

BOLT NOTE:  
BOLT PROJECTIONS EXCEEDING 1" SHALL BE CUT OFF.  
REPAIR END OF BOLT BY PAINTING WITH ALUMINUM PAINT. M.H.D. 3527

B.M. ELEV. 893.34

TREAT TOPS OF BEARING PILES AS PER M.H.D. 2452.3 F15 PAR. 2, THEN PLACE 20"x20" SHEET 21NC-12GA SOFT TYPE 1 ON TOP OF BRG PILES AT BOTH ABUTS. AS PER M.H.D. 2403.3F PAR. 3

TREAT TOPS OF BEARING PILES AS PER M.H.D. 2452.3 F15 PAR. 2, THEN PLACE 20"x20" SHEET 21NC-12GA SOFT TYPE 1 ON TOP OF ALL PILES AT PIERS AS PER M.H.D. 2403.3F PAR. 3

FILE NOTES  
4 - TREATED TIMBER TEST PILE 60 FT LONG  
26 " " " PILES EST. LENGTH 50 FT  
8 " " " WING PILES 30 FT LONG  
35 " " " PILES REQ'D  
EST. PENETRATION 2 FT. LESS THAN LENGTH GIVEN  
ALL PILES TO BE DRIVEN TO A BEARING OF NOT LESS THAN 15 TONS PER PILE, EXCEPT WING PILES TO BE DRIVEN TO PILE CUTOFF

LIST OF SHEETS	
SH. NO.	DESCRIPTION
1	GENERAL ELEVATION- ABUTMENT & PIER DETAILS
2	SUPERSTRUCTURE- DETAILS
3	BRIDGE SURVEY
4	BRIDGE SURVEY- PLAN AND PROFILE

APPROVED: *E.F. Lundheim*  
COUNTY ENGINEER  
DATE 6/20/66

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.  
DATE 6/20/66 *Robert E. Erickson*  
REG. NO. 2397

PLANS PREPARED BY  
ROBERT E. ERICKSON ENGINEERING CO.  
3340 REPUBLIC AVE. ST. LOUIS PARK MINN.

C.R. NO. 21 ANOKA COUNTY  
STATE OF MINNESOTA  
DEPARTMENT OF HIGHWAYS

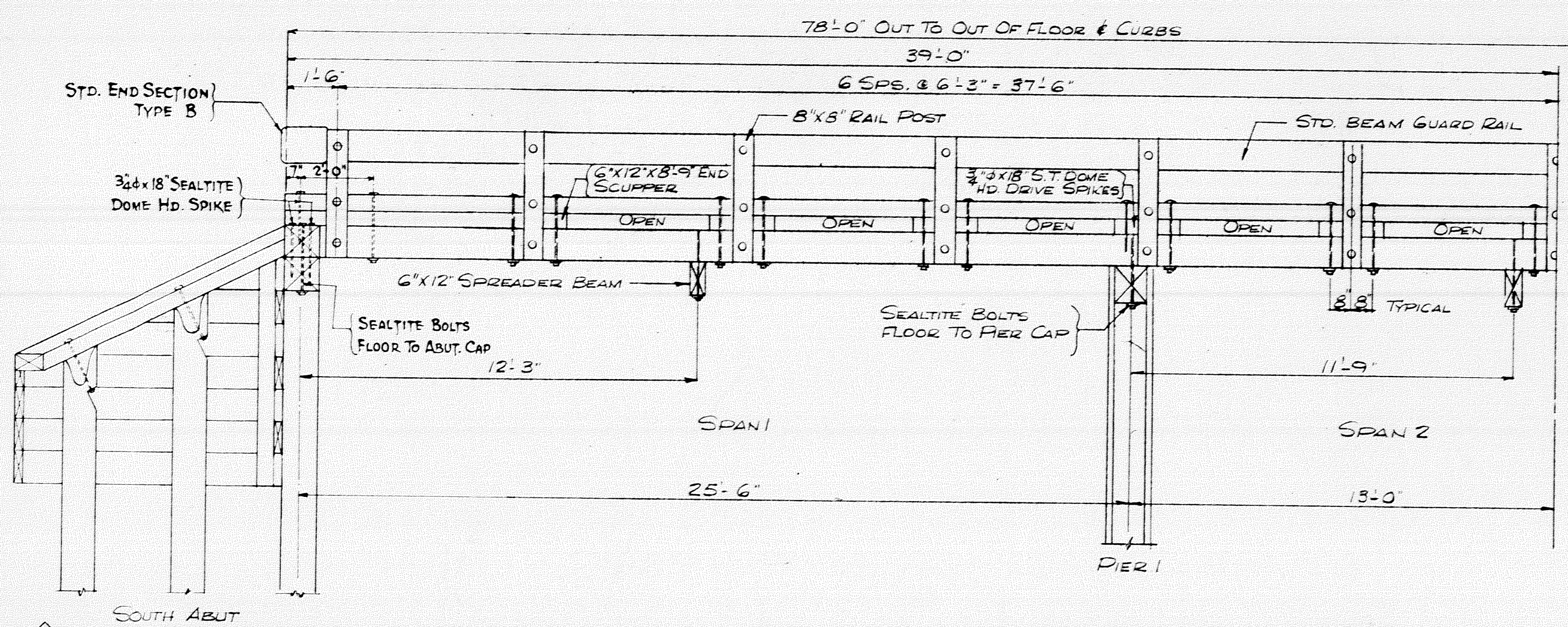
BRIDGE NO. 02519  
OVER SAND CREEK  
6 MILES EAST OF ANOKA  
3-26 FT. TREATED TIMBER SPANS  
29 FT. ROADWAY

GENERAL ELEVATION AND  
ABUTMENT AND PIER DETAILS

SEC. 12 TWP. 1 N R. 24 W  
CITY OF COON RAPIDS ANOKA COUNTY  
02520

DATE: ASST. BRIDGE ENGR.

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE										
ITEM NO.	2403.502	2403.506	2452.503	2452.504	2452.517	2402.586	2402.521	2511.501	2442.501	2441.502
ITEM	TREATED TIMBER	HARDWARE	TREAT. TIMB. DELIVERED	TREAT. TIMB. PILING DRIVEN	TREAT. TIMB. TEST PILES IN PL. 60' LG.	PLATE RAILING	STRUCTURAL STEEL 20,000	RANDOM RIPRAP CLASS A	REMOVE OLD BRIDGE	SINGLE-LANE BY-PASS
UNIT	M.B.M.	LB.	LIN. FT.	LIN. FT.	PILE	LIN. FT.	LB.	CU. YD.	BRIDGE	BY-PASS
QUANTITY	37.24	2470	1540	1472	4	156	750	175	ONE	ONE



**CONSTRUCTION NOTES**  
 THE MINNESOTA HIGHWAY DEPARTMENT'S STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION DATED JAN. 1, 1964 AS AMENDED BY SUPPLEMENTAL SPECIFICATIONS DATED FEB. 1, 1966 SHALL GOVERN.

CONSTRUCTION REQUIREMENTS SHALL CONFORM TO M. H. D. 2403  
 ALL TIMBER SHALL BE AS FOLLOWS: RAIL POSTS SHALL BE 1900<sup>+</sup> M. H. D. 3426  
 THICKNESS OF TIMBER 4" OR LESS SHALL BE 1500<sup>+</sup> M. H. D. 3426  
 THICKNESS OF TIMBER MORE THAN 4" SHALL BE 1500<sup>+</sup> M. H. D. 3426  
 ALL TIMBER IS ROUGH UNLESS DESIGNATED.  
 ALL PILING & TIMBER TO BE CREOSOTE PRESSURE TREATED AS PER M. H. D. 3491  
 ALL PILING TO MEET REQUIREMENTS OF M. H. D. 3471  
 DOWELS FOR FLOOR TO BE PITTSBURG SCREW & BOLT DOUBLE GRIP SCREW TYPE - INDEPENDENT NAIL CO. STRONGHOLD OR APPROVED EQUAL  
 WHEREVER ANY ITEM IS SPECIFIED BY TRADE NAME AN APPROVED EQUAL WILL BE ALLOWED.  
 ALL HARDWARE SHALL BE GALVANIZED AS PER M. H. D. 3392.  
**FLOORING NOTE:**  
 LAMINATE 4 PLANKS TOGETHER USING SCREW DOWELS IN HOLES "B" AND TO NAIL TO CAP SO ONE EDGE IS ON E ROADWAY. THEREAFTER PLACE PLANKS IN PAIRS. FOR PAIRS ON EITHER SIDE OF THE 4 PLANKS DRIVE DOWELS IN HOLES "A". FOR SUCCEEDING PAIRS ON BOTH SIDES OF USE "B" & "A" ALTERNATELY. BEFORE DRIVING SCREW DOWELS PLANKS MUST BE SPIKED TOGETHER WITH 60<sup>#</sup> NAILS SO DOWEL HOLES ARE LINED UP AND EACH PLANK IS IN CONTACT WITH ADJACENT PLANK THROUGHOUT ITS ENTIRE LENGTH.  
 LAMINATIONS MUST BE TIGHT OVER ENTIRE ROADWAY.  
 TECO SPLIT RING, TOOTH RING CONNECTORS AND SINGLE CURVE SPIKE GRIDS SHALL BE INSTALLED BY USING INSTALLATION TOOLS & METHODS RECOMMENDED BY THE MANUFACTURER.

**PLATE RAILING NOTE:**  
 83094  
 GUARD RAIL TO BE AS PER M. H. D. STD. PLT. NO. 8307<sup>+</sup> "PLATE RAILING" TO INCLUDE GUARD RAIL, 4 CURVED END TERMINAL SECTIONS, AND ALL BOLTS, NUTS AND WASHERS REQUIRED TO ASSEMBLE RAILING AND FASTEN IT TO TIMBER RAIL POSTS. RAILING AND CURVED END TERMINAL SECTIONS TO BE GALVANIZED AFTER FABRICATION AS PER M. H. D. 3394. ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED AS PER M. H. D. 3392.  
 LENGTH OF RAILING FOR PAYMENT TO BE MEASURED FROM END TO END OF GUARD RAIL. SEE SPECIAL PROVISIONS.  
 SHOP DETAILS TO BE SUBMITTED TO COUNTY FOR APPROVAL.

BILL OF TIMBER FOR SUPERSTRUCTURE				
ITEM	NO.	FIN. SIZE	LENGTH	F.B.M.
LAMINATED FLOOR	15	SIS 3 1/2	22'-0"	390
"	15	SIS 3 1/2	30'-0"	1350
"	342	SIS 3 1/2	26'-0"	2676
SPREADER BEAM	3	R 6x12	31'-0"	558
RAIL POSTS	26	R 8x8	4'-0"	558
CURB END	4	SAS 6x12	14'-0"	536
" INT.	4	SAS 6x12	25'-0"	600
END SCUPPER INT.	4	SAS 6x12	8'-9"	210
"	18	" 6x12	2'-0"	216
<b>TOTAL F.B.M. FOR SUPERSTRUCTURE</b>				<b>31491</b>

BILL OF TIMBER FOR TWO ABUTMENTS				
PILE CAPS	2	R 12x12	37'-0"	888
ABUTMENT BACKING	6	R 3x12	35'-0"	630
"	6	R 3x12	16'-0"	288
"	6	R 3x12	21'-0"	378
WING BACKING	12	R 3x12	11'-0"	396
"	12	R 3x12	12'-0"	432
WING CORNER NAIL BLKS.	4	REF. 6x10	8'-0"	160
O.S. BLOCKS ON CAP	4	R 12x12	3'-0"	144
PILE STAYS	12	R 8x8	6'-0"	364
WING CAPS	4	SAS 6x14	13'-0"	364
FILLERS	12	R 4x8	1'-6"	48
<b>TOTAL F.B.M. FOR TWO ABUTMENTS</b>				<b>4112</b>

BILL OF HARDWARE FOR SUPERSTRUCTURE				
NO.	ITEM	QTY.	WT.	
3.33	26 3/4"x21" SEALTITE BOLTS RAIL TO POST			87
3.33	26 3/4"x21" SEALTITE BOLTS SPREADER BMS.			94
3.93	14 3/4"x26" " FLOOR TO ABUT CAP			55
3.93	14 3/4"x26" " CURB TO FLOOR			73
4.65	2 3/4"x32" " FLOOR TO CURB			9
2.02	26 3/4"x18" LAG SCREWS RAIL POST TO FLOOR			53
2.30	8 3/4"x18" SEALTITE DOME HD SPIKES CURB TO FL.			18
2.30	8 3/4"x18" " " O.S. BLK TO CAP			18
.22	72 3/8" O.D. x 5 1/2" SCREW DOWELS - FLOOR			16
.40	288 3/8" O.D. x 11" " " " " "			953
43	146 MALL. RIB WASH. FOR 3/4" BOLTS			63
.70	28 4" TECO SPLIT RING OR TOOTH RING CONN.			73
10/#	60 <sup>#</sup> NAILS			220
	<b>156 LIN. FT. PLATE RAILING</b>			<b>1371</b>

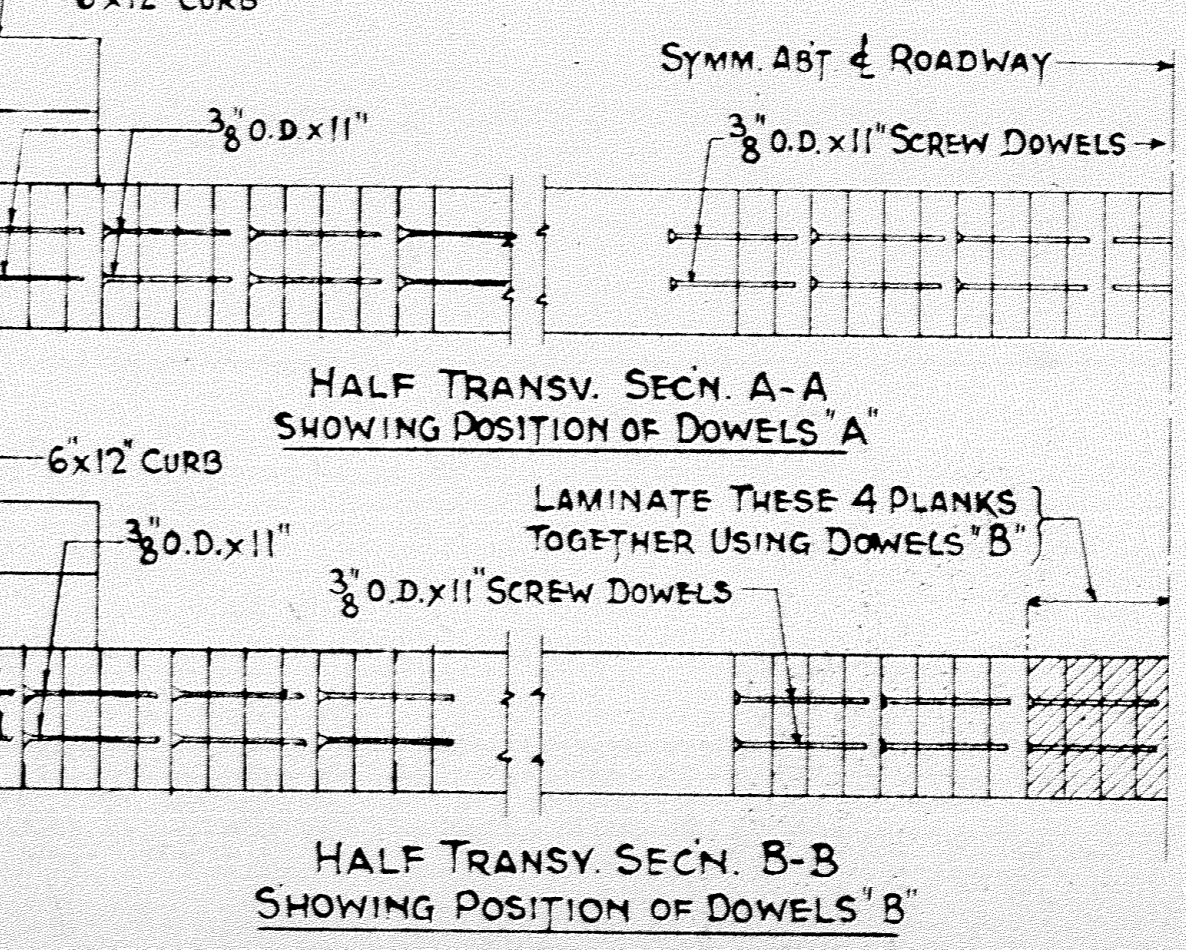
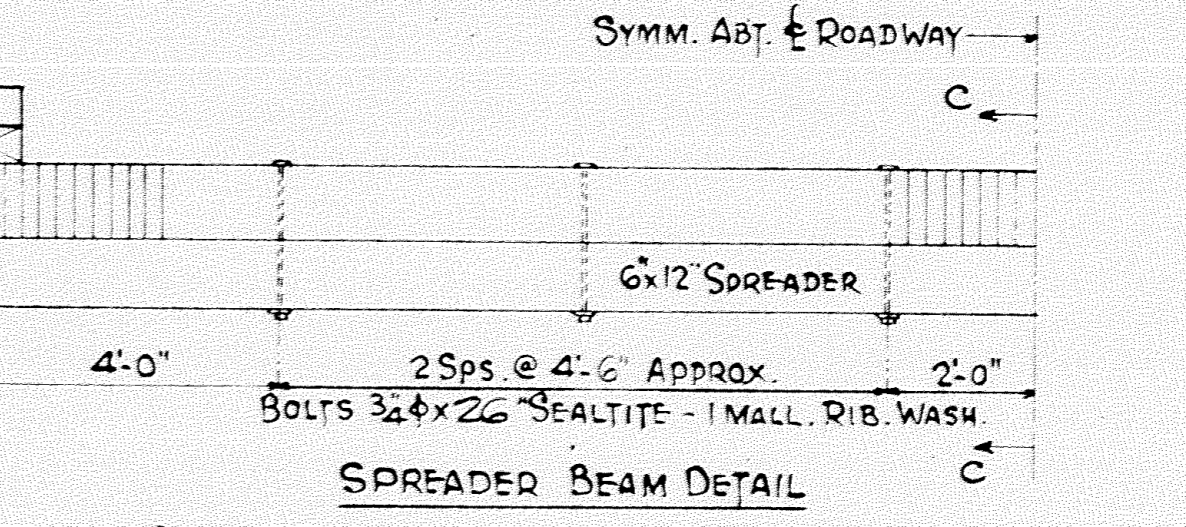
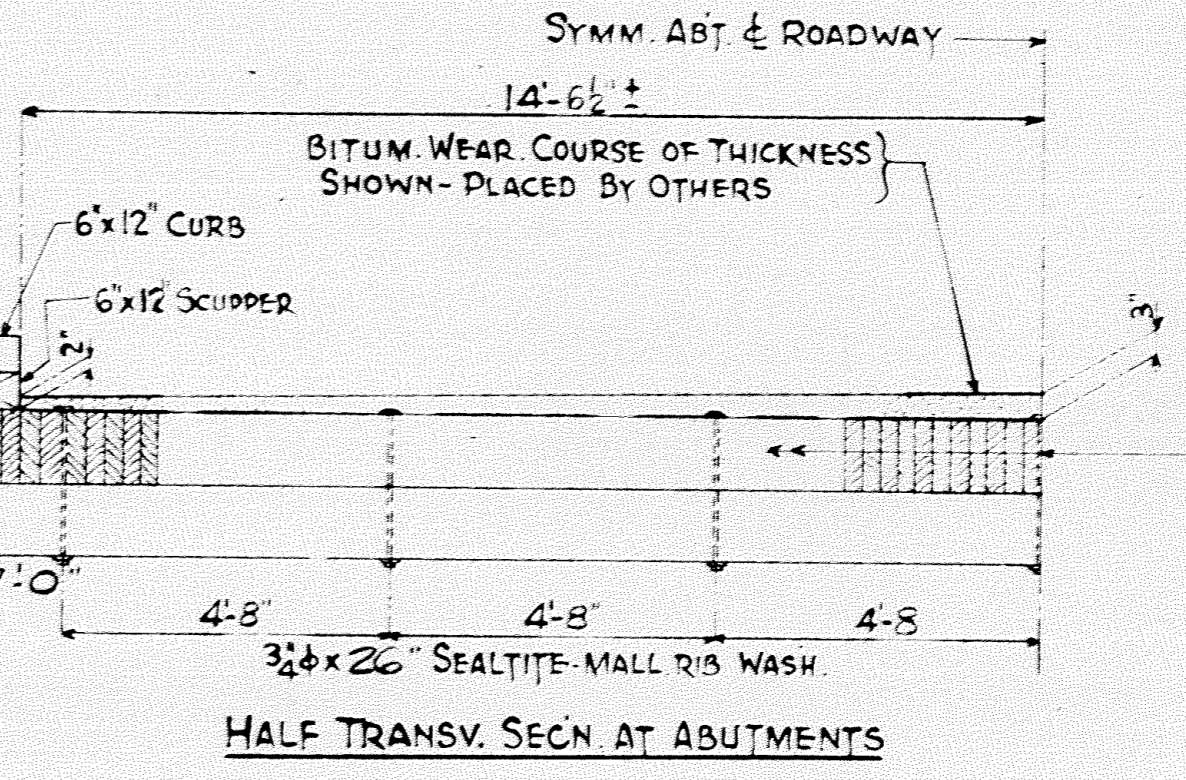
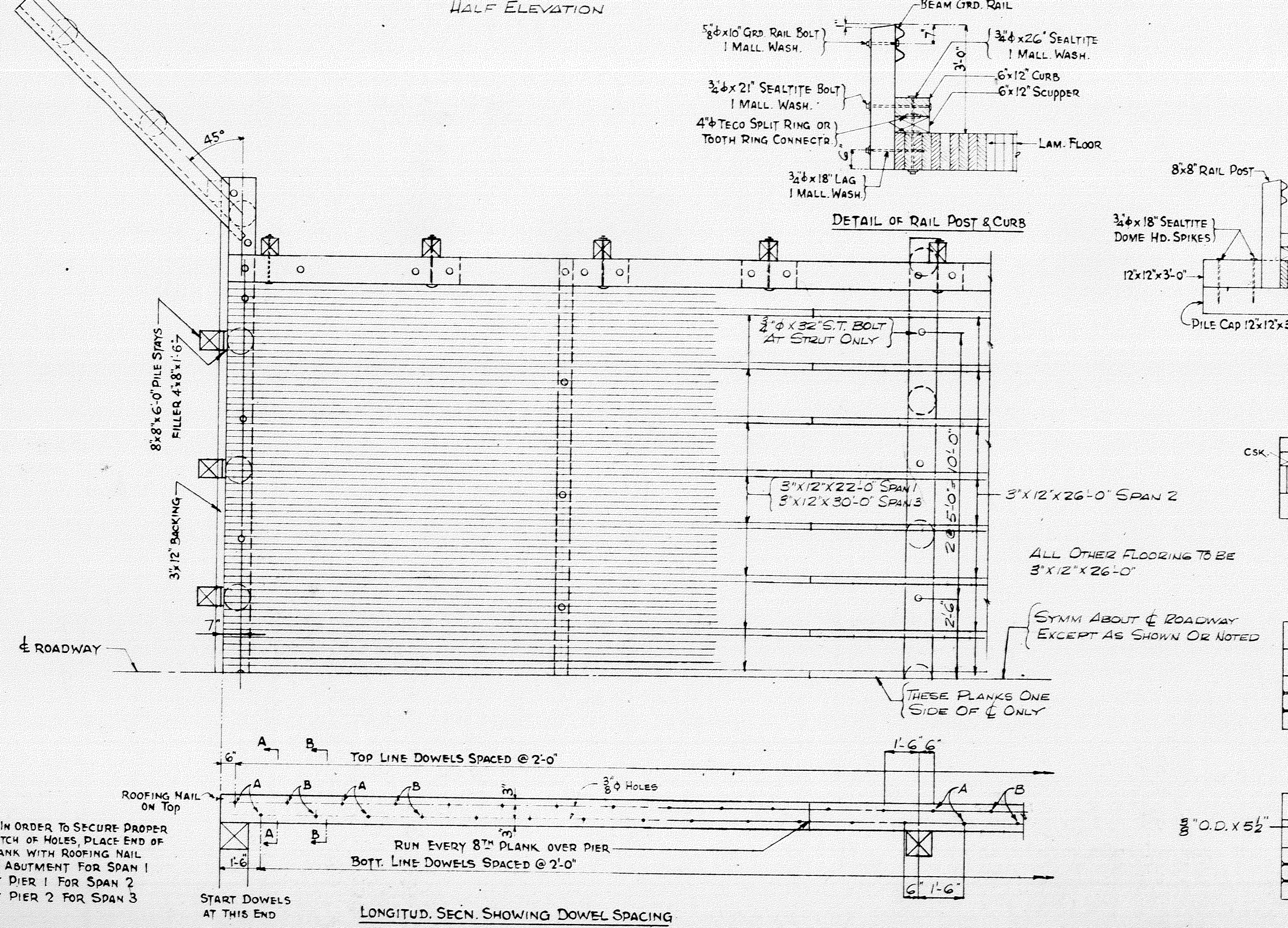
BILL OF HARDWARE FOR TWO ABUTMENTS				
NO.	ITEM	QTY.	WT.	
3.78	16 3/4"x2'-6" DRIFTS CAP TO PILE			60
3.74	36 3/4"x27" BOLTS PILE STAYS			135
1.73	12 3/4"x11" " WING COR. NAIL BLKS.			21
2.12	8 3/4"x22" SEALTITE BOLTS - WING CAP TO PILE			17
.41	36 3/4"x10" BOAT SPIKES			15
.43	96 MALL. RIB WASH. FOR 3/4" BOLTS			41
.28	8 5/8" " " " "			2
10/#	60 <sup>#</sup> NAILS			40
	<b>16 PCS SHEET ZINC 20"x20" 12 GA. TYPE I SOFT M.H.D. 3333</b>			<b>231 LBS.</b>

BILL OF HARDWARE FOR TWO PIERS				
NO.	ITEM	QTY.	WT.	
3.78	16 3/4"x2'-6" DRIFTS CAP TO PILE			60
2.72	12 3/4"x19" BOLTS - SWAY BRACING			33
3.12	14 3/4"x22" " " "			44
2.43	8 3/4"x17" " " "			19
3.09	4 3/4"x19" SEALTITE PILE CAP TO STRUT.			12
2.35	14 3/4"x16" BOLTS ICE BREAKER			33
.70	8 TECO SPLIT RING OR TOOTH RING CONN.			6
.70	40 TECO SINGLE CURVE SPIKE GRIDS			28
.43	86 MALL. RIB WASH. FOR 3/4" BOLTS			37
	<b>14 PCS SHEET ZINC 20"x20" 12 GA. TYPE I SOFT M.H.D. 3333</b>			<b>263</b>

BILL OF TIMBER FOR TWO PIERS				
ITEM	NO.	FIN. SIZE	LENGTH	F.B.M.
PILE CAP	2	R 12x12	33'-0"	792
SWAY BRACING	8	R 3x12	28'-0"	672
STRUTS	2	SAS 6x12	6'-0"	72
BRACING	4	R 3x12	8'-0"	96
<b>TOTAL F.B.M. FOR TWO PIERS</b>				<b>1632</b>
<b>TWO GALV. L. 8 7/8"x1 1/2"x15'-0" ICE BREAKERS</b>				
<b>TOTAL STRUCT. STEEL FOR TWO PIERS 760 LBS.</b>				

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PLANS PREPARED BY  
 ROBERT E. ERICKSON ENGINEERING CO.  
 3340 REPUBLIC AVE. ST. LOUIS PARK, MINN.  
 C.R. NO. 51 ANOKA COUNTY  
 STATE OF MINNESOTA  
 DEPARTMENT OF HIGHWAYS  
 BRIDGE NO. 02519  
 SUPERSTRUCTURE DETAILS  
 APPROVED



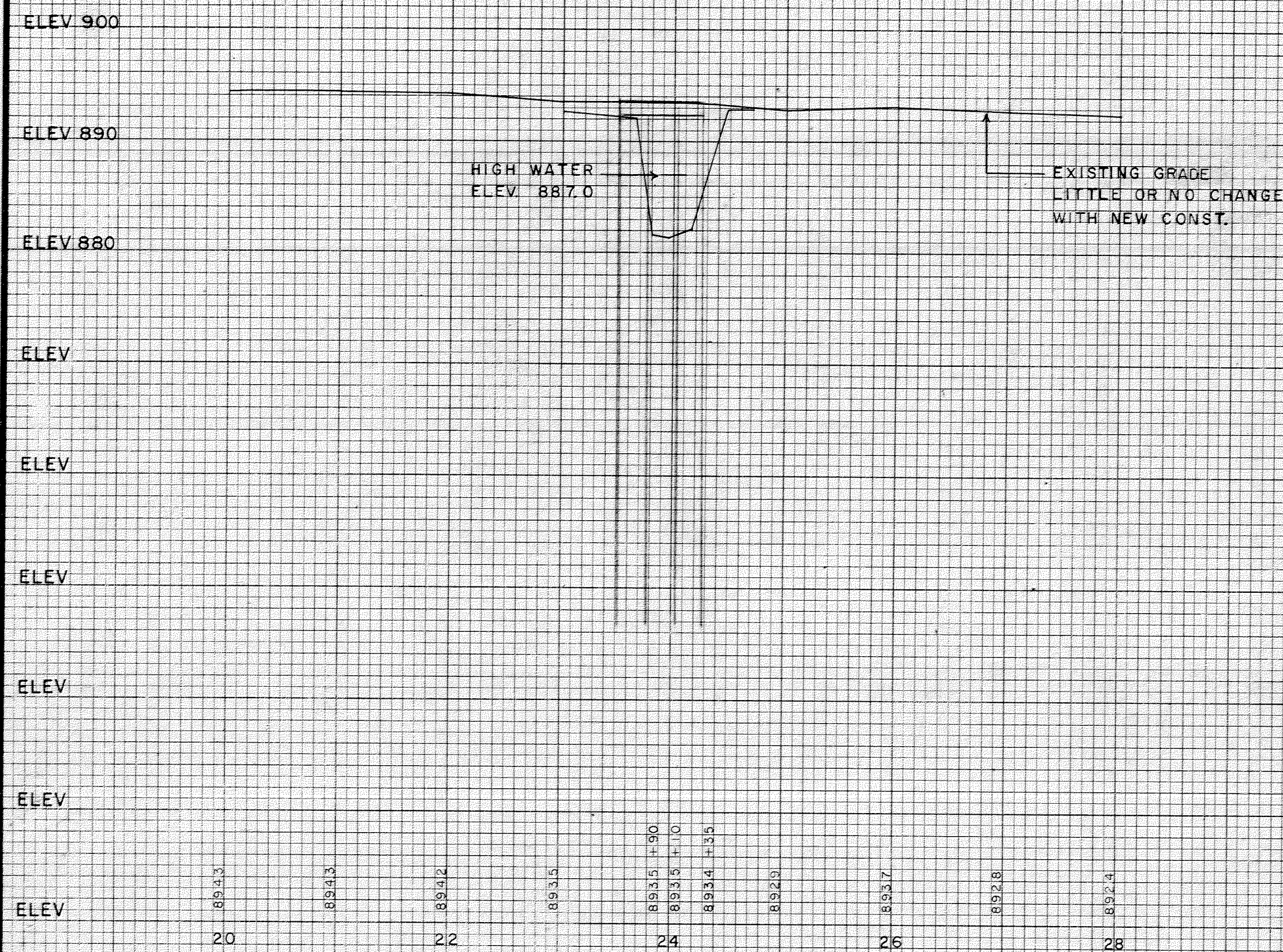
NOTE: IN ORDER TO SECURE PROPER MATCH OF HOLES, PLACE END OF PLANK WITH ROOFING NAIL AT ABUTMENT FOR SPAN 1 AT PIER 1 FOR SPAN 2 AT PIER 2 FOR SPAN 3

INCLUDED IN PRICE BID FOR OTHER ITEMS.  
 ITEM PLATE RAILING  
 WEDGES CUT 2 FROM 1 IN SHOP

02520

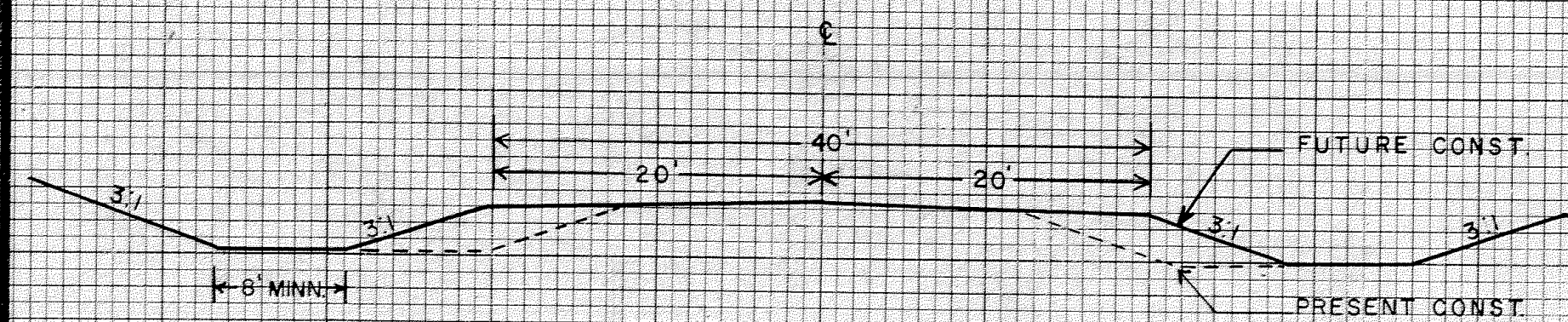
**CONTRACTED PROFILE**

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

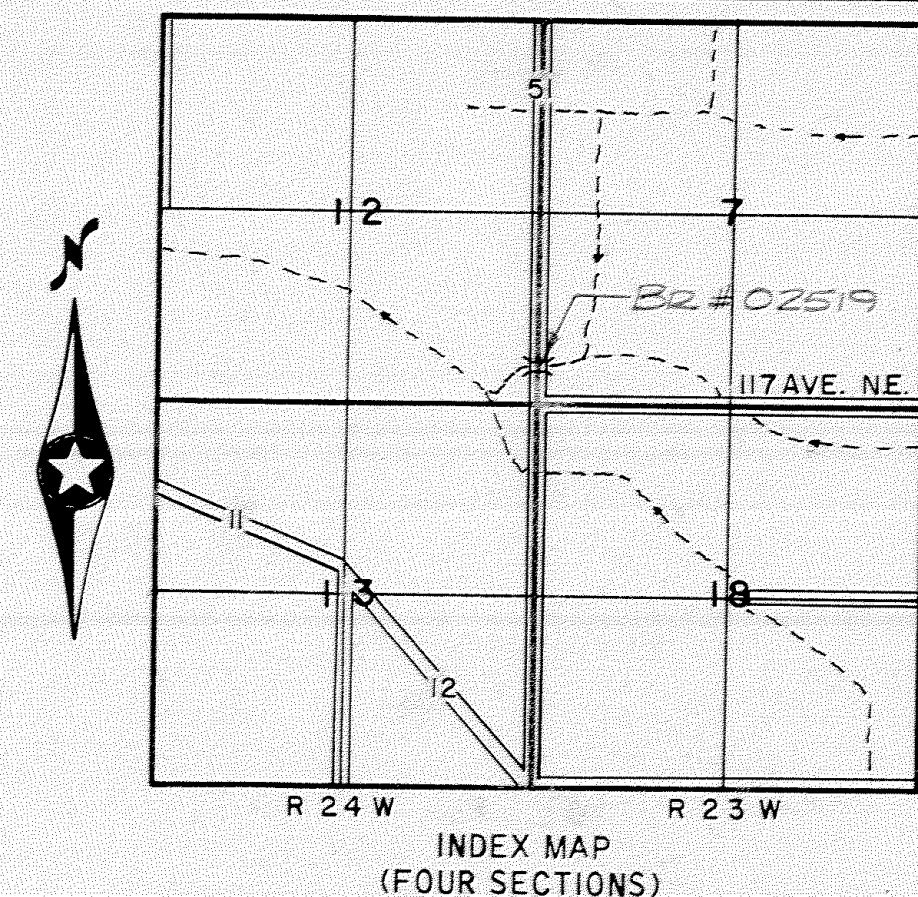


**TYPICAL SECTIONS & PERTINENT DATA**

SCALES AS SHOWN



**Fed. Proj. No.**



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

**DATA**

- Preliminary recommendations of Engineer in charge of Bridge Survey:
  - a. Net span length and type of bridge... *3 Treated Timber Spans @ 26'*
  - b. Width of roadway on bridge... *23+0*
  - c. Number and width of sidewalks, if any... *None*
  - d. Locate center of bridge at station... *23+90*
  - e. If a skew bridge is recommended, the angle of skew should be... *NONE*
  - f. Is piling required?... *YES*
- Special features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc. .... *NONE*
- Changes: In height or length from that of old bridge, and reasons why... *4 INCHES UP TO ACCOMMODATE ADDITIONAL SURFACE*
- 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. APPROX. 2 MI. DOWNSTREAM 1-48" C.M.P. 1-60" C.M.P. IMPROVED 1965. NET CROSS SECTION AREA 14.1 SQ. FT.
  - 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
- If structure is over a drainage ditch, is ditch gradient liable to be altered?... *YES*
- Navigation clearances required, if any... *NONE*
- Information and evidence in regard to high water stages was obtained as follows
- Must contractor provide for traffic during construction of proposed bridge?... *YES*  
If so, by what means?... *BY PASS*

**HYDRAULIC ENGINEERS RECOMMENDATION**

.....

**HIGH AND LOW WATER ELEVATIONS**

Data obtained from... *LOCAL RESIDENT* reflects highest water elevation in the area of this construction to be... *887.0* and the lowest water elevation to be... 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... *6* miles EAST of *ANOKA* which is the nearest Railroad shipping point.  
\*(Give name of town, station or siding)

**STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS**

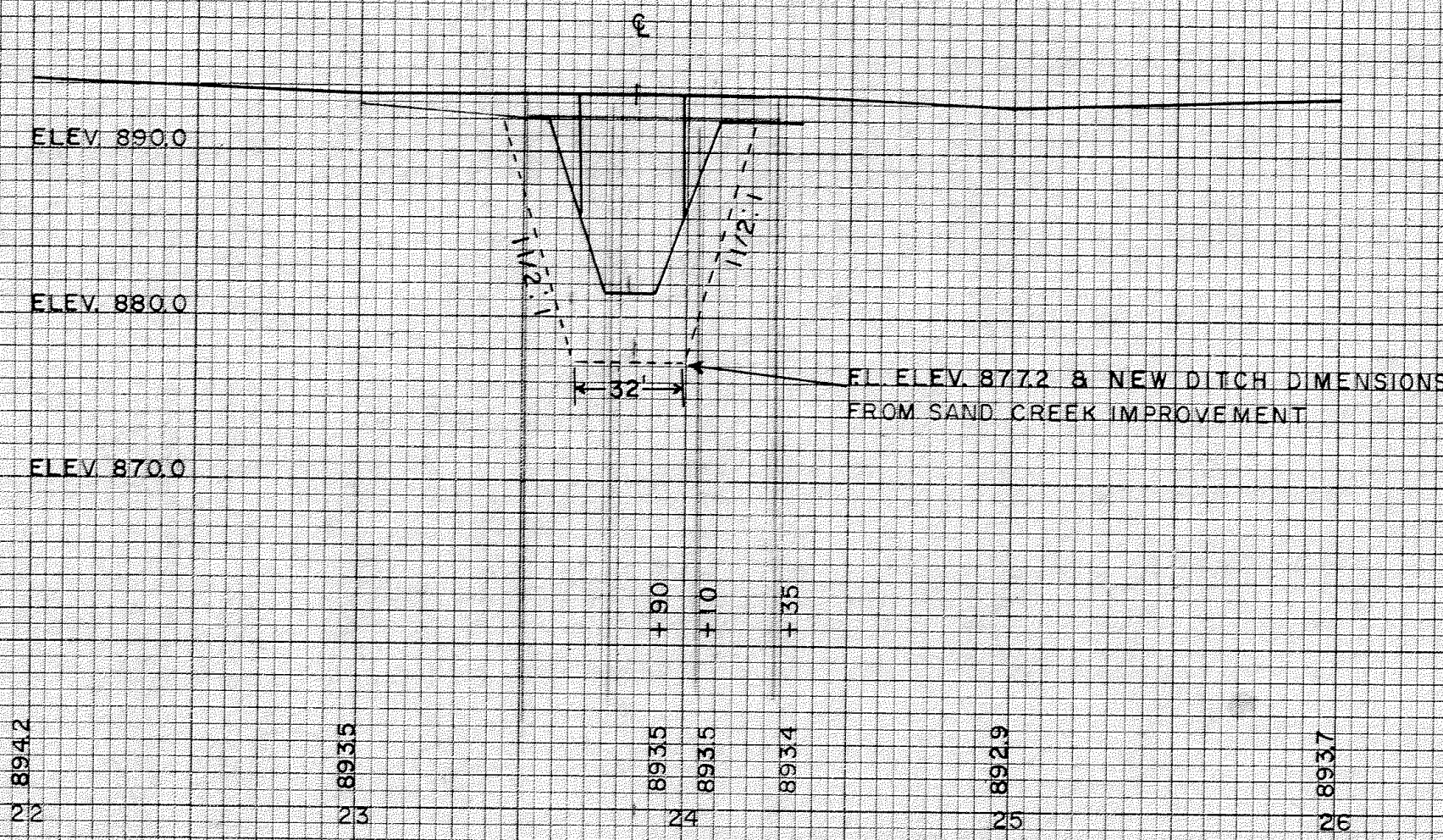
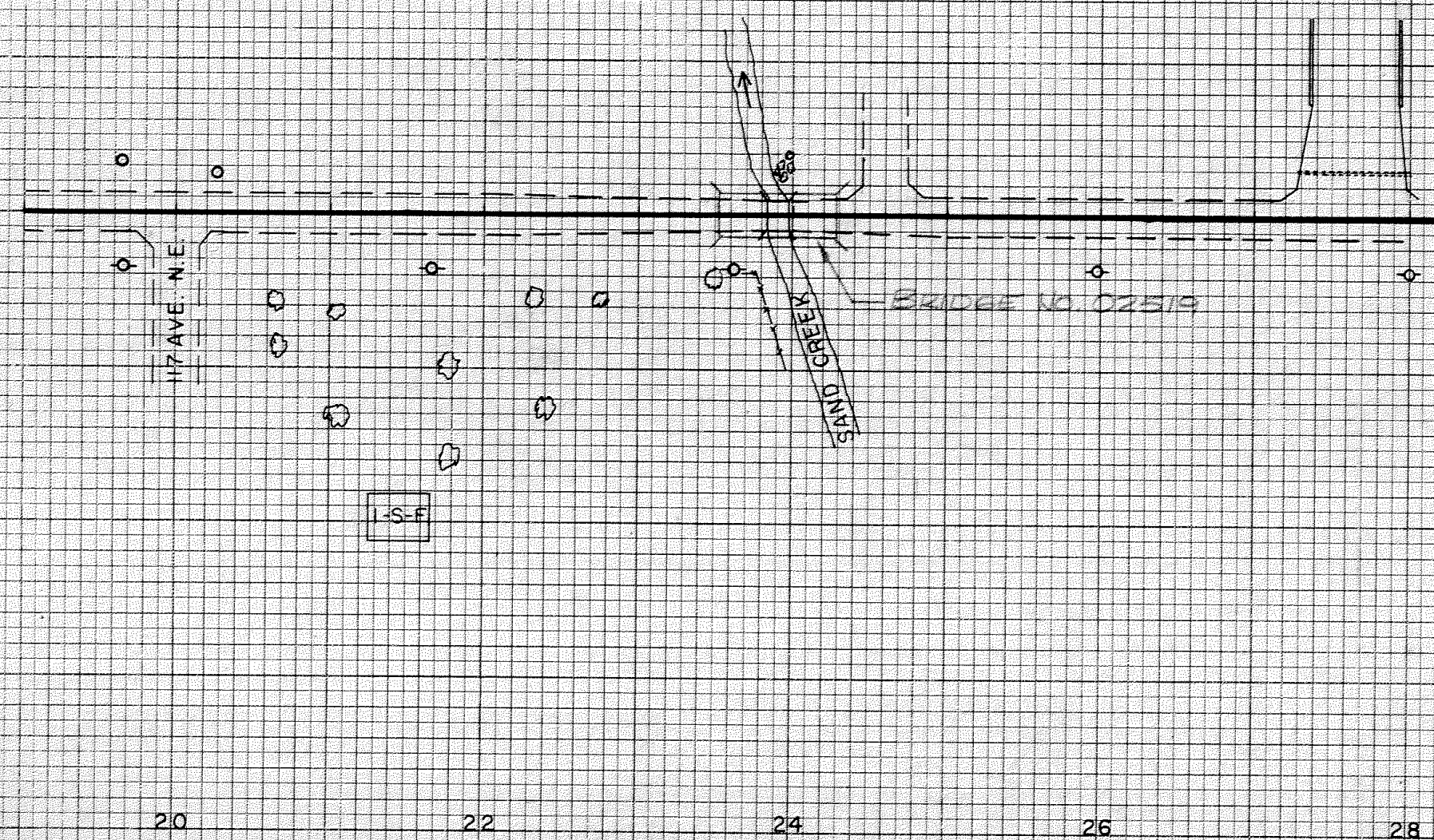
**BRIDGE SURVEY**

FOR PROPOSED BRIDGE LOCATED... *6* MILES EAST OF *ANOKA* ON C.R. NO. *51* (T.H., C.S.A.H. OR C.A.R. NUMBER) SEC. *12* TWP. *31 N* R. *24 W* CITY OF *COON RAPIDS* COUNTY... *ANOKA* SURVEY MADE DURING MONTH OF *JANUARY* 19 *66* SURVEY MADE BY BRIDGE NO. *02519-02520*

Date Project or County Engineer Date District Engineer

**PLAT**

SCALE: 1" = 100'



B.M. ELEV. 893.34 (M.S.L. 19 ADJ.) SCALE HOR. 1" = 50' VER. 1" = 10'

SEE SHEET 4 OF 4 SHEETS FOR PLAN AND PROFILE

Bridge Survey Sheet (Sheet 1 of 2)

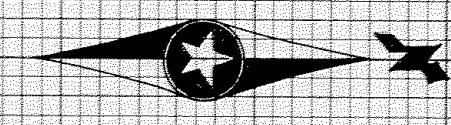
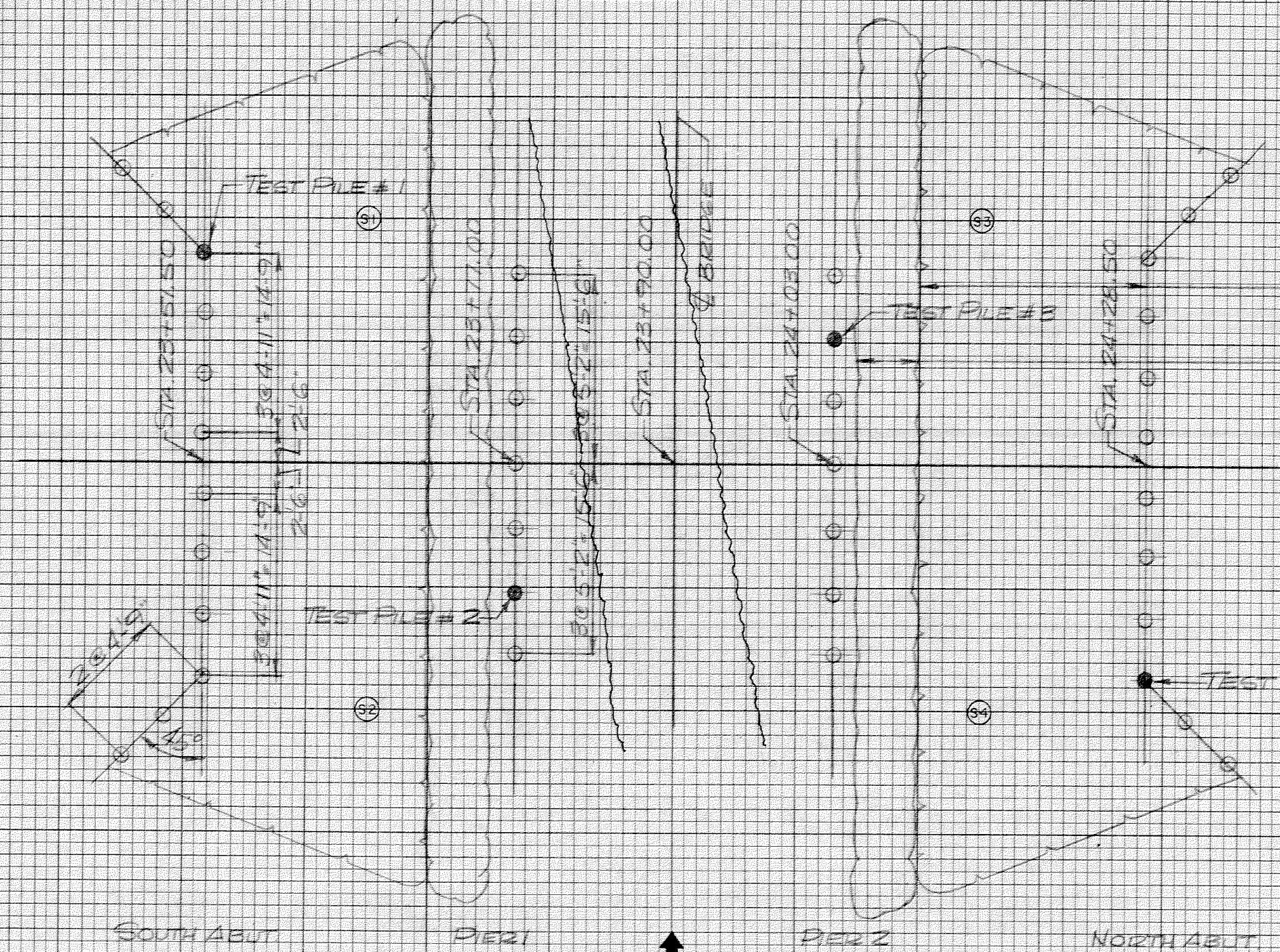
Area No.

Job No.

State Proj. No.

Sheet No. 3 of 4 Sheets

CENTER LINE OF LAYOUT



ELEV

ELEV

ELEV

ELEV

ELEV

ELEV

ELEV

ELEV

ELEV

ELEV

ELEV

22+50

23+00

23+50

24+00

24+50

25+00

± Sta. 23+90

78'-0"

26'-0"

26'-0"

26'-0"

FINISH GRADE EL 893.50

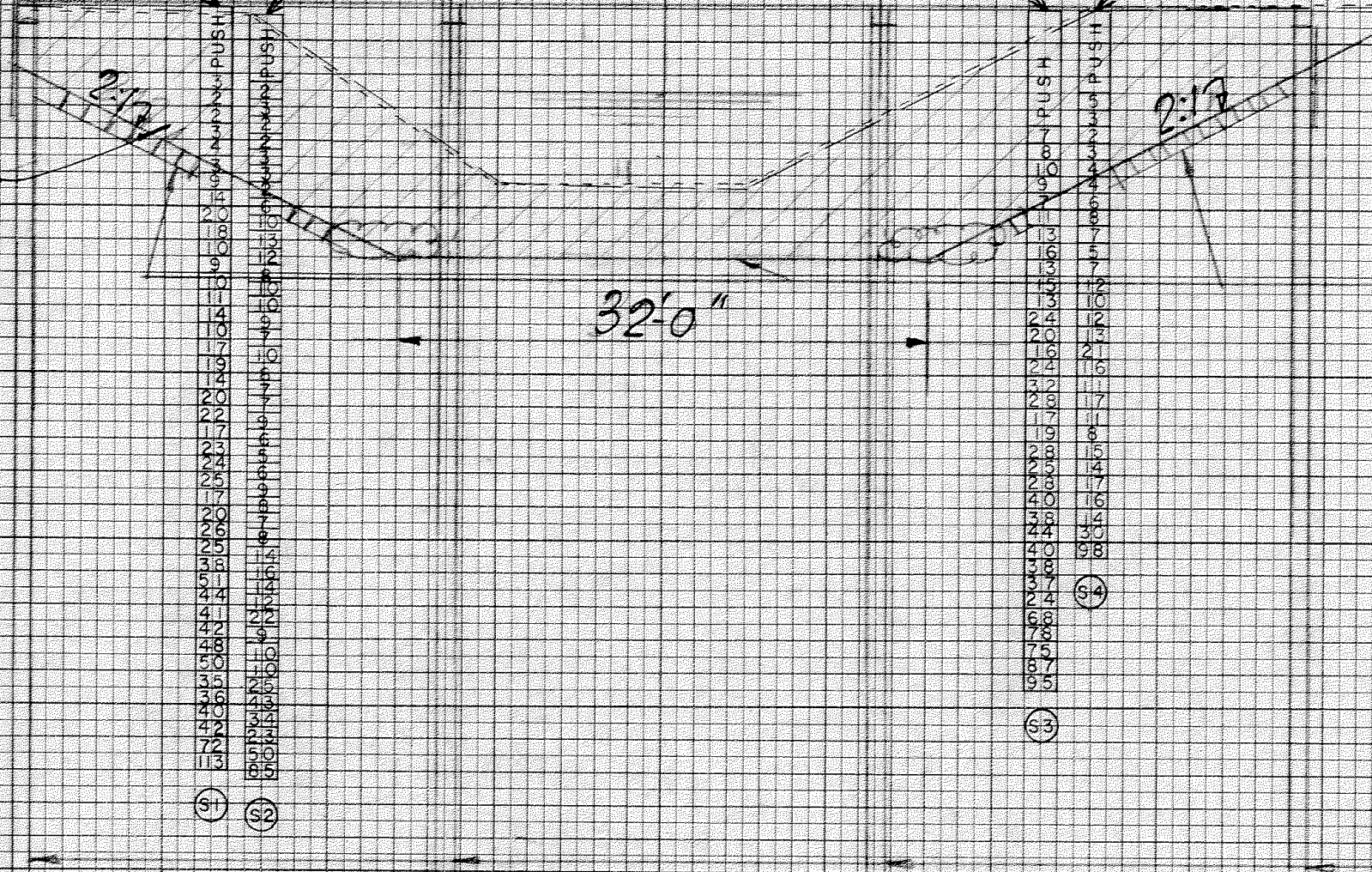
EL 892.0

EL 891.4

EL 891.9

EL 892.0

Striped Area Indicates  
Future Construction  
Sand Creek Improvement



Low Timber 892.25  
Extreme High Water 887.0  
Flow Line - Future Ditch 877.2  
Flow Line - Present Ditch 881.3  
Flow Line 1000' Upstream 881.9  
Flow Line 1000' Downstream 880.2

B.M. ELEV 893.24 (M.S.L. 19 ADJ.)

BORINGS SHOWN TAKEN WITH  
STD. 140 LB. HAMMER  
30 INCH DROP  
2 INCH O.D. SAMPLER

TRUNK HIGHWAY NO.  
STATE OF MINNESOTA  
DEPARTMENT OF HIGHWAYS

**BRIDGE NO.** 02519  
02520

**BRIDGE SURVEY  
PLAN AND PROFILE**

SEE SHEET NO. 3 FOR ADDITIONAL INFORMATION