.221
	165618.070	38.917	439.284	439.284	439.284
	165618.070	32.334	439.347	439.347	439.347
	165618.070	24.751	439.410	439.410	439.410
	165618.070	17.168	439.473	439.473	439.473
	165618.070	9.585	439.537	439.537	439.537
E-2	165618.070	2.002	439.591	439.591	439.591
	165618.070	.001	439.591	439.591	439.591
	165618.070	47.500	439.411	439.411	439.411
	165618.070	38.917	439.475	439.475	439.475
	165618.070	32.334	439.538	439.538	439.538
	165618.070	24.751	439.601	439.601	439.601
E-2	165618.070	17.168	439.664	439.664	439.664
	165618.070	9.585	439.727	439.727	439.727
	165618.070	2.002	439.789	439.789	439.789
	165618.070	.001	439.789	439.789	439.789
	165618.070	47.500	439.614	439.614	439.614
	165618.070	38.917	439.677	439.677	439.677
E-2	165618.070	32.334	439.740	439.740	439.740
	165618.070	24.751	439.803	439.803	439.803
	165618.070	17.168	439.866	439.866	439.866
	165618.070	9.585	439.929	439.929	439.929
	165618.070	2.002	439.992	439.992	439.992
	165618.070	.001	439.992	439.992	439.992

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
E Pier 2	11/4	165671.903	47.500	439.821	439.821
	24/13	165671.903	38.917	439.884	439.884
	36/12	165671.903	32.334	439.947	439.947
	44/11	165671.903	24.751	440.010	440.010
	51/10	165671.903	17.168	440.074	440.074
	61/9	165671.903	9.585	440.137	440.137
A-3	71/8	165671.903	2.002	440.192	440.192
	E	165671.903	.001	440.192	440.192
	165681.903	47.500	439.989	439.989	439.989
	165681.903	38.917	440.052	440.052	440.052
	165681.903	32.334	440.115	440.115	440.115
	165681.903	24.751	440.178	440.178	440.178
B-3	165681.903	17.168	440.242	440.242	440.242
	165681.903	9.585	440.305	440.305	440.305
	165681.903	2.002	440.368	440.368	440.368
	165681.903	.001	440.368	440.368	440.368
	165681.903	47.500	440.150	440.150	440.150
	165681.903	38.917	440.213	440.213	440.213
C-3	165681.903	32.334	440.276	440.276	440.276
	165681.903	24.751	440.340	440.340	440.340
	165681.903	17.168	440.403	440.403	440.403
	165681.903	9.585	440.466	440.466	440.466
	165681.903	2.002	440.529	440.529	440.529
	165681.903	.001	440.529	440.529	440.529
D-3	165681.903	47.500	440.304	440.304	440.304
	165681.903	38.917	440.367	440.367	440.367
	165681.903	32.334	440.431	440.431	440.431
	165681.903	24.751	440.494	440.494	440.494
	165681.903	17.168	440.557	440.557	440.557
	165681.903	9.585	440.620	440.620	440.620
E Pier 3	165681.903	2.002	440.683	440.683	440.683
	165681.903	.001	440.683	440.683	440.683
	165681.903	47.500	440.492	440.492	440.492
	165681.903	38.917	440.555	440.555	440.555
	165681.903	32.334	440.618	440.618	440.618
	165681.903	24.751	440.681	440.681	440.681
E Pier 4	165681.903	17.168	440.744	440.744	440.744
	165681.903	9.585	440.807	440.807	440.807
	165681.903	2.002	440.870	440.870	440.870
	165681.903	.001	440.870	440.870	440.870
	165681.903	47.500	440.689	440.689	440.689
	165681.903	38.917	440.752	440.752	440.752
E Pier 5	165681.903	32.334	440.815	440.815	440.815
	165681.903	24.751	440.878	440.878	440.878
	165681.903	17.168	440.941	440.941	440.941
	165681.903	9.585	441.004	441.004	441.004
	165681.903	2.002	441.067	441.067	441.067
	165681.903	.001	441.067	441.067	441.067

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
A-4	18/4	165730.236	47.500	440.704	440.710
	24/13	165730.236	38.917	440.767	440.774
	36/12	165730.236	32.334	440.836	440.837
	44/11	165730.236	24.751	440.893	440.900
	51/10	165730.236	17.168	440.956	440.963
	58/9	165730.236	9.585	441.020	441.026
	64/8	165730.236	2.002	441.075	441.081
	E	165730.236	.001	441.075	441.081
		165740.236	47.500	440.832	440.842
		165740.236	38.917	440.895	440.905
B-4		165740.236	32.334	440.958	440.968
		165740.236	24.751	441.021	441.031
		165740.236	17.168	441.084	441.094
		165740.236	9.585	441.147	441.157
		165740.236	2.002	441.202	441.212
		165740.236	.001	441.202	441.212
		165750.236	47.500	440.953	440.962
		165750.236	38.917	441.016	441.025
		165750.236	32.334	441.079	441.088
		165750.236	24.751	441.142	441.152
C-4		165750.236	17.168	441.205	441.215
		165750.236	9.585	441.268	441.278
		165750.236	2.002	441.323	441.333
		165750.236	.001	441.323	441.333
		165760.236	47.500	441.067	441.072
		165760.236	38.917	441.130	441.135
		165760.236	32.334	441.193	441.198
		165760.236	24.751	441.256	441.262
		165760.236	17.168	441.319	441.325
		165760.236	9.585	441.382	441.388
D-4		165760.236	2.002	441.437	441.443
		165760.236	.001	441.437	441.443
		165768.569	47.500	441.156	441.156
		165768.569	38.917	441.219	441.219
		165768.569	32.334	441.283	441.283
		165768.569	24.751	441.346	441.346
		165768.569	17.168	441.409	441.406
		165768.569	9.585	441.472	441.472
		165768.569	2.002	441.527	441.527
		165768.569	.001	441.527	441.527
E Per A		165778.569	47.500	441.258	441.264
		165778.569	38.917	441.321	441.327
		165778.569	32.334	441.384	441.391
		165778.569	24.751	441.447	441.454
		165778.569	17.168	441.510	441.517
		165778.569	9.585	441.573	441.580
		165778.569	2.002	441.636	441.636
		165778.569	.001	441.636	441.636
		165778.569	47.500	441.258	441.264
		165778.569	38.917	441.321	441.327
A-5		165778.569	32.334	441.384	441.391
		165778.569	24.751	441.447	441.454
		165778.569	17.168	441.510	441.517
		165778.569	9.585	441.573	441.580
		165778.569	2.002	441.636	441.636
		165778.569	.001	441.636	441.636
		165778.569	47.500	441.258	441.264
		165778.569	38.917	441.321	441.327
		165778.569	32.334	441.384	441.391
		165778.569	24.751	441.447	441.454



DEAD LOAD DEFLECTION DIAGRAM SPAN 6

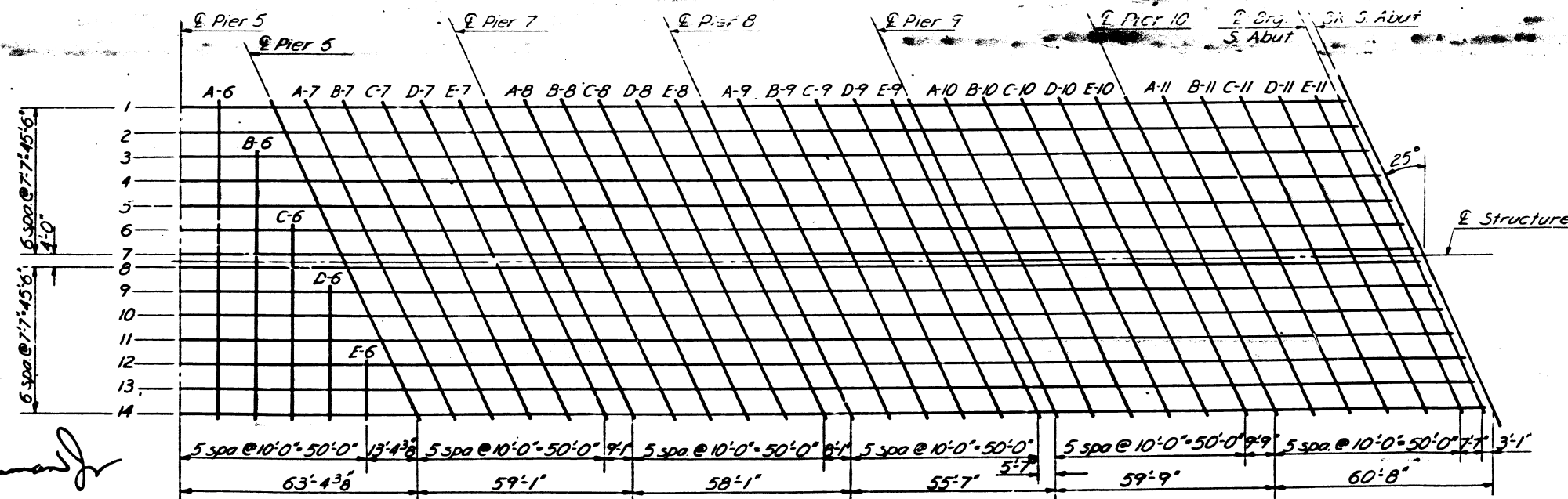
(Includes weight of concrete only)
Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
B-5	1-4	165788.500	47.500	441.382	441.382
	2-13	165788.500	38.917	441.415	441.425
	3-12	165788.500	32.334	441.478	441.488
	4-11	165788.500	24.751	441.542	441.552
	5-10	165788.500	17.168	441.605	441.615
	6-9	165788.500	9.585	441.668	441.678
	7-8	165788.500	2.002	441.723	441.733
	E	165788.500	.001	441.723	441.733
	C-5	165788.500	47.500	441.440	441.449
		165788.500	38.917	441.503	441.512
165788.500		32.334	441.566	441.576	
165788.500		24.751	441.629	441.639	
165788.500		17.168	441.692	441.702	
165788.500		9.585	441.755	441.765	
165788.500		2.002	441.819	441.829	
165788.500		.001	441.819	441.829	
D-5		165808.500	47.500	441.780	441.788
		165808.500	38.917	441.843	441.853
	165808.500	32.334	441.907	441.917	
	165808.500	24.751	441.970	441.980	
	165808.500	17.168	442.034	442.044	
	165808.500	9.585	442.097	442.107	
	165808.500	2.002	442.161	442.171	
	165808.500	.001	442.161	442.171	
	E-Pier 5	165816.302	47.500	441.582	441.582
		165816.302	38.917	441.645	441.645
165816.302		32.334	441.708	441.708	
165816.302		24.751	441.772	441.772	
165816.302		17.168	441.835	441.835	
165816.302		9.585	441.898	441.898	
165816.302		2.002	441.953	441.953	
165816.302	.001	441.953	441.953		

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
E Pier 5	1	165816.900	47.500	441.582	441.582
A-6	1	165826.900	47.500	441.650	441.650
E Pier 6	1	165836.900	47.500	441.706	441.706
E Pier 5	2	165816.900	38.917	441.645	441.645
A-6	2	165826.900	38.917	441.713	441.713
E Pier 6	2	165836.900	38.917	441.789	441.789
E Pier 5	3	165816.900	32.334	441.709	441.709
A-6	3	165826.900	32.334	441.777	441.777
E Pier 6	3	165836.900	32.334	441.838	441.838
E Pier 5	4	165816.900	24.751	441.772	441.772
A-6	4	165826.900	24.751	441.840	441.840
E Pier 6	4	165836.900	24.751	441.901	441.901

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
E Pier 5	5	165816.900	17.168	441.835	441.835
A-6	5	165826.900	17.168	441.903	441.903
E Pier 6	5	165836.900	17.168	441.964	441.964
E Pier 5	6	165816.900	9.585	441.898	441.898
A-6	6	165826.900	9.585	441.966	441.966
E Pier 6	6	165836.900	9.585	442.027	442.031
E Pier 5	7	165816.900	2.000	441.953	441.953
A-6	7	165826.900	2.000	442.021	442.025
E Pier 6	7	165836.900	2.000	442.082	442.087
E Pier 5	8	165816.900	.000	441.953	441.953
A-6	8	165826.900	.000	442.021	442.025
E Pier 6	8	165836.900	.000	442.082	442.087

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
E Pier 5	8	165816.900	2.000	441.953	441.953
A-6	8	165826.900	-2.000	442.021	442.025
E Pier 6	8	165836.900	-2.000	442.082	442.086
E Pier 5	9	165816.900	-9.585	441.898	441.898
A-6	9	165826.900	-9.585	441.966	441.971
E Pier 6	9	165836.900	-9.585	442.027	442.035
E Pier 5	10	165816.900	-17.165	441.835	441.835
A-6	10	165826.900	-17.165	441.903	441.909
E Pier 6	10	165836.900	-17.165	441.964	441.974
E Pier 5	11	165816.900	-24.751	441.709	441.709
A-6	11	165826.900	-24.751	441.777	441.777
E Pier 6	11	165836.900	-24.751	441.838	441.838

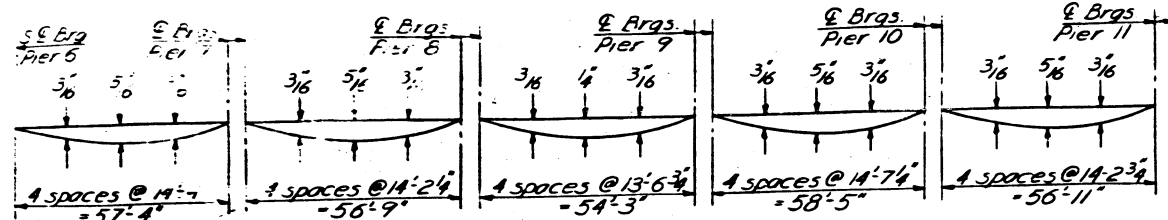


DESIGNED C. Y. Kao
CHECKED W. M. Chan
DRAWN P. G. Bortol
CHECKED W. M. C.

July 3, 1968
APPROVED
E-5 8-1-68

PLAN (Span 6 thru 11)

TOP OF SLAB ELEVATION
F.A. RT. 151 SEC. 104-NWB
MADISON COUNTY
STA. 1658+55.18



DEAD LOAD DEFLECTION DIAGRAM SPANS 7-11

(Includes weight of concrete only)

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

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
£ Pier 5	11	165816.900	- 24.750	441.772	441.772
A-6	11	165826.900	- 24.750	441.840	441.848
B-6	11	165836.900	- 24.750	441.901	441.914
C-6	11	165846.900	- 24.750	441.955	441.969
D-6	11	165856.900	- 24.750	442.003	442.013
£ Pier 6	11	165868.680	- 24.750	442.053	442.053
£ Pier 5	12	165816.900	- 32.333	441.709	441.709
A-6	12	165826.900	- 32.333	441.777	441.786
B-6	12	165836.900	- 32.333	441.838	441.853
C-6	12	165846.900	- 32.333	441.892	441.908
D-6	12	165856.900	- 32.333	441.939	441.953
E-6	12	165866.900	- 32.333	441.980	441.986
£ Pier 6	12	165873.195	- 32.333	442.002	442.002
£ Pier 5	13	165816.900	- 38.915	441.645	441.645
A-6	13	165826.900	- 38.915	441.713	441.724
B-6	13	165836.900	- 38.915	441.775	441.793
C-6	13	165846.900	- 38.915	441.829	441.852
D-6	13	165856.900	- 38.915	441.876	441.895
E-6	13	165866.900	- 38.915	441.917	441.928
£ Pier 6	13	165876.713	- 38.915	441.950	441.950
£ Pier 5	14	165816.900	- 47.500	441.582	441.582
A-6	14	165826.900	- 47.500	441.650	441.663
B-6	14	165836.900	- 47.500	441.711	441.735
C-6	14	165846.900	- 47.500	441.766	441.794
D-6	14	165856.900	- 47.500	441.813	441.838
E-6	14	165866.900	- 47.500	441.853	441.872
£ Pier 6	14	165880.267	- 47.500	441.887	441.887

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
£ Pier 6	1	165835.971	47.500	441.705	441.705
	2	165839.507	38.917	441.789	441.789
	3	165843.043	32.334	441.872	441.872
	4	165846.579	24.751	441.954	441.954
	5	165850.115	17.168	442.034	442.034
	6	165853.651	9.585	442.114	442.114
	7	165857.186	2.002	442.185	442.185
	8	165860.722	0.001	442.256	442.256
	9	165864.258	1.998	442.327	442.327
	10	165867.794	9.581	442.398	442.398
	11	165871.330	17.164	442.469	442.469
	12	165874.866	24.747	442.540	442.540
	13	165878.402	32.330	442.611	442.611
	14	165881.938	40.913	442.682	442.682
	15	165885.474	48.496	442.753	442.753
A-7		165835.971	47.500	441.761	441.772
		165839.507	38.917	441.842	441.853
		165843.043	32.334	441.922	441.933
		165846.579	24.751	442.001	442.012
		165850.115	17.168	442.079	442.090
		165853.651	9.585	442.157	442.168
		165857.186	2.002	442.235	442.246
		165860.722	0.001	442.313	442.324
		165864.258	1.998	442.391	442.402
		165867.794	9.581	442.469	442.480
		165871.330	17.164	442.547	442.558
		165874.866	24.747	442.625	442.636
		165878.402	32.330	442.703	442.714
		165881.938	40.913	442.781	442.792
		165885.474	48.496	442.859	442.870
B-7		165835.971	47.500	441.809	441.829
		165839.507	38.917	441.887	441.907
		165843.043	32.334	441.965	441.985
		165846.579	24.751	442.042	442.062
		165850.115	17.168	442.118	442.138
		165853.651	9.585	442.193	442.213
		165857.186	2.002	442.269	442.289
		165860.722	0.001	442.345	442.365
		165864.258	1.998	442.421	442.441
		165867.794	9.581	442.497	442.517
		165871.330	17.164	442.573	442.593
		165874.866	24.747	442.649	442.669
		165878.402	32.330	442.725	442.745
		165881.938	40.913	442.801	442.821
		165885.474	48.496	442.877	442.897
C-7		165835.971	47.500	441.859	441.879
		165839.507	38.917	441.937	441.957
		165843.043	32.334	442.015	442.035
		165846.579	24.751	442.091	442.111
		165850.115	17.168	442.167	442.187
		165853.651	9.585	442.243	442.263
		165857.186	2.002	442.319	442.339
		165860.722	0.001	442.395	442.415
		165864.258	1.998	442.471	442.491
		165867.794	9.581	442.547	442.567
		165871.330	17.164	442.623	442.643
		165874.866	24.747	442.699	442.719
		165878.402	32.330	442.775	442.795
		165881.938	40.913	442.851	442.871
		165885.474	48.496	442.927	442.947
D-7		165835.971	47.500	441.909	441.929
		165839.507	38.917	441.987	442.007
		165843.043	32.334	442.065	442.085
		165846.579	24.751	442.141	442.161
		165850.115	17.168	442.217	442.237
		165853.651	9.585	442.293	442.313
		165857.186	2.002	442.369	442.389
		165860.722	0.001	442.445	442.465
		165864.258	1.998	442.521	442.541
		165867.794	9.581	442.597	442.617
		165871.330	17.164	442.673	442.693
		165874.866	24.747	442.749	442.769
		165878.402	32.330	442.825	442.845
		165881.938	40.913	442.901	442.921
		165885.474	48.496	442.977	443.000

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
E-7	1	165885.971	47.500	441.911	441.924
	2	165889.507	38.917	441.983	441.995
	3	165893.043	32.334	442.053	442.065
	4	165896.579	24.751	442.122	442.135
	5	165899.115	17.168	442.191	442.203
	6	165902.651	9.585	442.259	442.271
	7	165906.186	2.002	442.327	442.339
	8	165909.722	0.001	442.395	442.407
	9	165913.258	1.998	442.463	442.475
	10	165916.794	9.581	442.531	442.543
	11	165920.330	17.164	442.599	442.611
	12	165923.866	24.747	442.667	442.679
	13	165927.402	32.330	442.735	442.747
	14	165930.938	40.913	442.803	442.815
	15	165934.474	48.496	442.871	442.883
£ Pier 7		165885.971	47.500	441.930	441.930
		165889.507	38.917	441.989	441.989
		165893.043	32.334	442.047	442.047
		165896.579	24.751	442.105	442.105
		165899.115	17.168	442.163	442.163
		165902.651	9.585	442.221	442.221
		165906.186	2.002	442.279	442.279
		165909.722	0.001	442.337	442.337
		165913.258	1.998	442.395	442.395
		165916.794	9.581	442.453	442.453
		165920.330	17.164	442.511	442.511
		165923.866	24.747	442.569	442.569
		165927.402	32.330	442.627	442.627
		165930.938	40.913	442.685	442.685
		165934.474	48.496	442.743	442.743
A-8		165885.971	47.500	441.944	441.956
		165889.507	38.917	442.011	442.023
		165893.043	32.334	442.077	442.089
		165896.579	24.751	442.143	442.155
		165899.115	17.168	442.209	442.221
		165902.651	9.585	442.275	442.287
		165906.186	2.002	442.341	442.353
		165909.722	0.001	442.407	442.419
		165913.258	1.998	442.473	442.485
		165916.794	9.581	442.539	442.551
		165920.330	17.164	442.605	442.617
		165923.866	24.747	442.671	442.683
		165927.402	32.330	442.737	442.749
		165930.938	40.913	442.803	442.815
		165934.474	48.496	442.869	442.881
B-8		165885.971	47.500	441.952	441.971
		165889.507	38.917	442.016	442.035
		165893.043	32.334	442.079	442.098
		165896.579	24.751	442.141	442.161
		165899.115	17.168	442.203	442.223
		165902.651	9.585	442.265	442.285
		165906.186	2.002	442.327	442.347
		165909.722	0.001	442.389	442.409
		165913.258	1.998	442.451	442.471
		165916.794	9.581	442.513	442.533
		165920.330	17.164	442.575	442.595
		165923.866	24.747	442.637	442.657
		165927.402	32.330	442.699	442.719
		165930.938	40.913	442.761	442.781
		165934.474	48.496	442.823	442.843
C-8		165885.971	47.500	441.962	441.975
		165889.507	38.917	442.024	442.037
		165893.043	32.334	442.086	442.098
		165896.579	24.751	442.148	442.160
		165899.115	17.168	442.210	442.222
		165902.651	9.585	442.272	442.284
		165906.186	2.002	442.334	442.346
		165909.722	0.001	442.396	442.408
		165913.258	1.998	442.458	442.470
		165916.794	9.581	442.520	442.532
		165920.330	17.164	442.582	442.594
		165923.866	24.747	442.644	442.656
		165927.402	32.330	442.706	442.718
		165930.938	40.913	442.768	442.780
		165934.474	48.496	442.830	442.842

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
D-8	1	165935.054	47.500	441.945	441.964
	2	165936.580	39.917	442.025	442.023
	3	165942.125	32.334	442.042	442.042
	4	165945.662	24.751	442.120	442.139
	5	165949.198	17.164	442.177	442.196
	6	165952.734	9.585	442.233	442.251
	7	165956.269	2.002	442.279	442.298
	8	165957.202	.001	442.277	442.296
	9	165958.135	1.998	442.275	442.293
	10	165961.671	9.581	442.210	442.229
	11	165965.207	17.164	442.137	442.155
	12	165968.743	24.747	442.062	442.081
	13	165972.278	32.330	441.987	442.005
	14	165975.814	39.913	441.911	441.929
E-8		165979.350	47.496	441.833	441.852
		165985.054	47.500	441.832	441.841
		165986.580	39.917	441.889	441.888
		165992.125	32.334	442.045	442.054
		165995.662	24.751	442.100	442.109
		165999.198	17.164	442.154	442.163
		166002.734	9.585	442.207	442.217
		166006.269	2.002	442.251	442.261
		166007.202	.001	442.248	442.258
		166008.135	1.998	442.245	442.255
		166011.671	9.581	442.178	442.188
		166015.207	17.164	442.102	442.112
		166018.743	24.747	442.025	442.035
		166022.278	32.330	441.946	441.957
E Pier B		166025.814	39.913	441.869	441.878
		166029.350	47.496	441.789	441.799
		166033.137	47.500	441.916	441.916
		166036.673	39.917	441.971	441.971
		166040.209	32.334	442.025	442.025
		166043.745	24.751	442.078	442.078
		166047.281	17.164	442.130	442.130
		166050.817	9.585	442.181	442.181
		166054.352	2.002	442.224	442.224
		166057.888	.001	442.220	442.220
		166059.218	1.998	442.216	442.216
		166062.754	9.581	442.148	442.148
		166066.290	17.164	442.070	442.070
		166069.826	24.747	441.991	441.991
A-9		166070.361	32.330	441.911	441.911
		166073.897	39.913	441.830	441.830
		166077.433	47.496	441.749	441.749
		166083.137	47.500	441.880	441.880
		166086.673	39.917	441.942	441.932
		166090.209	32.334	441.994	442.004
		166093.745	24.751	442.046	442.055
		166097.281	17.164	442.098	442.104
		166100.817	9.585	442.143	442.153
		166104.352	2.002	442.183	442.189
		166107.888	.001	442.179	442.189
		166109.218	1.998	442.175	442.185
		166112.754	9.581	442.108	442.113
		166116.290	17.164	442.023	442.033
B-9		166119.826	24.747	441.942	441.952
		166120.361	32.330	441.859	441.869
		166123.897	39.913	441.776	441.786
		166127.433	47.496	441.692	441.702
		166133.137	47.500	441.857	441.874
		166136.673	39.917	441.907	441.924
		166140.209	32.334	441.956	441.973
		166143.745	24.751	442.004	442.021
		166147.281	17.164	442.052	442.068
		166150.817	9.585	442.099	442.115
		166154.352	2.002	442.135	442.152
		166157.888	.001	442.131	442.147
		166159.218	1.998	442.126	442.142
		166162.754	9.581	442.052	442.068
	166166.290	17.164	441.969	441.988	

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
C-9	1	166003.137	47.500	441.818	441.837
	2	166006.673	38.917	441.865	441.884
	3	166009.209	32.334	441.912	441.931
	4	166013.745	24.751	441.957	441.977
	5	166017.281	17.168	442.002	442.021
	6	166020.817	9.585	442.046	442.065
	7	166024.352	2.002	442.081	442.100
	8	166027.887	.001	442.076	442.095
	9	166031.423	1.998	442.070	442.089
	10	166034.958	9.581	441.994	442.013
	11	166038.493	17.164	441.908	441.928
	12	166042.028	24.747	441.823	441.842
	13	166045.563	32.330	441.735	441.755
	14	166049.098	38.913	441.648	441.667

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
A-10	1	166018.720	47.500	441.620	441.633
	2	166022.256	38.917	441.655	441.672
	3	166025.792	32.334	441.697	441.710
	4	166029.328	24.751	441.734	441.747
	5	166032.864	17.168	441.770	441.783
	6	166036.400	9.585	441.806	441.818
	7	166039.935	2.002	441.832	441.844
	8	166043.471	.001	441.824	441.837
	9	166047.006	1.998	441.816	441.829
	10	166050.542	9.581	441.732	441.744
	11	166054.077	17.164	441.637	441.650
	12	166057.613	24.747	441.543	441.555
	13	166061.148	32.330	441.447	441.459
	14	166064.683	38.913	441.350	441.363

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
E Pier 10	1	166028.470	47.500	441.198	441.198
	2	166032.006	38.917	441.225	441.225
	3	166035.542	32.334	441.251	441.251
	4	166039.078	24.751	441.275	441.276
	5	166042.614	17.168	441.300	441.300
	6	166046.150	9.585	441.323	441.323
	7	166049.685	2.002	441.337	441.337
	8	166053.221	.001	441.326	441.326
	9	166056.756	1.998	441.315	441.315
	10	166060.292	9.581	441.218	441.218
	11	166063.827	17.164	441.112	441.112
	12	166067.363	24.747	441.005	441.005
	13	166070.898	32.330	440.897	440.897
	14	166074.433	38.913	440.788	440.788

Location	Beam	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
E-11	1	166118.470	47.500	440.602	440.611
	2	166122.006	38.917	440.616	440.625
	3	166125.542	32.334	440.630	440.639
	4	166129.078	24.751	440.643	440.652
	5	166132.614	17.168	440.654	440.664
	6	166136.150	9.585	440.666	440.675
	7	166139.685	2.002	440.667	440.677
	8	166143.221	.001	440.653	440.662
	9	166146.756	1.998	440.639	440.648
	10	166150.292	9.581	440.530	440.539
	11	166153.827	17.164	440.412	440.421
	12	166157.363	24.747	440.282	440.291
	13	166160.898	32.330	440.172	440.181
	14	166164.433	38.913	440.051	440.061

D-9	1	166003.137	47.500	441.771	441.786
	2	166006.673	38.917	441.816	441.831
	3	166010.209	32.334	441.860	441.875
	4	166013.745	24.751	441.903	441.918
	5	166017.281	17.168	441.946	441.961
	6	166020.817	9.585	441.987	442.002
	7	166024.352	2.002	442.029	442.044
	8	166027.887	.001	442.014	442.029
	9	166031.423	1.998	442.008	442.023
	10	166034.958	9.581	441.929	441.944
	11	166038.493	17.164	441.841	441.856
	12	166042.028	24.747	441.753	441.768
	13	166045.563	32.330	441.663	441.678
	14	166049.098	38.913	441.573	441.588

B-10	1	166028.470	47.500	441.549	441.571
	2	166032.006	38.917	441.585	441.607
	3	166035.542	32.334	441.621	441.643
	4	166039.078	24.751	441.656	441.677
	5	166042.614	17.168	441.689	441.711
	6	166046.150	9.585	441.722	441.744
	7	166049.685	2.002	441.746	441.768
	8	166053.221	.001	441.738	441.759
	9	166056.756	1.998	441.729	441.751
	10	166060.292	9.581	441.642	441.664
	11	166063.827	17.164	441.546	441.567
	12	166067.363	24.747	441.448	441.470
	13	166070.898	32.330	441.350	441.372
	14	166074.433	38.913	441.251	441.273

A-11	1	166078.470	47.500	441.093	441.104
	2	166082.006	38.917	441.117	441.129
	3	166085.542	32.334	441.140	441.152
	4	166089.078	24.751	441.163	441.174
	5	166092.614	17.168	441.184	441.196
	6	166096.150	9.585	441.205	441.217
	7	166099.685	2.002	441.217	441.228
	8	166103.221	.001	441.205	441.217
	9	166106.756	1.998	441.194	441.205
	10	166110.292	9.581	441.094	441.106
	11	166113.827	17.164	440.986	440.997
	12	166117.363	24.747	440.878	440.889
	13	166120.898	32.330	440.770	440.781
	14	166124.433	38.913	440.662	440.673

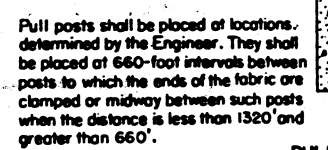
E Brg S. Abut	1	166126.053	47.500	440.496	440.496
	2	166129.588	38.917	440.509	440.509
	3	166133.123	32.334	440.521	440.521
	4	166136.657	24.751	440.532	440.532
	5	166140.192	17.168	440.542	440.542
	6	166143.727	9.585	440.551	440.551
	7	166147.262	2.002	440.551	440.551
	8	166150.797	.001	440.536	440.536
	9	166154.332	1.998	440.521	440.521
	10	166157.867	9.581	440.410	440.411
	11	166161.402	17.164	440.290	440.290
	12	166164.937	24.747	440.169	440.169
	13	166168.472	32.330	440.047	440.047
	14	166172.007	38.913	439.924	439.925

E-9	1	166003.137	47.500	441.717	441.723
	2	166006.673	38.917	441.760	441.766
	3	166010.209	32.334	441.802	441.808
	4	166013.745	24.751	441.843	441.848
	5	166017.281	17.168	441.883	441.888
	6	166020.817	9.585	441.922	441.928
	7	166024.352	2.002	441.958	441.964
	8	166027.887	.001	441.945	441.951
	9	166031.423	1.998	441.938	441.944
	10	166034.958	9.581	441.857	441.863
	11	166038.493	17.164	441.767	441.773
	12	166042.028	24.747	441.676	441.682
	13	166045.563	32.330	441.584	441.590
	14	166049.098	38.913	441.491	441.497

C-10	1	166036.720	47.500	441.471	441.499
	2	166040.256	38.917	441.505	441.532
	3	166043.792	32.334	441.538	441.565
	4	166047.328	24.751	441.570	441.597
	5	166050.864	17.168	441.602	441.629
	6	166054.400	9.585	441.632	441.659
	7	166057.935	2.002	441.653	441.680
	8	166061.471	.001	441.644	441.671
	9	166065.006	1.998	441.635	441.662
	10	166068.542	9.581	441.546	441.573
	11	166072.077	17.164	441.447	441.474
	12	166075.613	24.747	441.347	441.374
	13	166079.148	32.330	441.246	441.273
	14	166082.683	38.913	441.145	441.172

B-11	1	166088.470	47.500	440.980	441.000
	2	166092.006	38.917	441.002	441.022
	3	166095.542	32.334	441.023	441.043
	4	166099.078	24.751	441.043	441.063
	5	166102.614	17.168	441.062	441.082
	6	166106.150	9.585	441.081	441.100
	7	166109.685	2.002	441.090	441.109
	8	166113.221	.001	441.078	441.097
	9	166116.756	1.998	441.065	441.084
	10	166120.292	9.581	440.963	440.983
	11	166123.827	17.164	440.852	440.872
	12	166127.363	24.747	440.740	440.760
	13	166130.898	32.330	440.628	440.647
	14	166134.433	38.913	440.514	440.534

166166.360	-	32.330	438.995	438.995
166169.896	-	39.913	438.872	438.872
166173.432	-	47.496	438.747	438.747



CORNER OR END POST
ARRANGEMENT

Diagram illustrating a pile foundation. The pile is labeled "Close X Concrete". The ground line is indicated. The pile length is specified as "4' 24\" for 4' 0\" length" and "20' for over 4' 0\" length". The pile diameter is labeled "12\" Dia Min."

Extension arms shall point outward at an angle of 45°

* The $3\frac{1}{2}'' \times 3\frac{1}{2}''$ Roll formed section as detailed may be used as gate posts for single gate up to 6 foot and double gate up to 12 foot.

PROTECTIVE ELECTRICAL GROUNDS

NOTE #1
The roll formed sections shall be fabricated from material having a tensile strength of 45,000 to 53,000 psi. and a yield strength of 30,000 to 38,000 psi.
The roll formed sections shall be galvanized in accordance with the requirements stipulated for structural shapes.

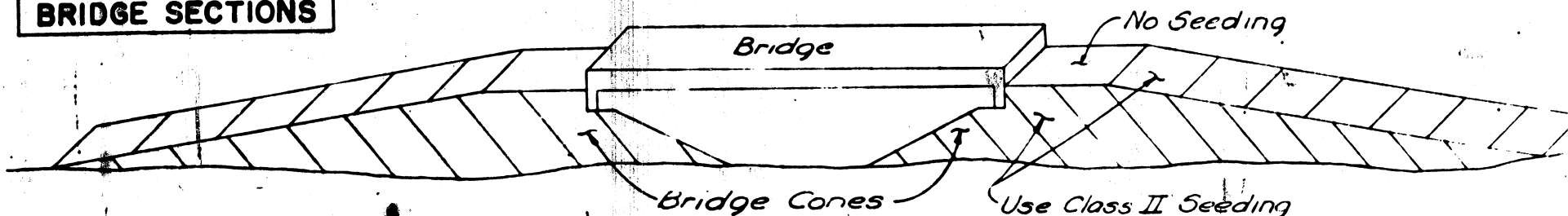
Gate Opening *		Pipe		Sq. Tubing	
Single	Double	Size	Lbs./Lin.Ft.	Size	Lbs./Lin.Ft.
Up to 4 Ft.	Up to 8 Ft.	2.375" O.D.	3.65	2 1/2"	4.32
Over 4 Ft. to 8 Ft.	Over 8 Ft. to 16 Ft.	2.875" O.D.	5.79	3"	5.78
Over 8 Ft. to 12 Ft.	Over 16 Ft. to 24 Ft.	3 1/2" O.D.	7.58	3"	8.80

MODIFIED STANDARD 2168-4
(Full Size)

AREAS TO BE SEED DUAL LANE SECTIONS

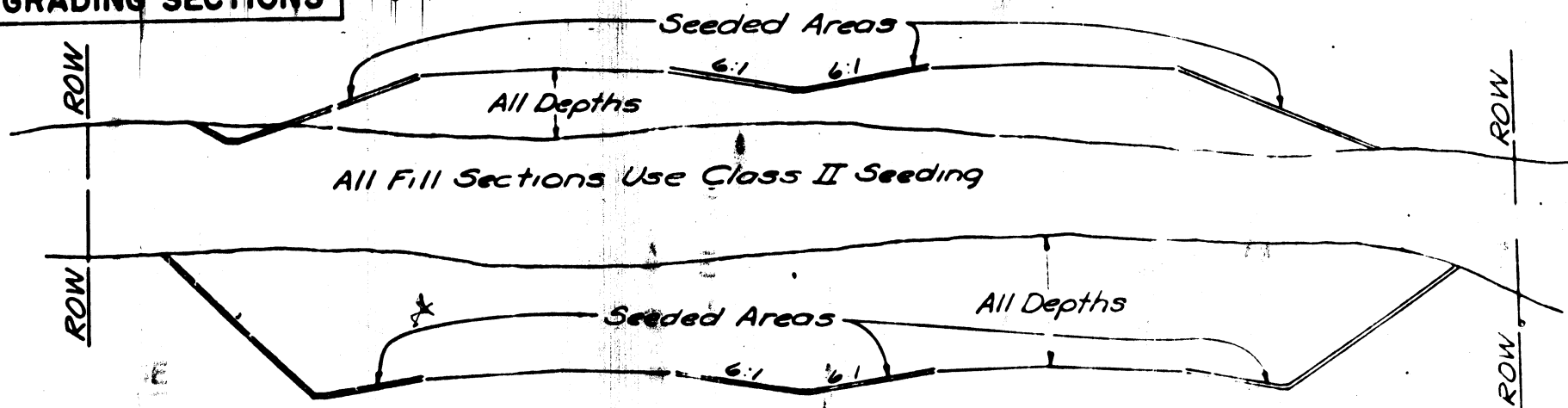
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA151	DAVB	MADISON	42	42A
FED. ROAD DIST. NO. 7		ILLINOIS	PROJECT—	

BRIDGE SECTIONS



Use Class II Seeding on Bridge Cones
Use Class II or Class III Seeding on Roadway Sections.

GRADING SECTIONS



PAVING AND GRADING SECTIONS

