

STATEMENT OF ESTIMATED QUANTITIES

Fed. Proj. No.

ITEM NO.	ITEM	UNIT	S.P. QUANTITIES		S.P. QUANTITIES		TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
			EST.	FINAL	EST.	FINAL		
2031.503	FIELD LABORATORY, TYPE D	EACH					1	
2101.501	CLEARING	ACRE					8.45	
2101.502	CLEARING	TREE					175	
2101.506	GRUBBING	ACRE					845	
2101.507	GRUBBING	TREE					160	
2104.501	REMOVE CULVERT PIPE	LIN. FT.					192	
2104.505	REMOVE CONCRETE PAVEMENT	SQ. YD.					89	
2104.521	SALVAGE CULVERT PIPE	LIN. FT.					148	
2104.521	SALVAGE FENCE	LIN. FT.					4513	
2557.504	INSTALL FENCE	LIN. FT.					4243	
2105.501	COMMON EXCAVATION	CU. YD.					51,437 (P)	
2105.505	MUCK EXCAVATION	CU. YD.					15,859	
2105.523	COMMON BORROW (E.V.)	CU. YD.					29,177	
2105.531	SALVAGED BITUMINOUS MIXTURE (E.V.)	CU. YD.					4,535 (P)	
2105.535	SALVAGED TOPSOIL (L.V.)	CU. YD.					2,142	
2130.501	WATER	M GAL.					300	
2211.503	AGGREGATE BASE PLACED, CLASS 5	CU. YD.					10,550	
2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON					882	
2331.510	BINDER COURSE MIXTURE	TON					7,090	
2331.514	BASE COURSE MIXTURE	TON					6,055	
2331.516	SHOULDER MIXTURE	TON					3,140	
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON					335	
2341.508	WEARING COURSE MIXTURE	TON					5,150	
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON					5,950	
2501.511	15" C.M. PIPE CULVERT	LIN. FT.					1,068	
2501.511	18" C.M. PIPE CULVERT	LIN. FT.					154	
2501.511	24" C.M. PIPE CULVERT	LIN. FT.					232	
2501.515	12" R.C. PIPE APRONS	EACH					10	
2501.515	15" R.C. PIPE APRONS	EACH					4	
2501.515	15" C.M. PIPE APRONS	EACH					60	
2501.515	48" R.C. PIPE APRONS	EACH					1	
2501.515	18" C.M. PIPE APRONS	EACH					7	
2501.515	24" C.M. PIPE APRONS	EACH					4	
2501.515	24" R.C. PIPE APRONS	EACH					1	
2501.521	22" SPAN R.C. PIPE-ARCH CULVERT CL.-4	LIN. FT.					74	
2501.525	22" SPAN R.C. PIPE-ARCH APRONS	EACH					2	
2501.571	INSTALL 15" C.M. PIPE CULVERT	LIN. FT.					30	
2503.511	12" R.C. PIPE SEWER CL-2	LIN. FT.					118	
2503.511	12" R.C. PIPE SEWER CL-4	LIN. FT.					521	
2503.511	15" R.C. PIPE SEWER CL-2	LIN. FT.					1,571	
2503.511	18" R.C. PIPE SEWER CL-2	LIN. FT.					1,099	
2503.511	24" R.C. PIPE SEWER CL-2	LIN. FT.					483	
2503.511	18" C.M. PIPE SEWER	LIN. FT.					41	
2503.511	42" R.C. PIPE SEWER CL-2	LIN. FT.					26	
2503.511	48" R.C. PIPE SEWER CL-2	LIN. FT.					532	
2506.506	CONSTRUCT MANHOLES, DESIGN A or F	LIN. FT.					275	
2506.506	CONSTRUCT MANHOLES, DESIGN C or G	LIN. FT.					446	
2506.507	CONSTRUCT CATCH BASINS, DESIGN A or F	LIN. FT.					178	
2506.507	CONSTRUCT CATCH BASINS, DESIGN C or G	LIN. FT.					129	
2506.507	CONSTRUCT CATCH BASINS, DESIGN H	LIN. FT.					32	
2506.507	CONSTRUCT CATCH BASINS, DESIGN SP-1	LIN. FT.					111	
2506.507	CONSTRUCT CATCH BASINS, DESIGN - J	LIN. FT.					106	
2506.516	CASTING ASSEMBLIES	EACH					24	
2506.522	ADJUST FRAME & RING CASTINGS	EACH					1	
2511.502	HAND PLACED RIPRAP, CLASS - A	CU. YD.					8 (P)	
2511.504	FILTER BLANKET, TYPE - I	CU. YD.					9 (P)	
2531.501	CONCRETE CURB & GUTTER, DESIGN B-618	LIN. FT.					1,062	
2531.503	CONCRETE MEDIAN	SQ. YD.					15.2	
2554.501	TRAFFIC BARRIER, DESIGN 8330	LIN. FT.					700	
2554.521	ANCHORAGE ASSEMBLIES	EACH					4	
2565.501	FULL TRAFFIC-ACTUATED TRAFFIC CONTROL SYSTEM	SIG. SYSTEM					1	
2575.501	ROADSIDE SEEDING	ACRE					23 (P)	
2575.502	SEED, MIXTURE NO. 3	POUND					920	
2575.505	SODDING	SQ. YD.					18,829	
2575.511	MULCH MATERIAL, TYPE 1	TON					46	
2575.519	DISC ANCHORING	ACRE					23	
2575.531	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10	TON					68	

SPECIAL DETAILS

THE CONTRACTOR SHALL REMOVE, AND STOCKPILE IF NECESSARY, SUFFICIENT TOPSOIL MATERIAL WITHIN THE EXCAVATION AREAS AND AREAS ON WHICH EMBANKMENTS WILL BE PLACED, FOR TOPSOIL COVERING ON THE NEW SLOPES AND DITCH BOTTOMS. THIS WILL REQUIRE APPROXIMATELY 7,190 CU. YDS. TO PROVIDE A MINIMUM COVER OF 3". THIS WORK SHALL BE CONSIDERED AS INCIDENTAL TO COMMON EXCAVATION.

MUCK EXCAVATION MATERIAL BETWEEN STA. 154+50 AND 16+00 MAY BE STOCKPILED ADJACENT TO THE EXCAVATION AREA. ANY EXCESS MATERIAL REMAINING AFTER TOPSOIL OPERATIONS SHALL BE LEFT IN A STOCKPILE AT THIS LOCATION FOR FUTURE USE BY ANOKA COUNTY.

APPROXIMATELY 2,142 CU. YDS. OF THE EXCESS MUCK MATERIAL SHALL BE USED AS TOPSOIL DRESSING IN FRONT YARD AREAS TO BE SODDED. THIS WORK ONLY SHALL BE PAID FOR UNDER ITEM NO. 2105.535 (SALVAGED TOPSOIL).

SALVAGED BITUMINOUS MIXTURE QUANTITIES ARE COMPUTED AS THE VOLUME OF BITUMINOUS IN IT'S ORIGINAL POSITION BASED ON AN AVERAGE DEPTH OF 0.3' AND AVERAGE WIDTH OF 24'.

BASIS OF PLANNED QUANTITIES

- 2331 PLANT MIXED SHOULDER COURSE
BITUMINOUS MIXTURE 165 LBS./SQ. YD. PER 1 1/2" THICKNESS
BITUMINOUS MATERIAL FOR MIXTURE 70% BY WT.
- 2331 PLANT MIXED BASE COURSE
BITUMINOUS MIXTURE 220 LBS. S.Y. PER 2" THICKNESS.
BITUMINOUS MATERIAL FOR MIXTURE 4.5% BY WT.
- 2331 PLANT MIXED BINDER COURSE
BITUMINOUS MIXTURE 220 LBS. S.Y. PER 2" THICKNESS
BITUMINOUS MATERIAL FOR MIXTURE 5.5% BY WT.
- 2341 PLANT MIXED WEARING COURSE
BITUMINOUS MIXTURE 165 LBS. S.Y. PER 1 1/2" THICKNESS
BITUMINOUS MATERIAL FOR MIXTURE 6.5% BY WT.
- 2357 BITUMINOUS MATERIAL FOR TACK COAT 0.05 GAL. PER S.Y.
- 2575 ROADSIDE SEEDING BASED ON HORIZONTAL MEASUREMENTS PLUS 10%

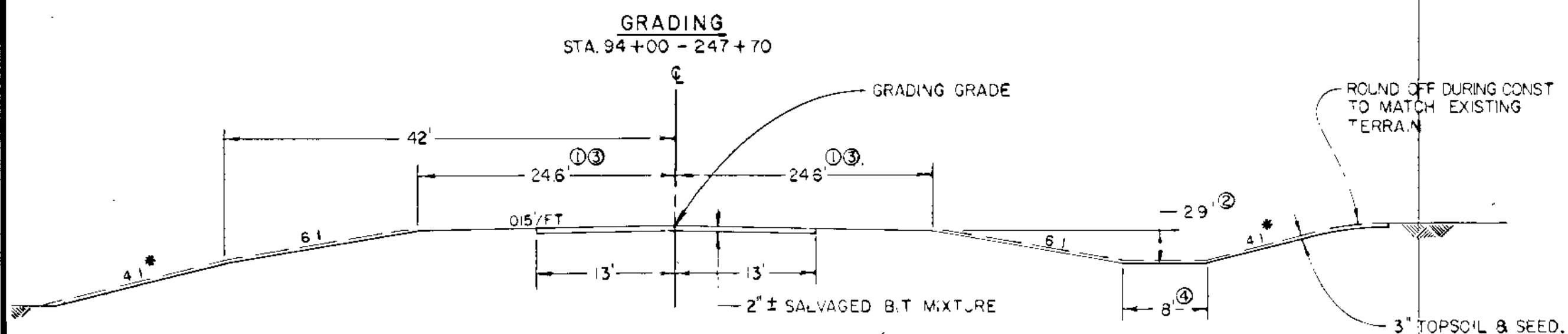
STANDARD PLATES	
PLATE NO.	DESCRIPTION
0003A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000H	REINFORCED CONCRETE PIPE
3006C	GASKET JOINT FOR R. C. PIPE
3014H	REINFORCED CONCRETE PIPE ARCH DETAIL
3040F	CORRUGATED METAL PIPE CULVERT
3100F	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110D	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3123H	METAL APRON FOR C.M. PIPE
3133A	RIPRAP AT R.C.P. OUTLETS
3134A	RIPRAP AT C.M.P. OUTLETS
4000H	MANHOLE OR CATCH BASIN
4002D	MANHOLE OR CATCH BASIN
4005K	MANHOLE OR CATCH BASIN
4006J	MANHOLE OR CATCH BASIN
4009G	MANHOLE OR CATCH BASIN
4010E	CONCRETE ADJUSTING RING
4011D	PRECAST CONCRETE BASE
4101B	RING CASTING FOR MANHOLE OR CATCH BASIN
4110D	COVER CASTING FOR MANHOLE
4126E	CATCH BASIN FRAME CASTING
4140D	SPECIAL GRATE CASTINGS FOR CATCH BASIN
4149C	GRATE CASTING FOR CATCH BASIN
4161E	CURB BOX CASTING FOR CATCH BASIN
4180G	MANHOLE OR CATCH BASIN STEP
7100E	CONCRETE CURB AND GUTTERS
8000G	STANDARD BARRICADES
8110C	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111B	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
8112C	PEDESTAL FOUNDATION
8115C	PEDESTRIAN PUSH BUTTON INSTALLATION
8116C	STEEL GUARD POST
8117F	PRECAST CONCRETE HANDHOLE OR PULLBOX
8118C	SERVICE EQUIPMENT & POLE - TRAFFIC CONTROL SIGNALS
8119C	GROUND MOUNTED CABINET FOUNDATION
8126A	POLE FOUNDATION TYPE A100
8122C	PEDESTAL AND PEDESTAL BASE
8123A	POLE AND WAST ARM
8124C	SIGNAL HEAD MOUNTS
8330C	3 - CABLE GUARDRAIL
9000B	APPROACHES AND ENTRANCES
9102C	SODDING AT PIPE CULVERT ENDS

STATEMENT OF ESTIMATED QUANTITIES FOR UTILITY CROSSING CONSTRUCTION

ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
10" P.V.C. SANITARY SEWER PIPE	LIN. FT.	100	
8" P.V.C. SANITARY SEWER PIPE	LIN. FT.	400	
4" P.V.C. SANITARY SEWER SERVICE PIPE	LIN. FT.	400	
18" R.C.P. FOR WATERMAIN CASING	LIN. FT.	200	
51" R.C.P.-ARCH STORM SEWER	LIN. FT.	120	

- ① FOR DUST CONTROL
- ② INCLUDES 322 CU. YD. FOR STREET APPROACHES, 670 CU. YD. FOR ENTRANCES
- ③ INCLUDES 605 TON FOR STREET APPROACHES, 745 TON FOR RT. TURN LANES
- ④ INCLUDES 115 TON FOR STREET APPROACHES
- ⑤ INCLUDES 915 TON FOR ENTRANCES, 45 TON FOR MEDIANS
- ⑥ INCLUDES 420 TON FOR STREET APPROACHES, 565 TON FOR RT. TURN LANES

TYPICAL SECTIONS



* SEE X-SECTIONS FOR 3:1 SLOPES

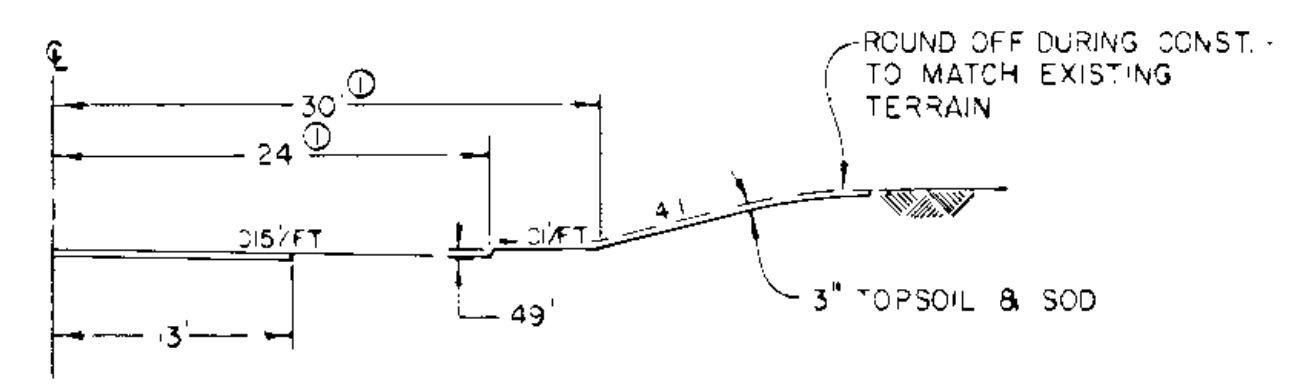
- TURN LANE LOCATIONS**
STA. - STA.
- 93+51 - 97+01 LT.
 - 94+00 - 108+62 RT.
 - 109+17 - 112+67 RT.
 - 114+46 - 117+96 RT.
 - 124+52 - 128+02 LT.
 - 128+61 - 132+11 LT.
 - 129+94 - 133+44 RT.
 - 184+88 - 189+38 LT.
 - 192+54 - 196+04 LT.
 - 202+91 - 206+41 LT.
 - 220+53 - 224+03 LT.
 - 243+60 - 247+10 RT.

- LOCATION**
STA. - STA.
- 116+00 - 120+74 LT.
 - 119+75 - 121+50 RT.
 - 125+25 - 128+80 RT.
 - 125+50 - 128+20 LT.
 - 129+06 - 132+68 LT.
 - 132+70 - 137+30 LT.
 - 135+50 - 142+50 RT.
 - 140+64 - 142+65 LT.
 - 165+60 - 174+50 RT.
 - 173+75 - 177+34 LT.
 - 190+50 - 198+25 RT.
 - 203+65 - 206+35 RT.
 - 211+65 - 220+23 LT.
 - 212+50 - 222+00 RT.

- ① 2' WIDER AT RT TURN LANE AREAS
- ② SEE X-SECTIONS FOR SPECIAL DITCHES
- ③ 28.1' - 24.6' TAPER STA. 94+00 - 95+00 RT.
- ④ SEE X-SECTIONS FOR VARIATION IN DITCH BOTTOM WIDTH

3" TOPSOIL & SEED, SOD FRONT YARD AREAS & DITCH GRADES STEEPER THAN 2%

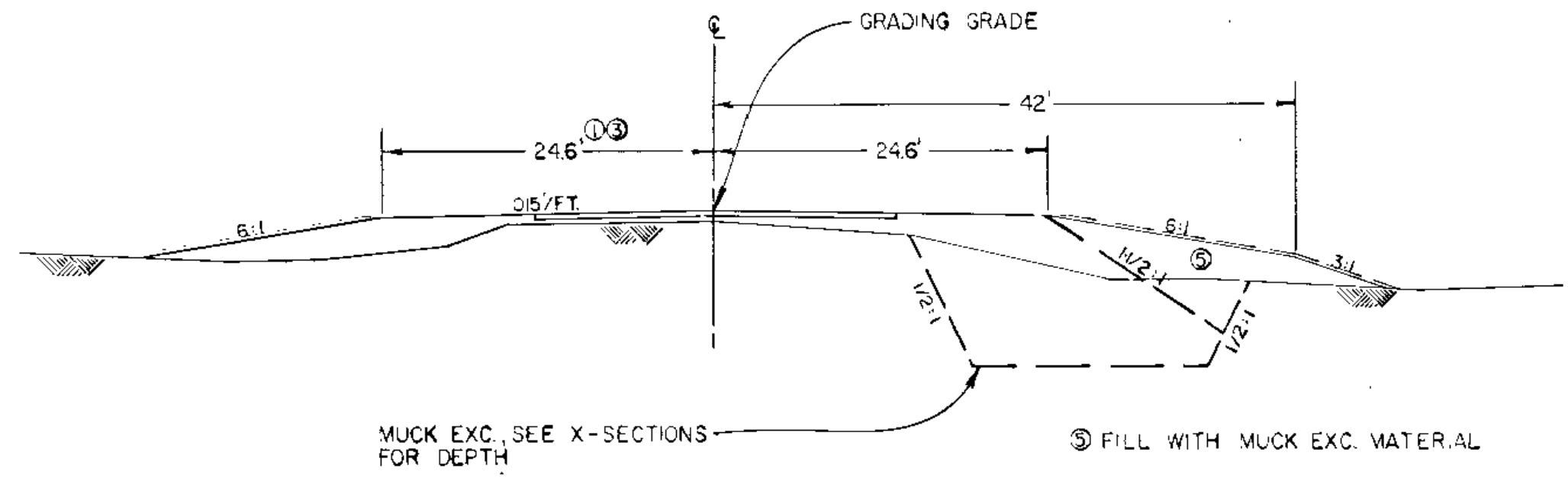
BERM



MUCK EXCAVATION

STA. 154+50 - 161+00

NOTE: DITCH EXC. STA. 223+50 TO STA. 228+50 RT. INCLUDED WITH MUCK EXC. QUAN.

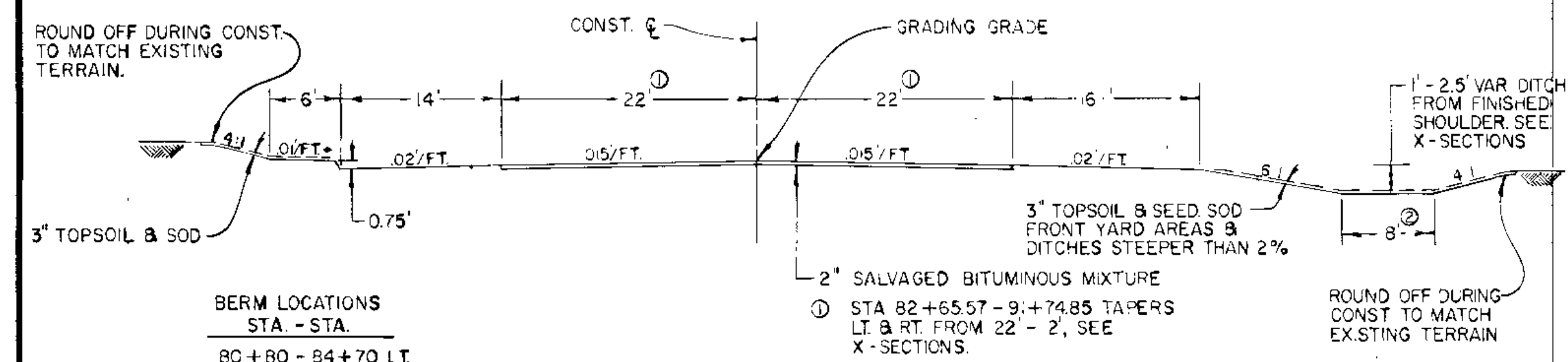


MUCK EXC. SEE X-SECTIONS FOR DEPTH

⑤ FILL WITH MUCK EXC. MATERIAL

GRADING

STA. 80+55 - 94+00



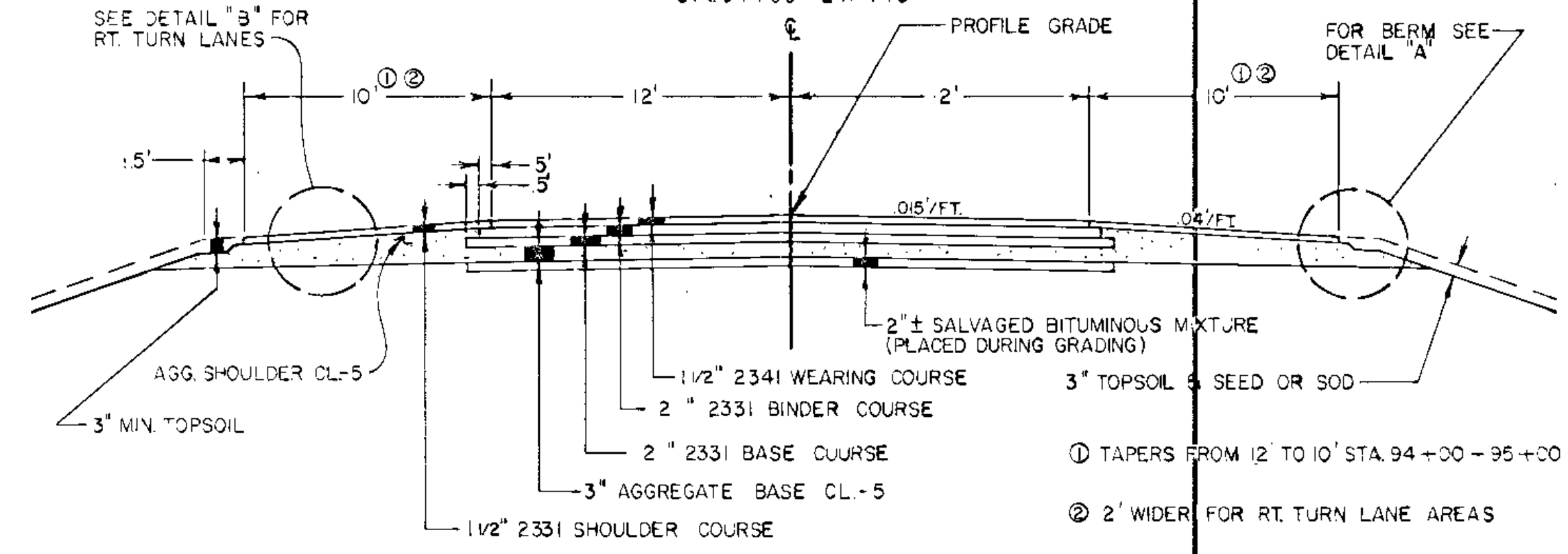
- BERM LOCATIONS**
STA. - STA.
- 80+80 - 84+70 LT.

- ① STA. 82+65.57 - 91+74.85 TAPERS LT. & RT. FROM 22' - 2', SEE X-SECTIONS.
- ② STA. 91+74.85 - 94+00, 2' LT. & RT. SEE X-SECTIONS FOR VARIATIONS IN DITCH BOTTOM WIDTH.

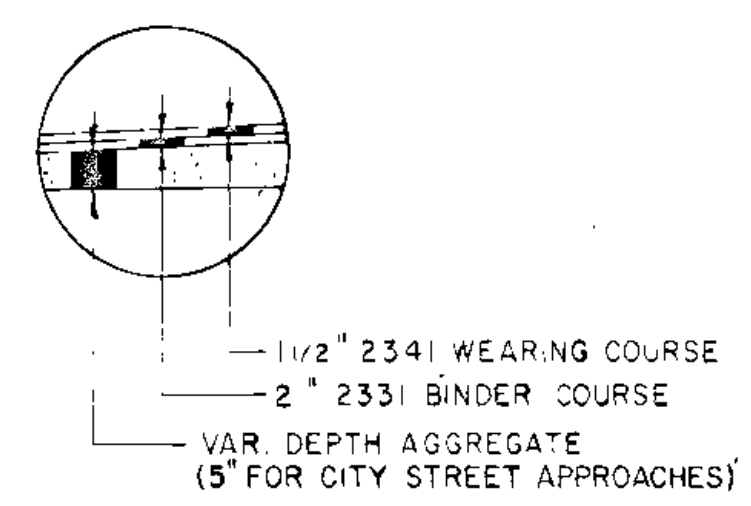
ROUND OFF DURING CONST. TO MATCH EXISTING TERRAIN

TYPICAL BASE & SURFACING SECTION

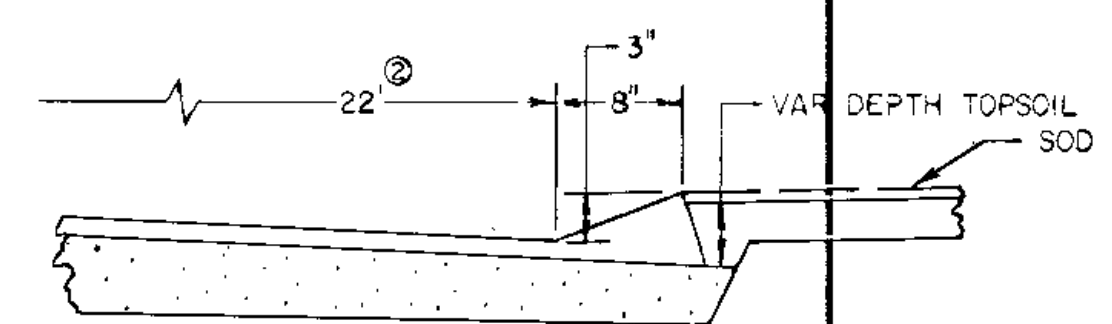
STA. 94+00 - 247+70



DETAIL "B"



DETAIL "A"

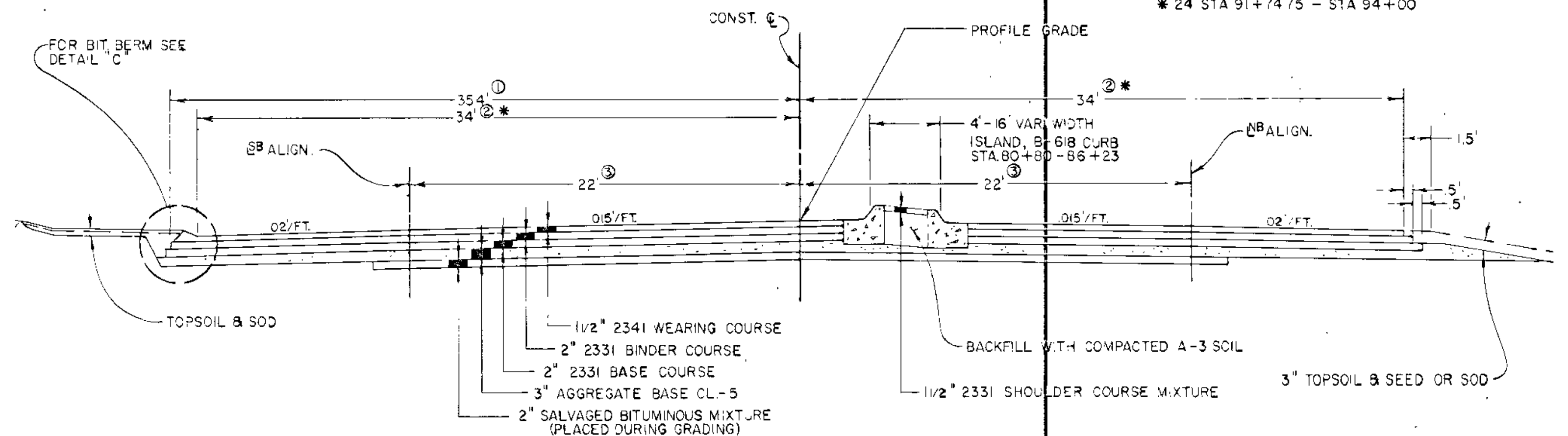


NOTE: CONTRACTOR MAY MODIFY LIP DESIGN UPON APPROVAL OF ENGINEER.

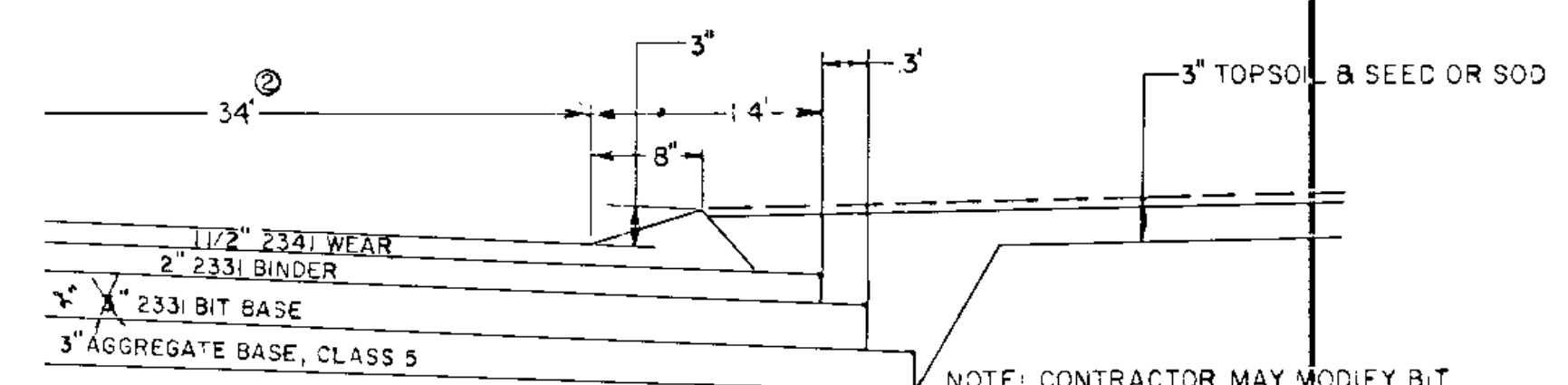
TYPICAL BASE & SURFACING SECTION

LOCATION

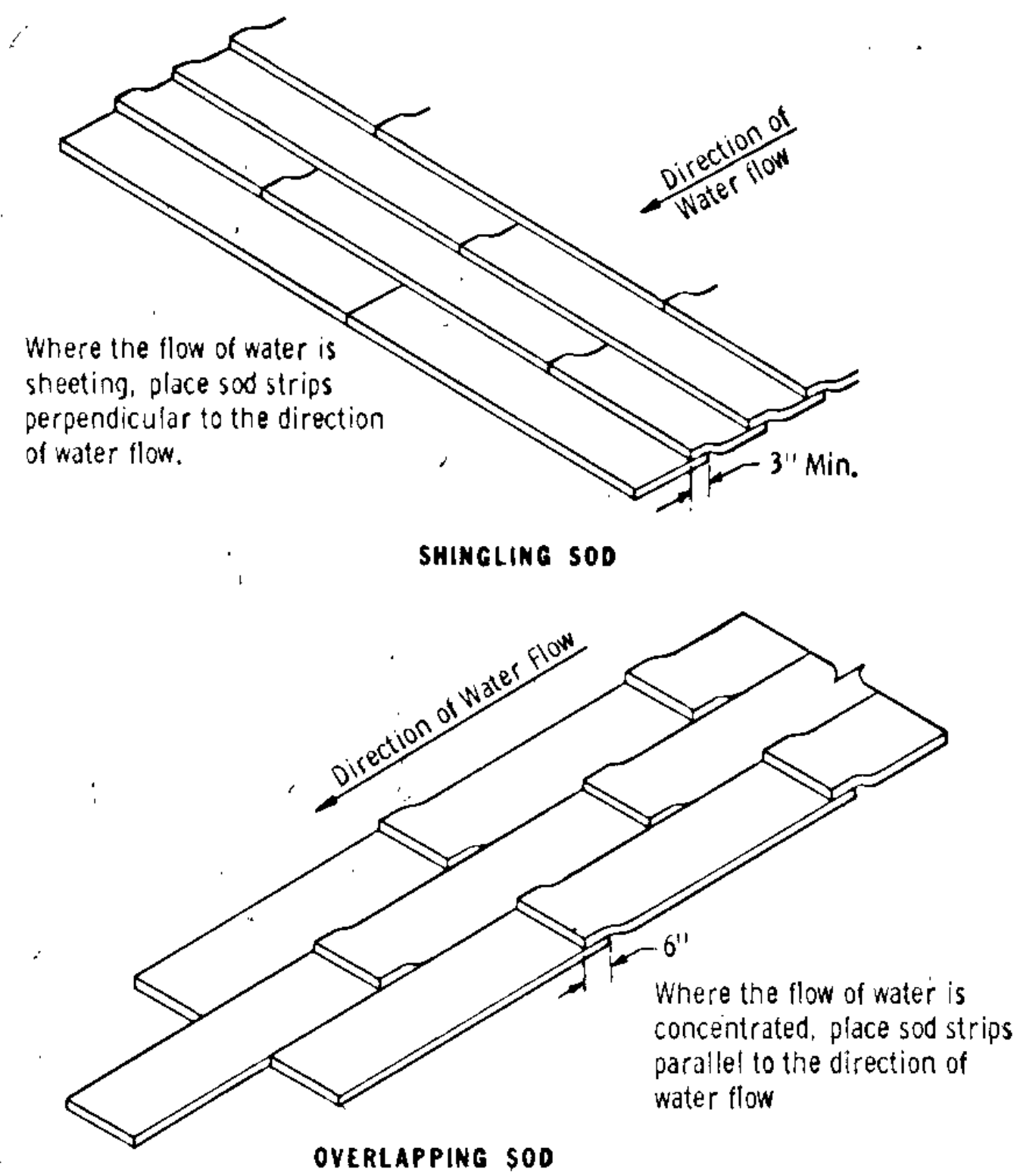
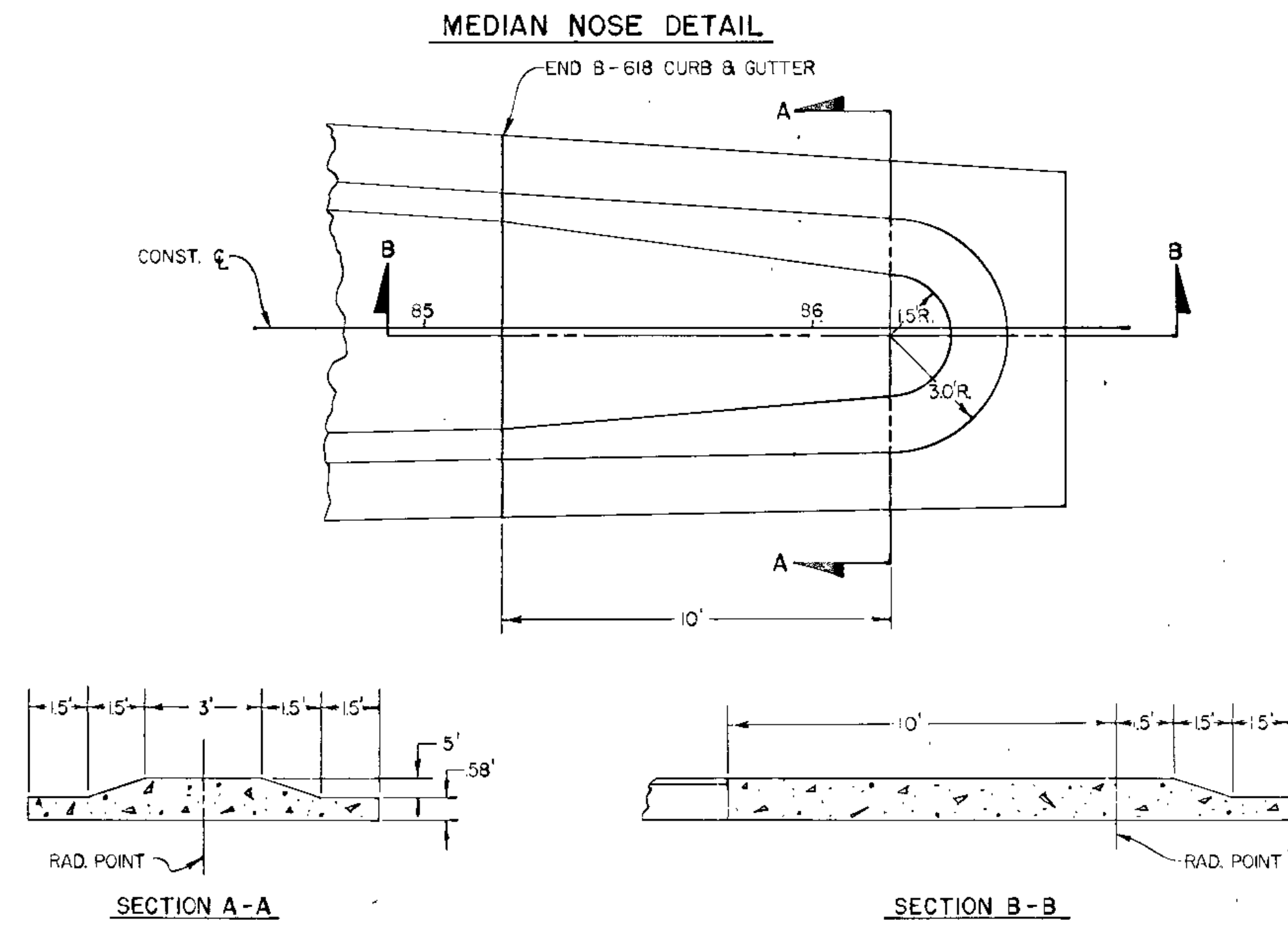
FULL WIDTH STA. 80+55 - 82+65.57
TAPER LT. STA. 84+45.85 - 91+74.85
TAPER RT. STA. 82+65.57 - 91+16.17
48' STA. 91+74.85 - 94+00



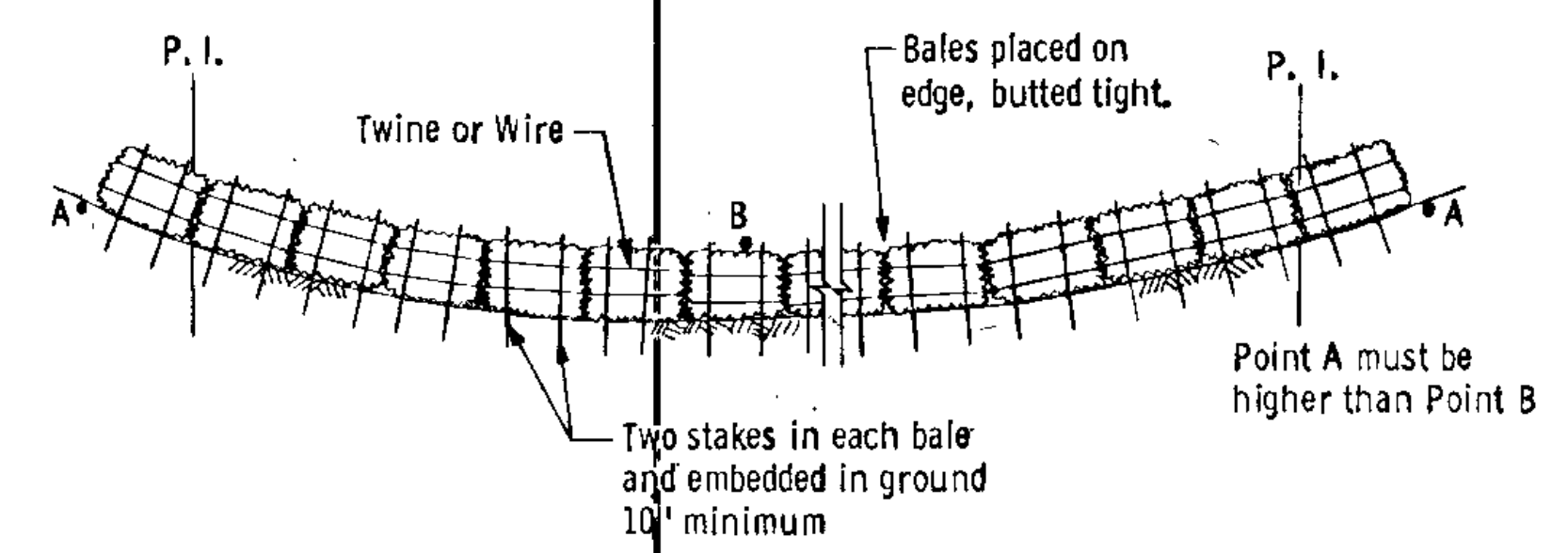
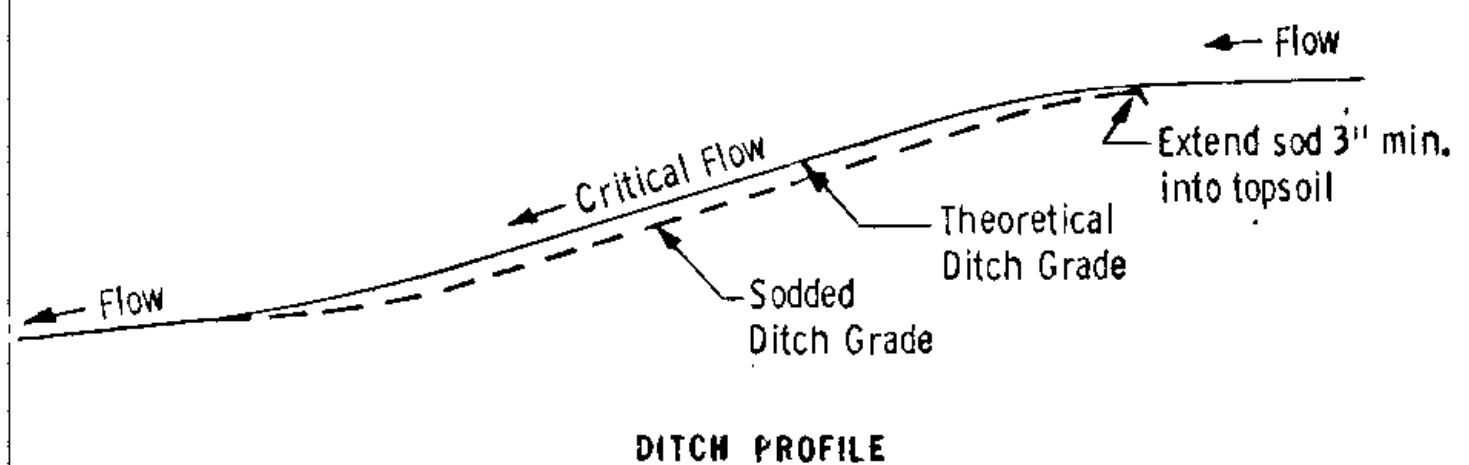
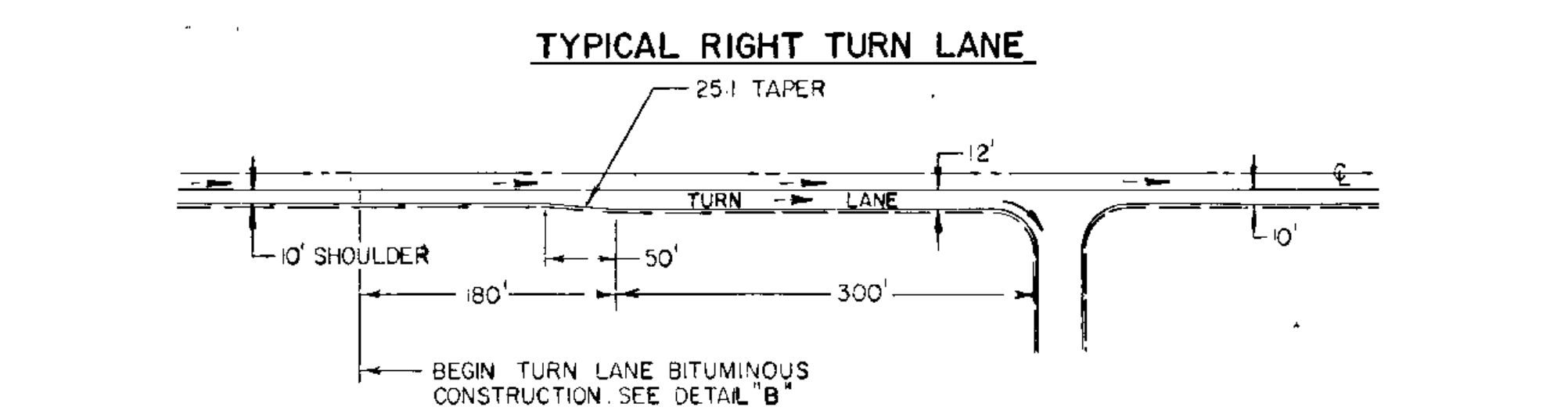
DETAIL "C"



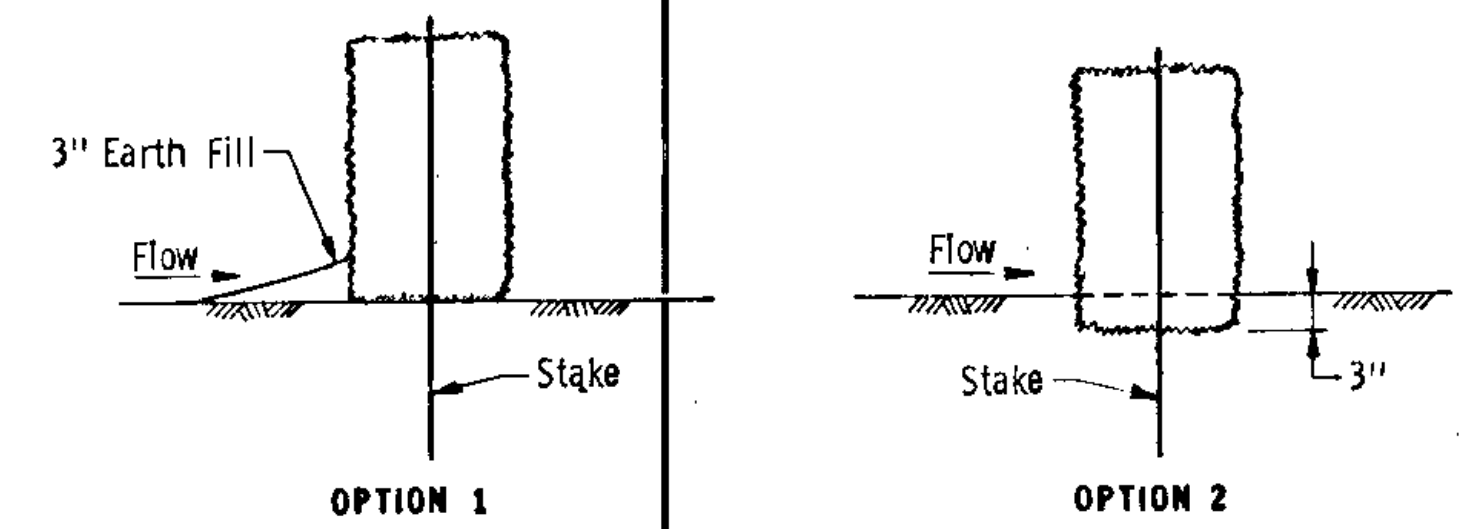
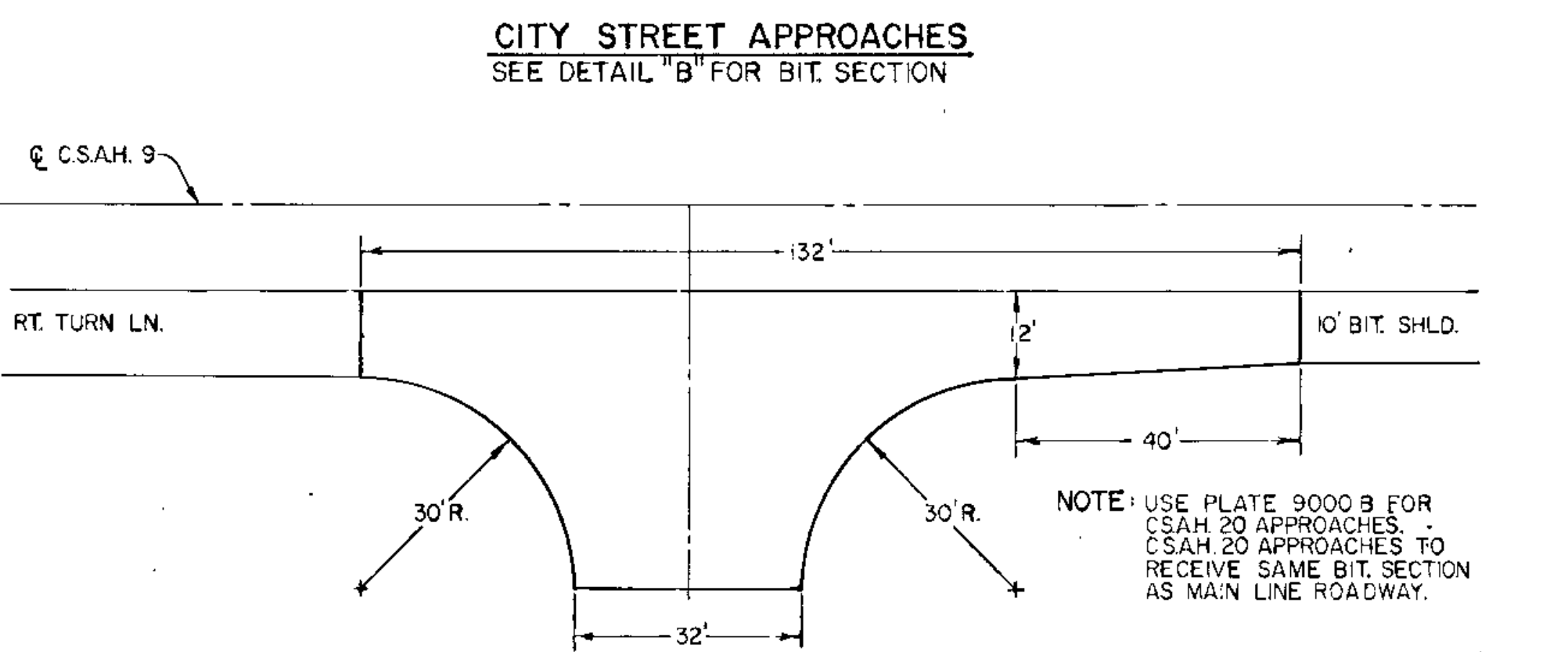
NOTE: CONTRACTOR MAY MODIFY LIP DESIGN UPON APPROVAL OF THE ENGINEER



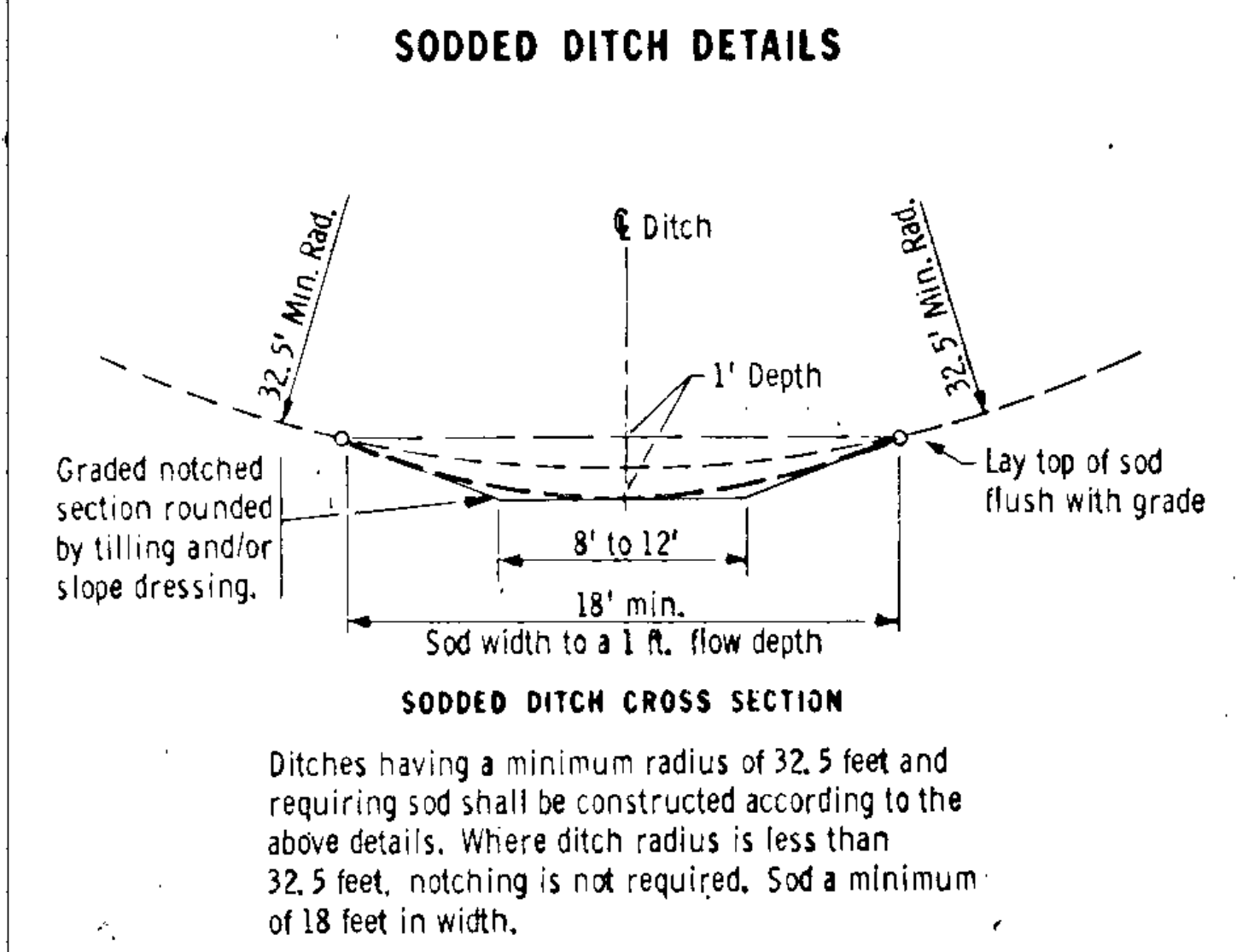
SPECIAL SOD PLACEMENT TECHNIQUES



BALE HAY OR STRAW DITCH CHECK



DITCH CHECK SECTIONS



DRAINAGE																
STATION	LOCATION	IN PLACE	REMARKS	REMOVE PORT. CULV.	PORTABLE CULVERTS											
					SALV. CULV.	EXC.	SOD-DING	INSTALL	15" CMP	18" CMP	24" CMP	22" SPAN R.C.P. - A.				
					LIN. FT.	LIN. FT.	CU. YD.	SQ. YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
81+36	LT.		NO CULV. REQ.													
82+53	LT.		NO CULV. REQ.													
85+00	LT.		NO CULV. REQ.													
88+50	LT.		CONST. ROAD APP. NO CULVERT REQ'D.													
93+25	RT.						17		36	2						
93+35	LT.		139 TH. AVE.				17		50	2						
96+92	RT.						17		36	2						
97+87	LT.						17		38	2						
98+61	LT.						17		36	2						
100-04	LT.		NO CULV. REQ.													
107+01	LT.						17		34	2						
107+49	LT.						17		34	2						
108+78	RT.		141 ST. NO CULV. REQ.													
110+36	LT.						17		32	2						
112-83	RT.		142 ND. AVE. NO CULV. REQ.													
113+56	RT.		NO CULV. REQ.													
116+13	LT.		NO CULV. REQ.													
116+56	RT.						17		32	2						
117+35	LT.		NO CULV. REQ.													
118-12	RT.		142 ND. LN. NO CULV. REQ.													
119+29	LT.		NO CULV. REQ.													
119+73	RT.		NO CULV. REQ.													
120+23	LT.		NO CULV. REQ.													
120+76	RT.		NO CULV. REQ.													
120+76	LT.		NO CULV. REQ.													
122+45	LT.						17		32	2						
123+11	RT.						17		32	2						
124+28	LT.		143 RD. NO CULV. REQ.													
125+26	RT.		NO CULV. REQ.													
126+27	LT.		NO CULV. REQ.													
126+38	RT.		NO CULV. REQ.													
127+21	LT.		NO CULV. REQ.													
127+50	RT.		NO CULV. REQ.													
128+41	LT.		144 TH. NO CULV. REQ.													
129-00	RT.		NO CULV. REQ.													
130+48	RT.						17		34	2						
133+25	LT.		NO CULV. REQ.													
133+39	LT.		NO CULV. REQ.													
133+63	RT.		144 TH. LN. NO CULV. REQ.													
134+58	LT.		NO CULV. REQ.													
136+68	LT.	15" X 30' C.M.P.	NO CULV. REQ.				30									
136+83	RT.	15" X 30' C.M.P.	NO CULV. REQ.				30									
137+90	RT.		NO CULV. REQ.													
139+39	RT.		NO CULV. REQ.													
140+33	RT.		NO CULV. REQ.													
140+81	LT.		NO CULV. REQ.													
141+37	RT.		NO CULV. REQ.													
143+50	LT.		NO CULV. REQ.													
147+18	RT.						17		38	2						
150+31	LT.		NO CULV. REQ.													
152+90	RT.						17		38	2						
154+40	LT.		INSTALL CULV. FROM STA. 136+68				17	30		2						
162+62 & 163+22	RT.		PLACE PIPE UNDER 2 ENT.				17		90	2						
164+77	RT.						17		34	2						
165+50	RT.		NO ENT. REQ.													
166+71	RT.		NO CULV. REQ.													
168+28	RT.		NO CULV. REQ.													
174+16	LT.		NO CULV. REQ.													
175+16	LT.		NO CULV. REQ.													
175+48	LT.		NO CULV. REQ.													
176+15	RT.		NO CULV. REQ.													
178+27	LT.		REMOVE ENT.													
179+16	LT.		NO CULV. REQ.													
180+27	LT.						17		36	2						
183+74	LT.		REMOVE ENT.													
184+64	RT.						17		32	2						
184+72	LT.		152 ND. LN.				23			52	2					
185-09	RT.						17		32	2						
189+52	RT.						17		32	2						
192+38	LT.		153 RD. AVE. NO CULV. REQ.													
194+12	RT.		NO CULV. REQ.													
194+50	Q X-ING	18" X 50' C.M.P.					50		23				74	2		
194-89	RT.		NO CULV. REQ.													

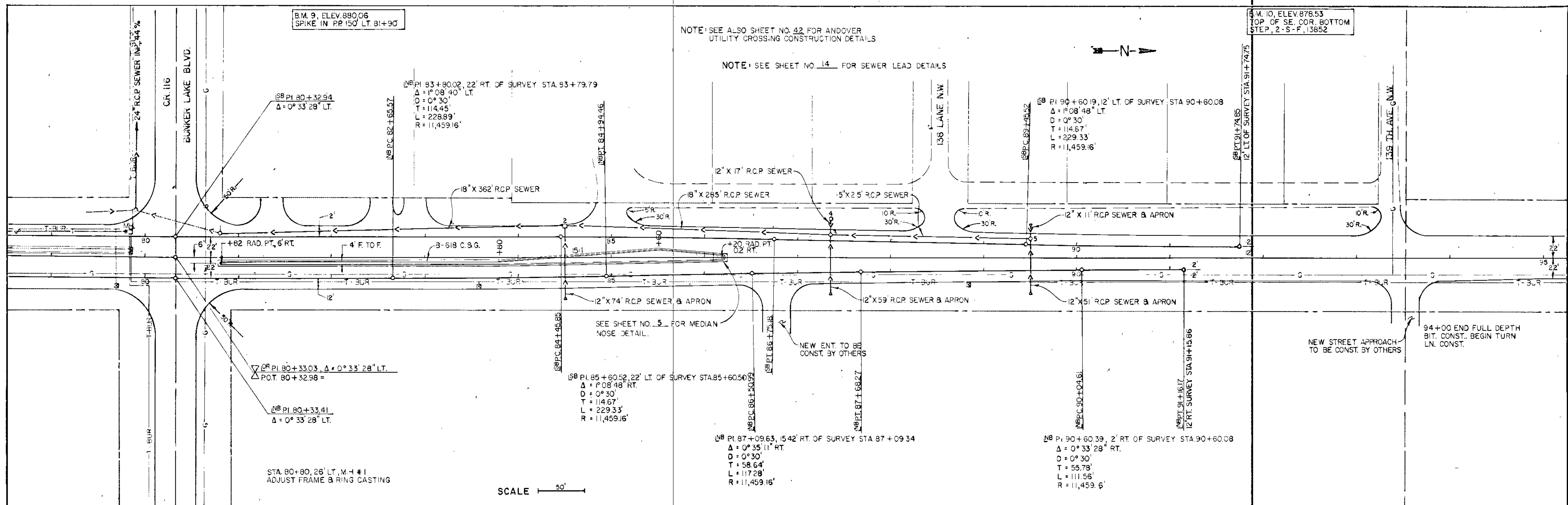
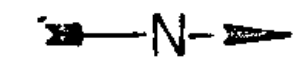
DRAINAGE (continued)																
STATION	LOCATION	IN PLACE	REMARKS	REMOVE PORT. CULV.	PORTABLE CULVERTS											
					SALV. CULV.	EXC.	SOD-DING	INSTALL	15" CMP	18" CMP	24" CMP	22" SPAN R.C.P. - A.				
					LIN. FT.	LIN. FT.	CU. YD.	SQ. YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
196+81	RT.		NO CULV. REQ.													
198-24	RT.		NO CULV. REQ.													
202+84	LT.		154 TH. LN. N.W.				23				52	2				
204+00	RT.		NO CULV. REQ.													
205+25	RT.		NO CULV. REQ.													
207-65	RT.						17			36	2					
208+30	LT.	NO ENT.	CONST. NEW ENT.				17			38	2					
211+30	LT.	NO ENT.	CONST. NEW ENT.				17			38	2					
211-85	LT.		NO CULV. REQ.													
212-80	LT.		NO CULV. REQ.													
214+07	RT.		NO CULV. REQ.													
214+07	LT.		NO CULV. REQ.													
214+85	RT.		NO CULV. REQ.													
215+70	LT.		NO CULV. REQ.													
216+25	RT.		NO CULV. REQ.													
217-81	LT.		NO CULV. REQ.													
219+93	RT.		NO CULV. REQ.													
220+70	LT.		C.S.A.H. 20 W.				23				50	2				
220-80	RT.		NO CULV. REQ.													
221-85	RT.	18" X 38' C.M.P.	NO CULV. REQ.				38									
223+97	Q X-ING	24" X 82' R.C.P.		82			31					128	2			
223+97	RT.	12" X 20' C.M.P.	SPILLWAY	20												
224+50	RT.	12" X 26' C.M.P.	SPILLWAY	26												
228-00	LT.						17			32	2					
229+40	RT.						17			34	2					
230+80	RT.		NO CULV. REQ.													
233+95	RT.						17			36	2					
235-80	Q X-ING	24" X 64' R.C.P.		64			31					104	2			
239+53	LT.						17			32	2					
240+58	LT.						17			32	2					
243+96	RT.						17			32	2					
244-00	LT.		REMOVE APPROACH													
247-22	LT.		161 ST. NO CULV. REQ.													
247+27	RT.		C.S.A.H. 20 E. NO CULV. REQ.													
244-00	RT.		NO CULV. REQ.													
TOTALS				192	148		664	30	1068	60	154	6	232	4	74	2

B.M. 9, ELEV. 880.06
SPIKE IN PP 150' LT. 81+90

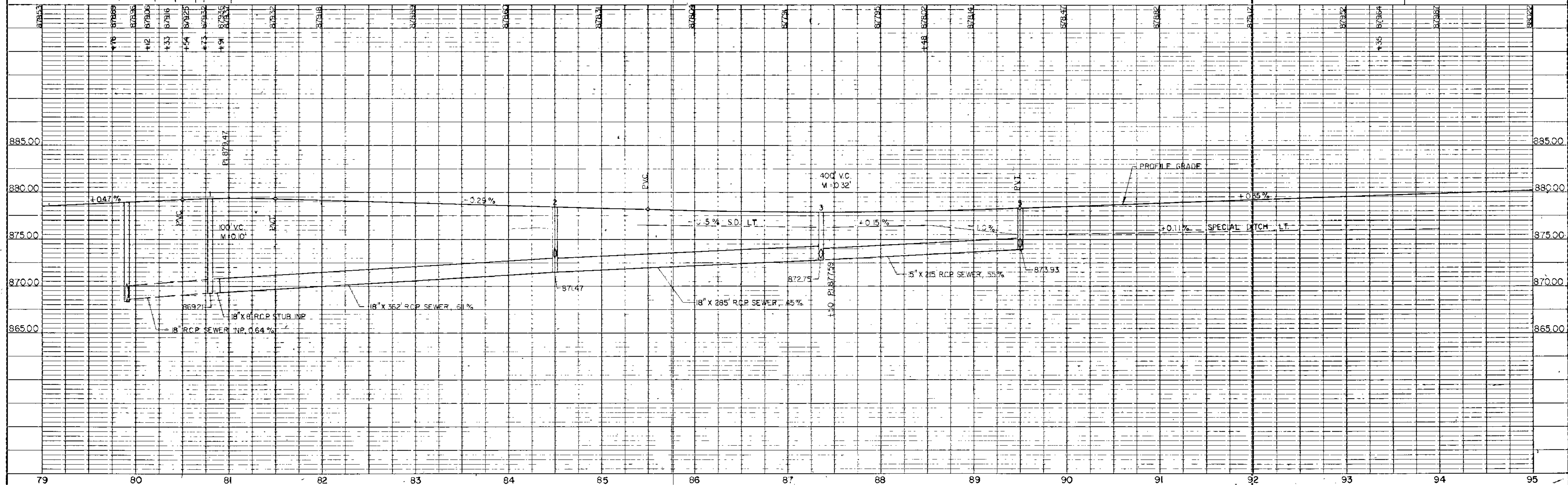
NOTE: SEE ALSO SHEET NO. 42 FOR ANDOVER
UTILITY CROSSING CONSTRUCTION DETAILS

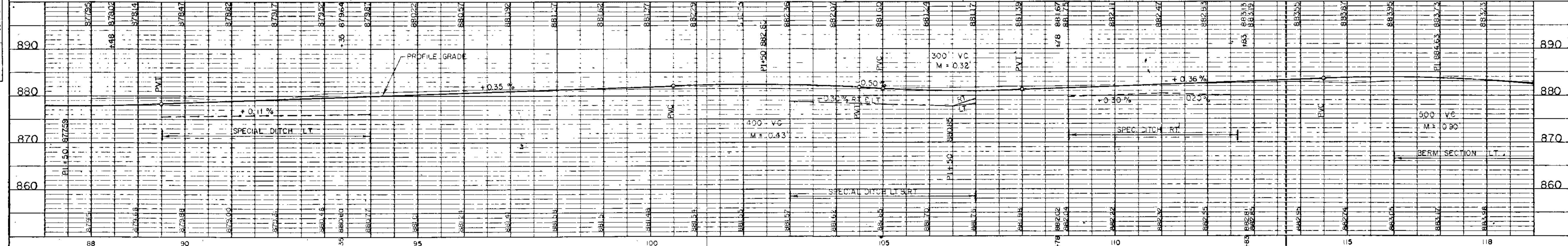
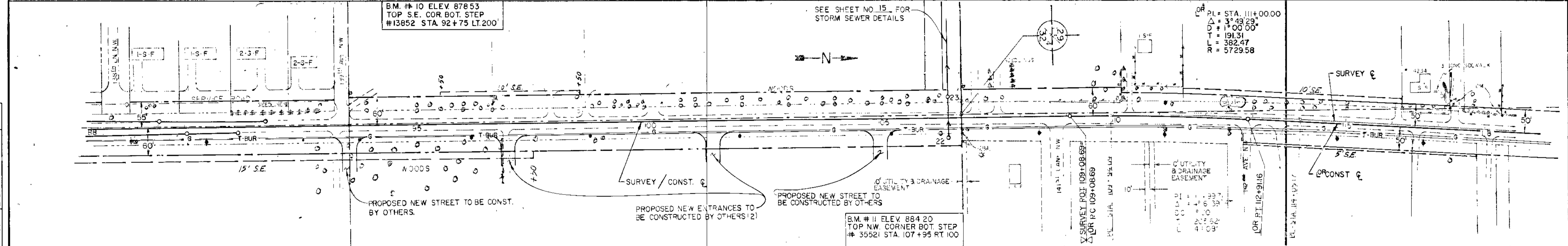
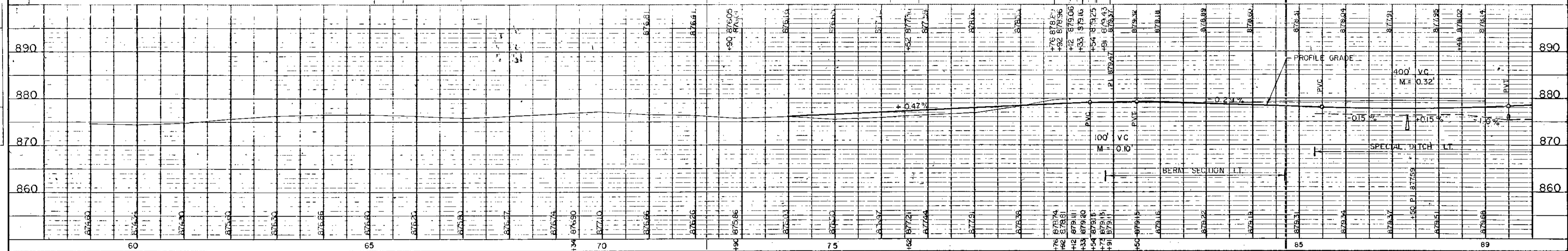
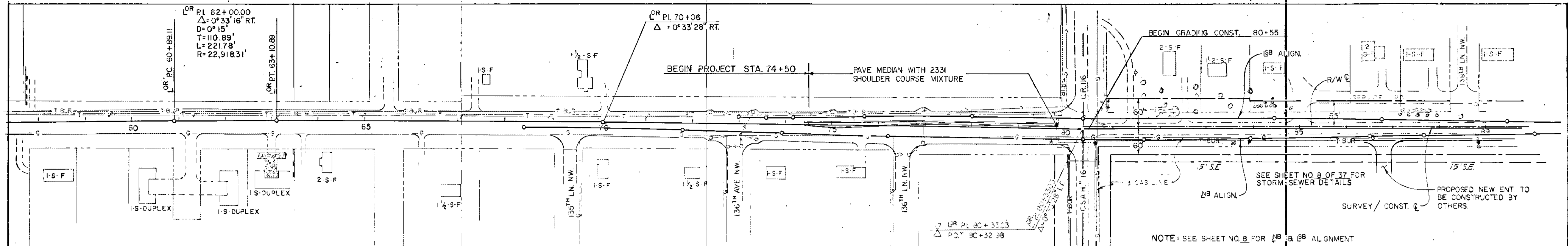
B.M. 10, ELEV. 878.53
TOP OF SE. COR. BOTTOM
STEP, 2-S-F, 13852

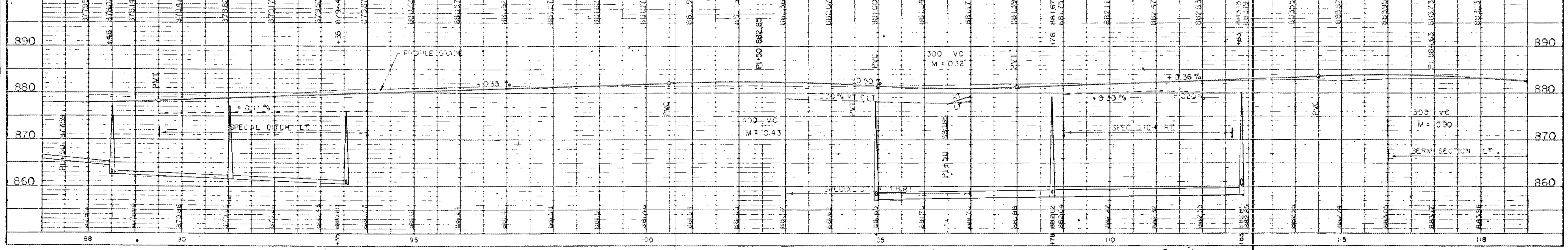
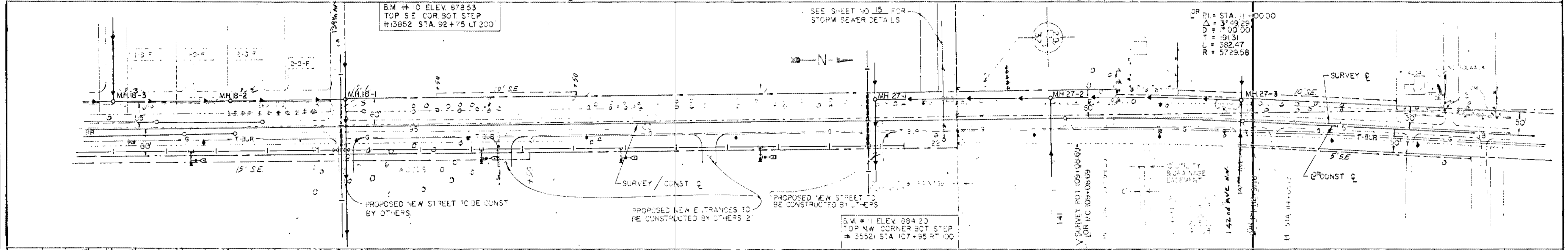
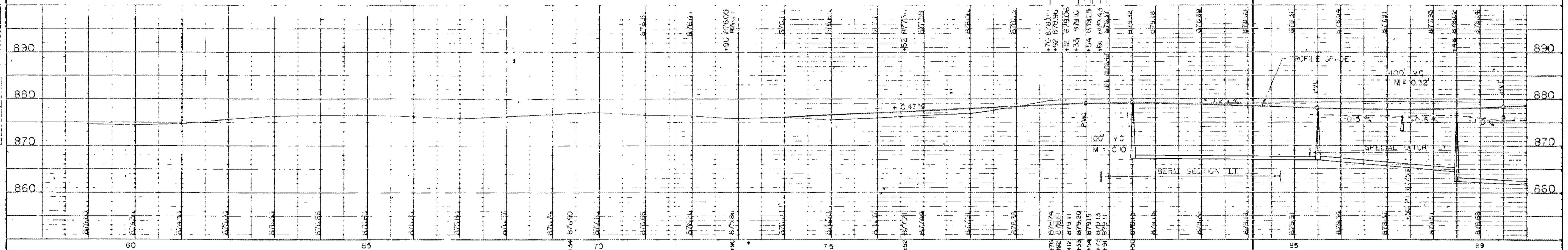
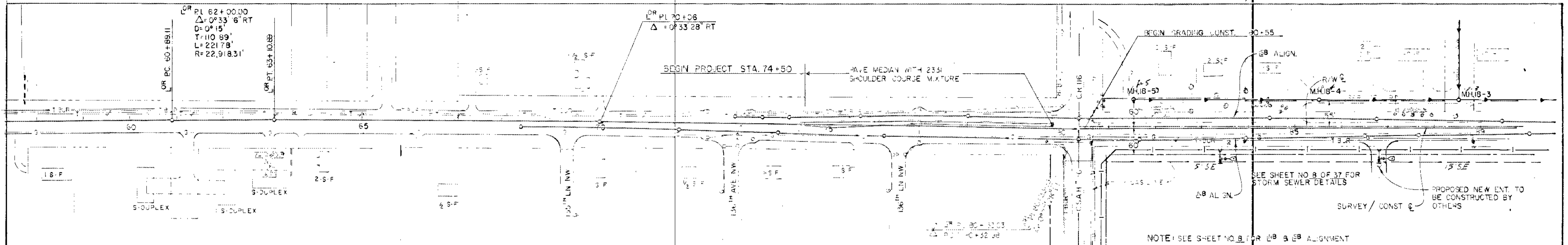
NOTE: SEE SHEET NO. 14 FOR SEWER LEAD DETAILS

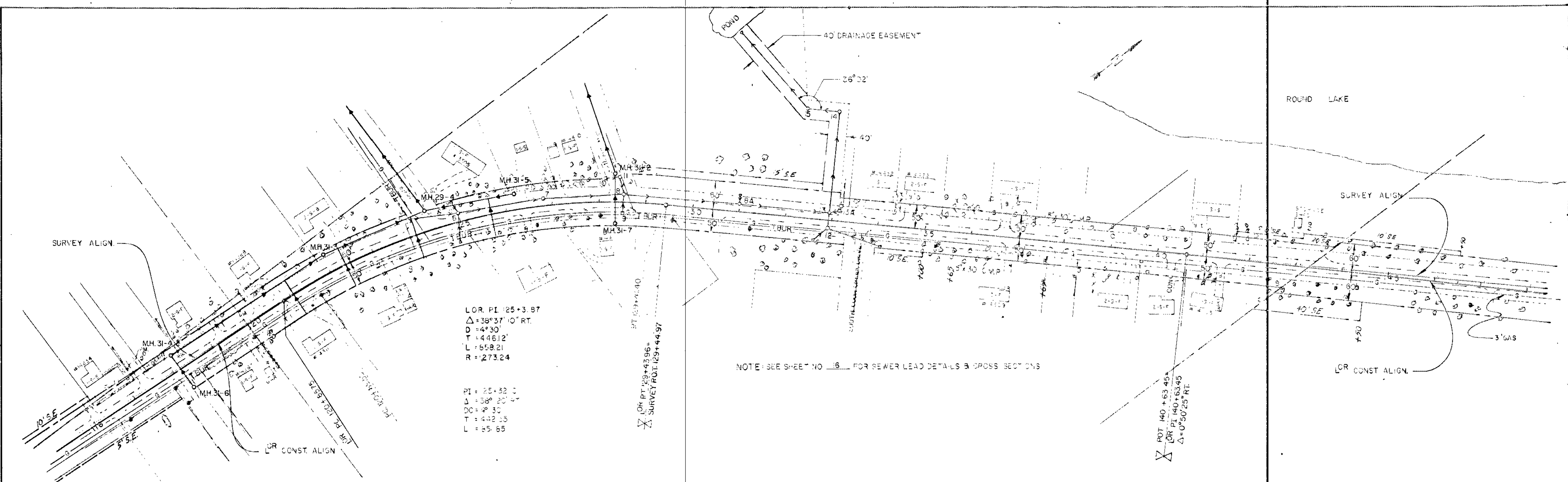


SCALE 1" = 50'









LOR PI 125+3.87
 $\Delta = 38^{\circ}37'10''$ RT.
 D = 446.12'
 L = 658.21'
 R = 273.24'

PI = 125+3.87
 $\Delta = 38^{\circ}37'10''$ RT.
 D = 446.12'
 L = 658.21'
 R = 273.24'

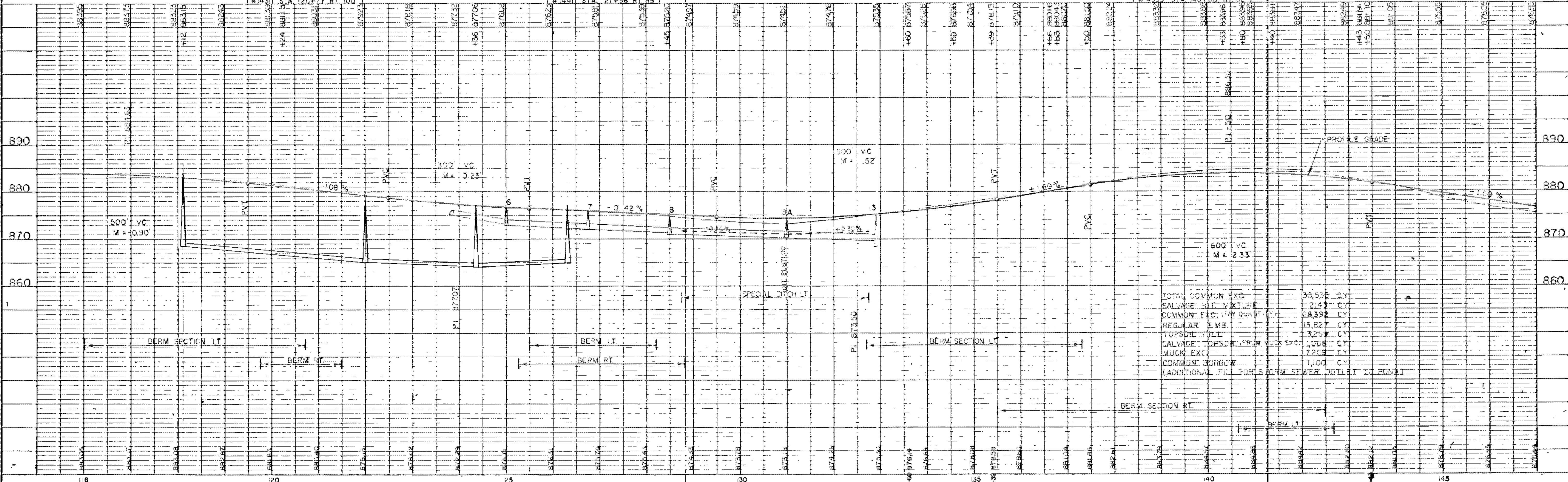
PT 129+4.40
 LOR PT 129+4.396
 SURVEY ROT 129+4.497

POT 140+63.45
 LOR PT 140+63.45
 $\Delta = 0^{\circ}50'25''$ RT.

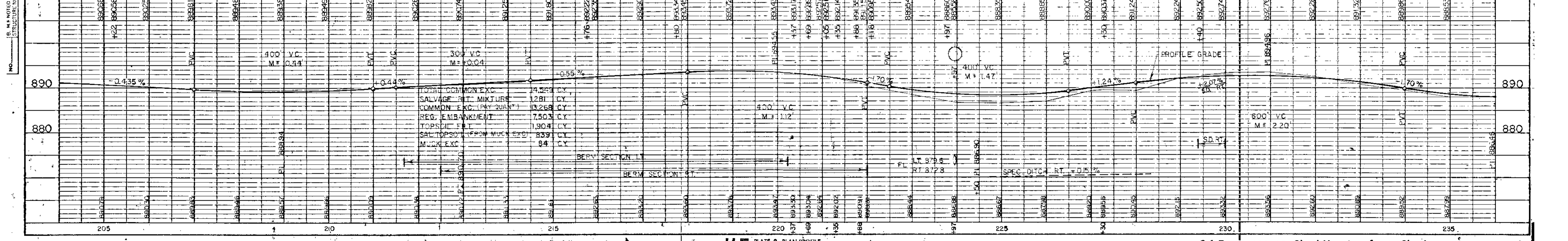
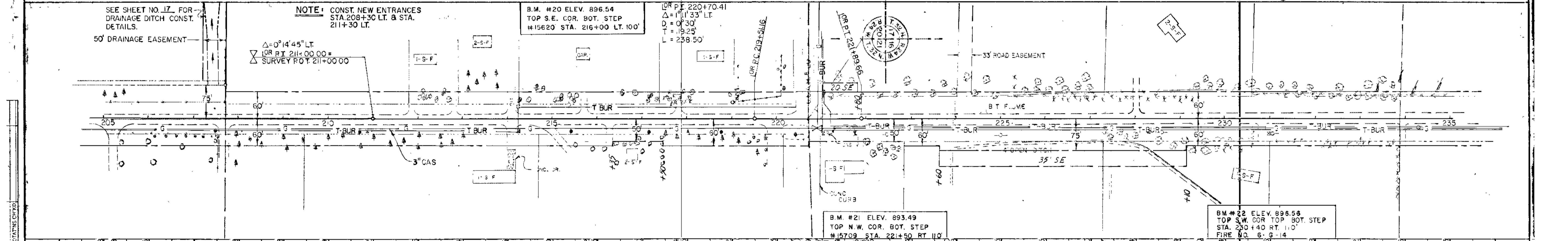
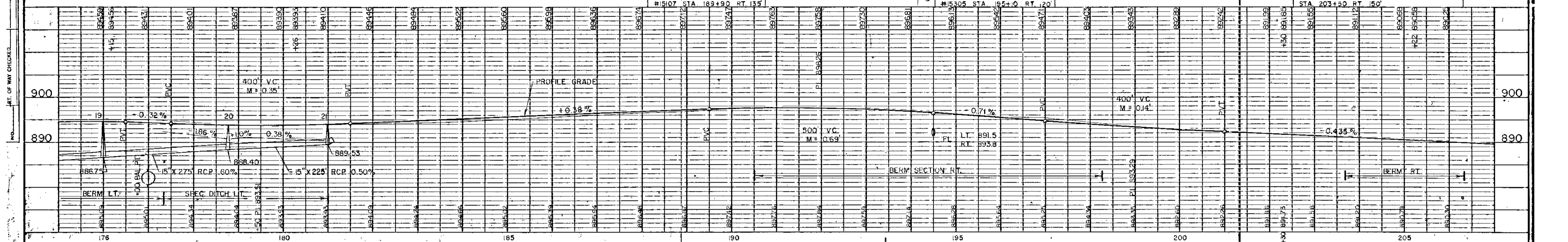
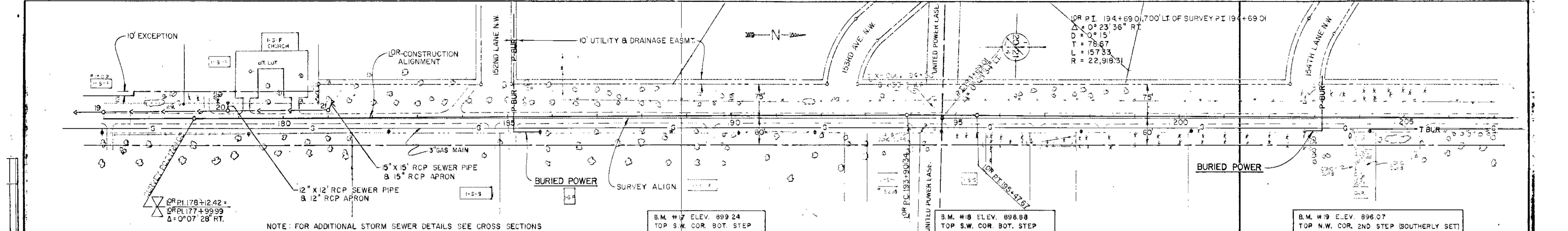
B.M. #2 ELEV. 883.74
 TOP S.W. COR. 2ND STEP
 #14311 STA. 120+77 RT. 100'

B.M. #3 ELEV. 879.6
 TOP N.W. COR. BOT. STEP
 #14411 STA. 27+36 RT. 25'

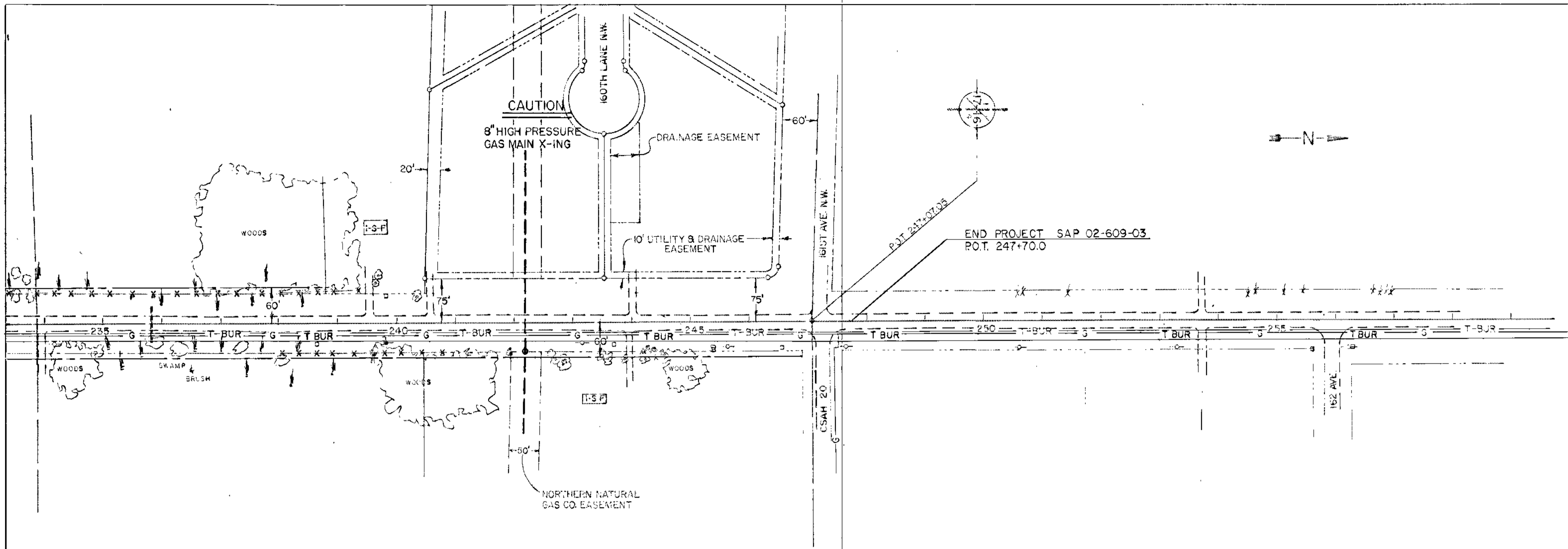
B.M. #4 ELEV. 888.36
 TOP S.W. COR. BOT. STEP
 #14551 STA. 40+20 RT. 82'



TOTAL COMMON EXC.	30,536	CY
SALVAGE MIXTURE	2,143	CY
COMMON EXC. (BY QUANT.)	28,392	CY
REGULAR E.M.B.	15,827	CY
TOPSOIL FILL	3,267	CY
SALVAGE TOPSOIL FROM EXC.	1,068	CY
MUCK EXC.	7,208	CY
COMMON BORROW	1,101	CY
ADDITIONAL FILL FOR STORM SEWER OUTLET TO POST		

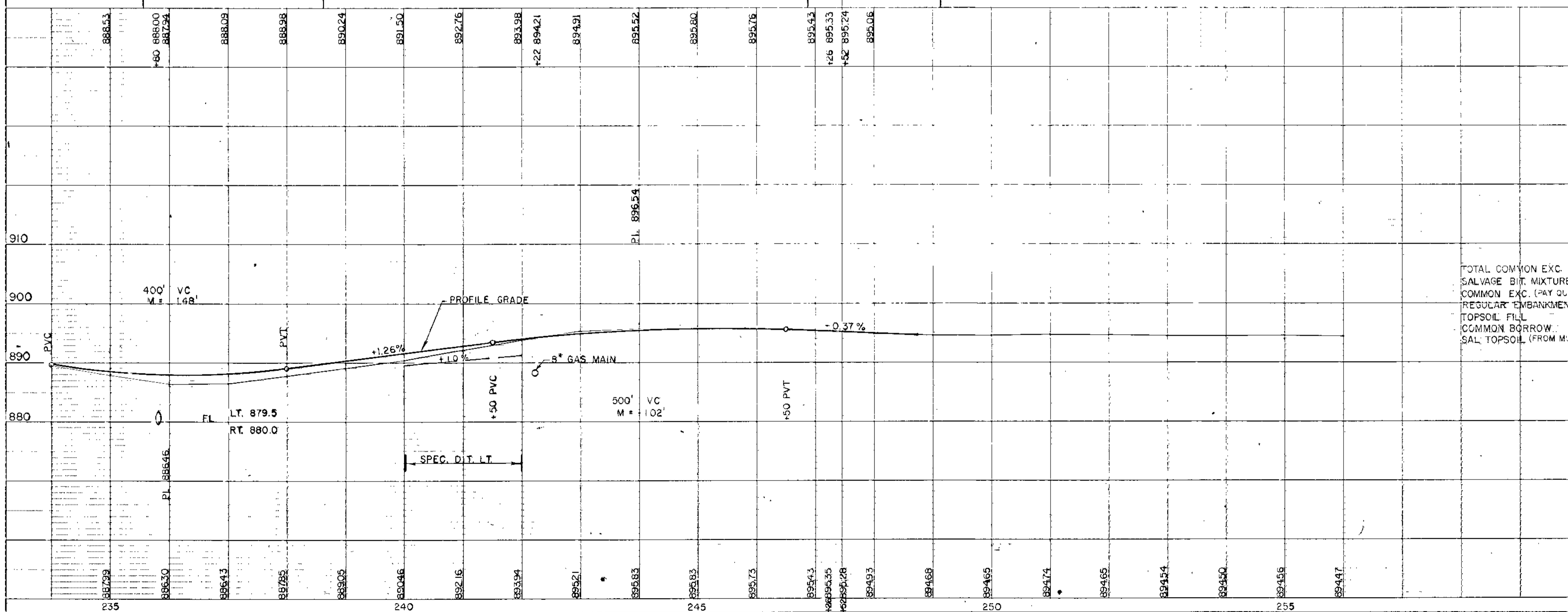


NO. 15, M.S. NOTES: STRUCTURE NOTATIONS CHYD
 NO. 16, M.S. NOTES: ART. OF WAY CHECKER

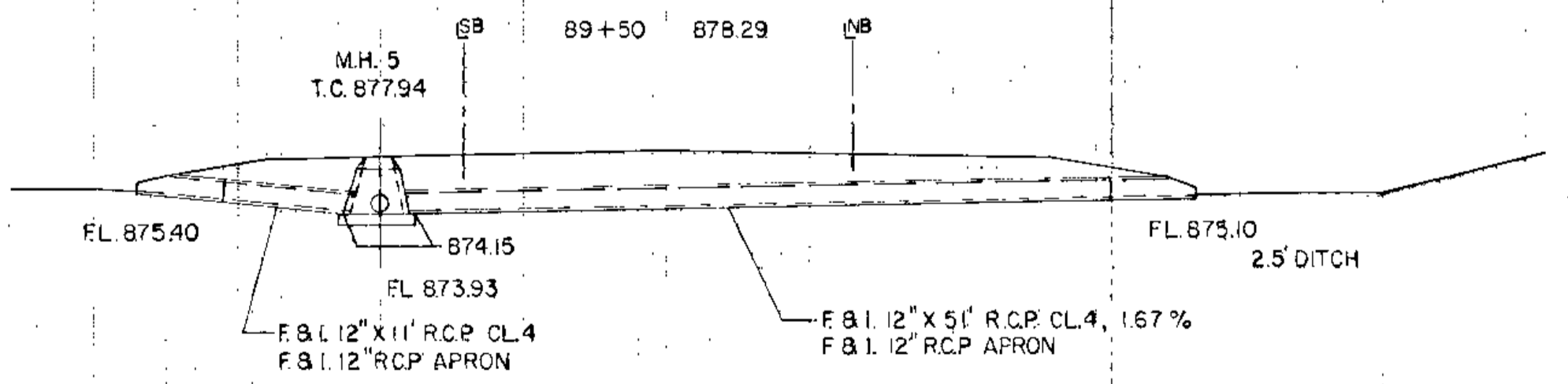
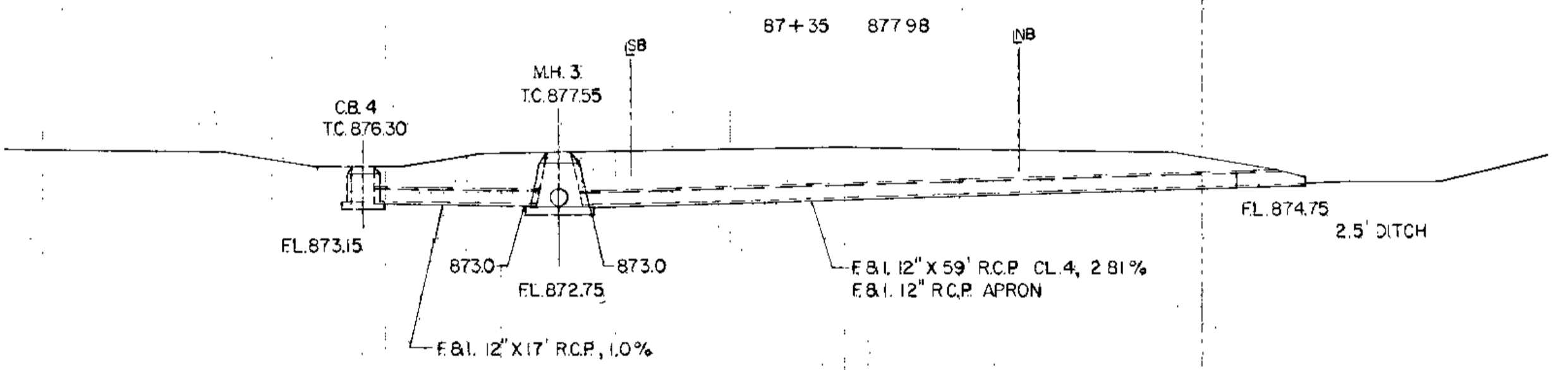
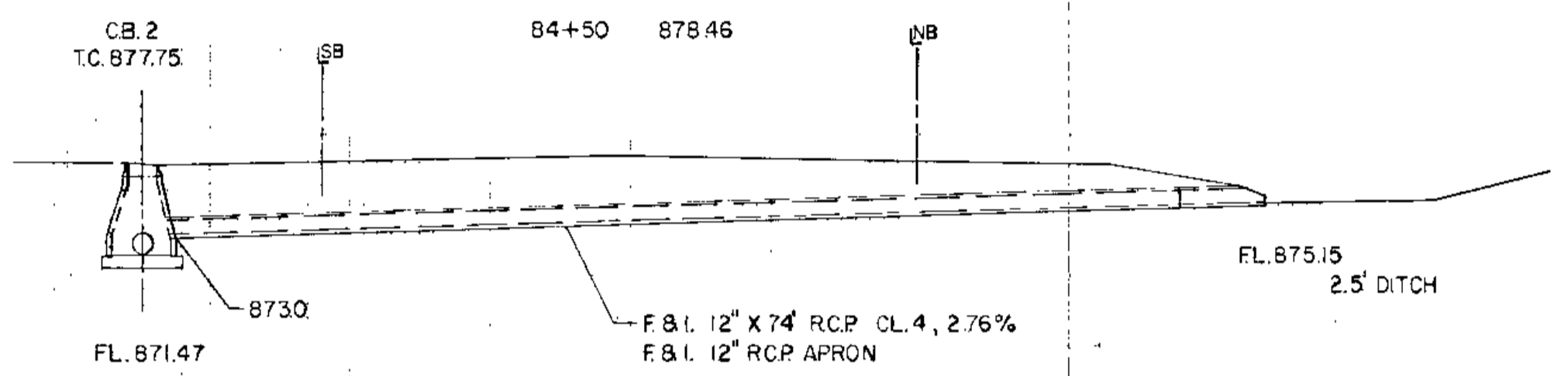


BM 23 ELEV. 882.84
 DBL. SPIKE IN 6\"/>

BM 24 ELEV. 900.66
 TOP OF W. COR. BOT. STEP
 16\"/>



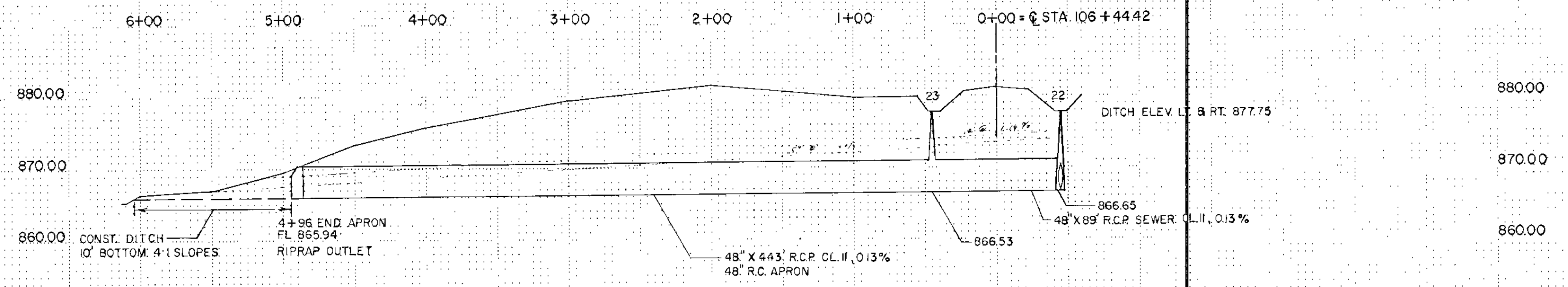
TOTAL COMMON EXC.	3,651 CY
SALVAGE BIT. MIXTURE	653 CY
COMMON EXC. (PAY QUANT)	2,998 CY
REGULAR EMBANKMENT	11,006 CY
TOPSOIL FILL	1,285 CY
COMMON BORROW	5,680 CY
SAL. TOPSOIL (FROM MUCK EXC)	38 CY



STORM SEWER LEADS FOR STRUCTURES 2,3,4 & 5
 ALSO SEE PLAN & PROFILE SHEET NO. 8

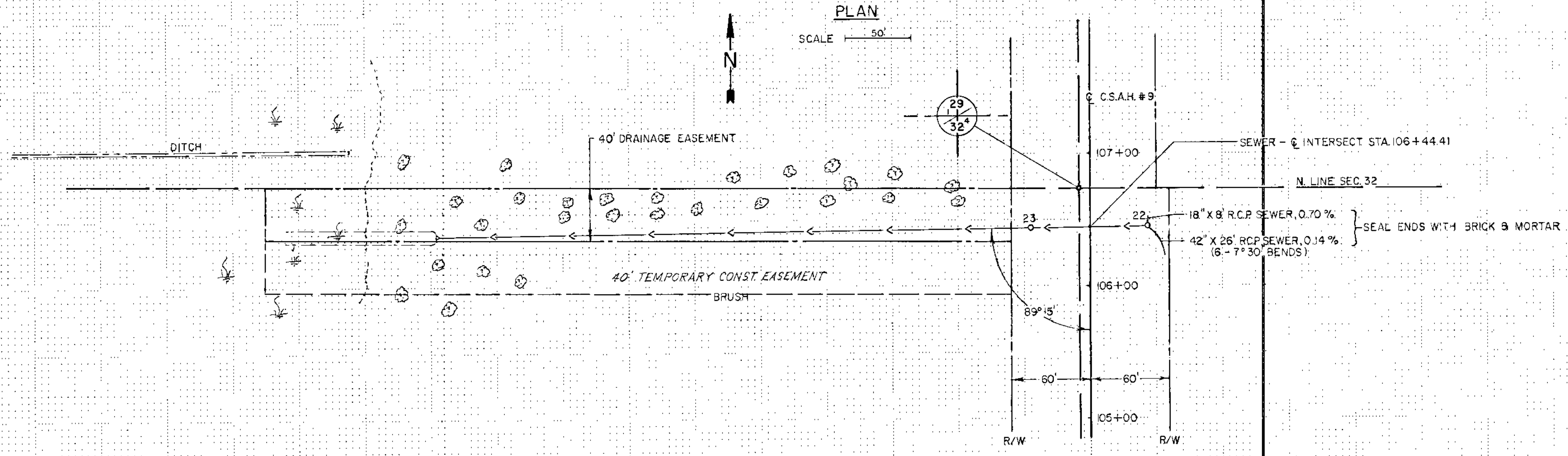
PROFILE

SCALE VERT. 1" = 10'
HORIZ. 1" = 50'



PLAN

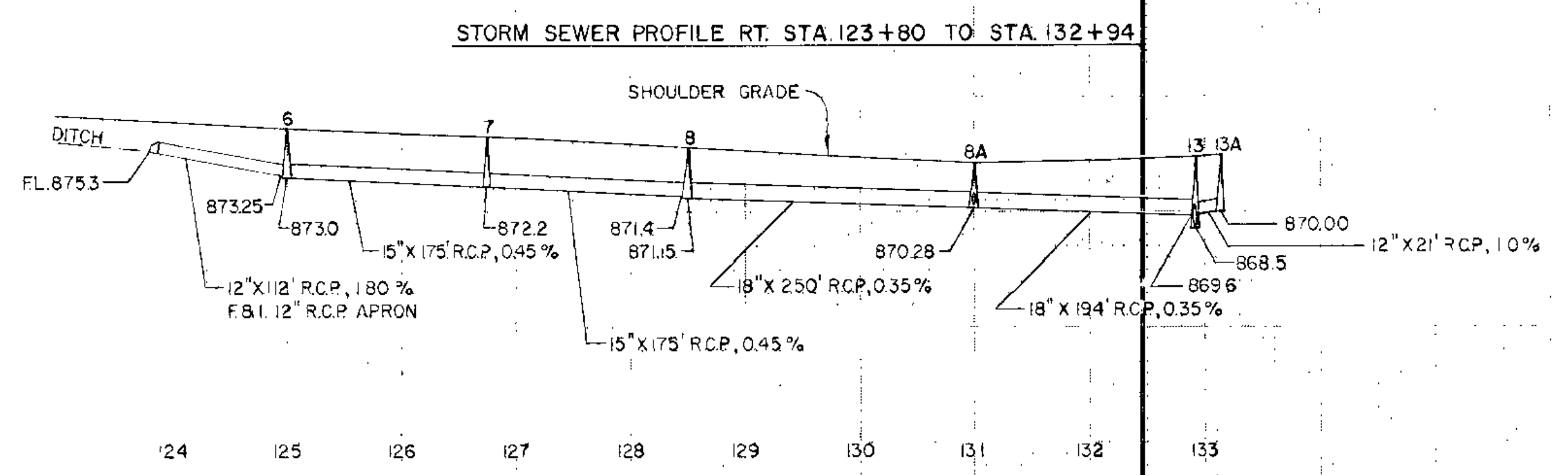
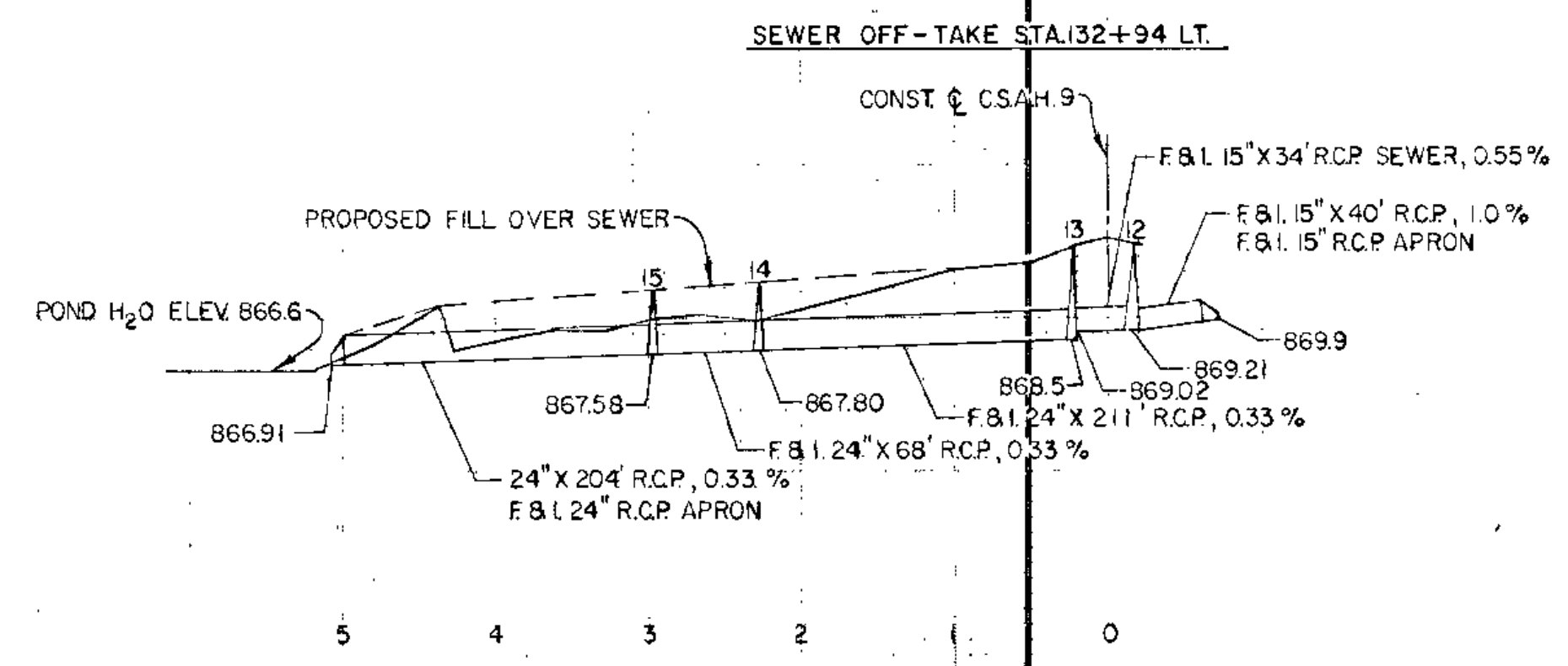
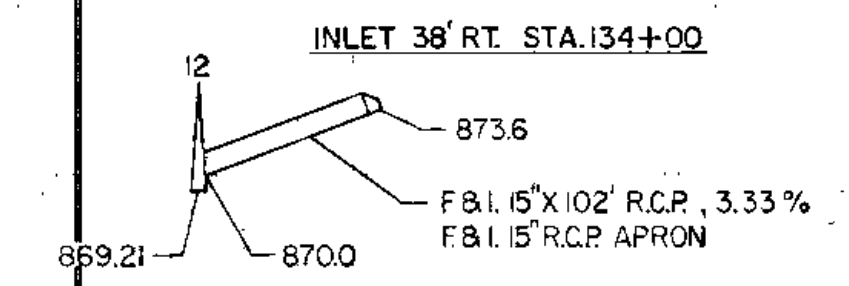
SCALE 1" = 50'



STORM SEWER CONSTRUCTION STA. 106+50

NO. AREAS

NO. AREAS



STORM SEWER DESIGN, STRUCTURES 6, 7, 8, & 12 THRU 15
 ALSO SEE CROSS SECTIONS, SHEET NO. 23 AND
 PLAN & PROFILE SHEET NO. 10

EXCAVATION EMBANKMENT

Excavation Embankment
 100% 100% 100%

144 17 TS.

6+00 886.7

330 52 TS.

5+00 887.6

332 52 TS.

4+00 887.4

317 50 TS.

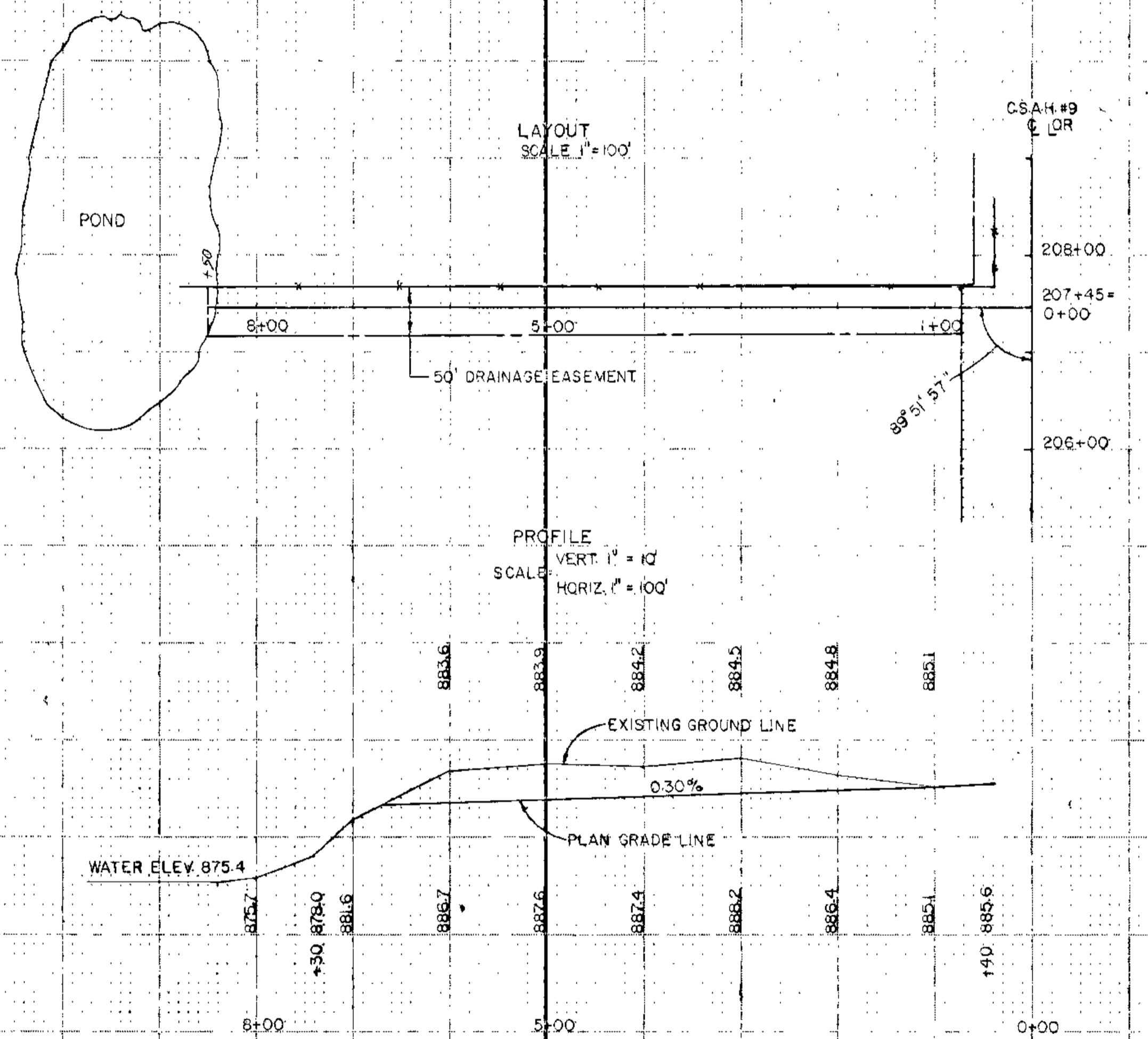
3+00 888.2

220 41 TS.

2+00 886.4

54 15 TS.

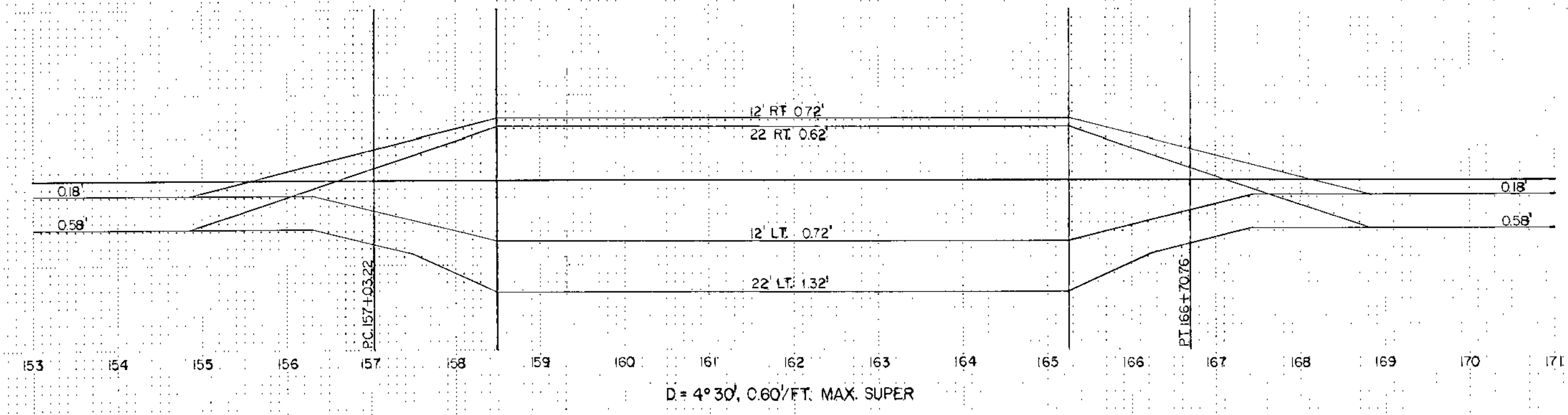
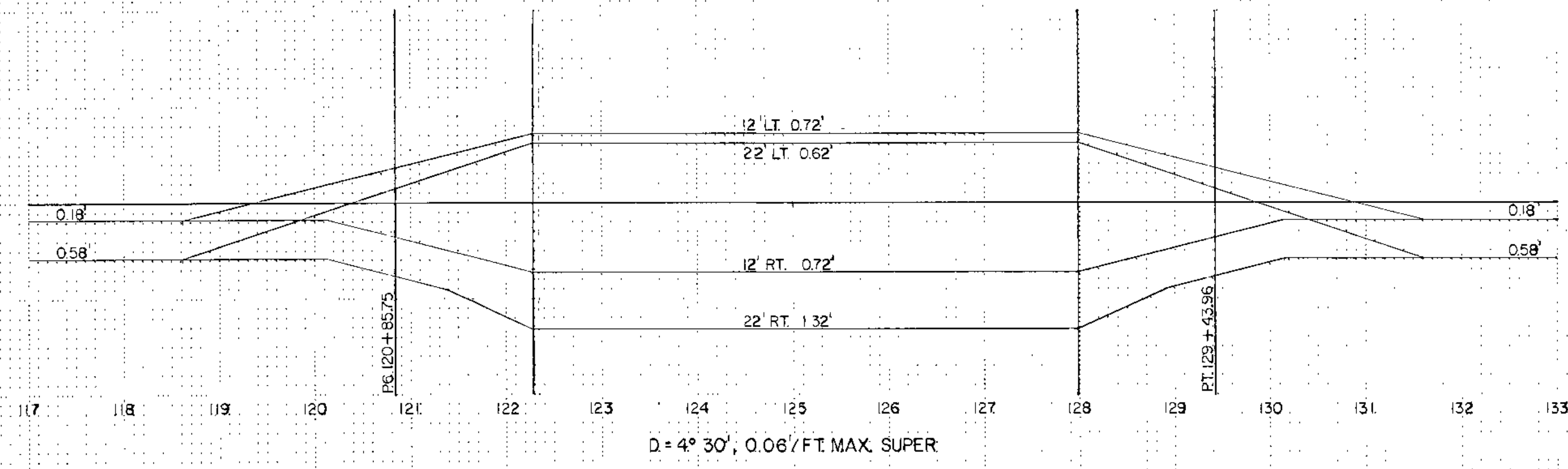
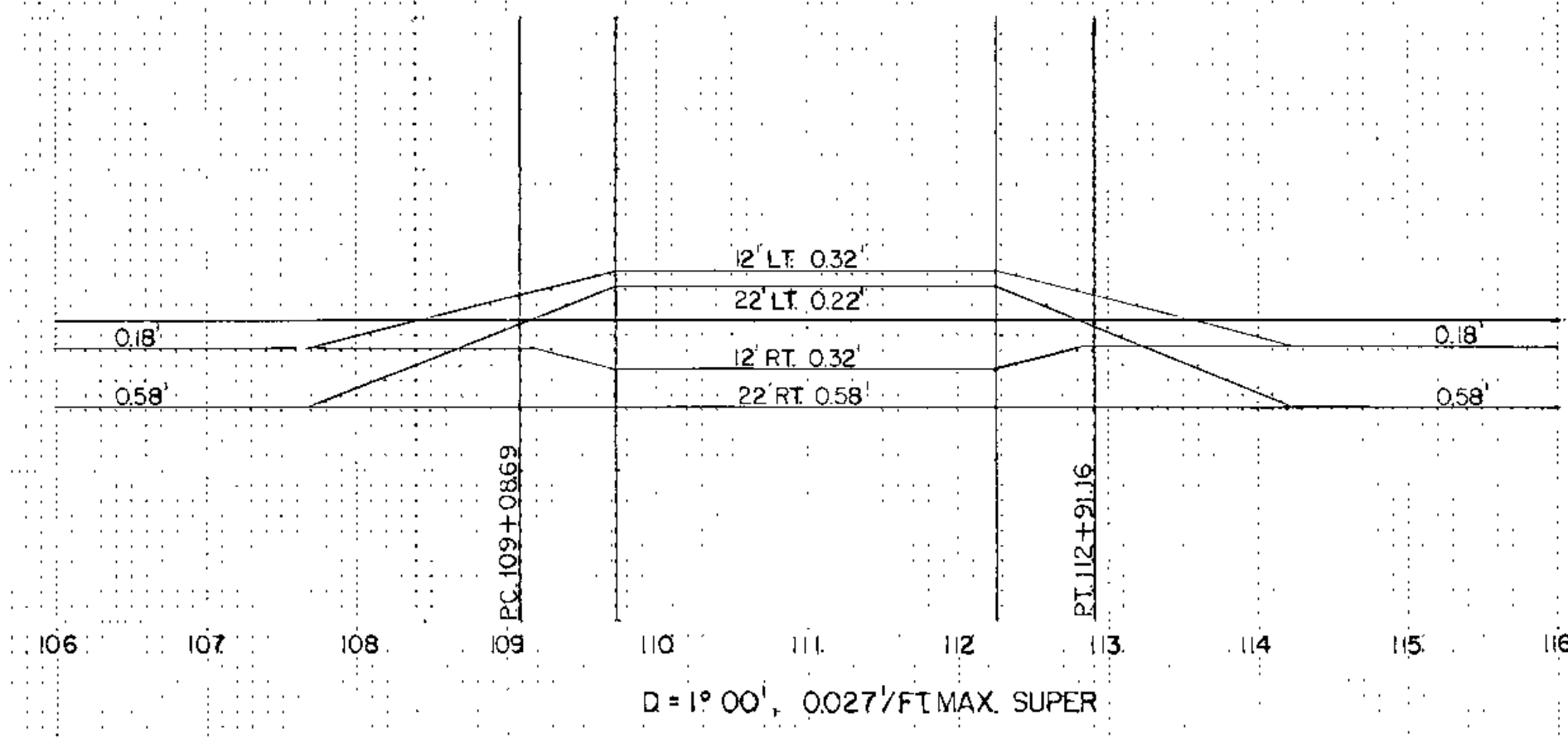
1+00 885.1



NOTE BOOK AREAS
 NO. AREAS CHECKED

NOTE BOOK AREAS
 NO. AREAS CHECKED

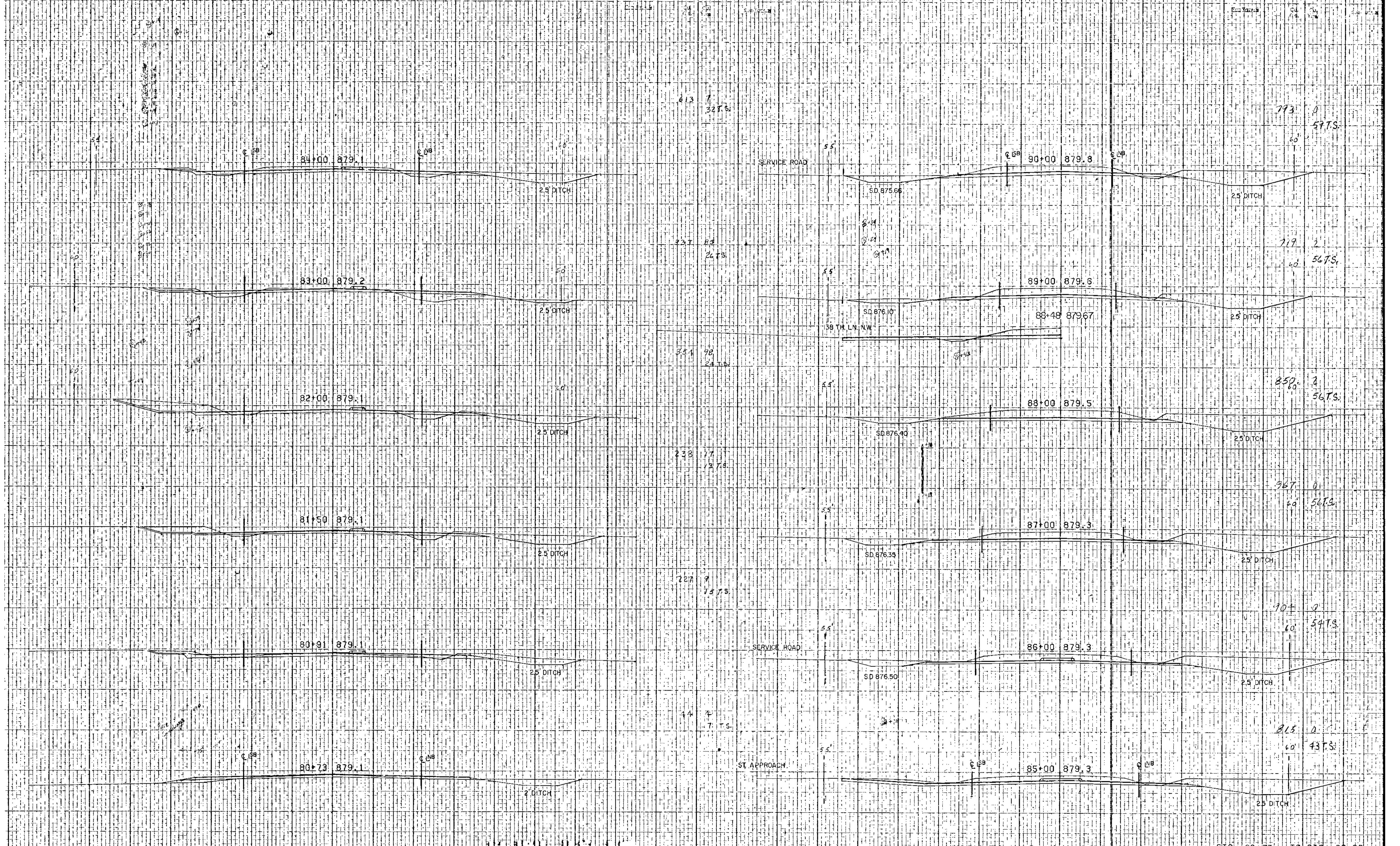
SUPERELEVATION CHARTS 60 MPH. DESIGN



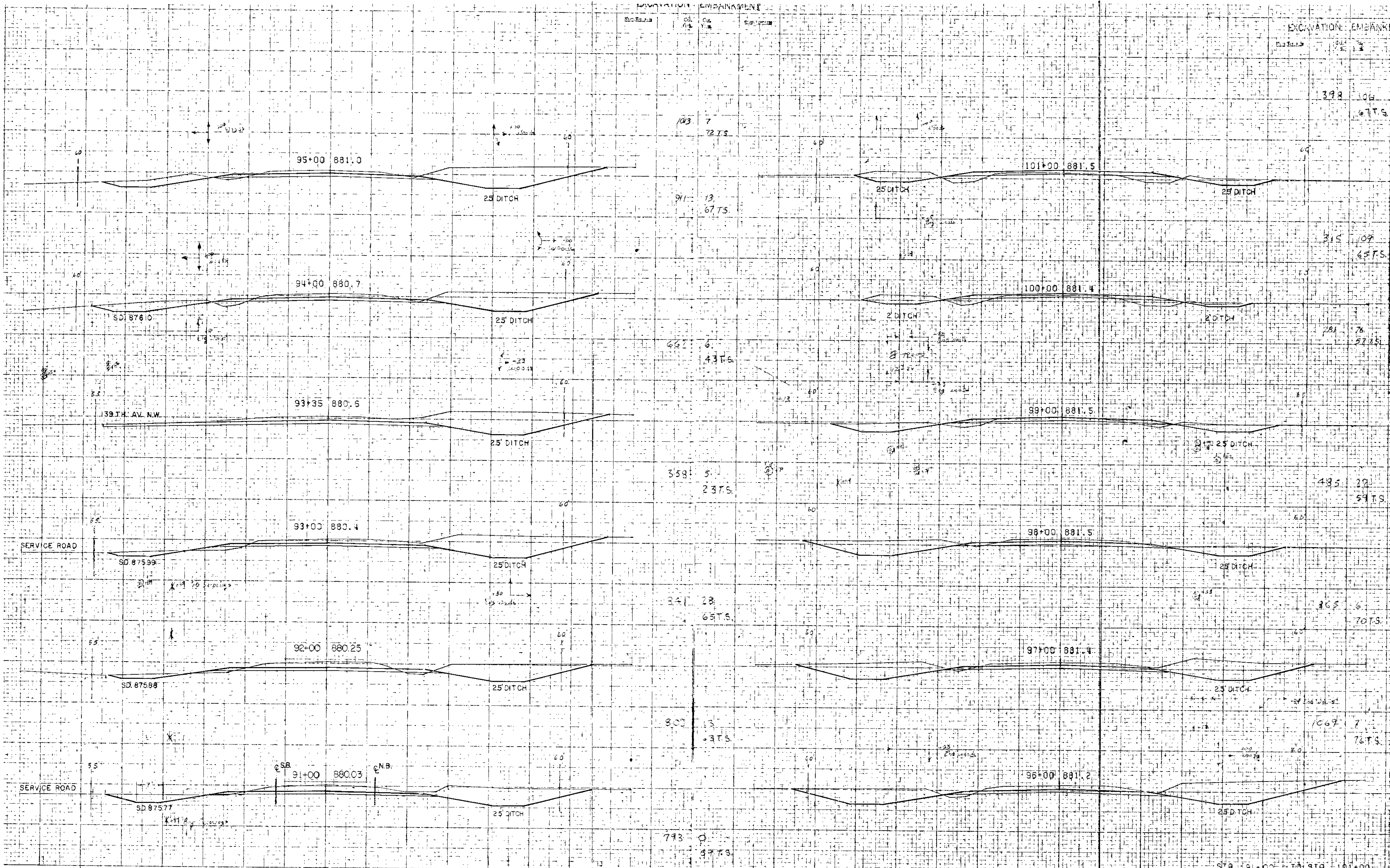
TELETYPE POST OFFICE SECTION 10/11 9/76

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT



STA. 80+73 TO STA. 90+00



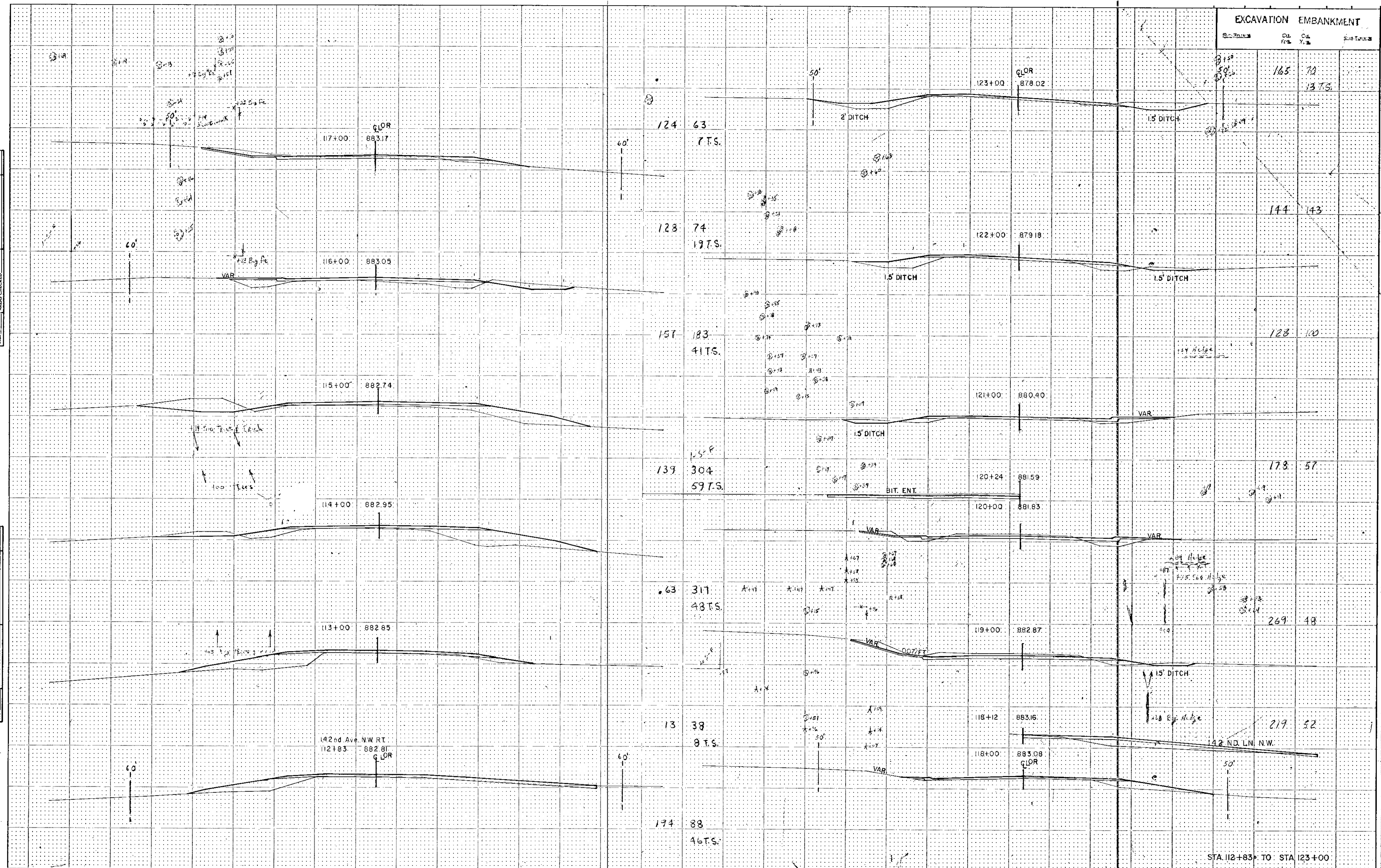
Excavation	Embankment
398	106
315	109
281	76
485	22
365	6
1069	7

EXCAVATION EMBANKMENT

Excavation	Emb. Yds.	Exc. Yds.	Sub-Totals
165	70	137.5	
144	143		
128	100		
178	57		
269	48		
219	52		

NOTE BOOK TEMPLATE AREAS CHECKED

NOTE BOOK AREAS CHECKED



FUNCTIONAL CROSS SECTION - OPEN DOTTED
ROGERS CO., MINNEAPOLIS, ST. PAUL

S.A.P. 02-609-03

Sheet No. 22 of 42 Sheets

STA. 112+83+ TO STA. 123+00

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Excavation Embankment

Excavation Embankment

125 35
54 TS.

83 28
9 TS.

251 150
48 TS.

143 9
24 TS.

34+59 877.54

270 37
28 TS.

100 44

134+00 876.5

111 7
11 TS.

157 67

133+60 876.1

108 96
24 TS.

133 123

133+00 876.3

131 270
57 TS.

122 126
13 TS.

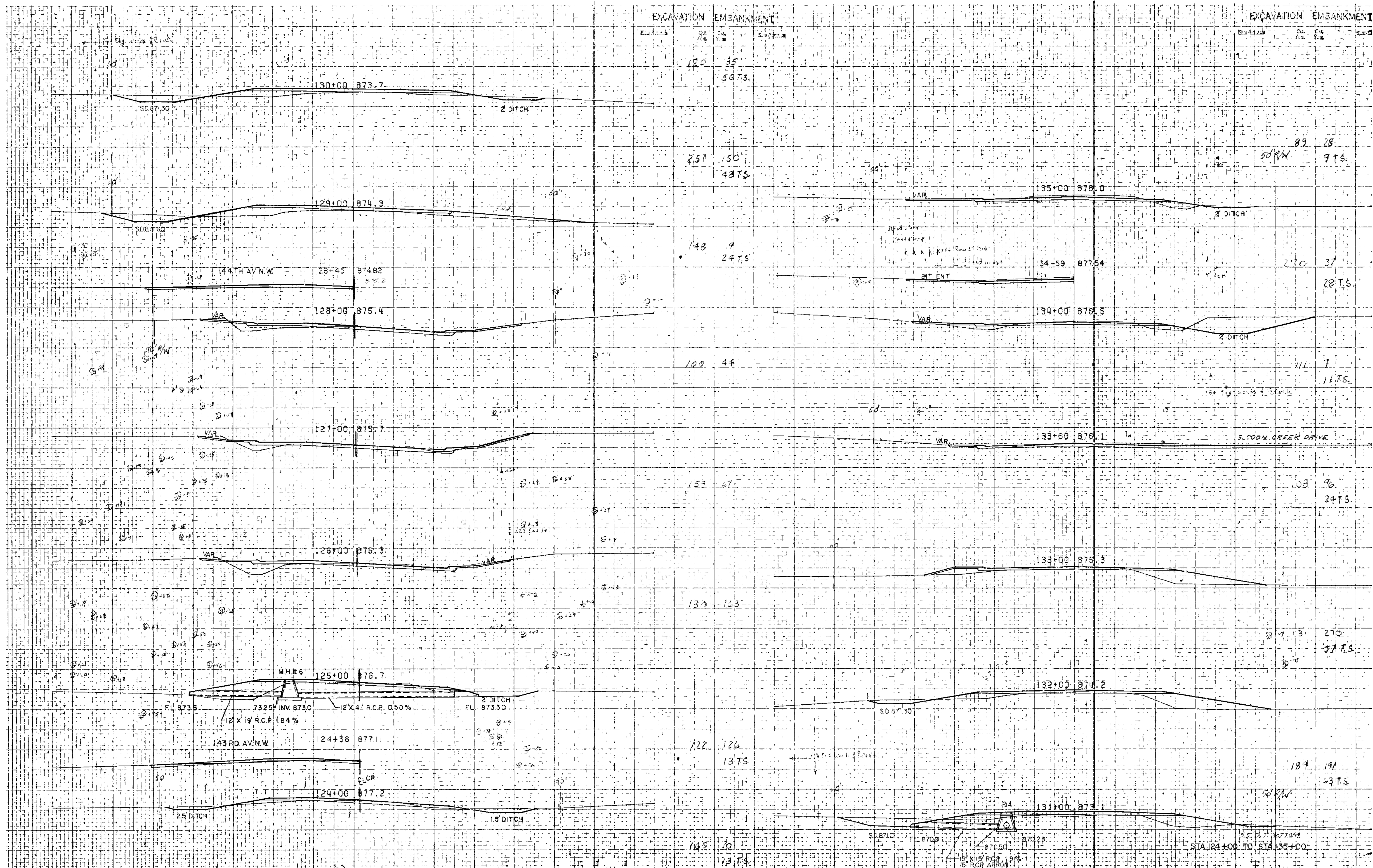
132+00 874.2

189 191
63 TS.

165 70
13 TS.

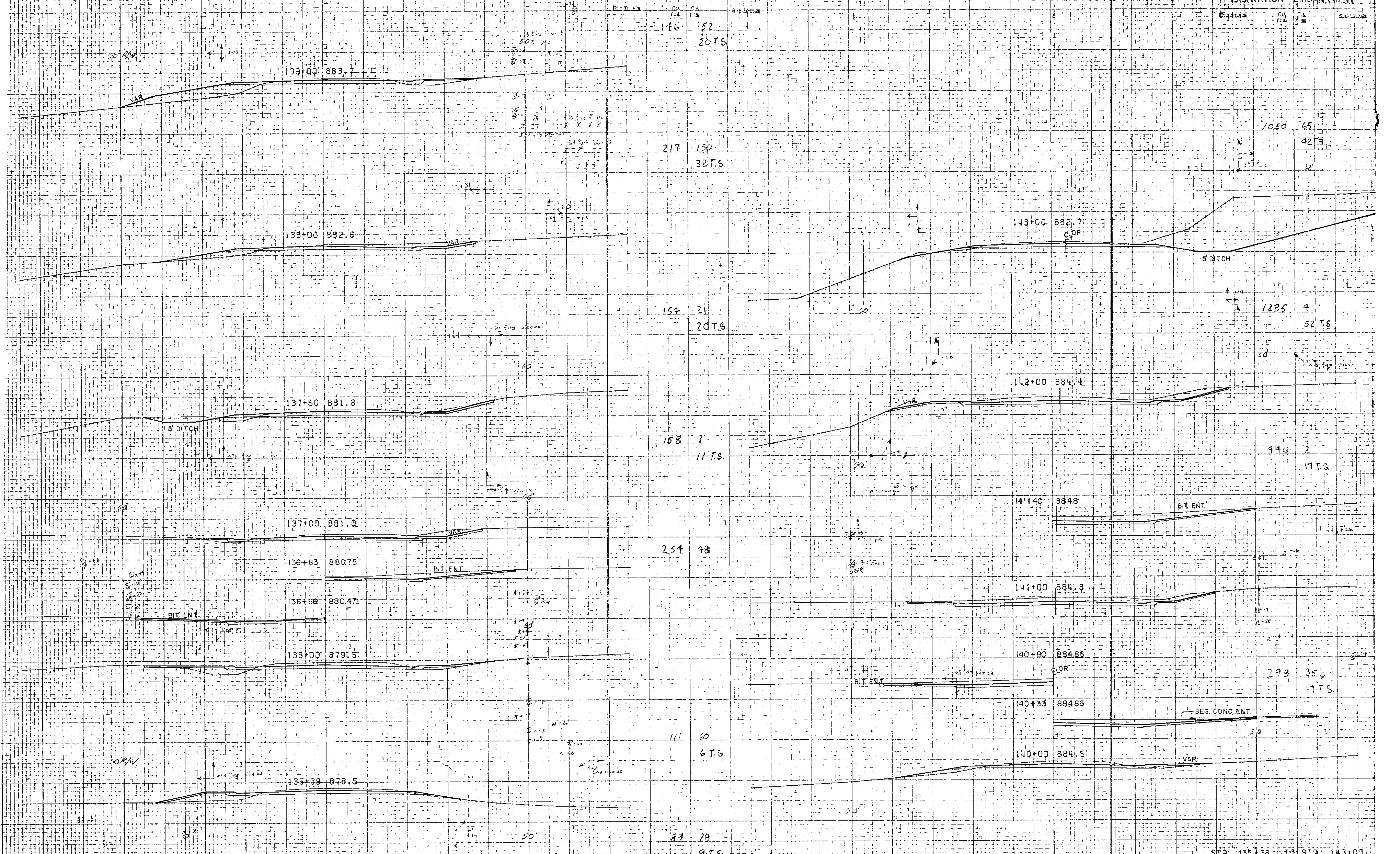
131+00 873.1

STA. 124+00 TO STA. 135+00



EXCAVATION EMBANKMENT

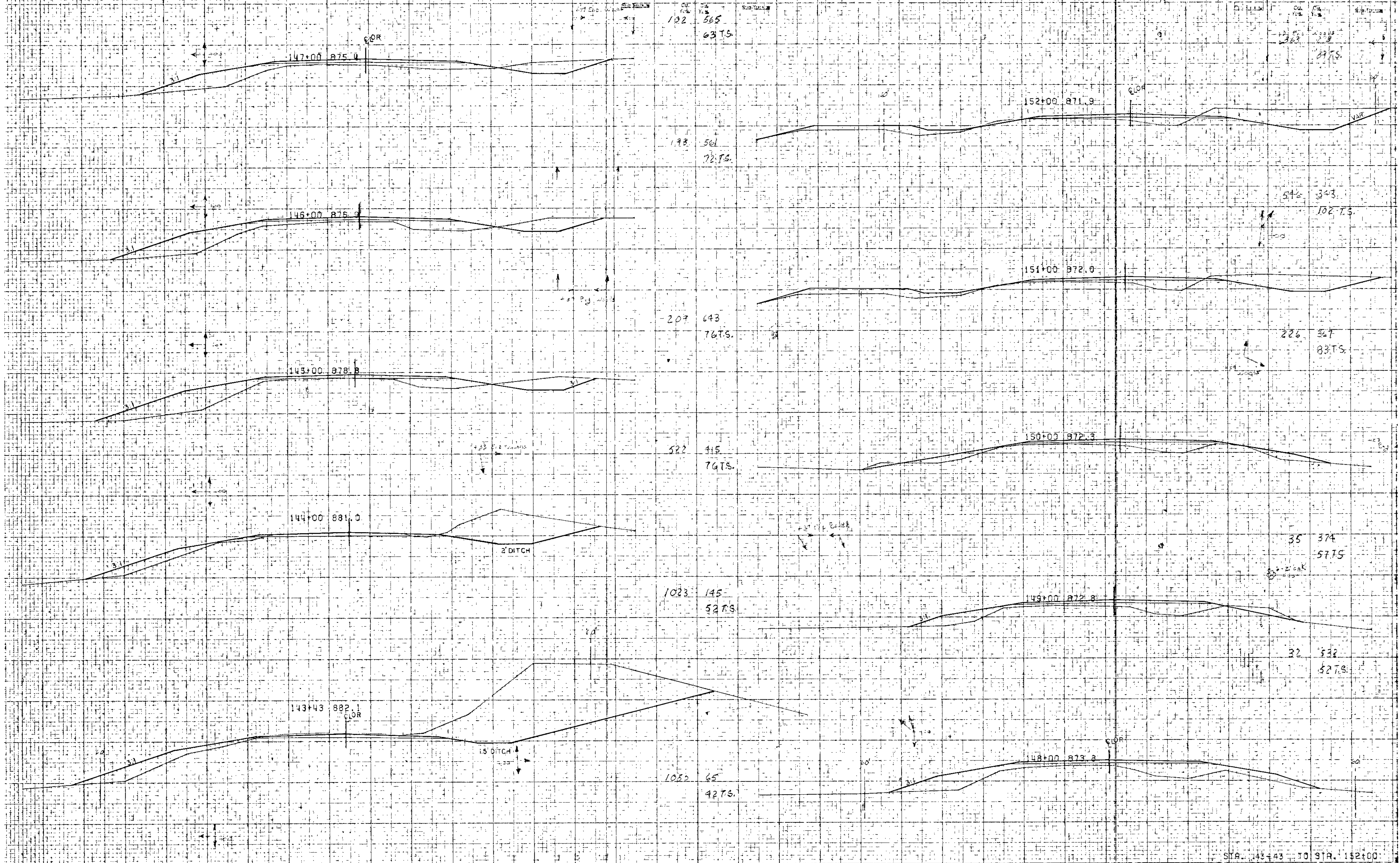
EXCAVATION EMBANKMENT



STA. 135+39 TO STA. 143+00

EXCAVATION EMBANKMENT

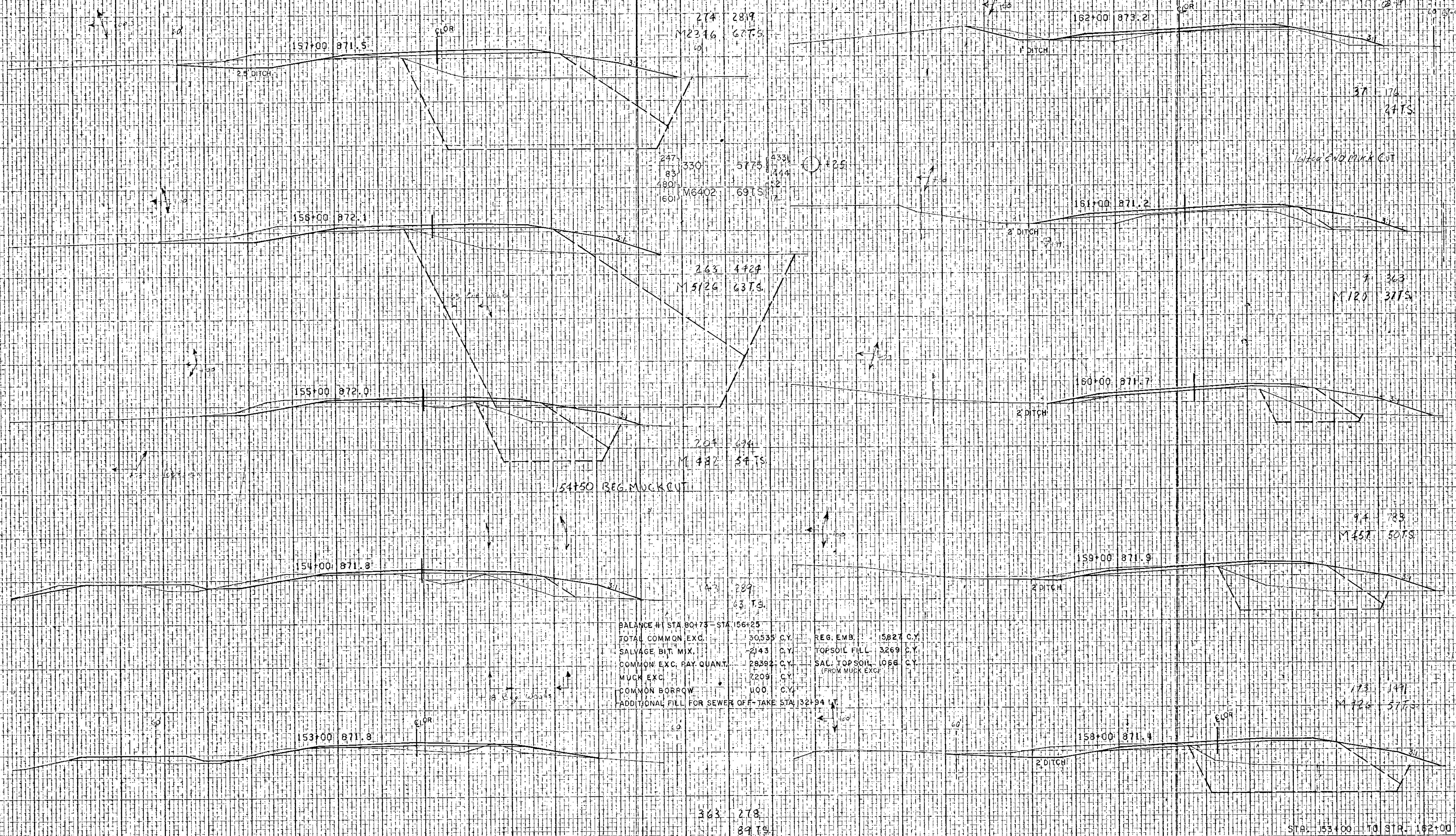
EXCAVATION EMBANKMENT



STA. 143+43 TO STA. 152+00

EXCAVATION EMBANKMENT

478 106
397.5
247



BALANCE #1 STA 80+75 - STA 156+25		
TOTAL COMMON EXC.	30535 C.Y.	REG. EMB. 15827 C.Y.
SALVAGE BIT. MIX.	2143 C.Y.	TOPSOIL FILL 3269 C.Y.
COMMON EXC. PAY QUANT.	28392 C.Y.	SAL. TOPSOIL 1066 C.Y.
MUCK EXC.	7209 C.Y.	(FROM MUCK EXC)
COMMON BORROW	400 C.Y.	
ADDITIONAL FILL FOR SEWER OFF-TAKE STA 132+94 LT.		

37 176
247.5

White END MUCK CUT

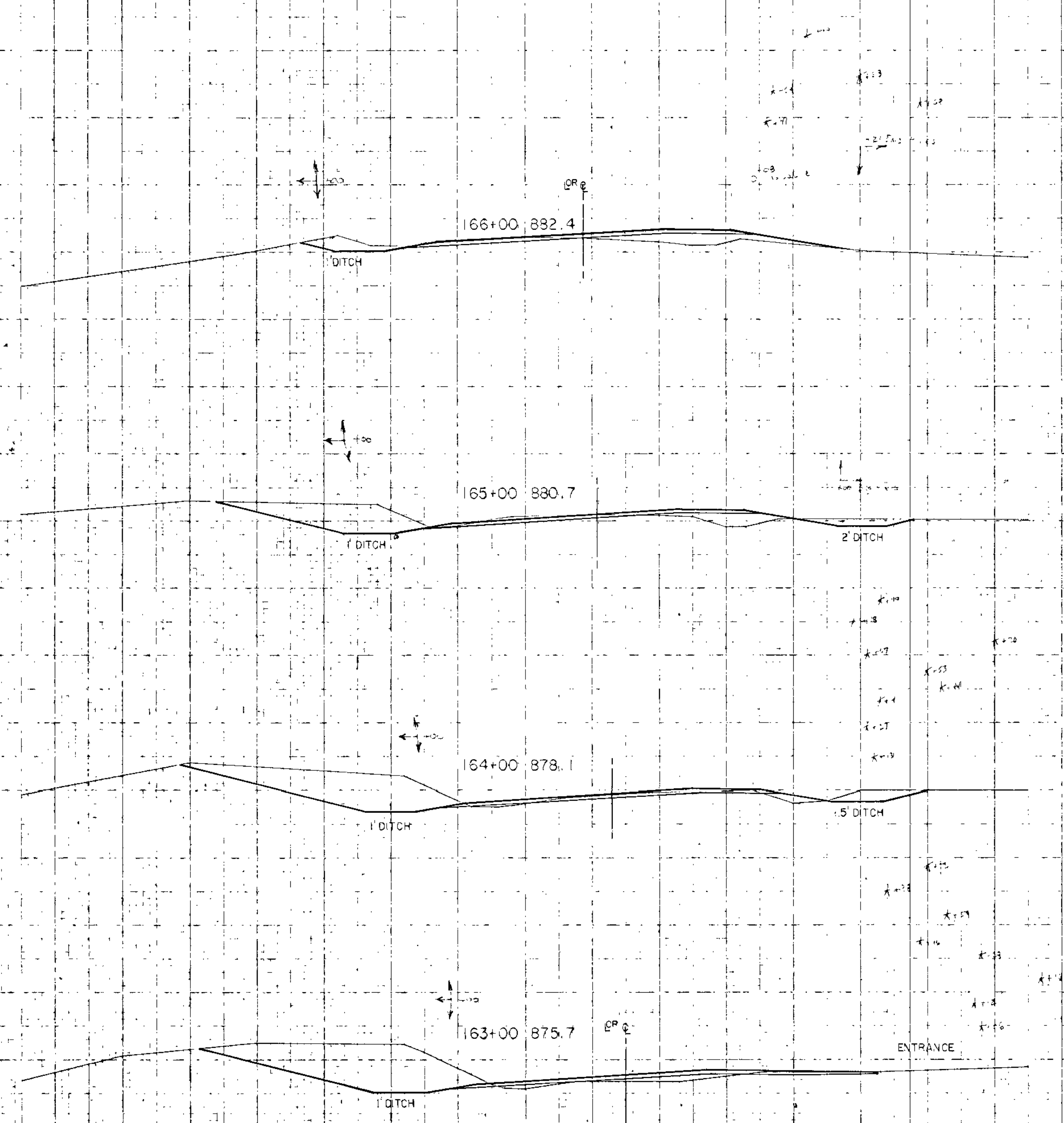
7 363
M 120 377.5

94 783
M 157 507.5

173 1491
M 120 577.5

STA. 153+00 TO STA. 162+00

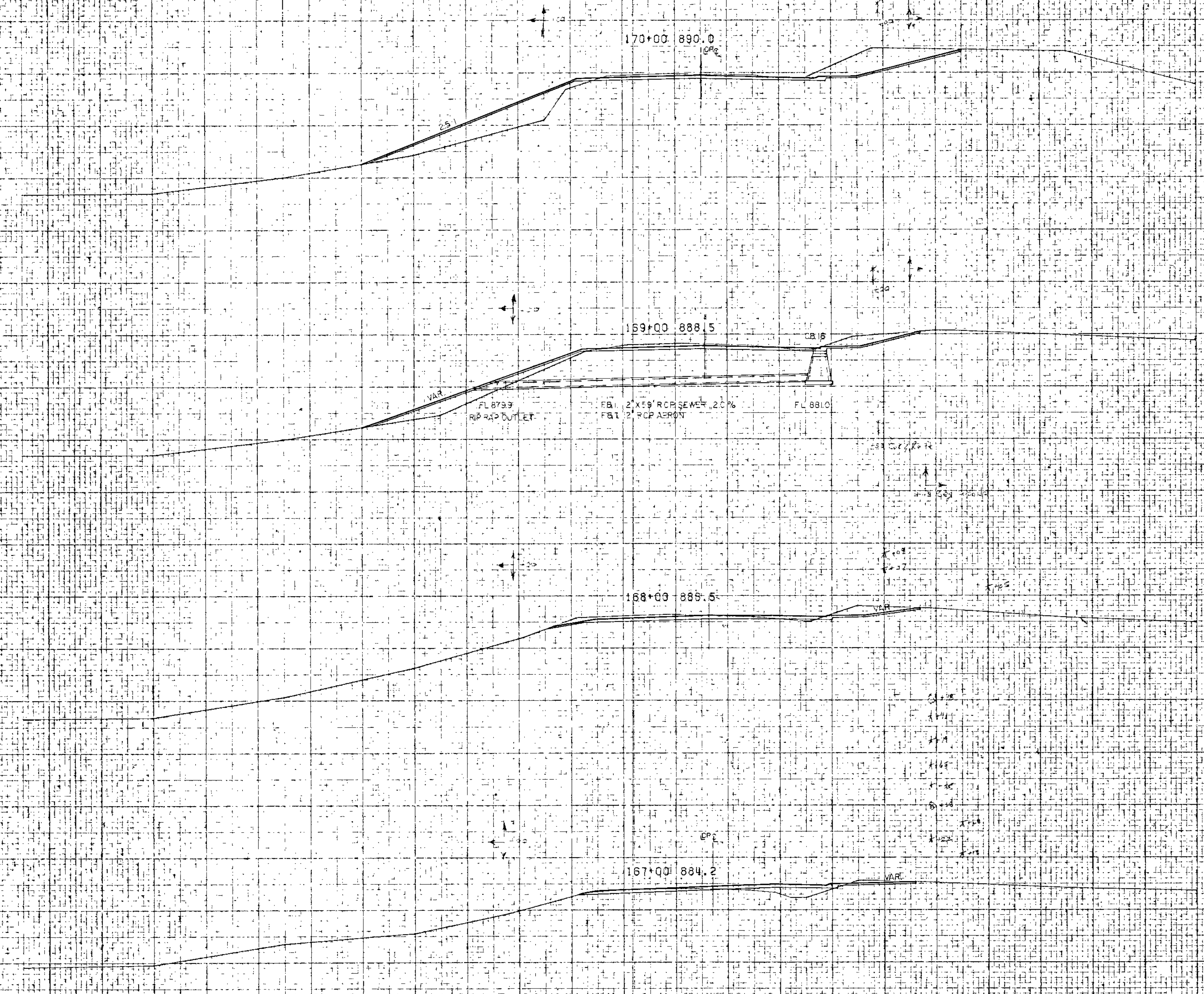
EXCAVATION EMBANKMENT



Station	Excavation (cu yds)	Embankment (cu yds)
163+00	478	106 39 T.S.
164+00	782	70 46 T.S.
165+00	544	58 37 T.S.
166+00	256	167 28 T.S.
167	187	135 19 T.S.

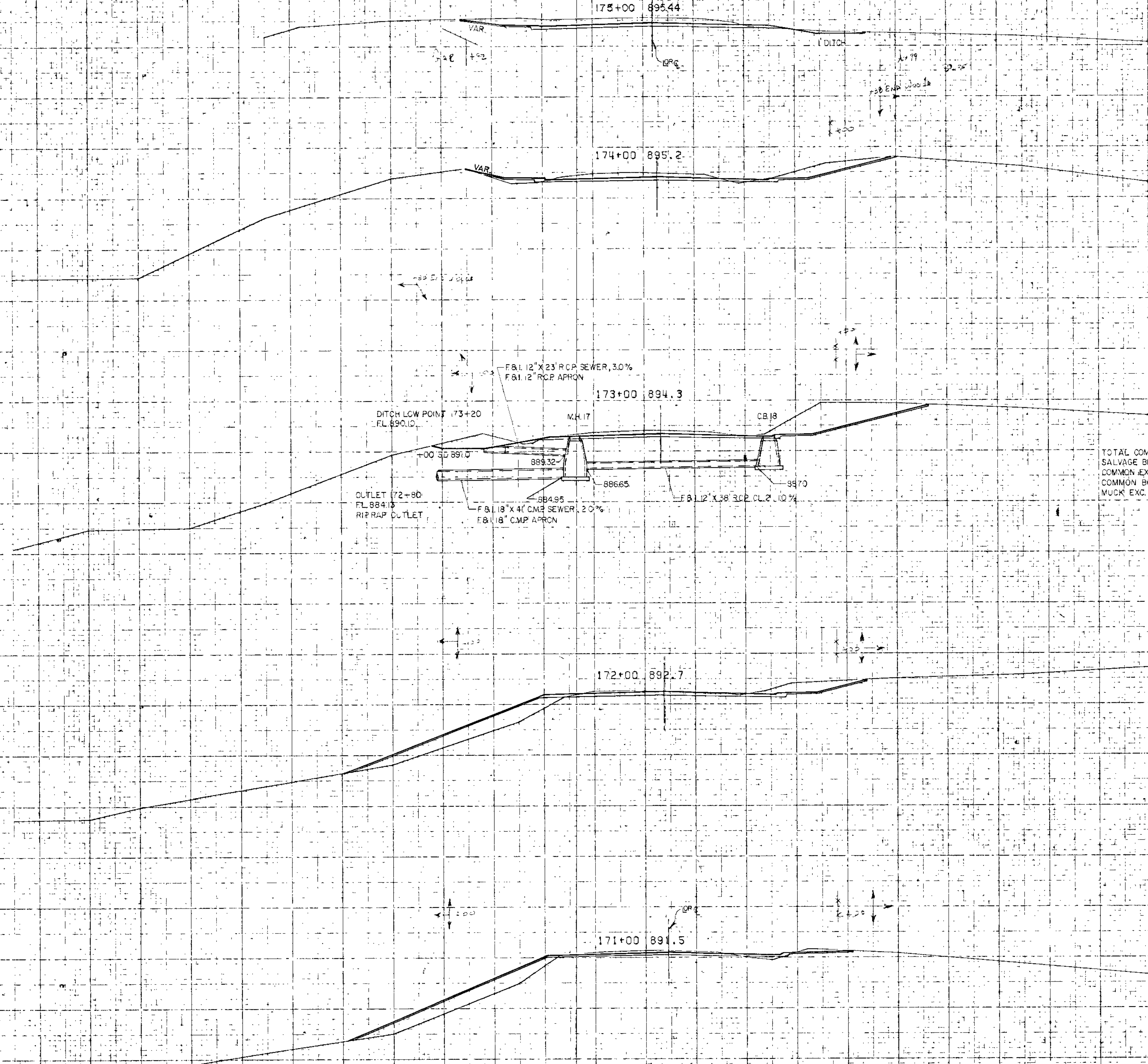
STA. 163+00 TO STA. 166+00

EXCAVATION EMBANKMENT



Station	Elevation
170	156.48.75
169	152.50.75
168	149.74.75
167	149.74.75
166	149.74.75
165	149.74.75
164	149.74.75
163	149.74.75
162	149.74.75
161	149.74.75
160	149.74.75
159	149.74.75
158	149.74.75
157	149.74.75
156	149.74.75
155	149.74.75
154	149.74.75
153	149.74.75
152	149.74.75
151	149.74.75
150	149.74.75
149	149.74.75
148	149.74.75
147	149.74.75
146	149.74.75
145	149.74.75
144	149.74.75
143	149.74.75
142	149.74.75
141	149.74.75
140	149.74.75
139	149.74.75
138	149.74.75
137	149.74.75
136	149.74.75
135	149.74.75
134	149.74.75
133	149.74.75
132	149.74.75
131	149.74.75
130	149.74.75
129	149.74.75
128	149.74.75
127	149.74.75
126	149.74.75
125	149.74.75
124	149.74.75
123	149.74.75
122	149.74.75
121	149.74.75
120	149.74.75
119	149.74.75
118	149.74.75
117	149.74.75
116	149.74.75
115	149.74.75
114	149.74.75
113	149.74.75
112	149.74.75
111	149.74.75
110	149.74.75
109	149.74.75
108	149.74.75
107	149.74.75
106	149.74.75
105	149.74.75
104	149.74.75
103	149.74.75
102	149.74.75
101	149.74.75
100	149.74.75

STA. 167+00 TO STA. 170+00



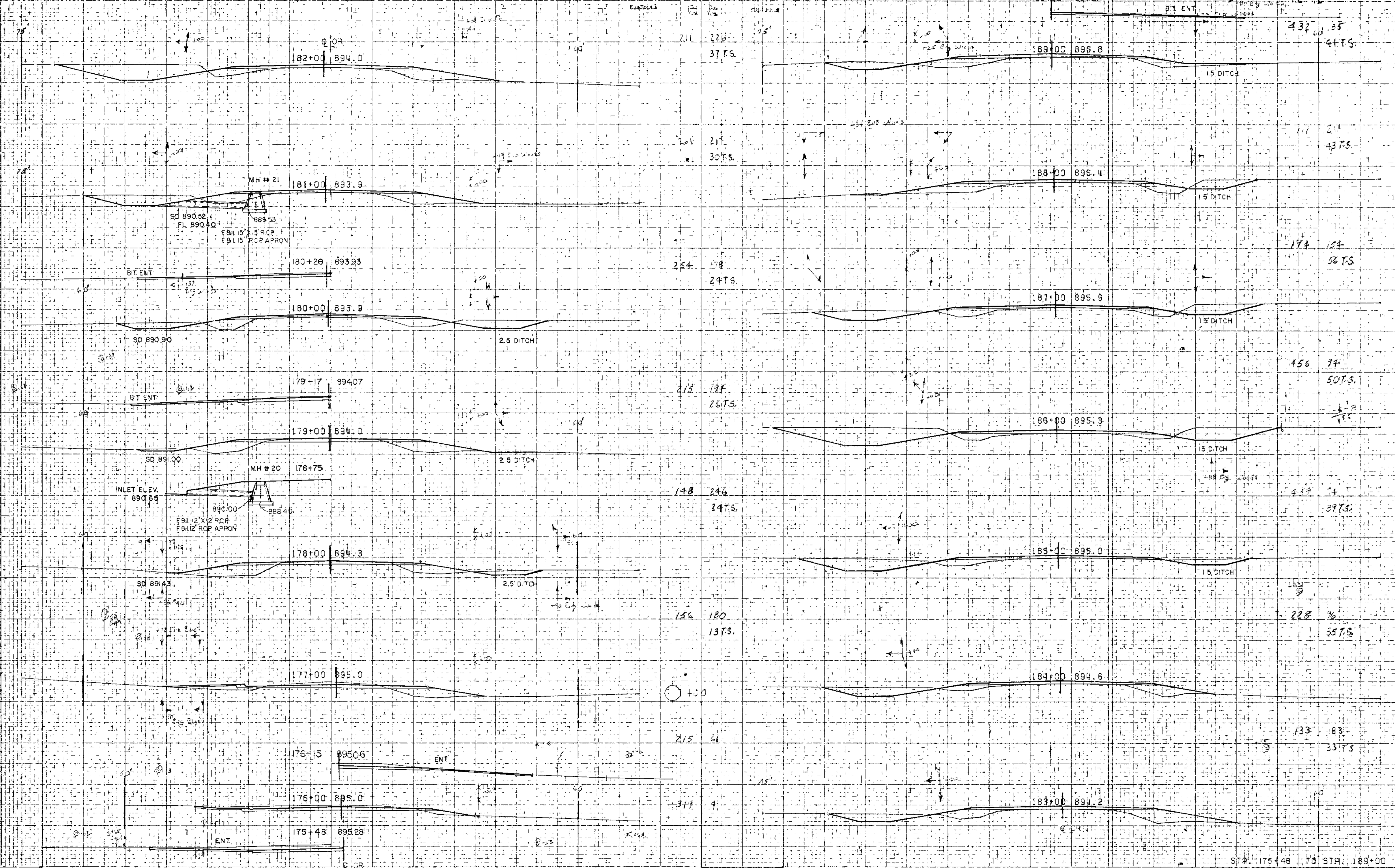
EXCAVATION EMBANKMENT

Sta. Range	Excavation (CY)	Embankment (CY)
175+00 TO 174+00	457	137.5
174+00 TO 173+00	661	117.5
173+00 TO 172+00	570	59.75
172+00 TO 171+00	308	64.75
171+00 TO 170+00	420	48.75
STA. 171+00 TO STA. 175+00		

Item	Quantity (CY)	Notes
TOTAL COMMON EXC.	7,337	
SALVAGE BIT MIXTURE	558	
COMMON EXC. BY QUANT.	6,779	
COMMON BORROW	12,397	
MUCK EXC.	6,630	
REG. EMBANKMENT	1,207	
TOPSOIL FILL	752	
SALVAGE TOPSOIL	199	
(FROM MUCK EXC. FOR SOO AREAS)		

EXCAVATION EMBANKMENT

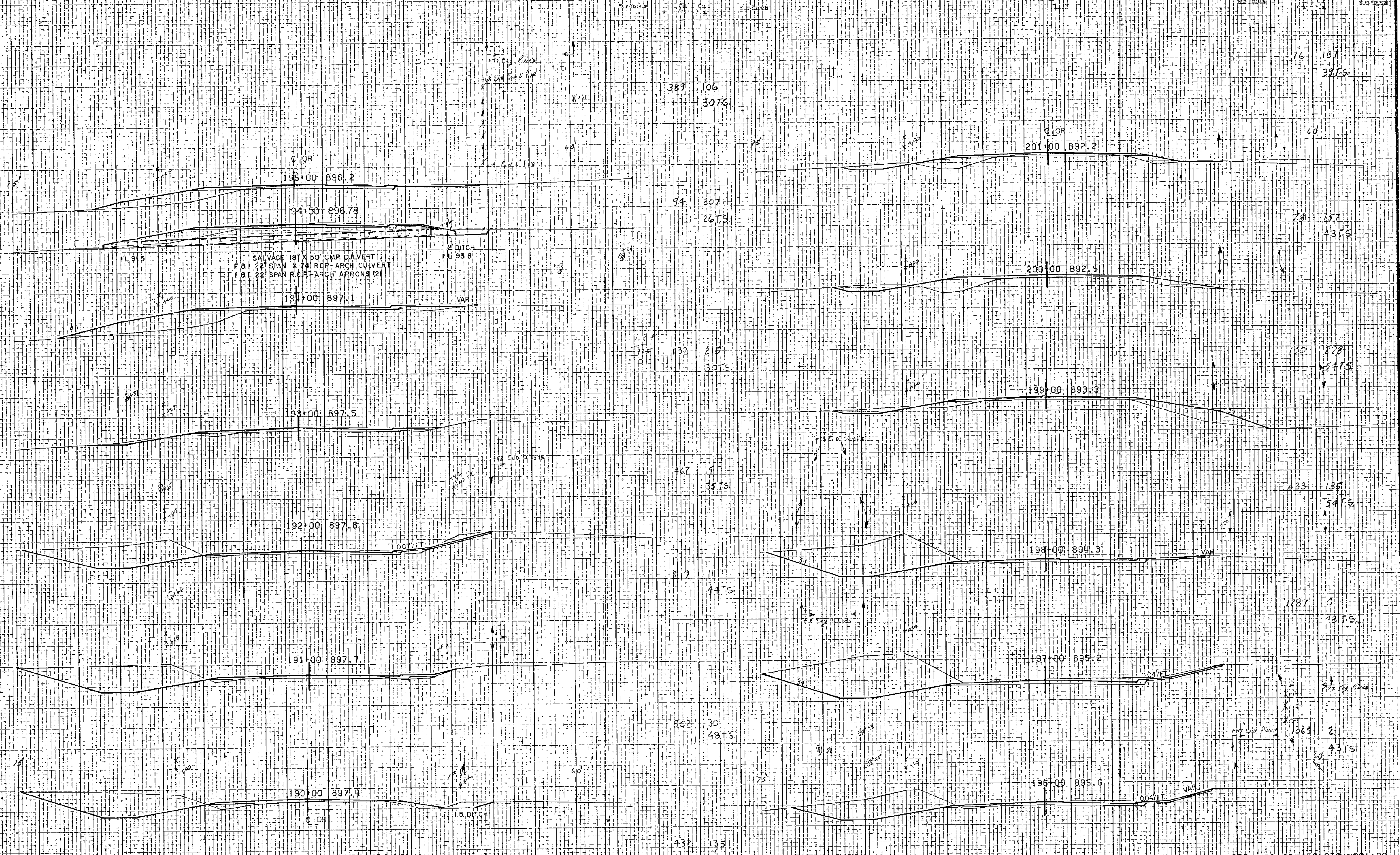
EXCAVATION EMBANKMENT



STA. 175+48 TO STA. 183+00

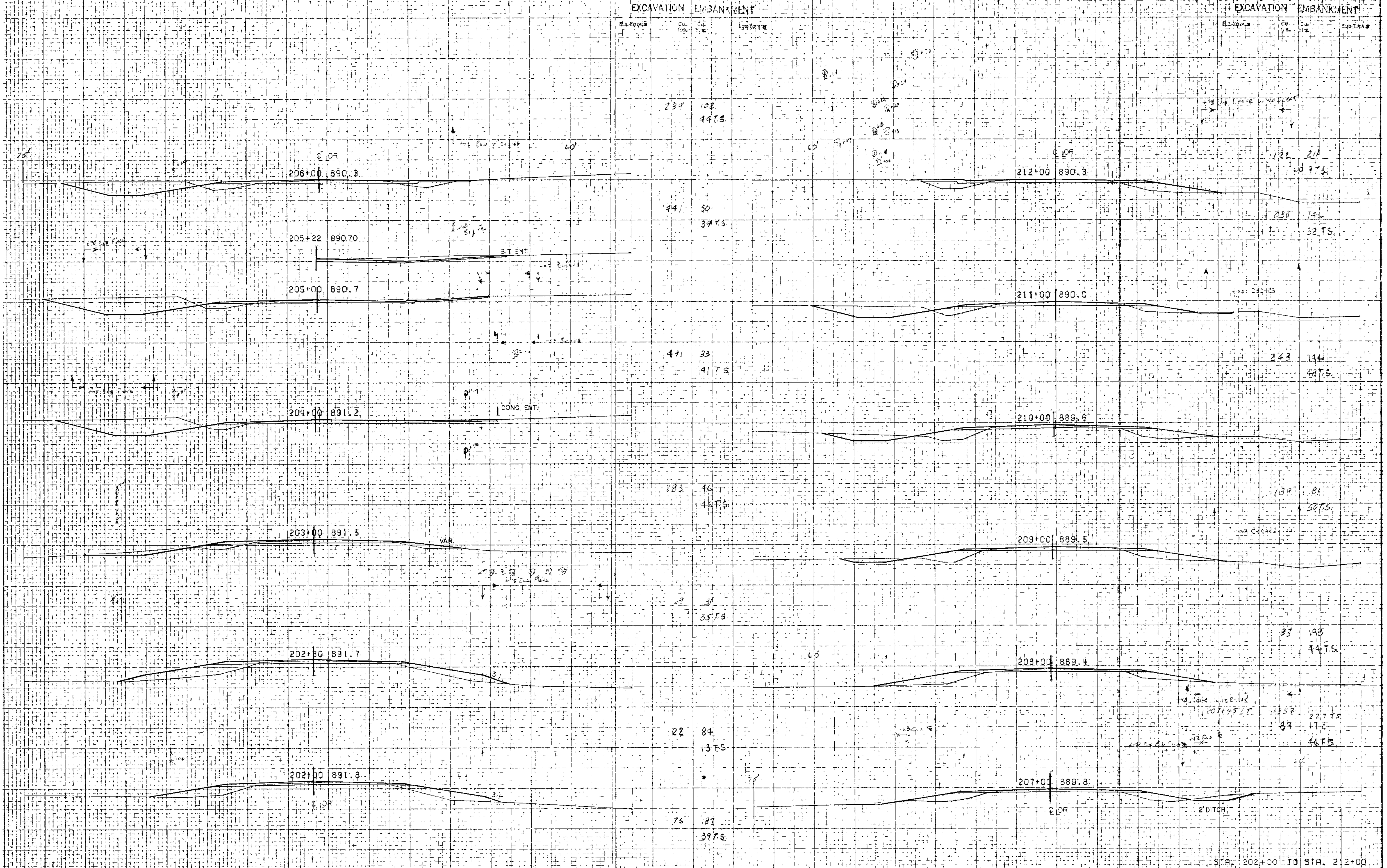
EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT



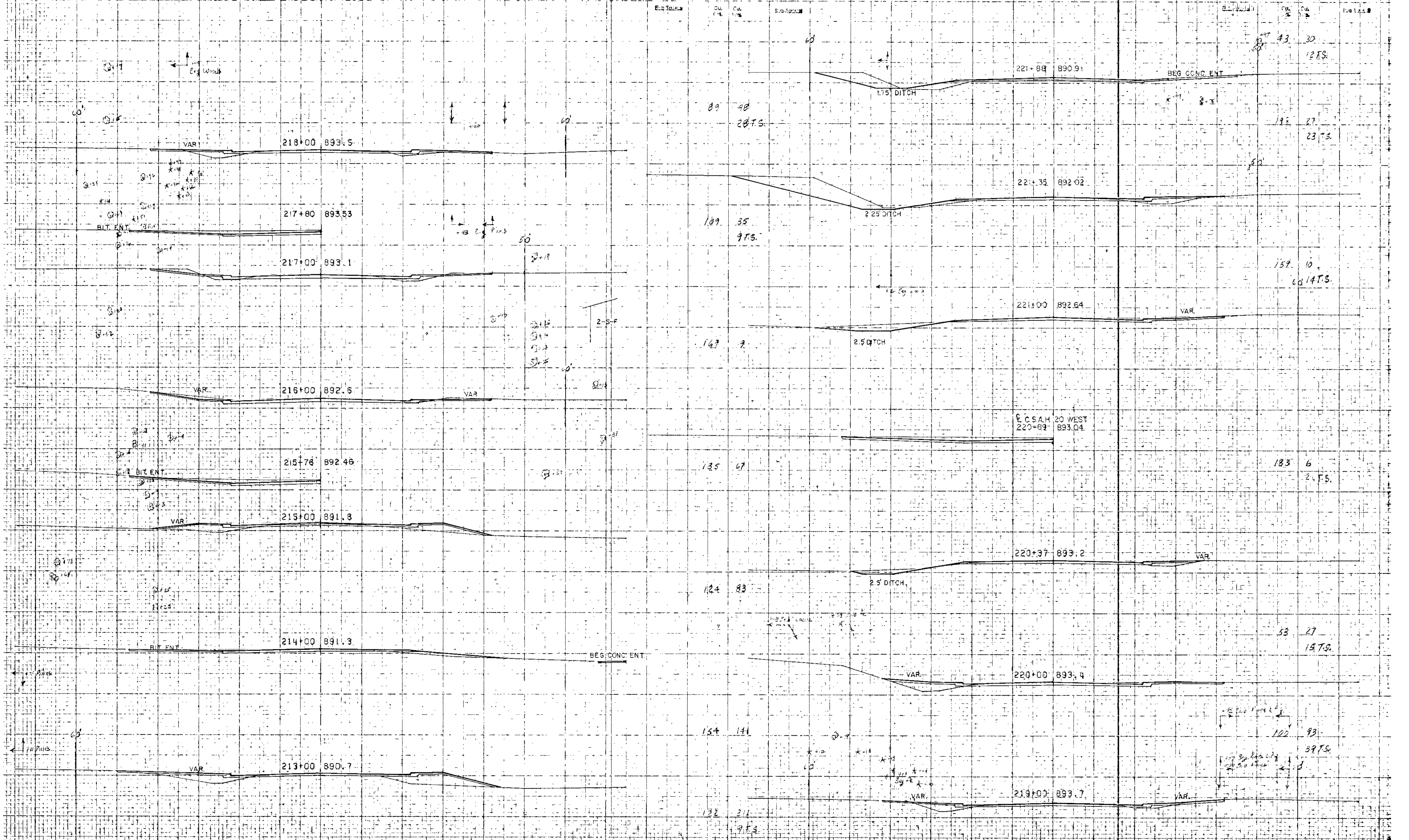
Station	Excavation	Embankment
195+00	389	106
194+50	94	307
194+00	132	215
193+00	167	9
192+00	819	11
191+00	802	30
190+00	432	13
199+00	100	278
200+00	78	157
201+00	76	187

STA. 190+00 TO STA. 201+00



EXCAVATION EMBANKMENT

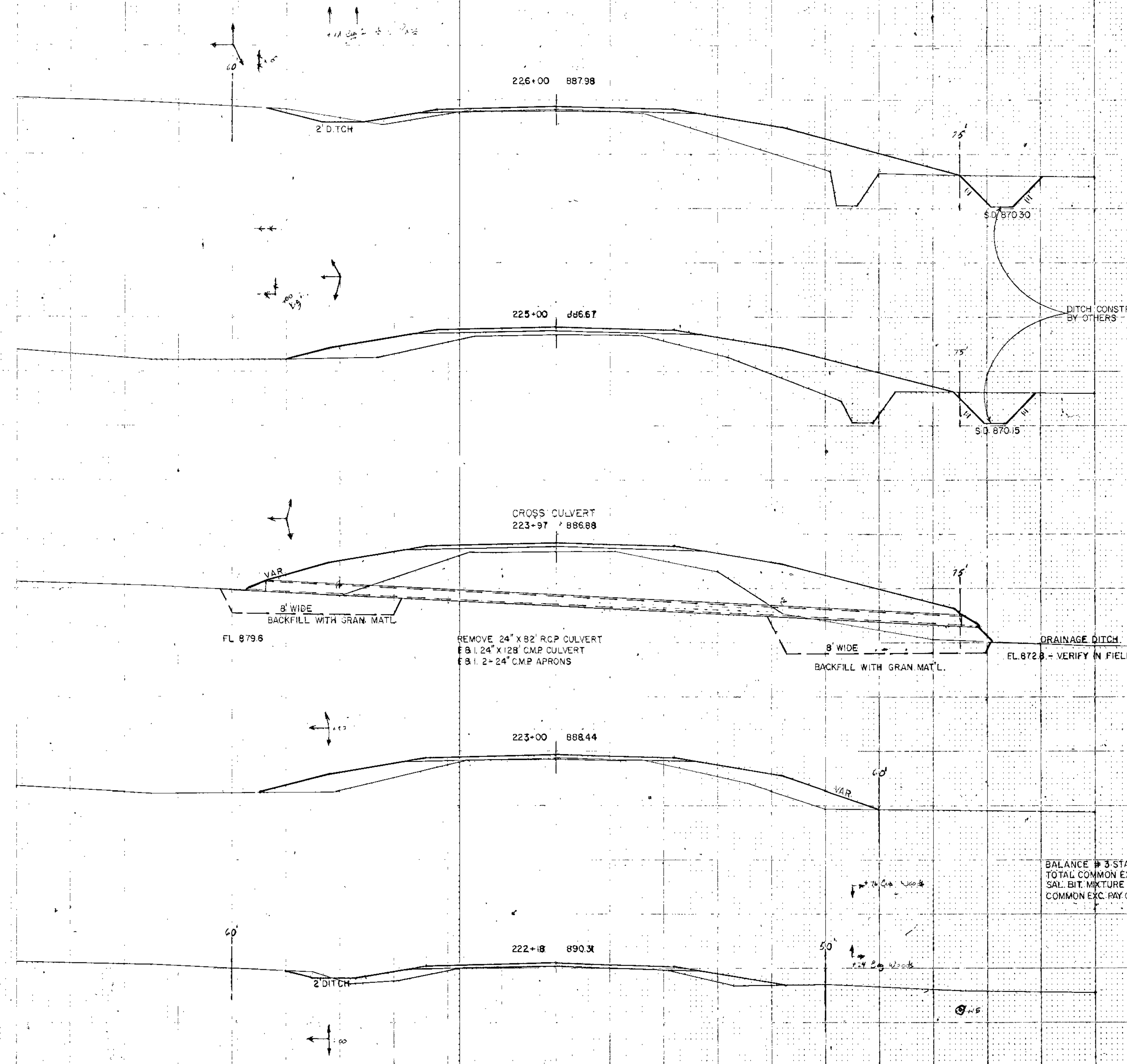
EXCAVATION EMBANKMENT



SITR: 213+00 TO: 221+88

EXCAVATION EMBANKMENT

EXCAVATION	CU. YDS.	EMBANKMENT	SUB-TOTAL
35	1019	727.5	
35	1148	767.5	
0	1833	847.5	
0	1460	777.5	
	15	372	477.5

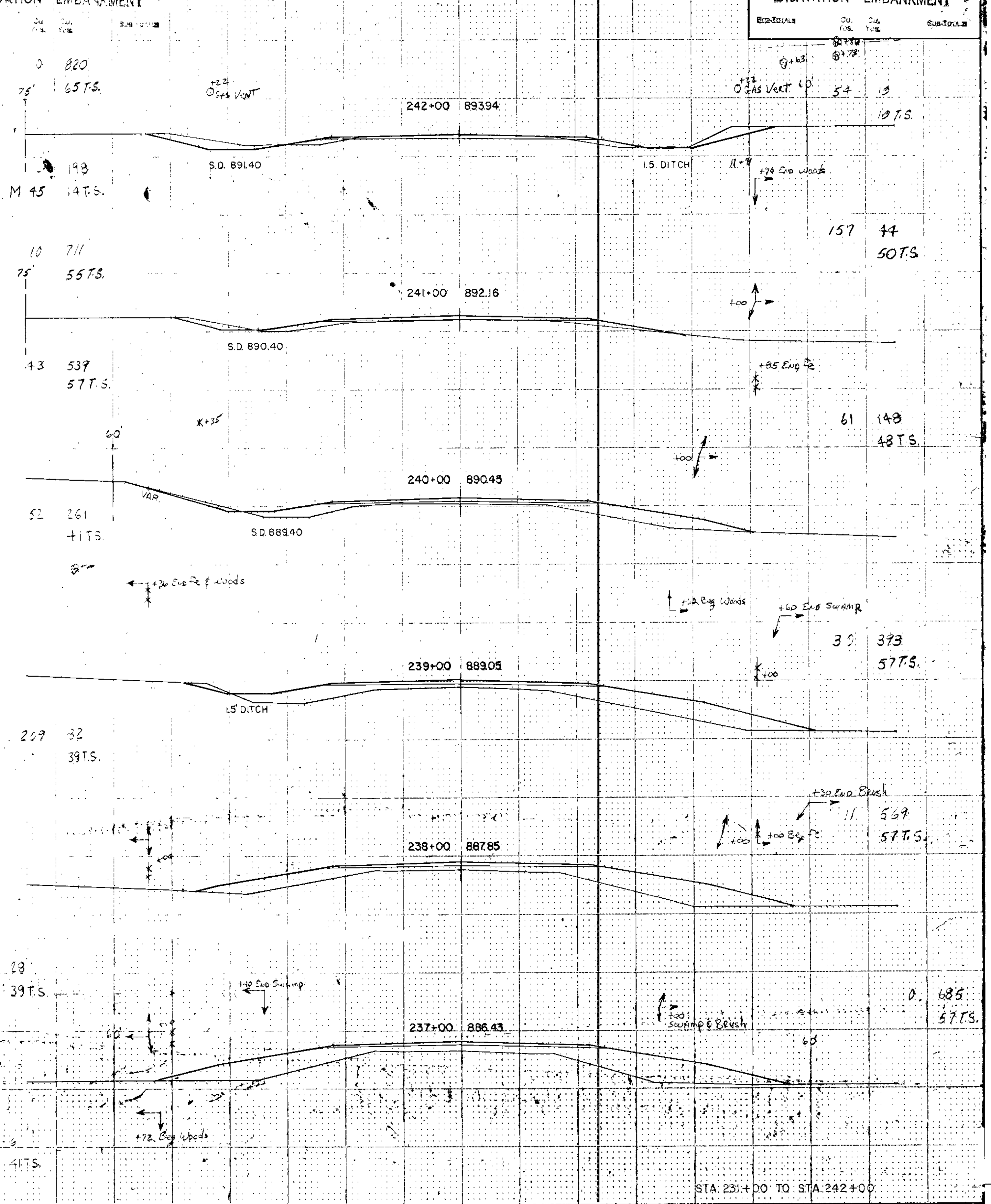
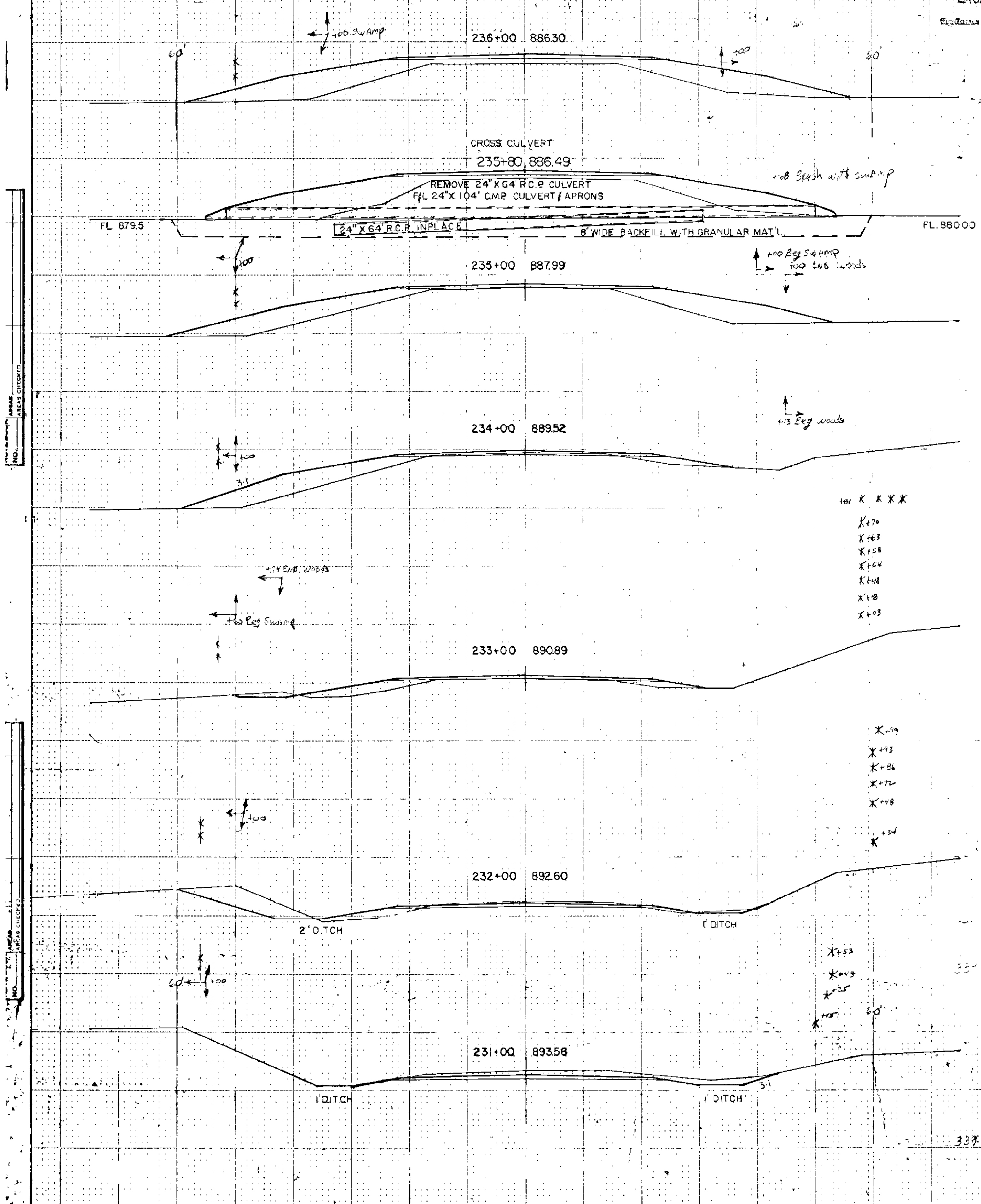


BALANCE # 3 STA 177+00 - STA 223+97
 TOTAL COMMON EXC. 14543 C.Y. REG. EMB. 7503
 SAL. BIT. MIXTURE -1281 C.Y. TOP SOIL FILL 1904
 COMMON EXC. PAY QUANT. 13268 C.Y. SAL. TOPSOIL 859 (FROM MUCK EXC.)
 (FOR SPOOLED AREAS)

STA 222+18 TO STA 226+00

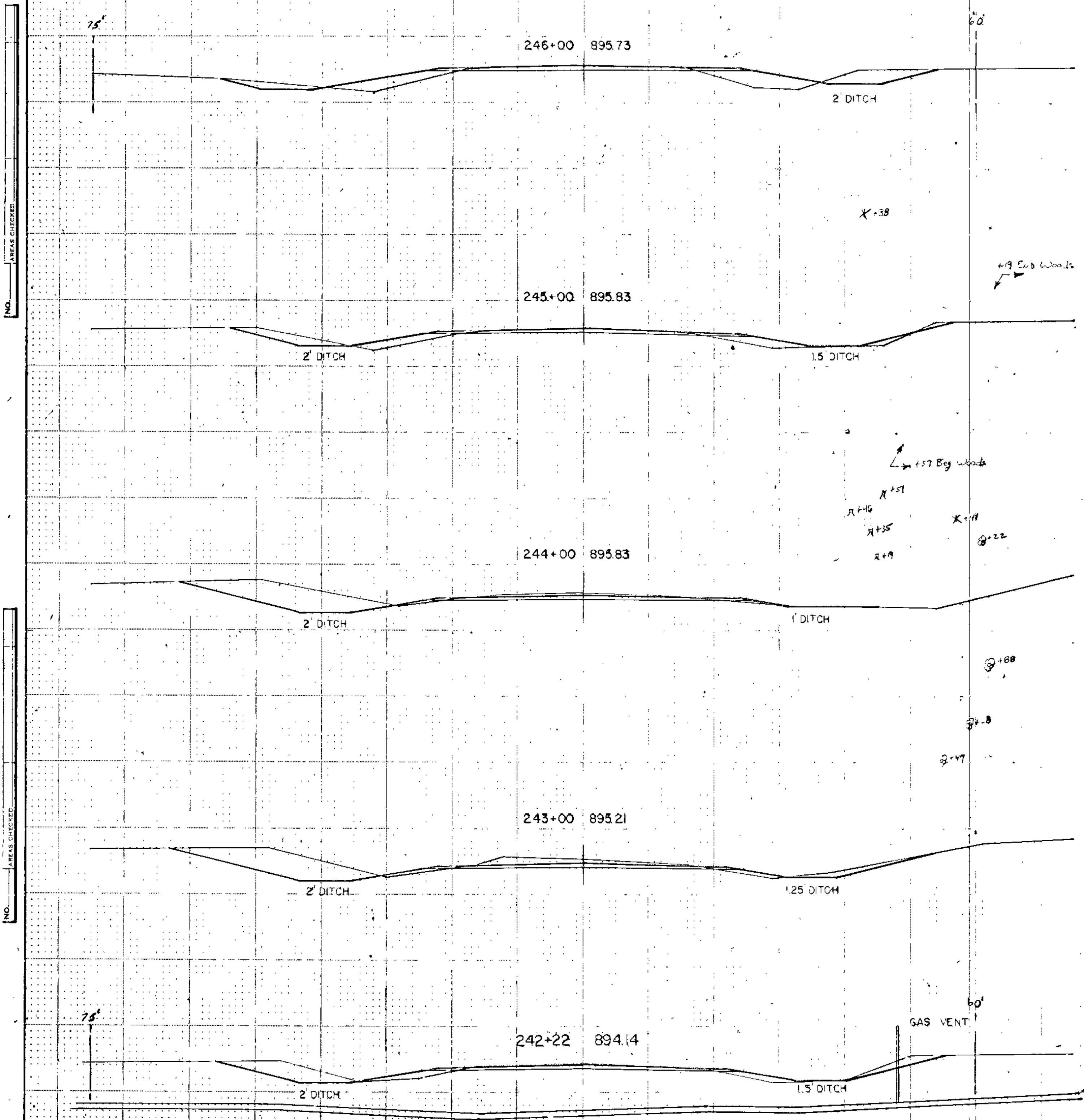
EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT



EXCAVATION EMBANKMENT
 Cu. Yds. Cu. Yds. Sub-Totals

EXCAVATION EMBANKMENT
 Cu. Yds. Cu. Yds. Sub-Totals



333 120
597.5

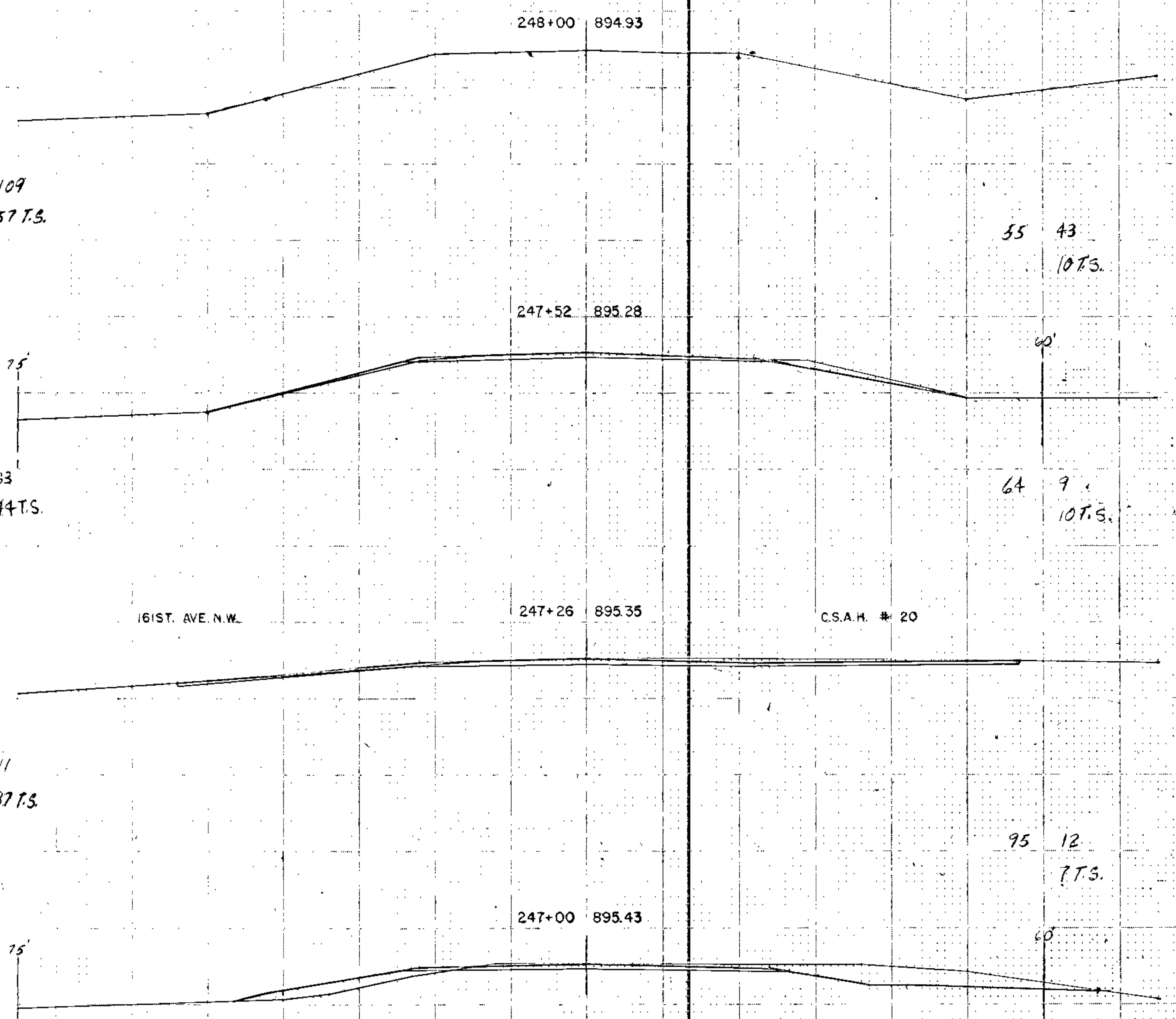
220 109
577.5

359 33
447.5

502 11
377.5

292 30
277.5

CAUTION:
 8" HIGH PRESSURE
 GAS MAIN X-ING
 54 10
 107.5



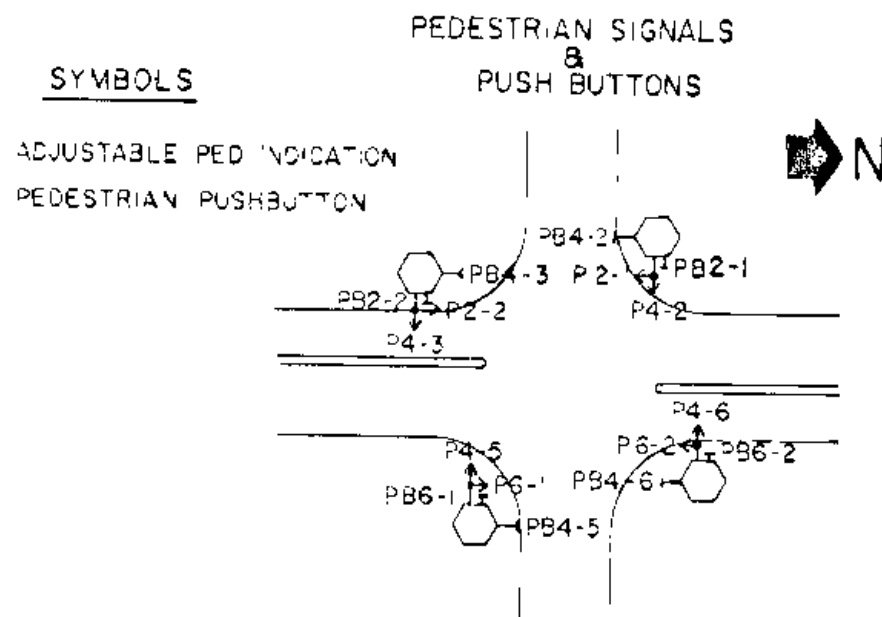
55 43
107.5

64 9
107.5

95 12
77.5

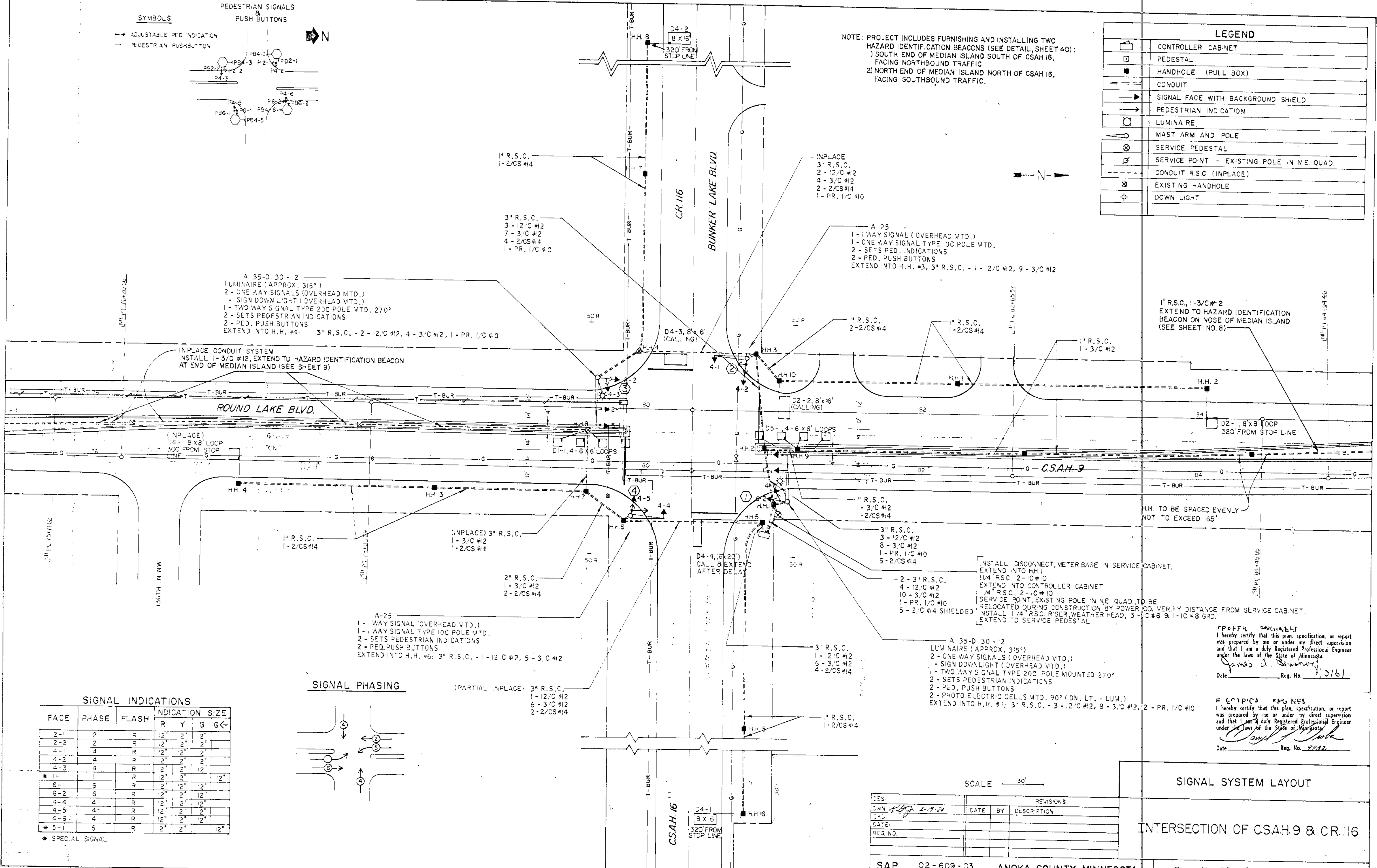
BALANCE #4 STA. 223+97 - STA. 248+00
 TOTAL COMMON EXC. 3654 CY REG. EMB. 11006 CY
 SAL. BIT MIXTURE 653 CY TOPSOIL FILL 1285 CY
 COM. EXC. PAY QUANTIES 2998 CY SAL. TOPSOIL 38 CY
 COMMON BORROW 15680 CY (FOR SHOULDER AREAS, FROM MUCK EXC.)

STA 242+22 TO STA. 248+00



NOTE: PROJECT INCLUDES FURNISHING AND INSTALLING TWO HAZARD IDENTIFICATION BEACONS (SEE DETAIL, SHEET 40):
 1) SOUTH END OF MEDIAN ISLAND SOUTH OF CSAH 16, FACING NORTHBOUND TRAFFIC
 2) NORTH END OF MEDIAN ISLAND NORTH OF CSAH 16, FACING SOUTHBOUND TRAFFIC.

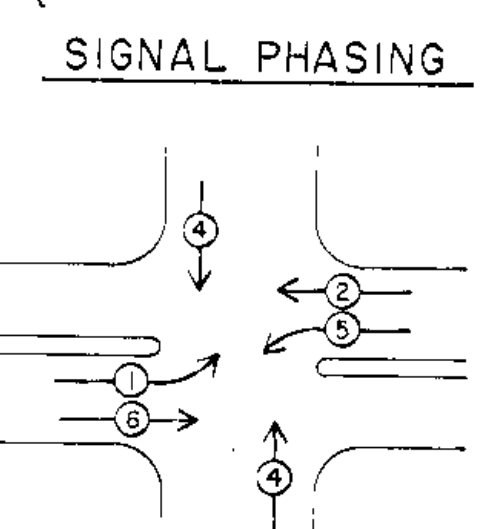
LEGEND	
	CONTROLLER CABINET
	PEDESTAL
	HANDHOLE (PULL BOX)
	CONDUIT
	SIGNAL FACE WITH BACKGROUND SHIELD
	PEDESTRIAN INDICATION
	LUMINAIRE
	MAST ARM AND POLE
	SERVICE PEDESTAL
	SERVICE POINT - EXISTING POLE IN NE QUAD
	CONDUIT R.S.C. (INPLACE)
	EXISTING HANDHOLE
	DOWN LIGHT



SIGNAL INDICATIONS

FACE	PHASE	FLASH	INDICATION SIZE			
			R	Y	G	G<
2-1	2	R	2"	2"	2"	
2-2	2	R	2"	2"	2"	
4-1	4	R	2"	2"	2"	
4-2	4	R	2"	2"	2"	
4-3	4	R	2"	2"	2"	
* 6-1	6	R	2"	2"	2"	2"
6-2	6	R	2"	2"	2"	
4-4	4	R	2"	2"	2"	
4-5	4	R	2"	2"	2"	
4-6	4	R	2"	2"	2"	
* 5-1	5	R	2"	2"	2"	12"

* SPECIAL SIGNAL



PAFFK SAUTER
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
 Date: _____ Reg. No. 20161

FELTICUS ENGINEERS
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
 Date: _____ Reg. No. 2722

SCALE 30'

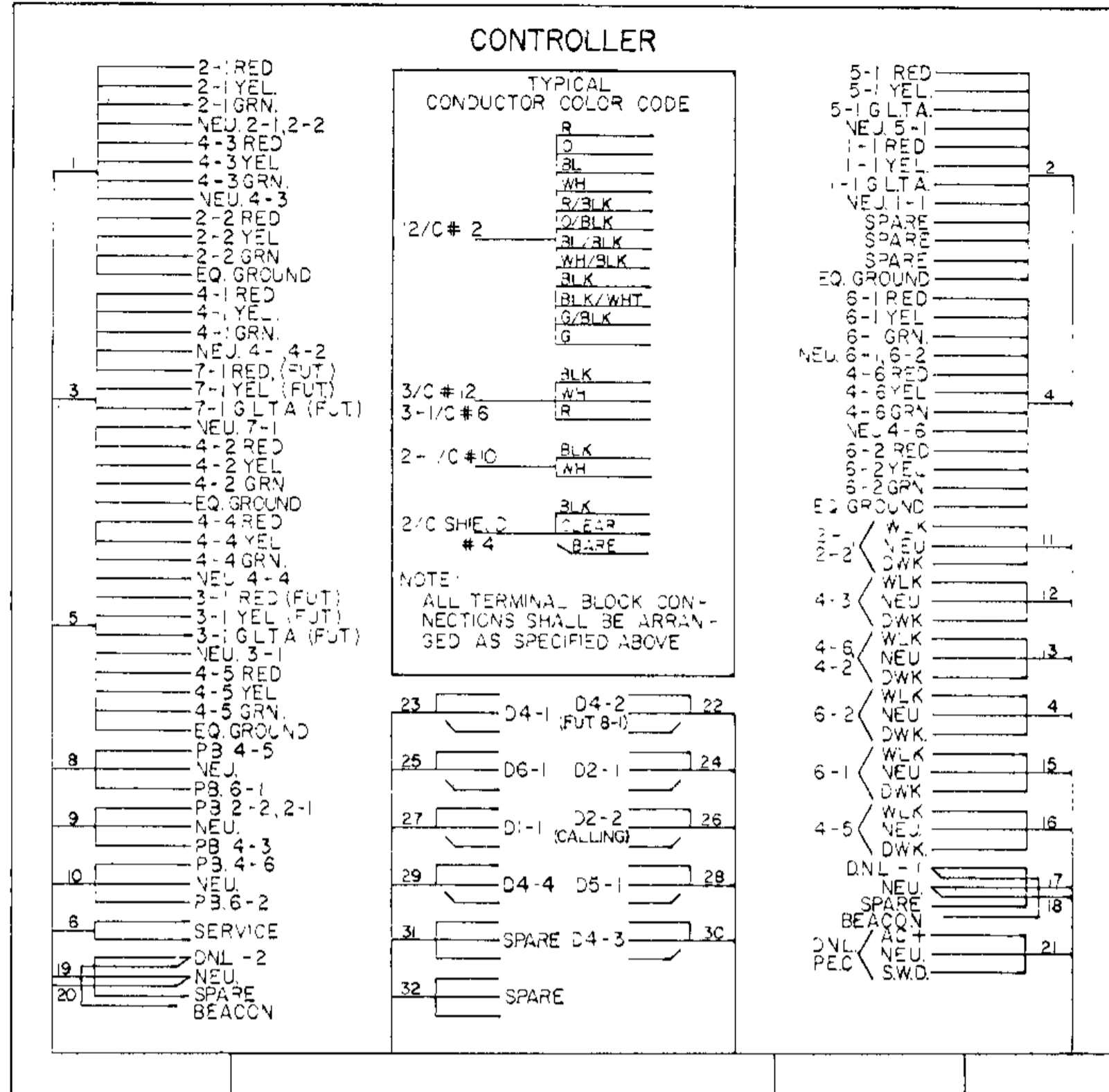
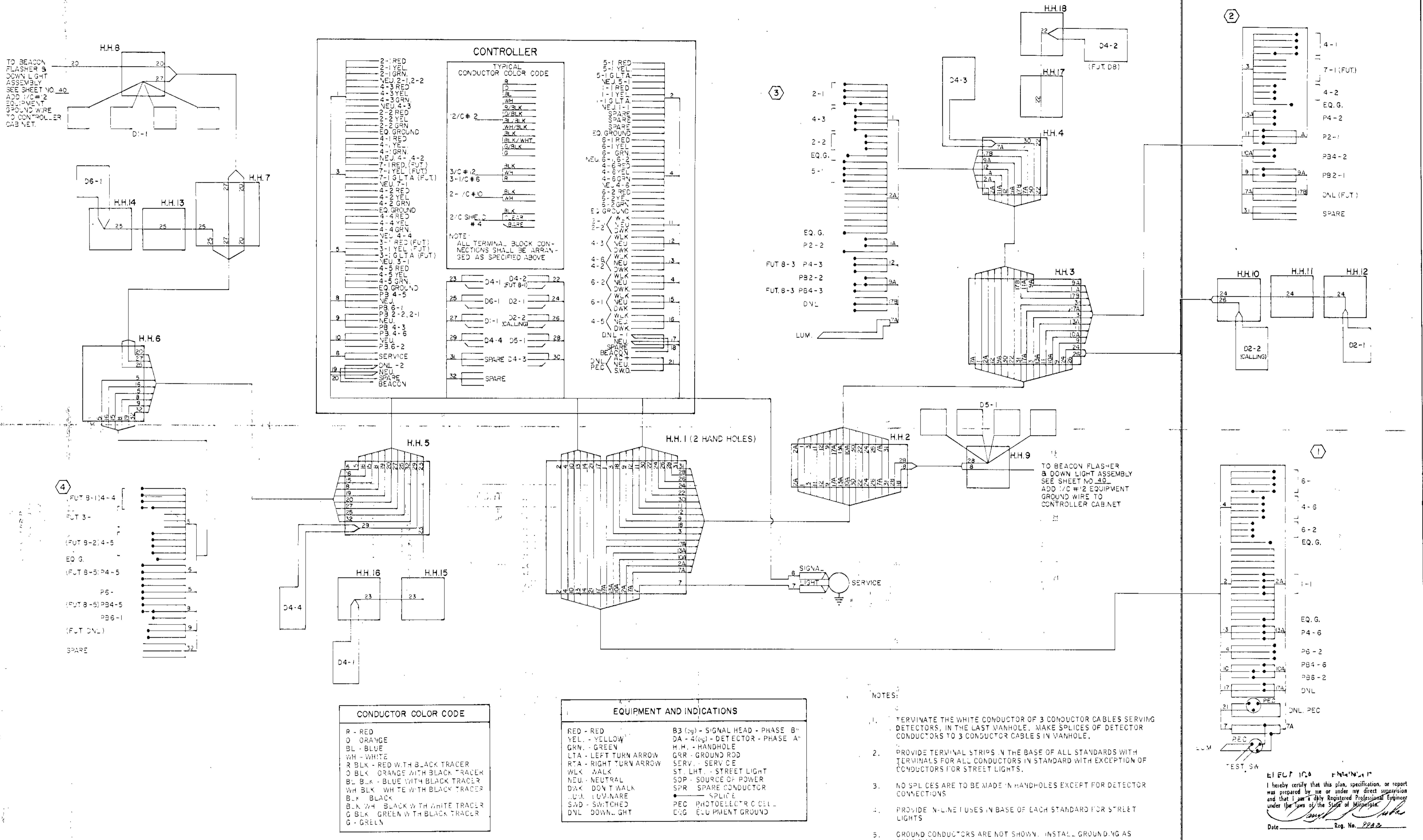
DES.	DATE	BY	REVISIONS
DWN 10/27/20			
SC			
DATE			
REG. NO.			

SIGNAL SYSTEM LAYOUT

INTERSECTION OF CSAH 9 & CR 116

S.A.P. 02-609-03 ANOKA COUNTY, MINNESOTA

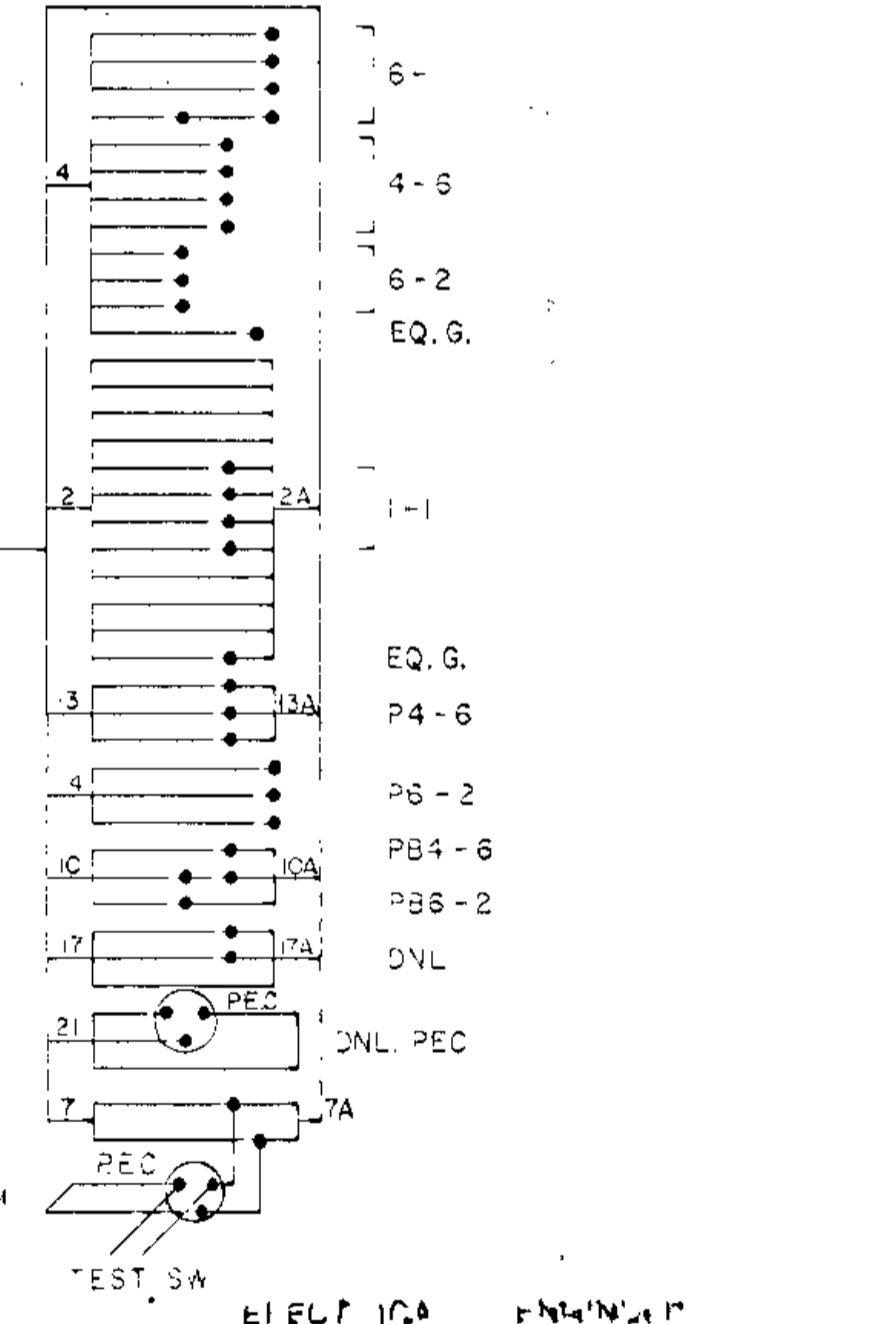
Sheet No. 38 of 42 Sheets



CONDUCTOR COLOR CODE	
R - RED	
O - ORANGE	
BL - BLUE	
WH - WHITE	
R BLK - RED WITH BLACK TRACER	
O BLK - ORANGE WITH BLACK TRACER	
BL BLK - BLUE WITH BLACK TRACER	
WH BLK - WHITE WITH BLACK TRACER	
BLK - BLACK	
BLK WH - BLACK WITH WHITE TRACER	
G BLK - GREEN WITH BLACK TRACER	
G - GREEN	

EQUIPMENT AND INDICATIONS	
RED - RED	B3 (sq) - SIGNAL HEAD - PHASE B
YEL - YELLOW	DA - 4(sq) - DETECTOR - PHASE A
GRN - GREEN	H.H. - HANDHOLE
LTA - LEFT TURN ARROW	GRR - GROUND ROD
RTA - RIGHT TURN ARROW	SERV. - SERVICE
WLK - WALK	ST. LHT. - STREET LIGHT
NEU - NEUTRAL	SOP - SOURCE OF POWER
DAK - DOWN T WALK	SPR - SPARE CONDUCTOR
LUM - LUMINAIRE	— SPLIT
SAD - SWITCHED	PEC - PHOTOELECTRIC CELL
DNL - DOWN LIGHT	D/G - EQUIPMENT GROUND

- NOTES:
1. TERMINATE THE WHITE CONDUCTOR OF 3 CONDUCTOR CABLES SERVING DETECTORS, IN THE LAST VANHOLE. MAKE SPLICES OF DETECTOR CONDUCTORS TO 3 CONDUCTOR CABLES IN VANHOLE.
 2. PROVIDE TERMINAL STRIPS IN THE BASE OF ALL STANDARDS WITH TERMINALS FOR ALL CONDUCTORS IN STANDARD WITH EXCEPTION OF CONDUCTORS FOR STREET LIGHTS.
 3. NO SPLICES ARE TO BE MADE IN HANDHOLES EXCEPT FOR DETECTOR CONNECTIONS.
 4. PROVIDE N-LINE USES IN BASE OF EACH STANDARD FOR STREET LIGHTS.
 5. GROUND CONDUCTORS ARE NOT SHOWN. INSTALL GROUNDING AS SPECIFIED.
 6. ALL DETECTOR LOOPS TO BE INSTALLED IN 1" NMC (SEE APPROPRIATE DETAIL OR SHEET NO. 41).

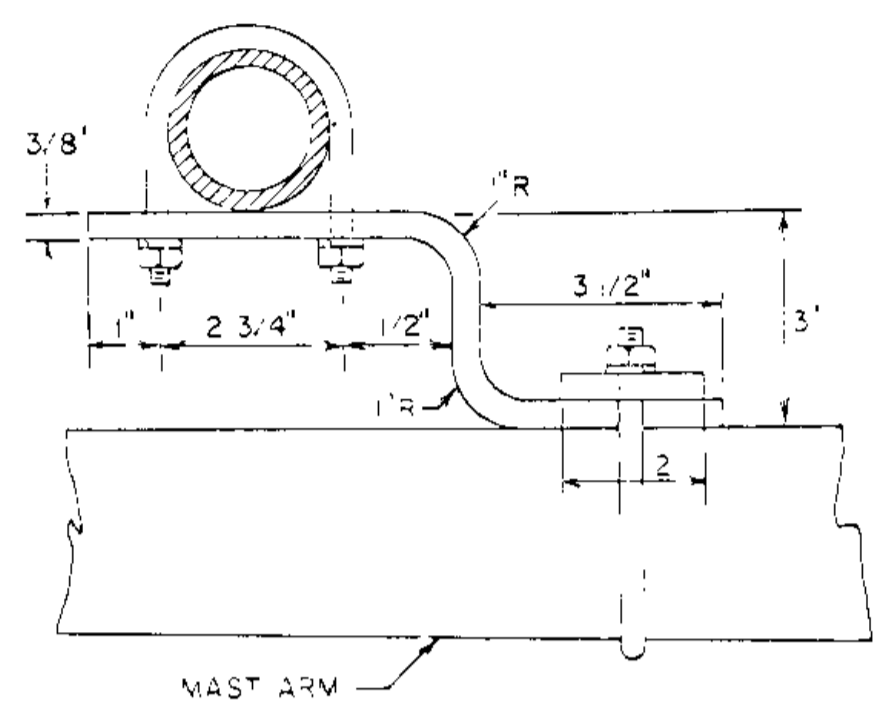


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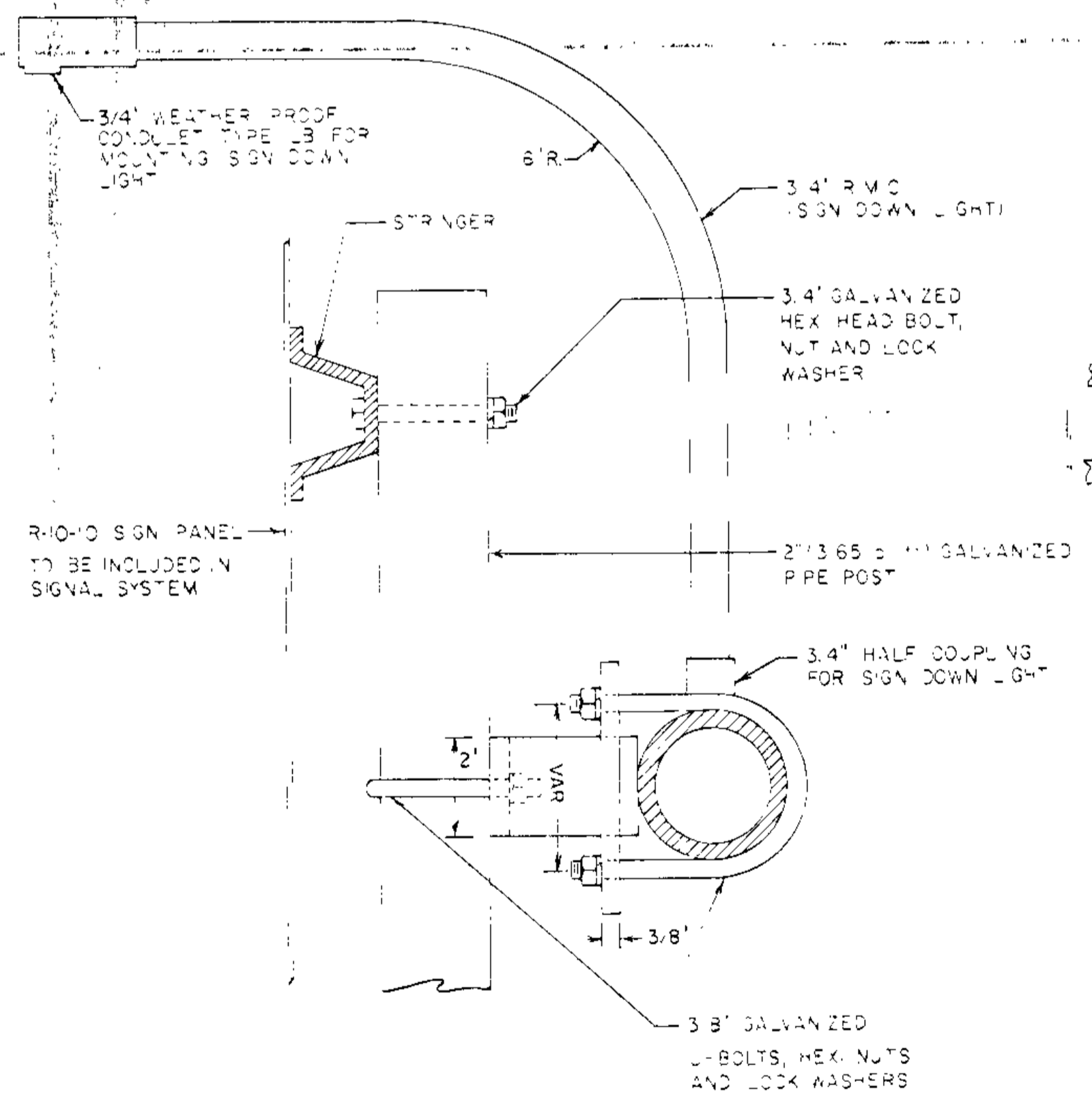
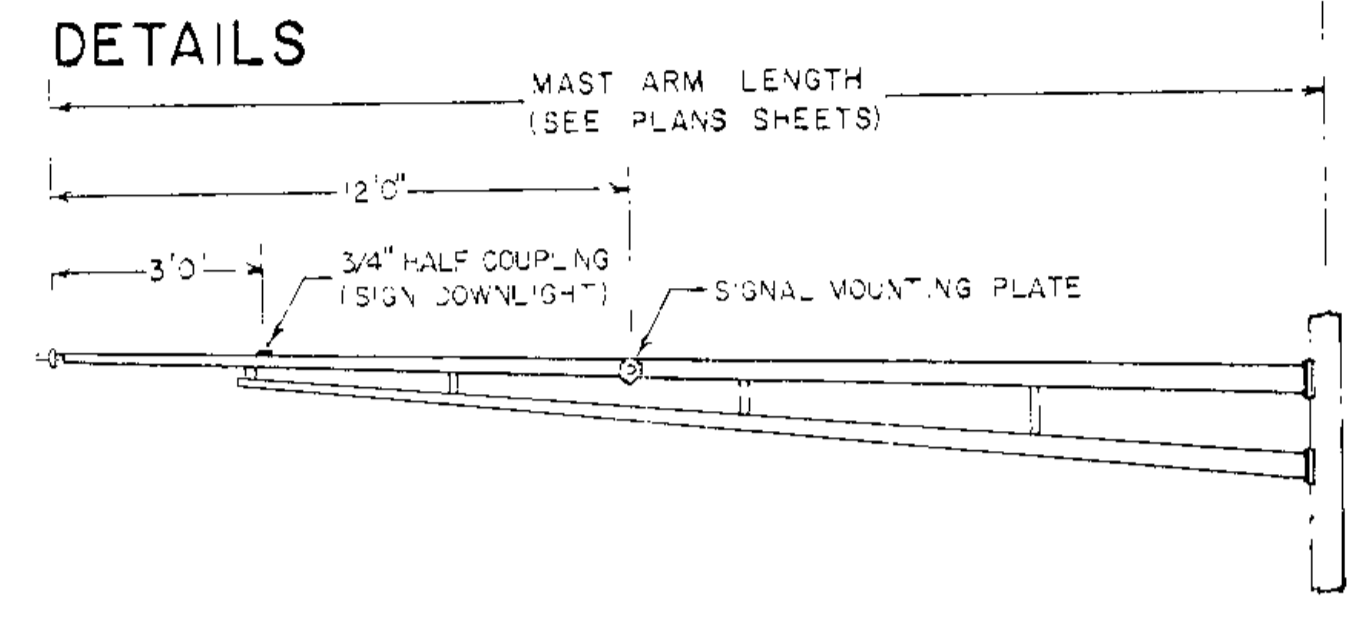
Date _____ Reg. No. 2222

FIELD WIRING DIAGRAM
CSA.H. 9 AT CO. RD. 116

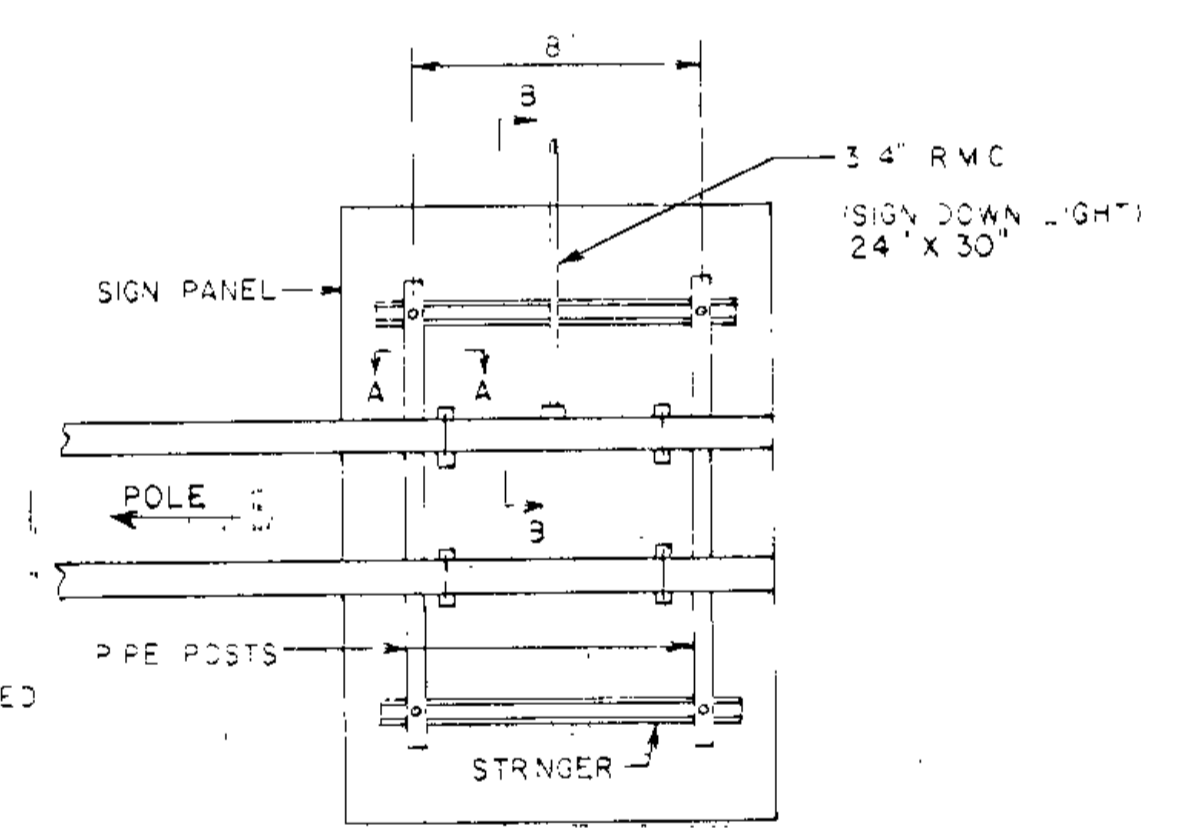
MAST ARM DETAILS



SECTION A-A

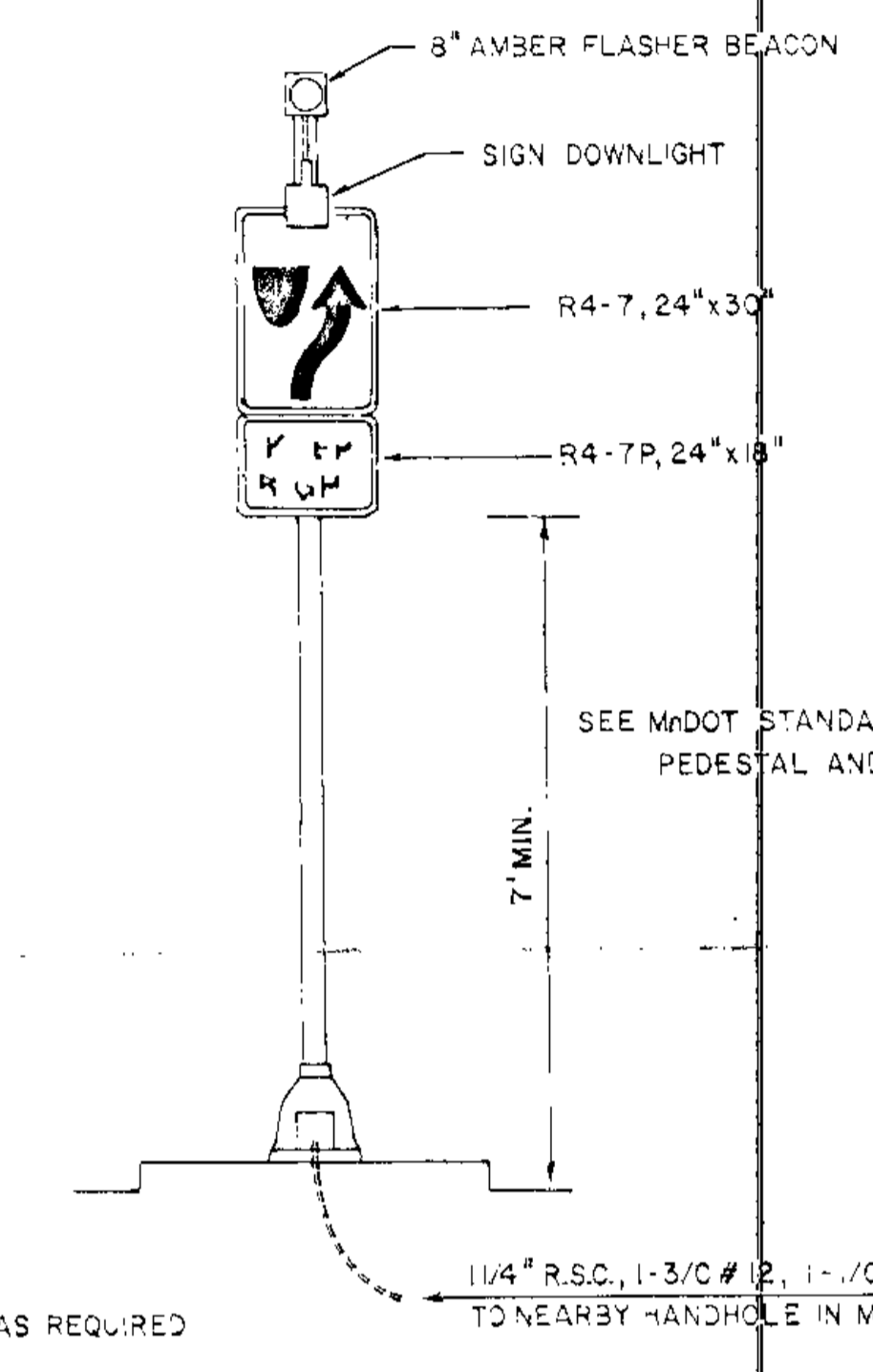


SECTION B-B



TYPICAL MOUNTING

- NOTES
- 1. PPE MATERIAL SHALL CONFORM TO ASTM DESIGNATION A53, SCHEDULE 40
 - 2. STRUCTURAL STEEL SHALL CONFORM TO MnDOT 3306
 - 3. GALVANIZING SHALL CONFORM TO MnDOT 3392 AND MnDOT 3394



HAZARD IDENTIFICATION BEACON
INSTALLATION DETAIL

PAFFI ENGINEER
I hereby certify that this plan, specification, or report 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.
James A. Benbow
Date _____ Reg. No. 10161

SIGNAL DETAILS

CONDUIT INSTALLATION DETAIL "A"
FOR LOOP DETECTOR

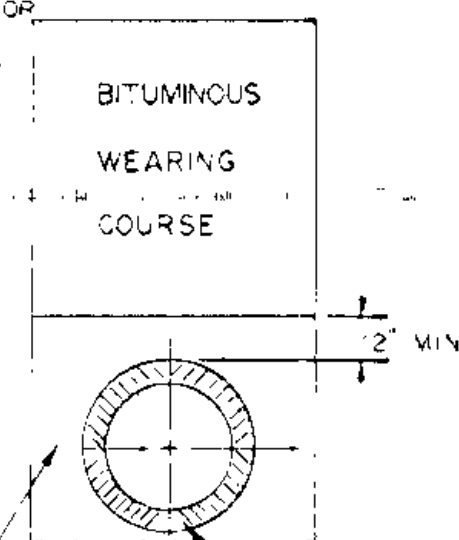
SCALE NONE

LOOP DETECTOR CONDUITS ARE TO BE INSTALLED AS FOLLOWS:

- 1) INSTALL THE BITUMINOUS BINDER COURSE
- 2) CUT TRENCHES FOR ALL DETECTORS AND INSTALL EACH COMPLETE DETECTOR ASSEMBLY, INCLUDING WHERE SHOWN PLASTIC CONDUIT, "T" CONDULET, AND STEEL CONDUIT, WITH THE DETECTOR WIRE PULLED THROUGH THE COMPLETE ASSEMBLY TO / FROM THE HANDHOLE THE DEPTH OF THE TRENCH AND THE RESULTANT PLACEMENT OF THE DETECTOR CONDUIT SHALL BE SUCH THAT THE ENTIRE DETECTOR ASSEMBLY DRAINS INTO THE HAND-HOLE
- 3) FILL THE TRENCHES WITH MATERIAL EQUAL TO THE BITUMINOUS BINDER COURSE
- 4) INSTALL THE BITUMINOUS WEARING COURSE

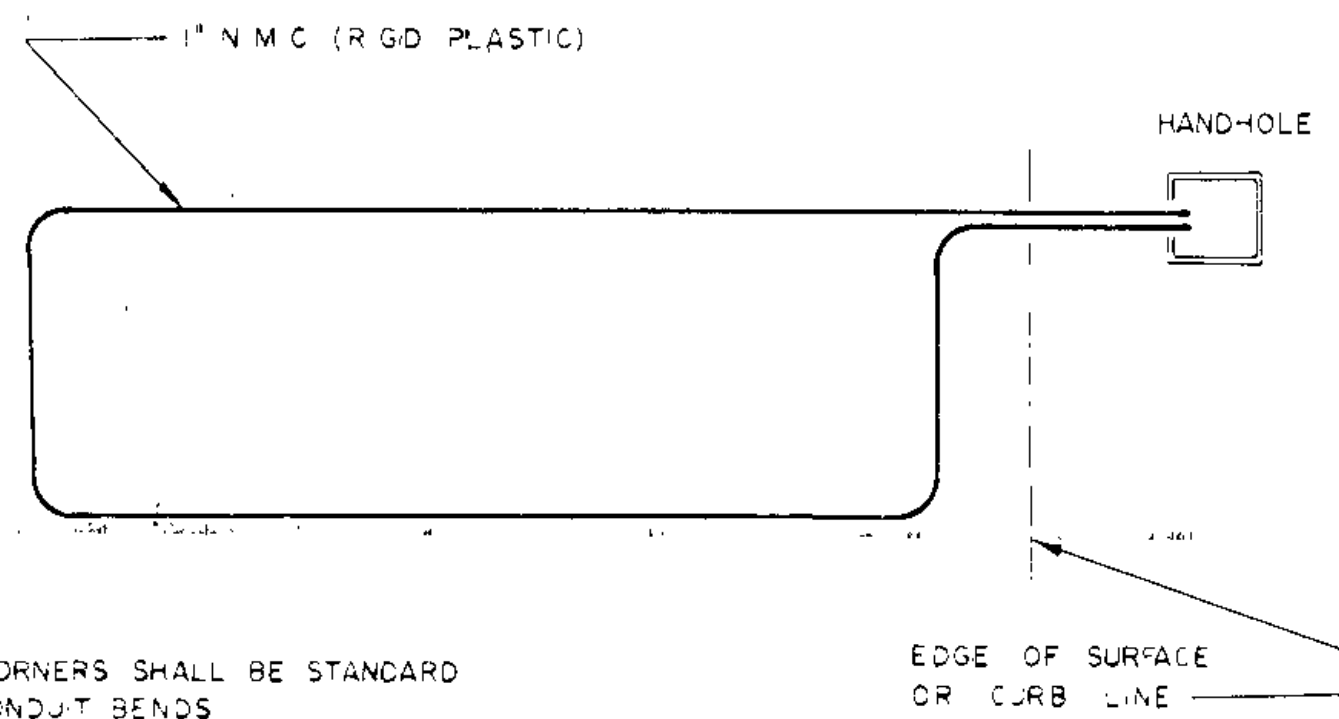
MATERIAL EQUAL TO BITUMINOUS BINDER COURSE

NON-METALLIC CONDUIT (RIGID PLASTIC)



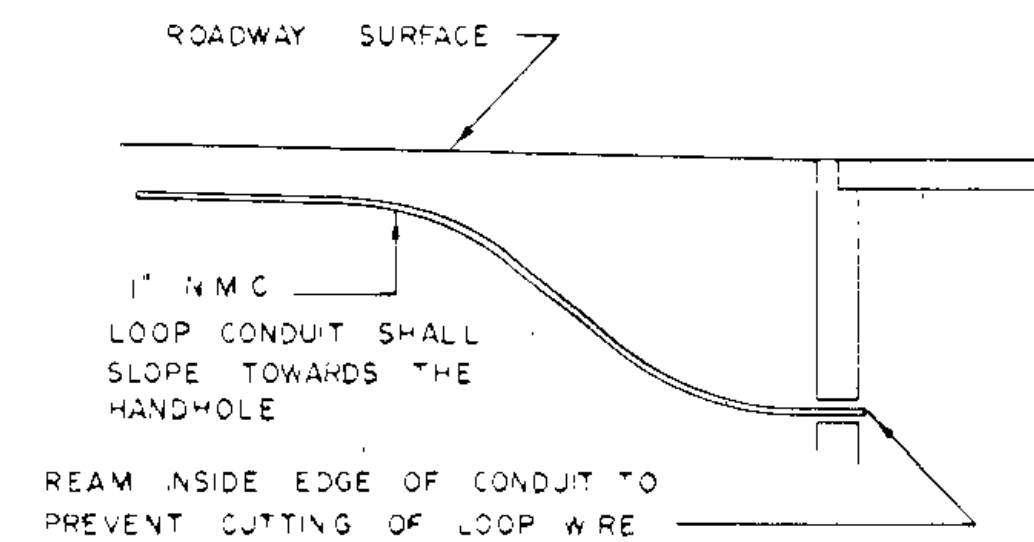
LOOP DETECTOR DETAIL "B"

SCALE NONE



ALL CORNERS SHALL BE STANDARD 90° CONDUIT BENDS

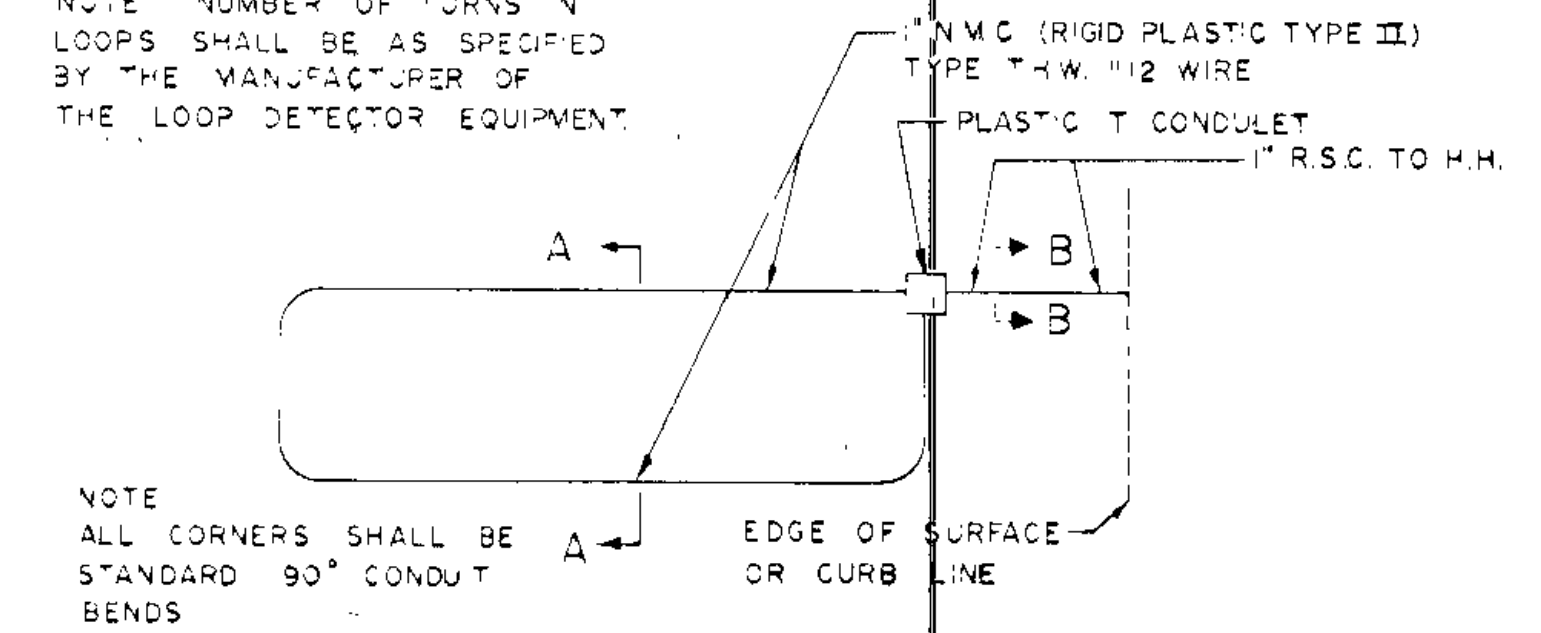
EDGE OF SURFACE OR CURB LINE



REAM INSIDE EDGE OF CONDUIT TO PREVENT CUTTING OF LOOP WIRE

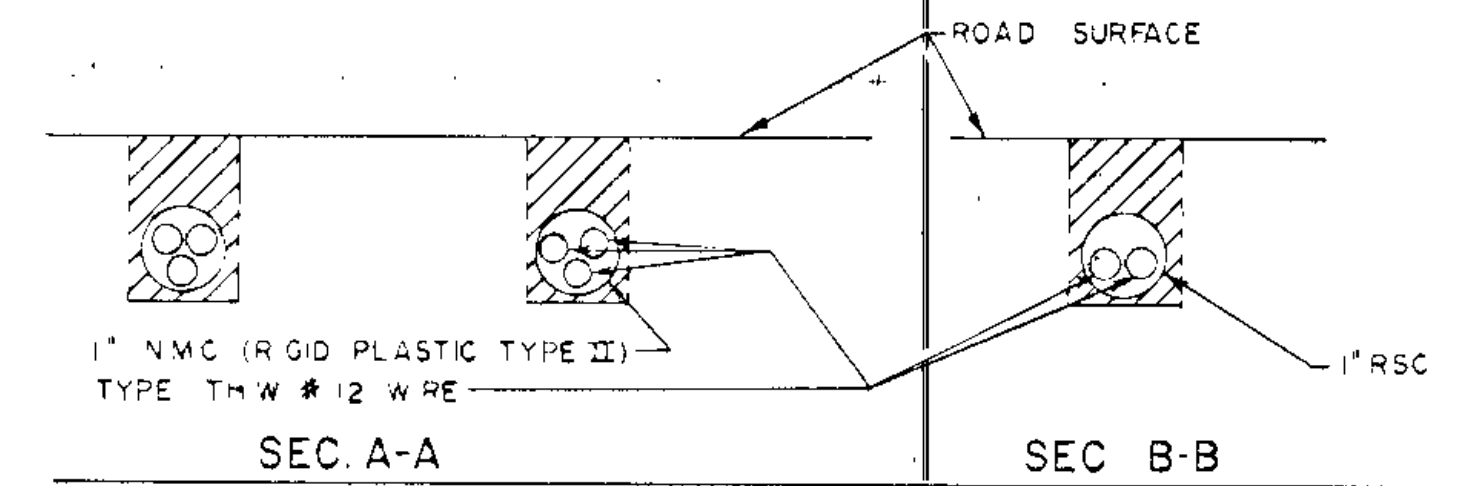
LOOP DETECTOR DETAIL "C"

NOTE: NUMBER OF TURNS IN LOOPS SHALL BE AS SPECIFIED BY THE MANUFACTURER OF THE LOOP DETECTOR EQUIPMENT.



NOTE: ALL CORNERS SHALL BE STANDARD 90° CONDUIT BENDS

EDGE OF SURFACE OR CURB LINE



NO SPLICES TO BE MADE IN "T" CONDULET

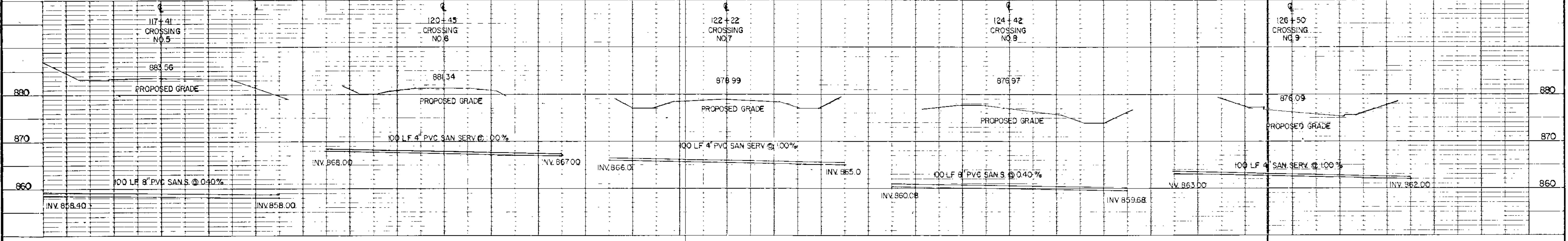
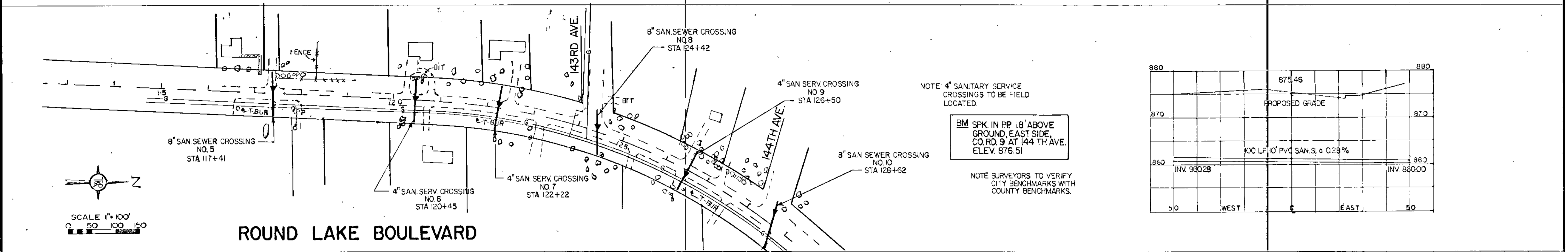
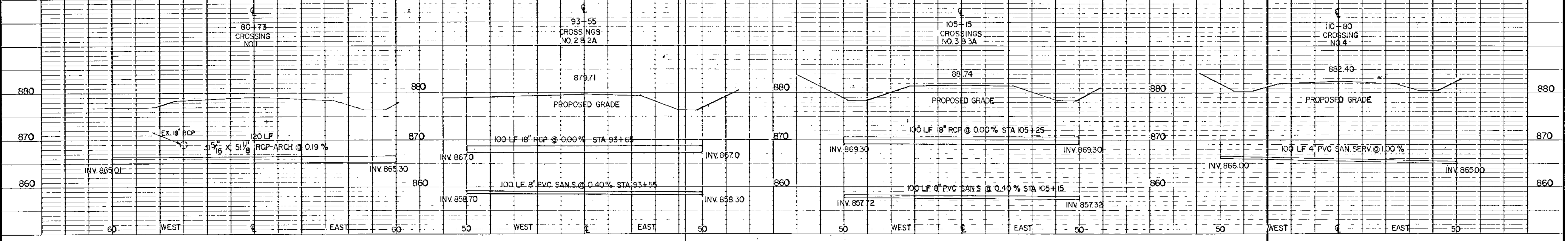
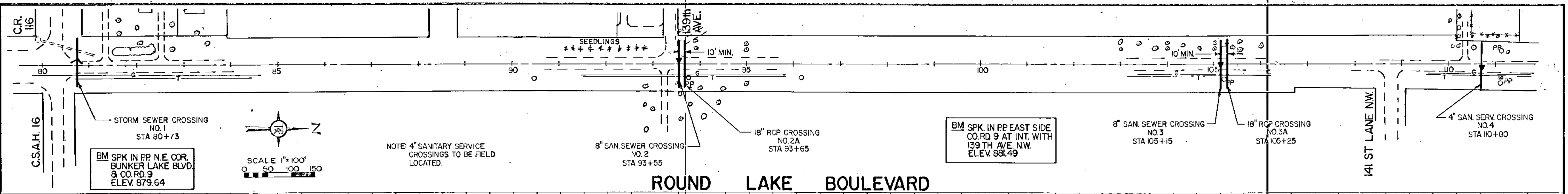
HANDHOLE

2/c #12 (SHELD) CABLE TO BE SPLICED IN HANDHOLE

1" R.S.C. TO H.H. LOOP WIRES SHALL BE TWISTED A MINIMUM OF 3 TURNS PER FOOT

NOTE: LOOP CONDUIT SHALL SLOPE TOWARDS "T" CONDULET AND STEEL CONDUIT SHALL SLOPE TOWARDS HANDHOLE SUCH THAT ENTIRE DETECTOR INSTALLATION DRAINS INTO HANDHOLE

LOOP DETECTOR DETAILS



DATE	BY	DESCRIPTION

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 Date: 5/28/80 Reg. No. 13654



DESIGNED MWS
 DRAWN LB
 CHECKED MWS

S.A.P. 02-609-03
 UTILITY CROSSING CONSTRUCTION
 FOR
CITY OF ANDOVER, MINNESOTA

COM. 7375A
 DRG.
 UTILITY CROSSINGS
 PLAN & PROFILE
 ROUND LAKE BOULEVARD