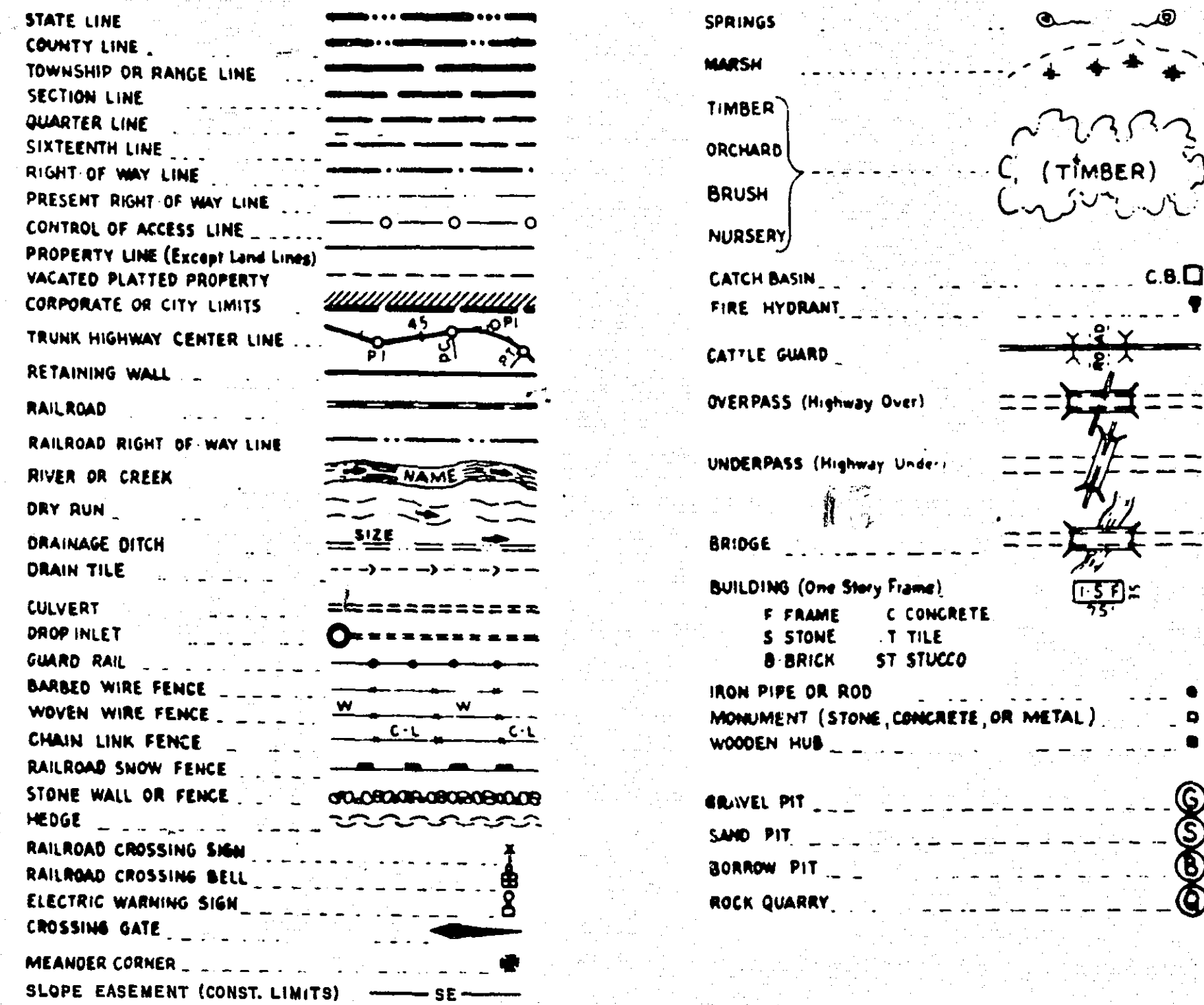
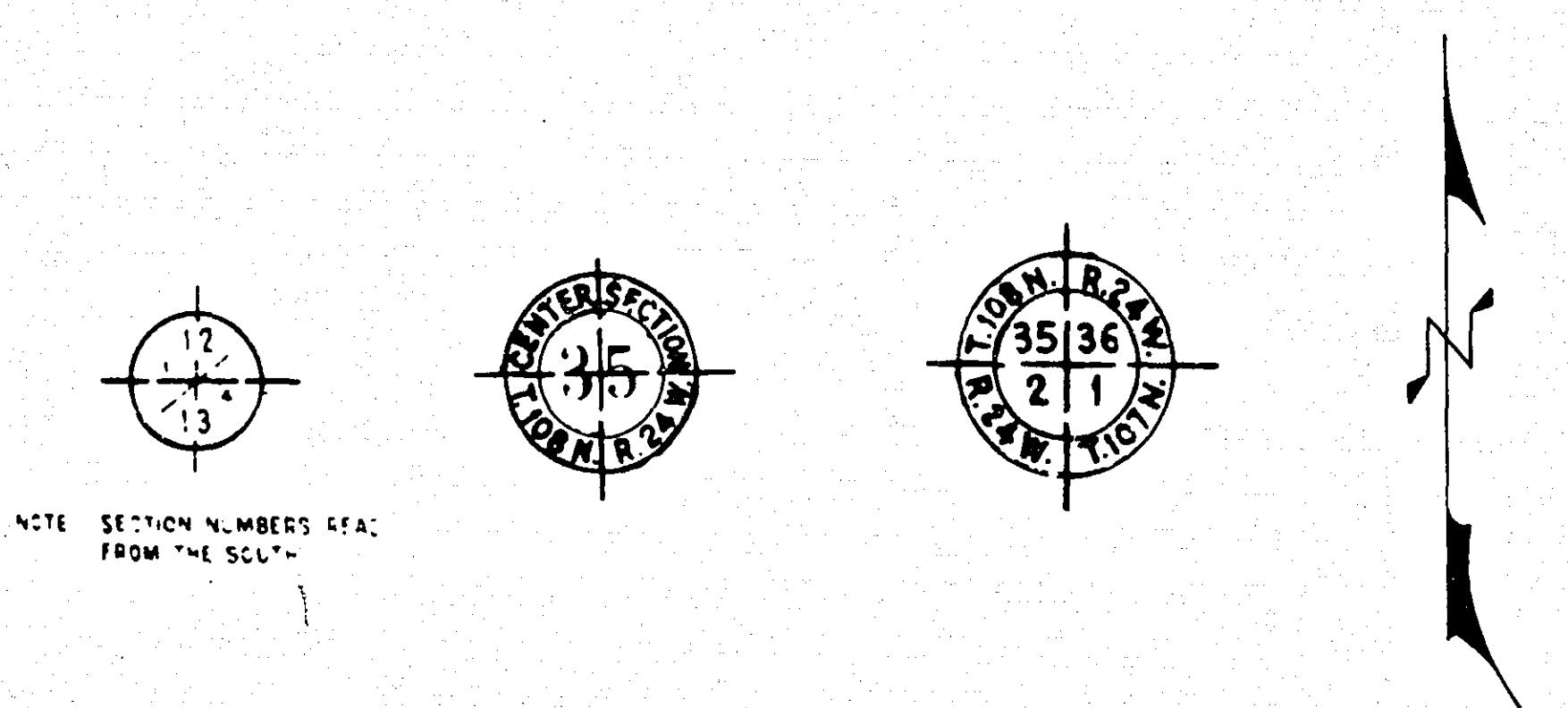
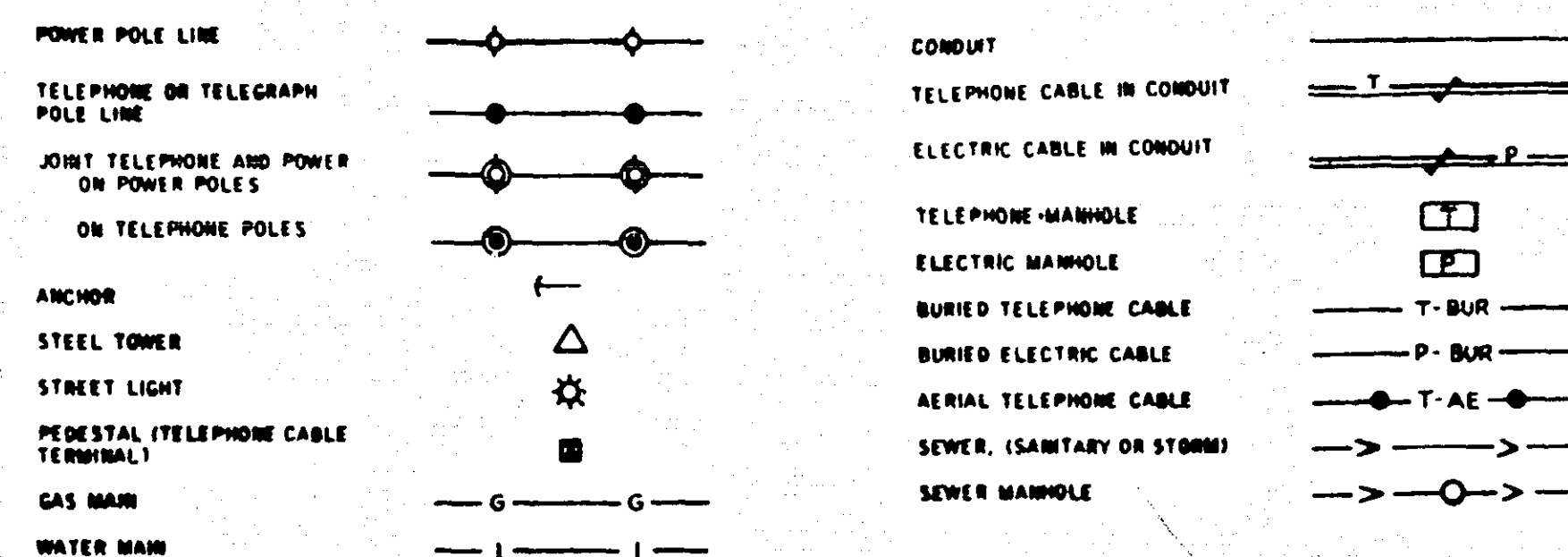


PLANS SYMBOLS



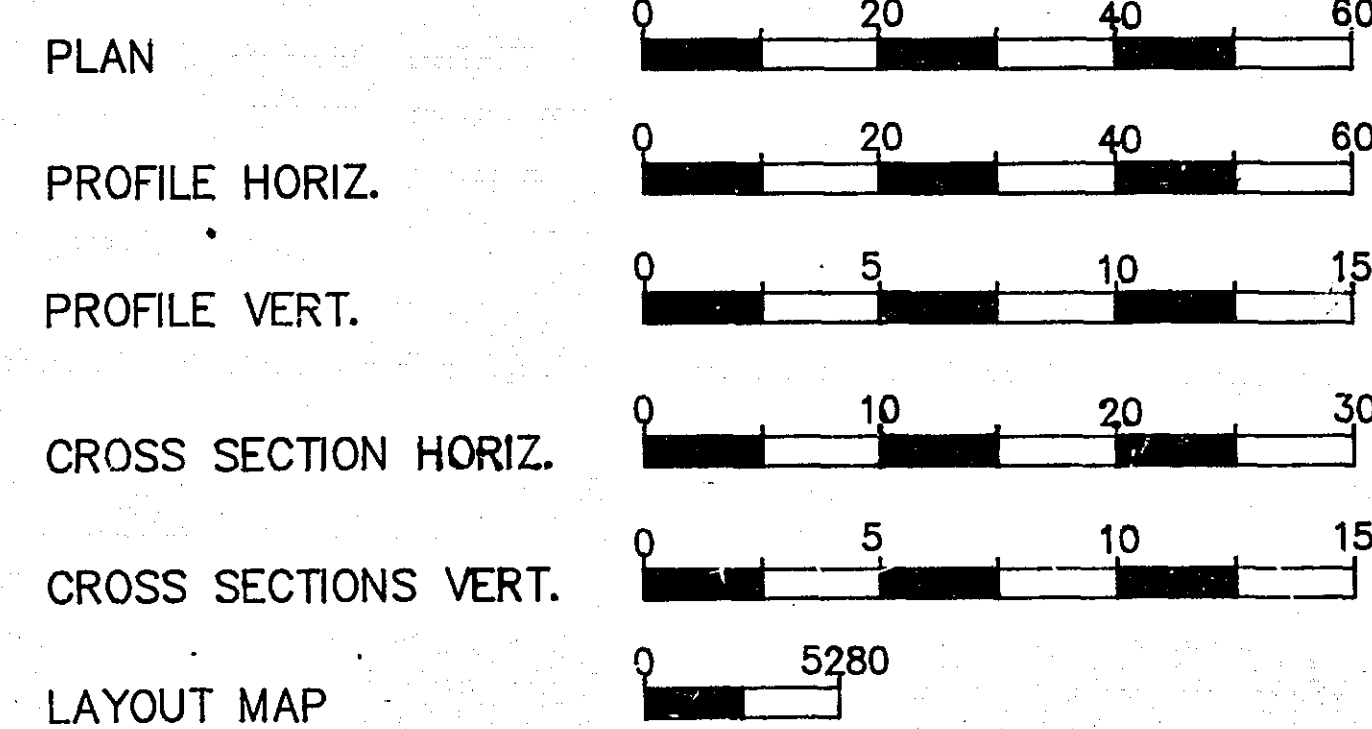
UTILITIES SYMBOLS



THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

GROSS LENGTH 5267 FEET 0.997 MILES

GRAPHIC SCALES:



DESIGN DESIGNATION

PRESENT ADT (1989)	8610
HCA DT (INCLUDES 160 BUSES)	228
PROJECTED ADT (2009)	13,776
FUNCTIONAL CLASS	ARTERIAL (HIGH DENSITY)
TRAFFIC LANES	4
PARKING LANES	0
DESIGN LOAD	10
STABILOMETER "R" VALUE	30
* Σ N18 20 YEAR	2,194,000
DESIGN SPEED	30 MPH

BASED ON STOPPING SIGHT DISTANCE
HEIGHT OF EYE: 3.50 FEET
HEIGHT OF OBJECT: 0.50 FEET

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: *RE.L.*
DATE: 11-8-91

RAMSEY COUNTY DEPARTMENT OF PUBLIC WORKS

CONSTRUCTIONS PLANS FOR GRADING, AGGREGATE BASE, BITUMINOUS BASE AND SURFACING, STORM SEWER, CONCRETE CURB & GUTTER AND CONCRETE WALK.

HAMLIN AVENUE

BETWEEN LARPENTEUR AVENUE & COUNTY ROAD "B"
S.A.P. 62-650-04
LARPENTEUR AVENUE & GOTTFRIED POND RECONSTRUCTION
GOTTFRIED POND LOCATED NORTH OF LARPENTEUR AVE. APPROXIMATELY 700 FEET EAST OF HAMLIN AVENUE
S.A.P. 62-630-37

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES
3	STREET SECTIONS AND NOTES
4-7	DETAILS
8	EXISTING STRUCTURES CHART
9	PROPOSED DRAINAGE CHART
10	GRADING PLAN POND SITE
11-12	POND SITE STORM SEWER
13	LIFT STATION
14-24	HAMLIN AVENUE STREET PLAN/PROFILE
25	STRIPING PLAN
26-30	CROSS SECTIONS HAMLIN AVE
31-35	DRIVEWAY CROSS SECTIONS
36-43	SIGNALIZATION
44-49	CROSS SECTIONS - POND SITE

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: 1/25/90 REG. NO. 1536 ENGR. *Terry J. Maurer*

DESIGN SQUAD _____ DATE _____

DRAWN BY _____ DATE _____

CHECKED BY _____ DATE _____

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: 1/25/90 REG. NO. 16151 ENGR. *Thomas M. McGowan*

RAMSEY COUNTY

RECOMMENDED FOR APPROVAL *DES* DATE 12/4/90

RECOMMENDED FOR APPROVAL *KMR* DATE 12/4/90

RECOMMENDED FOR APPROVAL *D.M.* DATE 12/4/90

RECOMMENDED FOR APPROVAL *RHP* DATE 12/4/90

RECOMMENDED FOR APPROVAL *LKE* DATE 12/4/90

RECOMMENDED FOR APPROVAL *JPB* DATE 12-4-90

RECOMM'D *Paul K. Kelly* DATE 12-5-90

RECOMM'D *Paul K. Kelly* DATE 12-5-90

RECOMM'D *Paul K. Kelly* DATE 12-5-90

RECOMM'D *Paul K. Kelly* DATE 12-5-90

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RECOMM'D *Paul K. Kelly* DATE 12-5-90

RECOMM'D *Paul K. Kelly* DATE 12-5-90

RECOMMENDED FOR APPROVAL *Herbert C. Walters* DATE 12-5-90

RECOMMENDED FOR APPROVAL *Charles A. Ingard* DATE 3/5/91

RECOMMENDED FOR APPROVAL *Charles A. Ingard* DATE 3/5/91

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RECOMMENDED FOR APPROVAL *Charles A. Ingard* DATE 3/5/91

S.A.P. NO. 62-650-04 & S.A.P. NO. 62-630-37

Sheet No. 1 of 49 Sheets

460-001

BASIS OF PLANNED QUANTITIES

AGGREGATE BASE, CLASS 6: COMPACTED VOLUME

BITUMINOUS BASE COURSE:
BITUMINOUS MIXTURE - 1.98 TON / CUBIC YARD

BITUMINOUS WEAR COURSE:
BITUMINOUS MIXTURE - 1.98 TON / CUBIC YARD

BITUMINOUS TACK COAT: 0.05 GALLONS / SQUARE YARD

APPLICABLE STANDARD PLATES

PLATE NO.	DESCRIPTION
0305A	SPECIFICATION REFERENCE TO STANDARD PLATES
1015I	CONCRETE PAVEMENTS
3000K	REINFORCED CONCRETE PIPE
3006F	GASKET JOINT FOR RC PIPE
3014J	REINFORCED CONCRETE PIPE ARCH DETAIL
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3145E	CONCRETE PIPE TIES
3133B	RIP RAP AT RC PIPE OUTLETS
4010G	CONCRETE SHORT CONE & ADJUSTING RING
4020E	MANHOLE OR CATCH BASIN
4021C	PRECAST CURB OPENING CATCH BASIN
4101C	RING CASTING FOR MANHOLE OR CATCH BASIN
4108E	MANHOLE ADJUSTING RINGS
4180H	MANHOLE OR CATCH BASIN STEP
7035J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7036C	PEDESTRIAN CURB RAMP
7100F	CONCRETE CURB & GUTTER
8000I	STANDARD BARRICADES
8003B	BREAK AWAY SIGN SUPPORT (PLASTIC)
8115C	PEDESTRIAN PUSH BUTTON INSTALLATION
8117F	PRECAST CONCRETE HANDHOLE
8130D	SAW CUT LOOP DETECTORS
A100	MAST ARM POLE FOUNDATION
9322I	CHAIN LINK FENCE
	TEMPORARY EROSION CONTROL

STATEMENT OF ESTIMATED QUANTITIES

			STREET CONSTRUCTION						STORM SEWER/GRADING CONSTRUCTION		STORM SEWER CONSTRUCTION			
SPEC.REF	ITEM	UNIT	NON-PARTICIPATING FALCON HEIGHTS		NON-PARTICIPATING ROSEVILLE		SAP 62-650-04 RAMSEY COUNTY		SAP 62-630-37 LARPENTEUR AVENUE & GOTTFRIED POND RECONSTRUCTION		SAP 62-650-04 RAMSEY COUNTY		TOTAL ESTIMATED QUANTITIES	TOTAL FINAL QUANTITIES
			ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	ESTIMATED QUANTITIES	FINAL QUANTITIES	QUANTITIES	FINAL QUANTITIES	QUANTITIES	FINAL QUANTITIES		
2021.501	MOBILIZATION	LS					1						1	
2104.501	REMOVE RC PIPE	LF					1977		50				2027	
2104.501	REMOVE CONCRETE CURB & GUTTER	LF					1092		36				1128	
2104.509	REMOVE CATCH BASIN	EA					24						24	
2104.509	REMOVE MANHOLE	EA			9		14		1				24	
2104.505	REMOVE CONCRETE PAVEMENT	SY					162						162	
2101.502	CLEARING	TREE					49						49	
2101.507	GRUBBING	TREE					49						49	
2101.511	CLEARING & GRUBBING	LS					1						1	
2105.501	COMMON EXCAVATION P	CY					84938						84938	
2112.501	SUBGRADE PREPARATION	RD.STA					56.95						56.95	
2211.503	AGGREGATE BASE PLACED CLASS 6	CY					11593						11593	
2105.522	SELECT GRANULAR BORROW (LV)	CY					35151						35151	
2130.501	WATER	M GAL					500						500	
2331.514	TYPE 31 BASE COURSE MIXTURE	TON					6854						6854	
2331.510	TYPE 31 BINDER COURSE MIXTURE	TON					3427						3427	
2331.508	TYPE 61 WEAR COURSE MIXTURE	TON					1714						1714	
2357.502	BIT. MATERIAL FOR TACK COAT	GAL					4673						4673	
2531.501	CONC. CURB & GUTTER DESIGN B618	LF					626						626	
2531.501	CONC. CURB & GUTTER DESIGN B624	LF					10699						10699	
2521.501	4" CONCRETE WALK	SF	10163		19258		568						29989	
0531.602	PEDESTRIAN CURB RAMP	EA					26						26	
2531.507	6" CONC. DRIVEWAY PAVEMENT	SY					1629						1629	
2531.507	8" CONC. DRIVEWAY PAVEMENT	SY					182		15				197	
2331.521	IRREGULAR WIDTH PAVING	SY					3505		165				3670	
2301.501	CONCRETE PAVEMENT	SY					139						139	
2506.511	RECONSTRUCT MANHOLE	LF					105						105	
2506.522	ADJUST FRAME & RING CASTING	EA					19						19	
2506.516	CASTING ASSEMBLY	EA					5						5	
2503.541	8" PVC STORM SEWER SDR 35	LF									50		50	
2503.541	15" RC PIPE CLASS III DESIGN 3006 JOINT	LF							130		3204		3334	
2501.515	15" RC PIPE APRON	EA									1		1	
0503.602	15" RC BEND 22 1/2" BEND	EA									2		2	
2503.541	18" RC PIPE CLASS III DESIGN 3006 JOINT	LF							176		158		334	
2503.541	24" RC PIPE CLASS III DESIGN 3006 JOINT	LF									24		24	
0503.602	24" RC PIPE LONG RAD.BEND	EA									1		1	
2503.541	30" RC PIPE CLASS III DESIGN 3006 JOINT	LF							52		645		697	
0503.602	30" RC PIPE SHORT BEND	EA							7				7	
2503.541	36" RC PIPE CLASS III DESIGN 3006 JOINT	LF							58				58	
0503.602	36" RC PIPE SHORT BEND	EA							7				7	
2503.541	42" RC PIPE CLASS III DESIGN 3006 JOINT	LF							48				48	
0503.602	42" RC PIPE SHORT BEND	EA							2				2	
2503.541	48" RC PIPE CLASS III DESIGN 3006 JOINT	LF							30				30	
2501.515	48" RC PIPE APRON	EA							1				1	
2503.521	54"RC PIPE ARCH	LF									16		16	
2503.541	72" RC PIPE CLASS III DESIGN 3006 JOINT	LF									48		48	
2501.515	72" RC PIPE APRON	EA									1		1	
2506.509	CATCH BASIN 27" DIA.	EA							1		2		3	
2506.509	CATCH BASIN DESIGN SPECIAL 2	EA									35		35	
2506.509	CATCH BASIN DESIGN LP	EA									6		6	
2506.508	MANHOLE 48"DIA.	EA			9				1		19		29	
2506.508	MANHOLE 60"DIA. DESIGN 4020	EA							1		2		3	
2506.508	MANHOLE 120"DIA. DESIGN 4020	EA									1		1	
2411.507	CONC. HEADWALL	EA							1				1	
0503.602	LIFT STATION	EA							1				1	
0503.601	12"FORCEMAIN	LF							150				150	
0506.509	48" CONTROLLED INLET STRUCTURE	EA							1				1	
2502.541	4"PERORATED PE DRAIN PIPE	LF					10400						10400	
2511.501	RANDOM RIP RAP CLASS IV	CY							86		43		129	
2557.501	WIRE FENCE DESIGN 6' CHAINLINK	LF					1887						1887	
2557.514	VEHICULAR GATE	EA					1		1				2	
0503.614	MINOR SAN SEWER MAIN REPLACEMENT	EA			27								27	
0503.615	MAJOR SAN SEWER MAIN REPLACEMENT	LF			855								855	
0504.605	2" POLYSTYRENE INSULATION	SY					56						56	
0504.603	6" DIP WATERMAIN CLASS 53 (FALCON HEIGHTS)	LF					1449						1449	
0504.603	6" DIP WATERMAIN CLASS 52 (ROSEVILLE)	LF					2551						2551	
0504.603	8" DIP WATERMAIN CLASS 52 (ROSEVILLE)	LF					500						500	
0504.602	RELOCATE HYDRANT	EA					12						12	
0504.602	ADD VALVE TO HYDRANT	EA	5		6								11	
0504.602	ADJUST HYDRANT	EA					2						2	
0504.602	ADJUST VALVE BOX	EA					14						14	
0504.602	ADJUST CURB STOP BOX	EA					60						60	
0504.602	REPLACE CURB BOX (FALCON HEIGHTS)	EA					29						29	
0504.602	LOWER WATER SERVICE (FALCON HEIGHTS)	EA					29						29	
0504.602	REPLACE CURB BOX (ROSEVILLE)	EA					16						16	
0504.602	LOWER WATER SERVICE (ROSEVILLE)	EA					16						16	
0563.601	TRAFFIC CONTROL	LS					1						1	
0565.604	REVISE SIGNAL SYS. A	SYS					1						1	
0565.604	REVISE SIGNAL SYS. B	SYS					1						1	
2575.501	SEEDING MIXTURE #500	ACRE					6						6	
2575.505	SODDING TYPE LAWN & BOULEVARD	SY					24500						24500	
0575.601	EROSION CONTROL	LS					1						1	
0506.602	42" DIA.AUTOMATIC DRAINAGE GATE	EA							1				1	
0506.602	36" DIA.AUTOMATIC DRAINAGE GATE	EA							1				1	
0506.602	30" DIA.AUTOMATIC DRAINAGE GATE	EA							1				1	
2580.501	TEMPORARY LANE MARKING	RD.STA					52.0						52.0	
0557.603	FURNISH & INSTALL MAILBOXES	EA					20						20	
0503.616	PRIVATE SANITARY SEWER REPAIR	EA			20								20	

- (1) THE SIDEWALK REMOVAL SHOWN ON SHEET 9 WILL BE INCIDENTAL.
(2) GRANULAR FILTER OR GEOTEXTILE FILTER MATERIAL WILL BE INCIDENTAL.
(3) REMOVAL OF INPLACE PIPE WILL BE INCIDENTAL.

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.

Thomas J. Madigan
DATE 12/7/90 REG. NO. 16151



CONSULTING ENGINEERS
Maier Stewart & Associates Inc.

1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		0 HORIZ NONE
		0 VERT.

RAMSEY COUNTY

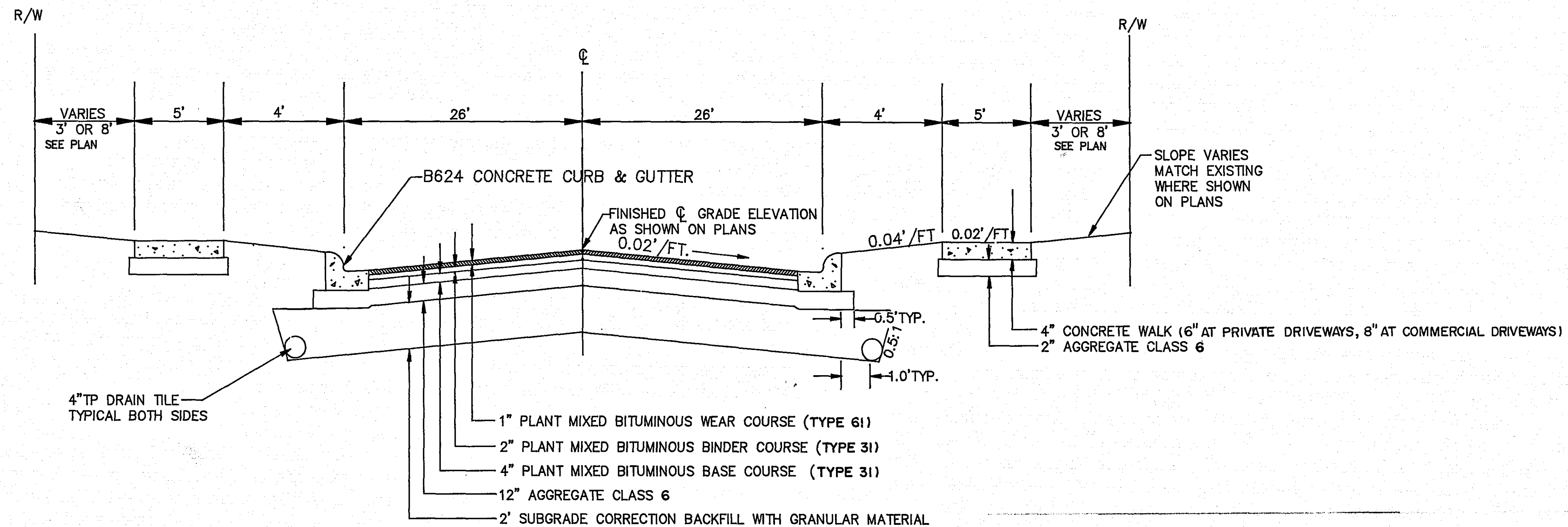
ESTIMATED QUANTITIES

S.A.P. NO. 62-650-04

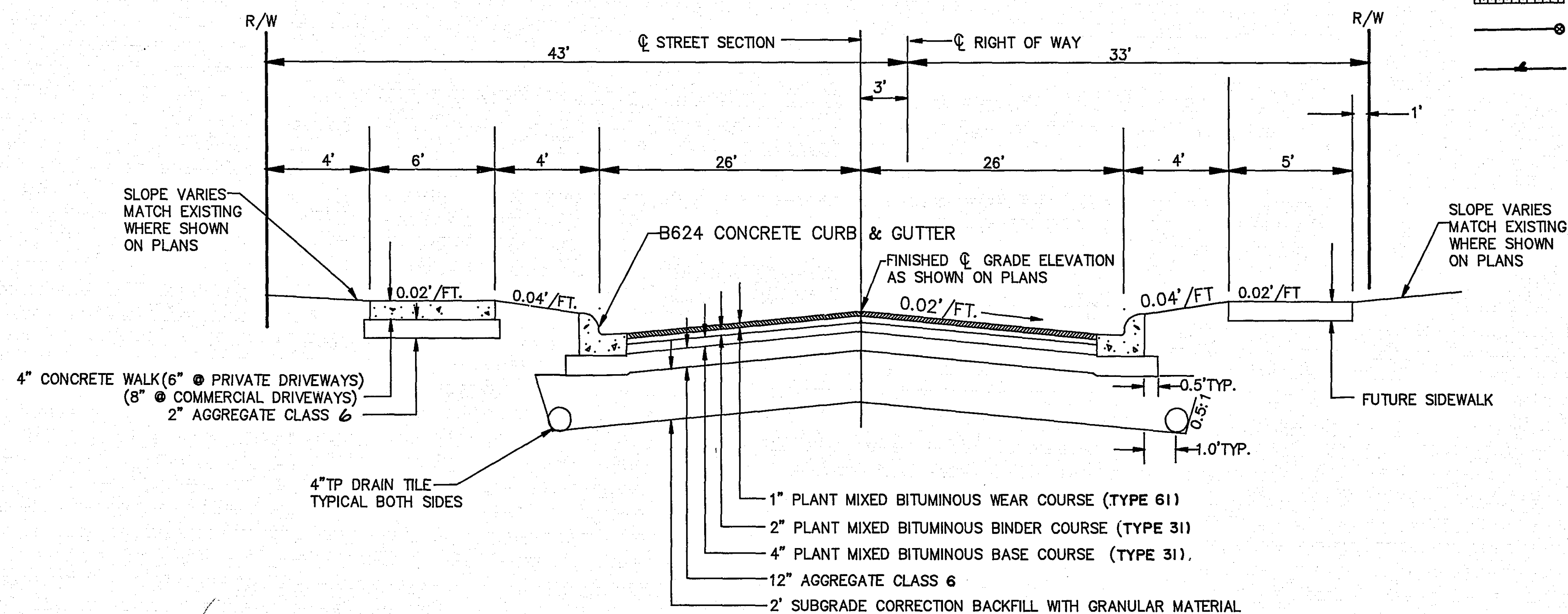
S.A.P. NO. 62-630-37

28-109

DATE 1 SEPT, 1989 SHEET 2 OF 49 SHEETS PROJECT NO. 460-001



TYPICAL STREET SECTION
LARPEUR AVENUE TO ROSELAWN AVENUE



TYPICAL STREET SECTION
ROSELAWN AVENUE TO COUNTY ROAD B

LEGEND	
	LOWER & REPLACE EXISTING WATERMAIN
	MAJOR SANITARY SEWER REPLACEMENT
	MINOR SANITARY SEWER REPLACEMENT
	WATERMAIN INSULATION REQUIRED
	EXISTING WATER SERVICE & CURB BOX LOCATION
	EXISTING SANITARY SEWER SERVICE WYE
	NEW CATCH BASIN W/INLET CASTING
	NEW TYPE LP DESIGN CATCH BASIN
	NEW STORM MANHOLE W/NON INLET CASTING
	EXISTING MANHOLE
	EXISTING CATCH BASIN

CONSTRUCTION NOTES:

- ALL DRIVEWAY APRONS SHALL BE 12' WIDE MINIMUM.
- EXISTING BITUMINOUS & CONCRETE PAVEMENT REMOVAL SHALL BE CONSIDERED INCIDENTAL TO THE COMMON EXCAVATION. CONCRETE PAVEMENT REMOVED ON HAMLINE AVE. AT CO. ROAD B & LARPEUR AVE. INTERSECTIONS, AND THE BUS PAD AT LARPEUR AVE. SHALL BE PAID AS REMOVE CONCRETE PAVEMENT. DRIVEWAY REPLACEMENT SHALL CONSIST OF 12' MIN. CONCRETE APRON TO PROPOSED SIDEWALK OR 4' BEHIND CURB. REPLACE DRIVEWAY FROM BACK OF SIDEWALK TO SAWCUT LINE WITH SAME MATERIAL AS EXISTING DRIVEWAY UNLESS DIRECTED OTHERWISE.
- A 2' OBSTACLE FREE CLEAR ZONE IS REQUIRED BEHIND FACE OF CURB.
- NOTIFY CITY OF ROSEVILLE 48 HOURS IN ADVANCE OF ANY TREE REMOVAL.
- CITY OF ROSEVILLE WILL NOTIFY ALL OWNERS OF NON-CONFORMING DRIVEWAYS TO COMPLY WITH CITY OF ROSEVILLE STANDARDS.
- SUBCUT SHALL BE TAPERED AT 20:1 TO BOTTOM OF SIDEWALK AGGREGATE BASE TYPICAL ALL INTERSECTIONS.

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.

Thomas J. Mueller

DATE 10/19/00 REG. NO. 18151



CONSULTING ENGINEERS
Maier Stewart & Associates Inc.

1959 SLOAN PLACE

(612) 774-6021

ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		VERT. SCALE

RAMSEY COUNTY

STREET SECTIONS AND CONSTRUCTION NOTES:

S.A.P. NO. 62-650-04

S.A.P. NO. 62-630-37

28-109

DATE SEPT, 1989	SHEET 3 OF 49 SHEETS	PROJECT NO. 460-001
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SUMMARY OF EARTHWORK QUANTITIES

ROAD

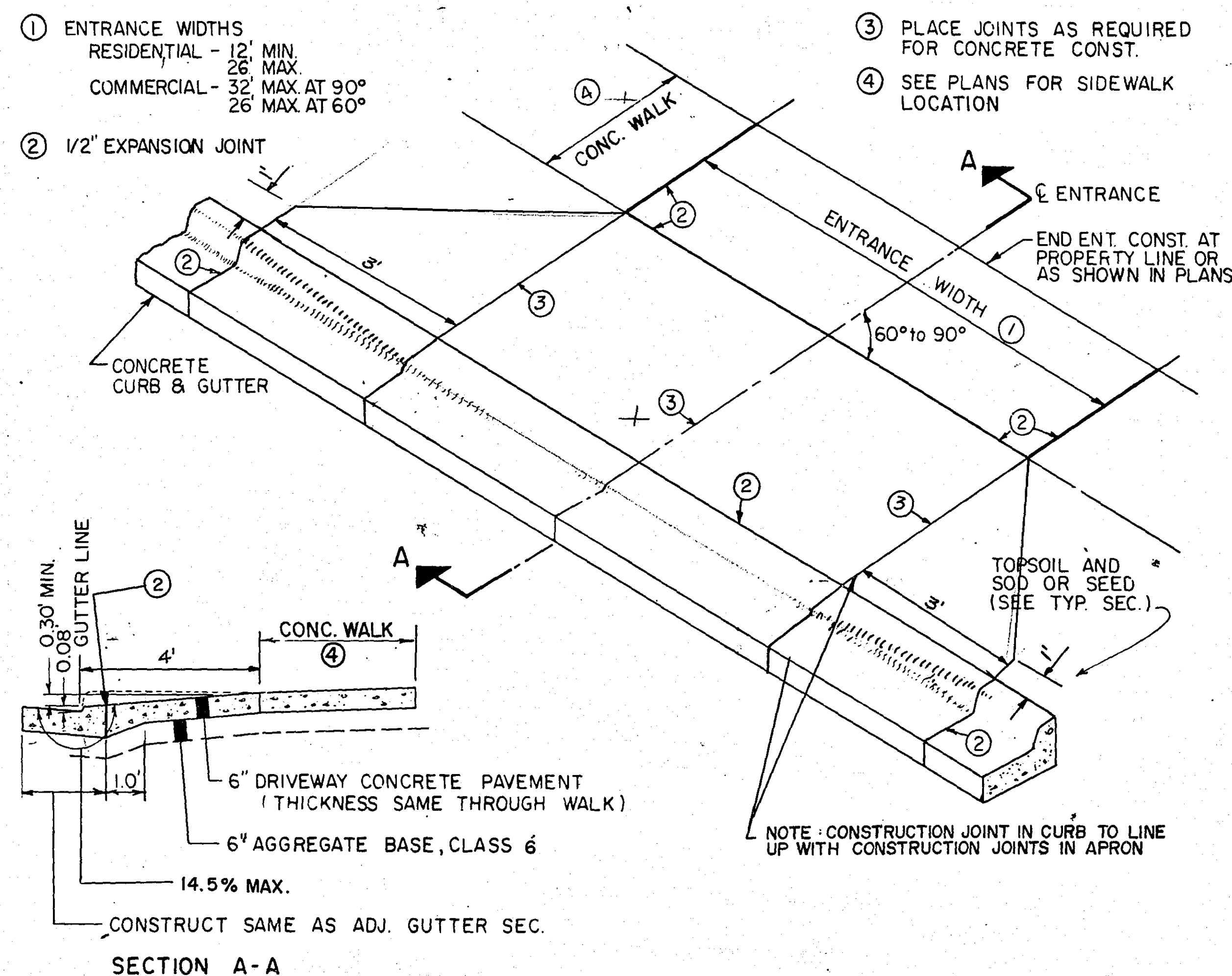
			VOLUME IN CUBIC YARDS	
			CUT	FILL
SHEET 26	STATION	0+00 - 11+00	9623	257
SHEET 27	STATION	11+11 - 23+00	12648	47
SHEET 28	STATION	23+00 - 35+00	12623	73
SHEET 29	STATION	35+00 - 47+00	13342	171
SHEET 30	STATION	47+00 - 52+42	5585	0
			53821	548

* CUT VOLUME INCLUDES ROAD SURFACE MATERIALS

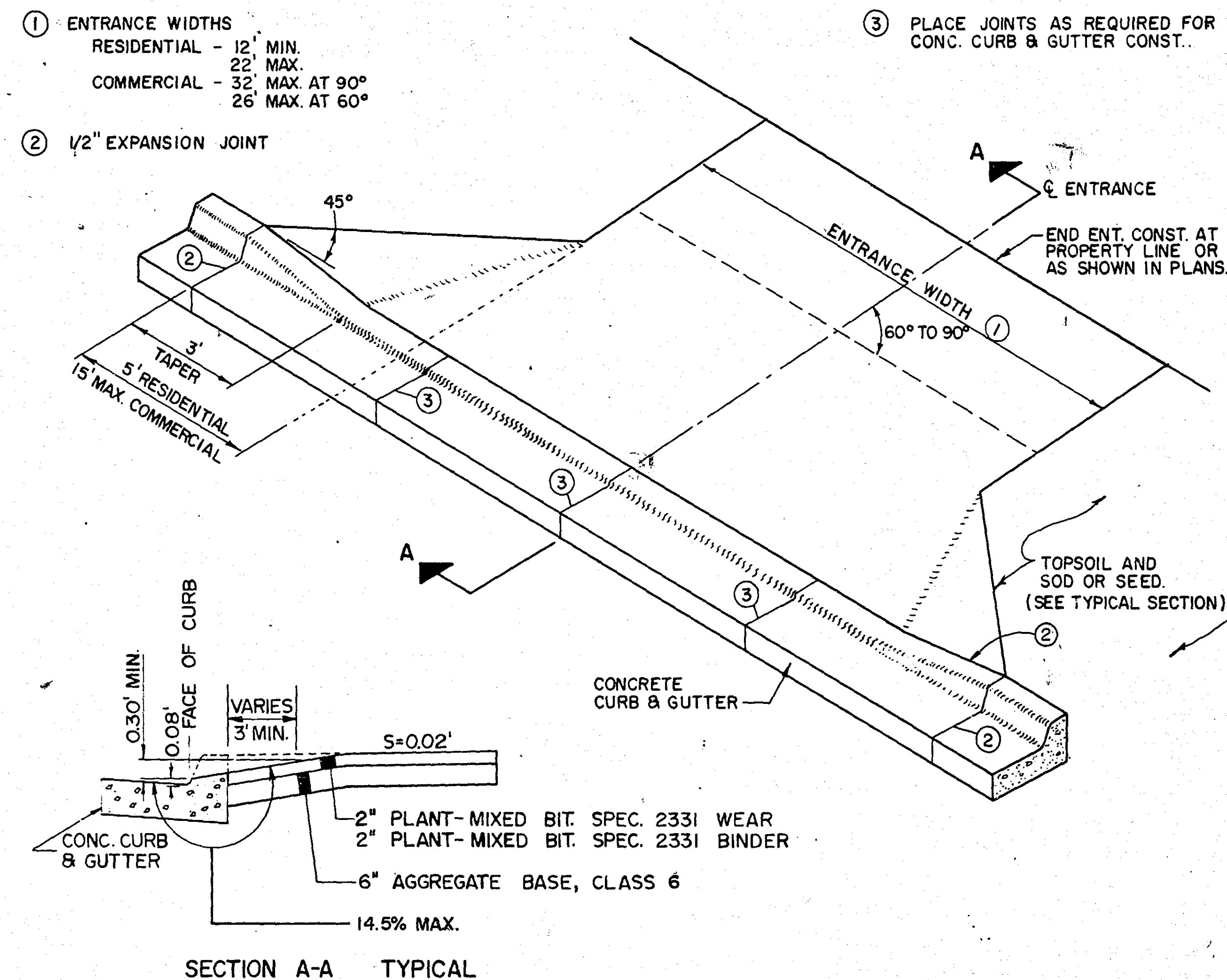
SUMMARY OF EARTHWORK QUANTITIES GOTTFRIED POND

	VOLUME IN CUBIC YARDS
TOTAL CUT	31117
TOTAL FILL	7642
COMMON EXCAVATION MATERIAL SUITABLE AS GRANULAR BORROW	3500

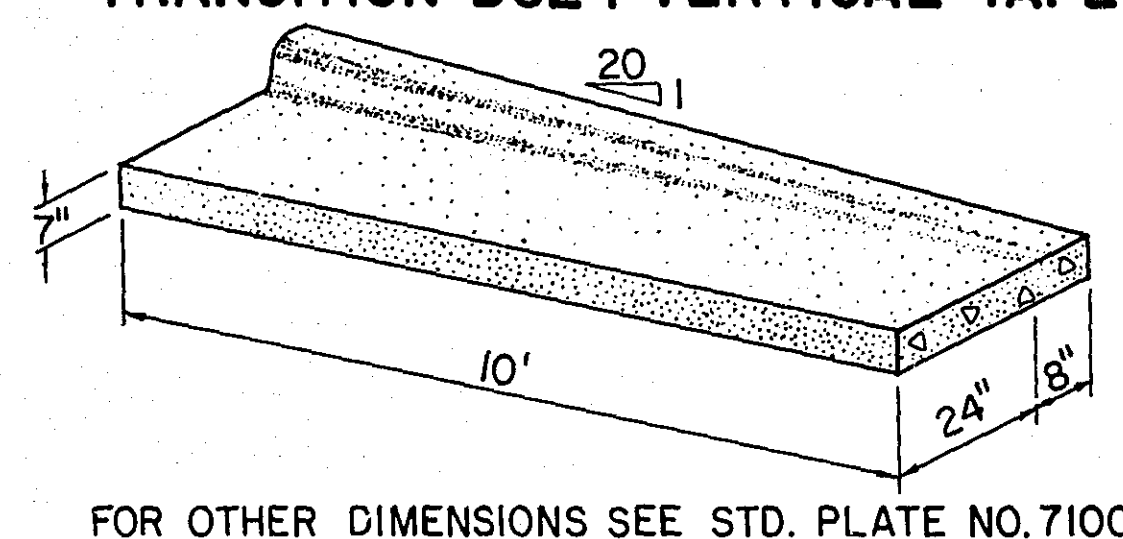
CONCRETE ENTRANCE DETAIL



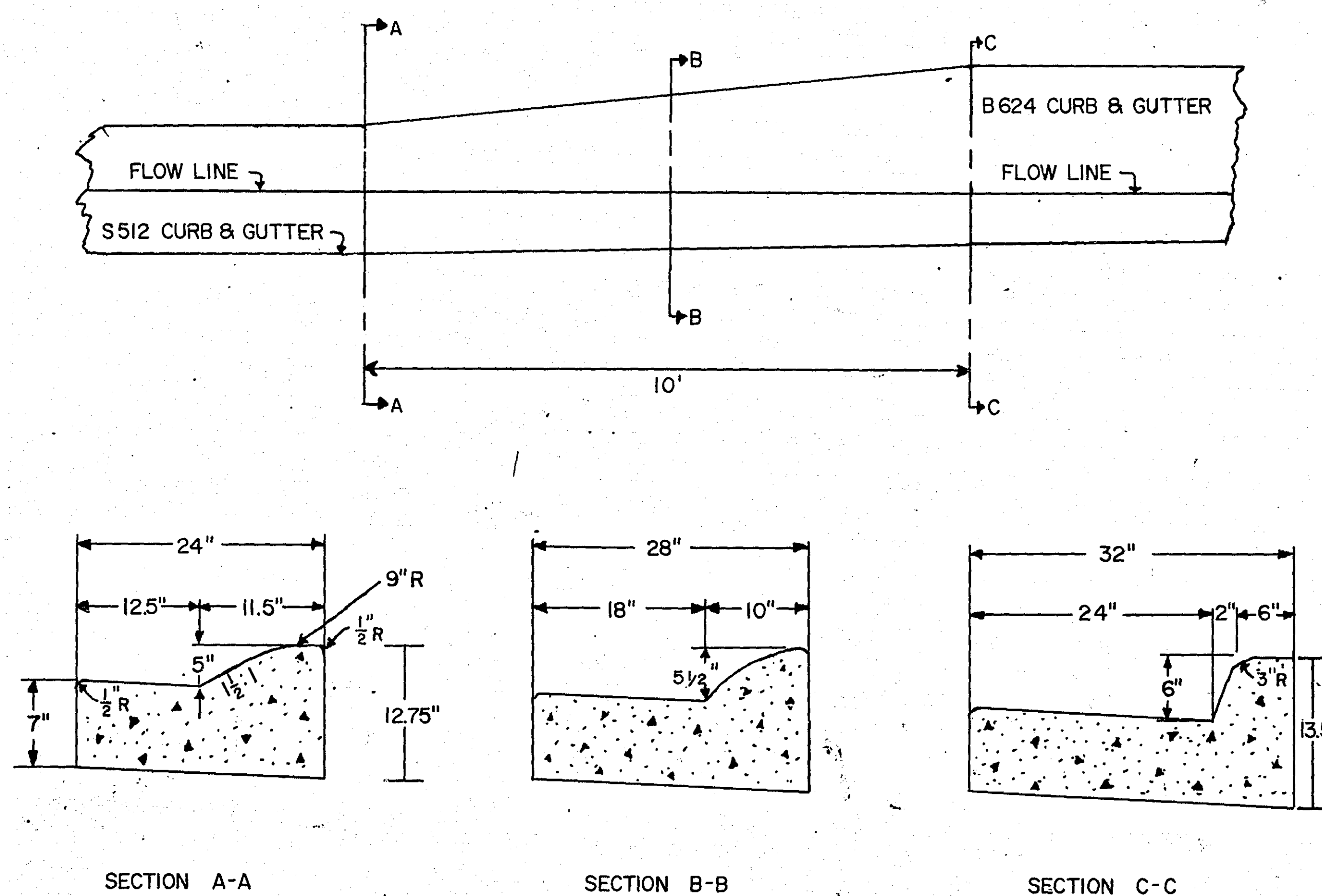
BITUMINOUS ENTRANCE DETAIL



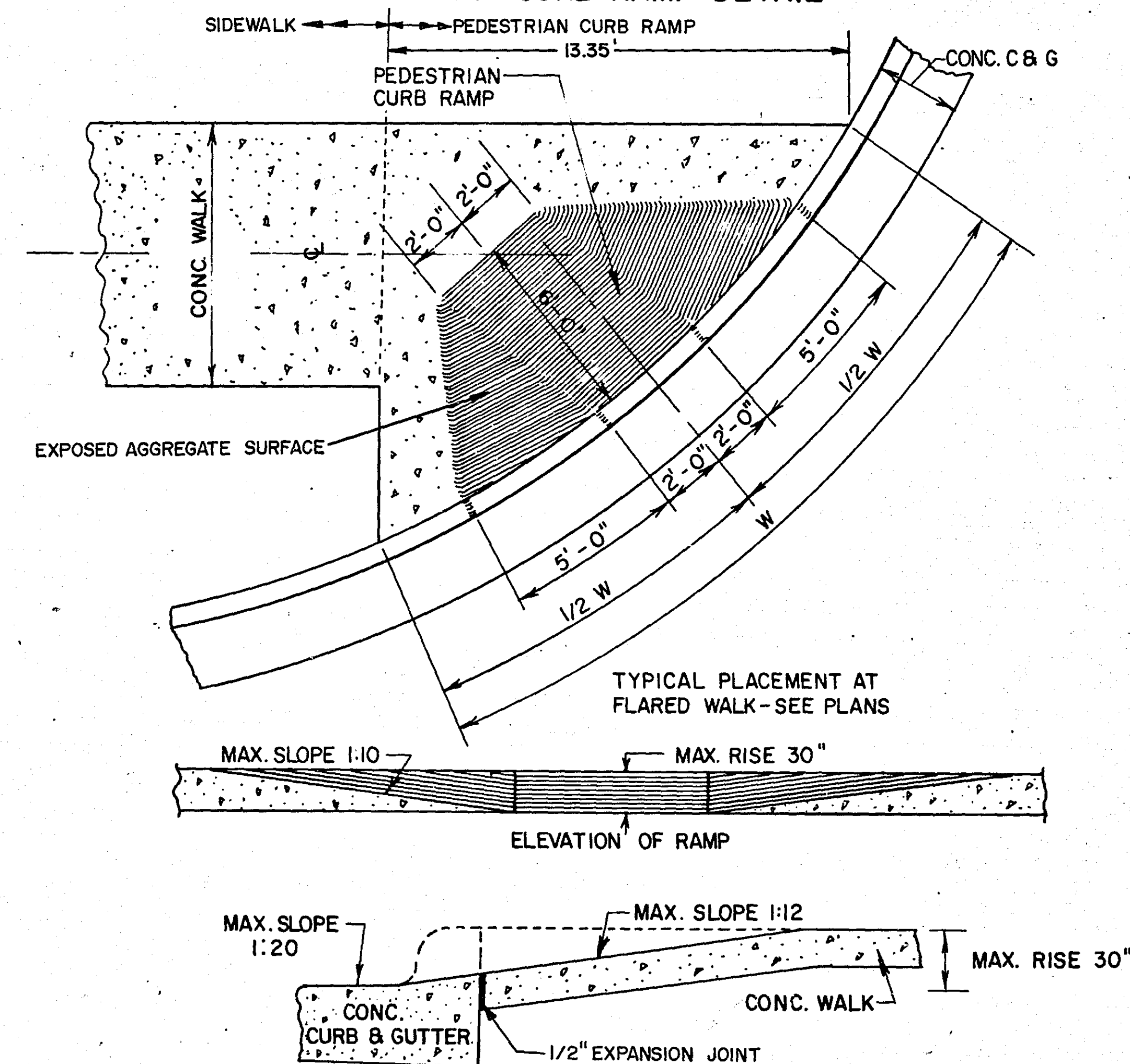
TRANSITION B624 VERTICAL TAPER



CURB TRANSITION - B624 C & G TO S512 C & G

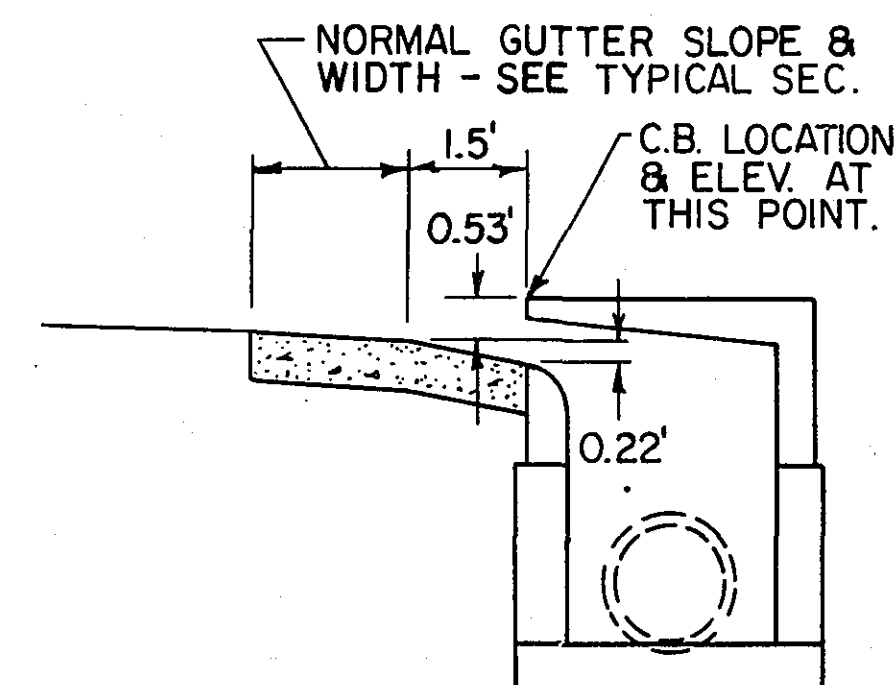


PEDESTRIAN CURB RAMP DETAIL



CONSTRUCT PEDESTRIAN CURB RAMPS AT ALL STREET RADII - REFERENCE STANDARD PLATE NO. 7036C

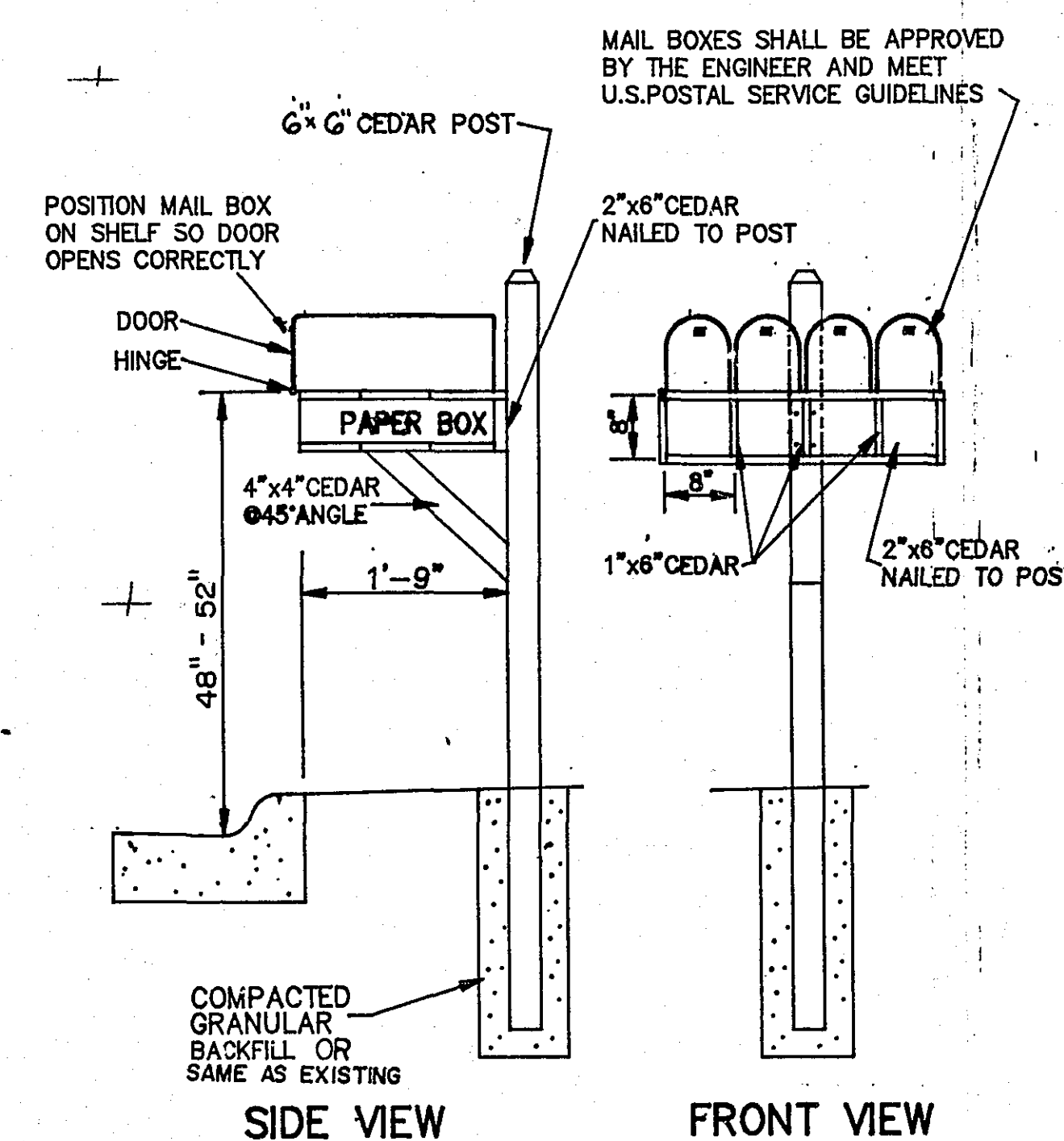
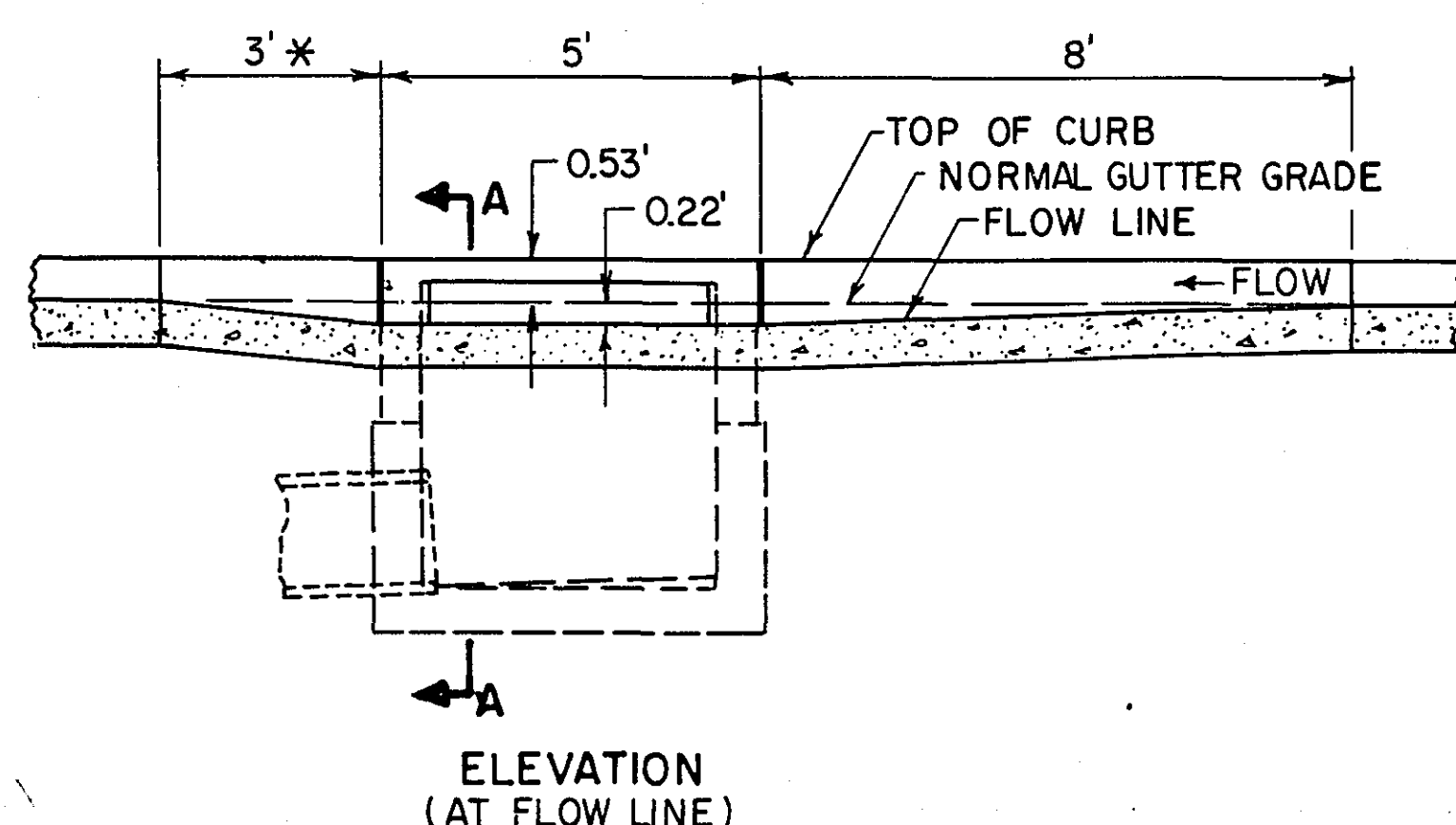
ENTRANCE & CURB RAMP DETAIL



SECTION A-A

NOTES:

1. * DIMENSION SHALL BE 8' WHEN STRUCTURE INSTALLED AT LOW POINT IN GRADE
2. CATCH BASIN - DESIGN LP - SEE MN/DOT STD. PL. NO. 4021
3. TOP OF CATCH BASIN SHALL BE INSTALLED AT SAME SLOPE AS BLVD. GRADES AND TOP OF CURB GRADE. EACH SIDE OF STRUCTURE.
4. ELEVATION OF STRUCTURE IS COMPUTED AT LOCATION SHOWN IN SEC. A-A AT C. OF C.B. OPENING.

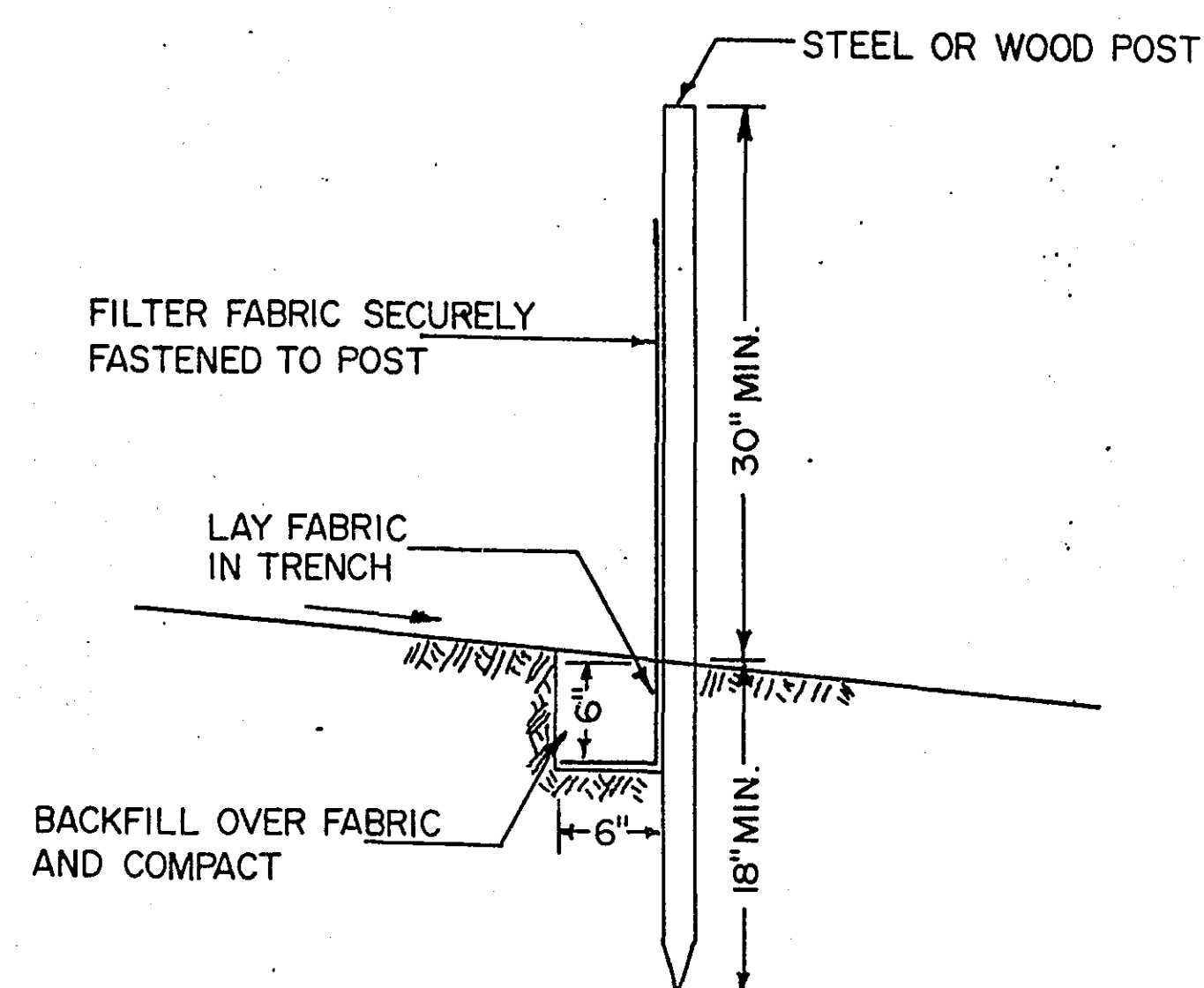


SIDE VIEW

FRONT VIEW

CURB OPENING CATCH BASIN - DESIGN LP

MAIL BOX & MAIL BOX STAND



SILT FENCE INSTALLATION



CONSULTING ENGINEERS

Maier Stewart & Associates Inc.

1959 SLOAN PLACE

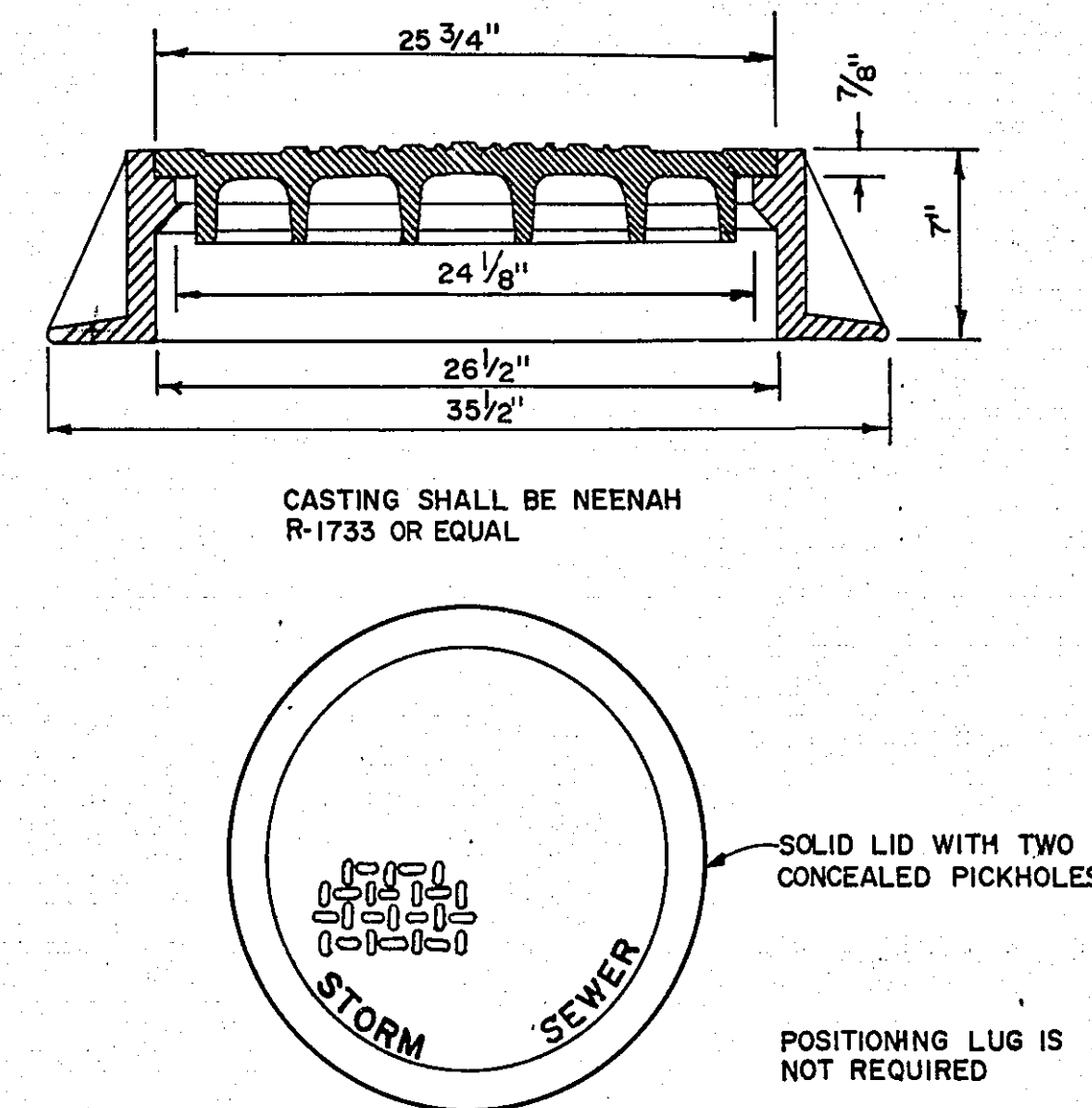
(612).774-6021

ST. PAUL, MINNESOTA 55117

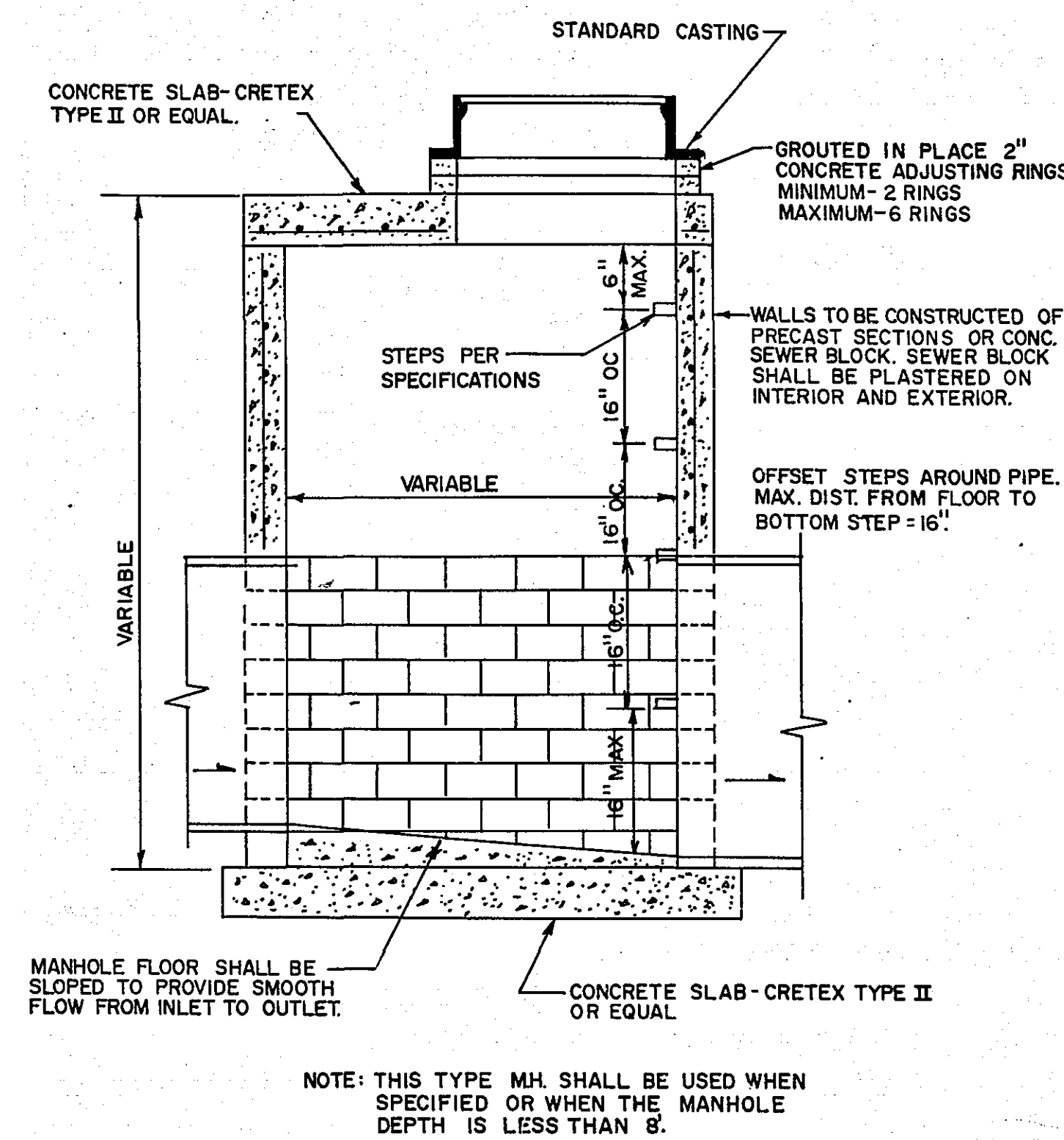
REVISIONS	DATE	DESCRIPTION	DESIGNED _____
			CHECKED _____
			DRAWN _____
			GRAPHIC SCALE _____
			0 HORIZ. <i>NON</i>
			0 VERT.

RAMSEY COUNTY
S.A.P. NO. 62-650-04 & 62-630-37
TYP. CONSTRUCTION DETAILS

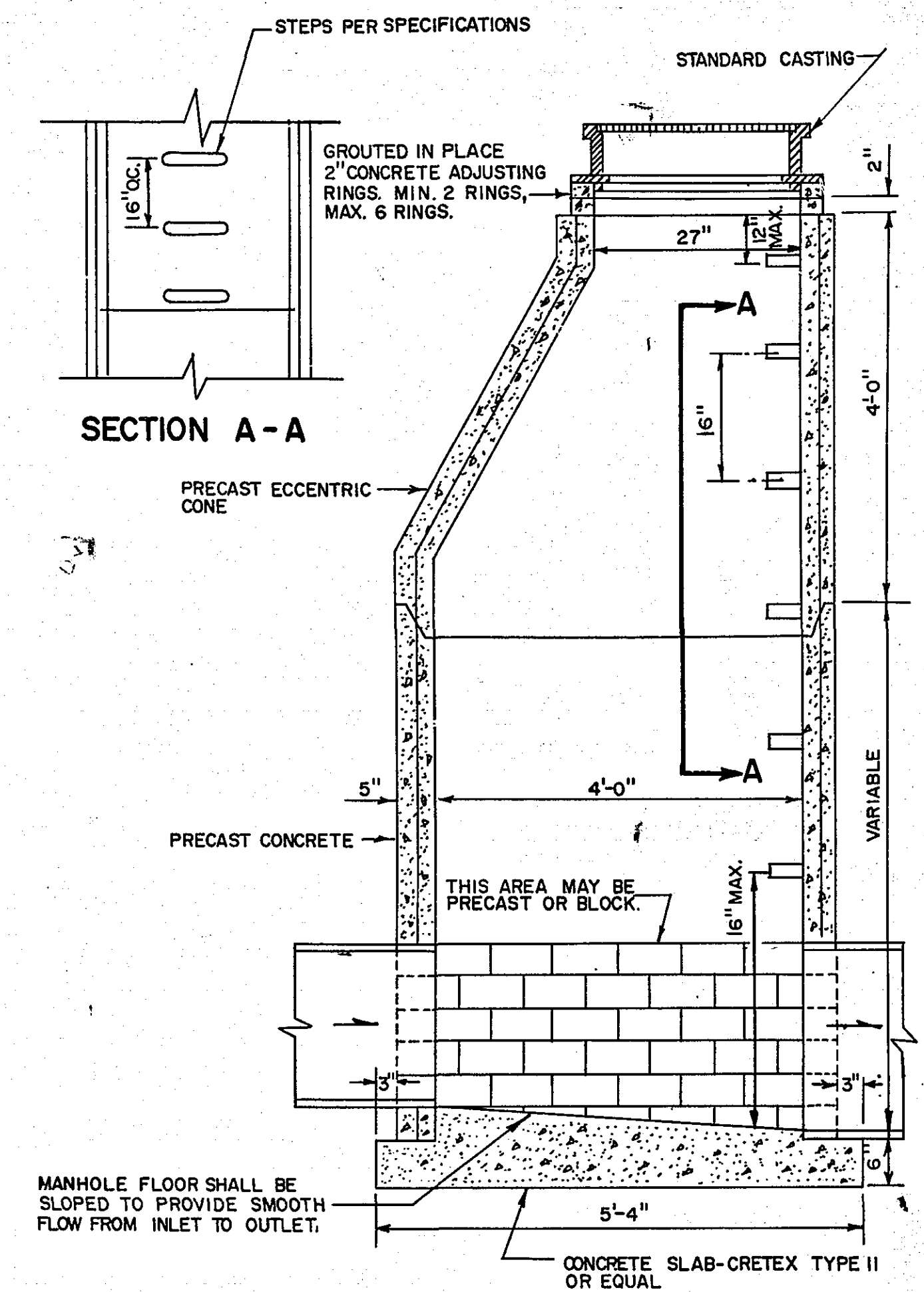
DATE <u>JULY 1989</u>	SHEET <u>5</u> OF <u>49</u> SHEETS	PROJECT NO. <u>460-001</u>
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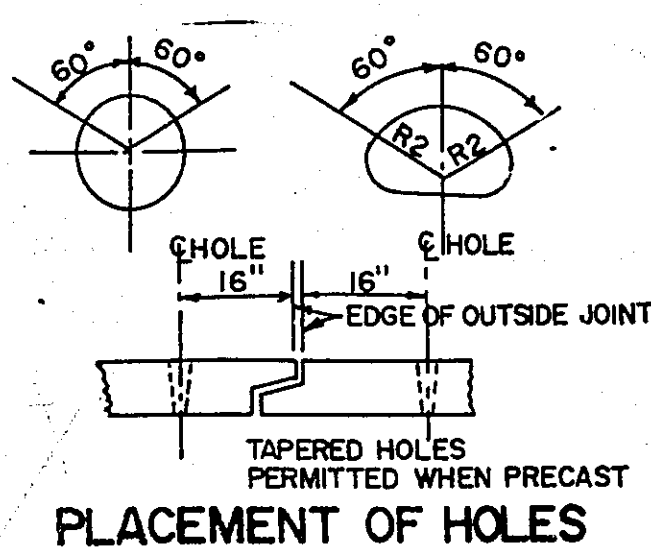
STANDARD MANHOLE CASTING



SLAB-TOP MANHOLE

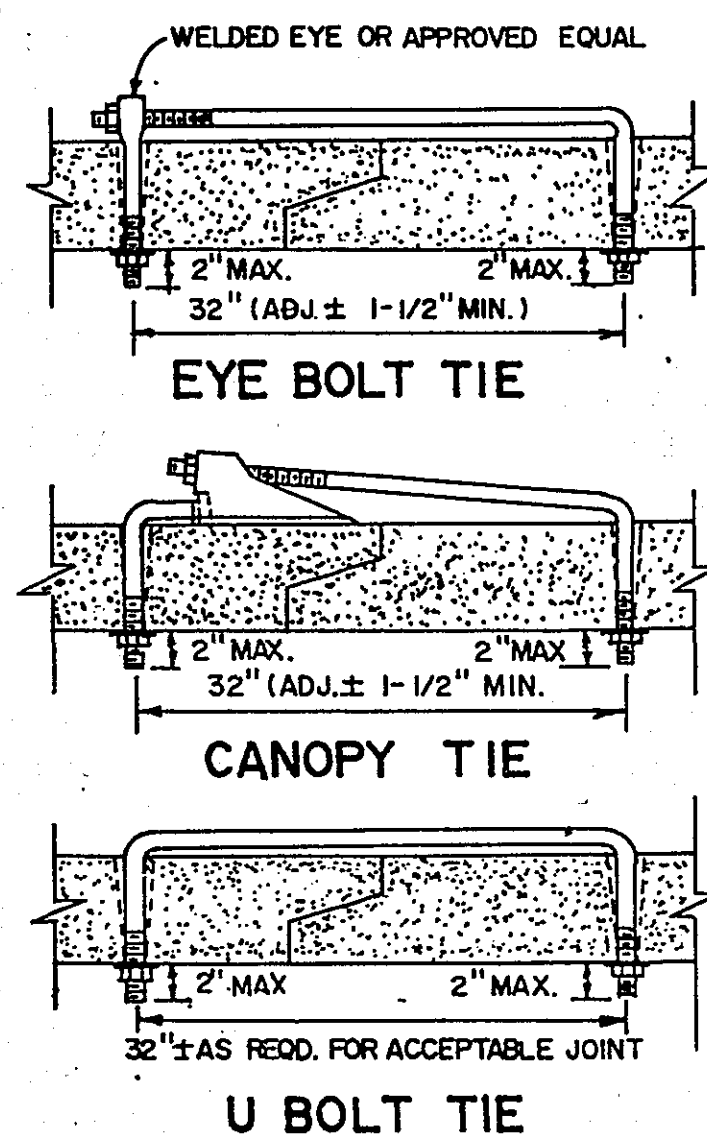


STANDARD MANHOLE



PLACEMENT OF HOLES

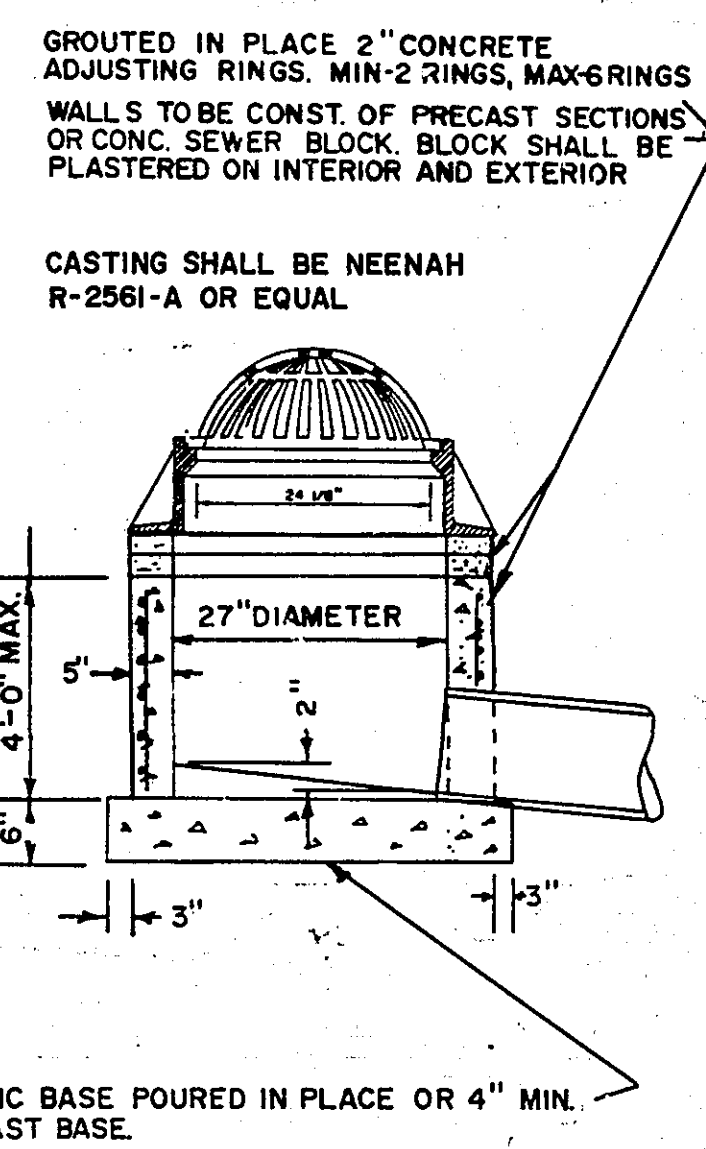
PIPE SIZE	THREAD DIAMETER
24	5/8"
30	3/4"
36	1"



- NOTES:
- HOLES SHALL BE CAST-IN OR DRILLED 16" FROM OUTSIDE EDGE OF JOINT.
 - NUTS AND WASHERS ARE NOT REQUIRED ON INSIDE OF PIPE WITH 27" DIAM. OR LESS.
 - TIES ARE NOT REQUIRED FOR BELL PIPE 24" AND SMALLER. ON OTHER SIZES, TIE MAY BE INSERTED FROM INSIDE.
 - CUT THREADS MAY BE USED IF WASHER AND NUT ARE USED.
 - PIPE SIZES LISTED ARE INSIDE DIAM. OF ROUND PIPE OR EQUIVALENT DIAM. OF PIPE ARCH.

SPECIFICATION REFERENCE 2501, 2503
STANDARD PLATE REFERENCE 3145

CONCRETE PIPE JOINT TIES



NOTE: REINFORCING SHALL CONSIST OF A SINGLE LINE OF STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.17 SQ. IN. PER FOOT OF HEIGHT.

CIRCULAR 27" PRECAST CB

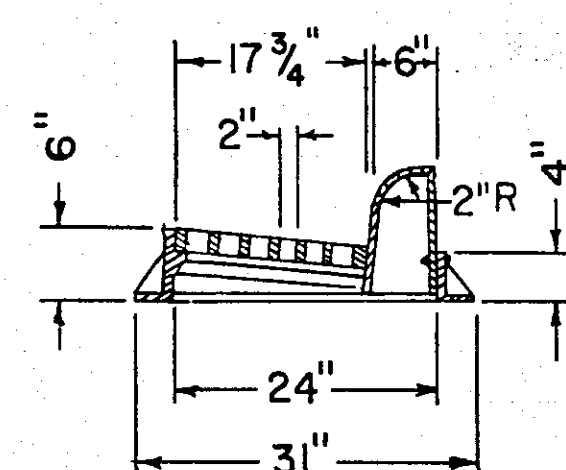
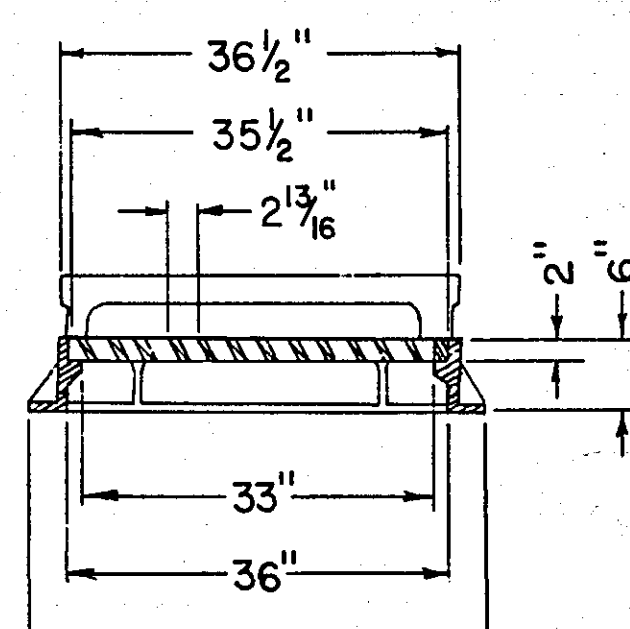
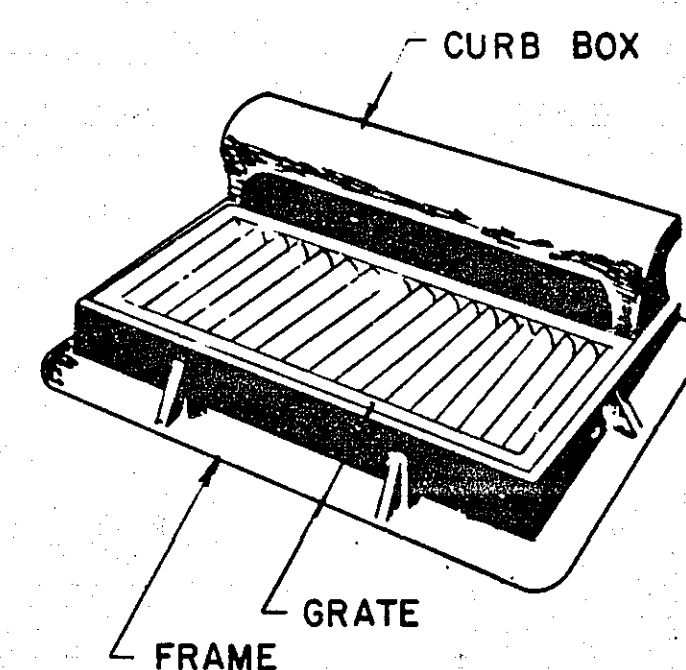
CASTING ASSEMBLY (FOR DESIGN SPECIAL 2 CATCH BASIN)

NOTES:

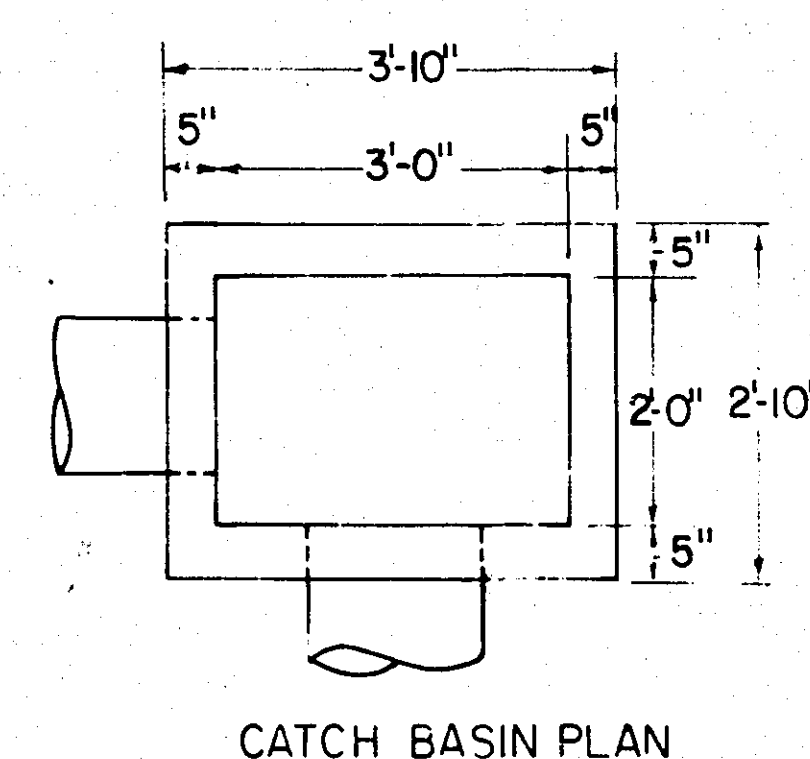
MATERIALS: CAST GRAY IRON, CLASS 30, MN/DOT SPEC REFERENCE 3321

CURB BOX HEIGHT SHALL BE ADJUSTABLE 6" TO 9"

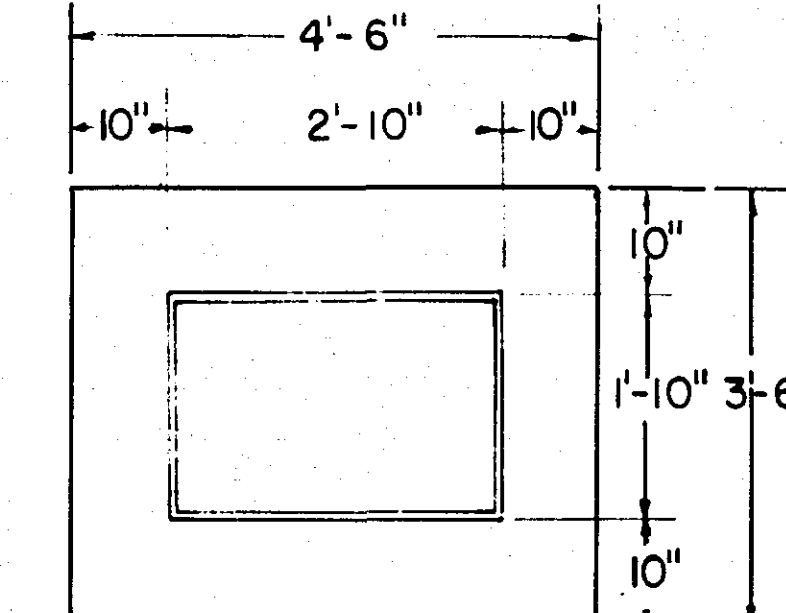
SEE CATCH BASIN-DESIGN SPECIAL 2 DETAIL FOR CASTING INSTALLATION DETAIL.



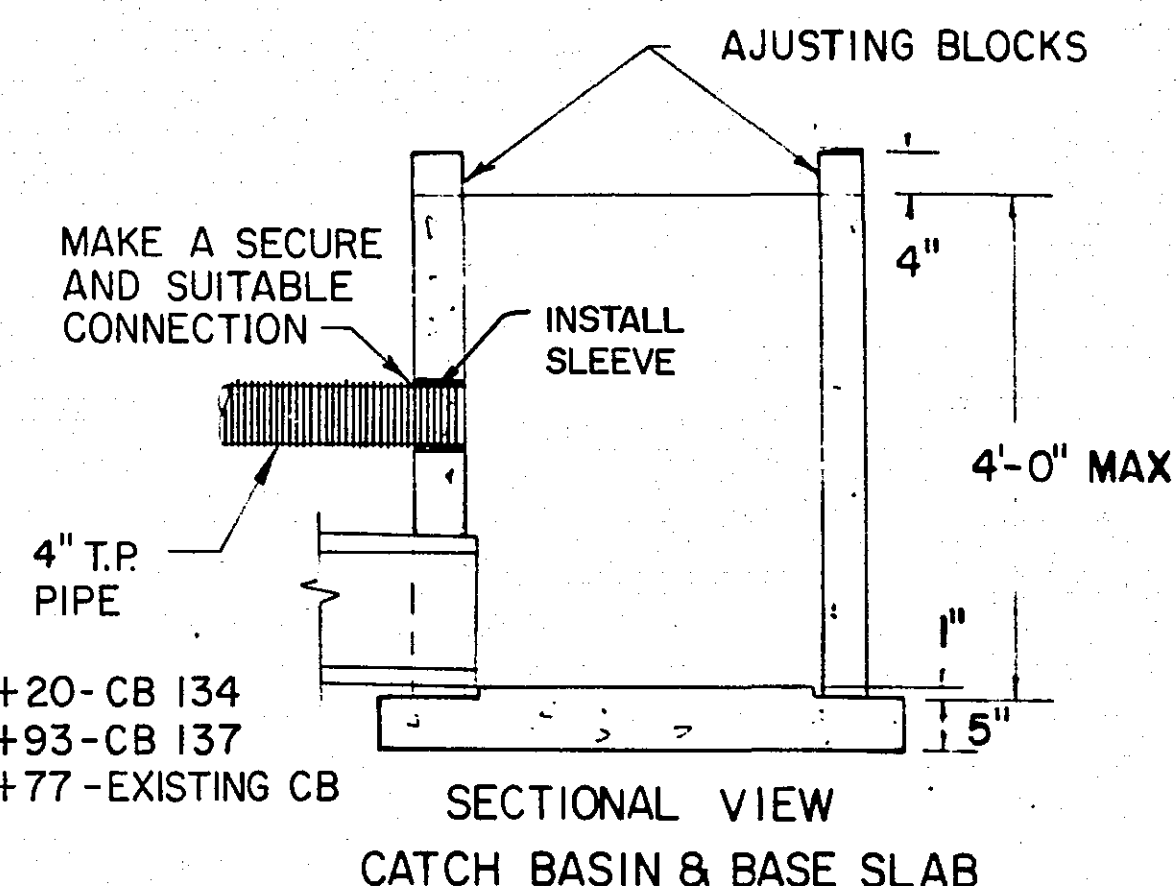
CATCH BASIN-DESIGN SPECIAL 2



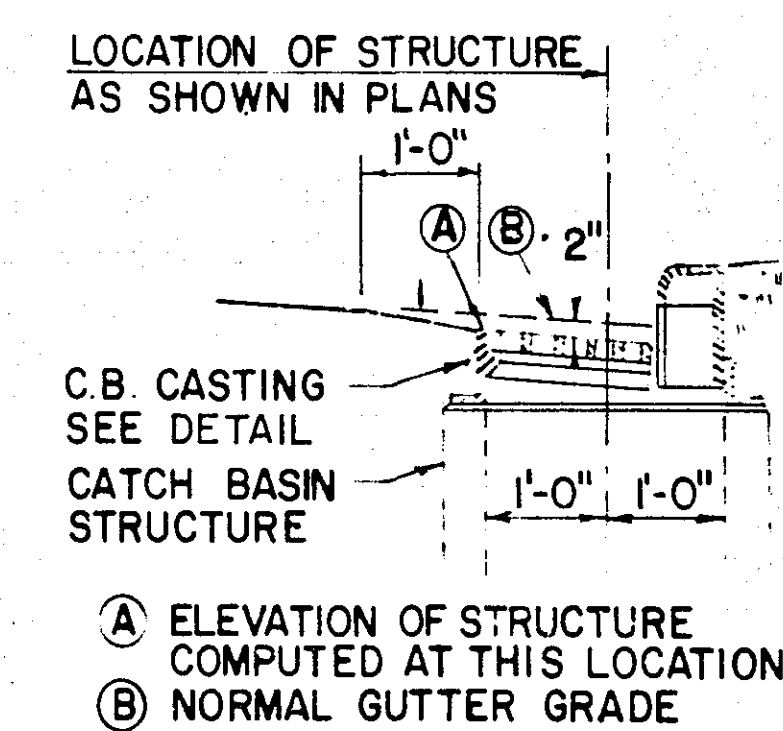
CATCH BASIN PLAN



BASE SLAB PLAN



SECTIONAL VIEW
CATCH BASIN & BASE SLAB



LOCATION OF STRUCTURE
AS SHOWN IN PLANS

INSTALLATION DETAIL

STRUCTURE NOTES

- TO BE USED WITH NEENAH R-3067-V OR EQUAL.
- PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED.
- ALTERNATE CAST-IN-PLACE BASE SLAB CAN BE USED.
- INSTALL AS PER MN/DOT STANDARD PLATE NO. 7111
- REINFORCING: SINGLE LINE STEEL WIRE FABRIC. WALL = W3.5 X W3.0 HAVING AN AREA OF NOT LESS THAN .21 SQ. IN. PER FOOT OF HEIGHT. BASE = W4.0 X W4.0 HAVING AN AREA OF NOT LESS THAN .16 SQ. IN. PER FOOT OF HEIGHT.
- ALTERNATE CONSTRUCTION - THE CATCH BASIN MAY BE CONSTRUCTED OF BLOCKS OR BRICKS CONFORMING TO THE REQUIREMENTS OF MN/DOT SPEC. 2506 AND AS DIRECTED BY THE ENGINEER.

STORM SEWER DETAILS

STANDARD INLET CASTING



CONSULTING ENGINEERS
Maier Stewart & Associates Inc.

1959 SLOAN PLACE

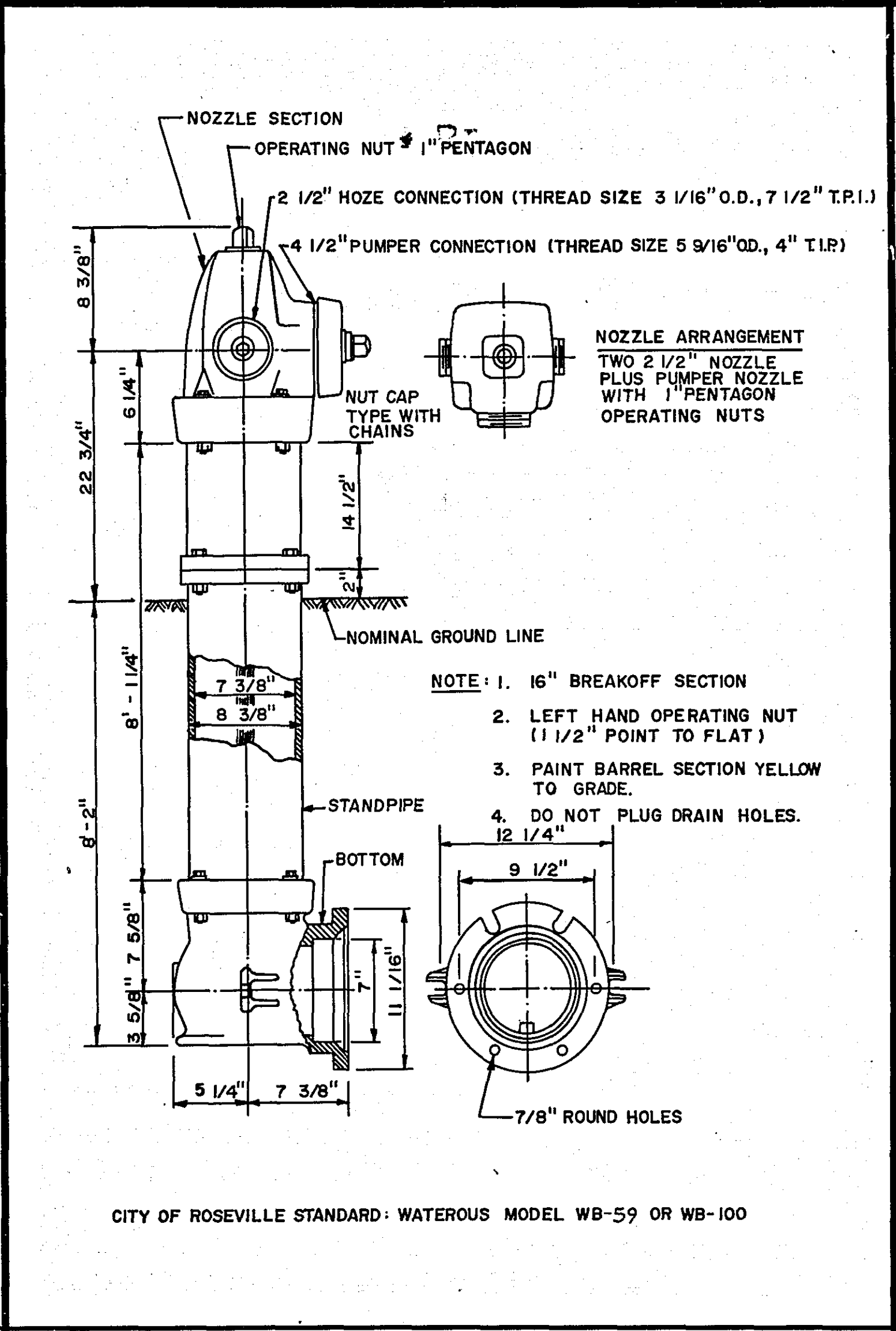
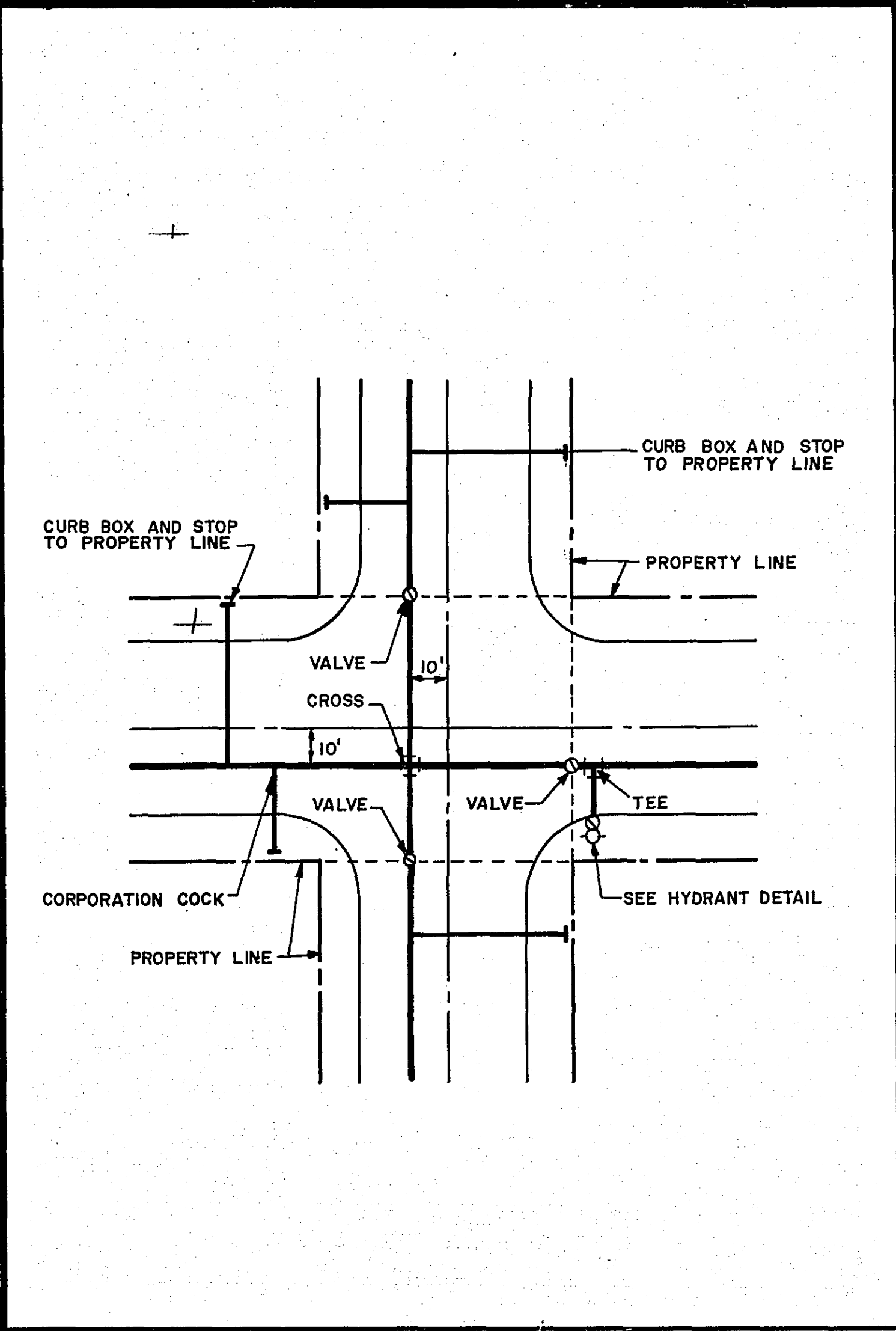
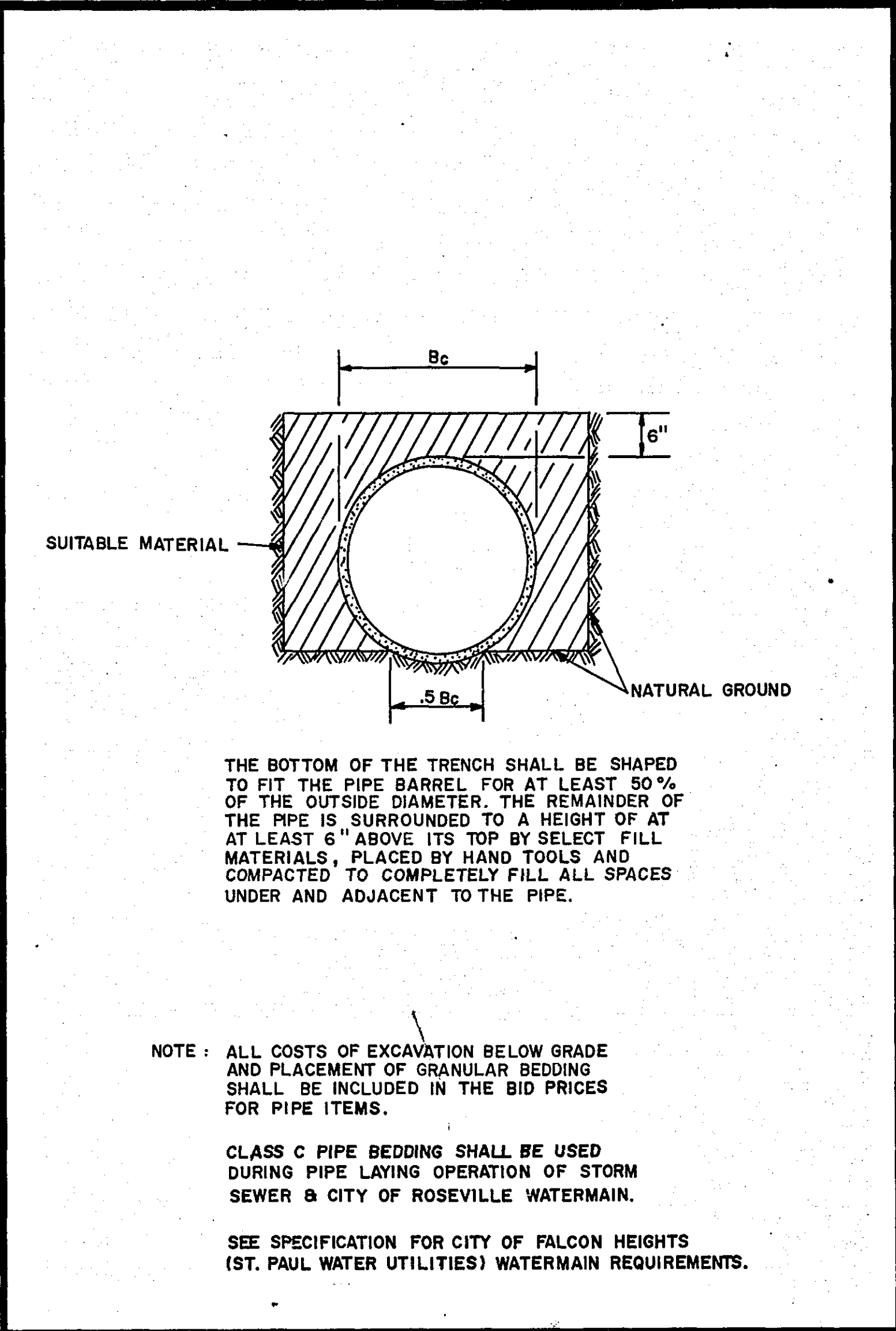
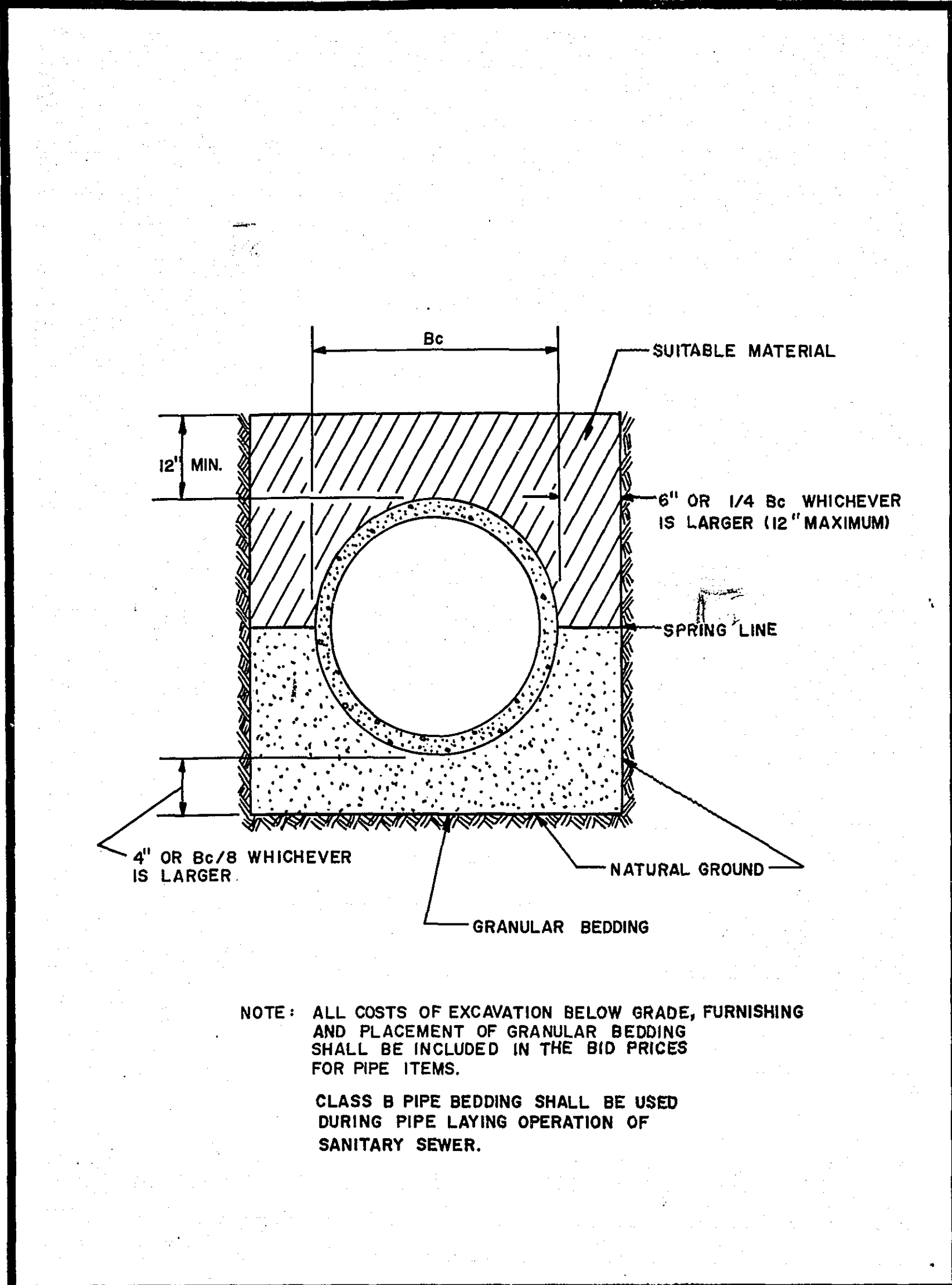
(612) 774-6021

ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		0 HORIZ. NONE
		0 VERT.

RAMSEY COUNTY
S.A.P. NO. 62-650-04 & 62-630-37
STORM SEWER DETAILS

DATE JULY 1989 SHEET 6 OF 49 SHEETS PROJECT NO. 460-001



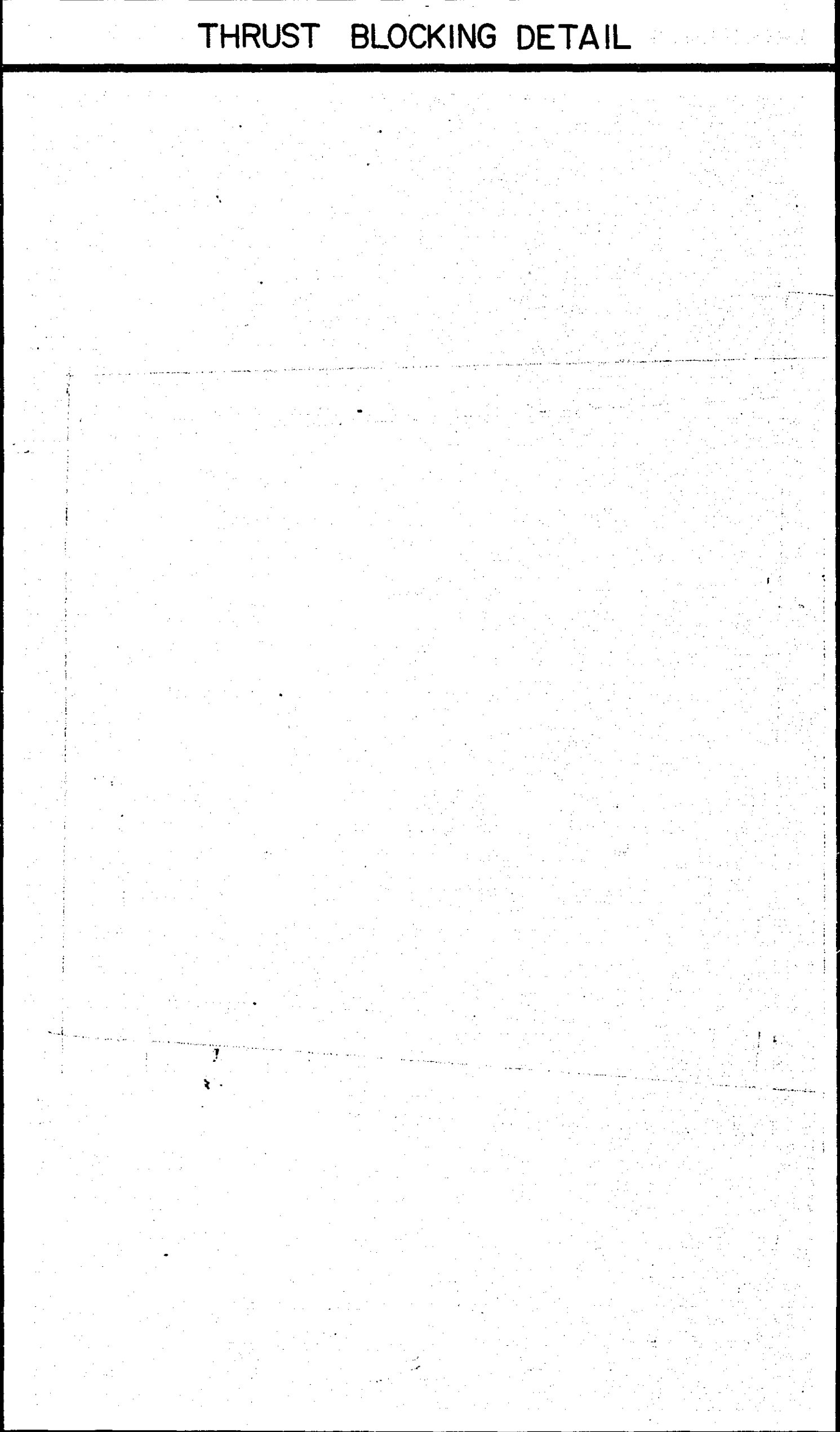
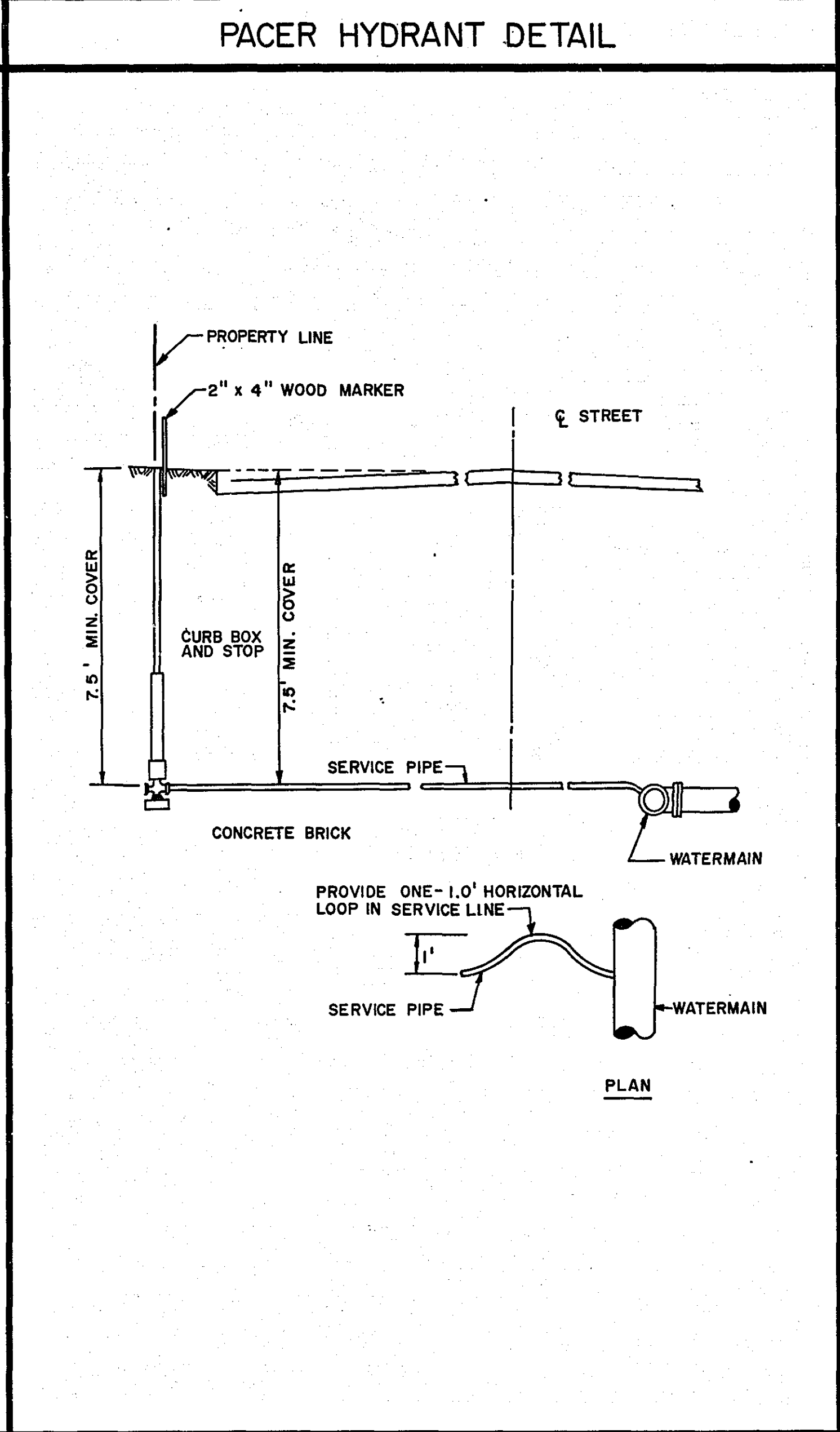
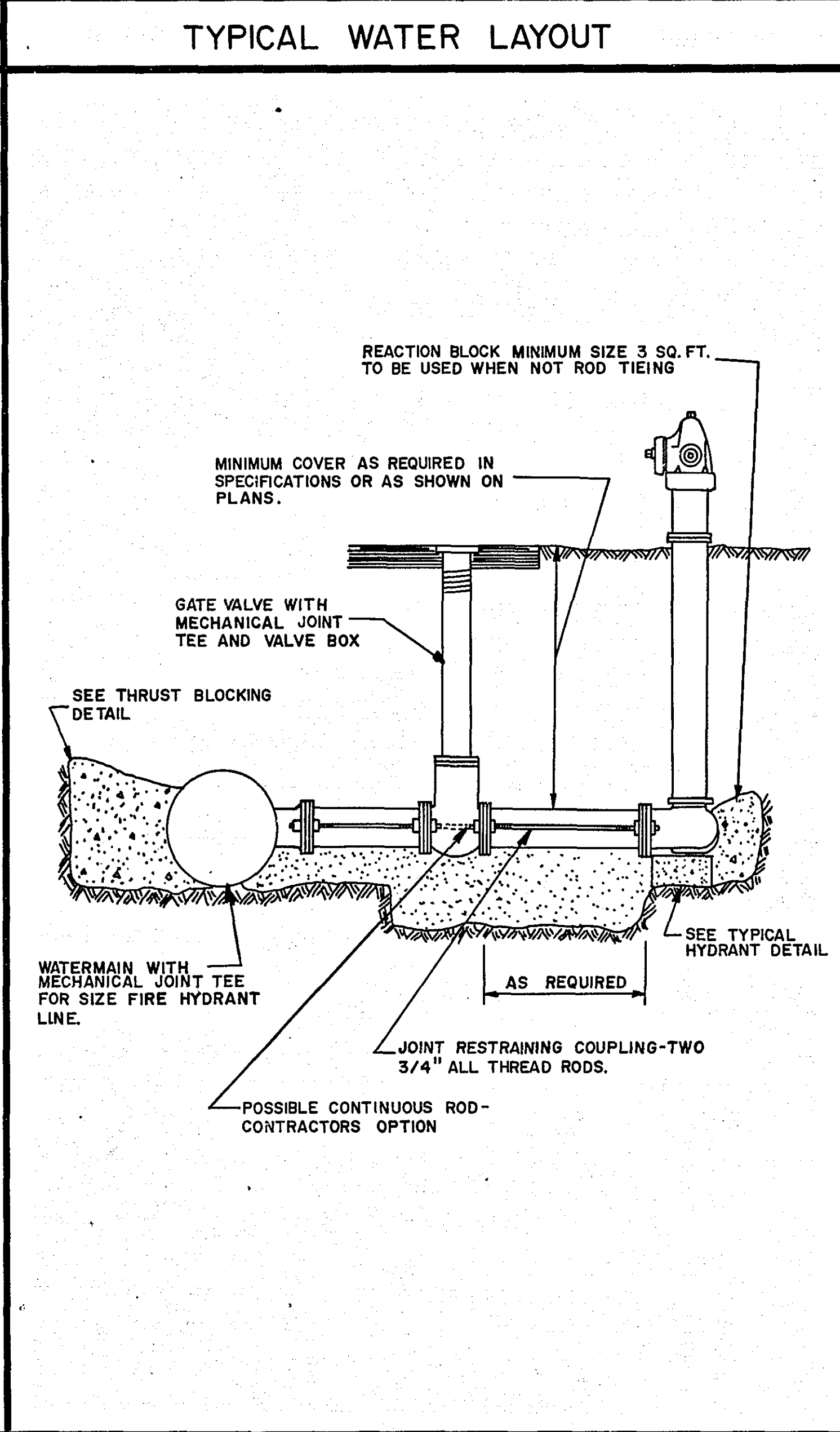
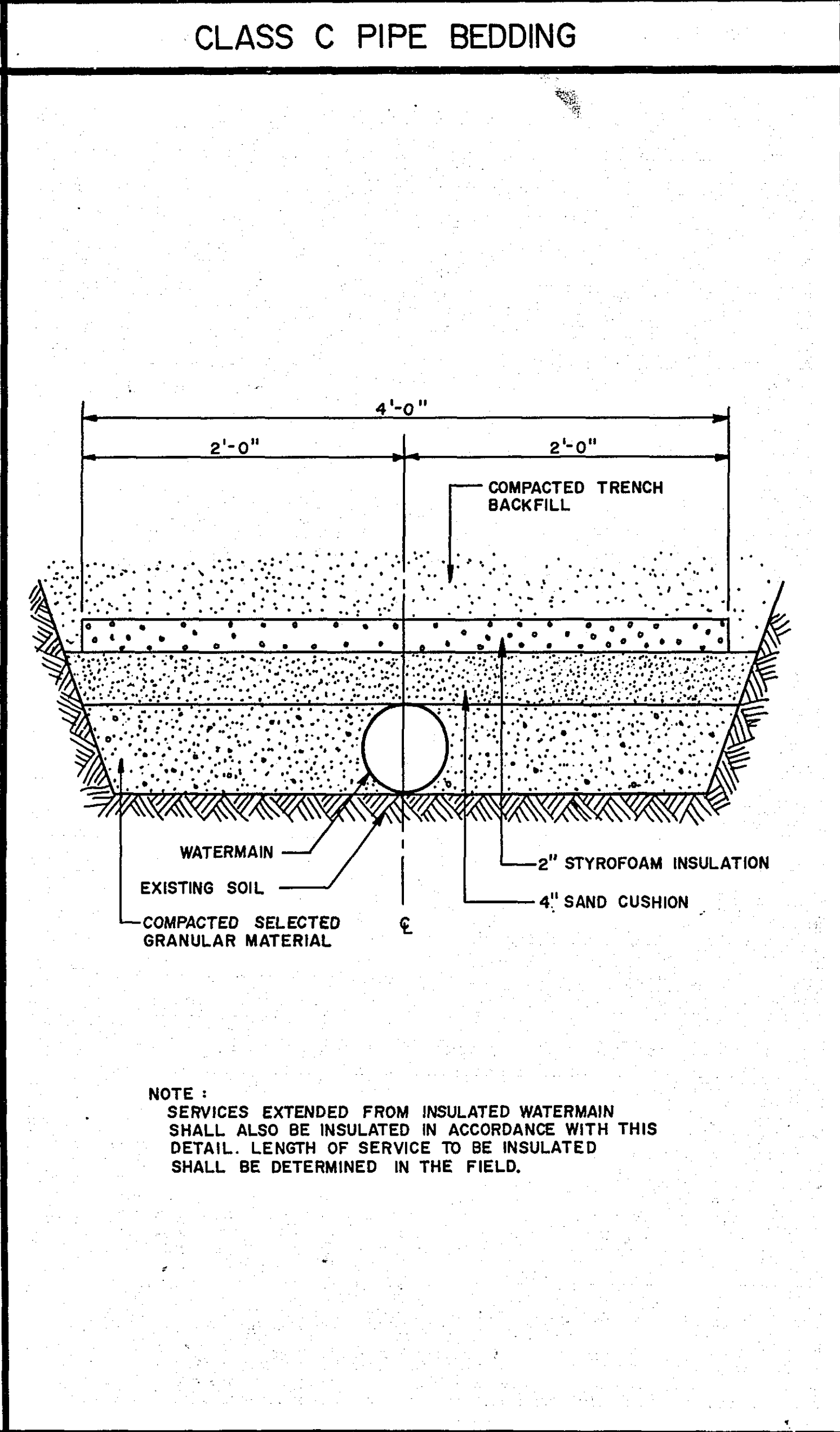
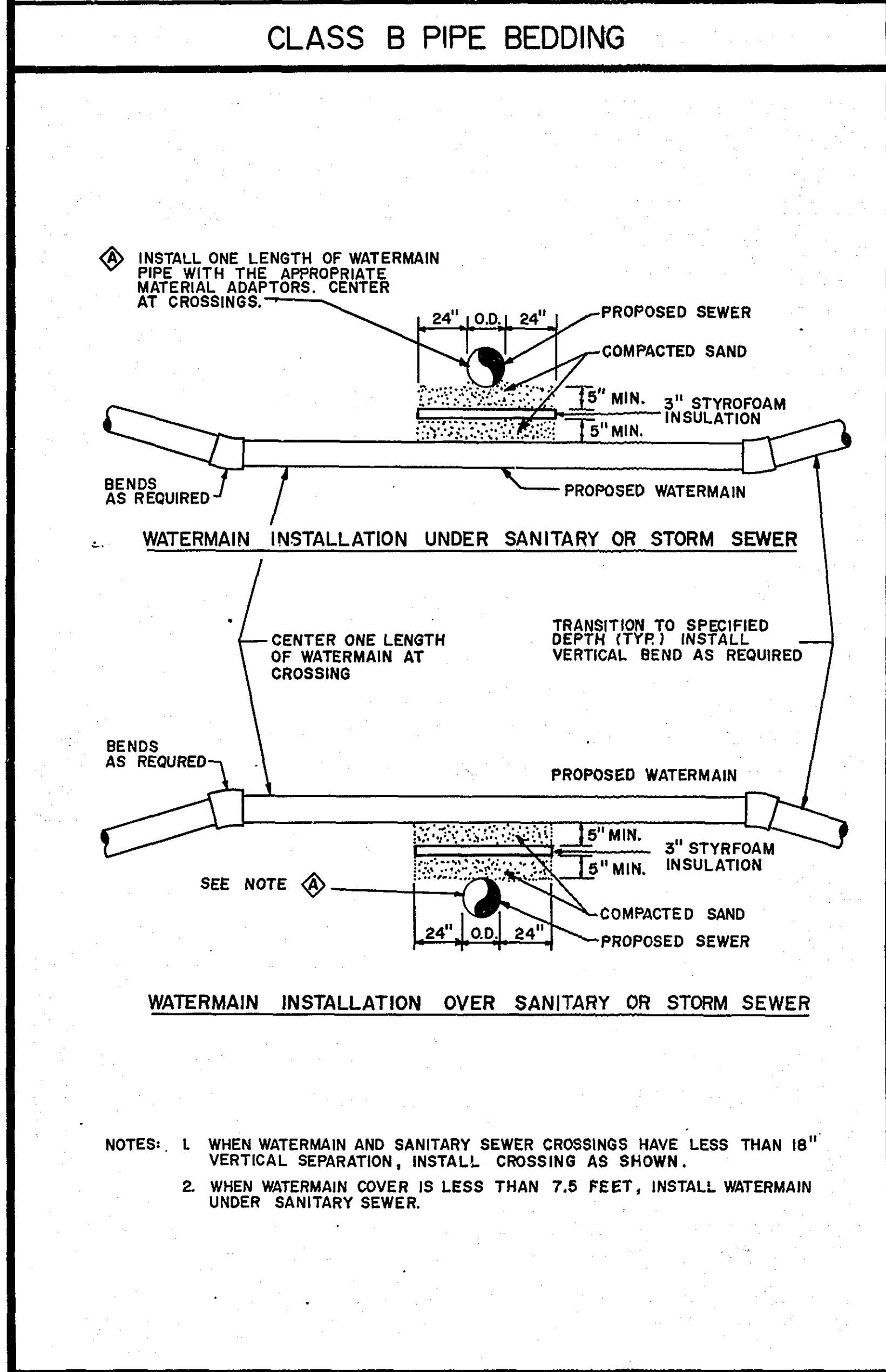
TEE, PLUGGED CROSS, WYE, PLUG OR CAP

BEND, PLUGGED CROSS, PLUGGED TEE

NOMINAL FITTING SIZE, INCHES	TEE, WYE, PLUG OR CAP	90° BEND, PLUGGED CROSS	TEE PLUGGED ON RUN	45° BEND	22 1/2° BEND	11 1/4° BEND
4	1.0	1.4	1.9	1.4	1.0	—
6	2.1	3.0	4.3	3.0	1.6	—
8	3.8	5.3	7.6	5.4	2.9	1.5
10	5.9	8.4	11.8	8.4	4.6	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4
14	11.5	16.3	23.0	16.3	8.9	4.6
16	15.0	21.3	30.0	21.3	11.6	6.0
18	19.0	27.0	38.0	27.0	14.6	7.6
20	23.5	33.3	47.0	33.3	18.1	9.4
24	34.0	48.0	68.0	48.0	26.2	13.6

NOTE:

- CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
- KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
- IF NOT SHOWN ON PLANS, REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED ABOVE, ADJUSTED IF NECESSARY, TO CONFORM TO THE TEST PRESSURE (S) AND ALLOWABLE SOIL BEARING STRESS (ES).
- BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN THIS STANDARD DETAIL.
- ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE / 150) x (2000 / SOIL BEARING STRESS) x (TABLE VALUE)



WATERMAIN CROSSING

PIPE INSULATION DETAIL

RODDING DETAIL

TYPICAL SERVICE DETAIL

THRUST BLOCKING DETAIL

CONSULTING ENGINEERS
Maier Stewart & Associates Inc.
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED	CHECKED	DRAWN	GRAPHIC SCALE

RAMSEY COUNTY
S.A.P. NO. 62-650-04 & 62-630-37
WATERMAIN DETAILS 28-109
DATE JULY 1989 SHEET 7 OF 49 SHEETS PROJECT NO. 460-001

EXISTING STRUCTURES								
SURVEY &		ELEVATION						
STATION	LOCATION	NO.	TYPE	DESIGN	CONSTR. HEIGHT LIN.F.T.	ORIGINAL GRATE OR RING	NEW GRATE OR RING	CB or MH INVERT
REMARKS								
0+34	46'L		MH	STORM	-	43.5	43.50	-
0+40	43'L		CB	STORM	4.9	43.2	-	38.3
0+40	24'L		MH	SAN.	-	43.5	-	-
0+58	29'L		MH	STORM	5.0	43.6	-	38.6
0+58	23'R		CB	STORM	4.6	43.6	-	39.0
0+86	19'R		MH	SAN.	6.6	44.6	44.02	38.0
2+74	28'L		MH	SAN.	18.3	48.1	48.10	29.8
2+83	19'R		MH	SAN.	10.5	47.6	47.75	37.1
6+07	18.5'R		CB	STORM	3.0	44.2	-	41.2
6+07	22'R		MH	STORM	3.9	43.1	-	39.2
6+25	30'L		MH	SAN.	14.0	44.9	43.98	30.9
6+72	30'R		MH	STORM	7.7	42.1	43.64	34.4
6+59	20'R		MH	SAN.	10.0	43.1	43.18	33.1
9+56	20.7'L		CB	STORM	5.5	41.8	-	36.1
9+56	22'R		MH	STORM	5.4	41.1	-	35.7
9+75	29'L		MH	SAN.	10.0	41.9	41.90	31.9
9+88	18'R		MH	SAN.	9.4	41.9	41.41	32.5
12+78	21.2'R		CB	STORM	4.7	41.7	-	37.0
12+82	21'L		CB	STORM	3.5	42.0	-	38.5
12+97	25'R		MH	STORM	9.5	41.8	41.24	32.3
13+22	27'L		MH	SAN.	9.9	42.8	41.26	32.9
13+40	18'R		MH	SAN.	11.1	42.5	41.55	31.4
13+43	23'L		MH	STORM	7.5	42.0	41.5	34.5
13+60 ±	19'L		CB	STORM	-	-	-	-
13+60 ±	19'R		CB	STORM	-	-	-	-
15+97	24'L		MH	STORM	3.9	42.4	42.34	38.5
15+97	20'R		CB	STORM	-	42.5	-	FULL OF DIRT
16+30	17'R		MH	SAN.	9.6	44.0	42.84	34.4
16+48	19'L		MH	SAN.	BURIED	BURIED	42.62	BURIED
19+20	17.5'R		MH	SAN.	9.1	45.7	45.18	36.6
18+02	24'L		MH	STORM	3.8	43.9	-	40.1
19+48	22'R		CB	STORM	2.0	45.3	-	43.3
19+60	20'L		MH	SAN.	10.4	46.3	45.73	35.9
19+48	23'L		MH	STORM	-	BURIED	45.47	BURIED
19+79	23'L		MH	STORM	4.1	45.8	46.33	41.7
22+30	24'L		CB	STORM	6.0	49.4	-	34.4
22+30	25'R		MH	STORM	5.1	49.9	-	44.8
22+42	18'R		MH	SAN.	10.0	50.4	49.81	40.4
22+91	20'L		MH	SAN.	BURIED	BURIED	50.40	BURIED
24+31	24'L		MH	STORM	5.9	50.4	50.02	44.5
25+61	20'R		MH	SAN	8.75	51.7	50.98	42.95
25+67	20'L		MH	SAN	-	-	51.03	-
25+77	12'L		MH	NSP	7.4	52.1	51.26	44.7
26+12	20'L		MH	SAN	BURIED	BURIED	51.37	BURIED
26+23	24'L		MH	STORM	5.7	51.6	51.30	45.9
26+23	43'R		MH	STORM	5.1	51.6	-	46.5
26+20	61'R		VALVE	GAS	-	-	-	-
26+23	100'L		CB	STORM	5.1	50.3	AS REQ'D.	46.5
26+56	70'L		MH	NSP	-	51.3	AS REQ'D.	46.9
26+57	72'L		VALVE	GAS	-	-	-	-
26+66	18'L		MH	SAN	14.4	53.1	51.84	38.7
26+68	42'R		MH	STORM	3.7	51.8	-	48.1
26+77	85'L		VALVE	GAS	-	-	-	-
26+89	21'R		CB	STORM	3.5	52.9	-	49.4
27+09	23'R		MH	NSP	8.6	53.7	52.05	45.1
27+29	24'R		MH	NSP	9.5	54.1	52.40	44.6
27+62	11'L		MH	NSP	8.0	55.7	53.85	47.7
28+63	18'L		MH	SAN	9.3	58.3	57.06	49.0
29+54	21'L		MH	SAN	7.9	59.2	58.79	51.3
29+63	24'R		VALVE	GAS	-	-	-	-
29+75	52'R		MH	SAN	9.6	58.4	58.28	48.8
32+89	33'R		VALVE	GAS	-	-	-	-
33+02	21'L		MH	SAN	10.3	57.2	56.67	46.9
34+27	19'R		MH	SAN	8.5	55.3	54.39	46.8
35+89	22'L		CB	STORM	2.9	51.4	-	48.5
35+89	21'R		CB	STORM	3.1	50.2	-	47.1
36+14	45'L		CB	STORM	3.3	51.3	-	48.0
36+21	21'L		MH	STORM	4.2	51.7	-	47.5
36+21	44'L		MH	STORM	BURIED	BURIED	-	-
36+21	36'R		MH	STORM	4.8	51.1	51.30	46.3
36+27	21'R		MH	SAN	12.1	51.7	51.20	39.6
36+40	45'L		CB	STORM	3.0	51.0	-	48.0
36+61	38'R		CB	STORM	1.5	48.0	-	46.5
36+67	21'L		CB	STORM	2.7	50.5	-	47.8
39+23	15'L		CB	STORM	4.0	51.4	-	47.4
39+30	34'L		VALVE	GAS	-	-	-	-
39+40	37'R		CB	STORM	3.9	50.6	-	46.7
39+44	33'R		VALVE	GAS	-	-	-	-
39+49	18'L		MH	STORM	BURIED	BURIED	50.85	BURIED
39+49	37'R		MH	STORM	4.6	50.9	51.00	46.3
39+69	37'R		CB	STORM	3.9	50.9	-	47.0
39+85	16'L		CB	STORM	4.0	51.3	51.06	47.3
41+40	33'R		VALVE	GAS	-	-	-	-
42+80	25'L		MH	SAN	9.3	52.7	52.40	43.4
44+35	24'L		MH	SAN	8.4	53.6	53.45	45.2
46+00	33'R		VALVE	GAS	-	-	-	-
46+08	19'L		MH	SAN	8.6	56.5	54.84	47.9
49+22	34'R		VALVE	GAS	-	-	-	-
49+65	14'R		VALVE	GAS	-	-	-	-
50+85	35'L		MH	NSP	6.5	58.4	57.90	51.9
50+80	32'L		VALVE	GAS	-	-	-	-
52+04	12'L		MH	NSP	3.0	55.7	55.50	52.7
47+29	22'L		MH	SAN	8.0	56.8	55.4	48.8
								RECONSTRUCT MH

NOTE: 4 SANITARY SEWER MANHOLES ON SHEET 10 WILL BE CONSTRUCTED TO MATCH PROPOSED GRADES

WATER UTILITIES CHART																
STATION	LOCATION	ITEM IN PLACE	CITY OF FALCON HEIGHTS						CITY OF ROSEVILLE						REMARKS	
			6" WATERMAIN REPLACEMENT	8" WATERMAIN REPLACEMENT	RELOCATE HYDRANT	ADD HYD. VALVE	ADJUST HYDRANT	ADJUST VALVE	6" WATERMAIN REPLACEMENT	8" WATERMAIN REPLACEMENT	RELOCATE HYDRANT	ADD HYD. VALVE	ADJUST HYDRANT	ADJUST VALVE		
0+12	45'L	VALVE														OK
0+55	12'L	VALVE														TO BE REPLACED
3+93	40'L	HYDRANT	XX													* RELOCATE HYDRANT & ADD VALVE
8+51	27.7'L	HYDRANT			XXX		XXX									* RELOCATE HYDRANT & ADD VALVE
12+77	27'L	HYDRANT			XXX		XXX									* RELOCATE HYDRANT & ADD VALVE
12+82	18'L	VALVE	XX													TO BE REPLACED
13+58	30'R	VALVE													XX	ADJUST & VERIFY IF VALVE IS PART OF HYD. LEAD
13+58	33'R	HYDRANT								XX						RELOCATE HYDRANT
17+80	32'R	HYDRANT								XX						RELOCATE HYDRANT & ADD VALVE
19+87	34'L	VALVE							XX		XX					ADJUST
19+97	27'L	HYDRANT			XX		XX									* RELOCATE HYDRANT & ADD VALVE
22+19	30'R	VALVE													XX	ADJUST & VERIFY IF VALVE IS PART OF HYD. LEAD
22+19	33'R	HYDRANT								XX						RELOCATE HYDRANT
23+03	27'L	HYDRANT			XX		XX									* RELOCATE HYDRANT & ADD VALVE
25+99	26'L	HYDRANT			XX											* RELOCATE HYDRANT
25+99	29'L	VALVE							XX							ADJUST PART OF HYD. & VALVE ASSEMBLY
26+81	36'L	VALVE													XX	ADJUST PART OF HYD. & VALVE ASSEMBLY
26+81	37'L	HYDRANT								XX						RELOCATE HYDRANT
29+85	34'R	VALVE													XX	ADJUST
29+98	35'R	HYDRANT								XX		XX				RELOCATE HYDRANT & ADD VALVE
32+71	33'L	VALVE														ADJUST
33+11	43'L	VALVE													XXXX	ADJUST
33+30	34'L	VALVE													XXXX	ADJUST
33+30	27'L	HYDRANT														RELOCATE HYDRANT & ADD VALVE
36+35	42'L	VALVE								XX		XX				TO BE REPLACED
36+48	37'L	VALVE													XX	ADJUST
36+50	37'L	HYDRANT														RELOCATE HYDRANT & ADD VALVE
39+75	44'L	VALVE								XX		XX				TO BE REPLACED
39+78	44'L	HYDRANT														RELOCATE HYDRANT & ADD VALVE
42+92	43'L	VALVE								XX		XX				TO BE REPLACED
42+92	27'L	HYDRANT														RELOCATE HYDRANT & ADD VALVE
46+17	32'L	VALVE								XX		XX				TO BE REPLACED
46+17	34'R	VALVE								XX						TO BE REPLACED
46+37	27'L	VALVE													XX	ADJUST PART OF HYD. & VALVE ASSEMBLY
46+40	27'L	HYDRANT														RELOCATE HYDRANT
49+03	23'R	VALVE														TO BE REPLACED
49+43	43'L	VALVE BURIED								XX						TO BE REPLACED
49+43	28'R	VALVE														TO BE REPLACED
49+53	35'R	VALVE													XX	ADJUST PART OF HYD. & VALVE ASSEMBLY
49+55	35'R	HYDRANT														RELOCATE HYDRANT
52+28	46'L	HYDRANT								XX		XX				RELOCATE HYDRANT
52+33	46'L	VALVE													XX	ADJUST PART OF HYD. & VALVE ASSEMBLY
52+34	48'L	VALVE													XX	ADJUST

* DENOTES HYDRANT TO BE RELOCATED BY OTHERS

CITY OF FALCON HEIGHTS CURB BOX LOCATION		
ADDRESS	STATION	LEFT OF C
1347 LARPENTEUR	SERVED OFF LARPENTUE	
1697 HAMLINE	2+64	35.5
1707 HAMLINE	2+87	35.1
1709 HAMLINE	3+72	36.6
1717 HAMLINE	4+34	36.6
1723 HAMLINE	4+89	36.6
1727 HAMLINE	5+54	34.9
1733 HAMLINE	6+08	38.8
1737 HAMLINE	6+63	37.2
1749 HAMLINE	7+37	36.8
1757 HAMLINE	8+23	38.6
1763 HAMLINE	8+85	35.5
1771 HAMLINE	9+50	33.1
1775 HAMLINE	9+97	35.0
1781 HAMLINE	10+83	38.6
1789 HAMLINE	11+70	36.4
1797 HAMLINE	12+24	35.0
1803 HAMLINE	12+60	35.0
1807 HAMLINE	SERVED WA 15EASEMENT WEST END OF PROPERTY	
1811 HAMLINE	SERVED WA 15EASEMENT WEST END OF PROPERTY	
1821 HAMLINE	SERVED WA 15EASEMENT WEST END OF PROPERTY	
1827 HAMLINE	SERVED WA 15EASEMENT WEST END OF PROPERTY	
1835 HAMLINE	SERVED WA 15EASEMENT WEST END OF PROPERTY	
1843 HAMLINE	SERVED WA 15EASEMENT WEST END OF PROPERTY	
1849 HAMLINE	SERVED WA 15EASEMENT WEST END OF PROPERTY	
1865 HAMLINE	20+34	35.9
1871 HAMLINE	21+03	34.4
1877 HAMLINE	21+63	33.6
1883 HAMLINE	22+62	34.5
1889 HAMLINE	23+39	34.3
1897 HAMLINE	24+02	35.9
1905 HAMLINE	24+77	34.0
1913 HAMLINE	25+60	34.0

CLEAR AND GRUB CHART					
SURVEY & STATION	LOCATION		CLEAR	GRUB	DESCRIPTION
	LEFT	RIGHT			
2+12	35		1	1	8"MAPLE
2+36	35		1	1	5"MAPLE
2+62		32	1	1	8"TREE
3+00		32	1	1	12"TREE
6+32			4	4	4-6" TREES
9+40		37	2	2	POPPLE
11+93		35	1	1	6" PINE
11+96		32	1	1	6" PINE
12+00		32	1	1	6" PINE
12+05		32	1	1	6" PINE
12+56	33		1	1	24"ELM
12+77	35		1	1	24"ELM
13+53 TO 14+32	33		9	9	ROW OF 9 TREES
16+29	35		1	1	16"ASH
16+79		35	2	2	6" PINE
19+74		39	1	1	36"COTTONWOOD
21+80	43		1	1	16" SPRUCE
22+65		36	2	2	TWIN 16"OAK
23+00		35	1	1	4"TREE
23+17		33	1	1	30"BOXELDER
25+00		41	1	1	12"MAPLE
29+56	48		1	1	10"SPRUCE
36+07	41		1	1	30"ELM
36+47	43		1	1	24"ELM
36+61	40		1	1	4"BIRCH
36+63	37-41		2	2	2-4" BIRCH
39+85		27	1	1	18"OAK
44+96	39		1	1	10"SPRUCE
45+03	39		1	1	8"SPRUCE
45+58	37		1	1	4"MAPLE
46+51	41		1	1	30"MAPLE
46+78	41		1	1	6"MAPLE
47+10	37		1	1	24"ELM
47+11	42		1	1	4" PINE

CONCRETE CURB & GUTTER AND CONCRETE SIDEWALK REMOVAL						
STATION	LOCATION	CITY OF FALCON HEIGHTS		CITY OF ROSEVILLE		POND*
		CONCRETE SIDEWALK REMOVAL SF	CONCRETE CURB & GUTTER REMOVAL LF	CONCRETE SIDEWALK REMOVAL SF	CONCRETE CURB & GUTTER REMOVAL LF	62-650-04 Curb & Gutter LF 62-630-37 Curb & Gutter LF
0+45	RT			60		
0+35⇒0+59	LT		53			
0+35⇒1+90	RT				185	
0+74⇒0+82	LT	32				
0+86⇒1+01	LT	180				
3+00	LT	21				
7+40	RT			13		
11+59	LT	14				
13+01	LT		86			
13+43	LT		88			
24+37	RT			32		
31+00	LT			8		
39+39	LT				15	
39+71	LT				15	
42+60	RT			56		
42+65	LT				19	
42+95	LT				19	
43+70	RT					
44+92	RT			21		
45+94	LT				27	
46+26	LT				27	
49+20	LT				29	
49+52	LT				29	
52+16⇒52+46	RT				47	
52+16⇒52+46	LT				47	
52+33	LT			50		
52+33	RT			50		
APT. DRIVEWAY						100
LARPEUR						36
DELLWOOD AVE.						55
EAST OF POND						215
TOTALS		247	227	321	459	370 36

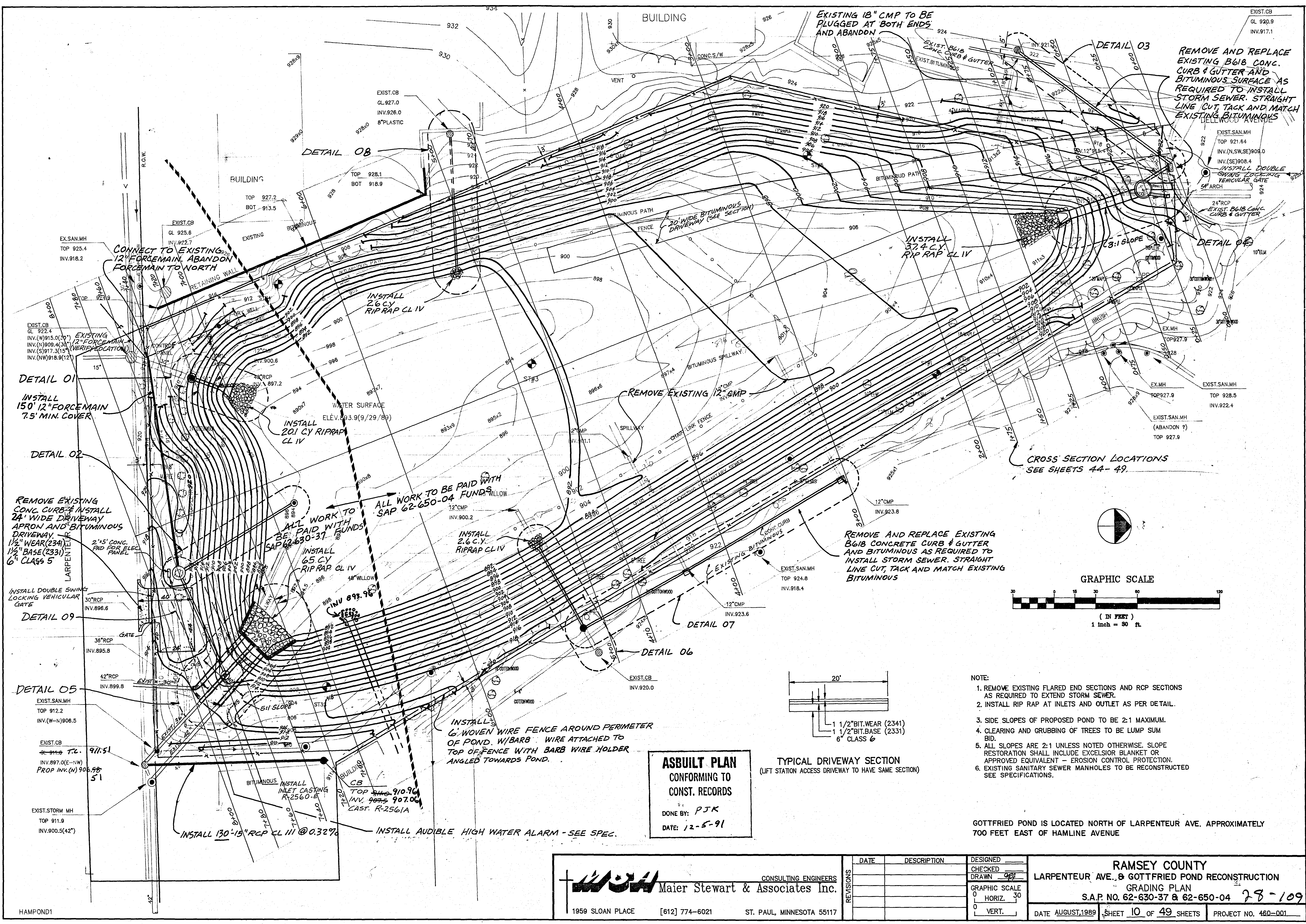
*ALL CURB & GUTTER REMOVED FROM THE AREA OF THE POND IS WITHIN THE CITY OF ROSEVILLE.

MINOR SANITARY SEWER REPLACEMENT	
STATION	WYES
8+37	1
9+94	1
11+76	0
13+33	0
19+43	0
19+68	0
20+08	±1
20+34	0
20+81	0
21+50	1
21+90	0
22+28	0
25+49	0
26+70	0
28+06	0
34+35	0
34+54	0
34+63	0
34+71	0
34+85	0
35+81	0
42+85	0
43+10	0
43+18	0
43+37	0
42+46	0
46+15	0
27 TOTALS	4

MAJOR SANITARY SEWER REPLACEMENT			
FROM STATION	TO	LENGTH	WYES
1+37	2+42	105	±3
3+88	4+19	31	0
4+77	4+96	19	0
5+76	5+95	19	0
6+14	6+25	10	±1
6+39	6+55	16	0
6+59	7+26	67	1
7+58	7+92	34	0
9+29	9+88	59	0
10+35	10+68	33	0
11+92	12+02	10	0
12+60	13+17	57	0
13+40	16+30	290	3
30+80	30+95	15	1
46+37	47+27	90	1
TOTALS		855	±10 WYES

REINFORCED CONCRETE PIPE REMOVAL					
FROM STATION	TO	LENGTH	62-650-04 LF	62-630-37 LF	
0+40	43'L	0+58	29'L	24	
0+58	29'L	0+58	23'R	52	
6+07	18.5'L	6+07	22'R	40	
6+07	22'R	6+72	30'R	65	
6+72	30'R	9+56	22'R	288	
9+56	20.7'L	9+56	22'R	42	
9+56	22'R	9+56	43'R	22	
12+78	21.2'R	12+97	25'R	19	
12+82	21'L	13+03	47'L	33	
13+43	23'L	13+60	19'L	18	
13+60	19'L	13+60	19'R	38	
13+43	23'L	19+79	23'L	636	
15+97	24'L	15+97	20'R	44	
19+48	23'L	19+48	22'R	45	
22+30	24'L	22+30	25'R	49	
22+26	24'L	22+34	24'L	8	
26+23	43'R	26+23	43'R	67	
26+23	43'R	26+68	42'R	45	
26+68	42'R	26+89	21'R	29	
35+89	22'L	36+21	21'L	32	
35+89	21'R	36+21	36'R	37	
36+14	45'L	36+40	45'L	27	
36+21	21'L	36+67	21'L	46	
36+21	36'R	36+27	21'R	40	
36+21	44'L	36+21	36'R	80	
39+23	15'L	39+49	18'L	27	
39+40	37'R	39+49	37'R	10	
39+49	18'L	39+85	16'L	35	
39+49	37'R	39+69	37'R	20	
39+49	18'L	39+49	37'R	55	
POND DETAIL 01				18	
POND DETAIL 05				16	
POND DETAIL 05				8	
POND DETAIL 05				8	
POND DETAIL 04				6	
POND DETAIL 04				12	
POND DETAIL 04				6	
TOTALS				1977	50

DRAINAGE CHART PROPOSED STRUCTURES																				
STATION	LOCATION	TYPE	CONSTR. HEIGHT LIN.FT.	STRUCTURE & CASTING ASSEMBLY	ORIGINAL GRATE OR RING	NEW GRATE OR RING	CB or MH INVERT	REINFORCED CONC. PIPE CL III										DRAINS TO		REMARKS
								15" LF	18" LF	24" LF	30" LF	36" LF	42" LF	48" LF	54" LF	72" LF	STRUCTURE NO.	INVERT ELEV.		
0+34	46'L	EXIST.		A	43.5	43.5		38									MH1	38.86	VERIFY INVERT	
0+66	26'L	MH1	4.76	B	—	43.44	38.68	52									CB1	39.20		
0+66	26'R	CB1	4.24	B	—	43.44	39.20	—									MH1	38.68		
6+07	26'L	CB2	4.30	B	—	43.32	39.02	52									MH2	38.5		
6+07	26'R	MH2	4.82	B	—	43.32	38.50	65									MH3	33.1		
6+72	30'R	MH3	9.14	A	42.1	43.54	34.40	—									OUTLET			
9+51	28'L	LP CB3	4.54	C	—	41.02	37.00	55									LP CB3A	36.48		
9+51	28'R	LP CB3A	4.02	C	—	41.02	36.48	279									MH3	34.40		
13+01	51'L	CB4	5.35	B	—	42.71	37.36	36									MH5A	37.00		
12+76	26'L	MH4A	4.03	B	—	41.03	37.00	52									MH4	36.48		
12+79	26'R	MH4	4.53	B	—	41.01	36.48	18									EX.MH	36.00		
12+97	25'R	EXIST.	9.50	A	41.8	41.24(VER)	32.30										EX.42"	—	ADJUST TOP	
13+44	51'L	CB4A	5.53	B	—	42.71	37.18	28									EX.MH	35.50		
13+43	23'L	EXIST.	7.50	A	42.0	41.70(VER)	34.50										EX.42"	—	ADJUST TOP	
13+69	7'L	MH5	7.41	B	—	42.1	34.69			31							EX.MH	34.50		
13+69	26'L	CB5A	4.97	B	—	41.55	36.58	19									MH5	34.69		
13+69	26'R	CB5	4.41	B	—	41.55	37.14	33									MH5	34.69		
15+91	7'L	MH5A	6.40	A	—	42.68	36.28				222						MH5	34.69		
15+91	28'R	LP CB6	3.54	C	—	42.21	38.67	35									MH5A	38.32		
15+91	28'L	LP CB7	3.68	C	—	42.21	38.53	21									MH5A	38.32		
15+91	172'L	CB11	3.02	D	—	42.00	38.98	142									LP CB7	38.51		
19+26	7'L	MH5B	6.74	A	—	45.51	38.70				335						MH5A	36.32		
19+26	26'R	CB8	3.96	B	—	45.04	41.08	33									MH5B	40.70		
19+48	23'L	MH5C	7.07	A	—	45.51	38.89				26						MH5B	38.70		
19+79	23'L	MH5D	4.10	A	45.8	45.92	39.11			31							MH5C	41.00		
19+98	26'L	CB9	3.58	B	—	46.08	42.50	4									EX.24"	—		
24+31	28'L	LP CB12	3.97	C	—	49.86	44.54	4									EX.MH	44.50		
24+31	28'R	LP CB13	5.32	C	—	49.86	45.91	52									EX.MH	44.50		
24+31	24'L	EXIST.	5.52	A	50.40	50.02	44.50										EX.24"	44.50	ADJUST TOP	
25+98	26'L	CB14	3.50	B	—	51.07	47.65	4									EX.15"	—		
26+63	56'R	CB15	4.15	B	—	52.69	48.54	35									MH6	48.18		
26+28	56'R	MH6	4.51	B	—	52.69	48.18	80									EX.MH	46.10		
26+94	26'R	CB16	4.07	B	—	51.77	47.70	52									MH7	47.22		
26+94	26'L	CB7	4.55	B	—	51.77	47.22	70									EX.MH	46.10		
26+23	24'L	EXIST.	5.70	A	51.60	51.30	45.90										EX.15"	—	ADJUST TOP	
32+66	23'R	CB17	4.35	B	—	56.86	52.10	36									MH9	51.99		
32+66	29'L	CB17A	4.00	B	—	56.86	52.66	16									MH9	51.99		
32+66	10'L	MH9	5.23	A	—	57.22	51.99	355									MH10	47.45		
36+43	51'L	CB21	3.45	B	—	51.30	47.85	32									MH12	47.75		
36+11	51'L	MH12	3.73	B	—	51.48	47.75	28									MH11	47.66		
35+91	29'L	MH11	3.51	B	—	51.17	47.66	36									MH10	47.55		
36+21	10'L	MH10	4.01	A	—	51.11	47.38	46									EX.MH	46.40		
36+63	29'L	CB19	2.75	B	—	50.38	47.63	46									MH10			
35+91	23'R	CB18	3.55	B	—	50.92	47.37	27									EX.MH	46.40		
36+67	23'R	CB20	3.41	B	—	50.40	46.99	42									EX.MH	46.40		
36+21	36'R	EXIST.	4.80	A	—	51.30	46.30										—		ADJUST TOP	
39+19	29'L	CB22	3.38	B	—	50.46	47.08	52									MH12A	46.80		
39+19	23'R	MH12A	3.66	B	—	50.46	46.80	34									EX.MH	46.70		
39+91	29'L	CB23	3.38	B	—	50.73	47.35	15									EX.MH	47.30		
39+85	16'L	EXIST.	3.95	A	51.30	51.06	47.30	36									EX.MH	47.18		
39+49	18'L	EXIST.	BURIED	A	BURIED	50.85	47.18	55									EX.MH	46.30	ADJUST TOP (VERIFY INV.)	
39+91	23'R	CB25	3.89	B	—	50.73	46.84	45									EX.MH	46.70		
39+49	37'R	EXIST.	4.60	A	50.90	51.00	46.30										—		ADJUST TOP	
43+16	16'L	MH13	4.19	B	—	52.75	48.56	331									EX.MH	47.30		
43+16	29'L	CB27	4.08	B	—	52.44	48.60	13									MH13	48.56		
43+16	23'R	CB26	3.88	B	—	52.44	48.68	39									MH13	48.56		
46+46	16'L	MH14	5.43	A	—	55.16	49.73	330									MH13	48.56		
46+46	29'L	CB29	5.24	B	—	54.84	49.60	13									MH14	49.60		
46+46	23'R	CB28	3.68	B	—	54.84	51.16	39									MH14	49.60		
DETAIL 01	POND																		S.A.P. 62-630-37	
DETAIL 02	POND																		S.A.P. 62-630-37	
DETAIL 03	POND									97									S.A.P. 62-650-04	
DETAIL 04	POND								138										S.A.P. 62-650-04	
DETAIL 04	POND																		S.A.P. 62-650-04	
DETAIL 04	POND																		S.A.P. 62-650-04	
DETAIL 04	POND																		S.A.P. 62-650-04	
DETAIL 05	POND																		S.A.P. 62-650-04	
DETAIL 05	POND																		S.A.P. 62-650-04	
DETAIL 05	POND																		S.A.P. 62-650-04	
DETAIL 06	POND																		S.A.P. 62-650-04	
DETAIL 07	POND																		S.A.P. 62-650-04	
DETAIL 08	POND																		S.A.P. 62-650-04	
DETAIL 09	POND																		S.A.P. 62-650-04	
LARPENTEUR	POND																		50"-8" PVC PIPE (S.A.P. 62-650-04)	
										130									S.A.P. 62-630-37	
																			S.A.P. 62-630-37	



DETAIL 01
 INSTALL 150' 12" FORCEMAIN 7.5' MIN. COVER

DETAIL 02
 REMOVE EXISTING CONC. CURB & GUTTER. INSTALL 24" WIDE DRIVEWAY APRON AND BITUMINOUS DRIVEWAY 1 1/2" WEAR (234) 1 1/2" BASE (233) 6" CLASS 5

DETAIL 09
 INSTALL DOUBLE SWING LOCKING VEHICULAR GATE

DETAIL 05
 EXIST. SAN. MH TOP 912.2 INV. (W-N) 906.5
 EXIST. CB INV. 897.0 (E-NW) PROP INV. (N) 906.55
 EXIST. STORM MH TOP 911.9 INV. 900.5 (42")

DETAIL 08
 BUILDING TOP 927.2 BOT 913.5
 EXIST. CB GL 925.6 INV. 922.7
 EXIST. SAN. MH TOP 925.4 INV. 918.2

DETAIL 03
 REMOVE AND REPLACE EXISTING B618 CONC. CURB & GUTTER & BITUMINOUS SURFACE AS REQUIRED TO INSTALL STORM SEWER. STRAIGHT LINE CUT, TACK AND MATCH EXISTING BITUMINOUS

DETAIL 04
 EXIST. SAN. MH TOP 927.9 INV. 922.4
 EXIST. SAN. MH (ABANDON ?) TOP 927.9

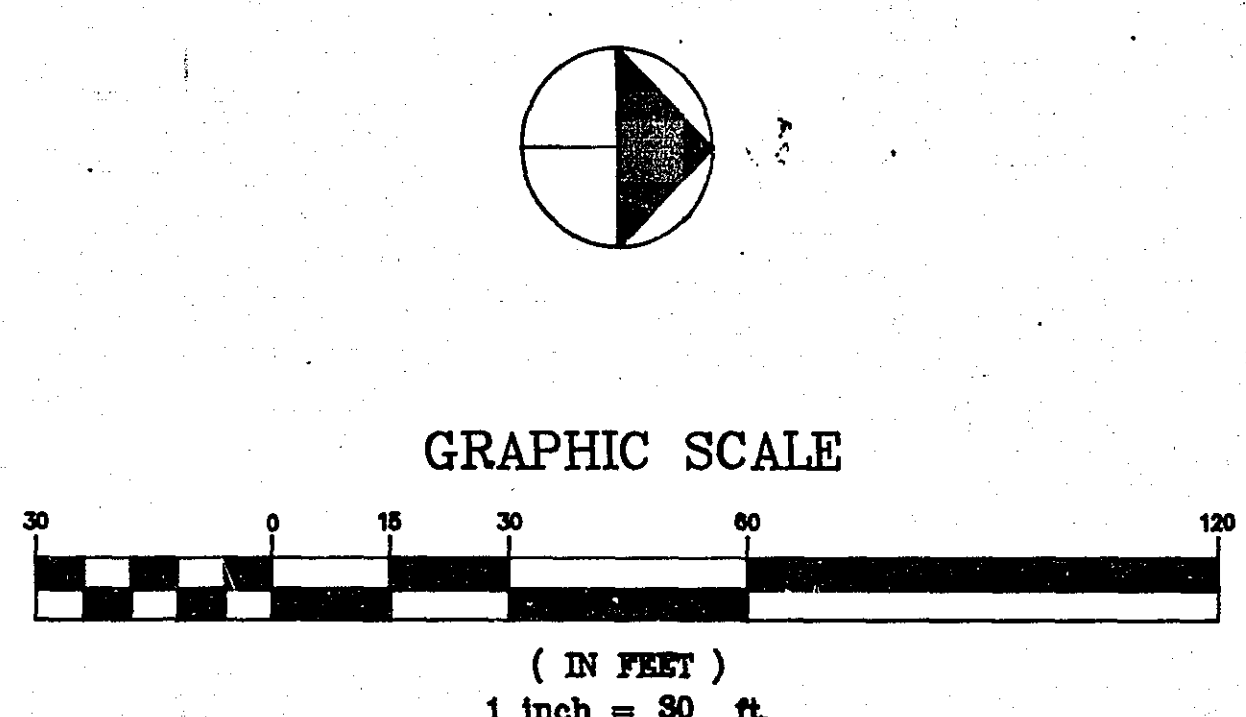
DETAIL 06
 EXIST. SAN. MH TOP 924.8 INV. 918.4
 12" CMP INV. 923.8

DETAIL 07
 EXIST. SAN. MH TOP 924.8 INV. 918.4
 12" CMP INV. 923.8

DETAIL 08
 EXIST. SAN. MH TOP 927.9 INV. 922.4
 EXIST. SAN. MH (ABANDON ?) TOP 927.9

DETAIL 09
 EXIST. SAN. MH TOP 912.2 INV. (W-N) 906.5
 EXIST. CB INV. 897.0 (E-NW) PROP INV. (N) 906.55
 EXIST. STORM MH TOP 911.9 INV. 900.5 (42")

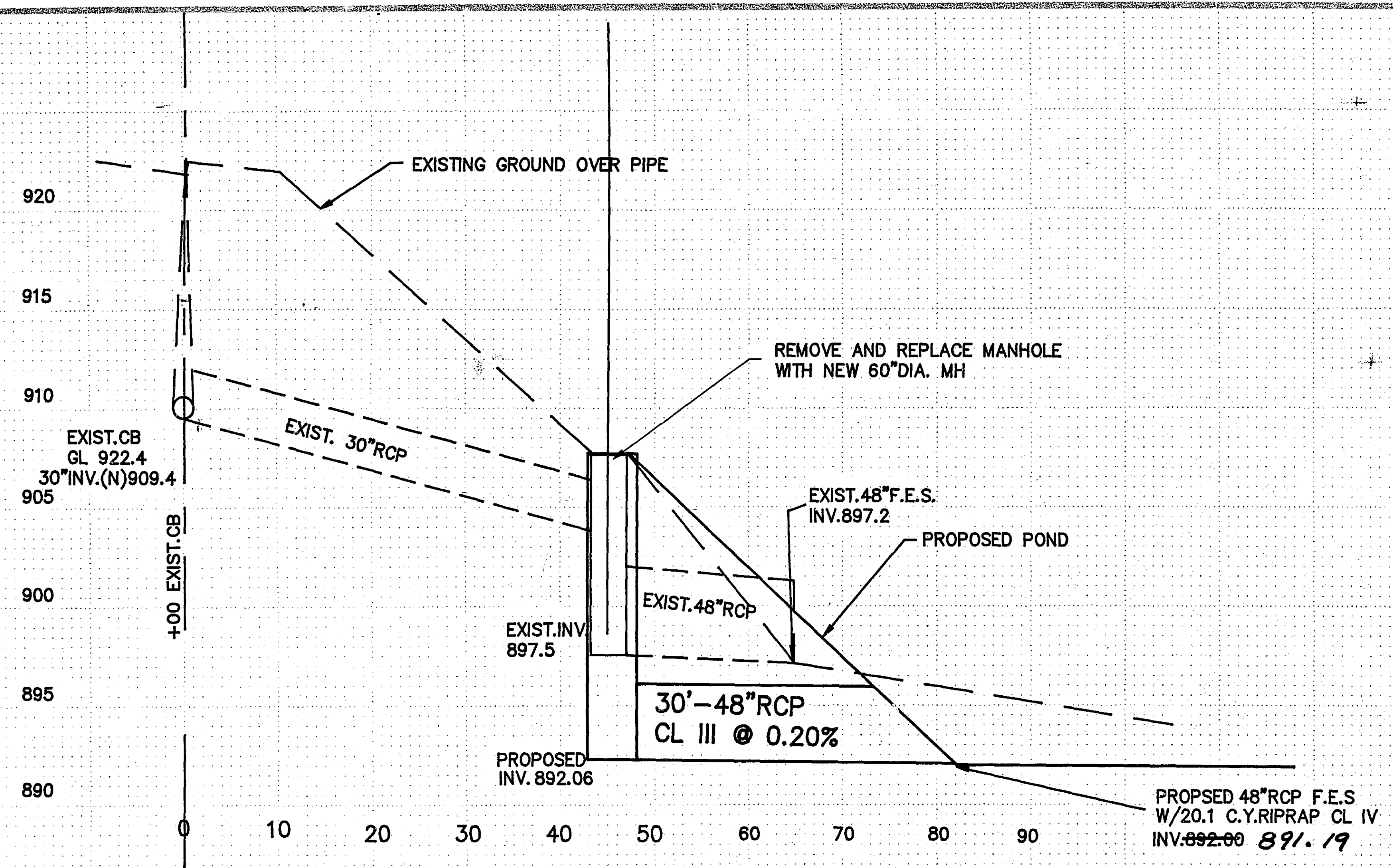
DETAIL 10
 EXIST. SAN. MH TOP 912.2 INV. (W-N) 906.5
 EXIST. CB INV. 897.0 (E-NW) PROP INV. (N) 906.55
 EXIST. STORM MH TOP 911.9 INV. 900.5 (42")



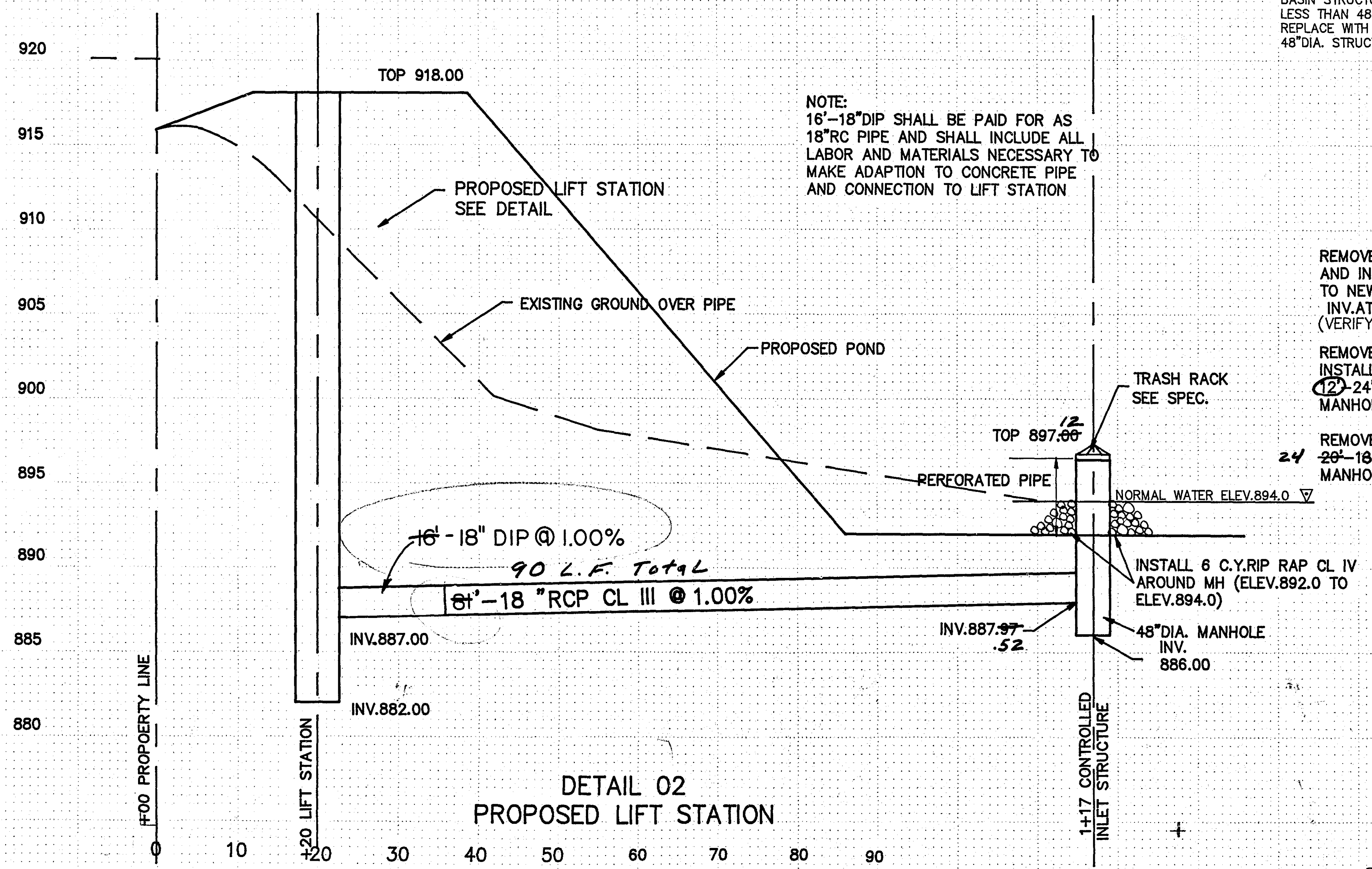
- NOTE:**
1. REMOVE EXISTING FLARED END SECTIONS AND RCP SECTIONS AS REQUIRED TO EXTEND STORM SEWER.
 2. INSTALL RIP RAP AT INLETS AND OUTLET AS PER DETAIL.
 3. SIDE SLOPES OF PROPOSED POND TO BE 2:1 MAXIMUM.
 4. CLEARING AND GRUBBING OF TREES TO BE LUMP SUM BID.
 5. ALL SLOPES ARE 2:1 UNLESS NOTED OTHERWISE. SLOPE RESTORATION SHALL INCLUDE EXCELSIOR BLANKET OR APPROVED EQUIVALENT - EROSION CONTROL PROTECTION.
 6. EXISTING SANITARY SEWER MANHOLES TO BE RECONSTRUCTED SEE SPECIFICATIONS.

GOTTFRIED POND IS LOCATED NORTH OF LARPEUTEUR AVE. APPROXIMATELY 700 FEET EAST OF HAMLINE AVENUE

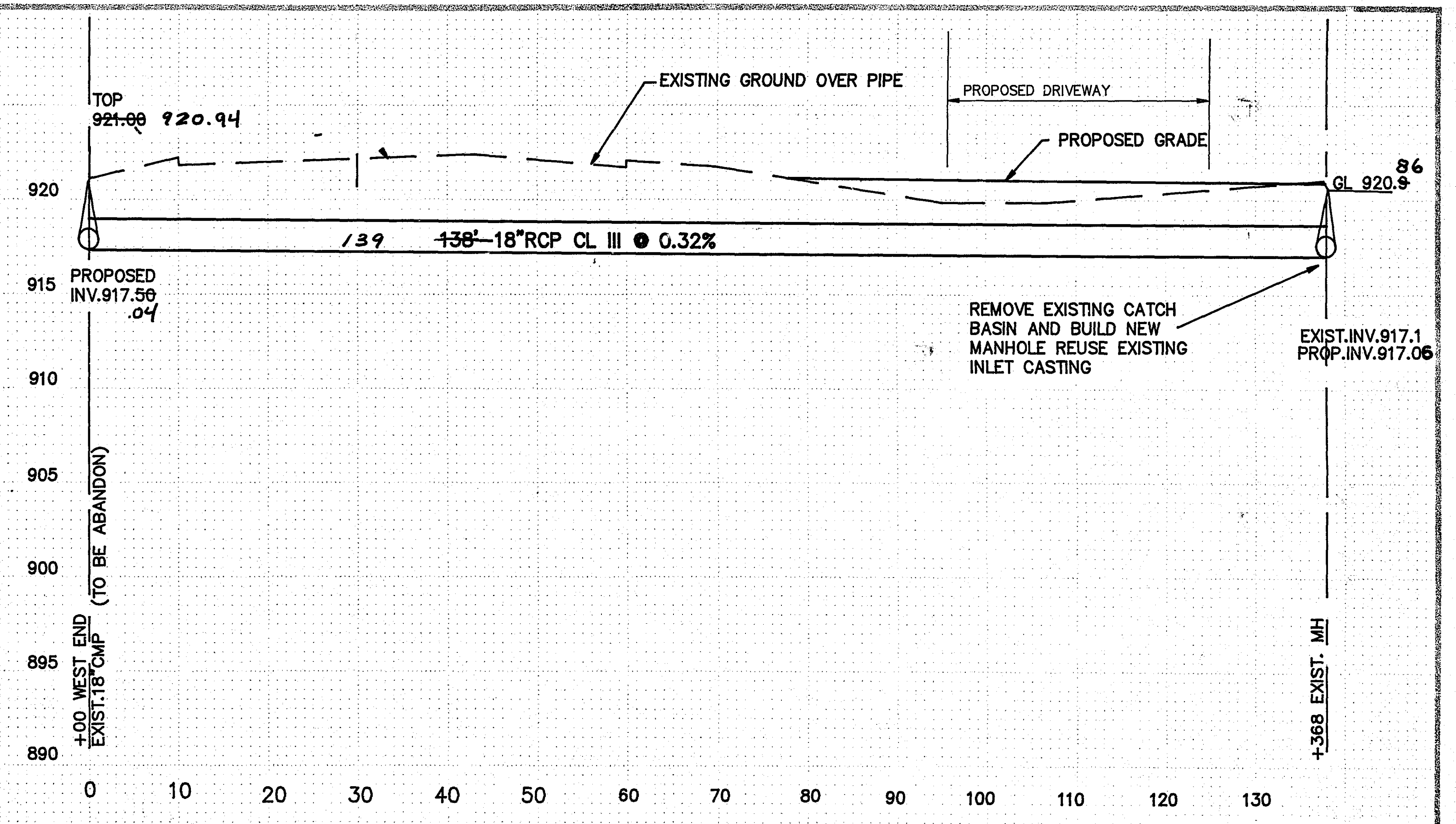
		CONSULTING ENGINEERS Maier Stewart & Associates Inc.		1959 SLOAN PLACE [612] 774-6021 ST. PAUL, MINNESOTA 55117	
REVISIONS	DATE	DESCRIPTION	DESIGNED	RAMSEY COUNTY LARPEUTEUR AVE. & GOTTFRIED POND RECONSTRUCTION	
			CHECKED	GRADING PLAN	
			DRAWN	S.A.P. NO. 62-630-37 & 62-650-04 28-109	
				DATE AUGUST 1989 SHEET 10 OF 49 SHEETS PROJECT NO. 460-001	



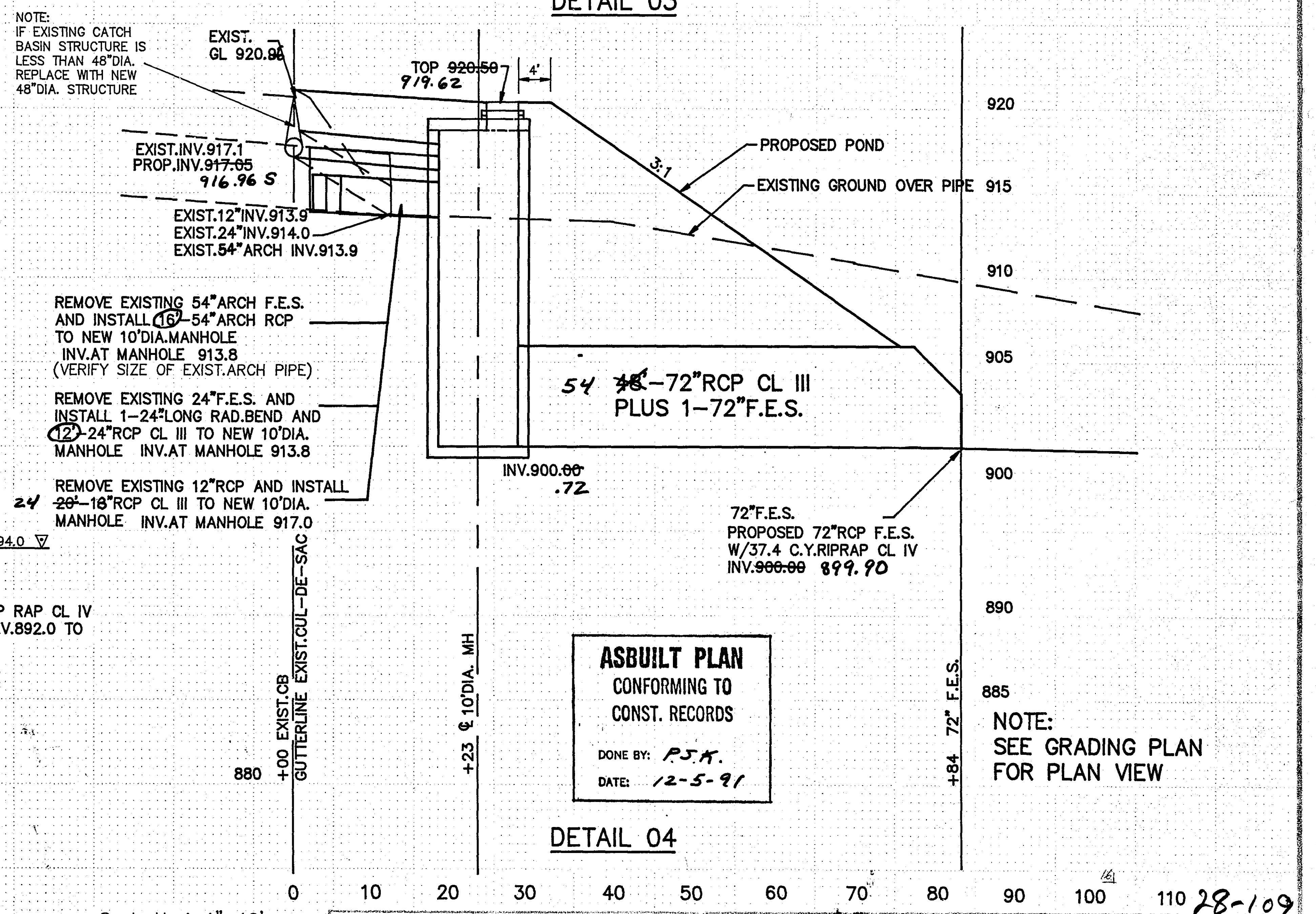
DETAIL 01



DETAIL 02
PROPOSED LIFT STATION

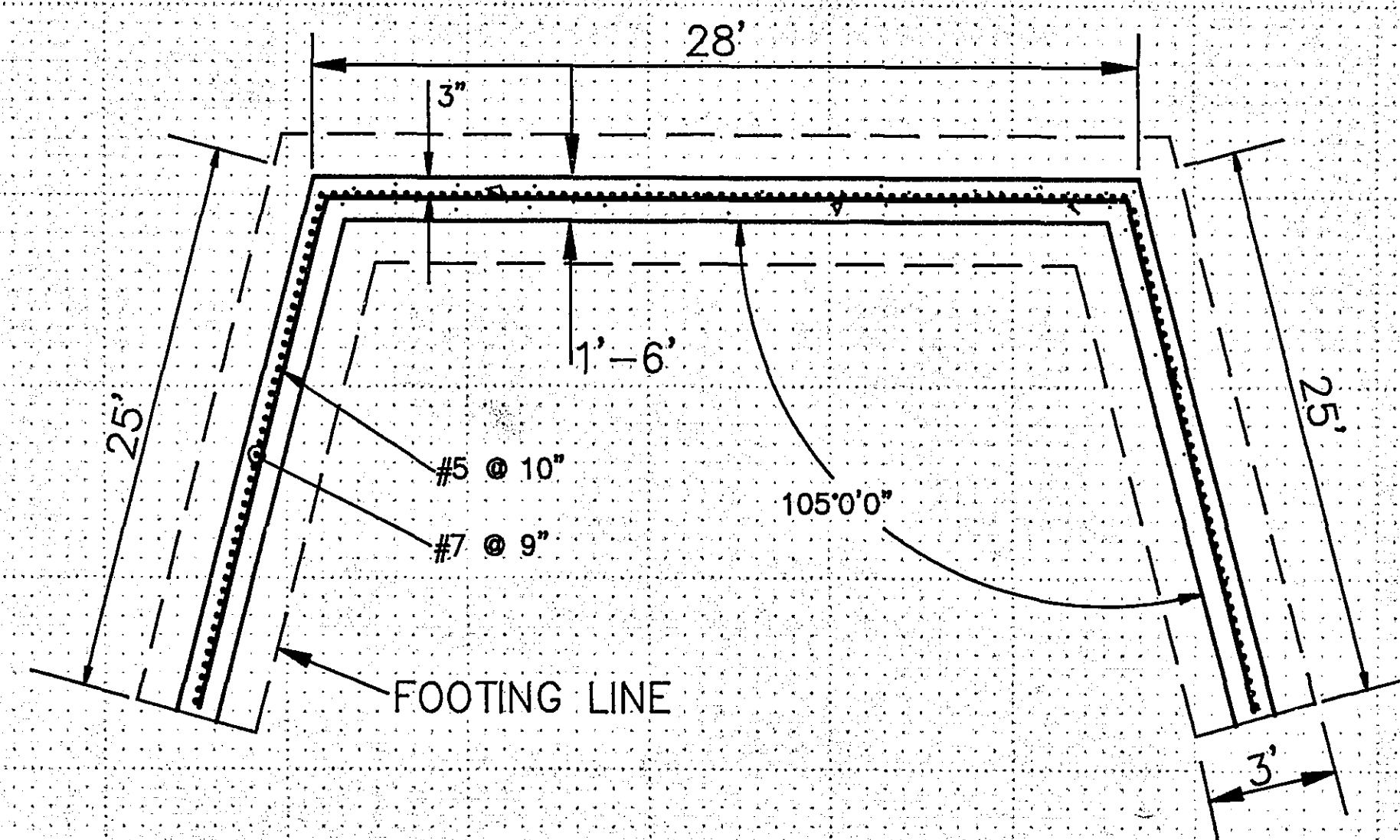
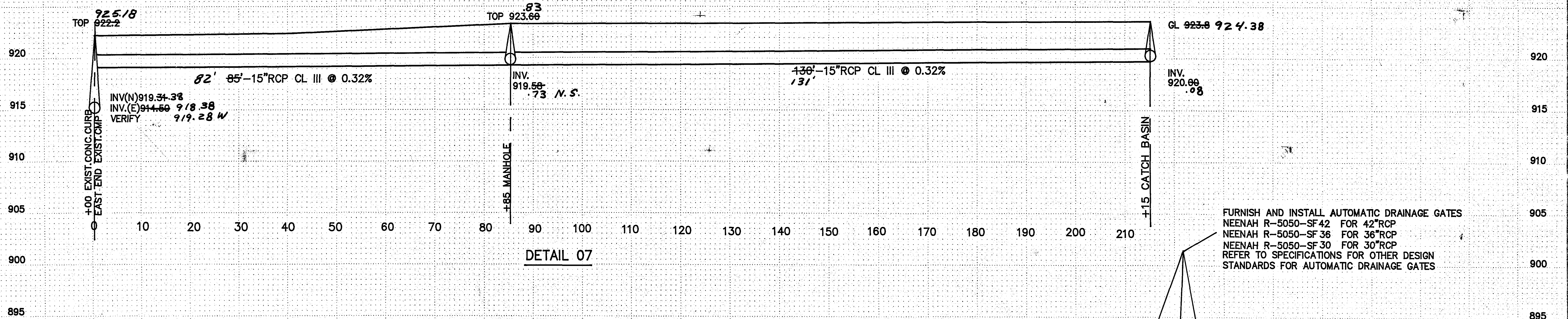


DETAIL 03

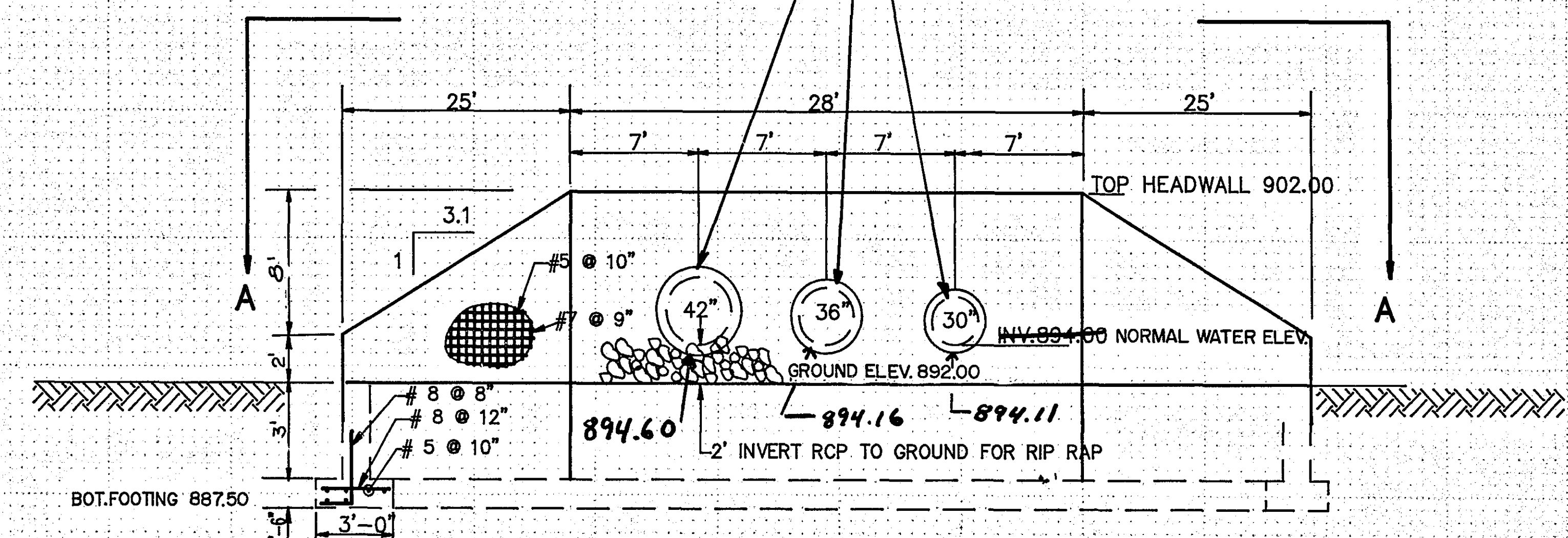


ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: P.J.A.
DATE: 12-5-91

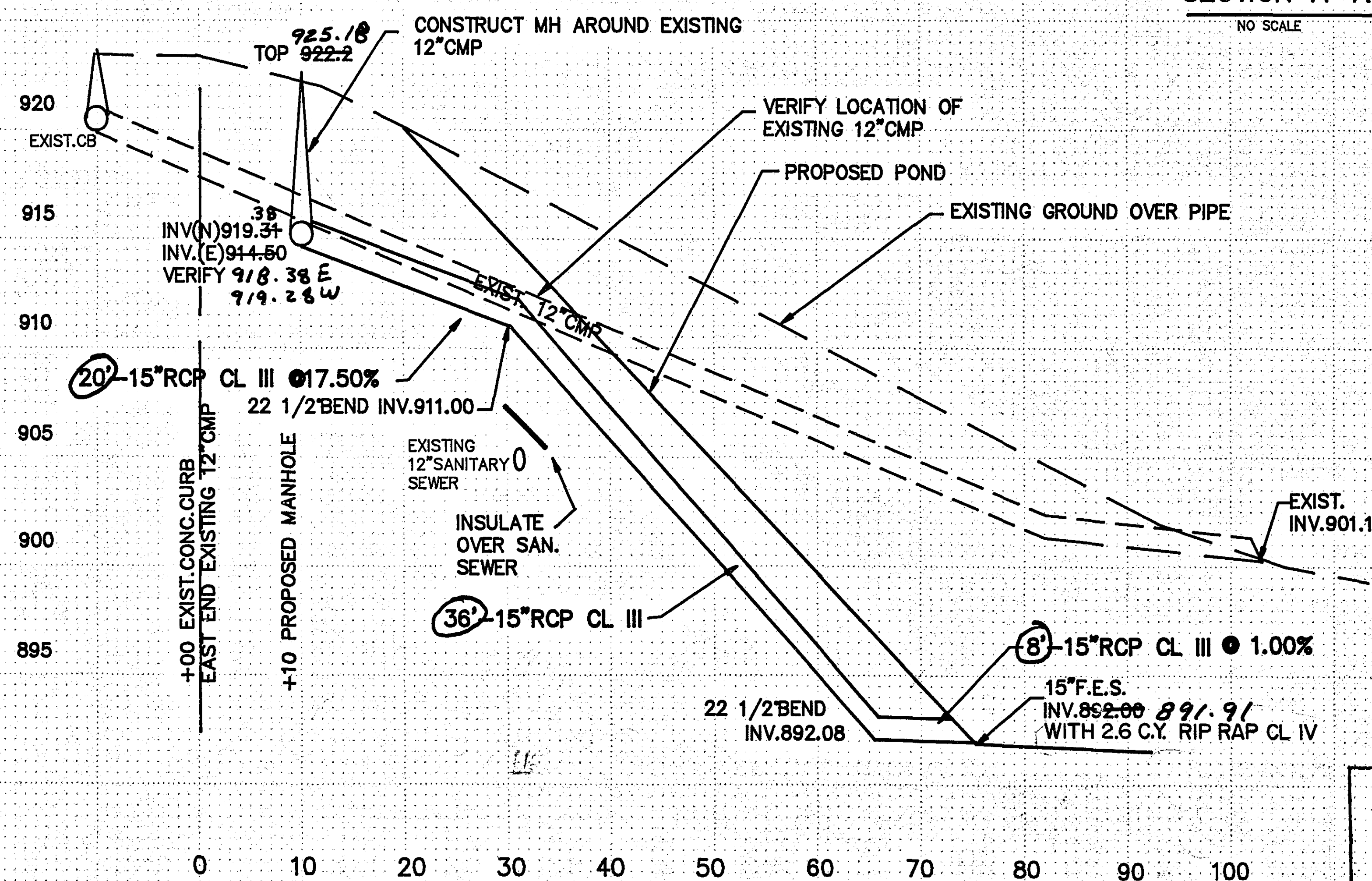
DETAIL 04



SECTION A-A
NO SCALE



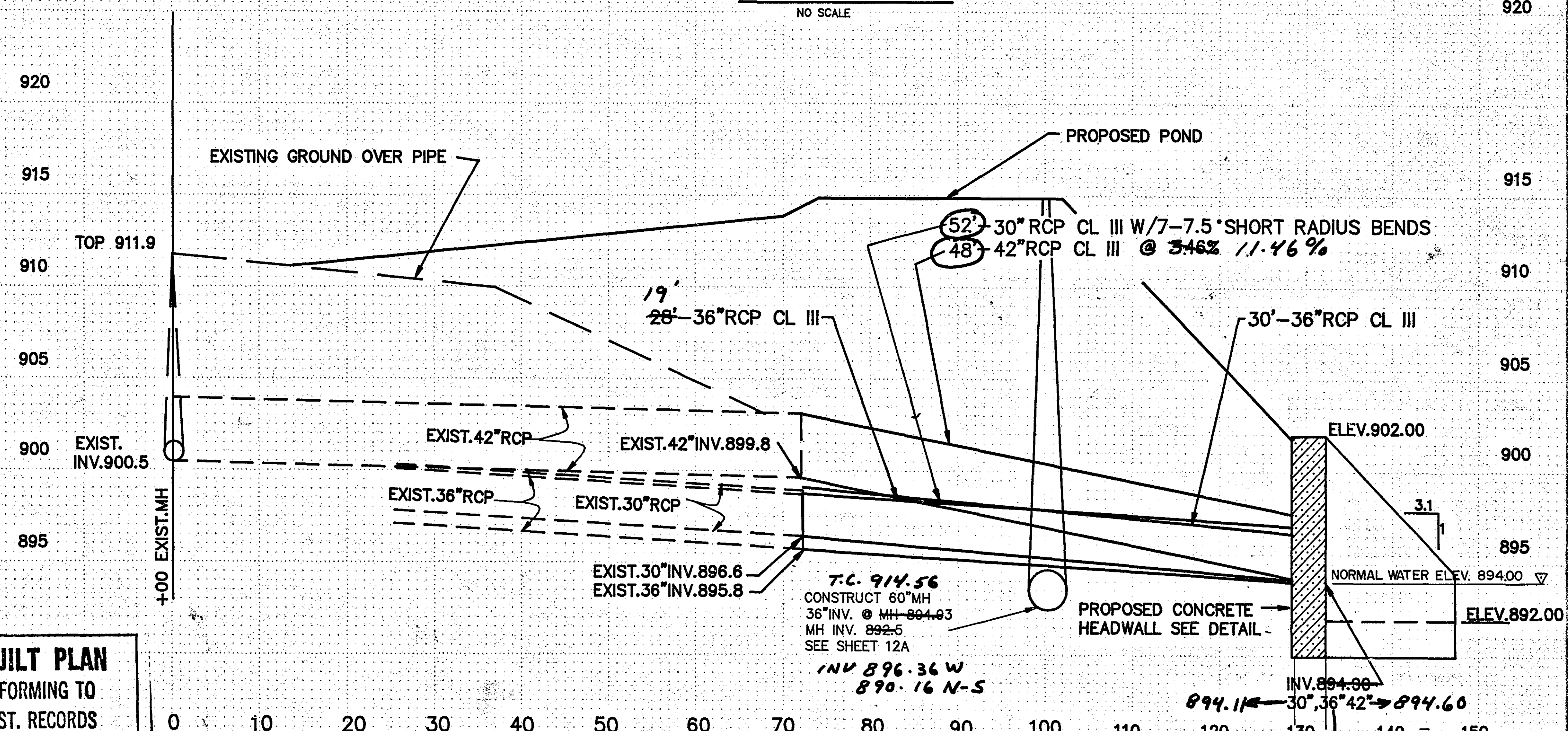
HEADWALL DETAIL
NO SCALE



DETAIL 06

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

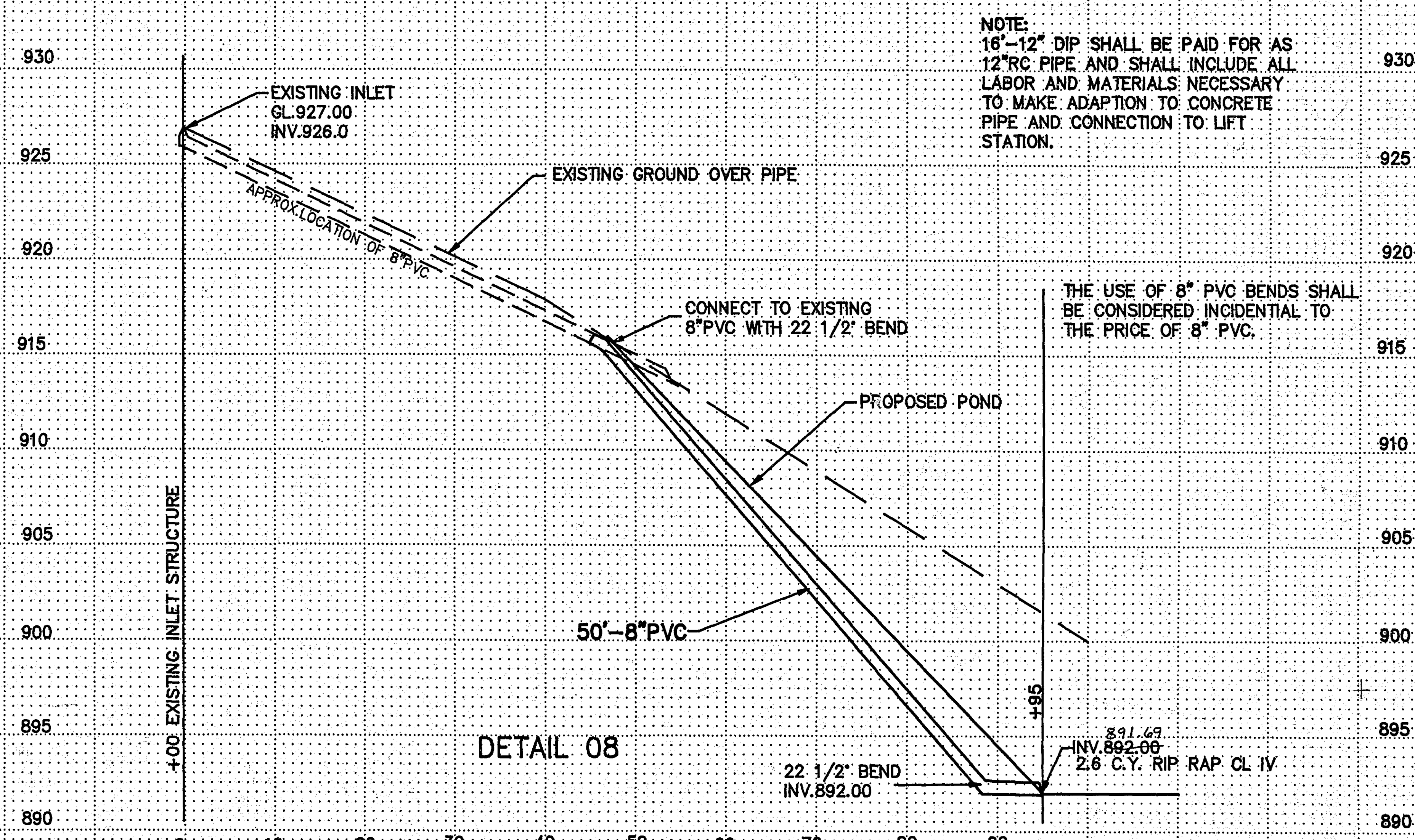
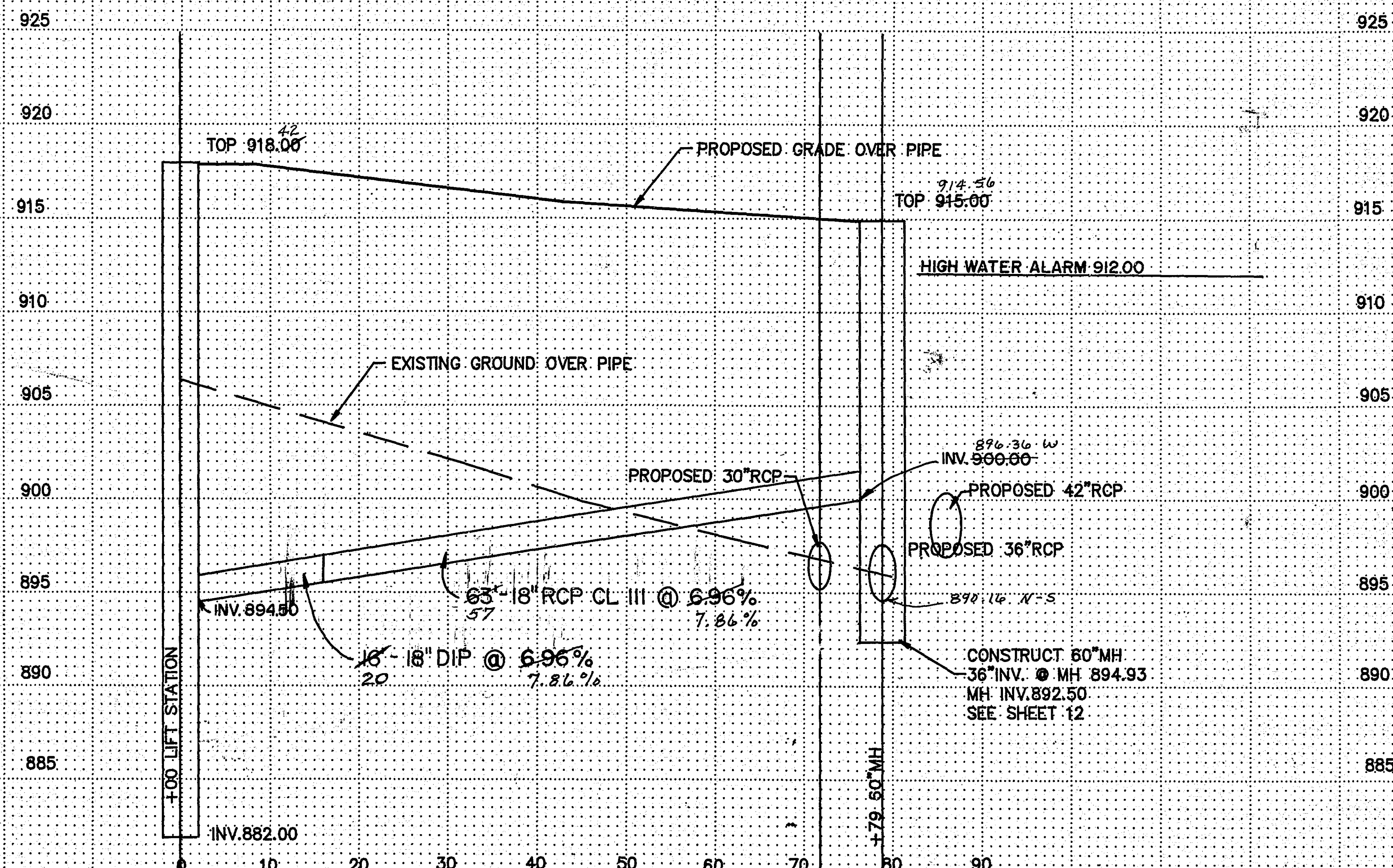
DONE BY: RJK
DATE: 12-5-91



DETAIL 05

Scale: Horiz. 1"=10'
Vert. 1"=5'

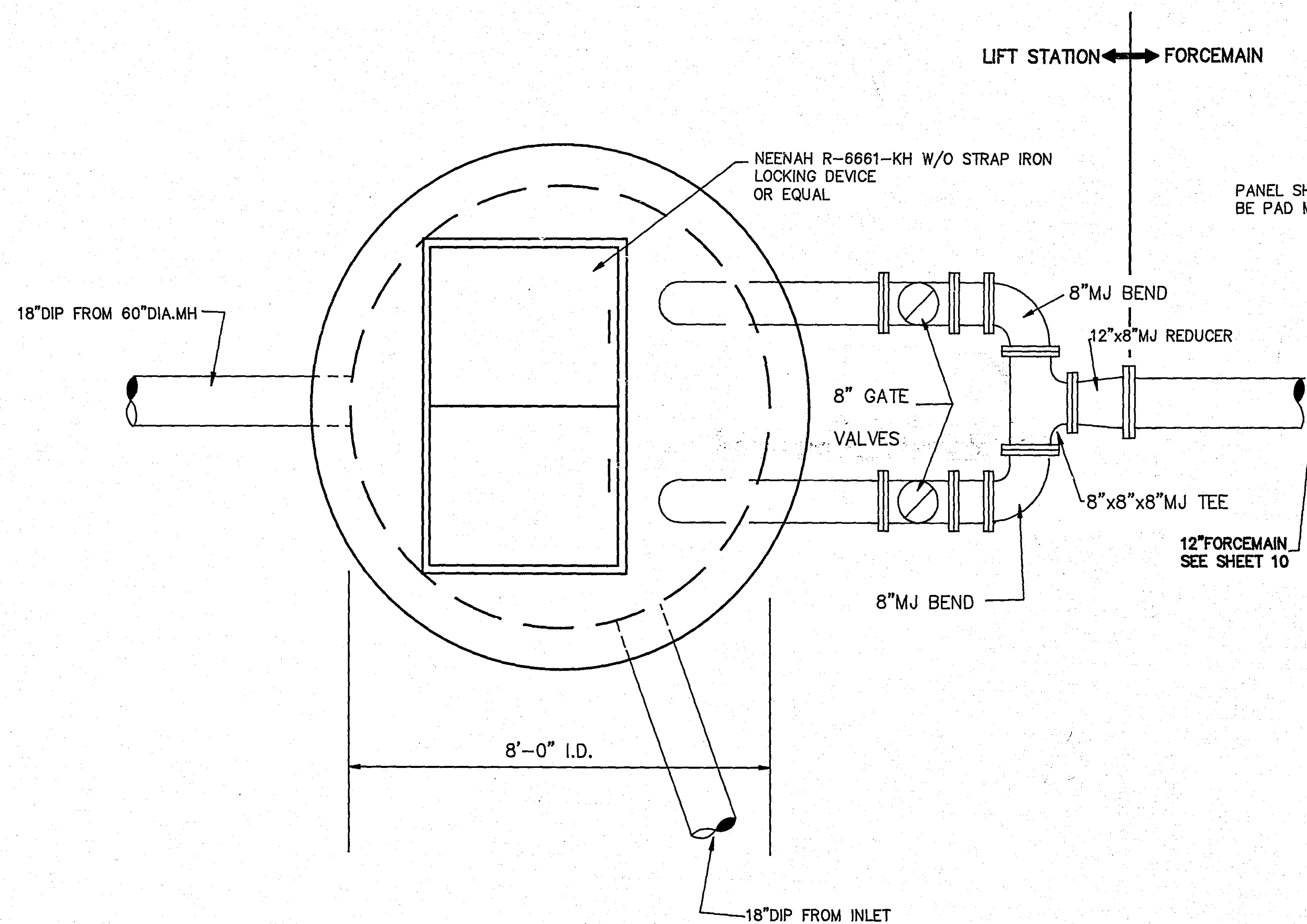
State Proj. No. 62-650-04 / 62-630-37 Sheet No. 12 of 49 Sheets



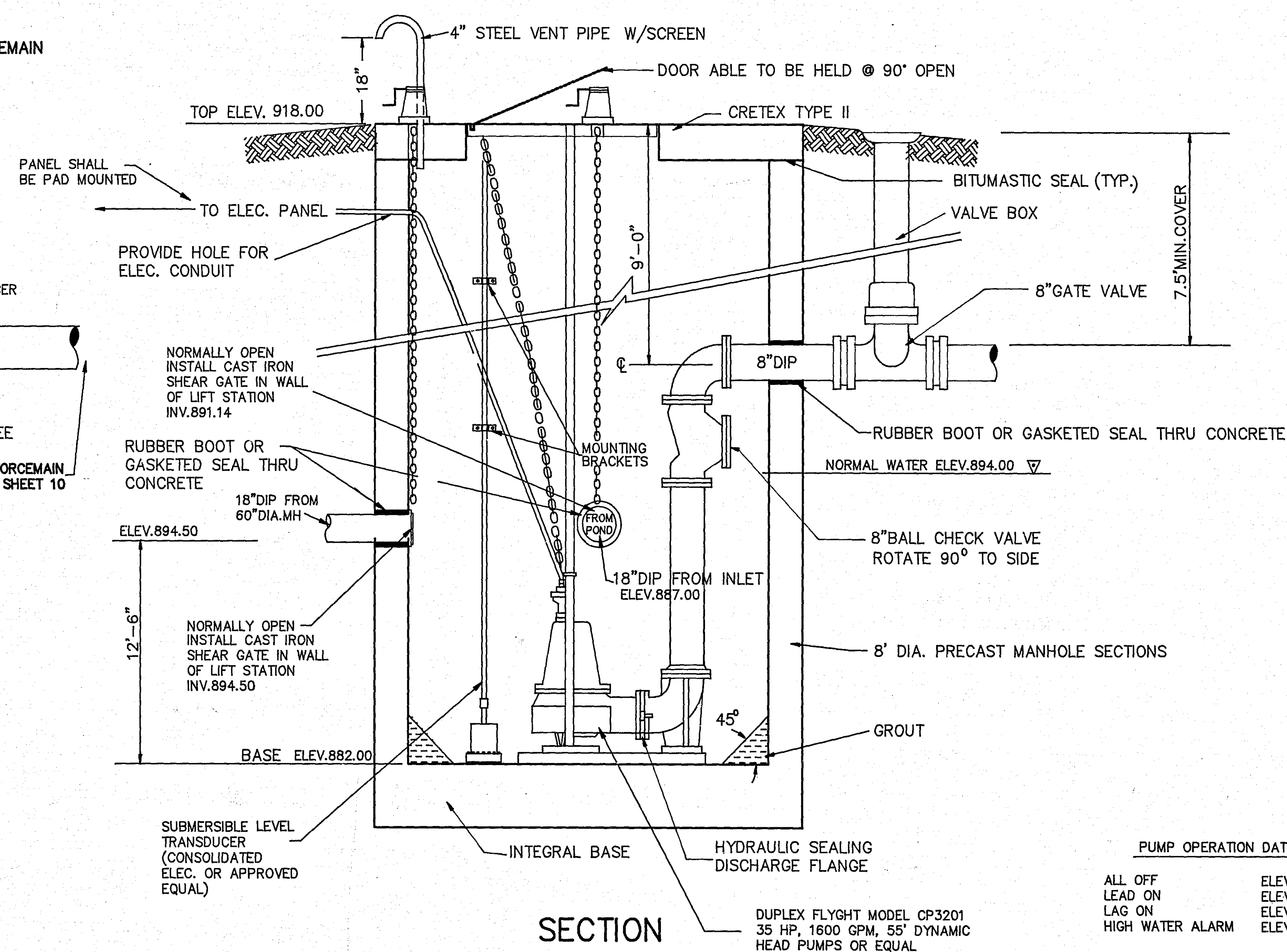
ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: *REL*
DATE: *11-8-91*

Scale: Horiz. 1" = 10'
Vert. 1" = 5'



PLAN



SECTION

PUMP OPERATION DATA

ALL OFF	ELEV. 884.00
LEAD ON	ELEV. 888.50
LAG ON	ELEV. 898.50
HIGH WATER ALARM	ELEV. 912.00

DUPLEX FLYGHT MODEL CP3201
35 HP, 1600 GPM, 55' DYNAMIC
HEAD PUMPS OR EQUAL

LIFT STATION DETAILS

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.

Thomas J. Madison

DATE 10/19/00 REG. NO. 15151



CONSULTING ENGINEERS
Maier Stewart & Associates Inc.

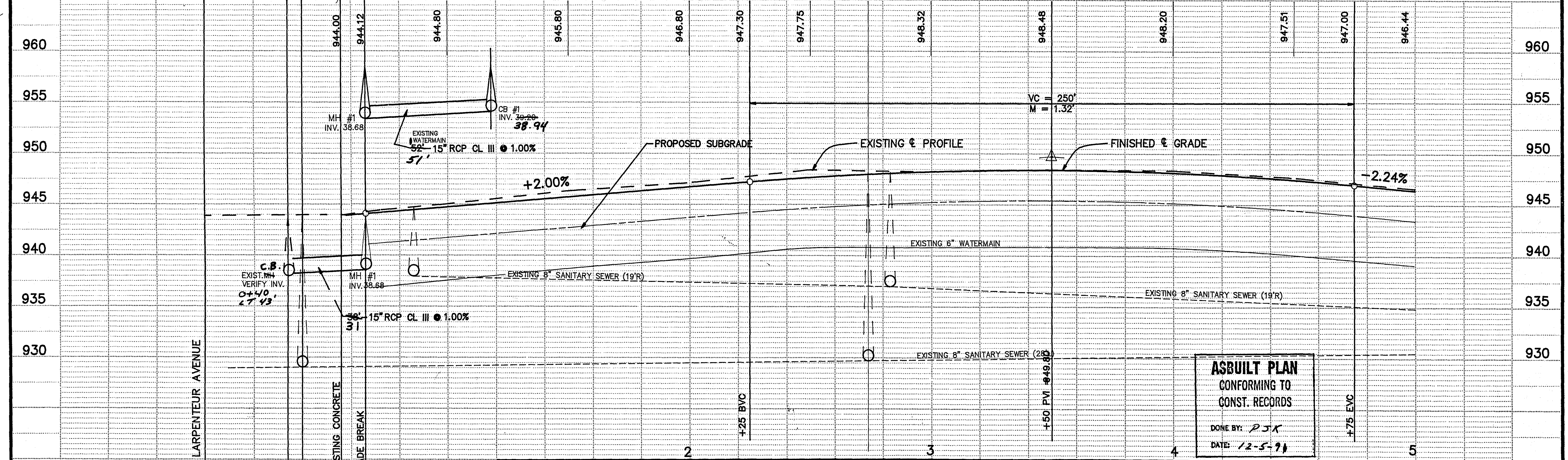
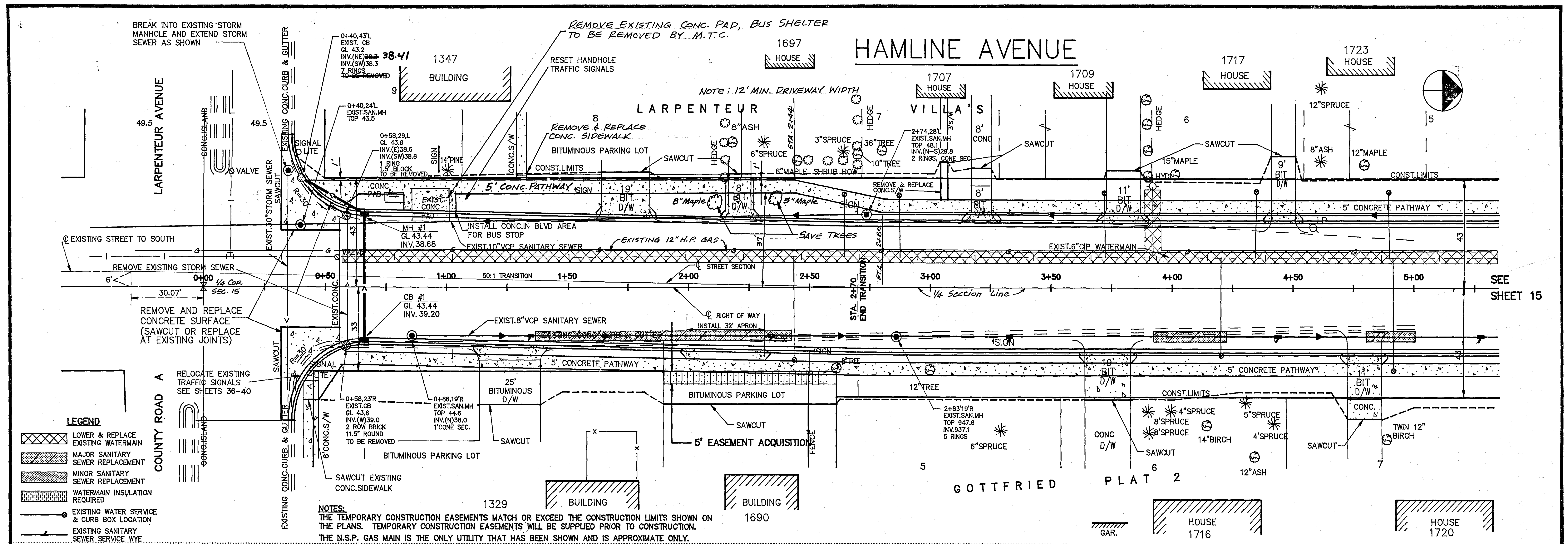
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
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		HORIZONTAL
		VERT.

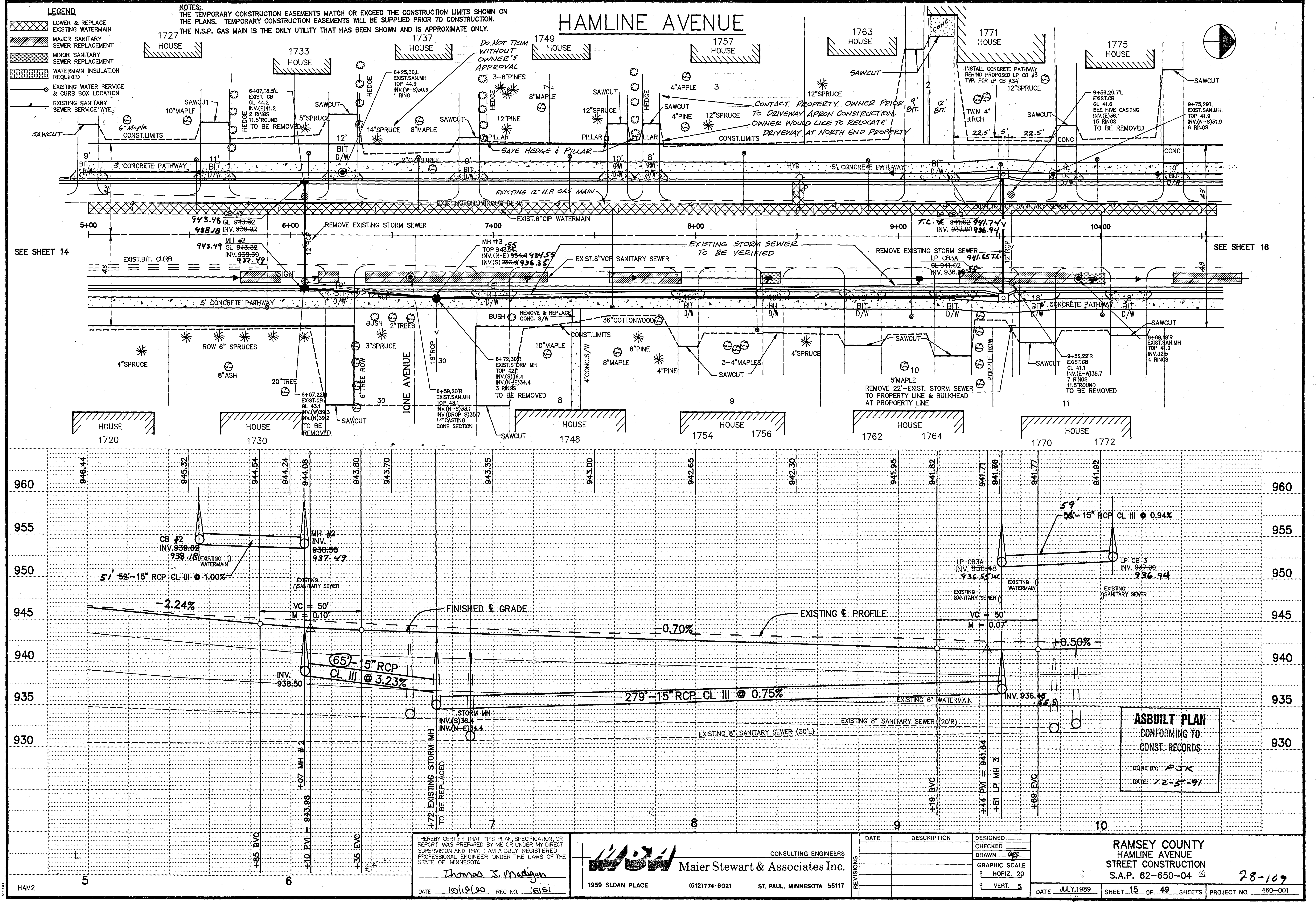
RAMSEY COUNTY
LIFT STATION DETAILS
S.A.P. 62-630-37

28-109

DATE SEPT, 1989 SHEET 13 OF 49 SHEETS PROJECT NO. 460-001



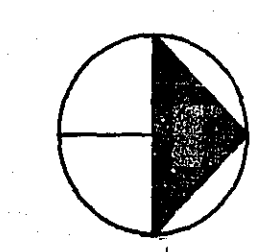
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.		DATE 10/19/90 REG. NO. 16151	
Thomas J. Madigan			
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117			
CONSULTING ENGINEERS		Maier Stewart & Associates Inc.	
DATE		DESCRIPTION	
DESIGNED		CHECKED	
DRAWN		GRAPHIC SCALE	
HORIZ. 20		VERT. 5	
DATE JULY 1989		SHEET 14 OF 49 SHEETS	
PROJECT NO. 460-001		28-109	



- LEGEND**
- LOWER & REPLACE EXISTING WATERMAIN
 - MAJOR SANITARY SEWER REPLACEMENT
 - MINOR SANITARY SEWER REPLACEMENT
 - WATERMAIN INSULATION REQUIRED
 - EXISTING WATER SERVICE & CURB BOX LOCATION
 - EXISTING SANITARY SEWER SERVICE WYE

NOTES:
THE TEMPORARY CONSTRUCTION EASEMENTS MATCH OR EXCEED THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. TEMPORARY CONSTRUCTION EASEMENTS WILL BE SUPPLIED PRIOR TO CONSTRUCTION.
THE N.S.P. GAS MAIN IS THE ONLY UTILITY THAT HAS BEEN SHOWN AND IS APPROXIMATE ONLY.

HAMLINE AVENUE



SEE SHEET 14

SEE SHEET 16

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: *PJK*
DATE: 12-5-91

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.
Thomas J. Madigan
DATE 10/19/00 REG. NO. 16151



CONSULTING ENGINEERS
Maier Stewart & Associates Inc.

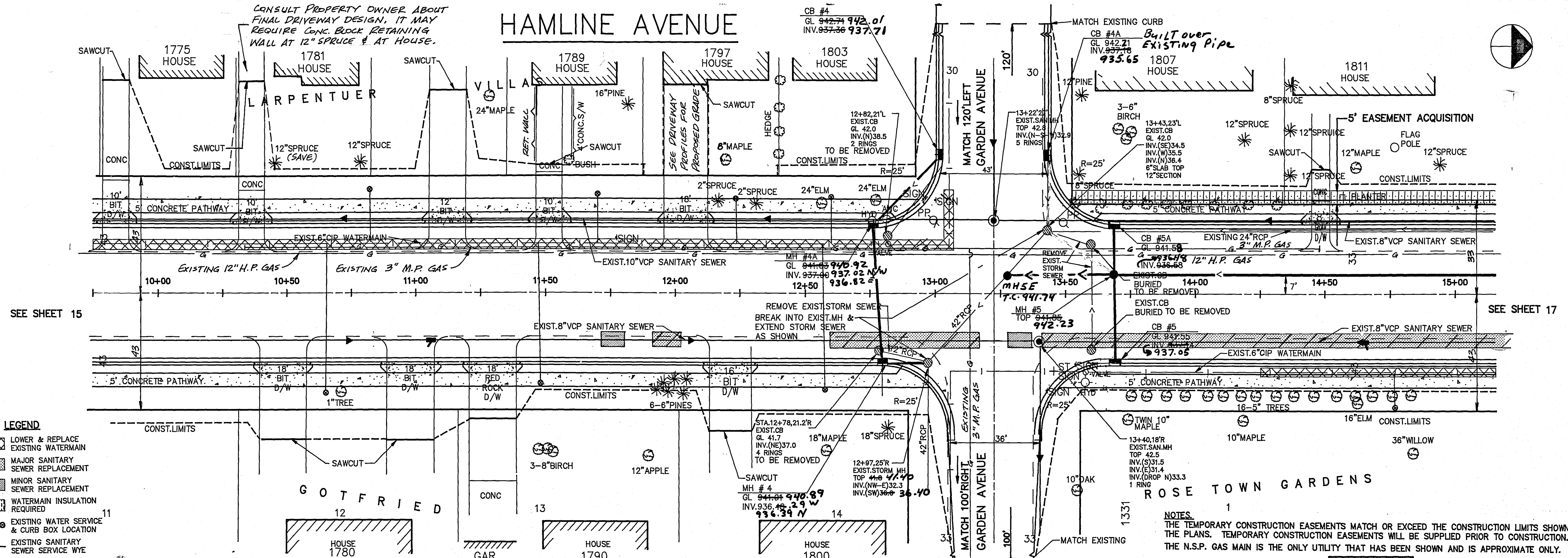
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		° HORIZ. 20
		° VERT. 5

RAMSEY COUNTY HAMLINE AVENUE STREET CONSTRUCTION S.A.P. 62-650-04		28-109
DATE JULY, 1989	SHEET 15 OF 49 SHEETS	PROJECT NO. 460-001

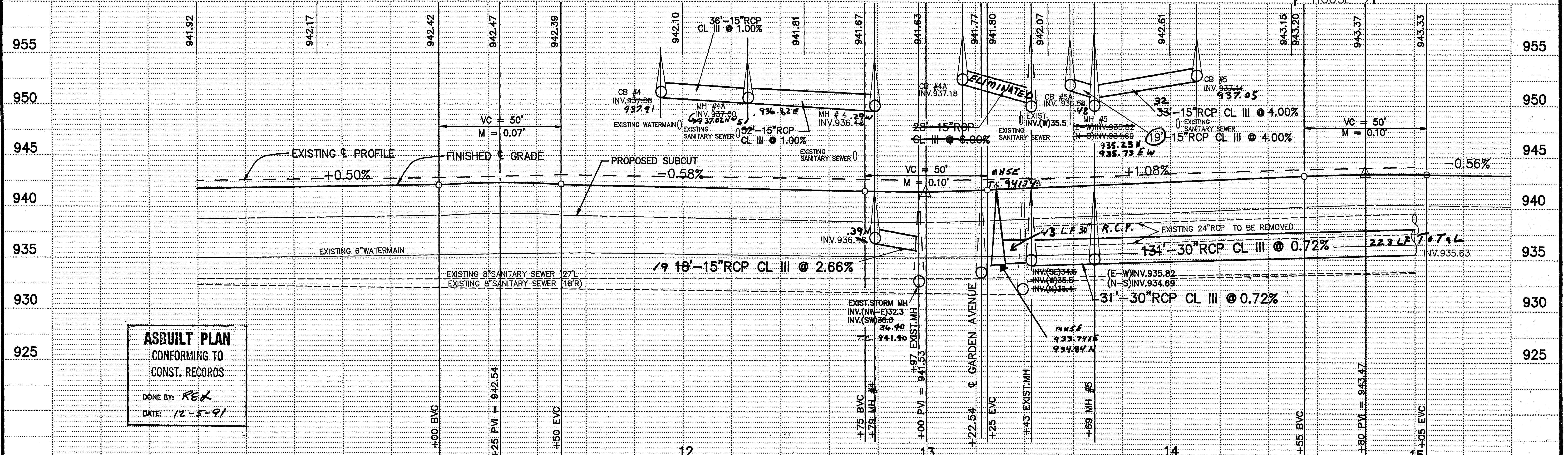
HAMLIN AVENUE

CONSULT PROPERTY OWNER ABOUT FINAL DRIVEWAY DESIGN. IT MAY REQUIRE CONC. BLOCK RETAINING WALL AT 12" SPRUCE & AT HOUSE.



- LEGEND**
- LOWER & REPLACE EXISTING WATERMAIN
 - MAJOR SANITARY SEWER REPLACEMENT
 - MINOR SANITARY SEWER REPLACEMENT
 - WATERMAIN INSULATION REQUIRED
 - EXISTING WATER SERVICE & CURB BOX LOCATION
 - EXISTING SANITARY SEWER SERVICE WYE

NOTES
 1. THE TEMPORARY CONSTRUCTION EASEMENTS MATCH OR EXCEED THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. TEMPORARY CONSTRUCTION EASEMENTS WILL BE SUPPLIED PRIOR TO CONSTRUCTION.
 2. THE N.S.P. GAS MAIN IS THE ONLY UTILITY THAT HAS BEEN SHOWN AND IS APPROXIMATE ONLY.



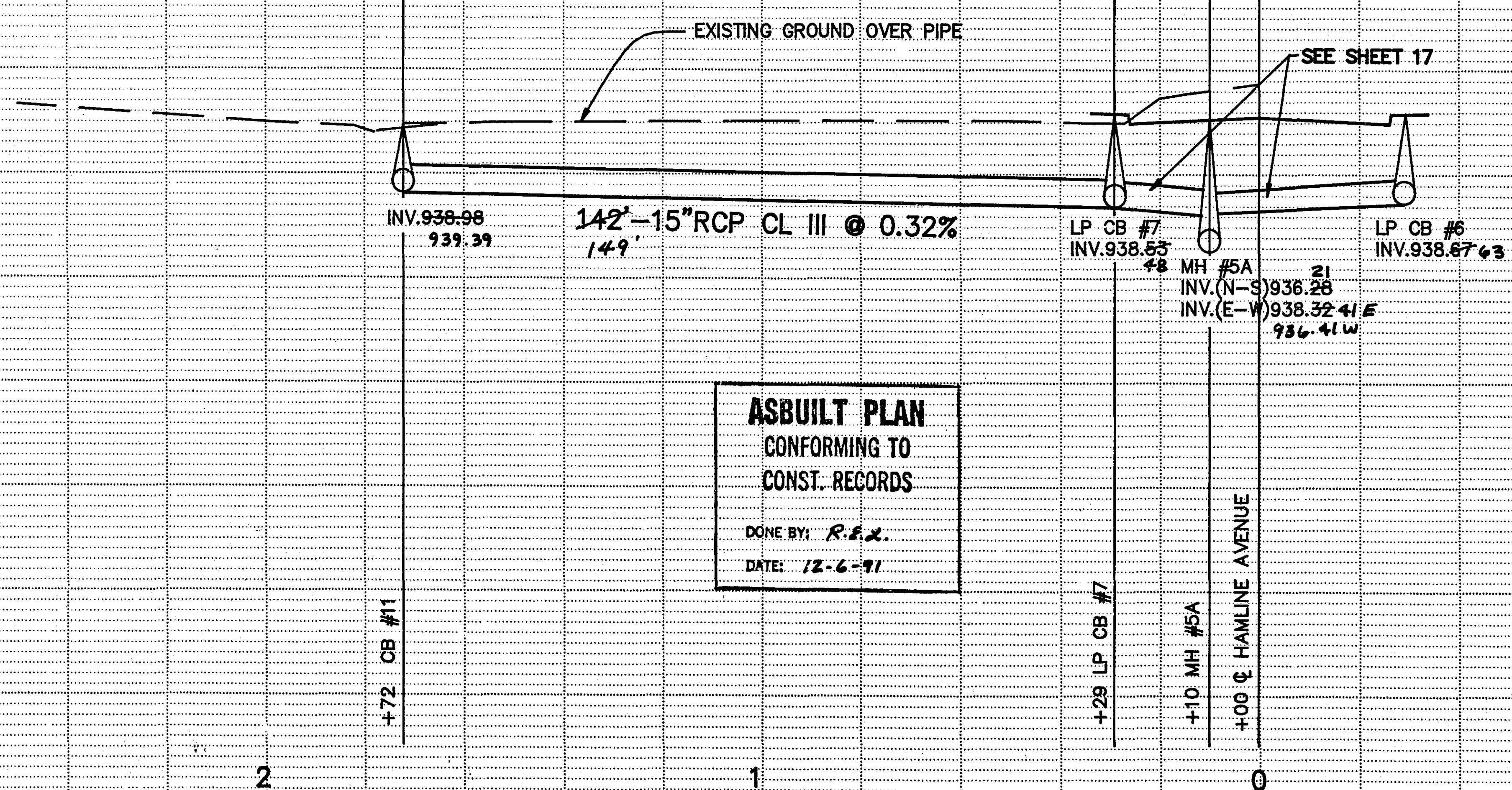
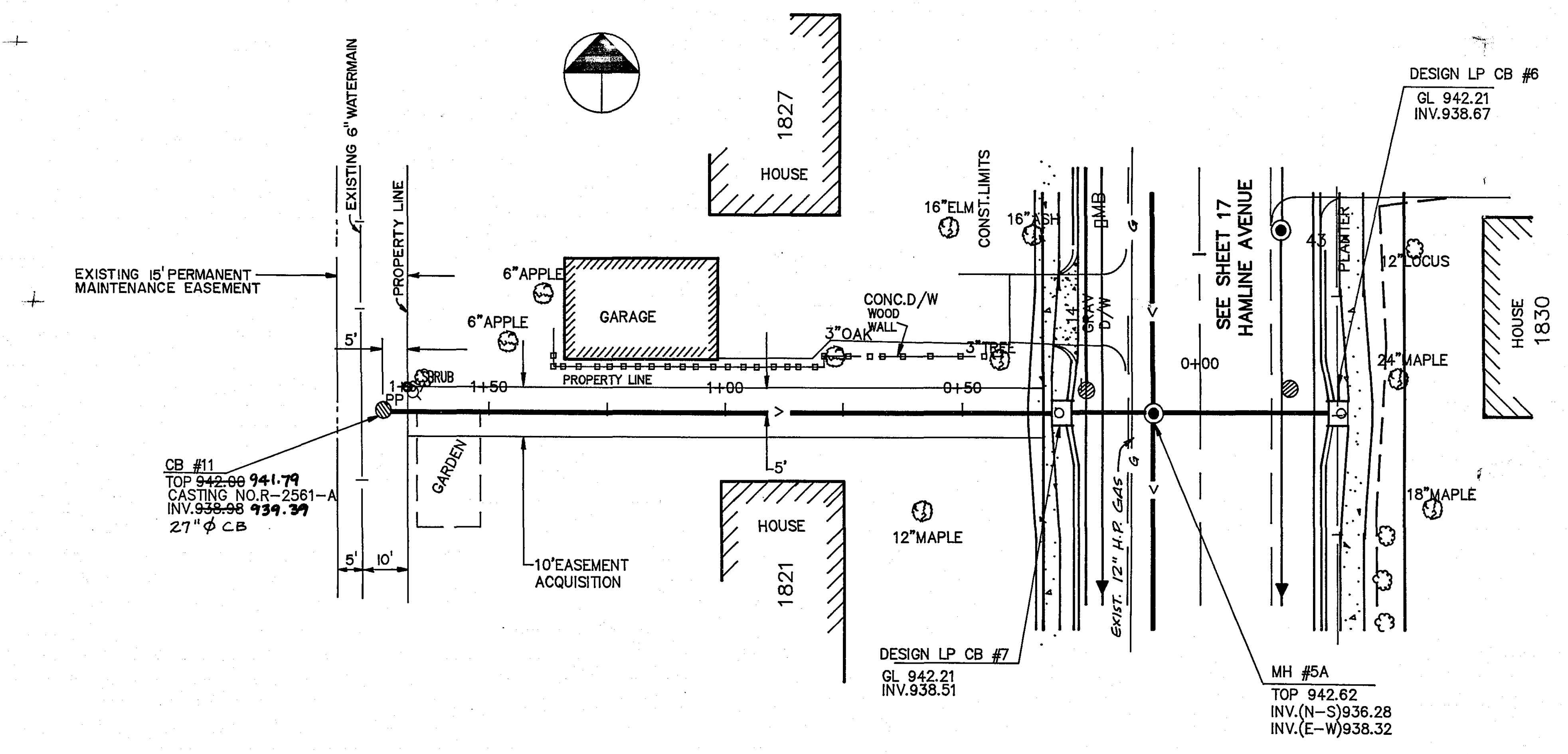
ASBUILT PLAN
 CONFORMING TO
 CONST. RECORDS
 DONE BY: *REK*
 DATE: 12-5-91

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.
Thomas J. Madigan
 DATE: 10/19/90 REG. NO. 16651

Maier Stewart & Associates Inc.
 CONSULTING ENGINEERS
 1955 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		0' HORIZ. 20'
		0' VERT. 5'

RAMSEY COUNTY
 HAMLIN AVENUE
 STREET IMPROVEMENTS
 S.A.P. 62-650-04
 28-109
 DATE: JULY, 1989 SHEET 16 OF 49 SHEETS PROJECT NO. 460-001



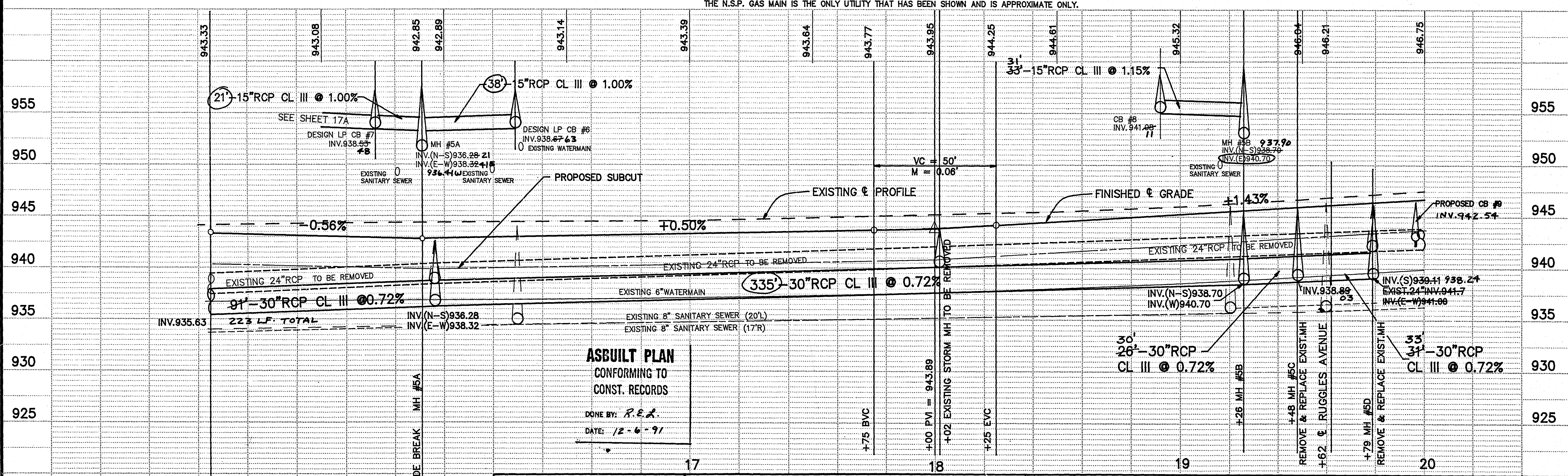
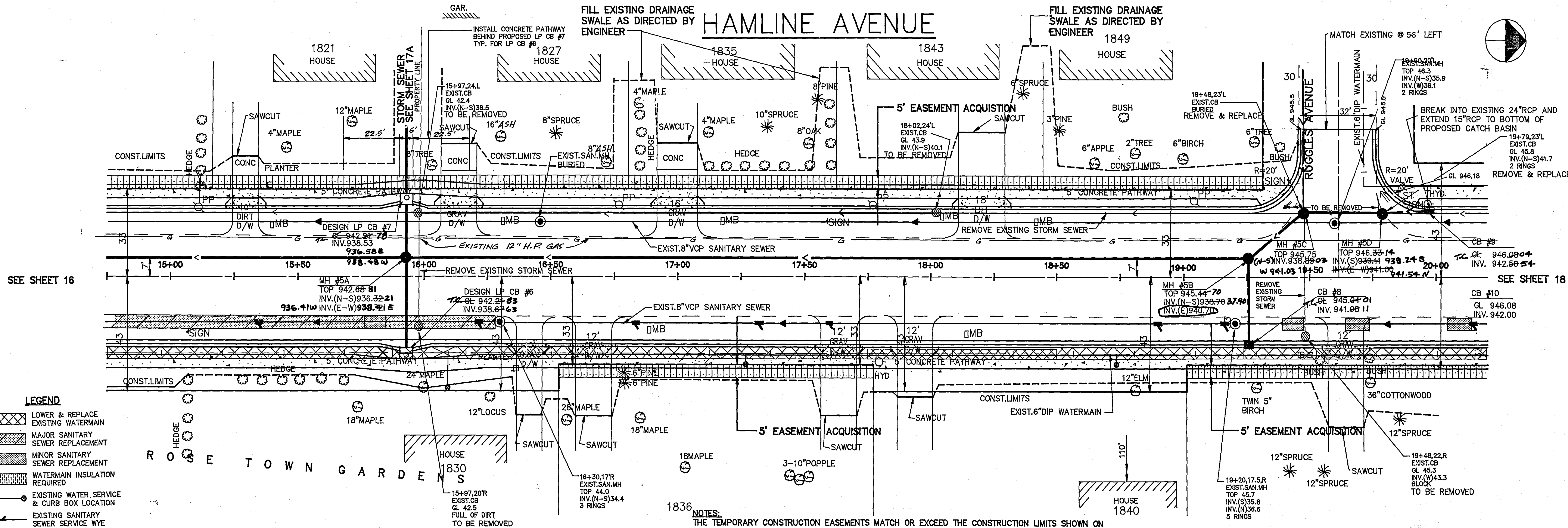
ASBUILT PLAN
 CONFORMING TO
 CONST. RECORDS
 DONE BY: *R.R.*
 DATE: *12-6-91*

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.
Thomas S. Madigan
 DATE *10/9/90* REG NO. *15151*

MSA CONSULTING ENGINEERS
Maier Stewart & Associates Inc.
 1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION

DESIGNED _____
 CHECKED _____
 DRAWN *gjt*
 GRAPHIC SCALE
 0' HORIZ. 20'
 0' VERT. 5'
RAMSEY COUNTY
HAMLIN AVENUE
PROPOSED STORM SEWER
S.A.P. 62-650-04
 DATE *AUG, 1989* SHEET *17A* OF *49* SHEETS PROJECT NO. *460-001* *28-109*



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.

Thomas J. Madigan
DATE: 10/19/92 REG. NO. 15151

Maier Stewart & Associates Inc.
CONSULTING ENGINEERS
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN GC
		GRAPHIC SCALE
		0 HORIZ. 20
		0 VERT. 5

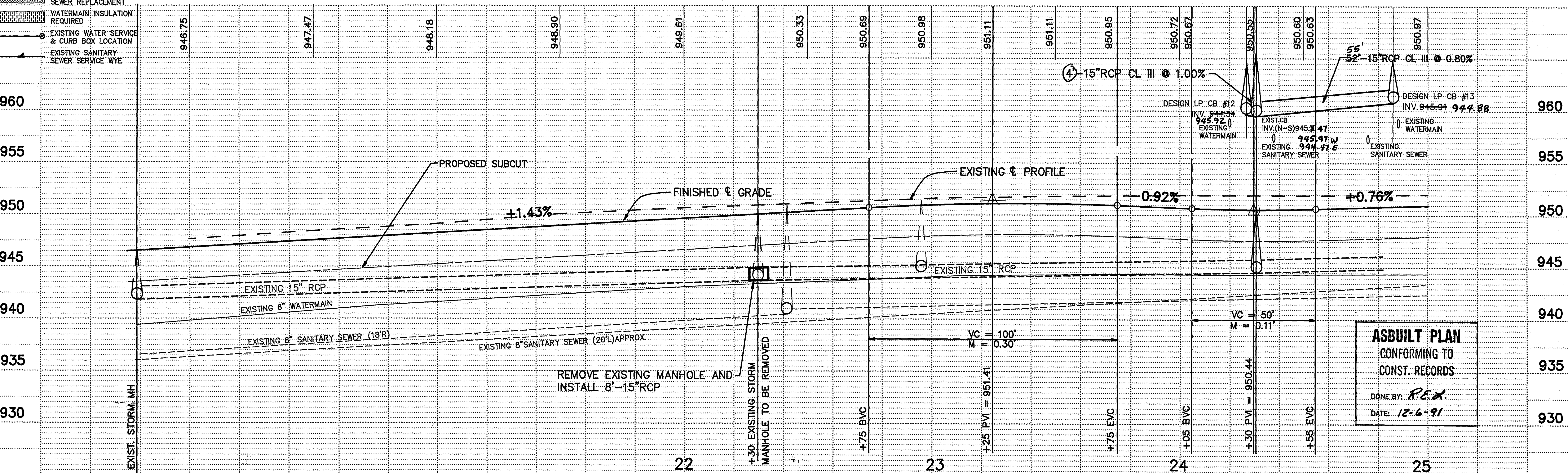
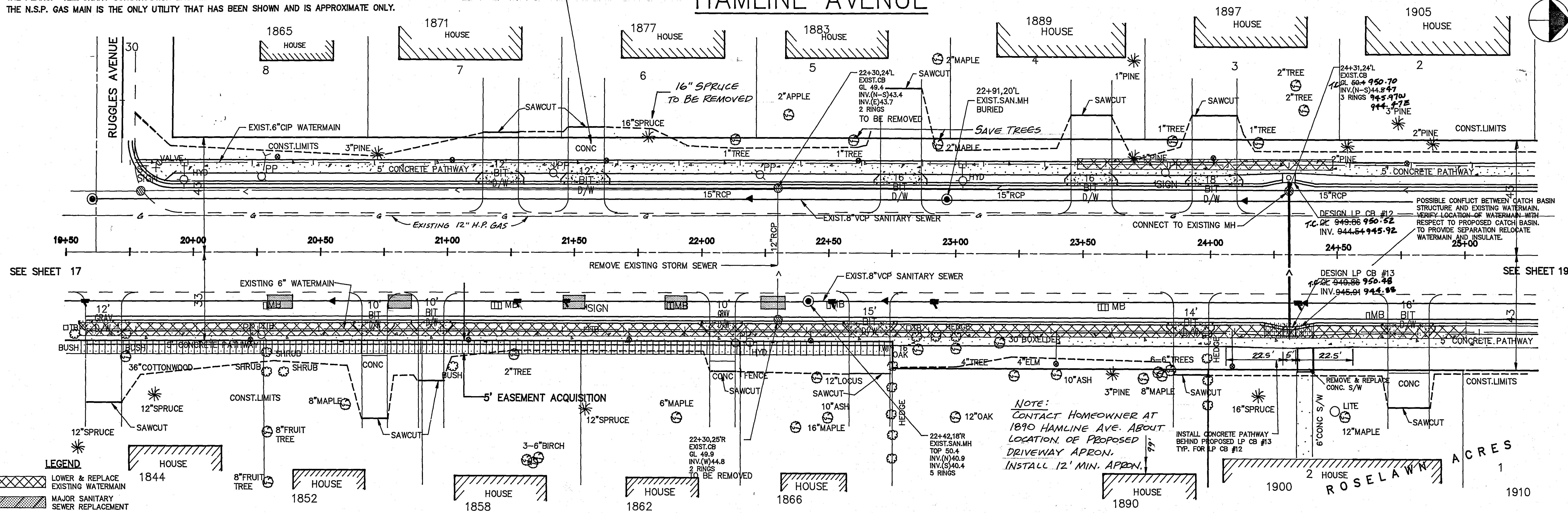
RAMSEY COUNTY
HAMLINE AVENUE
STREET CONSTRUCTION
S.A.P. 62-650-04

DATE: JULY, 1989 SHEET 17 OF 49 SHEETS PROJECT NO. 460-001

NOTES:
THE TEMPORARY CONSTRUCTION EASEMENTS MATCH OR EXCEED THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. TEMPORARY CONSTRUCTION EASEMENTS WILL BE SUPPLIED PRIOR TO CONSTRUCTION.
THE N.S.P. GAS MAIN IS THE ONLY UTILITY THAT HAS BEEN SHOWN AND IS APPROXIMATE ONLY.

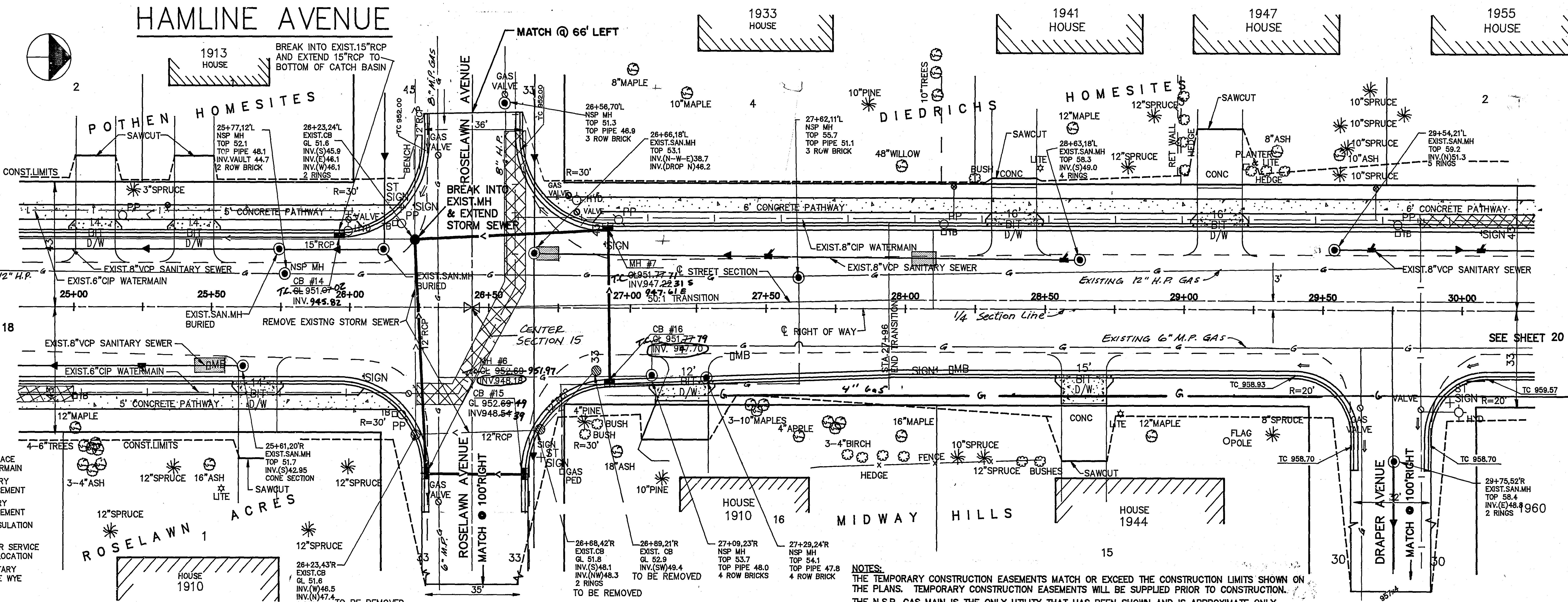
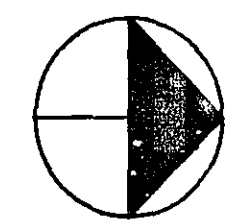
POSSIBLE 20' D/W
APRON REQ'D

HAMLIN AVENUE



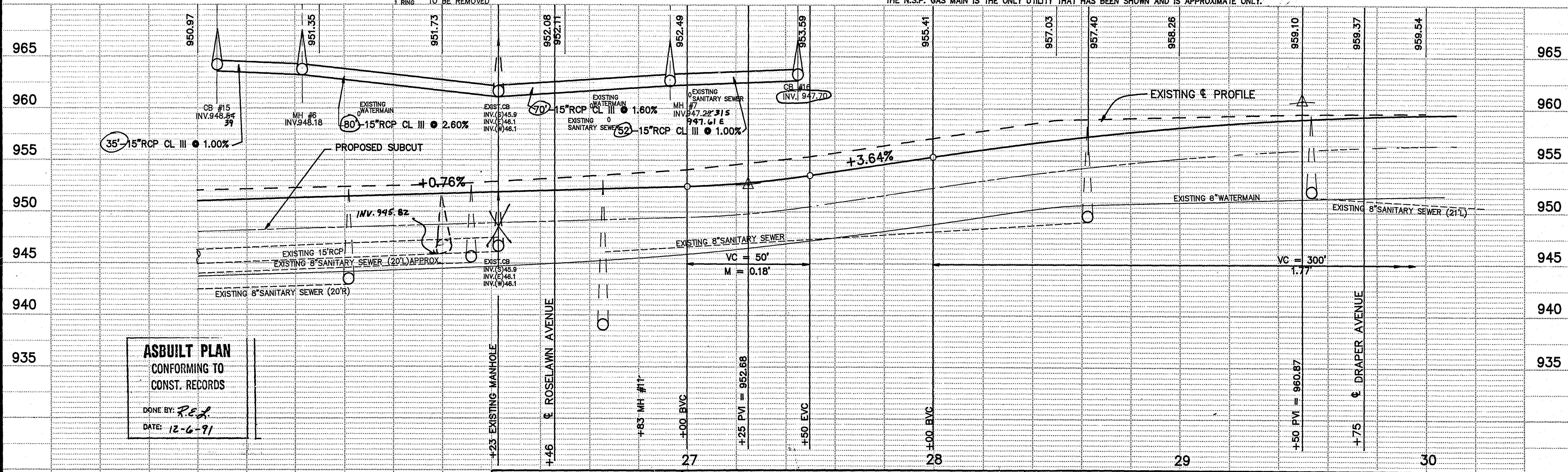
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THOMAS J. MADIGAN		CONSULTING ENGINEERS	
Maier Stewart & Associates Inc.		DATE: JULY, 1989	
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117		SHEET 18 OF 49 SHEETS	
PROJECT NO. 460-001		DATE: 12-6-91	

HAMLIN AVENUE



- LEGEND**
- LOWER & REPLACE EXISTING WATERMAIN
 - MAJOR SANITARY SEWER REPLACEMENT
 - MINOR SANITARY SEWER REPLACEMENT
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ASBUILT PLAN
 CONFORMING TO
 CONST. RECORDS
 DONE BY: *RED*
 DATE: 12-6-91

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.

Thomas J. Madigan
 DATE 10/9/90 REG. NO. 15151



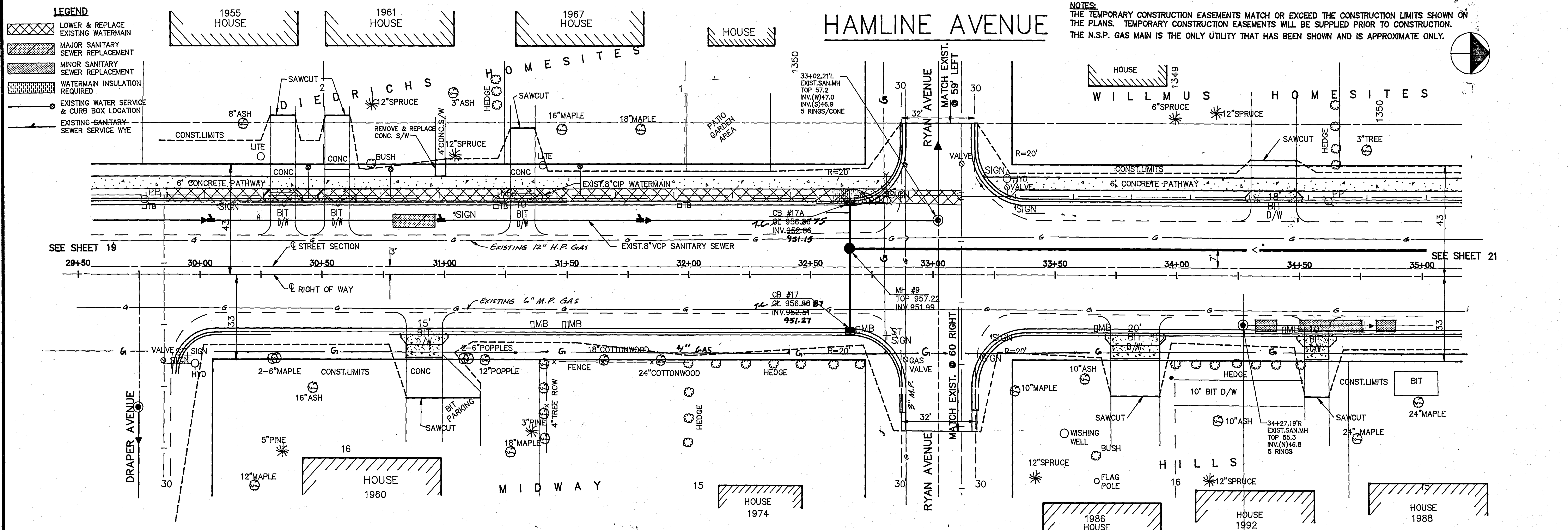
Maier Stewart & Associates Inc.

1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

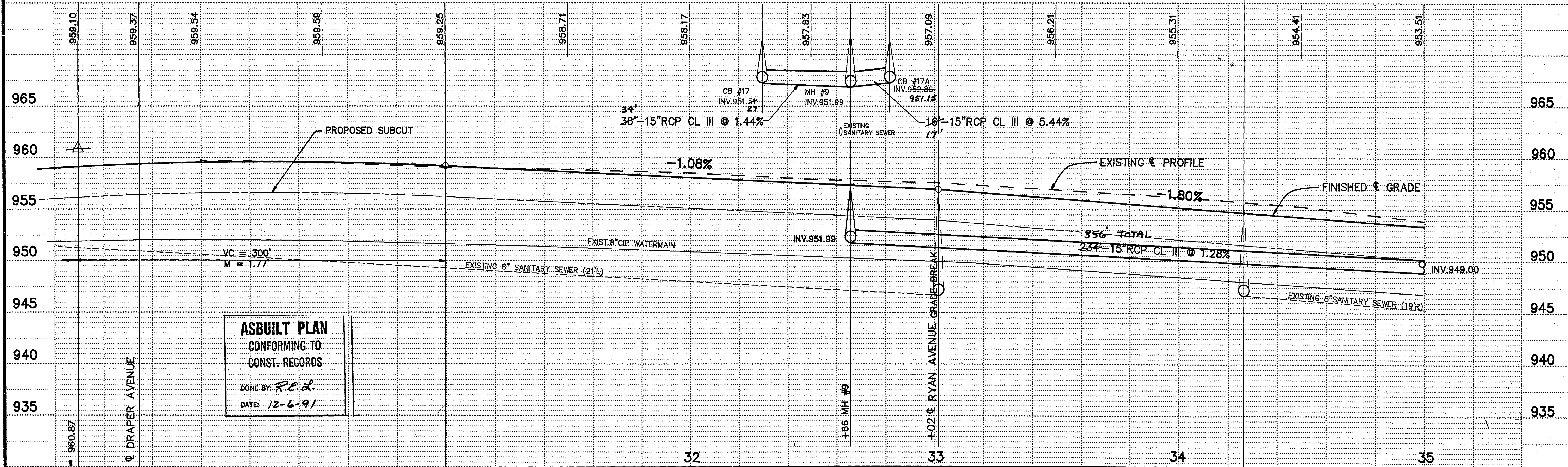
DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		HORIZ. 20
		VERT. 5

RAMSEY COUNTY
HAMLIN AVENUE
STREET IMPROVEMENTS
 S.A.P. 62-650-04

DATE JULY, 1989 SHEET 19 OF 49 SHEETS PROJECT NO. 460-001



NOTES:
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ASBUILT PLAN
 CONFORMING TO
 CONST. RECORDS
 DONE BY: *RCR*
 DATE: *12-6-91*

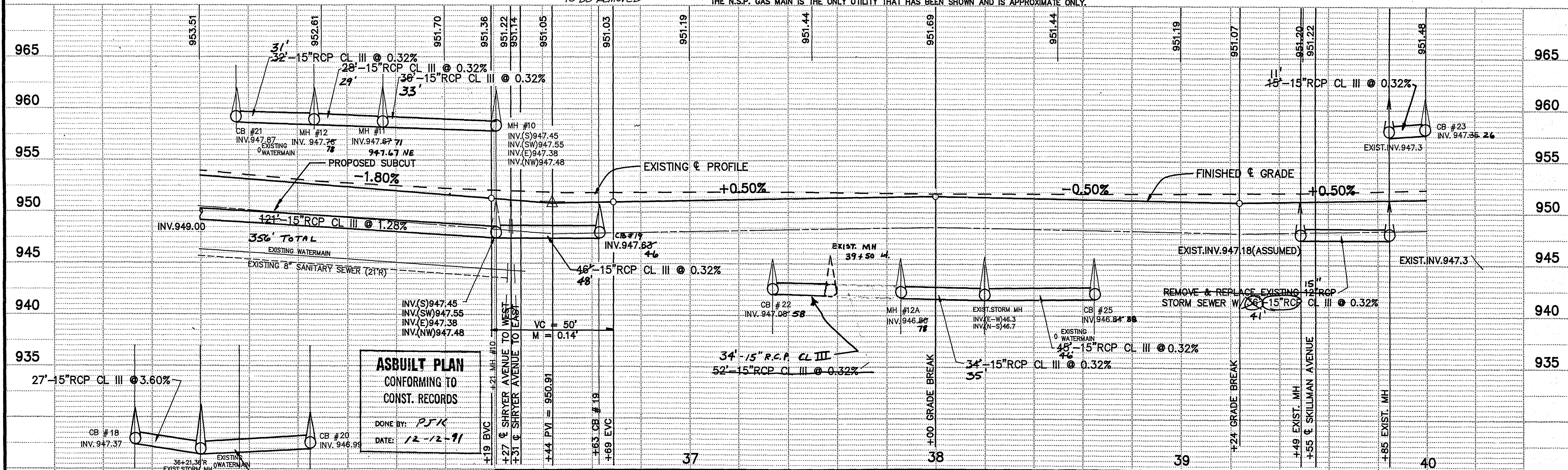
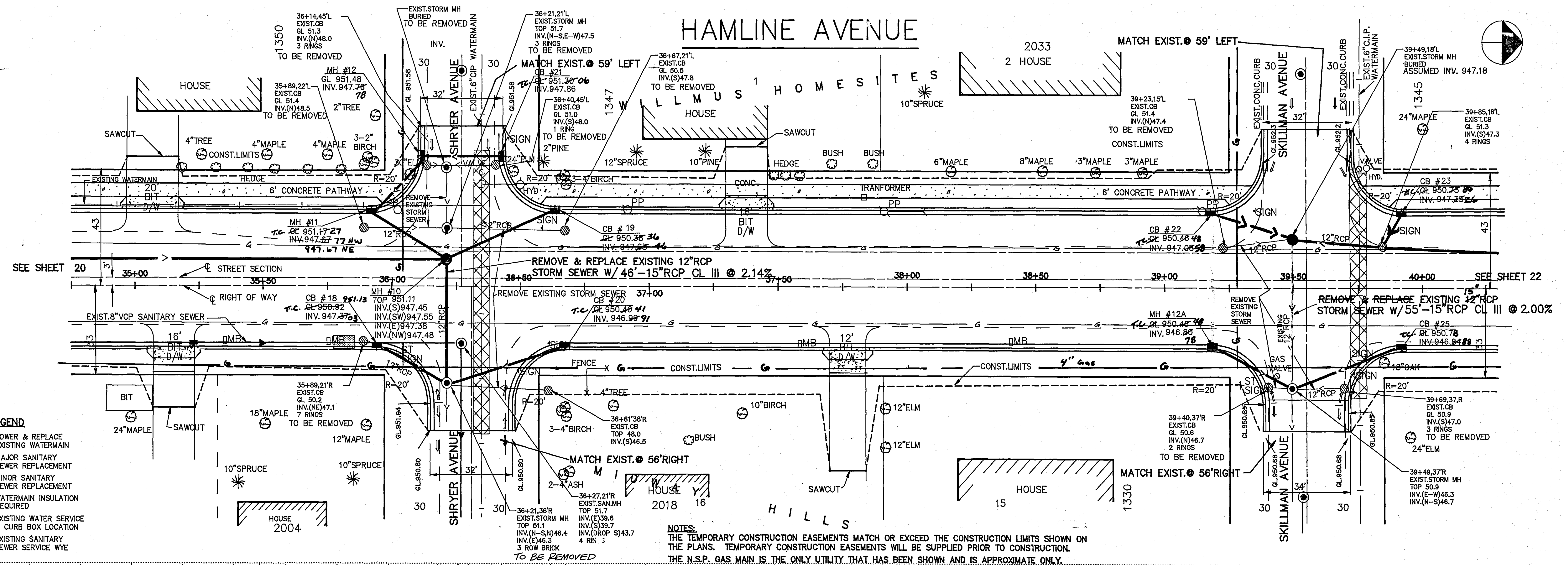
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Thomas S. MacLagan
 DATE: *10/19/90* REG. NO. *15151*

MSA CONSULTING ENGINEERS
Maier Stewart & Associates Inc.
 1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		HORIZ. 20'
		VERT. 5'

RAMSEY COUNTY
HAMLINE AVENUE
STREET CONSTRUCTION
 S.A.P. 62-650-04
 DATE: *JULY, 1989* SHEET *20* OF *49* SHEETS PROJECT NO. *460-001*

HAMLIN AVENUE



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: *PJK*
DATE: 12-12-91

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.

Thomas J. Madigan
DATE: 10/19/92 REG. NO. 651



Maier Stewart & Associates Inc.
CONSULTING ENGINEERS

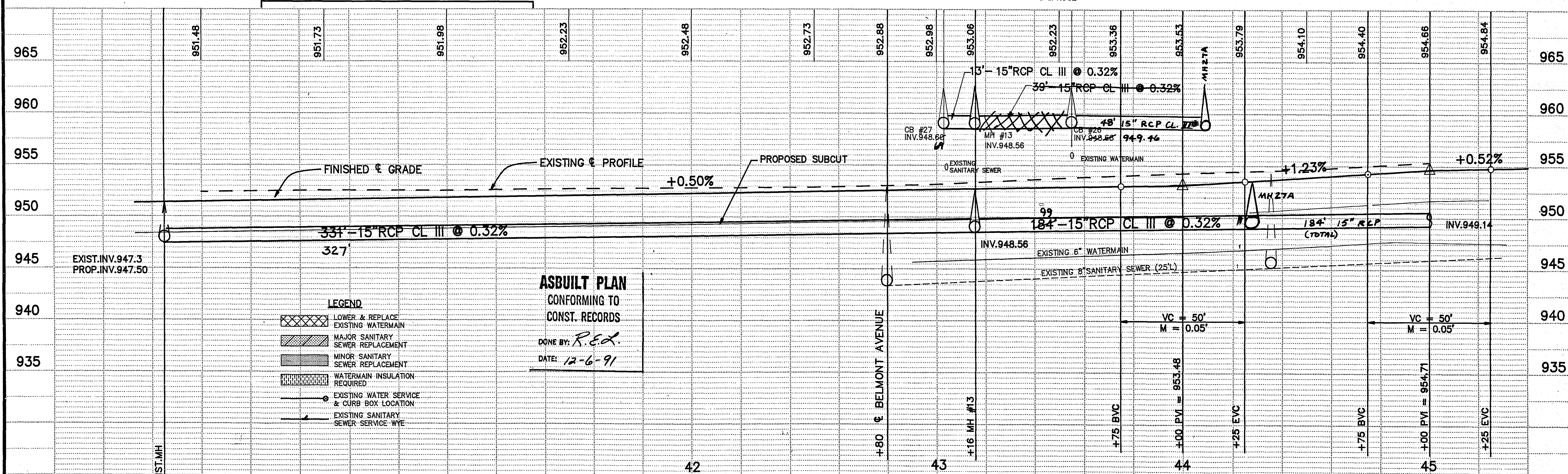
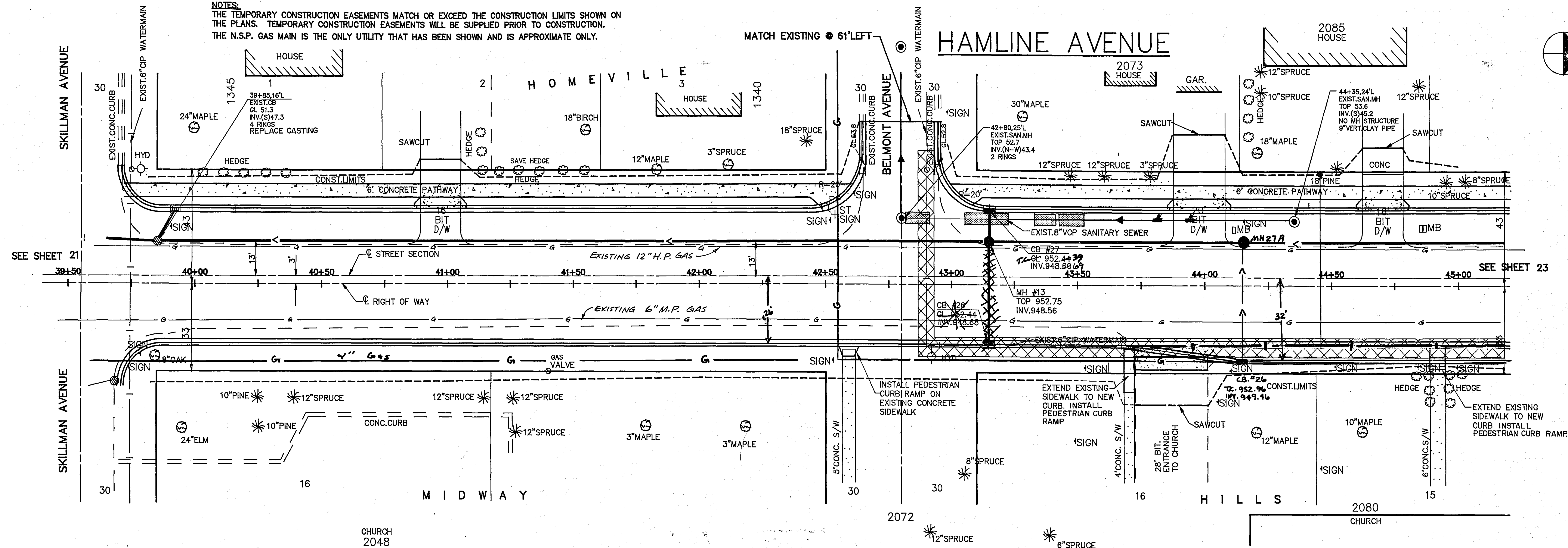
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		HORIZ. 20
		VERT. 5

RAMSEY COUNTY
HAMLIN AVENUE
STREET CONSTRUCTION
S.A.P. 62-650-04

DATE: JULY, 1989 SHEET 21 OF 49 SHEETS PROJECT NO. 460-001

NOTES:
THE TEMPORARY CONSTRUCTION EASEMENTS MATCH OR EXCEED THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. TEMPORARY CONSTRUCTION EASEMENTS WILL BE SUPPLIED PRIOR TO CONSTRUCTION.
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- LEGEND**
- LOWER & REPLACE EXISTING WATERMAIN
 - MAJOR SANITARY SEWER REPLACEMENT
 - MINOR SANITARY SEWER REPLACEMENT
 - WATERMAIN INSULATION REQUIRED
 - EXISTING WATER SERVICE & CURB BOX LOCATION
 - EXISTING SANITARY SEWER SERVICE WYE

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: *R.E.D.*

DATE: 12-6-91

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Thomas J. Madigan
DATE: 10/19/92 REG. NO. 16151



Maier Stewart & Associates Inc.

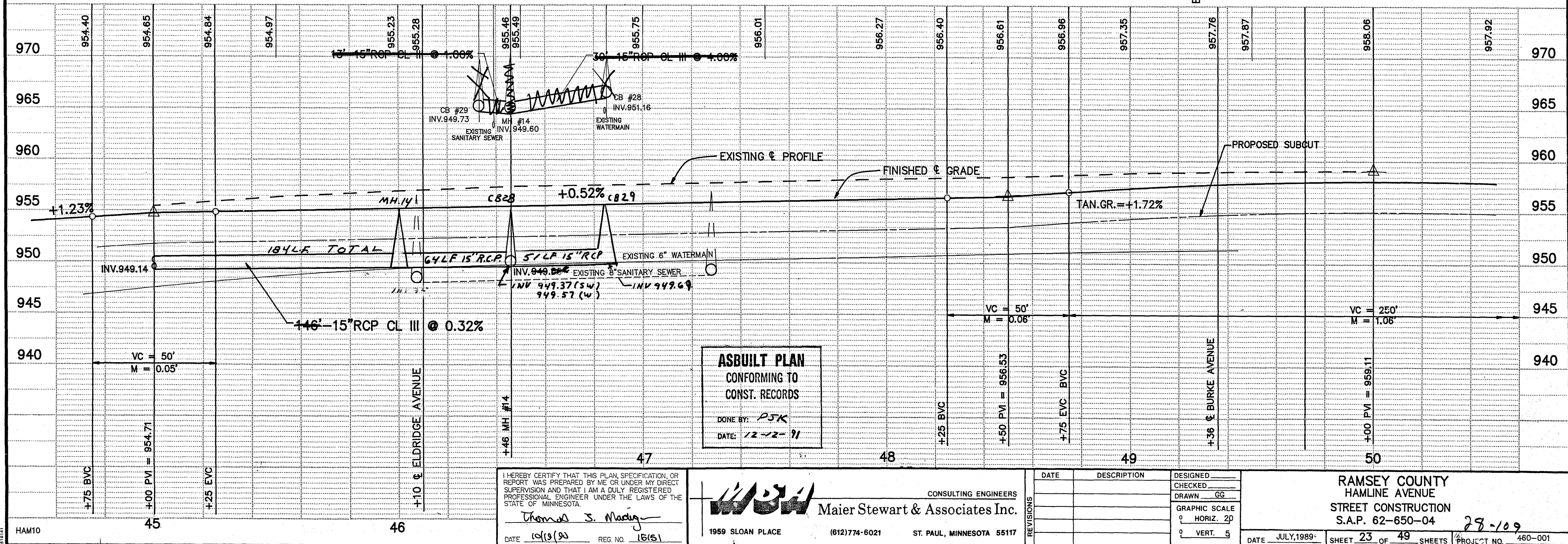
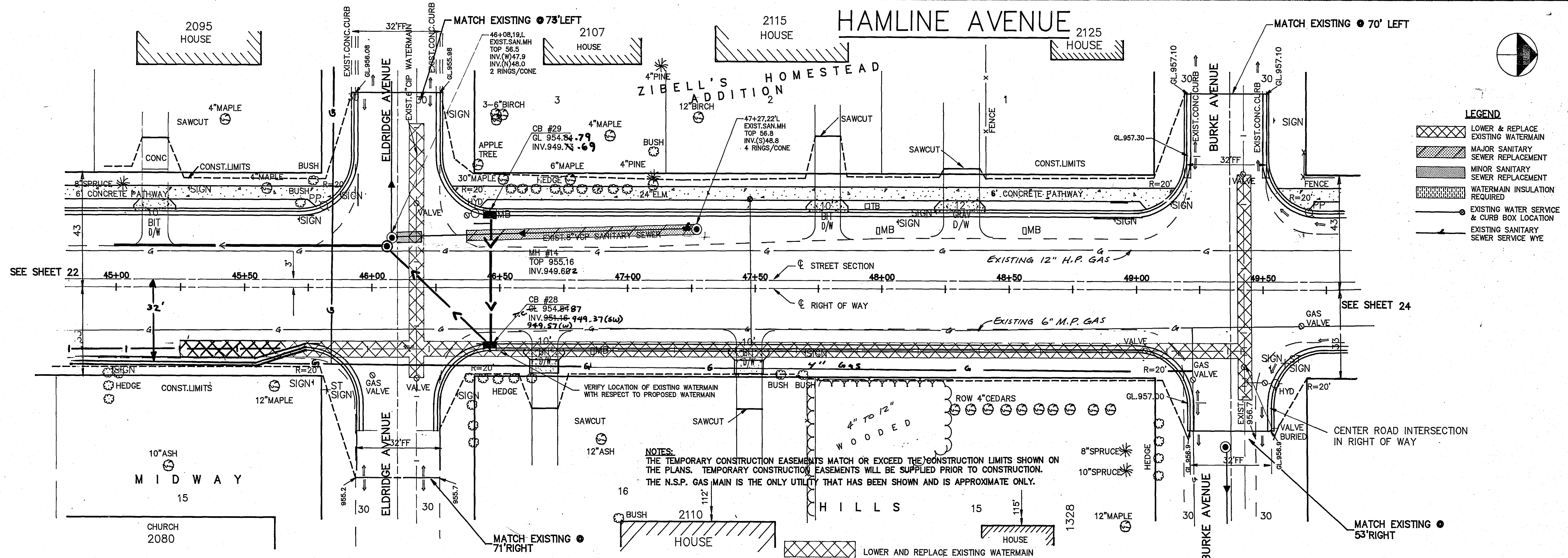
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN
		GRAPHIC SCALE
		0 HORIZ. 20
		0 VERT. 5

RAMSEY COUNTY
HAMLINE AVENUE
STREET CONSTRUCTION
S.A.P. 62-650-04

28-109

DATE: JULY, 1989 SHEET 22 OF 49 SHEETS PROJECT NO. 460-001



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: *PJK*
DATE: 12-22-91

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.

Thomas J. Mading
DATE: 10/19/92 REG. NO. 15151

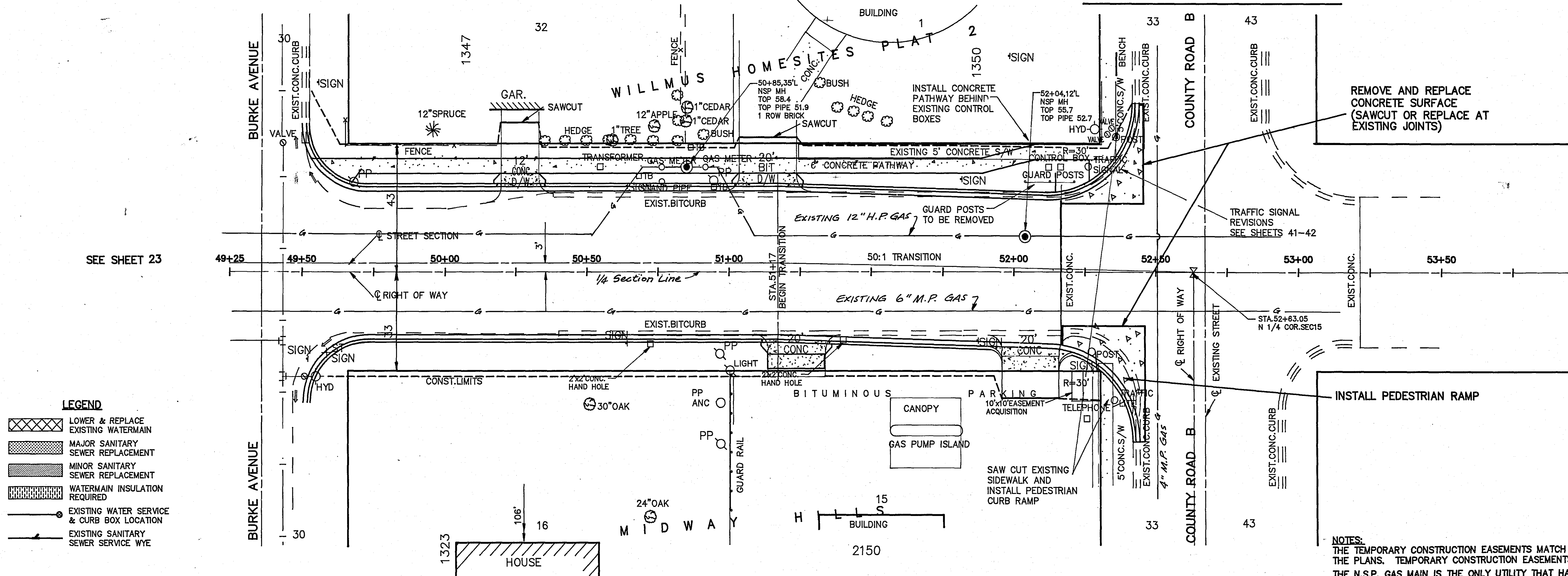
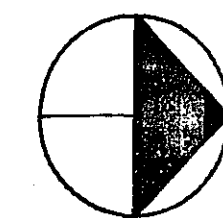
Maier Stewart & Associates Inc.
CONSULTING ENGINEERS
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN GG
		GRAPHIC SCALE
		0' HORIZ. 20'
		0' VERT. 5'

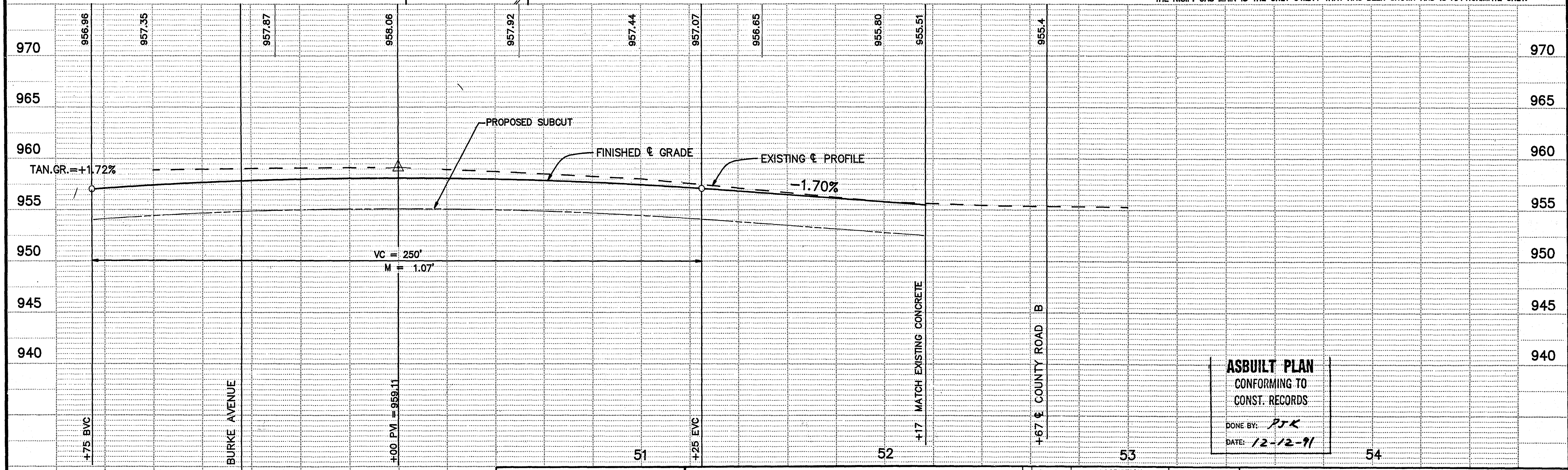
RAMSEY COUNTY
HAMLINE AVENUE
STREET CONSTRUCTION
S.A.P. 62-650-04

DATE: JULY, 1989 SHEET 23 OF 49 SHEETS PROJECT NO. 460-001

HAMLIN AVENUE



NOTES:
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ASBUILT PLAN
CONFORMING TO
CONST. RECORDS
DONE BY: *PJK*
DATE: *12-12-91*

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.
Thomas J. Maier
DATE *10/10/90* REG. NO. *15151*

Maier Stewart & Associates Inc.
CONSULTING ENGINEERS
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

DATE	DESCRIPTION	DESIGNED
		CHECKED
		DRAWN GG
		GRAPHIC SCALE
		0 HORIZ. 20'
		0 VERT. 5'

RAMSEY COUNTY
HAMLIN AVENUE
STREET CONSTRUCTION
S.A.P. 62-650-04
DATE *JULY 1989* SHEET *24* OF *49* SHEETS PROJECT NO. *460-001*

THIS SHEET DELETED
FROM CONTRACT

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.
Thomas J. Madigan
DATE 12/10/89 REG. NO. 6151



CONSULTING ENGINEERS
Maier Stewart & Associates Inc.

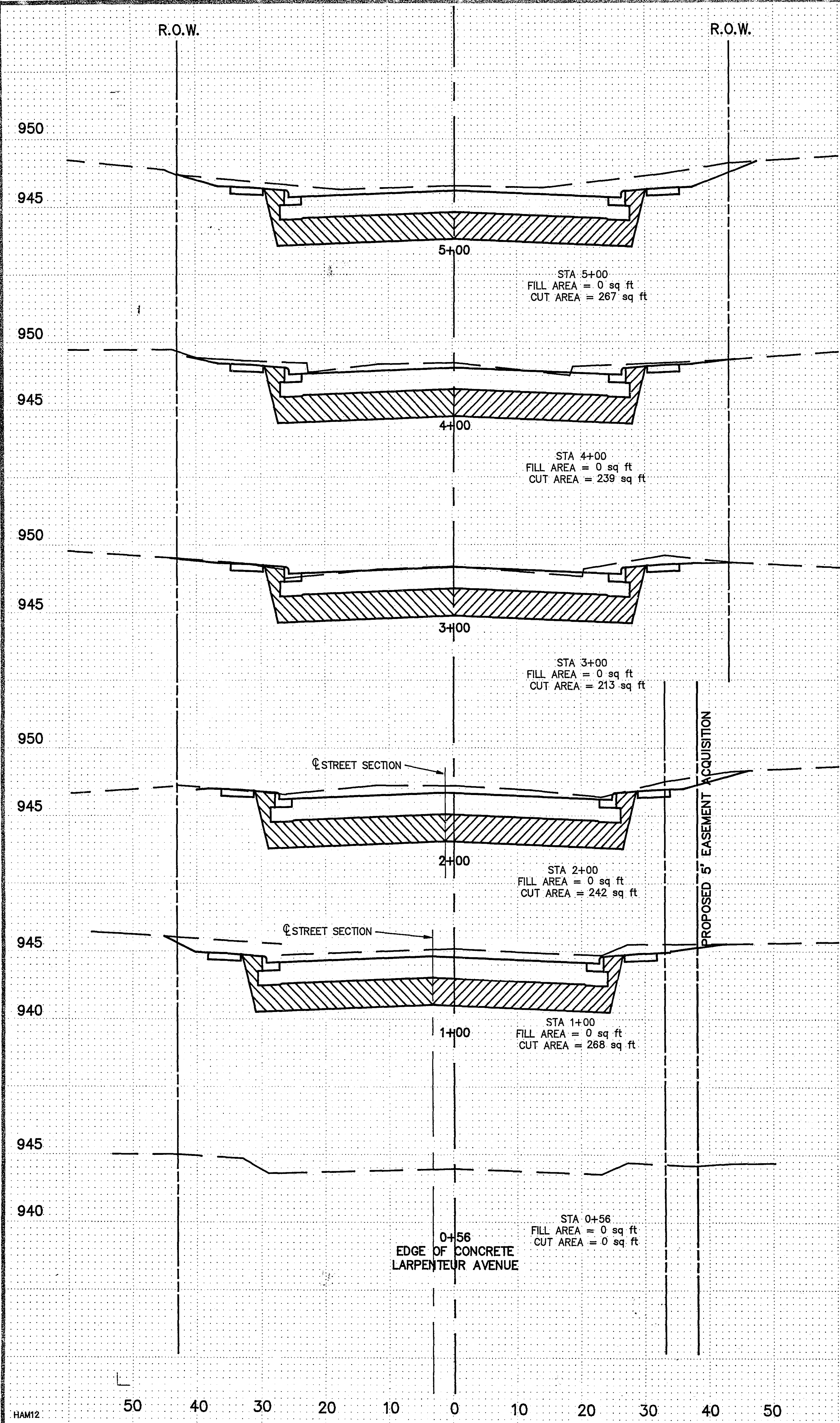
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

REVISIONS	DATE	DESCRIPTION	DESIGNED
			CHECKED
			DRAWN
			GRAPHIC SCALE
			0 HORIZ. NONE
			0 VERT.

RAMSEY COUNTY
STRIPING LAYOUT
HAMLINE AVENUE
S.A.P. 62-650-04

DATE AUGUST, 1989 SHEET 25 OF 49 SHEETS PROJECT NO. 460-001

28-109



STATION	AREAS in SQ. FT.		VOLUMES in CU. YDS.	
	CUT	FILL	CUT	FILL
0+56	0	0	218	0
1+00	268	0	944	0
2+00	242	0	844	0
3+00	213	0	838	0
4+00	239	0	937	0
5+00	267	0	974	4
6+00	259	2	917	128
7+00	236	67	931	124
8+00	267	0	983	0
9+00	264	0	1004	0
10+00	278	0	1032	0
11+00	279	0	9623	257

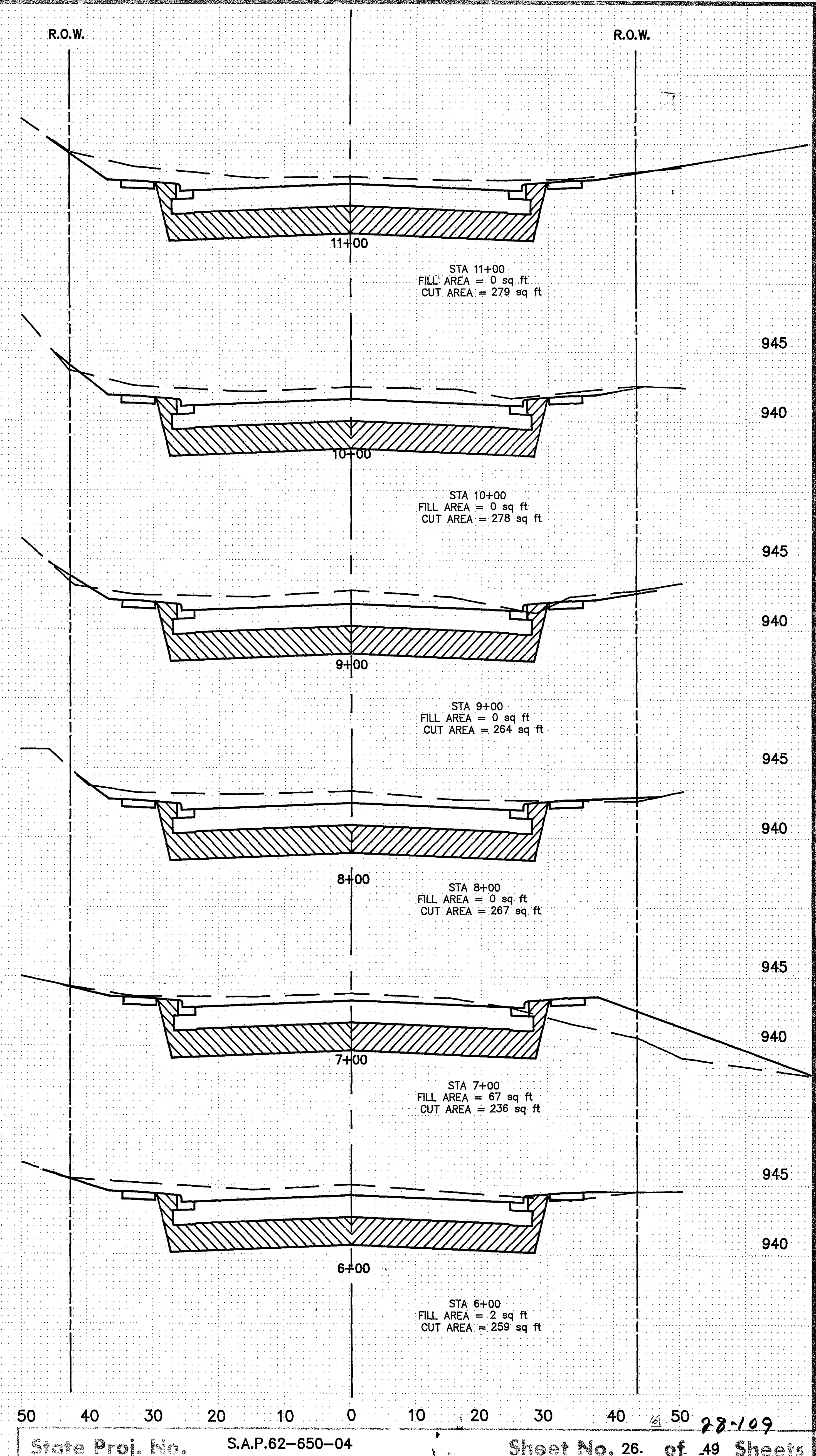
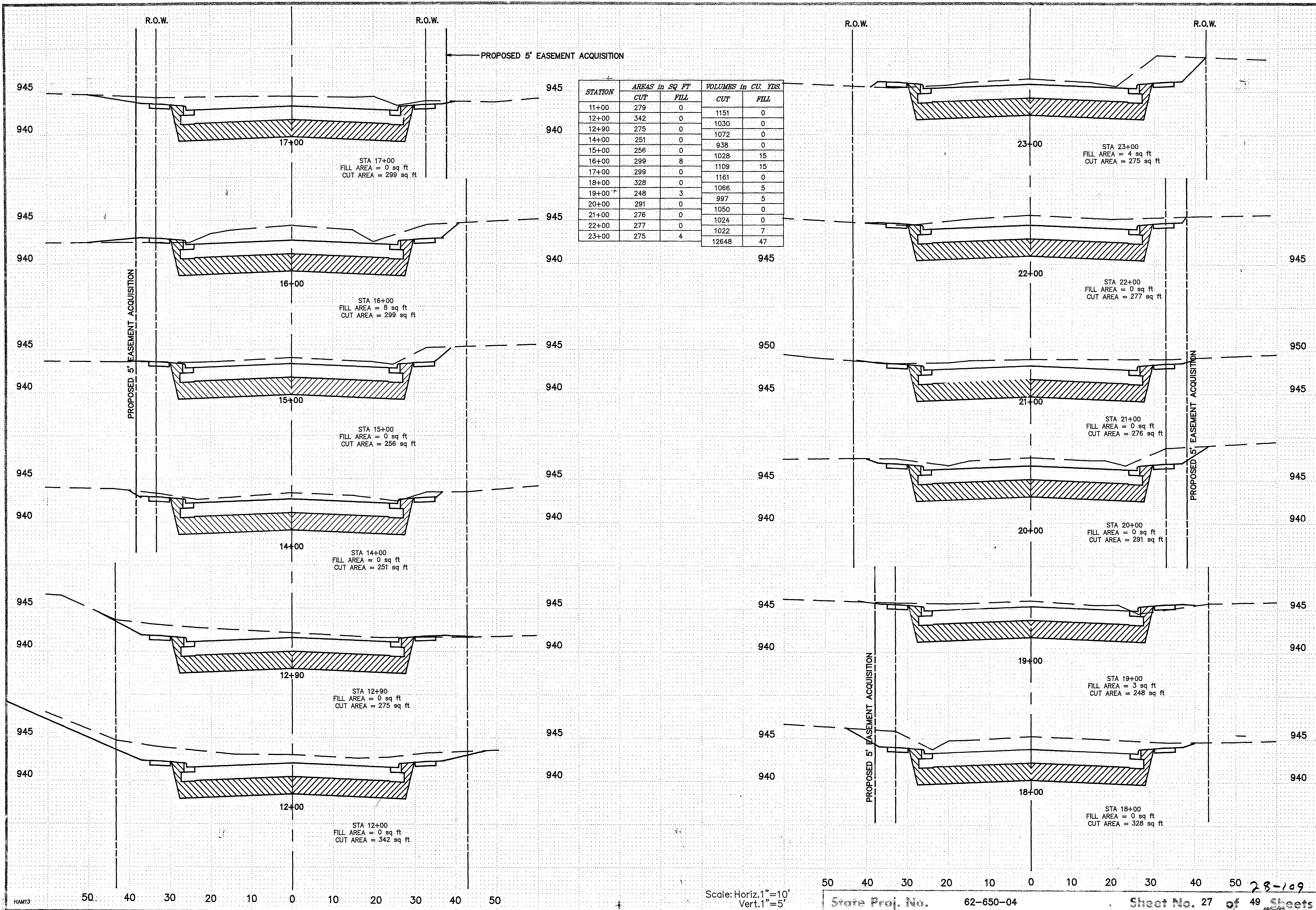


PLATE 3 Full Cross Section DOTTED

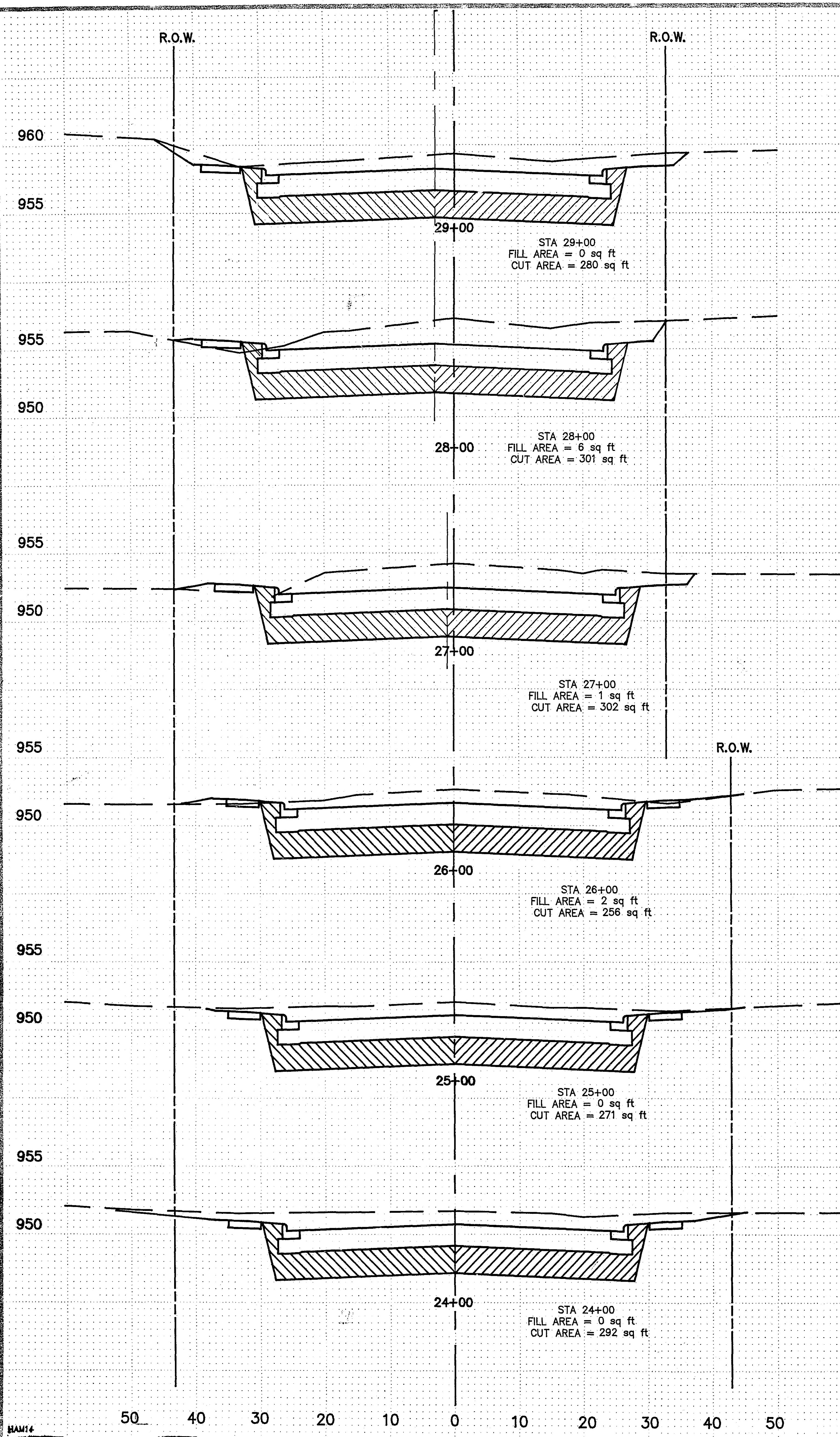


STATION	AREAS in SQ. FT.		VOLUMES in CU. YDS.	
	CUT	FILL	CUT	FILL
11+00	279	0	1151	0
12+00	342	0	1030	0
12+90	275	0	1072	0
14+00	251	0	938	0
15+00	256	0	1028	15
16+00	299	8	1109	15
17+00	299	0	1161	0
18+00	328	0	1066	5
19+00	248	3	997	5
20+00	291	0	1050	0
21+00	276	0	1024	0
22+00	277	0	1022	7
23+00	275	4	12648	47

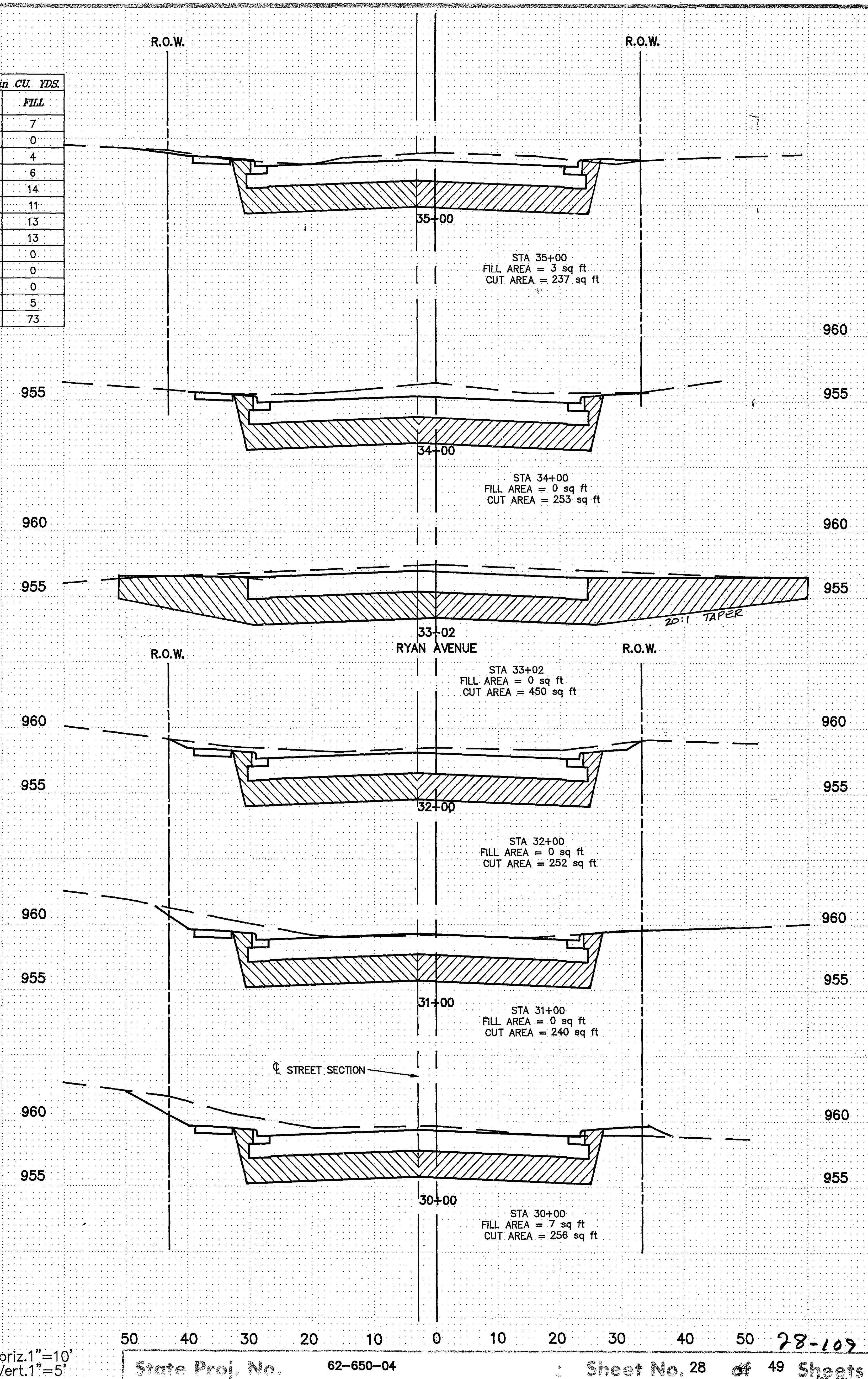
Scale: Horiz. 1"=10'
Vert. 1"=5'

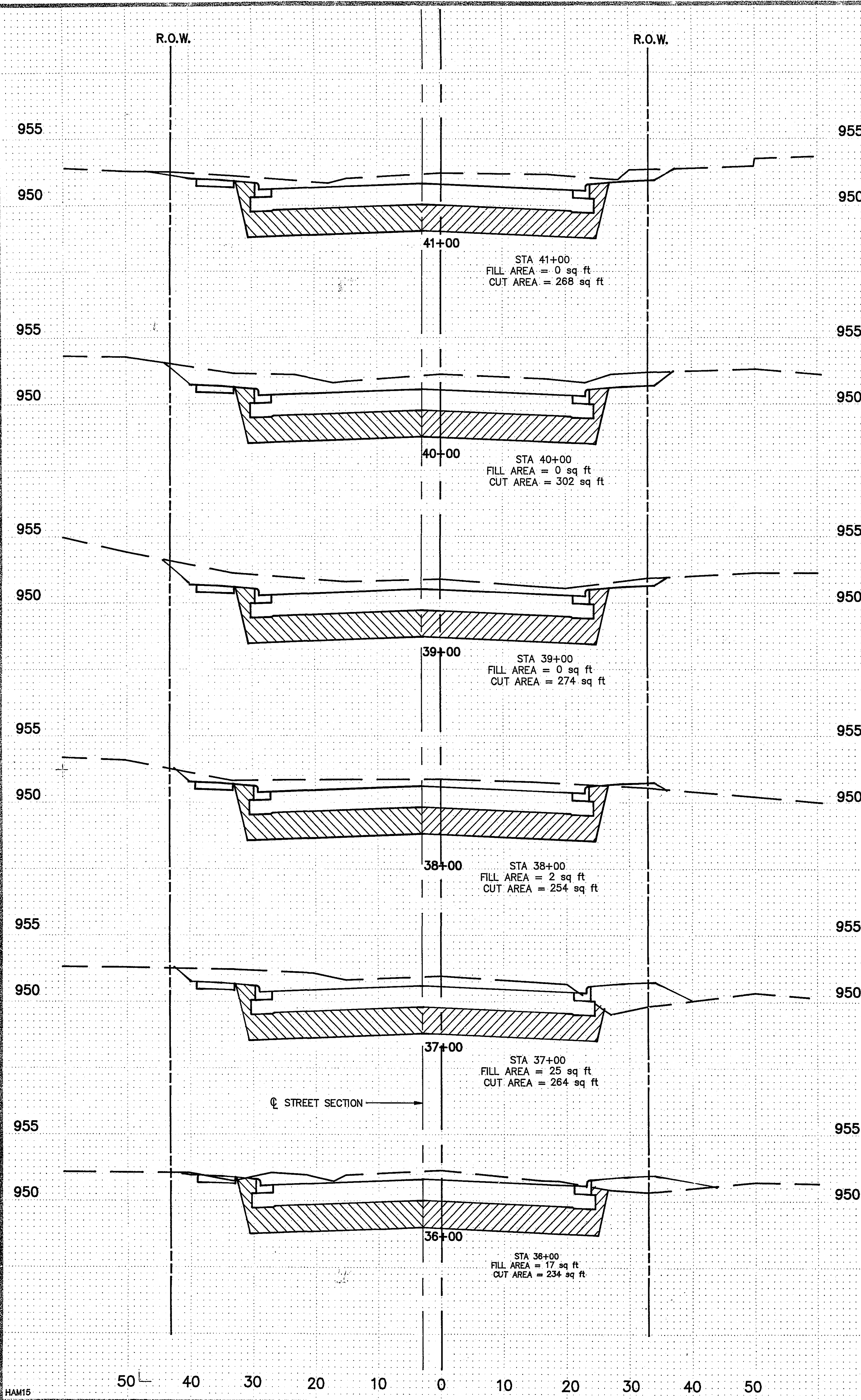
State Proj. No. 62-650-04

Sheet No. 27 of 49 Sheets

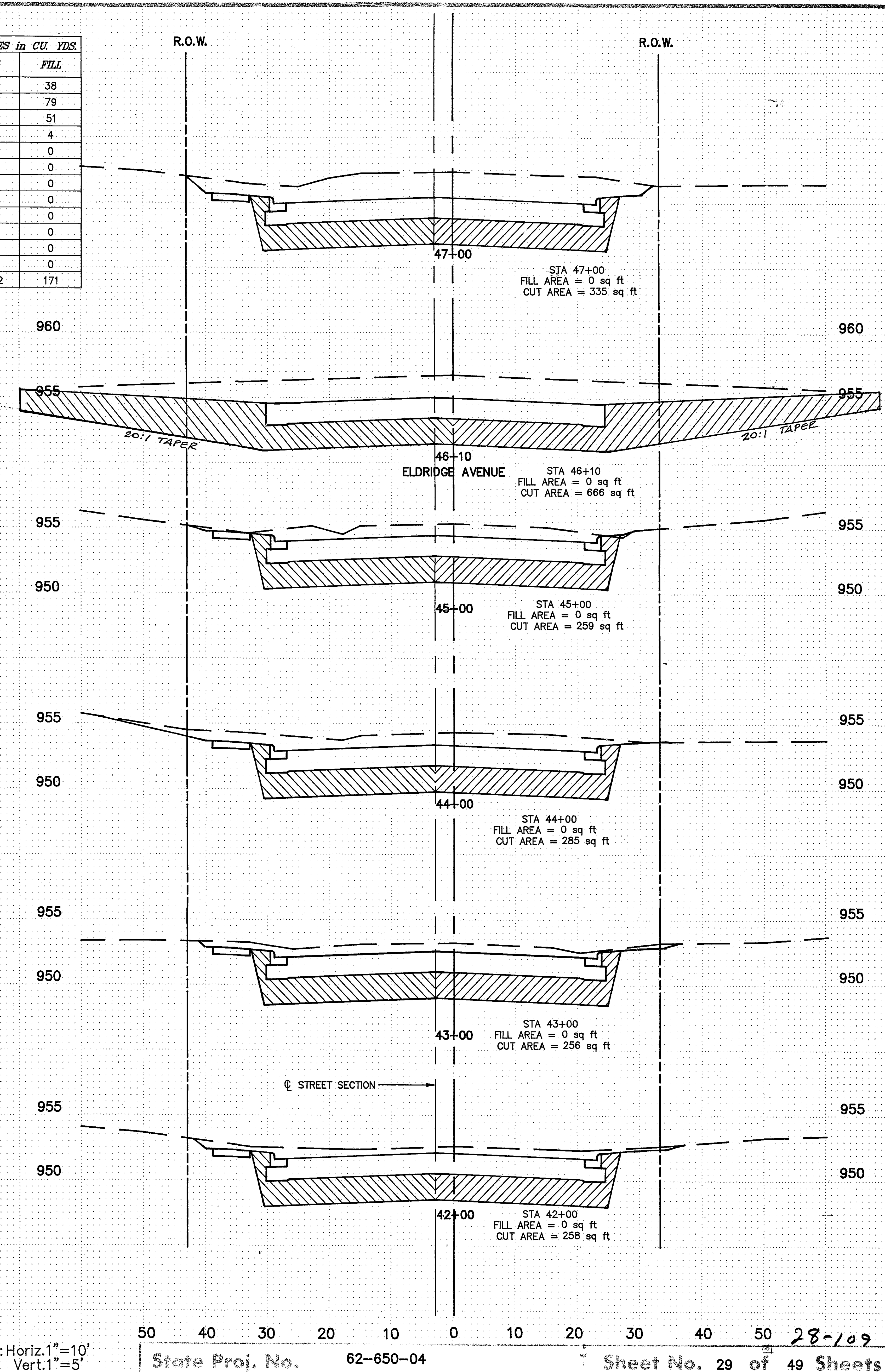


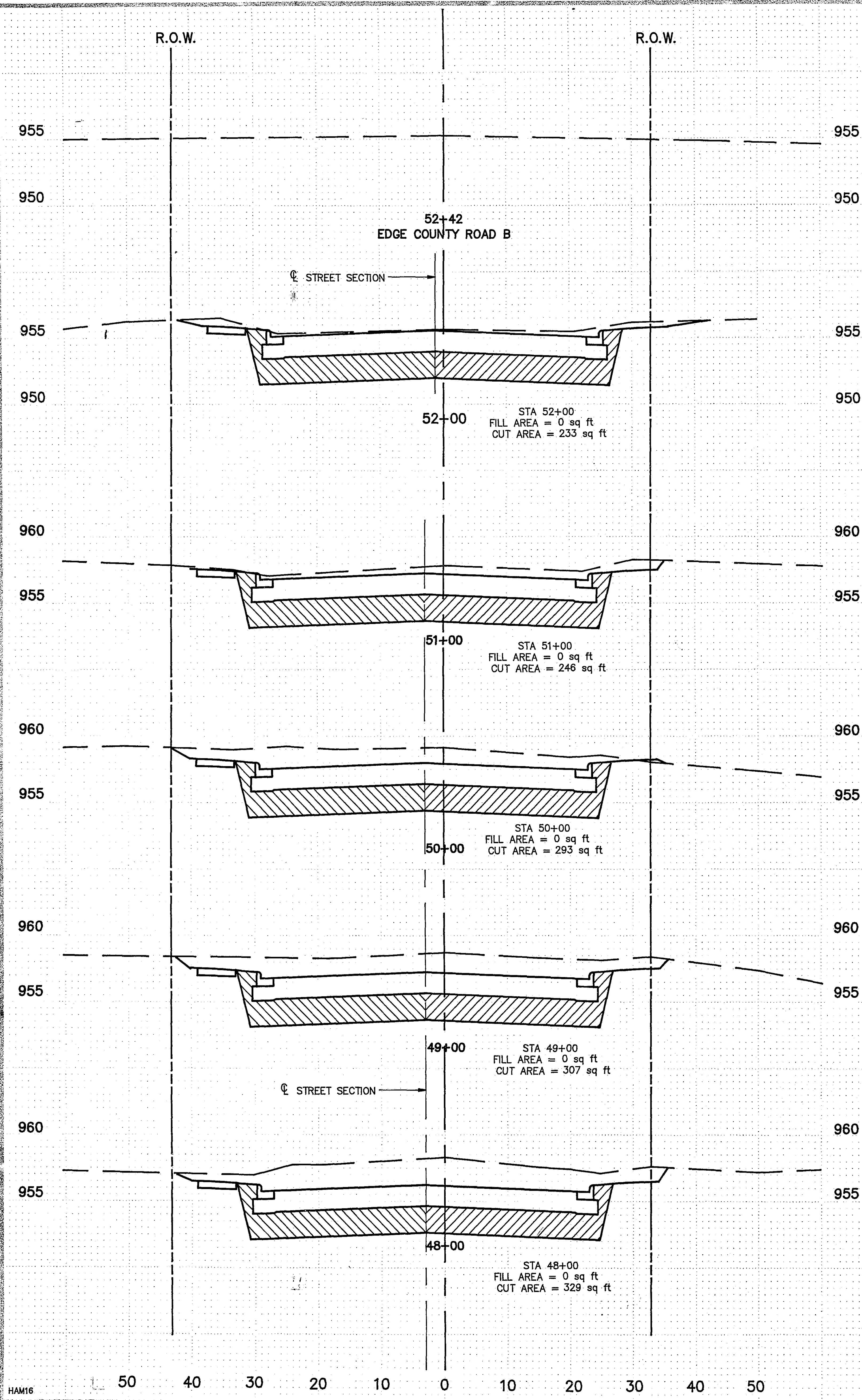
STATION	AREAS in SQ FT		VOLUMES in CU. YDS.	
	CUT	FILL	CUT	FILL
23+00	275	4	1049	7
24+00	292	0	1042	0
25+00	271	0	976	4
26+00	256	2	1033	6
27+00	302	1	1116	14
28+00	301	6	1075	11
29+00	280	0	993	13
30+00	256	7	919	13
31+00	240	0	911	0
32+00	252	0	1326	0
33+02	450	0	1276	0
34+00	253	0	907	5
35+00	237	3	12623	73





STATION	AREAS in SQ. FT.		VOLUMES in CU. YDS.	
	CUT	FILL	CUT	FILL
35+00	237	3	872	38
36+00	234	17	922	79
37+00	264	25	959	51
38+00	254	2	977	4
39+00	274	0	1065	0
40+00	302	0	1055	0
41+00	268	0	975	0
42+00	258	0	953	0
43+00	256	0	1001	0
44+00	285	0	1007	0
45+00	259	0	1885	0
46+10	666	0	1668	0
47+00	335	0	13342	171





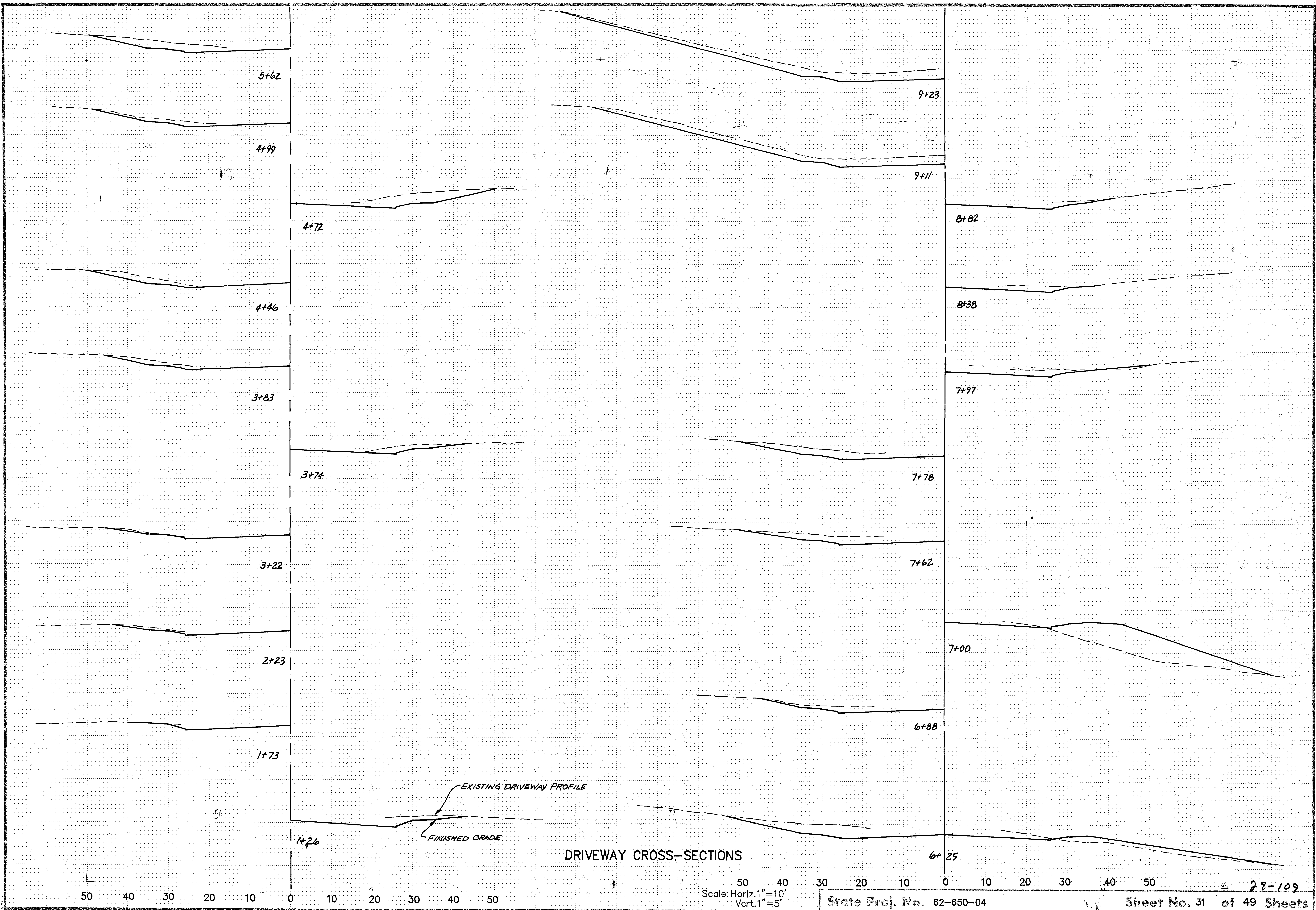
STATION	AREAS in SQ. FT.		VOLUMES in CU. YDS.	
	CUT	FILL	CUT	FILL
47+00	335	0	1230	0
48+00	329	0	1178	0
49+00	307	0	1111	0
50+00	293	0	998	0
51+00	246	0	886	0
52+00	233	0	181	0
52+42	0	0	5585	0
TOTALS			53821	548

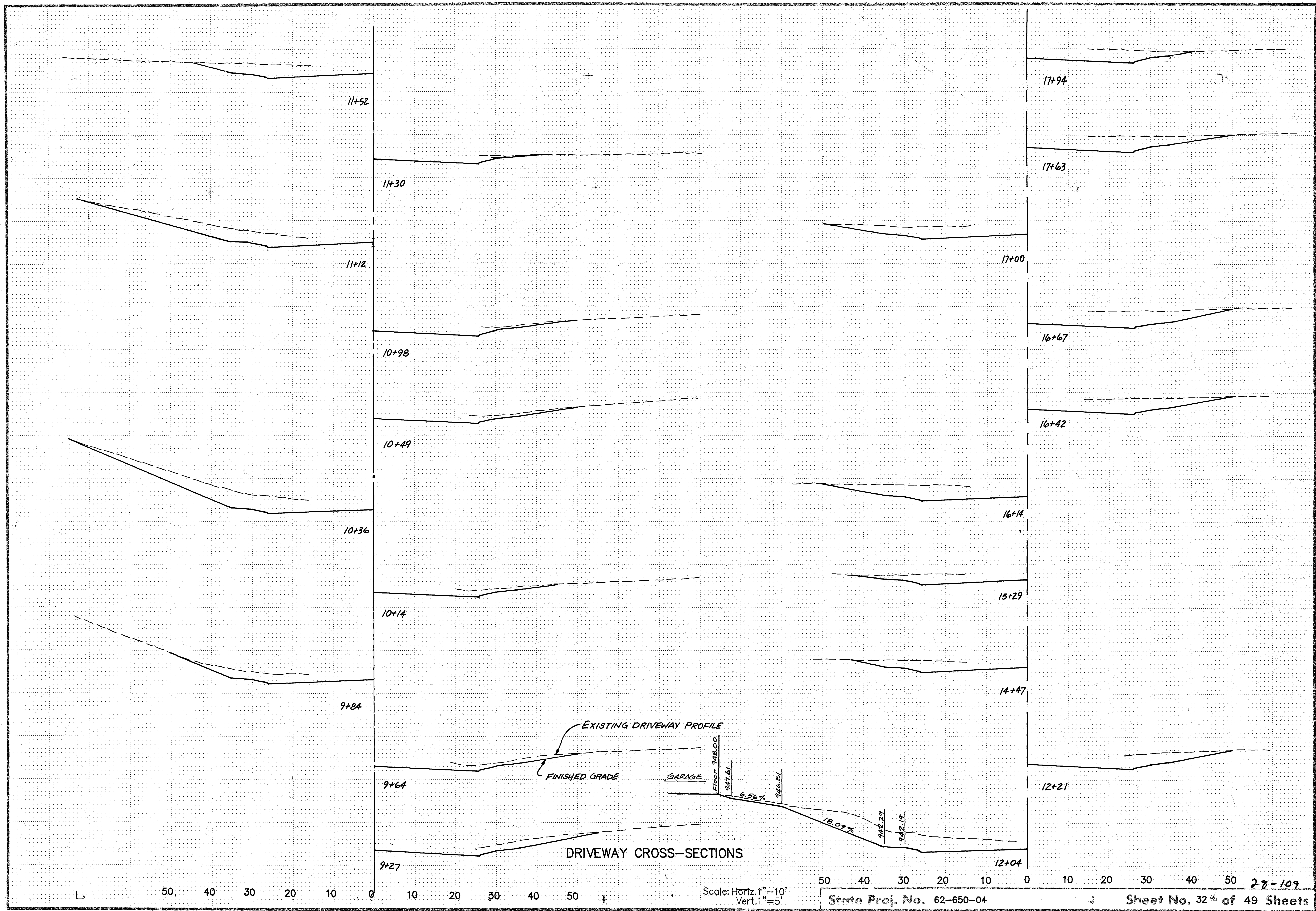
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Vert. 1"=5'

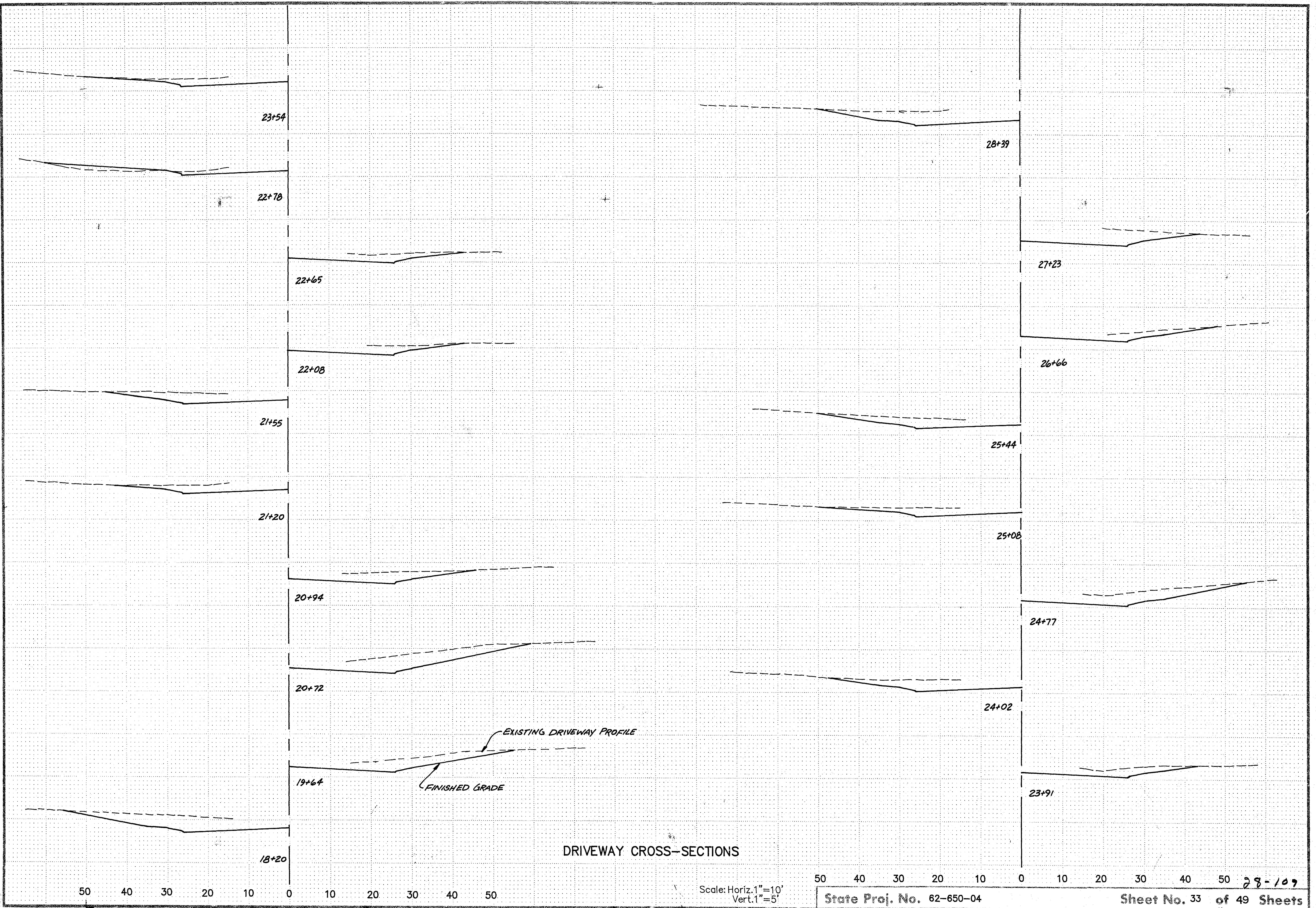
State Proj. No. 62-650-04

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28-104







23+54

22+78

22+65

22+08

21+55

21+20

20+94

20+72

19+64

18+20

28+39

27+23

26+66

25+44

25+08

24+77

24+02

23+91

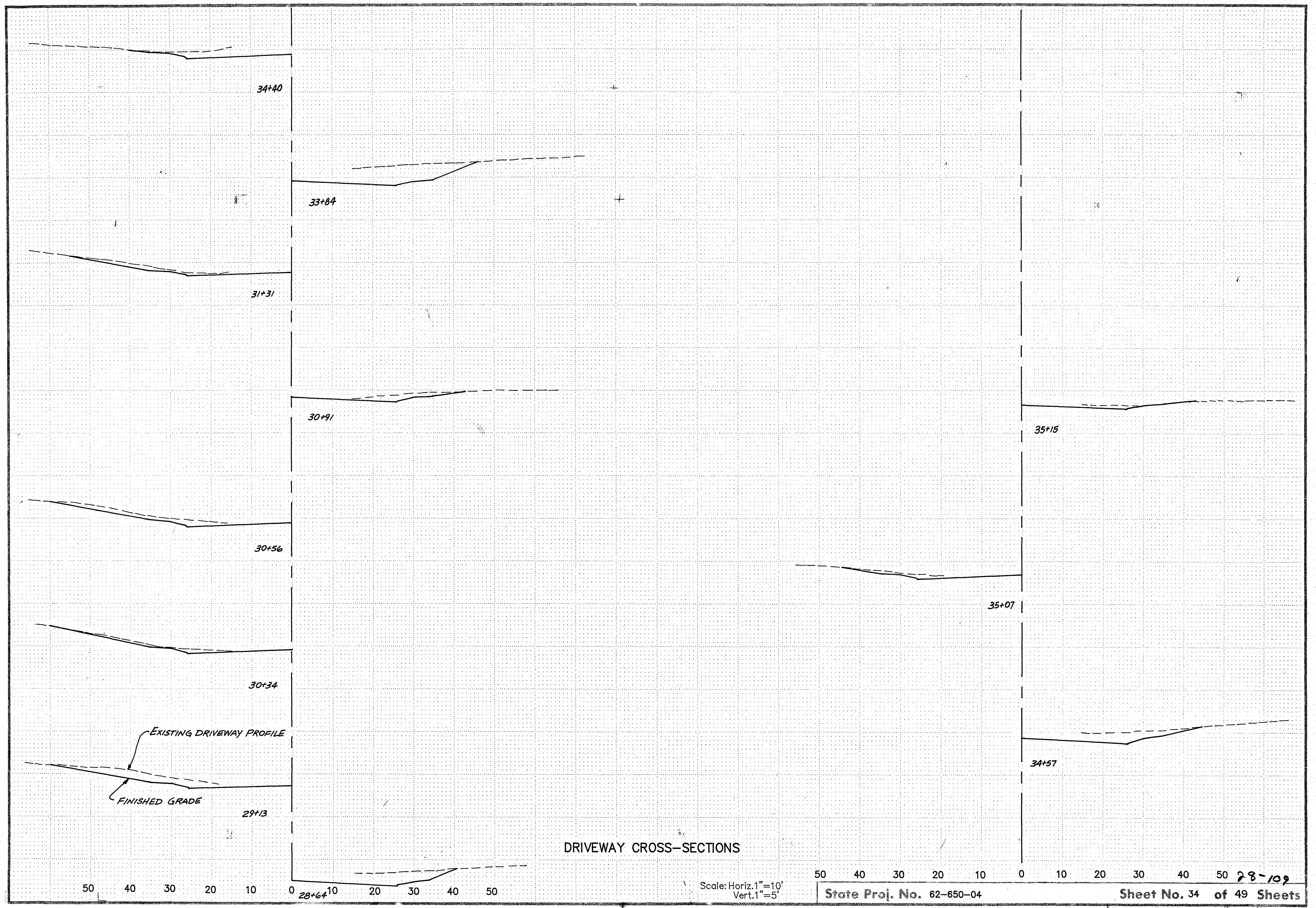
28-109

DRIVEWAY CROSS-SECTIONS

Scale: Horiz. 1"=10'
Vert. 1"=5'

State Proj. No. 62-650-04

Sheet No. 33 of 49 Sheets



34+40

33+84

31+31

30+91

30+56

30+34

EXISTING DRIVEWAY PROFILE

FINISHED GRADE

29+13

35+15

35+07

34+57

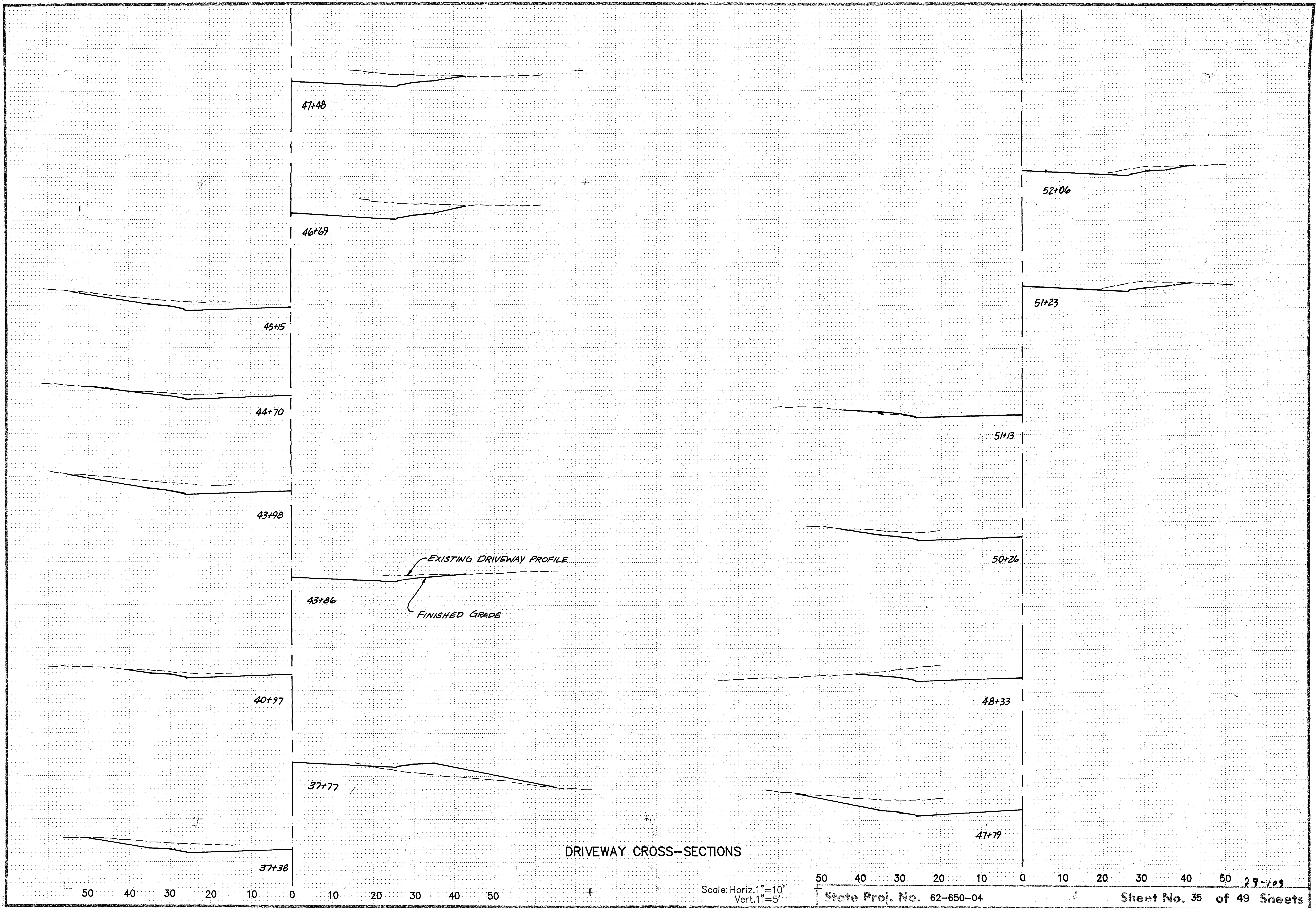
DRIVEWAY CROSS-SECTIONS

Scale: Horiz. 1"=10'
Vert. 1"=5'

State Proj. No. 62-650-04

Sheet No. 34 of 49 Sheets

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ABBREVIATIONS

YEL - YELLOW
 GRN - GREEN
 WLK - WALK
 NEU - NEUTRAL
 DWK - DON'T WALK
 LUM - LUMINAIRE
 DNL - DOWNLIGHT
 SW - SWITCH
 SWD - SWITCHED
 CH.SW. - CHECK SWITCH
 H.H. - HANDHOLE
 J.B. - JUNCTION BOX
 GR.R. - GROUND ROD
 SERV. - SERVICE
 —●— - SPLICE
 THA - THRU ARROW
 LTA - LEFT TURN ARROW
 RTA - RIGHT TURN ARROW
 TRA - THRU AND RIGHT ARROW
 RTHA (EG) - THRU ARROW - RED
 GLTA (EG) - LEFT TURN ARROW - GREEN
 YRTA (EG) - RIGHT TURN ARROW - YELLOW
 P1-1 (EG) - PEDESTRIAN INDICATIONS - PHASE "1"
 PB2-2 (EG) - PUSH BUTTON - PHASE "2"
 3-2 (EG) - SIGNAL HEADS - PHASE "3"
 D1-2 - DETECTOR - PHASE "1"
 P.E.C. - PHOTOELECTRIC CELL
 ST.LHT. - STREET LIGHT
 S.O.P. - SOURCE OF POWER
 EQG - EQUIPMENT GROUND
 SPR - SPARE CONDUCTORS
 R.S.C. - RIGID STEEL CONDUIT
 N.M.C. - NON METALLIC CONDUIT
 E.V.P. - EMERGENCY VEHICLE PRE-EMPTION
 —○— - EQG CONNECTION
 TDW - TELEPHONE DROP WIRE

F&I - FURNISH AND INSTALL
 R&S - REMOVE AND SALVAGE
 FL - FLASH/FLASHING
 R - RED
 O - ORANGE
 BL - BLUE
 WH - WHITE
 R/BLK - RED WITH BLACK TRACER
 O/BLK - ORANGE WITH BLACK TRACER
 BL/BLK - BLUE WITH BLACK TRACER
 WH/BLK - WHITE WITH BLACK TRACER
 BLK - BLACK
 BLK/WH - BLACK WITH WHITE TRACER
 G/BLK - GREEN WITH BLACK TRACER
 G - GREEN
 CLR. - CLEAR
 BR.GR. - BARE GROUND

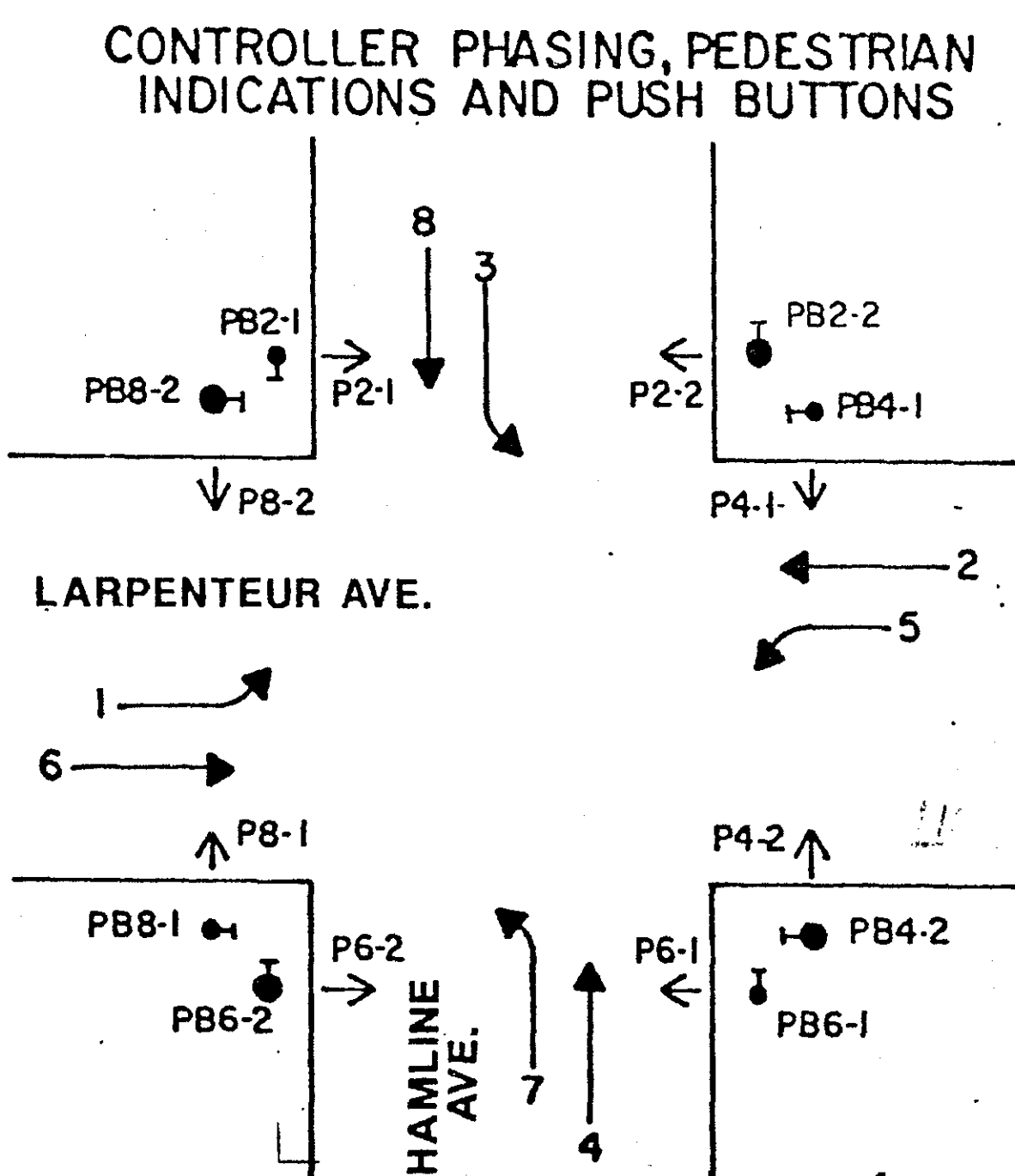
H.P.S. - HIGH PRESSURE SODIUM
 - EVP DETECTOR DIRECTION
 - SIGNAL BASE NO.
 - SIGNAL FACE NO.
 - LUMINAIRE NO.

LEGEND OF SYMBOLS	
SIGNAL BASE NO.	5
SIGNAL FACE NO.	4-2
CONTROLLER AND CABINET	
CONTROLLER AND CABINET-INPLACE	
HANDHOLE	
HANDHOLE - INPLACE	
RIGID STEEL CONDUIT (RSC)/NON-METALLIC CONDUIT (NMC)	
RIGID STEEL CONDUIT (RSC)-INPLACE	
SIGNAL FACE	
SIGNAL FACE WITH BACKGROUND SHIELD	
SIGNAL FACE - INPLACE	
PEDESTRIAN INDICATIONS	
PEDESTRIAN INDICATIONS - INPLACE	
PEDESTRIAN PUSH BUTTON ON PEDESTAL OR POLE	
PEDESTRIAN PUSH BUTTON STATION	
TRAFFIC SIGNAL PEDESTAL	
TRAFFIC SIGNAL PEDESTAL - INPLACE	
TRAFFIC SIGNAL POLE AND MAST ARM	
TRAFFIC SIGNAL POLE AND MAST ARM - INPLACE	
MAST ARM AND LUMINAIRE	
MAST ARM AND LUMINAIRE - INPLACE	
WOOD POLE	
WOOD POLE - INPLACE	
SOURCE OF POWER	
EMERGENCY VEHICLE PRE-EMPTION DETECTOR LOCATION	

SIGNAL INDICATION CHART						
FACE	PHASE	INDICATION SIZE				
		R	Y	G	Y	G
2-1	2	12"	12"	12"	-	-
2-2	2 and 5	12"	12"	12"	12"	12"
2-3	2 and 5	12"	12"	12"	12"	12"
2-4	2	12"	12"	12"	-	-
4-1	4	12"	12"	12"	-	-
4-2	4 and 7	12"	12"	12"	12"	12"
4-3	4 and 7	12"	12"	12"	12"	12"
6-1	6	12"	12"	12"	-	-
6-2	1 and 6	12"	12"	12"	12"	12"
6-3	1 and 6	12"	12"	12"	12"	12"
6-4	6	12"	12"	12"	-	-
8-1	8	12"	12"	12"	-	-
8-2	3 and 8	12"	12"	12"	12"	12"
8-3	3 and 8	12"	12"	12"	12"	12"

FLASH MODE = ALL RED

SIGNAL HEAD PHASING	
HEADS 2-2 and 2-3 or 4-2 and 4-3	HEADS 6-2 and 6-3 or 8-2 and 8-3
(R) 4-2 (Y) 02 (G) 04 (G) 05 (G) 07	(R) 8-2 (Y) 06 (G) 06 (G) 01 (G) 03



VEHICLE DETECTION			
NO	SIZE	OPERATION	LOC
D1-1	2-8'X 15'	C&E (TD)	0'
D2-1	6'X 6'	C&E	205'
D2-2	6'X 6'	C&E	205'
D2-3	2-6'X 6'	C	0'
D3-1	2-8'X 15'	C&E (TD)	0'
D4-1	6'X 6'	C&E	140'
D4-3	6'X 6'	C	0'
D5-1	2-6'X 15'	C&E (TD)	0'
D6-1	6'X 6'	C&E	205'
D6-2	6'X 6'	C&E	205'
D6-3	2-6'X 6'	C	0'
D7-1	2-6'X 15'	C&E (TD)	0'
D8-1	6'X 6'	C&E	140'
D8-3	6'X 6'	C	0'
D-1	6'X 6'	COUNT	SEE PLAN
D-2	6'X 6'	COUNT	SEE PLAN

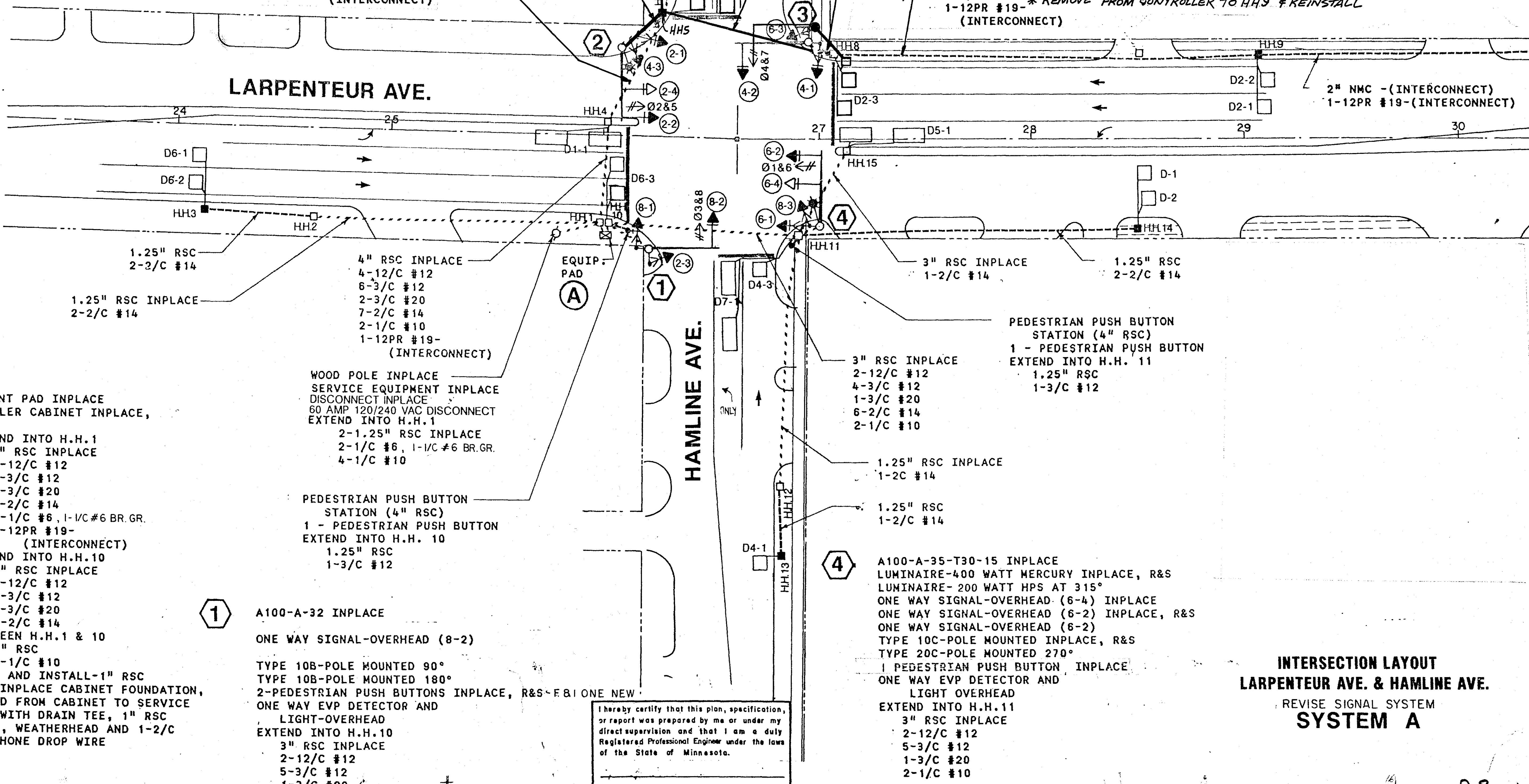
LOC = DISTANCE FROM STOP LINE TO DETECTOR
C&E = CALL & EXTEND
C = CALL ONLY
E = EXTEND ONLY
(TD) = TIME DELAY

A EQUIPMENT PAD INPLACE
CONTROLLER CABINET INPLACE,
EXTEND INTO H.H.1
4" RSC INPLACE
4-12/C #12
6-3/C #12
2-3/C #20
9-2/C #14
2-1/C #6, 1-1/C #6 BR. GR.
1-12PR #19-
(INTERCONNECT)
EXTEND INTO H.H.10
4" RSC INPLACE
4-12/C #12
6-3/C #12
2-3/C #20
7-2/C #14
BETWEEN H.H.1 & 10
3" RSC
2-1/C #10
FURNISH AND INSTALL-1" RSC
INTO INPLACE CABINET FOUNDATION,
EXTEND FROM CABINET TO SERVICE
POLE WITH DRAIN TEE, 1" RSC
RISER, WEATHERHEAD AND 1-2/C
TELEPHONE DROP WIRE

2 A100-A-33-T30-15 INPLACE
LUMINAIRE-200 WATT HPS AT 315°
ONE WAY SIGNAL-OVERHEAD (2-4) INPLACE
ONE WAY SIGNAL-OVERHEAD (2-2)
TYPE 20C-POLE MOUNTED 225°
2 PEDESTRIAN PUSH BUTTONS INPLACE, R&S-F&B ONE NEW
ONE WAY EVP DETECTOR AND
LIGHT OVERHEAD
EXTEND INTO H.H.5
3" RSC INPLACE
2-12/C #12
6-3/C #12
1-3/C #20
2-1/C #10
* REMOVE 1.25" RSC
* REMOVE & REINSTALL
* 1-2/C #14 TO HH4
* INSTALL NEW
* 1.25" RSC INPLACE
* 1-2/C #14
* RELOCATE
* PEDESTRIAN PUSH BUTTON
STATION (4" RSC)
* 1 - PEDESTRIAN PUSH BUTTON
* EXTEND INTO H.H. 5
* 1.25" RSC
* 1-3/C #12
4" RSC INPLACE
4-12/C #12
6-3/C #12
2-3/C #20
6-2/C #14
2-1/C #10
1-12PR #19-
(INTERCONNECT)
WOOD POLE INPLACE
SERVICE EQUIPMENT INPLACE
DISCONNECT INPLACE
60 AMP 120/240 VAC DISCONNECT
EXTEND INTO H.H.1
2-1.25" RSC INPLACE
2-1/C #6, 1-1/C #6 BR. GR.
4-1/C #10
PEDESTRIAN PUSH BUTTON
STATION (4" RSC)
1 - PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H. 10
1.25" RSC
1-3/C #12

3 * REMOVE & REINSTALL
* A100-A-35
* ONE WAY SIGNAL-OVERHEAD (4-2)
* TYPE 10B-POLE MOUNTED 90°
* TYPE 10B-POLE MOUNTED 180°
* 2-PEDESTRIAN PUSH BUTTONS INPLACE,
* ONE WAY EVP DETECTOR AND
LIGHT-OVERHEAD
EXTEND INTO H.H.8
3" RSC INPLACE
2-12/C #12
4-3/C #12
1-3/C #20
* INSTALL NEW LOOP DETECTOR
* 3" RSC INPLACE, INSTALL NEW
2-12/C #12
3-3/C #12
1-3/C #20
3-2/C #14
1-12PR #19-
(INTERCONNECT)
* REMOVE & REINSTALL
* PEDESTRIAN PUSH BUTTON
STATION (4" RSC)
* 1 - PEDESTRIAN PUSH BUTTON
* EXTEND INTO H.H. 8
* 1.25" RSC
* 1-3/C #12
* REMOVE TO HH4 & REINSTALL
2" RSC
2-2/C #14
1-12PR #19-
(INTERCONNECT)
* REMOVE FROM CONTROLLER TO HH9 & REINSTALL
2" NMC -(INTERCONNECT)
1-12PR #19-(INTERCONNECT)

- * NOTES**
1. ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE USED INPLACE UNLESS OTHERWISE NOTED WITH A * (*= WORK TO BE DONE, THIS SHEET ONLY).
 2. SEE SHEETS 38-40 FOR EXISTING SIGNAL SYSTEM.
 3. DETECTOR LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.
 4. R&S DENOTES REMOVE AND SALVAGE.
 5. TEMPORARY ALL RED FLASHING OPERATION DURING REVISIONS WORK. SEE SPECIAL PROVISIONS.



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.
Date _____ Reg. No. _____

LEGEND OF SYMBOLS

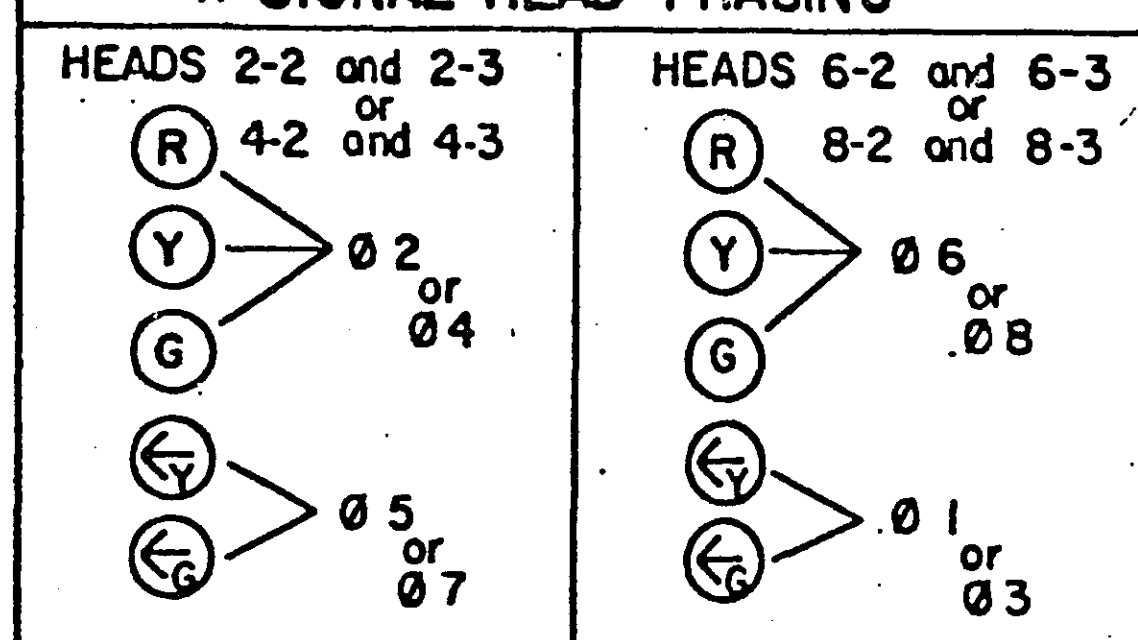
SIGNAL BASE NO.	
SIGNAL FACE NO.	
CONTROLLER AND CABINET	
CONTROLLER AND CABINET-INPLACE	
HANDHOLE	
HANDHOLE-INPLACE	
RIGID STEEL CONDUIT (RSC)/NON-METALLIC CONDUIT (NMC)	
RIGID STEEL CONDUIT (R.S.C.)-INPLACE	
SIGNAL FACE	
SIGNAL FACE WITH BACKGROUND SHIELD	
SIGNAL FACE-INPLACE	
PEDESTRIAN INDICATIONS	
PEDESTRIAN INDICATIONS-INPLACE	
PEDESTRIAN PUSH BUTTON ON PEDESTAL OR POLE	
PEDESTRIAN PUSH BUTTON STATION	
TRAFFIC SIGNAL PEDESTAL	
TRAFFIC SIGNAL PEDESTAL-INPLACE	
TRAFFIC SIGNAL POLE AND MAST ARM	
TRAFFIC SIGNAL POLE AND MAST ARM-INPLACE	
MAST ARM AND LUMINAIRE	
MAST ARM AND LUMINAIRE-INPLACE	
WOOD POLE	
WOOD POLE-INPLACE	
SOURCE OF POWER	
EMERGENCY VEHICLE PRE-EMPTION DETECTOR LOCATION	

SIGNAL INDICATION CHART

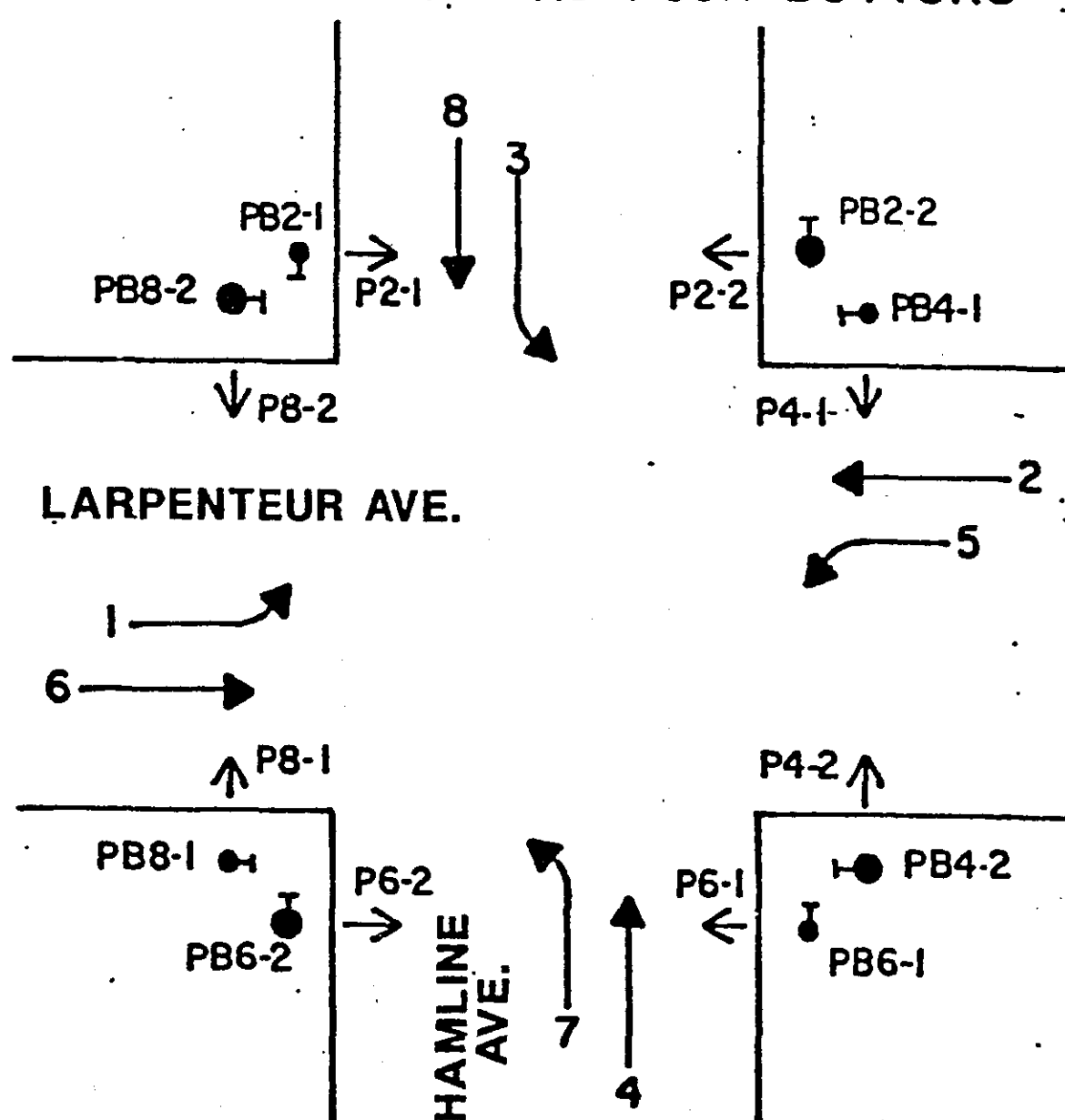
FACE	PHASE	INDICATION SIZE					
		R	Y	G	←	→	G
* 2-1	2	12"	12"	12"	-	-	-
* 2-2	2 and 5	12"	12"	12"	12"	12"	
* 2-3	2 and 5	12"	12"	12"	12"	12"	
* 2-4	2	12"	12"	12"	-	-	
* 4-1	4	12"	12"	12"	-	-	
* 4-2	4 and 7	12"	12"	12"	12"	12"	
* 4-3	4 and 7	12"	12"	12"	12"	12"	
* 6-1	6	12"	12"	12"	-	-	
* 6-2	1 and 6	12"	12"	12"	12"	12"	
* 6-3	1 and 6	12"	12"	12"	12"	12"	
* 6-4	6	12"	12"	12"	-	-	
* 8-1	8	12"	12"	12"	-	-	
* 8-2	3 and 8	12"	12"	12"	12"	12"	
* 8-3	3 and 8	12"	12"	12"	12"	12"	

FLASH MODE = ALL RED

* SIGNAL HEAD PHASING



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



ALL LOOP DETECTORS ARE F&B

* VEHICLE DETECTION

NO	SIZE	OPERATION	LOC
* D1-1	2-8'X 15'	C&E (TD)	0'
* D2-1	6'X 6'	C&E	205'
* D2-2	6'X 6'	C&E	205'
* D2-3	2-6'X 6'	C	0'
* D3-1	2-6'X 15'	C&E (TD)	0'
* D4-1	6'X 6'	C&E	140'
* D4-3	6'X 6'	C	0'
* D5-1	2-6'X 15'	C&E (TD)	0'
* D5-1	6'X 6'	C&E	205'
* D6-2	6'X 6'	C&E	205'
* D6-3	2-6'X 6'	C	0'
* D7-1	2-6'X 15'	C&E (TD)	0'
* D8-1	6'X 6'	C&E	140'
* D8-3	6'X 6'	C	0'
* D-1	6'X 6'	COUNT	SEE PLAN
* D-2	6'X 6'	COUNT	SEE PLAN

LOC = DISTANCE FROM STOP LINE TO DETECTOR
C&E = CALL & EXTEND
C = CALL ONLY
E = EXTEND ONLY
(TD) = TIME DELAY

2

A100-A-33-T30-15 INPLACE
* LUMINAIRE-400 WATT MERCURY INPLACE, R&S
* LUMINAIRE-200 WATT HPS AT 315°
ONE WAY SIGNAL-OVERHEAD (2-4) INPLACE
* ONE WAY SIGNAL-OVERHEAD (2-2) INPLACE, R&S
* ONE WAY SIGNAL-OVERHEAD (2-2)
* TYPE 10C-POLE MOUNTED INPLACE, R&S
* TYPE 20C-POLE MOUNTED 225°
* 2 PEDESTRIAN PUSH BUTTONS INPLACE, R&S-F&B ONE NEW
* ONE WAY EVP DETECTOR AND LIGHT OVERHEAD
EXTEND INTO H.H.5
3" RSC INPLACE
* 2-12/C #12
* 6-3/C #12
* 1-3/C #20
* 2-1/C #10

* PEDESTRIAN PUSH BUTTON STATION (4" RSC)
* 1 - PEDESTRIAN PUSH BUTTON
* EXTEND INTO H.H. 5
* 1.25" RSC
* 1-3/C #12

4" RSC INPLACE
* 4-12/C #12
* 6-3/C #12
* 2-3/C #20
* 6-2/C #14
* 2-1/C #10
* 1-12PR #19-(INTERCONNECT)

WOOD POLE INPLACE
SERVICE EQUIPMENT INPLACE
* DISCONNECT INPLACE,R&S
* 60 AMP 120/240 VAC DISCONNECT
EXTEND INTO H.H.1
2-1.25" RSC INPLACE
* 2-1/C #6, 1-1/C #6 BR.GR.
* 4-1/C #10

* PEDESTRIAN PUSH BUTTON STATION (4" RSC)
* 1 - PEDESTRIAN PUSH BUTTON
* EXTEND INTO H.H. 10
* 1.25" RSC
* 1-3/C #12

1

A100-A-32 INPLACE
* 2-ONE WAY SIGNALS-OVERHEAD INPLACE, R&S
* ONE WAY SIGNAL-OVERHEAD (8-2)
* TYPE 30B-POLE MOUNTED INPLACE, R&S
* TYPE 10B-POLE MOUNTED 90°
* TYPE 10B-POLE MOUNTED 180°
* 2-PEDESTRIAN PUSH BUTTONS INPLACE, R&S-F&B ONE NEW
* ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD
EXTEND INTO H.H.10
3" RSC INPLACE
* 2-12/C #12
* 5-3/C #12
* 1-3/C #20

3

A100-A-35 INPLACE
* 2-ONE WAY SIGNALS-OVERHEAD INPLACE, R&S
* ONE WAY SIGNAL-OVERHEAD (4-2)
* TYPE 30B-POLE MOUNTED INPLACE, R&S
* TYPE 10B-POLE MOUNTED 90°
* TYPE 10B-POLE MOUNTED 180°
* 2-PEDESTRIAN PUSH BUTTONS INPLACE, R&S-F&B ONE NEW
* ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD
EXTEND INTO H.H.8
3" RSC INPLACE
* 2-12/C #12
* 4-3/C #12
* 1-3/C #20

3" RSC INPLACE
* 2-12/C #12
* 3-3/C #12
* 1-3/C #20
* 3-2/C #14
* 1-12PR #19-(INTERCONNECT)

* PEDESTRIAN PUSH BUTTON STATION (4" RSC)
* 1 - PEDESTRIAN PUSH BUTTON
* EXTEND INTO H.H. 8
* 1.25" RSC
* 1-3/C #12

* INPLACE H.H. WITH METAL FRAME AND COVER, R&S. PATCH CONCRETE PAVEMENT.

* 2" RSC
* 2-2/C #14
* 1-12PR #19-(INTERCONNECT)

* 2" NMC -(INTERCONNECT)
* 1-12PR #19-(INTERCONNECT)

3" RSC INPLACE
* 1-2/C #14

1.25" RSC INPLACE
* 1-2C #14

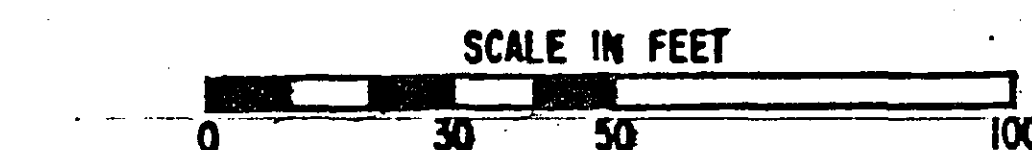
3" RSC INPLACE
* 2-12/C #12
* 4-3/C #12
* 1-3/C #20
* 6-2/C #14
* 2-1/C #10

1.25" RSC INPLACE
* 1-2C #14

1.25" RSC
* 1-2/C #14

4

A100-A-35-T30-15 INPLACE
* LUMINAIRE-400 WATT MERCURY INPLACE, R&S
* LUMINAIRE-200 WATT HPS AT 315°
ONE WAY SIGNAL-OVERHEAD (6-4) INPLACE
* ONE WAY SIGNAL-OVERHEAD (6-2) INPLACE, R&S
* ONE WAY SIGNAL-OVERHEAD (6-2)
* TYPE 10C-POLE MOUNTED INPLACE, R&S
* TYPE 20C-POLE MOUNTED 270°
* 2 PEDESTRIAN PUSH BUTTONS INPLACE, R&S-F&B ONE NEW
* ONE WAY EVP DETECTOR AND LIGHT OVERHEAD
EXTEND INTO H.H.11
3" RSC INPLACE
* 2-12/C #12
* 5-3/C #12
* 1-3/C #20
* 2-1/C #10



* NOTES

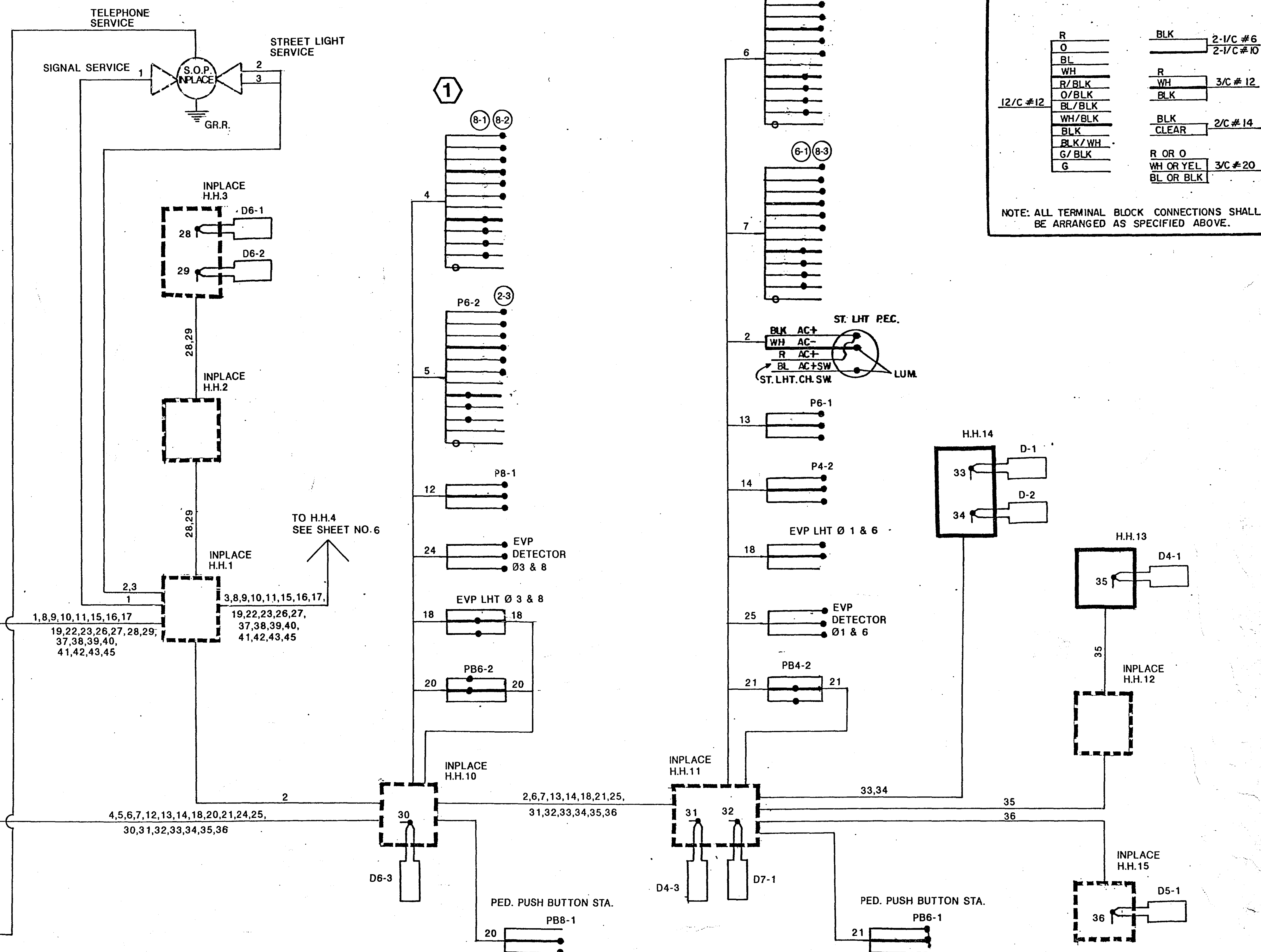
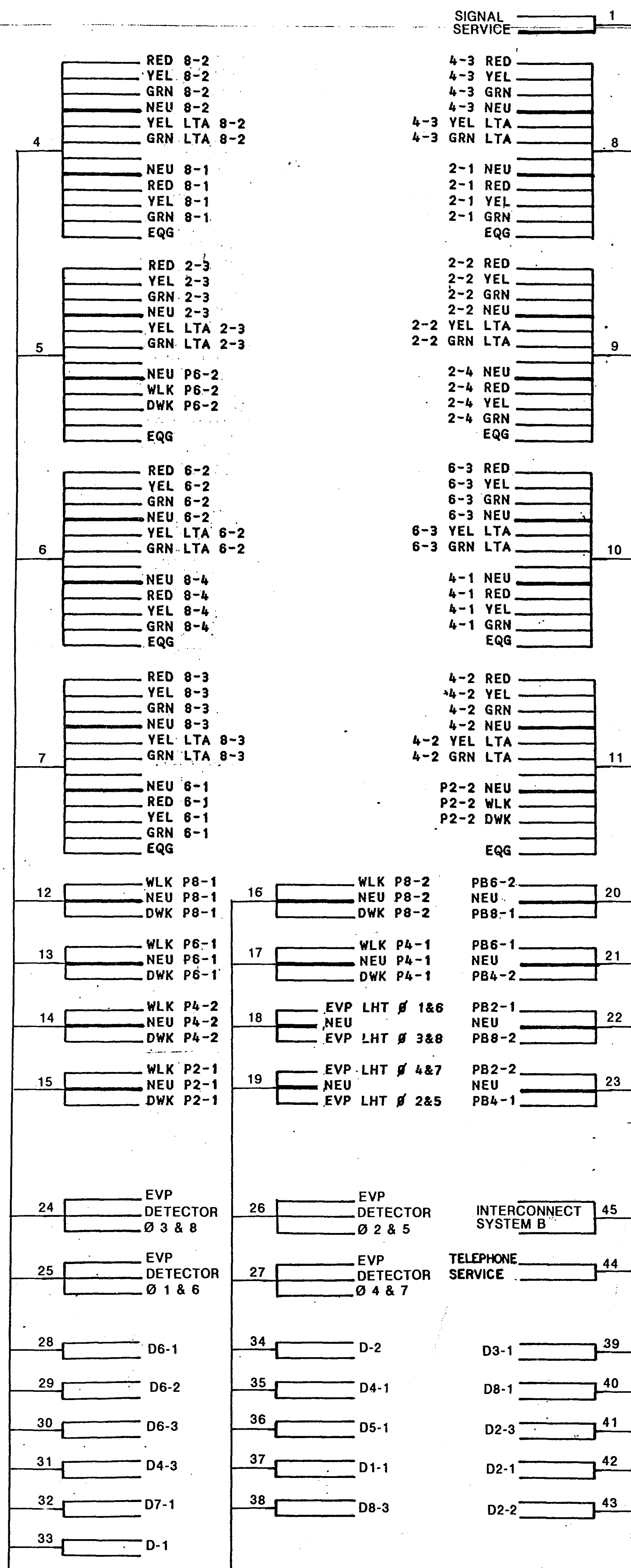
- ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE USED INPLACE UNLESS OTHERWISE NOTED WITH A * (*=WORK TO BE DONE, THIS SHEET ONLY).
- SEE SHEETS 7-8 FOR EXISTING SIGNAL SYSTEM.
- DETECTOR LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.
- REMOVE AND SALVAGE INPLACE DOWN LIGHTS MOUNTED OVERHEAD (2 TOTAL). PLUG UNUSED MOUNTINGS.
- WELD NEW 1.5" DIA HALF COUPLINGS FOR REVISED SIGNAL HEAD MOUNTINGS ON POLES 1,2 AND 3. PLUG UNUSED MOUNTINGS.
- R&S DENOTES REMOVE AND SALVAGE.
- REMOVE AND SALVAGE ALL CONTROL CABLE AND CONDUCTORS AND INSTALL NEW.
- TEMPORARY ALL RED FLASHING OPERATION DURING REVISIONS WORK. SEE SPECIAL PROVISIONS.
- ALL PEDESTRIAN INDICATIONS SHALL BE 12"X12".

* NOTES

- ALL NEW SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS EXCEPT SIGNAL FACES 4-3 AND 8-3.
- EACH LUMINAIRE SHALL HAVE A PHOTO ELECTRIC CELL AND STREET LIGHT CHECK SWITCH.
- THE COUNTY SHALL FURNISH TO THE CONTRACTOR EVP DETECTORS AND ASSOCIATED CONTROL EQUIPMENT (SEE SPECIAL PROVISIONS).
- HANDHOLES 1,2,4,5,8,10,11, AND 12 ARE INPLACE. USE INPLACE.
- (INTERCONNECT) DENOTES ITEM TO BE PAID FOR UNDER SEPARATE PAY ITEM. SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- PAINT REVISED SIGNAL SYSTEM. (SEE SPECIAL PROVISIONS).

INTERSECTION LAYOUT
LARPENTEUR AVE. & HAMLINE AVE.
REVISE SIGNAL SYSTEM
SYSTEM A
FOR INFORMATION ONLY
(INPLACE SYSTEM)

CONTROLLER CABINET



CONDUCTOR COLOR CODING

	R	BLK	2-1/C # 6
	O		2-1/C # 10
	BL		
	WH	R	
	R/BLK	WH	3/C # 12
	O/BLK	BLK	
12/C # 12	BL/BLK		
	WH/BLK	BLK	2/C # 14
	BLK	CLEAR	
	BLK/WH		
	G/BLK	R OR O	
	G	WH OR YEL	3/C # 20
		BL OR BLK	

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL
BE ARRANGED AS SPECIFIED ABOVE.

**FIELD WIRING DIAGRAM
LARPEN TEUR AVE. & HAMLINE AVE.
SYSTEM A
FOR INFORMATION ONLY
(INPLACE SYSTEM)**

28-109

LEGEND OF SYMBOLS

SIGNAL BASE No.	
SIGNAL FACE No.	
CONTROLLER AND CABINET	
CONTROLLER AND CABINET-INPLACE	
HANDHOLE	
HANDHOLE-INPLACE	
RIGID STEEL CONDUIT (RSC)	
RIGID STEEL CONDUIT (RSC)-INPLACE	
SIGNAL FACE	
SIGNAL FACE WITH BACKGROUND SHIELD	
SIGNAL FACE - INPLACE	
PEDESTRIAN INDICATIONS	
PEDESTRIAN INDICATIONS -INPLACE	
PEDESTRIAN PUSH BUTTON ON PEDESTAL OR POLE	
PEDESTRIAN PUSH BUTTON STATION	
TRAFFIC SIGNAL PEDESTAL -INPLACE	
TRAFFIC SIGNAL POLE AND MAST ARM	
TRAFFIC SIGNAL POLE AND MAST ARM -INPLACE	
MAST ARM AND LUMINAIRE	
MAST ARM AND LUMINAIRE -INPLACE	
WOOD POLE	
WOOD POLE -INPLACE	
SOURCE OF POWER	
EMERGENCY VEHICLE PRE-EMPTION DETECTOR LOCATION	

LOOP DETECTORS

NUMBER	SIZE	FUNCTION	LOCATION
D2-1	6' x 6'	C & E	210
D2-2	6' x 6'	C & E	210
D2-3	2-6' x 8'	C ONLY	5
*D4-1	6' x 6'	C & E	155
*D4-2	6' x 6'	C & E	155
*D4-3	2-6' x 8'	C ONLY	5
D6-1	6' x 6'	C & E	210
D6-2	6' x 6'	C & E	210
D6-3	2-6' x 8'	C ONLY	5
D8-1	6' x 6'	C & E	210
D8-2	6' x 6'	C & E	210
D8-3	2-6' x 8'	C ONLY	5

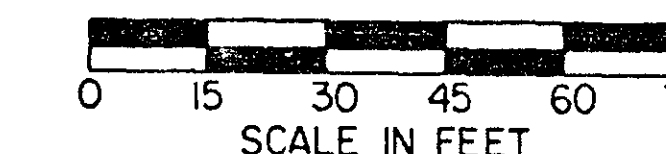
LOCATION = DISTANCE FROM STOP
LINE TO DETECTOR
C = CALL
E = EXTEND

②

P80-A-20
ONE-WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 900
TYPE 10B - POLE MOUNTED 1800
9" PEDESTRIAN INDICATIONS
1 - PEDESTRIAN PUSH BUTTON
TWO-WAY EVP DETECTOR AND
LIGHT OVERHEAD
EXTEND INTO H.H. 6
3" RSC
2 - 12/C #12
2 - 3/C #12
1 - 3/C #20

③

P80-A-20-T40-10
LUMINAIRE - 200 WATT HPS AT 3500
ONE-WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 900
TYPE 10B - POLE MOUNTED 1800
9" PEDESTRIAN INDICATIONS
1 - PEDESTRIAN PUSH BUTTON
TWO-WAY EVP DETECTOR AND
LIGHT OVERHEAD
EXTEND INTO H.H. 13
3" RSC
2 - 12/C #12
2 - 3/C #12
1 - 3/C #20
2 - 1/C #10



NOTES:

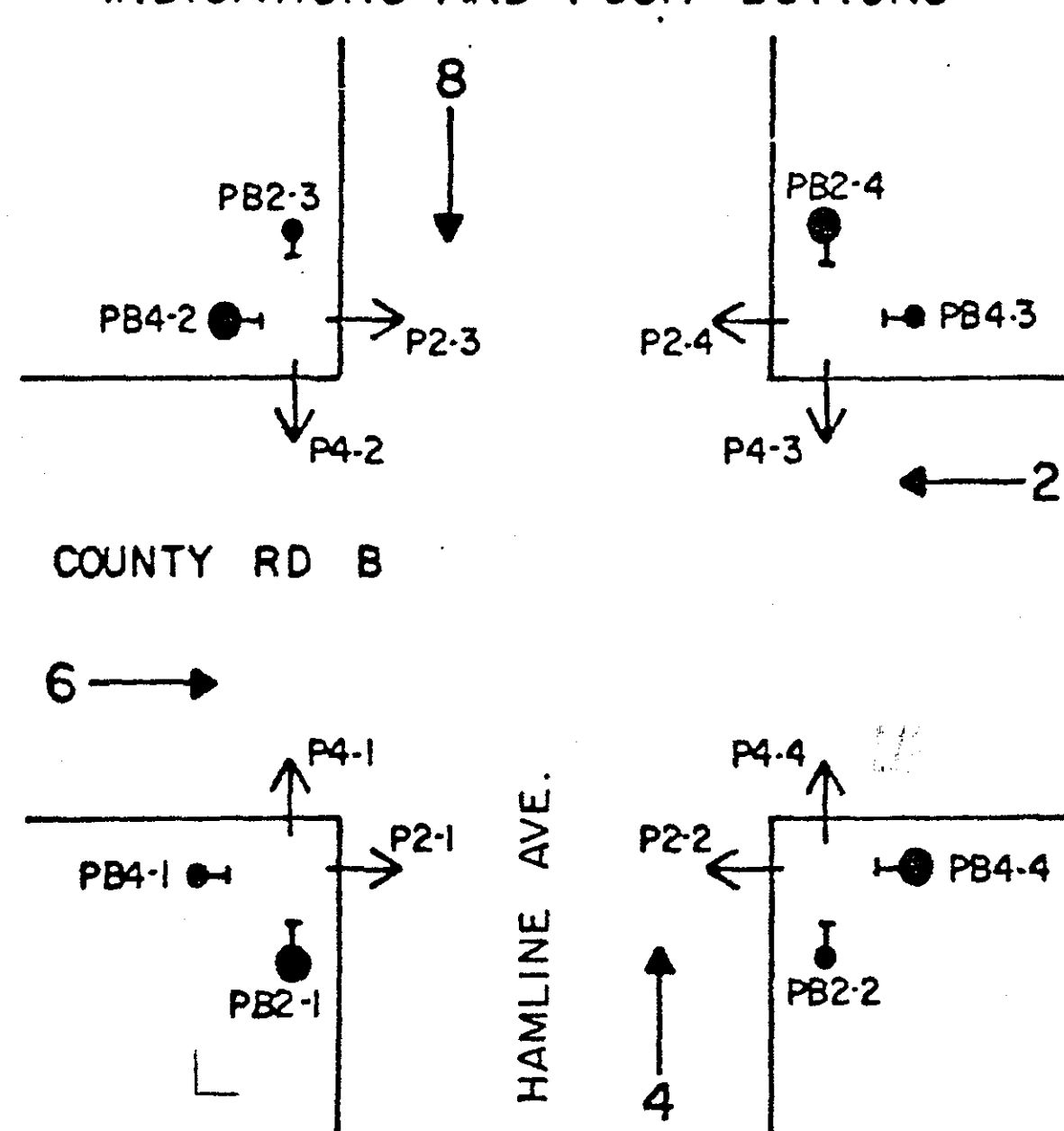
- ALL ITEMS OF THIS SIGNAL SYSTEM ARE IN PLACE AND CAN BE USED INPLACE UNLESS OTHERWISE NOTED WITH A "*" (* = WORK TO BE DONE THIS SHEET ONLY).
- POLE & DETECTOR LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.

SIGNAL INDICATION CHART

FACE	PHASE	INDICATION SIZE		
		R	Y	G
2-1	2	12"	12"	12"
2-2	2	12"	12"	12"
2-3	2	12"	12"	12"
4-1	4	12"	12"	12"
4-2	4	12"	12"	12"
4-3	4	12"	12"	12"
6-1	6	12"	12"	12"
6-2	6	12"	12"	12"
6-3	6	12"	12"	12"
8-1	8	12"	12"	12"
8-2	8	12"	12"	12"
8-3	8	12"	12"	12"

FLASH MODE = ALL RED

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



EQUIPMENT PAD - TYPE X (SEE DETAILS)
* 6 STEEL GUARD POSTS (REMOVE & SALVAGE)

SERVICE CABINET
EXTEND INTO H.H. 1
1 1/4" RSC
3 - 1/C #4
EXTEND INTO H.H. 9
1 1/4" RSC
2 - 1/C #10
EXTEND INTO H.H. 3
1 1/4" RSC
2 - 1/C #10
CONTROLLER CABINET
EXTEND TO SERVICE POLE
1" RSC WITH DRAIN TEE
AND 1 - 2/C TELEPHONE DROP WIRE
EXTEND INTO H.H. 3
4" RSC
4 - 12/C #12
3 - 3/C #12
2 - 3/C #20
9 - 2/C #14
EXTEND INTO H.H. 9
4" RSC
4 - 12/C #12
2 - 3/C #12
3 - 2/C #14
BETWEEN SERVICE & CONTROLLER
CABINET - 1 1/4" RSC
2 - 1/C #6
1 - 1/C #6 (BARE)

PEDESTRIAN PUSH BUTTON STA (4" RSC)
1 - PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H. 3
1 1/4" RSC
1 - 3/C #12

* RELOCATE TO NEW NSP POLE
* S.O.P. AND TELEPHONE SERVICE
* (N.S.P. POLE)
* 1 1/4" RSC RISER WITH WEATHER HEAD
* EXTEND INTO H.H. 2
* 1 1/4" RSC
* 3 - 1/C #4

①

P80-A-20-T40-10
LUMINAIRE - 200 WATT HPS AT 3500
ONE-WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 900
TYPE 10B - POLE MOUNTED 1800
9" PEDESTRIAN INDICATIONS
1 - PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H. 9
3" RSC
2 - 12/C #12
1 - 3/C #12
2 - 1/C #10

HAMLIN AVE.

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 _____ REG NO. _____

INTERSECTION LAYOUT
COUNTY RD. B & HAMLIN AVE

REVISED SYSTEM B

SAP. NO. 62-650-04

SHEET NO. 41 OF 49 SHEETS

28-109

23-139

LEGEND OF SYMBOLS

SIGNAL BASE No.	
SIGNAL FACE No.	
CONTROLLER AND CABINET	
CONTROLLER AND CABINET-INPLACE	
HANDHOLE	
HANDHOLE-INPLACE	
RIGID STEEL CONDUIT (R.S.C.)	
RIGID STEEL CONDUIT (R.S.C.)-INPLACE	
SIGNAL FACE	
SIGNAL FACE WITH BACKGROUND SHIELD	
PEDESTRIAN INDICATIONS	
PEDESTRIAN INDICATIONS-INPLACE	
PEDESTRIAN PUSH BUTTON ON PEDESTAL OR POLE	
PEDESTRIAN PUSH BUTTON STATION	
TRAFFIC SIGNAL PEDESTAL	
TRAFFIC SIGNAL PEDESTAL-INPLACE	
TRAFFIC SIGNAL POLE AND MAST ARM	
TRAFFIC SIGNAL POLE AND MAST ARM-INPLACE	
MAST ARM AND LUMINAIRE	
MAST ARM AND LUMINAIRE-INPLACE	
WOOD POLE	
WOOD POLE-INPLACE	
SOURCE OF POWER	
EMERGENCY VEHICLE PRE-EMPTION DETECTOR LOCATION	

LOOP DETECTORS

NUMBER	SIZE	FUNCTION	LOCATION
D2-1	6' x 6'	C & E	210
D2-2	6' x 6'	C & E	210
D2-3	2-6' x 8'	C ONLY	5
D4-1	6' x 6'	C & E	155
D4-2	6' x 6'	C & E	155
D4-3	2-6' x 8'	C ONLY	5
D6-1	6' x 6'	C & E	210
D6-2	6' x 6'	C & E	210
D6-3	2-6' x 8'	C ONLY	5
D8-1	6' x 6'	C & E	210
D8-2	6' x 6'	C & E	210
D8-3	2-6' x 8'	C ONLY	5

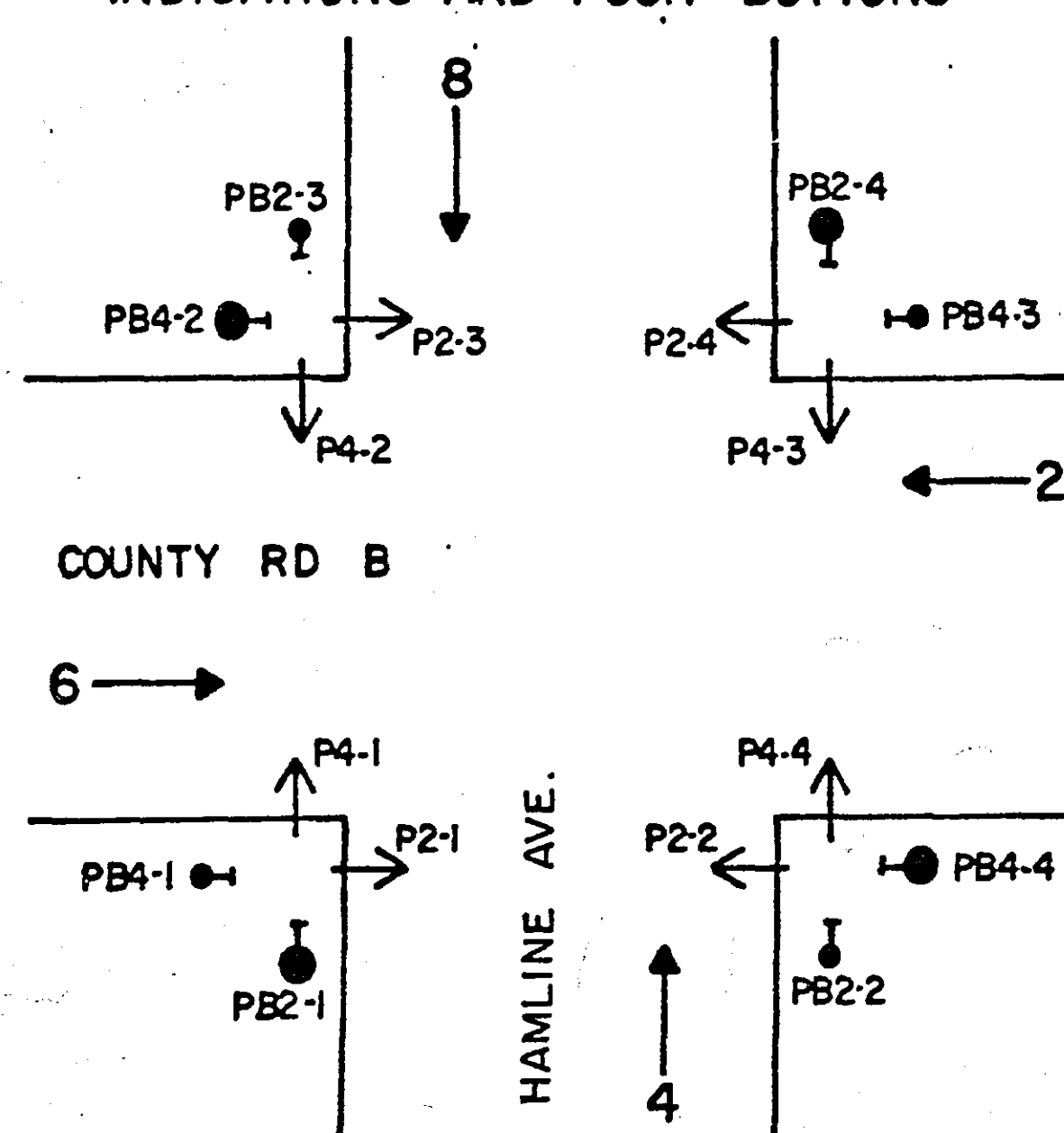
LOCATION = DISTANCE FROM STOP
LINE TO DETECTOR
C = CALL
E = EXTEND

SIGNAL INDICATION CHART

FACE	PHASE	INDICATION SIZE		
		R	Y	G
2-1	2	12"	12"	12"
2-2	2	12"	12"	12"
2-3	2	12"	12"	12"
4-1	4	12"	12"	12"
4-2	4	12"	12"	12"
4-3	4	12"	12"	12"
6-1	6	12"	12"	12"
6-2	6	12"	12"	12"
6-3	6	12"	12"	12"
8-1	8	12"	12"	12"
8-2	8	12"	12"	12"
8-3	8	12"	12"	12"

FLASH MODE = ALL RED

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



EQUIPMENT PAD - TYPE X (SEE DETAILS)
6 STEEL GUARD POSTS
SERVICE CABINET
EXTEND INTO H.H. 1
1 1/4" RSC
3 - 1/C #4
EXTEND INTO H.H. 9
1 1/4" RSC
2 - 1/C #10
EXTEND INTO H.H. 3
1 1/4" RSC
2 - 1/C #10
CONTROLLER CABINET
EXTEND TO SERVICE POLE
1" RSC WITH DRAIN TEE
AND 1 - 2/C TELEPHONE DROP WIRE
EXTEND INTO H.H. 3
4" RSC
4 - 12/C #12
3 - 3/C #12
2 - 3/C #20
9 - 2/C #14
EXTEND INTO H.H. 9
4" RSC
4 - 12/C #12
2 - 3/C #12
3 - 2/C #14
BETWEEN SERVICE & CONTROLLER
CABINET - 1 1/4" RSC
2 - 1/C #6
1 - 1/C #6 (BARE)

PEDESTRIAN PUSH BUTTON STA (4" RSC)
1 - PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H. 3
1 1/4" RSC
1 - 3/C #12

S.O.P. AND TELEPHONE SERVICE
(N.S.P. POLE)
1 1/4" RSC RISER WITH WEATHER HEAD
EXTEND INTO H.H. 2
1 1/4" RSC
3 - 1/C #4

① P80-A-20-T40-10
LUMINAIRE - 200 WATT HPS AT 3500
ONE-WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 900
TYPE 10B - POLE MOUNTED 1800
9" PEDESTRIAN INDICATIONS
1 - PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H. 9
3" RSC
2 - 12/C #12
1 - 3/C #12
2 - 1/C #10

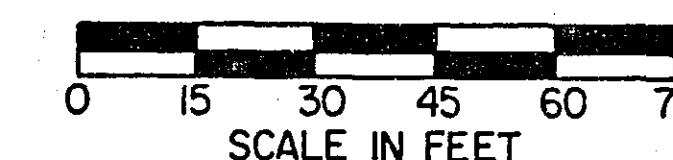
② P80-A-20
ONE-WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 900
TYPE 10B - POLE MOUNTED 1800
9" PEDESTRIAN INDICATIONS
1 - PEDESTRIAN PUSH BUTTON
TWO-WAY EVP DETECTOR AND
LIGHT OVERHEAD
EXTEND INTO H.H. 6
3" RSC
2 - 12/C #12
2 - 3/C #12
1 - 3/C #20

③ P80-A-20-T40-10
LUMINAIRE - 200 WATT HPS AT 3500
ONE-WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 900
TYPE 10B - POLE MOUNTED 1800
9" PEDESTRIAN INDICATIONS
1 - PEDESTRIAN PUSH BUTTON
TWO-WAY EVP DETECTOR AND
LIGHT OVERHEAD
EXTEND INTO H.H. 13
3" RSC
2 - 12/C #12
2 - 3/C #12
1 - 3/C #20
2 - 1/C #10

PEDESTRIAN PUSH BUTTON STA (4" RSC)
1 - PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H. 13
1 1/4" RSC
1 - 3/C #12

PEDESTRIAN PUSH BUTTON STA (4" RSC)
1 - PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H. 10
1 1/4" RSC
1 - 3/C #12

④ P80-A-20
ONE-WAY SIGNAL - OVERHEAD
TYPE 10B - POLE MOUNTED 900
TYPE 10B - POLE MOUNTED 1800
9" PEDESTRIAN INDICATIONS
1 - PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H. 10
3" RSC
2 - 12/C #12
2 - 3/C #12



NOTES:

- CONTRACTOR SHALL REMOVE AND SALVAGE INPLACE SIGNAL SYSTEM AS DIRECTED BY THE ENGINEER. SEE SPECIAL PROVISIONS.
- POLE AND DETECTOR LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.
- THE COUNTY SHALL FURNISH TO THE CONTRACTOR EVP DETECTORS AND ASSOCIATED CONTROL EQUIPMENT (SEE SPECIAL PROVISIONS).

ASBUILT PLAN
CONFORMING TO
CONS. RECORDS

DONE BY: JPH
DATE: Feb. 1989

INTERSECTION LAYOUT
COUNTY RD. B & HAMLINE AVE

SYSTEM B

FOR INFORMATION ONLY
(INPLACE SYSTEM)

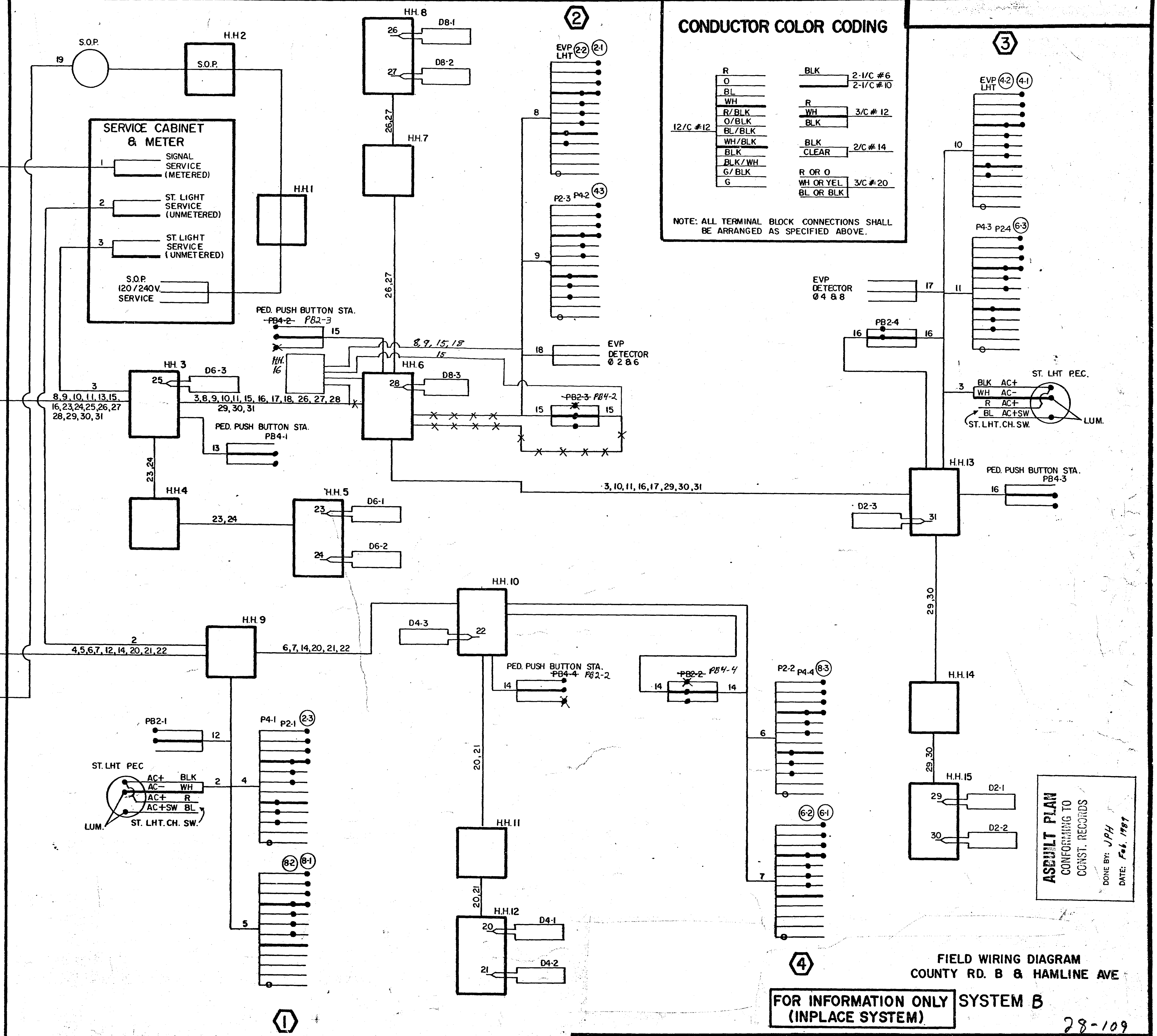
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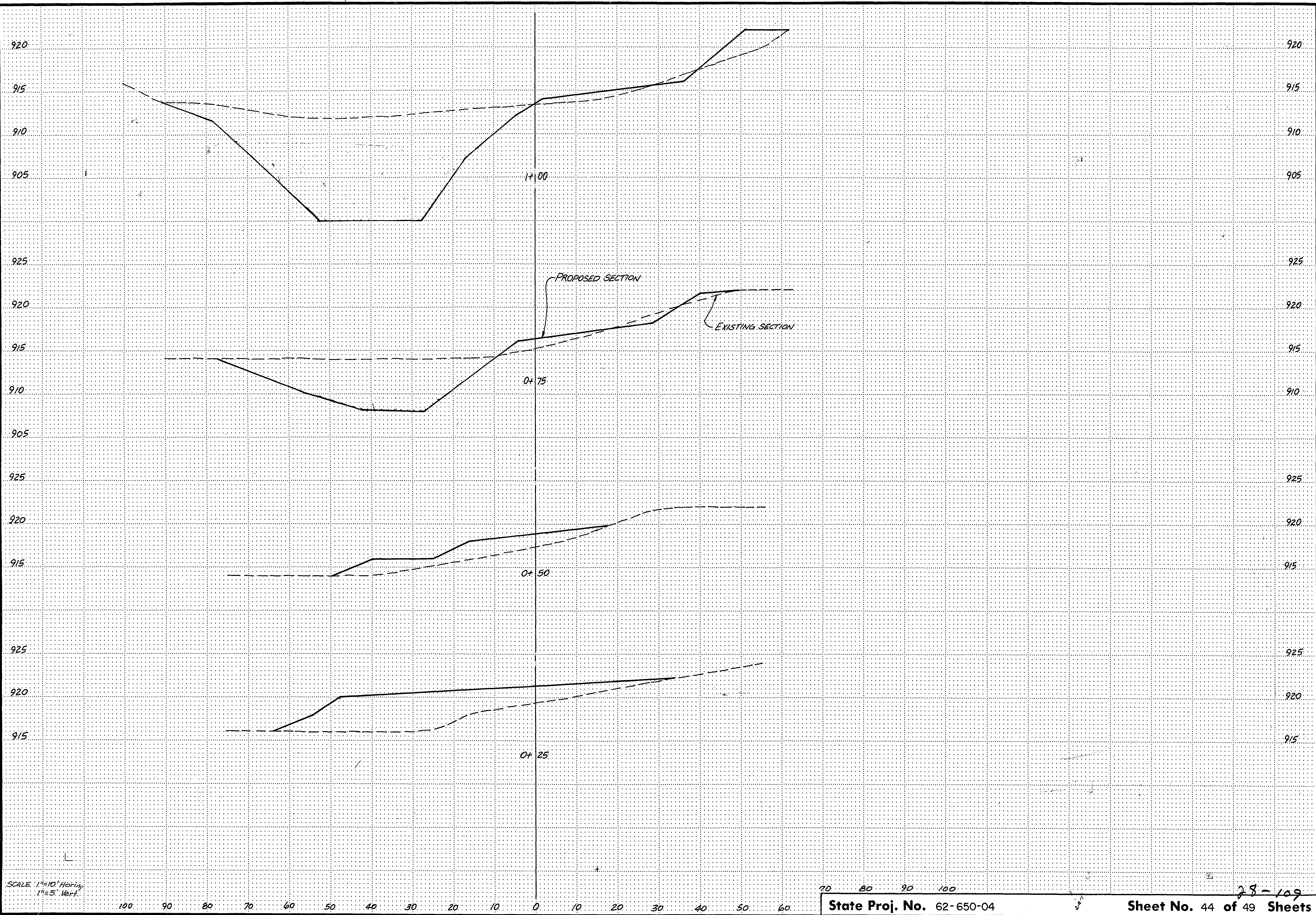
SHEET NO. 42 OF 49 SHEETS

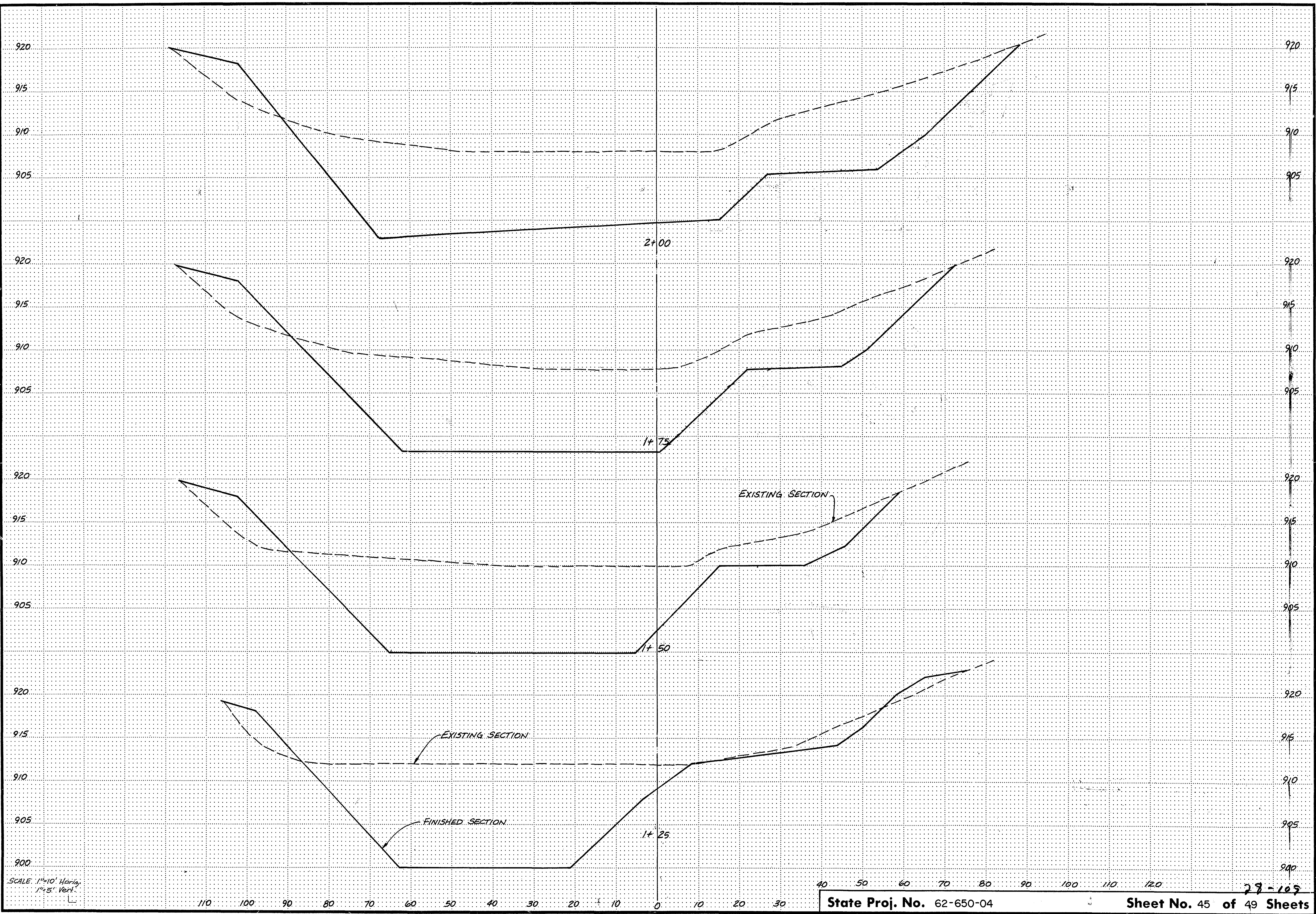
28-109

23-139

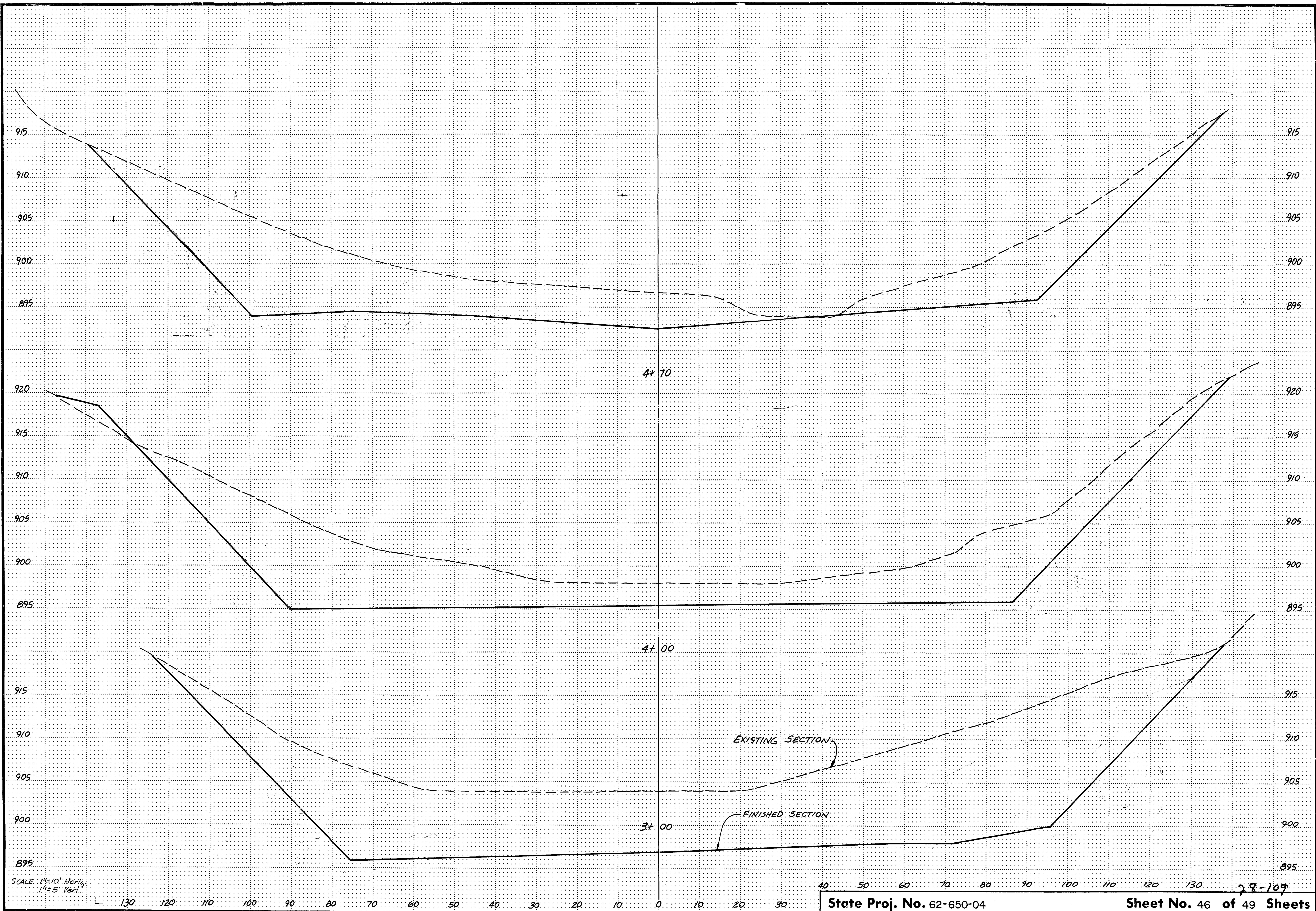
		SIGNAL SERVICE	
4	RED 2-3	2-1 RED	8
	YEL 2-3	2-1 YEL	
	GRN 2-3	2-1 GRN	
	NEU 2-3, P2-1	2-2, 2-1 NEU	
	WLK P2-1	2-2 RED	
	DWK P2-1	2-2 YEL	
		2-2 GRN	
	NEU P4-1	EVP LHT NEU	
	WLK P4-1	EVP LHT	
	DWK P4-1		
	EQG	EQG	
5	RED 8-1	4-3 RED	9
	YEL 8-1	4-3 YEL	
	GRN 8-1	4-3 GRN	
	NEU 8-1, 8-2	P4-2, 4-3 NEU	
	RED 8-2	P4-2 WLK	
	YEL 8-2	P4-2 DWK	
	GRN 8-2		
	NEU	P2-3 NEU	
		P2-3 WLK	
		P2-3 DWK	
	EQG	EQG	
6	RED 8-3	4-4 RED	10
	YEL 8-3	4-4 YEL	
	GRN 8-3	4-4 GRN	
	NEU 8-3, P4-4	4-2, 4-4 NEU	
	WLK P4-4	4-2 RED	
	DWK P4-4	4-2 YEL	
		4-2 GRN	
	NEU P2-2	EVP LHT NEU	
	WLK P2-2	EVP LHT	
	DWK P2-2		
	EQG	EQG	
7	RED 6-1	6-3 RED	11
	YEL 6-1	6-3 YEL	
	GRN 6-1	6-3 GRN	
	NEU 6-1, 6-2	P2-4, 6-3 NEU	
	RED 6-2	P2-4 WLK	
	YEL 6-2	P2-4 DWK	
	GRN 6-2		
	NEU	P4-3 NEU	
		P4-3 WLK	
		P4-3 DWK	
	EQG	EQG	
12	PB2-1	EVP	17
NEU	DETECTOR 04 & 8		
13	NEU	EVP	18
PB4-1	DETECTOR 02 & 6		
14	PB2-2	TELEPHONE	19
NEU	SERVICE		
15	PB2-3		
	NEU		
	PB4-2		
16	PB2-4		
	NEU		
	PB4-3		
20	D4-1	D8-1	26
21	D4-2	D8-2	27
22	D4-3	D8-3	28
23	D6-1	D2-1	29
24	D6-2	D2-2	30
25	D6-3	D2-3	31

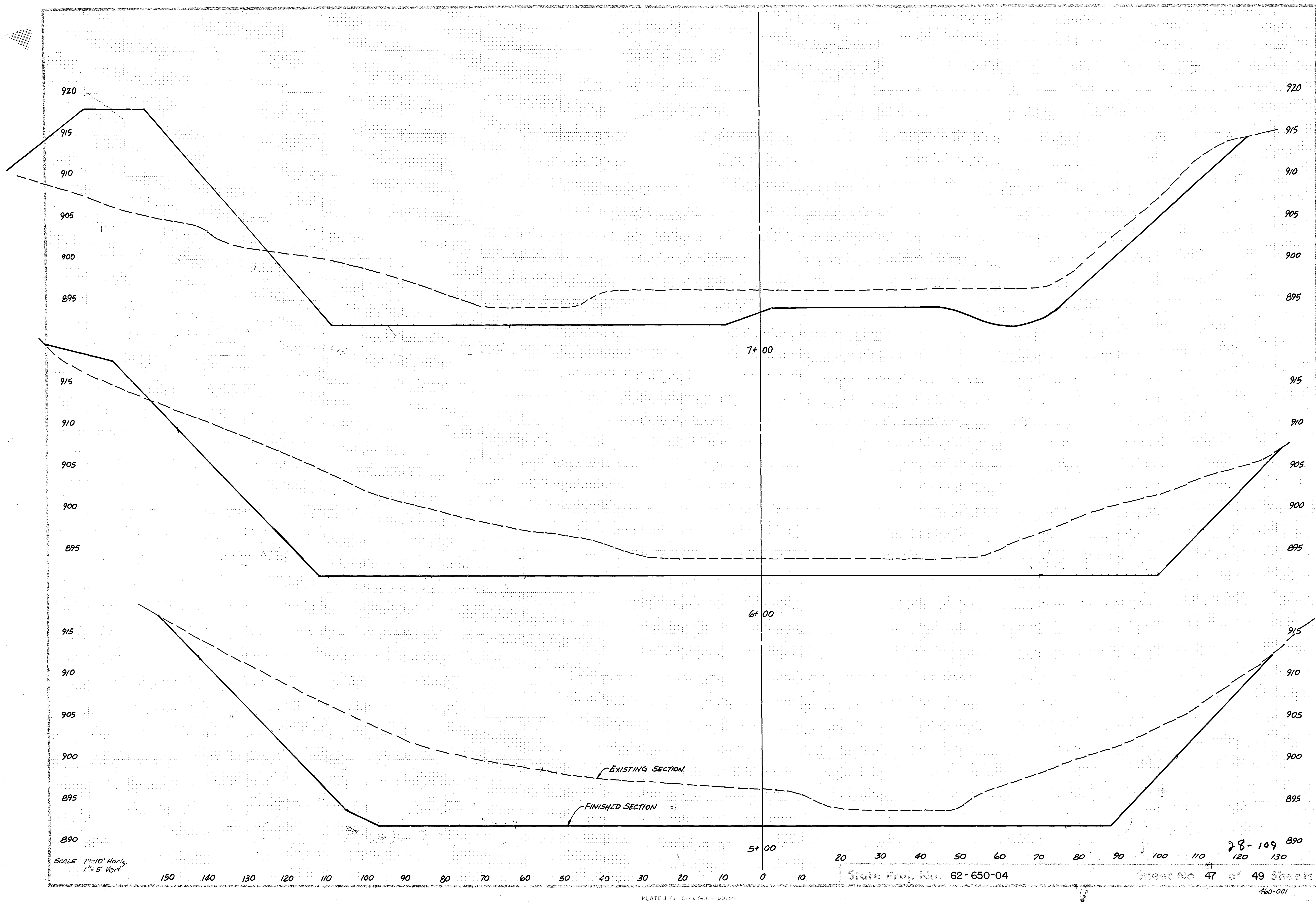


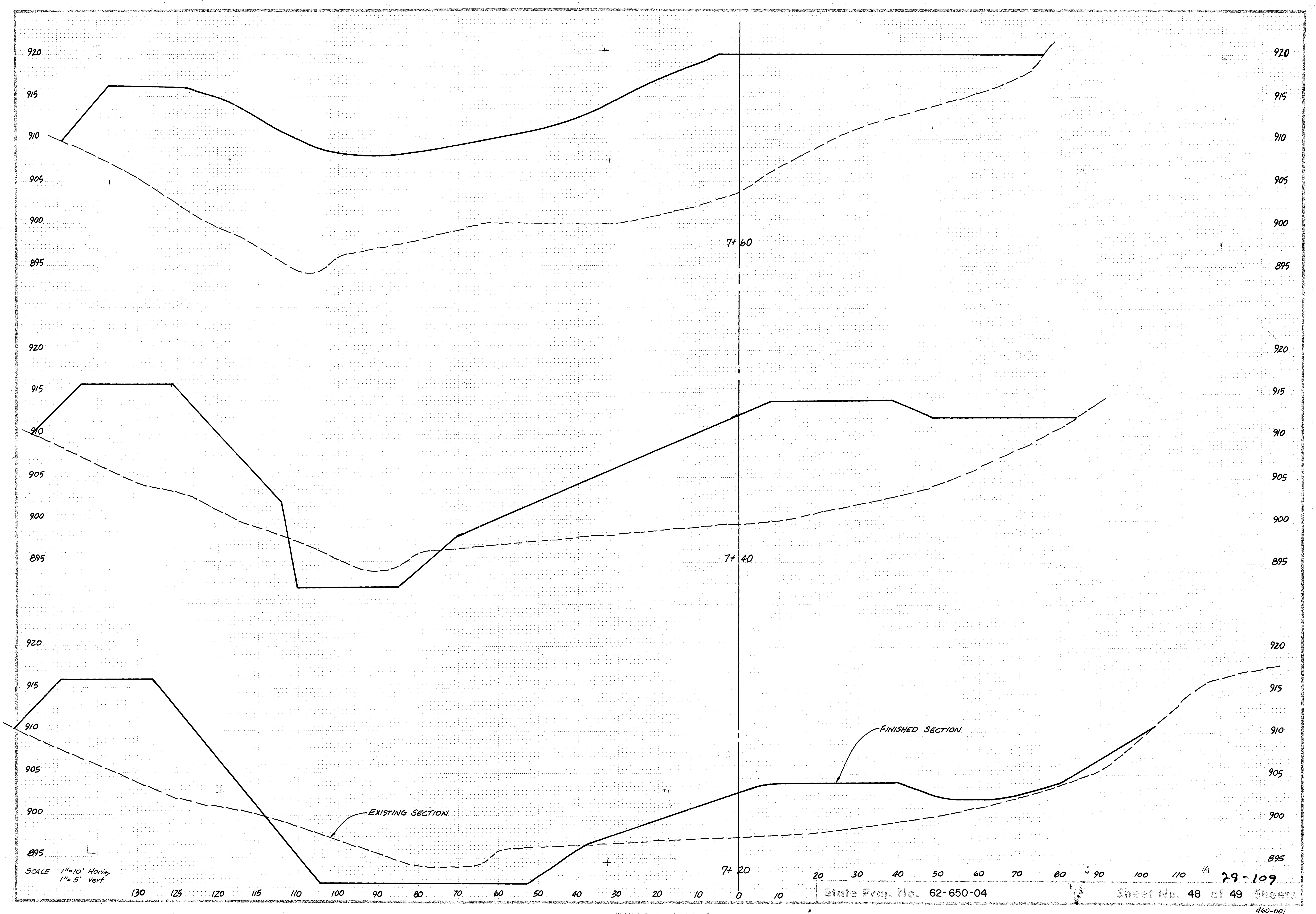




SCALE: 1"=10' Horiz.
1"=5' Vert.

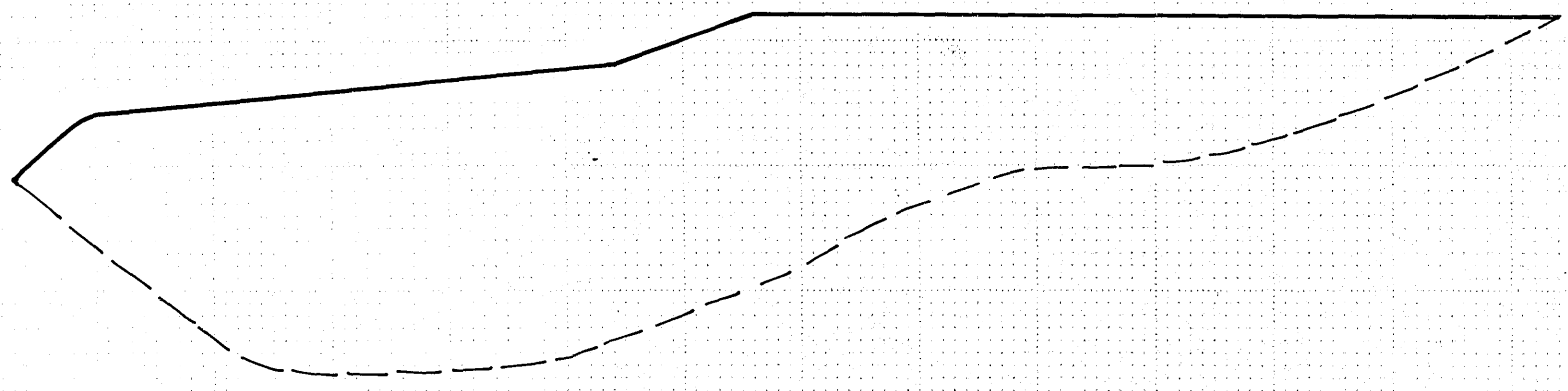




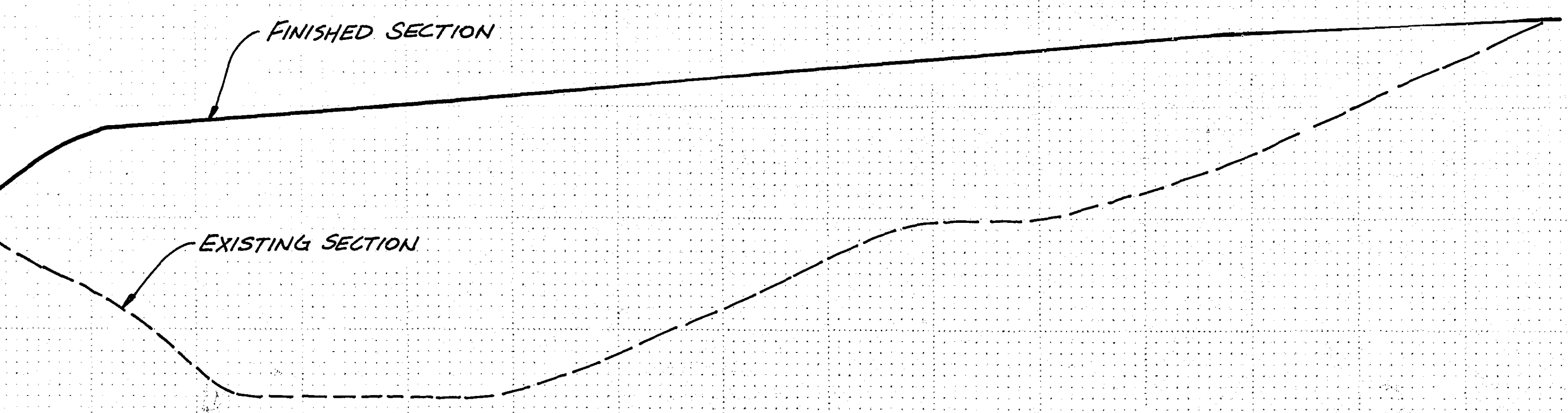


920
915
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920
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910
905
900
895



8+ 00



7+ 80

SCALE 1"=10' Horiz.
1"=5' Vert.

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

10 20 30 40 50 60

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