

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

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

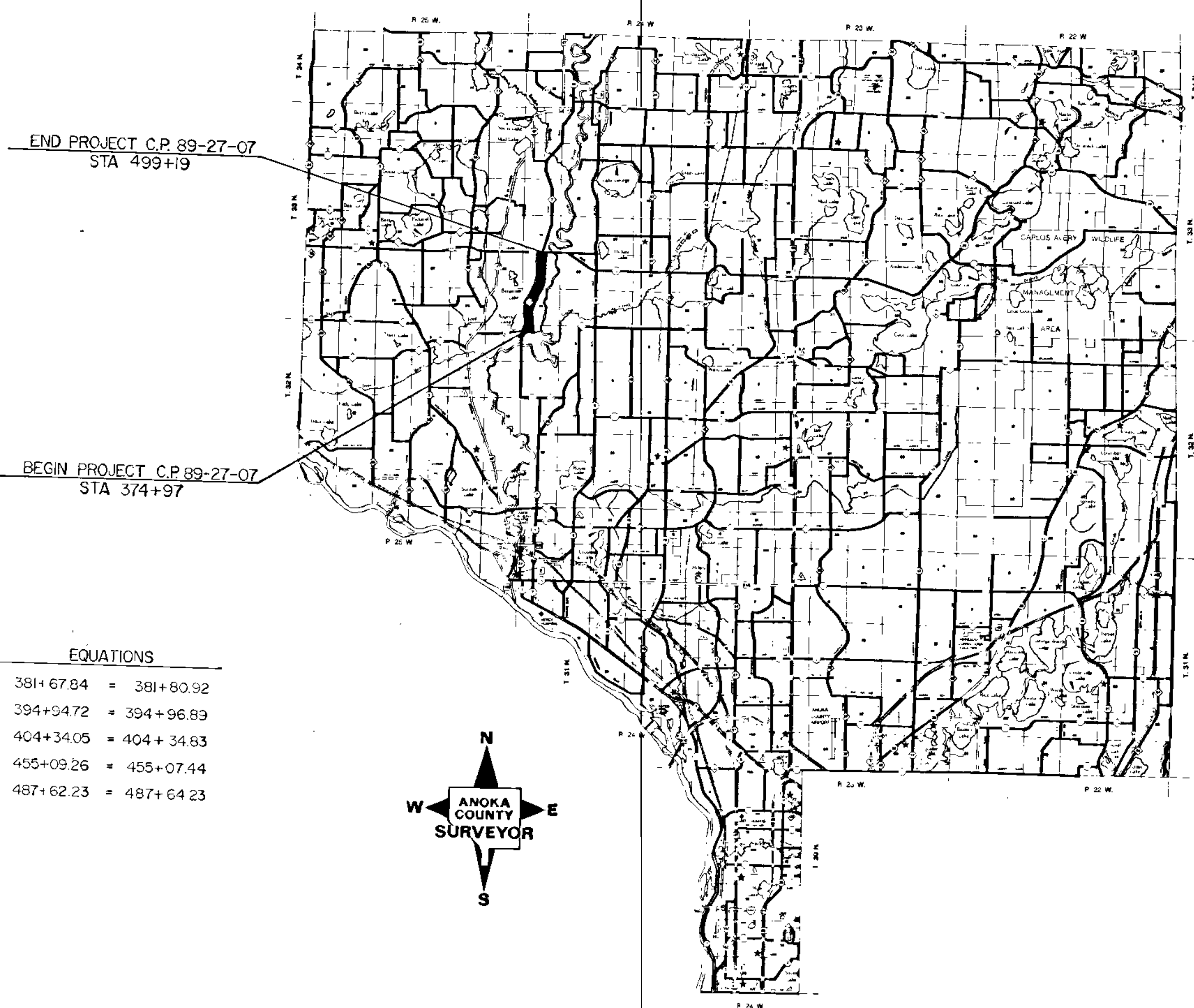
LOCATED ON C.R. 7 BETWEEN C.S.A.H. 27 AND C.S.A.H. 22 (Geographic Description)  
 FROM A POINT 1,897.45' N. AND 601.93' E. OF THE W. 1/4 COR. OF SEC. 6, T. 32 N., R. 24 W. TO A POINT 66.24' E. AND 13.84' S. OF THE N. 1/4 COR. OF SEC. 30, T. 33 N., R. 24 W. (Legal Description)

COUNTY PROJ. NO. 89-27-07  
 GROSS LENGTH 12,405.79 FEET 2.350 MILES  
 BRIDGES-LENGTH            FEET            MILES  
 EXCEPTIONS-LENGTH            FEET            MILES  
 NET LENGTH 12,405.79 FEET 2.350 MILES

STATE AID PROJ. NO.             
 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 SEGMENT
  - 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
  - SPRINKLER
  - MARSH
  - TIMBER
  - ORCHARD
  - BRUSH
  - NURSERY
  - CATCH BASIN
  - FIRE HYDRANT
  - CAT TIE 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 HOOD
  - 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



#### EQUATIONS

381+67.84	=	381+80.92
394+94.72	=	394+96.89
404+34.05	=	404+34.83
455+09.26	=	455+07.44
487+62.23	=	487+64.23

#### SCALES

PLAN	50'
PROFILE	50'
INDEX MAP	2.67 mi
GENERAL LAYOUT	NA

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

#### GOVERNING SPECIFICATIONS

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE JANUARY 2, 1991 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.

SHEET NO.	INDEX	DESCRIPTION
1		TITLE SHEET
2		ESTIMATED QUANTITIES
3-4		TYPICAL SECTIONS
5-8		TABULATION CHARTS
9		EROSION CONTROL DETAILS
10		SUPERELEVATION CHARTS
11-19		PLAN & PROFILE SHEETS
20-28		CROSS-SECTION SHEETS
29-30		TRAFFIC CONTROL

THIS PLAN CONTAINS 30 SHEETS

#### DESIGN DESIGNATION

EN1820	N.A.
R Value	N.A.
ADT (1990)	= 2,621
Proj. ADT (2010)	= 4,456
Proj. HCADT (2010)	= 300-600
Soil Factor	50%
Shoulder Design	9 Ton
Shoulder Width	8'

Functional Classification	MAJOR COLLECTOR	
No. of Traffic Lanes	2	
No. of Parking Lanes	0	
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 382+84	TO STA 389+16	MPH 50
STA 387+56	TO STA 394+95	MPH 50
STA 398+74	TO STA 404+34	MPH 50

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 4/3/92 REG. NO. 6549 ENGR. Paul K. Kuehl  
 COUNTY Anoka

COUNTY PROJ. NO. 89-27-07 RECORD DRAWINGS  
 STATE PROJ. NO. 2-8-75 BY B.L. SHEET NO. 1 OF 30 SHEETS

TITLE SHEET 1/1/92 blueprint Order Form # 432 REV 9-91

**STATEMENT OF ESTIMATED QUANTITIES**

ITEM NO	ITEM	UNIT	ESTIMATED QUANTITIES	FINAL QUANTITIES
2021.501	MOBILIZATION	LUMP SUM	1	
2031.501	FIELD OFFICE, TYPE D	EACH	1	
2101.501	CLEARING	ACRE	4.65	
2101.502	CLEARING	TREE	132	
2101.506	GRUBBING	ACRE	4.65	
2101.507	GRUBBING	TREE	121	
2102.502	PAVEMENT MARKING REMOVAL	LIN. FT.	300	
2104.501	REMOVE CULVERT PIPE	LIN. FT.	172	
2104.505	REMOVE BITUMINOUS PAVEMENT	SQ. YD.	30,939	
2104.513	SAWING BITUMINOUS PAVEMENT	LIN. FT.	1108	
2104.521	SALVAGE TRAFFIC BARRIER DESIGN PLATE BEAM	LIN. FT.	1040	
2104.521	SALVAGE FENCE	LIN. FT.	4111	
2104.521	SALVAGE CULVERT PIPE	LIN. FT.	92	
2105.501	COMMON EXCAVATION (P)	CU. YD.	47483	
2105.525	TOPSOIL BORROW (LV)	CU. YD.	2662	
2105.535	SALVAGE TOPSOIL (LV)	CU. YD.	6309	
2130.501	WATER	M-GAL	400	
2211.503	AGGREGATE BASE PLACED, CLASS 5 A (P)	CU. YD.	8772	
2211.603	5' THICK AGG. BASE PLACED, CLASS 5 A	SQ. YD.	320	
2232.501	MILL BITUMINOUS SURFACE	SQ. YD.	914	
2331.508	TYPE 41 WEARING COURSE MIXTURE	TON	2600	
2331.510	TYPE 31 BINDER COURSE MIXTURE	TON	4590	
2331.514	TYPE 31 BASE COURSE MIXTURE	TON	5080	
2331.516	TYPE 31 SHOULDER MIXTURE	TON	2150	
0331.601	2" THICK BITUMINOUS WEARING COURSE	SQ. YD.	1567	
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	3825	
2501.511	15' CM PIPE CULVERT	LIN. FT.	932	
2501.511	18' CM PIPE CULVERT	LIN. FT.	244	
2501.511	24' RC PIPE CULVERT	LIN. FT.	319	
2501.515	15' CM PIPE APRONS	EACH	46	
2501.515	18' CM PIPE APRONS	EACH	8	
2501.515	15' RC PIPE APRONS	EACH	3	
2501.515	24' RC PIPE APRONS	EACH	10	
2503.541	15' RC PIPE SEWER, DES. 3006 CL. 3	LIN. FT.	274	
2506.501	CONSTRUCT DRAINAGE STRUCTURE DES. C OR G	LIN. FT.	8.2	
2506.516	CASTING ASSEMBLY	EACH	2	
2535.501	BITUMINOUS CURB	LIN. FT.	532	
2554.501	TRAFFIC BARRIER DES. B 8307	LIN. FT.	1460	
0554.602	ECCENTRIC LOADER BCT	EACH	4	
0557.603	INSTALL FENCE	LIN. FT.	3674	
0563.601	TRAFFIC CONTROL - DETOUR	LUMP SUM	1	
0563.603	TRAFFIC CONTROL (SPECIAL)	EACH	5	
2573.501	BALE CHECK	EACH	60	
2573.502	SILT FENCE, HEAVY DUTY	LIN. FT.	2465	
2573.508	BITUMINOUS LINED FLUME	SQ. YD.	27	
2575.501	SEEDING (P)	ACRE	12.9	
2575.502	SEED, MIXTURE 700	POUND	452	
2575.505	SODDING, TYPE LAWN & BLVD.	SQ. YD.	24435	
2575.511	MULCH MATERIAL, TYPE 1	TON	26	
2575.519	DISC ANCHORING (P)	ACRE	12.9	
2575.531	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10	TON	4.5	
2580.501	TEMPORARY LANE MARKING	RD. STA.	352	

**SPECIAL DETAILS**

APPROXIMATELY 6,309 CU. YDS. OF NATIVE TOPSOIL, WITHIN THE CONSTRUCTION LIMITS, IS TO BE SALVAGED, STOCKPILED WITHIN THE OF THE CONST. PROJECT AND R/W, AND USED AS A UNIFORM 3" TOPSOIL DRESSING ON THE ON THE NEW SLOPES & DITCH BOTTOMS. THIS WORK WILL BE PAID FOR AS ITEM NO. 2105.535, SALVAGE TOPSOIL, AND NO ADDITIONAL COMPENSATION WILL BE MADE.

**EARTHWORK SUMMARY**

**EXCAVATION (CU. YDS.)**

REG. COMMON 34,194  
SUBCUT 13,289 47,483

**EMBANKMENT (CU. YDS.)**

REG. 19,758 x 143.7% = 28,389  
SUB. 13,289 x 143.7% = 19,094 47,483

**TOPSOIL (CU. YDS.)**

SALVAGE TOPSOIL 4,719 x 134% = 6,309

**BITUMINOUS REMOVAL (CU. YDS.)**

BITUMINOUS REMOVAL 3,438

**NOTES:**

- ① - REMOVAL TO INCLUDE EXISTING BITUMINOUS ROADWAY SURFACE REGARDLESS OF DEPTH, (AVERAGE 4" THICK). INCLUDES STREET APPROACHES AND RESIDENTIAL ENTRANCES.
- ② - SALVAGED BY THE CONTRACTOR AND DELIVERED TO ANOKA CO. HWY. DEPT.
- ③ - INCLUDES 2765 LIN.FT. OF BARBED WIRE FENCE AND 1346 LIN.FT. OF WOOD FENCE.
- ④ - INCLUDES 13289 CU.YD. OF SUBCUT FOR UNIFORMITY AND COMPACTION FOR SOILS.
- ⑤ - TO BE USED IN FRONT YARD AREAS AND OTHER AREAS TO BE SODDED.
- ⑥ - FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.
- ⑦ - INCLUDES 223 CU.YD. FOR ROAD APPROACHES AND 1175 CU.YD. FOR RIGHT TURN AND BY PASS LANES.
- ⑧ - INCLUDES 310 TONS FOR ROAD APPROACHES AND 665 TONS FOR RIGHT TURN AND BY PASS LANES.
- ⑨ - INCLUDES 385 TONS FOR ROAD APPROACHES.
- ⑩ - INCLUDES 235 TONS FOR ROAD APPROACHES AND 500 TONS FOR RIGHT TURN AND BY PASS LANES.
- ⑪ - PROVIDES FOR RESIDENTIAL ENTRANCE CONSTRUCTION.
- ⑫ - SEE BITUMINOUS CURB DETAIL FOR LOCATION.
- ⑬ - SEE BALE CHECK CHART - EROSION CONTROL SHEET FOR LOCATION.
- ⑭ - SEE SILT FENCE CHART - EROSION CONTROL SHEET FOR LOCATION.
- ⑮ - INCLUDES 650 SQ.YD. FOR SODDING AT CULVERT ENDS.
- ⑯ - FOR USE IN FIELD ENTRANCE CONSTRUCTION.

**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.
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE.
3123 I	METAL APRON FOR C.S. PIPE.
3145 E	CONCRETE PIPE TIES.
3221 C	CORRUGATED STEEL PIPE COUPLING BAND.
4002 E	MANHOLE OR CATCH BASIN (DESIGN C)
4006 K	MANHOLE OR CATCH BASIN (DESIGN G)
4010 G	CONCRETE SHORT CONE AND ADJUSTING RING
4011 D	PRECAST CONCRETE BASE
4101 C	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 E	COVER CASTING FOR MANHOLE
7065 C	BITUMINOUS CURB.
8307 N	STEEL PLATE BEAM GUARDRAIL.
9000 B	APPROACHES AND ENTRANCES.
9102 C	SODDING AT PIPE CULVERT ENDS.

**BASIS OF PLANNED QUANTITIES**

- 2331 PLANT MIXED BASE AND BINDER COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD. PER 1" THICKNESS
- 2331 PLANT MIXED SHOULDER COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD. PER 1" THICKNESS
- 2331 PLANT MIXED WEARING COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD. PER 1" THICKNESS
- 2357 BITUMINOUS MATERIAL FOR TACK 0.05 GALLON PER SQ.YD. PER LAYER APPLIED
- 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% SEED MIXTURE NO. 700, 35 LBS. PER ACRE.

**ESTIMATED QUANTITIES**

REVISIONS			
DATE	BY	DATE	BY

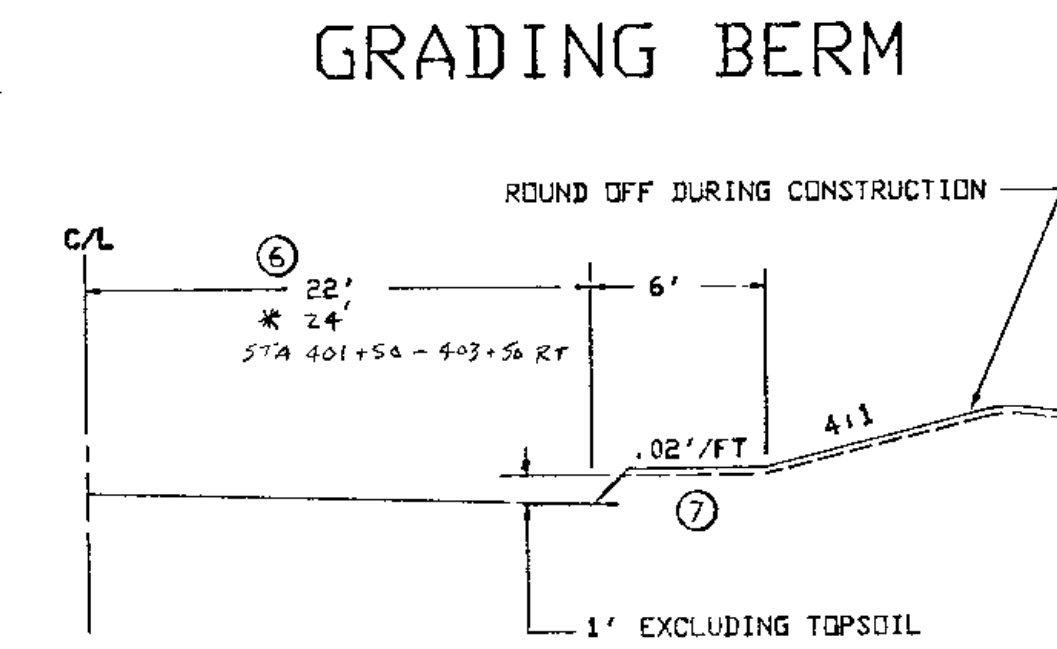
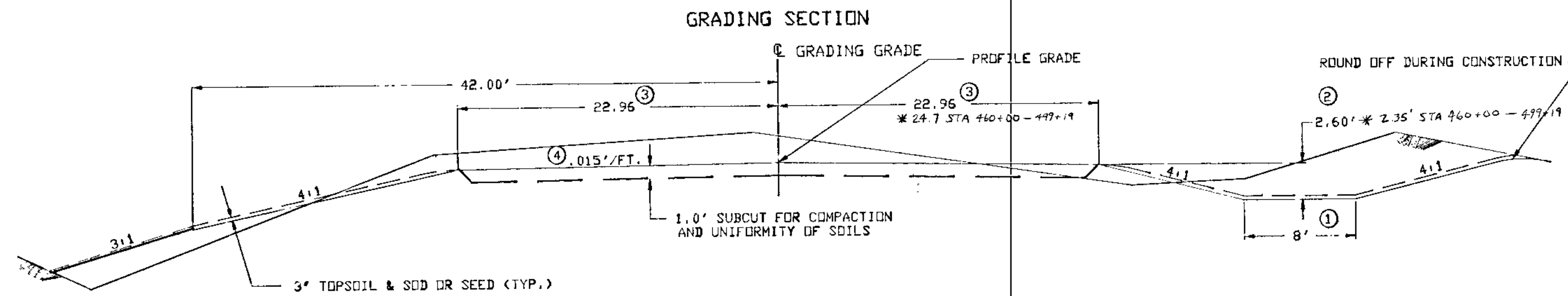
S.A.P.

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RECORD DRAWINGS  
2-8-75 BY B.L.

C.P. 89-27-07

Sheet No. 2 of 30 Sheets



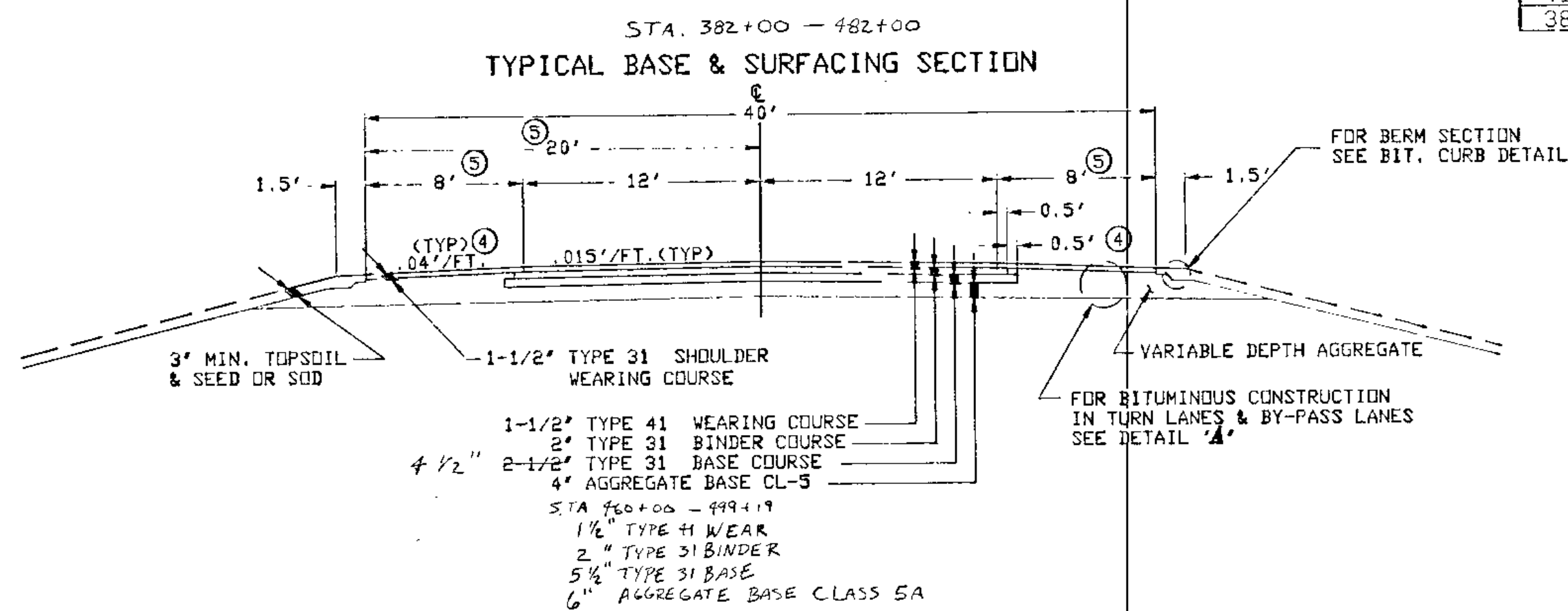
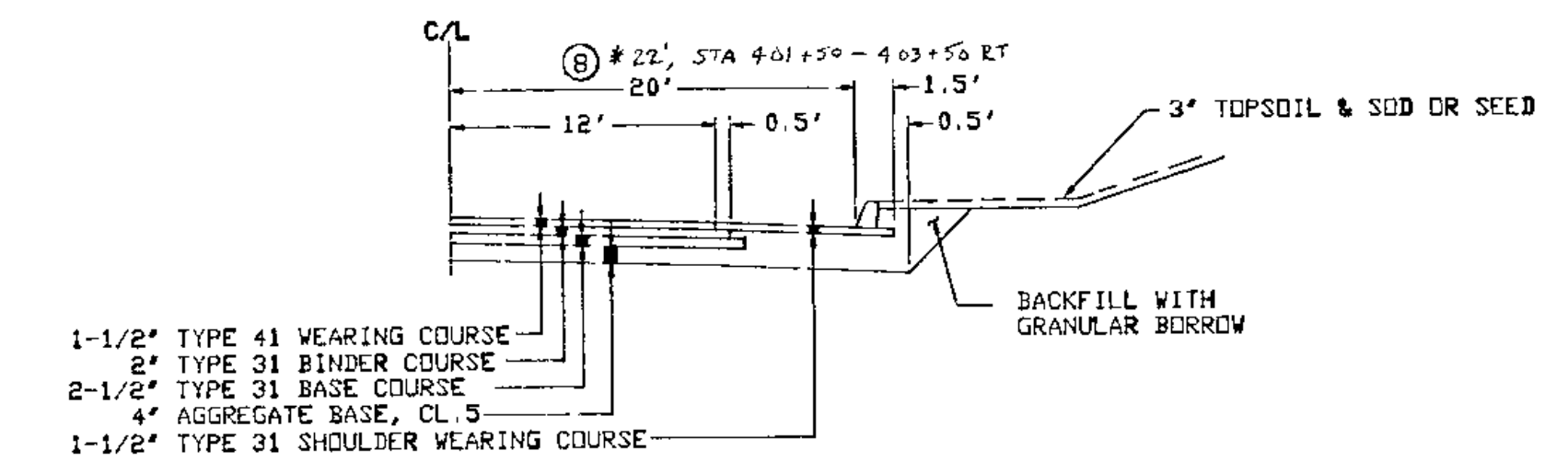
NOTE:  
SPECIAL DITCH ELEVATIONS ON THE PLAN &  
CROSS SECTION SHEETS ARE GRADING GRADE ELEVATIONS

RIGHT TURN LANE LOCATIONS		
STATION TO	STATION	LOCATION
378+77	TO 383+70	LT.
402+44	TO 407+25	LT.
417+11	TO 421+91	LT.
414+60	TO 419+40	RT.
424+39	TO 429+19	LT.
440+19	TO 444+99	RT.
454+89	TO 450+09	RT.
494+39	TO 499+19	RT.

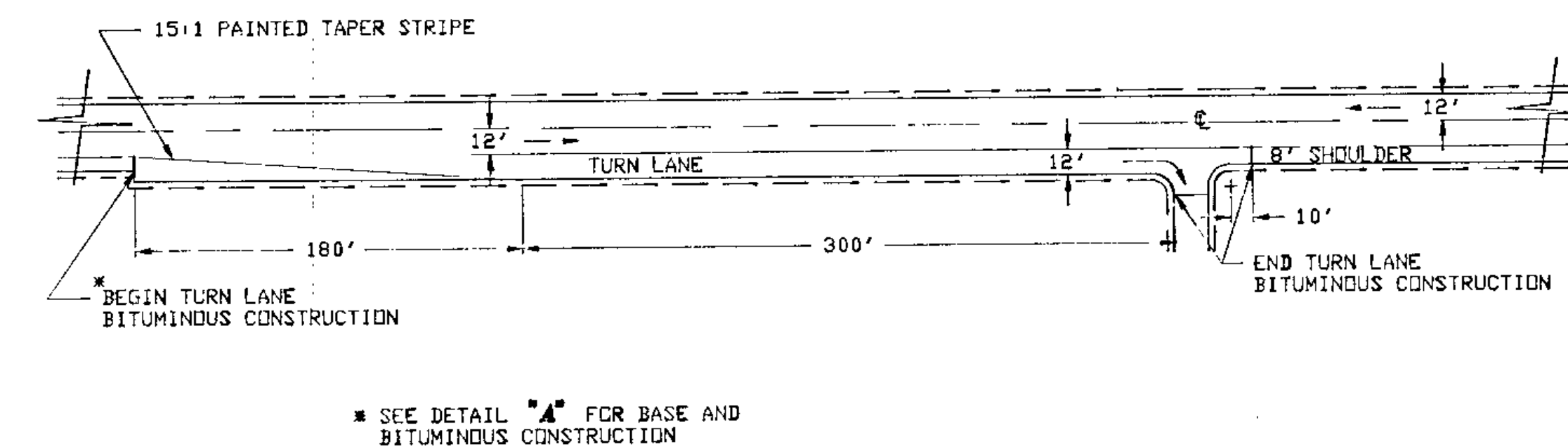
BY-PASS LANE LOCATION		
STATION TO	STATION	LOCATION
374+97	TO 381+07	RT.

BERM & CURB LOCATION		
STATION TO	STATION	LOCATION
401+50	TO 403+50	RT.
410+56	TO 412+53	RT.
385+15	TO 386+40	LT.

**BITUMINOUS CURB DETAIL**  
STD. PLATE DETAIL 7065C



**TYPICAL RIGHT TURN LANE**



- ① FOR SPECIAL DITCHES SEE PROFILE SHEETS & CROSS SECTIONS
- ② SEE CROSS SECTIONS FOR MODIFIED BACKSLOPES
- ③ 27.58' IN RIGHT TURN LANES, 27.9' IN RIGHT TURN LANE, (STA 460+00 - 499+19)
- ④ 0.02'/FT. IN RIGHT TURN LANES.
- ⑤ 4' WIDER IN TURN LANES
- ⑥ 2.8' IN RIGHT TURN LANE
- ⑦ 1.16' IN RIGHT TURN LANE
- ⑧ 26' IN RIGHT TURN LANE

NOTE:  
RECOVERY AREA 42' FROM CENTERLINE ALL UTILITY POLES AND OTHER UNYIELDING OBJECTS SHALL BE REMOVED AND RELOCATED OUTSIDE THE 42' RECOVERY AREA.

**DETAIL 'A'**  
RIGHT TURN LANE & BY-PASS LANE CONSTRUCTION

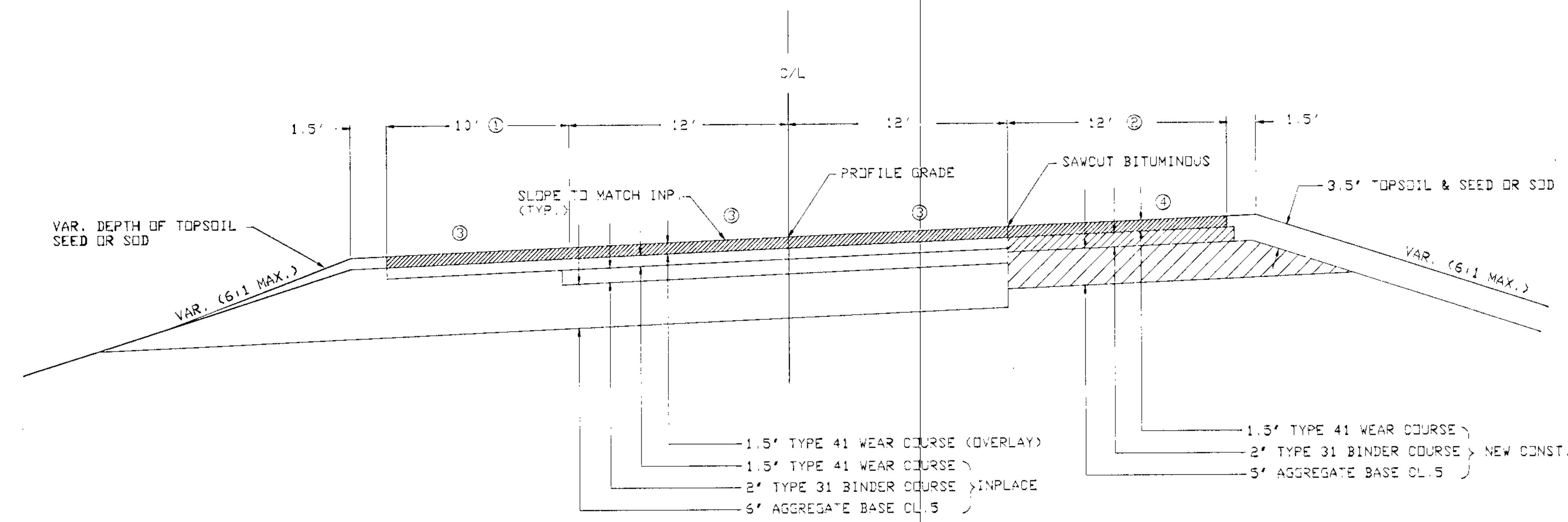
1-1/2" TYPE 31 SHOULDER WEARING COURSE  
2" TYPE 31 BINDER COURSE  
VARIABLE DEPTH CL-5 AGGREGATE

REVISIONS			
DATE	BY	DATE	BY

NOTE: ALL DIMENSIONS NOMINAL

TYPICAL SECTION BY-PASS LANE & OVERLAY CONST.

STA. 374+97 TO STA. 382+00

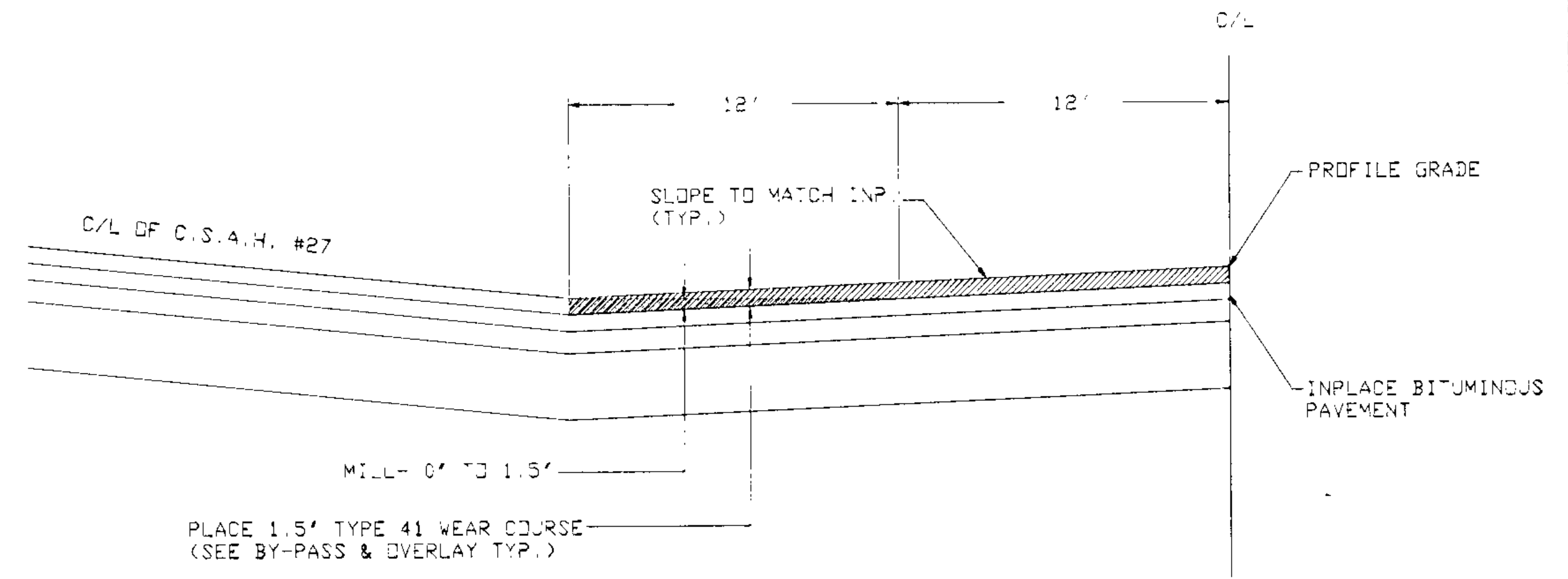
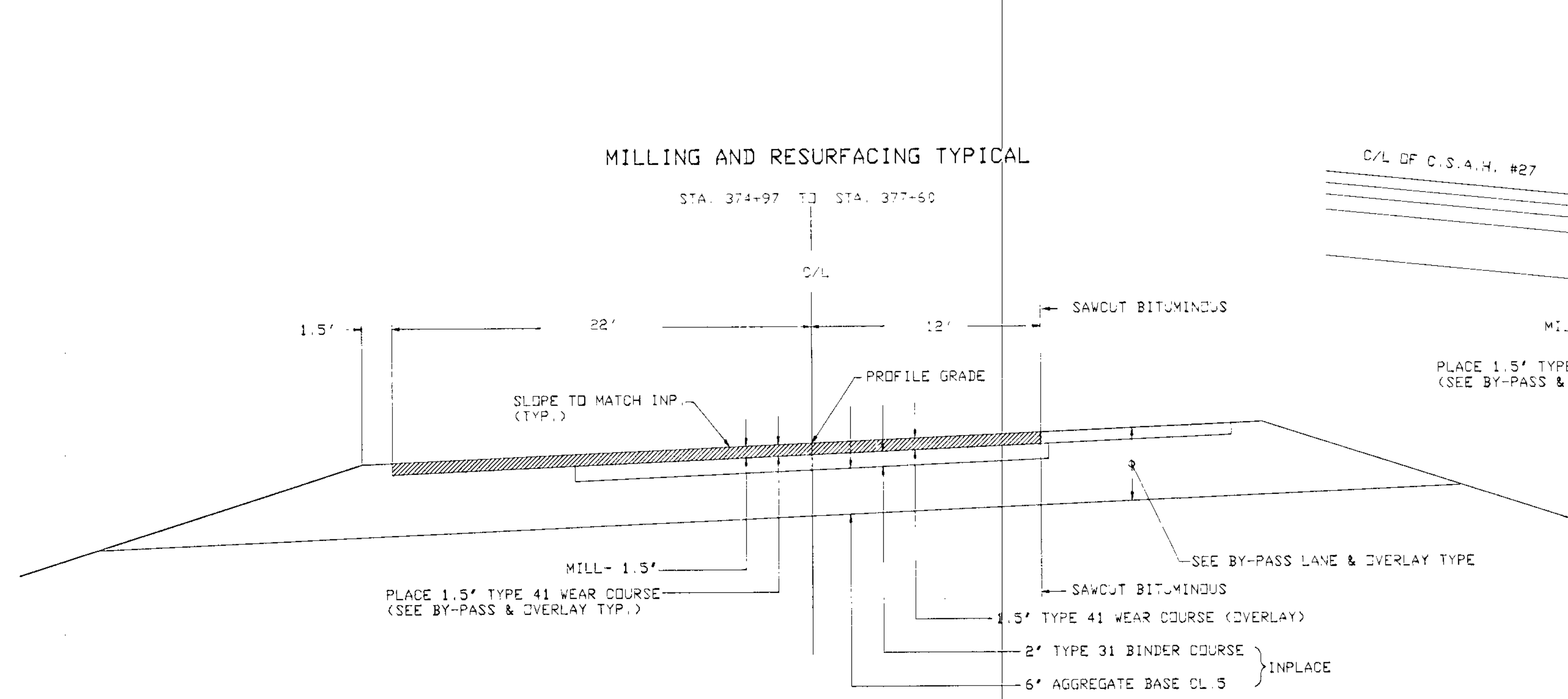


MILLING AND RESURFACING TYPICAL

INTERSECTION OF DR # 7 & C.S.A. # 27

MILLING AND RESURFACING TYPICAL

STA. 374+97 TO STA. 377+60



REVISIONS			
DATE	BY	DATE	BY

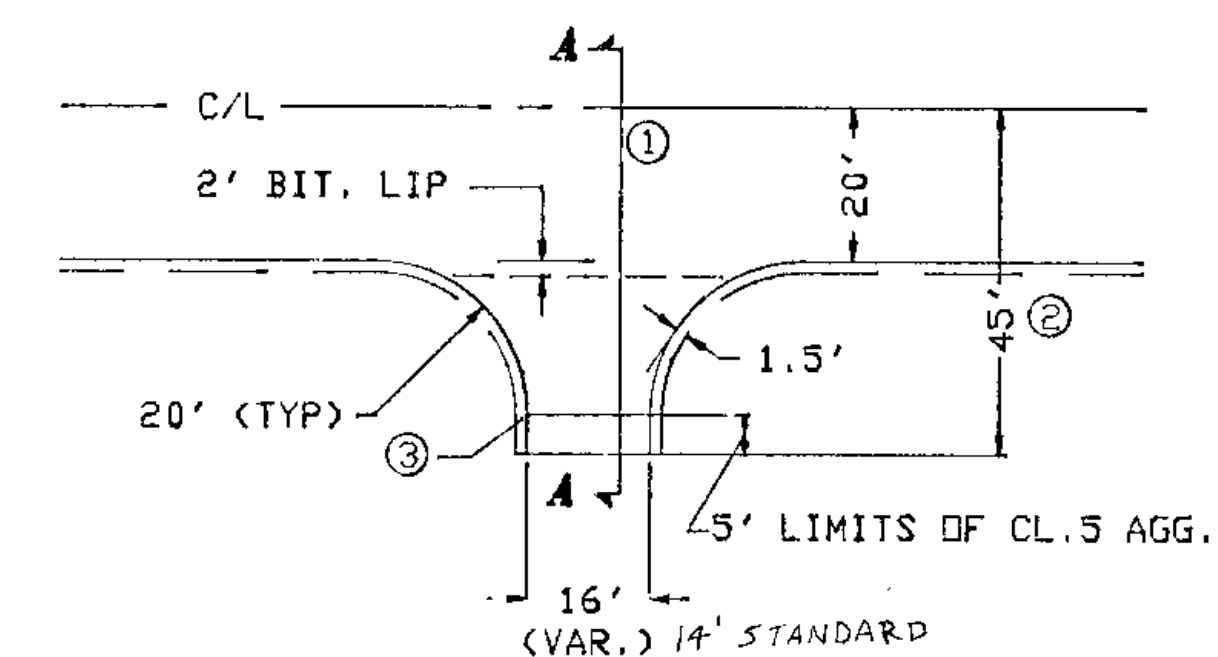
CLEARING AND GRUBBING					
STATION TO STATION	LOC.	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
384+85 TO 394+40	35'-66.5' RT.		0.70		0.70
390+30 TO 395+85	27'-60' LT.		0.50		0.50
395+55 TO 398+85	36'-61' RT.		0.15		0.15
399+13	52' RT.	1		1	
399+15	52' RT.	2		1	
399+20	52' RT.	1		1	
399+30	53' RT.	1		1	
399+65	54' RT.	1		1	
400+55	30' LT.	1		1	
401+05	41' LT.	1		1	
401+15	40' LT.	1		1	
401+18	37' LT.	1		1	
401+25	40' LT.	3		1	
401+32	37' LT.	8		1	
401+45	40' LT.	1		1	
401+52	44' LT.	1		1	
401+54	46' LT.	1		1	
402+53	50' RT.	1		1	
402+53	43' RT.	1		1	
402+93	49' LT.	1		1	
403+06	55' LT.	1		1	
403+06	49' LT.	1		1	
403+28	43' LT.	1		1	
403+38	43' LT.	1		1	
403+38	56' RT.	1		1	
403+46	43' LT.	1		1	
403+53	43' LT.	1		1	
403+57	43' LT.	1		1	
403+63	60' LT.	1		1	
403+71	43' LT.	1		1	
403+74 TO 404+75	29'-61.8' RT.		0.15		0.15
404+49	41' LT.	1		1	
404+56	41' LT.	1		1	
404+62	41' LT.	1		1	
404+69	41' LT.	1		1	
404+75	41' LT.	1		1	
404+85	41' LT.	1		1	
404+91	41' LT.	1		1	
405+27	53' LT.	1		1	
405+30	40' RT.	2		1	
405+45	31' LT.	1		1	
405+49	31' LT.	0		1	
405+20	35' LT.	1		1	
407+72	57' LT.	1		1	
409+29	60' LT.	1		1	
409+38	53' LT.	1		1	
409+72	58' LT.	1		1	
410+03	56' LT.	2		1	
410+22	50' LT.	1		1	
410+87	54' LT.	1		1	
412+98	54' LT.	2		1	
413+13	51' LT.	1		1	
413+83	46' RT.	1		1	
414+25	47' RT.	1		1	
417+07	35' RT.	1		1	
417+29	45' RT.	1		1	
420+03	42' RT.	1		1	
421+03	50' RT.	1		1	
421+36	43' RT.	1		1	
421+66	50' RT.	1		1	
423+00 TO 423+40	43'-50' RT.		0.05		0.05
423+24	38' LT.	0		1	
423+29	38' LT.	0		1	
423+58	38' LT.	0		1	
425+77 TO 429+60	37'-60' LT.		0.35		0.35
429+97	52' RT.	1		1	
430+05	34' RT.	1		1	
430+28	32' RT.	1		1	
430+54	47' LT.	1		1	
430+60	58' LT.	1		1	

CLEARING AND GRUBBING					
STATION TO STATION	LOC.	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
430+84	37' LT.	1		1	
431+40 TO 436+56	34'-60' LT.		0.55		0.55
436+56	25' RT.	1		1	
438+20	45' LT.	1		1	
439+20	46' LT.	1		1	
439+67 TO 440+48	36'-60' LT.		0.10		0.10
440+20 TO 442+95	30'-54.6' RT.		0.20		0.20
440+75	40' LT.	3		1	
440+81	52' LT.	1		1	
440+95	40' LT.	1		1	
441+08	41' LT.	1		1	
441+12	42' LT.	0		1	
441+16	40' LT.	1		1	
441+24	41' LT.	1		1	
441+29	41' LT.	1		1	
441+40	35' LT.	1		1	
441+38	43' LT.	1		1	
441+47	30' LT.	1		1	
441+55	43' LT.	0		1	
441+59	42' LT.	1		1	
441+72 TO 444+52	31'-60' LT.		0.30		0.30
442+06	33' LT.	1		1	
444+12 TO 444+93	50'-60' RT.		0.05		0.05
451+31	50' RT.	1		1	
451+58	50' RT.	2		1	
451+72	50' RT.	2		1	
452+08	48' RT.	1		1	
452+31	42' RT.	1		1	
452+50 TO 456+50	40'-60' RT.		0.35		0.35
452+56	41' RT.	1		1	
452+94	42' RT.	1		1	
453+17	42' RT.	1		1	
453+36	42' RT.	0		1	
453+53	46' RT.	1		1	
453+74	42' RT.	1		1	
453+93	42' RT.	1		1	
454+16	42' RT.	1		1	
454+38	42' RT.	1		1	
454+62	42' RT.	1		1	
455+60 TO 456+44	38'-50' RT.		0.10		0.10
456+57	04' RT.	2		1	
456+82	49' RT.	1		1	
457+06	41' RT.	1		1	
457+25	41' RT.	1		1	
457+50	50' LT.	0		1	
457+90	40' LT.	0		1	
458+08	40' RT.	1		1	
458+12	44' RT.	3		1	
458+31	39' RT.	1		1	
458+35 TO 464+65	48'-60' LT.		0.40		0.40
458+63	42' RT.	3		1	
472+50 TO 472+85	55'-60' LT.		0.05		0.05
478+00 TO 480+00	45'-80' RT.		0.15		0.15
480+56	33' LT.	1		1	
480+73	28' LT.	0		1	
480+87	30' LT.	2		1	
481+00	28' LT.	1		1	
481+00	30' LT.	0		1	
481+00 TO 483+30	45'-50' RT.		0.15		0.15
481+22	37' LT.	0		1	
481+55	29' LT.	1		1	
481+75	41' LT.	1		1	
482+08	33' LT.	1		1	
482+65	50' LT.	1		1	
485+60	25' LT.	1		1	
488+49	06' RT.	1		1	
492+23 TO 494+32	08'-60' LT.		0.35		0.35
492+81	02' RT.	1		1	
493+19	03' RT.	1		1	
TOTALS		132	4.65	121	4.65

REVISIONS			
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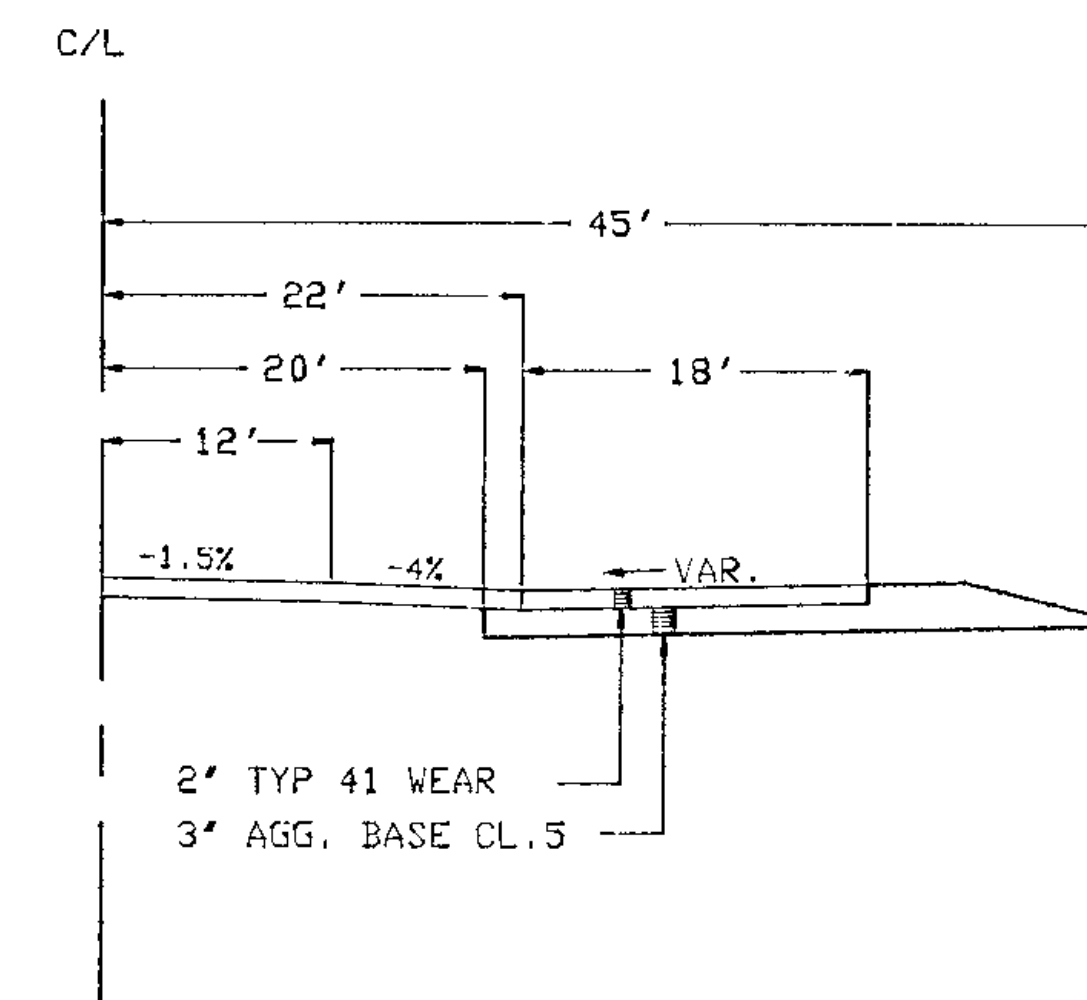
ENTRANCE CONSTRUCTION CHART						
STATION	LOC.	INPLACE ENTRANCE	NEW WIDTH	BITUMINOUS SQ. YD.	AGGREGATE SQ. YD.	REMARKS
378+66	RT.	20' SAND	20'	110	0	PARK ENTRANCE
380+57	LT.	20' BIT.	20'	0	0	RESIDENTIAL ENT.
384+15	RT.	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
385+86	LT.	14' SAND	14'	50	0	RESIDENTIAL ENTRANCE
393+34	RT.	20' SAND	20'	110	0	PARK ENTRANCE
394+73	LT.	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
394+85	RT.	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
402+44	RT.	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
403+16	LT.	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
406+42	LT.	12' BIT.	12'	60	0	RESIDENTIAL ENTRANCE
408+10	LT.	12' BIT.	12'	66	0	RESIDENTIAL ENTRANCE
410+57	LT.	12' BIT.	12'	66	0	RESIDENTIAL ENTRANCE
412+70	RT.	14' BIT.	14'	74	0	RESIDENTIAL ENTRANCE
413+70	RT.	10' SAND	14'	50	0	RESIDENTIAL ENTRANCE
416+58	RT.	14' BIT.	14'	67	0	RESIDENTIAL ENTRANCE
421+52	RT.	10' BIT.	10'	58	0	RESIDENTIAL ENTRANCE
430+41	LT.	14' SAND	14'	50	0	RESIDENTIAL ENTRANCE
440+52	LT.	10' SAND	14'	50	0	RESIDENTIAL ENTRANCE
446+50	RT.	12' BIT.	12'	66	0	RESIDENTIAL ENTRANCE
448+39	LT.	12' BIT.	12'	66	0	RESIDENTIAL ENTRANCE
451+84	RT.	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
452+03	LT.	12' SAND	20'	0	64	FIELD ENTRANCE
452+43	RT.	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
457+66	RT.	14' BIT.	14'	74	0	RESIDENTIAL ENTRANCE
459+85	RT.	14' SAND	14'	50	0	RESIDENTIAL ENTRANCE
463+18	LT.	12' SAND	20'	0	64	FIELD ENTRANCE
472+41	LT.	16' SAND	20'	0	64	FIELD ENTRANCE
475+53	RT.	12' SAND	20'	0	64	FIELD ENTRANCE
479+02	LT.	12' SAND	20'	0	64	FIELD ENTRANCE
480+42	LT.	14' SAND	14'	50	0	RESIDENTIAL ENTRANCE
493+31	RT.	10' SAND	14'	50	0	RESIDENTIAL ENTRANCE
494+00	RT.	12' SAND	14'	50	0	RESIDENTIAL ENTRANCE
TOTAL				1567	320	

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 5:1 APPROACH SIDE  
4:1 OFF-SIDE

SECTION A-A



SALVAGE & INSTALL FENCE				
STATION	LOC.	SALVAGE	INSTALL	REMARKS
380+55	RT.	18'		LINE FENCE
380+55 TO 386+93	RT.	638'	638'	INSTALL ON R/W
385+31	RT.	20'		LINE FENCE
387+50	LT.	10'		LINE FENCE
395+00 TO 400+75	LT.	575'	575'	INSTALL ON R/W
405+33	LT.	29'		LINE FENCE
413+51	LT.	32'		LINE FENCE
419+91	RT.	26'		WOOD-LINE FENCE
419+91 TO 422+61	RT.	270'	270'	WOOD-INSTALL ON R/W
422+61	RT.	27'		WOOD-LINE FENCE
422+61 TO 423+20	RT.	59'	59'	INSTALL ON R/W
436+56	LT.	25'		LINE FENCE
436+56 TO 444+52	LT.	796'	796'	INSTALL ON R/W
439+67	LT.	24'		LINE FENCE
444+52	LT.	21'		LINE FENCE
444+00 TO 444+92	RT.	92'	92'	INSTALL ON R/W
444+92	RT.	24'		LINE FENCE
448+65	LT.	27'		WOOD-LINE FENCE
448+66 TO 458+35	LT.	969'	969'	WOOD-INSTALL ON R/W
458+35	LT.	27'		WOOD-LINE FENCE
455+51 TO 456+44	RT.	93'	93'	INSTALL ON R/W
456+44	RT.	25'		LINE FENCE
458+43	RT.	24'		LINE FENCE
479+38	LT.	32'		LINE FENCE
479+38 TO 480+22	LT.	84'	84'	INSTALL ON R/W
480+22	LT.	34'		LINE FENCE
492+25 TO 493+23	RT.	98'	98'	INSTALL ON R/W
493+12	RT.	6'		LINE FENCE
493+23	RT.	6'		LINE FENCE
TOTALS		4111'	3674'	

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DATE	BY	DATE	BY

S.A.P.

RECORD DRAWINGS  
S.P. 2-8-95 BY B.L.

C.P. 89-27-07

TABULATION CHARTS

Sheet No. 6 of 130 Sheets

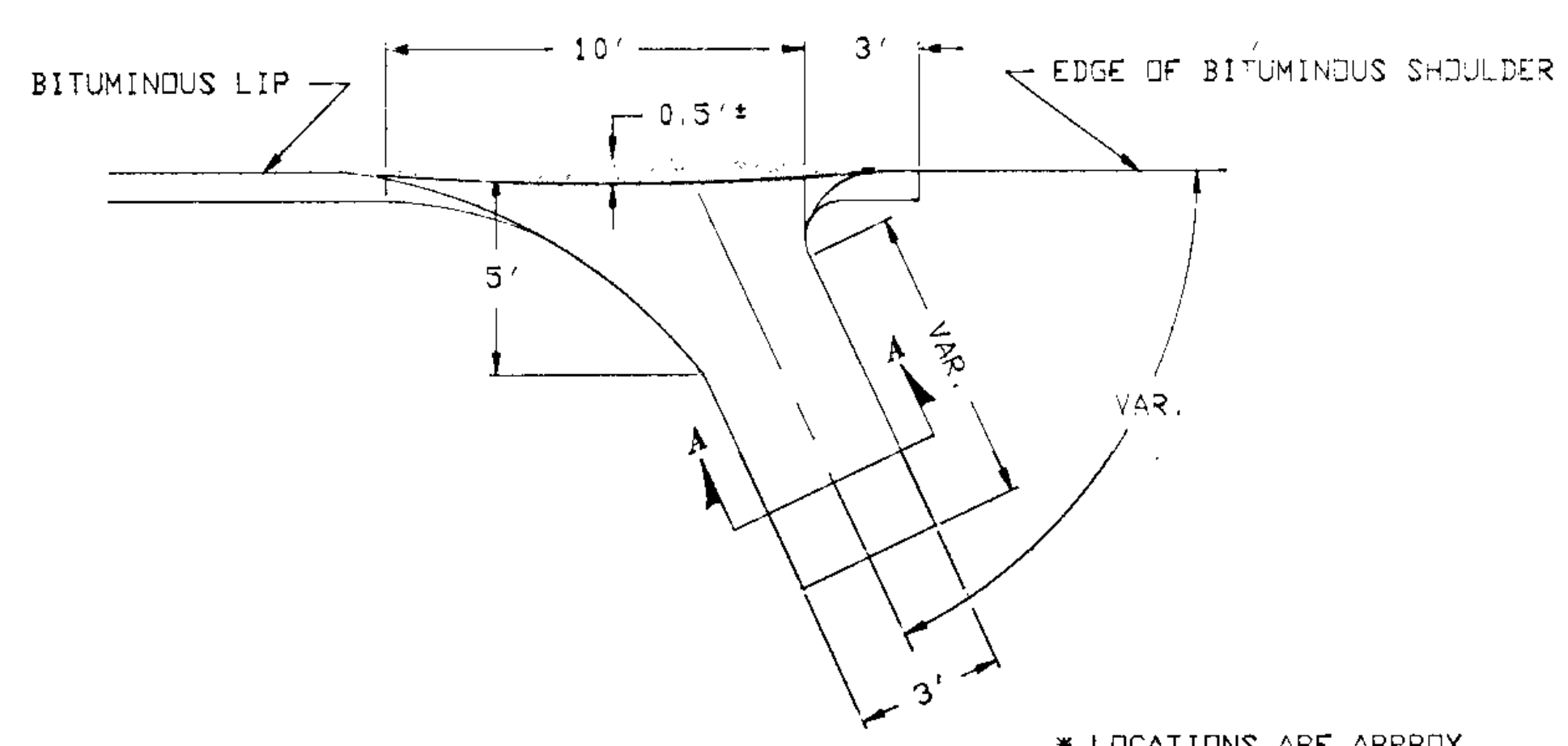
SAWING BITUMINOUS PAVEMENT		
STATION TO STATION	LOCATION	LIN. FT.
373+50	RT. SHOULDER	12
373+50 TO 382+00	12' RT.	850
382+00	RT. & LT.	46
402+28	LT.	24
406+42	LT.	12
408+10	LT.	12
410+57	LT.	12
412+70	RT.	14
416+58	RT.	14
421+52	RT.	12
446+50	RT.	12
448+39	LT.	12
457+66	RT.	14
499+19	RT. & LT.	64
TOTAL		1108

BITUMINOUS REMOVAL			
STATION TO STATION	LOCATION	DESCRIPTION	SQ. YD.
374+97 TO 382+00	RT.	REMOVE BIT. PAVED SHOULDER	766
382+00 TO 499+19	RT. & LT.	REMOVE BIT. PAVEMENT	29,500
402+28	LT.	REMOVE BIT. PAVEMENT ROAD APPROACH	133
406+42	LT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	59
408+10	LT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	59
410+57	LT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	60
412+70	RT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	62
416+58	RT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	68
421+52	RT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	49
446+50	RT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	59
448+39	LT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	59
457+66	RT.	BIT. DRIVEWAY, REMOVE BIT. PAVEMENT	65
TOTAL			30,939

GUARDRAIL			
STATION TO STATION	LOCATION	DESCRIPTION	LENGTH
366+00 TO 390+70	LT.	F. & I. PLATE BEAM GUARDRAIL	1,95'
476+50 TO 489+25	RT.	F. & I. PLATE BEAM GUARDRAIL	1,265'
477+54 TO 487+94	RT.	SALVAGE PLATE BEAM GUARDRAIL	1,040'

① DOES NOT INCLUDE 75' FOR TWO (2) ECCENTRIC LOADER BCT END TREATMENTS.

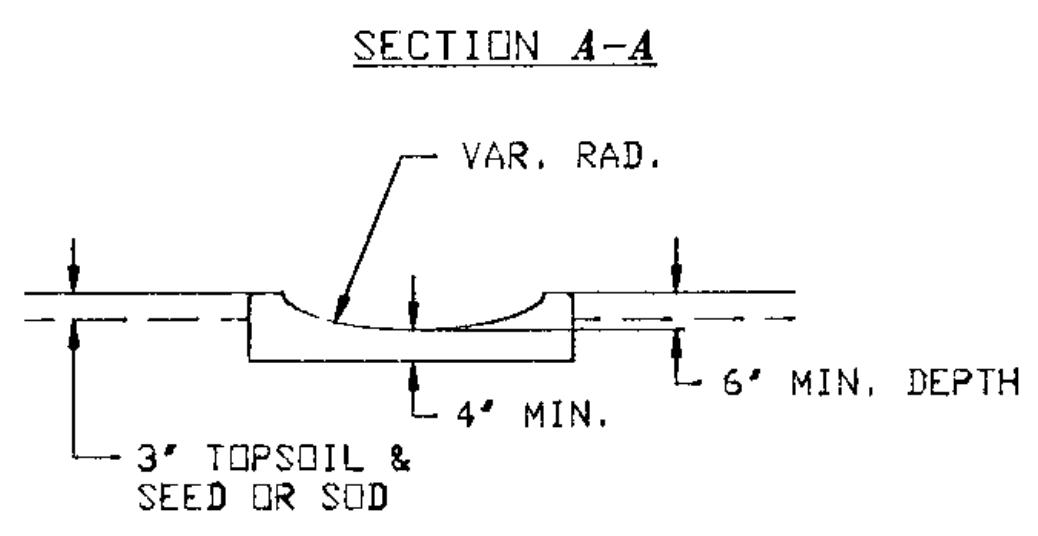
TYPICAL BITUMINOUS FLUME



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

NOTE: 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.



BITUMINOUS FLUME		
STATION	LOCATION	SQ. YDS.
377+75	LT.	9
401+50	RT.	9
410+56	RT.	9
TOTAL		27

REVISIONS			
DATE	BY	DATE	BY

TABULATION CHARTS

STORM SEWER														
STRUCT. NO.	STATION	LOC.	REMARKS	STRUCTURE TYPE	DESIGN	PAY HT. LIN. FT.	TOP CAST	OUTLET	DRAINS TO	F. & I. CAST. ASSEMBLY	FURNISH & INSTALL			
											15' R.C.P. CL III	15' R.C.P. APRON		
①	404+00	23' RT		APRON				893.75	②	A	140'			
②	404+03	18' LT		MH	C OR G	4.2	897.42	893.30	③	A	124'			
③	402+76	8' LT		MH	C OR G	4.0	896.85	892.93	④	A	94'			
④	402+76	34' LT		APRON				893.90			16'			
⑤	401+90	43' LT		APRON				892.64						
TOTALS						8.2				2	274	3		

DRAINAGE CASTING SCHEDULE			
ASSEMBLY TYPE	NUMBER REQUIRED	FRAME CASTING	GRATE CASTING
A	2	700-7 (1)	7.6 (2)

(1) STD. PLATE NO. 401C  
(2) STD. PLATE NO. 410E

DRAINAGE CHART																			
STATION	LOC.	INPLACE	REMARKS	SODDING CULV. END SQ. YD.	REMOVE CULV. PIPE LIN. FT.	SALVAGE CULV. PIPE LIN. FT.	AP.	FURNISH AND INSTALL 15' C.M.P.				FURNISH AND INSTALL 18' C.M.P.				FURNISH AND INSTALL 24' R.C.P.			
								LIN. FT.	AP.	LIN. FT.	AP.	LIN. FT.	AP.	LIN. FT.	AP.	LIN. FT.	AP.	LIN. FT.	AP.
375+50	C	24"x98" R.C.P.	CULV. TO REMAIN INPL.																
378+66	RT.		PARK ENT. NO CULV. REQ.																
384+15	RT.	12"x30" C.M.P.		13	30							30	2						
385+86	LT.			18								38	2						
393+34	RT.		20' SAND ROAD	19								54	2						
394+73	LT.		NO CULV. REQUIRED																
394+95	RT.		NO CULV. REQUIRED																
402+30	LT.		183 RD AVE. NO CULV. REQ.																
402+44	RT.		NO CULV. REQUIRED																
403+16	LT.	12"x26" C.M.P.		13	25							40	2						
406+42	LT.			13								32	2						
408+10	LT.			18								34	2						
410+56	LT.		NO CULV. REQUIRED																
412+70	RT.		NO CULV. REQUIRED																
413+70	RT.			18								35	2						
416+58	RT.			18								39	2						
416+90	LT.		185 TH LANE	24										58	2				
419+60	RT.		185 TH LANE	24										59	2				
421+50	RT.			18								34	2						
424+25	LT.		185 TH LANE	24										58	2				
430+41	LT.			18								35	2						
440+52	LT.		NO CULV. REQUIRED																
445+14	RT.		189 TH AVE	24										60	2				
446+50	RT.			18								42	2						
448+39	LT.			18								34	2						
451+84	RT.			18								55	2						
452+03	LT.			18								44	2						
452+43	RT.			18								38	2						
455+00	RT.	15"x42" C.M.P.	190 TH LANE NO CULV. REQ.		42														
457+66	RT.	15"x30" C.M.P.		18	30							24	2						
459+85	RT.	15"x30" C.M.P.		18	30							44	2						
463+18	LT.			18								62	2						
472+41	LT.			18								60	2						
475+53	RT.			18								48	2						
479+02	LT.			18								45	2						
480+42	LT.			18								34	2						
484+55	LT.	12"x14" C.M.P.	NO CULV. REQUIRED		14														
493+31	RT.		NO CULV. REQUIRED																
494+00	RT.			18								28	2						
397+00	C			22															
426+00	C			23															
451+00	C			23															
473+58	C	24"x50" R.C.P.		29		50													
497+76	C	24"x42" R.C.P.		29		42													
TOTAL				650	172	92						932	46	244	8	59	10		

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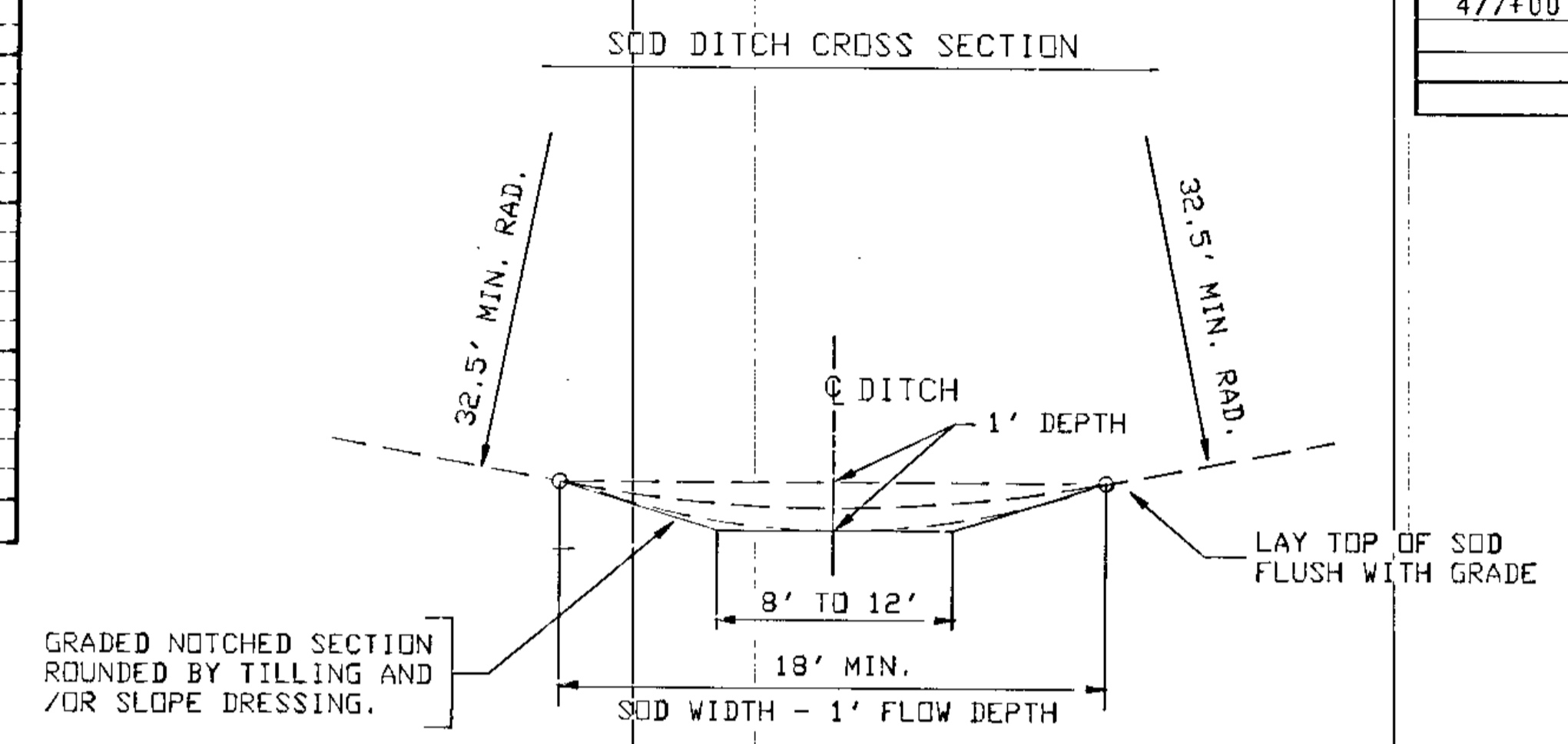


SODDING			
STATION TO STATION	LOCATION	SQ. YD	REMARKS
385+00 TO 386+00	LT.	700	YARD
383+75 TO 385+00	RT.	424	YARD
387+00 TO 395+50	LT.	567	LOW SIDE OF CURVE
394+30 TO 395+60	RT.	390	YARD
394+50 TO 395+00	LT.	200	YARD
398+00 TO 401+50	RT.	233	LOW SIDE OF CURVE
401+50 TO 403+50	RT.	578	YARD
403+50 TO 405+00	RT.	100	LOW SIDE OF CURVE
402+45 TO 412+00	LT.	4032	YARD
408+50 TO 410+50	RT.	133	LOW SIDE OF CURVE
410+50 TO 422+60	RT.	4033	YARD
414+50 TO 419+00	LT.	2600	YARD
422+60 TO 428+50	RT.	393	LOW SIDE OF CURVE
424+40 TO 426+00	LT.	747	YARD
429+50 TO 431+50	LT.	711	YARD
444+00 TO 455+50	LT.	767	LOW SIDE OF CURVE
445+40 TO 448+00	RT.	924	YARD
451+00 TO 460+30	RT.	3100	YARD
462+00 TO 469+00	LT.	467	LOW SIDE OF CURVE
470+50 TO 476+50	LT.	400	LOW SIDE OF CURVE
478+50 TO 488+50	RT.	667	LOW SIDE OF CURVE
480+00 TO 482+00	LT.	844	YARD
493+20 TO 495+00	RT.	700	YARD
PIPE CULV. APRONS		75	
TOTAL		23,785	

SILT FENCE			
STATION TO STATION	LOCATION	LIN. FT.	
387+50 TO 391+50	LT.	400	
390+00 TO 392+00	RT.	200	
395+35 TO 397+50	LT.	215	
425+50 TO 428+50	LT.	300	
465+50 TO 467+00	LT.	150	
472+00 TO 474+00	LT.	200	
477+00 TO 487+00	RT.	1000	
TOTAL		2465	

BALE CHECK		
STATION	LOCATION	QUANTITY
387+50	LT.	5
394+50	LT.	5
396+50	LT.	5
397+50	RT.	5
398+00	RT.	5
425+50	LT. & RT.	10
426+50	RT.	5
428+50	LT.	5
450+50	RT.	5
451+50	RT.	5
452+00	LT.	5
TOTAL		60

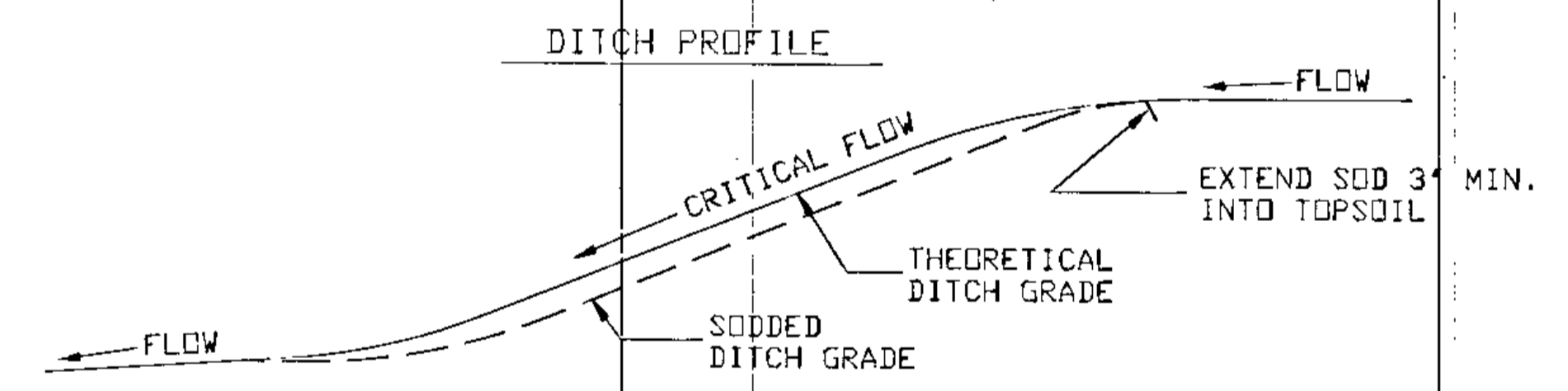
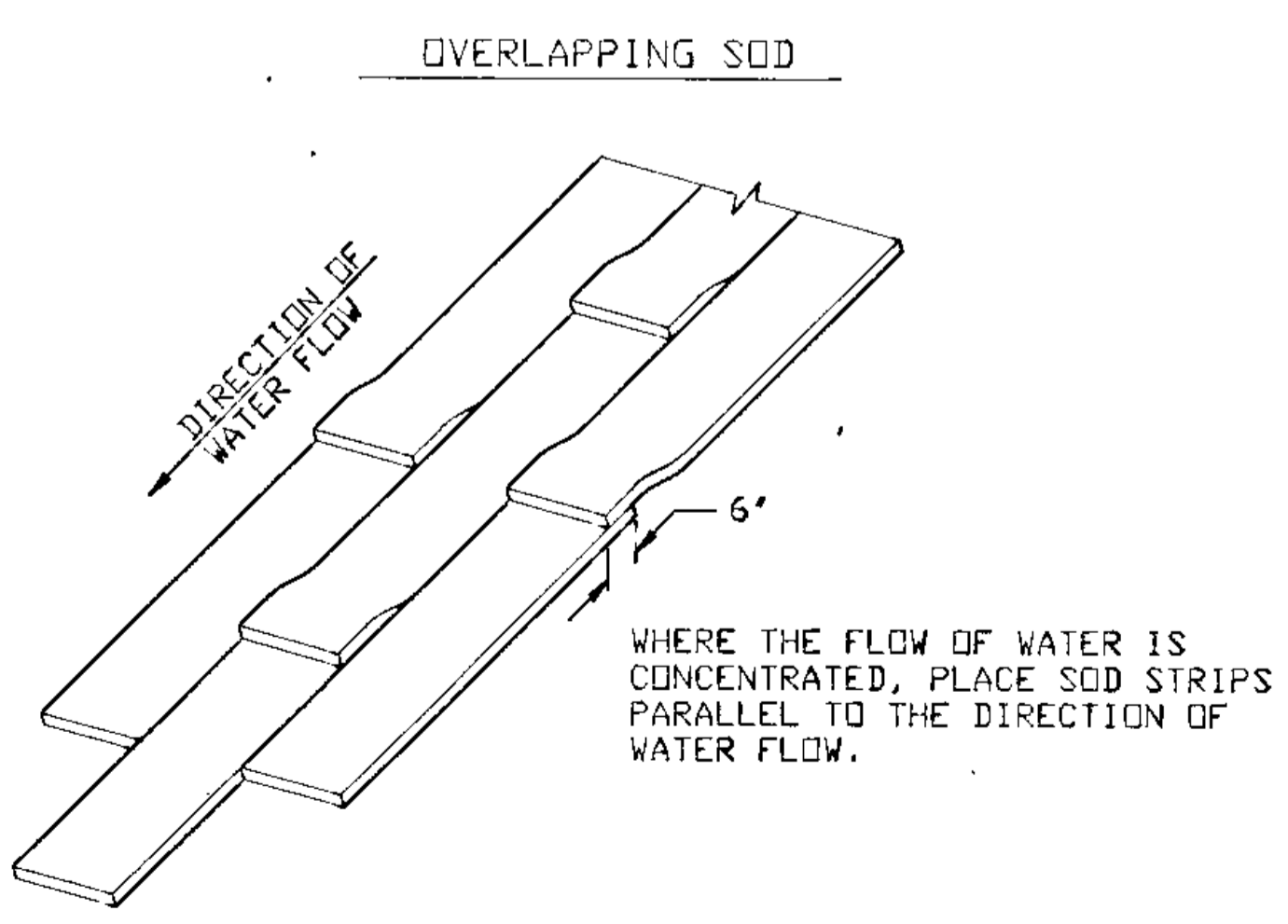
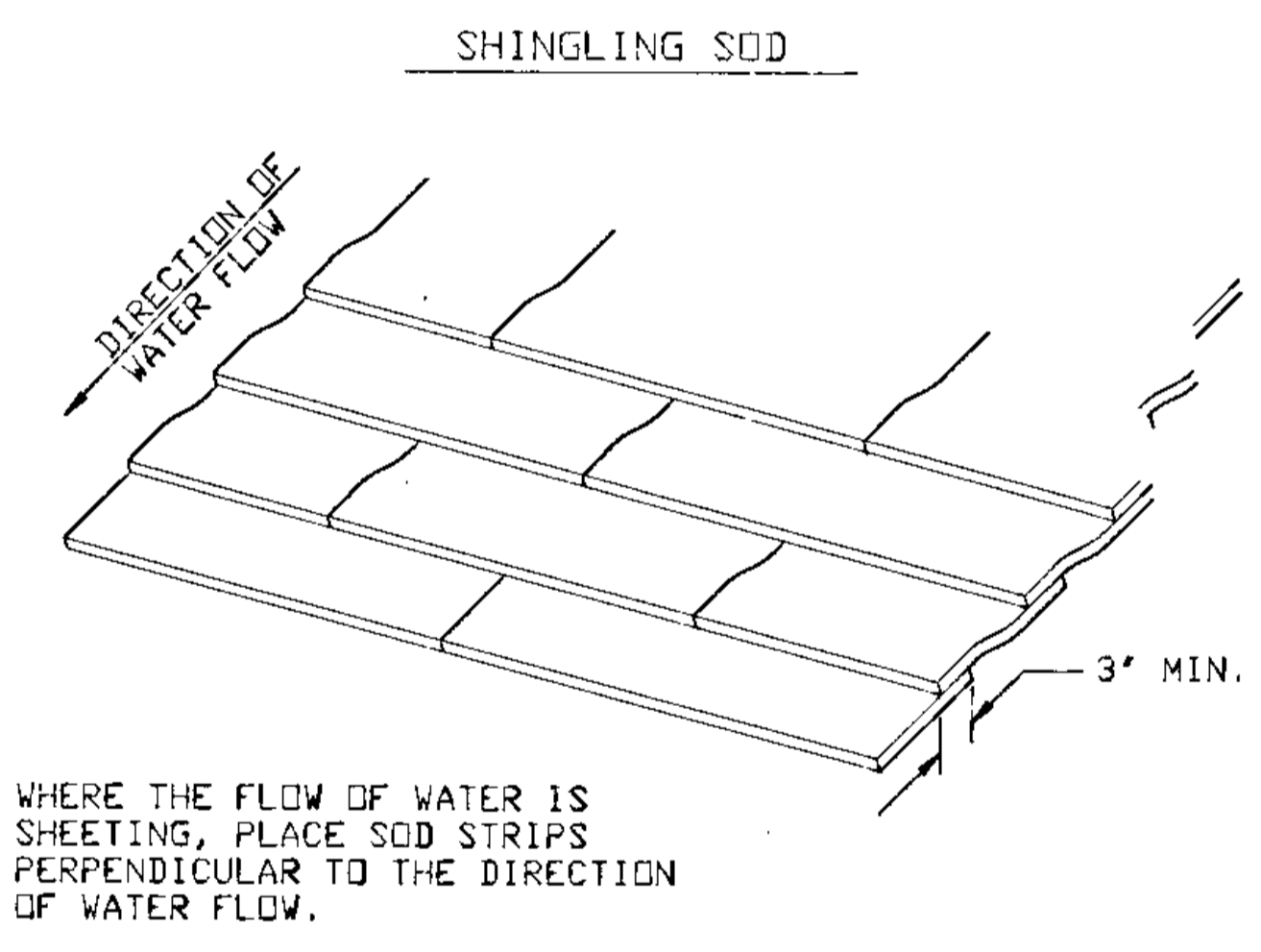
**SODDED DITCH DETAILS**



GRADED NOTCHED SECTION ROUNDED BY TILLING AND /OR SLOPE DRESSING.

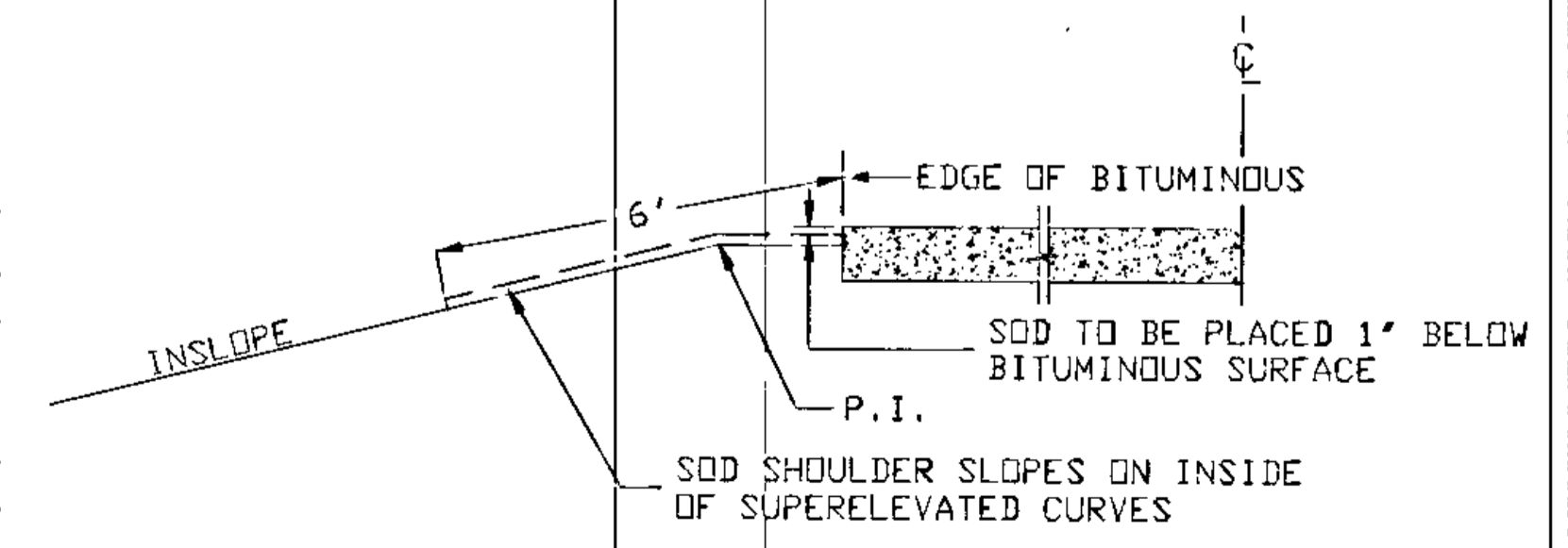
DITCHES HAVING A MINIMUM RADIUS OF 32.5 FEET AND REQUIRING SOD SHALL BE CONSTRUCTED ACCORDING TO THE ABOVE DETAILS. WHERE DITCH RADIUS IS LESS THAN 32.5 FEET, NOTCHING IS NOT REQUIRED. SOD A MINIMUM OF 18 FEET IN WIDTH.

**SPECIAL SOD PLACEMENT TECHNIQUES**

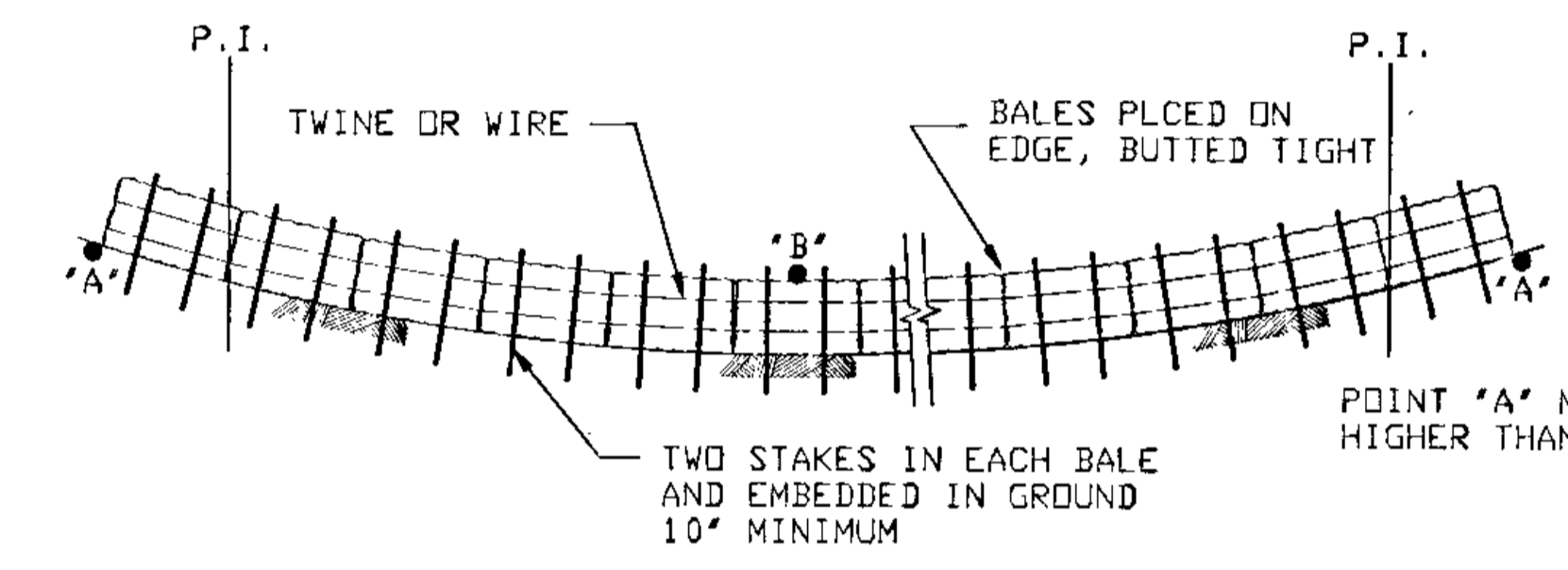


NOTE: APPLIES TO DITCH GRADE 2.0% OR GREATER.

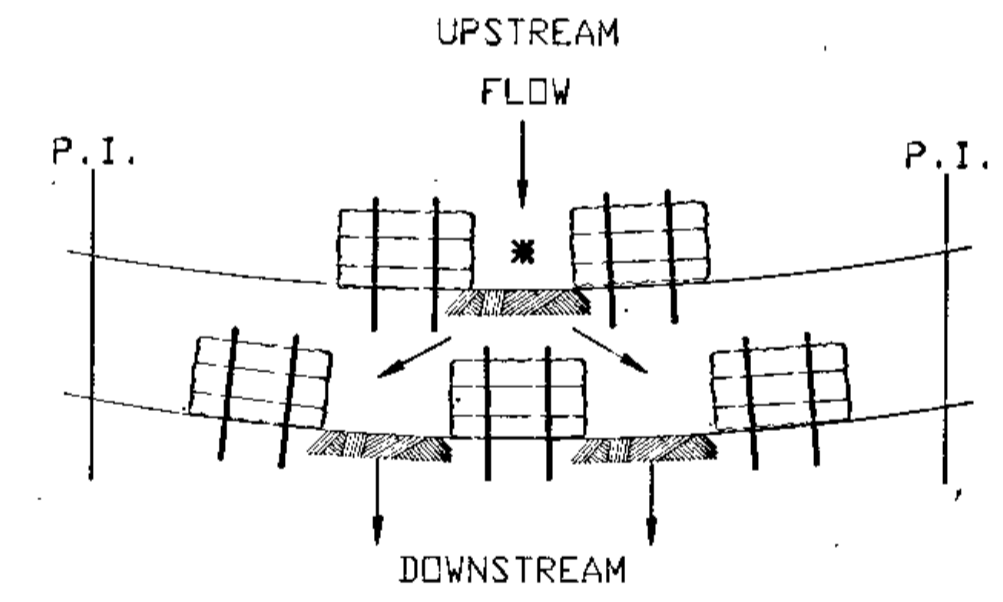
**SOD INSLOPES OF SUPPERELEVATED CURVES**



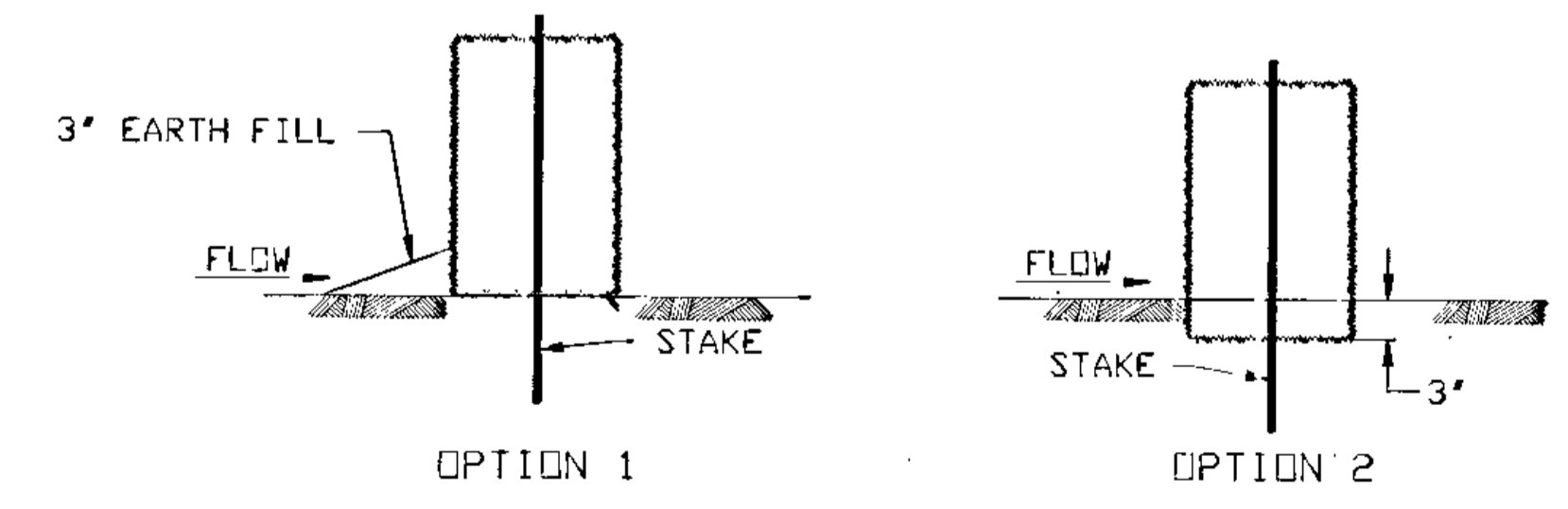
**BALE HAY OR STRAW DITCH CHECK**



**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.)



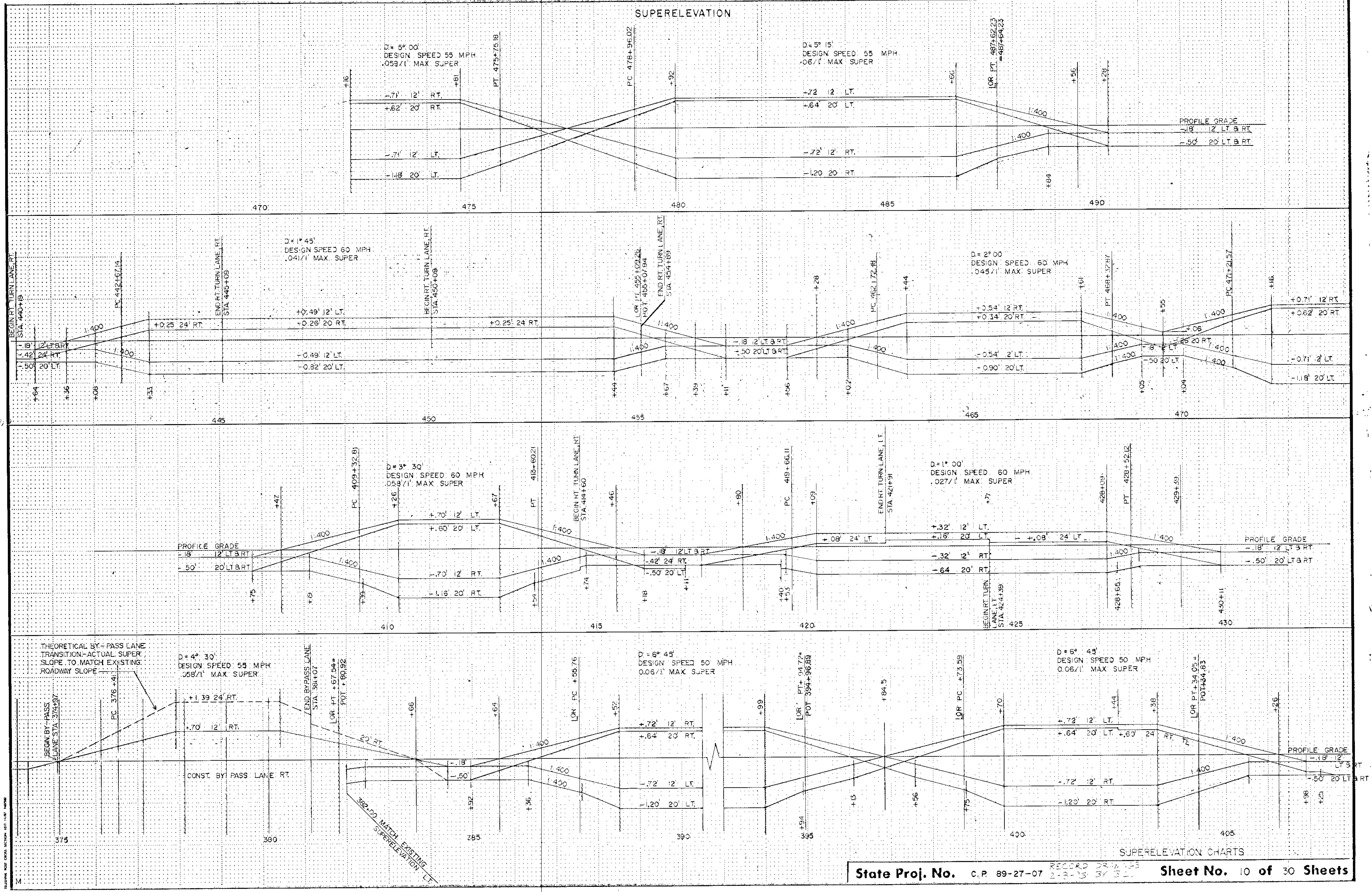
**EROSION CONTROL DETAILS**

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SUPERELEVATION






SUPERELEVATION CHARTS

BENCHMARK CONTROL TRAVERSE ORIGIN  
 16 MI. N ALONG C.S.A.H. 7 FROM R/R CROSSING  
 NEAR CENTER OF SEC 30 T 32 N. R 24 W.  
 40' WEST OF CENTER LINE C.S.A.H. 7  
 STAMPED "15 W4V 1950" U.S.G.S.

877479

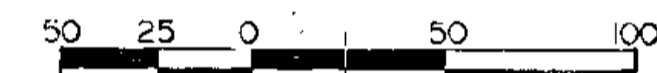
B.M. 22 A ELEV. 885.28  
 DBL. SPIKE IN PP 153' N.  
 OF C.S.A.H. 7  
 STA. 380+00 RT. 60'

B.M. 23 ELEV. 899.82  
 TOP SE. COR. STEP  
 STA. 385+80 LT. 123  
 130' N. OF C.S.A.H. 7

-  DENOTES OVERLAY & MILLING CONSTR.
-  DENOTES OVERLAY CONST.
-  DENOTES NEW FULL CONST.

SEE SHEET NO. 4  
 FOR MILLING OVERLAY &  
 BY-PASS LANE DETAILS

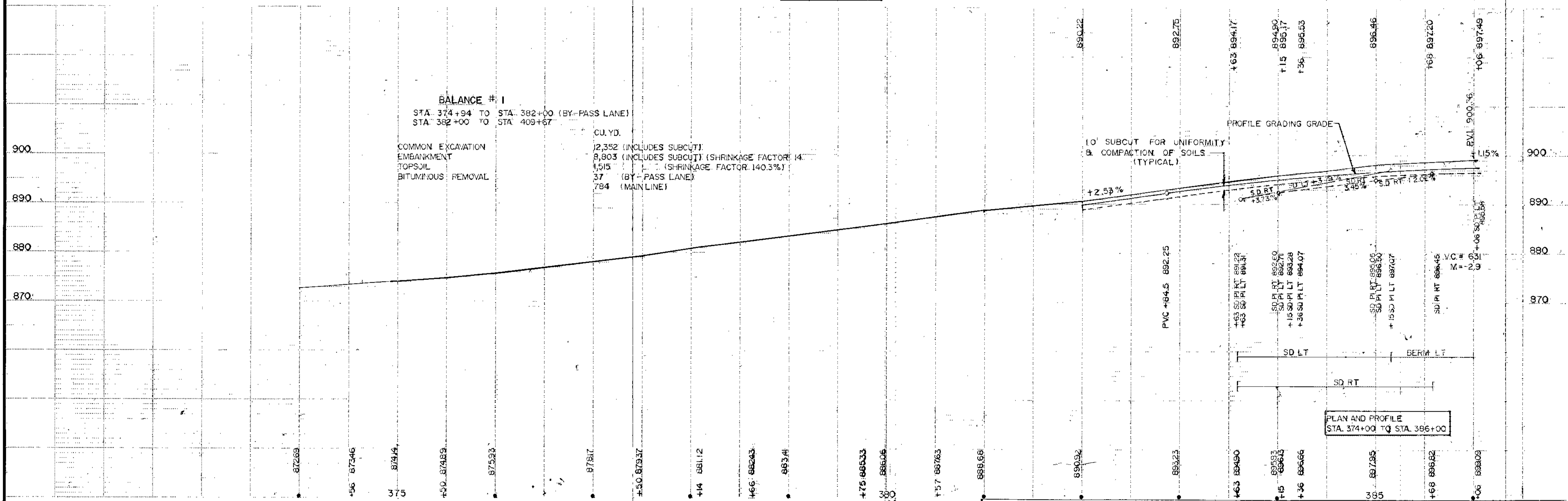
B.M. 22 ELEV. 877.73  
 SPIKE BASE 36" OAK  
 STA. 379+00 R.T. 74



**BALANCE # 1**  
 STA. 374+94 TO STA. 382+00 (BY-PASS LANE)  
 STA. 382+00 TO STA. 409+67

COMMON EXCAVATION	12,352 (INCLUDES SUBCUT)
EMBANKMENT	8,803 (INCLUDES SUBCUT) (SHRINKAGE FACTOR 14)
TOPSOIL	1,515 (SHRINKAGE FACTOR 140.3%)
BITUMINOUS REMOVAL	37 (BY-PASS LANE)
	784 (MAIN LINE)

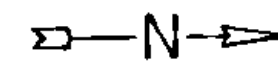
10' SUBCUT FOR UNIFORMITY  
 & COMPACTION OF SOILS  
 (TYPICAL)



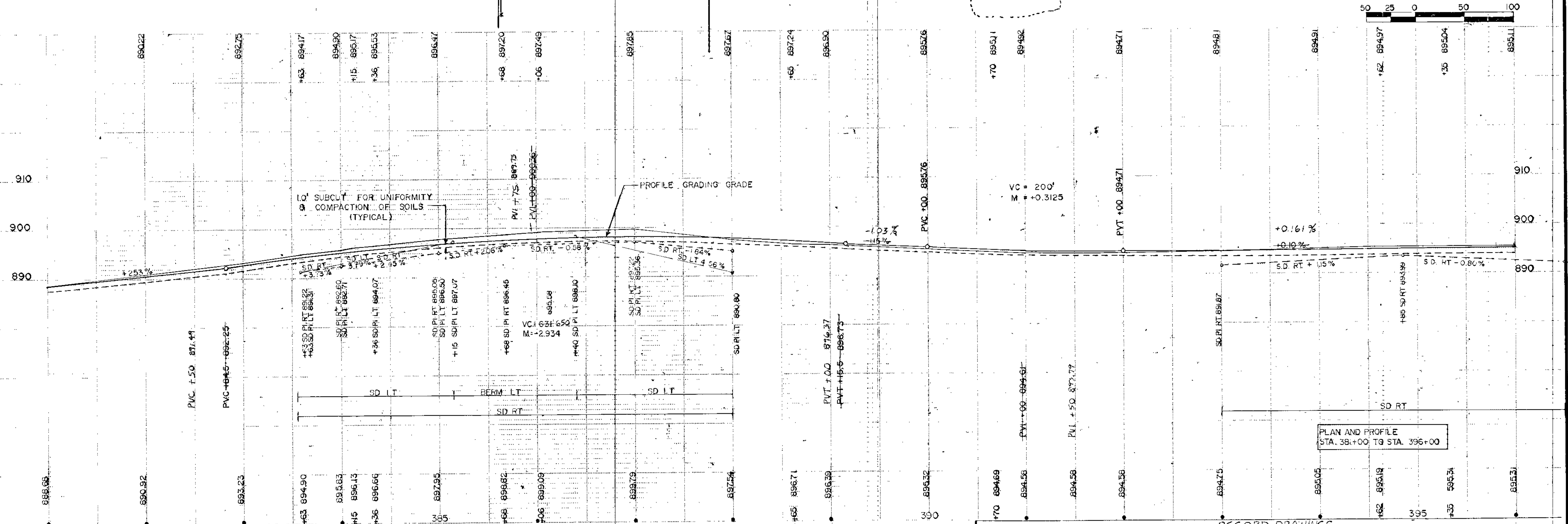
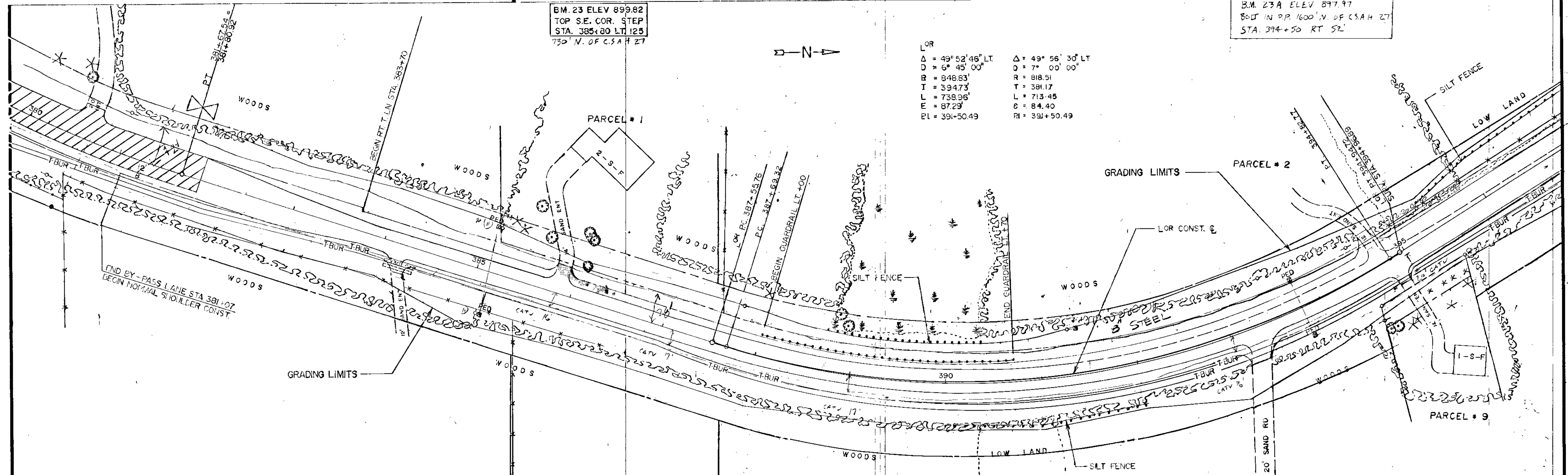
PLAN AND PROFILE  
 STA. 374+00 TO STA. 396+00

BM. 23 ELEV 899.82  
 TOP S.E. COR. STEP  
 STA. 385+80 LT. 125  
 730' N. OF C.S.A.H. 27

BM. 23A ELEV 897.97  
 80 FT IN D.P. 1600' N. OF C.S.A.H. 27  
 STA. 394+50 RT. 52'



LOR  
 $\Delta = 49^\circ 52' 46''$  LT.  $\Delta = 49^\circ 56' 30''$  LT.  
 $D = 6^\circ 45' 00''$   $D = 7^\circ 00' 00''$   
 $B = 848.83'$   $R = 818.51'$   
 $T = 394.73'$   $T = 381.17'$   
 $L = 738.96'$   $L = 713.45'$   
 $E = 87.23'$   $E = 84.40'$   
 $PI = 391+50.49$   $PI = 391+50.49$



PLAN AND PROFILE  
 STA. 381+00 TO STA. 396+00

BM. 24 ELEV. 899.53  
TOP SE COR BOTT STEP  
STA. 403+89 LT 125

100 N. OF 183<sup>RD</sup> AVE  
HOUSE NO. 18325

GRADING LIMITS

FBI 24" RCP W/APR  
STA. 397+00

LOW LAND

SILT FENCE

N

VALVE 305

183 RD AVE

PARCEL # 3

PARCEL # 4

PARCEL # 5

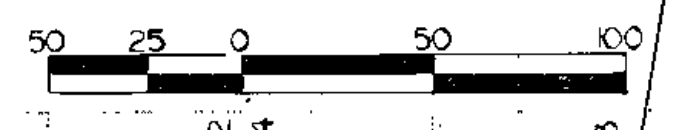
PARCEL # 6

PARCEL # 10

LOR CONST.

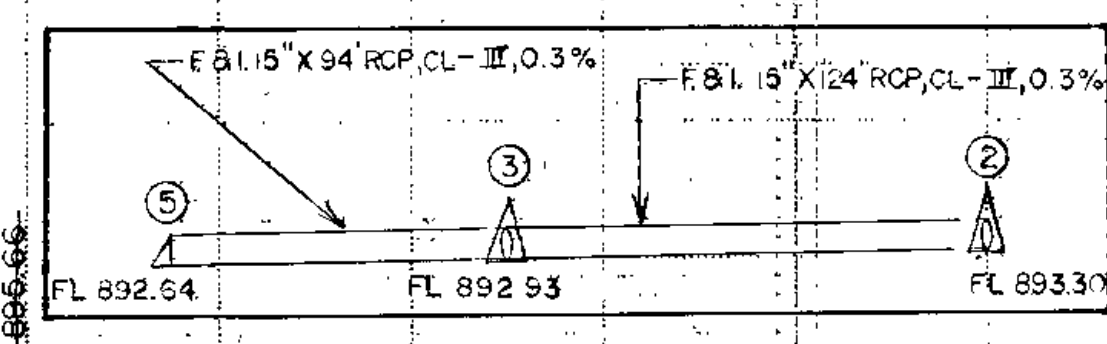
- Δ = 37° 50' RT
- D = 7° 05' 00"
- R = 818.51'
- L = 540.48'
- T = 280.51'
- E = 46.73'
- PI = 401+64.4
- LOR
- Δ = 37° 49' 53" RT
- D = 6° 45' 00"
- R = 848.83'
- L = 560.48'
- T = 290.89'
- E = 48.46'
- PI = 401+64.48

GRADING LIMITS



SEE SHEETS B & 22  
FOR ADDITIONAL STORM  
SEWER INFORMATION.

10' SUBCUT FOR UNIFORMITY  
& COMPACTION OF SOILS  
(TYPICAL)



PROFILE GRADING GRADE

VC + 100'  
M + 0.06%

VC + 100'  
M + 0.053%

+0.17%  
+0.21%

FL 892.07  
FL 889.05

SD P.I. RT. 892.27  
SD P.I. LT. 899.15

SD P.I. RT. 893.56  
SD P.I. LT. 896.20

SD P.I. RT. 893.96  
SD P.I. LT. 892.50

SD P.I. RT. 892.64  
SD P.I. LT. 896.43

SD P.I. RT. 892.75  
SD P.I. LT. 896.75

SD P.I. RT. 892.75  
SD P.I. LT. 896.75

SD P.I. RT. 892.75  
SD P.I. LT. 896.75

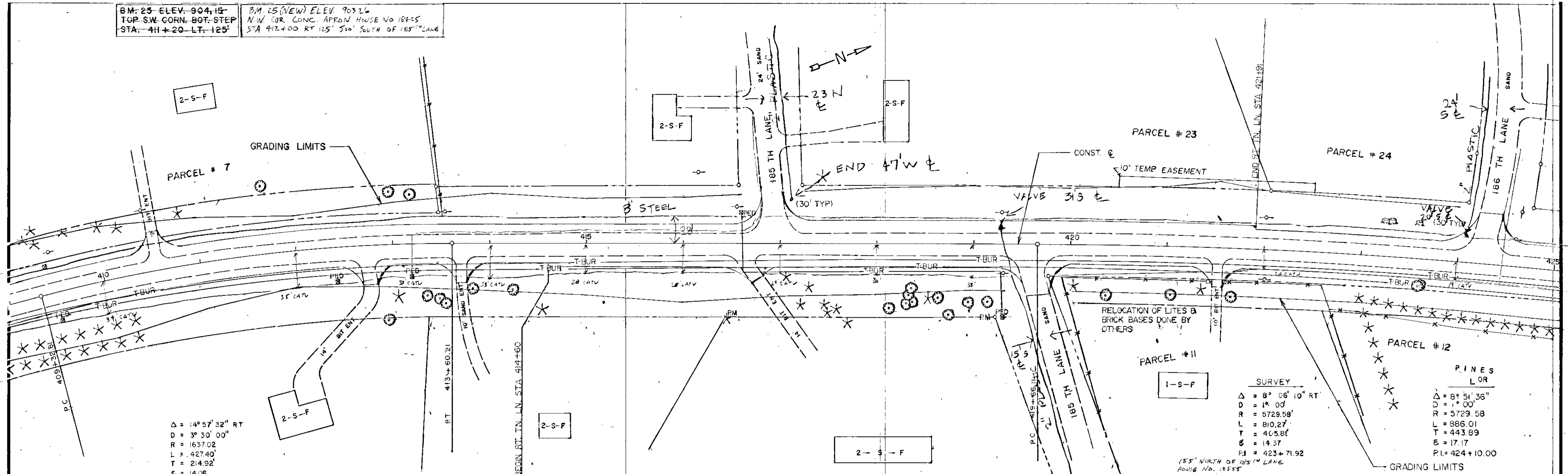
SD P.I. RT. 892.75  
SD P.I. LT. 896.75

SD P.I. RT. 892.75  
SD P.I. LT. 896.75

SD P.I. RT. 892.75  
SD P.I. LT. 896.75

PLAN AND PROFILE  
STA. 395+00 TO STA. 410+00

B.M. 25 ELEV. 904.15  
 TOP SW CORN. BOT. STEP  
 STA. 411+20 LT. 125'  
 B.M. 25 (NEW) ELEV. 903.26  
 N.W. COR. CONC. APRON HOUSE NO. 18445  
 STA. 412+00 RT. 125' 500' SOUTH OF 185' LANE

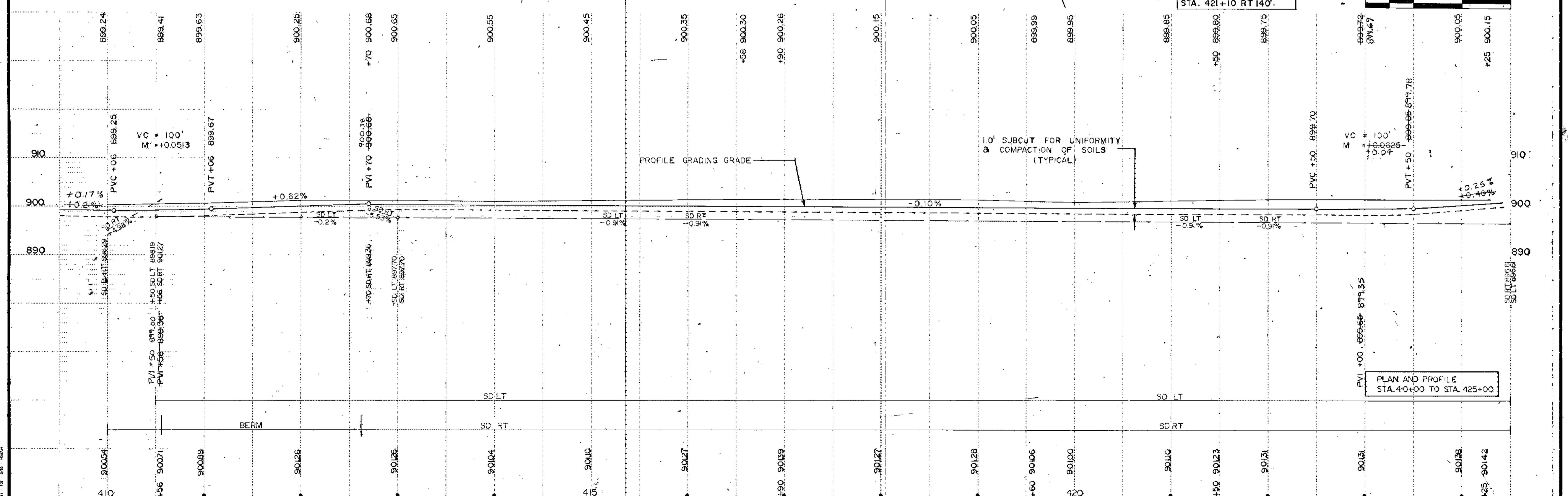
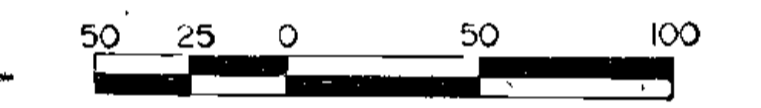


$\Delta = 14^{\circ} 57' 32''$  RT  
 $D = 3^{\circ} 30' 00''$   
 $R = 1637.02$   
 $L = 427.40'$   
 $T = 214.92'$   
 $C = 14.06$   
 $PI = 411+47.73$

SURVEY  
 $\Delta = 8^{\circ} 06' 10''$  RT  
 $D = 1^{\circ} 00'$   
 $R = 5729.58'$   
 $L = 810.27'$   
 $T = 405.81'$   
 $C = 14.37$   
 $PI = 423+71.92$   
 155' NORTH OF 185' LANE  
 HOUSE NO. 18555

PINES  
 L OR  
 $\Delta = 8^{\circ} 51' 36''$   
 $D = 1^{\circ} 00'$   
 $R = 5729.58$   
 $L = 886.01$   
 $T = 443.69$   
 $C = 17.17$   
 $PI = 424+10.00$

B.M. 26 ELEV. 90134,  
 TOP NW CORN. BOT. STEP  
 STA. 421+10 RT 140'



PLAN AND PROFILE  
 STA. 40+00 TO STA. 425+00

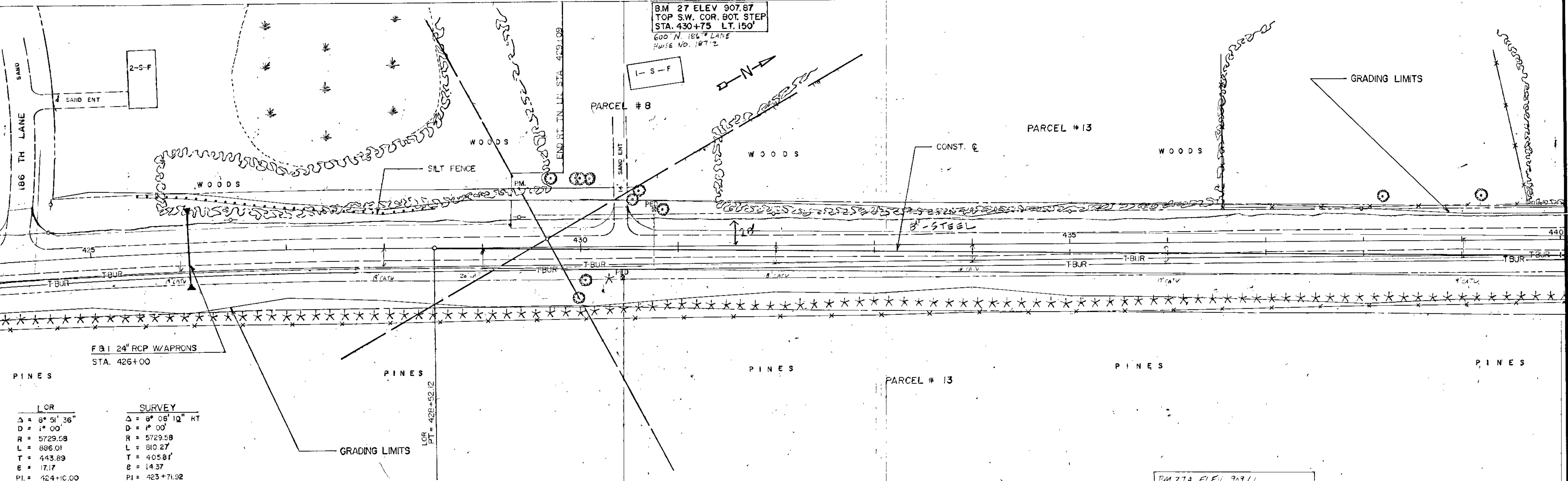
B.M. 27 ELEV. 907.87  
 TOP S.W. COR. BOT. STEP  
 STA. 430+75 LT. 150'  
 600' N. 186° LANE  
 HOUSE NO. 187-2

1-S-F

PARCEL # 8

PARCEL # 13

GRADING LIMITS

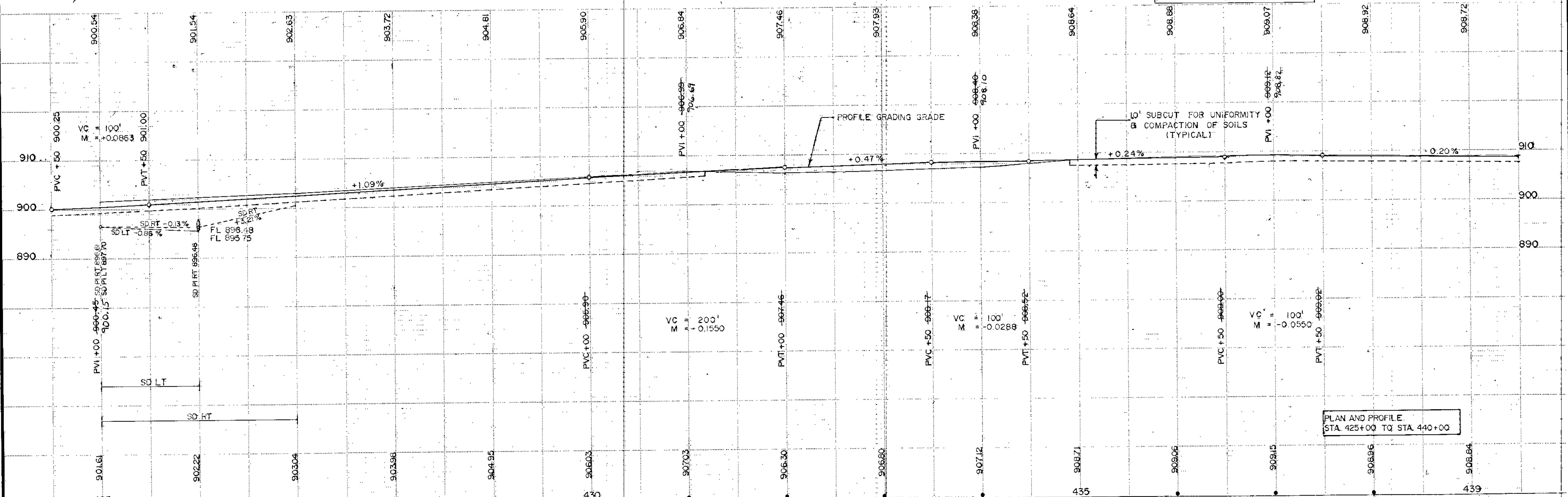
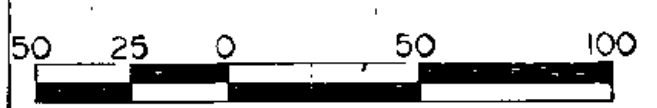


LCR  
 $\Delta = 8^\circ 51' 36''$   
 $D = 1^\circ 00'$   
 $R = 5729.58$   
 $L = 896.01$   
 $T = 443.89$   
 $E = 17.17$   
 $PI = 424+10.00$

SURVEY  
 $\Delta = 8^\circ 08' 12''$  RT  
 $D = 1^\circ 00'$   
 $R = 5729.58$   
 $L = 810.27$   
 $T = 405.81$   
 $E = 14.37$   
 $PI = 423+71.92$

FBI 24" RCP W/APRONS  
 STA. 426+00

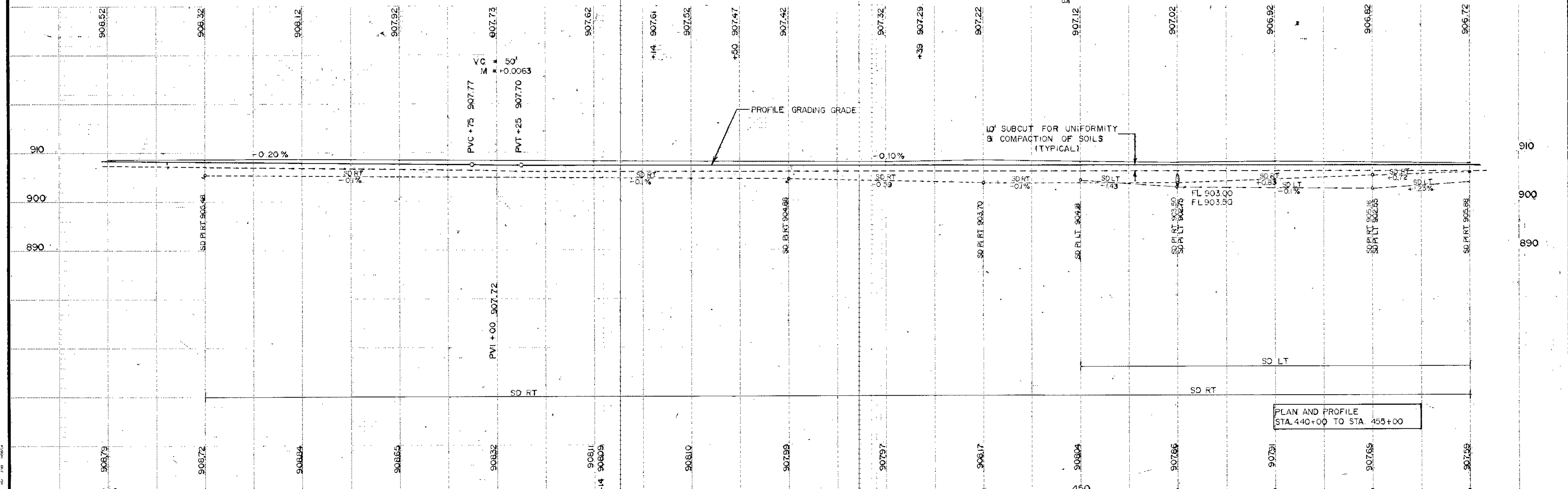
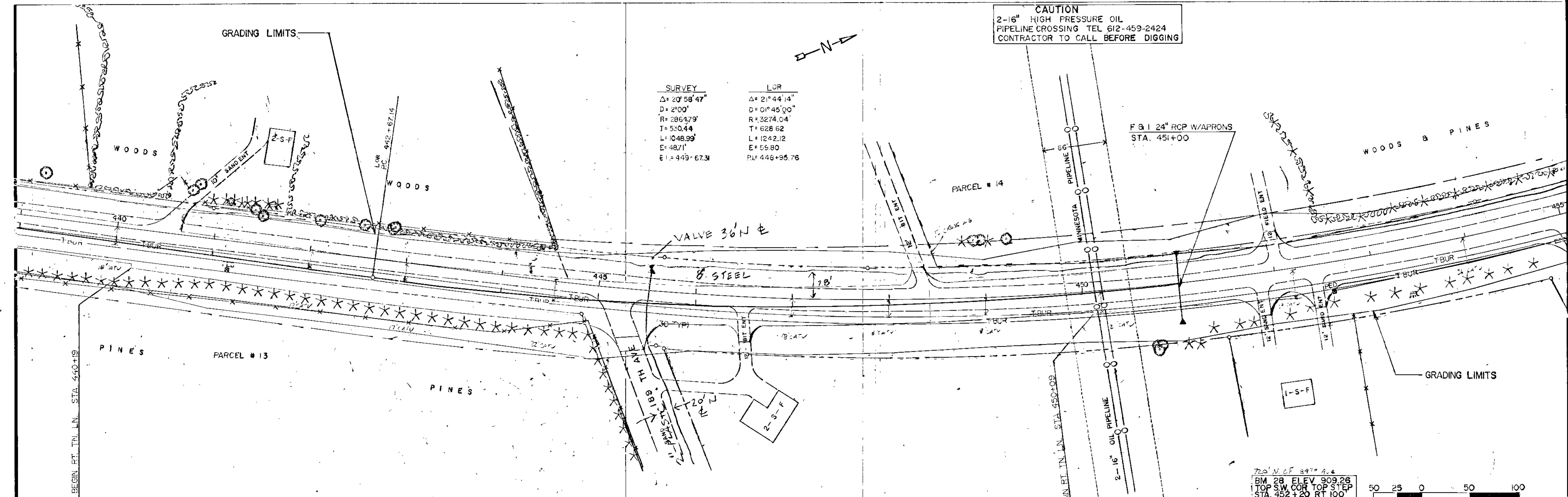
B.M. 27A ELEV. 907.61  
 DBL SPR IN PINE 132.5' N. OF 26" LV  
 STA 438+00 RT 65'



PLAN AND PROFILE  
 STA. 425+00 TO STA. 440+00

**CAUTION**  
 2-16" HIGH PRESSURE OIL  
 PIPELINE CROSSING TEL 612-459-2424  
 CONTRACTOR TO CALL BEFORE DIGGING

SURVEY		LOR	
$\Delta = 20^\circ 58' 47"$	$\Delta = 21^\circ 44' 14"$	$\Delta = 21^\circ 44' 14"$	
$D = 2^\circ 00'$	$D = 0^\circ 45' 00"$	$D = 0^\circ 45' 00"$	
$R = 286479'$	$R = 3274.04'$	$R = 3274.04'$	
$T = 530.44'$	$T = 628.62'$	$T = 628.62'$	
$L = 1048.99'$	$L = 1242.12'$	$L = 1242.12'$	
$E = 48.71'$	$E = 55.80'$	$E = 55.80'$	
$E1 = 449.67.31$	$P1 = 448.95.76$	$P1 = 448.95.76$	

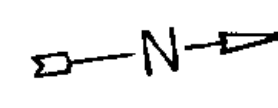


PLAN AND PROFILE  
 STA. 440+00 TO STA. 453+00



GRADING LIMITS

$\Delta = 11^\circ 12' 49''$  LT  
 $D = 2^\circ 00'$   
 $R = 2864.79$   
 $T = 281.24$   
 $L = 560.68$   
 $E = 13.80$   
 $PI = 465+73.71$



WOODS

PARCEL # 15

WOODS

SILT FENCE

LOW LAND

460

465

470

LOR  
PT. 455+09.26  
SUMP  
POT 455+07.94

CONST. E

PC 462+92.18

PT. 468+53.15

130 TYP

190 TH LANE  
SAND

WOODS

I-S-F

PARCEL # 19

PARCEL # 15

250' N OF 10" IN

I-S-F

46+00 DROP PROFILE GRADE 0.15%  
USE SAME PROFILE %

GRADING LIMITS



BM. 29 ELEV. 907.68  
TOP S.W. COR. TOP STEP  
STA. 457+50 RT. 100.  
HOUSE # 19059

BALANCE # 2  
STA 409+67 TO STA 475+75

COMMON EXCAVATION  
EMBANKMENT  
TOPSOIL  
BITUMINOUS REMOVAL

CU. YD.  
25,118 (INCLUDES SUBCUT)  
17,824 (INCLUDES SUBCUT) (SHRINKAGE FACTOR 140.9%)  
3,484 (SHRINKAGE FACTOR 132%)  
1,914

PROFILE GRADING GRADE

10' SUBCUT FOR UNIFORMITY  
COMPACTION OF SOILS  
(TYPICAL)

910

910

900

900

VC = 100'  
M = -0.0725

PVC +00 906.62

PVT +00 904.79

PVI +00 904.87

VC = 100'  
M = +0.0463

PVC +00 905.21

PVT +00 904.72

907.25

907.20

906.66

906.09

905.31

904.48

903.86

903.29

902.67

902.33

902.12

901.96

901.92

901.76

901.79

455

460

465

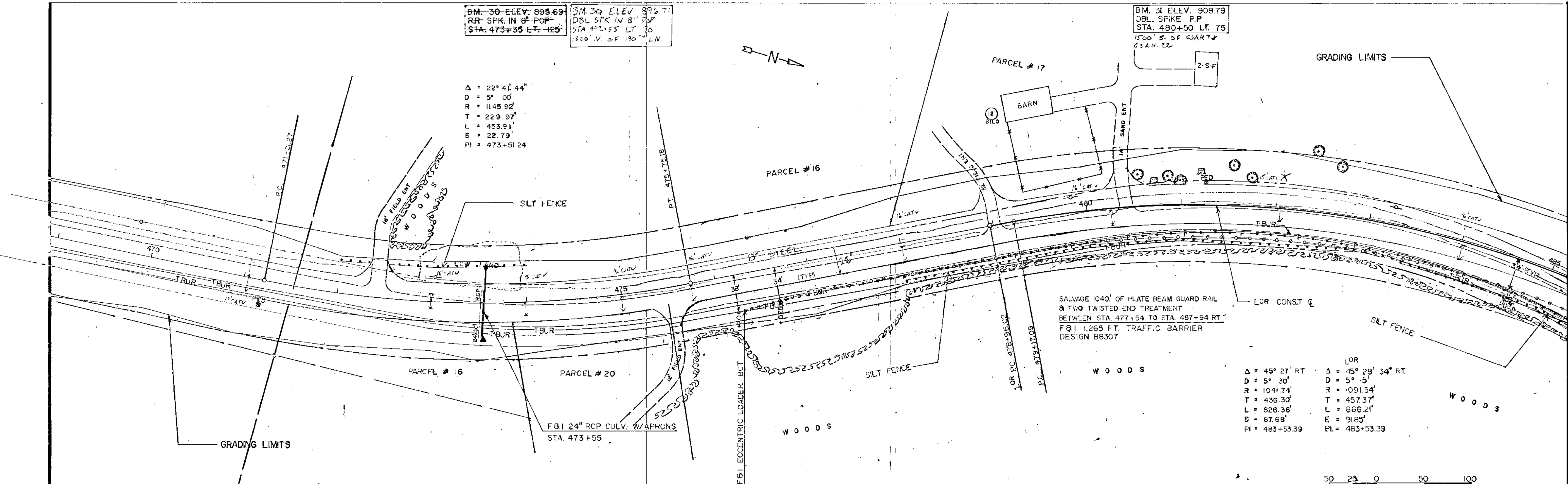
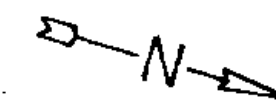
469

PLAN AND PROFILE  
STA. 455+00 TO STA. 470+00

BM-30 ELEV. 895.69  
 RR SPK IN 8" POP  
 STA. 473+35 LT. 125'  
 800' V. OF 190' LN.

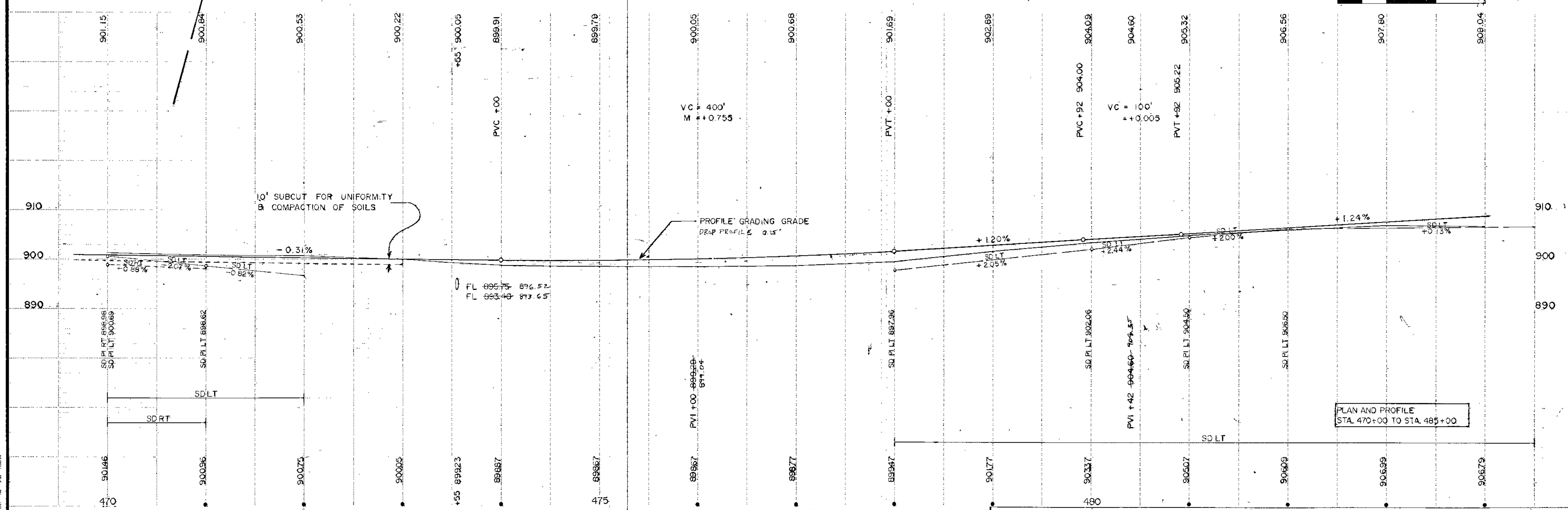
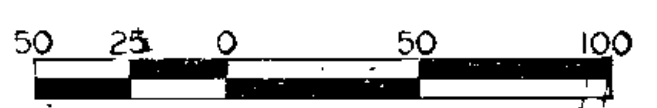
$\Delta = 22^\circ 41' 44''$   
 $D = 5^\circ 00'$   
 $R = 1145.92'$   
 $T = 229.97'$   
 $L = 453.91'$   
 $B = 22.79'$   
 $PI = 473+51.24$

BM. 31 ELEV. 908.79  
 DBL SPIKE P.P.  
 STA. 480+50 LT. 75'  
 1500' S. OF CSAH 22  
 C.S.A.H. 22



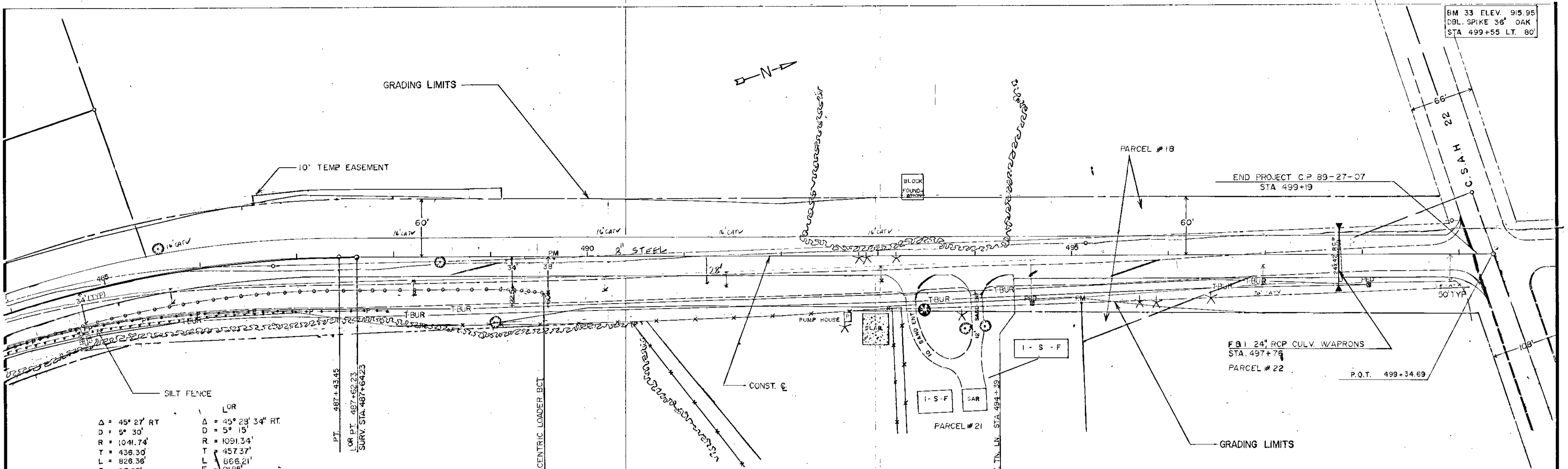
SALVAGE 1040' OF PLATE BEAM GUARD RAIL  
 & TWO TWISTED END TREATMENT  
 BETWEEN STA. 477+54 TO STA. 487+94 RT.  
 FBI 1,265 FT. TRAFFIC BARRIER  
 DESIGN B8307

WOODS  
 $\Delta = 45^\circ 27' 34''$  RT  
 $D = 5^\circ 30'$   
 $R = 1041.74'$   
 $T = 436.30'$   
 $L = 826.36'$   
 $C = 87.68'$   
 $PI = 485+53.39$



PLAN AND PROFILE  
 STA. 470+00 TO STA. 485+00

BM 33 ELEV. 915.95  
 DBL SPIKE 36" OAK  
 STA 499+55 LT. 80'



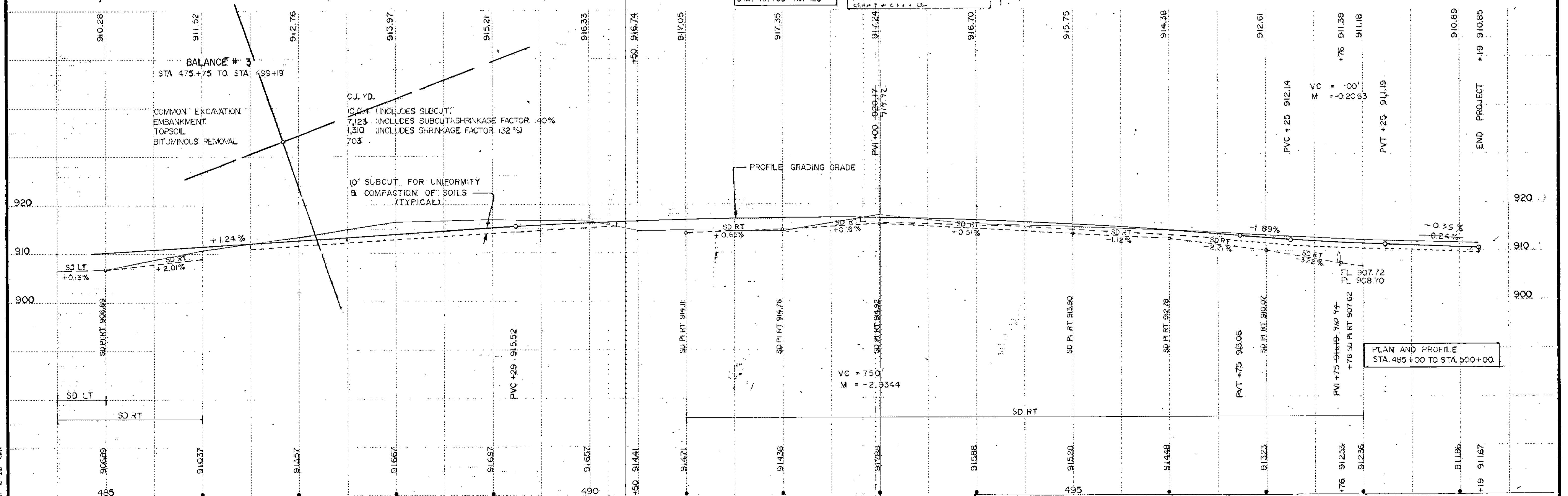
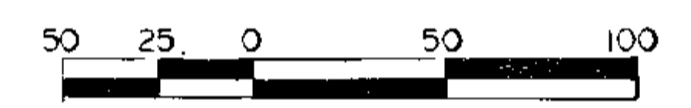
**Curve Data:**

$\Delta = 45^\circ 27' RT$	$\Delta = 45^\circ 23' 34'' RT$
$D = 5^\circ 30'$	$D = 5^\circ 15'$
$R = 1041.74'$	$R = 1091.34'$
$T = 436.30'$	$T = 457.37'$
$L = 828.36'$	$L = 866.21'$
$E = 87.68'$	$E = 91.65'$
$PI = 483+53.39$	$PI = 483+53.39$

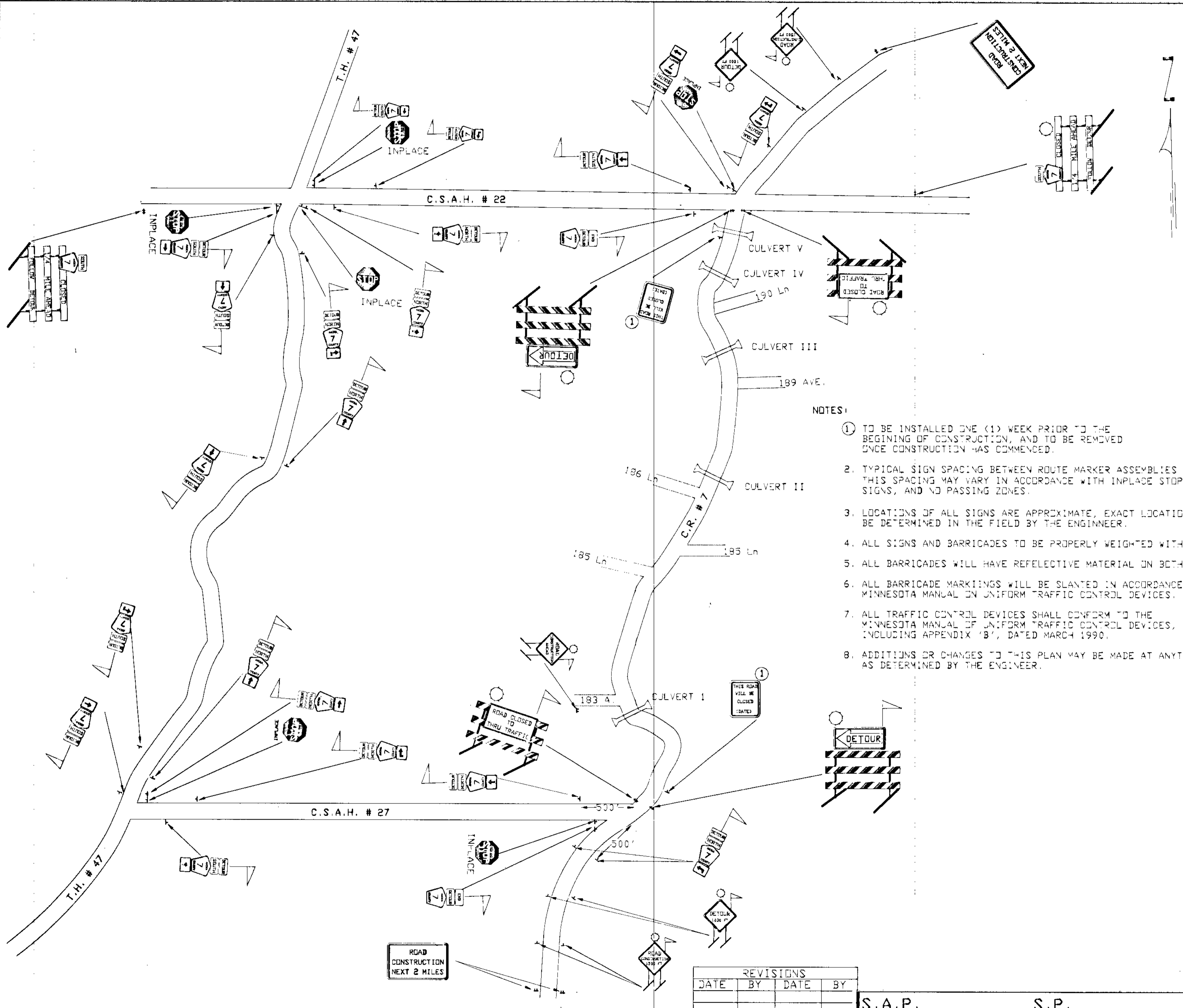
PT. 487+43.45  
 LOR PT. 487+62.23  
 SURV. STA. 487+64.23

BM 32 ELEV. 915.24  
 R.R. SPIKE ROOT 18" OAK  
 STA. 491+50 RT. 125'

BM 31A ELEV. 918.97  
 SE COR. DWG. HOUSE No. 19625  
 STA 494+25 RT. 75', 51' SOUTH OF  
 C.S.A.H. 22



PLAN AND PROFILE  
 STA. 485+00 TO STA. 500+00

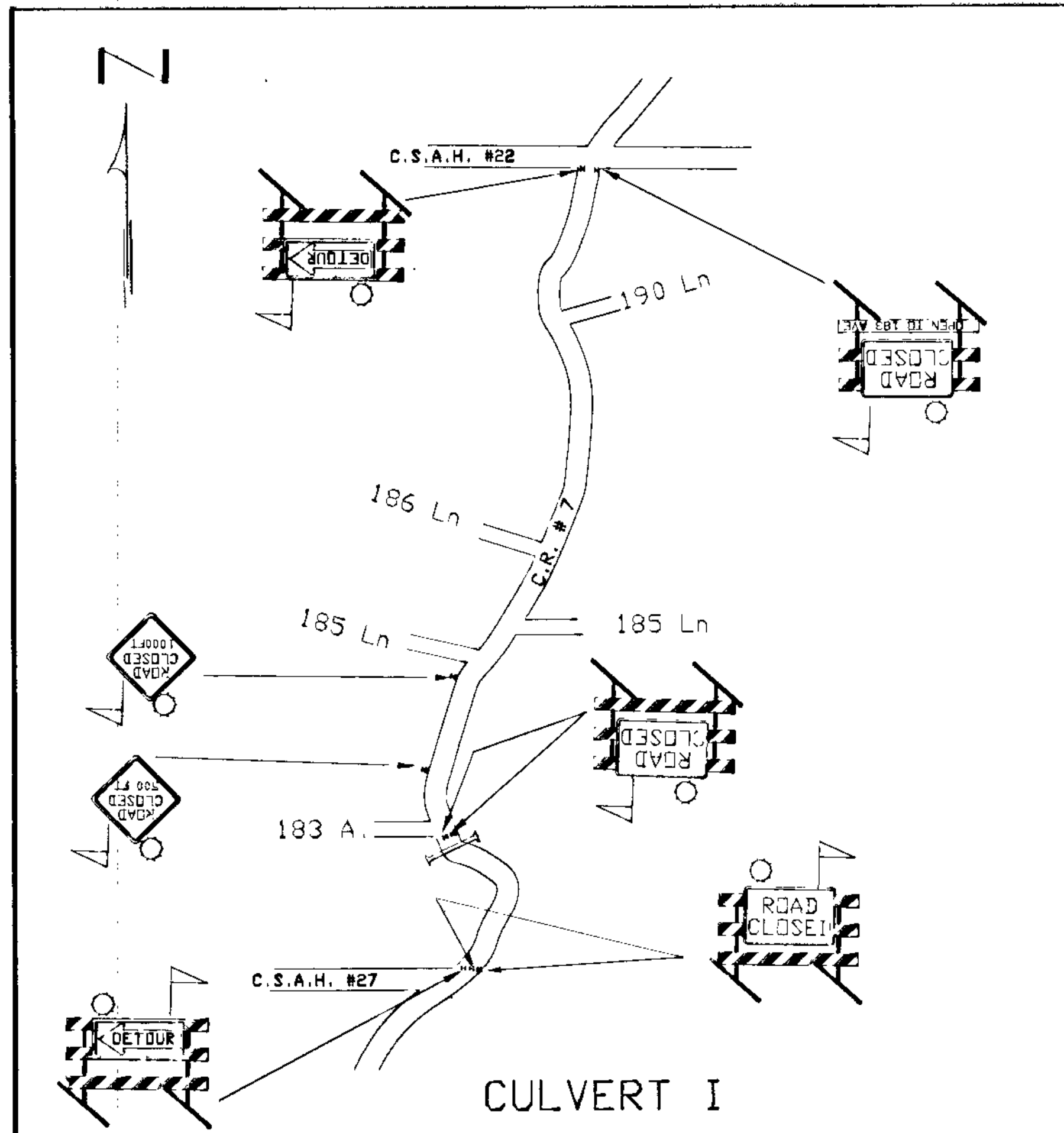


NOTES:

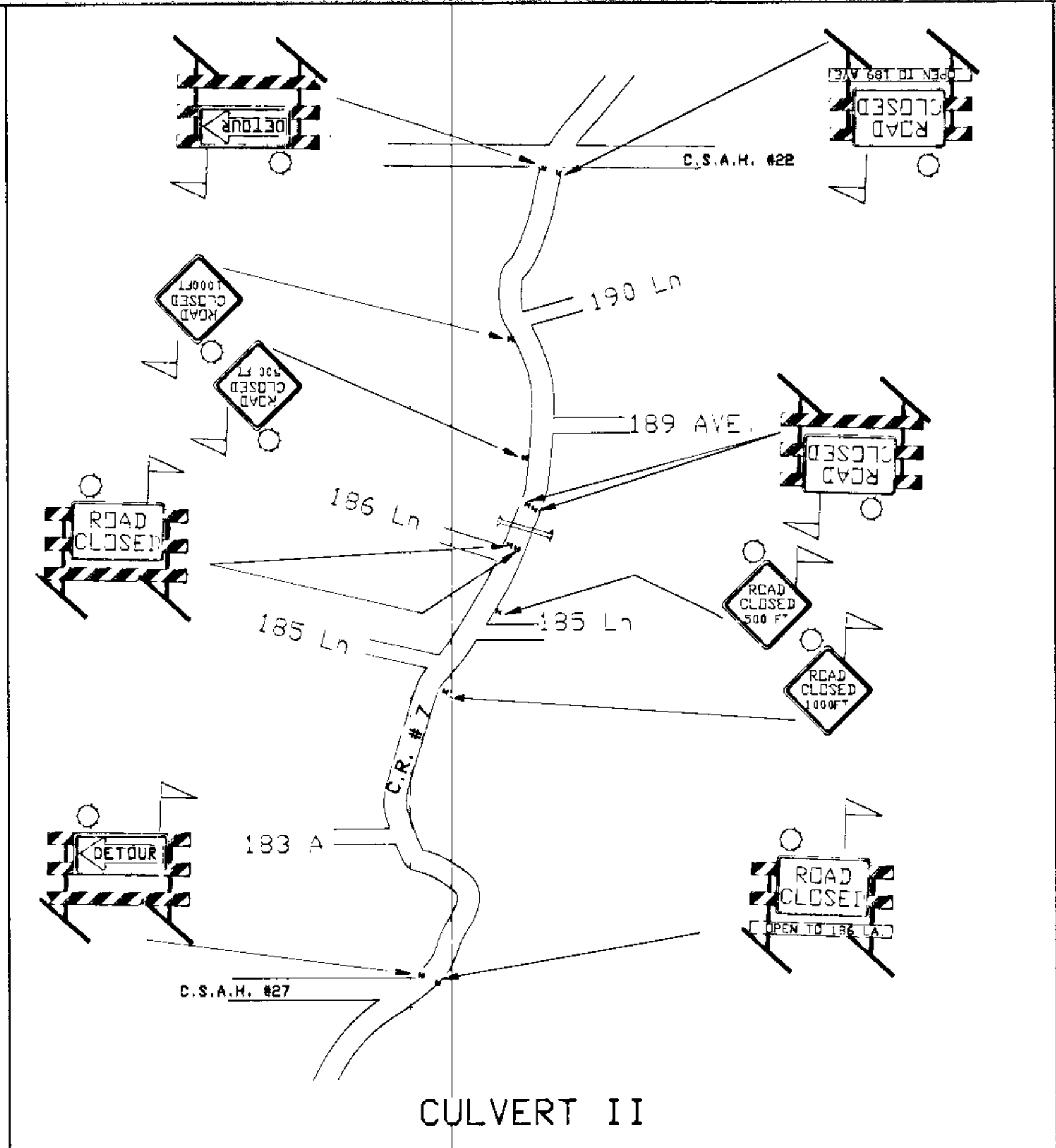
1. TO BE INSTALLED ONE (1) WEEK PRIOR TO THE BEGINNING OF CONSTRUCTION, AND TO BE REMOVED ONCE CONSTRUCTION HAS COMMENCED.
2. TYPICAL SIGN SPACING BETWEEN ROUTE MARKER ASSEMBLIES IS 500 FT. THIS SPACING MAY VARY IN ACCORDANCE WITH INPLACE STOP AHEAD SIGNS, AND NO PASSING ZONES.
3. LOCATIONS OF ALL SIGNS ARE APPROXIMATE, EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
4. ALL SIGNS AND BARRICADES TO BE PROPERLY WEIGHTED WITH SANDBAGS.
5. ALL BARRICADES WILL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
6. ALL BARRICADE MARKINGS WILL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
7. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B', DATED MARCH 1990.
8. ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AT ANYTIME AS DETERMINED BY THE ENGINEER.

REVISIONS			
DATE	BY	DATE	BY

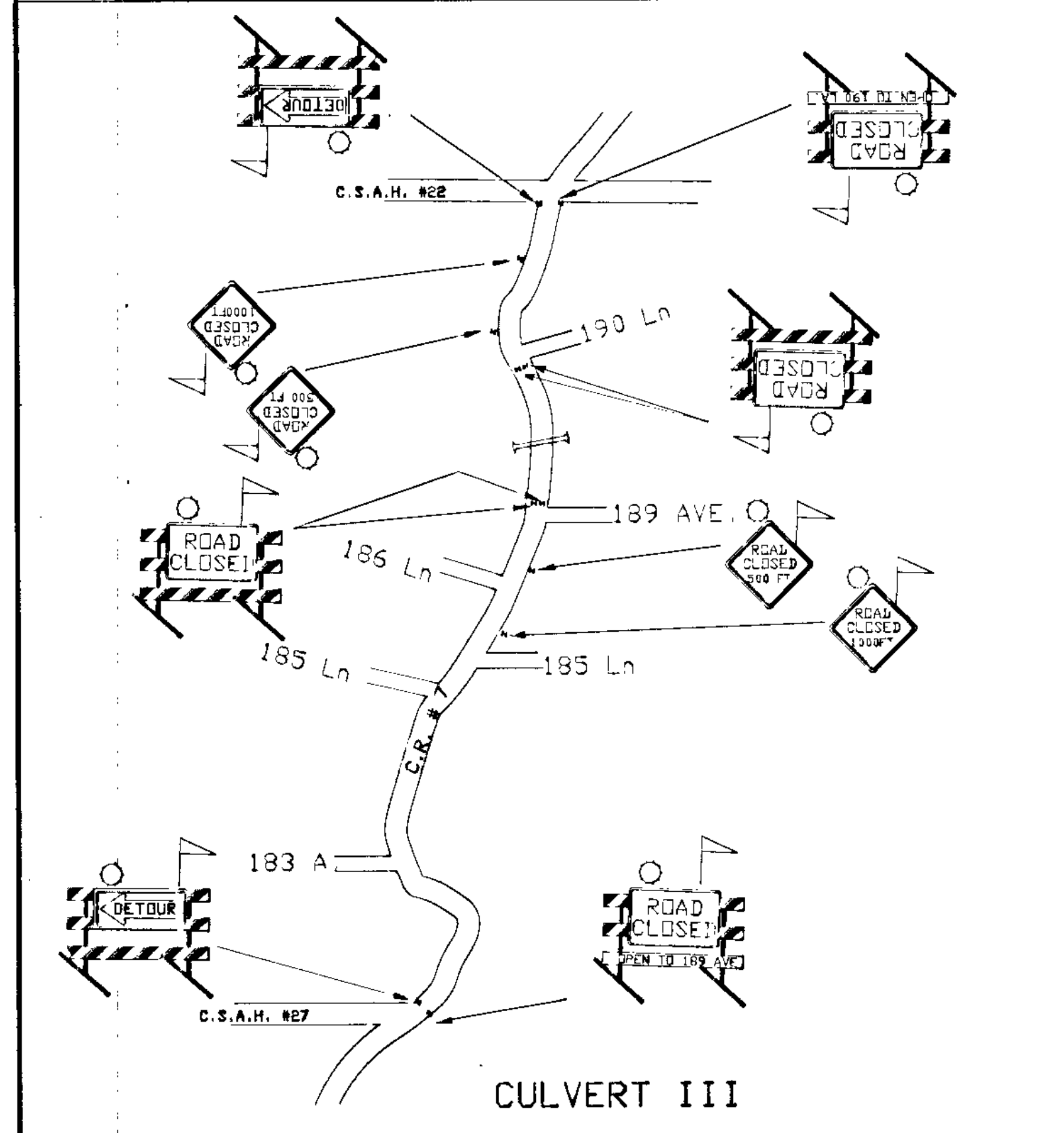
M.U.T.C.D. CODE	SIZE	INSERT	QTY
FLASHER W20-1	48'x48'	ROAD CONSTRUCTION AHEAD 1500 FT	1 2
FLASHER W20-2	48'x48'	DETOUR 1000 FT	2
FLASHER R11-2 TYPE III	48'x30' 8 FT.	ROAD CLOSED TO THRU TRAFFIC	2
FLASHER M4-10L TYPE III	48'x 18' 8 FT.	DETOUR	1
FLASHER M4-10R TYPE III	48'x 18' 8 FT.	DETOUR	1
FLASHER M3-3 M1-6 TYPE III	24'x 12' 24'x 24' 8 FT.	ROAD CLOSED TO THRU TRAFFIC	2
M4-8 M3-1 M1-6	24'x 12' 24'x 12' 24'x 24'	DETOUR	4 0 2 2 2
M4-8 M3-3 M1-6	24'x 12' 24'x 12' 24'x 24'	DETOUR	4 2 2 2 1
M4-6 M4-9 M1-6	24'x 12' 24'x 12' 24'x 24'	END OF DETOUR	2
S20-1A	60'x 36'	ROAD CONSTRUCTION NEXT 2 MILES	3
① SEE NOTE	30'x 36'	THIS ROAD WILL BE CLOSED	2



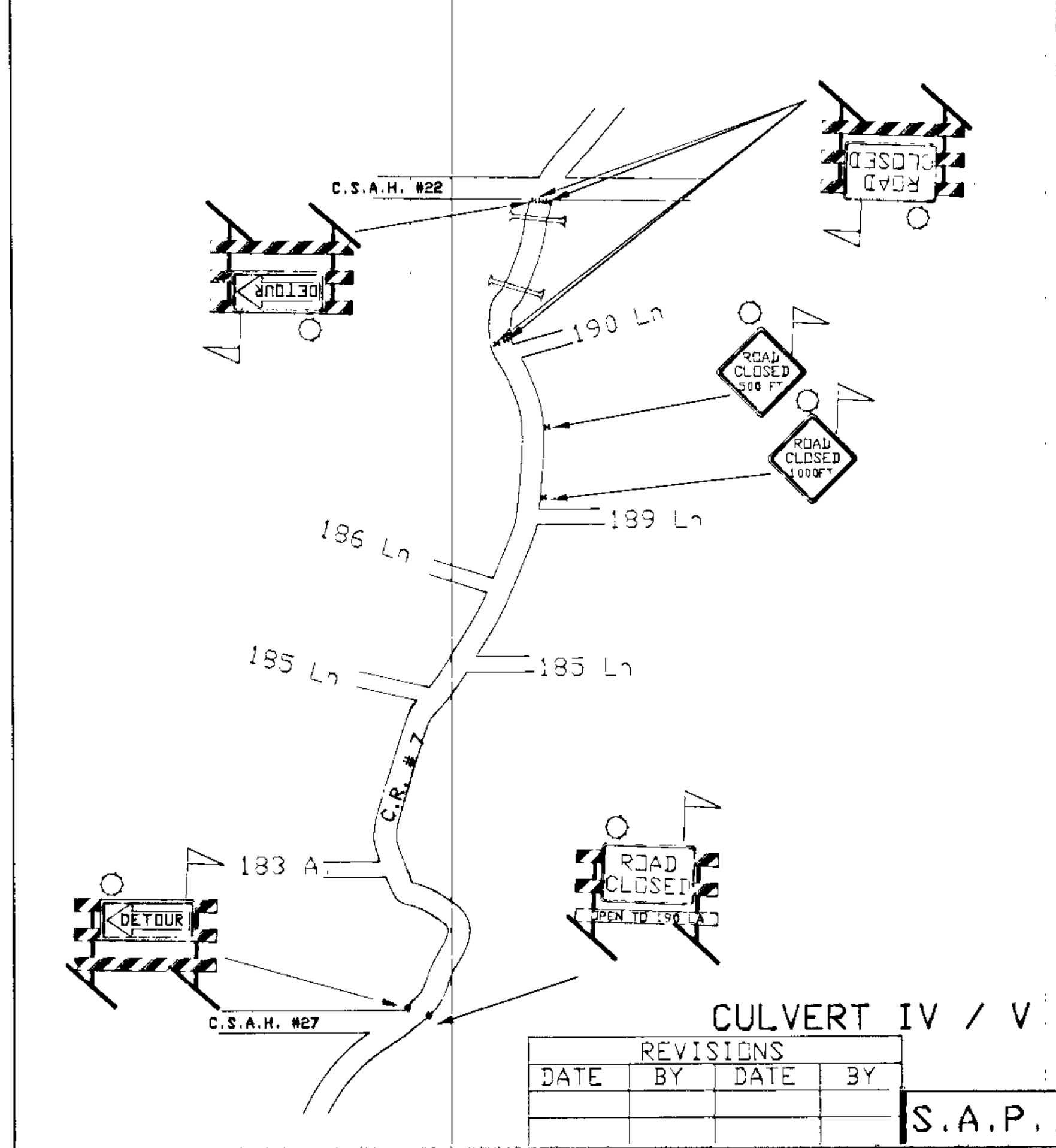
CULVERT I



CULVERT II



CULVERT III



CULVERT IV / V

REVISIONS			
DATE	BY	DATE	BY

M.U.T.C.D. CODE	SIZE	INSERT	CULVERT I	CULVERT II	CULVERT III	CULVERT IV / V
FLASHER		500 FT 1000 FT				
W20-3	48' x 48'		• 1	• 2	• 2	• 1
W20-3	48' x 48'		• 1	• 2	• 2	• 1
FLASHER		 OPEN TO 183 AVE OPEN TO 186 LA OPEN TO 189 AVE OPEN TO 190 LA				
TYPE III	8 FT.					
R11-4	60' x 30'					
INSERT	96' x 12'					
			• 1	• 1	• 1	• 1
FLASHER						
TYPE III	8 FT.		• 4	• 4	• 4	• 4
R11-2	48' x 30'					
FLASHER						
TYPE III	8 FT.		• 1	• 1	• 1	• 1
M4-10R	48' x 18'					
FLASHER						
TYPE III	8 FT.		• 1	• 1	• 1	• 1
M4-10L	48' x 18'					

NOTES

- 1) LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 2) ALL BARRICADES SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
- 3) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
- 4) ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- 5) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B'.
- 6) ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS DETERMINED BY THE ENGINEER.