

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR BRIDGE NO. 02535

COUNTY ROAD NO. 55

LOCATED 1.2 MILES SOUTH OF JCT. C.S.A.H. 24 & C.R. 55

SEC. 7 TWP 33N R24W

Give proper reference to Sections, Township and Range

GROSS LENGTH _____ FEET _____ MILES
BRIDGES LENGTH 60 FEET .011 MILES
EXCEPTIONS LENGTH _____ FEET _____ MILES
NET LENGTH 60 FEET .011 MILES

INDEX OF SHEETS
Sheet No. Title Sheet & Layout Map
Nos 1-9 BRIDGE PLANS

CONVENTIONAL SIGNS

- STATE LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT-OF-WAY LINE
- PRESENT RIGHT-OF-WAY LINE
- CONTROL OF ACCESS LINE
- PROPERTY LINE (Except Land Lines)
- WALKED PLATTED PROPERTY
- CORPORATE OR CITY LIMITS
- TRUNK HIGHWAY CENTER LINE
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT-OF-WAY LINE
- RIVER OR CREEK
- DRY RUN
- DRAINAGE DITCH
- ELECTRIC POWER LINE
- TELEPHONE OR TELEGRAPH LINE
- JOINT TELEPHONE AND POWER
- CONDUIT
- TELEPHONE CABLE - AERIAL
- TELEPHONE CABLE - UNDERGROUND
- POWER CABLE - UNDERGROUND
- GAS MAIN
- CULVERT
- DROP INLET
- SAFETY RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- RAILROAD SNOW FENCE
- STONE WALL OR FENCE
- HEDGE
- WATER PIPE
- SEWER PIPE
- DRAIN TILE
- SPRINGS
- MARSH
- TIMBER
- ORCHARD
- BRUSH
- NURSERY
- CATCH BASIN
- MANHOLE
- FIRE HYDRANT
- STREET LIGHT
- RAILROAD CROSSING SIGN
- RAILROAD CROSSING BELL
- ELECTRIC WARNING SIGN
- CROSSING GATE
- CATTLE GUARD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame)
- F - FRAME C - CONCRETE
- S - STONE T - TILE
- B - BRICK ST - STUCCO
- IRON PIPE OR ROD
- MONUMENT (STONE, CONCRETE, OR METAL)
- WOODEN HUB
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY
- MEANDER CORNER

END OF DECK - STA 6+68.00

BRIDGE NO. 02535

BEG. OF DECK - STA 6+08.00



DESIGN DESIGNATION

ADT (CURRENT YEAR) 900
ADT (FUTURE YEAR) _____
T (HEAVY COMMERCIAL) _____
Ton Design Soil Factor _____
Design Speed _____ MPH
Design Speed not achieved at:
STA _____ TO STA _____ MPH
STA _____ TO STA _____ MPH

GOVERNING SPECIFICATIONS

THE "STANDARD" SPECIFICATIONS FOR CONSTRUCTION, 1983 EDITION, SHALL GOVERN.

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

PLANS & R/W APPROVED

Paul K. Rind
COUNTY ENGINEER

DATE Nov. 29, 1980

ANOKA COUNTY REG. NO. _____

RECOMMENDED FOR APPROVAL *C. C. Wachsberger* 5/2, 1984
DISTRICT STATE AID ENGINEER

RECOMMENDED FOR APPROVAL *M. V. Bentz* 5-18, 1984
BRIDGE ENGINEER

APPROVED *5/21*, 1984 *W. J. ...*
STATE AID ENGINEER

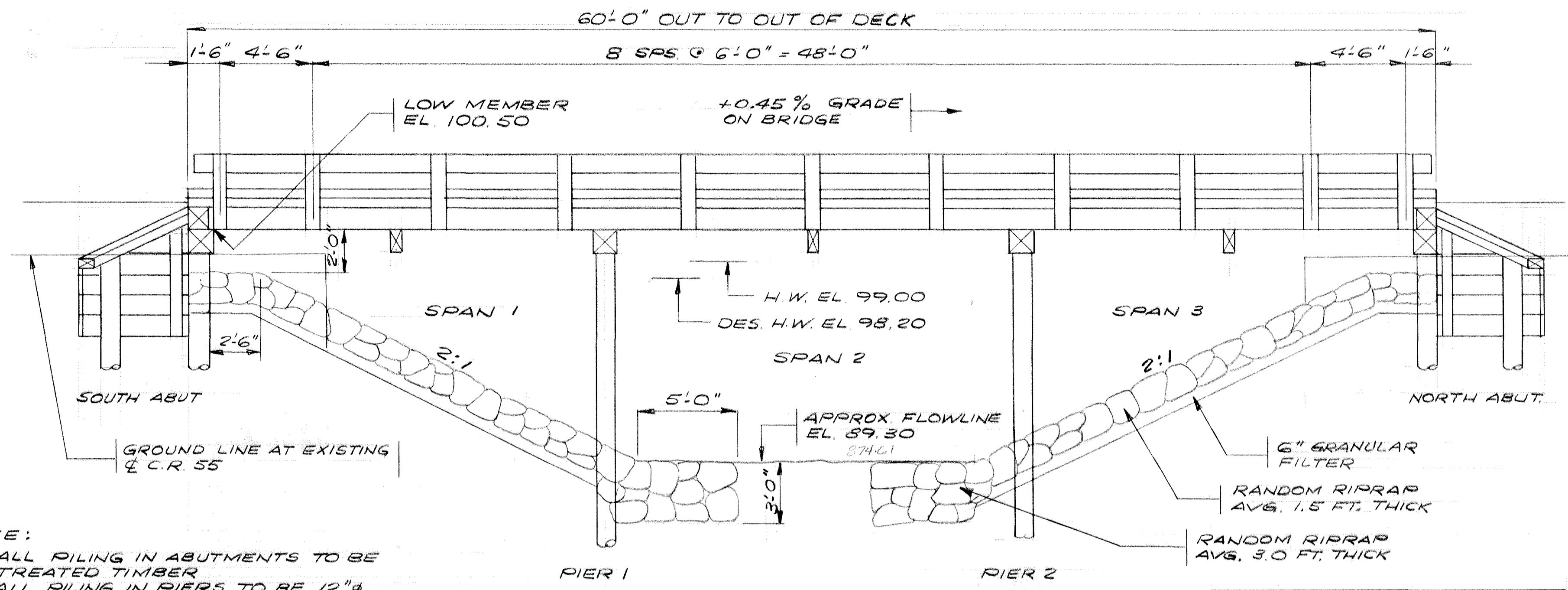
Minn. Proj. No. _____ County Proj. No. _____
State Proj. No. 02-598-03 S.A.P.

ANOKA COUNTY, MINNESOTA

DESIGN DATA
 1977 AND INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS
 HS20 LOADING - NO IMPACT - 3 LANES
 DECK AREA = 2760 SQ. FT.
 A.O.T. FOR 1980 = 900

CONSTRUCTION NOTES

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
 CONSTRUCTION REQUIREMENTS SHALL CONFORM TO SPEC. 2403.3.
 ALL TIMBER IS TO BE CREOSOTE PRESSURE TREATED PER SPEC. 3491.
 ALL TIMBER PILING TO MEET REQUIREMENTS OF SPEC. 3471 AND TO BE TREATED PER SPEC. 3491.
 ALL HARDWARE TO BE GALVANIZED PER SPEC. 3392.
 ALL TIMBER IS ROUGH UNLESS OTHERWISE NOTED.
 TIMBER POSTS SHALL BE 1750# F.D. CAPS SHALL BE 1200# F.D.
 RAIL SHALL BE 2400# F.D. (DRY CONDITIONS). ALL PLANK FOR PREFAB PANELS SHALL BE 1500# F.D. ALL OTHER TIMBER SHALL BE 1200# F.D.



ELEVATION

NOTE:
 ALL PILING IN ABUTMENTS TO BE TREATED TIMBER
 ALL PILING IN PIERS TO BE 12\"/>

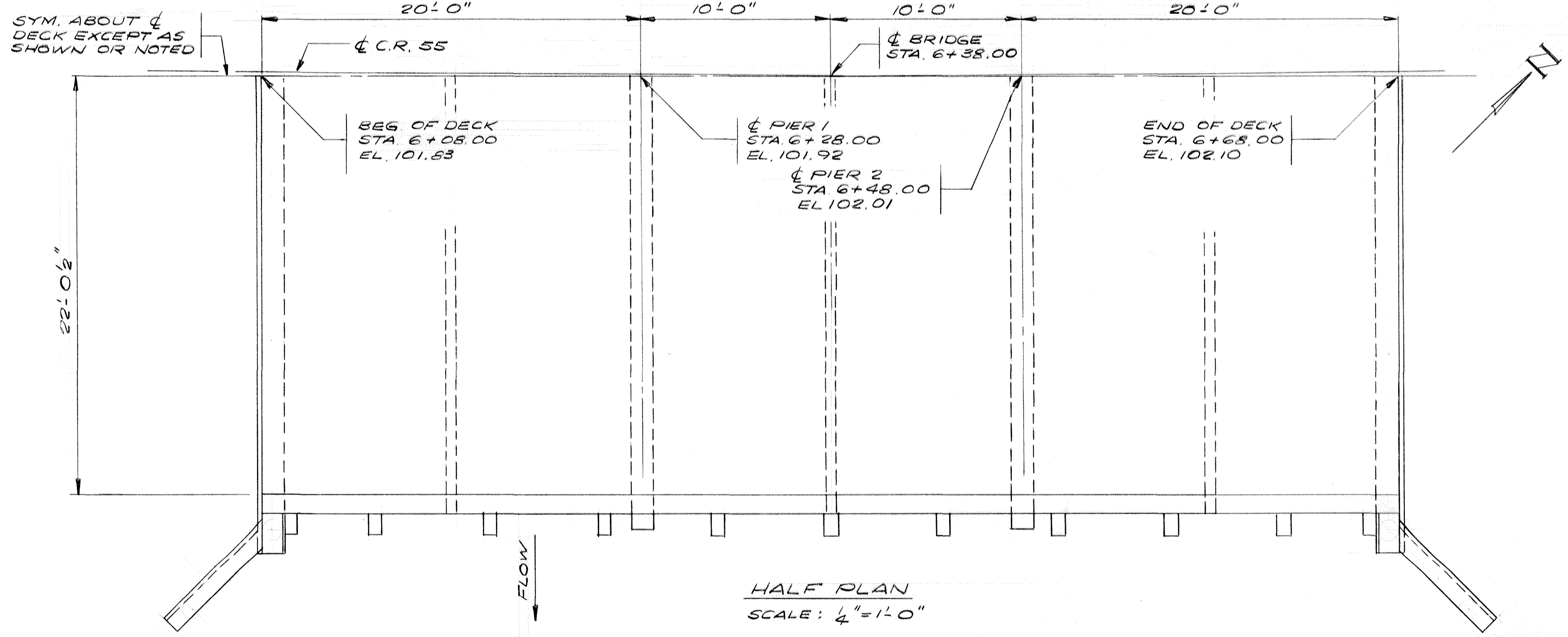
NOTE:
 FOR OFFSETS @ C.B.R.G. (C. ROADWAY TO TANGENT LINE) SEE SURVEY SHEET 9.

B.M. ELEV. 100.00 ASSUMED TOP OF BOLT S.E. CURB OF BRIDGE.

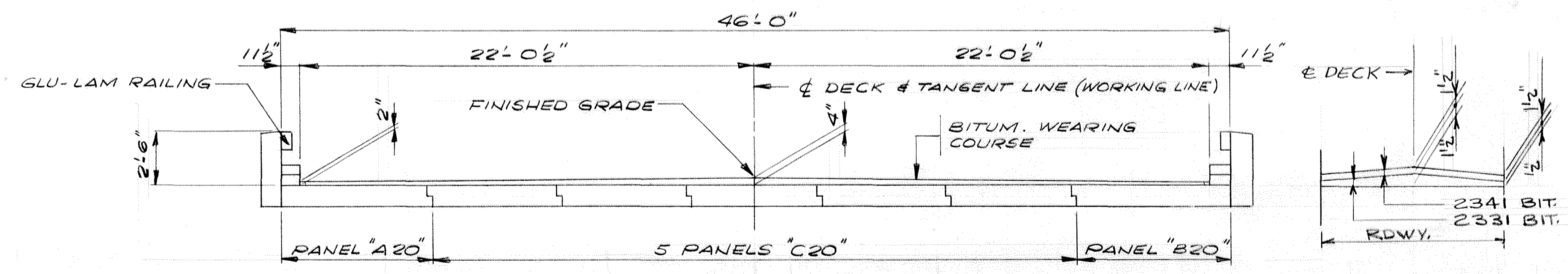
SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	ITEM	QUANTITY	UNIT
2403.502	TREATED TIMBER	8.50 (P)	M. B. M.
2403.506	HARDWARE	2497 (P)	ROUND
2402.521	STRUCTURAL STEEL, (3306)	653 (P)	ROUND
2511.501	RANDOM RIPRAP, CLASS III	220	CU. YD.
2511.511	GRANULAR FILTER	77	CU. YD.
2442.501	REMOVE OLD BRIDGE	1	LUMP SUM
0403.602	PREFAB TIMBER PANELS, TYPE "A20"	3	EACH
0403.602	PREFAB TIMBER PANELS, TYPE "B20"	3	EACH
0403.602	PREFAB TIMBER PANELS, TYPE "C20"	15	EACH
2452.503	TREATED TIMBER PILING, DELIVERED	660	LIN. FT.
2452.504	TREATED TIMBER PILING, DRIVEN	660	LIN. FT.
2452.517	TREATED TIMBER TEST PILES, 50 FT. LONG	2	EACH
2452.507	CAST-IN-PLACE CONCRETE PILING DELIVERED, 12"	480	LIN. FT.
2452.508	CAST-IN-PLACE CONCRETE PILING DRIVEN, 12"	480	LIN. FT.
2452.519	CAST-IN-PLACE CONC. TEST PILES 50 FT. LONG, 12"	2	EACH
0403.604	GLUED LAMINATED RAIL, TYPE I	119 (P)	LIN. FT.
2357.502	BITUM. MATERIAL FOR TACK COAT	15	GAL.
2341.504	BITUM. MATERIAL FOR MIXTURE	1.6	TON
2341.508	WEARING COURSE MIXTURE	25	TON
2123.506	3/4 CU. YD. DRAGLINE	40	HOUR
2021.501	MOBILIZATION	1	LUMP SUM
2331.504	BITUM. MATERIAL FOR MIXTURE	1	TON
2331.512	LEVELING COURSE MIXTURE	25	TON

① STA 6+38



HALF PLAN
 SCALE: 1/4" = 1'-0"



SECTION THRU DECK
 SCALE: 1/4" = 1'-0"

LIST OF SHEETS

NO.	TITLE
1	GENERAL PLAN & ELEVATION
2	ABUTMENT DETAILS
3	PIER DETAILS
4	SUPERSTRUCTURE DETAILS
5	SUPERSTRUCTURE DETAILS
6	TREATED TIMBER PANEL DETAILS
7	DETAILS
8	BRIDGE SURVEY
9	BRIDGE SURVEY- PLAN & PROFILE

APPROVED: *Lawrence K. Lund*
 COUNTY ENGINEER
 DATE: MAR 3, 1980

PLANS PREPARED BY ERICKSON ENGINEERING
 3340 REPUBLIC AVE.
 ST. LOUIS PARK, MINN.

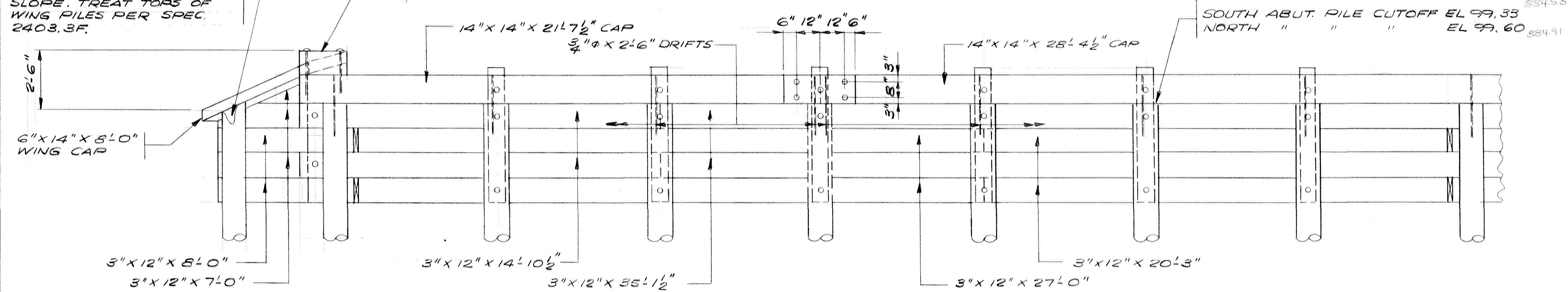
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02535
 LOCATED 1.2 MILES SOUTH OF JCT. C.S.A.H. 24 ON C.R. 55 OVER SEELYE BROOK
 3-20 FT TREATED TIMBER SPANS
 44 FT. ROADWAY
 SPAN IDENT NO. 709
 GENERAL PLAN & ELEVATION
 SEC 7 TWP 33N R 24W
 OAK GROVE TWP. ANOKA COUNTY
 APPROVED: *H. V. Benthley* 5-18-84
 BRIDGE ENGINEER

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.
Robert J. Long
 REG. NO. 6924
 DATE: 1-21-80

PORTION OF PILE HEAD WHICH PROJECTS OUT-SIDE OF WING CAP IS TO BE CUT OR ADZED TO A 45° SLOPE. TREAT TOPS OF WING PILES PER SPEC. 2403.3F.

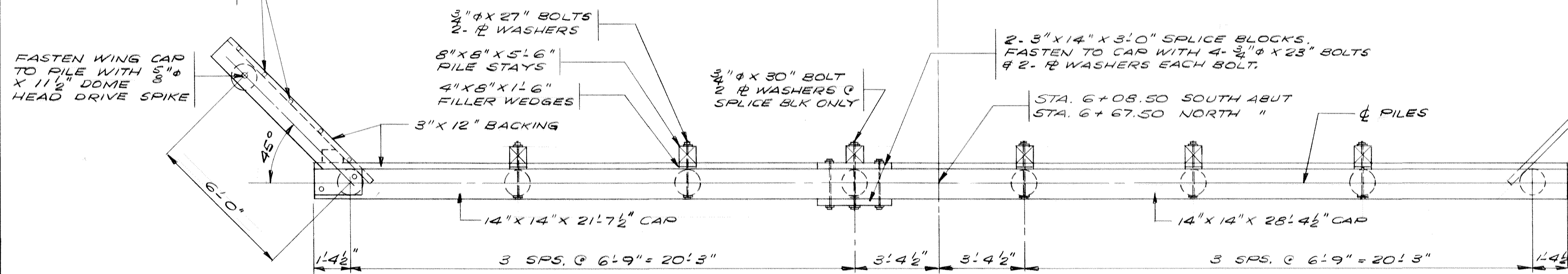
12" X 12" X 2'-0" ABUT. BLOCK FASTEN TO CAP WITH 2- 3/4" Ø X 18" DOME HEAD DRIVE SPIKES.



PART ELEVATION

FASTEN WING CAP TO BACKING WITH 5/8" Ø X 10" BOAT SPIKES @ 18" CTRS

FASTEN WING CAP TO PILE WITH 5/8" Ø X 11 1/2" DOME HEAD DRIVE SPIKE



PART PLAN

BILL OF TREATED TIMBER FOR 2 ABUTMENTS					
ITEM	NO.	FIN	SIZE	LENGTH	F.B.M.
PILE CAP	2	R	14 X 14	21'-7 1/2"	706
" "	2	R	14 X 14	28'-4 1/2"	927
ABUTMENT BACKING	4	R	3" X 12	14'-10 1/2"	179
" "	4	R	3" X 12	20'-3"	243
" "	4	R	3" X 12	27'-0"	324
" "	4	R	3" X 12	35'-1 1/2"	422
WING CAP	4	R	6 X 14	6'-0"	224
" BACKING	12	R	3 X 12	7'-0"	252
" "	8	R	3 X 12	8'-0"	192
ABUTMENT BLOCK	4	R	12 X 12	2'-0"	96
① CORNER NAILING BLOCK	4	SEE DET	6 X 10	6'-0"	120
PILE STAYS	12	R	8 X 8	5'-6"	352
② FILLER WEDGES	10	R	4 X 8	1'-6"	40
SPLICE BLOCK	4	R	3 X 14	3'-0"	42
TOTAL F.B.M. FOR 2 ABUTMENTS					4120

- ① BEVEL IN SHOP
- ② CUT 2 FROM 1 IN SHOP

BILL OF HARDWARE FOR 2 ABUTMENTS				
UNIT WT.	NO.	ITEM	TOTAL WT.	
3.78	18	3/4" Ø X 2'-6" DRIFT - CAP TO PILE	68	
3.72	34	3/4" Ø X 27" BOLT - PILE STAY	126	
4.10	2	3/4" Ø X 30" BOLT - PILE STAY @ SPLICE	8	
1.67	8	3/4" Ø X 11" " - COR NAIL BLOCK	13	
3.21	8	3/4" Ø X 23" " - SPLICE BLOCK	26	
2.55	8	3/4" Ø X 18" DM. HD. DR. SPK. - ABUT. BLK	20	
1.32	4	5/8" Ø X 11 1/2" " " " - WING CAP	5	
0.41	20	3/8" Ø X 10" BOAT SPIKE - " "	8	
0.85	104	3" X 3" X 5/16" 1/2" WASHER FOR 3/4" Ø BOLTS.	88	
10/#		60D NAILS	24	
TOTAL HARDWARE FOR 2 ABUTMENTS 356 LBS.				

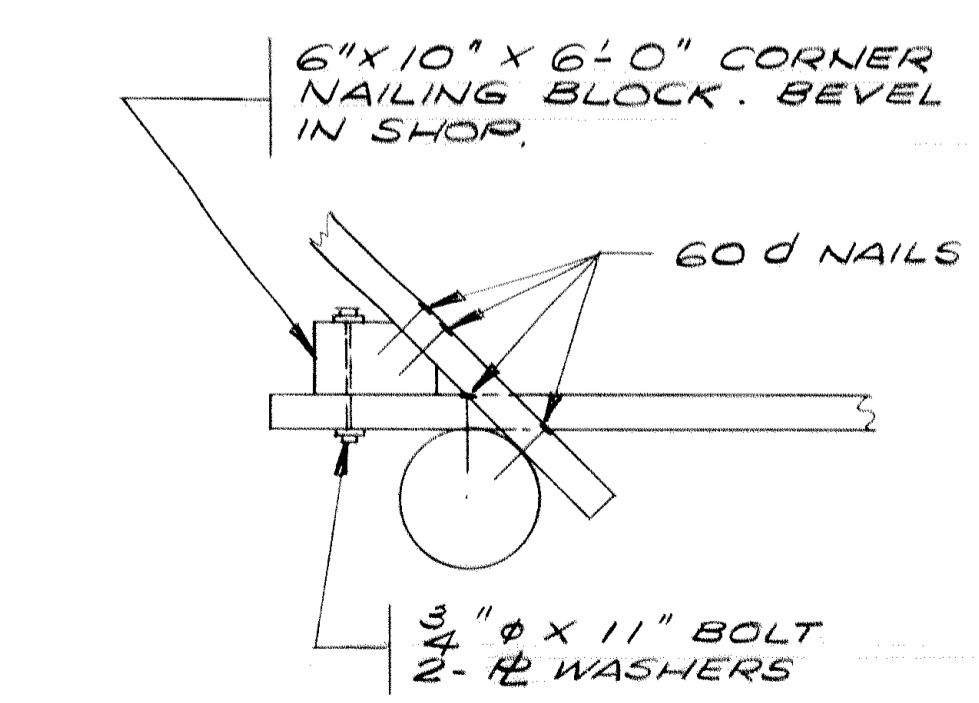
NOTE:
FILL IN BACK OF ABUTMENTS NOT TO BE PLACED UNTIL AFTER SUPERSTRUCTURE HAS BEEN COMPLETED.

NAILING NOTE:
FASTEN BACKING TO PILE WITH 2- 60D NAILS AT EACH INTERSECTION.

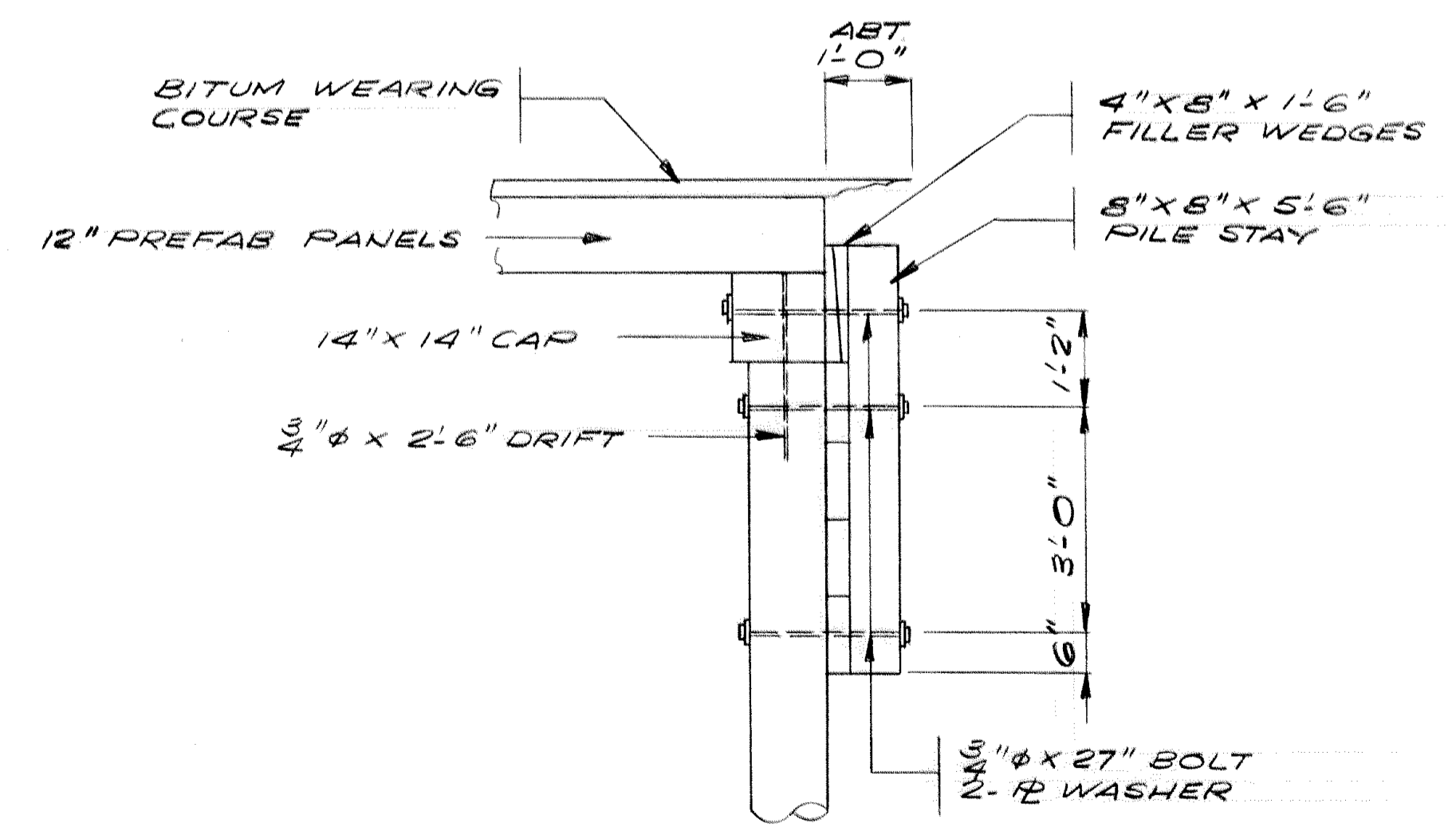
BOLT NOTE:
BOLT PROJECTIONS EXCEEDING 1" SHALL BE CUT OFF. REPAIR END OF BOLT BY PAINTING WITH AN APPROVED ZINC-RICH PRIMER.

- ABUTMENT PILE NOTES:
- 2- TREATED TIMBER TEST PILES 50 FT. LONG
 - 4- " " WING PILES 25 FT. "
 - 14- " " PILES EST. LENGTH 40 FT.
 - 20- " " REQ'D FOR 2- ABUTMENTS

ALL PILES TO BE DRIVEN TO A BEARING OF NOT LESS THAN 20 TONS PER PILE, EXCEPT WING PILES.



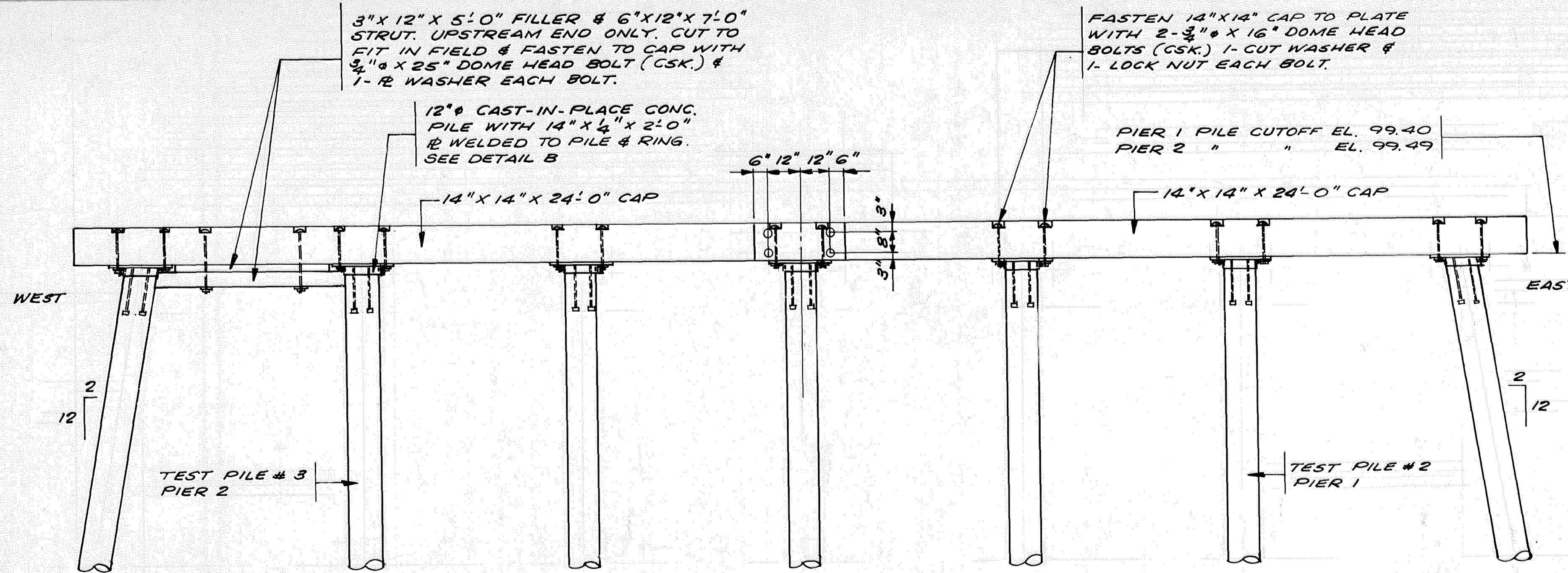
CORNER NAILING BLOCK



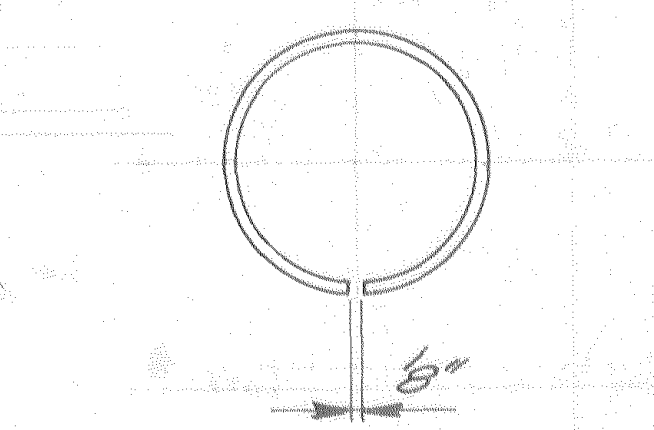
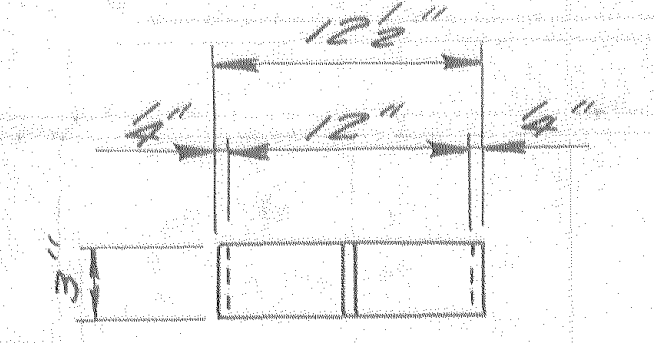
SECTION THRU ABUTMENT

SCALE: 1/2" = 1'-0"

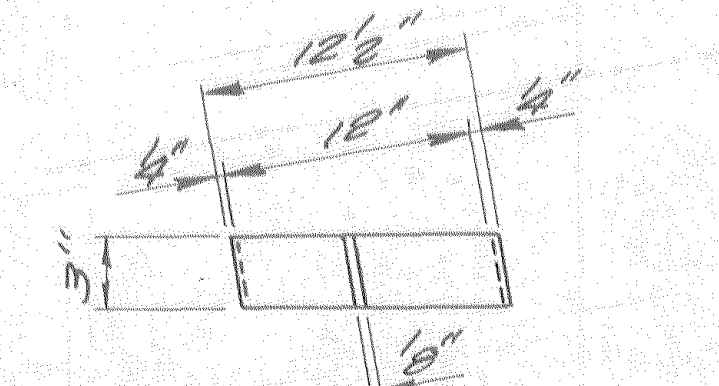
MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02535
ABUTMENT DETAILS



ELEVATION



12 1/2" Ø x 4" x 3" RING
10 REQ'D - INT. PILES



12 1/2" Ø x 4" x 3" RING
4 REQ'D - END PILES

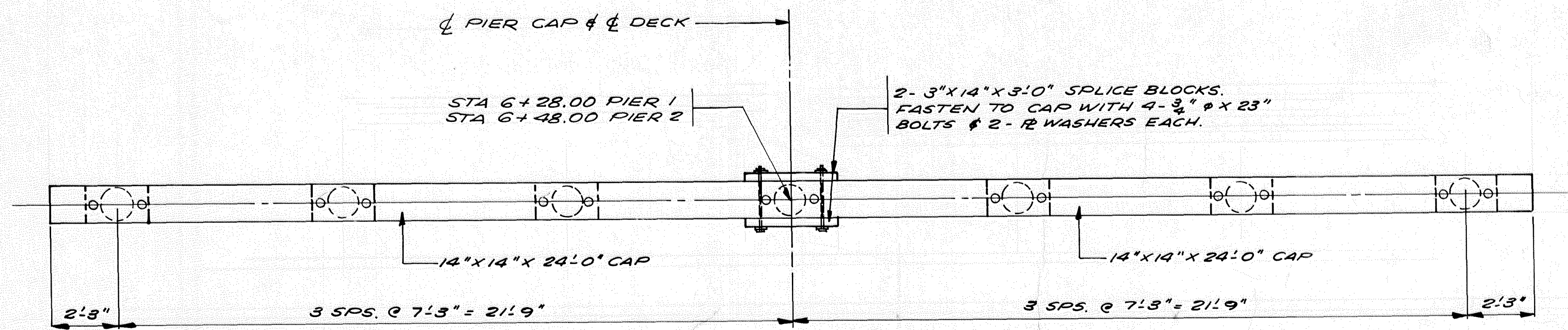
4- 3/8" WIDE x 4" SLOTS FOR SLOT WELDING PLATE TO PILE

BILL OF TREATED TIMBER FOR 2 PIERS				
ITEM	NO.	FIN. LEN.	SIZE	F.B.M.
PILE CAP	4	R	24'-0"	14x14 1568
SPLICE BLOCKS	4	R	3'-0"	3x14 42
STRUT	2	R	7'-0"	6x12 84
FILLER	2	R	5'-0"	3x12 30
TOTAL F.B.M. FOR 2 PIERS				1784

BILL OF HARDWARE FOR 2 PIERS				TOTAL WT.
UNIT	NO.	ITEM		
2.89	28	3/4" Ø x 16" DM. HD. BOLT W/ LOCK NUT		81
0.15	28	CUT WASHER FOR 3/4" Ø BOLT		4
3.21	8	3/4" Ø x 23" BOLTS - SPLICE BLK.		26
4.04	4	3/4" Ø x 25" DM. HD. BOLT - STRUT		16
0.85	20	3" x 3" x 3/16" R WASHER FOR 3/4" Ø BOLT		17
TOTAL HARDWARE FOR 2 PIERS				144

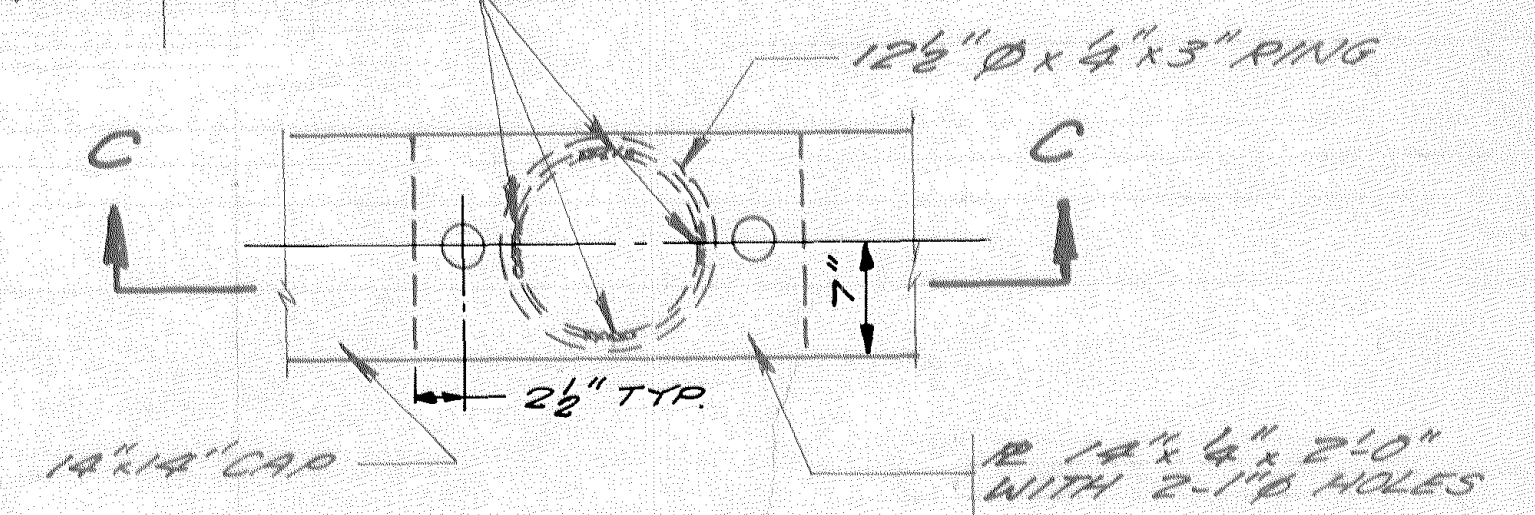
BILL OF STRUCTURAL STEEL FOR 2 PIERS				TOTAL WT.
UNIT	NO.	ITEM		
24.16	14	14" x 1/2" x 210" R		358
8.47	14	12 1/2" Ø x 4" x 3" RING		119
2.98	28	3/4" Ø x 18" BOLT - PILE R		83
TOTAL STRUCTURAL STEEL FOR 2 PIERS				540

PAINT & STRUCTURAL STEEL NOTES:
 PAINT PIER PILES, PLATES, AND RINGS PER SPEC. 2452.31 AND SPECIAL PROVISIONS. PLATES & RINGS TO BE STRUCTURAL STEEL PER SPEC. 3300.
 AREAS OF PILES, PLATES, AND RINGS BURNED DURING WELDING ARE TO BE CLEANED AND SPOT COATED WITH RED LEAD BEFORE FIELD PAINTING IS STARTED. FIELD PAINTING OF PLATES AND RINGS WILL BE PERMITTED FOR ALL ALL COATS.

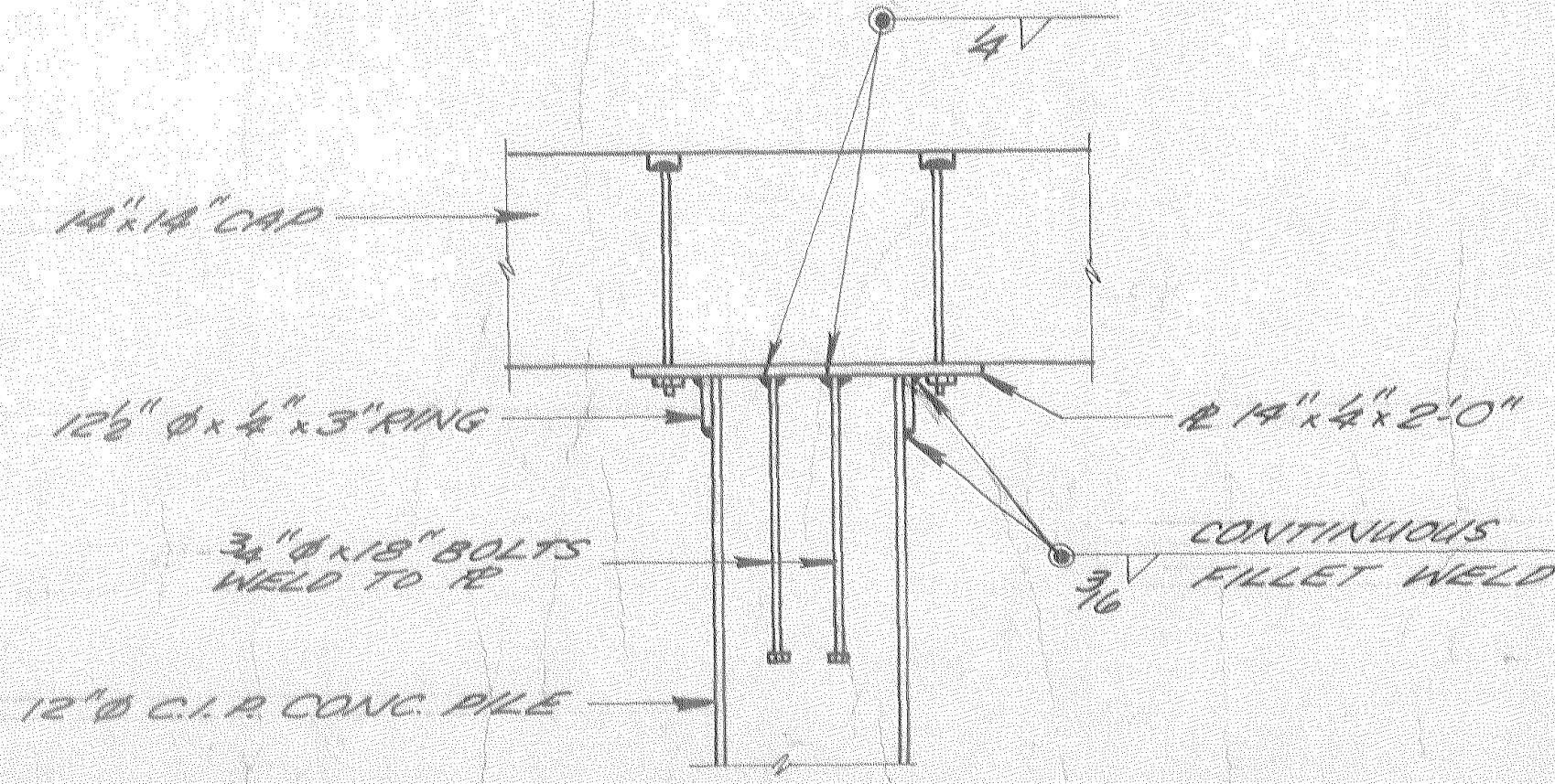


PLAN

SCALE: 3/8" = 1'-0"



DETAIL B



SECTION C-C

PIER PILE NOTES
 2- CAST-IN-PLACE CONC. TEST PILES 50 FT. LG.
 12- " " " " PILES, EST. LENGTH 40 FT.
 14- " " " " REQ'D FOR 2- PIERS

PILES TO HAVE A NOMINAL DIAMETER OF 12". END PILES TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN. PILE SPACING SHOWN IS AT BOTTOM OF CAP. ALL PILES TO BE DRIVEN TO A BEARING OF NOT LESS THAN 28 TONS PER PILE.

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02535

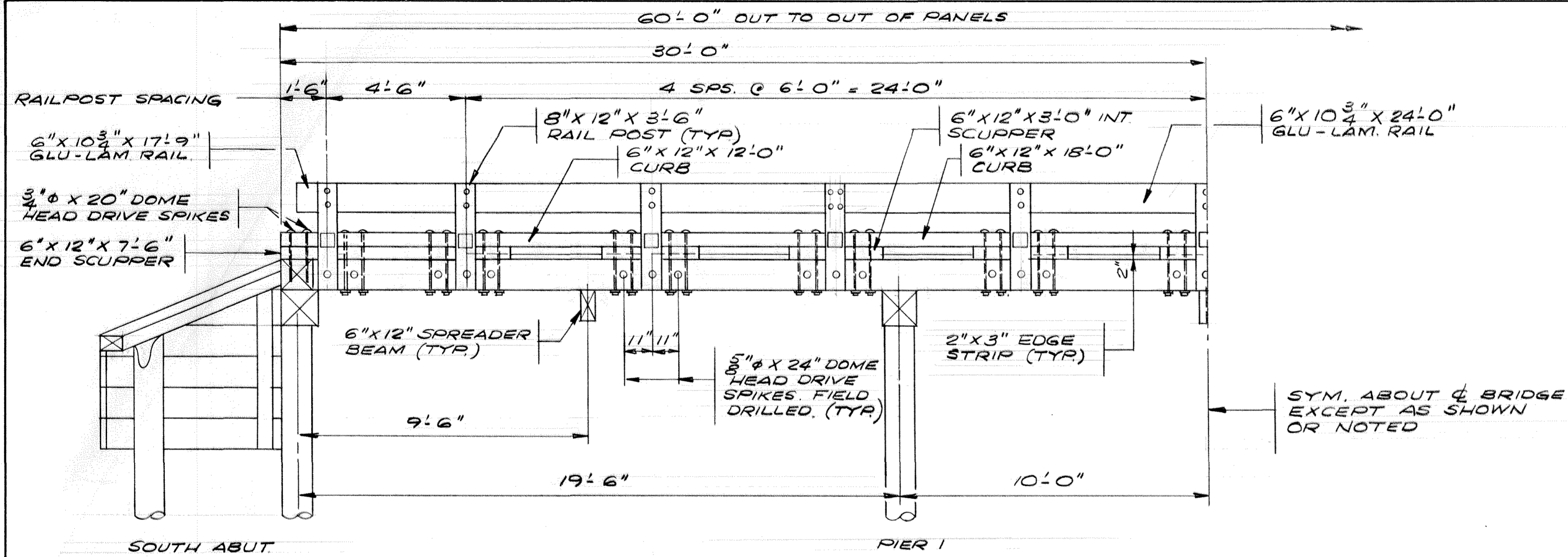
PIER DETAILS

APPROVED: 5-18-84

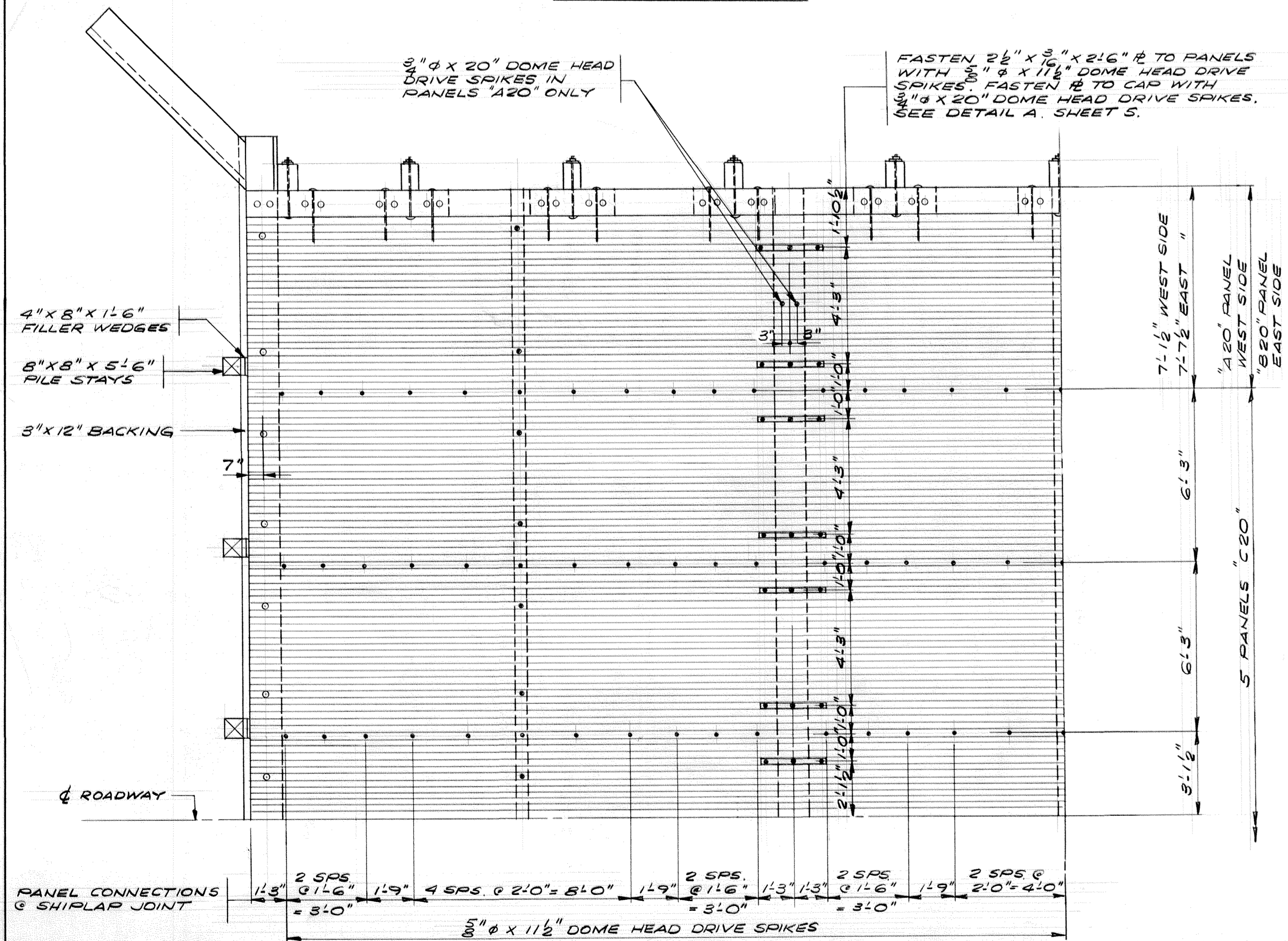
S.P. 02-598-03
SHEET 3 OF 9 SHEETS

02535

W.N.J.
R.R.T.



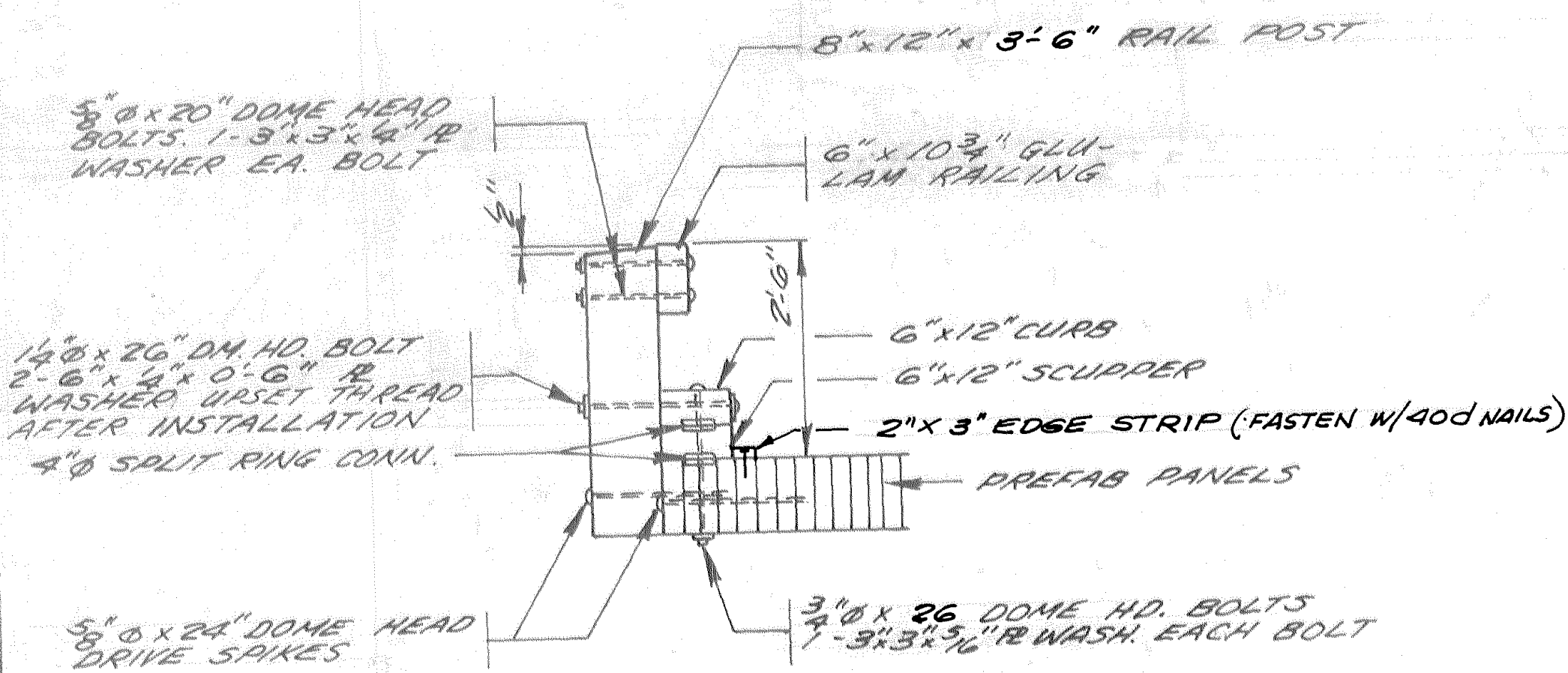
HALF ELEVATION



CONSTRUCTION NOTES

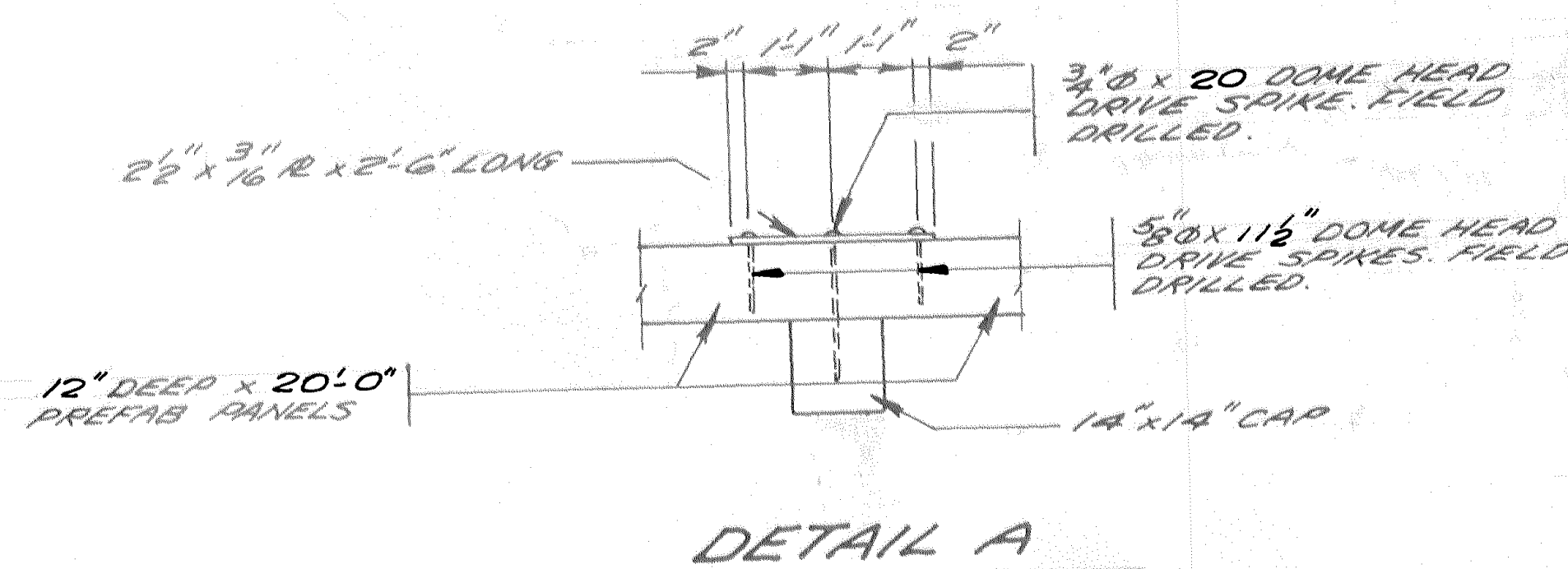
PANEL "A20" IS THE FIRST TO BE PLACED IN ITS FINAL POSITION ON THE CAPS AND THEN 1/8" φ HOLES ARE TO BE DRILLED THRU DECK AND INTO CAP AT LOCATIONS SHOWN. DRIVE THE 3/8" φ x 20" DOME HEAD DRIVE SPIKES IN THIS SECTION. NEXT PLACE PANEL "C20" SO UPPER SPLICE BLOCK IS OVER SPLICE ON PANEL "A20" AND DRAW TIGHT TOGETHER WITH MIN. 3 TON LEVER HOIST. THEN DRILL HOLES IN LOWER SPLICE BLOCK AND DRIVE DOME HEAD DRIVE SPIKES. DRILL HOLES IN CAPS AND DRIVE THE 3/8" φ x 20" DOME HEAD DRIVE SPIKES. THEREAFTER SUCCESSIVELY PLACE PANELS "C20" AND PANEL "B20" IN THE SAME MANNER USING LEVER HOIST TO DRAW EACH UNIT UP TIGHT.

ALL HOLES WHERE DOME HEAD DRIVE SPIKES ARE USED TO BE 1/16" φ SMALLER THAN SPIKE SIZE.

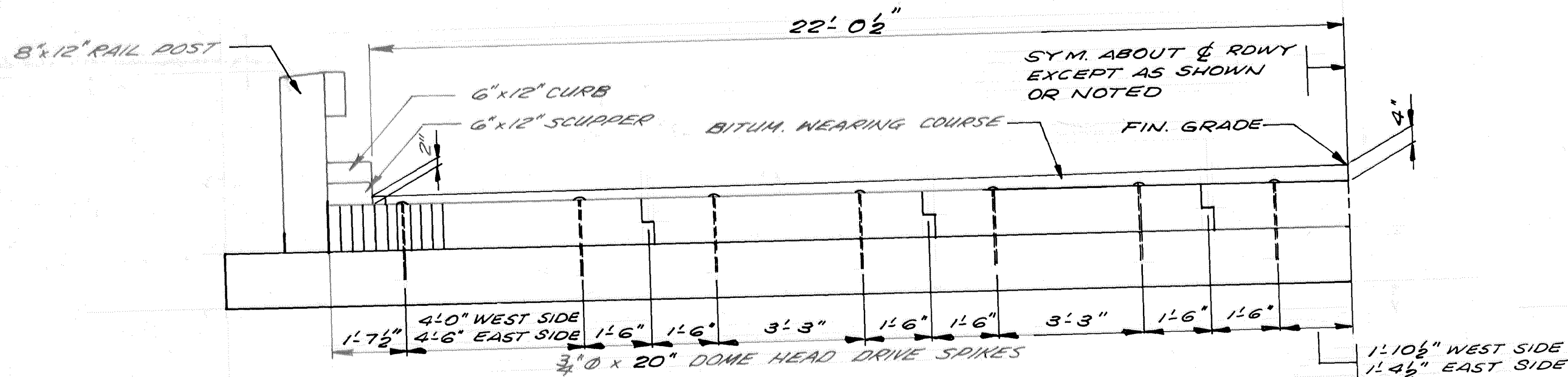


SEC'N OF RAIL POST & CURB AT PANELS "A20"

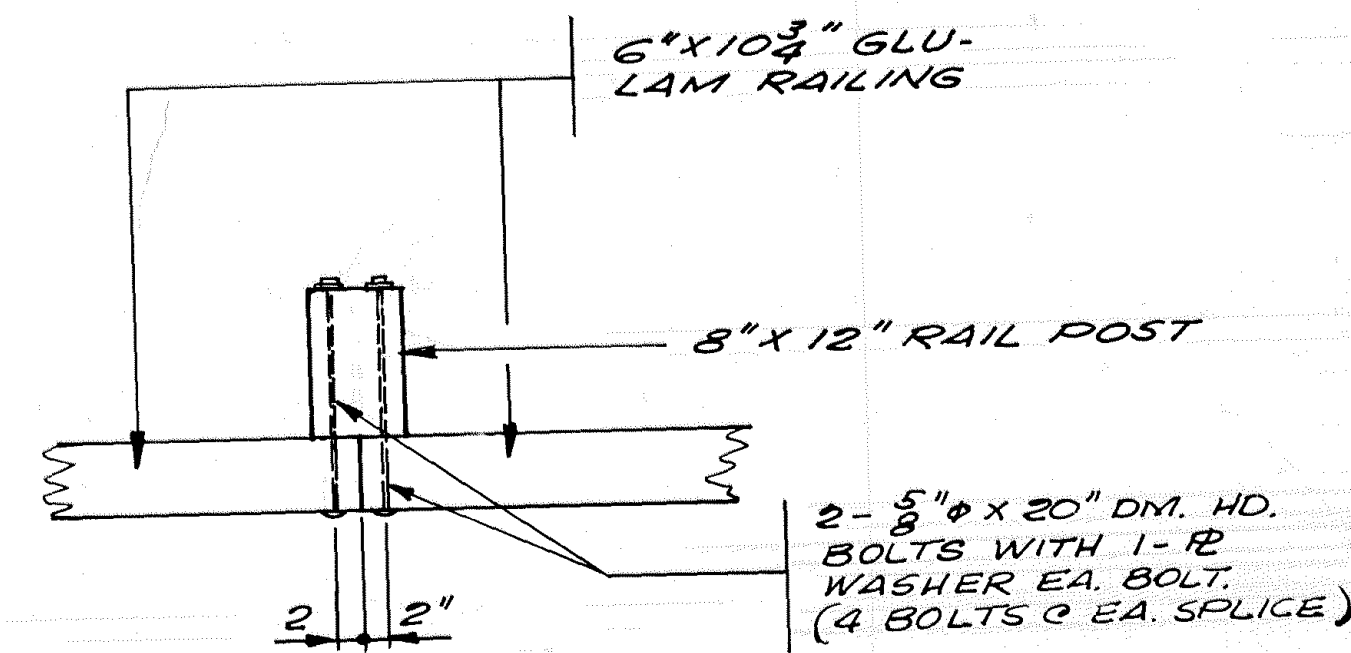
SEC'N OF RAIL POST & CURB AT PANELS "B20"



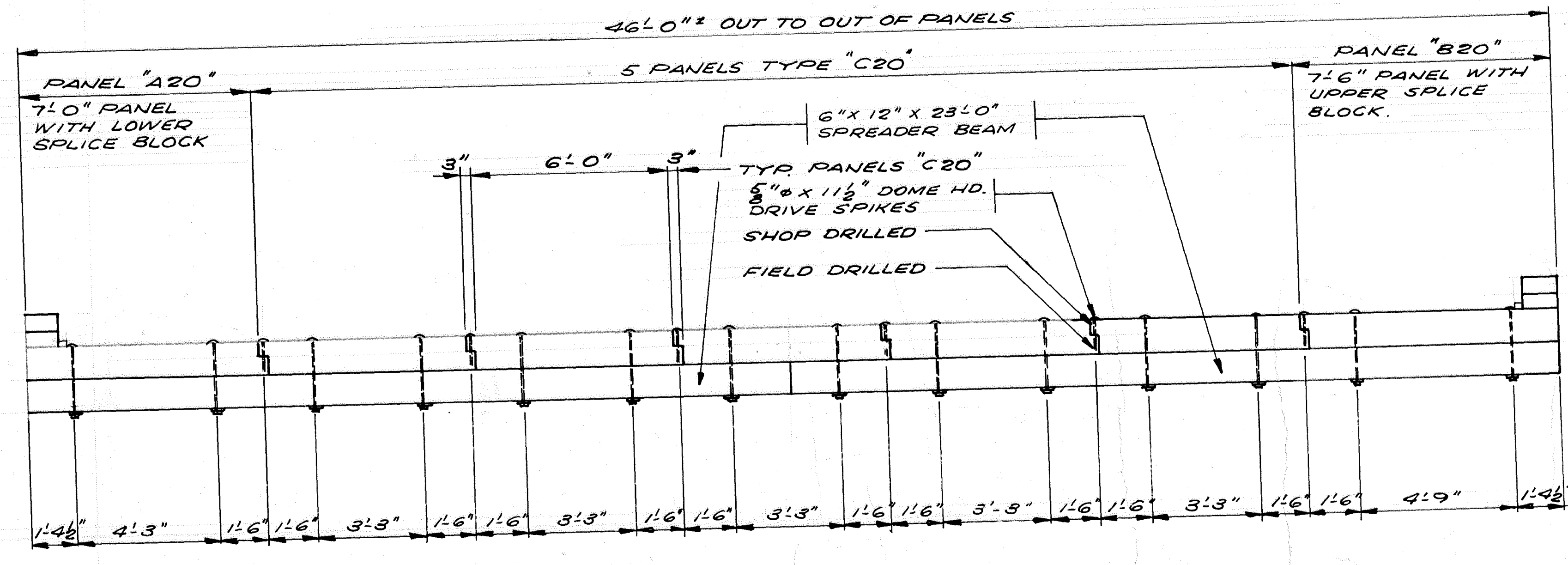
DETAIL A



HALF TRANSVERSE SEC'N AT ABUTMENT



RAIL SPLICE DETAIL



SPREADER BEAM DETAIL

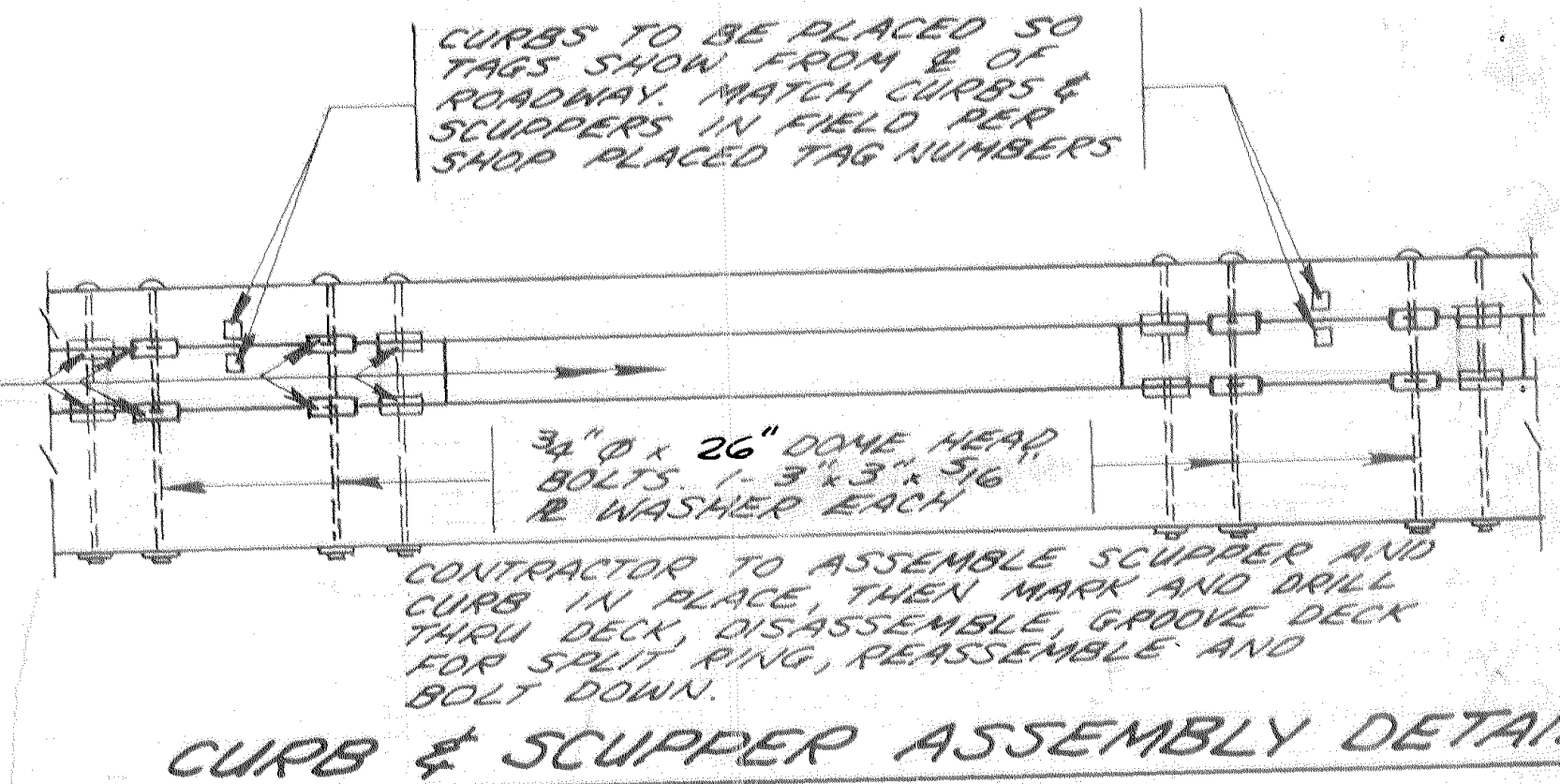
SCALE: 3/8" = 1'-0"

EYEBOLTS ARE IN PLACE ON PANELS AT SPREADER BEAM LOCATION WHEN SHIPPED AND ARE USED FOR LIFTING PANELS ON BRIDGE. EYEBOLTS ARE TO BE REMOVED AND REPLACED WITH 3/4" Ø DOME HEAD BOLTS & 1-R WASHER EACH BOLT TO FASTEN SPREADER BEAM. SPREADER BEAM IS FIELD DRILLED.

BILL OF TREATED TIMBER - SUPERSTRUCTURE				
ITEM	NO.	FIN. SIZE	LEN.	F.B.M.
SPREADER BEAM	6	R 6x12	23'-0"	828
RAIL POST	22	R 8x12	3'-6"	616
CURB - END	4	S4S 6x12	12'-0"	288
" - INT.	4	S4S 6x12	18'-0"	432
SCUPPER - END	4	S4S 6x12	7'-6"	180
" - INT.	14	S4S 6x12	5'-0"	252
EDGE STRIP	10	R 2'x3	12'-0"	60
TOTAL F.B.M. SUPERSTRUCTURE				2656

- ① GLU-LAM RAIL 6" x 10 3/4" x 24'-0" - 2 PCS.
- " " " 6" x 10 3/4" x 17'-9" - 4 PCS.
- TOTAL GLU-LAM RAIL 119 LIN. FT.
- ① SEE SPECIAL PROVISIONS

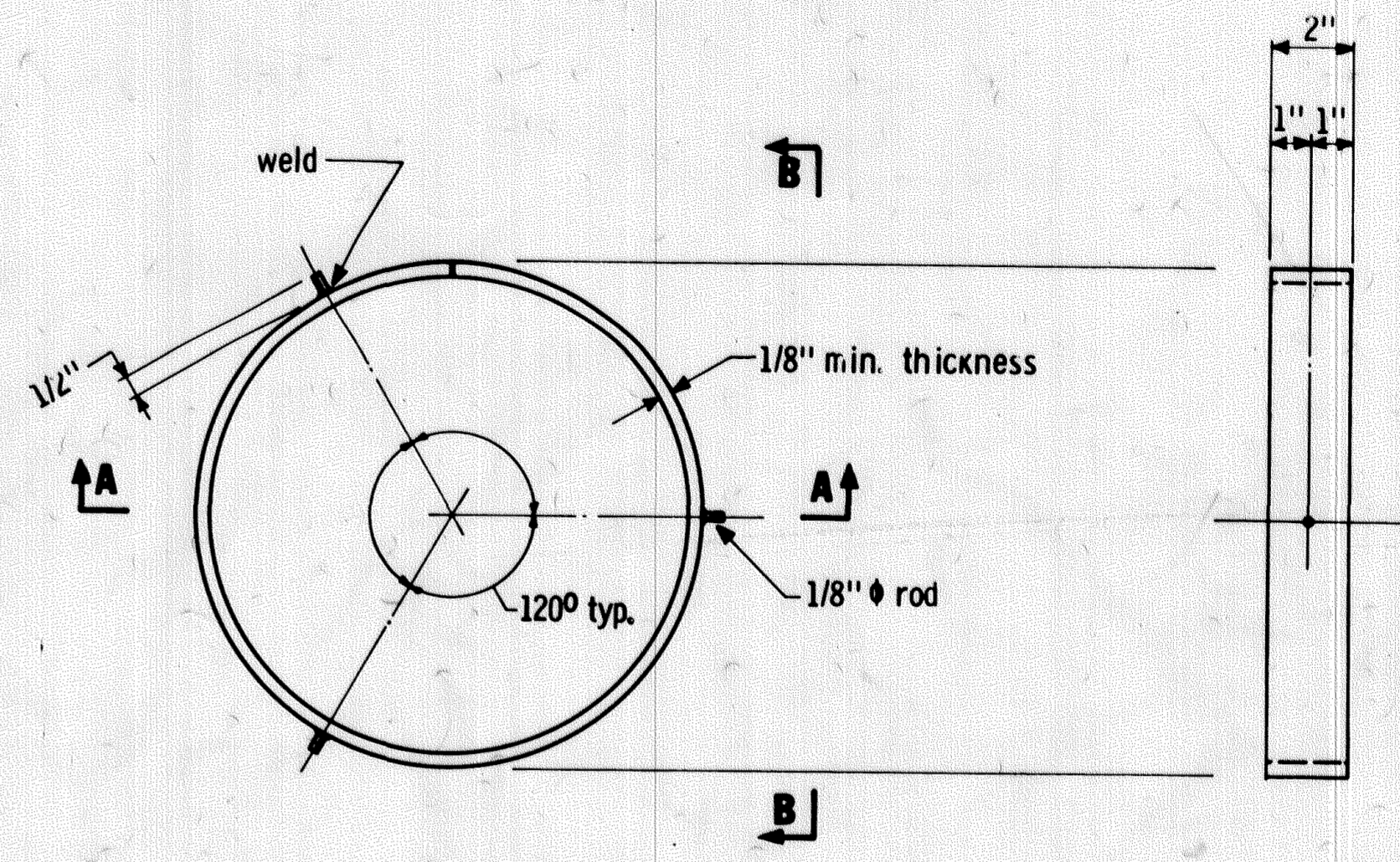
BILL OF HARDWARE - SUPERSTRUCTURE			
UNIT NO.	NO.	ITEM	TOTAL WT.
2.20	52	5/8" Ø x 20" DM. HD. BOLT - RAIL TO POST	114
1827	22	1 1/4" Ø x 26" " " " " W/R WASHES - "	402
2.35	22	5/8" Ø x 24" DM. HD. DR. SPKS. - POST TO FLR	52
2.35	40	5/8" Ø x 24" " " " " - FLR. @ POST	94
1.32	198	5/8" Ø x 1 1/2" " " " " @ PANEL LAPS	261
1.32	56	5/8" Ø x 1 1/2" " " " " @ R TO PANEL	74
2.81	28	3/4" Ø x 20" " " " " @ R TO GAP	79
2.81	28	3/4" Ø x 20" " " " " @ PANEL TO ABUT. CAP	79
2.81	8	3/4" Ø x 20" " " " " @ CURB TO FLOOR	22
2.81	4	3/4" Ø x 20" " " " " @ PANELS "A20"	11
4.17	80	3/4" Ø x 26" DM. HD. BOLT - CURB TO FLR.	334
4.17	42	3/4" Ø x 26" " " " " - SPREADER BM	175
0.70	176	4" Ø SPLIT RING CONNECTOR	123
0.68	52	3" x 3" x 1/4" R WASHER FOR 5/8" Ø BOLT	35
0.85	122	3" x 3" x 5/16" R " " " 3/4" Ø "	104
171#		40d NAILS - EDGE STRIP	8
TOTAL HAREWARE FOR SUPERSTR.			1967 LBS
28 - GALV. 2 1/2" x 3/16" x 2'-6" R PER SPEC 3306			
TOTAL STRUCTURAL STEEL (3306)			113 LBS.



CURB & SCUPPER ASSEMBLY DETAIL

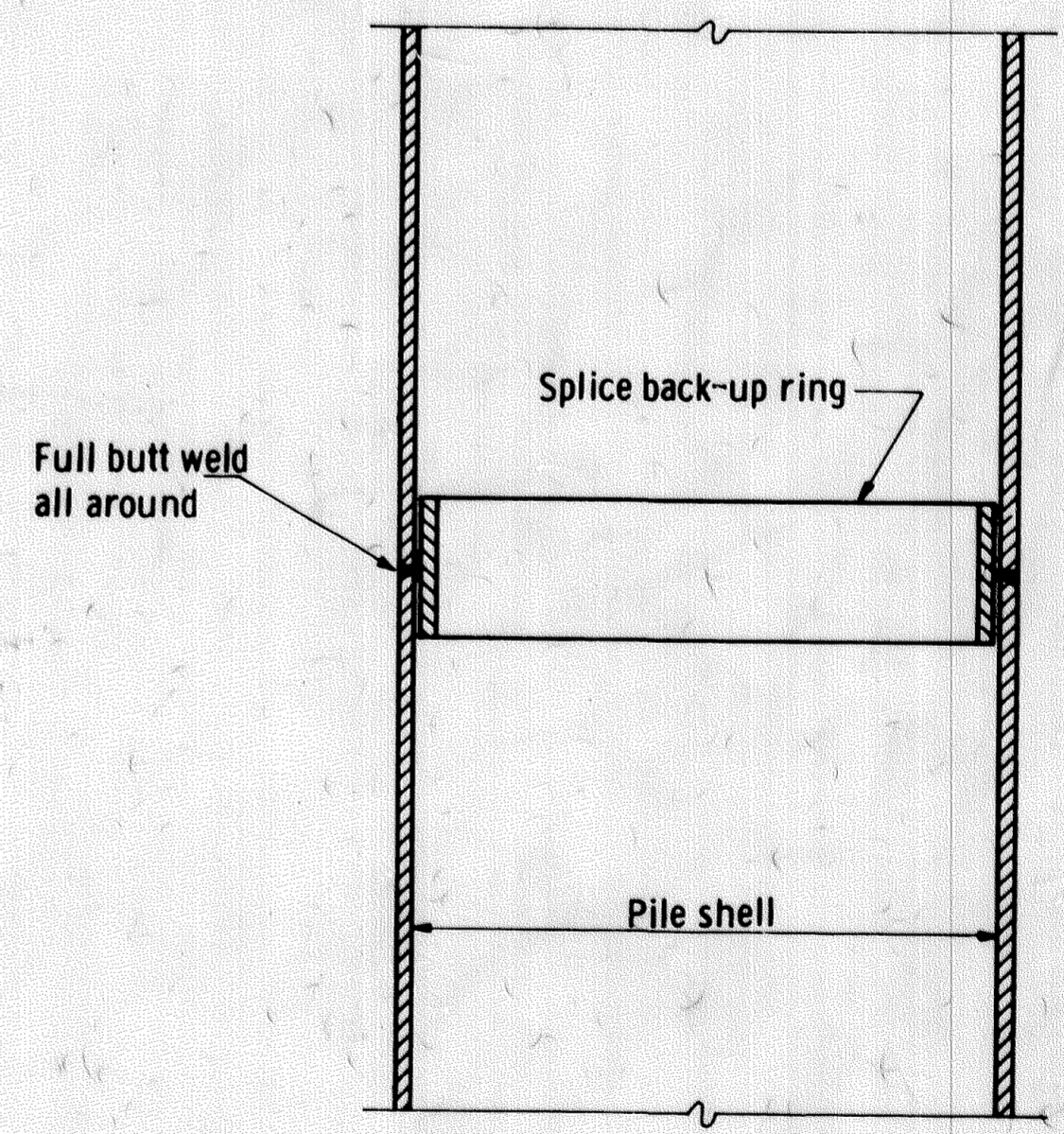
PLANS PREPARED BY ROBERT E. EPICKSON ENGINEERING CO. 3340 REPUBLIC AVE. ST. LOUIS PARK, MINN.

MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02535
SUPERSTRUCTURE DETAILS



PLAN VIEW
(Pile not shown)

SECTION B - B
(Pile not shown)



SECTION A - A

NOTES:

- Approved commercial pile splice back-up ring may be used in lieu of the type detailed. Back-up ring shall have a tight fit.
- Welding electrodes shall be A. W. S. Type E7016 or E7018 (low-hydrogen).
- Low-hydrogen electrodes shall be supplied in hermetically (air-tight) sealed containers.
- Low-hydrogen electrodes shall be stored in holding ovens at a temperature of not less than 230° F.
- Low-hydrogen electrodes shall be placed in a holding oven for at least 8 hours, after having been exposed to the atmosphere for more than 4 hours.
- Electrodes which have become wet, soiled or damaged shall not be used.
- Welding shall not be done when the ambient temperature is lower than 0° F. or when the pile is wet or exposed to falling rain or snow. When the pile metal temperature is below 32° F., the pile metal in the area of the weld shall be heated to a minimum temperature of 70° F. and maintained at this temperature during welding.

APPROVED July 21, 1972

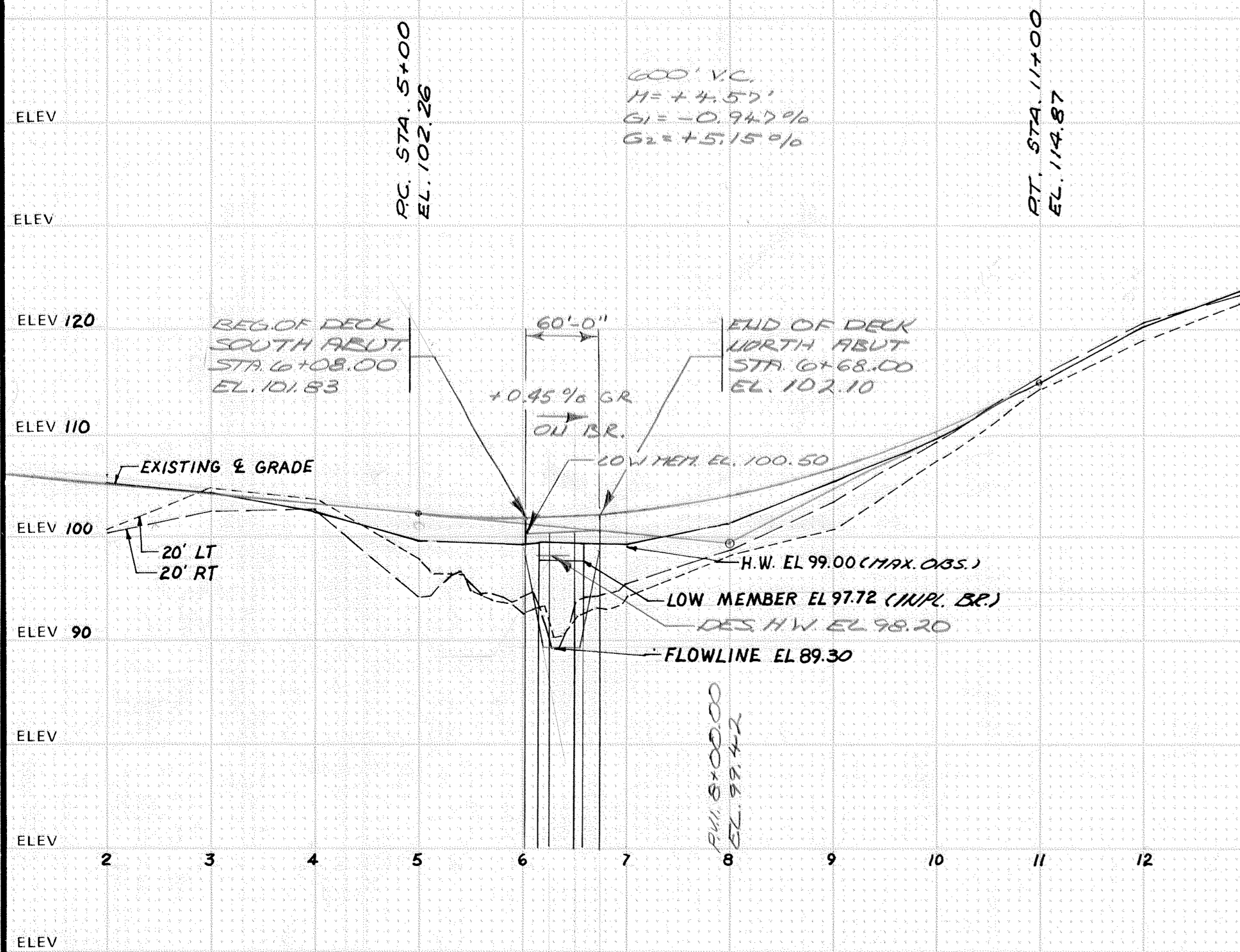
Stanley A. Hoff
 Engineer Standards Engineer
 RESEARCH AND STANDARDS
 DIVISION

MINNESOTA
 DEPARTMENT OF TRANSPORTATION
PILE SPLICE
 CAST-IN-PLACE CONCRETE PILES

DETAIL NO.
B201

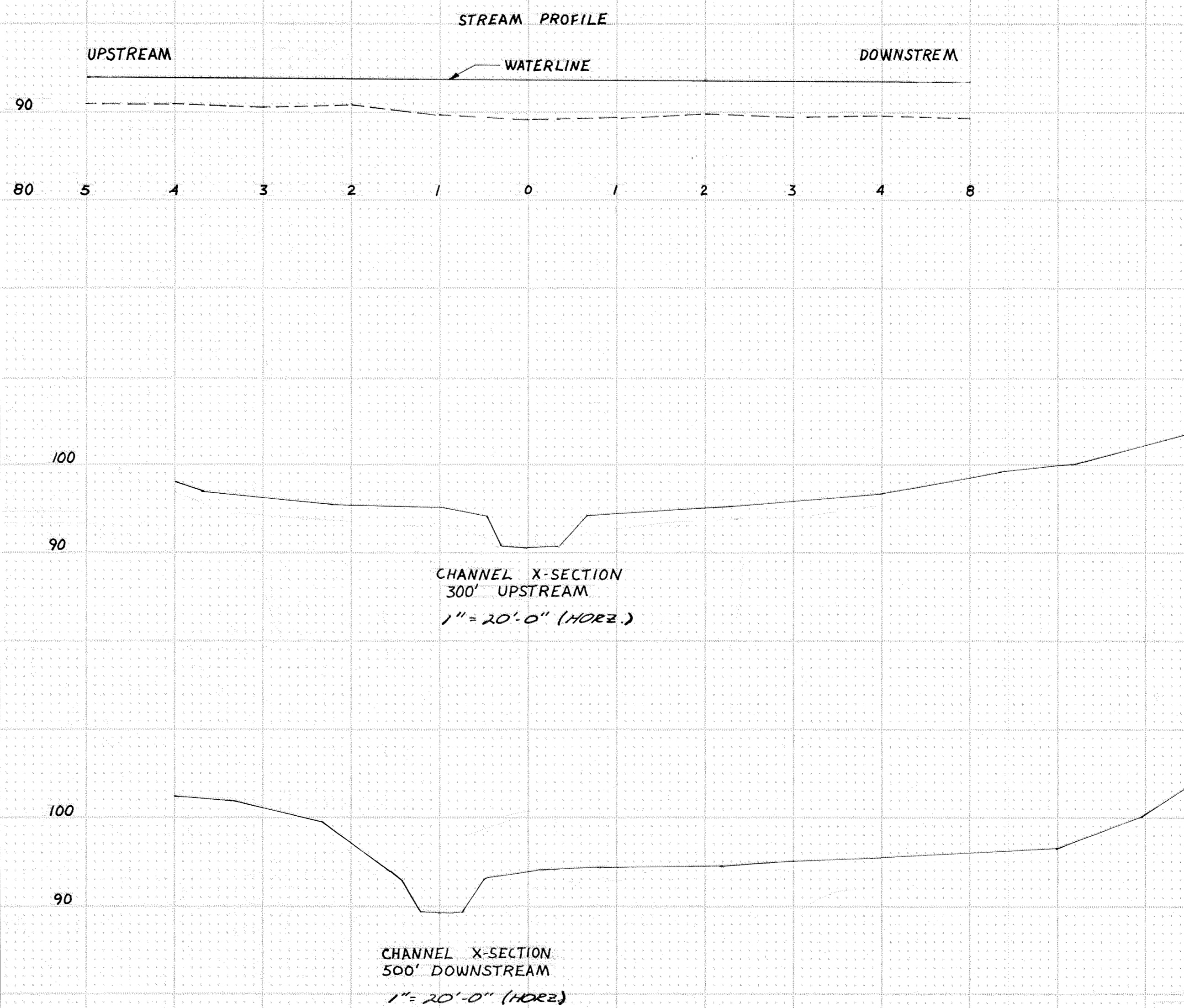
CONTRACTED PROFILE

SCALE: HOR. 1"=50' VER. 1"=5'



TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

- Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
- Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway) : Given location, type, length, height above high water, cross-sectional area etc.
- Apparent highwater elevation 99.00 Obtained from
- Other data: Approx. velocity of water at time of survey.....

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 5-2-29

Stream or ditch designation SEELEY BROOK
 Drainage area 4.8 SQ. MI.
 Max. flood on record UNK. Design flood (50 yr. freq.) 1100 C.F.S.
 Max. observed highwater elevation 99.0 Design highwater elevation 98.20
 Design mean velocity through structure 4.2 F.P.S.
 Low superstructure at or above elevation 100.20
 Flowline elevation 89.30 Skew angle NONE
 Waterway area req'd. below elevation 98.2 = 265 Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 1320 C.F.S. at stage 99.3 and mean velocity of 4.6 F.P.S. with 0.6 Ft. swellhead. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

3-20' T.T.S., 44'-0" ROADWAY
CURRENT ADT 900

Bridge survey sheets made from: ERICKSON ENGINEERING SURVEY NOTES

Bench mark elevation 100.00 ~~NOT ASSUMED~~ ASSUMED
 Location: TOP OF BOLT S.E. CURB OF BRIDGE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

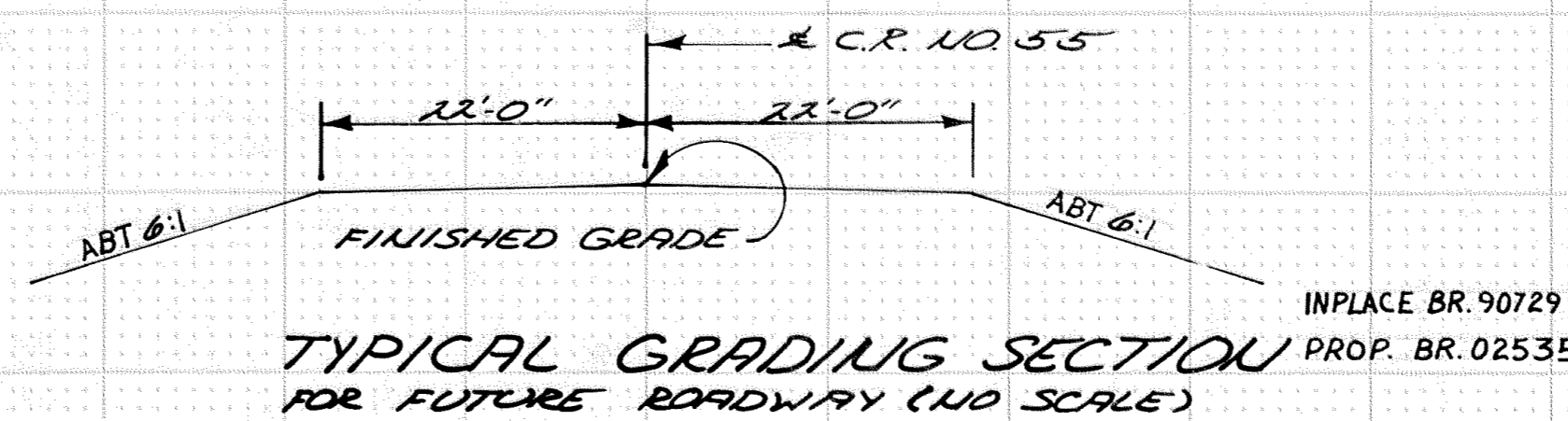
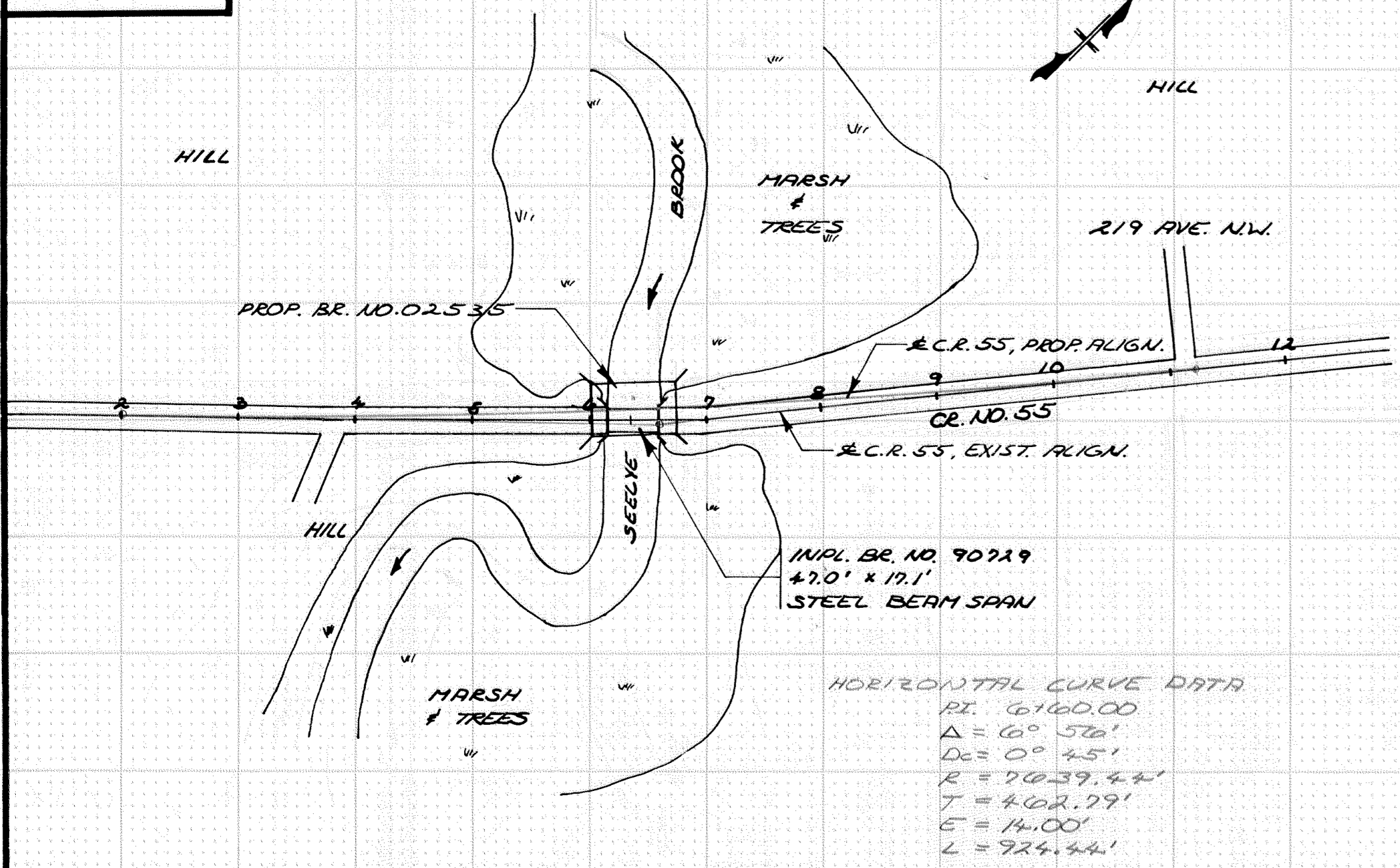
AT MILE POINT..... ON C.R. NO. 55
 (T.H., C.S.A.H., C.R. etc.)
 PROPOSED BRIDGE LOCATED 1.2 MILES SOUTH OF
JCT CSAH 24
 SEC. 7 TWP. 33 N R. 24 W
 TOWNSHIP. OAK GROVE COUNTY ANOKA

BRIDGE NO. 02535

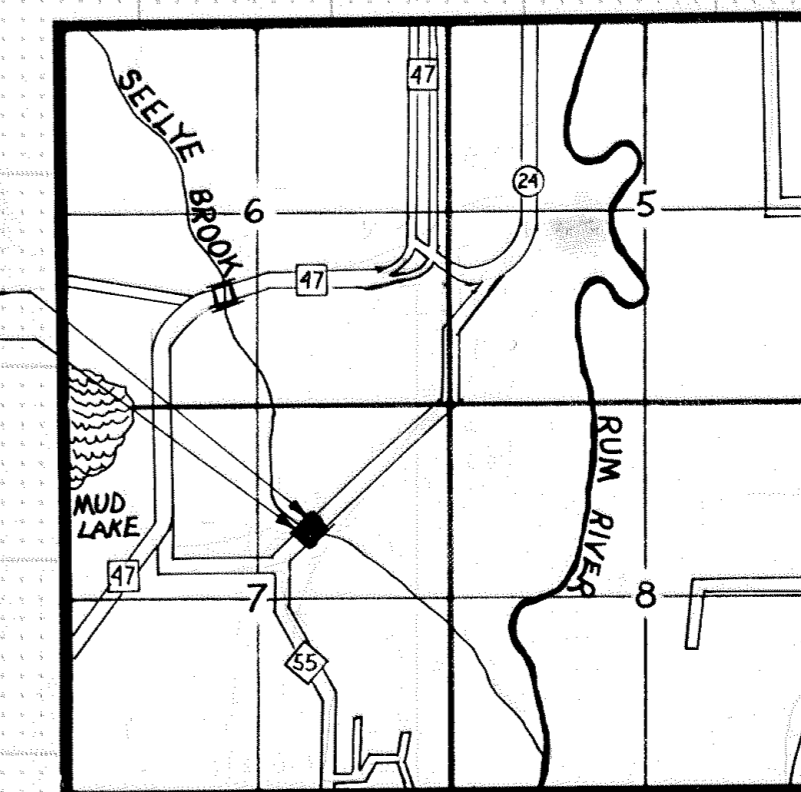
APPD. 5-18-29

PLAT

SCALE: 1"=100'



TYPICAL GRADING SECTION FOR FUTURE ROADWAY (NO SCALE)



R 24 W INDEX MAP (FOUR SECTIONS)

Area No.

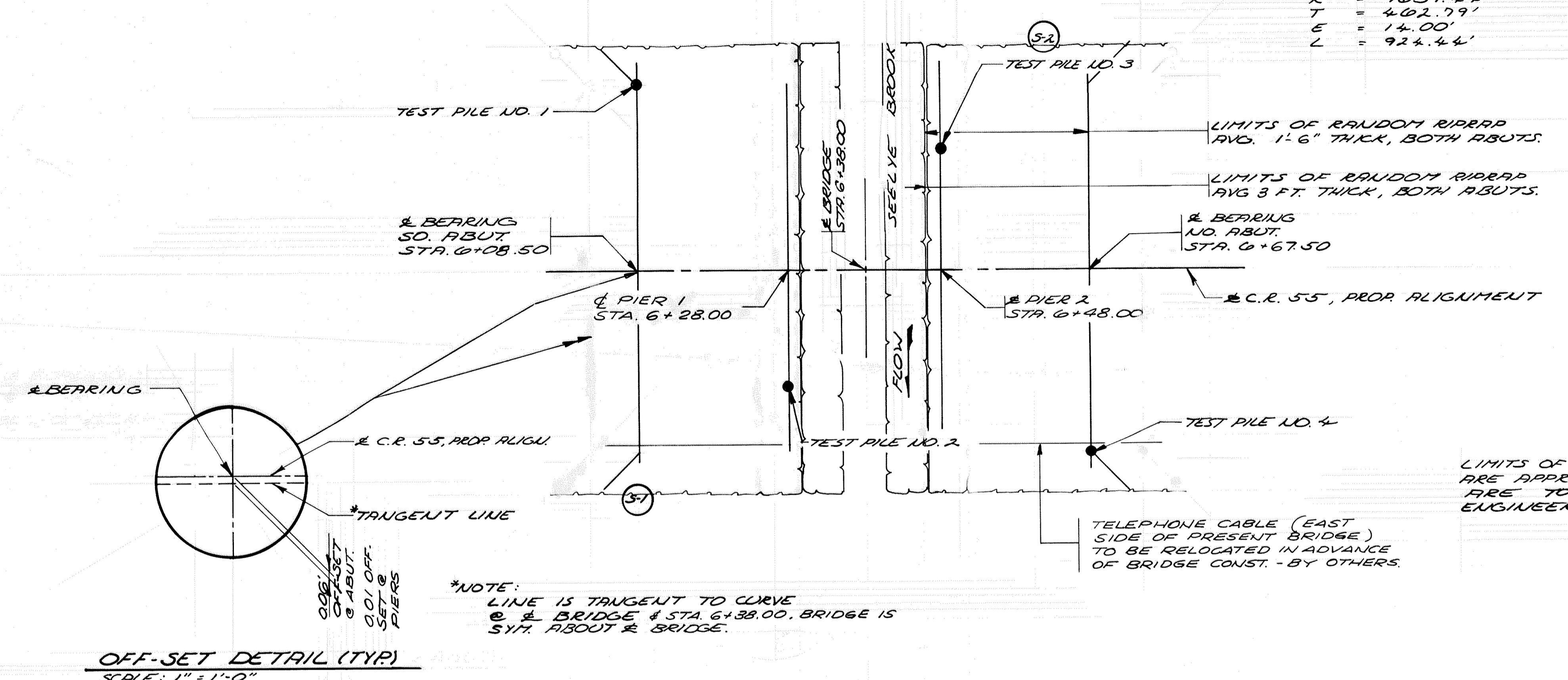
Job No.

State Proj. No. 02-598-03

Sheet No. 8 of 9 Sheets

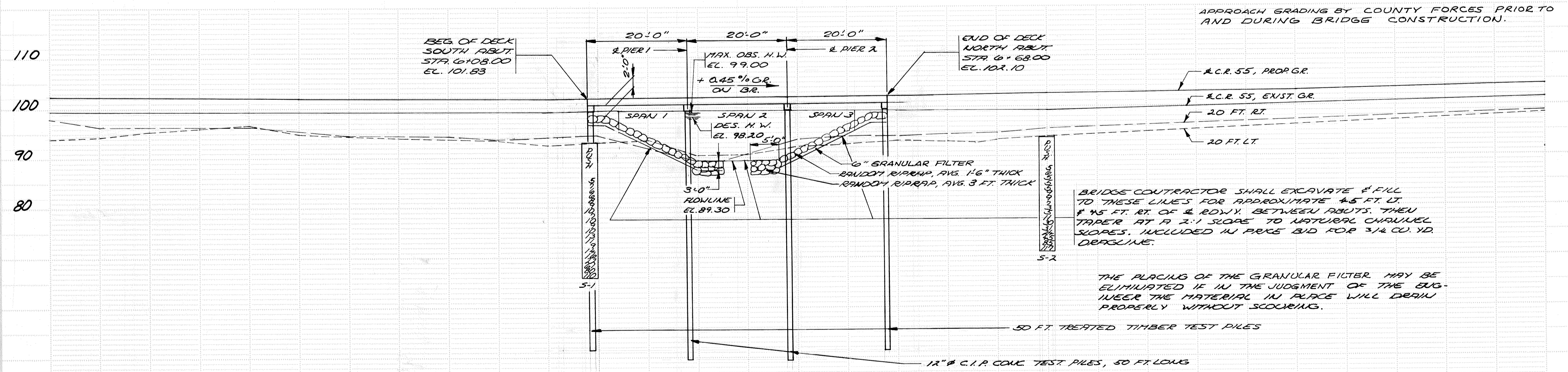
HORIZONTAL CURVE DATA

P.I.	6+00.00
Δ	0°-56'
Dc	0°-45'
R	7639.44'
T	402.79'
E	14.00'
L	924.44'



LIMITS OF RANDOM RIPRAP SHOWN ARE APPROXIMATE ONLY. EXACT LIMITS ARE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

600' V.C.
M = +4.57'
G1 = -0.947%
G2 = +5.15%
PVI = 8+00.00
EL. = 99.42



5-2

5-1

SOUNDINGS SHOWN 51, 52 TAKEN WITH
STD 50 B HAMMER
24 INCH DROP
1/4 INCH O.D. SAMPLER