

# VILLAGE OF ROSEVILLE MINNESOTA

## CONSTRUCTION PLANS

FOR  
GRADING, BASE CONSTRUCTION, BITUMINOUS SURFACING,  
CURB AND GUTTER AND MISCELLANEOUS CONSTRUCTION ITEMS

ON

S.A.P 60-218-05  
(PROJ. 67-39 N02)

&

S.A.P 60-218-06  
(PROJ. 67-28)

### PLANS SYMBOLS

STATE LINE	SPRINGS
COUNTY LINE	MARSH
TOWNSHIP OR RANGE LINE	TIMBER
SECTION LINE	ORCHARD
QUARTER LINE	BRUSH
SIXTEENTH LINE	NURSERY
RIGHT OF WAY LINE	CATCH BASIN
PRESENT RIGHT OF WAY LINE	FIRE HYDRANT
CONTROL OF ACCESS LINE	CATTLE GUARD
PROPERTY LINE (Except Land Lines)	OVERPASS (Highway Over)
VACATED PLATTED PROPERTY	UNDERPASS (Highway Under)
CORPORATE OR CITY LIMITS	BRIDGE
TRUNK HIGHWAY CENTER LINE	BUILDING (One Story Frame)
RETAINING WALL	F FRAME C CONCRETE
RAILROAD	S STONE T-TILE
RAILROAD RIGHT OF WAY LINE	B BRICK ST STUCCO
RIVER OR CREEK	IRON PIPE OR ROD
DRY RUN	MONUMENT (STONE, CONCRETE, OR METAL)
DRAINAGE DITCH	WOODEN HUB
DRAIN TILE	GRAVE/PIT
CULVERT	SAND PIT
DROP INLET	BORROW PIT
GUARD RAIL	ROCK QUARRY
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	

### UTILITIES SYMBOLS

POWER POLE LINE	CONDUIT
TELEPHONE OR TELEGRAPH POLE LINE	TELEPHONE CABLE IN CONDUIT
JOINT TELEPHONE AND POWER ON POWER POLES	ELECTRIC CABLE IN CONDUIT
ON TELEPHONE POLES	TELEPHONE MANHOLE
ANCHOR	ELECTRIC MANHOLE
STEEL TOWER	BURIED TELEPHONE CABLE
STREET LIGHT	BURIED ELECTRIC CABLE
CELESTIAL TELEPHONE CABLE TERMINALS	AERIAL TELEPHONE CABLE
GAS MAIN	SEWER, (SANITARY OR STORM)
WATER MAIN	SEWER MANHOLE

SAP 60-218-05 EQUATIONS

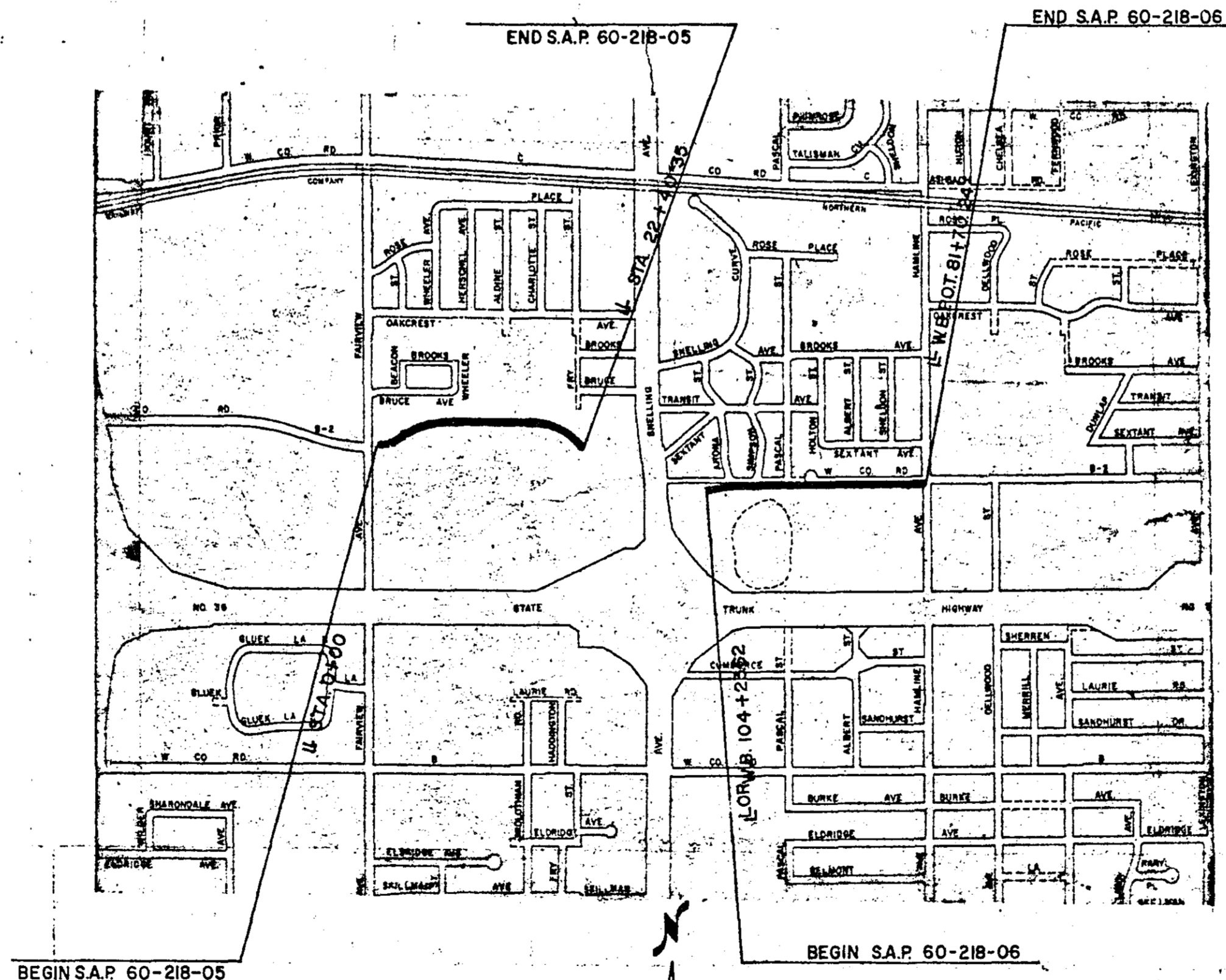
EAST BOUND

WEST BOUND

$\perp$  EB. PT. 7+70.29 =  $\perp$  EB. POT. 7+78.73  
 $\perp$  EB. PT. 21+12.18 =  $\perp$  POT. 21+27.13  
 $\perp$  POT. 22+40.35 = MHD.  $\perp$  POT. 94+00  
 $\perp$  WB. PT. 7+70.29 =  $\perp$  L.W.B. POT. 7+78.73  
 $\perp$  WB. PT. 21+42.13 =  $\perp$  L.W.B. POT. 21+27.13

### SPECIFICATIONS

THE "SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JANUARY 1, 1968 SHALL GOVERN.



SCALE: 1" = 1200'

DESIGN PROJECTED A.D.T. 9 TON  
SOIL TYPE 300-600HC. A-6  
DESIGN SPEED 30 M.P.H.

**FINAL PLAN**  
CONFORMING TO  
CONST. RECORDS  
DATE 12-1-69

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16	SPECIAL STRUCTURE NO.1 DETAILS
17-30	CROSS SECTIONS

S.A.P. 60-218-06 EQUATIONS

EAST BOUND

WEST BOUND

$\perp$  E.E.B. P.O.C. 104+50 =  $\perp$  LOR. E.B. P.O.C. 104+50  
 $\perp$  LOR. E.B. PT. 111+98.80 =  $\perp$  L.E.B. P.O.T. 66+25.89  
 $\perp$  L.E.B. P.O.T. 81+69.11 = A PT. 13' LT.  $\perp$  81+66.1  
 $\perp$  LOR. W.B. PT. 111+65.37 =  $\perp$  L.E.B. P.O.T. 66+25.89  
 $\perp$  L.W.B. P.O.T. 81+70.24 = A PT. 43' LT.  $\perp$  81+66.1

APPROVED: <i>Thomas J. Gelling</i> DATE: 9-16-68	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT 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. <i>Thomas J. Gelling</i> DATE: 9/16/68 REG. NO: 4571
APPROVED: <i>J. F. Berglund</i> DATE: 10-2-1968	
APPROVED: <i>C.E. Weichselbaum</i> DATE: 10-7-68	ROSEVILLE, MINNESOTA
APPROVED: <i>Arthur M. Gung</i> DATE: 10/10/68	
DESIGNED BY: D.W.E. & TEAM DRAWN BY: T.A.B.	TITLE SHEET
BANISTER ENGINEERING CO. ST. PAUL, MINN. SEPTEMBER 15, 1968	SHEET 1 OF 30 SHEETS

VILLAGE PROJECT

S.A.P. 60-218-05  
S.A.P. 60-218-06

6890

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	S.P. 60-218-05		S.P. 60-218-06		TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
			EST.	FINAL	EST.	FINAL		
2101.502	CLEARING	TREE			130		130	
2101.507	GRUBBING	TREE			130		130	
2104.501	REMOVE PORTABLE CULVERTS	LINEAR FOOT			80		80	
2104.502	REMOVE PAVEMENT	SQUARE YARD			150		150	
2104.504	REMOVE CURB	LINEAR FOOT			400		400	
2104.506	REMOVE SIDEWALK	SQUARE FOOT			400		400	
2104.507	REMOVE MASONRY AND CONCRETE STRUCTURES	CUBIC YARD			8		8	
2104.510	REMOVE FENCE	LINEAR FOOT			1350		1350	
2104.511	REMOVE MANHOLES AND CATCH BASINS	STRUCTURE			2		2	
2104.515	REMOVE PIPE SEWERS	LINEAR FOOT			80		80	
2105.501	COMMON EXCAVATION	CUBIC YARD			31532		31532	
2105.521	GRANULAR BORROW	CUBIC YARD			3600		3600	
2112.501	SUBGRADE PREPARATION	ROAD STATION	23				23	
2130.501	WATER	1000(M) GALLONS	10		20		30	
2211.501	AGGREGATE BASE, CLASS 3	TON	6500		5500		12000	
2211.501	AGGREGATE BASE, CLASS 4	TON	6800		5800		12600	
2211.501	AGGREGATE BASE, CLASS 5	TON			1300		1300	
2301.521	PAVEMENT REINFORCEMENT, TYPE 44-1010	SQUARE YARD			130		130	
2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	105		125		230	
2331.508	WEARING COURSE MIXTURE	TON			500		500	
2331.514	BASE COURSE MIXTURE	TON	3000		2600		5600	
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	170		160		330	
2341.509	WEARING COURSE MIXTURE + FILLER	TON	1400		1300		2700	
2341.510	BINDER COURSE MIXTURE	TON	1750		1650		3400	
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1500		1400		2900	
2358.501	BITUMINOUS MATERIAL FOR PRIME COAT	GALLON	5000		4000		9000	
2411.505	CONCRETE STRUCTURES, DESIGN SPECIAL NO. 1	STRUCTURE			1		1	
2451.503	GRANULAR BACKFILL	CUBIC YARD			500		500	
2451.505	GRAVEL BACKFILL	CUBIC YARD			1500		1500	
2501.524-51	51" SPAN CONCRETE PIPE-ARCH CULVERT, CLASS III	LINEAR FOOT			126(1)		126	
2501.532-15	15" METAL APRONS	APRON			1		1	
2501.536-15	15" CONCRETE APRON	APRON			1		1	
2503.502-12	12" REINFORCED CONCRETE SEWER, CLASS IV	LINEAR FOOT			181		181	
2503.502-12	12" REINFORCED CONCRETE SEWER, CLASS II	LINEAR FOOT			60		60	
2503.502-15	15" REINFORCED CONCRETE SEWER, CLASS IV	LINEAR FOOT			264		264	
2503.502-15	15" REINFORCED CONCRETE SEWER, CLASS II	LINEAR FOOT			188		188	
2503.502-18	18" REINFORCED CONCRETE SEWER, CLASS IV	LINEAR FOOT			22		22	
2503.502-18	18" REINFORCED CONCRETE SEWER, CLASS II	LINEAR FOOT			85		85	
2503.502-24	24" REINFORCED CONCRETE SEWER, CLASS IV	LINEAR FOOT			34		34	
2503.503-8	8" CLAY SEWER, EXTRA STRENGTH	LINEAR FOOT			430		430	
2503.509-15	15" METAL PIPE FLUME	LINEAR FOOT			44(2)		44	
2506.506	CONSTRUCT MANHOLES, DESIGN A OR F	LINEAR FOOT			50		50	
2506.507	CONSTRUCT CATCH BASINS, DESIGN C OR G	LINEAR FOOT			70		70	
2506.509	CONSTRUCT CATCH BASINS, DESIGN LP	STRUCTURE			1		1	
2506.516	CASTING ASSEMBLIES	ASSEMBLY			27		27	
2506.522	ADJUST FRAME AND RING CASTINGS	ASSEMBLY	25		21		46	
2521.501	4" CONCRETE WALK	SQUARE FOOT	5400		4300		9700	
2531.501	CONCRETE CURB AND GUTTER, DESIGN B624	LINEAR FOOT	8600		5300		13900	
2531.507	6" CONCRETE DRIVEWAY PAVEMENT	SQUARE YARD			125		125	
2535.501	BITUMINOUS CURB	LINEAR FOOT	80		200		280	
2545.521	3" RIGID METALLIC CONDUIT	LINEAR FOOT			270		270	
2554.501	TRAFFIC BARRIER, DESIGN A-8307H	LINEAR FOOT			260		260	
2557.501	WIRE FENCE, DESIGN 60" CHAIN LINK FABRIC	LINEAR FOOT			1100		1100	
2557.501	WIRE FENCE, DESIGN 120" CHAIN LINK FABRIC	LINEAR FOOT			250		250	
2575.505	SODDING	SQUARE YARD	4500		17000		21500	
2675.551	TOPSOIL	CUBIC YARD	250		1000		1250	
	RELOCATE HYDRANT	EACH			3		3	
	LOWER WATER MAIN	EACH			1		1	
	8" CAST IRON PIPE WATER MAIN	LINEAR FOOT			100		100	
	CUT-IN 8" TEE	EACH			1		1	
	8" GATE VALVE & BOX	EACH			1		1	
	4" CAST IRON SOIL PIPE	LINEAR FOOT			50		50	
	ADJUST GATE VALVE BOX	EACH			3		3	
2554.501	TRAFFIC BARRIER, DESIGN B319C	LINEAR FOOT			100		100	
2554.521	ANCHORAGE ASSEMBLIES	ASSEMBLY			4		4	
2021.501	MOBILIZATION	LUMP SUM						
2557.527	ELECTRICAL GROUNDS	EACH			4		4	
2575.531	COMMERCIAL FERTILIZER, ANALYSIS 12-12-12		0.3		1.0		1.3	
	(1) INCLUDES TWO (2) BEND SECTIONS							
	(2) INCLUDES TWO (2) BEND SECTIONS							

STANDARD DETAIL PLATES	
PLATE NO.	DESCRIPTION
1015B	CONCRETE PAVEMENTS WITHOUT LONGITUDINAL JOINTS
3006A	GASKET JOINT FOR R.C. PIPE
3014D	REINFORCED CONCRETE PIPE-ARCH
3100E	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123E	METAL APRON FOR C.M. PIPES
4000G	MANHOLE OR CATCH BASIN
4002D	MANHOLE OR CATCH BASIN
4005H	MANHOLE OR CATCH BASIN
4006F	MANHOLE OR CATCH BASIN
4016C	CURB OPENING CATCH BASIN
4101B	RING CASTING FOR MANHOLE OR CATCH BASIN
4108C	AUXILIARY CASTING FOR MANHOLE RING EXTENSION
4110D	COVER CASTING FOR MANHOLE
4126D	CATCH BASIN FRAME CASTING
4149C	GRATE CASTING FOR CATCH BASIN
4161E	CURB BOX CASTING FOR CATCH BASIN
4180F	MANHOLE STEP CASTING
500CA	METAL PIPE FLUME OR SEWER
7035E	CONCRETE WALK AND CURB RETURNS AT ENTRANCES
7065C	BITUMINOUS CURB
7100D	CONCRETE CURB AND GUTTERS
7110E	CURB AND GUTTER CONSTRUCTION AT CATCH BASIN
8000C	STANDARD BARRICADES
8008C	CONTRACTORS SIGN
8307H	STRUCTURAL PLATE BEAM GUARD RAIL
9102B	SODDING AT PIPE CULVERT ENDS
9322C	URBAN FENCE FOR FREEWAYS & EXPRESSWAYS
9319C	STRUCTURE PLATE BEAM GUARD RAIL, TWISTED END TREATMENT
4010D	CONC. SHORT CONE & ADJUSTING RING
4011C	PRECAST CONCRETE BASE
7111D	INSTALLATION OF CATCH BASIN CASTINGS
0001A	SPECIFICATION REFERENCE TO STANDARD PLATES

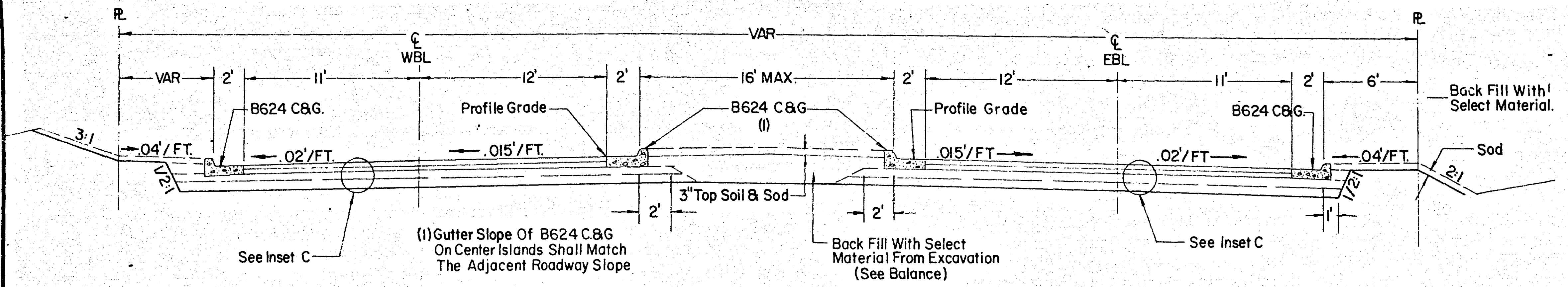
F A P A M  
CONFORMING TO  
CONST. RECORDS  
DATE 12-1-69 RAB

ROSEVILLE, MINNESOTA

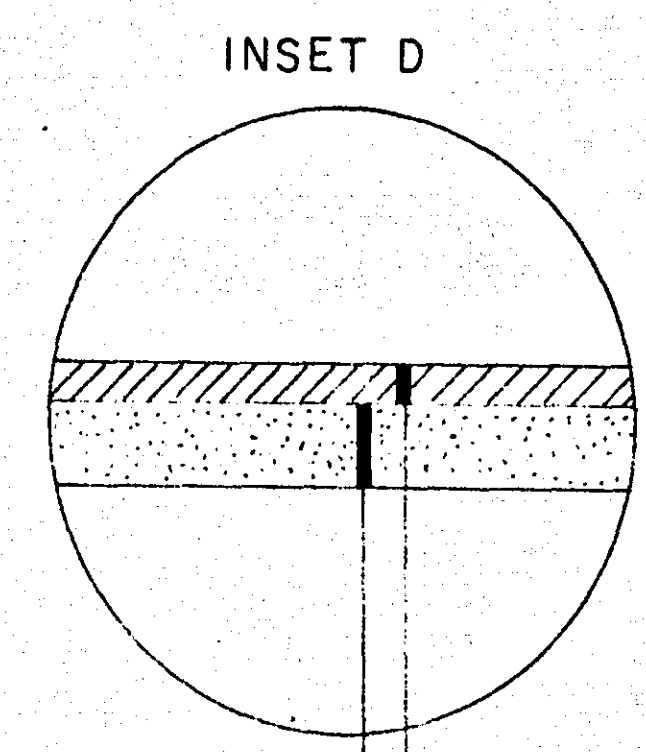
Survey by	ESTIMATE OF QUANTITIES	Revisions
Designed by		MICROFILMED
Drawn by		RAMSEY CO. INC.
Approved by		

BANISTER ENGINEERING CO.  
ST. PAUL, MINN. SEPTEMBER 16, 1968

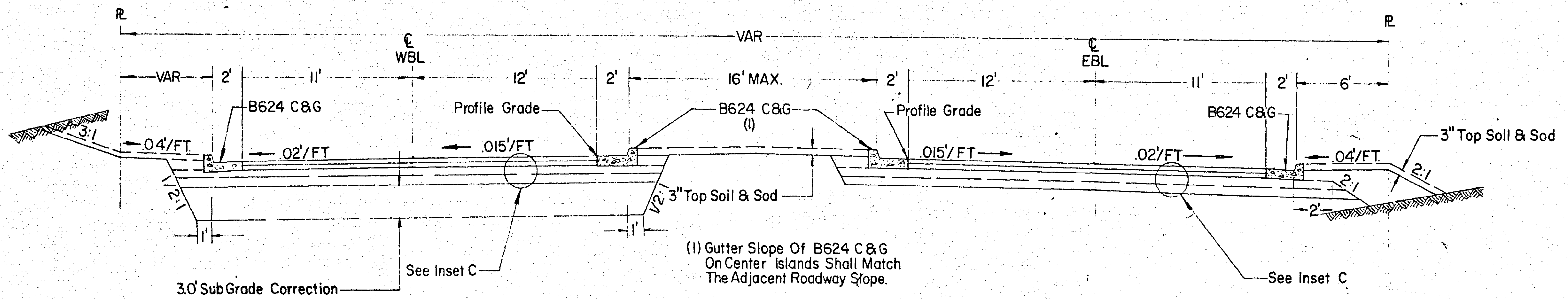
SHEET 2 OF 30 SHEETS



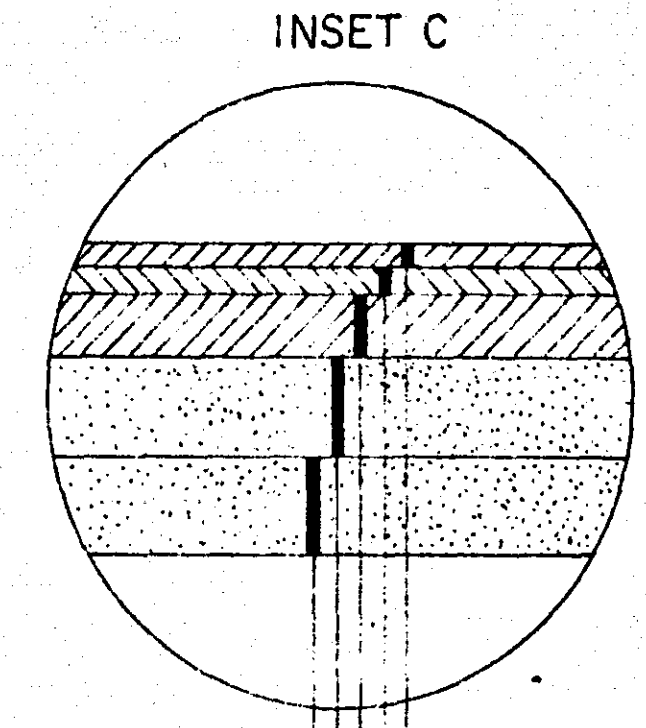
SECTION NO. 1  
 W.B. STA 0+00 TO STA. 22+40.35  
 See Section 5 And 6 For RT. & LT. Turn Lanes  
 (See Sheet No. 3A)



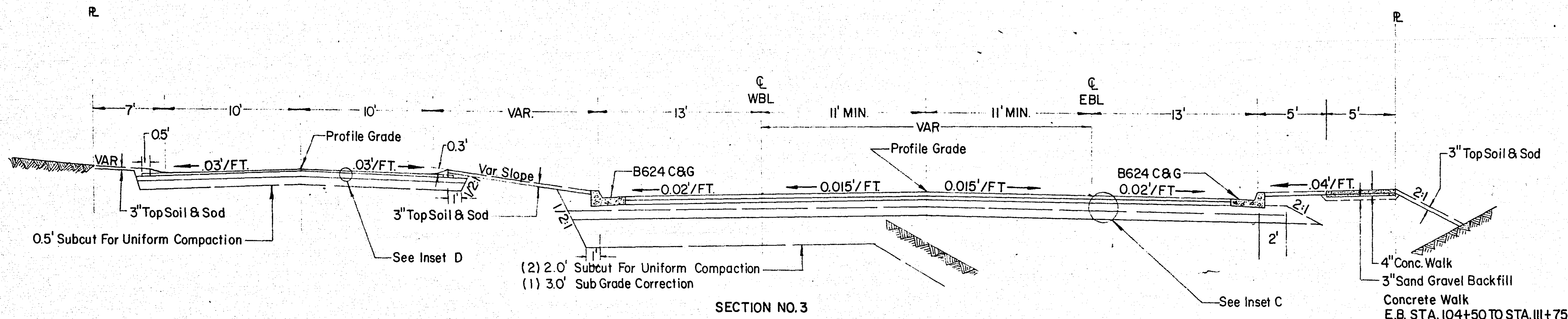
2" Plant Mixed Bituminous Wearing Course - Spec. 2331  
 Penetration Prime - Spec. 2358  
 4" Aggregate Base, Class 5 - Spec. 2211



SECTION NO. 2  
 W.B. STA. 104+23.62 TO STA. 108+00.00  
 See Sections 5 And 6 For RT. & LT. Turn Lanes  
 (See Sheet No. 3A)



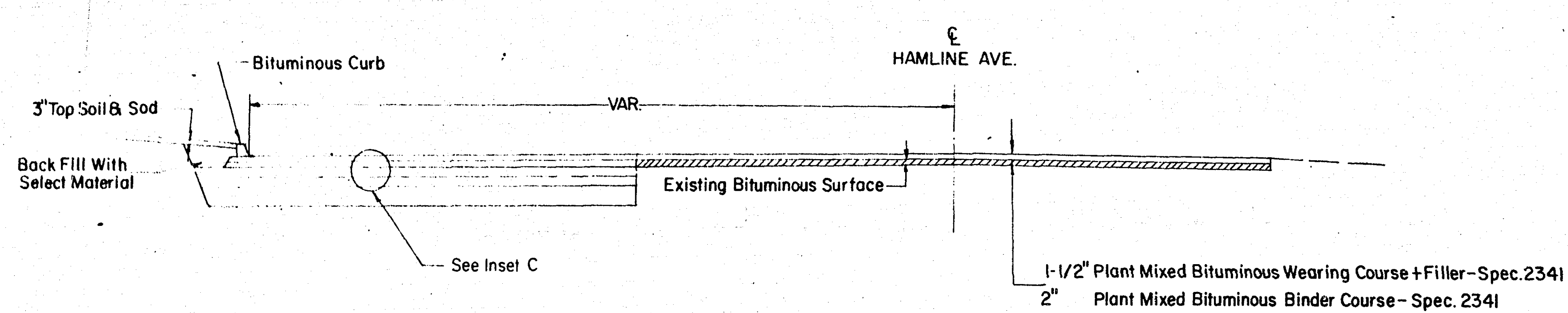
1-1/2" Plant Mixed Bituminous Wearing Course + Filler - Spec. 2341  
 2" Plant Mixed Bituminous Binder Course - Spec. 2341  
 3-1/2" Plant Mixed Bituminous Base - Spec. 2331  
 Penetration Prime - Spec. 2358  
 6" Aggregate Base, Class 4 - Spec. 2211  
 6" Aggregate Base, Class 3 - Spec. 2211



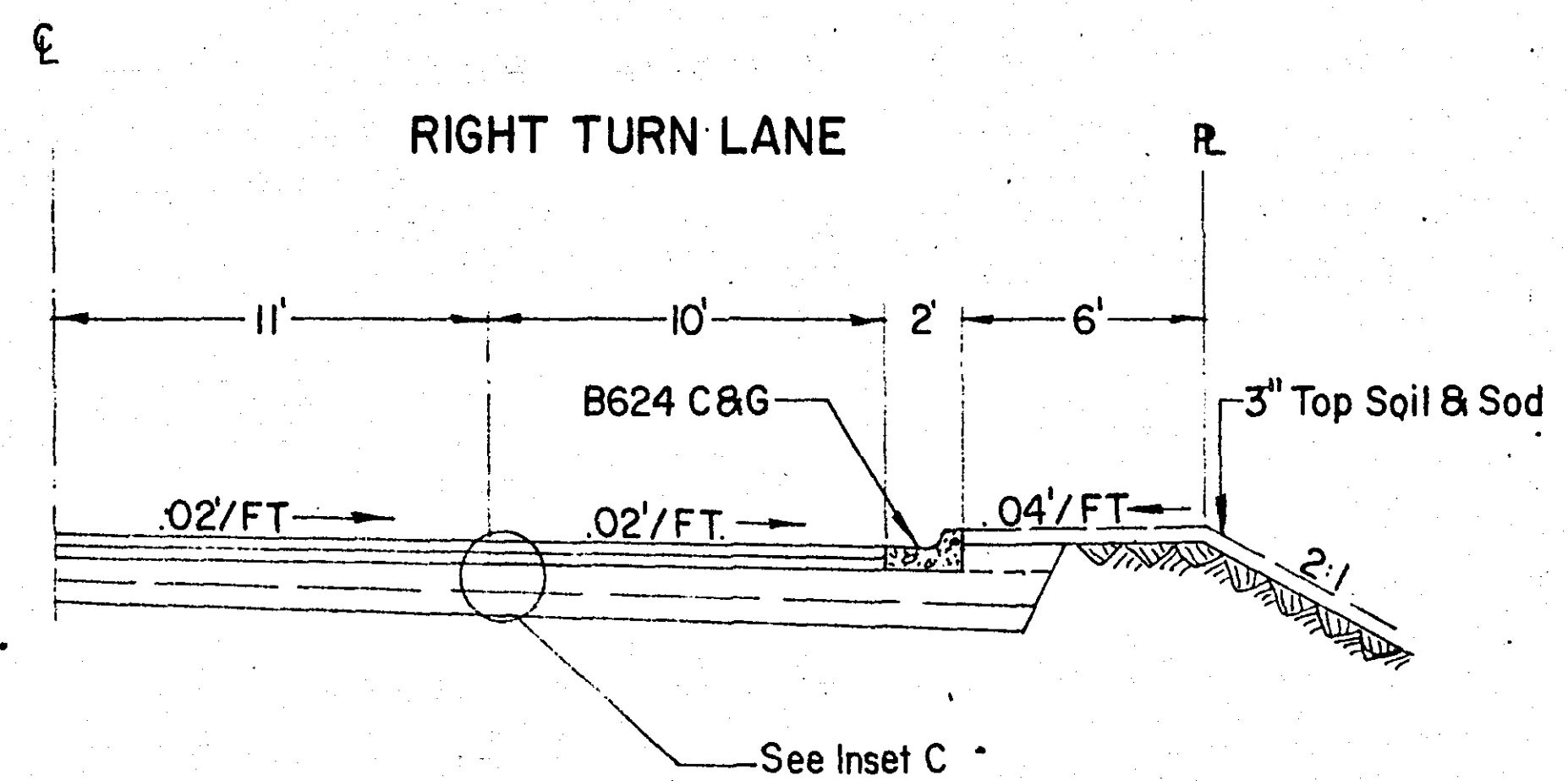
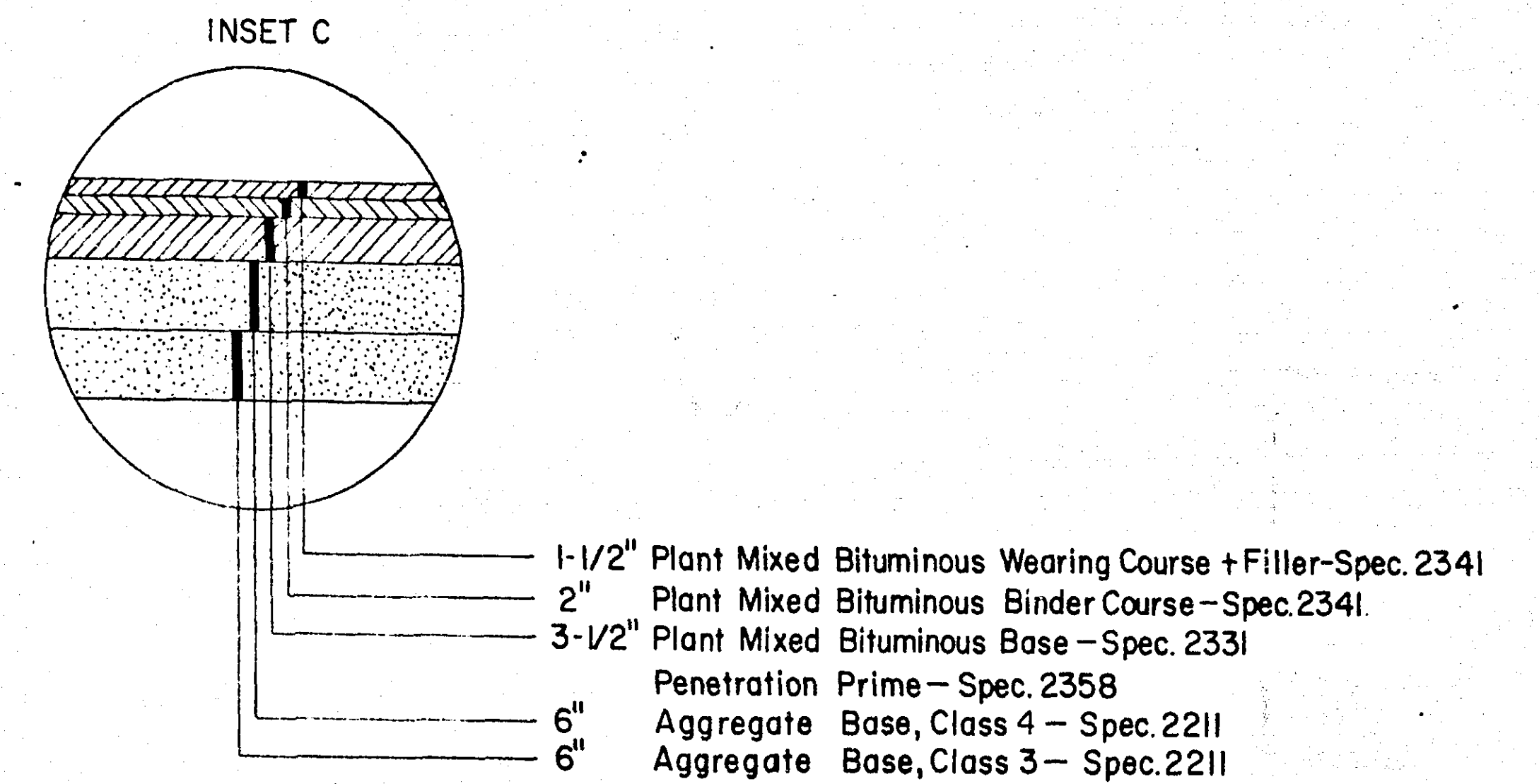
SECTION NO. 3  
 (1) W.B. STA. 108+00 TO STA. 111+65.37  
 (1) W.B. STA. 66+25.89 TO STA. 68+70.00  
 (2) W.B. STA. 68+70.00 TO STA. 81+70.24  
 See Section 5 For RT. Turn Lane  
 (See Sheet No. 3A)

CONFORMING TO  
 CONST. RECORDS  
 DATE 12-1-69 RAM

<b>ROSEVILLE, MINNESOTA</b>		
Survey by D.W.E. RAM	<b>TYPICAL SECTIONS</b>	Revisions MICROFILMED RAMSEY CO. ENR.
Drawn by T.A.R.		
Approved by		
BANISTER ENGINEERING CO. ST. PAUL, MINN. SEPTEMBER 16, 1968		
SHEET 3 OF 30 SHEETS		



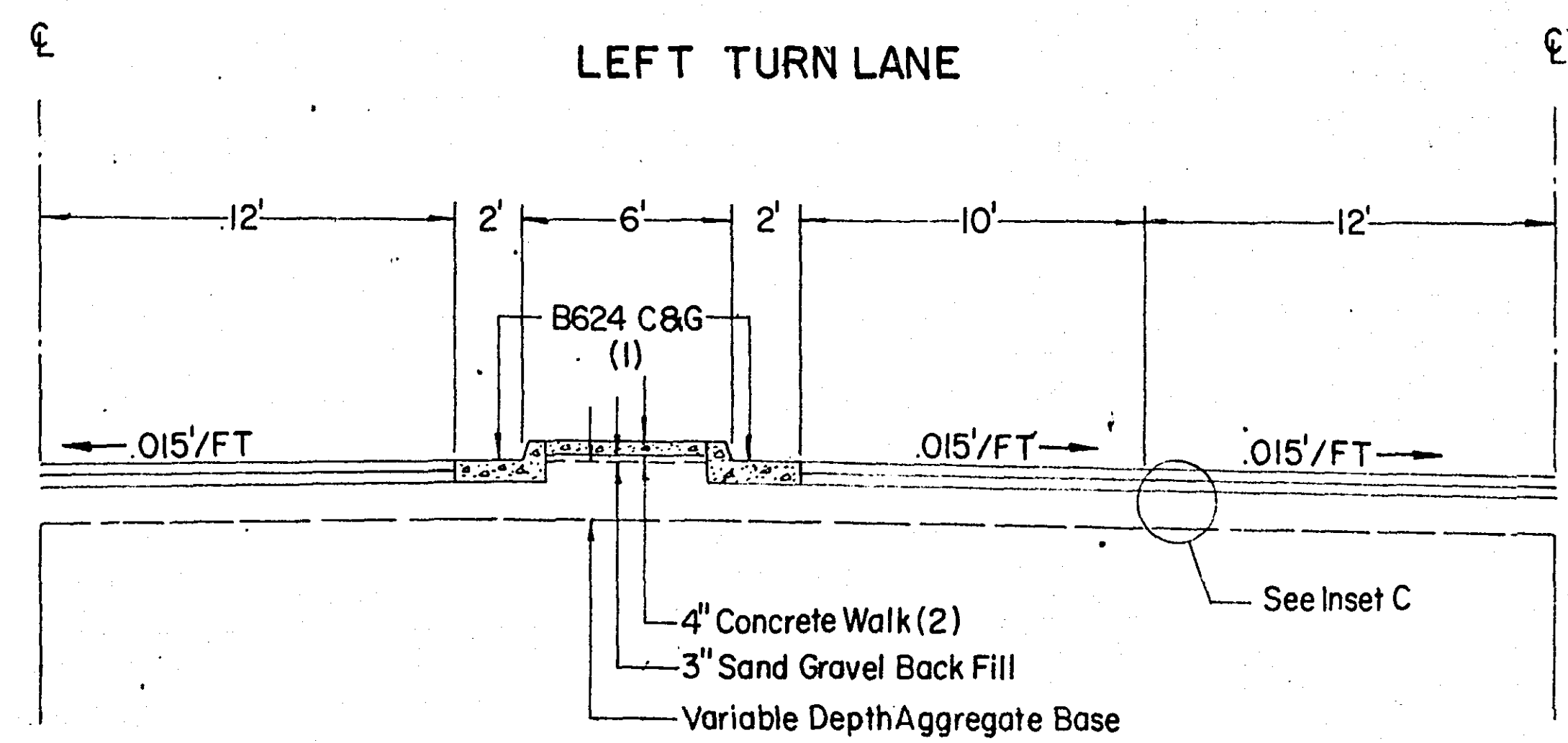
SECTION NO. 4  
STA. 78+25.00 TO STA. 80+91.91



SECTION NO. 5

STA. TO STA.	TAPER	STORAGE
E.B. STA. 1+05.00 TO STA. 3+21.06	100.00'	107.37'
E.B. STA. 13+39.41 TO STA. 15+49.31	100.00'	100.00'
E.B. STA. 20+55.00 TO STA. 22+40.35	100.00'	85.35' (1)
E.B. STA. 78+30.00 TO STA. 79+30.00	100.00'	62.59' (2)
W.B. STA. 104+23.62 TO STA. 106+08.62	100.00'	85.00'

(1) Plus Length On M.H.D. Section  
(2) Slip Ramp STA. 0+00 TO STA. 1+79.64



- (1) Gutter Slope Of B624 C&G On The Center Islands Shall Match The Adjacent Roadway.
- (2) Construct Concrete Walk When Island Is 10' Or Less.

SECTION NO. 6

STA. TO STA.	TAPER	STORAGE
W.B. STA. 0+00 TO STA. 3+22.22	0'	276.22'
W.B. STA. 4+22.22 TO STA. 6+22.22	100.00'	100.00'
E.B. STA. 13+21.41 TO STA. 15+71.41	100.00'	150.00'
W.B. STA. 16+71.41 TO STA. 19+21.41	100.00'	150.00'
E.B. STA. 20+55.00 TO STA. 22+40.35	100.00'	85.35' (1)

(1) Plus Length On M.H.D. Section

**Soils Note:**  
The Upper 10' Of Excavation Is Considered Unsuitable For Within 3.0' Of The Grading Grade.  
Sub Grade Correction Back Fill Shall Be Select Material From Common Excavation

**EARTH WORK BALANCE**

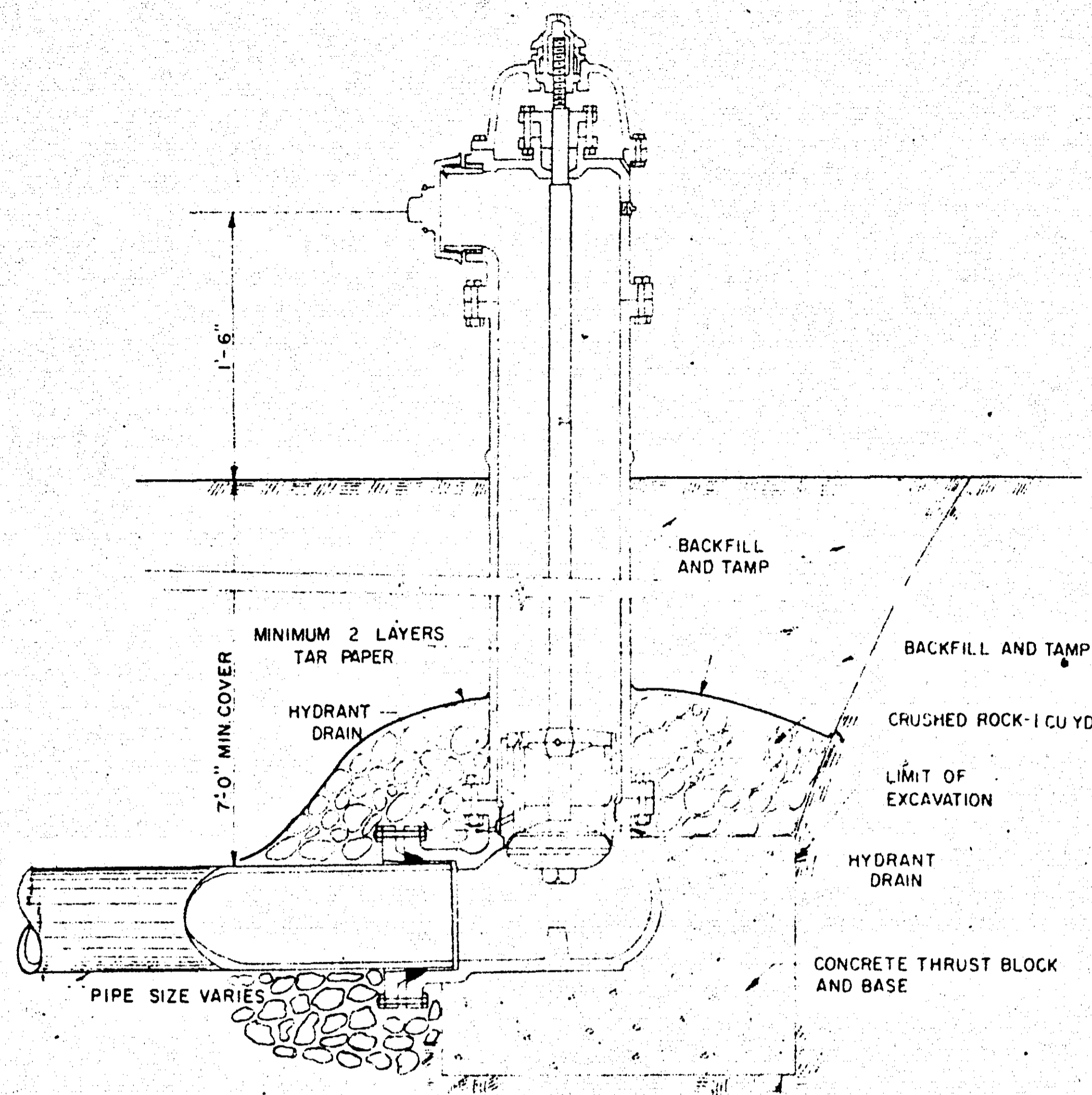
31,532 CU.YDS. Excavation	31,232 CU.YDS. Regular Excavation 300 CU.YDS. Excess
23,135 CU.YDS. Embankment	1,103 CU.YDS. W.B. STA. 0+00 TO STA. 22+40.35 22,032 CU.YDS. W.B. STA. 104+23.62 TO STA. 81+70.24 3600 CU.YDS. Granular Borrow 2,568 CU.YDS. Granular Embankment

**FINAL PLAN**  
CONFORMING TO  
CONST. RECORDS  
DATE 11-20-69

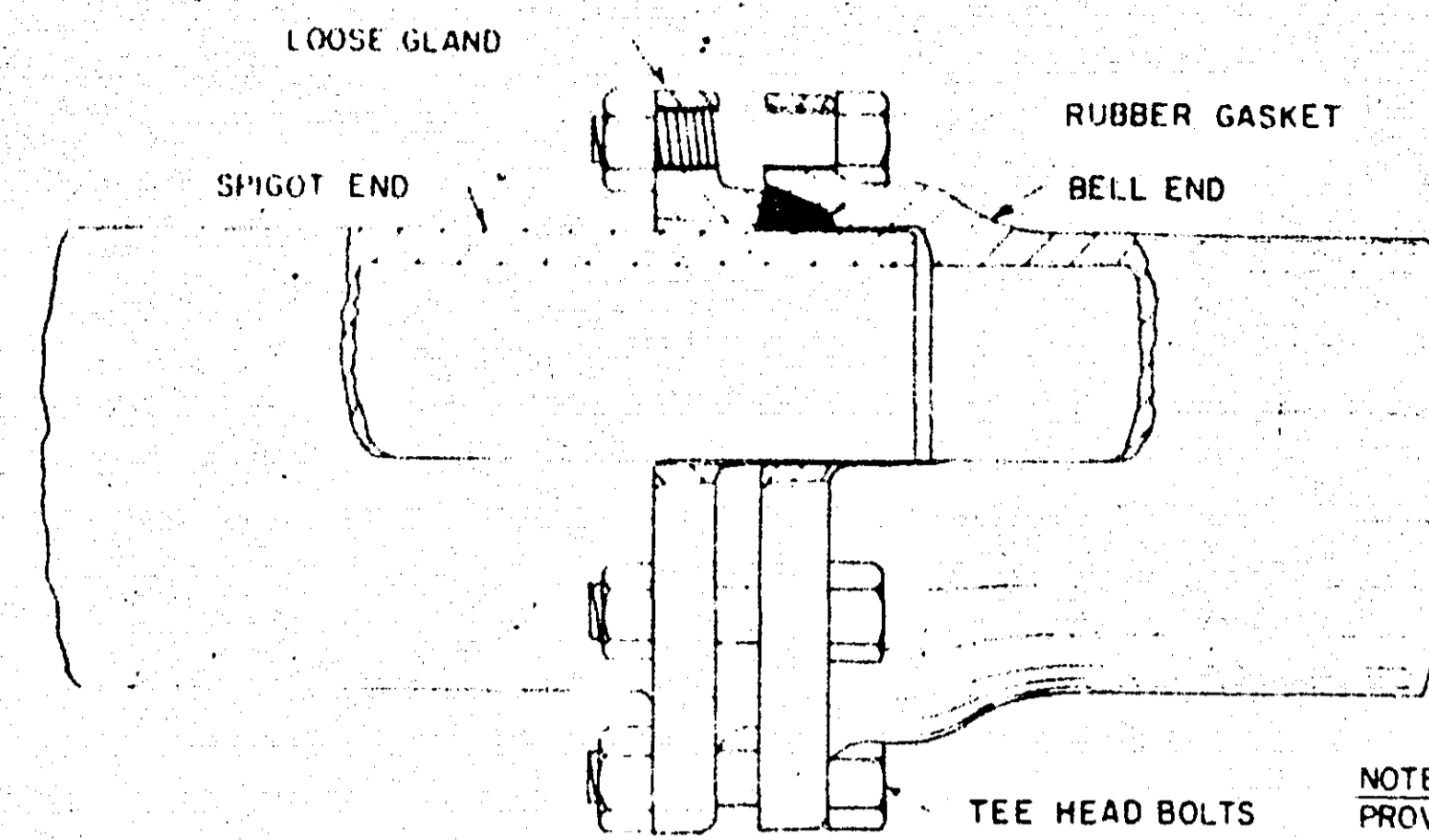
**ROSEVILLE, MINNESOTA**

Survey by	<b>TYPICAL SECTIONS</b>	Revisions
Designed by DWE. BRAM		MICROFILMED RAMSEY CO. ENGR.
Drawn by T.A.B.		
Approved by		

BANISTER ENGINEERING CO.  
ST. PAUL, MINN. SEPTEMBER 16, 1968  
SHEET 3A OF 30 SHEETS

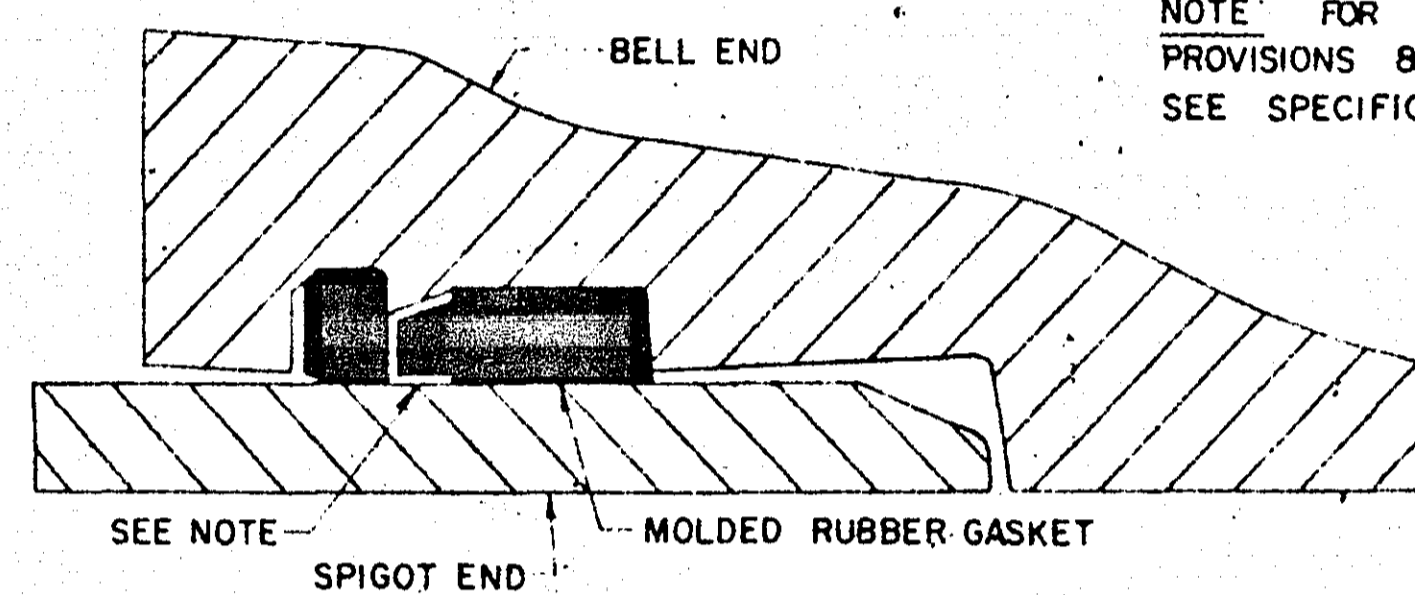


TYPICAL FIRE HYDRANT INSTALLATION



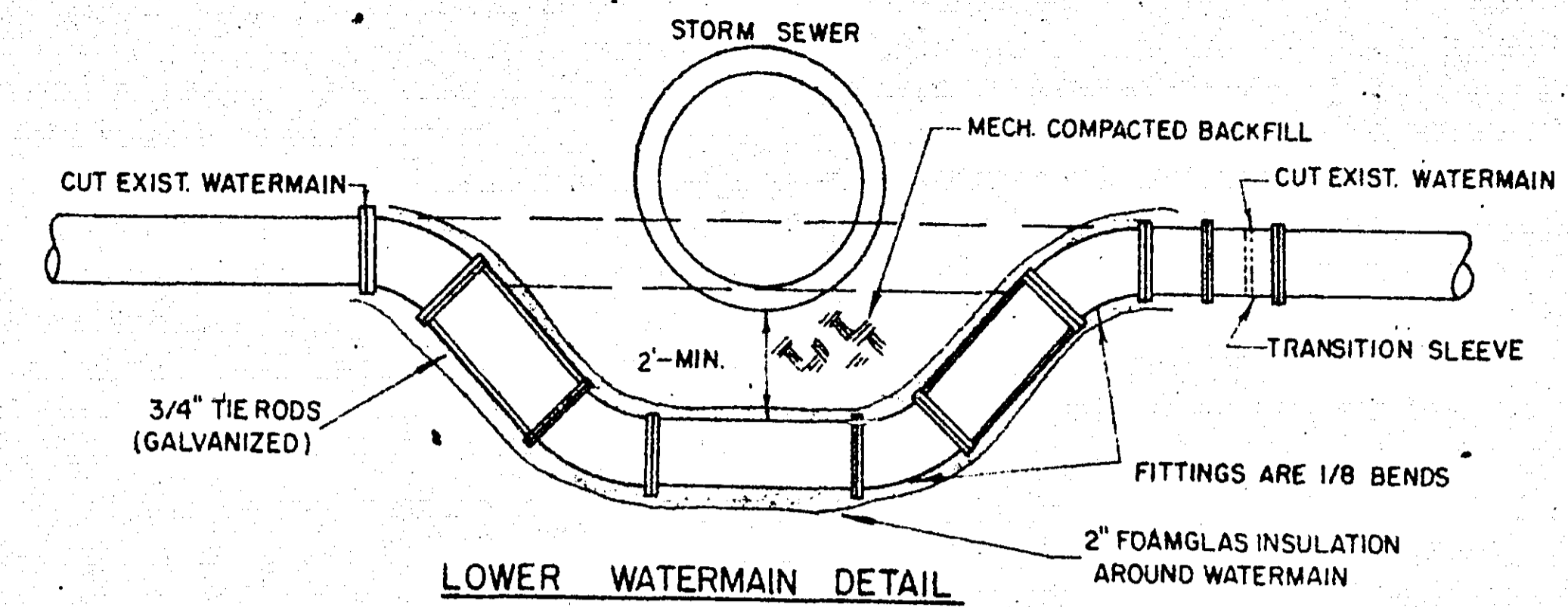
CAST IRON PIPE-MECHANICAL JOINT

NOTE FOR CONDUCTIVITY PROVISIONS & TESTING SEE SPECIFICATIONS.

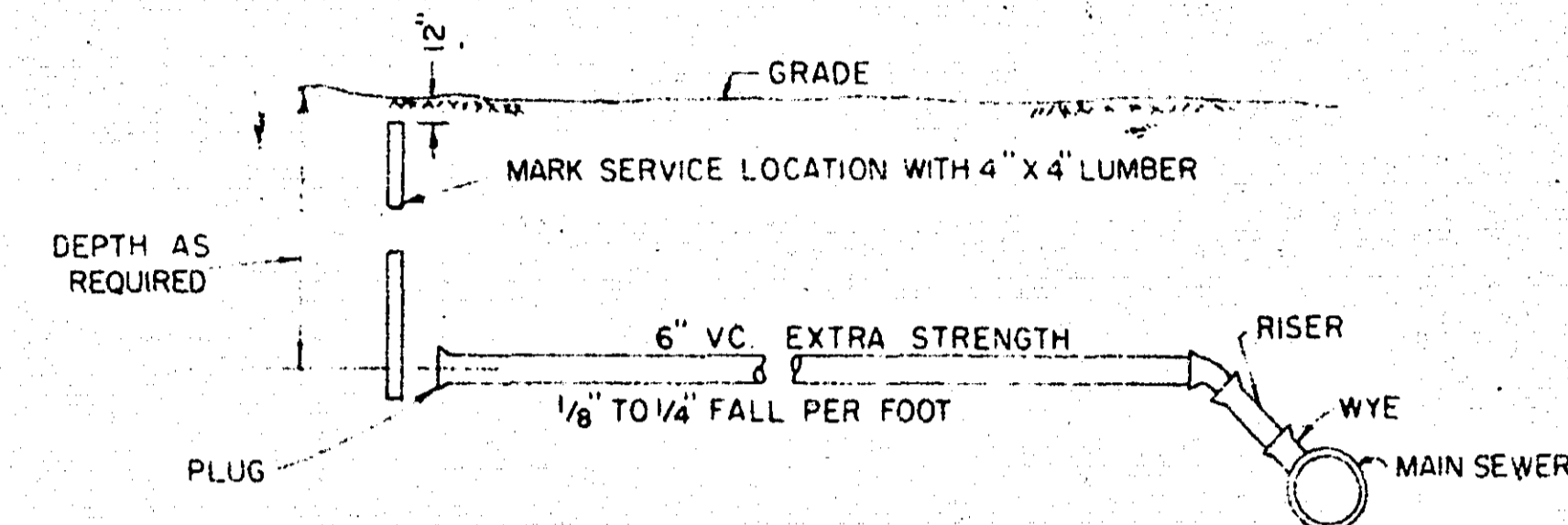


CAST IRON PIPE - PUSH ON JOINT

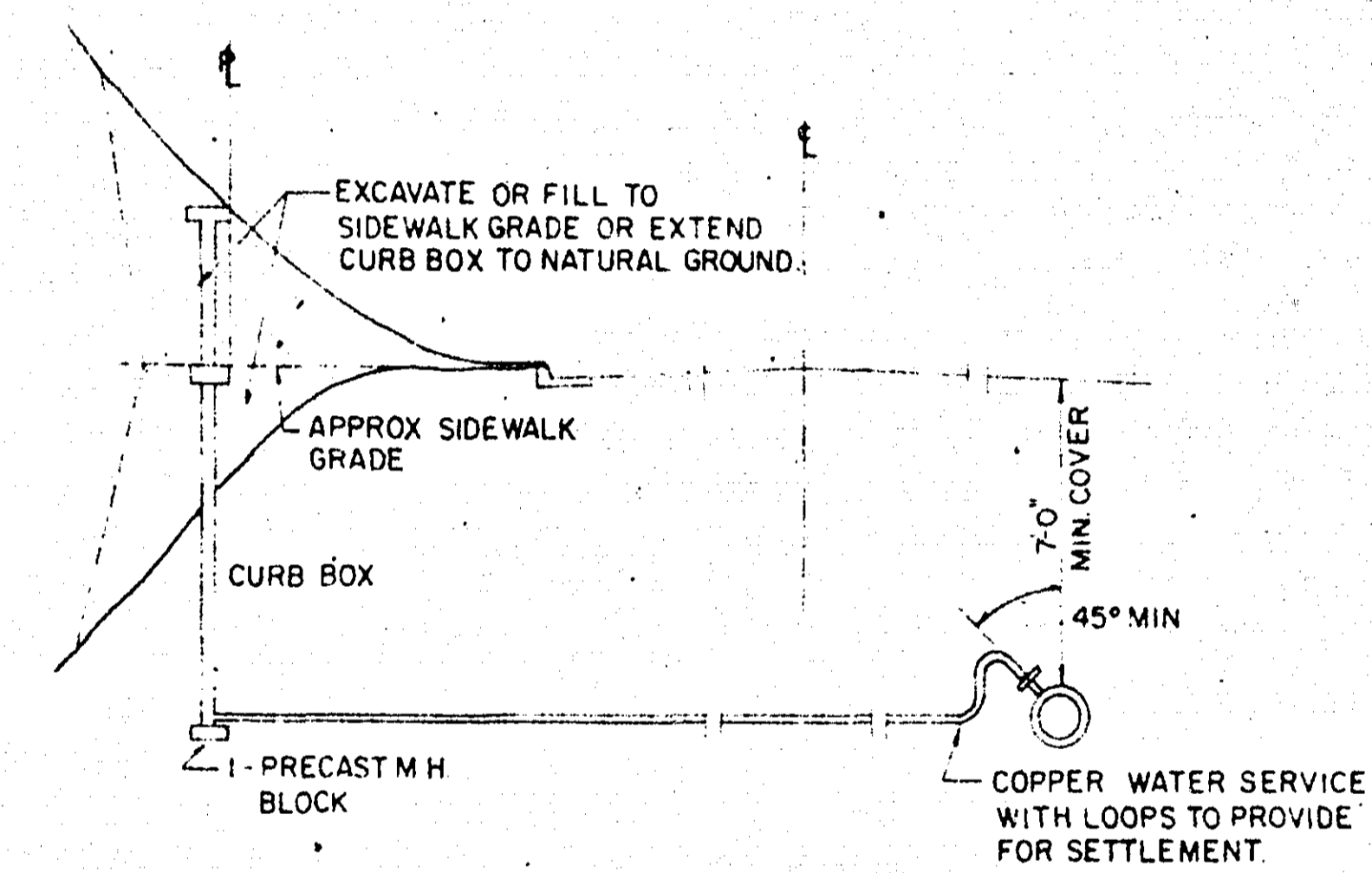
NOTE FOR CONDUCTIVITY PROVISIONS & TESTING SEE SPECIFICATIONS.



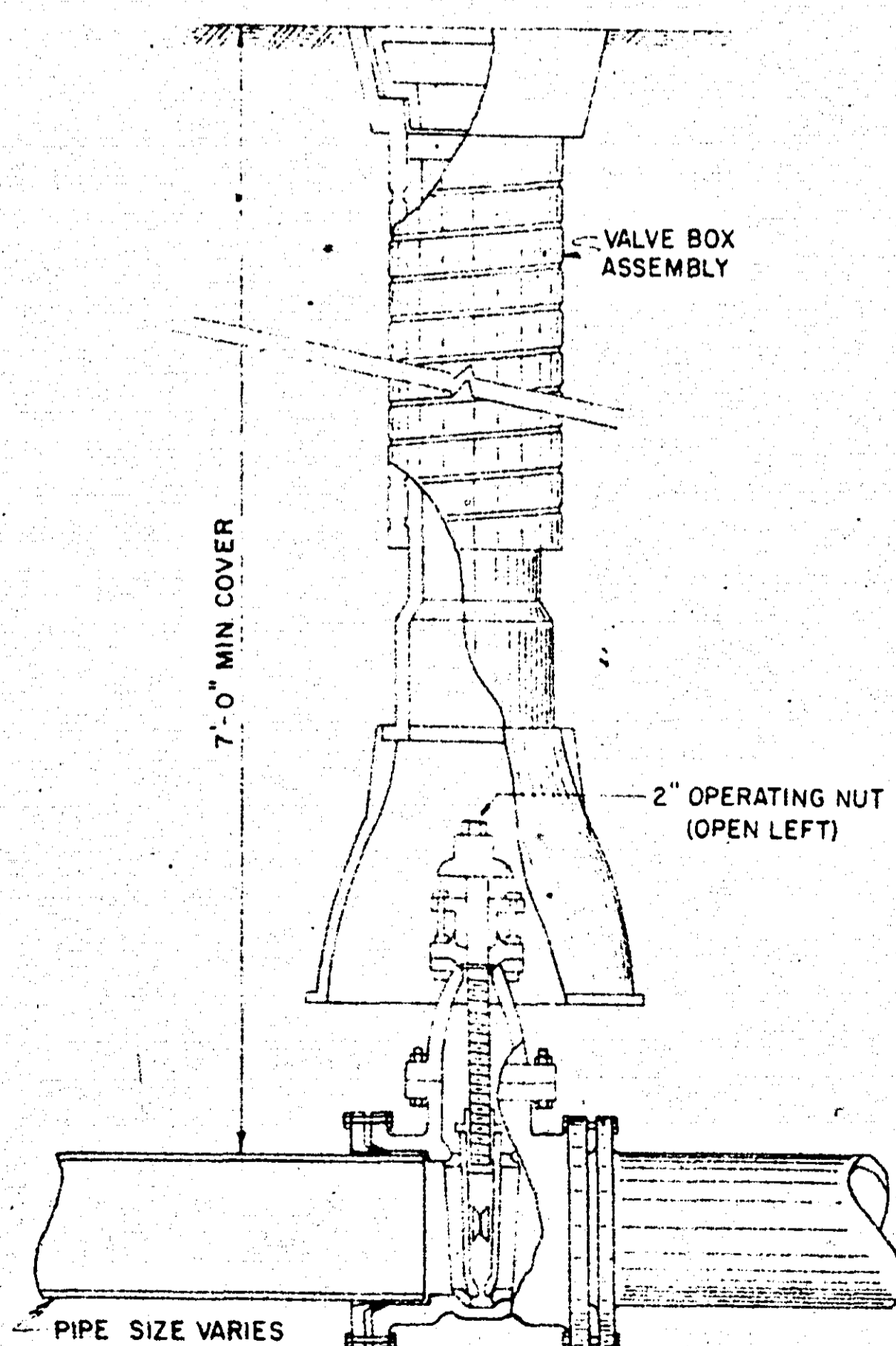
LOWER WATERMAIN DETAIL



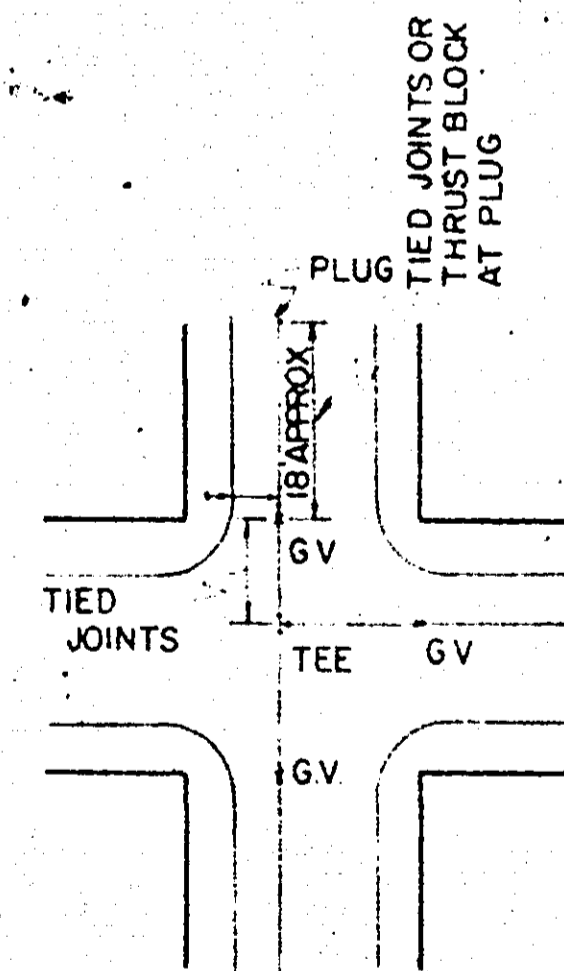
SEWER SERVICE CONNECTION



TYPICAL HOUSE SERVICE CONNECTION



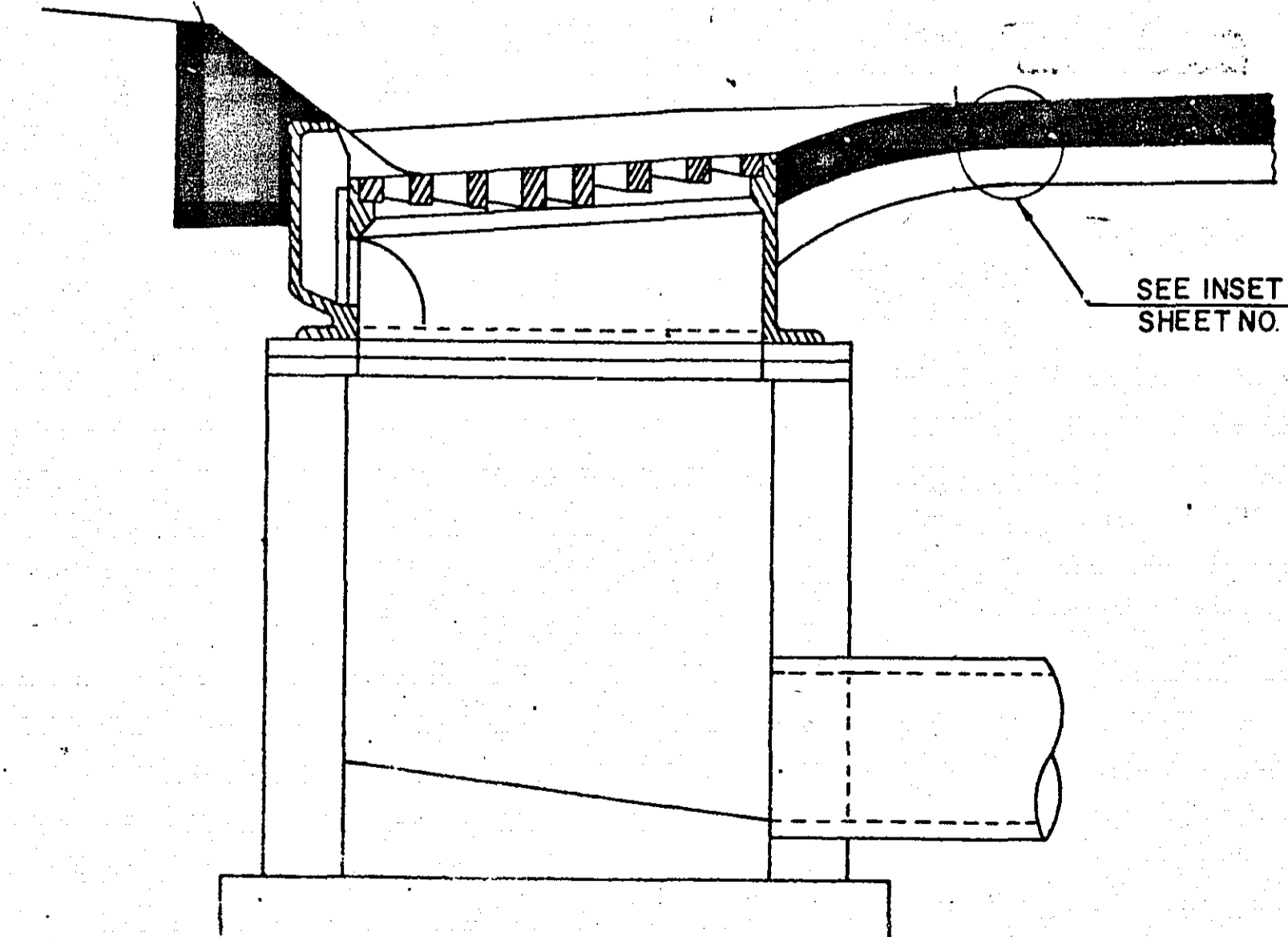
TYPICAL GATE VALVE AND BOX INSTALLATION



PIPE DIAMETER	6"	8"	12"
SET SCREWS PER GLAND	6	6	16

6", 8" & 12" STUB-OUT DEAD END LINES SHALL BE MECHANICAL JOINT CAST IRON PIPE WITH DUCTILE IRON RETAINER GLANDS. STUB-OUT LINES SHALL BE MEASURED AND PAID FOR AT THE PRICE BID FOR C.I.P. WATERMAIN AND SHALL INCLUDE THE COST OF THE RETAINER GLANDS. SET SCREWS SHALL BE TIGHTENED WITH TORQUE WRENCH TO 80 FOOT-LBS. 16" GV SHALL BE TIED WITH 2 - 3/4" Ø RODS AND 20" & 24" GV AND FITTINGS, WHERE SHOWN, SHALL BE TIED WITH 2 - 1" Ø RODS IN LIEU OF THRUST BLOCKS.

TYPICAL "DEAD END" PIPE DETAILS



TYPICAL CATCH BASIN BERM DETAIL FRONTAGE ROAD

FINAL PLAN  
CONFORMING TO  
CONST. RECORDS  
DATE 12-1-69 RAM

ROSEVILLE, MINNESOTA

Survey by  
Designed by  
Drawn by  
Approved by  
MISCELLANEOUS DETAILS  
MICROFILMED BY  
RAMSEY CO., ENGR.

BANISTER ENGINEERING CO.  
ST. PAUL, MINN. SEPTEMBER 16, 1968

SHEET 4 OF 30 SHEETS

S.A.P. 60-218-05  
S.A.P. 60-218-06

LINE	STRUCTURE NO.	STATION	LOCATION	CONSTRUCTION				TOP OF CASTING OR INLET	OUTLET	F. & I. CASTING ASSEMBLY TYPE	REMOVE	ADJUST	RECON-STRUCT	FURNISH AND INSTALL PIPE SEWER								LINE	APRONS		DRAINS TO		SODDING	REMARKS				
				DESIGN		PAY HEIGHT								ELEV.	ELEV.	12" RCP	15" RCP	18" RCP	24" RCP	51" SPAN RCP-ARCH	5" CMP		8" VCP	CLASS	S.C.	C.M.			NO.	GRADE%	INL. EL.	SQ. YD.
				M.H.	C.B.	LIN. FT.	C.Y.																									
1	1	F.R.	62 + 78.20	9' LT.	C OR G	3.4		935.51	932.01	A			1	18						IV	1			2	1.00	931.83						
2	2	F.R.	62 + 78.20	9' RT.	C OR G	3.5		935.51	931.58	A			2		42					IV	2			3	7.52	928.12						
3	3	W.B.L.	107 + 95	12' LT.	C OR G	3.5		931.81	928.12	A			3		59					IV	3			4	1.00	927.50						
4	4	E.B.L.	108 + 35	12' RT.	C OR G	4.1		931.81	927.50	A			4		5					IV	4			5	1.00	927.44						
5	5	E.B.L.	108 + 35	17' RT.	A OR F	6.3		932.59	923.93	B			5																			
6	6	F.R.	65 + 41.07	9' LT.	C OR G	2.7		928.45	925.00	A			6		8					IV	6			6A	1.00	924.92						
7	6A	F.R.	65 + 44	2' LT.				928.85		B	X		7																			
8	7	F.R.	66 + 07.89	9' LT.	C OR G	3.7		928.83	925.33	A			8		15					IV	8			7A	1.00	925.18		EXISTING CATCH BASIN-CHANGE CASTING				
9	7A	F.R.	65 + 89	2' LT.				928.90		B	X		9																			
10	8	E.B.L.	110 + 98	12' RT.	C OR G	3.0		928.17	924.67	A			10		47					IV	10			9	1.00	924.21		EXISTING CATCH BASIN-CHANGE CASTING				
11	9	W.B.L.	110 + 59	12' LT.	C OR G	3.9		928.17	923.96	A			11			29				IV	11			10	1.00	923.66						
12	10	F.R.	65 + 64	9' RT.	LP		2.74	928.35	923.41				12							IV	12			11	1.00	923.01		DESIGN LP 4-5				
13	11	F.R.	65 + 77	8' RT.	A OR F			928.57			X		13																			
14	12	F.R.	68 + 73	28' LT.	C OR G	3.6		936.21	932.71	A			14		27					IV	14			13	1.80	932.21		EXISTING MANHOLE				
15	13	F.R.	68 + 92	9' LT.	C OR G	4.2		935.71	932.21	A			15		18					IV	15			14	1.00	932.03						
16	14	F.R.	68 + 92	9' RT.	C OR G	4.3		935.71	932.03	A			16			12				IV	16			15	1.00	931.71						
17	15	W.B.L.	68 + 92	12' LT.	C OR G	3.2		935.20	931.56	A			17			46				IV	17			16	0.80	931.20						
18	16	E.B.L.	68 + 92	12' RT.	C OR G	3.6		935.20	931.20	A			18							16 GA	18			17		923.00		2 BENDS				
19	17	E.B.L.	68 + 73	50' RT.					923.00				19																			
20	18	E.B.L.	79 + 12	65' RT.				920.69					20			52				11	20	15"		19	0.30	920.48						
21	19	E.B.L.	79 + 58	5' RT.	A OR F		7.4	927.72	920.48	B			21			120				11	21			20	0.30	920.15						
22	20	E.B.L.	80 + 74	18' RT.	A OR F		7.0	926.97	919.60	B			22							11	22			27	0.30	918.00						
23	21	CUL DE SAC	RET.	49' OFF CENTER	C OR G	4.5		926.80	922.20	A			23		40					11	23			22	1.00	921.80						
24	22	F.R.	80 + 55	9' RT.	C OR G	4.4		926.40	921.80	A			24		4					11	24			23	1.00	921.70						
25	23	W.B.L.	80 + 64	12' LT.	C OR G	3.6		926.11	921.45	A			25							11	25			24	0.50	921.18						
26	24	E.B.L.	80 + 74	12' RT.	C OR G	4.4		926.11	921.18	A			26			8				IV	26			20	1.00	920.97						
27	25	SLIP RAMP	0 + 56	2' RT.	C OR G	3.4		925.90	922.40	A			27		28					IV	27			20	1.00	922.12						
28	26	HAMLIN	78 + 46.97	20' LT.							X		28																			
29	27	HAMLIN	78 + 46.97					929.62			X		29															EXISTING CATCH BASIN				
30	28	HAMLIN	78 + 46.97	12' RT.	C OR G	4.7		927.80	922.90	A	X		30		12					IV	30			27	1.00	922.64		REMOVE INPLACE CATCH BASIN, EXTEND LEAD & CONSTRUCT NEW BASIN				
31	29	W.B.L.	81 + 45	18' RT.							X		31																			
32	30	HAMLIN	78 + 82	15' RT.				927.87			X		32															EXISTING CATCH BASIN				
33	31	W.B.L.	81 + 40	18' LT.	C OR G	5.0		926.40	921.20	A	X		33															EXISTING MANHOLE				
34	32	W.B.L.	81 + 25	25' LT.	C OR G	3.4		926.25	922.75	A			34															EXISTING MANHOLE				
35	33	HAMLIN	79 + 54	16' RT.				926.88			X		35															EXISTING CATCH BASIN				
36	34	F.R.	65 + 84	58' RT.							X		36															EXISTING CONTROL STRUCTURE				
37	SP. STR. 1	F.R.	65 + 84	90' RT.				927.00	920.30				37				42	126		IV	37							CONNECT TO EXISTING 24" RCP AT STRUCTURE 34 INCLUDING BENDS - PLUG 5"				
38	50	F.R.	63 + 47.6	108' LT.	A OR F		9.9	929.95	919.86	B			38																			
39	51	F.R.	63 + 47.6	8' LT.	A OR F		12.0	931.87	919.36	B			39						106						51	0.40	919.46					
40	52	F.R.	65 + 62.6	8' LT.				928.66					40						215							52	0.40	918.50				
41	53	F.R.	70 + 75	6' LT.	A OR F		6.8	937.75	931.12	B			41						118						54	0.40	930.66		EXISTING MANHOLE			
42	54	F.R.	71 + 90	6' LT.	A OR F			938.84					42															EXISTING MANHOLE				
43	100		0 + 48	24' LT. Q DEV.				958.01			X		43															EXISTING MANHOLE				
44	101		0 + 48	2' RT. Q DEV.				958.35			X		44															EXISTING MANHOLE				
45	102		0 + 88	30' RT. Q DEV.				956.86			X		45															EXISTING MANHOLE				
46	103		3 + 09.37	34' LT. Q DEV.				950.60			X		46															EXISTING CATCH BASIN				
47	104		3 + 09.37	45' RT. Q DEV.				950.60			X		47															EXISTING CATCH BASIN				
48	105		3 + 27.90	22' RT. Q DEV.				950.78			X		48															EXISTING MANHOLE				
49	106		3 + 63.37	99' RT. Q DEV.				949.80			X		49															EXISTING CATCH BASIN				
50	107		4 + 15.37	88' RT. Q DEV.				949.80			X		50															EXISTING CATCH BASIN				
51	108		6 + 68	49' LT. Q DEV.				944.46			X		51															EXISTING CATCH BASIN				
52	109		7 + 01.73	15' RT. Q DEV.				941.16			X		52															EXISTING MANHOLE				
53	110		8 + 84	34' LT. Q DEV.				936.32			X		53															EXISTING MANHOLE				
54	111		10 + 04.95	34' LT. Q DEV.				934.58			X		54															EXISTING CATCH BASIN				
55	112		10 + 12.13	34' LT. Q DEV.				934.59			X		55															EXISTING CATCH BASIN				
56	113		10 + 04.95	34' RT. Q DEV.				934.58			X		56															EXISTING CATCH BASIN				
57	114		10 + 12.13	34' RT. Q DEV.				934.59			X		57															EXISTING CATCH BASIN				
58	115		10 + 08.54	22' RT. Q DEV.				935.13			X		58															EXISTING CATCH BASIN				
59	116		10 + 73.40	22' RT. Q DEV.				935.44			X		59															EXISTING MANHOLE				
60	117		11 + 00	34' LT. Q DEV.				935.77			X		60															EXISTING MANHOLE				
61	118		11 + 17.89	22' LT. Q DEV.				935.73			X		61															EXISTING MANHOLE				
62	119		14 + 41	22' LT. Q DEV.				937.94			X		62															EXISTING MANHOLE				
63	120		15 + 90.41	99' RT. Q DEV.				939.80			X		63															EXISTING CATCH BASIN				
64	121		16 + 52.41	88' RT. Q DEV.				939.60			X		64															EXISTING CATCH BASIN				
65	122		17 + 01.41	34' LT. Q DEV.				939.42			X		65															EXISTING CATCH BASIN				
66	123		17 + 01.41	22' LT. Q DEV.				939.88			X		66															EXISTING MANHOLE				
67	124		17 + 06.41	34' RT. Q DEV.				939.48			X		67															EXISTING CATCH BASIN				
68	125	Le E.B.	104 + 60	17' RT.				937.29			X		68															EXISTING MANHOLE				
69	126	Le E.B.	107 + 45	17' RT.																												

LWB. PC. 0+00  
 PI. 1+72.73  
 $\Delta$  44°50'13" LT.  
 D 13°40'48"  
 T 172.73'  
 L 327.76'  
 LWB. PT. 3+27.76

LWB. PC. 4+16.69  
 PI. 6+07.58  
 $\Delta$  44°50'13" RT.  
 D 12°22'48"  
 T 190.89'  
 L 353.60'  
 LWB. PT. 7+70.29

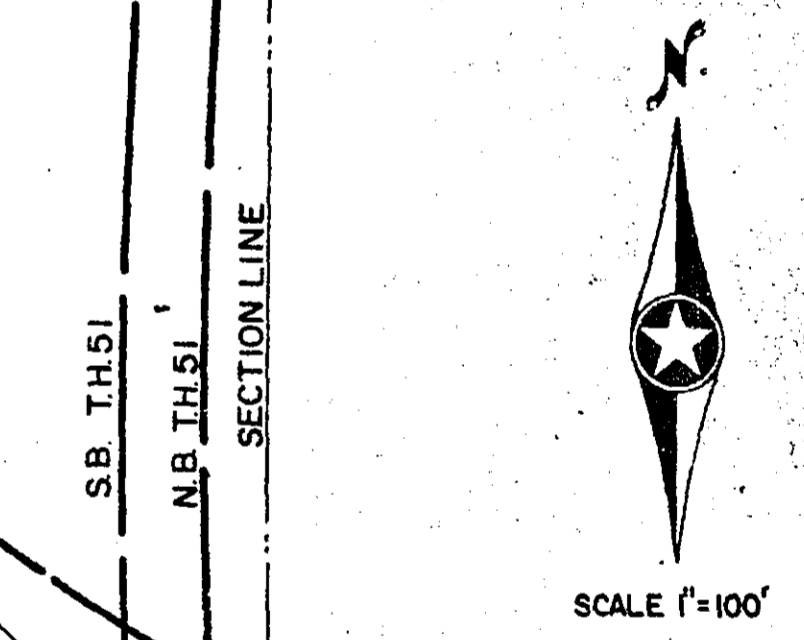
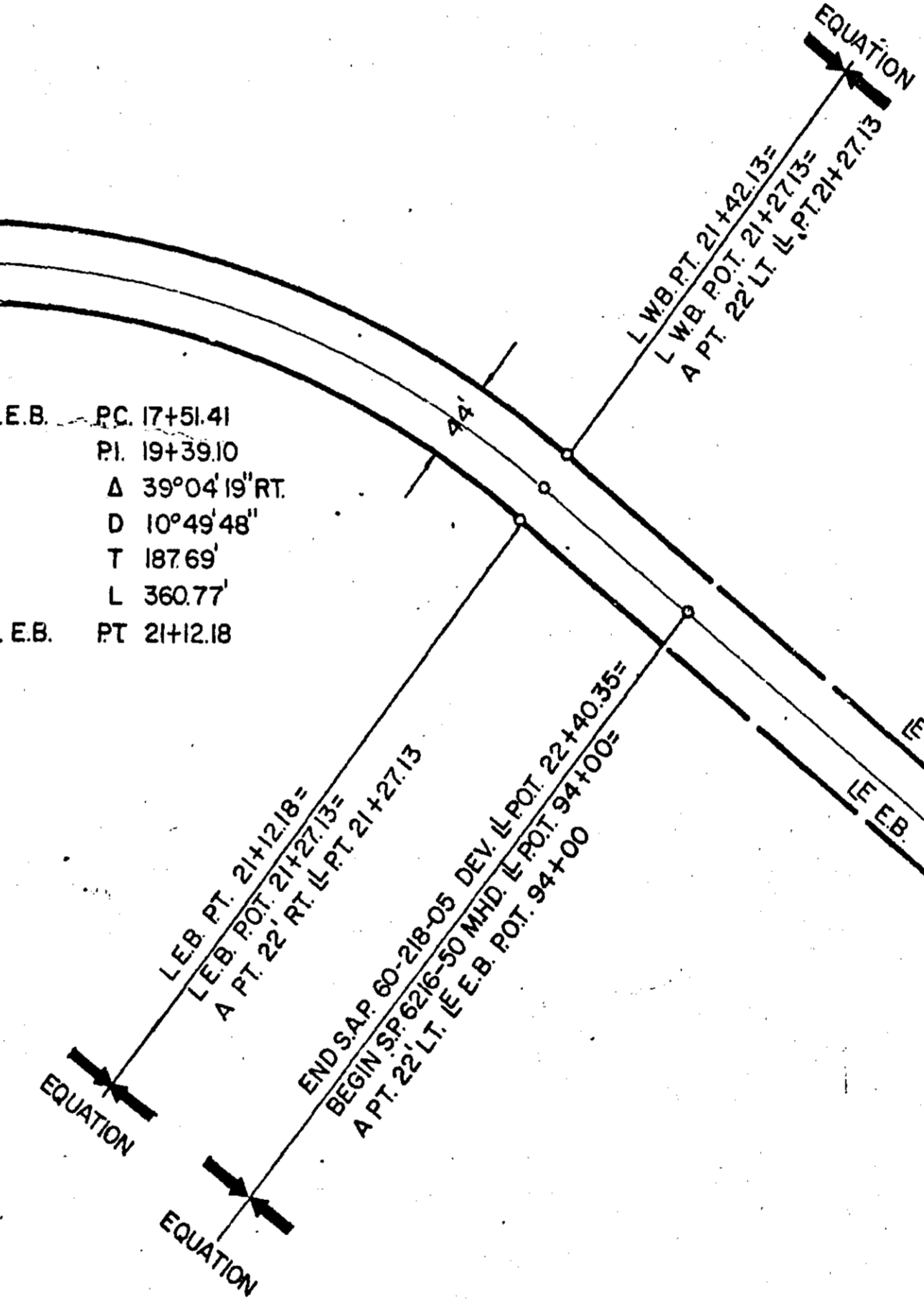
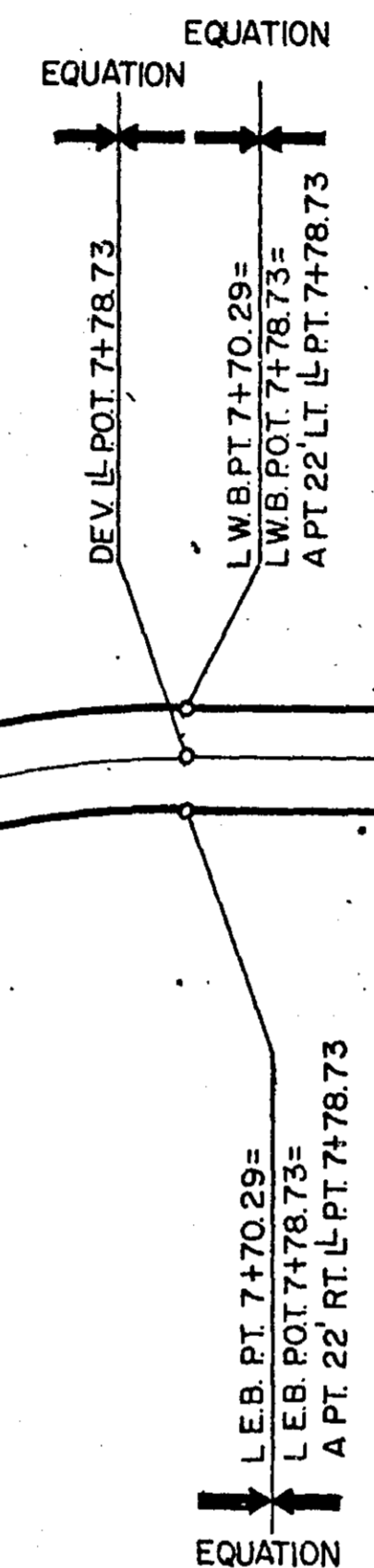
LWB. PC. 17+51.41  
 PI. 19+54.71  
 $\Delta$  39°04'19" RT.  
 D 10°  
 T 203.30'  
 L 390.72'  
 LWB. PT. 21+42.13

L.E.B. PC. 4+42.53  
 PI. 6+15.26  
 $\Delta$  44°50'13" RT.  
 D 13°40'48"  
 T 172.73'  
 L 327.76'  
 L.E.B. PT. 7+70.29

L.E.B. PC. 17+51.41  
 PI. 19+39.10  
 $\Delta$  39°04'19" RT.  
 D 10°49'48"  
 T 187.69'  
 L 360.77'  
 L.E.B. PT. 21+12.18

L.E.B. PC. 0+00  
 PI. 1+90.89  
 $\Delta$  44°50'13" LT.  
 D 12°22'48"  
 T 190.89'  
 L 353.60'  
 L.E.B. PT. 3+53.60

QUARTER LINE  
 2640.31'



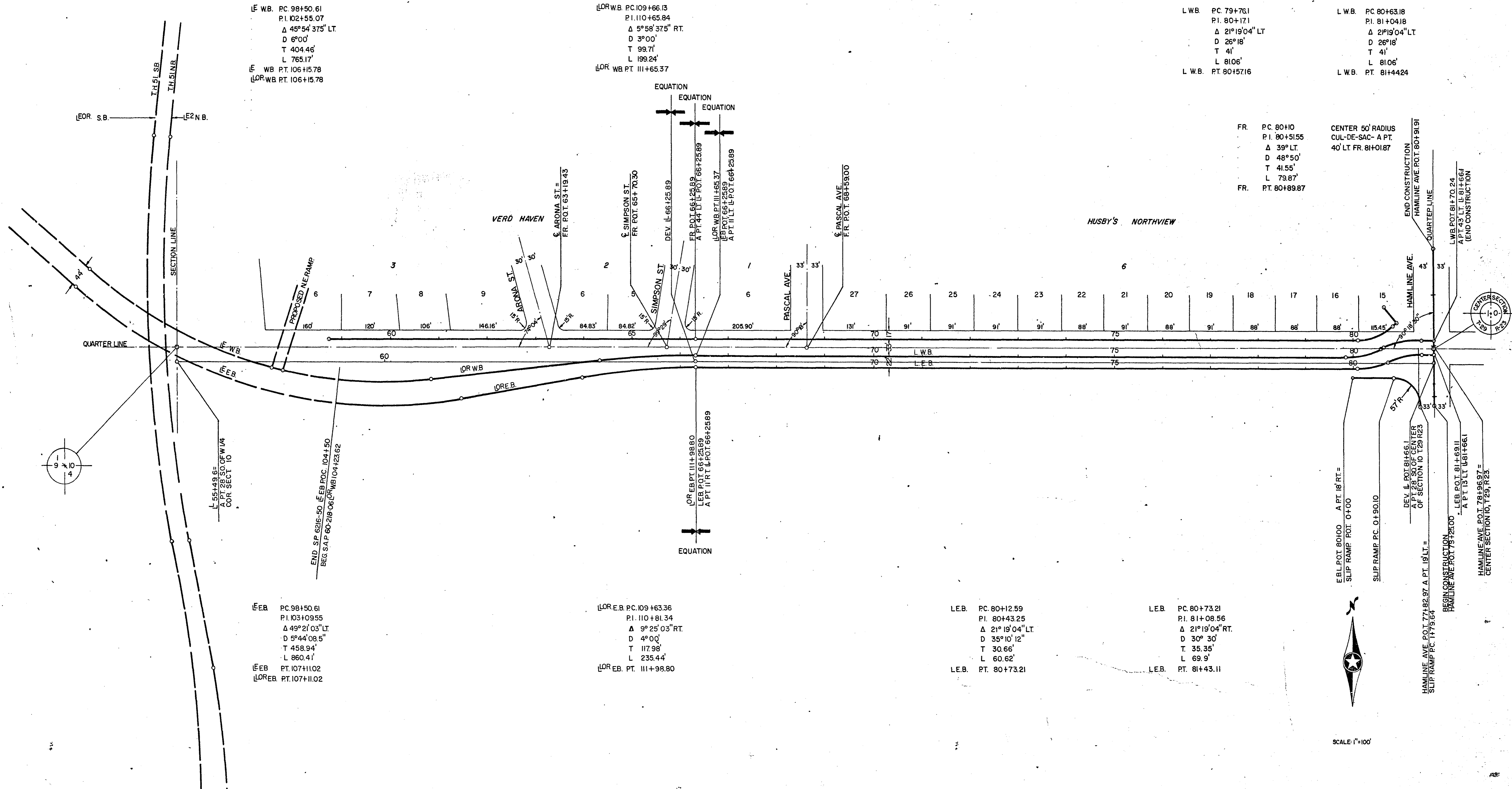
**FINAL PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DATE 12-1-69 RAM

**ROSEVILLE, MINNESOTA**

Survey by J.C.	<b>ALIGNMENT</b>	Revisions
Designed by D.W. RAM		MICROFILMED RAMSEY CO. ENGR.
Drawn by T.A.B.		
Approved by		

**BANISTER ENGINEERING CO.**  
 ST. PAUL, MINN. SEPTEMBER 16, 1968

SHEET 6 OF 30 SHEETS



LE WB. PC. 98+50.61  
 P.I. 102+55.07  
 $\Delta$  45° 54' 37.5" LT.  
 D 6° 00'  
 T 404.46'  
 L 765.17'  
 LE WB. PT. 106+15.78  
 LOR WB. RT. 106+15.78

LOR WB. PC. 109+66.13  
 P.I. 110+65.84  
 $\Delta$  5° 58' 37.5" RT.  
 D 3° 00'  
 T 99.71'  
 L 199.24'  
 LOR WB. PT. 111+65.37

LWB. PC. 79+76.1  
 P.I. 80+17.1  
 $\Delta$  21° 19' 04" LT.  
 D 26° 18'  
 T 41'  
 L 81.06'  
 LWB. PT. 80+157.16

LWB. PC. 80+63.18  
 P.I. 81+04.18  
 $\Delta$  21° 19' 04" LT.  
 D 26° 18'  
 T 41'  
 L 81.06'  
 LWB. PT. 81+44.24

FR. PC. 80+10  
 P.I. 80+51.55  
 $\Delta$  39° LT.  
 D 48° 50'  
 T 41.55'  
 L 79.87'  
 FR. PT. 80+89.87

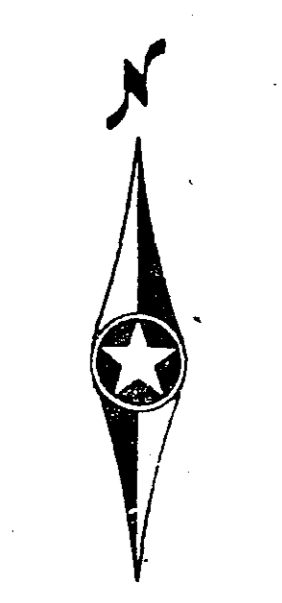
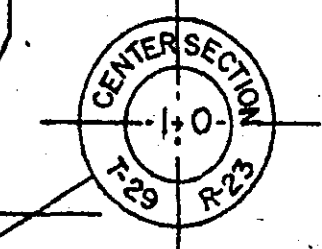
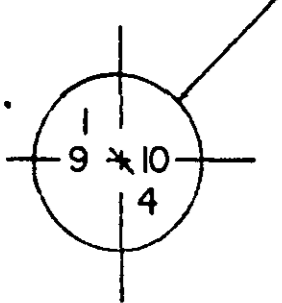
CENTER 50' RADIUS  
 CUL-DE-SAC- A PT.  
 40' LT. FR. 81+01.87

LE EB. PC. 98+50.61  
 P.I. 103+09.55  
 $\Delta$  49° 21' 03" LT.  
 D 5° 44' 08.5"  
 T 458.94'  
 L 860.41'  
 LE EB. PT. 107+11.02  
 LOR EB. PT. 107+11.02

LOR EB. PC. 109+63.36  
 P.I. 110+81.34  
 $\Delta$  9° 25' 03" RT.  
 D 4° 00'  
 T 117.98'  
 L 235.44'  
 LOR EB. PT. 111+98.80

LEB. PC. 80+12.59  
 P.I. 80+43.25  
 $\Delta$  21° 19' 04" LT.  
 D 35° 10' 12"  
 T 30.66'  
 L 60.62'  
 LEB. PT. 80+73.21

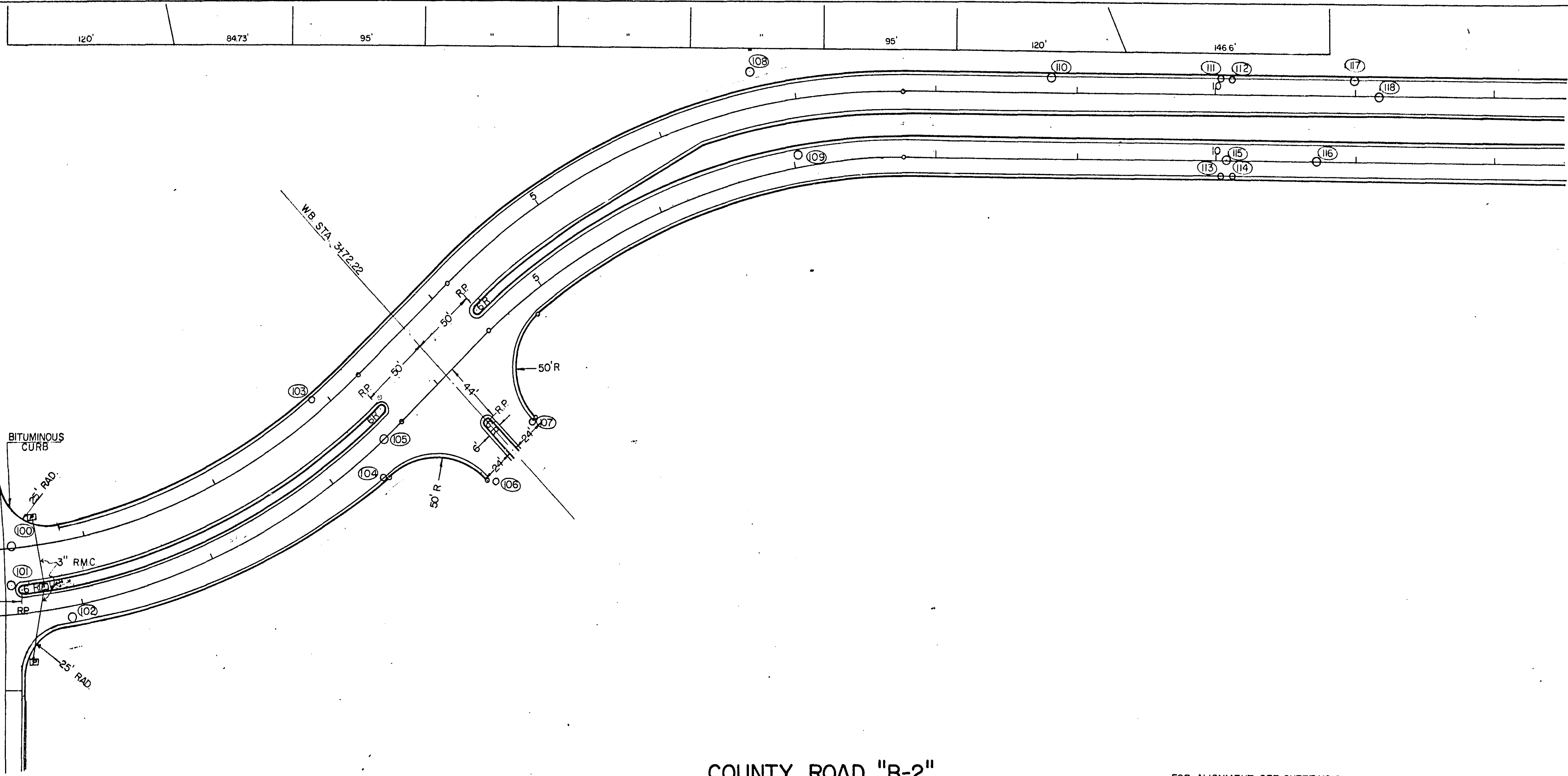
LEB. PC. 80+73.21  
 P.I. 81+08.56  
 $\Delta$  21° 19' 04" RT.  
 D 30° 30'  
 T 35.35'  
 L 69.9'  
 LEB. PT. 81+43.11



**FINAL PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DATE 12-1-69 RAM

<b>ROSEVILLE, MINNESOTA</b>	
Survey by J.C.	Revisions
Designed by DWE BAW	MICROFILMED RAMSEY CO. ENG.
Drawn by TAB	<b>ALIGNMENT</b>
Approved by	<b>BANISTER ENGINEERING CO.</b>
ST. PAUL, MINN.	SEPTEMBER 16, 1968
SHEET 7 OF 30 SHEETS	



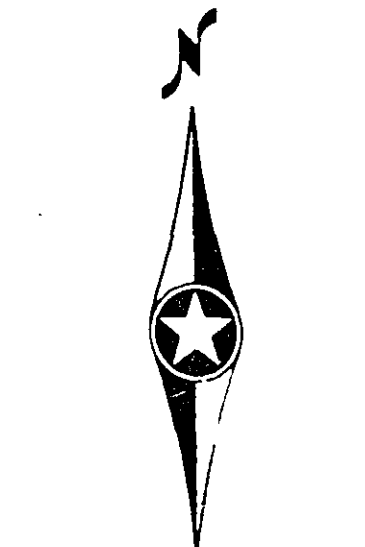


BEGIN S.A.P. 60-218-05  
VILLAGE PROJ. 67-39 NO. 2

FAIRVIEW AVE

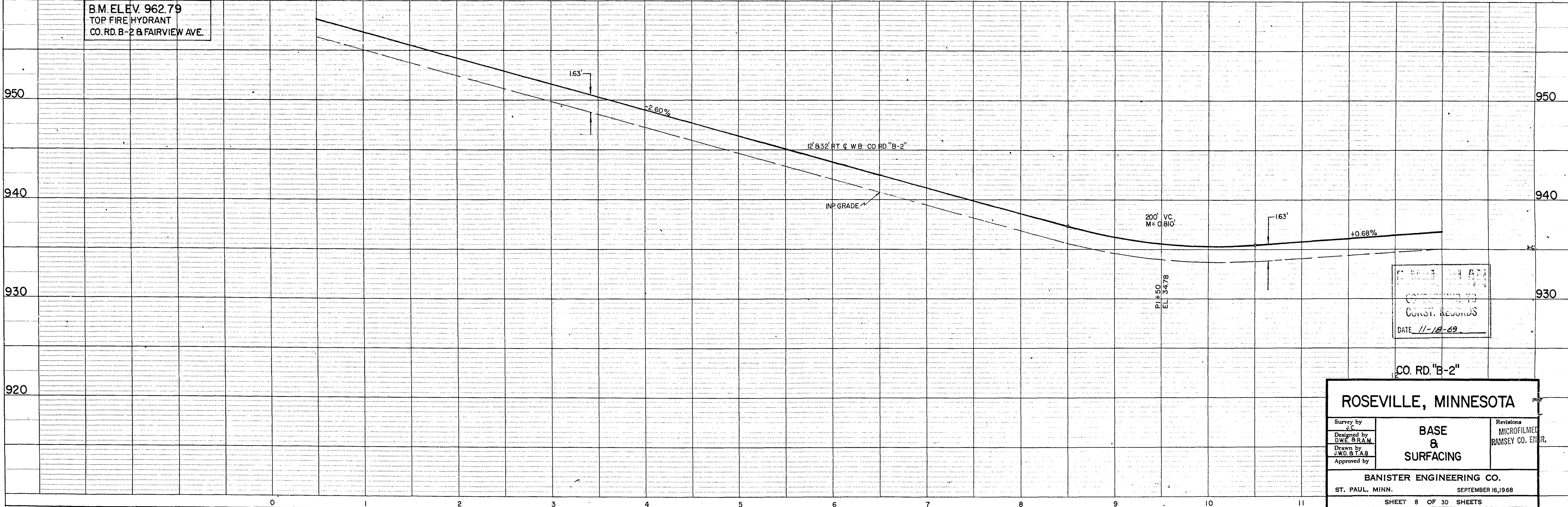
COUNTY ROAD "B-2"

FOR ALIGNMENT SEE SHEET NO. 6

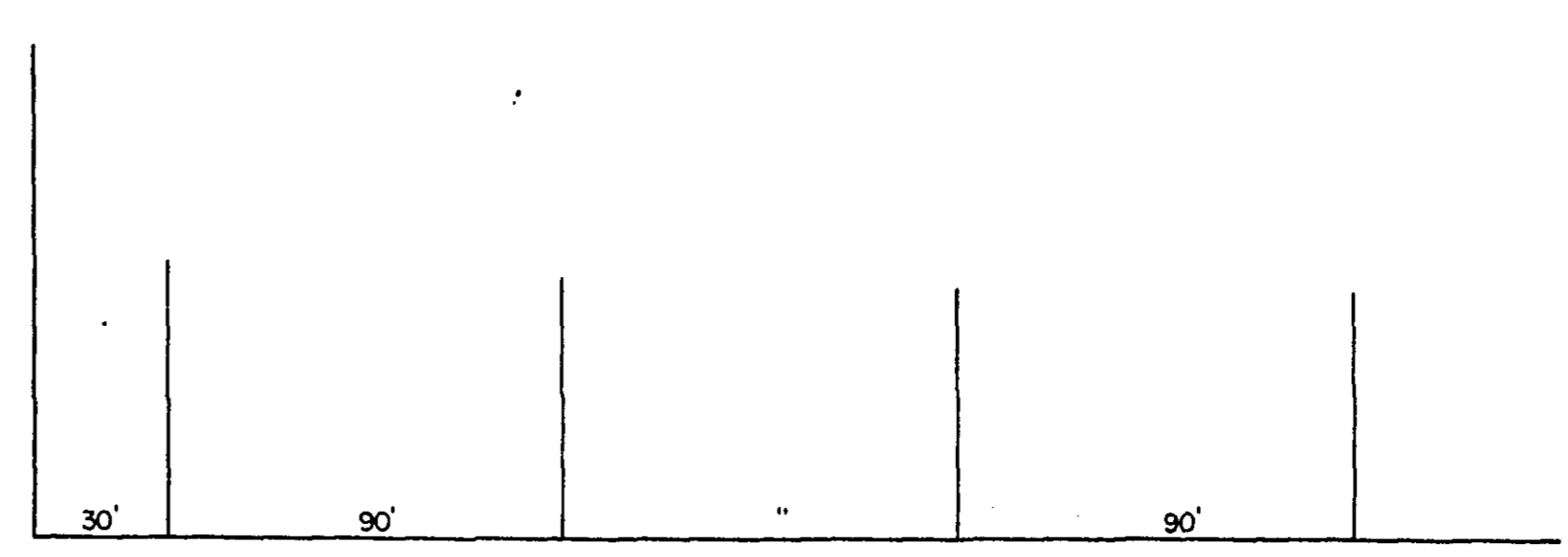
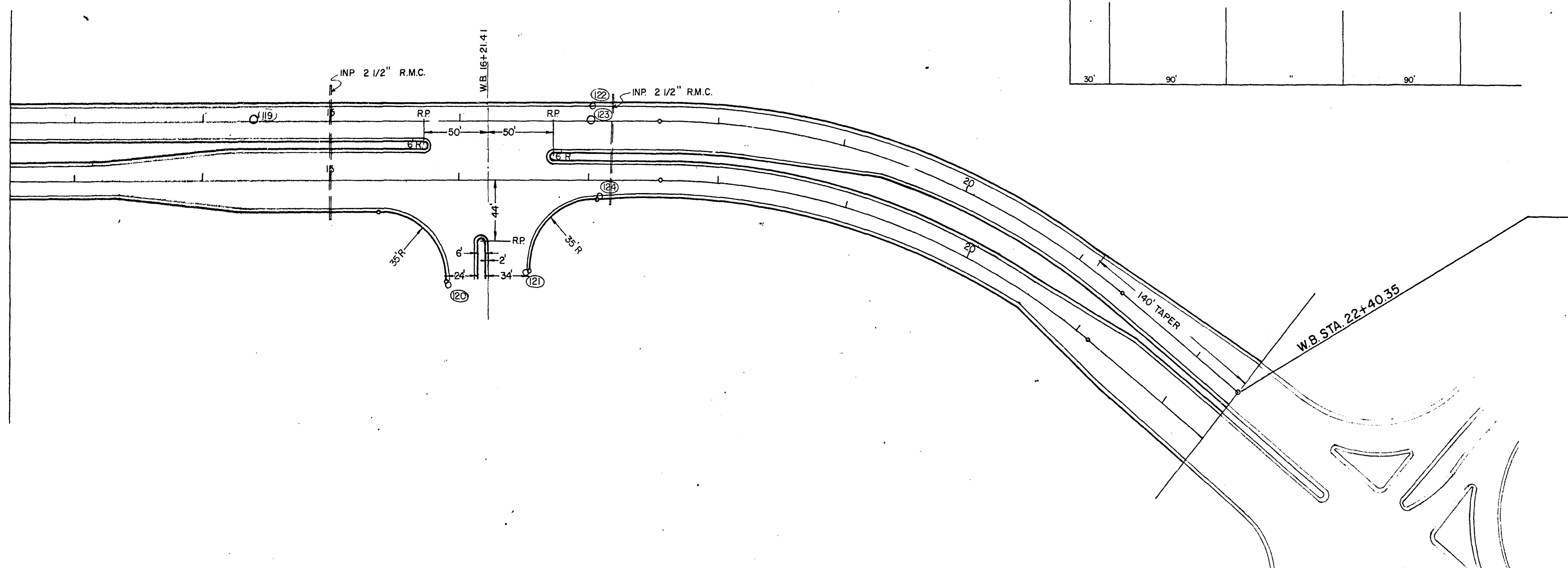


SCALE: 1" = 50' HORIZ.  
1" = 5' VERT.

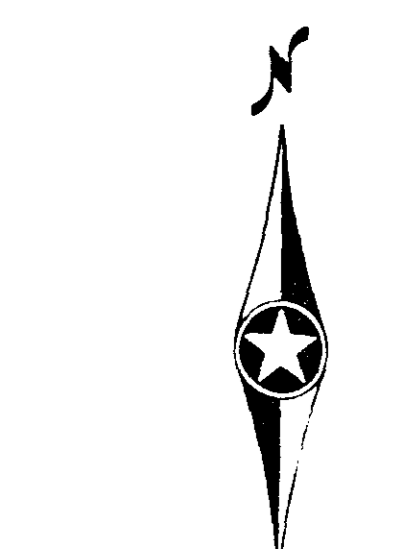
B.M. ELEV. 962.79  
TOP FIRE HYDRANT  
CO. RD. B-2 & FAIRVIEW AVE.



ROSEVILLE, MINNESOTA		
Survey by J.L.S.	<b>BASE &amp; SURFACING</b>	Revisions MICROFILMED RAMSEY CO. ENGR.
Designed by D.W.E. BRAM.		
Drawn by J.W.D. & T.A.B.		
Approved by		
BANISTER ENGINEERING CO. ST. PAUL, MINN.      SEPTEMBER 16, 1968		
SHEET 8 OF 30 SHEETS		



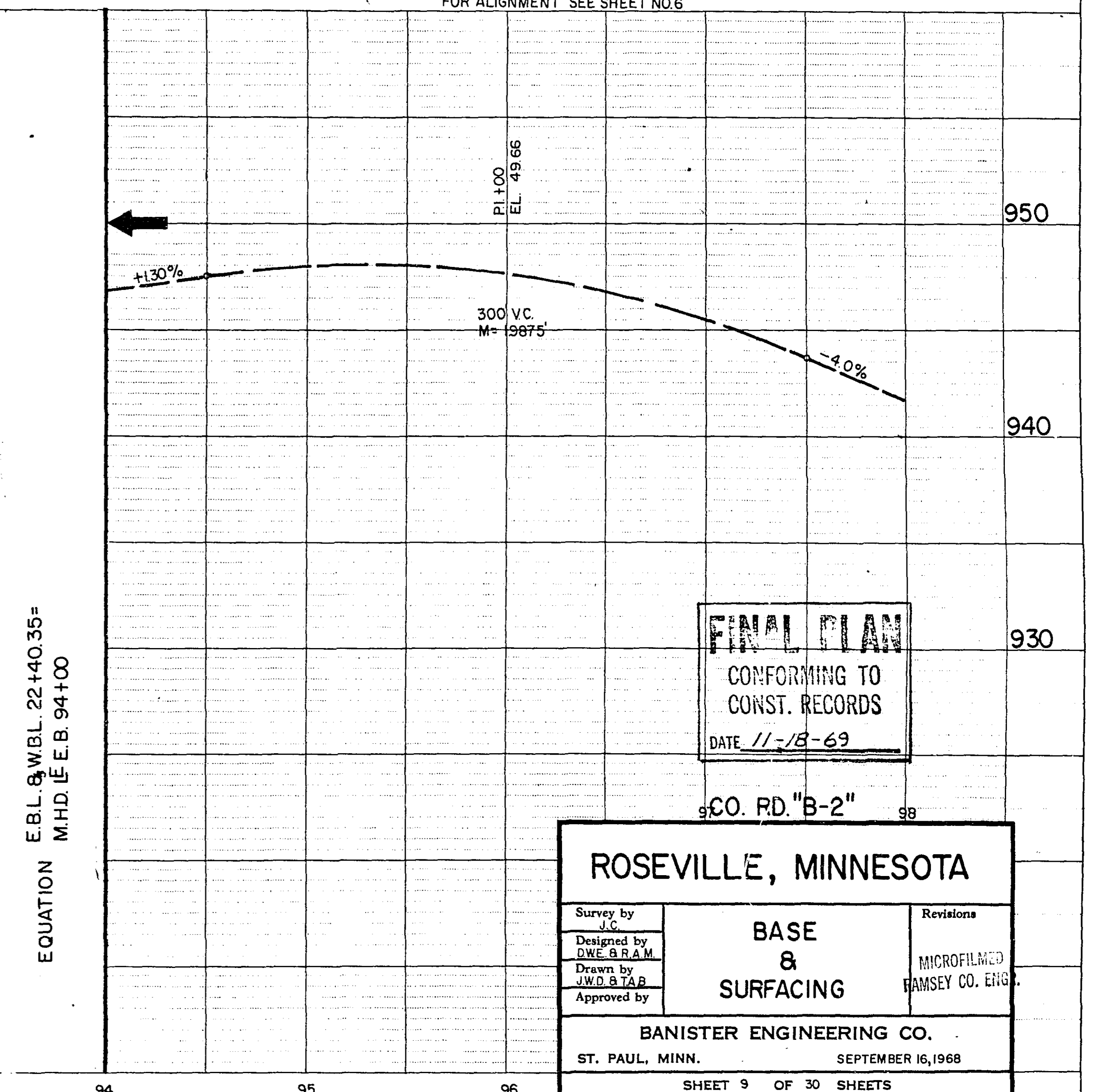
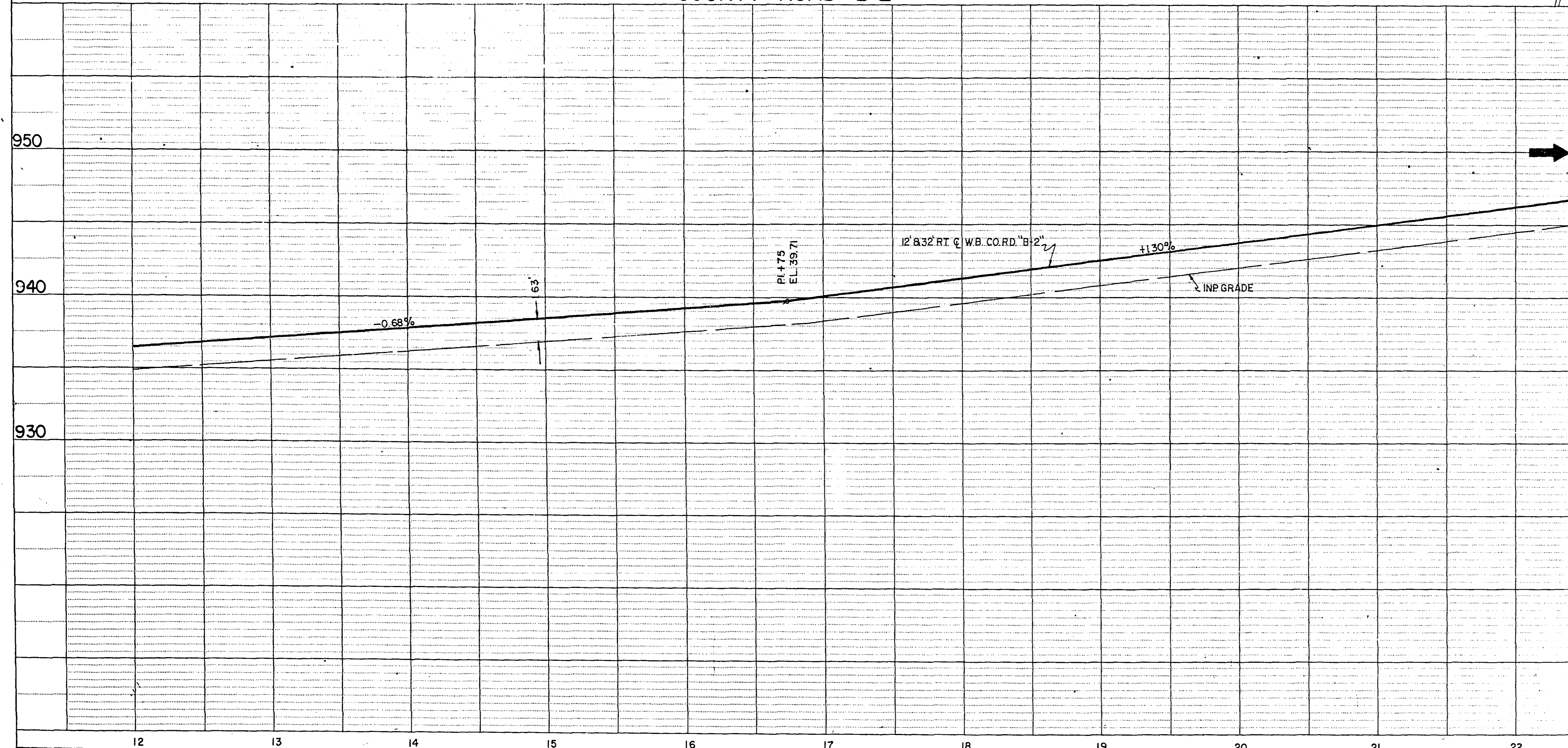
END S.A.P. 60-218-05  
VILLAGE PROJ. 67-39 NO.2



SCALE 1"=50' HORIZ  
1"=5' VERT.

COUNTY ROAD "B-2"

FOR ALIGNMENT SEE SHEET NO.6



EQUATION E.B.L. & W.B.L. 22+40.35=  
M.H.D. I.E.B. 94+00

**FINAL PLAN**  
CONFORMING TO  
CONST. RECORDS  
DATE 11-18-69

CO. RD. "B-2"

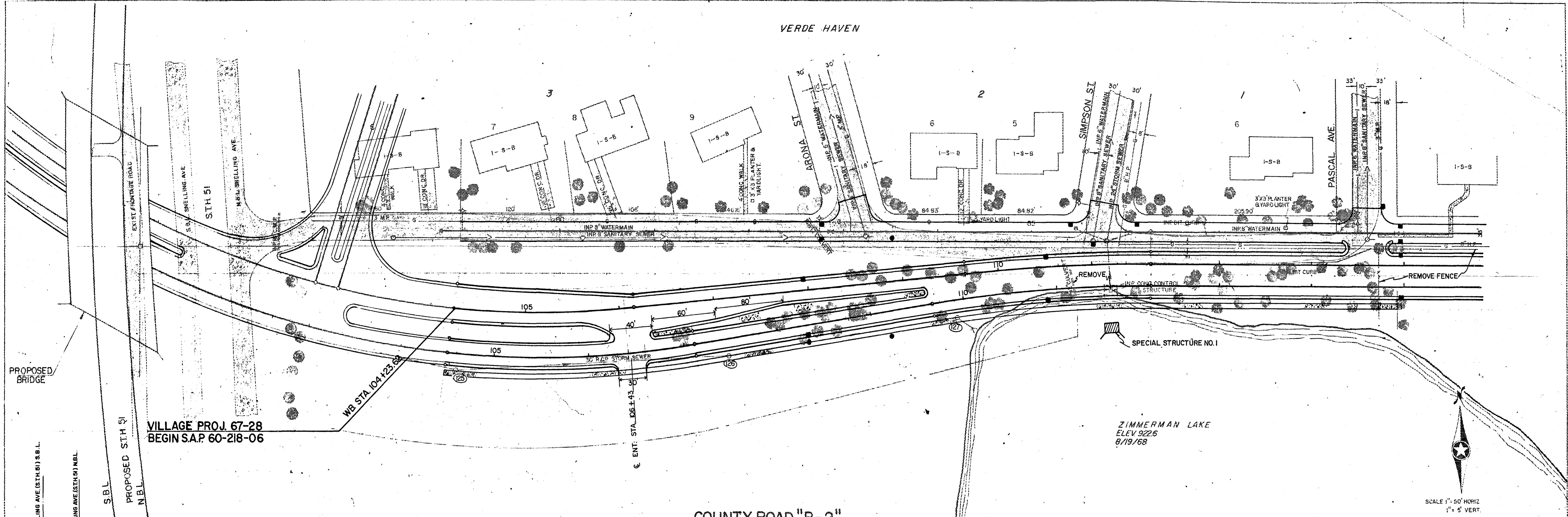
**ROSEVILLE, MINNESOTA**

Survey by J.C.	<b>BASE &amp; SURFACING</b>	Revisions
Designed by O.W.E. & P.A.M.		MICROFILMED
Drawn by J.W.D. & T.A.B.		RAMSEY CO. ENG.
Approved by		

**BANISTER ENGINEERING CO.**  
ST. PAUL, MINN. SEPTEMBER 16, 1968

SHEET 9 OF 30 SHEETS

VERDE HAVEN

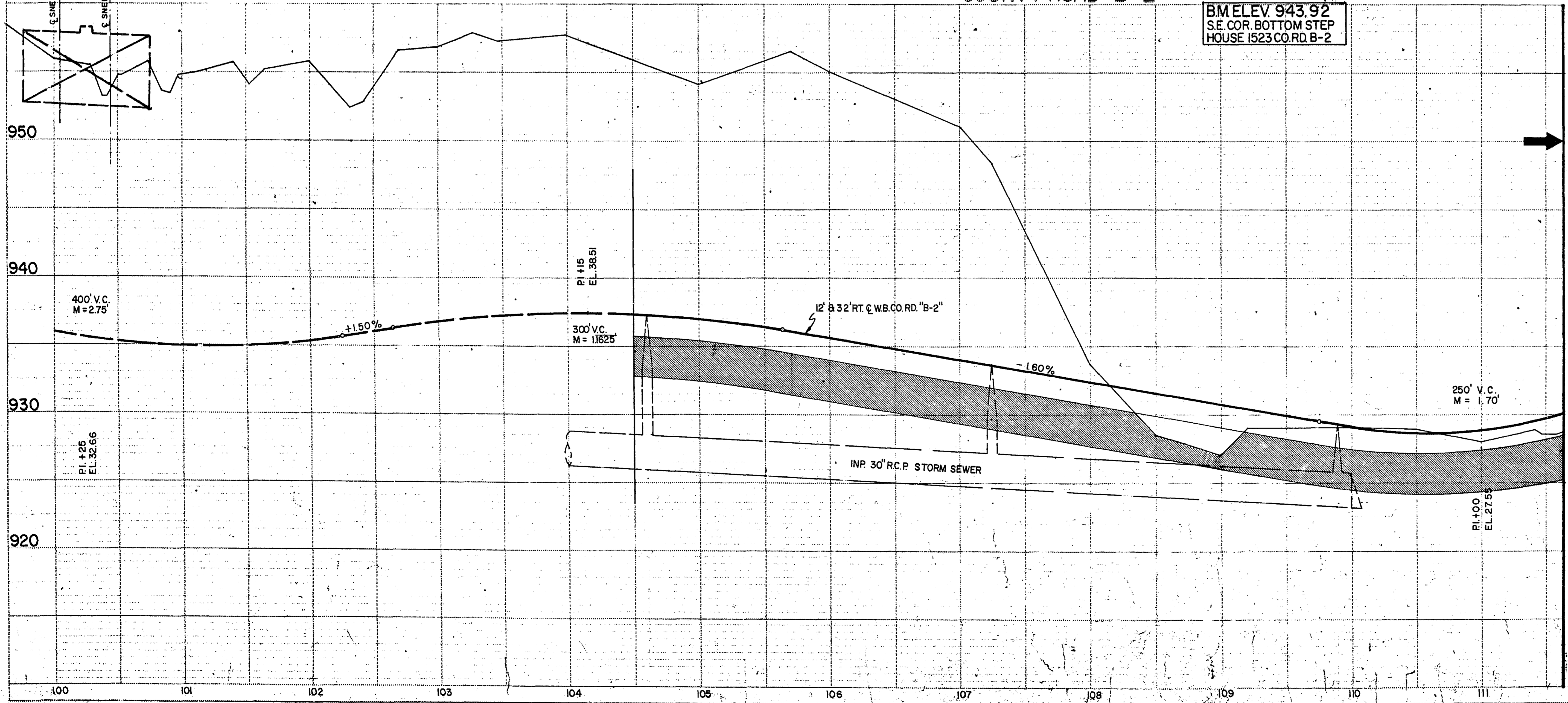


VILLAGE PROJ. 67-28  
BEGIN S.A.P. 60-218-06

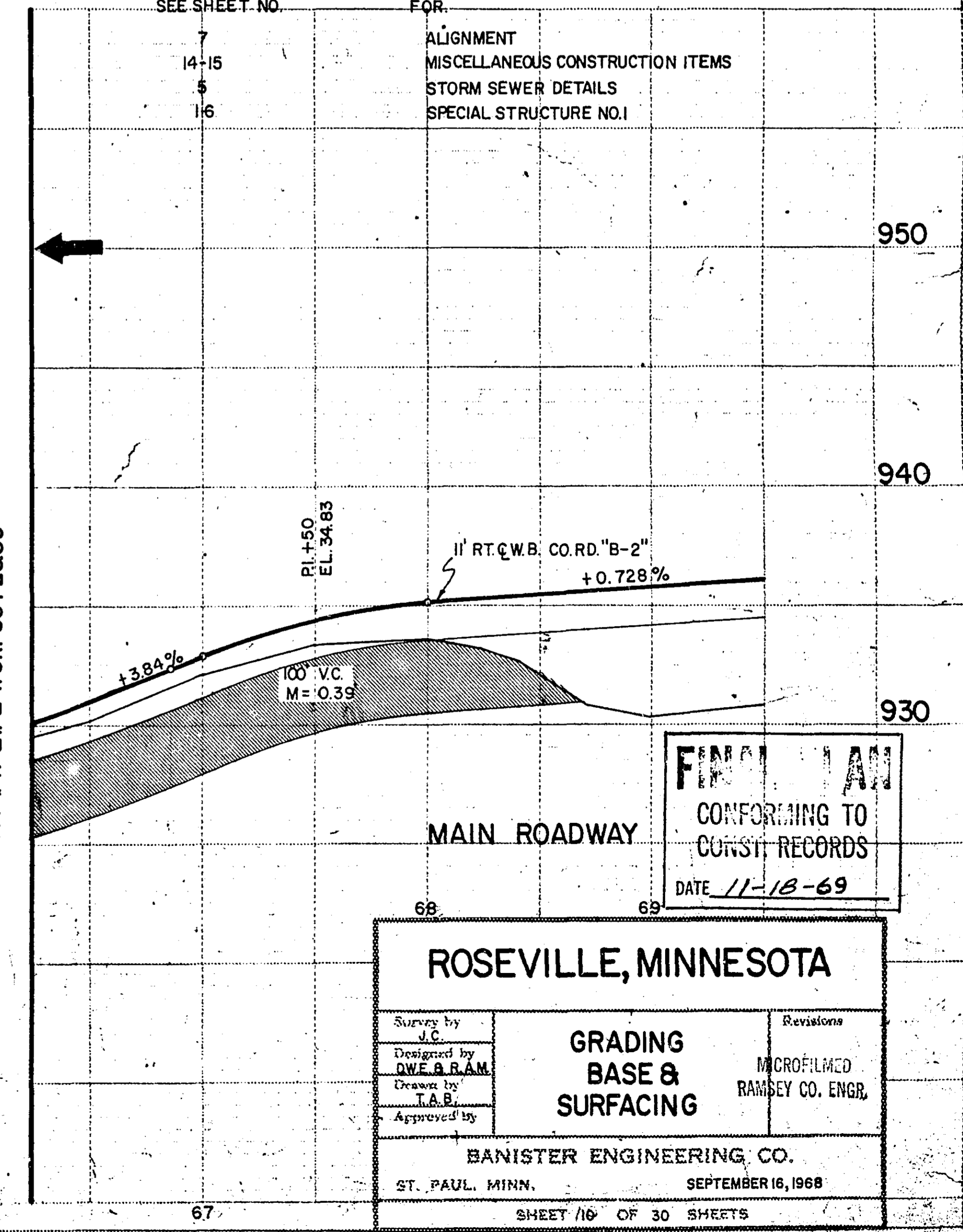
ZIMMERMAN LAKE  
ELEV. 922.6  
8/19/68

SCALE 1" = 50' HORIZ  
1" = 5' VERT

COUNTY ROAD "B-2"



BM ELEV. 943.92  
S.E. COR. BOTTOM STEP  
HOUSE 1523 CO. RD. B-2



SEE SHEET NO. FOR:  
ALIGNMENT  
MISCELLANEOUS CONSTRUCTION ITEMS  
STORM SEWER DETAILS  
SPECIAL STRUCTURE NO. 1

OR W.B. PT. III +65.39 =  
EB POT. 66+25.89 =  
A PT. III' LT. E. POT. 66+25.89

MAIN ROADWAY

FINAL PLAN  
CONFORMING TO  
CONSULTING RECORDS  
DATE 11-18-69

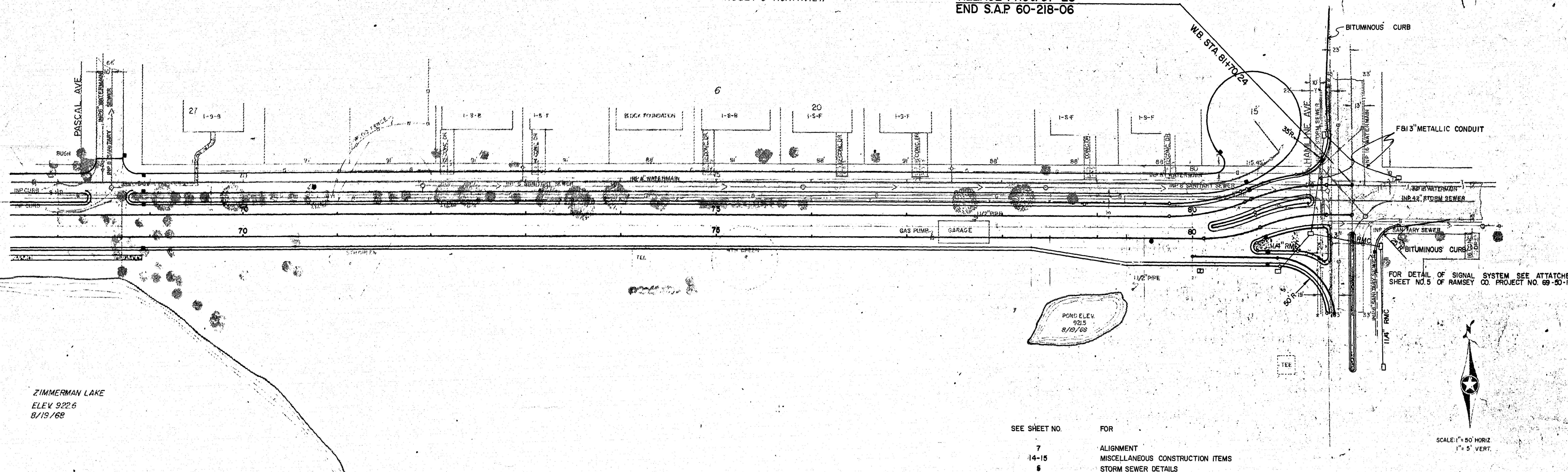
ROSEVILLE, MINNESOTA

Survey by J.C.	<b>GRADING BASE &amp; SURFACING</b>	Revisions
Designed by D.W.E. & R.A.M.		MICROFILMED RAMSEY CO. ENGR.
Drawn by J.C.		
Approved by		

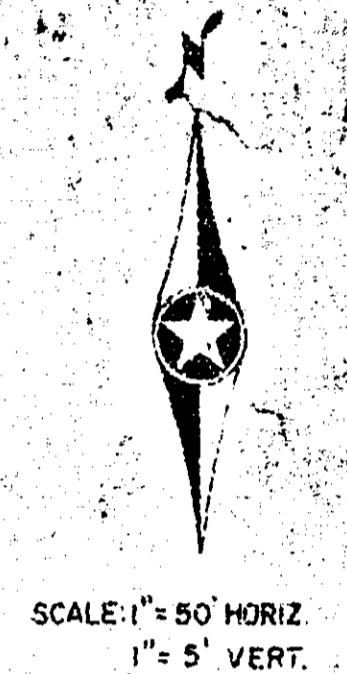
BANISTER ENGINEERING CO.  
ST. PAUL, MINN. SEPTEMBER 16, 1968

SHEET 16 OF 30 SHEETS

S.A.P. 60-218-06



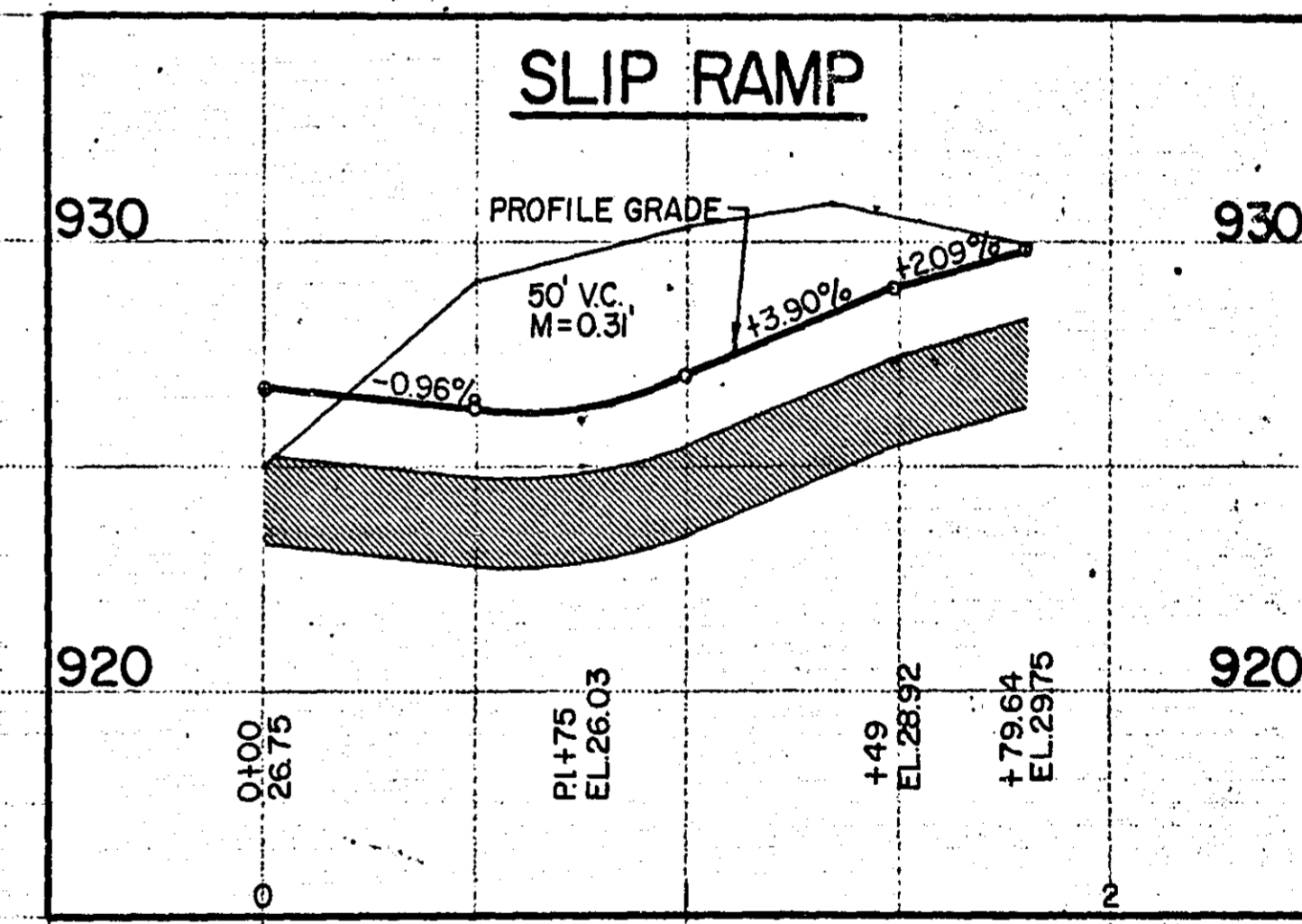
SEE SHEET NO. 7 FOR  
14-15 ALIGNMENT  
5 MISCELLANEOUS CONSTRUCTION ITEMS  
STORM SEWER DETAILS



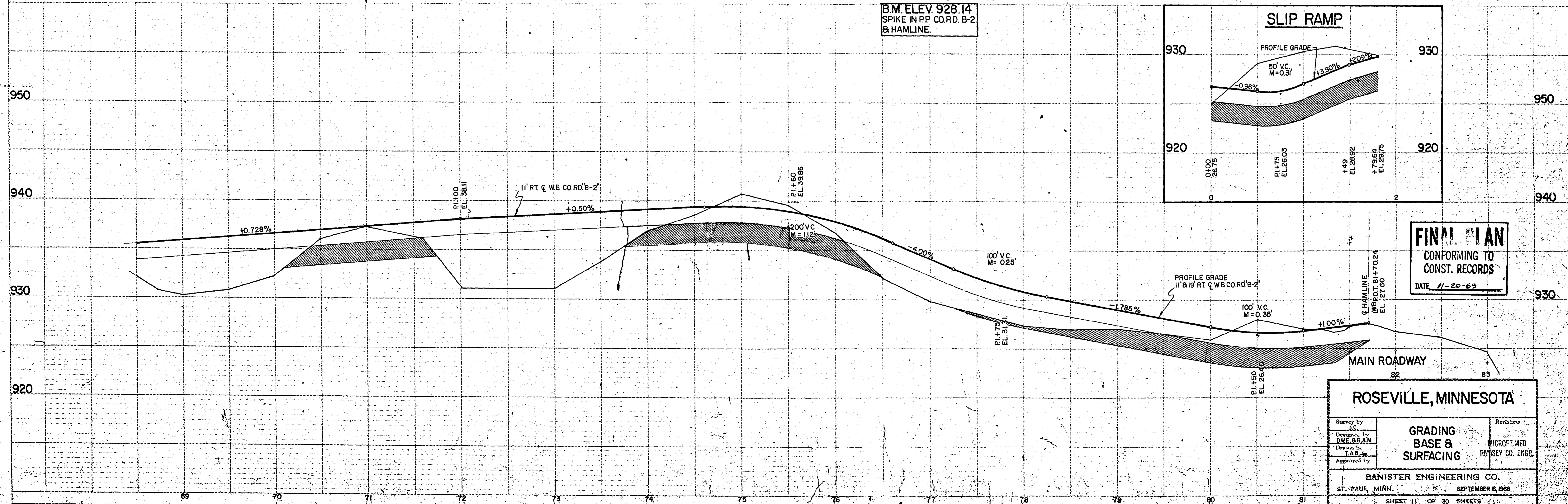
SCALE: 1" = 50' HORIZ  
1" = 5' VERT.

COUNTY ROAD "B-2"

B.M. ELEV. 928.14  
SPIKE IN P.P. CO. RD. B-2  
& HAMLINE.



**FINAL PLAN**  
CONFORMING TO  
CONST. RECORDS  
DATE 11-20-69

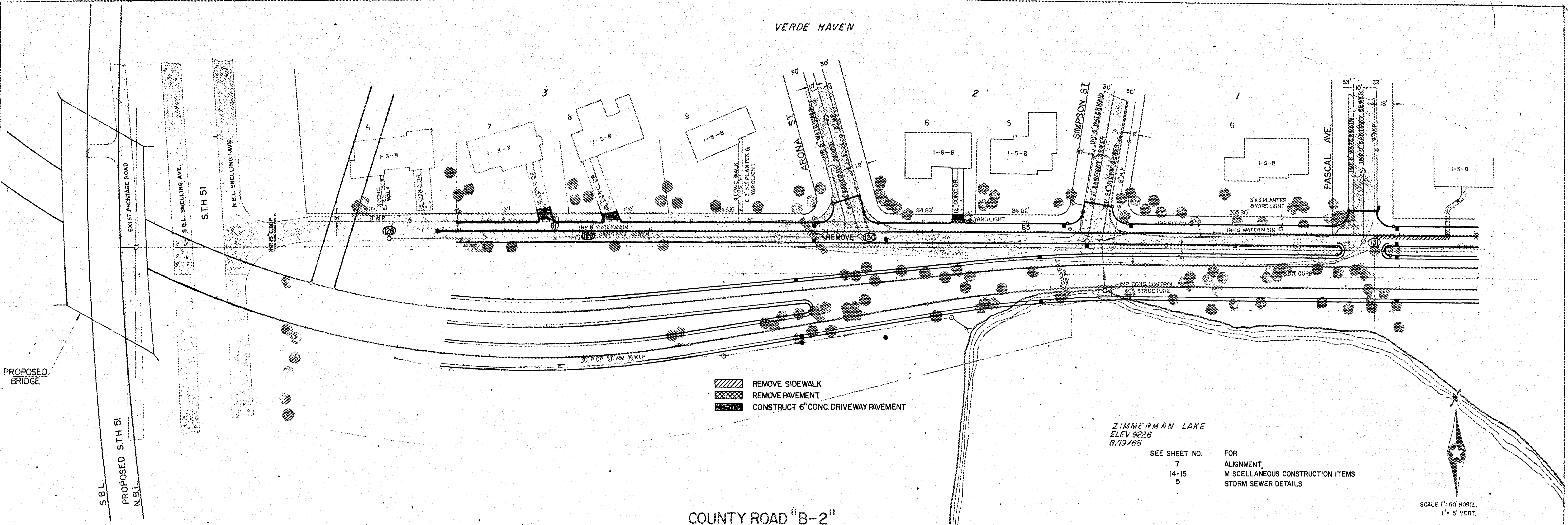


**ROSEVILLE, MINNESOTA**

Survey by J.C.	Designed by D.W. BRAM	Drawn by T.A.B.	Approved by
<b>GRADING BASE &amp; SURFACING</b>			Microfilmed RAMSEY CO. ENGR.
<b>BANISTER ENGINEERING CO.</b>			
ST. PAUL, MINN.		SEPTEMBER 19, 1968	

SHEET 11 OF 30 SHEETS

VERDE HAVEN



- REMOVE SIDEWALK
- REMOVE PAVEMENT
- CONSTRUCT 6\"/>

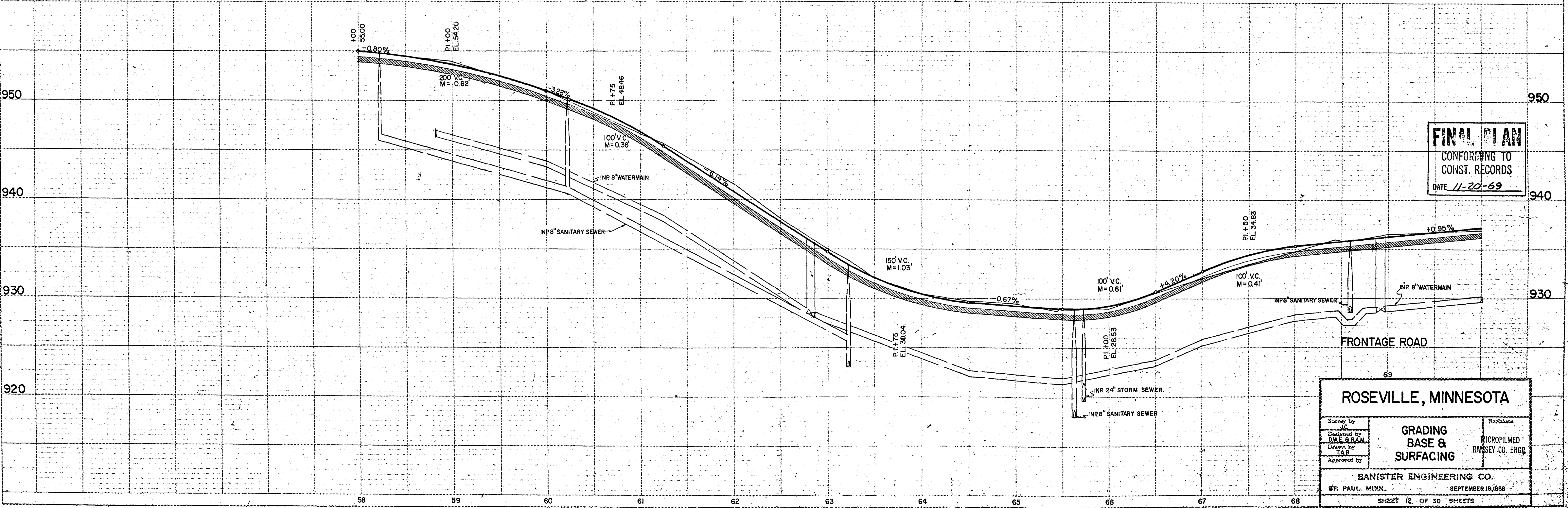
ZIMMERMAN LAKE  
ELEV. 922.6  
8/19/65

SEE SHEET NO. 7  
14-15  
5

FOR  
ALIGNMENT  
MISCELLANEOUS CONSTRUCTION ITEMS  
STORM SEWER DETAILS

SCALE 1" = 50' HORIZ.  
1" = 5' VERT.

COUNTY ROAD "B-2"



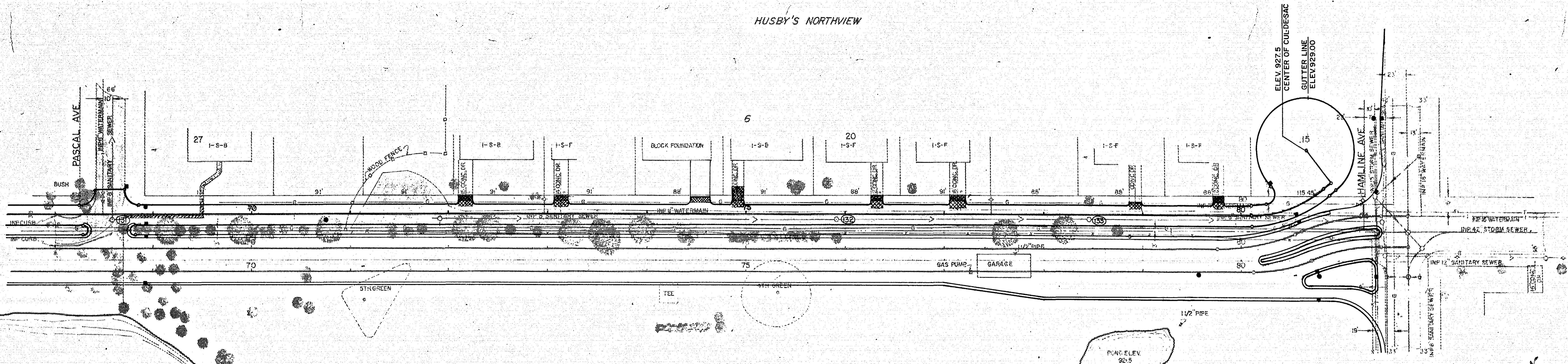
**FINAL PLAN**  
CONFORMING TO  
CONST. RECORDS  
DATE 11-20-69

**ROSEVILLE, MINNESOTA**

Survey by D.W.E. & R.A.M.	<b>GRADING BASE &amp; SURFACING</b>	Revisions MICROFILMED RAMSEY CO. ENGR.
Designed by D.W.E. & R.A.M.		
Drawn by T.A.B.		
Approved by		

**BANISTER ENGINEERING CO.**  
ST. PAUL, MINN. SEPTEMBER 16, 1968

HUSBY'S NORTHVIEW

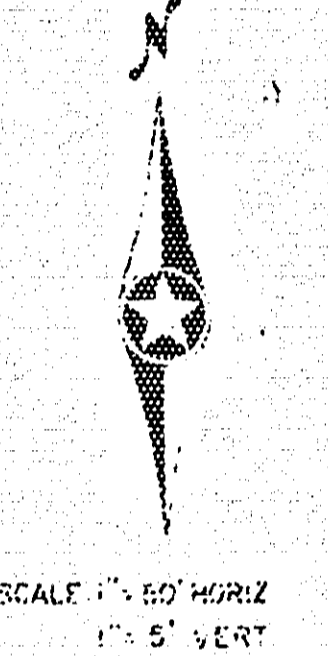


- REMOVE SIDEWALK
- REMOVE PAVEMENT
- CONSTRUCT 6" CONC. DRIVEWAY PAVEMENT

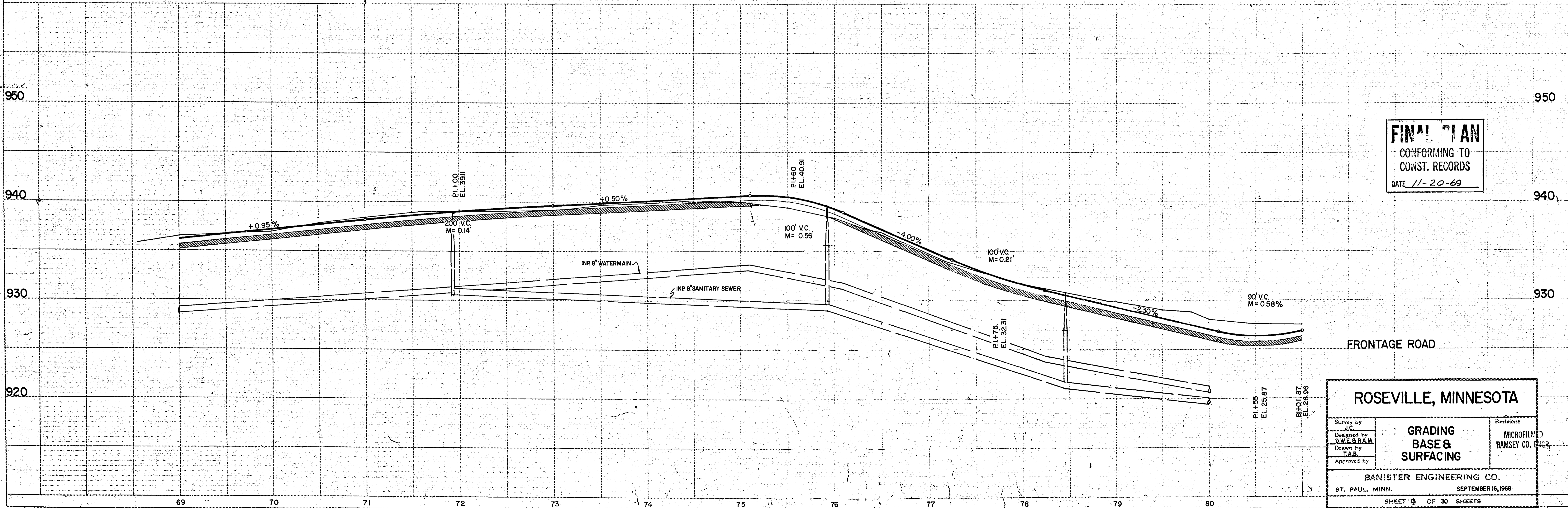
ZIMMERMAN LAKE  
ELEV 922.6  
8/19/68

SEE SHEET NO.  
7  
14-15  
5

FOR  
ALIGNMENT  
MISCELLANEOUS CONSTRUCTION ITEMS  
STORM SEWER DETAILS

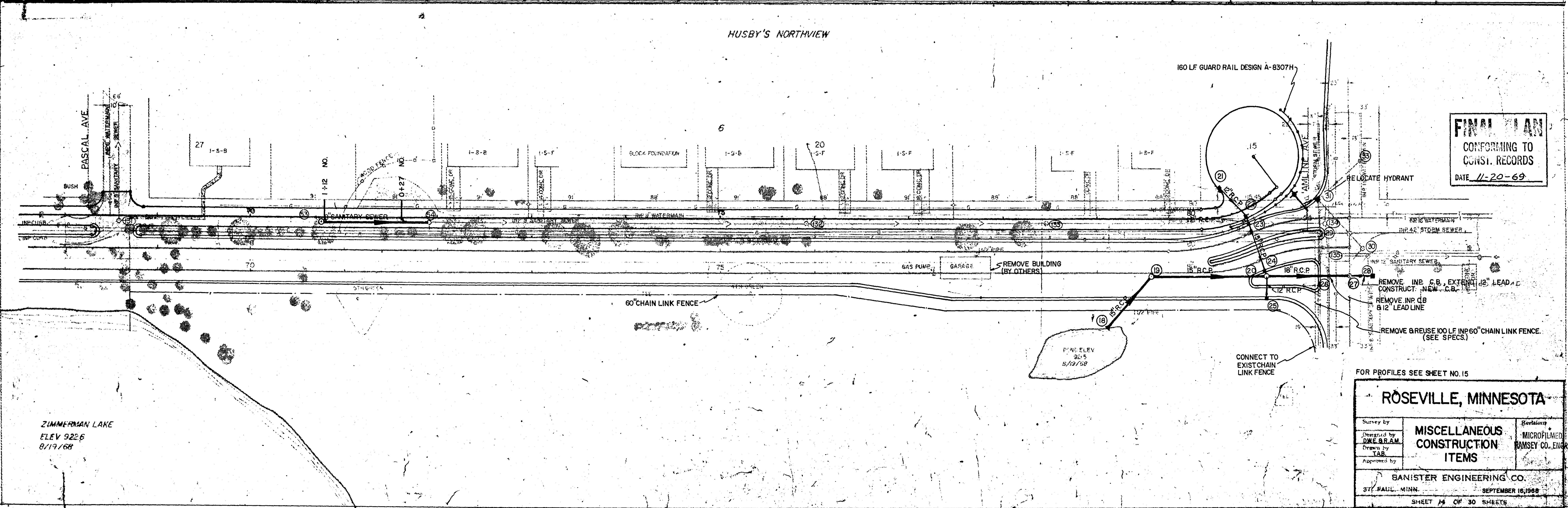
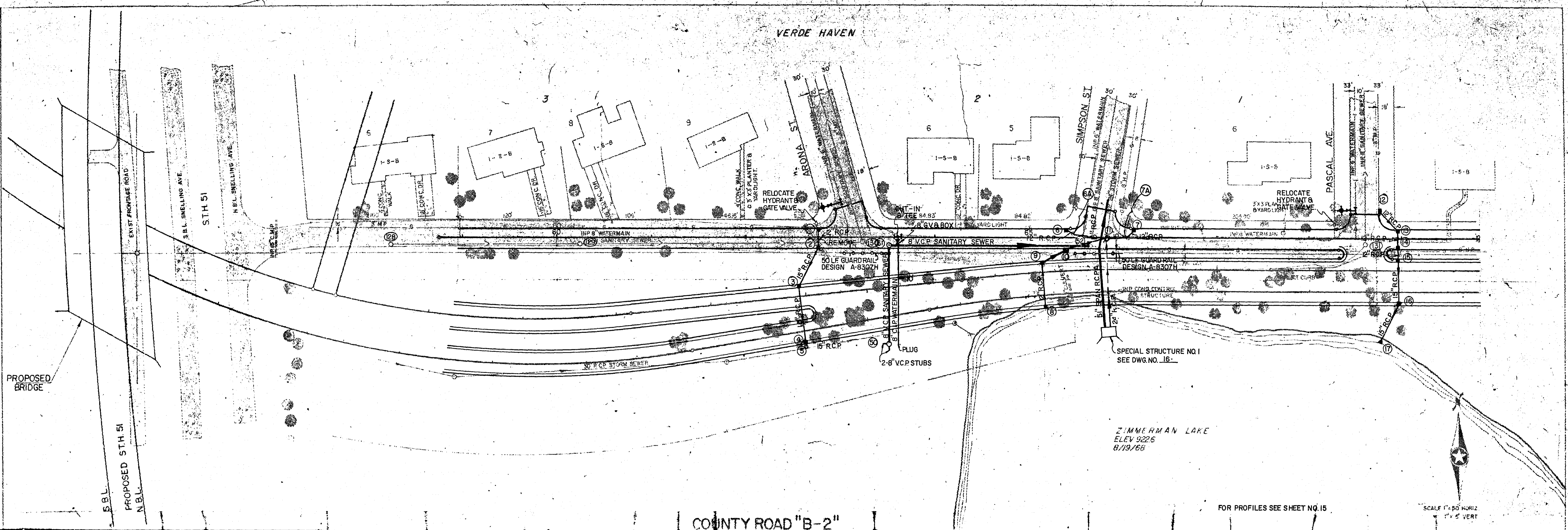


COUNTY ROAD "B-2"



**FINAL PLAN**  
CONFORMING TO  
CONST. RECORDS  
DATE 11-20-69

<b>ROSEVILLE, MINNESOTA</b>		
Survey by Designed by Drawn by Approved by	GRADING BASE & SURFACING	Reviewed by MICROFILMED RAMSEY CO. INC.
<b>BANISTER ENGINEERING CO.</b> ST. PAUL, MINN.      SEPTEMBER 16, 1968		
SHEET 13 OF 30 SHEETS		



**FINAL PLAN**  
CONFORMING TO  
CONS. RECORDS  
DATE 11-20-69

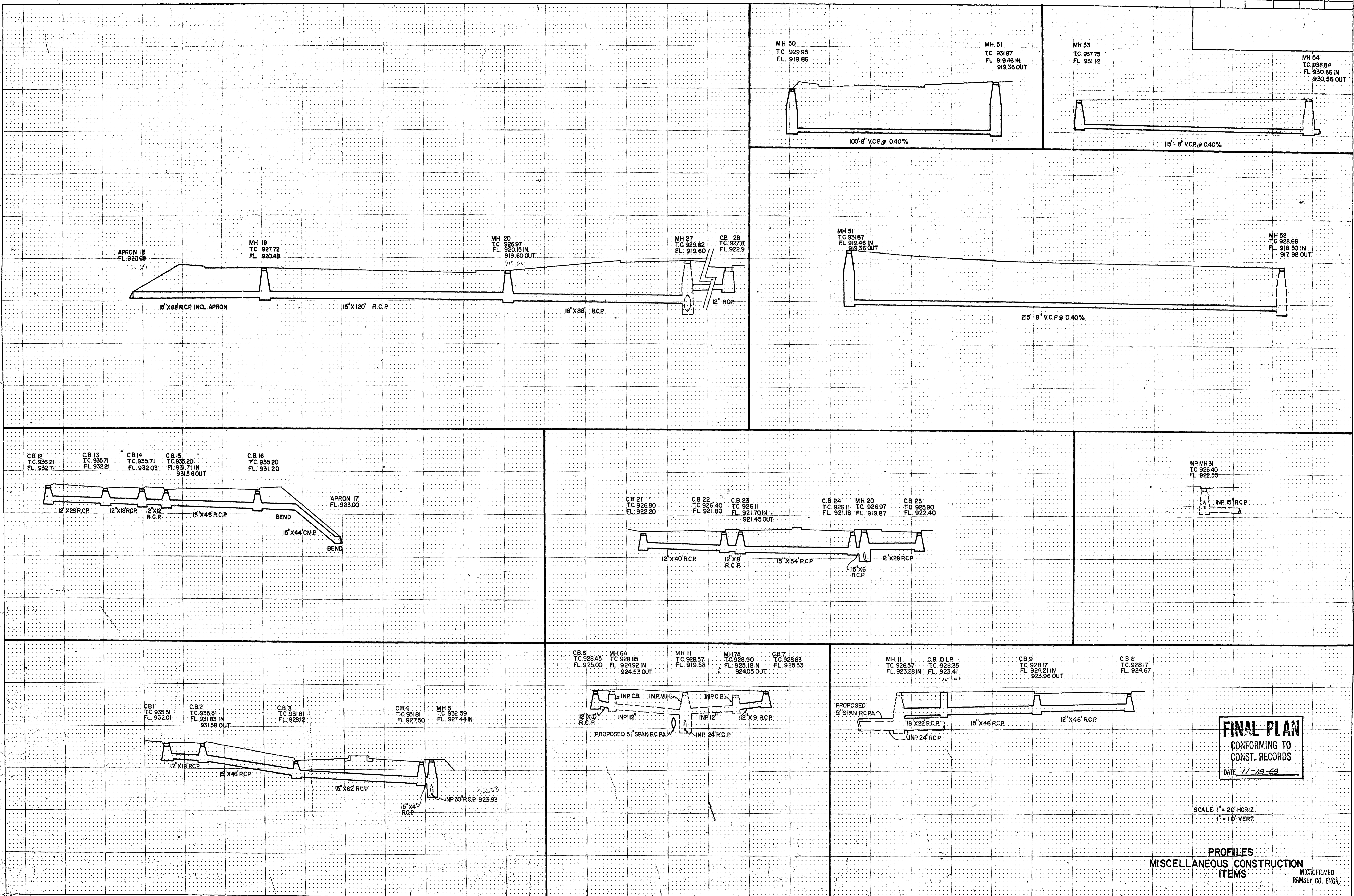
ROSEVILLE, MINNESOTA

Survey by DWE B.R.A.M.	<b>MISCELLANEOUS CONSTRUCTION ITEMS</b>	Microfilmed RAMSEY CO. ENG.
Drawn by TAB		
Approved by	BANISTER ENGINEERING CO. 377 PAUL, MINN. SEPTEMBER 16, 1968	

SHEET # OF 30 SHEETS

FINAL SURVEY PLOTTED BY DATE  
 NOTE BOOK NO.  
 SURVEYED PLOTTED BY DATE  
 TEMPLATE AREAS CHECKED

ORIGINAL SURVEY PLOTTED BY DATE  
 NOTE BOOK NO.  
 SURVEYED PLOTTED BY DATE  
 TEMPLATE AREAS CHECKED

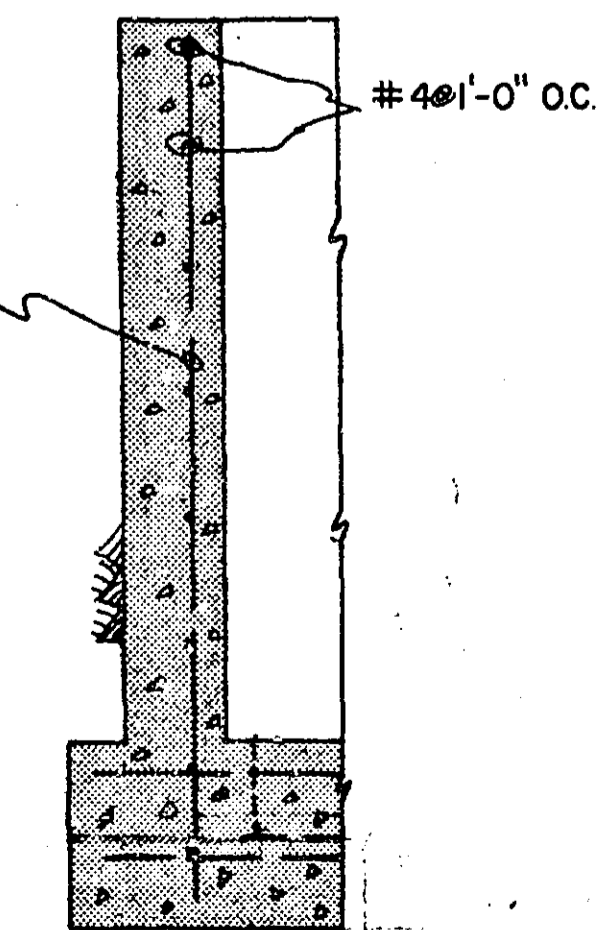
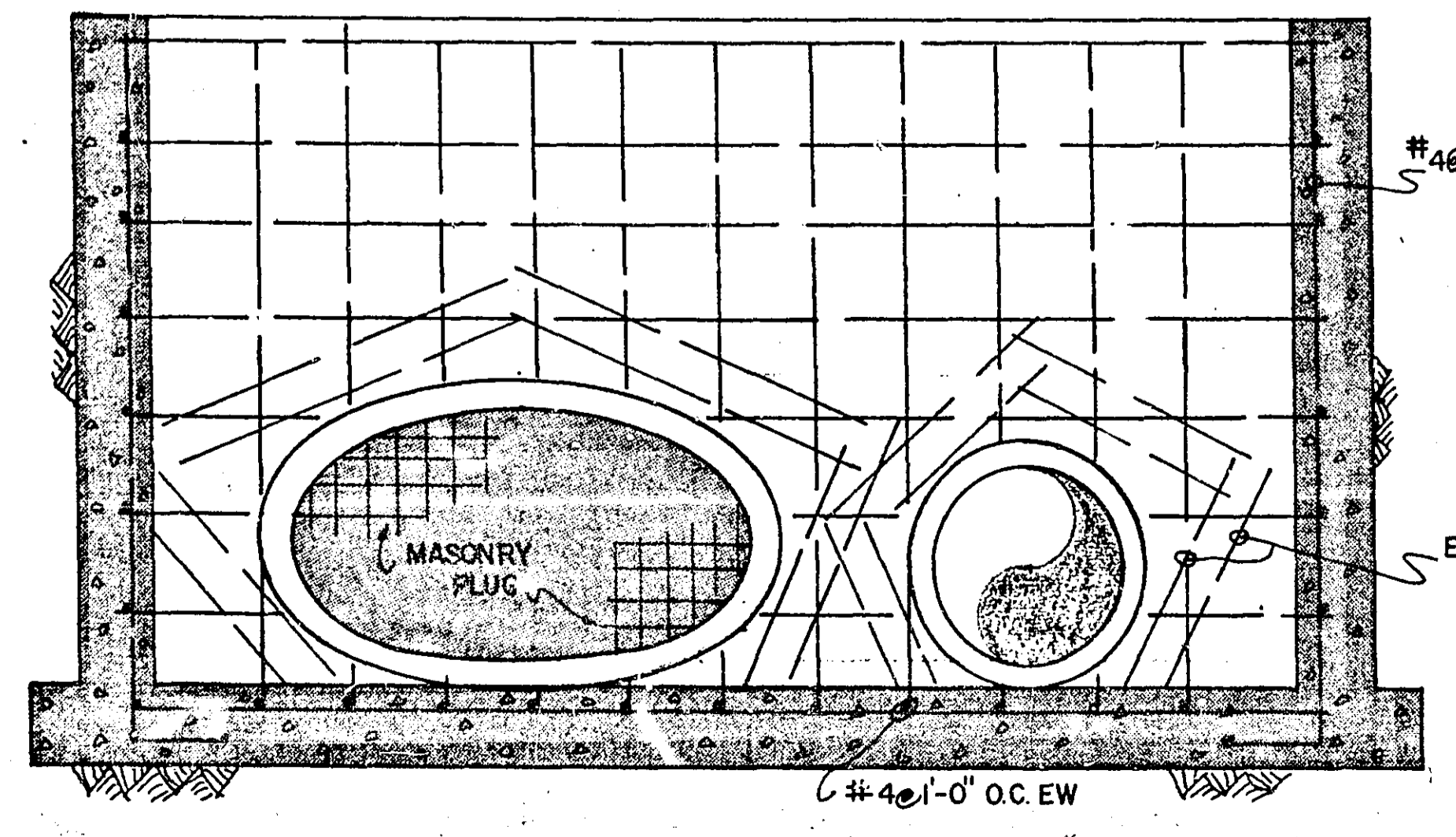
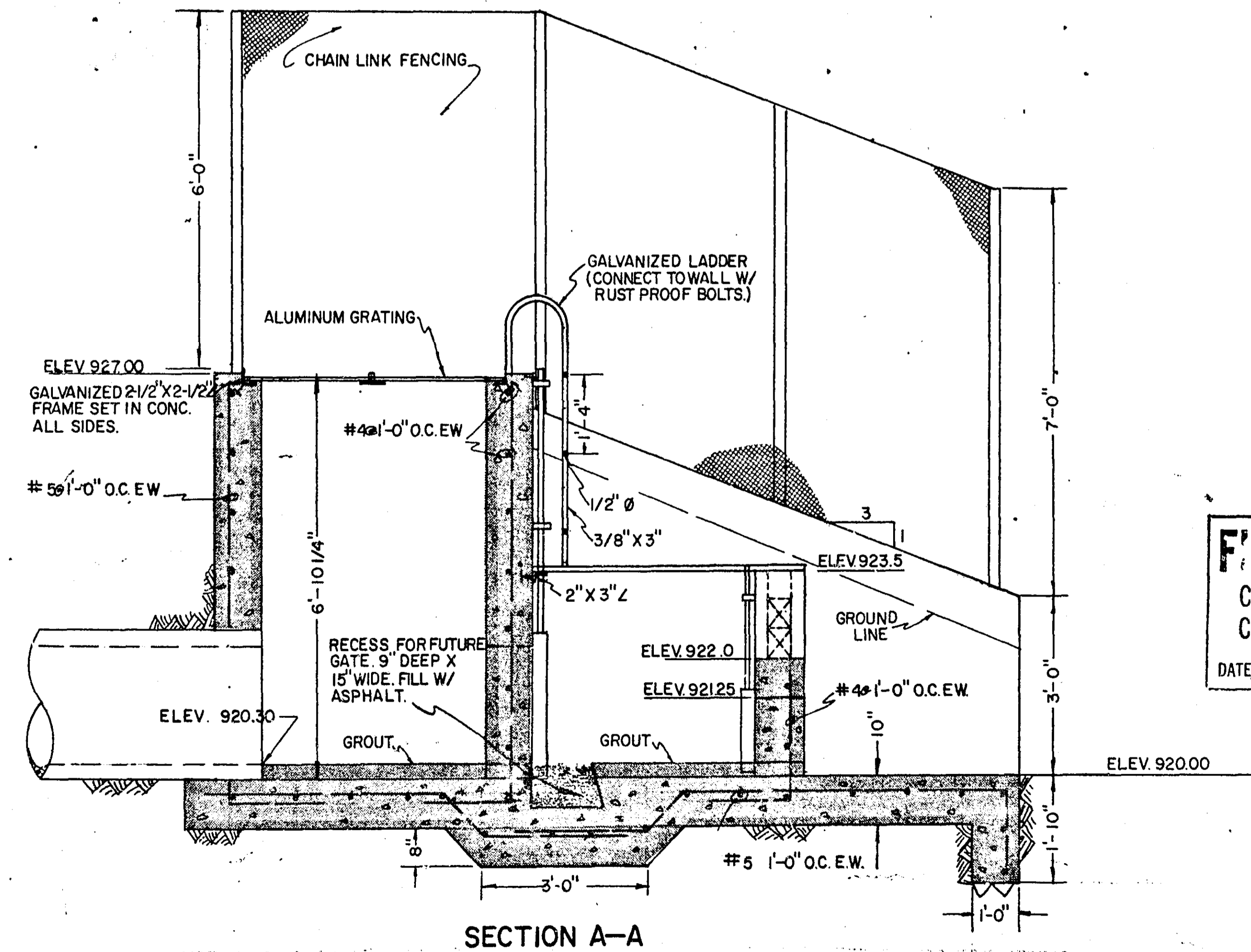
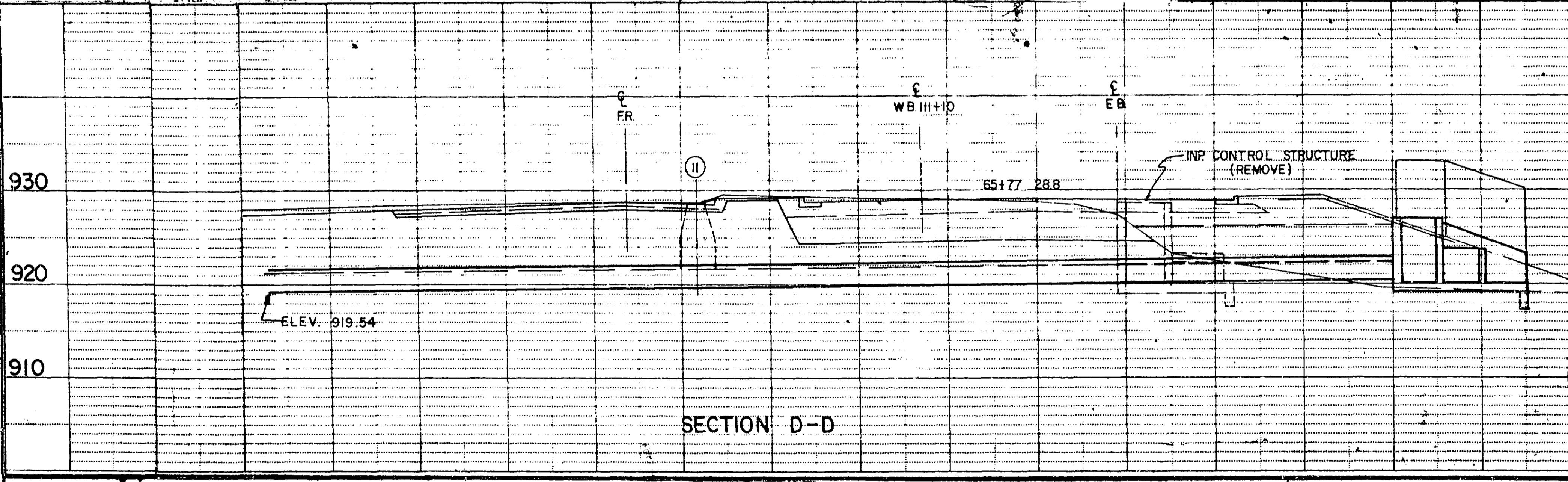
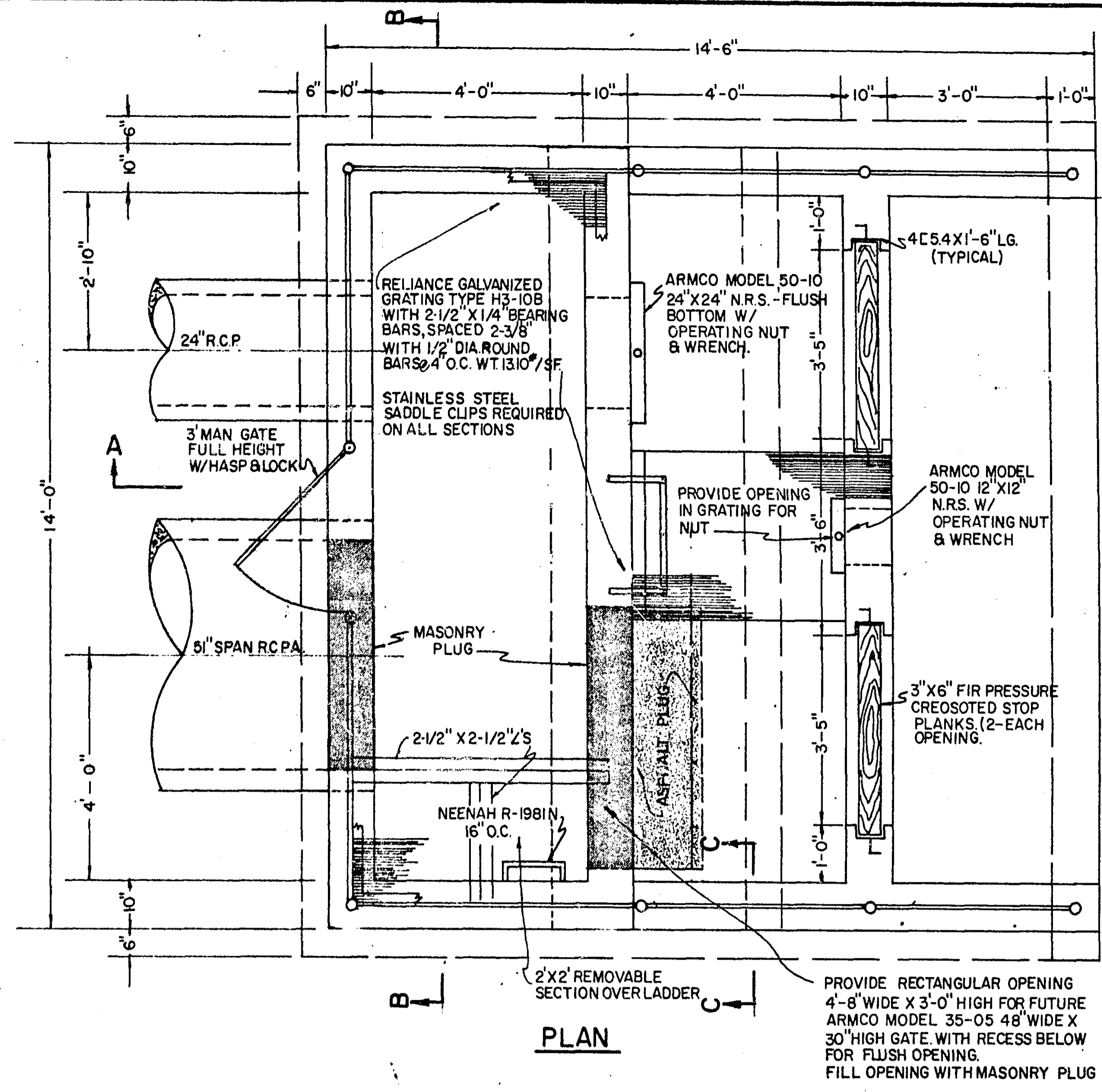
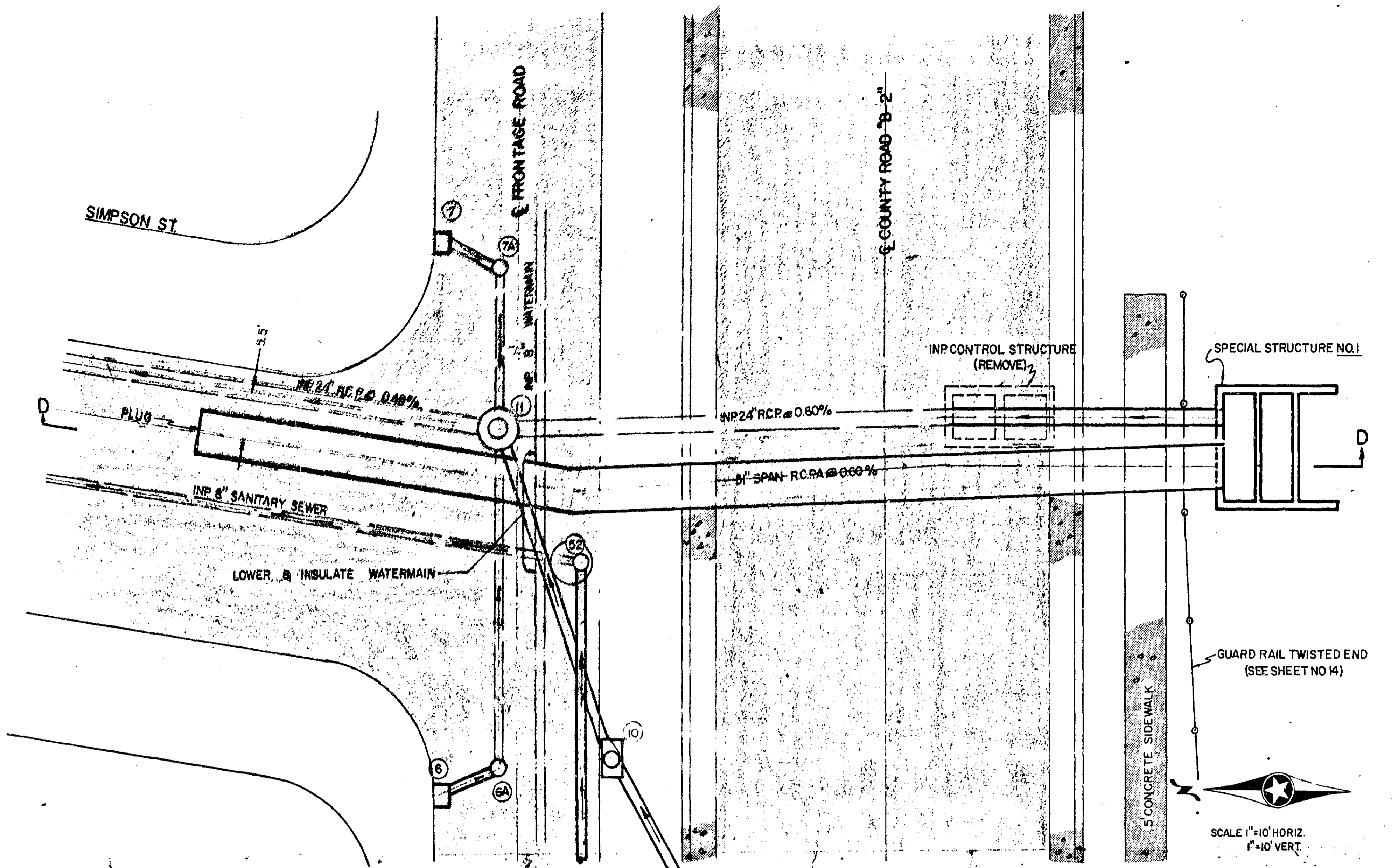


**FINAL PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DATE 11-18-69

SCALE: 1" = 20' HORIZ.  
 1" = 10' VERT.

PROFILES  
 MISCELLANEOUS CONSTRUCTION  
 ITEMS  
 MICROFILMED  
 RAMSEY CO. ENGR.





- STRUCTURAL NOTES:
- 1.) ALL CONCRETE SHALL BE 3500 PSI COMPRESSIVE STRENGTH (SEE SPECS.).
  - 2.) ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE DEFORMED BARS IN ACCORDANCE WITH THE LATEST ASTM SPEC. WITH DEFORMATIONS CONFORMING TO ASTM DESIGN. A-305.
  - 3.) ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED ACCORDING TO THE LATEST A.C.I. CODE MANUAL OF STANDARD PRACTICE.
  - 4.) CONCRETE COVER: 3" IN SLABS & FOOTINGS ON OR IN GROUND, 2" IN WALLS EXPOSED.
  - 5.) UNLESS SHOWN OTHERWISE, LAP REINF. BARS 24 BAR DIAMETERS AT SPLICES WITH A MINIMUM LAP OF 12". ALL CORNER BARS SHALL HAVE 40 BAR DIAMETERS LAP. CORNER BARS SHALL BE SAME SIZE & SPACING AS HORIZ. STEEL.
  - 6.) PROVIDE 2 #5 EXTRA ON ALL SIDES OF WALL OPENINGS. EXTEND 2'-0" BEYOND EDGE OF OPENING.
  - 7.) SHOP DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL BEFORE FABRICATION OR CONSTRUCTION.
  - 8.) 3/4" CHAMFER ON ALL EXPOSED EDGES.

**FINAL PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DATE 11-18-69

SCALE: 1/2" = 1'-0"

**ROSEVILLE, MINNESOTA**

Survey by DWE	<b>SPECIAL STRUCTURE NO. 1</b>	Revisions
Designed by DWE		MICROFILMED
Drawn by T.A.B.		RAMSEY CO. ENGR.
Approved by	<b>BANISTER ENGINEERING CO.</b>	
	ST. PAUL, MINN.	SEPTEMBER 16, 1968

SHEET 16 OF 30 SHEETS