

CONVENTIONAL SIGNS

STATE LINE	---
COUNTY LINE	---
TOWNSHIP OR RANGE LINE	---
SECTION LINE	---
QUARTER LINE	---
STATEMENT LINE	---
RIGHT OF WAY LINE	---
PRESENT RIGHT OF WAY LINE	---
CONTROL OF ACCESS LINE	---
PROPERTY LINE (EXPOSED LINE)	---
VACATED PLANTED PROPERTY	---
CORNER OF CITY LIMITS	---
TRUNK HIGHWAY CENTER LINE	---
RETAINING WALL	---
RAILROAD	---
RAILROAD RIGHT OF WAY LINE	---
RIVER OR CREEK	---
DRY RUN	---
DRAINAGE DITCH	---
ELECTRIC POWER LINE	---
TELEPHONE OR TELEGRAM LINE	---
JOINT TELEPHONE AND POWER	---
CONDUIT	---
TELEPHONE CABLE (Aerial)	---
TELEPHONE CABLE UNDERGROUND	---
POWER CABLE UNDERGROUND	---
GAS MAIN	---
SEWER	---
SEWER INLET	---
GUARD RAIL	---
BANDED WIRE FENCE	---
WOVEN WIRE FENCE	---
CHAIN LINK FENCE	---
RAILROAD SHOW FENCE	---
STONE WALL OR FENCE	---
HEDGE	---
WATER PIPE	---
SEWER PIPE	---
DRAIN TILE	---
SPRINGS	---
MARSH	---
TIMBER	---
BRUSH	---
NURSERY	---
CATCH BASIN	---
MANHOLE	---
FIRE HYDRANT	---
STREET LIGHT	---
RAILROAD CROSSING SIGN	---
RAILROAD CROSSING BELL	---
ELECTRIC WARNING SIGN	---
CROSSING GATE	---
CATTLE GUARD	---
OVERPASS (or Highway Under)	---
UNDERPASS (or Highway Under)	---
BRIDGE	---
BUILDING (One Story Frame)	---
FRAME	---
STONE	---
BRICK	---
IRON PIPE OR ROOF	---
MONUMENT (STONE, CONCRETE, OR METAL)	---
WOODEN HUB	---
GRAVEL PIT	---
SAND PIT	---
GRAVEL PIT	---
ROCK QUARRY	---
MEANDER CORNER	---

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

CONSTRUCTION PLAN FOR GRADING, BASE & BITUMINOUS SURFACING

County State Aid Highway No. 24

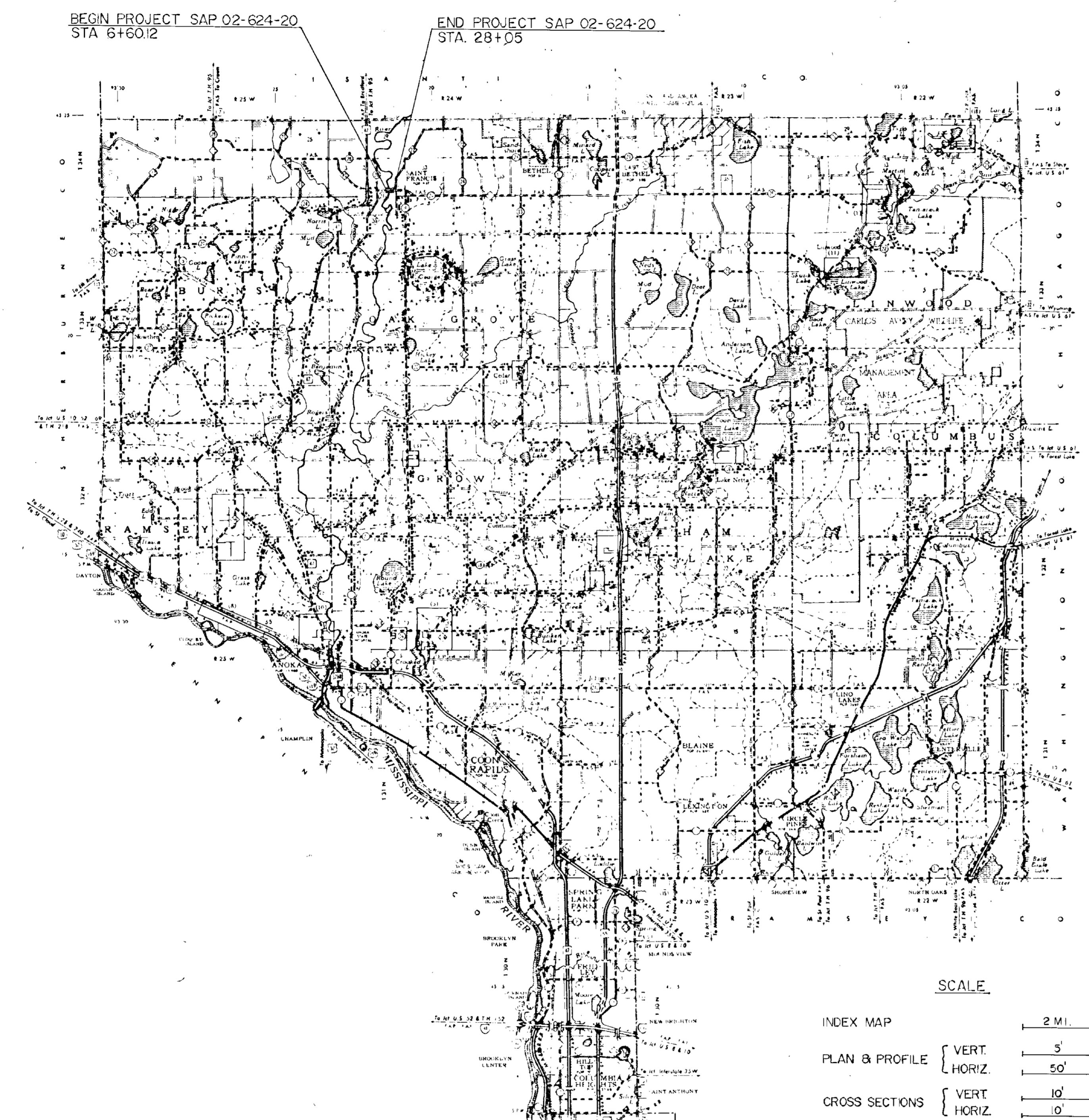
Between BUTTERFIELD DRIVE And COUNTY ROAD 72

A POINT 830' NORTH & 195' EAST OF THE NW COR. SEC. 5, T33N, R24W To A POINT 830' NORTH & 1100 WEST OF THE NE COR. SEC. 9, T33, R24W

GROSS LENGTH	2,114.88 FEET	0.41 MILES
BRIDGES LENGTH	390.86 FEET	0.07 MILES
EXCEPTIONS LENGTH	390.86 FEET	0.07 MILES
NET LENGTH	1,754.02 FEET	0.34 MILES

INDEX OF SHEETS

Sheet No. 1	Title Sheet & Layout Map
No. 2-4	Est. Quantities & Typ. Sec.
No. 5 to 6	Plan & Profile
No. 7 to 10	Cross Sections



SCALE

INDEX MAP	2 MI.
PLAN & PROFILE	VERT. 5'
	HORIZ. 50'
CROSS SECTIONS	VERT. 10'
	HORIZ. 10'

DESIGN DESIGNATION

ADT (CURRENT YEAR) 4,492
 ADT (FUTURE YEAR) 7,200
 T (HEAVY COMMERCIAL) H.C.A.D.T. 600-1100
 9 Ton Design, Soil Factor A-3, 50
 Design Speed 30 MPH
 Design Speed not achieved at:
 STA _____ TO STA _____ MPH
 STA _____ MPH

STOPPING SIGHT DISTANCE BASED ON
 3.5' HEIGHT OF EYE
 0.5' HEIGHT OF OBJECT

SPECIFICATIONS

THE "STANDARD SPECIFICATIONS FOR CONSTRUCTION," 1983 EDITION AND SUPPLEMENTAL SPECIFICATIONS, DATED AUGUST 29, 1985 SHALL GOVERN.

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.

Paul K. Rued DATE 3/14/86
 COUNTY ENGINEER

ANOKA COUNTY REG. NO. 6549

RECOMMENDED FOR APPROVAL *C.C. Weidner* 3/15, 1986
 DISTRICT STATE AID ENGINEER

RECOMMENDED FOR APPROVAL *Julius Skallman* 4/24, 1986

APPROVED 4/25, 1986 *Wm. M. Jay*
 DISTRICT ENGINEER

Minn. Proj. No. _____ County Proj. No. _____
 State Proj. No. _____ S.A.P. 02-624-20

SPECIAL DETAILS

THE CONTRACTOR SHALL REMOVE SUFFICIENT TOPSOIL MATERIAL WITHIN THE EXCAVATION AREAS ON WHICH EMBANKMENTS WILL BE PLACED. STOCKPILE IF NECESSARY, AND USE IT FOR TOPSOIL COVERING ON THE NEW SLOPES AND DITCH BOTTOMS TO THE FULLEST EXTENT POSSIBLE, PRIOR TO THE USE OF TOPSOIL BORROW. THIS WILL REQUIRE APPROXIMATELY 482 CU. YDS. TO PROVIDE A MINIMUM COVER OF 3". SALVAGING AND REPLACING TOPSOIL SHALL BE CONSIDERED AS INCIDENTAL TO THE EXCAVATION ITEMS, AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

DISPOSAL OF ANY EXCESS EXCAVATED MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE DISPOSED OF IN ACCORDANCE WITH THE PROVISIONS OF 2104.

SODDING		
STATION	LOC.	S.Y.
6+78 TO 7+81	RT	100
8+07 TO 10+30	RT	367
10+60 TO 11+40	RT	249
10+87 TO 11+40	LT	96
15+30 TO 18+00	RT	157
15+30 TO 16+69	LT	110
16+88 TO 17+65	LT	122
17+87 TO 20+02	LT	259
18+35 TO 20+00	RT	128
20+00 TO 22+75	RT	214
20+40 TO 25+00	LT	574
22+86 TO 25+00	RT	489
25+00 TO 26+17	LT	176
25+00 TO 25+06	RT	14
25+33 TO 26+17	RT	154
TOTALS:		3,209

MHD 21166 (9/73)

The following Standard Plates, approved by the Federal Highway Administration, shall apply on this project.

STANDARD PLATES	
PLATE NO.	DESCRIPTION
0004 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 K	REINFORCED CONCRETE PIPE
3006 D	GASKET JOINT FOR CONCRETE PIPE
4006 K	MANHOLE OR CATCH BASIN
4010 F	CONCRETE SHORT CONE & ADJUSTING RING
4011 D	PRECAST CONCRETE BASE
4101 C	RING CASTING FOR MANHOLE OR CATCH BASIN
4110 D	COVER CASTING FOR MANHOLE
7100 F	CONCRETE CURB & GUTTERS
7110 E	CURB & GUTTER CONSTRUCTION AT CATCH BASIN
7111 G	INSTALLATION AND REINFORCEMENT OF CATCH BASIN CASTINGS
8003 I	STANDARD BARRICADES
8003 B	BREAKAWAY SIGN SUPPORT

BASIS OF PLANNED QUANTITIES.

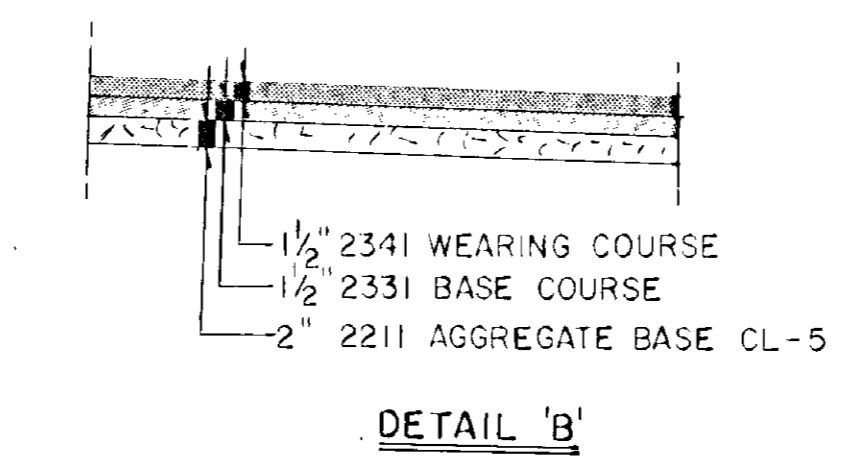
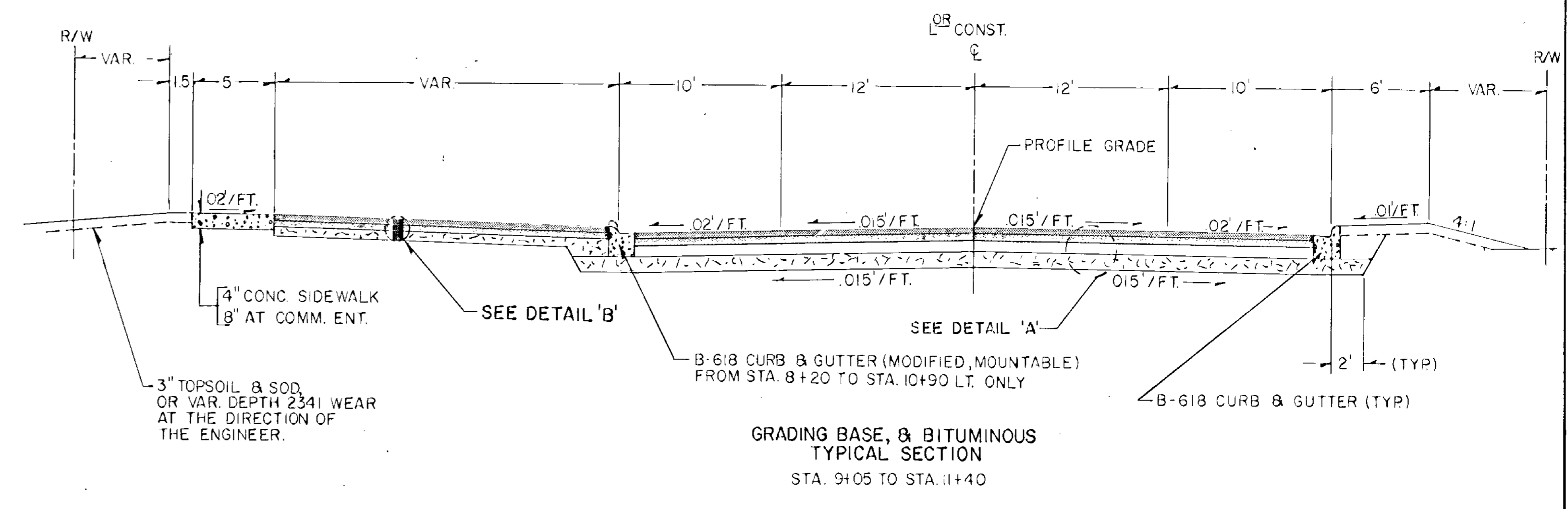
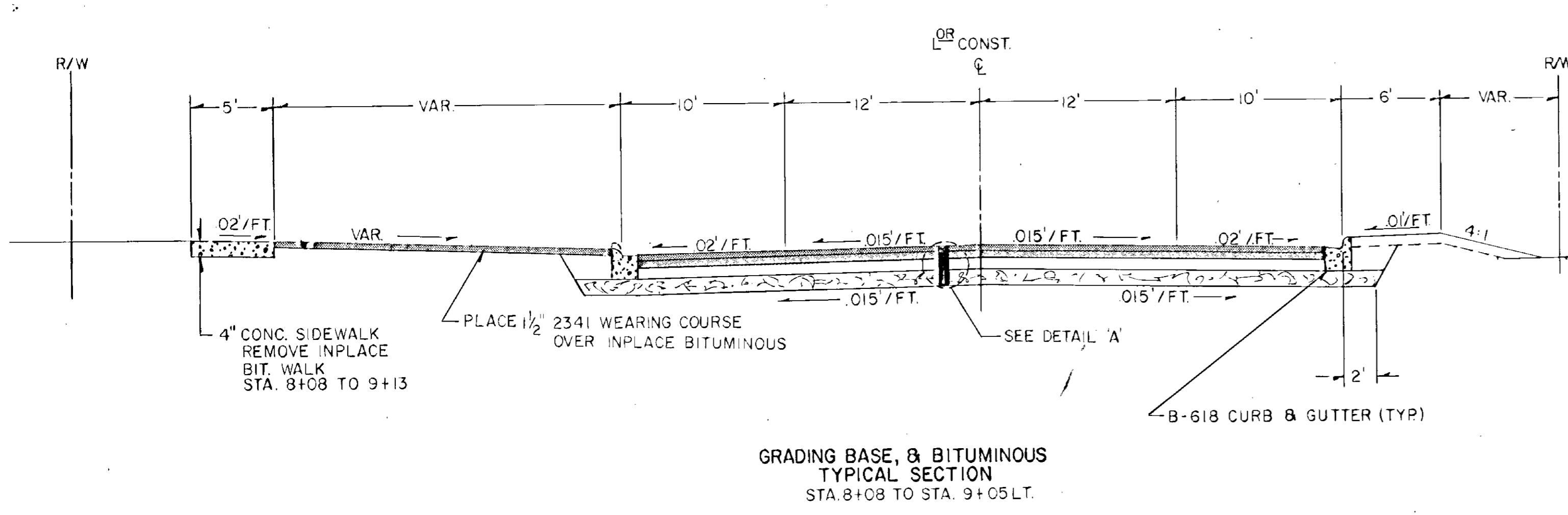
2331	PLANT MIXED BASE COURSE BITUMINOUS MIXTURE 110 LBS./S.Y. PER 1" THICKNESS BITUMINOUS MATERIAL FOR MIXTURE 4.8% BY WT.
2331	PLANT MIXED BINDER COURSE BITUMINOUS MIXTURE 110 LBS./S.Y. PER 1" THICKNESS BITUMINOUS MATERIAL FOR MIXTURE 4.8% BY WT.
2341	PLANT MIXED WEARING COURSE BITUMINOUS MIXTURE 110 LBS./S.Y. PER 1" THICKNESS BITUMINOUS MATERIAL FOR MIXTURE 6.2% BY WT.
2357	BITUMINOUS MATERIAL FOR TACK COAT 0.05 GAL. PER S.Y.
2575	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10 500#/ACRE ON ALL SEED & SOD AREAS
2575	ROADSIDE SEEDING BASED ON HORIZONTAL MEASUREMENTS PLUS 10% SEED MIXTURE NO. 3, 45 LBS. PER ACRE

FORM MHD 21166 9-73

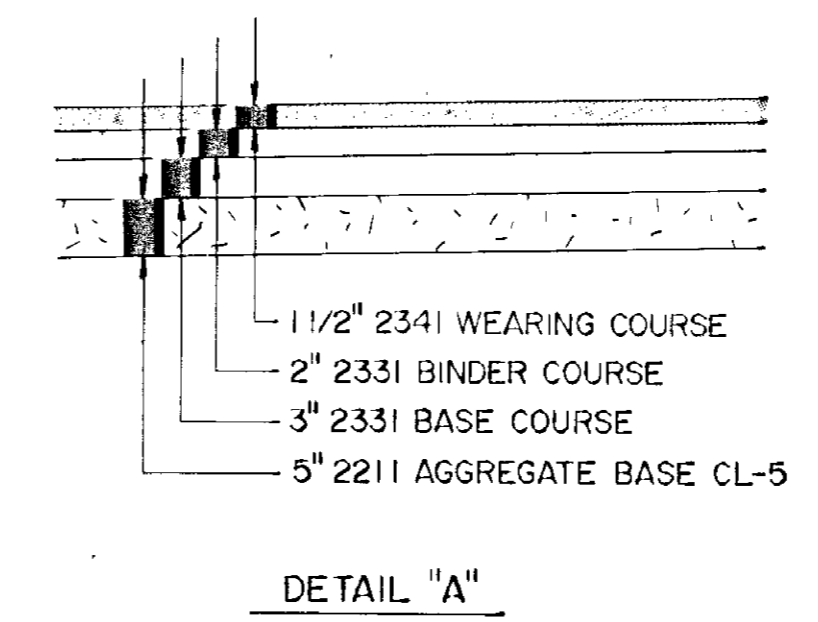
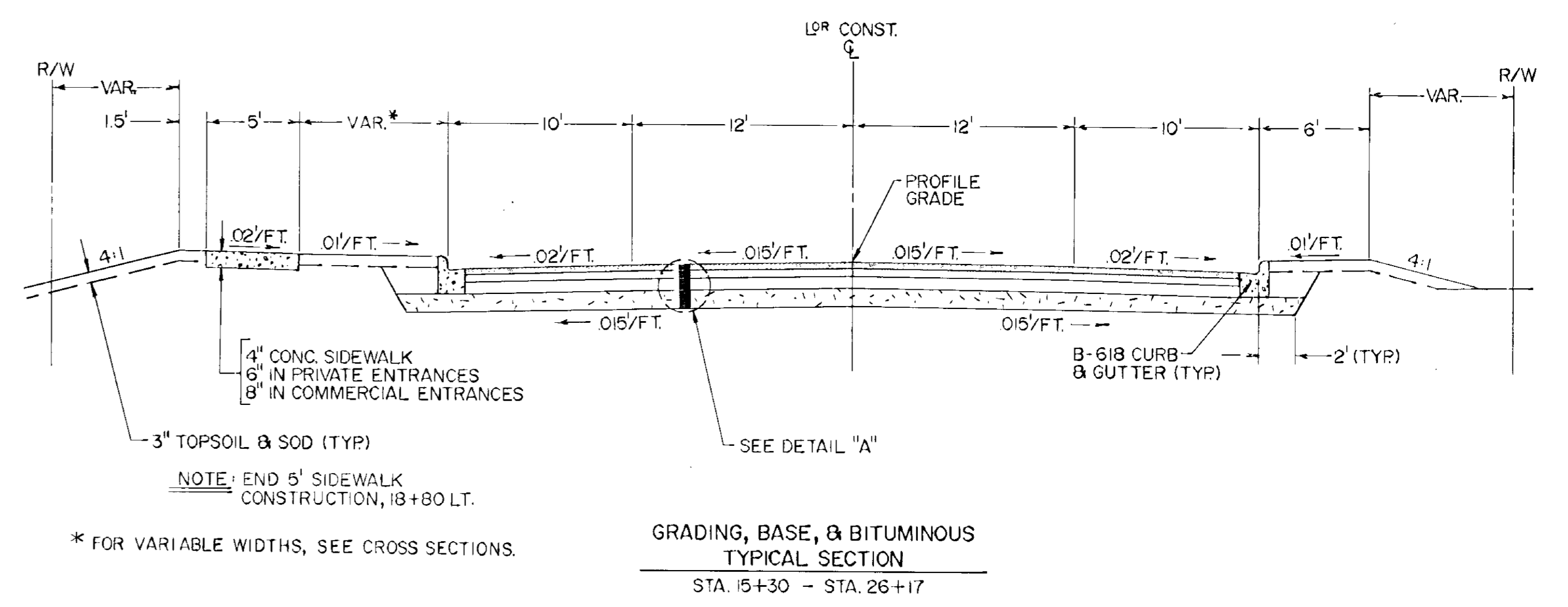
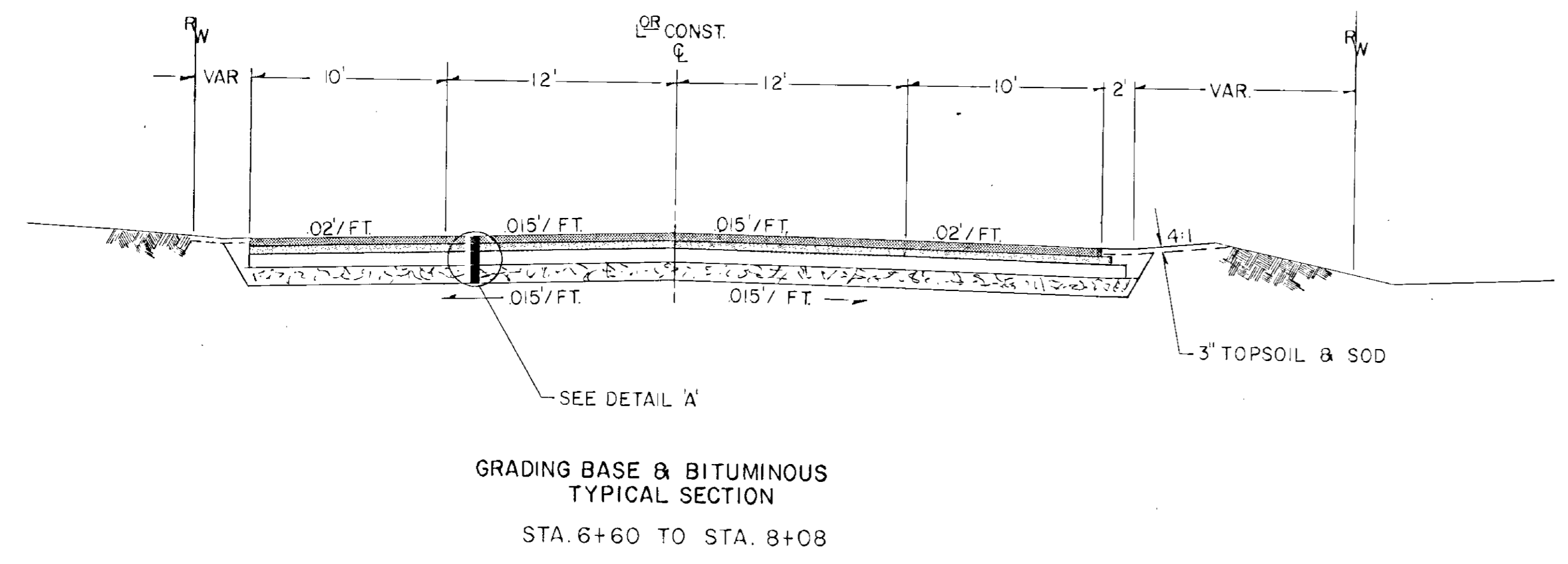
STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	NON-PART. QUANTITIES	PART. QUANT.
2021.501	MOBILIZATION	LUMP SUM		1
2104.501	REMOVE SEWER PIPE	LIN. FT.		77
2104.501	REMOVE CULVERT PIPE	LIN. FT.		30
2104.507	REMOVE STOCKPILE(LV)	CU. YD.		450
2104.509	REMOVE MANHOLES AND CATCHBASINS	EACH		5
2105.501	COMMON EXCAVATION	CU. YD.	64	3203
2105.525	TOPSOIL BORROW(LV)	CU. YD.		330
2130.501	WATER	M. GAL.		50
2211.503	AGG. BASE PLACED, CL-5A	CU. YD.	49	1196
2331.504	BIT. MATERIAL FOR MIXTURE	TON	3.46	24.24
2331.510	BINDER COURSE MIXTURE	TON		800
2331.514	BASE COURSE MIXTURE	TON	72	1178
2331.531	TEMPORARY LANE MARKING	RD. STA.		48
0331.601	2" THICK WEAR COURSE PLACED	SQ. YD.		259
2341.504	BIT. MATERIAL FOR MIXTURE	TON	6.32	37.08
2341.508	WEARING COURSE MIXTURE	TON	102	598
2357.502	BIT. MATERIAL FOR TACK	GAL.		450
2501.511	15" CM PIPE CULVERT	LIN. FT.		48
2501.515	15" CM PIPE APRON	EACH		2
2501.521	17" SPAN CM PIPE ARCH CULVERT	LIN. FT.		24
2501.525	17" SPAN CM PIPE ARCH APRONS	EACH		2
2503.541	15" RCP SEW. DES. 3006 CL 3	LIN. FT.		16
2503.541	18" RCP SEW. DES. 3000 CL 3	LIN. FT.		32
2503.541	18" RCP SEW. DES. 3006 CL 3	LIN. FT.		48
2506.506	CONST. M.H. DESIGN C or G	LIN. FT.		4.4
2506.507	CONST. C.B. DESIGN SPEC. 1	LIN. FT.		26.8
2506.516	CASTING ASSEMBLIES	EACH		7
2506.522	ADJUST FRAME & RING CASTINGS	EACH		4
0504.602	RELOCATE HYDRANT	EACH		1
2521.501	4" CONCRETE WALK	SQ. FT.		3290
2521.501	6" CONCRETE WALK	SQ. FT.		1770
2521.501	8" CONCRETE WALK	SQ. FT.		320
2531.501	CONC. CURB AND GUTTER, B-613	LIN. FT.		2318
2575.501	ROADSIDE SEEDING	ACRE		1.25
2575.502	SEED, MIXTURE #3	POUND		56
2575.505	SODDING	SQ. YD.		3209
2575.511	MULCH MATERIAL, TYPE 1	TON		0.7
2575.519	DISC ANCHORING	ACRE		0.35
2575.523	WOOD FIBER BLANKETS	SQ. YD.		4583
2575.531	COM. FERT. ANAL. 10-10-10	TON		0.5

- ① PROVIDED FOR REMOVAL OF EXCESS EXCAVATION MATERIAL FROM BRIDGE CONSTRUCTION.
- ② INCLUDES BITUMINOUS PAVEMENT MATERIAL TO BE REMOVED.
- ③ PROVIDED FOR AREAS TO BE SODDED.
- ④ PROVIDED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.
- ⑤ INCLUDES 116 CU. YDS. FOR STREET APPROACHES, 49 CU. YDS. FOR PARKING LOT, STA 9+05 TO 11+40 LT.
- ⑥ INCLUDES 69 TONS FOR STREET APPROACHES.
- ⑦ INCLUDES 103 TONS FOR STREET APPROACHES, 72 TONS FOR PARKING LOT.
- ⑧ PROVIDED FOR DRIVEWAY RESTORATION. PAYMENT BY SQ. YD. INCLUDES BITUMINOUS MATERIAL FOR MIXTURE & 3" CLASS 5 AGGREGATE BASE.
- ⑨ INCLUDES 52 TONS FOR STREET APPROACHES, 102 TONS FOR PARKING LOT, STAS+05 TO 11+40 LT.
- ⑩ PROVIDED FOR SEEDING OF AREAS DISTURBED BY BRIDGE CONSTRUCTION, AS DIRECTED BY THE ENGINEER.
- ⑪ PROVIDED FOR STEEP SLOPE AREAS DISTURBED BY BRIDGE CONSTRUCTION.



BRIDGE EXCEPTION
STA. 11+40 TO STA. 15+30

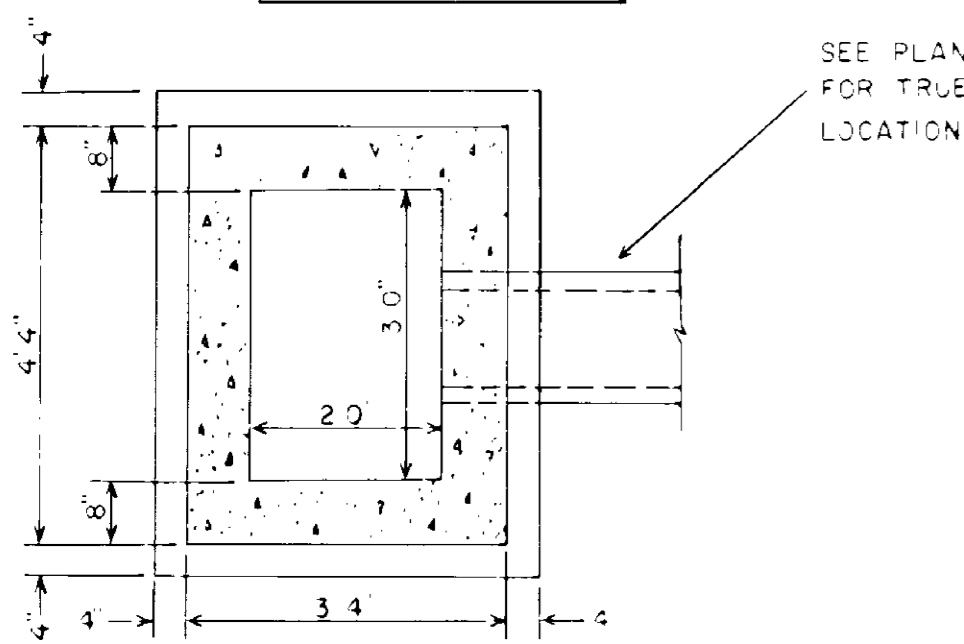


DRIVEWAY CONSTRUCTION

STATION	ADDRESS	REMARKS	BIT REMOVAL		BIT PAVEMENT			
			S.Y.	LENGTH	WIDTH	S.Y.	LENGTH	WIDTH
16+88 LT	3543			19'	13'	38		
17+76 LT	3521		INCIDENTAL TO COMMON EXCAVATION	10'	13'	20		
18+13 RT	3518			24'	30'	80		
20+26 LT	3503			10'	16'	18		
22+82 RT	3426		INCIDENTAL TO COMMON EXCAVATION	21'	14'	33		
25+20	22953 POPPY ST	REMOVE R.R. TIES INCIDENTAL TO CONSTRUCTION.		21'	30'	70		
TOTALS:						259		

STORM SEWER CONSTRUCTION

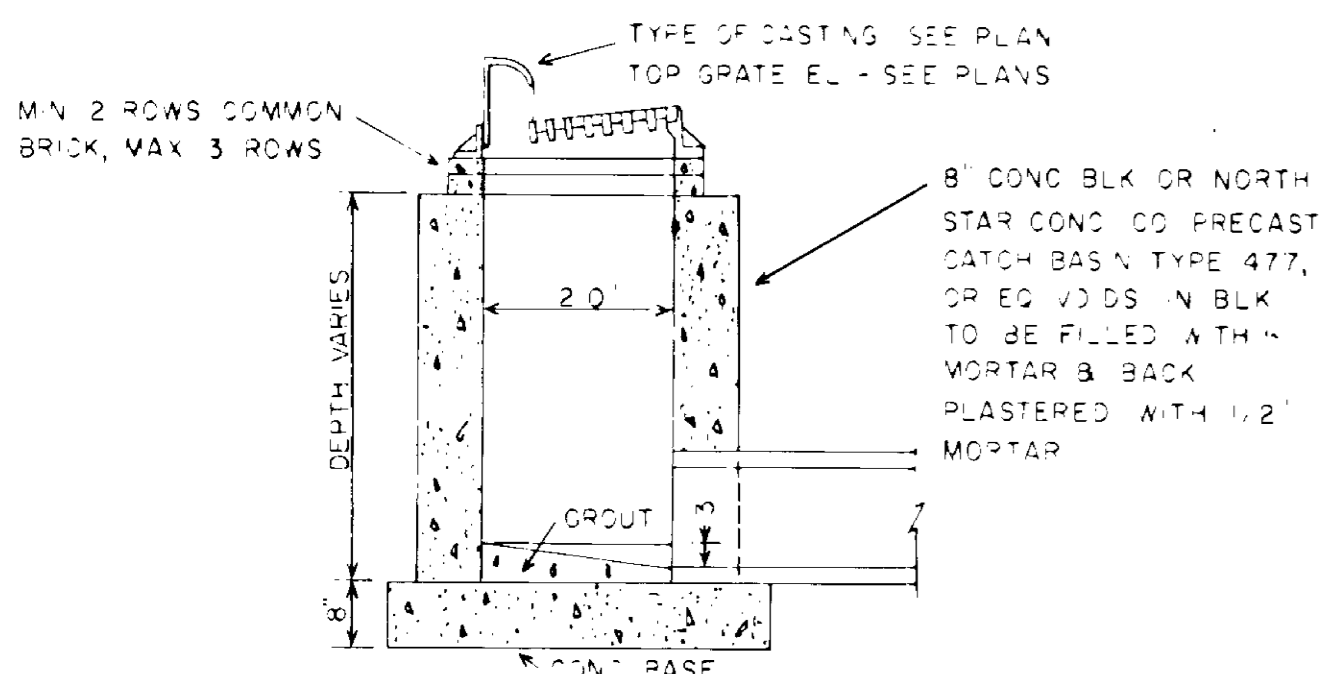
DESIGN SPECIAL I



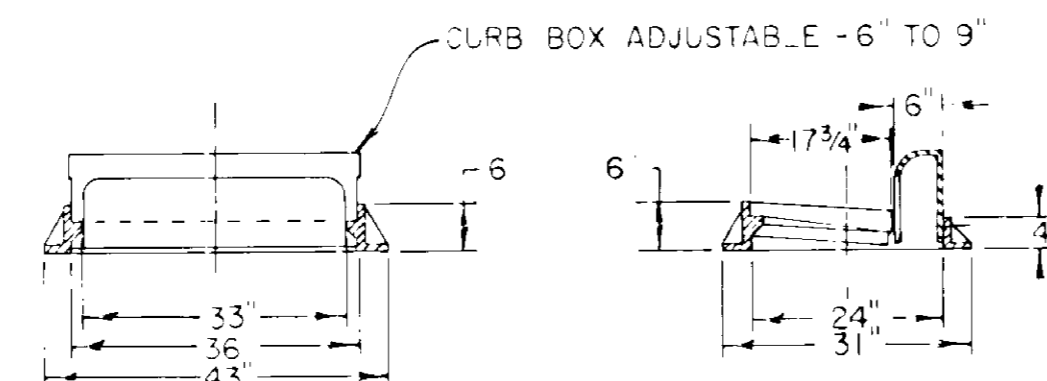
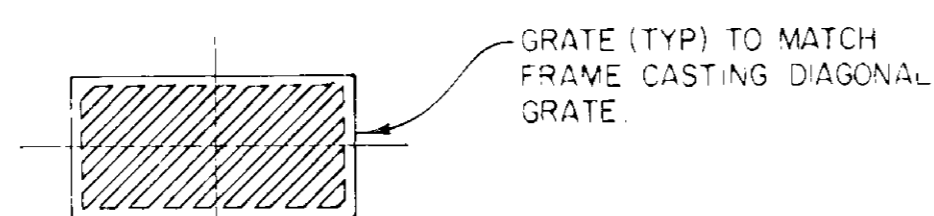
STRUCT NO	STATION	LOCATION	REMARKS	TYPE	DESIGN	LIN FT	REMOVE SEWER PIPE	TOP OF CASTING	OUTLET	DRAINS TO	F&I CASTING ASSEMBLY	15" RCP CL 3 DES 3006 D	18" RCP CL 3 DES 3000K	18" RCP CL 3 DES 3006D
1	11+19	21.67' LT	REMOVE INPLACE C.B.	C.B.	SPEC. 1	4.1	18"x13" RCP LT	914.74	911.16	C8#2	B		19' LT-RT	
2	11+19	21.67' RT	REMOVE INPLACE C.B.	C.B.	SPEC. 1	4.9	15"x21" CMP	914.74	910.34	MH#3	B			22'
3	11+19	47' RT	MANHOLE INPLACE, INLET 909.56			0.0				RIVER				
4	16+47	21.67' LT	REMOVE INPLACE C.B.	C.B.	SPEC. 1	3.8	18"x16" RCP LT	913.48	910.22	C8#5	B		13' LT	
5	16+39			C.B.	SPEC. 1	3.7		913.49	910.35		B	8'		
6	16+47	21.67' RT	REMOVE INPLACE C.B.	C.B.	SPEC. 1	4.7	15"x17" CMP	913.48	909.28		B	8'		
7	16+39	21.67' RT		C.B.	SPEC. 1	5.6		913.49	908.47		B			26'
8	16+30	40' RV	REMOVE INPLACE M.H. REMOVE 15" CMP OUTLET TO ELEV. 907.72	M.H.	C or G	4.4	15"x10" CMP	912.0	907.72	RIVER	A			48'
TOTALS:							77'					16'	32'	48'

DRAINAGE CHART

STATION	LOCATION	IN PLACE	REMARKS	REMOVE CULVERTS LIN FT	15" CMP LIN FT	APRON	17" SPAN CMP-A LIN FT	APRON
25+20	RT	15"x30' CMP	REMOVE INPLACE RR TIES INCIDENTAL TO CONST.	30	48	2		
26+55	LT						24	2
TOTALS				30	48	2	24	2



NOTE: TO BE USED WITH CB DESIGN SPECIAL I



CB CASTING DETAIL - ASSEMBLY D

ADJ FRAME & RING CASTING

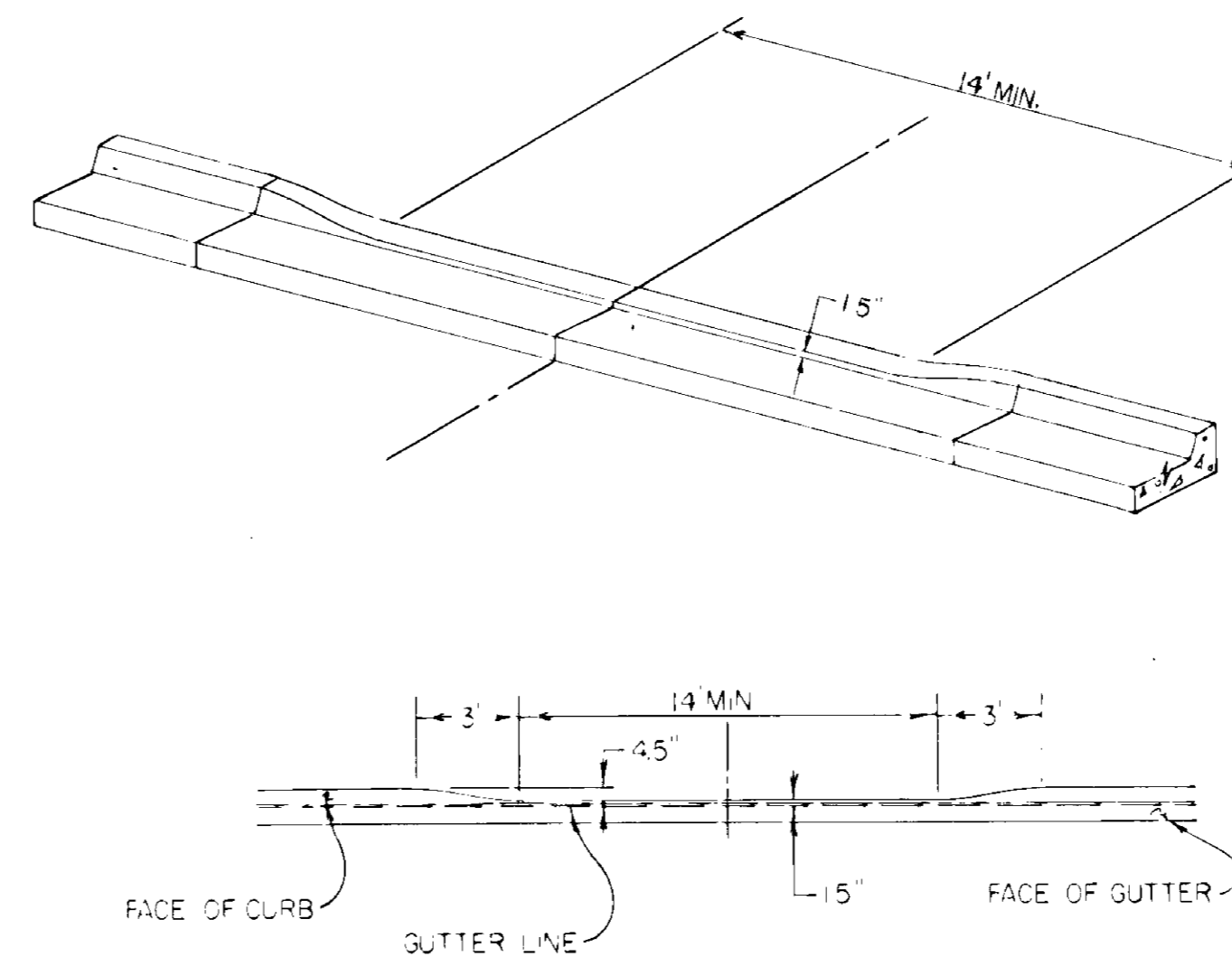
STATION	LOCATION	REMARKS
7+66	24' LT	SAN. M.H.
9+33	37' LT	SAN. M.H.
15+65	33' LT	WATER M.H.
15+74	30' LT	SAN. M.H.

CASTING ASSEMBLIES

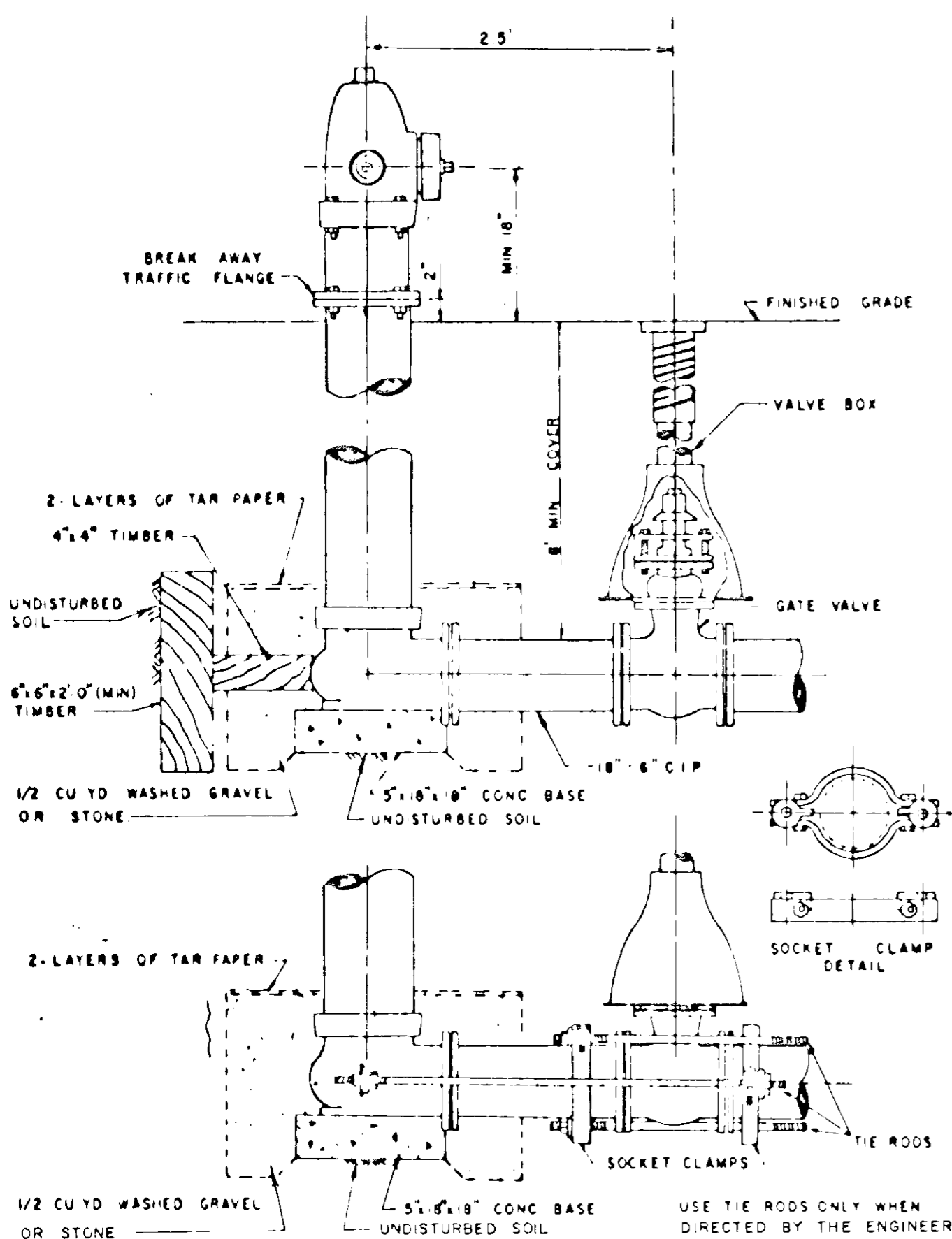
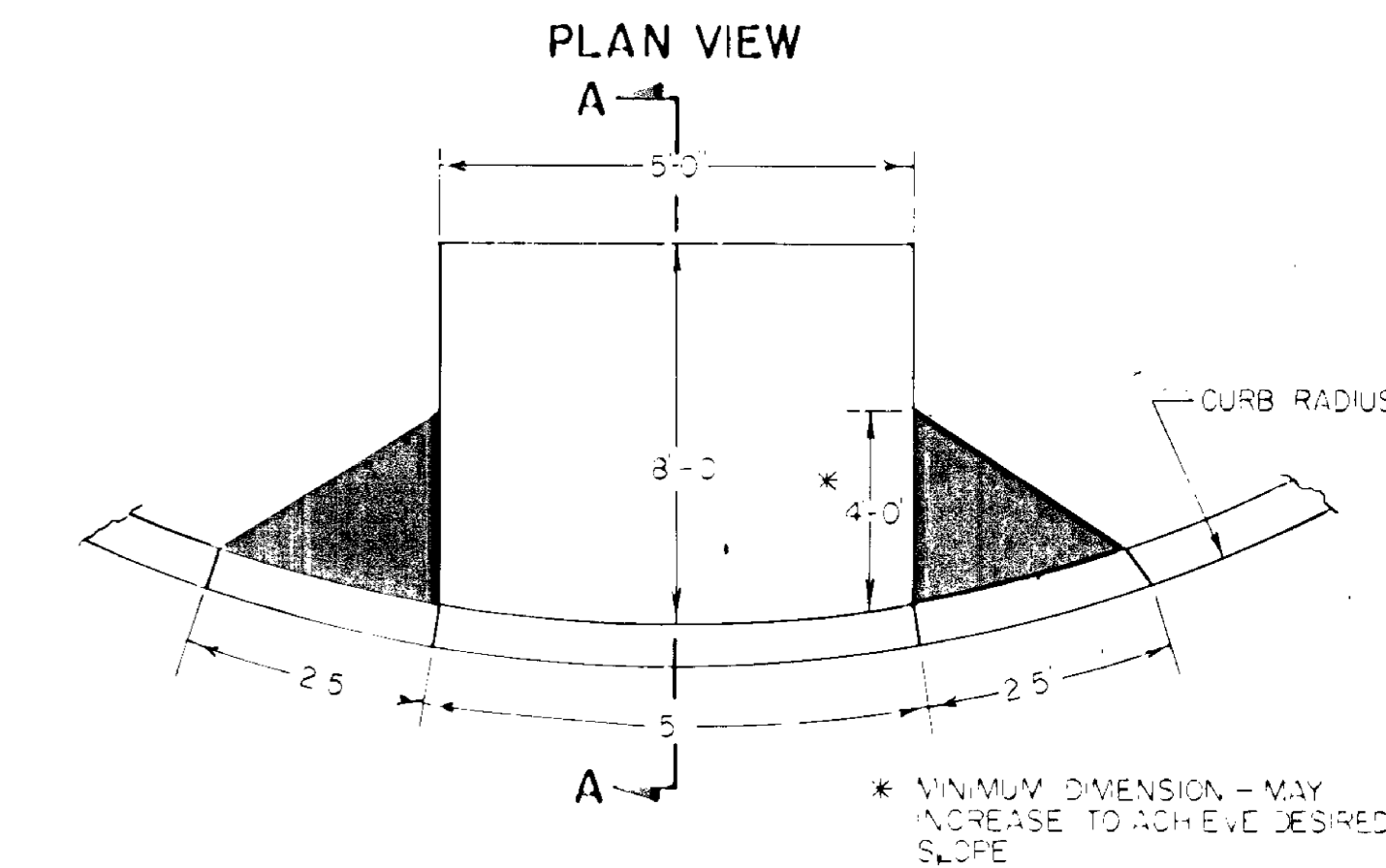
ASSEMBLY	ITEM	CASTING NO.	QUANTITY
A	FRAME COVER	700-7 712	1
B	SEE DESIGN SPEC. NO. 1		6

HYDRANT RELOCATION		
EXISTING LOCATION	NEW LOCATION	REMARKS
1. 10+14 44' RT	MOVE 7' WEST	

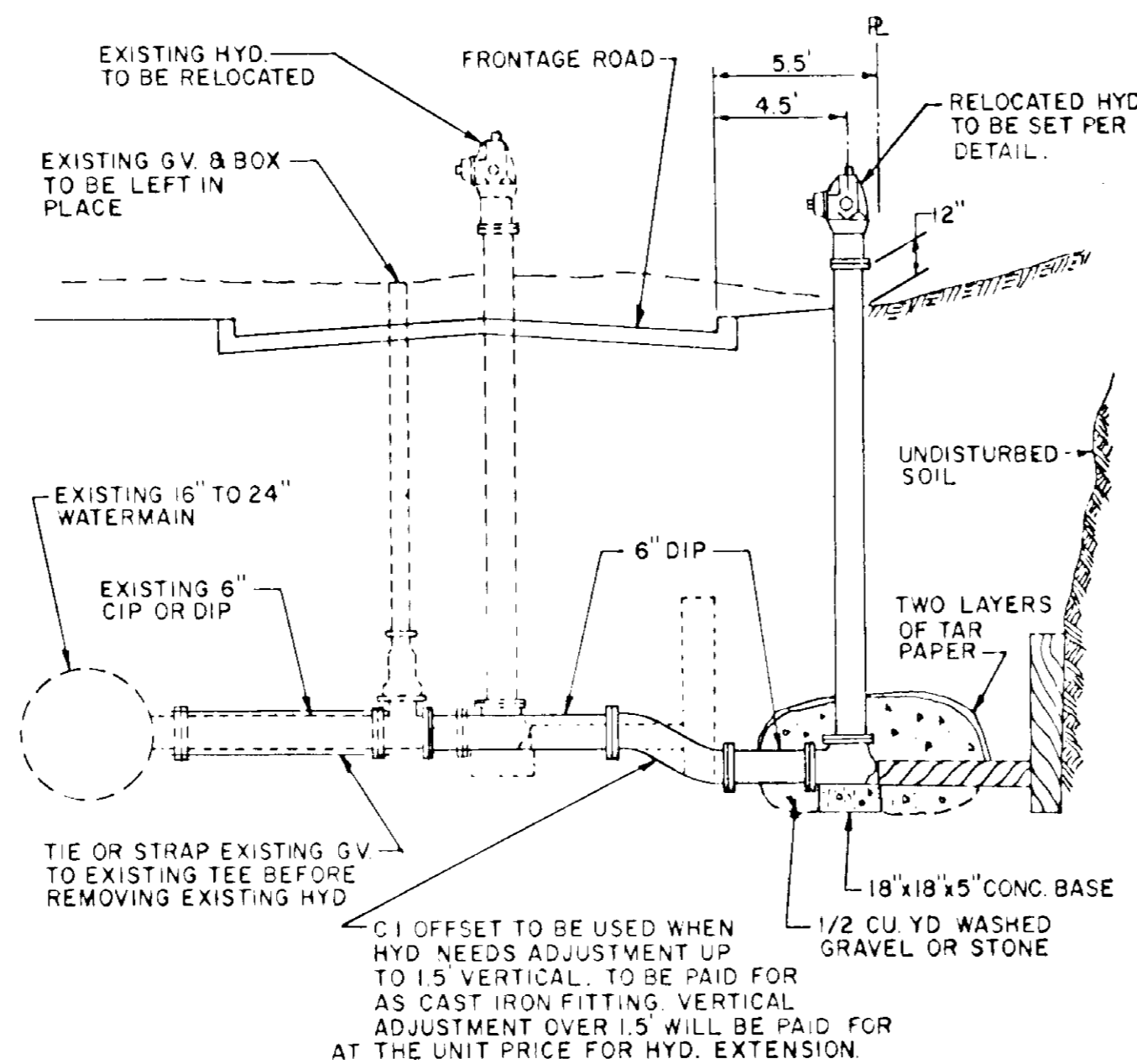
ENTRANCE DETAIL



PEDESTRIAN RAMP DETAIL



TYPICAL HYDRANT SETTING DETAIL

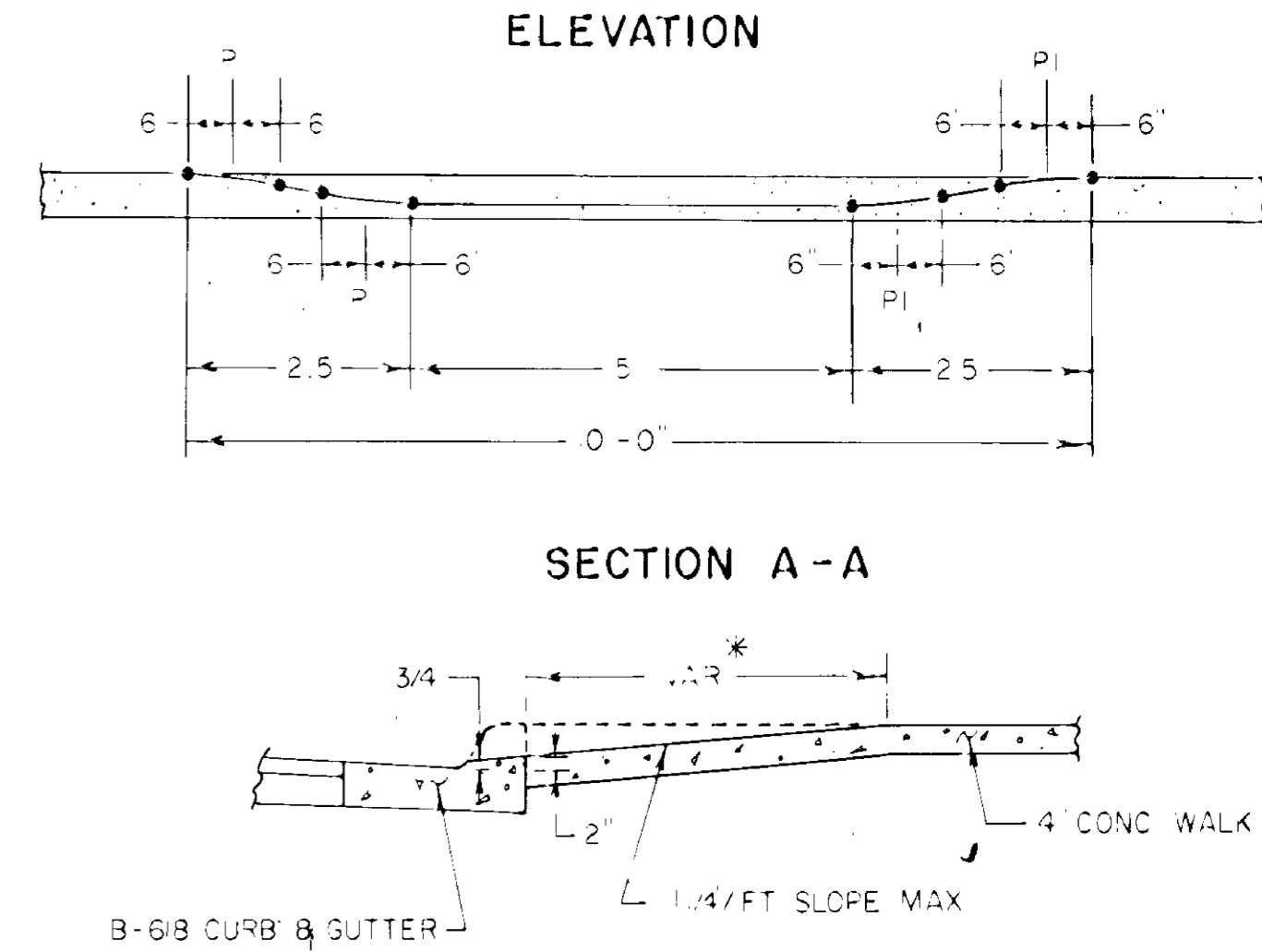


NOTE: HYDRANT RELOCATION SHALL INCLUDE ALL TOOLS, MATERIALS AND LABOR TO SECURE THE EXISTING GATE VALVE TO THE EXISTING TEE, REMOVE AND RELOCATE THE EXISTING HYDRANT WITHOUT SHUTTING DOWN THE EXISTING WATERMAIN. CONST. ACCORDING TO DETAILS AS SHOWN AND IN ACCORDANCE WITH THE CITY OF ST. FRANCIS REQUIREMENTS

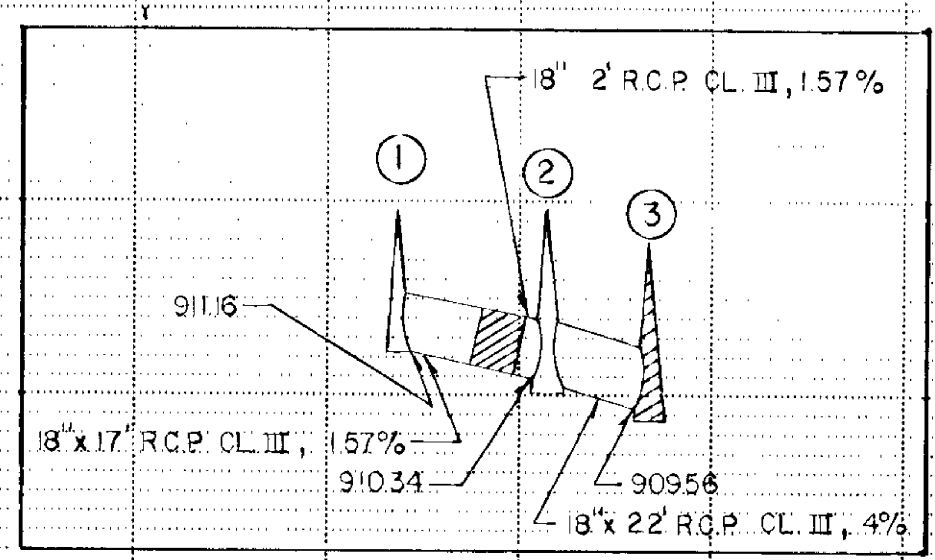
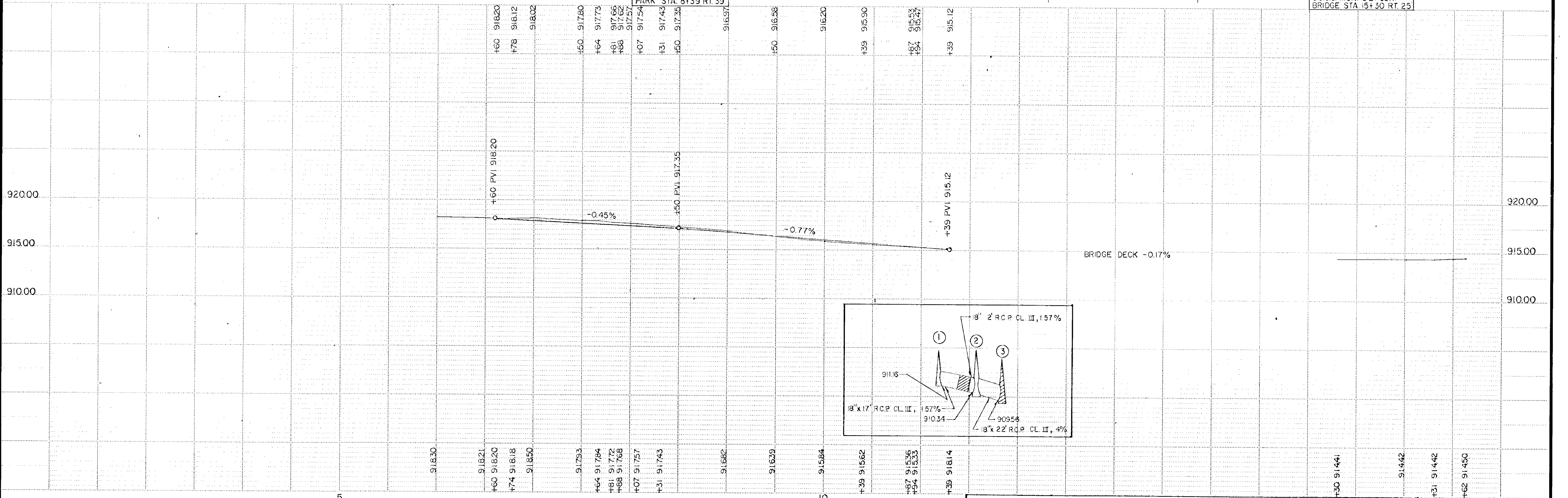
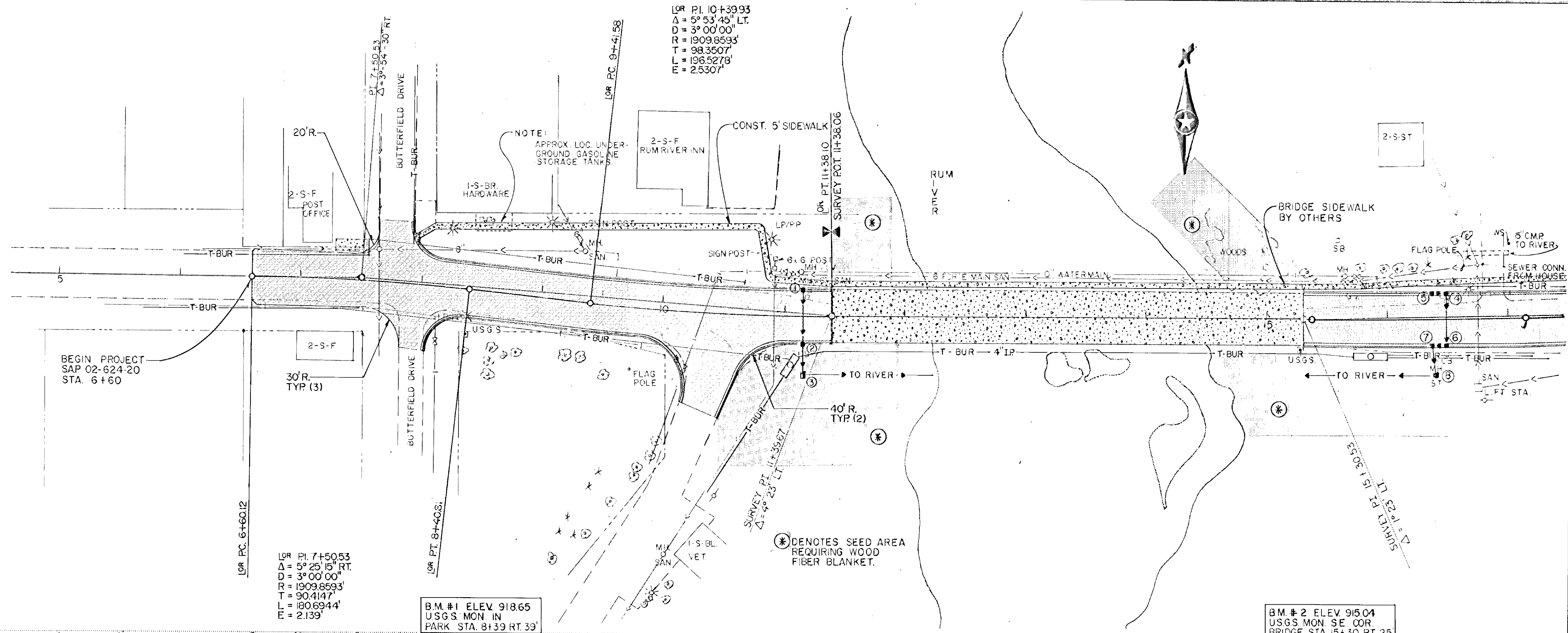
HYDRANT RELOCATION DETAIL

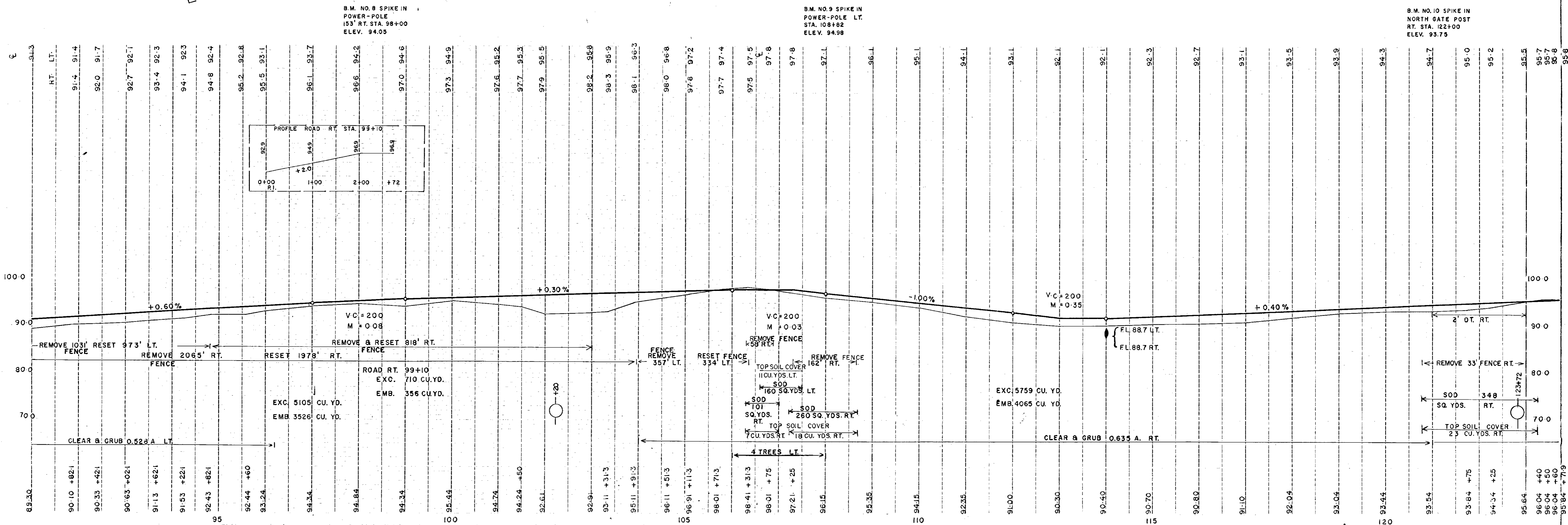
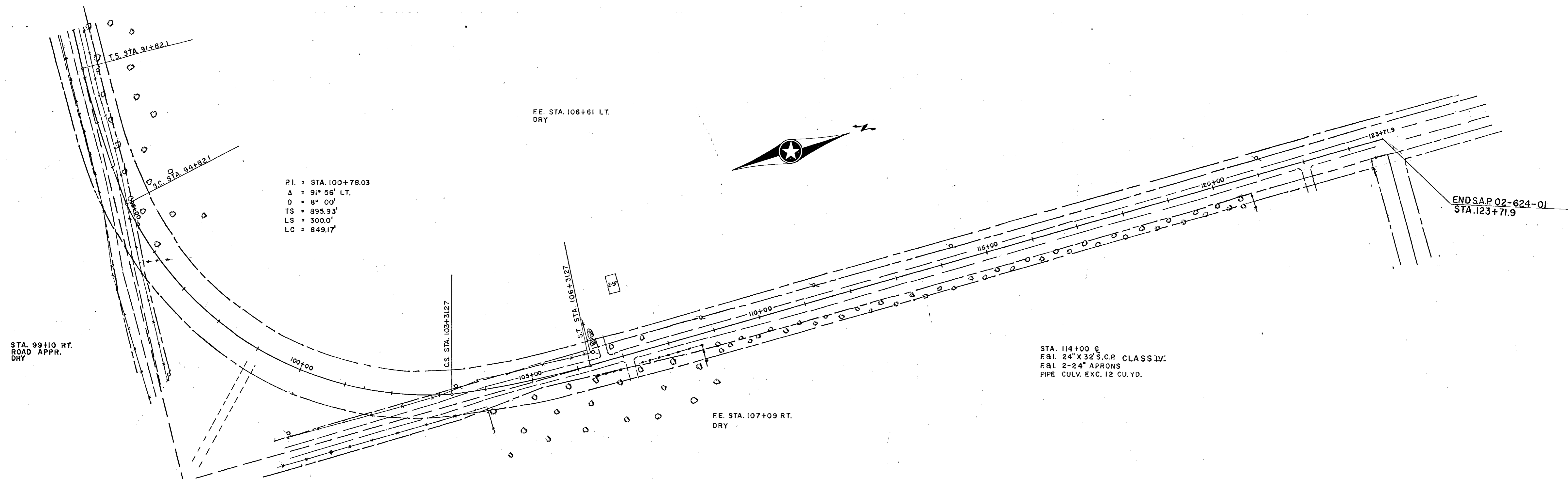
SIDEWALK CONSTRUCTION

STATION	LOCATION	SQ FT		
		4"	6"	8"
7+90 - 9+04	40' - 64' LT	520		
9+04 - 9+50	58' - 64' LT			230
9+50 - 11+40	21' - 64' LT	1,300		
15+30 - 16+79	21' - 29' LT	745		
16+79 - 16+97	29' LT		90	
16+97 - 17+67	29' LT	350		
17+67 - 17+85	29' LT		90	
17+85 - 18+80	29' LT	1,475		
26+44 - 28+05	40' - 130' LT (8' wide)		1,680	
TOTALS:		3,290	1,770	320



NOTE:
ALL UTILITY LOCATIONS ARE APPROXIMATIONS ONLY. CALL FOR LOCATOR BEFORE DIGGING.





2-11 12-11113-111 1-11113-111

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu Yds Cu Yds Sub-Totals

Sub-Totals Cu Yds Cu Yds Sub-Totals

10+87 915.36
E. GUTTER BUTTERFIELD DR. LT. (ON RANGE)
OR CONST. C

7+88 917.68
E. GUTTER BUTTERFIELD DR. LT.

130 0
TS 0

7+81 917.68
W. GUTTER BUTTERFIELD DR. RT.

100 0
TS 1

7+64 917.84
W. GUTTER BUTTERFIELD DR. LT.

110 0
TS 4

26 0
TS 6

10+00 915.84

9+50 916.39
C 28' BIT. ENT. LT.

84 0
TS 4

7+50 917.93

26 0
TS 1

133 SAN. MH.
37
TC. 916.64

18 0
TS 5

7+00 918.15

42 15
TS 0

9+00 916.82

6+78 918.18 C 16' SAND ENT. RT.

39 0
TS 1

6+60 918.20 C 12' SAND ENT. LT.

8+31 917.43

6+50 918.21

8+07 917.57
E. GUTTER BUTTERFIELD DR. RT.

18 0
TS 6

STA. 6+50 TO STA. 10+87

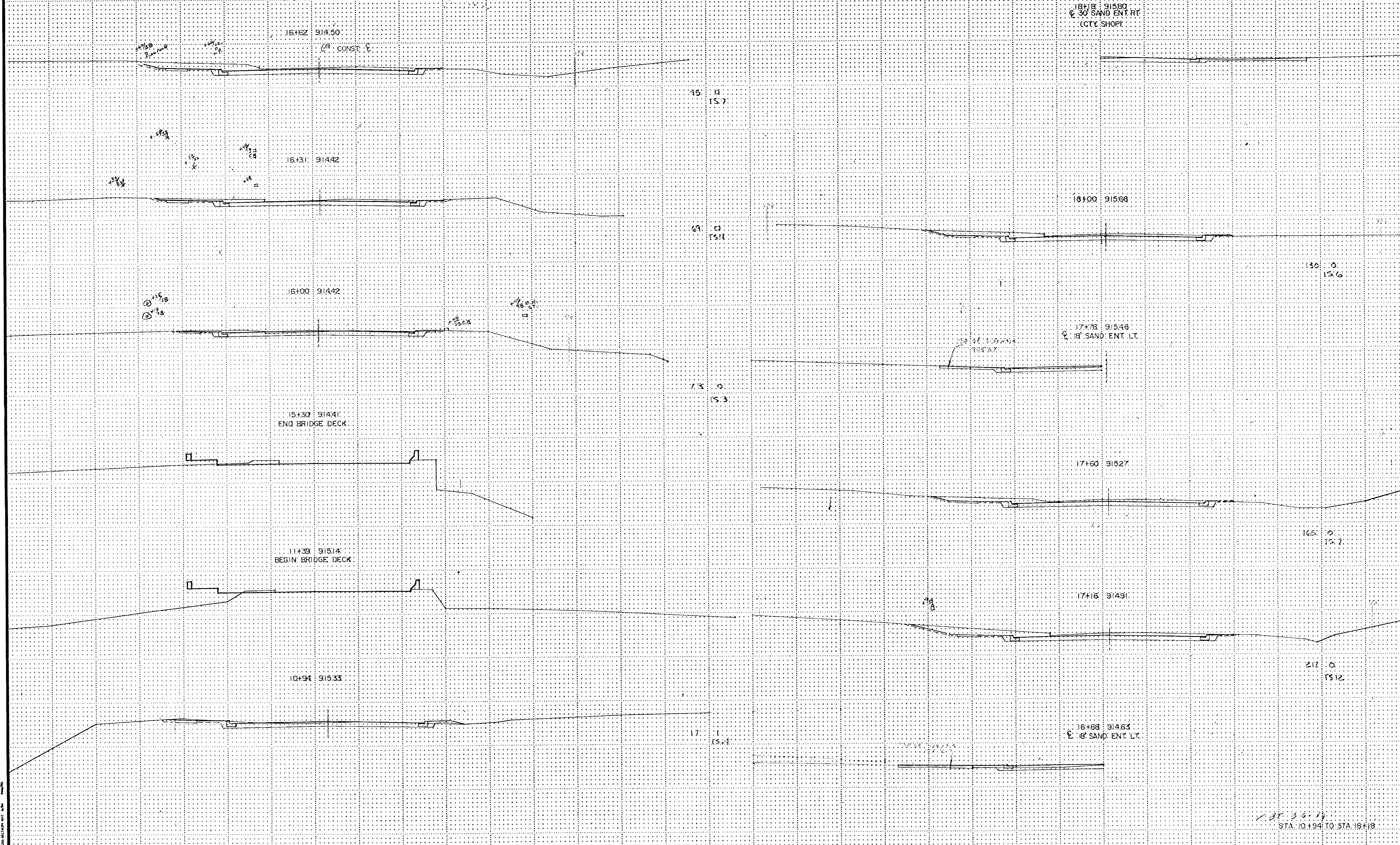
ILLUSTRATED CROSS SECTION UNIT 1/8" = 1'-0"

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals



PLOTTED D.W. 12-16-85
CHECKED M.F.G. 12-17-85

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

21+77 918.64
 15' DUNST. C

25+20 920.23
 30' BUT. ENT. RT.

Hydrant

13 121
 152.7

24+44 919.34

21+00 918.39

67 95
 15.17

20+17 917.84
 26' SAND ENT. LT.

226 94
 15.33

24+00 919.74

156 176
 15.37

20+00 917.72

23+00 919.18

58 34
 15.17

300 7
 15.31

22+82 919.03
 12' SAND ENT. RT.

19+00 916.51

113 3
 15.16

22+55 919.01

18+47 916.02

168 3
 15.10

77 18.5
 15.16

STA. 18+47 TO STA. 25+20

EXCAVATION EMBANKMENT

EXCAVATION EMBANKMENT

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

Sub-Totals Cu. Yds. Cu. Yds. Sub-Totals

26+40 92108

26+44 92067
E. SHldr. CTY # 72 E. SHldr. POPPY ST.

EARTHWORK TOTALS
EXCAVATION 3267
EMBANKMENT 1148
TOTALS 4415

28+36 92106 E. GUTTER SCHOOL ENT. LT.

EXCESS CO. YDS.
1722
432
3204

26+30 92061
E. CTY # 72 E. POPPY ST.

28+06 92101 W. GUTTER SCHOOL ENT. LT.

18 2
15.0

27+50 92094

26+17 92059
W. SHldr. CTY # 72 E. SHldr. POPPY ST.
CONST. 4

S.D. 91840

32 21
15.0

27+00 92087

S.D. 91830

26+00 92050

4 19
15.3

26+75 92077

S.D. 91825

SEE IMPROVE 33

25+92 92051

+65. TOP OF SIDEWALK 91995
+65. F.O.I. 24' x 17' SPAN CMP-A & 2 APRONS
26+65 INLET 91823
26+55 OUTLET 91811

35 165
15.17

26+55 92071

S.I. 91855

25+48 92038

144 248
15.42

STA. 25+48 TO STA. 28+40