

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

CONSTRUCTION PLAN FOR GRADING, BIT STAB, SUBGRADE & BIT SURFACE

County Highway No. 109

Between JCT. CSAH 18 And JCT. CSAH 20

From A PT 1200' N & 60'E OF N1/4 COR. SEC. 27 R24W T32N To 28'E OF CENTER SEC. 15 R24W T32N
Give proper reference to Sections, Township and Range

GROSS LENGTH 6,688 FEET 1.267 MILES
BRIDGES-LENGTH 0 FEET 0 MILES
EXCEPTIONS-LENGTH 0 FEET 0 MILES
NET LENGTH 6,688 FEET 1.267 MILES

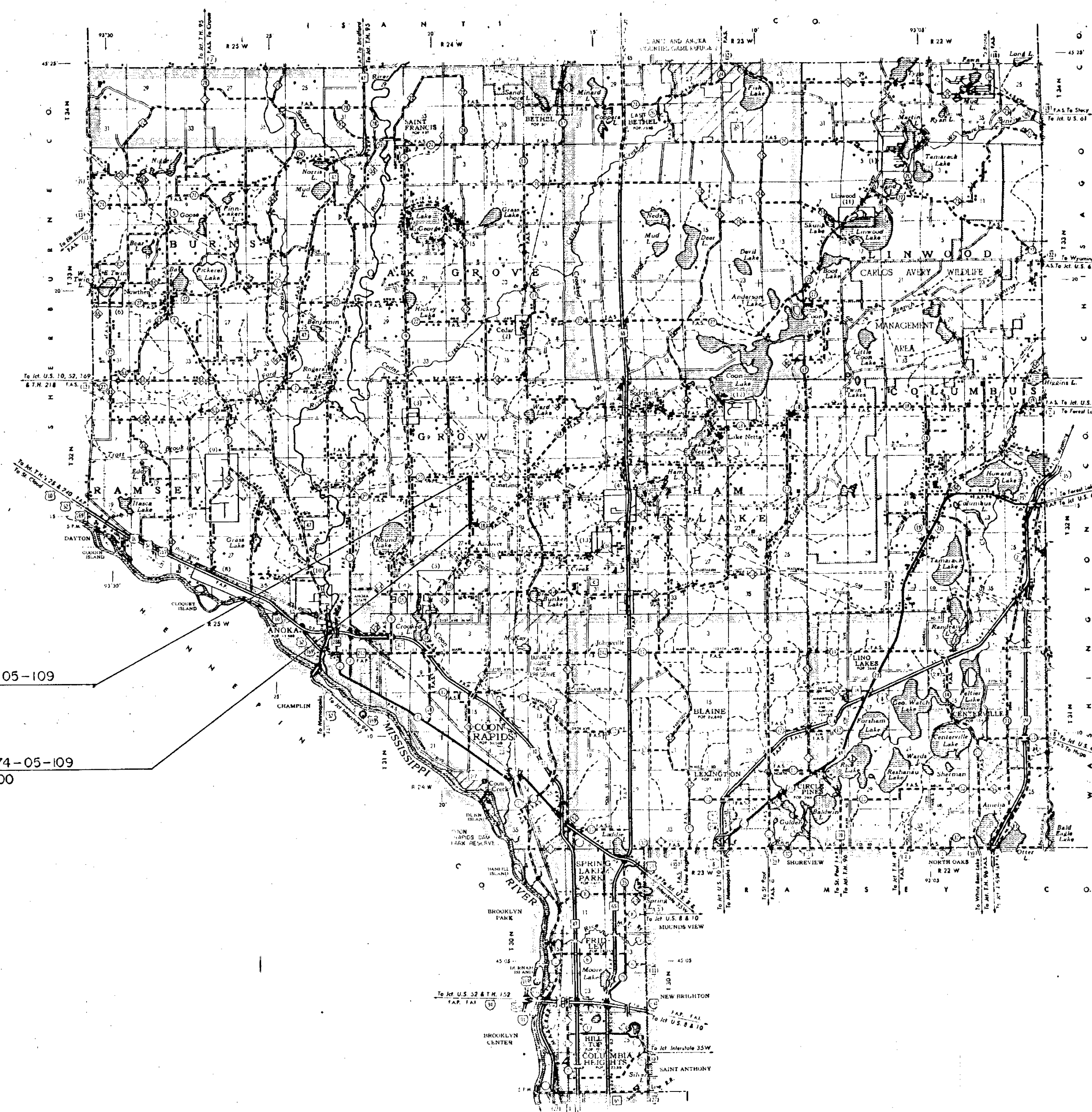
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- Sheet No. 1: Title Sheet & Layout Map
- No. 2: Est. Quantities & Typical Sec.
- No. 3: To 4 Plan & Profile
- No. 5: To 10 Cross Sections

SCALES— PLAN & PROFILE - HORIZ. 1" = 100'
VERT. 1" = 10'
CROSS SECTIONS - 1" = 10'

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 (Easement Line)	----
VACATED PLATED PROPERTY	----
CORPORATE OR CITY LIMITS	----
TOWN 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	----
CONDUIT	----
DROP INLET	----
GUARD RAIL	----
BARBED WIRE FENCE	----
WOVEN WIRE FENCE	----
CHAIN LINK FENCE	----
RAILROAD SNOW FENCE	----
STONE WALL OR FENCE	----
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	----
BUILDINGS (One Story Frame)	----
F FRAME	----
C CONCRETE	----
S STONE	----
T TILE	----
BT STUCCO	----
IRON PIPE OR ROD	----
MONUMENT (STONE, CONCRETE, OR METAL)	----
WOODEN PILE	----
GRAVEL PIT	----
SAND PIT	----
BORROW PIT	----
ROCK QUARRY	----
MEANDER CORNER	----



END C.P. 74-05-109
STA. 178+88

BEG. C.P. 74-05-109
STA. 112+00

DESIGN DESIGNATION

ADT (CURRENT YEAR) 218
ADT (FUTURE YEAR) 500
T (HEAVY COMMERCIAL)
7ULT.9 Ton Design 50% SOIL FACTOR
Design Speed 50 MPH
Design Speed not achieved at:
STA. _____ TO STA. _____ MPH.
STA. _____ MPH.

SPECIFICATIONS

THE "STANDARD" SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, DATED JAN. 1, 1972, SHALL GOVERN.
AS AMENDED BY "SUPPLEMENTAL SPECIFICATIONS" DATED JAN. 1, 1974.

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 DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Paul K. Rind
COUNTY ENGINEER DATE *Mar. 13, 1975*

ANOKA COUNTY REG. NO. _____

RECOMMENDED FOR APPROVAL _____ 19____
DISTRICT ENGINEER

RECOMMENDED FOR APPROVAL _____ 19____

APPROVED _____ 19____
STATE AID ENGINEER

Minn. Proj. No. _____ County Proj. No. 74-05-109
State Proj. No. _____ S.A.P. _____

STATEMENT OF ESTIMATED QUANTITIES			
ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITIES
2101.501	CLEARING	ACRE	4.1
2101.502	CLEARING	TREE	1
2101.506	GRUBBING	ACRE	4.1
2101.507	GRUBBING	TREE	9
2104.501	REMOVE PORTABLE CULVERT	LIN. FT.	30
2104.521	SALVAGE FENCE	LIN. FT.	2,808
557.604	INSTALL FENCE	LIN. FT.	2,497
2105.501	COMMON EXCAVATION	CU. YD.	32,955
2105.505	MUCK EXCAVATION	CU. YD.	16,629
2105.521	GRANULAR BORROW (E.V.)	CU. YD.	21,139
2105.535	SALVAGED TOPSOIL (L.V.)	CU. YD.	4,000
2105.535	SALVAGED TOPSOIL IN STOCKPILE	CU. YD.	9,600
2130.501	WATER	M - GAL.	200
2207.503	BITUMINOUS MATERIAL FOR MIXTURE	GALLON	41,960
2207.512	BITUMINOUS STABILIZED SUBGRADE 4" THICK	SQ. YD.	19,980
2221.501	AGGREGATE SHOULDERING, CLASS I	TON	1,625
2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	104
2331.508	WEARING COURSE MIXTURE	TON	1,725
2501.571	INSTALL 15" C.M. PIPE CULVERT	LIN. FT.	546
2501.571	INSTALL 18" C.M. PIPE CULVERT	LIN. FT.	104
2501.571	INSTALL 24" C.M. PIPE CULVERT	LIN. FT.	242
2501.571	INSTALL 29" SPAN C.M.P. - ARCH CULVERT	LIN. FT.	154
2501.573	INSTALL 15" METAL APRONS	EACH	28
2501.573	INSTALL 18" METAL APRONS	EACH	4
2501.573	INSTALL 24" METAL APRONS	EACH	6
2501.573	INSTALL 29" SPAN METAL PIPE ARCH APRONS	EACH	4
2575.501	ROADSIDE SEEDING	ACRE	8.7
2575.502	SEED MIXTURE NO. 3	POUND	350
2575.505	SODDING	SQ. YD.	4,050
2575.511	MULCH MATERIAL TYPE I	TON	17.4
2575.519	DISC ANCHORING	ACRE	8.7

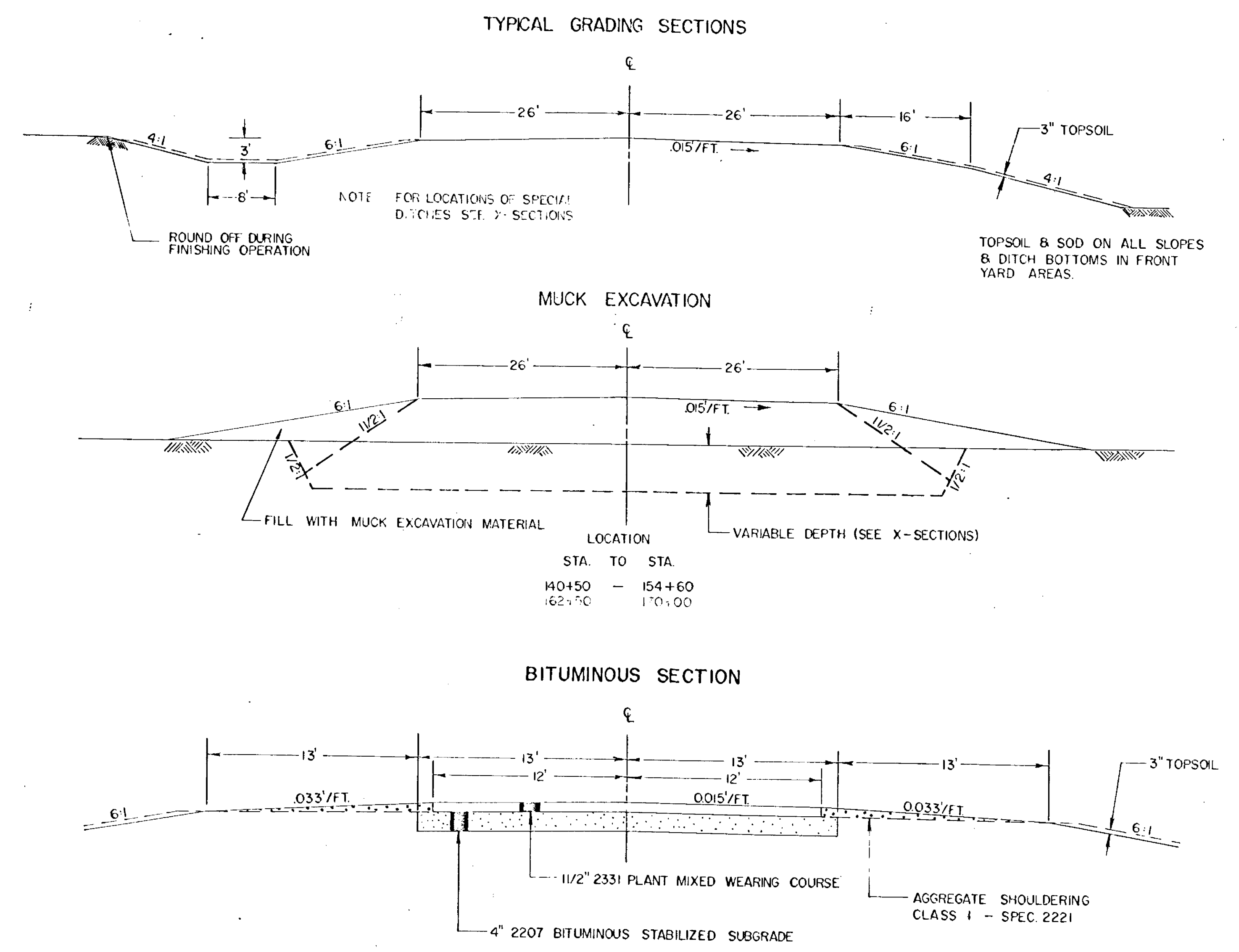
- ① FOR DUST CONTROL.
- ② INCLUDES 245 TON FOR REPAIR OF ENTRANCES & ROAD APPROACHES.
- ③ INCLUDES 254 TON FOR ENTRANCES & ROAD APPROACHES.
- ④ INCLUDES 2,000 GALLONS FOR FOG.

BASIS OF PLANNED QUANTITIES

- 2207 BITUMINOUS STABILIZED SUBGRADE
BITUMINOUS MATERIAL FOR MIXTURE 0.5 GAL. / SQ. YD. PER INCH THICKNESS.
BITUMINOUS MATERIAL FOR FOG, 0.10 GAL. / SQ. YD.
- 2221 AGGREGATE SHOULDERING 135 LBS. / CU. FT.
- 2331 PLANT MIXED BITUMINOUS WEARING COURSE.
BITUMINOUS MIXTURE 165 LBS. / SQ. YD.
BITUMINOUS MATERIAL FOR MIXTURE 4.0% BY WT.

CLEARING AND GRUBBING					
STA. TO STA.	LOCATION	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
120+65 - 124+00	10' - 67' LT.	.75		.75	
126+75 - 129+70	30' - 70' LT.	.25		.25	
126+85 - 127+00	53' - 65' RT.	.05		.05	
129+49 - 130+76	8' - 69' RT.	.20		.20	
130+43 - 131+45	65' - 72' LT.	.05		.05	
132+37 - 135+30	42' - 56' LT.	.15		.15	
136+42 - 144+00	17' - 74' LT.	1.05		1.05	
137+12 - 144+61	18' - 72' RT.	.70		.70	
137+00 - 137+14	50' RT.			1	
137+97 - 140+02	35' - 55' RT.			2	
140+02 - 140+06	23' RT.			3	
156+50 - 156+80	55' - 60' LT.	.05		.05	
158+82 - 159+80	55' - 73' LT.	.05		.05	
161+91 - 162+42	45' - 77' LT.	.15		.15	
164+75 - 163+80	55' RT.			1	
163+80 - 164+14	31' - 49' LT.	.05		.05	
165+81 - 165+95	35' - 48' RT.	.05		.05	
164+35 - 164+72	38' - 51' LT.	.05		.05	
164+60 - 164+16	32' - 65' RT.	.10		.10	
171+20 - 172+70	19' - 80' RT.	.20		.20	
172+25 - 173+35	54' - 64' LT.	.05		.05	
177+27 - 176+54	6' - 48' RT.	.15		.15	
174+78 - 174+78	66' LT.			1	

SALVAGE & INSTALL FENCE				
STA. TO STA.	LOC.	REMOVE	RESET	REMARKS
122+16	LT.	40'		LINE FENCE
122+16 - 130+43	LT.	827'	827'	LINE FENCE
122+86	RT.	35'	10'	LINE FENCE
126+37	RT.	30'		LINE FENCE
126+37 - 130+76	RT.	439'	439'	LINE FENCE
129+00	RT.	32'		LINE FENCE
130+76	RT.	42'		LINE FENCE
132+95 - 133+78	LT.	95'	83'	LINE FENCE
135+05 - 139+00	RT.	410'	410'	LINE FENCE
137+90	RT.	40'	10'	LINE FENCE
140+00 - 142+00	RT.	200'	200'	LINE FENCE
151+80 - 152+66	RT.	86'	86'	LINE FENCE
152+66	RT.	45'		LINE FENCE
165+71	RT.	55'		LINE FENCE
165+71 - 168+00	RT.	229'	229'	LINE FENCE
172+00 - 174+03	RT.	203'	203'	LINE FENCE
		2,808'	2,497'	



DRAINAGE										
STA.	LOCATION	REMARKS	INSTALL 15" C.M.P.		INSTALL 18" C.M.P.		INSTALL 24" C.M.P.		INSTALL 29" SPAN C.M.P.	
			LIN. FT.	APRONS	LIN. FT.	APRONS	LIN. FT.	APRONS	LIN. FT.	APRONS
113+14	LT.		44'	2						
113+97	RT.		54'	2						
119+97	RT.	NO CULVERT REQ.								
121+17	LT.	NO CULVERT REQ.								
121+42	RT.		36'	2						
126+00	C						92'	2		
130+11	RT.	NO CULVERT REQ.								
130+89	RT.	NO CULVERT REQ.								
130+92	LT.	NO CULVERT REQ.								
132+60	LT.		34'	2						
133+45	RT.		34'	2						
134+42	LT.		34'	2						
135+82	C								78'	2
136+19	154 TH. LANE	NO CULVERT REQ.								
139+43	LT.		34'	2						
143+14	C	REMOVE 30" C.M.P.					72'	2		
154+36	LT.		40'	2						
154+71	RT.		40'	2						
156+00	RT.		40'	2						
158+00	RT.		40'	2						
158+41	LT.		40'	2						
160+40	RT.	NO CULVERT REQ.								
165+00	C						78'	2		
170+13	RT.		40'	2						
171+88	LT.	159 TH. LANE					50'	2		
173+67	LT.	NO CULVERT REQ.								
177+39	LT.		36'	2						
178+60	C								76'	2
178+60	RT. 110'									
			546'	28	104'	4	242'	6	154'	4

The following Standard Detail plates, approved by the Bureau of Public Roads, shall apply on this project.

PLATE NO.	DESCRIPTION
3123 F	METAL APRON FOR C.M. PIPE
8000 D	STANDARD BARRICADES
8008 D	CONTRACTORS SIGN
9000 B	APPROACHES AND ENTRANCES

SPECIAL DETAILS

MATERIAL FROM THE TOP 6" OF THE NATURAL TOPSOIL SHALL NOT BE USED IN THE UPPER 1 FOOT OF THE ROADBED. PEAT MATERIAL (MUCK EXCAVATION) SHALL BE USED TO CONSTRUCT INSLOPES AND FOR TOPSOIL COVERING. THE MATERIAL USED FOR TOPSOIL SHALL BE SPREAD TO A UNIFORM 3" DEPTH OVER THE LENGTH OF THE ENTIRE PROJECT. THIS WORK WILL BE PAID FOR UNDER SALVAGED TOPSOIL ITEM. THE EXCESS PEAT MATERIAL SHALL BE STOCKPILED FOR FUTURE USE BY THE COUNTY. THIS WILL BE PAID FOR UNDER ITEM SALVAGED TOPSOIL IN STOCKPILE.

CAST IRON MONUMENT
STA. 100+00

BM #10 ELEV 89709
SPIKE IN DBL. OAK
STA. 109+88 2' RT.

ROAD STA 113+14 LT.
INSTALL 15" X 44" C.M.P. CULV.
INSTALL 2-15" C.M.P. APRONS

121+17 LT
NO CULV. REQ.

BM #8 ELEV. 90113
SPIKE IN 20" OAK
STA. 125+45 60' LT.

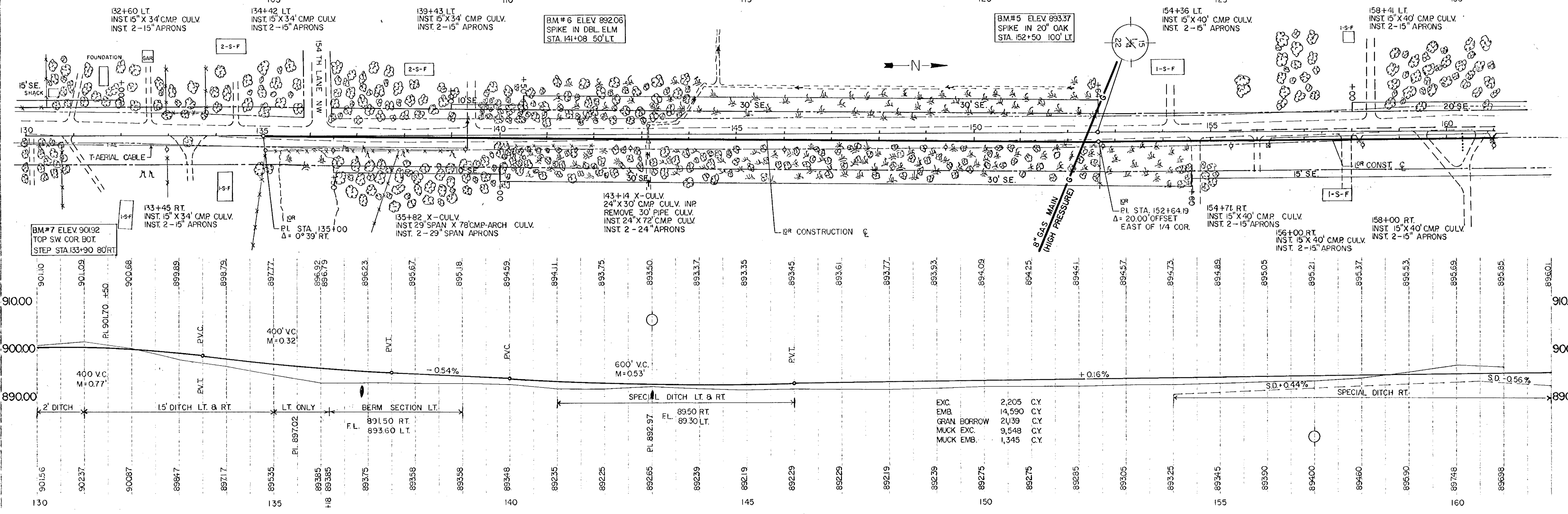
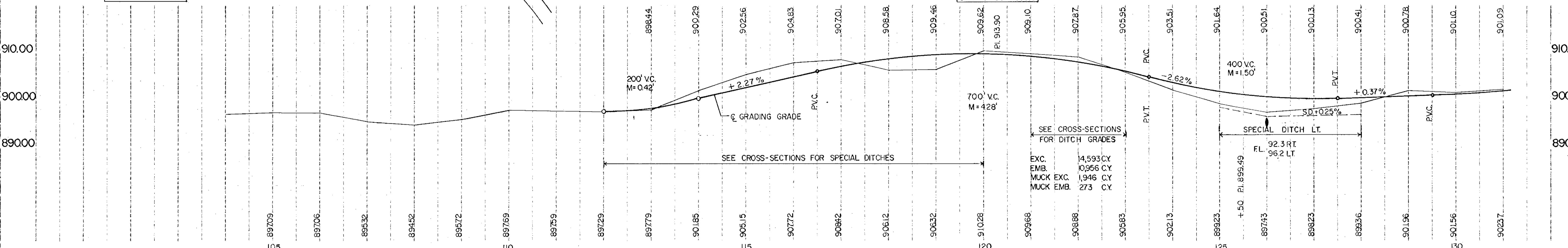
IRON PIPE
STA. 126+36.17

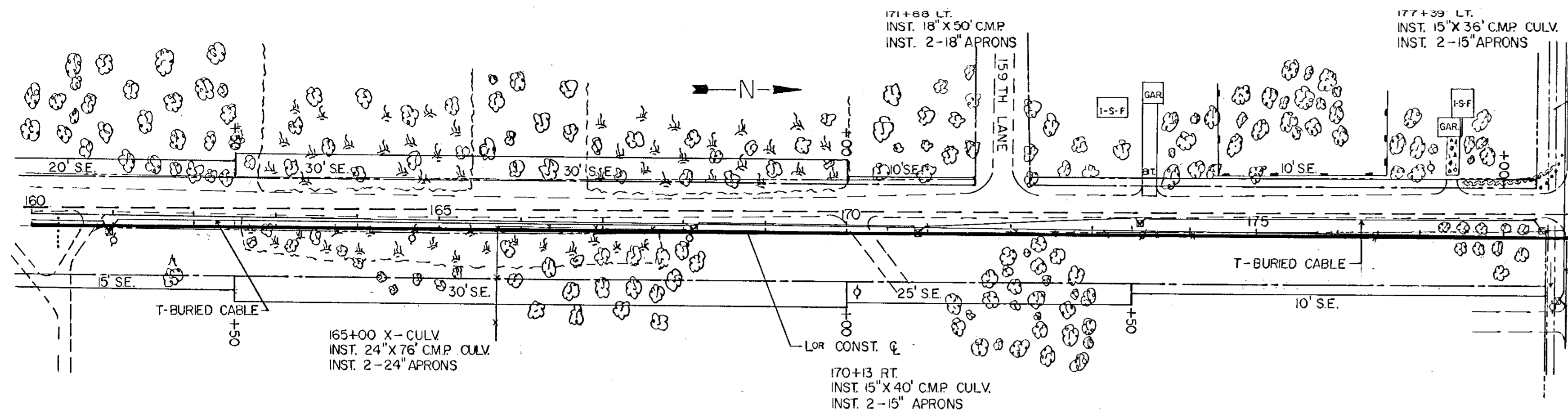
BM #11 ELEV 89700
SE COR. TOP STEP
STA. 101+50 80' RT.

BM #9 ELEV 91052
SW COR. TOP STEP
STA. 120+80 130' RT.

121+42 RT
INSTALL 15" X 36" C.M.P. CULV.
INSTALL 2-15" APRONS

126+00 X-CULV.
INST. 24" X 92" C.M.P. CULV.
INST. 2-24" APRONS





BM NO. 2 ELEV. 903.18
N.E. COR. SIDEWALK
TO HOUSE LT. STA. 177+46

