

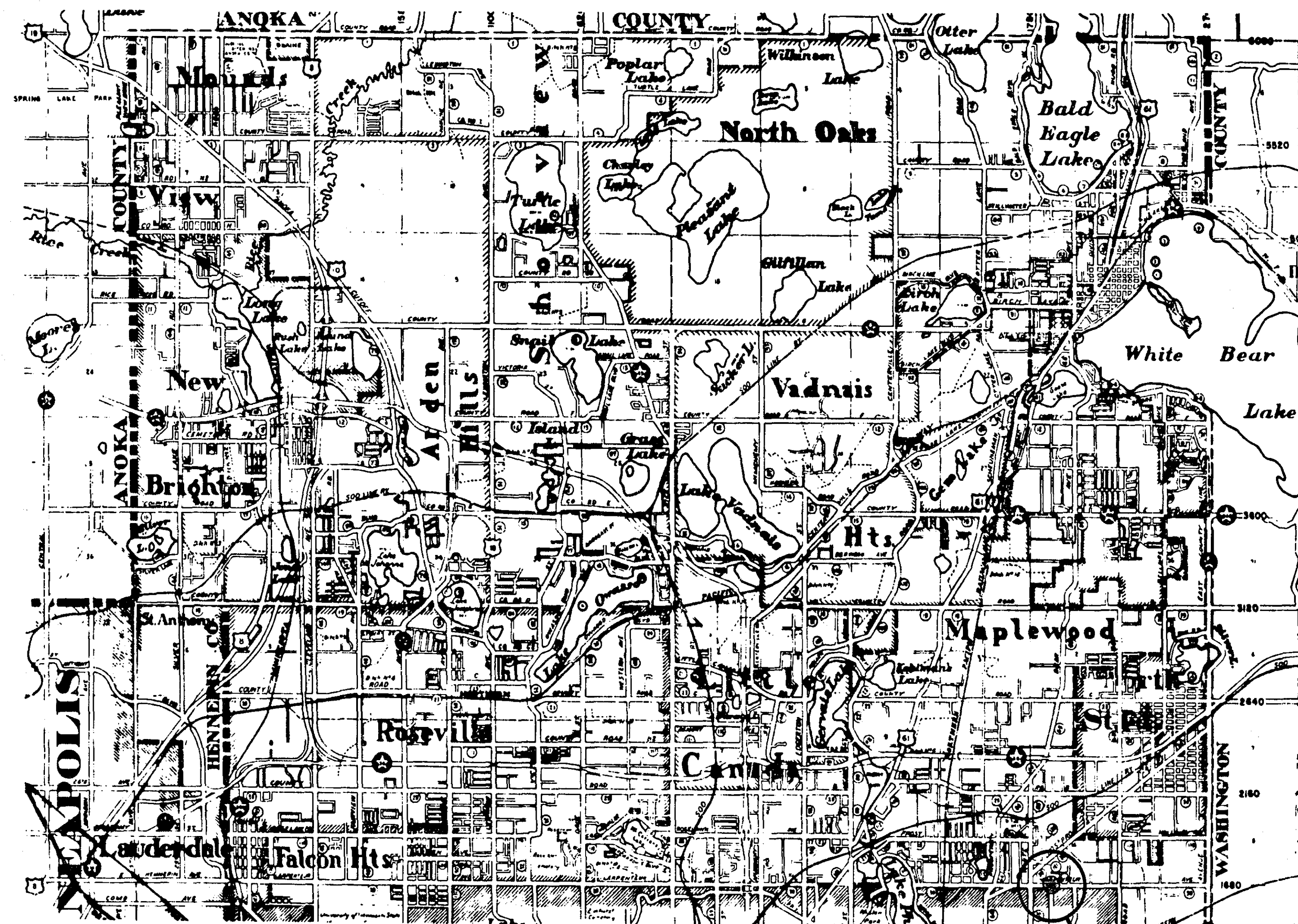
Left Column Symbols:

- STATE LINE**: Dashed line with stars at the ends.
- COUNTY LINE**: Dashed line.
- TOWNSHIP OR RANGE LINE**: Dashed line.
- SECTION LINE**: Dashed line.
- QUARTER LINE**: Dashed line.
- SIXTEENTH LINE**: Dashed line.
- RIGHT OF WAY LINE**: Dashed line.
- PRESENT RIGHT OF WAY LINE**: Dashed line.
- CONTROL OF ACCESS LINE**: Dashed line with circles.
- PROPERTY LINE (Except Land Lines)**: Dashed line.
- VACATED PLATTED PROPERTY**: Dashed line.
- CORPORATE OR CITY LIMITS**: Dashed line.
- TRUNK HIGHWAY CENTER LINE**: Solid line with 'P1', 'Q1', 'P2', 'Q2' markers.
- RETAINING WALL**: Solid line with a cross-hatch pattern.
- RAILROAD**: Solid line with cross-ticks.
- RAILROAD RIGHT OF WAY LINE**: Solid line with cross-ticks.
- RIVER OR CREEK**: Wavy line.
- DRY RUN**: Dashed wavy line.
- DRAINAGE DITCH**: Dashed line.
- DRAIN TILE**: Dashed line.
- CULVERT**: Solid line with a cross-tick.
- DROP INLET**: Solid line with a cross-tick.
- GUARD RAIL**: Solid line with cross-ticks.
- BARBED WIRE FENCE**: Solid line with cross-ticks.
- WOVEN WIRE FENCE**: Solid line with cross-ticks.
- CHAIN LINK FENCE**: Solid line with cross-ticks.
- RAILROAD SNOW FENCE**: Solid line with cross-ticks.
- STONE WALL OR FENCE**: Solid line with cross-ticks.
- HEDGE**: Solid line with cross-ticks.
- RAILROAD CROSSING SIGN**: Solid line with cross-ticks.
- RAILROAD CROSSING BELL**: Solid line with cross-ticks.
- ELECTRIC WARNING SIGN**: Solid line with cross-ticks.
- CROSSING GATE**: Solid line with cross-ticks.
- MEANDER CORNER**: Solid line with a cross-tick.

Right Column Symbols:

- SPRINGS**: Dashed line with stars at the ends.
- MARSH**: Dashed line.
- TIMBER**: Dashed line.
- ORCHARD**: Dashed line.
- BRUSH**: Dashed line.
- NURSERY**: Dashed line.
- CATCH BASIN**: Dashed line.
- FIRE HYDRANT**: Dashed line.
- CATTLE GUARD**: Dashed line.
- OVERPASS (Highway Over)**: Dashed line.
- UNDERPASS (Highway Under)**: Dashed line.
- BRIDGE**: Dashed line.
- BUILDING (One Story Frame)**: Dashed line.
- F. FRAME**: Dashed line.
- C. CONCRETE**: Dashed line.
- S. STONE**: Dashed line.
- T. TILE**: Dashed line.
- B. BRICK**: Dashed line.
- ST. STUCCO**: Dashed line.
- IRON PIPE OR ROD**: Dashed line.
- MONUMENT (STONE, CONCRETE, OR METAL)**: Dashed line.
- WOODEN PILE**: Dashed line.
- GRAVEL PIT**: Dashed line.
- SAND PIT**: Dashed line.
- BORROW PIT**: Dashed line.
- ROCK QUARRY**: Dashed line.

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



CITY OF ST. PAUL

CO. PROJ. NO. 68-30

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

DESIGNED BY Wm V. Chouet DATE 2/19/69
DIRECTOR OF SAFETY

RECOMMENDED FOR APPROVAL Dean R. Ambler DATE 5/1/69
COUNTY ENGINEER

APPROVED Thomas K. Byrne DATE 5-5-69
CHAIRMAN OF THE RAMSEY COUNTY BOARD

APPROVED _____ DATE _____
MAYOR, CITY OF ST. PAUL

APPROVED Leslie G. Wydale DATE 5-15-69
MAYOR, VILLAGE OF MAPLEWOOD

MINNESOTA STATE HIGHWAY DEPARTMENT

RECOMMENDED FOR APPROVAL C. E. Weichselbaum DATE 9-4-69

RECOMMENDED FOR APPROVAL [Signature] DATE 5-29-69
DISTRICT STATE AID ENGINEER

APPROVAL Gordon M. Fay, Jr. C.E. W. L. Schell DATE 9-4-69
STATE AID ENGINEER

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

MICROFILMED
 JAN 29 1968

CO. PROJ. NO. 68-30

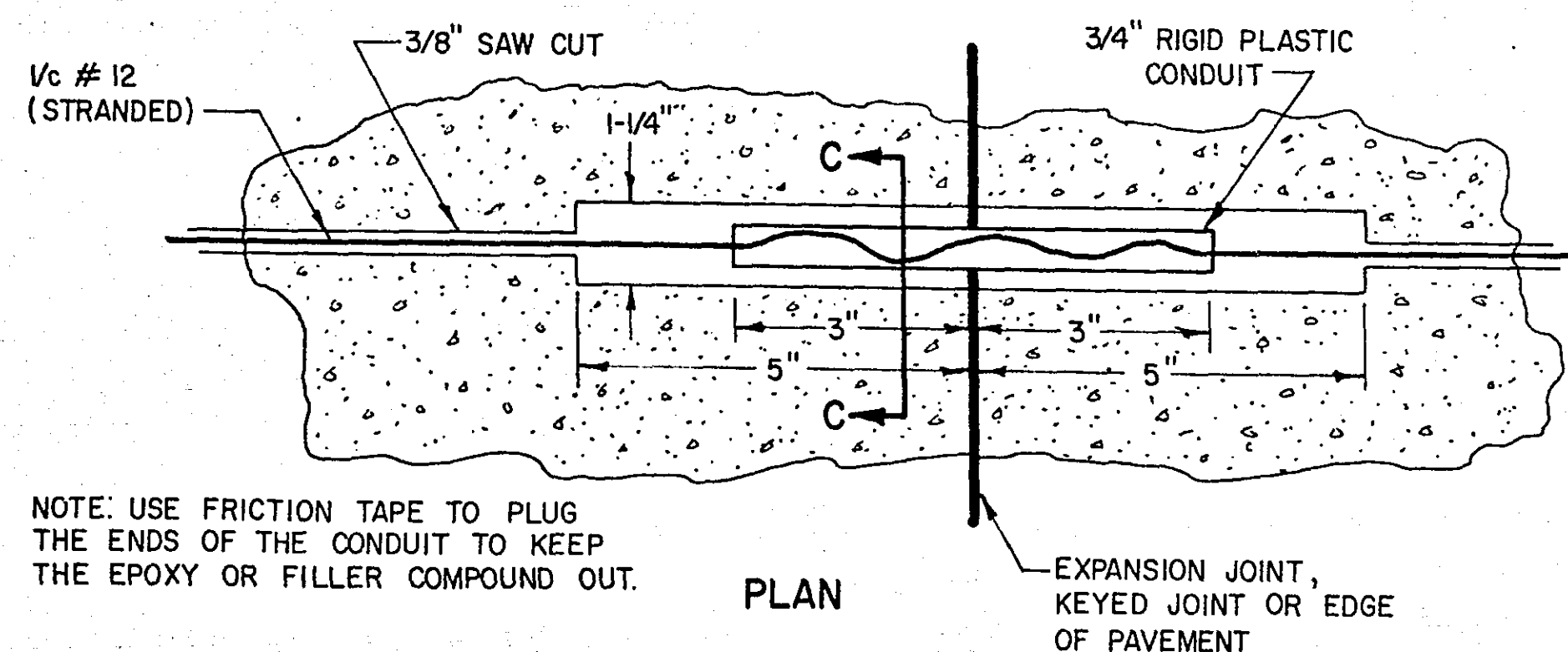
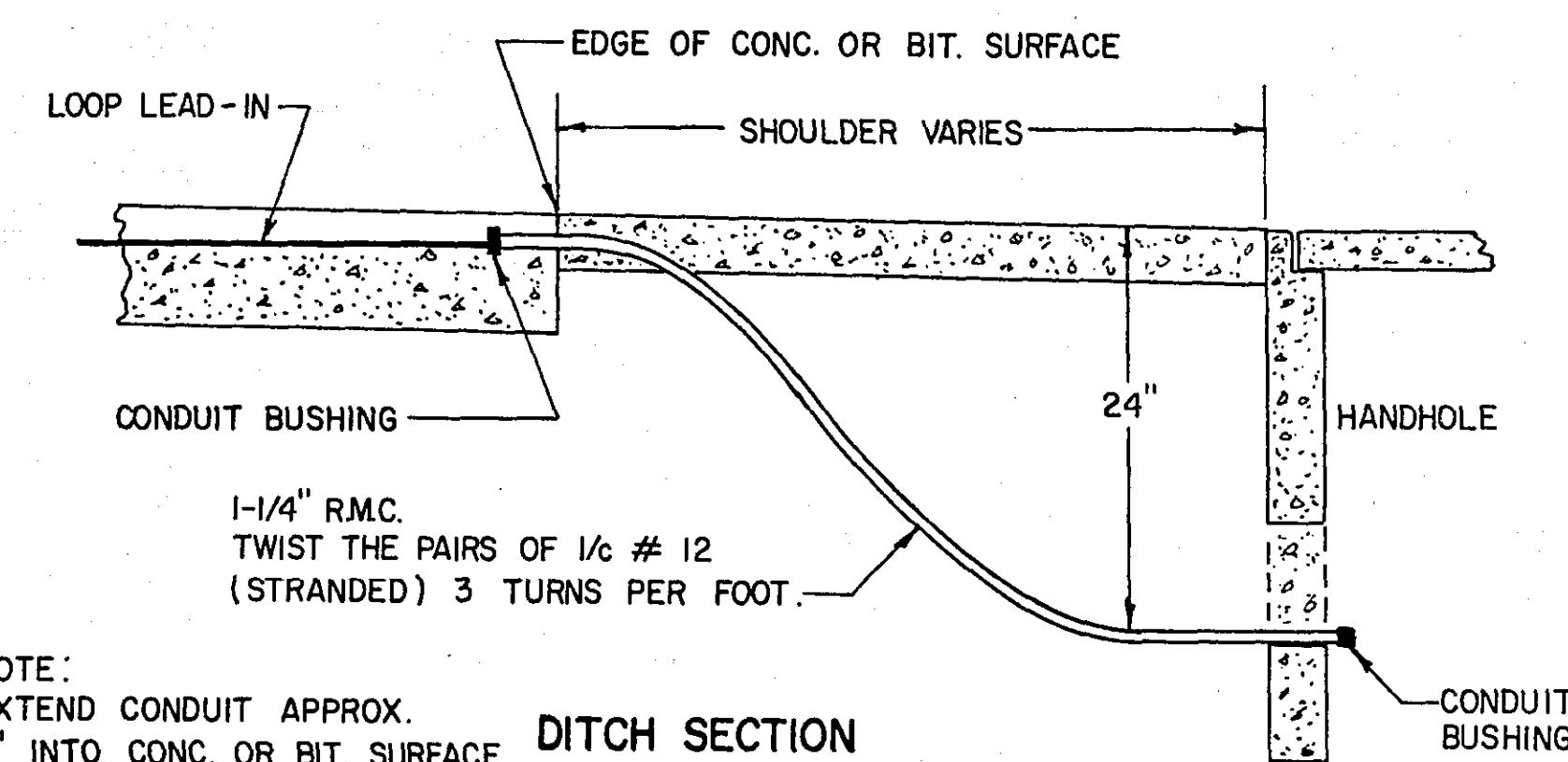
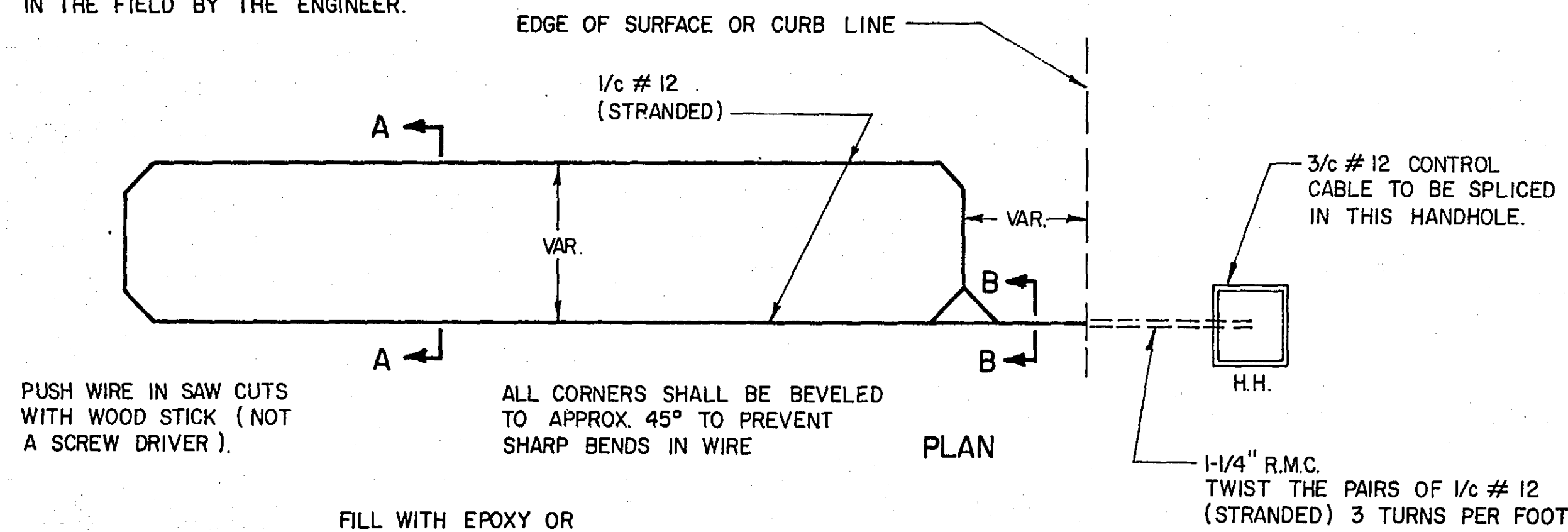
S.A.P. 62 - 630 - 14

Sheet No. 1 of 5 Sheets

17-108

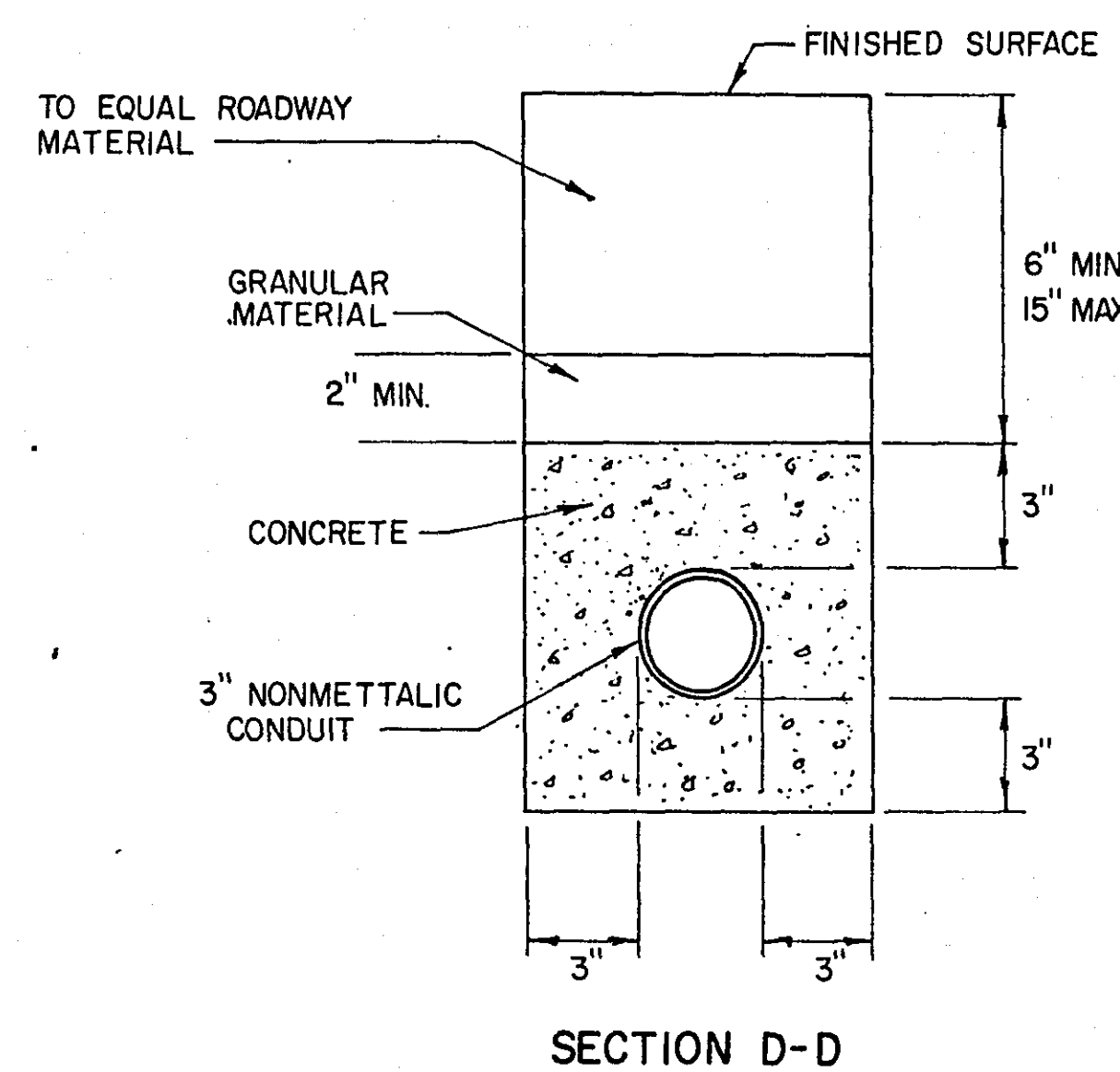
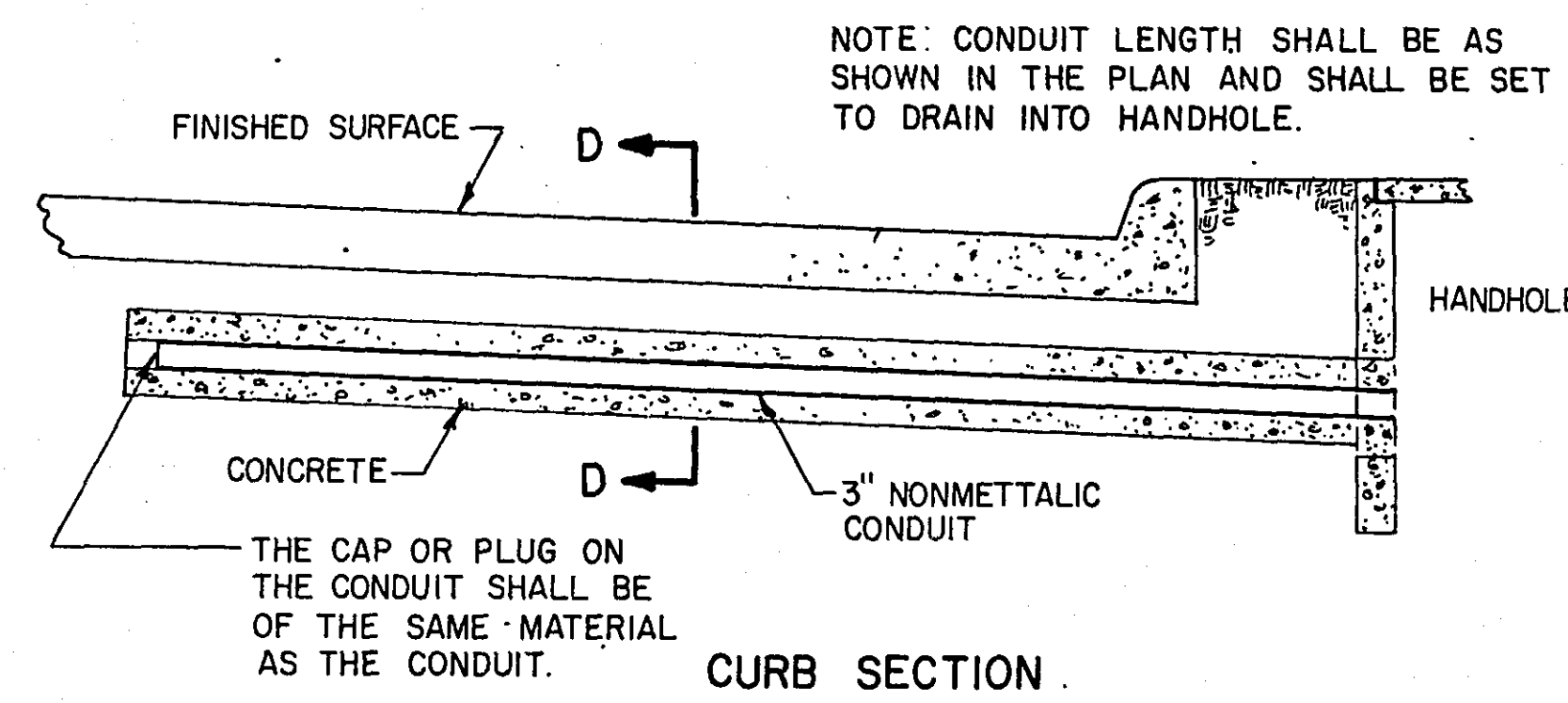
LOOP DETECTION INSTALLATION DETAIL NO. 2

NOTE: NUMBER OF TURNS & SIZE OF LOOP SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

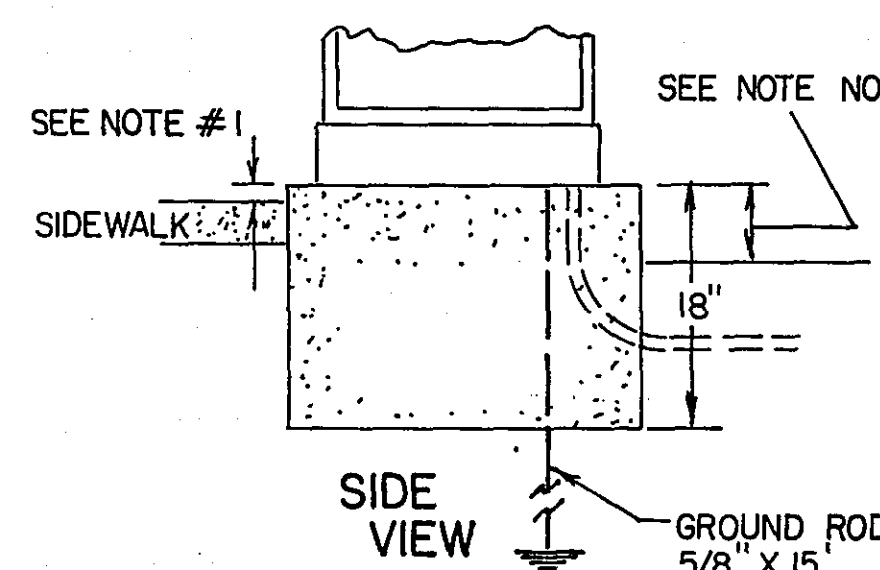


JOINT SLEEVE INSTALLATION
FOR LOOP DETECTORS

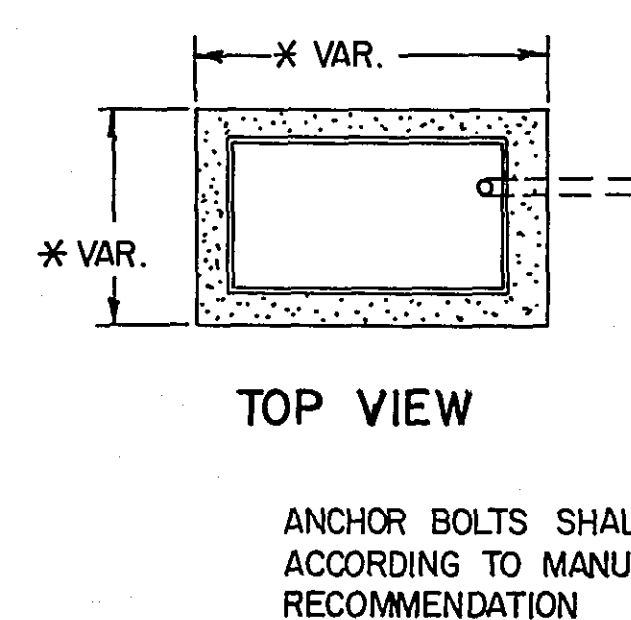
MAGNETIC VEHICLE DETECTOR INSTALLATION DETAIL NO. 4



NOTE #1 DISTANCE FROM GROUND LINE VARIABLE FROM 1/4" IN THE SIDEWALK AREA TO 2" ABOVE ULTIMATE FINISHED GRADE IN THE SHOULDER OR BLVD. AREAS.

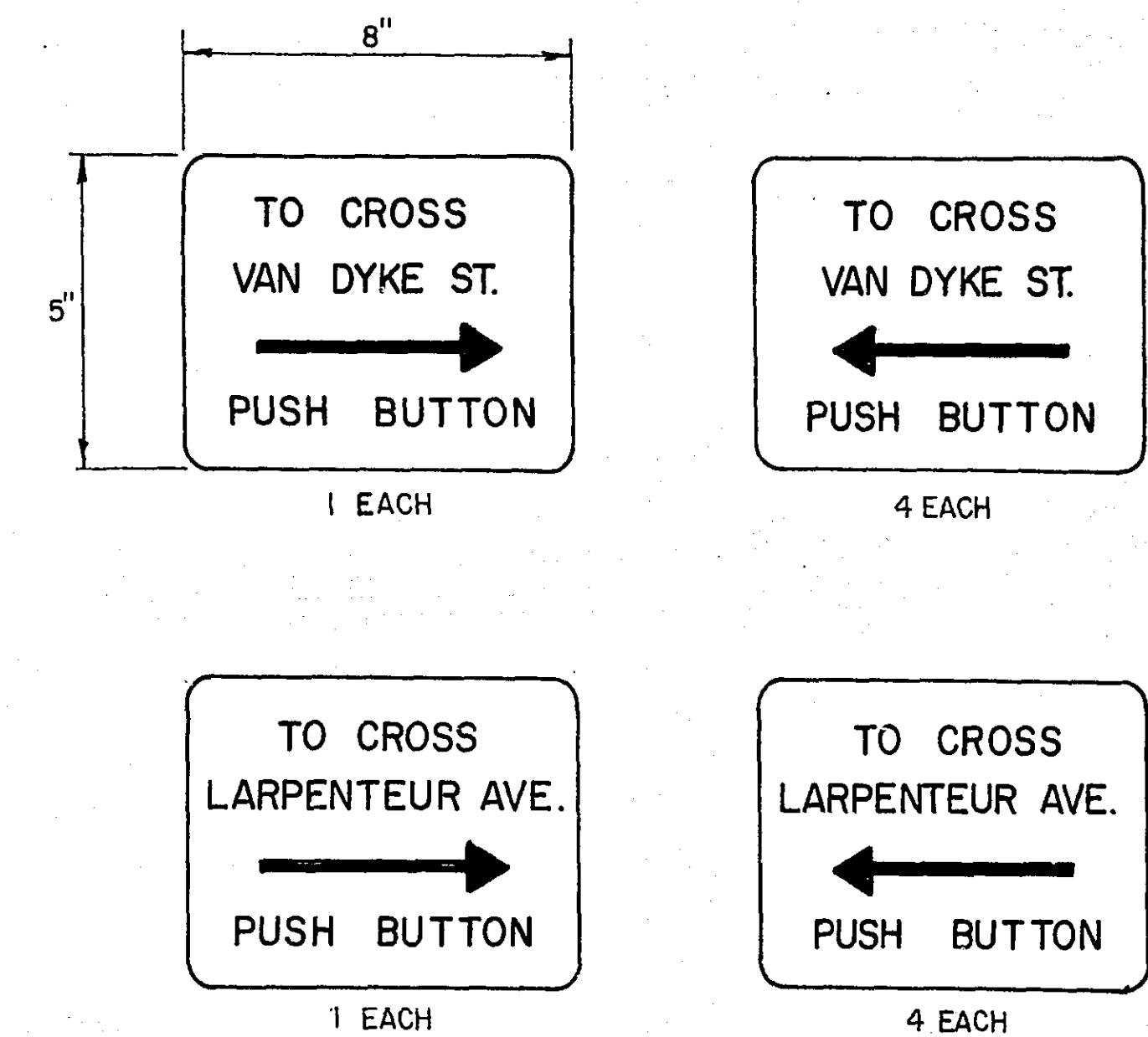


* FOUNDATION DIMENSION SHALL BE 6" GREATER THAN THE CABINET BASE TO BE INSTALLED



GROUND MOUNTED
CONTROLLER FOUNDATION

PEDESTRIAN INSTRUCTION SIGNS DETAIL NO. 3



ABBREVIATIONS

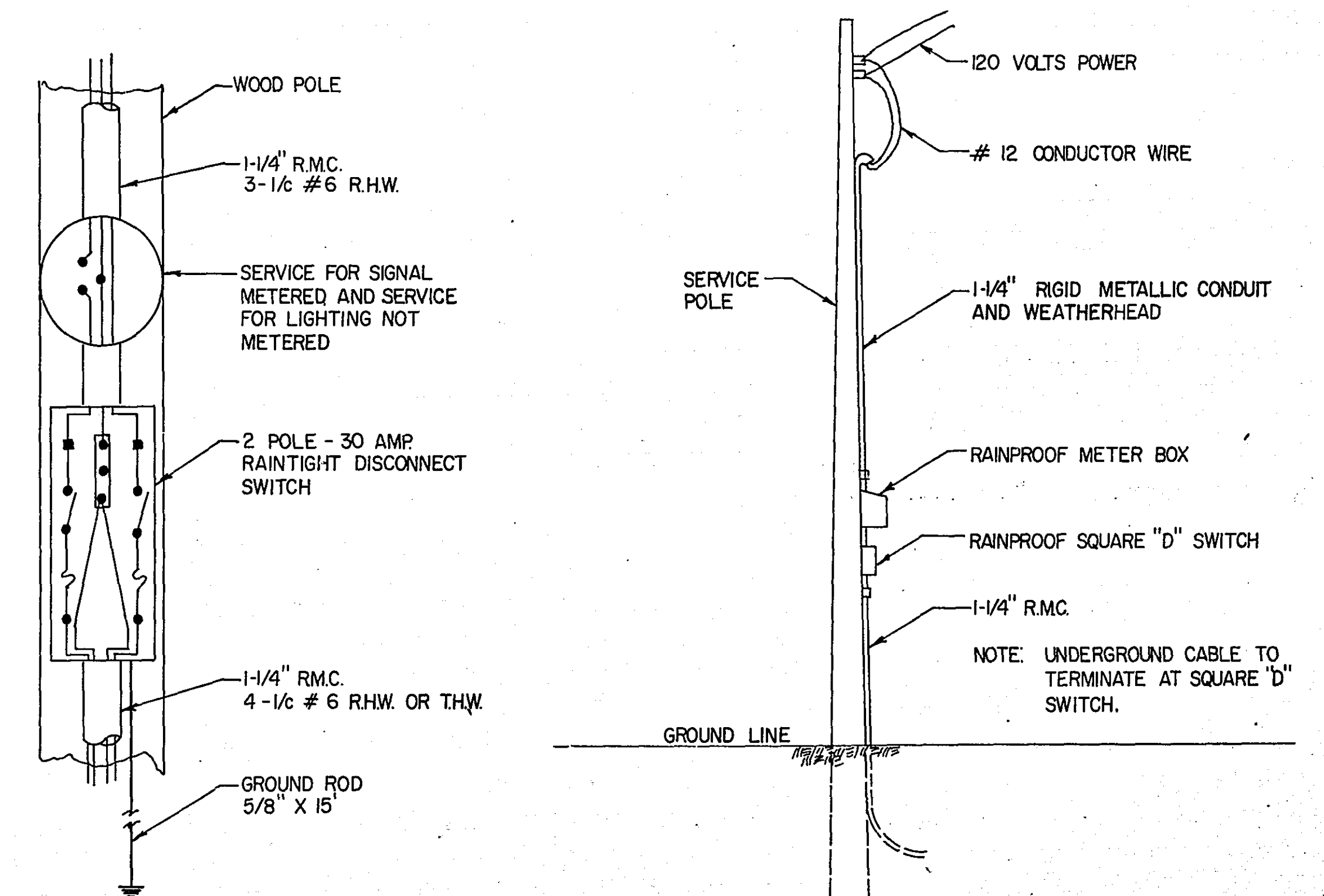
EQUIPMENT & INDICATIONS

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 - "A" PHASE
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

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

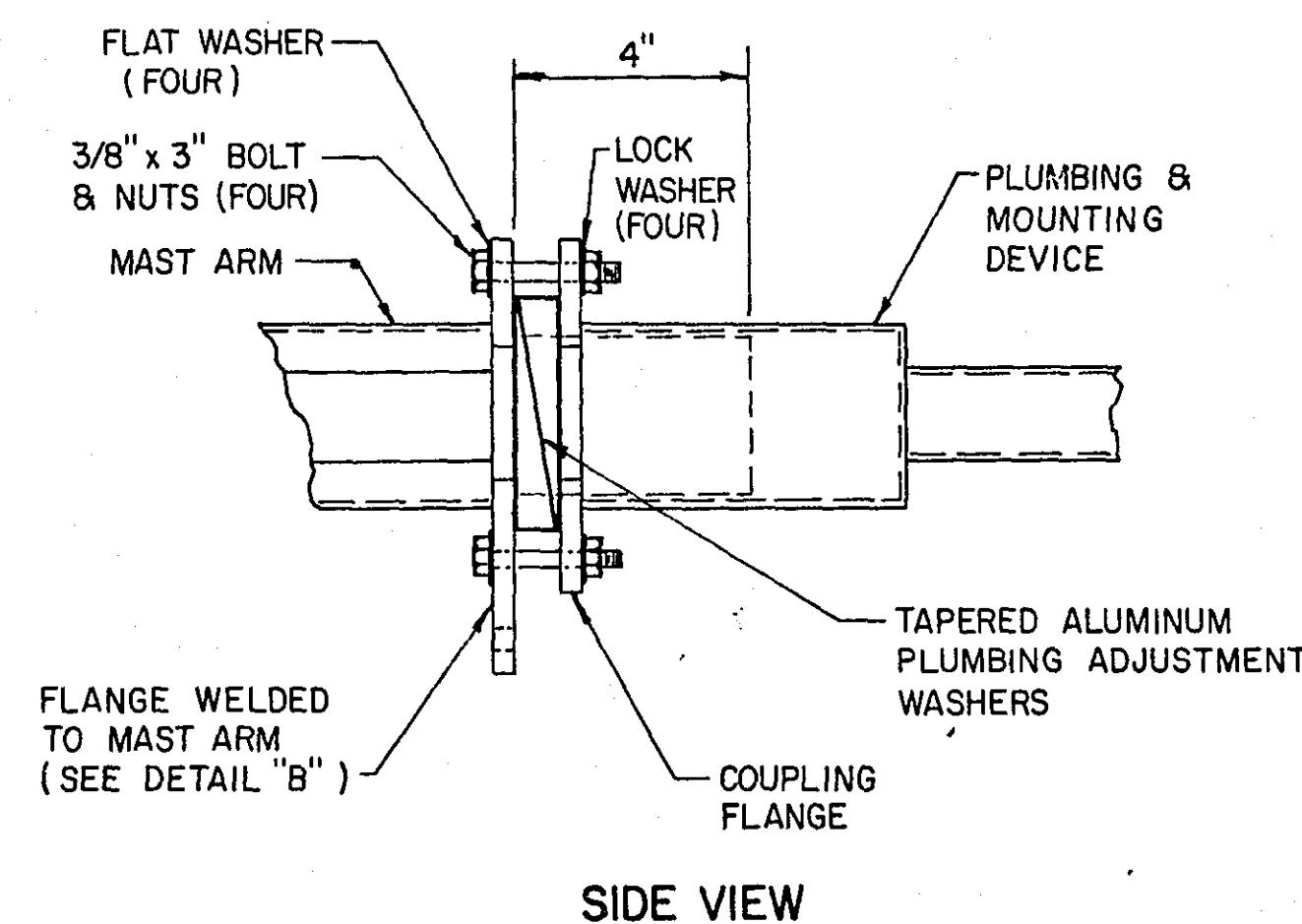
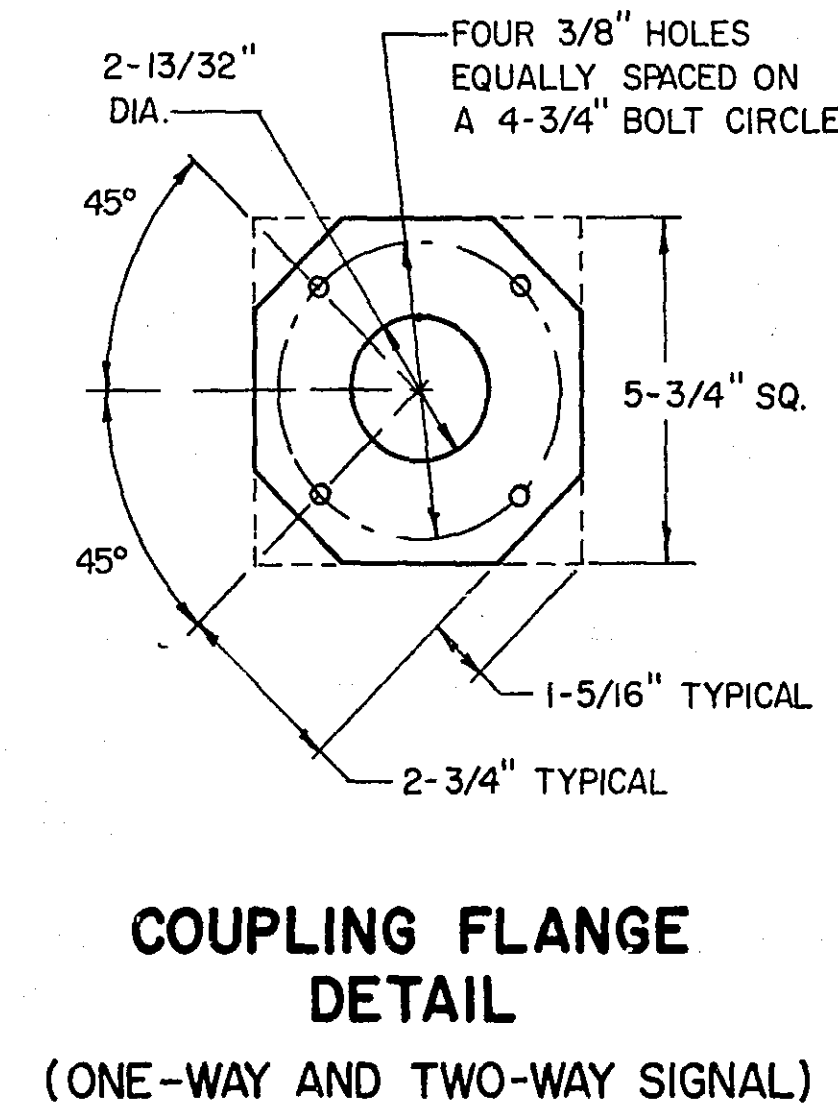
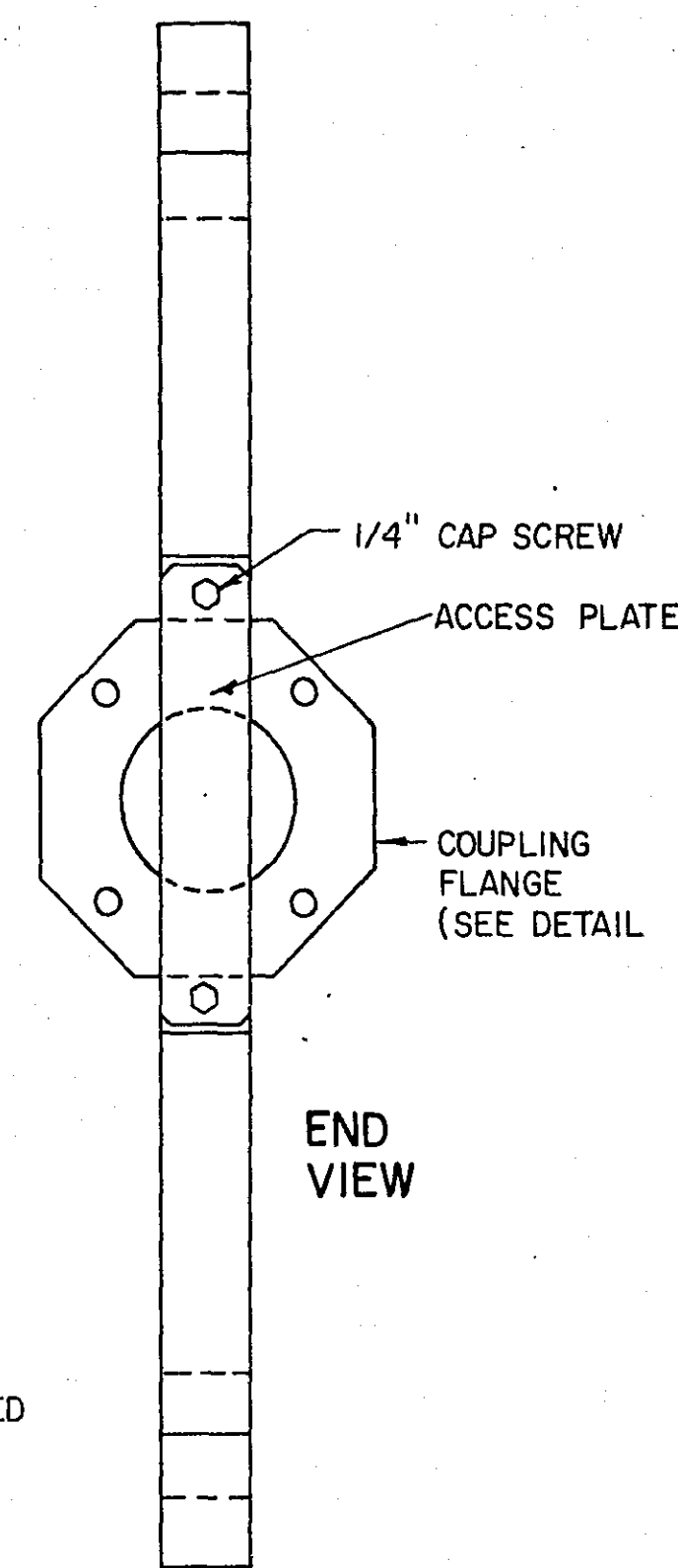
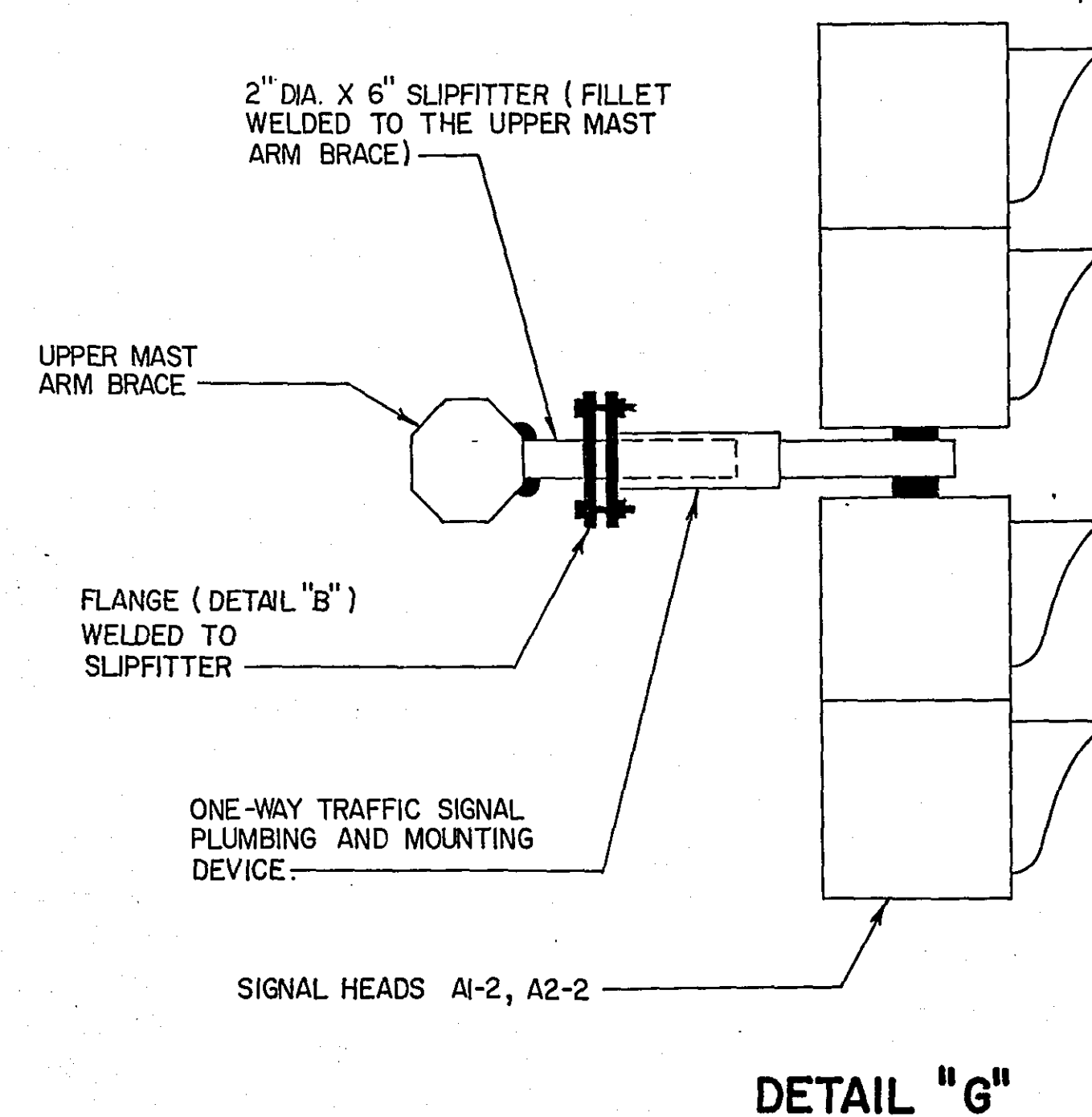
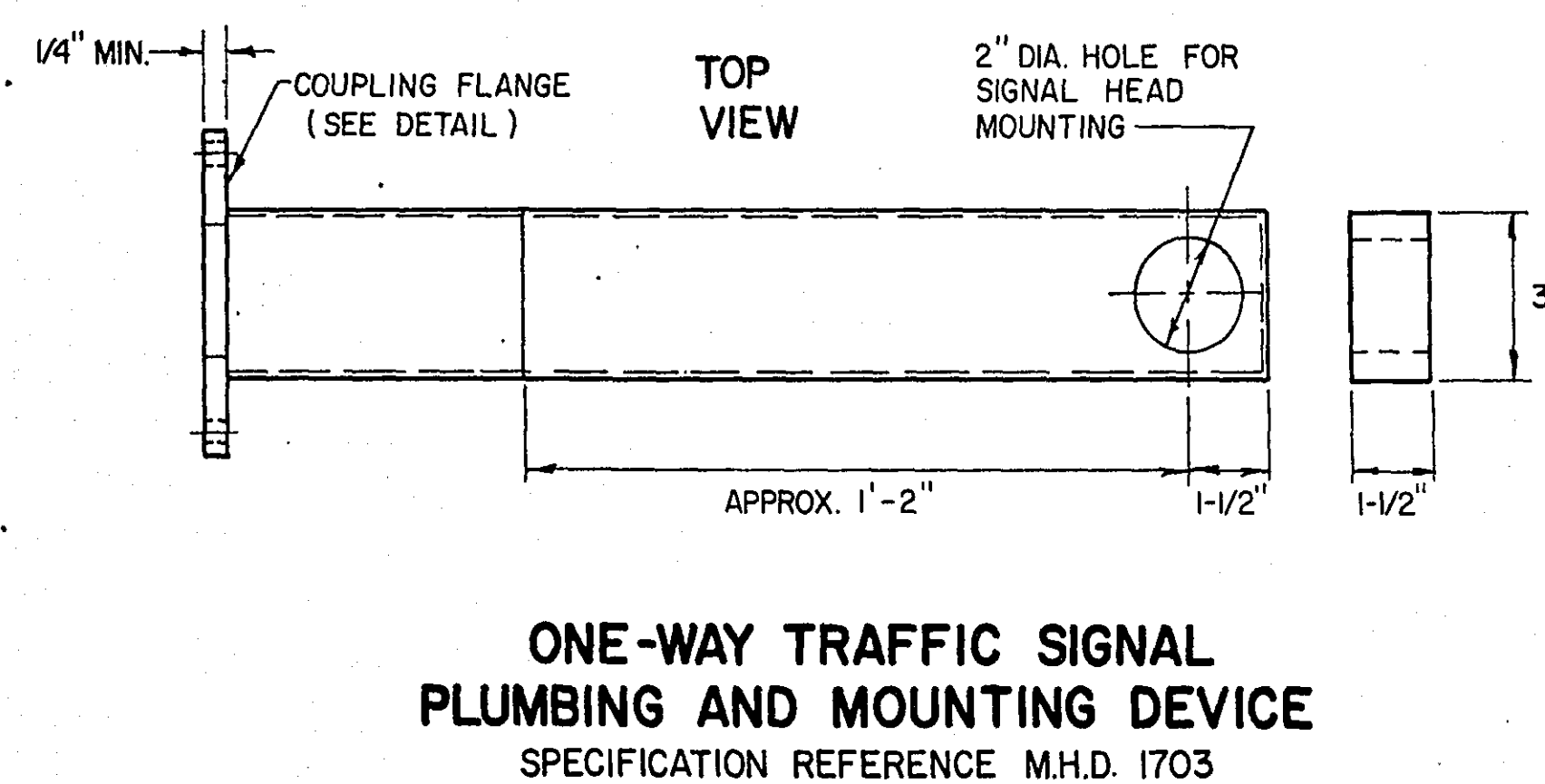
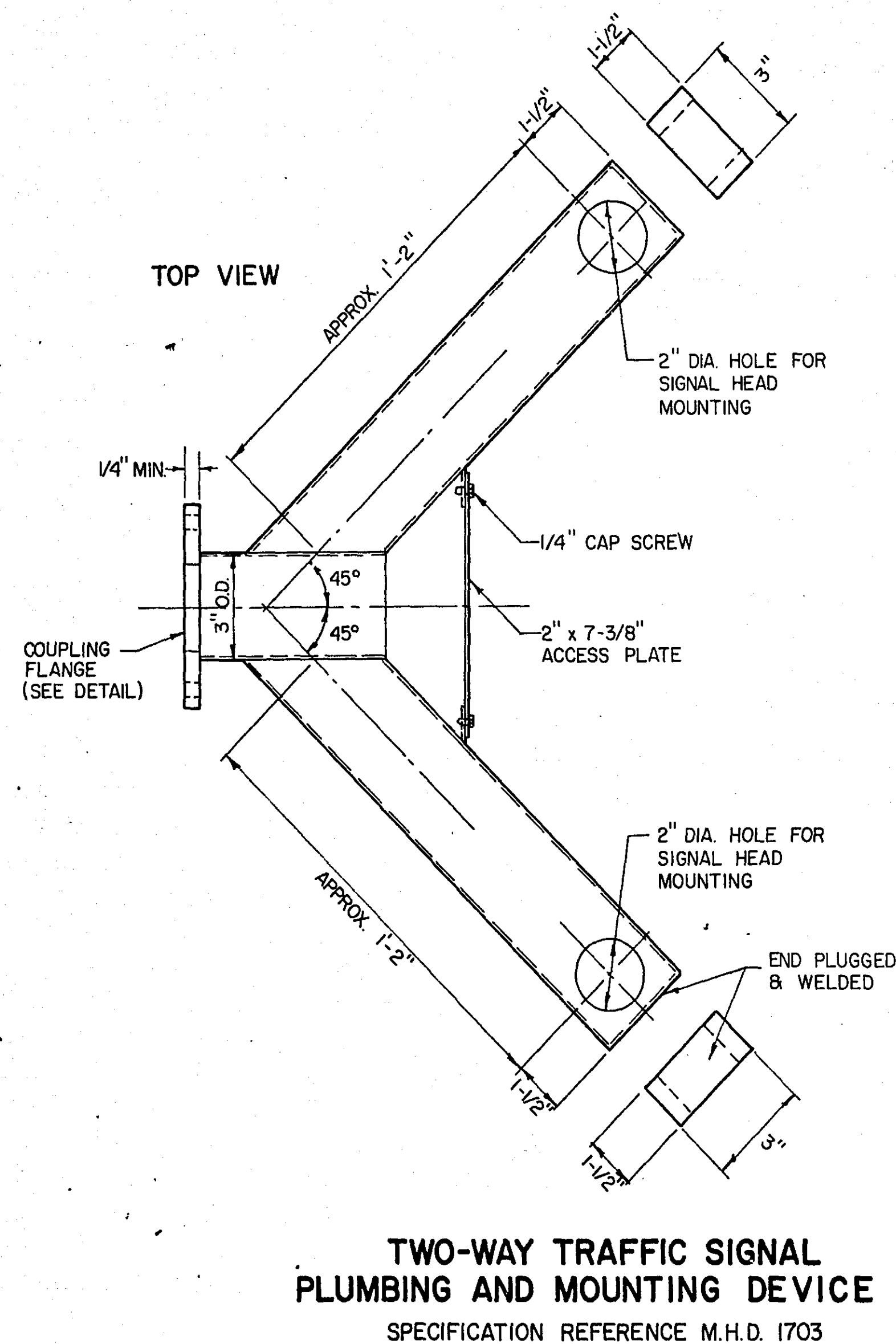
COLOR CODING OF CONDUCTORS

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



METER AND DISCONNECT SWITCH

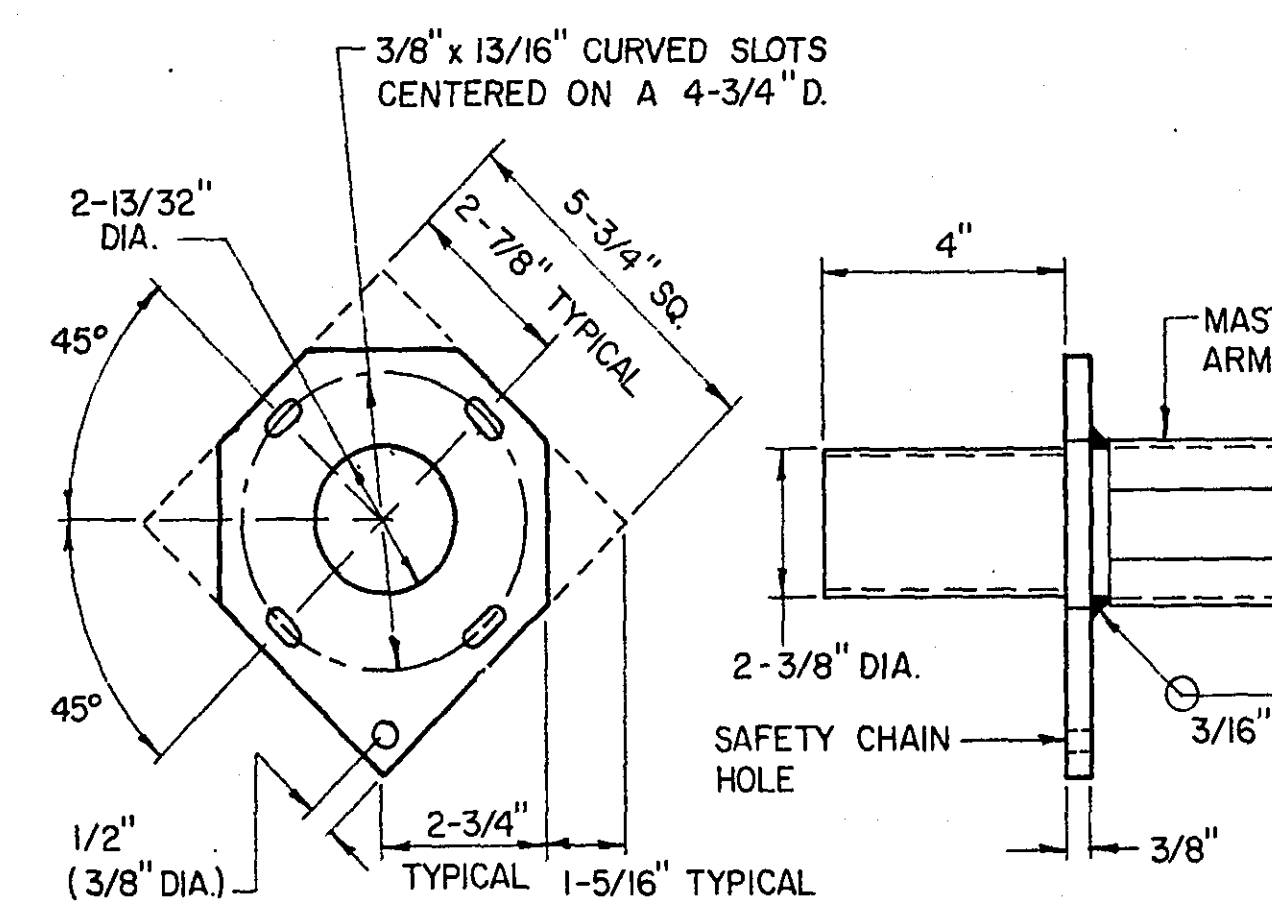
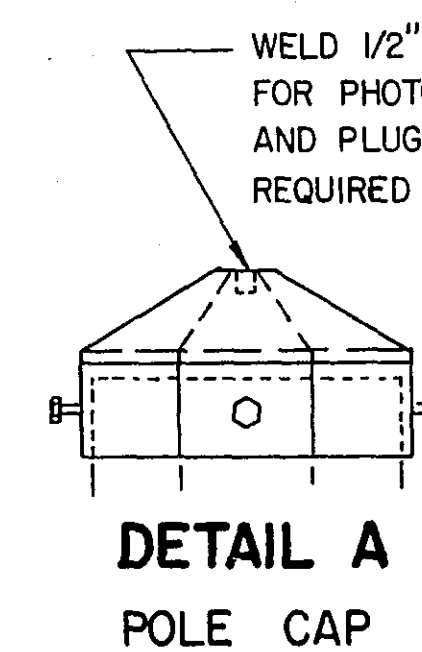
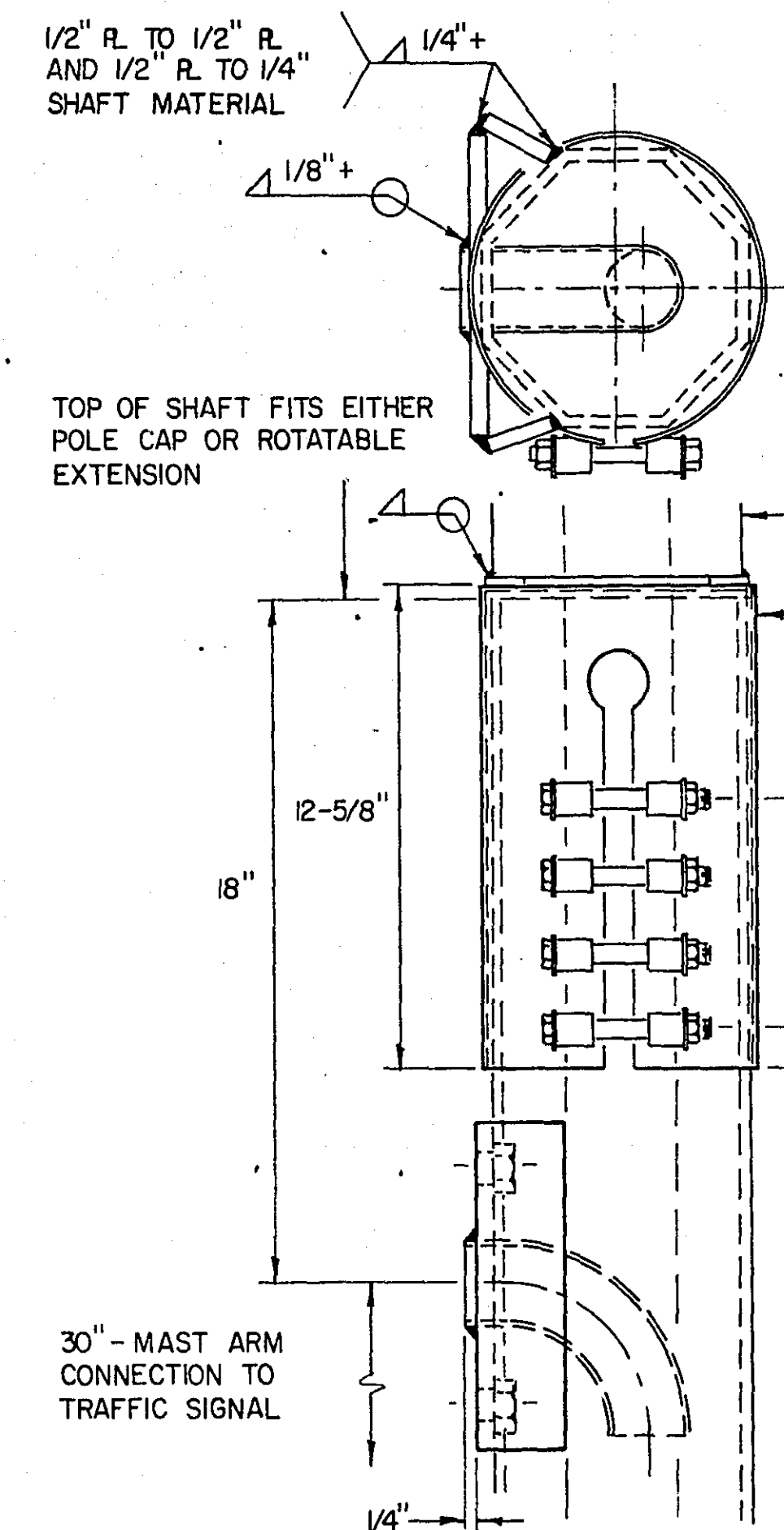
POLE
FOR POWER CONNECTION



ASSEMBLY DETAIL

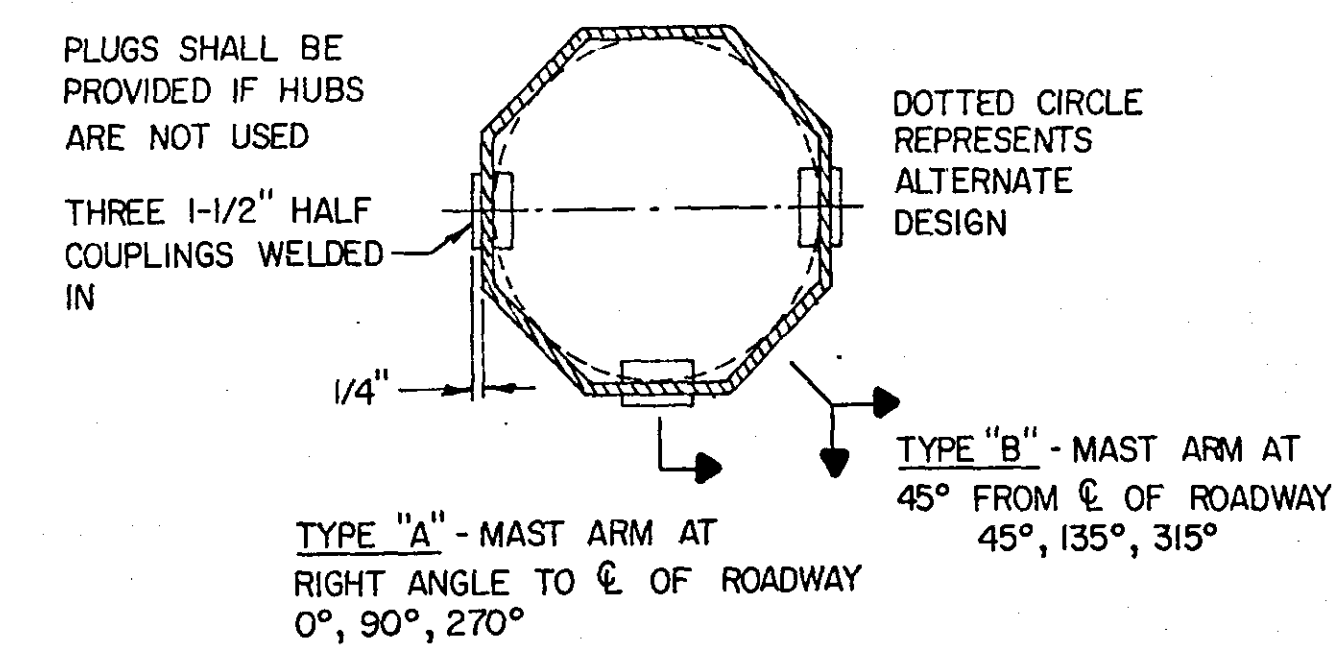
(ONE-WAY AND TWO-WAY SIGNAL)

SPECIFICATION REFERENCE M.H.D. 1703



DETAIL F

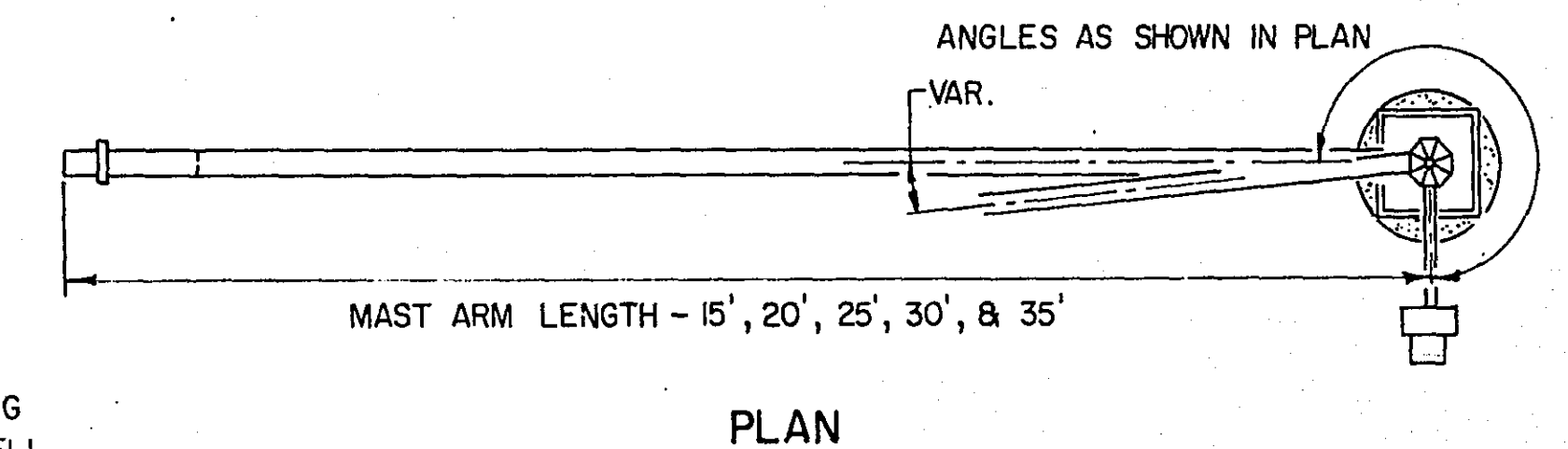
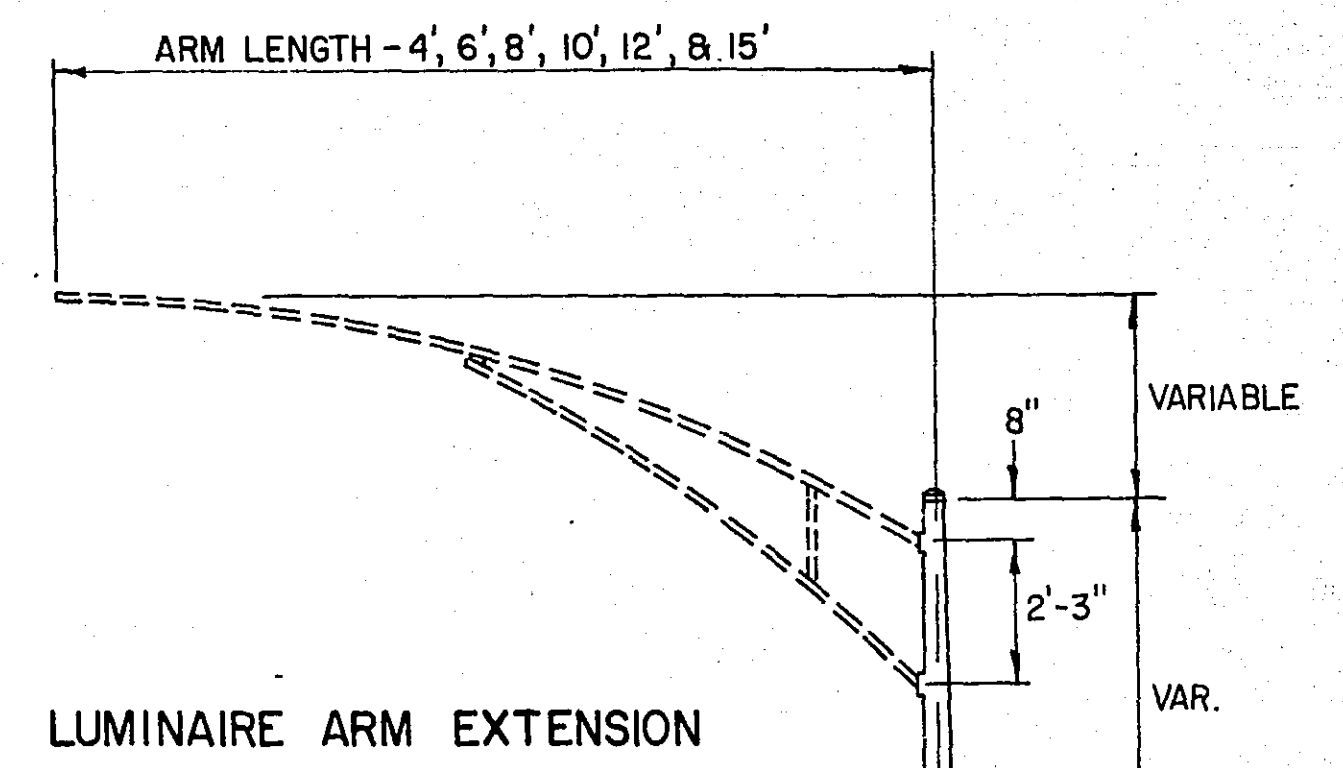
TRANSFORMER BASE CONNECTION



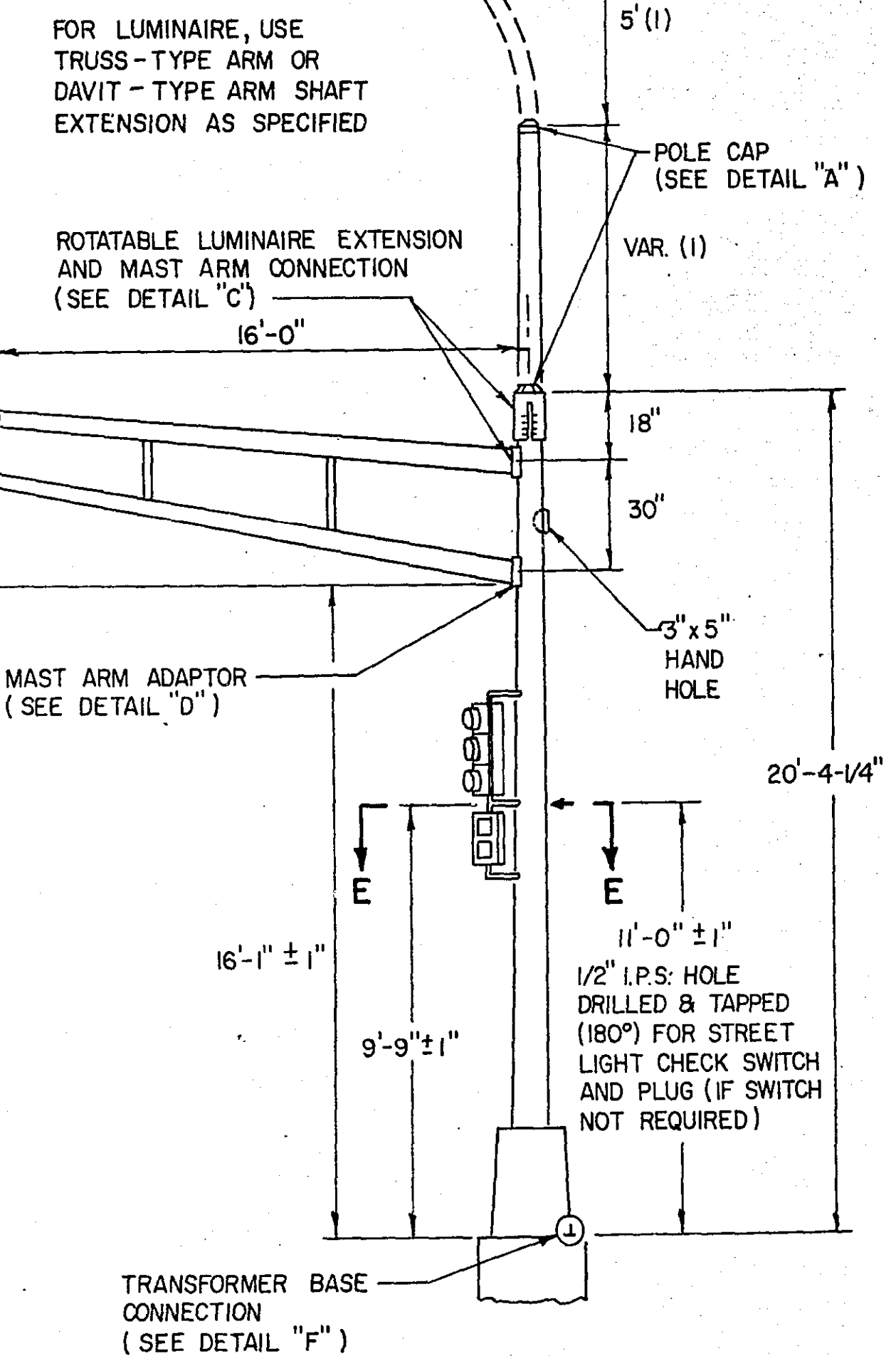
SECTION E-E

POLE-MOUNTED SIGNAL HUB

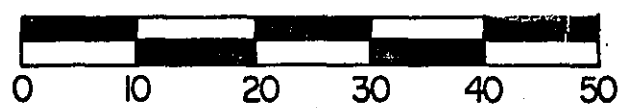
- NOTES:
- TYPE A-20-D30 OR 40-12 TYPE A-20-T30 OR 40-20
- (1) (2) (3) (4) (1) (2) (3) (4)
1. LETTER TYPE INDICATES POLE MAST ARM POSITION WITH RESPECT TO THE ϕ OF ROADWAY.
 2. NUMBER FOLLOWING TYPE LETTER INDICATES SIGNAL MAST ARM LENGTH.
 3. SECOND LETTER INDICATES LUMINAIRE TRUSS -TYPE ARM EXTENSION OR DAVIT -TYPE ARM EXTENSION. SECOND LETTER FOLLOWED BY NUMBERS INDICATES LUMINAIRE MOUNTING HEIGHT.
 4. NUMBER FOLLOWING INDICATES LENGTH OF LUMINAIRE TRUSS ARM OR DAVIT ARM.



(1) DIMENSIONS SHOWN SHOULD PROVIDE FOR A DISTANCE OF 30' OR 40' FROM TRANSFORMER BASE BOTTOM TO TOP OF LUMINAIRE. DIMENSIONS MAY VARY AS SPECIFIED BY THE RAMSEY COUNTY HIGHWAY DEPT.

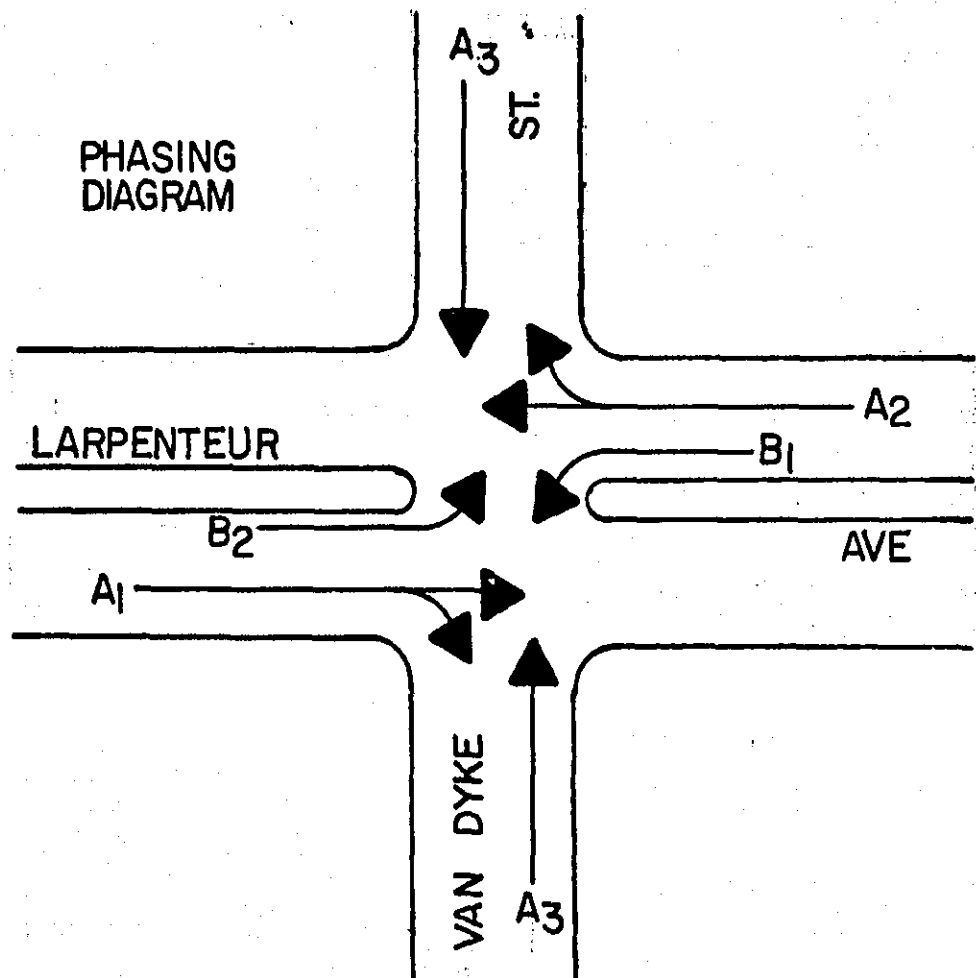


POLE AND MAST ARM



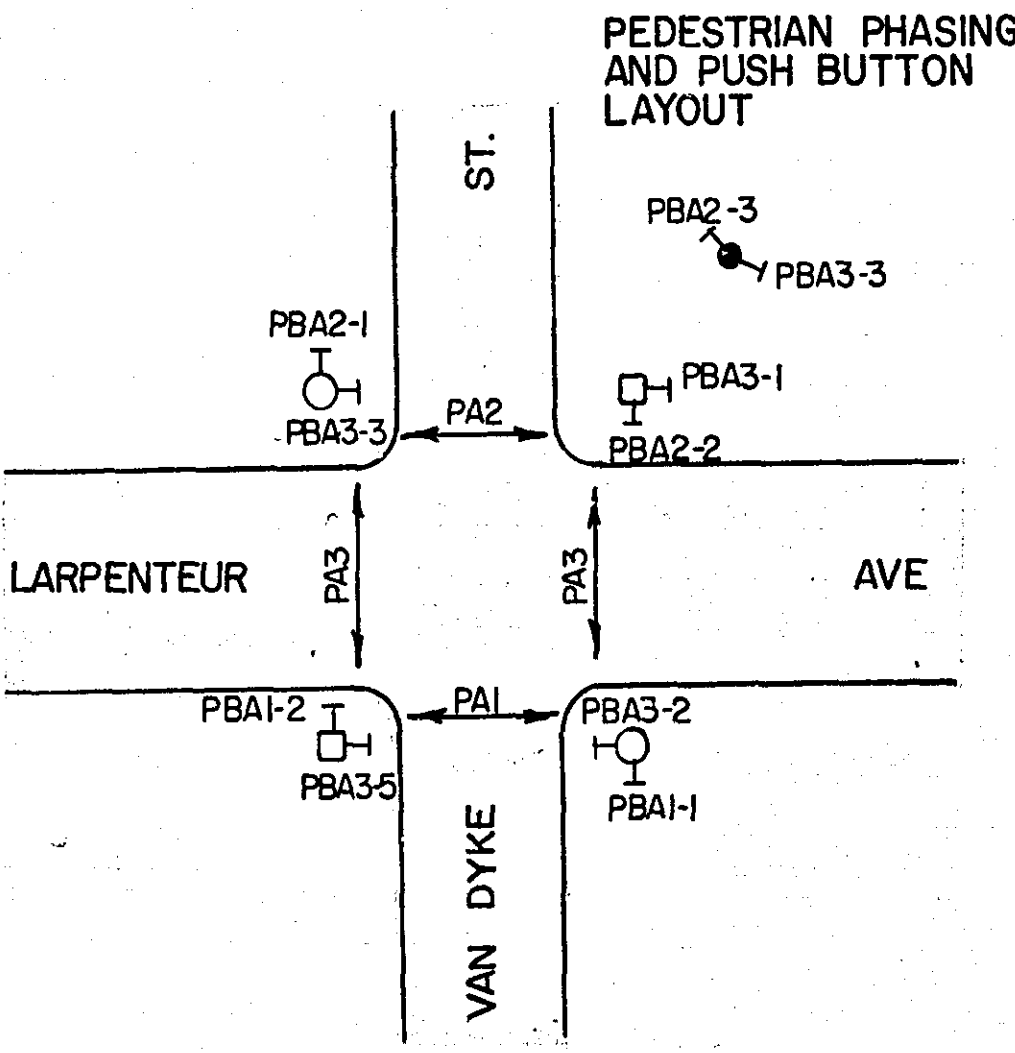
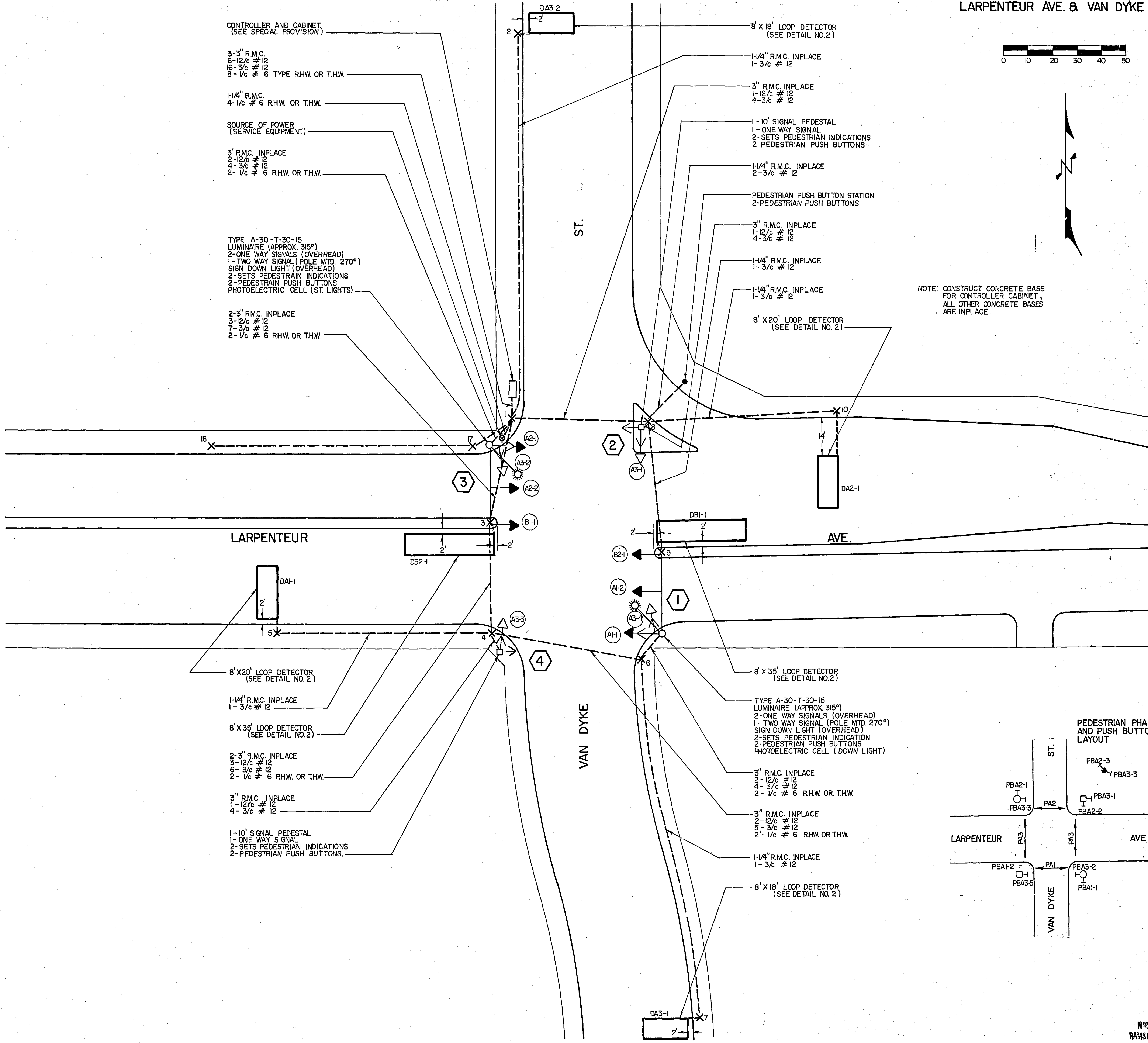
NOTE: CONSTRUCT CONCRETE BASE FOR CONTROLLER CABINET, ALL OTHER CONCRETE BASES ARE INPLACE.

LEGEND OF SYMBOLS	
[Symbol]	CONTROLLER
[Symbol]	PEDESTAL
[Symbol]	HANDHOLE (PULLBOX) INPLACE
[Symbol]	RIGID METALLIC CONDUIT (R.M.C.) INPLACE
[Symbol]	PEDESTRIAN PUSH BUTTON STATION
[Symbol]	MAST ARM & POLE
[Symbol]	SIGNAL FACE
[Symbol]	SIGNAL FACE WITH BACKGROUND SHIELD
[Symbol]	MAST ARM & LUMINAIRE
[Symbol]	PEDESTRIAN INDICATION
[Symbol]	SOURCE OF POWER (S.O.P.)
[Symbol]	RIGID METALLIC CONDUIT (R.M.C.)

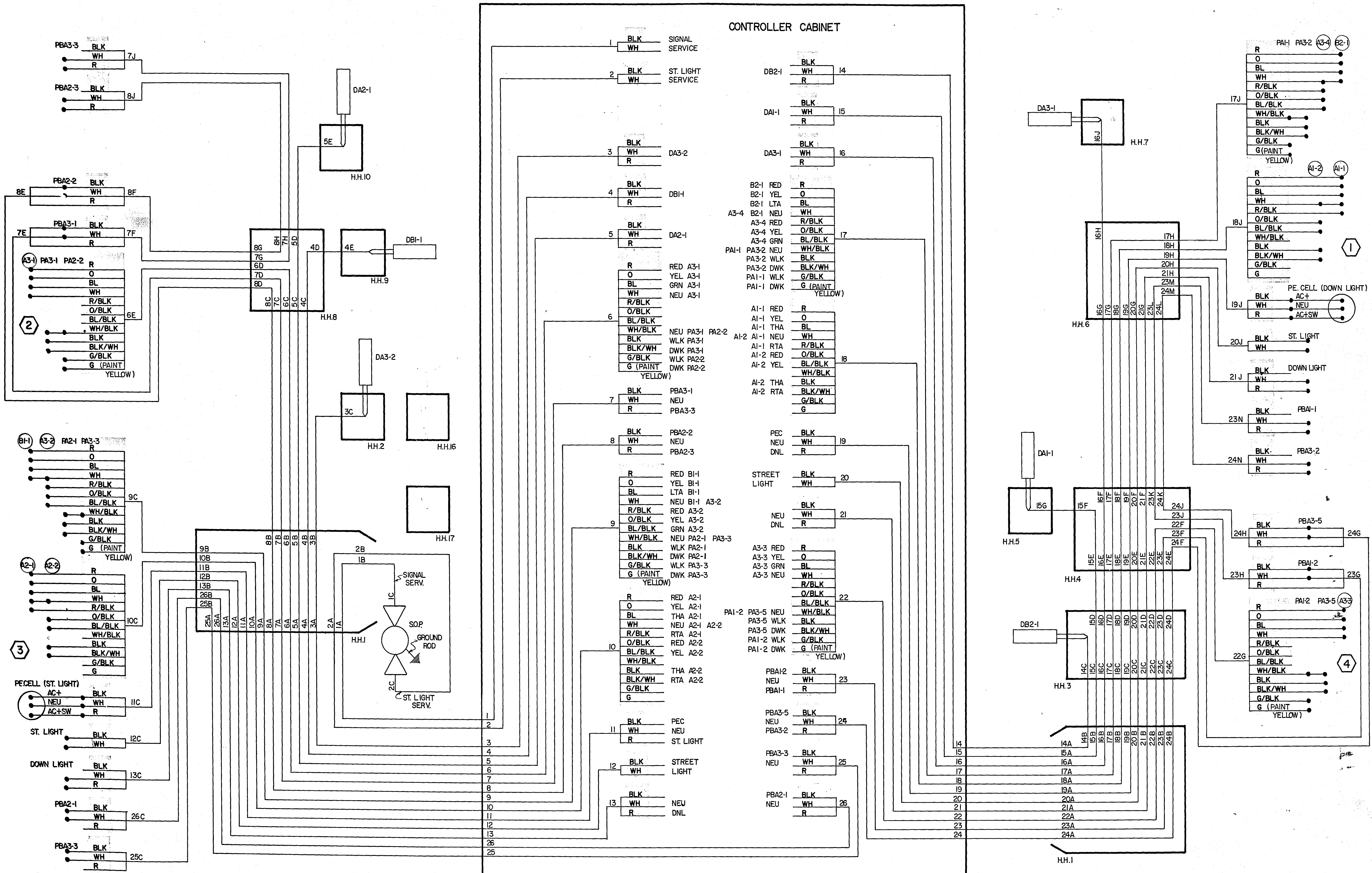


FACE	PHASE	FLASH	INDICATION SIZE					
			R	Y	G	←	↑	→
A1-1	A1	R	12"	12"	-	-	12"	12"
A1-2	A1	R	12"	12"	-	-	12"	12"
A2-1	A2	R	12"	12"	-	-	12"	12"
A2-2	A2	R	12"	12"	-	-	12"	12"
A3-1	A3	R	12"	12"	12"	-	-	-
A3-2	A3	R	12"	12"	12"	-	-	-
A3-3	A3	R	12"	12"	12"	-	-	-
A3-4	A3	R	12"	12"	12"	-	-	-
* B1-1	B1	R	12"	12"	-	12"	-	-
* B2-1	B2	R	12"	12"	-	12"	-	-

* SEE SPECIFICATIONS (SPECIAL SIGNAL PHASES)



MICROFILMED
RAMSEY CO. ENGR.



REPRODUCED
FROM MICROFILMED
RAMSEY CO. ENGR.