

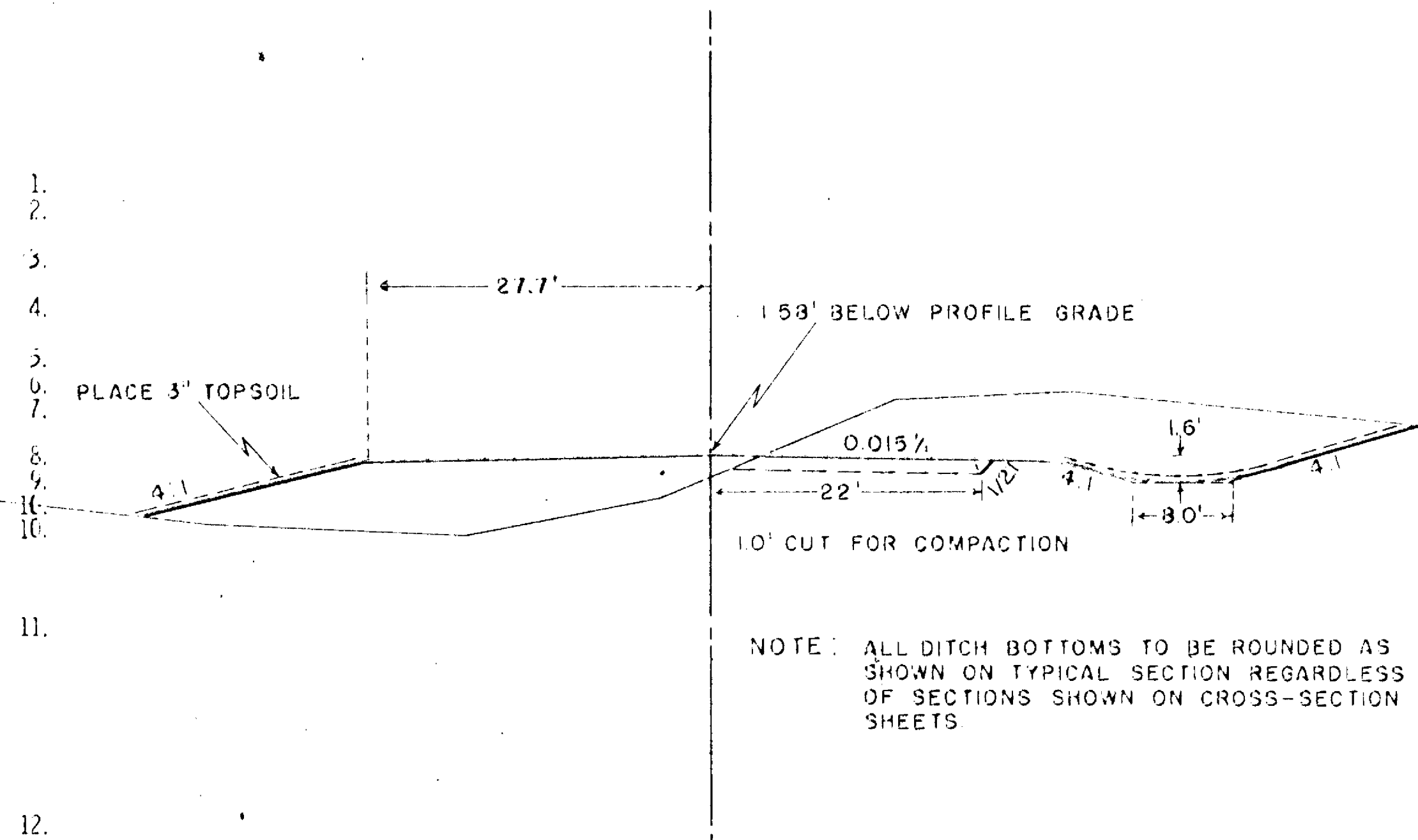
ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	UNIT	MUNICIPAL	RURAL	TOTAL ESTIMATED QUANTITIES
2101.502	CLEARING	TREE		8	8
2101.507	GRUBBING	TREE		8	8
2104.501	REMOVE PORTABLE CULVERTS	L.F.		344	344
2104.521	REMOVE BITUMINOUS CURB	L.F.		6	6
2105.501	CLASS A EXCAVATION	C.Y.		5764	5764
2105.504	CLASS S.G. EXCAVATION	C.Y.		1729	1729
2121.527	AGG. SHOULDERING INP. (CL 2)	TON		473	473
2130.501	WATER	1000 (M) GAL		10	10
2201.525	GRAVEL SUB-BASE INP. (CL 4)	TON		5243	5243
2202.525	GRAVEL BASE INP. (CL 5)	TON		2474	2474
2208.501	BIT. MAT'L FOR PRIME (MC 70)	GAL.		1670	1670
2208.503	BIT. MAT'L FOR MIX (MC 250)	GAL.		2970	2970
2208.505	AGGREGATE	TON		278	278
2341.502	BIT. MAT'L FOR TACK (RC 250)	GAL.		500	500
2341.504	BIT. MAT'L FOR MIX (AC 85-100)	TON		41.6	41.6
2341.507	WEARING COURSE MIX. & FILLER	TON		416	416
2341.510	BINDER COURSE MIX.	TON		416	416
2501.511-15	F.&T. 15" C.M.P. CULV.	L.F.		150	150
2501.511-18	F.&T. 18" C.M.P. CULV.	L.F.		48	48
2501.522-28	F.&T. 28" SPAN R.C.P.A. (CL III)	L.F.		54	54
2515.531-15	F.&T. MET. APR. FOR 15" C.M.P.	APR.		10	10
2515.531-18	F.&T. MET. APR. FOR 18" C.M.P.	APR.		2	2
2515.542-23	F.&T. CONC. APR. 28" SPAN S.C.P.A.	APR.		2	2
2574.501	ROADSIDE SEEDING	ACRE		2.75	2.75
2574.511	SEED (CLASS 1B)	POUND		110	110
2575.501	SODDING	SQ. YD.		2475	2475

ALL DIMENSIONS AND SLOPES SHOWN ON THE TYPICAL SECTIONS ARE APPROXIMATE

TYPICAL GRADING SECTIONS

STATION 22+90 TO STATION 38+70



BASIS FOR COMPUTATION OF QUANTITIES

1. AGGREGATE SHOULDERING COMPUTED AT 140 LB. PER C.F. + 3% MOISTURE
2. WATER COMPUTED AT 20 GAL. PER TON OF SHOULDERING MATERIAL
3. SUB-BASE COMPUTED AT 135 LB. PER C.F. + 3% MOISTURE, INCLUDES MATERIAL FOR ENTRANCES AND APPROACHES
4. GRAVEL BASE COMPUTED AT 140 LB. PER C.F. + 3% MOISTURE, INCLUDES MATERIAL FOR ENTRANCES AND APPROACHES
5. MATERIAL FOR PRIME COMPUTED AT 0.30 GAL. PER S.Y.
6. BITUMINOUS MATERIAL FOR MIXTURE COMPUTED AT 1.55 GAL. PER 100 LB. OF DR. AGGREGATE
7. AGGREGATE COMPUTED AT 100 LB. PER S.Y. + 3% MOISTURE
8. MATERIAL FOR TACK COMPUTED AT 0.05 GAL. PER S.Y.
9. BITUMINOUS MATERIAL FOR MIXTURE COMPUTED AT 4.5% OF BINDER COURSE MIXTURE B. WEIGHT.
10. MIXTURE COMPUTED AT 110 LB. PER S.Y. PER INCH IN DEPTH.
11. REQUIRES CLASS "B" BEDDING
12. SODDING COMPUTED FOR ALL RADII TO R.W. ALL CULVERT ENDS AND ALL RESIDENCE FRONTAGES

THERE ARE 8 ENTRANCES AND 1 DECELERATION LAKE ON THIS PROJECT.

CULVERT REQUIREMENTS

STA.	LOC.	F & T 15" C.M.P.C. L.F.	F & T 18" C.M.P.C. L.F.	F & T 28" SPAN R.C.P.A. CULV. L.F.	F & T APRON
23+59	38' RT.	30			2
24+49	38' RT.	30			2
24+85	38' LT.	30			2
35+35	43' LT.		48		2
38+42	100' LT.	30			2
38+42	100' RT.	30			2
38+71	45' RT.			54	2

CLEARING AND GRUBBING

STA.	LOC.	2101.502 CLEARING TREE	2101.507 GRUBBING TREE
23+49	30' RT.	1	1
+68	40' RT.	1	1
+87	22' RT.	1	1
24+04	22' RT.	1	1
+21	22' RT.	1	1
+38	22' RT.	1	1
+38	40' RT.	1	1
+59	23' RT.	1	1

REMOVE PORTABLE CULVERTS

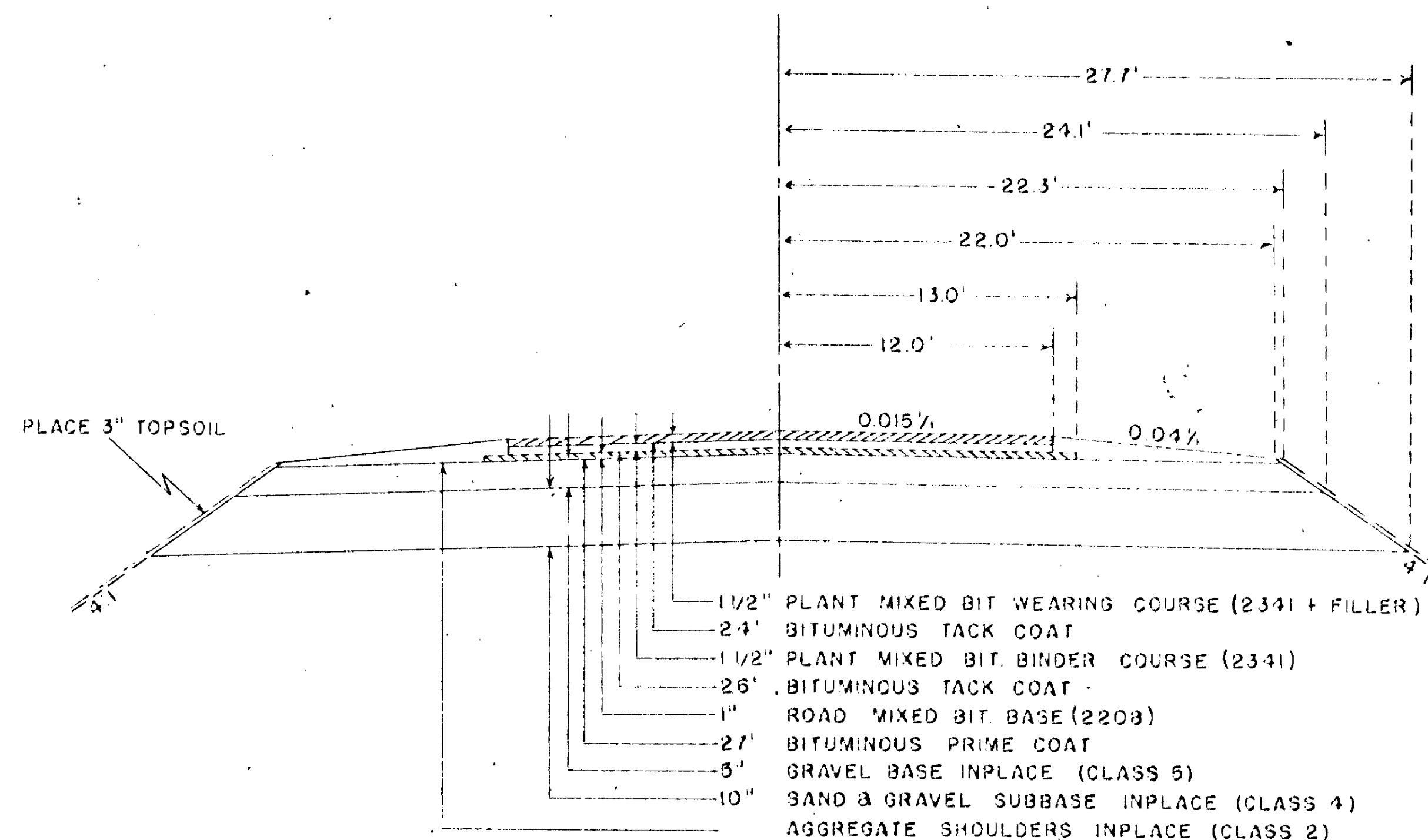
STA.	LOC.	SIZE	L.F.
23+59	RT.	15" C.M.P.	20
24+49	RT.	12" C.M.P.	20
27+97	RT.	12" C.M.P.	20
29+85	LT.	12" C.M.P.	18
35+35	LT.	12" C.M.P.	26
38+10	RT.	24" S.C.P.	100
38+10	LT.	24" S.C.P.	100
38+71	LT.	12" C.M.P.	40

REMOVE BIT. CURB

STA.	LOC.	L.F.
27+59	LT.	6

TYPICAL BASE & SURFACE SECTIONS

STATION 22+90 TO STATION 38+70



STANDARD DETAIL PLATES

THE FOLLOWING STANDARD DETAIL PLATES, APPROVED BY THE BUREAU OF PUBLIC ROADS, SHALL APPLY ON THIS PROJECT.

PLATE NO.	DESCRIPTION
3011B	REINFORCED CONC. PIPE ARCH
3110B	CONC. APR. FOR REINFORCED CONC. PIPE ARCH
3123C	METAL APR. FOR C.M. PIPES
8000A, 8001	STANDARD SIGNS
8003, 8003A	AND BARRICADES
9000	APPROACHES AND ENTRANCES
9102A	SODDING AT PIPE CULVERT ENDS

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

State Proj. No. _____ S.A.P. 02-641-02

P.O.T. 10+100

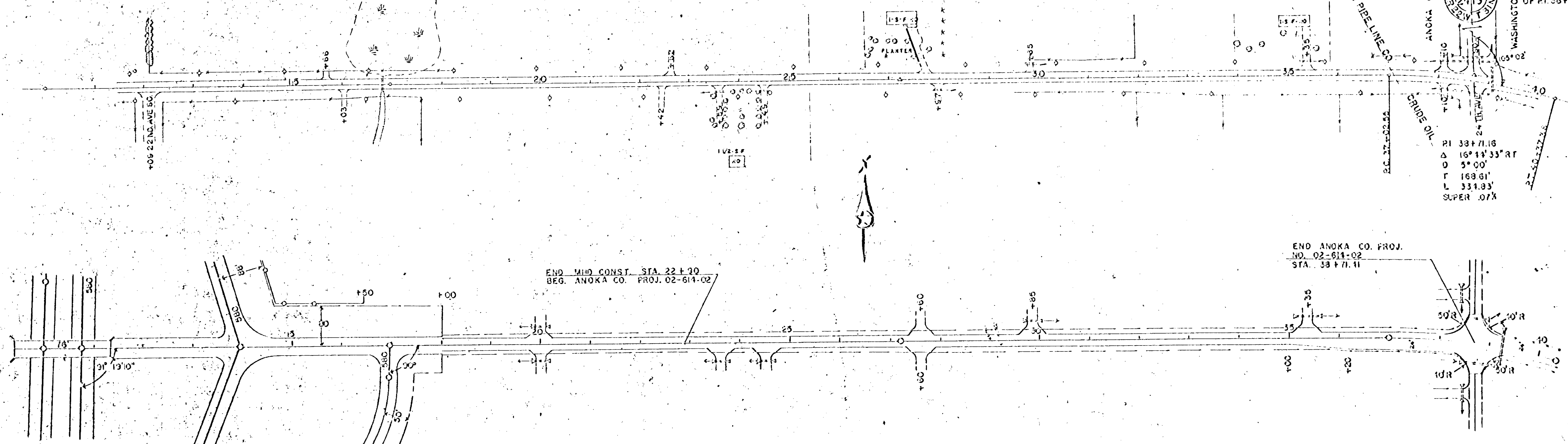
P.O.T. 13+96.0

P.O.T. 16+96.0

PI. 27+21.45
Δ 0° 04' 39" LT.

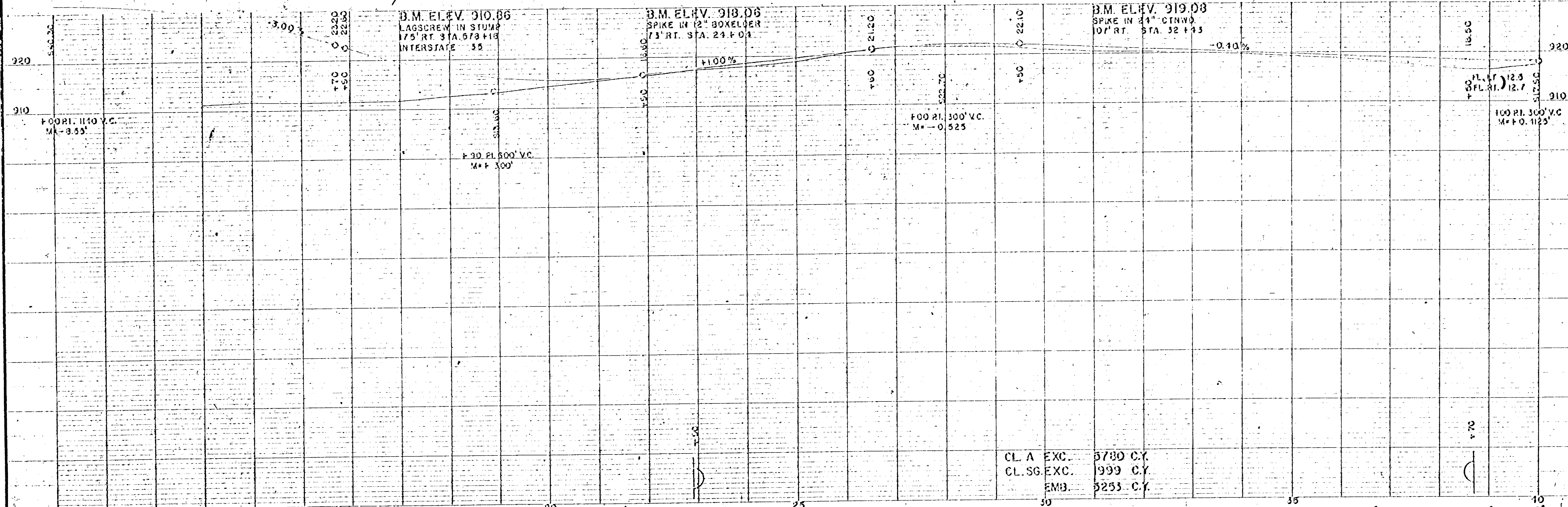
Fed. Proj. No.

MINN. PIPELINE CO.
ANOKA CO.
WASHINGTON CO.
SEC. COR. 13
1298.9' NORTH
OF PI. 38+71.16



END MID CONST. STA. 22+30
BEG. ANOKA CO. PROJ. 02-614-02

END ANOKA CO. PROJ.
NO. 02-614-02
STA. 38+71.11

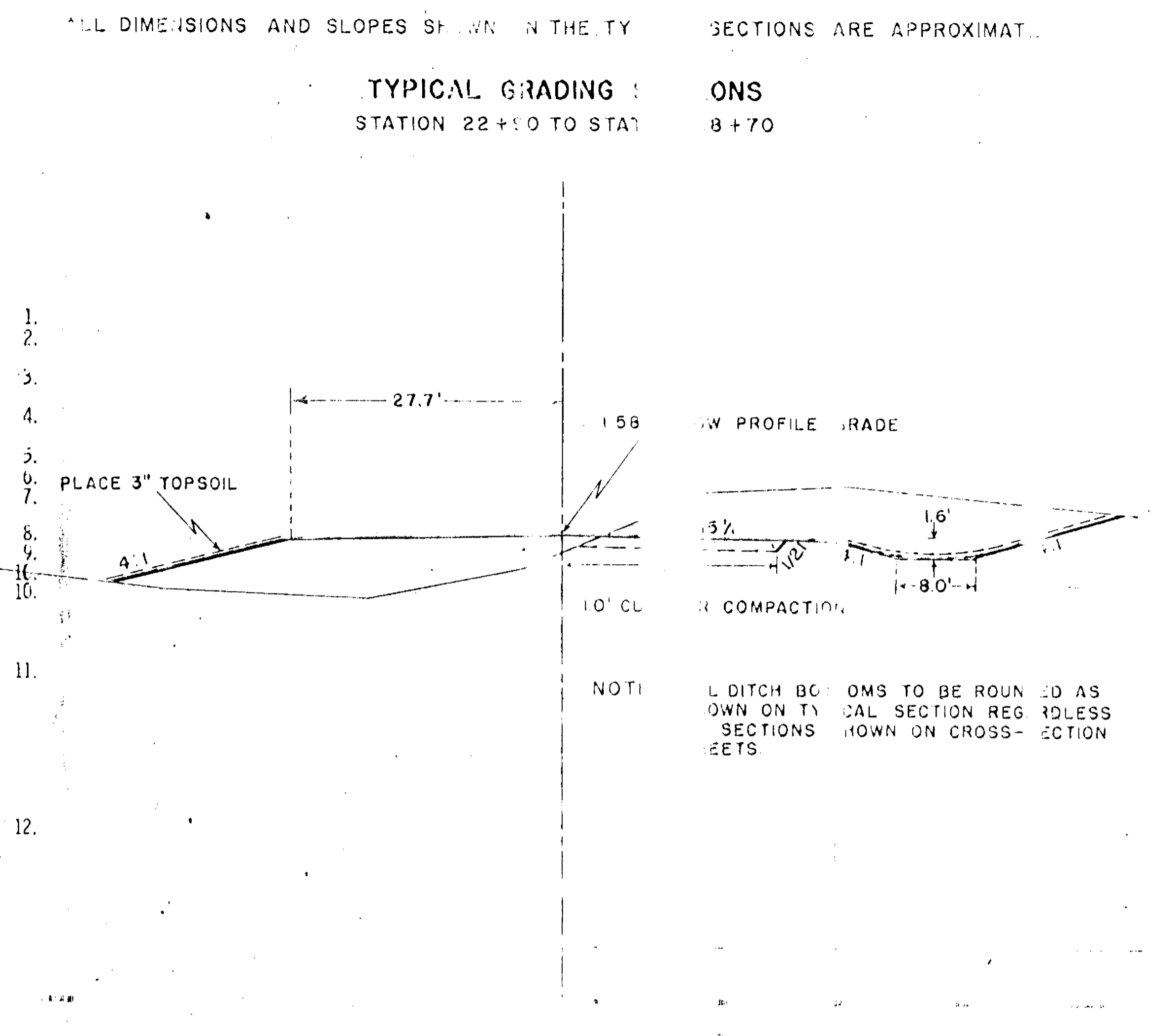


CL. A EXC.	5780 C.Y.
CL. SG. EXC.	999 C.Y.
EMB.	5253 C.Y.

State Proj. No. SAP 02-614-02

Sheet No. 3 of 5 Sheets

ESTI.		QUANTITIES		UNIT	FEDERAL	TOTAL ESTIMATE QUANTITY
SPECIFICATION NO.	ITEM					
2101.502	CLEARING			TRF	8	
2101.507	GRUBBING			TRF	8	
2104.501	REMOVE PORTABLE CULVERT			L.F.	344	344
2104.521	REMOVE BITUMINOUS CURB			L.F.	6	6
2105.501	CLASS 'A' EXCAVATION			C.Y.	5764	576
2105.504	CLASS 'S.G.' EXCAVATION			C.Y.	1999	199
2121.527	AGG. SHOULDERING INP. (CL)			TON	478	47
2150.501	WATER			1000 (GAL)	10	1
2201.526	GRAVEL SUB-BASE INP. (CL)			TON	5243	524
2202.526	GRAVEL BASE INP. (CLASS 5)			TON	2474	247
2208.501	BIT. MAT'L. FOR PRIME (MC)			GA	1670	167
2208.503	BIT. MAT'L. FOR MIX. (MC)			GA	2970	297
2208.506	AGGREGATE			TON	278	27
2341.502	BIT. MAT'L. FOR TACK (RC)			GA	500	50
2341.504	BIT. MAT'L. FOR MIX. (AC)			TON	41.6	4
2341.509	WEARING COURSE MIX. & F			TON	416	41
2341.510	BINDER COURSE MIX.			TON	416	41
2501.511-15	F. & I. 15" C.M.P. CULV.			L.F.	150	15
2501.511-18	F. & I. 18" C.M.P. CULV.			L.F.	48	4
2501.522-28	F. & I. 28" SPAN R.C.P.A. (L)			L.F.	54	5
2515.531-15	F. & I. MET. APR. FOR 15" C.			APR.	10	1
2515.531-18	F. & I. MET. APR. FOR 18" C.			APR.	2	
2515.542-28	F. & I. CONC. APR. 28" SPAN			APR.	2	
2574.501	ROADSIDE SEEDING			ACR. LB.	2.75	
2574.511	SEED (CLASS 16)			POUND	110	11
2576.501	SODDING			SQ.	2475	247



- Fed. Proj. No. _____
- ### BASIS FOR COMPUTATION OF QUANTITIES
- AGGREGATE SHOULDERING COMPUTED AT 140 LB. PER C.F. + 3% MOISTURE
 - WATER COMPUTED AT 20 GAL. PER TON OF SHOULDERING MATERIAL
 - SUB-BASE COMPUTED AT 155 LB. PER C.F. + 3% MOISTURE, INCLUDES MATERIAL FOR ENTRANCES AND APPROACHES
 - GRAVEL BASE COMPUTED AT 140 LB. PER C.F. + 3% MOISTURE, INCLUDES MATERIAL FOR ENTRANCES AND APPROACHES
 - MATERIAL FOR PRIME COMPUTED AT 0.30 GAL. PER S.Y.
 - BITUMINOUS MATERIAL FOR MIXTURE COMPUTED AT 0.55 GAL. PER 100 LB. OF DR. AGGREGATE
 - AGGREGATE COMPUTED AT 100 LB. PER S.Y. + 3% MOISTURE
 - MATERIAL FOR TACK COMPUTED AT 0.05 GAL. PER S.Y.
 - BITUMINOUS MATERIAL FOR MIXTURE COMPUTED AT 4.5% OF BINDER COURSE MIXTURE B. WEIGHT & 5.5% OF WEARING COURSE MIXTURE B. WEIGHT.
 - MIXTURE COMPUTED AT 110 LB. PER S.Y. PER INCH IN DEPTH.
 - REQUIRES CLASS "B" BEDDING
 - SODDING COMPUTED FOR ALL RADII TO R/W, ALL CULVERT ENDS AND ALL RESIDENCE FRONTAGES
- THERE ARE 8 ENTRANCES AND 1 DECELERATION LANE ON THIS PROJECT.

CULVERT REQUIREMENTS

STA.	LOC.	F & I 15' C.M.P.C. L.F.	F & I 18' C.M.P.C. L.F.	F & I 28" SPAN R.C.P.A. CULV. L.F.	F & I APRON
23+59	38' RT.	30			
24+49	38' RT.	30			2
27+85	38' LT.	30			2
35+35	43' LT.		48		2
38+42	100' LT.	30			2
38+42	100' RT.	30			2
38+71	45' RT.			54	2

CLEARING AND GRUBBING

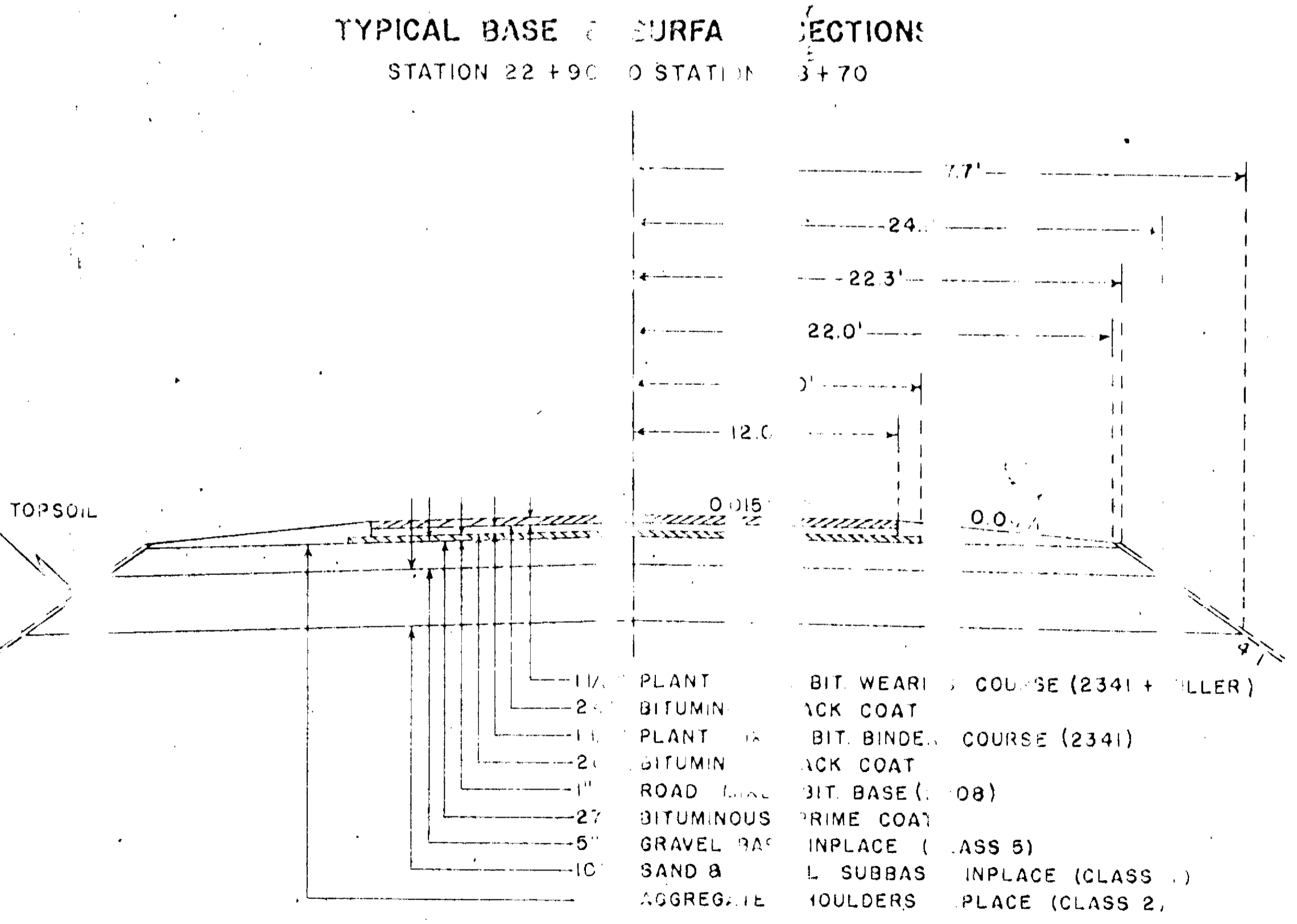
STA.	LOC.	2101.502 CLEARING TREE	2101.507 GRUBBING TREE
23+49	30' RT.	1	1
+68	40' RT.	1	1
+87	22' RT.	1	1
24+04	22' RT.	1	1
+21	22' RT.	1	1
+33	22' RT.	1	1
+38	40' RT.	1	1
+59	23' RT.	1	1

REMOVE PORTABLE CULVERTS

STA.	LOC.	SIZE	L.F.
23+59	RT.	15" C.M.P.	20
24+49	RT.	12" C.M.P.	20
27+97	RT.	12" C.M.P.	20
27+85	LT.	12" C.M.P.	18
35+35	LT.	12" C.M.P.	26
38+10	RT.	24" S.C.P.	100
38+10	LT.	24" S.C.P.	100
38+71	LT.	12" C.M.P.	40

REMOVE BIT. CURB

STA.	LOC.	L.F.
27+57	LT	6



STANDARD DETAIL PLATES

THE FOLLOWING STANDARD DETAIL PLATES, APPROVED BY THE BUREAU OF PUBLIC ROADS, SHALL APPLY ON THIS PROJECT.

PLATE NO.	DESCRIPTION
5014B	REINFORCED CONC. PIPE ARCH
3110B	CONC. APR. FOR REINFORCED PIPE ARCH
3123C	METAL APR. FOR C.M. PIPES
8000A, 8001	STANDARD SIGNS
8003, 8003A	AND BARRICADES
9000	APPROACHES AND ENTRANCES
9102A	SODDING AT PIPE CULVERT ENDS