

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 7/8 LINE	CATCH BASIN	
LIMITED ACCESS	MANHOLE	
PROPERTY LINE (Except Land Lines)	DROP INLET	
VACATED PLATTED PROPERTY	FIRE HYDRANT	
CORPORATE OR CITY LIMITS	ARC LAMP	
TRUNK HIGHWAY CENTER LINE	OTHER LAMPS (State Kind)	
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	
RAPIDS 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	C-CONCRETE S-STONE T-TILE B-BRICK ST-STUCCO	
GUARD RAIL	HEDGE	
WIRE FENCE	IRON PIPE	
RAILROAD SNOW FENCE	STONE MONUMENT	
BOARD OR HIGHWAY SNOW FENCE	WOOD STAKE OR HUB	
STONE WALL OR FENCE	MEANDER CORNER	
GAS MAIN		
WATER PIPE		
SEWER PIPE		
DRAIN TILE		
GRAVEL PIT		
SAND PIT		
CLAY PIT		
ROCK QUARRY		
SPRINGS		
MARSH		

OFFICE OF COUNTY ENGINEER

RAMSEY COUNTY

CONSTRUCTION PLAN FOR GRADING AND BITUMINOUS SURFACING

LAKE JOHANNA BLVD. S.P. 62-649-01

BETWEEN: CO. RD. "D" AND: CO. RD. "E"

FROM: A POINT 250 FT. SOUTH OF THE N. 1/4 OF SECTION 4 T.29N., R.23W. TO: A POINT 185.49 FT. NORTH AND 185.50 FT. EAST OF S.W. CORNER OF N.W. 1/4 OF N.E. 1/4 SECTION 33 T.30N., R.23W.

GROSS LENGTH 4525.00 FEET 0.857 MILES
BRIDGES-LENGTH 0 FEET 0 MILES
EXCEPTIONS-LENGTH 0 FEET 0 MILES
NET LENGTH 4525.00 FEET 0.857 MILES

PLAN, 1 inch = 50 Feet
PROFILE, Horiz. 1 inch = 50 Feet, Vert. 1 inch = 5 Feet.
WORKING PLANS - Horiz. 1 inch = 50 Feet, Vert. 1 inch = 5 Feet
LAYOUT, 1 inch = 2640 Feet

DESIGN DESIGNATION

ADT 1965 = 1500 DESIGN SPEED 30 M.P.H.
ADT 1980 = 4000
DHV = 95
D (DIRECTIONAL DISTRIBUTION) = 50-50
T (HEAVY COMMERCIAL) = 100V.
DESIGN LOAD = 9 TON
SOILS FACTOR = 100

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTION & ESTIMATED QUANTITIES
3	DRAINAGE STRUCTURE CHART
4	DRAINAGE STRUCTURE DETAILS
5	CO. RD. "D" - NEW BRIGHTON RD. INTERSECTION
5	CO. RD. "D" SEWER
6,7,8	PLAN PROFILE, & CONSTRUCTION PLAN
9-17	CROSS-SECTIONS



END OF PROJ.
STA. 42+75

BEG. OF PROJ.
STA. 2+50 FAIRVIEW AVE.

PIT DATA

PIT NO. _____	Located in _____
PIT NO. _____	Located in _____
PIT NO. _____	Located in _____
PIT NO. _____	Located in _____

SPECIFICATIONS

THE "SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JAN. 1, 1964 SHALL GOVERN.

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.
Walter Carter REG. NO. 2082 DATE 4-5-65
ENGINEER

RECOMMENDED FOR APPROVAL *Dean R. O'Brien* DATE 4-5-65
COUNTY ENGINEER
APPROVED *H. F. Goodrich* DATE 4-5-65
VICE-CHAIRMAN OF RAMSEY COUNTY BOARD

MINNESOTA STATE HIGHWAY DEPARTMENT

RECOMMENDED FOR APPROVAL *J. J. Thompson* DATE 5/7/65
RECOMMENDED FOR APPROVAL *B. J. Bremner* DATE 5/7/65
DISTRICT ENGINEER
APPROVAL *R. M. Evans* DATE 5-10-65
STATE AID ENGINEER

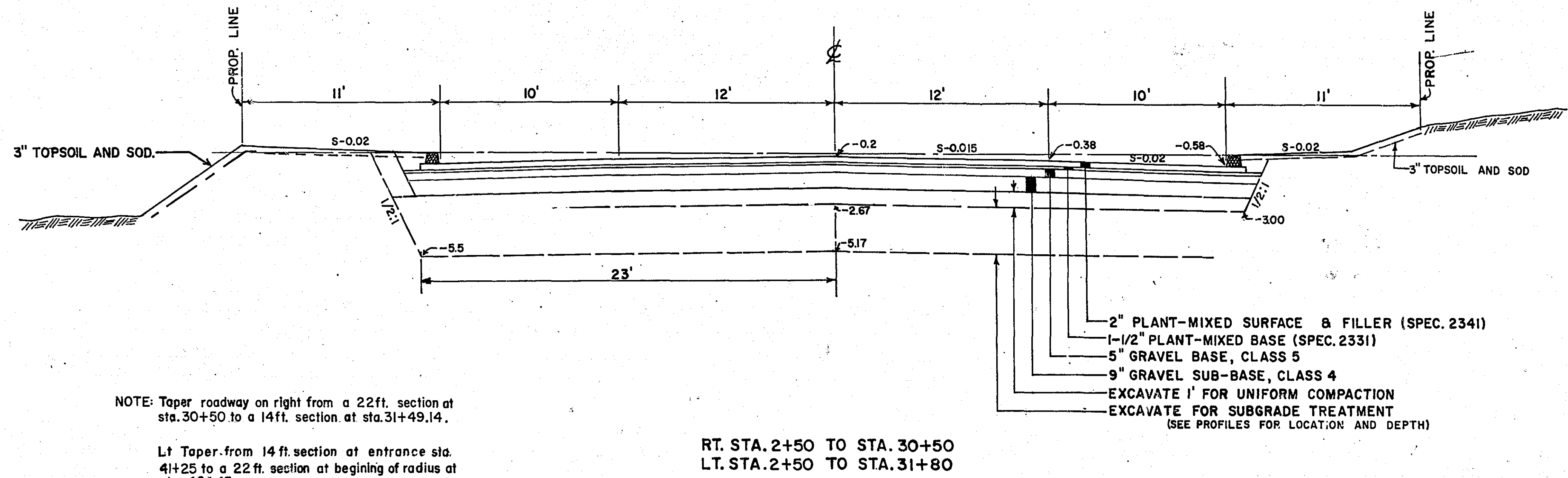
MICROFILMED
RAMSEY CO. ENGR

6846

ESTIMATED QUANTITIES			
SPEC. NO.	DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES
2101.502	CLEARING	TREE	33
2101.507	GRUBBING	TREE	27
2104.509	REMOVE GUARD RAIL	L.F.	205
2104.511	REMOVE CATCH BASINS	STRUCTURE	4
2103.501	BUILDING REMOVAL	LUMP SUM	1
2105.501	CLASS A EXCAVATION	C.Y.	23,494
2105.510	TOPSOIL COVERING	C.Y.	850
2105.564	SALVAGED BITUMINOUS MIXTURE IN STOCKPILES	C.Y.	2400
2104.502	REMOVE PAVEMENT	S.Y.	1,319
2130.501	WATER	(M)GAL.	200
2201.526	GRAVEL SUB-BASE IN PLACE (CLASS 4)	TON	16,831
2202.526	GRAVEL BASE IN PLACE (CLASS 5)	TON	7,633
2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	87
2331.514	BASE COURSE MIXTURE	TON	1,950
2341.501	BITUMINOUS MATERIAL FOR PRIME COAT	GAL.	600
2341.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL.	1,250
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	180
2341.509	WEARING COURSE MIXTURE & FILLER	TON	3,250
2356.505	BITUMINOUS MATERIAL FOR SEAL COAT	GAL.	4,165
356.611	SEAL COAT AGGREGATE	TON	125
502.608	SUBDRAIN BACKFILL, CLASS 7	TON	33
2502.514	F&I 8" PERFORATED C.M. PIPE DRAIN	L.F.	100
2503.512	F&I 15" R.C.P. SEWER, CLASS 2	L.F.	16
2503.512	F&I 18" R.C.P. SEWER, CLASS 2	L.F.	430
2503.512	F&I 21" R.C.P. SEWER, CLASS 2	L.F.	393
2503.512	F&I 24" R.C.P. SEWER, CLASS 2	L.F.	550
2503.514	F&I 18" C.M.P. SEWER	L.F.	286
2503.514	F&I 24" C.M.P. SEWER	L.F.	66
2503.514	F&I 30" C.M.P. SEWER	L.F.	62
2515.531	F&I METAL APRON FOR 24" C.M.P. SEWER	APRON	1
2506.508	CONSTRUCT MANHOLE, DESIGN C.M.	STRUCTURE	1
2506.506	CONSTRUCT MANHOLE, DESIGN A OR F	L.F.	96.7
2506.507	CONSTRUCT CATCH BASINS, DESIGN RC-4	L.F.	64.9
2506.507	CONSTRUCT CATCH BASINS, DESIGN COR G	L.F.	24.5
2506.511	RECONSTRUCT MANHOLES	L.F.	26.9
2506.516	FURNISH & INSTALL CASTING ASSEMBLIES	ASSEMBLY	19
2506.522	ADJUST FRAME RING AND CASTING	ASSEMBLY	12
2506.521	INSTALL CASTINGS	ASSEMBLY	6
2531.501	CONCRETE CURB AND GUTTER, DESIGN B618	L.F.	997
2531.502	CONCRETE CURB, DESIGN B6	L.F.	165
2535.501	BITUMINOUS CURB	L.F.	7,272
2545.521	3" RIGID METALLIC CONDUIT	L.F.	253
2545.553	PRECAST CONCRETE PULL BOXES	BOX	3
2576.501	SODDING	S.Y.	8,800

STANDARD DETAIL PLATES	
3000C	REINFORCED CONCRETE PIPE
4000E	MANHOLE OR CATCH BASIN (DESIGN A)
4002C	MANHOLE OR CATCH BASIN
4101A	RING CASTING FOR MANHOLE OR CATCH BASIN (CASTING NO. 700-7)
4111C	COVER CASTING FOR MANHOLE
4126C	CATCH BASIN FRAME CASTING
4149B	GRATE CASTING FOR CATCH BASIN
4161C	CURB BOX CASTING FOR CATCH BASIN
4181	MANHOLE STEP CASTING
7020C	CONCRETE CURB
7065B	BITUMINOUS CURB
7100C	CONCRETE CURB AND GUTTER (DESIGN B)
7102B	CONCRETE CURB AND GUTTER (DESIGN S)
7111C	INSTALLATION OF CATCH BASIN CASTING
8000A & 8009	STANDARD BARRICADES
8307C	STRUCTURAL PLATE BEAM GUARD RAIL
8117	PRECAST CONCRETE HANDHOLE
9102A	SODDING AT PIPE CULVERT ENDS
3123C	METAL APRON FOR C.M. PIPES
4005E	MANHOLE OR CATCH BASIN
4006D	MANHOLE OR CATCH BASIN
4150A	GRATE CASTING FOR CATCH BASIN

TYPICAL SECTIONS



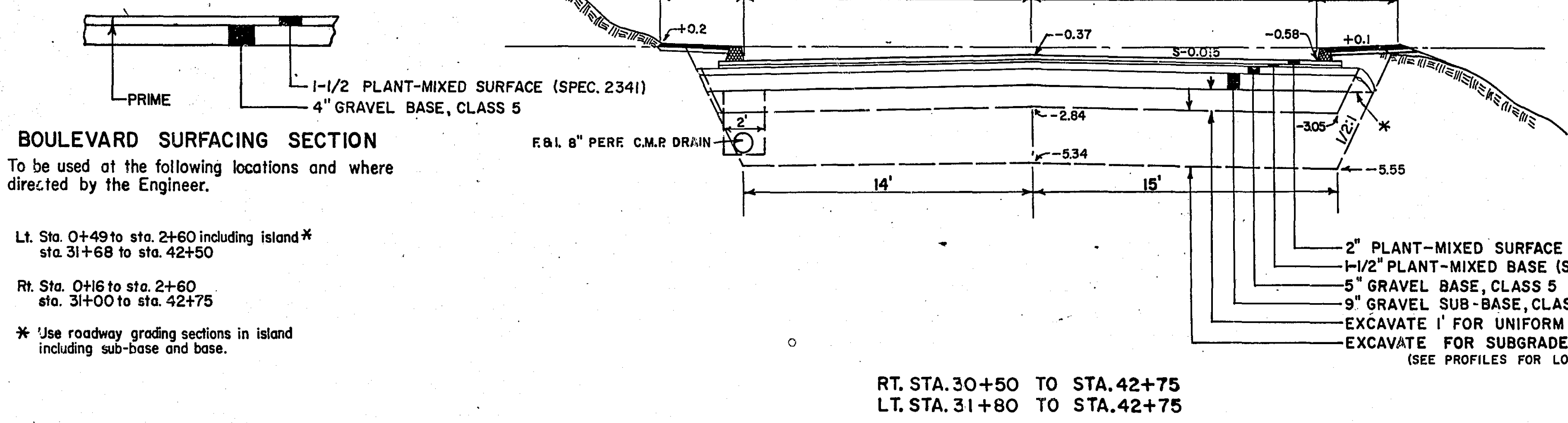
NOTE: Taper roadway on right from a 22ft. section at sta. 30+50 to a 14ft. section at sta. 31+49.14.

Lt. Taper from 14ft. section at entrance sta. 41+25 to a 22ft. section at beginning of radius at sta. 42+45.

Rt. Taper from 14ft. section at sta. 41+50 and construct face of curb 4ft. from guard rail to sta. 42+25, curb not to exceed 22ft. from 2.

2" PLANT-MIXED SURFACE & FILLER (SPEC. 2341)
 1-1/2" PLANT-MIXED BASE (SPEC. 2331)
 5" GRAVEL BASE, CLASS 5
 9" GRAVEL SUB-BASE, CLASS 4
 EXCAVATE 1' FOR UNIFORM COMPACTION
 EXCAVATE FOR SUBGRADE TREATMENT
 (SEE PROFILES FOR LOCATION AND DEPTH)

NOTE: Use a 25 ft. transition in roadway crown when changing typical sections.



BOULEVARD SURFACING SECTION

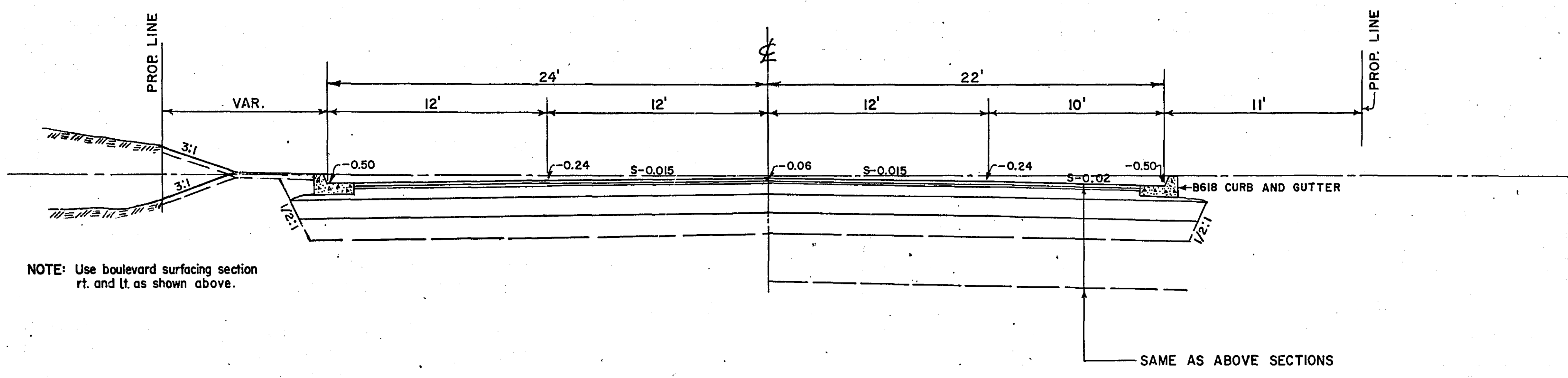
To be used at the following locations and where directed by the Engineer.

Lt. Sta. 0+49 to sta. 2+60 including island*
 sta. 31+68 to sta. 42+50

Rt. Sta. 0+16 to sta. 2+60
 sta. 31+00 to sta. 42+75

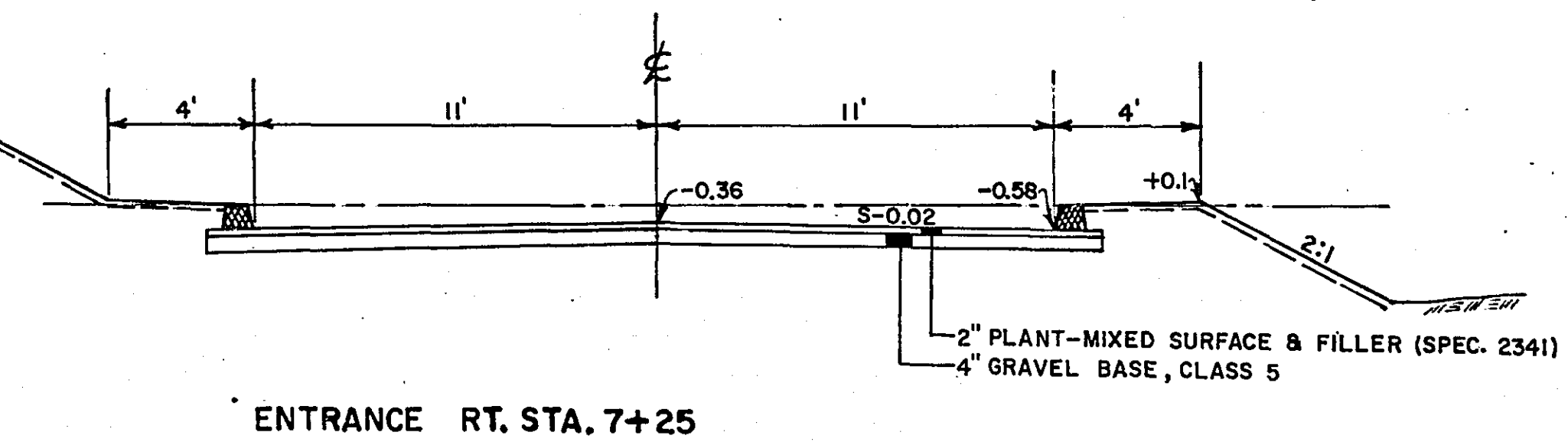
* Use roadway grading sections in island including sub-base and base.

2" PLANT-MIXED SURFACE & FILLER (SPEC. 2341)
 1-1/2" PLANT-MIXED BASE (SPEC. 2331)
 5" GRAVEL BASE, CLASS 5
 9" GRAVEL SUB-BASE, CLASS 4
 EXCAVATE 1' FOR UNIFORM COMPACTION
 EXCAVATE FOR SUBGRADE TREATMENT*
 (SEE PROFILES FOR LOCATION AND DEPTH)



HALF SECTION

Construct above section in locations as indicated by dimensions as shown on intersection detail on sheet no. 5.



ENTRANCE RT. STA. 7+25

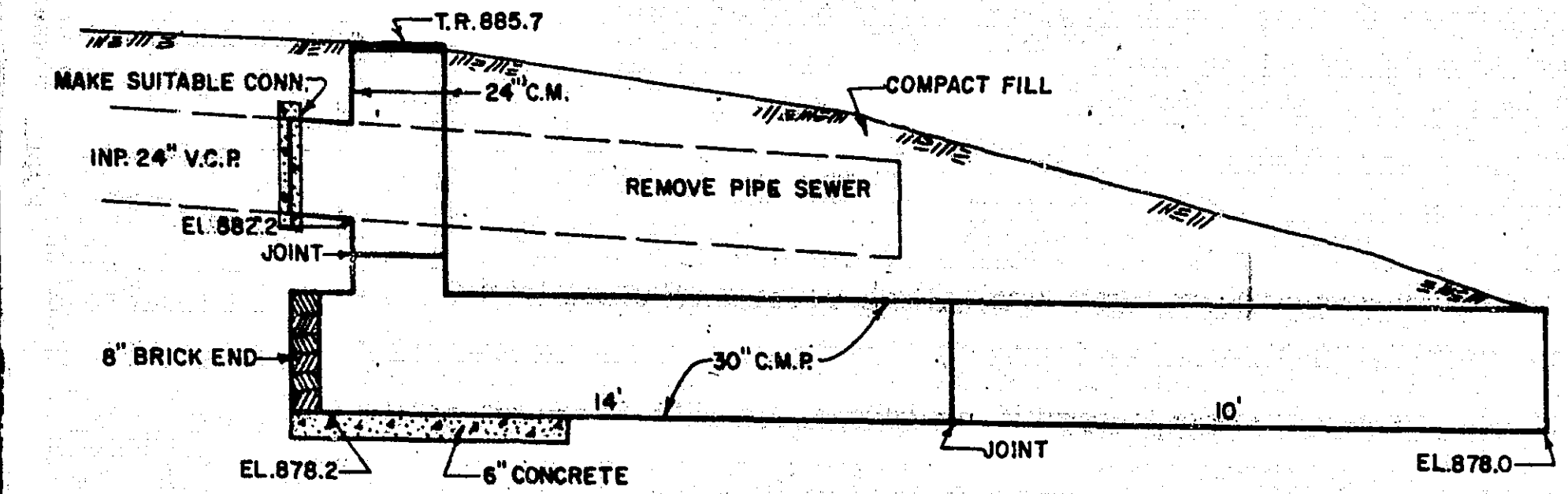
MICROFILMED
 PANSEY CO. ENGR.

DRAINAGE

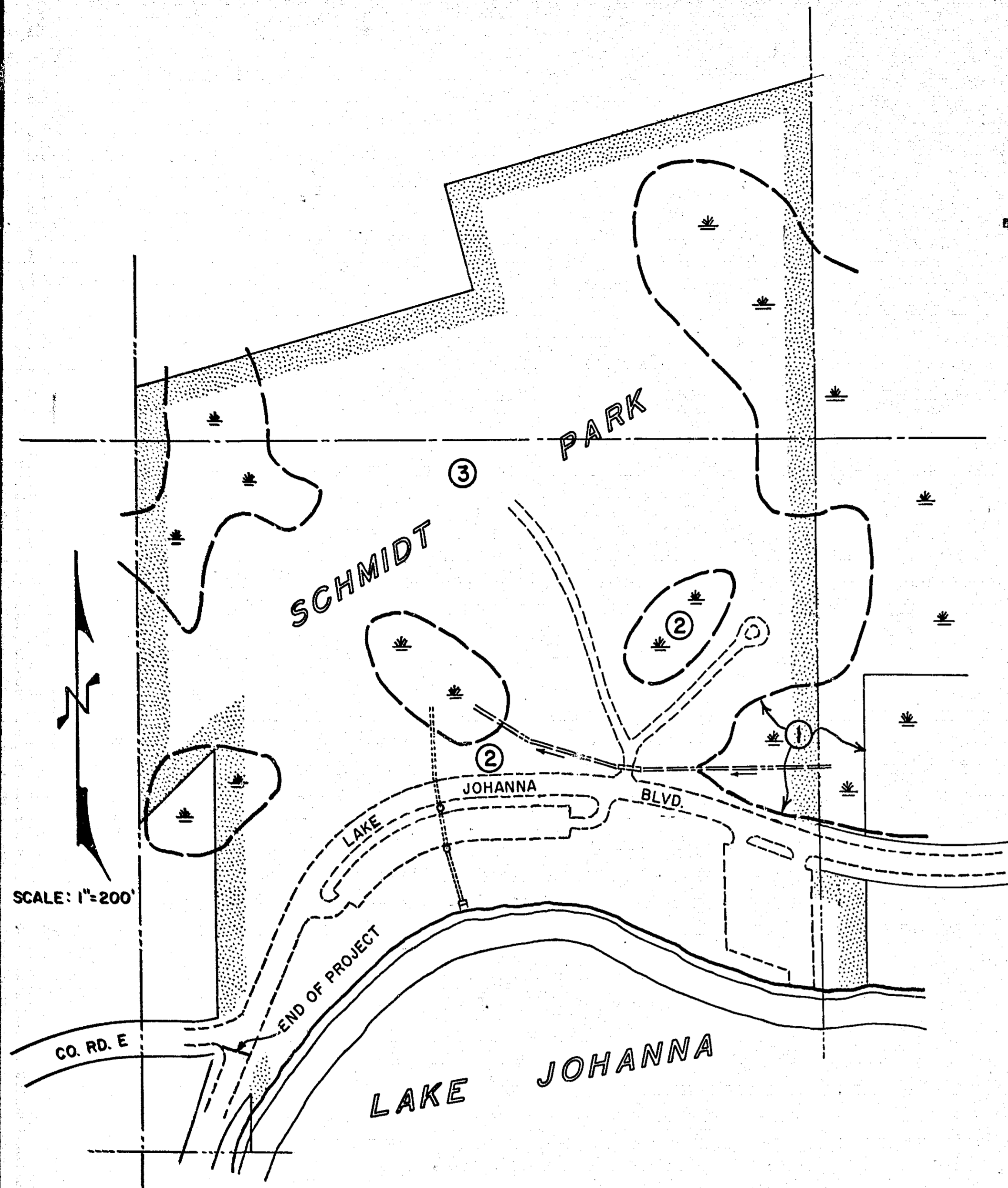
STRUCTURES

STATION	LOCATION	NO	TYPE	DESIGN	CONST HEIGHT LIN FT	CASTING ASSEMBLY	ELEVATION			FBI PIPE SEWER										DRAINS TO		REMARKS			
							PROFILE	ORIGINAL	GATE OR RING	OUTLET	LINEAR FEET										GRADE %		INV EL		
											REINFORCED	SECTIONAL	CONCRETE	SUMP	CORRUGATED	METAL	CLASS	FBI APRON	NO						
15'	18'	21'	24'	36'	18"	15"	24"	30"																	
SEWER ON CO. RD. "D"																									
1490	RT. 27.5	1	C.B.	RC-4	5.2'		926.0		926.09	921.6							2	3	-1.6	921.02					
1490	LT. 25.5	2	C.B.	RC-4	5.3'		926.0		926.05	921.4							2	3	-1.6	921.02					
1490	LT. 10'	3	M.H.	A	5.0'	①	926.0		925.9	921.0			88'				2	3A	-0.32	920.72					
2477	LT. 68'	4	C.B.	C	4.1'	②	926.49		925.9	921.64			54'				2	5	-1.0						
2477	LT. 10'	5A	M.H.	A	5.7'	①				920.72			112'				2	7	-0.32	920.36					
3490	LT. 26'	6	C.B.	C	4.7'	②			925.67	920.80			16'				2	7	-2.0	920.98					
3490	LT. 10'	7	M.H.	A	5.0'	①	925.5		925.4	920.36			330'				2	8							
7420	LT. 10'	8	M.H.	A	4.9'	①	923.8		923.8	919.0			230'				2	9	-0.8	917.16					
9450	RT. 10'	9	C.B.	RC-4	4.7'		921.2		921.2	917.15			125'				2	10	-1.0	915.9					
10475	RT. 10'	10	M.H.	A	4.9'	①			920.4	915.6			104'				2	11	-13.6	901.8					
11480	RT. 10'	11	M.H.	C	4.3'	①			905.5	901.3			32'				2	1-30 BEND		884.2					
SEWER ON LAKE JOHANNA BLVD.																									
0424	RT. 12'	12	M.H.	TELL			926.90	926.10	926.10												O.K. LEAVE				
0427	RT. 22'	13																				REMOVE			
2419	RT. 22.9	14	C.B.				927.11	926.56														REMOVE			
4466	LT. 22'	15	M.H.			③	925.60	924.48	925.64			4.9													
7448	LT. 22'	16	M.H.			③	922.91	922.18	922.35			5.1													
10415	LT. 25.5	17	C.B.	RC-4	5.0'		920.85		920.40	916.1			46'				2	18	-2.0	915.22					
10425	RT. 21'	18	C.B.	A	8.1'	②	920.31		919.53	911.25								1'	RT. 52'	-0.2	911.0				
10425	LT. 24'	19	M.H.			③	920.31	919.04	920.87			11.4													
13413	LT. 23'	20	M.H.			③	922.92	925.89	922.94			8.5										2' SECTION TO NO. 45			
17416	LT. 23'	21	M.H.				920.67	920.29	920.69			10.4													
19425	LT. 23'	22	M.H.				915.21	914.79	914.65			-0.14													
20470	LT. 25.5	23	C.B.	RC-4	6.8'		910.84		910.41	905.27			48'				2	25	-1.0	904.8					
20475	LT. 24'	24	M.H.				910.16	909.84	910.20			10.36													
20481	RT. 21'	25	C.B.	C	4.4'	②	909.94		909.16	904.56												70'			
20494	RT. 200'	26	M.H.	C.M.					885.8	878.2									24'	RT. 222'	-1.0	878.0	SEE DETAIL		
20496	RT. 88'	27	M.H.	A	6.9'				898.3	891.55			20'										TO EXISTING SEWER		
22438	LT. 24'	28	M.H.				907.03	907.05	907.07														REMOVE EXISTING M.H. CAST FROM C.B. 32		
22446	RT. 68'	29	M.H.				906.97	893.59															O.K. LEAVE		
22448.5	RT. 180'	30	M.H.	A	7.9'	①			886.0	878.2													20'		
22449	RT. 25.5	31	C.B.	RC-4	6.5'		906.95		907.02	902.19			20'				2			RT. 202'	-1.0	878.0			
22449	RT. 45'	32	M.H.	A	5.0'	①	906.95		900.8																
22450	LT. 25.5	33	C.B.	RC-4	6.0'		906.95		907.02	902.69			50'				2			31	-1.0	902.19	TAP EXISTING SEWER		
23412	RT. 26'	34	C.B.																				GRATE AND RING TO NO. 26		
24474	LT. 24'	35	M.H.				908.43	908.45	908.47														REMOVE		
26423	LT. 25'	36	M.H.				908.55	908.81	907.90			-0.91													
27404	LT. 21'	37	M.H.				906.46	906.74	905.90			-0.84													
29464	LT. 21'	38	M.H.				897.78	897.57	897.9			-0.27													
30479	LT. 18'	39	M.H.				894.36	894.91	893.86			-1.05													
31451	LT. 24'	40	C.B.	RC-4	6.1'		892.42		892.44	886.0			38'				2			41	-2.4	887.1			
31467	RT. 13'	41	C.B.	A	12.8'	②	892.04		891.26	878.8															
31489	LT. 20'	42	M.H.				891.42	890.93	891.57			10.64													
31492	LT. 16.5	43	C.B.	RC-4	6.0'		891.89		891.40				34'				2			41	-2.2	886.8			
33450	LT. 23'	44	M.H.				888.40	888.24	888.63			10.39													
34475	LT. 24'	45	M.H.			③	887.12	885.66	887.37			7.0											2' SECTION FROM NO. 20		
34494	LT. 18.5	46	C.B.	RC-4	6.8'		887.06		887.10	882.0			32'				2			47	-2.5	881.2			
34494	RT. 14'	47	C.B.	A	8.7'	②	887.06		887.28	878.5													30'		
35475	LT. 25'	48	M.H.				886.40	886.42	887.07			10.65													
36400	LT. 14'	49	C.B.	C	4.1'	②	886.72		885.94	881.7			28'				2			50	-2.5	881.0			
36400	RT. 14'	50	C.B.	A	7.8'	②	886.72		885.94	878.15													14'		
37425	LT. 27'	51	M.H.				886.32	887.31	886.67															O.K. LEAVE	
37477	LT. 14'	52	C.B.	C	4.0'	②	886.09		885.31	881.1			28'				2			53	-4.0	880.0			
37477	RT. 14'	53	C.B.	A	6.9'	②	886.09		885.31	878.2														22'	
38486	LT. 26'	54	M.H.				885.86	887.61	885.96															O.K. LEAVE	
39415	LT. 16.5	55	C.B.	RC-4	6.0'		885.54		885.59	881.9			30'				2			56	-1.5	880.5			
39415	RT. 14'	56	C.B.	A	6.4'	②	885.54		884.76	878.15														14'	
40463	LT. 25'	57	M.H.				885.70	885.63	885.97			10.34													
42470	LT. 32'	58	M.H.				884.61	883.63	884.1			10.5													
TOTALS							180.1'						26.9'	5	16'	430'	393'	550'				286'	66'	62'	

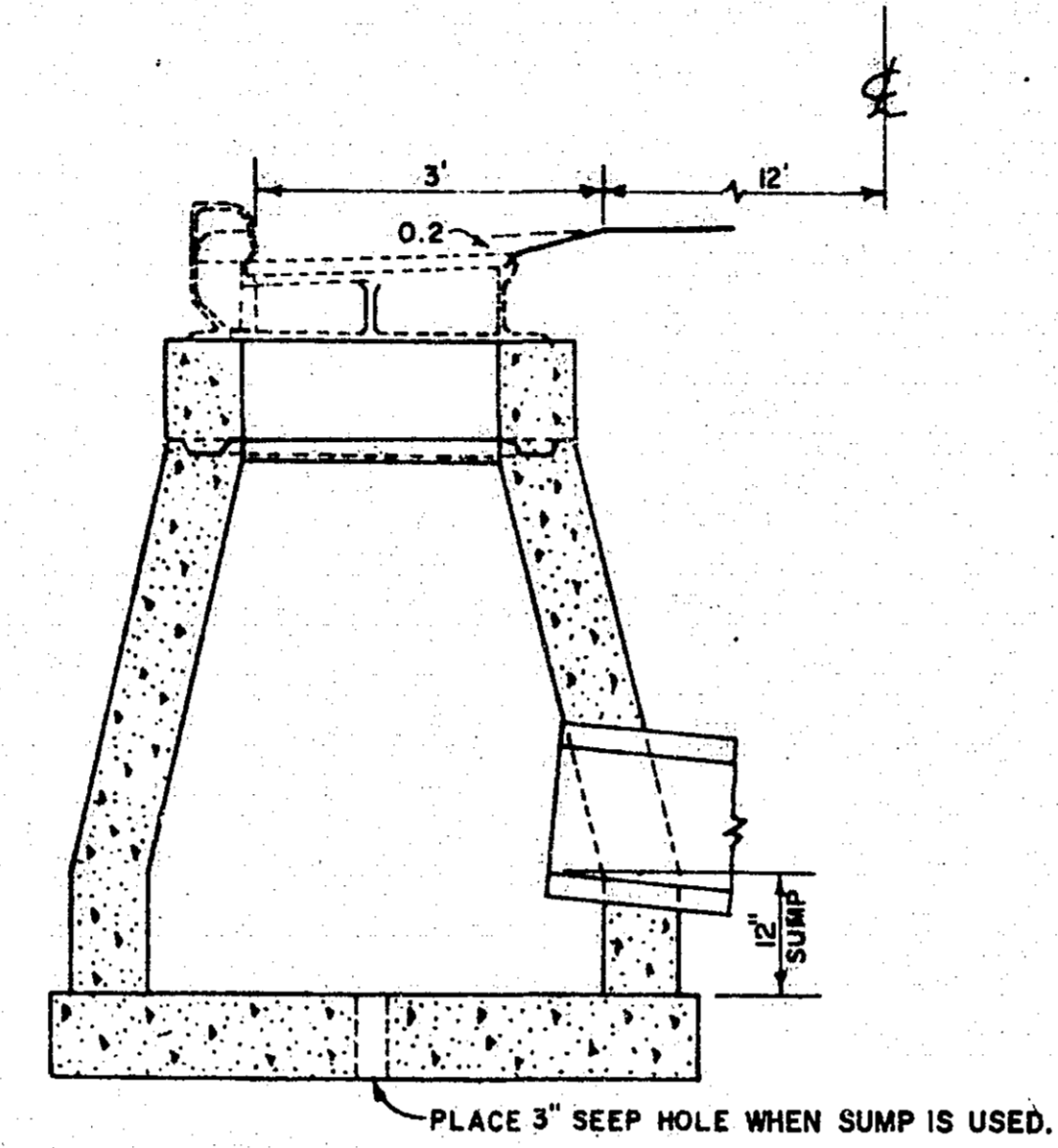
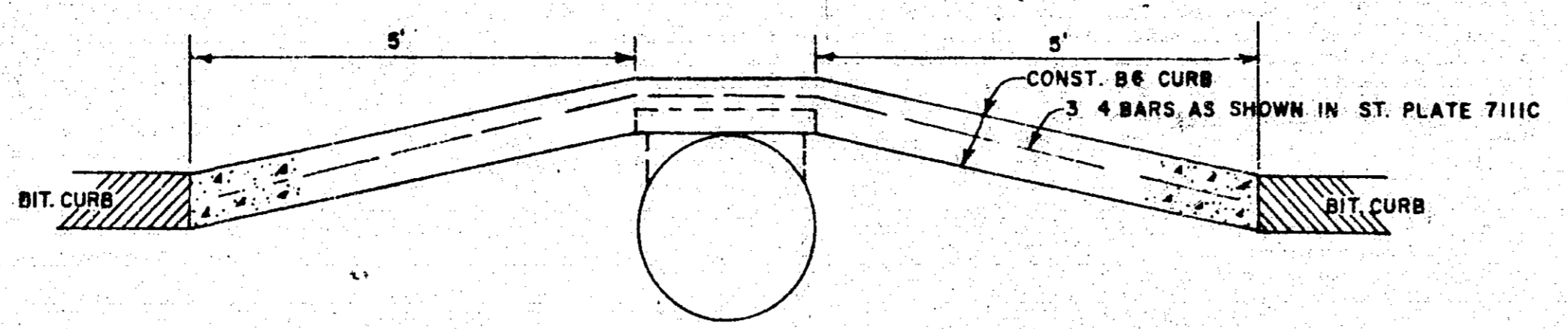
NOTE: ① CASTING NO. 700-7 & 712
 ② CASTING NO. 810 & 812B & 801
 ③ INSTALL CASTING ASSEMBLY



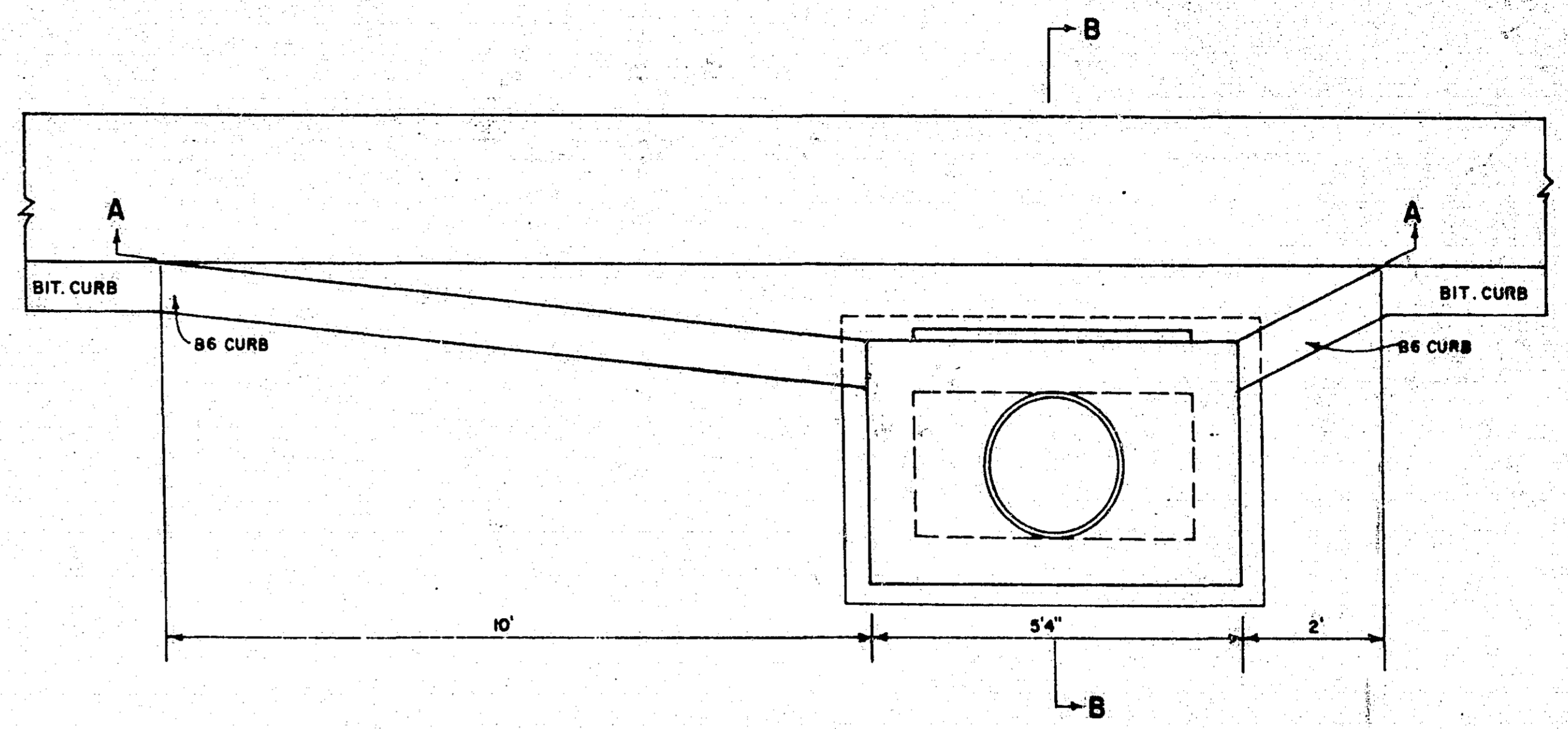
MANHOLE NO. 26, DESIGN C.M.
 STA. 20+94 RT. 200



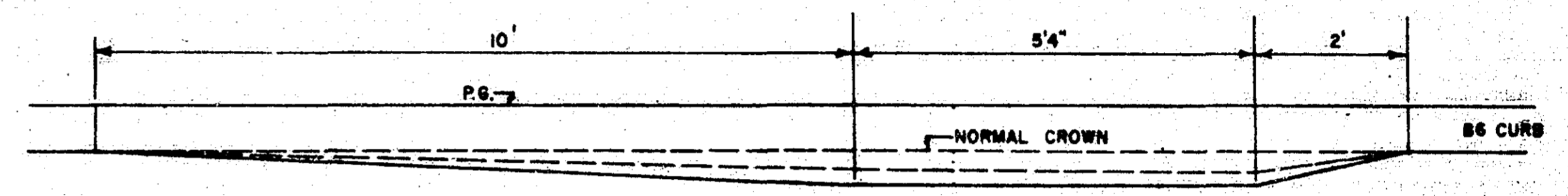
- DISPOSAL AREAS:**
- ① BROKEN UP CONCRETE & OTHER DEBRIS.
 - ② EXCESS MATERIAL.
 - ③ SALVAGED BITUMINOUS MIXTURE STOCKPILE.



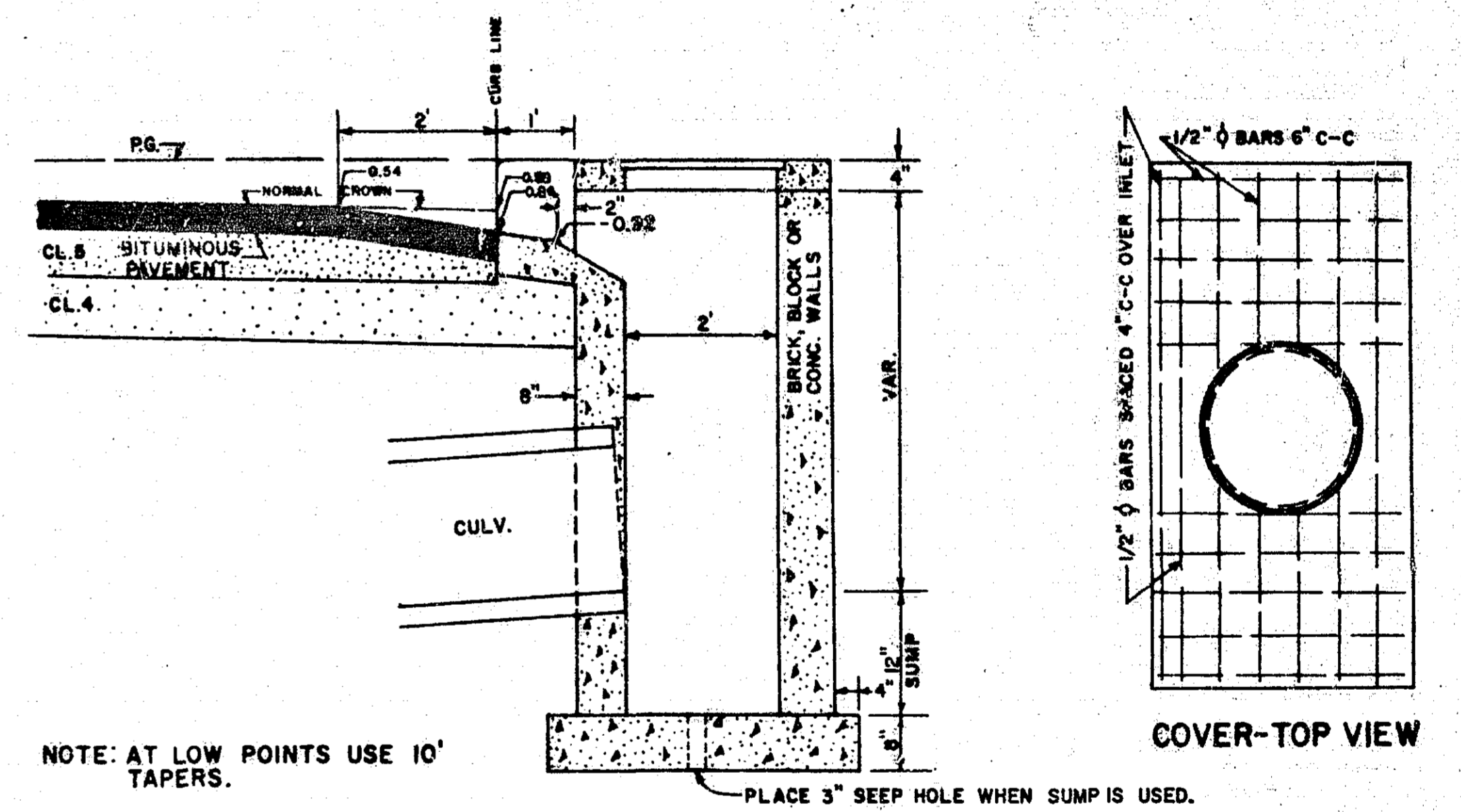
**CATCH BASIN
DESIGN C OR G**



RING B COVER ASSEMBLY
M.H.D. ST. PLATE 4108B - CASTING NO. 790-2
M.H.D. ST. PLATE 4111C - COVERCASTING 712



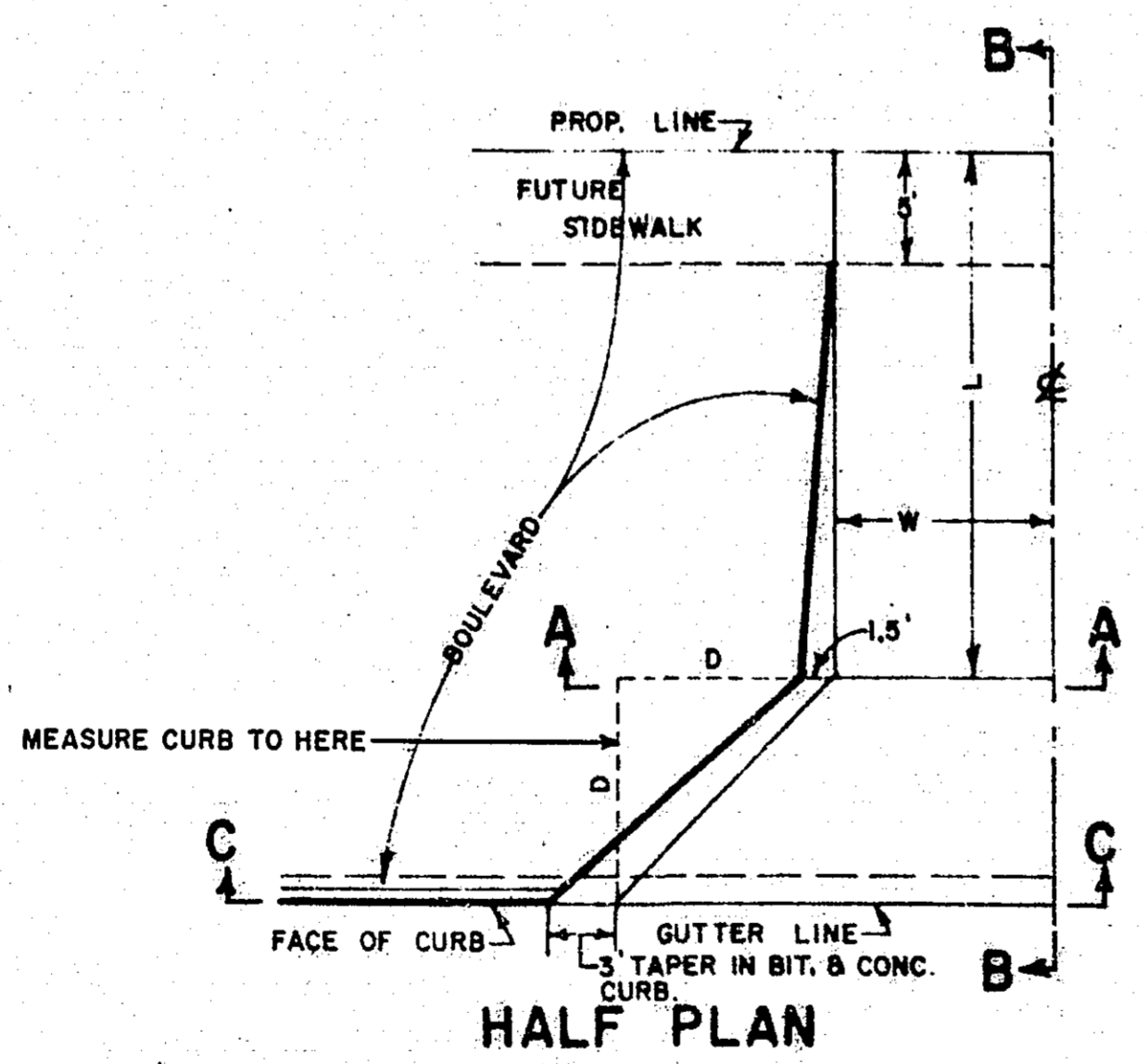
SEC. A-A



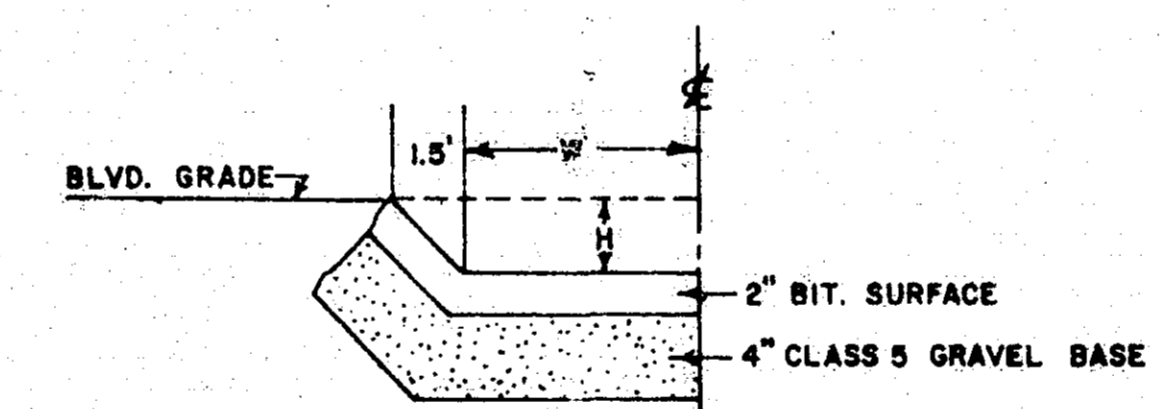
NOTE: AT LOW POINTS USE 10' TAPERS.

**SEC. B-B
CATCH BASIN RC-4**

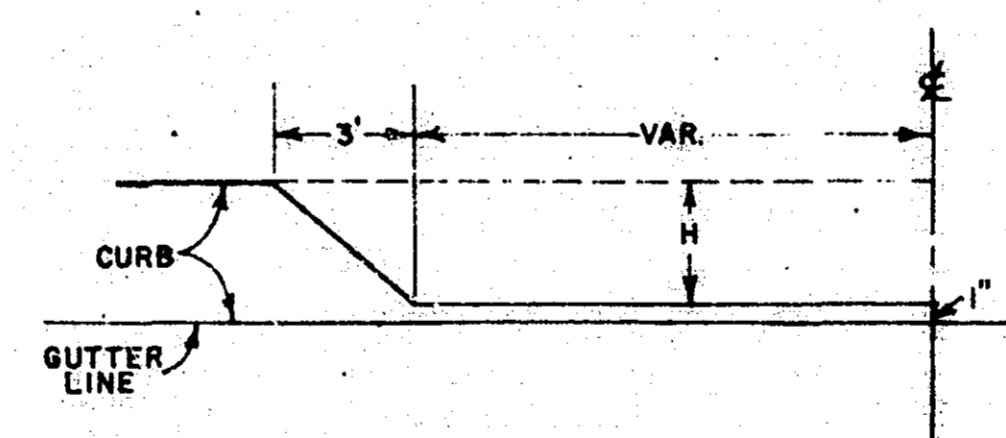
BITUMINOUS ENTRANCE DETAILS



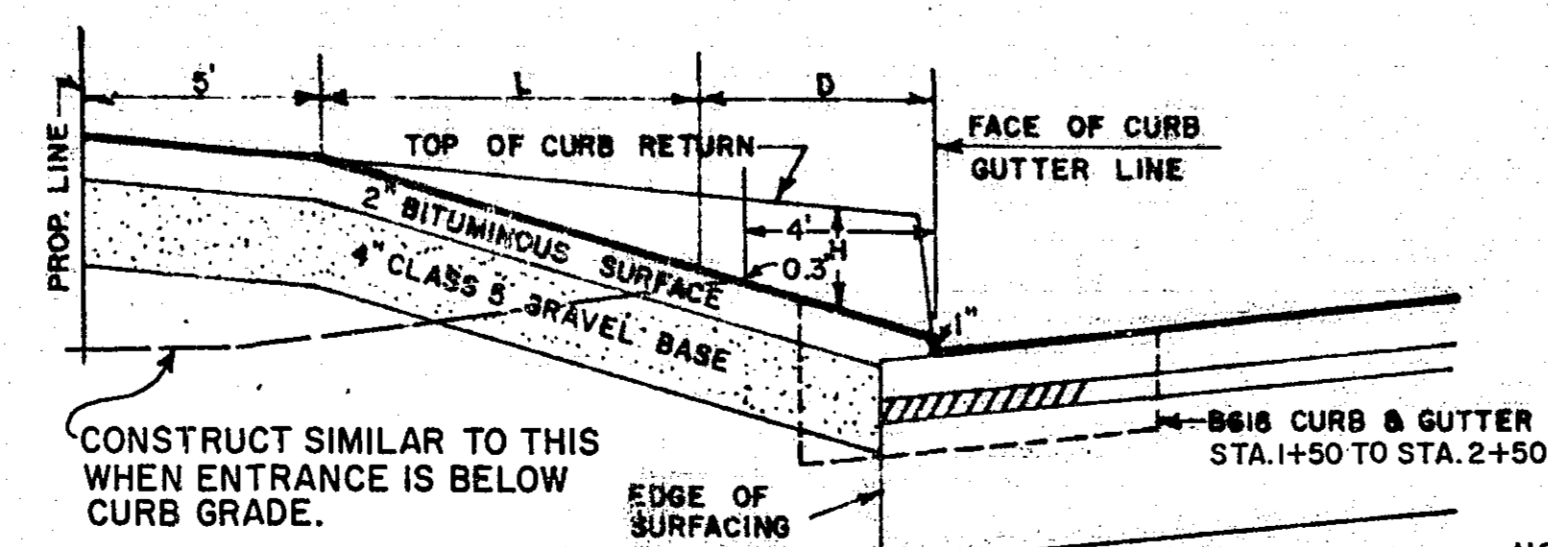
HALF PLAN



SECTION A-A



SECTION C-C

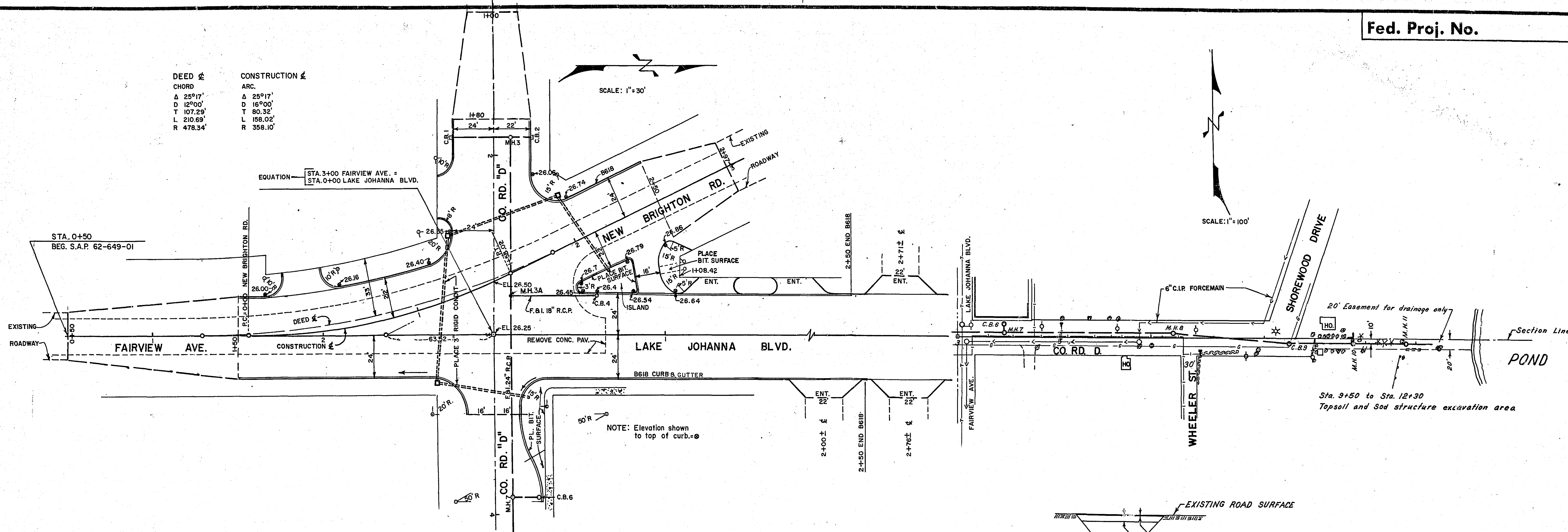


SECTION B-B

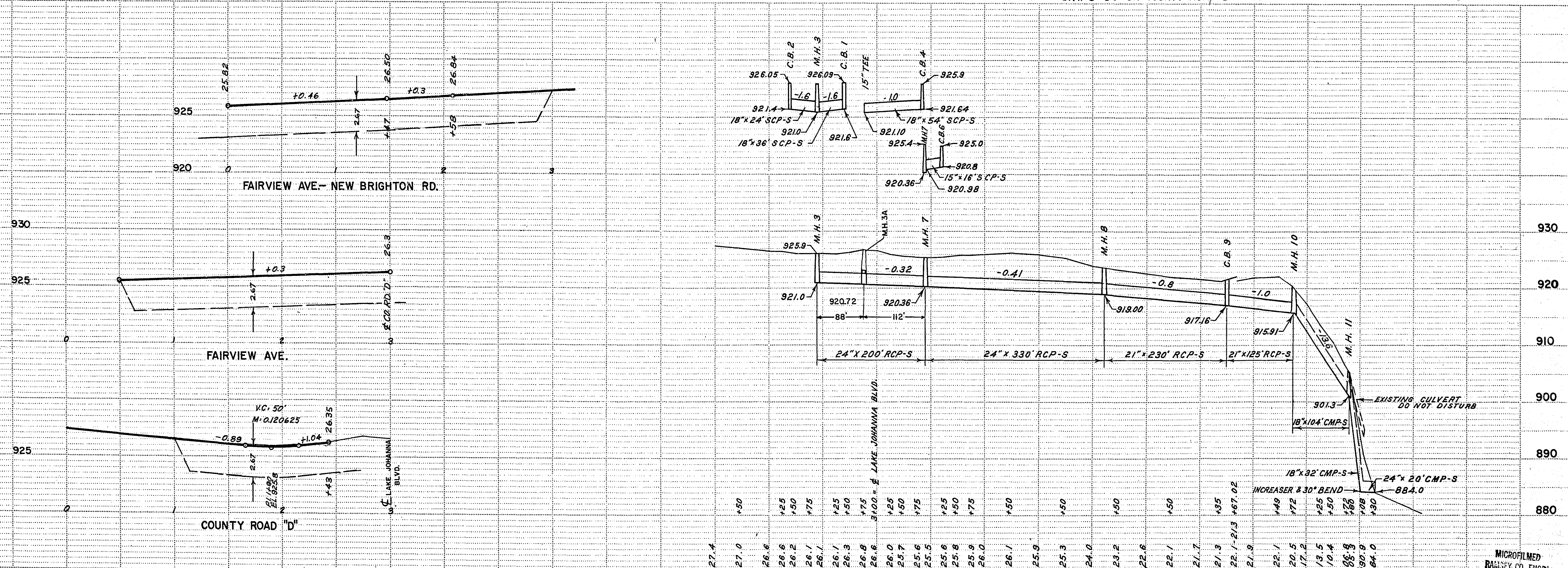
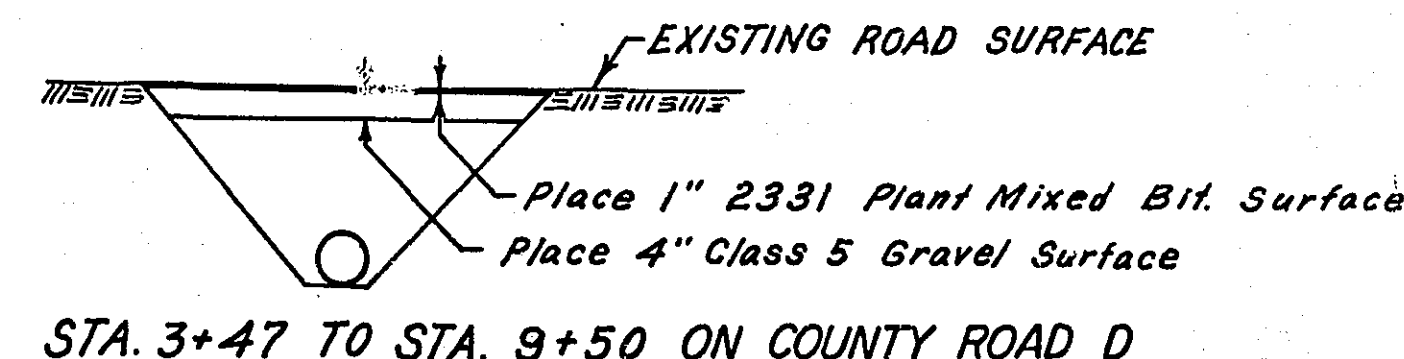
NOTE: PRIVATE ENTRANCE: W=6' D=5'
COMMERCIAL ENTRANCE: W=11' D=10'
ALLEY: W=EXISTING WIDTH D=10'
THE EXACT LOCATION AND WIDTH OF ENTRANCES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

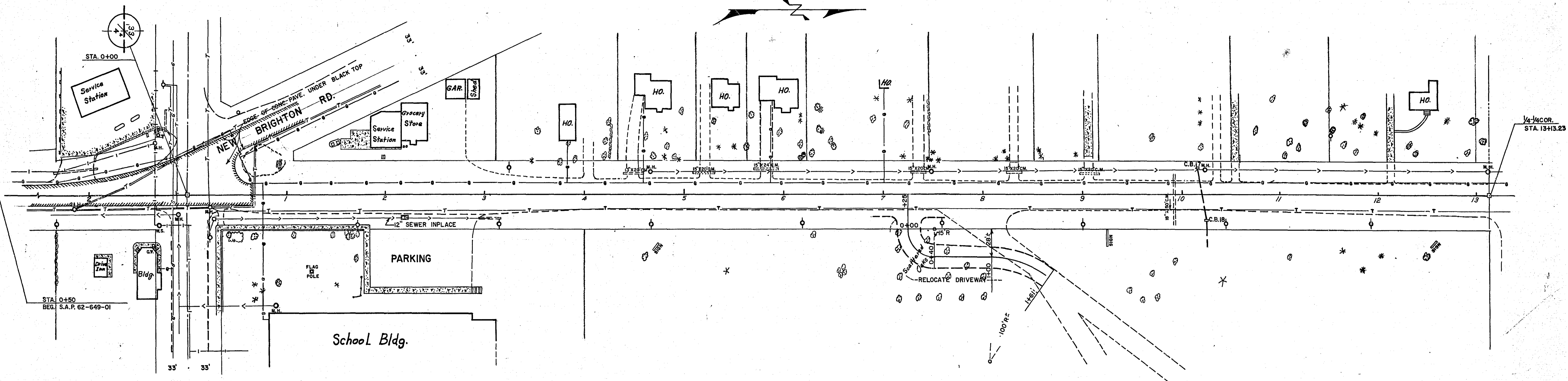
CLEARING		AND GRUBBING		
STATION TO	STATION	LOCATION	CLEARING TREE	GRUBBING TREE
21+37	21+94	RT.	9	4
	31+57	L.T.	1	1
32+13	38+89	RT.	6	6
34+14	36+93	RT.	8	6
37+36	39+96	RT.	5	6
40+49	41+54	RT.	4	4
TOTALS			38	27

DEED &		CONSTRUCTION &	
CHORD	ARC.	CHORD	ARC.
Δ 25°17'	Δ 25°17'	Δ 25°17'	Δ 25°17'
D 12°00'	D 16°00'	D 16°00'	D 16°00'
T 107.23'	T 80.32'	T 80.32'	T 80.32'
L 210.69'	L 158.02'	L 158.02'	L 158.02'
R 478.34'	R 358.10'	R 358.10'	R 358.10'

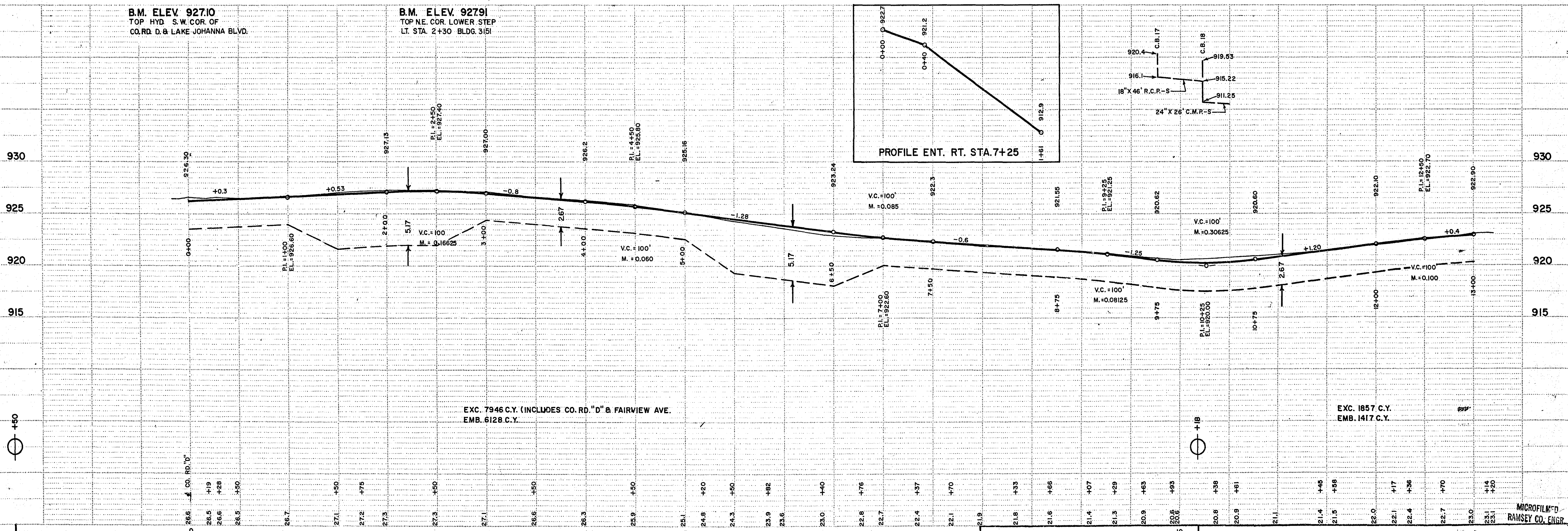


LAKE JOHANNA BLVD. - NEW BRIGHTON RD. - CO. RD. "D" INTERSECTION



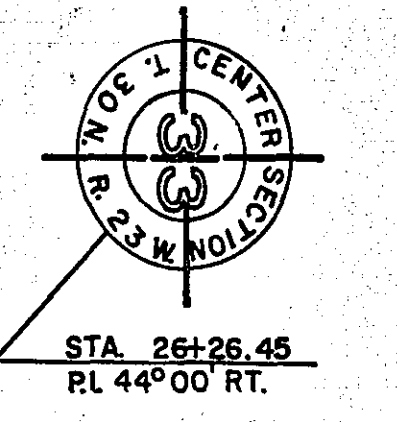
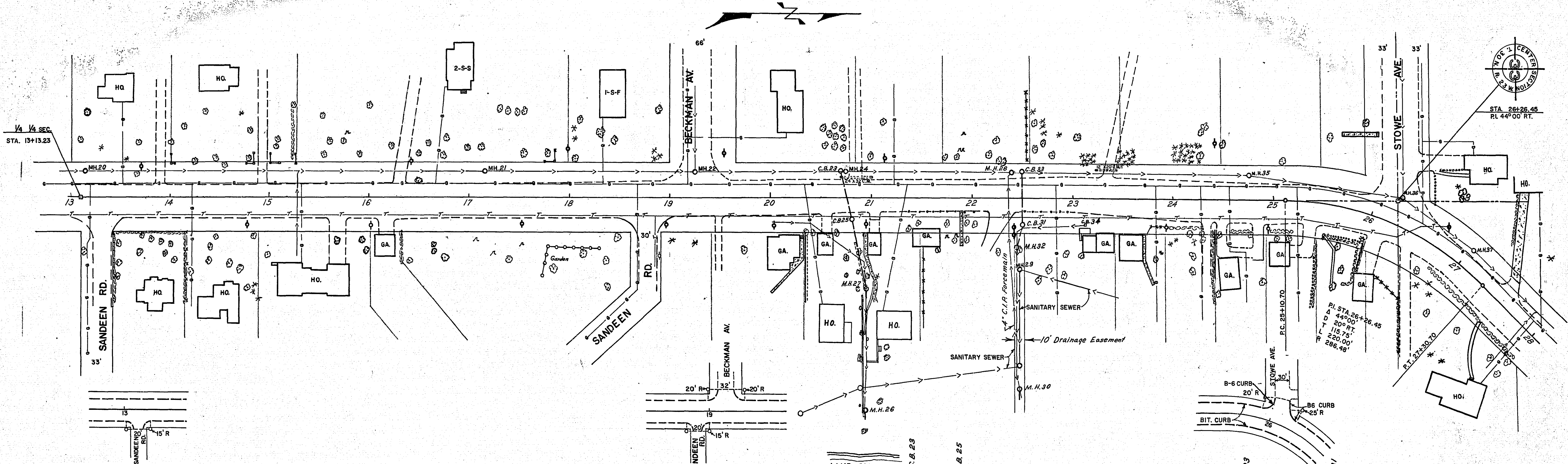


NOTE: See sheet no.5 for intersection detail and sheet no.5 for sewer detail.



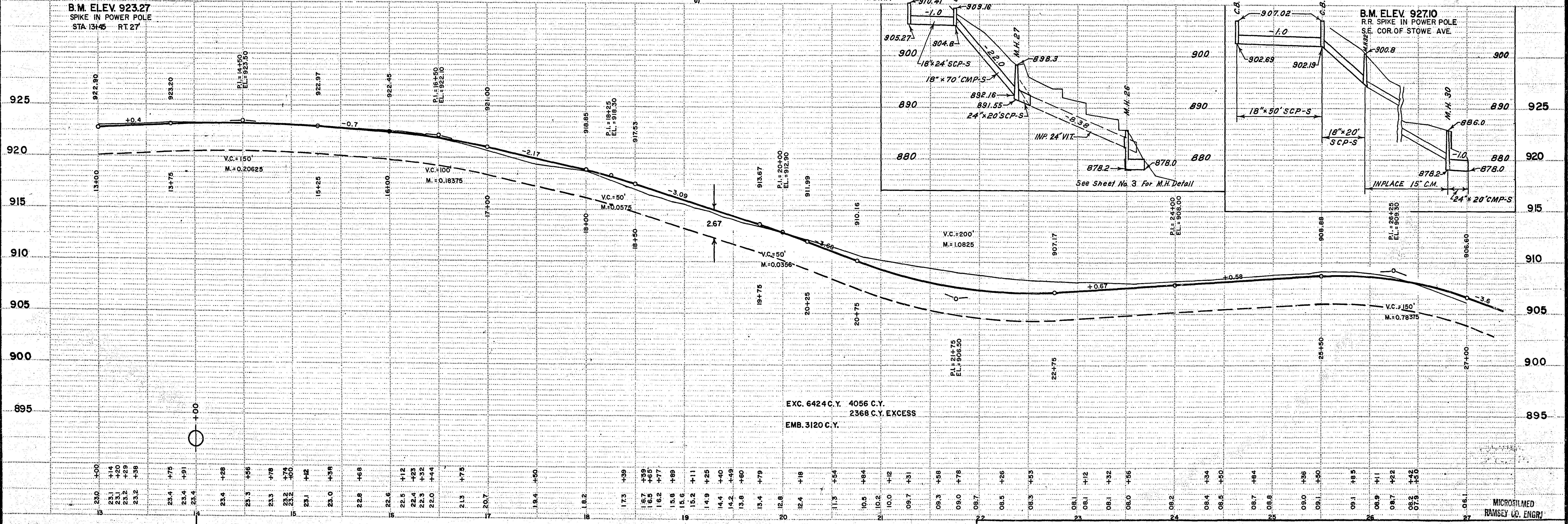
NORTH: 105 ST. PAUL, MINNEAPOLIS, MINNESOTA

MICROFILM'D
RAMSEY CO. ENGR



B.M. ELEV. 923.27
SPIKE IN POWER POLE
STA. 13+45 RT. 27

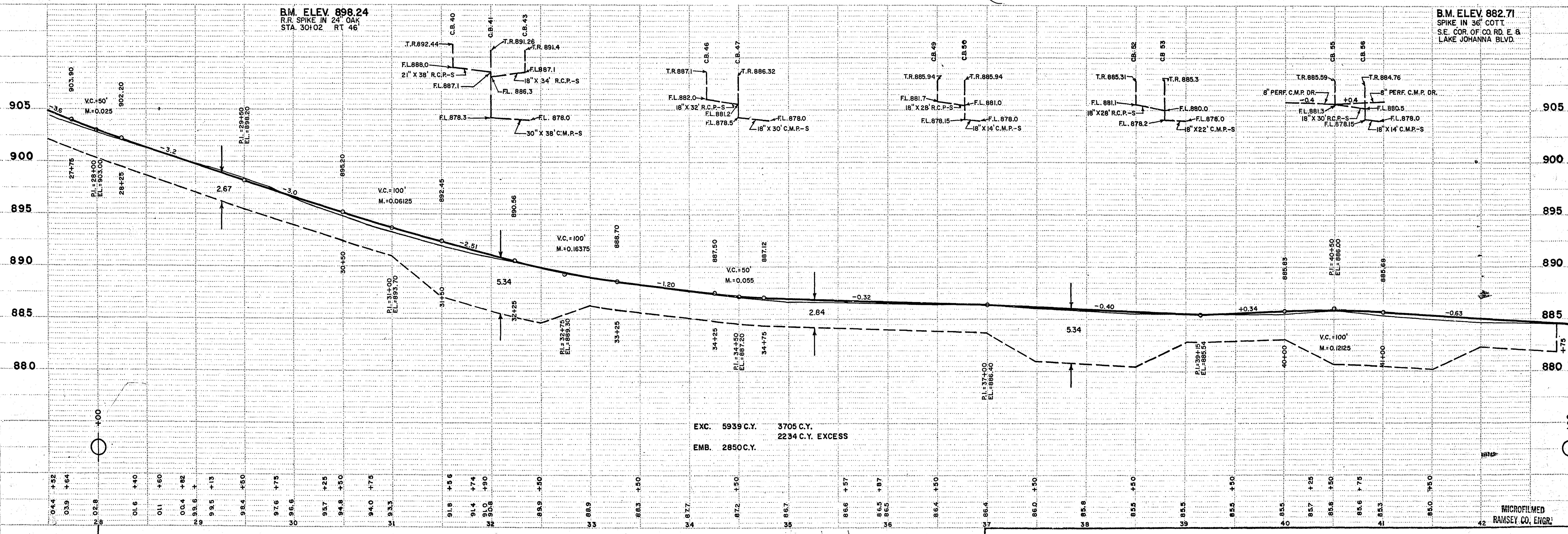
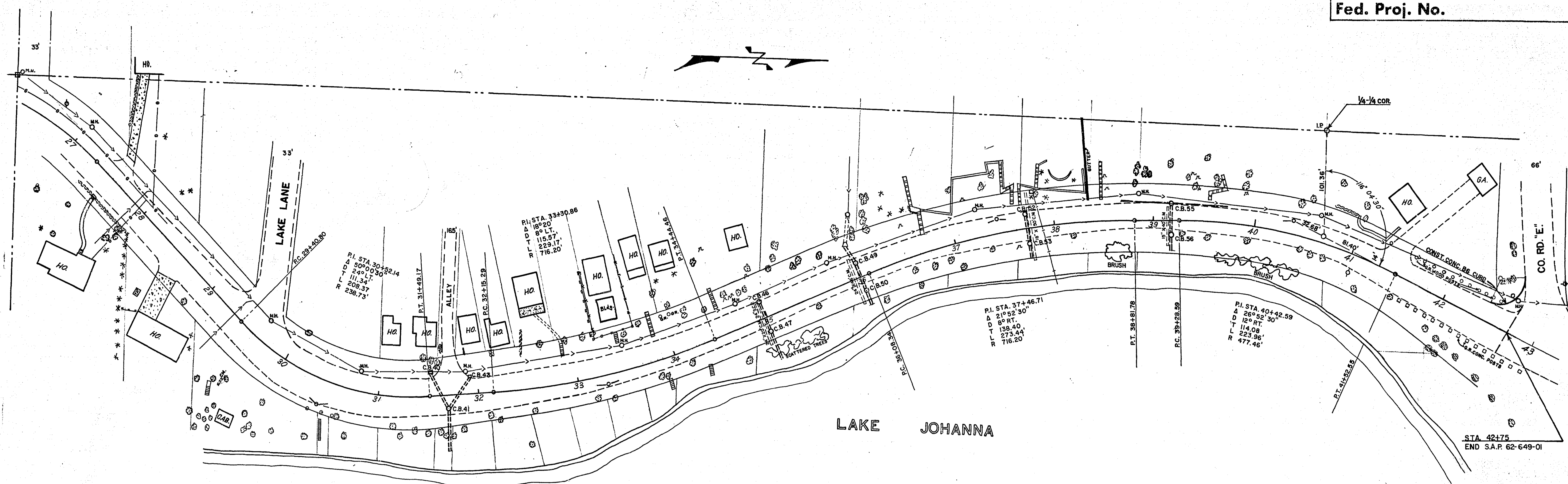
B.M. ELEV. 927.10
RR SPIKE IN POWER POLE
S.E. COR. OF STOWE AVE



EXC. 6424 C.Y. 4056 C.Y. EXCESS
EMB. 3120 C.Y.

NOTES: 1. No. 105 ST. PAUL, MINNESOTA, MINNESOTA

MICROFILMED
RAMSEY CO. ENGR.



EXC. 5939 C.Y. 3705 C.Y.
 EMB. 2850 C.Y. 2234 C.Y. EXCESS

NONSTAFF © No. 105-ST PAUL, MINNESOTA, MINNESOTA