

# 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 1400' 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. 22N. R. 22W. TO A POINT 1,384.01' EAST AND 1,259.63' SOUTH OF THE NW COR. SEC. 18 T. 22N. R. 22W. (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

#### 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 Lines)
- 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

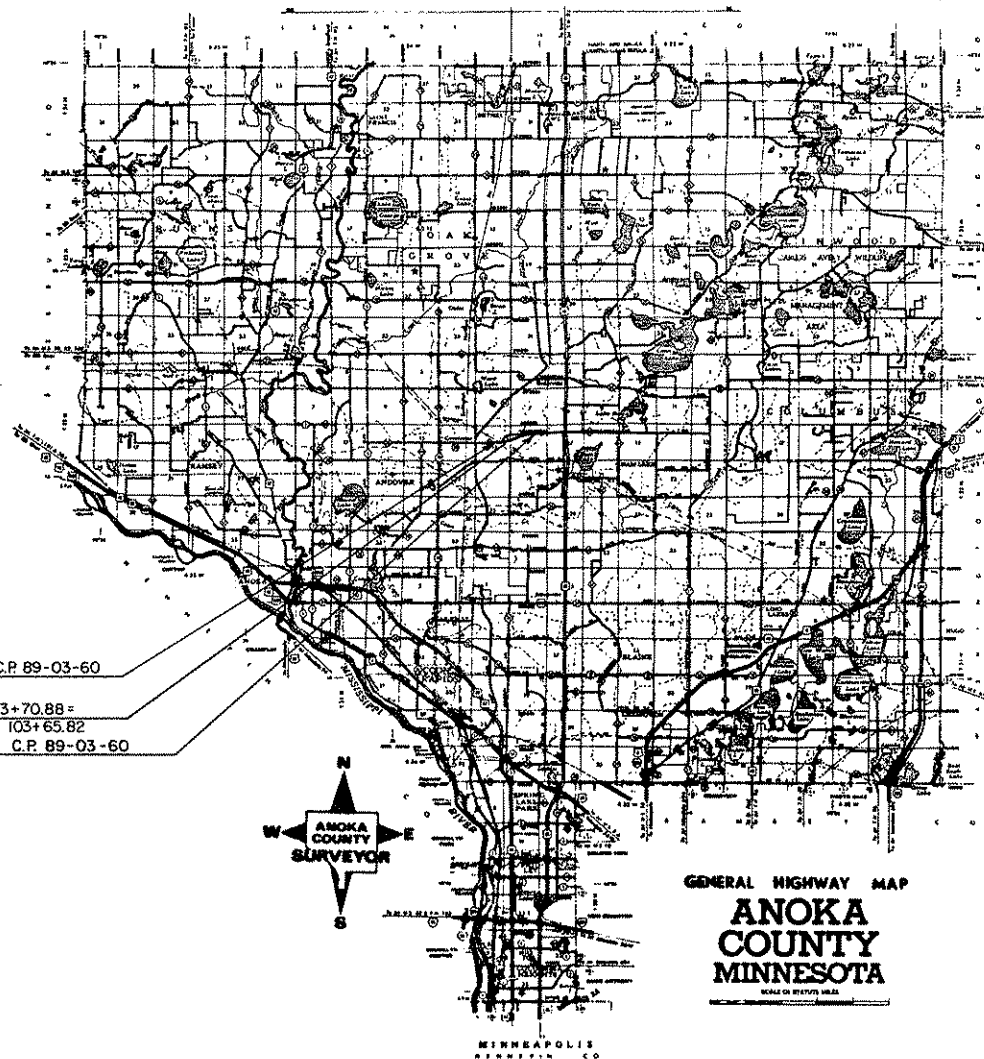
- TIMBER ORCHARD
- BRUSH NURSERY
- CATCH BASIN
- FIRE HYDRANT
- CATTLE GUARD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame)
  - F - FRAME
  - S - STONE
  - B - BRICK
  - C - CONCRETE
  - T - TILE
  - ST - STUCCO
- IRON PIPE OR ROD
- MONUMENT (STONE, CONCRETE,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

#### SCALES

PLAN 1" = 50'  
 PROFILE HORIZ. 1" = 50' VERT. 1" = 5'  
 INDEX MAP 1" = 2.66'  
 CROSS SECTION 1" = 10'



MINN. PROJ. NO. \_\_\_\_\_  
 MINN. PROJ. NO. \_\_\_\_\_

#### GOVERNING SPECIFICATIONS

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

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THIS PLAN CONTAINS 27 SHEETS

#### DESIGN DESIGNATION

EN18 20  
 R Value  
 ADT (1988) = 2,317  
 Proj. ADT (2008) = 3,707  
 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 2/28/90 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. \_\_\_\_\_  
 STATE PROJ. NO. C.P. 89-03-60 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	SAVING 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	HOUR	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	
2331.531	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	120" 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	
2539.501	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	
0563.501	TRAFFIC CONTROL, PHASE 1	LUMP SUM	1	
0563.501	TRAFFIC CONTROL, PHASE 1	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 K	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.
- ③ PROVIDED FOR PLACEMENT OF 3" OF SALVAGED EXCESS MUCK MATERIAL IN FRONT YARD AREAS TO BE SODDED.
- ④ PROVIDED FOR STOCKPILING OF EXCESS MUCK MATERIAL FROM THE PROJECT TO ANOKA CO. HIGHWAY DEPT. MAINT. STORAGE YARD, 1440 BUNKER LAKE BLVD., ANDOVER, MN.
- ⑤ PROVIDED FOR SHAPING OF OLD ROADBED L3 STA. 2+36 TO 9+00, AT THE DIRECTION OF THE ENGINEER.
- ⑥ INCLUDES 100 M-GALLON FOR DUST CONTROL AT THE DIRECTION OF THE ENGINEER, AND 250 M-GALLON FOR SUBGRADE AND AGGREGATE BASE COMPACTION.
- ⑦ INCLUDES 127 CU. YD. FOR L1 APPROACH, AND 283 CU. YD. FOR L2 APPROACH.
- ⑧ PROVIDED FOR FIELD ENTRANCE CONSTRUCTION, 5' COMPACTED THICKNESS.
- ⑨ 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.
- ⑩ INCLUDES 1205 TON FOR MAINLINE ROADWAY, 224 TON FOR MAINLINE RIGHT TURN LANES, 57 TON FOR L1 AND 209 TON FOR L2.
- ⑪ INCLUDES A 1" LEVELING COURSE FOR THE L1 BITUMINOUS OVERLAY, L1 STA. 12+00 TO 30+90.
- ⑫ INCLUDES 1300 TON FOR MAINLINE ROADWAY.
- ⑬ PROVIDED FOR RESIDENTIAL ENTRANCE CONST.
- ⑭ PROVIDED FOR EROSION CONTROL, LOCATIONS TO DETERMINED BY THE ENGINEER.
- ⑮ 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

**MAINLINE ROADWAY (CU. YDS.)**  
STATION 87+50 TO 96+00

REGULAR CUT 2567 CU. YD. + SUBCUT  
TOPSOIL 451 CU. YD. # 140% SHRINKAGE  
SUBCUT 1194 CU. YD. # 125% SHRINKAGE  
BIT REMOVAL 2240 SQ. YD. # 3' ESTIMATED DEPTH  
COMMON EXCAVATION PAY QUANTITY 3761 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL  
REGULAR FILL 866 CU. YD. # 155% SHRINKAGE  
FILL REQUIRED 1342 CU. YD. - AVALIBALE COMMON EXC. FOR FILL  
MUCK FILL 36 CU. YD. # 140% SHRINKAGE  
MUCK EXCAVATION 84 CU. YD. - MUCK FILL REQUIRED

1194 CU. YD. = 3761 CU. YD. COMMON EXCAVATION PAY QUANTITY  
= 631 CU. YD. TOPSOIL REQUIRED  
= 1493 CU. YD. SUBCUT FILL  
= 187 CU. YD. BIT REMOVAL ESTIMATED CU. YD.  
2311 CU. YD. = 1450 CU. YD. COMMON EXC. AVAILABLE FOR FILL  
= 1342 CU. YD. FILL REQUIRED  
1450 CU. YD. = -108 CU. YD. GRANULAR BORROW REQUIRED  
= 50 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  
TOPSOIL 424 CU. YD. # 140% SHRINKAGE  
SUBCUT 618 CU. YD. # 125% SHRINKAGE  
BIT REMOVAL 0 SQ. YD. # 3' ESTIMATED DEPTH  
COMMON EXCAVATION PAY QUANTITY 4850 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL  
REGULAR FILL 30996 CU. YD. # 190% SHRINKAGE  
FILL REQUIRED 58892 CU. YD. - AVALIBALE COMMON EXC. FOR FILL  
MUCK FILL 1972 CU. YD. # 140% SHRINKAGE  
MUCK EXCAVATION 17403 CU. YD. - MUCK FILL REQUIRED

618 CU. YD. = 4850 CU. YD. COMMON EXCAVATION PAY QUANTITY  
= 594 CU. YD. TOPSOIL REQUIRED  
= 773 CU. YD. SUBCUT FILL  
= 0 CU. YD. BIT REMOVAL ESTIMATED CU. YD.  
1366 CU. YD. = 3484 CU. YD. COMMON EXC. AVAILABLE FOR FILL  
= 58892 CU. YD. FILL REQUIRED  
3484 CU. YD. = 55409 CU. YD. GRANULAR BORROW REQUIRED  
= 2761 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  
TOPSOIL 732 CU. YD. # 140% SHRINKAGE  
SUBCUT 1440 CU. YD. # 125% SHRINKAGE  
BIT REMOVAL 1867 SQ. YD. # 3' ESTIMATED DEPTH  
COMMON EXCAVATION PAY QUANTITY 11361 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL  
REGULAR FILL 469 CU. YD. # 155% SHRINKAGE  
FILL REQUIRED 727 CU. YD. - AVALIBALE COMMON EXC. FOR FILL  
MUCK FILL 34 CU. YD. # 140% SHRINKAGE  
MUCK EXCAVATION 16 CU. YD. - MUCK FILL REQUIRED

1440 CU. YD. = 11361 CU. YD. COMMON EXCAVATION PAY QUANTITY  
= 1025 CU. YD. TOPSOIL REQUIRED  
= 1800 CU. YD. SUBCUT FILL  
= 156 CU. YD. BIT REMOVAL ESTIMATED CU. YD.  
2980 CU. YD. = 8381 CU. YD. COMMON EXC. AVAILABLE FOR FILL  
= 727 CU. YD. FILL REQUIRED  
8381 CU. YD. = -7654 CU. YD. GRANULAR BORROW REQUIRED  
= 48 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  
TOPSOIL 77 CU. YD. # 140% SHRINKAGE  
SUBCUT 218 CU. YD. # 125% SHRINKAGE  
BIT REMOVAL 429 SQ. YD. # 3' ESTIMATED DEPTH  
COMMON EXCAVATION PAY QUANTITY 974 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL  
REGULAR FILL 1 CU. YD. # 155% SHRINKAGE  
FILL REQUIRED 2 CU. YD. - AVALIBALE COMMON EXC. FOR FILL  
MUCK FILL 0 CU. YD. # 140% SHRINKAGE  
MUCK EXCAVATION 0 CU. YD. - MUCK FILL REQUIRED

218 CU. YD. = 974 CU. YD. COMMON EXCAVATION PAY QUANTITY  
= 108 CU. YD. TOPSOIL REQUIRED  
= 273 CU. YD. SUBCUT FILL  
= 36 CU. YD. BIT REMOVAL ESTIMATED CU. YD.  
416 CU. YD. = 558 CU. YD. COMMON EXC. AVAILABLE FOR FILL  
= 2 CU. YD. FILL REQUIRED  
588 CU. YD. = -566 CU. YD. GRANULAR BORROW REQUIRED  
= 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  
TOPSOIL 42 CU. YD. # 140% SHRINKAGE  
SUBCUT 174 CU. YD. # 125% SHRINKAGE  
BIT REMOVAL 202 SQ. YD. # 3' ESTIMATED DEPTH  
COMMON EXCAVATION PAY QUANTITY 262 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL  
REGULAR FILL 7387 CU. YD. # 190% SHRINKAGE  
FILL REQUIRED 14035 CU. YD. - AVALIBALE COMMON EXC. FOR FILL  
MUCK FILL 597 CU. YD. # 140% SHRINKAGE  
MUCK EXCAVATION 4340 CU. YD. - MUCK FILL REQUIRED

174 CU. YD. = 262 CU. YD. COMMON EXCAVATION PAY QUANTITY  
= 59 CU. YD. TOPSOIL REQUIRED  
= 218 CU. YD. SUBCUT FILL  
= 17 CU. YD. BIT REMOVAL ESTIMATED CU. YD.  
293 CU. YD. = -31 CU. YD. COMMON EXC. AVAILABLE FOR FILL  
= 14035 CU. YD. FILL REQUIRED  
-31 CU. YD. = 14066 CU. YD. GRANULAR BORROW REQUIRED  
= 836 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  
TOPSOIL 343 CU. YD. # 140% SHRINKAGE  
SUBCUT 0 CU. YD. # 125% SHRINKAGE  
BIT REMOVAL 1771 SQ. YD. # 3' ESTIMATED DEPTH  
COMMON EXCAVATION PAY QUANTITY 2783 CU. YD. - (BIT. REMOVAL, ESTIMATED CU. YD. + TOPSOIL REQUIRED + SUBCUT FILL  
REGULAR FILL 88 CU. YD. # 155% SHRINKAGE  
FILL REQUIRED 136 CU. YD. - AVALIBALE COMMON EXC. FOR FILL  
MUCK FILL 0 CU. YD. # 140% SHRINKAGE  
MUCK EXCAVATION 0 CU. YD. - MUCK FILL REQUIRED

0 CU. YD. = 2783 CU. YD. COMMON EXCAVATION PAY QUANTITY  
= 480 CU. YD. TOPSOIL REQUIRED  
= 0 CU. YD. SUBCUT FILL  
= 148 CU. YD. BIT REMOVAL ESTIMATED CU. YD.  
628 CU. YD. = 2155 CU. YD. COMMON EXC. AVAILABLE FOR FILL  
= 136 CU. YD. FILL REQUIRED  
2155 CU. YD. = -2019 CU. YD. GRANULAR BORROW REQUIRED  
= 0 CU. YD. MUCK FILL REQUIRED  
0 CU. YD. = 0 CU. YD. EXCESS MUCK

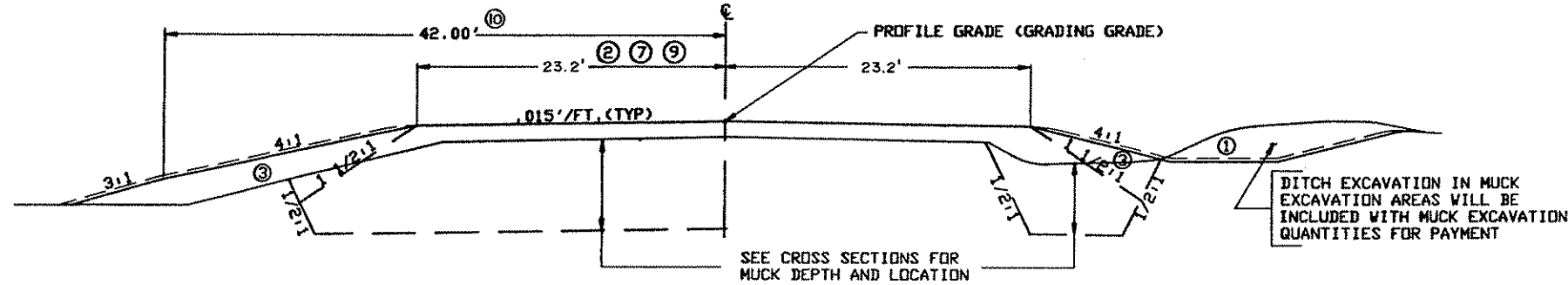
EARTHWORK TOTALS				
REGULAR CUT CU. YD.	SUB CUT SQ. YD.	COMMON EXCAVATION PAY QUANTITY CU. YD.	GRANULAR BORROW CU. YD.	MUCK EXCAVATION CU. YD.
16720	3252	19972	47647	17503
L1 756	218	974	-556	0
L2 88	174	262	10466	4340
L3 2783	0	2783	-2019	0
TOTALS 20347	3644	23991	59138	21843

EARTHWORK SUMMARY SHEET

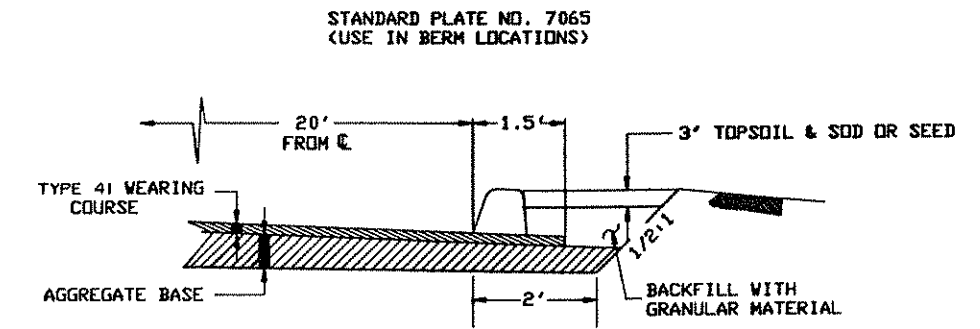
REVISIONS			
DATE	BY	DATE	BY

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

**GRADING SECTION  
MUCK EXCAVATION AREAS**

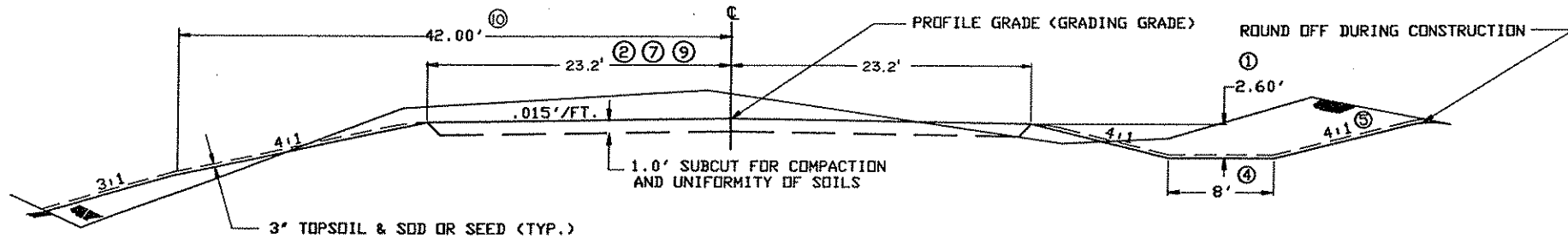


**BITUMINOUS CURB DETAIL**

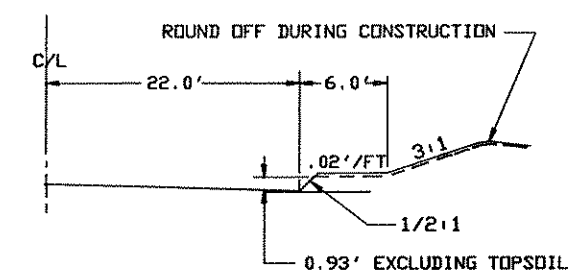


**CURB LOCATIONS**  
92+50 TO 94+75 LT.

**GRADING SECTION**

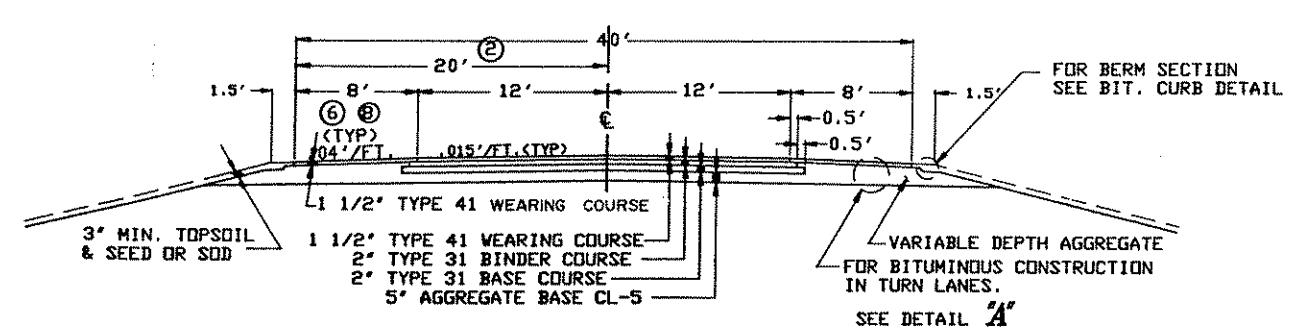


**GRADING BERM**

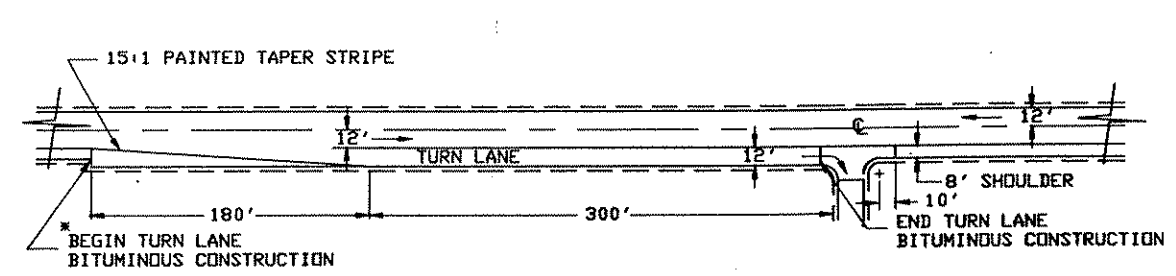


**LOCATION**  
92+50 TO 94+75 LT.

**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.

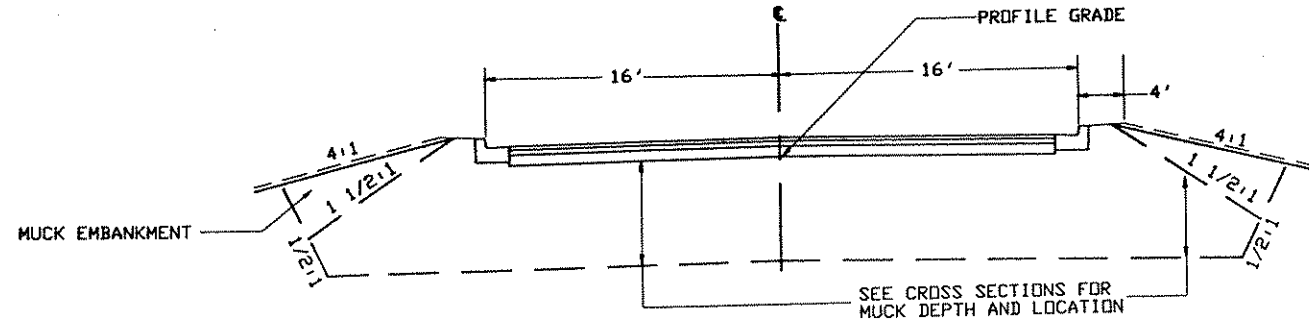
**DETAIL 'A'**  
RIGHT TURN LANE CONSTRUCTION



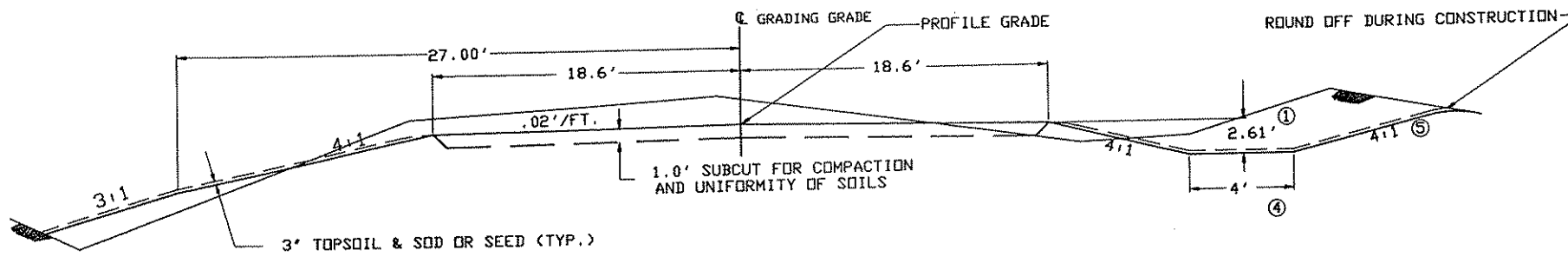
RIGHT TURN LOCATIONS		
STATION TO	STATION	LT./RT.
96+08	- 100+88	LT.
106+28	- 111+92	RT.
111+40	- 116+25	LT.

REVISIONS			
DATE	BY	DATE	BY

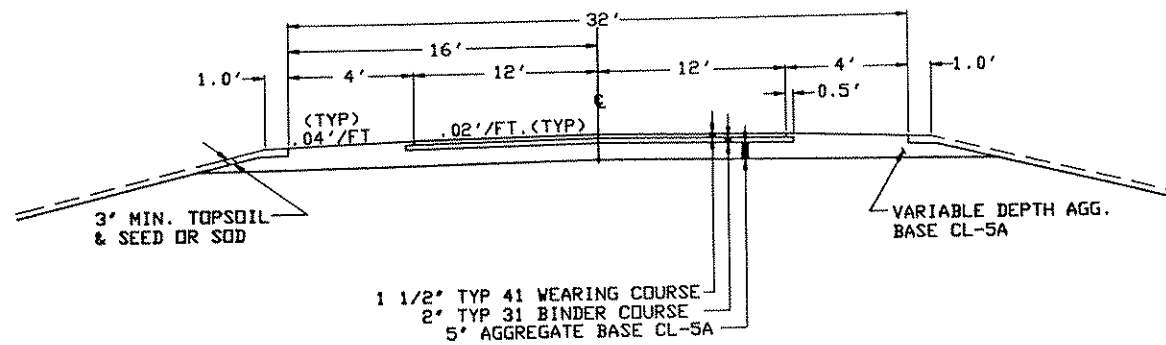
**GRADING SECTION - L2  
MUCK EXCAVATION AREAS**



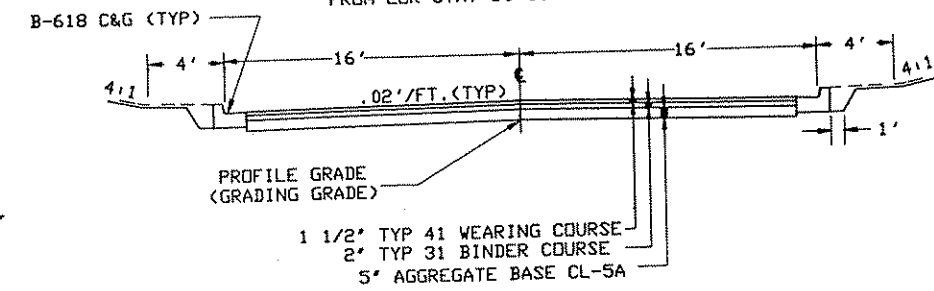
**GRADING SECTION  
L1 ROAD APPROACH  
STA. 10+10 TO STA. 12+00**



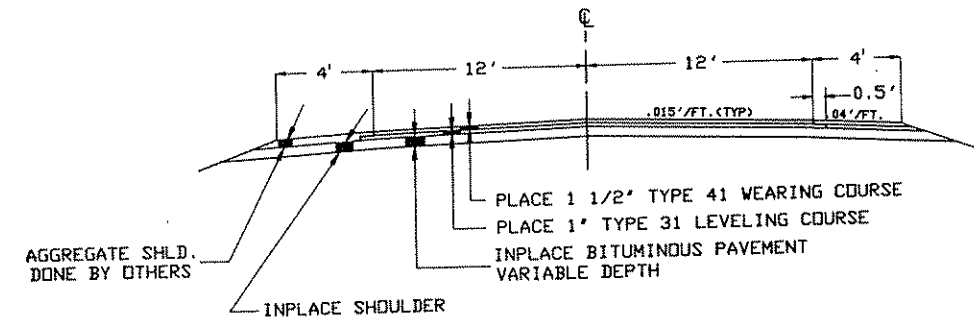
**L1 ROAD APPROACH  
STA. 10+10 TO STA. 12+00**



**TYPICAL BASE & SURFACING SECTION  
L2 ROAD APPROACH  
FROM LOR STA. 30+00 TO STA. 36+04**



**TYPICAL OVERLAY SECTION - L1**



REVISIONS			
DATE	BY	DATE	BY

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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	1	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	1	0.10	
92+38	35' RT.	5		1		
92+69	36' RT.	9		1		
93+22 - 93+57	35' - OUT RT.	-	0.05	1	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' - OUT LT.	-	0.15	-	0.15	
105+75 - 106+80	0' - OUT RT.	-	0.20	-	0.20	
108+09 - 110+80	0' - OUT RT.	-	0.40	-	0.40	
108+70 - 109+80	0' - OUT LT.	-	0.10	-	0.10	
110+50 - 112+37	2' - OUT 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' - OUT 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		
TOTALS		55	2.20	39	2.20	

DRAINAGE CHART																			
STATION	LOC	INPLACE	REMARKS	SODDING CULV. PIPE SQ. YD.	REMOVE CULV. PIPE LTN. FT AP.	BOULEY 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			
								LN. FT.	AP.	LN. FT.	AP.	LN. FT.	AP.	LN. FT.	AP.	LN. FT.	AP.		
88+97	LT		16' SAND ENT.	17				28	2										
90+25	LT		12' BIT. ENT.	17				28	2										
90+40	RT		14' SAND ENT.	17				32	2										
91+50	LT		16' SAND ENT.	17				32	2										
93+73	RT		12' SAND ENT.	17				38	2										
95+96	LT		L1 APPROACH - NEW	29												52	2		
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				44	2										
122+84	LT		12' SAND ENT.	17				44	2										
124+16	LT		16' SAND ENT.	17				44	2										
124+32	RT		16' SAND ENT.	17				44	2										
6+10	C/L	42"x 92" CMP	L3 APPROACH	42	92							104	2						
32+30	C/L		L2 C/L CULV. - NEW	42				22	11										
TOTALS				305	92			58	29	334	18	72	2	104	2	120	2	52	2

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	
TOTALS			6,880	

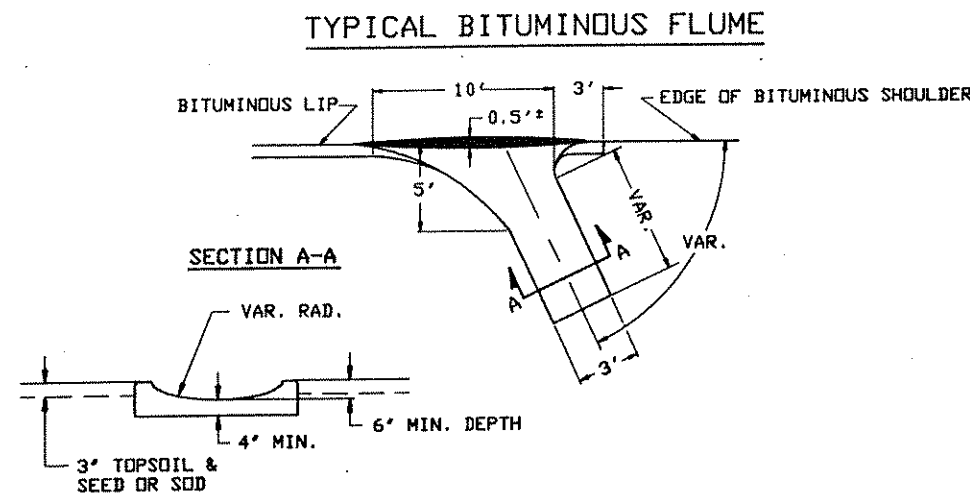
SAWING BITUMINOUS PAVEMENT			
STATION TO STATION	LOCATION	LN. FT.	
87+60	BEGIN PROJECT	24	
12+00	L1 RD. APP.	24	
36+15	L2 RD. APP.	29	
35+56	46' LT L 35+56	24	
127+00	END PROJECT	24	
90+25 LT	BIT. ENT.	12'	
91+50 LT	BIT. ENT.	16'	
93+99 LT	BIT. ENT.	10'	
TOTAL		163'	

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
TOTAL		4437	226	

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	
TOTAL		37	

SALVAGE & INSTALL FENCE				
STATION	LOCATION	SALVAGE	INSTALL	REMARKS
96+35 - 99+80	9' LT. - 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' RT.	326	326	INSTALL @ R/W
122+00 - 122+23	11' RT. - 14' RT.	23	-	REMOVE FENCE
122+55	45' - OUT LT.	15	-	LINE FENCE REMOVE TO R/W
122+76	46' - OUT LT.	14	-	LINE FENCE REMOVE TO R/W
124+16	33' RT.	284	284	REMOVE TO R/W
124+16 - 127+00	33' - OUT RT.	27	-	INSTALL @ R/W
124+65	33' - OUT 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
TOTALS		1,609	1,383	



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

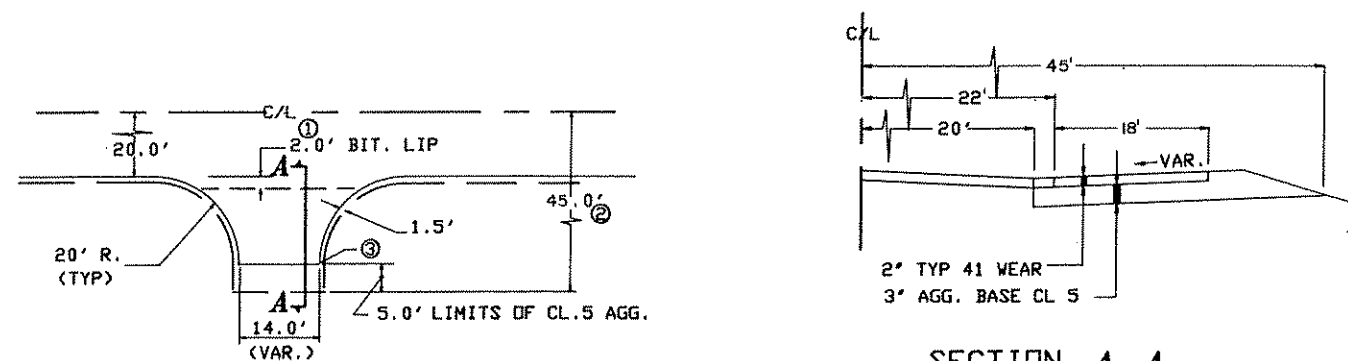
NOTE: BITUMINOUS FLUME CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

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.

REVISIONS			
DATE	BY	DATE	BY

ENTRANCE CONSTRUCTION CHART					
LOCATION	INPLACE ENTRANCE	NEW WIDTH	BITUMINOUS SQ. YD.	AGGREGATE SQ. YD.	REMARKS
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/CONC.	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

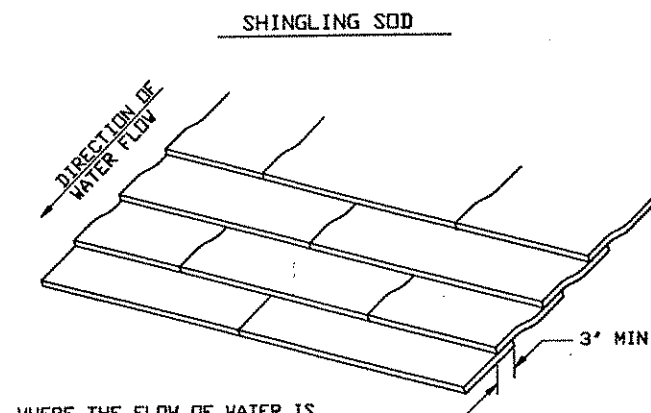


- ① FIELD ENTRANCES ONLY.
  - ② CLASS 5 LIMITS FIELD ENTRANCES AND PAVED ENTRANCES.
  - ③ PAVE TO THE END OF RADIUS, RESIDENTIAL ENTRANCES
- NOTE: ENTRANCE SLOPE SHALL BE 6:1.

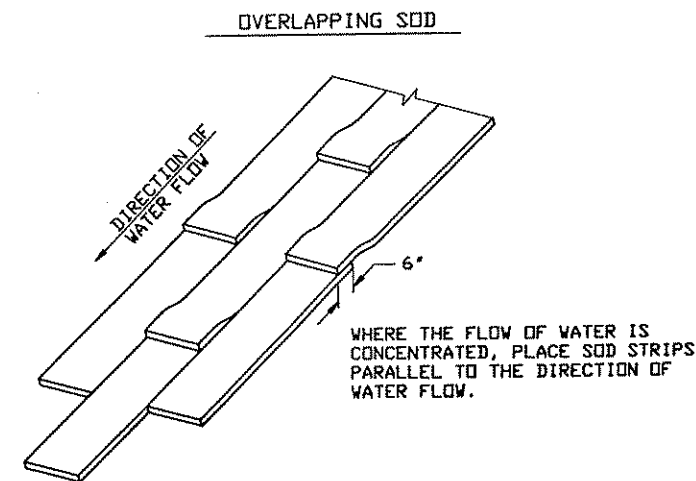
REVISIONS			
DATE	BY	DATE	BY

**SODDED DITCH DETAILS**

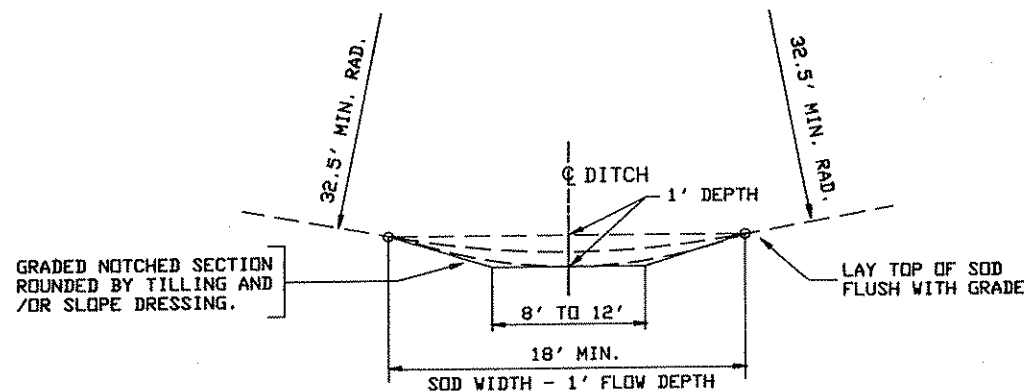
**SPECIAL SOD PLACEMENT TECHNIQUES**



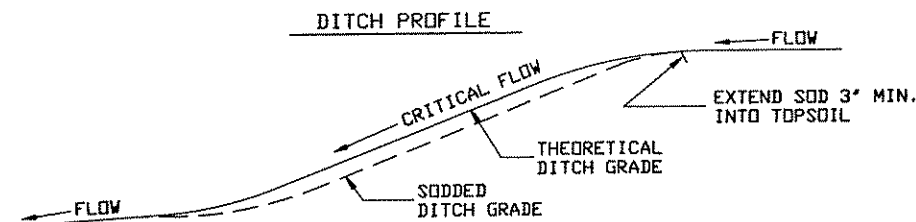
WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.



**SOD DITCH CROSS SECTION**

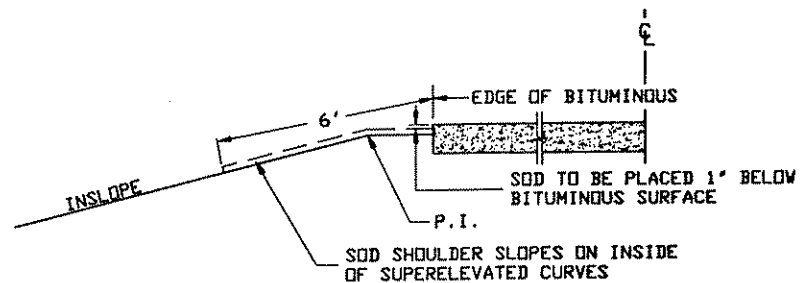


DITCHES HAVING A MINIMUM RADIUS OF 32.5 FEET AND REQUIRING SOD SHALL BE CONSTRUCTED ACCORDING TO THE ABOVE DETAILS. WHERE DITCH RADIUS IS LESS THAN 32.5 FEET, NOTCHING IS NOT REQUIRED. SOD A MINIMUM OF 18 FEET IN WIDTH.



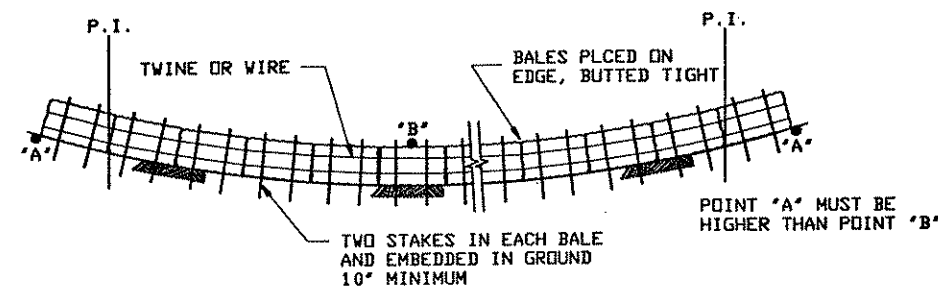
NOTE: APPLIES TO DITCH GRADE 2.0% OR GREATER.

**SOD INSLOPES OF SUPPERELEVATED CURVES**

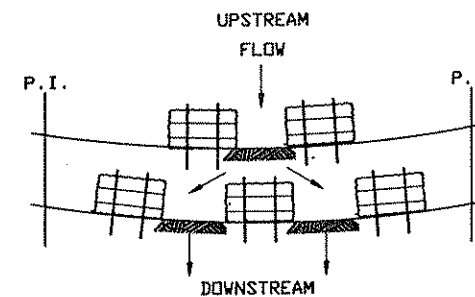


BALE CHECK		
STATION	LOCATION	QUANTITY
89+50	LT	4
94+00	RT	5
95+00	LT	5
109+00	RT	5
118+00	RT	5
119+00	LT	5
L1		
10+75	LT	3
10+75	RT	3
TOTAL		35

**BALE HAY OR STRAW DITCH CHECK**

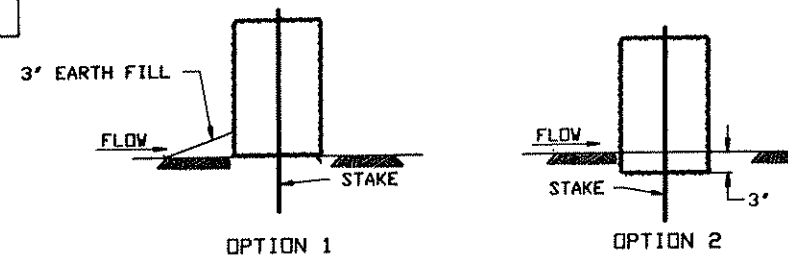


**ALTERNATE BALE CHECK**



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**

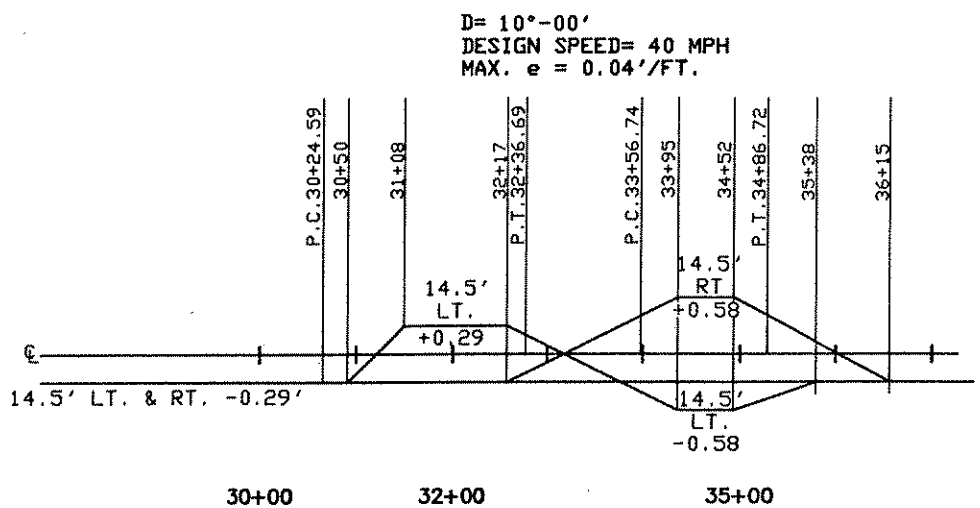
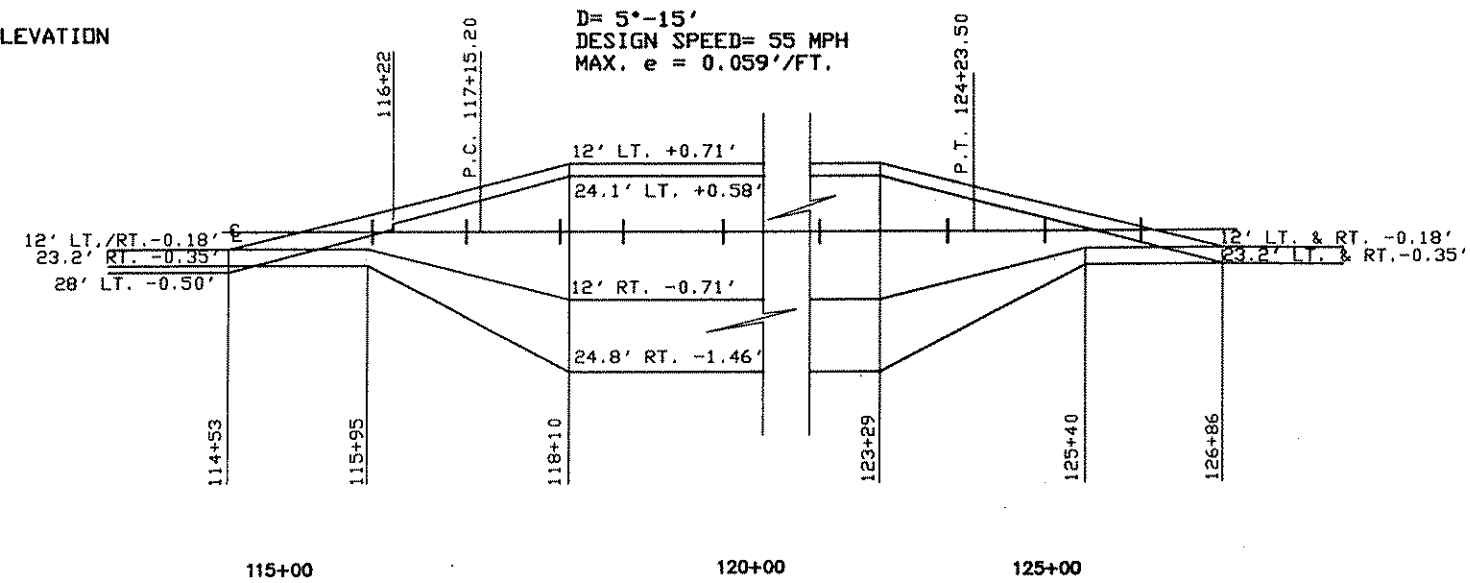
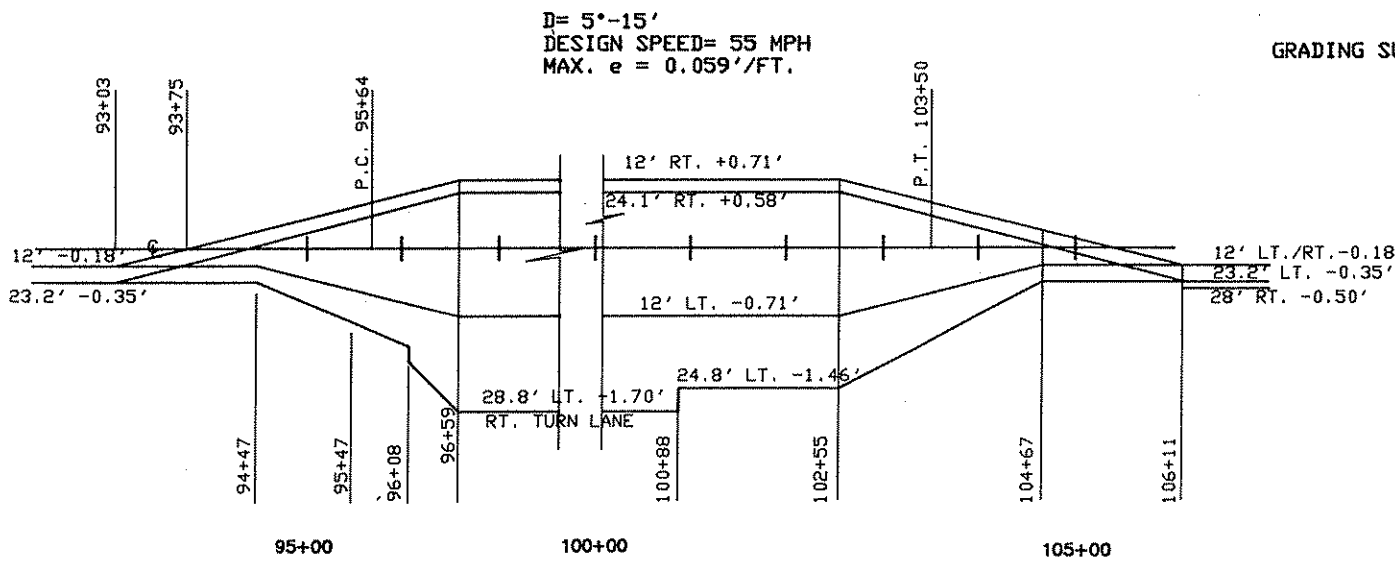
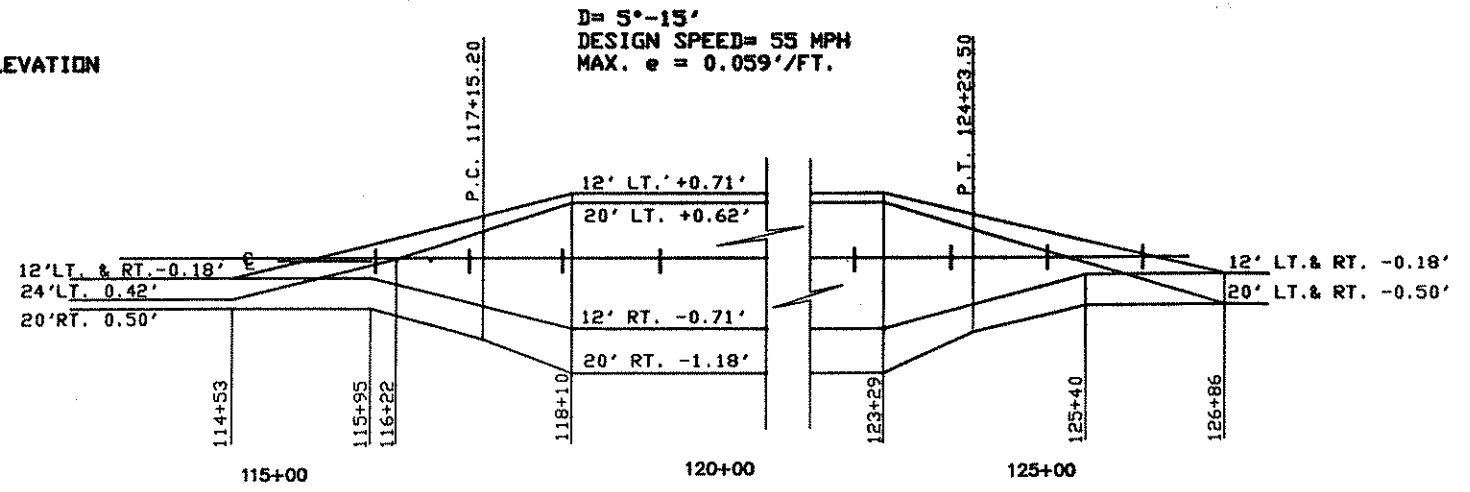
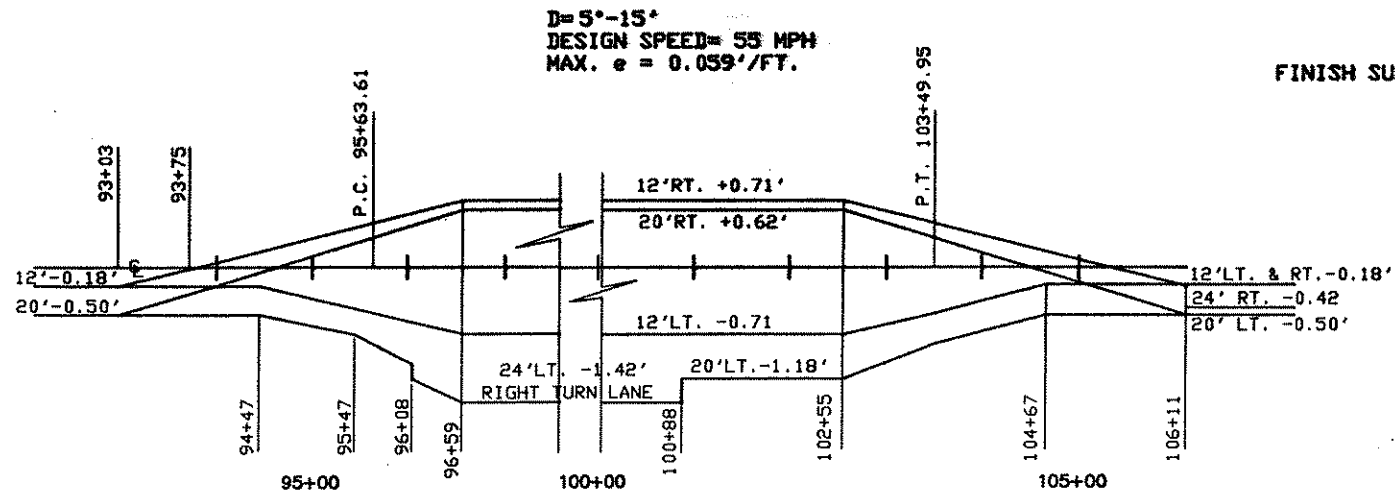


**EROSION CONTROL DETAILS**

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		

REVISIONS			
DATE	BY	DATE	BY





REVISIONS			
DATE	BY	DATE	BY

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

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

RT. 99+74.72  
 $\Delta = 41^{\circ}16'59''$  LT.  
R = 1091.35'  
T = 411.11'  
L = 786.34'

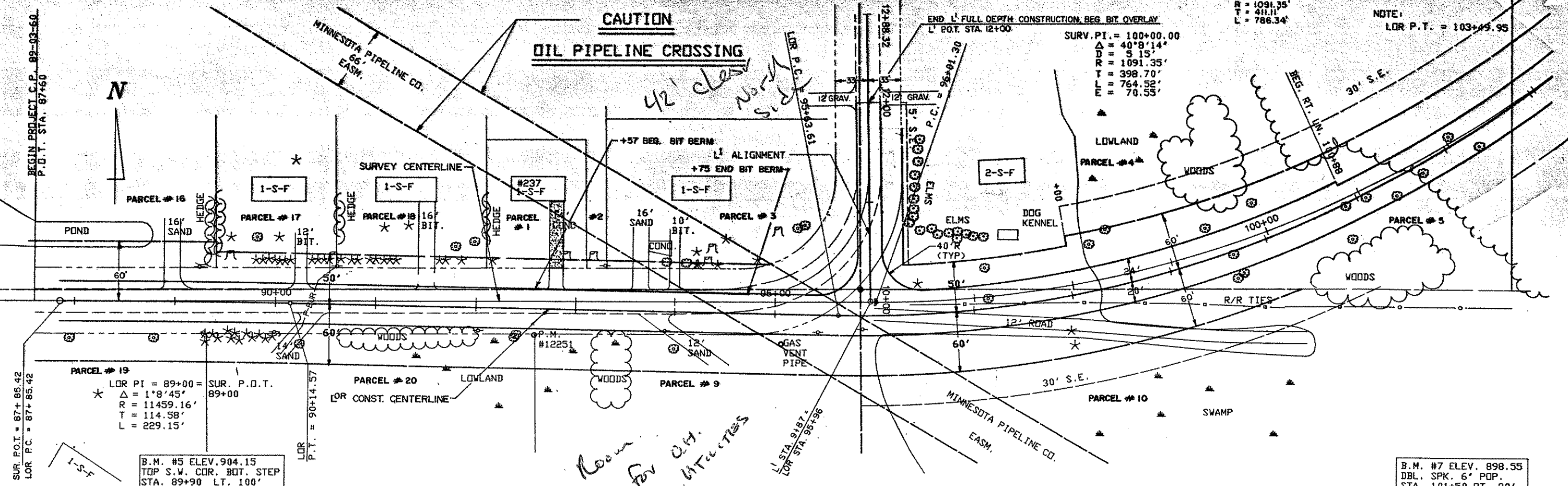
NOTE:  
LDR P.T. = 103+49.95

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

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'

N

BEGIN PROJECT C.P. 89-03-60  
P.O.T. STA. 87+50

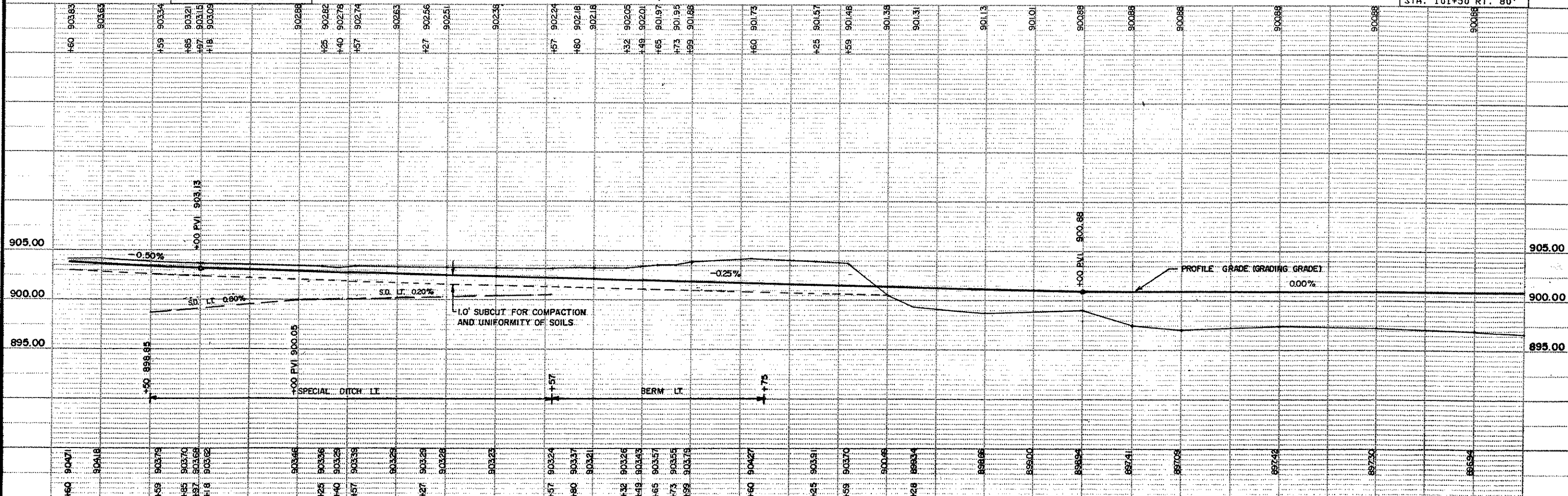


PARCEL #19  
LDR P.I. = 89+00 = SUR. P.D.T.  
 $\Delta = 1^{\circ}8'45''$   
R = 11459.16'  
T = 114.58'  
L = 229.15'

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'

*Room for utility*





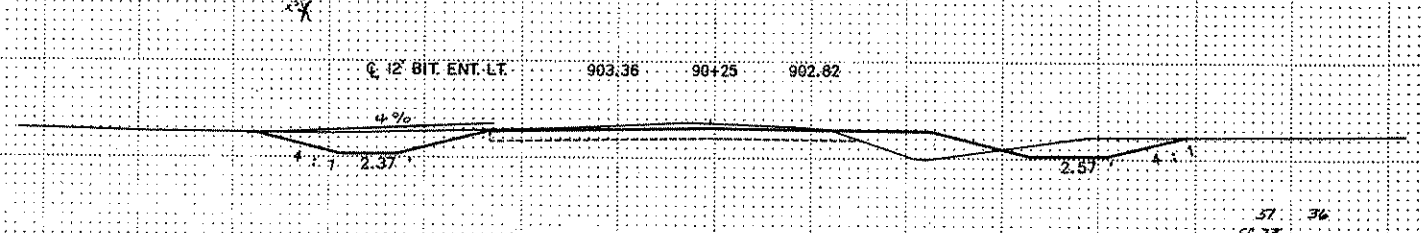
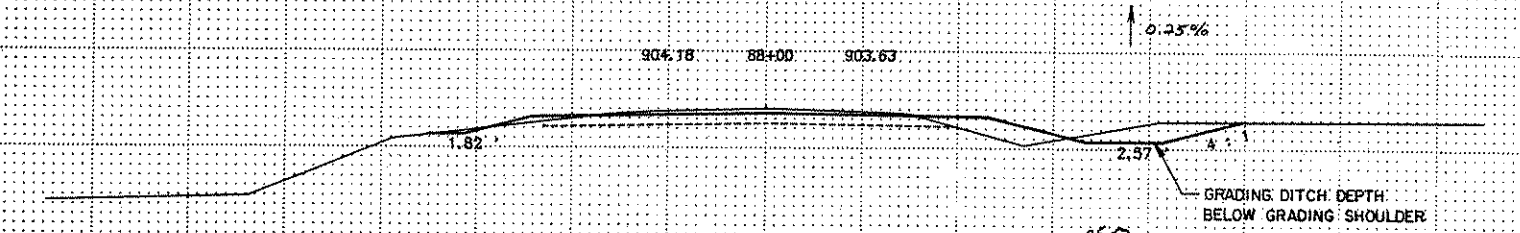
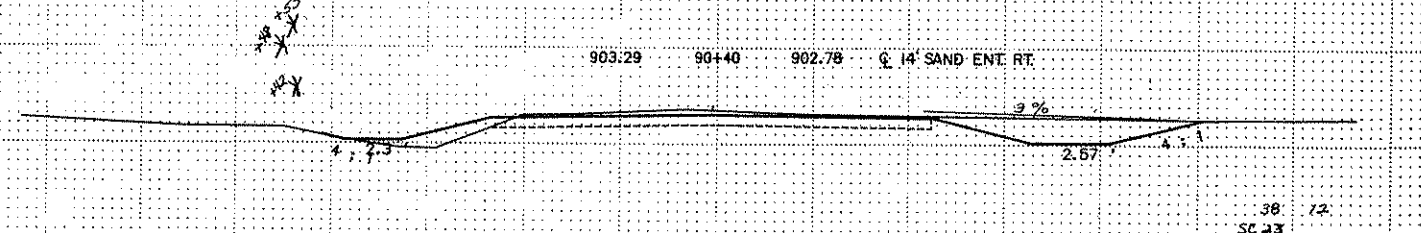
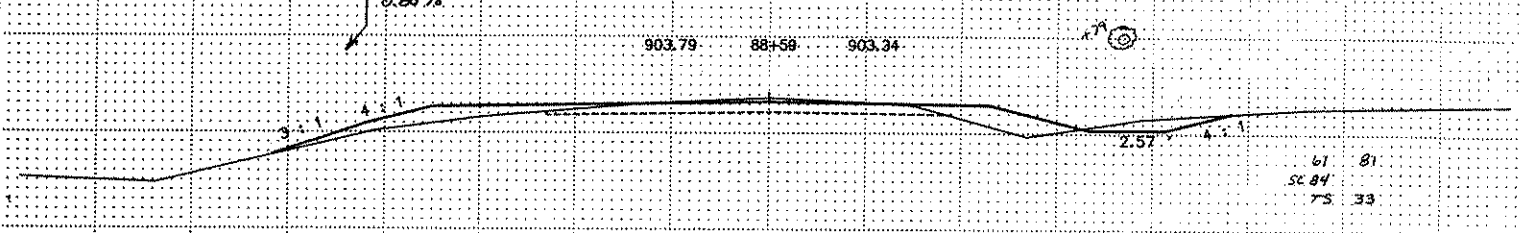
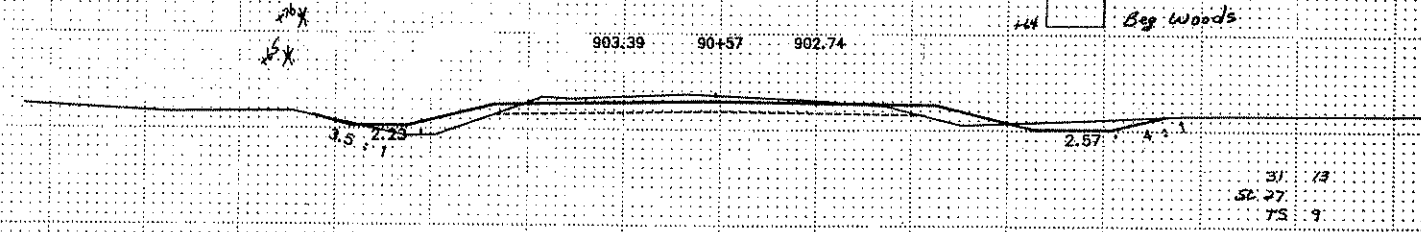
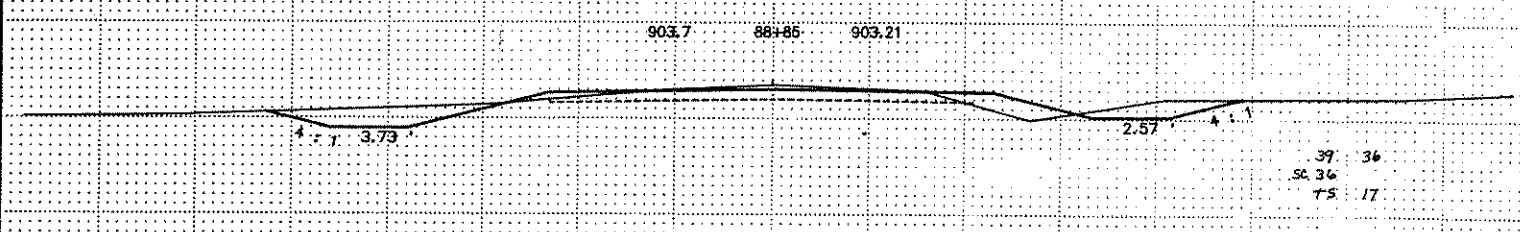
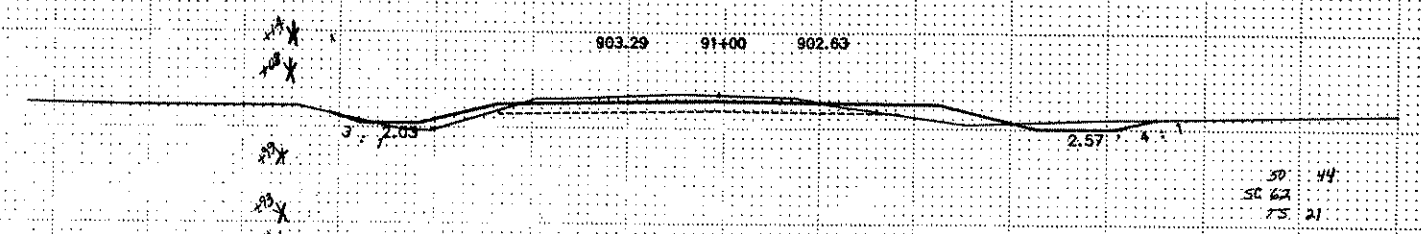
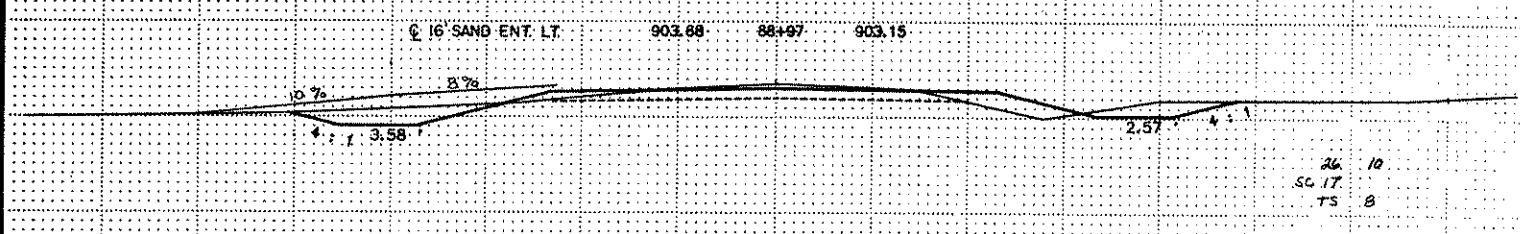
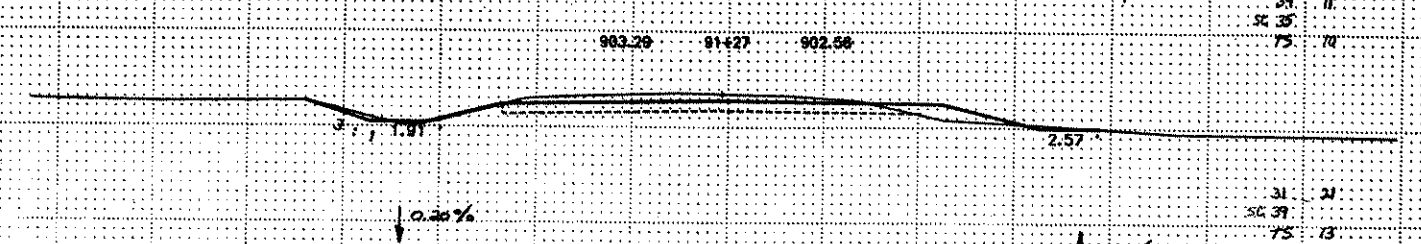
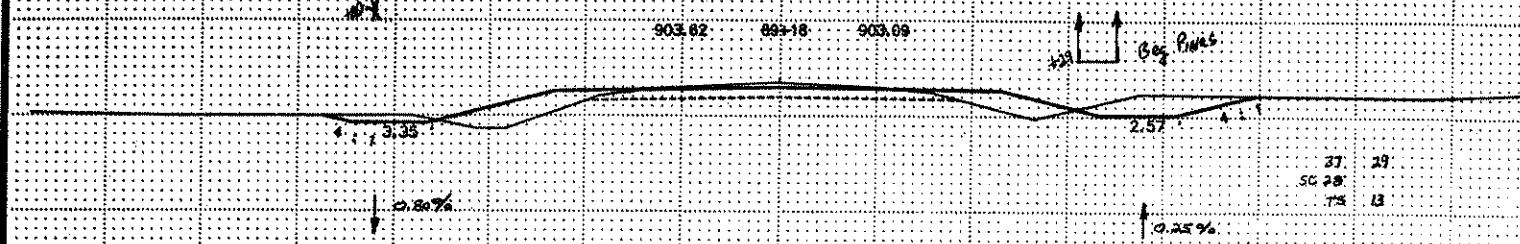




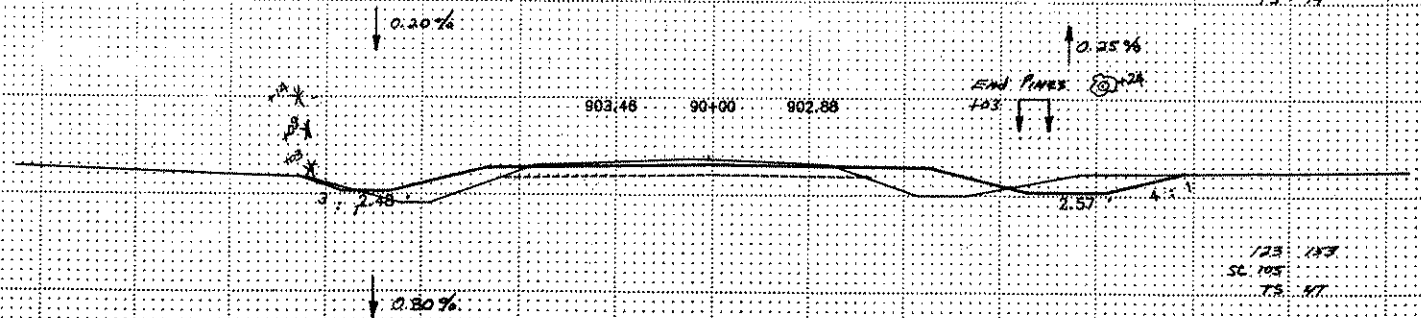
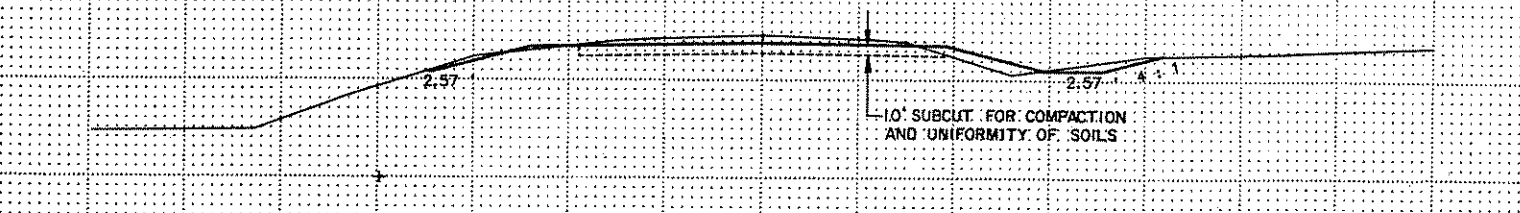
EXCAVATION EMBANKMENT  
 SUB-TOTALS CUYDS. CUYDS. SUB-TOTALS

Fed. Proj. No.

EXCAVATION EMBANKMENT  
 SUB-TOTALS CUYDS. CUYDS. SUB-TOTALS



P.O.T. STA. 87+60 BEGIN PROJECT C.P. 89-03-60  
 EXISTING PROFILE GRADE      PROFILE GRADE (GRADING GRADE)



STA. 87+60 - STA. 91+27

**EXCAVATION EMBANKMENT**

SUB-TOTALS CUYDS. CUYDS. SUB-TOTALS

37  
SC 28  
75  
M 2

11  
9  
1

903.2584 93+32 902.08

56 37  
SC 44  
75 15  
M 12 6

903.2087 93+00 902.13

Fill Bay Woods

32 10  
SC 22  
75 9  
M 10 5

14" CONC. ENT. LT. 903.375 92+80 902.18

36 20  
SC 24  
75 9  
M 12 5

903.2373 92+57 902.24

75 70  
SC 84  
75 21  
M 75 10

903.23 92+00 902.38

Fill End Woods

88 27  
SC 78  
75 19  
M 0 4

16" BIT ENT. LT. 903.2758 91+50 902.51

Fed. Proj. No.

**EXCAVATION EMBANKMENT**

SUB-TOTALS CUYDS. CUYDS. SUB-TOTALS

372 76  
SC 46  
75 28  
M 11 0

903.9112 93+25 901.37

488 24  
SC 76  
75 28  
M 11 0

904.2755 94+80 901.73

NOTE: ALTER DITCH GRADES TO MAINTAIN PIPELINE COVER

417 2  
SC 101  
75 40

10' BIT ENT. LT. 903.7923 93+99 901.88

135 1  
SC 32  
75 16

903.5532 93+73 901.95

12' SAND ENT. RT.

25 0  
SC 7  
75 4

16' SAND ENT. LT. 903.5745 93+65 901.97

38 4  
SC 17  
75 8

903.420 93+49 902.01

Fill End Woods

STA 91+50 - STA 93+25

EXCAVATION EMBANKMENT

SUB-TOTALS CUYDS. CUYDS. SUB-TOTALS

39 335  
SC 8  
TS 6  
M 110 14

51 246  
SC 18  
TS 13  
M 149 22

57 273  
SC 18  
TS 13  
M 127 37

64 432  
SC 12  
TS 17  
M 168 57

27 130  
SC 29  
TS 12  
M 41 16

254 108  
SC 11  
TS 27  
M 28 4

EXCAVATION EMBANKMENT

SUB-TOTALS CUYDS. CUYDS. SUB-TOTALS

898.44 103+00 900.88

0 976  
M 226 126

898.94 102+00 900.88

0 976  
M 162 102

897.3 101+00 900.88

0 920  
M 1120 98

897.42 100+00 900.88

0 961  
M 937 91

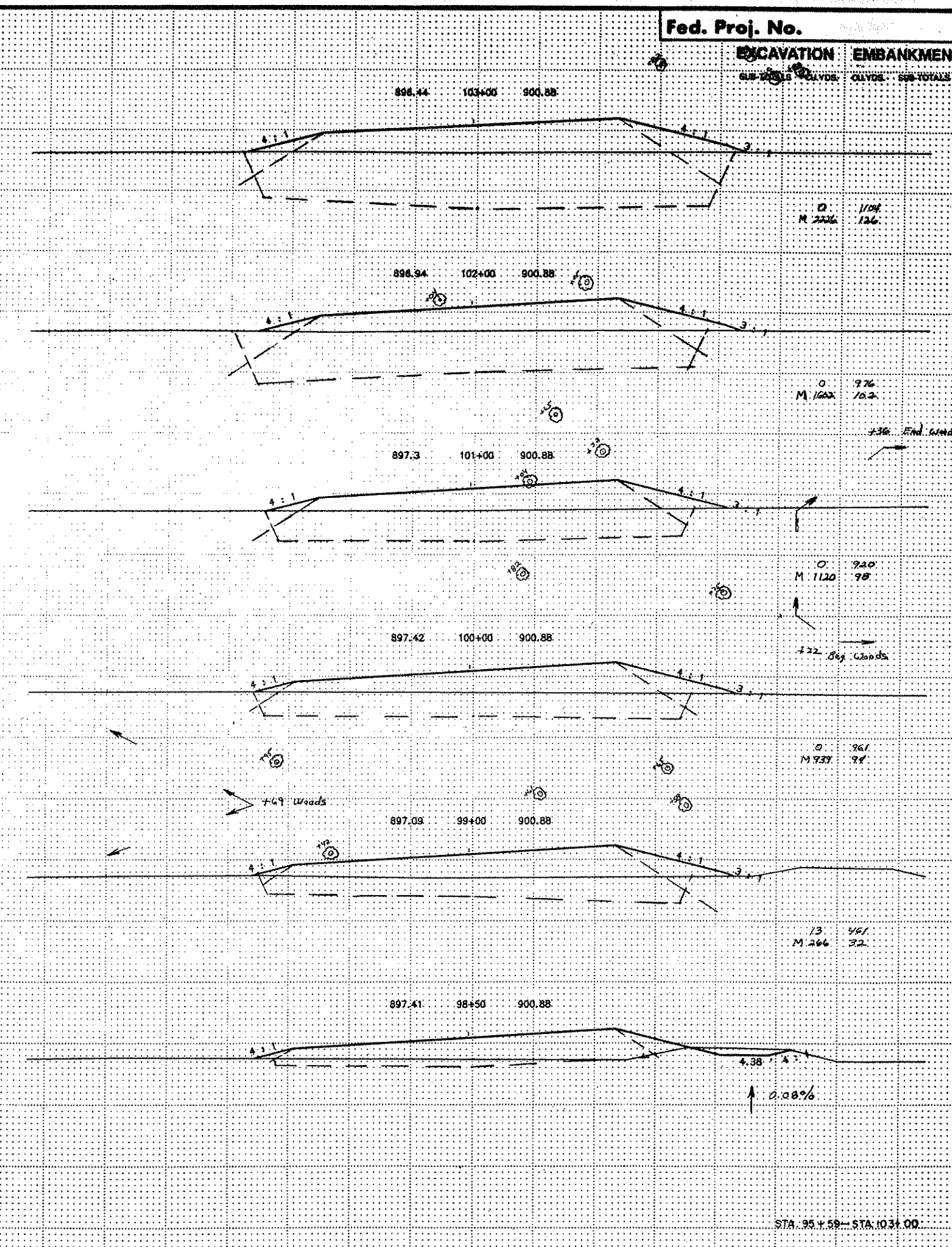
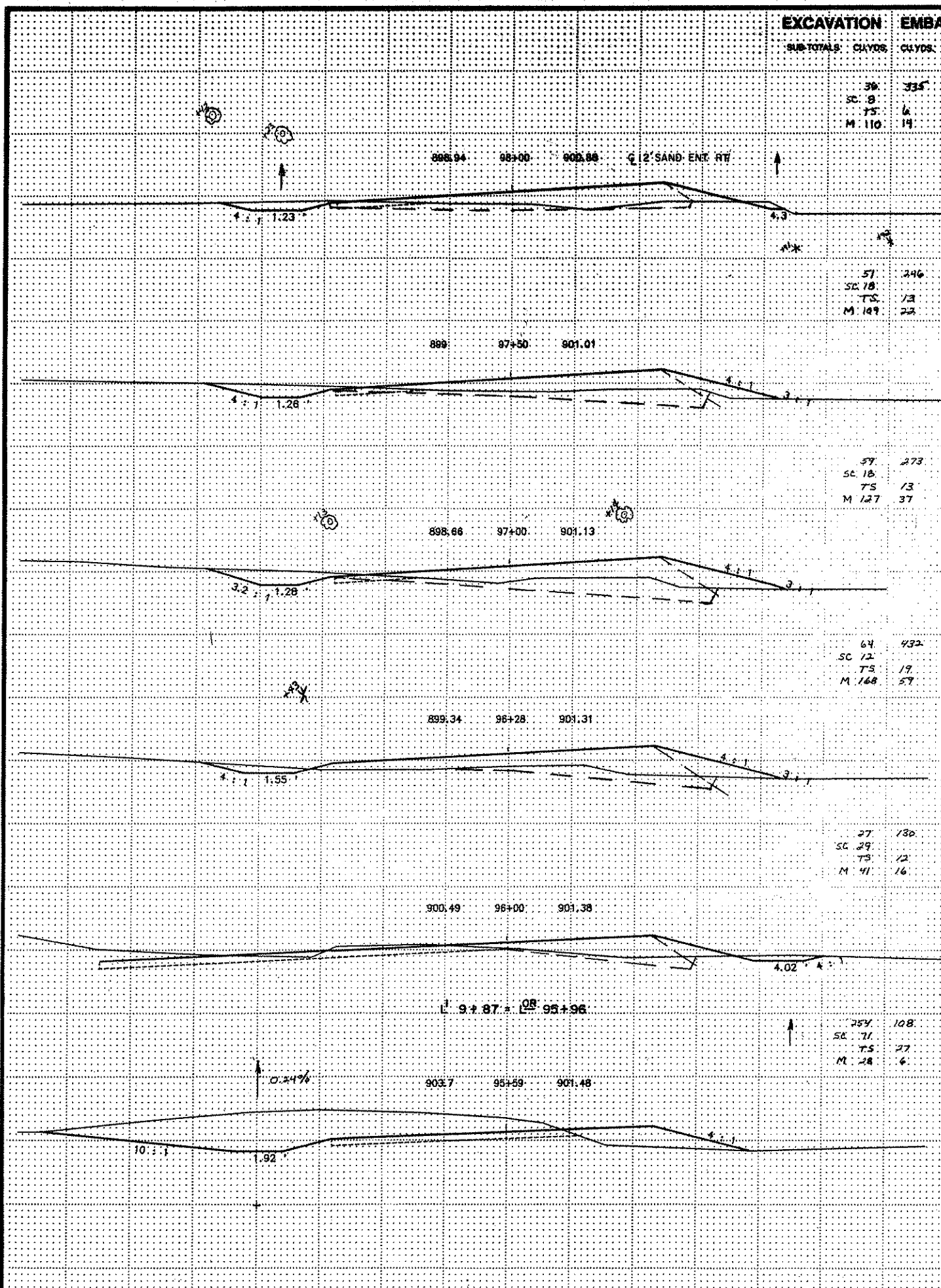
897.09 99+00 900.88

13 461  
M 266 32

897.41 98+50 900.88

0.00%

STA. 95+59 - STA. 103+00





**EXCAVATION EMBANKMENT**

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

**Fed. Proj. No.**

**EXCAVATION EMBANKMENT**

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

897.84 104+00 902.32

897.88 110+00 900.88

898.84 105+00 901.88

898.07 109+00 900.88

898.54 104+61 901.69 DITCH BANK 20° SKEW

897.77 108+36 901.2

891.94 104+49 901.63 DITCH BOTTOM 20° SKEW

897.37 108+00 901.38

897.44 104+41 901.59 DITCH BANK 20° SKEW

897.37 107+00 901.88

897.03 104+00 901.38

898.37 106+25 902.26

O 1198  
M 1487 187

O 415  
M 762 117

O 90  
M 225 48

O 71  
M 150 23

O 447  
M 793 64

O 1143  
M 2194 152

O 404  
M 324 35

O 361  
M 553 40

O 347  
M 553 39

O 1072  
M 1415 141

O 754  
M 788 76

O 340  
M 352 31

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

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

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

INLET 892.45

OUTLET 892.34

STA 104+00 - STA 110+00

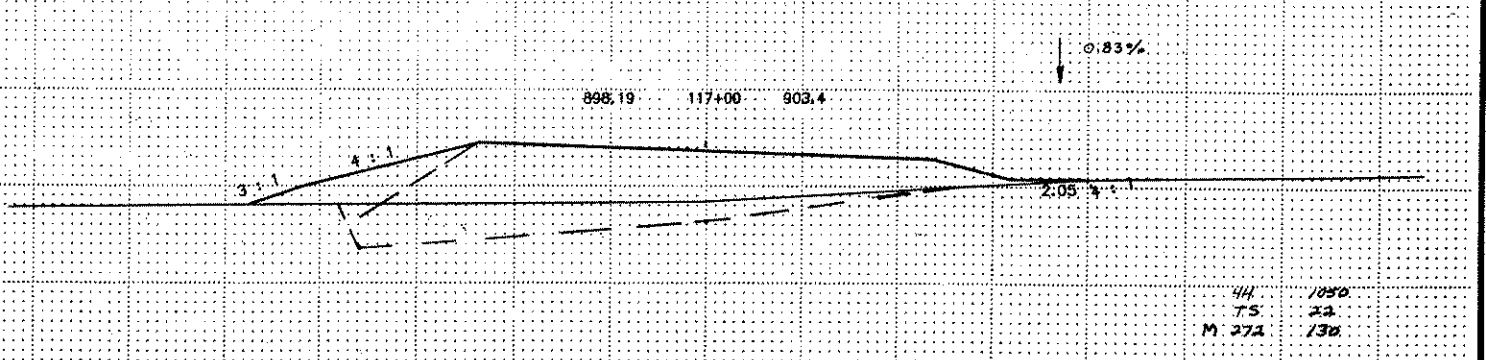
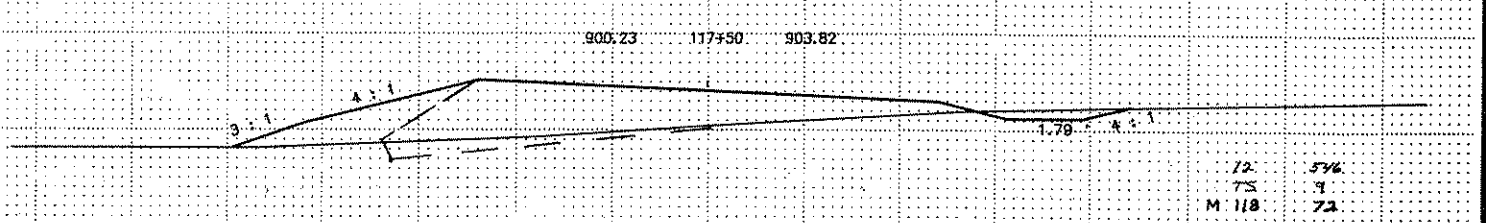
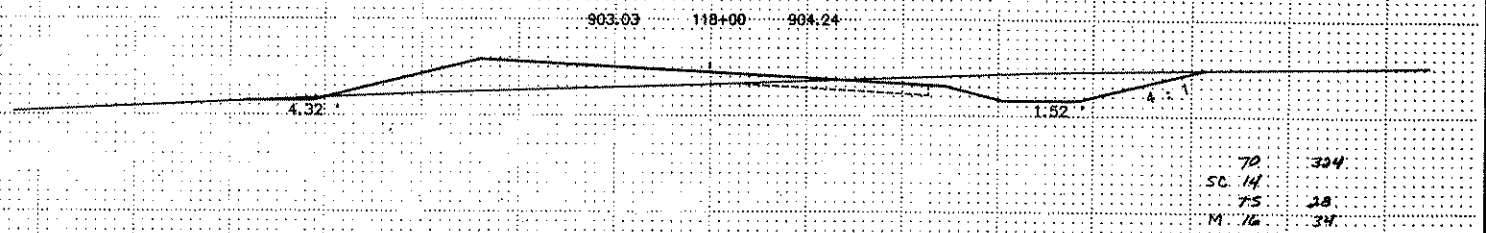
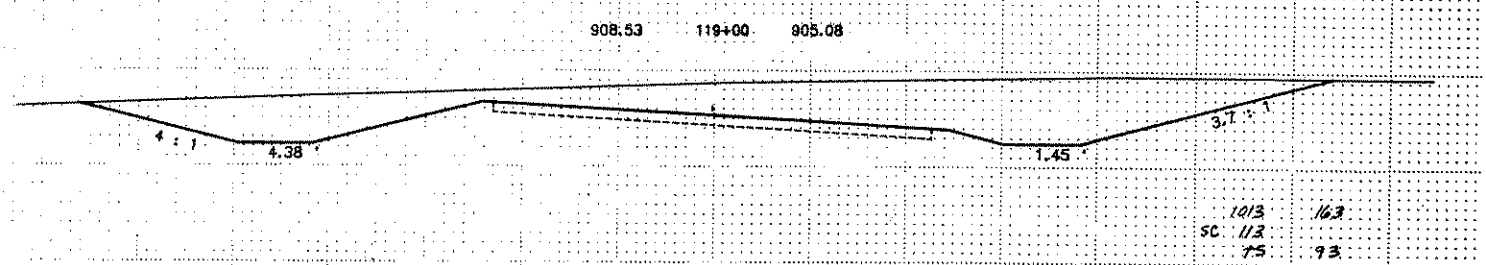
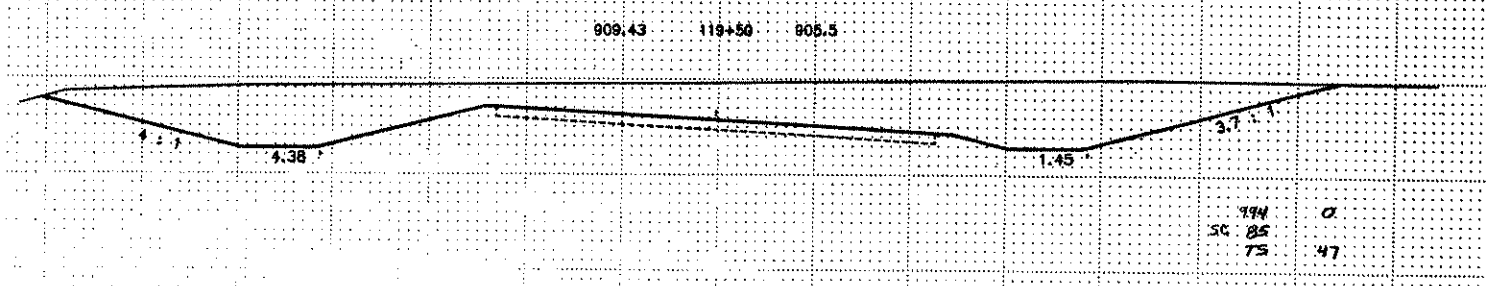
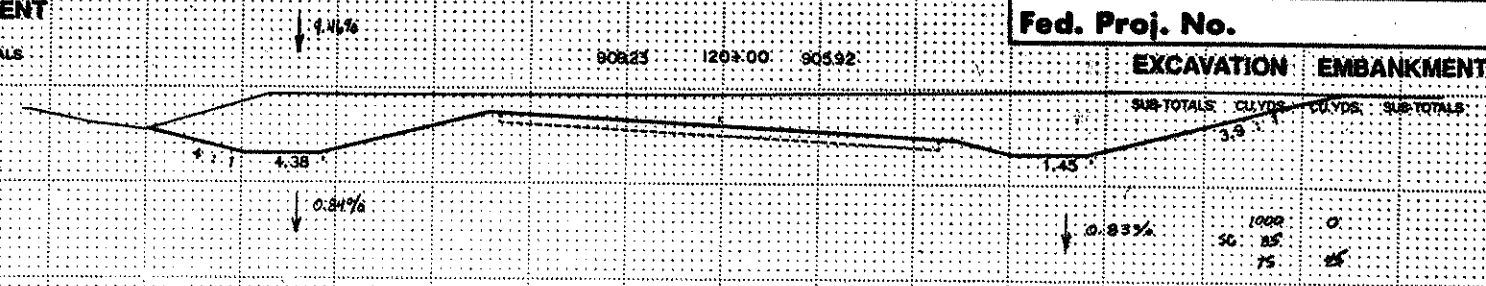
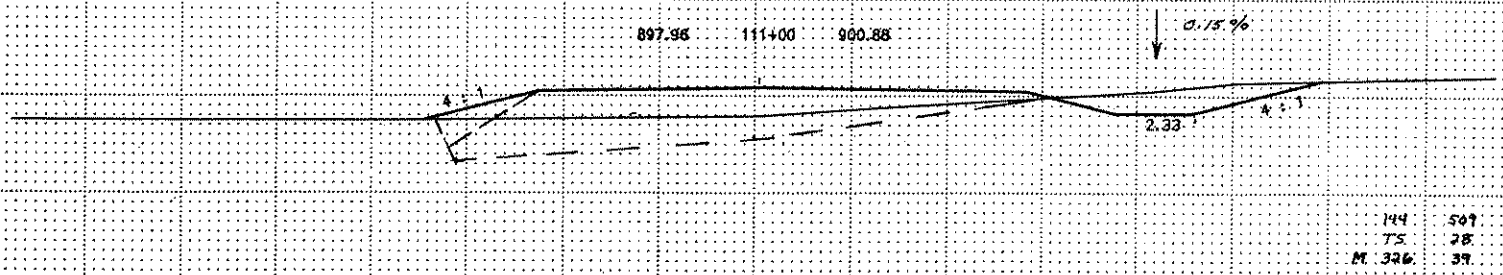
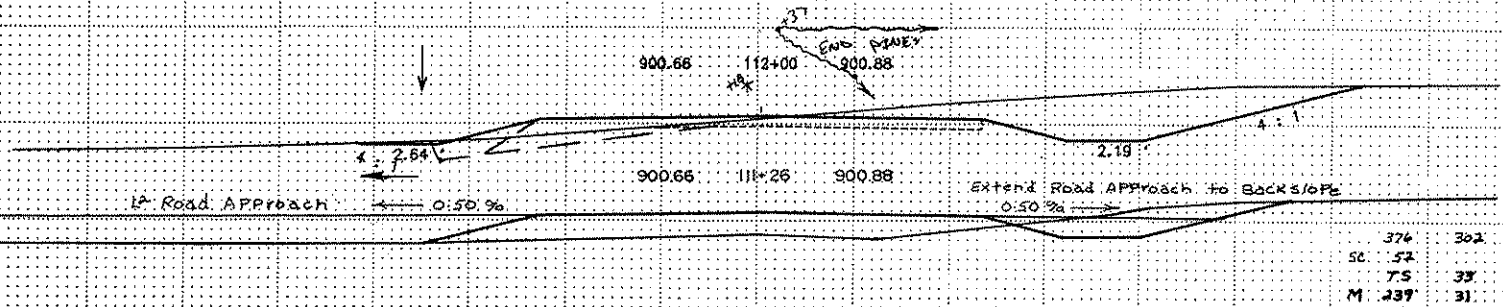
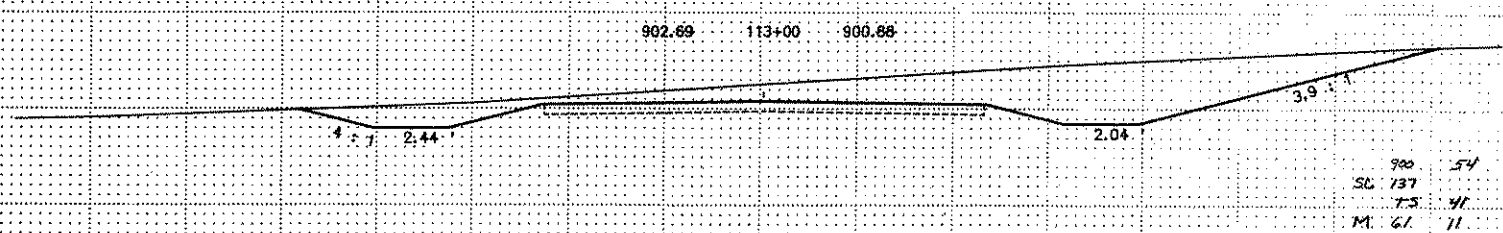
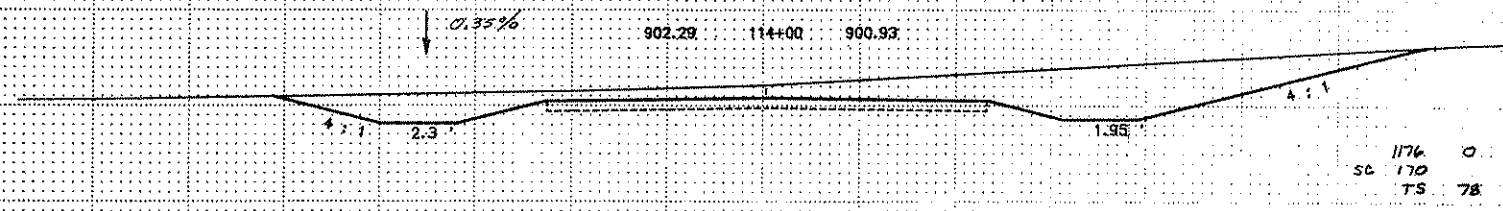
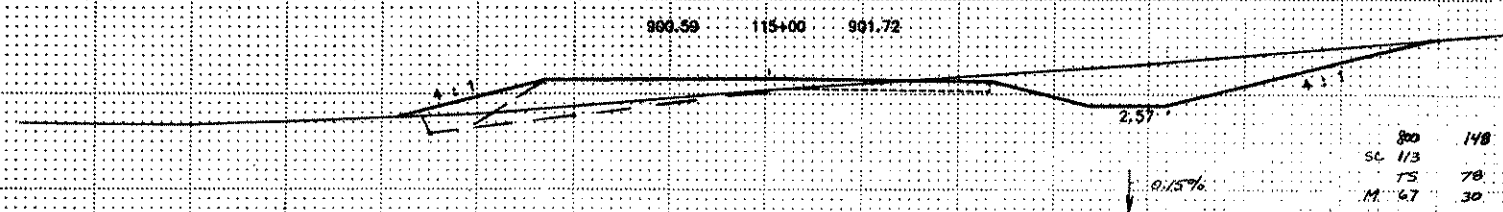
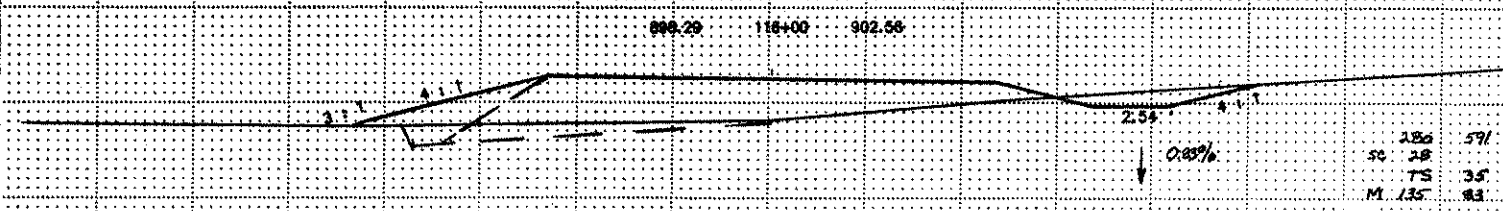
EXCAVATION EMBANKMENT

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

Fed. Proj. No.

EXCAVATION EMBANKMENT

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



STA. 111+00 - STA. 120+00

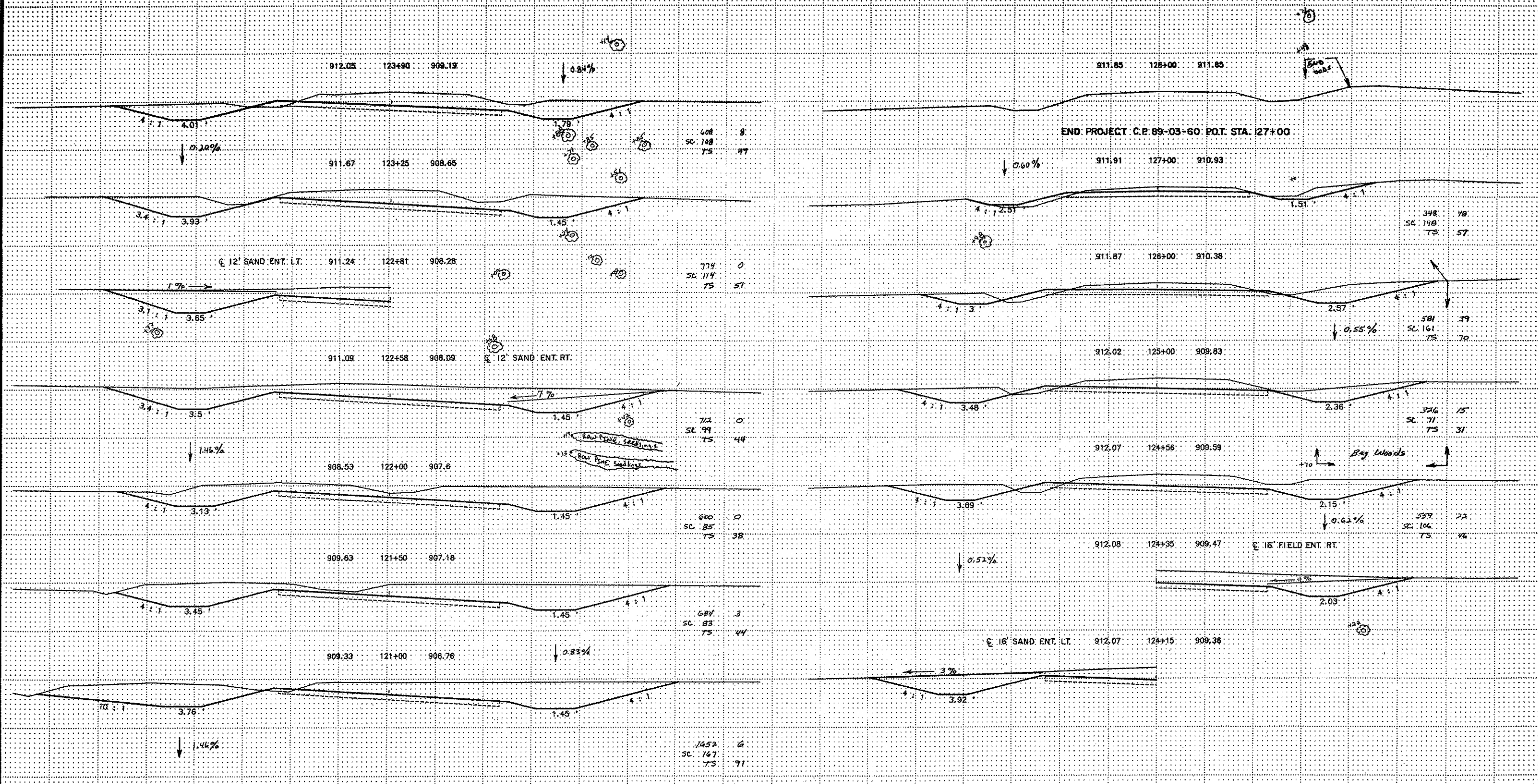
EXCAVATION EMBANKMENT

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

Fed. Proj. No.

EXCAVATION EMBANKMENT

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

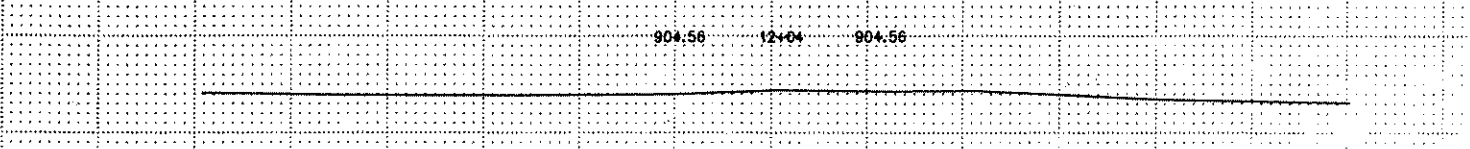


STA 121+00 - STA 128+00

EXCAVATION EMBANKMENT

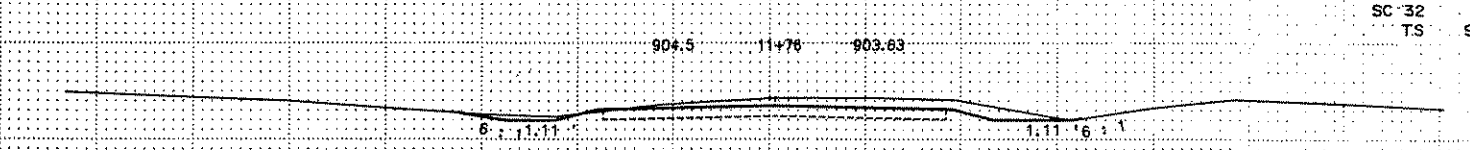
SUB-TOTALS CU.YDS. CU.YDS. SUB-TOTALS

Fed. Proj. No.

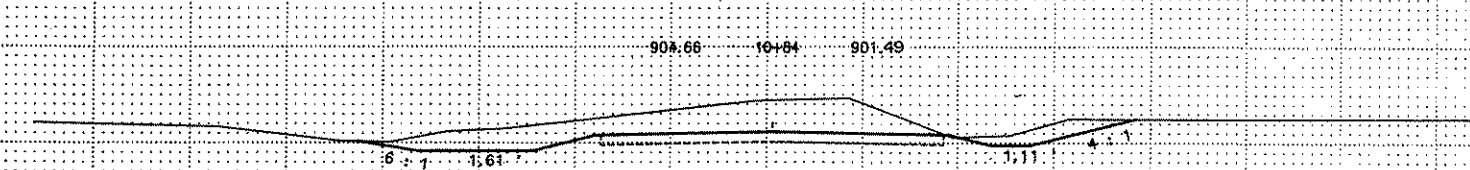


END L<sup>1</sup> CONSTRUCTION P.O.T. STA. 12+00

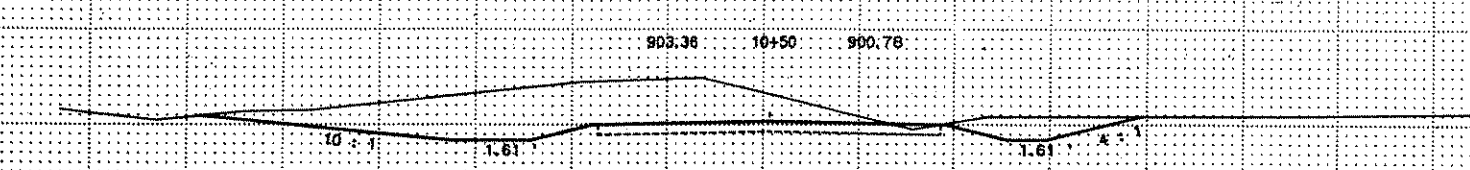
37 0  
SC 32  
TS 9



346 0  
SC 126  
TS 41

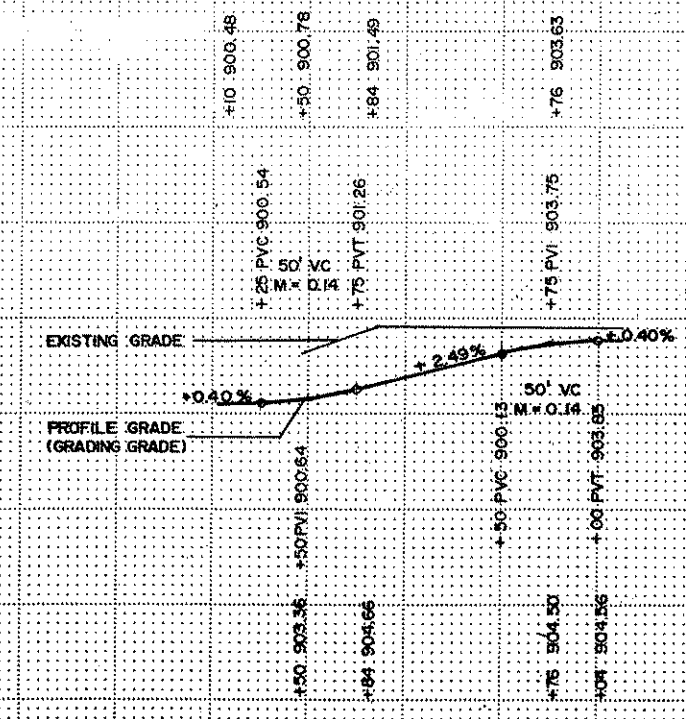


269 1  
SC 46  
TS 20



L<sup>1</sup> 9+87 = L<sup>1</sup> 95+96

99 0  
SC 13  
TS 7

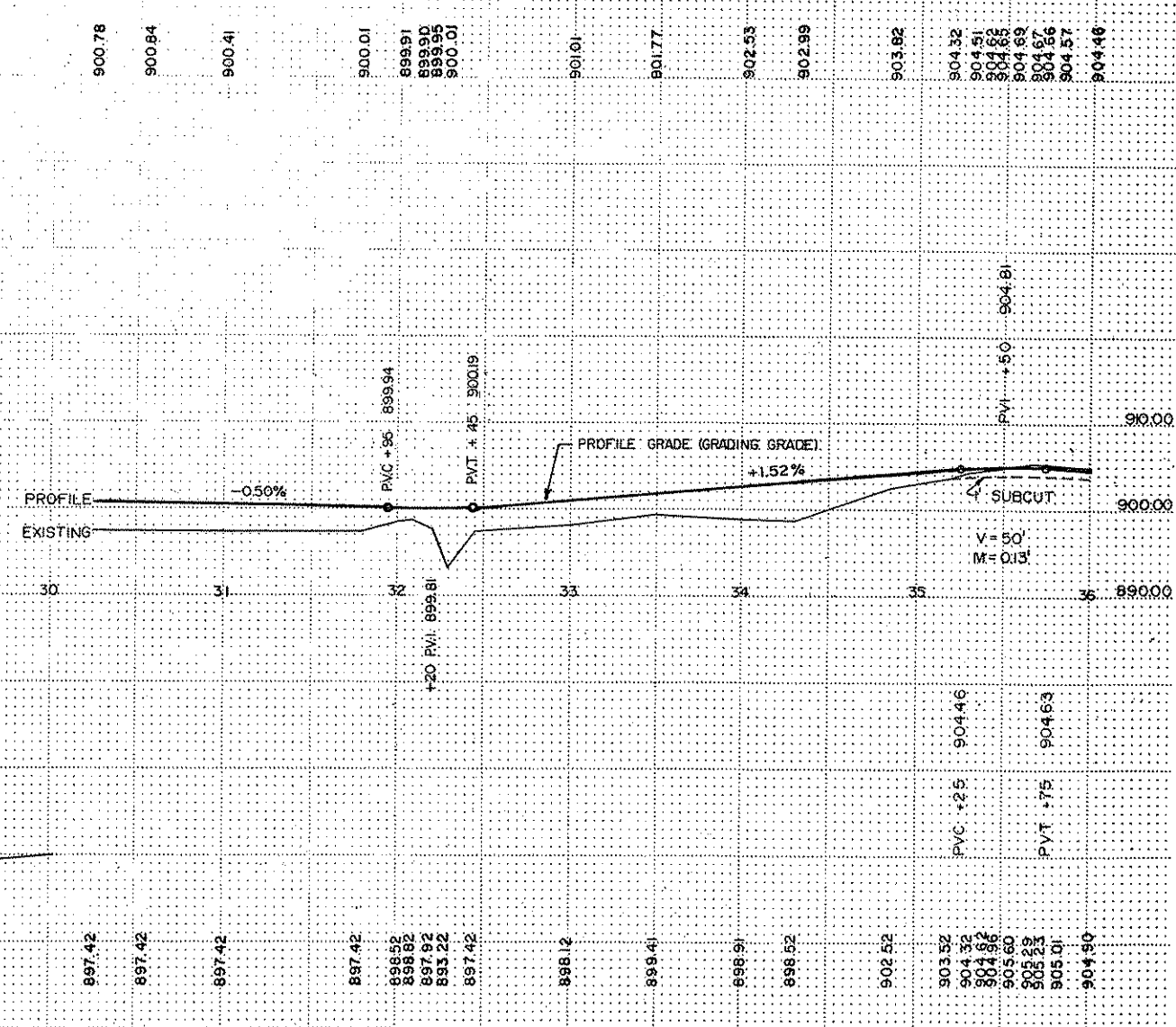
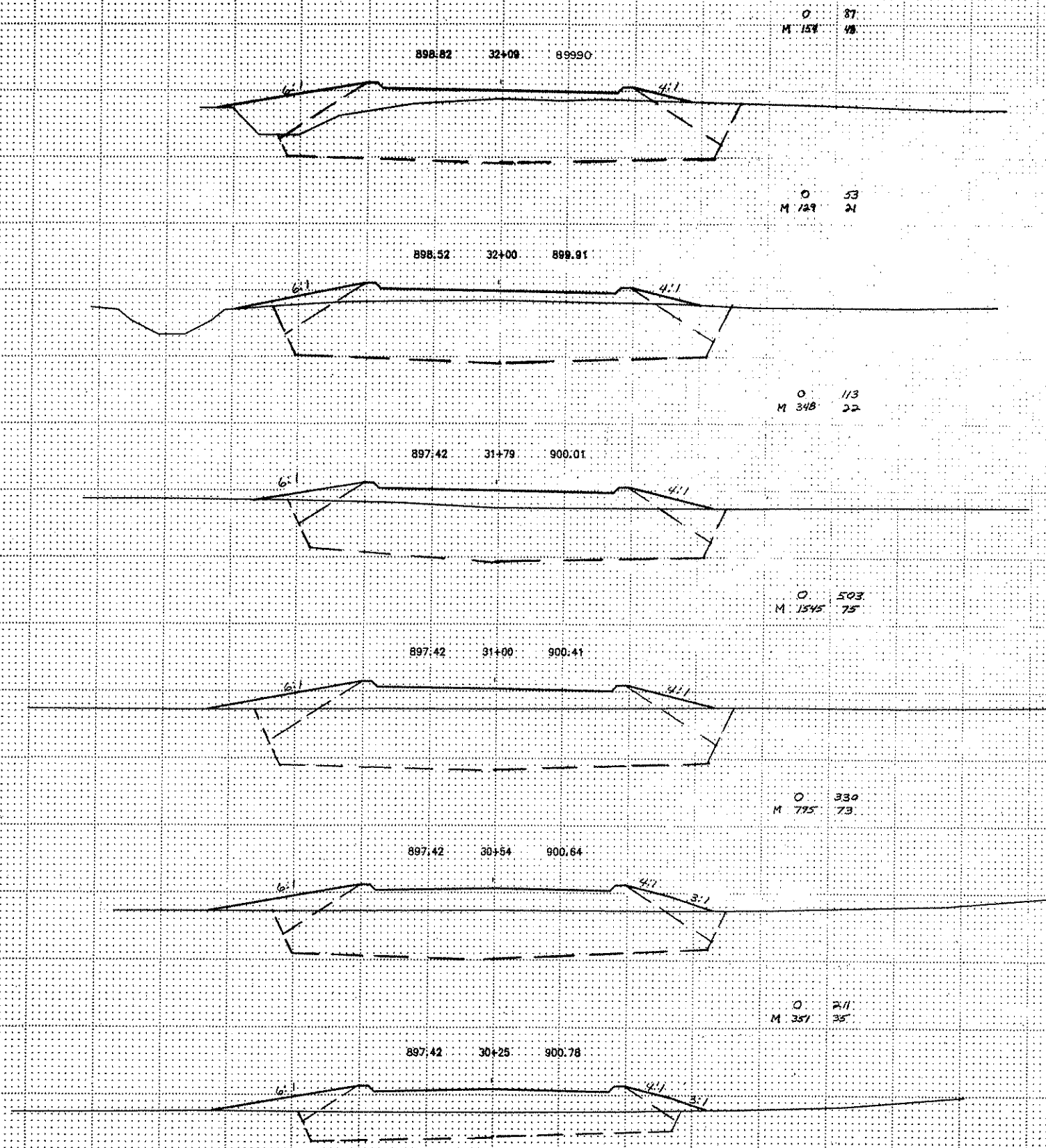


STA. 10+1.50 - STA. 12+04

**EXCAVATION EMBANKMENT**

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

Fed. Proj. No.

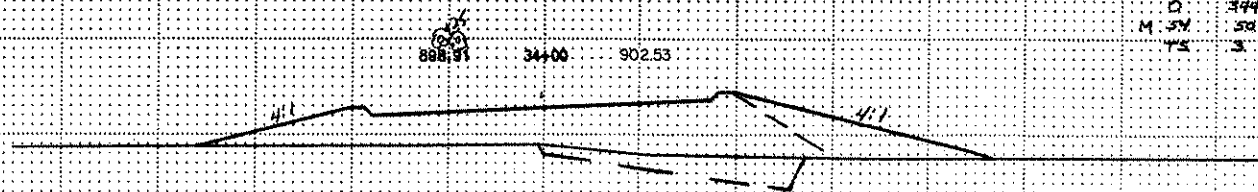


L<sup>2</sup> STA. 30+00: ±CR. 60 ALIGN. STA. 111+26

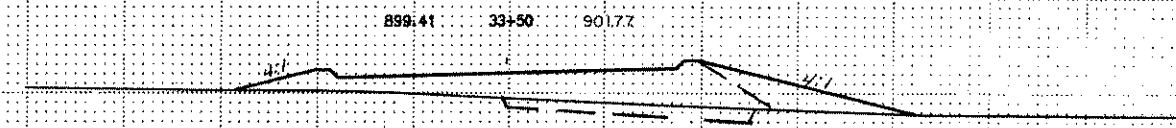
STA. 30+25 - STA. 32+09

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

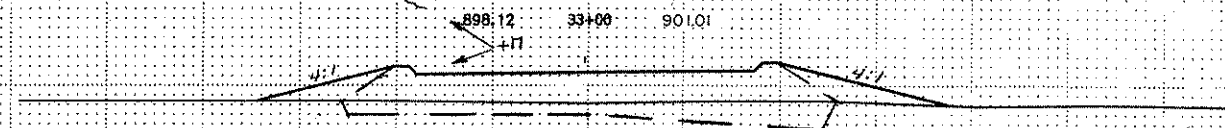
Fed. Proj. No.



O 344  
 M 54  
 3

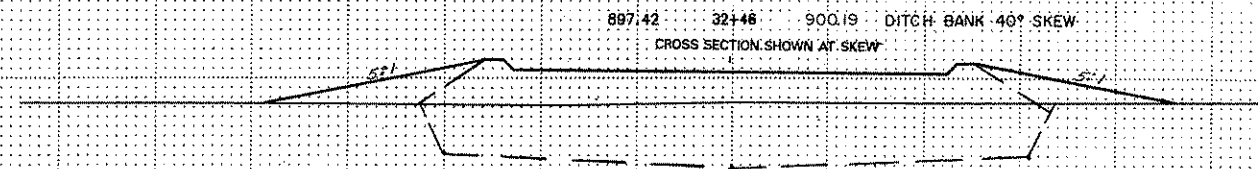


O 435  
 M 80  
 60



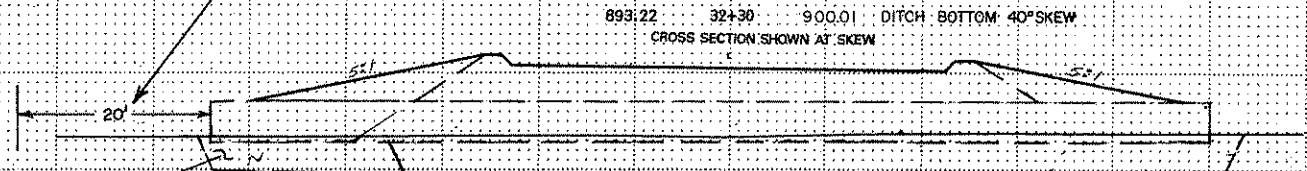
O 331  
 M 74  
 39

481 Bag Wood - Pines

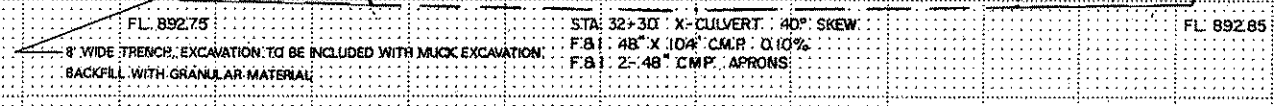


O 454  
 M 385  
 61

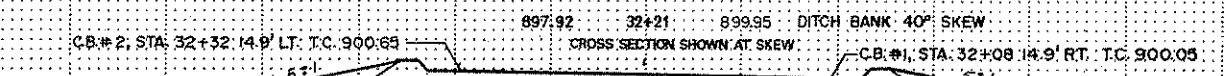
22 CU. YDS. RIP RAP CL. #4  
 11 CU. YDS. GRANULAR FILTER BLANKET  
 SEE STD. PLATE 3134 B



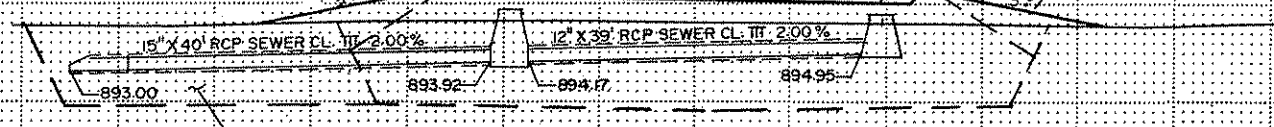
O 139  
 M 130  
 33



STA: 32+30 X-CULVERT, 40° SKEW  
 F.B. 1 48" X 10" CMP, 0.10%  
 F.B. 2 48" CMP, APRONS



O 67  
 M 132  
 34



15" X 40' RCP SEWER CL. TIT. 2.00%  
 12" X 39' RCP SEWER CL. TIT. 2.00%  
 C.B. #2, STA. 32+32.14.9' LT. T.C. 900.65  
 C.B. #1, STA. 32+08.14.9' RT. T.C. 900.05

STA 32+25 - STA 34+00

State Proj. No.

CP 89-03-60 L<sup>2</sup>

Sheet No. 22 of 27 Sheets

**EXCAVATION    EMBANKMENT**

SUB-TOTALS    CUYDS.    CUYDS.    SUB-TOTALS

**Fed. Proj. No.**

**EXCAVATION    EMBANKMENT**

SUB-TOTALS    CUYDS.    CUYDS.    SUB-TOTALS

904.96    35+43    904.65

5    2  
SC 11  
TS 1

904.82    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+19    904.32

1    84  
SC 9  
TS 7

902.52    34+85    903.82

0    434  
M 44  
TS 12

898.52    34+30    902.99

END 1<sup>st</sup> CONSTRUCTION STA 36+15

904.9    35+00    904.48

7    9  
SC 24  
TS 3

905.01    35+84    904.57

8    8  
SC 23  
TS 4

905.23    35+70    904.66

15    6  
SC 28  
TS 3

905.28    35+67    904.67

5    0  
SC 7

E. Constance Blvd.    905.8    35+58    904.69

24    1  
SC 71  
TS 2

20    2  
SC 26  
TS 1

STA 34+30 - STA 35+00

**State Proj. No.**

CP 89 03 60    L<sup>2</sup>

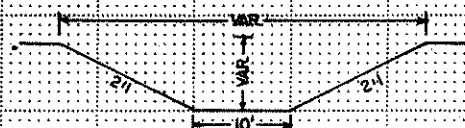
**Sheet No. 23 of 27 Sheets**

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

Fed. Proj. No.

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

SECTION A-A



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

\* 578 0  
 TS 9

903.87 8+12 900.5

0.05/FT → 0.05/FT →

903.89 8+00 900.5

0.05/FT → 0.05/FT →

58 0  
 TS 6

903.9 5+87 900.87

0.05/FT → 0.05/FT →

142 0  
 TS 15

904.14 5+00 901

0.01/FT → 0.01/FT →

258 7  
 TS 34

904.36 4+00 901.6

0.01/FT → 0.01/FT →

387 17  
 TS 54

904.74 3+00 902

0.01/FT → 0.01/FT →

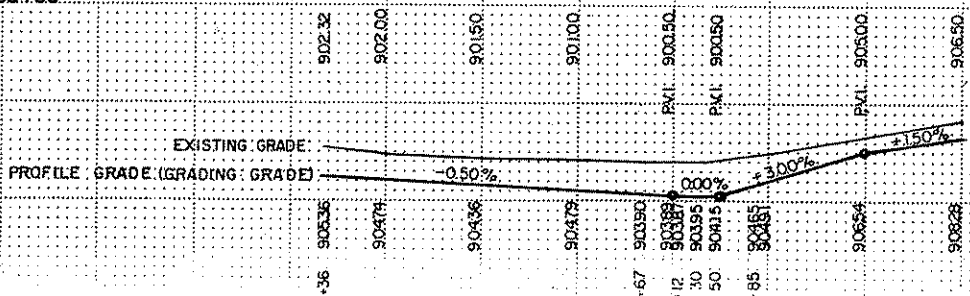
363 6  
 TS 52

905.28 2+38 902.32

0.05/FT → 0.02/FT →

230 1  
 TS 33

3 STA. 2+00 = 2 STA. 35+56



908.28 8+00 908.5

0.05/FT → 0.05/FT →

191 31  
 TS 34

908.54 8+00 905

0.05/FT → 0.05/FT →

259 26  
 TS 52

904.91 7+00 902

0.05/FT → 0.01/FT →

58 0  
 TS 7

904.65 6+85 901.55

0.05/FT → 0.05/FT →

124 0  
 TS 14

904.27 6+57 900.71

0.05/FT → 0.05/FT →

34 0  
 TS 3

904.15 6+50 900.5

0.05/FT → 0.05/FT →

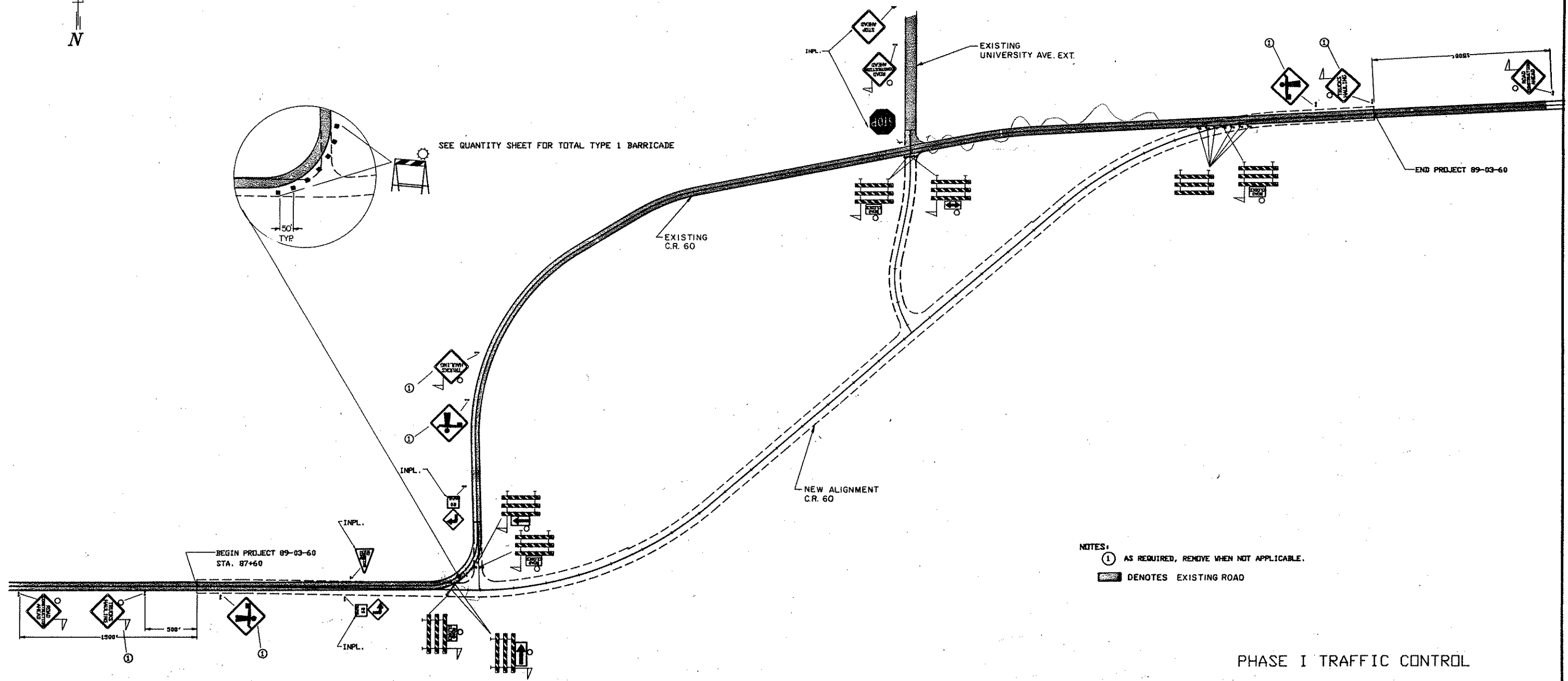
98 0  
 TS 12

903.85 6+30 900.5

0.05/FT → 0.05/FT →

STA. 2+36 - STA. 9+00





SEE QUANTITY SHEET FOR TOTAL TYPE 1 BARRICADE

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

EXISTING  
UNIVERSITY AVE. EXT.

EXISTING  
C.R. 60

NEW ALIGNMENT  
C.R. 60

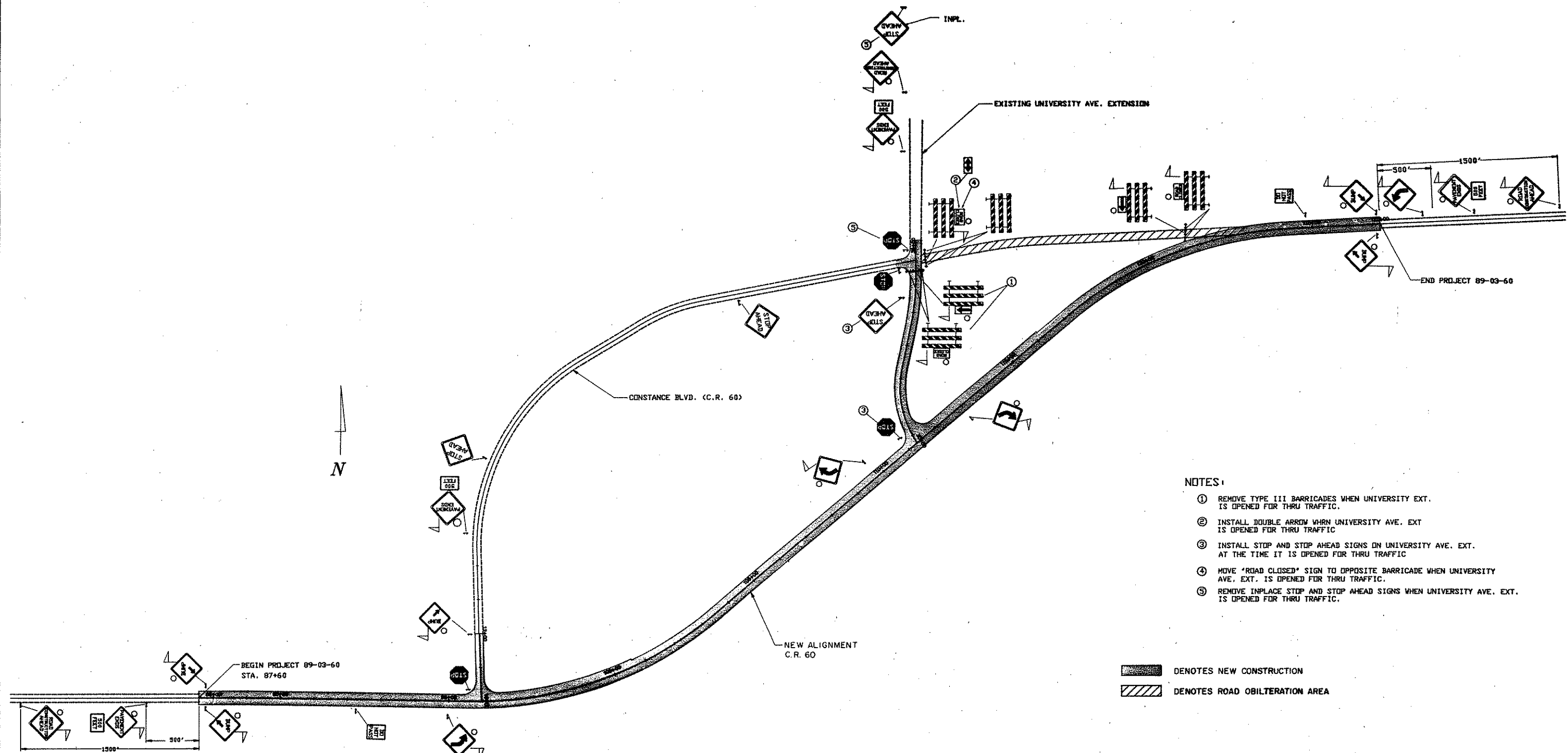
END PROJECT 89-03-60

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

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	48" x 30"			
TYPE III	8 FT.		5	5
YELLOW FLASHER V1-6L	48" x 24"			
TYPE III	8 FT.		2	1
YELLOW FLASHER V1-6R	48" x 24"			
TYPE III	8 FT.		1	1
YELLOW FLASHER V1-7	48" x 24"			
TYPE III	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
V3-1	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