

**PLANS SYMBOLS**

STATE LINE	----
COUNTY LINE	-----
TOWNSHIP OR RANGE LINE	-----
SECTION LINE	-----
QUARTER LINE	-----
SIXTEENTH LINE	-----
RIGHT-OF-WAY LINE	-----
SLOPE EASEMENT	-----
PRESENT RIGHT-OF-WAY LINE	-----
CONTROL OF ACCESS LINE	-----
PROPERTY LINE (Except Land Line)	-----
VACATED 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	-----
DRAIN TILE	-----
CULVERT	-----
DROP INLET	-----
GUARD RAIL	-----
BARBED WIRE FENCE	-----
WOVEN WIRE FENCE	-----
CHAIN LINK FENCE	-----
RAILROAD SNOW FENCE	-----
STONE WALL OR FENCE	-----
HEDGE	-----
RAILROAD CROSSING SIGN	-----
RAILROAD CROSSING BELL	-----
ELECTRIC WARNING SIGN	-----
CROSSING GATE	-----
MEANDER CORNER	-----
SPRINGS	-----
MARSH	-----

TIMBER	-----
ORCHARD	-----
BRUSH	-----
NURSERY	-----
CATCH BASIN	-----
FIRE HYDRANT	-----
CATTLE GUARD	-----
OVERPASS (Highway Over)	-----
UNDERPASS (Highway Under)	-----
BRIDGE	-----
BUILDING (One Story Frame)	-----
F - FRAME	-----
S - STONE	-----
B - BRICK	-----
C - CONCRETE	-----
T - TILE	-----
ST - STUCCO	-----
IRON PIPE OR ROD	-----
MONUMENT (STONE, CONCRETE, OR METAL)	-----
WOODEN HUB	-----
GRAVEL PIT	-----
SAND PIT	-----
BORROW PIT	-----
ROCK QUARRY	-----

**UTILITIES SYMBOLS**

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

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

### CONSTRUCTION PLAN FOR GRADING, BASE & BITUMINOUS SURFACING

LOCATED ON C.R. # 60 BETWEEN 3,130' EAST OF CSAH #18 AND 1,400' EAST OF UNIV. AVE. NE. (Geographic Description)

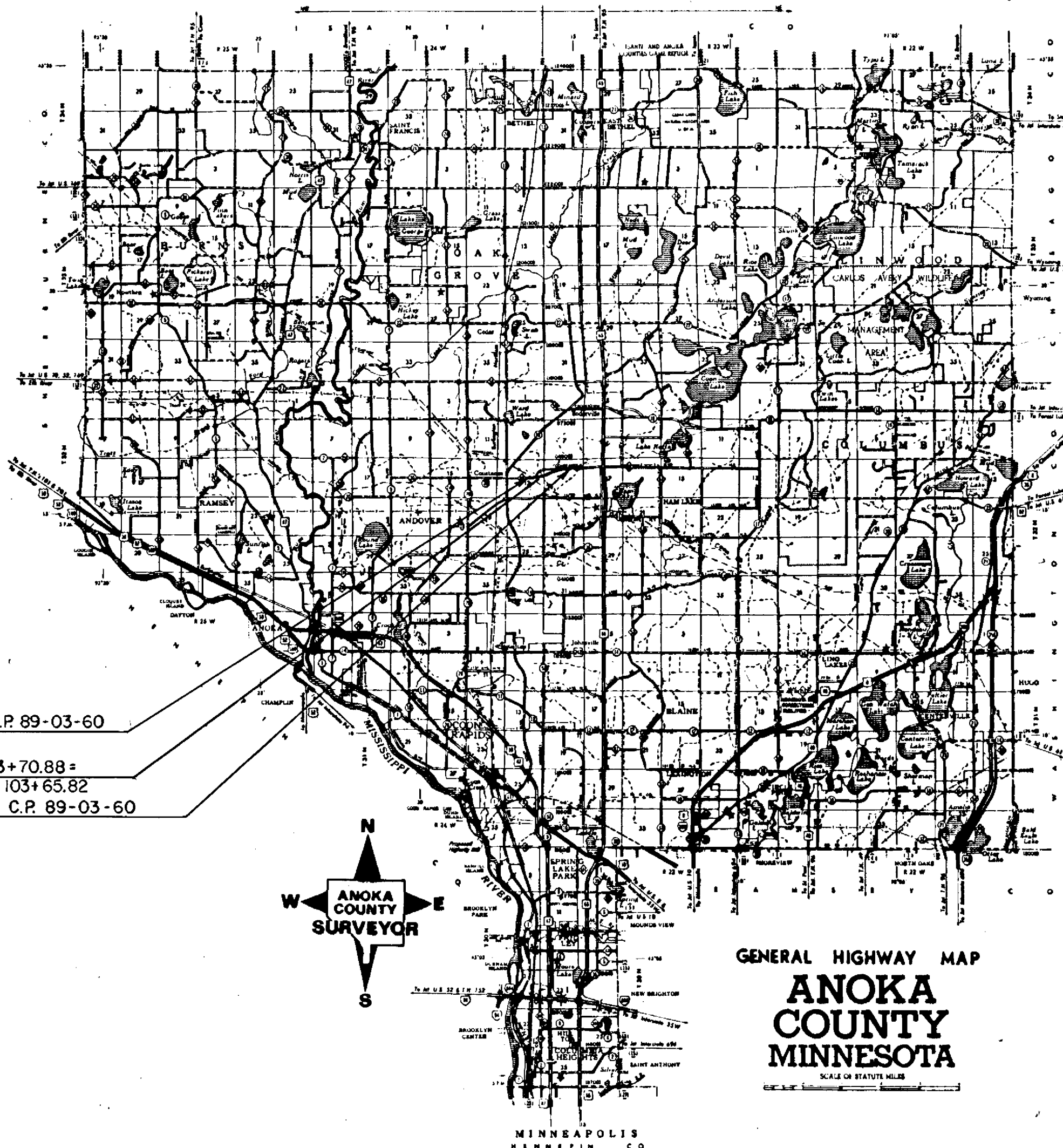
FROM A POINT 3,130.29' EAST AND 25.42' SOUTH OF THE WEST 1/4 COR. SEC. 13, T.32N. R.24W. TO A POINT 1,384.01' EAST AND 1,259.63' SOUTH OF THE NW COR. SEC. 18, T.32N. R.23W. (Legal Description)

COUNTY PROJ. NO. 89-03-60

STATE AID PROJ. NO.

GROSS LENGTH 3,945.06' FEET 0.747 MILES  
 BRIDGES-LENGTH FEET MILES  
 EXCEPTIONS-LENGTH FEET MILES  
 NET LENGTH 3,945.06' FEET 0.747 MILES

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



**GOVERNING SPECIFICATIONS**

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

**INDEX**

SHEET NO.	TITLE
1	TITLE SHEET & INDEX MAP
2	ESTIMATED QUANTITIES
3	EARTHWORK SUMMARY
4	TYPICAL SECTIONS
5	TYPICAL SECTIONS - L1 & L2
6	DRAINAGE
7	ENTRANCE DETAIL
8	EROSION CONTROL DETAILS
9	SUPERELEVATION
10-12	PLAN & PROFILE
13	PLAN & PROFILE - L2
14-19	CROSS SECTIONS
20	CROSS SECTIONS - L1
21-23	CROSS SECTIONS - L2
24	CROSS SECTIONS - L3
25-27	CONSTRUCTION SIGNING

THIS PLAN CONTAINS 27 SHEETS

**DESIGN DESIGNATION**

§N18 20  
 R Value  
 ADT (1988) = 2,317  
 Proj. ADT (2008) = 3,939  
 Proj. HCADT (2008) = 300-600  
 Soil Factor A-3, 50%  
 9 Ton Design  
 Shoulder Width 8'

Design Speed 55 MPH  
 Based on STOPPING Sight Distance  
 Height of eye 3.5' Height of object 0.5'  
 Design Speed not achieved at:  
 STA. TO STA. MPH  
 STA. TO STA. MPH  
 STA. TO STA. MPH

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

DATE 2/23/90 REG. NO. 6549 ENGR. Paul K. Lund

COUNTY ANOKA

Recommended for Approval 19 DISTRICT STATE AID ENGINEER

Recommended for Approval 19 STATE AID PLANS AND SPECS ENGINEER

Approved 19 STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 APPROVED  
 DIVISION ADMINISTRATOR DATE

STATE AID PROJ. NO. C.P. 89-03-60  
 STATE PROJ. NO. SHEET NO. 1 OF 27 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
2021.501	MOBILIZATION	LUMP SUM	1	
2031.501	FIELD OFFICE, TYPE 'D'	EACH	1	
2101.501	CLEARING	ACRE	2.20	
2101.502	CLEARING	TREE	55	
2101.506	GRUBBING	ACRE	2.20	
2101.507	GRUBBING	TREE	39	
2104.501	REMOVE CULVERT PIPE	LIN. FT.	92	
2104.501	REMOVE CONC. CURB & GUTTER	LIN. FT.	30	
2104.505	REMOVE BITUMINOUS PAVEMENT	SQ. YD.	6880	
2104.513	SAWING BITUMINOUS PAVEMENT	LIN. FT.	163	
2104.521	SALVAGE FENCE	LIN. FT.	1609	
0557.603	INSTALL FENCE	LIN. FT.	1383	
2105.501	COMMON EXCAVATION (P)	CU. YD.	23,992	
2105.505	MUCK EXCAVATION	CU. YD.	21,843	
2105.521	GRANULAR BORROW (EV)	CU. YD.	59,138	
2105.535	SALVAGE TOPSOIL (LV)	CU. YD.	229	
2105.535	SALVAGE TOPSOIL (LV) IN STOCKPILE	CU. YD.	17,917	
2123.509	DOZER	HOOR	10	
2130.501	WATER	M. GAL.	350	
2211.503	AGGREGATE BASE PLACED, CLASS 5A (P)	CU. YD.	3,905	
0211.503	5' THICK AGG. BASE PLACED, CL.5A	SQ. YD.	215	
2331.508	TYPE 41 WEARING COURSE MIXTURE	TON	2,200	
2331.510	TYPE 31 BINDER COURSE MIXTURE	TON	1,700	
2331.512	TYPE 31 LEVEL COURSE MIXTURE, SIZE A	TON	450	
2331.514	TYPE 31 BASE COURSE MIXTURE	TON	1,600	
2580.501	TEMPORARY LANE MARKING	RD. STA.	315	
0331.601	2" THICK WEARING COURSE MIXTURE	SQ. YD.	410	
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	2,100	
2501.511	15' CM PIPE CULVERT	LIN. FT.	334	
2501.511	24' CM PIPE CULVERT	LIN. FT.	72	
2501.511	48' CM PIPE CULVERT	LIN. FT.	104	
2501.511	66' CM PIPE CULVERT	LIN. FT.	120	
2501.515	15' CM PIPE APRON	EACH	18	
2501.515	24' CM PIPE APRON	EACH	2	
2501.515	48' CM PIPE APRON	EACH	2	
2501.515	66' CM PIPE APRON	EACH	2	
2501.515	15' RC PIPE APRON	EACH	1	
2501.521	28.5' SPAN RC PIPE-ARCH CULVERT CLASS 3	LIN. FT.	52	
2501.525	28.5' SPAN RC PIPE-ARCH APRON	EACH	2	
2503.541	12' RC PIPE SEWER, DES. 3006F, CLASS 3	LIN. FT.	39	
2503.541	15' RC PIPE SEWER, DES. 3006F, CLASS 3	LIN. FT.	40	
2506.507	CONSTRUCT CB. DESIGN A DR F	LIN. FT.	6.6	
2506.507	CONSTRUCT CB. DESIGN C DR G	LIN. FT.	5.0	
2506.516	CASTING ASSEMBLY	EACH	2	
2511.501	RANDOM RIPRAP, CLASS 4	CU. YD.	58	
2511.511	GRANULAR FILTER	CU. YD.	29	
2531.501	CONC. CURB & GUTTER, DESIGN B618	LIN. FT.	1166	
2535.501	BITUMINOUS CURB	LIN. FT.	225	
2573.501	BALE CHECK	EACH	35	
2573.503	SILT FENCE, PREASSEMBLED	LIN. FT.	4665	
2573.508	BITUMINOUS LINED FLUME	SQ. YD.	37	
2575.501	SEEDING (P)	ACRE	6.0	
2575.502	SEED, MIXTURE NO. 900	POUND	270	
2575.505	SODDING, TYPE-LAWN & BOULEVARD	SQ. YD.	4,437	
2575.511	MULCH MATERIAL, TYPE 1	TON	12.0	
2575.519	DISC ANCHORING (P)	ACRE	6.0	
2575.531	COMMERCIAL FERTILIZER ANALYSIS 10-10-10	TON	1.5	
0563.601	TRAFFIC CONTROL, PHASE 1	LUMP SUM	1	
0563.601	TRAFFIC CONTROL, PHASE 2	LUMP SUM	1	

BASIS OF PLANNED QUANTITIES

2331	TYPE 41 PLANT MIXED WEARING COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD. PER 1" THICKNESS EST. BITUMINOUS MATERIAL FOR MIXTURE 5.8% BY WEIGHT
2331	TYPE 31 PLANT MIXED BASE, BINDER AND LEVELING COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD. PER 1" THICKNESS EST. BITUMINOUS MATERIAL FOR MIXTURE 5.3% BY WEIGHT
2357	BITUMINOUS MATERIAL FOR TACK 0.05 GALLONS PER SQ.YD.
2575	MULCH MATERIAL TYPE 1, 2 TONS PER ACRE
2575	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10 500 LBS./ACRE ON ALL SEED AND SOD AREAS
2575	ROADSIDE SEEDING BASED ON HORIZONTAL MEASUREMENT - PLUS 10% OF SLOPE
2575	SEED MIXTURE NO. 900, 45LBS. PER ACRE

STANDARD PLATES

PLATE NO.	DESCRIPTION
0005 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 L	REINFORCED CONCRETE PIPE
3006 F	GASKET JOINT FOR R.C. PIPE
3014 J	REINFORCED CONCRETE PIPE ARCH DETAIL
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3123 I	METAL APRON FOR C.S. PIPE
3134 B	RIPRAP AT CMP OUTLET
3145 E	CONCRETE PIPE TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
4000 I	MANHOLE OR CATCH BASIN
4002 E	MANHOLE OR CATCH BASIN
4005 K	MANHOLE OR CATCH BASIN
4006 K	MANHOLE OR CATCH BASIN
4010 G	CONCRETE SHORT CONE & ADJUSTING RING
4011 D	PRECAST CONCRETE BASE
4126 E	CATCH BASIN FRAME CASTING
4149 C	GRATE CASTING FOR CATCH BASIN
4161 F	CURB BOX CASTING FOR CATCH BASIN
4180 H	MANHOLE OR CATCH BASIN STEP
7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7065 C	BITUMINOUS CURB
7100 F	CONCRETE CURB AND GUTTER
7110 E	CURB AND GUTTER CONSTRUCTION AT CATCH BASIN
7111 G	INSTALLATION AND REINFORCEMENT OF CATCH BASIN CASTINGS
8000 I	STANDARD BARRICADES
9000 B	APPROACHES AND ENTRANCES
9102 C	SODDING AT PIPE CULVERT ENDS

SPECIAL DETAILS

APPROXIMATELY 2,897 CU. YDS. OF TOPSOIL IS REQUIRED TO PROVIDE A MINIMUM OF 3" TOPSOIL DRESSING OVER THE NEW SLOPE AND DITCH BOTTOMS. HANDLING OF THIS MATERIAL SHALL BE CONSIDERED AS INCIDENTAL TO THE COMMON EXCAVATION, ITEM 2105.501, AND NO ADDITIONAL COMPENSATION WILL BE MADE. APPROXIMATELY 229 CU. YDS. OF EXCESS MUCK MATERIAL FROM THE PROJECT WILL BE USED AS 3" TOPSOIL DRESSING IN FRONT YARD AREAS TO BE SODDED. THIS WORK SHALL BE PAID FOR UNDER ITEM 2105.535, SALVAGE TOPSOIL (LV) AND NO ADDITIONAL COMPENSATION WILL BE MADE. THE REMAINDER OF THE EXCESS MUCK MATERIAL, APPROXIMATELY 17,917 CU. YDS., IS TO BE HAULED TO THE ANOKA COUNTY HIGHWAY DEPARTMENT STORAGE YARD, 1440 BUNKER LAKE BLVD. ANDOVER, MN. THIS WORK SHALL BE PAID FOR UNDER ITEM 2105.535, SALVAGE TOPSOIL (LV) IN STOCKPILE AND NO ADDITIONAL COMPENSATION WILL BE MADE.

NOTES:

- ① INCLUDES 4,283 SQ. YD. FOR MAINLINE, 127 SQ. YD. FOR ENTRANCES, 533 SQ. YD. FOR L1, 113 SQ. YD. FOR L2 AND 1,824 SQ. YD. FOR L3.
- ② INCLUDES 3,252 CU. YD. OF SUBCUT FOR UNIFORMITY AND COMPACTION OF SOILS, 218 CU. YD. FOR L1 & 174 CU. YD. FOR L2. PROVIDED FOR PLACEMENT OF 3" OF SALVAGED EXCESS MUCK MATERIAL IN FRONT YARD AREAS TO BE SODDED.
- ③ PROVIDED FOR STOCKPILING OF EXCESS MUCK MATERIAL FROM THE PROJECT TO ANOKA CO. HIGHWAY DEPT. MAINT. STORAGE YARD, 1440 BUNKER LAKE BLVD., ANDOVER, MN.
- ④ PROVIDED FOR SHAPING OF OLD ROADBED L3 STA. 2+36 TO 9+00, AT THE DIRECTION OF THE ENGINEER.
- ⑤ INCLUDES 100 M-GALLON FOR DUST CONTROL AT THE DIRECTION OF THE ENGINEER, AND 250 M-GALLON FOR SUBGRADE AND AGGREGATE BASE COMPACTION.
- ⑥ INCLUDES 127 CU. YD. FOR L1 APPROACH, AND 283 CU. YD. FOR L2 APPROACH.
- ⑦ PROVIDED FOR FIELD ENTRANCE CONSTRUCTION, 5' COMPACTED THICKNESS.
- ⑧ INCLUDES 868 TON FOR MAINLINE ROADWAY, 450 TON FOR MAINLINE SHOULDERS, 168 TON FOR MAINLINE RIGHT TURN LANES, 47 TON FOR L1 CONSTRUCTION, 416 TON FOR L1 OVERLAY, 21 TON FOR L1 OVERLAY BITUMINOUS ENTRANCES, AND 163 TON FOR L1 ROAD APPROACH CONSTRUCTION.
- ⑨ INCLUDES 1205 TON FOR MAINLINE ROADWAY, 224 TON FOR MAINLINE RIGHT TURN LANES, 57 TON FOR L1 AND 209 TON FOR L2.
- ⑩ INCLUDES A 1" LEVELING COURSE FOR THE L1 BITUMINOUS OVERLAY, L1 STA. 12+00 TO 30+90.
- ⑪ INCLUDES 1300 TON FOR MAINLINE ROADWAY. PROVIDED FOR RESIDENTIAL ENTRANCE CONST. & PAYMENT PER SQ.YD. INCLUDES 2" TYPE 41 WEARING COURSE AND 3" AGG. BASE CL-5
- ⑫ PROVIDED FOR EROSION CONTROL, LOCATIONS TO DETERMINED BY THE ENGINEER.
- ⑬ INCLUDES 4.7 ACRES FOR MAINLINE, 0.1 ACRES FOR L1, 0.4 ACRES FOR L2 AND 0.8 ACRES FOR L3 - STA. 2+16 TO 9+00

REVISIONS			
DATE	BY	DATE	BY

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MAINLINE ROADWAY (CU. YDS.)

STATION 87+50 TO 96+00

REGULAR CUT	2567 CU. YD. + SUBCUT	1194 CU. YD. =	3761 CU. YD., COMMON EXCAVATION PAY QUANTITY
TOPSOIL	451 CU. YD. * 140% SHRINKAGE	=	631 CU. YD. TOPSOIL REWIRED
SUBCUT	1194 CU. YD. * 125% SHRINKAGE	=	1493 CU. YD. SUBCUT FILL
BIT REMOVAL	2240 SQ. YD. * 3' ESTIMATED DEPTH	=	187 CU. YD. BIT REMOVAL ESTIMATED CU. YD.
COMMON EXCAVATION PAY QUANTITY	3761 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL	2311 CU. YD. =	1450 CU. YD. COMMON EXC. AVAILABLE FOR FILL
REGULAR FILL	866 CU. YD. * 155% SHRINKAGE	=	1342 CU. YD. FILL REQUIRED
FILL REQUIRED	1342 CU. YD. - AVALIBALE COMMON EXC. FOR FILL	1450 CU. YD. =	-108 CU. YD. GRANULAR BORROW REQUIRED
MUCK FILL	36 CU. YD. * 140% SHRINKAGE	=	50 CU. YD. MUCK FILL REQUIRED
MUCK EXCAVATION	84 CU. YD. - MUCK FILL REQUIRED	50 CU. YD. =	34 CU. YD. EXCESS MUCK

STATION 96+00 TO 117+50

REGULAR CUT	4232 CU. YD. + SUBCUT	618 CU. YD. =	4850 CU. YD., COMMON EXCAVATION PAY QUANTITY
TOPSOIL	424 CU. YD. * 140% SHRINKAGE	=	594 CU. YD. TOPSOIL REWIRED
SUBCUT	618 CU. YD. * 125% SHRINKAGE	=	773 CU. YD. SUBCUT FILL
BIT REMOVAL	0 SQ. YD. * 3' ESTIMATED DEPTH	=	0 CU. YD. BIT REMOVAL ESTIMATED CU. YD.
COMMON EXCAVATION PAY QUANTITY	4850 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL	1366 CU. YD. =	3484 CU. YD. COMMON EXC. AVAILABLE FOR FILL
REGULAR FILL	30996 CU. YD. * 190% SHRINKAGE	=	58892 CU. YD. FILL REQUIRED
FILL REQUIRED	58892 CU. YD. - AVALIBALE COMMON EXC. FOR FILL	3484 CU. YD. =	55409 CU. YD. GRANULAR BORROW REQUIRED
MUCK FILL	1972 CU. YD. * 140% SHRINKAGE	=	2761 CU. YD. MUCK FILL REQUIRED
MUCK EXCAVATION	17403 CU. YD. - MUCK FILL REQUIRED	2761 CU. YD. =	14642 CU. YD. EXCESS MUCK

STATION 117+50 TO 127+00

REGULAR CUT	9921 CU. YD. + SUBCUT	1440 CU. YD. =	11361 CU. YD., COMMON EXCAVATION PAY QUANTITY
TOPSOIL	732 CU. YD. * 140% SHRINKAGE	=	1025 CU. YD. TOPSOIL REWIRED
SUBCUT	1440 CU. YD. * 125% SHRINKAGE	=	1800 CU. YD. SUBCUT FILL
BIT REMOVAL	1867 SQ. YD. * 3' ESTIMATED DEPTH	=	156 CU. YD. BIT REMOVAL ESTIMATED CU. YD.
COMMON EXCAVATION PAY QUANTITY	11361 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL	2980 CU. YD. =	8381 CU. YD. COMMON EXC. AVAILABLE FOR FILL
REGULAR FILL	469 CU. YD. * 155% SHRINKAGE	=	727 CU. YD. FILL REQUIRED
FILL REQUIRED	727 CU. YD. - AVALIBALE COMMON EXC. FOR FILL	8381 CU. YD. =	-7654 CU. YD. GRANULAR BORROW REQUIRED
MUCK FILL	34 CU. YD. * 140% SHRINKAGE	=	48 CU. YD. MUCK FILL REQUIRED
MUCK EXCAVATION	16 CU. YD. - MUCK FILL REQUIRED	48 CU. YD. =	-32 CU. YD. EXCESS MUCK

L1 ROAD APPROACH (CU. YDS.)

STATION 10+39 TO 12+00

REGULAR CUT	756 CU. YD. + SUBCUT	218 CU. YD. =	974 CU. YD., COMMON EXCAVATION PAY QUANTITY
TOPSOIL	77 CU. YD. * 140% SHRINKAGE	=	108 CU. YD. TOPSOIL REWIRED
SUBCUT	218 CU. YD. * 125% SHRINKAGE	=	273 CU. YD. SUBCUT FILL
BIT REMOVAL	429 SQ. YD. * 3' ESTIMATED DEPTH	=	36 CU. YD. BIT REMOVAL ESTIMATED CU. YD.
COMMON EXCAVATION PAY QUANTITY	974 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL	416 CU. YD. =	558 CU. YD. COMMON EXC. AVAILABLE FOR FILL
REGULAR FILL	1 CU. YD. * 155% SHRINKAGE	=	2 CU. YD. FILL REQUIRED
FILL REQUIRED	2 CU. YD. - AVALIBALE COMMON EXC. FOR FILL	588 CU. YD. =	-566 CU. YD. GRANULAR BORROW REQUIRED
MUCK FILL	0 CU. YD. * 140% SHRINKAGE	=	0 CU. YD. MUCK FILL REQUIRED
MUCK EXCAVATION	0 CU. YD. - MUCK FILL REQUIRED	0 CU. YD. =	0 CU. YD. EXCESS MUCK

L2 ROAD APPROACH (CU. YDS.)

STATION 30+25 TO 36+15

REGULAR CUT	88 CU. YD. + SUBCUT	174 CU. YD. =	262 CU. YD., COMMON EXCAVATION PAY QUANTITY
TOPSOIL	42 CU. YD. * 140% SHRINKAGE	=	59 CU. YD. TOPSOIL REWIRED
SUBCUT	174 CU. YD. * 125% SHRINKAGE	=	218 CU. YD. SUBCUT FILL
BIT REMOVAL	202 SQ. YD. * 3' ESTIMATED DEPTH	=	17 CU. YD. BIT REMOVAL ESTIMATED CU. YD.
COMMON EXCAVATION PAY QUANTITY	262 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL	293 CU. YD. =	-31 CU. YD. COMMON EXC. AVAILABLE FOR FILL
REGULAR FILL	7387 CU. YD. * 190% SHRINKAGE	=	14035 CU. YD. FILL REQUIRED
FILL REQUIRED	14035 CU. YD. - AVALIBALE COMMON EXC. FOR FILL	-31 CU. YD. =	14066 CU. YD. GRANULAR BORROW REQUIRED
MUCK FILL	597 CU. YD. * 140% SHRINKAGE	=	836 CU. YD. MUCK FILL REQUIRED
MUCK EXCAVATION	4340 CU. YD. - MUCK FILL REQUIRED	836 CU. YD. =	3504 CU. YD. EXCESS MUCK

L3 ROAD APPROACH (CU. YDS.)

STATION 2+36 TO 9+00

REGULAR CUT	2783 CU. YD. + SUBCUT	0 CU. YD. =	2783 CU. YD., COMMON EXCAVATION PAY QUANTITY
TOPSOIL	343 CU. YD. * 140% SHRINKAGE	=	480 CU. YD. TOPSOIL REWIRED
SUBCUT	0 CU. YD. * 125% SHRINKAGE	=	0 CU. YD. SUBCUT FILL
BIT REMOVAL	1771 SQ. YD. * 3' ESTIMATED DEPTH	=	148 CU. YD. BIT REMOVAL ESTIMATED CU. YD.
COMMON EXCAVATION PAY QUANTITY	2783 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL	628 CU. YD. =	2155 CU. YD. COMMON EXC. AVAILABLE FOR FILL
REGULAR FILL	88 CU. YD. * 155% SHRINKAGE	=	136 CU. YD. FILL REQUIRED
FILL REQUIRED	136 CU. YD. - AVALIBALE COMMON EXC. FOR FILL	2155 CU. YD. =	-2019 CU. YD. GRANULAR BORROW REQUIRED
MUCK FILL	0 CU. YD. * 140% SHRINKAGE	=	0 CU. YD. MUCK FILL REQUIRED
MUCK EXCAVATION	0 CU. YD. - MUCK FILL REQUIRED	0 CU. YD. =	0 CU. YD. EXCESS MUCK

EARTHWORK TOTALS				
REGULAR CUT CU. YD.	SUB CUT SQ. YD.	COMMON EXCAVATION PAY QUANTITY CU. YD.	GRANULAR BORROW CU. YD.	MUCK EXCAVATION CU. YD.
MAINLINE				
16720	3252	19972	47647	17503
L1				
756	218	974	-556	0
L2				
88	174	262	10466	4340
L3				
2783	0	2783	-2019	0
TOTALS				
20347	3644	23991	59138	21843

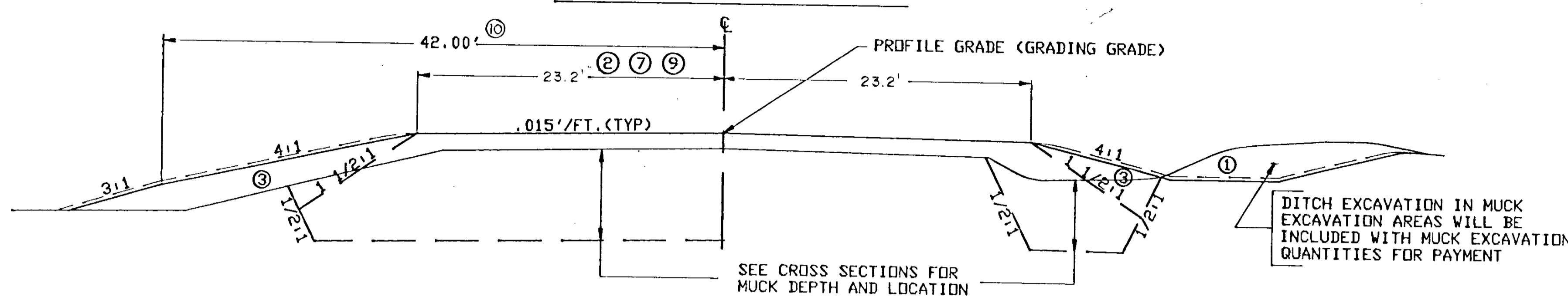
EARTHWORK SUMMARY SHEET

REVISIONS			
DATE	BY	DATE	BY

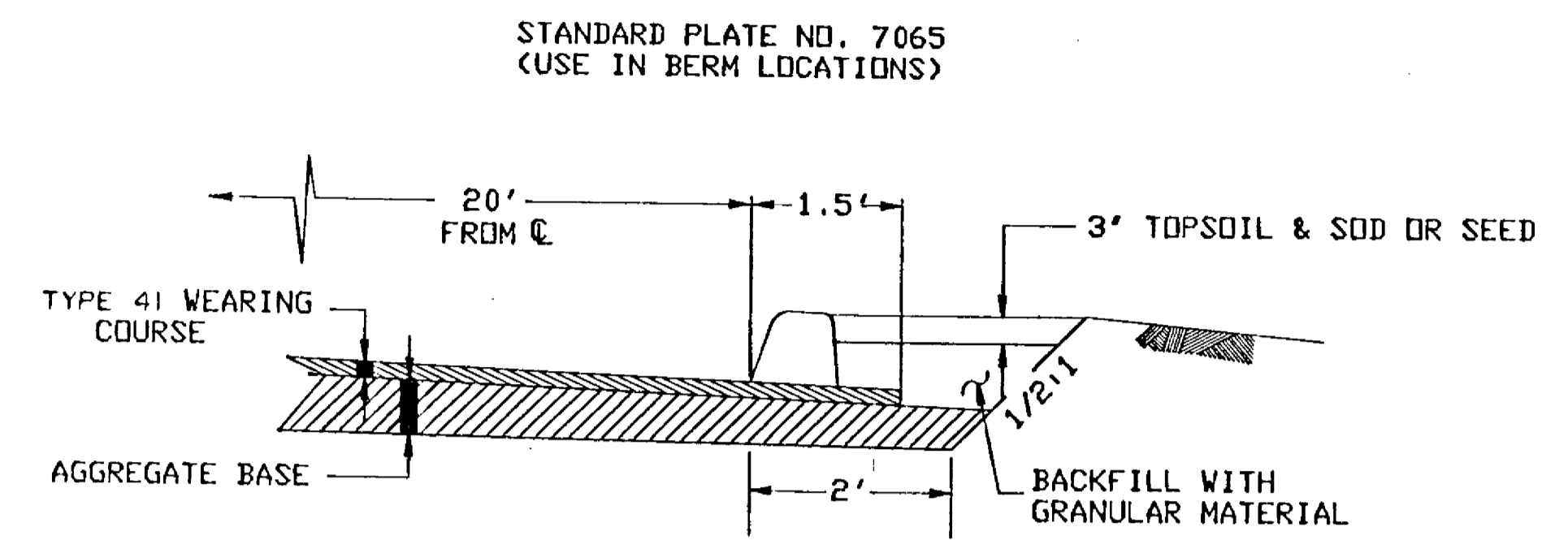
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Sheet No. 3 of 27 Sheets

**GRADING SECTION  
MUCK EXCAVATION AREAS**



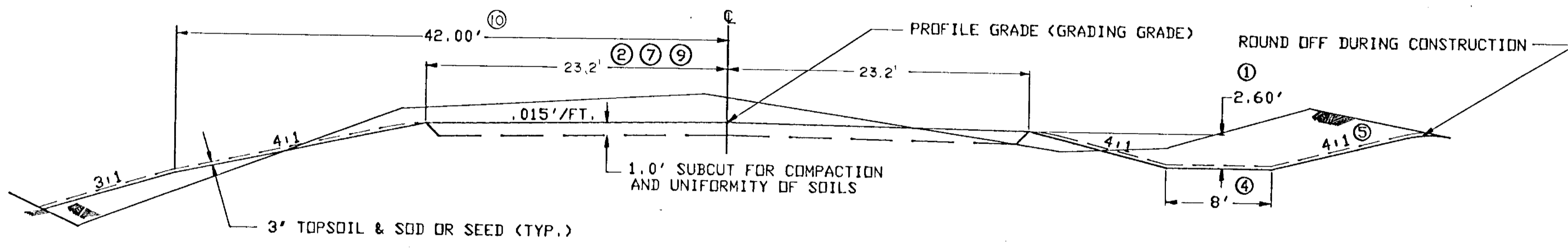
**BITUMINOUS CURB DETAIL**



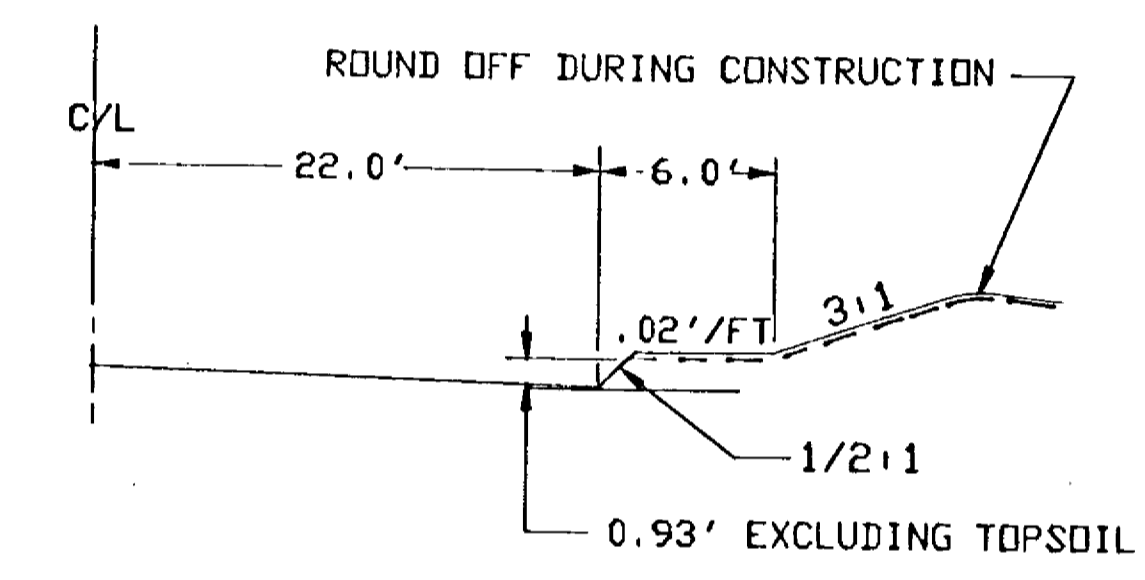
**CURB LOCATIONS**

92+50 TO 94+75 LT.

**GRADING SECTION**



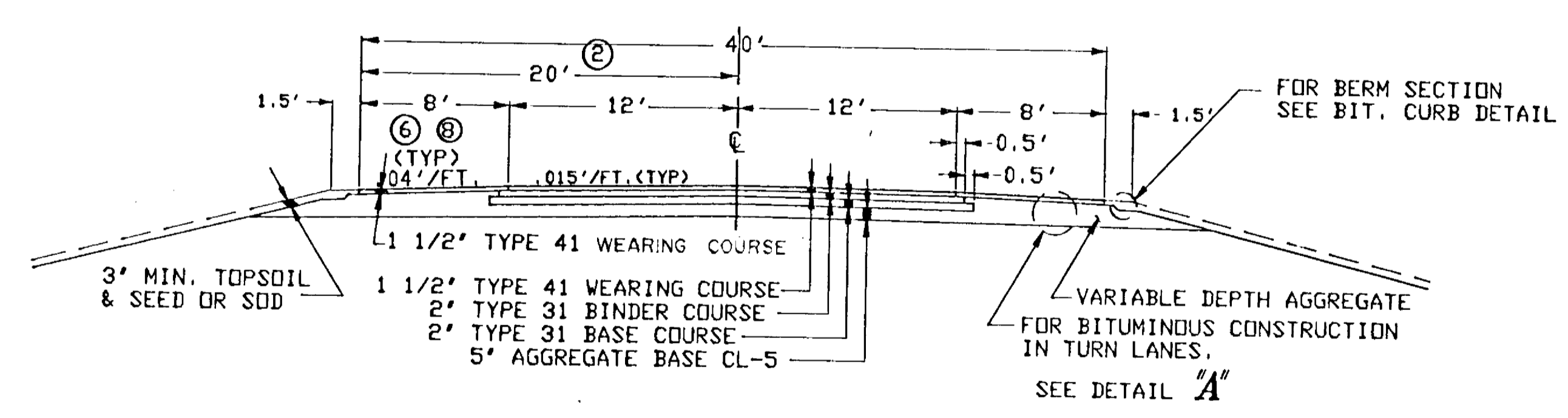
**GRADING BERM**



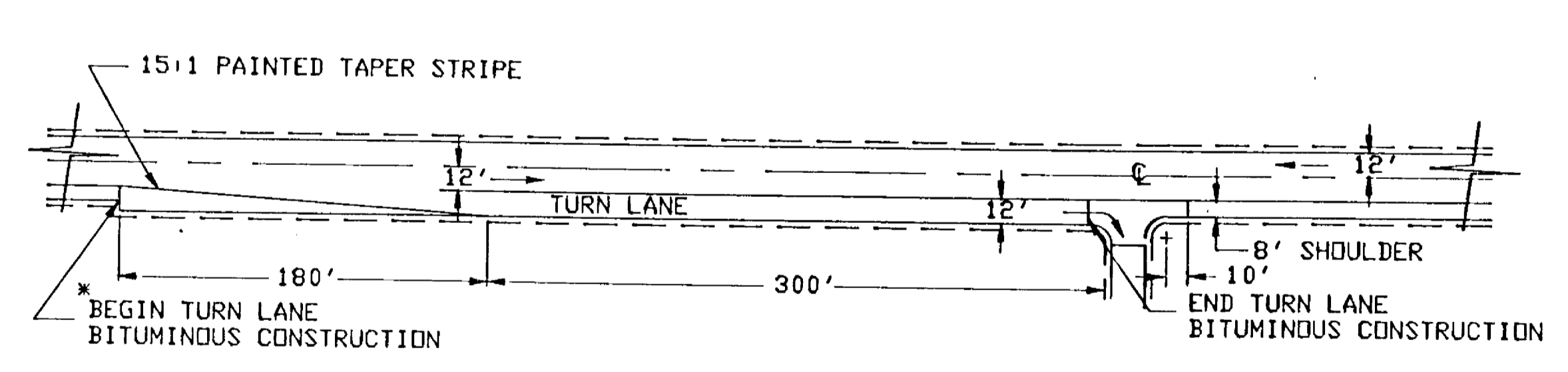
**LOCATION**

92+50 TO 94+75 LT.

**TYPICAL BASE & SURFACING SECTION**



**TYPICAL RIGHT TURN LANE**

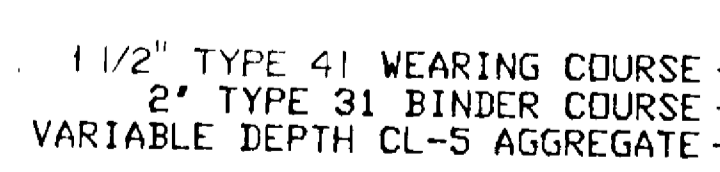


\* SEE DETAIL "A" FOR BASE AND BITUMINOUS CONSTRUCTION

- ① FOR SPECIAL DITCHES SEE PLAN AND PROFILE AND CROSS SECTION SHEETS.
- ② 27.4' IN RIGHT TURN LANES. SEE SUPER ELEVATION CHART FOR ADDITIONAL WIDTHS.
- ③ FILL WITH SWAMP EXCAVATION MATERIAL.
- ④ FOR MODIFIED DITCH WIDTHS SEE CROSS SECTIONS.
- ⑤ SEE CROSS SECTIONS FOR MODIFIED DITCH SLOPES.
- ⑥ .02'/FT. IN RIGHT TURN LANES.
- ⑦ 24.8' ON LOW SIDE IN SUPERELEVATION 28.8' IN LOW SIDE OF SUPERELEVATION IN RIGHT TURN LANE.
- ⑧ .01'/FT. ON HIGH SIDE SHOULDER OR TURN LANE IN SUPERELEVATION.
- ⑨ 24.1' ON HIGH SIDE SUPERELEVATION, 28.1' ON HIGH SIDE SUPERELEVATION IN RIGHT TURN LANES.
- ⑩ TYPICAL CLEAR ZONE DISTANCE. CLEAR ZONE INCREASES OUTSIDE OF HORIZONTAL CURVES.

**DETAIL "A"**

RIGHT TURN LANE CONSTRUCTION



**RIGHT TURN LOCATIONS**

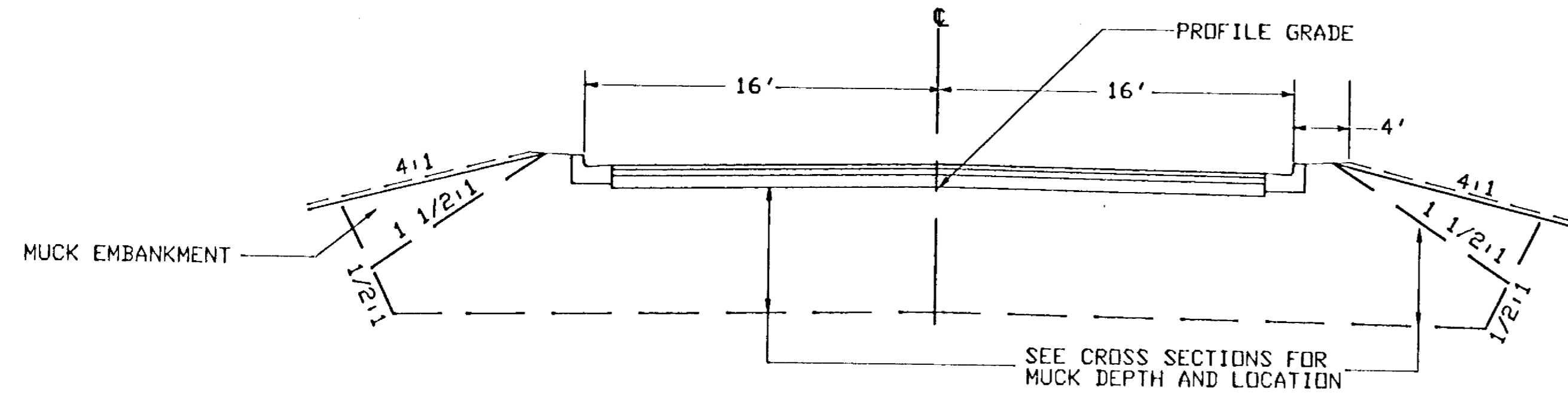
STATION TO	STATION	LT./RT.
96+08	- 100+88	LT.
106+28	- 111+92	RT.
111+40	- 116+25	LT.

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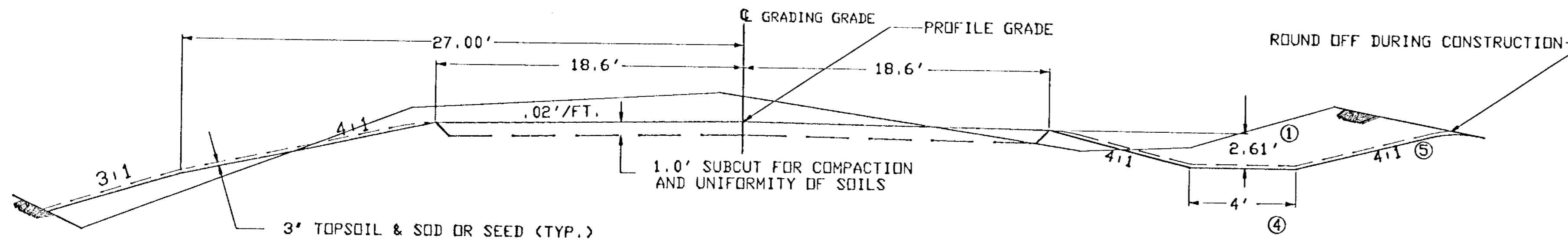
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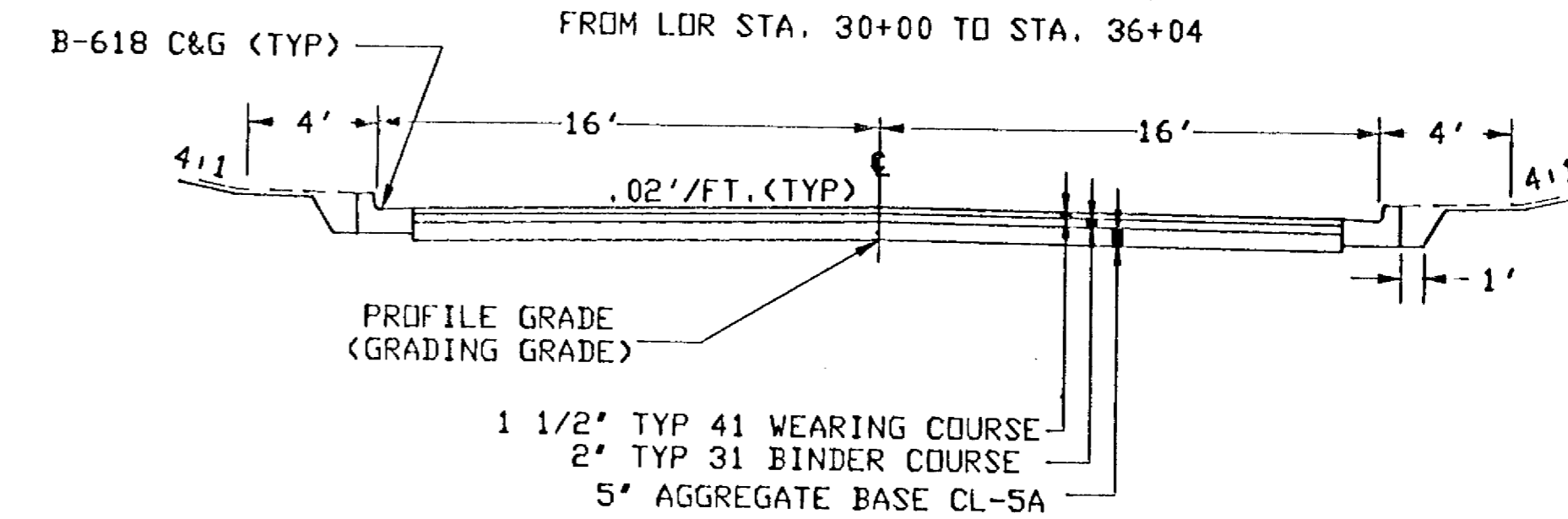
GRADING SECTION - L2  
MUCK EXCAVATION AREAS



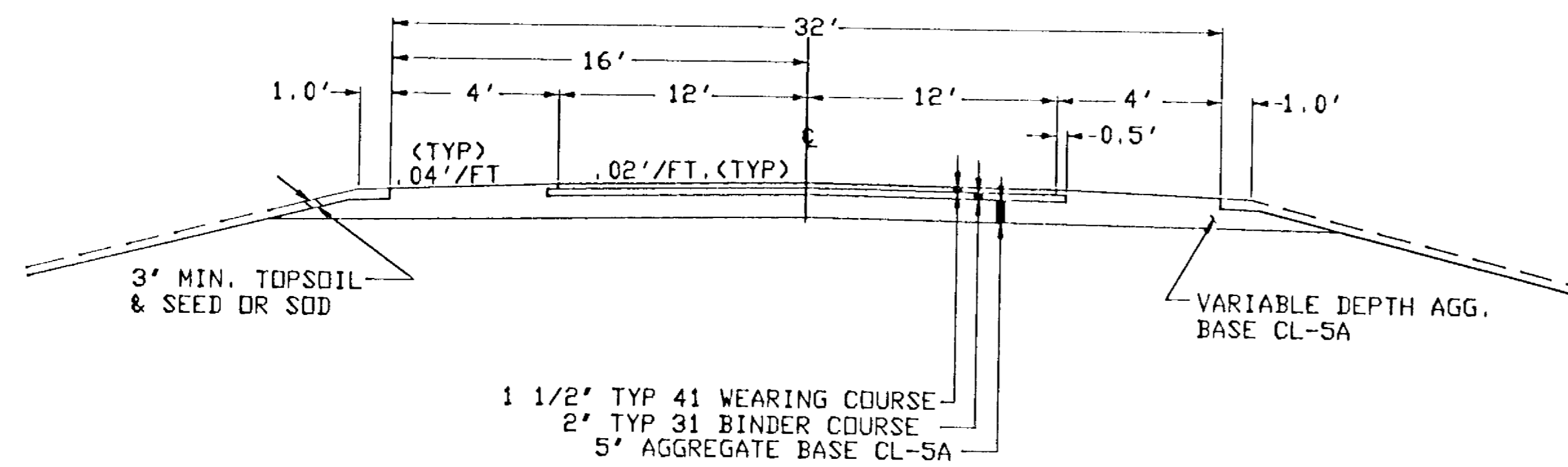
GRADING SECTION  
L1 ROAD APPROACH  
STA. 10+10 TO STA. 12+00



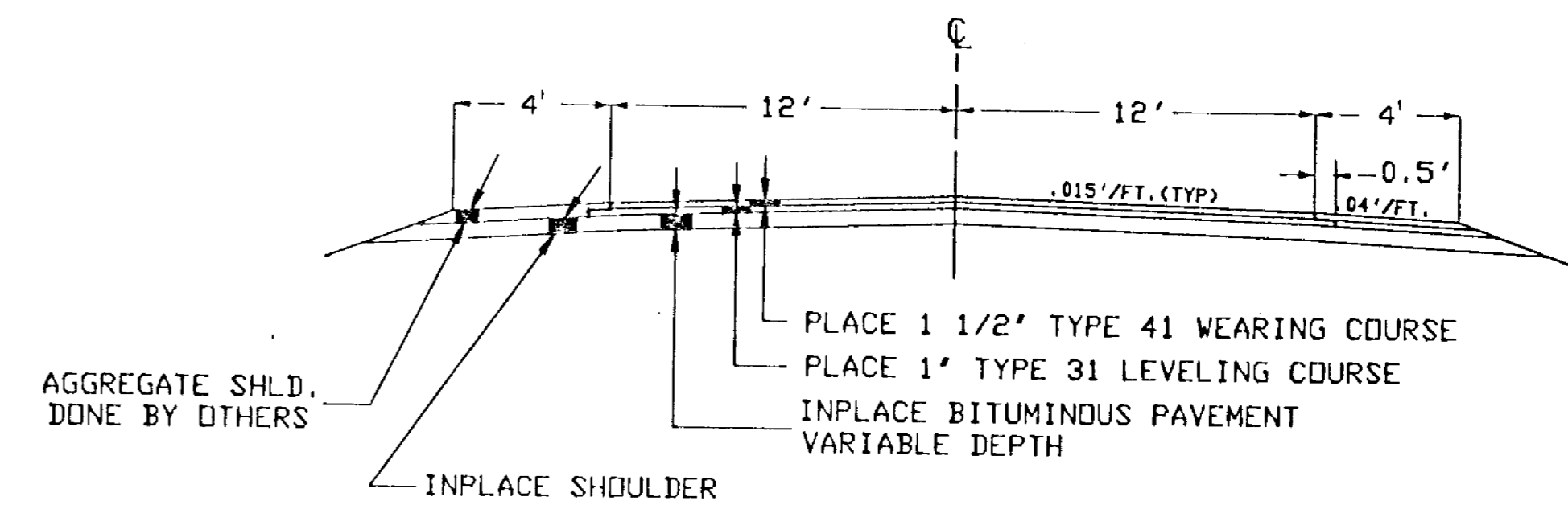
TYPICAL BASE & SURFACING SECTION  
L2 ROAD APPROACH



L1 ROAD APPROACH  
STA. 10+10 TO STA. 12+00



TYPICAL OVERLAY SECTION - L1



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**CLEAR AND GRUBBING**

STATION TO STATION	LOCATION	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
87+95	37' RT.	1		1	
88+79	37' RT.	1		1	
89+29 - 90+03	30 - 35' RT.	-	0.05	-	0.05
89+55	42' LT.	-		1	
90+24	42' RT.	2		1	
90+58	41' LT.	-		1	
90+64 - 91+99	34 - 39' RT.	-	0.10	-	0.10
92+38	35' RT.	5		1	
92+69	36' RT.	9		1	
93+22 - 93+57	35' - DUT RT.	-	0.05	-	0.05
93+99	47' RT.	1		1	
96+43 - 97+92	29' LT - 60' RT	-	0.15	-	0.15
99+42 - 99+95	32' LT - 35' RT	-	0.15	-	0.15
99+95	32' LT.	1		1	
100+33 - 101+36	52 - 60' RT.	-	0.10	-	0.10
100+75 - 102+25	6' LT - 41' RT	-	0.20	-	0.20
103+79	49' RT.	2		1	
103+80	53' RT.	1		1	
103+82	30' RT.	1		1	
103+92	45' RT.	1		1	
104+83	59' RT.	1		1	
105+50 - 106+80	0' - DUT LT.	-	0.15	-	0.15
105+75 - 106+80	0' - DUT RT.	-	0.20	-	0.20
108+09 - 110+80	0' - DUT RT.	-	0.40	-	0.40
108+70 - 109+80	0' - DUT LT.	-	0.10	-	0.10
110+50 - 112+37	2' - DUT RT.	-	0.15	-	0.15
110+60	5' LT.	1		1	
112+18	1' LT.	1		1	
122+42	50' RT.	1		1	
122+68	22' RT.	1		1	
122+77	48' RT.	3		1	
123+00	24' RT.	1		1	
123+00	48' RT.	1		1	
123+12	43' RT.	1		1	
123+51	48' RT.	1		1	
123+71	38' RT.	1		1	
123+85	42' RT.	1		1	
123+85	53' RT.	1		1	
123+88	37' RT.	2		1	
124+14	47' RT.	1		1	
124+22	43' RT.	1		1	
124+70 - 128+48	30 - 60' RT.	-	0.35	-	0.35
126+98	36' LT.	1		1	
123+00	37' RT.	-		1	
123+18	45' RT.	-		1	
123+34	49' RT.	-		1	
128+71	31' RT.	1		1	
L2					
32+81 - 33+49	10' - DUT LT.	-	0.05	-	0.05
34+25	9' LT.	1		1	
34+25	11' LT.	-		-	
34+87 - 35+16	21 - 33' LT.	-	2	-	2
34+97	11' LT.	5		1	
35+13	20' LT.	1		1	
<b>TOTALS</b>		<b>55</b>	<b>2.20</b>	<b>39</b>	<b>2.20</b>

**DRAINAGE CHART**

STATION	LOC	INPLACE	REMARKS	SODDING CULV. PIPE SQ. YD.	REMOVE CULV. PIPE LIN. FT AP.	OUTLET PROTECTION		FURNISH AND INSTALL															
						SQ. YD.	SQ. YD.	15' C.M.P.		24' C.M.P.		48' C.M.P.		66' C.M.P.		28.5' RCP-A							
88+97	LT		16' SAND ENT.	17																			
90+25	LT		12' BIT. ENT.	17																			
90+40	RT		14' SAND ENT.	17																			
91+50	LT		16' SAND ENT.	17																			
93+73	RT		12' SAND ENT.	17																			
95+96	LT		L1 APPROACH - NEW	29																			
104+49	C/L		C/L CULVERT - NEW	50			36	18															
111+26	RT		L2 CULVERT - NEW	31								72	2										
122+56	RT		12' SAND ENT.	17																			
122+84	LT		12' SAND ENT.	17																			
124+16	LT		16' SAND ENT.	17																			
124+32	RT		16' SAND ENT.	17																			
6+10	C/L	42'x 92' CMP	L3 APPROACH																				
32+30	C/L		L2 C/L CULV. - NEW	42		92																	
<b>TOTALS</b>				<b>305</b>		<b>92</b>		<b>58</b>	<b>29</b>			<b>334</b>	<b>18</b>	<b>72</b>	<b>2</b>	<b>104</b>	<b>2</b>	<b>120</b>	<b>2</b>	<b>52</b>	<b>2</b>	<b>2</b>	<b>2</b>

**BITUMINOUS REMOVAL**

STATION TO STATION	LOCATION	DESCRIPTION	SQ. YD.
87+60 TO 96+00	BEG PROJ	MAINLINE	2,240
10+00 TO 12+00	L1 RD APP	MAINLINE	533
90+25	LT.	ENTRANCE	40
91+50	LT.	ENTRANCE	53
93+99	LT.	ENTRANCE	33
30+16 TO 127+00		MAINLINE	3,867
35+80 TO 36+15	L2 RD APP	MAINLINE	113
<b>TOTALS</b>			<b>6,880</b>

**SAWING BITUMINOUS PAVEMENT**

STATION TO STATION	LOCATION	LIN. FT.
87+60	BEGIN PROJECT	24
12+00	L1 RD. APP.	24
36+15	L2 RD. APP.	29
35+56	46' LT L 35+56	24
127+00	END PROJECT	24
90+25 LT	BIT. ENT.	12'
91+50 LT	BIT. ENT.	16'
93+99 LT	BIT. ENT.	10'
<b>TOTAL</b>		<b>163'</b>

**SODDING**

STATION	LOCATION	SODDING SQ. YDS	TOPSOIL CU. YDS	REMARKS
89+25 - 95+85	20' - 50' LT.	1547	129	
96+15 - 104+65	20' - 26' LT.	567	0	LOW SIDE SUPER
110+70 - 111+10	20' - 26' LT.	27	0	
111+40 - 111+70	20' - 26' LT.	20	0	
116+00 - 122+20	20' - 26' RT.	413	0	LOW SIDE SUPER
122+20 - 124+00	20' - 60' RT.	713	59	
122+90 - 124+00	20' - 60' LT.	450	38	
L1				
10+05 - 10+45	16' - 22' RT.	27	0	STREET APPR. RADIUS
10+05 - 12+00	16' - 33' LT.	368	0	
CULVERT ENDS		305	0	SEE DRAINAGE CHART
<b>TOTAL</b>		<b>4437</b>	<b>226</b>	

**CASTING ASSEMBLIES**

ASSEMBLY	CASTING	NO.	QUANTITY
A	FRAME	801	2
	GATE	810	2
	CURB BOX	821-B	2

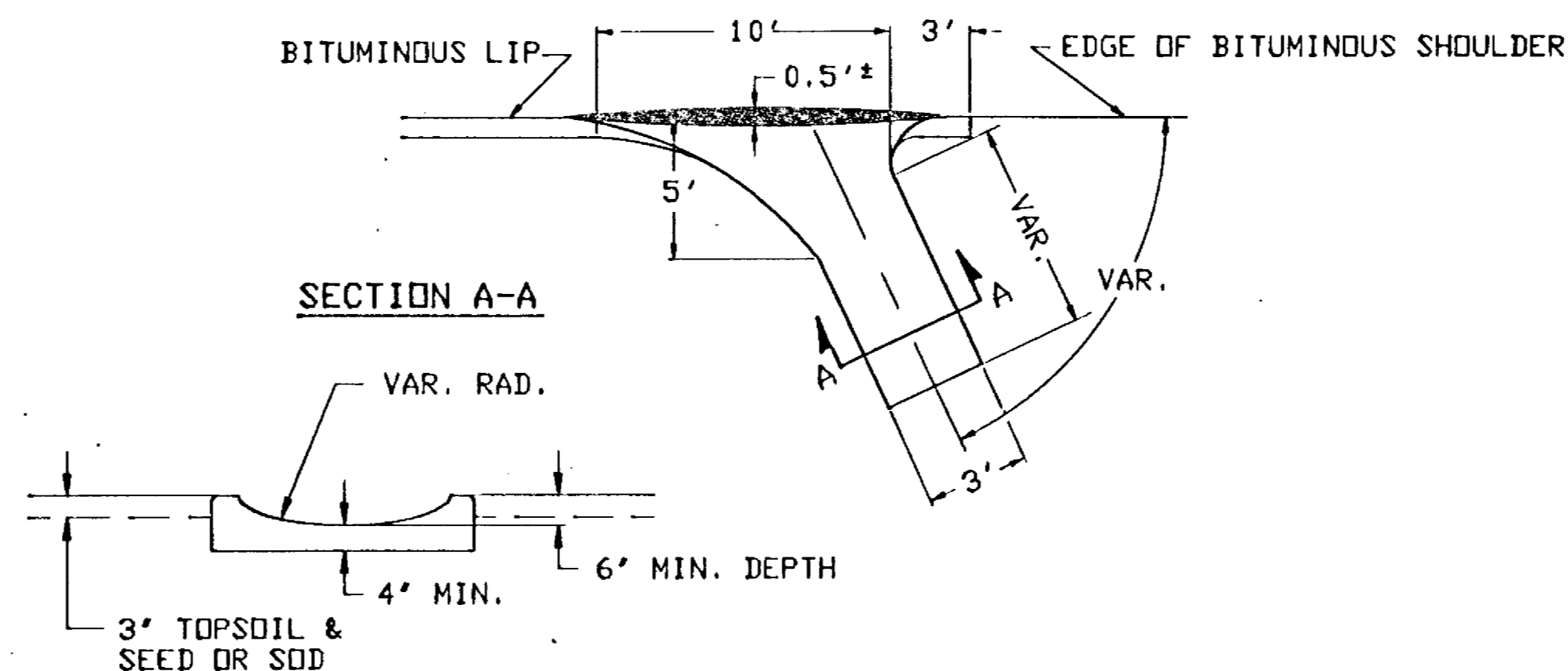
**BIT. FLUME LOC.**

STA.	LOC.	SQ. YDS.
30+45	LT.	16
94+75	LT.	5
110+90	LT.	16
<b>TOTAL</b>		<b>37</b>

**SALVAGE & INSTALL FENCE**

STATION	LOCATION	SALVAGE	INSTALL	REMARKS
96+35 - 99+80	9' RT. - 69' RT.	255	255	RAILROAD TIE POSTS REMOVE AND INSTALL @ R/W RT.
110+75 - 111+75	60' RT. - 60' LT.	120	-	LINE FENCE
119+50 - 122+76	60' LT. - 38' LT.	326	326	INSTALL @ R/W
122+00 - 122+23	11' RT. - 14' RT.	23	-	REMOVE FENCE
122+55	45' - DUT LT.	15	-	LINE FENCE REMOVE TO R/W
122+76	46' - DUT LT.	14	-	LINE FENCE REMOVE TO R/W
124+16	33' RT.	284	284	REMOVE TO R/W
124+16 - 127+00	33' - DUT RT.	27	-	INSTALL @ R/W
124+65	33' - DUT RT.	27	-	LINE FENCE REMOVE TO R/W
L2				
30+00 - 32+11	0' - 49' RT.	211	211	REMOVE & INSTALL @ R/W
32+40 - 35+11	0' - 11' LT.	266	266	REMOVE & INSTALL @ R/W
32+78 - 33+19	24' - 29' RT.	41	41	REMOVE & INSTALL @ R/W
<b>TOTALS</b>		<b>1,609</b>	<b>1,383</b>	

**TYPICAL BITUMINOUS FLUME**



THIS AREA OF INCREASED SLOPE TO DIVERT WATER FLOW INTO FLUME. THIS MUST BE ACCOMPLISHED DURING THE SHOULDER PAVING OPERATION.

NOTE: BITUMINOUS FLUME CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

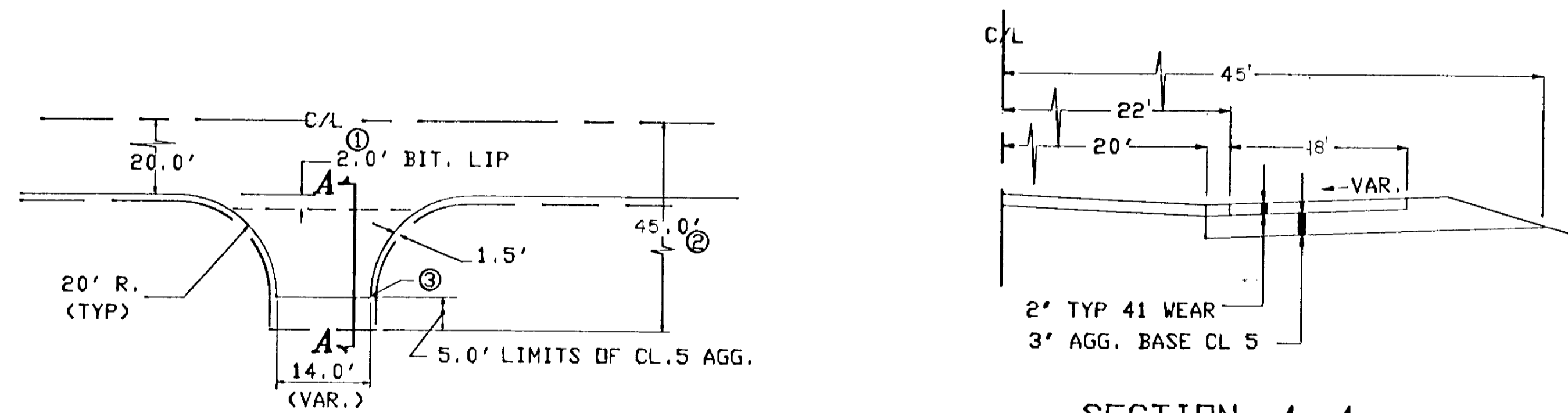
FLUME DESIGN MAY BE MODIFIED TO MATCH EXISTING CONDITIONS UPON APPROVAL OF THE ENGINEER.  
\* LOCATIONS ARE APPROX. EXACT LOCATIONS ARE TO BE DETERMINED IN THE FIELD DURING CONST.

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ENTRANCE CONSTRUCTION CHART					REMARKS
LOCATION	INPLACE ENTRANCE	NEW WIDTH	BITUMINOUS SQ. YD.	AGGREGATE SQ. YD.	
88+97 LT	16' SAND	16'	0	55	SECOND RESIDENTIAL ENTRANCE
90+25 LT	12' BIT.	14'	50	0	RESIDENTIAL ENTRANCE
90+40 RT	14' SAND	14'	50	0	RESIDENTIAL ENTRANCE
91+50 LT	16' BIR.	16'	55	0	RESIDENTIAL ENTRANCE
92+80 LT	14' SAND/ CDNC.	14'	50	0	RESIDENTIAL ENTRANCE
93+65 LT	16' SAND	16'	0	55	SECOND RESIDENTIAL ENTRANCE
93+73 RT	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
93+99 LT	10' BIT.	14'	50	0	RESIDENTIAL ENTRANCE
122+56 RT	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
122+84 LT	12' SAND	14'	0	50	FIELD ENTRANCE
124+16 LT	16' SAND	16'	55	0	RESIDENTIAL ENTRANCE
124+32 RT	16' SAND	16'	0	55	FIELD ENTRANCE
TOTAL			410	215	

TYPICAL ENTRANCE



SECTION A-A

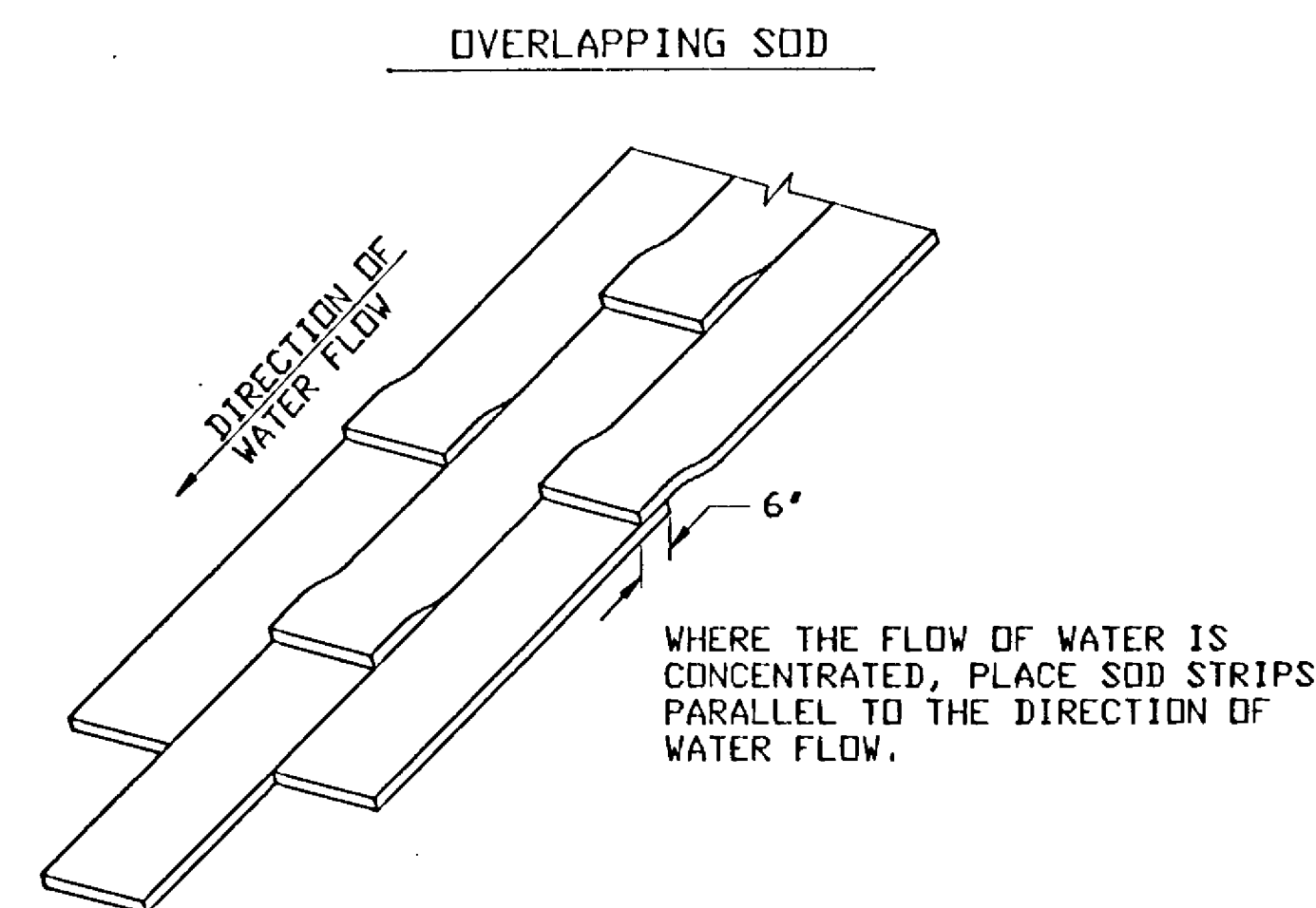
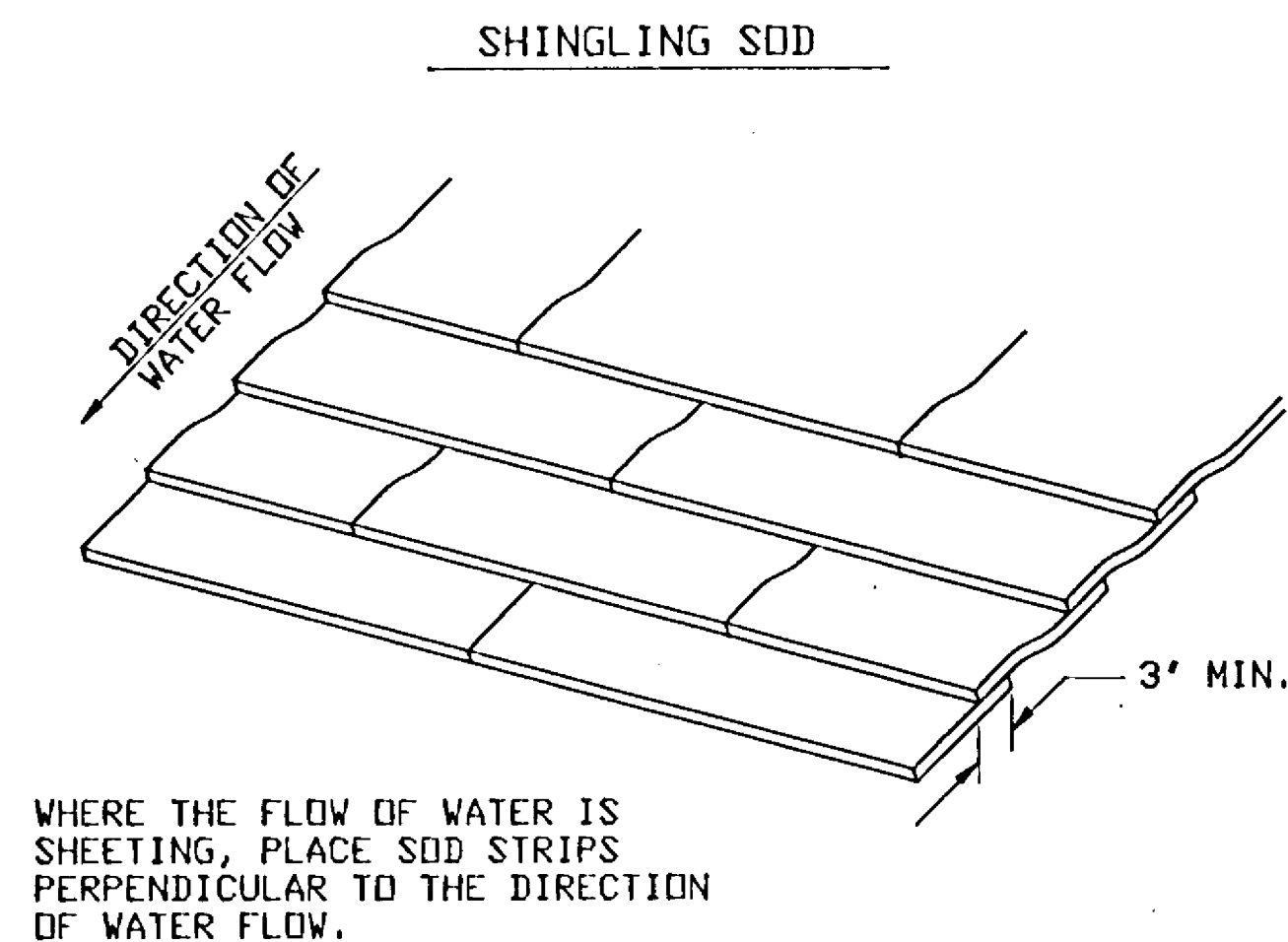
- ① FIELD ENTRANCES ONLY.
  - ② CLASS 5 LIMITS FIELD ENTRANCES AND PAVED ENTRANCES.
  - ③ PAVE TO THE END OF RADIUS, RESIDENTIAL ENTRANCES
- NOTE: ENTRANCE SLOPE SHALL BE 6:1.

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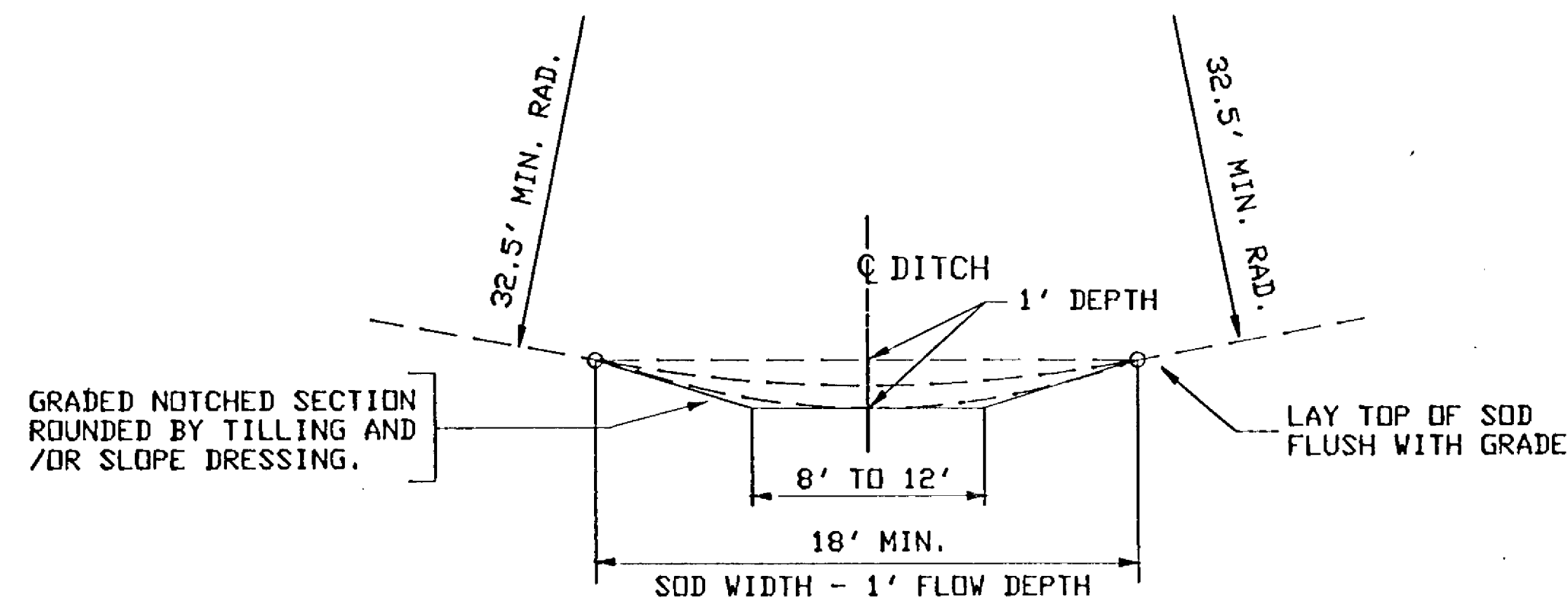
**SODDED DITCH DETAILS**

**SPECIAL SOD PLACEMENT TECHNIQUES**



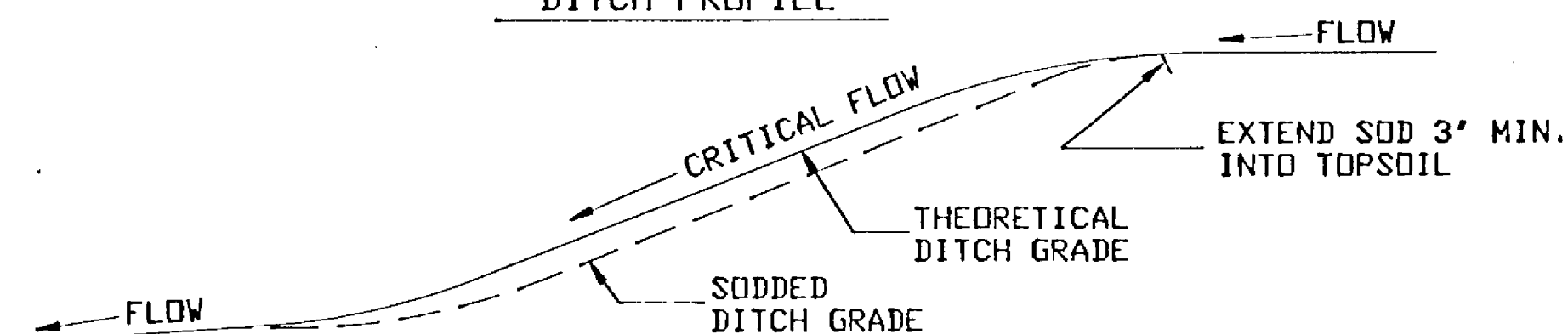
SILT FENCE				
STATION TO STATION	LIN. FT.	LT.	RT.	
87+60 - 89+50	190	LT		
91+25 - 93+50	225		RT	
95+50 - 109+00	1350		RT	
96+25 - 117+75	2150	LT		
L2				
30+25 - 33+25	300	LT		
30+25 - 34+75	450		RT	
TOTAL	4665			

**SOD DITCH CROSS SECTION**



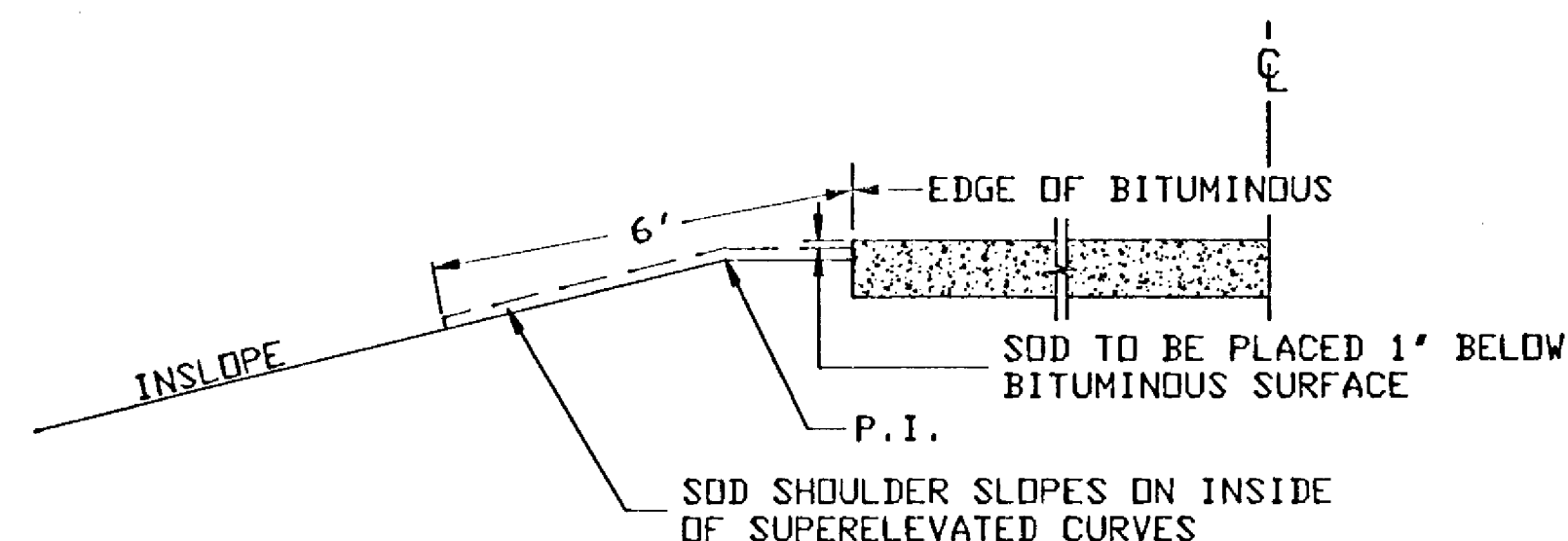
DITCHES HAVING A MINIMUM RADIUS OF 32.5 FEET AND REQUIRING SOD SHALL BE CONSTRUCTED ACCORDING TO THE ABOVE DETAILS. WHERE DITCH RADIUS IS LESS THAN 32.5 FEET, NOTCHING IS NOT REQUIRED. SOD A MINIMUM OF 18 FEET IN WIDTH.

**DITCH PROFILE**



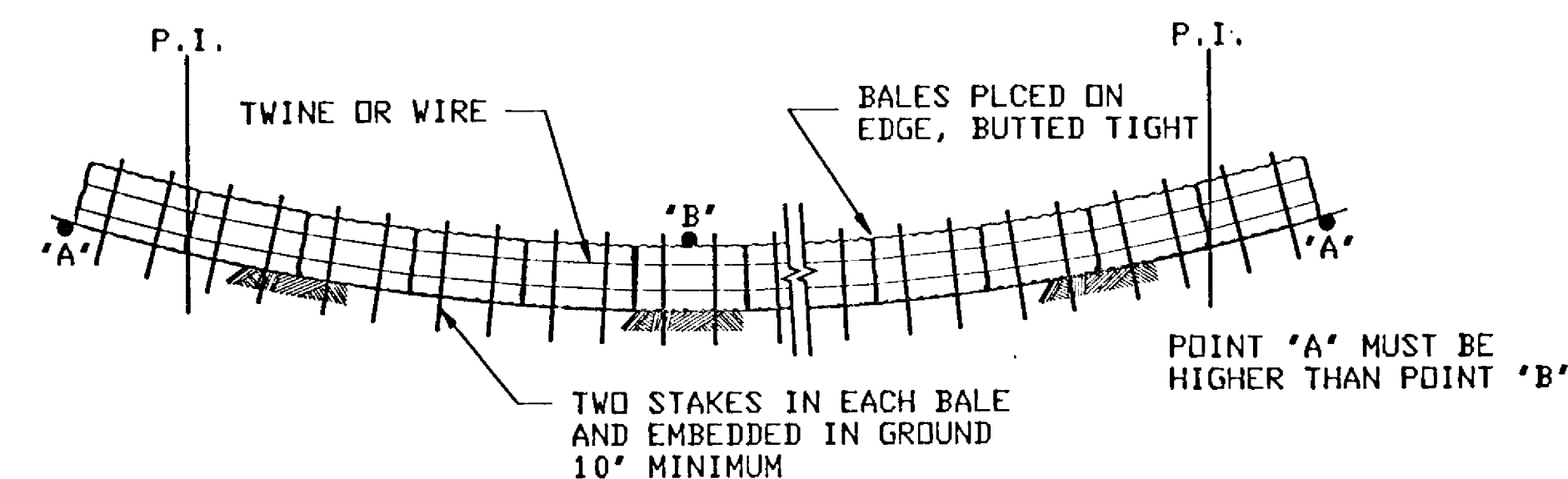
NOTE: APPLIES TO DITCH GRADE 2.0% OR GREATER.

**SOD INSLOPES OF SUPERELEVATED CURVES**

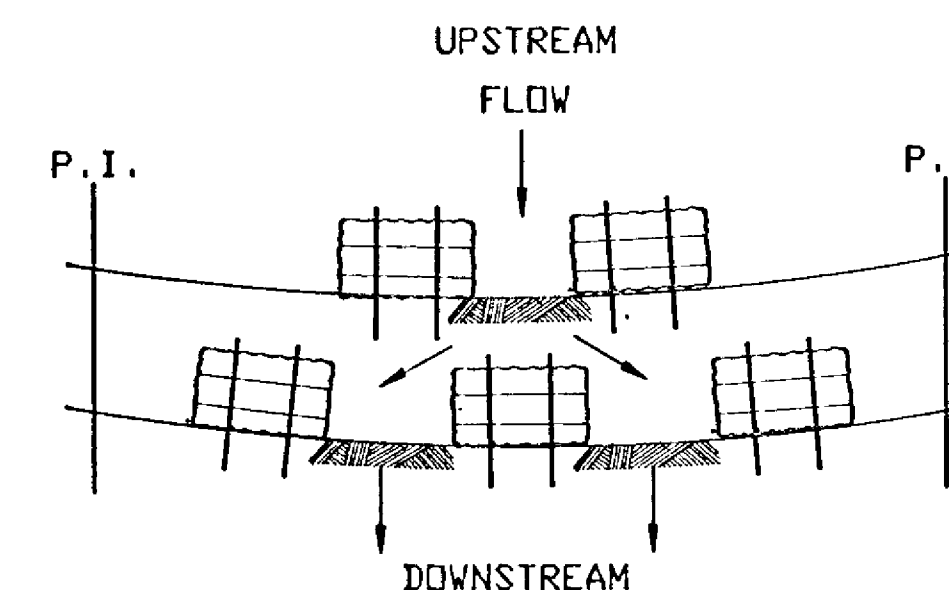


BALE CHECK		
STATION	LOCATION	QUANTITY
89+50	LT	4
94+00	RT	5
95+00	LT	5
109+00	RT	5
118+00	RT	5
119+00	LT	5
L1		
10+75	LT	3
10+75	RT	3
TOTAL		35

**BALE HAY OR STRAW DITCH CHECK**

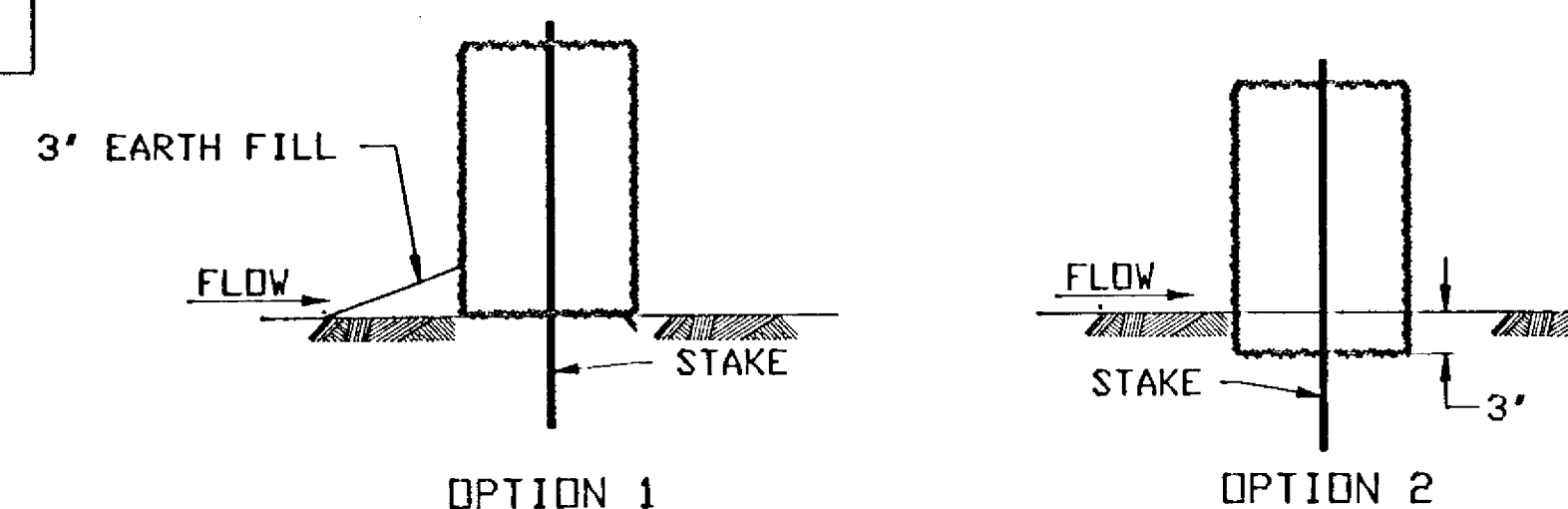


**ALTERNATE BALE CHECK**



NOTES: PLACEMENT OF BALES WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. WHEN USING THE ALTERNATE BALE CHECK, THE TWIN BALES WILL BE ON THE UPSTREAM SIDE. \* THE DISTANCE BETWEEN BALES SHALL BE 1 FT. (TYP.)

**DITCH CHECK SECTION**

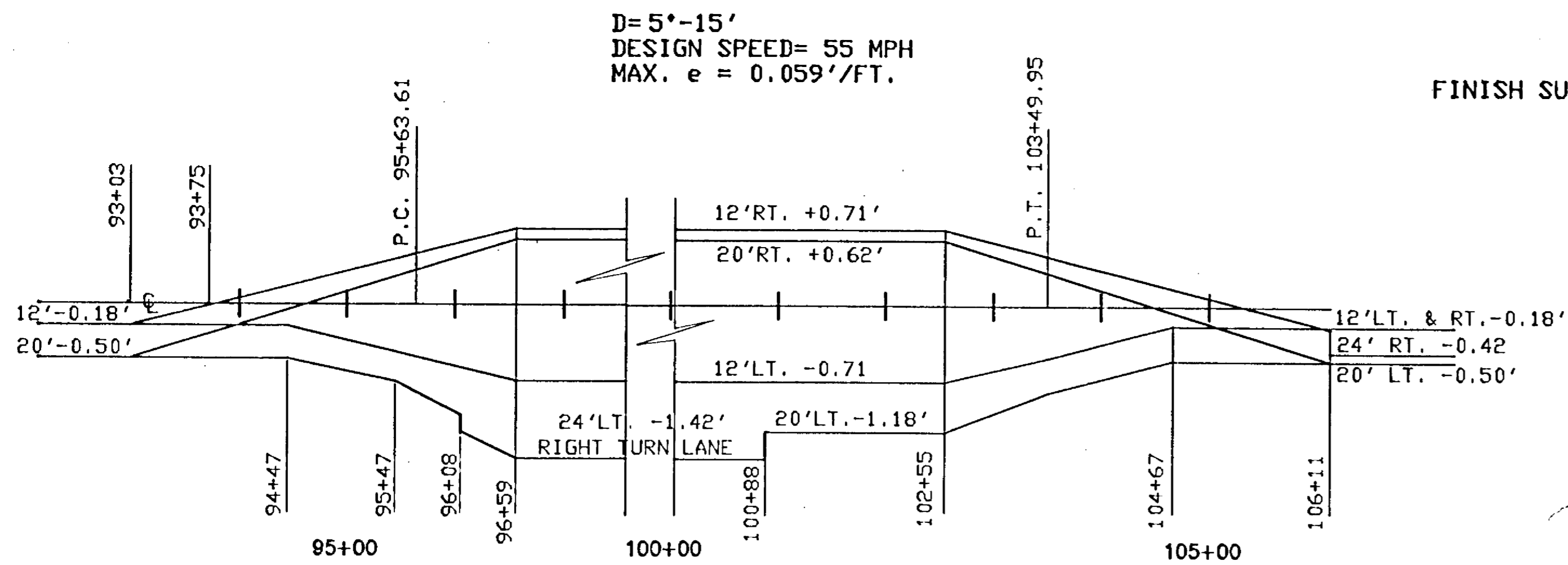


**EROSION CONTROL DETAILS**

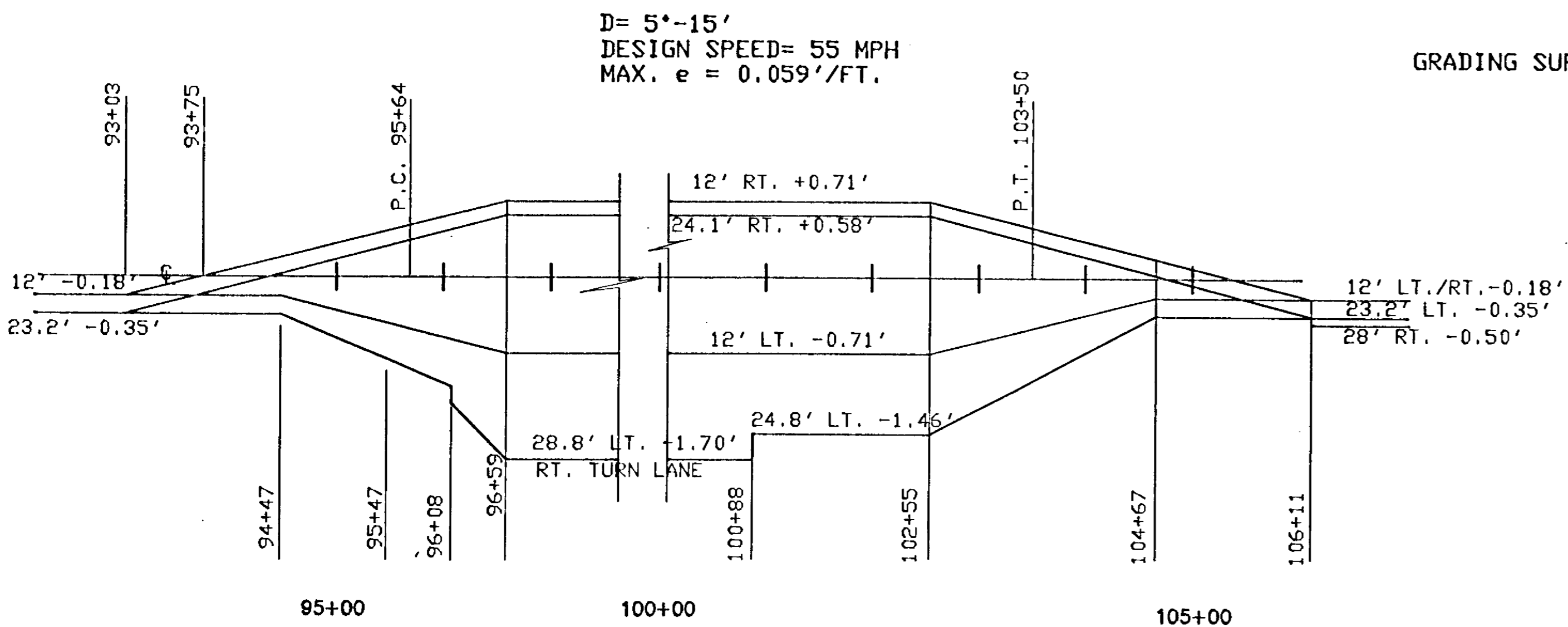
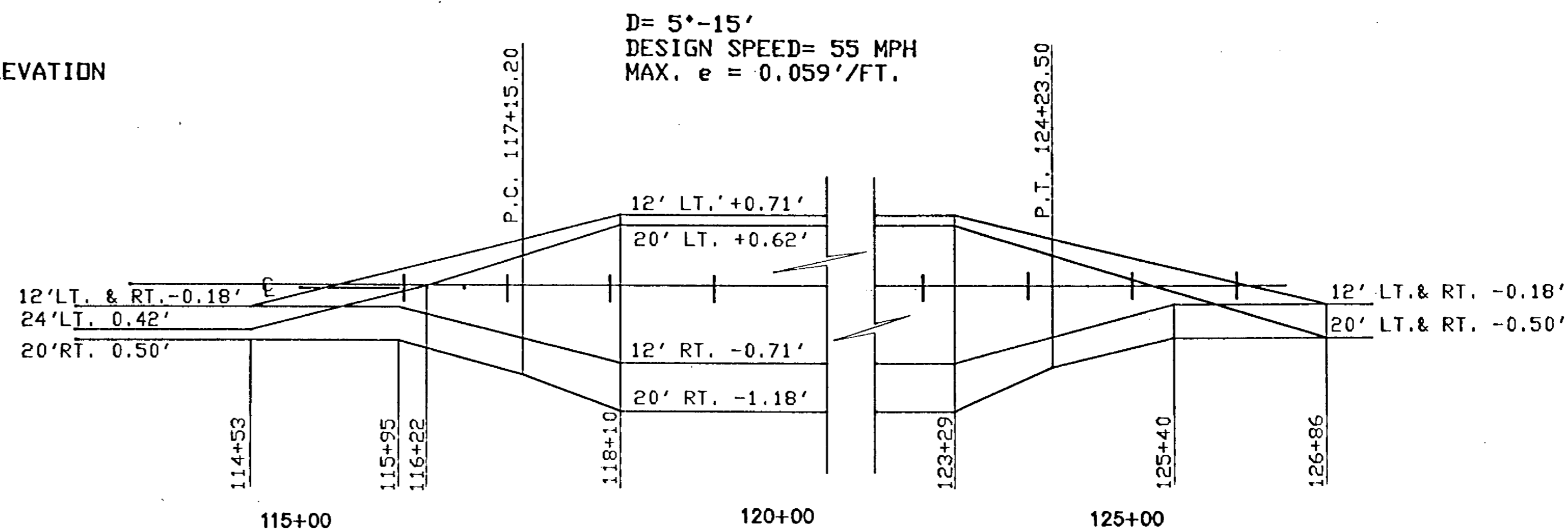
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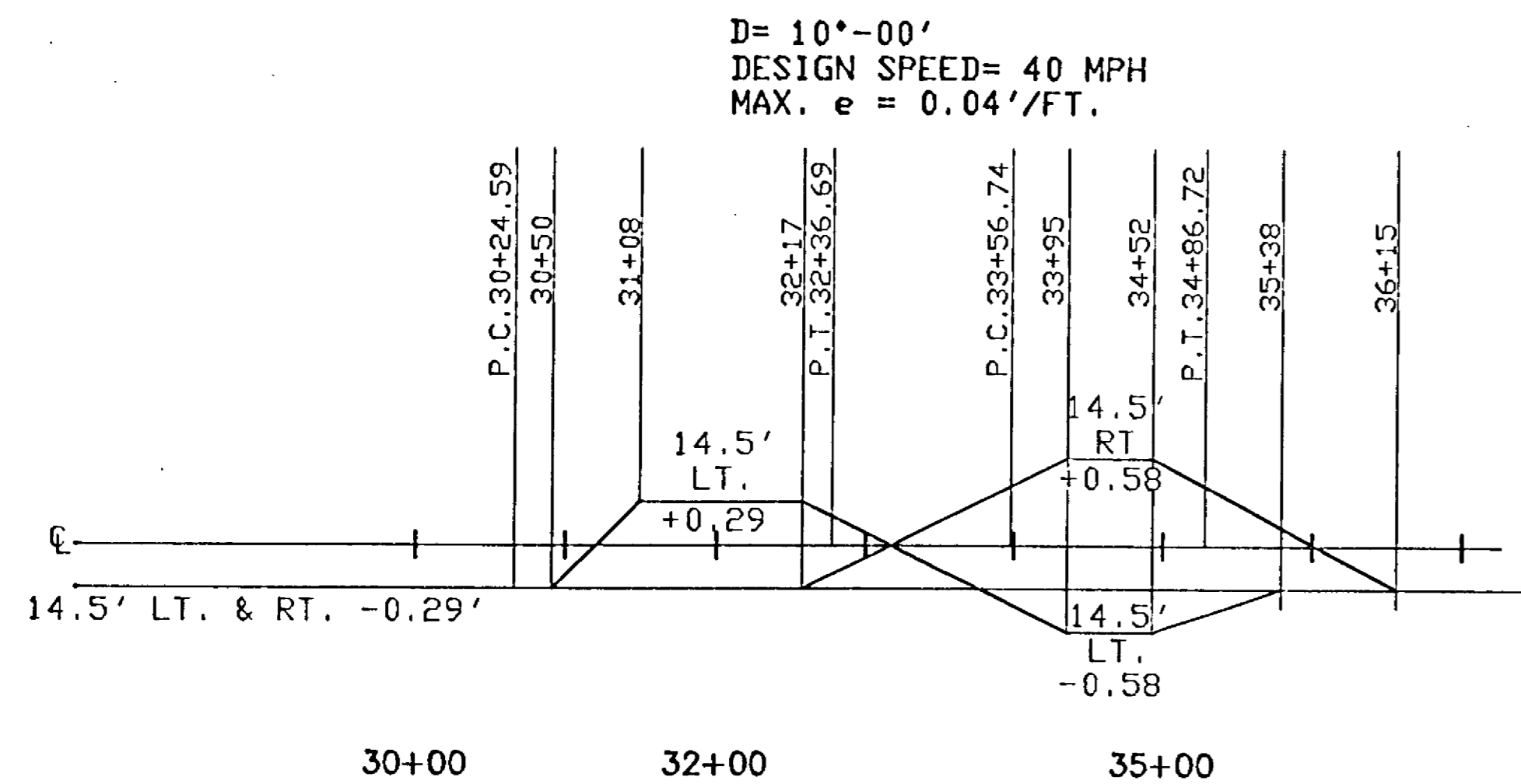
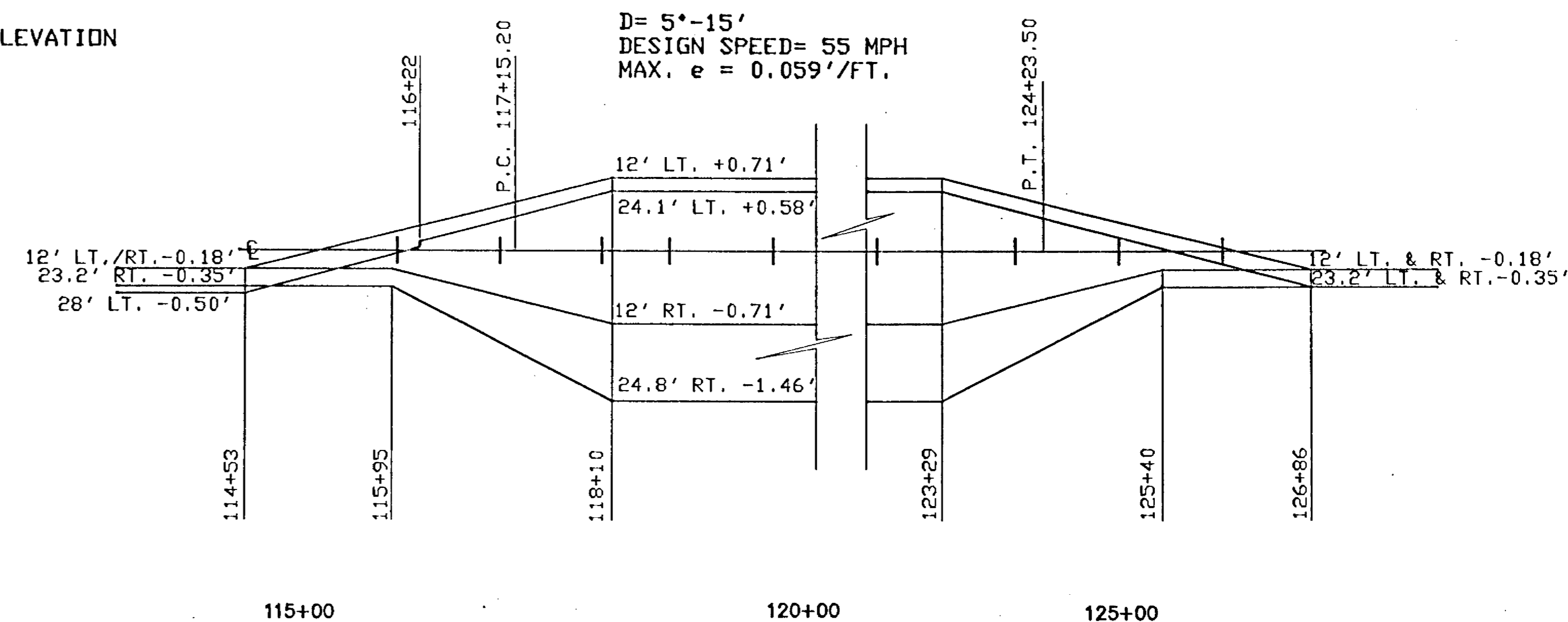




FINISH SUPER-ELEVATION



GRADING SUPER-ELEVATION



FINISH SUPER-ELEVATION FOR L2 APPROACH

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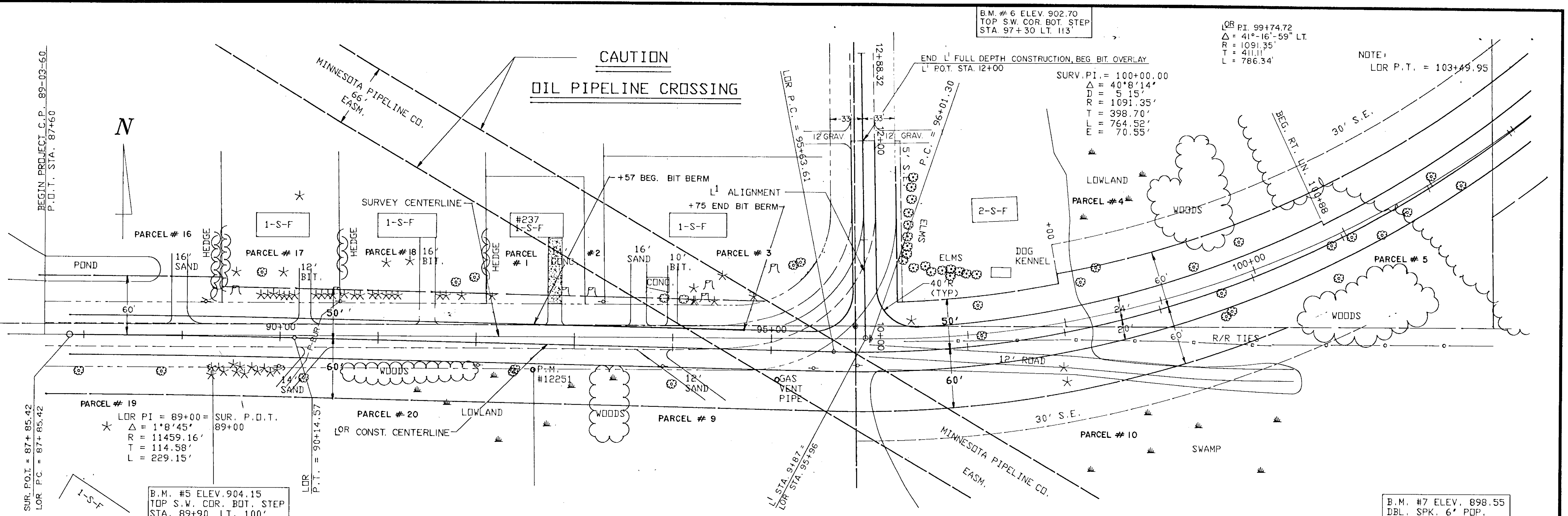
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B.M. # 6 ELEV. 902.70  
TOP SW. COR. BOT. STEP  
STA. 97+30 LT. 113'

LOR P.I. = 99+74.72  
Δ = 41°-16'-59" LT.  
R = 1091.35'  
T = 411.11'  
L = 786.34'

NOTE:  
LOR P.T. = 103+49.95

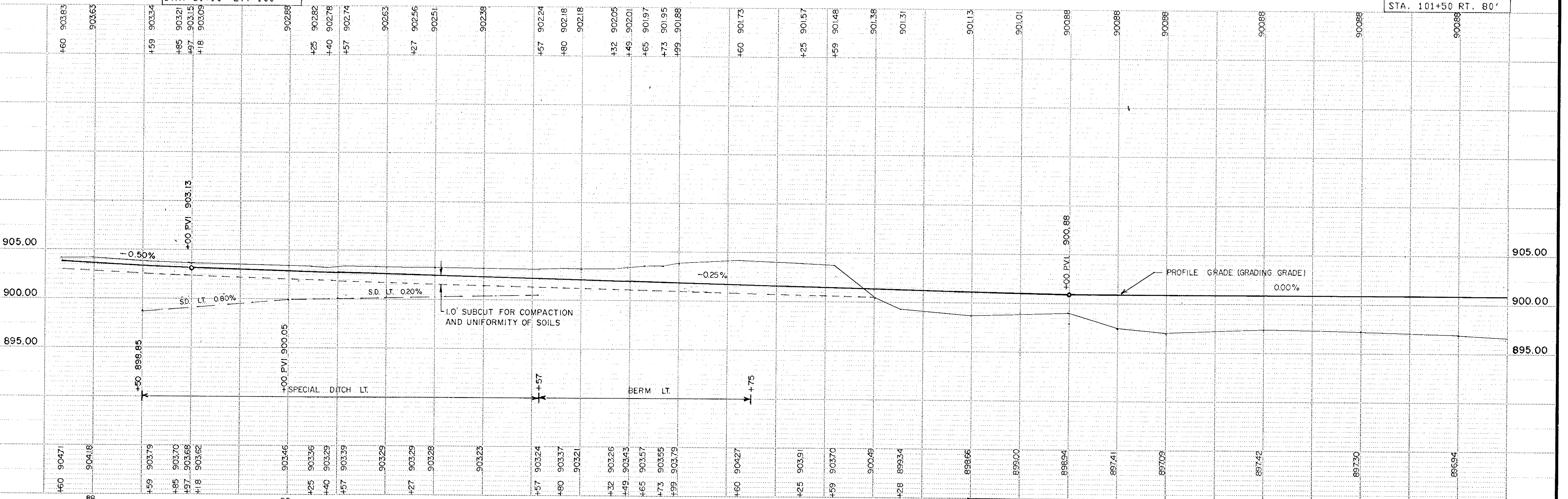
**CAUTION**  
**OIL PIPELINE CROSSING**



SURV. P.I. = 100+00.00  
Δ = 40°8'14"  
D = 5' 15"  
R = 1091.35'  
T = 398.70'  
L = 764.52'  
E = 70.55'

B.M. # 5 ELEV. 904.15  
TOP S.W. COR. BOT. STEP  
STA. 89+90 LT. 100'

B.M. # 7 ELEV. 898.55  
DBL. SPK. 6' POP  
STA. 101+50 RT. 80'



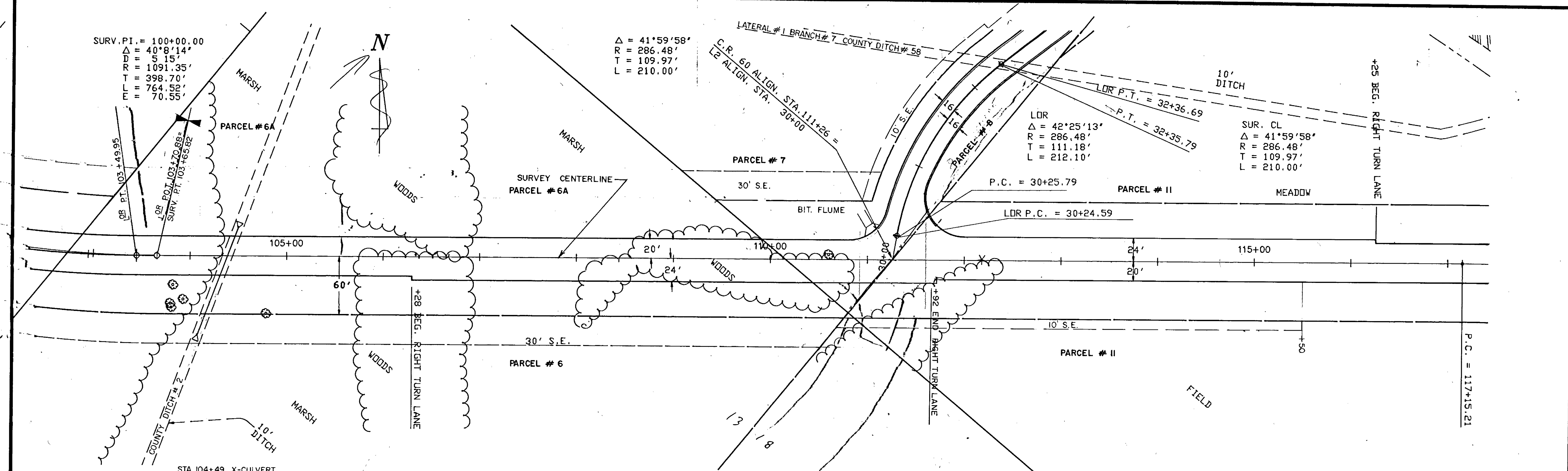


SURV. P.I. = 100+00.00  
 $\Delta = 40^{\circ}8'14''$   
 D = 5.15'  
 R = 1091.35'  
 T = 398.70'  
 L = 764.55'

$\Delta = 41^{\circ}59'58''$   
 R = 286.48'  
 T = 109.97'  
 L = 210.00'

LDR  
 $\Delta = 42^{\circ}25'13''$   
 R = 286.48'  
 T = 111.18'  
 L = 212.10'

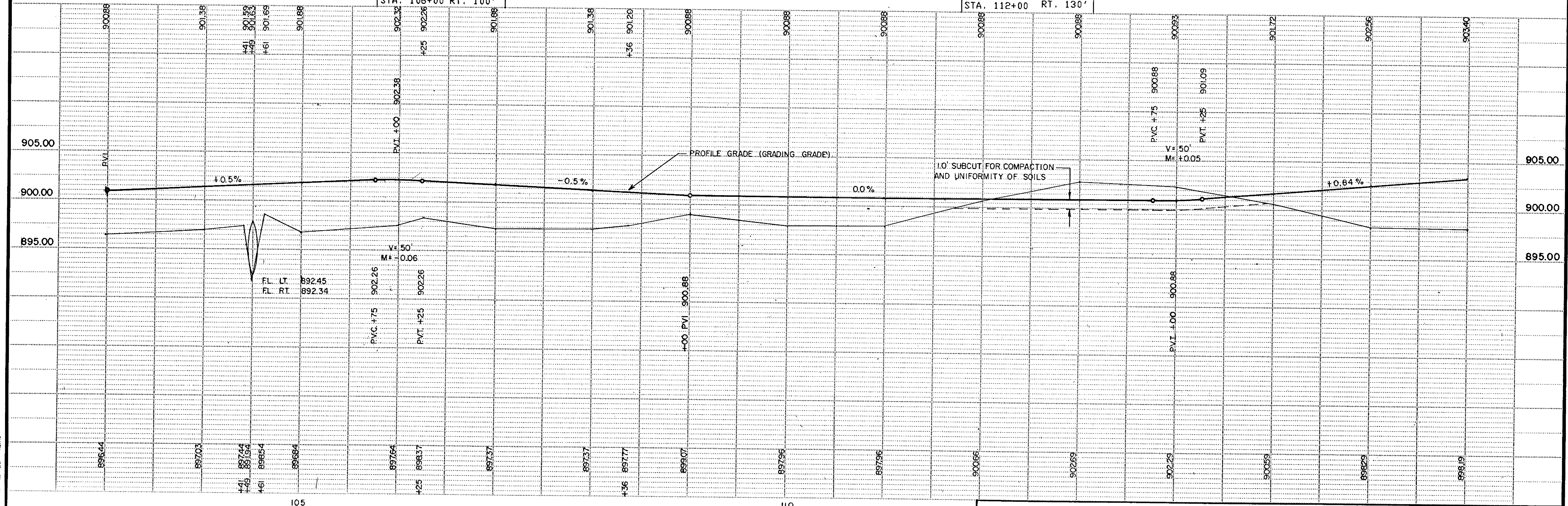
SUR. CL  
 $\Delta = 41^{\circ}59'58''$   
 R = 286.48'  
 T = 109.97'  
 L = 210.00'



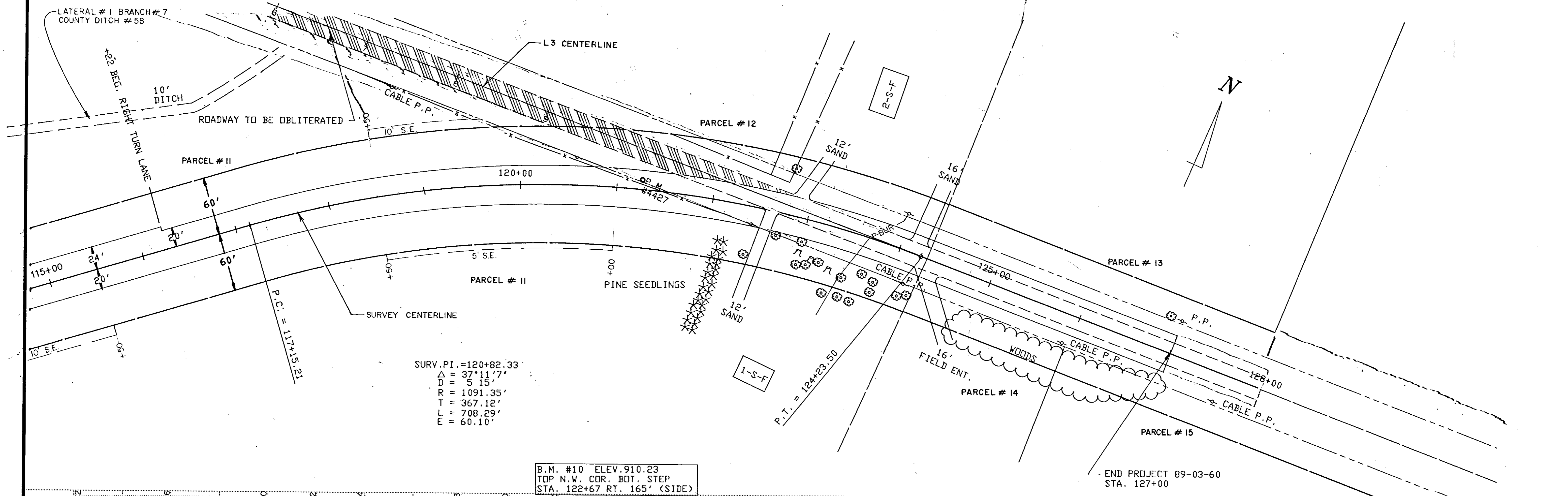
STA. 104+49 X-CULVERT  
 F&I 66"X120" CMP  
 F&I 2-66" CMP APRON

B.M. # 8 ELEV. 900.42  
 DBL. SPK. 12" POP.  
 STA. 106+00 RT. 100'

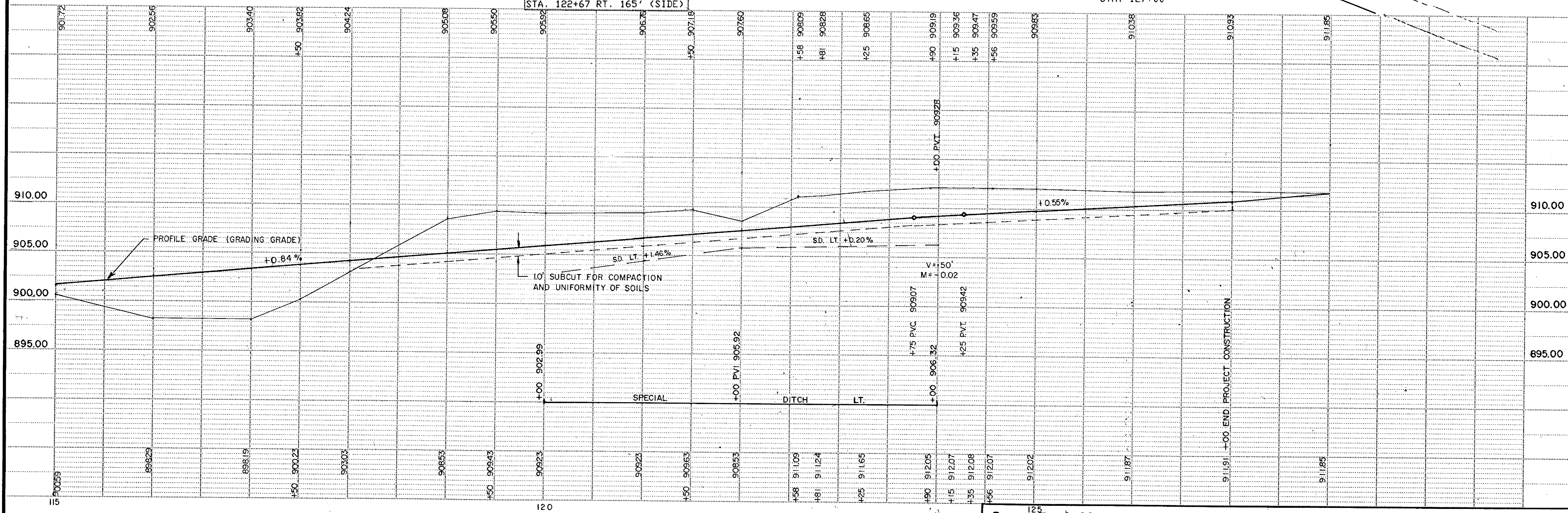
B.M. # 9 ELEV. 904.89  
 DBL. SPK. DBL. 20" PINE  
 STA. 112+00 RT. 130'



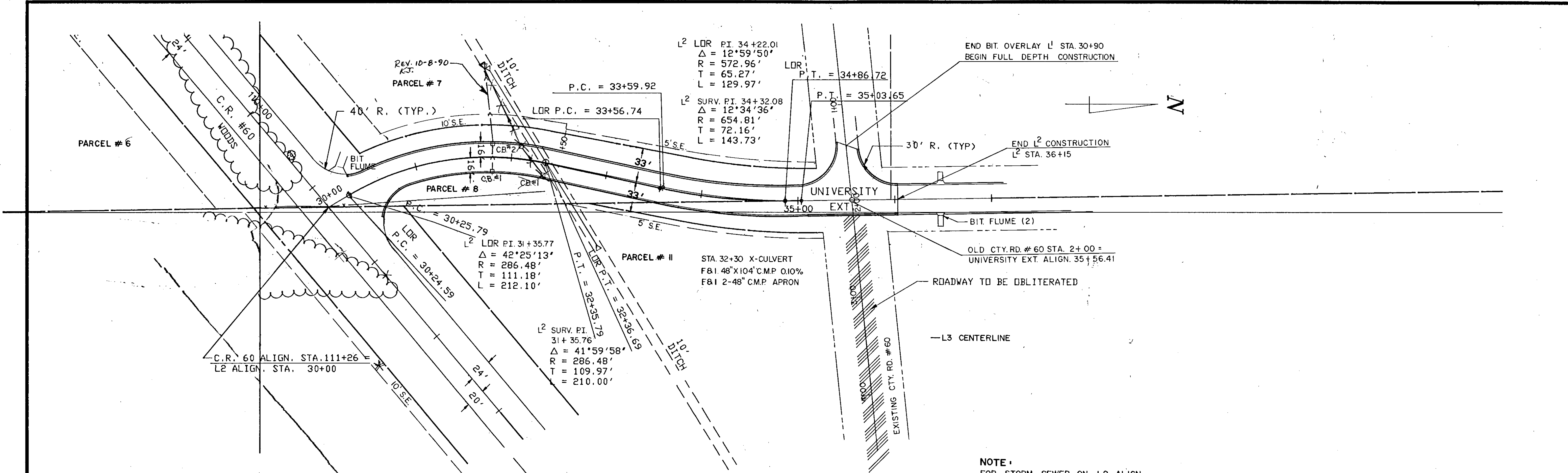




B.M. #10 ELEV. 910.23  
 TOP N.W. COR. BDT. STEP  
 STA. 122+67 RT. 165' (SIDE)







L<sup>2</sup> LDR P.I. 34+22.01  
 Δ = 12°59'50"  
 R = 572.96'  
 T = 65.27'  
 L = 129.97'

L<sup>2</sup> SURV. P.I. 34+32.08  
 Δ = 12°34'36"  
 R = 654.81'  
 T = 72.16'  
 L = 143.73'

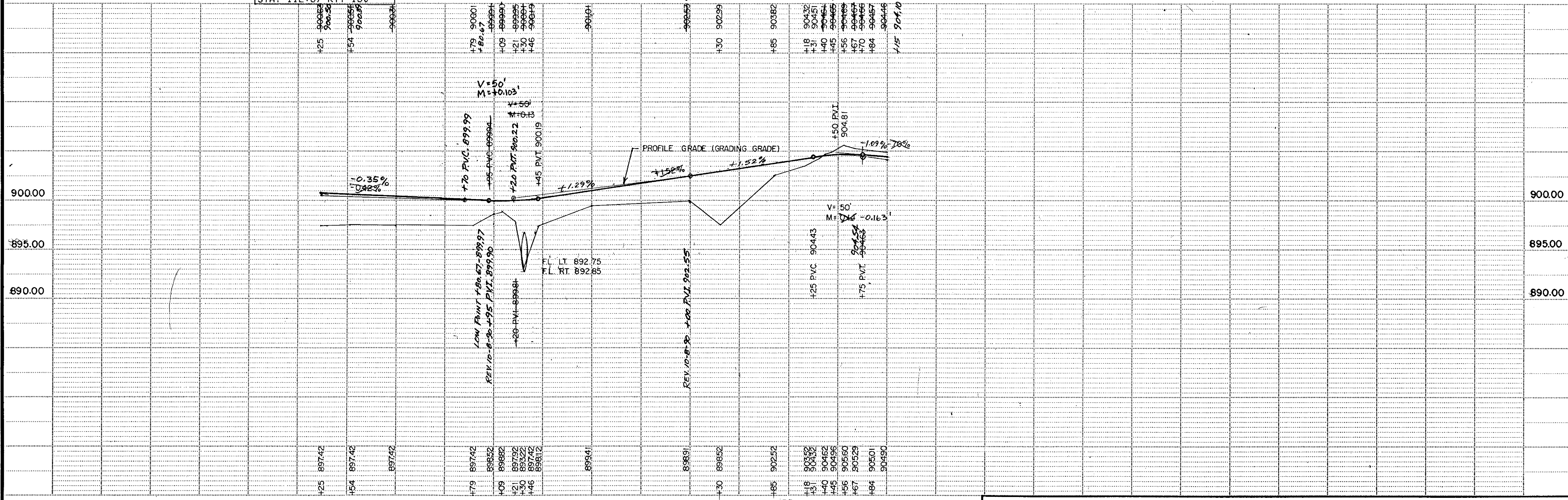
L<sup>2</sup> LDR P.I. 31+35.77  
 Δ = 42°25'13"  
 R = 286.48'  
 T = 111.18'  
 L = 212.10'

L<sup>2</sup> SURV. P.I. 31+35.76  
 Δ = 41°59'58"  
 R = 286.48'  
 T = 109.97'  
 L = 210.00'

PARCEL # 11  
 STA. 32+30 X-CULVERT  
 F&I 48"X104" C.M.P. 0.10%  
 F&I 2-48" C.M.P. APRON

NOTE:  
 FOR STORM SEWER ON L2 ALIGN.  
 SEE SHEET 22 OF 26 SHEETS.

B.M. #9 ELEV. 904.89  
 DBL. SPK. DBL. 20' PINE  
 STA. 112+67 RT. 130'



TYPICAL POST HO 3/8"



**EXCAVATION EMBANKMENT**

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

Fed. Proj. No.

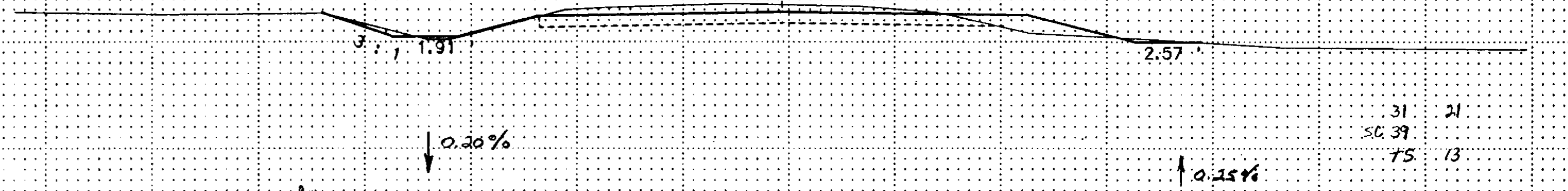
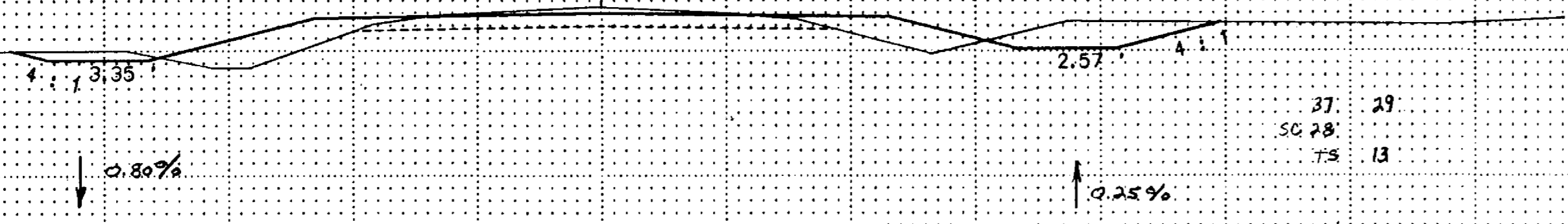
EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

Handwritten notes and symbols in the top left corner.

903.62 89+18 903.09

903.29 91+27 902.56



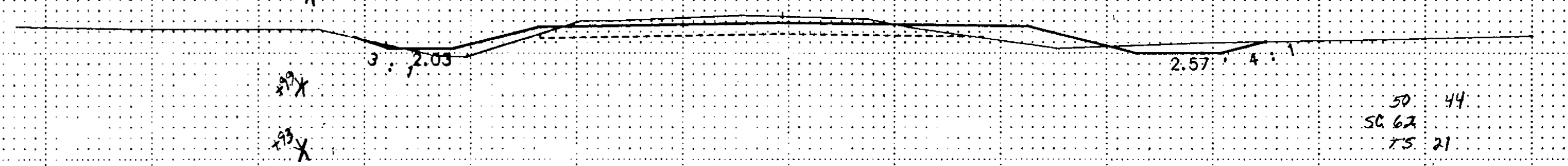
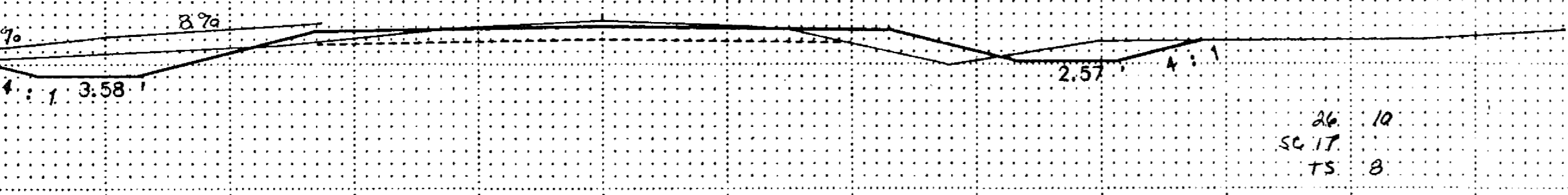
37 29  
SC 28  
TS 13

39 11  
SC 35  
TS 10

Q 16' SAND ENT. LT.

903.68 88+97 903.15

903.29 91+00 902.63

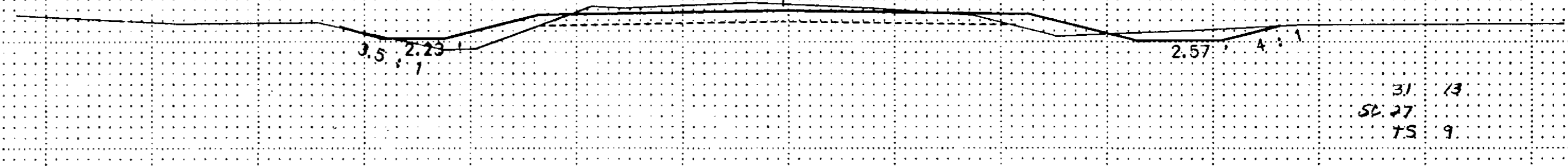
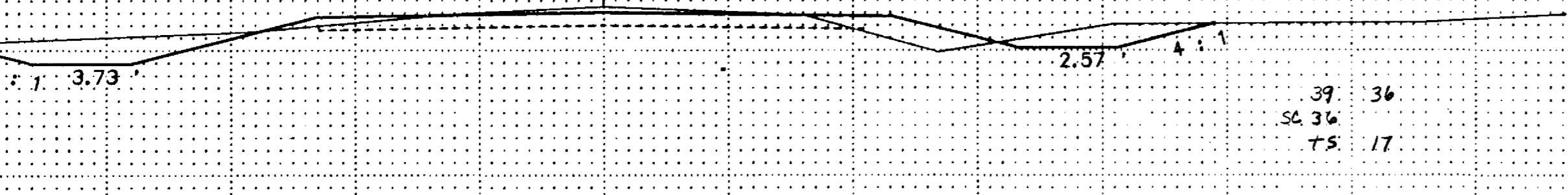


26 10  
SC 17  
TS 8

31 21  
SC 39  
TS 13

903.7 88+85 903.21

903.39 90+57 902.74

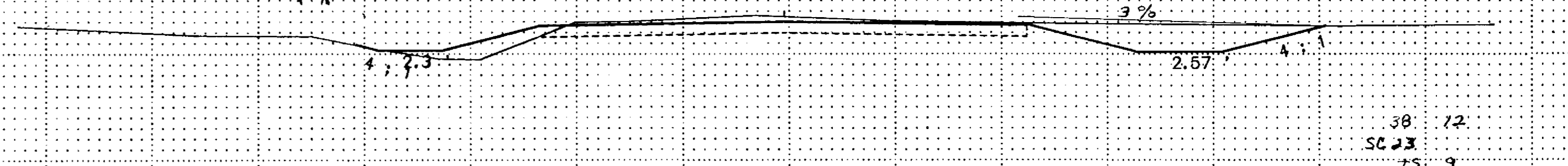
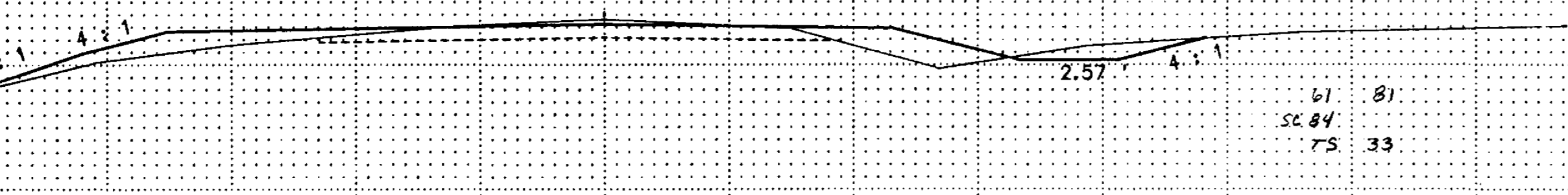


39 36  
SC 36  
TS 17

31 13  
SC 27  
TS 9

903.79 88+59 903.34

903.29 90+40 902.78

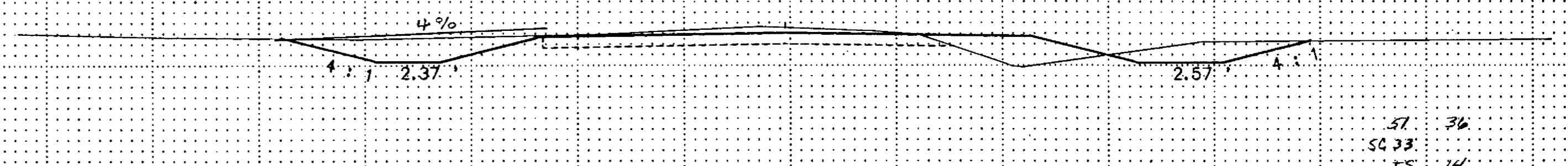
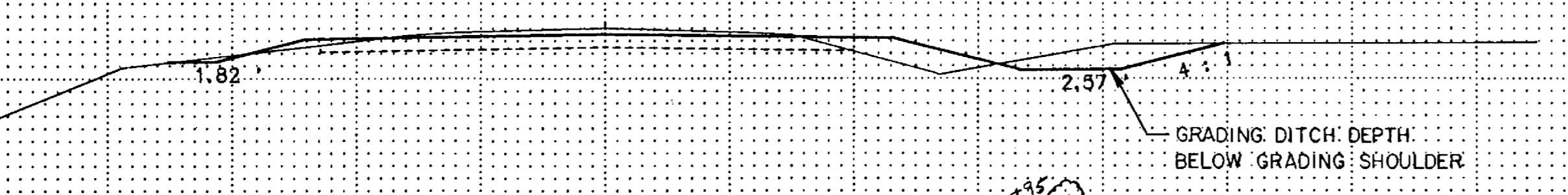


61 81  
SC 84  
TS 33

38 12  
SC 23  
TS 9

904.18 88+00 903.63

903.36 90+25 902.82



55 27  
SC 59  
TS 17

57 36  
SC 33  
TS 14

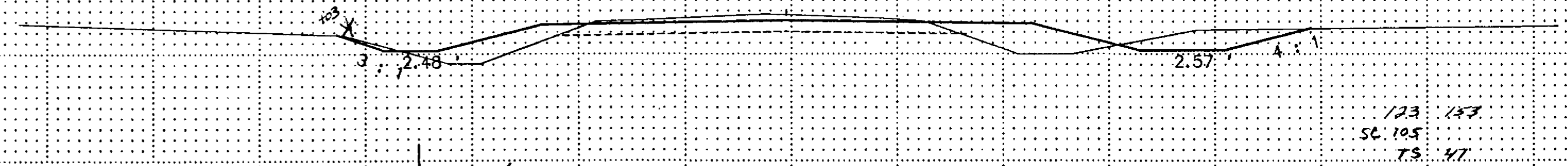
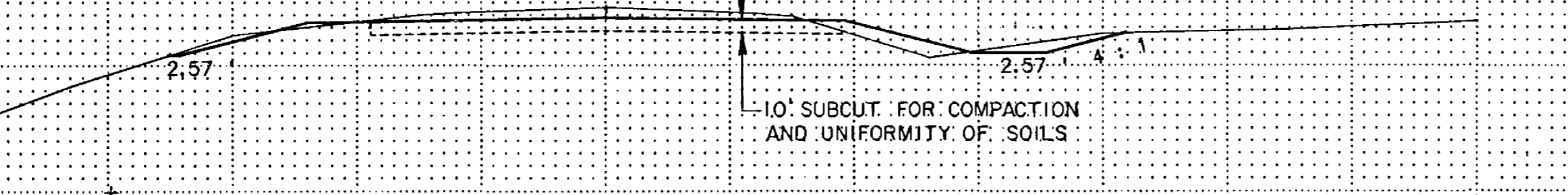
P.O.T. STA. 87+60 BEGIN PROJECT C.P. 89-03-60

EXISTING PROFILE GRADE

PROFILE GRADE (GRADING GRADE)

904.71 87+60 903.83

903.46 90+00 902.88



173 157  
SC 105  
TS 47

173 157  
SC 105  
TS 47

STA. 87+60 - STA. 91+27

COPY EQUIPMENT FORM 11

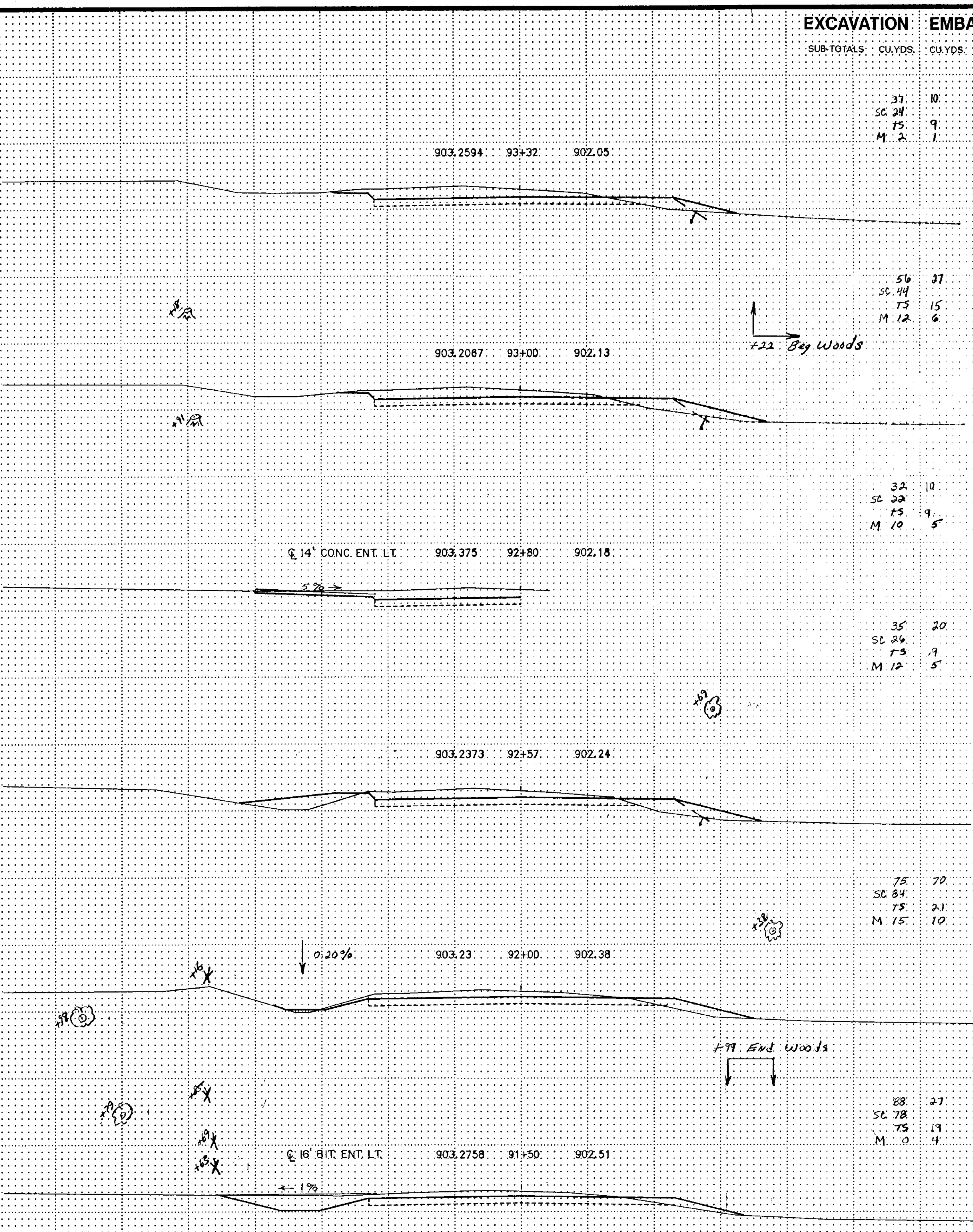


EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS

SUB-TOTALS CU.YDS. SUB-TOTALS



37  
SC 24  
TS 15  
M 2

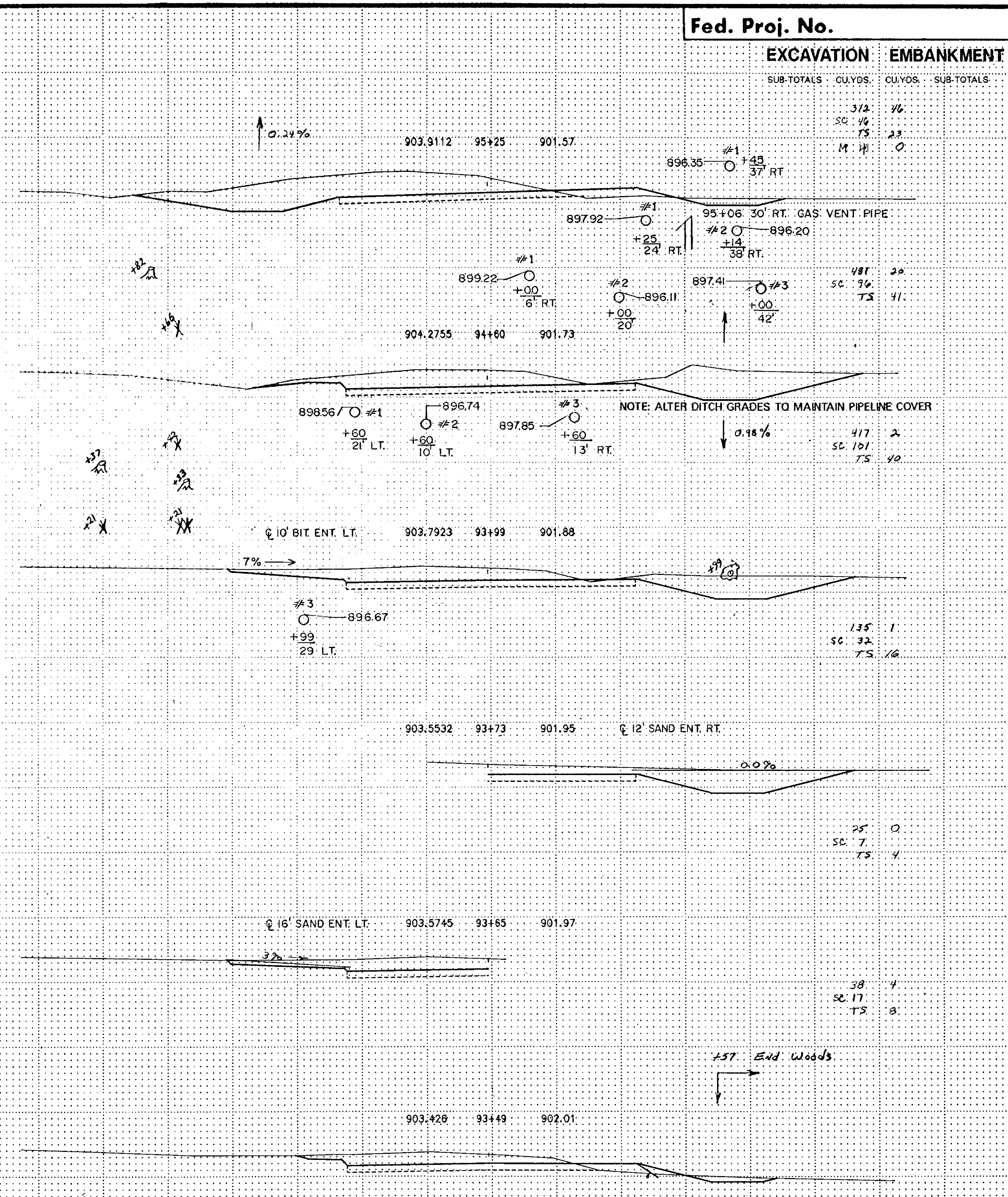
56  
SC 44  
TS 15  
M 12

32  
SC 22  
TS 15  
M 10

35  
SC 26  
TS 19  
M 12

75  
SC 84  
TS 75  
M 15

88  
SC 78  
TS 75  
M 0



372  
SC 46  
TS 75  
M 11

481  
SC 96  
TS 75  
M 11

417  
SC 101  
TS 75

135  
SC 32  
TS 75

75  
SC 7  
TS 75

38  
SC 17  
TS 75

STA 91+50 - STA 95+25



**EXCAVATION EMBANKMENT**

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

36. 335  
 SC 8. 6  
 TS. 6  
 M 110. 14

51. 296  
 SC 78. 13  
 TS. 13  
 M 189. 22

59. 273  
 SC 18. 13  
 TS. 13  
 M 127. 37

64. 432  
 SC 12. 17  
 TS. 17  
 M 168. 59

27. 130  
 SC 29. 12  
 TS. 12  
 M 41. 16

254. 108  
 SC 21. 27  
 TS. 27  
 M 28. 6

**Fed. Proj. No.**

**EXCAVATION EMBANKMENT**

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

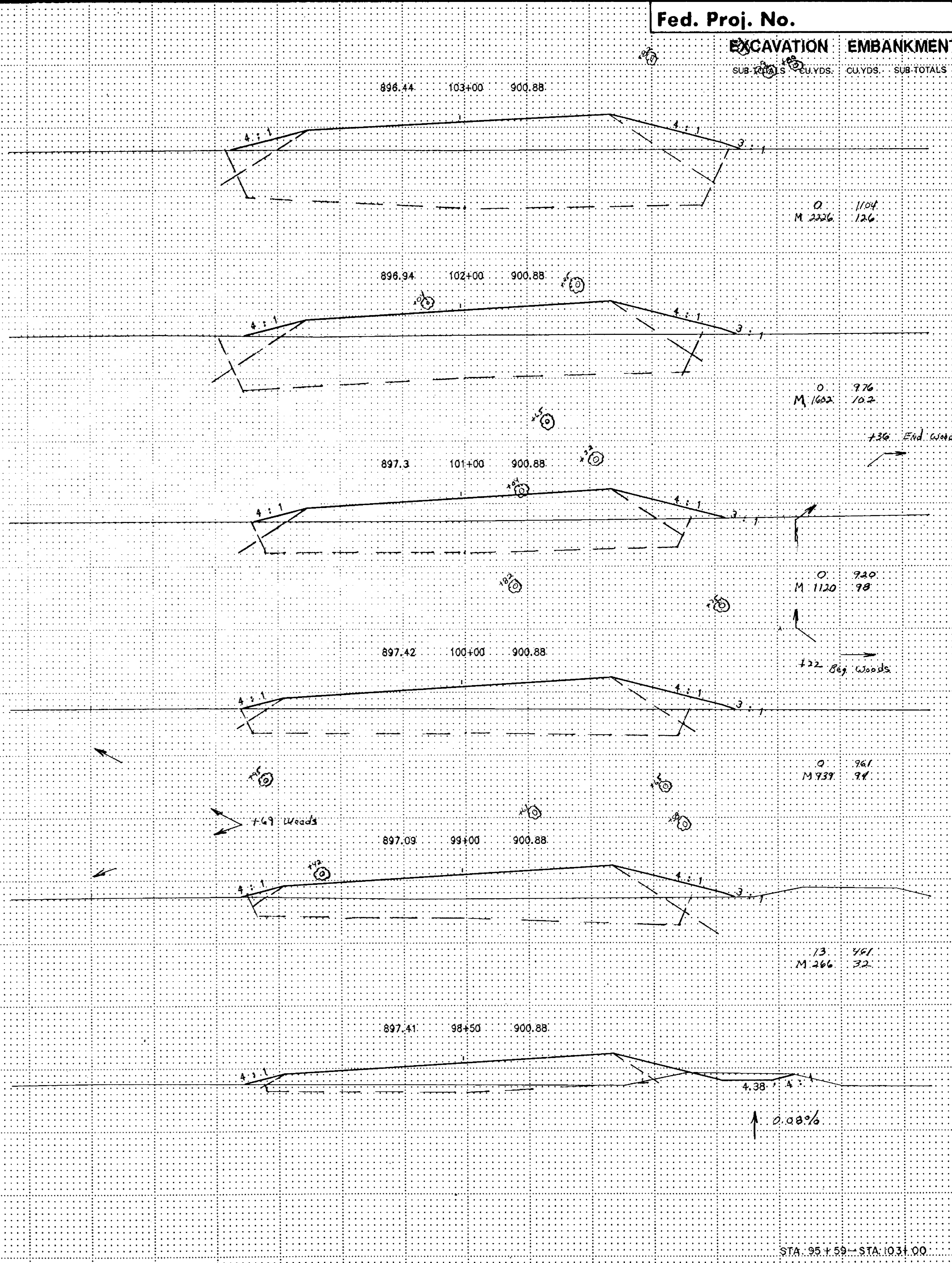
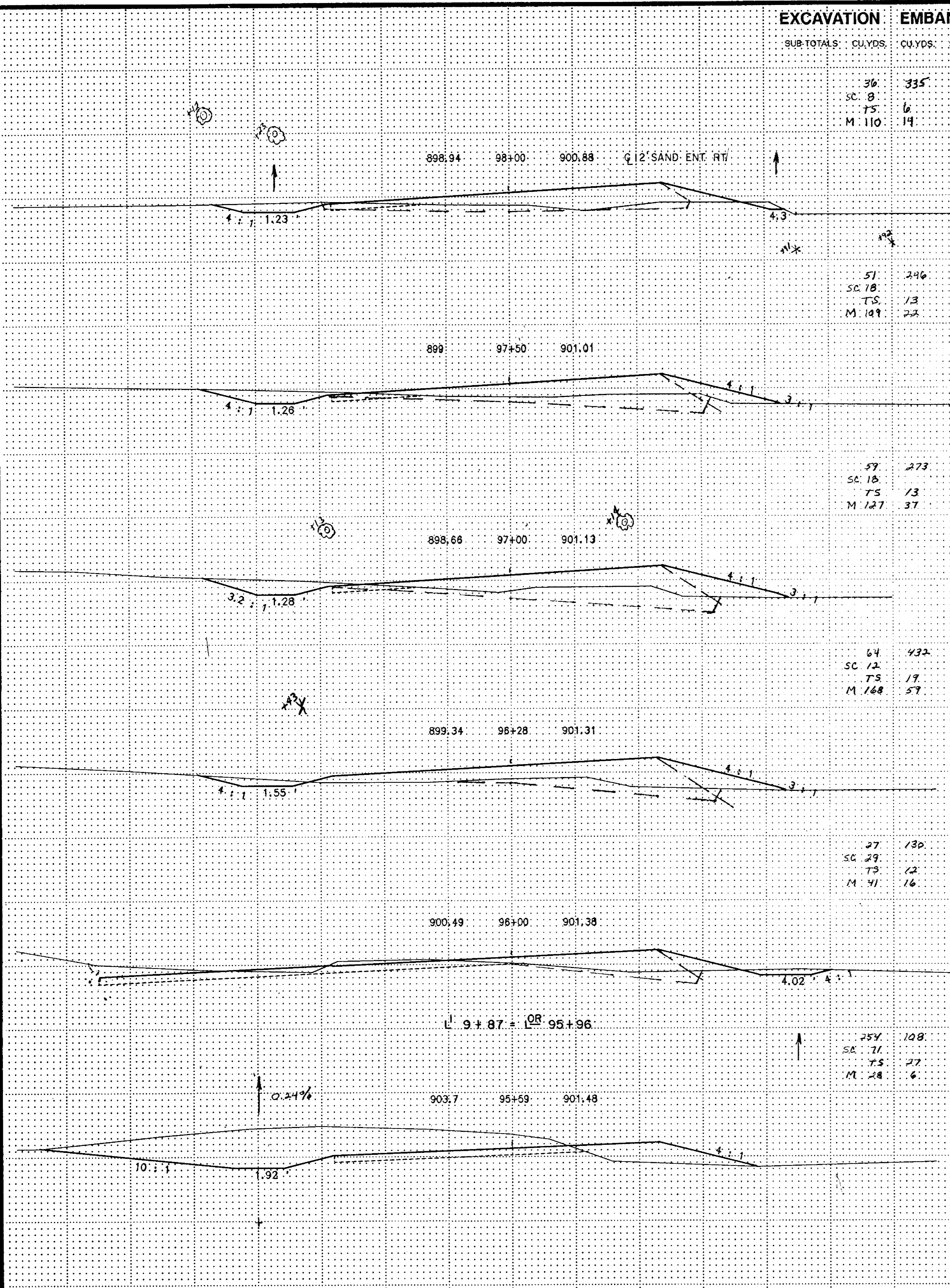
0. 1104  
 M 2226. 126

0. 976  
 M 1622. 102

0. 920  
 M 1120. 98

0. 961  
 M 737. 91

13. 461  
 M 266. 32



STA. 95+59 - STA. 103+00

COPY EQUIPMENT FORM #1



**EXCAVATION EMBANKMENT**

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

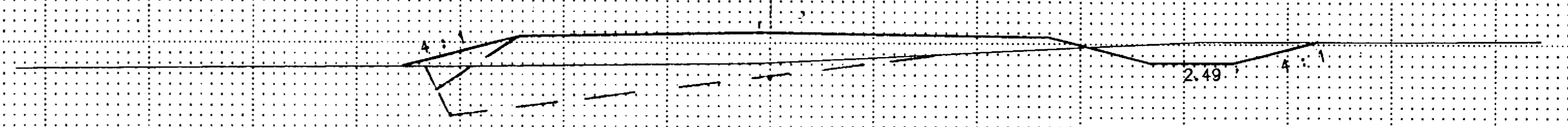
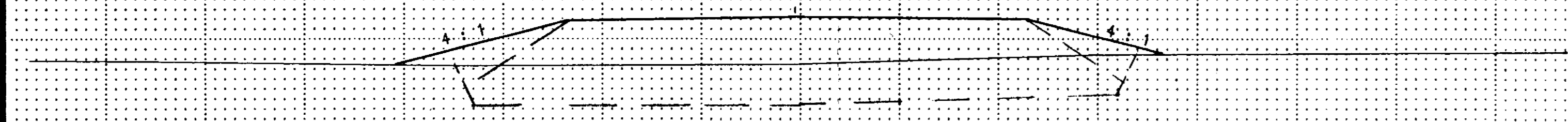
Fed. Proj. No.

**EXCAVATION EMBANKMENT**

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

897.84 106+00 902.32

897.96 110+00 900.88

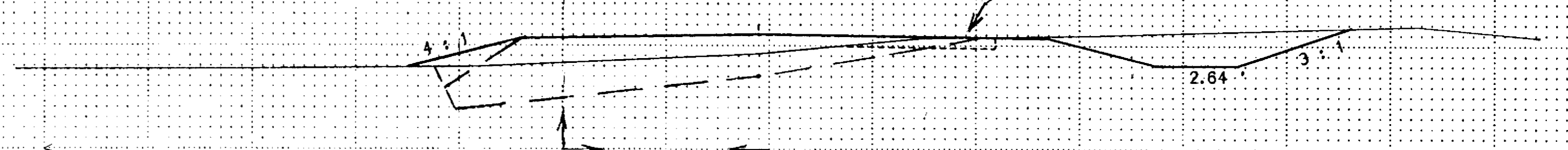
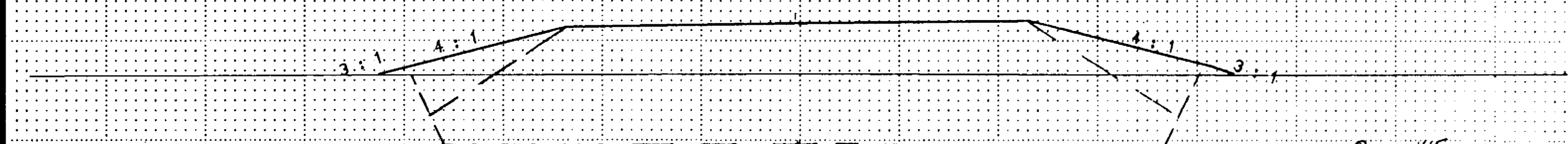


O 1198  
M 1481 187

O 175  
M 324 407  
SC 20  
TS 28

898.84 105+00 901.88

899.07 109+00 900.88

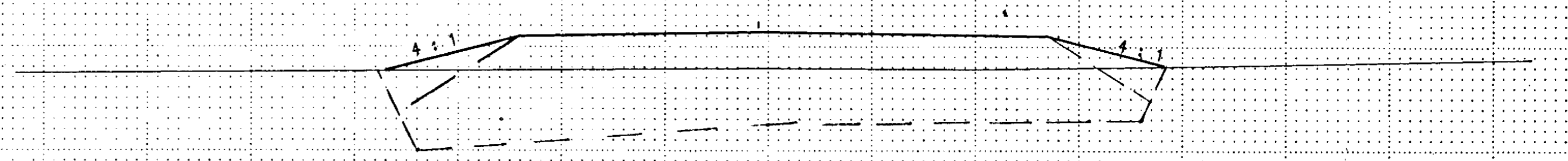
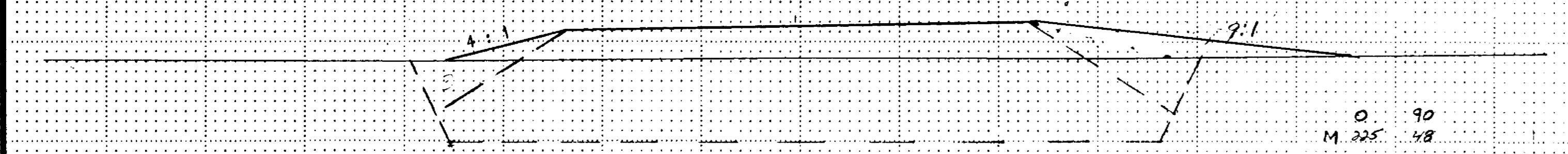


O 415  
M 762 117

O 75  
M 553 361  
SC 13  
TS 9

898.54 104+61 901.69 DITCH BANK 20° SKEW

897.77 108+36 901.2

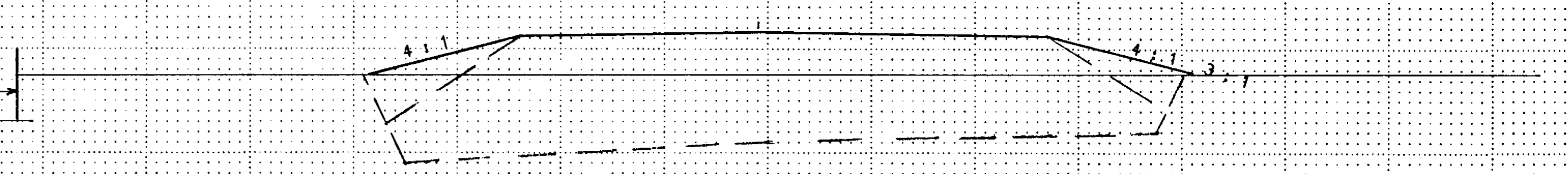
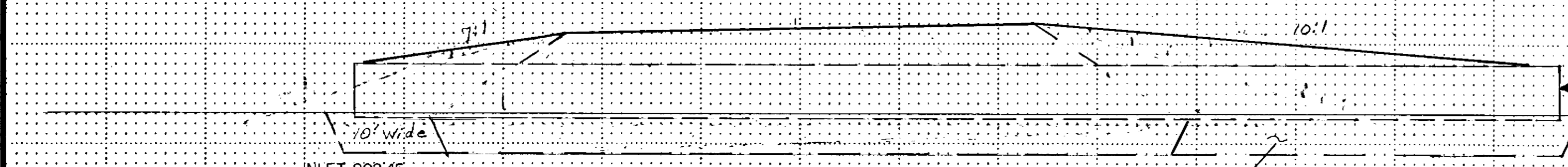


O 90  
M 225 48

O 329  
M 553 39

891.94 104+49 901.63 DITCH BOTTOM 20° SKEW

897.37 108+00 901.38



36 CU. YDS. RIP RAP CL. #4  
18 CU. YDS. GRANULAR FILTER BLANKET  
SEE STD. PLATE 3134 B

INLET 892.45

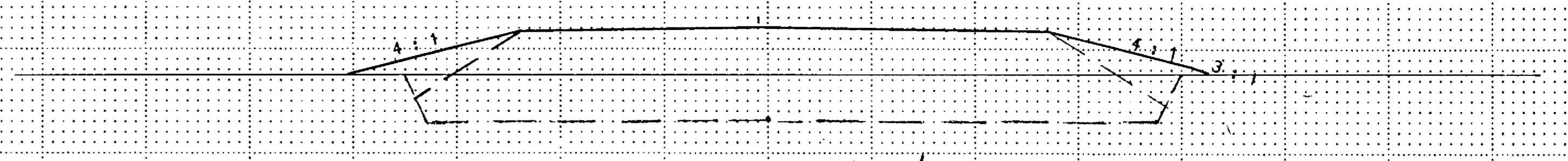
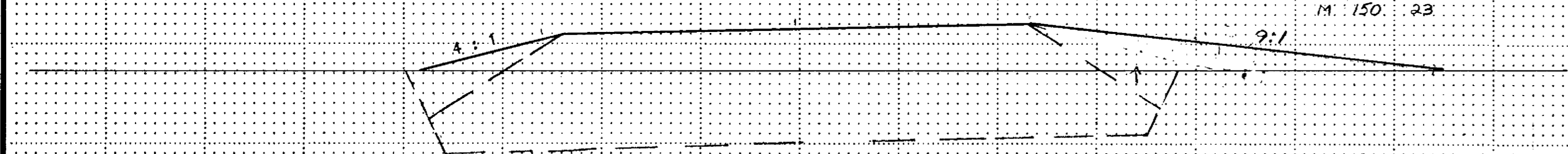
STA 104+49 X- CULVERT 20° SKEW  
FBI 66" X 120" C.M.P. 0.10%  
FBI 2'-66" C.M.P. APRONS

OUTLET 892.34

14' WIDE TRENCH, EXCAVATION TO BE INCLUDED WITH MUCK EXCAVATION  
BACKFILL WITH GRANULAR MATERIAL

897.44 104+41 901.59 DITCH BANK 20° SKEW

897.37 107+00 901.88

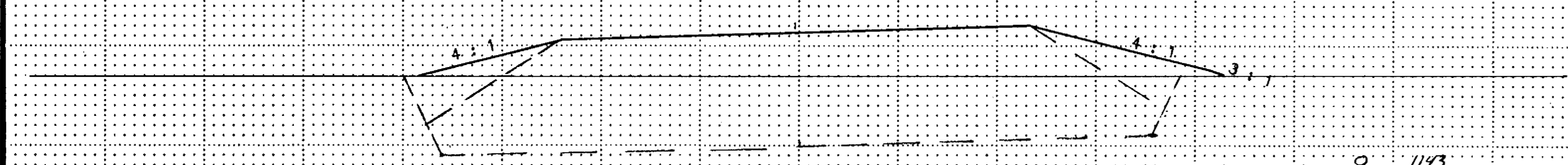


O 447  
M 793 24

O 754  
M 738 76

897.03 104+00 901.38

898.37 106+25 902.26



O 1143  
M 2194 152

O 240  
M 252 31

STA 104+00 - STA 110+00

COPY EQUIPMENT FORM 11



EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

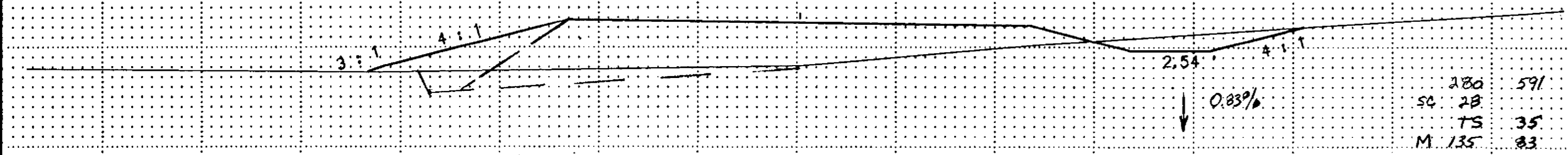
Fed. Proj. No.

EXCAVATION EMBANKMENT

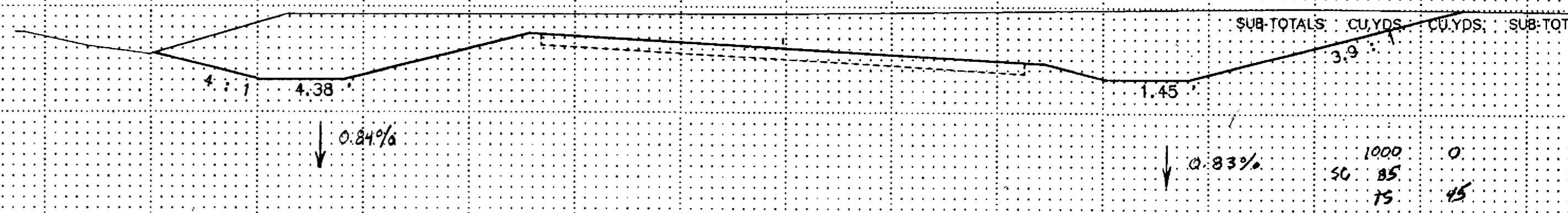
SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

898.29 116+00 902.56

909.23 120+00 905.92



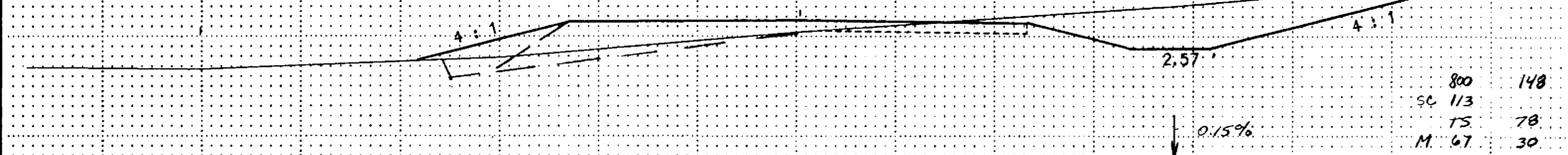
280	591
SC 28	
TS 35	
M 135	83



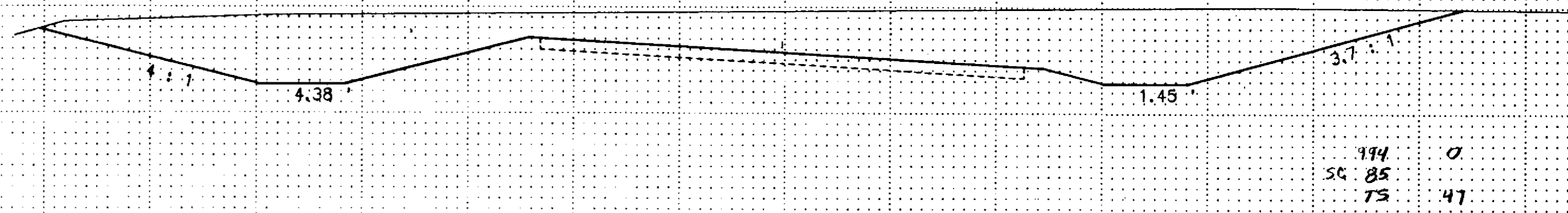
1000	0
SC 85	
TS 45	

900.59 115+00 901.72

909.43 119+50 905.5



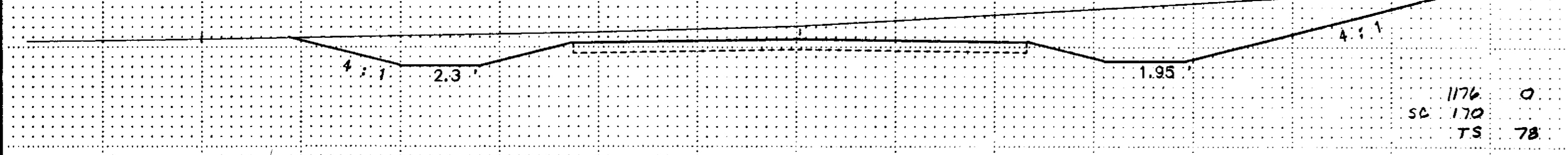
800	148
SC 113	
TS 78	
M 67	30



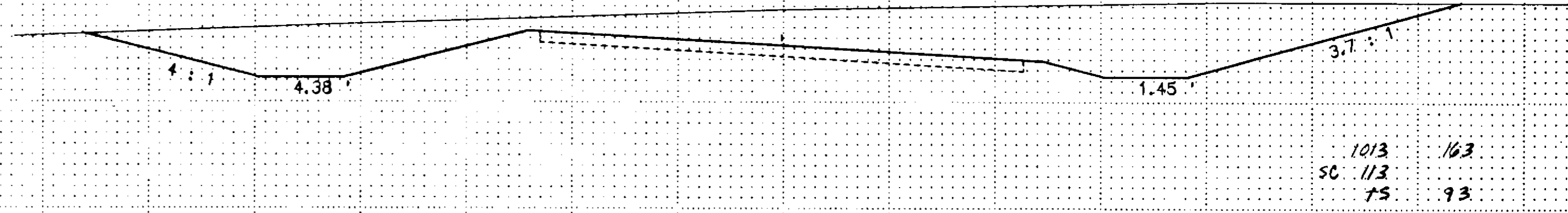
999	0
SC 85	
TS 47	

902.29 114+00 900.93

908.53 119+00 905.08



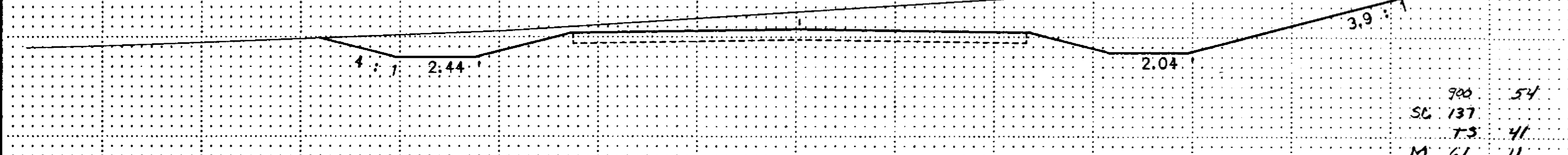
1176	0
SC 170	
TS 78	



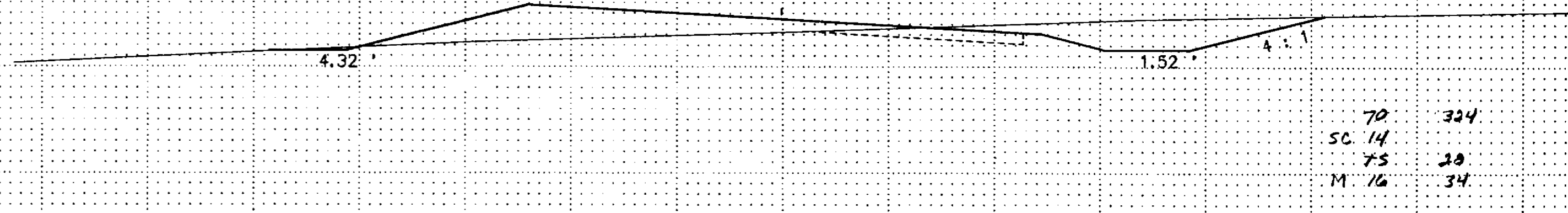
1013	163
SC 113	
TS 93	

902.69 113+00 900.88

903.03 118+00 904.24



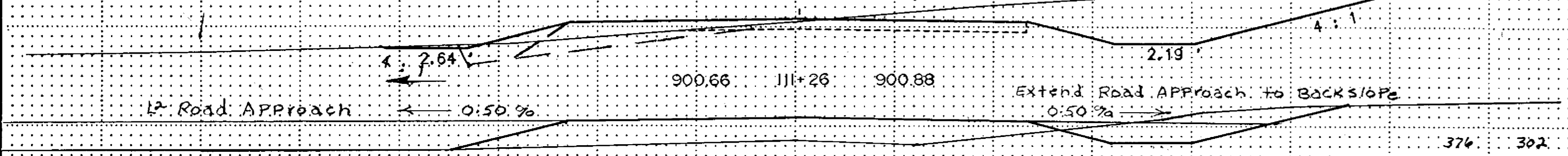
900	54
SC 137	
TS 41	
M 61	11



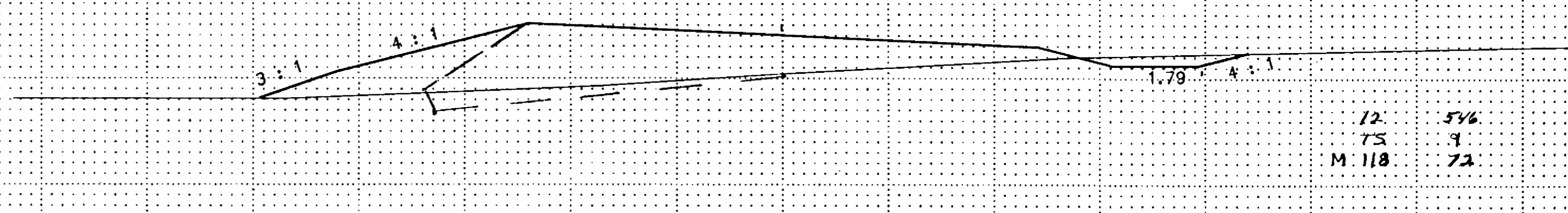
70	324
SC 14	
TS 30	
M 16	34

900.68 112+00 900.88

900.23 117+50 903.82



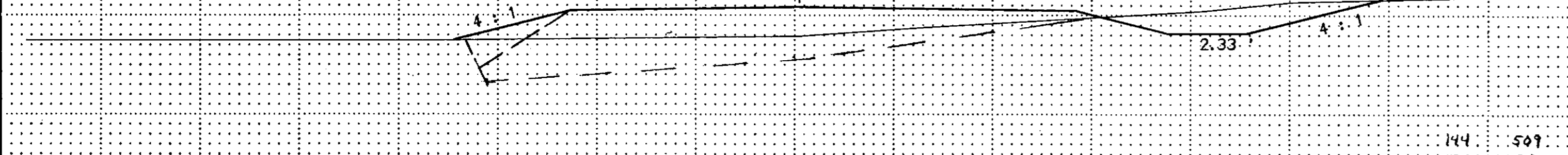
376	302
SC 52	
TS 33	
M 239	31



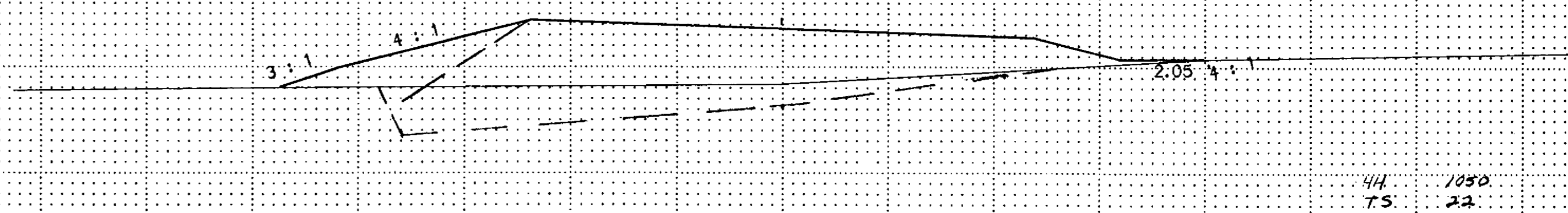
12	546
TS 9	
M 118	72

897.96 111+00 900.88

898.19 117+00 903.4



144	509
TS 28	
M 326	39



441	1050
TS 22	
M 271	130

STA 111+00 - STA 120+00

COPY EQUIPMENT FORM 81



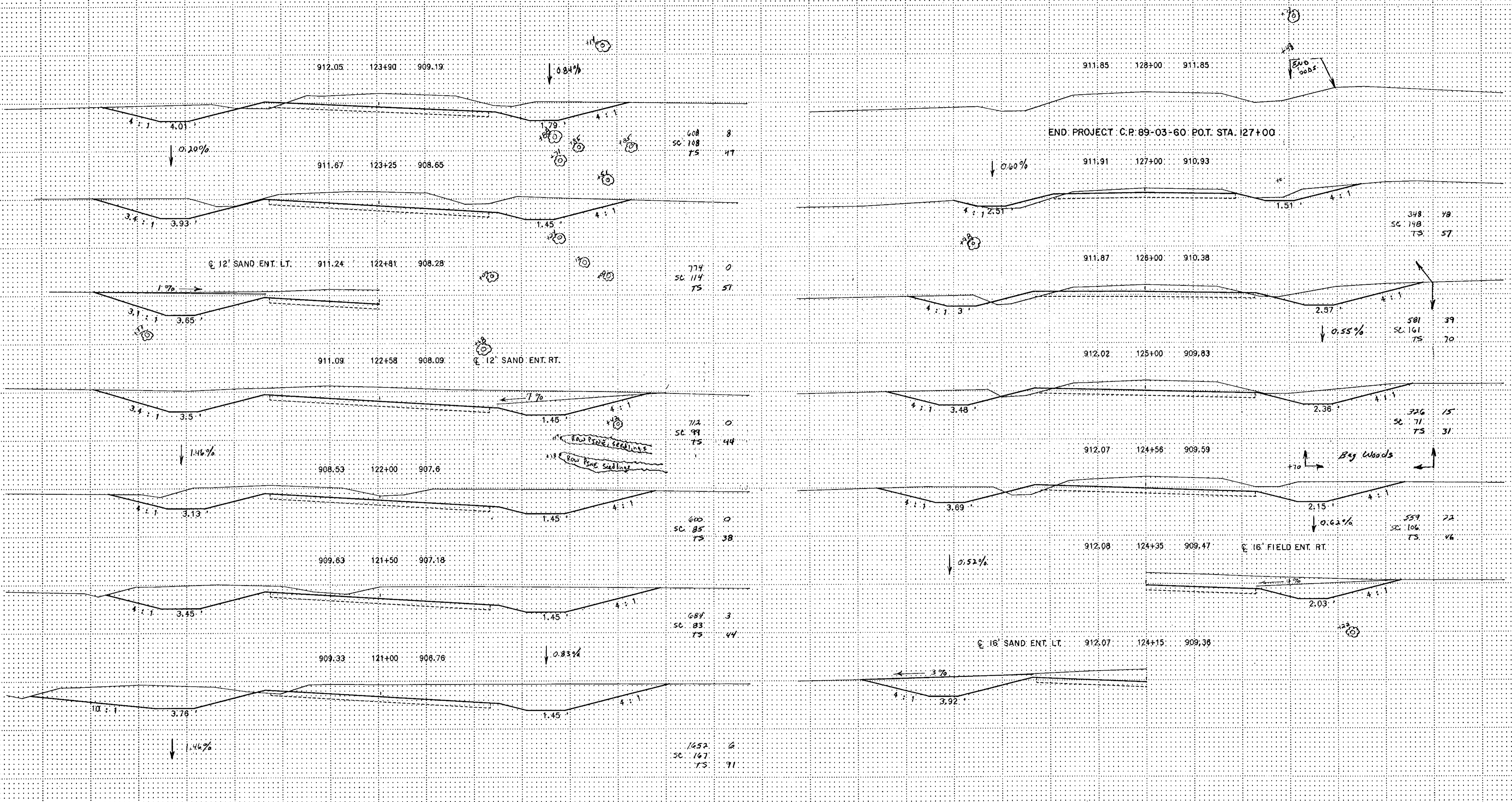
EXCAVATION EMBANKMENT

SUB-TOTALS: CU.YDS. CU.YDS. SUB-TOTALS

Fed. Proj. No.

EXCAVATION EMBANKMENT

SUB-TOTALS: CU.YDS. CU.YDS. SUB-TOTALS



END PROJECT C.P. 89-03-60 P.O.T. STA. 127+00

SAND  
GOOD

12' SAND ENT. RT.

By Woods

16' FIELD ENT. RT.

16' SAND ENT. LT.

STA 121+00 - STA 128+00

State Proj. No.

CP 89-03-60

Sheet No. 19 of 27 Sheets

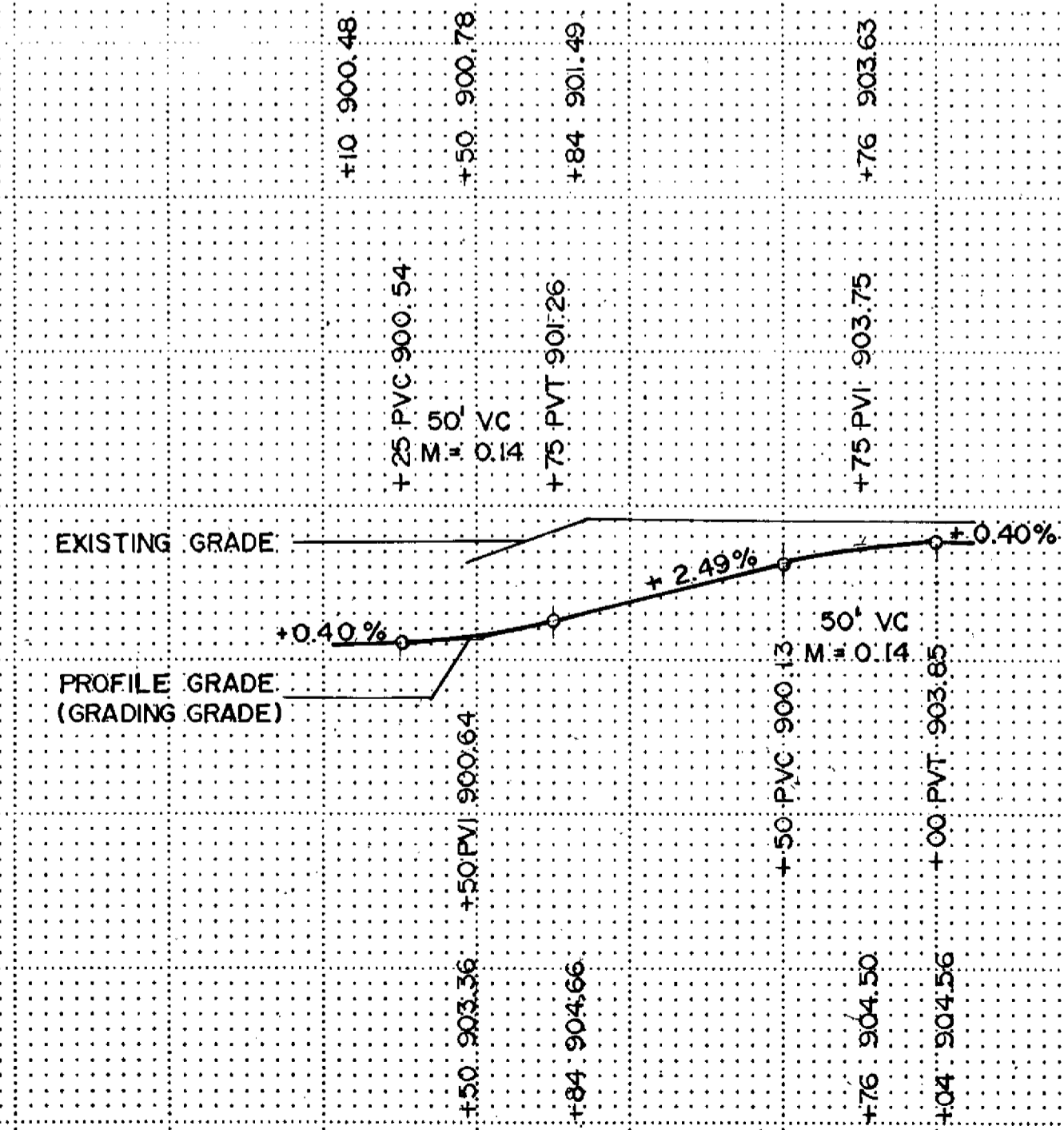
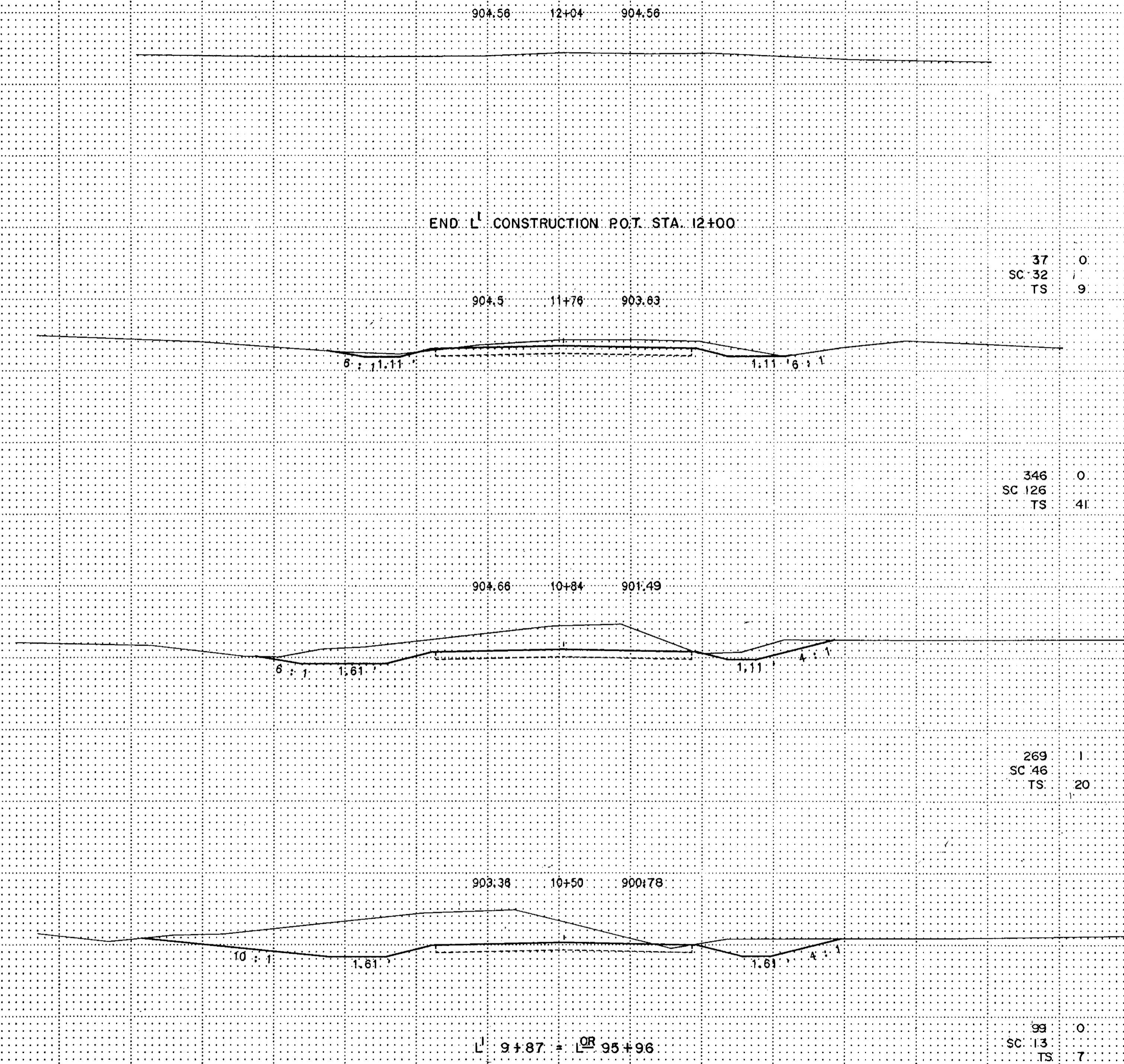
CP-1 EXCAVATION FORM 11



EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS

Fed. Proj. No.

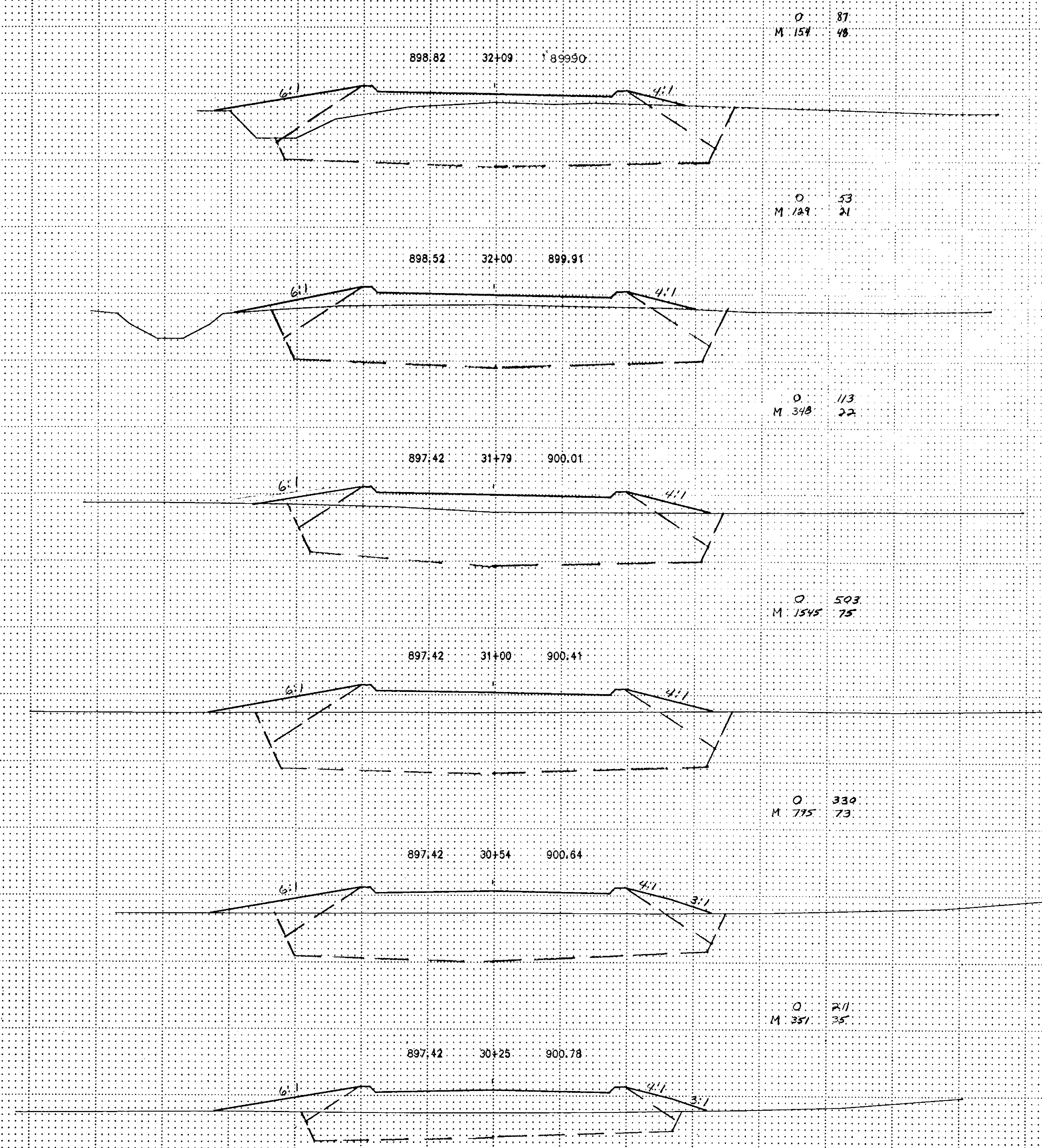


STA: 10+50 - STA: 12+04

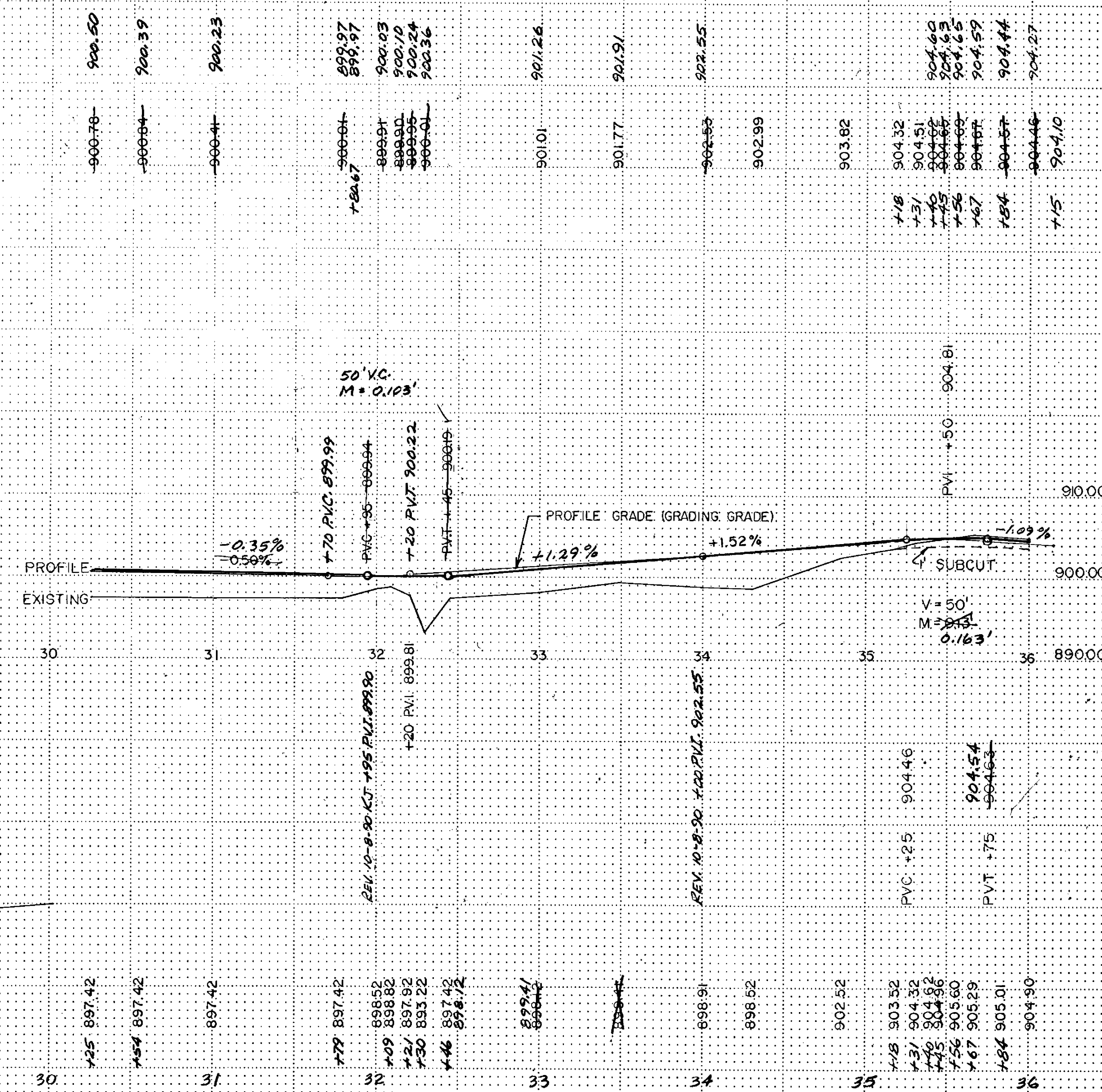


EXCAVATION EMBANKMENT

SUB-TOTALS CU.YDS. SUB-TOTALS



L<sup>2</sup> STA. 30+00 = C.R. 60 ALIGN. STA. 1111+26



STA. 30+25 = STA. 32+09

COPY EQUIPMENT FORM 81



EXCAVATION		EMBANKMENT	
SUB-TOTALS	CU.YDS.	CU.YDS.	SUB-TOTALS

O 344  
M 37  
TS 3

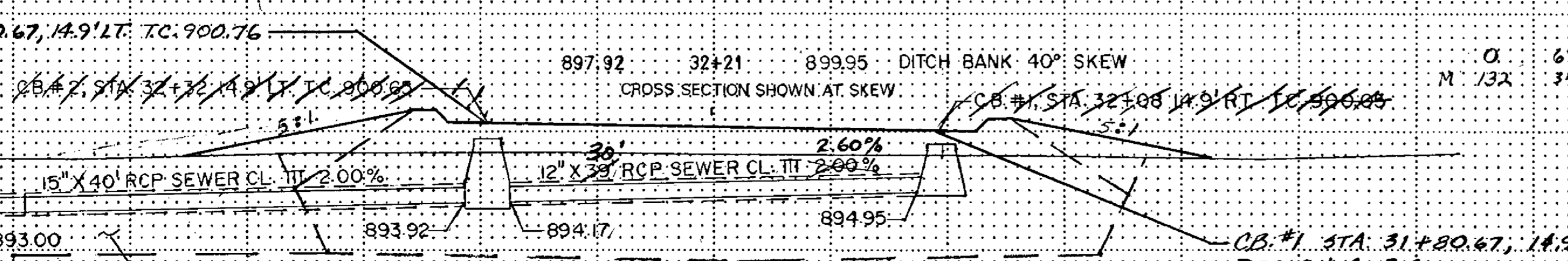
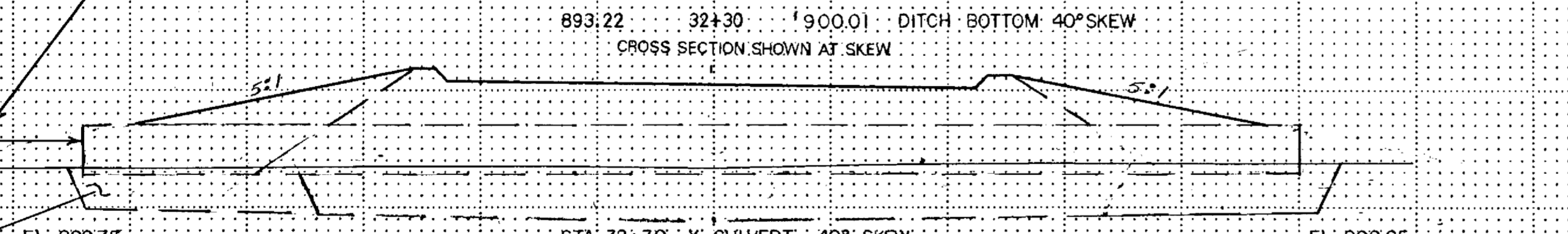
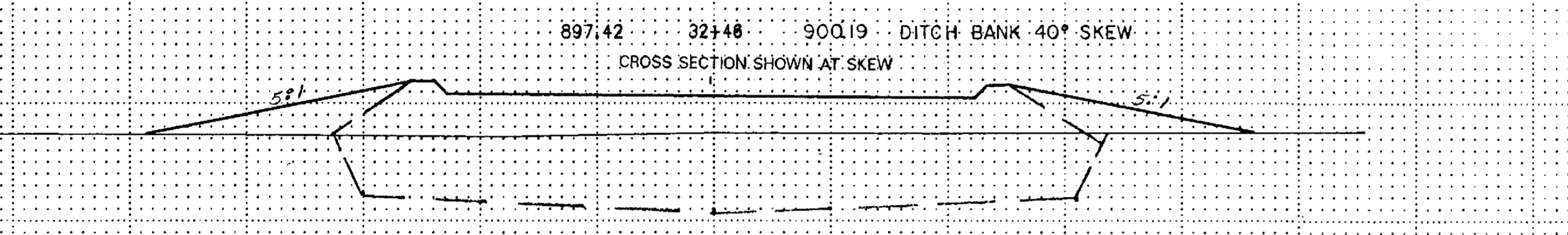
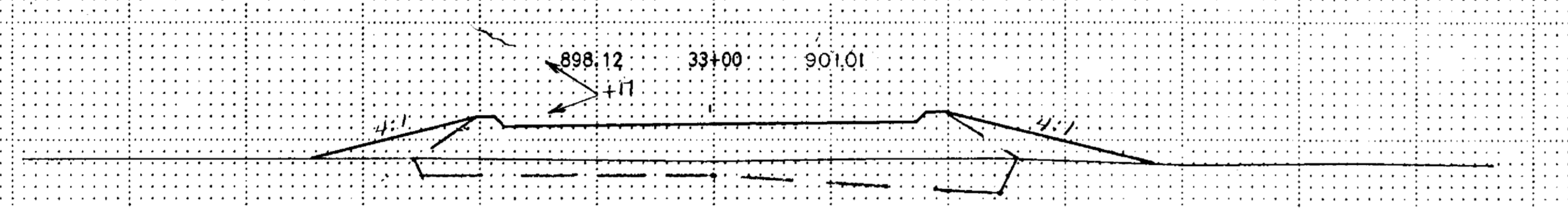
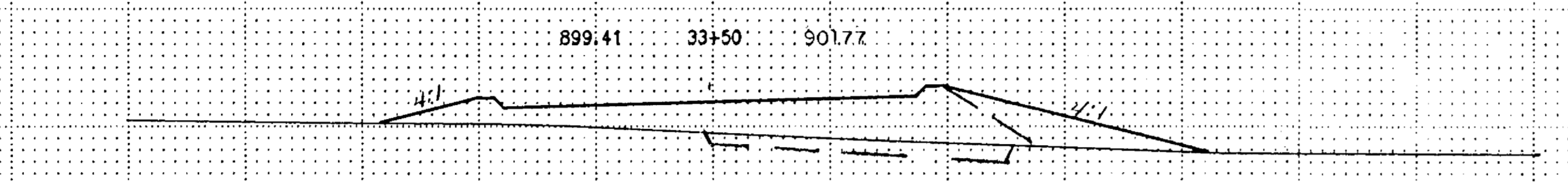
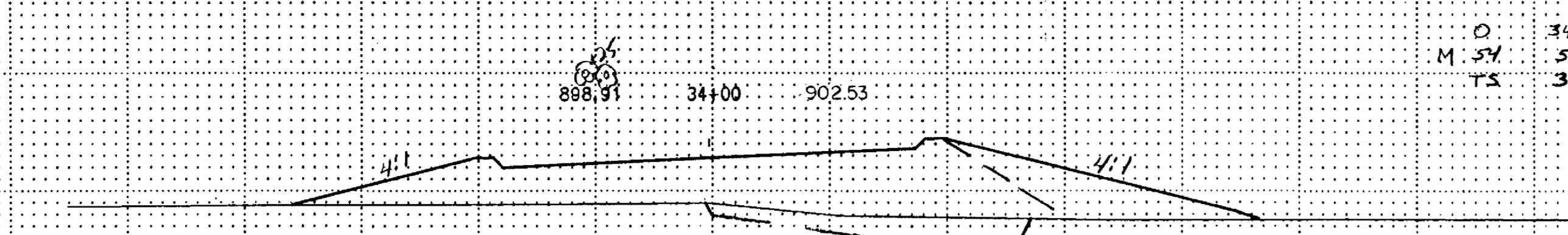
O 435  
M 80  
60

O 331  
M 94  
39

O 454  
M 385  
61

O 139  
M 230  
33

O 67  
M 132  
34



22 CU. YDS. RIP. RAP. CL. #4  
11 CU. YDS. GRANULAR FILTER BLANKET  
SEE STD. PLATE 3134 B

CB #2 STA. 31+80.67, 14.9' LT. TC. 900.76  
DESIGN A OR F

CB #1 STA. 31+80.67, 14.9' RT. TC. 900.18  
DESIGN C OR G

8' WIDE TRENCH, EXCAVATION TO BE INCLUDED WITH MUCK EXCAVATION.  
BACKFILL WITH GRANULAR MATERIAL.

STA 32+21 - STA 34+00



**EXCAVATION      EMBANKMENT**

SUB-TOTALS    CU.YDS.    CU.YDS.    SUB-TOTALS

**Fed. Proj. No.**

**EXCAVATION      EMBANKMENT**

SUB-TOTALS    CU.YDS.    CU.YDS.    SUB-TOTALS

904.98    35+45    904.65

5    2  
SC 11  
TS    1

904.62    35+40    904.60

4    16  
SC 14  
TS    2

904.32    35+31    904.51

0    29  
SC 9  
TS    3

903.52    35+18    904.32

1    84  
SC 9  
TS    7

902.52    34+85    903.82

0    424  
M 44    46  
TS    12

898.52    34+30    902.99

END L<sup>2</sup> CONSTRUCTION STA 36+15

904.9    36+00    904.46

7    4  
SC 24  
TS    3

905.01    35+84    904.57

15    6  
SC 28  
TS    3

905.23    35+70    904.68

5    0  
SC 7

905.29    35+67    904.67

24    1  
SC 27  
TS    2

E. Constance Blvd.

905.8    35+58    904.69

20    2  
SC 26  
TS    1

STA 34+30 - STA 36+00

**State Proj. No.**

CP 89 03 60

L<sup>2</sup>

**Sheet No. 23 of 27 Sheets**

COPY EQUIPMENT FORM #1



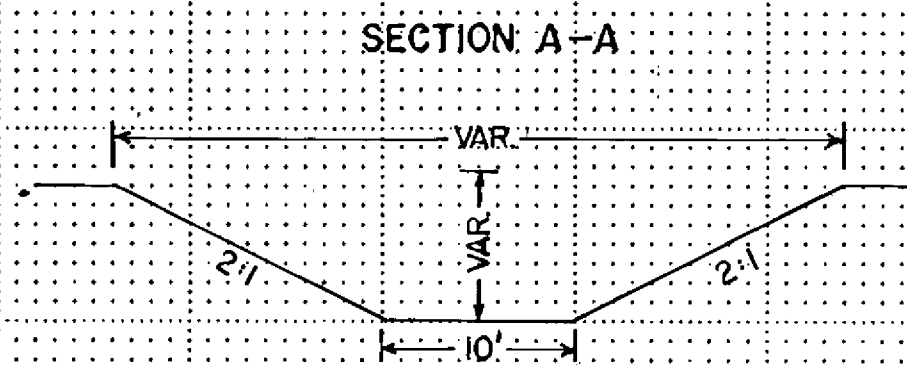
**EXCAVATION EMBANKMENT**

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

**Fed. Proj. No.**

**EXCAVATION EMBANKMENT**

SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS



\* INCLUDES 490 CU. YDS. FOR DITCH EXC.

\* 578  
TS 9

908.28 8+00 906.5

903.87 8+12 900.5

191. 31  
TS 54

903.89 8+00 900.5

58 0  
TS 6

908.54 8+00 905

259. 26  
TS 58

903.9 8+87 900.87

142. 0  
TS 15

904.91 7+00 902

904.14 5+00 901

258 7  
TS 34

904.65 8+85 901.55

58 0  
TS 7

904.36 4+00 901.5

389 17  
TS 54

904.27 8+57 900.71

124. 0  
TS 14

904.74 3+00 902

363 6  
TS 54

904.15 8+50 900.5

34. 0  
TS 3

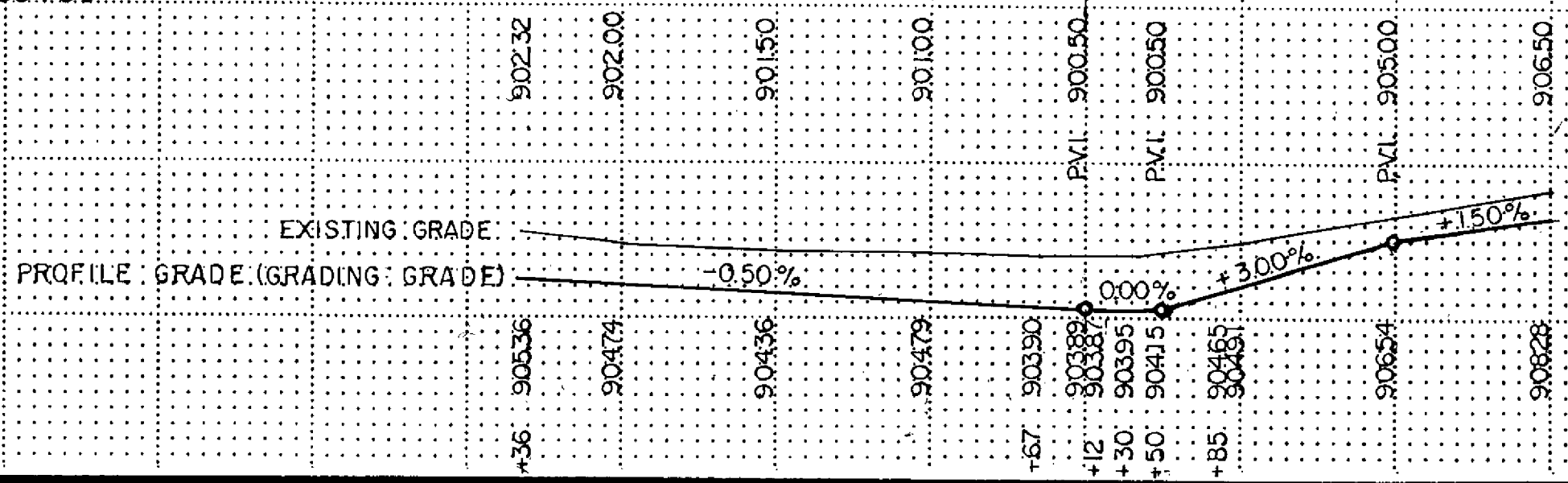
905.26 2+36 902.32

230 1  
TS 33

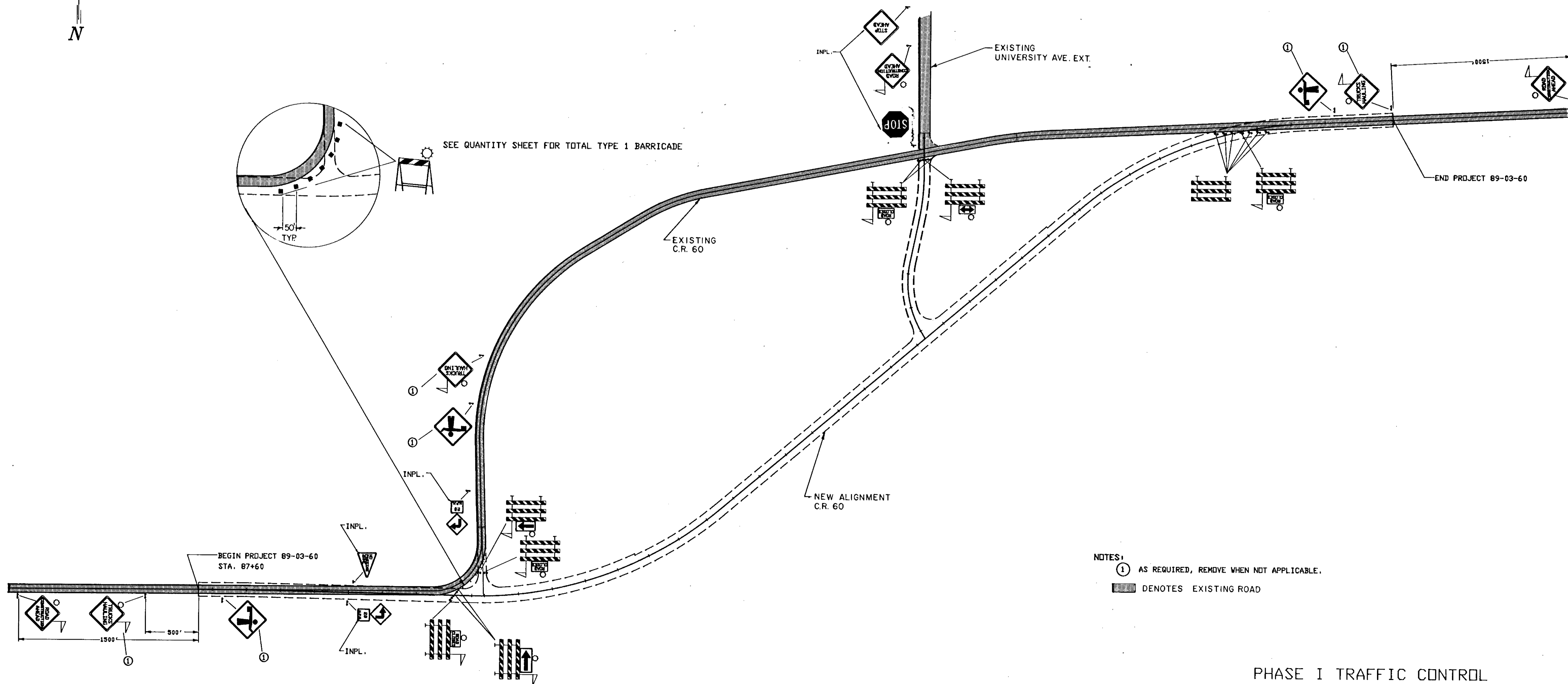
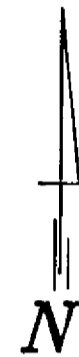
903.95 8+30 900.5

98. 0  
TS 10

STA. 2+00 = STA. 35+56







SEE QUANTITY SHEET FOR TOTAL TYPE 1 BARRICADE

BEGIN PROJECT 89-03-60  
STA. 87+60

EXISTING  
C.R. 60

NEW ALIGNMENT  
C.R. 60

EXISTING  
UNIVERSITY AVE. EXT.

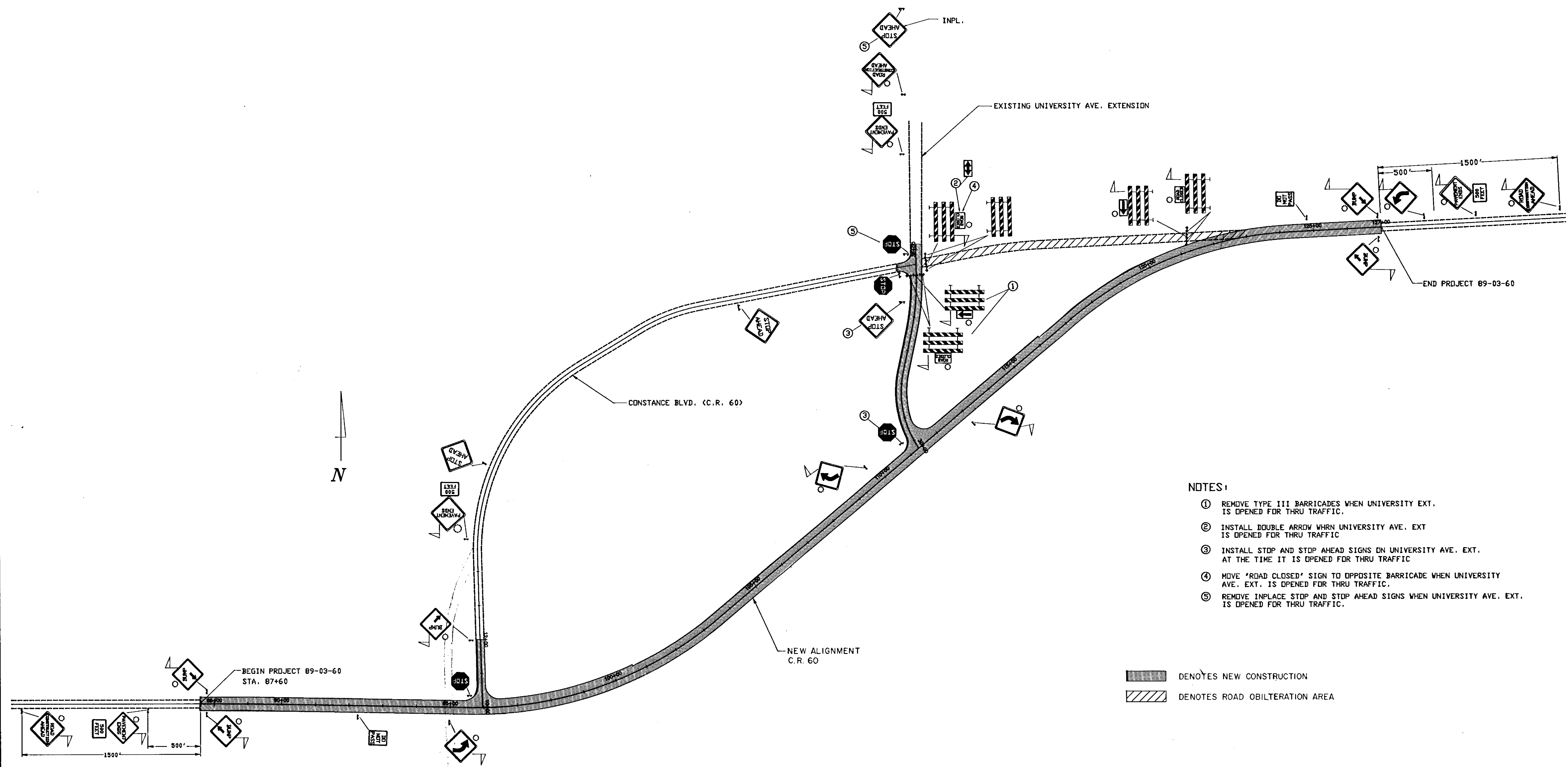
END PROJECT 89-03-60

NOTES:  
 ① AS REQUIRED, REMOVE WHEN NOT APPLICABLE.  
 [Hatched Box] DENOTES EXISTING ROAD

PHASE I TRAFFIC CONTROL

REVISIONS			
DATE	BY	DATE	BY

S.A.P. \_\_\_\_\_ S.P. \_\_\_\_\_ C.P. 89-03-60



NOTES:

- ① REMOVE TYPE III BARRICADES WHEN UNIVERSITY EXT. IS OPENED FOR THRU TRAFFIC.
- ② INSTALL DOUBLE ARROW WHEN UNIVERSITY AVE. EXT IS OPENED FOR THRU TRAFFIC
- ③ INSTALL STOP AND STOP AHEAD SIGNS ON UNIVERSITY AVE. EXT. AT THE TIME IT IS OPENED FOR THRU TRAFFIC
- ④ MOVE 'ROAD CLOSED' SIGN TO OPPOSITE BARRICADE WHEN UNIVERSITY AVE. EXT. IS OPENED FOR THRU TRAFFIC.
- ⑤ REMOVE INPLACE STOP AND STOP AHEAD SIGNS WHEN UNIVERSITY AVE. EXT. IS OPENED FOR THRU TRAFFIC.

DENOTES NEW CONSTRUCTION  
 DENOTES ROAD OBLITERATION AREA

PHASE II TRAFFIC CONTROL

REVISIONS			
DATE	BY	DATE	BY

S.A.P. \_\_\_\_\_ S.P. \_\_\_\_\_ C.P. 89-03-60



M.U.T.C.D. CODE	SIZE	INSERT	PHASE I QTY.	PHASE II QTY.
TYPE I	2 FT.		① 8	0
TYPE III	8 FT.		6	2
YELLOW FLASHER R11-2 TYPE III	48' x 30' 8 FT.		5	5
YELLOW FLASHER W1-6L TYPE III	48' x 24' 8 FT.		2	1
YELLOW FLASHER W1-6R TYPE III	48' x 24' 8 FT.		1	1
YELLOW FLASHER W1-7 TYPE III	48' x 24' 8 FT.		1	0
R1-1	30' x 30'		0	3
R4-1	24' x 30'		0	2
YELLOW FLASHER W1-2L	36' x 36'		0	2
YELLOW FLASHER W1-2R	36' x 36'		0	2
YELLOW FLASHER * W1-6R	48' x 24'		0	1
W3-1	30' x 30'		0	3
YELLOW FLASHER W8-1 MOD.	36' x 36'		0	5
YELLOW FLASHER W8-3	48' x 48'		0	4
W20-100P	24' x 18'			
YELLOW FLASHER W11-X4	36' x 36'		3	0
YELLOW FLASHER W20-1	36' x 36'		3	3
W20-7a	48' x 48'		3	0

① 50' SPACING THROUGH CURVE REQUIRED. QUANTITY COUNT IS APPROXIMATE.

\* SEE SHEET 26 OF 27 FOR INSTALLATION NOTE.

LOCATIONS OF ALL SIGNS ARE APPROXIMATE, EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

ALL SIGNS AND BARRICADES WILL BE PROPERLY WEIGHTED WITH SANDBAGS.

ALL BARRICADES WILL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.

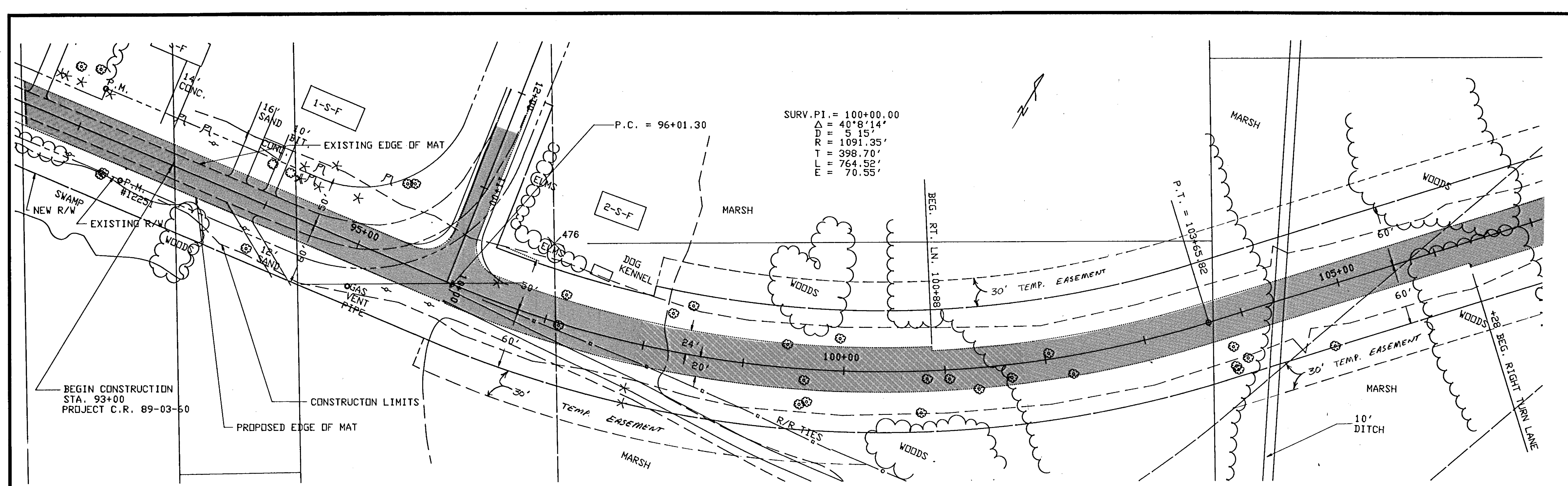
ALL BARRICADE MARKINGS WILL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B', DATED SEPTEMBER, 1985.

ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AT ANYTIME AS DETERMINED BY THE ENGINEER.

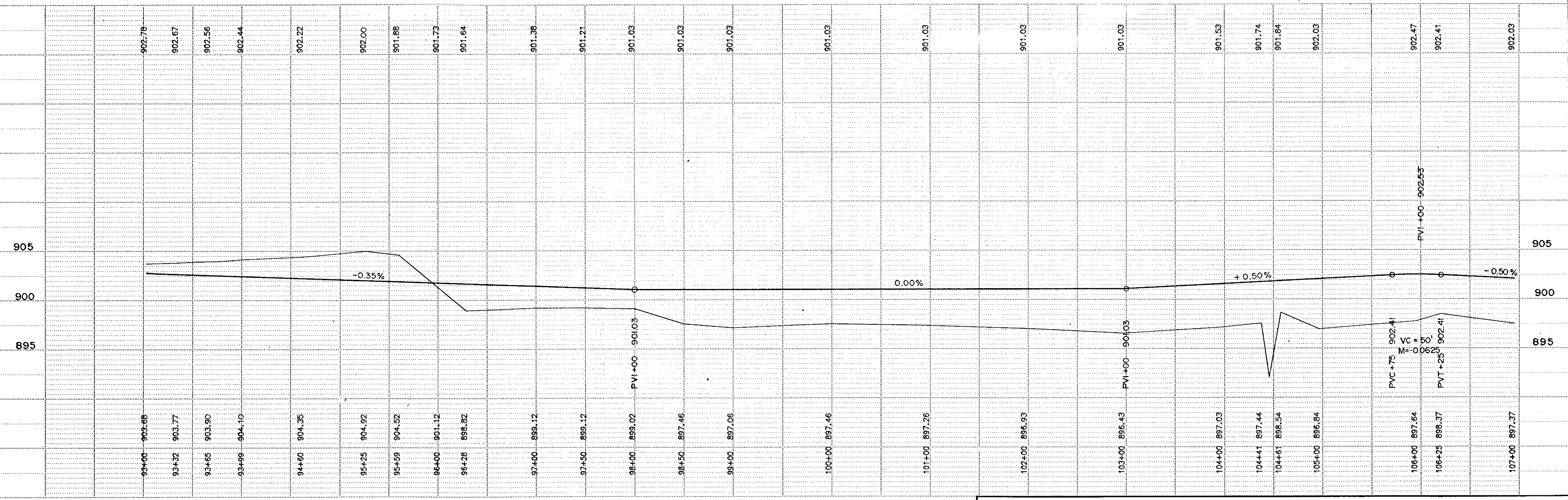
REVISIONS			
DATE	BY	DATE	BY

S.A.P. \_\_\_\_\_ S.P. \_\_\_\_\_ C.P. 89-03-60

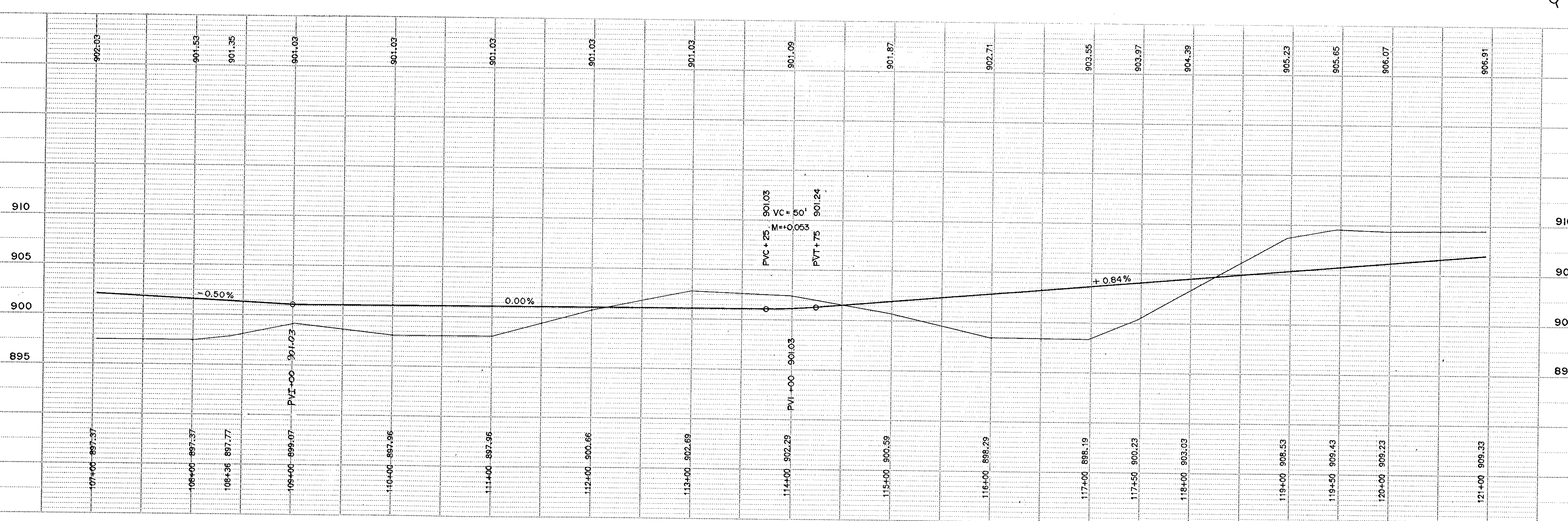
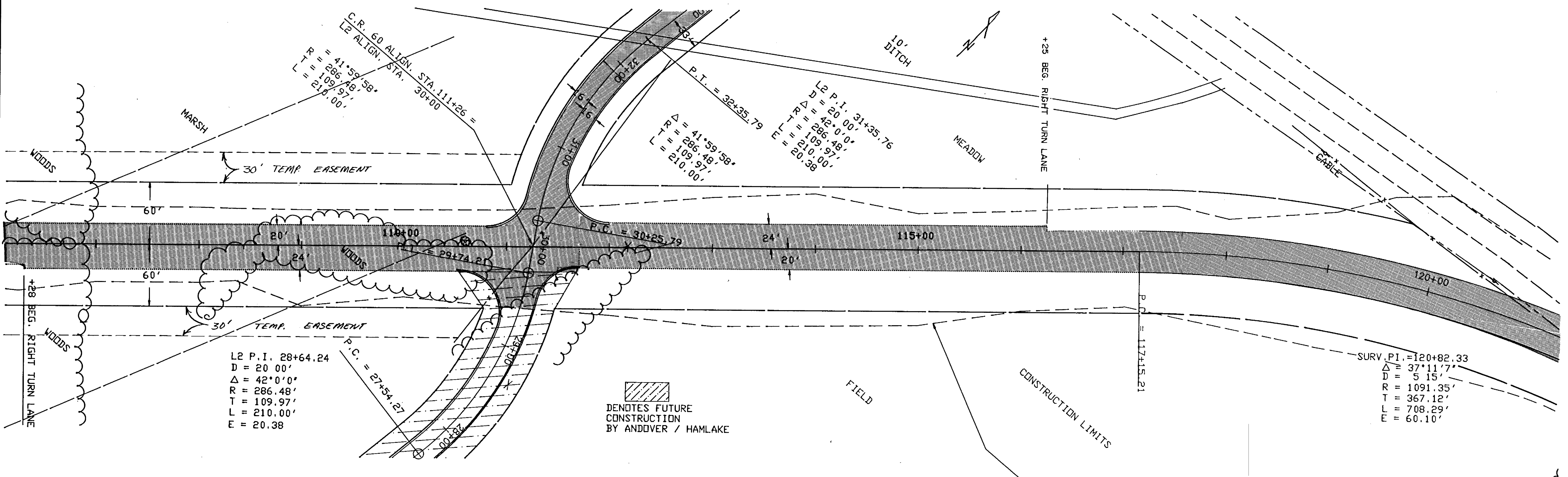


SURV. P.I. = 100+00.00  
 $\Delta = 40^\circ 8' 14''$   
 $D = 5.15'$   
 $R = 1091.35'$   
 $T = 398.70'$   
 $L = 764.52'$   
 $E = 70.55'$

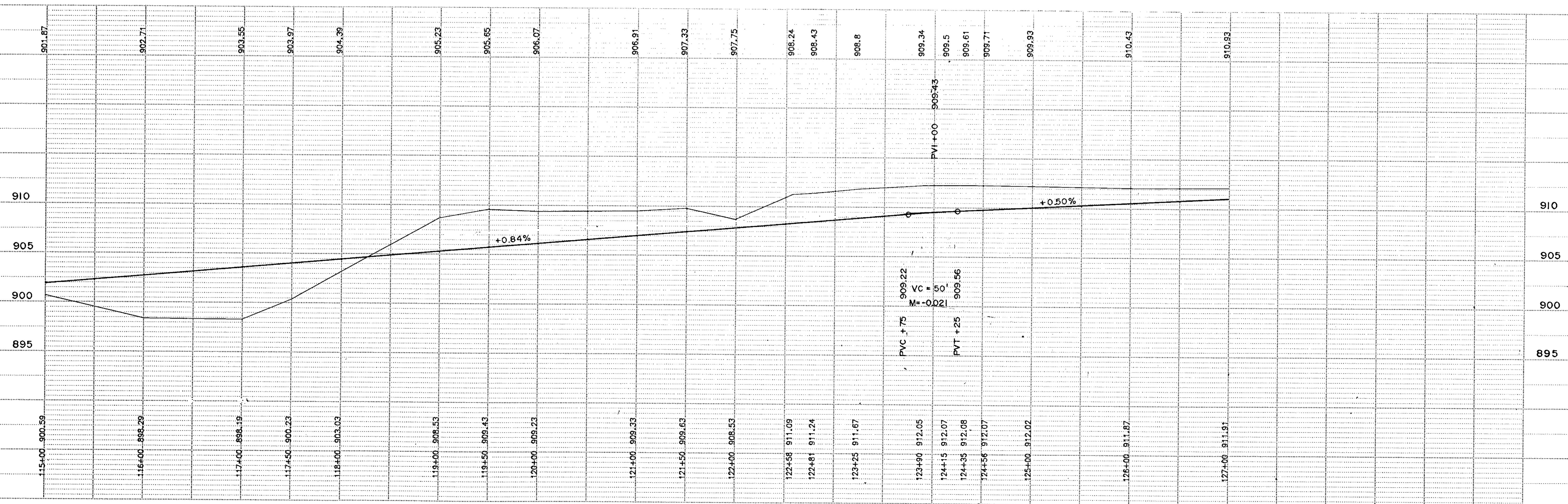
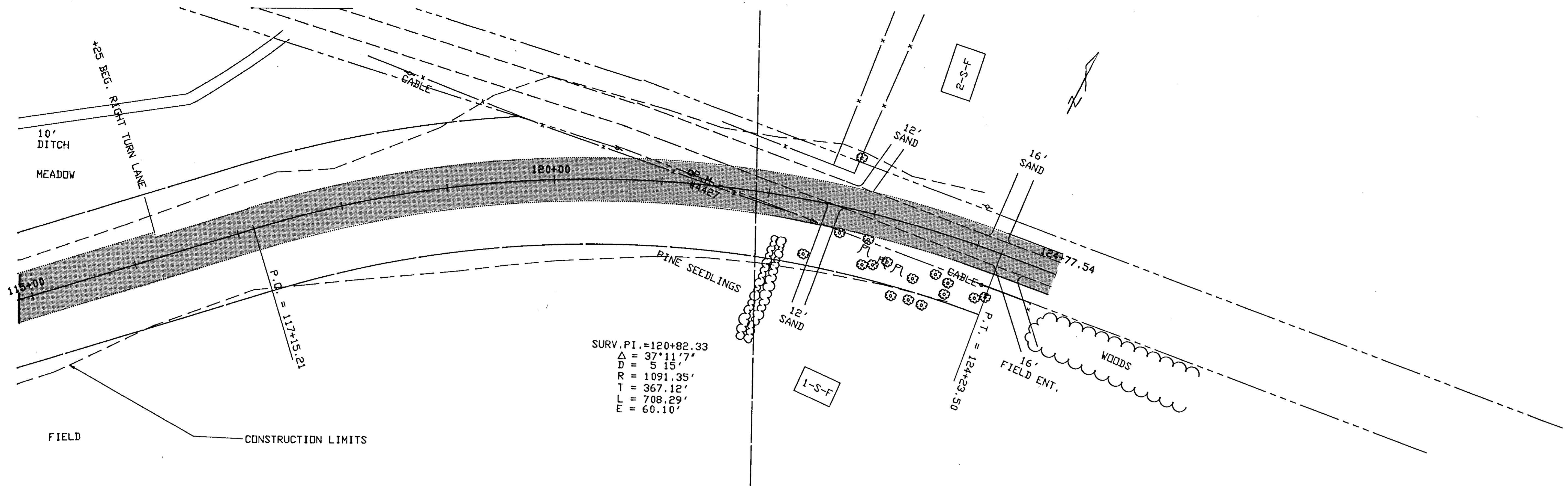
BEGIN CONSTRUCTION  
 STA. 93+00  
 PROJECT C.R. 89-03-60












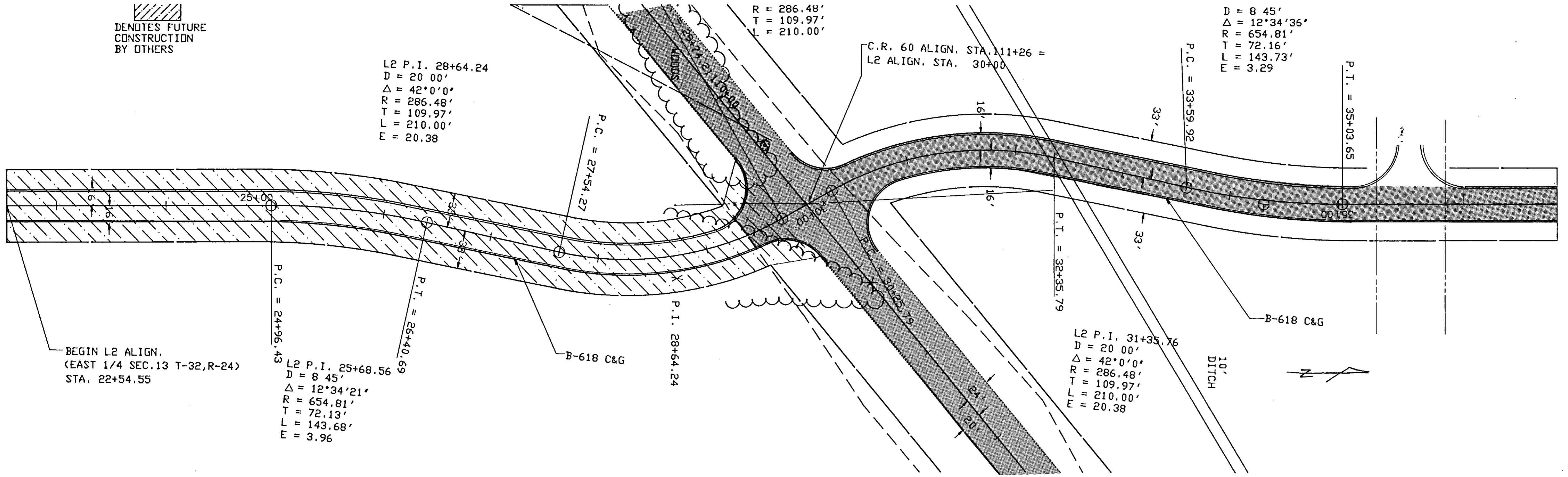



 DENOTES FUTURE  
 CONSTRUCTION  
 BY OTHERS

L2 P.I. 28+64.24  
 D = 20.00'  
 $\Delta = 42^\circ 0' 0''$   
 R = 286.48'  
 T = 109.97'  
 L = 210.00'  
 E = 20.38

R = 286.48'  
 T = 109.97'  
 L = 210.00'

D = 8.45'  
 $\Delta = 12^\circ 34' 36''$   
 R = 654.81'  
 T = 72.16'  
 L = 143.73'  
 E = 3.29



BEGIN L2 ALIGN.  
 (EAST 1/4 SEC. 13 T-32, R-24)  
 STA. 22+54.55

P.C. = 24+96.43  
 L2 P.I. 25+68.56  
 D = 8.45'  
 $\Delta = 12^\circ 34' 21''$   
 R = 654.81'  
 T = 72.13'  
 L = 143.68'  
 E = 3.96

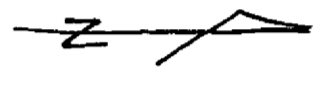
B-618 C&G

P.I. 28+64.24

L2 P.I. 31+35.76  
 D = 20.00'  
 $\Delta = 42^\circ 0' 0''$   
 R = 286.48'  
 T = 109.97'  
 L = 210.00'  
 E = 20.38

B-618 C&G

10'  
DITCH



L-1 HOOK UP







65' E/W

904.24 118+00

903.83 117+50

903.41 117+00

902.56 118+00

65' R/W

MIGRATION PASS

COPY EQUIPMENT FORM 11



64' R/W

901.73 115+00

900.94 114+00

900.89 113+00

900.89 112+00

65' R/W

Atkinson Pond

