

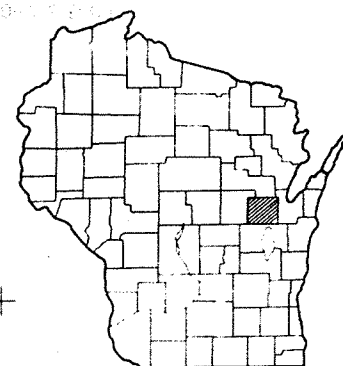
OUTAGAMIE CO.

4160-01-71

INDEX OF SHEETS

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TOTAL SHEETS = 21



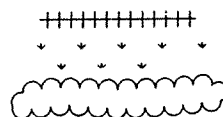
DESIGN DESIGNATION

A.D.T. (1992)	=	9,630
A.D.T. (2010)	=	27,114
D.H.V. (2010)	=	2,793
D.	=	50-50
T.	=	4.6%
V. (MPH)	=	45

CONVENTIONAL SIGNS

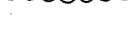
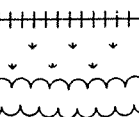
COUNTY LINE	---
CORPORATE LIMITS	
PROPERTY LINE	---
LOT LINE	---
LIMITED EASEMENT	---
EXISTING RIGHT OF WAY	---
NEW RIGHT OF WAY	---
REFERENCE LINE	---
SLOPE INTERCEPT	---
ORIGINAL GROUND	---
MARSH OR ROCK PROFILE	---
CULVERT IN PLACE	---
CULVERT REQUIRED	---
CULVERT REQUIRED (PROFILE)	---

COMBUSTIBLE FLUIDS (UNDER PRESSURE)	---
UNDERGROUND UTILITIES	---
GAS	---
ELECTRIC	---
TELEPHONE	---
SERVICE PEDESTAL	---
CABLE MARKER	---
POWER POLE	---
TELEPHONE POLE	---
RAILROADS	---
MARSH	---
WOODED AREA	---



G	---
E	---
T	---

P	---
Q	---



STANDARD ABBREVIATIONS

AND SYMBOLS

ANGLE	MAX	MAXIMUM
AGG.	MIN	MINIMUM
AH	N	NORTH
ASPH	NC	NORMAL CROWN
AVE.	NO.	NUMBER
BK	P.E.	PRIVATE ENTRANCE
⊙	P.C.	POINT OF CURVATURE
BIT.	P.I.	POINT OF INTERSECTION
B.O.W.	P.T.	POINT OF TANGENCY
C.E.	P.V.C.	POINT OF VERTICAL CURVATURE
C.B.	P.V.I.	POINT OF VERTICAL INTERSECTION
C.A.B.C.	P.V.T.	POINT OF VERTICAL TANGENCY
CL or CL	P/L	PROPERTY LINE
CONC.	PVT.	PAVEMENT
C.M.C.P.	PED.	PEDESTAL
C.T.H.	P.B.	PULL BOX
CL.	PVC. C.P.	PVC. CULVERT PIPE
CT.	R	RADIUS
CU.YD.	R.C.C.P.	REINFORCED CONCRETE CULVERT PIPE
Δ	REQ'D	REQUIRED
D.	R.H.F.	RIGHT HAND FORWARD
D.G.	R/L	REFERENCE LINE
E.	R/W	RIGHT OF WAY
E	RD.	ROAD
ELEV	RD.WY.	ROADWAY
EXIST.	RT.	RIGHT
EXP.	S.B.	SIGNAL BASE
F.F.	S	SLOPE
FL	S	SLOPE
FL	SE	SUPERELEVATION RATE
GV	ST	STREET
H	STA.	STATION
HYD.	S.T.H.	STATE TRUNK HIGHWAY
INL.	SQ. FT.	SQUARE FEET
JT.	SQ. YD.	SQUARE YARD
L	STA.	STATION
L.H.F.	S.W.	SIDEWALK
L.S.	T	TANGENT LENGTH OF CURVE
LA.	TRANS-PAD	TRANSFORMER PAD
LIN. FT.	T/L	TRANSIT LINE
L.V.C.	TYP.	TYPICAL
LT.	V.C.	VERTICAL CURVE
MH	W	WEST
	WV	WATER VALVE/SHUTOFF
	⊙	HYDRANT W/AUXILIARY VALVE
	⊙	LIGHT POLE
	⊙	PEDESTAL
	⊙	POWER POLE
	⊙	MANHOLE
	⊙	CATCH BASIN
W		WATER
G		GAS
T		TELEPHONE
E		ELECTRIC
EXISTING CULVERT		
PROPOSED CULVERT		

GENERAL NOTES

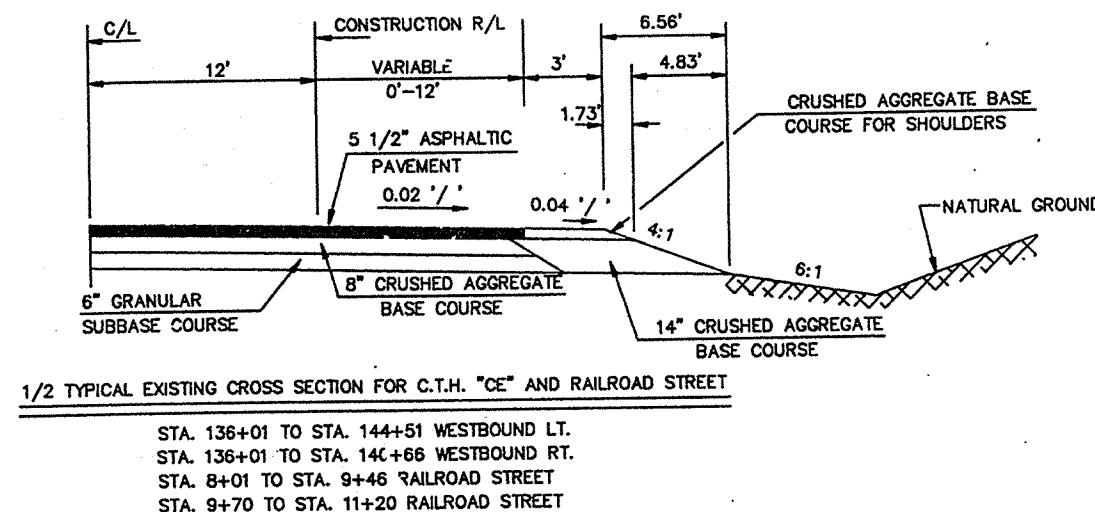
THE LOCATIONS OF EXISTING AND PROPOSED UTILITY FACILITIES AS SHOWN ON THE PLAN ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

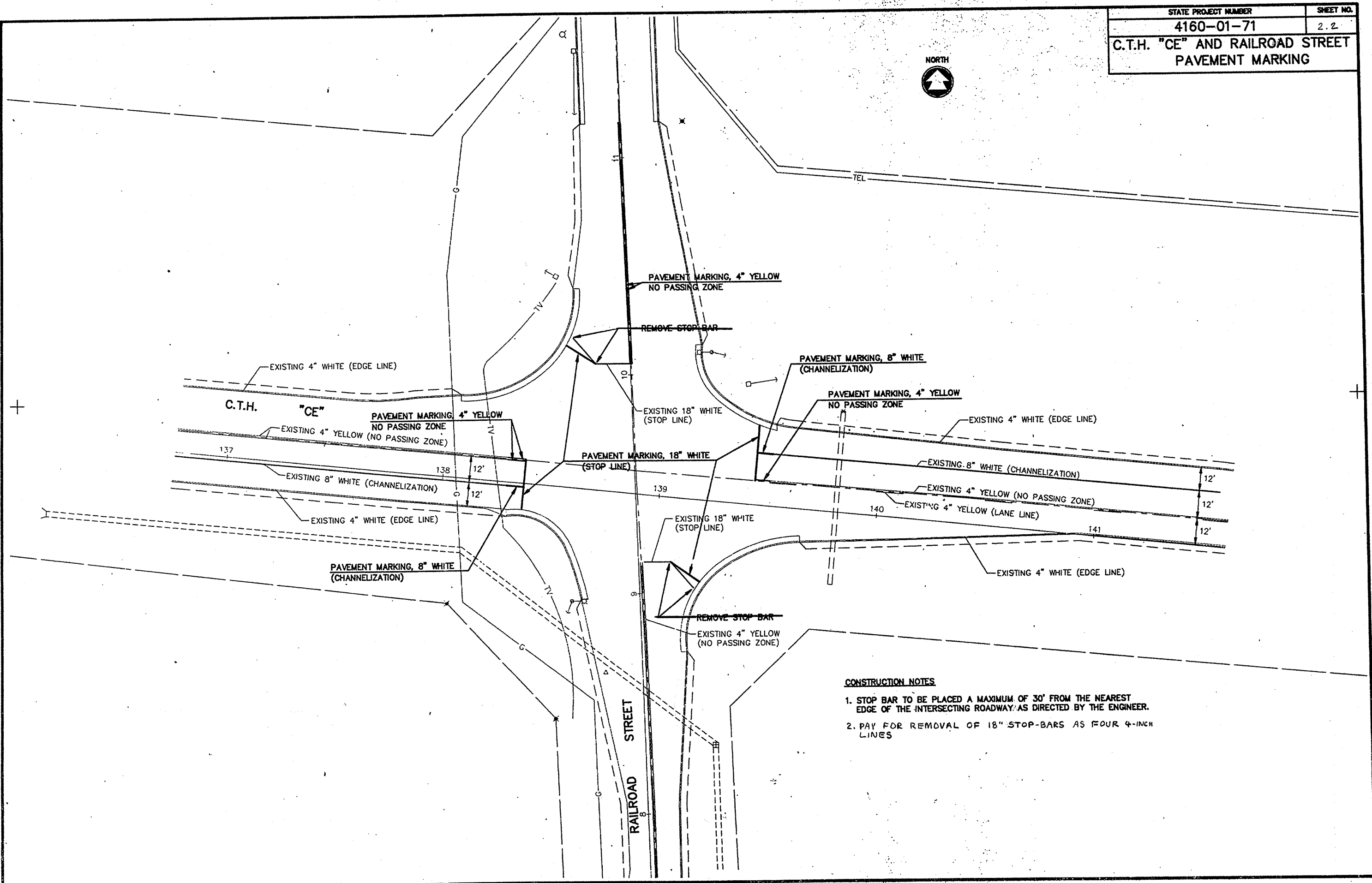
UTILITIES

WISCONSIN ELECTRIC POWER COMPANY	(414) 735-0705
MR. DENNIS J. AERTS 800 S. LYNDALE DRIVE P.O. BOX 1699 APPLETON, WI 54914	
WISCONSIN GAS COMPANY	(414) 766-3551
MR. LYLE NEINHAUS 601 W. NORTH STREET LITTLE CHUTE, WI 54140	
CABLEVISION	(414) 749-1320
MR. RANDY HAUGSTUEN 1001 KENNEDY AVENUE KIMBERLY, WI 54136	
WISCONSIN BELL	(414) 735-3253
MR. KEITH M. KRISHER 221 W. WASHINGTON STREET P.O. BOX 2159 APPLETON, WI 54913	
DIGGERS HOTLINE	1-800-242-8511 (TOLL FREE)

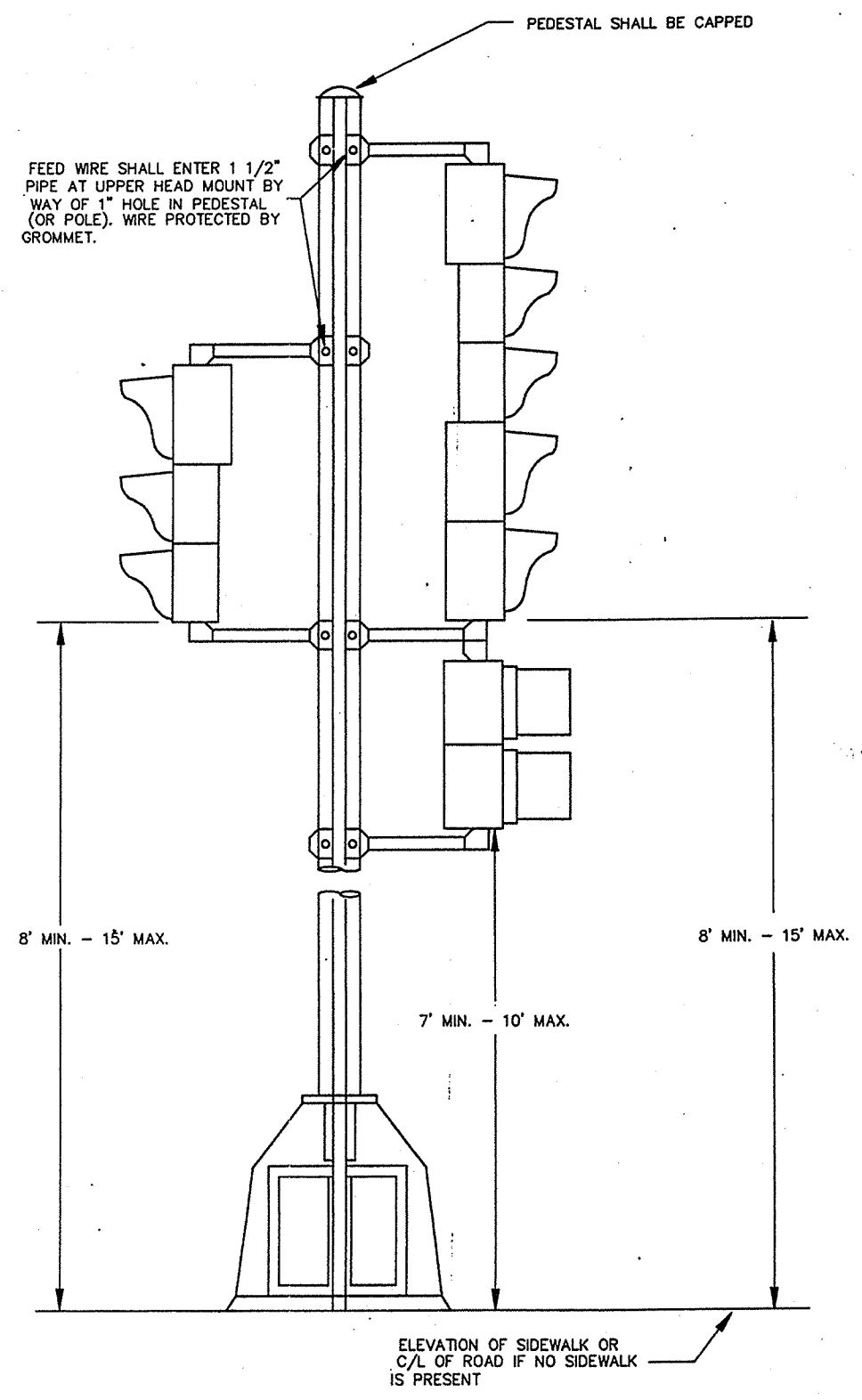
STANDARD DETAIL DRAWINGS

CONDUIT	9B2-5
CONCRETE BASES	9C2-1
CAST BASES	9C3-1
CONCRETE CONTROL CABINET BASES	9C5-1
PULL BOX	9B4-1
POLE MOUNTINGS FOR TRAFFIC SIGNALS, TYPE 2	9E1-1a
POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 4	9E1-1c
HARDWARE DETAILS FOR POLE MOUNTINGS	9E1-1e
NON-FREEWAY LIGHTING UNIT POLE WIRING	9E3-1
CABINET SERVICE INSTALLATION	9D1-1
TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)	15C12-1
Pavement Marking	15C8-4a

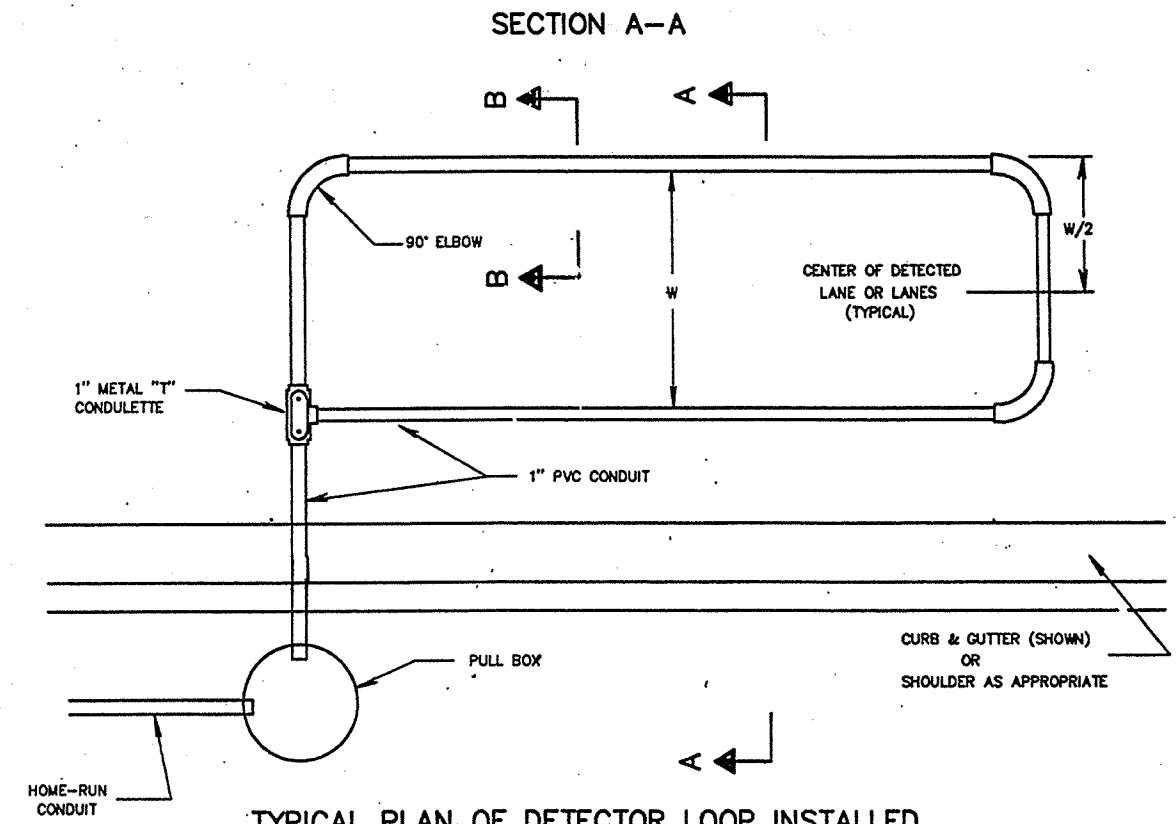
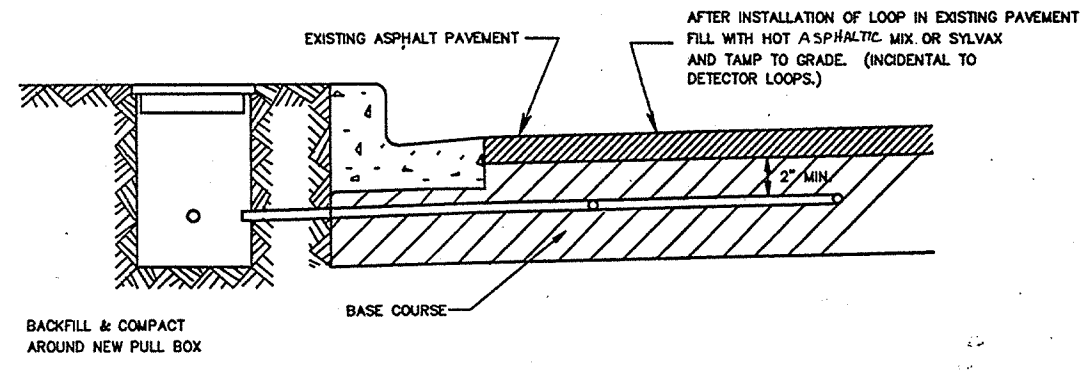
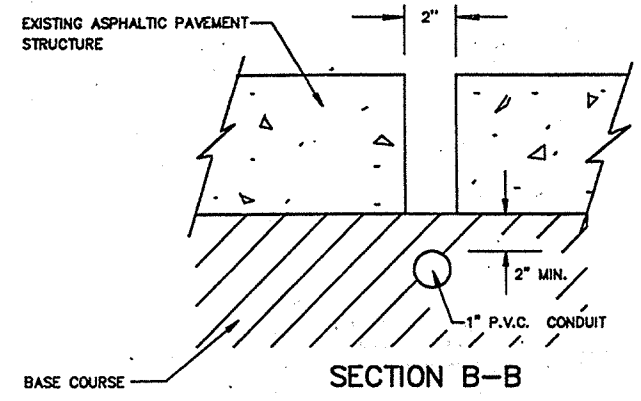




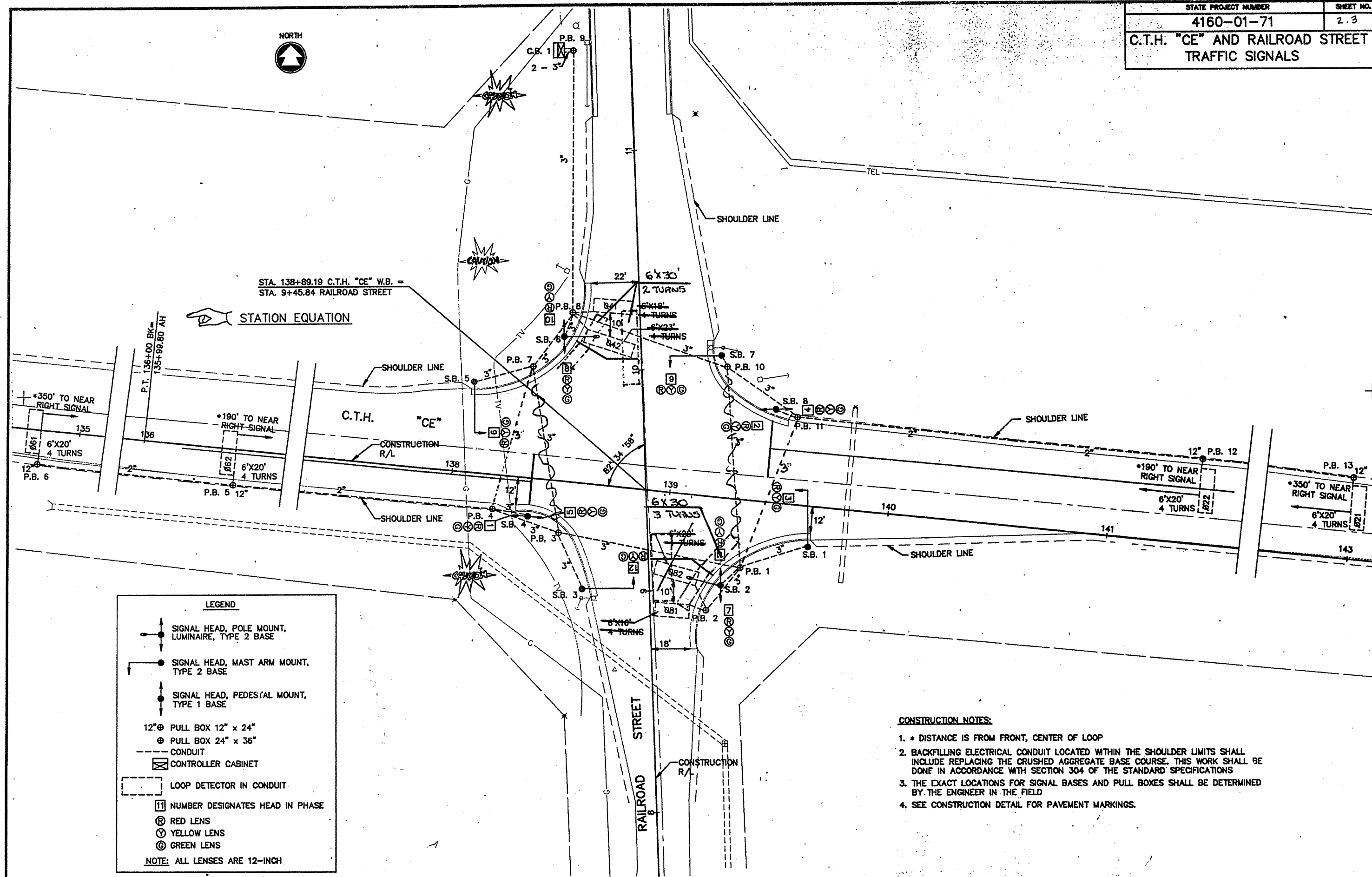
- CONSTRUCTION NOTES**
1. STOP BAR TO BE PLACED A MAXIMUM OF 30' FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY AS DIRECTED BY THE ENGINEER.
 2. PAY FOR REMOVAL OF 18" STOP-BARS AS FOUR 4-INCH LINES



TYPICAL MOUNTING DETAIL
ADJUST TO CONDITION SHOWN ON THE PLAN
TRAFFIC SIGNAL STANDARD



TYPICAL PLAN OF DETECTOR LOOP INSTALLED
IN EXISTING ASPHALT PAVEMENT



TRAFFIC CONTROL SIGNALS
CTH CE AND RAILROAD STREET

SEQUENCE OF OPERATION

[illegible][illegible]

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART BELOW)

CHART 1

PHASE ON	NON-CONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
$\phi 1$		
$\phi 2$	6	4,8
$\phi 3$		
$\phi 4$	8	2,6
$\phi 5$		
$\phi 6$	2	4,8
$\phi 7$		
$\phi 8$	4	2,6

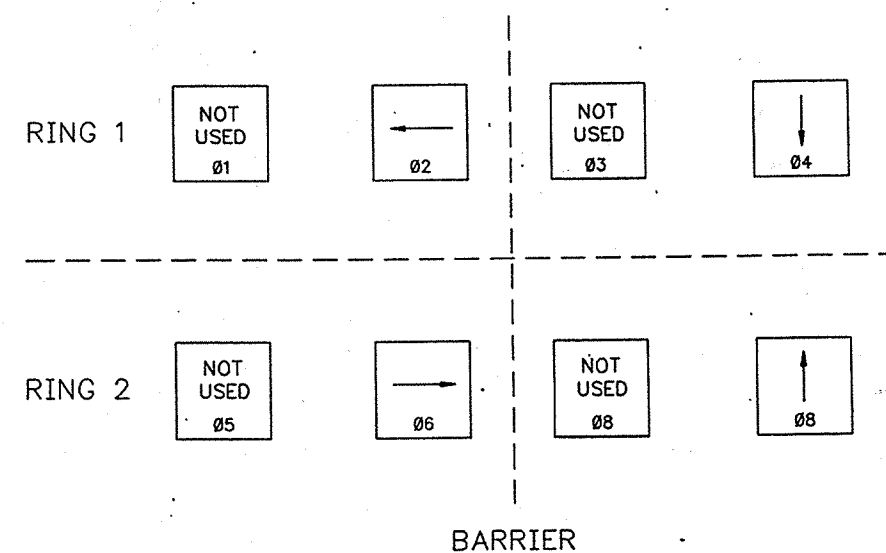
DETECTOR LOGIC

[illegible]

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY	PHASE TERMINATION	PHASE RECALL
2	X	W/6		MIN
4		W/8		
6	X	W/2		MIN
8		W/4		

OVERLAPS



NOTES:

- NOTES:
1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
 2. WHEN ONE PHASE IS ON ALONE, ANY NON-CONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART AT LEFT).
 3. DETECTORS ARE MOTORCYCLE SENSITIVE.

DATE 08/03/93

ESTIMATE OF QUANTITIES

ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4160-01-71 QUANTITY
— 21301	FINISHING ROADWAY	L.S.	1.00	1.00
61334	NONMETALLIC CONDUIT, 2-INCH	L.F.	683.00	683.00
61336	NONMETALLIC CONDUIT, 3-INCH	L.F.	396.00	396.00
61347	CONDUIT, 3-INCH, SPECIAL	L.F.	327.00	327.00
61910	MOBILIZATION	L.S.	1.00	1.00
— 62501	TOPSOIL	S.Y.	200.00	200.00
— 62702	MULCHING	S.Y.	200.00	200.00
— 62902	FERTILIZER, TYPE A	CWT.	.20	.20
— 63002	SEEDING	LB.	3.60	3.60
64002	POLES, TYPE 2	EACH	4.00	4.00
64004	POLES, TYPE 4	EACH	2.00	2.00
64012	CONCRETE BASES, TYPE 1	EACH	2.00	2.00
64013	CONCRETE BASES, TYPE 2	EACH	6.00	6.00
64034	LUMINAIRES, 250 WATTS, HIGH PRESSURE SODIUM	EACH	2.00	2.00
64056	MAST ARMS, TRUSS TYPE, 12-FOOT	EACH	2.00	2.00
64075	ELECTRICAL WIRE, LIGHTING, NO. 12	L.F.	1,767.00	1,767.00
64202	FIELD OFFICE, TYPE B	L.S.	1.00	1.00
64301	TRAFFIC CONTROL	L.S.	1.00	1.00
— 64406	PAVEMENT MARKING, EPOXY, 4-INCH	L.F.	134.00	134.00
— 64414	PAVEMENT MARKING, CHANNELIZING, EPOXY, 8-INCH	L.F.	15.00	15.00
— 64437	PAVEMENT MARKING, STOP LINE, EPOXY, 18-INCH	L.F.	80.00	80.00
64487	REMOVING PAVEMENT MARKINGS	L.F.	128.00	128.00
90660	ELECTRICAL WIRE, TRAFFIC SIGNALS, NO. 10	L.F.	2,206.00	2,206.00
— 90779	SIGNAL CONTROLLER TRAINING	L.S.	1.00	1.00
— 90785	CONCRETE CONTROL CABINET BASES, TYPE 9	EACH	1.00	1.00
90792	PULL BOXES, 12X24-INCH	EACH	4.00	4.00
90797	PULL BOXES, 24X36-INCH	EACH	9.00	9.00

Sheet 3

ITEM	ITEM DESCRIPTION	UNIT	TOTAL	4160-01-71 QUANTITY
90800	PEDESTAL BASES	EACH	2.00	2.00
90801	TRANSFORMER BASES	EACH	6.00	6.00
90810	TRAFFIC SIGNAL STANDARDS, STEEL, 13-FT.	EACH	2.00	2.00
90815	MAST ARMS, TRAFFIC SIGNAL TROMBONE, 25-FT.	EACH	4.00	4.00
90817	TRAFFIC SIGNAL FACES, 3-12 VERTICAL	EACH	8.00	8.00
<hr/>				
90823	TRAFFIC SIGNAL FACES, 3-12 HORIZONTAL	EACH	4.00	4.00
90834	TRAFFIC SIGNAL MOUNTING HARDWARE, RAILROAD ST. INTERSECTION	L.S.	1.00	1.00
90838	BACKPLATES	EACH	12.00	12.00
90842	TRAFFIC SIGNAL CABLE, 7 CONDUCTOR, NO. 14	L.F.	3,344.00	3,344.00
90859	TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 8 PHASE	EACH	1.00	1.00
<hr/>				
90865	ELECTRICAL SERVICE, TRAFFIC SIGNALS, RAILROAD ST. INTERSECTION	L.S.	1.00	1.00
90869	LOOP DETECTOR SLOTS	L.F.	430.00	430.00
90870	LOOP DETECTOR AMPLIFIER, RAILROAD ST. INTERSECTION	L.S.	1.00	1.00
90871	LOOP DETECTOR CONDUIT, 1-INCH	L.F.	469.00	469.00
90872	LOOP DETECTOR WIRE	L.F.	1,798.00	1,798.00
<hr/>				
90873	LOOP DETECTOR LEAD IN CABLE	L.F.	3,034.00	3,034.00

Sheet 3.1

PULL BOXES				
NO.	STATION	LOCATION	12" X 24" EACH	24" X 36" EACH
PB 1	STA. 139+35	C.T.H. "CE", 30' RT.		1
PB 2	STA. 8+91	RAILROAD ST., 25' RT.		1
PB 3	STA. 138+51	C.T.H. "CE", 23' RT.		1
PB 4	STA. 138+20	C.T.H. "CE", 16' RT.		1
PB 5	STA. 138+42	C.T.H. "CE", 16' RT.	1	
PB 6	STA. 134+82	C.T.H. "CE", 15' RT.	1	
PB 7	STA. 138+32	C.T.H. "CE", 50' LT.		1
PB 8	STA. 10+27	RAILROAD ST., 31' LT.		1
PB 9	STA. 11+46	RAILROAD ST., 26' LT.		1
PB 10	STA. 10+00	RAILROAD ST., 39' RT.		1
PB 11	STA. 139+55	C.T.H. "CE", 39' LT.	1	
PB 12	STA. 141+40	C.T.H. "CE", 38' LT.	1	
PB 13	STA. 143+00	C.T.H. "CE", 36' LT.	4	9

ELECTRICAL CONDUIT			
LOCATION	CONDUIT, 3-INCH, SPECIAL (L.F.)	NONMETALLIC CONDUIT 2-INCH (L.F.)	NONMETALLIC CONDUIT 3-INCH (L.F.)
CB 1 - PB 9		10 (2 X 5)	6 (2 X 3)
PB 9 - PB 8		13	120
PB 8 - SB 6		14	13
PB 8 - PB 7			30
PB 7 - SB 5			28
PB 7 - PB 3	76		
PB 3 - PB 4		25	32
PB 3 - SB 3			27
PB 3 - PB 1	85		
PB 1 - PB 2		9	25
PB 1 - SB 2		12	45
PB 1 - SB 1			32
PB 1 - PB 10		2	7
PB 8 - PB 10	90		
PB 10 - SB 7	76		
PB 10 - PB 11		6	7
PB 11 - SB 8		15	16
PB 4 - SB 4		185	
PB 11 - PB 12		160	
PB 12 - PB 13		178	
PB 4 - PB 5		160	
PB 5 - PB 6			
	327	683	396

CONCRETE BASES				
NO.	STATION	LOCATION	TYPE 1 EACH	TYPE 2 EACH
SB 1	STA. 139+65	C.T.H. "CE", 18' RT.		1
SB 2	STA. 9+02	RAILROAD ST., 32' RT.		1
SB 3	STA. 9+02	RAILROAD ST., 31' LT.		1
SB 4	STA. 138+36	C.T.H. "CE", 17' RT.	1	
SB 5	STA. 138+06	C.T.H. "CE", 41' LT.		1
SB 6	STA. 10+15	RAILROAD ST., 35' LT.		1
SB 7	STA. 10+05	RAILROAD ST., 38' RT.		1
SB 8	STA. 139+48	C.T.H. "CE", 40' LT.	1	6

CONCRETE CONTROL CABINET BASE, TYPE 9

STATION	LOCATION	EACH
STA. 11+46	RAILROAD ST., 30' LT.	1

TRAFFIC DETECTOR LOOPS							
NO.	STATION	LOCATION*	LOOP DETECTOR CONDUIT, 1-INCH, (L.F.)	LOOP DETECTOR WIRE, (L.F.)	LOOP DETECTOR LEAD-IN CABLE, (L.F.)	SIZE	LOOPS
021	143+00	C.T.H. "CE", 23' LT.	57	223	581	6' X 20'	4
022	141+40	C.T.H. "CE", 24' LT.	57	223	431	6' X 20'	4
041	10+27	RAILROAD ST., 12' LT.	58	217	133	6' X 20'	2
042	10+10	RAILROAD ST., 16' LT.	68	257	133	6' X 20'	2
061	134+82	C.T.H. "CE", 1' RT.	57	223	609	6' X 20'	4
062	136+42	C.T.H. "CE", 2' RT.	57	223	449	6' X 20'	4
081	8+95	RAILROAD ST., 10' RT.	51	195	349	6' X 20'	4
082	9+11	RAILROAD ST., 13' RT.	64	237	349	6' X 20'	4
			469	1,798	3,034		430

* LOCATION IS TO FRONT, CENTER OF LOOP

EPOXY PAVEMENT MARKING

LOCATION	18-INCH, STOP BAR L.F.	8-INCH (WHITE) CHANNELIZATION L.F.	4-INCH (YELLOW, CENTERLINE) L.F.
C.T.H. "CE"	48	15	23
RAILROAD STREET	32		111
	80	15	134

REMOVING PAVEMENT MARKING

LOCATION	L.F.
RAILROAD STREET	128*
* 18" STOP BARS - PAY AS FOUR 4-INCH LINES	

TRAFFIC SIGNAL WIRE AND CABLE, ELECTRICAL WIRE

FROM	ROUTING	TO	HEAD NO.	TRAFFIC SIGNAL CABLE, 7-CONDUCTOR NO. 14, (L.F.)	ELECTRICAL WIRE, LIGHTING #12 (UF-2 CONDUCTOR WITH GROUND) (L.F.)	TRAFFIC SIGNALS, ELECTRICAL WIRE, NO. 10, (NEUTRAL & GROUND) (L.F.)
CB 1	PB 9, PB 8, PB 10	SB 7	9	234		
CB 1	PB 9, PB 8, PB 10, PB 11	SB 8	2 + 4	556 (278 X 2)		
CB 1	PB 9, PB 8	SB 6	8 + 10	316 (158 X 2)	558	
CB 1	PB 9, PB 8, PB 7	SB 5	6	209		
CB 1	PB 9, PB 8, PB 7, PB 3, PB 4	SB 4	1 + 5	634 (317 X 2)		
CB 1	PB 9, PB 8, PB 7, PB 3	SB 3	1	290		
CB 1	PB 9, PB 8, PB 7, PB 3, PB 1	SB 1	1	355		
CB 1	PB 9, PB 8, PB 7, PB 3, PB 1	SB 2	7 + 11	750 (375 X 2)	1209	
CB 1	PB 9, PB 8	SB 6				292 (146X2)
SB 6	PB 8, PB 7	SB 5				162 (81X2)
SB 5	PB 7, PB 3, PB 4	SB 4				324 (162X2)
SB 4	PB 4, PB 3	SB 3				170 (85X2)
SB 3	PB 3, PB 1	SB 2				254 (127X2)
SB 2	PB 1	SB 1				94 (47X2)
SB 1	PB 1, PB 10, PB 11	SB 8				354 (177X2)
SB 8	PB 11, PB 10	SB 7				124 (62X2)
SB 7	PB 10, PB 8, PB 9	CB 1				432 (216X2)
				3,344	1767	2,206

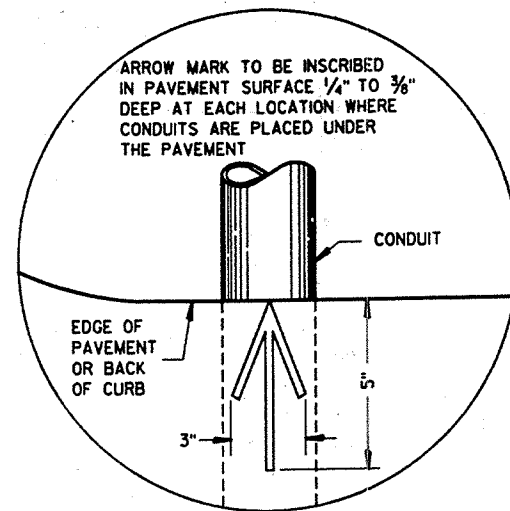
SIGNAL POLES, MAST ARMS, BASES, SIGNAL FACES, LUMINAIRES

SIGNAL NO.	BASES EACH	TRAFFIC SIGNAL STD. STEEL 13-FT EACH	POLES EACH	TRAFFIC SIGNAL TROMBONE MAST ARMS 25-FT EACH	TRUSS TYPE MAST ARMS, 12' EACH	** LUMINAIRES, 250 WATTS, HIGH PRESSURE SODIUM EACH	* SIGNAL FACE EACH
SB 1	TRANSFORMER	-	TYPE 2	1	-	-	ONE 3-12 HORIZ.
SB 2	TRANSFORMER	-	TYPE 4	-	1	1	TWO 3-12 VERT.
SB 3	TRANSFORMER	-	TYPE 2	1	-	-	ONE 3-12 HORIZ.
SB 4	PEDESTAL	1	-	-	-	-	TWO 3-12 VERT.
SB 5	TRANSFORMER	-	TYPE 2	1	-	-	ONE 3-12 HORIZ.
SB 6	TRANSFORMER	-	TYPE 4	-	1	1	TWO 3-12 VERT.
SB 7	TRANSFORMER	-	TYPE 2	1	-	-	ONE 3-12 HORIZ.
SB 8	PEDESTAL	1	-	-	-	-	TWO 3-12 VERT.

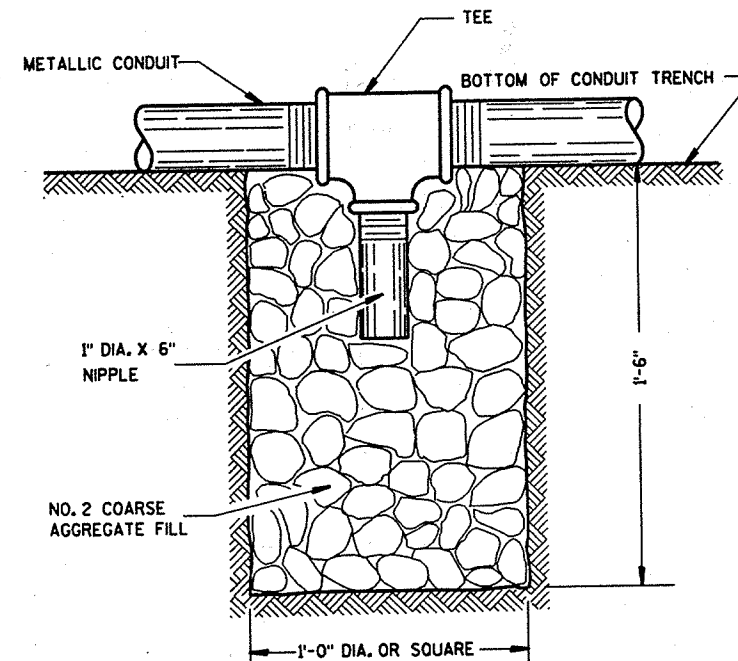
* ALL TRAFFIC SIGNAL FACES SHALL HAVE BACKPLATES (12 EACH TOTAL)
** A PHOTO CELL SHALL BE PROVIDED ON EACH LUMINAIRE

TOPSOIL, SEED, FERTILIZER, MULCH

LOCATION	TOPSOIL S.Y.	SEED MIX #30 LBS.	FERTILIZER TYPE A CWT.	MULCH S.Y.
CONDUIT INSTALLATION	200	3.6	.20	200

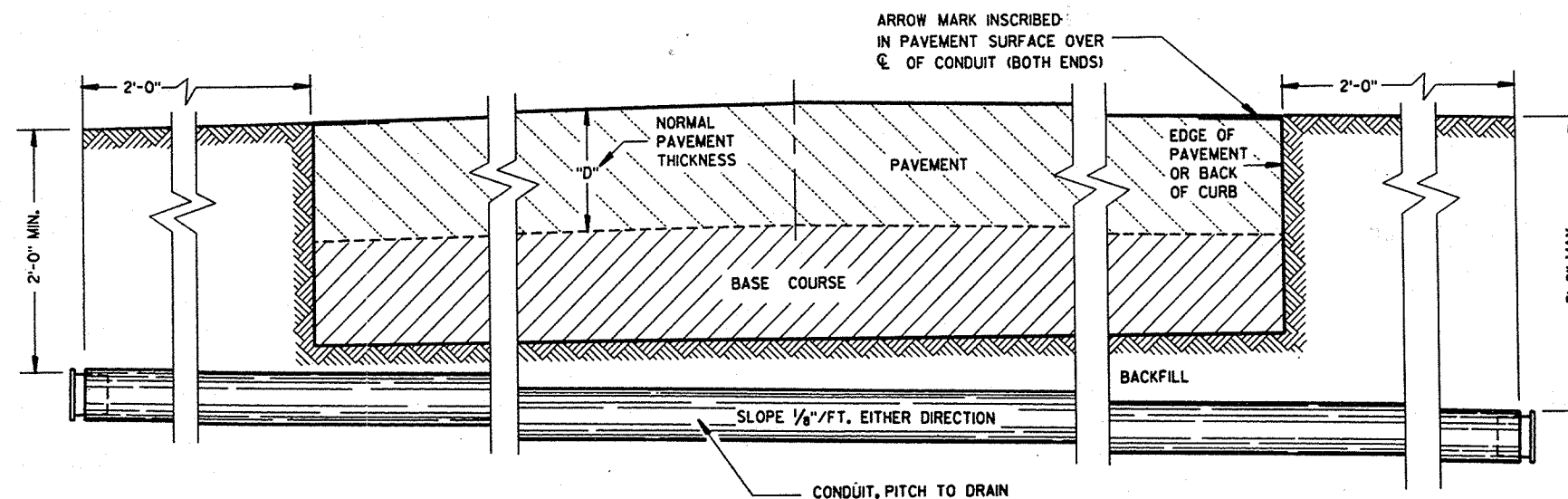


PLAN VIEW
ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR CONDUIT



SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

METALLIC (STANDARD SPECIFICATION 613.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 613.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE PIPE FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX).

A #12 GAUGE, GALVANIZED PULL WIRE SHALL BE INSTALLED IN EACH RUN OF CONDUIT THAT DOES NOT RECEIVE CABLE OR WIRE UNDER THIS CONTRACT. THE PULL WIRE SHALL BE DOUBLED BACK 2 FEET AT EACH END CAP OF THE CONDUIT RUN.

BENDING OF PVC SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 7/10/92 DATE	<i>Dan J. Miller</i> STATE ELECTRICAL ENGR FOR HWYS
9/15/92 DATE	<i>John F. Busch</i> STATE TRAFFIC ENGINEER FOR HWYS
FHWA	

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

FOUR (4) BOLTS TO BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM A-449, AND BE GALVANIZED IN ACCORDANCE WITH ASTM A-153, CLASS C.

4" BOLTS SHALL BE IN ACCORDANCE WITH SECTION 640.2.9 OF THE STANDARD SPECIFICATIONS, ASTM A-449 OR ASTM A-687 (GRADE 105).

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

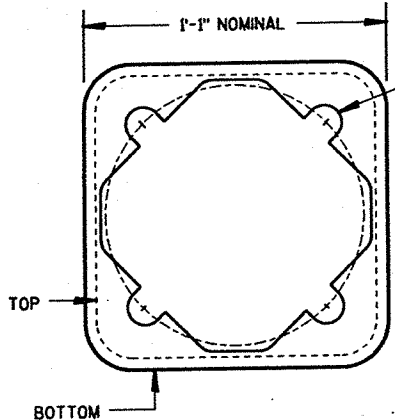
DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED AND U.L. LISTED MECHANICAL CONNECTOR (LUG) AL/CU RATED AND SIZED TO ACCEPT #10 AWG STRANDED WIRE, SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

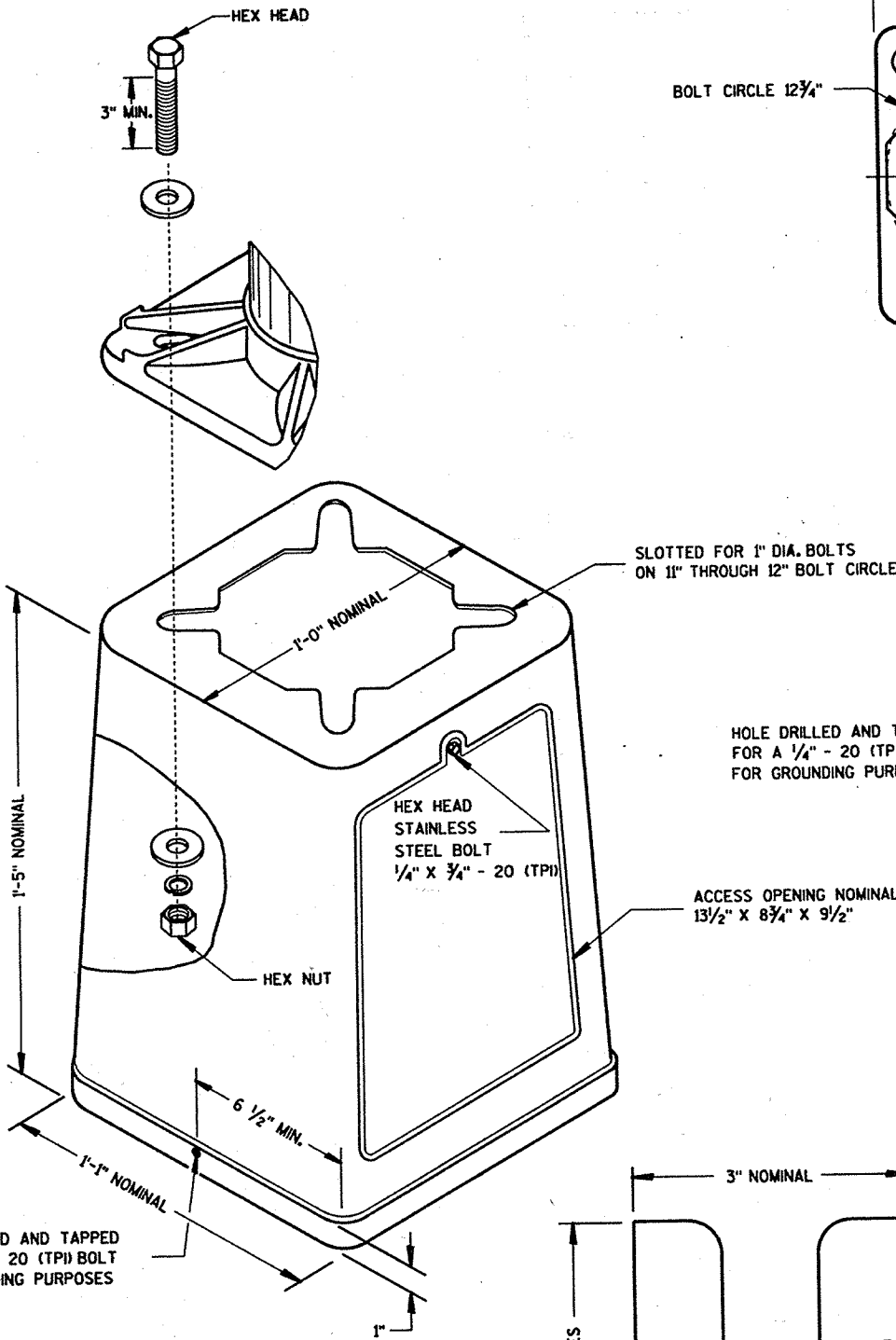
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

TEST REPORTS FROM AN FHWA APPROVED INDEPENDENT LABORATORY SHALL BE PROVIDED CERTIFYING THAT THE BASE HAS BEEN TESTED AND MEETS OR EXCEEDS ALL OF THE APPLICABLE 1985 AASHTO BREAKAWAY REQUIREMENTS. A STATEMENT OF CERTIFICATION FROM FHWA ATTESTING THAT SUCH TESTS HAVE BEEN ACCEPTED AND APPROVED SHALL BE SUPPLIED ALONG WITH THE BID.

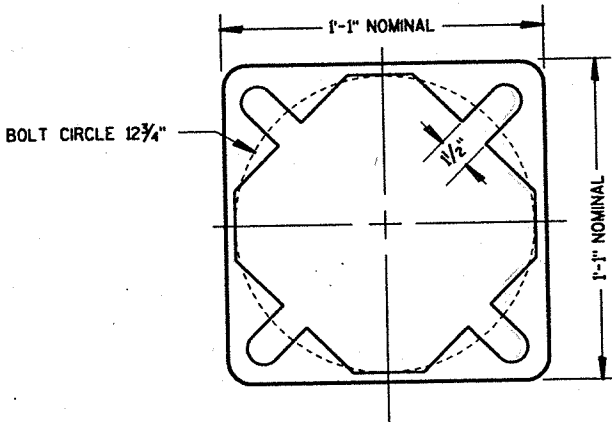


BOTTOM VIEW
(TRANSFORMER BASE)

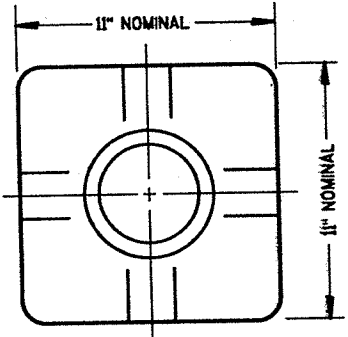
TRANSFORMER BASE
INTENDED FOR USE WITH TYPE 2, 3, 4 & 5 POLES



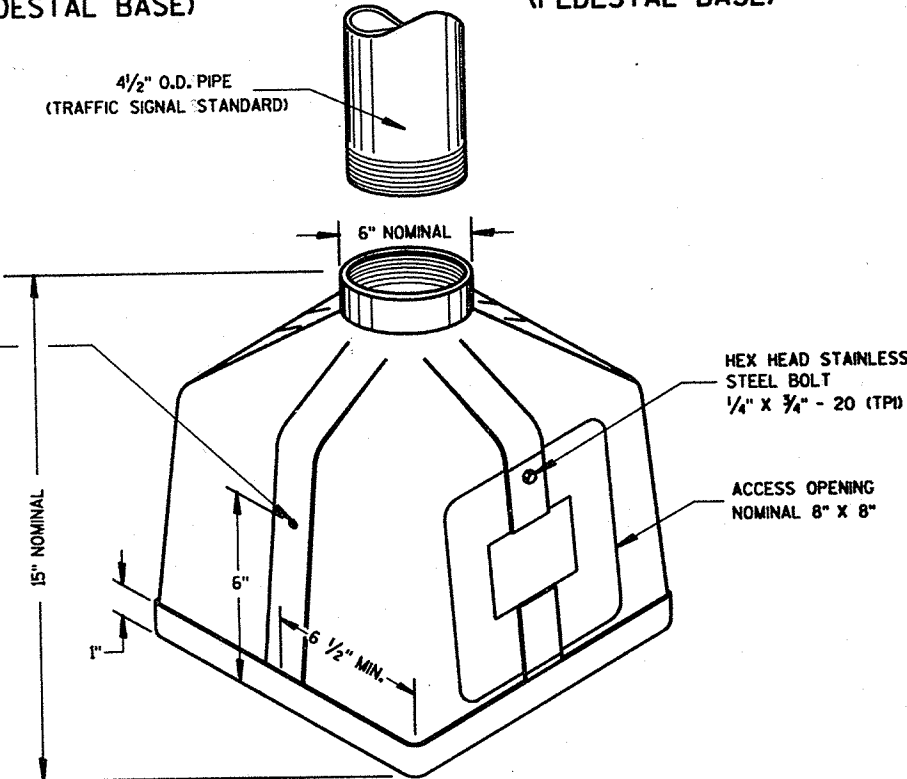
ISOMETRIC VIEW



BOTTOM VIEW
(PEDESTAL BASE)



TOP VIEW
(PEDESTAL BASE)



ISOMETRIC VIEW
PEDESTAL BASE

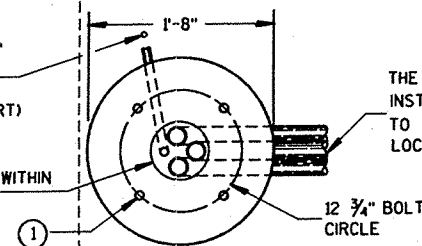
CAST BASES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4/21/93 DATE	<i>Bala Arora</i> STATE ELECTRICAL ENGR FOR HWYS
4/21/93 DATE	<i>Steve Russell</i> STATE TRAFFIC ENGINEER FOR HWYS
FHWA	

CONTROL CABINET BASE TYPE	DIMENSIONS				C.Y. CONCRETE (APPROX.)
	H	I	J	K	
TYPE 6 - 30" CABINET	34"	60"	10"	17"	.64
TYPE 7 - 38" CABINET	42"	60"	10"	21"	.93
TYPE 8 - 38" CABINET	42"	72"	12"	21"	1.29
TYPE 9 - VARIABLE	54"	72"	14"	27"	1.56
TYPE 10 - POST MOUNT	AS SHOWN				.32

TYPICAL 3'-0" X 3'-0"
MAINTENANCE PLATFORM.
LOCATION TO BE DETERMINED
IN THE FIELD.

5/8" DIA. X 8'-0"
COPPERCLAD
GROUND ROD
(1 OF 2, 6' APART)

ALL CONDUITS WITHIN
6" DIA. CIRCLE



THE THREE CONDUITS SHALL BE
INSTALLED FROM THE CABINET BASE
TO THE FIRST (NEAREST) PULL BOX
LOCATED AS SHOWN ON THE PLAN

CONDUIT LOCATIONS IN 24" X 36" PULL BOX (LEADING TO CONTROLLER CABINET BASE TYPE 6, 7, 8 AND 9)

FORM ALL EXPOSED
CONCRETE. PROVIDE
1" CHAMFER ALL AROUND

ALL CONDUIT SHALL
BE INSTALLED WITHIN
7" X 14" RECTANGLE

HALF SECTION
IN UNPAVED AREA

HALF SECTION
IN PAVED AREA

TOPSOIL AND SEED
OR CRUSHED AGGREGATE
1" CONDUIT - 6" STUB
FOR GROUNDING WIRE
ENTRANCE

CADWELDED CONNECTION
TO GROUNDING WIRE
(1 OF 2 CONNECTIONS)

TO SECOND
GROUND ROD

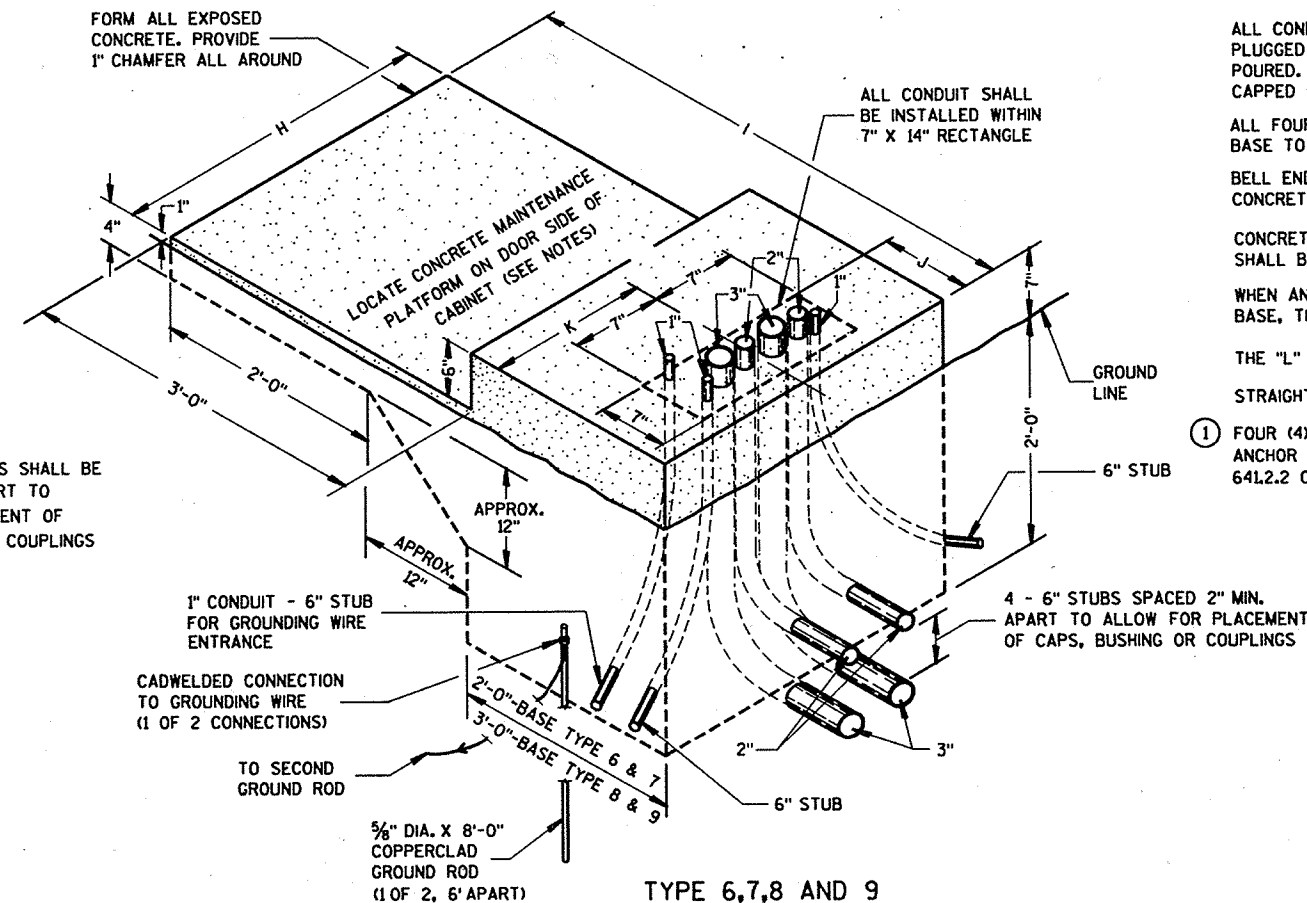
5/8" DIA. X 8'-0"
COPPERCLAD
GROUND ROD
(1 OF 2, 6' APART)

(ALTERNATE)
4" L BEND OR
ONE HEX NUT

TYPE 10

3/4" PREFORMED FILLER AS
APPROVED BY THE ENGINEER

THE THREE CONDUITS SHALL BE
SPACED 2" MIN. APART TO
ALLOW FOR PLACEMENT OF
CAPS, BUSHINGS OR COUPLINGS



1" CONDUIT - 6" STUB
FOR GROUNDING WIRE
ENTRANCE
CADWELDED CONNECTION
TO GROUNDING WIRE
(1 OF 2 CONNECTIONS)
TO SECOND
GROUND ROD

5/8" DIA. X 8'-0"
COPPERCLAD
GROUND ROD
(1 OF 2, 6' APART)

TYPE 6, 7, 8 AND 9
(ISOMETRIC VIEW)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

INSTALL FOUR 1/2 INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR BOLTS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

CONTROL CABINET BASE TOP SURFACES SHALL BE TROWEL FINISHED AND LEVEL.

WHEN A TYPE 10 CONTROL CABINET BASE IS USED TO POST MOUNT A CONTROL CABINET, A 36" SQUARE 4" THICK CONCRETE MAINTENANCE PLATFORM SHALL BE REQUIRED ON THE DOOR SIDE OF THE CABINET. THE TOP 1 INCH SHALL BE ABOVE FINISHED GRADE AND BE BROOM FINISHED AND LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

ALL FOUR (TWO INCH AND THREE INCH) CONDUIT SHALL BE INSTALLED FROM THE CABINET BASE TO THE FIRST (NEAREST) PULL BOX LOCATED AS SHOWN ON THE PLANS.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

WHEN ANCHOR BOLTS USING THE ALTERNATE L BEND ARE FURNISHED FOR THE TYPE 10 BASE, THE 4" L BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR BOLT BAR LENGTH.

THE "L" BEND SHALL NOT BE THREADED.

STRAIGHT ANCHOR BOLTS SHALL BE THREADED 8" IN LENGTH ON EACH END OF THE BOLT.

① FOUR (4) ANCHOR BOLTS, 1" DIA. X 3'-6" ANCHOR BOLTS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 640.2.9 AND 641.2.2 OF THE STANDARD SPECIFICATIONS AND IN ACCORDANCE WITH A-449.

CONCRETE CONTROL CABINET
BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/21/93
DATE
4/21/93
DATE
FHWA

STATE ELECTRICAL ENGR FOR HWYS
STATE TRAFFIC ENGINEER FOR HWYS

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		TYPE OF PIPE						
		CORRUGATED STEEL						POLYETHYLENE SDR 32.5
PIPE DIAMETER (INSIDE)	A	12	12	18	18	24	24	12
PIPE LENGTH **	B	24	36	24	36	24	36	24
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.4
COVER	D	10 1/4	10 1/4	16 1/4	16 1/4	22 1/4	22 1/4	10 1/4
FRAME	E	14 1/2	14 1/2	20 1/2	20 1/2	26 1/2	26 1/2	14 1/2
FRAME	F	8 1/2	8 1/2	14 1/2	14 1/2	20 1/2	20 1/2	8 1/2
FRAME	G	11 1/2	11 1/2	17 1/2	17 1/2	23 1/2	23 1/2	11 1/2
WEIGHT IN POUNDS *								
FRAME AND COVER		60	60	110	110	155	155	60

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

POLYETHYLENE PULL BOXES SHALL NOT BE INSTALLED IN CONCRETE OR ASPHALTIC PAVEMENT. PULL BOXES LOCATED IN THE ROADWAY SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

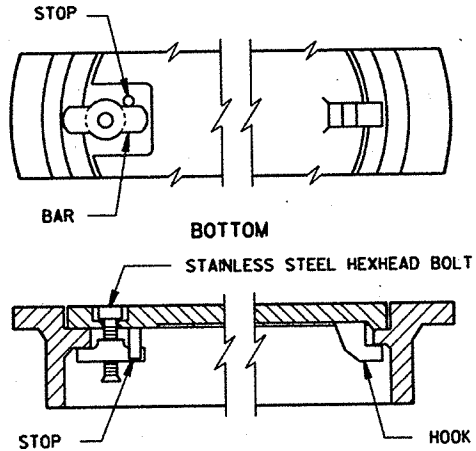
GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE. THE MECHANICAL CONNECTION (INSIDE AND OUTSIDE) TO THE PULL BOX, SHALL BE TOTALLY AND PERMANENTLY SEALED WITH A SILICONE OR RUBBERIZED CAULKING COMPOUND AS APPROVED BY THE ENGINEER.

GROUNDING LUGS ARE NOT REQUIRED IN PULL BOXES WHEN VOLTAGES OF LESS THAN 50 VOLTS AC ARE THE ONLY VOLTAGES ENCOUNTERED IN THE BOXES.

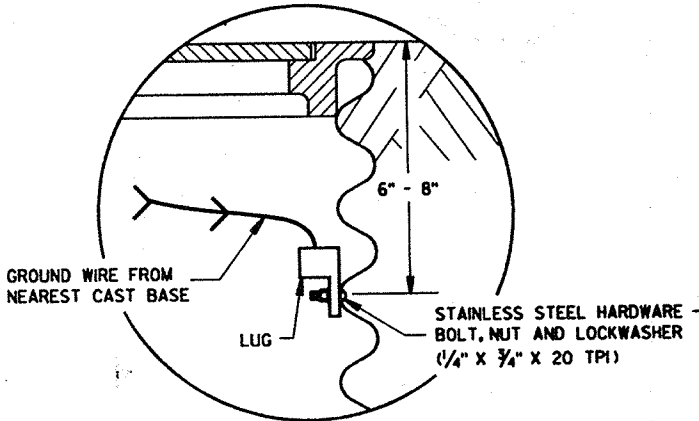
DRAIN DUCT SHALL BE MEASURED AND PAID FOR SEPARATELY.

RODENT SCREEN SHALL BE 1/8" GALVANIZED STEEL MESH AND BE INSTALLED WITH A STAINLESS STEEL HOSE CLAMP OF SUFFICIENT SIZE.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

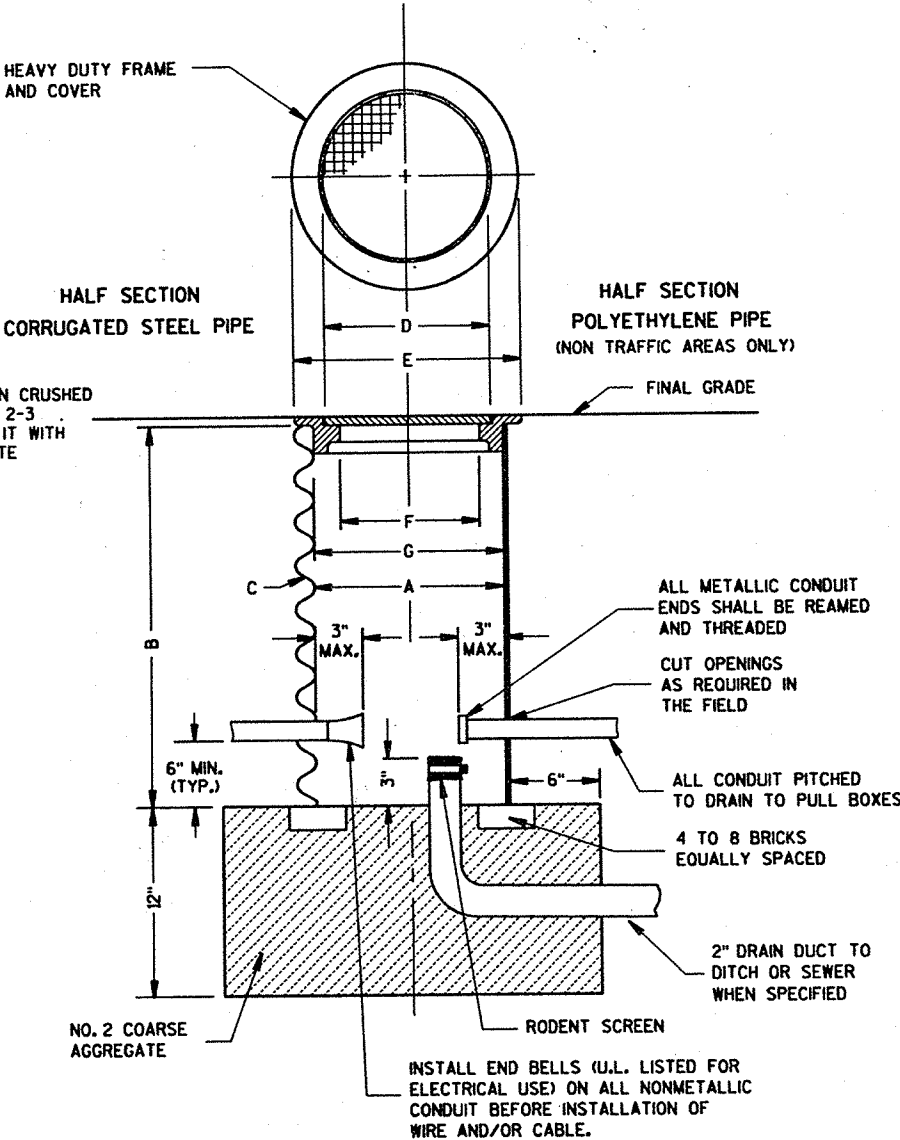


ALTERNATE COVER (LOCKING)
TIGHTENING BAR TYPE



GROUNDING LUG
AND LOCATION IN
STEEL PULL BOXES

WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE

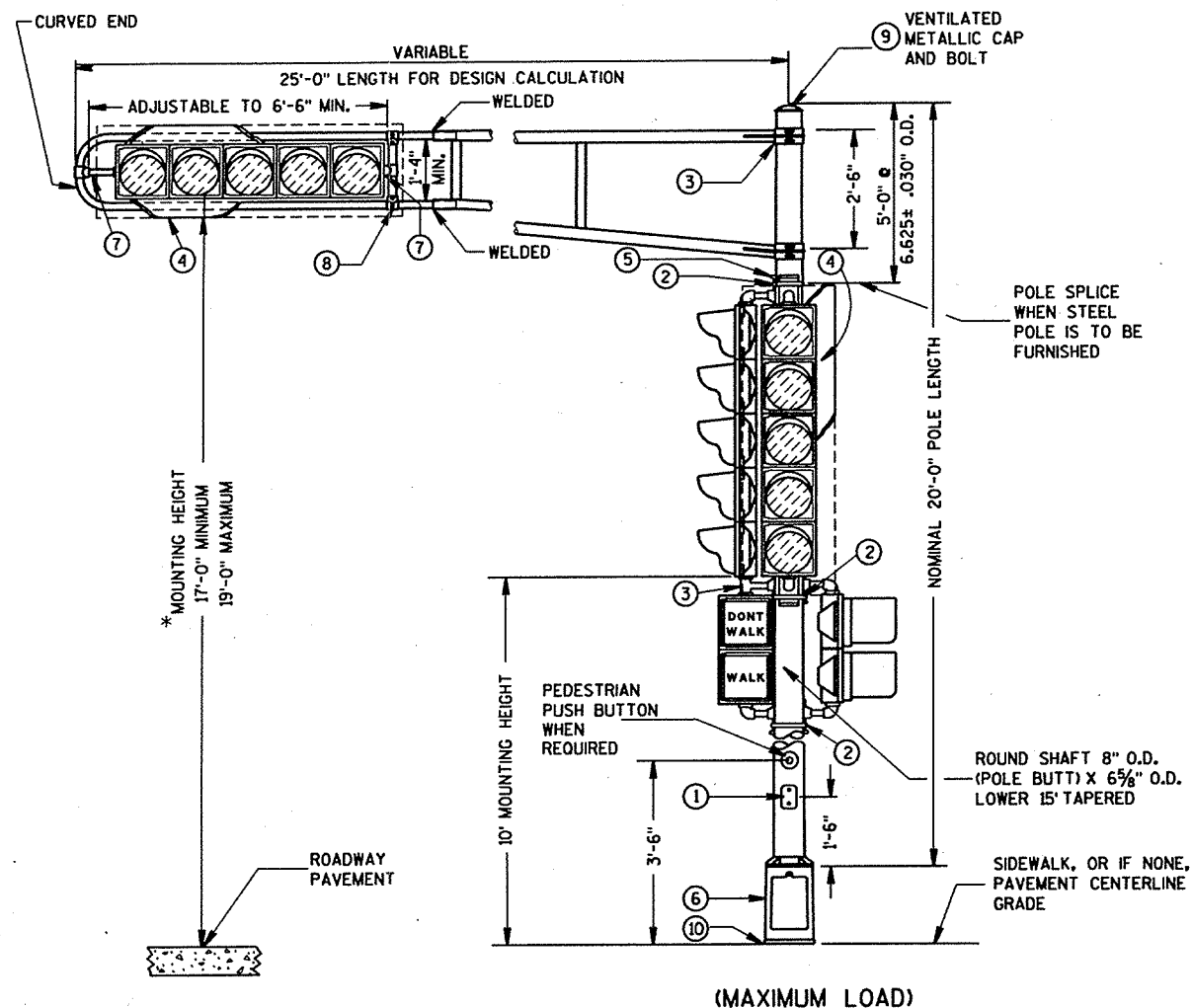


PULL BOX

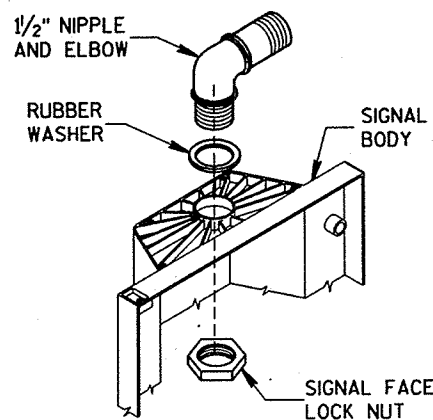
PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

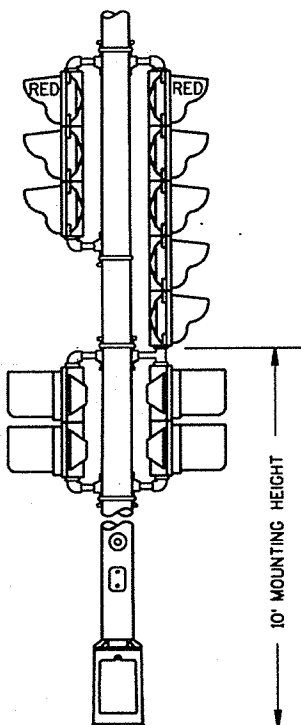
APPROVED
4/21/93
DATE
4/21/93
DATE
FWHA
STATE ELECTRICAL ENGR FOR HWYS
STATE TRAFFIC ENGINEER FOR HWYS



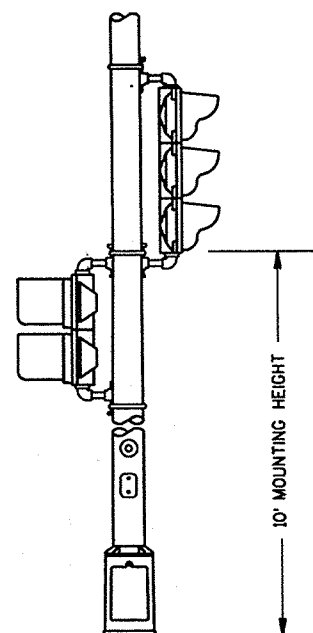
TYPE 2 POLE MOUNTING CONFIGURATION



SIGNAL FACE MOUNTING DETAIL



TYPICAL MOUNTING OF BACK TO BACK
3 AND 5 SECTION SIGNAL FACES

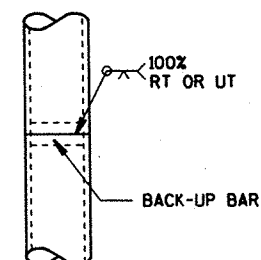


TYPICAL MOUNTING OF 3 SECTION
SIGNAL FACE

GENERAL NOTES

1. 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) 1/4" X 3/4" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
 2. SIGNAL FACE MOUNTING BRACKETS, MOUNT WITH CAP SCREWS AND BANDING. (SEE SPECIAL PROVISIONS).
 3. GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 1/8" HOLE IN POLE SHAFT FOR WIRING.
 4. BACKBOARDS ARE REQUIRED AT ALL TIMES ON TROMBONE MAST ARM MOUNTED SIGNAL FACES. VERTICAL MOUNTED SIGNAL FACES WITH BACKBOARDS REQUIRED ARE LOCATED AS SHOWN ON THE PLANS. BACKBOARDS ARE REQUIRED TO SURROUND SIGNAL FACES. BACKBOARDS SHALL EXTEND 5" BEYOND EXTREMITIES OF THE SIGNAL FACE.
 5. POLE MOUNTED SIGNAL FACES SHALL REQUIRE 1 OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACES.
 6. CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
 7. 1 1/2" PIPE THREAD ON THE MOUNTING BRACKET NIPPLES FOR THE SIGNAL FACE. NIPPLE SHALL BE 1 1/2" X 2".
 8. VERTICAL STRUT (ADJUSTABLE). ONE (1) SET SCREW (1/4" X 3/4" LONG-20 TPI, STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.
 9. FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
 10. SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.
- *MOUNTING HEIGHT LIMITATION DIMENSIONS OF THE TROMBONE MAST ARM WILL BE DEPENDENT UPON THE USE/NON-USE OF A TRANSFORMER BASE.

WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 15-88. RECORDS OF CERTIFICATION OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO SHIPMENT OF THE POLES. VERIFICATION AND APPROVAL OF THE TESTING CERTIFICATION FROM THE MANUFACTURER SHALL BE COMPLETED BY THE CENTRAL OFFICE BRIDGE SECTION.



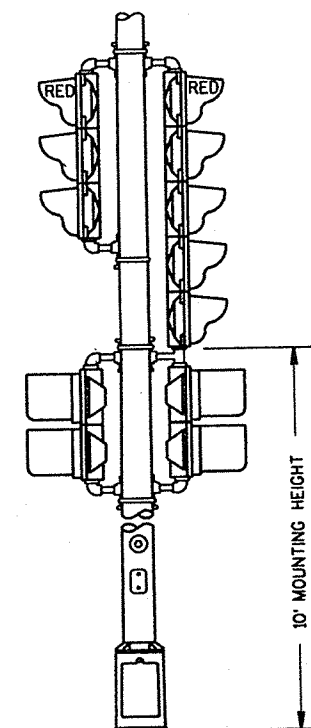
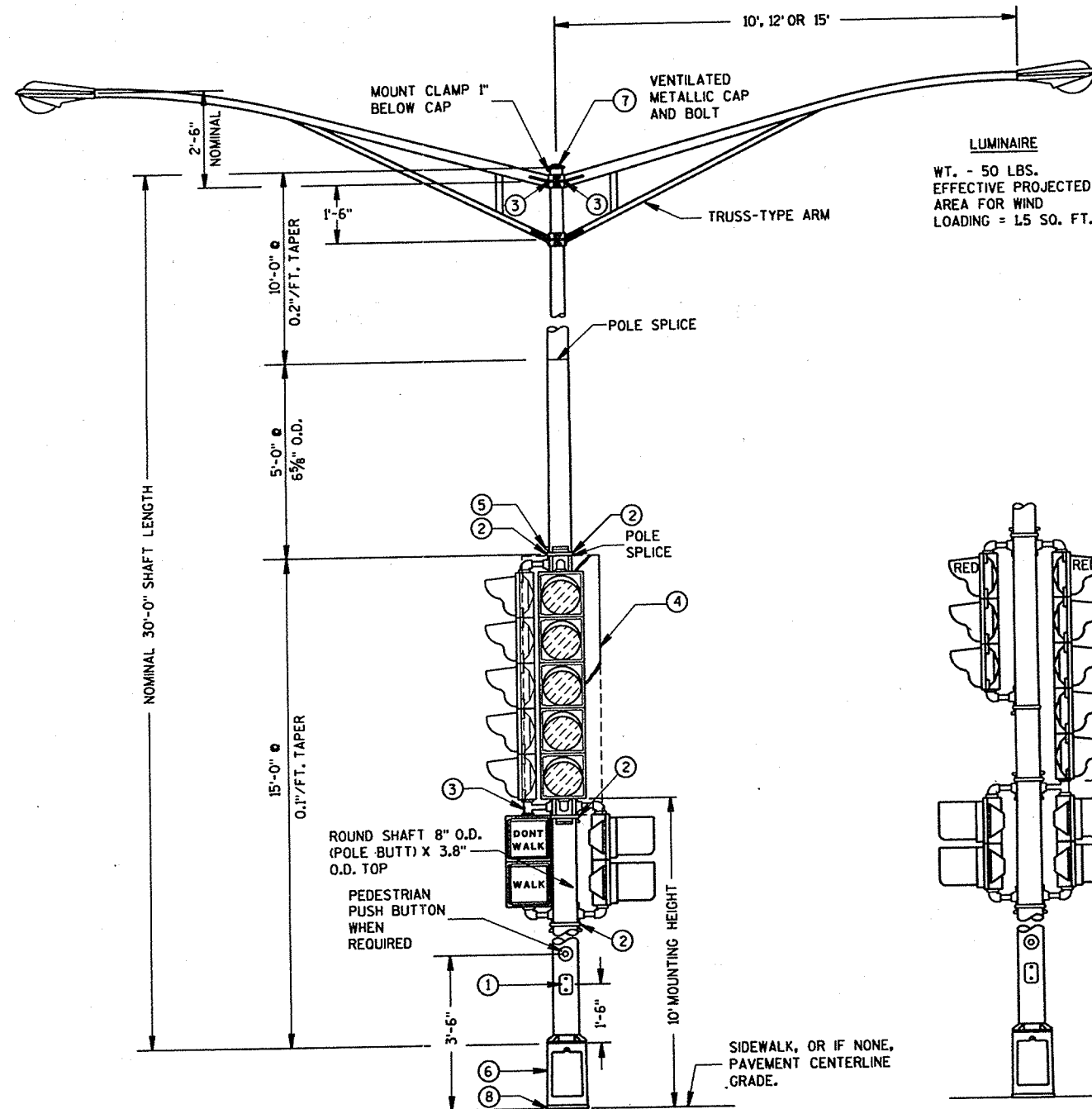
NOTE:
SHEET SDD 9 E 1-10 IS REQUIRED WHEN THIS DRAWING IS CALLED FOR IN THE PLANS.

DESIGN NOTE: (WILL NOT APPEAR ON CONTRACT PLANS)
THIS DETAIL IS APPLICABLE WHEN SIGNALS ARE MOUNTED ON A TROMBONE ARM. DO NOT USE FOR LIGHTING.

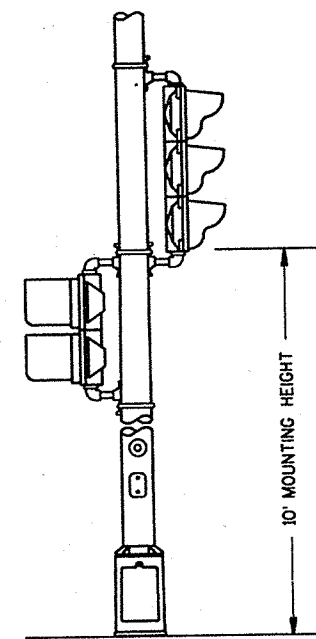
POLE MOUNTINGS FOR
TRAFFIC SIGNALS
TYPE 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 15-88. RECORDS OF CERTIFICATION OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO THE SHIPMENT OF THE POLES. VERIFICATION AND APPROVAL OF THE TESTING CERTIFICATION FROM THE MANUFACTURER SHALL BE COMPLETED BY THE CENTRAL OFFICE BRIDGE SECTION.



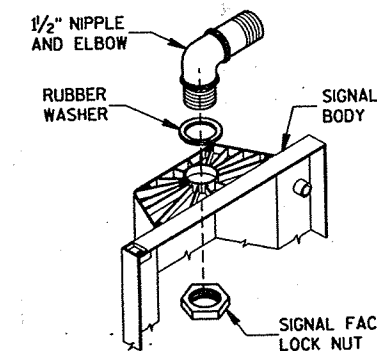
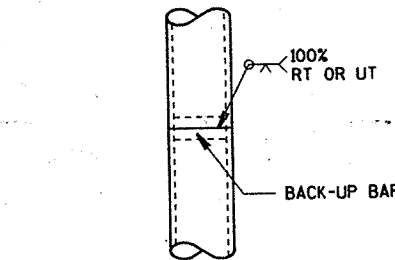
TYPICAL MOUNTING OF BACK TO BACK
3 AND 5 SECTION SIGNAL FACES



TYPICAL MOUNTING OF 3 SECTION
SIGNAL FACE

TYPE 4 POLE MOUNTING CONFIGURATION

POLE SPLICE DETAIL



SIGNAL FACE MOUNTING DETAIL

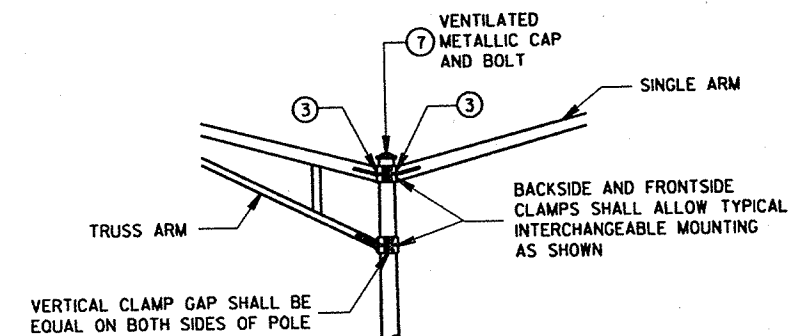
GENERAL NOTES

THE POLE USED IN THE TYPE 4 MOUNTING CONFIGURATION SHALL BE INTERCHANGEABLE WITH, AND MEET THE LOADING REQUIREMENTS OF A TYPE 3 POLE.

ALL LUMINAIRE POLE MOUNTINGS SHALL BE DESIGNED FOR TWIN 15' ARMS WITH LUMINAIRES.

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2 3/8" INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

1. 4"X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) 1/4" X 3/4" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
2. SIGNAL FACE MOUNTING BRACKETS, MOUNT WITH CAP SCREWS AND BANDING. (SEE SPECIAL PROVISIONS).
3. GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" HOLE IN POLE SHAFT FOR WIRING.
4. VERTICAL MOUNTED SIGNAL FACES WITH BACKBOARDS REQUIRED ARE LOCATED AS SHOWN ON THE PLANS. BACKBOARDS ARE REQUIRED TO SURROUND SIGNAL FACES. BACKBOARDS SHALL EXTEND 5" BEYOND EXTREMITIES OF SIGNAL FACE.
5. POLE MOUNTED SIGNAL FACES SHALL REQUIRE 1 OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACE.
6. CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
7. FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY CAPS. FASTEN CAPS WITH ONE (1) 1/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
8. SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.

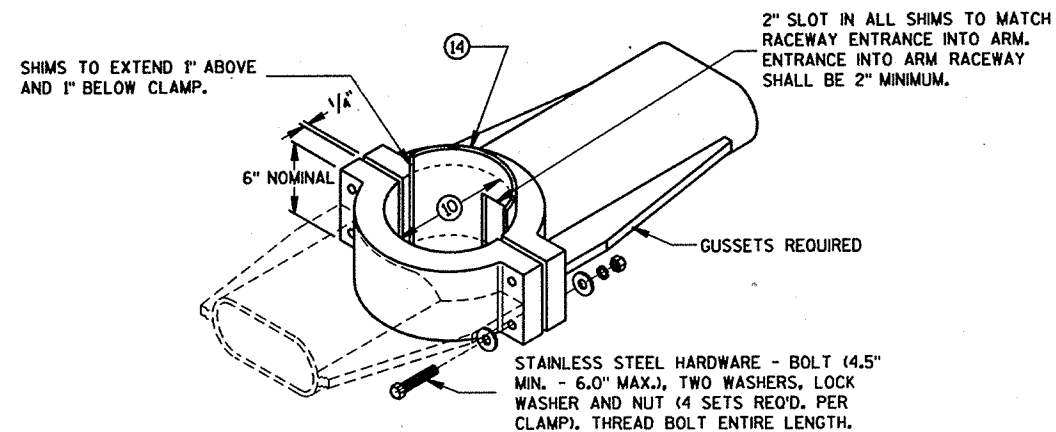
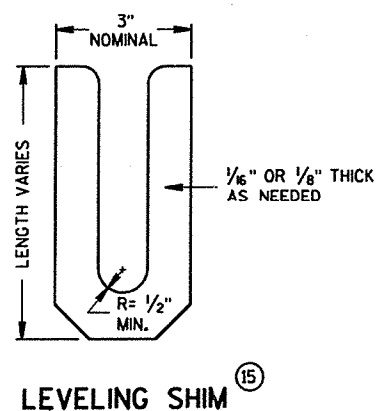
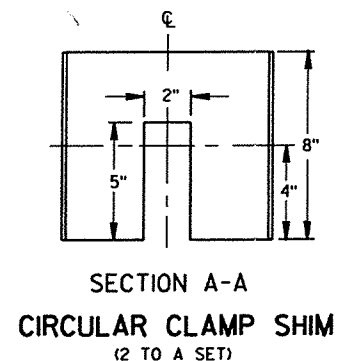
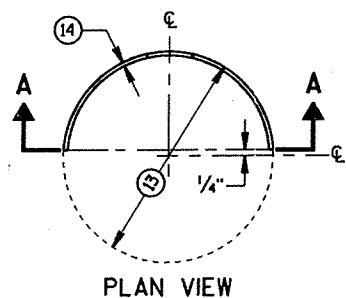
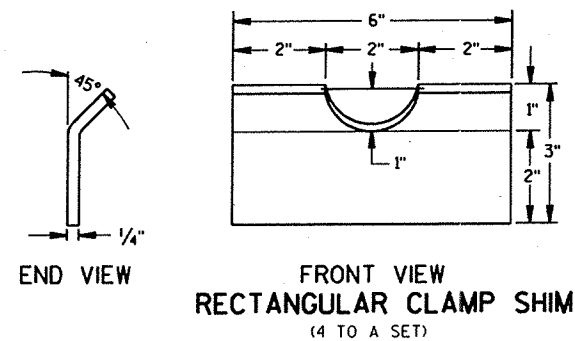


INTERCHANGEABLE MOUNTING DETAIL

NOTE:
SHEET SDD 9 E1-1b IS REQUIRED WHEN THIS DRAWING IS CALLED FOR IN THE PLANS.

POLE MOUNTINGS FOR
TRAFFIC SIGNALS AND
LIGHTING UNITS, TYPE 4

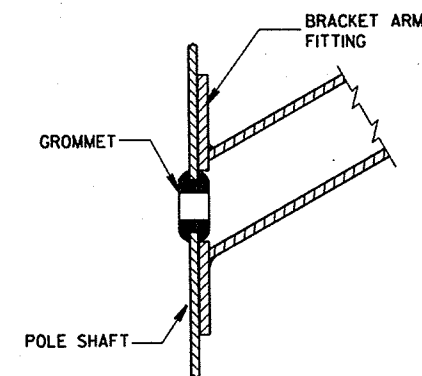
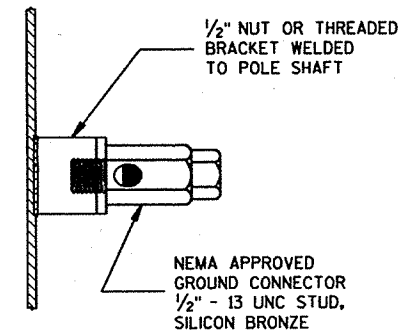
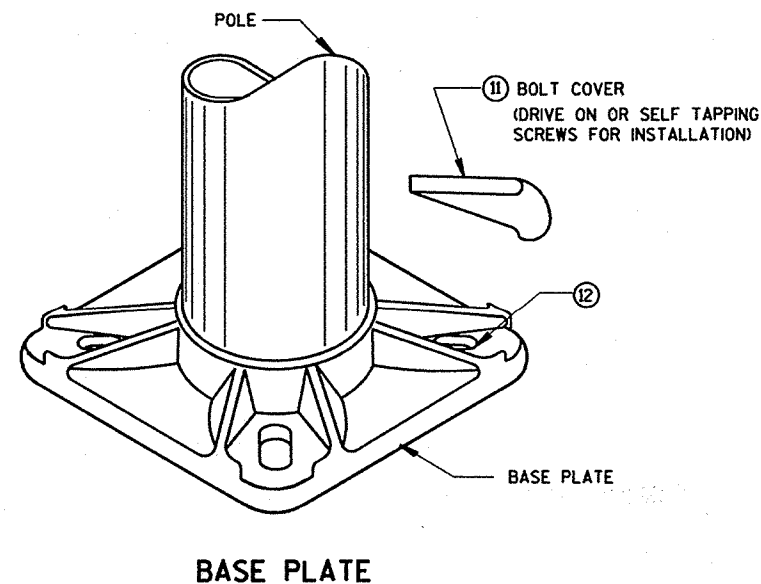
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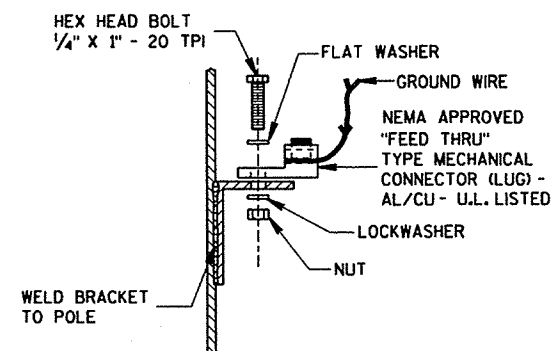
TYPICAL TROMBONE MAST ARM AND LUMINAIRE MAST ARM MOUNTING CLAMP

GENERAL NOTES

- (10) 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.
- (11) INDIVIDUAL BASE PLATE ANCHOR BOLT COVERS. (4 REQUIRED)
- (12) BASE PLATE SLOTTED TO ACCEPT 1" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR BOLTS.
- (13) OUTSIDE SHIM DIAMETER - (4.5" O.D. FOR LUMINAIRE MAST ARM)
(6.625" O.D. FOR TROMBONE MAST ARM)
- (14) VARIABLE SHIM THICKNESS - (0.10", 0.25", 0.35", 0.53" OR 0.70")
SHIM THICKNESS FOR TROMBONE MAST ARMS MAY BE TYPICALLY 0.35", 0.53" OR 0.70".
SHIM THICKNESS FOR LUMINAIRE MAST ARMS MAY BE TYPICALLY 0.10", 0.25" OR 0.35".
SHIM MATERIAL SHALL BE ALUMINUM ALLOY.
SHIM THICKNESS SHALL BE IMPRESSED INTO EACH SHIM. NUMERALS SHALL BE 1/4" HIGH AND LEGIBLE.
THE CONTRACTOR SHALL SUBMIT TWO COPIES OF ALL SHIM SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.
- (15) LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.
SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

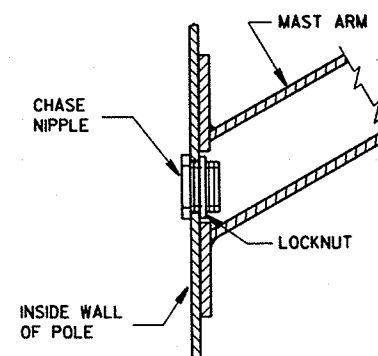


TYPICAL APPLICATION OF GROMMET IN POLE SHAFT

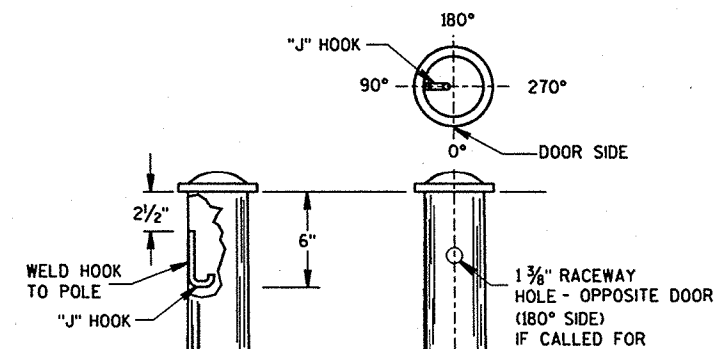


TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT



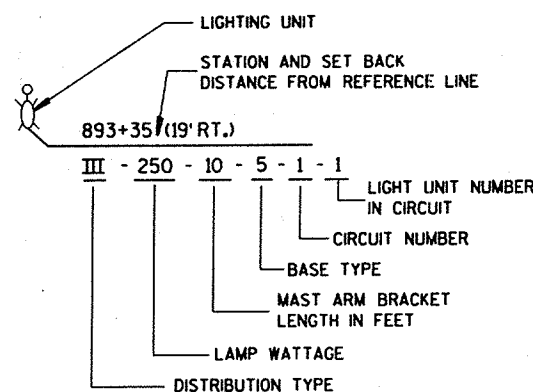
TYPICAL "J" HOOK LOCATION

NOTE:
THIS DRAWING IS REQUIRED WHEN DRAWINGS SDD 9 E 1-1a, b, c, OR d IS CALLED FOR IN THE PLANS.

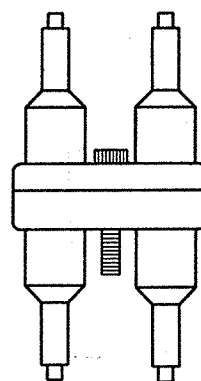
HARDWARE DETAILS FOR POLE MOUNTINGS

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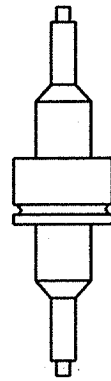
APPROVED
4/21/93
DATE
4/21/93
DATE
STATE ELECTRICAL ENGR FOR HWYS
STATE TRAFFIC ENGINEER FOR HWYS
FHWA



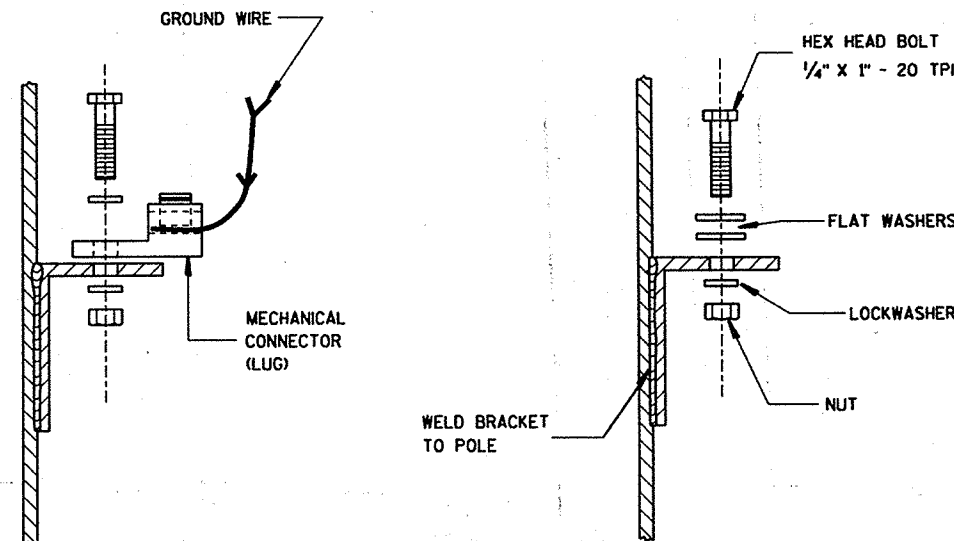
LIGHTING UNIT CODE



DETAIL "A"
DOUBLE POLE



DETAIL "B"
SINGLE POLE

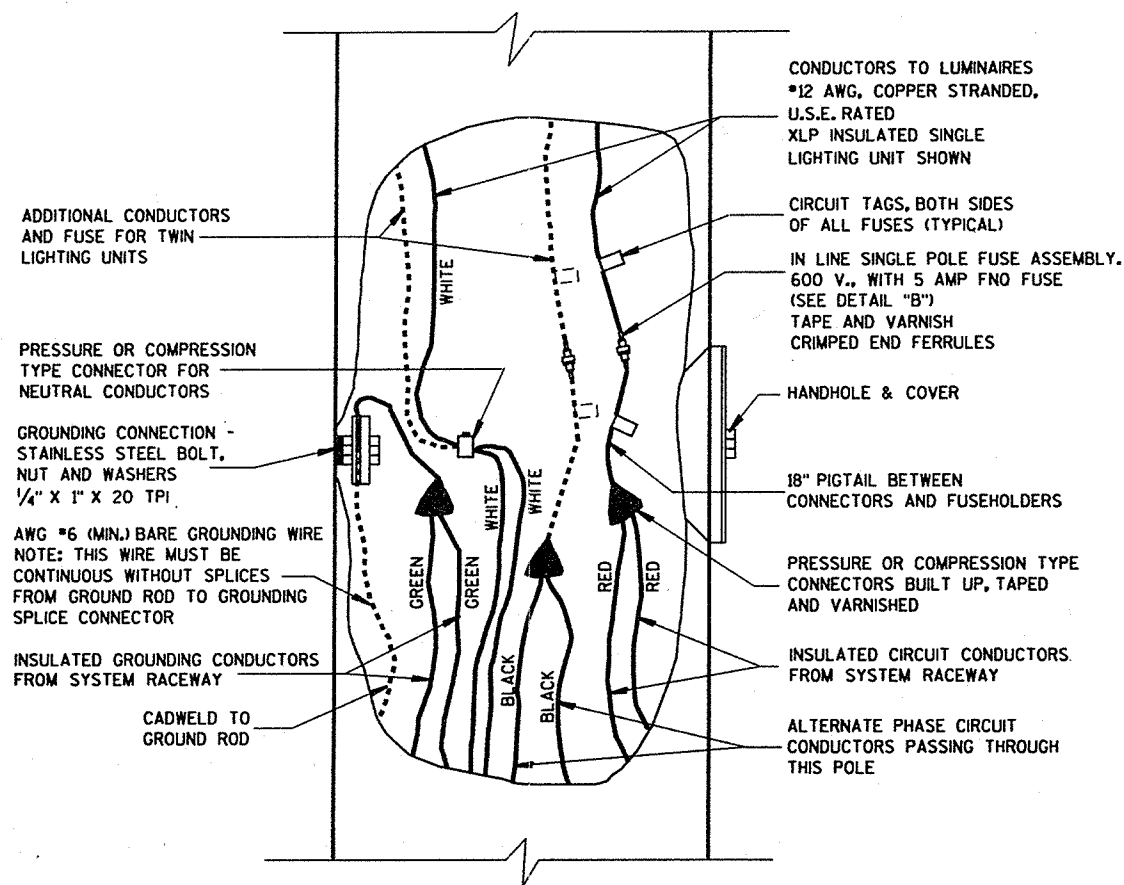


TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.



3 WIRE - 120, 240 OR 480 VOLTS TO GROUND
2 WIRE - 120 VOLTS TO GROUND

CONDUCTORS TO LUMINAIRES #12 AWG, COPPER STRANDED, U.S.E. RATED XLP INSULATED SINGLE LIGHTING UNIT SHOWN

TWIN LIGHTING UNITS REQUIRE INDIVIDUAL SETS OF LEAD WIRES AND FUSE ASSEMBLY.

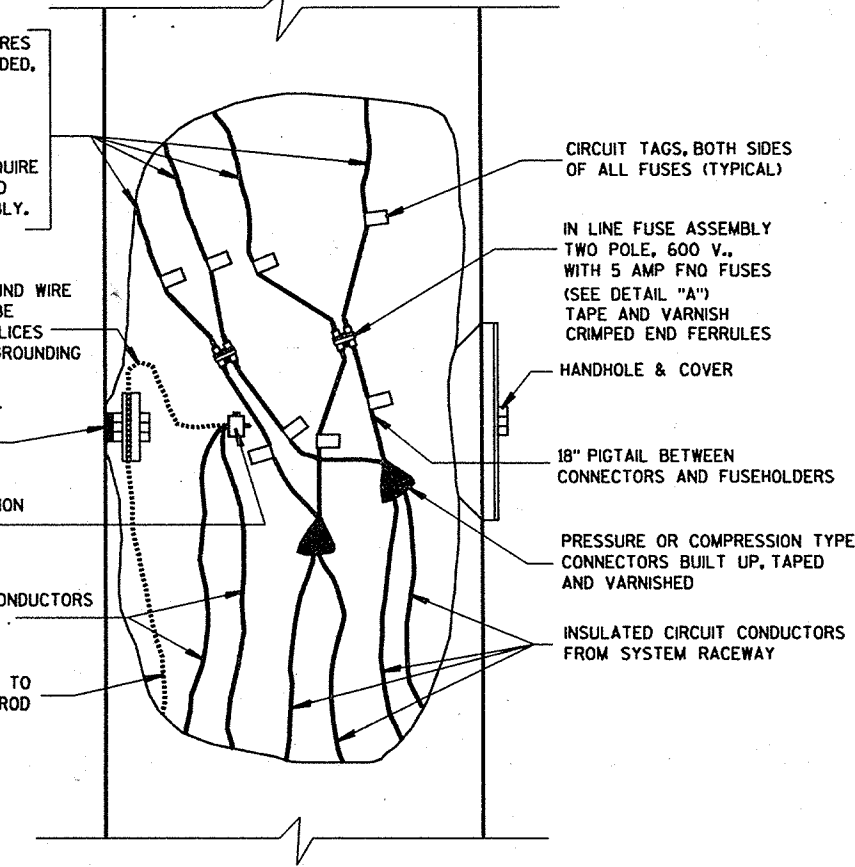
AWG #6 (MIN.) BARE GROUND WIRE NOTE: THIS WIRE MUST BE CONTINUOUS WITHOUT SPLICES FROM GROUND ROD TO GROUNDING SPLICE CONNECTOR

GROUNDING CONNECTION - STAINLESS STEEL BOLT, NUT AND WASHERS 1/4" X 1" X 20 TPI

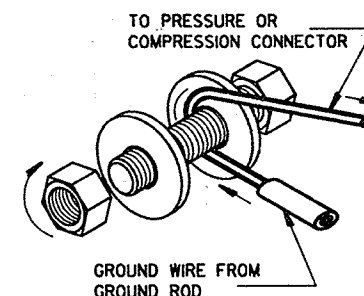
PRESSURE OR COMPRESSION TYPE CONNECTOR FOR GROUNDING CONDUCTORS

INSULATED GROUNDING CONDUCTORS FROM SYSTEM RACEWAY

CADWELD TO GROUND ROD



2 WIRE - 240 OR 480 VOLTS (UNGROUND)



GROUND WIRE INSTALLATION BETWEEN TWO WASHERS

NON-FREEWAY LIGHTING UNIT POLE WIRING

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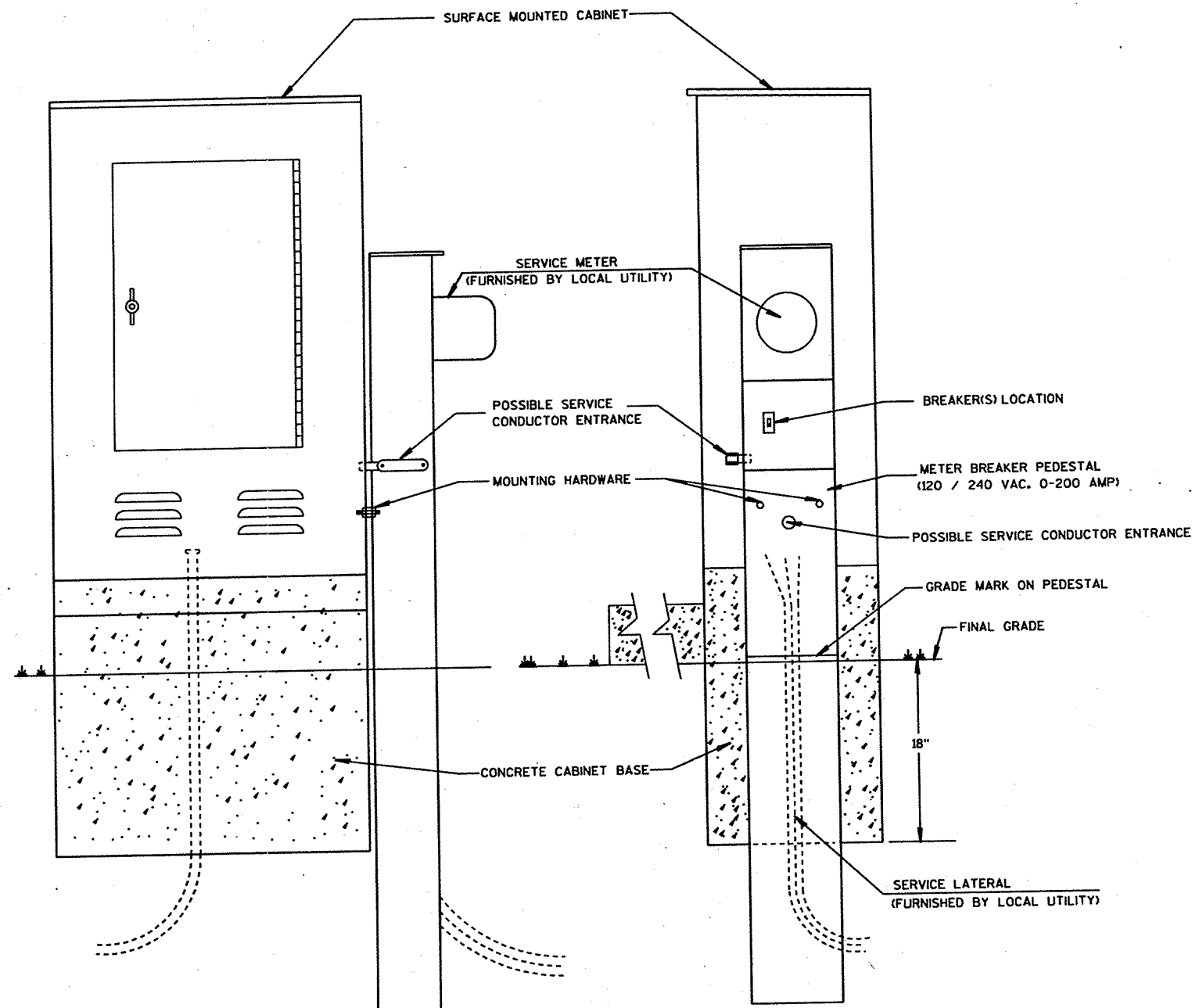
4/21/93
DATE

4/21/93
DATE

FHWA

STATE ELECTRICAL ENGR FOR HWYS

STATE TRAFFIC ENGINEER FOR HWYS



TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AS REQUIRED AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

CABINET SERVICE INSTALLATION


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[Signature]
STATE ELECTRICAL ENGR FOR HWYS
[Signature]
STATE TRAFFIC ENGINEER FOR HWYS

TWO-LANE ROADWAY


SYMBOLS



WORK AREA



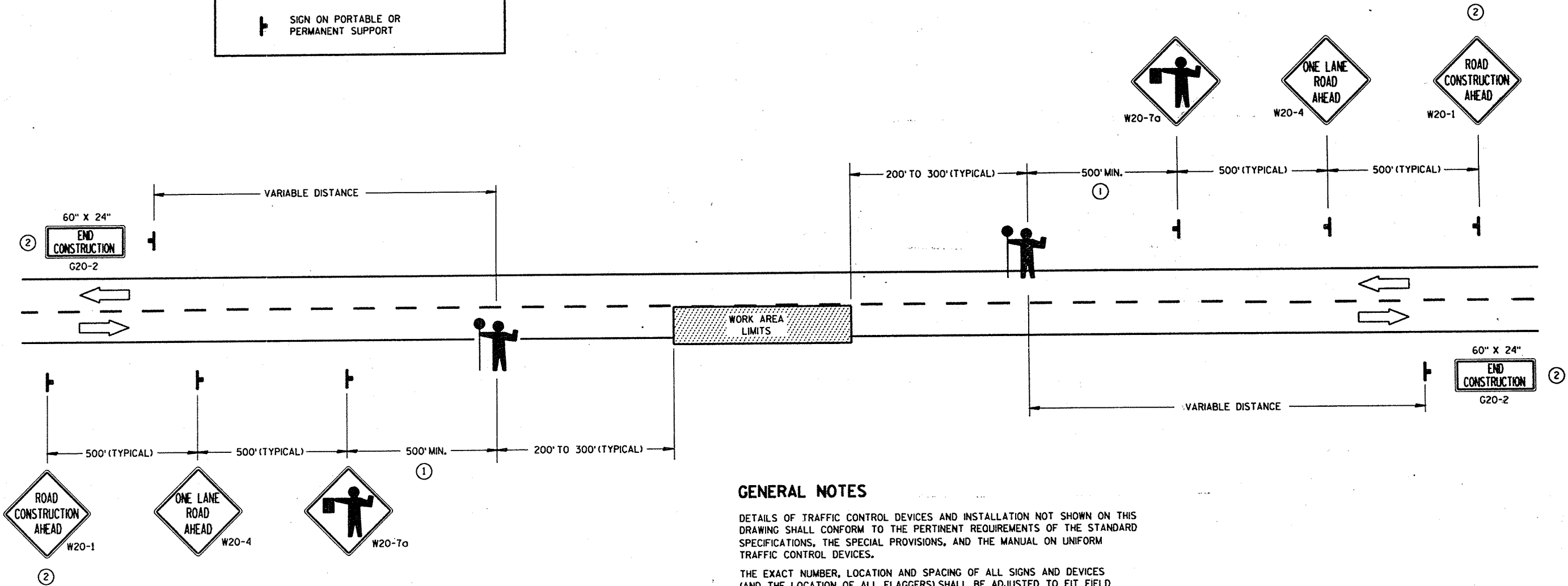
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF



SIGN ON PORTABLE OR PERMANENT SUPPORT



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



- ① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS DIRECTED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD CONSTRUCTION WORK ZONE AREA.

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE LOCATION OF ALL FLAGGERS) SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS DIRECTED BY THE ENGINEER.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, THE "FLAGGER AHEAD", THE "ROAD CONSTRUCTION AHEAD" AND THE ONE LANE ROAD AHEAD" SIGNS SHALL BE COVERED OR REMOVED AND THE HIGHWAY RESTORED TO NORMAL OPERATION.

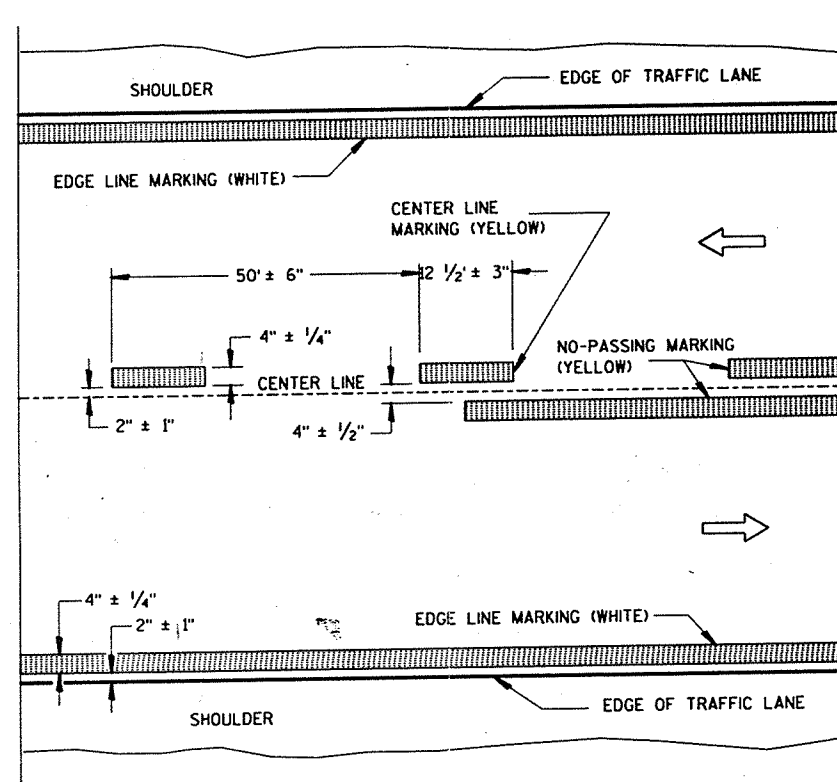
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

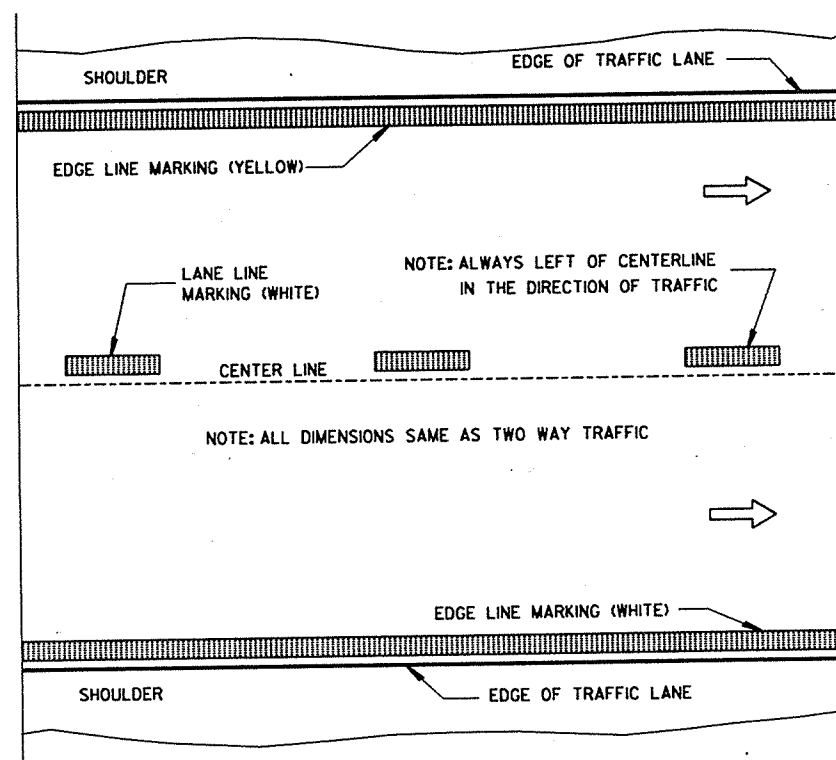
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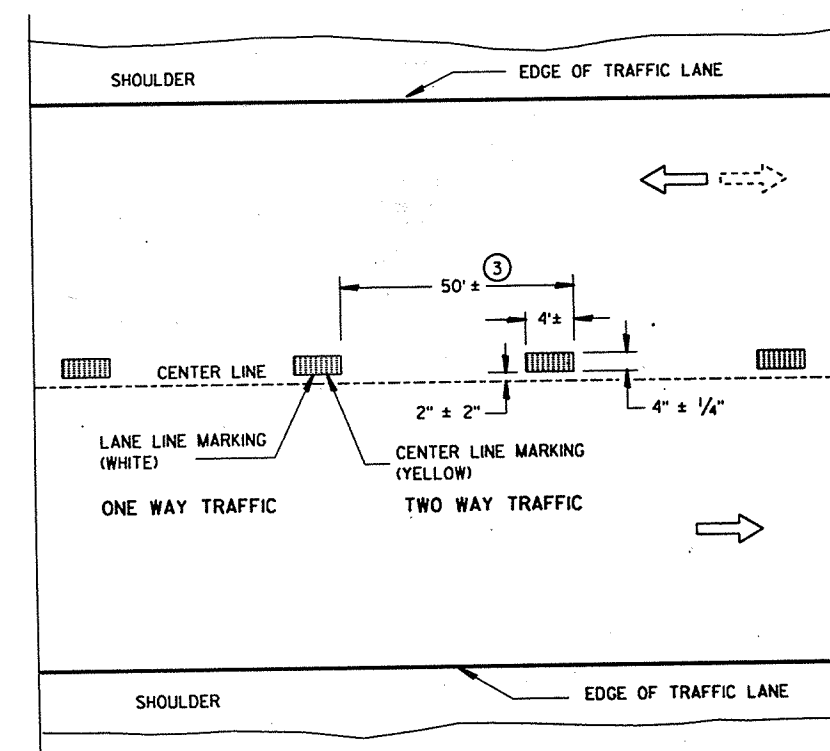


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



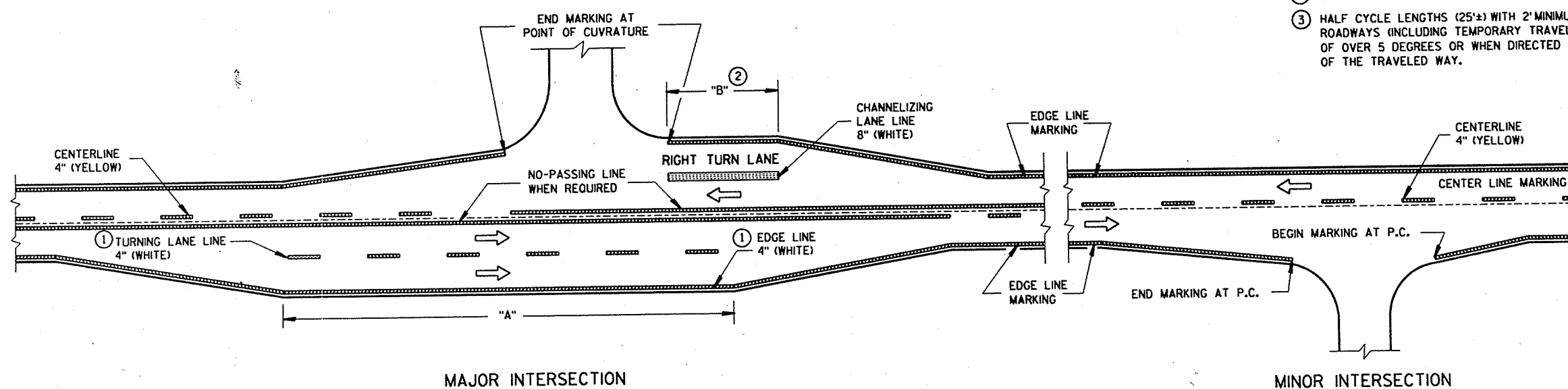
TEMPORARY PAVEMENT MARKING

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT TURNING LANE MARKING.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.



MAJOR INTERSECTION

MINOR INTERSECTION

TYPICAL PAVEMENT MARKING FOR RURAL INTERSECTIONS

NOTE: WHEN APPLICABLE, INCLUDE SDD 15C8-4b WITH THIS DRAWING IN PLANS.

PAVEMENT MARKING
(MAINLINE & INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/17/92
DATE
FHWA

John F. Rusch
STATE TRAFFIC ENGINEER FOR HWYS