Form 413 Rev. 1959

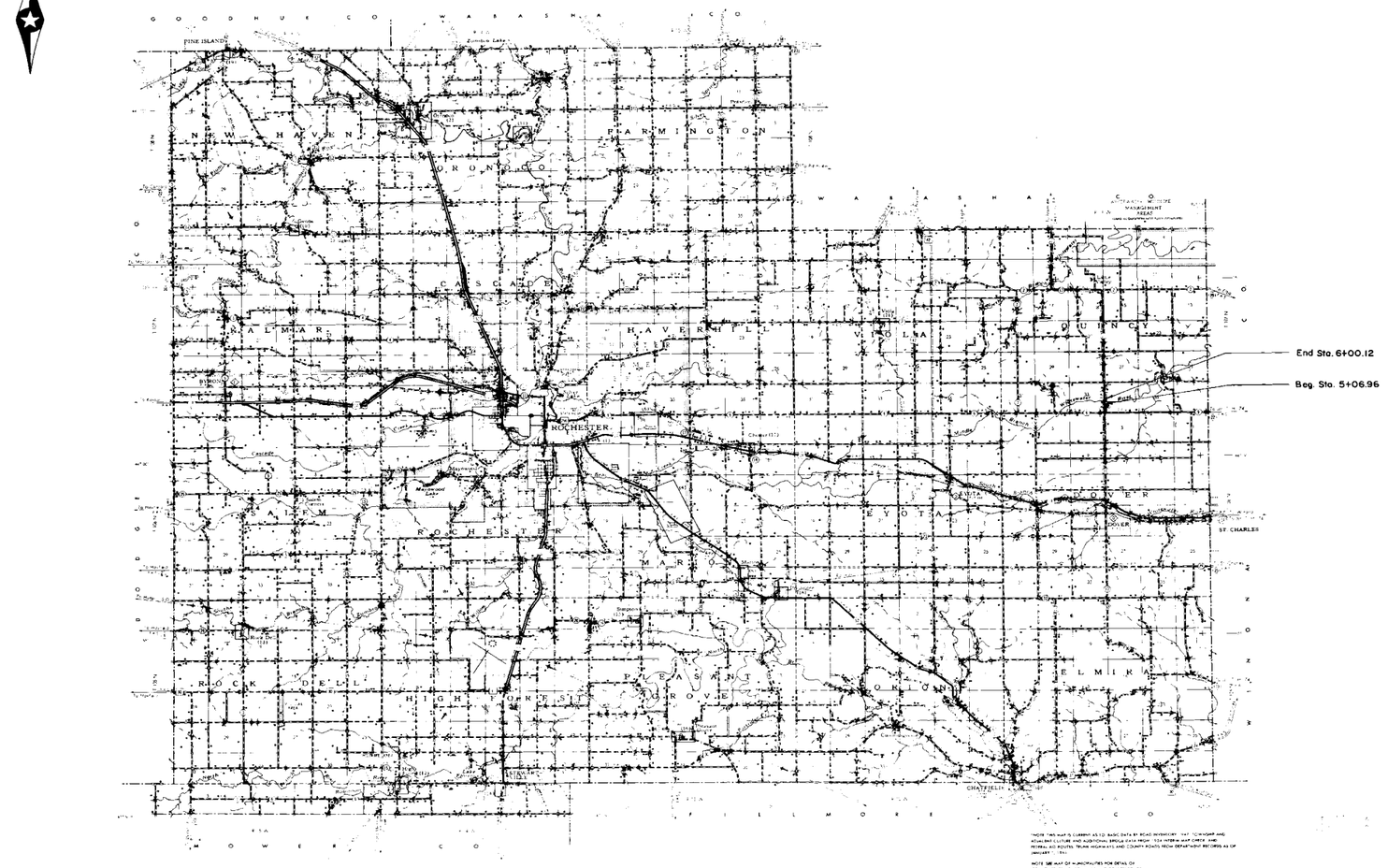
CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT R/W LINE
LIMITED ACCESS
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
STEAM RAILROAD
ELECTRIC RAILROAD
RAILROAD RIGHT-OF-WAY LINE
CREEK
RAPIDS OR WATERFALL
DRY RUN
DRAINAGE DITCH
HIGH TENSION LINE
POWER POLE LINE
TELEPHONE OR TELEGRAPH LINE
TELEPHONE CONDUIT
GUARD RAIL
WIRE FENCE
RAILROAD SNOW FENCE
BOARD OR HIGHWAY SNOW FENCE
STONE WALL OR FENCE
GAS MAIN
WATER PIPE
SEWER PIPE
DRAIN TILE
GRAVEL PIT
SAND PIT
CLAY PIT
ROCK QUARRY
SPRINGS
MARSH

TIMBER
BRUSH
ORCHARD
ROCK LEDGE
SAND
EDGE OF CUT
TOE OF EMBANKMENT
CATCH BASIN
MANHOLE
DROP INLET
FIRE HYDRANT
ARC LAMP
OTHER LAMPS (State Kind)
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
CATTLE GUARD
OVERHEAD (Highway Over)
UNDERPASS (Highway Under)
ABUTMENT, WALL & PIER
BRIDGE
CULVERT
BUILDING (One Story Frame)
C-CONCRETE S-STONE T-TILE B-BRICK ST-STUCCO
HEDGE
IRON PIPE
STONE MONUMENT
WOOD STAKE OR HUB
MEANDER CORNER



NOTE: SECTION NUMBERS READ FROM THE SOUTH



NOTE: THIS MAP IS CURRENTLY AS-IS BASIC DATA BY ROAD INVENTORY, 1967 TO HIGHWAY AND ATLAS DEPT. CULTURE AND ADDITIONAL SPECIAL DATA FROM 1964 FARM MAP OFFICE AND FEDERAL AID ROUTES, TRUNK HIGHWAYS AND COUNTY ROADS FROM DEPARTMENT RECORDS AS OF JANUARY 1, 1965

NOTE: SEE MAP OF MUNICIPALITIES FOR DETAIL OF COUNTY STATE AID HIGHWAYS AND COUNTY ROADS

STATE OF MINNESOTA

DEPARTMENT OF HIGHWAYS

CONSTRUCTION PLAN FOR BRIDGE NO. 55513

County State Aid Highway No. 10

BETWEEN DOVER AND PLAINVIEW

3.5 Miles North of Dover - S.E.1/4 of Sec. 33 & S.W.1/4 of Sec. 34, Township 107 North, Range 11 West

BEG. 3136.84 NORTH OF THE S.E. CORNER OF SEC. 33 & ENDING 3230 NORTH OF THE S.E. CORNER OF SEC. 33

GROSS LENGTH	FEET	MILES
BRIDGES LENGTH	93.16 FEET	.0176 MILES
EXCEPTIONS LENGTH	FEET	MILES
NET LENGTH	FEET	MILES

MINN. PROJ.

INDEX OF SHEETS

Sheet No. 1. Title Sheet & Layout Map
" No. 2. General Plan & Elevation
" No. 3. Abutment & Pier Details
" No. 4. Pier Details
No. 5. Superstructure Details
No. 6. Precast Conc. Channel Details
No. 7. Standard Details
No. 8. Standard Details
No. 9. Bridge Survey
No. 10. Bridge Survey

DESIGN SPEED 50
ADT 466
20 YR PROJ 932

ALL FEDERAL, STATE AND LOCAL LAWS WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

COUNTY ENGINEER DATE

Olmsted County COUNTY REG NO

RECOMMENDED FOR APPROVAL Clark W. Richtman 19 65
DISTRICT ENGINEER (STATE AID)

RECOMMENDED FOR APPROVAL H. C. Wilson 6/23 1965
ASSISTANT BRIDGE ENGINEER

APPROVED 6-24 1965 Will Ewart
STATE AID ENGINEER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED

—SPECIFICATIONS—

THE "SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JAN. 1, 1964 SHALL APPLY.

Minn. Proj. No. State Proj. No. State Aid Project No. 55-610-04 (C.S.A.H. 10)

OLMSTED County, Minnesota County Proj. No. Plan No. Sheet No. 1 of 12 Sheets

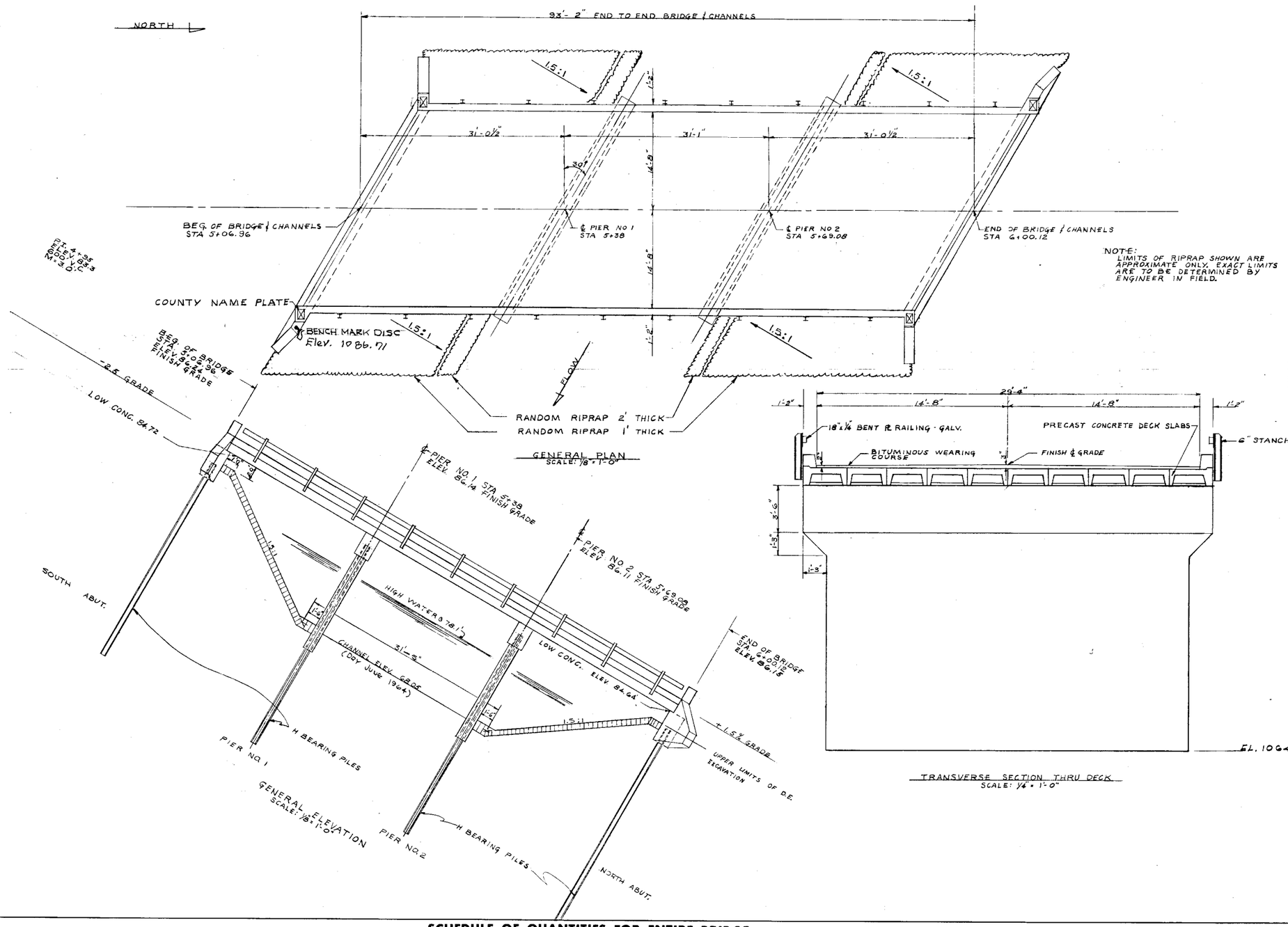
H. A. ROGERS CO. Minneapolis

DESIGN DATA

1961 A.A.S.H.O. DESIGN SPEC.
H20-44 LOADING
f_c = 2000 P.S.I. n = 6 PRECAST CHANNELS
f_c = 1600 P.S.I. n = 8 OTHER CONCRETE
f_s = 20,000 P.S.I. INT. GRADE REINF.
f_s = 18,000 P.S.I. STRUCTURAL STEEL
M.H.D. 3305

LIST OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL PLAN
3	ABUTMENT & PIER DETAILS
4	PIER DETAILS
5	SUPERSTRUCTURE DETAILS
6	PECAST CONC. CHANNEL DETAILS
7	STANDARD DETAILS
8	STANDARD DETAILS
9	BRIDGE SURVEY
10	BRIDGE SURVEY



GENERAL PLAN
SCALE: ⅛" = 1'-0"

CONSTRUCTION NOTES

THE MINNESOTA DEPARTMENT OF HIGHWAY "STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION" DATED JANUARY 1, 1964 SHALL APPLY.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNED ..... DATE 1-22-65 REG. NO. 4982

B.M. ELEV. 1085.96 (M.S.L. 19..... ADJ.)
□ IN TOP CONC. RAIL STA. 5+00
BM 1086.71 Brass Plug S.E. Cor

C.S.A.H. NO. 10
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 55513

3.5 MILES NORTH OF DOVER OVER THE MIDDLE FORK OF THE WHITEWATER RIVER. 3-31' PRECAST CONC. CHANNEL SPANS, 29'-4" ROADWAY - 30° SKEW

GENERAL PLAN AND ELEVATION

SEC. 33 & 34 T. 107 N R. 11 W
QUINCY TOWNSHIP OLMSTED COUNTY
APPROVED: 6-24-65
ASST. BRIDGE ENGINEER

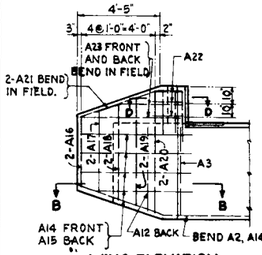
SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.		2401.501	2401.521	2401.521	2511.501	2401.539	2401.540	2452.509	2452.510	2452.520	2402.522	2481.501	2402.577	2431.509	2404.501	2404.501	2404.501	2404.501	2452.520	2452.520	2442.501
ITEM		CONCRETE, MIX NO 3Y6	STRUCTURE EXCAVATION (CLASS D.E.)	STRUCTURE EXCAVATION (CLASS W.E.)	RANDOM RIPRAP CLASS A	REINF. BARS DELIVERED	REINF. BARS PLACED	STEEL PILING DELIVERED	STEEL PILING DRIVEN	STEEL TEST PILES INP 40' LONG	STD. CARBON STRUCTURAL STEEL - 18000	THREE-PLY JOINT WATERPROOFING	STANDARD NAME PLATES	PREMIXED BIT. WEARING COURSE	PRECAST CONC. CHANNELS (TYPE A 3)	PRECAST CONC. CHANNELS (TYPE B3)	PRECAST CONC. CHANNELS (TYPE C3)	PRECAST CONC. CHANNELS (TYPE D3)	STEEL TEST PILES IN PLACE 35' LONG	STEEL TEST PILES IN PLACE 45' LONG	REMOVE OLD BRIDGE
UNIT		CU. YD.	CU. YD	CU. YD.	CU. YD.	LB	LB	LB	LIN. FT.	PILE	LB	LIN. FT.	UNIT	SQ. FT.	CHANNEL	CHANNEL	CHANNEL	CHANNEL	PILE	PILE	UNIT
QUANTITY		142	50	53	270	9597	9597	29400	680	2	8265	86	ONE	2733	24	2	2	2	ONE	ONE	ONE

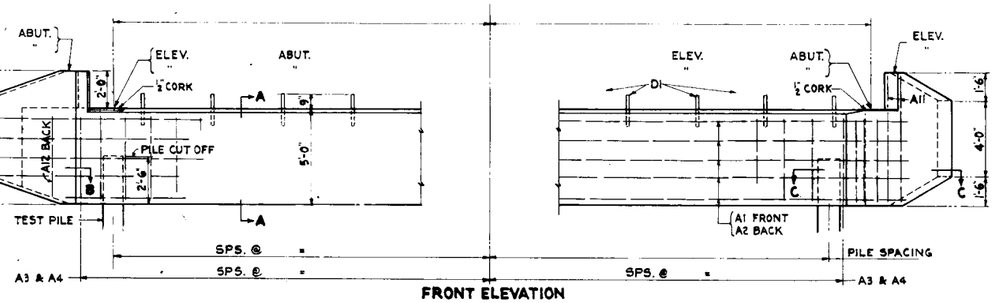
DES. WEA DR. WEA 55513
CHK. CHK.

Area No. **Job No.** Design Squad ..... S.A.P. 55-610-04 (C.S.A.H. 10) **Sheet No. 2 of 10 Sh**

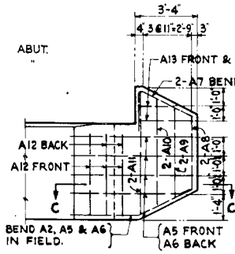
NORSTAR #15



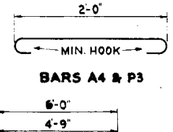
WING ELEVATION



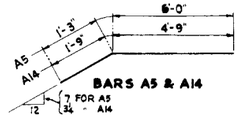
FRONT ELEVATION



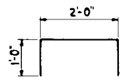
WING ELEVATION



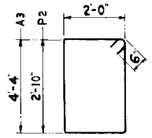
BARS A4 & P3



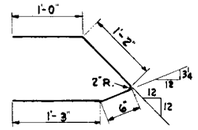
BARS A5 & A14



BAR P4



BARS A3 & P2



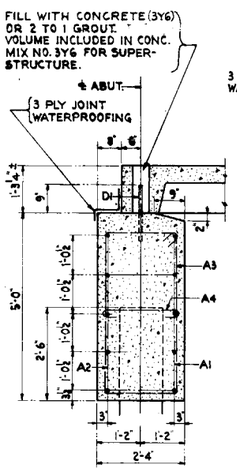
BAR A22

NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT. BARS DETAILED IN ACCORDANCE WITH A.C.I. 315-5 UNLESS OTHERWISE NOTED.

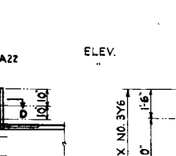
REINFORCEMENT BARS REQ'D FOR TWO ABUTMENTS

	MARK	NO.	SIZE	LENGTH	SHAPE	LOCATION
	A1	-	#6		STR.	CAP FRONT LONGIT.
	A2	-	#6		"	" BACK "
	A3	-	#5	13'-8"	BENT	" STIRRUP VERT.
	A4	-	#5	3'-8"	2-HOOKS	" TIES TRANSV.
+	A5	10	#6	7'-3"	BENT	WING FRONT LONGIT.
+	A6	10	#6	5'-9"	STR.	" BACK "
+	A7	4	#4	6'-9"	"	" TOP "
	A8	4	#4	3'-10"	"	" VERT.
	A9	4	#4	6'-10"	"	" "
	A10	4	#4	5'-10"	"	" "
	A11	4	#4	6'-8"	"	" "
	A12	12	#4	4'-8"	"	" "
+	A13	8	#4	3'-0"	"	" TOP
+	A14	10	#6	6'-6"	BENT	" FRONT LONGIT.
+	A15	10	#6	4'-0"	STR.	" BACK "
	A16	4	#4	3'-9"	"	" VERT.
	A17	4	#4	4'-6"	"	" "
	A18	4	#4	5'-2"	"	" "
	A19	4	#4	5'-10"	"	" "
	A20	4	#4	6'-6"	"	" "
+	A21	4	#4	8'-6"	"	" TOP "
	A22	6	#4	3'-10"	BENT	" TOP HORIZ.
	A23	8	#4	6'-8"	STR.	" " VERT.
	D1		#8	1'-6"	STR.	BR. SEAT DOWELS

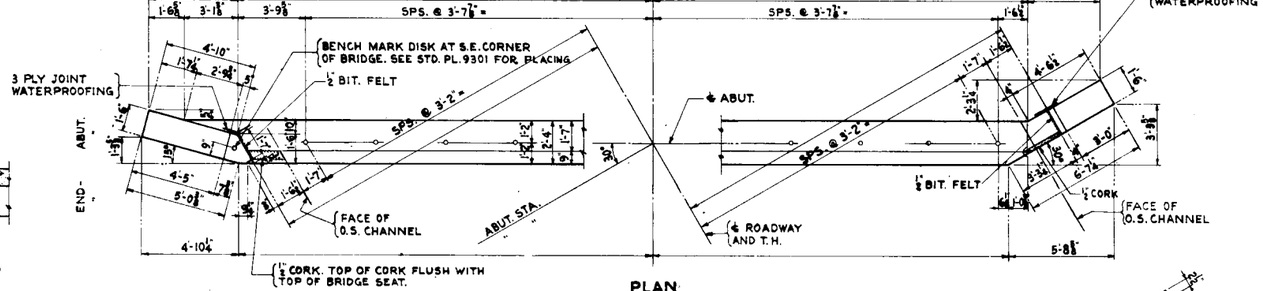
+ BEND IN FIELD



SECTION A-A

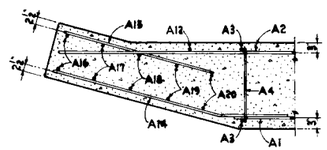


DETAIL OF PIER DRAINS

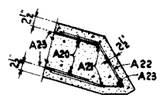


PLAN

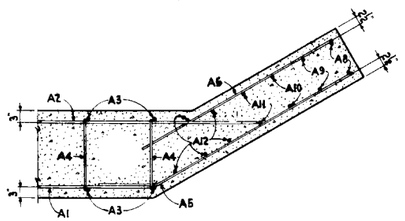
DETAILS OF ABUTMENTS



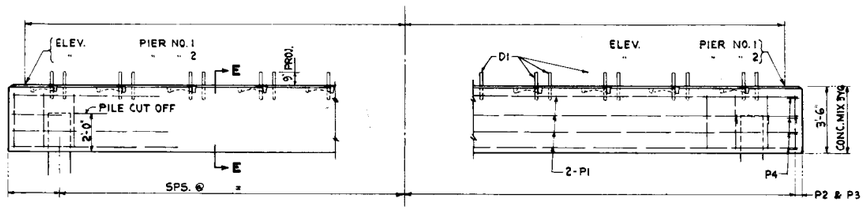
SECTION B-B



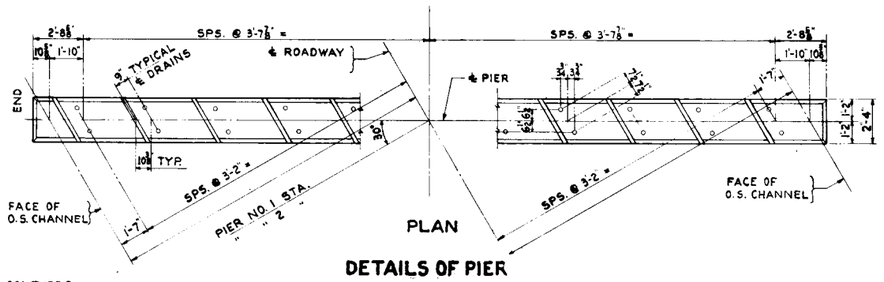
SECTION D-D



SECTION C-C



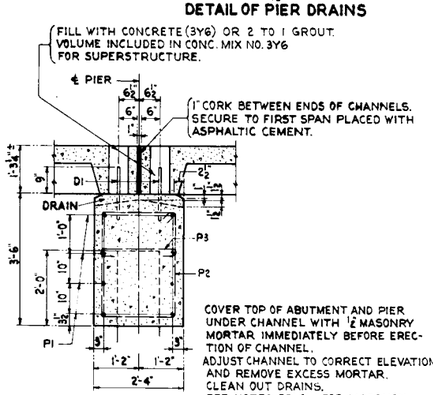
ELEVATION



PLAN

DETAILS OF PIER

FILL WITH CONCRETE (3Y6) OR 2 TO 1 GROUT. VOLUME INCLUDED IN CONC. MIX NO. 3Y6 FOR SUPERSTRUCTURE.



SECTION E-E

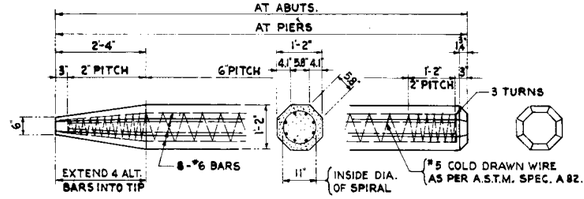
COVER TOP OF ABUTMENT AND PIER UNDER CHANNEL WITH ½ MASONRY MORTAR IMMEDIATELY BEFORE ERECTION OF CHANNEL.
ADJUST CHANNEL TO CORRECT ELEVATION AND REMOVE EXCESS MORTAR.
CLEAN OUT DRAINS.
SEE NOTES BELOW FOR MASONRY MORTAR AND BIT. FELT ALTERNATE.

MASONRY MORTAR:
1 PART MASONRY CEMENT AS PER A.S.T.M. C91 TYPE 2.
3 PARTS MORTAR SAND AS PER M.H.D. 3128.
SUFFICIENT WATER TO PRODUCE PLASTIC CONSISTENCY.
PAYMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

AS AN ALTERNATE, BIT. FELT (M.H.D. 3701) MAY BE SUBSTITUTED FOR MASONRY MORTAR UNDER CHANNELS. ¼"×1'-11" AT PIERS AND ¼"×11" AT ABUTMENTS. NOTCH BIT. FELT AT PIER DRAINS. PAYMENT FOR BIT. FELT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

IN M. H. D. 2452 3J. THE PAINT SHALL CONFORM TO SPECIFICATION REQUIREMENTS AS FOLLOWS:
ONE - RED LEAD AS PER M.H.D. 3506.
FIRST FIELD COAT - ALUMINUM AS PER M.H.D. 3527.
SECOND FIELD COAT - ALUMINUM AS PER M.H.D. 3528.
MIN. OF 72 HOURS OF DRYING TIME WILL BE REQUIRED BETWEEN SUCCESSIVE COATS OF ALUMINUM PAINT DURING SUITABLE WEATHER.

DETAIL OF CAST-IN-PLACE PILES



SPIRALS SHALL BE TIED TO EACH BAR AT EACH INTERSECTION OR TACK WELDED AT EVERY THIRD INTERSECTION
CONCRETE TO BE USED SHALL BE MIX NO. 3Y6.

PRECAST PILES FOR PIERS SHALL BE TREATED WITH TWO APPLICATIONS OF OIL TREATMENT AT THE RATE OF 0.035 GAL. PER SQ. YD. OF SURFACE PER COAT. (SEE SPECIAL PROVISIONS)

DETAIL OF PRECAST PILES
(OPTIONAL DESIGN)

____ FT. ESTIMATED LENGTH REQUIRED FOR ____ ABUT.
____ FT. " " " " " TWO PIERS.
DRIVE ONE PILE WHERE SHOWN ON EACH ABUTMENT AND PIER AS TEST PILE.

MINIMUM BEARING 28 TONS.

ESTIMATED PENETRATION ONE FOOT LESS THAN LENGTH GIVEN.
FABRICATION, HANDLING AND DRIVING TO CONFORM TO M.H.D. 2452 EXCEPT AS NOTED. (SEE SPECIAL PROVISIONS)

COMPUTED PILE LOADS - TONS/PILE	ABUTS.	PIERS
DEAD LOAD		
LIVE LOAD		
TOTAL		

REINFORCEMENT BARS REQUIRED FOR TWO PIERS

MARK	NO.	SIZE	LENGTH	SHAPE	LOCATION
P1		#6		STR.	CAP - LONGIT.
P2		#5	10'-8"	BENT	" STIRRUPS - TRANSV.
P3		#5	8'-8"	2-HOOKS	" TIES - TRANSV.
P4	16	#4	4'-0"	BENT	" ENDS - "
D1		#8	1'-6"	STR.	DOWELS

SUMMARY OF QUANTITIES FOR TWO ABUTMENTS

CLASS D.E. EXCAVATION	CU. YD.
CONCRETE MIX NO. 3Y6	CU. YD.
REINFORCEMENT BARS	LB.
* BENCH MARK DISK AS PER STD. PL. 9300	ONE

* STATE WILL FURNISH DISK. PAYMENT FOR PLACING TO BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS.

SUMMARY OF QUANTITIES FOR TWO PIERS

CONCRETE MIX NO. 3Y6	CU. YD.

DETAILS ARE SHOWN FOR A RIGHT SKEW.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO.

PRECAST CONCRETE SPANS

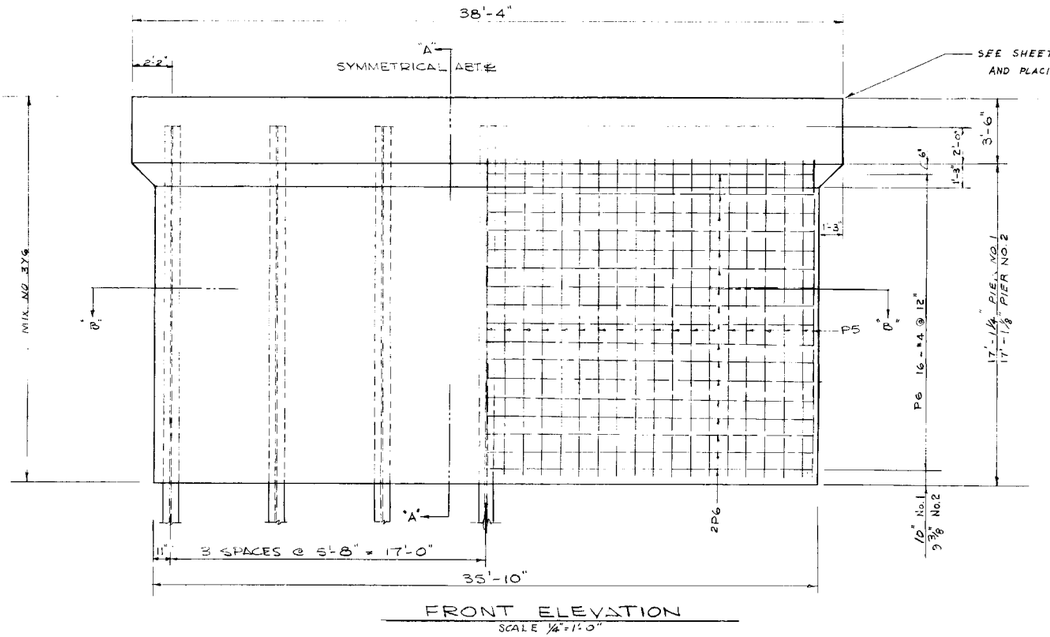
ABUTMENT & PIER DETAILS
30° SKEW

APPROVED

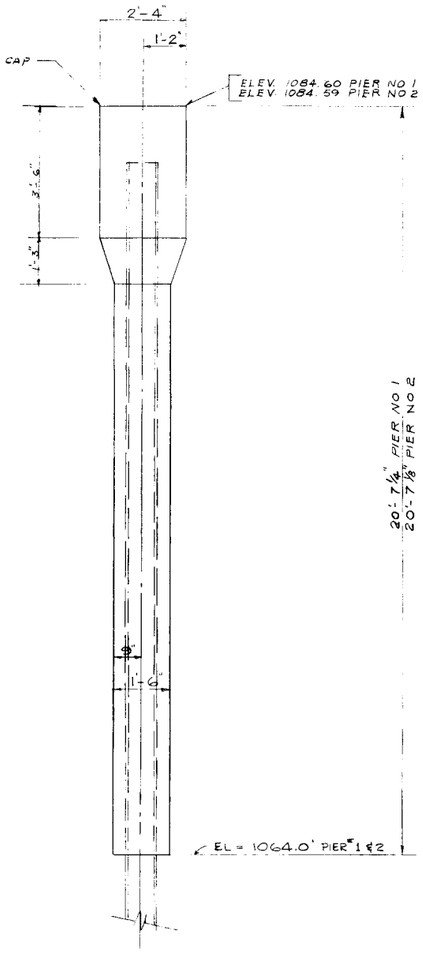
DES.		
DR.	LK.	8-14-57
CK.		

REVISED 7-15-63. BIT. FELT AS AN ALTERNATE FOR MASONRY MORTAR. A.E.H.

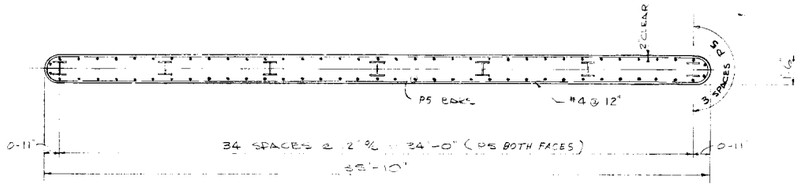
SHEET OF SHEETS



FRONT ELEVATION
SCALE ½" = 1'-0"



SECTION "A-A"
SCALE ½" = 1'-0"



SECTION "B-E"

NORSTAR #17

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 55513

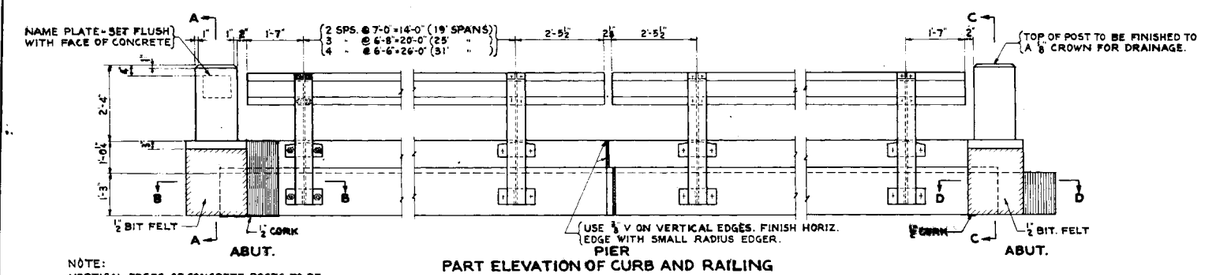
PIER DETAILS

APPROVED: 6-24-65

DES.	DR.
CHK.	CHK.

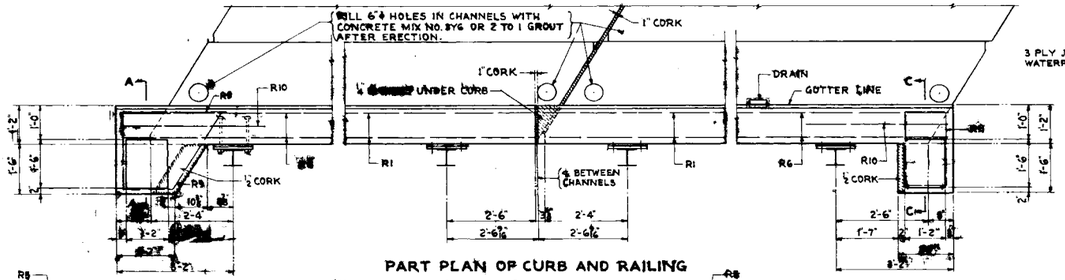
State Proj. No.

Sheet No. 4 **of** 10 **Sheets**

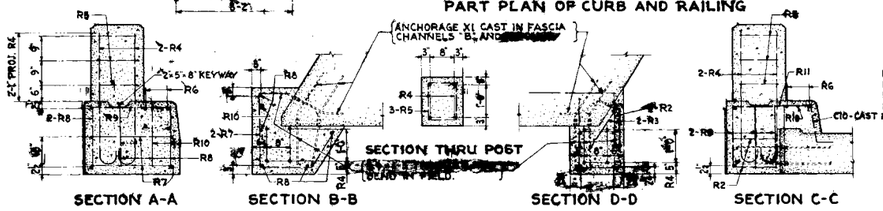


PART ELEVATION OF CURB AND RAILING

NOTE:
VERTICAL EDGES OF CONCRETE POSTS TO BE FINISHED TO A 1/2 RADIUS USING SHEET METAL OR SPECIALLY MILLED WOOD STRIPS.



PART PLAN OF CURB AND RAILING



NO SPLICE IN RAIL PLATES AT STEEL POSTS NEAR ENDS OF EACH SPAN. PERMISSIBLE SPLICE AT THE CENTER LINE OF ALL OTHER POSTS.

C10 - CAST IN CHANNEL

SUMMARY OF QUANTITIES FOR ONE SPAN (SUPERSTRUCTURE ONLY)

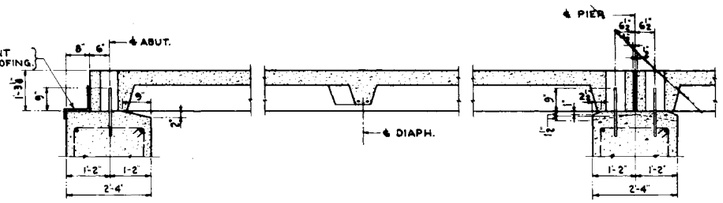
ITEM	UNIT	19 FT. END SPAN	19 FT. CTR. SPAN	25 FT. END SPAN	25 FT. CTR. SPAN	31 FT. END SPAN	31 FT. CTR. SPAN
PRECAST CONC. CHANNELS (NUMBER AND TYPE)	CHANNEL	-A1	-A1	-A2	-A2	-A3	-A3
" " " " " "	"	-B1	—	-B2	—	-B3	—
" " " " " "	"	-C1	—	-C2	—	-C3	—
" " " " " "	"	—	-D1	—	-D2	—	-D3
CONCRETE MIX NO. 3Y6	CU.YD.						
REINFORCEMENT BARS	LB.						
STRUCTURAL STEEL	LB.						
○ 7/8 Φ x 1'-5" BOLT, [illegible] NUT	EA.						
○ 7/8 Φ x 10" BOLT, " " " " " & CUT WASHER	EA.						
○ 1 1/8 Φ x 14" BOLT, SQ. OR HEX. HEAD, HEAVY HEX. NUT, & 3"-3 x 1/4 WASHER	EA.						
3/4 Φ x 1'-3" ROD, THREADED ONE END	EA.	12	—	12	—	12	—
○ BEVEL WASHER - SEE DETAIL	EA.						

○ GALVANIZED AS PER M.H.D. 3392.

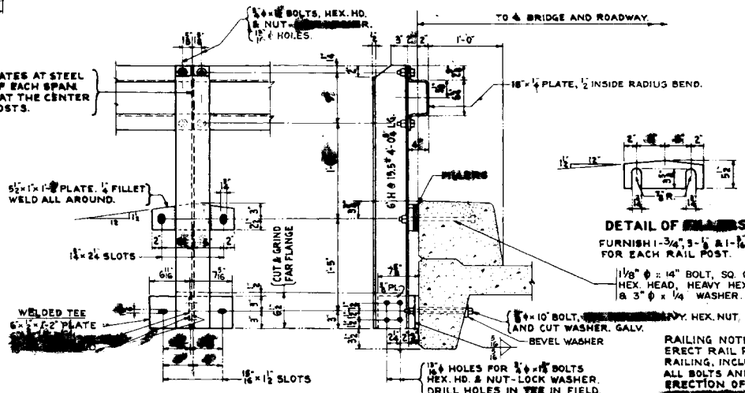
REINFORCEMENT BARS REQUIRED FOR ONE SPAN (SUPERSTRUCTURE ONLY)

MARK	19 FT. SPAN NO.	SIZE	LENGTH	25 FT. SPAN NO.	SIZE	LENGTH	31 FT. SPAN NO.	SIZE	LENGTH	SHAPE	LOCATION
+ R1	4	#4	18'-8"	4	#4	24'-8"	4	#4	30'-8"	STR.	CURB - LONGIT.
R2	2	#4	5'-10"	2	#4	5'-10"	2	#4	5'-10"	BENT	UNDER CONC. POST-TRANSV.
R3	2	#4	1'-8"	2	#4	1'-8"	2	#4	1'-8"	STR.	" - "
R4	8	#6	4'-8	8	#6	4'-8"	8	#6	4'-8"	L-HOOK	RAIL POST - VERT.
R5	6	#3	4'-8"	6	#3	4'-8"	6	#3	4'-8"	BENT	" - " HORIZ.
R6	4	#4	19'-4"	4	#4	25'-4"	4	#4	31'-4"	STR.	CURB - LONGIT.
R7	2	#6	[illegible]	2	#6	5'-9"	2	#6	5'-9"	BENT	UNDER CONC. POST-TRANSV.
R8	12	#4	[illegible]	12	#4	[illegible]	12	#4	[illegible]	STR.	" - " VERT.
R9	1	#8	[illegible]	1	#8	[illegible]	1	#8	[illegible]	BENT	" - " HORIZ.
R10	2	#5	5'-11"	2	#5	5'-11"	2	#5	5'-11"	"	CURB - OVER ABUT.
R11	1	#6	7'-1"	1	#6	7'-1"	1	#6	7'-1"	"	" - " "

+ FOR CENTER SPAN ONLY.
[illegible] SPAN.



PART LONGITUDINAL SECTION
AT RIGHT ANGLES TO ABUTS AND PIERS.

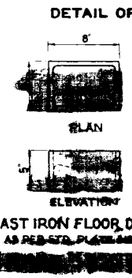


NOTE: [illegible] HOLES FOR 7/8" Φ BOLTS HEX. HD. & NUT-LOCK WASHER. DRILL HOLES IN [illegible] IN FIELD.

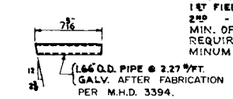
RAILING NOTES -
ERECT RAIL POSTS NORMAL TO GRADE.
RAILING, INCLUDING POSTS, TEES, SHIMS AND ALL BOLTS AND WASHERS REQUIRED FOR THE ERECTION OF RAILING, TO BE [illegible]

PAINT:
SHOP COAT - RED LEAD AS PER M.H.D. 3506.
1ST FIELD COAT - ALUMINUM AS PER M.H.D. 3527.
2ND " - " ALUMINUM AS PER M.H.D. 3525.
MIN. OF 72 HOURS OF DRYING TIME WILL BE REQUIRED BETWEEN SUCCESSIVE COATS OF ALUMINUM PAINT DURING SUITABLE WEATHER.

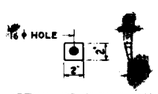
DETAIL OF RAIL POSTS



CAST IRON FLOOR DRAIN
AS PER STD. PLATE [illegible]

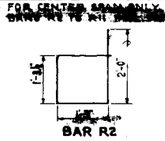


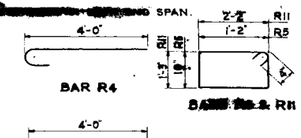
DETAIL OF PIPE SLEEVES
SEE SUMMARY OF QUANTITIES FOR ONE CHANNEL ON SHEET NO.

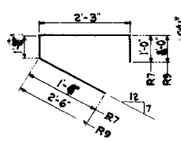


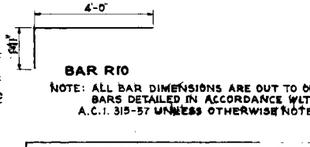
DETAIL OF BEVEL WASHER
GALV.
(RIDGEWAY MALLEABLE IRON BEVEL WASHER OR APPROVED EQUAL.

CLASS A OR CLASS D AGGREGATE WILL NOT BE REQUIRED FOR CURBS AND RAIL POSTS. THE AGGREGATE SHALL MEET THE QUALITY REQUIREMENTS FOR BRIDGE DECK CONCRETE.









NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT. BARS DETAILED IN ACCORDANCE WITH A.C.I. 315-57 UNLESS OTHERWISE NOTED.

JOINT MATERIAL -
PREFORMED CORK AS PER A.A.S.H.O. M153 (TYPE I)
2 PCS. 2" x 1/2 x 2'-0" } IN BRIDGE SEAT AT EACH END
2 PCS. 7" x 1/2 x 2'-0" } OF ABUTMENTS.
● PCS. 15" x 1" BETWEEN ENDS OF CHANNELS OVER PIERS. SEE SHEET
PCS. 12" x 1" x 1'-8" CUT TO FIT. THRU CURB OVER PIERS.
PREFORMED BITUMINOUS JOINT FILLER MATERIAL AS PER M.H.D. 3701.
2 PCS. 18" x 1/2 x 2'-0" } 4 CORNERS OF BRIDGE.
2 PCS. 19" x 1/2 x 2'-0" }
SECURE CORK JOINT MATERIAL, EXCEPT PIECES ● TO CONCRETE WITH 2 1/2" LG. 11 GA. COPPER NAILS PLACED AT 18" CENTERS.
PAYMENT: FOR BIT. FELT, PREFORMED CORK, ASPHALTIC CEMENT AND COPPER NAILS INCLUDED IN PRICE BID FOR OTHER ITEMS.
THE LIST OF JOINT FILLER MATERIAL IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. ANY ADDITIONAL JOINT MATERIAL REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.
TRIM ALL JOINT FILLER IN FIELD AS NECESSARY.

SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE

○ PRECAST CONC. CHANNEL	CHANNELS
"	"
"	"
"	"
CONCRETE MIX NO. 3Y6 (FIELD PLACED)	CU.YD.
REINFORCEMENT BARS	LB.
STRUCTURAL STEEL	LB.
*	
3 PLY JOINT WATERPROOFING	LIN.FT.
+ PREFORMED CORK - SEE LIST	
+ BITUMINOUS JOINT FILLER - SEE LIST	
+ GROUT AND MASONRY MORTAR	
△ 7/8 Φ x 1'-8" BOLTS, [illegible] HVY. HEX. NUT	
△ 7/8 Φ x 10" " " " " "	
△ 1 1/8 Φ x 14" BOLT, SQ. OR HEX. [illegible]	
△ 3/4 Φ x 1'-3" RODS, THREADED ONE END	
□ △ BEVEL WASHERS - SEE DETAIL. GALV.	

□ GALVANIZED AS PER M.H.D. 3392.
△ [illegible] FOR [illegible] STRUCTURE
* [illegible] SEE [illegible] SHEET
+ INCLUDED IN PRICE BID FOR OTHER ITEMS

○ UNIT PRICE BID FOR EACH PRECAST CONC. CHANNEL TO INCLUDE ALL COMPONENTS AND MATERIAL LISTED IN THE SUMMARY OF QUANTITIES FOR ONE CHANNEL, UNLESS OTHERWISE NOTED. SEE SHEET NO.

USE TABLES AND DETAILS FOR THE DESIGNATED BRIDGE SPAN LENGTHS ONLY. DETAILS ARE SHOWN FOR A RIGHT SKEW.

Des.		
Dr.	AK	Apr. 53
Ck.		[illegible]

REVISED 10- [illegible]

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

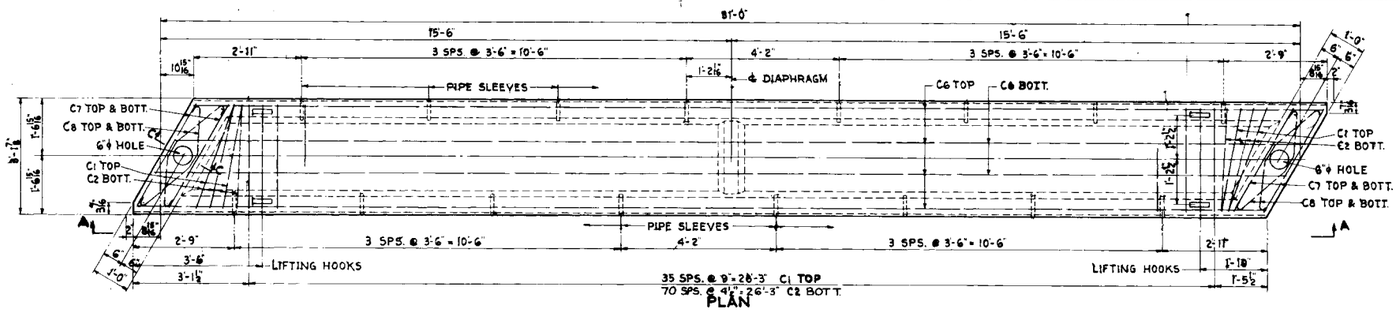
BRIDGE NO.

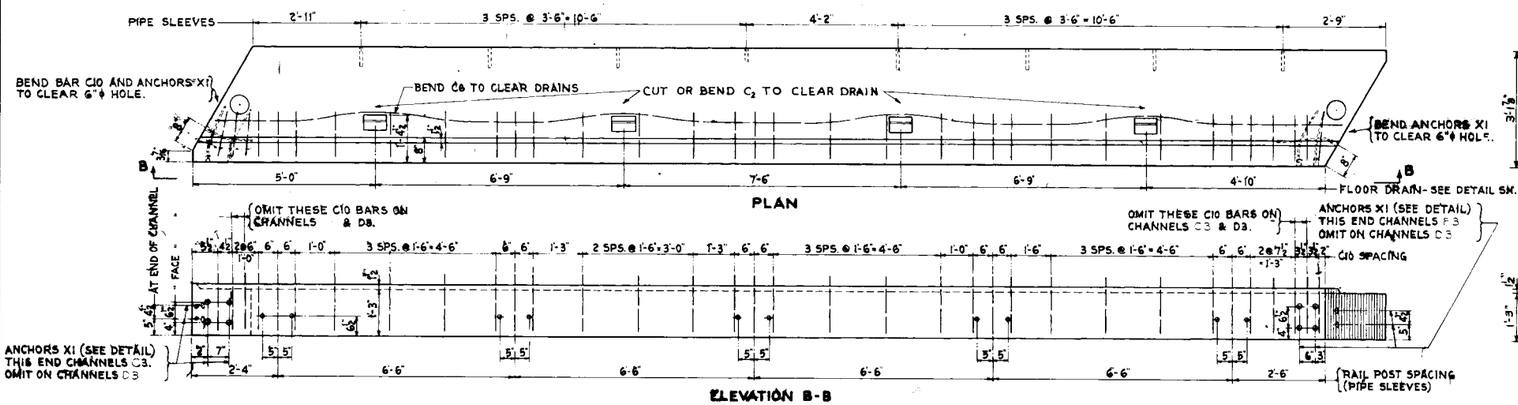
PRECAST CONCRETE SPANS

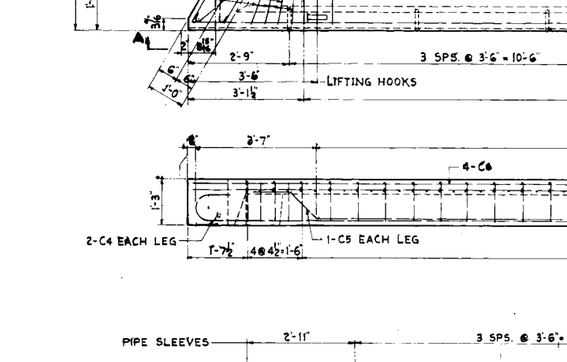
SUPERSTRUCTURE DETAILS
30° SKEW

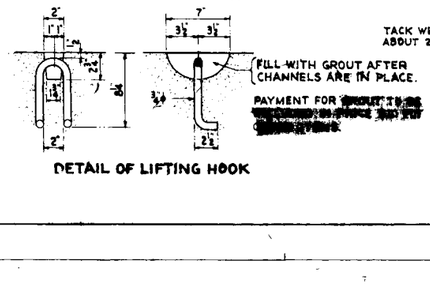
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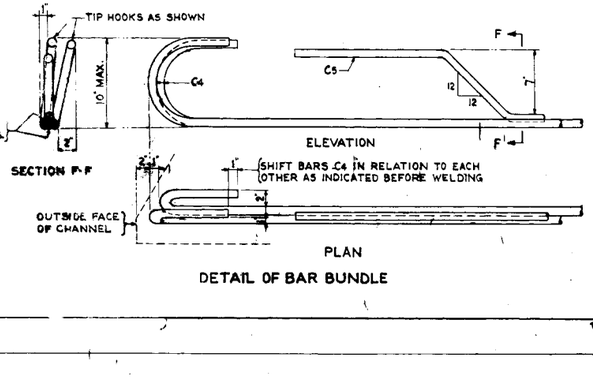
SHEET OF SHEETS

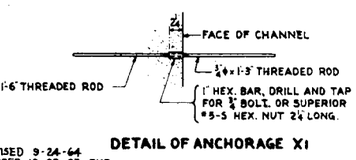


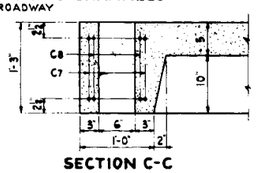


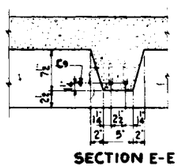


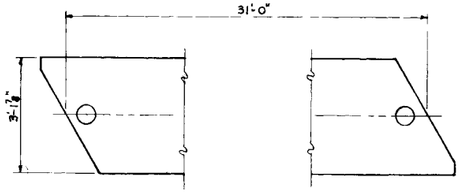




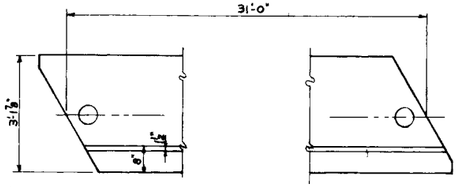














SKETCH SHOWING ENDS FOR LEFT SKEW

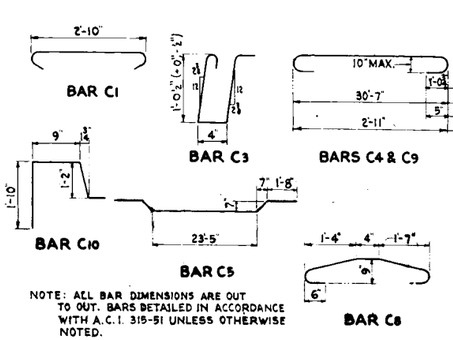
ALL DETAILS, DIMENSIONS, NOTES ETC. TO BE THE SAME AS FOR THE RIGHT SKEW OR AS NOTED.

NOTE-
FOR PRECAST CONCRETE CHANNELS - SEE M.H.D. 2404 & SPEC. PROV. THE CENTER CHANNEL SHALL BE ERECTED FIRST IN EACH BAY OF THE STRUCTURE. OTHER CHANNELS SHALL BE ERECTED OUTWARD FROM CENTER, KEEPING THE LAYING DISTANCE AS NEAR AS POSSIBLE TO 3'-2". GROUT FOR KEYWAYS SHALL CONSIST OF 1 PART PORTLAND CEMENT, ½ PART OF HYDRATED LIME OR APPROVED EQUIVALENT, 3 PARTS OF CLEAN SAND, ALL MEASURED BY VOLUME, AND SUFFICIENT WATER TO PRODUCE THE DESIRED CONSISTENCY. PAYMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
SLABS TO BE LAID UP TIGHT.

REINFORCEMENT BARS REQ'D FOR ONE PRECAST CHANNEL

MARK	SHAPE	NO. OF BARS IN CHANNELS A3	B3 - C3	D3		SIZE	LENGTH
C1	2-HOOKS	40	40	40		#4	3'-7"
C2	STRT.	79	79	79		#4	2'-6"
C3	BENT	84	84	84		#3	3'-4"
C4	2-HOOKS	4	4	4		#11	33'-5"
C5	BENT	2	2	2		#10	28'-5"
C6	STRT.	6	6	6		#5	30'-8"
C7	"	8	8	8		#5	3'-1"
C8	BENT	8	8	8		#5	4'-8"
C9	2-HOOKS	2	2	2		#5	4'-1"
C10	BENT	-	32	30		#4	4'-3"

o 2-C4 AND 1-C5 TO BE TACK WELDED TOGETHER INTO A BUNDLE - SEE DETAIL.



NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT. BARS DETAILED IN ACCORDANCE WITH A.C.I. 315-51 UNLESS OTHERWISE NOTED.

SUMMARY OF QUANTITIES FOR ONE CHANNEL

ITEM	UNIT	CHANNEL A3	B3-C3	D3	
CONCRETE MIX NO. 3W24	CU.YD.	2.71	2.84	2.84	
REINFORCEMENT BARS	LB.	1858	1649	1643	
¾ϕ LIFTING HOOKS	EA.	4	4	4	
STD. PIPE SLEEVES	-	16	18	18	
FLOOR DRAIN	-	-	4	4	
ANCHORAGES X1	-	-	6	7	

+ ¾ϕ×1'-3" RODS INCLUDED IN WEIGHT OF STRUCTURAL STEEL.

DESIGN DATA:
1961 A.A.S.H.O. DESIGN SPECIFICATIONS.
H 20 S16 LIVE LOADING.
DISTRIBUTION IN ACCORDANCE WITH ART. 1.3.2
f_c = 2000 p.s.i.
f_s = 20,000 p.s.i. (INTERMEDIATE GRADE)
n = 6

THIS SHEET TO BE USED FOR ALL 31 FT. CHANNELS 30° SKEW. USE ONLY THE RIGHT OR THE LEFT SKEW AS REQUIRED FOR THIS BRIDGE.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO.

31 FT. PRECAST CONCRETE SPANS

PRECAST CONC. CHANNEL DETAILS 30° SKEW

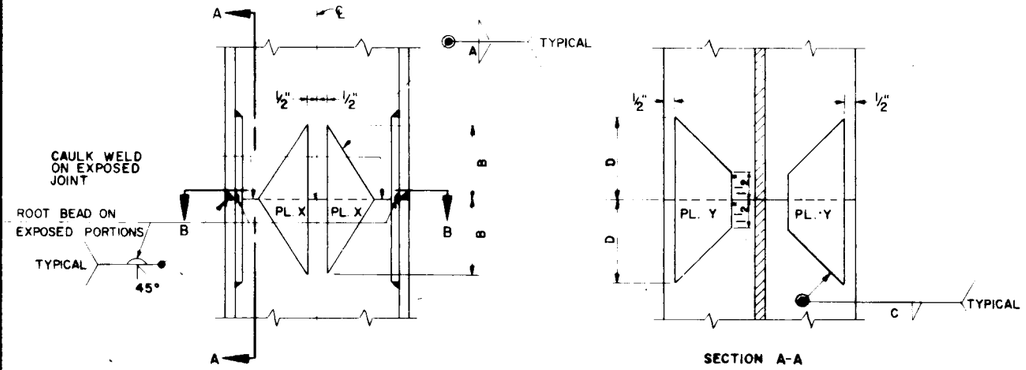
APPROVED:

DES.	
DR.	LK
CK.	

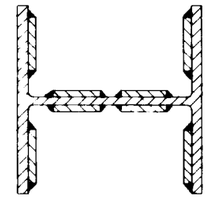
REVISED 9-24-64
REVISED 10-23-63 RKR
REVISED 7-10-62.

SHEET OF SHEETS

DR.
CK.
CK.

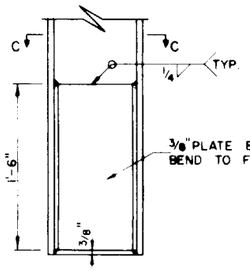


SECTION A-A



SECTION B-B

PILE SECTION	PLATE X SIZE	A	B	PLATE Y SIZE	C	D
10BP42	2½ x 3/8	1/4	4	3 x 3/8	5/16	4
10BP57	2½ x ½	5/16	4	3 x ½	5/16	5
12BP53	3½ x 3/8	1/4	5	4 x 3/8	5/16	5
12BP74	3½ x ½	5/16	6	4 x ½	5/16	6
14BP73	4½ x 3/8	1/4	7	5 x 3/8	5/16	6
14BP89	4½ x 7/16	5/16	7	5 x ½	5/16	7
14BP102	4½ x ½	5/16	7	5 x 9/16	3/8	7
14BP117	4½ x 9/16	3/8	7	5 x 5/8	3/8	8



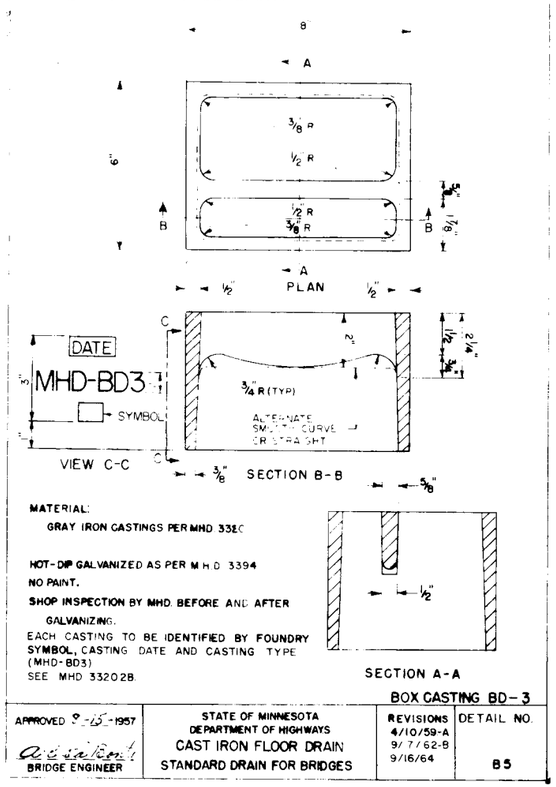
SECTION C-C

EACH PILE TIP REINFORCEMENT WILL BE PAID FOR IN AMOUNT EQUAL TO 250 POUNDS OF STEEL PILING DELIVERED FOR 10" & 12" PILES AND 300 POUNDS OF STEEL PILING DELIVERED FOR 14" PILES. NO PILE TIPS SHALL BE REINFORCED EXCEPT BY WRITTEN ORDER OF THE ENGINEER.

NOTES:
PILE ENDS AT SPLICE TO BE SQUARE.
WELDING SEQUENCE
A PILES SPLICED ON SKIDS BEFORE DRIVING.
1. BUTT WELD FLANGES.
2. WELD WEB SPLICE PLATES.
3. WELD FLANGE SPLICE PLATES.
4. MAKE CAULK WELDS & ROOT BEADS.
B PILES SPLICED IN LEADS.
1. WELD SPLICE PLATES TO EXTENSION BEFORE ASSEMBLY.
2. CLAMP SECTIONS TOGETHER AND HOLD RIGID. BUTT WELD FLANGES.
3. WELD SPLICE PLATES TO DRIVEN SECTION.
4. MAKE CAULK WELDS & ROOT BEADS.
WELDING ELECTRODE M.H.D. 3339.
CLASSIFICATION A.S.T.M. E 6010. FOR USE WITH DC, REVERSE POLARITY (ELECTRODE POSITIVE) ONLY.
CLASSIFICATION A.S.T.M. E 6012. FOR USE WITH DC STRAIGHT POLARITY (ELECTRODE NEGATIVE), OR AC.
ALL WELDING AS PER M.H.D. 2471.3J
ALL MATERIAL SHALL CONFORM TO M.H.D. 3305.

DETAIL OF PILE TIP REINFORCEMENT

APPROVED 12-19-1958 L.E. LaCourt BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS SPLICES FOR STEEL H BEARING PILES & PILE TIP REINFORCEMENT 10" TO 14"	REVISIONS 6-2-59 7-31-62 12-2-63	DETAIL NO. B 221



MATERIAL:
GRAY IRON CASTINGS PER MHD 3320.

HOT-DIP GALVANIZED AS PER M.H.D. 3394.
NO PAINT.
SHOP INSPECTION BY MHD. BEFORE AND AFTER GALVANIZING.
EACH CASTING TO BE IDENTIFIED BY FOUNDRY SYMBOL, CASTING DATE AND CASTING TYPE (MHD-BD3).
SEE MHD 3320.2B.

BOX CASTING BD-3

APPROVED 8-15-1957 A.C. Nielsen BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS CAST IRON FLOOR DRAIN STANDARD DRAIN FOR BRIDGES	REVISIONS 4/10/59-A 9/7/62-B 9/16/64	DETAIL NO. B5

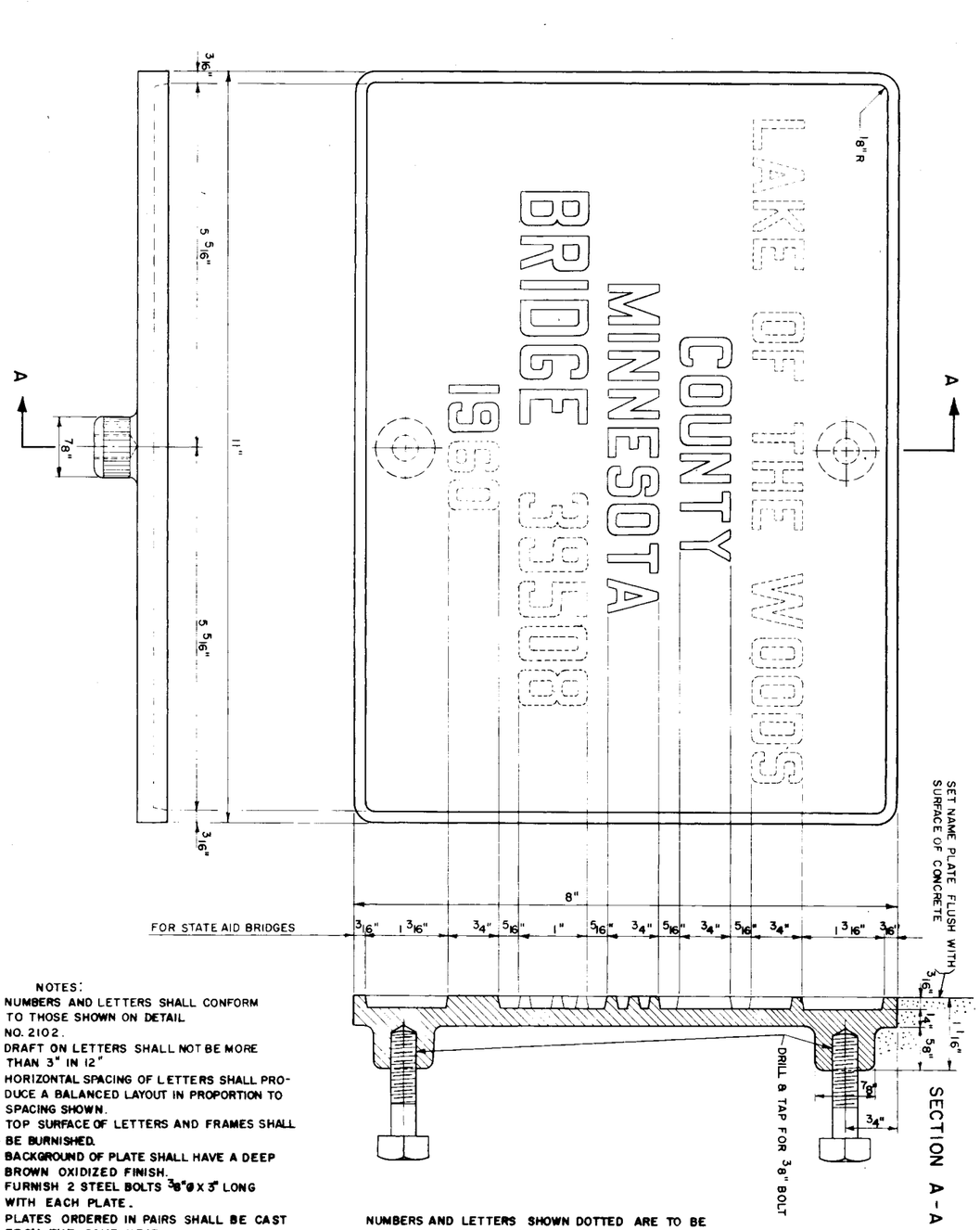
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. .....

DETAILS

APPROVED .....

Sheet No. of Sheets

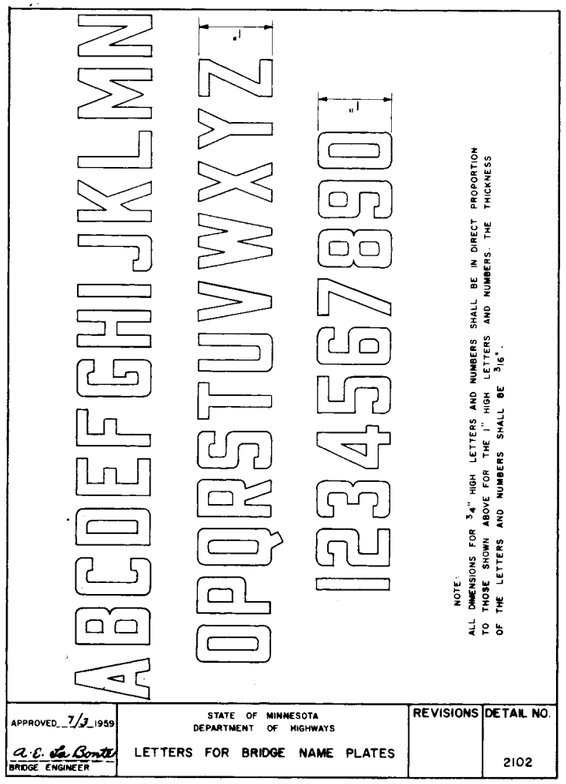


NOTES:
NUMBERS AND LETTERS SHALL CONFORM TO THOSE SHOWN ON DETAIL NO. 2102.
DRAFT ON LETTERS SHALL NOT BE MORE THAN 3" IN 12"
HORIZONTAL SPACING OF LETTERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
TOP SURFACE OF LETTERS AND FRAMES SHALL BE BURNISHED.
BACKGROUND OF PLATE SHALL HAVE A DEEP BROWN OXIDIZED FINISH.
FURNISH 2 STEEL BOLTS 3/8"Ø X 3" LONG WITH EACH PLATE.
PLATES ORDERED IN PAIRS SHALL BE CAST FROM THE SAME HEAT.

NUMBERS AND LETTERS SHOWN DOTTED ARE TO BE OBTAINED FROM BRIDGE PLANS.

SPECIFICATION REFERENCE 2471.3 H, 3327 (BRONZE CASTINGS TYPE 2)

APPROVED _____ 1959 BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS BRIDGE NAME PLATE FOR COUNTY BRIDGES	REVISIONS	DETAIL NO. 2104



NOTE:
ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN ABOVE FOR THE 1" HIGH LETTERS AND NUMBERS. THE THICKNESS OF THE LETTERS AND NUMBERS SHALL BE 3/16".

APPROVED 7/3 1959 A. E. de Bonte BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS LETTERS FOR BRIDGE NAME PLATES	REVISIONS	DETAIL NO. 2102

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. .....

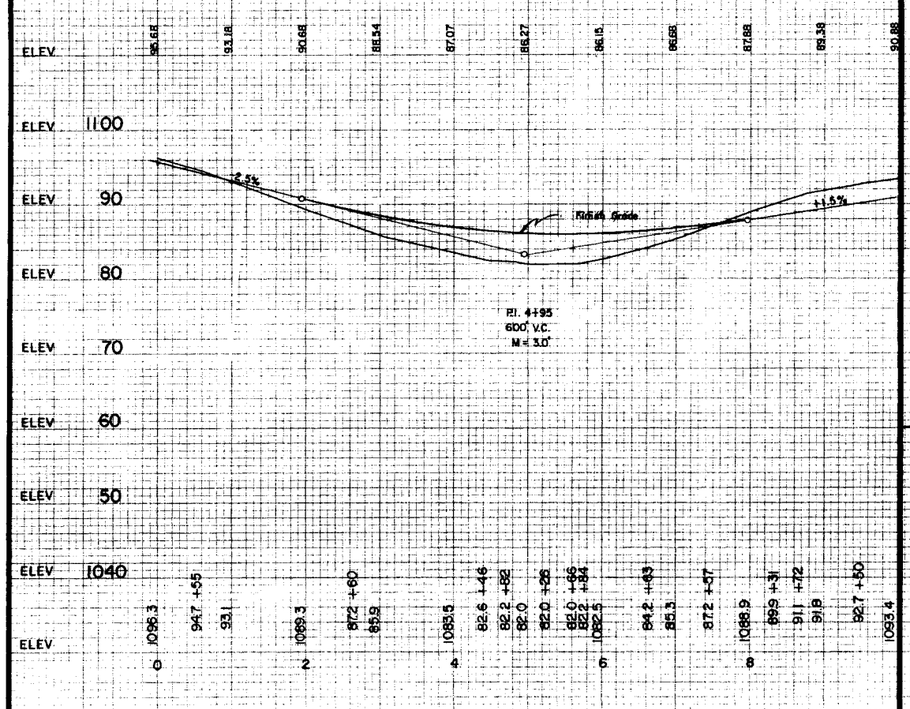
DETAILS

APPROVED _____

Sheet No. of Sheets

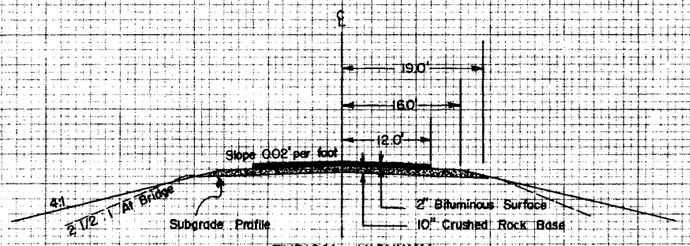
CONTRACTED PROFILE

SCALE: HOR. 1" = 100' VER. 1" = 10'

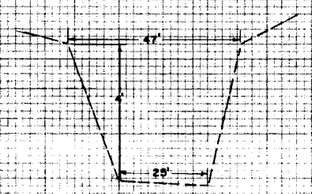


TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

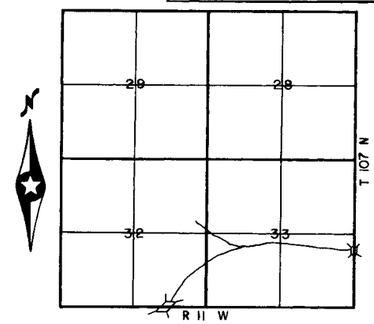


TYPICAL HIGHWAY SECTION



TYPICAL CHANNEL SECTION

Fed. Proj. No.



INDEX MAP
(FOUR SECTIONS)

FOLLOW SEPARATE "INSTRUCTIONS FOR PREPARATION OF BRIDGE SURVEYS" WHEN MAKING BRIDGE SURVEYS.

DATA

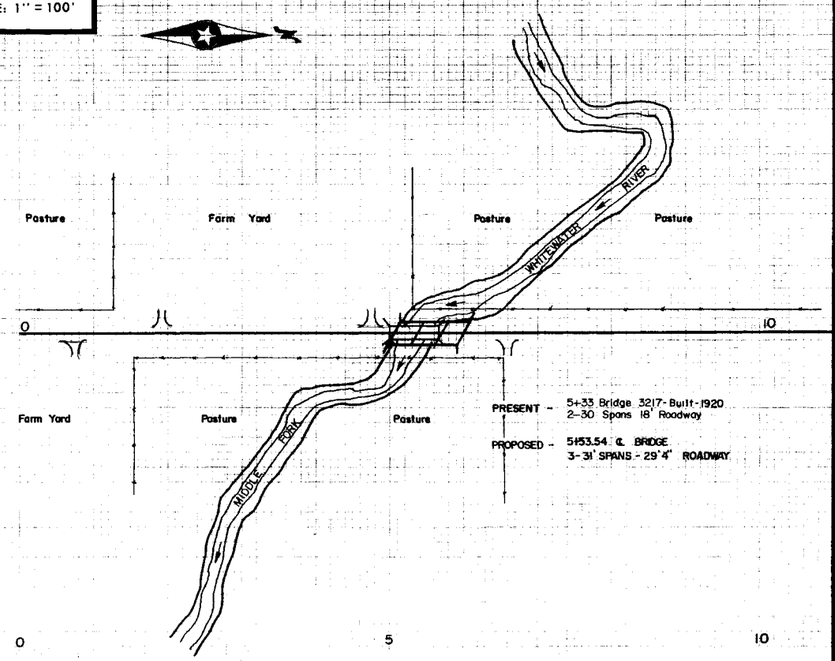
1. Preliminary recommendations of Engineer in charge of Bridge Survey:
   a. Net span length and type of bridge: 3 - 30' Spans
   b. Width of roadway on bridge: 30'
   c. Number and width of sidewalks, if any: None
   d. Locate center of bridge at station: 5+53.54
   e. If a skew bridge is recommended, the angle of skew should be: 30°
   f. Is piling required? Yes - Steel H Piles
2. Special features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc.
   Subject to ice and driftwood
3. Changes: In height or length from that of old bridge, and reasons why: Present bridge is subject to flood. Does not have sufficient clearance from low concrete to high water
4. Other bridges in vicinity:
   a. Over same stream (particularly structures which carry high water without overflow of roadway); give location, length, height above water, net cross-sectional area at high water stage and estimated age
   Upstream 1/2 miles inplace W108T which floods occasionally. Downstream 1/2 miles inplace 2-24' spans 10' waterway - Bridge #1 4324 - Built 1924, subject to load.
   b. Over or under same highway or railroad; give location, length, horizontal and vertical clearances and estimated age
   c. Reasons why these bridges are, or are not, fair indications of what length the proposed bridge should be
5. If structure is over a drainage ditch, is ditch gradient liable to be altered?
6. Navigation clearances required, if any: None
7. Information and evidence in regard to high water stages was obtained as follows: Observation
8. Must contractor provide for traffic during construction of proposed bridge? Yes
   If so, by what means? Temporary by-pass

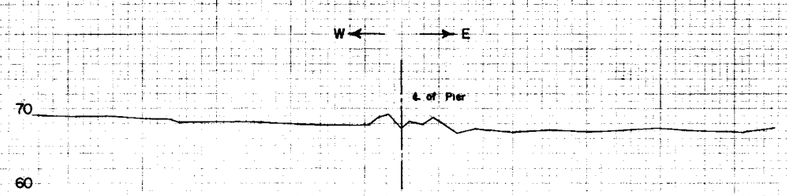
HYDRAULIC ENGINEERS RECOMMENDATION

Drains 14 square miles C=0.55

PLAT

SCALE: 1" = 100'





RIVER BOTTOM PROFILE
Scale: 1"= 100' Hor.
1"= 10' Vert.

B.M. ELEV 1085.06' (M.S.L. 19 ADJ.)
☐ in top Conc. Rail
Sta. 5+00

SEE SHEET OF SHEETS FOR PLAN AND PROFILE

HIGH AND LOW WATER ELEVATIONS

Data obtained from Observation reflects highest water elevation in the area of this construction to be 1078.1 and the lowest water elevation to be Dry (June 1964). The above figures are for informational purposes only. The state neither warrants nor represents that these figures for high water and low water are in any way indicative of the high water or low water to be expected or encountered during this construction.

SHIPPING POINT

Proposed Bridge is 3.5 miles North of * Dover, Minnesota which is the nearest Railroad shipping point.

*(Give name of town, station or siding)

12-1-64 Date — County Engineer

12/1/64 Date — Asst. District Engineer, State Aid

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE SURVEY

FOR

PROPOSED BRIDGE LOCATED 3.5 MILES North OF Dover (TOWN) ON (C.S.A.H. NUMBER) 10

SEC. 33 & 34 TWP. 107N R. 11W

TOWNSHIP Quincy COUNTY Olmsted

SURVEY MADE DURING MONTH OF June 19 64

SURVEY MADE BY Olmsted County Highway

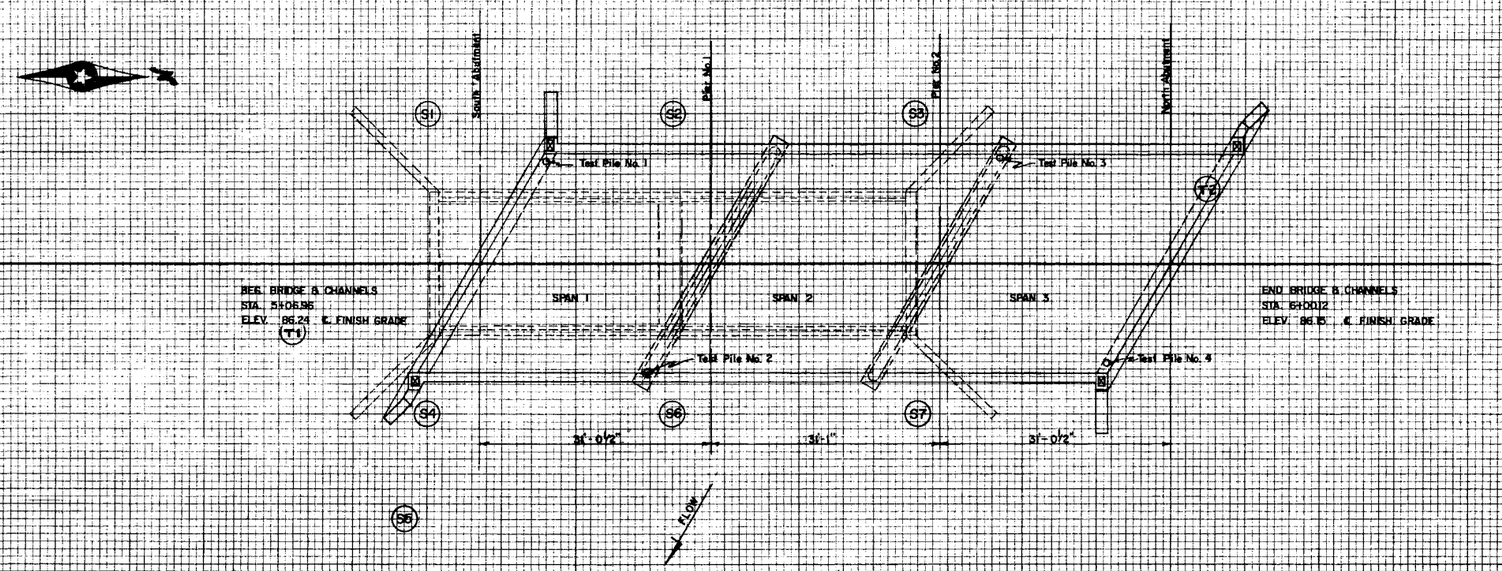
BRIDGE NO. 55513

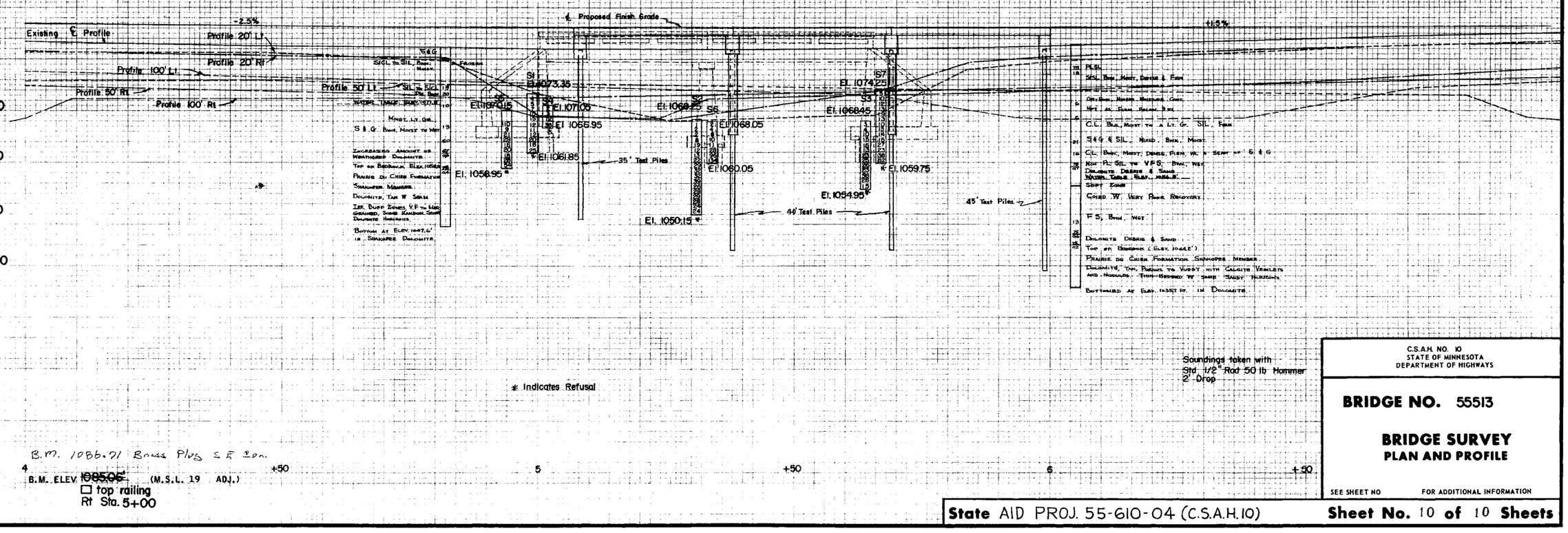
Bridge Survey Sheet (Sheet 1 of 2)

Area No. **Job No.** **State** AID PROJ. 55-610-04 (C.S.A.H 10) **Sheet No.** 9 **of** 10 **Sheets**

Fed. Proj. No.

SCALE: 1" = 10'





C.S.A.H. NO. 10
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 55513

BRIDGE SURVEY
PLAN AND PROFILE

SEE SHEET NO FOR ADDITIONAL INFORMATION

State AID PROJ. 55-610-04 (C.S.A.H. 10) **Sheet No.** 10 **of** 10 **Sheets**

Bridge Survey Sheet (Sheet 2 of 2)