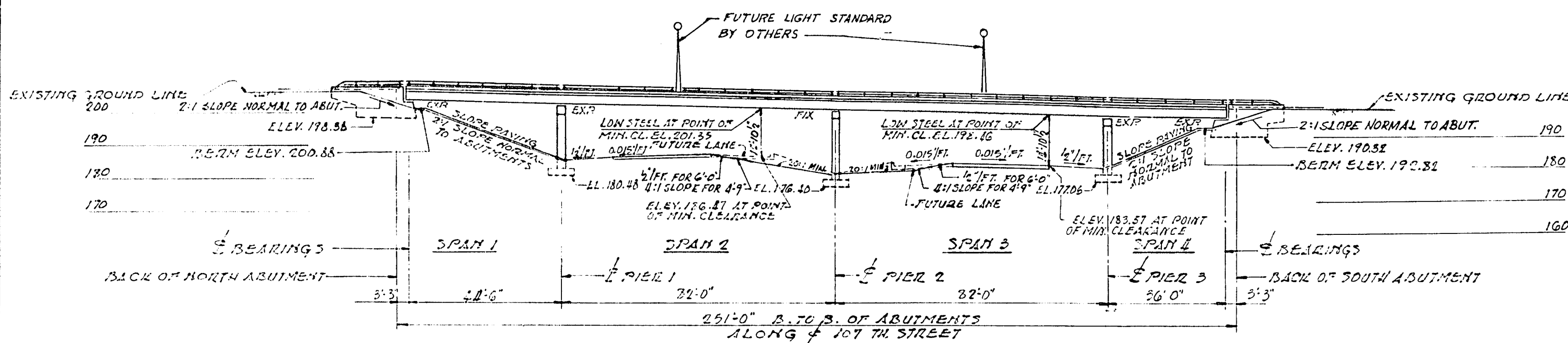
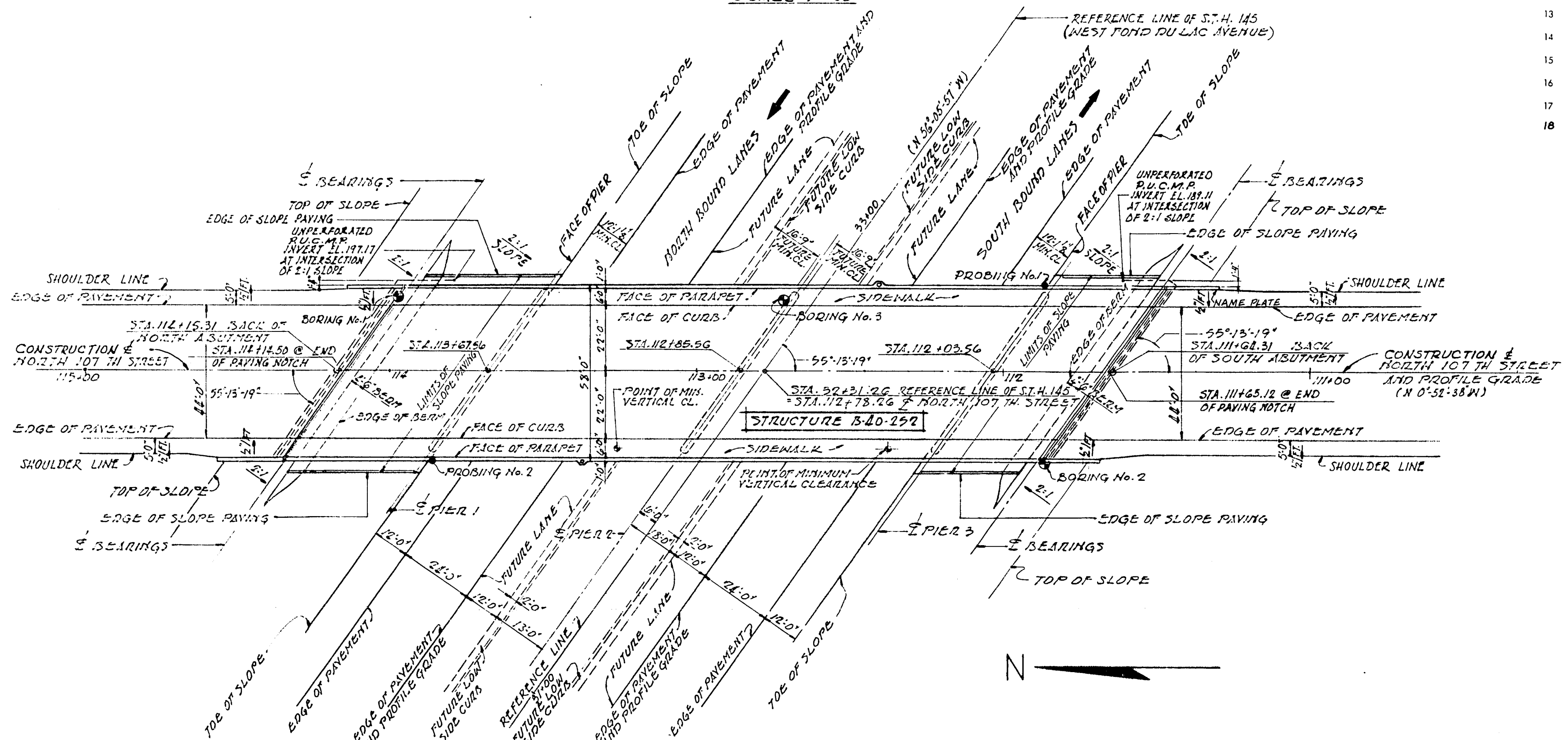




WEST ELEVATION STRUCTURE B-40-252 (LOOKING EAST)
SCALE: 1"=20'

LIST OF DRAWINGS		
SHEET NO.	TITLE	DRAWING NO.
1	GENERAL PLAN AND ELEVATION	X26193
2	GENERAL NOTES, QUANTITIES AND PROFILES	X26194
3	BORINGS AND EXCAVATION	X26195
4	N. AND S. ABUTMENTS	X26196
5	ABUTMENT DETAILS	X26197
6	PIERS 1 AND 3	X26198
7	PIER 2	X26199
8	STRUCTURAL STEEL FRAMING PLAN	X26200
9	STEEL DETAILS	X26201
10	BEARINGS AND STEEL DETAILS	X26202
11	EXPANSION DEVICE	X26203
12	DECK REINFORCEMENT PLAN	X26204
13	DECK CROSS SECTION AND DETAILS	X26205
14	TOP OF SLAB ELEVATION	X26206
15	TUBULAR ALUMINUM RAILING, TYPE B	X26207
16	UTILITIES PLAN AND DETAILS	X26208
17	REINFORCEMENT BAR LIST	X26209
18	TUBULAR STEEL RAILING, TYPE B	X26209A



PLAN
HIGHWAY GRADE SEPARATION STRUCTURE
4-SPAN CONTINUOUS STEEL I-BEAM
SCALE: 1"=20'

DESIGN DATA

LOADING:
LIVE LOAD = H20-S16

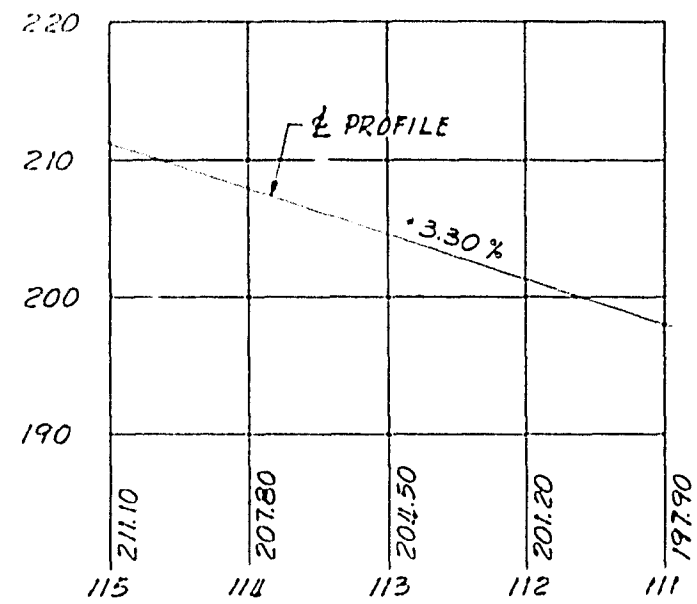
DESIGN STRESSES:
fs STRUCTURAL STEEL (A.S.T.M. A7) = 18,000 p.s.i.
fs STRUCTURAL STEEL A.S.T.M. A36 = 20,000 p.s.i.
fs STRUCTURAL STEEL (A.S.T.M. A441) = 24,000 p.s.i.
fs REINFORCING BARS = 20,000 p.s.i.
fc FLEXURE FOR ALL CONCRETE (GRADE A-A) = 1,400 p.s.i.
n = 10

FOUNDATIONS:
ABUTMENT AND PIER FOOTINGS ARE DESIGNED FOR A MAX. SOIL BEARING PRESSURE OF 4000#/SQ.FT.

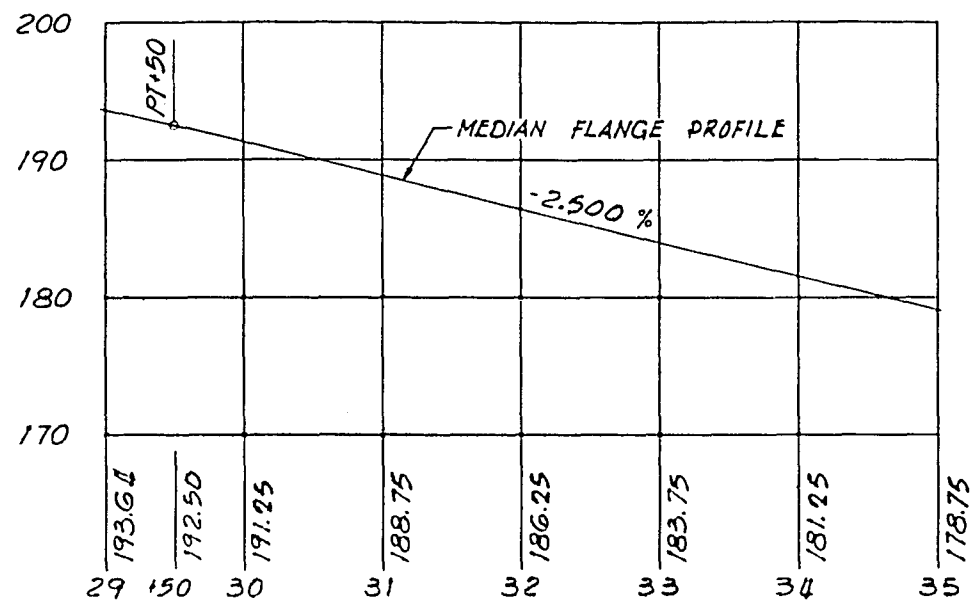
STATE HIGHWAY COMMISSION OF WISCONSIN
GENERAL PLAN
64 MILWAUKEE
SECTION 19 AND 20
TOWN 8 NORTH
RANGE 21 EAST
DATE 10-26-62
DRAWN C.S.
CHECKED J.M.N.
DATE 5-62

DATE 8-13-63
REVISION
BY

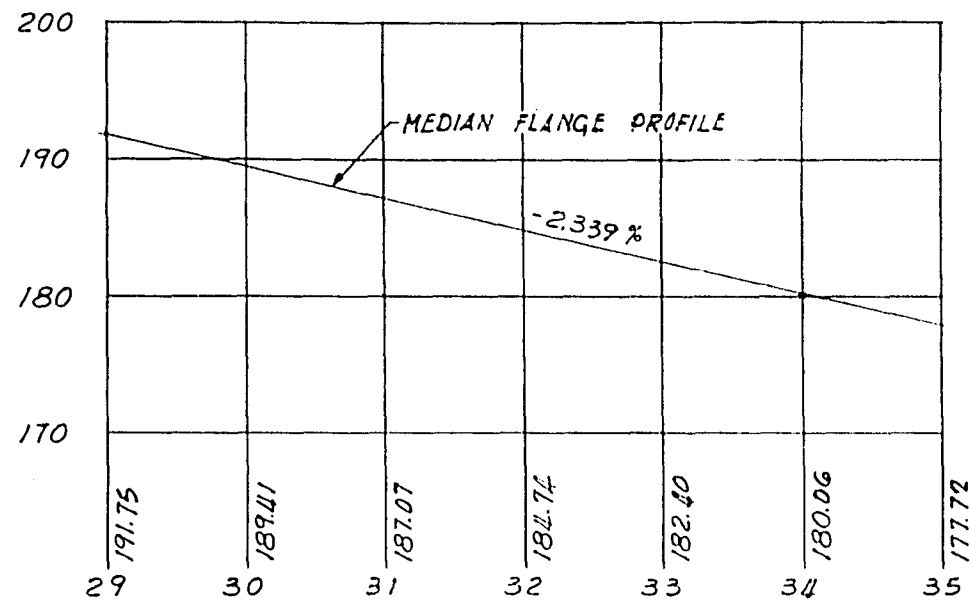
STATE HIGHWAY COMMISSION
OF WISCONSIN
S.T.H. 145 (WEST FOND DU LAC AVENUE)
MILWAUKEE COUNTY
NORTH 107 TH STREET UNDERPASS
STRUCTURE B-40-252
GENERAL PLAN AND ELEVATION
SCALE: 1"=20'
DESIGNED M.Z. DATE 5-62
DRAWN C.S. DATE 5-62
CHECKED J.M.N. DATE 5-62
ALFRED BENESCH & COMPANY
CONSULTING ENGINEERS
10 S. WABASH AVE.
CHICAGO, ILLINOIS
DWG. NO. X26193
SHEET 1 OF 18



PROFILE OF NORTH 107TH STREET



PROFILE OF S.T.H. 145 NORTH BOUND



PROFILE OF S.T.H. 145 SOUTH BOUND

GENERAL NOTES

1. SPECIFICATIONS

- A. DESIGN OF STRUCTURE IS IN ACCORDANCE WITH A.A.S.H.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1961 EDITION AND 1961 TENTATIVE REVISIONS.
B. WELDING SHALL BE IN ACCORDANCE WITH CURRENT SPECIFICATIONS FOR WELDED HIGHWAY AND RAILWAY BRIDGES OF THE AMERICAN WELDING SOCIETY.

2. ALL DETAILS, CONSTRUCTION, MATERIALS AND FABRICATION SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE HIGHWAY COMMISSION OF WISCONSIN (1963) EXCEPT AS OTHERWISE NOTED.

- A. ALL WIDE FLANGE BEAMS AND COVER PLATES SHALL BE STRUCTURAL CARBON STEEL CONFORMING TO A.S.T.M. A-36 OR STRUCTURAL LOW ALLOY STEEL CONFORMING TO A.S.T.M. A-441 AS NOTED ON THE PLANS. ALL SPlice MATERIAL SHALL BE STRUCTURAL CARBON STEEL CONFORMING TO A.S.T.M. A-36.

- B. FOR LUBRICATED BRONZE PLATE REQUIREMENTS SEE SPECIAL PROVISIONS.
C. EXCEPT AS OTHERWISE SHOWN OR NOTED, ALL SPLICES AND CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER HIGH TENSILE STRENGTH BOLTS. RIVETS MAY BE USED IN LIEU OF BOLTS, HOLES SHALL BE 1/16" LARGER THAN BOLT DIAMETER.

- D. EXPANSION DEVICE SHALL BE FULLY ASSEMBLED IN THE SHOP IN PROPER POSITION AND LEFT ASSEMBLED FOR INSPECTION.
E. STRUCTURAL STEEL SHALL BE SHOP INSPECTED BY THE STATE HIGHWAY COMMISSION BEFORE PAINTING.
F. STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF RED LEAD PAINT AND TWO FIELD COATS OF ALUMINUM PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

3. ALL CONCRETE MASONRY SHALL BE GRADE AA. $f_c = 1,400$ psi

4. BEVEL ALL EXPOSED EDGES OF CONCRETE 1" UNLESS OTHERWISE SHOWN OR NOTED

5. ALL BAR REINFORCEMENT SHALL HAVE 2" MINIMUM COVER UNLESS OTHERWISE SHOWN OR NOTED.

6. THE USE OF STRUCTURAL GRADE STEEL BAR REINFORCEMENT IS PROHIBITED.

7. ALL ELEVATIONS ARE REFERRED TO THE CITY OF MILWAUKEE DATUM.

8. DRAWINGS SHALL NOT BE SCALED.

9. ALL KEYWAYS SHALL BE FORMED FROM BEVELED, SURFACED LUMBER OF THE SIZE SHOWN.

11. THE SUPERSTRUCTURE SHALL BE TREATED WITH WATER SOLUABLE SILICONE IN ACCORDANCE WITH SECTION 502.3.13 OF THE STANDARD SPECIFICATIONS.

BILL OF MATERIALS

S.H.C.W. SPEC. REFERENCE		UNIT	STRUCTURE B-40-252						
			NORTH ABUT.	PIER 1	PIER 2	PIER 3	SOUTH ABUT.	SUPER STRUCTURE	TOTAL
20601	EXCAVATION FOR STRUCTURES, BRIDGES	CU YD	70	160	130	160	70	—	590
20901	GRANULAR BACKFILL	CU YD	40	120	100	120	40	—	420
50201	CONCRETE MASONRY, BRIDGES	CU YD	112	71.2	72.2	69.2	106	416	846.6
50501	BAR STEEL REINFORCEMENT, BRIDGES	LB	6,200	13,090	13,540	12,690	5,800	117,130	168,450
* 50601	STRUCTURAL CARBON STEEL	LB	—	—	—	—	—	267,300	267,300
50605	STRUCTURAL LOW ALLOY STEEL	LB	7,900	1,800	1,200	1,800	7,900	48,600	69,200
60404	SLOPE PAVING (CONCRETE)	SQ YD	340	—	—	—	270	—	610
61202	PIPE UNDERDRAIN, CORR. METAL PIPE (8")	LIN FT	90	—	—	—	90	—	180
50621	BEARING PADS	SQ FT	10	9	10	9	10	—	48
50614	LUBRICATED BRONZE PLATES	LB	65	130	—	130	65	—	390
90005	TUBULAR RAILING TYPE B	LIN FT	40	—	—	—	34	494	568
** 90006	ELECTRICAL WORK	LUMP SUM	—	—	—	—	—	—	1

* INCLUDES STEEL CONFORMING TO A.S.T.M. A-36

** SEE TABLE SHEET 16

NON-BID ITEMS

WATERPROOFING
JOINT FILLER
ALUMINUM OR ZINC PLATES

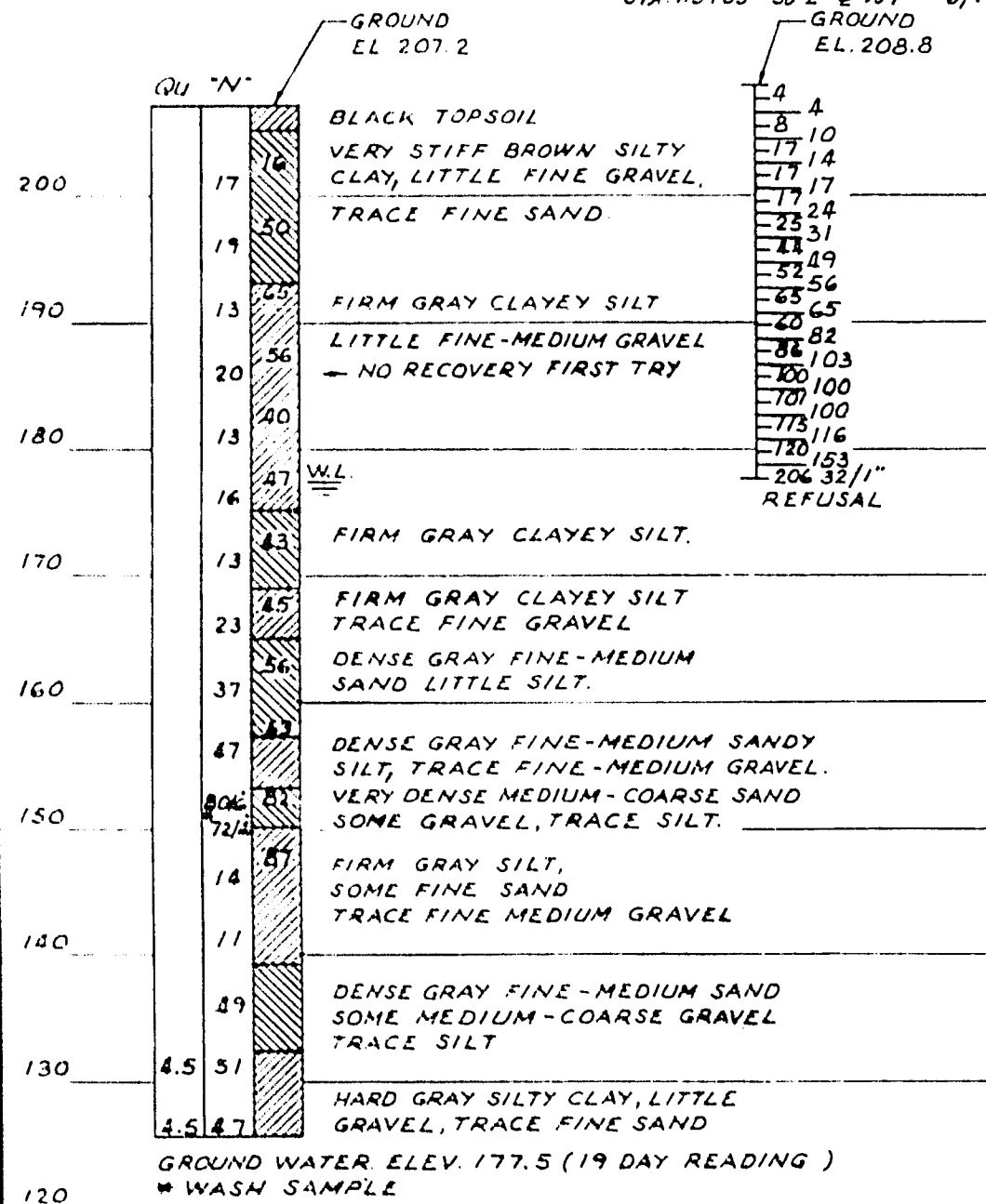
NO.	DATE	REVISION	BY
1	8-15-63	QUANTITIES	BW

STATE HIGHWAY COMMISSION OF WISCONSIN	
S.T.H. 145 (WEST FOND DU LAC AVENUE) MILWAUKEE COUNTY	
NORTH 107TH STREET UNDERPASS STRUCTURE B-40-252	
GENERAL NOTES, QUANTITIES AND PROFILES	
SCALE: HOR. 1"=100' VER. 1"=10'	ALFRED BENESCH & COMPANY CONSULTING ENGINEERS
DESIGNED J.M.N. DATE 1-62	18 S. WABASH AVE. CHICAGO, ILLINOIS
DRAWN T.D. DATE 1-62	DWG. NO. X26194 SHEET 2 OF 18
CHECKED R.C.E. DATE 1-62	

SOIL TEST BORINGS

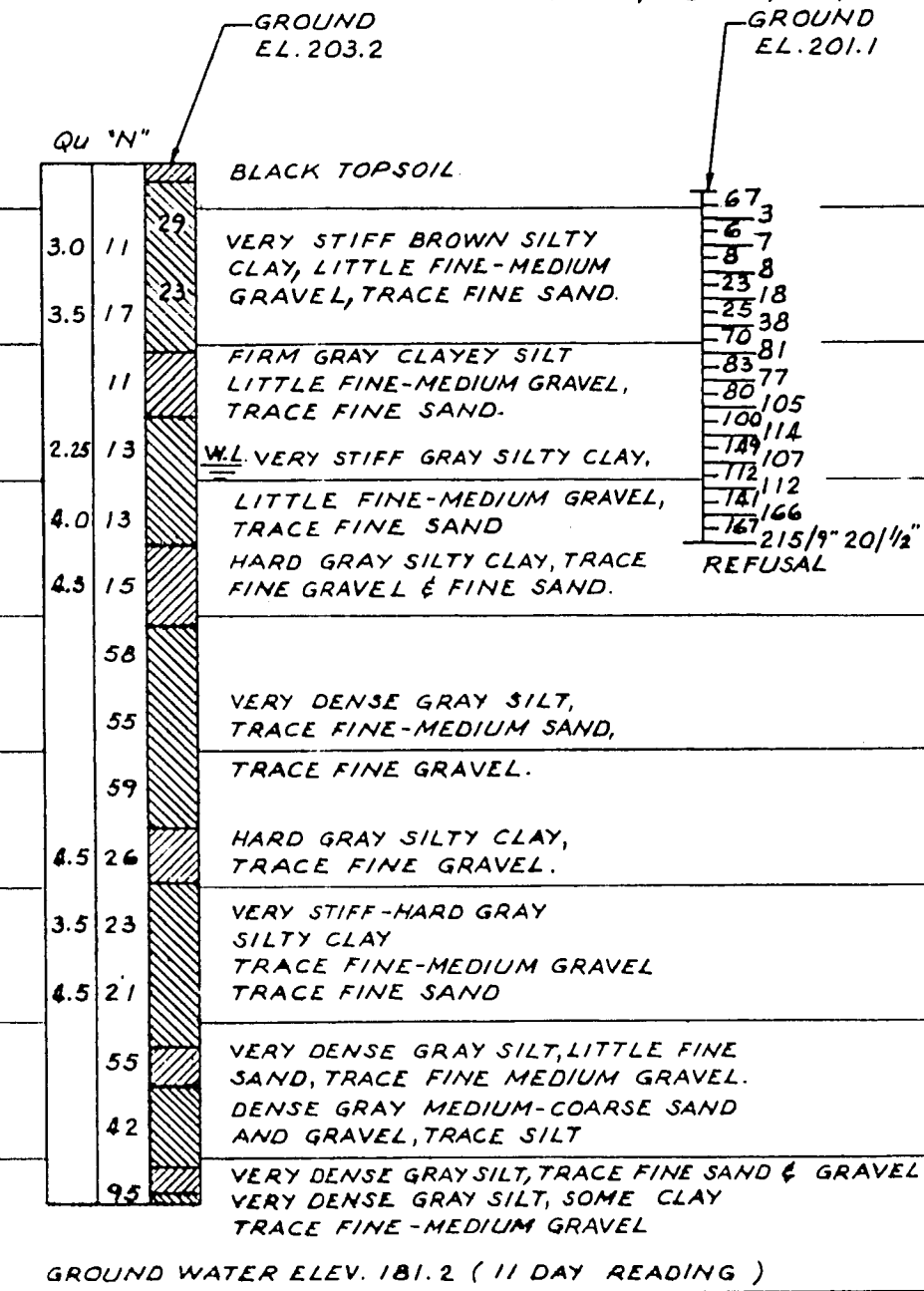
BORING NO. 1

STA. 113+97
25' R & 107TH ST.



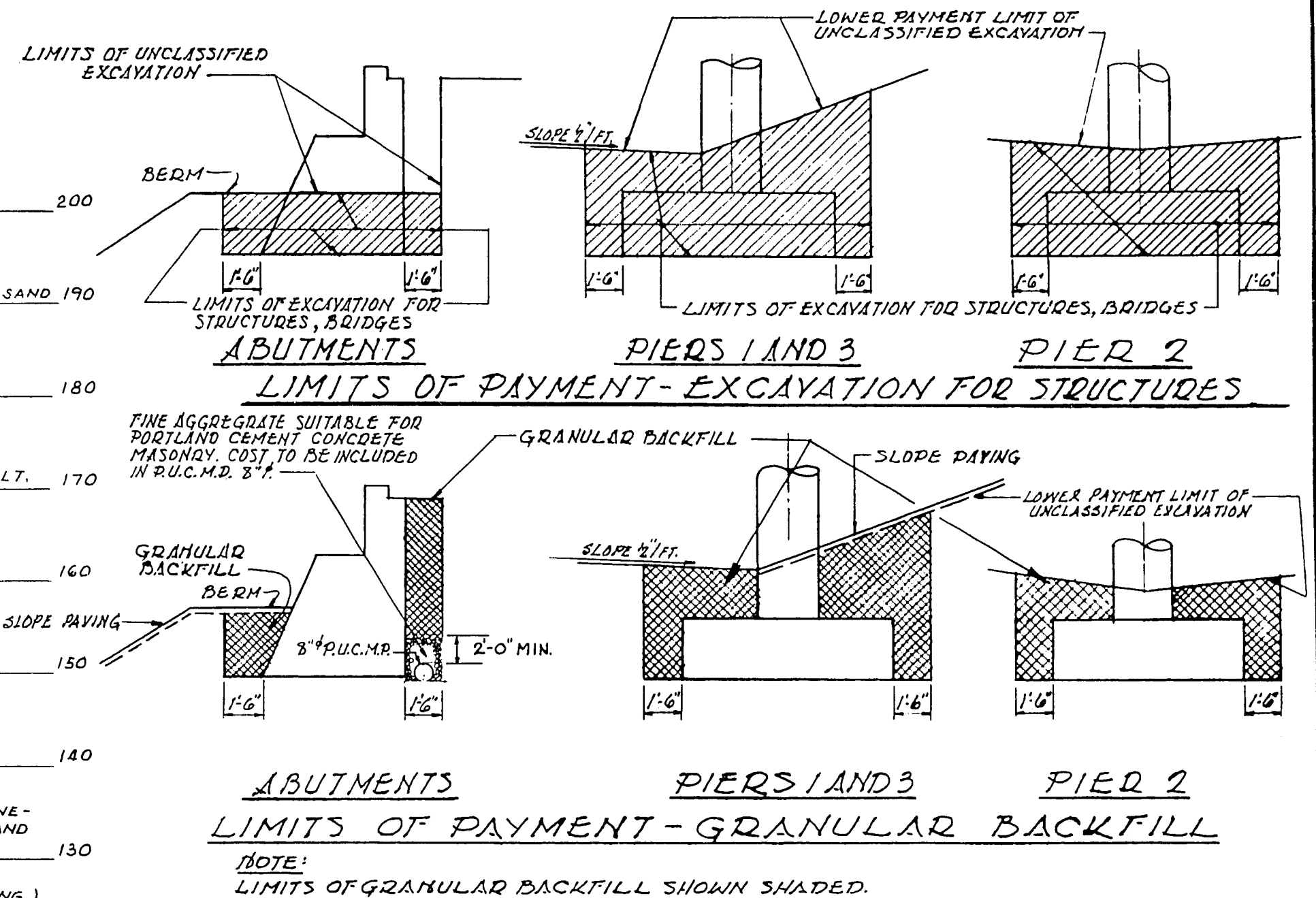
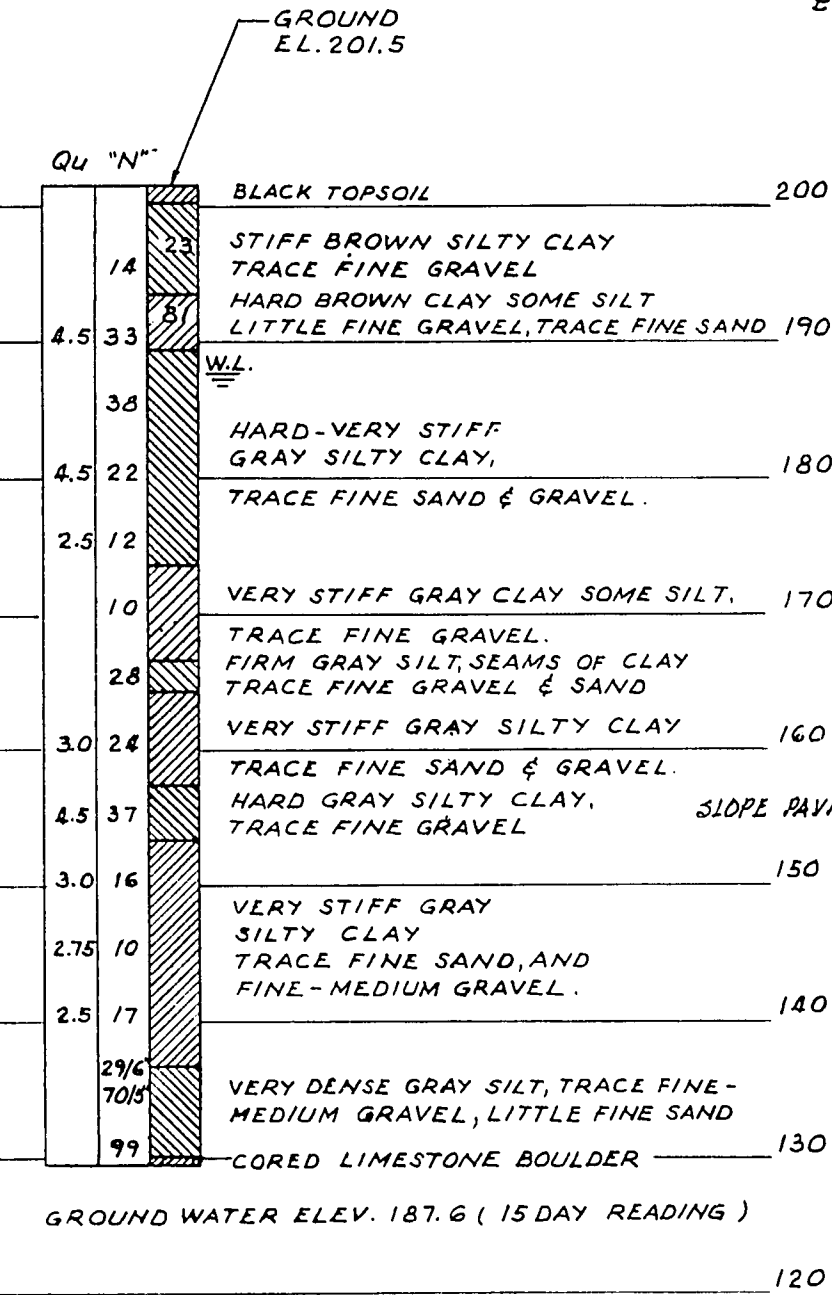
BORING NO.3

STA. 112+68
22' R & 107TH ST



BORING NO. 2

STA. 111+87
30' L & 107TH ST.



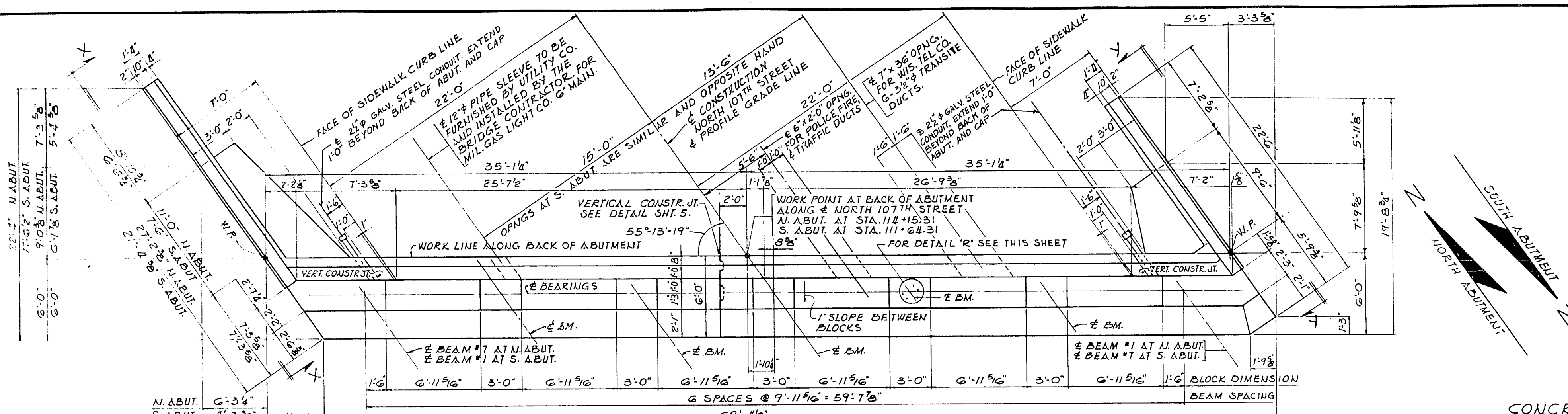
POURING NOTES

1. FOR LOCATION OF BORINGS, SEE SHEET NO. 1.
2. "QU" INDICATES THE ESTIMATED UNCONFINED COMPRESSIVE STRENGTH IN TONS PER SQUARE FOOT.
3. "N" INDICATES NUMBER OF BLOWS PER FOOT REQUIRED TO DRIVE A 2" O.D. SAMPLING PIPE 12" WITH A 140 LB. WEIGHT FALLING 30 INCHES.
4.  INDICATES THE AVERAGE NUMBER OF BLOWS PER FOOT TO DRIVE THE CASING WITH A 350 LB. WEIGHT FALLING 24 INCHES.
5. PROBING INDICATES NUMBER OF BLOWS PER FOOT OF PENETRATION TO DRIVE A 2" O.D. POINT WITH A 350 LB. WEIGHT FALLING 18 INCHES.
6.  INDICATES 95 BLOWS FOR 6 INCHES OF PENETRATION.
7. WATER LEVEL (WL) INDICATES GROUND WATER ELEVATION.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN

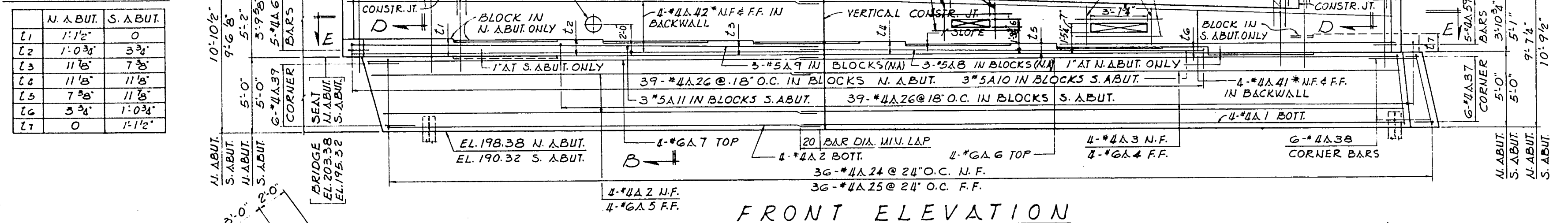
For the design of the structure foundation, to obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on the drawings with the log of such exploration data as interpreted for such design purpose as shown. The explorations were made by ordinary and conventional methods and care, deemed adequate for such purposes. However, since it is a matter of common knowledge that the exact character of any material and its reaction is difficult to determine from such subsurface exploration and that the kind and character of material at the site where the foundations are built may vary substantially from that indicated by the log they are made available to the bidders simply for what they are worth, without any warranty, express or implied that the material to be encountered in building the foundation will conform therewith. If the log is used by the contractor in making his bid, it is hereby expressly stipulated that the Commission accepts no responsibility for said use.

NO.	DATE	REVISION	BY
STATE HIGHWAY COMMISSION OF WISCONSIN S.T.H. 145 (WEST FOND DU LAC AVENUE) MILWAUKEE COUNTY NORTH 107TH STREET UNDERPASS STRUCTURE B-40-252 BORINGS AND EXCAVATION			
SCALE: 1" = 10'-0" DESIGNED <u>JMN</u> DATE <u>4-62</u> DRAWN <u>C.S.</u> DATE <u>4-62</u> CHECKED <u>P.C.B.</u> DATE <u>4-62</u>		ALFRED BENESCH & COMPANY CONSULTING ENGINEERS 10 S. WABASH AVE. CHICAGO, ILLINOIS DFG. NO. X26195 SHEET 3 OF 18	

[illegible]

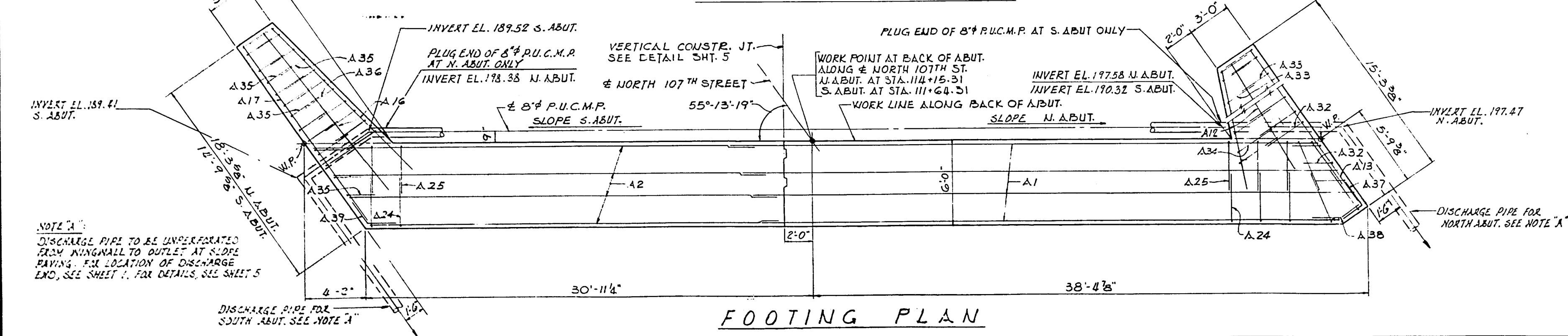
ITEM	UNIT	N. ABUT.	S. ABUT.
BODY AND WINGWALL FOOTINGS.	CU. YDS.	83	80
ABUTMENT BACKWALL AND WINGWALLS	CU. YDS.	29	26

	N. A. BUT.	S. A. BUT.
ℓ_1	$1:1\frac{1}{2}''$	0
ℓ_2	$1:0\frac{3}{4}''$	$3\frac{3}{4}''$
ℓ_3	$11\frac{1}{8}''$	$7\frac{3}{8}''$
ℓ_4	$11\frac{1}{8}''$	$11\frac{1}{8}''$
ℓ_5	$7\frac{3}{8}''$	$11\frac{1}{8}''$
ℓ_6	$3\frac{3}{4}''$	$1:0\frac{3}{4}''$
ℓ_7	0	$1:1\frac{1}{2}''$



	N. ABUT.	S. ABUT.	BRIDGE
t1	1'-1 1/2"	0	
t2	1'-0 3/4"	3 3/4"	
t3	11' 6"	7' 8"	
t4	11' 8"	11' 8"	
t5	7' 5 1/2"	11' 8"	
t6	3' 3 1/4"	1'-0 3/4"	
t7	0	1'-1 1/2"	

FRONT ELEVATION

[illegible]

1	B-13-63	REMOVAL OF PILING	B.W.
NO.	DATE	REVISION	BY

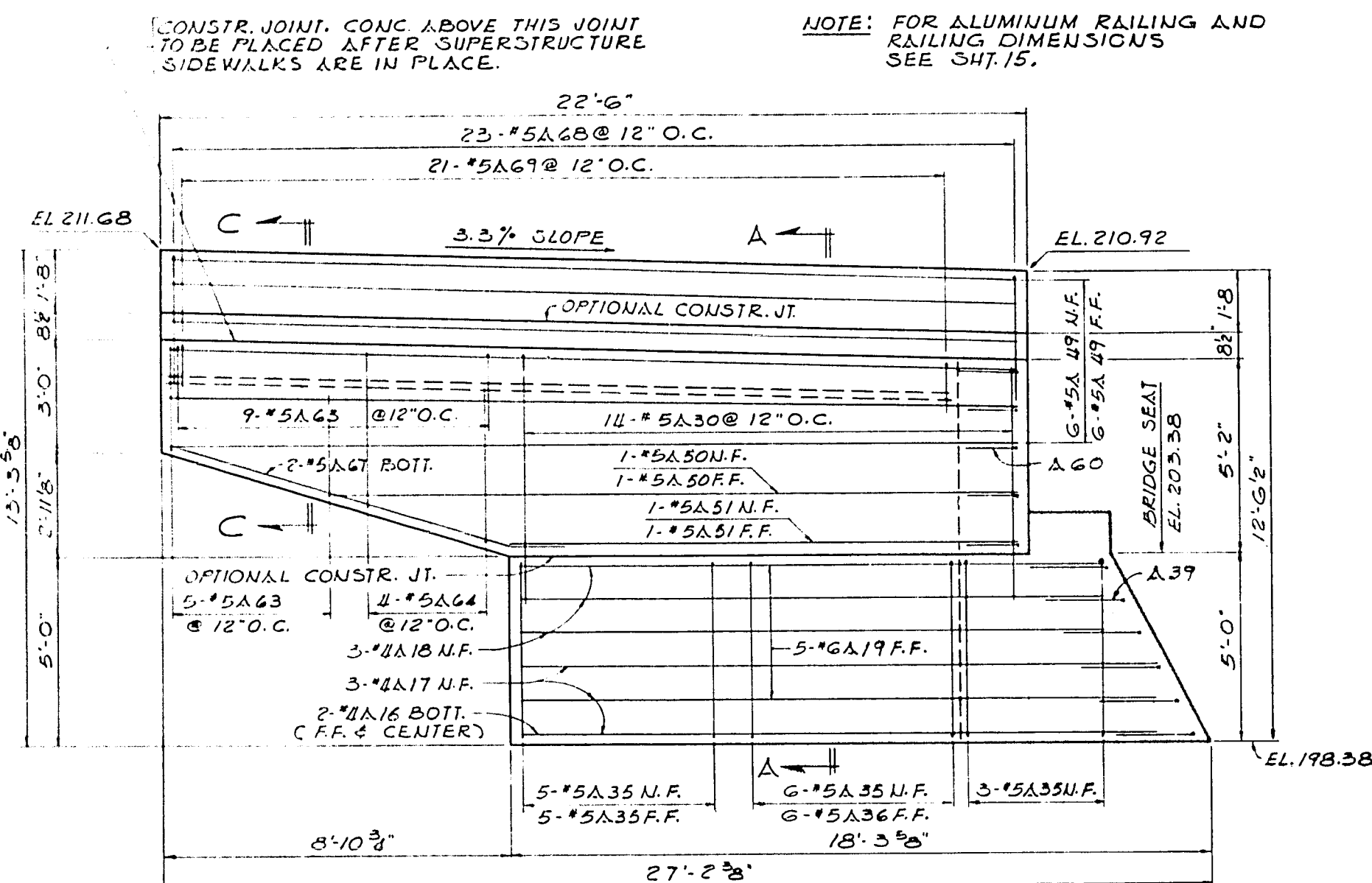
**STATE HIGHWAY COMMISSION
OF WISCONSIN**

**S.T.H. 145 (WEST FOND DU LAC AVENUE)
MILWAUKEE COUNTY**

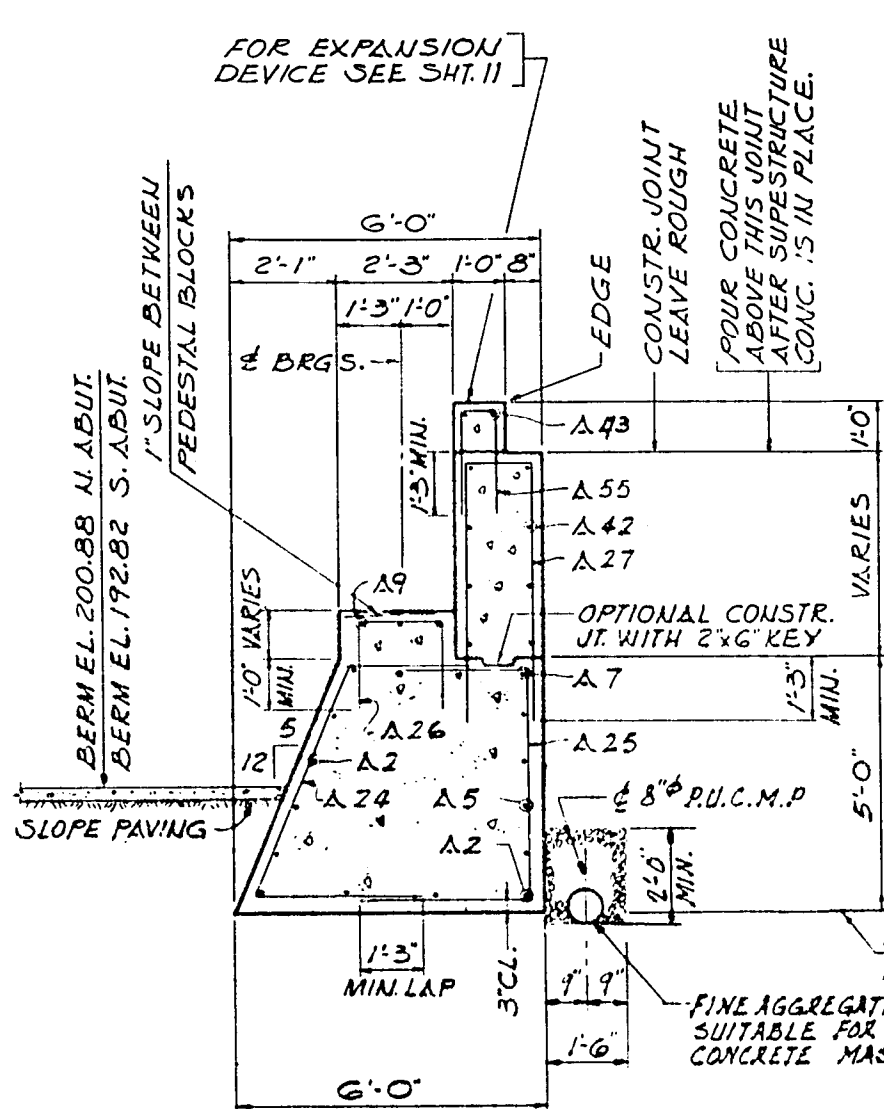
**NORTH 107TH STREET UNDERPASS
STRUCTURE B-40-252**

N. AND S. ABUTMENTS

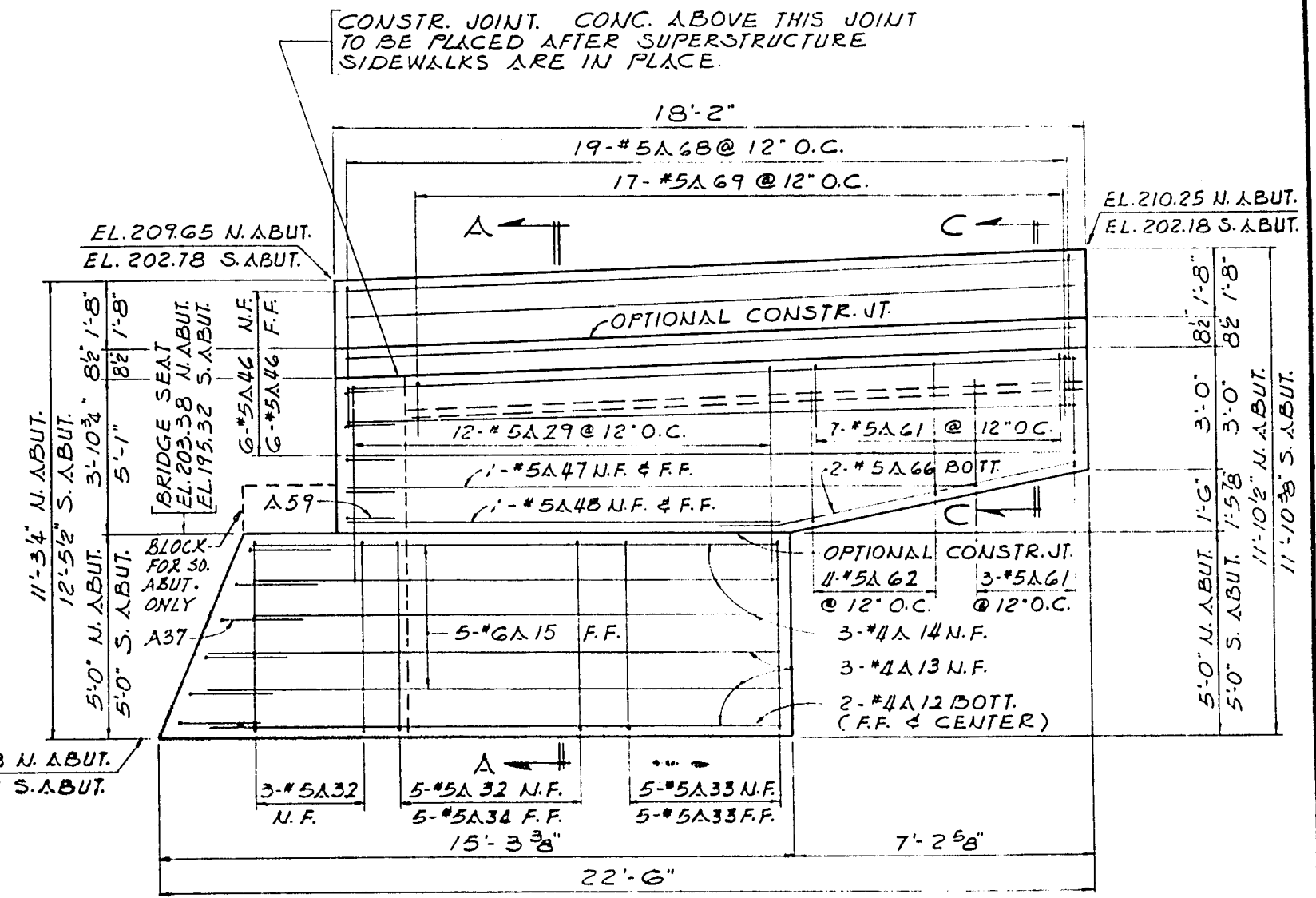
SCALE	<u>1" = 1'-0"</u>	ALFRED BENESCH & COMPANY CONSULTING ENGINEERS 10 S. WABASH AVE. CHICAGO, ILLINOIS DWG. NO. <u>X26196</u> SHEET <u>4 OF 18</u>
DESIGNED	<u>T.O. DATE 5-62</u>	
DRAWN	<u>T.O. DATE 5-62</u>	
CHECKED	<u>DWT. DATE 5-62</u>	



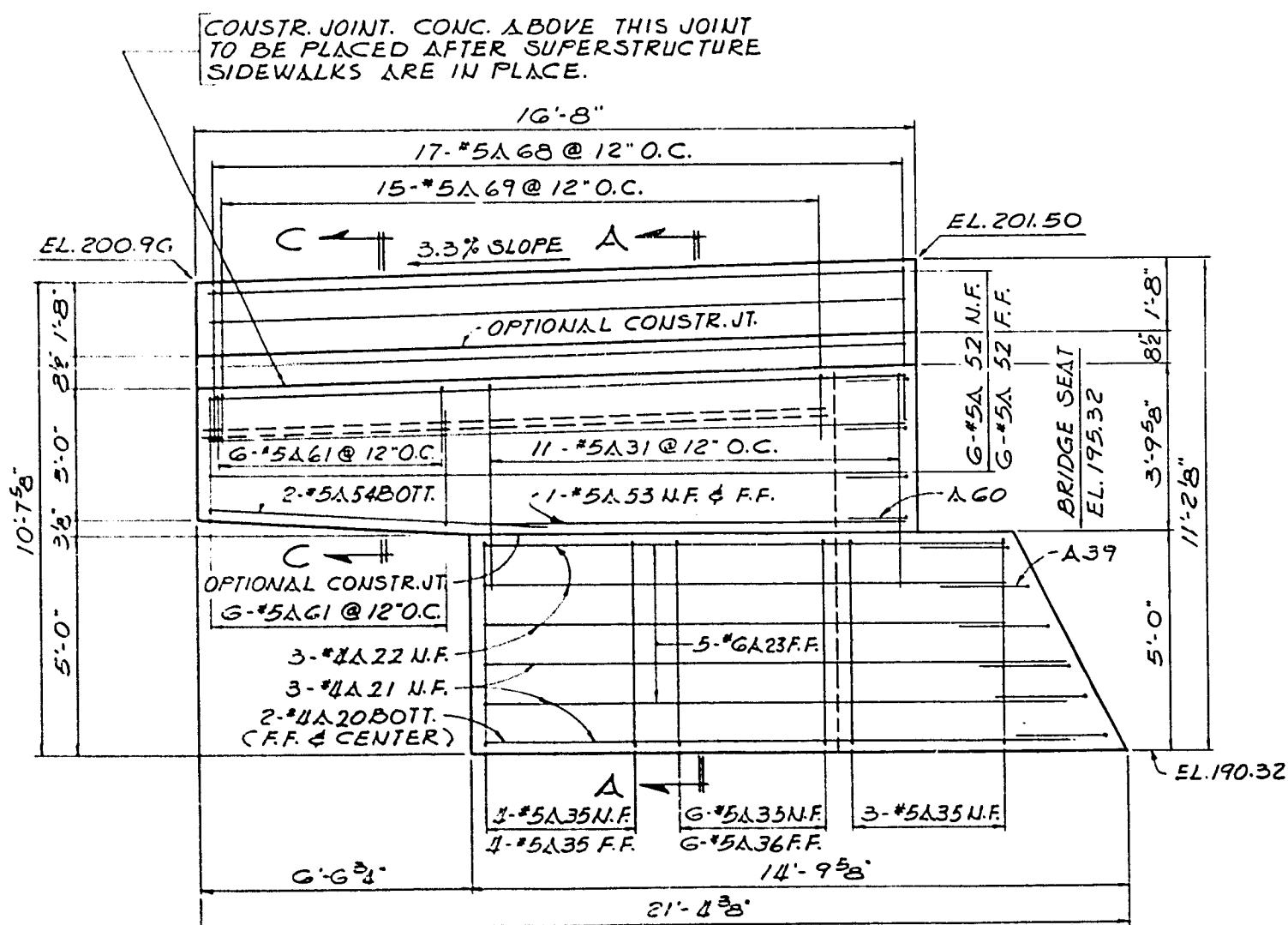
WINGWALL ELEVATION X-X
NORTH ABUTMENT WEST WINGWALL
SCALE: 3/8\"/>



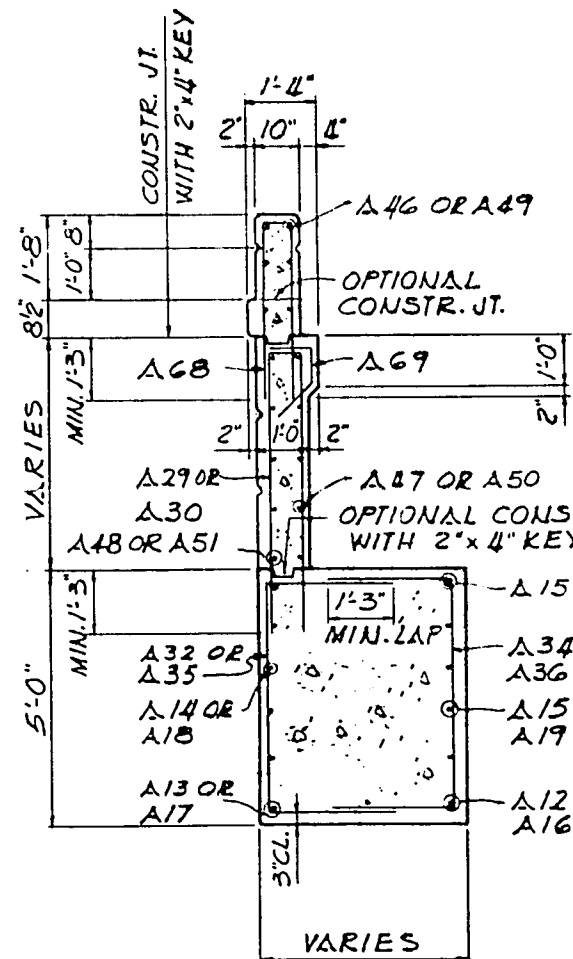
SECTION B-B
SCALE: 3/8\"/>



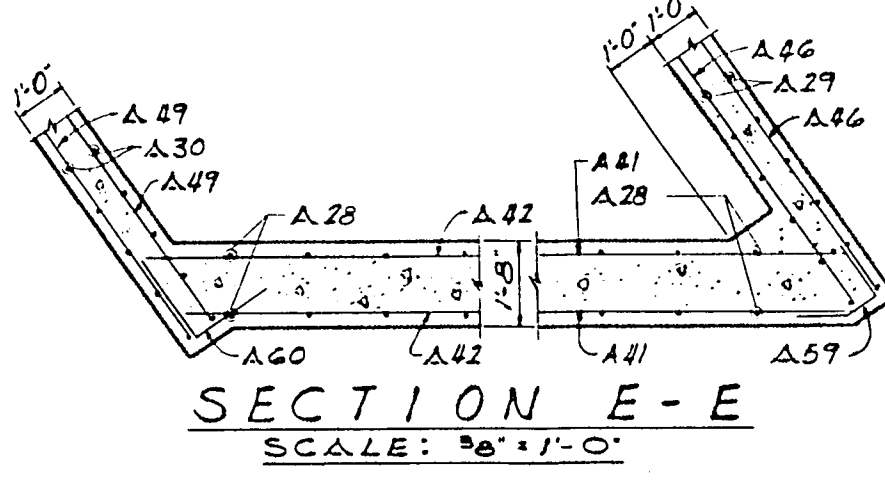
WINGWALL ELEVATION Y-Y
NORTH ABUTMENT EAST WINGWALL SHOWN
SOUTH ABUTMENT WEST WINGWALL SIMILAR
SCALE: 3/8\"/>



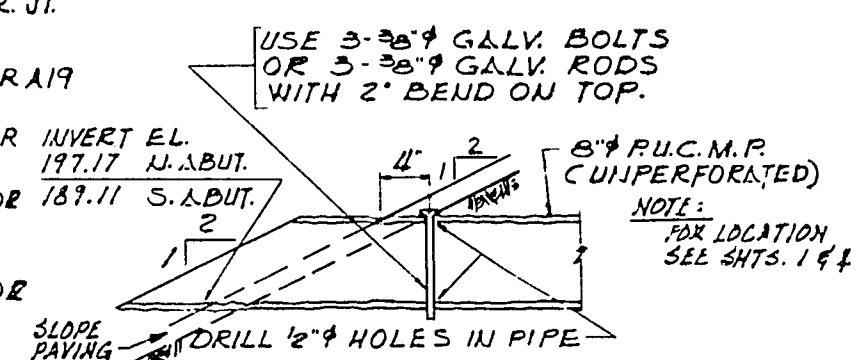
WINGWALL ELEVATION X-X
SOUTH ABUTMENT EAST WINGWALL
SCALE: 3/8\"/>



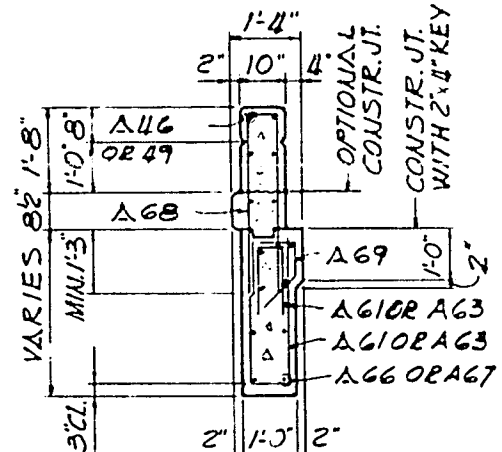
SECTION A-A
SCALE: 3/8\"/>



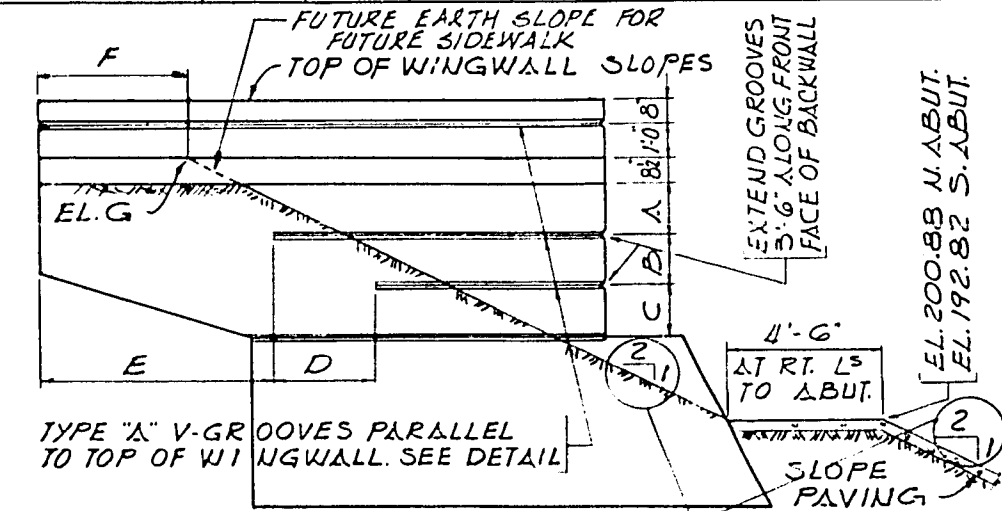
SECTION E-E
SCALE: 3/8\"/>



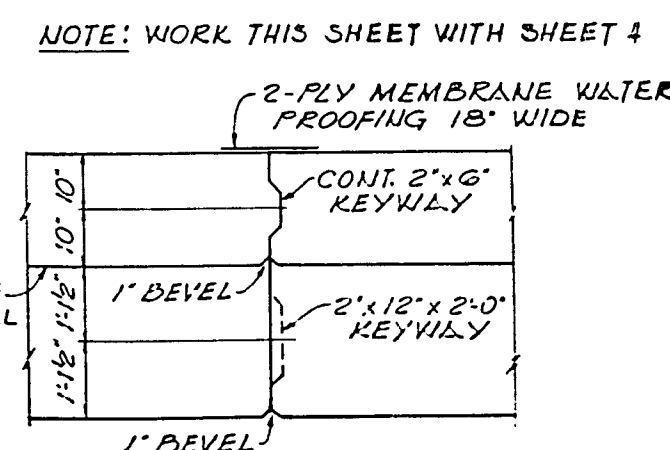
DETAIL OF PIPE OUTLET
FOR 8\"/>



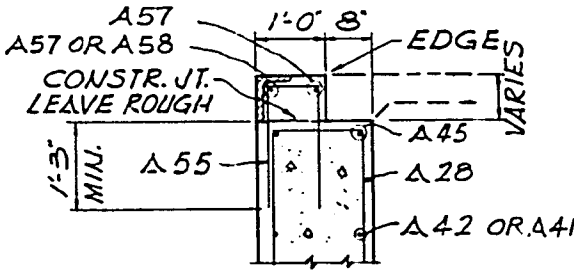
SECTION C-C
SCALE: 3/8\"/>



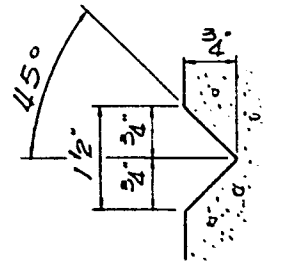
WINGWALL RUSTICATION DETAIL
SCALE: 1/4\"/>



VERTICAL CONSTRUCTION JOINT
SCALE: 1/2\"/>



SECTION D-D
SCALE: 1/2\"/>

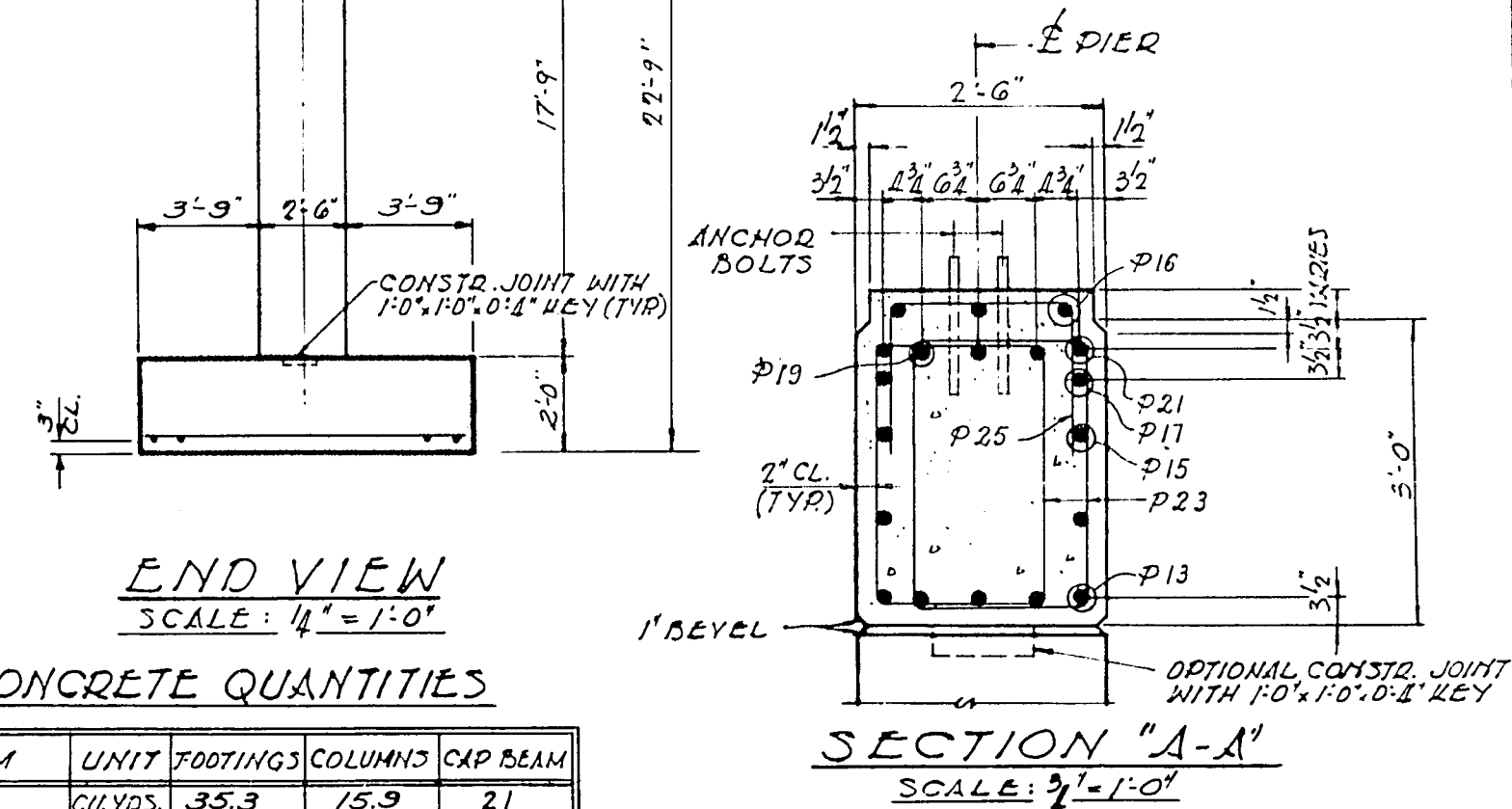
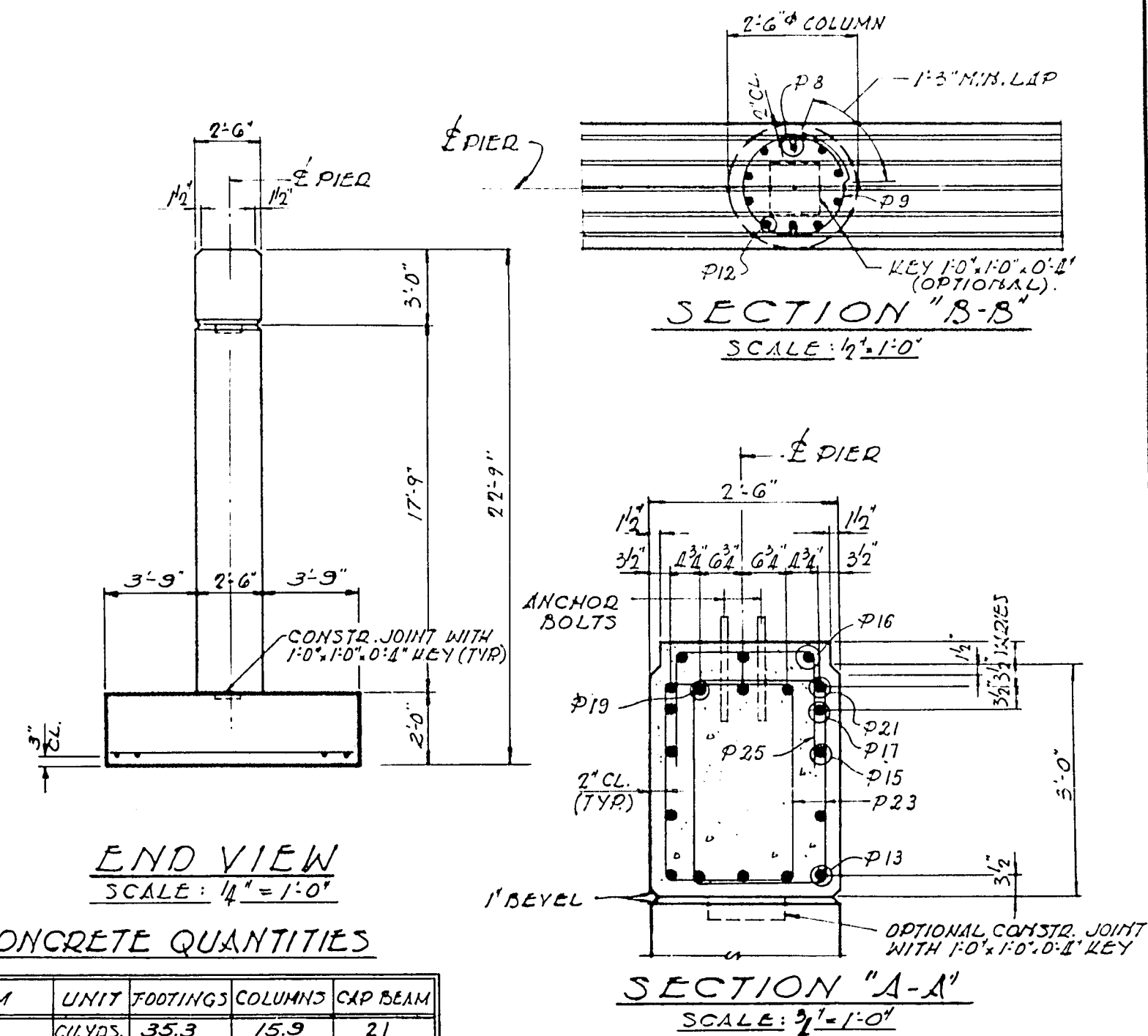
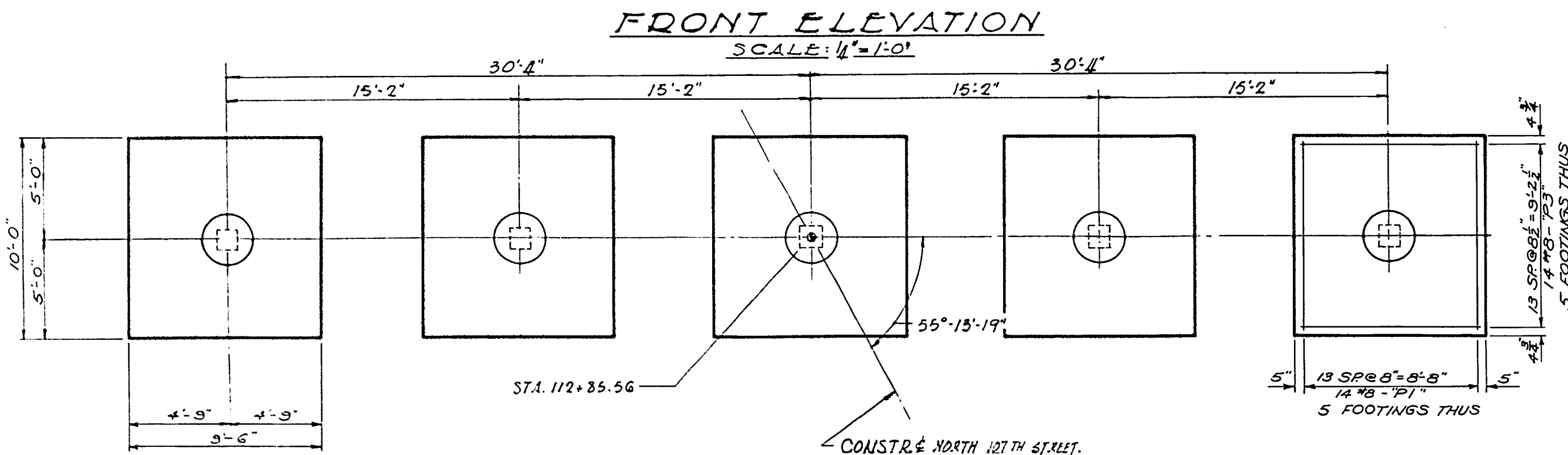
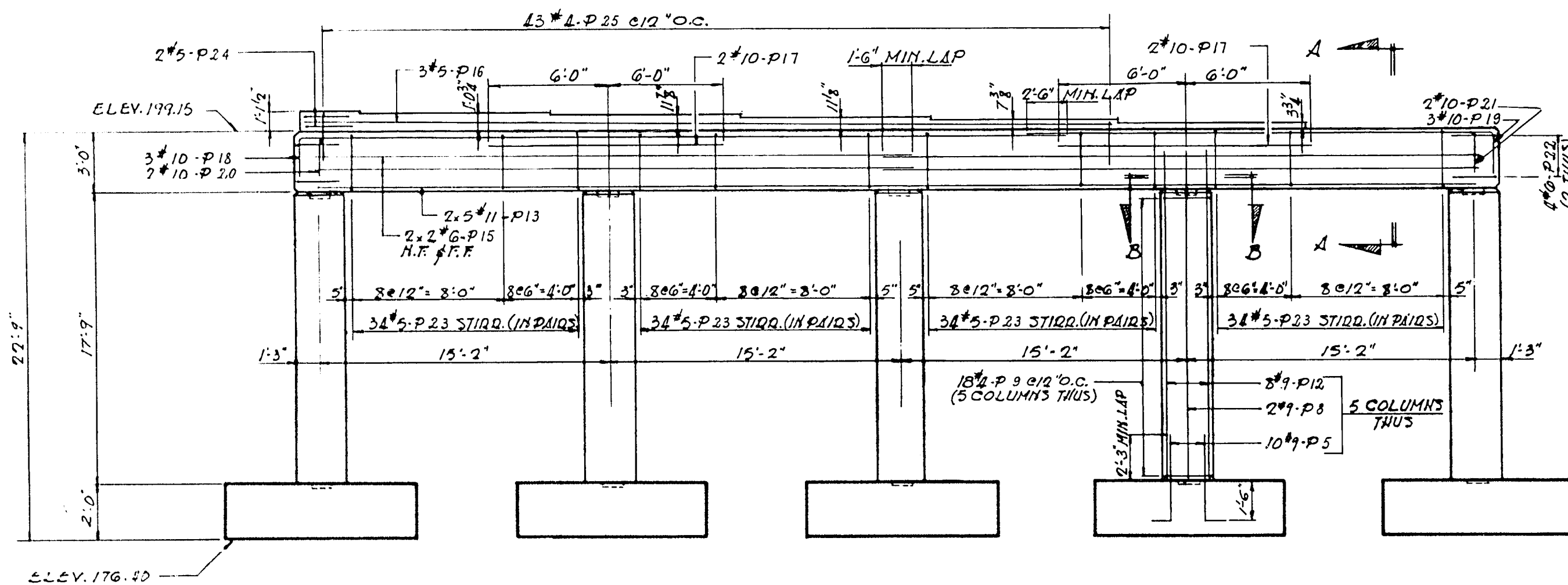
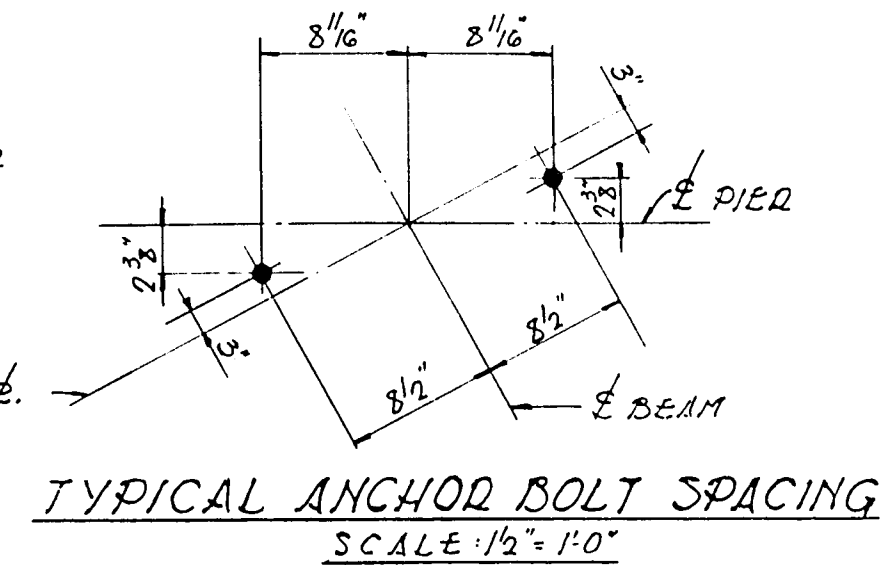
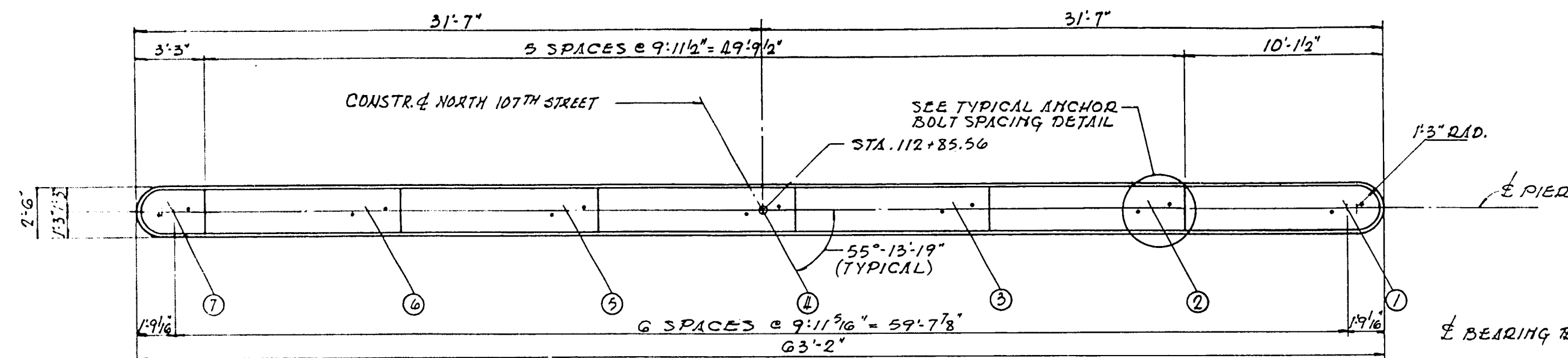


TYP. TYPE 'A' V-GROOVES
RUSTICATION

NOTES: BAR MARKS SHOWN ON SECTIONS 'A' THRU 'E' ARE FOR NORTH ABUTMENT ONLY. FOR ALUMINUM RAILING DETAILS AND RAILING DIMENSIONS SEE SHT. 15

NOTE: WORK THIS SHEET WITH SHEET 4

1	8/13/43	REMOVAL OF PILING	B.W.
NO.	DATE	REVISION	BY
STATE HIGHWAY COMMISSION OF WISCONSIN			
S.T.H. 145 (WEST FOND DU LAC AVENUE) MILWAUKEE COUNTY			
NORTH 107 TH STREET UNDERPASS STRUCTURE B-40-252			
ABUTMENT DETAILS			
SCALE: AS NOTED		ALFRED BENESCH & COMPANY CONSULTING ENGINEERS	
DESIGNED: J.O. DATE: 5-62		105 WABASH AVE. CHICAGO, ILLINOIS	
DRAWN: J.O. DATE: 5-62		DRG. NO. X26197 SHEET 5 OF 18	
CHECKED: D.V.R. DATE: 5-62			



CONCRETE QUANTITIES

ITEM	UNIT	FOOTINGS	COLUMNS	CAP BEAM
DIER 2	CU.YDS.	35.3	15.9	21

NOTES:
ADJUST STIRRUP SPACING TO AVOID INTERFERENCE
WITH DRILLING OF HOLES FOR ANCHOR BOLTS.
BEARING BLOCKS TO BE POURED MONOLITHICALLY
WITH CAP BEAM.
N.F. & F.F. INDICATE NEAR FACE AND FAR FACE RESPECTIVELY
FOR REINFORCEMENT BAR LISTS SEE SHEET 17.

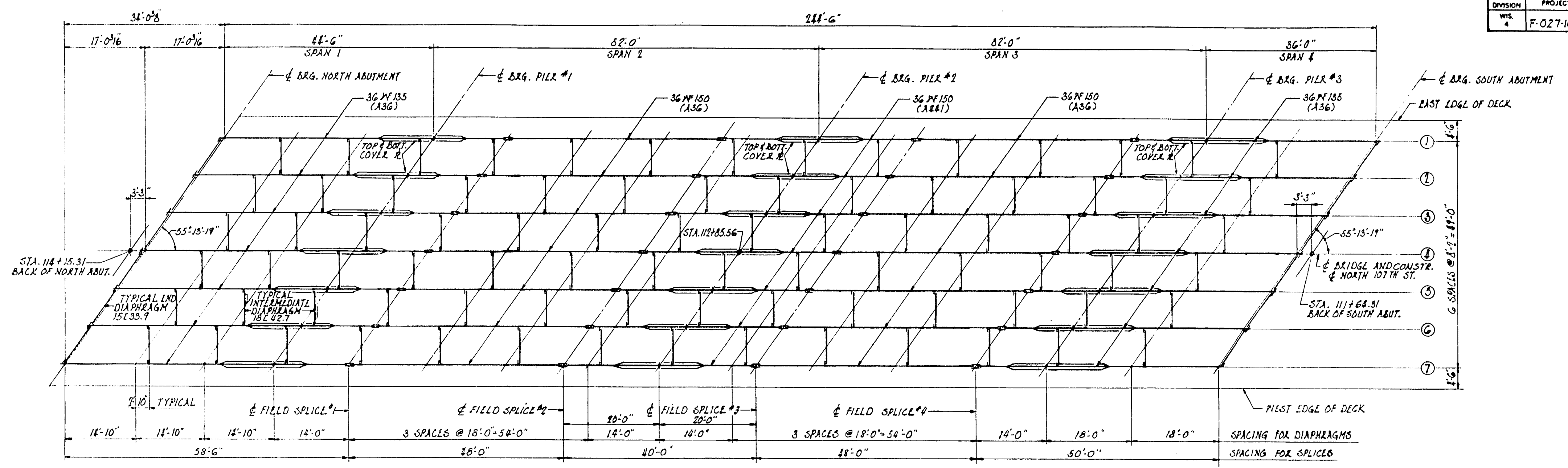
1	8-14-63	FOOTINGS & PILING(REMOVAL)	BW
NO.	DATE	REVISION	BY

STATE HIGHWAY COMMISSION
OF WISCONSIN

S.T.H. 145 (WEST FOND DU LAC AVENUE)
MILWAUKEE COUNTY

NORTH 107TH STREET UNDERPASS
STRUCTURE B-40-252
PIER 2

SCALE AS NOTED ALFRED BENESCH & COMPANY
DESIGNED C.C. DATE 4-62 CONSULTING ENGINEERS
DRAWN C.S. DATE 5-62
CHECKED J.S. DATE 5-62 10 S. WABASH AVE. CHICAGO, ILLINOIS
DWG. No. X20199 SHEET 7 OF 18



STRUCTURAL STEEL FRAMING PLAN
SCALE: 3/32" = 1'-0"

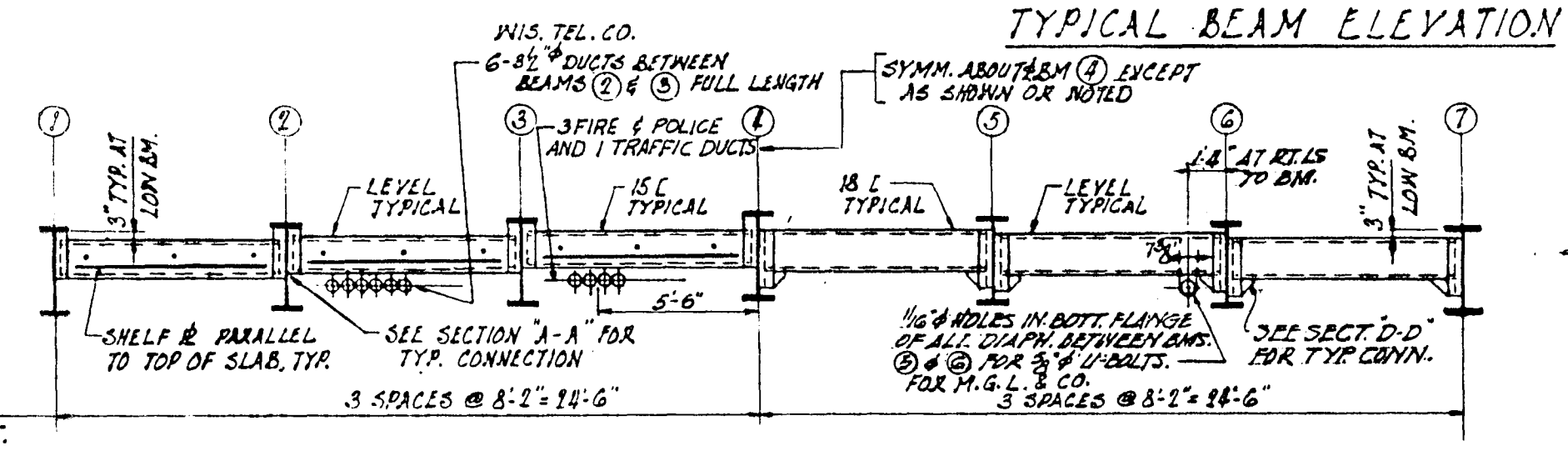
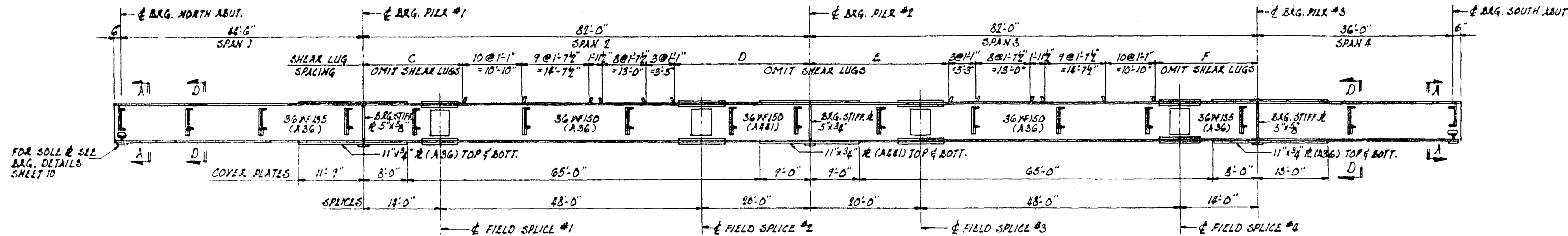
TOP OF BEAM ELEVATIONS* (UNDEFLECTED BEAMS)
FOR FABRICATION ONLY

BEAMS LOCATION	1	2	3	4	5	6	7
CL BRG. N. ABUT.	206.700	207.010	207.319	207.629	207.694	207.758	207.823
CL PIER #1	205.232	205.541	205.851	206.160	206.225	206.290	206.354
CL SPLICE #1	204.782	205.091	205.401	205.710	205.775	205.840	205.904
CL SPLICE #2	203.198	203.507	203.817	204.126	204.191	204.256	204.320
CL PIER #2	202.538	202.847	203.157	203.466	203.531	203.596	203.660
CL SPLICE #3	201.878	202.187	202.497	202.806	202.871	202.936	203.000
CL SPLICE #4	200.294	200.603	200.913	201.222	201.287	201.352	201.416
CL PIER #3	199.820	200.129	200.439	200.748	200.813	200.878	200.942
CL BRG. S. ABUT.	198.632	198.941	199.251	199.560	199.625	199.690	199.754

NOTE: ELEVATIONS ARE BASED ON A DIMENSION OF 1 5/8" MINUS THE FLANGE THICKNESS FROM THE THEORETICAL TOP OF SLAB AT THE CL OF BEARINGS OF ABUTMENTS, CL OF PIERS AND CL OF SPLICES. THE TOP FLANGES ARE CONSIDERED A STRAIGHT LINE BETWEEN THESE POINTS.
* COVER PLATES AND FLANGE SPICE PLATES NOT INCLUDED.
FLANGE OF HEAVIER BEAMS USED AT SPLICES.

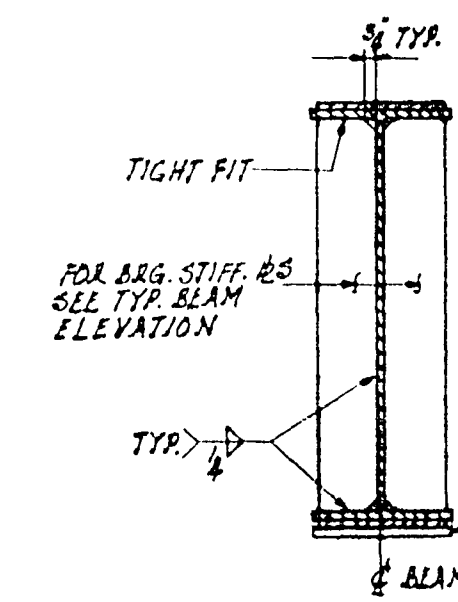
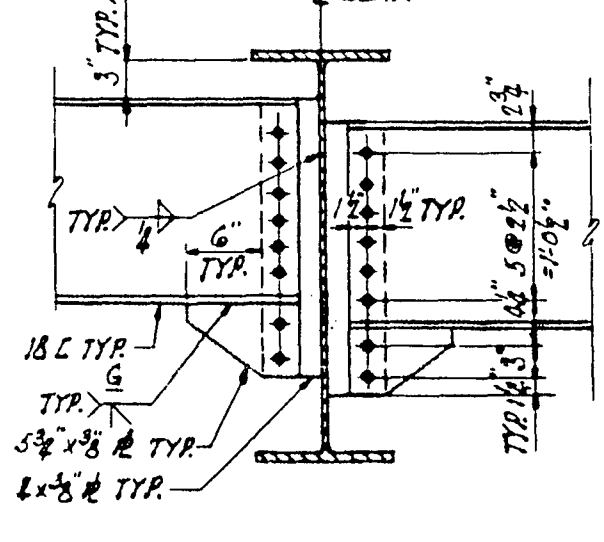
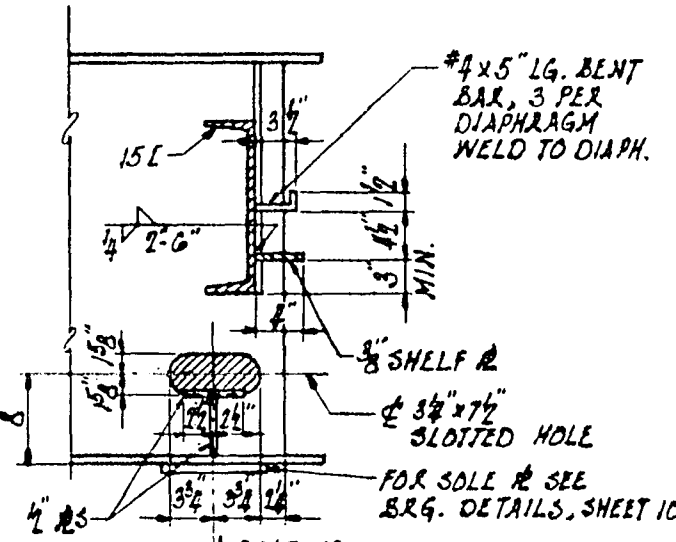
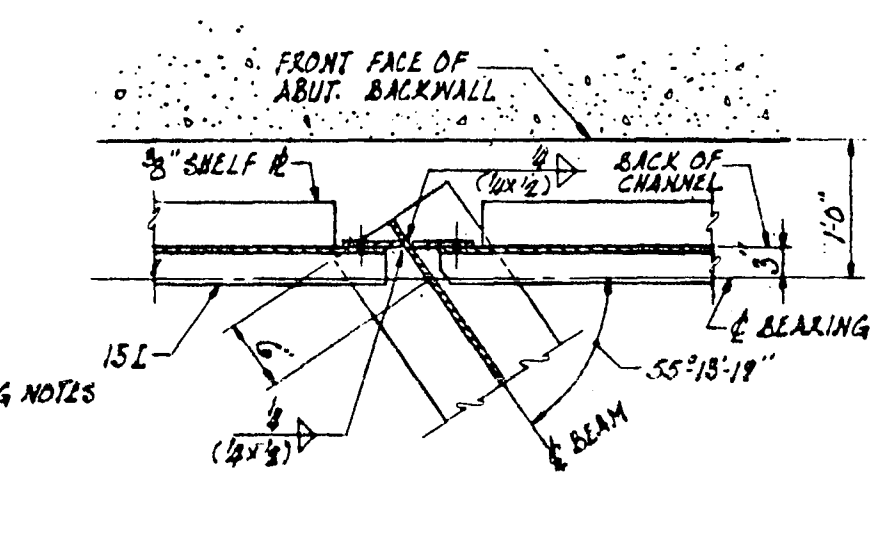
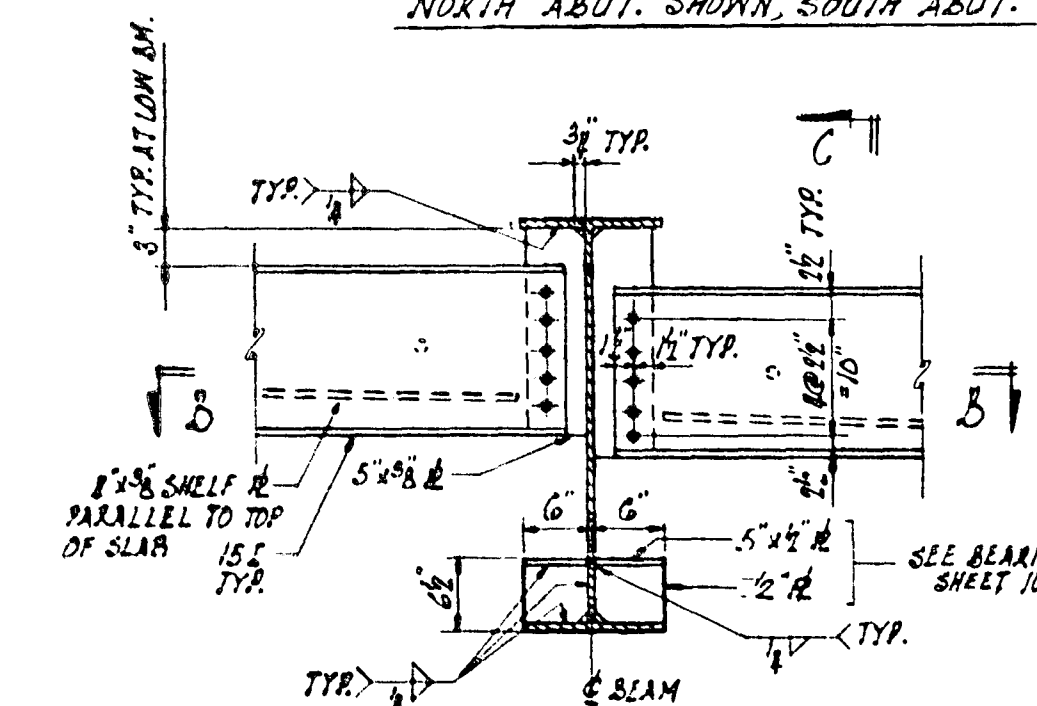
NOTES:
DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL.
FOR ELEVATION OF BEAM AND DIAPHRAGMS AND
DETAILS OF BEAMS AND DIAPHRAGMS, SEE SHEET 9
FOR BEARINGS AND SHEAR LUG DETAILS SEE SHEET 10
FOR EXPANSION DEVICE DETAILS, SEE SHEET 11

NO.	DATE	REVISION	BY
STATE HIGHWAY COMMISSION OF WISCONSIN			
S.T.H. 145 (WEST FOND DU LAC AVENUE) MILWAUKEE COUNTY			
NORTH 107TH STREET UNDERPASS STRUCTURE B-40-252			
STRUCTURAL STEEL FRAMING PLAN			
SCALE: 3/32" = 1'-0"		ALFRED BENESCH & COMPANY CONSULTING ENGINEERS	
DESIGNED: JMM DATE: 4-62		10 S. WABASH AVE. CHICAGO, ILLINOIS	
DRAWN: P.C. DATE: 4-62		DWD. NO. X26200 SHEET 8 OF 18	
CHECKED: G.D. DATE: 4-62			



SHEAR LUG SPACING

DIMENSIONS BEAMS	C	D	E	F
1	16'-0"	22'-3 1/2"	22'-4"	16'-0"
2	16'-3 1/2"	22'-0"	22'-7"	15'-9"
3	16'-0"	22'-4"	22'-3 1/2"	16'-0 1/2"
4	16'-3"	22'-1"	22'-6 1/2"	15'-7 1/2"
5	15'-11 1/4"	22'-4 1/2"	22'-3"	16'-1"
6	16'-2 1/2"	22'-1 1/2"	22'-6"	15'-10"
7	15'-11"	22'-5"	22'-2 1/2"	16'-1 1/2"

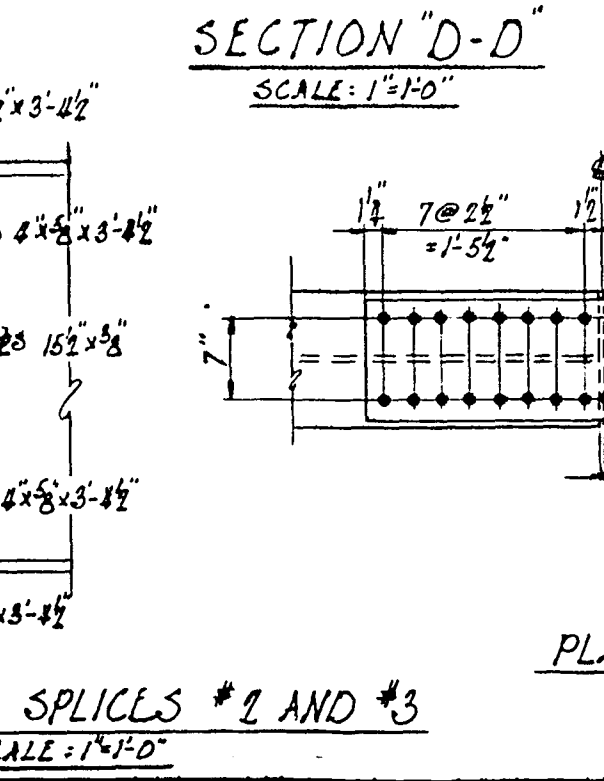
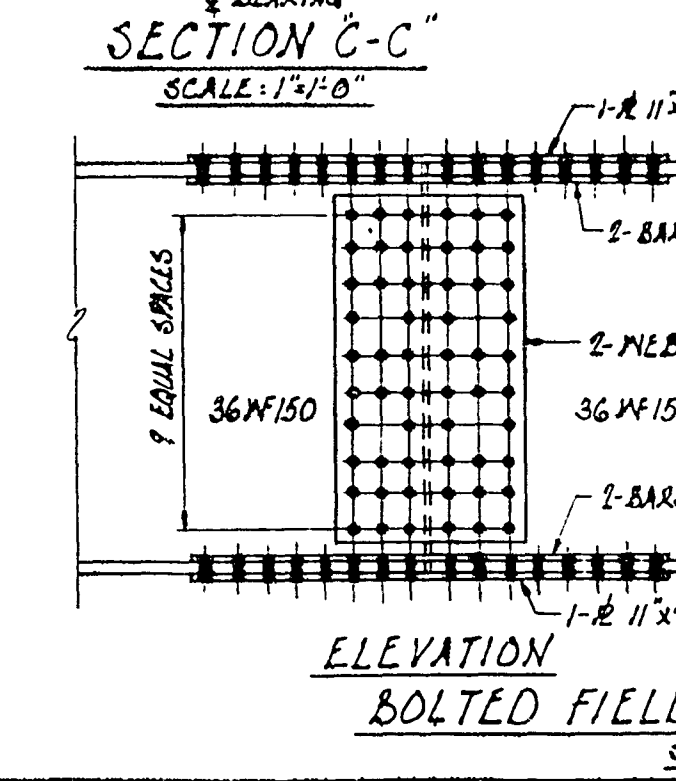
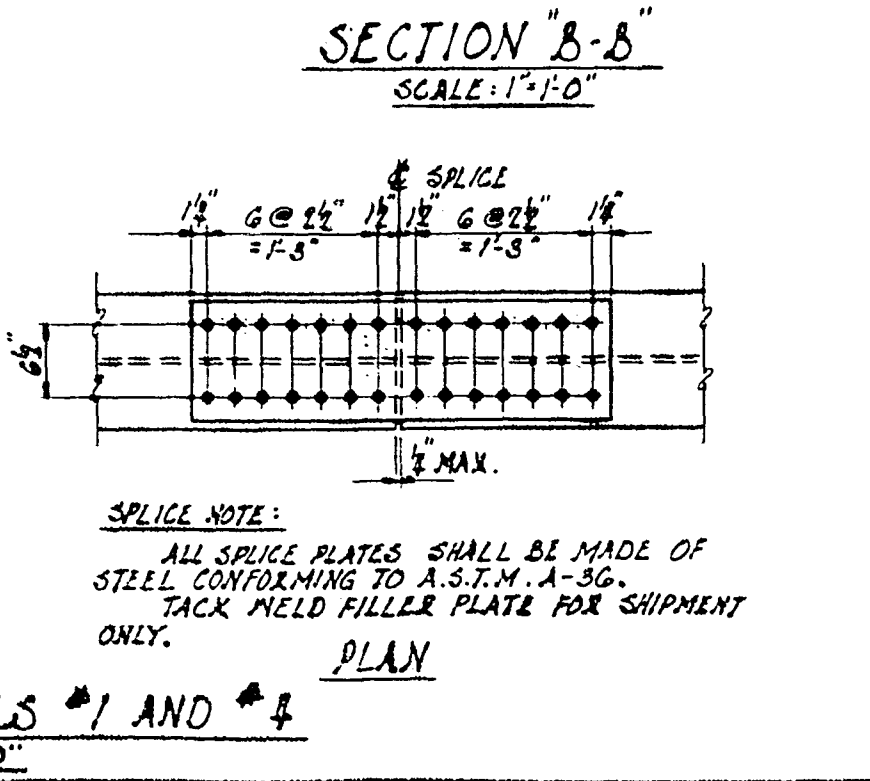
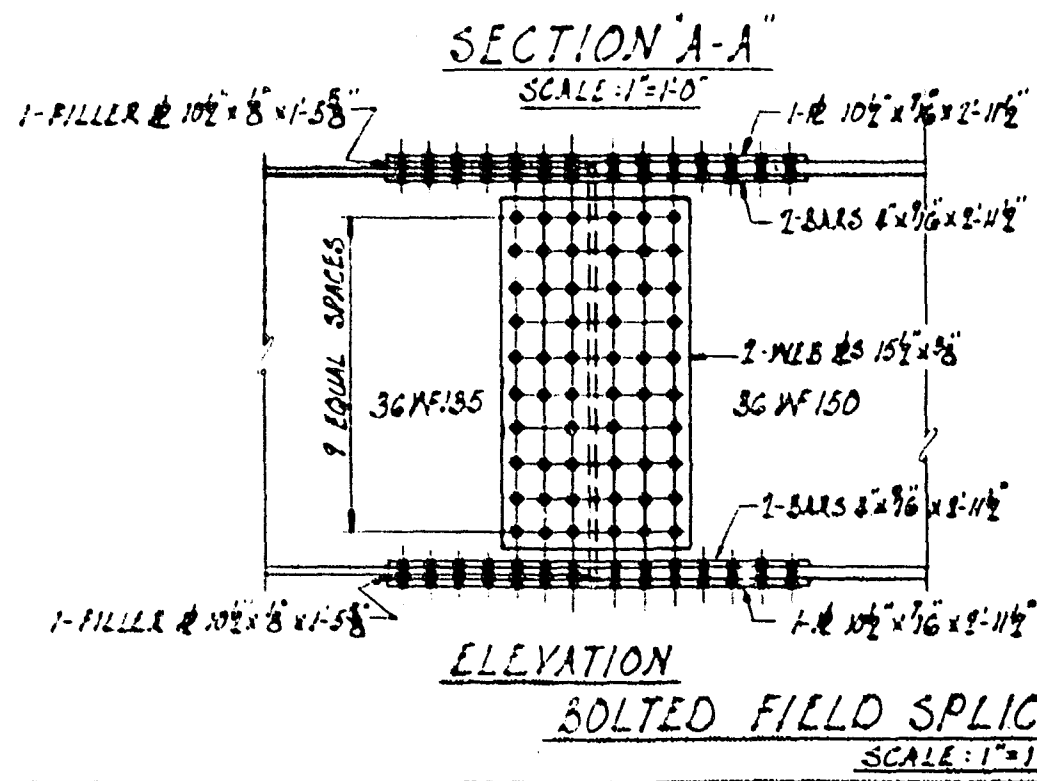


NOTES:

FOR FRAMING PLAN, SEE SHEET 8

FOR BEARING DETAILS & SHEAR LUG DETAIL, SEE SHEET 10

LONGITUDINAL AND TRANSVERSE DIMENSIONS SHOWN ARE HORIZONTAL



NO.	DATE	REVISION	BY

STATE HIGHWAY COMMISSION OF WISCONSIN

S.T.H. 145 (WEST FOND DU LAC AVENUE) MILWAUKEE COUNTY

NORTH 107TH STREET UNDERPASS STRUCTURE B-40-252 STEEL DETAILS

SCALE: AS NOTED

DESIGNED: J.M. DATE 4-62

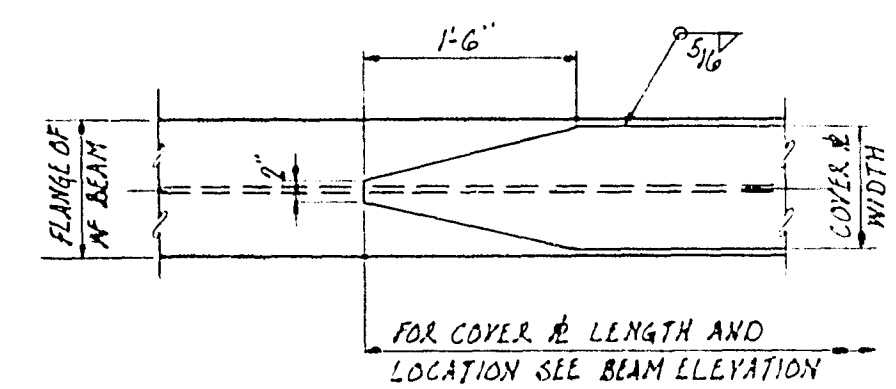
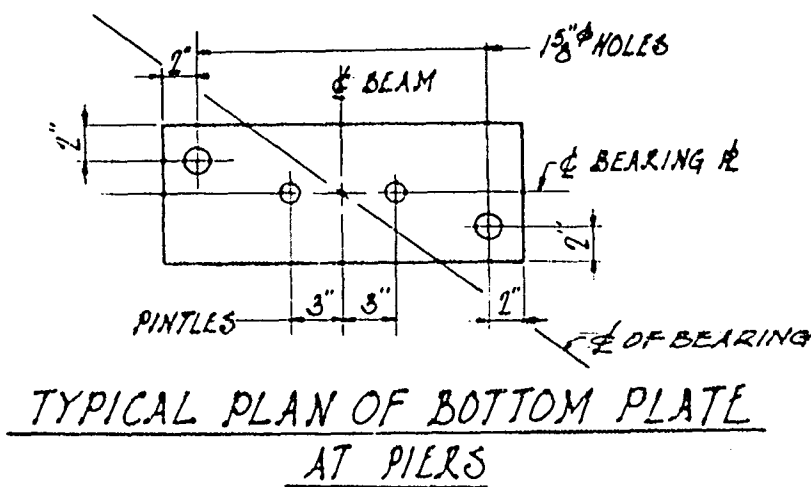
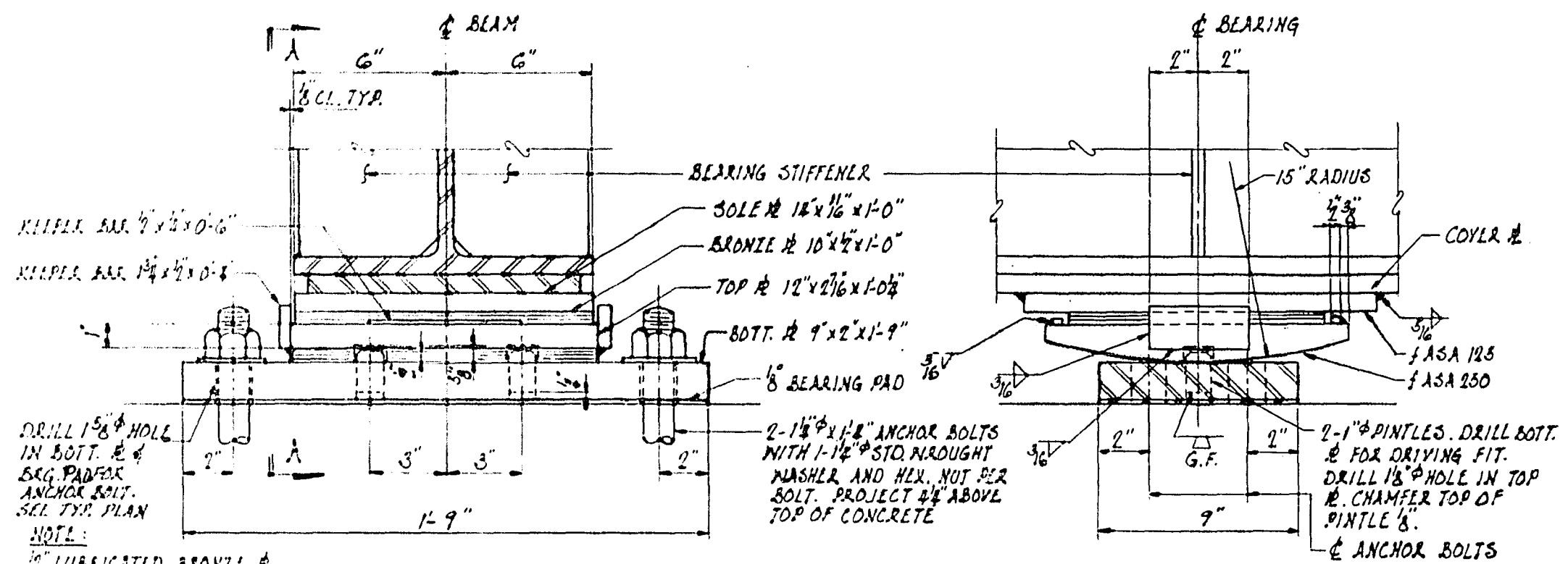
DRAWN: P.C. DATE 4-62

CHECKED: G.D. DATE 4-62

ALFRED BENESCH & COMPANY CONSULTING ENGINEERS

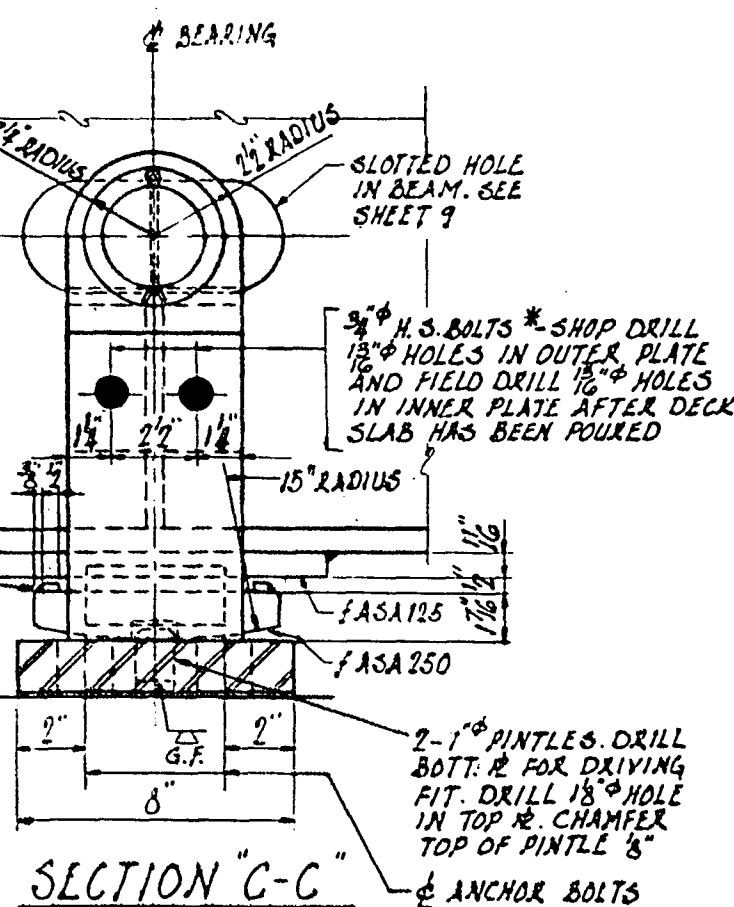
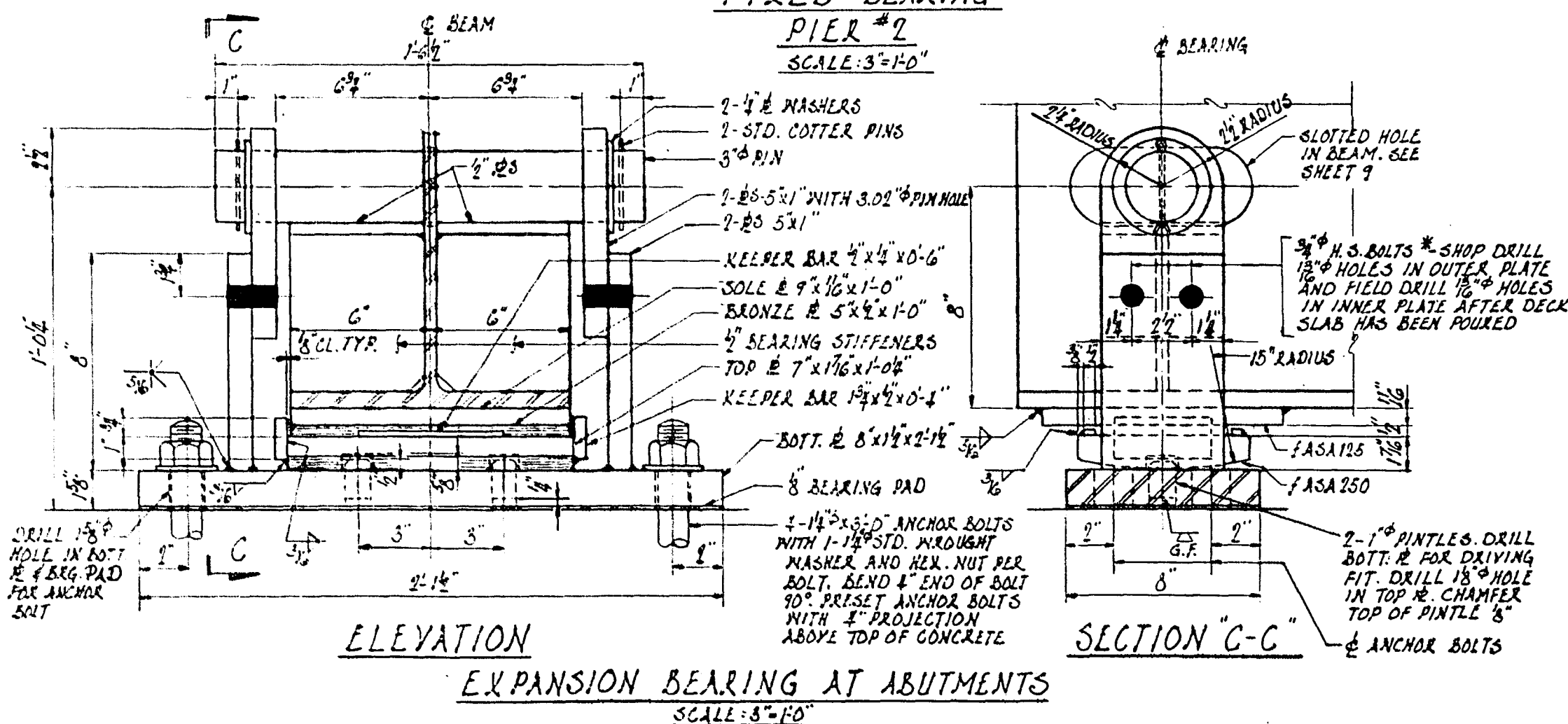
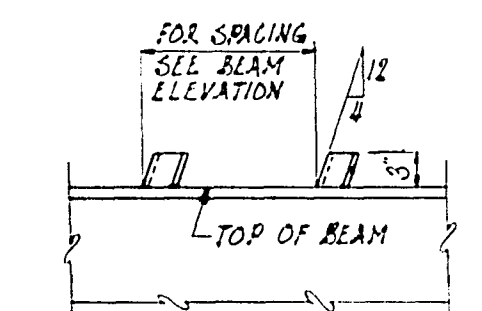
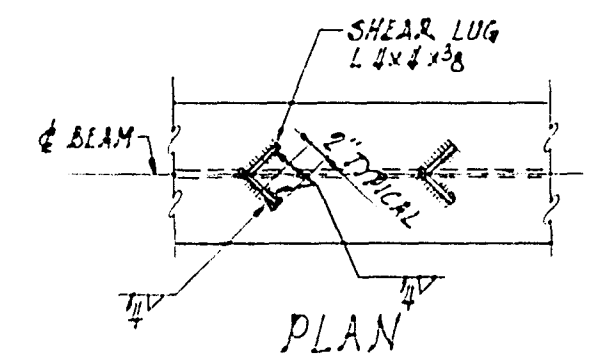
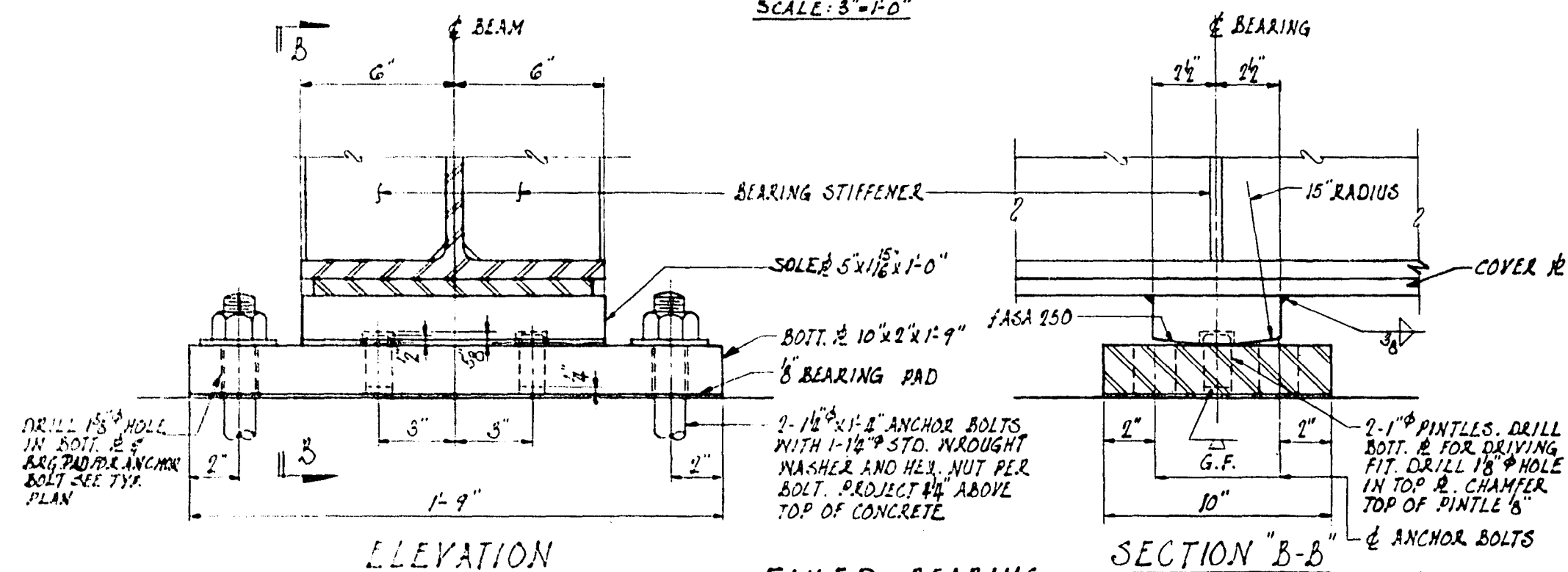
10 S. WABASH AVE. CHICAGO, ILLINOIS

BRG. NO. X26201 SHEET 9 OF 18



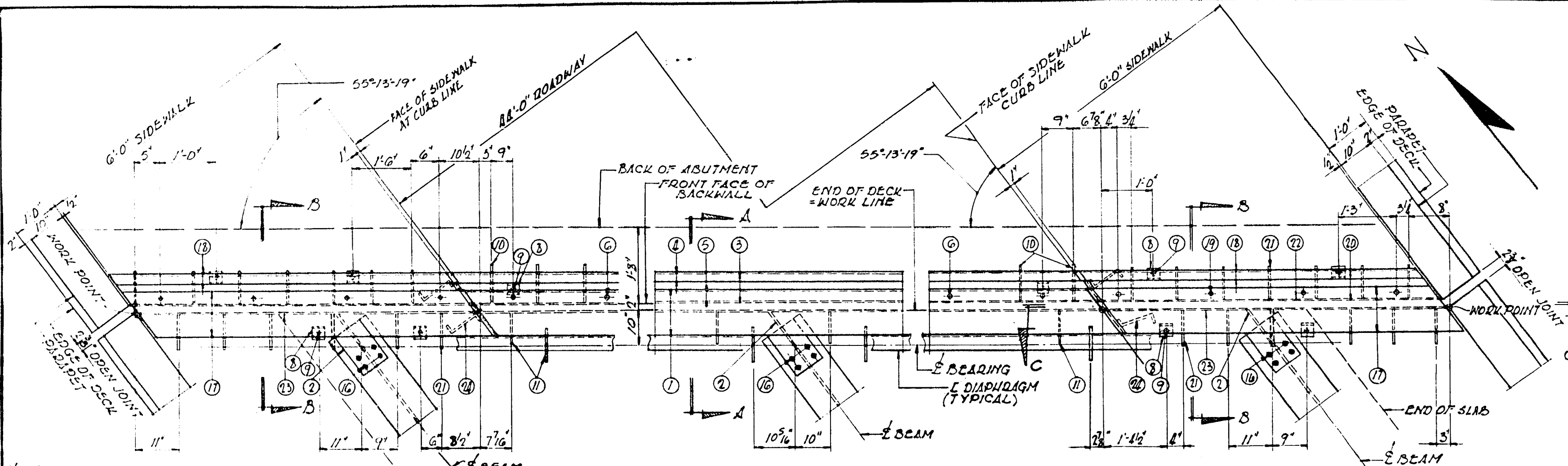
BLARING NOTES:

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND EDGES SMOOTH, STRAIGHT AND VERTICAL.
ALL PLATE CUTS SHALL BE MACHINED OR MACHINE FLAME CUT.
ALL SURFACES MARKED F SHALL BE MACHINE FINISHED.
ANCHOR BOLTS SHALL BE THREADED 3".
ALL MATERIALS EXCEPT ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE MADE OF COR-TEN, MAYXRI R, OR OTHER STEEL OF EQUAL CORROSIVE RESISTANCE. THE KEEPER BARS AND PINTLE MAY BE MADE OF COPPER BEARING STEEL OR STEEL CONFORMING TO A.S.T.M. A441. THE TOP 1/2" OF THE ANCHOR BOLTS, AND THE WASHERS AND NUTS SHALL BE GALVANIZED.
ALL MATERIALS IN THE BEARINGS EXCEPT LUBRICATED BRONZE PLATES AND BEARING PADS SHALL BE PAID FOR AT THE UNIT BID PRICE FOR STRUCTURAL LOW ALLOY STEEL.
* PLACE 3/4" HIGH STRENGTH BOLTS AFTER DECK SLAB HAS BEEN POURED.
HOLD DOWN DEVICE MATERIALS SHALL BE CORROSIVE RESISTANT MATERIALS.

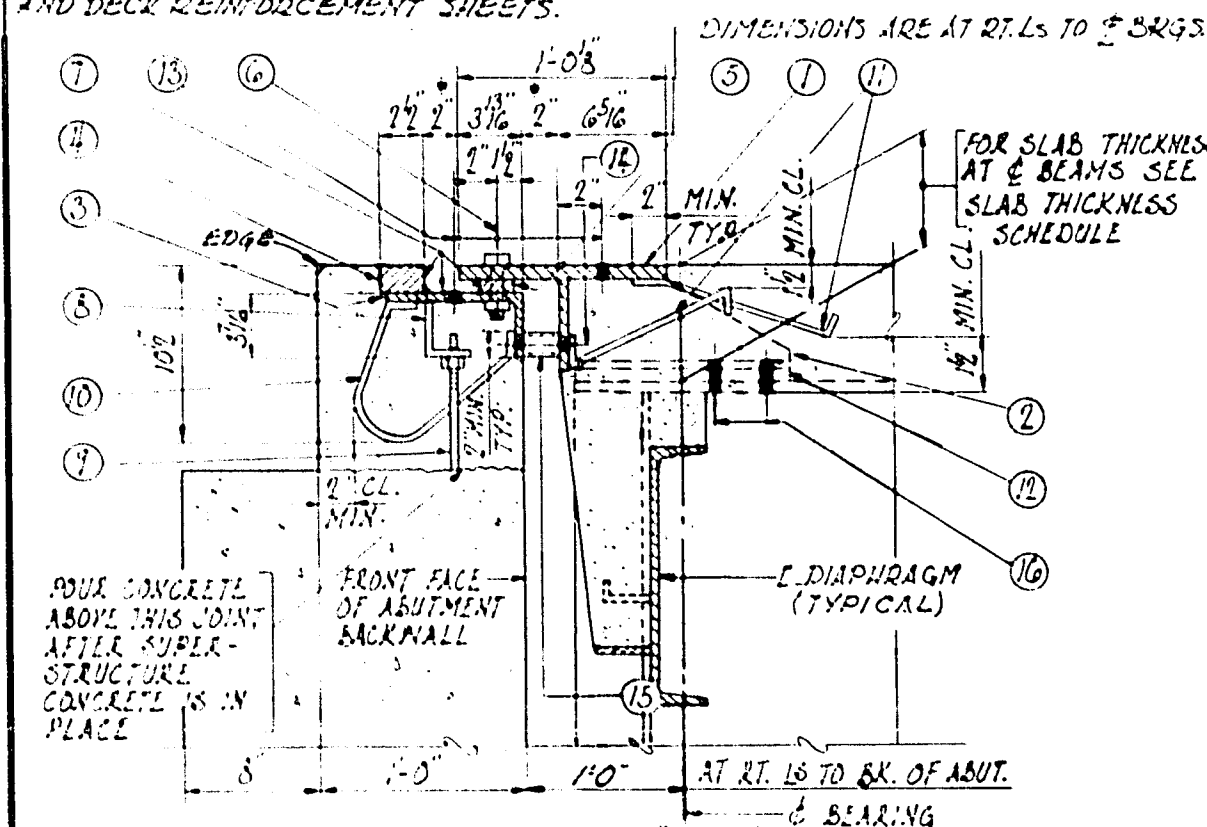


NOTES:
FOR FRAMING PLAN, SEE SHEET 8
FOR BEAM ELEVATION AND DETAILS, SEE SHEET 9

NO.	DATE	REVISION			BY
STATE HIGHWAY COMMISSION OF WISCONSIN S.T.H. 145 (WEST FOND DU LAC AVENUE) MILWAUKEE COUNTY NORTH 107TH STREET UNDERPASS STRUCTURE B-40-252 BEARINGS AND STEEL DETAILS					
SCALE:	<u>AS NOTED</u>		ALFRED BENESCH & COMPANY		
DESIGNED:	<u>H.H. DATE 3-6-62</u>		CONSULTING ENGINEERS		
DRAWN:	<u>R.C. DATE 3-6-62</u>		10 S. WABASH AVE. CHICAGO, ILLINOIS		
CHECKED:	<u>J.M.H. DATE 3-6-62</u>		<u>ENC. NO. X26202</u> SHEET 10 OF 18		

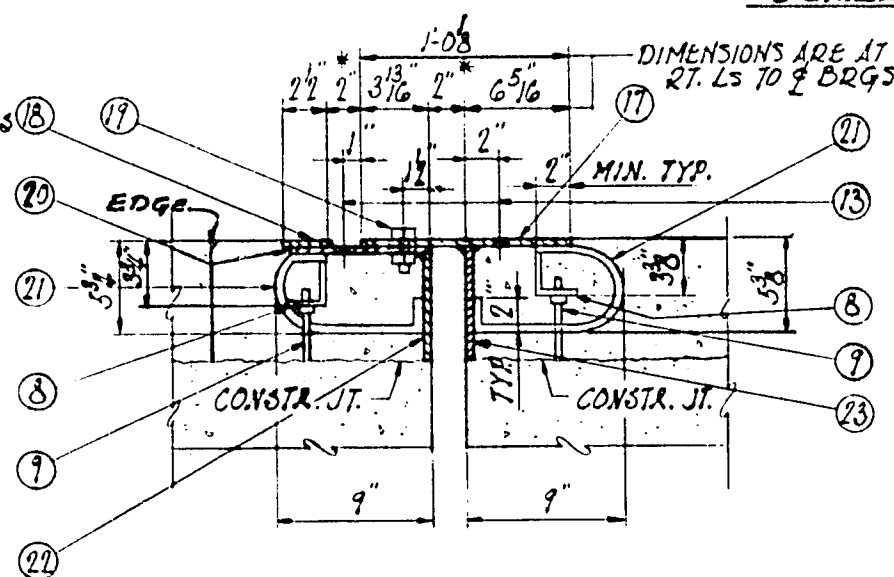


NOTE: FOR ADDITIONAL DIMENSIONS AND BEAM SPACING SEE ABUTMENTS, FRAMING PLAN AND DECK REINFORCEMENT SHEETS.



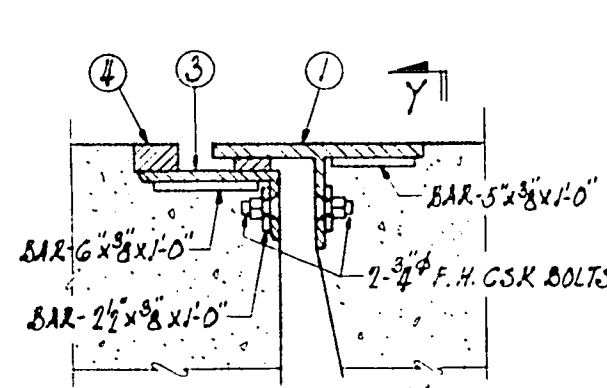
SECTION "A-A"
SCALE: 1/4" = 1'-0"

TYPICAL PART PLAN OF EXPANSION DEVICE AT N. ABUTMENT
EXPANSION DEVICE AT S. ABUTMENT SIMILAR BY 180° ROTATION
SCALE: 3/4" = 1'-0"

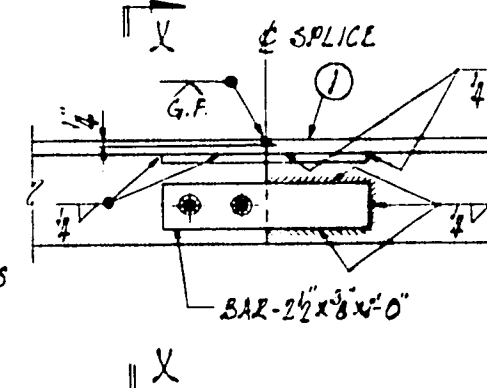


SECTION "B-B"
SCALE: 1/4" = 1'-0"

* AT RIGHT ANGLE TO BACK OF ABUTMENT AT 60° F

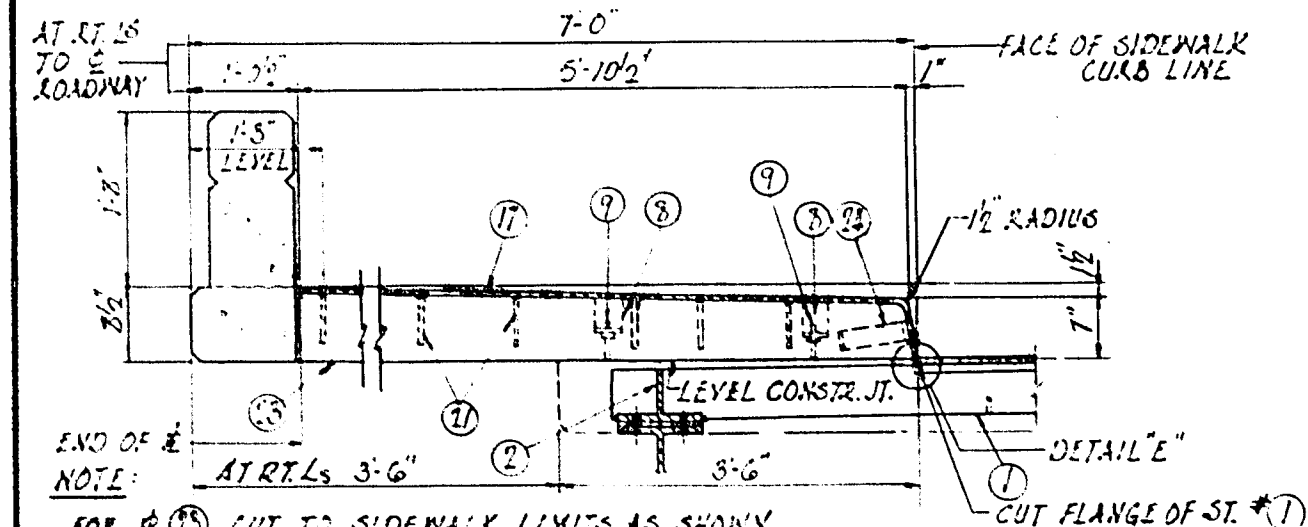


SECTION "X-X"

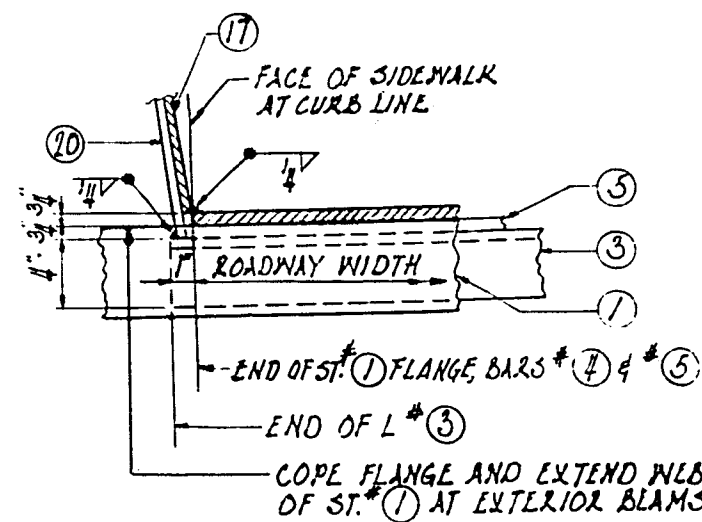


VIEW "Y-Y"

FIELD SPLICE DETAIL
SCALE: 1/2" = 1'-0"



SECTION "C-C"
SCALE: 3/4" = 1'-0"



DETAIL "E"
SCALE: 1/4" = 1'-0"

LEGEND

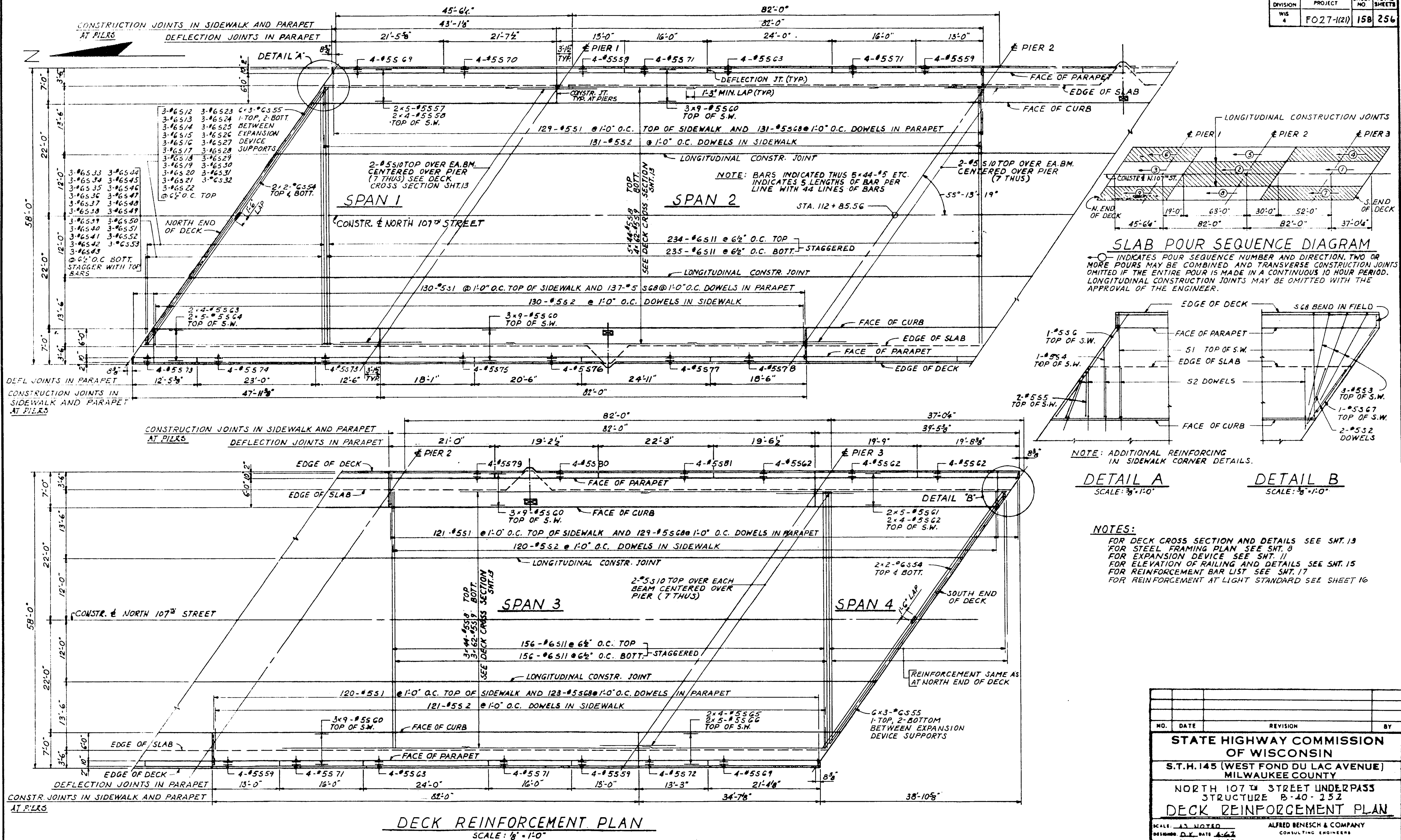
- #(1) ST. 6 WP 39.5
- (2) PC ST. 5 WP 27.0 WELD TO STEM AND FLANGE OF ST. #1 WITH 2 LINES OF 1/4" CONT. FILLET WELDS.
- #(3) 2" X 1/2" X 7/16"
- #(4) BAR 2-1/2" X 3/4" WELD TO #3 WITH 2 LINES OF 1/4" FILLET WELDS.
- #(5) BAR 2" X 3/4" WELD TO #3 WITH 2 LINES OF 1/4" FILLET WELDS.
- (6) 3/4" BOLT WITH SQUARE HEAD @ 2'-0" O.C. GREASE FOR EASY REMOVAL. 13/16" X 1-3/4" SLOTTED HOLE IN ST. #1. LONG DIMENSION OF SLOTTED HOLE PARALLEL TO ROADWAY. 13/16" HOLES IN #3 AND BAR #5. TACK WELD SQUARE NUT TO #3. AFTER CONCRETE HAS SET, REMOVE BOLTS AND FILL HOLES WITH HOT POURED ELASTIC TYPE JOINT SEALER. APPLY 1/16" COAT OF BITUMASTIC TO THIS SURFACE. AFTER CONCRETE HAS SET, FILL JOINT WITH HOT POURED ELASTIC TYPE JOINT SEALER.
- (8) 3" X 2-1/2" X 3/8" X 0'-3" LG. @ 3'-0" O.C. WELD TO #3, #17, #20 WITH 2 LINES OF 1/4" CONT. FILLET WELD. PROVIDE 9/16" HOLE IN 2-1/2" LG FOR BOLT #9.
- (9) 1/2" X VARIABLE LENGTH ADJUSTING BOLT, THREAD 4", TACK WELD NUT TO #8.
- (10) 5/8" BENT BAR @ 1'-0" O.C. WELD TO #3 WITH 1/4" FILLET WELD ALL AROUND.
- (11) 5/8" BENT BAR ALTERNATING @ 9" O.C. BETWEEN STRINGERS, WELD TO ST. #1 WITH 1/4" FILLET WELD ALL AROUND.
- (12) 5/8" LAMINATED SHIM #1
- (13) 13/16" VENT HOLES @ 2'-0" O.C. IN ST. #1, #3, #17, #20.
- (14) 9/16" HOLES @ 3'-0" O.C. IN 4" LEG OF #3 AND IN STEM OF ST. #1.
- (15) PROVIDE 1/2" BOLT AND NUT WITH PIPE SLEEVE AT EACH LOCATION OF HOLE #14 AND SHIP ASSEMBLED. REMOVE PRIOR TO FINAL ASSEMBLY IN FIELD.
- (16) PROVIDE 13/16" HOLES IN ST. #2, AND 5/8" LAMINATED SHIM #12. DRILL 13/16" HOLES IN STRINGER FLANGE IN FIELD FOR 4 - 3/4" ERECTION BOLTS.
- #(17) 12-1/8" X 3/8" BEND DOWN FLUSH WITH FACE OF CURB, WELD TO #23 WITH 2 LINES OF 1/4" FILLET WELDS. FIELD WELD TO ST. #1.
- #(18) BAR 2-1/2" X 3/8" BEND DOWN FLUSH WITH FACE OF CURB. WELD TO #20 WITH 2 LINES OF 1/4" CONT. FILLET WELD. FIELD WELD TO BAR #4.
- (19) 3/4" BOLT SAME AS #6 EXCEPT FOR LENGTH, 13/16" X 1-3/4" SLOTTED HOLE IN #17, 13/16" HOLE IN #20.
- #(20) 8" X 3/8" BEND DOWN PARALLEL WITH FACE OF CURB. WELD TO #22 WITH 1 LINE OF FILLET WELD. FIELD WELD TO #3.
- (21) 5/8" BENT BAR AT 1'-0" O.C. WELD TO #17, #20, #22 & #23 WITH 1/4" FILLET WELDS ALL AROUND.
- (22) 3/8" PLATE CUT TO CURB LIMITS AS SHOWN.
- (23) 3/8" PLATE CUT TO CURB LIMITS AS SHOWN.
- (24) ANCHOR BAR 2-1/2" X 3/8" X 1'-0" WELD TO #17 & #20.

NOTES

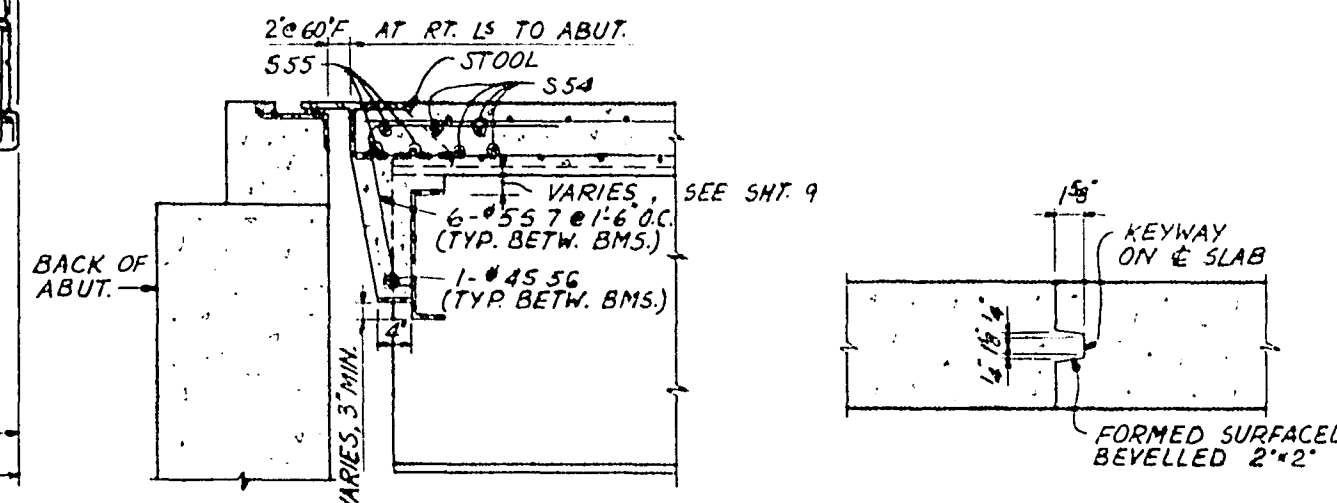
- ALL DIMENSIONS, SPACING, ETC. ARE HORIZONTAL.
- EXPANSION DEVICE SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN AND GRADE.
- ASSEMBLY IN SHOP FOR INSPECTION.
- ALL SURFACES INACCESSIBLE AFTER ERECTION SHALL RECEIVE TWO SHOP COATS OF RED LEAD PAINT EXCEPT SURFACES IMBEDDED IN CONCRETE.
- ONE FIELD SPLICE SHALL BE PERMITTED IN EXPANSION DEVICE WHEN LENGTH EXCEEDS 30'-0".
- ALL ITEMS MARKED # SHALL BE MADE OF CORTEN, MAYARI "R" OR OTHER STEEL OF EQUAL CORROSIVE RESISTANCE.
- ALL MATERIAL IN EXPANSION JOINTS SHALL BE PAID FOR AS STRUCTURAL LOW ALLOY STEEL.

NO.	DATE	REVISION	BY
STATE HIGHWAY COMMISSION OF WISCONSIN			
S.T.H. 145 (WEST FOND DU LAC AVENUE) MILWAUKEE COUNTY			
NORTH 107TH STREET UNDERPASS			
STRUCTURE B-10-252			
EXPANSION DEVICE			
SCALE: AS NOTED			
DESIGNED: R.C.E. DATE: 3-62			
DRAWN: C.S. DATE: 3-62			
CHECKED: D.V.D. DATE: 4-62			
ALFRED BENESCH & COMPANY CONSULTING ENGINEERS			
10 S. WABASH AVE. CHICAGO, ILLINOIS			
DWS. NO. X-26203 SHEET 11 OF 18			

B. P. R. DIVISION	PROJECT	SHEET NO.	TOTAL SHEETS
WIS 4	FO27-1(21)	158	256



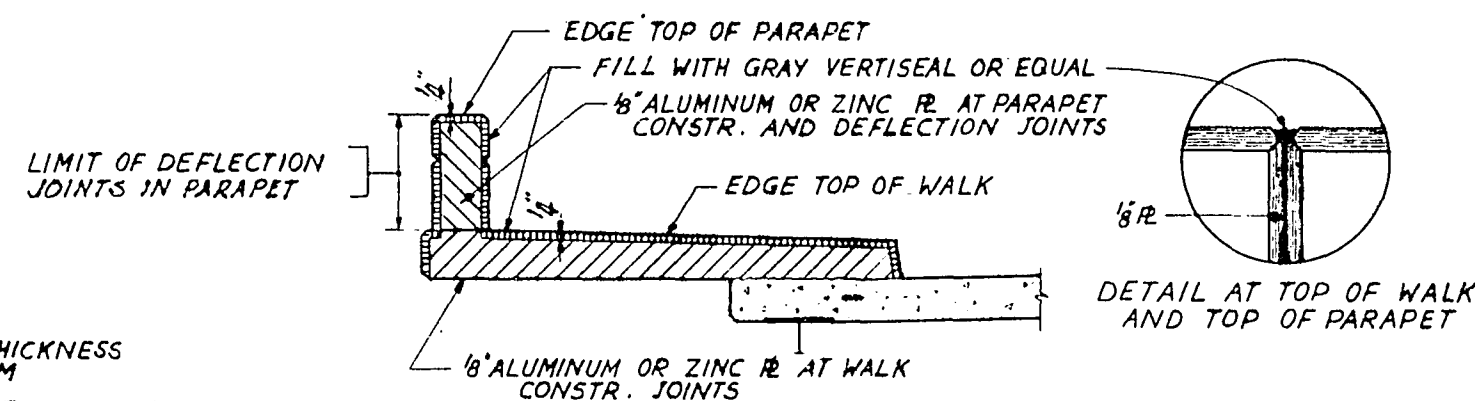
TOP AND BOTTOM TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS OR ADJACENT TO EACH BEAM AND BY INDIVIDUAL BAR CHAIRS AT 3'-0" CENTERS AT APPROXIMATELY THE 1/3 POINTS BETWEEN BEAMS. THE BOTTOM TRANSVERSE SLAB REINFORCEMENT SHALL BE TIED DOWN TO HOLD 1/2 INCHES CLEAR AT MIDSPAN BETWEEN BEAMS WHERE REQ'D. TOP OF SIDEWALK TO BE BUILT TO ESTABLISHED GRADE AFTER SPANS HAVE TAKEN DEAD LOAD DEFLECTION. THE 7" HEIGHT OF CURB IS TO BE MAINTAINED AT POINTS OF BEARING.



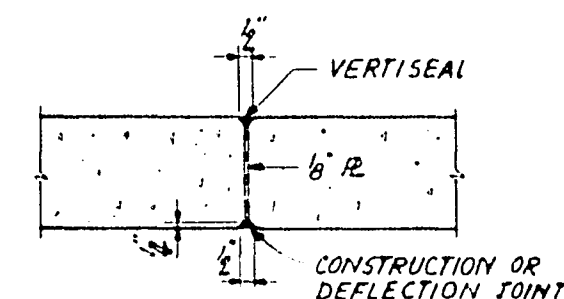
DECK SLAB
CONSTR. JOINT DETAIL
SCALE: $1\frac{1}{2}" = 1'-0"$

[illegible]

SLAB THICKNESS DETAIL
AT INTERIOR BEAMS
SCALE: $\frac{3}{8}" = 1'-0"$

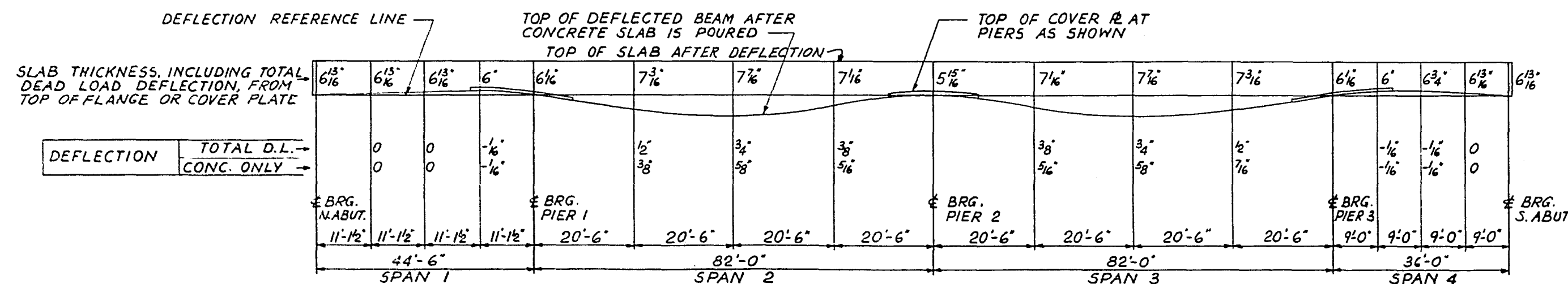


DETAIL OF CONSTRUCTION
AND DEFLECTION JOINTS
SCALE: 1/2" = 1'-0"
SEE NOTE 8 ON SHT. 15 REGARDING ELIMINATING
JOINT PLATES AND POURING OF PARAPETS AND WALLS



SECTION THRU PARAPET
SCALE: 1"=1'-0"

NOTES:
FOR DECK REINFORCEMENT PLAN SEE SHT. 12
FOR ELEVATION OF RAILING AND DETAILS SEE SHT. 15
FOR REINFORCEMENT BAR LIST SEE SHT. 17



SLAB THICKNESS AND DEAD LOAD DEFLECTION DIAGRAM

SLAB THICKNESS AND DEAD LOAD DEFLECTION FIGURES SHOWN ARE THEORETICAL AND ARE SUBJECT TO CORRECTION TO COMPENSATE FOR VARIATIONS IN BEAMS AND OTHER CONSTRUCTION DISCREPANCIES. DEFLECTIONS SHOWN ARE FOR FULLY CURED DECK. DEFLECTIONS FOR BEAMS 3 AND 5 AFTER COMPLETION OF POURS 1, 2 AND 3 AS SHOWN ON SHEET 17, WILL BE 80% OF DEFLECTIONS SHOWN FOR WEIGHT OF CONCRETE ONLY.

NO.	DATE	REVISION	BY

**STATE HIGHWAY COMMISSION
OF WISCONSIN**

**S.T.H. 145 (WEST FOND DU LAC AVENUE)
MILWAUKEE COUNTY**

**NORTH 107TH STREET UNDERPASS
STRUCTURE B-40-Z52**

DECK CROSS SECTION AND DETAILS

SCALE: AS NOTED

DRAWN: D.K. DATE 4-62

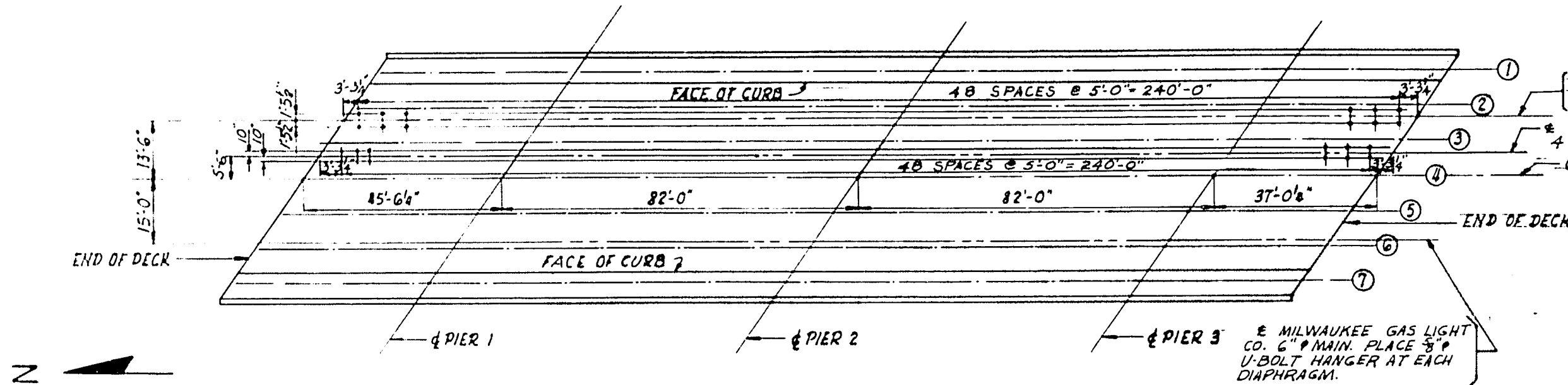
CHECKED: D.C.E. DATE 5-62

ALFRED BENESCH & COMPANY
CONSULTING ENGINEERS

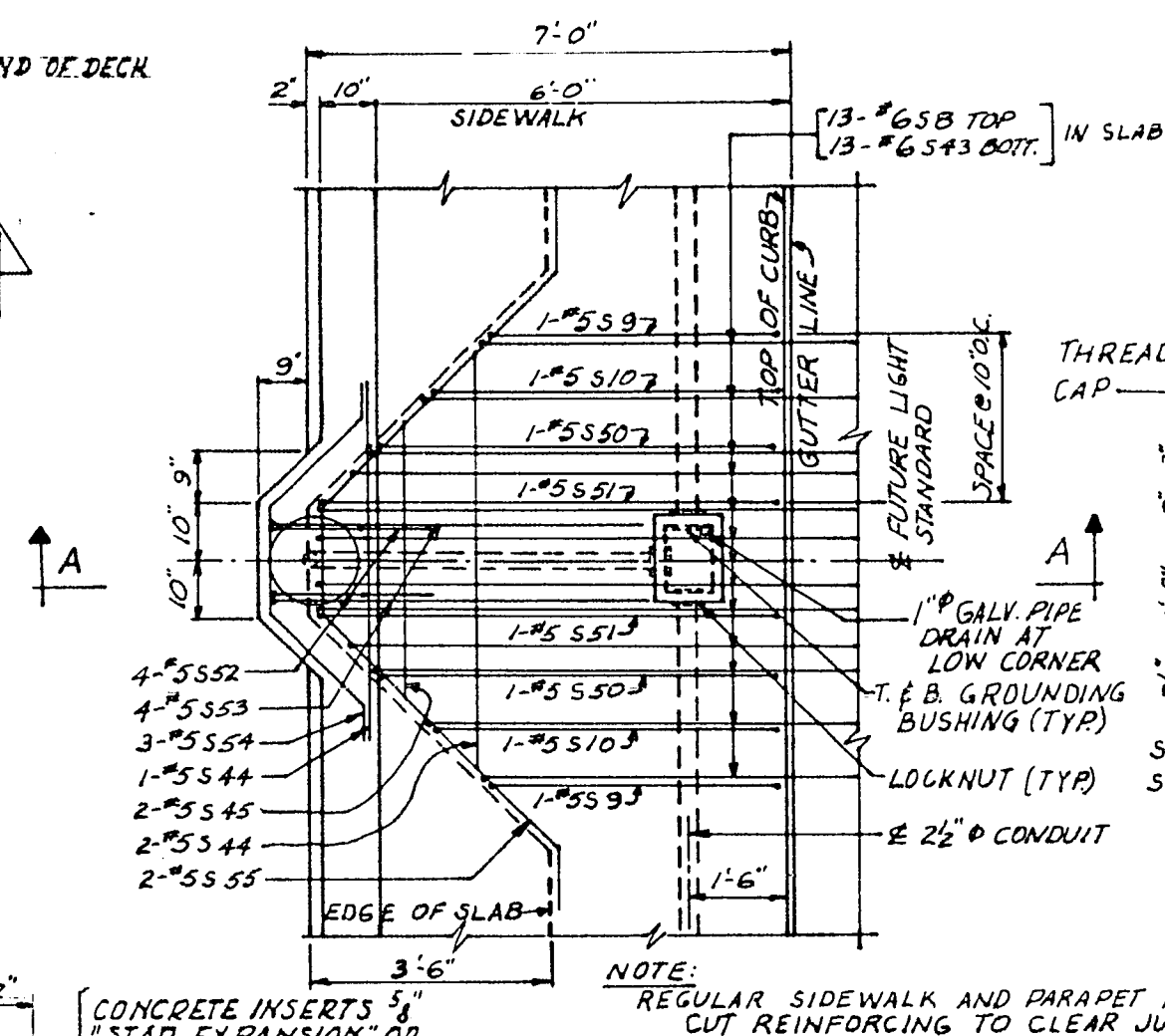
10 S. WABASH AVE. CHICAGO, ILLINOIS
DWS, No. X26205 SHEET 13 OF 18

ESTIMATE OF QUANTITIES FOR ELECTRICAL WORK

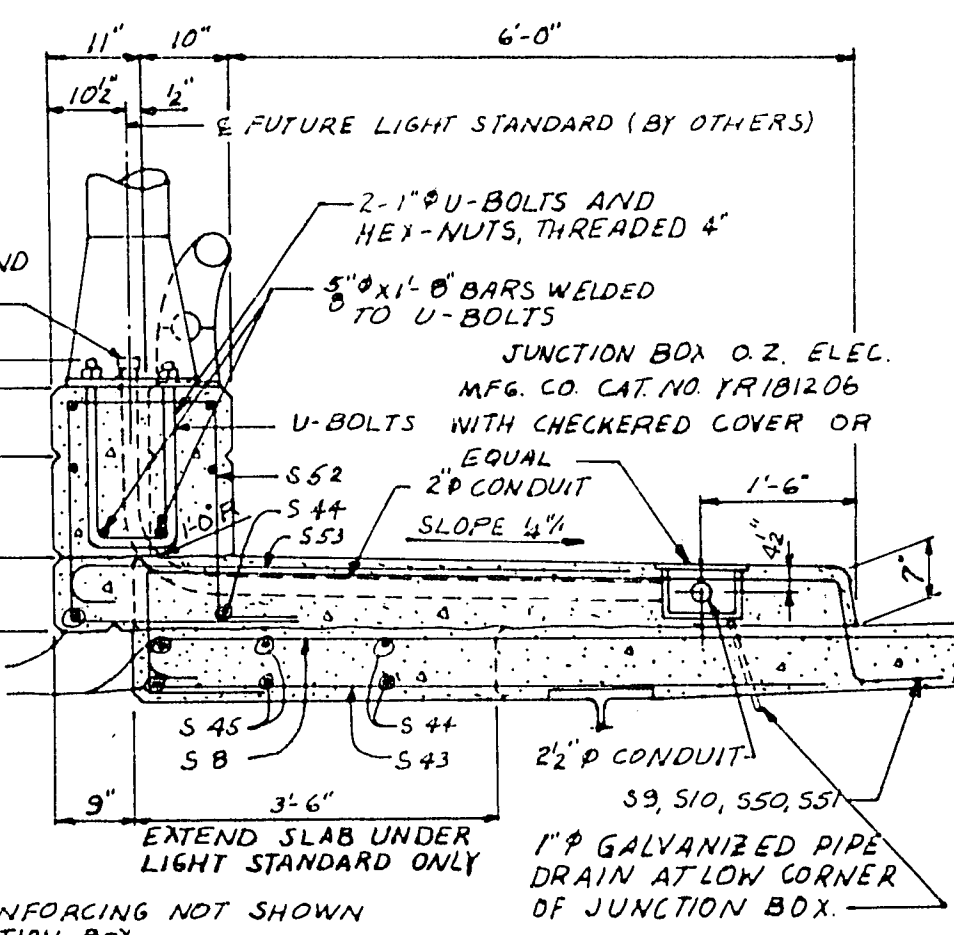
ITEM	UNIT	QUANTITY
2 1/2" GALV. STEEL CONDUIT	LIN. FT.	506
2" GALV. STEEL CONDUIT	LIN. FT.	16
CAP 2 1/2"	EACH	2
CAP 2"	EACH	2
EXPANSION FITTING 2 1/2"	EACH	2
ANCHOR BOLT ASSEMBLY FOR LIGHT STD.	EACH	2
JUNCTION BOX	EACH	2



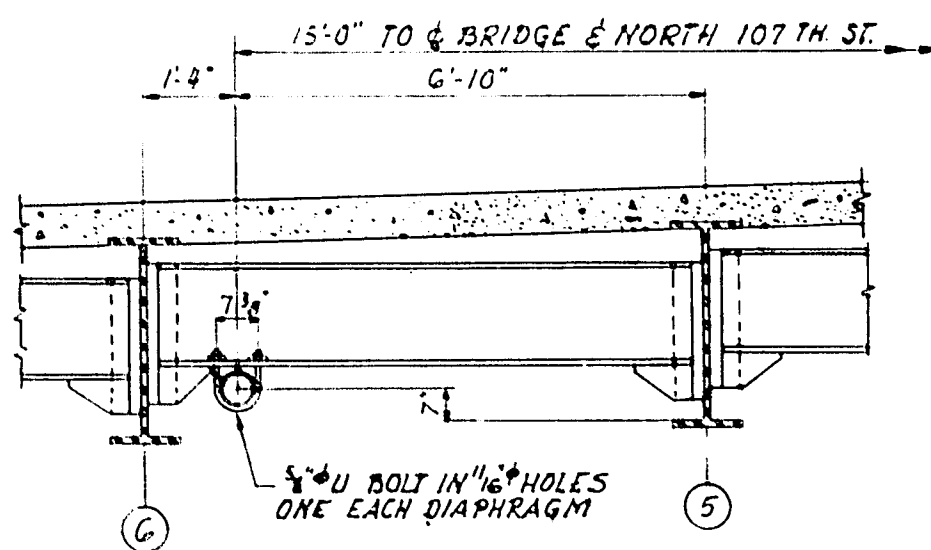
PLAN OF UTILITY LINES AND CONCRETE INSERTS.
SCALE: 1" = 20'-0"



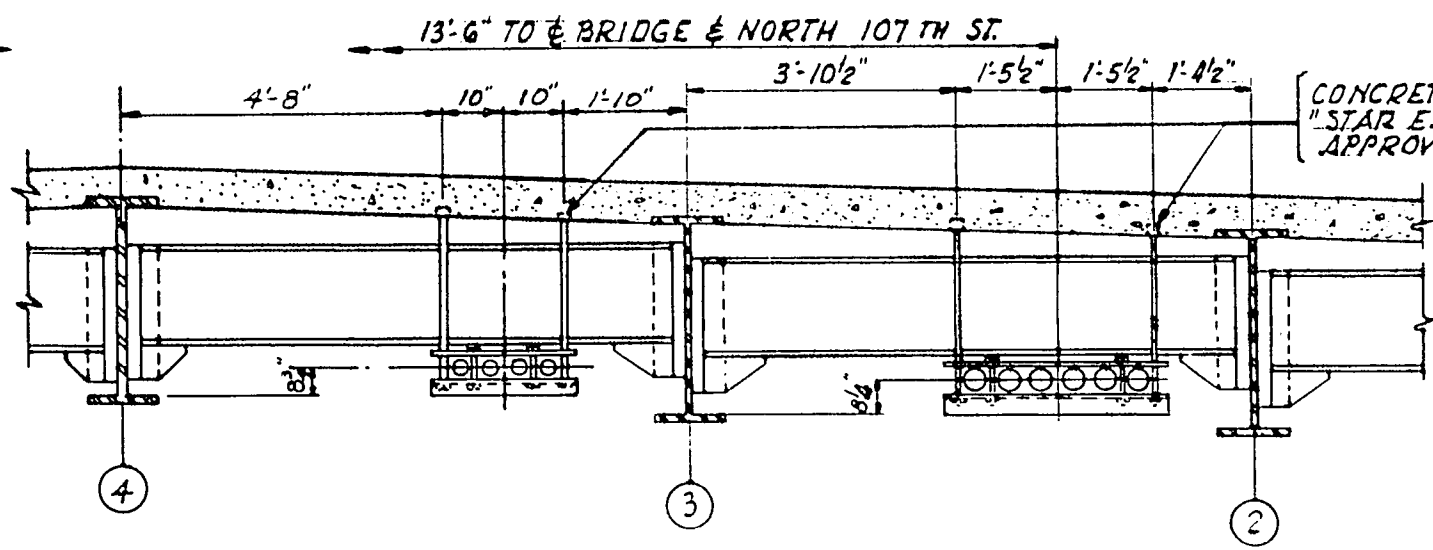
PLAN AT LIGHT STANDARD
SHOWING ADDITIONAL REINFORCEMENT



SECTION A-A

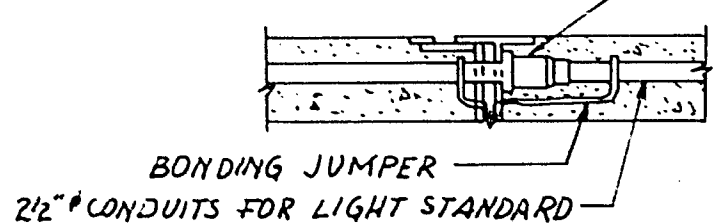


DETAIL OF GAS
MAIN HANGERS
SCALE: 1/2" = 1'-0"

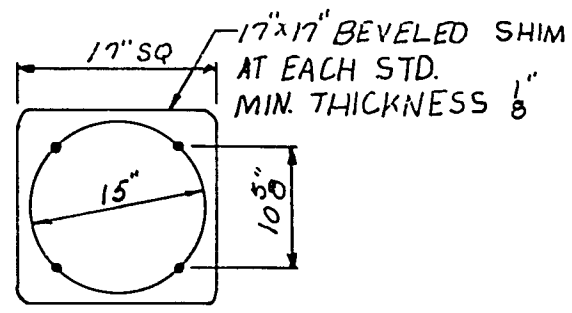


DETAILS OF CONDUIT HANGERS

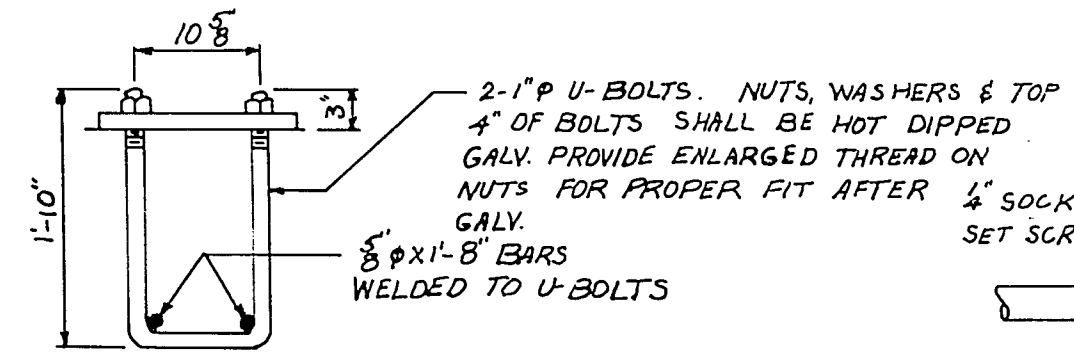
O.Z. MFG. CO. TYPE "AX" EXP. FITTING WITH BONDING JUMPER FOR STEEL PLATE EXPANSION JOINTS AT ABUTMENTS



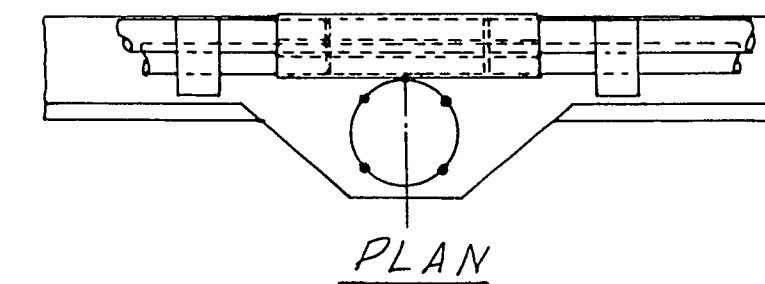
DETAIL OF EXPANSION FITTING



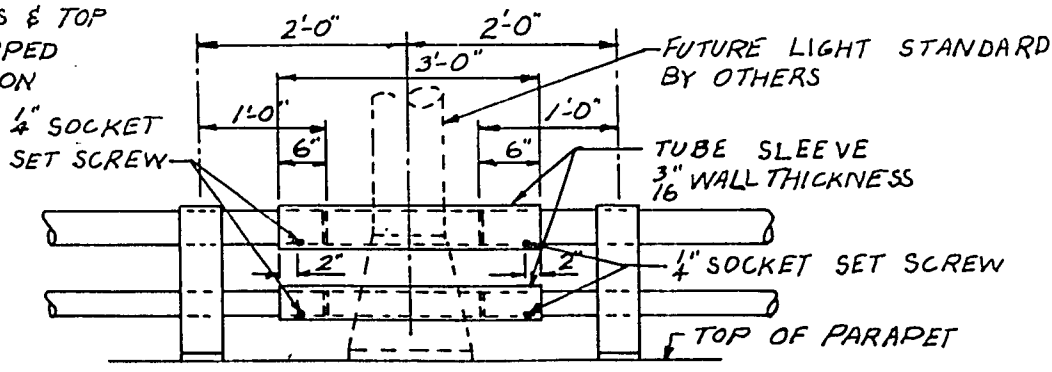
ANCHOR BASE BOLT LOCATION
FOR LIGHTING



ANCHOR BOLT DETAIL



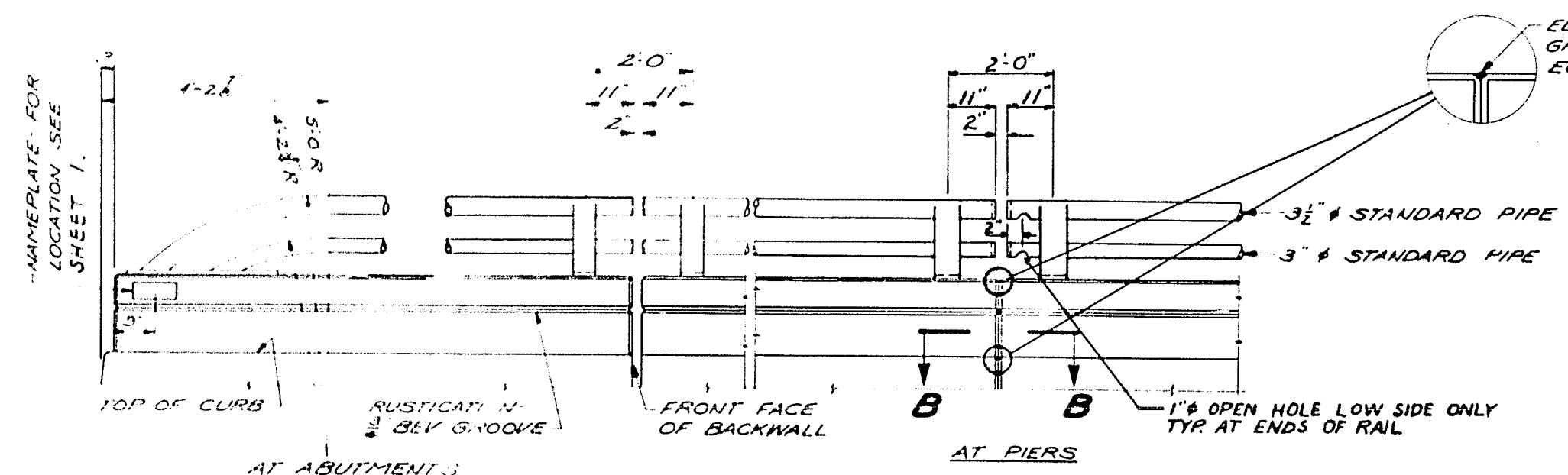
PLAN



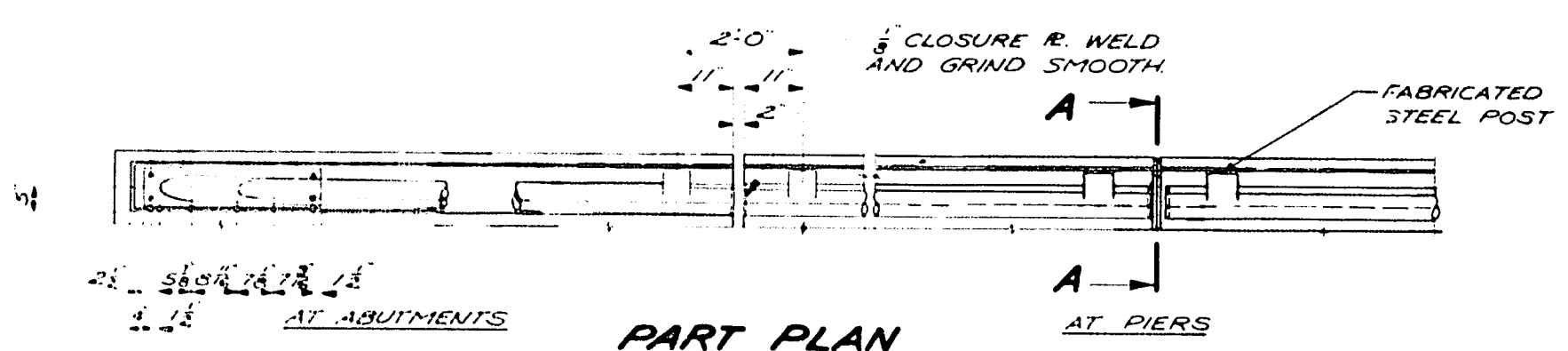
ELEVATION
LIGHT STANDARD

NOTES:
ALL CONCRETE INSERTS TO BE FURNISHED BY THE RESPECTIVE OWNERS AND SET BY THE BRIDGE CONTRACTOR.
CONCRETE INSERT SPACING SHALL BE ADJUSTED WHERE NECESSARY SO THAT CLEAR DISTANCE BETWEEN HANGER AND DIAPHRAGM IS NOT LESS THAN 2" AND 1" CLEARANCE FROM REINFORCEMENT BARS IN THE DECK IS MAINTAINED.
ALL HANGERS, CONDUITS, DUCTS AND THE GAS MAIN ASSEMBLY TO BE FURNISHED AND INSTALLED BY THE RESPECTIVE OWNERS.
FOR LOCATION AND SIZE OF BOX FORM OPENINGS IN ABUTMENT BACKWALLS SEE SHEET 4.
PAINT ALL EMBEDDED CONDUIT FOR 18" ON EACH SIDE OF THE DEFLECTION JOINT IN SIDEWALK WITH A HEAVY COAT OF BITUMINOUS PAINT.

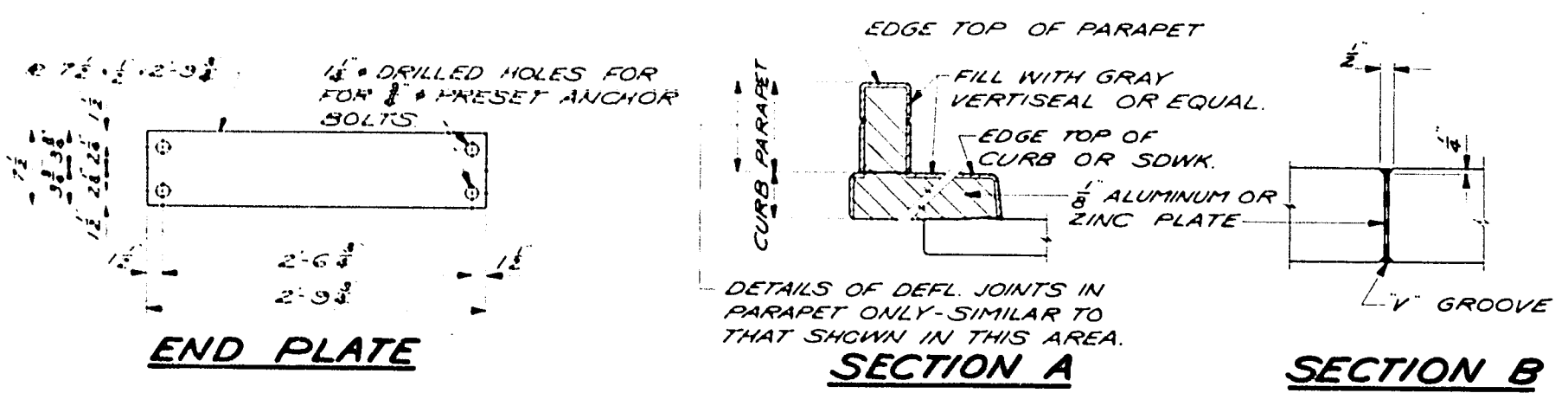
NO.	DATE	REVISION	BY
STATE HIGHWAY COMMISSION OF WISCONSIN			
S.T.H. 145 (WEST FOND DU LAC AVENUE) MILWAUKEE COUNTY			
NORTH 107TH STREET UNDERPASS STRUCTURE B-40-252			
UTILITIES PLAN AND DETAILS			
SCALE: AS NOTED			
DESIGNED: J.S. DATE: 5-62			
DRAWN: J.S. DATE: 5-62			
CHECKED: J.D. DATE: 5-62			
ALFRED BENESCH & COMPANY CONSULTING ENGINEERS			
105 WABASH AVE. CHICAGO, ILLINOIS			
Dwg. No. X26208 SHEET 16 OF 18			



PART ELEVATION

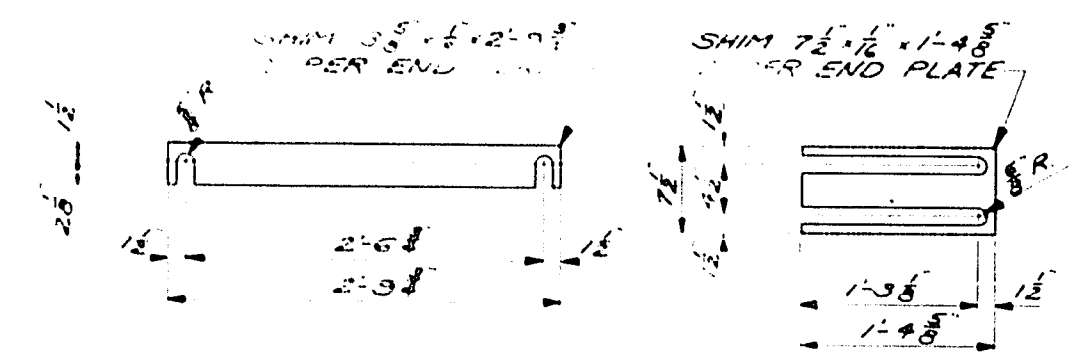


PART PLAN

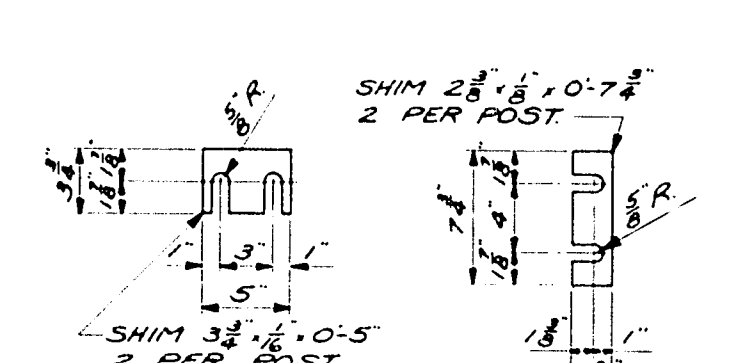


SECTION A

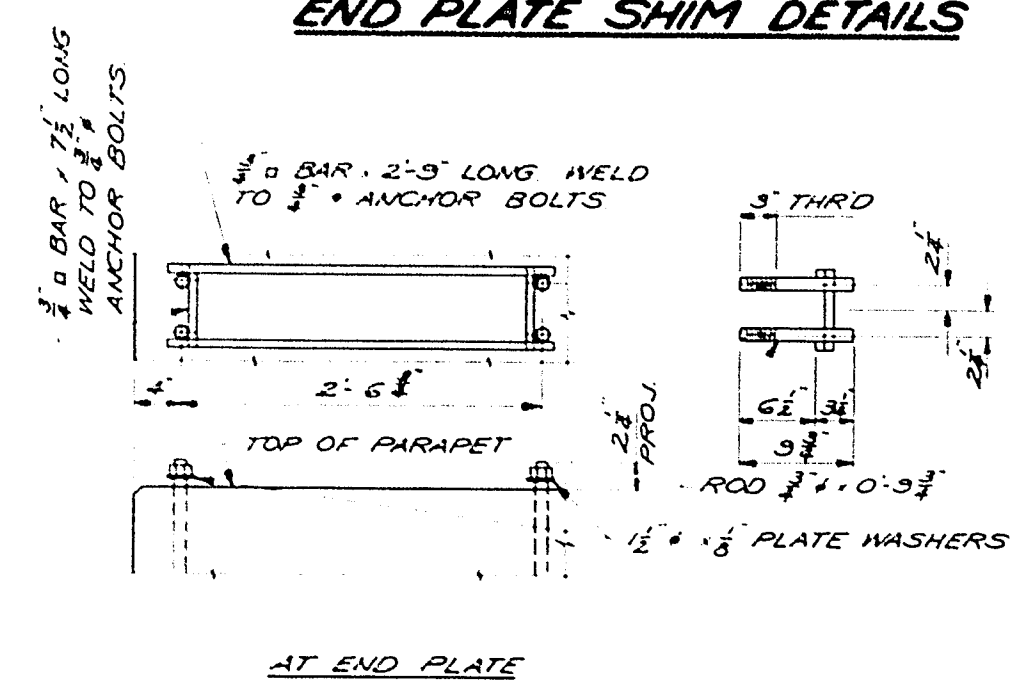
SECTION B



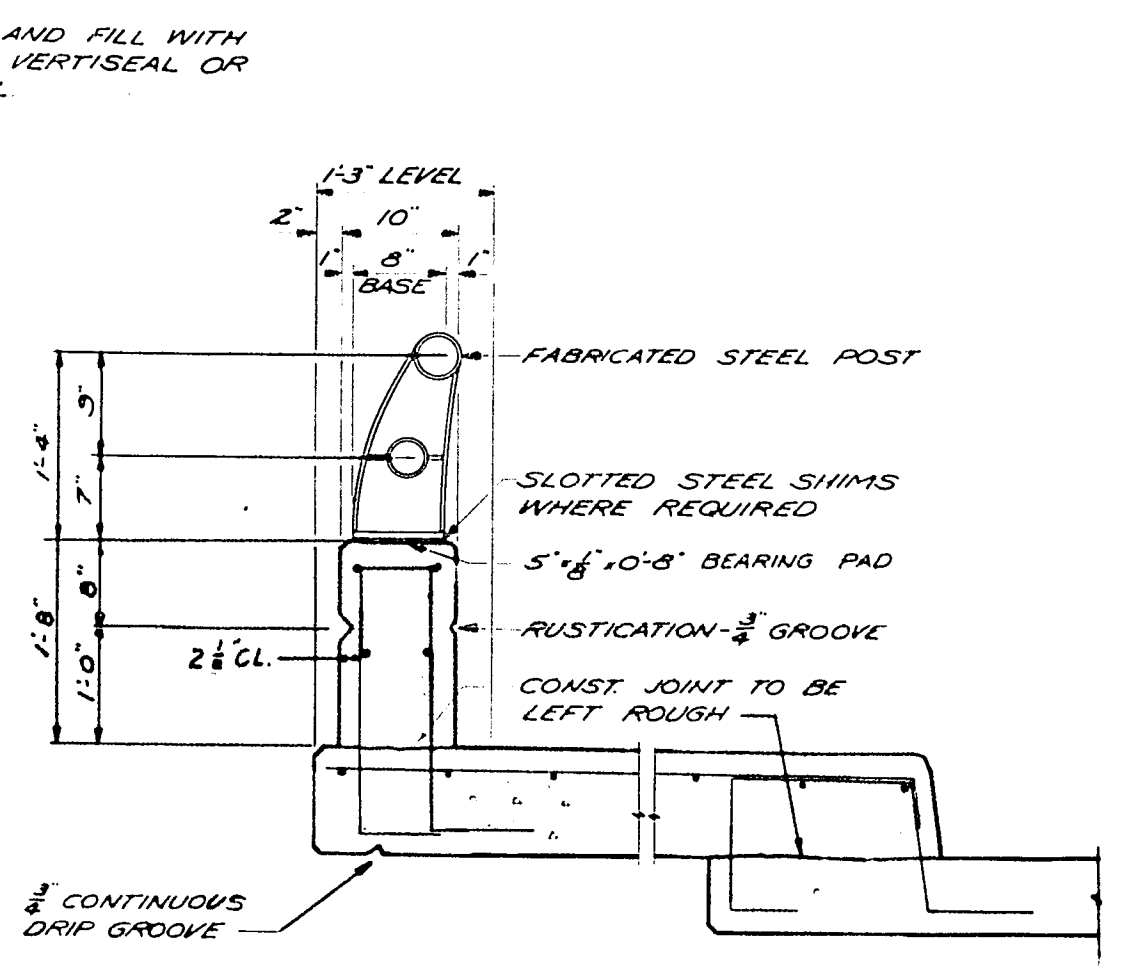
END PLATE SHIM DETAILS



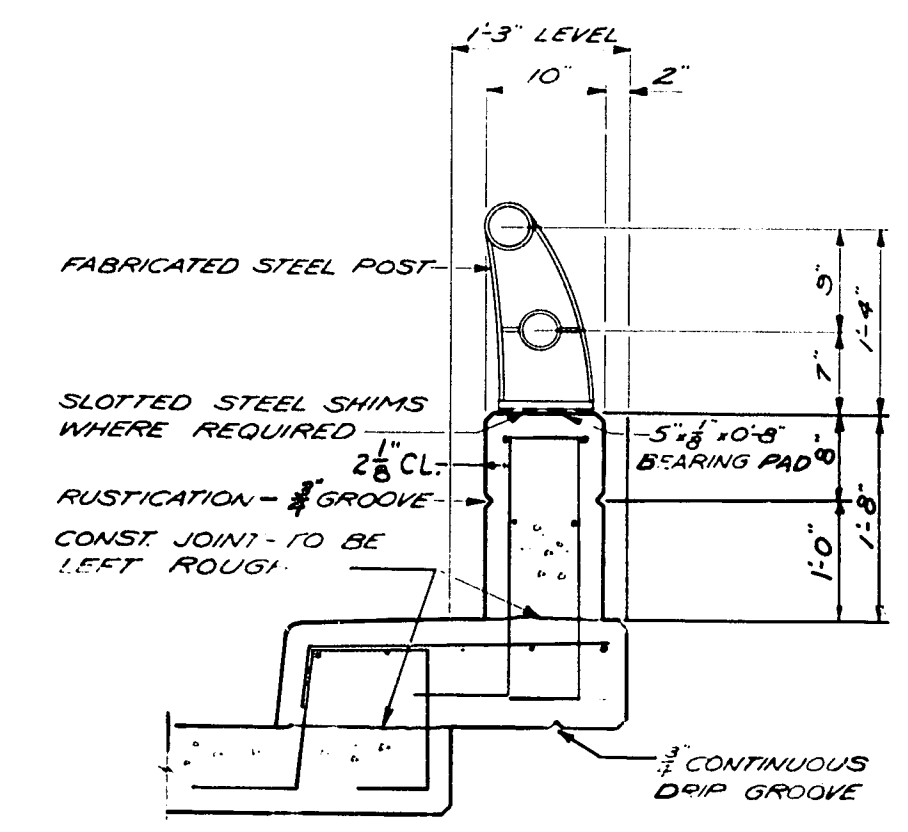
POST SHIM DETAILS



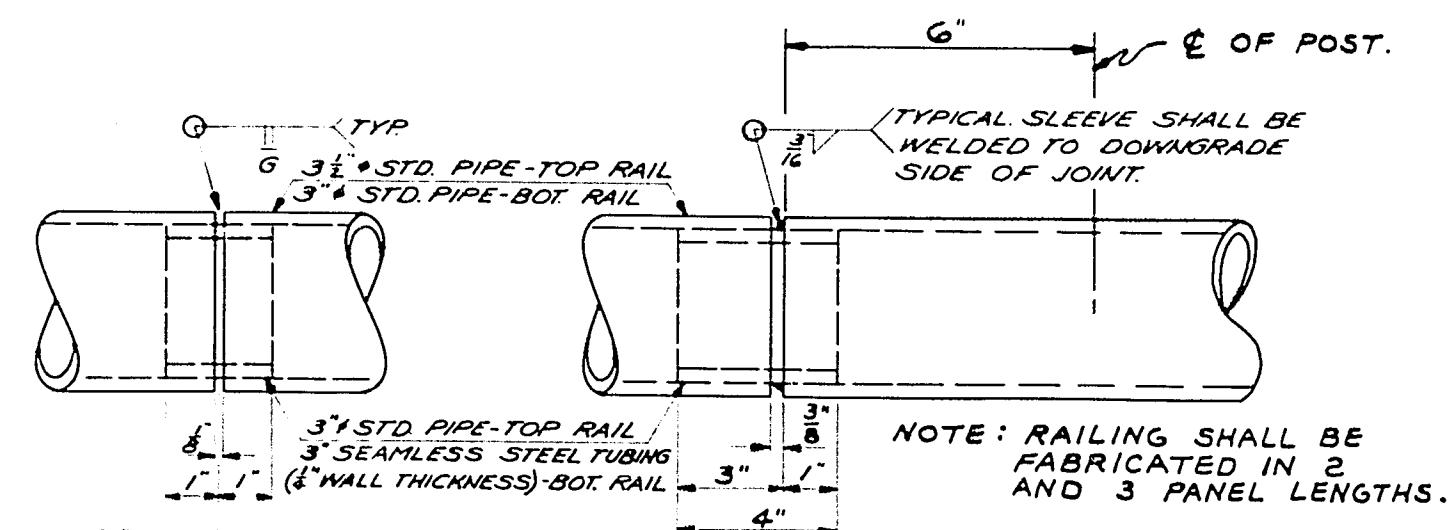
ANCHOR BOLT SETTING DETAILS



SECTION THRU SIDEWALK

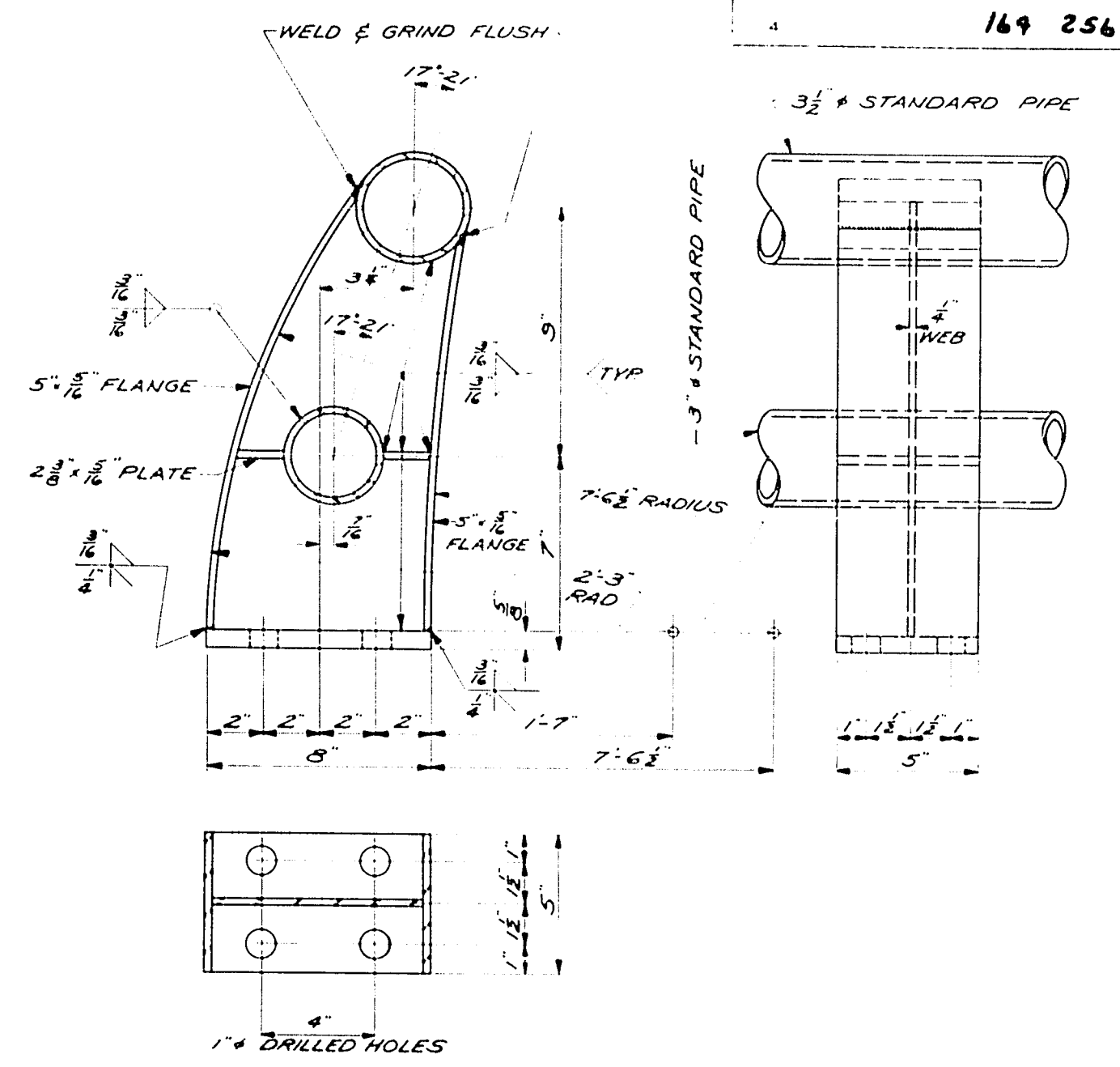


SECTION THRU CURB



**SHOP RAIL
SPLICE DETAIL**

**FIELD ERECTION
JOINT DETAIL**

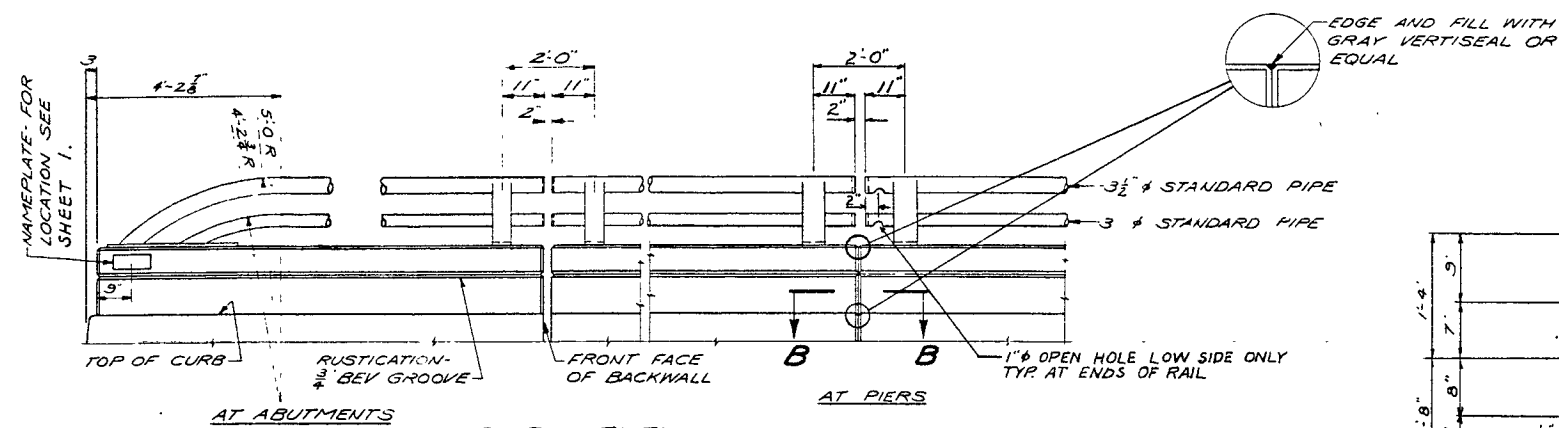


POST DETAILS

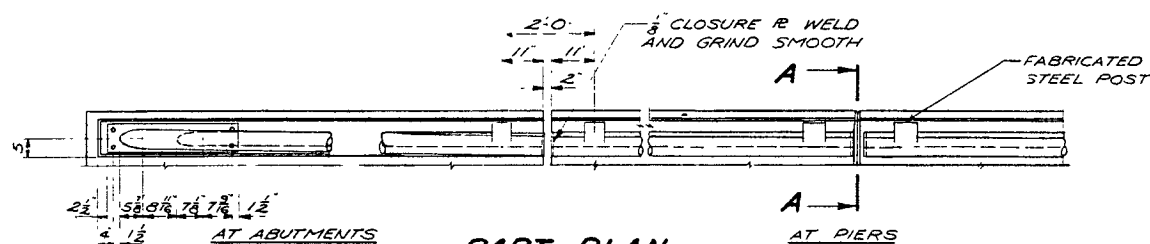
NOTES

1. STEEL RAIL POSTS SHALL BE SET NORMAL TO GRADE.
2. RAILING SHALL BE FABRICATED IN LENGTHS AS SHOWN.
3. STEEL SHIMS SHALL BE USED UNDER POSTS AND UNDER END PLATES WHERE REQUIRED FOR ALIGNMENT.
4. WHEN PARAPETS AND CURBS ARE POURED CONTINUOUSLY FROM END TO END THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF 1/2\"/>
5. THE FOLLOWING MATERIALS SHALL BE USED:
TOP RAILING SHALL BE 3 1/2\"/>
6. CAULK EXPOSED OPENINGS BETWEEN SHIMS WITH LEAD WOOL.
7. FOR RAILING POST SPACING SEE SHEET 15.

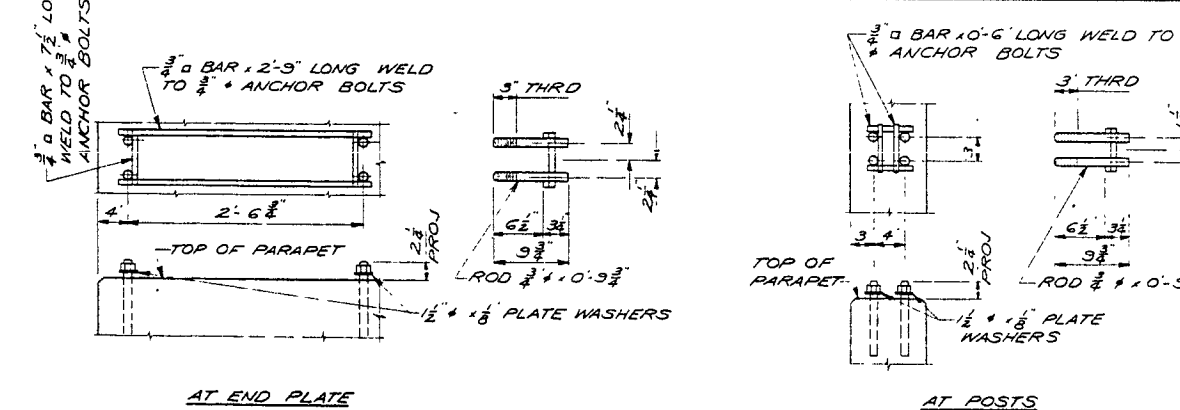
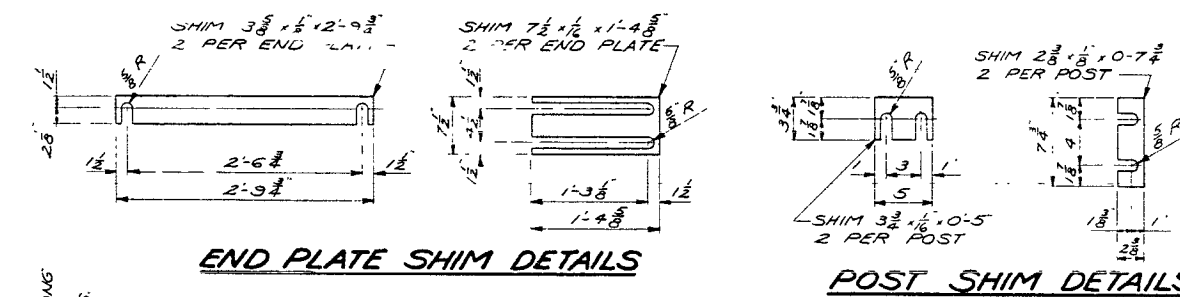
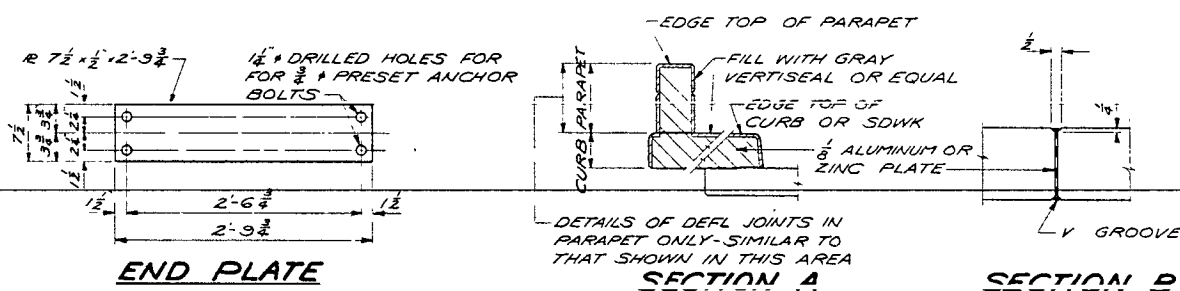
REVISION	STATE HIGHWAY COMMISSION OF WISCONSIN
	TUBULAR STEEL RAILING TYPE "B"
DESIGNED BY	AASHO '61
DATE	10-26-62
BY	STD. FORM. 16H
STRUCTURE	B-40-252
SHEET	18 OF 18



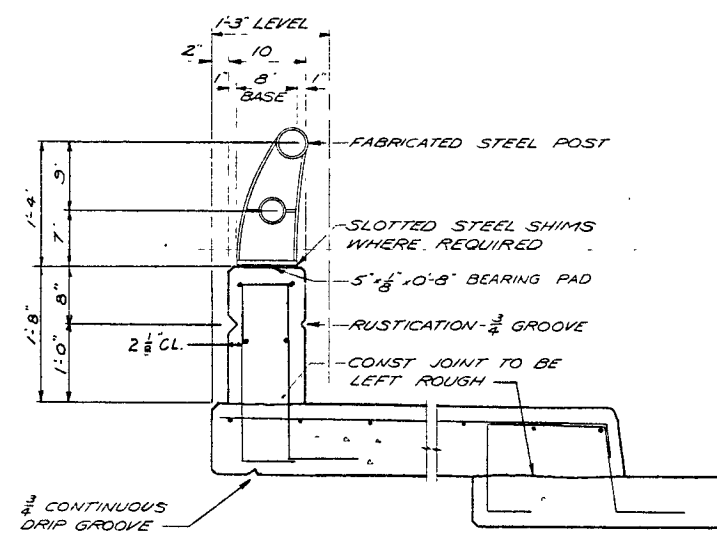
PART ELEVATION



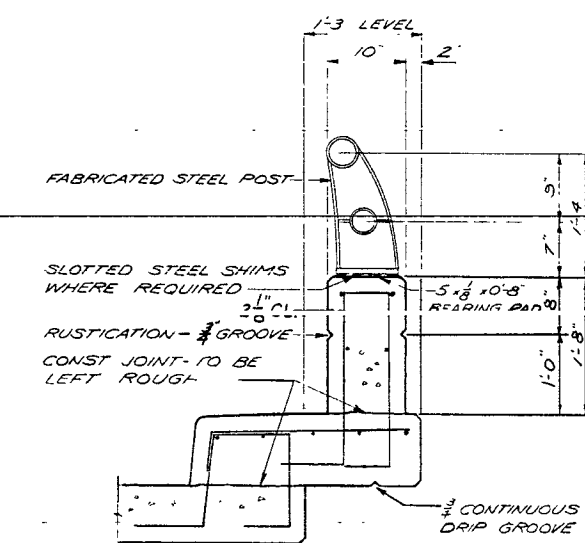
PART PLAN



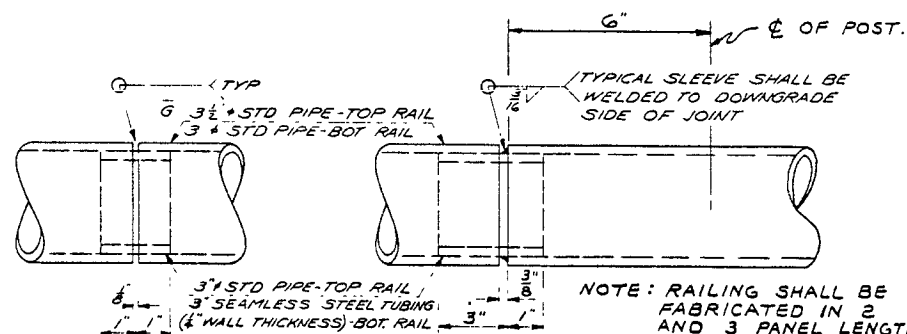
ANCHOR BOLT SETTING DETAILS



SECTION THRU SIDEWALK

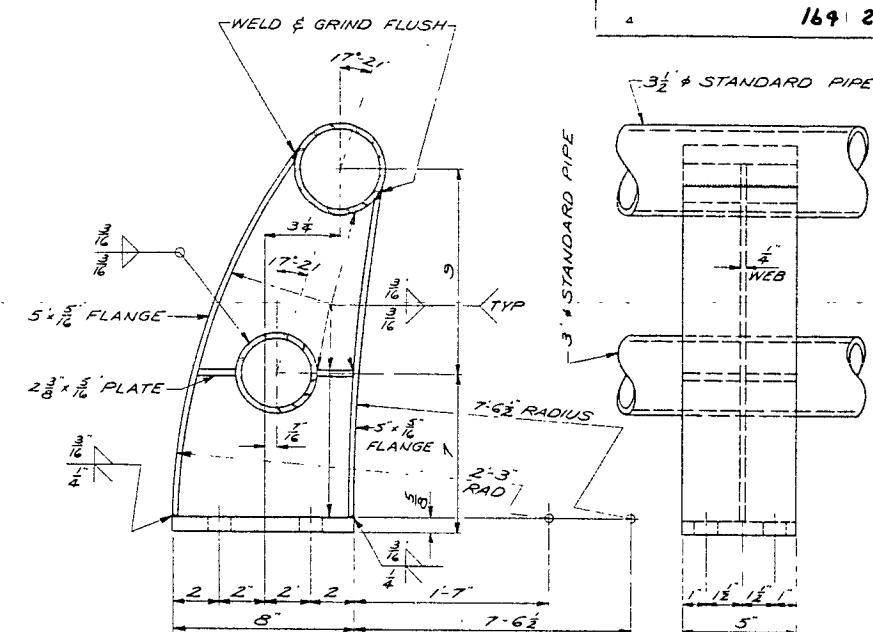


SECTION THRU CURB



SHOP RAIL SPLICE DETAIL

FIELD ERECTION JOINT DETAIL



POST DETAILS

NOTES

- 1 STEEL RAIL POSTS SHALL BE SET NORMAL TO GRADE
- 2 RAILING SHALL BE FABRICATED IN LENGTHS AS SHOWN.
- 3 STEEL SHIMS SHALL BE USED UNDER POSTS AND UNDER END PLATES WHERE REQUIRED FOR ALIGNMENT.
- 4 WHEN PARAPETS AND CURBS ARE POURED CONTINUOUSLY FROM END TO END THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF $\frac{1}{8}$ " ZINC OR ALUMINUM PLATE CUT AS SHOWN IN SECTION A BY SHADED AREA. IF CONSTRUCTION JOINTS IN PARAPETS AND CURBS ARE USED AT THE DEFLECTION JOINTS ONE SIDE OF JOINT SHALL BE COATED WITH BITUMINOUS PAINT AND PLATE SEPARATORS MAY BE OMITTED.
- 5 THE FOLLOWING MATERIALS SHALL BE USED
TOP RAILING SHALL BE $3\frac{1}{2}$ " ϕ STANDARD PIPE ASTM DESIGNATION A53.
BOTTOM RAILING SHALL BE 3" ϕ STANDARD PIPE ASTM DESIGNATION A53.
POST SHALL BE FABRICATED FROM MATERIAL CONFORMING TO ASTM DESIGNATION A36.
ANCHOR BOLTS TO BE MADE FROM MATERIAL CONFORMING TO ASTM DESIGNATION A307.
SLEEVES SHALL BE 3" ϕ STANDARD PIPE ASTM DESIGNATION A53 FOR TOP RAIL AND 3 SEAMLESS STEEL TUBING ($\frac{1}{8}$ " WALL THICKNESS) FOR BOTTOM RAIL.
- 6 CAULK EXPOSED OPENINGS BETWEEN SHIMS WITH LEAD WOOL.
- 7 FOR RAILING POST SPACING SEE SHEET 15.

STATE HIGHWAY COMMISSION OF WISCONSIN			
TUBULAR STEEL RAILING			
TYPE "B"			
AASHTO '61 H20-516 1963			
DATE 10-26-62 STD. FROM VGH			
STRUCTURE B-40-252		SHEET 18 OF 18	