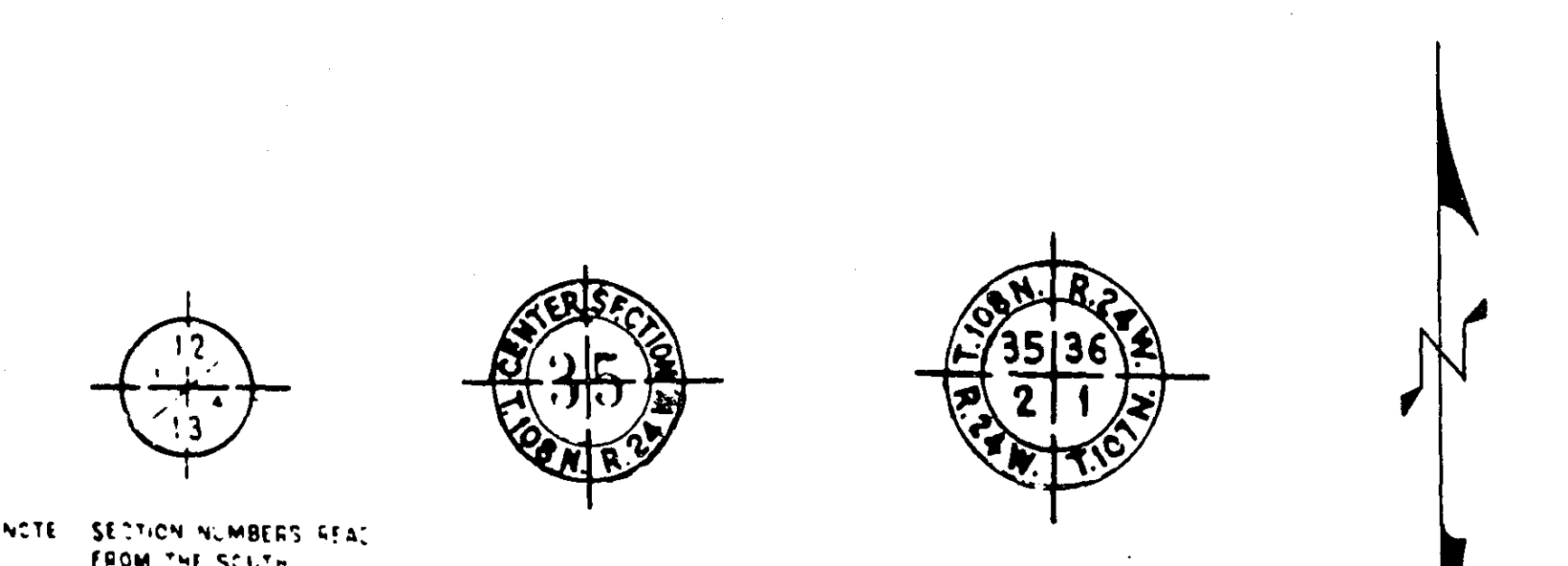


STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Landings)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY LINE
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
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

SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
CATCH BASIN
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame)
F FRAME
C CONCRETE
S STONE
T TILE
B BRICK
ST STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY

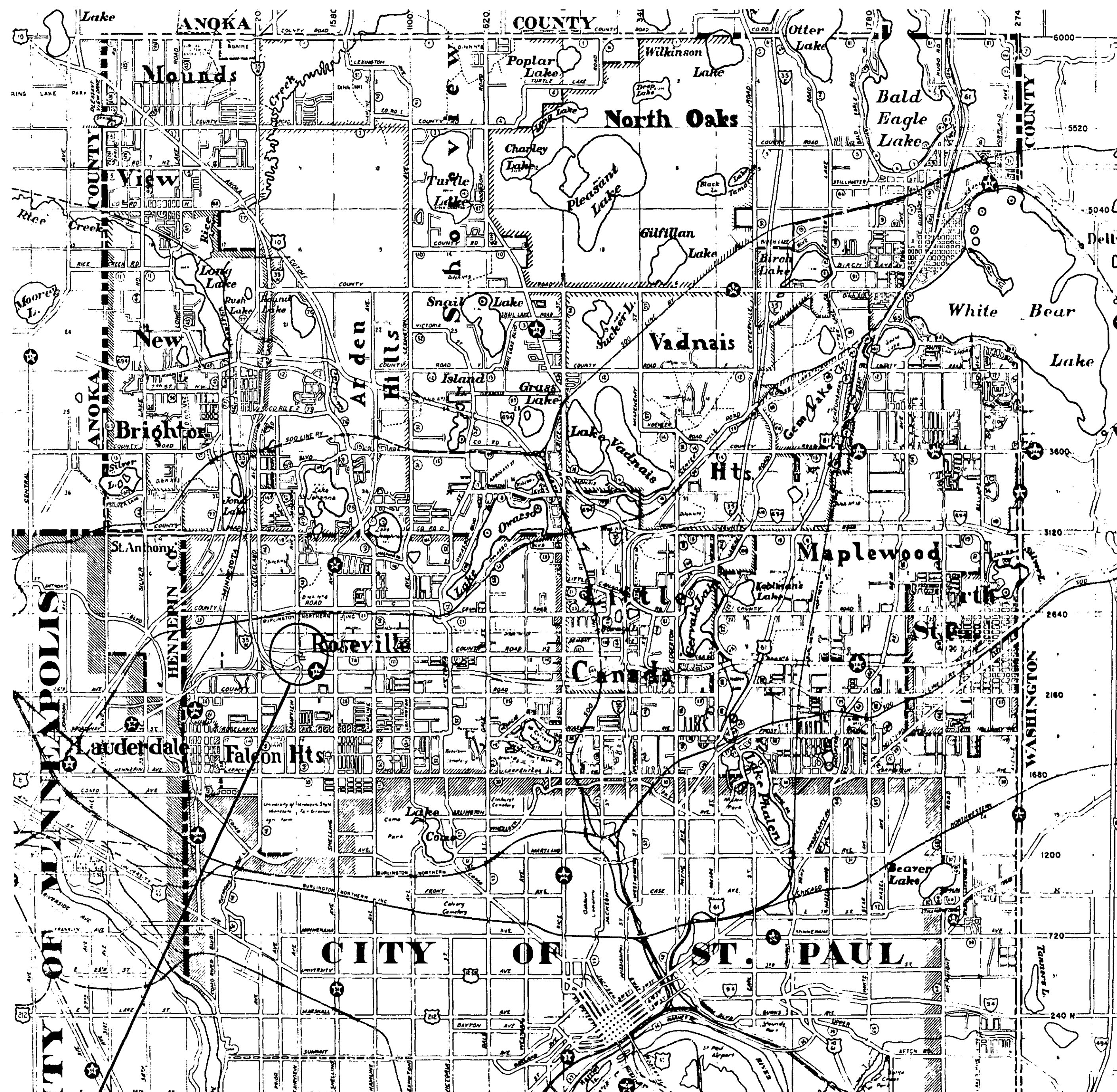
POWER POLE LINE		CONDUIT	
TELEPHONE OR TELEGRAPH POLE LINE		TELEPHONE CABLE IN CONDUIT	
JOINT TELEPHONE AND POWER ON POWER POLES		ELECTRIC CABLE IN CONDUIT	
ON TELEPHONE POLES		TELEPHONE-MANHOLE	
ANCHOR		ELECTRIC MANHOLE	
STEEL TOWER		BURIED TELEPHONE CABLE	
STREET LIGHT		BURIED ELECTRIC CABLE	
PEDESTAL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



----- PIT NO. ----- Located in
Dead Haul -----

----- PIT NO. ----- Located in
Dead Haul -----

THE MINNESOTA DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION, DATE JANUARY 1, 1978 SHALL GOVERN.



FAIRVIEW AVE. & ROSEDALE ENT.

PLAN OF TRAFFIC CONTROL SYSTEM FOR THE INTERSECTION OF

and
CHANNELIZATION
CO. PROJ. NO. 78-048

SHEET NO.	DESCRIPTION
1	TITLE
2	ESTIMATED QUANTITIES
3	CHANNELIZATION
4-5	CROSS SECTIONS
6	DETAILS
7	INTERSECTION LAYOUT
8	WIRING DIAGRAM

SIGNAL SYSTEM

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.

Paul Kunkewald
Date 3-1-78 Reg. No. 1270

RECOMMENDED FOR APPROVAL Paul K. Kunkel DATE 3-1-78
TRAFFIC ENGINEER

RECOMMENDED FOR APPROVAL *Ken D. P. Welch* DATE 4-24-78
COUNTY ENGINEER

APPROVED Wm. J. [Signature] DATE _____
CHAIRMAN OF THE RAINIER COUNTY BOARD

APPROVED: June Lemos DATE 4-12-78
MAYOR, CITY OF BOZEMAN

APPROVED _____ DATE _____

MINNESOTA STATE HIGHWAY DEPARTMENT

RECOMMENDED FOR APPROVAL Chas O. O'Brien DATE 1-24-78

RECOMMENDED FOR APPROVAL  DATE 2/9/78

APPROVAL [Signature] DATE 6/21/78
STATE AID ENGINEER

REVISÉ . DATE

DESIGNED BY	RW
DRAWN BY	J.P. B. H.

DRAWN BY	J. D. C. 99
CHECKED BY	

	20000000
	20000000

RECOMMENDED FOR APPROVAL DEL DATE 3-3-78
ENV. ENGR.

RECOMMENDED FOR APPROVAL M J H DATE 3-2-78
MAINT. ENGR.

RECOMMENDED FOR APPROVAL JAB DATE 3-1-78
CONST. ENGR.

RECOMMENDED FOR APPROVAL LKF DATE 3-1-78
DESIGN ENGR.

RECOMMENDED FOR APPROVAL [Signature] DATE 3-1-78
R.O.W. ENGR.

APPROVED W. J. J. J. J. J. DATE 4-21-16
COORDINATING ENGR.

S.A.P. NO. 62-648-07 and CO. PROJ. NO. 78-048

Sheet No. 1 of 8 Sheets

[illegible][illegible][illegible]

CATCH BASIN DESIGN NO. R.C.-2

FRONT VIEW

Labels: DRAIN, 1', 2", 3', 3", 4", 6"

SIDE VIEW

Labels: NORMAL CROWN, 1.5', 2", DISTANCE & ELEV. COMPUTED TO THIS POINT, TOP OF CURB = PROFILE GRADE, 2' MIN, 8", 3"

S LINE.

TOP VIEW

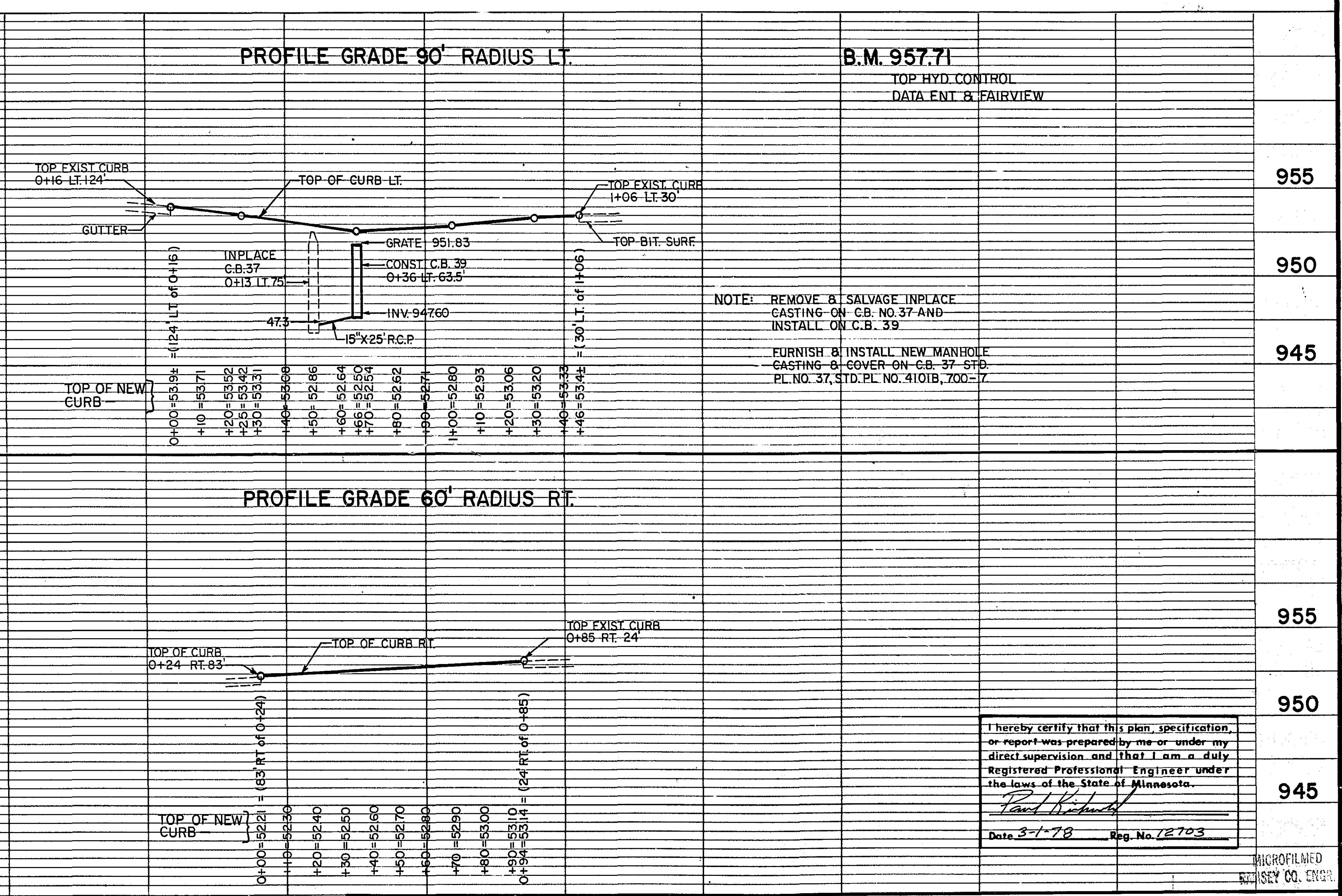
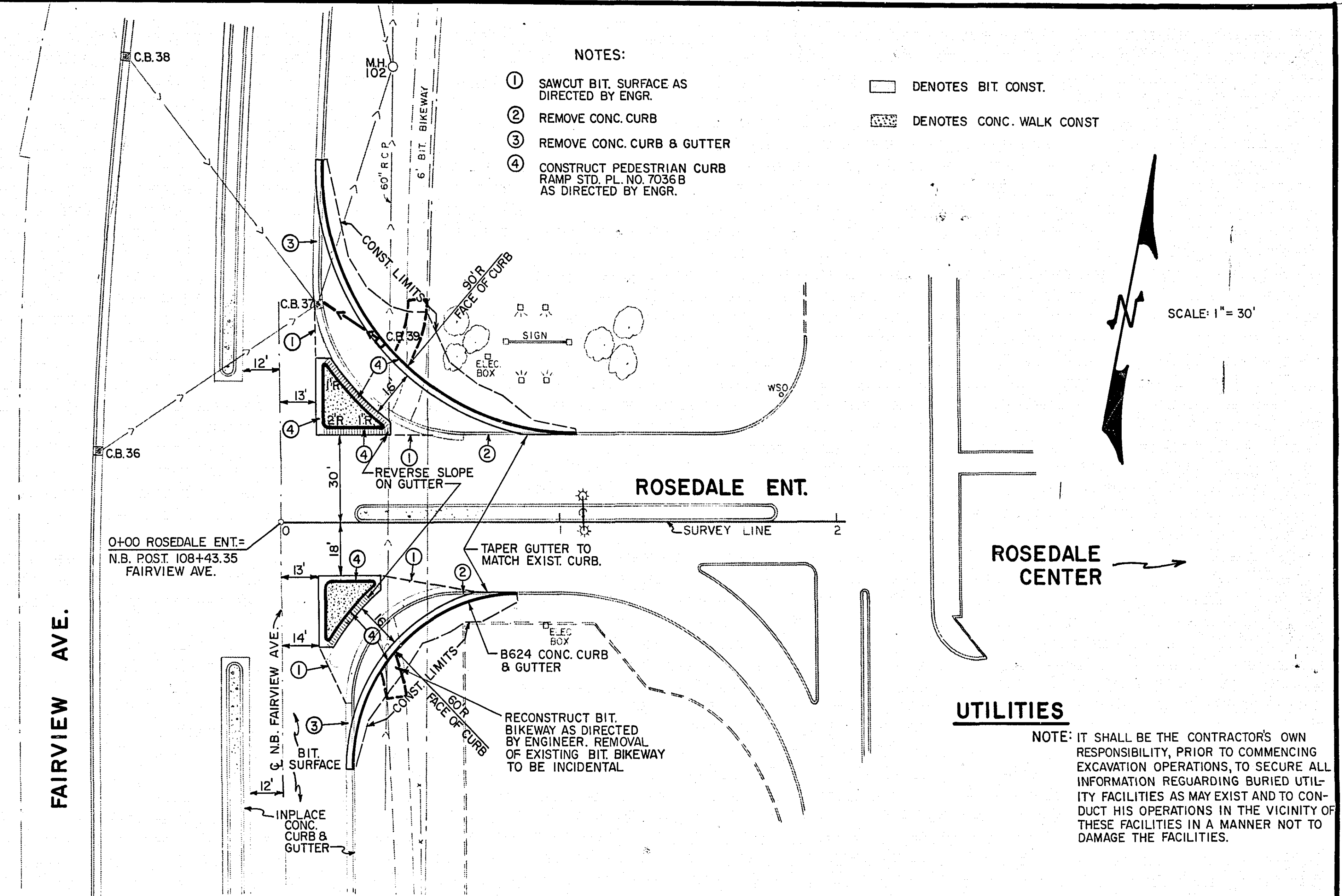
Labels: CASTING, 8" GUTTER, 8" GUTTER

TYPICAL SECTION

The diagram illustrates a cross-section of a road construction project. Key features and dimensions include:

- Survey Line:** Indicated on the left side.
- Dimensions:**
 - 2' (twice)
 - 16'
 - 20'
 - 2'
- Layers and Materials:**
 - EXIST. BIT. SURFACE
 - 4" CONC.
 - B624 CONC. CURB & GUTTER
 - REMOVE EXIST. BIT. SEE NOTE **
 - EXIST. CONC. CURB - REMOVE
 - EXIST. GRADE
 - REVERSE SLOPE CONC. GUTTER SEE PLAN
 - 1 1/2" PLANT - MIXED BIT. SURFACE SPEC 2341 WEAR
 - 1 1/2" PLANT - MIXED BIT. SURFACE SPEC. 2341 BINDER
 - 6" AGGREGATE BASE, CLASS 5
 - 12" SELECTED GRANULAR
 - 3" TOPSOIL & SOD
 - RADIUS SEE PLAN
 - PROFILE GRADE SEE PLAN
- Notes:**
 - ** NOTE: DISPLACE EXIST. AGGREGATE BASE AS DIRECTED BY ENGR.
 - VAR. SEE PLAN
 - CONST. LIMITS (SEE X-SECTIONS)

S.A.P. NO. 62-648-07 & CO. PROJ. NO. 78-048 SHEET NO. 2 OF 8 SHEETS



34

43

55

35

41

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Paul R. Schmidt
 Date 3-1-78 Reg. No. 12703

MICROFILMED
 RAMEY CO. ENGR.

20 LT.

51 LT.

22 LT.

25 LT.

41 RT.

53 RT.

61 RT.

0+50 52.88

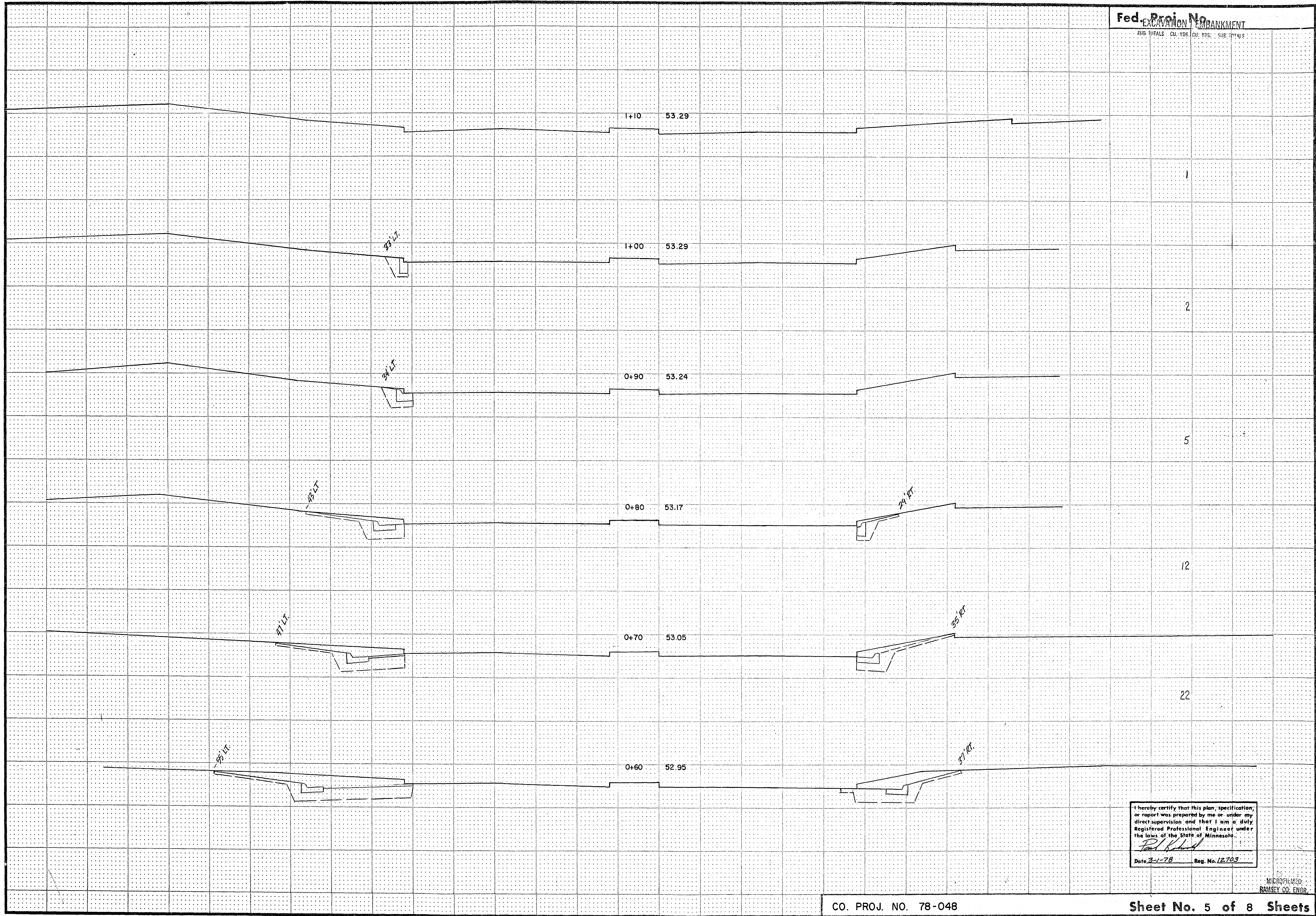
0+40 52.86

0+30 52.82

0+24 52.57

0+13 52.68

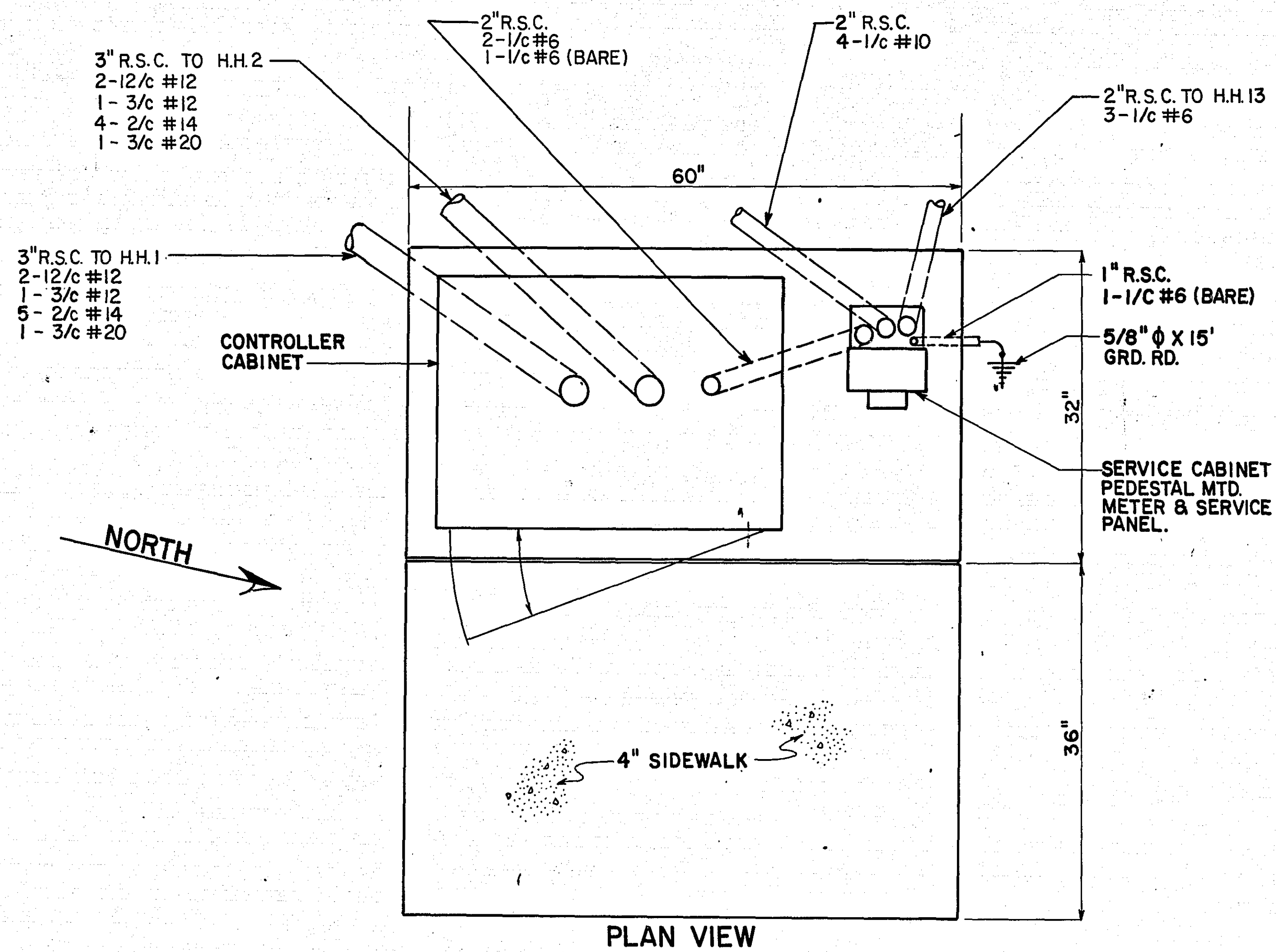
0+00 52.8



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.
Paul R. Schuch
 Date 3-1-78 Reg. No. 12703

MICROFILMED
 RAMSEY CO. ENGR.

EQUIPMENT PAD DETAILS

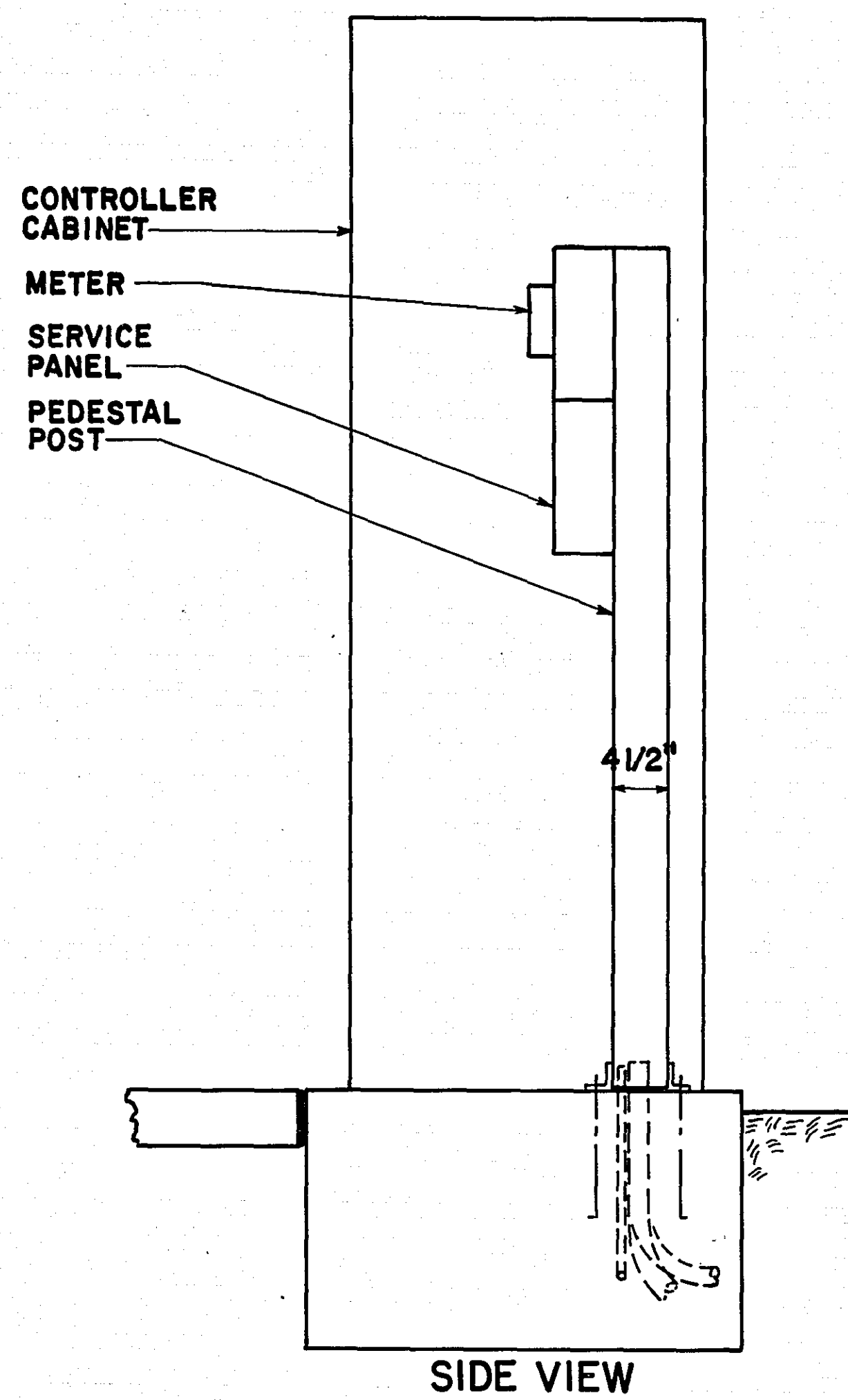
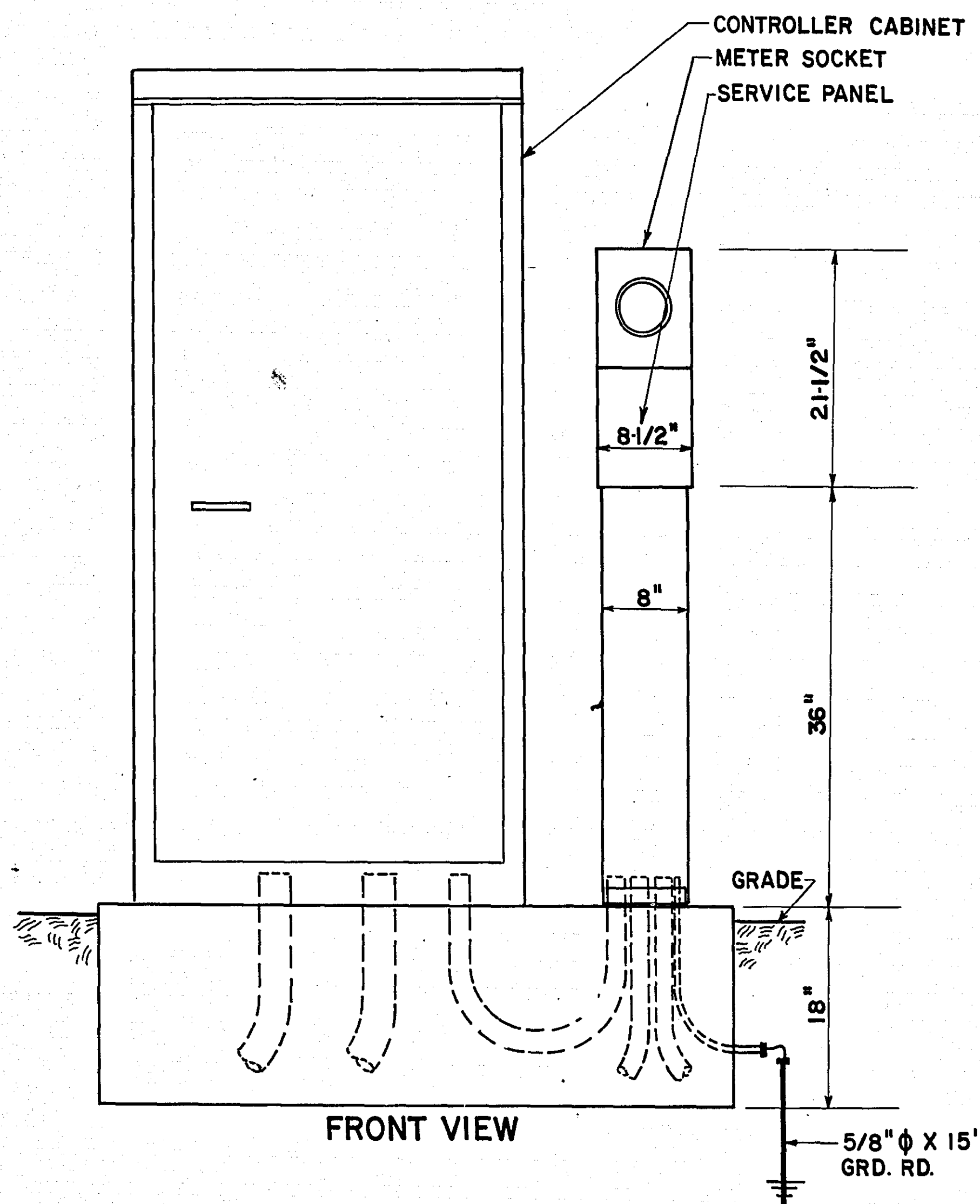


1. ANCHOR RODS, NUTS AND WASHERS PER MN/DOT 3385 OR APPROVED EQUAL SET AS RECOMMENDED BY CABINET MANUFACTURER (NUMBER, SIZE AND LENGTH OF ANCHOR RODS SHALL BE AS REQUIRED BY THE CABINET (MANUFACTURER)).
2. UPPER PART OF FOUNDATION SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER IN THE FIELD.
3. TOP OF CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED) CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER BUT SHALL NOT INTERFERE WITH CABINET FUNCTIONS. (SUPPORTING MEMBERS, ETC.)
4. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR FOUNDATION AND CONCRETE WALK.
5. CONDUITS WHICH HAVE BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
6. EXACT LOCATIONS OF CONDUIT WITHIN THE PAD SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

STATEMENT OF ESTIMATED QUANTITIES				
PROJECT NO.	ITEM NO.	ITEM	UNIT	QUANT.
SEE SHEET NUMBER 2				

STANDARD PLATES	
PLATE NO.	TITLE
* 8110 B	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
* 8111 A	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
* 8112 B	PEDESTAL FOUNDATION
8113 B	MAGNETIC VEHICLE DETECTOR INSTALLATION
* 8115 B	PEDESTRIAN PUSH BUTTON INSTALLATION
* 8116 C	STEEL GUARD POST
* 8117 E	PRECAST CONCRETE HANDHOLE
* 8118 B	SERVICE EQUIPMENT & POLE, TRAFFIC CONTROL SIGNALS
* 8119 B	GROUND MOUNTED CABINET FOUNDATION
8120 D	MAST ARM POLE FOUNDATION
* 8122 B	PEDESTAL AND PEDESTAL BASE
8123 A	POLE AND MAST ARM (LUMINAIRES AND TRAFFIC LIGHTS)
* 8124 B	SIGNAL HEAD MOUNTS
8125 A	SWING-AWAY HINGE (FOR TRAFFIC SIGNAL ARM MAST)
* 8130 B	SAW CUT LOOP DETECTORS

* STANDARD PLATES APPLICABLE TO THIS PROJECT



ABBREVIATIONS

EQUIPMENT & INDICATIONS

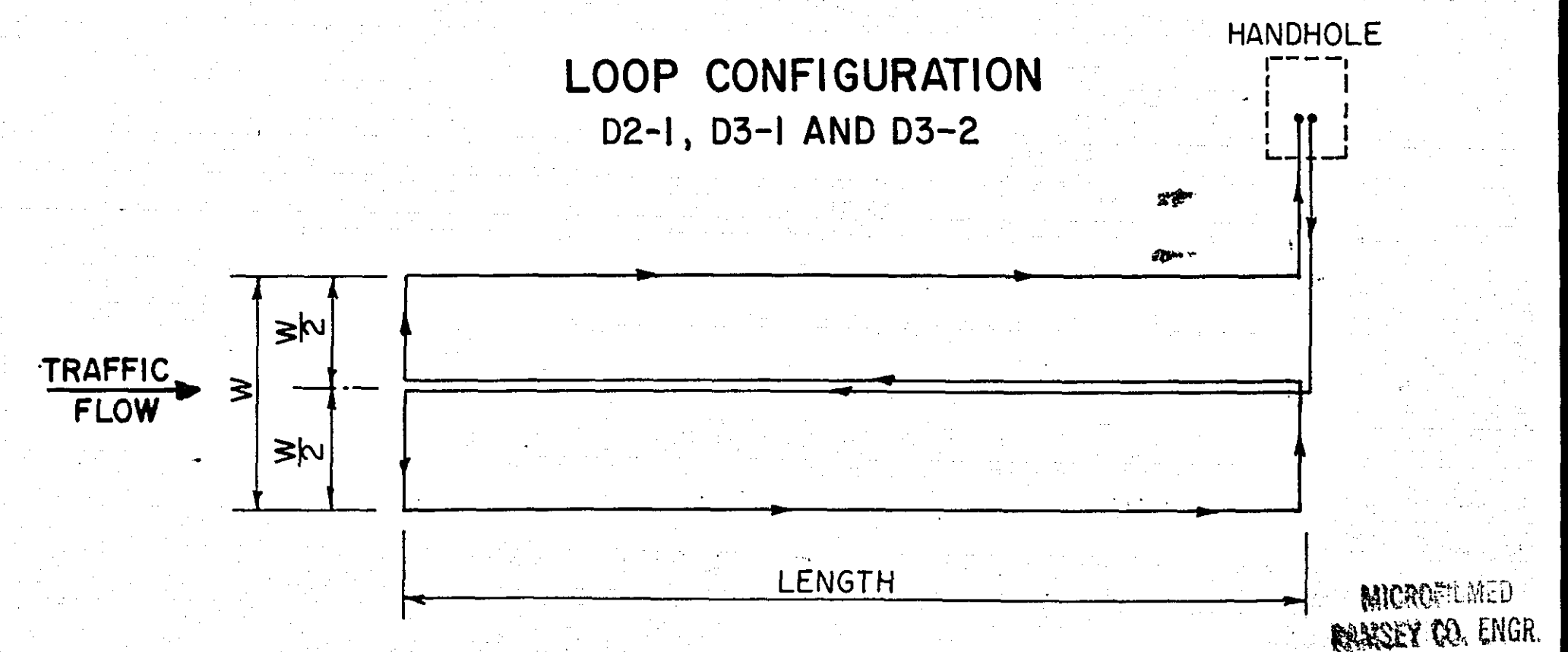
RED - RED
YEL - YELLOW
GRN - GREEN
LTA - LEFT TURN ARROW
THA - THRU ARROW
RTA - RIGHT TURN ARROW
TRA - THRU AND RIGHT ARROW
WLK - WALK
NEU - NEUTRAL
DWK - DON'T WALK
SW - SWITCH
SWD - SWITCHED
LUM - LUMINAIRE
PA1 (eg) - PEDESTRIAN INDICATION -
PBB2 (eg) - PUSH BUTTON - "B" PHASE
C3 (eg) - SIGNAL HEAD - "C" PHASE
DA4 (eg) - DETECTOR - "A" PHASE
H.H. - HANDHOLE
GR. R - GROUND ROD
SERV. - SERVICE
EVP - EMERGENCY VEHICLE PRE-EN

DNL - DOWNLIGHT
PE.C.- PHOTOELECTRIC CELL
ST. LHT. - STREET LIGHT
CH. - CHECK
S.O.P. - SOURCE OF POWER
EQ.G. - EQUIPMENT GROUND
SPR - SPARE CONDUCTOR

COLOR CODING OF CONDUCTOR

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

LOOP CONFIGURATION
D2-1, D3-1 AND D3-2



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Paul Rohmisch

Date 3-1-78 Reg. No. 12703

DESCRIPTION	SYMBOL
SIGNAL BASE NO.	(5)
SIGNAL FACE NO.	(A2)
CONTROLLER AND CABINET	[Symbol: Box with internal lines]
CONTROLLER AND CABINET-INPLACE	[Symbol: Box with internal lines and a cross]
HANDHOLE	[Symbol: Circle with a cross]
HANDHOLE-INPLACE	[Symbol: Circle with a cross and a dot]
RIGID STEEL CONDUIT (R.S.C.)	[Symbol: Two parallel lines]
RIGID STEEL CONDUIT (R.S.C.)-INPLACE	[Symbol: Two parallel lines with a cross]
SIGNAL FACE	[Symbol: Triangle with a dot]
SIGNAL FACE WITH BACKGROUND SHIELD	[Symbol: Triangle with a dot and a shield]
SIGNAL FACE-INPLACE	[Symbol: Triangle with a dot and a cross]
PEDESTRIAN INDICATIONS	[Symbol: Square with a dot]
PEDESTRIAN INDICATIONS-INPLACE	[Symbol: Square with a dot and a cross]
PEDESTRIAN PUSH BUTTON ON PEDESTAL OR POLE	[Symbol: Square with a dot and a circle]
PEDESTRIAN PUSH BUTTON STATION	[Symbol: Square with a dot and a circle with a cross]
TRAFFIC SIGNAL PEDESTAL	[Symbol: Circle with a dot]
TRAFFIC SIGNAL PEDESTAL-INPLACE	[Symbol: Circle with a dot and a cross]
TRAFFIC SIGNAL POLE AND MAST ARM	[Symbol: Circle with a dot and a cross]
TRAFFIC SIGNAL POLE AND MAST ARM-INPLACE	[Symbol: Circle with a dot and a cross and a dot]
MAST ARM AND LUMINAIRE	[Symbol: Circle with a dot and a cross]
MAST ARM AND LUMINAIRE-INPLACE	[Symbol: Circle with a dot and a cross and a dot]
WOOD POLE	[Symbol: Circle with a dot]
WOOD POLE-INPLACE	[Symbol: Circle with a dot and a cross]
SOURCE OF POWER	[Symbol: Circle with a dot and a cross]
EMERGENCY VEHICLE PRE-EMPTION DETECTOR LOCATION	[Symbol: Circle with a dot and a cross]

VEHICLE DETECTION		
NUMBER	SIZE	REMARKS
DI-1	6'X6'	CALL & EXTEND
DI-2	6'X6'	CALL & EXTEND
DI-3	6'X6'	CALL & EXTEND
DI-4	6'X6'	CALL & EXTEND
DI-5	6'X18'	CALL ONLY
DI-6	6'X18'	CALL ONLY
D2-1	6'X40'	*CALL & EXTEND
D3-1	6'X40'	CALL & EXTEND
D3-2	6'X20'	CALL & EXTEND

* TIME DELAYED
① SEE DETAIL

HEADS 1-4 & 1-5

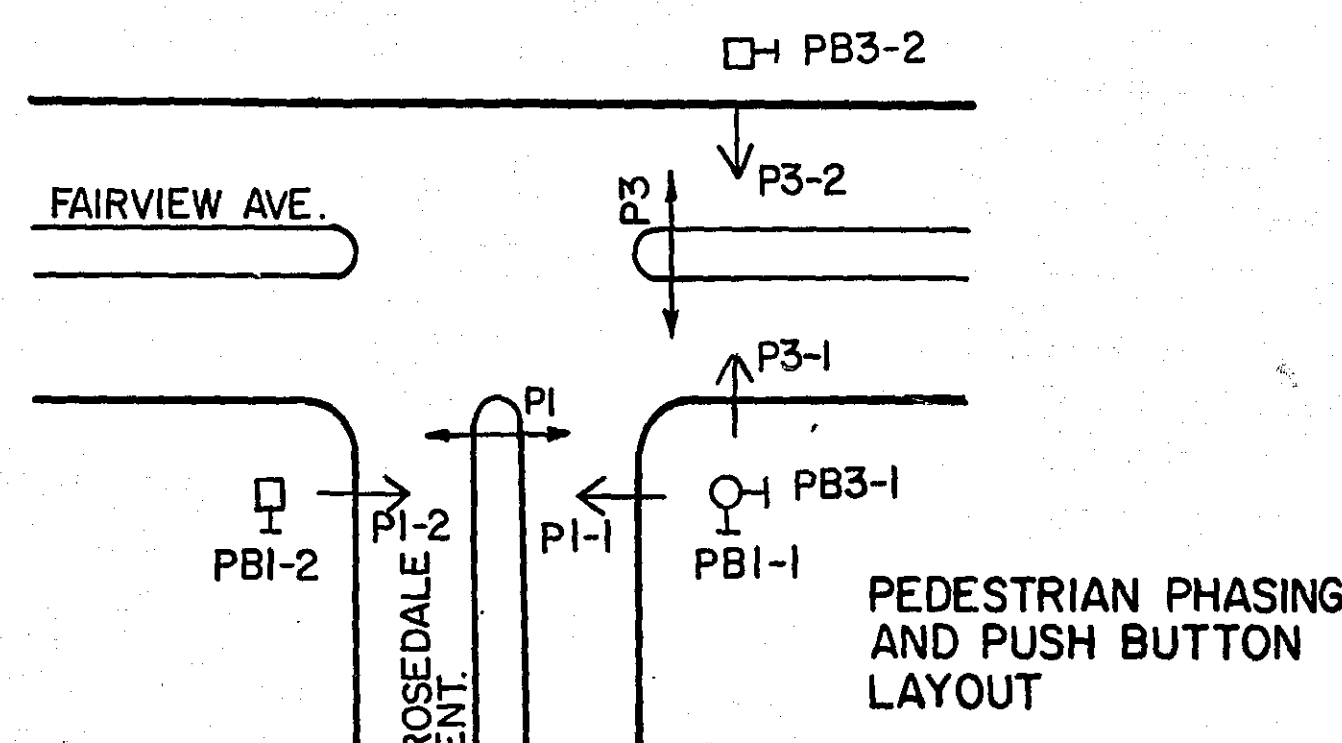
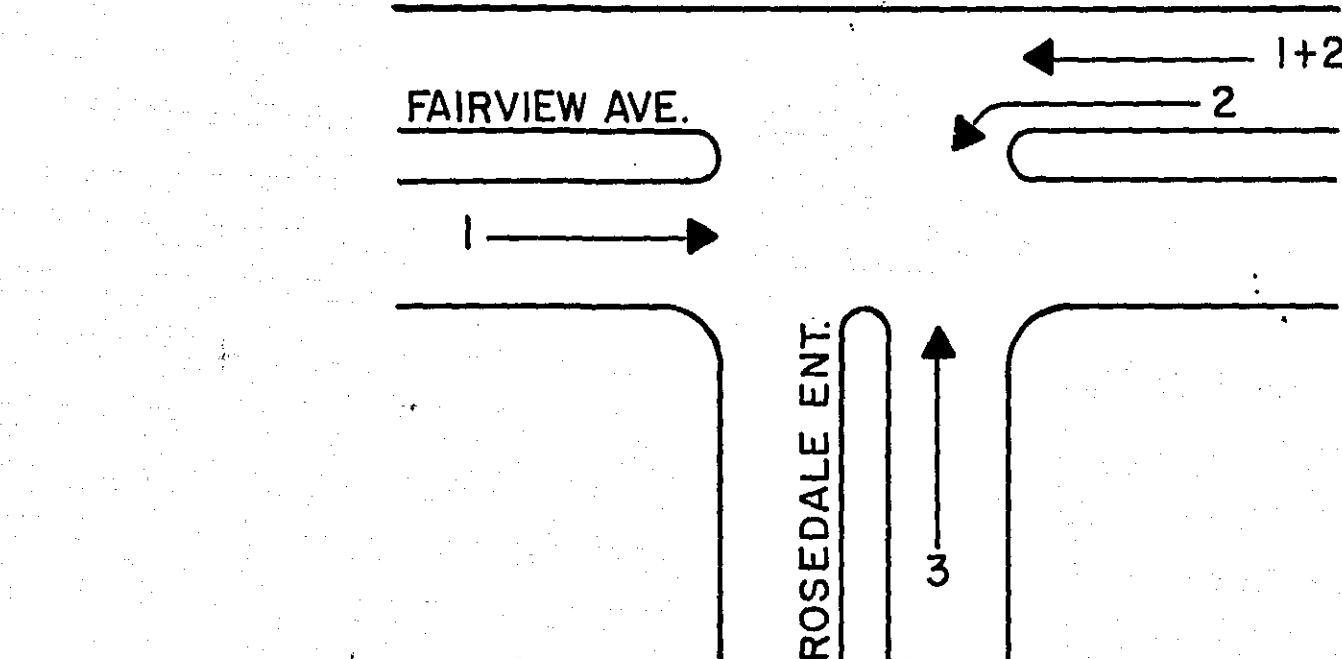
(R) → Ø 1

(Y) →

(G) →

(ϵ) → Ø 2

CONTROLLER PHASING DIAGRAM

[illegible]

STATION	LOCATION	DESCRIPTION
5+90	RT. 45'	H.H.6
7+53	RT. 45'	H.H.5
7+98	LT. 55'	POLE #3
8+06	LT. 55'	H.H.11
8+08	RT. 35'	H.H.4
8+16	RT. 38'	POLE #2
8+80	LT. 53'	POLE #4
8+84	RT. 38'	POLE #1
8+88	RT. 36'	H.H.3
9+00	℄	H.H.7
9+02	LT. 50'	H.H.8
9+28	RT. 52'	H.H.1
9+32	RT. 49'	H.H.2
9+43	RT. 55'	EQUIP PAD
9+51	RT. 37'	H.H.13
9+59	LT. 48'	H.H.12
10+00	LT. 44'	H.H.9
11+02	LT. 49'	H.H.10

NOTE: ALL LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.

ONE WAY SIGNAL (TYPE 1c)
1- SET PEDESTRIAN INDICATION (12",
1- PEDESTRIAN PUSH BUTTON
(MTD. NORTH SIDE)
3- STEEL GUARD POSTS
EXTEND INTO H.H.8
3" R.S.C.
2- 12/c #12
1- 3/c #12

TYPE A-35-T40-10
LUMINAIRE-250 WATT HIGH PRESSURE
SODIUM (APPROX. 350°)
ONE WAY SIGNAL (OVERHEAD MTD.)
TWO WAY SIGNAL (TYPE 20A-POLE
MTD. 270°)
1-STEEL GUARD POSTS
EXTEND INTO H.H.II
3- R.S.C.
2-12/c #12
1- 3/c #20
2- 1/c #10

2-STEEL GUARD POSTS
MTD. 4' HIGH WITH 2/O
CHAIN BETWEEN (NO
PED. X-ING SIGN TO BE
MTD. & FURNISHED BY
OTHERS.)

2-STEEL GUARD POSTS
MTD. 4' HIGH WITH 2/0
CHAIN BETWEEN (NO
PED. X-ING SIGN TO BE
MTD. & FURNISHED BY
OTHERS.)

ONE WAY SIGNAL (TYPE 1C) —
1-SET PEDESTRIAN INDICATION (9"
1-PEDESTRIAN PUSH BUTTON
(MTD. EAST SIDE)
2-STEEL GUARD POSTS

EXTEND INTO H.H.4
3" R.S.C.
1-12/c #12
1-3/c #12

3" R.S.C. -
1-12/c #12
1-3/c #12
3-2/c #14

S.O.P. (N.S.P. POLE INPLACE)-
2" R.S.C. RISER WITH
WEATHERHEAD
EXTEND INTO H.H.12
2" R.S.C.
3-1/c#6

11/4" R.S.C.
2-2/c #14

3" R.S.C. _____
2-12/c #12
1-3/c #12
3-2/c #14
1-3/c #20
2-1/c #10

3" R.S.C.
2-12/c #12
1-3/c #12
4-2/c #14
1-3/c #20
2-1/c #10

TYPE A-25-T40-I0
LUMINAIRE-250 WATT HIGH PRESSURE
SODIUM (APPROX. 350°)
ONE WAY SIGNAL (OVERHEAD MTD)
ONE WAY SIGNAL (TYPE 10c-POLE
MTD 270°)
2- SETS PEDESTRIAN, INDICATIONS
(1-12" SET & 1-9" SET)
2-PEDESTRIAN PUSH BUTTONS
(MTD 90° & 180°)
3 STEEL GUARD POSTS
EXTEND INTO H.H.3
3" R.S.C.
3-12/c #12
2- 3/c #12
1- 3/c #20
2- 1/c #10

15 30 45 60 75
SCALE IN FEET

NOTES:

1. LOOP DETECTORS LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.
2. HANDHOLES 3,4, AND 7 SHALL BE FURNISHED WITH TYPE LD METAL FRAME & COVER.
3. SUFFICIENT 3/4" #20 TO REACH THE END OF THE MAST ARM SHALL BE INSTALLED IN POLES 1 AND 3.
4. A 3/4" HALF COUPLING AND PLUG FOR FUTURE EVP EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROX. 2 FEET FROM THE END OF MAST ARM ON POLES 1 AND 3.

—BASE LINE = CENTER OF INPLACE MED.
FOR SIGNAL EQUIP. LOCATION ONLY

EQUIPMENT PAD (SEE DETAIL)
 5 STEEL GUARD POSTS
 SERVICE CABINET
 EXTEND INTO H.H.1
 2" R.S.C.
 3-1/c #6
 EXTEND INTO H.H.2
 2" R.S.C.
 4-1/c #10
 CONTROLLER & CABINET
 EXTEND INTO H.H.1
 3" R.S.C.
 2-12/c #12
 1- 3/c #12
 5- 2/c #14
 1- 3/c #20
 EXTEND INTO H.H.2
 3" R.S.C.
 2-12/c #12
 1- 3/c #12
 4-2/c #14
 1-3/c #20
 BETWEEN H.H.1 AND H.H.2
 3" R.S.C.
 2-1/c #10

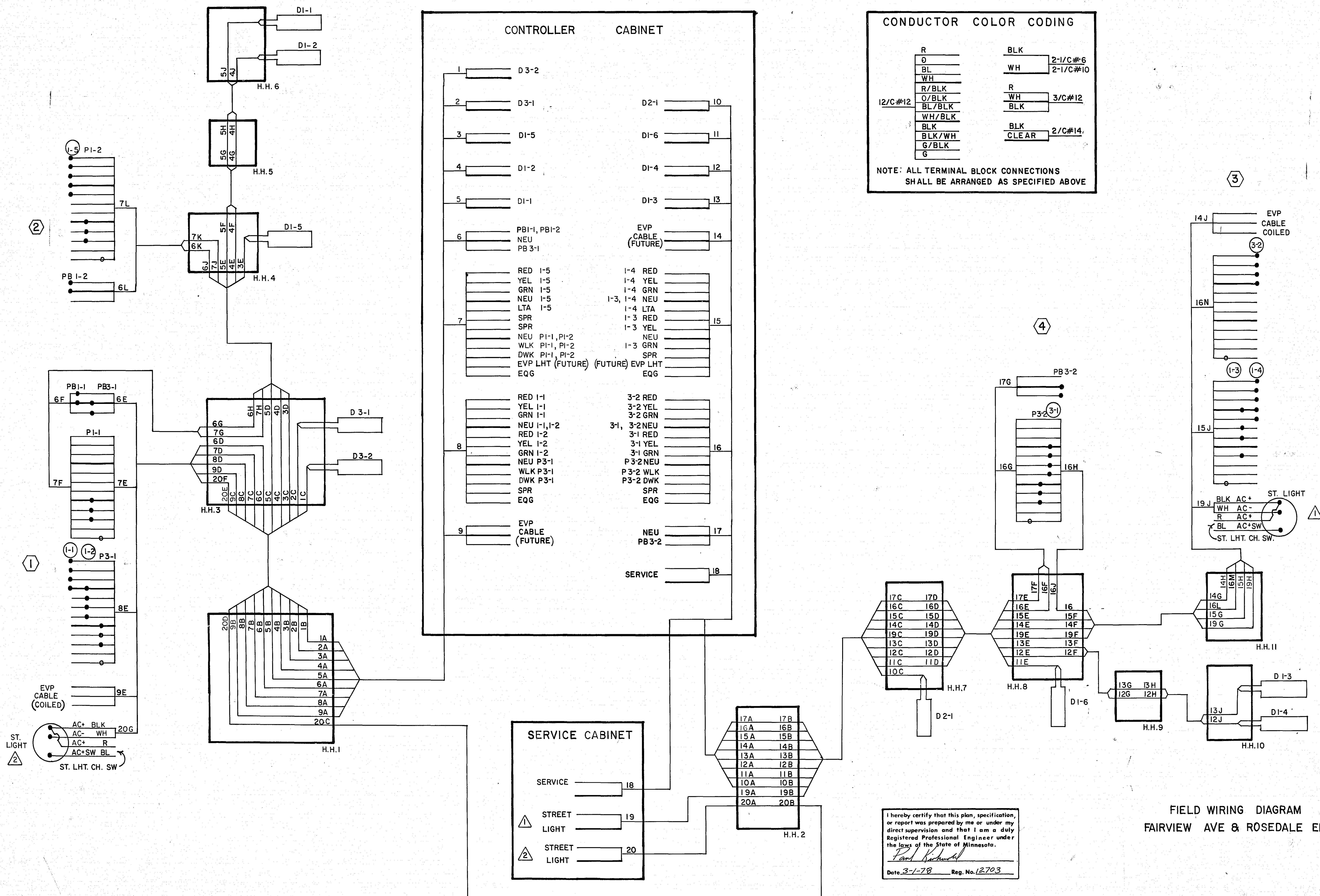
REVISED	DATE		
PED. X-114 RESTRICT	6-12-78	DESIGNED BY	
		DRAWN BY	
		CHECKED BY	

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Paul Kirsch

Date 3-1-78 Reg. No. 12703

INTERSECTION LAYOUT
FAIRVIEW AVE. & ROSEDALE ENT.



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Paul Kucharski

Date 3-1-78 Reg. No. 12703