MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE & BR. NO. 55533

LOCATED ON C.S.A.H. 31 **BETWEEN** C.S.A.H. 3 AND T.H. 52 3 MILES S.E. OF PINE ISLAND. **(GEOGRAPHIC DESCRIPTION)**

FROM 410.1' SO. OF SO. 1/4 COR. SEC. 11 T. 108 N. R.15W. **TO** 165.66' SO. OF SO. 1/4 COR. SEC. 2 T. 108 N. R.15W. **(LEGAL DESCRIPTION)**

STATE PROJ. NO. .....

GROSS LENGTH	FEET		MILES
BRIDGES-LENGTH	FEET		MILES
EXCEPTIONS-LENGTH	FEET		MILES
NET LENGTH	FEET		MILES

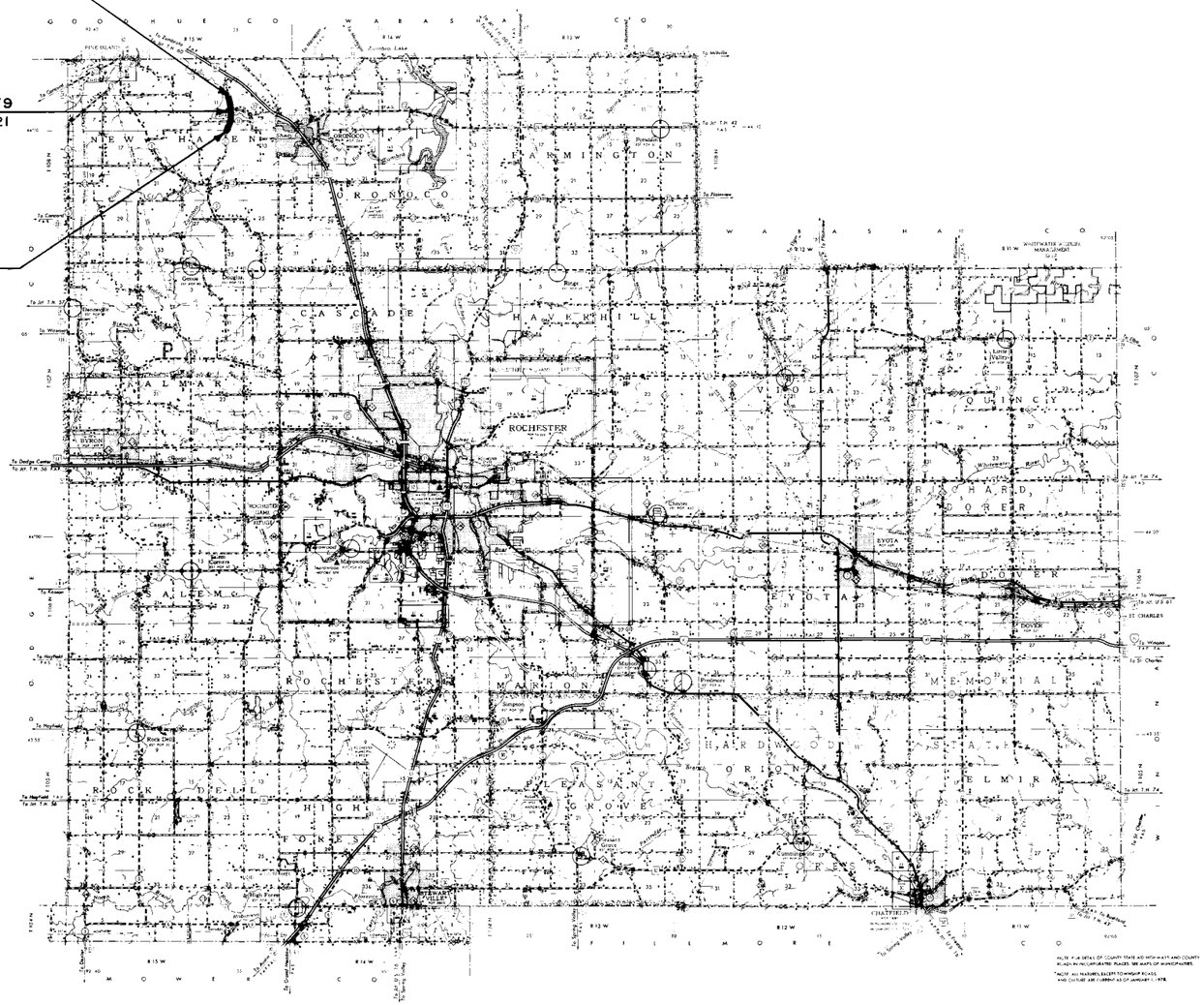
STATE PROJ. NO. S.A.P 55-631-03

GROSS LENGTH	5700.00	FEET	1.079 MILES
BRIDGES-LENGTH	269.58	FEET	0.051 MILES
EXCEPTIONS-LENGTH	269.58	FEET	0.051 MILES
NET LENGTH	5430.42	FEET	1.028 MILES

END: SAP 55-631-05
STA. ~~141+00~~ 123+00

BR. NO. 55533 STA. 112+74.79
EXCEPTION STA. 110+05.21

BEGIN: SAP 55-631-05
STA. 84+00



PLANS SYMBOLS

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)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY LINE
RIVER OR CREEK (NAME)
DRY RUN
DRAINAGE DITCH (SIZE)
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER
ORCHARD (TIMBER)
BRUSH
NURSERY
CATCH BASIN C.B.
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) 1.5 / 7.5
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 (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)
SLOPE EASEMENT SE

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN G
WATER MAIN W
CONDUIT
TELEPHONE CABLE IN CONDUIT T
ELECTRIC CABLE IN CONDUIT P
TELEPHONE MANHOLE T
ELECTRIC MANHOLE P
BURIED TELEPHONE CABLE T-BUR
BURIED ELECTRIC CABLE P-BUR
AERIAL TELEPHONE CABLE T-AE
SEWER, (SANITARY OR STORM)
SEWER MANHOLE

SCALES

PLAN ..... 100 FEET
PROFILE ..... 100 FEET HORZ. & 10' VERT.
INDEX MAP ..... 10,560 FEET
CROSS SECTIONS ..... 10 FEET

SPECIFICATIONS REFERENCE

The 1978 Edition of the Minnesota Department of Transportation "Standard Specifications For Highway Construction" Shall Govern.

INDEX

SHEET NO. 1 TITLE SHEET & LAYOUT MAP
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NO. 3&4 PLAN & PROFILE
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NO. 6 TO 18 CROSS SECTIONS

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SHEETS NO. 12 TO 17 REVISED. SEE SHEETS 12A & 13A. 7-7-81
SHEET NO. 14A & 15A CROSS SECTIONS BORROW AREA.
SHEET NO 16A CROSS SECTION TWP RD. APPROACH RIGHT STA. 116+69

DESIGN DESIGNATION

R .....
ADT (Current Year) = 110
ADT (Future Year) = 176
DHV (Design Hr. Vol.) = ...
D (Directional Distr.) = ... %
T (Heavy Commercial) = 15 %
SOIL FACTOR 130
7 TON DESIGN

EN18(20)
Design Speed 50 MPH
Based on STOPPING Sight Distance
Height of eye 3.75' Height of object 0.5'
Design Speed not achieved at:
STA. 131+00 TO STA. 141+00 MPH 40
STA. TO STA. MPH
STA. TO STA. MPH

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 3/6/81 REG. NO. 10219 ENGR. J.K. DeLaire
COUNTY Olmsted
Recommended for Approval [signature] 3-9 1981
DISTRICT STATE AID ENGINEER
Recommended for Approval Robert D. Offerdahl 4-7 1981
STATE AID PLANS AND SPECS ENGINEER
Approved 4/8 1981 [signature]
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

STATE AID PROJ. NO. 55-631-05
~~STATE PROJ. NO.~~ SHEET NO. 1 OF 18 SHEETS

STATE AID TITLE SHEET 6.77 ALRINSON APLG 55405

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	MUNICIPAL	RURAL	TOTAL ESTIMATED QUANTITIES
	2101.501	CLEARING	ACRE		2.41	2.41
	2101.502	CLEARING	TREE		93	93
	2101.506	GRUBBING	ACRE		2.41	2.41
	2101.507	GRUBBING	TREE		59	59
	2104.501	REMOVE PIPE CULVERTS	LIN. FT.		180	180
	2105.501	COMMON EXCAVATION	CU. YD.		44,726 (P)	44,726(P)
	2105.503	ROCK EXCAVATION	CU. YD.		6,914	6,914
	2105.507	SUBGRADE EXCAVATION	CU. YD.		4,254	4,254
	2105.511	COMMON CHANNEL EXCAVATION	CU. YD.		4,418	4,418
①	2123.501	COMMON LABORER	HOUR		12	12
①	2123.503	MOTOR GRADER	HOUR		10	10
①	2123.508	14 CU. YD. SCRAPER	HOUR		56	56
①	2123.509	DOZER	HOUR		28	28
②	2130.501	WATER	M-GAL.		50	50
③	2211.501	AGGREGATE BASE, CLASS 2	TON		13,579	13,579
	2442.501	REMOVE OLD BRIDGE	LUMP SUM		1	1
	2501.511	18" C.S. PIPE CULVERT	LIN. FT.		92	92
	2501.511	24" C.S. PIPE CULVERT	LIN. FT.		96	96
	2501.511	30" C.S. PIPE CULVERT	LIN. FT.		36	36
	2501.511	36" C.S. PIPE CULVERT	LIN. FT.		96	96
	2501.511	42" C.S. PIPE CULVERT	LIN. FT.		64	64
	2501.511	24" R.C. PIPE CULVERT, CLASS III	LIN. FT.		50	50
	2501.515	18" G.S. PIPE APRONS	EACH		6	6
	2501.515	24" G.S. PIPE APRONS	EACH		6	6
	2501.515	30" G.S. PIPE APRONS	EACH		2	2
	2501.515	36" G.S. PIPE APRONS	EACH		6	6
	2501.515	42" G.S. PIPE APRONS	EACH		4	4
	2501.515	24" R.C. PIPE APRONS	EACH		2	2
	2575.501	ROADSIDE SEEDING	ACRE		12 (P)	12 (P)
	2575.502	SEED MIXTURE 5	POUND		600	600
	2575.511	MULCH MATERIAL, TYPE 1	TON		24	24
	2575.519	DISC ANCHORING	ACRE		12 (P)	12(P)
	2575.531	COMMERCIAL FERTILIZER, ANALYSIS 12-12-12	TON		1	1

(P) PLAN QUANTITY.

① EQUIPMENT HOURS TO BE USED FOR OBLITERATING OLD ROAD AT LOCATIONS SHOWN ON PLAN & PROFILE SHEETS.
② TO BE USED AS A DUST PREVENTATIVE.
③ INCLUDES 1600 TONS FOR PLACING ON 15 APPROACHES.

STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

PLATE NO	DESCRIPTION
0003 A	SPECIFICATION REFERENCE TO STANDARD PLATES.
3000 H	REINFORCED CONCRETE PIPE.
3040 F	CORRUGATED METAL PIPE CULVERT
3100 F	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123 H	METAL APRON FOR C.M. PIPE
3124 A	METAL APRON CONNECTION
3145 A	CONCRETE PIPE JOINT TIES. EYE BOLT TIE.
3221 B	CORRUGATED STEEL PIPE COUPLING BAND.
8000 H	STANDARD BARRICADES
9000 B	APPROACHES AND ENTRANCES.

NOTE: MATERIAL FROM THE UPPER 1.0' OF THE NATURAL TOP SOIL SHALL NOT BE USED IN THE UPPER 1.0' OF THE ROAD BED. PART OF THIS MATERIAL SHALL BE UNIFORMLY SPREAD ON SLOPES AND DITCH BOTTOMS TO A DEPTH OF 3". NO PAYMENT IN ADDITION TO THE CONTRACT PRICE FOR COMMON EXCAVATION WILL BE MADE FOR SPREADING THE TOPSOIL AS ABOVE PROVIDED, NOR WILL ANY UNDERCUTTING MADE IN EXCAVATION PRIOR TO PLACING THE TOPSOIL BE MEASURED FOR PAYMENT.

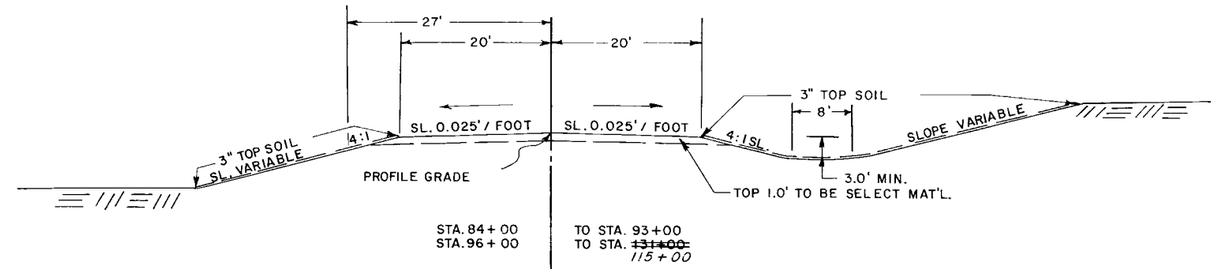
NOTE: CORRUGATED STEEL AND REINFORCED CONCRETE PIPE CULVERT. EXCAVATION WILL BE CONSIDERED INCIDENTAL, AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR "PIPE CULVERT".

NOTE: SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE FOR COMPACTION, AS SHOWN ON THE PLAN AND PROFILE SHEETS. EXCAVATION HAS BEEN COMPUTED AND IS LISTED AS SUBGRADE EXCAVATION. BACKFILL WITH SELECT MATERIAL FROM R.O.W. TAPERS SHALL BE 50:1 IN ALL CASES.

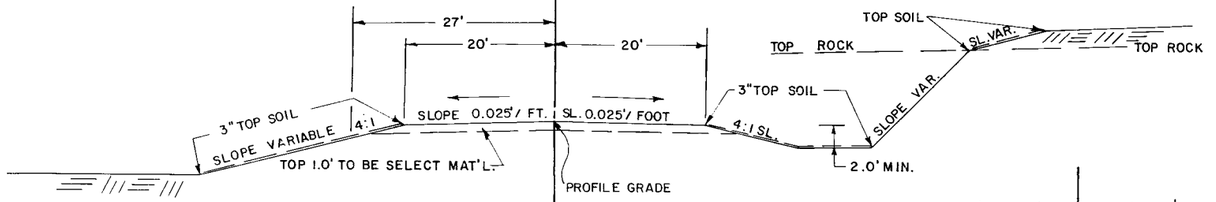
NOTE: PLACE SECTIONAL CONCRETE PIPE ON CLASS "B" BEDDING AS DIRECTED BY THE ENGINEER. ALL BEDDING TO BE CONSIDERED AS INCIDENTAL AND NO DIRECT COMPENSATION SHALL BE MADE THERE FOR.

NOTE: ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTIONS ARE APPROXIMATE.

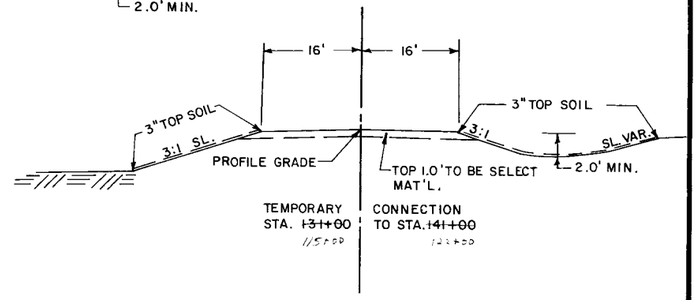
TYPICAL GRADING SECTIONS



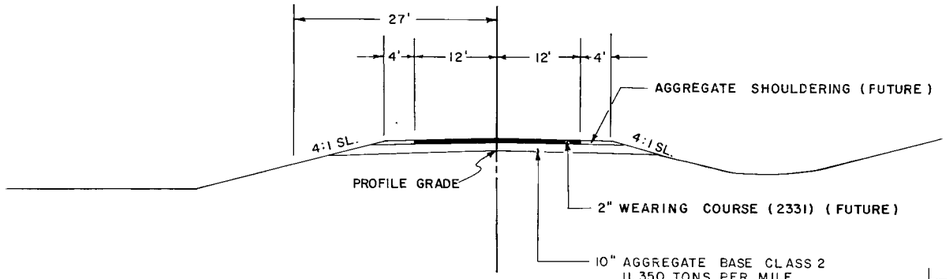
STA. 84+00 TO STA. 93+00
STA. 96+00 TO STA. ~~131+00~~ 115+00



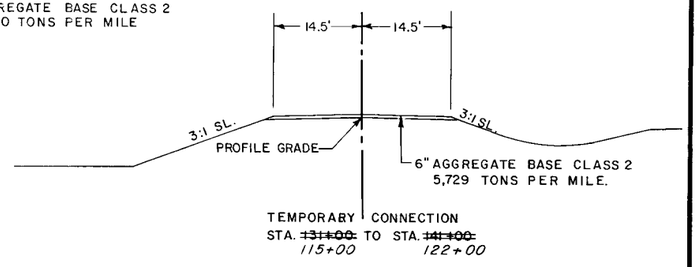
STA. 93+00 TO STA. 96+00



TYPICAL SURFACING SECTIONS



STA. 84+00 TO STA. 131+00



S.A.P. 55-631-05 C.S.A.H. 31 OLMSTED COUNTY
~~State Proj. No.~~

Sheet No. 2 **of** 18 **Sheets**

ALBINSON INC. MINNEAPOLIS 5 MINN.

Fed. Proj. No.

FM E. LT. 84+00
NO CULV. INPL.
NO CULV. REQ'D.

℄ CULV. 84+22
INPL. 24"X32" CMP
REMOVE
MOVE CULV. TO STA. 84+26
24"x50' R.C. PIPE CULV. CL. III
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F & I. APPROVED JOINT TIES.
29 CU. YD. RANDOM RIP RAP
CL. "B" 18" THICK

F.E. LT. 88+98
NO CULV. INPL.
NO CULV. REQ'D.

CONST. F.E. LT. 91+50
18"x28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

P.O.S.T. STA. 89+10.15
INPL. 1/2" REIN. ROD

RES. DR. LT. 98+70
INPL. 15"x28' C.M.P.
REMOVE
18"x32' C.S. PIPE CULV.
2-18" G.S. APRONS

CULV. LT. 102+84
INPL. 18"X32' CMP
REMOVE
24"x36' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

BR. NO. 89788 LOCADED APPROX. 0.7 MILE DOWN STREAM FROM PROPOSED BRIDGE NO. 55533.
REMOVE OLD BR. NO. 89788
OBLITERATE OLD ROAD (APPROACH FILLS) AS DIRECTED BY THE ENGINEER.

PROPOSED BRIDGE NO. 55533
STA. 110+05.46 TO STA. 112+74.54

BEGIN: S.A.P. 55-631-05
STA. 84+00

P.C. 87+82.33

P.I. 91+50
D - 3° 12'
∠ RT. - 23° 12' 30"
T - 367.67'
L - 725.26'
E - 37.36'
RATE SUPERELEVATION 0.044'/FT.
TRANSITION LENGTH 210'

P.T. 95+07.59

P.C. 98+34.38

RATE SUPERELEVATION 0.042'/FT.
TRANSITION LENGTH 200'
P.I. 101+99.1
D - 2° 45'
△LT. - 19° 51' 30"
T - 364.72
L - 721.94
E - 31.68

P.T. 105+56.32

OBLITERATE OLD ROAD
C.S.A.H. 31

TWP. RD.

WOODS

NORTH MIDDLE FORK ZUMBRO RIVER

POND

CHANNEL EXC.

F.E. RT. 88+88
NO CULV. INPL.
NO CULV. REQ'D.
NO DRIVE INSTALLED

F.E. RT. 93+31
NO CULV. INPL.
18"x28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS
MOVE TO 94+30

C.S.A.H. 31 RT. 102+84
~~NO CULV.~~ INPL. 18"x32' C.M.P. REMOVE
30"x36' C.S. PIPE CULV.
2-30" G.S. PIPE APRONS

VERTICAL CONTROL
ELEVATIONS SHOWN IN THIS PLAN ARE BASED ON MEAN SEA-LEVEL DATUM, 1929 ADJ. AND TIED TO THE TH 52 LEVEL NET.
LOCATION: 100' NORTHWEST OF THE CENTER LINE OF THE NORTH BOUND LANE OF TH 52 AT MILE POINT 68.5. BENCH MARK NO. 5508 C.
ELEVATION 1024.03

CL. 0.35 ACRE — GR. 0.35 ACRE

CL. 86 TREES
CL. 0.79 ACRES

GR. 50 TREES
GR. 0.79 ACRES

BM. ELE. 1034.43
SPK IN R POLE
LT. STA. 84+20

BM. ELE. 988.16
SPK. IN R POLE
LT. STA. 102+50

B.M. ELEV. 972.98
BRASS PLUG S.E. COR. S. ABUT.
BR. 55533 STA. 110+06

BEGIN GRADING STA. 84+00

INLET ELEV. 29.4
OUTLET ELEV. 29.0

PROFILE 75' LT. - - - - -
PROFILE 75' RT. ———

P.I. +50
ELEV. 43.6
800' V.C.
M = 6.1

P.V.C. +50 ELEV. 36.4

P.V.T. +00 ELEV. 26.4

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE FROM STA. 84+00 TO STA. 92+30 AND FROM STA. 93+00 TO STA. 97+50

COMMON EXC.	23729	TOPSOIL 1662 CU. YDS.
		COMMON EXC. 22067 CU. YDS.
ROCK EXC.	6456	
SUBGRADE EXC.	1558	
COMMON CHANNEL EXC.	2285	
EMB.	24867	

P.I. +29.34782
ELEV. 71.38804
500' V.C.
M = 2.975

P.V.C. +79.34782
ELEV. 82.13808

P.V.T. +79.34782
ELEV. 72.13804

ELEV. 74.05
NORTH END BRIDGE +74.54

ELEV. 73.24
SOUTH END BRIDGE +05.46

P.V.C. +00
ELEV. 73.1

+0.3%

BR. NO. 55533

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE FROM STA. 102+76 TO STA. 103+10.

State Proj. No. SAP 55-631-05 CSAH 31 OLMSTED CO. Sheet No. 3 of 18 Sheets

AS BUILT PLANS

RES. DR. LT. 117+05
INPL. 18"X24' CMP
REMOVE
36"x32' C.S. PIPE CULV.
2-36" G.S. PIPE APRONS

FM.E. LT. OLD RD. LT. 119+10
INPL. 22"X22' CMP
REMOVE
36"x32' C.S. PIPE CULV.
2-36" G.S. PIPE APRONS

F.E. RT. 125+50
NO CULV. INPL.
24"x28' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

℄ CULV. OLD RD. 125+77
INPL. 18"X22'
REMOVE
NO CULV. REQ'D.

RES. DR. LT. 130+15
INPL. 18"X28' CMP.
REMOVE
24"x32' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS.

RES. DR. LT. 141+44
INPL. 15"X20' CMP.
NO CHANGE

Fed. Proj. No.

℄ CULV. 144+92
INPL. 36"X26' C.M.P.
NO CHANGE

RATE SUPERELEVATION 0.031'/FT.
TRANSITION LENGTH 150'
P.I. 119+35.30
Δ RT. - 11° 48' 30"
Δ LT. - 13° 29'
T - 376.28
L - 749.07
E - 22.16

END: SAP 55-631-05
STA. 141+00

P.C. 115+59.02

P.T. 123+08.09

HO.

UNDER GROUND CABLE

TWP ROAD RT. 116+70
INPL. 36"x44' CMP
205' RT. CENTER LINE
NO CHANGE

F&I C.S. PIPE 40' RT. ℄
42"x36' C.S. PIPE CULV.
2-42" G.S. PIPE APRONS

F.E. RT. OLD RD. LT. 119+10
NO CULV. INPL.
42"x28' C.S. PIPE CULV.
2-42" G.S. PIPE APRONS

RES. DR. 125+98
INPL. 22"X20' CMP
REMOVE
36"x32' C.S. PIPE CULV.
2-36" G.S. PIPE APRONS

P.C. 132+67.05

RES. DR. RT. 133+39
NO CULV. INPL.
18"x32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

P.I. 139+06.48
D - 0° 42'
Δ RT. - 8° 56' 02"
T - 639.43
L - 1278.27
E - 24.94
NO SUPERELEVATION REQ'D.

RES. DR. RT. 137+88
NO CULV. INPL.
18"x32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

P.T. 145+43.32

KLATKES SUBDIVISION
BLOCK 1

CL. 1.27 ACRES — GR. 1.27 ACRES — CL. 7 TREES — GR. 9 TREES

BM. EL. 984.06
SPK IN P.P. 48'
LT. STA. 119+46

BM. EL. 1006.62
SPK. IN P.P. 33'
RT. STA. 137+32

℄ SUBGRADE ELEVATION

PROFILE 75' LT.
PROFILE 75' RT.

P.I. 115+00
ELEV. 73.7
400' V.C.
M = 0.55

P.V.T. +00
ELEV. 76.5

+1.4%

P.V.C. +00 ELEV. 94.7

P.I. +00
ELEV. 96.1
200' V.C.
M = 0.175

P.V.T. +00 ELEV. 98.2

+2.1%

P.V.C. +63.93443
ELEV. 03.74261

P.V.T. +63.93443
ELEV. 95.94264

-4.0%

P.I. +63.93443
ELEV. 07.94261
400' V.C.
M = 3.05

PROPOSED FUTURE ℄ SUBGRADE

END CONSTRUCTION
STA. 141+00

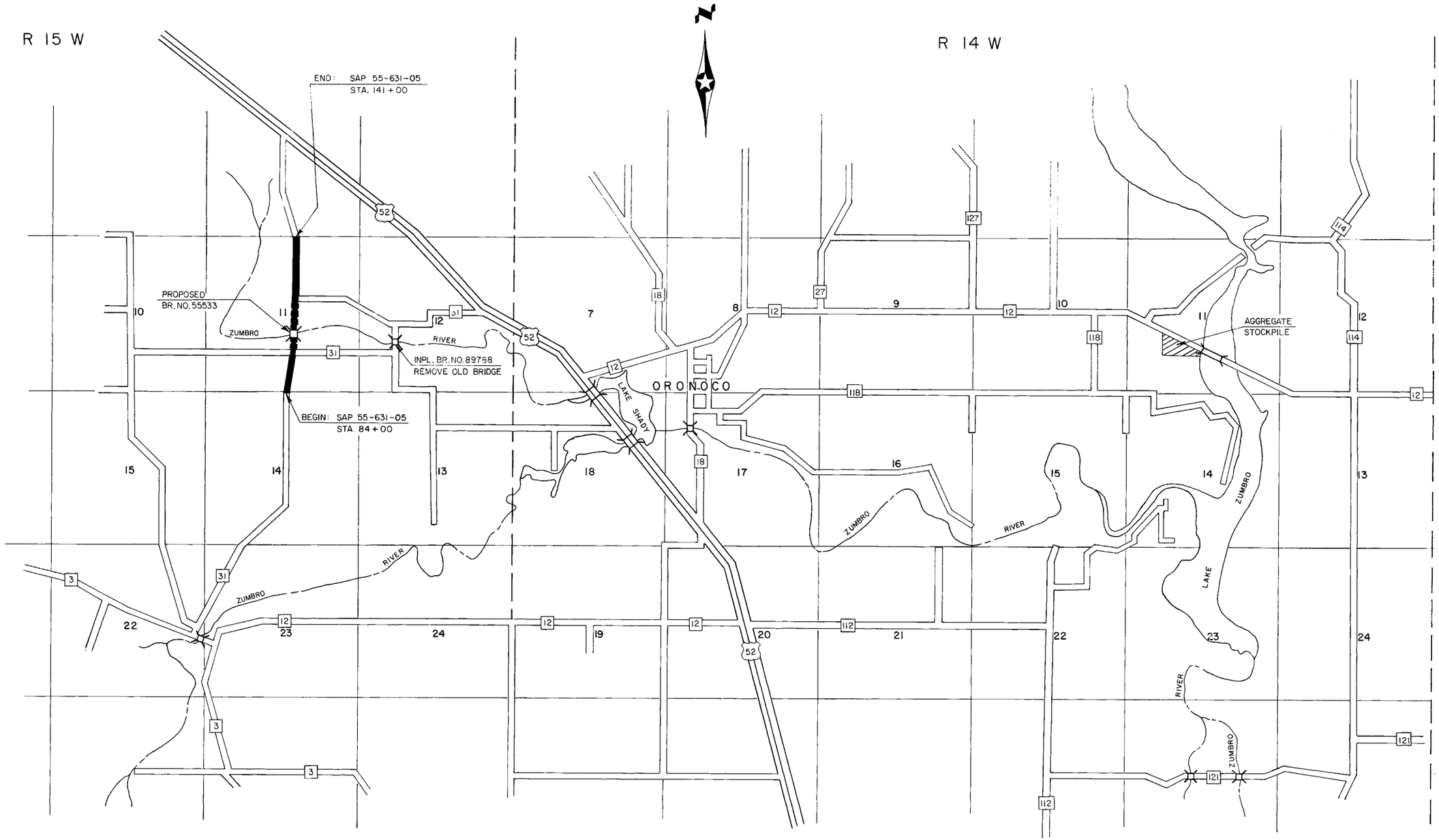
TEMPORARY CONNECTION STA. 131 TO STA. 141

	EXC.	FILL
COMMON	20997	
ROCK	458	
SUBGRADE	2696	
COMMON CHANNEL	2133	
EMB		17696

TOPSOIL 1981 CU. YDS.
COMMON EXC 19016 CU. YDS.

SUBGRADE TREATMENT:
EXCAVATE 10" BELOW PROFILE GRADE
FROM STA. 116+60 TO STA. 141+00.

State Proj. No. SAP 55-631-05 CSAH 31 OLMSTED COUNTY **Sheet No.** 4 **of** 18 **Sheets**



LOCATION MAP:

DESIGNATED SOURCES OF AGGREGATE BASE CLASS 2 AND LOCATION INPL. BR. NO. 89788.

APPROXIMATE SCALE: 1 MILE

MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR BR. NO. 55533 OVER NORTH MIDDLE FORK ZUMBRO RIVER

LOCATED ON C.S.A.H. 31 BETWEEN C.S.A.H. 3 AND T.H. 52 (GEOGRAPHIC DESCRIPTION)

FROM 409' SO. OF S.1/4 COR. SEC. 11 T108N R15W TO 392.67' NO. OF CENTER SEC. 2 T. 108 N. R. 15 W. (LEGAL DESCRIPTION)

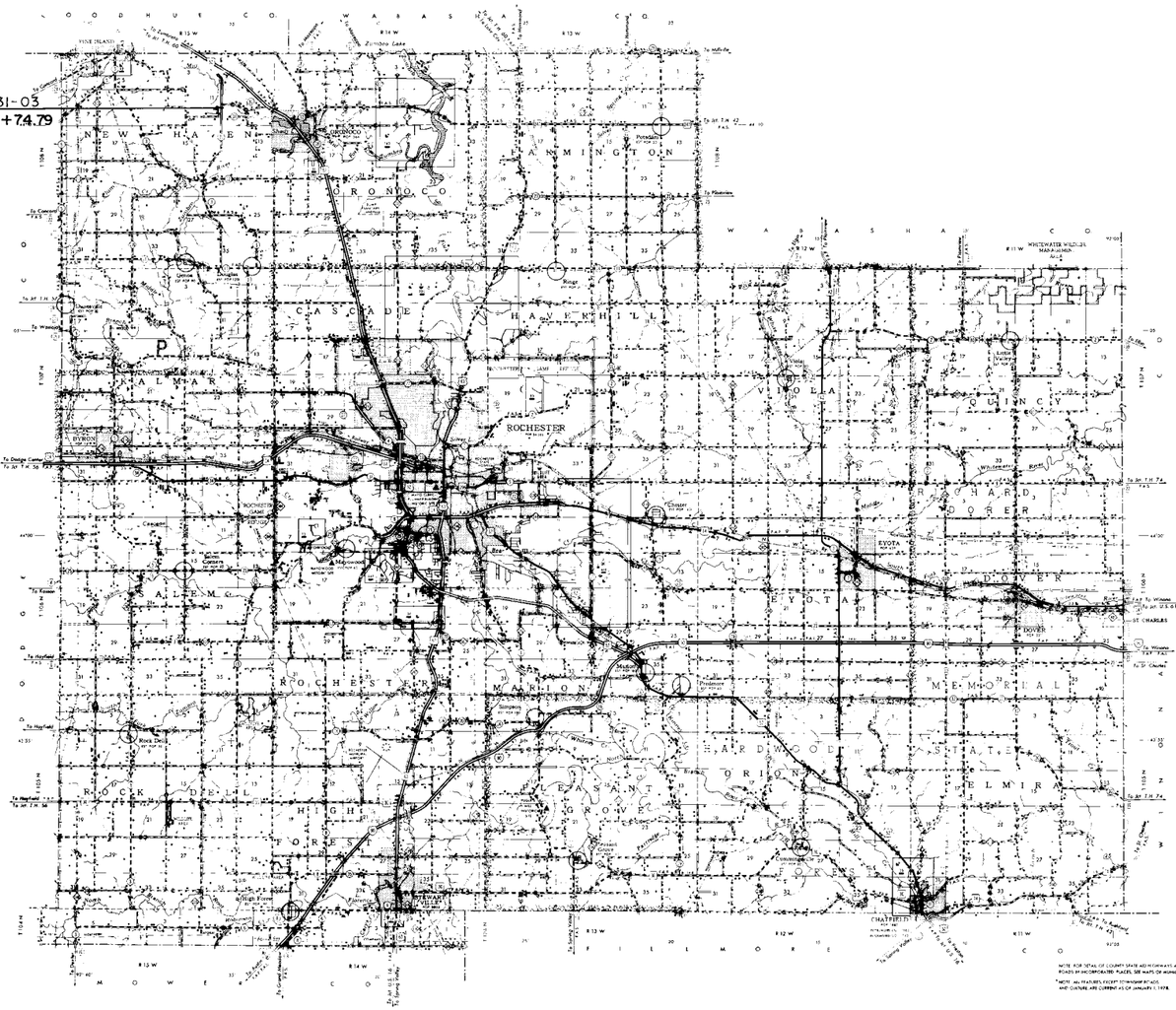
STATE PROJ. NO. 55-631-03

GROSS LENGTH	269.58	FEET	0.051 MILES
BRIDGES-LENGTH	269.58	FEET	0.051 MILES
EXCEPTIONS-LENGTH	0	FEET	0 MILES
NET LENGTH	269.58	FEET	0.051 MILES

STATE PROJ. NO. _____

GROSS LENGTH		FEET	MILES
BRIDGES-LENGTH		FEET	MILES ✓
EXCEPTIONS-LENGTH		FEET	MILES ✓
NET LENGTH		FEET	MILES

BR. NO. 55533 SP 55-631-03
STA. 110+05.21 TO STA. 112+74.79



PLANS SYMBOLS

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)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY LINE
RIVER OR CREEK (NAME)
DRY RUN
DRAINAGE DITCH (SIZE)
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER
ORCHARD (TIMBER)
BRUSH
NURSERY
CATCH BASIN C.B.
FIRE HYDRANT
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 (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)
SLOPE EASEMENT SE

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN G — G
WATER MAIN W — W
CONDUIT
TELEPHONE CABLE IN CONDUIT T
ELECTRIC CABLE IN CONDUIT P
TELEPHONE MANHOLE T
ELECTRIC MANHOLE P
BURIED TELEPHONE CABLE T-BUR
BURIED ELECTRIC CABLE P-BUR
AERIAL TELEPHONE CABLE T-AE
SEWER, (SANITARY OR STORM)
SEWER MANHOLE

SCALES

PLAN	100 FEET
PROFILE	100 FEET HORZ. & 10 FEET VERT.
INDEX MAP	10,560 FEET
CROSS SECTION	10 FEET

STATE AID TITLE SHEET 4/79 ALBINSON, WPLS 55405

MINN. PROJ. NO. BR OS 9055(6)

SPECIFICATIONS REFERENCE

The 1978 Edition of the Minnesota Department of Transportation "Standard Specifications For Highway Construction" Shall Govern.

INDEX

SHEET NO. 1 TITLE SHEET & LAYOUT MAP

" "1A - 22 BRIDGE NO. 55533

DESIGN DESIGNATION

R _____ ΣN18(20) _____

ADT (Current Year)	=	117	Design Speed 50 MPH
ADT (Future Year)	=	187	Based on Stopping Sight Distance
DHV (Design Hr. Vol.)	=		Height of eye 3.75' Height of object 0.5'
D (Directional Distr.)	=	%	Design Speed not achieved at:
T (Heavy Commercial)	=	15 %	STA. TO STA. MPH
SOIL FACTOR		130	STA. TO STA. MPH
			STA. TO STA. MPH

DATE 2/16/79 REG. NO. 10219 ENGR. J.K. Odlen

COUNTY Olmsted

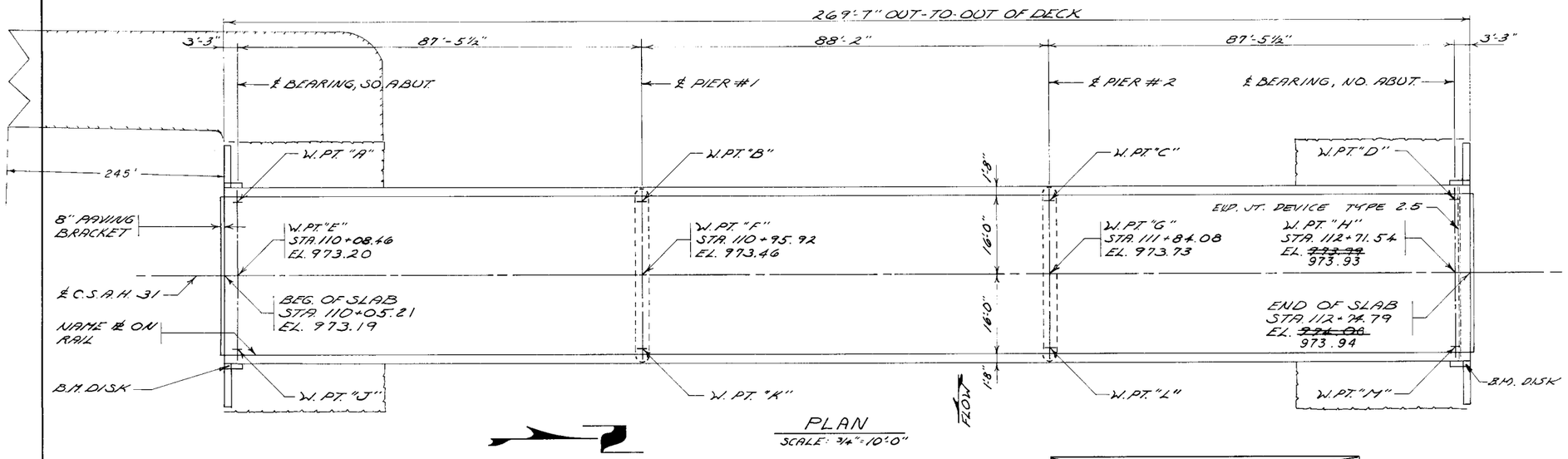
Recommended for Approval G.M. Waield 8-3 1979
DISTRICT STATE AID ENGINEER

Recommended for Approval [signature] 3-31 1981
BRIDGE ENGINEER

Approved 4-1 1981 [signature]
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

STATE PROJ. NO. 55-631-03 **SHEET NO.** 1 **OF** 22 **SHEETS**



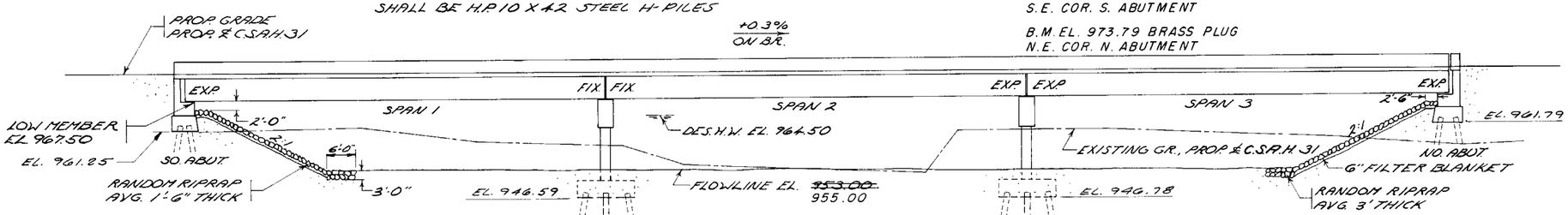
PLAN
SCALE: 3/4"=10'-0"

NOTE:
ALL PILING IN ABUTS. & PIERS SHALL BE H.P 10 X 42 STEEL H-PILES

B.M. EL. ~~992.91~~ SPIKE IN TREE 112' LEFT ~~STA. 112+60~~

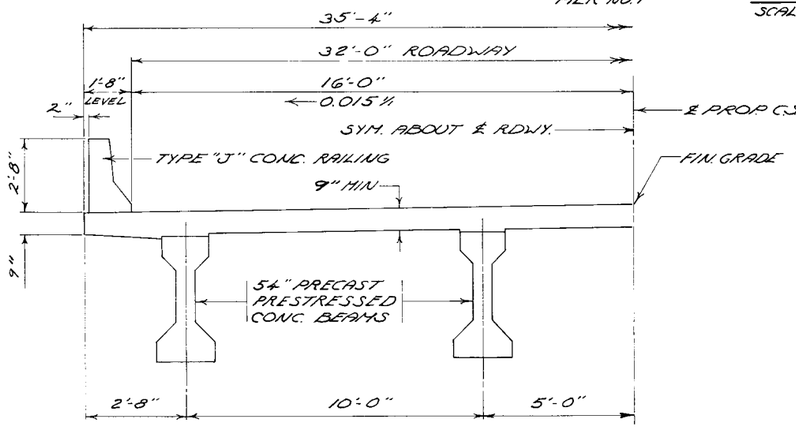
B.M. EL. 972.98 BRASS PLUG
S.E. COR. S. ABUTMENT

B.M. EL. 973.79 BRASS PLUG
N.E. COR. N. ABUTMENT



ELEVATION
SCALE: 3/4"=10'-0"

NOTE: CONSTRUCTION AT EACH ABUTMENT SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THE ABUTMENT HAS BEEN CONSTRUCTED TO TOP OF SUBGRADE



HALF SECTION THRU DECK

DESIGN DATA

1977 & INTERIM AASHTO DESIGN SPECS.
LOAD FACTOR DESIGN METHOD W/H-S 20 LOADING, INCLUDES 17 P.S.F. DEAD LOAD ALLOWANCE FOR FUTURE WEARING COURSE
REINFORCED CONCRETE:
f'c = 4000 P.S.I. n=8
fy = 60000 P.S.I. REINFORCEMENT
PRESTRESSED CONCRETE:
f'c = 6000 P.S.I. n=6
fs = 270,000 P.S.I. 270 K STRANDS
DECK AREA = 9525 S.F.
PROJECTED A.D.T. FOR 1999 = 187

GOVERNING SPECIFICATIONS

THE 1978 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" SHALL GOVERN.

THE BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPERSTRUCTURE BEAMS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR AND PLACING ANCHOR RODS.

THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR INDICATES THE BAR SIZE.

LIST OF SHEETS

NO.	TITLE
1A	GENERAL PLAN & ELEVATION
2	BRIDGE LAYOUT
3&4	ABUTMENT DETAILS & REINFORCEMENT
5	ABUTMENT REINFORCEMENT
6	PIER DETAILS
7	PIER REINFORCEMENT
8&9	SUPERSTRUCTURE DETAILS
10	FRAMING PLAN
11	PRESTR. CONC. BM. TYPE 54-88 DETAILS
12&13	CONCRETE RAIL TYPE J DETAILS
14	WATERPROOF EXPANSION DEVICE DETAILS
15-20	DETAILS
21&22	BRIDGE SURVEYS

APPROVED:

2/16/79 DATE
J. K. Dolan
COUNTY ENGINEER
OLMSTED COUNTY

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.

2-15-79 DATE
REG. NO. [illegible]

PLANS PREPARED BY:
ERICKSON ENGINEERING
3340 REPUBLIC AVE.
ST. LOUIS PARK, MN. 55426

C.S.A.H. 31 OLMSTED CO.
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55533
ON C.S.A.H. 31, 1.5 MILES WEST OF ORONOCO OVER N. MIDDLE FORK ZUMBRO RIVER
STATE I.D. NO. 501
3-88' P.P.B. SPANS, 32' RDWY.

GENERAL PLAN & ELEVATION

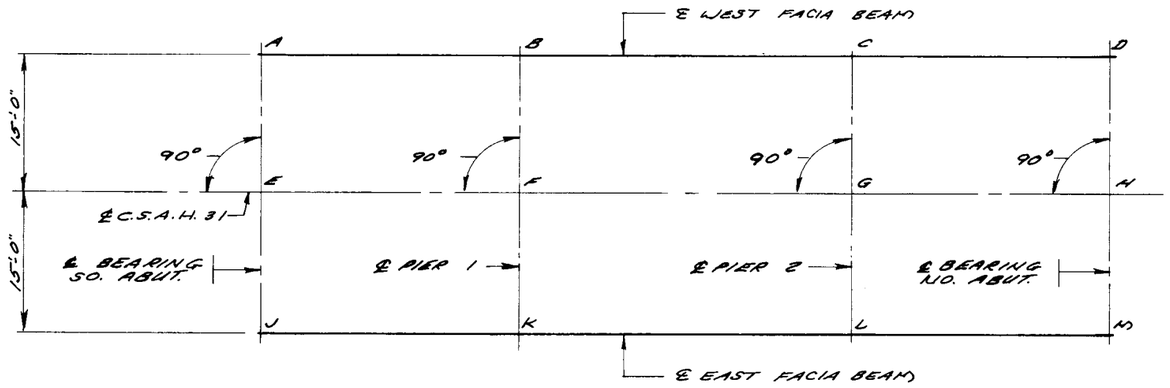
SEC. 11 T.108N R.15W
NEW HAVEN TWP.
OLMSTED COUNTY
APPROVED:

3-21-79
BRIDGE ENGINEER

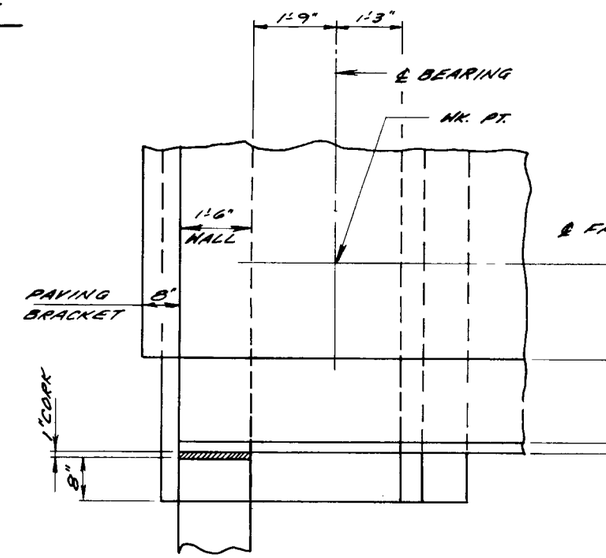
SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	ITEM	QUANTITY	UNIT
2401.501	CONCRETE MIX NO. 1A43	104 (P)	CU. YD.
2401.501	CONCRETE MIX NO. 3A43	160 (P)	CU. YD.
2401.501	CONCRETE MIX NO. 3K33	282 (P)	CU. YD.
2401.501	CONCRETE MIX NO. 3K46	54 (P)	CU. YD.
2401.541	REINFORCEMENT BARS	107970 (P)	POUND
2402.521	STRUCTURAL STEEL, 3306	430 (P)	POUND
2405.501	PRESTRESSED CONCRETE BEAMS, TYPE 54-88	12	EACH
2405.511	DIAPHRAGMS FOR TYPE 54 PRESTRESSED BEAMS	390 (P)	LIN. FT.
2402.591	EXPANSION JOINT DEVICES, TYPE 2.5	34 (P)	LIN. FT.
2452.510	STEEL H-PILING DRIVEN	2880	LIN. FT.
2452.511	STEEL H-PILING DELIVERED	2880	LIN. FT.
2452.520	STEEL H-TEST PILES, 70 FT. LONG	2	EACH
2452.520	STEEL H-TEST PILES, 85 FT. LONG	2	EACH
2402.590	ELASTOMERIC BEARING PADS, TYPE 1	12	EACH
2402.590	ELASTOMERIC BEARING PADS, TYPE 2	4	EACH
2402.592	ELASTOMERIC BEARING ASSEMBLIES, TYPE 1	8	EACH
2402.546	FLOOR DRAINS, TYPE 1	20	EACH
401.601	STRUCTURE EXCAVATION	1	LUMP SUM
401.601	FOUNDATION PREPARATION (PIER 1)	1	LUMP SUM
401.601	FOUNDATION PREPARATION (PIER 2)	1	LUMP SUM
2511.501	RANDOM RIPRAP, CLASS B	340	CU. YD.
2511.504	FILTER BLANKET, TYPE 1	85	CU. YD.
452.602	PILE POINTS	48	EACH
2123.506	3/4 CU. YD. DRAGLINE	75	HOUR
2021.501	MOBILIZATION	1	LUMP SUM

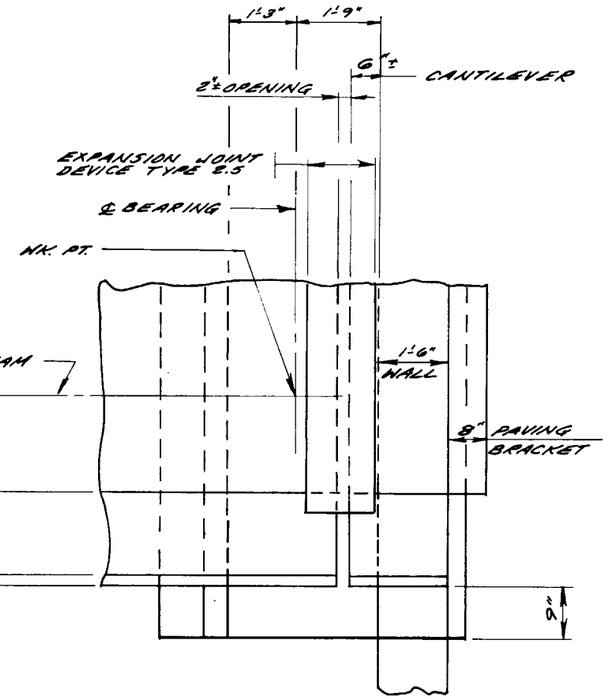
(P) DENOTES PLAN QUANTITY PAY ITEM PER SPEC 1901



LAYOUT SHOWING WORKING POINTS



SO. ABUTMENT



NO. ABUTMENT

CORNER DETAILS

DIMENSIONS BETWEEN WORKING POINTS

POINT	STATION	A	B	C	D	E	F	G	H	J	K	L	M
A	110+08.46		87.46			15.00	88.74	176.26			92.46	178.16	
B	110+95.92			88.16		88.74	15.00	89.43	176.26	92.46		93.12	178.16
C	111+84.08				87.46	176.26	89.43	15.00	88.74	178.16	93.12		92.46
D	112+71.54						176.26	88.74	15.00		178.16	92.46	
E	110+08.46						87.46			15.00	88.74	176.26	
F	110+95.92							88.16		88.74	15.00	89.43	176.26
G	111+84.08								87.46	176.26	89.43	15.00	88.74
H	112+71.54										176.26	88.74	15.00
J	110+08.46										87.46		
K	110+95.92											88.16	
L	111+84.08												87.46
M	112+71.54												

ELEVATIONS

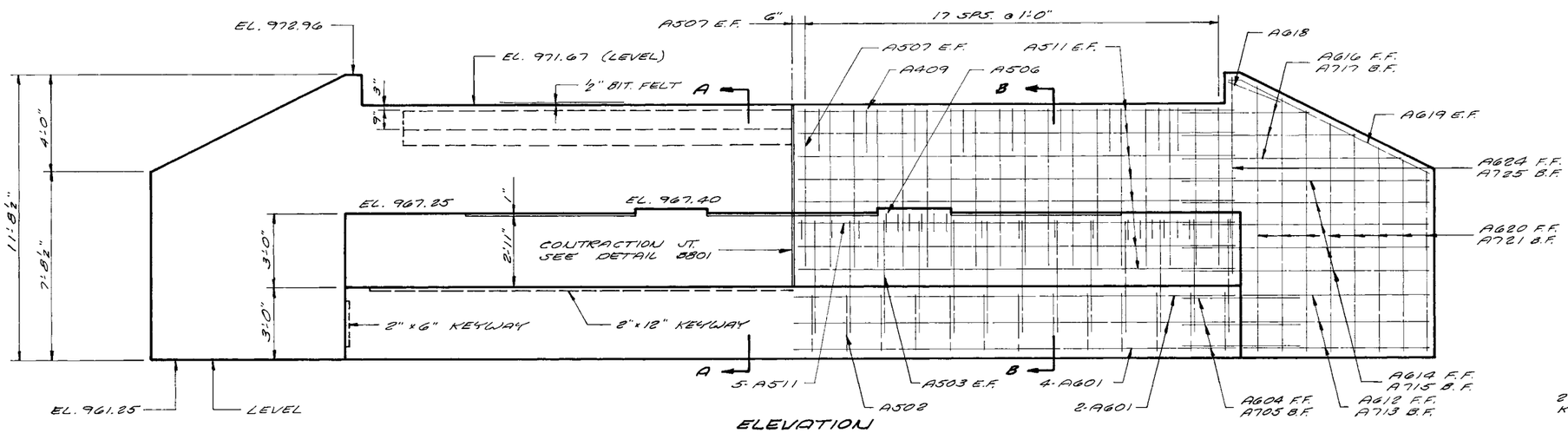
TOP OF SLAB	SLAB TO BR. SEAT	BRIDGE SEAT	POINT
972.98	5.73	967.25	A
973.23	5.64	967.59	B
973.51	5.73	967.78	C
973.77	5.98	967.79	D
973.20			E
973.46			F
973.73			G
973.99			H
972.98	5.73	967.25	J
973.23	5.64	967.59	K
973.51	5.73	967.78	L
973.77	5.98	967.79	M

MINNESOTA DEPARTMENT OF TRANSPORTATION

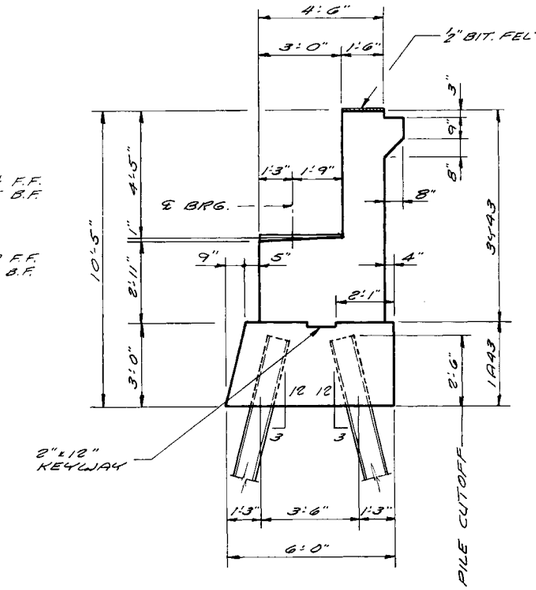
BRIDGE NO. 55533

BRIDGE LAYOUT

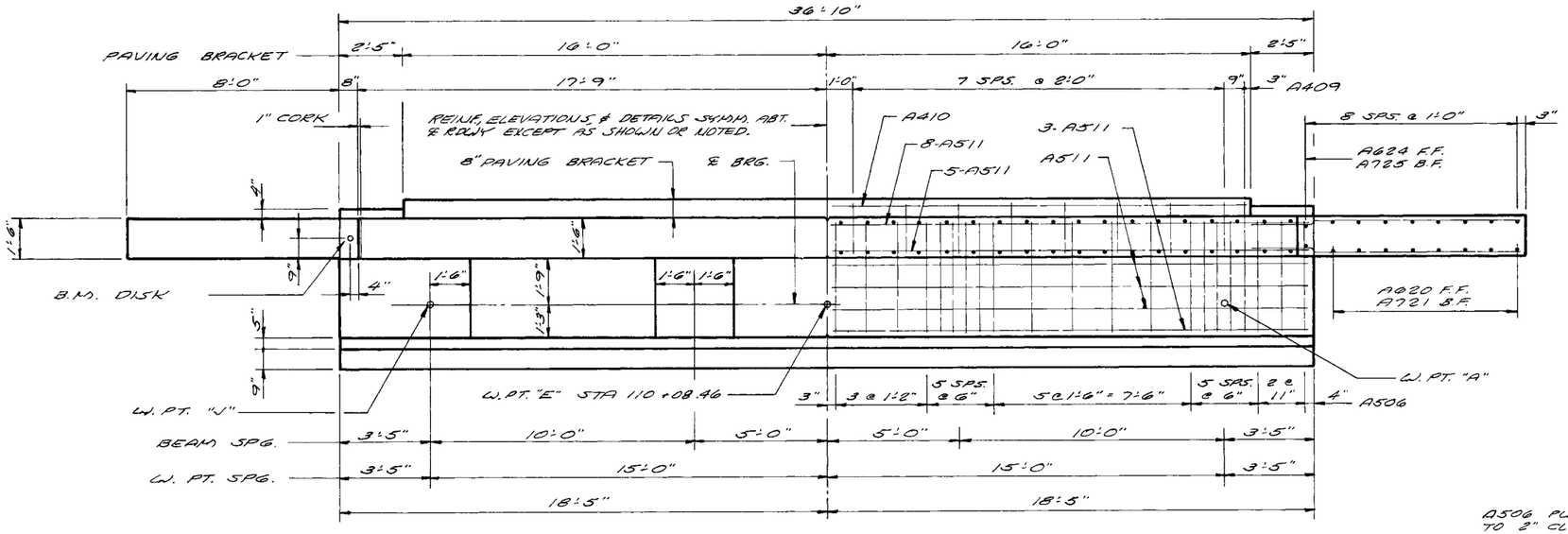
APPROVED: 3-31-81



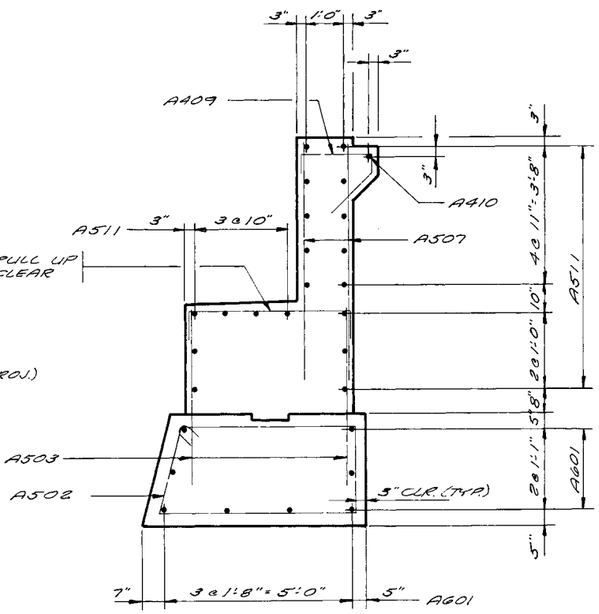
ELEVATION



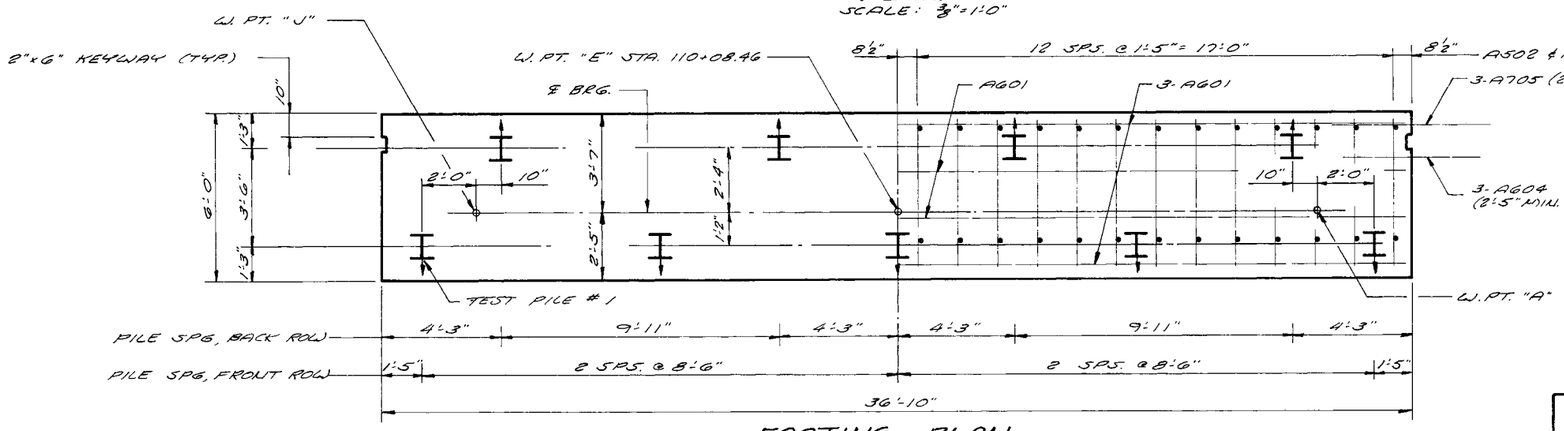
SECTION A-A
SCALE: ⅜"=1'-0"



PLAN
SCALE: ⅜"=1'-0"



SECTION B-B
SCALE: ½"=1'-0"

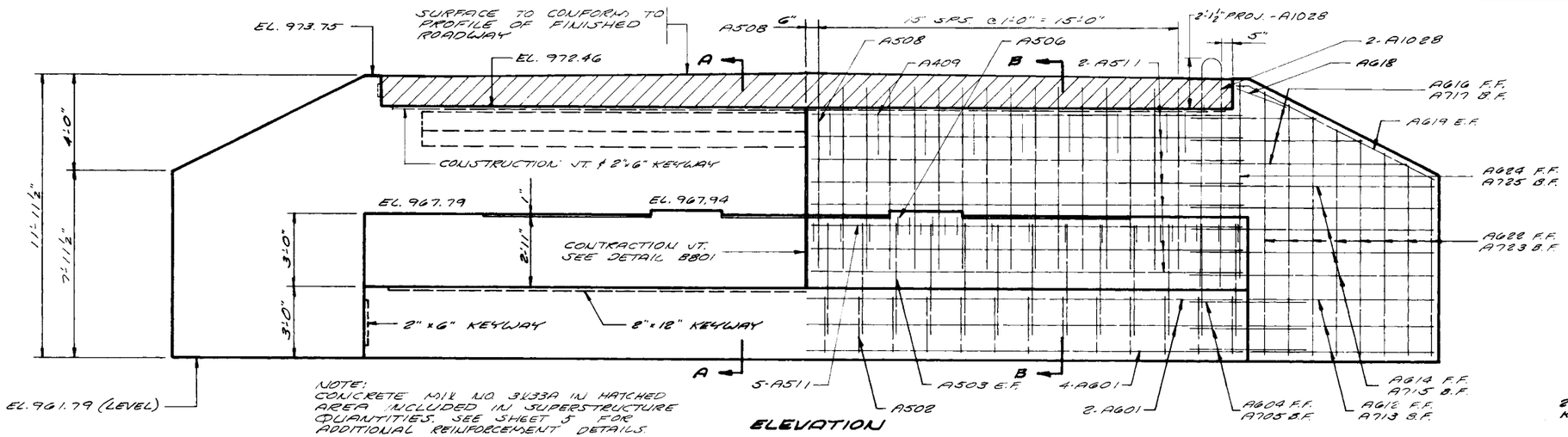


FOOTING PLAN
SCALE: ⅜"=1'-0"

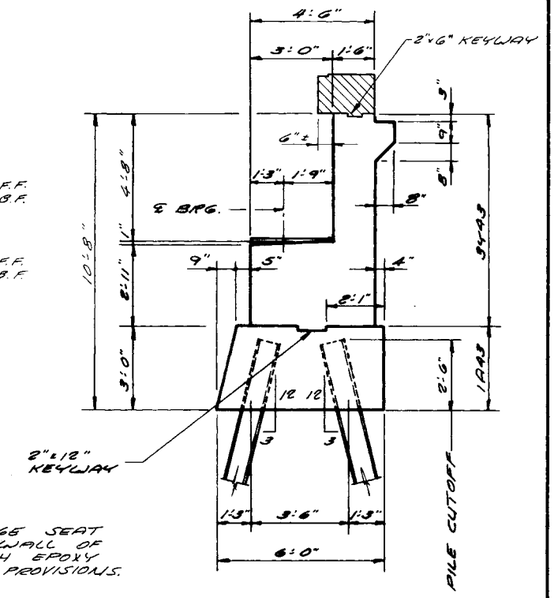
3-21-80

SOUTH ABUTMENT DETAILS & REINFORCEMENT	DRAWN BY: RMT	BRIDGE NUMBER 55533
SHEET 3 OF 82 SHEETS	CHECKED BY: RRT	

S.P. 55-631-03

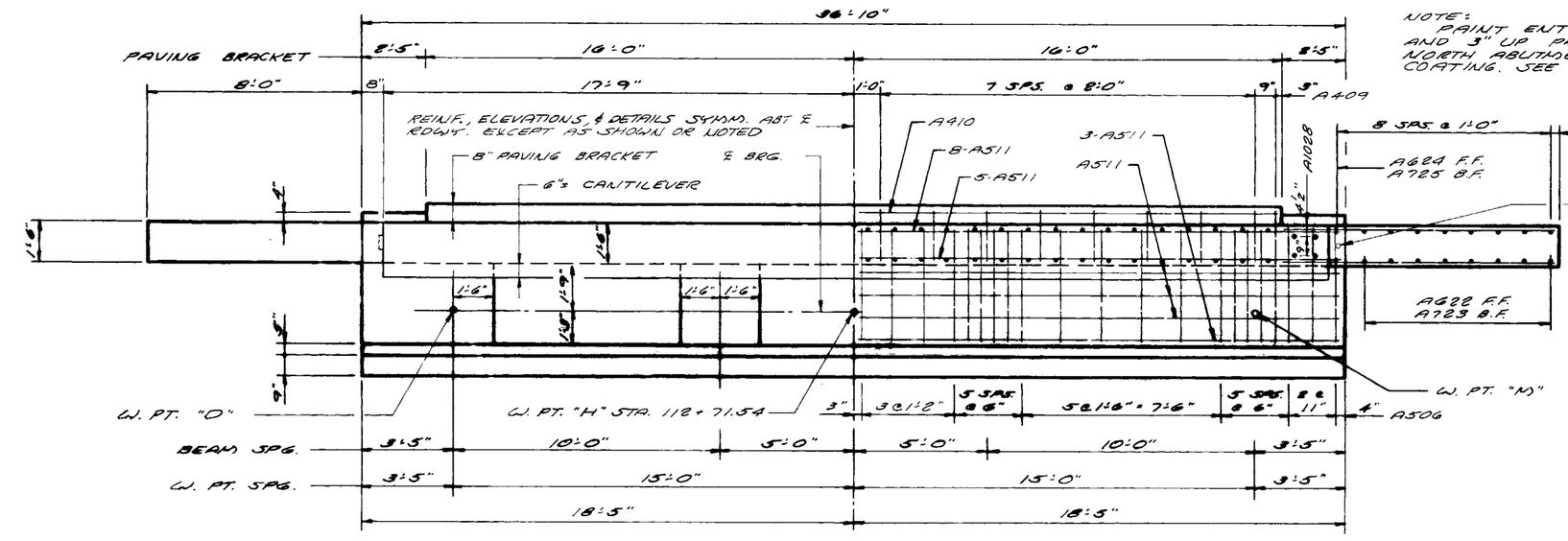


ELEVATION

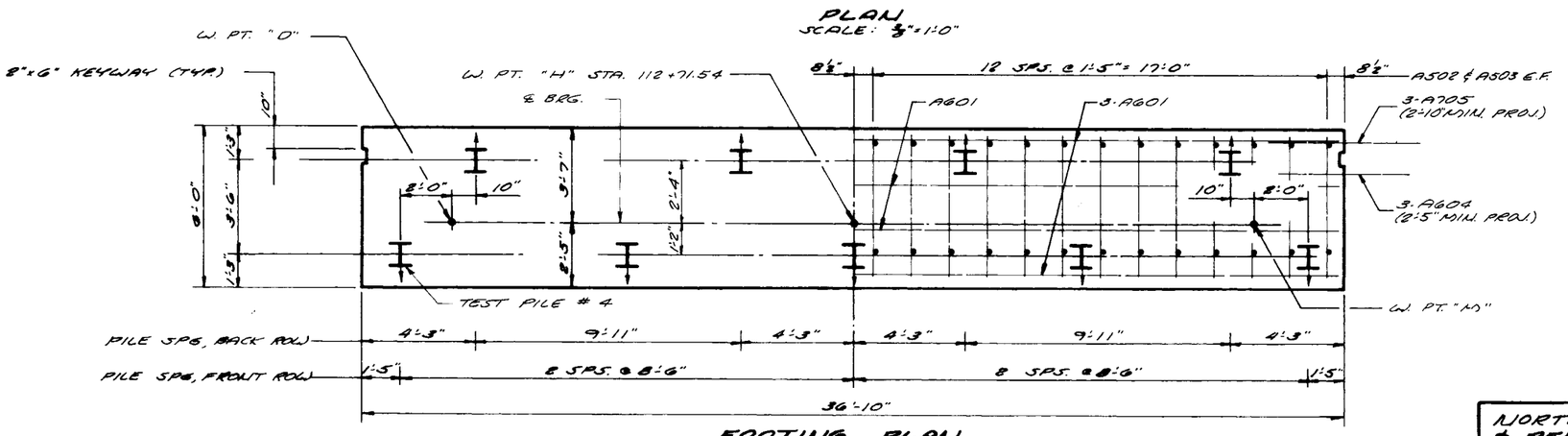


SECTION A-A
SCALE: ⅜"=1'-0"

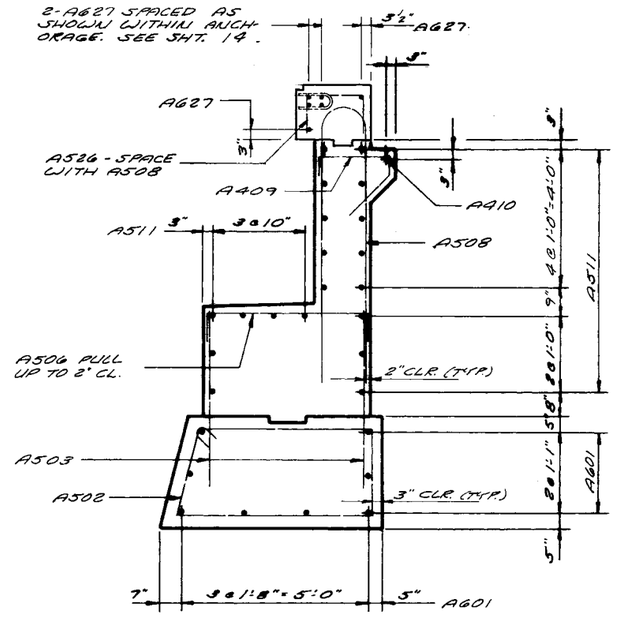
NOTE:
PAINT ENTIRE BRIDGE SEAT AND 3" UP PARAPET WALL OF NORTH ABUTMENT WITH EPOXY COATING. SEE SPECIAL PROVISIONS.



PLAN
SCALE: ⅜"=1'-0"



FOOTING PLAN
SCALE: ⅜"=1'-0"

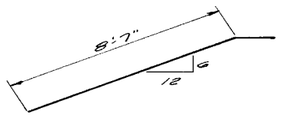


SECTION B-B
SCALE: ½"=1'-0"

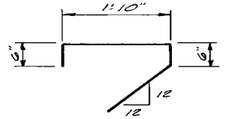
3-31-81

NORTH ABUTMENT DETAILS & REINFORCEMENT	DRAWN BY: RMT	BRIDGE NUMBER
SHEET 4 OF 22 SHEETS	CHECKED BY: RRT	555333

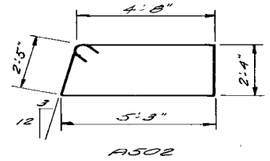
S.P. 55-631-03



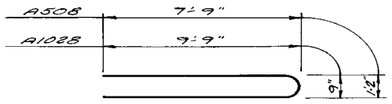
A619



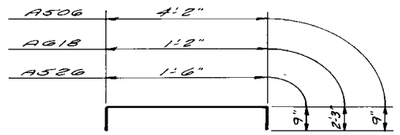
A409



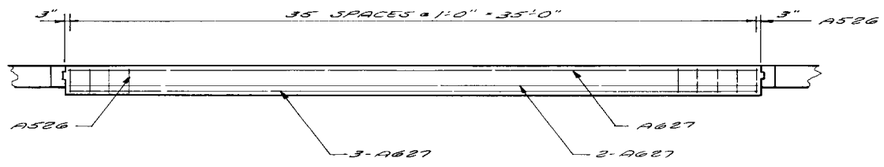
A502



A508, A1028



A506, A618, A526



PLAN @ TOP OF PARAPET SLAB

BILL OF REINFORCEMENT FOR 2 ABUTMENTS					
BAR	NUMBER NORTH	NUMBER SOUTH	LENGTH	SHAPE	LOCATION
A601	8	8	36'-6"		FOOTING - HORIZ.
A502	26	26	15'-7"		" - TIE
A503	52	52	4'-8"		" - DOWEL TO CAP
A604	6	6	4'-10"		" " TO WING
A705	6	6	5'-8"		" " " "
A506	42	42	5'-8"		CAP - TIE
A507	-	72	6'-5"		WALL - VERT.
A508	32	-	16'-2"		" "
A409	18	18	4'-4"		PAVING BRACKET - TIE
A410	2	2	13'-8"		" " - HORIZ.
A511	38	38	18'-1"		WALL - HORIZ.
A612	6	6	7'-8"		WING - " @ F.F.
A713	6	6	7'-8"		" " @ B.F.
A614	10	10	10'-3"		" " @ F.F.
A715	10	10	10'-8"		" " @ B.F.
(1) A616	3	3	14'-0"		" " @ F.F.
(1) A717	3	3	13'-0"		" " @ B.F.
A618	2	2	5'-8"		" - TIE
A619	4	4	9'-2"		" - HORIZ.
(1) A620	-	8	18'-4"		" - VERT. @ F.F.
(1) A721	-	8	18'-4"		" " @ B.F.
(1) A622	8	-	18'-10"		" " @ F.F.
(1) A723	8	-	18'-10"		" " @ B.F.
A624	2	2	8'-1"		" " @ F.F.
A725	2	2	8'-6"		" " @ B.F.
A526	36	-	3'-0"		TOP OF PARAPET SLAB
A627	6	-	35'-2"		" " " "
A1028	4	-	19'-11"		CAP. DOWEL TO RAIL

(1) CUT 2 FROM 1

COMPUTED ABUTMENT PILE LOADS - TONS PER PILE	
DEAD LOAD + EARTH PRESSURE	42.6
LIVE LOAD	5.1
TOTAL	47.7

76.1' AVERAGE LENGTH S. ABUTMENT
71.7' AVERAGE LENGTH N. ABUTMENT

PILE NOTES:

2- STEEL H-TEST PILES, 85 FT. LONG.
16- STEEL H-PILES, EST. LGTH. 75 FT.
18- STEEL H-PILES REQ'D FOR 2 ABUT'S.

ALL PILES TO BE STEEL HP 10x42.
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES MARKED ⫩ TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.

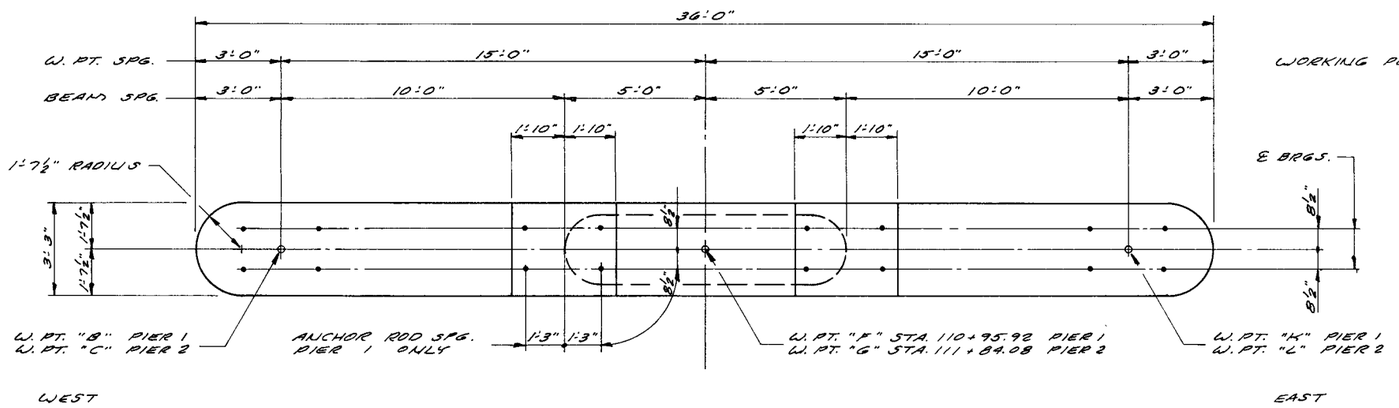
SUMMARY OF QUANTITIES FOR 2 ABUTMENTS			
ITEM	NORTH	SOUTH	TOTAL
CONCRETE MIX NO. 1A43	23	23	46 CU. YD.
CONCRETE MIX NO. 3A43	39	38	77 CU. YD.
STRUCTURE EXCAVATION	1/2	1/2	1 LUMP SUM
REINFORCEMENT BARS	4940	4090	9030 POUND
(2) B.M. DISK (SEE STD. ℞ 9300)	1	1	2
(3) STEEL H-PILING DELIVERED	600	600	1200 LIN. FT.
(3) STEEL H-PILING DRIVEN	600	600	1200 LIN. FT.
(4) STEEL H-TEST PILES 85 FT. LONG	1	1	2 EACH
(4) PILE POINTS	9	9	18 EACH

(2) COUNTY WILL FURNISH DISKS. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STD. PLATE 9301 FOR PLACING.
(3) DOES NOT INCLUDE TEST PILES.
(4) SEE SPECIAL PROVISIONS

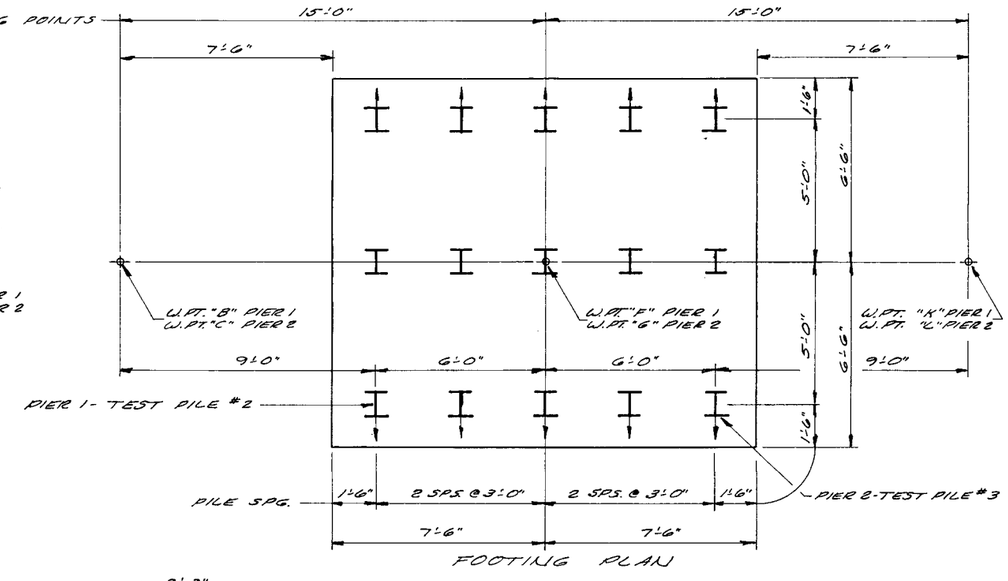
3-31-81

ABUTMENT REINFORCEMENT	DRAWN BY: RMT	BRIDGE NUMBER
SHEET 5 OF 22 SHEETS	CHECKED BY: RRT	55533

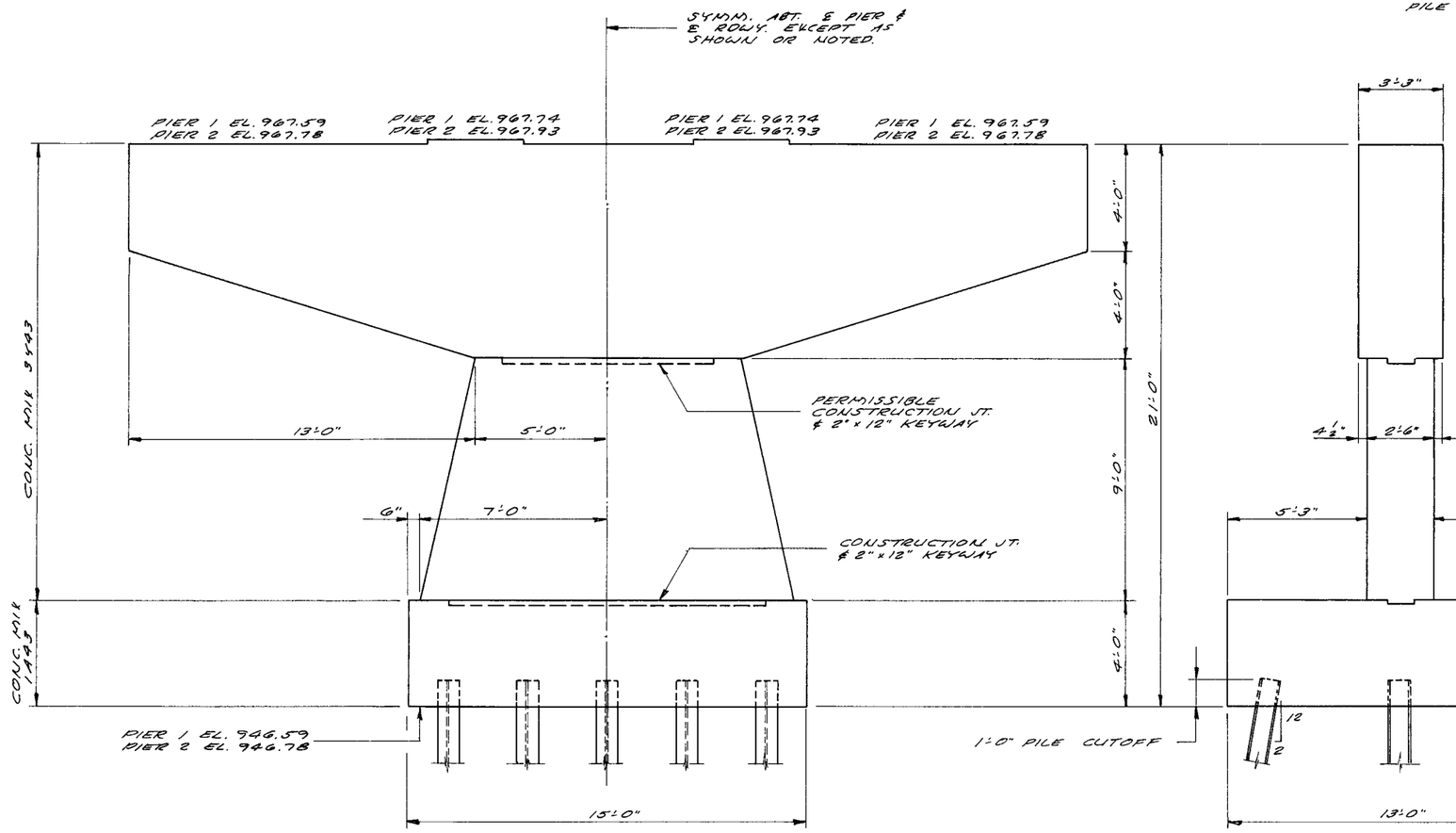
S.P. 55-631-03



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



FOOTING PLAN



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

SECTION THRU PIER
SCALE: 3/8" = 1'-0"

COMPUTED PILE LOADS - TONS PER PILE	
DEAD LOAD	39.5
LIVE LOAD	4.9
OVERTURNING	25.0
TOTAL	69.4

69.4 ÷ 1.25 = 55 REDUCTION PER A.A.S.H.T.O. 1.2.22

	SCHEDULE OF QUANTITIES FOR 2 PIERS	
	CONCRETE MIX. NO. 1A43	58 CU. YD.
	CONCRETE MIX. NO. 3A43	76 CU. YD.
	REINFORCEMENT BARS	23420 POUND
(2)	FOUNDATION PREPARATION (PIER 1)	1 LUMP SUM
(2)	FOUNDATION PREPARATION (PIER 2)	1 LUMP SUM
(1)	STEEL H-PILING DELIVERED	1680 LIN. FT.
(1)	STEEL H-PILING DRIVEN	1680 LIN. FT.
	STEEL H-TEST PILES 70' LONG	2 EACH
(2)	PILE POINTS	30 EACH

(1) DOES NOT INCLUDE TEST PILES.
(2) SEE SPECIAL PROVISIONS.

PILE NOTES:

2 - STEEL H-TEST PILES, 70 FT. LONG.
28 - " " PILES EST. LGTH. 60 FT.
30 - " " " REQUIRED FOR 2 PIERS.

ALL PILES ARE TO BE HP 10x42.

PILES MARKED H▼ ARE TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

PILE SPG. SHOWN IS AT BOTTOM OF FOOTING.

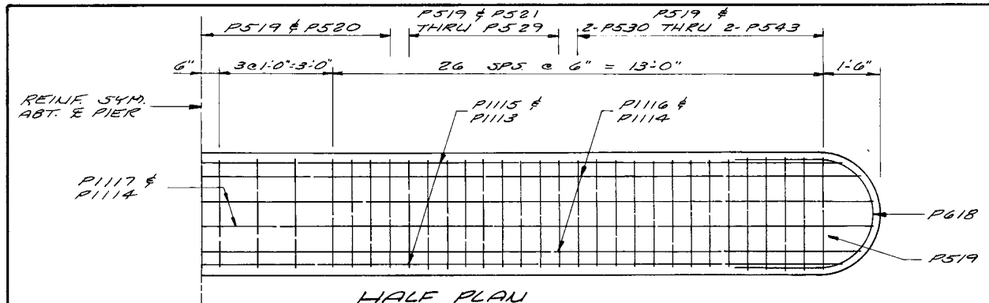
SEE DETAIL 8202 FOR SPLICES.

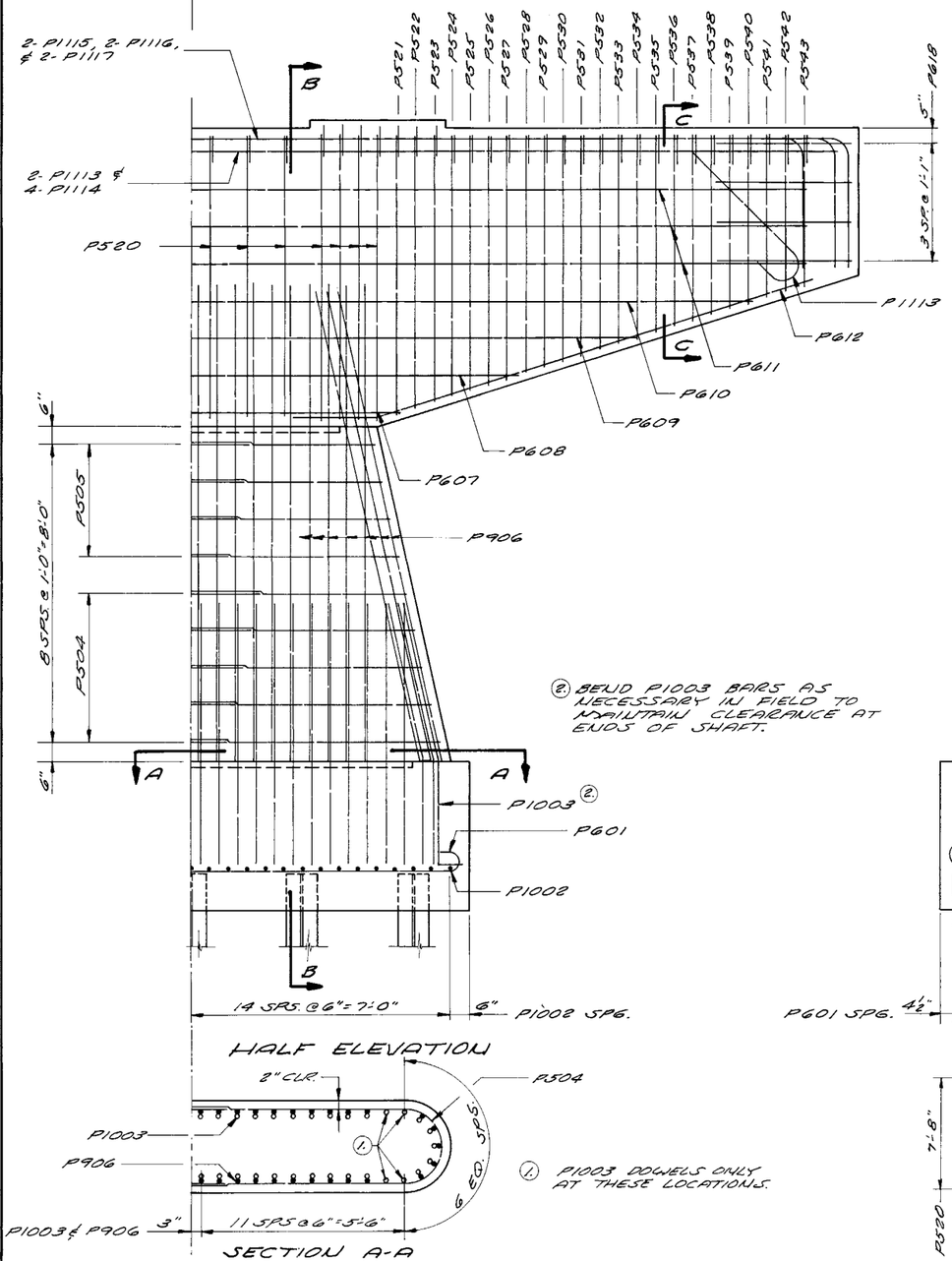
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55533

PIER DETAILS

APPROVED: 3-31-81

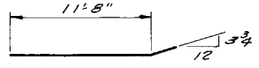




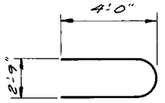
HALF ELEVATION

② BEND P1003 BARS AS NECESSARY IN FIELD TO MAINTAIN CLEARANCE AT ENDS OF SHAFT.

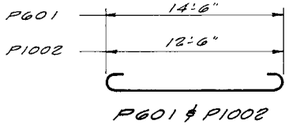
SECTION A-A



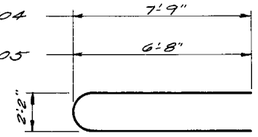
P612



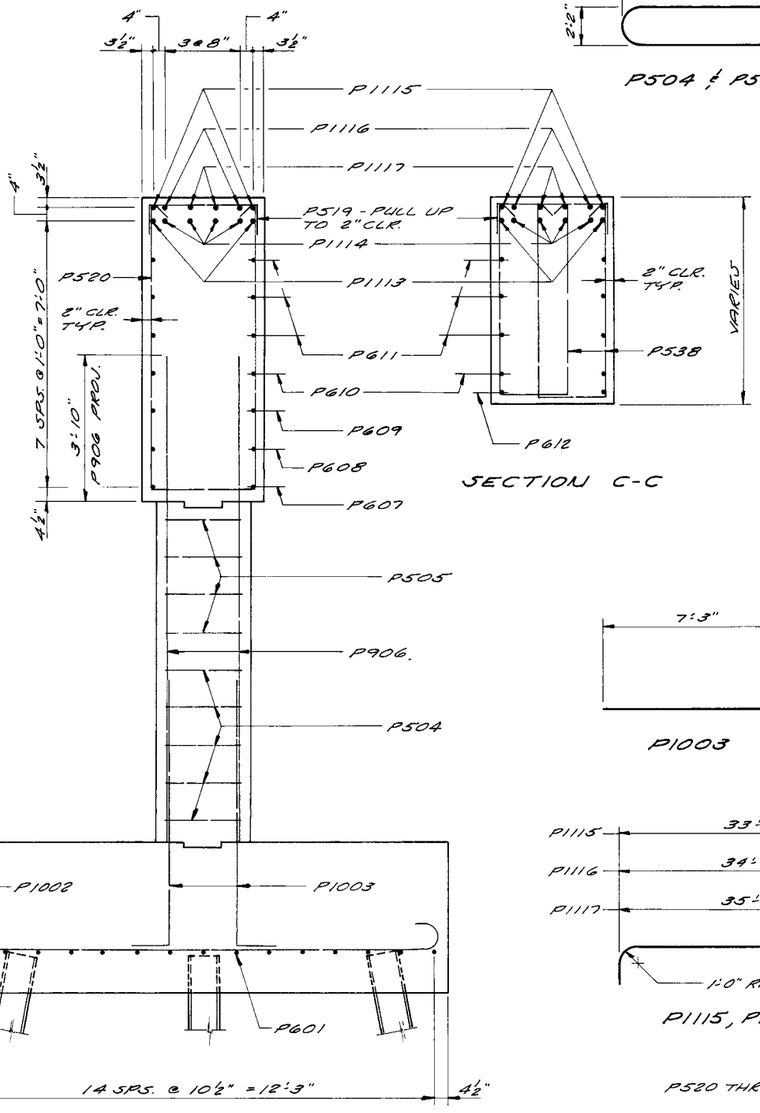
P618



P601 & P1002



P504 & P505

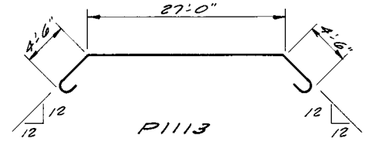


SECTION B-B

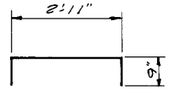
SECTION C-C

P1003

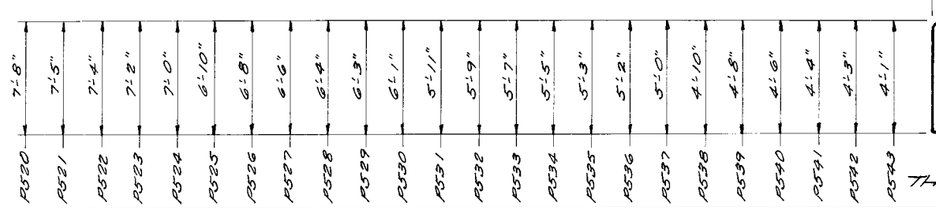
P1115, P1116, & P1117



P1113



P519



P520 THRU P543

BILL OF REINFORCEMENT FOR 2 PIERS

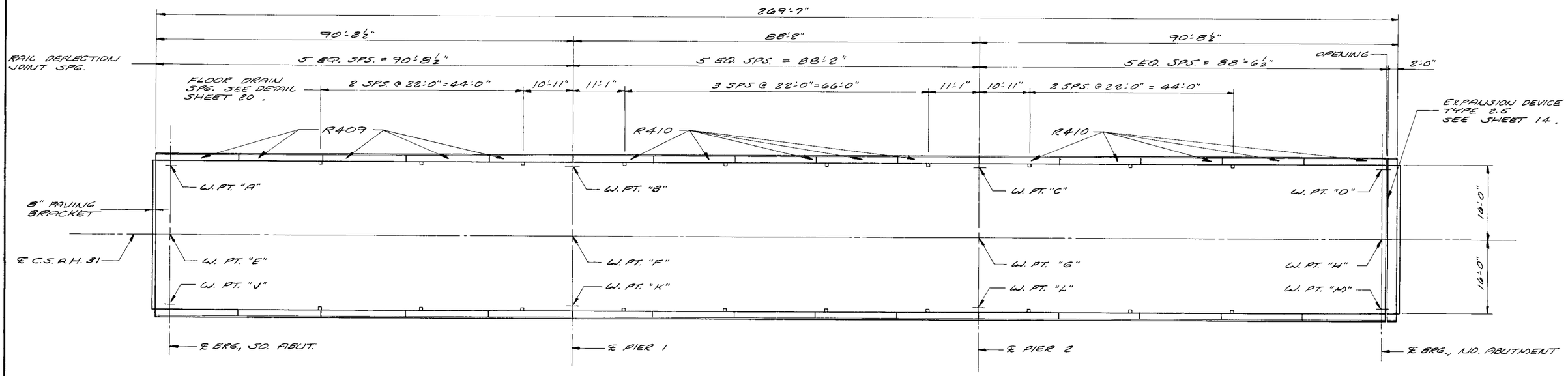
BAR	NO.	LENGTH	SHAPE	LOCATION
P601	30	15'-10"		FOOTING - TRANSV.
P1002	58	15'-4"	"	" LONG.
P1003	116	8'-6"		" DOWEL
P504	20	16'-9"		SHAFT - HORIZ.
P505	16	14'-7"	"	" "
P906	100	12'-10"		" VERT.
P607	4	11'-4"	"	CAP HORIZ.
P608	4	17'-10"	"	" "
P609	4	24'-4"	"	" "
P610	4	30'-8"	"	" "
P611	12	33'-2"	"	" "
P612	8	14'-0"		" "
P1113	4	39'-2"		" "
P1114	8	34'-6"		" "
P1115	4	39'-4"		" "
P1116	4	40'-8"	"	" "
P1117	4	41'-6"	"	" "
P618	16	9'-8"		" 2 ENDS
P519	120	4'-5"		" TIE
P520	28	19'-2"		" STIRRUP
P521	4	18'-8"	"	" "
P522	4	18'-6"	"	" "
P523	4	18'-2"	"	" "
P524	4	17'-10"	"	" "
P525	4	17'-6"	"	" "
P526	4	17'-2"	"	" "
P527	4	16'-10"	"	" "
P528	4	16'-6"	"	" "
P529	4	16'-4"	"	" "
P530	8	15'-0"	"	" "
P531	8	14'-8"	"	" "
P532	8	14'-4"	"	" "
P533	8	14'-0"	"	" "
P534	8	13'-8"	"	" "
P535	8	13'-4"	"	" "
P536	8	13'-2"	"	" "
P537	8	12'-10"	"	" "
P538	8	12'-6"	"	" "
P539	8	12'-2"	"	" "
P540	8	11'-10"	"	" "
P541	8	11'-6"	"	" "
P542	8	11'-4"	"	" "
P543	8	11'-0"	"	" "

MINNESOTA DEPARTMENT OF TRANSPORTATION

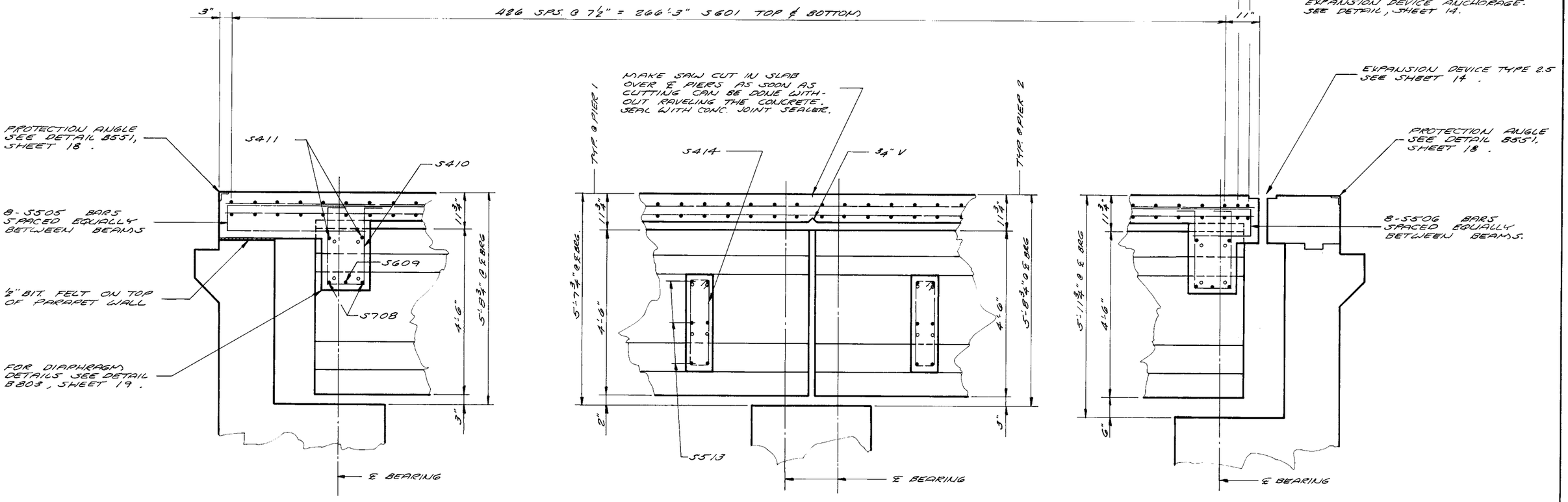
BRIDGE NO. 5553-33

PIER REINFORCEMENT

APPROVED: 3-31-81

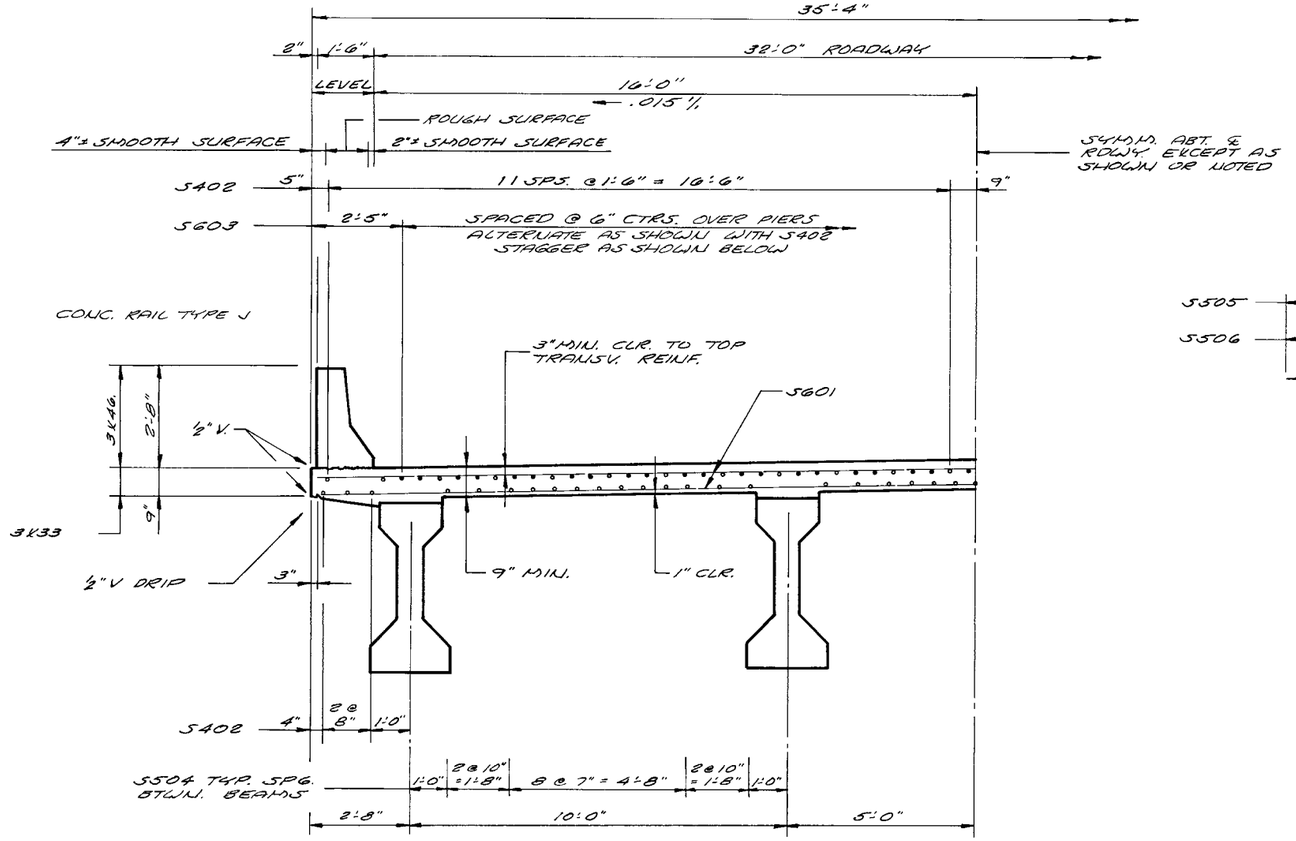


DECK PLAN
SCALE: $\frac{3}{32}$" = 1'-0"

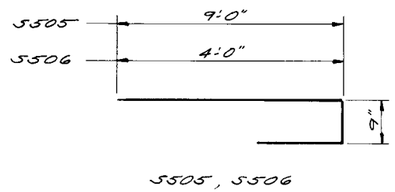


SUPERSTRUCTURE DETAILS	DRAWN	CHECKED	BRIDGE
	RMT	RRT	55533

3-31-81



HALF TRANSVERSE SECTION THRU DECK
SCALE: ½" = 1'-0"



S505, S506

BILL OF REINFORCEMENT FOR SUPERSTRUCTURE				
BAR	NO.	LENGTH	SHAPE	LOCATION
S601	858	35'-0"		SLAB - TRANSVERSE
(1) S402	210	39'-6"		" - LONGIT.
S603	84	15'-0"		" " @ PIERS
(2) S504	234	46'-2"		" "
S505	24	13'-6"		" - @ SO. END
S506	24	6'-3"		" - @ NO. END
S707	8	5'-0"		END DIAPHRAGM
S708	12	9'-0"		" "
(4) S609	6	16'-8"		" "
(4) S410	42	6'-2"		" "
S411	12	8'-0"		" "
(3) S512	104	5'-0"		INTERMEDIATE DIAPHRAGM
(3) S513	234	8'-0"		" "
(4) (3) S414	234	6'-5"		" "

(1) 7 LINES WITH 1'-6" MIN. LAP

(2) 6 LINES WITH 1'-11" MIN. LAP

(3) WEIGHT TO BE INCLUDED IN PRICE BID FOR DIAPHRAGMS FOR CONC. BEAMS TYPE 54-88.

(4) SEE SHEET 19 FOR BAR DETAILS.

SUMMARY OF QUANTITIES - SUPERSTRUCTURE		
(5)		
(6) CONCRETE MIX NO. 3K33	282	CU. YD.
(9) (6) CONCRETE MIX NO. 3K46	54	CU. YD.
(9) (7) CONCRETE MIX NO. 3K43	7	CU. YD.
STRUCTURAL STEEL (3306)	430	POUND
(10) PROTECTION ANGLE (SEE DETAIL B551)		
(9) PRESTR. CONC. BEAMS TYPE 54-88	12	EACH
FLOOR DRAINS, TYPE 1	20	EACH
(8) NAME PLATE (SEE DETAIL B103)	1	
REINFORCEMENT BARS	75520	POUND
(9) ELASTOMERIC BEARING PAD, TYPE 1	12	EACH
(9) ELASTOMERIC BEARING PAD, TYPE 2	4	EACH
(9) ELASTOMERIC BEARING ASSEMBLY, TYPE 1	8	EACH
(9) EXPANSION JOINT DEVICE, TYPE 2.5	34	LIN. FT.
(7) DIAPHRAGMS FOR CONC. BEAMS TYPE 54	370	LIN. FT.
(8) PREFORMED JOINT FILLER		

(5) INCLUDES RAILING QUANTITIES.

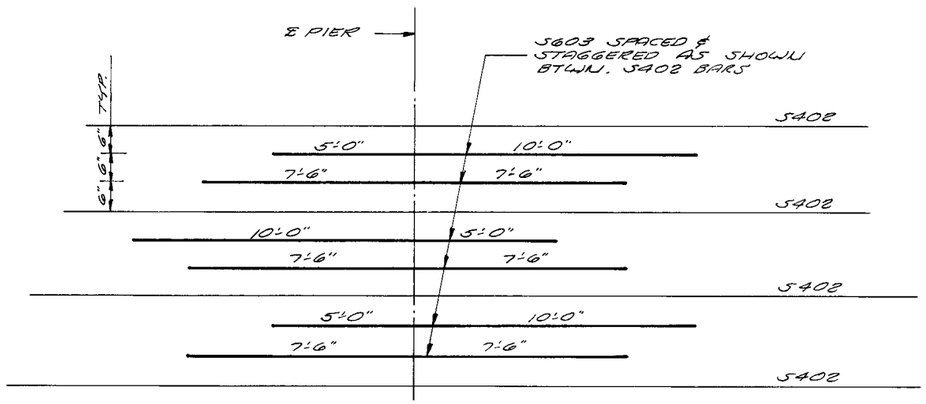
(6) THE VOLUME OF DECK CONCRETE FOR PAYMENT SHALL BE COMPUTED USING AN AVERAGE STOOL HEIGHT OF 1⅛".

(7) END DIAPHRAGM CONCRETE.

(8) INCLUDED IN PRICE BID FOR OTHER ITEMS.

(9) SEE SPECIAL PROVISIONS.

(10) INCLUDED IN WEIGHT OF STRUCTURAL STEEL 3306.



S603 PLACEMENT DIAGRAM @ PIERS
NO SCALE

(A)

LIST OF PREFORMED JOINT FILLER			
1 PC.	18" x ½" x 35'-6"	BITUM. FELT	PARAPET WALL @ SO. ABUT.
2 PCS.	18" x 1" x 1'-4"	CORK	ABUT. RECESS @ SO. ABUT.
28 PCS.	11" x 1" x 1'-7"	CORK	RAIL DEFLECTION JTS.

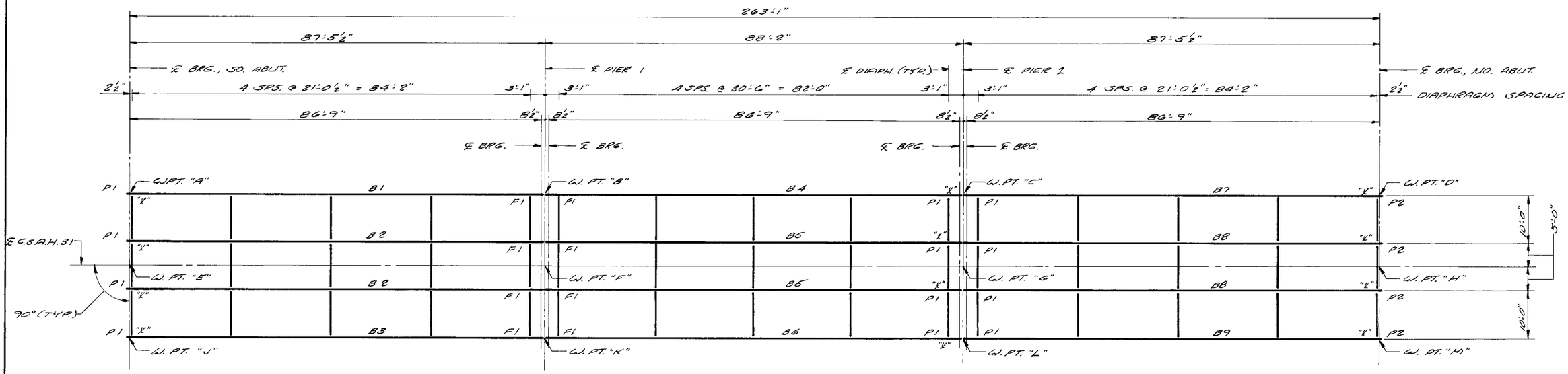
(A) SEE SPECIAL PROVISIONS.

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55533

SUPERSTRUCTURE DETAILS

APPROVED: 3-31-81



FRAMING PLAN
SCALE: $\frac{3}{32}$"=1'-0"

NOTE:
P1 = ELASTOMERIC BEARING PAD, TYPE 1
P2 = " " " TYPE 2
F1 = " " ASSEMPLY, TYPE 1

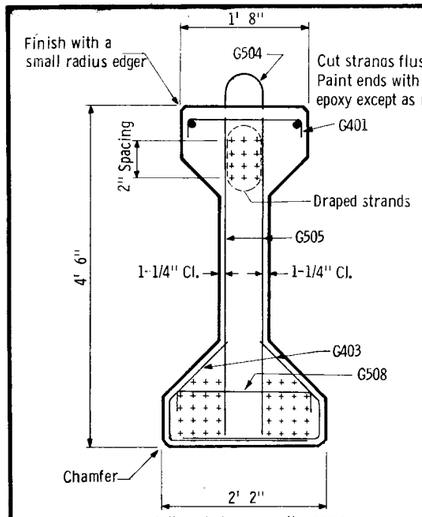
NOTE:
FOR END DIAPHRAGM INFORMATION SEE DETAIL B803.
FOR INTERMEDIATE DIAPHRAGM INFORMATION SEE DETAIL B403 OR B802.

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55533

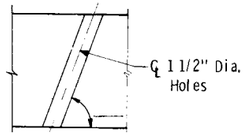
FRAMING PLAN

APPROVED: 2-31-81



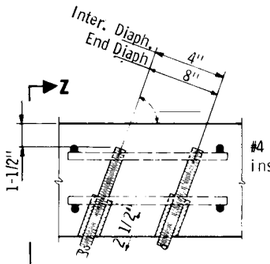
Details not shown are the same as the SECTION AT ℄ BEAM

END VIEW

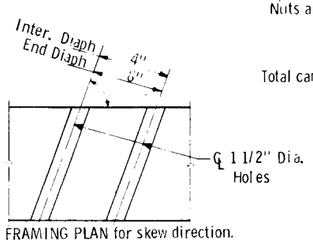


See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION Y-Y
FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS

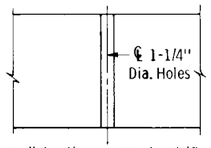


SECTION X-X
USE AT FASCIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



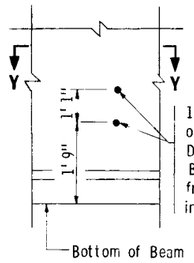
See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION X-X
USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM

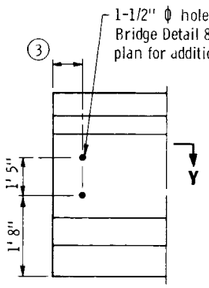


Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

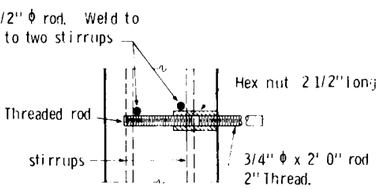
SECTION Y-Y
USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM



FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM

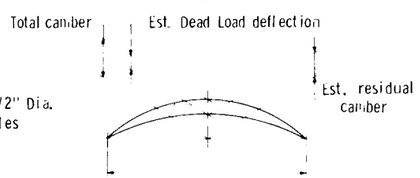


CONCRETE END DIAPHRAGMS PILE BENT ABUTMENT



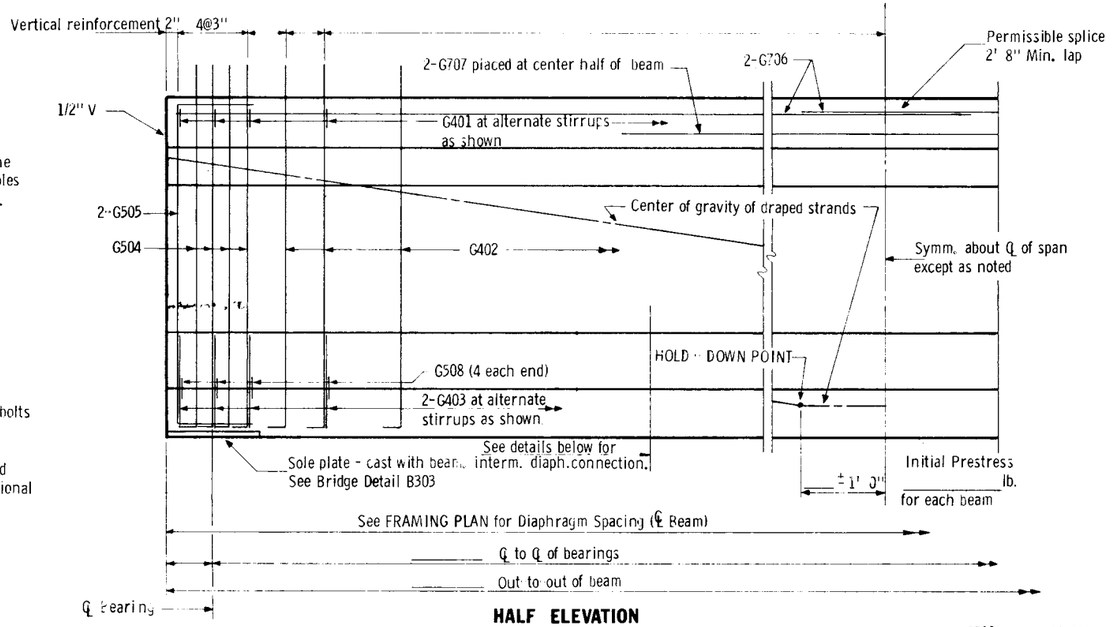
Nuts and rods per Spec. 3306. No paint

SECTION Z-Z

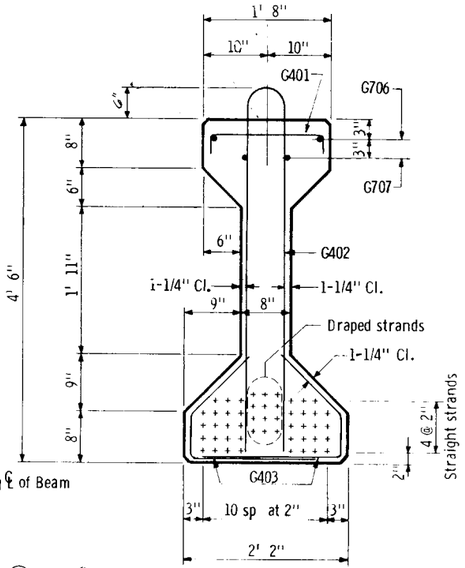


Deflections shown are for weight of slab, railing, and diaphragms only. Engineer will take elevations at top of beams after erection and will allow for deflections shown to enable contractor to build forms to correct grade and specified slab thickness.

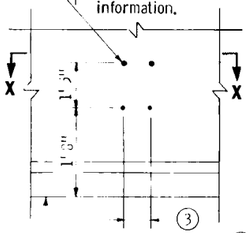
CAMBER DIAGRAM



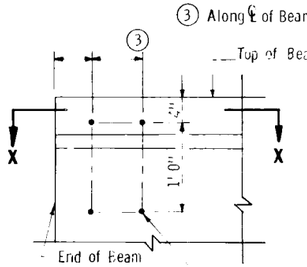
HALF ELEVATION



SECTION AT ℄ BEAM

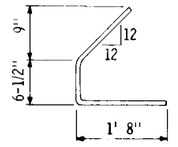


FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM

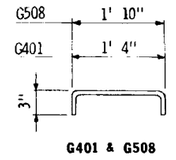


CONCRETE END DIAPHRAGMS PARAPET ABUTMENT

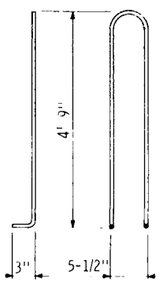
1 1/2" ϕ holes for rebars or Anchorage for 3/4" Diameter Threaded Rods. See Bridge Detail B802 for additional information.



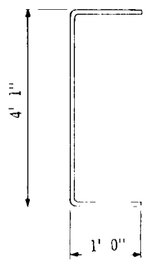
G403



G401 & G508



G402 & G504



G505

First digit of bar mark indicates bar size. All bar dimensions are out-to-out.

Bar	Wt.
G401	1, 22 lb.
G402	6, 62 lb.
G403	2, 17 lb.
G504	10.34 lb.
G505	6. 34 lb.
G706	
G707	
G508	2, 43 lb.

Girder Section Data
Wt. /ft. = 822 lbs.
Cross sec. area at ℄ of span = 789 $in.^2$
C. G. (from bottom) = 24. 73 in.
I = 260, 730 $in.^4$
S_B = 10, 543 $in.^3$
1/2" ϕ 270k strand wt. /ft. = . 525 lb.
1/2" ϕ 270k strand area = . 1531 sq. in.

Y DISTANCES (IN INCHES)

	NO.	℄ SPAN	END
Straight strands			
Draped strands			
Total strands			

Y = distance of Center of Gravity of strands from bottom of beam. All strands spaced 2" c-c, horizontally and vertically except as noted.

All strands 1/2" ϕ 270 kip, ultimate strength.

[D] A tolerance of ± 2" will be permitted in this dimension.

GENERAL NOTES:

Tops of beams shall be rough floated and broomed transversely for bond.

Provide handling hooks or devices as required by Contractor. Hooks or devices provided will be subject to approval of Engineer and shall be installed within 4' 0" of the end of beam.

A modified strand pattern or a bundled strand pattern which does not change center of gravity of strands may be submitted to the Engineer for approval.

A post-tensioned beam may be used as an alternate for the pretensioned design shown. DESIGNER will provide plans for the post-tensioned alternate on request

Each beam shall be marked, showing bridge number, casting date, and individual identification letters and numbers. Markings shall be made on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Fascia beams shall be marked on an inside face. All markings shall be stencilled and be clearly legible. For location of beams, see framing plan.

All material and work shown or noted on this sheet shall be included in unit price bid for prestressed concrete beams. See Spec. 2405.

See framing plan for beam ends marked "X".

Approximate weight of beam _____ tons.

As an alternate to the diaphragm anchorages shown, the contractor may submit details of a cast-in-place anchorage to the engineer for approval. Anchorage must provide an ultimate pull out strength of 15 kips per anchorage.

MINIMUM CONCRETE STRENGTH - P.S.I.		
	① f'ci	② f'c
Required min. Concrete Strength		

① Minimum concrete strength at time of prestress transfer.

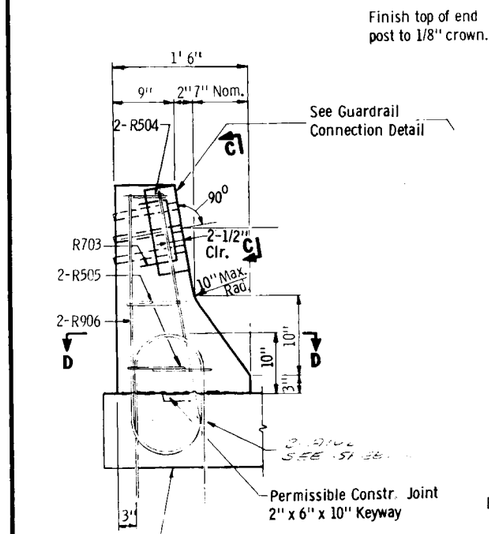
② Minimum concrete strength when curing can be discontinued and beam transported and installed.

Fig. 5-397.505

Revised: December 29, 1977 Approved: May 18, 1977

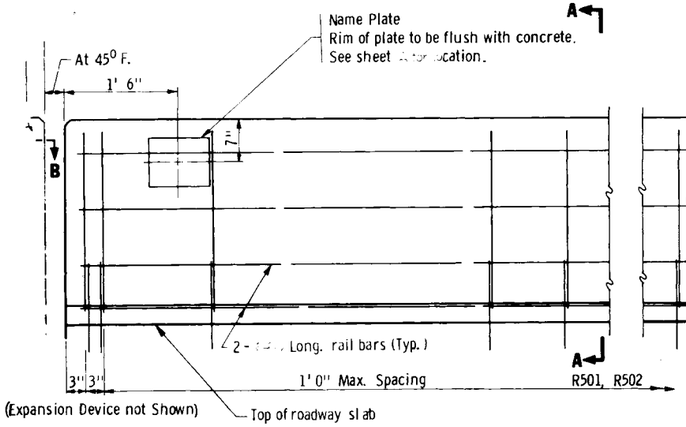
TITLE: 54" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 54 -	DES:	DR:	APPROVED:	Bridge No.
	CHK:	CHK:		
	Sheet No.	of	Sheets	

BEAMS

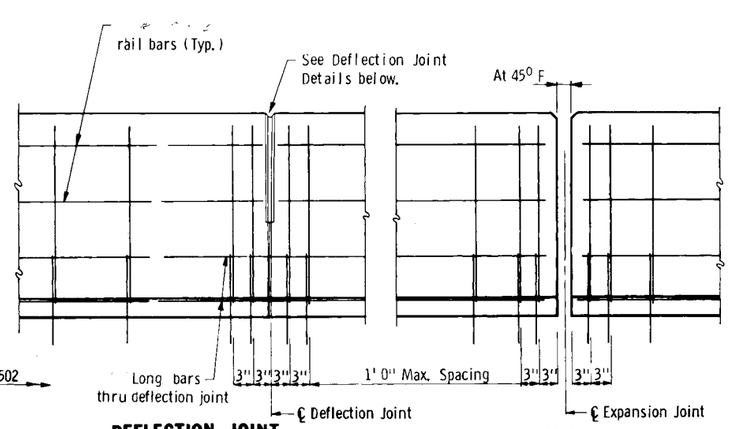


END VIEW

END POST VERTICAL

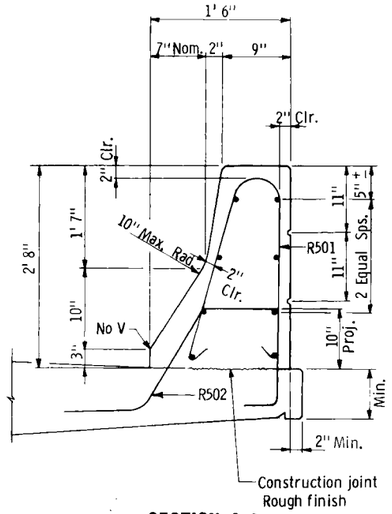


INSIDE ELEVATION OF RAILING

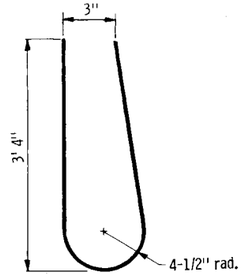


DEFLECTION JOINT

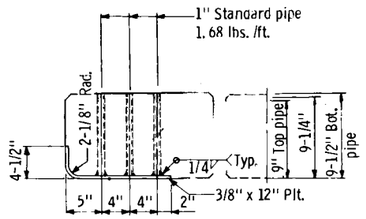
EXPANSION JOINT
Expansion device not shown.
Expansion joint required only if expansion device is used.
See superstructure sheets.



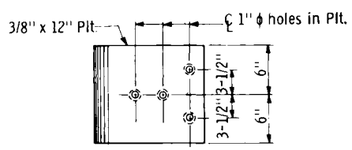
SECTION A-A



R906



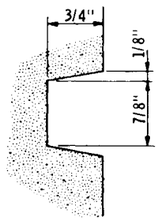
SECTION B-B
(Reinf. not shown)



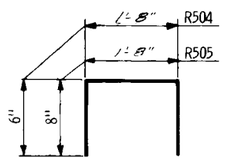
VIEW C-C

GUARDRAIL CONNECTION DETAIL
GALVANIZE AFTER FABRICATION PER SPEC. 3394
Est. Wt. 30 Lbs.

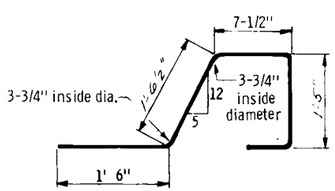
SECTION D-D



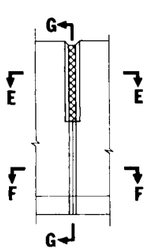
RAIL RUSTICATION



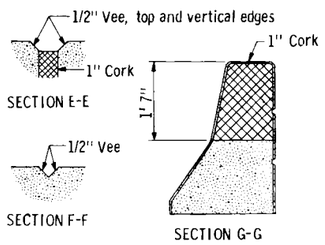
R504 & R505



R502

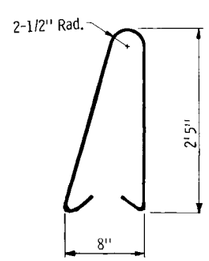


ELEVATION

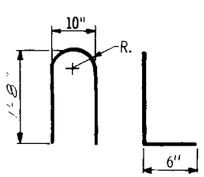


CONCRETE JOINT

DEFLECTION JOINT DETAILS



R501



R703

GENERAL NOTES

Conc. Railing = .405 lbs. /ft.
Conc. Railing = .100 cu. yds. /ft.

Rail and end post to be Concrete Mix No. 3X46

Guardrail connection to be Structural Steel, Spec. 3306

Finish all edges of rail and end post with 1/2" vee except where otherwise noted.

See superstructure sheet for joint spacing.

Maximum spacing of concrete deflection joints shall be 20'-0".

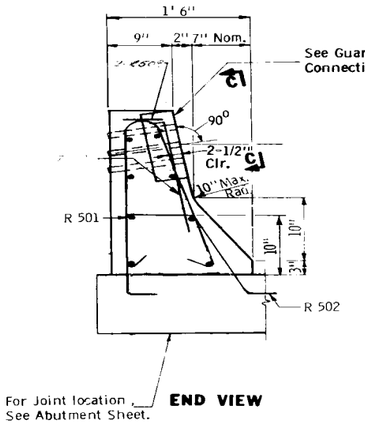
Guardrail connection to be included in price bid for other items.

Rail quantities are included in summary of quantities for superstructure.

Length of railing concrete to be measured for payment between outside faces of end posts.

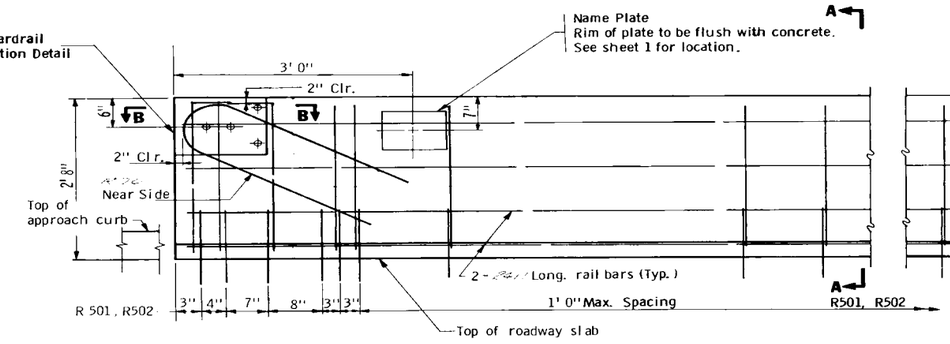
Fig. 5 397.114
Approved: December 5, 1977

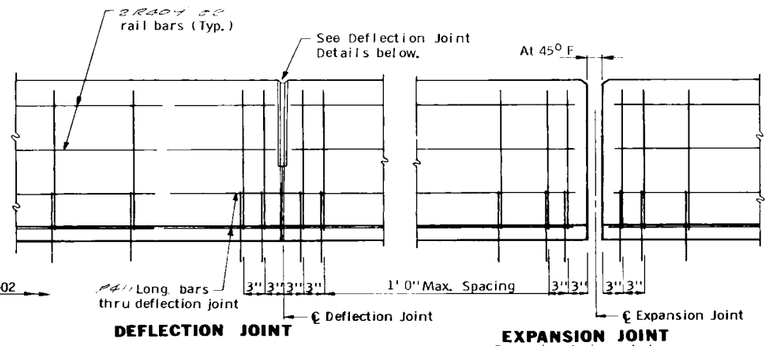
TITLE:	DES:	DR:	APPROVED:	Bridge No.
CONCRETE RAILING (TYPE J) WITH SEPARATE END POST (Without Wearing Course)	CHK:	CHK:		
	Sheet No. of Sheets			



For Joint location See Abutment Sheet.

END VIEW



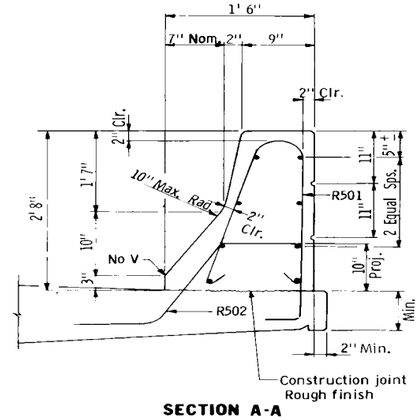


INSIDE ELEVATION OF RAILING

DEFLECTION JOINT

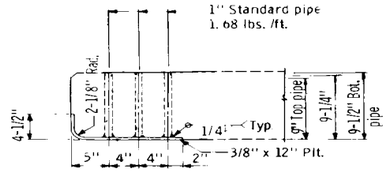
EXPANSION JOINT

Expansion device not shown. Expansion joint required only if expansion device is used. See superstructure sheets.

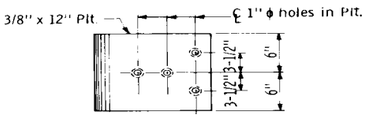


SECTION A-A

BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501		6' 0"	Bent	Rail Vertical
R502		3' 7"	"	"
R703		4' 0"	"	End Post
R504		2' 8"	"	"
R505			"	"
R506			"	"
			"	"
			"	"
			"	"

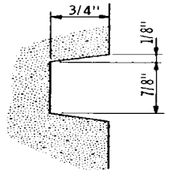


SECTION B-B
(Reinf. not shown)

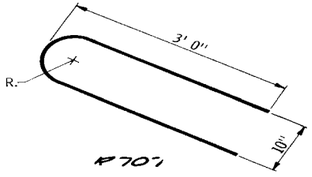


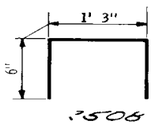
VIEW C-C

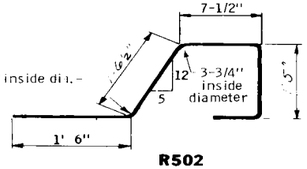
GUARDRAIL CONNECTION DETAIL
GALVANIZE AFTER FABRICATION PER SPEC. 3394
Est. Wt. 30 Lbs.



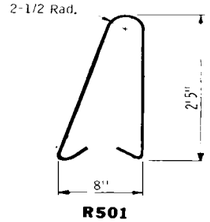
RAIL RUSTICATION



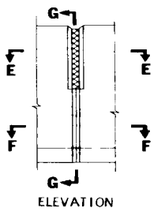




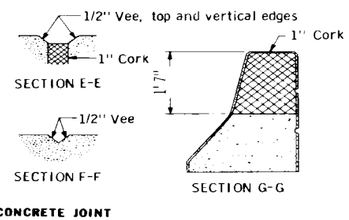
R502



R501



ELEVATION



CONCRETE JOINT

DEFLECTION JOINT DETAILS

GENERAL NOTES

Concrete Railing = .405 lbs. /ft.
Concrete Railing = .100 cu. yds.

Rail to be Concrete Mix No. 3X46

Guardrail connection to be Structural Steel, Spec. 3306

Finish all edges of rail with 1/2" vee except where otherwise noted.

See superstructure sheet for joint spacing.

Maximum spacing of concrete deflection joints shall be 20'-0".

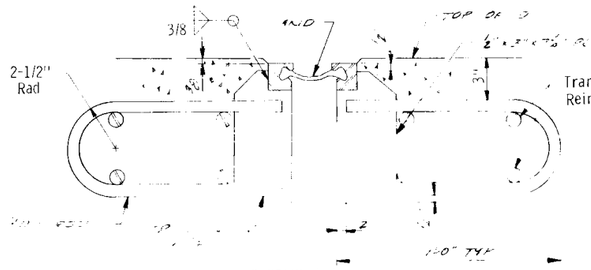
Guardrail connection to be included in price bid for other items.

Rail quantities are included in summary of quantities for superstructure.

Length of railing concrete to be measured for payment between outside faces of end posts.

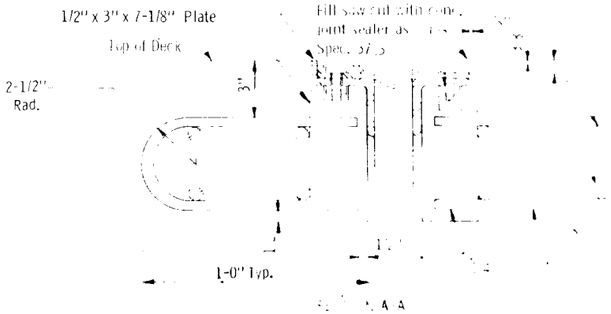
Fig. 5-397.115
Approved : December 5, 1977

TITLE:	DES:	DR:	APPROVED:	
CONCRETE RAILING (TYPE J) WITH INTEGRAL END POST (Without Wearing Course)	CHK:	CHK:		**Bridge No.**
	Sheet No. of Sheets			



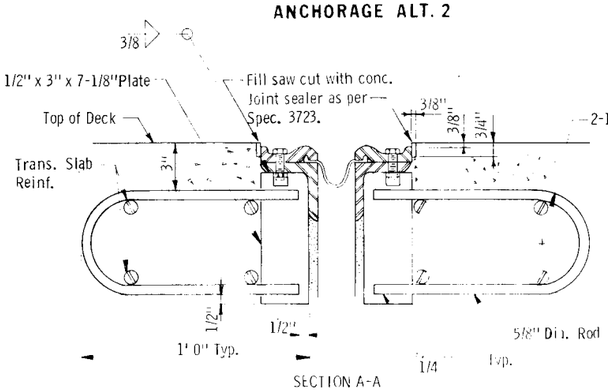
SECTION A-A

ANCHORAGE ALT. 1



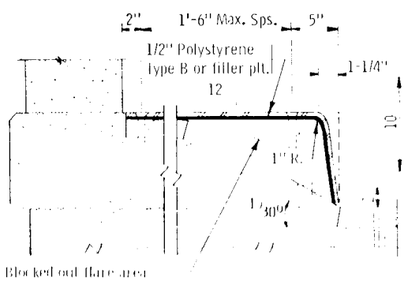
SECTION A-A

ANCHORAGE ALT. 2



SECTION A-A

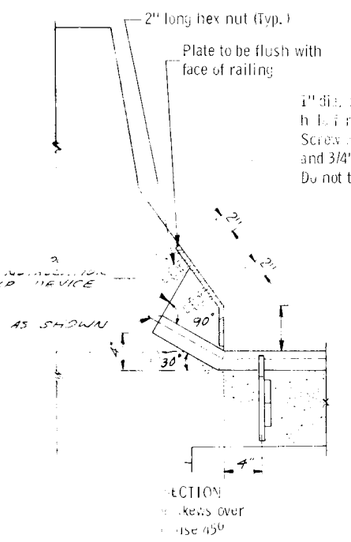
ANCHORAGE ALT. 3



SECTION

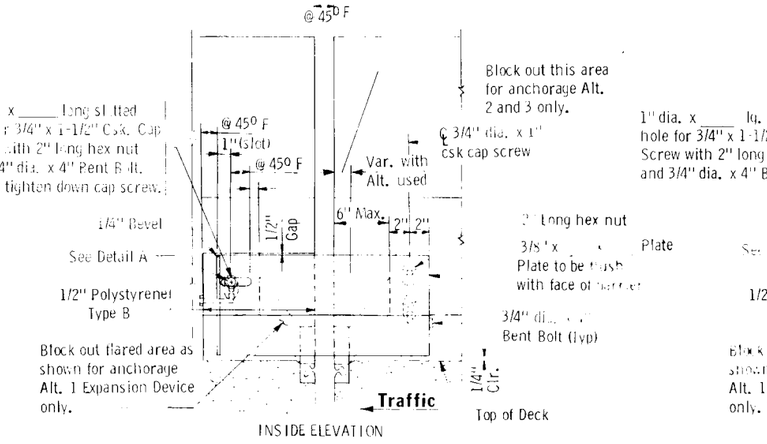
(1) For Skews over 25° use 45°

SIDEWALK DETAILS



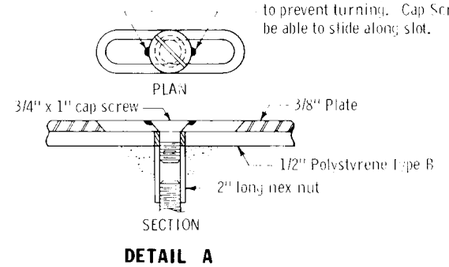
SECTION

...kews over
...se 45°

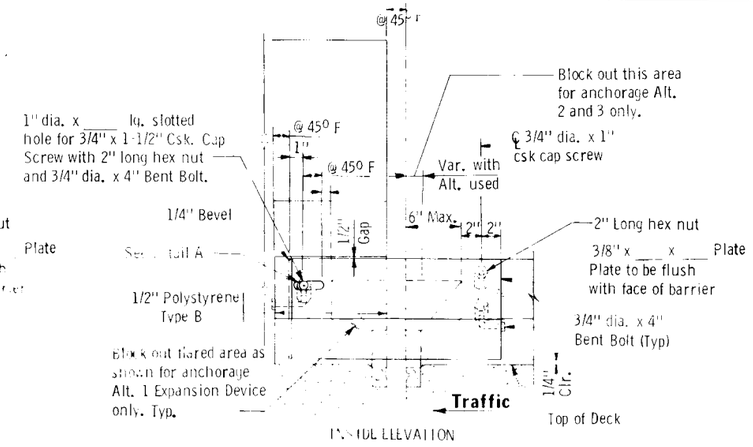


INSIDE ELEVATION

TYPE J RAILING OR MEDIAN

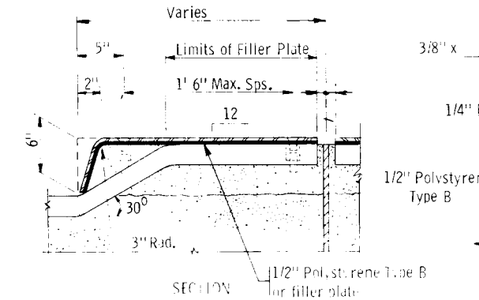


DETAIL A

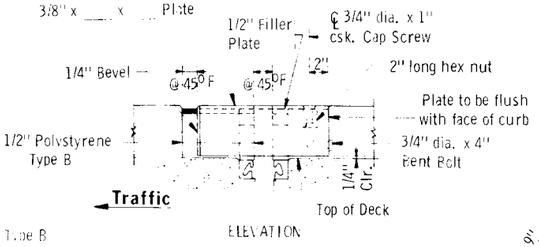


INSIDE ELEVATION

TYPE J RAILING AT CURB TRANSITION

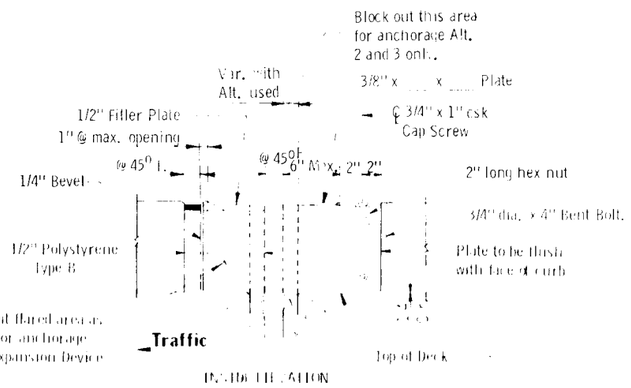


SECTION



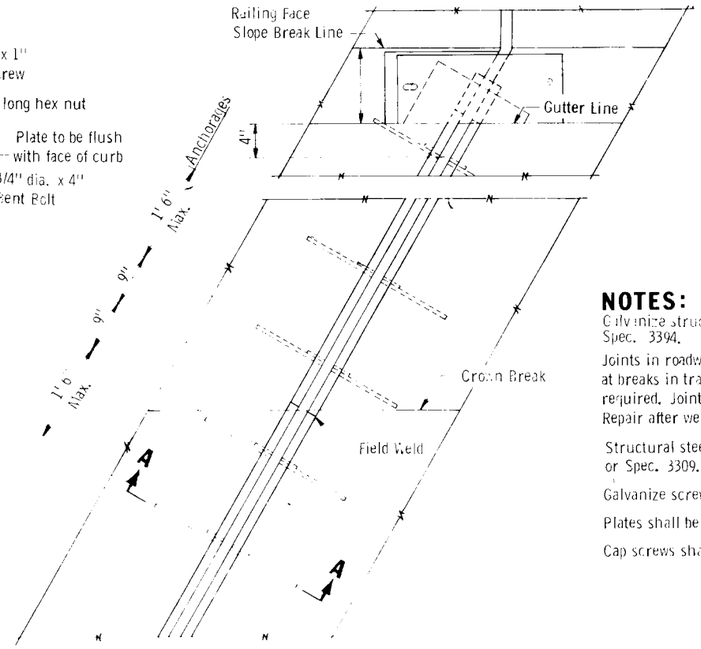
ELEVATION

RAISED MEDIAN DETAILS



INSIDE ELEVATION

SIDEWALK DETAILS



PLAN VIEW AT EXPANSION DEVICE

NOTES:

Galvanize structural steel after fabrication as per Spec. 3394.

Joints in roadway plate or extrusion shall be located at breaks in transverse profile and as otherwise required. Joints shall be close fit and welded. Repair after welding as per Spec. 2471.3L.

Structural steel shall comply with Spec. 3306. or Spec. 3309.

Galvanize screws and nuts as per Spec. 3392

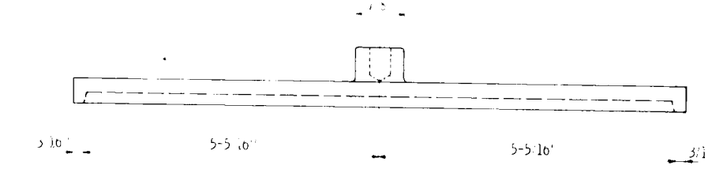
Plates shall be flat after galvanizing.

Cap screws shall be csk. 1/16" below top of plate

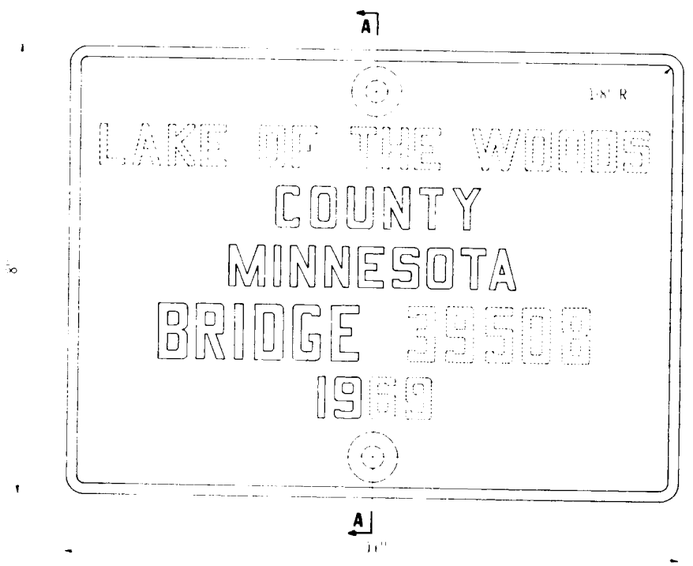
Fig. 5 397.627

Revised March 16, 1978 Approved December 5, 1977

TITLE	DES	DR	APPROVED	
WATERPROOF EXPANSION DEVICE	CHK	CHK	Sheet No. of Sheets	Bridge No.



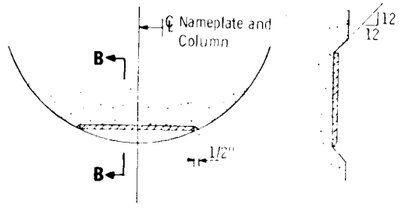
PLAN VIEW



ELEVATION

The numbers shown above are for illustration.
Data to be shown on name plate is as follows:

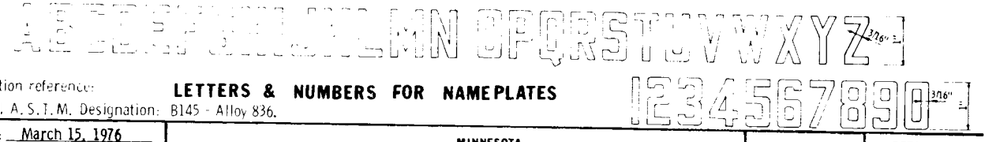
BRIDGE
YEAR



SECTION B-B

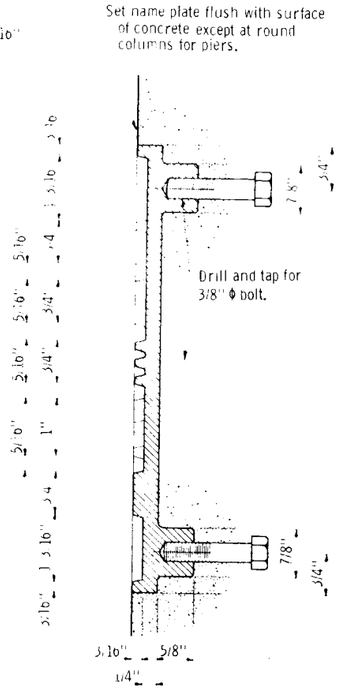
NAMEPLATE PLACEMENT

(Round Concrete Pier Columns)



Specification reference: 2471, 3H, A.S.T.M. Designation: B145 - Alloy 836.

LETTERS & NUMBERS FOR NAMEPLATES



SECTION A - A

NOTES:

No shop drawing required.
Material shall comply with SPEC. 3327.
Numbers and letters shall conform to those shown.
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.
Furnish 2 steel bolts 3/8" ϕ x 3" long with each plate.
All dimensions for 3/4" high letters and numbers shall be in direct proportion to those shown for the 1" high letters and numbers.

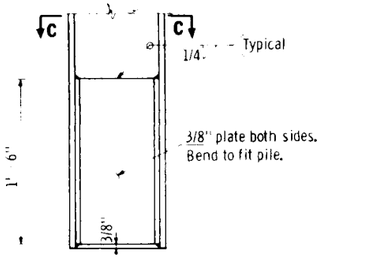
APPROVED: March 15, 1976

Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN

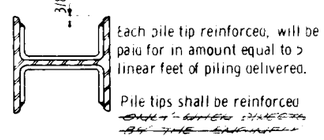
Issued by: OFFICE OF ENGINEERING STANDARDS

MINNESOTA
DEPARTMENT OF TRANSPORTATION
BRIDGE NAMEPLATE
COUNTY BRIDGES

DETAIL NO. **B103**

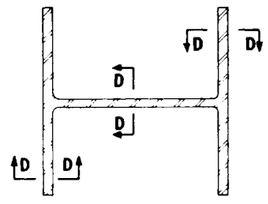


ELEVATION

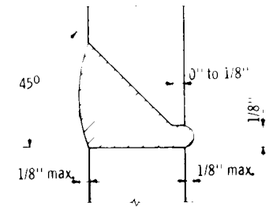


SECTION C - C

DETAIL OF PILE TIP REINFORCEMENT



SECTION AT JOINT



SECTION D - D

100% BUTT WELDED PILE SPLICE

NOTES:

A. W. S. Type E7010 or E7018 (low-hydrogen) electrodes shall be used for 100% butt welded splices

A. W. S. Type E6010, E6011 electrodes, or E7010 or E7018 (low-hydrogen) electrodes, shall be used for the alternate plate type pile splice

Low-hydrogen electrodes shall be supplied in hermetically (air-tight) sealed containers

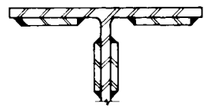
Low-hydrogen electrodes shall be stored in holding ovens at a temperature of not less than 250° F

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 2 hours

Any type electrode which has 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

SECTION A - A



SECTION B - B

ELEVATION

PILE SECTION	PLATE X			PLATE Y		
	Size	A	B	Size	C	D
HP10 x 42	2-1/2 x 3/8	1/4	4	3 x 3/8	5/16	4
HP10 x 57	2 1/2 x 1/2	5/16	4	3 x 1/2	5/16	5
HP12 x 53	3 1/2 x 3/8	1/4	5	4 x 3/8	5/16	5
HP12 x 74	3-1/2 x 1/2	5/16	6	4 x 1/2	5/16	6
HP14 x 73	4-1/2 x 3/8	1/4	7	5 x 3/8	5/16	6
HP14 x 89	4-1/2 x 7/16	5/16	7	5 x 1/2	5/16	7
HP14 x 102	4-1/2 x 1/2	5/16	7	5 x 9/16	3/8	7
HP14 x 117	4-1/2 x 9/16	3/8	7	5 x 5/8	3/8	8

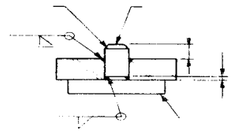
ALTERNATE PILE SPLICE

APPROVED: July 21, 1972

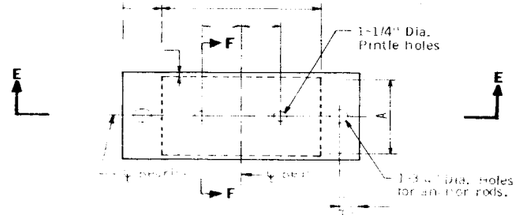
Douglas Coffeet
Engineering Standards Engineer
RESEARCH AND STANDARDS DIVISION

MINNESOTA
DEPARTMENT OF
PILE SPLICE and TIP REINFORCEMENT
STEEL H BEARING PILES 10" TO 14"

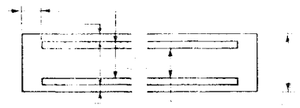
DETAIL NO. **B202**



SECTION F-F

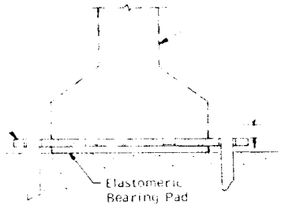


PLAN



SECTION THRU PAD

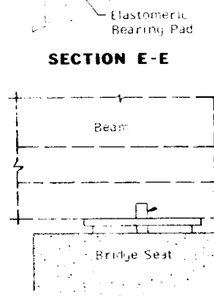
STEEL LAMINATE PAD DETAIL
(1" Pad Shown)



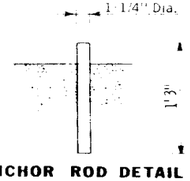
SECTION E-E

ELASTOMERIC PAD TABLE

Beam Size	A	B	D	DL Min. (Kips)	DL Max. (Kips)	DL + LL Max. (Kips)	Shape Factor	Max. Lam. Thk.	
28"	10"	14"	4"	28	69	110	6	1/2" x 22" x 1"	1/2"
	12"			33	83	132	6	1/4" x 24" x 1"	1/2"
	14"			39	97	155	7	1/16" x 26" x 1"	1/2"
	10"	16"	6"	32	79	126	6	1/2" x 26" x 1"	1/2"
	12"			38	95	152	6	1/4" x 26" x 1"	1/2"
	14"			44	111	177	7	1/16" x 26" x 1"	1/2"
30" & 36"	10"	20"	8"	40	99	158	6	1/2" x 30" x 1"	1/2"
	12"			48	119	190	6	1/4" x 30" x 1"	1/2"
	14"			56	139	222	7	1/16" x 30" x 1"	1/2"
	16"			64	159	254	8	1/16" x 30" x 1"	1/2"
	18"			72	179	286	8	1/16" x 30" x 1"	1/2"
	20"			80	199	318	8	1/16" x 30" x 1"	1/2"
	22"			88	219	350	8	1/16" x 30" x 1"	1/2"
	24"			96	239	382	8	1/16" x 30" x 1"	1/2"
30" Bulb	10"	22"	9"	44	109	174	7	1/2" x 32" x 1"	1/2"
	12"			52	131	209	8	1/4" x 32" x 1"	1/2"
	14"			61	153	244	8	1/16" x 32" x 1"	1/2"
	16"			70	175	280	8	1/16" x 32" x 1"	1/2"



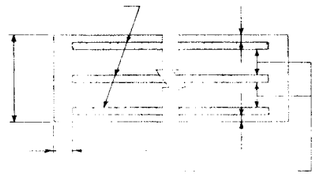
SIDE ELEVATION



ANCHOR ROD DETAIL

NOTES

APPROVED April 26, 19	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by ENGINEERING STANDARDS BRIDGES AND STRUCTURES	**ELASTOMERIC BEARING ASSEMBLY** PRESTRESSED CONCRETE BEAMS (FIXED)		**B304**
Issued by ENGINEERING STANDARDS			

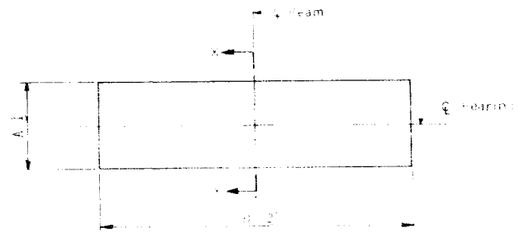


SECTION X-X

STEEL LAMINATE PAD DETAIL
(1" Pad Shown)

LAMINATE TABLE

MAXIMUM MOVEMENT	PAD THICKNESS B	MAXIMUM NO. OF LAMINATES
1/2" Lam. 3/4" Lam.	1"	1/2" Lam. 3/4" Lam.
1/4"	1"	1
7/16"	1-1/2"	2
5/8" 11/16"	2"	3 2
13/16" 7/8"	2-1/2"	4 3
1" 1-1/8"	3"	5 3
1-1/4" 1-5/16"	3-1/2"	5 4
1-7/16" 1-1/2"	4"	6 5
1-5/8" 1-3/4"	4-1/2"	7 5
1-13/16" 1-15/16"	5"	8 6
2" 2-3/16"	5-1/2"	9 6
2-1/4" 2-3/8"	6"	9 7
2-7/16" 2-5/8"	6-1/2"	10 7
2-5/8" 2-13/16"	7"	11 8
2-13/16" 3"	7-1/2"	12 9
3" 3-1/4"	8"	13 9



PLAN

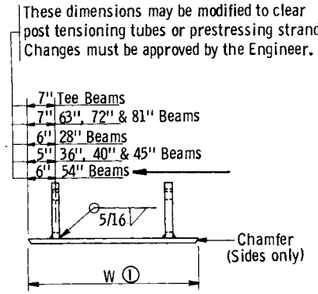
1. Minimum A dimension shall be 3.0 x (No. of steel plates)
2. Minimum B dimension shall be 2.0 x (No. of steel plates)

NOTE:

ELASTOMERIC PAD TABLE

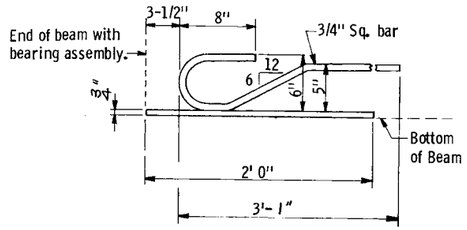
Beam Size	A	B	D	DL Min. (Kips)	DL Max. (Kips)	DL + LL Max. (Kips)	Shape Factor	Max. Lam. Thk.	
28"	10"	14"	4"	28	70	112	6	1/2"	
	12"			34	84	134	6		
	14"			39	98	157	7		
	16"			45	112	179	7		
	18"			50	126	202	8		
	20"			56	140	224	8		
	22"			62	154	246	9		
36"	10"	16"	6"	32	80	128	6		
	12"			38	96	154	7		
	14"			45	112	179	7		
	16"			51	128	205	8		
	18"			58	144	230	8		
	20"			64	160	256	9		
	22"			70	176	282	9		
	24"			77	192	307	6	3/4"	
40" & 45"	10"	20"		40	100	160	7	1/2"	
	12"			48	120	192	8		
	14"			56	140	224	6		
	16"			64	160	256	9		
	18"			72	180	288	9		
	20"			80	200	320	7	3/4"	
	22"			88	220	352	7	3/4"	
	24"			96	240	384	7	3/4"	
	12"			58	144	230	5	1/2"	
	14"			67	168	269	6	1/2"	
	18"			86	216	346	7		
	20"			96	240	384	7		
	22"			106	264	422	8		
	24"			115	288	461	8		
30" Bulb	10"	22"		44	110	176	7	1/2"	
	12"			53	132	211	8		
	14"			62	154	246	9		
	16"			70	176	282	9		

APPROVED April 26, 1978	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION		DETAIL NO.
Developed by ENGINEERING STANDARDS BRIDGES AND STRUCTURES	**ELASTOMERIC BEARING PAD** PRESTRESSED CONCRETE BEAMS (EXPANSION)		**B305**
Issued by ENGINEERING STANDARDS			



FRONT VIEW

① Dimension "W" to be the width at the bottom flange of the beam. - 1/4"



SIDE VIEW

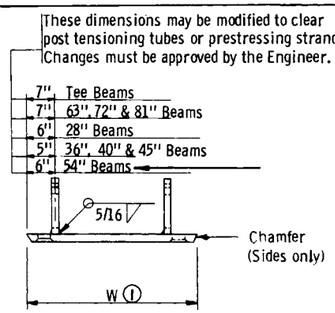
NOTES

Material to be Structural Steel per SPEC 3306

Sole plate for Bearing Assembly to be hot dipped galvanized as per SPEC 3394 after fabrication.

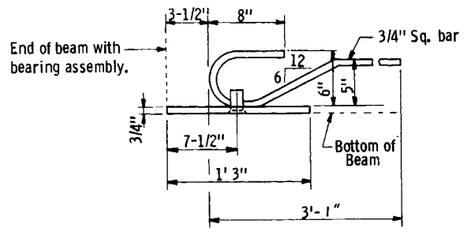
Payment for sole plates to be included in price bid for Prestressed Concrete Beams.

SOLE PLATE FOR B305 BEARING



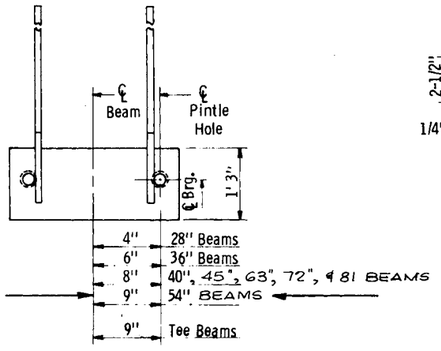
FRONT VIEW

① Dimension "W" to be the width at the bottom flange of the beam. - 1/4"

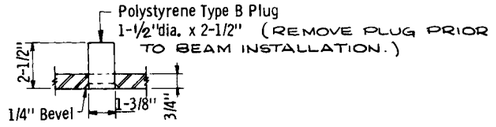


SIDE VIEW

Showing placement in beam



PLAN VIEW



PINTLE HOLE DETAIL

(2 Required)

NOTES

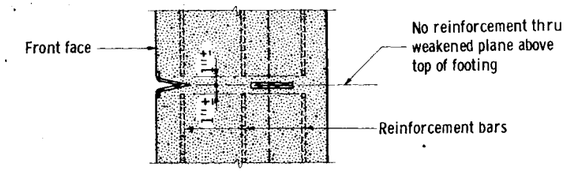
Material to be Structural Steel per SPEC 3306

Sole plate for Bearing Assembly to be hot dipped galvanized as per SPEC 3394 after fabrication. Pintle holes shall be free of zinc build up from galvanizing.

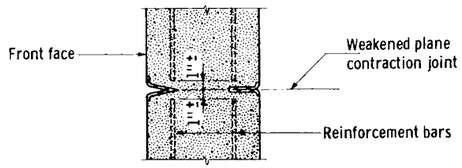
Payment for sole plates to be included in price bid for Prestressed Concrete Beams

SOLE PLATE FOR B302, & B304 BEARING ASSEMBLY

APPROVED: Sept. 17, 1976 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	MINNESOTA DEPARTMENT OF TRANSPORTATION **SOLE PLATES** **PRESTRESSED CONCRETE BEAMS**	REVISION SEPT. 7, 1978	DETAIL NO. **B303**



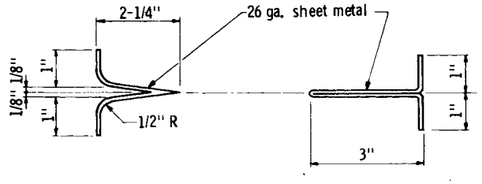
SECTION A - A



SECTION B - B

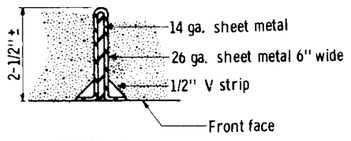


SECTION C - C

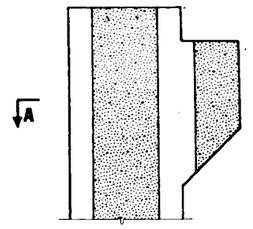


BRIDGE SEAT and FRONT STRIP
6" wide

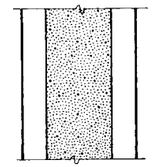
BACK STRIP
8" wide



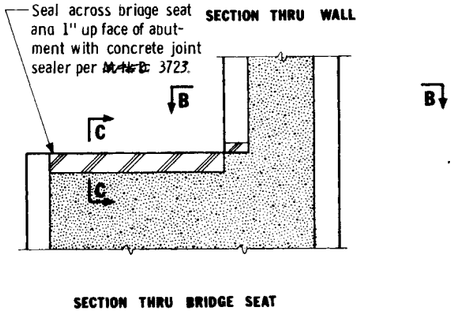
ALTERNATE BRIDGE SEAT and FRONT STRIP



SECTION THRU PAVING BRACKET



SECTION THRU WALL



SECTION THRU BRIDGE SEAT

PART SECTION THRU ABUTMENT AT JOINT

NOTES:

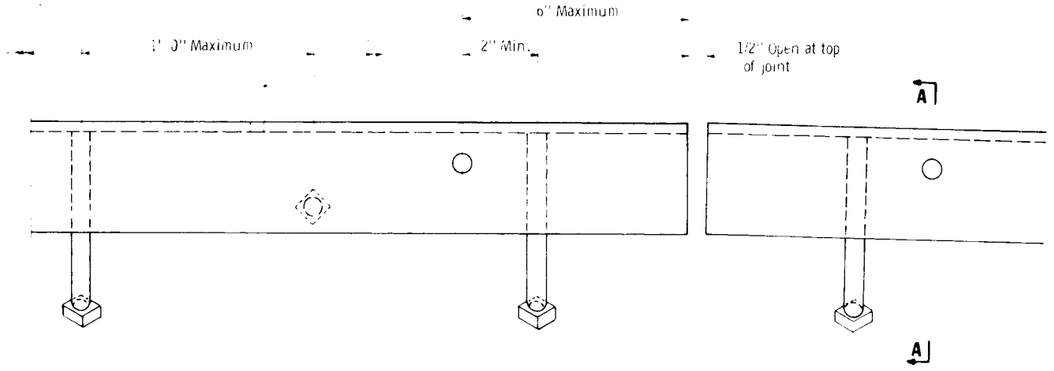
The methods and materials indicated hereon shall be considered as suggested only. Variations will be permitted, subject to approval by the Engineer, but must provide dummy joints of a depth not less than the depth shown, and a width at the front face of the abutment of not greater than 5/16". The separation of the horizontal reinforcement bars shall be not less than 1-1/2" nor more than 3", centered as shown, regardless of the procedure used for forming the dummy joint.

Front and bridge seat strips shall be removed with forms, except if a suitable plastic or other durable material, satisfactory to the Engineer, is used, the material may be left in place. Back strip to remain in place.

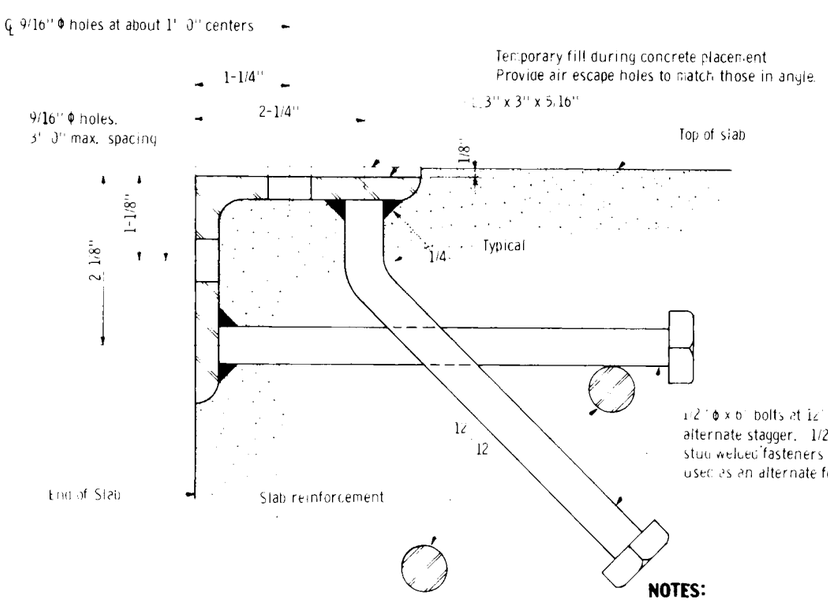
Back metal strips to be galvanized sheet metal. Fasten to forms with 7/8" roofing nails about 6" centers.

Cost of forming joint to be included in price bid for other items.

APPROVED Feb. 15, 1972 Douglas Differt Engineering Standards Engineer RESEARCH AND STANDARDS DIVISION	MINNESOTA DEPARTMENT OF TRANSPORTATION **CONTRACTION JOINT**		DETAIL NO. **B801**



ELEVATION
(Concrete not shown)



1/2" Φ x 6" bolts at 12" centers with alternate stagger. 1/2" Φ x 6" stud welded fasteners may be used as an alternate for bolts

SECTION A - A

NOTES:

Angles shall extend full width of roadway between curbs with a 1" x 2" open joint at each break in crown profile. Maximum length 22 feet.

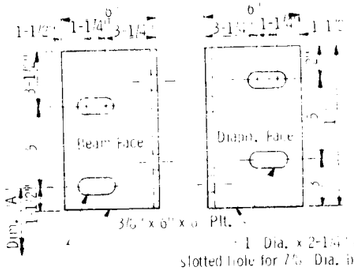
Angles shall be straightened to a tolerance of 1/16 in 10 feet after galvanizing.

Material: Structural steel per 3306. Galvanize after fabrication per 3394

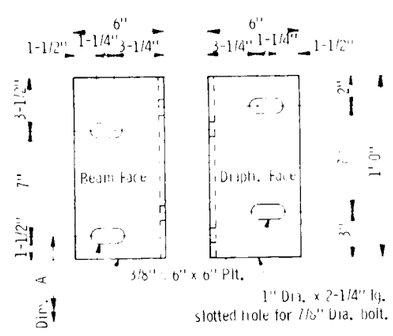
Set angle to proper grade and crown.

All material will be paid for as structural steel 3306

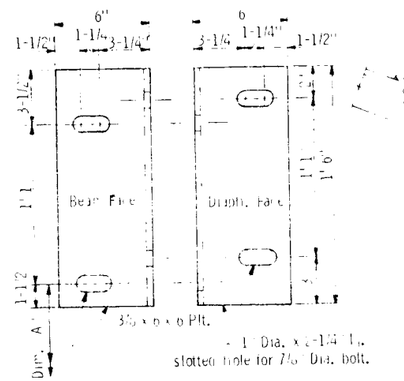
APPROVED May 20, 1972			DETAIL NO.
Engineer of Standards RESEARCH AND STANDARDS DIVISION	**PROTECTION ANGLE FOR END OF SLAB**		**B551**



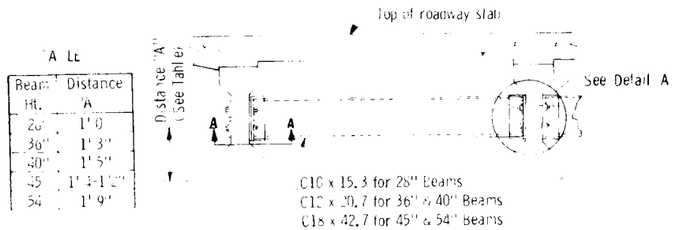
DIAPHRAGM SUPPORT FOR 28" BEAMS



DIAPHRAGM SUPPORT FOR 36" & 40" BEAMS AND 30" BULB TEES



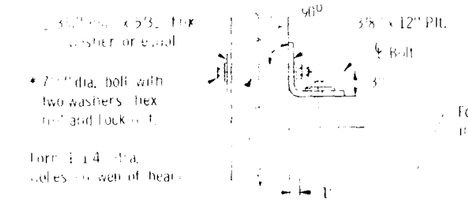
DIAPHRAGM SUPPORT FOR 45" & 54" BEAMS



Beam Ht.	Distance "A"
28"	1' 0"
36"	1' 3"
40"	1' 5"
45"	1' 8-1/2"
54"	1' 9"

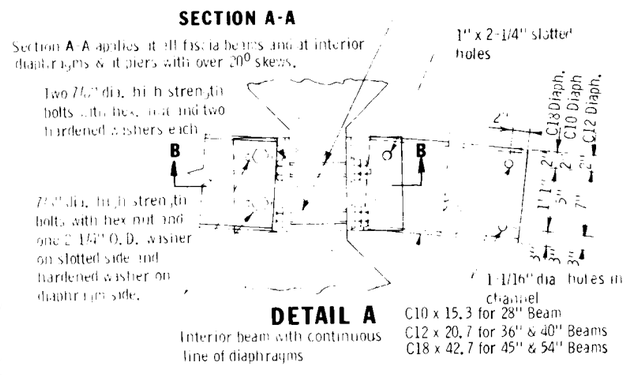
C10 x 15.3 for 28" Beams
C12 x 20.7 for 36" & 40" Beams
C18 x 42.7 for 45" & 54" Beams

PART TRANSVERSE SECTION AT DIAPHRAGM



SECTION A-A

Section A-A applies at all fascia beams and at interior diaphragms & at piers with over 20° skews.



DETAIL A
Interior beam with continuous line of diaphragms

C10 x 15.3 for 28" Beam
C12 x 20.7 for 36" & 40" Beams
C18 x 42.7 for 45" & 54" Beams



SECTION B-B
Typ. Section for Skews under 20°

℄ of Int. Diaphragm. See Framing Plan

GENERAL NOTES:

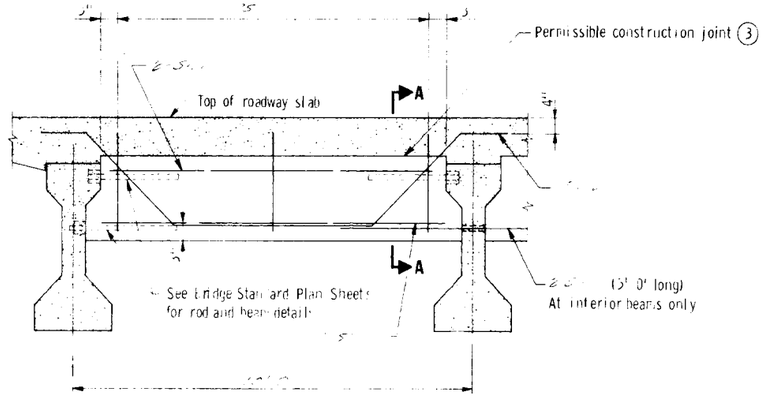
The ends of the 12" plate shall be shop bent to conform to diaphragm line. For Φ angles less than 3° shop bends will not be required.

* As an alternate to the 7/8" bolt connection shown, the contractor may submit details of a cast-in-place anchorage to the engineer for approval. Anchorage must provide ultimate pull out strength of 15 kips per anchorage.

The use of concrete intermediate diaphragms or steel intermediate diaphragms shall be optional to the contractor. All structural steel shown on this detail including bolts and washers to be included in payment for diaphragms for prestressed beams.

Diaphragms over piers considered to be intermediate if slab is continuous.

APPROVED July 8, 1970		REVISION Jan. 3 1978	DETAIL NO.
Developed: OFFICE OF BRIDGES AND STRUCTURES STANDARDS Issued by: OFFICE OF BRIDGES AND STRUCTURES STANDARDS	MINNESOTA DEPARTMENT OF TRANSPORTATION **STEEL INTERMEDIATE DIAPHRAGM (FOR 28"- 54" PRESTRESSED CONCRETE BEAM SPANS AND 30" BULB TEE BEAMS)**		**B403**



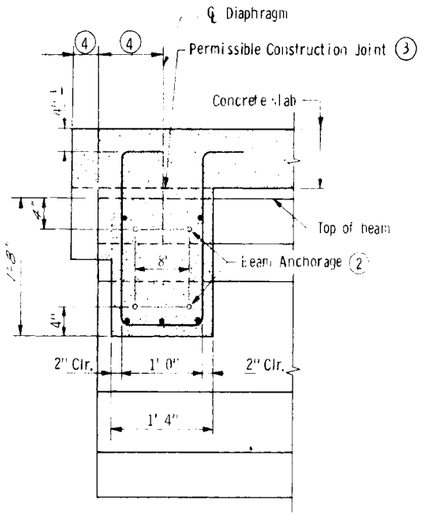
PART TRANSVERSE SECTION AT END DIAPHRAGM

LONGITUDINAL REINFORCEMENT IN BOTTOM OF DIAPHRAGM

BEAM SPACING (℄ to ℄)	BARS REQUIRED			
	STRAIGHT		BENT	
	NO.	SIZE	NO.	SIZE
Up to 8'	2	5	1	5
Over 8' to 11'	2	7	1	8
Over 11' to 13'	2	8	1	8
Over 13' to 15'	2	9	1	10
Over 15' to 18'	2	11	1	11

Slope

Slope



SECTION A-A

NOTE:

(1) Distance measured along ℄ of diaphragm.

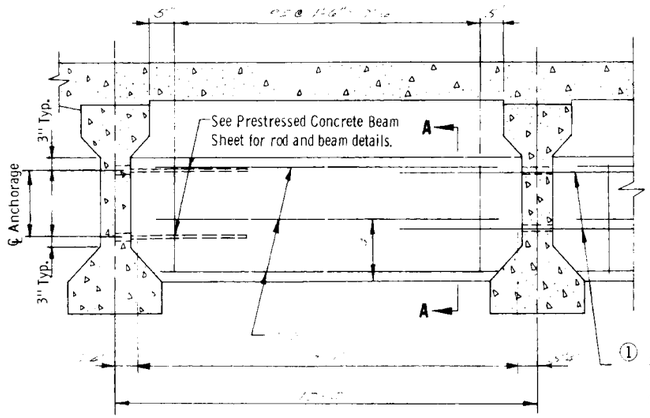
(2) BEAM ANCHORAGES
Fascia beams only: four 3/4" dia. threaded rods.
Interior beams: Two 3/4" dia. threaded rods on top
Two No. 7 bars on bottom.

(3) Construction joint required with expansion device. When construction joint is used at this location, diaphragm falsework shall remain in place until completion of slab curing period.

(4) See plans for dimensions.

(5) All diaphragm bars shown are listed with the superstructure reinforcement. Diaphragm concrete and reinforcement quantities are included in superstructure quantities (except threaded rods are included in payment for prestressed beams).

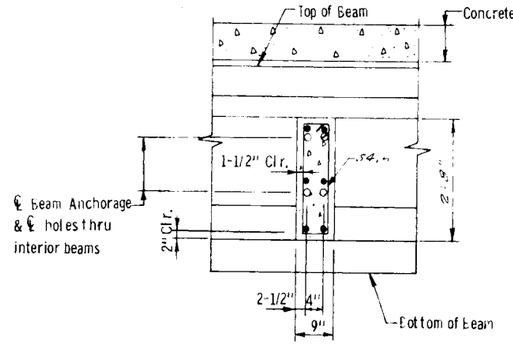
APPROVED: March 3, 1977	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION **END DIAPHRAGM** **(28"-54" PRESTRESSED CONCRETE BEAM SPAN WITH PARAPET ABUTS.)**		DETAIL NO. **B803**
Developed by: ENGINEERING STANDARDS AND BRIDGES AND STRUCTURES Issued by: ENGINEERING STANDARDS			



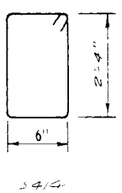
PART TRANSVERSE SECTION

Bm. Ht	Dim. "A" For comp. volume	Diaph. Dim. "B"	Length
28"	7-1/2"	1'-4"	3'-9"
36"	7-3/4	1'-9"	4' 7"
40"	8-3/4"	1'-11"	4'-11"
45"	9"	2'-2 1/2"	5'-6"
54"	10-1/2"	2'-8"	6' 5"

Concrete volume per diaphragm
$\frac{(L - A) \times B \times .75}{27}$ = (Cu. yd.)



SECTION A-A



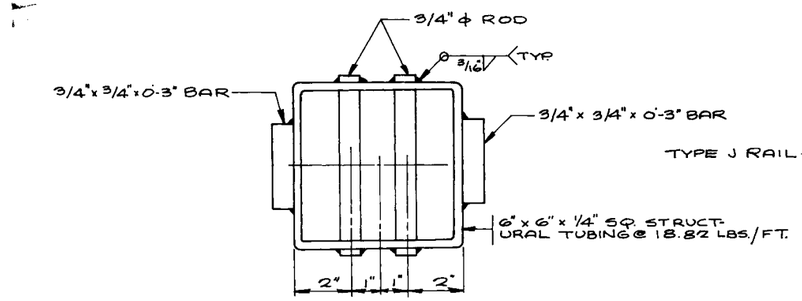
Slope

GENERAL NOTES

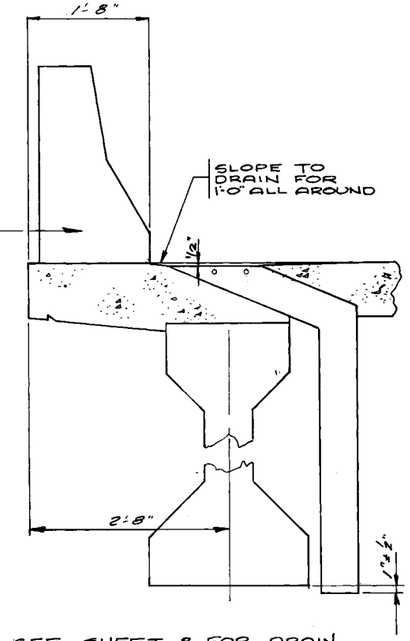
(1) For Diaphragms 20º and over, use threaded rods as shown on standard prestressed concrete beam sheet.

(2) All diaphragm concrete and reinforcement bars shown on this detail to be included in payment for diaphragms for prestressed beams. Threaded rods are included in payment for prestressed concrete beams.

APPROVED: July 8, 1976	MINNESOTA DEPARTMENT OF TRANSPORTATION **CONCRETE INTERMEDIATE DIAPHRAGM** **(FOR 28"-54" PRESTRESSED CONCRETE BEAM SPANS)**		DETAIL NO. **B802**
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS			

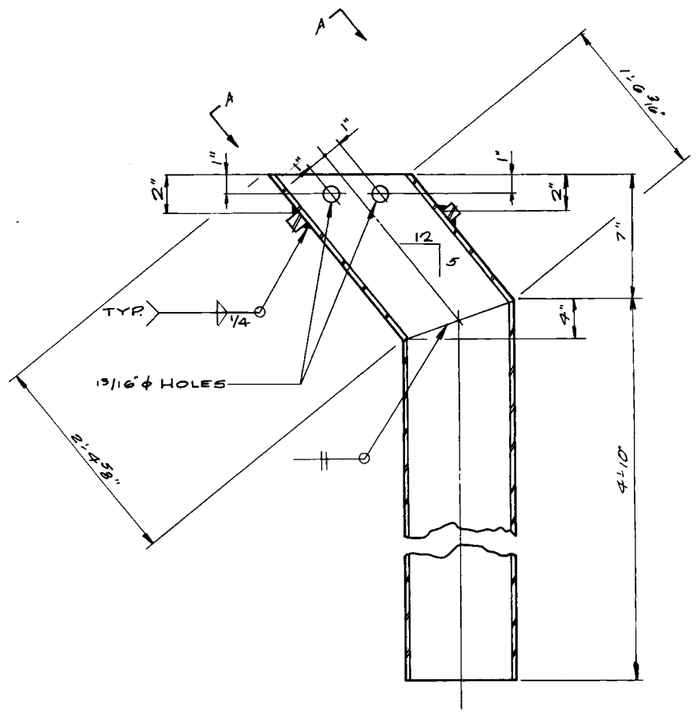


VIEW A-A



SEE SHEET 8 FOR DRAIN SPACING.

PLACEMENT DIAGRAM



ELEVATION

NOTES

MATERIAL TO BE STRUCTURAL STEEL PER SPEC. 3306.

GALVANIZE BOLTS AND WASHERS PER SPEC. 3392.

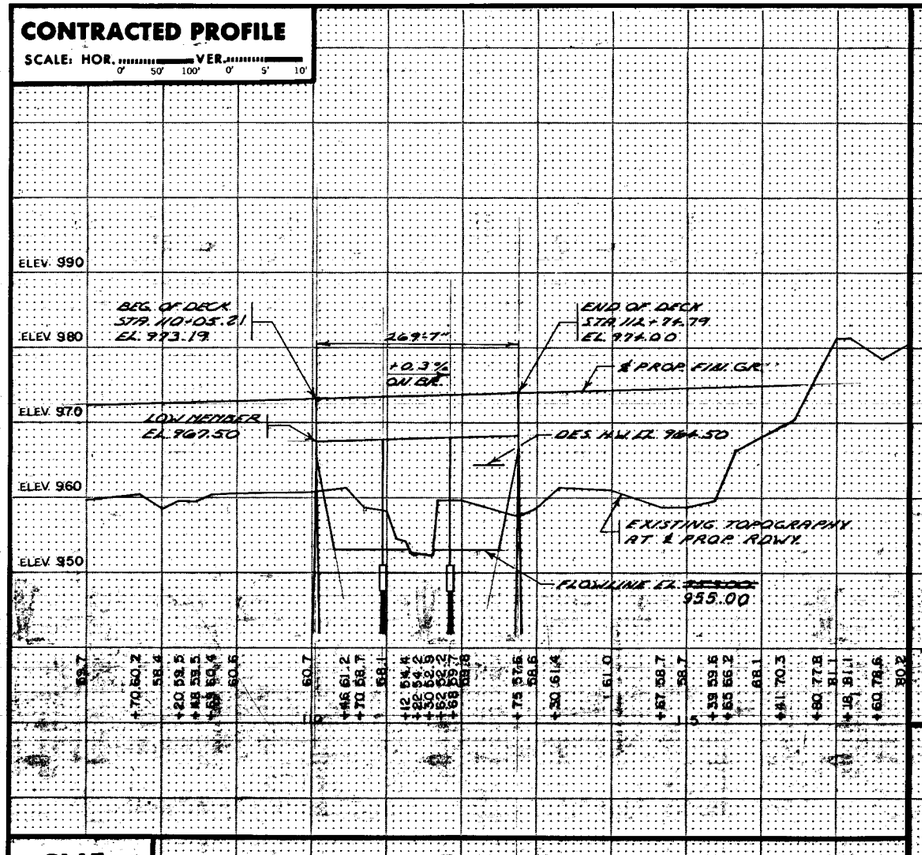
GALVANIZE OTHER MATERIALS PER SPEC. 3394 AFTER FABRICATION

PAYMENT FOR FLOOR DRAINS TYPE I SHALL INCLUDE ALL MATERIAL SHOWN ON THIS DETAIL.

BRIDGE FLOOR DRAIN
STRUCTURAL TUBING

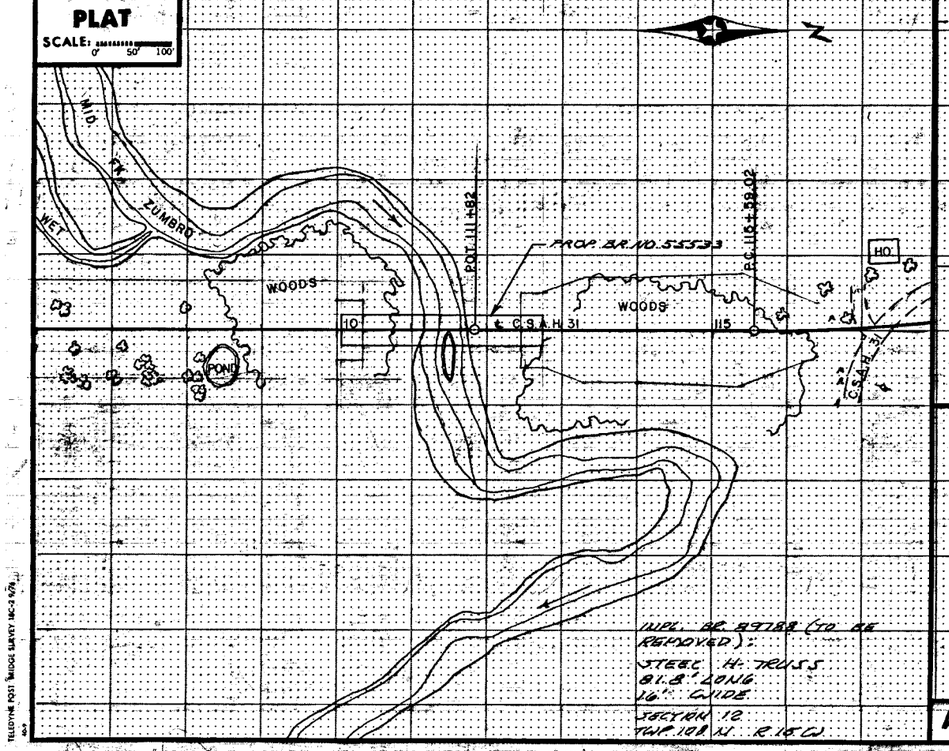
CONTRACTED PROFILE

SCALE: HOR. 0' 50' 100' VER. 0' 5' 10'



PLAT

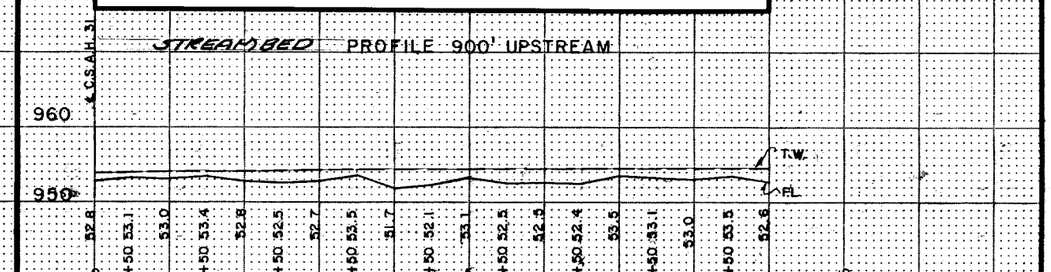
SCALE: 0' 50' 100'



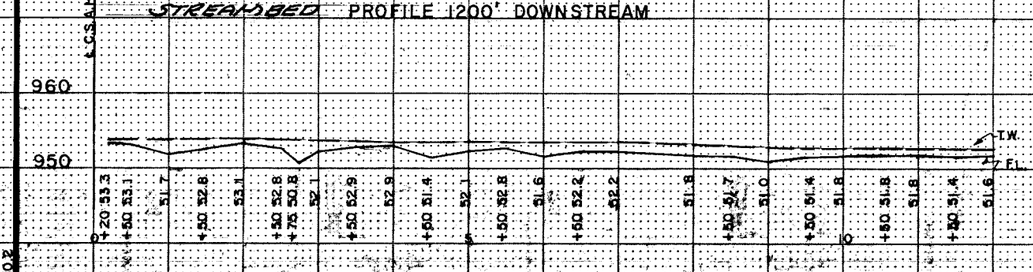
TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

STREAMBED PROFILE 900' UPSTREAM

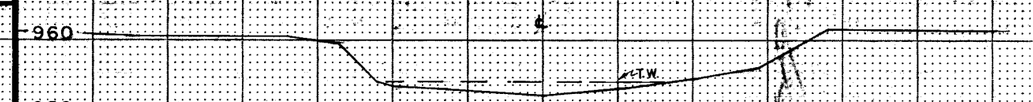


STREAMBED PROFILE 1200' DOWNSTREAM

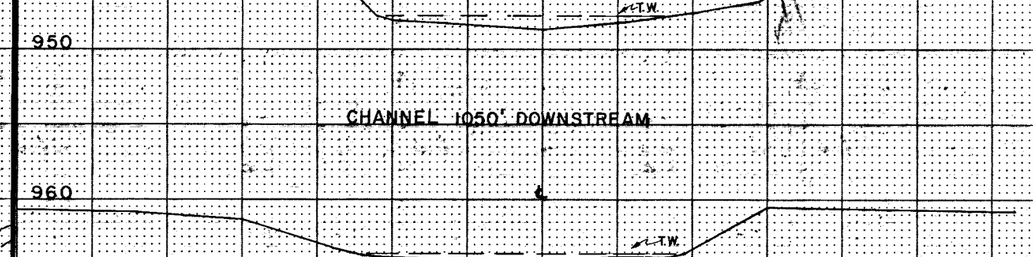


K-SECTIONAL

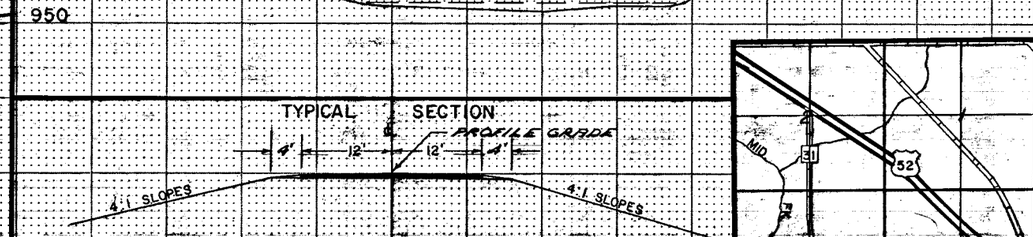
CHANNEL 900' UPSTREAM



CHANNEL 1050' DOWNSTREAM



TYPICAL SECTION



Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.

2. 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.

3. Apparent highwater elevation..... Obtained from.....

4. Other data: Approx. velocity of water at time of survey.....

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 6-15-89

Stream or ditch designation MIDDLE FORK ZUMBRO RIVER

Drainage area 203 SQ MI

Max. flood on record UNK. Design flood (50 yr. freq.) 13,500 C.F.S.

Max. observed highwater elevation UNK. Design highwater elevation 964.5

Design mean velocity through structure 5.0 F.P.S.

Low superstructure at or above elevation 962.50

Floorline elevation 955.00 Skew angle NONE

Waterway area req'd. below elevation 964.5 2700 Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 16,200 C.F.S. at stage 966.1 and mean velocity of 5.6 F.P.S. with 0.9 Ft. freeboard. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

3-88' PPA SPANS, 32' RDWY OVER MIDDLE FORK ZUMBRO RIVER

Bridge survey sheets made from:

Bench mark elevation 991.31 (M.S.L. 1929 Adj.)

Location: SPIKE IN TREE 112 W. STA 112+60

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT..... ON C.S.A.H. 31 (T.H., C.S.A.H., C.R. etc.)

PROPOSED BRIDGE LOCATED 1.5 MILES WEST OF ORONOCO

SEC. 11 TWP 108 N R 15 W

TOWNSHIP NEW HAVEN COUNTY OLMSTED

BRIDGE NO. 55533

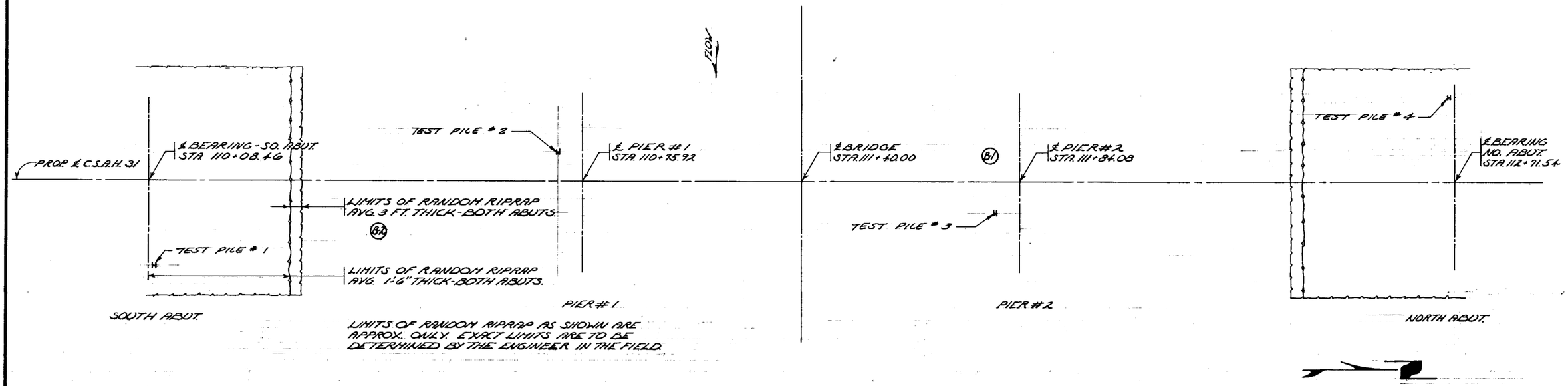
3-31-91

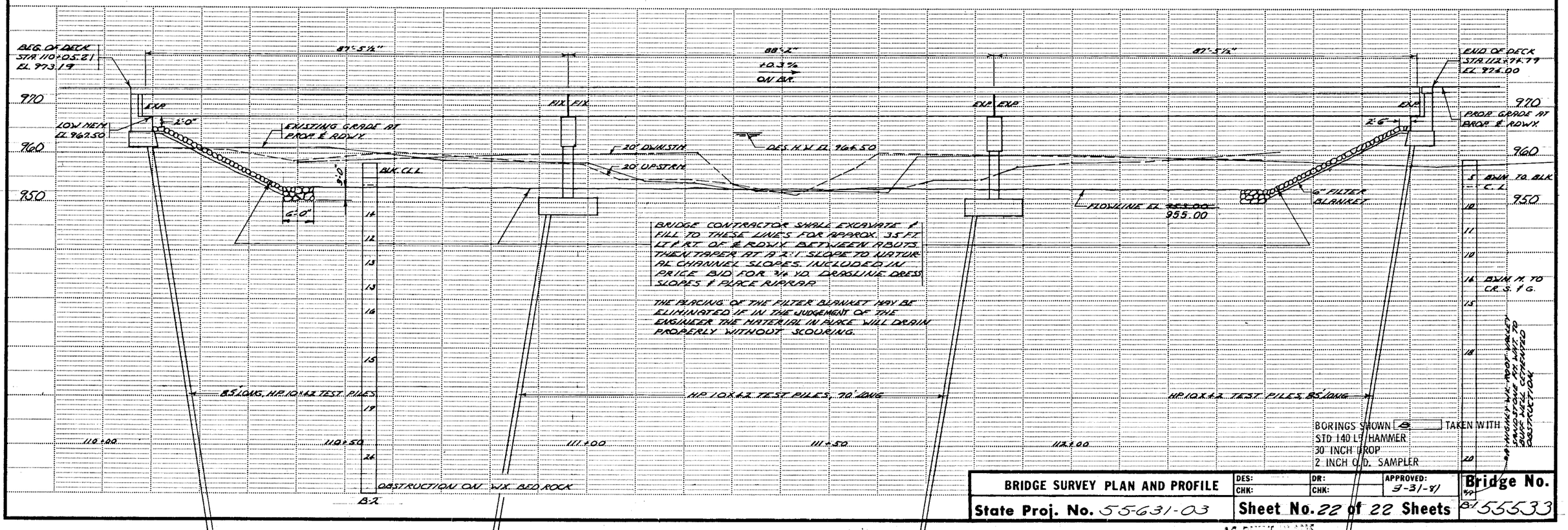
Area No. Job No. State Proj. No. 55-631-03 Sheet No. 21 of 22 Sheets

AS BUILT PLANS

TELEDYNE POST "MOOG" SURVEY MC-9 N/N

Fed. Proj. No.





BRIDGE SURVEY PLAN AND PROFILE	DES:	DR:	APPROVED: 3-31-81	Bridge No. 55533
	CHK:	CHK:		
State Proj. No. 55631-03	Sheet No. 22 of 22 Sheets			

AS BUILT PLANS