

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

CONSTRUCTION PLAN FOR GRADING, BASE & BITUMINOUS SURFACING

County State Aid Highway No. 22

Between C.S.A.H. #5 And A POINT 500' EAST OF T.H. 47

A POINT 21.73' EAST OF S.W. COR. From SEC. 21, T.33N., R.25W. A POINT 385.00' WEST OF S. 1/4 To SEC. 24, T.33N., R.25W.

GROSS LENGTH 18,272.00 FEET 3.461 MILES
BRIDGES LENGTH 68.94 FEET 0.013 MILES
EXCEPTIONS LENGTH 0.00 FEET 0.00 MILES
NET LENGTH 18,203.060 FEET 3.448 MILES

INDEX OF SHEETS

- Sheet No. 1 Title Sheet & Layout Map
- No. 2 Est. Quantities
- No. 3 To 6 Typica Sections & Const. Details
- No. 7 Super-elevation Chart
- No. 8 Pipeline Crossing
- No. 9 Drainage Easement
- No. 10 T.H. # 47 & C.S.A.H. # 22 Alignment
- No. 11 To 18 Plan & Profile Sheets
- No. 19 To 50 Cross Sections
- No. 51 TO 64 BRIDGE PLAN
- No. 65 TO 66 TRAFFIC CONTROL

CONVENTIONAL SIGNS

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

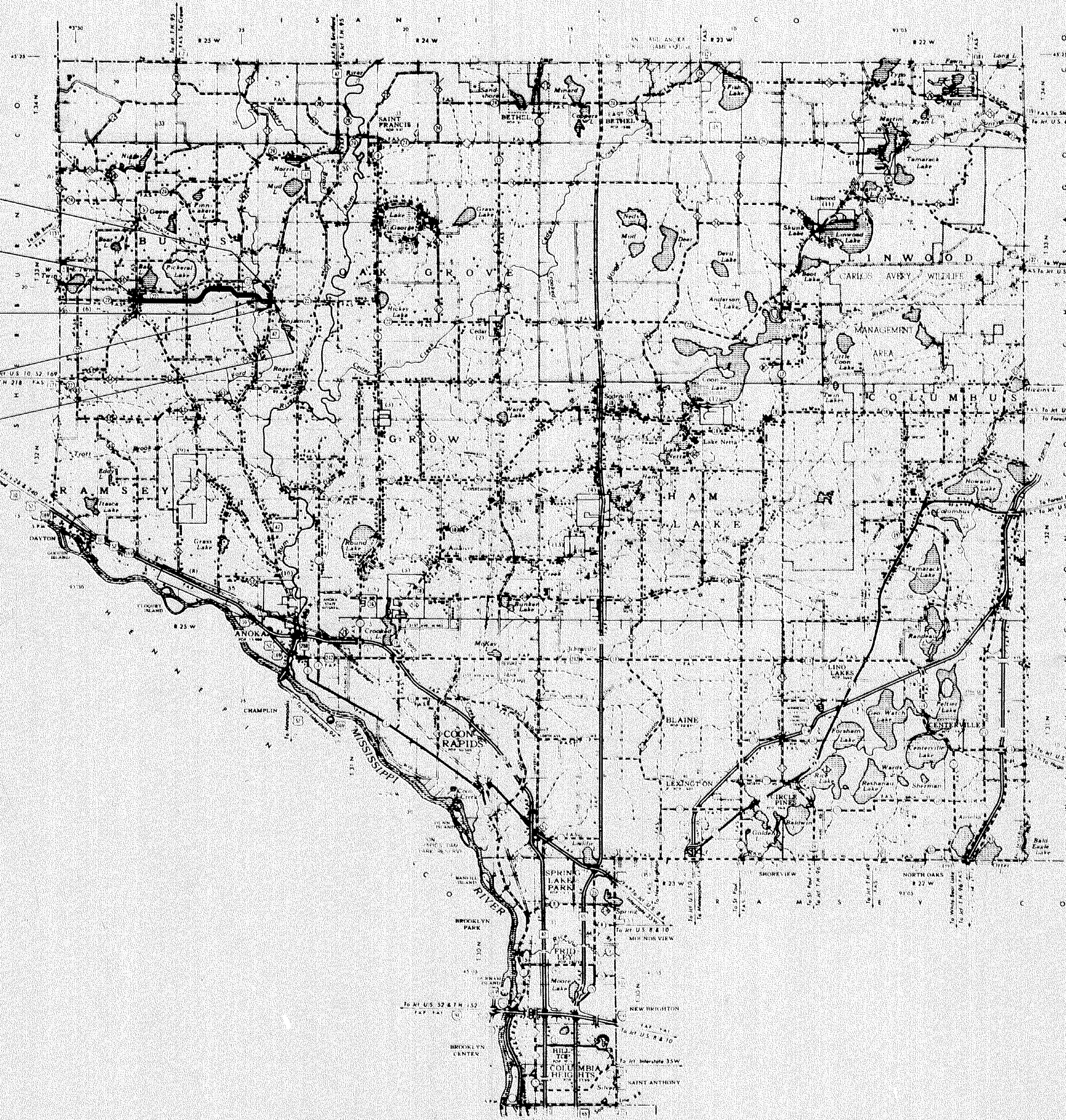
END PROJECT T.H. 47, S.P. 0206-38
P.O.T. STA. 19+00.00

BEGIN PROJECT S.A.P. 02-622-20
P.O.T. STA. 22+28.00

BRIDGE NO. 02548
STA. 180+30.53 - STA. 180+99.47

BEGIN PROJECT T.H. 47, S.P. 0206-38
P.O.T. STA. 9+00.00

END PROJECT S.A.P. 02-622-20
P.O.T. STA. 205+00.00



AGREEMENT NO. 64094
COUNTY OF ANOKA
S.P. 0206-38 (T.H. 47=110)
STATE FUNDS

SCALE

INDEX MAP	2 MI.
PLAN & PROFILE	10'
CROSS SECTION	10'

DESIGN DESIGNATION

ADT (CURRENT YEAR) 1,084

ADT (FUTURE YEAR) 1,734

T (HEAVY COMMERCIAL) H.C.A.D.T. 150-300

9 Ton Design Soil Factor A-6, 100

Design Speed 55 MPH

Based on STOPPING sight distance, Height of eye 3.50', Height of object 0.50'

Design Speed not achieved at:

STA. 152+00 TO STA. 153+00	M.P.H. 45	STA. 177+70 TO STA. 183+00	M.P.H. 40
STA. 153+75 TO STA. 148+25	M.P.H. 50	STA. 196+50 TO STA. 198+50	M.P.H. 45
STA. 165+00 TO STA. 167+00	M.P.H. 50	STA. TO STA.	M.P.H.
STA. 169+30 TO STA. 177+70	M.P.H. 45	STA. TO STA.	M.P.H.

SPECIFICATIONS

THE "STANDARD" SPECIFICATIONS FOR CONSTRUCTION, 1983 EDITION AND SUPPLEMENTAL SPECIFICATIONS, DATED AUGUST 29, 1985 SHALL GOVERN

Right of Way Approval _____ DIRECTOR, RIGHT OF WAY OPERATIONS 19 _____

Recommended for Approval *C.E. Weichselbaum 4/30 1987* DISTRICT ENGINEER

Recommended for Approval _____ 19 _____

Recommended for Approval _____ DESIGN SERVICES DIRECTOR 19 _____

Recommended for Approval _____ DIRECTOR, OFFICE OF TECHNICAL SUPPORT 19 _____

Approved _____ DEPUTY DIVISION DIRECTOR TECHNICAL SERVICES DIVISION 19 _____

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

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

Paul K. Kuehl
COUNTY ENGINEER DATE Nov. 6, 1986

ANOKA COUNTY REG. NO. 6549

RECOMMENDED FOR APPROVAL *C.E. Weichselbaum 4/30 1987* DISTRICT STATE AID ENGINEER

RECOMMENDED FOR APPROVAL *Julie Skallman 5/29 1987*

APPROVED *5/29 1987* STATE AID ENGINEER

53-030

Minn. Proj. No. _____ County Proj. No. _____

State Proj. No. 0206-38 S.A.P. 02-622-20

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	02-622-20 ESTIMATED QUANTITIES	TH.47 ESTIMATED QUANTITIES	TOTAL ESTIMATED QUANTITIES
2021.501	MOBILIZATION	LUMP SUM	1		1
2031.501	FIELD OFFICE TYPE "D"	EACH	2		2
2101.501	CLEARING	ACRE	8.3	0.25	8.55
2101.502	CLEARING	TREE	78		78
2101.506	GRUBBING	ACRE	8.3	0.25	8.55
2101.507	GRUBBING	TREE	54	3	57
2104.501	REMOVE P.V.C. DRAIN PIPE	LIN. FT.	4		4
2104.501	REMOVE CULVERT PIPE	LIN. FT.	216		216
2104.513	SAWING BITUMINOUS PAVEMENT	LIN. FT.	257	48	305
2104.521	SALVAGE FENCE	LIN. FT.	4605	215	4820
0557.604	INSTALL FENCE	LIN. FT.	5078	215	5293
2104.523	SALVAGE 12" R.C.P. APRON	EACH	1		1
2105.609	CONSTRUCTION FABRIC	SQ. YD.	59300		59,300
2105.501	COMMON EXCAVATION (P)	CU. YD.	201638	9483	211121
2105.505	MUCK EXCAVATION	CU. YD.	15489		15489
2105.521	GRANULAR BORROW E.V.	CU. YD.	113772		113772
2105.535	SALVAGE TOPSOIL IN STOCKPILE (L.V.)	CU. YD.	2500		2500
2105.535	SALVAGE TOPSOIL (L.V.)	CU. YD.	3316		3316
2130.501	WATER	M-GAL.	500	50	550
2211.503	AGGREGATE BASE PLACED, CL. 5A (P)	CU. YD.	1757	1026	2783
2211.503	AGGREGATE BASE PLACED, CL. 4A (P)	CU. YD.	23126		23126
2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	80.6	114.4	195
2331.510	BINDER COURSE MIXTURE	TON	396	419	815
2331.514	BASE COURSE MIXTURE	TON	1122	1739	2861
2331.531	TEMPORARY LANE MARKING	RD. STA.	21	30	51
0331.601	2" THICK WEAR COURSE PLACED	SQ. YD.	128		128
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	24.2	24.8	49
2341.508	WEARING COURSE MIXTURE	TON	372	382	754
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL.	420	500	920
2501.511	15" C.M. PIPE CULVERT	LIN. FT.	590		590
2501.561	48" R.C. PIPE CULVERT DES. 3006	LIN. FT.	180		180
2501.515	15" C.M. PIPE APRON	EACH	38		38
2501.515	18" RC PIPE APRON	EACH	2		2
2501.515	24" RC PIPE APRON	EACH	24		24
2501.515	48" RC PIPE APRON	EACH	6		6
2501.561	18" R.C. PIPE CULVERT DES. 3006 CL. III	LIN. FT.	66		66
2501.561	24" R.C. PIPE CULVERT DES. 3006	LIN. FT.	694		694
2501.561	24" R.C. PIPE CULVERT DES. 3006 CL. III	LIN. FT.	190		190
2501.561	24" R.C. PIPE CULVERT DES. 3006 CL. IV	LIN. FT.	104		104
2501.561	48" R.C. PIPE CULVERT DES. 3006 CL. III	LIN. FT.	100		100
2506.506	CONSTRUCT MANHOLES DES. C OR G	LIN. FT.	5.8		5.8
2506.516	CASTING ASSEMBLIES	EACH	1		1
2503.541	12" R.C. PIPE SEWER DES. 3006	LIN. FT.	12		12
2503.573	INSTALL 12" R.C. PIPE APRON	EACH	1		1
2575.501	BITUMINOUS CURB	LIN. FT.	278		278
2573.501	BALE CHECK	EACH	310		310
2573.502	SILT FENCE, HEAVY DUTY	LIN. FT.	1500		1500
2573.508	BITUMINOUS LINED FLUME	SQ. YD.	15		15
2575.501	ROADSIDE SEEDING (P)	ACRE	28.7	1.1	29.8
2575.502	SEED MIXTURE #3	POUND	1300	50	1350
2575.505	SODDING	SQ. YD.	7642	578	8220
2575.511	MULCH MATERIAL TYPE #1	TON	57.4	2.2	59.6
2575.519	DISC ANCHORING (P)	ACRE	28.7	1.1	29.8
2575.531	COMMERCIAL FERTILIZER ANALYSIS 10-10-10	TON	7.2	0.3	7.5
0563.601	TRAFFIC CONTROL	LUMP SUM	1		1

PART 1 QUANTITIES ONLY, SEE SHEET 51 FOR PART 2 QUANTITIES.

- 1 STA. 23+24 2' RT. REMOVE VERTICAL SECTION AND CONSTRUCT M.H. TO PERPETUATE DRAINAGE.
- 2 INCLUDES 17,895 CU. YDS. OF SUBCUT FOR COMPACTION AND UNIFORMITY OF SOILS.
- 3 FROM EXCESS MUCK MATERIAL.
- 4 PROVIDED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.
- 5 INCLUDES QUANTITIES FOR STREET APPROACHES, 19 CU. YDS. FOR ENTRANCE STA. 19+76 LT.
- 6 INCLUDES 612 CU YDS. FOR ROAD APPROACHES.
- 7 INCLUDES QUANTITIES FOR CR 66 BITUMINOUS CONSTRUCTION.
- 8 PROVIDED FOR ENTRANCE PAVING, PAYMENT BY SQ. YD. INCLUDES BITUMINOUS MATERIAL AND 5" CLASS 5 AGGREGATE MATERIAL.
- 9 FOR MANHOLE CONSTRUCTION STA. 23+24 2' RT.
- 10 PROVIDED FOR LOWERING STORM SEWER INLET STA. 22+54 LT.
- 11 PROVIDED FOR EROSION CONTROL, LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

STANDARD PLATES

PLATE NO.	DESCRIPTION
0004A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000K	REINFORCED CONCRETE PIPE
3006F	GASKET JOINT FOR R.C. PIPE
3040F	CORRUGATED METAL PIPE CULVERT
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123I	METAL APRON FOR C.S. PIPE
3145E	CONCRETE PIPE TIES
3221C	CORRUGATED STEEL PIPE COUPLING BAND
4002E	MANHOLE OR CATCHBASIN
4006K	MANHOLE OR CATCHBASIN
4101C	RING CASTING FOR MANHOLE OR CATCHBASIN
4110D	COVER CASTING FOR MANHOLE
7065C	BITUMINOUS CURB
8000I	STANDARD BARRICADES
9000B	APPROACHES AND ENTRANCES
9102C	SODDING AT PIPE CULVERT ENDS

SPECIAL DETAILS

THE CONTRACTOR SHALL REMOVE SUFFICIENT TOPSOIL MATERIAL WITHIN THE EXCAVATION AREAS AND AREAS ON WHICH EMBANKMENTS WILL BE PLACED, TO PROVIDE A 3" MINIMUM OF TOPSOIL DRESSING ON THE FINISHED SLOPES AND DITCH BOTTOMS. THIS WILL REQUIRE APPROXIMATELY 10,461 CU. YDS. OF TOPSOIL MATERIAL. THERE WILL BE NO TOPSOIL DRESSING REQUIRED IN AREAS IN WHICH MUCK FILL IS REQUIRED. SALVAGING & REPLACING TOPSOIL SHALL BE CONSIDERED AS INCIDENTAL TO THE EXCAVATION ITEMS AND NO ADDITIONAL COMPENSATION WILL BE MADE.

APPROXIMATELY 2,500 CU. YDS. OF EXCESS MUCK MATERIAL FOR FUTURE CONSTRUCTION SHALL BE STOCKPILED WITHIN THE RIGHT OF WAY, IN AREAS DESIGNATED ON THE PLAN SHEETS. THE EXCESS MUCK MAY BE STOCKPILED IN OTHER AREAS UPON THE APPROVAL OF THE ENGINEER. THIS MATERIAL WILL BE PAID FOR AS SALVAGE TOPSOIL IN STOCKPILE, ITEM NO. 2105.535, AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

APPROXIMATELY 3,316 CU. YDS. OF EXCESS MUCK MATERIAL SHALL BE USED AS TOPSOIL DRESSING IN YARD AREAS TO BE SODDED AND WILL ALSO BE USED TO SUPPLEMENT THE TOPSOIL REPLACEMENT AS NEEDED. THIS MATERIAL WILL BE PAID FOR AS SALVAGE TOPSOIL ITEM NO. 2105.535 AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

IN AREAS WHERE THE ROADBED IS TO BE CONSTRUCTED OVER LOWLAND AND SWAMP COVERED WITH FABRIC, THE GROUND SURFACE SHOULD BE DISTURBED AS LITTLE AS POSSIBLE WITH NO TOPSOIL BEING REMOVED FROM THESE AREAS. PRIOR TO PLACEMENT OF FABRIC MATERIAL, TREES WILL BE CUT AT GROUND LEVEL AND THE STUMPS WILL BE ALLOWED TO REMAIN.

EARTHWORK SUMMARY

EXCAVATION (CU. YD.)

* 211,121 { COMMON - 193,226 *
SUBCUT FOR COMPACTION - 17,895

15,489 - MUCK

EMBANKMENT (CU. YD.)

* 324,893 { REGULAR FILL - 150% SHRINKAGE FACTOR
MUCK & FABRIC FILL AREAS - 175% SHRINKAGE FACTOR

113,772 - GRANULAR BORROW

9,673 - MUCK - 125% SHRINKAGE FACTOR

* 10,461 - TOPSOIL FILL

3,316 - SALVAGE TOPSOIL (EXCESS MUCK EXC.)

2,500 - SALVAGE TOPSOIL IN STOCKPILE (EXCESS MUCK EXC.)

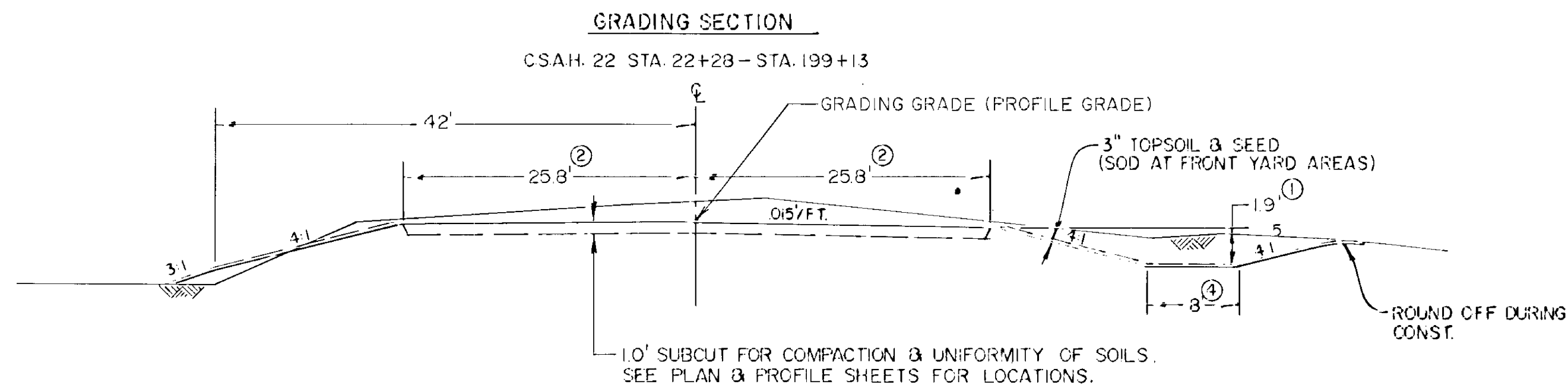
* INCLUDES QUANTITIES FOR TH.47 CONSTRUCTION

BITUMINOUS PAVEMENT REMOVAL INCLUDED IN COMMON EXCAVATION QUANTITIES AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

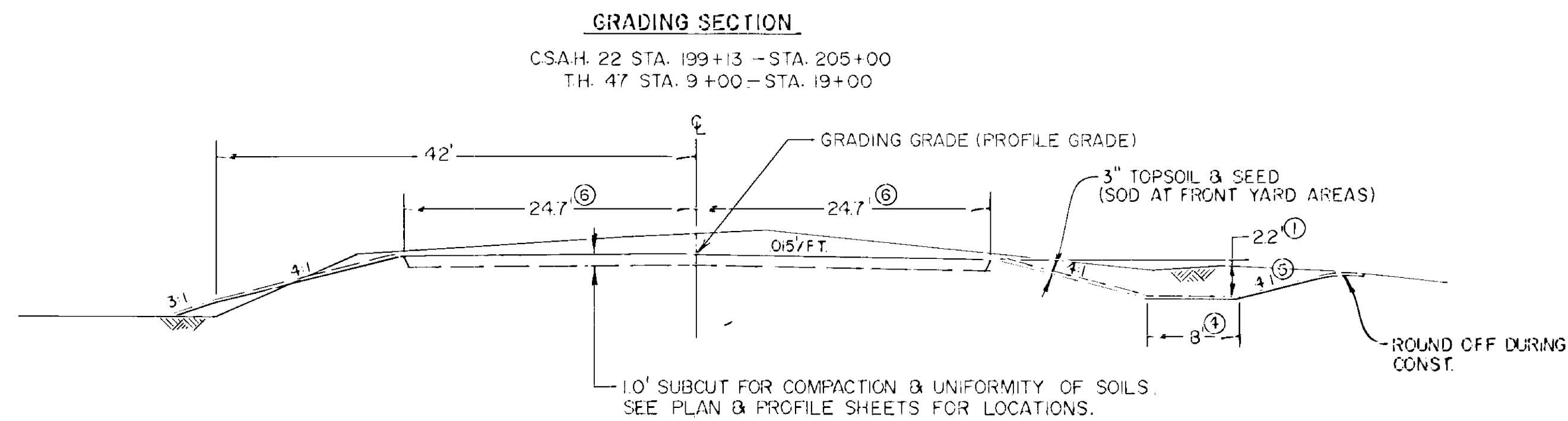
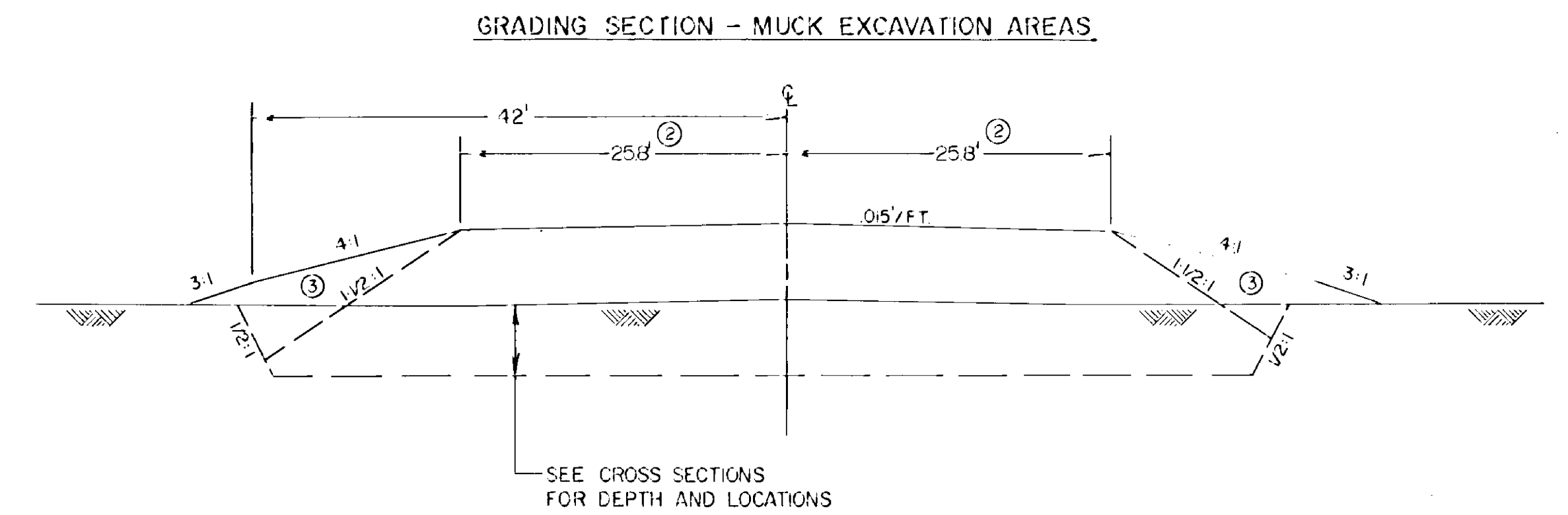
BASIS OF PLANNED QUANTITIES

- 2331 PLANT MIXED BASE COURSE BITUMINOUS MIXTURE 110 LBS. / S.Y. PER 1" THICKNESS. BITUMINOUS MATERIAL FOR MIXTURE 5.3 % BY WEIGHT.
- 2331 PLANT MIXED BINDER COURSE BITUMINOUS MIXTURE 110 LBS. / S.Y. PER 1" THICKNESS. BITUMINOUS MATERIAL FOR MIXTURE 5.3 % BY WEIGHT.
- 2341 PLANT MIXED WEARING COURSE BITUMINOUS MIXTURE 110 LBS. / S.Y. PER 1" THICKNESS. BITUMINOUS MATERIAL FOR MIXTURE 6.5 % BY WEIGHT.
- 2357 BITUMINOUS MATERIAL FOR TACK COAT 0.05 GAL. PER S.Y.
- 2575 COMMERCIAL FERTILIZER ANALYSIS 10-10-10 500# PER ACRE ON ALL SEED & SOD AREAS

Rev. 4-23-57
Rev. 5-27-57



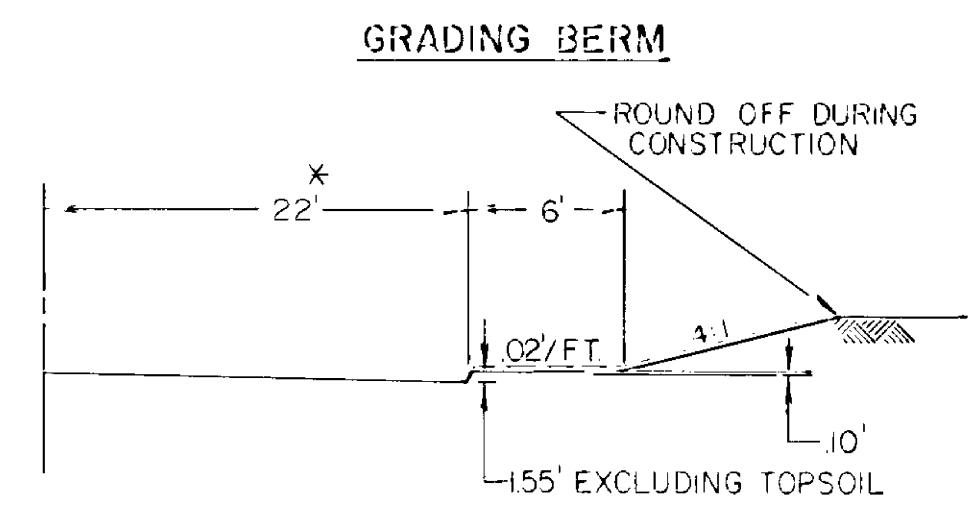
- ① FOR SPECIAL DITCHES SEE PLANS & CROSS SECTIONS
- ② 48' WIDER AT RT TURN LANES & BY-PASS LANES
- ③ FILL WITH SWAMP EXC. MATERIAL
- ④ FOR MODIFIED DITCH WIDTHS SEE CROSS SECTIONS
- ⑤ SEE CROSS SECTIONS FOR MODIFIED DITCH SLOPES
- ⑥ 29.3' FOR RIGHT TURN - BY-PASS LANES



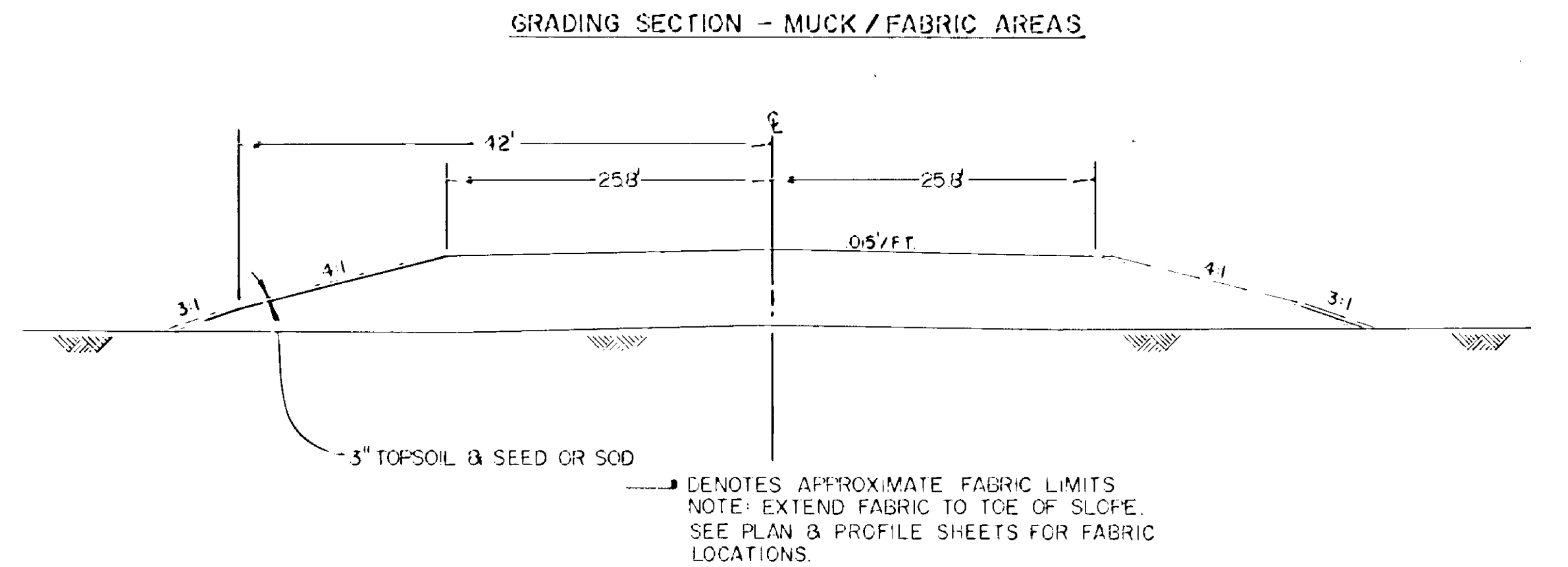
MUCK FABRIC LOCATIONS

STATION TO STATION	QUANTITY (SQ. YD.)	STATION TO STATION	QUANTITY (SQ. YD.)
40+10-50+50 LT&RT.	12,082	112+50-120+50 LT&RT.	10,035
67+00-70+22 LT&RT.	1,619	121+50-125+50 LT&RT.	5,376
73+50-81+00 LT&RT.	9,552	129+50-134+00 LT&RT.	6,429
96+90-99+00 LT&RT.	1,155	134+50-140+00 LT&RT.	2,897
100+50-105+00 LT&RT.	5,548	151+00-155+00 LT&RT.	4,607

TOTAL ESTIMATED FABRIC QUANTITY 59,300 SQ. YD.
NOTE FABRIC LOCATIONS ARE APPROXIMATE.
FINAL LOCATIONS TO BE DETERMINED
IN THE FIELD.

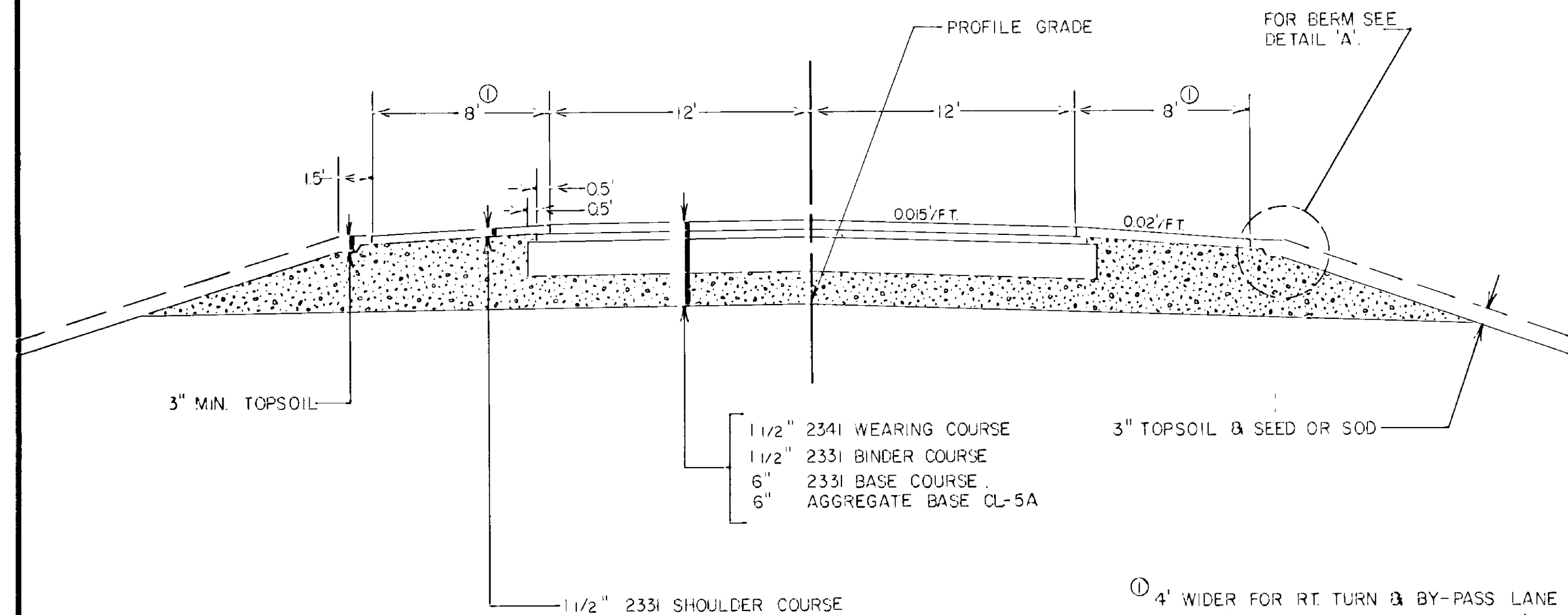


x 6' WIDER FOR RT. TURN & BY-PASS LANE AREAS.



TYPICAL BASE & SURFACING SECTION

TH. 47 STATION 9+00 TO 19+00
CSAH. 22 STATION 199+13 TO 205+00



CONSTRUCTION NOTES

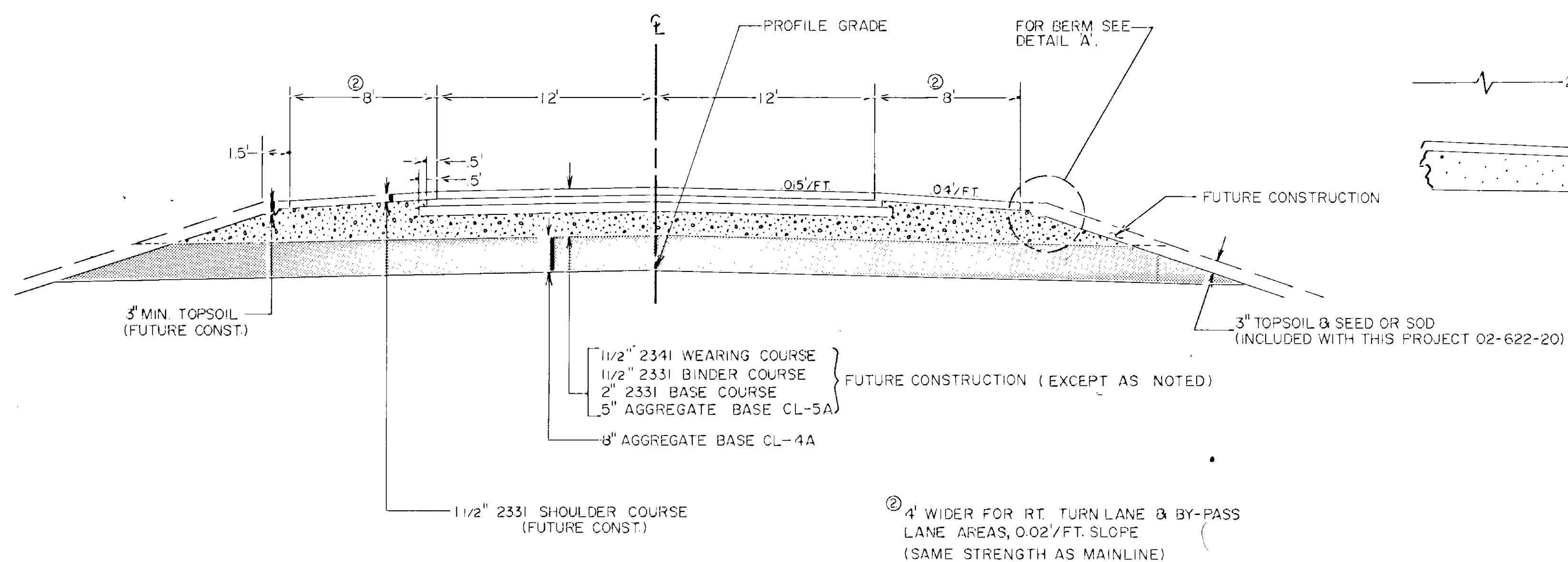
BITUMINOUS CONSTRUCTION INCLUDED WITH THIS PROJECT SHALL INCLUDE:
C.S.A.H. 22 FROM STA. 199+13 TO STA. 205+00
TH. 47 FROM STA. 9+00 TO STA. 19+00
THE INTERSECTION WITH C.R. 66 WILL BE RESTORED TO THE FULL BASE & BITUMINOUS SECTION TO MAINTAIN TRAFFIC ON C.R. 66.
CL-5A-AGGREGATE CONST. INCLUDED WITH THIS PROJECT SHALL INCLUDE
C.S.A.H. 22 FROM STA. 194+00 TO STA. 199+13-5" THICK
ALL INTERSECTIONS BETWEEN C.S.A.H. 22 & BURNS TOWNSHIP STREETS-5" THICK.
RESIDENTIAL ENTRANCE STA. 194+76 ± LT. TO BE CONSTRUCTED WITH 3" TO THE LIMITS OF CONSTRUCTION.
CL-4A-AGGREGATE CONST. INCLUDED WITH THIS PROJECT SHALL INCLUDE:
C.S.A.H. 22 FROM STA. 22+28 TO STA. 199+13-8" THICK.
SEE PLAN & PROFILE SHEETS FOR LIMITS & LOCATIONS OF BIT & AGG. CONST.

ENTRANCE PAVING

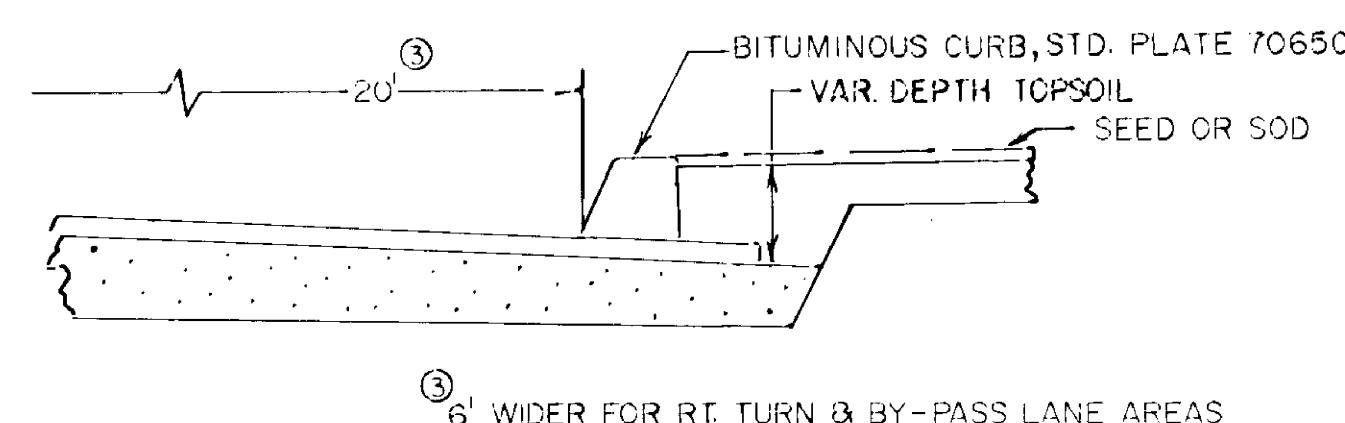
STATION	LOCATION	REMARKS
29+00	LT.	FIELD ENT. PAVE 2' APRON
38+00	RT.	①
51+00	LT.	①
61+00	RT.	①
72+00	LT.	①
86+00	LT.	①
87+00	RT.	①
89+00	RT.	①
90+00	LT.	①
97+00	RT.	①
110+16	LT.	①
110+16	RT.	①
141+50	LT.	①
150+00	RT.	①
183+00	LT.	①
186+00	RT.	①
187+00	LT.	①
191+60	LT.	①
194+76	LT.	RES. ENT. PAVE TO R. / W. 100 SQ. YDS.
200+71	RT.	①
203+00	LT.	RES. ENT. PAVE TO MATCH EXISTING 64 SQ. YDS.
203+81	RT.	①
204+24	LT.	FARM ENT. PAVE TO END OF RADIUS 64 SQ. YDS.

TYPICAL BASE & SURFACING SECTION

CSAH. 22 STATION 22+28 TO 199+13

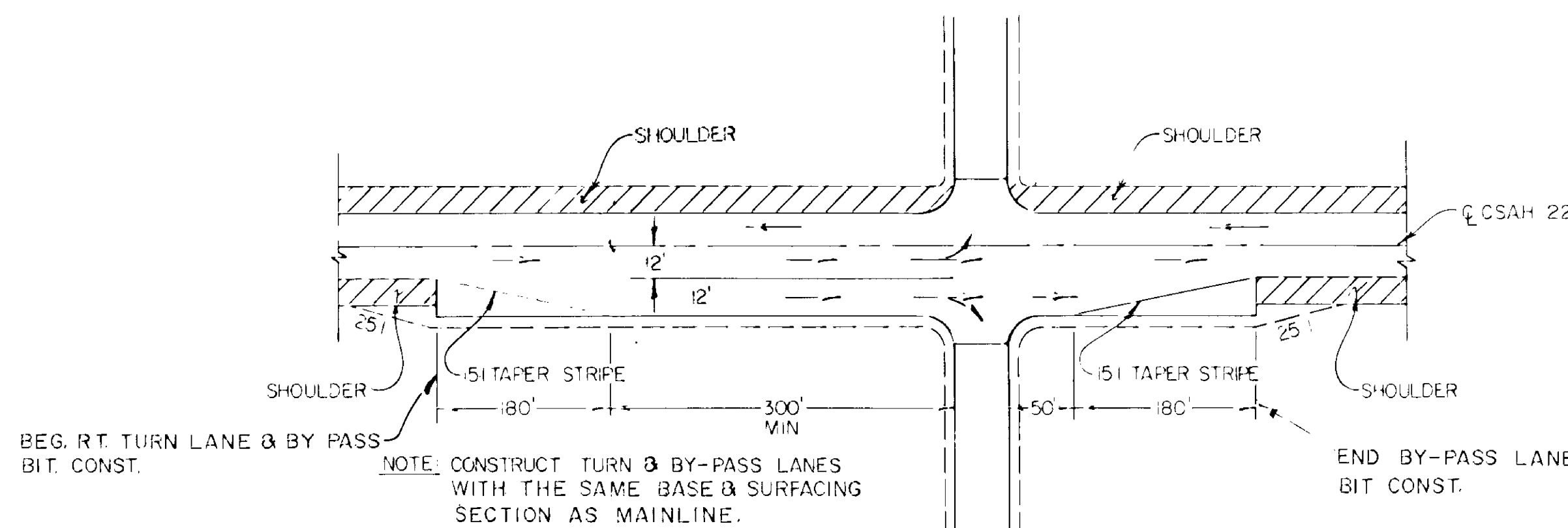
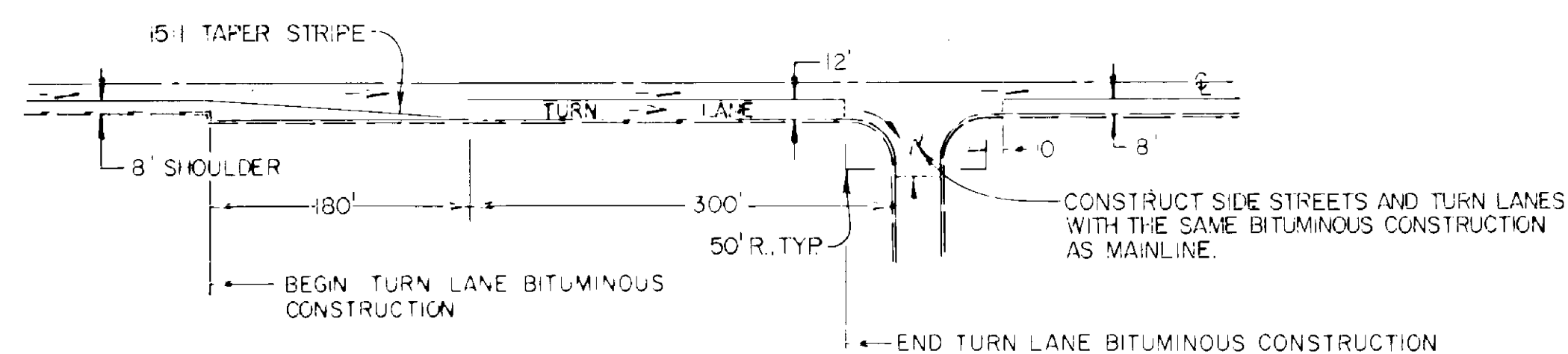


DETAIL "A"



COMBINED RIGHT TURN AND BY-PASS LANE

TYPICAL RIGHT TURN LANE

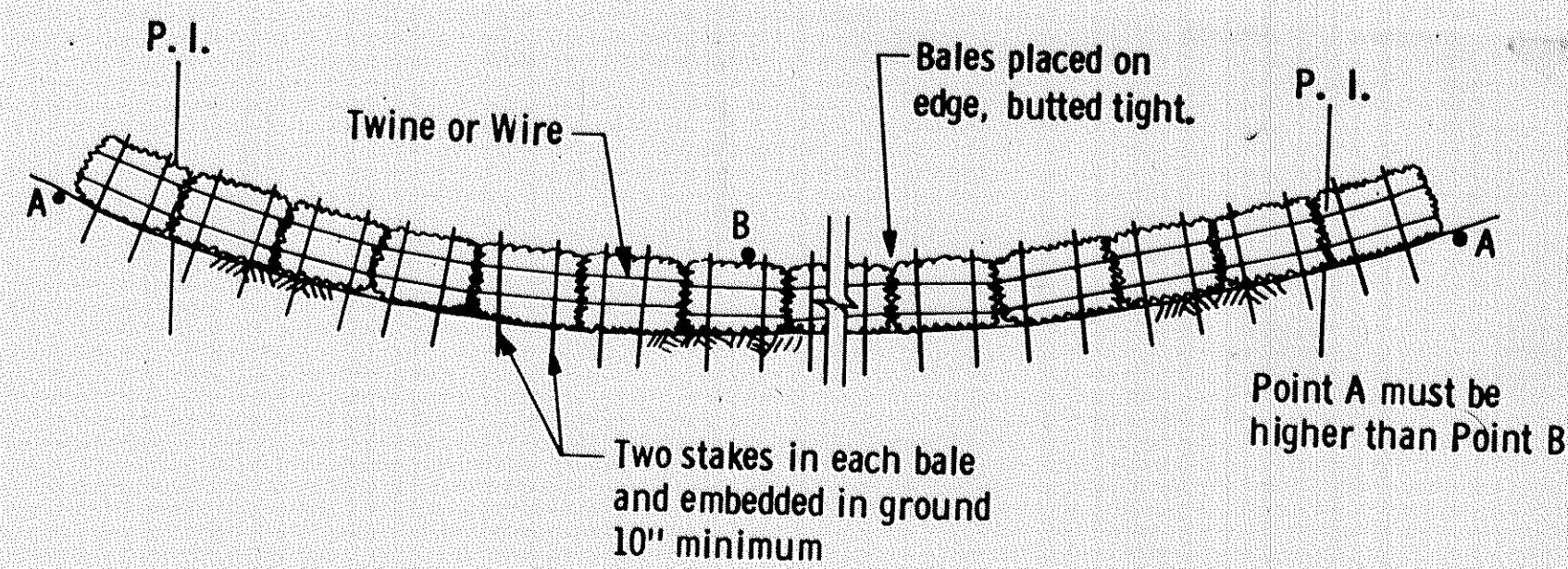


① 2' x 60' BITUMINOUS APRON SHALL BE INCIDENTAL TO SHOULDER PAVING.

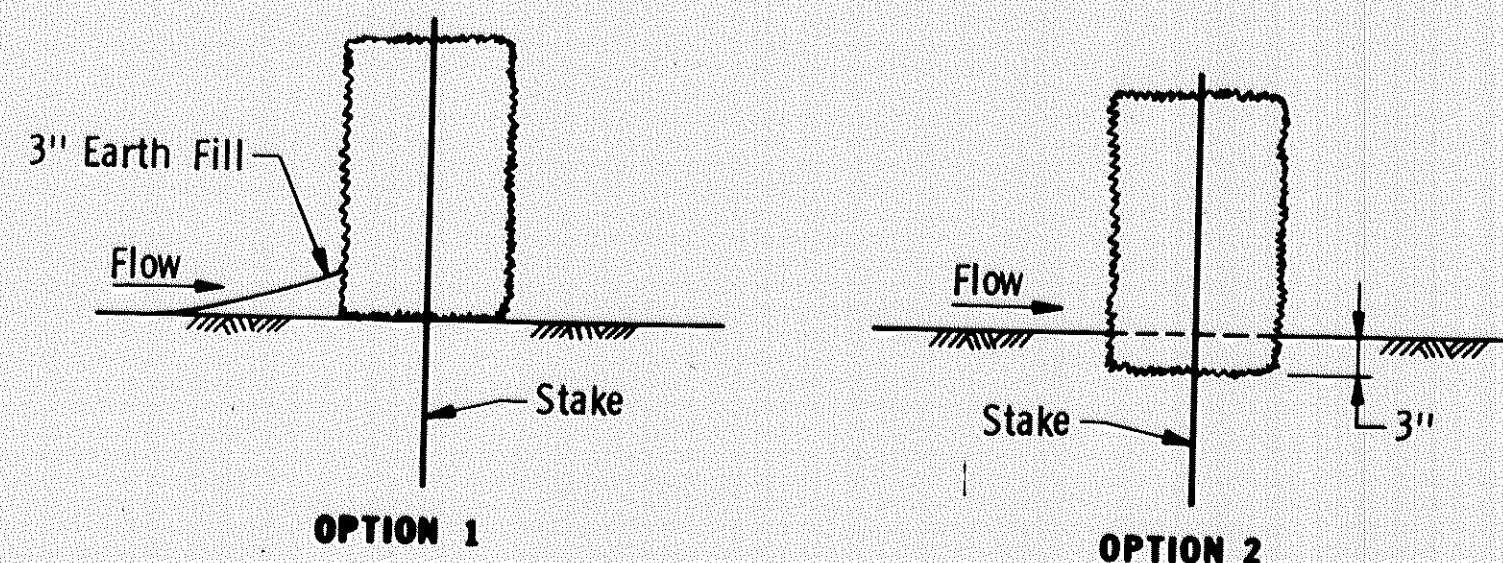
BALE CHECKS

STATION	① LOCATION	QUANTITY
39+00	LT. & RT.	10
51+00	LT. & RT.	10
63+00	LT. & RT.	10
95+00	LT. & RT.	10
100+50	LT. & RT.	10
110+50	LT. & RT.	10
141+00	LT. & RT.	10
150+00	LT. & RT.	10
160+50	LT. & RT.	10
170+00	LT. & RT.	10
176+50	LT. & RT.	10
179+50	RT.	15
180+00	LT.	15
181+00	LT. & RT.	30
182+50	LT. & RT.	10
191+50	LT. & RT.	10
TOTAL		190

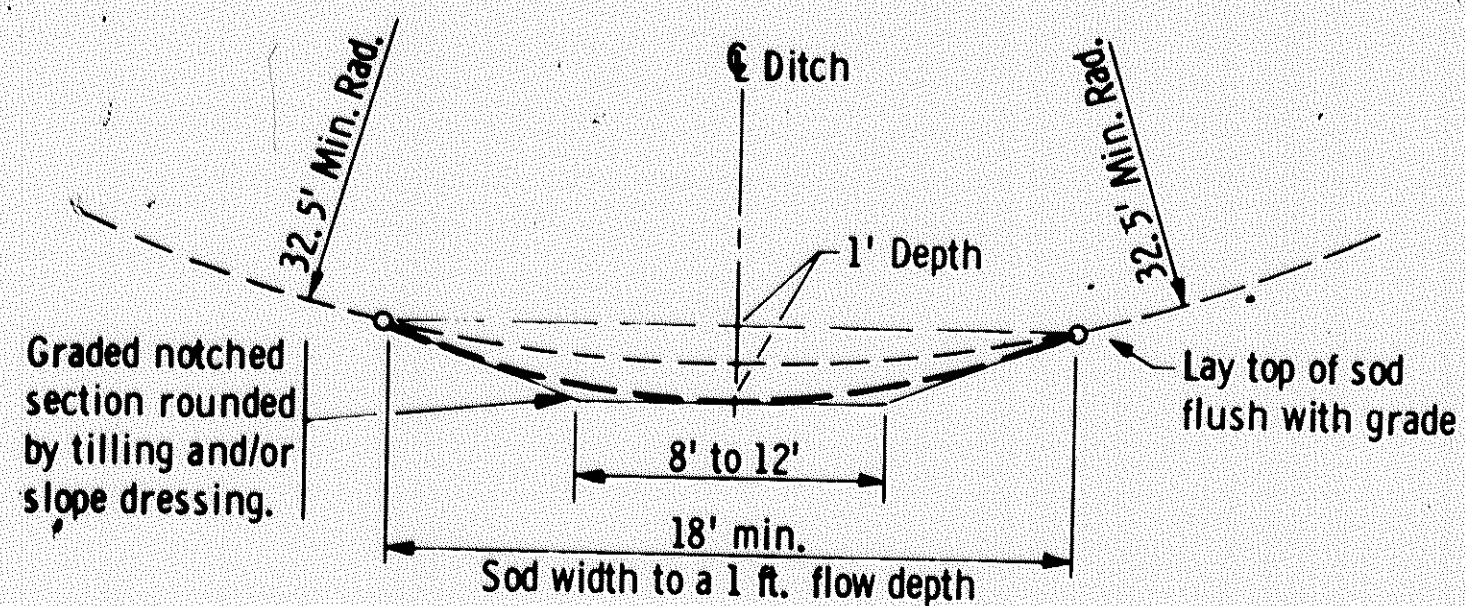
① APPROXIMATE LOCATIONS, EXACT LOCATIONS TO BE DETERMINED DURING CONSTRUCTION.



BALE HAY OR STRAW DITCH CHECK

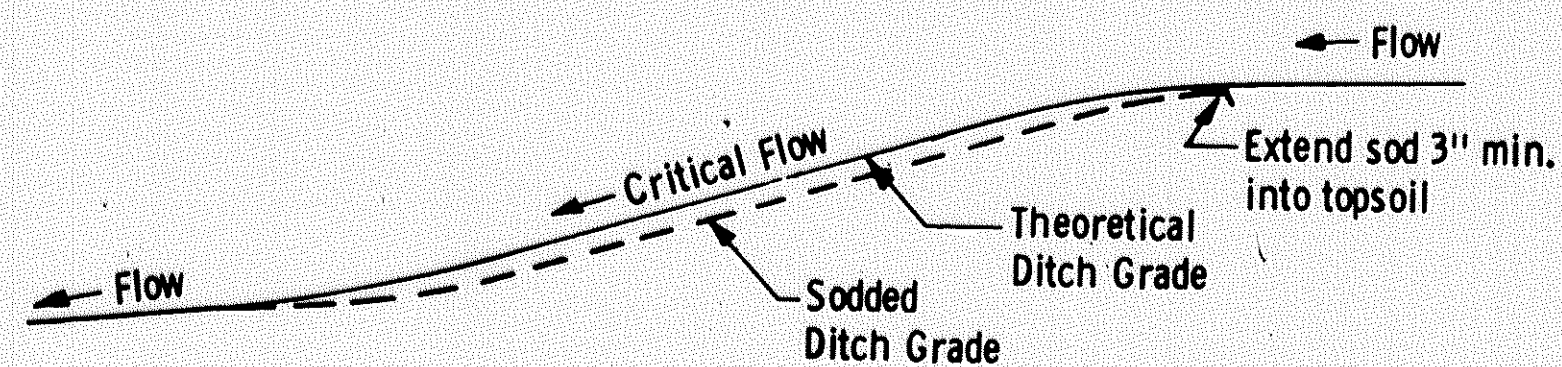


DITCH CHECK SECTIONS



SODDED DITCH CROSS SECTION

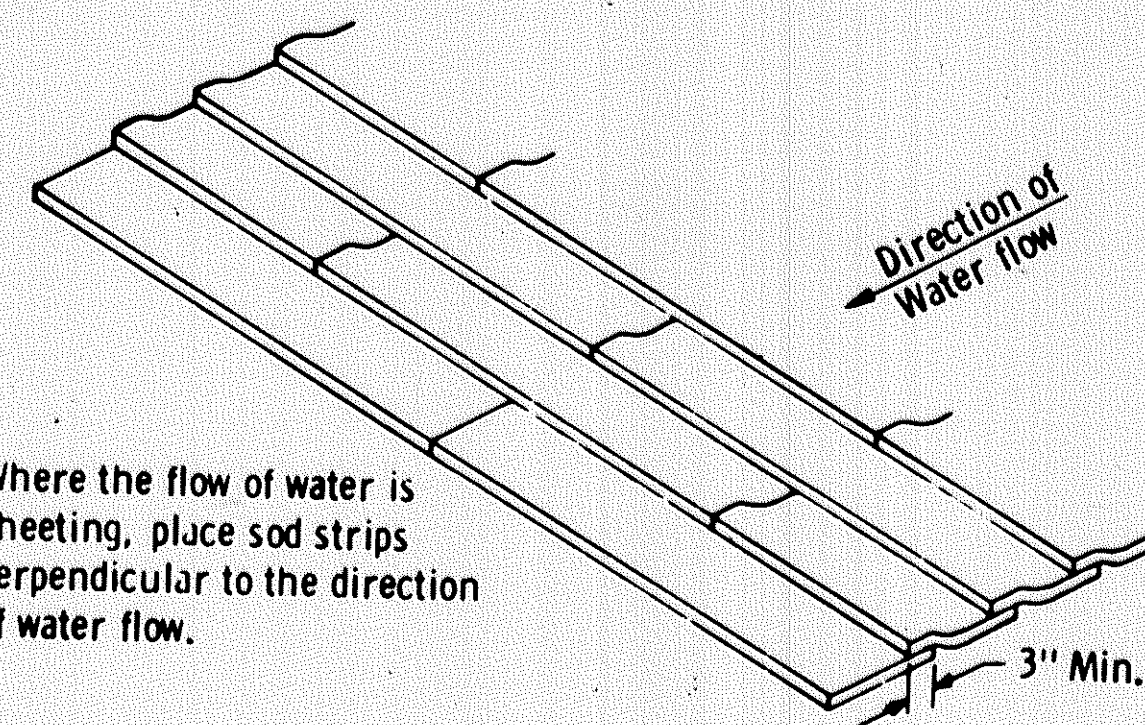
Ditches having a minimum radius of 32.5 feet and requiring sod shall be constructed according to the above details. Where ditch radius is less than 32.5 feet, notching is not required. Sod a minimum of 18 feet in width.



DITCH PROFILE

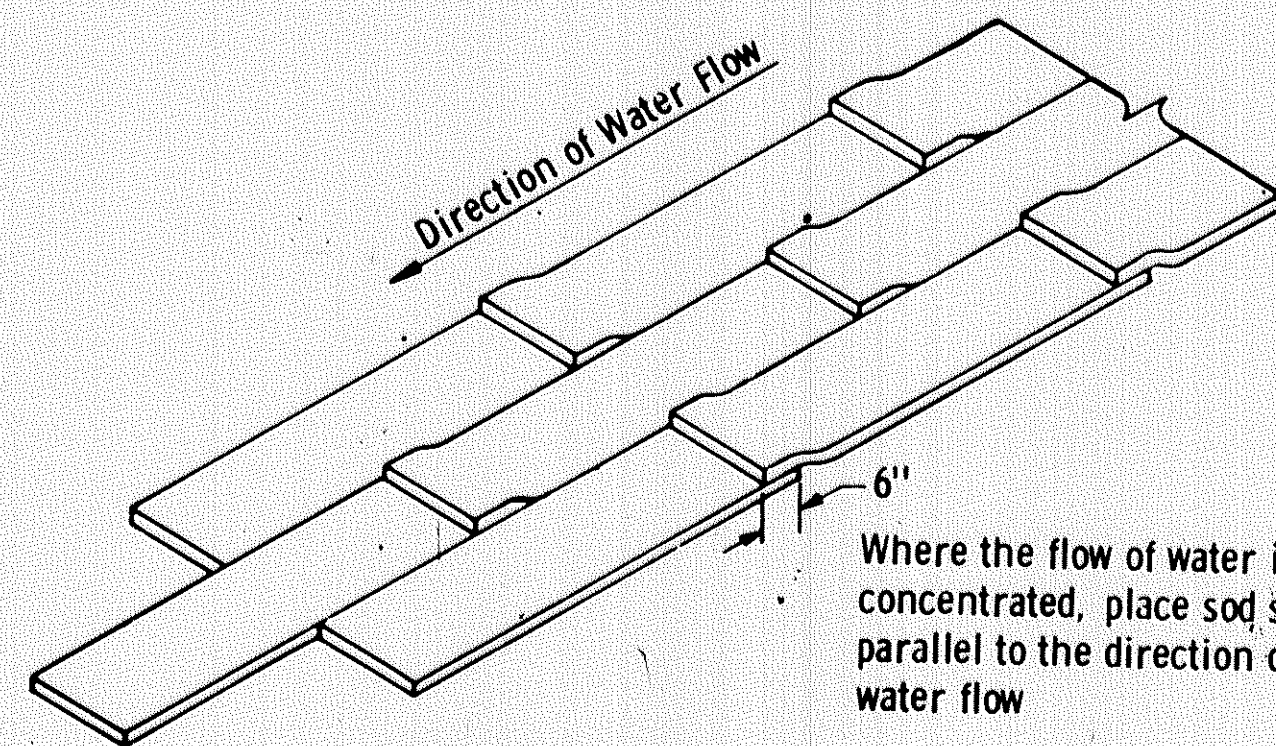
NOTE: APPLIES TO DITCH GRADES 2.0% OR GREATER.

SODDED DITCH DETAILS



SHINGLING SOD

Where the flow of water is sheeting, place sod strips perpendicular to the direction of water flow.

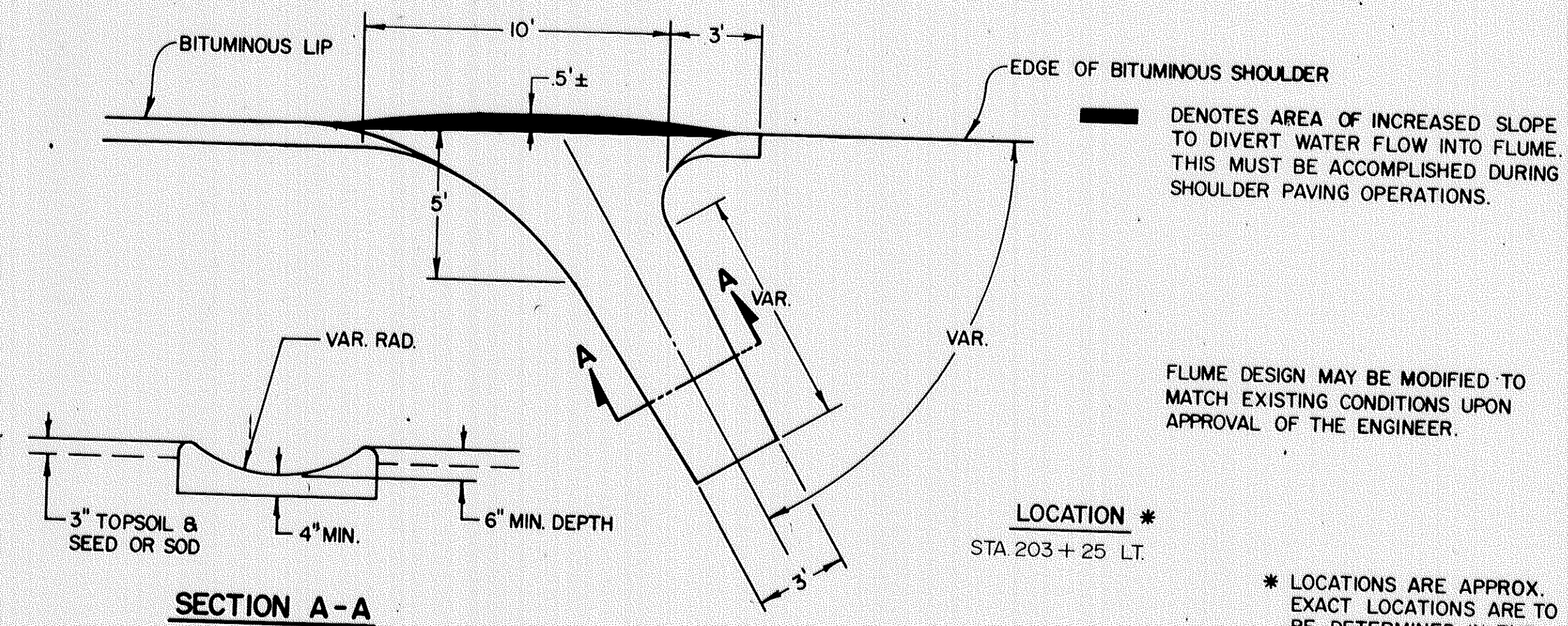


OVERLAPPING SOD

Where the flow of water is concentrated, place sod strips parallel to the direction of water flow

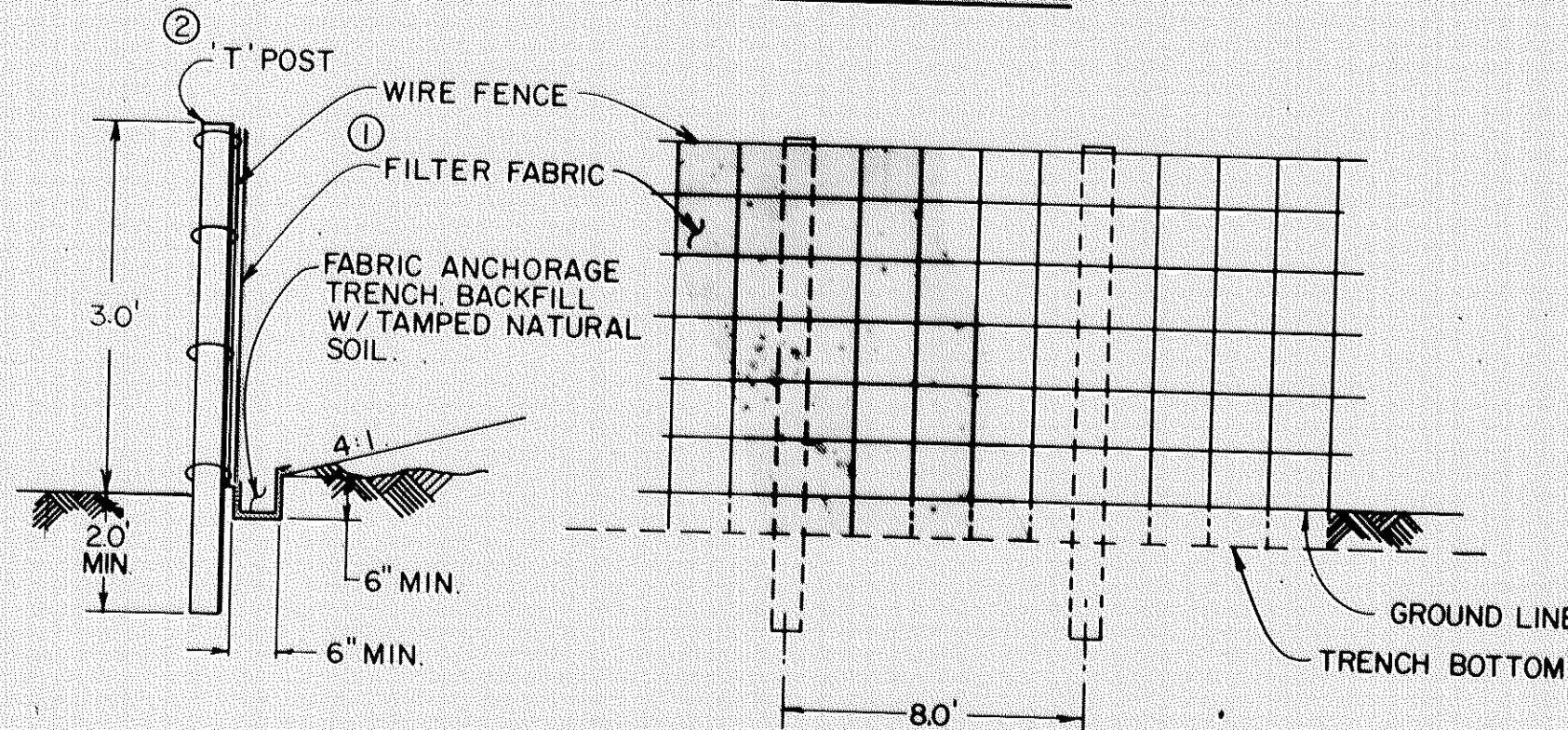
SPECIAL SOD PLACEMENT TECHNIQUES

TYPICAL BITUMINOUS FLUME



SECTION A-A

SILT FENCE DETAIL



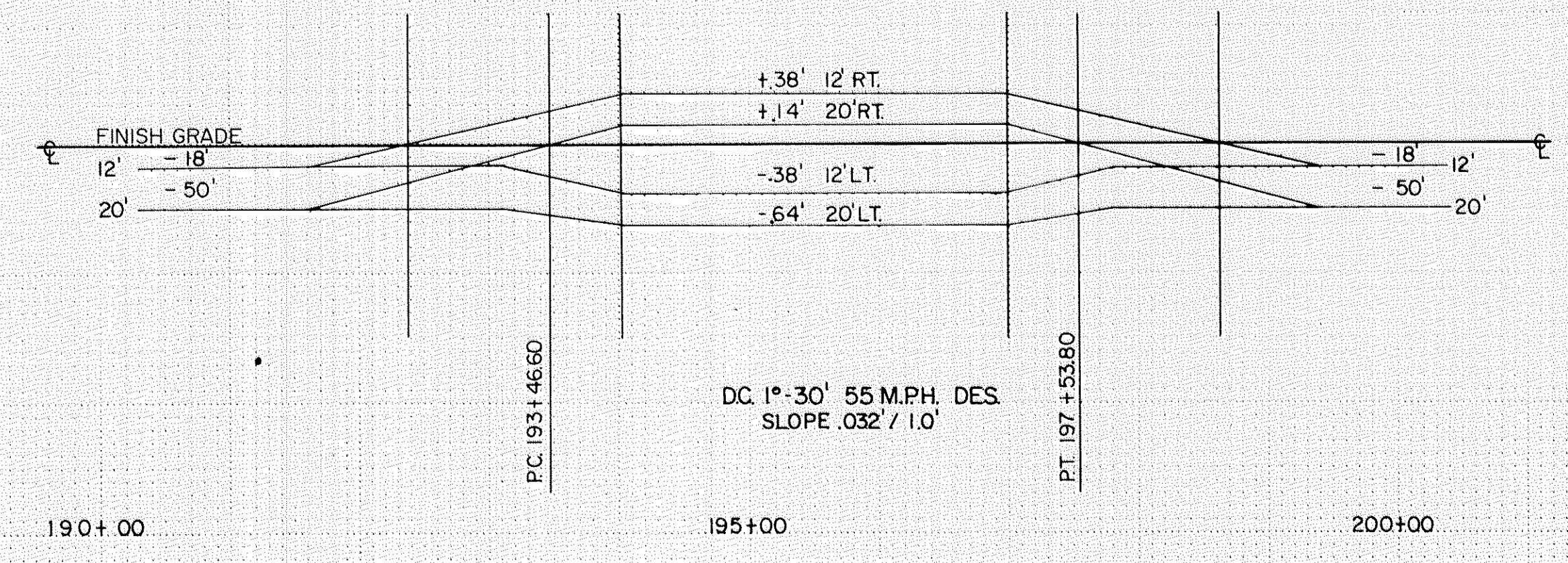
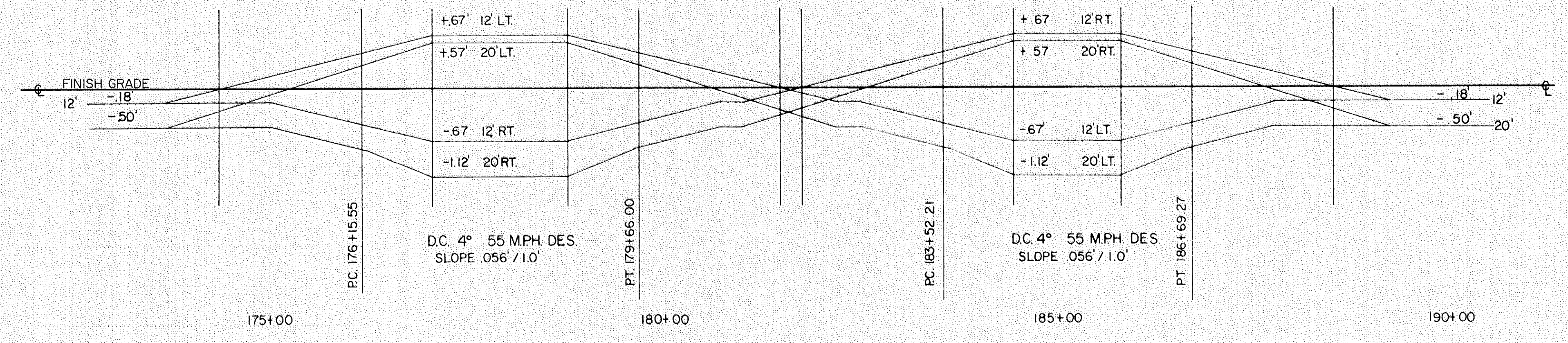
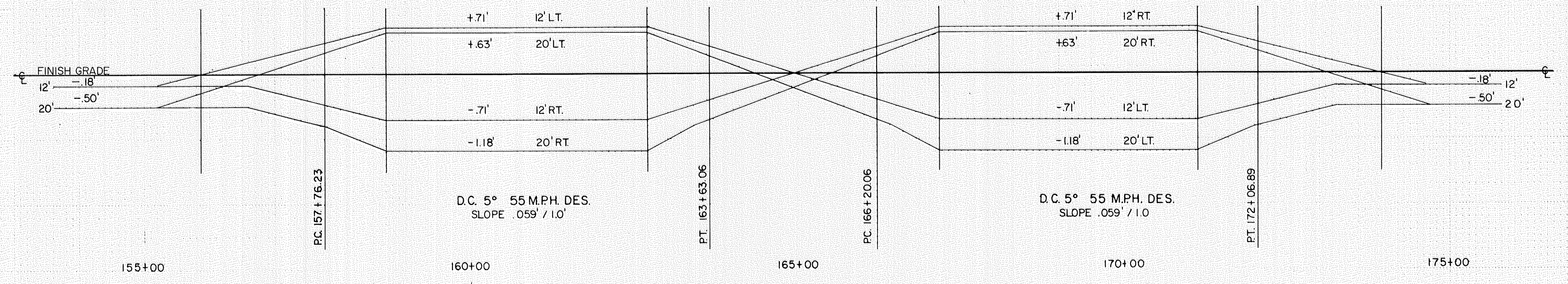
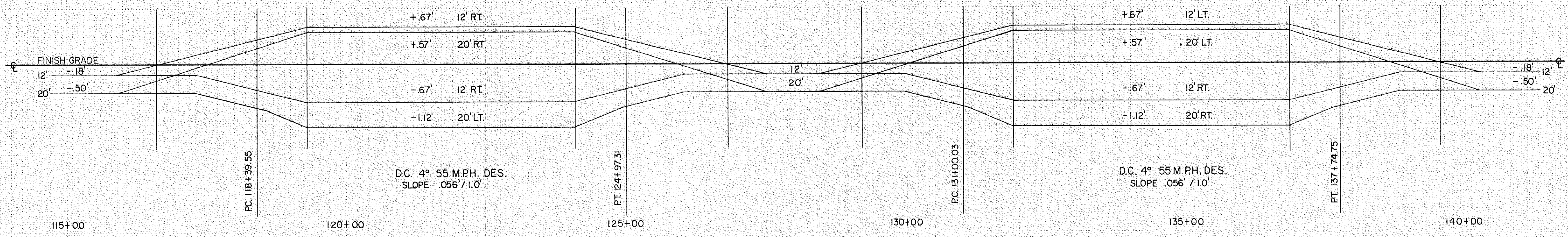
- FABRIC SHALL BE MIRAFI 100 X TREVIRA 1115, SUPAC SNP (UV) OR APPROVED EQUAL AS DESIGNATED BY THE ENGINEER. WIRE MESH REINFORCEMENT SHALL HAVE MIN. 14-1/2 GA WIRE WITH A MAX. MESH SPACING OF 6". ATTACH WIRE MESH TO STEEL POST W/ TIE WIRES. ATTACH FILTER FABRIC TO WIRE MESH W/ HOG RINGS.
- FENCE POST TO BE SET AT TOE OF SLOPE.

NOTE: LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

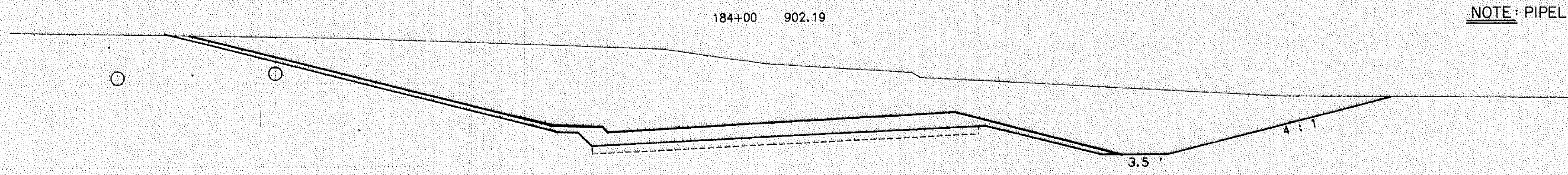
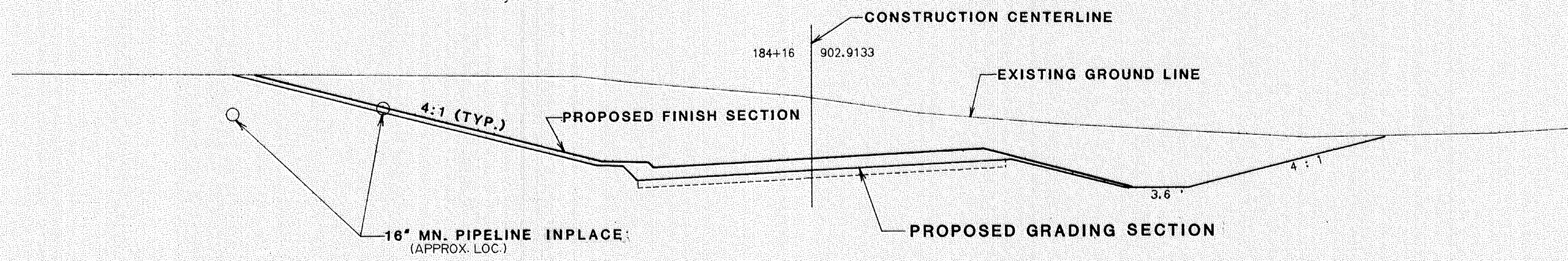
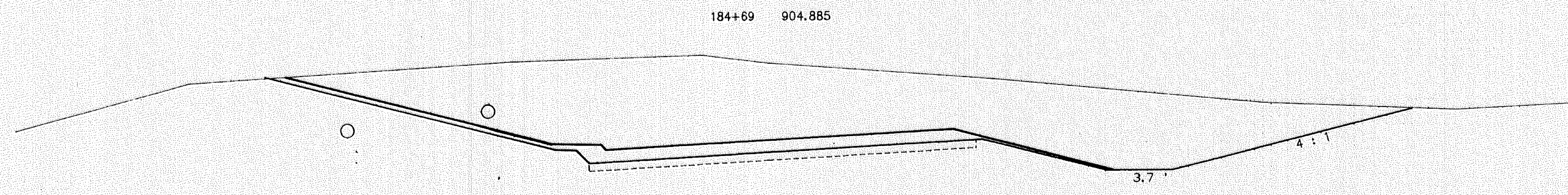
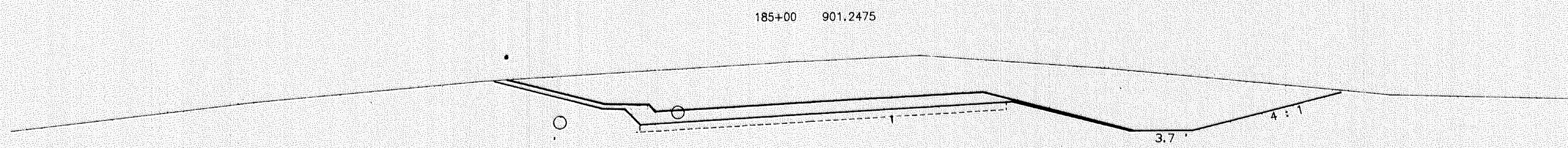
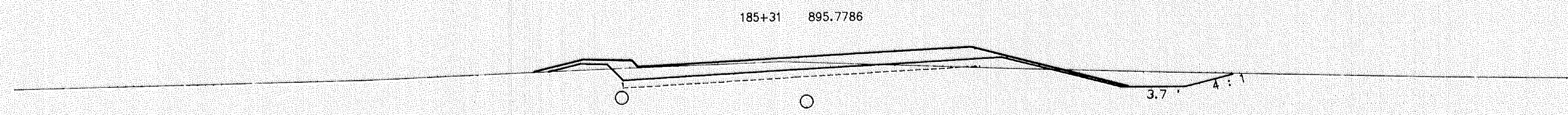
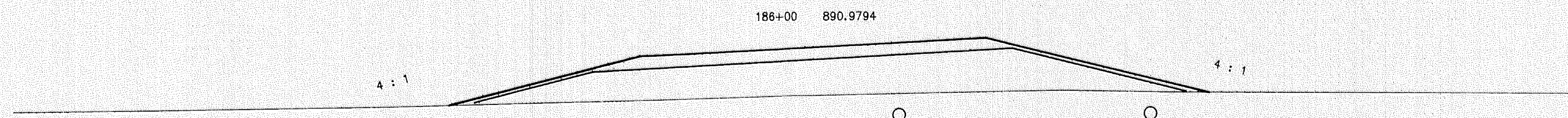
SODDING

STATION	LOCATION	SQ. YDS.	TOPSOIL
22+28 TO 25+00	SLOPE AND DITCH RT.	846	88 C.Y.
92+00 TO 95+50	① DITCH BOTTOM LT. & RT.	1244	
98+00 TO 100+00	① DITCH BOTTOM LT.	356	
98+00 TO 101+50	① DITCH BOTTOM RT.	622	
147+00 TO 149+50	① DITCH BOTTOM LT.	444	
147+00 TO 151+00	① DITCH BOTTOM RT.	711	
157+76 TO 163+63	② 6' WIDE RT.	391	
166+20 TO 172+07	② 6' WIDE LT.	391	
175+00 TO 176+50	① DITCH BOTTOM LT.	267	
175+00 TO 177+50	① BERM & DITCH BOTTOM RT.	444	
176+16 TO 179+66	② 6' WIDE RT.	233	
183+52 TO 186+69	② 6' WIDE LT.	211	
193+46 TO 196+50	BERM & BACKSLOPE LT.	936	98 C.Y.
200+20 TO 205+00	BERM, DITCH & SLOPES LT.	853	89 C.Y.
CULVERT ENDS		SEE DRAINAGE CHART	
		02 622 20 TOTALS	919 275 C.Y.
		T.H. #47	
14+50 TO 16+50	SLOPES & DITCH RT.	578	60 C.Y.
TOTAL		1497	335 C.Y.

- SOD DITCH BOTTOM & 4' WIDE ON SLOPES IN AREAS WITH GRADES IN EXCESS OF 2.5%
- SOD 6' WIDE ALONG BITUMINOUS SHOULDER ON INSIDE OF CURVES.
- TOPSOIL SHALL BE OBTAINED FROM EXCESS MUCK EXCAVATION MATERIAL. THIS WORK SHALL BE PAID FOR UNDER ITEM N° 2105.535 SALVAGED TOPSOIL.



SUPERELEVATION CHART

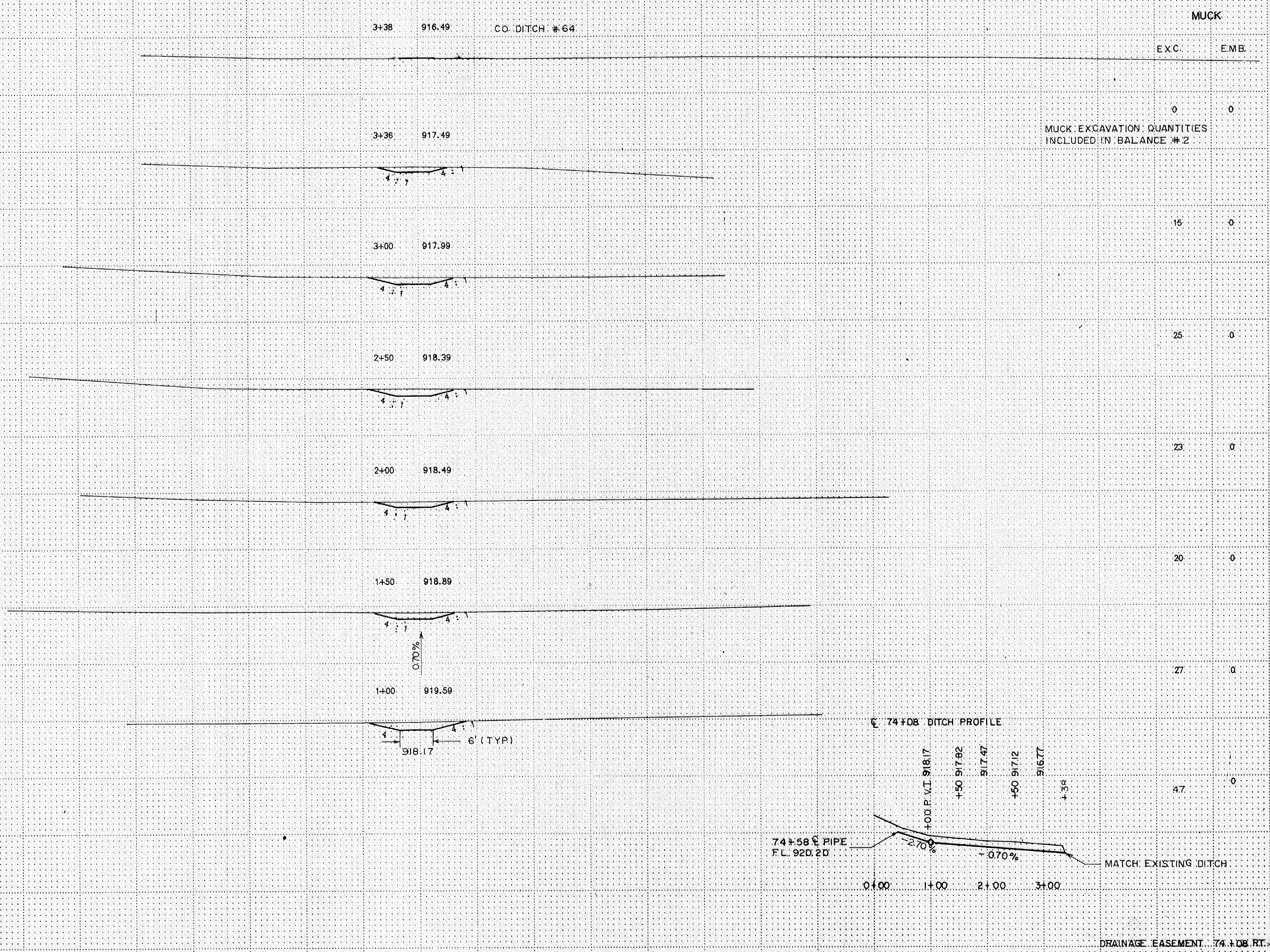


NOTE: PIPELINE TO BE RELOCATED BY MINN. PIPELINE CO.

MINN. PIPELINE CROSSING

NOTES

QUANTITIES ARE INCLUDED IN THE TURF ESTABLISHMENT ITEMS FOR THE RESTORATION OF AREAS DISTURBED BY THE DITCH CONSTRUCTION.



MUCK
EXC. EMB.

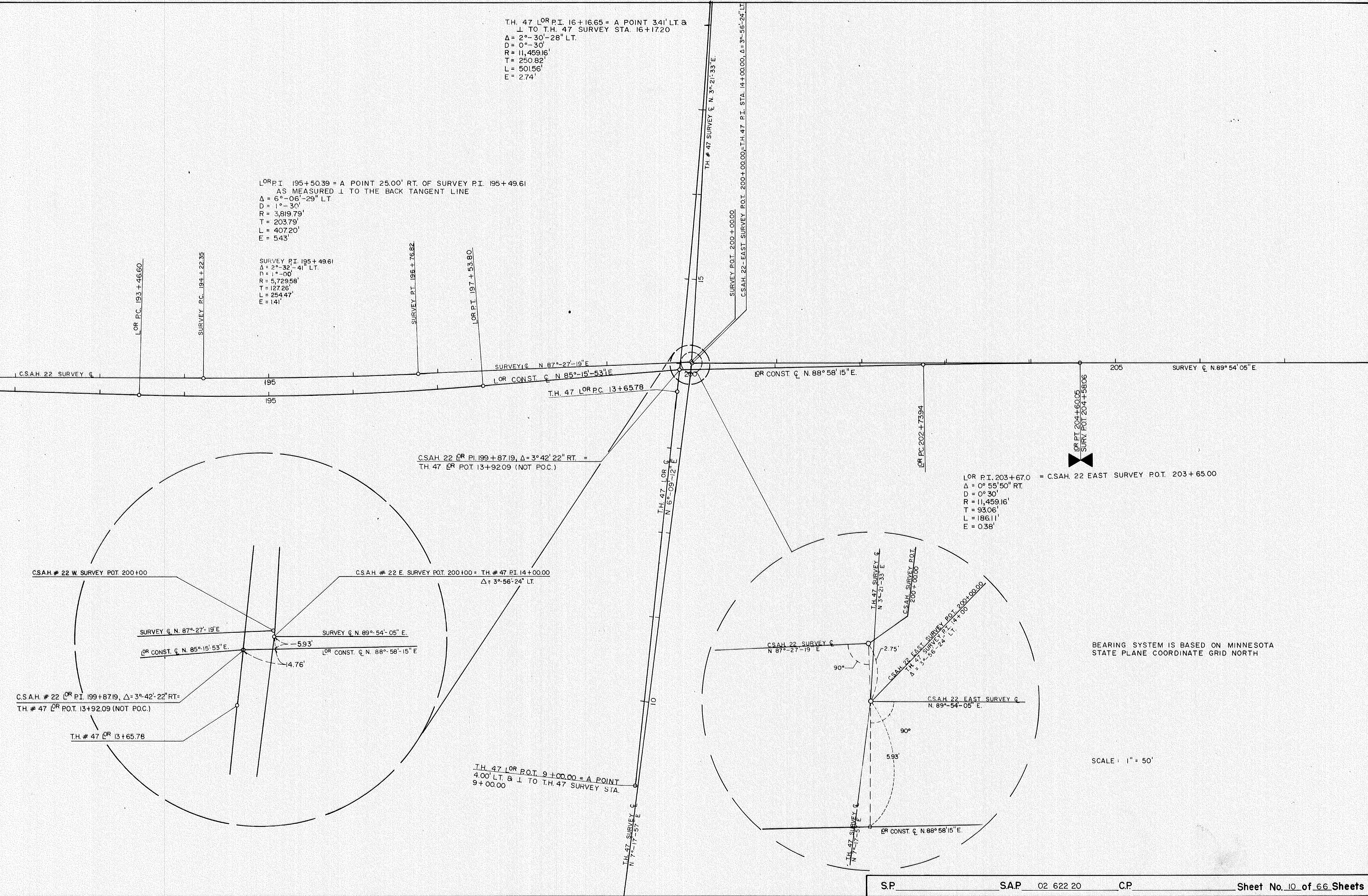
MUCK EXCAVATION QUANTITIES INCLUDED IN BALANCE #2

Station	Elevation	Muck Excavation (EXC.)	Muck Embankment (EMB.)
3+38	916.49	0	0
3+36	917.49	15	0
3+00	917.99	25	0
2+50	918.39	23	0
2+00	918.49	20	0
1+50	918.89	27	0
1+00	919.59	47	0

T.H. 47 LOR P.I. 16+16.65 = A POINT 341' LT &
 ⊥ TO T.H. 47 SURVEY STA. 16+17.20
 $\Delta = 2^{\circ}-30'-28''$ LT.
 $D = 0^{\circ}-30'$
 $R = 11,459.16'$
 $T = 250.82'$
 $L = 501.56'$
 $E = 2.74'$

LOR P.I. 195+50.39 = A POINT 25.00' RT. OF SURVEY P.I. 195+49.61
 AS MEASURED ⊥ TO THE BACK TANGENT LINE
 $\Delta = 6^{\circ}-06'-29''$ LT
 $D = 1^{\circ}-30'$
 $R = 3,819.79'$
 $T = 203.79'$
 $L = 407.20'$
 $E = 5.43'$

SURVEY P.I. 195+49.61
 $\Delta = 2^{\circ}-32'-41''$ LT.
 $D = 1^{\circ}-00'$
 $R = 5,729.58'$
 $T = 127.26'$
 $L = 254.47'$
 $E = 1.41'$



LOR P.I. 203+67.0 = C.S.A.H. 22 EAST SURVEY POT. 203+65.00
 $\Delta = 0^{\circ} 55' 50''$ RT.
 $D = 0^{\circ} 30'$
 $R = 11,459.16'$
 $T = 93.06'$
 $L = 186.11'$
 $E = 0.38'$

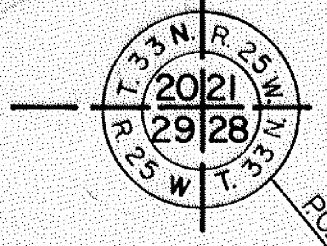
BEARING SYSTEM IS BASED ON MINNESOTA
 STATE PLANE COORDINATE GRID NORTH

SCALE: 1" = 50'

BM 1 ELEV. 945.63
DBL. SPIKE IN 30' OAK
STA. 26+25 RT. 3'

BM 3 ELEV. 926.02
DBL. SPIKE QUAD 6th ASH
STA. 44+60 RT. 6'

* SALVAGE 12" APRON REMOVE 12" X 8" R.C.P.
F & I. 12" X 12" R.C.P., INSTALL 12" R.C.P. APRON
FL. ELEV. 934.80



APPROXIMATE LIMITS OF FABRIC PLACEMENT.
EXACT LOCATIONS TO BE DETERMINED IN THE
FIELD DURING CONSTRUCTION (TYP).

NOTE: STA 23+24, 2' RT.
6" PVC VENT PIPE INPL.
REMOVE VENT & CONST. M.H.
DESIGN C OR G.

F & I. 24" X 74" R.C.P.
F & I. 2-24" R.C.P. APRONS
STA. 30+00

SAWCUT
75' LT. OF
CONST. C

SAWCUT 75'
RT. OF CONST. C

BEGIN S.A.P. 02-622-20 CONST.
P.O.T. STA. 22+28.00

I-S-BR
CHURCH

BIT LOT

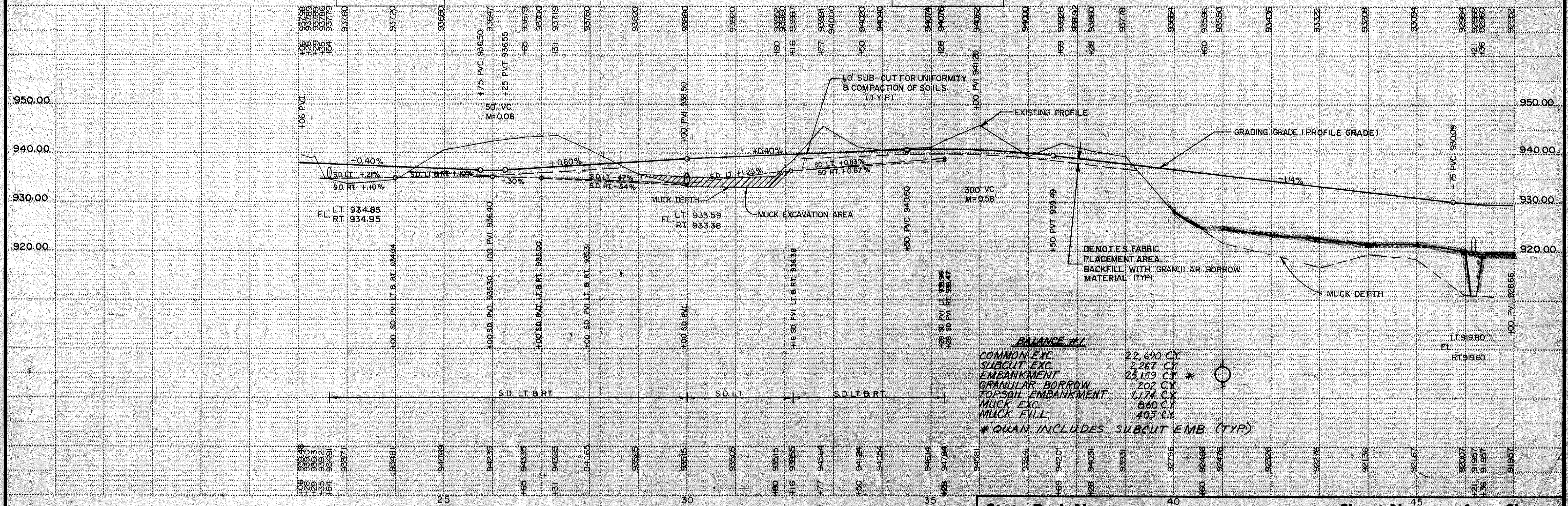
CLAY DRAIN TILE INPL.
F & I. 18" X 66" R.C.P.
F & I. 2-18" R.C.P. APRONS
STA. 22+54

FRAME 700-7
GRATE 712

F & I. 48" X 90" R.C.P.
F & I. 2-48" R.C.P. APRONS.
STA. 46+21

BM. 0 ELEV. 945.09
TOP SW COR. BOT. STEP
STA. 23+05 RT. 222'

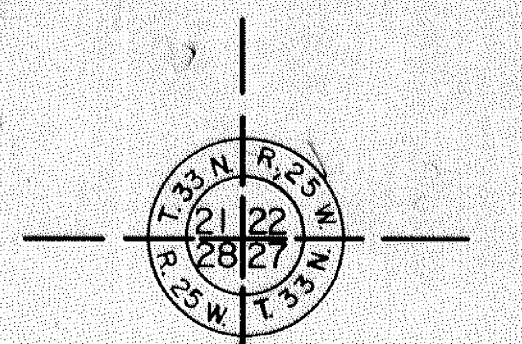
BM 2 ELEV. 948.34
DBL. SPIKE IN R.R. TIE
STA. 35+24 RT. 3'



BALANCE #1
COMMON EXC. 22,690 CY
SUBCUT EXC. 2,267 CY
EMBANKMENT 25,159 CY *
GRANULAR BORROW 202 CY
TOPSOIL EMBANKMENT 1,174 CY
MUCK EXC. 860 CY
MUCK FILL 405 CY
* QUAN. INCLUDES SUBCUT EMB. (TYP)

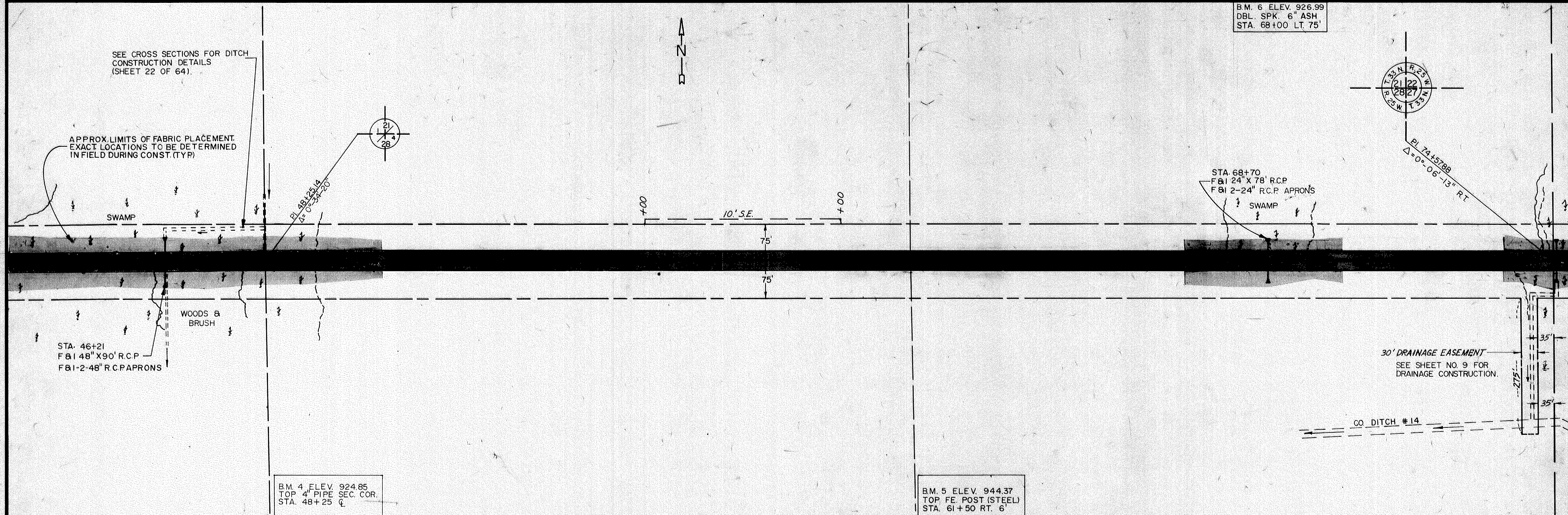
TILETYPE FOOT - 102 - 1/16 - 1/16

B.M. 6 ELEV. 926.99
 DBL. SPK. 6" ASH
 STA. 68+00 LT. 75'



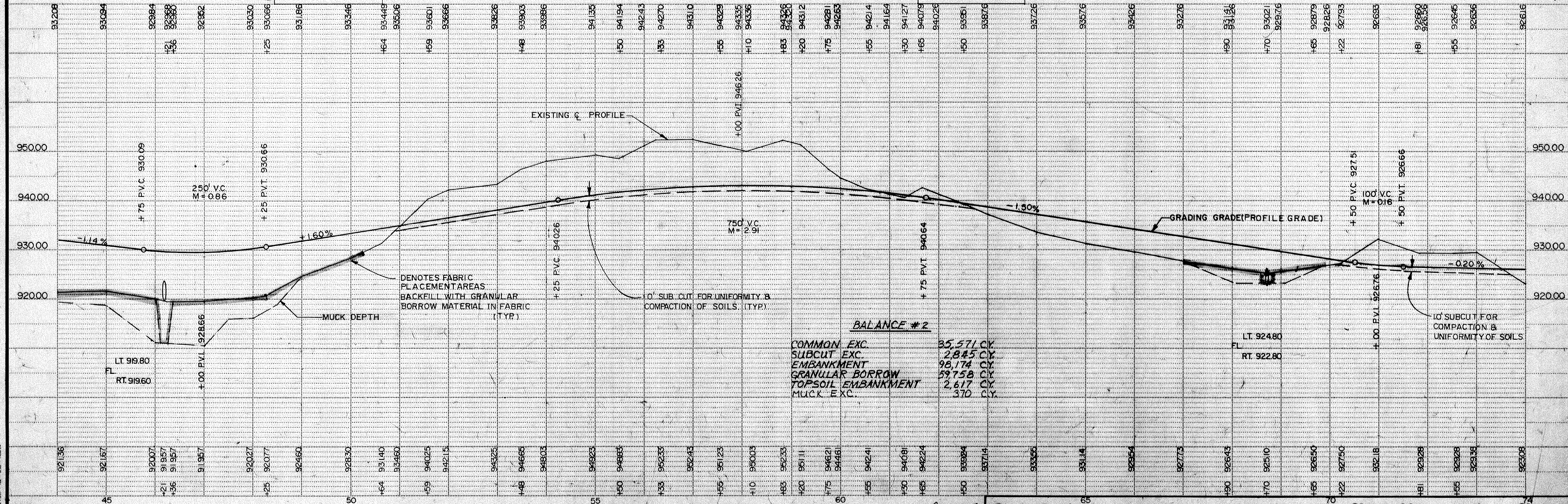
SEE CROSS SECTIONS FOR DITCH
 CONSTRUCTION DETAILS
 (SHEET 22 OF 64).

APPROX. LIMITS OF FABRIC PLACEMENT.
 EXACT LOCATIONS TO BE DETERMINED
 IN FIELD DURING CONST. (TYP)



B.M. 4 ELEV. 924.85
 TOP 4" PIPE SEC. COR.
 STA. 48+25

B.M. 5 ELEV. 944.37
 TOP FE. POST (STEEL)
 STA. 61+50 RT. 6'



BALANCE #2

COMMON EXC.	35,571 CY
SUBCUT EXC.	2,845 CY
EMBANKMENT	98,174 CY
GRANULAR BORROW	59,758 CY
TOPSOIL EMBANKMENT	2,617 CY
MUCK EXC.	370 CY

LT. 924.80
 RT. 922.80

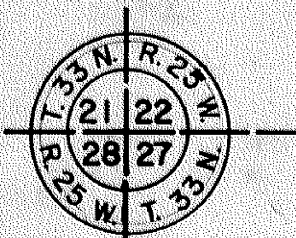
TELEPHONE POST - 60' - 3/8" - 100#74

B.M. 7 ELEV. 925.33
DBL. SPK. 6" POP
STA. 74+30 LT. 75'

B.M. 10 ELEV. 972.87
DBL. SPK. 6" ASH
STA. 93+70 LT. 150'

B.M. 11 ELEV. 954.71
DBL. SPK. 6" ELM
STA. 95+00 LT. 150'

B.M. 12 ELEV. 936.40
DBL. SPK. 10" BIRCH
STA. 99+10 LT. 120'



F & I. 24" X 76" R.C.P.
F & I. 2-24" R.C.P. APRONS
STA. 74+58

WOODS & SWAMP

WOODS

SWAMP

30' DRAINAGE EASEMENT
SEE SHEET NO. 9 FOR
DRAINAGE CONSTRUCTION.

APPROX. FABRIC PLACEMENT AREA
(EXACT LOCATIONS TO BE DETERMINED
IN FIELD DURING CONSTRUCTION).

12" X 23" C.M.P.
(INP.)

NOTE: THIS PROJECT 02-622-20 INCLUDES THE 5"
OF CLASS 5A AGGREGATE BASE STA. 87+20
TO STA. 88+44.

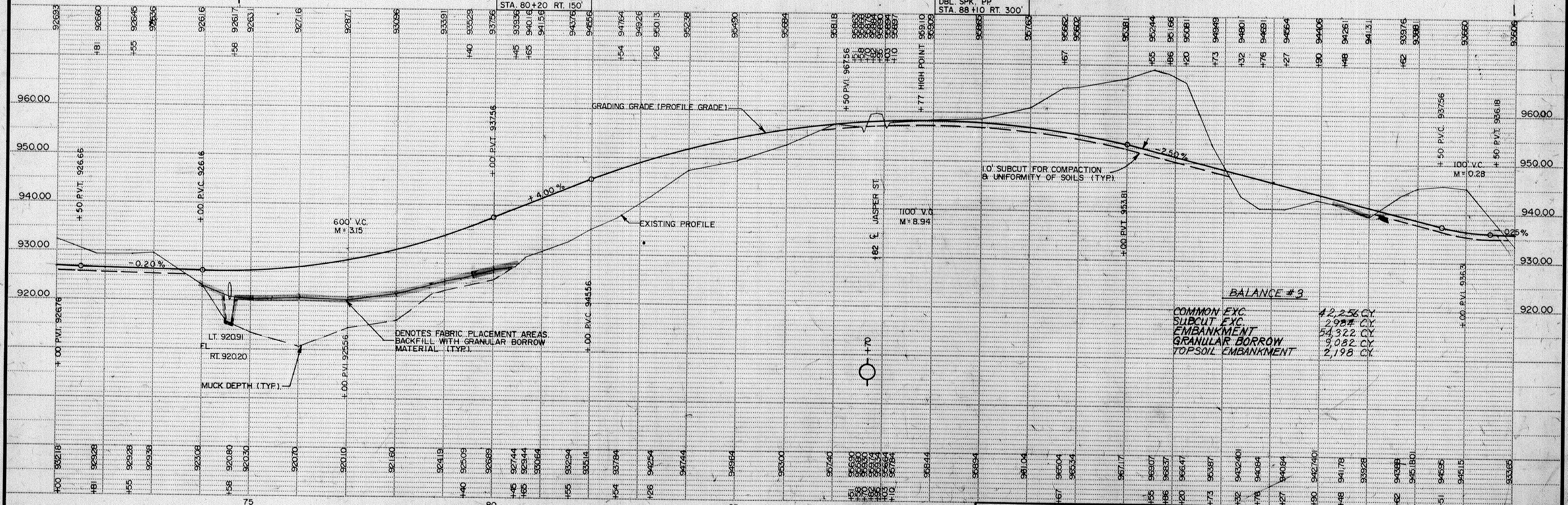
■ DENOTES APPROX. LIMITS OF AGGREGATE
PLACEMENT AREA.

CO. DITCH # 14

DITCH SURVEY

B.M. 8 ELEV. 924.31
DBL. SPK. TRI. 6" ELM
STA. 80+20 RT. 150'

B.M. 9 ELEV. 955.73
DBL. SPK. PP
STA. 88+10 RT. 300'



BALANCE #3
COMMON EXC 42,256 CY
SUBCUT EXC 2,987 CY
EMBANKMENT 54,322 CY
GRANULAR BORROW 9,032 CY
TOPSOIL EMBANKMENT 2,198 CY

TYPICAL POST - 18" x 18" x 18"

B.M. 12 ELEV. 936.40
DBL. SPK. 10" BIRCH
STA. 99+10 LT. 120'

B.M. 13 ELEV. 932.30
DBL. SPIKE IN 6" ELM
STA. 105+12 LT. 200'

B.M. 14 ELEV. 922.02
DBL. SPK. 6" MAPLE
STA. 113+00 LT. 135'

B.M. 15 ELEV. 915.73
DBL. SPK. 4" POP
STA. 119+85 LT. 167'

APPROX. LIMITS OF FABRIC PLACEMENT,
EXACT LOCATIONS TO BE DETERMINED
IN FIELD DURING CONSTRUCTION (TYP.)

PI. 121+74.34
 $\Delta = 26^\circ - 18' - 38''$ LT
D = 4'-00"
T = 334.79
L = 657.76

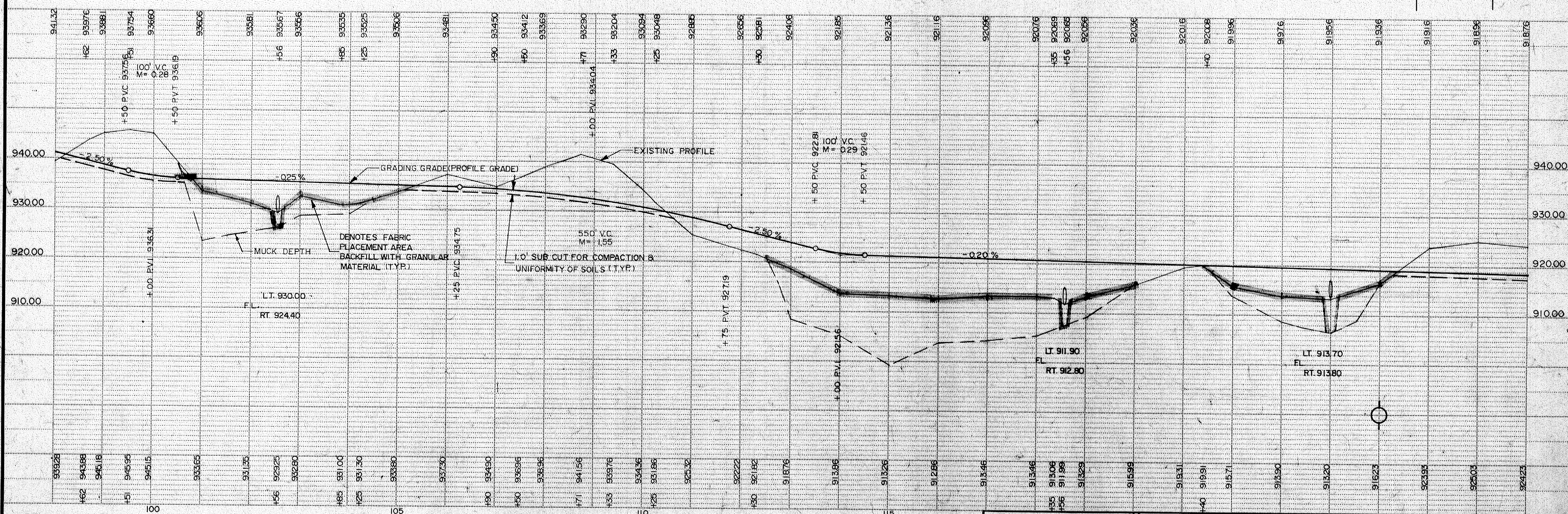
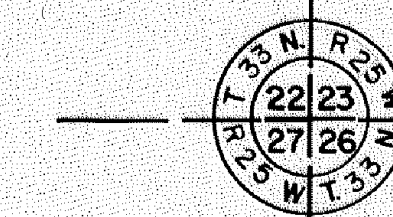
WOODS

F & I. 24" X 100' R.C.P.
F & I. 2-24" R.C.P. APRONS
STA. 118+56

F & I. 24" X 80' R.C.P.
F & I. 2-24" R.C.P. APRONS
STA. 124+00

F & I. 24" X 78' R.C.P.
F & I. 2-24" R.C.P. APRONS
STA. 102+56

CO. DITCH # 64
LATERAL # 3



BM. 16 ELEV. 922.79
DBL. SPIKE 4" ELM
STA. 127+00 LT. 140'

BM. 18 ELEV. 915.08
DBL. SPK. 24" OAK
STA. 152+00 LT. 140'

APPROX. LIMITS OF FABRIC PLACEMENT.
EXACT LOCATIONS TO BE DETERMINED
IN FIELD, DURING CONSTRUCTION (TYP).

F&I. 54" X 90' R.C.P.
F&I. 2-54" R.C.P. APRONS.
STA. 131+15

F&I. 54" X 100' R.C.P.
F&I. 2-54" R.C.P. APRONS
STA. 138+74

F&I. 24" X 94' R.C.P.
F&I. 2-24" R.C.P. APRONS
STA. 154+00

P.I. 134+43.77
 $\Delta = 26^{\circ} 59' 20"$ LT.
D = 674.72'
T = 343.74'

CONSTRUCT DITCH RT. 70'
SEE X-SECTION

NOTE SALVAGE TOPSOIL IN STOCKPILE STORAGE AREA
WITHIN R/W, STA. 143+00-STA. 153+00 RT. & LT.
PLACE BALECHECKS AT ENDS OF STORAGE AREAS.

BM. 17 ELEV. 913.18
DBL. SPIKE IN DBL. 6" ELM
STA. 135+00 RT. 100'

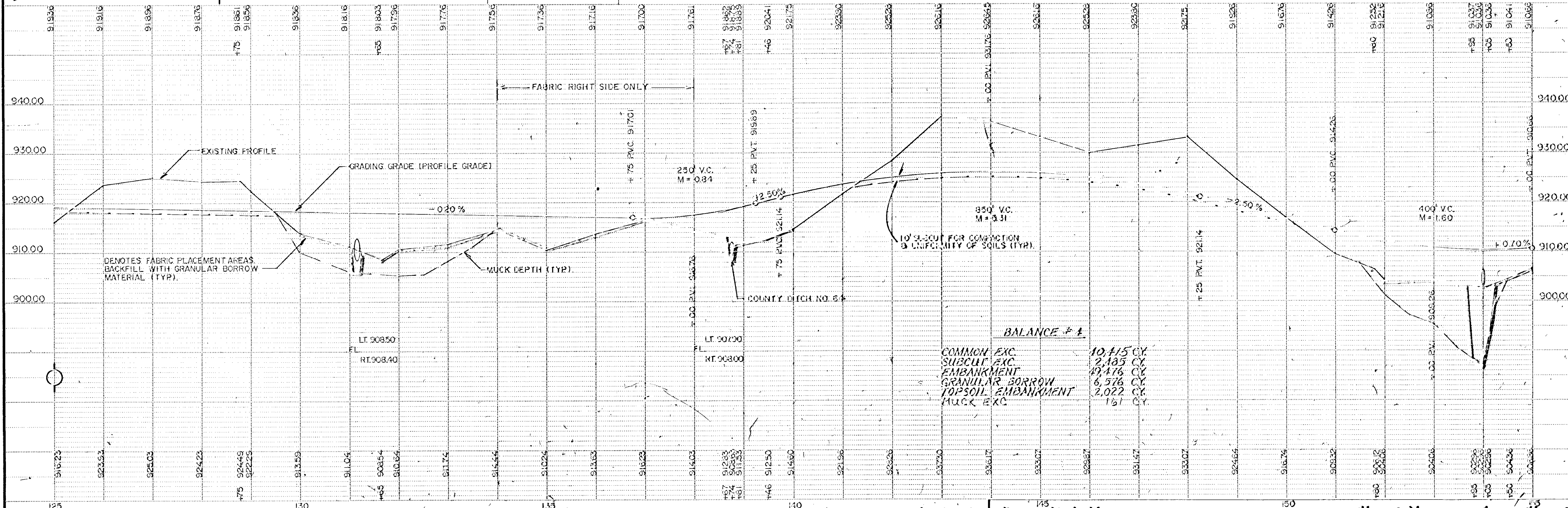


ILLUSTRATION BY 248-0004

F & I 24" X 94" RCP
 F & I 2-24" RCP APRONS
 STA 154+00

B.M. 21 ELEV. 909.52
 R.R. SPK. 16" OAK
 STA. 169+50 LT. 130'

B.M. 22A ELEV. 945.95
 R.R. SPK. 24" OAK
 STA. 174+25 LT. 155'

F & I 24" X 76" RCP
 F & I 2-24" RCP APRONS
 STA 161+00

F & I 24" X 70" RCP
 F & I 2-24" RCP APRONS
 STA 166+00

PI 169+20.06
 $\Delta = 29^{\circ} 20' - 29''$ LT.
 D = 5' 00"
 R = 1145.92'
 T = 300.00'
 L = 586.83'
 E = 38.62'

F & I 24" X 68" RCP
 F & I 2-24" RCP APRONS
 STA 174+74

PI 177+91.66
 $\Delta = 14^{\circ} 01' - 05''$
 D = 4' 00"
 R = 1432.39'
 T = 176.11'
 L = 350.45'
 E = 10.79'

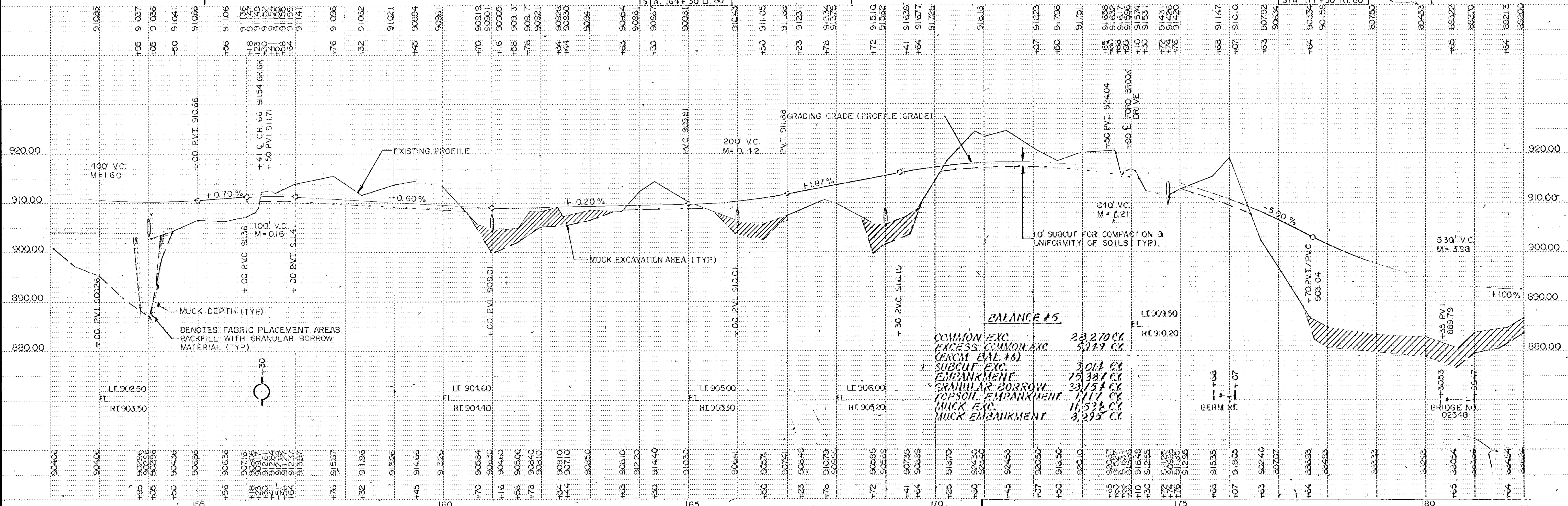
■ DENOTES APPROX. LIMITS OF BIT. CONST. AREA
 ■ DENOTES APPROX. LIMITS OF CL-5A AGG. CONST. AREA

NOTE: ① THIS PROJECT 02-622-20 INCLUDES THE 5" OF CLASS 5A AGGREGATE BASE STA 154+50 TO STA 158+50
 ② THIS PROJECT 02-622-20 INCLUDES THE BITUMINOUS CONSTRUCTION STA 155+00 TO 158+00

NOTE: THIS PROJECT 02-622-20 INCLUDES THE 5" OF CLASS 5A AGGREGATE BASE STA 173+37 TO STA 174+61

B.M. 20 ELEV. 910.65
 R.R. SPK. 16" OAK
 STA. 164+30 LT. 90'

B.M. 23 ELEV. 895.13
 R.R. SPK. 18" OAK
 STA. 177+30 RT. 80'



B.M. 24, ELEV. 897.86
DBL. SPK. 8" OAK
STA. 183+70 LT. 160'

LOR PT. 185+11.39 = SURVEY PT. 185+11.39
Δ = 12°-40'-56" LT.
D = 4°-00'
T = 153.18
L = 317.06'
R = 8.82'
R = 1,432.39'

B.M. 25 ELEV. 916.74
TOP SE. COR. DOT STEP
STA. 194+00 LT. 120'

LOR PT. 195+50.39 = A POINT 25.00' RT. OF SURVEY
PT. 195+49.61 AS MEASURED E TO THE BACK
TANGENT LINE
Δ = 6°-06'-29" LX
D = 1°-30'
T = 203.79
L = 407.20
R = 5.43
R = 3,013.72
SURVEY PT. 195 F+3.61
Δ = 2°-32'-41" LT.
D = 1°-00'
T = 127.36
L = 254.17
R = 1.11
R = 5,729.53

SEE SHEET 18 OF 61
FOR T.H. 47 CONSTRUCTION

NOTE: BERM AREA CONSTRUCTION BEGINS AT
T.H. # 47 STA. 14+80 RT. ENDS AT
C.S.A.H. # 22 STA. 202+80 LT.

END PROJECT SAP 02-622-20
P.O.T. STA. 205+00

PC PT. 204+60.05 =
SURVEY STA. P.O.T. 204+58.06

PT. 203+67.00 = C.S.A.H. 22 EAST SURVEY P.O.T. 203+65.00
Δ = 0°-55'-50" RT.
D = 0°-30'
R = 11,459.16'
T = 93.06'
L = 186.11'
R = 0.38'

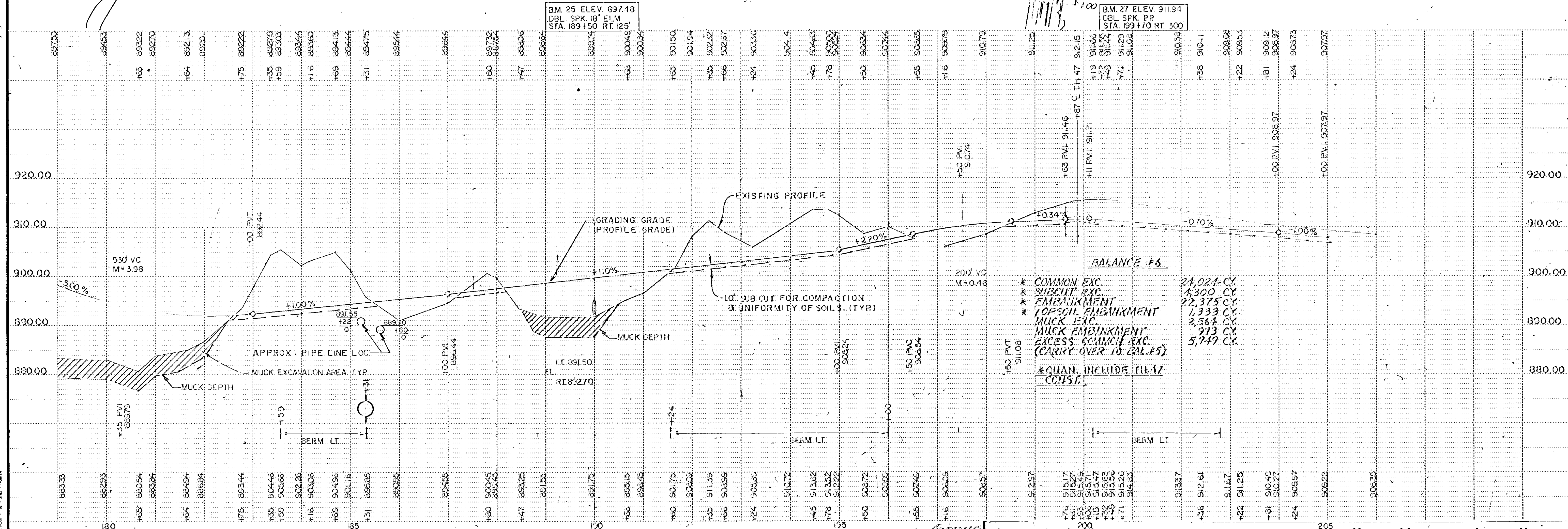
NOTE:
STATION 180+30.53
TO 180+99.47 BRIDGE
SEE SHEETS 51 TO 64

CAUTION
OIL PIPELINE CROSSING
LOCATIONS ARE ONLY APPROXIMATIONS.
CONTRACTOR TO CALL MINN PIPELINE CO.
24 HOURS PRIOR TO WORKING IN THIS AREA.
612-459-2424

NOTE:
UTILITY LOCATIONS ARE
APPROXIMATIONS ONLY

NOTE: SALVAGE TOPSOIL IN STOCKPILE STORAGE
AREA WITHIN R/W, STA. 143+00—STA. 153+00
RT. & LT. PLACE BALECHECKS AT ENDS OF
STORAGE AREAS.

■ DENOTES APPROX. LIMITS OF BIT. CONST. AREA.
■ DENOTES APPROX. LIMITS OF CL-5A AGG. CONST. (5")



BALANCE #6

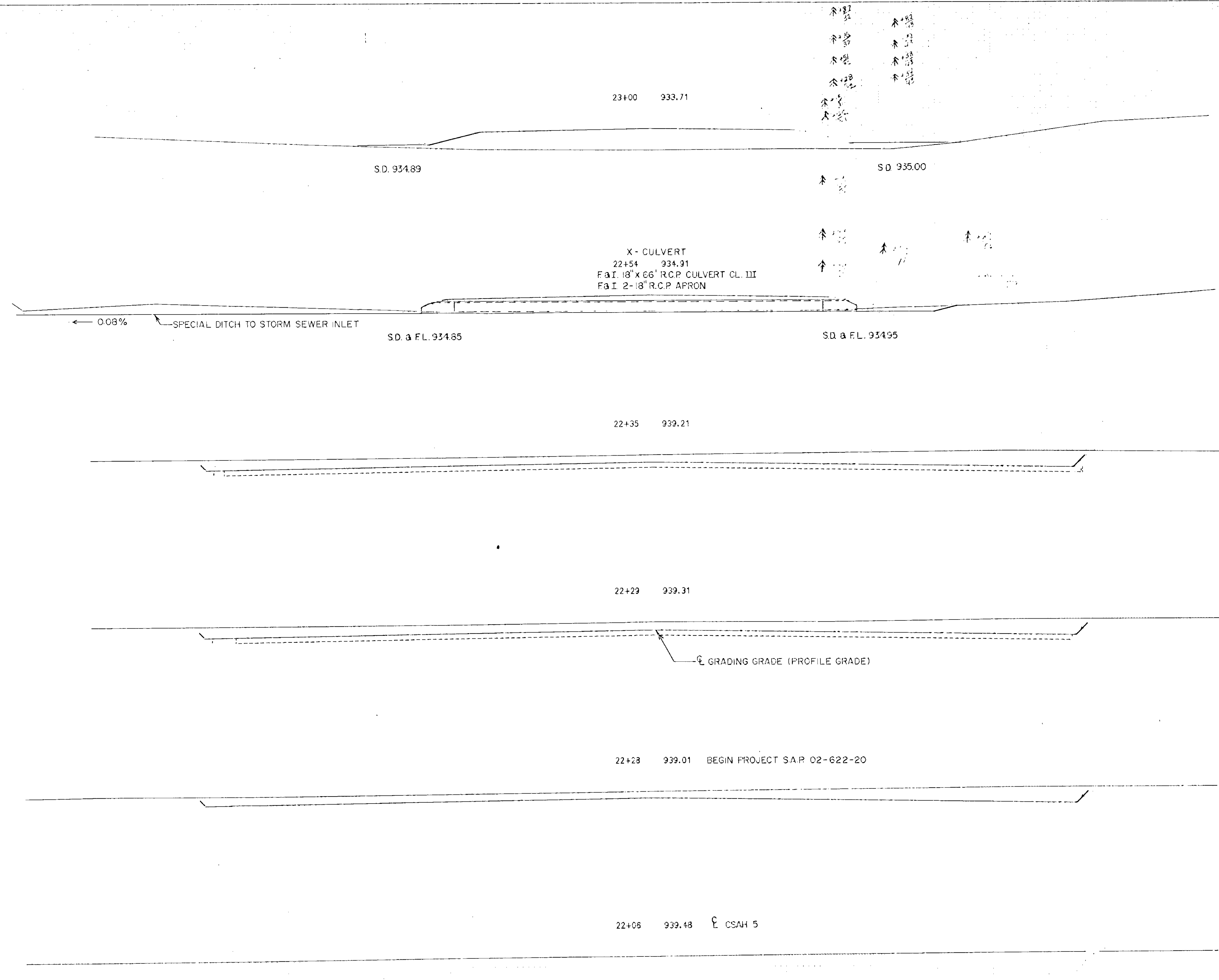
- * COMMON EXC. 24,024 CY
- * SUBCUT EXC. 4,300 CY
- * EMBANKMENT 22,375 CY
- * TOPSOIL EMBANKMENT 1,333 CY
- * MUCK EXC. 2,384 CY
- * MUCK EMBANKMENT 913 CY
- * EXCESS COMMON EXC. (CARRY OVER TO BAL. #5) 5,749 CY

* QUAN. INCLUDE FILL & CONST.

SUBMITTED BY: [unclear]

EXCAVATION EMBANKMENT

Sub-Totals	Cu. Yds.	Cu. Yds.	Sub-Totals
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TOPSOIL	386	21
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SUB CUT	153	127
TOPSOIL	54	16

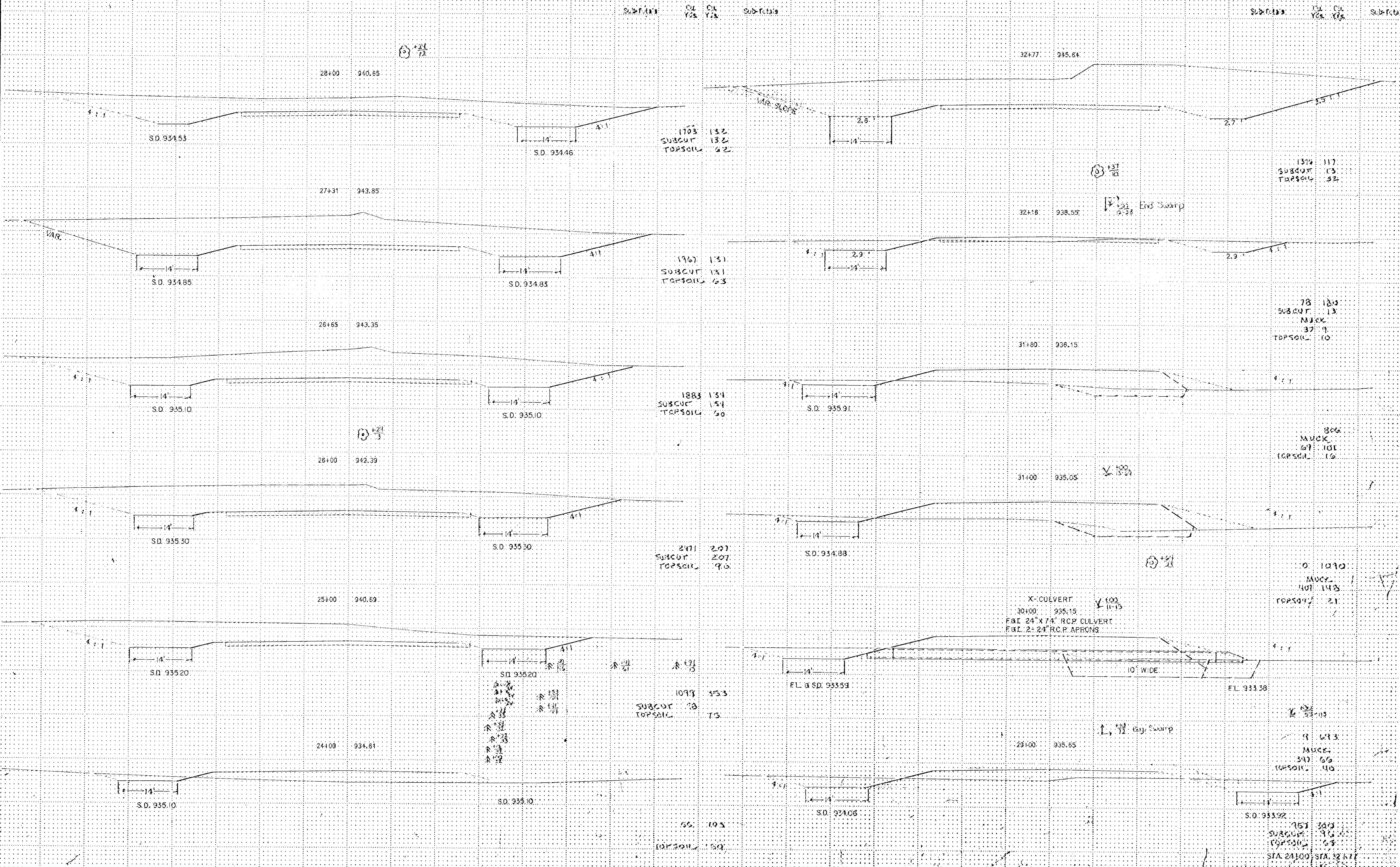
SUB CUT	93	33
TOPSOIL	33	6

SUB CUT	15	5
TOPSOIL	5	1

STA. 22+28 TO STA. 23+00

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

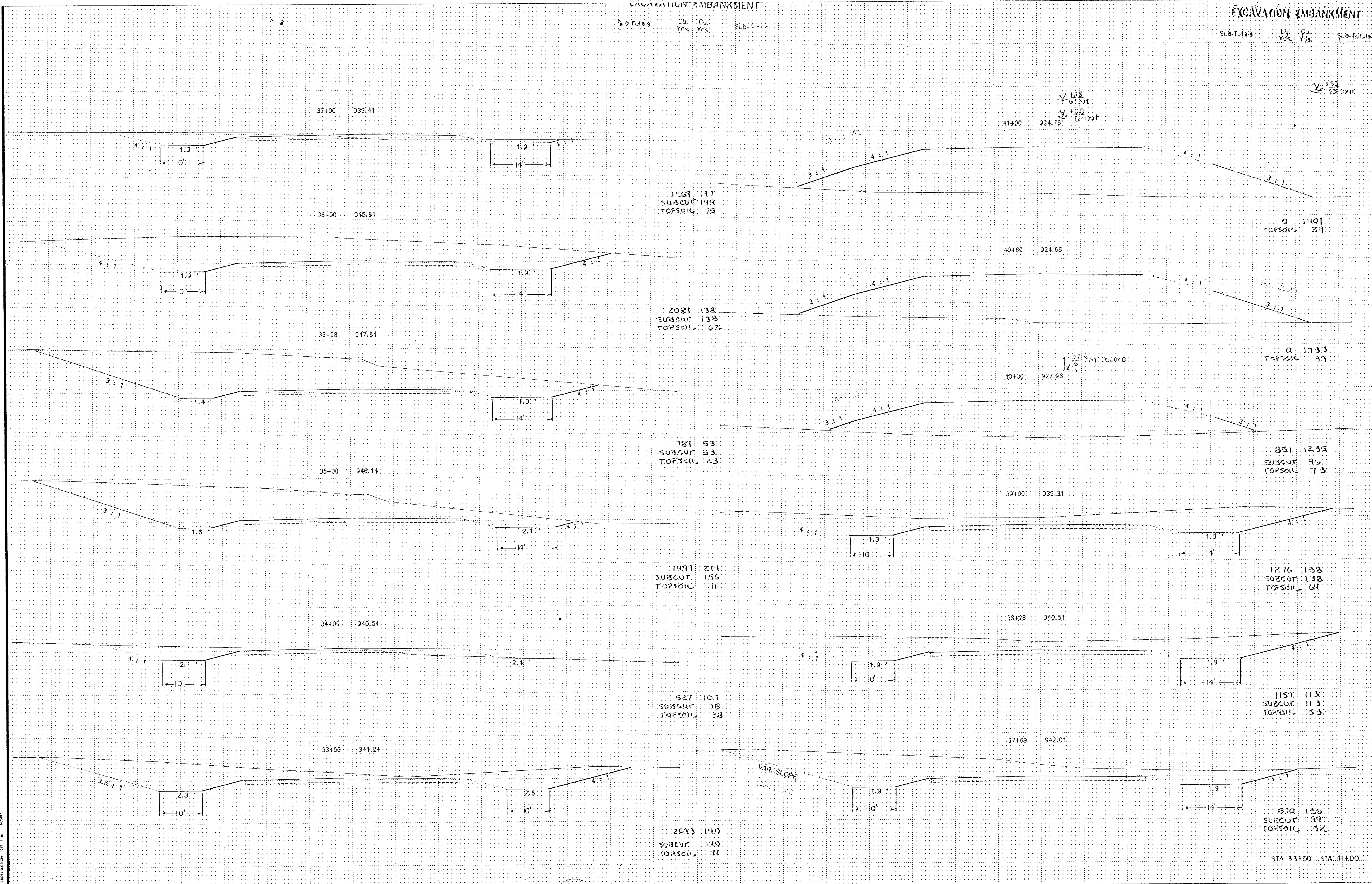


EXCAVATION EMBANKMENT

Sub-Totals CU. Yds. CU. Yds. Sub-Totals

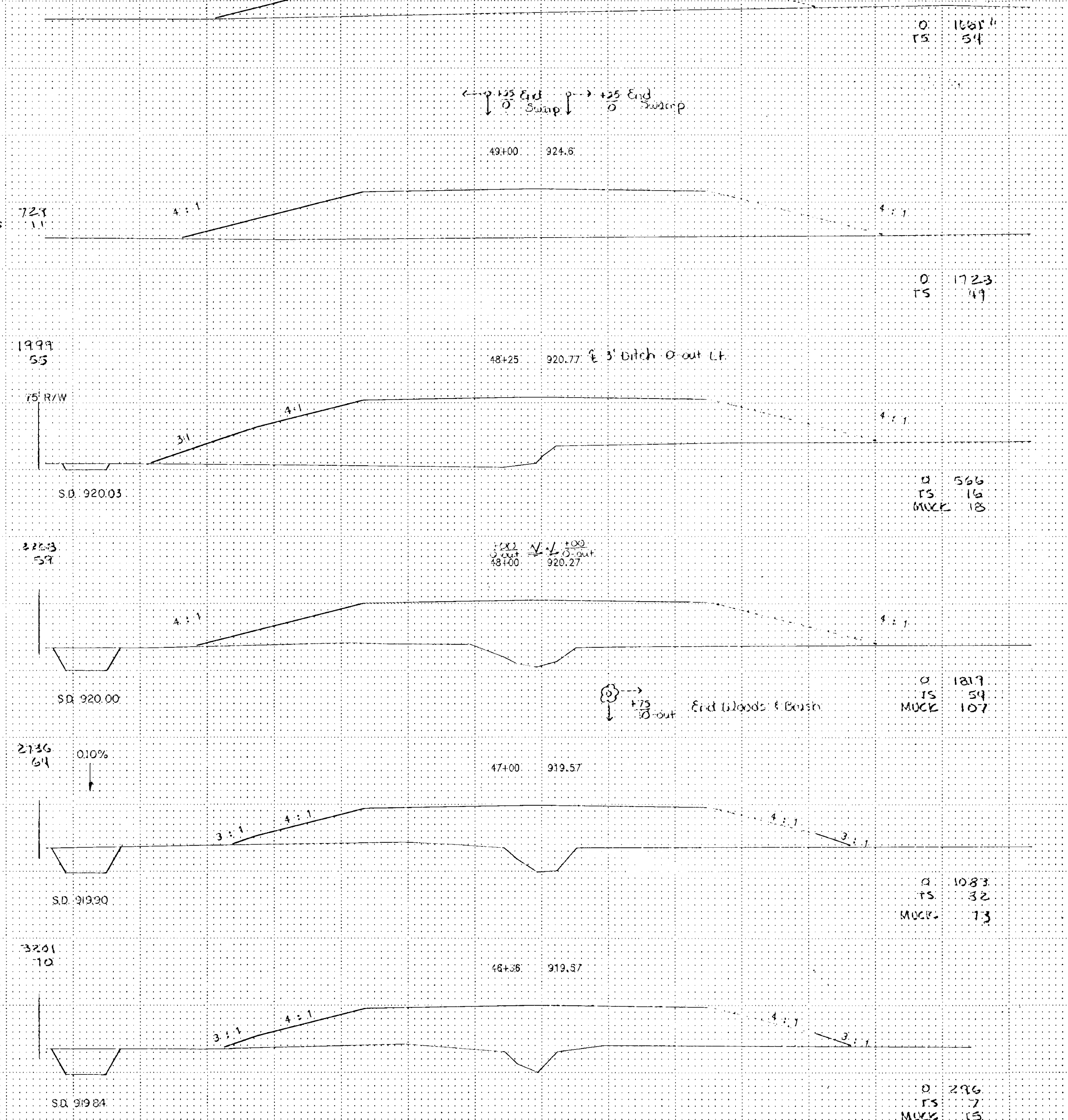
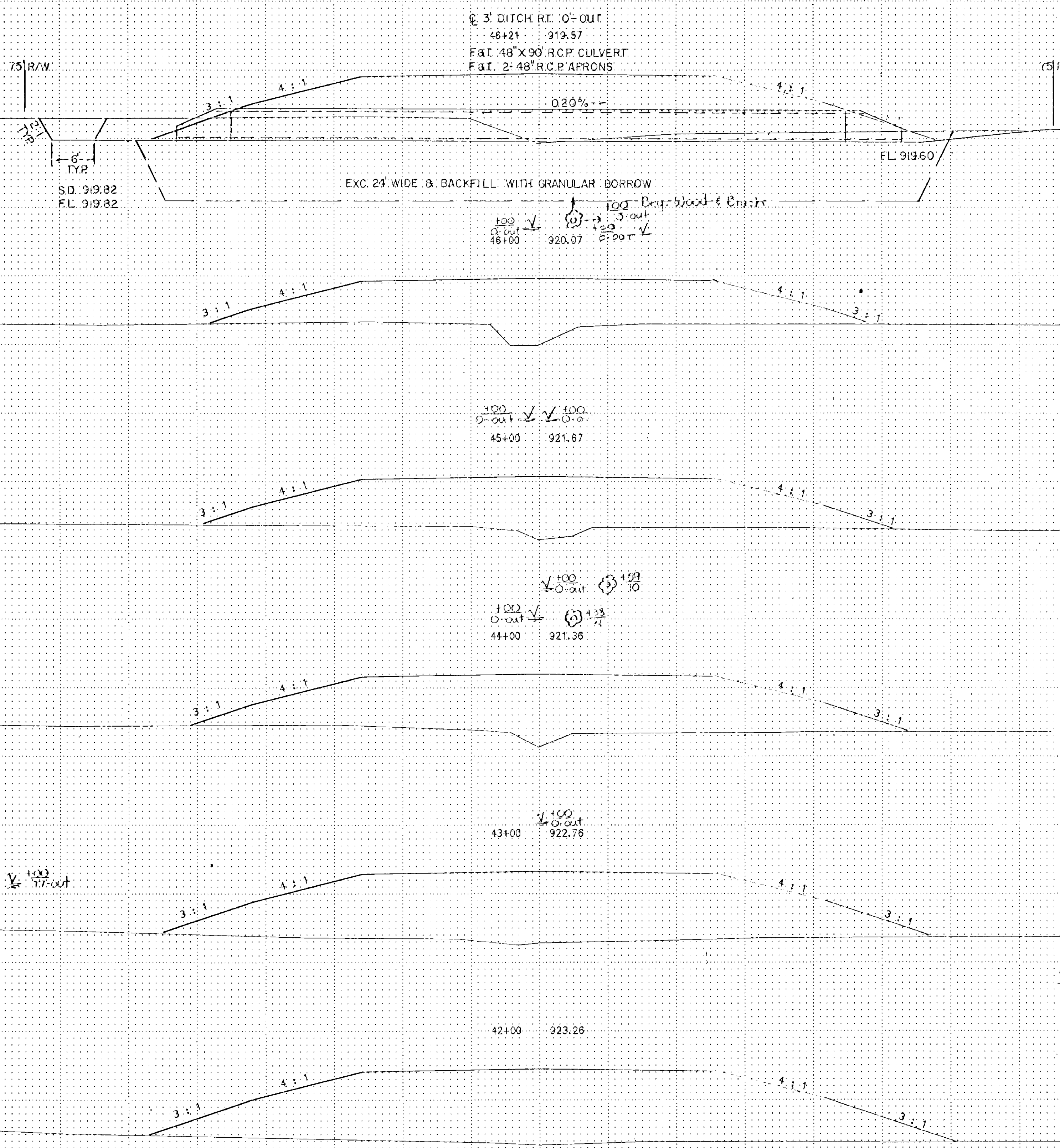
EXCAVATION EMBANKMENT

Sub-Totals CU. Yds. CU. Yds. Sub-Totals



EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT



Station	Sub-Totals	CU Yds.	CU Yds.	Sub-Totals	Sub-Totals	CU Yds.	CU Yds.	Sub-Totals
46+00	72.1	1.1			0	1661.4	54	
45+00	199.9	55			0	1723	49	
44+00	566	16			0	566	16	
43+00	59				0	59		
42+00	566	16			0	566	16	
41+00	181.7	59			0	181.7	59	
40+00	64				0	64		
39+00	1083	32			0	1083	32	
38+00	3201	10			0	3201	10	
37+00	296	7			0	296	7	
36+00	344.3	74			0	344.3	74	

STA. 42+00 STA. 50+00

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Points Cu Cu Sub-Points

Sub-Points Cu Cu Sub-Points

53+48 946.65

57+55 951.23

1511 92
SUBCUT 92
TOPSOIL 46

2325 105
SUBCUT 105
TOPSOIL 67

53+00 943.25

57+00 952.43

2566 192
SUBCUT 192
TOPSOIL 36

3149 128
SUBCUT 128
TOPSOIL 83

52+00 942.15

56+33 952.33

365 78
SUBCUT 78
TOPSOIL 30

3526 159
SUBCUT 159
TOPSOIL 83

51+59 940.25

55+50 948.83

630 113
SUBCUT 113
TOPSOIL 55

1811 96
SUBCUT 96
TOPSOIL 47

51+00 934.6

55+00 949.23

44 167
SUBCUT 20
TOPSOIL 15

308 192
SUBCUT 192
TOPSOIL 98

50+64 931.4

54+00 948.03

0 651
15 26

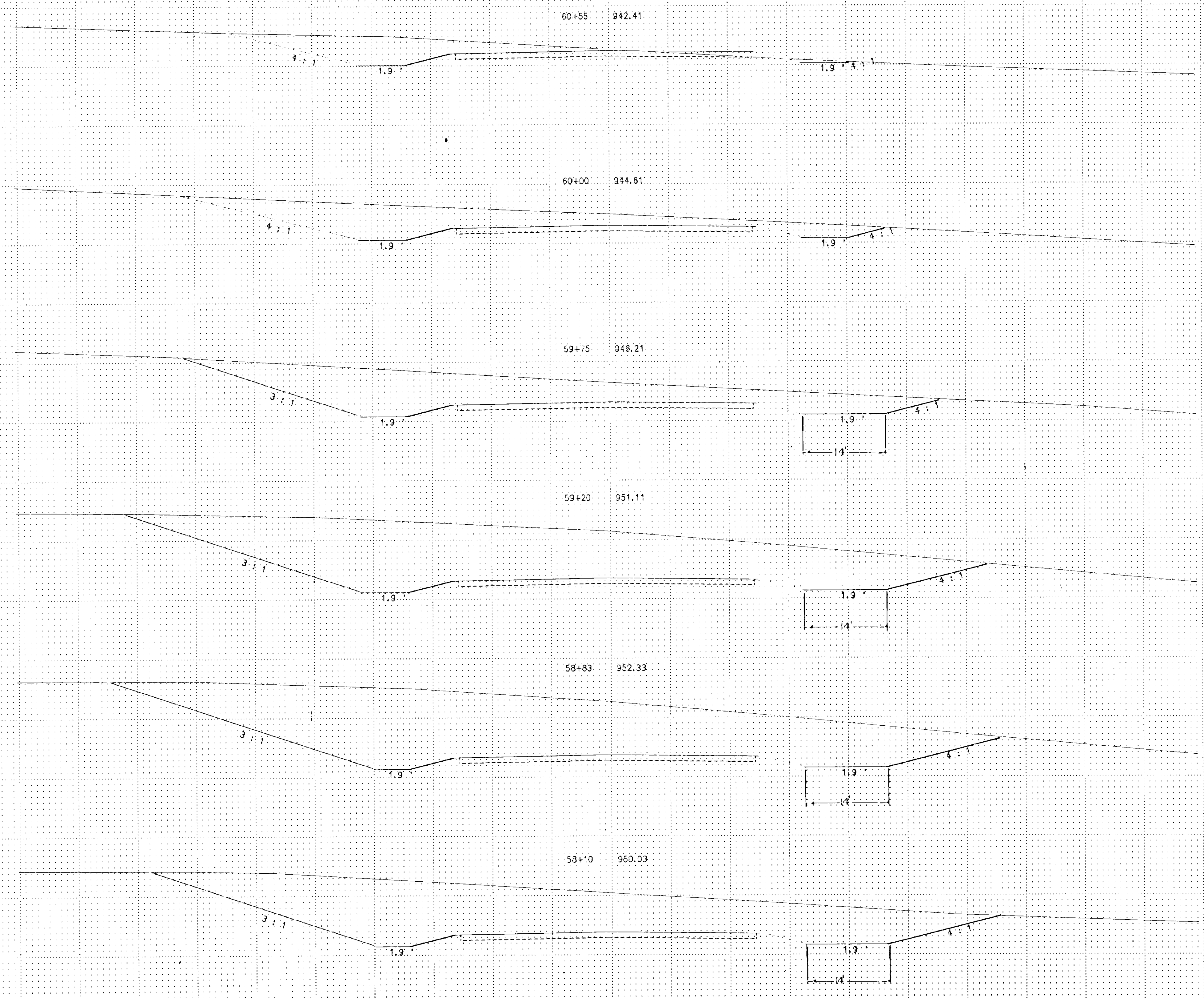
2453 100
SUBCUT 100
TOPSOIL 52

STA 50+64 - STA 57+55

ILLINOIS STATE ENGINEERING SOCIETY

EXCAVATION EMBANKMENT

Sta. Pts.	Cu. Yds.	Sub. Pts.
-----------	----------	-----------



593	107
SUBCUT	94
TOPSOIL	37
438	43
SUBCUT	48
TOPSOIL	20
1695	105
SUBCUT	105
TOPSOIL	30
1611	71
SUBCUT	71
TOPSOIL	37
3007	142
SUBCUT	140
TOPSOIL	73
2474	103
SUBCUT	103
TOPSOIL	53

STA 58+10 STA 60+55

UNIVERSITY OF MICHIGAN LIBRARY

EXCAVATION EMBANKMENT

S.B-Totals Cu. Yds. Cu. Yds. S.B-Totals

EXCAVATION EMBANKMENT

S.B-Totals Cu. Yds. Cu. Yds. S.B-Totals

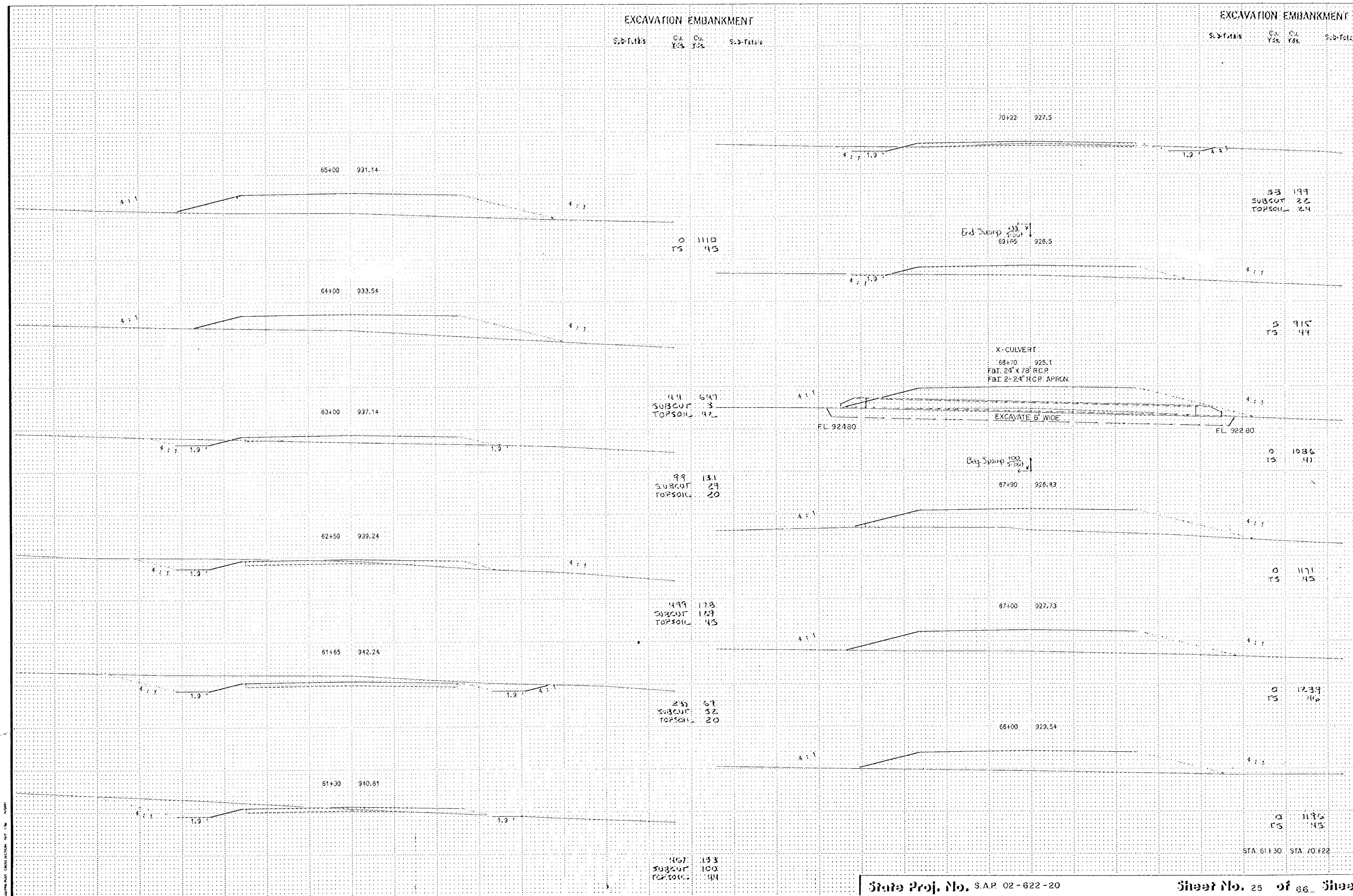


ILLUSTRATION CROSS SECTION UNIT IN INCHES

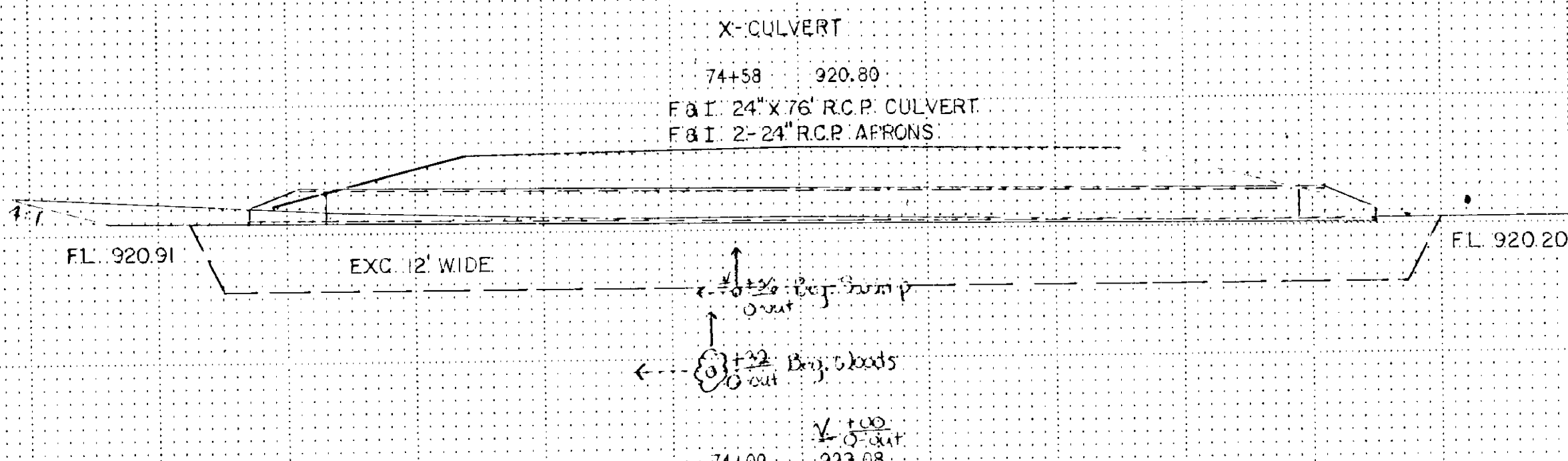
STA. 61+30 STA. 70+22

EXCAVATION EMBANKMENT

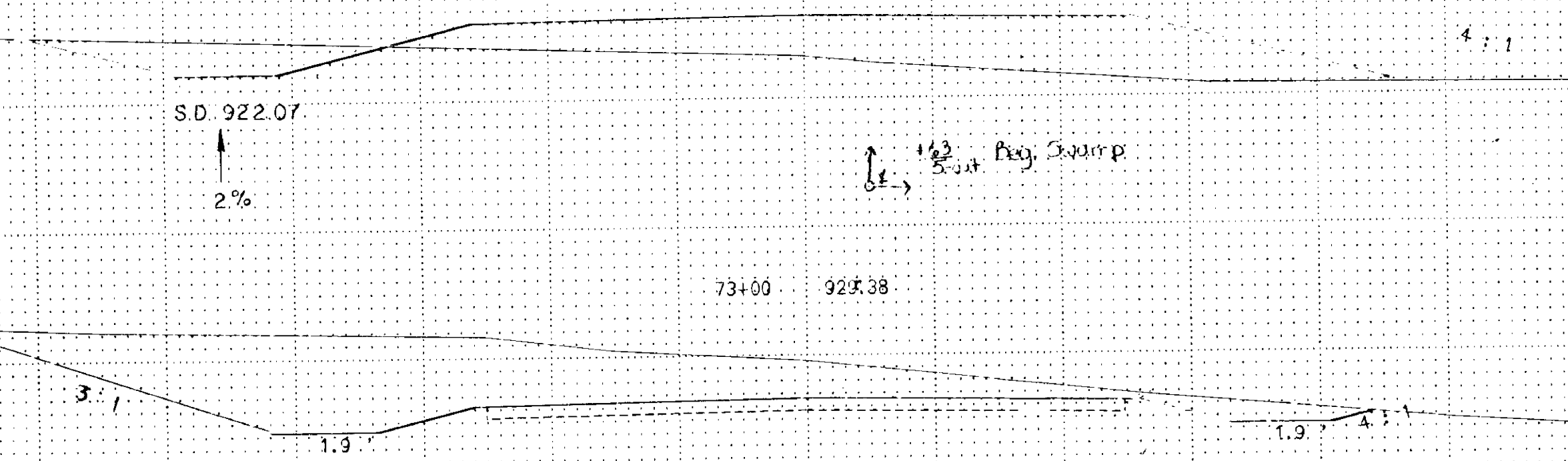
Sub-Totals Cu. Yes Cu. Yes Sub-Totals

EXCAVATION EMBANKMENT

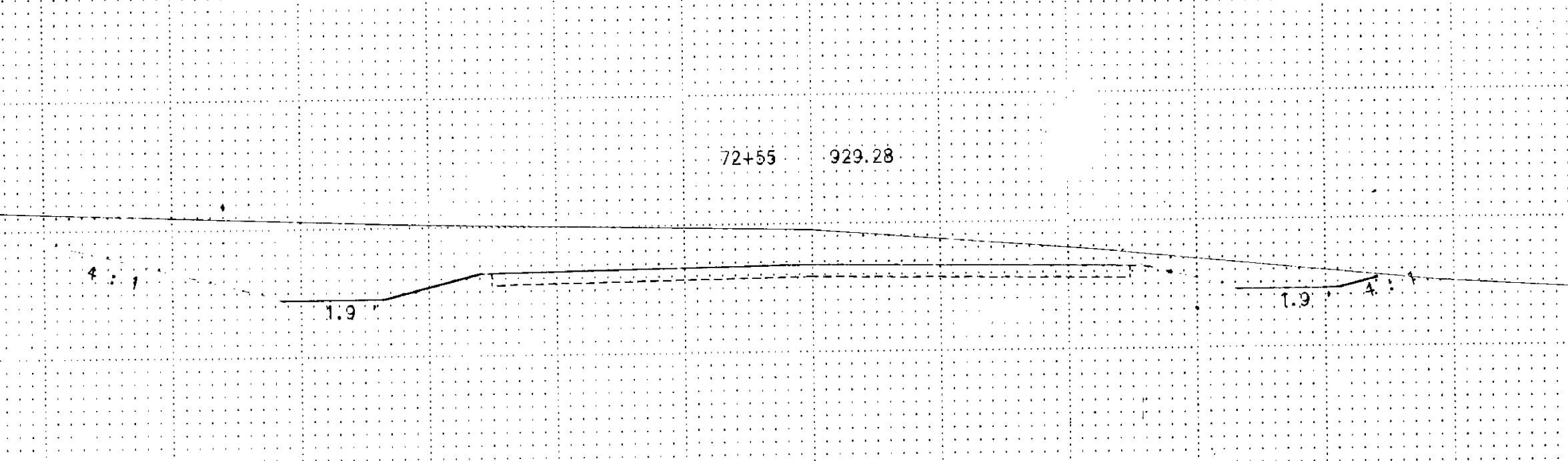
Sub-Totals Cu. Yes Cu. Yes Sub-Totals



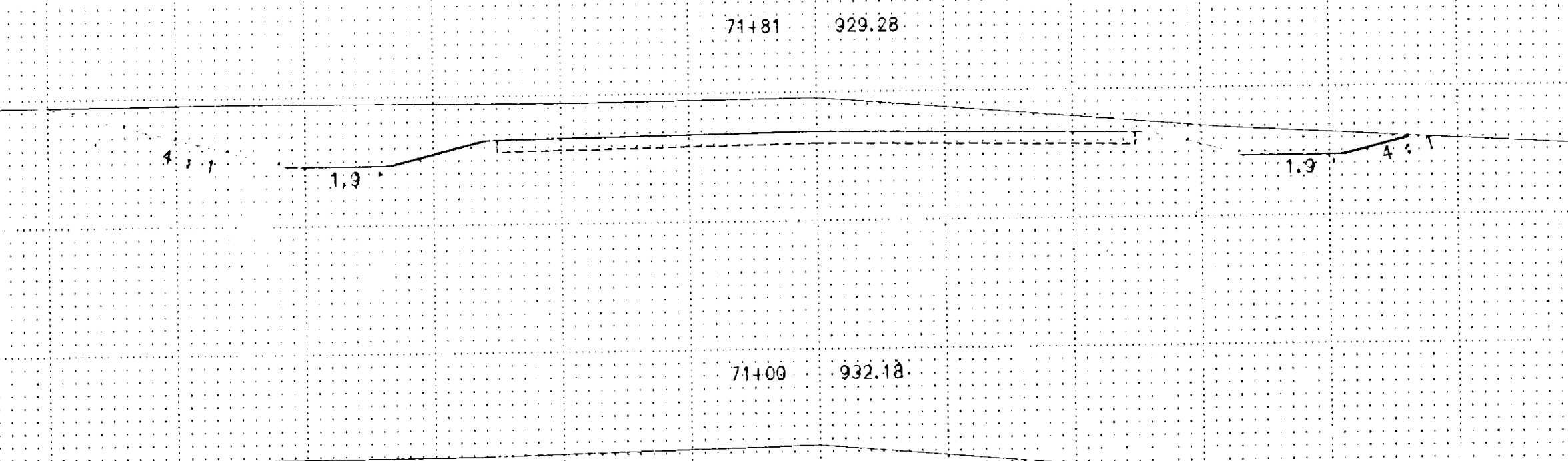
4
TS
MUCK 157



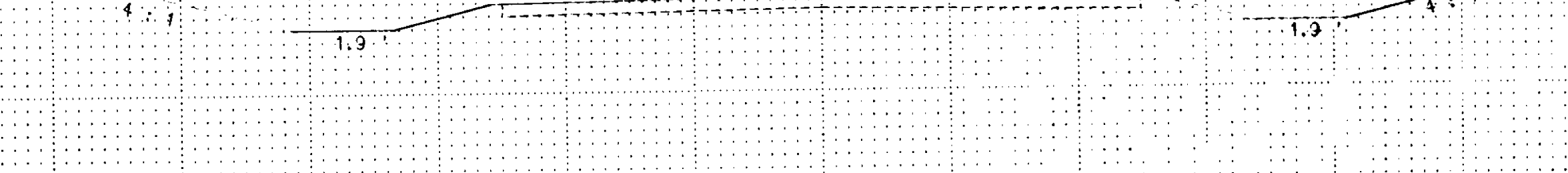
894
SUBCUT
TOPSOIL 96
506
92



729
SUBCUT
TOPSOIL 36
36
33

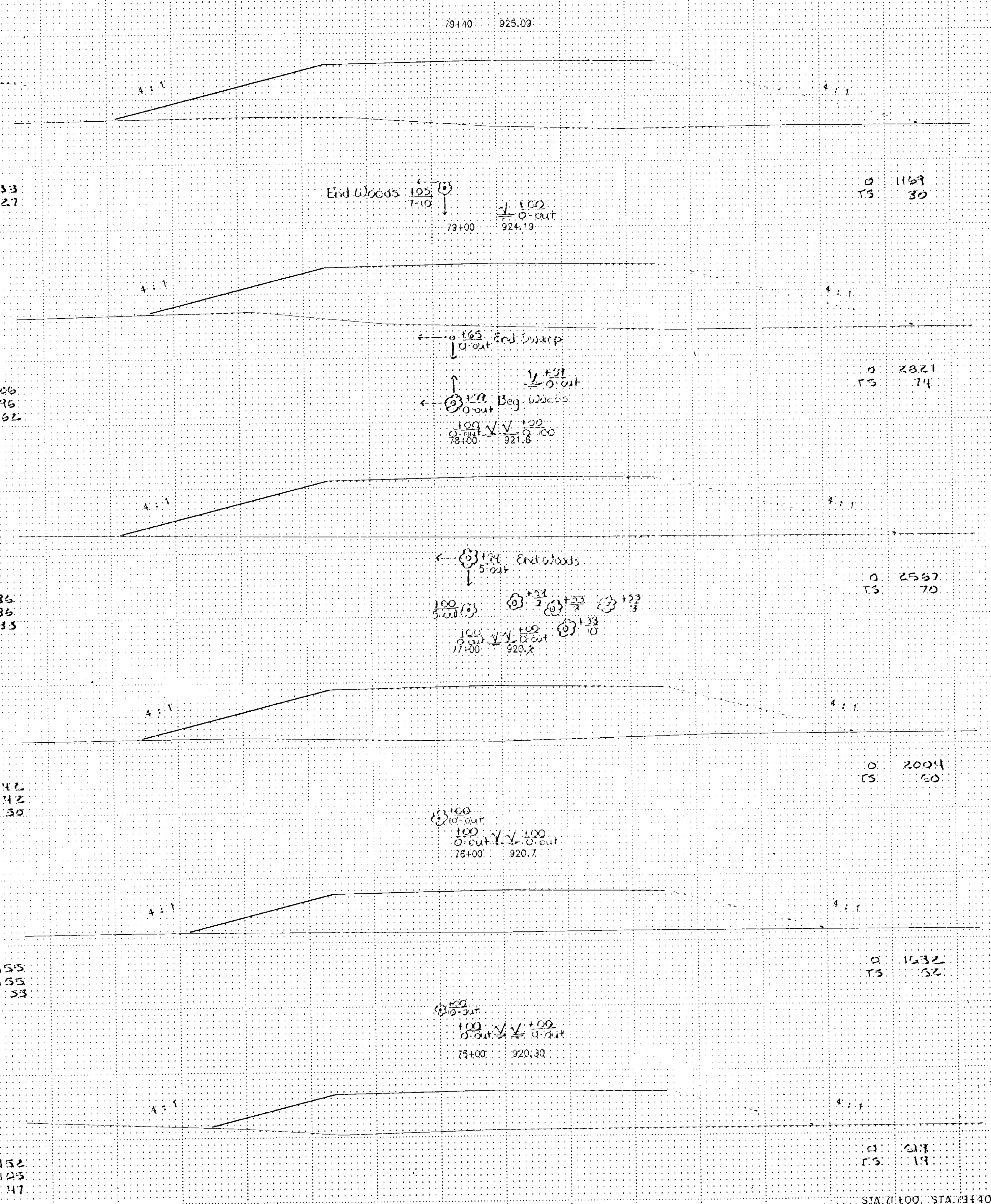


921
SUBCUT
TOPSOIL 142
142
30



1331
SUBCUT
TOPSOIL 155
155
33

57
SUBCUT
TOPSOIL 125
125
47



0
TS
1169
30

0
TS
2821
74

0
TS
2567
70

0
TS
2004
60

0
TS
1632
52

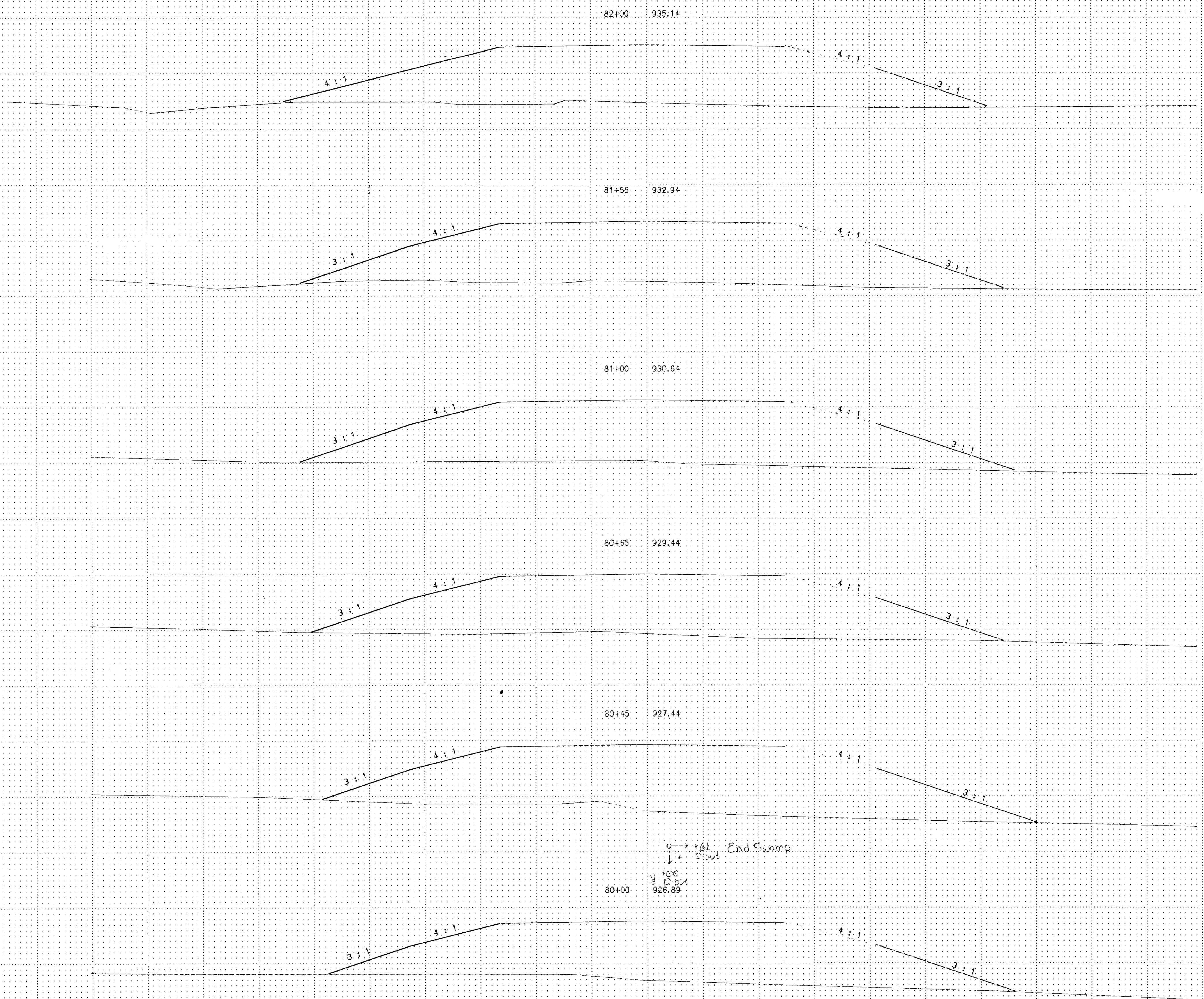
0
TS
617
18

STA. 71+00 STA. 73+40

REPLACING POST CROSS SECTION 10/11/18

EXCAVATION EMBANKMENT

Sta. Total Cu. Yds. Cu. Yds. Embankment



End Swamp

STA 80+00 - STA 82+00

ILLINOIS PORT CONSTRUCTION DIST. No. 100000

87+71 87+53

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

87+00 957.4

88+03 956.64
3' DITCH

86+00 953

87+95 959.34

85+00 949.64

87+82 959.74
JASPER ST.

84+00 947.44

87+70 959.3

83+26 942.54

87+58 955.8
3' DITCH NO. & SO.

82+54 937.84

87+51 956.9

4:1

4:1

4:1

4:1

4:1

4:1

4:1

4:1

108
S.C.
TS

0
TS

0
TS

0
TS

0
TS

0
TS

678
41
46

1277
43

1420
38

1285
43

1873
45

1775
41

35
S.C.
TS

130
S.C.
TS

121
S.C.
TS

119
S.C.
TS

8
S.C.
TS

119
S.C.
TS

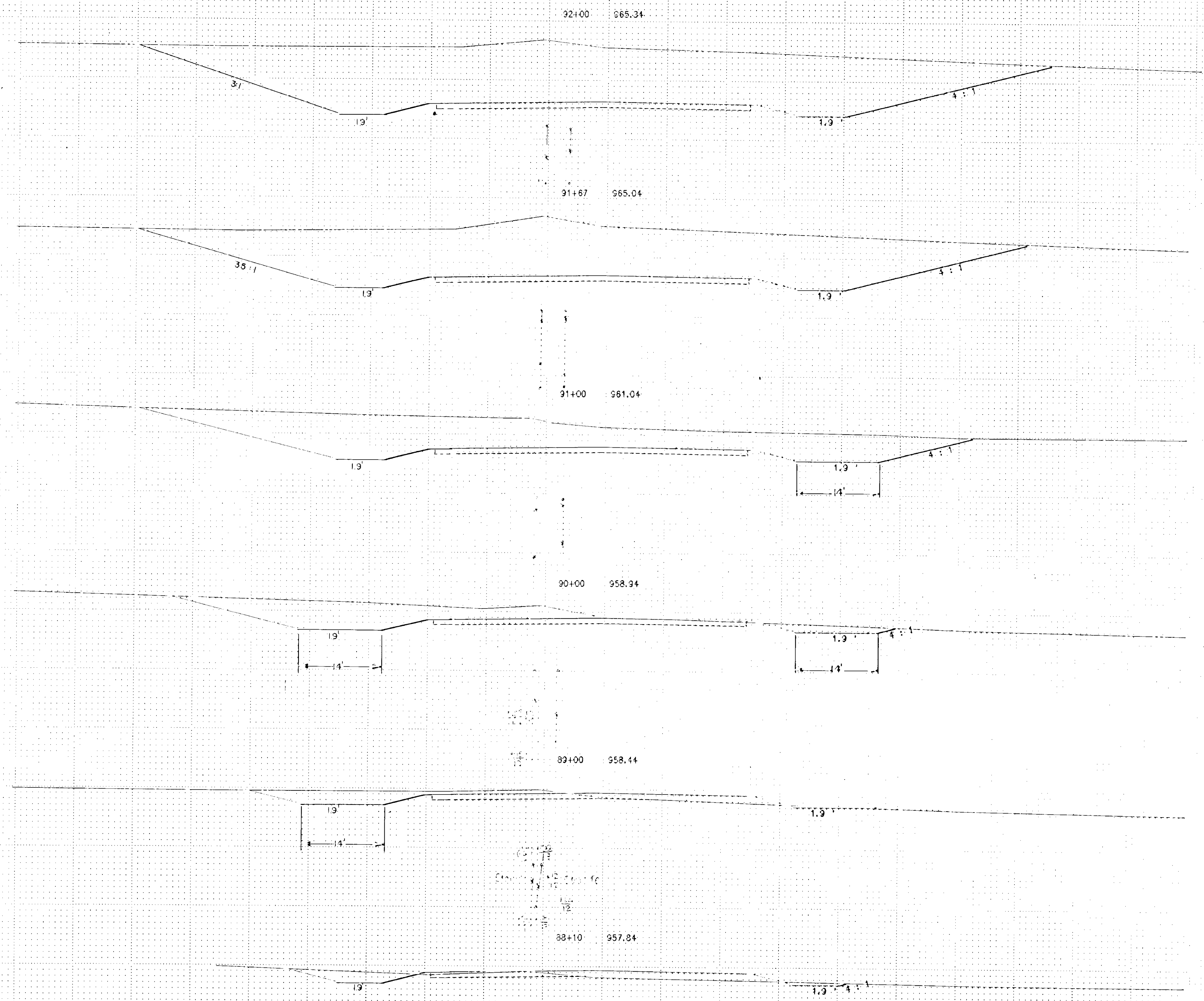
STA. 82+54 - STA. 88+03

Rev. 3-3-87

TRAVERSE POINT EXCAVATION CUT IN

EXCAVATION EMBANKMENT

SUBJECTS C.V. C.L. SUB-COUNTS
YES YES



1119 63
SC 63
TS 34

2219 128
SC 128
TS 64

1753 192
SC 191
TS 53

717 200
SC 144
TS 47

256 195
SC 74
TS 49

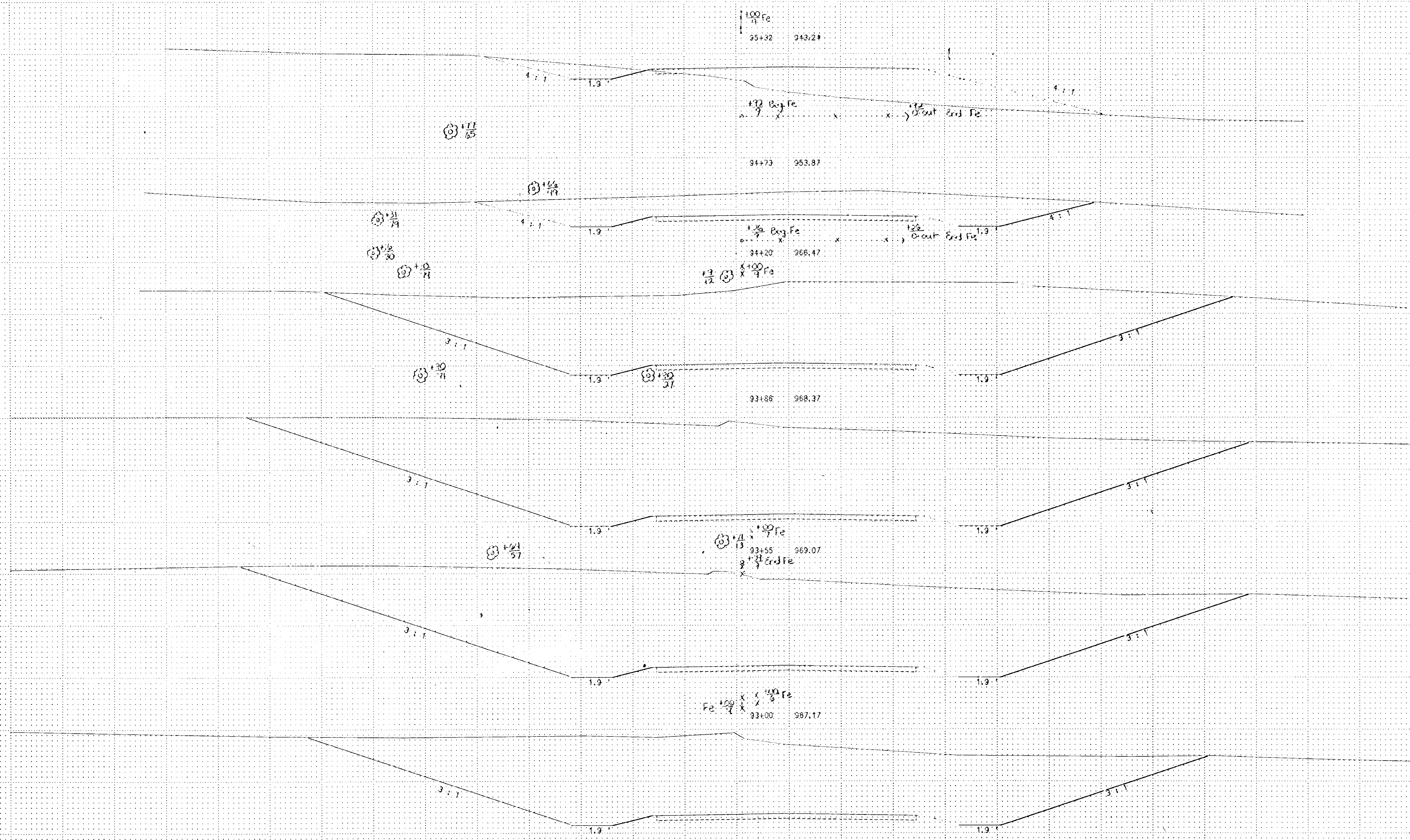
9 29
SC 2
TS 2

STA. 88+10 - STA. 92+00

MUTUALITY FOST. CROSS SECTION 1011 1/8" = 1'-0"

EXCAVATION EMBANKMENT

Sta. Total Cu. Yds. Cu. Yds. Sta. Total



660 406
SC 59
TS 44

2565 101
SC 101
TS 52

2921 45
SC 45
TS 43

2155 59
SC 59
TS 45

4578 105
SC 105
TS 74

5986 192
SC 192
TS 115

STA. 93+00 - STA. 95+32

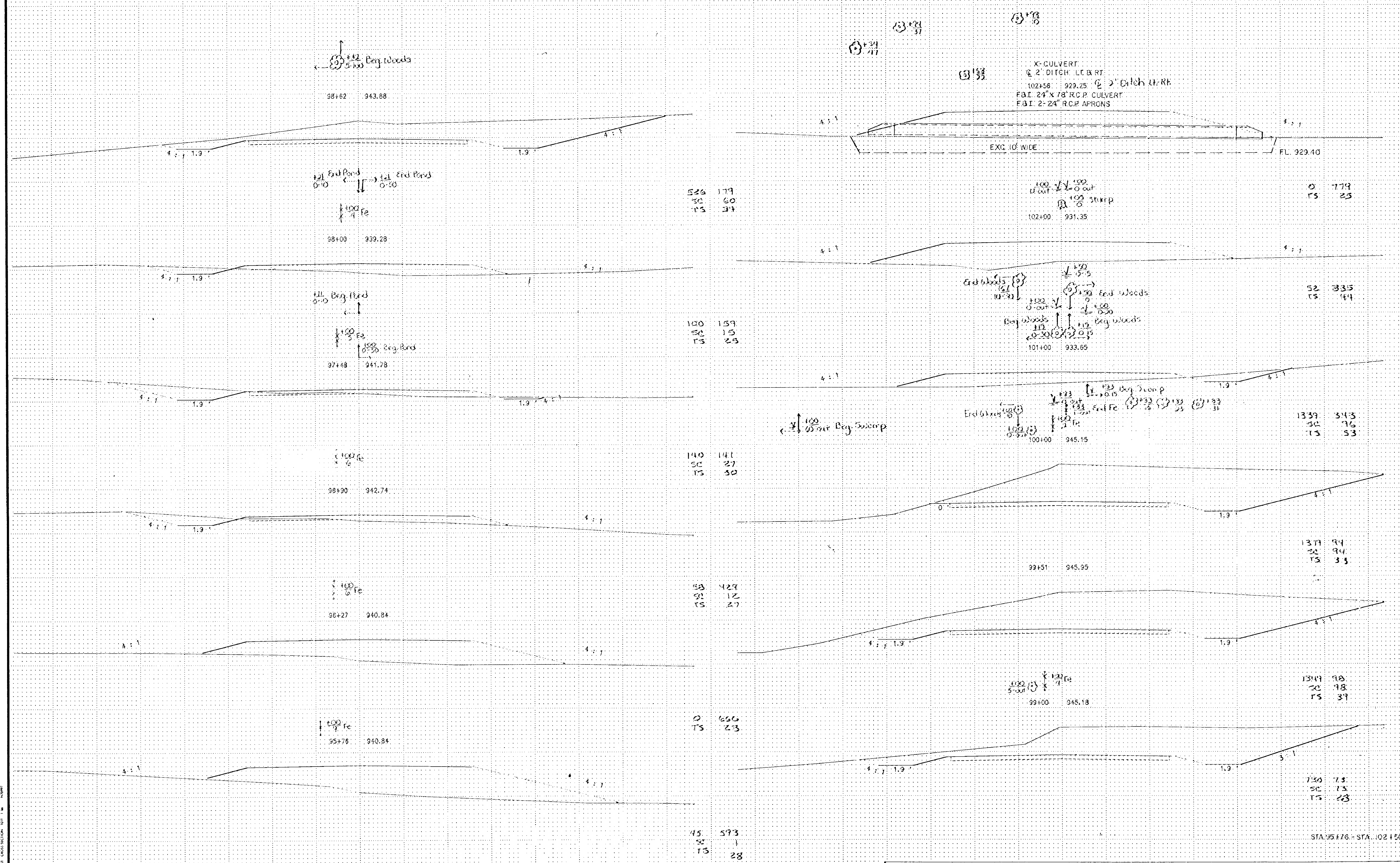
MULTIPLE POST CROSS SECTION UNIT 1/8" = 100'

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals



98+62 943.88
Beg. Woods

98+00 939.28
End Pond

97+48 941.78
Beg. Pond

98+90 942.74
Fe

98+27 940.84
Fe

95+76 940.84
Fe

102+56 929.25
X-CULVERT
2' DITCH LT. & RT.
2' Ditch LT. & RT.
FBI 24" X 18" R.C.P. CULVERT
FBI 24" R.C.P. APRONS

Exc. 10' Wide

102+00 931.35
out
stump

101+00 933.65
End Woods
Beg. Woods

100+00 945.15
Beg. Swamp

100+00 945.15
End Fe
Beg. Swamp

99+51 945.95

99+00 945.18
Fe

526 179
SC 60
TS 37

100 159
SC 15
TS 25

140 141
SC 27
TS 30

53 429
SC 12
TS 27

0 666
TS 23

45 593
SC 1
TS 28

0 779
TS 25

52 335
TS 44

1339 343
SC 76
TS 53

1377 94
SC 94
TS 33

1347 98
SC 98
TS 37

730 73
SC 73
TS 28

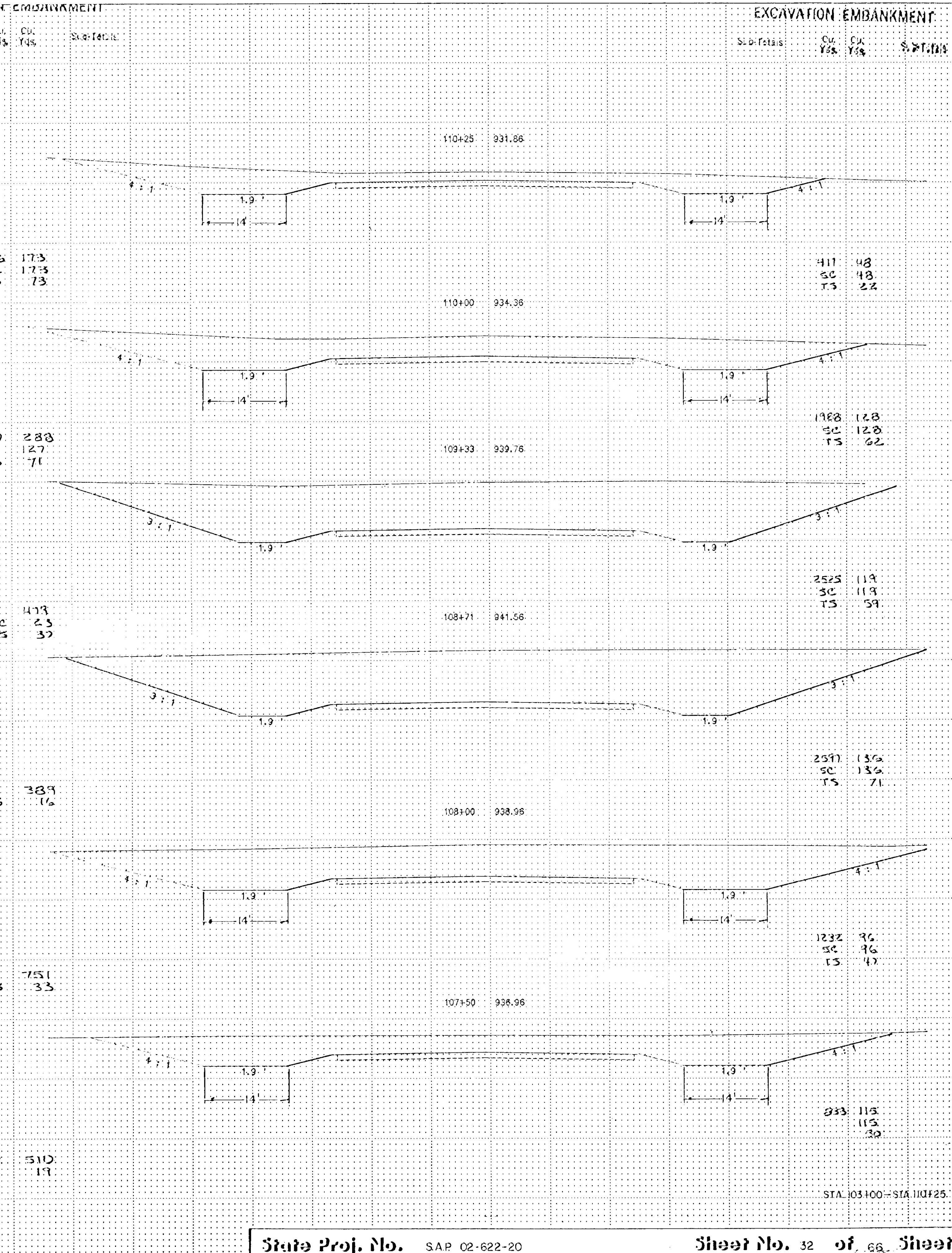
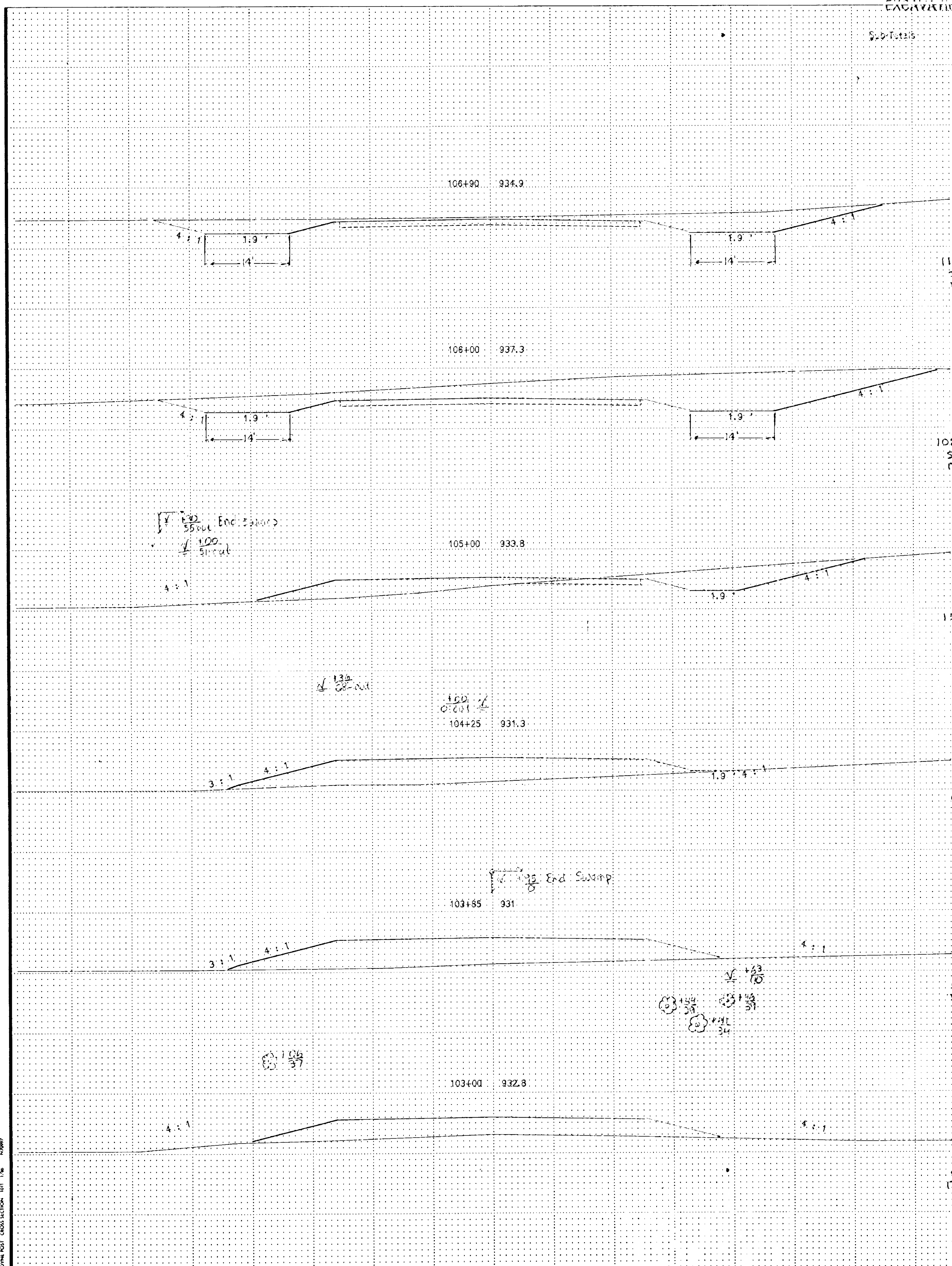
STA 95+76 - STA 102+56

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Total Cu. Yds. Cu. Yds. Sta. Total

Sub-Total Cu. Yds. Cu. Yds. Sta. Total



STA. 103+00 - STA. 110+25

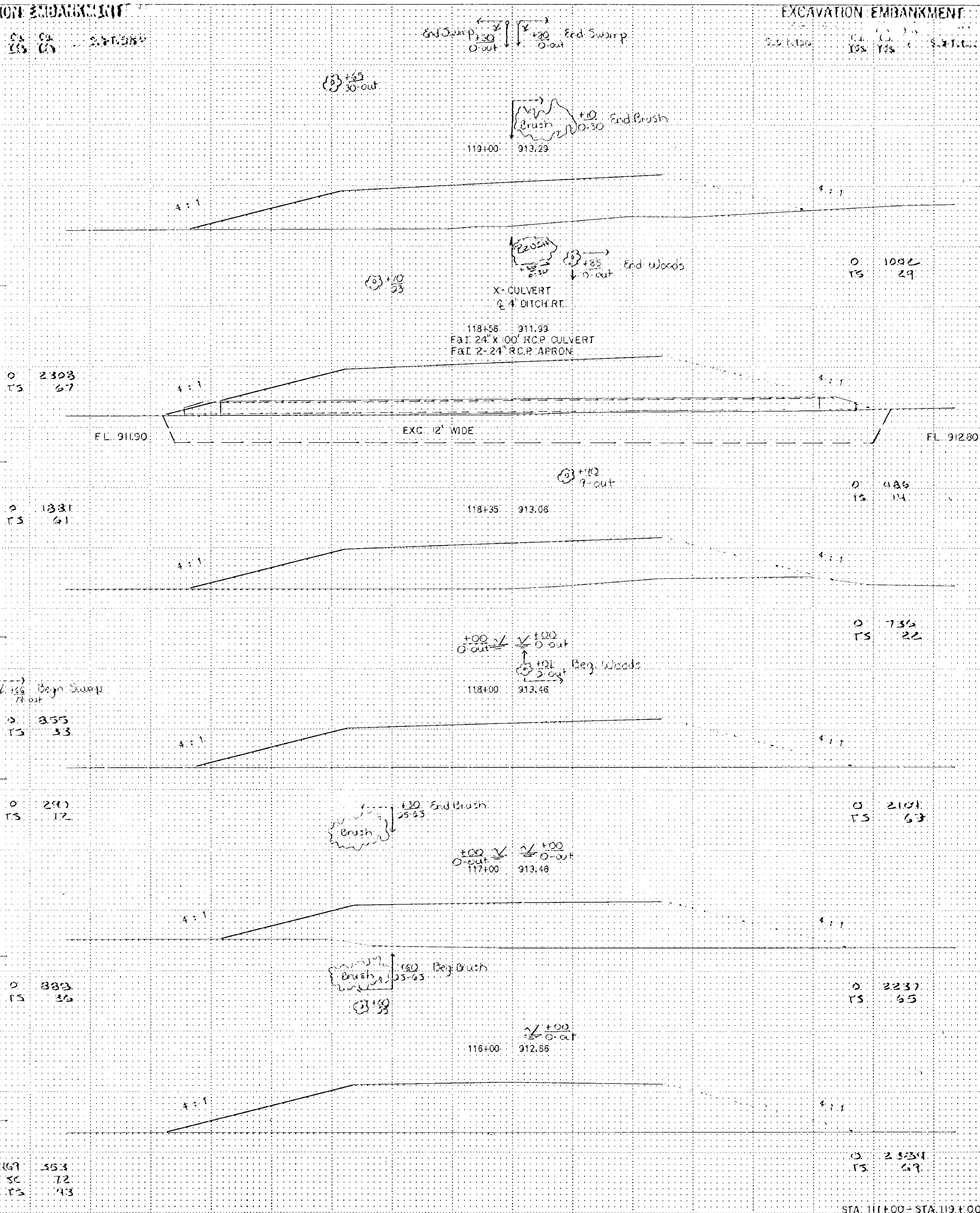
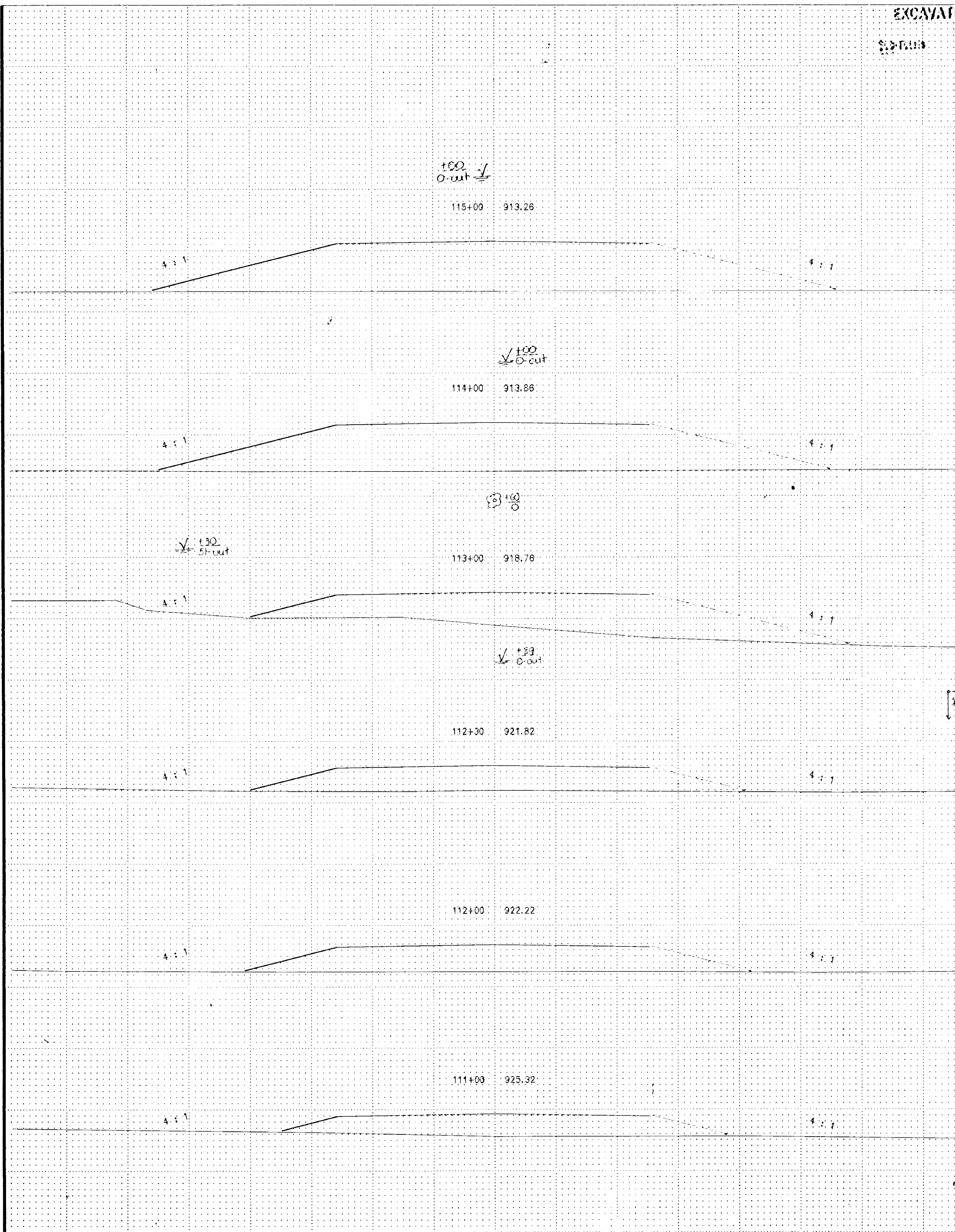
UNIVERSITY MICROFILMS INT'L

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sta. 111+00 to 119+00

Sta. 111+00 to 119+00



ILLINOIS STATE ENGINEERING BOARD

STA. 111+00 - STA. 119+00

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

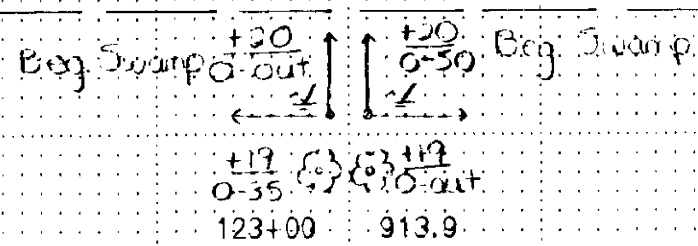
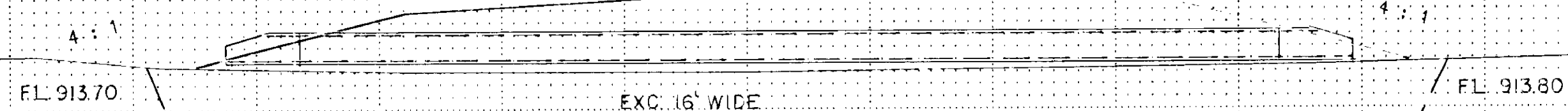
⊕ +30
70-out

⊕ F.802
0-out

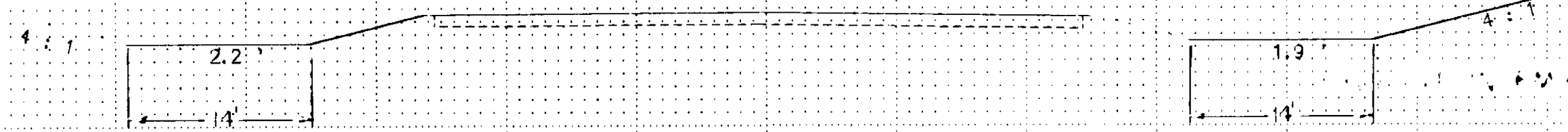
X-CULVERT
+100
0-35
124+00 913.2
FBI 24" X 80" R.C.P. CULVERT
FBI 2-24" R.C.P. APRONS

⊕ +00
50-out

129+00 922.29

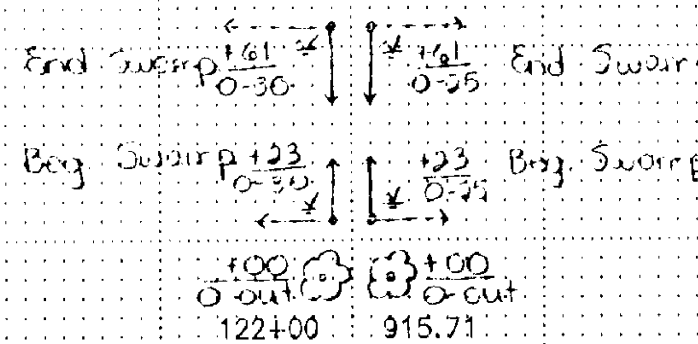
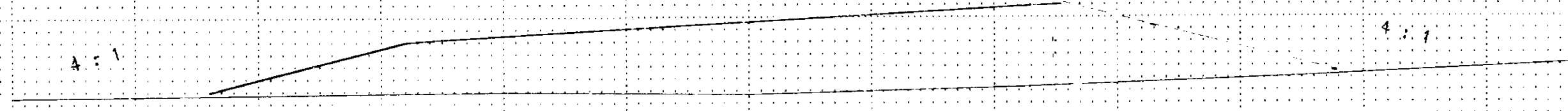


0
TS 1634
SC 52

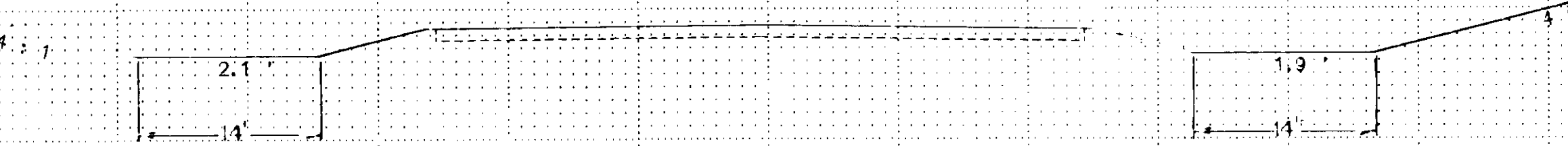


633 48
SC 48
TS 22

128+75 924.49

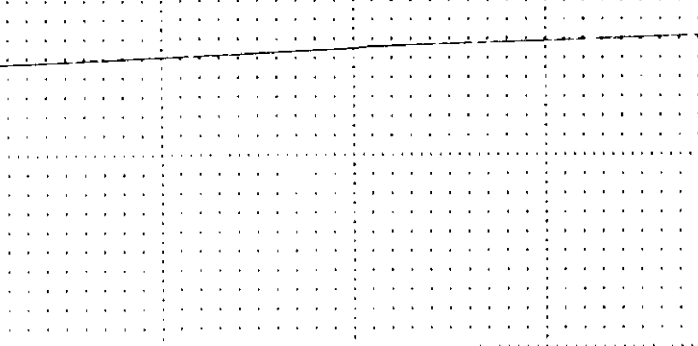
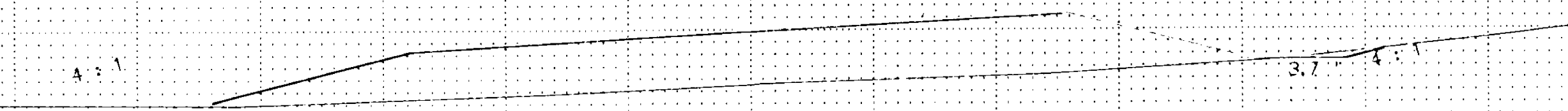


4
TS 1308
SC 51

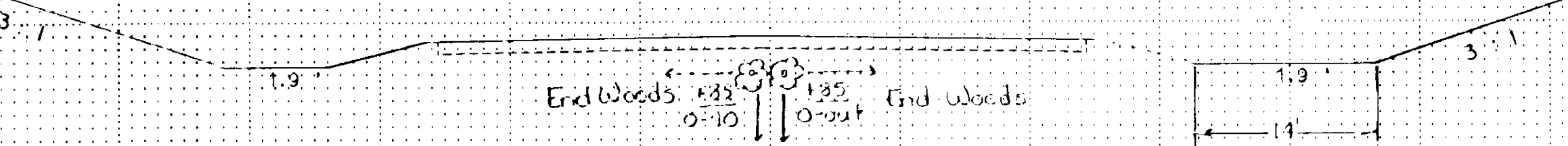


247 114
SC 114
TS 74

128+00 924.23

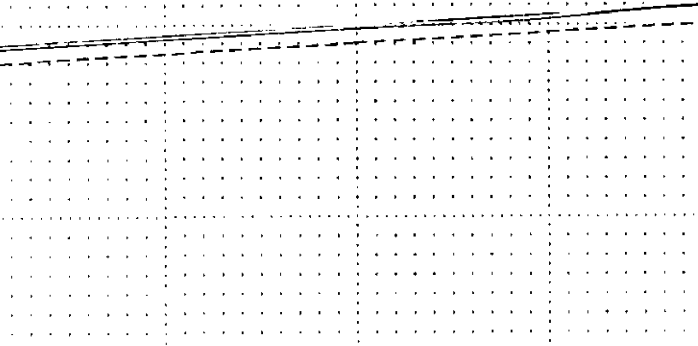
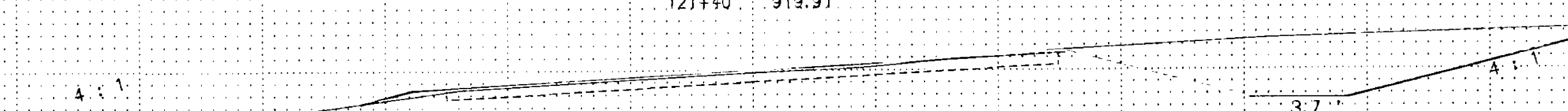


201 392
SC 48
TS 34

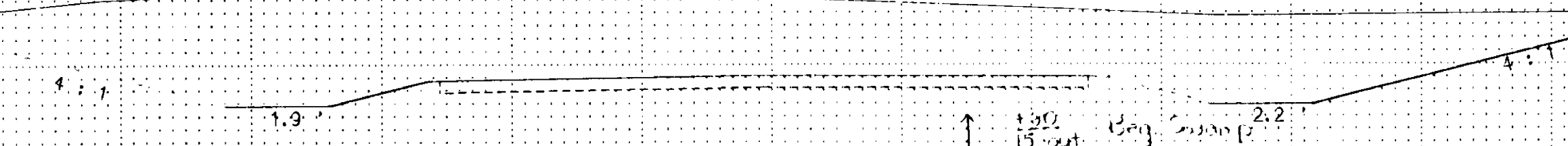


3237 192
SC 192
TS 97

127+00 925.03

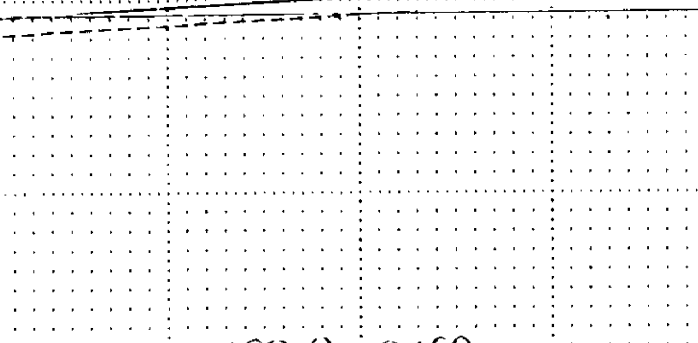
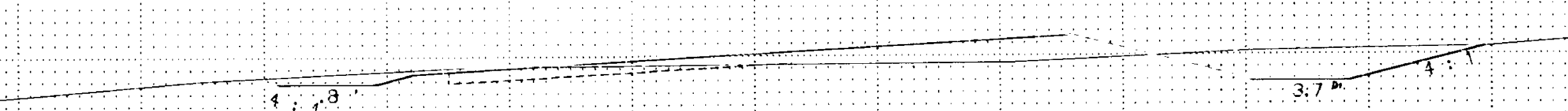


137 92
SC 46
TS 22

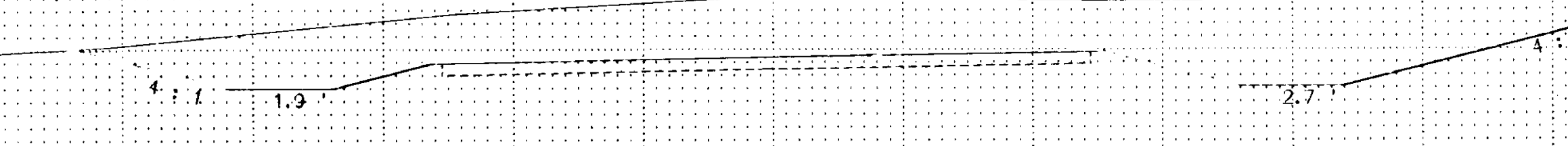


2572 172
SC 172
TS 35

126+00 923.93

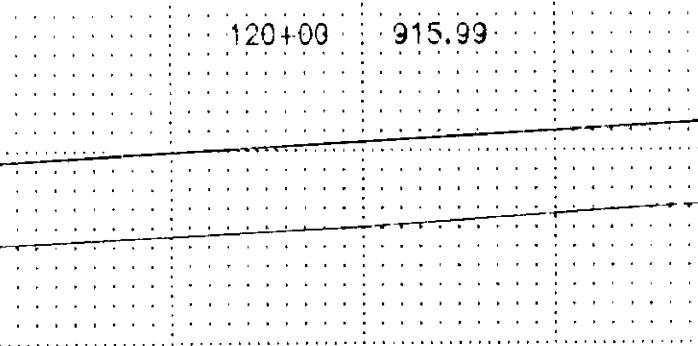
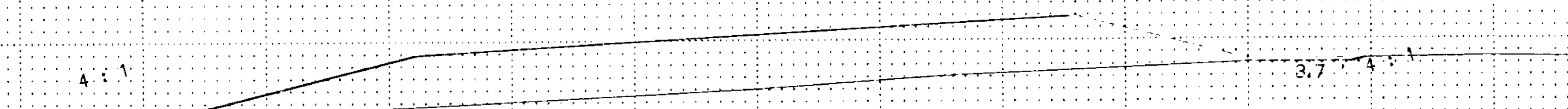


157 633
SC 134
TS 54

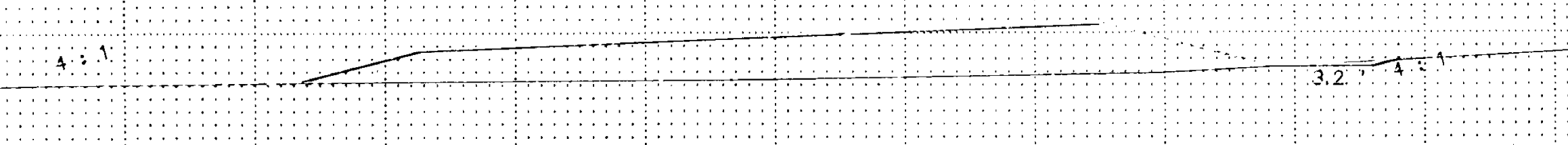


1067 457
SC 96
TS 59

125+00 918.23



3 1340
TS 55



3 1241
TS 45

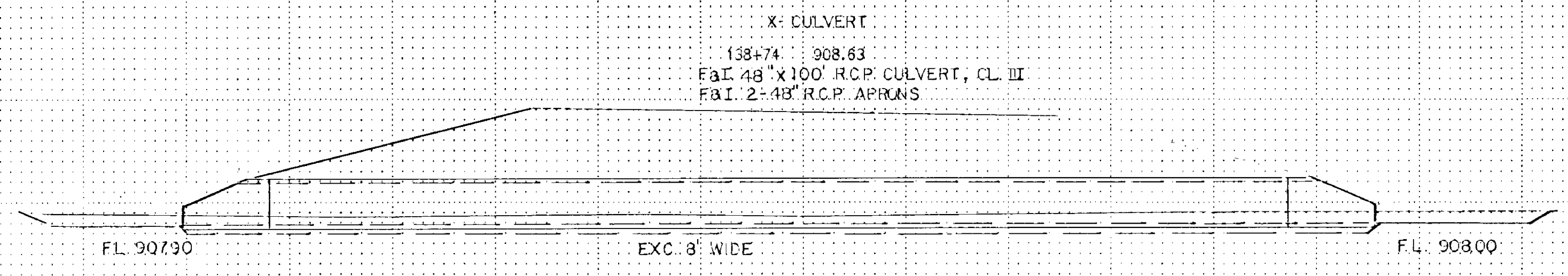
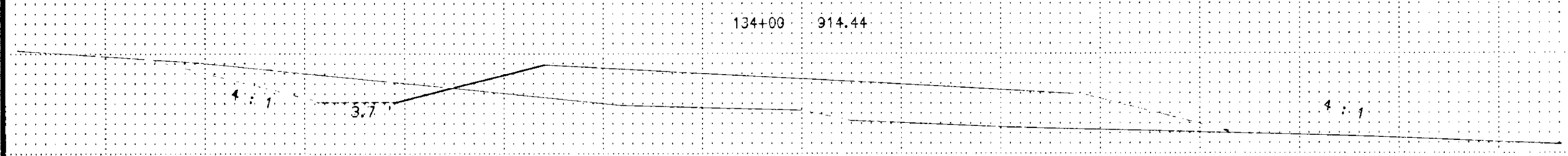
STA 120+00 - STA 129+00

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals
Cu Yds. Cu Yds. Sub-Totals

Sub-Totals
Cu Yds. Cu Yds. Sub-Totals

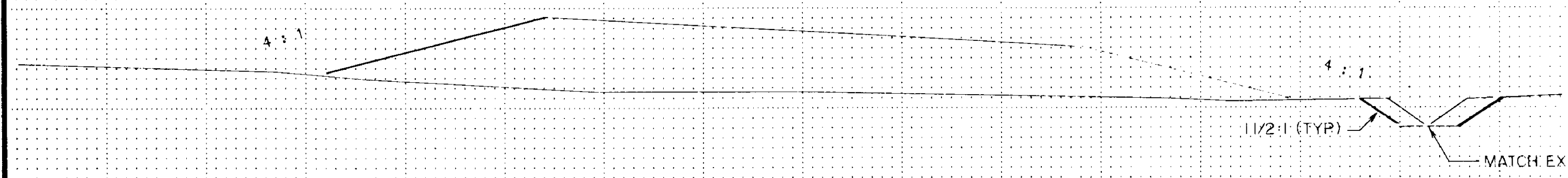


End Swamp
100' ±
0-out
133+00 911.74

95 1278
15 39

138+87 912.83

137 55
0 112
15 4



100
50

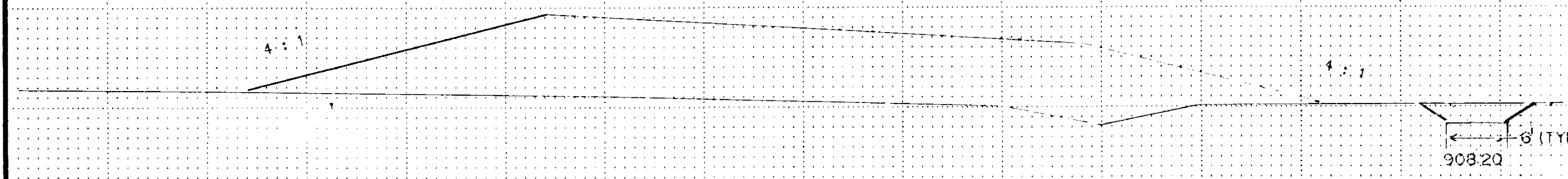
100
50

100' ±
0-out
132+00 910.84

0 1963
15 29
MUCK 31

138+00 914.03

0 383
15 31

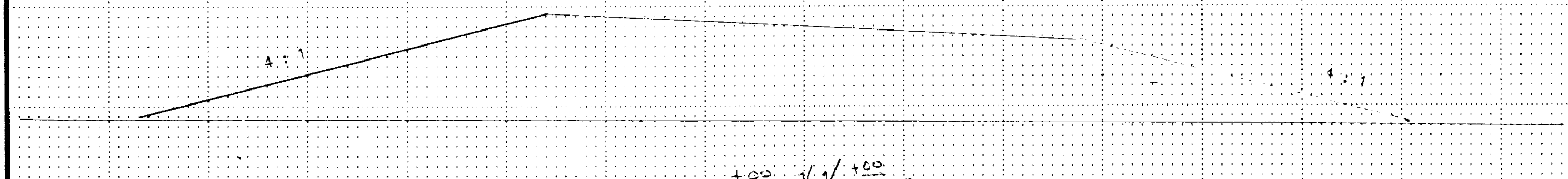


131+65 908.54 6' DITCH

0 930
15 25
MUCK 10

137+00 916.23

7 561
15 39

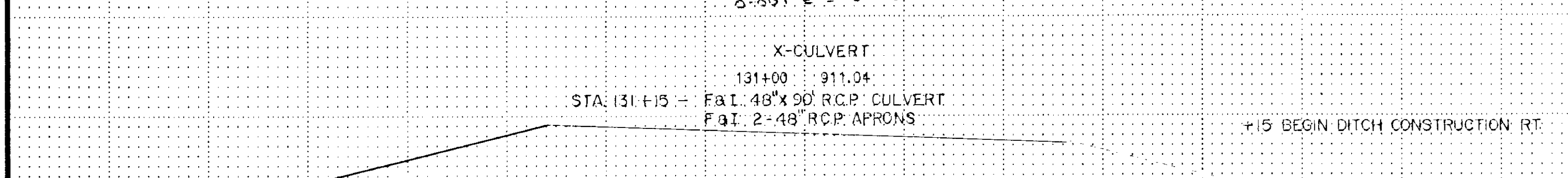


100' ±
0-out
131+00 911.04

0 1686
15 47
MUCK 34

138+00 913.83

123 492
15 11



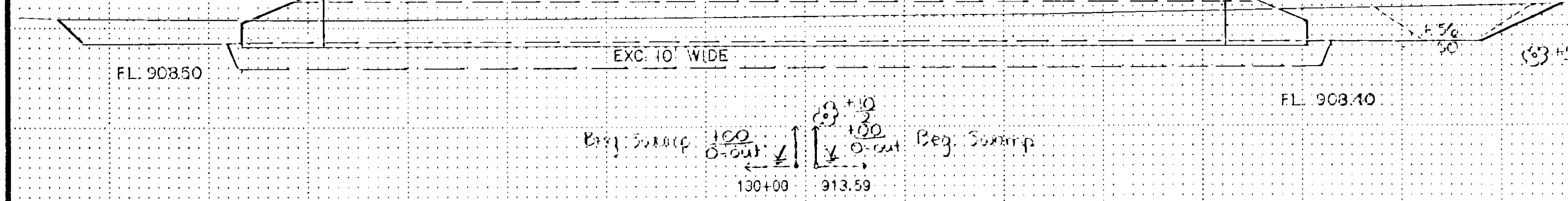
X-CULVERT
131+00 911.04
STA: 131+15 = F&I 48'x90' R.C.P. CULVERT
F&I 2-48' R.C.P. APRONS

+15' BEGIN DITCH CONSTRUCTION RT.

0 1665
15 54
MUCK 8

135+00 910.24

125 953
15 55



Begin Swamp
100' ±
0-out
130+00 913.59

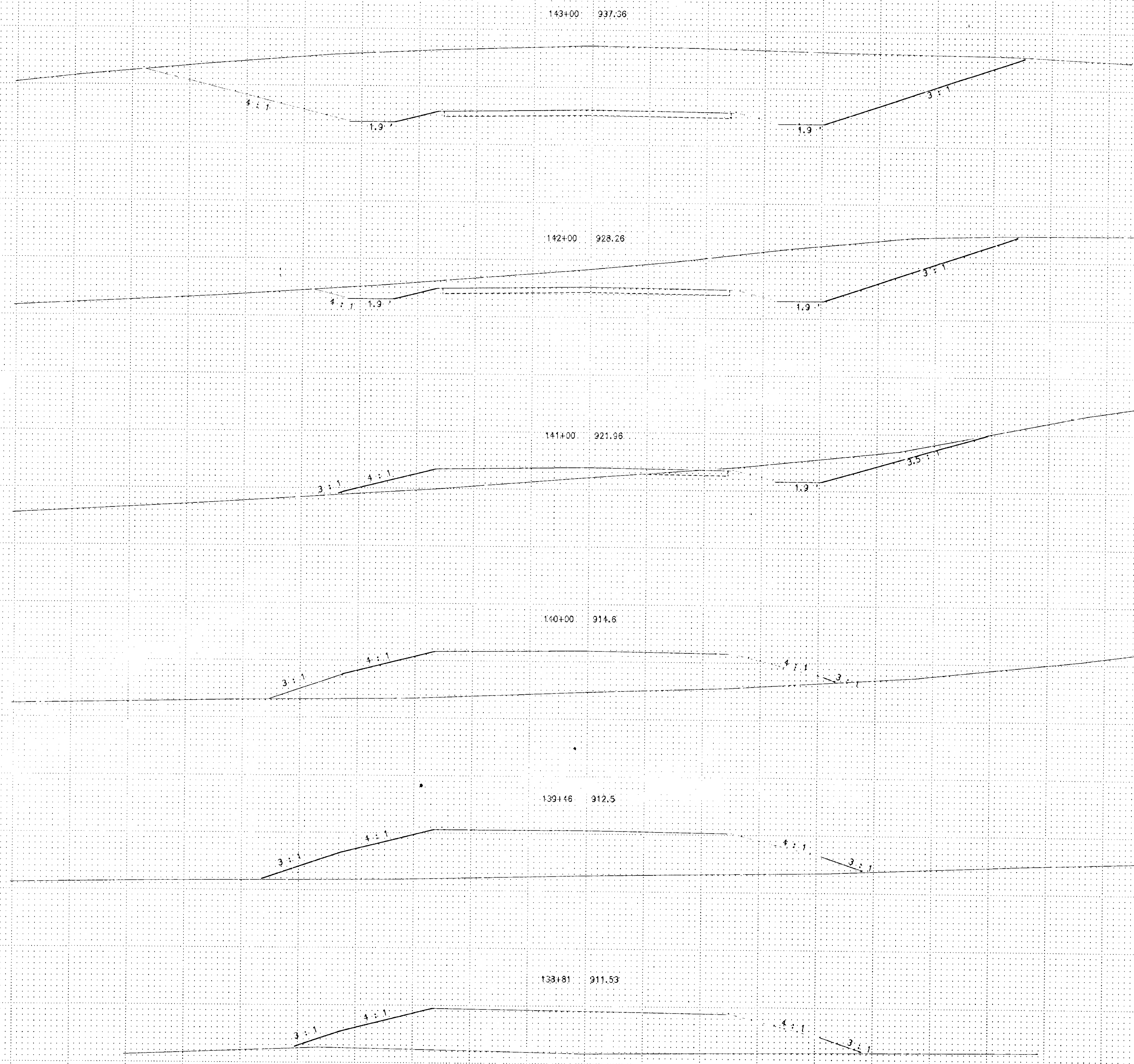
1003 715
15 96
15 34

105 1075
15 58

STA: 130+00 = STA: 138+74

EXCAVATION EMBANKMENT

Sta. 143+00 Sta. 142+00 Sta. 141+00 Sta. 140+00 Sta. 139+46



3258
50
TS

192
192
92

1246
50
TS

340
116
32

188
20
TS

1256
20
73

0
TS

1185
34

0
TS

1126
42

0
TS

183
4

STA. 139+46 = STA. 143+00

State Proj. No.

Sheet No. 36 of 66 Sheets

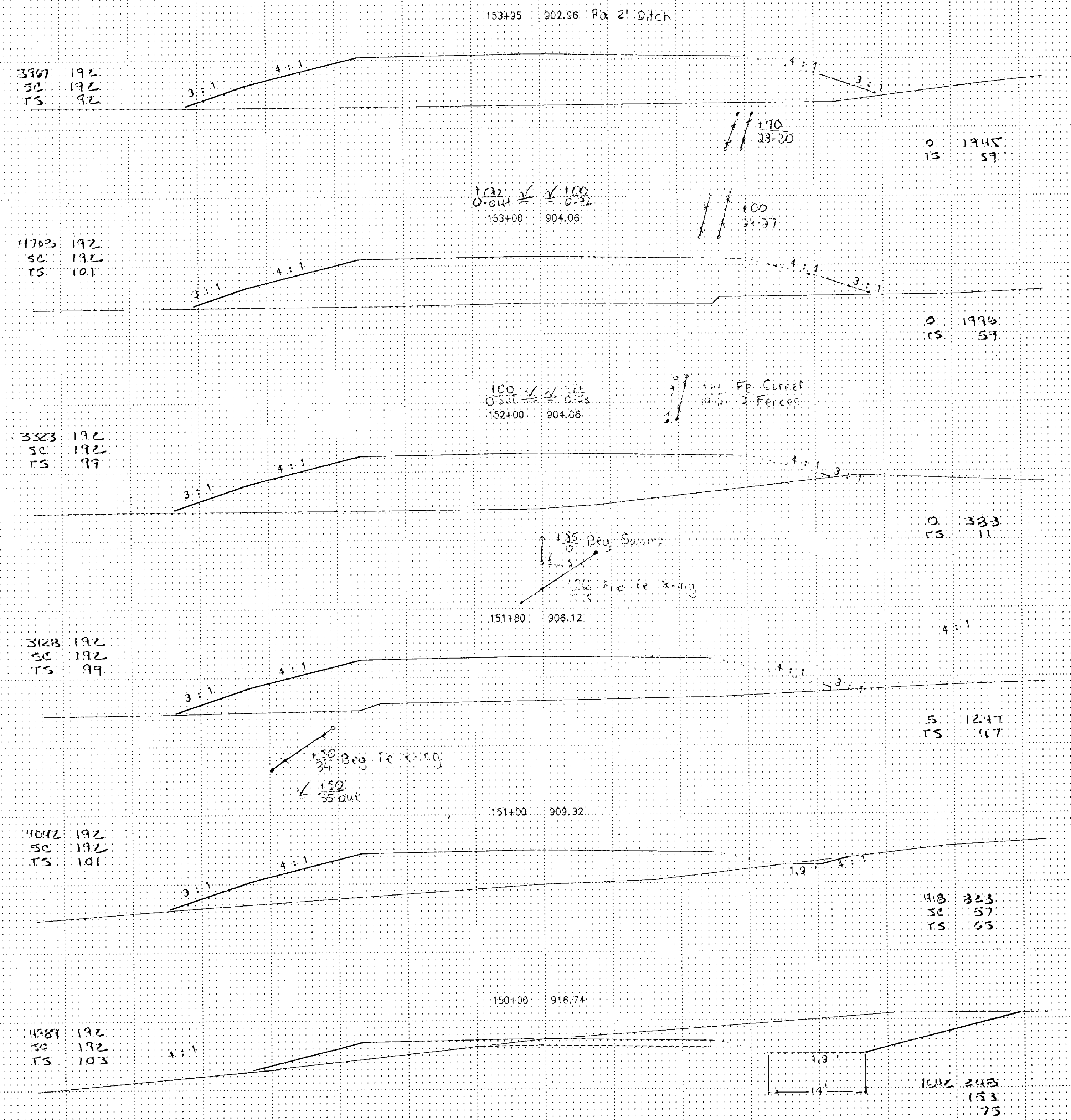
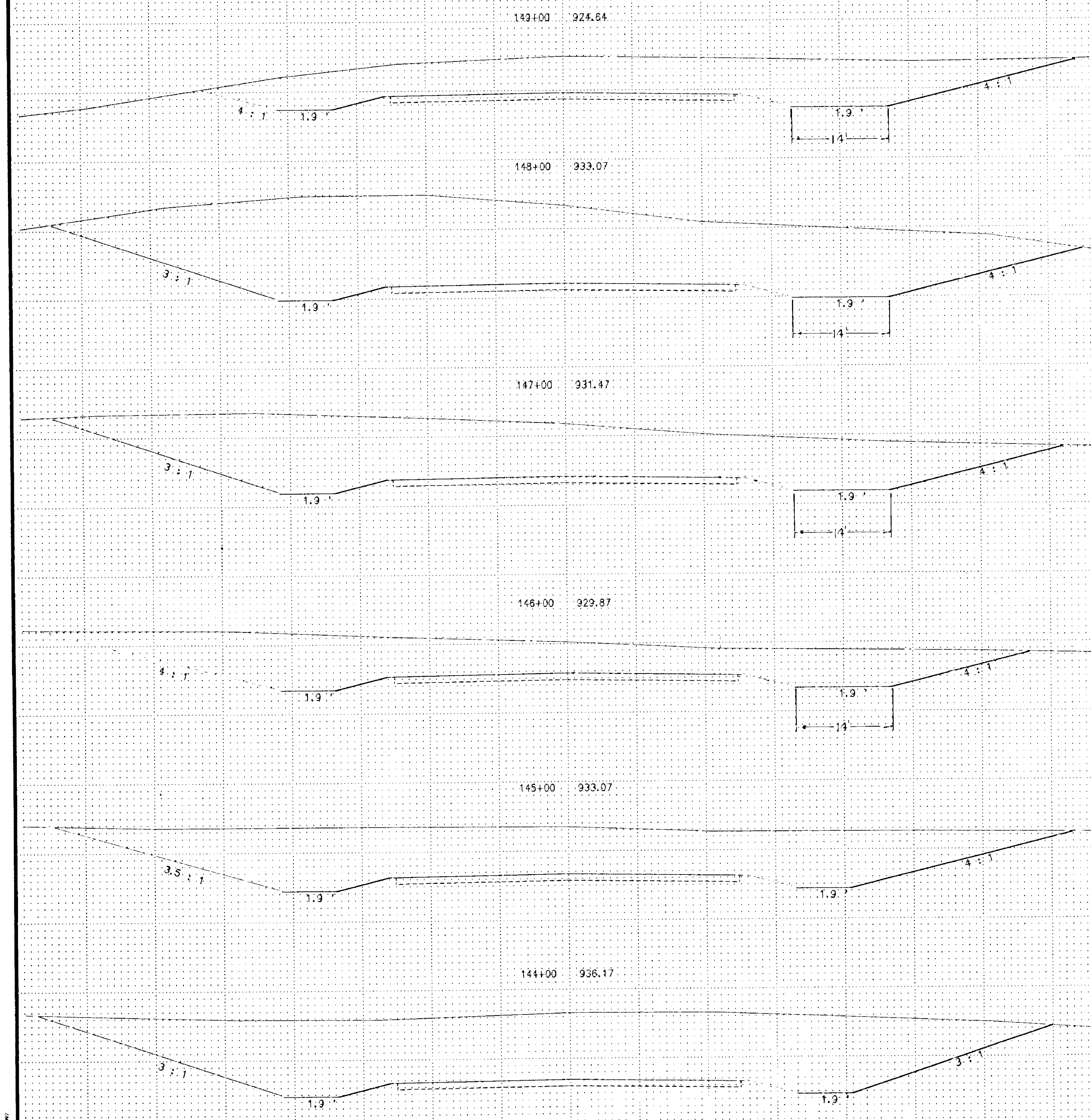
REVISIONS: 1. 05/15/14

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Exc. Basis Cu. Cu. Exc. Total

Exc. Total Cu. Cu. Exc. Total



3967 192
SC 192
TS 92

4170 192
SC 192
TS 101

3323 192
SC 192
TS 97

3128 192
SC 192
TS 99

4012 192
SC 192
TS 101

4987 192
SC 192
TS 103

0 1945
TS 57

0 1996
TS 57

0 383
TS 11

5 1247
TS 117

418 323
SC 57
TS 65

1602 2023
SC 153
TS 75

STA. 144+00 = STA. 153+95

ILLINOIS POST CONSTRUCTION DIST. 1/80

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

+11
O-out Lt. & Rt. Fe. X-ing
156+00 907.16
15
25-out End Woods

156+58 911.27

0 503
TS 22

53 21
SC 20
TS 4

155+55 906.36

156+51 912.89

0 651
TS 27

107 41
SC 41
TS 7

End Swamp
+100
40-out
+131
28
+121
40
+11
31
+100
50-out
+155
0-out
155+00 908.88

156+41 912.84 @ CR. 66

0 728
TS 27

115 45
SC 45
TS 8

+165
0-out
+100
0-out
154+50 904.36
+100
0-out
+100
0-out

156+30 912.61

0 806
TS 23

54 23
SC 12
TS 4

154+05 902.96

156+23 909.17

0 111
TS 3

+100
0-out
+100
0-out

156+18 908.06

11 33
SC 1
TS 3

X-CULVERT 15° SKEW (APPROX)
154+00 902.96
F&I 24" X 34" R.C.P. CULVERT
F&I 2-24" R.C.P. AFCONS

+20
O-out Lt. & Rt. Fe. X-ing

2 110
TS 3

19 41
10 165
TS 11

FL. 902.50

4' LT. 4' RT.

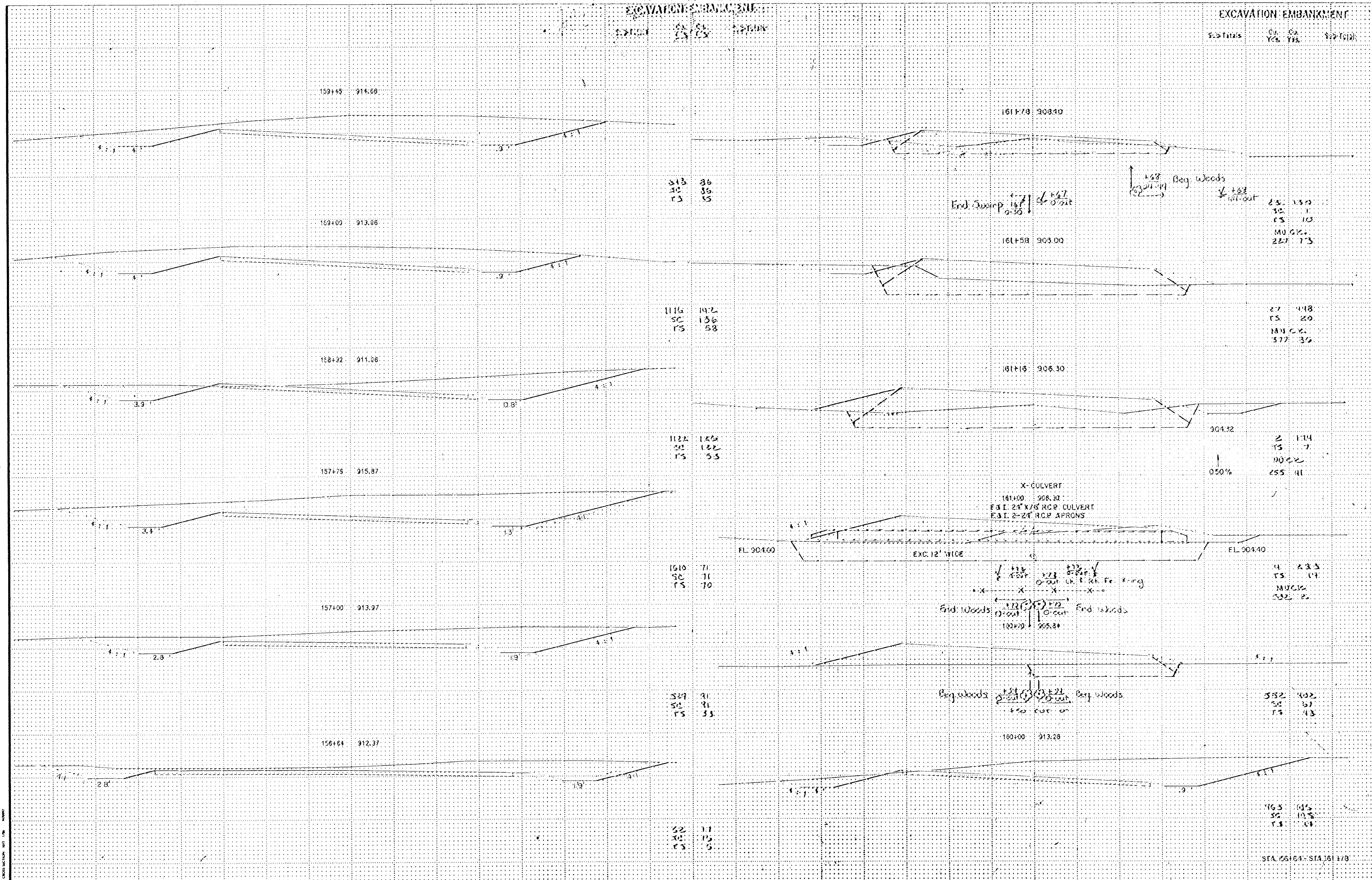
FL. 903.50

EXC. 34' WIDE

STA. 154+00 - STA. 156+58

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT



313
SC 86
TS 86

1116
SC 142
TS 156

1122
SC 122
TS 122

1610
SC 71
TS 70

529
SC 91
TS 91

52
SC 11
TS 11

End Swamp
161+78
908.40

161+58
903.00

161+18
906.30

X-CULVERT
161+00 906.30

E.I. 24\"/>

End Woods
160+70
904.60

160+50
905.87

160+00
913.28

168 Beg Woods
161+78
908.40

163
161+58
903.00

904.32
0.50%

163
161+00
906.30

163
160+70
904.60

163
160+50
905.87

163
160+00
913.28

252
SC 150
TS 150
MU 61
227 73

27
SC 118
TS 20
MU 61
377 36

2
SC 114
TS 7
MU 61
255 41

4
SC 235
TS 14
MU 61
332 26

532
SC 452
TS 51
43

163
SC 115
TS 115

STA. 156+64 - STA. 161+78

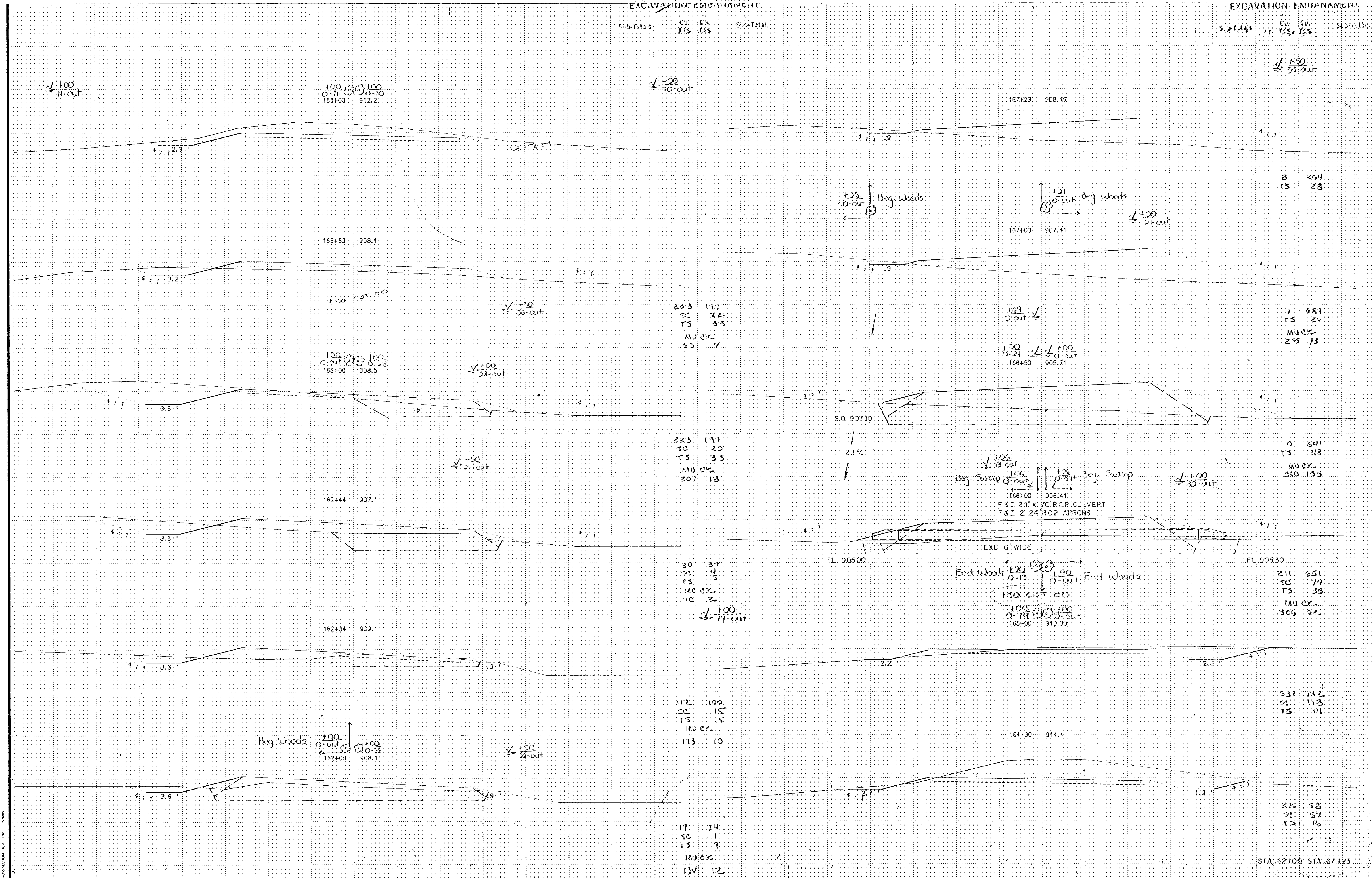
DRAWING NO. CROSS SECTION 1011 1/16 10/20/99

EXCAVATION EMBANKMENT

SUB-TOTALS	CU. YDS.	CU. YDS.	SUB-TOTAL
	153	188	

EXCAVATION EMBANKMENT

SUB-TOTALS	CU. YDS.	CU. YDS.	SUB-TOTAL
	153	188	

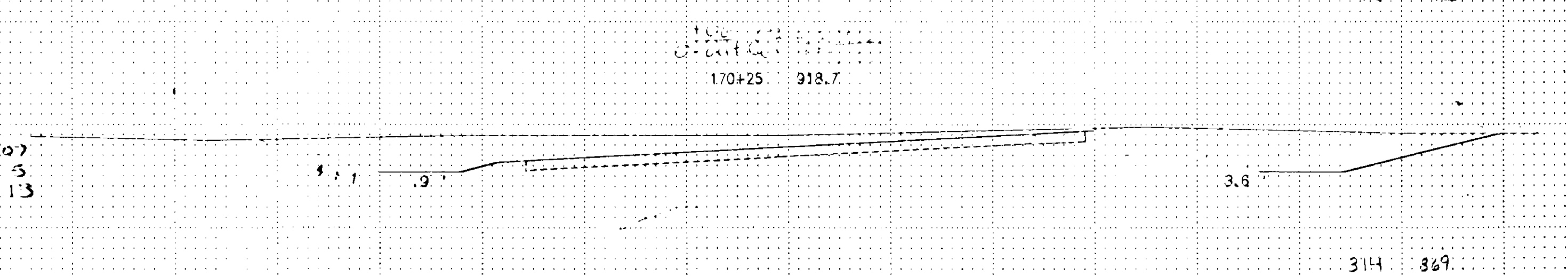
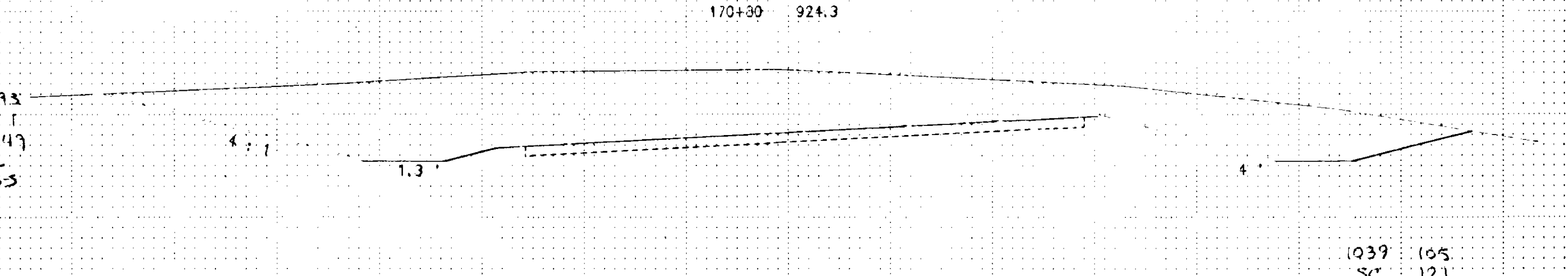
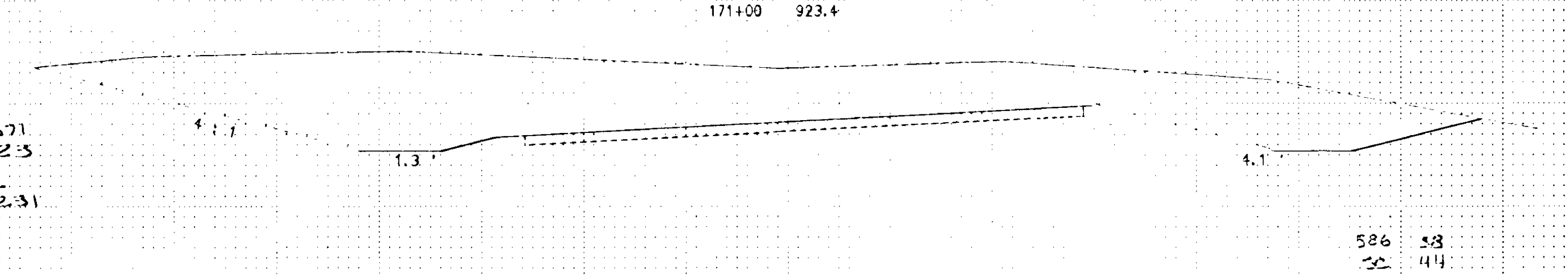
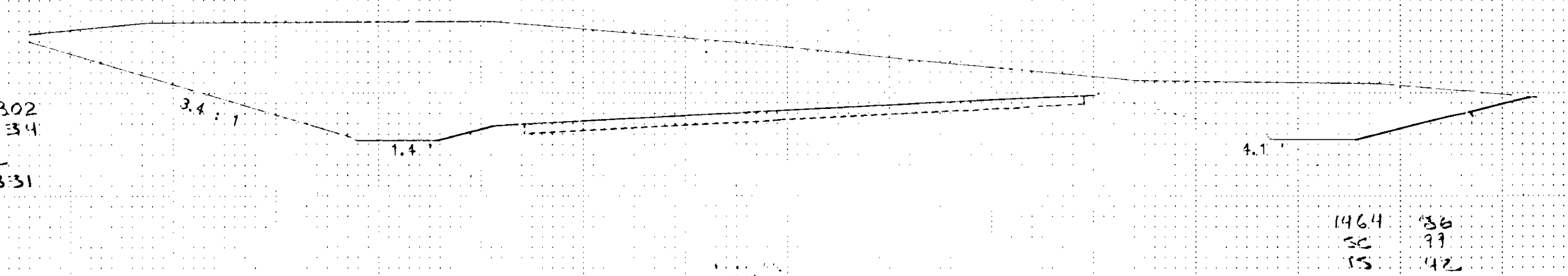
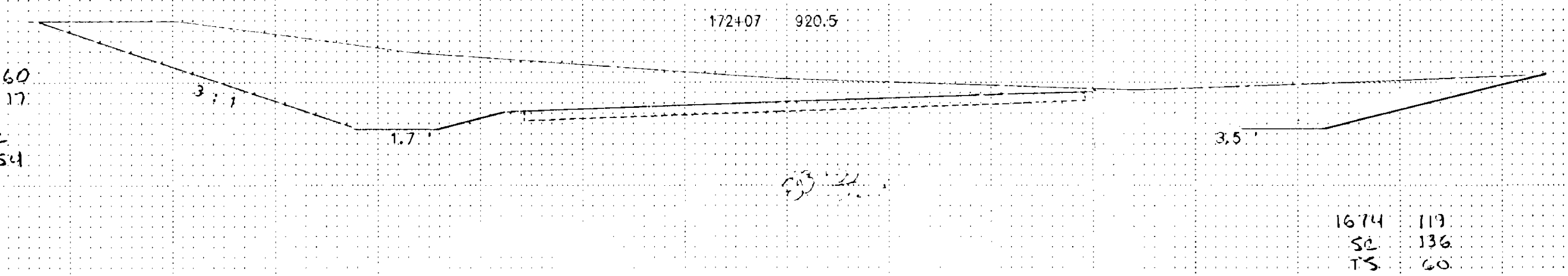
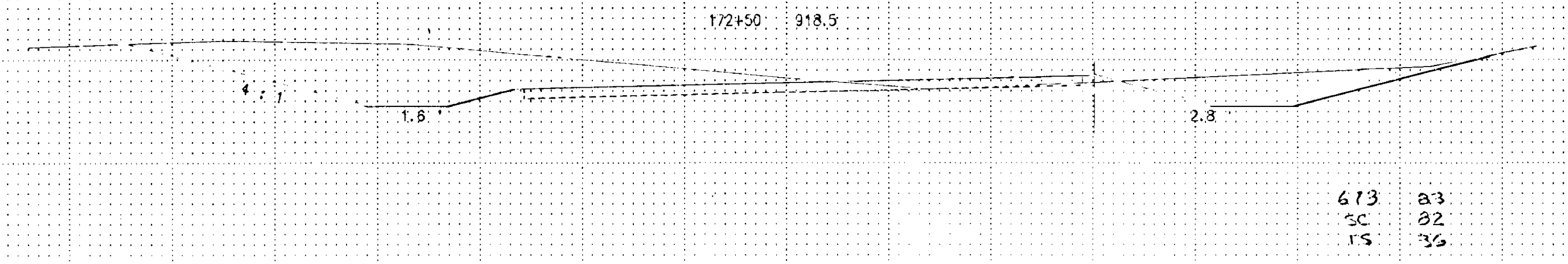
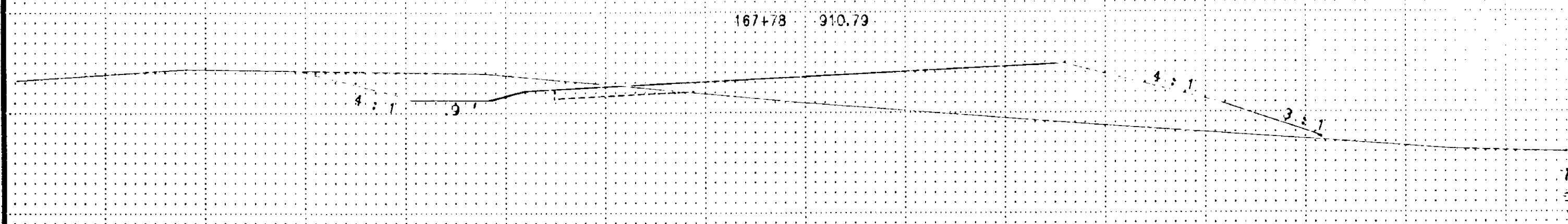
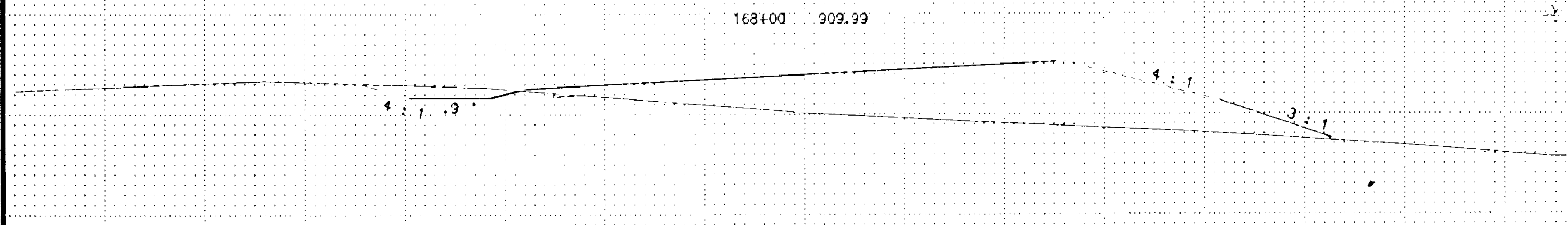
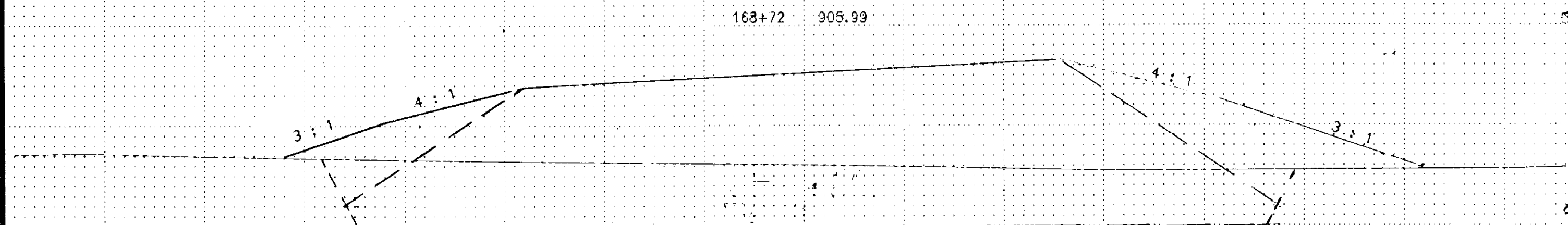
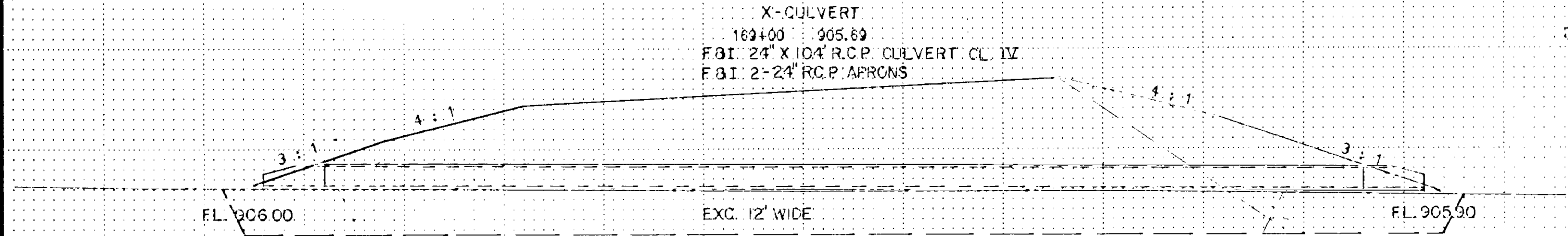
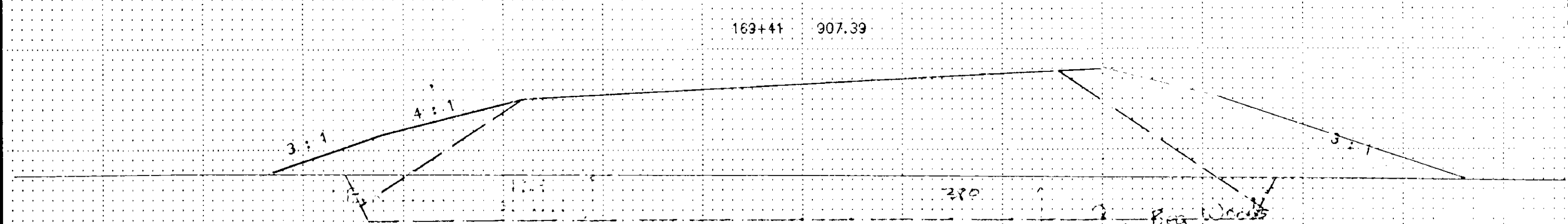
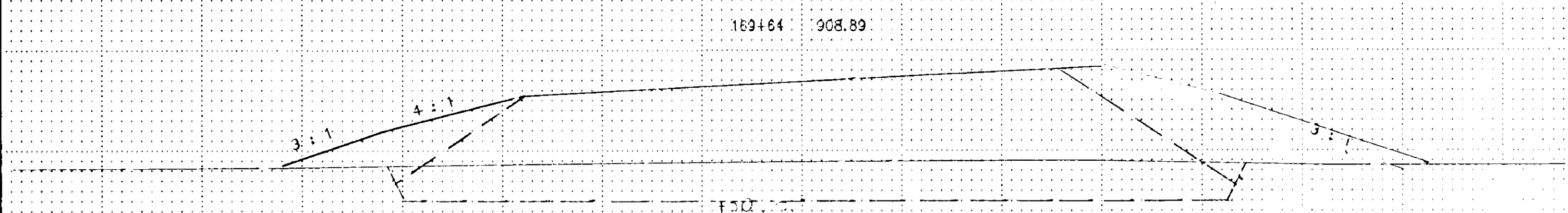


EXCAVATION EMBANKMENT

Sub-Totals Cut 135 115 Sub-Totals

EXCAVATION EMBANKMENT

Sub-Totals Cut 135 135 Sub-Totals



0 660
 TS 17
 MU 210
 181 154

0 1302
 TS 34
 MUCK
 231 331

0 371
 TS 25
 MUCK
 500 231

20 475
 SC 1
 TS 49
 MUCK
 243 85

32 207
 SC 5
 TS 13

76 511
 SC 12
 TS 33

673 83
 SC 82
 TS 36

1674 119
 SC 136
 TS 60

1464 36
 SC 71
 TS 42

586 58
 SC 114
 TS 18

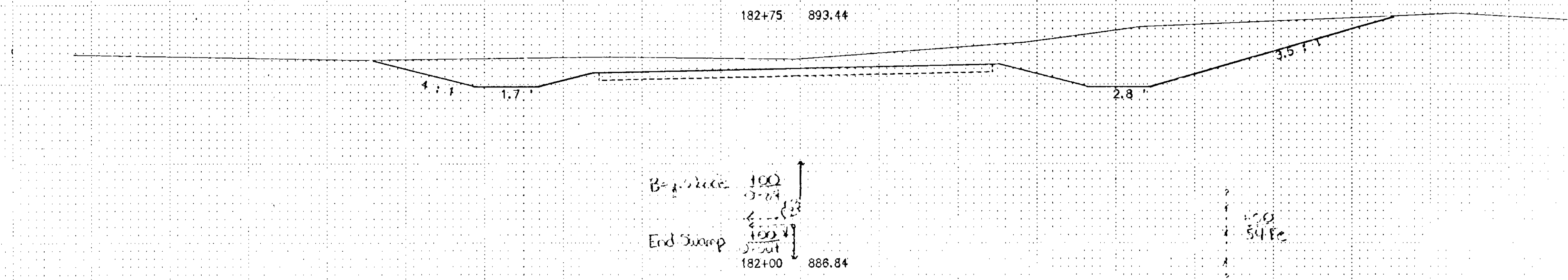
1039 105
 SC 121
 TS 92

314 369
 SC 67
 TS 43

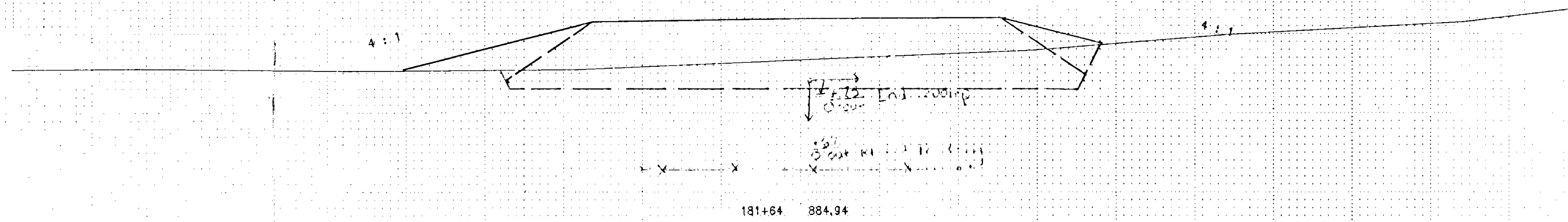
STA 167+78 - STA 172+50

EXCAVATION EMBANKMENT

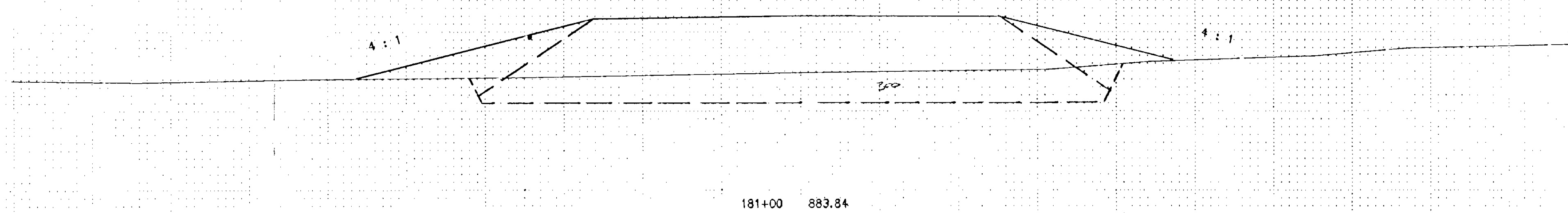
Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals



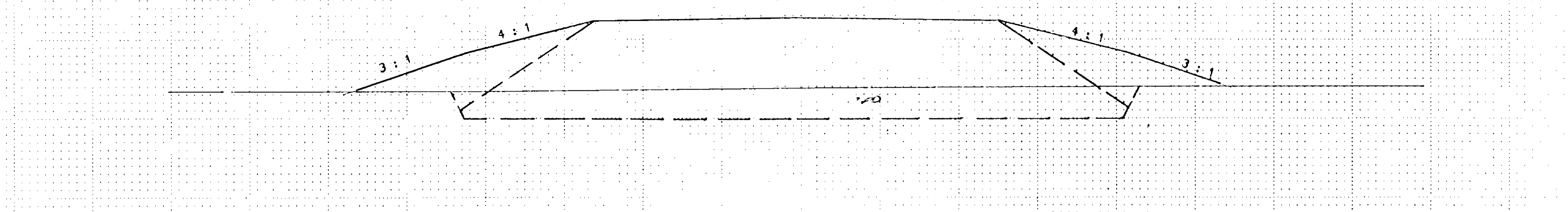
622 581
SC 72
TS 48
MUCK
232 70



0 614
TS 19
MUCK
367 137

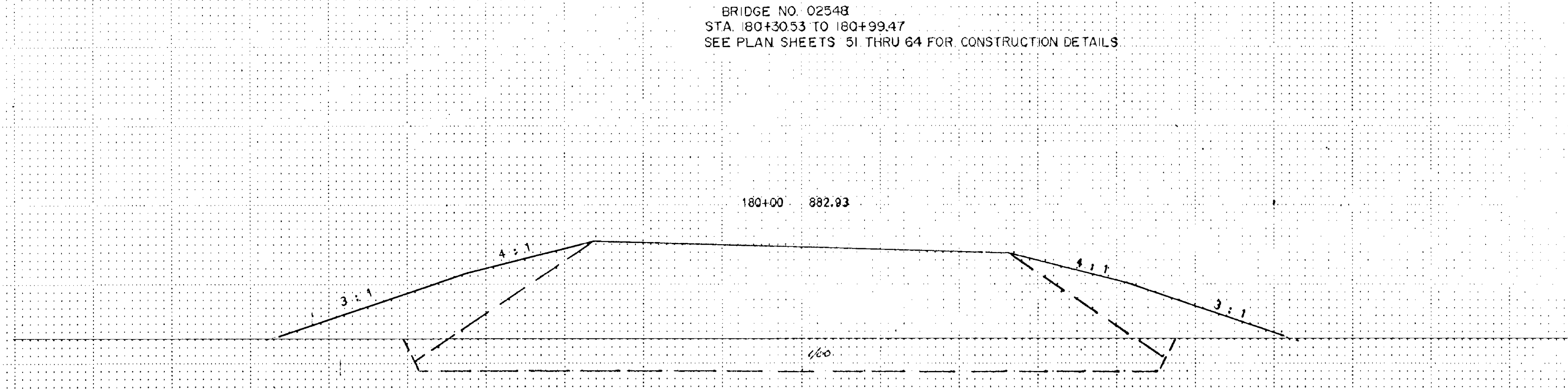


0 1514
TS 40
MUCK
711 361



0 1232
TS 26
MUCK
454 317

BRIDGE NO. 02548
STA. 180+30.53 TO 180+99.47
SEE PLAN SHEETS 51 THRU 64 FOR CONSTRUCTION DETAILS



0 2728
TS 54
MUCK
963 719

0 4839
TS 88
MUCK
1565 1224

STA. 180+00 = STA. 182+75

EXCAVATION EMBANKMENT



Sta. Total	Exc. Cu.	Emb. Cu.	Sub. Total
	1225	59	
	SC	59	
	TS	29	
	2579	101	
	SC	101	
	TS	56	
	775	30	
	SC	30	
	TS	17	
	2223	78	
	SC	78	
	TS	46	
	1495	46	
	SC	46	
	TS	27	
	2405	115	
	SC	115	
	TS	60	

185+00 901.16

184+18 902.31

+GO 7.5+1.00
0-3 1.5+1.15
184+00 902.19

183+59 905.66

183+35 904.46

Fire Woods

6" MINNESOTA PIPELINE

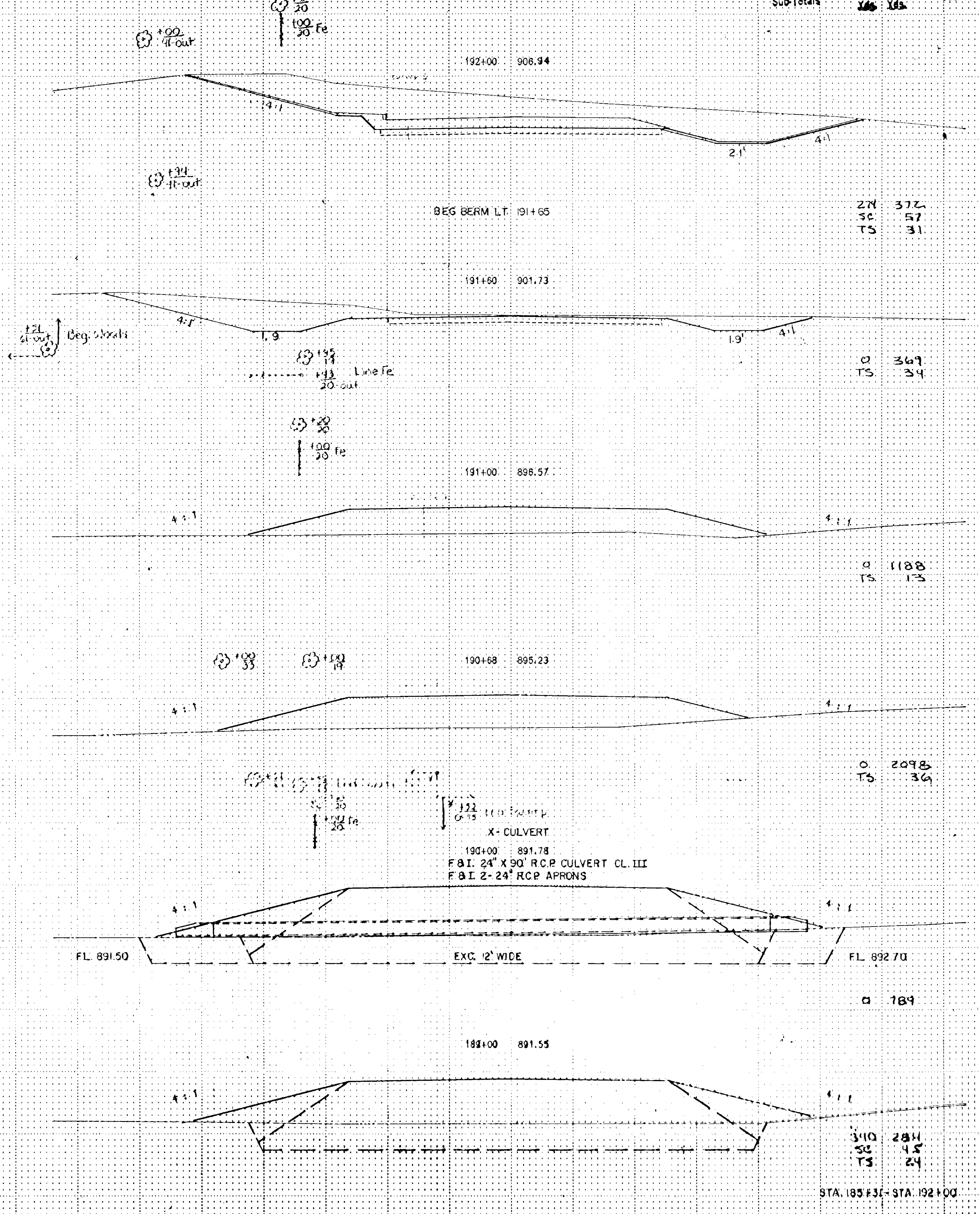
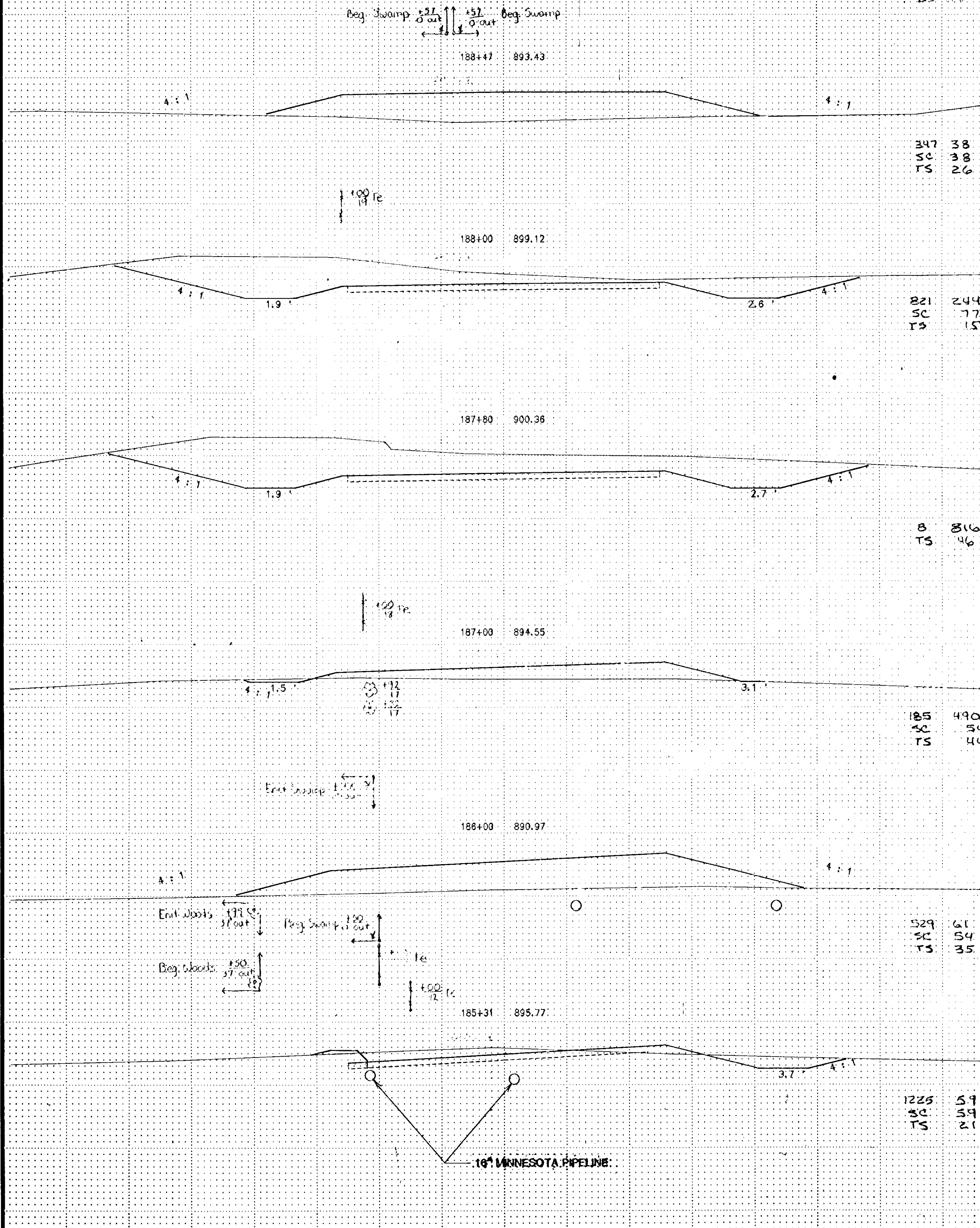
STA. 183+35 - STA. 185+00

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

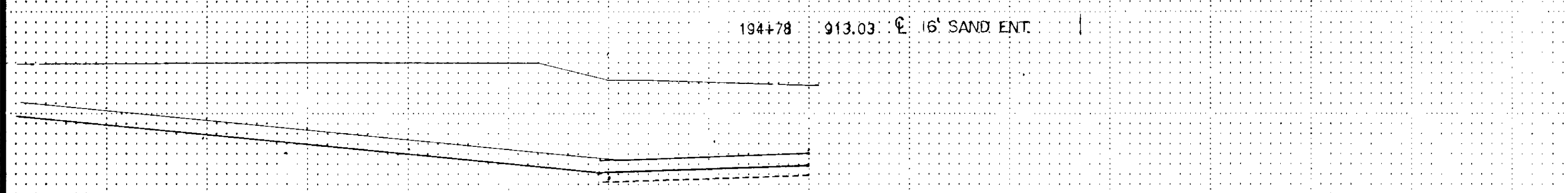


EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

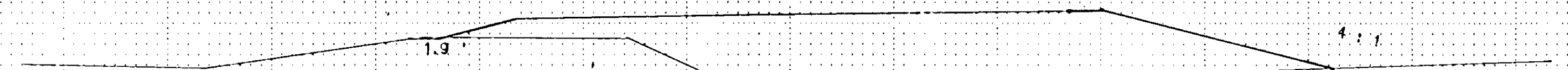
EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals



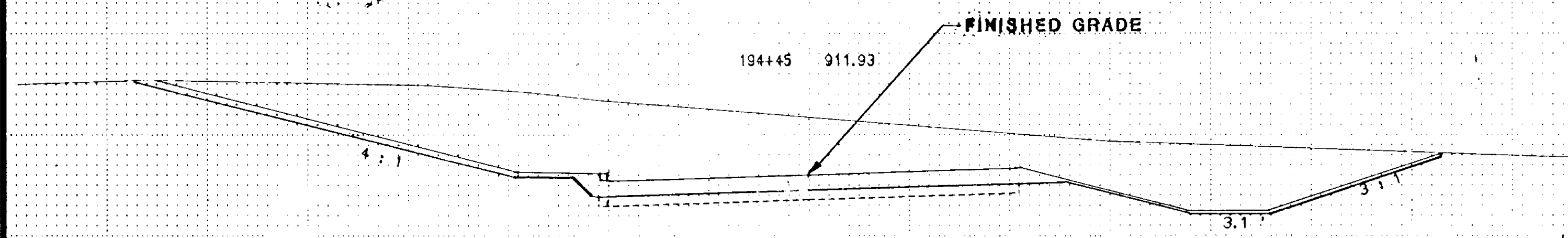
1944+78 913.03 16' SAND ENT.

762 59
SC 59
TS 18



198+00 905.38

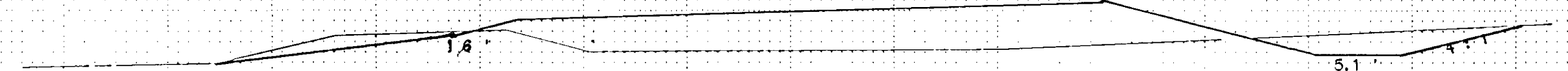
58 858
TS 43



1944+45 911.93

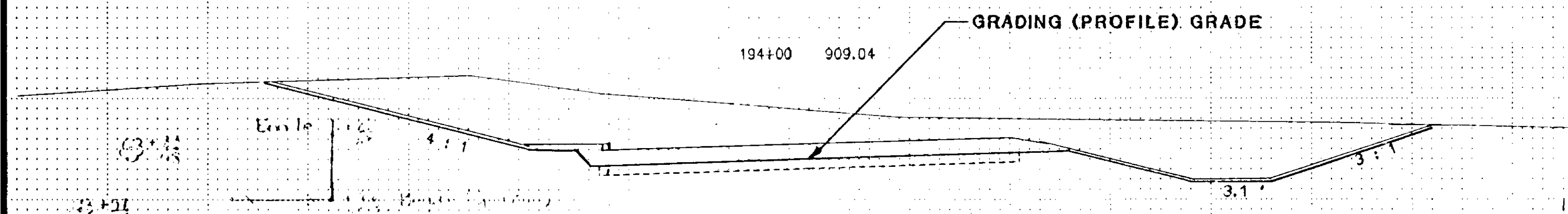
FINISHED GRADE

1152 71
SC 71
TS 35



197+18 906.18

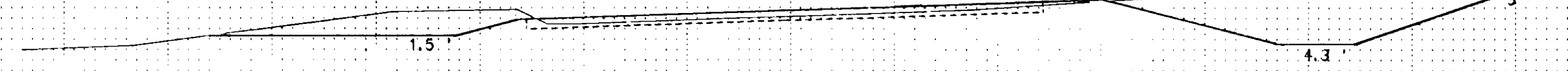
305 310
SC 32
TS 42



194+00 909.04

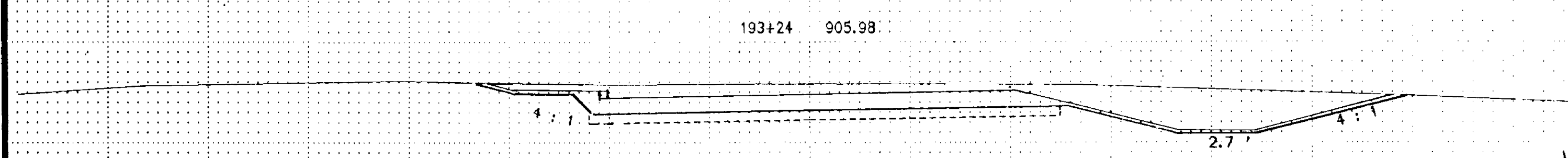
GRADING (PROFILE) GRADE

1229 133
SC 133
TS 47



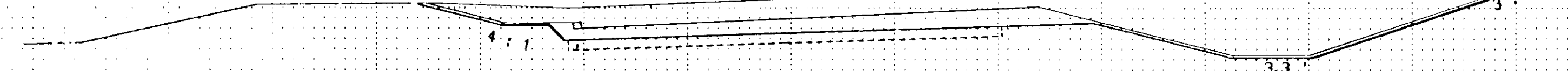
196+55 908.17

773 94
SC 73
TS 44



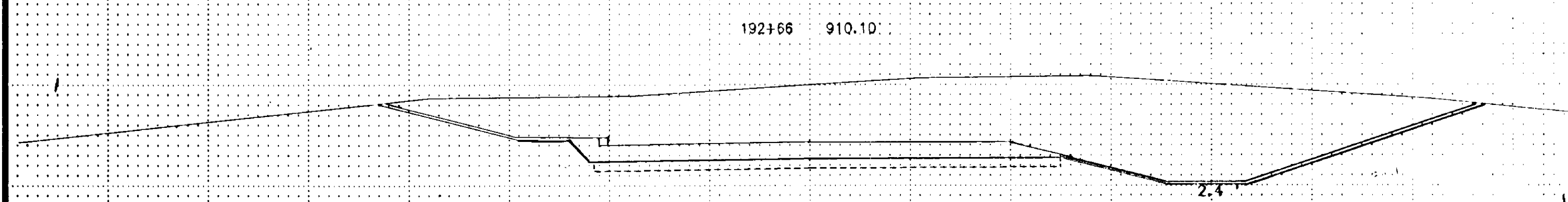
193+24 905.98

1320 111
SC 111
TS 39



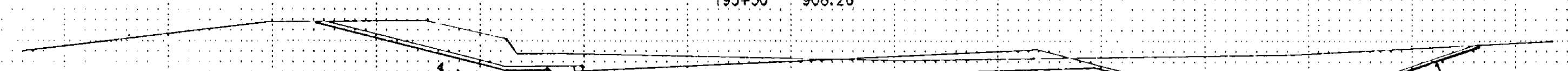
198+00 910.82
END BERM LT.

765 77
SC 79
TS 35



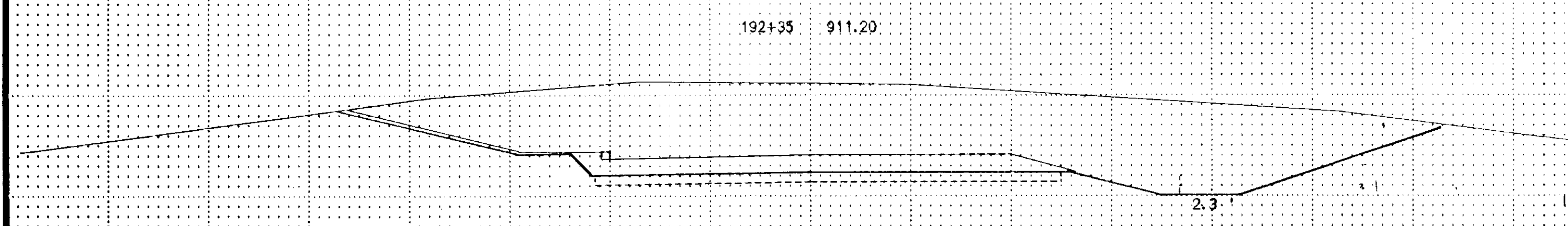
192+66 910.10

1118 59
SC 59
TS 26



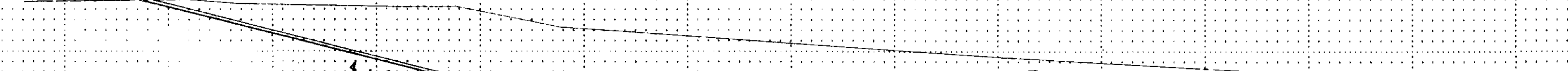
195+50 908.28

838 79
SC 79
TS 37



192+35 911.20

1162 67
SC 67
TS 29



195+00 910.68

424 26
SC 26
TS 11

STA. 192+35 - STA. 198+00

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals



377
50
TS 70
14

734
50
TS 237
186
47

210
50
TS 719
47
48

STA. 199+00 - STA. 200+19

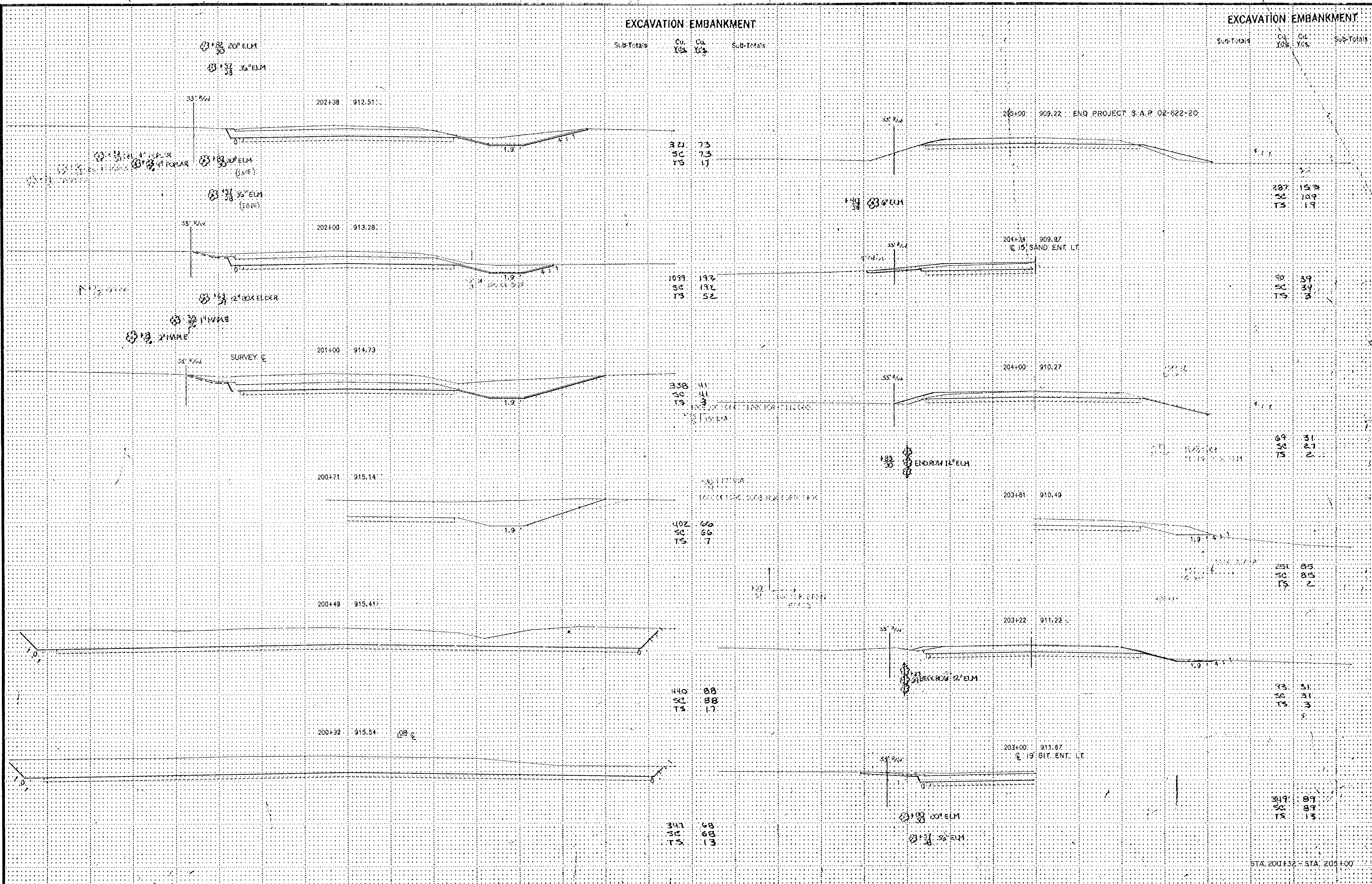
PLANNING DIVISION, MISSOURI STATE HIGHWAY DEPARTMENT

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals



321
SC
TS

1099
SC
TS

338
SC
TS

402
SC
TS

440
SC
TS

347
SC
TS

73
73
17

192
192
52

41
41
3

66
66
7

88
88
17

68
68
13

287
SC
TS

90
SC
TS

69
SC
TS

251
SC
TS

93
SC
TS

349
SC
TS

153
153
19

39
39
3

31
31
2

85
85
2

31
31
3

89
89
13

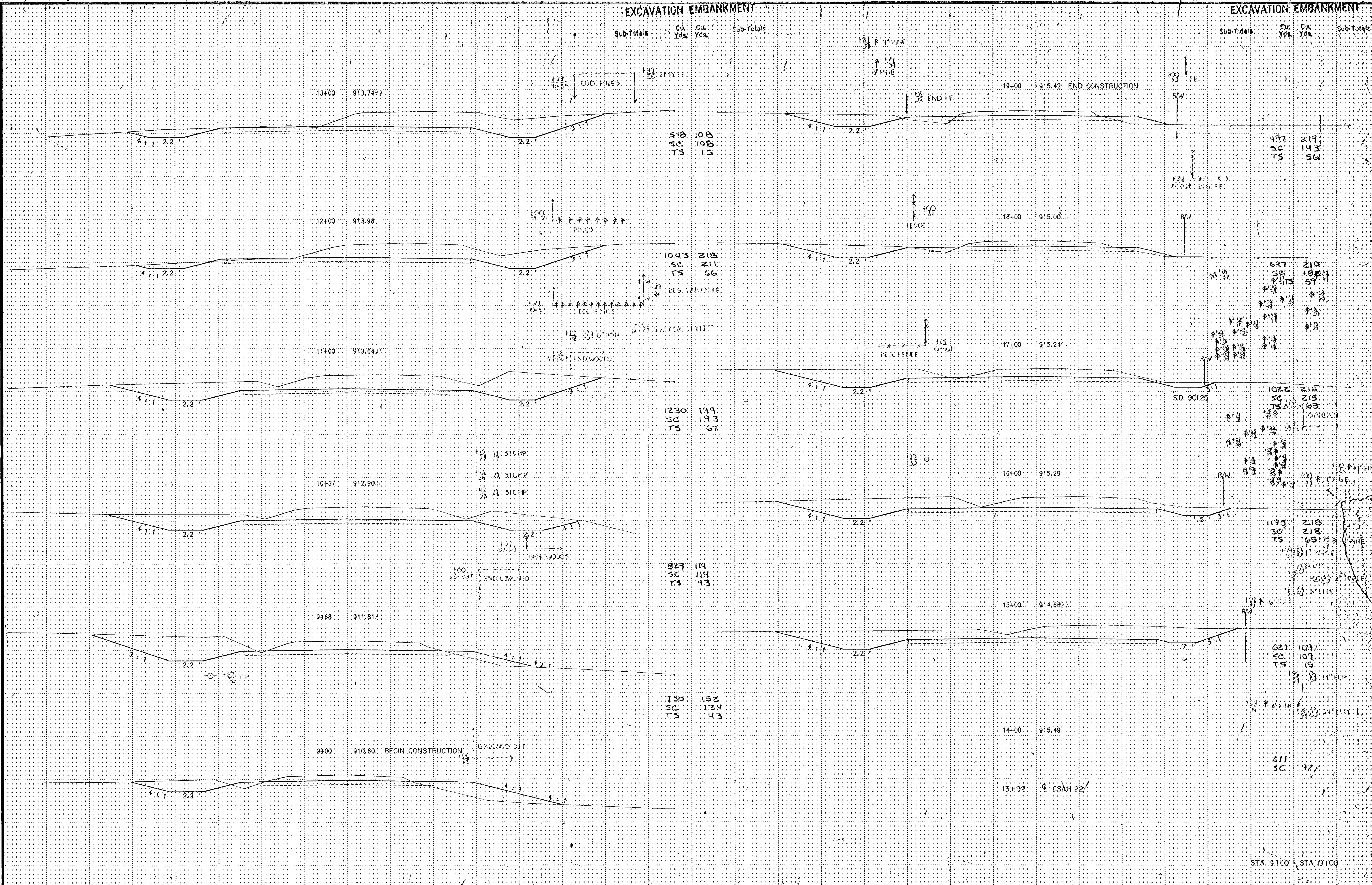
STA. 200+32 - STA. 205+00

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

SUB-TOTALS CU Yds. CU Yds. Sub-Totals

SUB-TOTALS CU Yds. CU Yds. Sub-Totals



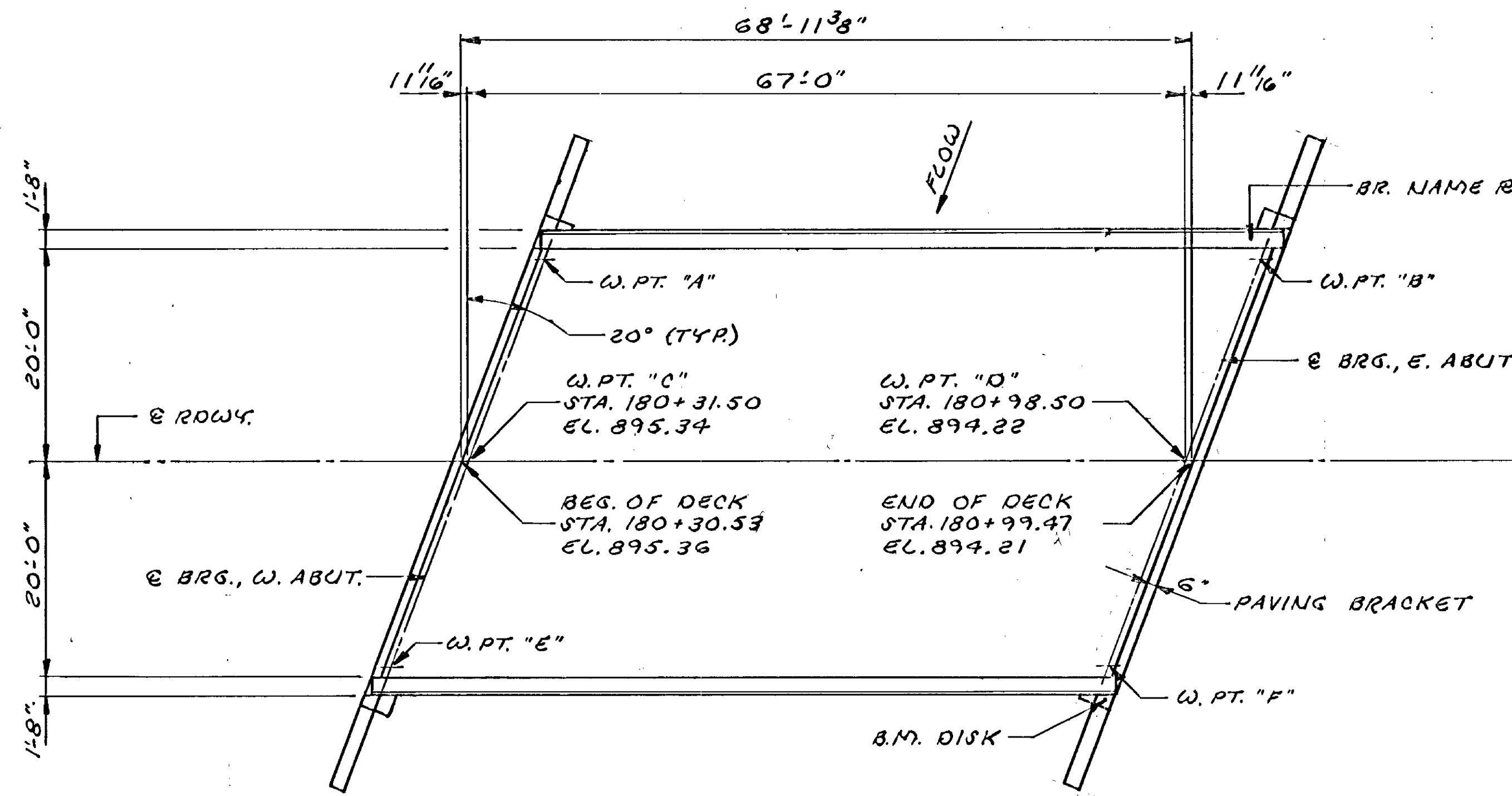
B.M. ELEV. 897.86 (M.S.L. 1929 ADJ.)
SPIKE IN 8" OAK STA. 183+70

DESIGN DATA

1983 & INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS
LOAD FACTOR DESIGN METHOD ~ HS 20 LOADING
INCLUDES 17 P.S.F. DEAD LOAD ALLOWANCE FOR
FUTURE WEARING COURSE MODIFICATIONS.

MAXIMUM ALLOWABLE DESIGN STRESSES -
REINFORCED CONCRETE
F_c = 4000 P.S.I. n=8
F_y = 60000 P.S.I. REINFORCEMENT
PRESTRESSED CONCRETE
F_c = 6000 P.S.I. n=6
F_s = 270000 P.S.I. STRANDS
STRUCTURAL STEEL
F_y = 36000 P.S.I. SPEC 3306

DECK AREA = 2988 SQ. FT.
A.D.T. # 1778 (PROJ. 2006)



PLAN
SCALE = 1" = 10'-0"

CONSTRUCTION NOTES
THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE.
CONSTRUCTION OF EACH ABUTMENT SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THAT ABUTMENT HAS BEEN CONSTRUCTED TO TOP OF SUBGRADE

LIST OF SHEETS

NO.	TITLE
51	GENERAL PLAN & ELEVATION
52	BRIDGE LAYOUT
53	ABUTMENT DETAILS
54	ABUTMENT REINFORCEMENT
55	SUPERSTRUCTURE DETAILS
56	SUPERSTRUCTURE DETAILS
57	CONCRETE RAILING TYPE J
58	40" PRESTRESSED CONCRETE BEAM
59-62	DETAILS
63	BRIDGE SURVEY
64	BRIDGE SURVEY - PLAN & PROFILE

APPROVED

Paul K. Lund
COUNTY ENGINEER
ANOKA COUNTY

DATE = 11/6/86

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

Robert R. Landreth
REG. NO. 6724

DATE = 10-21-86

PLANS PREPARED BY
EE ERICKSON ENGINEERING
3340 REPUBLIC AVENUE
ST. LOUIS PARK, MN. 55416

C.S.A.H. 22 ANOKA COUNTY
MINNESOTA DEPARTMENT
OF TRANSPORTATION

BRIDGE NO. 02548

0.38 MILES WEST OF T.H. 47 ON
PROPOSED C.S.A.H. 22 OVER FORD
BROOK

67' PRESTR. CONCRETE BEAM SPAN
40' ROADWAY ~ 20° SKEW
SPAN IDENT. NO. 501

GENERAL PLAN & ELEVATION

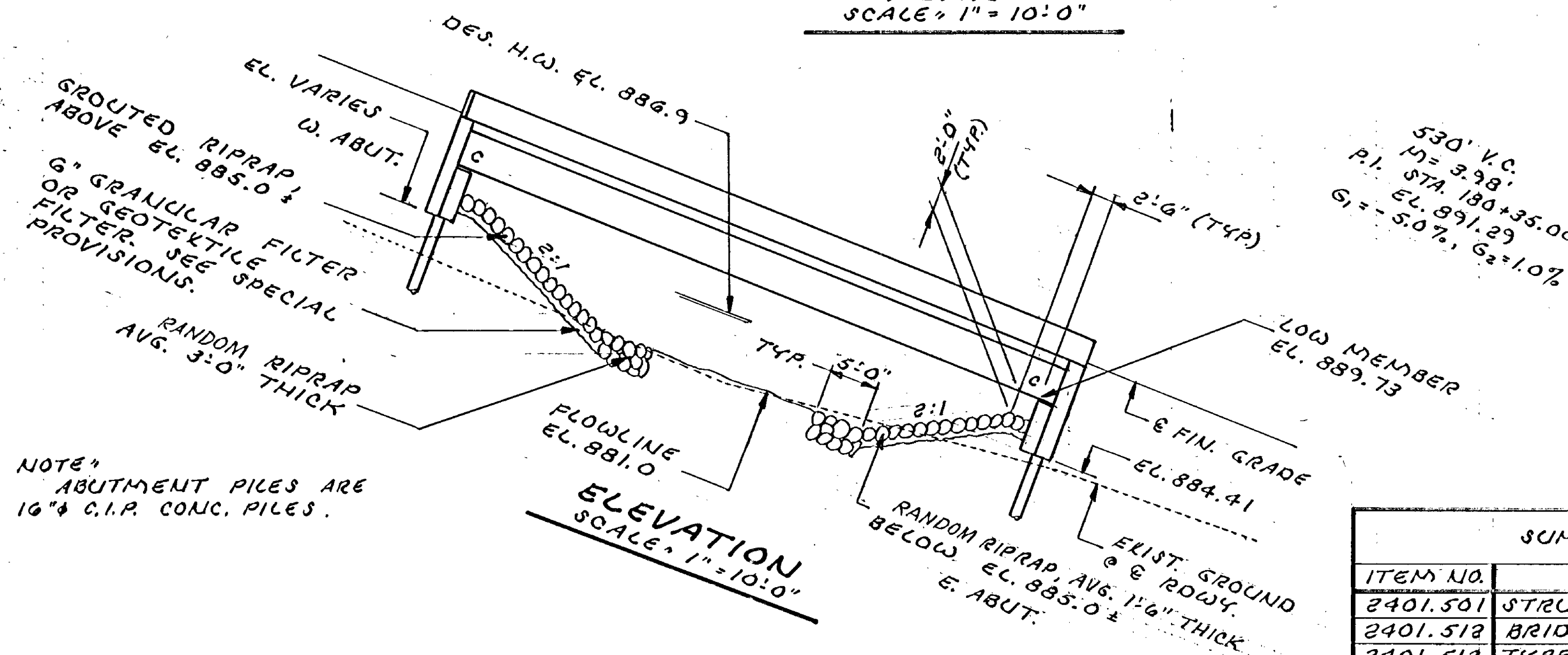
SEC. 23 TWP 33N R25W
BURNS TOWNSHIP
ANOKA COUNTY

APPROVED
5-6-87

Donald J. Munn
BRIDGE ENGINEER

S.A.P. 02-622-20
SHEET 51 OF 66 SHEETS

02548 RMT
RRT

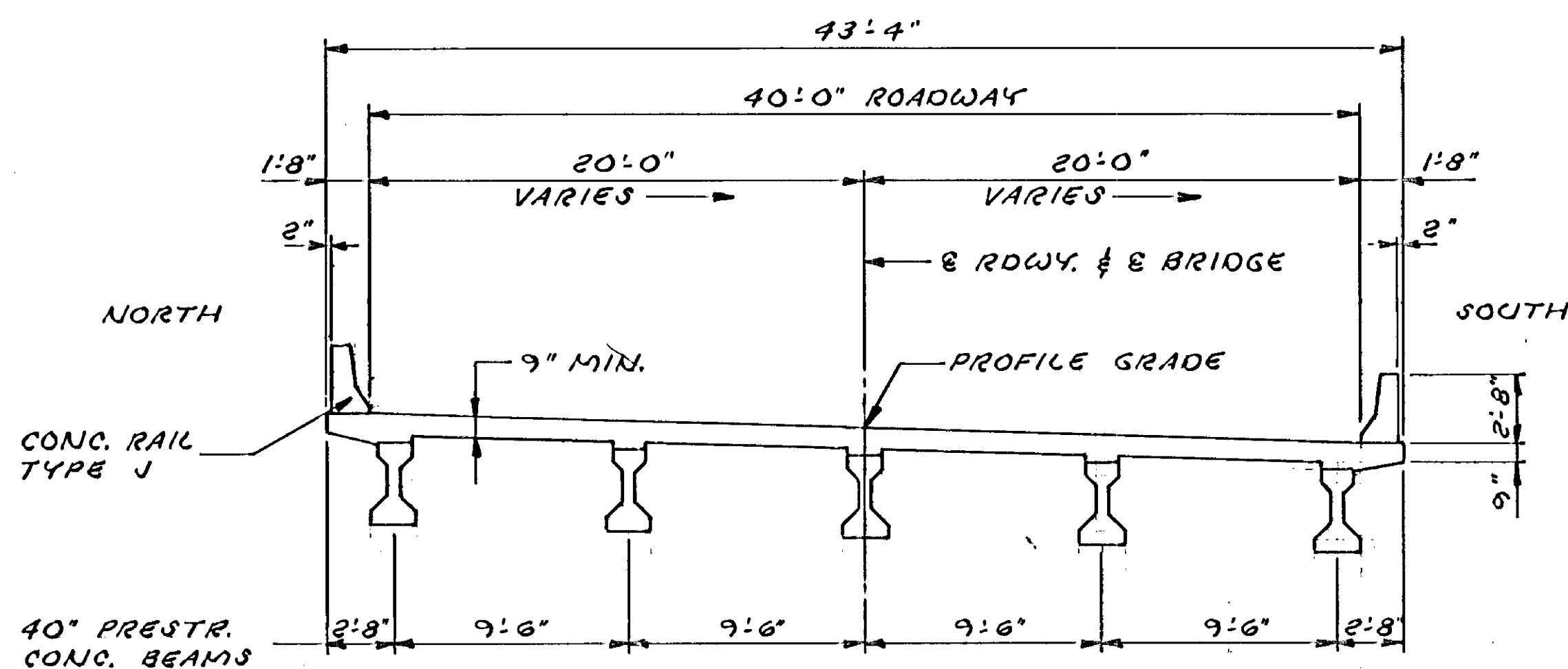


NOTE: ABUTMENT PILES ARE 16" C.I.P. CONC. PILES.

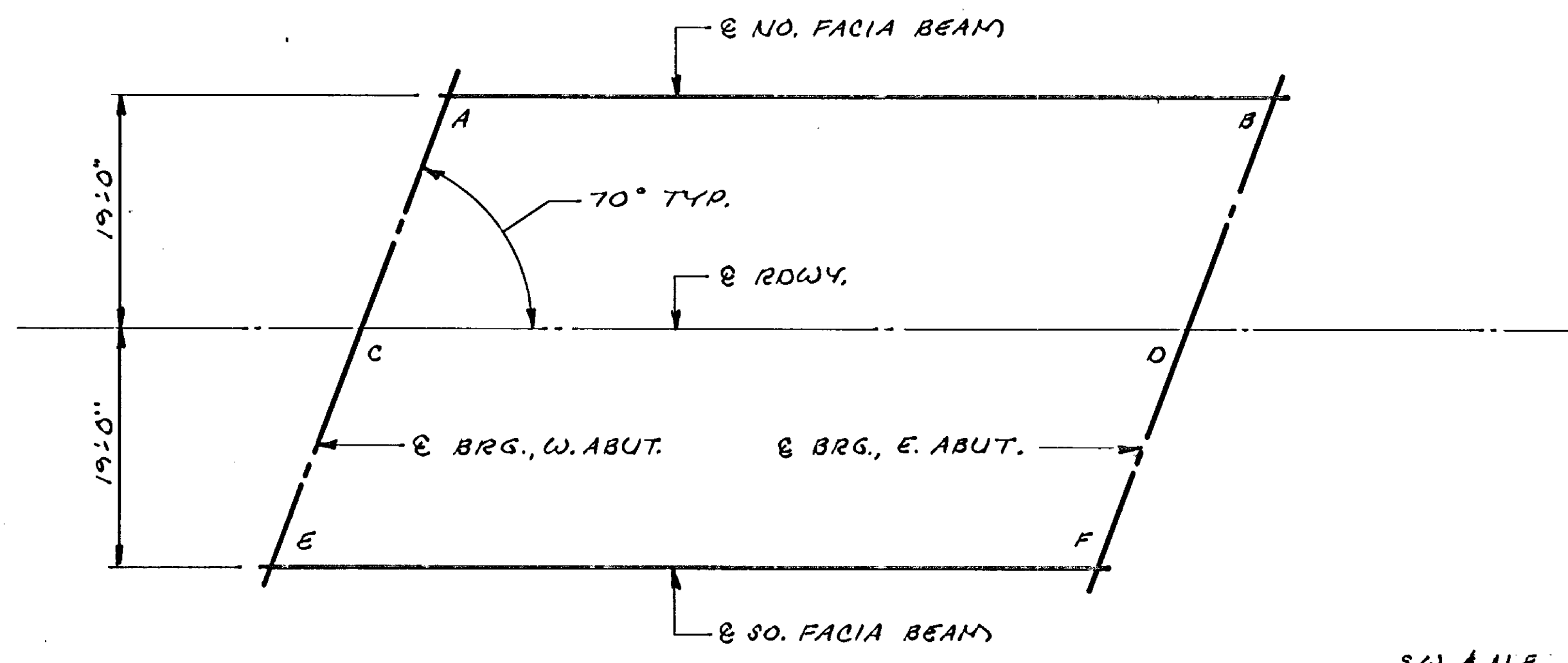
530' V.C.
I_n = 3.98'
P.I. STA. 180+35.00
EL. 891.29
G₁ = -5.0%, G₂ = 1.0%

SUMMARY OF QUANTITIES FOR THE ENTIRE BRIDGE

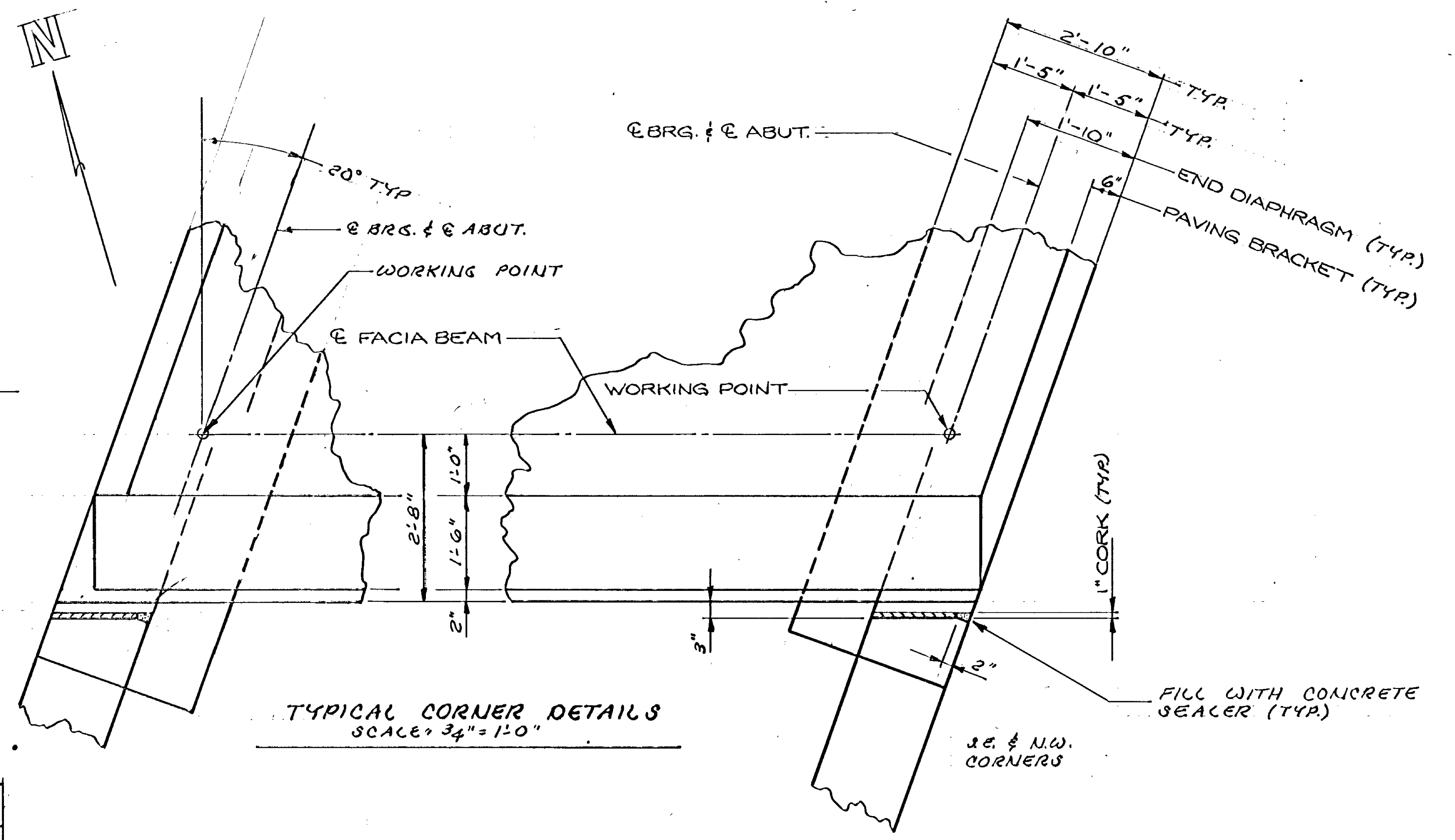
ITEM NO.	ITEM	QUANT.	UNIT
2401.501	STRUCTURE CONCRETE (3443)	90 (P)	CU. YD.
2401.512	BRIDGE SLAB CONCRETE (3X33)	2988 (P)	SQ. FT.
2401.513	TYPE J RAILING CONCRETE (3X46)	139 (P)	LIN. FT.
2401.541	REINFORCEMENT BARS	17390 (P)	POUND
2402.521	STRUCTURAL STEEL (3306)	565 (P)	POUND
2405.501	PRESTRESSED CONCRETE BEAMS TYPE 40-69	5	EACH
2405.511	DIAPHRAGMS FOR TYPE 40 PRESTRESSED BEAMS	81 (P)	LIN. FT.
0402.607	EXPANSION CURVED R BRG. ASSEMBLY, TYPE 1	10	EACH
0401.601	STRUCTURE EXCAVATION	1	LUMP SUM
2511.501	RANDOM RIPRAP, CL. III	160	CU. YD.
2402.546	FLOOR DRAINS, TYPE 1	3	EACH
2021.501	MOBILIZATION	1	LUMP SUM
2452.507	CAST-IN-PLACE CONCRETE PILING DELIVERED, 16"	880	LIN. FT.
2452.508	CAST-IN-PLACE CONCRETE PILING DRIVEN, 16"	880	LIN. FT.
2452.519	CAST-IN-PLACE CONCRETE TEST PILES, 65 FT. LONG, 16"	2	EACH
0401.602	SLOPE PREPARATION	1	LUMP SUM
2401.541	REINFORCEMENT BARS (EPOXY COATED)	11490 (P)	POUND
2511.507	GROUTED RIPRAP	85	CU. YD.



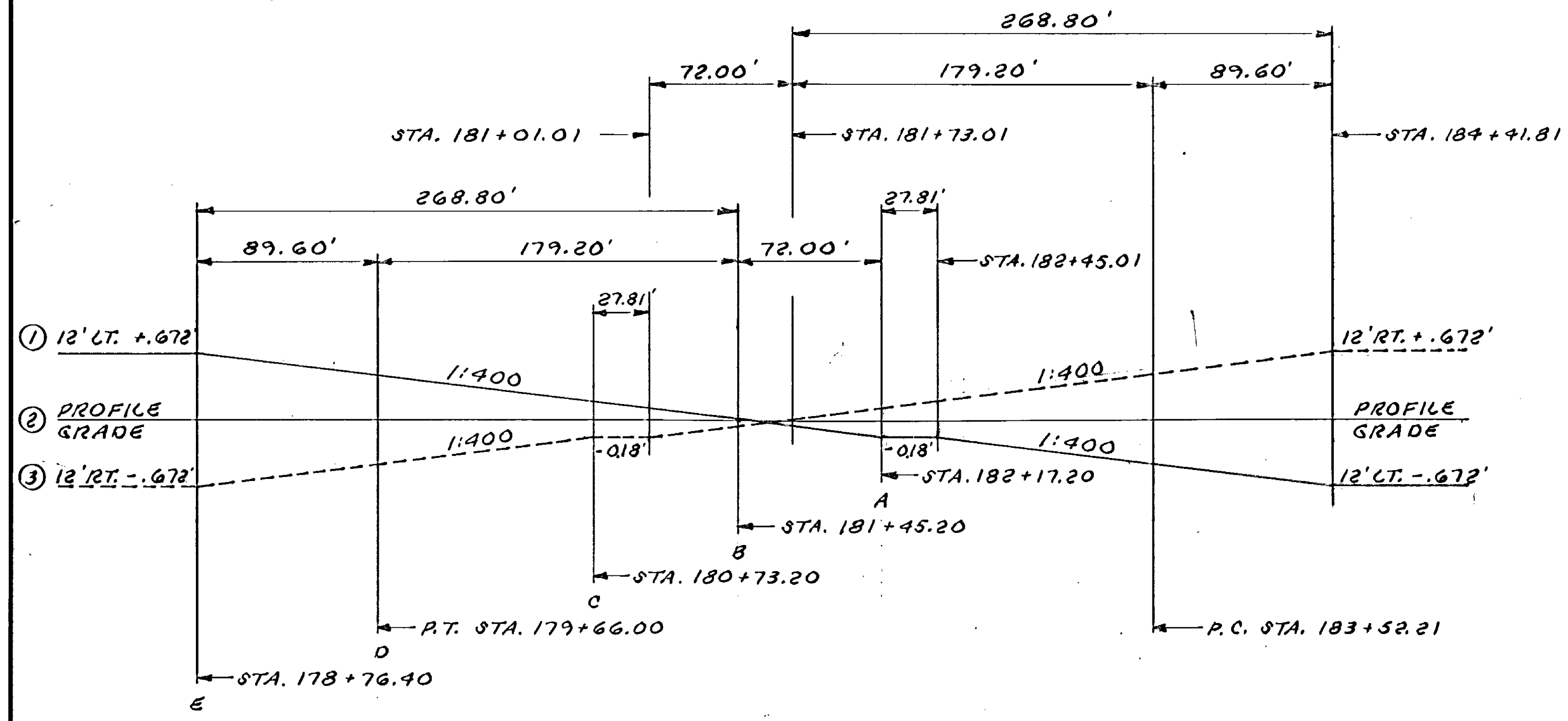
SECTION THRU DECK
SCALE = 3/16" = 1'-0"



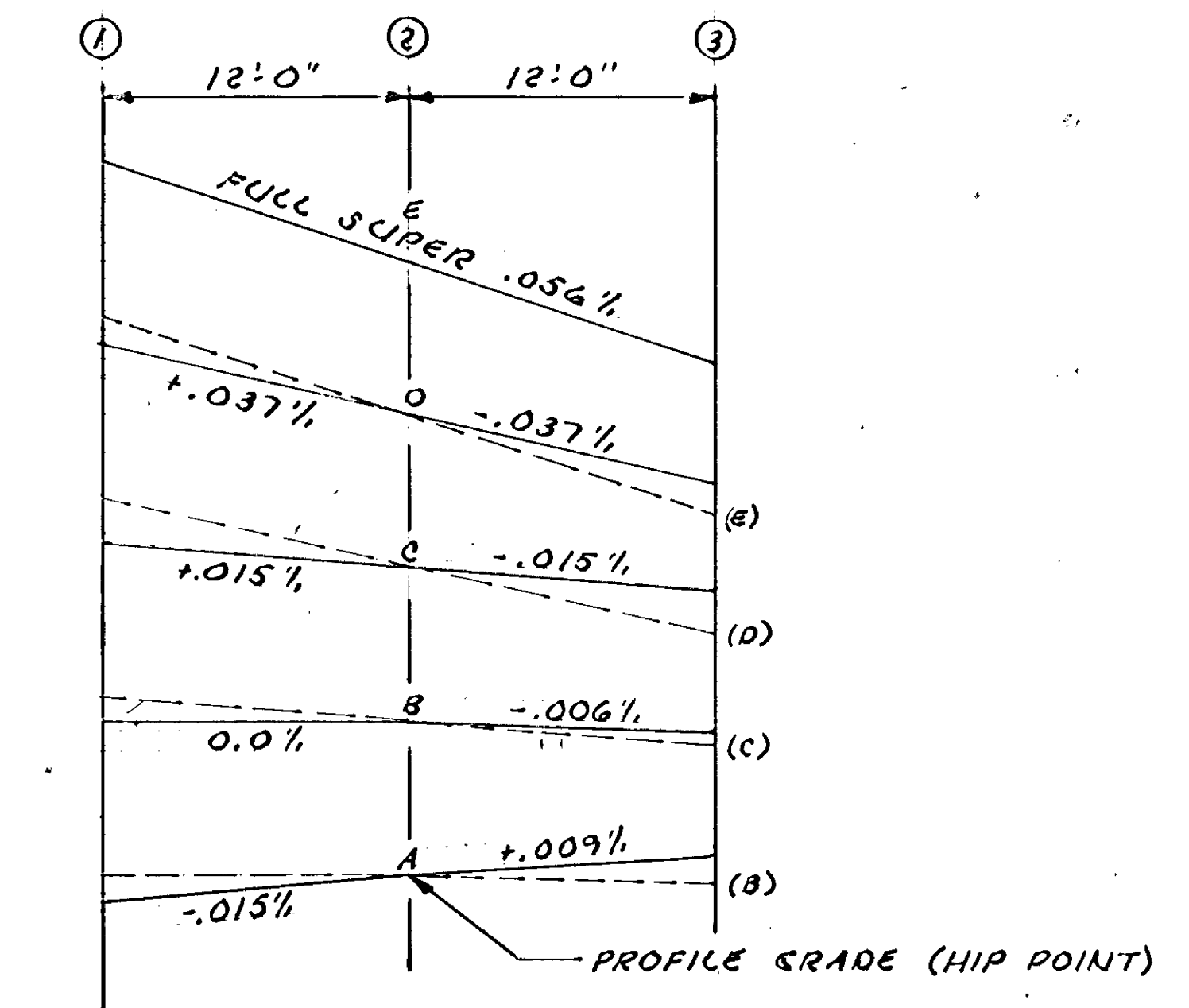
LAYOUT SHOWING WORKING POINTS



TYPICAL CORNER DETAILS
SCALE: 3/4" = 1'-0"



SUPERELEVATION CHART



CROSS-SECTION
SHOWING LANE SLOPES

DIMENSIONS BETWEEN WORKING POINTS							ELEVATIONS			
POINT	STATION	A	B	C	D	E	TOP OF SLAB	SLAB TO BR. SEAT	BRIDGE SEAT	POINT
A	180+38.42		67.00	20.22	63.02		65.35	895.62	891.00	A
B	181+05.42			76.32	20.22	89.32	894.30	4.62	889.68	B
C	180+31.50				67.00	63.02	895.34	4.62	890.72	C
D	180+98.50					76.32	894.22	4.62	889.60	D
E	180+24.58						895.00	4.62	890.38	E
F	180+91.58						894.03	4.62	889.41	F

TOP OF SLAB TO BRIDGE SEAT		
	W. ABUT.	E. ABUT.
SLAB	9"	9"
STOOL	3"	3"
BEAM	3'-4"	3'-4"
BEARING	3 1/2"	3 1/2"
TOTAL	4'-7 1/2"	4'-7 1/2"

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02548

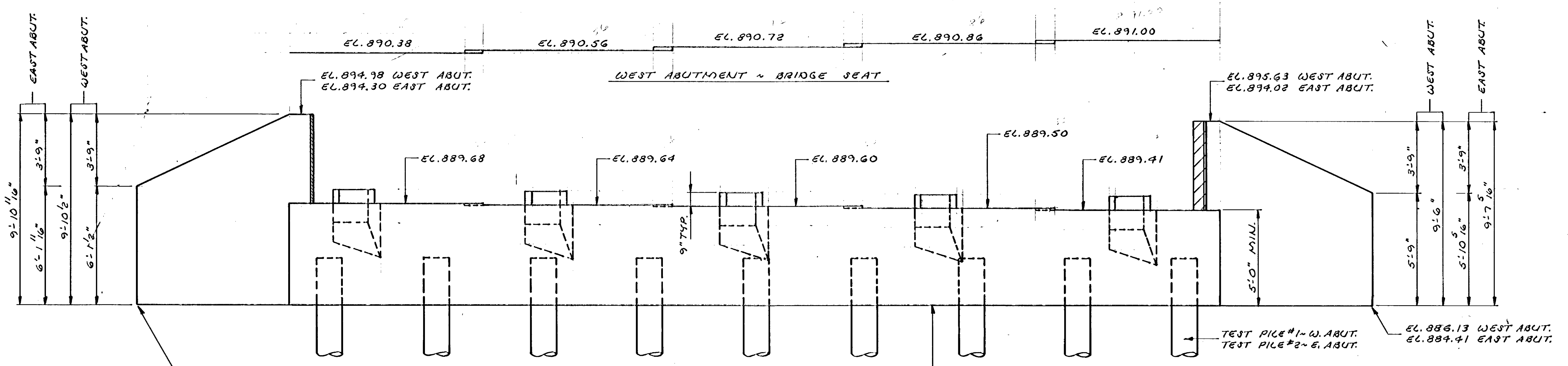
BRIDGE LAYOUT

APPROVED: 5-6-87

S.A.P. 02-622-20

SHEET 52 OF 66 SHEETS

02548 RMT RRT

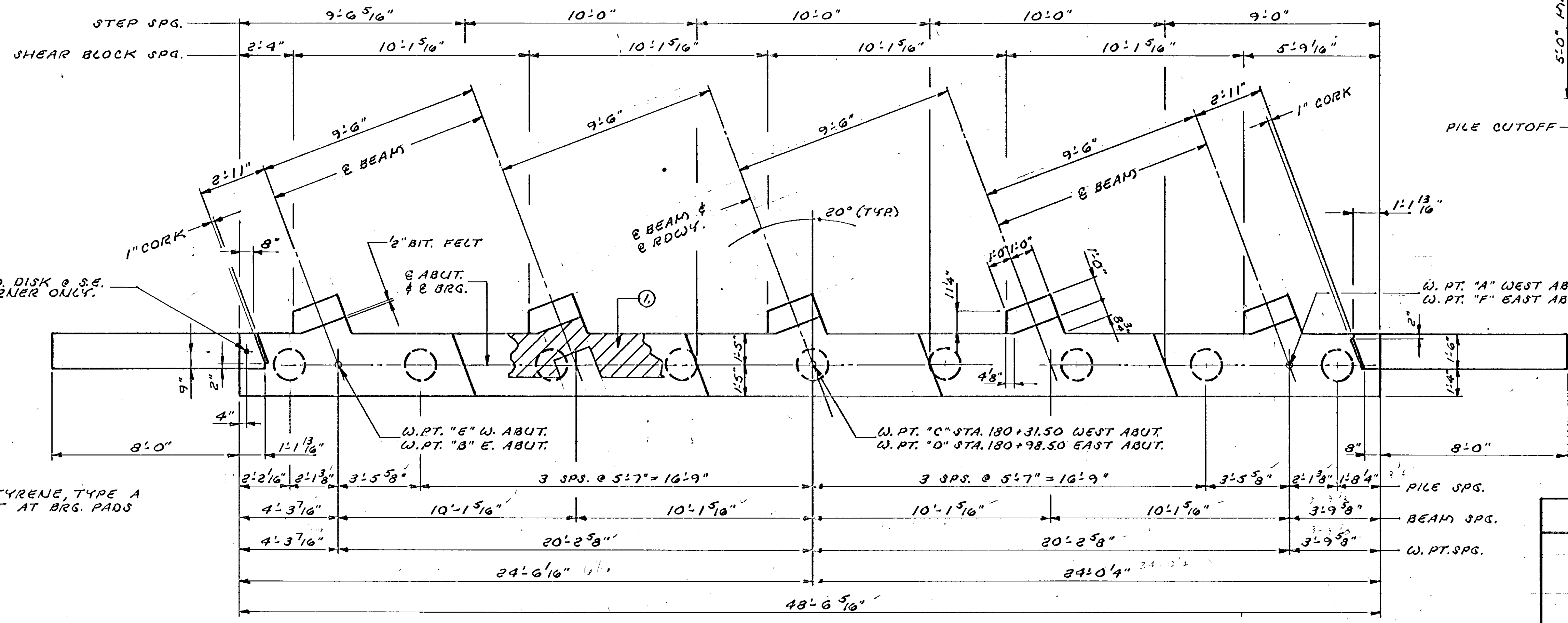


ELEVATION
SCALE = 3/8" = 1'-0"
EAST ABUT. SHOWN ~ WEST ABUT. SIMILAR

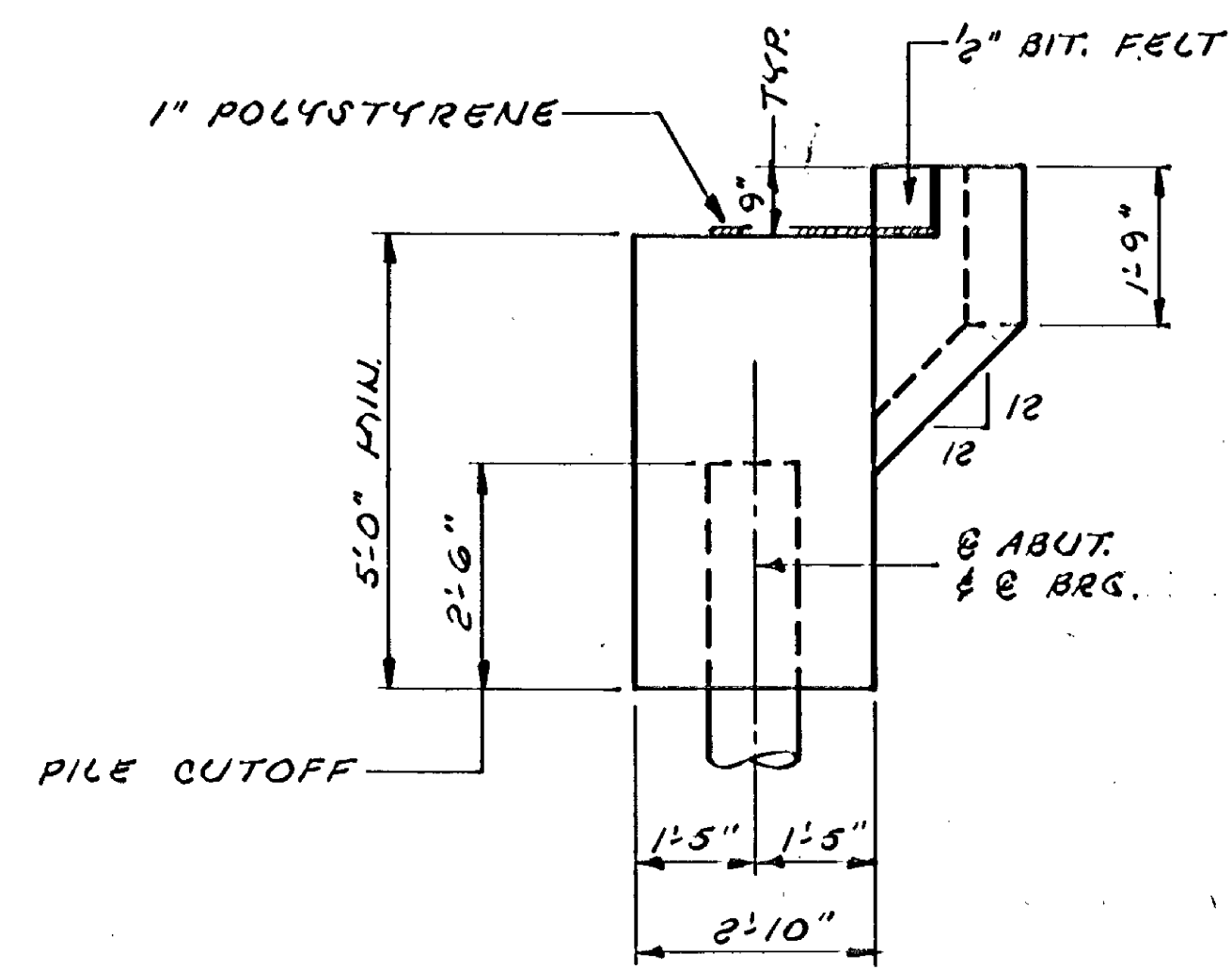
UNIFORM SLOPE ~ WEST ABUT. (0.016%)
LEVEL ~ EAST ABUT.

TEST PILE #1 ~ W. ABUT.
TEST PILE #2 ~ E. ABUT.

EL. 886.13 WEST ABUT.
EL. 884.41 EAST ABUT.



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

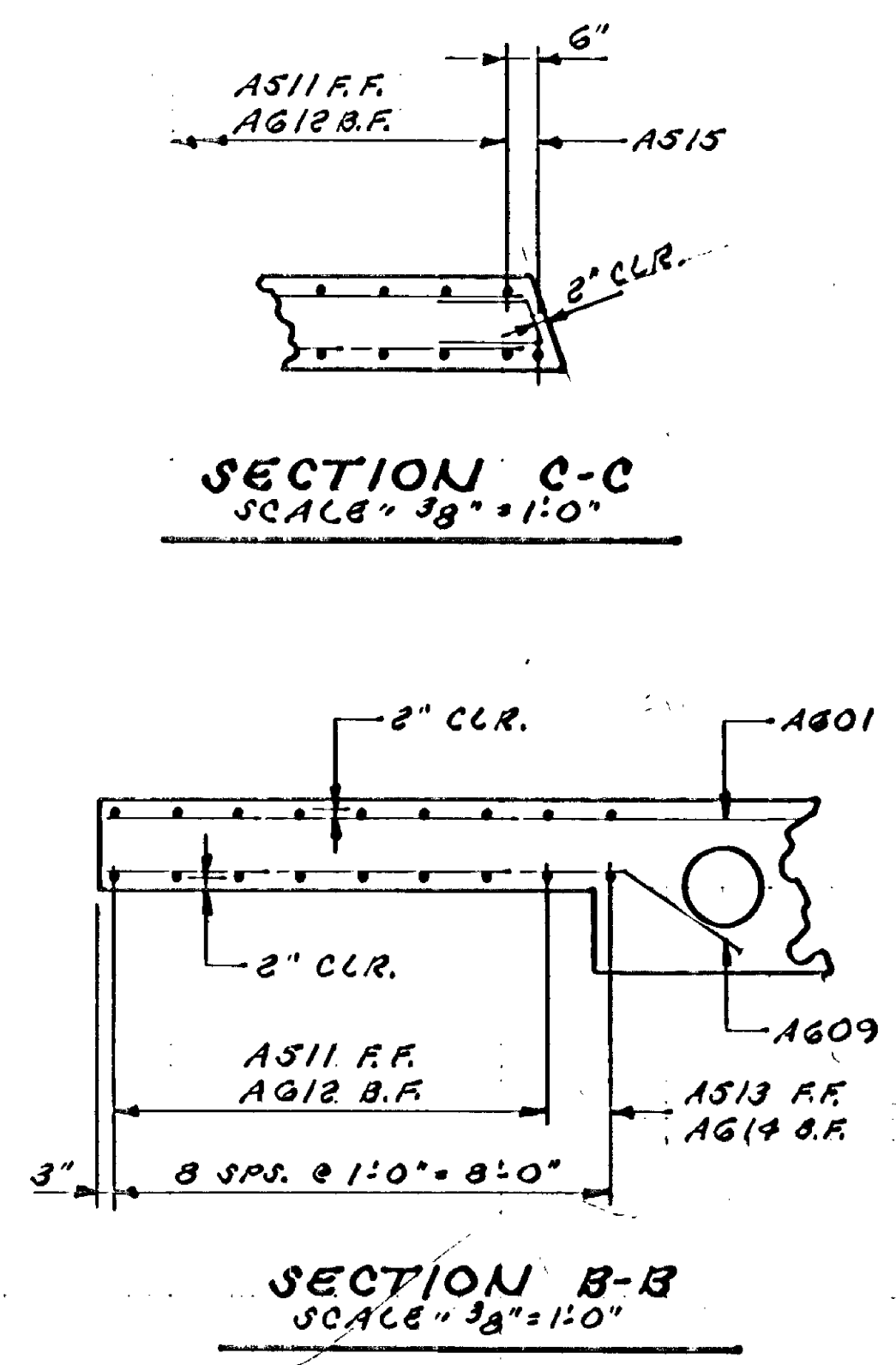
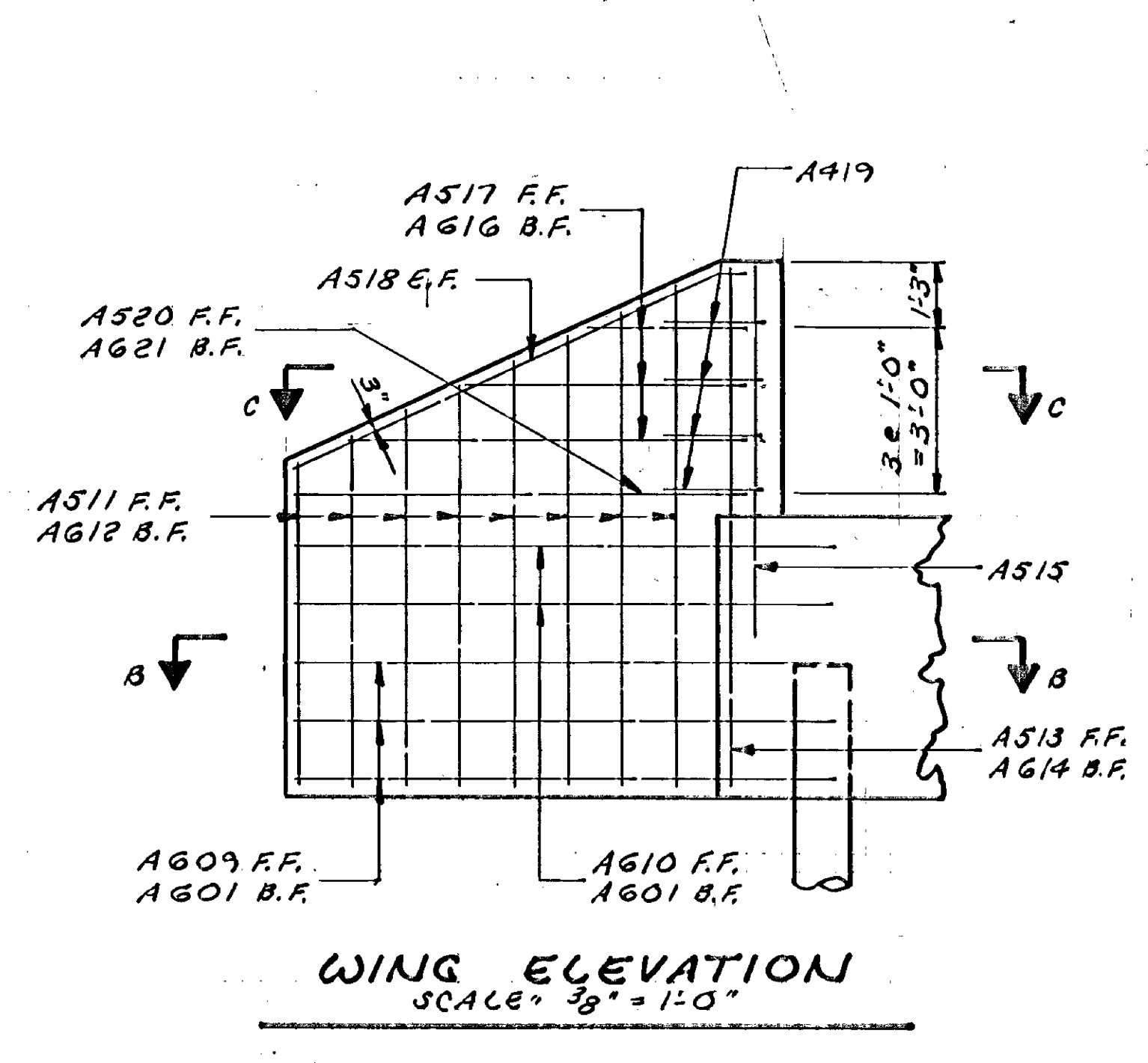
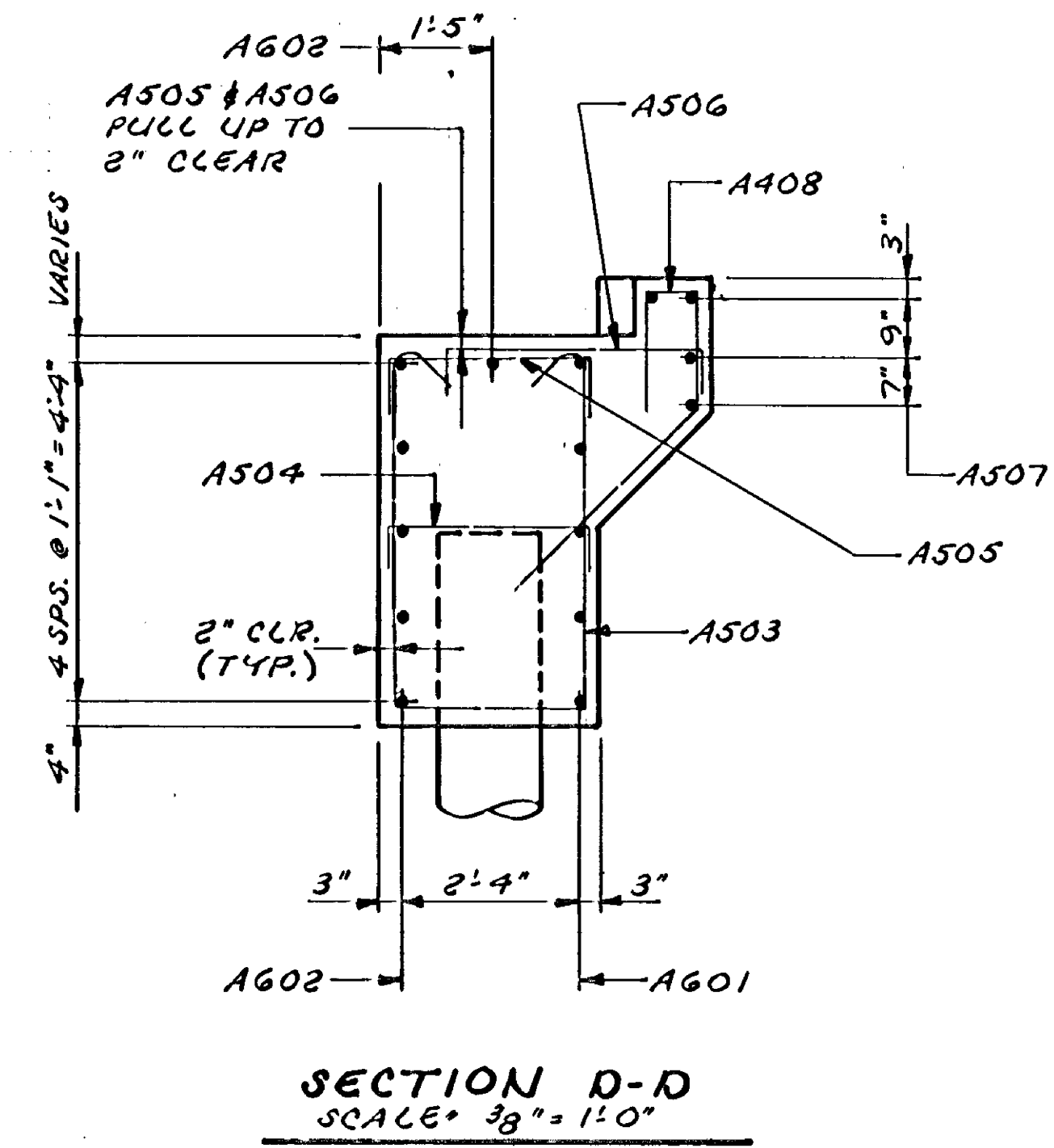
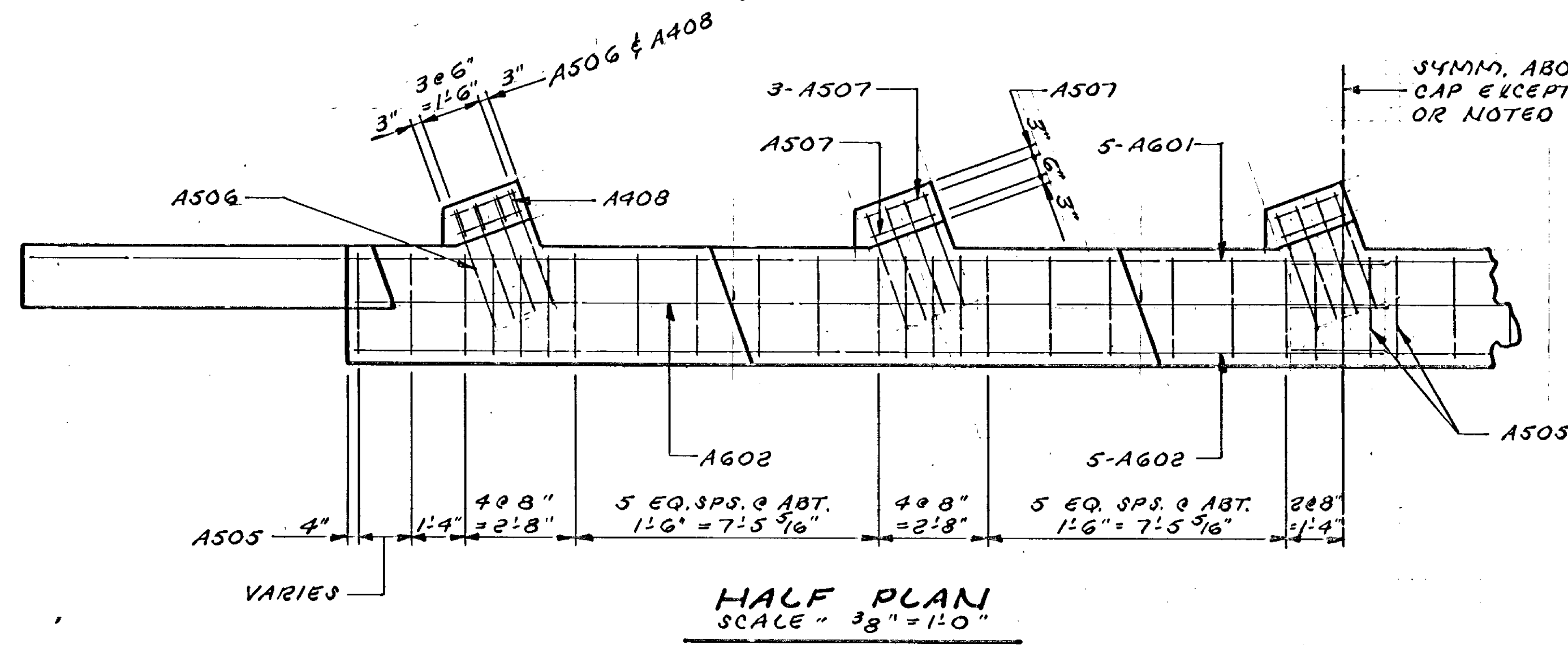
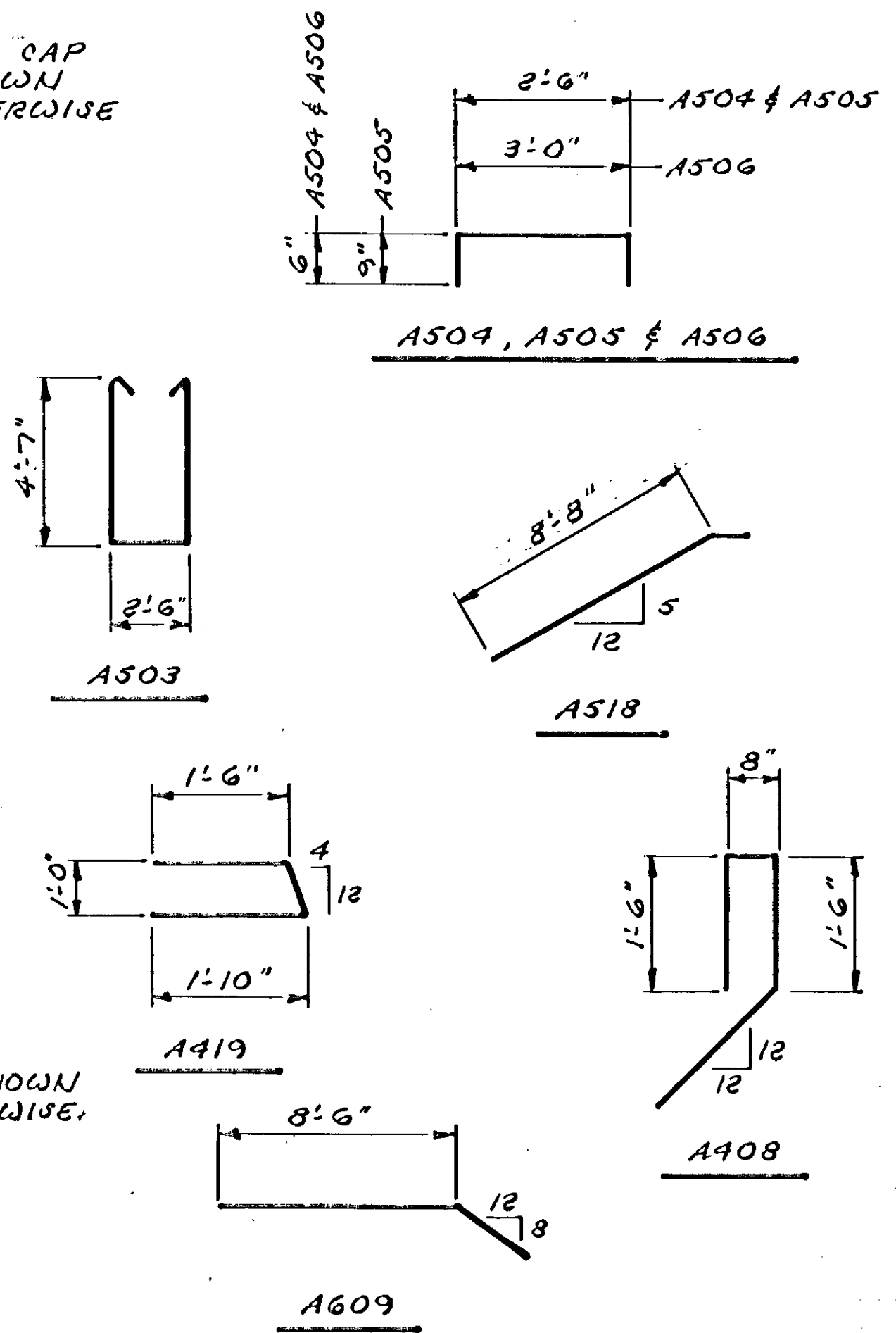
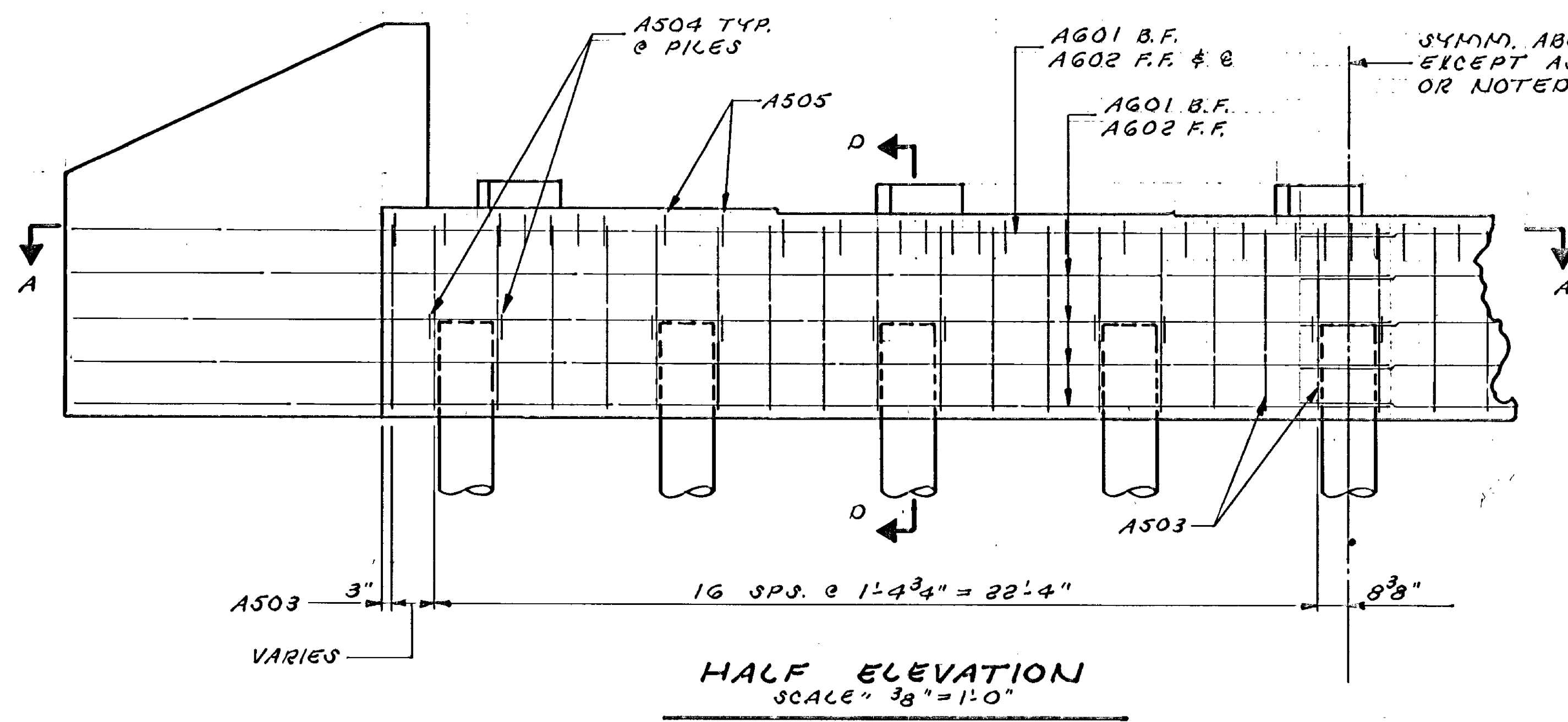


SECTION THRU ABUTMENT
SCALE = 1/2" = 1'-0"

① 1" POLYSTYRENE, TYPE A CUT OUT AT BRG. PADS

BRG. DISK @ S.E. CORNER ONLY.

MINNESOTA DEPARTMENT OF TRANSPORTATION	
BRIDGE NO. 02548	
ABUTMENT DETAILS	
APPROVED 5-6-87	
S.A.P. 02-622-20	02548 RMT
SHEET 53 OF 66 SHEETS	RRT



BILL OF REINFORCEMENT ~ 2 ABUTMENTS

BAR	NO.	LGTH.	SHAPE	LOCATION
A601	20	33'-3"	STR.	CAP ~ HORIZONTAL
A602	24	25'-3"	"	"
A503	72	12'-7"	BENT	" ~ STIRRUP
A504	36	3'-6"	"	" ~ TIE @ PILES
A505	90	4'-0"	"	" @ BRIDGE SEAT
A506	40	4'-0"	"	" @ SHEAR BLOCK
A507	40	1'-8"	STR.	SHEAR BLOCK
A408	40	7'-0"	BENT	"
A609	12	10'-9"	"	WINGWALL ~ HORIZONTAL
A610	8	10'-1"	STR.	"
A511	16	14'-4"	"	" ~ VERTICAL
A612	16	14'-4"	"	"
A513	4	9'-3"	"	"
A614	4	9'-3"	"	"
A515	4	6'-6"	"	"
A616	6	9'-10"	"	" ~ HORIZONTAL
A517	6	9'-10"	"	"
A518	8	9'-1"	BENT	"
A419	16	4'-5"	"	" ~ TIE
A520	4	8'-3"	STR.	" ~ HORIZONTAL
A621	4	8'-3"	"	"

- ① CUT @ FROM 1
- ② 2'-3" MIN. LAP

COMPUTED PILE LOADS
TONS PER PILE AT ABUTMENTS

NEGATIVE FRICTION	10.0
DEAD LOAD	28.2
LIVE LOAD	9.3
TOTAL	47.5

- PILE NOTES
- 16- CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 55 FT.
 - 2- CAST-IN-PLACE CONCRETE TEST PILES, 65 FT. LONG
 - 18- CAST-IN-PLACE CONCRETE PILES REQ'D ~ 2 ABUTMENTS
- ALL PILES ARE TO HAVE A NOMINAL DIAMETER OF 16"
SEE DETAIL B201 FOR SPLICES.

SUMMARY OF QUANTITIES ~ 2 ABUTMENTS

STRUCTURE CONCRETE (3443)	70 CU. YD.
REINFORCEMENT BARS	5170 POUND
STRUCTURE EXCAVATION	1 LUMP SUM
B.M. DISK (SEE STANDARD 12 9300)	
CAST-IN-PLACE CONC. PILING DELV'D. (16")	880 LIN. FT.
CAST-IN-PLACE CONC. PILING DRIVEN (16")	880 LIN. FT.
CAST-IN-PLACE CONC. TEST PILES, 65' LG. (16")	2 EACH

- ③ SEE SPECIAL PROVISIONS.
- ④ COUNTY WILL FURNISH DISK. PAYMENT FOR PLACING IS TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STANDARD PLATE 9301 FOR PLACING.
- ⑤ DOES NOT INCLUDE TEST PILES.

NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
B.F. = EACH FACE

MINNESOTA DEPARTMENT OF TRANSPORTATION

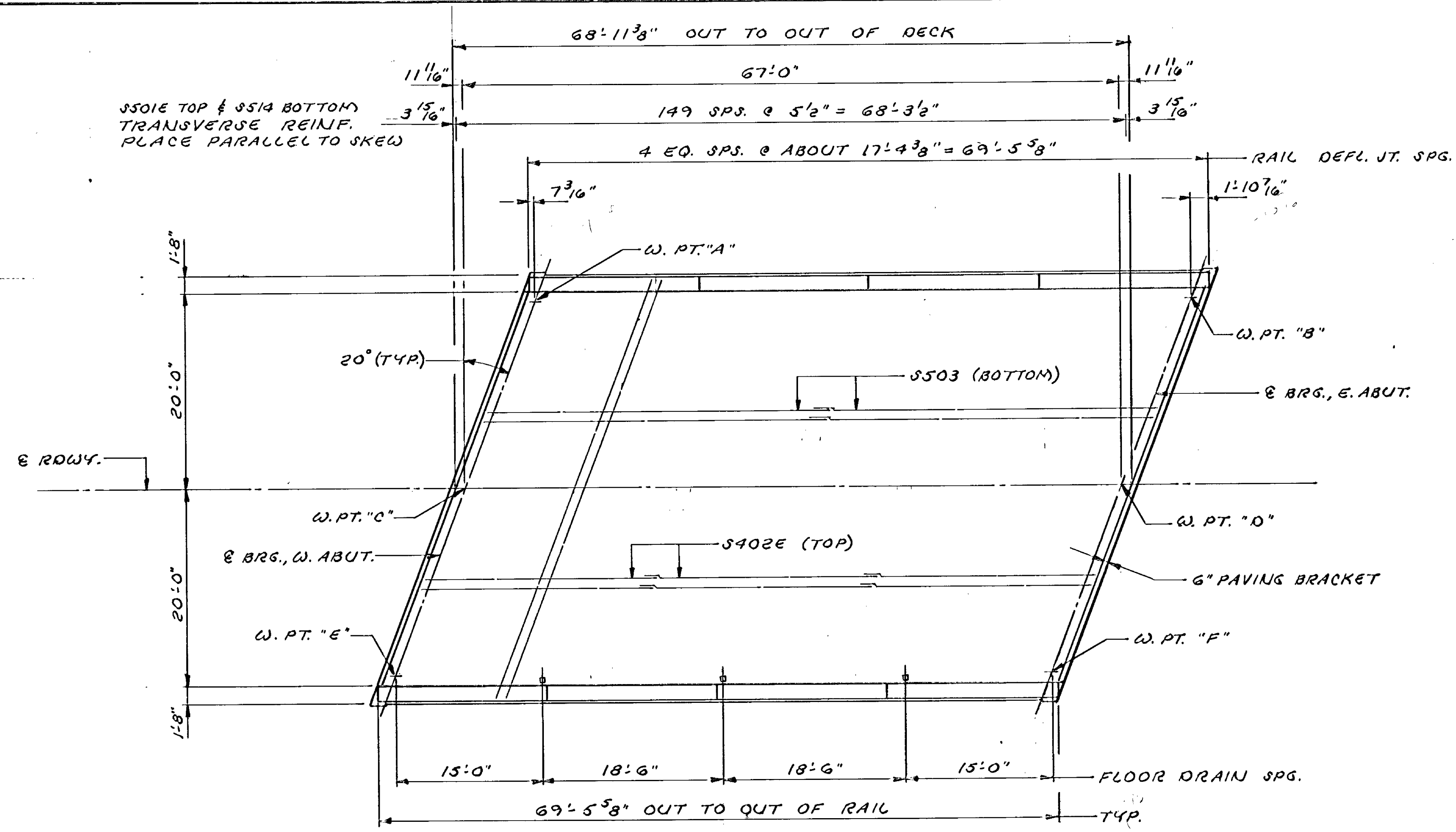
BRIDGE NO. 02548

ABUTMENT REINFORCEMENT

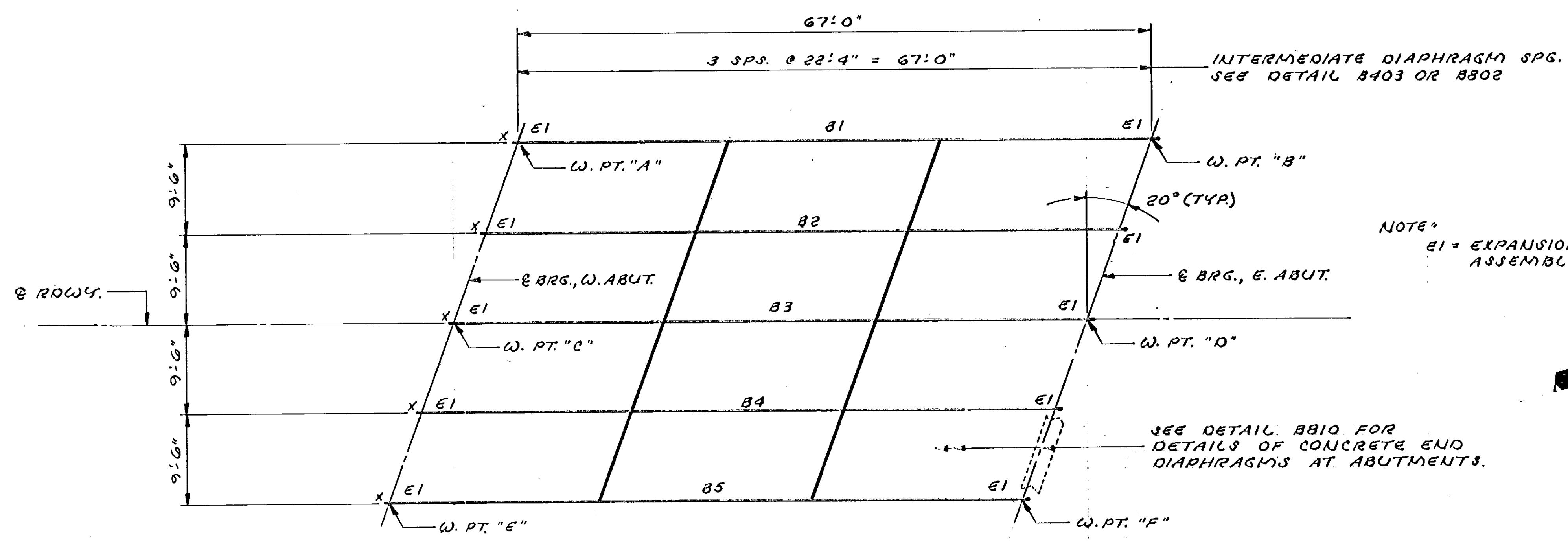
APPROVED: 5-6-77

S.A.P. 02-622-20

SHEET 54 OF 66 SHEETS **02548** RMT RRT



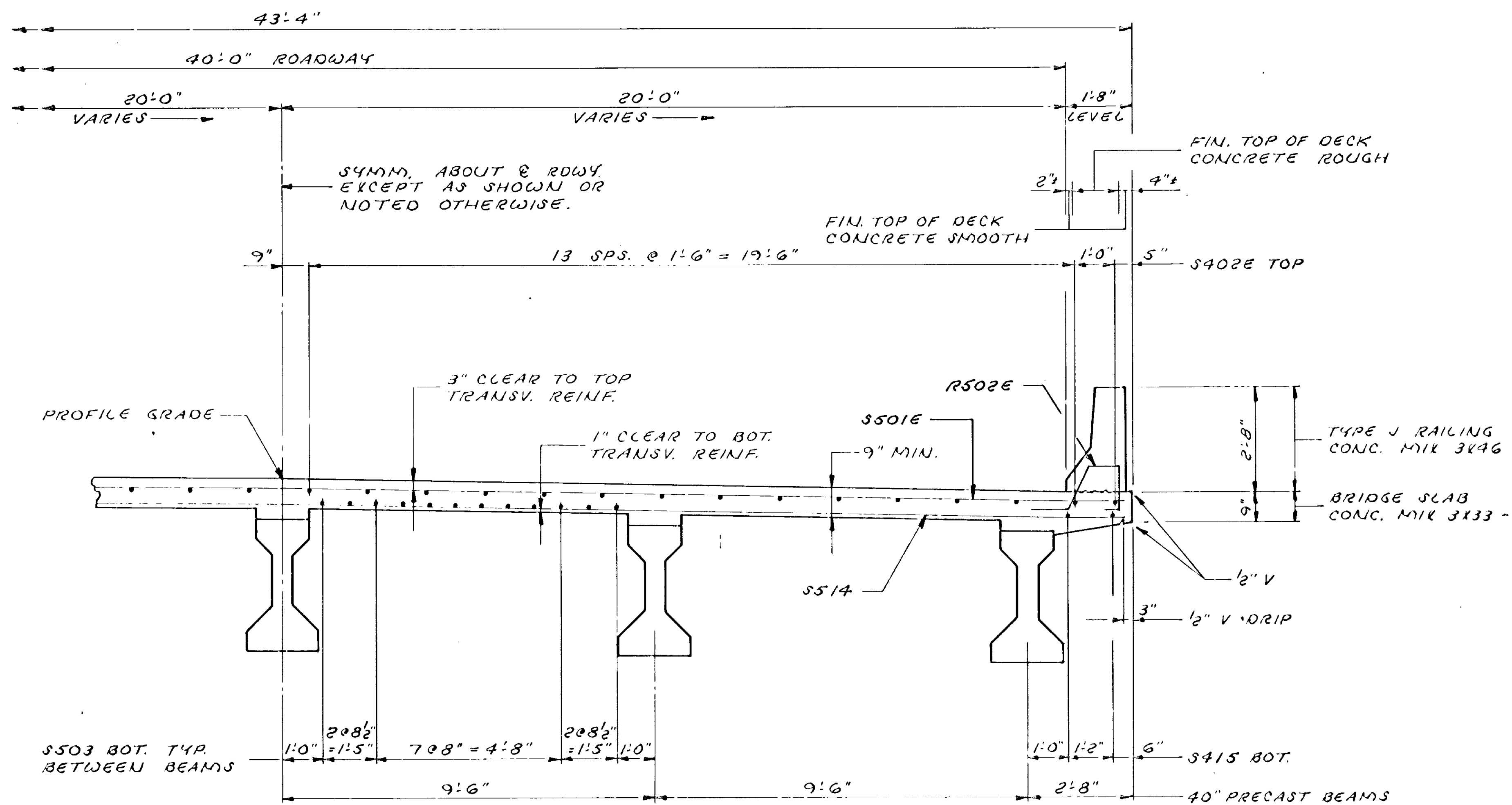
PLAN
SCALE "8" = 1'-0"



NOTE:
E1 = EXPANSION CURVED R BEARING
ASSEMBLY, TYPE 1. (DETAIL B311)

FRAMING PLAN
SCALE "8" = 1'-0"

MINNESOTA DEPARTMENT OF TRANSPORTATION			
BRIDGE NO. 02548 SUPERSTRUCTURE DETAILS			
APPROVED: 5-6-37			
S.A.P. 02-622-20	02548	RMT	RRT
SHEET 55 OF 66 SHEETS			



HALF TRANSVERSE SECTION THRU DECK
SCALE 1/2" = 1'-0"

S501E TOP & S514 BOT. TRANSV. REINF. SPACED @ 5 1/2" CTRS.

SEE DETAIL B551 FOR DETAILS OF PROTECTION ANGLE

PERMISSIBLE CONSTRUCTION JOINT & 2" x 4" KEYWAY

3-PLY JOINT WATERPROOFING

1/2" BIT FELT

CONTR.

SEE DETAIL B810 FOR DETAILS OF CONC. END DIAPHRAGM.

POLYSTYRENE

BEARING

LONGITUDINAL SECTION AT ABUTMENT
SCALE 1/2" = 1'-0"

BILL OF REINFORCEMENT ~ SUPERSTRUCTURE

BAR	NO.	LGTH.	SHAPE	LOCATION
S501E	150	45'-9"	STRT.	SLAB ~ TRANSVERSE ~ TOP
S402E	90	24'-0"	"	" ~ LONGITUDINAL ~ TOP
S503	96	35'-4"	"	"
S404	16	24'-0"	"	END DIAPHRAGM ~ HORIZ.
S505	20	5'-0"	"	"
S406	16	9'-2"	"	"
S407	32	7'-6"	"	"
S408	16	1'-6"	"	"
S409	48	6'-4"	BENT	" ~ TIE
S410	48	10'-3"	"	"
S411	8	11'-0"	"	"
S412	20	3'-3"	"	"
S413	8	1'-7"	STRT.	"
S514	150	45'-9"	"	SLAB ~ TRANSVERSE ~ BOT.
S415	12	24'-0"	"	" ~ LONGITUDINAL ~ BOT.

- ① 3 LINES, 1'-6" MIN. LAP
- ② 2 LINES, 1'-11" MIN. LAP
- ③ SEE DETAIL B810 FOR DETAILS.

SUMMARY OF QUANTITIES ~ SUPERSTRUCTURE

①	BRIDGE SLAB CONCRETE (3K33)	2988 SQ. FT.
②	TYPE J RAILING CONCRETE (3K46)	139 LIN. FT.
③	REINFORCEMENT BARS	12170 POUND
④	STRUCTURAL STEEL (3306)	565 POUND
⑤	FLOOR DRAINS, TYPE 1	3 EACH
⑥	NAME IR (SEE DETAIL B103)	
⑦	CORK 1" x 11" x 1'-7" (RAILING)	6 PCS.
⑧	3-PLY JOINT WATERPROOFING	150 LIN. FT.
⑨	PROTECTION ANGLE (SEE DETAIL B551)	
⑩	POLYSTYRENE, TYPE A 1" x 1'-10"	95 LIN. FT.
⑪	POLYSTYRENE, TYPE A 1" x 3 1/2"	18 LIN. FT.
⑫	POLYSTYRENE, TYPE A 1" x 9"	10 LIN. FT.
⑬	POLYSTYRENE, TYPE A 2" x 3 1/2"	22 LIN. FT.
⑭	EXPANSION CURVED R BEARING ASSEMBLY, TYPE 1	10 EACH
⑮	STRUCTURE CONCRETE (3K43)	20 CU. YD.
⑯	PRESTRESSED CONCRETE BEAMS, TYPE 40-69	5 EACH
⑰	DIAPHRAGMS FOR TYPE 40 PRESTRESSED BEAMS	81 LIN. FT.
⑱	CORK 1" x 1'-5" (ABUTTS)	20 LIN. FT.
⑲	BIT FELT 1/2" x 9" (SHEAR BLOCKS)	25 LIN. FT.
⑳	REINFORCEMENT BARS (EPOXY COATED)	11490 POUND

- ④ INCLUDES RAILING QUANTITIES.
- ⑤ SEE SPECIAL PROVISIONS.
- ⑥ END DIAPHRAGM CONCRETE
- ⑦ INCLUDES END DIAPHRAGM REINFORCEMENT.
- ⑧ INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ⑨ INCLUDED IN STRUCTURAL STEEL (3306)
- ⑩ APPROX. VOL. = 14 CU. YDS.
- ⑪ APPROX. VOL. = 91 CU. YDS. (AVG. STOOL HEIGHT = 2")
- ⑫ CUT 2 FROM 1

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02548

SUPERSTRUCTURE DETAILS

APPROVED 5-6-97

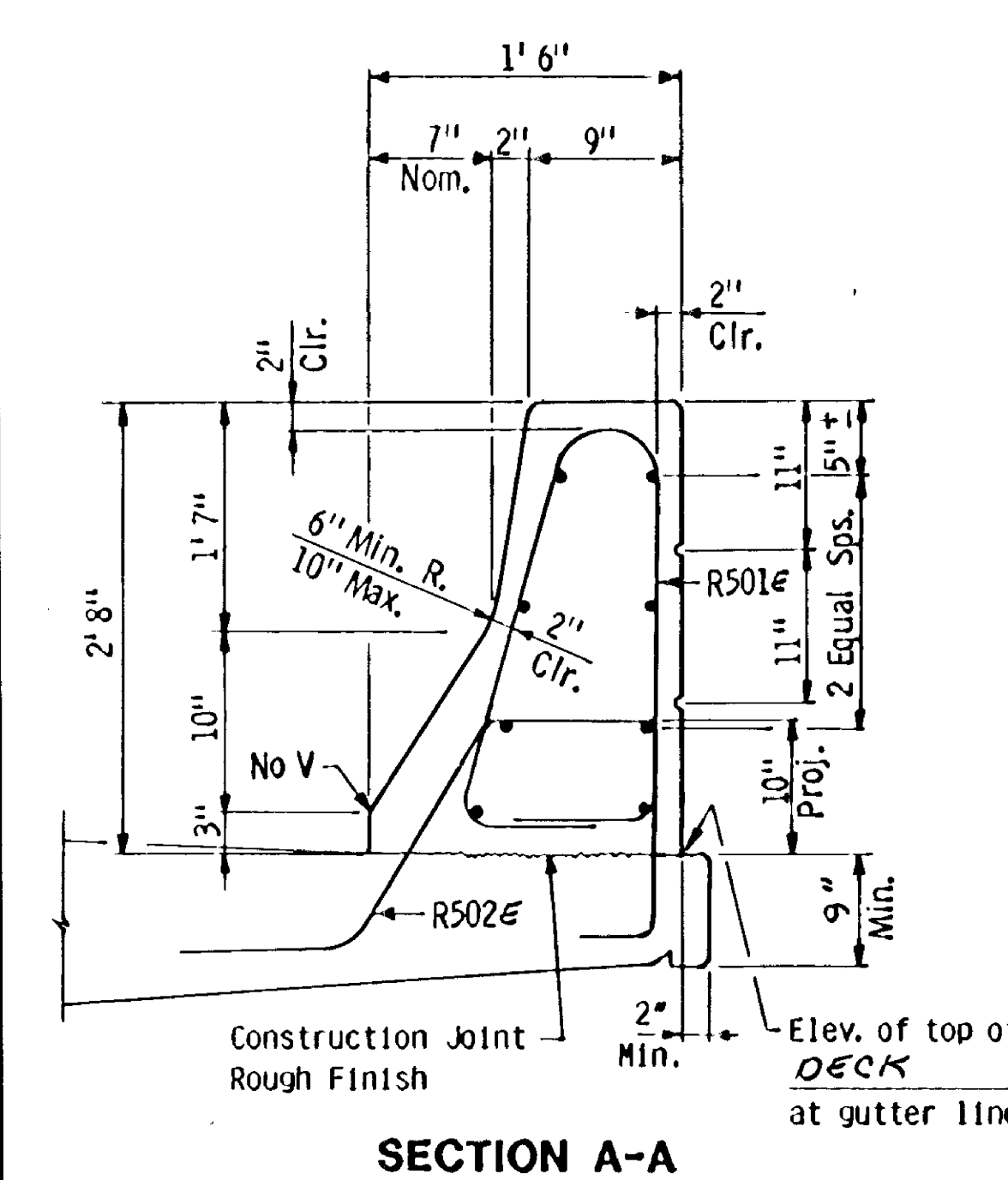
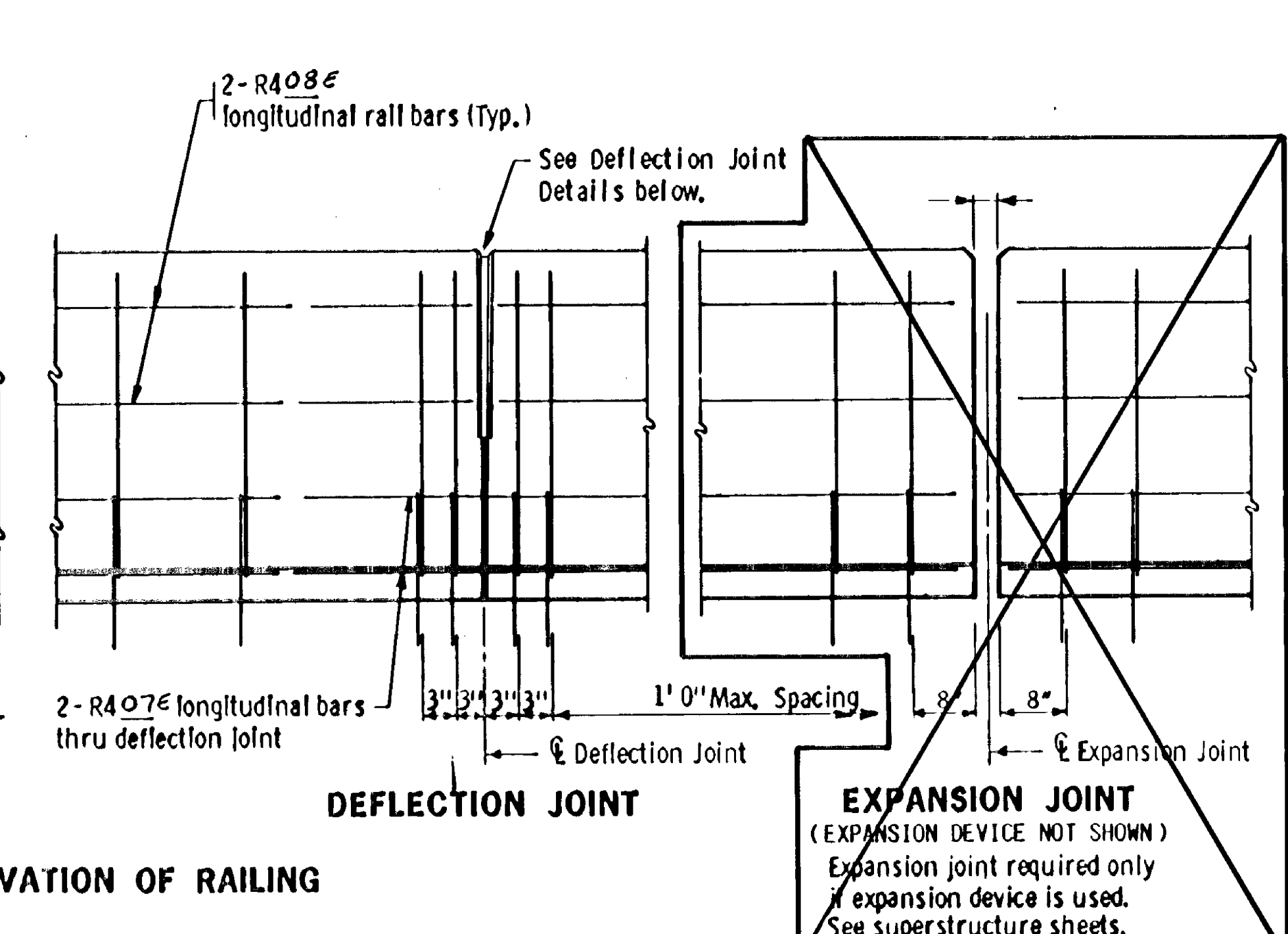
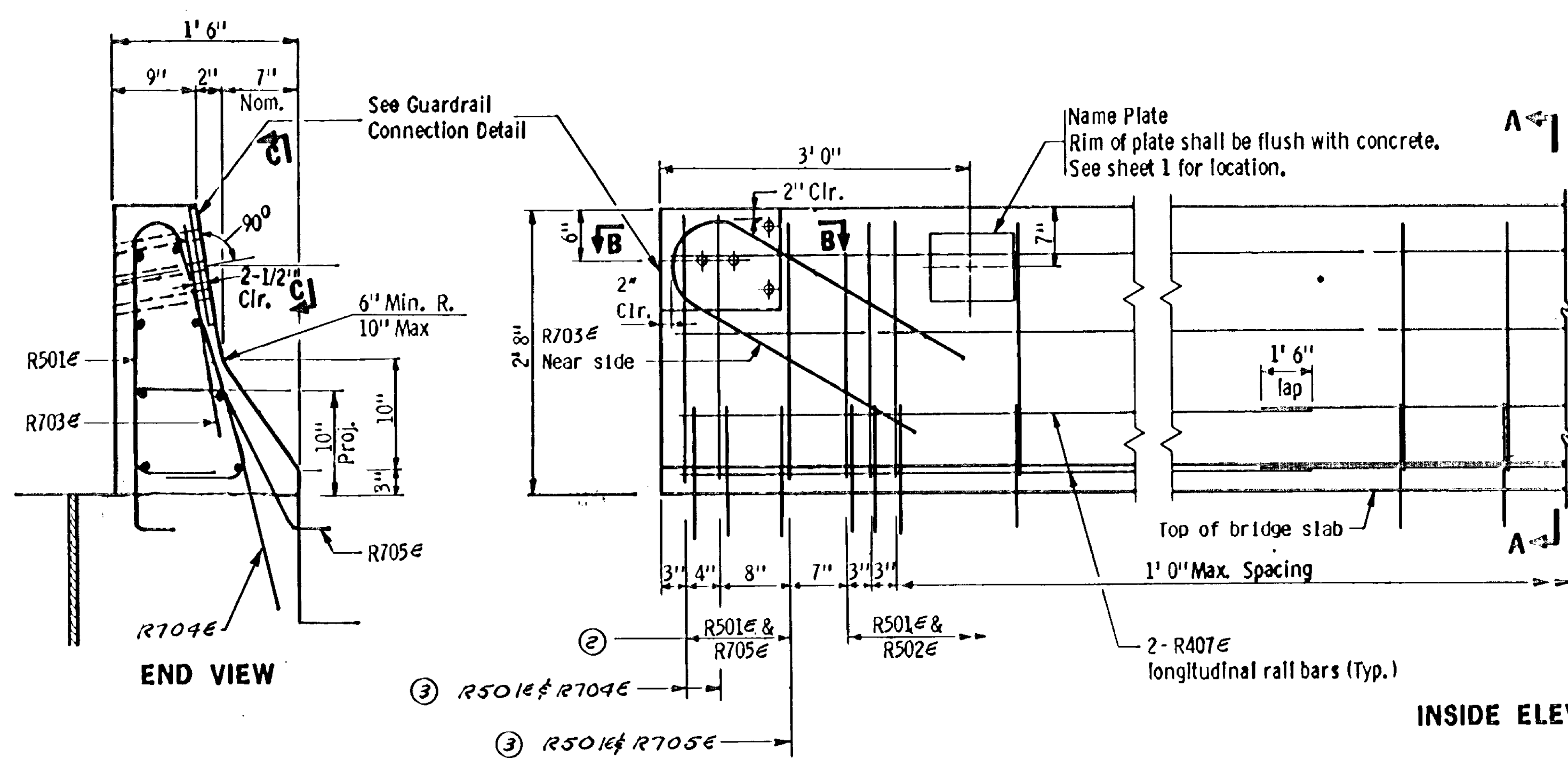
S.A.P. 02-622-20

SHEET 56 OF 66 SHEETS

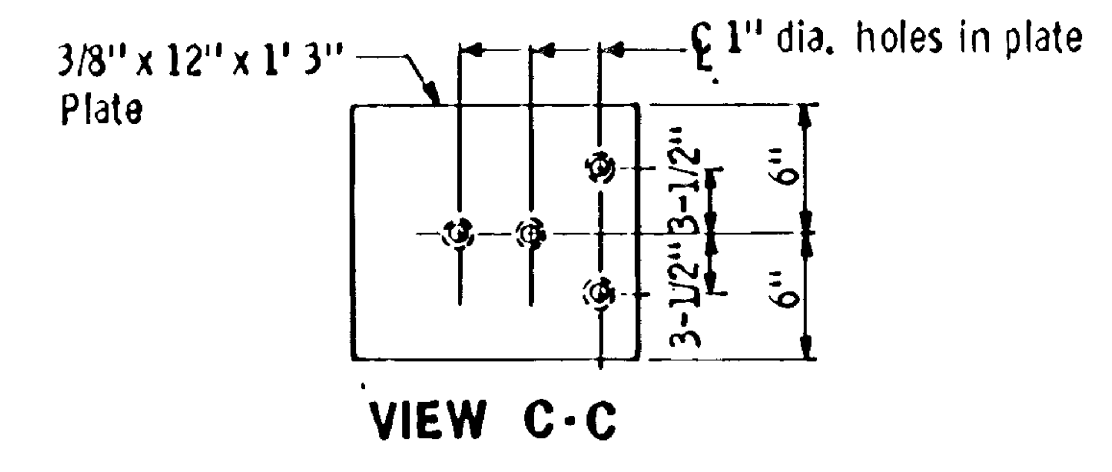
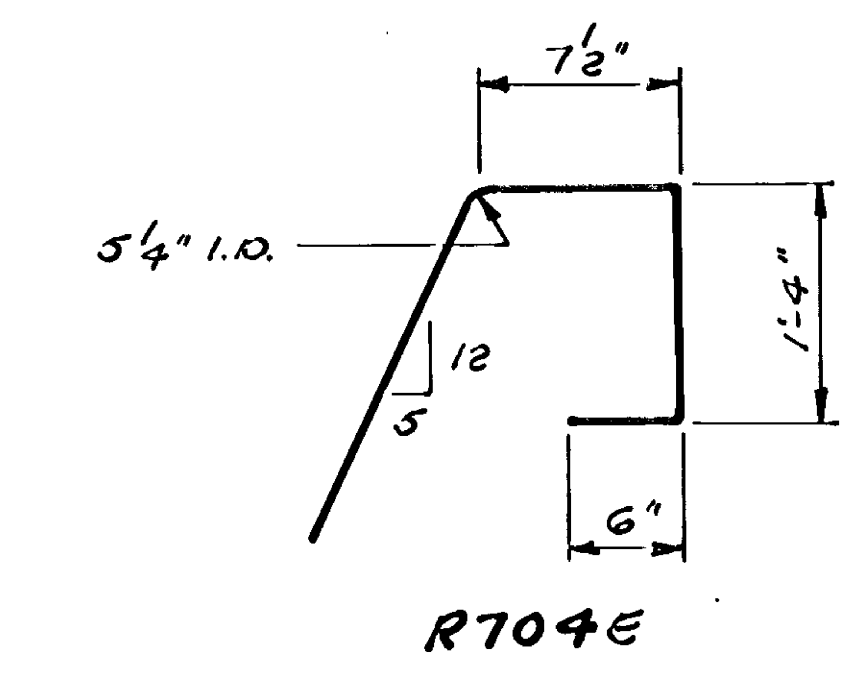
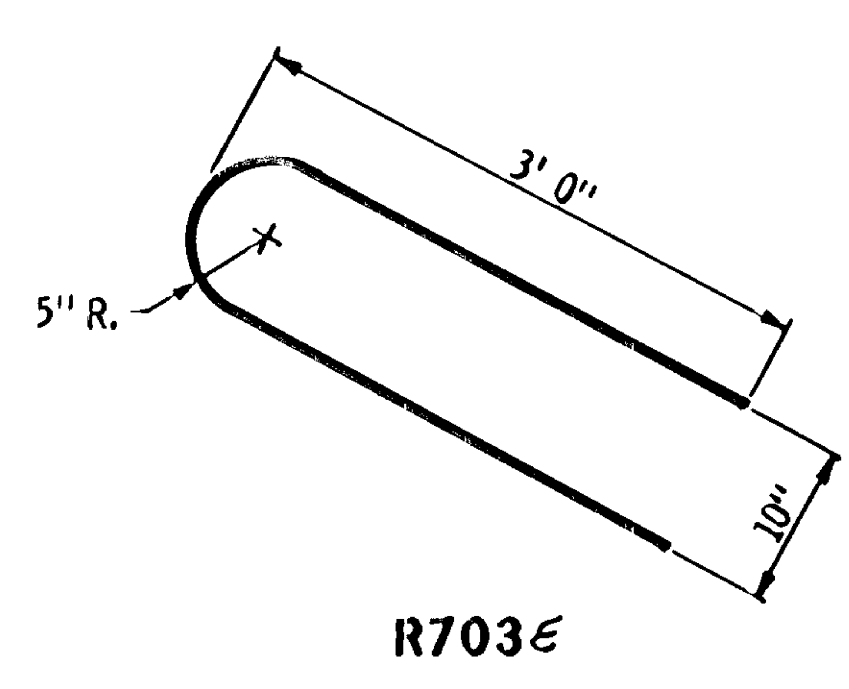
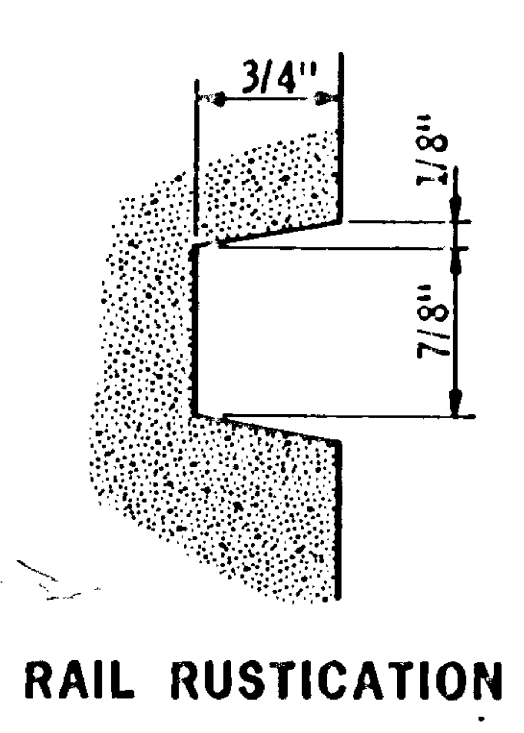
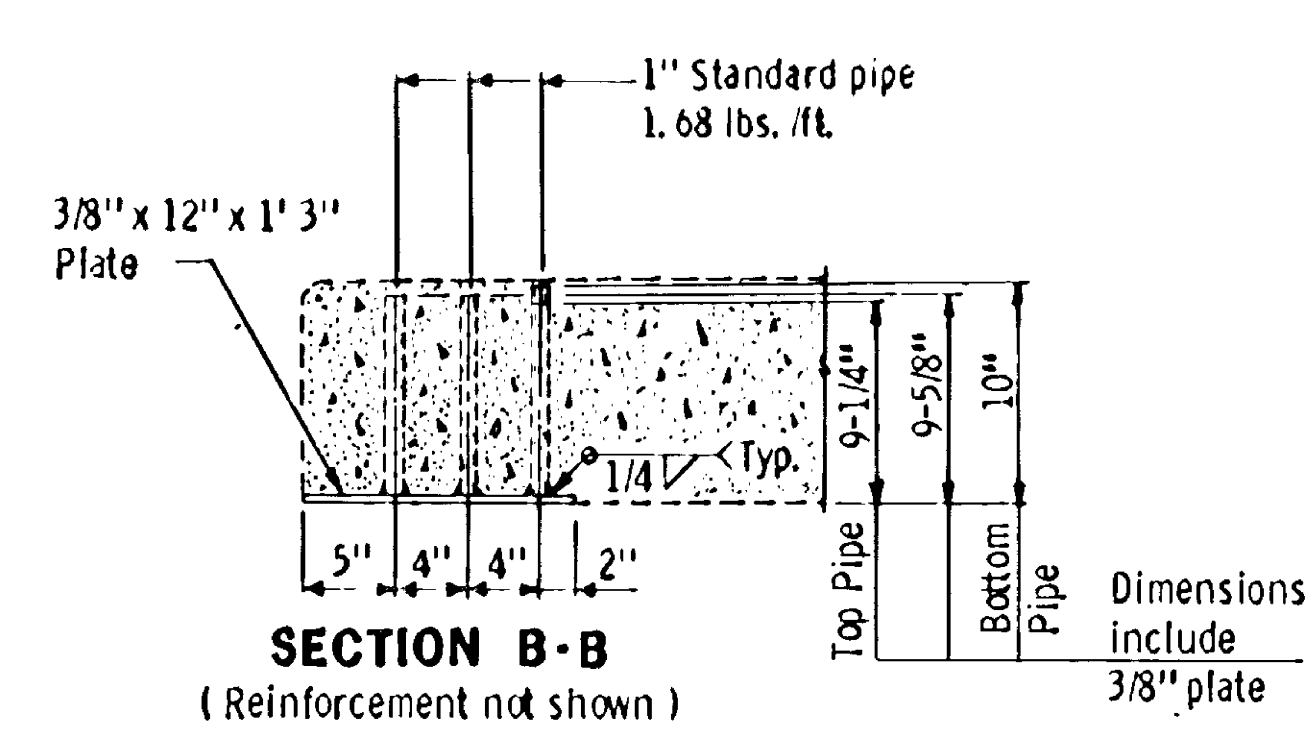
02548

RHT

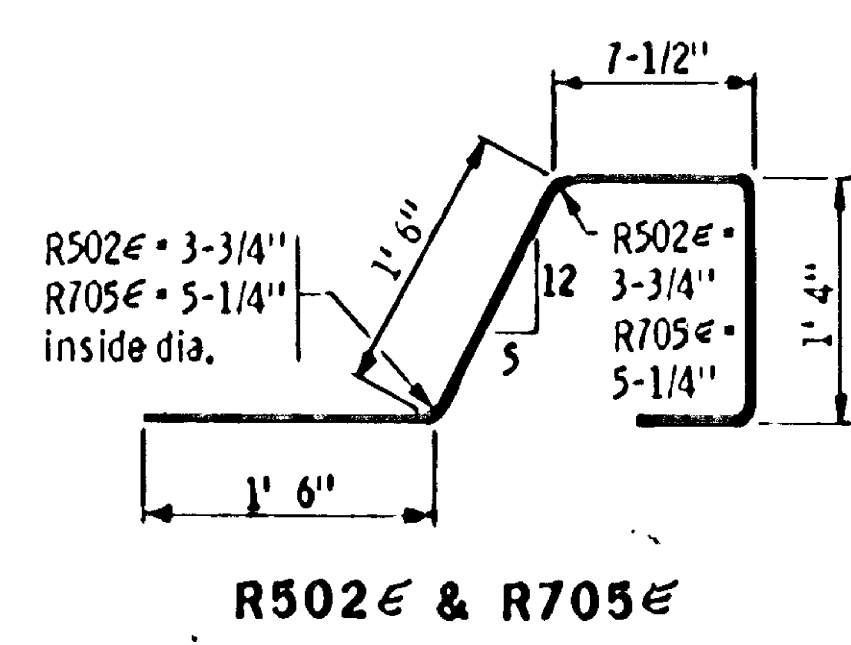
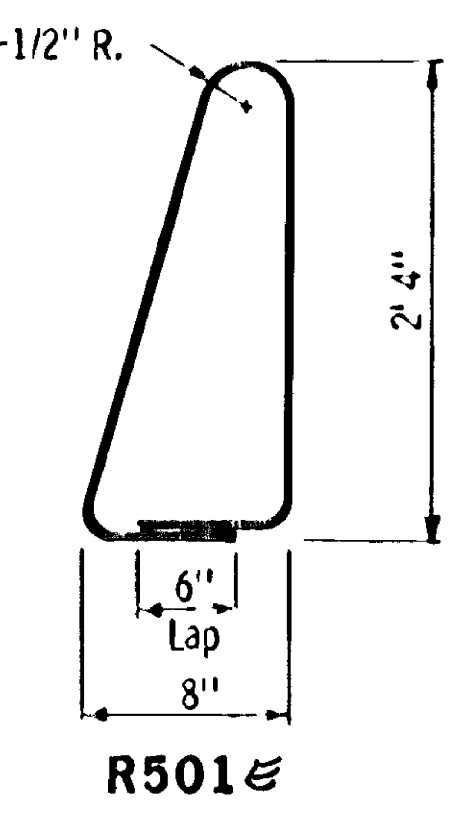
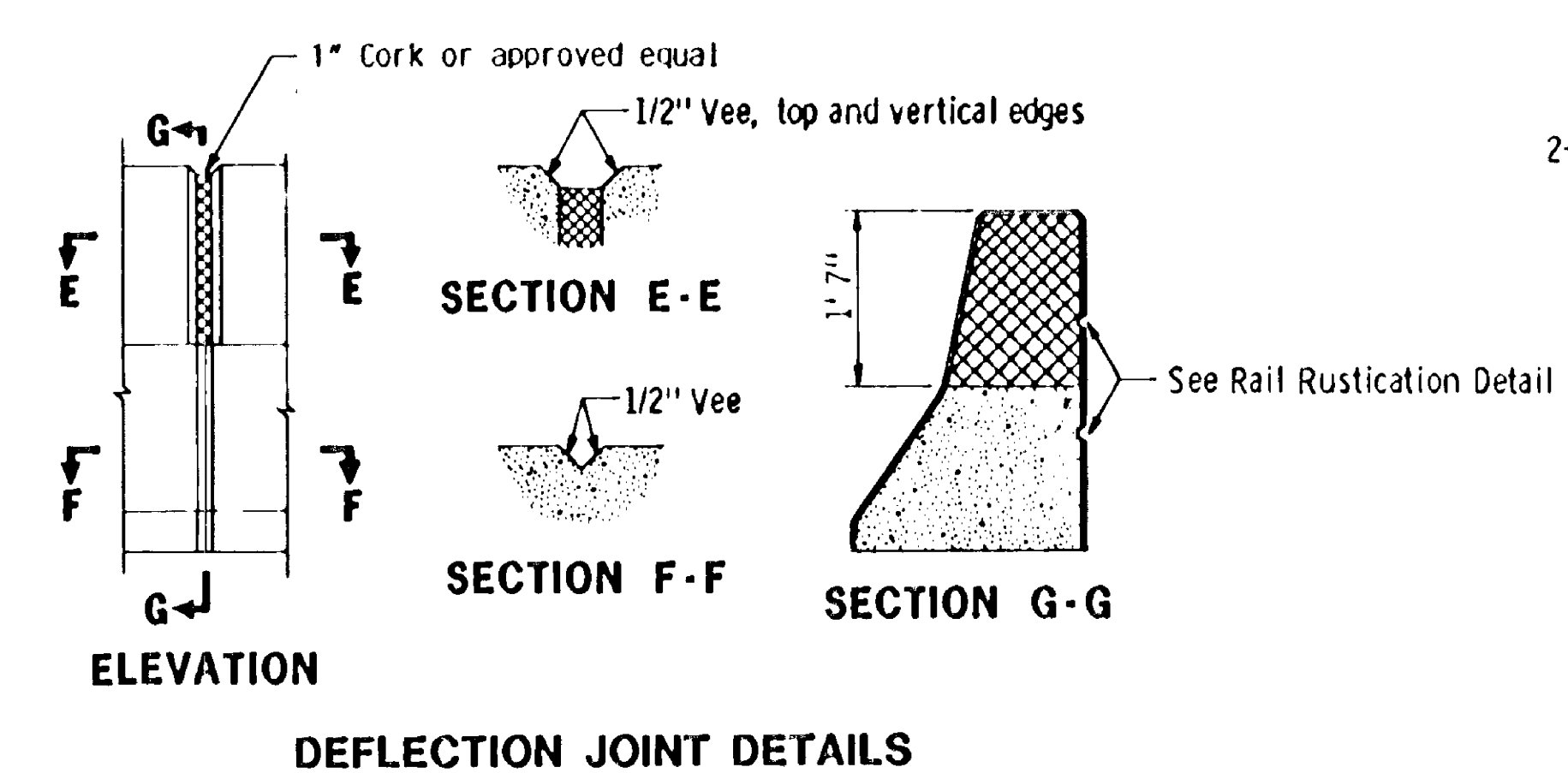
RRT



- ② S.E. & N.W. CORNERS OF BRIDGE
- ③ S.W. & N.E. CORNERS OF BRIDGE



GUARDRAIL CONNECTION DETAIL
Galvanize after fabrication per Spec. 3394
Estimated Weight = 24 lbs.



BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	168	6' 1"	Bent	Rail Vertical
R502E	156	5' 6"	Bent	Rail Vertical
R703E	4	6' 6"	Bent	End Post
R704E	4	4' 6"	"	"
R705E	8	5' 6"	Bent	End Post
R407E	16	35' 4"	Strt.	Rail Long.
R408E	32	17' 0"	Strt.	Rail Long.

① 2 LINES, 1'-6" MIN. LAP

GENERAL NOTES:

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

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.

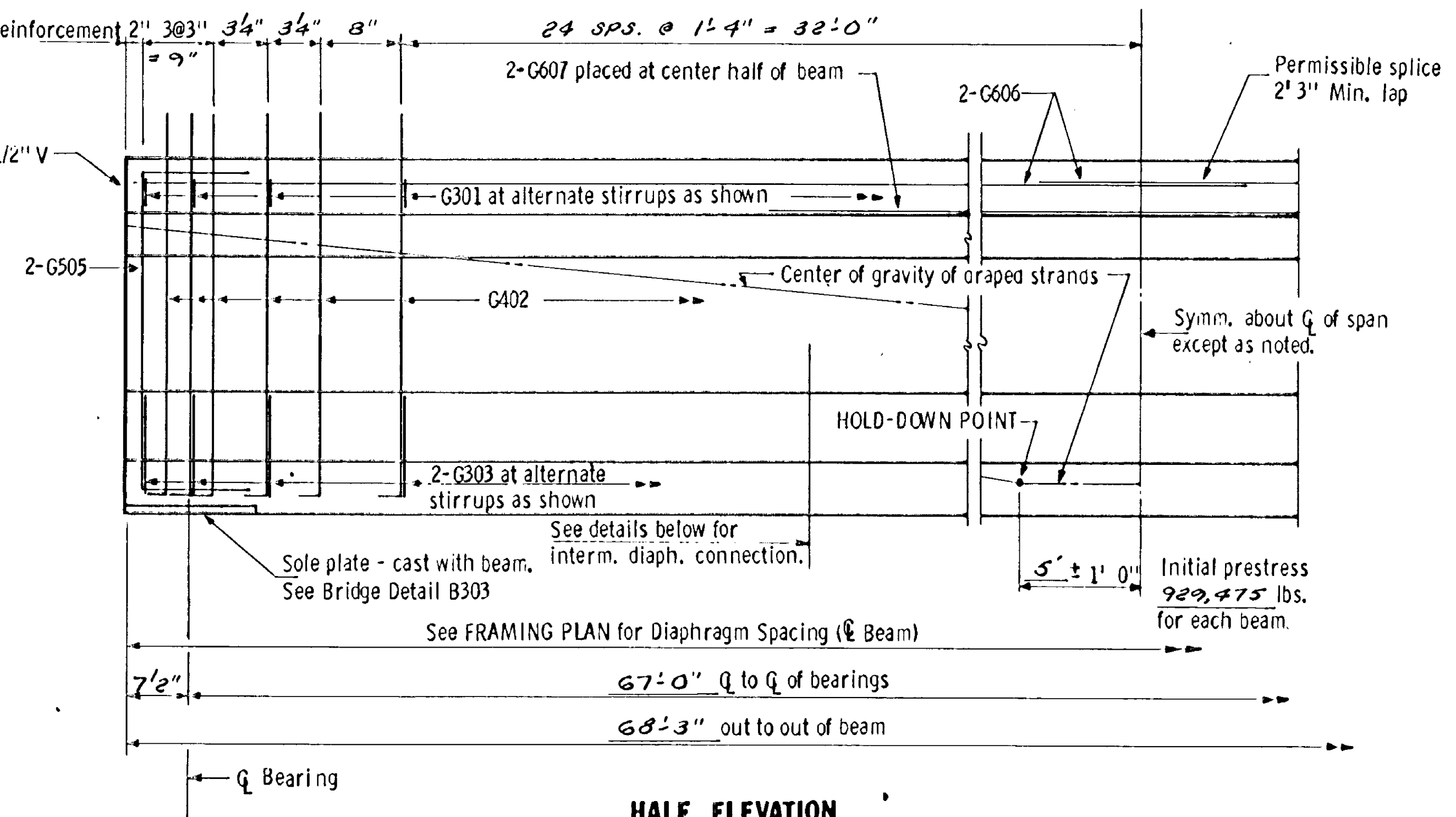
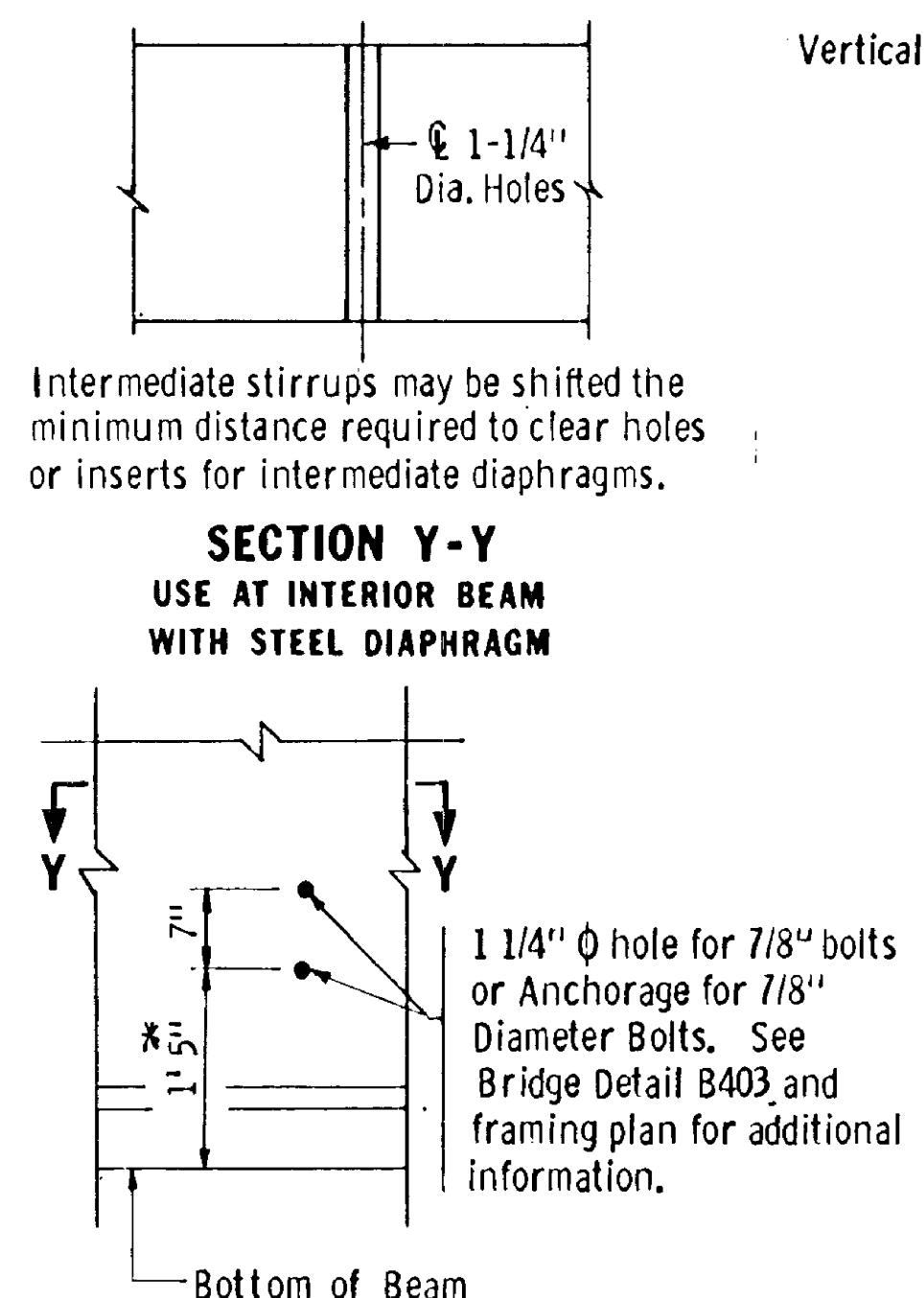
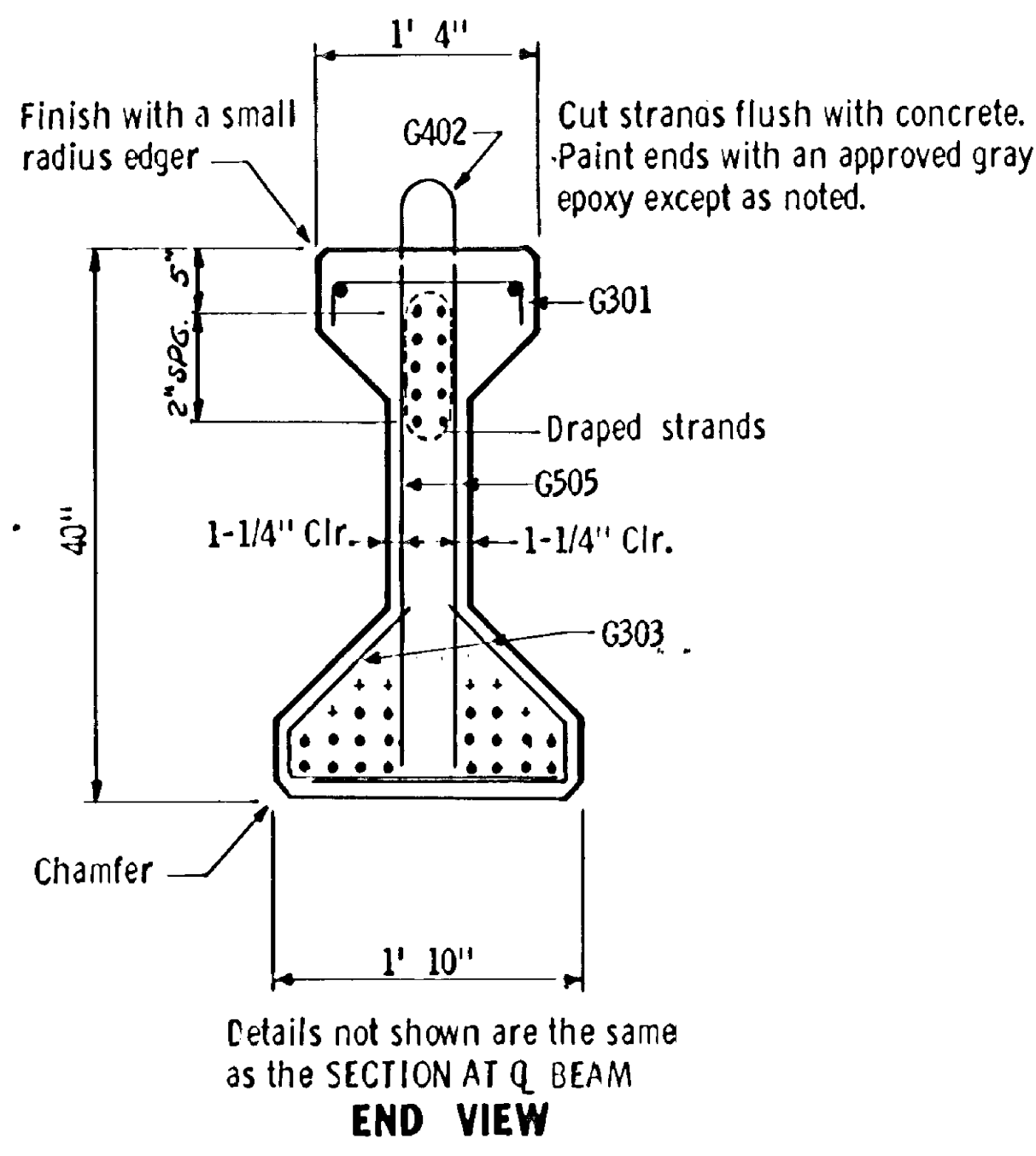
See superstructure sheet for joint spacing.

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

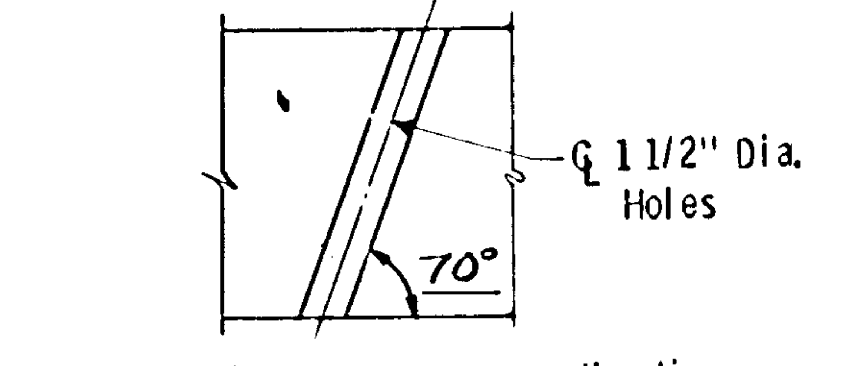
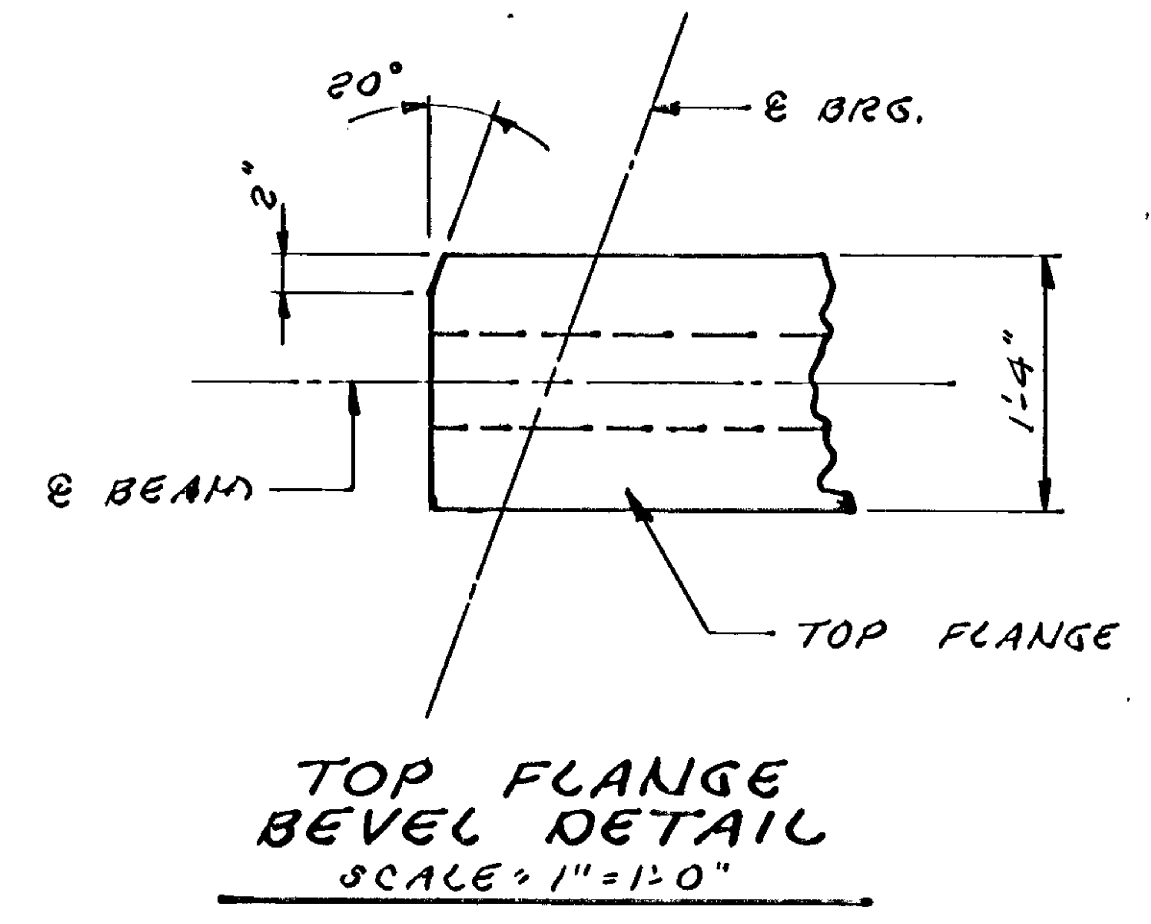
Guardrail connection to be included in price bid for other items.

Rail quantities are included in summary of quantities for superstructure.

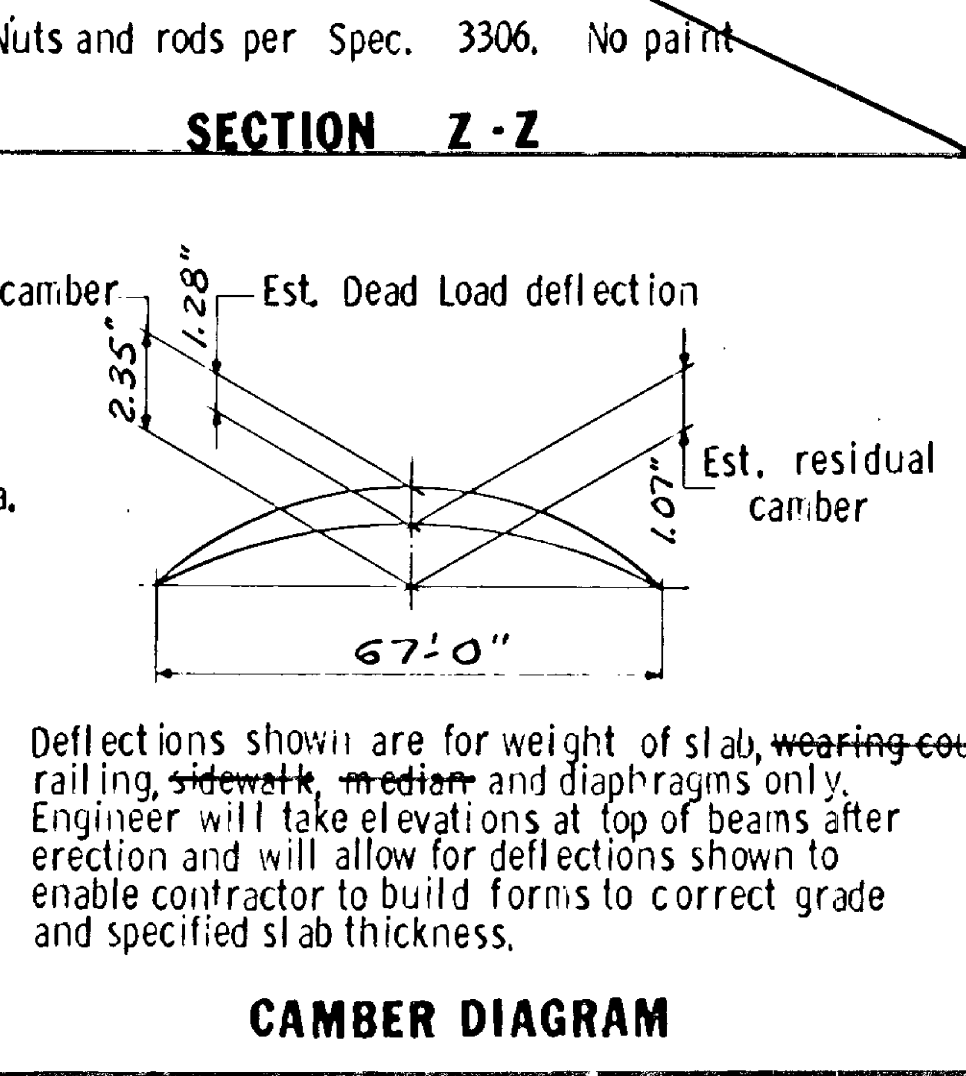
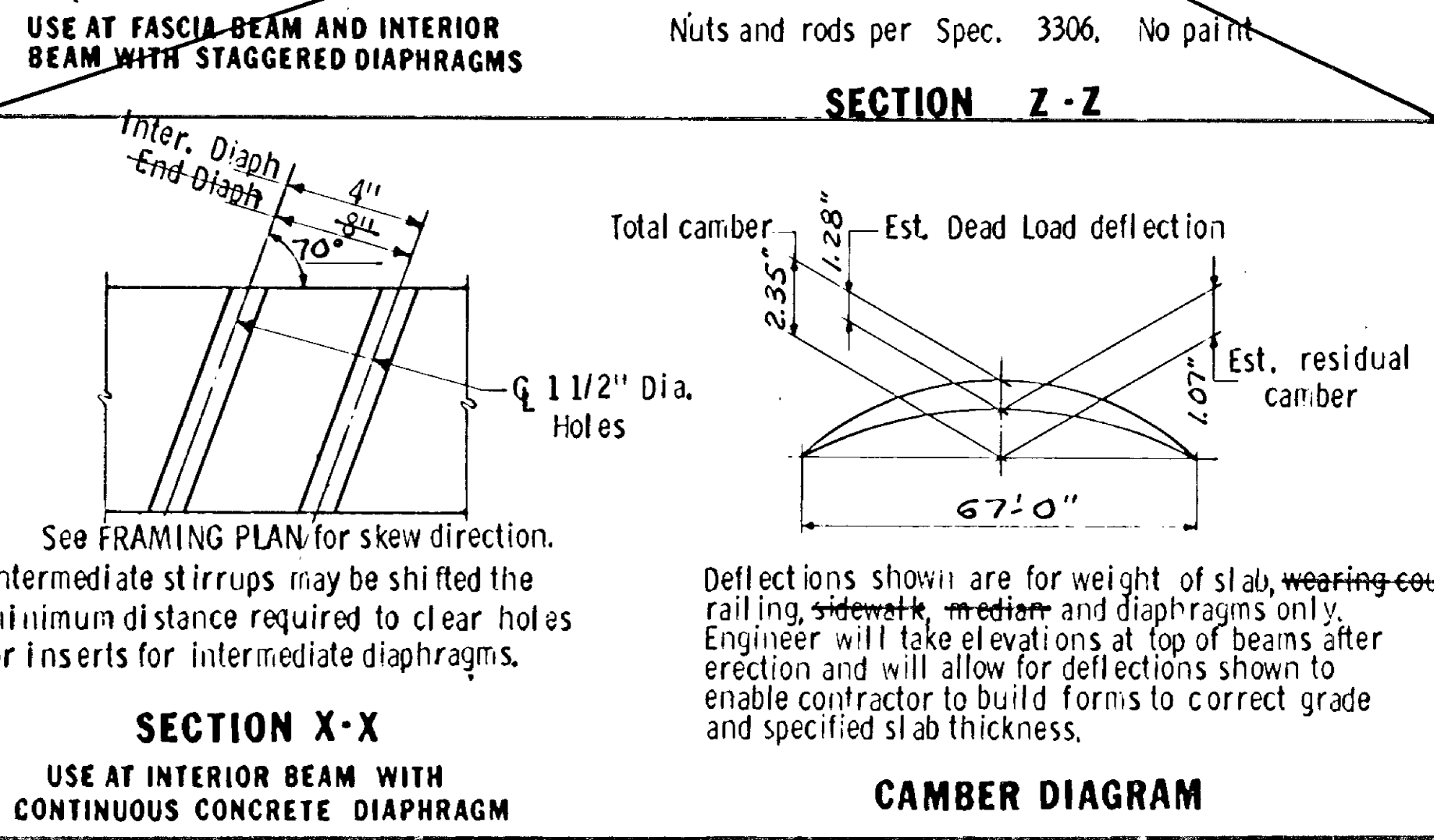
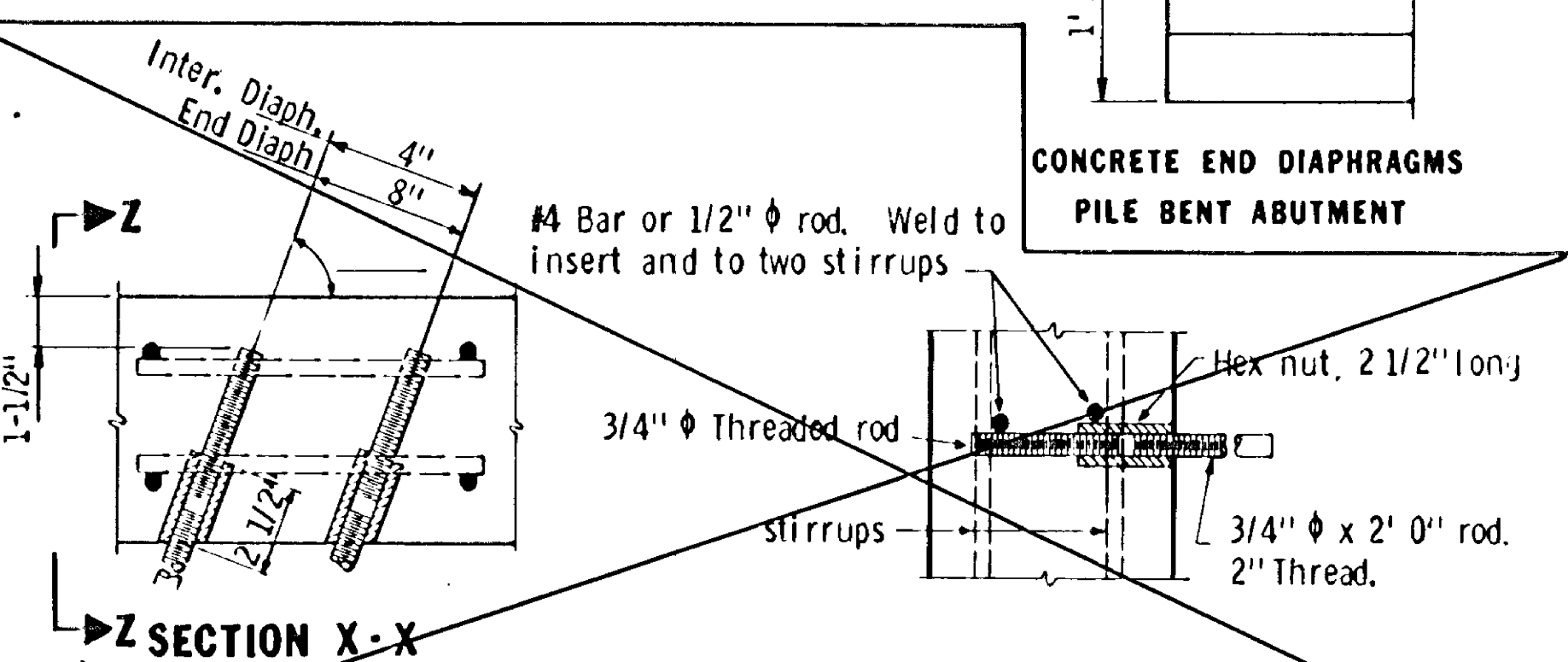
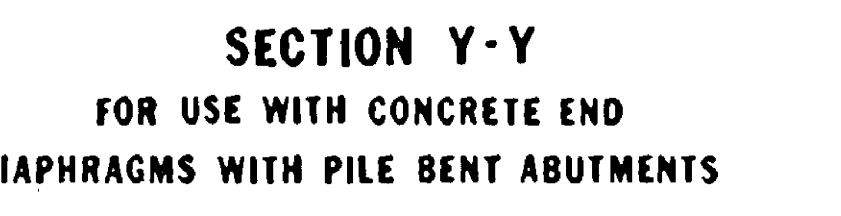
Length of railing concrete to be measured for payment between outside faces of railing.



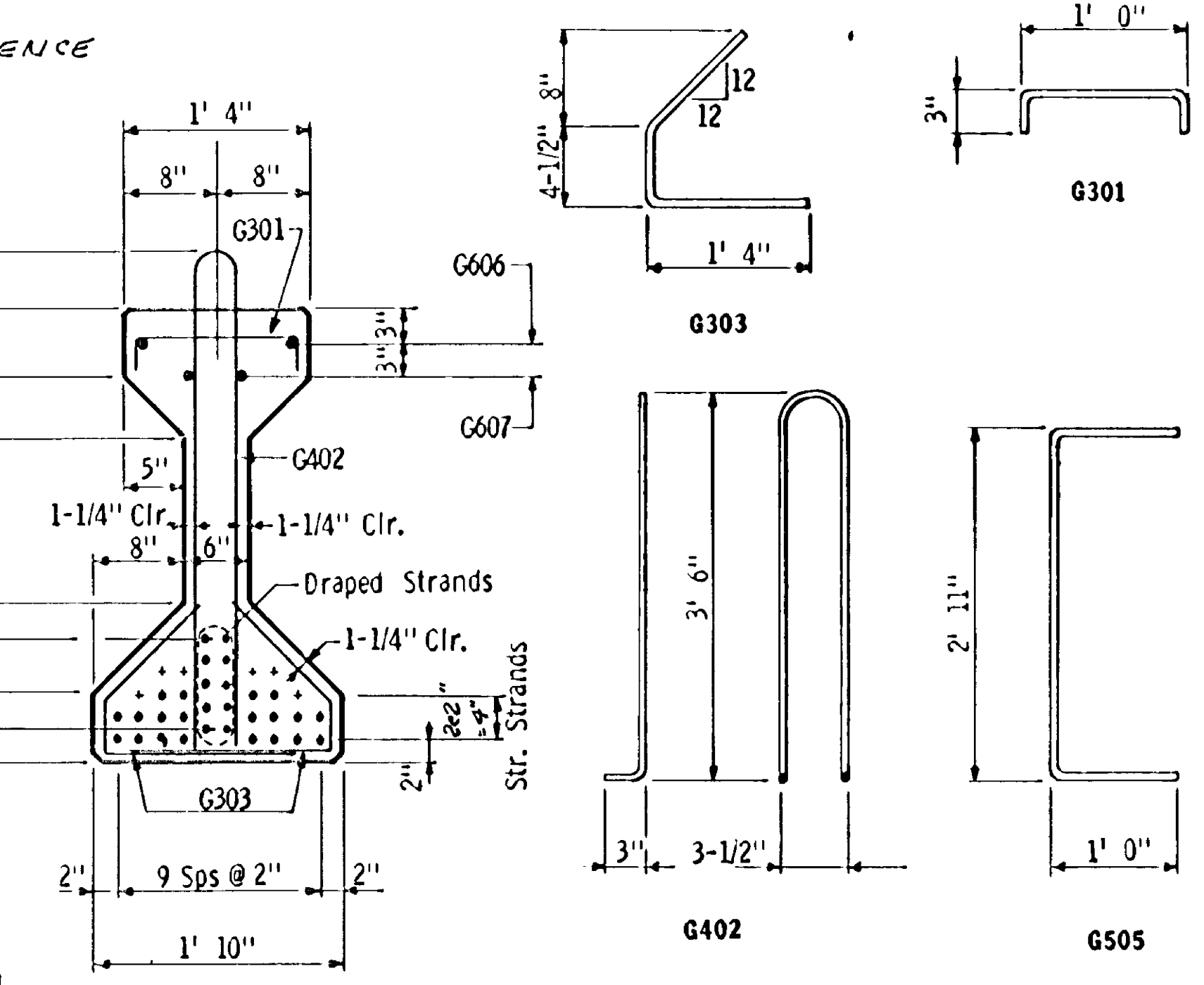
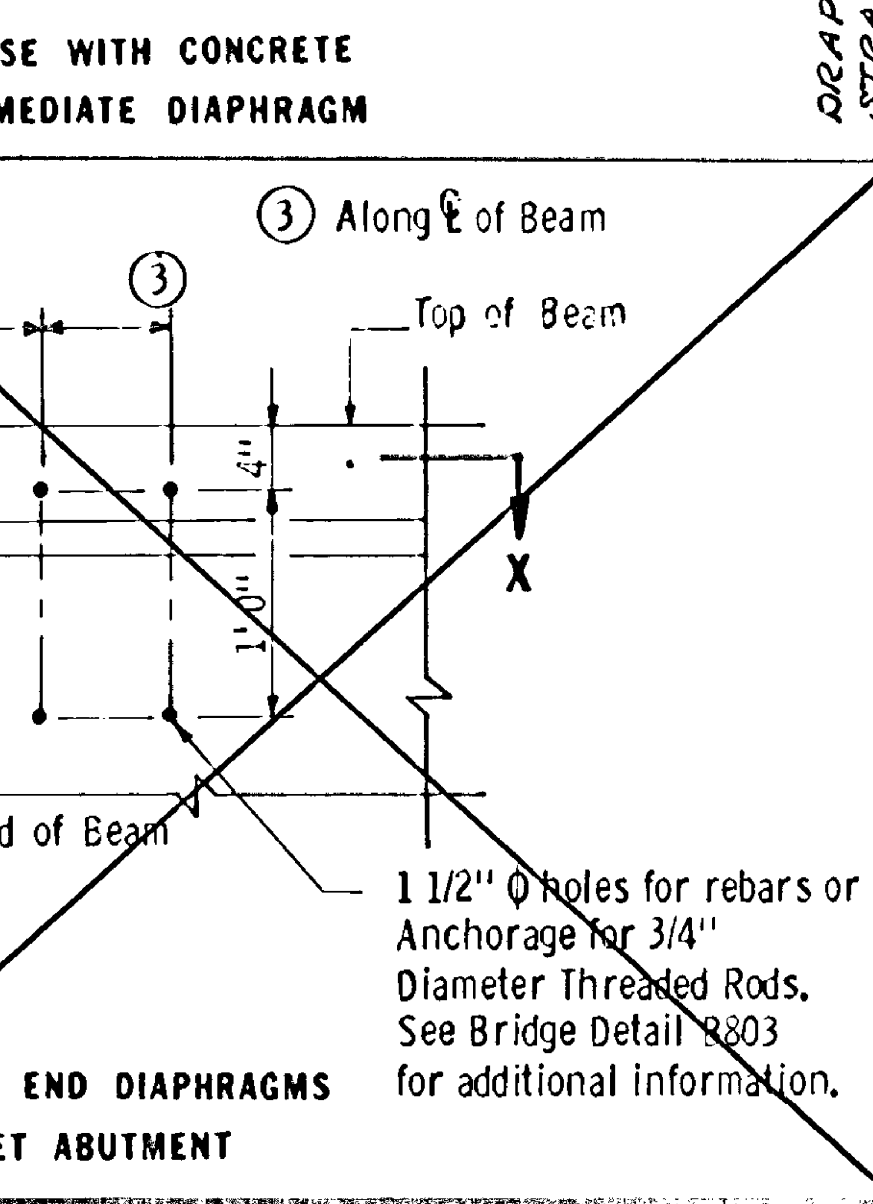
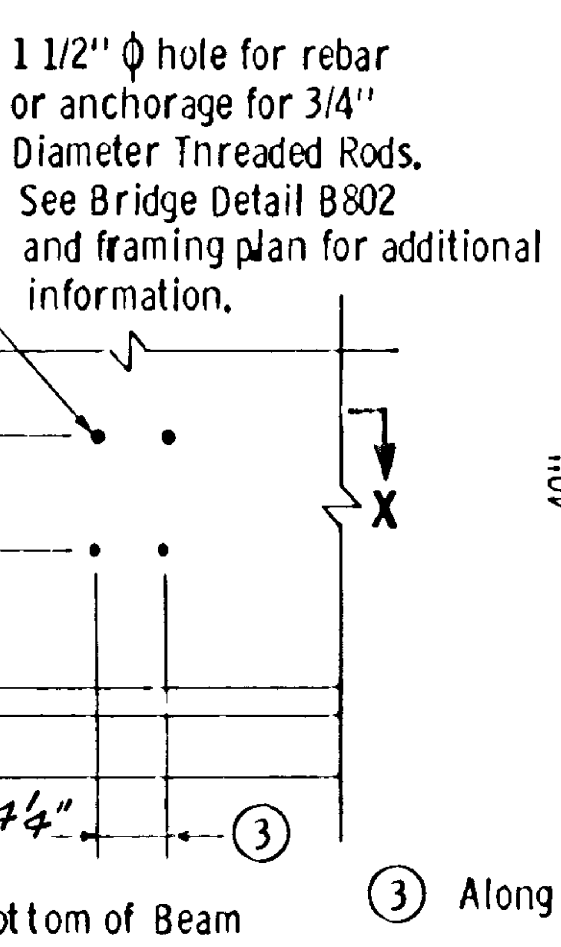
Bar	Wt.	Girder Section Data	
G 301	.56 lb.	Wt. /ft. = 505 lbs.	
G 402	5.12 lb.	Cross sec. area at Q of span = 485 in. ²	
G 303	1.00 lb.	C. C. (from bottom) = 1.88 in.	
G 505	5.13 lb.	I = 87,690 in. ⁴	
G 606		S _x = 4,904 in. ³	
G 607		1/2" Ø 270k strand wt. /ft. = .525 lb.	
		1/2" Ø 270k strand area = .1531 sq. in.	



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



* ADJUST THIS DIMENSION AS NECESSARY TO AVOID INTERFERENCE WITH DRAPED STRANDS.



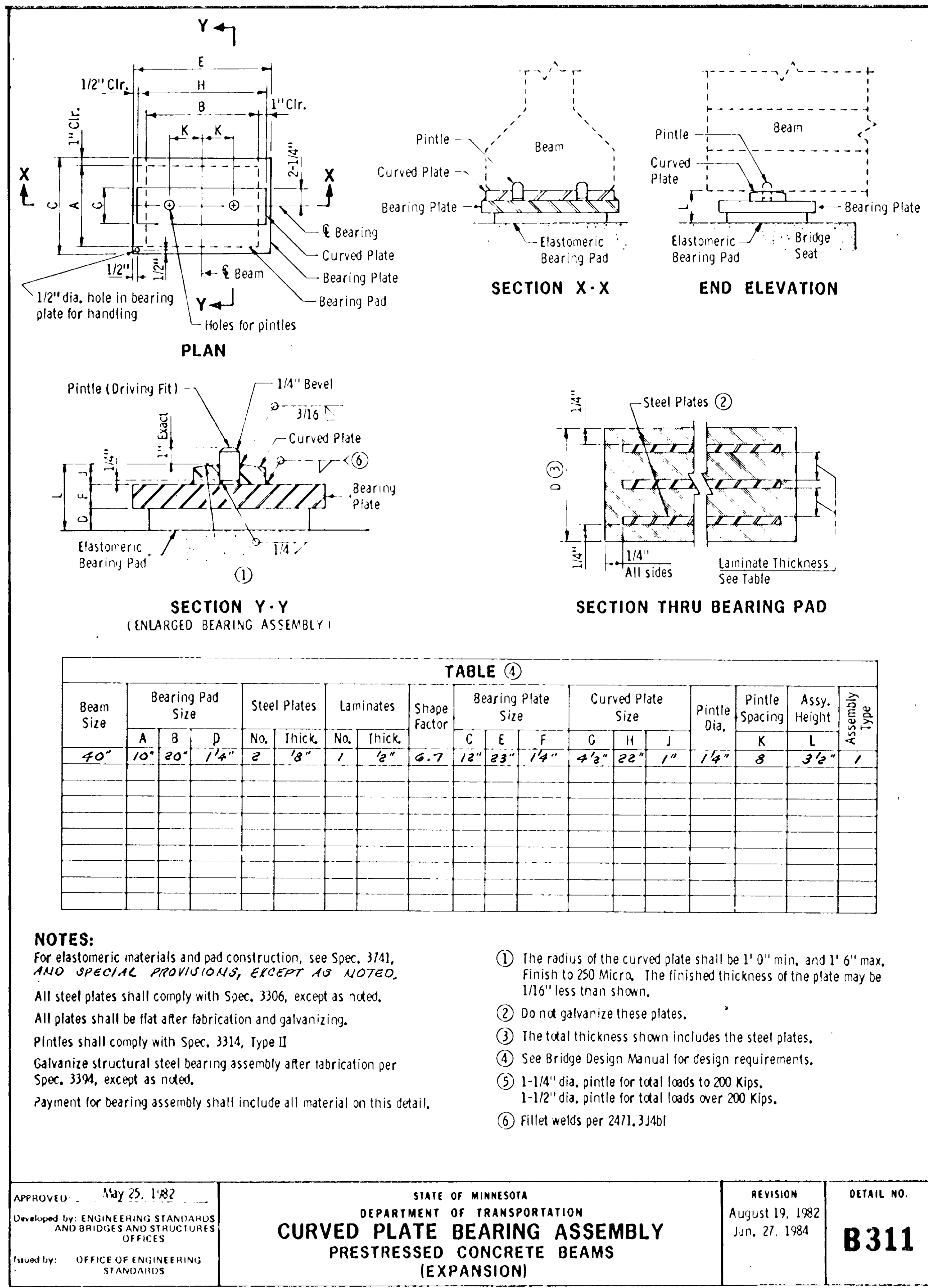
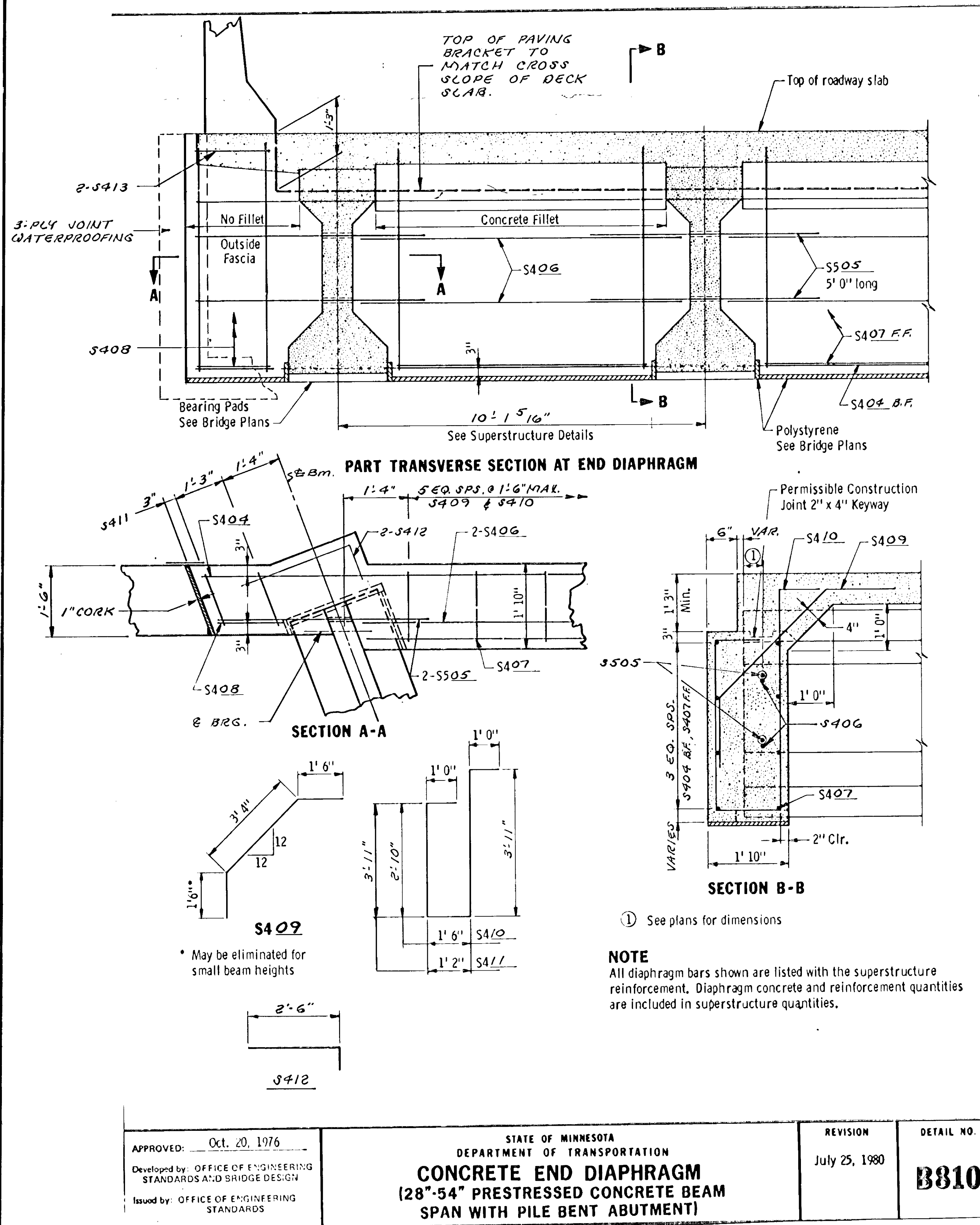
Y DISTANCES (IN INCHES)			
	NO.	Q SPAN	END
Straight strands	20	3.60	
Draped strands	10	7.00	31.00°
Total strands	30	4.73	

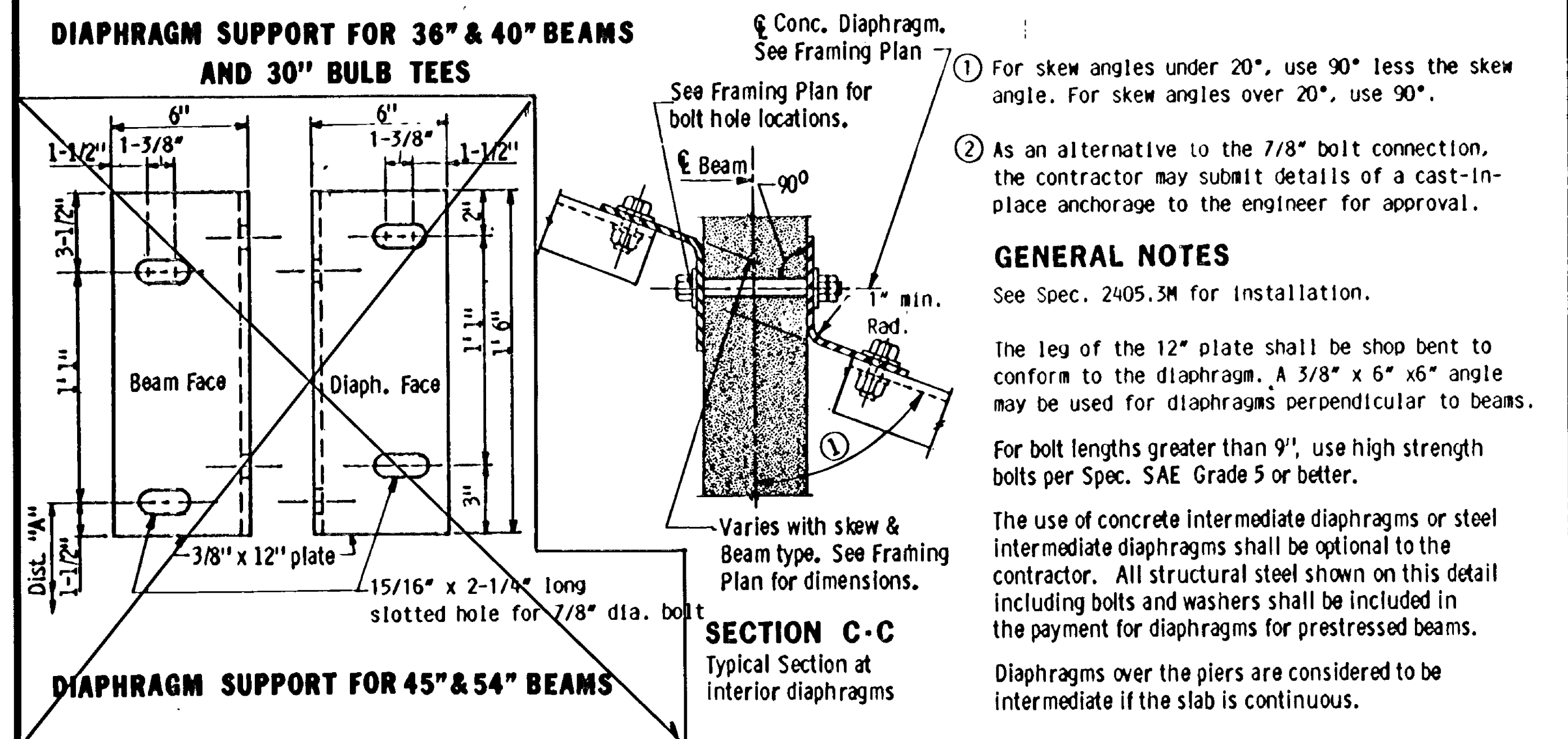
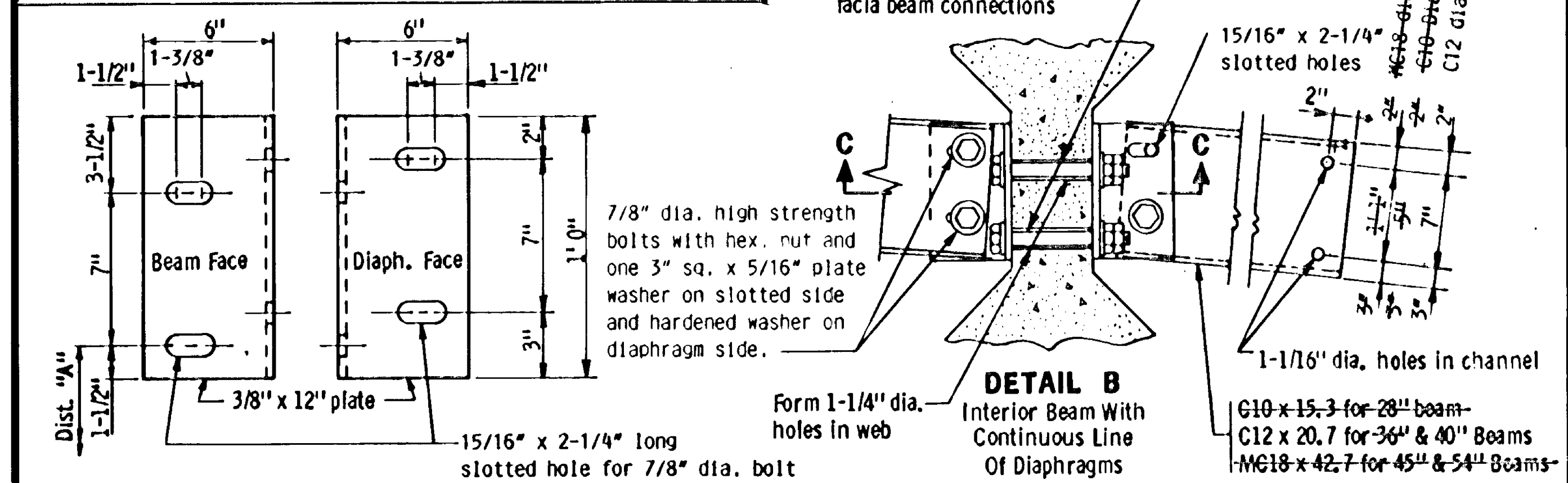
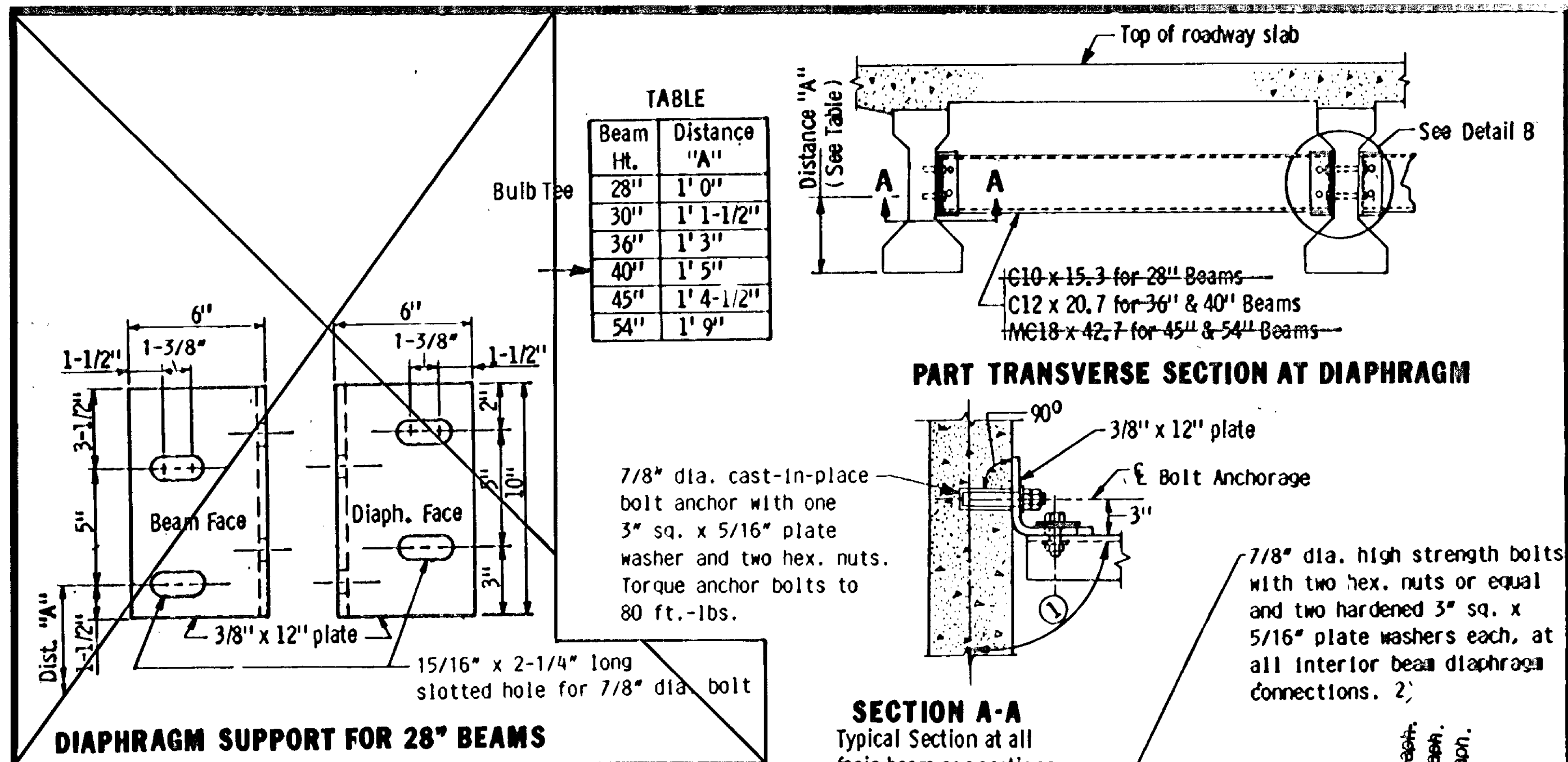
Y = distance of Center of Gravity of strands from bottom of beam. All strands spaced 2" c-c, horizontally and vertically except as noted.
All strands 1/2" Ø 270 kip, ultimate strength.
A tolerance of ± 2" will be permitted in this dimension.
S.A.P. 02-622-20

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 17.2 tons.

MINIMUM CONCRETE STRENGTH - P.S.I.		
	① f'ci	② f'c
Required min. Concrete Strength	5600	6000

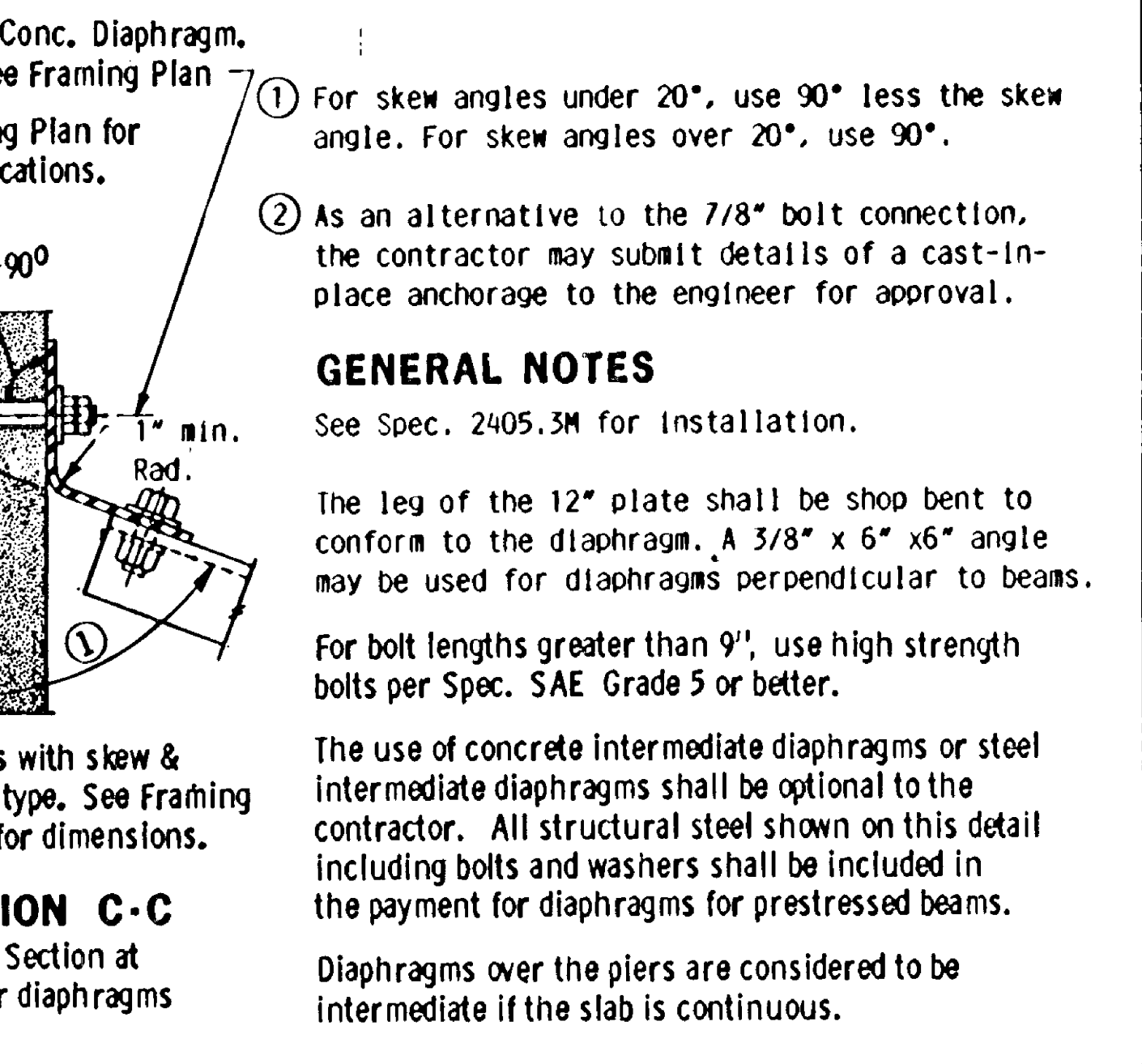
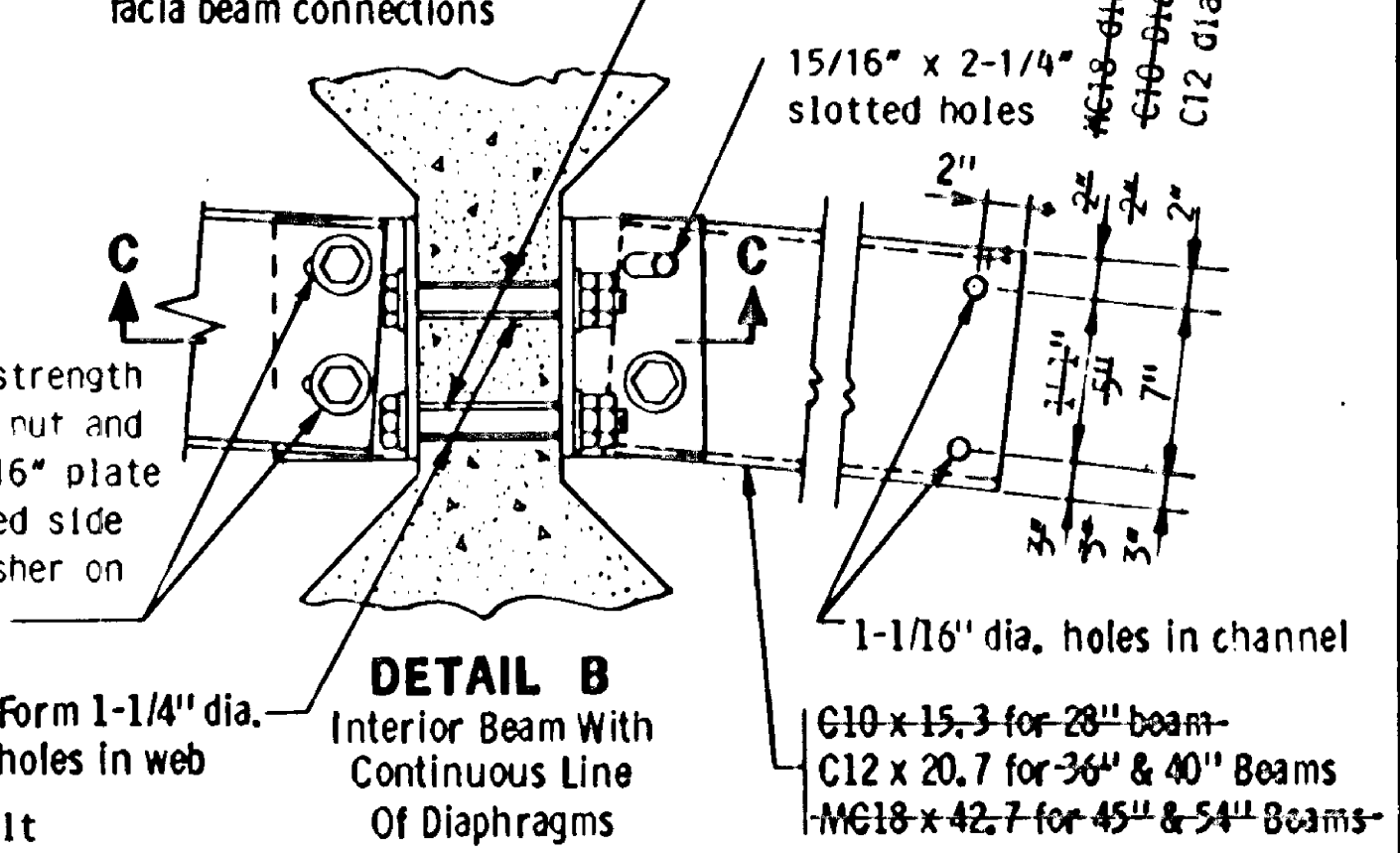
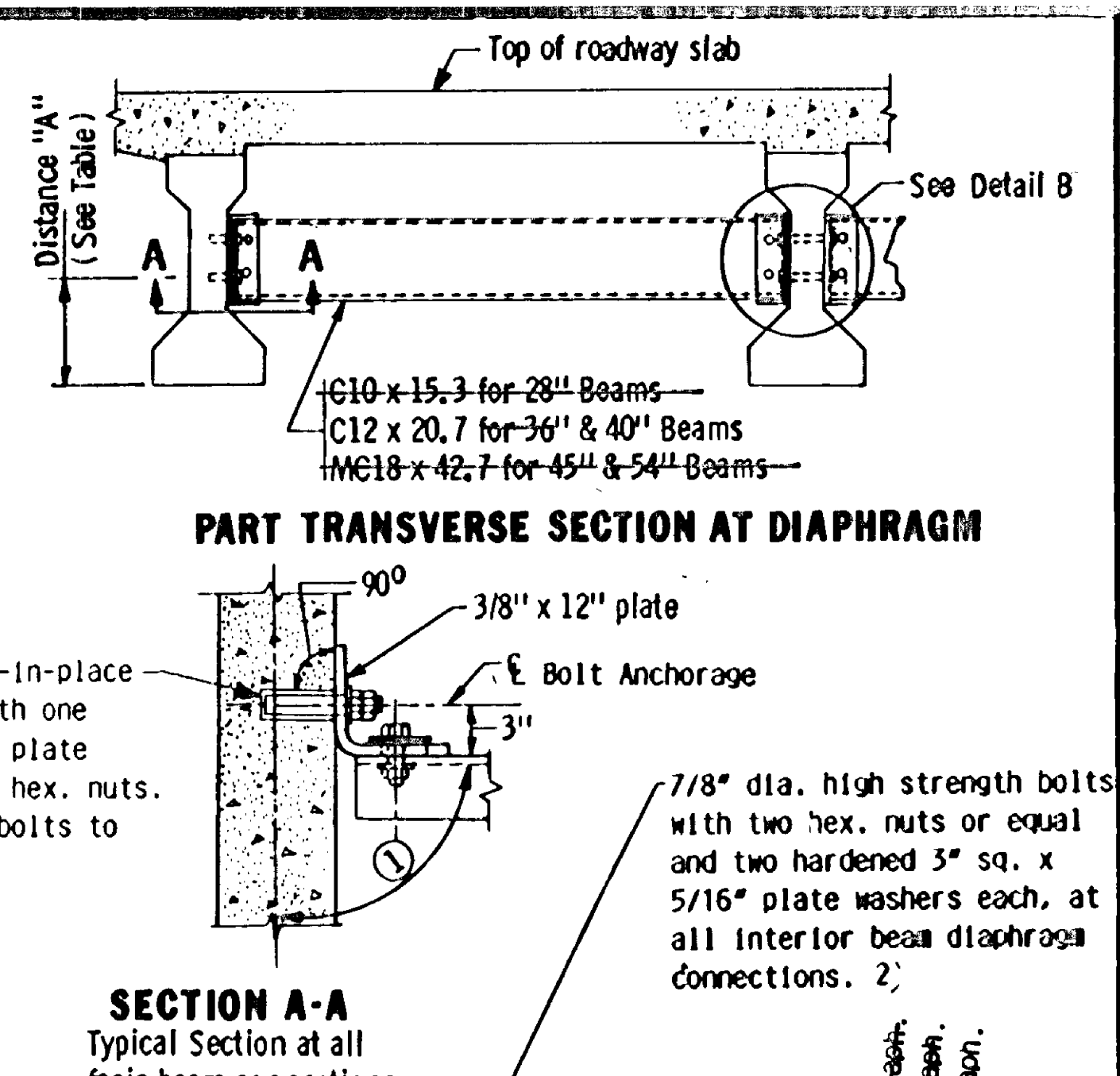
① Minimum concrete strength at time of prestress transfer.
② Minimum concrete strength when curing can be discontinued and beam transported and installed.





TABLE

Beam Ht.	Distance "A"
28"	1' 0"
30"	1' 1-1/2"
36"	1' 3"
40"	1' 5"
45"	1' 4-1/2"
54"	1' 9"



- For skew angles under 20°, use 90° less the skew angle. For skew angles over 20°, use 90°.
- As an alternative to the 7/8" bolt connection, the contractor may submit details of a cast-in-place anchorage to the engineer for approval.

GENERAL NOTES
See Spec. 2405.3M for installation.

The leg of the 12" plate shall be shop bent to conform to the diaphragm. A 3/8" x 6" x 6" angle may be used for diaphragms perpendicular to beams.

For bolt lengths greater than 9", use high strength bolts per Spec. SAE Grade 5 or better.

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 shall be included in the payment for diaphragms for prestressed beams.

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

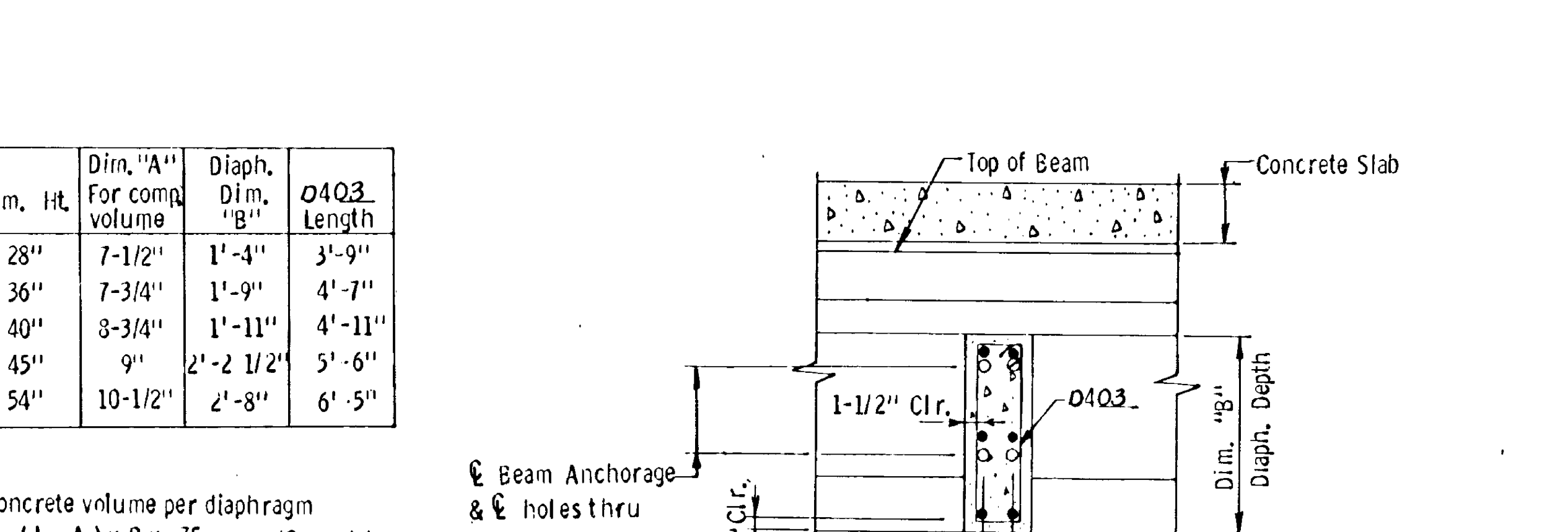
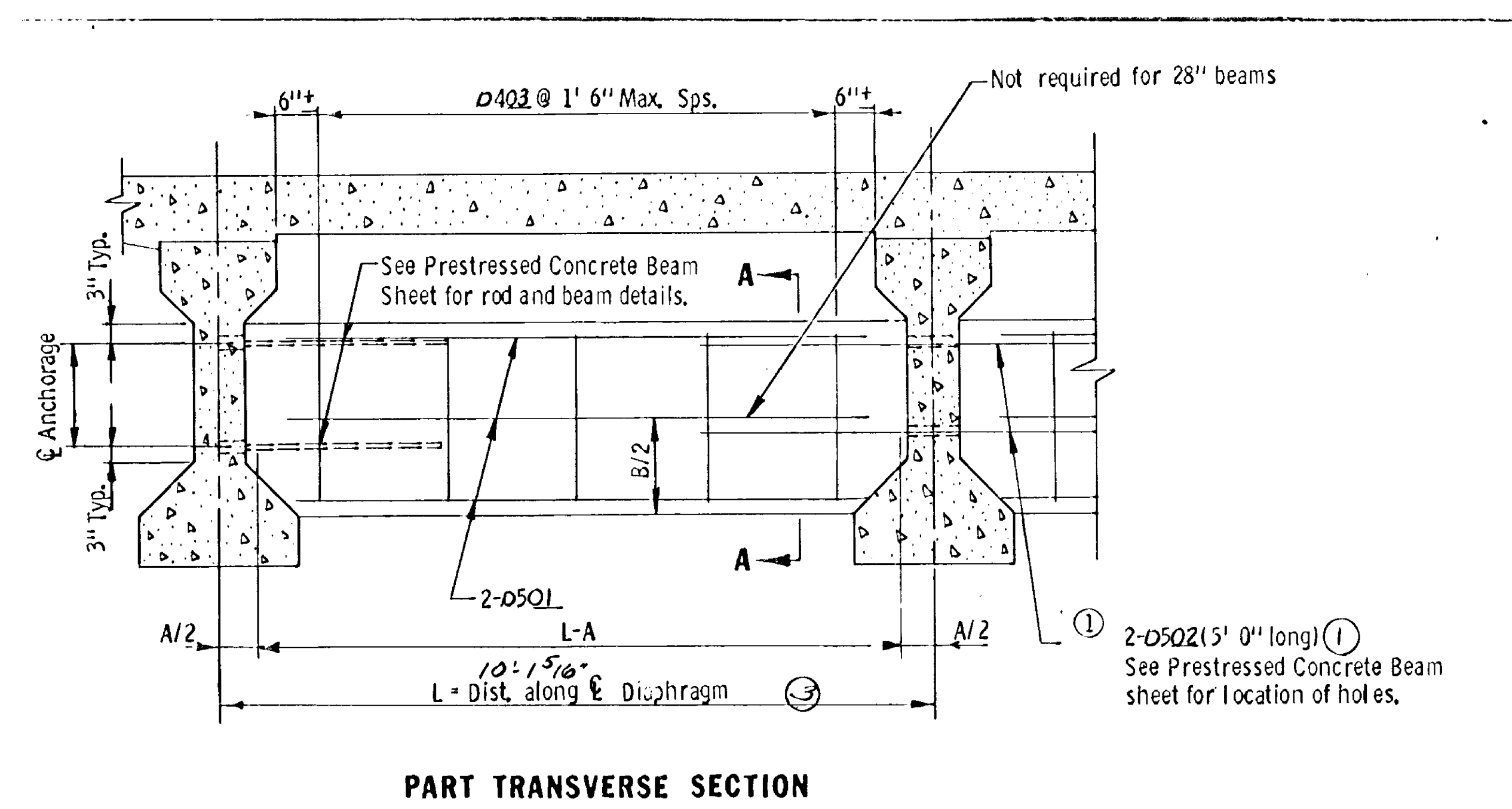
APPROVED: April 1, 1985

Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN
Issued by: OFFICE OF ENGINEERING STANDARDS

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
STEEL INTERMEDIATE DIAPHRAGM
(FOR 28"-54" PRESTRESSED CONCRETE BEAM SPANS AND 30" BULB TEE BEAMS)

REVISION

DETAIL NO. **B403**



Bm. Ht.	Dim. "A" For comp. volume	Diaph. Dim. "B"	D403 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 $\frac{(L-A) \times B \times .75}{27} = (\text{Cu. yd.})$

BAR	NO	LENGTH	SHAPE	LOCATION
D501	48	8'-0"	STR.	DIAPH. HORIZ.
D502			STR.	DIAPH. HORIZ.
D403	56	4'-11"	BENT	DIAPH. VERT.

- GENERAL NOTES**
- For Diaphragms 20° and over, use threaded rods as shown on standard prestressed concrete beam sheet.
 - 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.
 - PAYMENT LENGTH FOR DIAPHRAGMS.
-

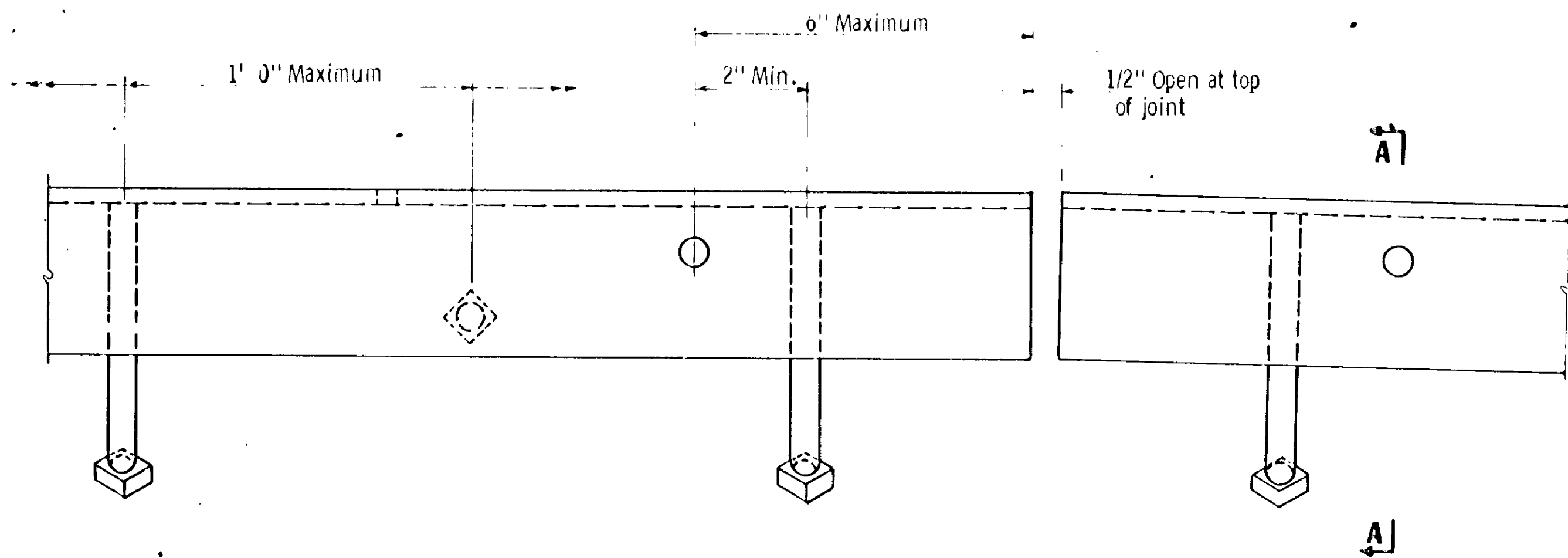
APPROVED: MARCH 27, 1979

Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN
Issued by: OFFICE OF ENGINEERING STANDARDS

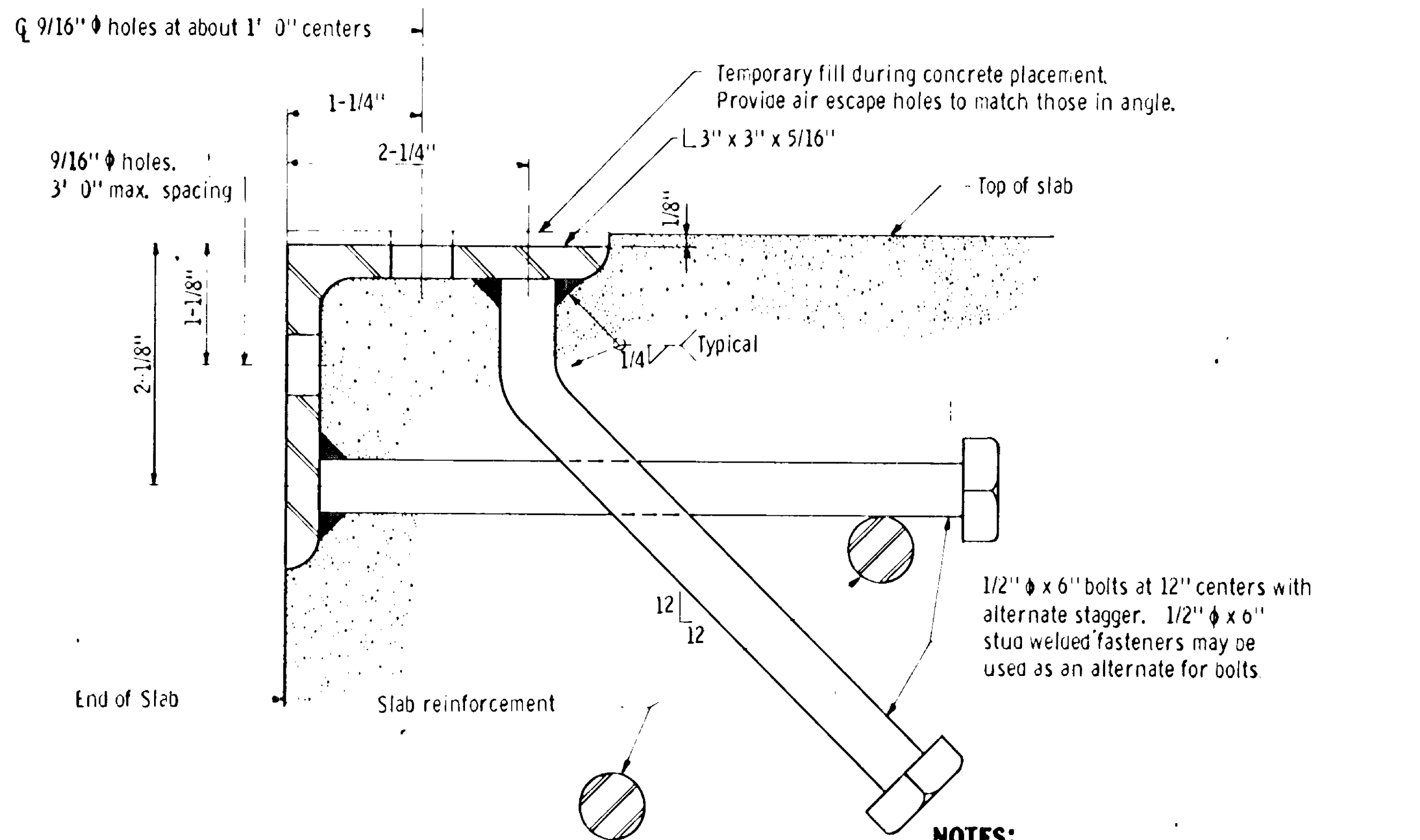
MINNESOTA
DEPARTMENT OF TRANSPORTATION
CONCRETE INTERMEDIATE DIAPHRAGM
(FOR 28"-54" PRESTRESSED CONCRETE BEAM SPANS)

REVISION

DETAIL NO. **B802**



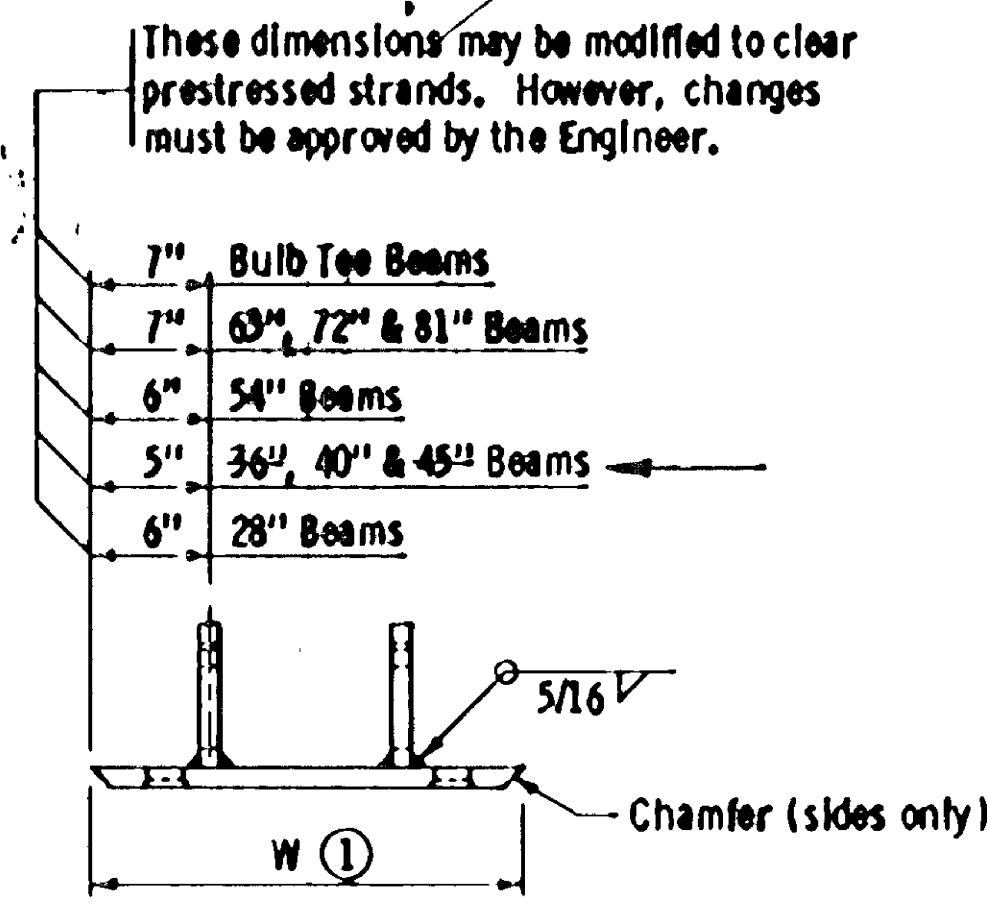
ELEVATION
(Concrete not shown)



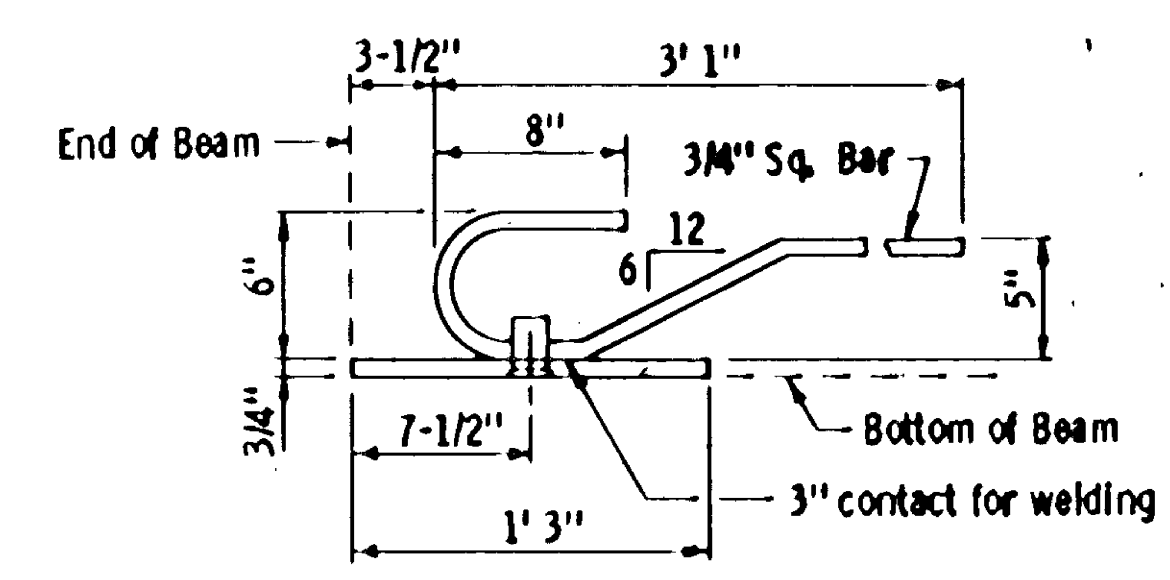
SECTION A - A

NOTES:

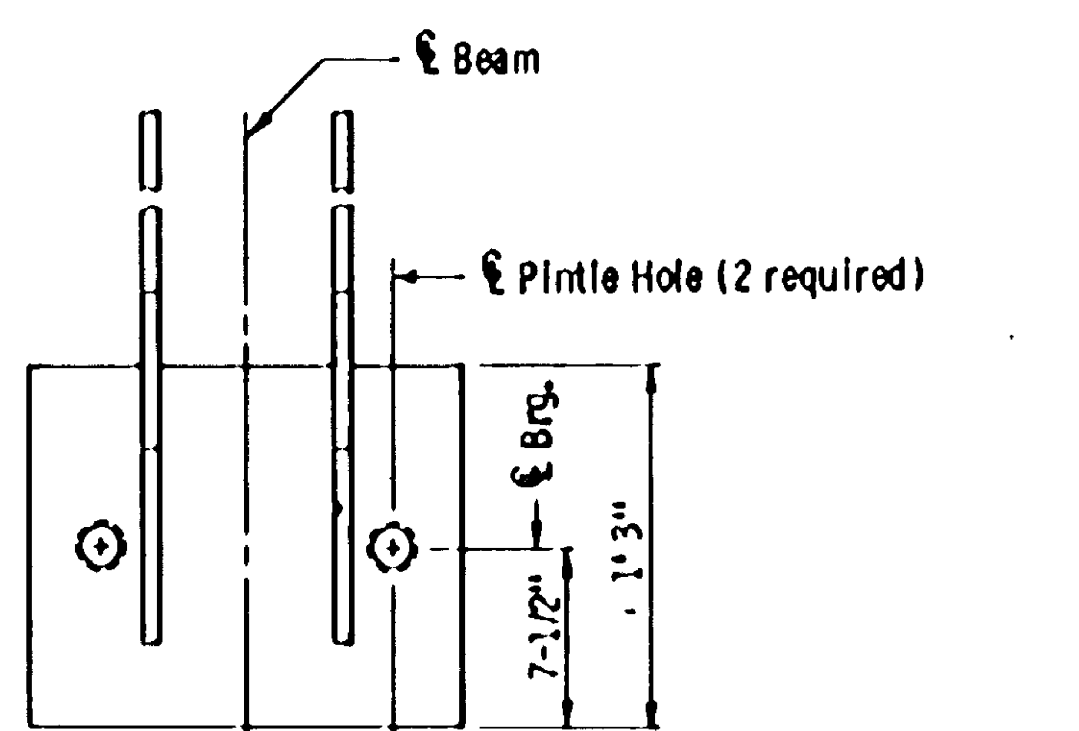
- Angles shall extend full width of roadway between curbs with a 1/2" open joint at each break in crown profile. Maximum length 22 feet.
- Angles shall be straightened to a tolerance of 1/16" in 10 feet after galvanizing.
- Material: Structural steel per *SPEC. 3306*. Galvanize after fabrication per *SPEC. 3394*.
- Set angle to proper grade and crown.
- All material will be paid for as structural steel *SPEC. 3306*.



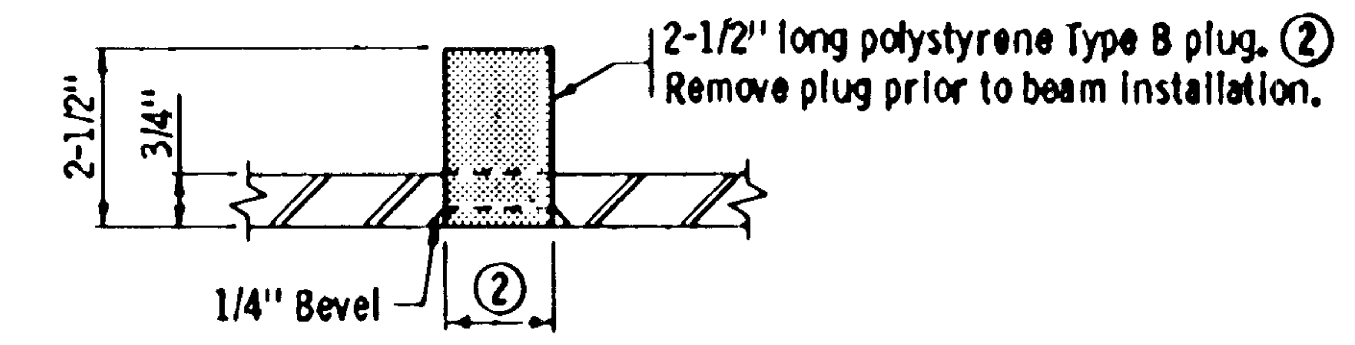
FRONT VIEW



SIDE VIEW



TOP VIEW



PINTLE HOLE DETAIL

- 4" 28" Beams
- 6" 36" Beams
- 8" 40", 45", 63", 72" & 81" Beams
- 9" 54" Beams
- 9" Bulb Tee Beams

NOTES:

- Material to be structural steel per *Spec. 3306*
- Sole plate for Bearing Assembly to be hot dipped galvanized 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.

- ① Dimension "W" to be the width at the bottom flange of the beam minus 1/4".
- ② 1-1/2" dia. for 1-1/4" dia. pintles.
~~1-3/4" dia. for 1-1/2" dia. pintles.~~
- Check bearing assemblies for pintle size used.

APPROVED May 26, 1972
Douglas Duffert
Engineering Standards Engineer
RESEARCH AND STANDARDS DIVISION

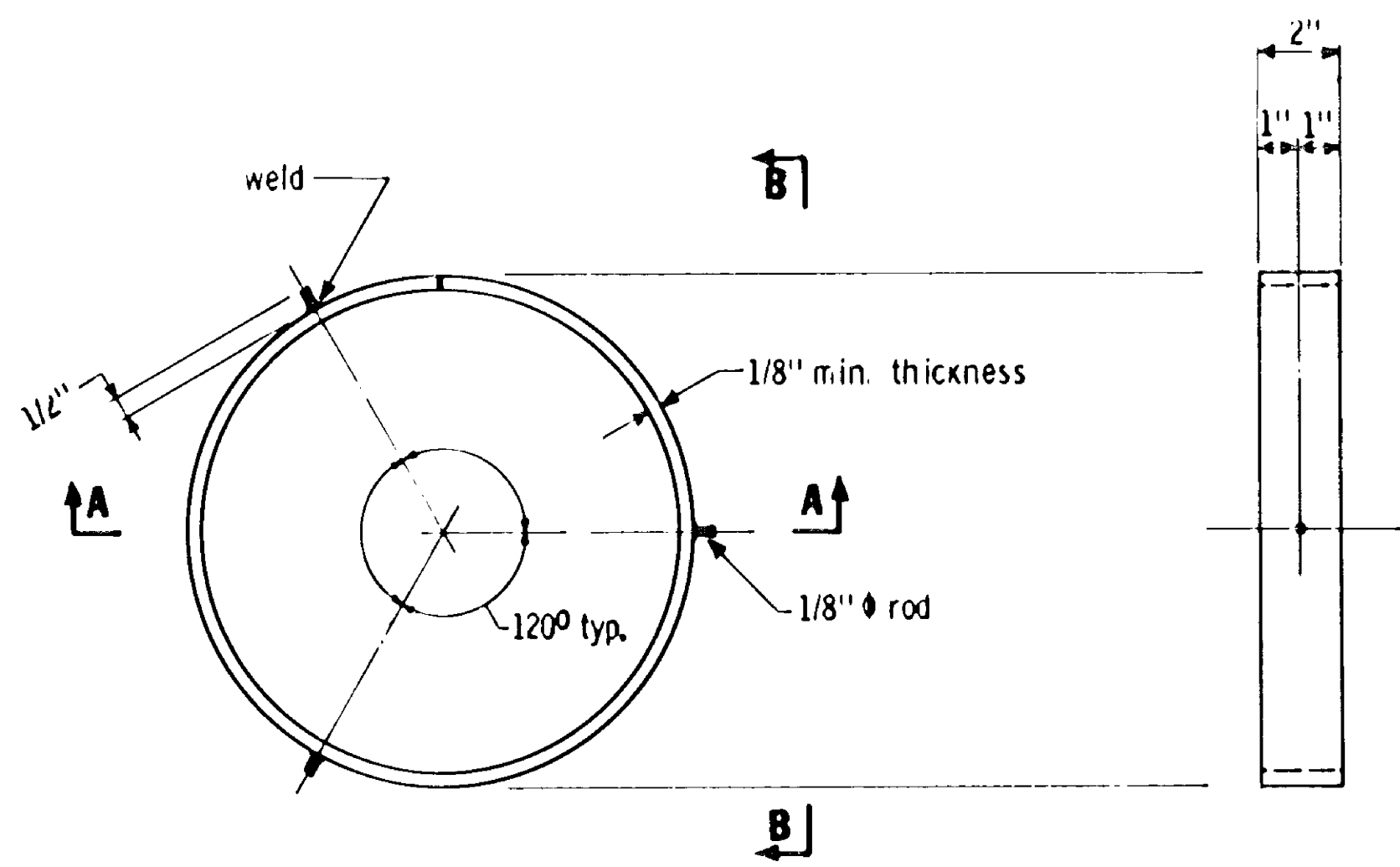
MINNESOTA
DEPARTMENT OF TRANSPORTATION
**PROTECTION ANGLE
FOR END OF SLAB**

DETAIL NO.
B551

APPROVED: October 11, 1982
Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICE
Issued by: OFFICE OF ENGINEERING STANDARDS

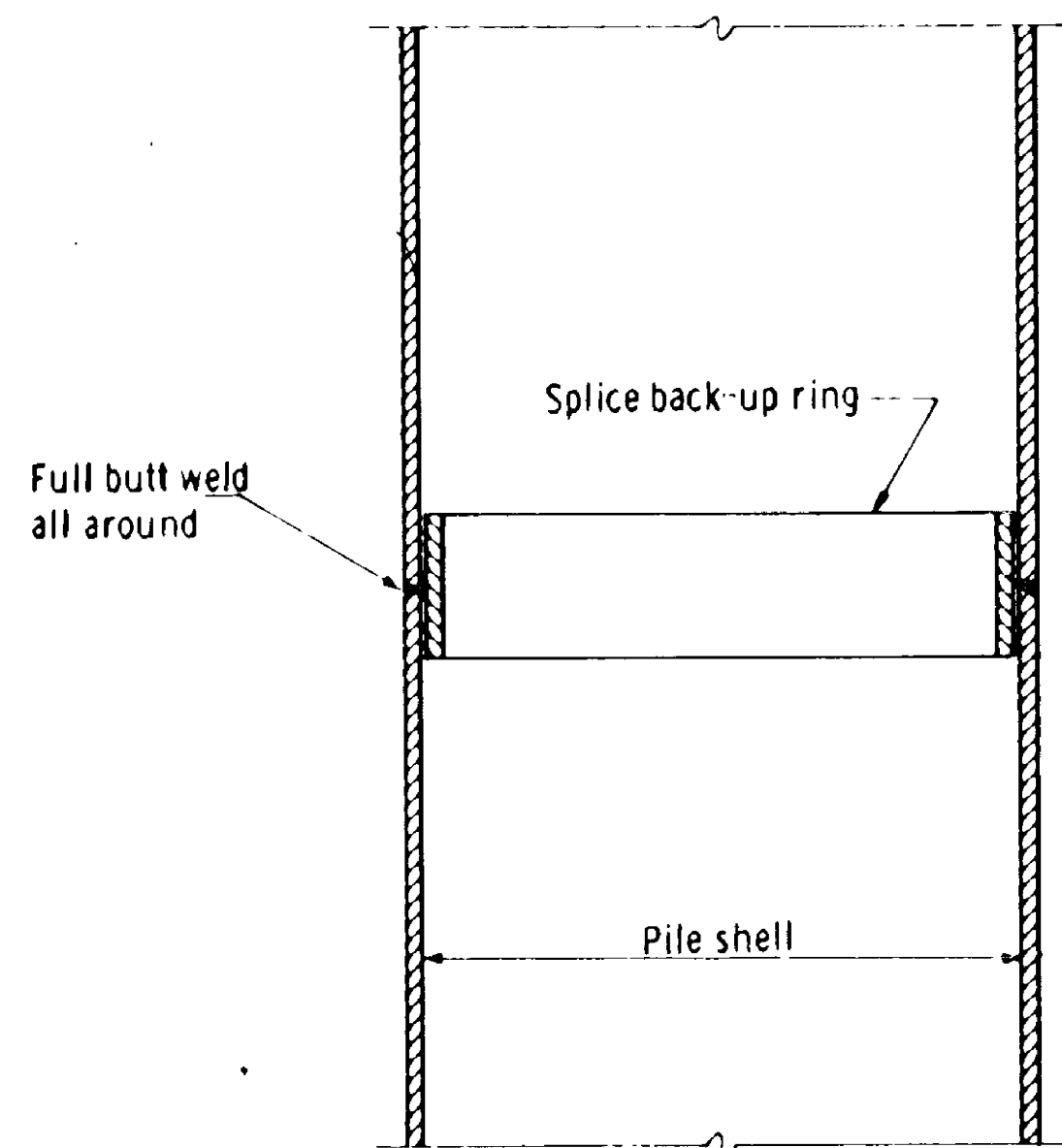
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
**SOLE PLATE
PRESTRESSED CONCRETE BEAMS
(FOR BEARINGS WITH PINTLES)**

REVISION
DETAIL NO.
B303



PLAN VIEW
(Pile not shown)

SECTION B-B
(Pile not shown)



SECTION A-A

NOTES:

Approved commercial pile splice back-up ring may be used in lieu of the type detailed. Back-up ring shall have a tight fit.

Welding electrodes shall be A.W. S. Type E7016 or E7018 (low-hydrogen).

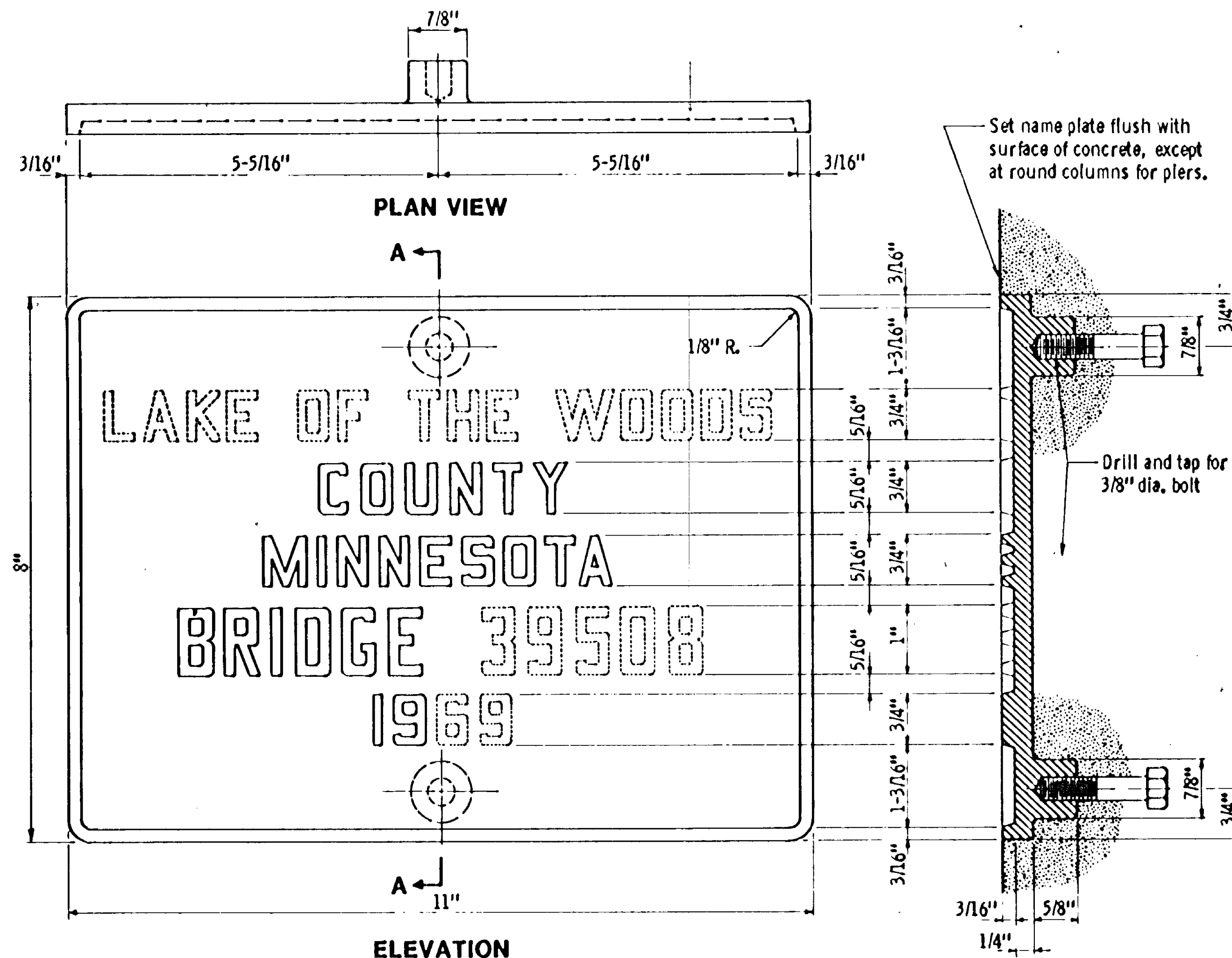
Low-hydrogen electrodes shall be supplied in hermetically (air-tight) sealed containers.

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

Electrodes which have become wet, soiled or damaged shall not be used.

Welding shall not be done when the ambient temperature is lower than 0° F. or when the pile is wet or exposed to falling rain or snow. When the pile metal temperature is below 32° F., the pile metal in the area of the weld shall be heated to a minimum temperature of 70° F. and maintained at this temperature during welding.



ELEVATION

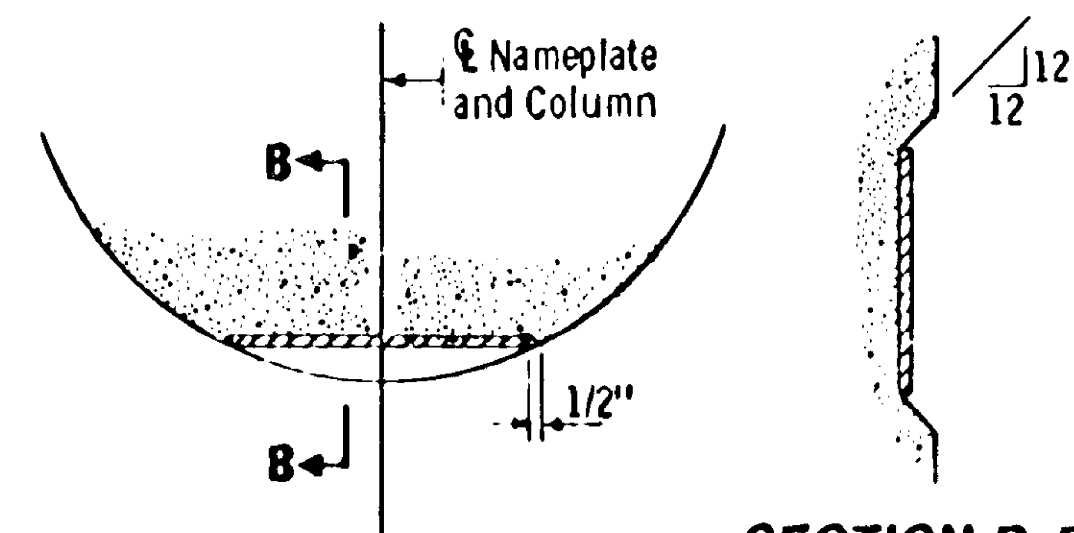
The dotted letters & numbers shown above are for illustration. Data to be shown on name plate is as follows:

COUNTY ANOKA
BRIDGE 02548
YEAR 1987

SECTION A-A



LETTERS & NUMBERS FOR NAMEPLATES



SECTION B-B

NAMEPLATE PLACEMENT
(Round Concrete Pier Columns)

NOTES:

No shop drawing required.
Material shall comply with Spec. 3327.
Letters and numbers shall conform to those shown.
Draft on letters and numbers shall not be more than 3" in 12".
Horizontal spacing of letters and numbers shall produce a balanced layout in proportion to spacing shown.
Top surface of letters, numbers and frames shall be burnished.
Furnish 2 steel bolts 3/8" dia. 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 July 21, 1972

Douglas Siffert
Engineering Standards Engineer
RESEARCH AND STANDARDS
DIVISION

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

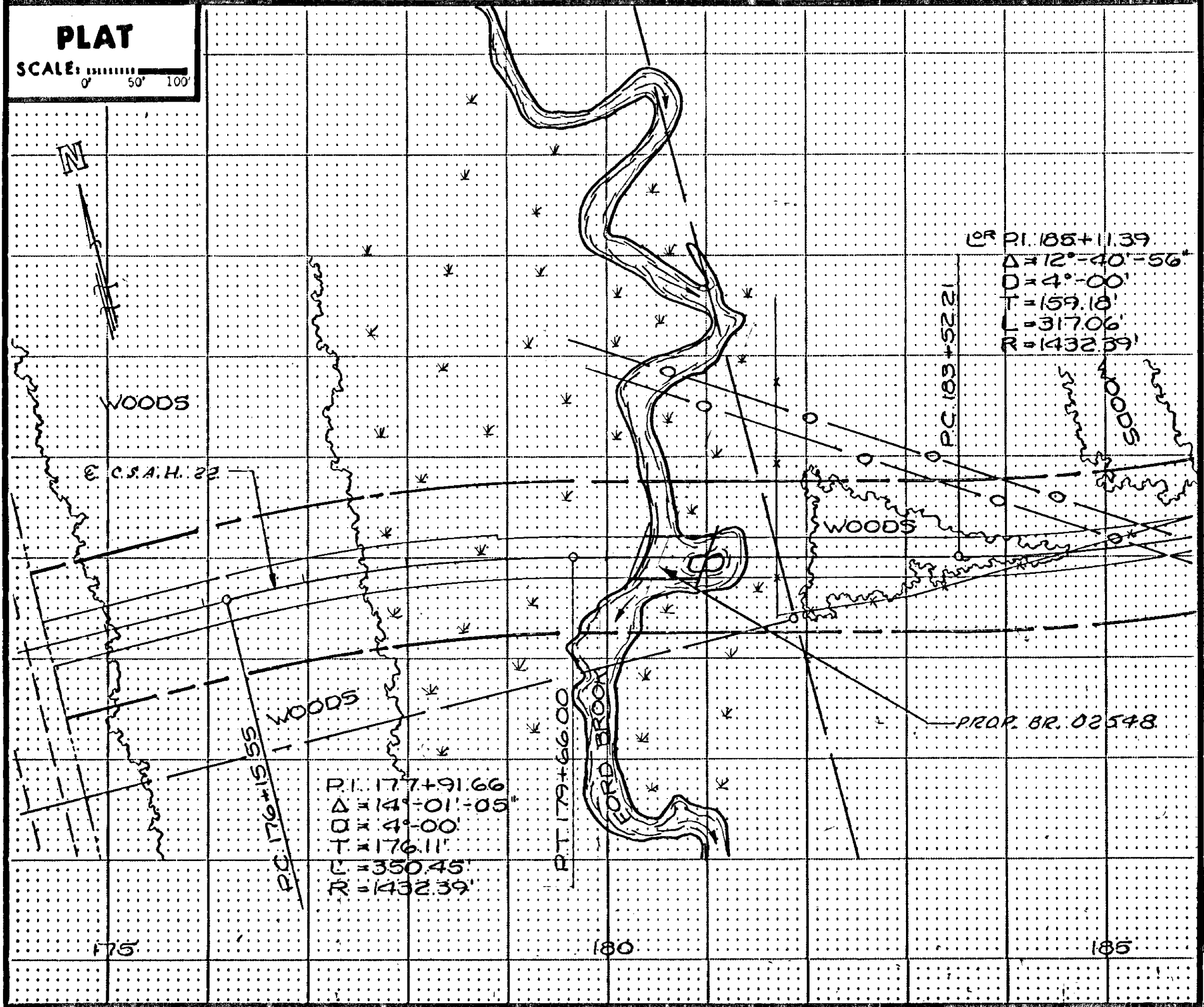
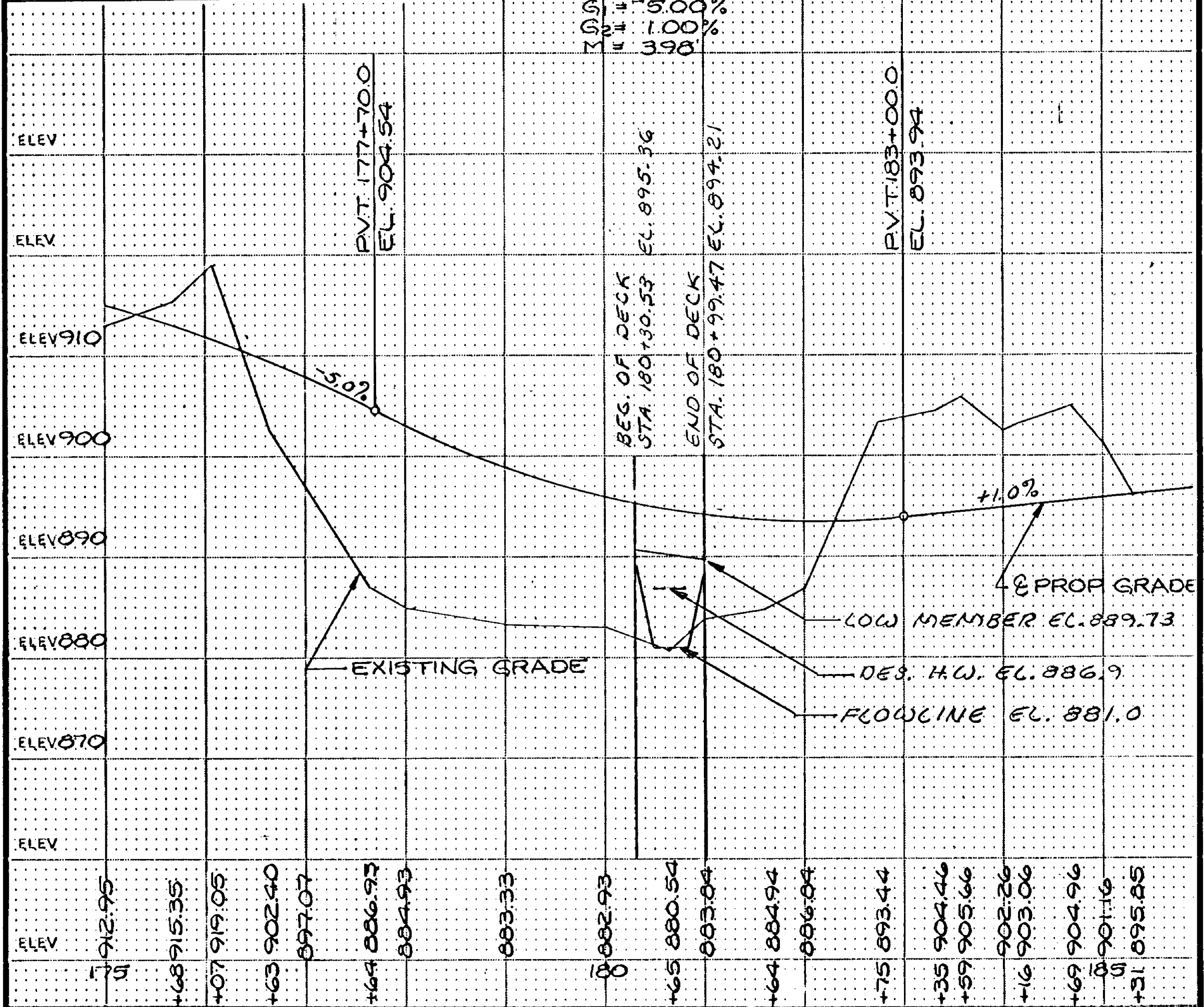
DETAIL NO.
B201

APPROVED: May 1, 1985
Developed by: ENGINEERING STANDARDS
& BRIDGES AND STRUCTURES
OFFICES
Issued by: OFFICE OF ENGINEERING
STANDARDS

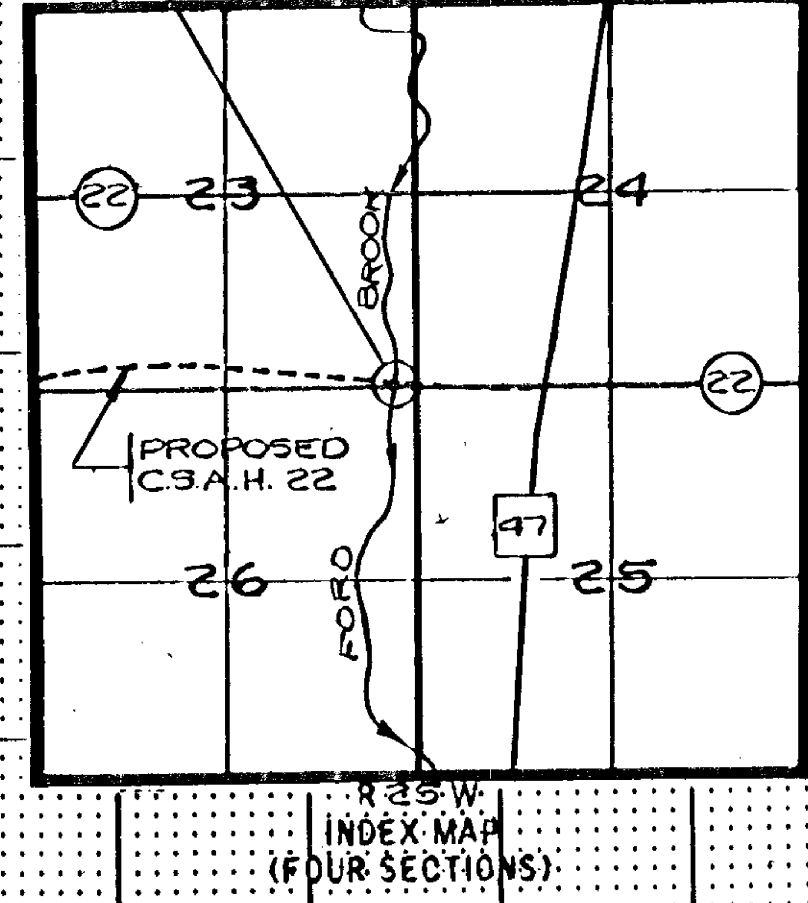
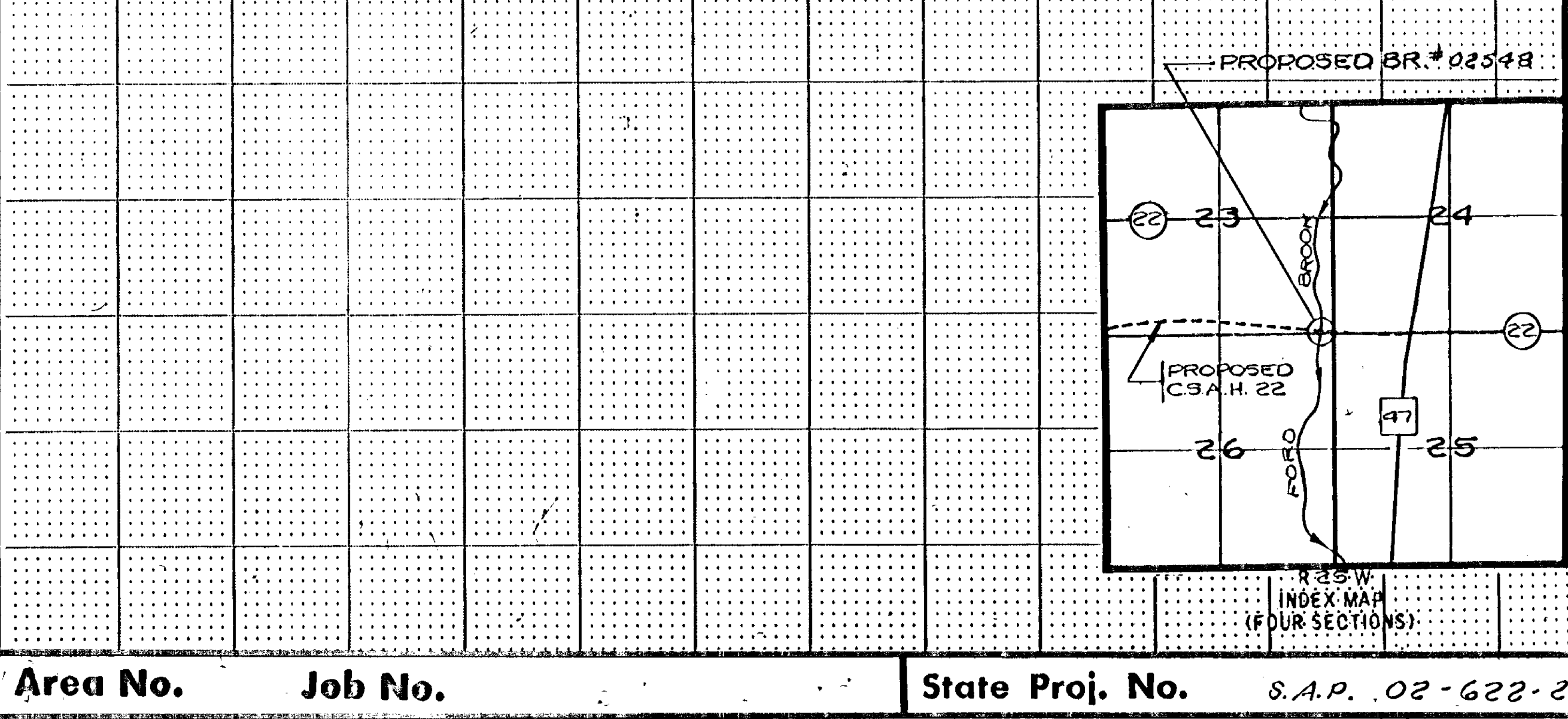
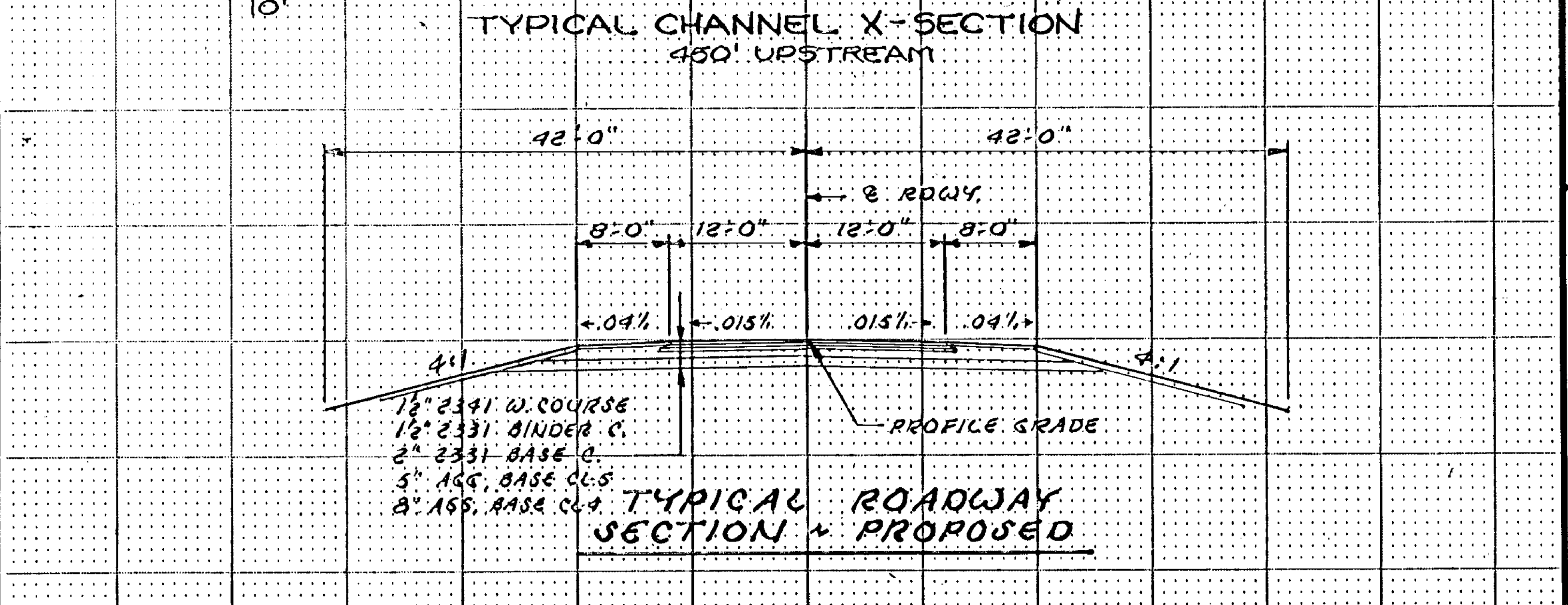
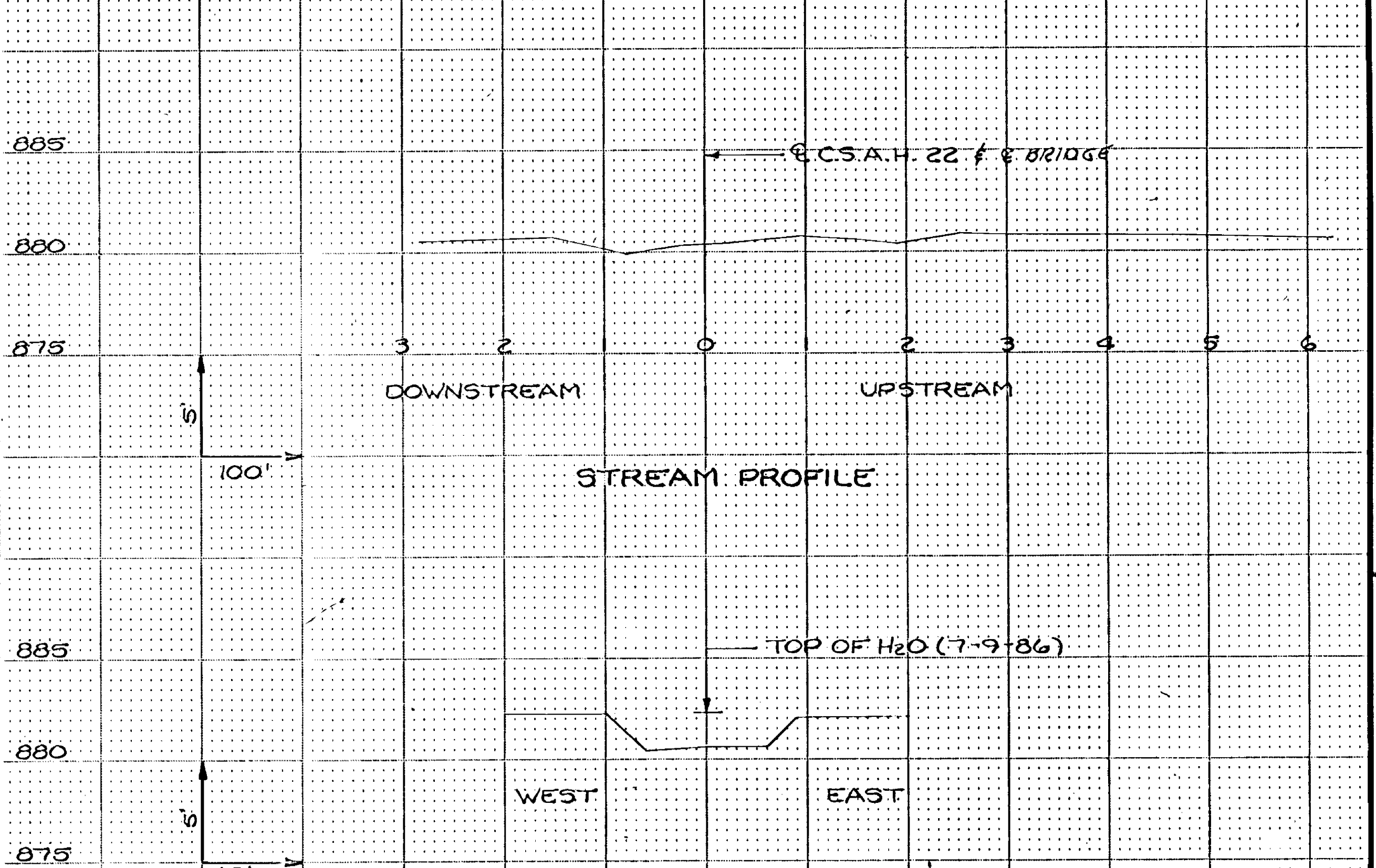
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
BRIDGE NAMEPLATE
COUNTY BRIDGES

REVISION
DETAIL NO.
B103

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



TYPICAL SECTIONS & PERTINENT DATA
SCALES AS SHOWN



Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

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

HYDRAULIC ENGINEERS RECOMMENDATION
DATE AUG. 5, 1986

Stream or ditch designation: FORD BROOK
 Drainage area: 23.0 sq. mi.
 Max. flood on record: UNK. Design flood (100 yr. freq.): 626 C.F.S.
 Max. observed highwater elevation: UNK. Design highwater elevation: 886.9
 Design mean velocity through structure: 2.8 F.P.S.
 Low superstructure at or above elevation: 889.9
 Flowline elevation: 881.0 Skew angle: 20°
 Waterway area req'd. below elevation: 886.9 = 223 Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 766 C.F.S. at stage 887.66 and mean velocity of 3.2 F.P.S. with 0.47 Ft. swellhead.
 The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEERS RECOMMENDATION
DATE AUG. 5, 1986

1- 67' PRESTR. CONC. BEAM SPAN
 40' ROADWAY
 20° SKEW

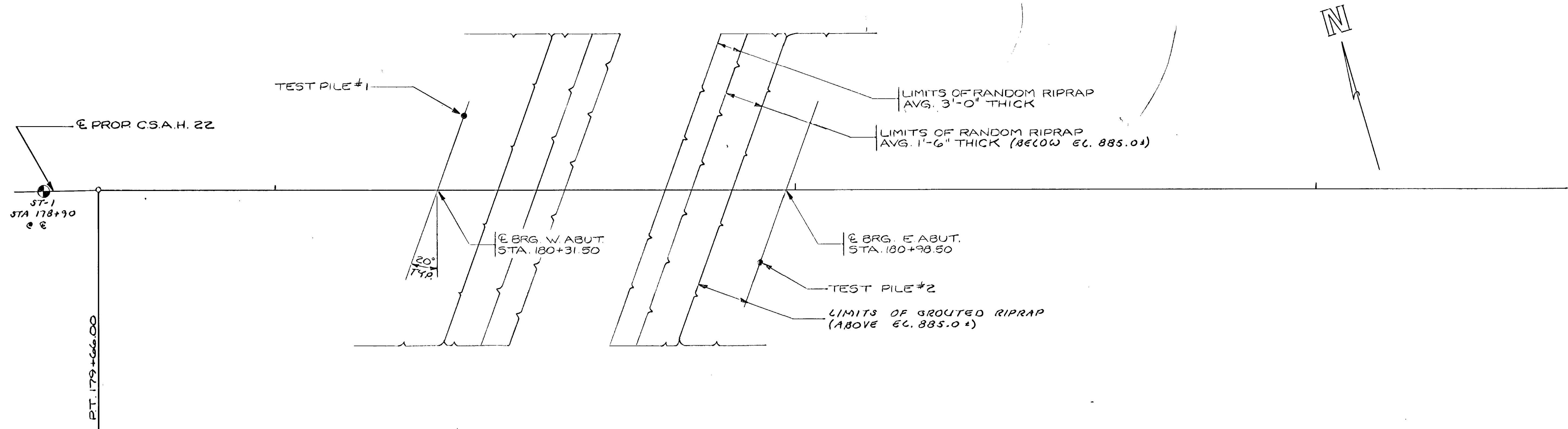
Bridge survey sheets made from: ANOKA COUNTY SURVEY DATA
 Bench mark elevation: 897.86 (M.S.L. 1929 Adj.)
 Location: SPK. B. OAK STA 183+70

MINNESOTA DEPARTMENT OF TRANSPORTATION

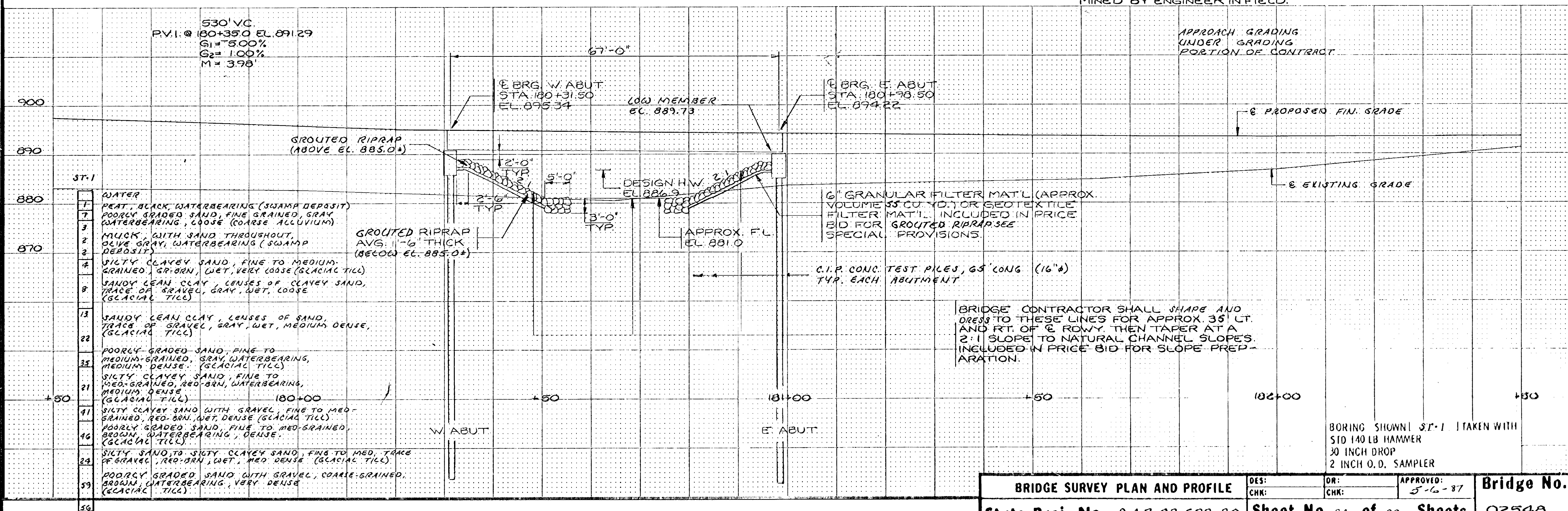
BRIDGE SURVEY

AT MILE POINT: ON C.S.A.H. 22 (T.H., C.S.A.H., C.R. etc.)
 PROPOSED BRIDGE LOCATED 0.379 MILES W. OF T.H. 47
 SEC. 23 TWP. 33.N. R. 25.W.
 TOWNSHIP: BURNS COUNTY: ANOKA

BRIDGE NO. 02548
 SHEET NO. 63 OF 66 SHEETS
 APP'D. 7-6-87



LIMITS OF RIPRAP AS SHOWN ARE APPROX. ONLY. EXACT LIMITS TO BE DETERMINED BY ENGINEER IN FIELD.



ST-1

1	WATER
7	PEAT, BLACK, WATERBEARING (SWAMP DEPOSIT)
7	POORLY GRADED SAND, FINE GRAINED, GRAY WATERBEARING, LOOSE (COARSE ALLUVIUM)
3	MUCK, WITH SAND THROUGHOUT, OLIVE GRAY, WATERBEARING (SWAMP DEPOSIT)
2	MUCK, WITH SAND THROUGHOUT, OLIVE GRAY, WATERBEARING (SWAMP DEPOSIT)
2	MUCK, WITH SAND THROUGHOUT, OLIVE GRAY, WATERBEARING (SWAMP DEPOSIT)
4	SILTY CLAYEY SAND, FINE TO MEDIUM GRAINED, GR. BRN, WET, VERY LOOSE (GLACIAL TILL)
8	SANDY LEAN CLAY, LENSES OF CLAYEY SAND, TRACE OF GRAVEL, GRAY, WET, LOOSE (GLACIAL TILL)
13	SANDY LEAN CLAY, LENSES OF SAND, TRACE OF GRAVEL, GRAY, WET, MEDIUM DENSE, (GLACIAL TILL)
22	POORLY GRADED SAND, FINE TO MEDIUM GRAINED, GRAY, WATERBEARING, MEDIUM DENSE, (GLACIAL TILL)
35	POORLY GRADED SAND, FINE TO MEDIUM GRAINED, RED-BRN, WATERBEARING, MEDIUM DENSE, (GLACIAL TILL)
21	SILTY CLAYEY SAND, FINE TO MED. GRAINED, RED-BRN, WET, DENSE (GLACIAL TILL)
41	SILTY CLAYEY SAND WITH GRAVEL, FINE TO MED. GRAINED, RED-BRN, WET, DENSE (GLACIAL TILL)
46	POORLY GRADED SAND, FINE TO MED. GRAINED, BROWN, WATERBEARING, DENSE, (GLACIAL TILL)
24	SILTY SAND TO SILTY CLAYEY SAND, FINE TO MED. TRACE OF GRAVEL, RED-BRN, WET, MED. DENSE (GLACIAL TILL)
59	POORLY GRADED SAND WITH GRAVEL, COARSE GRAINED, BROWN, WATERBEARING, VERY DENSE (GLACIAL TILL)
56	

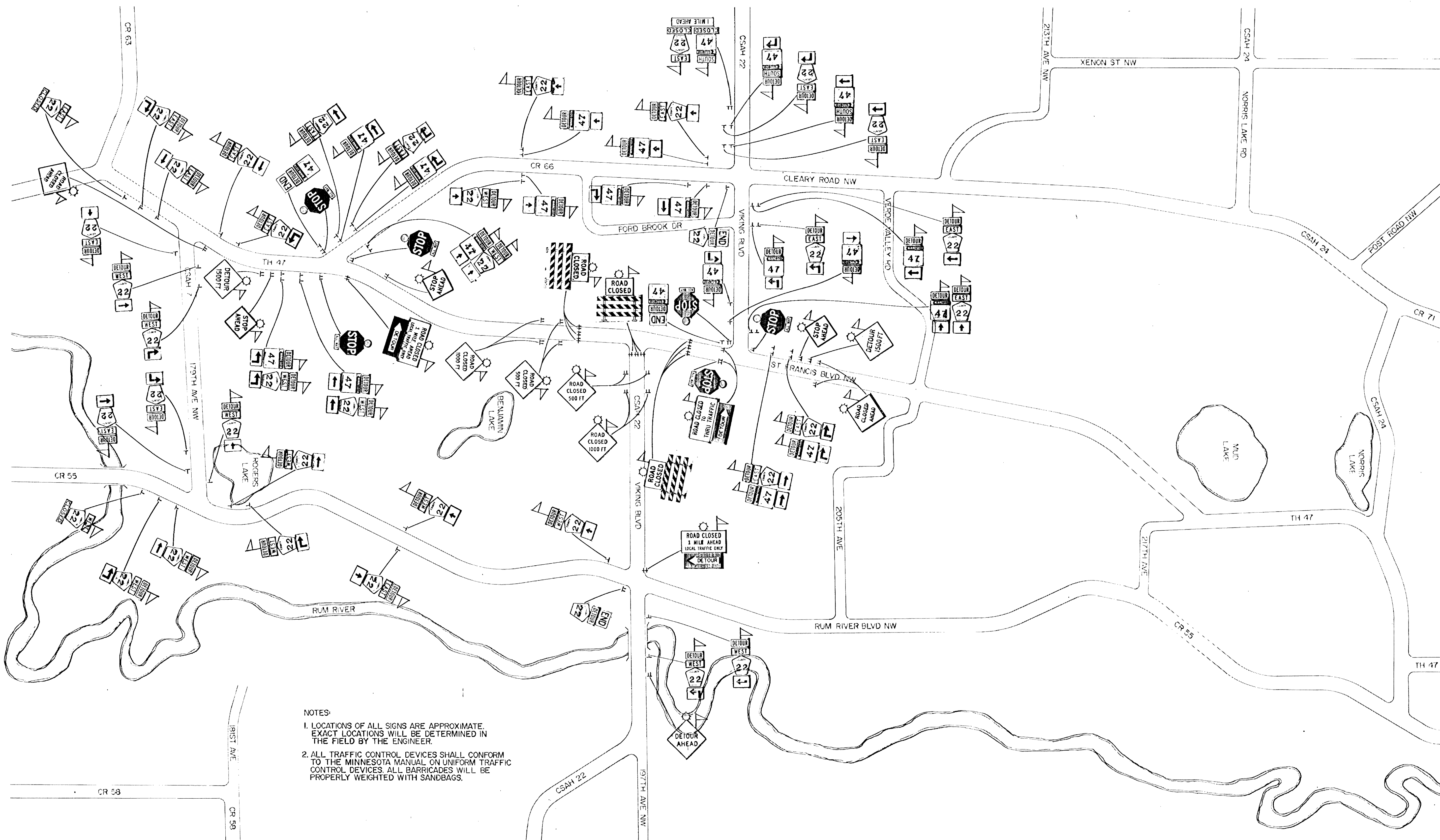
APPROACH GRADING UNDER GRADING PORTION OF CONTRACT

E PROPOSED FIN. GRADE

E EXISTING GRADE

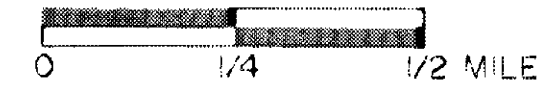
BRIDGE CONTRACTOR SHALL SHAPE AND DRESS TO THESE LINES FOR APPROX. 35' LT. AND RT. OF E ROWY. THEN TAPER AT A 2:1 SLOPE TO NATURAL CHANNEL SLOPES. INCLUDED IN PRICE BID FOR SLOPE PREPARATION.

BORING SHOWN ST-1 TAKEN WITH STD 140 LB HAMMER 30 INCH DROP 2 INCH O.D. SAMPLER



NOTES:

1. LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. ALL BARRICADES WILL BE PROPERLY WEIGHTED WITH SANDBAGS.



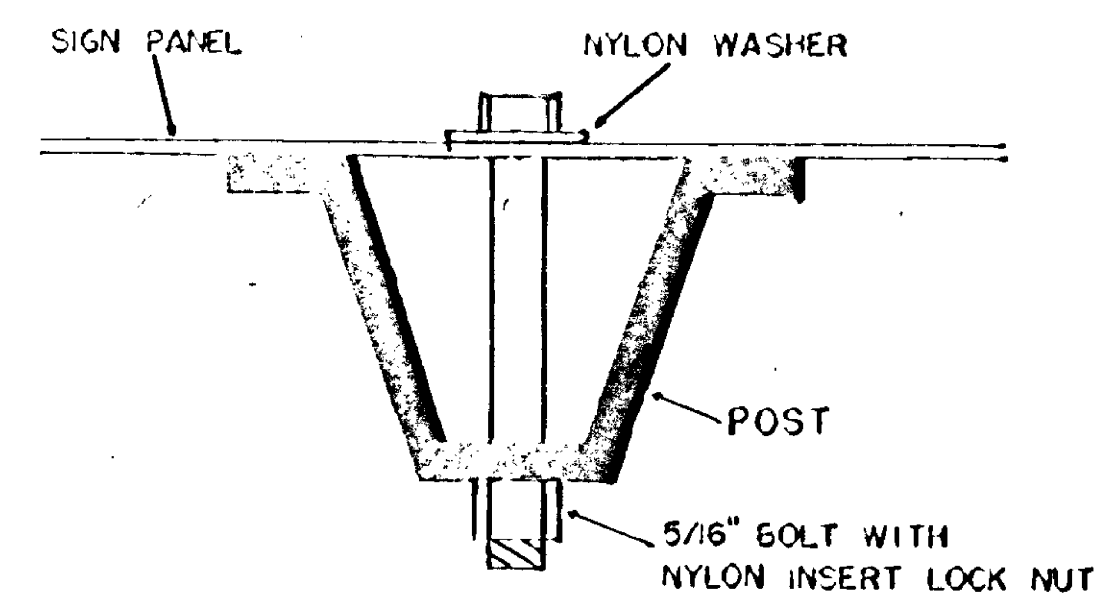
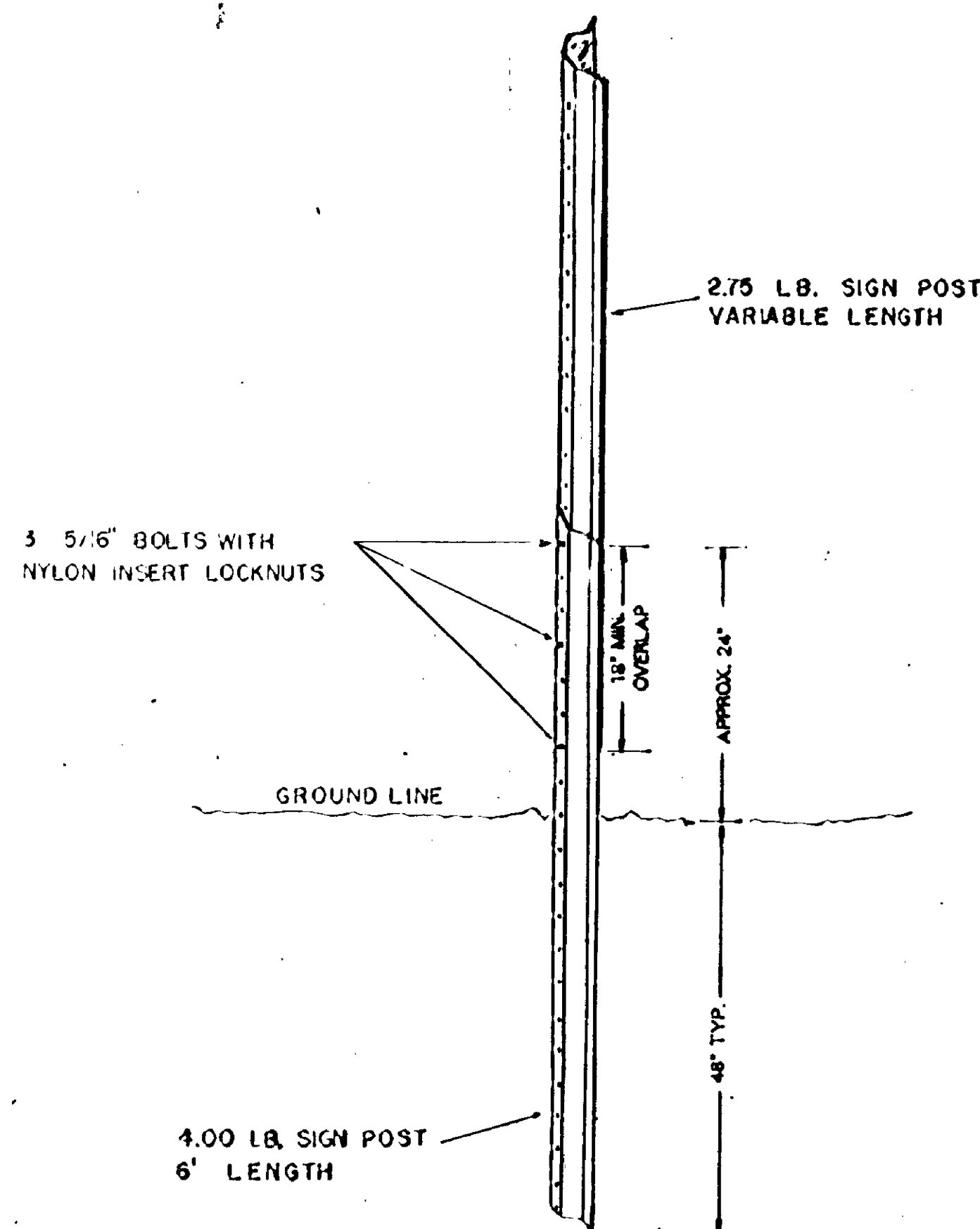
20. 4.23.07 Jm

M.U.T.C.D. CODE	SIZE		QUANTITY	M.U.T.C.D. CODE	SIZE		QUANTITY	
STEADY RED								
RI-1	48" X 48"		6	M4-8	24" X 12"			
RI-4	18" X 6"			M3-3	24" X 12"		M5-1(R)	1
				MI-5A	24" X 24"		M6-1(R)	1
					15" X 21"			
YELLOW FLASH								
RI1-2	48" X 30"		9	M3-3 / M3-2	24" X 12"			
TYPE III	8 FT.			MI-5A / MI-6	24" X 24"			1
					24" X 12"			
YELLOW FLASH								
RI1-4	60" X 30"		2	M4-6A	24" X 12"			
M4-10(R)	48" X 18"			M4-8	24" X 12"			2
				MI-6	24" X 24"			
YELLOW FLASH								
RI1-3	60" X 30"		2	M4-8	24" X 12"		M5-1(R)	4
M4-10(L)	48" X 18"			M3-2	24" X 12"		M5-1(L)	3
				MI-6	24" X 24"		M6-1(R)	4
					15" X 21"		M6-1(L)	3
							M6-3	5
YELLOW FLASH								
W3-1	48" X 48"		3					
YELLOW FLASH								
W20-2	48" X 48"		1	M4-8	24" X 12"		M5-1(R)	2
				M3-4	24" X 12"		M5-1(L)	3
				MI-6	24" X 24"		M6-1(R)	2
					15" X 21"		M6-1(L)	3
							M6-3	5
YELLOW FLASH								
W20-2	48" X 48"		2					
YELLOW FLASH								
W20-3	48" X 48"		3	M3-2	24" X 12"			
				MI-6	24" X 24"			1
					24" X 12"			
YELLOW FLASH								
W20-3	48" X 48"		2	M3-4	24" X 12"			
				MI-6	24" X 24"			1
					24" X 12"			
YELLOW FLASH								
W20-3	48" X 48"		2					
M4-6A	24" X 12"		2					
M4-8	24" X 12"							
MI-5A	24" X 24"							
M4-8	24" X 12"		3					
MI-5A	24" X 24"							
	15" X 21"		3					
			3					
			3					
			3					
			5					

Rev. 6-23-87 JWA

M.U.T.C.D. CODE NUMBER	PANEL SIZE (INCHES)	PANEL AREA (SQ. FT.)	NO. OF GROUND MOUNT INSTALLATIONS	NO. OF ISLAND MOUNT INSTALLATIONS	SIGN PANEL LEGEND	NO. OF POSTS/INSTALLATIONS
RI-1	30" x 30" 36" x 36" 48" x 48"	6.25 9.00 16.00	4 10 10		STOP	1 2 2
RI-4	18" x 6"	0.75	12		FOUR WAY	
R2-1	24" x 30"	5.00	9		SPEED LIMIT 55	1
R3-XI	30" x 30"	6.25	8		RIGHT TURN LANE	1
WI-2	36" x 36"	9.00	2		CURVE	2
WI-4	36" x 36"	9.00	8		REVERSE CURVE	2
W2-1	36" x 36"	9.00	2		CROSS ROAD	2
W3-1	36" x 36" 48" x 48"	9.00 16.00	2 8		STOP AHEAD	2
W8-5	36" x 36"	9.00	2		SLIPPERY WHEN WET	2
W14-3	36" x 48" x 48"	5.56	9		NO PASSING ZONE	2
M1-5B	24" x 24"	4.00	6		MINNESOTA ROUTE MARKER 47	1
M1-6	24" x 24"	4.00	4 13 6		COUNTY ROUTE MARKER 5, 22, 68	1
M2-1	21" x 15"	2.19	2		JUNCTION MARKER (Blk. & Wht.)	
M2-1A	21" x 15"	2.19	9		JUNCTION MARKER (Blu. & Wht.)	
M3-1A			1		NORTH	
M3-2A			2		EAST	
M3-3A	24" x 12"	2.00	1		SOUTH	
M3-4A			2		WEST	
M3-1	24" x 12"	2.00	1		NORTH	
M3-3			1		SOUTH	

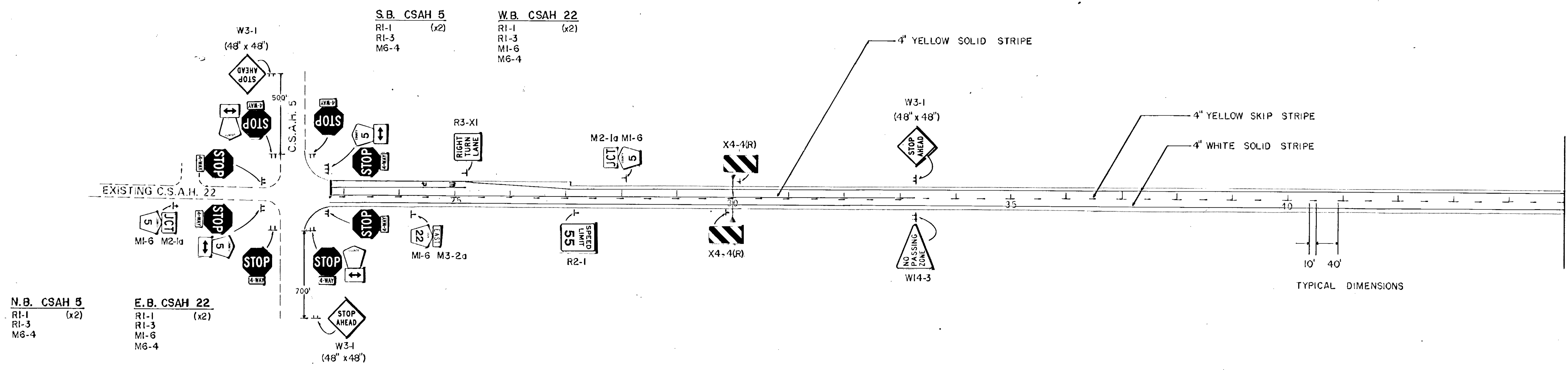
M.U.T.C.D. CODE NUMBER	PANEL SIZE (INCHES)	PANEL AREA (SQ. FT.)	NO. OF GROUND MOUNT INSTALLATIONS	NO. OF ISLAND MOUNT INSTALLATIONS	SIGN PANEL LEGEND	NO. OF POSTS/INSTALLATIONS
M6-4 M6-4A	21" x 15"	2.19	2 10		DIRECTIONAL ARROW (Blk & Wht) (Blk & Wht)	
X4-4	36" x 18"	4.50	2 26		CLEARANCE MARKER	1



NOTE: ALL WORK MUST MEET Mn/DOT SPEC. 2564 EXCEPT SIGN POSTS SHALL NOT BE GALVANIZED BUT SHALL BE PAINTED BLACK
SIGN POSTS SHALL BE OF TWO-PIECE CONSTRUCTION AS SHOWN BELOW

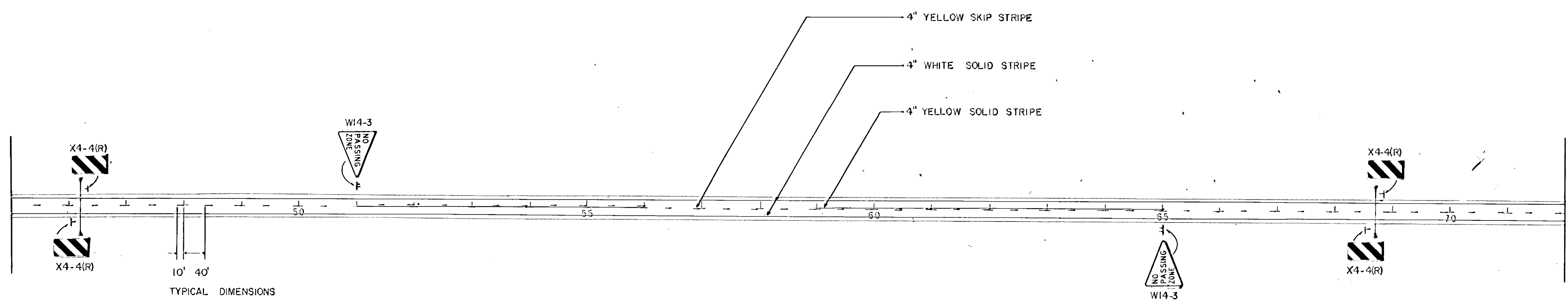
REVISIONS			
DATE	BY	DATE	BY

S.A.P. _____ S.P. _____ C.P. _____



EACH INTERSECTION APPROACH SHALL BE CONTROLLED BY TWO STOP SIGNS. THE LEFT-HAND SIGN SHALL BE 36" x 36", THE RIGHT-HAND SIGN SHALL BE 48" x 48".

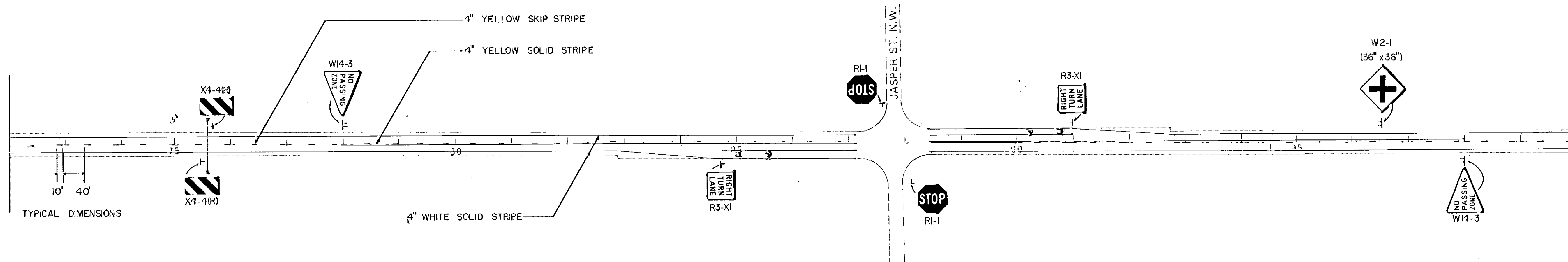
C.S.A.H. 22 VIKING BLVD. N.W.
STA 23.00 TO 45.00



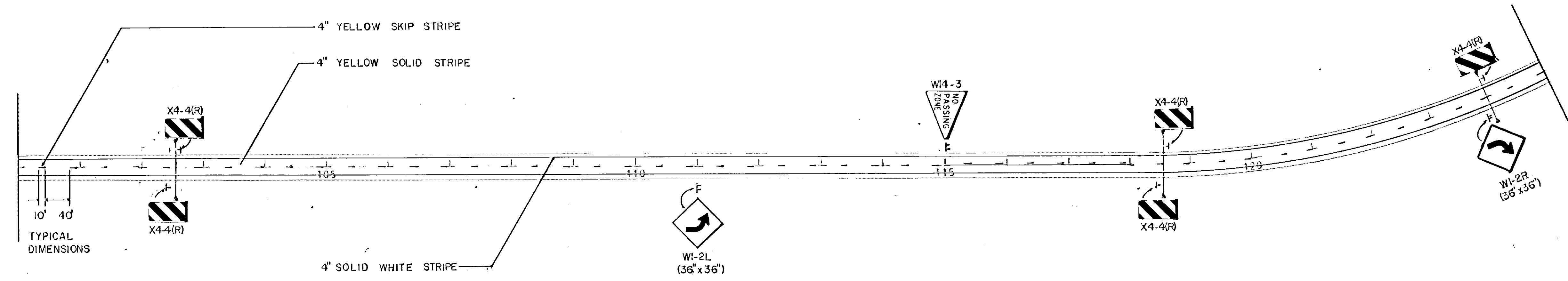
C.S.A.H. 22 VIKING BLVD. N.W.
STA 45.00 TO 72.00

REVISIONS			
DATE	BY	DATE	BY

S.A.P. 02-622-20 S.P. _____ C.P. _____



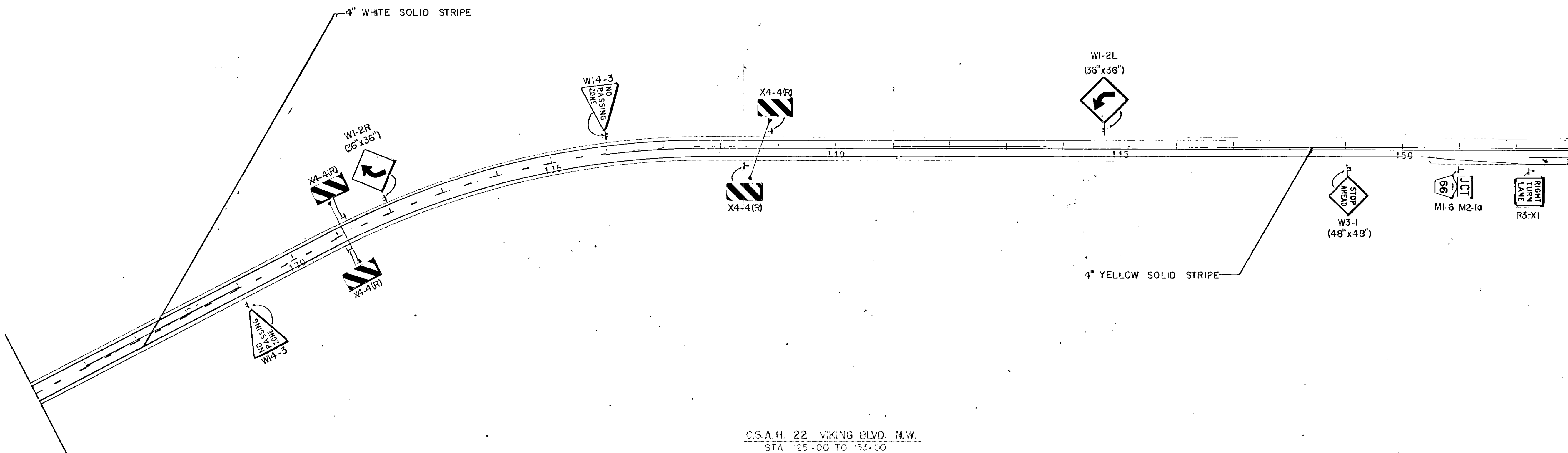
C.S.A.H. 22 VIKING BLVD. N.W.
STA. 72+00 TO 100+00



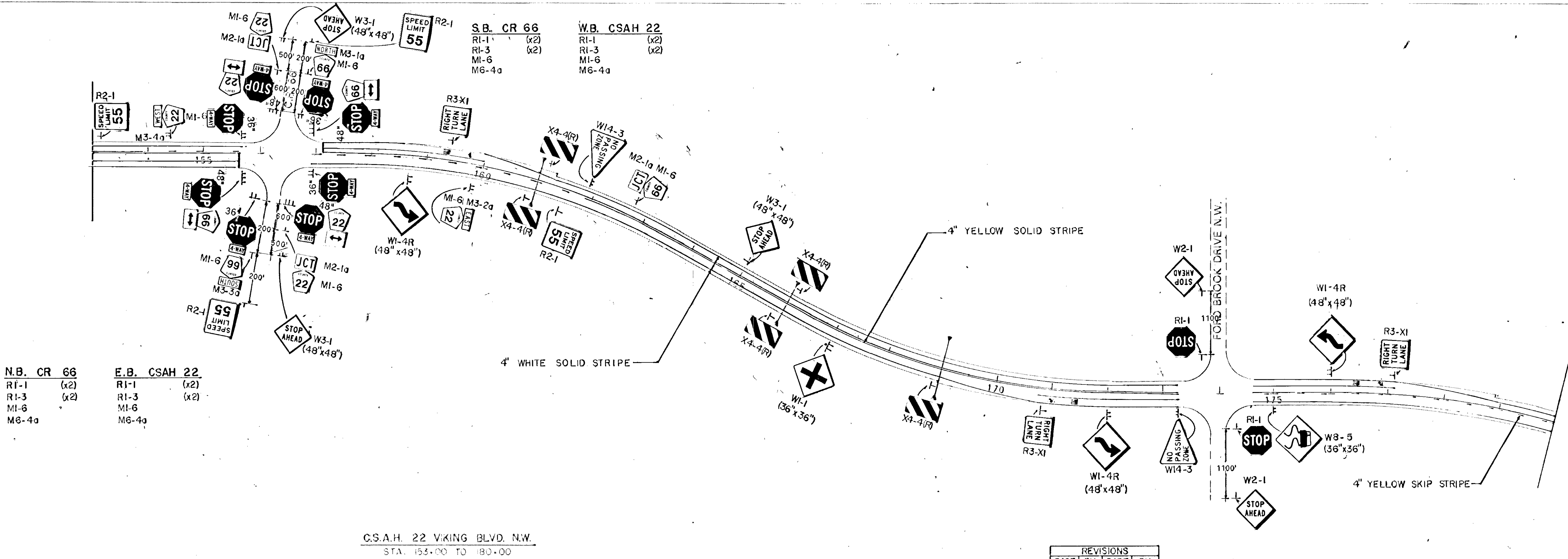
C.S.A.H. 22 VIKING BLVD. N.W.
STA. 100+00 TO 125+00

REVISIONS			
DATE	BY	DATE	BY

S.A.P. 02-622-20 S.P. _____ C.P. _____



C.S.A.H. 22 VIKING BLVD. N.W.
STA 125+00 TO 153+00

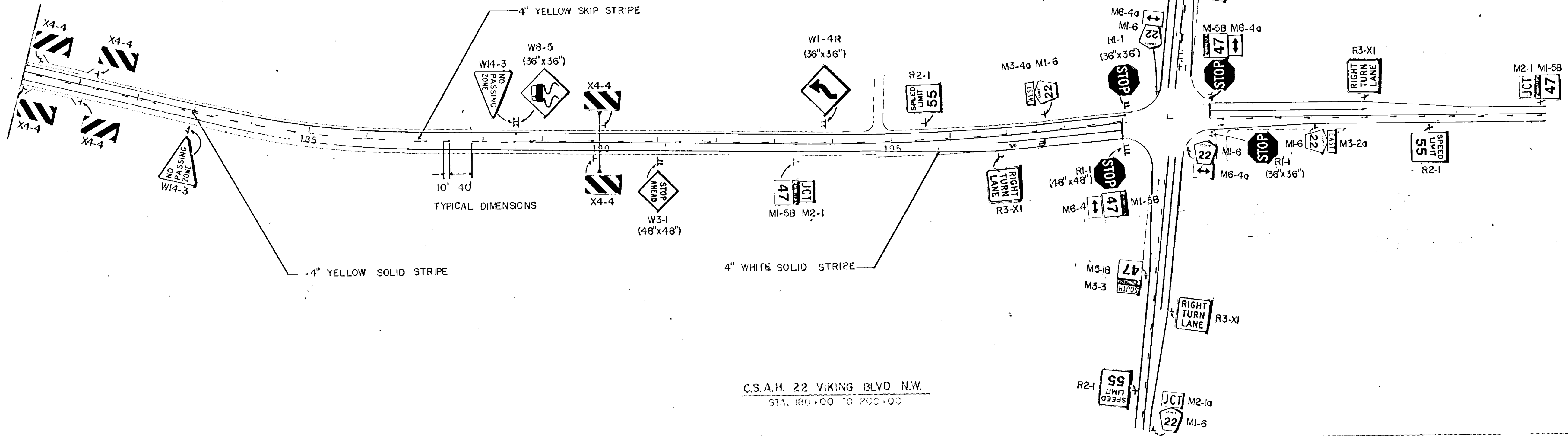


- | | |
|-------------------|---------------------|
| N.B. CR 66 | E.B. CSAH 22 |
| RI-1 (x2) | RI-1 (x2) |
| RI-3 (x2) | RI-3 (x2) |
| MI-6 | MI-6 |
| M6-4a | M6-4a |

C.S.A.H. 22 VIKING BLVD. N.W.
STA 153+00 TO 180+00

REVISIONS			
DATE	BY	DATE	BY

S.A.P. 02-622-20 S.P. _____ C.P. _____



REV.	DATE	BY

S.A.P. 02-622-20 S.P. _____ C.P. _____

Sheet No. S4 of S4 Sheets