

23-134

PLANS SYMBOLS

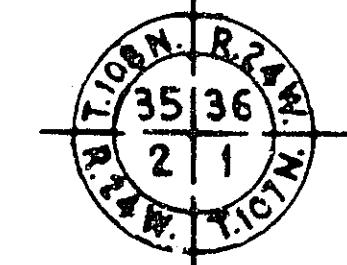
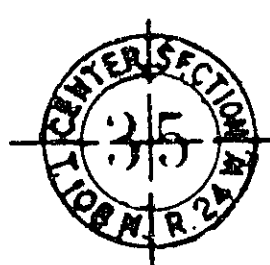
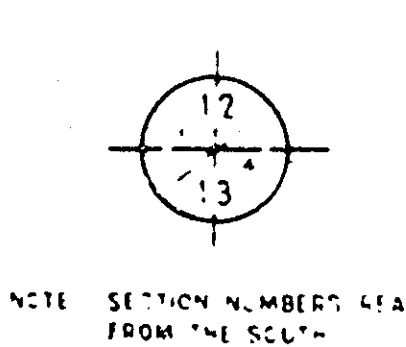
- STATE LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT OF WAY LINE
- PRESENT RIGHT OF WAY LINE
- CONTROL OF ACCESS LINE
- PROPERTY LINE (Except Land Lines)
- VACATED PLATTED PROPERTY
- CORPORATE OR CITY LIMITS
- TRUNK HIGHWAY CENTER LINE
- RETAINING 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
- CROSSING GATE
- ELECTRIC WARNING SIGN
- MEANDER CORNER
- SLOPE EASEMENT (CONST. LIMITS)

- 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

UTILITIES SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE AND POWER OR POWER POLES
- ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PNEUMATIC TELEPHONE CABLE TERMINAL
- GAS MAIN
- WATER MAIN

- CONDUIT
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE
- BURIED ELECTRIC CABLE
- AERIAL TELEPHONE CABLE
- SEWER, (SANITARY OR STORM)
- SEWER MANHOLE



PIT DATA

PIT NO. _____ Located in _____
Dead Haul

PIT NO. _____ Located in _____
Dead Haul

GOVERNING SPECIFICATION

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.



RAMSEY COUNTY
DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLAN FOR TRAFFIC CONTROL SIGNAL SYSTEM AT

WHITE BEAR AVE. & CEDAR AVE.

S.A.P. NO 62-665-25

AND R.O.W. PLAN

M.S.A 174-104-07 SIGNAL

M.S.A. 174-104-08 ROW.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE
2	DETAILS & QUANTITIES
3	INTERSECTION LAYOUT
4-5	FIELD WIRING DIAGRAM
6	UTILITIES

WHITE BEAR AVE. & CEDAR AVE.
S.A.P. NO. 62-665-25

DESIGN SQUAD R. Miller DATE 3/15/85
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 3-21-85 REG. NO. 12703 ENGR. Paul K. Kuhl

RECOMMENDED FOR APPROVAL PAK DATE 3-21-85
TRAFFIC ENGR.
RECOMMENDED FOR APPROVAL DRG DATE 3-21-85
ENV. ENGR.
RECOMMENDED FOR APPROVAL MDX DATE 3-22-85
MAINT. ENGR.
RECOMMENDED FOR APPROVAL RP DATE 3-25-85
CONST. ENGR.
RECOMMENDED FOR APPROVAL LKF DATE 3-25-85
DESIGN ENGR.
RECOMMENDED FOR APPROVAL JAG DATE 3-25-85
WOM ENGR.
APPROVED W. J. Leonard DATE 3-29-85
COORDINATOR ENGR.

RECOMMENDED FOR APPROVAL Norm B. Swartz DATE 3/24/85
COUNTY ENGINEER
APPROVED Norm B. Swartz DATE 3/24/85
CHAIRMAN OF THE RAMSEY COUNTY BOARD
APPROVED Steve O. Hark DATE 4/18/85
CITY OF WHITE BEAR LAKE
APPROVED _____ DATE _____

MINNESOTA DEPARTMENT OF TRANSPORTATION

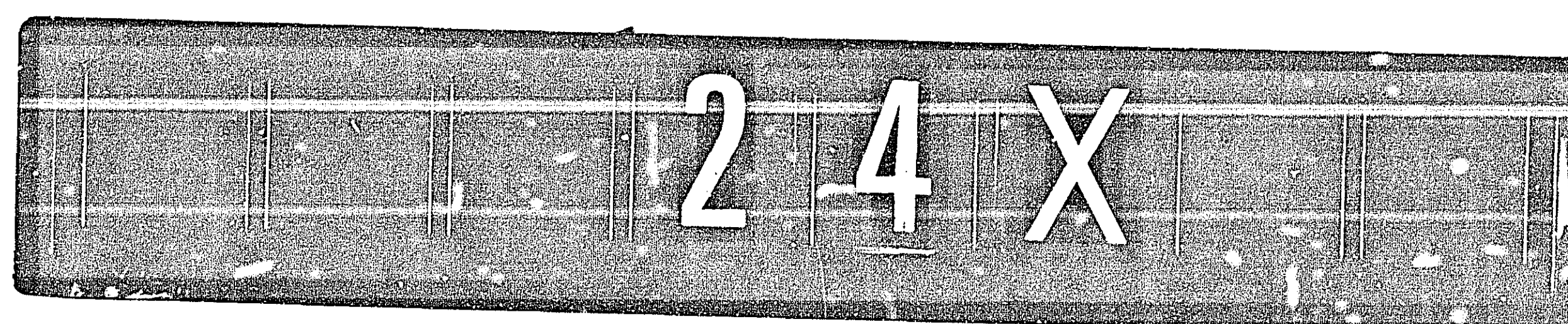
RECOMMENDED FOR APPROVAL Daniel S. Otterlund DATE 7-18-85
STATE AID PLANS & SPEC. ENGR.
RECOMMENDED FOR APPROVAL Steve O. Hark DATE 4/18/85
DISTRICT STATE AID ENGINEER
APPROVAL Steve O. Hark DATE 4/18/85
STATE AID ENGINEER

PLAN REVISIONS		
DATE	SHEET NO.	BY

S.A.P. NO. 62-665-25

Sheet No. 1 of 6 Sheets

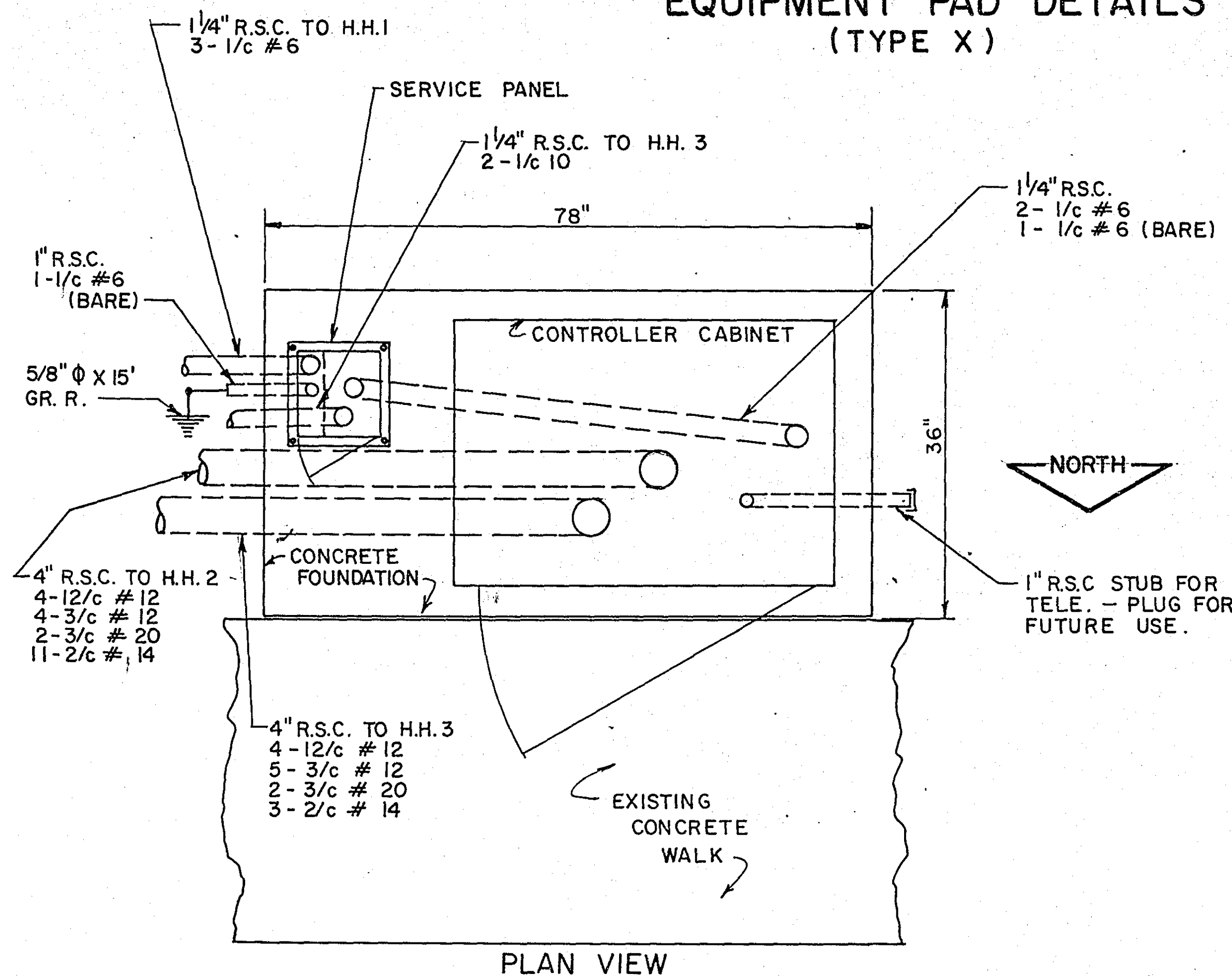
23-134



23-134 White Bear Avenue & Cedar Ave
SAP 62-665-25

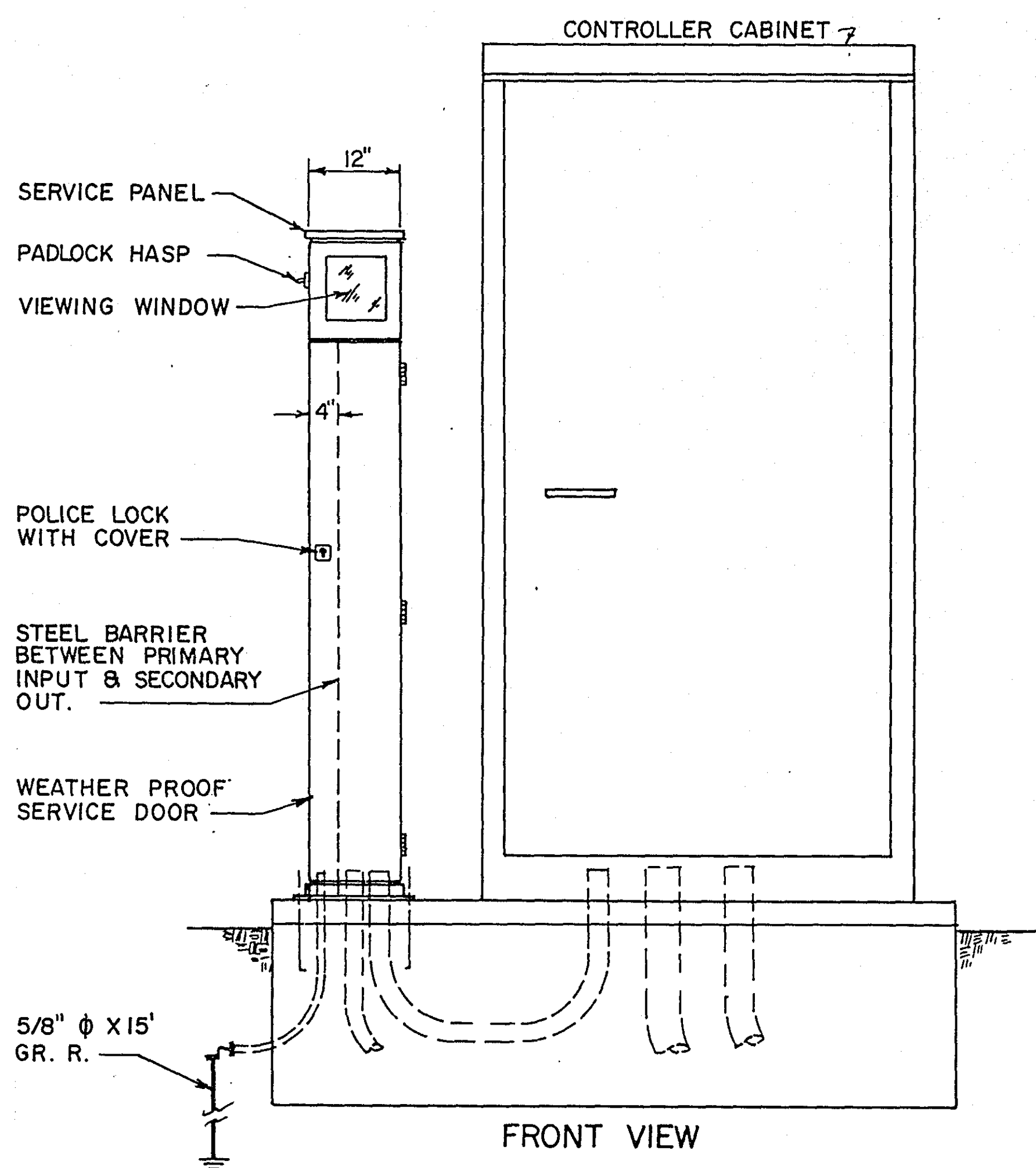
23-134

EQUIPMENT PAD DETAILS (TYPE X)

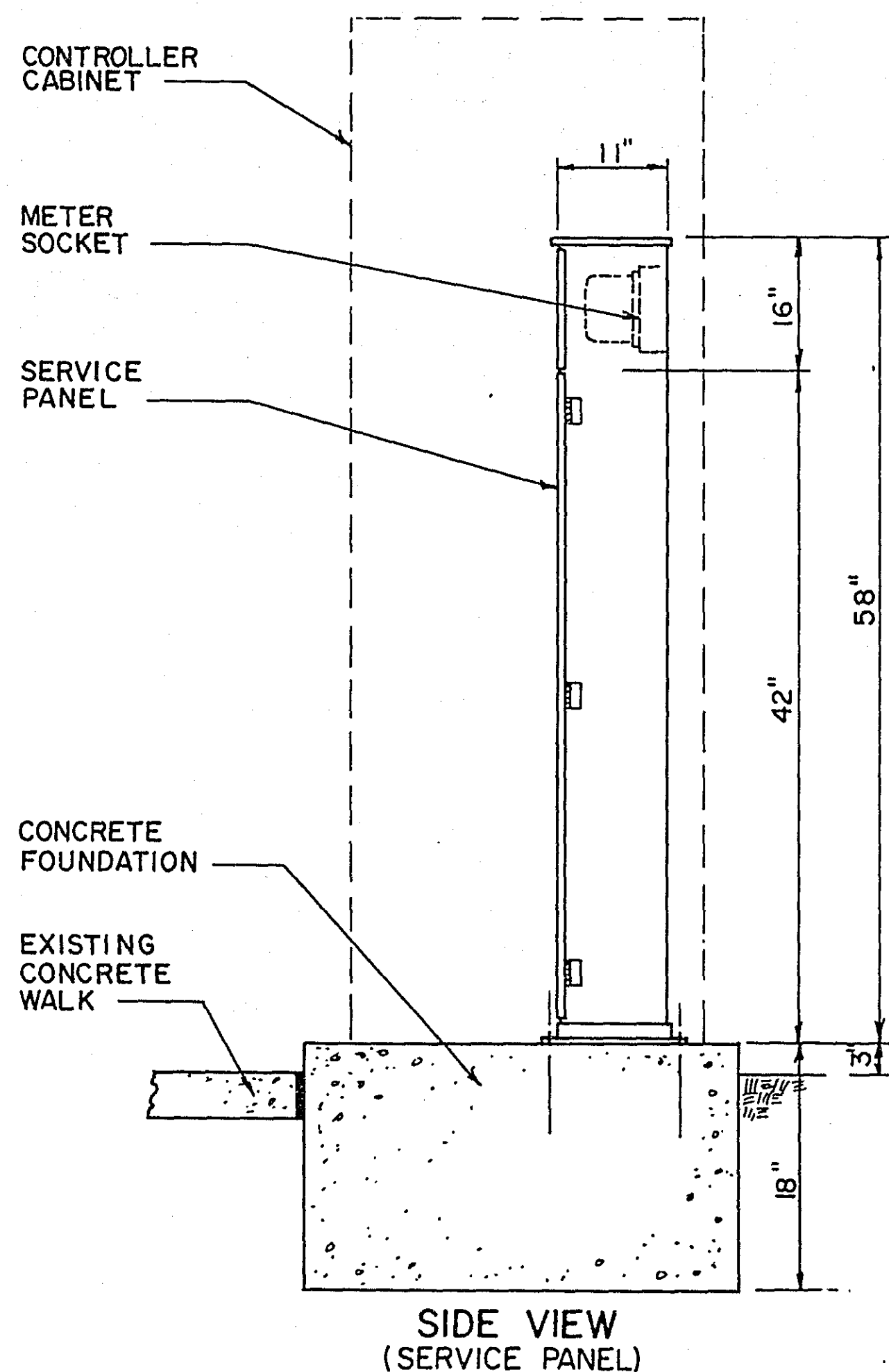


1. ANCHOR RODS, NUTS AND WASHERS PER MN/DOT 3385 OR APPROVED EQUAL SET AS RECOMMENDED BY CABINET MANUFACTURER (NUMBER, SIZE AND LENGTH OF ANCHOR RODS SHALL BE AS REQUIRED BY THE CABINET (MANUFACTURER).
2. UPPER PART OF FOUNDATION SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER 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.
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.

PLAN VIEW

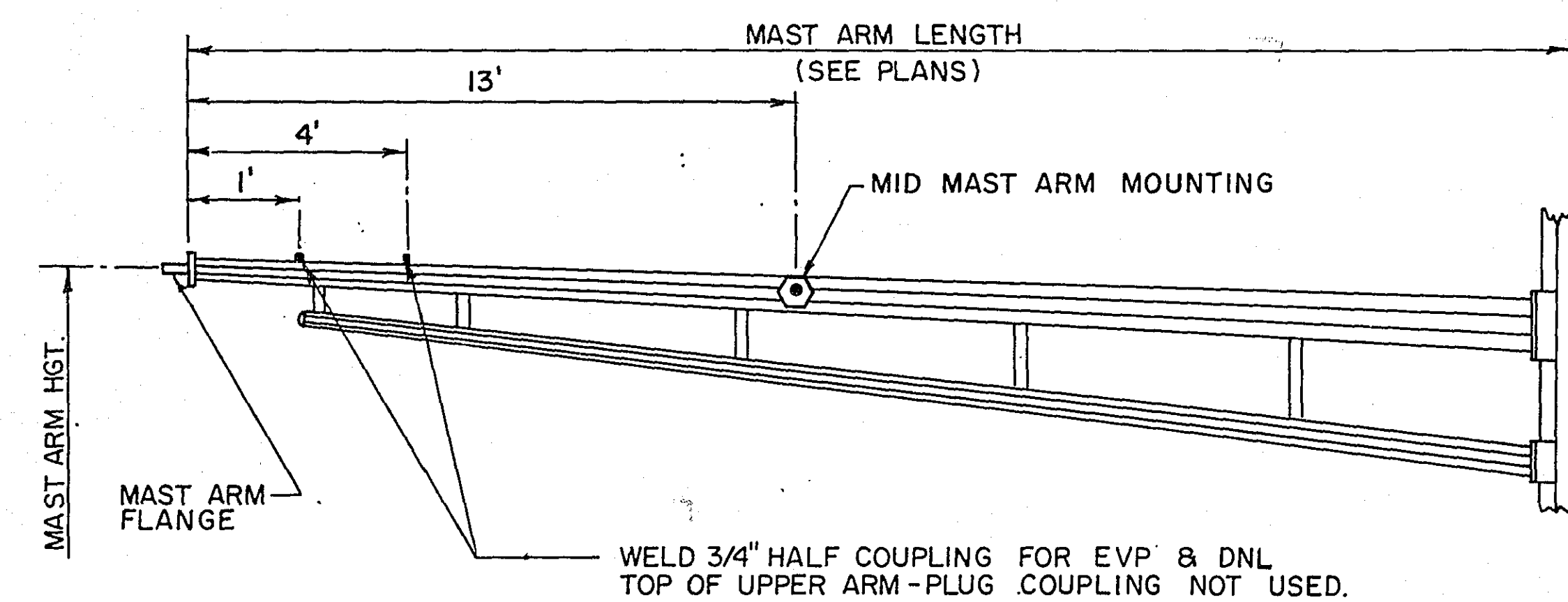


FRONT VIEW



SIDE VIEW
(SERVICE PANEL)

MAST ARM DETAILS



ABBREVIATIONS

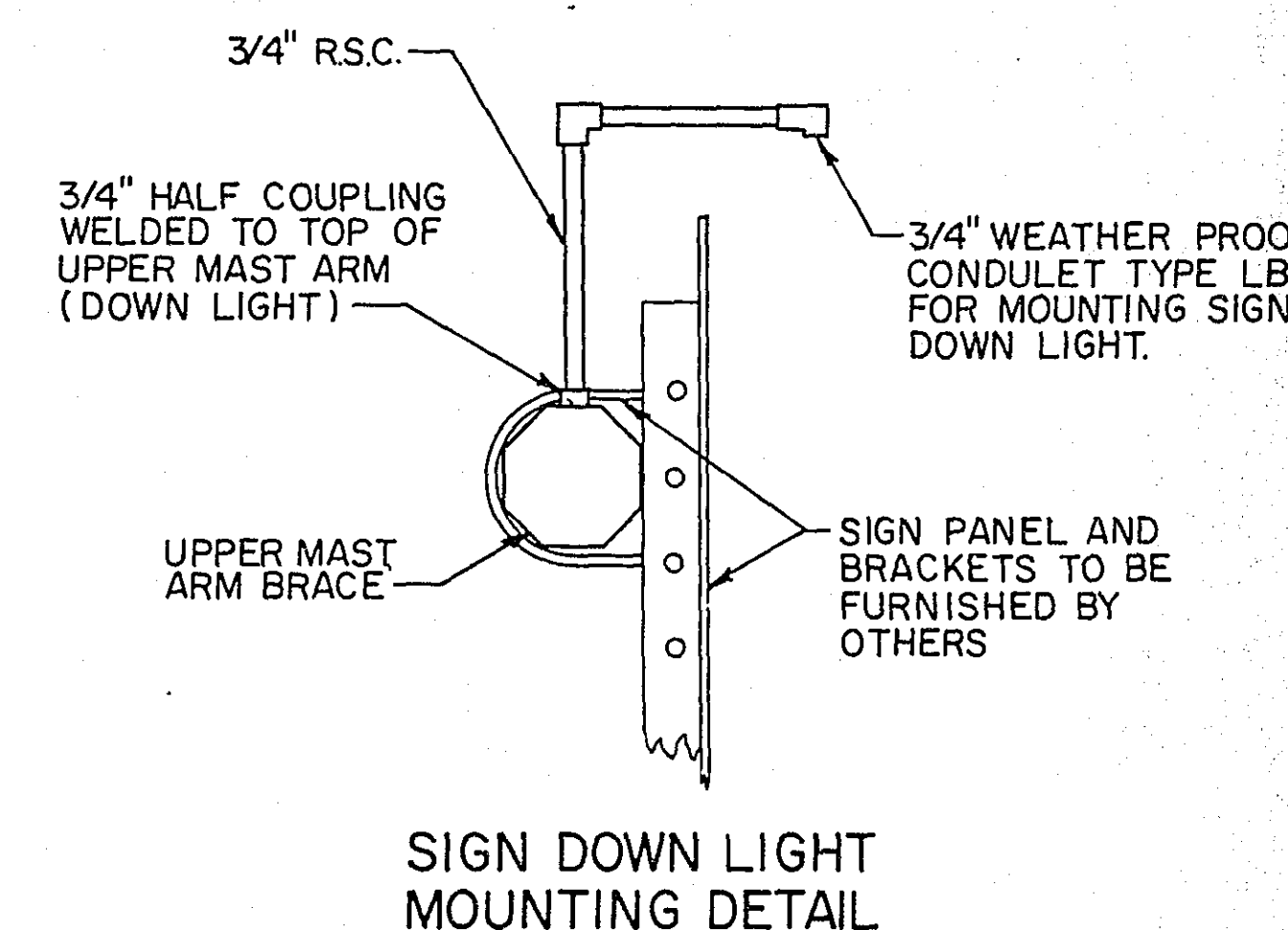
EQUIPMENT & INDICATIONS

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
P2-1(eg) - PEDESTRIAN INDICATION - "2" PHASE
PB4-2(eg) - PUSH BUTTON - "4" PHASE
2-2(eg) - SIGNAL HEAD - "2" PHASE
D2-4(eg) - DETECTOR - "2" PHASE
H.H. - HANDHOLE
GR.R. - GROUND ROD
SERV. - SERVICE
EVP - EMERGENCY VEHICLE PRE-EMPTION

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



SIGN DOWN LIGHT
MOUNTING DETAIL

STANDARD PLATES

PLATE NO.	TITLE
* 8110C	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111B	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
8112C	PEDESTAL FOUNDATION
8113C	MAGNETIC VEHICLE DETECTOR INSTALLATION
* 8115C	PEDESTRIAN PUSH BUTTON INSTALLATION
* 8116C	STEEL GUARD POST
* 8117F	PRECAST CONCRETE HANDHOLE
8118C	SERVICE EQUIPMENT & POLE, TRAFFIC CONTROL SIGNALS
8119C	GROUND MOUNTED CABINET FOUNDATION
* 8120H	P80 & P90 POLE FOUNDATION
* 8121B	TRANSFORMER BASE WITH POLE BASE PLATE
8122C	PEDESTAL AND PEDESTAL BASE
* 8123B	POLE AND MAST ARM (LUMINAIRES AND TRAFFIC LIGHTS)
* 8124D	SIGNAL HEAD MOUNTS
8126C	P-100 POLE FOUNDATION
* 8130D	SAW CUT LOOP DETECTORS

* STANDARD PLATES APPLICABLE TO THIS PROJECT

STATEMENT OF ESTIMATED QUANTITIES

PROJECT NO.	ITEM NO.	ITEM	UNIT	QUANT.
62-665-25	2565.511	FULL TRAFFIC ACTUATED TRAFFIC CONTROL SIGNAL SYSTEM	SIGNAL SYSTEM	1

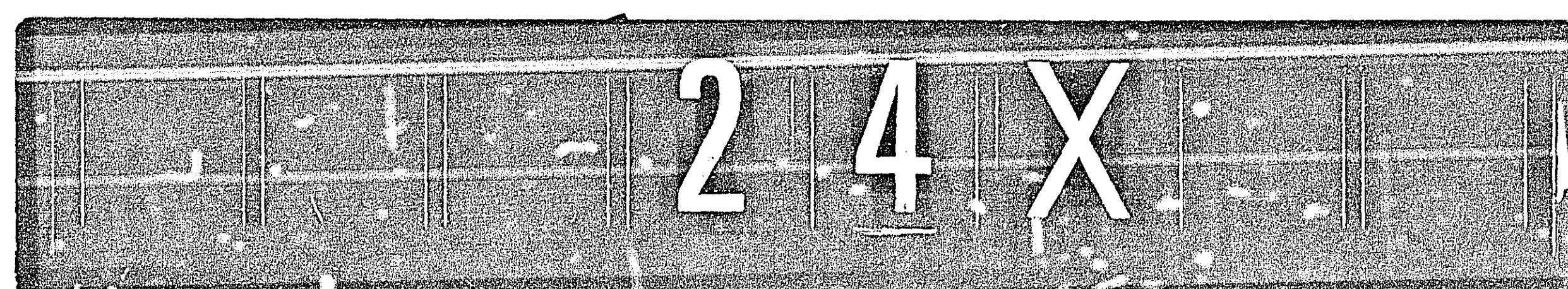
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Paul K. Kibbey
DATE 3-21-85 REG. NO. 12701

DETAILS & ESTIMATED QUANTITIES

S.A.P. NO. 62-665-25

SHEET NO. 2 OF 6 SHEETS

23-134



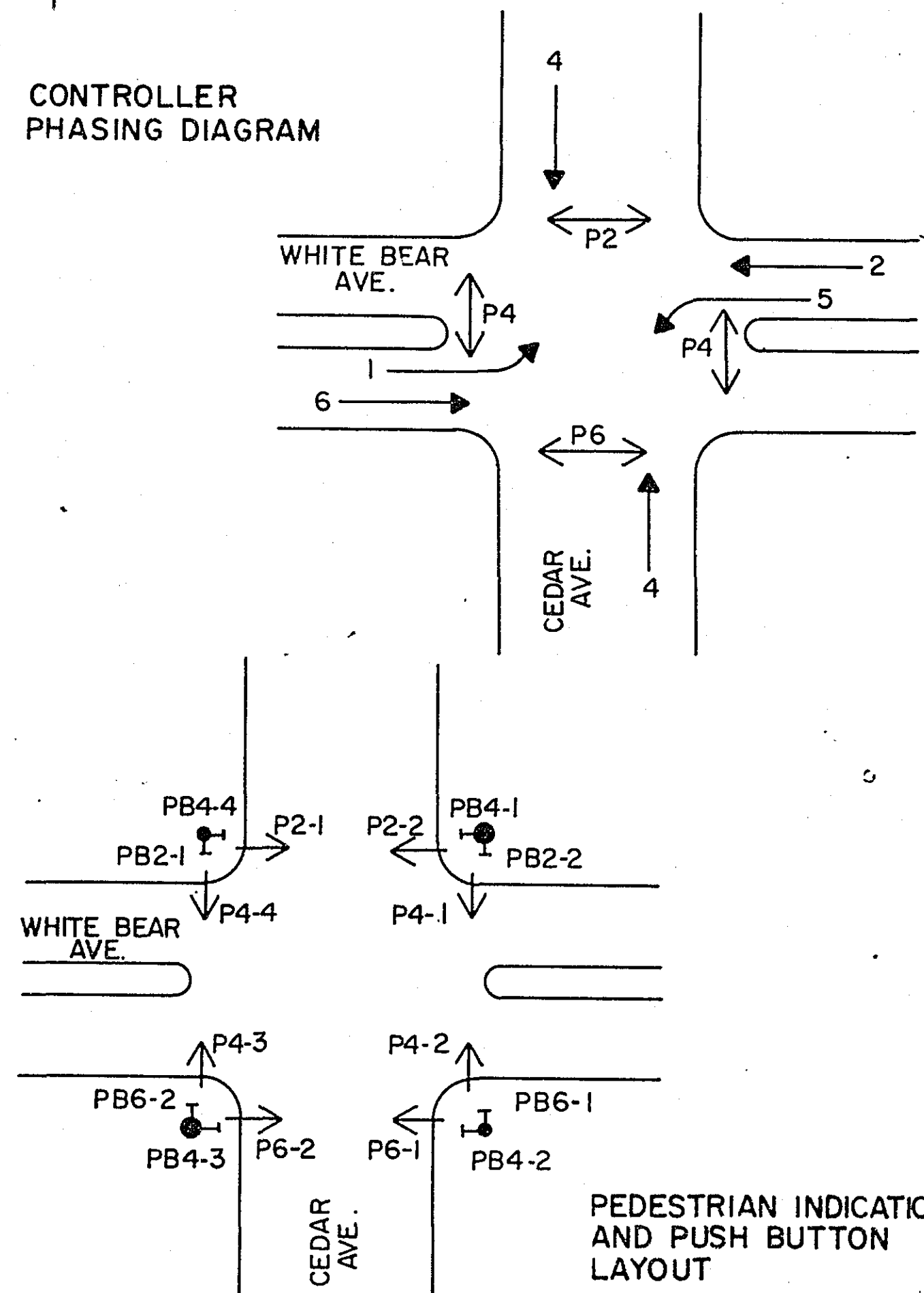
23-134 White Bear Avenue & Cedar Ave
SAP 62-665-25

23-134

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	

CONTROLLER PHASING DIAGRAM



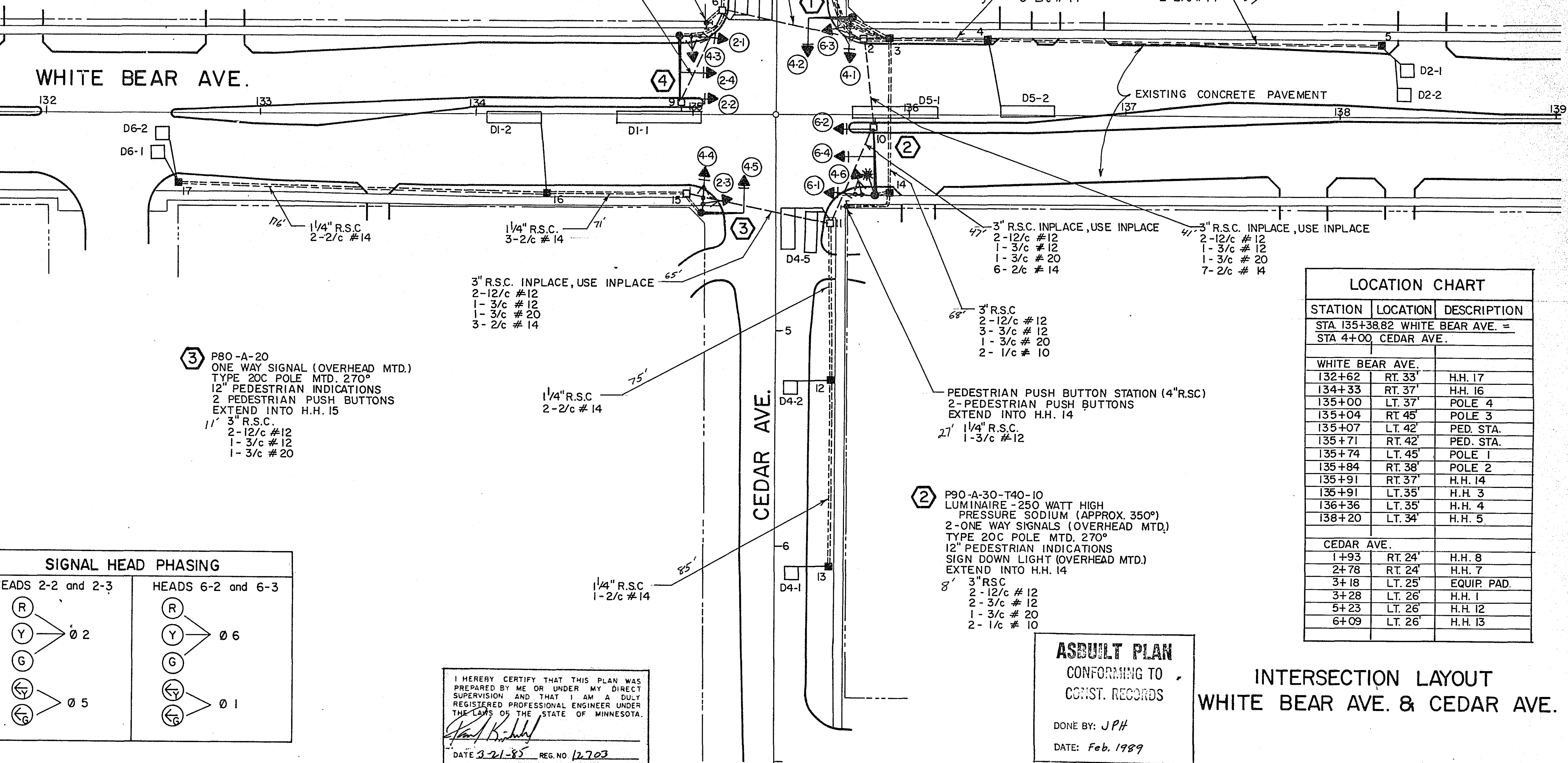
SIGNAL INDICATION CHART

FACE	PHASE	FLASH	INDICATION SIZE					
			R	Y	G	Y	G	
2-1	2	R	12"	12"	12"	-	-	
2-2	2 and 5	R	12"	12"	12"	12"	12"	
2-3	2 and 5	R	12"	12"	12"	12"	12"	
2-4	2	R	12"	12"	12"	-	-	
4-1	4	R	12"	12"	12"	-	-	
4-2	4	R	12"	12"	12"	-	-	
4-3	4	R	12"	12"	12"	-	-	
4-4	4	R	12"	12"	12"	-	-	
4-5	4	R	12"	12"	12"	-	-	
4-6	4	R	12"	12"	12"	-	-	
6-1	6	R	12"	12"	12"	-	-	
6-2	6 and 1	R	12"	12"	12"	12"	12"	
6-3	6 and 1	R	12"	12"	12"	12"	12"	
6-4	6	R	12"	12"	12"	-	-	

VEHICLE DETECTION

NUMBER	SIZE	OPERATION
D1-1	6'X40'	C. & E. (TD)
D1-2	6'X25'	E. ONLY
D2-1	6'X6'	C. & E.
D2-2	6'X6'	C. & E.
D4-1	6'X6' (P)	C. & E.
D4-2	6'X6' (P)	C. & E.
D4-3	6'X6'	C. & E.
D4-4	6'X6'	C. & E.
D4-5	2-6'X20' (P)	C. & E. (TD)
D4-6	2-6'X20' (P)	C. & E. (TD)
D5-1	6'X25'	C. & E. (TD)
D5-2	6'X25'	E. ONLY
D6-1	6'X6'	C. & E.
D6-2	6'X6'	C. & E.

C = CALL
E = EXTEND
(TD) TIME DELAY
(P) = PVC (1997)



SIGNAL HEAD PHASING

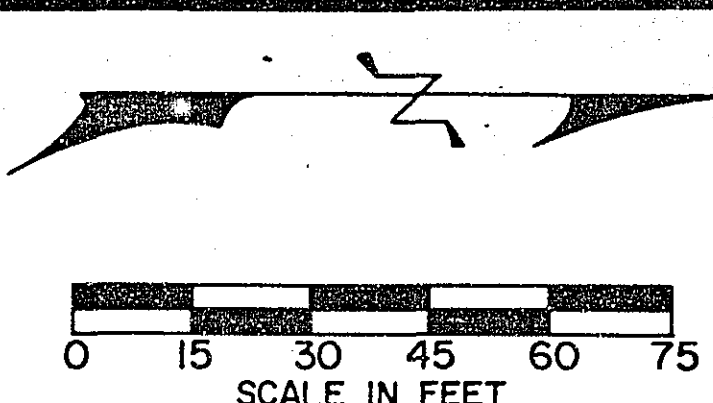
HEADS 2-2 and 2-3		HEADS 6-2 and 6-3	
(R)	Ø 2	(R)	Ø 6
(Y)	Ø 2	(Y)	Ø 6
(G)	Ø 2	(G)	Ø 6
(Y)	Ø 5	(Y)	Ø 1
(G)	Ø 5	(G)	Ø 1

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 2-21-89 REG. NO. 12703

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY: JPH
DATE: Feb. 1989



- NOTES:
- INPLACE MAST ARM FOUNDATIONS (4 TOTAL) SHALL BE REMOVED AND DISPOSED AS DIRECTED BY THE ENGINEER. EACH FOUNDATION IS APPROX. 3' DIA. X 7' (SEE SPECIAL PROVISIONS)
 - HANDHOLES 2, 6, 9, 10, 11 & 15 ARE INPLACE, USE INPLACE UNLESS OTHERWISE NOTED.
 - 3/c #20 CABLES SHALL BE INSTALLED TO CONDUIT OUTLET BODY ON EACH MAST ARM POLE.
 - POLE AND DETECTOR LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE TRAFFIC ENGINEER PRIOR TO INSTALLATION.

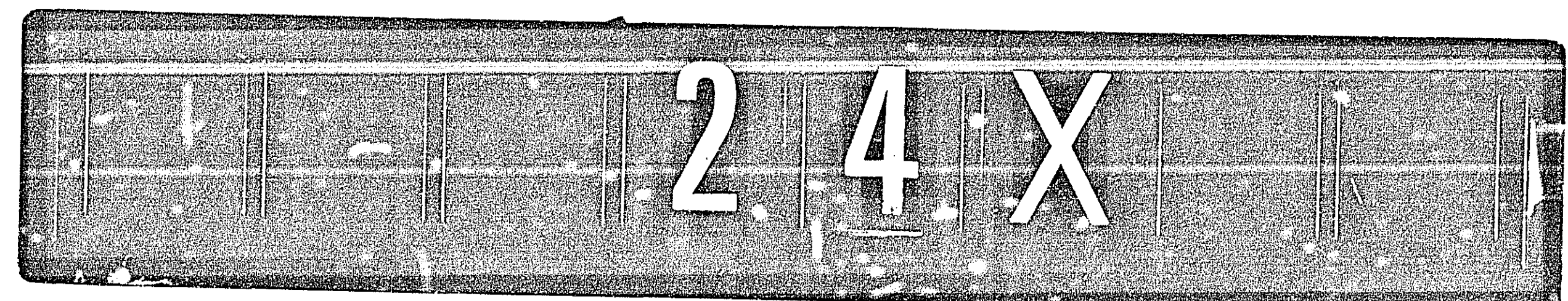
LOCATION CHART

STATION	LOCATION	DESCRIPTION
STA 135+38.82 WHITE BEAR AVE. = STA 4+00 CEDAR AVE.		
WHITE BEAR AVE.		
132+62	RT. 33	H.H. 17
134+33	RT. 37	H.H. 16
135+00	LT. 37	POLE 4
135+04	RT. 45	POLE 3
135+07	LT. 42	PED. STA.
135+71	RT. 42	PED. STA.
135+74	LT. 45	POLE 1
135+84	RT. 38	POLE 2
135+91	RT. 37	H.H. 14
135+91	LT. 35	H.H. 3
136+36	LT. 35	H.H. 4
138+20	LT. 34	H.H. 5
CEDAR AVE.		
1+93	RT. 24	H.H. 8
2+78	RT. 24	H.H. 7
3+18	LT. 25	EQUIP. PAD.
3+28	LT. 26	H.H. 1
5+23	LT. 26	H.H. 12
6+09	LT. 26	H.H. 13

S.A.P. NO. 62-665-25

SHEET NO. 3 OF 6 SHEETS

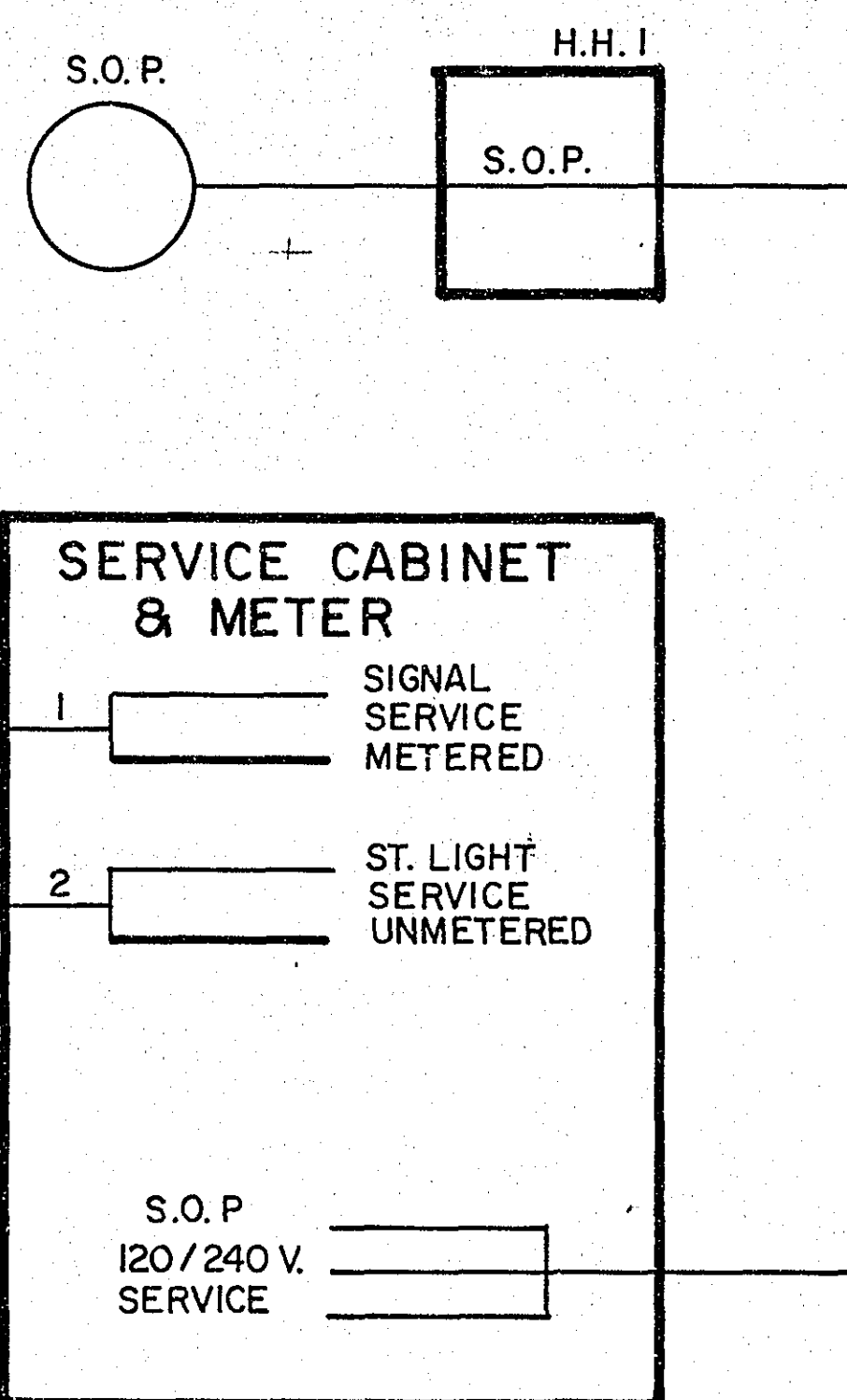
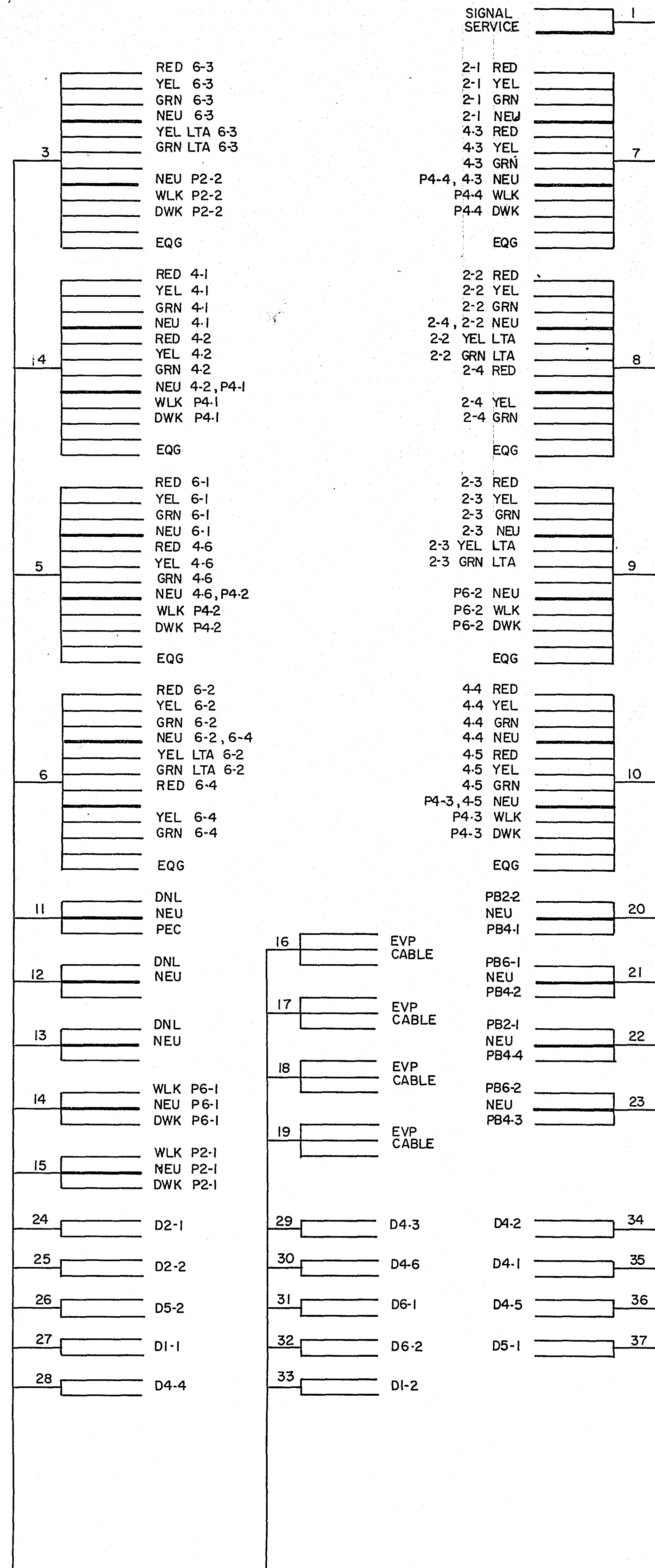
23-134



23-134 White Bear Avenue & Cedar Ave.
SAP 62-665-25

23-134

CONTROLLER CABINET

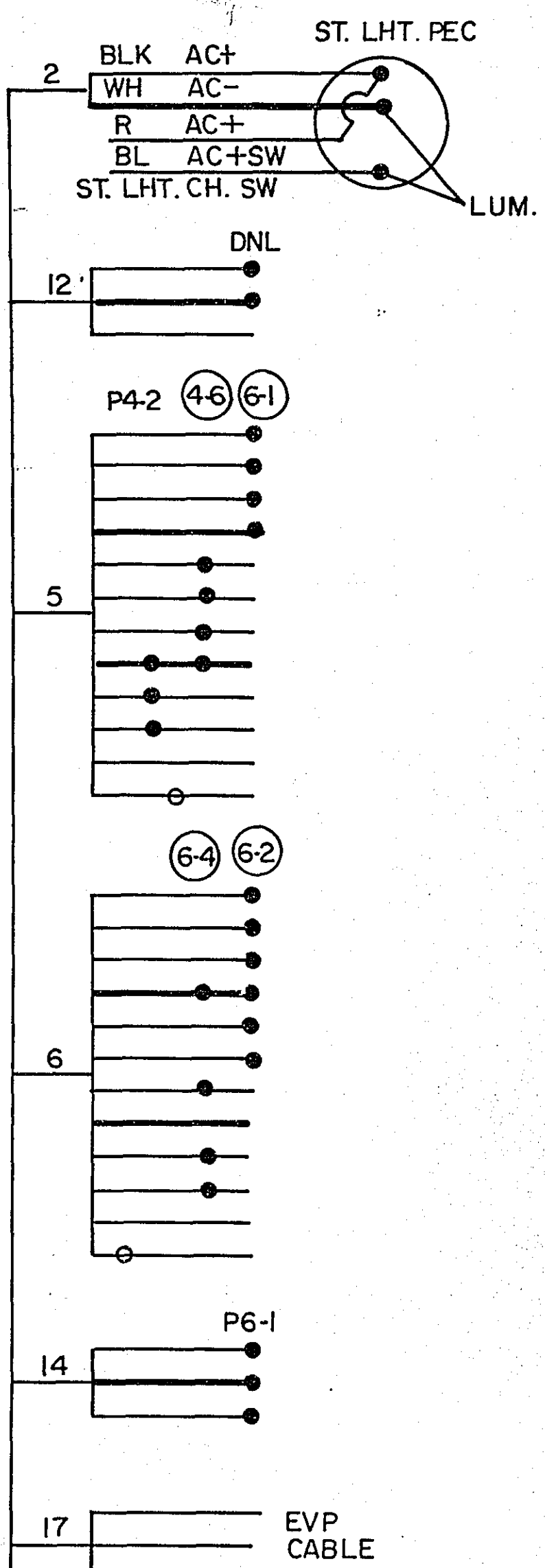


CONDUCTOR COLOR CODING

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

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

2



FIELD WIRING DIAGRAM
WHITE BEAR AVE. & CEDAR AVE.

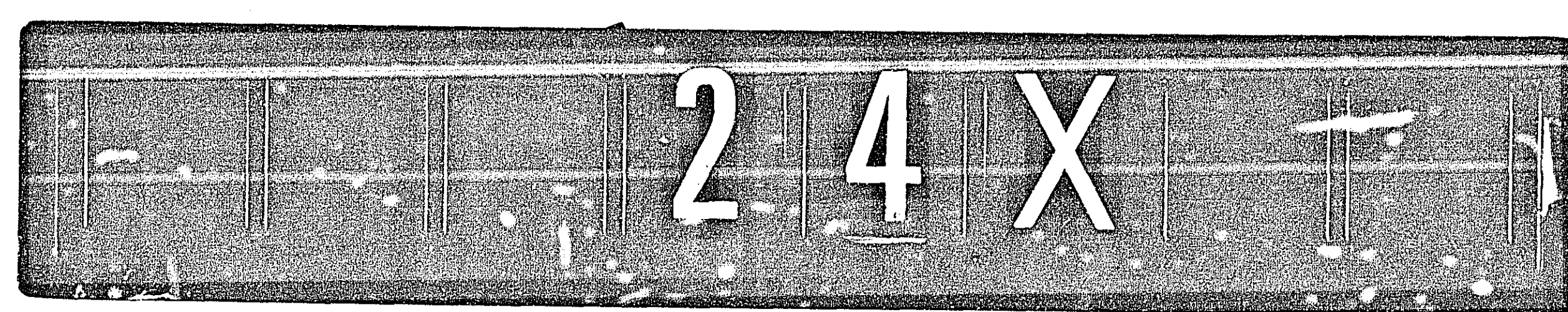
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 3-21-85 REG NO 12702

S.A.P. NO. 62-665-25

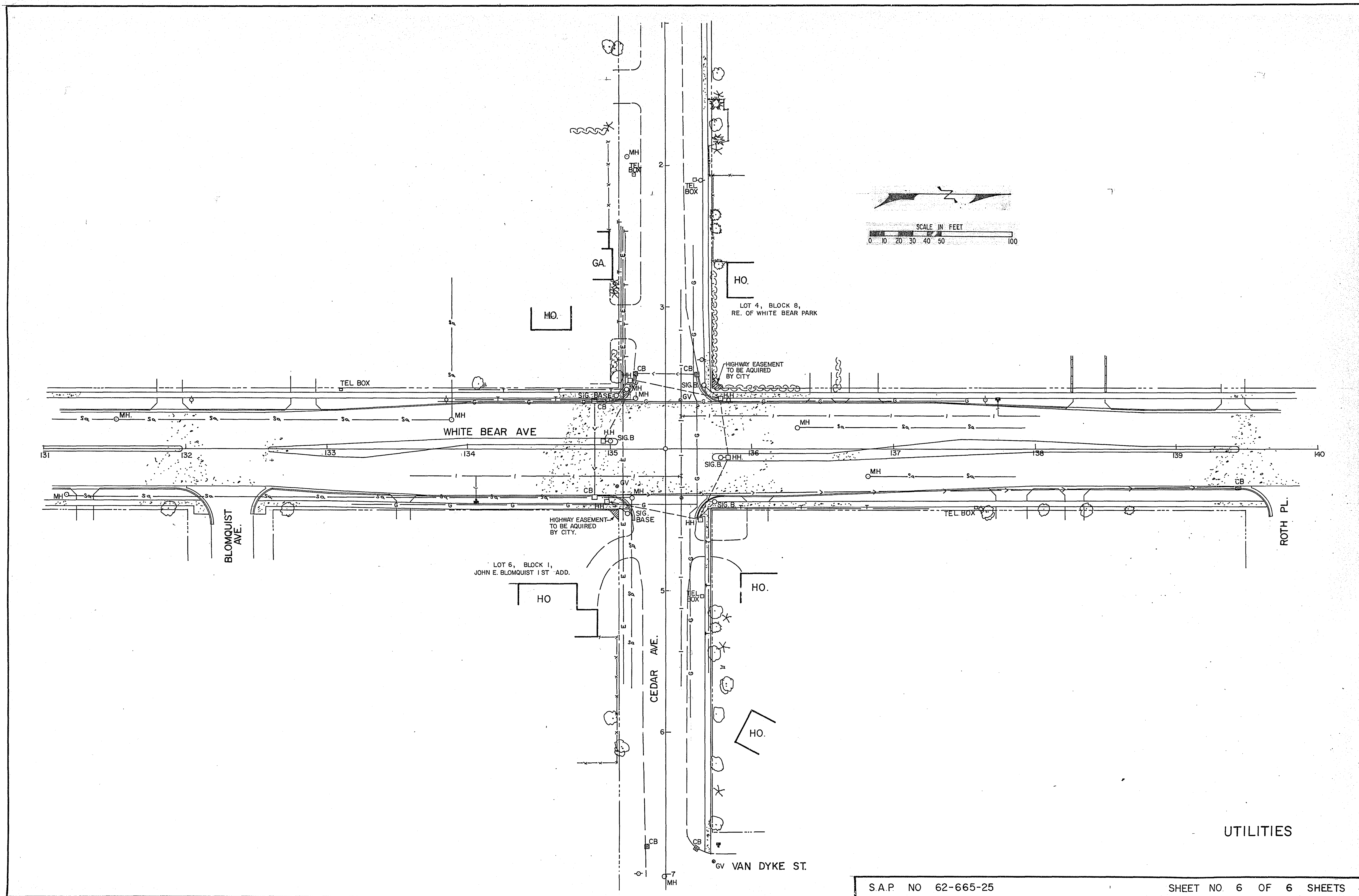
SHEET NO. 4 OF 6 SHEETS

23-134

23-134 White Bear Avenue & Cedar Ave
SAP 62-665-25



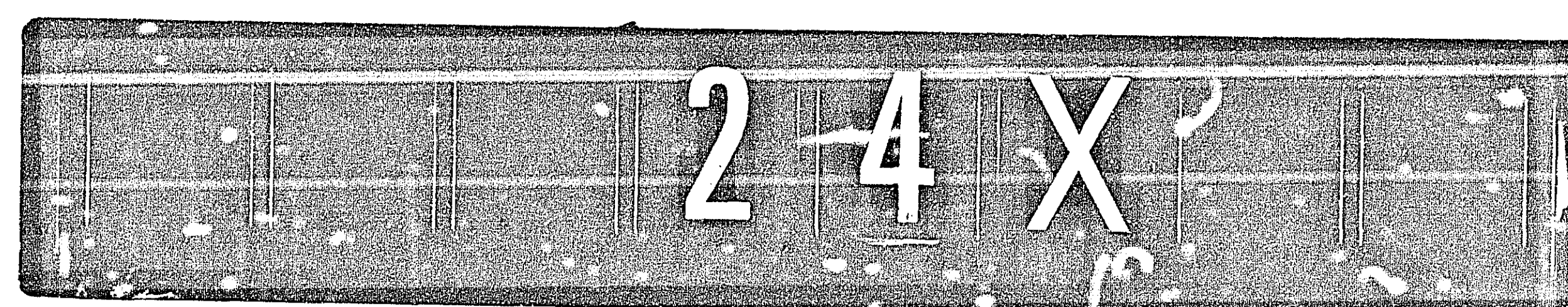
23-134



SAP NO 62-665-25

SHEET NO 6 OF 6 SHEETS

23-134



23-134 White Bear Avenue & Cedar Ave.
SAP 62-665-25