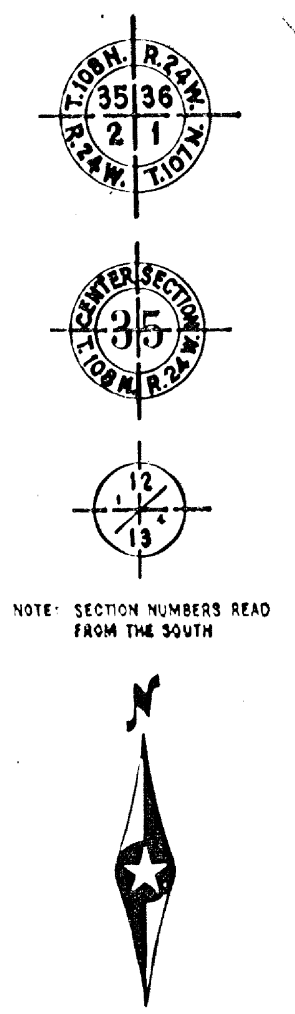


CONVENTIONAL SIGNS

STATE LINE	TIMBER
COUNTY LINE	BRUSH
TOWNSHIP OR RANGE LINE	ORCHARD
SECTION LINE	ROCK LEDGE
QUARTER LINE	SAND
SIXTEENTH LINE	EDGE OF CUT
RIGHT-OF-WAY LINE	TOE OF EMBANKMENT
PRESENT ROAD 1/4 LINE	CATCH BASIN
LIMITED ACCESS	MANHOLE
PROPERTY LINE (Except Land Cont.)	DEEP WILET
VACATED PLATED PROPERTY	FIRE HYDRANT
CORPORATE OR CITY LIMITS	ARC LAMP
TRUNK HIGHWAY CENTER LINE	OTHER LAMP (Glow Stick)
RETAINING WALL	RAILROAD CROSSING SIGN
STEAM RAILROAD	RAILROAD CROSSING BELL
ELECTRIC RAILROAD	ELECTRIC WARNING SIGN
RAILROAD RIGHT-OF-WAY LINE	CROSSING GATE
CREEK	CATTLE GUARD
RADIUS OR WATERFALL	OVERHEAD (Highway Over)
DRY RUN	UNDERPASS (Highway Under)
DRAINAGE DITCH	ABUTMENT, WALL & PIER
HIGH TENSION LINE	BRIDGE
POWER POLE LINE	CULVERT
TELEPHONE OR TELEGRAPH LINE	BUILDING (One Story Frame)
TELEPHONE CONDUIT	G-CONCRETE S-STONE P-PILE B-BRICK SE-SEWER
GUARD RAIL	WEDGE
WIRE FENCE	IRON PIPE
RAILROAD SNOW FENCE	STONE MONUMENT
BOARD OR HIGHWAY SNOW FENCE	WOOD STAKE OR HUB
STONE WALL OR FENCE	WEATHER CORNER
GRASS MAT	
WATER PIPE	
SEWER PIPE	
GRAIN TIE	
GRAVEL PIT	
SAND PIT	
CLAY PIT	
ROCK QUARRY	
SPRINGS	
MARSH	



**STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS**

CONSTRUCTION PLAN FOR GRADING, BIT BASE, & BIT SURFACE

County State Aid Highway No. 18

NORTH TOUCHDOWN PT. OF INTERCHANGE
BETWEEN TH. 242, TH. 10, & CSAH 18 **AND** JCT. CSAH 16 & 18
 A P. 750' N. & 770' W. OF
From S. 1/4 COR. SECT. 4, T. 31N, R. 24W **To** A. P. 133.8' WEST OF CENTER, SECT. 33, T. 31N, R. 24W.
Give proper reference to Sections, Township and Range

GROSS LENGTH..... 7,476.38 FEET..... 1.416 MILES
 BRIDGES LENGTH..... 0 FEET..... 0 MILES
 EXCEPTIONS LENGTH..... 0 FEET..... 0 MILES
 NET LENGTH..... 7,476.38 FEET..... 1.416 MILES

Plan 1 inch = 50 Feet
 PROFILE Horz. 1 inch = 50 Feet, Vert. 1 inch = 5 Feet
 WORKING PLANS Horz. 1 inch = 5 Feet, Vert. 1 inch = 5 Feet
 Cross-Section 1 inch = 10 FEET
 LAYOUT
 Scale 1 inch = 50 Feet



END PROJECT SP 02-618-04 STA. 84+78.48
 SU-S 7421 (1)
 BEGIN PROJECT SP 02-618-04 STA. 10+02.10
 SU-S 7421 (1)

MINN. PROJ. SU-S 7421 (1)

INDEX OF SHEETS

Sheet No. 1.	Title Sheet & Layout Map
" No. 2.	Est. Quantities & Typical Sec.
" No. 3. To 5	Plan & Profile
" No. 6 To 13	Cross Sections

DESIGN DATA

A.D.F. (CURRENT YEAR)	1500
A.D.F. (20 YEAR PROJECTION)	3450
SOIL FACTOR	50 %
STRUCTURAL DESIGN	9 TON
H.C.A.D.T.	LESS THAN 150 (PROJ)

DESIGN SPEED

50 M.P.H. (LOCALLY RESTRICTED TO 30 M.P.H.)

ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH, IN THE CONSTRUCTION OF THIS PROJECT.

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

Edgar A. Pearson
 COUNTY ENGINEER DATE: March 14, 1966
 ANOKA COUNTY REG. NO. 2551
 RECOMMENDED FOR APPROVAL *Edgar A. Pearson* 3-15, 1966 DISTRICT ENGINEER
 RECOMMENDED FOR APPROVAL *O.R. Weickhellmann* 5-18, 1966
 APPROVED 5-18, 1966 *Edgar A. Pearson* STATE ENGINEER

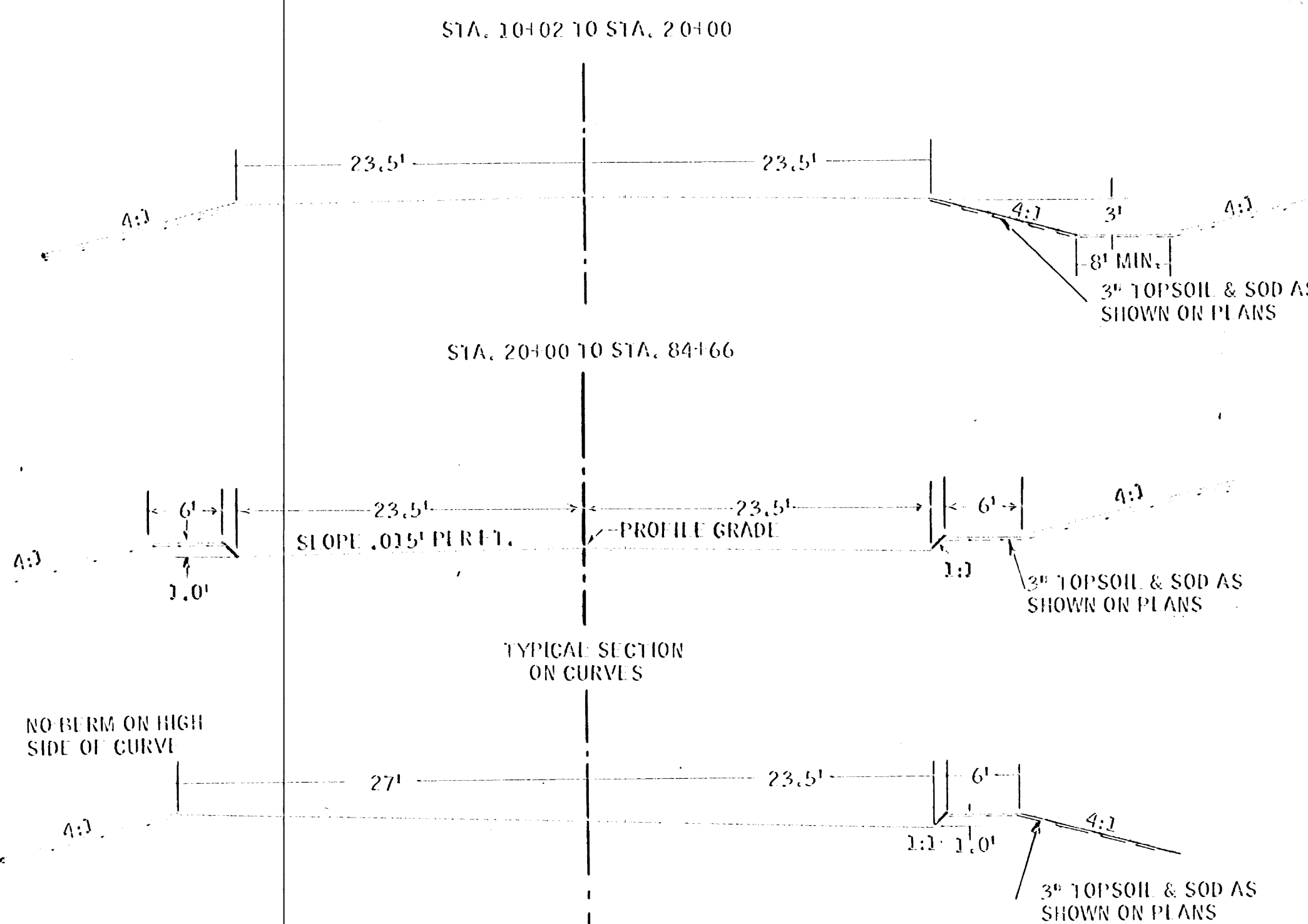
DEPARTMENT OF COMMERCE
 BUREAU OF PUBLIC ROADS
 DISTRICT ENGINEER DATE

--- SPECIFICATIONS ---
 THE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", DATED JAN. 1, 1964, AS AMENDED BY "SUPPLEMENTAL SPECIFICATIONS" DATED FEB. 1, 1966 SHALL GOVERN.

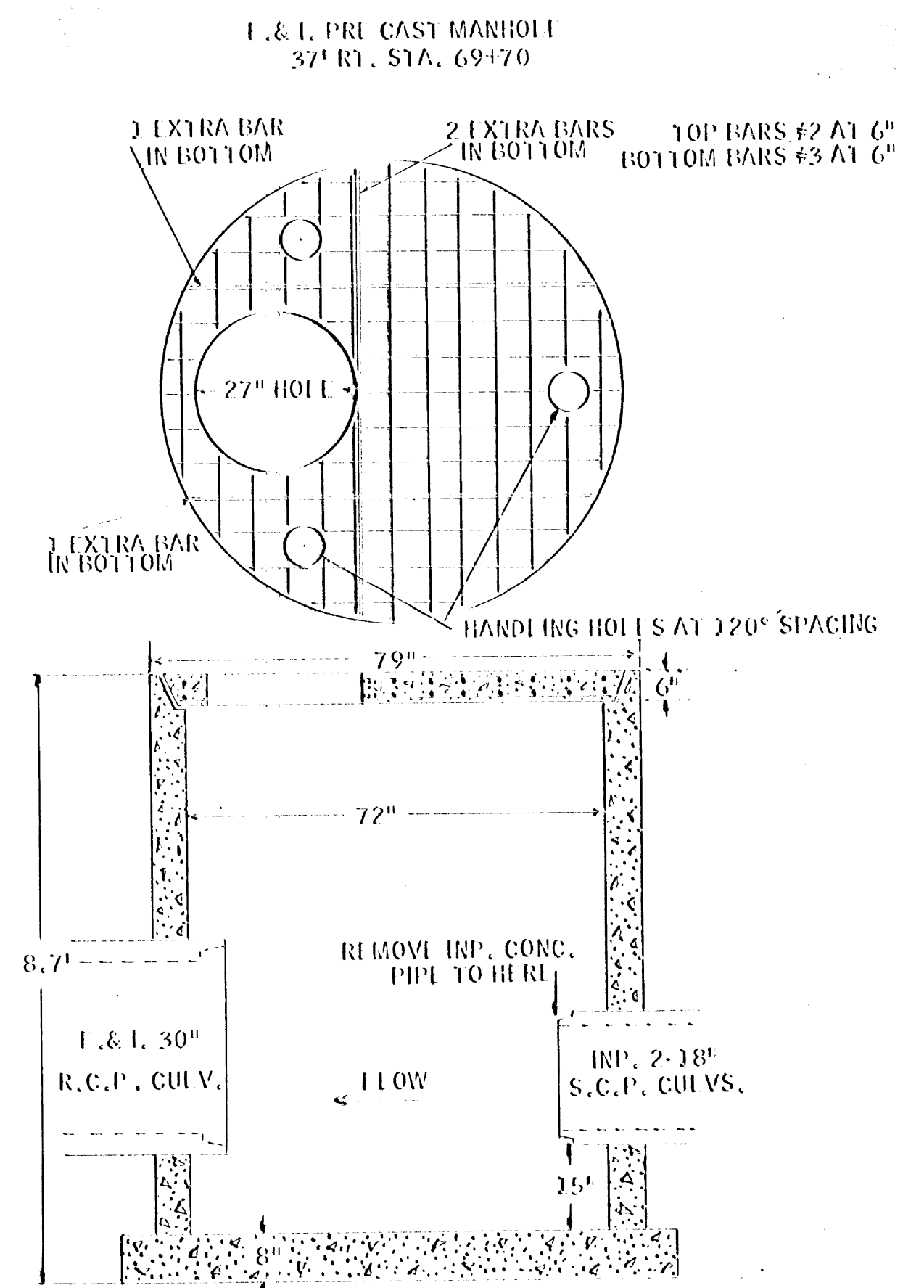
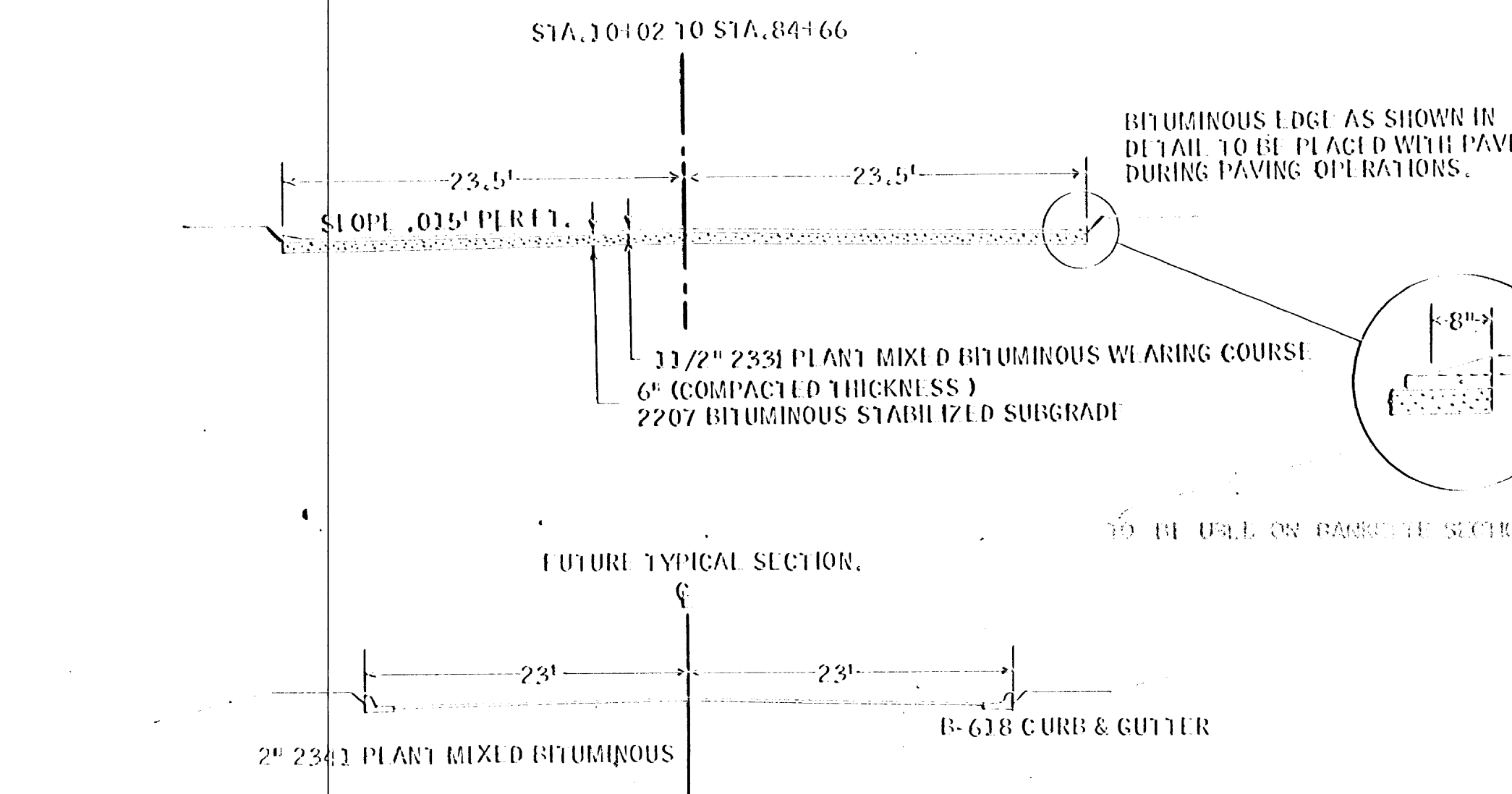
STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	CITY OF COOR RAPIDS		TOWNSHIP OF GROW		TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
			S.P. 02-638-04 EST.	S.P. 02-638-04 FINAL	S.P. 02-638-04 EST.	S.P. 02-638-04 FINAL		
2103.501	CLEARING	ACRE	.20	.80			1.00	
2103.502	CLEARING	TRAIL	.56	.5			.63	
2103.506	GRUBBING	ACRE	.20	.30			.50	
2103.507	GRUBBING	TRAIL	.55	.5			.60	
2104.501	REMOVE PORT. CULV.	LIN. FT.	65	698			663	
2104.510	REMOVE FENCE	LIN. FT.	35	69			104	
557.621	RESET FENCE	LIN. FT.	0	69			69	
2105.501	CLASS "A" EXCAVATION	CU. YDS.	6,779	5,432			12,343	
2105.510	TOPSOIL COVERING	CU. YDS.	389	173			562	
2105.514	SAVAGE INT. MIX OR ROAD	CU. YDS. (V.M.)	1,779	933			2,660	
2131.501	CONCRETE CURB OR SIDE WALK	TON	25	14			35	
2130.501	WATER	M. GAL.	26	14			40	
2207.503	BITUMINOUS MATERIAL FOR MIX	GAL.	40,983	40,983			116,934	
2207.503	BITUMINOUS MATERIAL FOR LOG	GAL.	2,532	1,366			3,898	
2207.512	BITUMINOUS STABILIZED	SQ. YD.	25,237	13,663			38,978	
2331.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL.	1,266	683			1,949	
2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	107	58			165	
2331.508	WEARING COURSE MIXTURE	TON	1,953	1,054			3,005	
2501.503	STRUCTURE EXCAVATION (CLASS 1)	CU. YDS.	33	60			93	
2503.512	F. & I. 15" R.C.P. SEWER CLASS 2	LIN. FT.	442	1,180			1,622	
2501.521	F. & I. 18" R.C.P. CULV. CLASS 2	LIN. FT.	0	106			106	
2501.521	F. & I. 24" R.C.P. CULV. CLASS 2	LIN. FT.	62	0			62	
2501.521	F. & I. 30" R.C.P. CULV. CLASS 2	LIN. FT.	0	100			100	
2506.506	CONSTRUCT MANHOLE, DESIGN SPECIFIC	LIN. FT.	0	8.7			8.7	
2506.507	CONSTRUCT CATCH BASINS DESIGN CORG	LIN. FT.	20.6	28.9			49.5	
2506.516	F. & I. CASTING ASSEMBLY GR. 801 R. 801 C BOX 821B (TYPE A)	ASSEMBLY	5	7			12	
2506.516	F. & I. CASTING ASSEMBLY CAST. 733 RING 700-7 (TYPE B)	ASSEMBLY	0	1			1	
2515.541-18	F. & I. CONC. APRONS FOR 18" S.C.P.	APRON	0	1			1	
2515.541-24	F. & I. CONC. APRONS FOR 24" S.C.P.	APRON	2	0			2	
2515.541-30	F. & I. CONC. APRONS FOR 30" S.C.P.	APRON	0	1			1	
2574.501	ROADSIDE SEEDING	ACRE	1.59	0.93			2.52	
2576.501	SODDING	SQ. YD.	4,672	2,076			6,748	
2001.508	FIELD LABORATORY, 1/2" A	LACR					1	
ALTERNATE NO. 1-1								
2501.511-15	F. & I. 15" C.M.P. CULV.	LIN. FT.	60	0			60	
2501.511-18	F. & I. 18" C.M.P. CULV.	LIN. FT.	0	22			22	
2515.531	F. & I. METAL APRONS FOR 15" C.M.P.	APRON	1	0			1	
2515.531	F. & I. METAL APRONS FOR 18" C.M.P.	APRON	0	1			1	
ALTERNATE NO. 1-2								
2501.521-15	F. & I. 15" R.C.P. CULV. CLASS 2	LIN. FT.	56	0			56	
2501.521-18	F. & I. 18" R.C.P. CULV. CLASS 2	LIN. FT.	0	20			20	
2515.541	F. & I. CONC. APRONS FOR 15" S.C.P.	APRON	1	0			1	
2515.541	F. & I. CONC. APRONS FOR 18" S.C.P.	APRON	0	1			1	
ALTERNATE NO. 1-3								
2501.507-15	F. & I. 15" C.A.P. CULV.	LIN. FT.	60	0			60	
2501.507-18	F. & I. 18" C.A.P. CULV.	LIN. FT.	0	22			22	
2515.545	F. & I. ALUM. APRONS FOR 15" C.A.P.	APRON	1	0			1	
2515.545	F. & I. ALUM. APRONS FOR 18" C.A.P.	APRON	0	1			1	

TYPICAL GRADING SECTIONS



TYPICAL BITUMINOUS SECTIONS



FORM 2106-10-66
The following Standard Detail plates, approved by the Bureau of Public Roads, shall apply on this project

PLATE NO.	DESCRIPTION
3000	REINFORCED CONCRETE PIPE
3100 D & 3020 C	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123 C	METAL APRON FOR C.M.P. PIPES
4002 C	MANHOLE OR CATCH BASIN (DESIGN C)
4006 D	MANHOLE OR CATCH BASIN (DESIGN G)
4101 A	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 C	COVER CASTING FOR MANHOLE
4126 C	CATCH BASIN FRAME CASTING
4149 B	GRATE CASTING FOR CATCH BASIN
4261 C	CURB BOX CASTING FOR CATCH BASIN
8000 B, 8001 A, 8008 A & 8003	STANDARD SIGNS & BARRICADES

BASIS OF PLANNED QUANTITIES

2207 BITUMINOUS STABILIZED SUBGRADE
BITUMINOUS MATERIAL FOR LOG 0.30 GAL. PER S.Y.
BITUMINOUS MATERIAL FOR MIX 0.50 GAL. PER INCH OF DEPTH

2331 PLANT MIXED BITUMINOUS WEARING COURSE
BITUMINOUS MATERIAL FOR TACK 0.05 GAL. PER S.Y.
BITUMINOUS MATERIAL FOR MIX 5.5% OF MIXTURE BY WEIGHT
BITUMINOUS MIXTURE 150 POUNDS PER SQ. YD.

CLASS "A" EXCAVATION COMPUTATION
TOTAL AMOUNT OF CLASS "A" EXCAVATION 13,663 CU. YDS.
MINUS BITUMINOUS SURFACE IN PLACE 1,520 CU. YDS.
PAY QUANTITY OF CLASS "A" EXCAVATION 12,143 CU. YDS.

SAVAGE BITUMINOUS SURFACE COMPUTATION
AVG. DEPTH 3" AVG. WIDTH 22' LENGTH 7,464'
BULKING FACTOR FOR VOLUMETRIC MEASURE 1.75%

A TOPSOIL AND SOD TO BE PLACED AT DIRECTION OF ENGINEER
B SEE DETAIL THIS SHEET, SPECIAL DESIGN
C TO BE PLACED AT DIRECTION OF ENGINEER
D TO BE PLACED AT DIRECTION OF ENGINEER

NOTE: SAVAGE INT. AVERAGE 20.3 CU. YDS. PER STA. (AVG. WIDTH 22.0', AVG. DEPTH 3") SPREAD INT. SAVAGE OVER ENTIRE ROAD SURFACE TO DEPTH OF AVAILABLE QUANTITIES.
NOTE: CROSS SECTIONS ARE TO BE CONSTRUCTED IN CONFORMANCE WITH TYPICAL SECTION THIS PAGE.
NOTE: ROAD BED TO BE BUILT TO 3/4" PER FT. PITCH DURING FINISHING OPERATIONS. THE UPPER 1.0' OF NATURAL SOIL IS CONSIDERED UNSUITABLE FOR USE IN UPPER 1.0' OF ROADWAY THIS PORTION SHALL BE PLACED BELOW THE UPPER 1.0' OF EMBANKMENT DURING CONSTRUCTION.
NOTE: ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTIONS ARE APPROXIMATELY ONLY.
NOTE: ALL CURVES WILL BE SUPERELEVATED IN ACCORDANCE WITH THE DESIGN STANDARDS DURING CONSTRUCTION.
NOTE: WORKING AROUND MISC. UTILITY PIPES WILL BE CONSIDERED INCIDENTAL TO CLASS "A" EXC.

ENT. 12+46 LT.
F&I. 15" X 32' CULV.

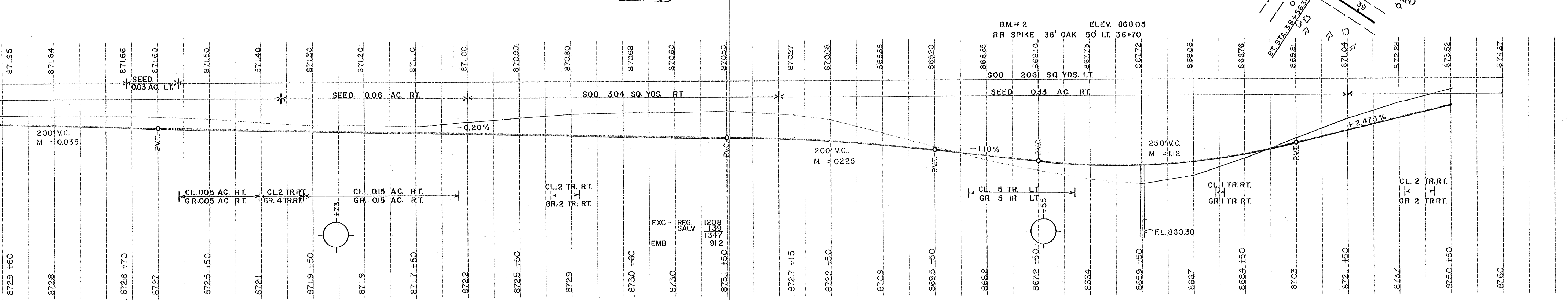
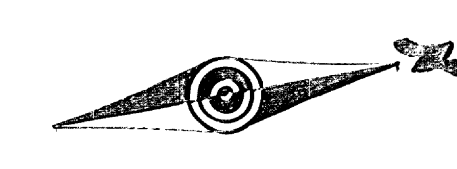
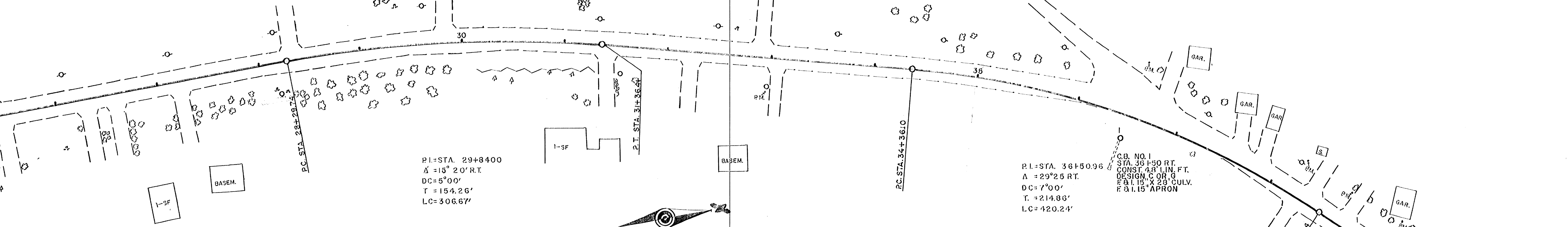
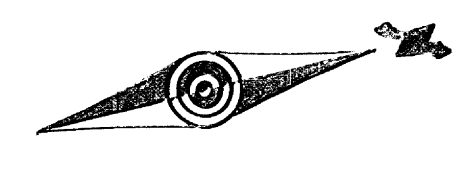
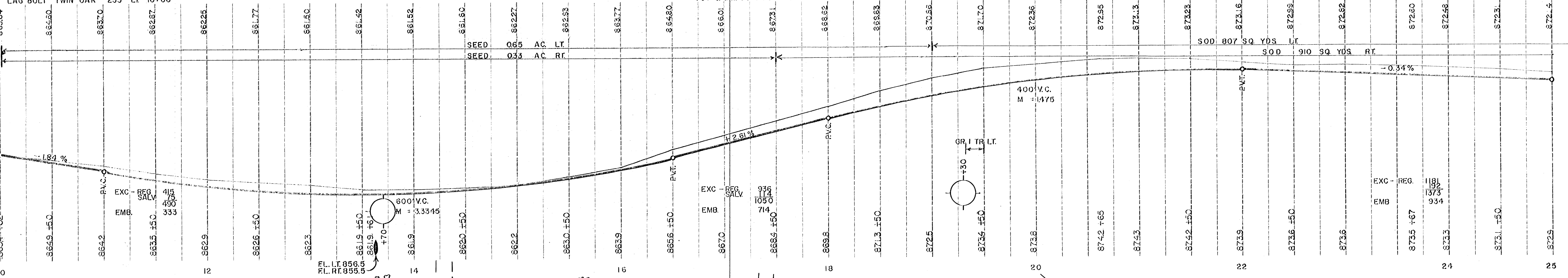
STA 13+61
INP. 18" X 65' SCP CULV.
REMOVE
F&I. 24" X 62' RCP CULV.
F&I. 2-24" CONC APRONS.
STRUCTURE EXC. 33 CU.YDS
CLASS U

PI - STA. 21+34.8
A = 23°32' LT.
DC = 5°00'
T = 238.70'
LC = 470.67'

BEGIN S.P. 02-618-04
STA. 10+02.10 SU-S 7421 (1)

BM# 1
LAG BOLT TWIN OAK
ELEV. 865.61
255' LT. 10+00

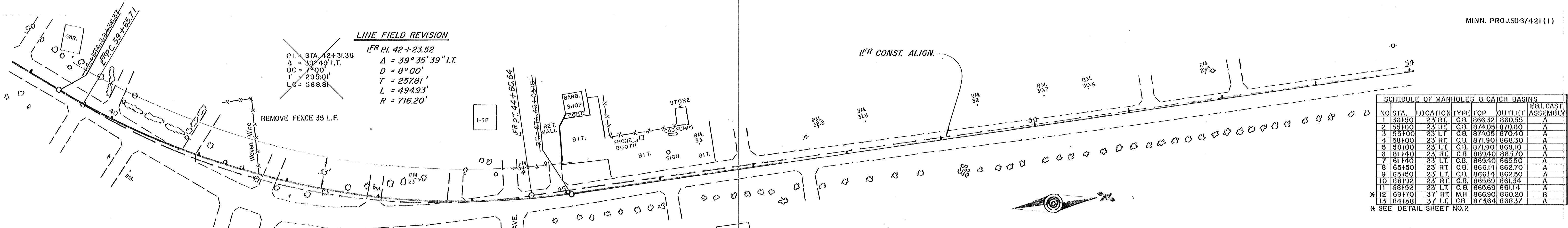
BM# 1A
TOP & S.W. COR. TOP STEPS
ELEV. 874.30
18-37



870
860

870

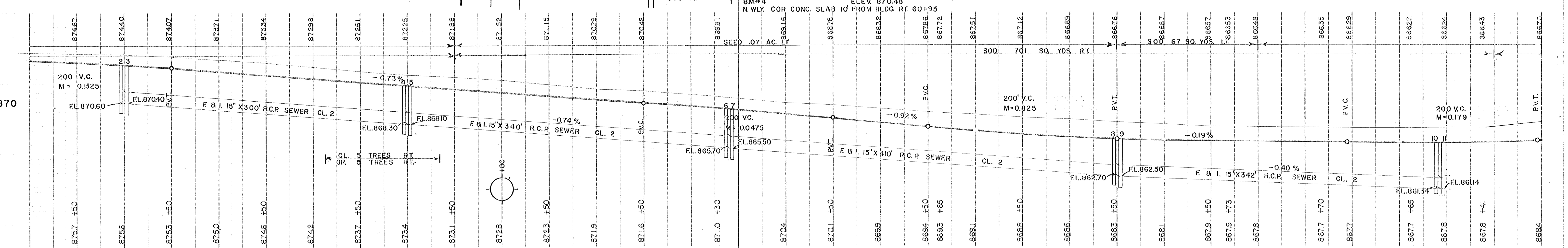
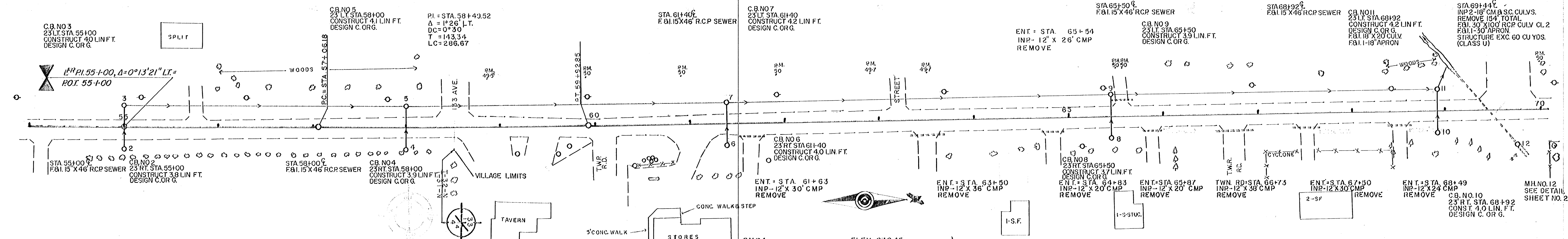
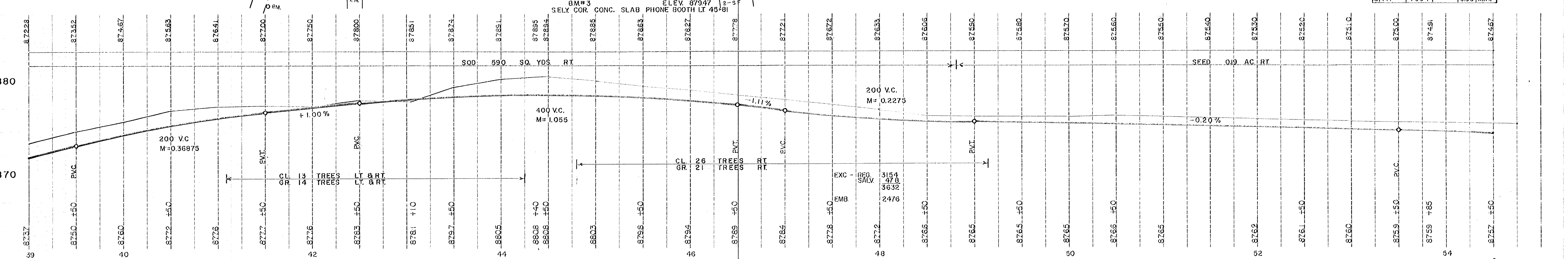
870



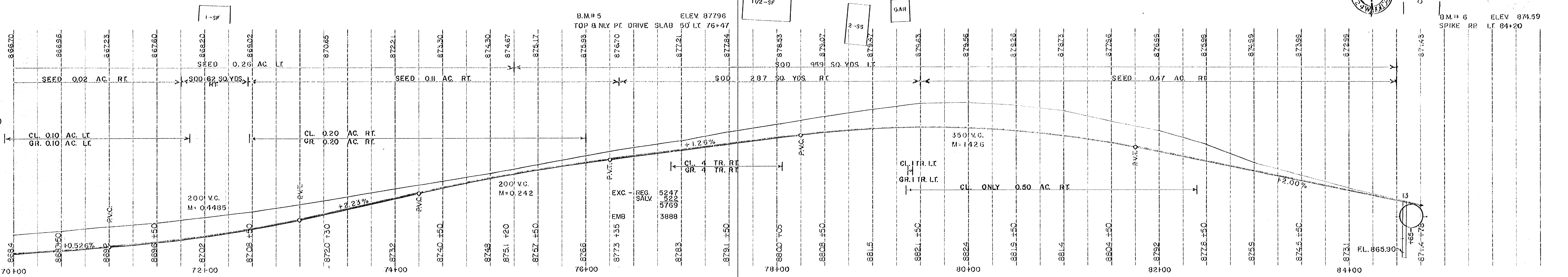
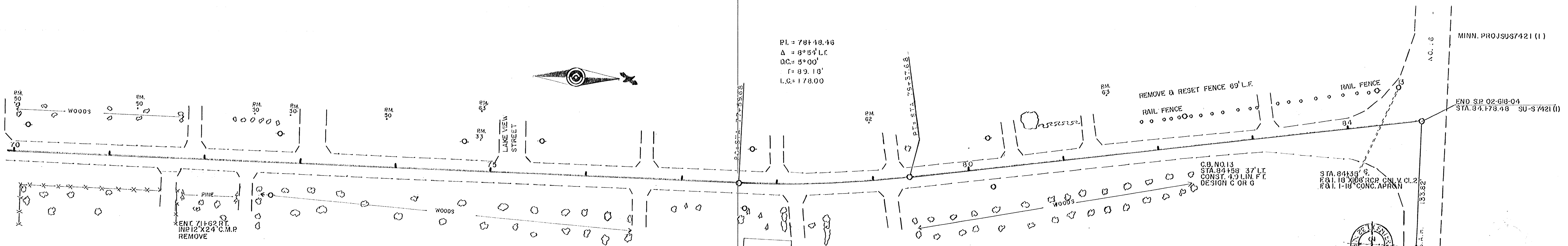
NO.	STA.	LOCATION	TYPE	TOP	OUTLET	F&I CAST ASSEMBLY
1	36+50	23 RT	C.B.	866.32	860.55	A
2	55+00	23 RT	C.B.	874.09	870.60	A
3	55+00	23 LT	C.B.	874.09	870.40	A
4	58+00	23 RT	C.B.	871.90	868.30	A
5	58+00	23 LT	C.B.	871.90	868.10	A
6	61+40	23 RT	C.B.	869.40	865.70	A
7	61+40	23 LT	C.B.	869.40	865.50	A
8	65+50	23 RT	C.B.	868.14	865.70	A
9	65+50	23 LT	C.B.	868.14	865.50	A
10	68+92	23 RT	C.B.	865.69	861.34	A
11	68+92	23 LT	C.B.	865.69	861.14	A
12	69+70	37 RT	MH	866.90	860.20	B
13	84+58	37 LT	CB	873.64	868.37	A

* SEE DETAIL SHEET NO. 2

GRATE	FRAME	C-BOX	HT.	USE
A 810	801	821-B	0.87	C.U.
B 711	700-7	-	0.58	M.H.



PI = 78+48.48
Δ = 8°54' L.R.
D.C. = 8°00'
r = 89.18'
L.C. = 178.00



STA. 84+35
F&I 1.18' X 108' RCP ONLY CL. 2
F&I 1.18' CONC. APRON

C.B. NO. 13
STA. 84+58 37' LT.
CONST. 4.9 L.M. F.T.
DESIGN C OR G

END S.P. 02-618-04
STA. 84.778.48 SU-57421(1)

B.M. # 6
SPIKE RP
ELEV. 874.59
LT. 84+20

B.M. # 5
TOP & NLY PT. DRIVE SLAB 50' LT. 76+47
ELEV. 877.96

EXC. - REG. SALV.
EMB. 3888

FL. 865.90