

UTILITY CONTACTS

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WDNR

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16745 W. BLUEMOUND ROAD
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JOHN BRUGGEMAN
(262) 317-3353
john.briggeman@rasmithnational.com

GENERAL NOTES

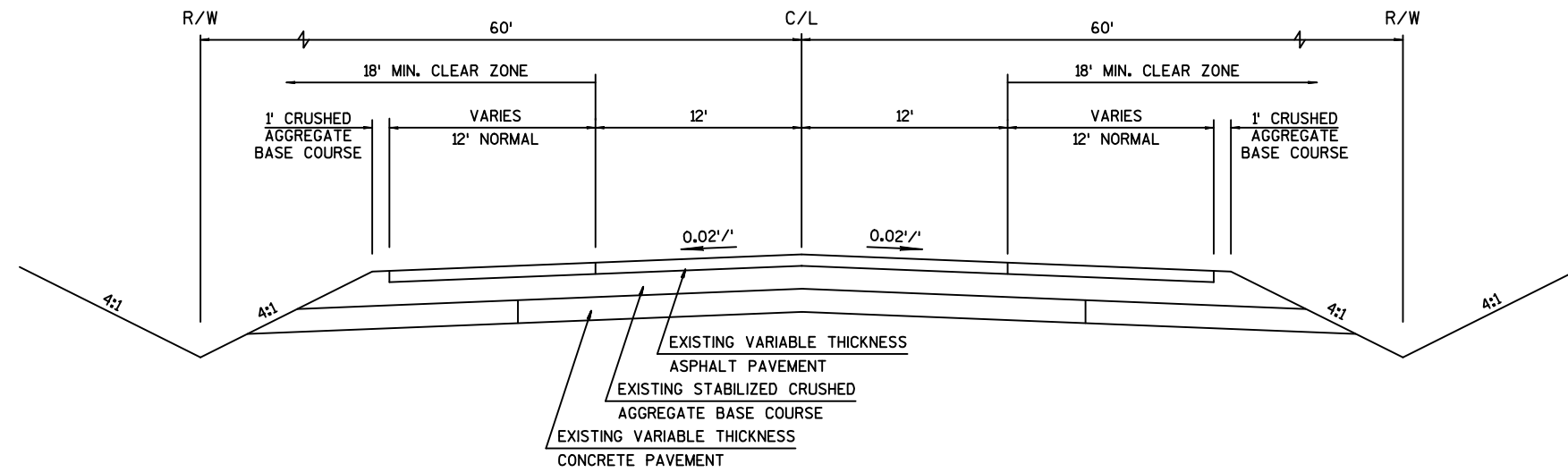
- 1 THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS.
- 2 ALL CURB AND GUTTER RADII DIMENSIONS ARE TO FACE OF CURB
- 3 ALL CURB AND GUTTER GRADES ARE AT FLANGE LINE UNLESS OTHERWISE NOTED.
- 4 THE LOCATION OF REMOVALS ARE APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED BY THE ENGINEER.
- 5 EROSION CONTROL BMP'S ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL BMP'S SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE BMP IS NO LONGER REQUIRED.
- 6 CONTRACTOR MUST CONTACT THE PROJECT ENGINEER AND SEWRPC (JOHN WASHBURN) AT LEAST TWO WEEKS PRIOR TO WORK NEAR ANY PUBLIC SURVEY MONUMENT OR TIES.

ORDER OF SECTION 2 SHEETS

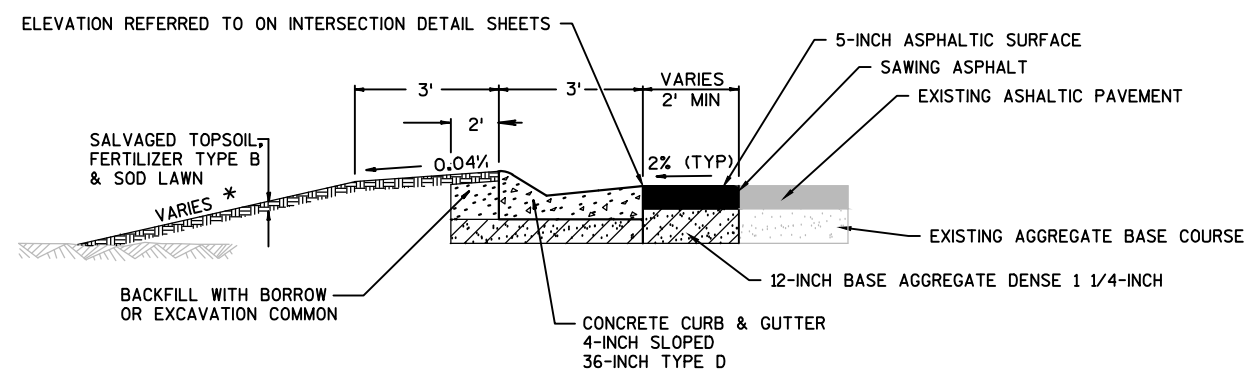
- TYPICAL SECTIONS
CONSTRUCTION DETAILS
INTERSECTION DETAILS
EROSION CONTROL
STORM SEWER
PERMANENET SIGNING
TRAFFIC SIGNAL REMOVAL PLAN
TEMPORARY TRAFFIC SIGNAL PLAN
TRAFFIC SIGNAL PLAN
ALIGNMENT PLAN







EXISTING TYPICAL SECTION
STH 100 (W RYAN RD)



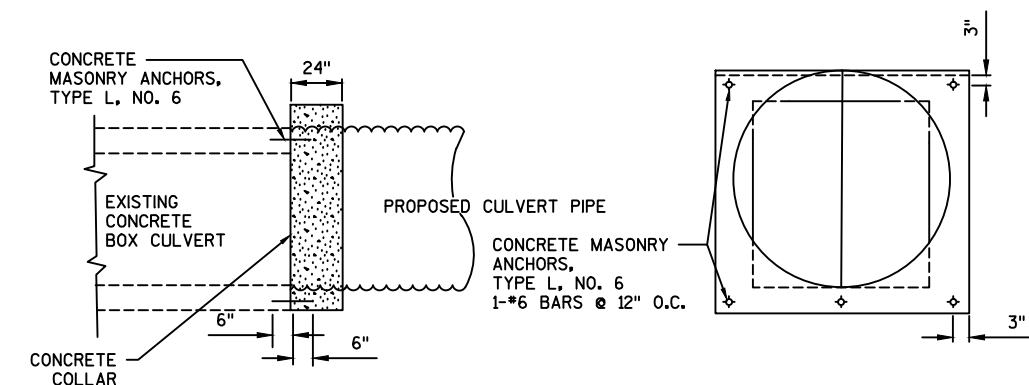
CURB & GUTTER REPLACEMENT DETAIL

STH 100 (RYAN RD) & S 76TH STREET

INTERSECTION QUADRANT	* SLOPE
SOUTHEAST	6:1
SOUTHWEST	6:1
NORTHEAST	4:1
NORTHWEST	4:1-20:1

THICKNESS	LAYERS	NOM. GRADATION SIZE	ASPHALTIC MATERIAL
5"	ONE 2" UPPER LAYER ONE 3" LOWER LAYER	12.5 MM 19.0 MM	PG 58-28 PG 58-28

NOTE : SAWCUT A MINIMUM OF 2' FROM
THE EXISTING FLANGE LINE



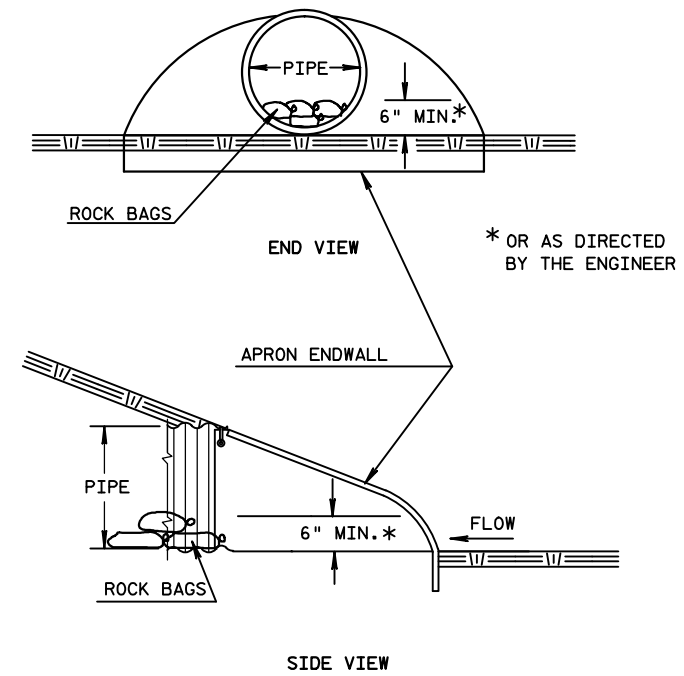
DETAILS OF CONCRETE COLLAR FOR BOX CULVERT EXTENSION

RUNOFF COEFFICIENT TABLE

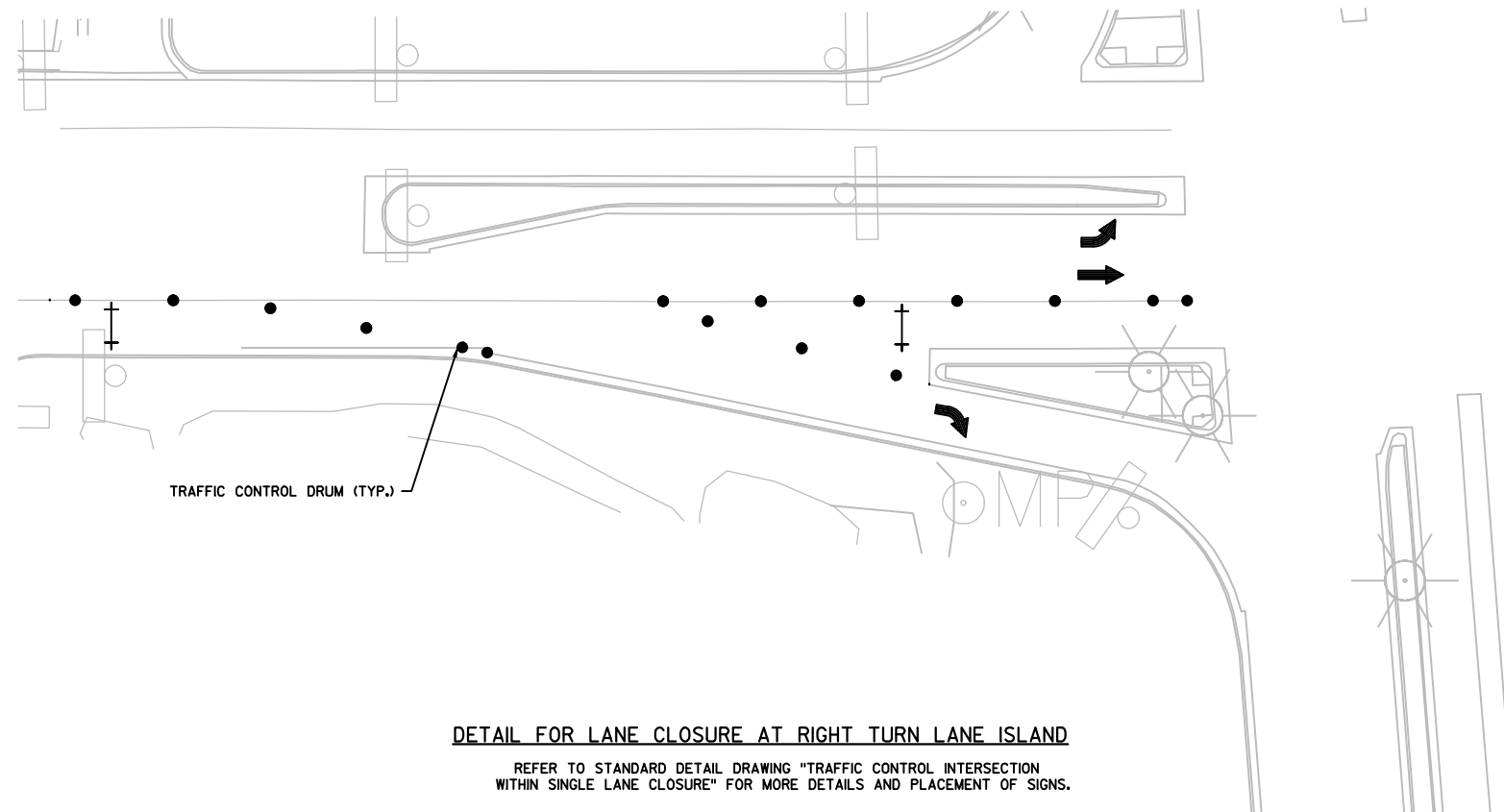
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = ----- ACRES

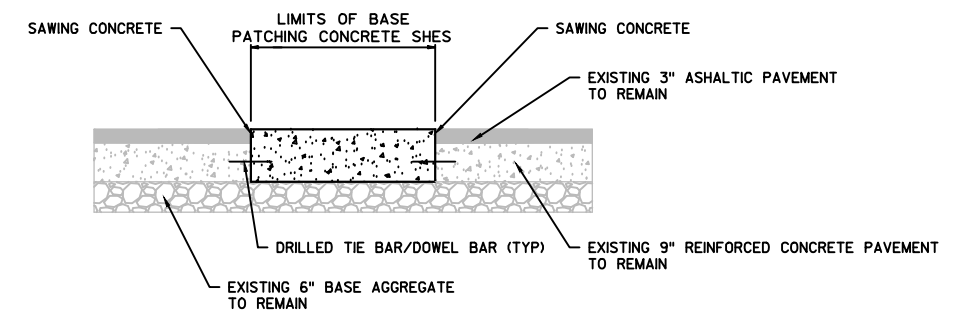
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.40 ACRES



CULVERT PIPE CHECK



DETAIL FOR LANE CLOSURE AT RIGHT TURN LANE ISLAND

REFER TO STANDARD DETAIL DRAWING "TRAFFIC CONTROL INTERSECTION
WITHIN SINGLE LANE CLOSURE" FOR MORE DETAILS AND PLACEMENT OF SIGNS.

BASE PATCHING CONCRETE SHES

STH 100 (BROWN DEER RD) & STH 181

LEGEND

XXXXXXXXX SAW CUT

(ASPH) ASPHALTIC SURFACE

(CONC) CONCRETE SIDEWALK

(BASE) BASE PATCHING CONCRETE SHES

WETLAND BOUNDARY

STH 59/STH 164

CURB RAMP TYPE 2
MATCH EXISTING ELEVATIONS

BROADWAY ST

CLEVELAND AVE

STH 59/STH 164

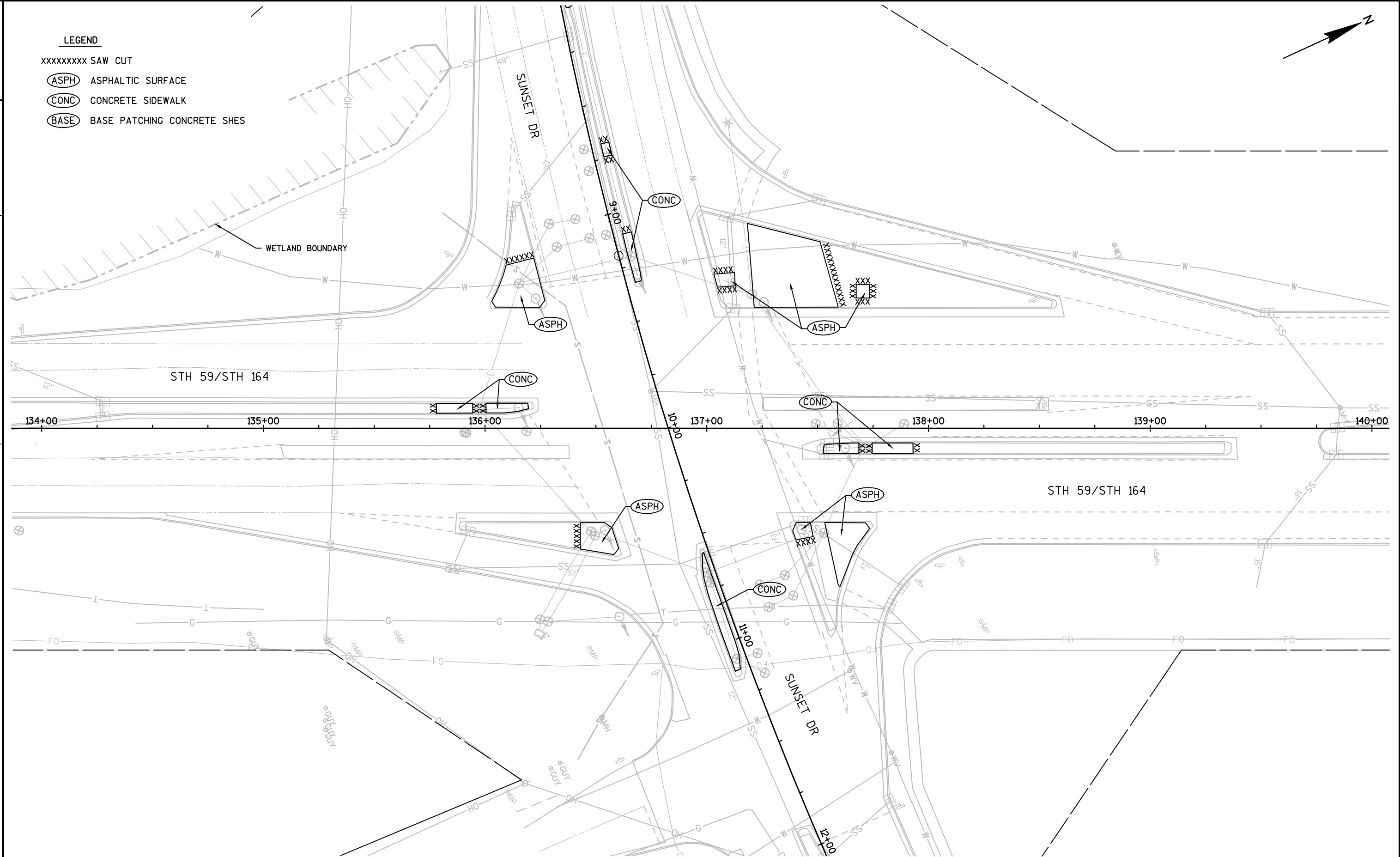
LEGEND

XXXXXXXXX SAW CUT

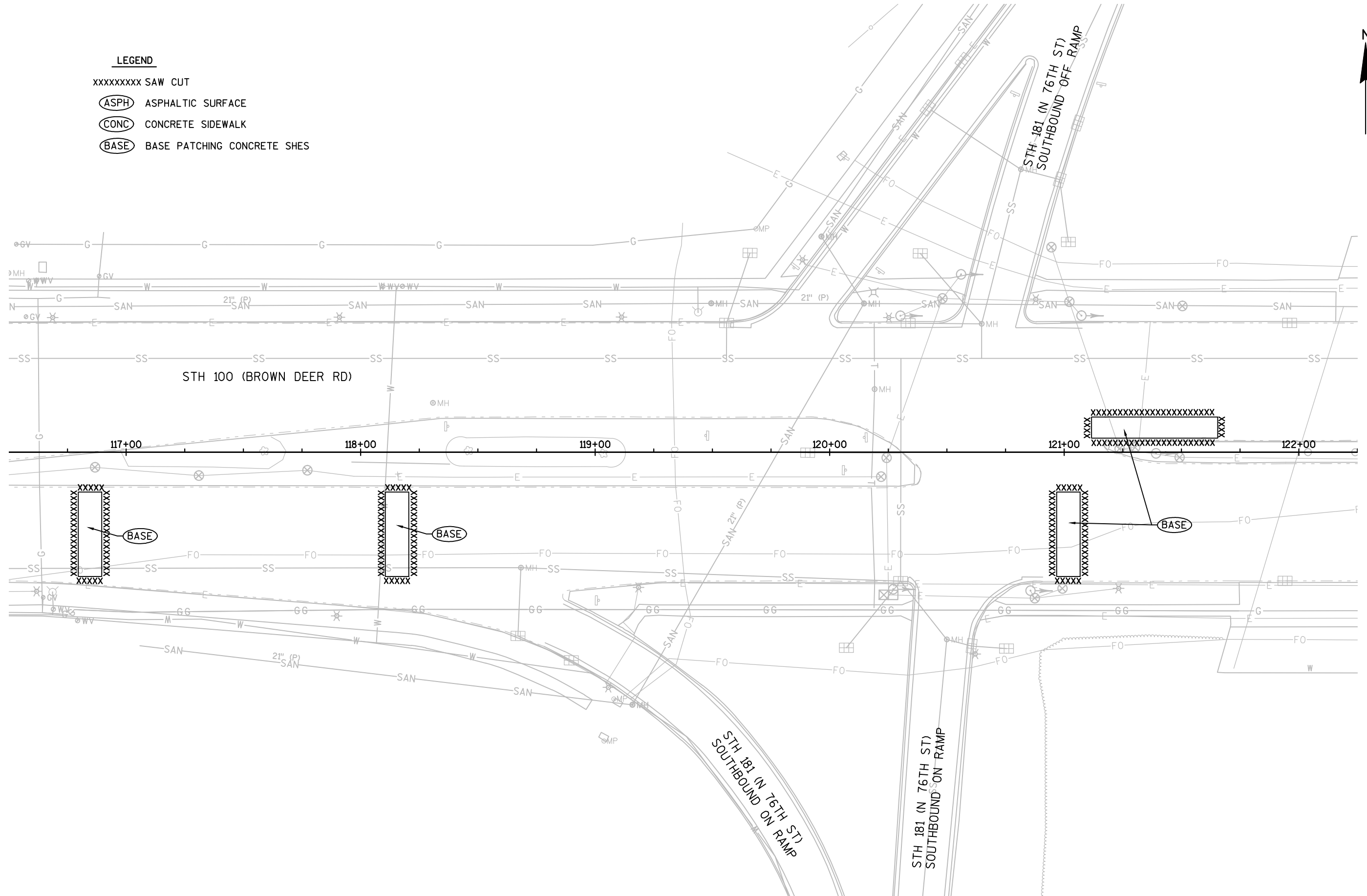
(ASPH) ASPHALTIC SURFACE

(CONC) CONCRETE SIDEWALK

(BASE) BASE PATCHING CONCRETE SHES

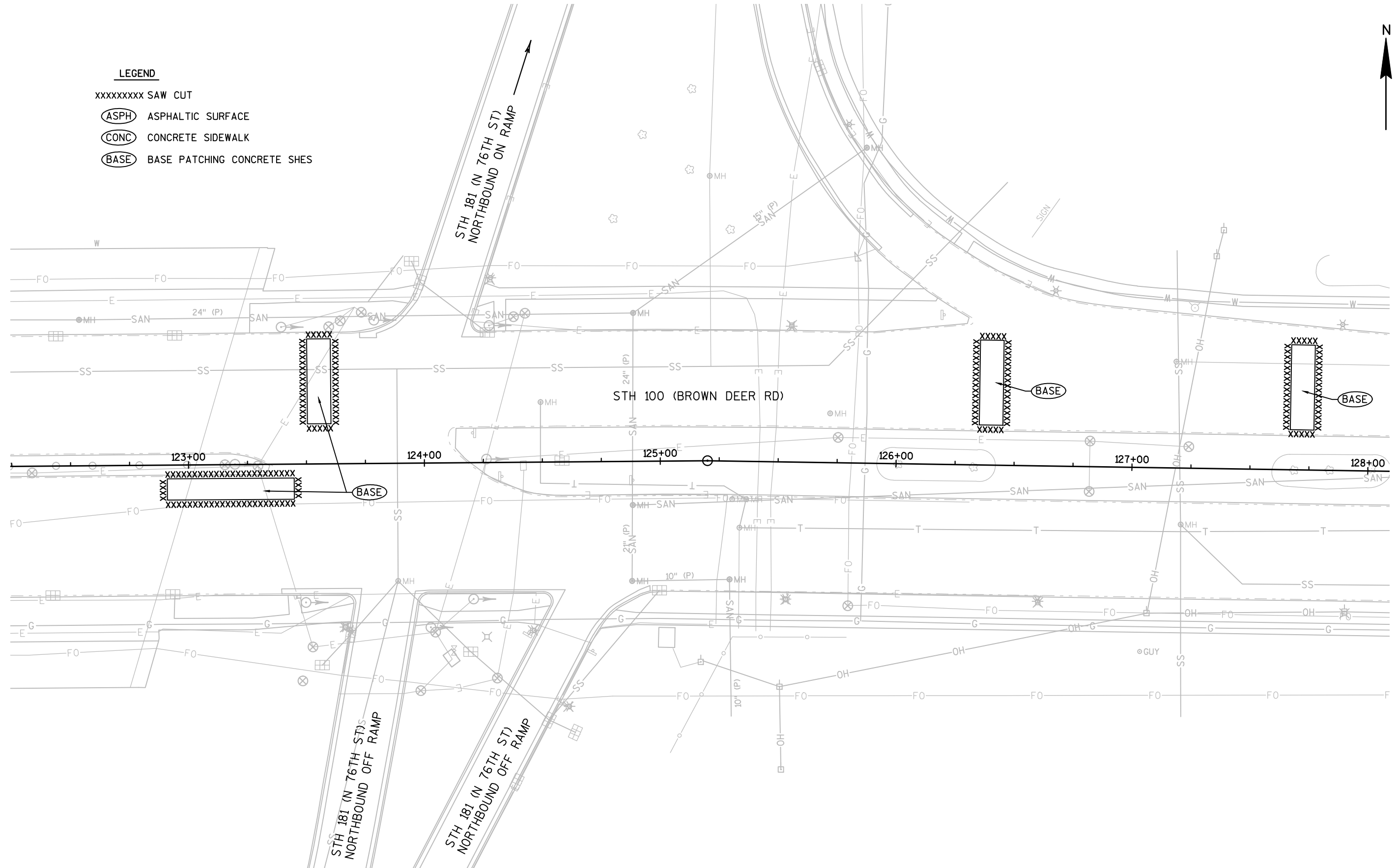


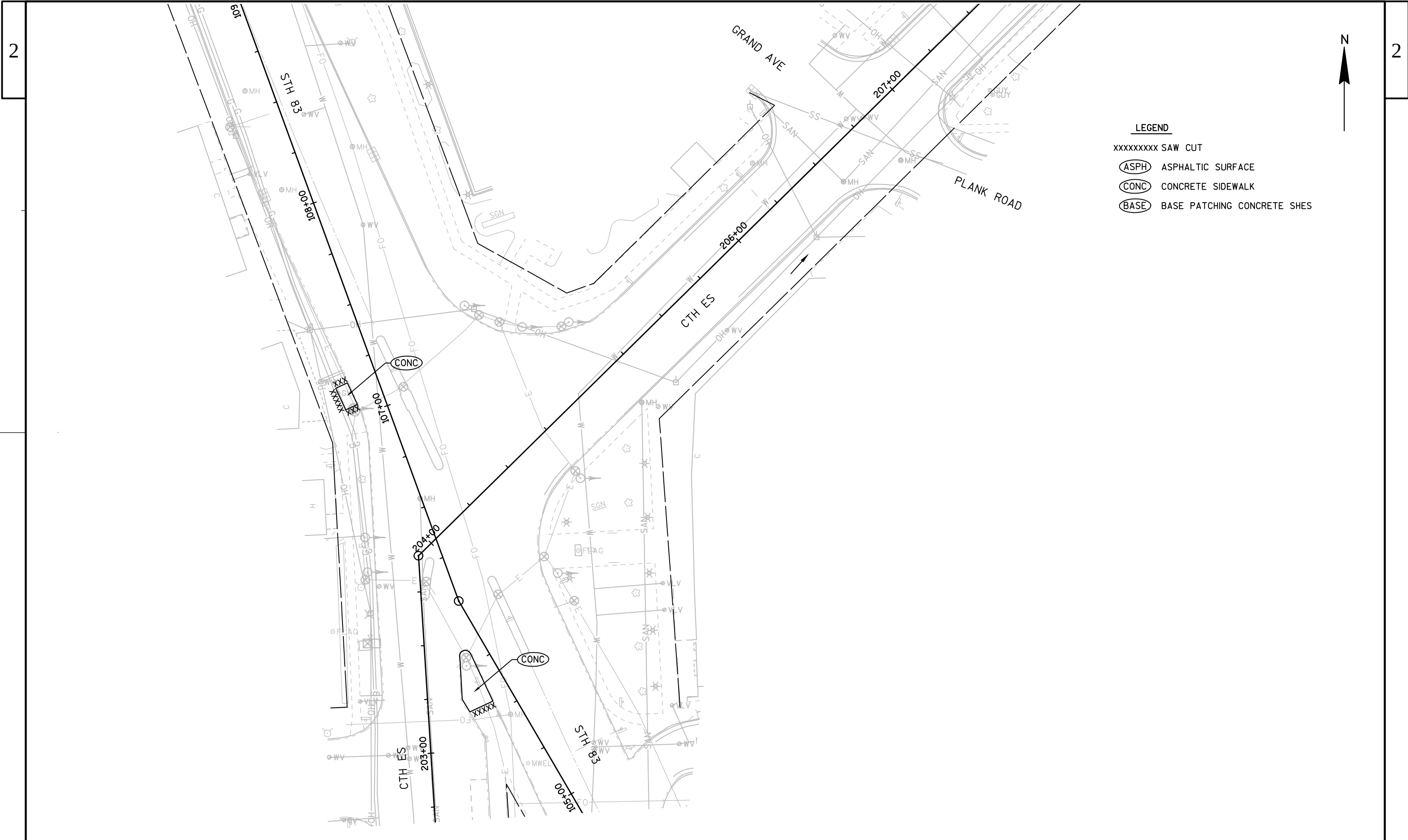
- LEGEND**
- xxxxxxx SAW CUT
 - (ASPH) ASPHALTIC SURFACE
 - (CONC) CONCRETE SIDEWALK
 - (BASE) BASE PATCHING CONCRETE SHES

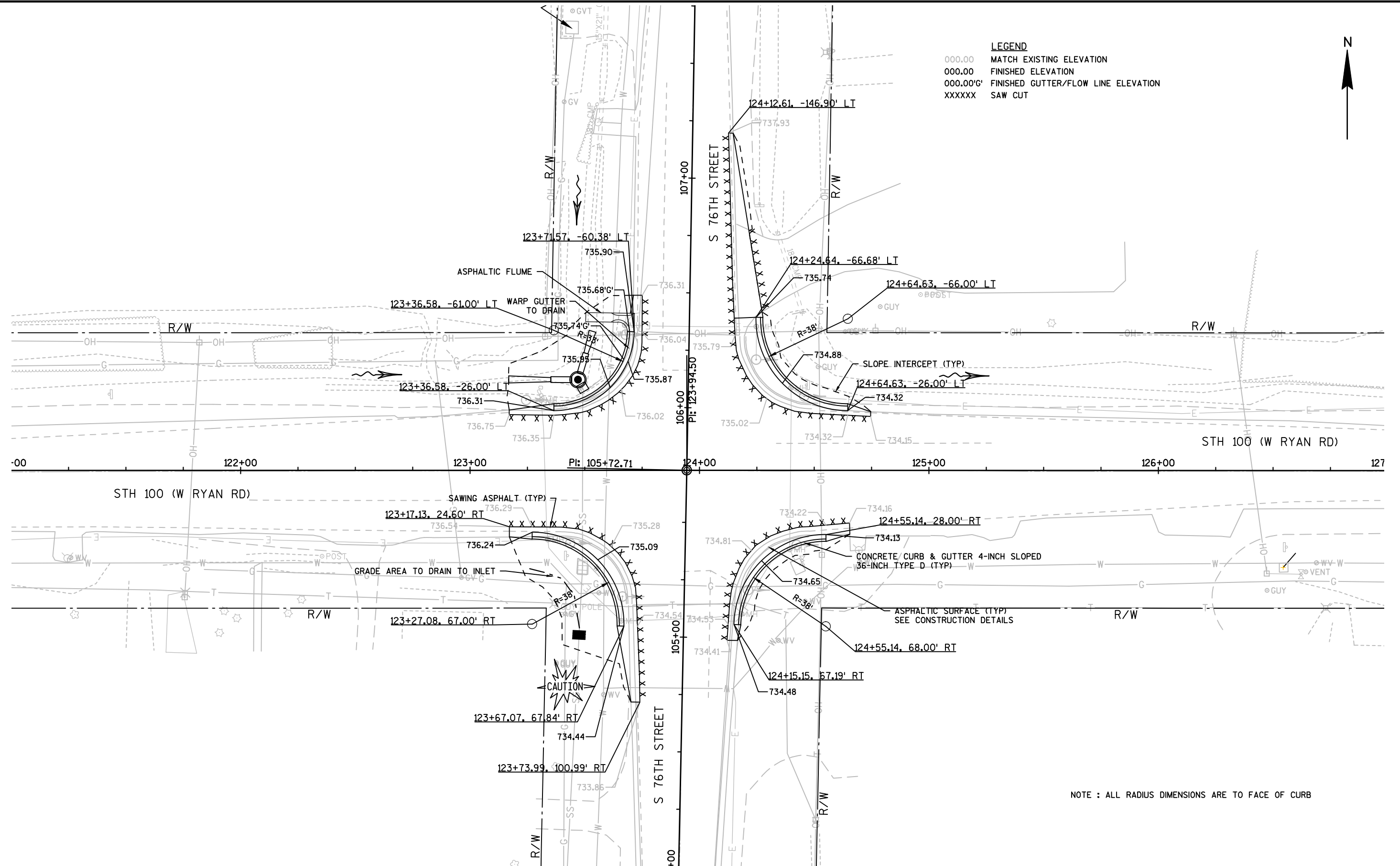


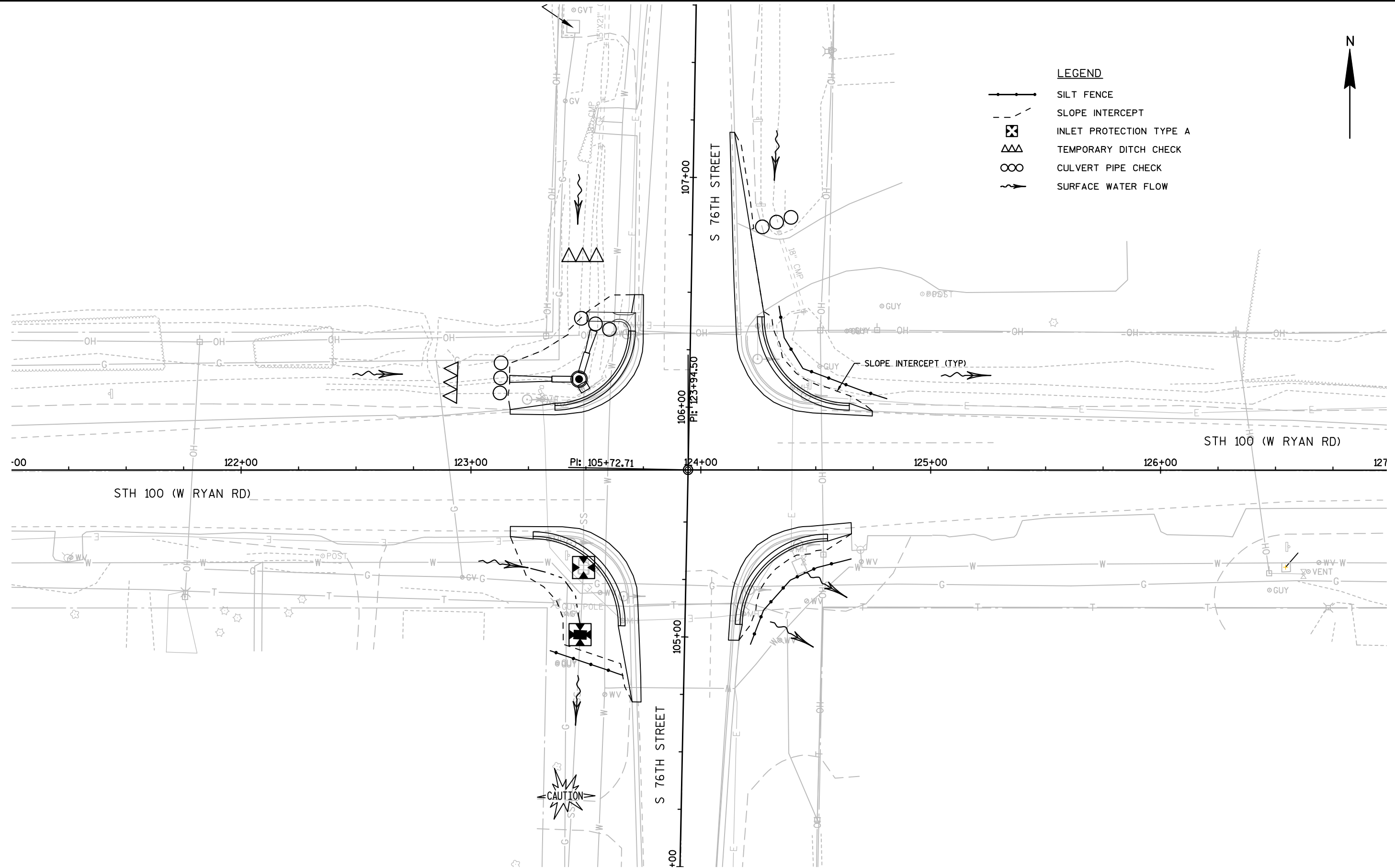
LEGEND

- xxxxxxx SAW CUT
- (ASPH) ASPHALTIC SURFACE
- (CONC) CONCRETE SIDEWALK
- (BASE) BASE PATCHING CONCRETE SHES

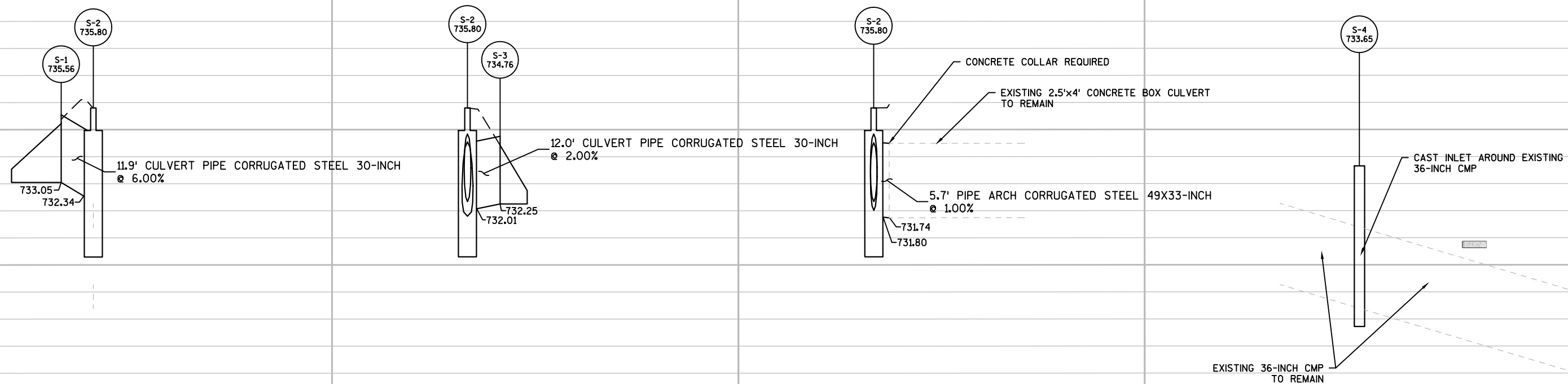
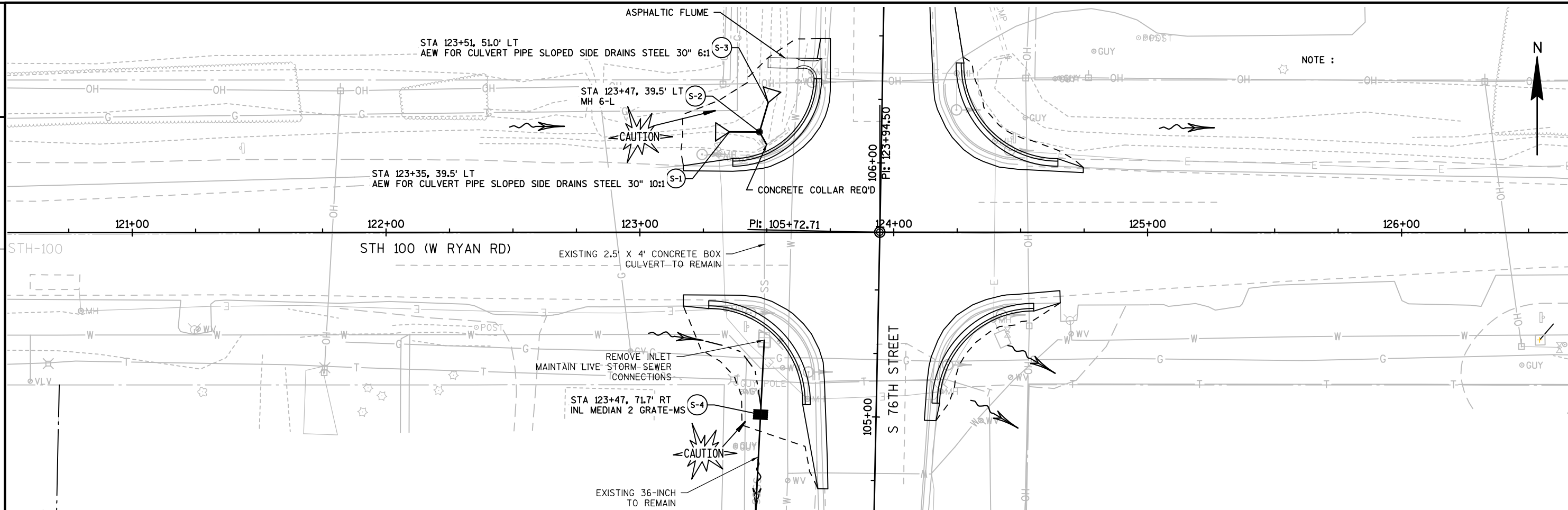








2



PROJECT NO:3700-20-74

HWY: VARIOUS HIGHWAYS

COUNTY: MILWAUKEE

STORM SEWER - STH 100 (RYAN ROAD) & S 76TH STREET

SHEET 13

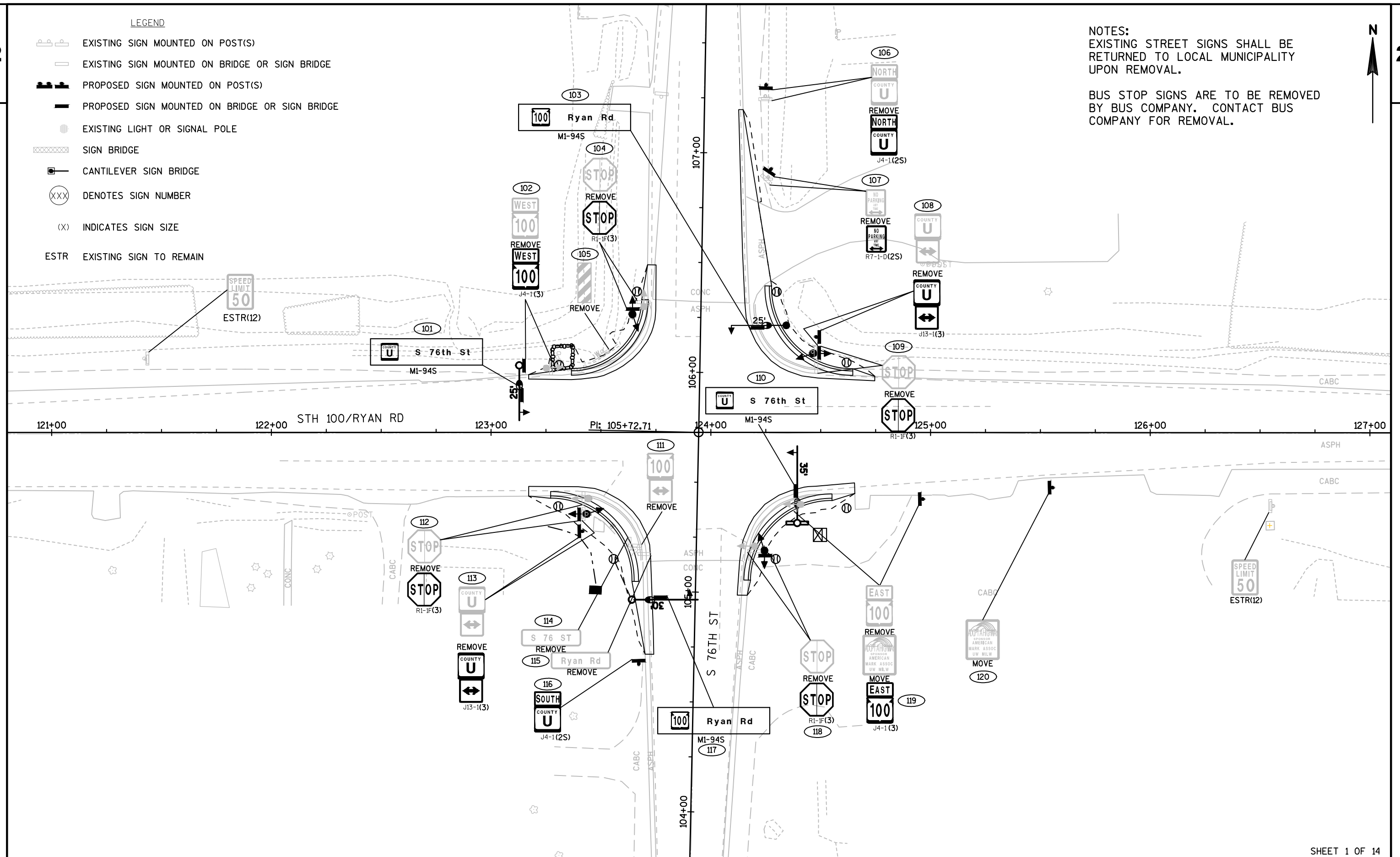
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LEGEND

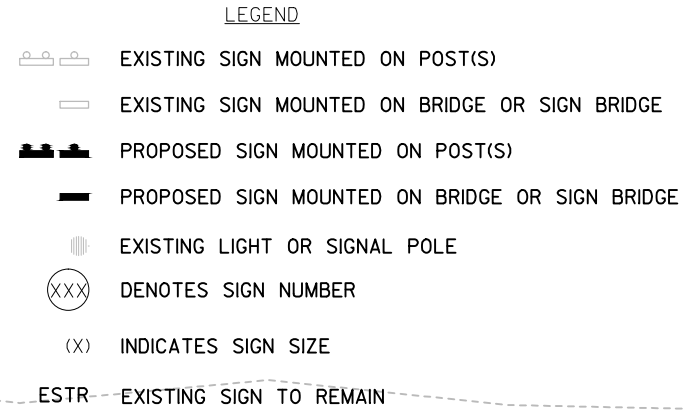
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EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
PROPOSED SIGN MOUNTED ON POST(S)
PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
EXISTING LIGHT OR SIGNAL POLE
SIGN BRIDGE
CANTILEVER SIGN BRIDGE
DENOTES SIGN NUMBER
(X) INDICATES SIGN SIZE
ESTR EXISTING SIGN TO REMAIN

NOTES:
EXISTING STREET SIGNS SHALL BE
RETURNED TO LOCAL MUNICIPALITY
UPON REMOVAL.

BUS STOP SIGNS ARE TO BE REMOVED
BY BUS COMPANY. CONTACT BUS
COMPANY FOR REMOVAL.



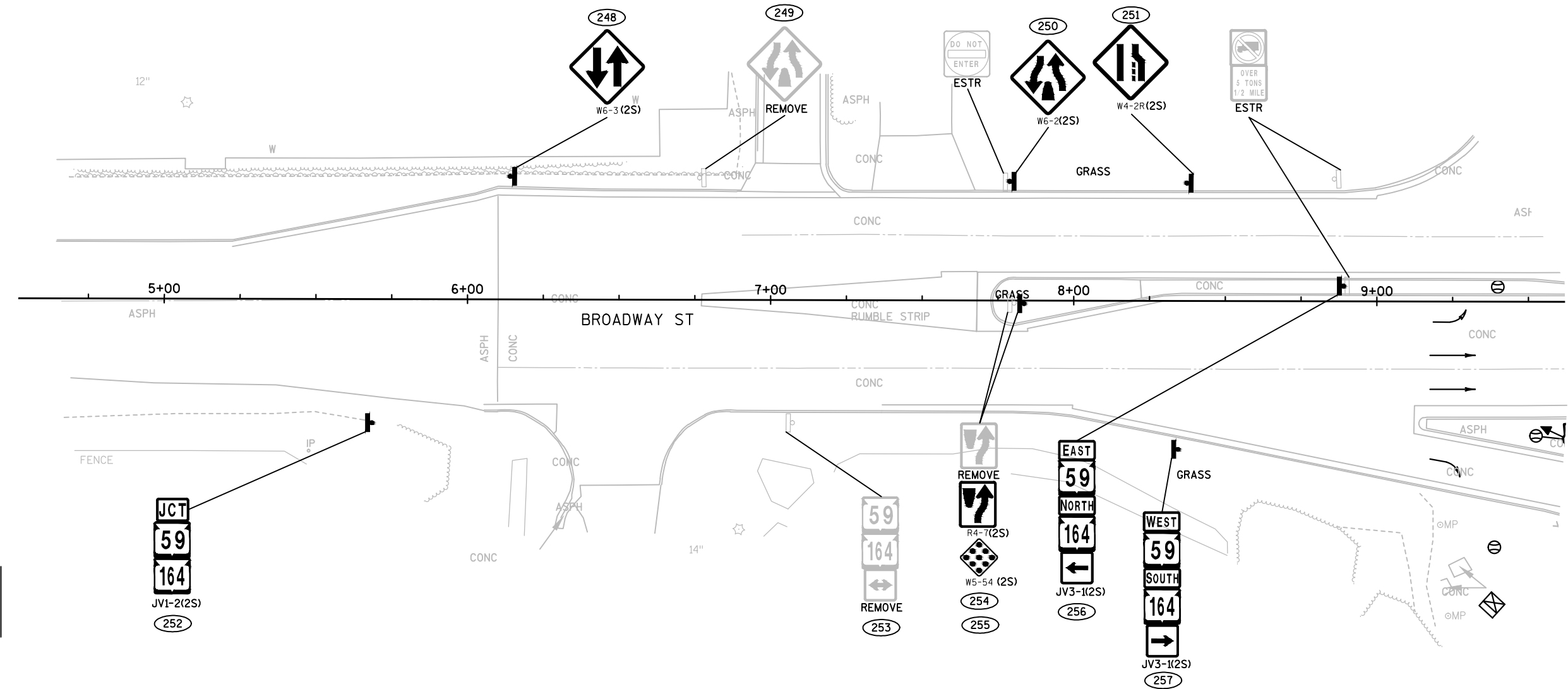






LEGEND

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- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- EXISTING LIGHT OR SIGNAL POLE
- DENOTES SIGN NUMBER
- INDICATES SIGN SIZE
- ESTR EXISTING SIGN TO REMAIN

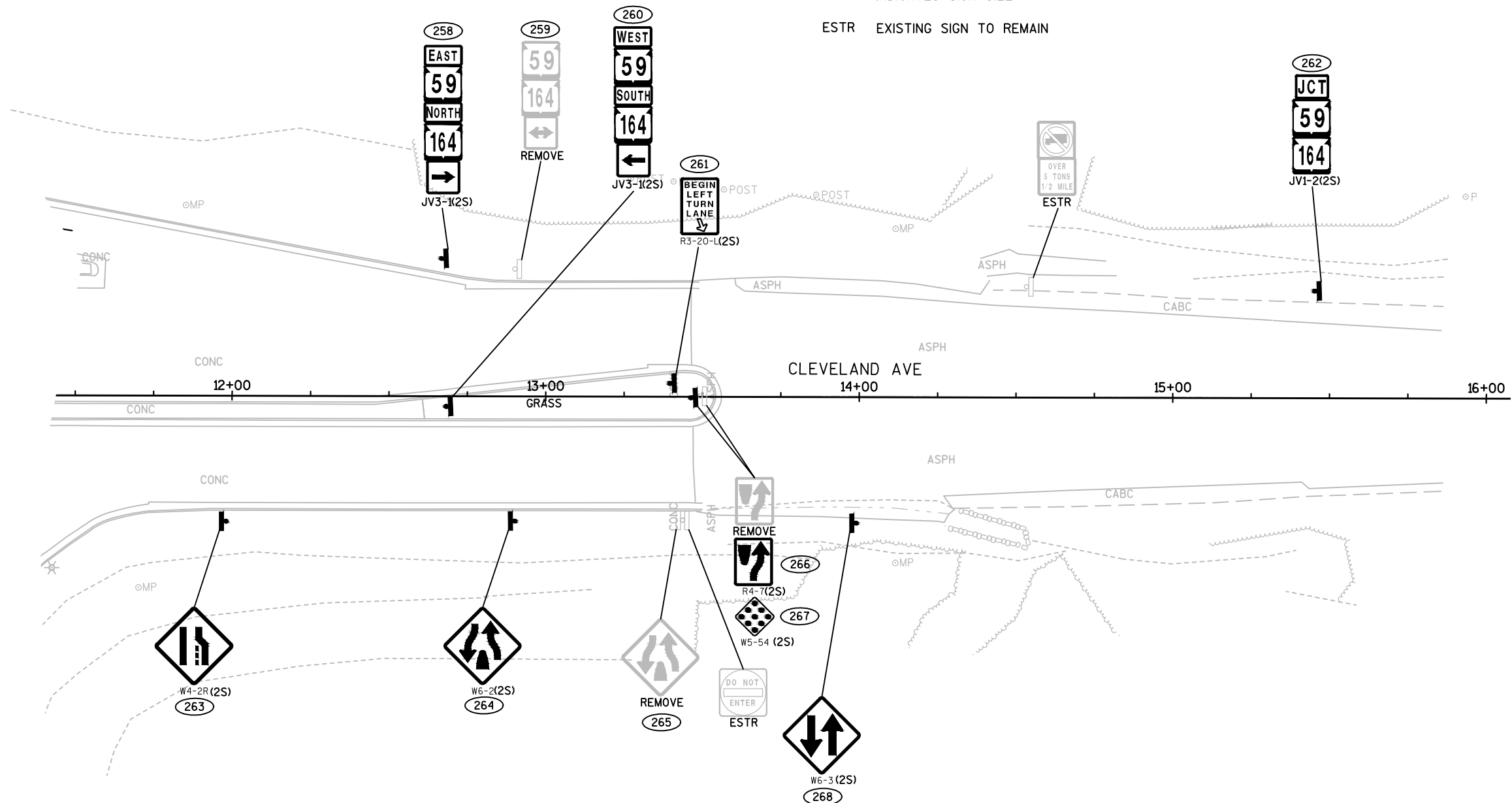




LEGEND

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 PROPOSED SIGN MOUNTED ON POST(S)
 PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
 EXISTING LIGHT OR SIGNAL POLE
 DENOTES SIGN NUMBER
 INDICATES SIGN SIZE
ESTR EXISTING SIGN TO REMAIN

9



SHEET 5 OF 14

PROJECT NO: 3700-20-74

HWY: STH 59 @ CTH D

COUNTY: WAUKESHA

PERMANENT SIGNING

SHEET 18

E

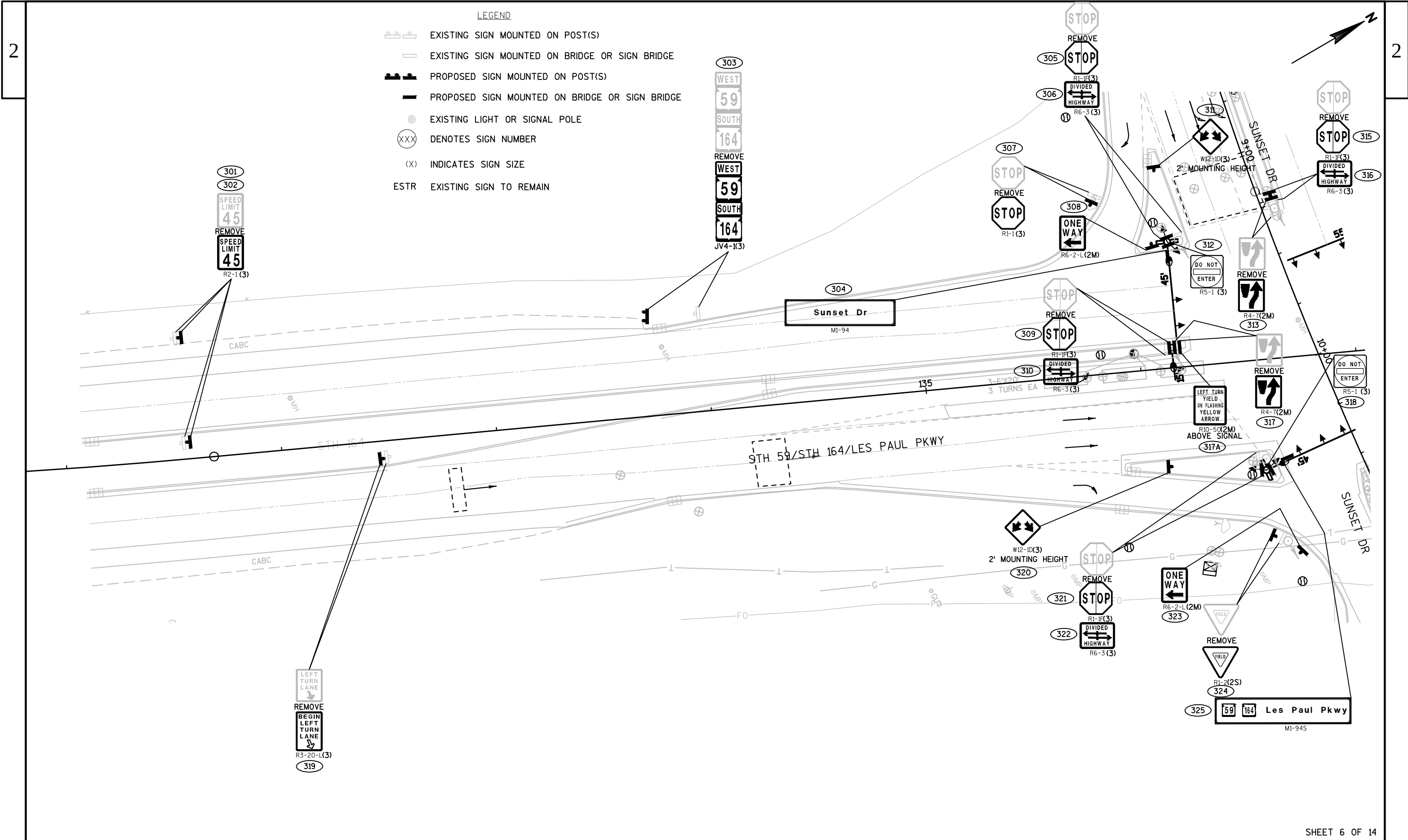
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LAYOUT NAME - 023211_PS

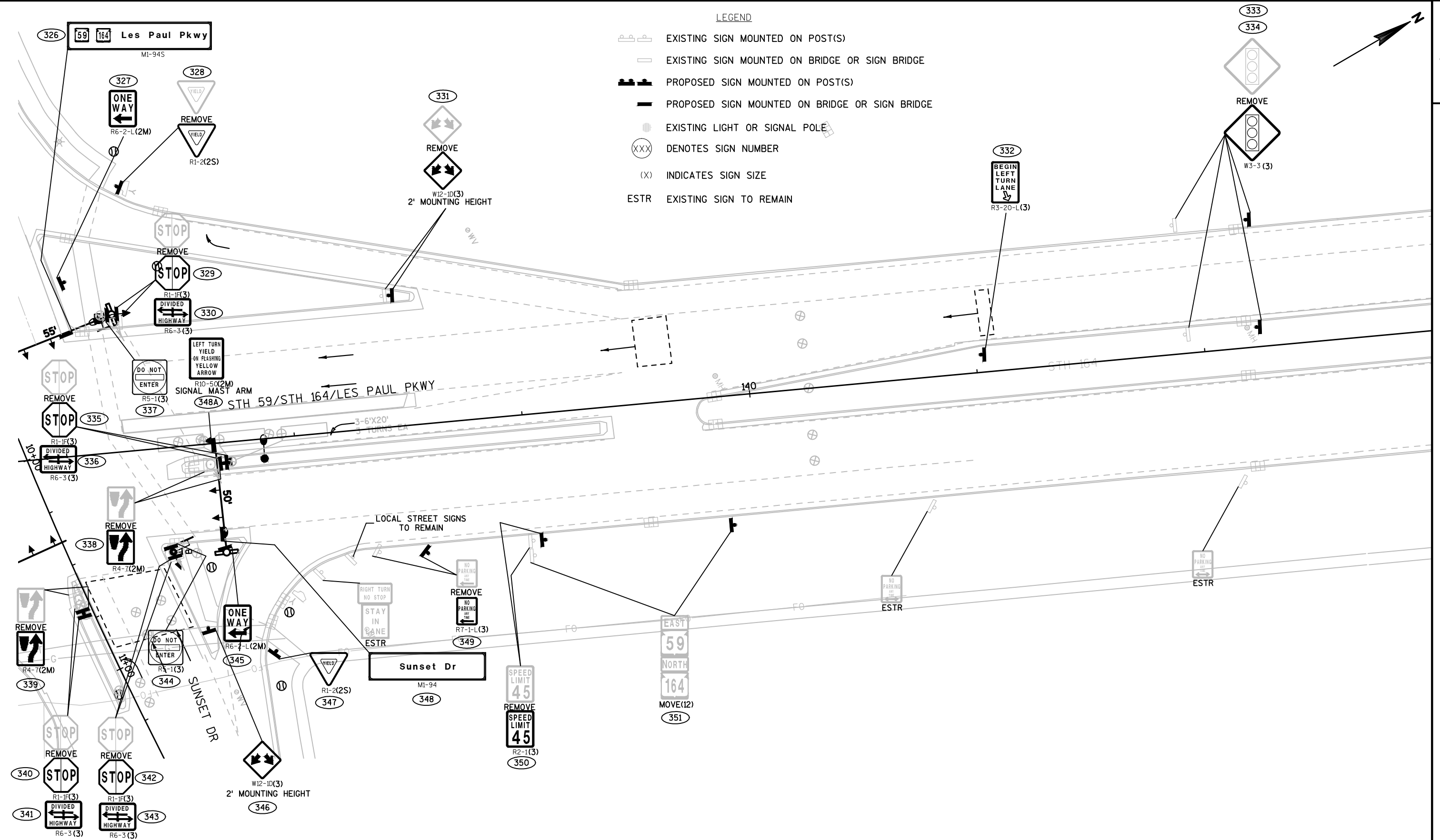
PLOT DATE : 1/26/2015 11:50 AM

PLOT BY : WALKER, KRISTINE V PLOT NAME :

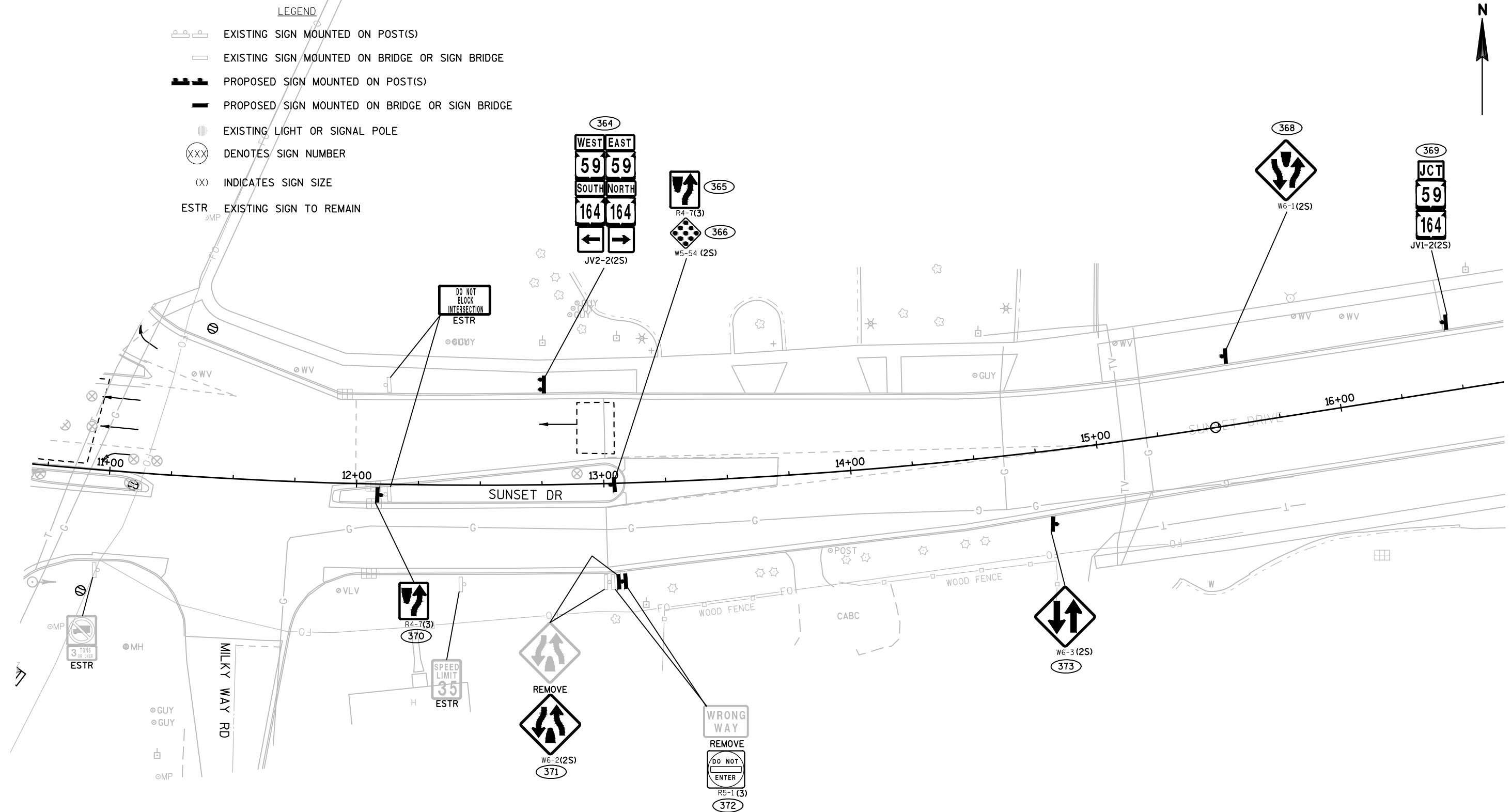
PLOT SCALE : 1 IN:40 FT

WISDOT/CADDs SHEET 42





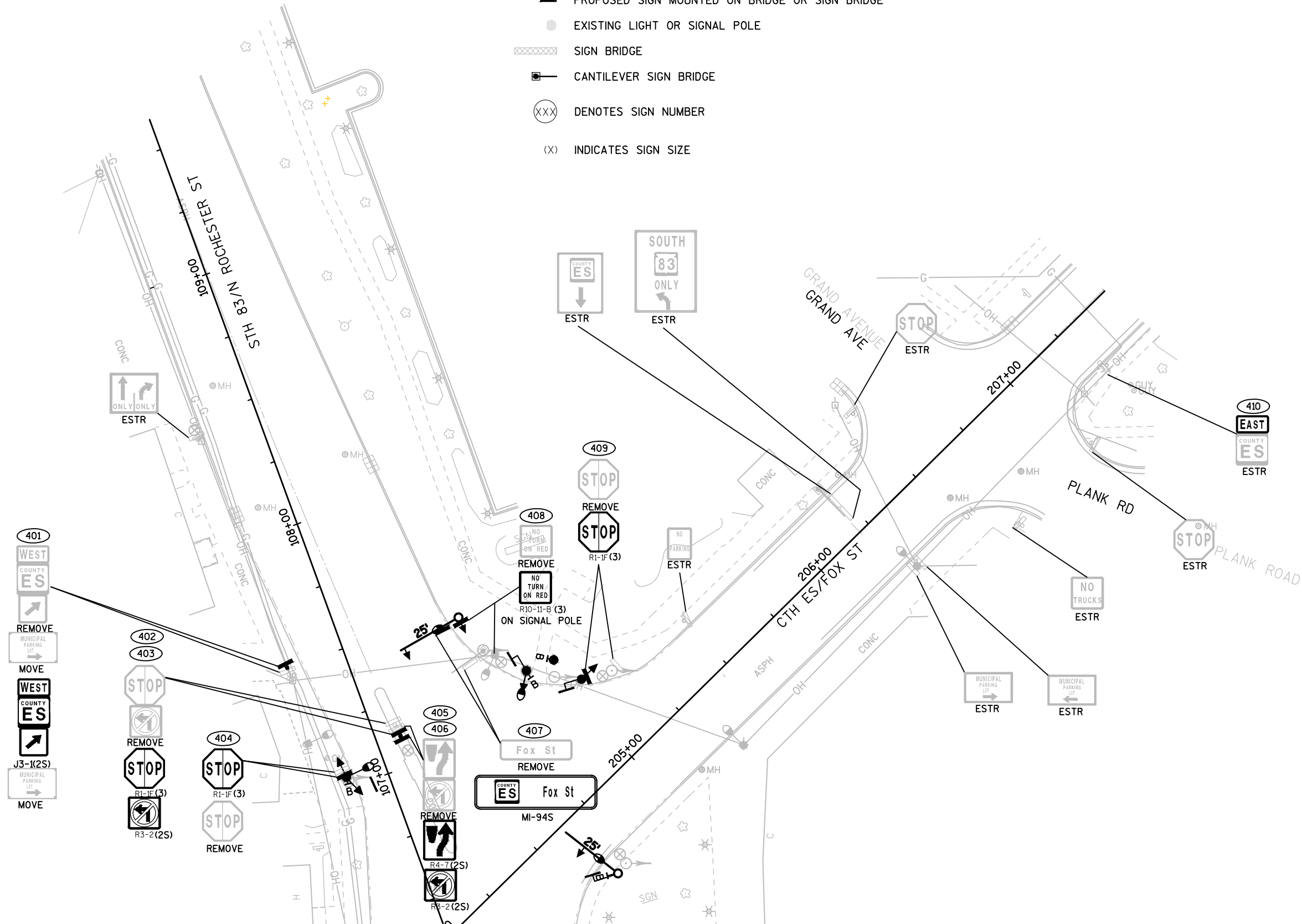


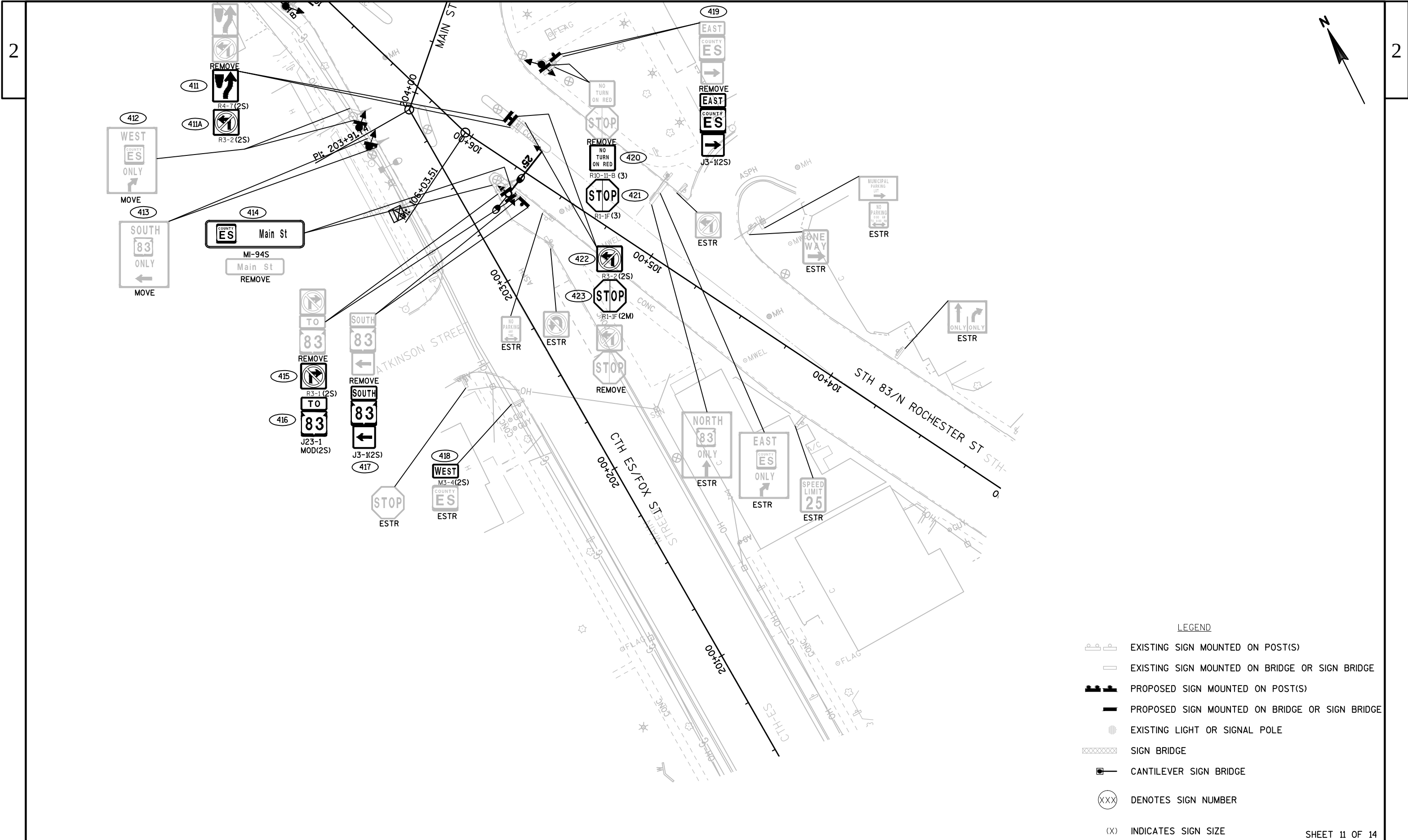




LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- EXISTING LIGHT OR SIGNAL POLE
- SIGN BRIDGE
- CANTILEVER SIGN BRIDGE
- DENOTES SIGN NUMBER
- INDICATES SIGN SIZE



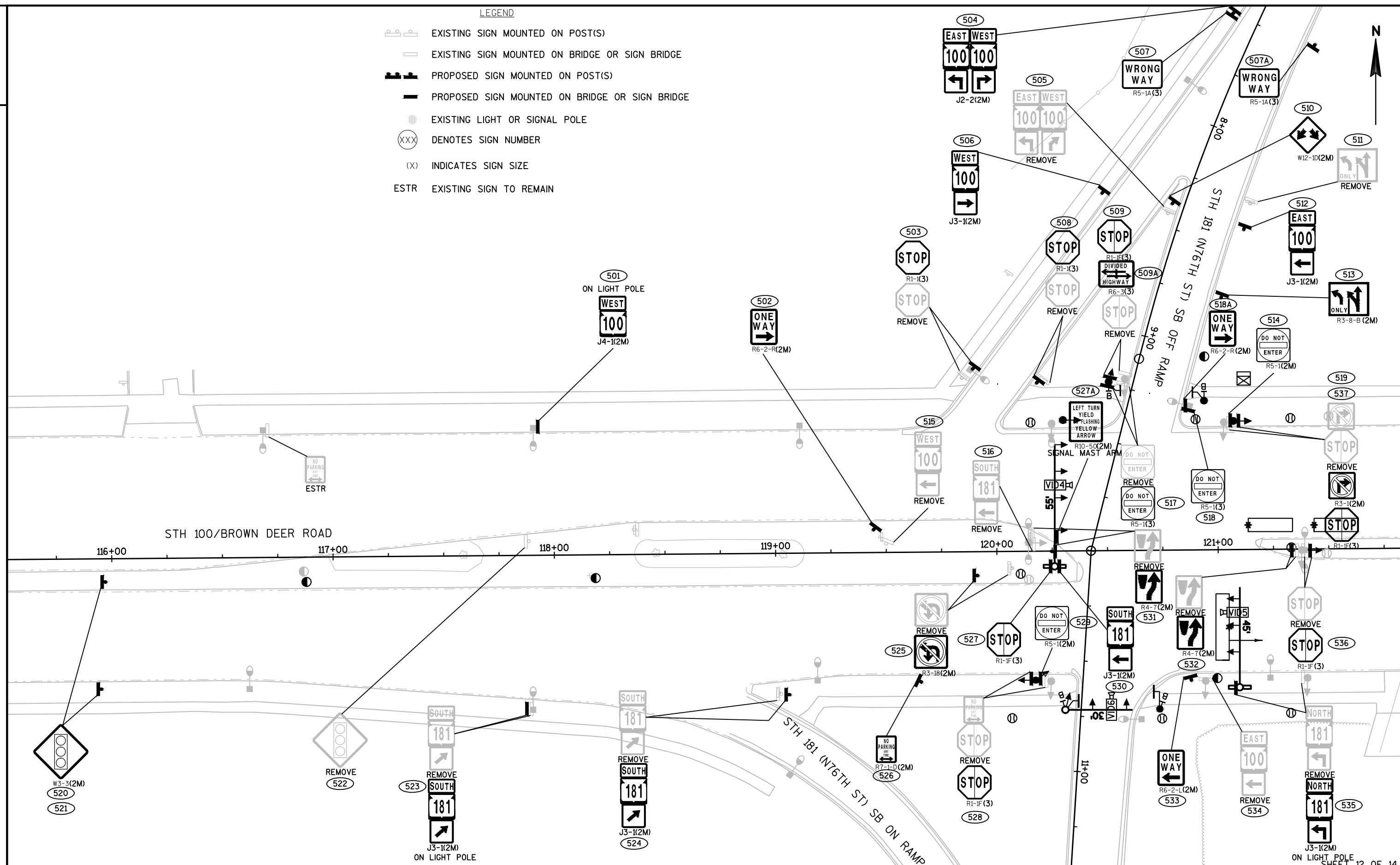


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- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
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- SIGN BRIDGE
- CANTILEVER SIGN BRIDGE
- DENOTES SIGN NUMBER
- INDICATES SIGN SIZE

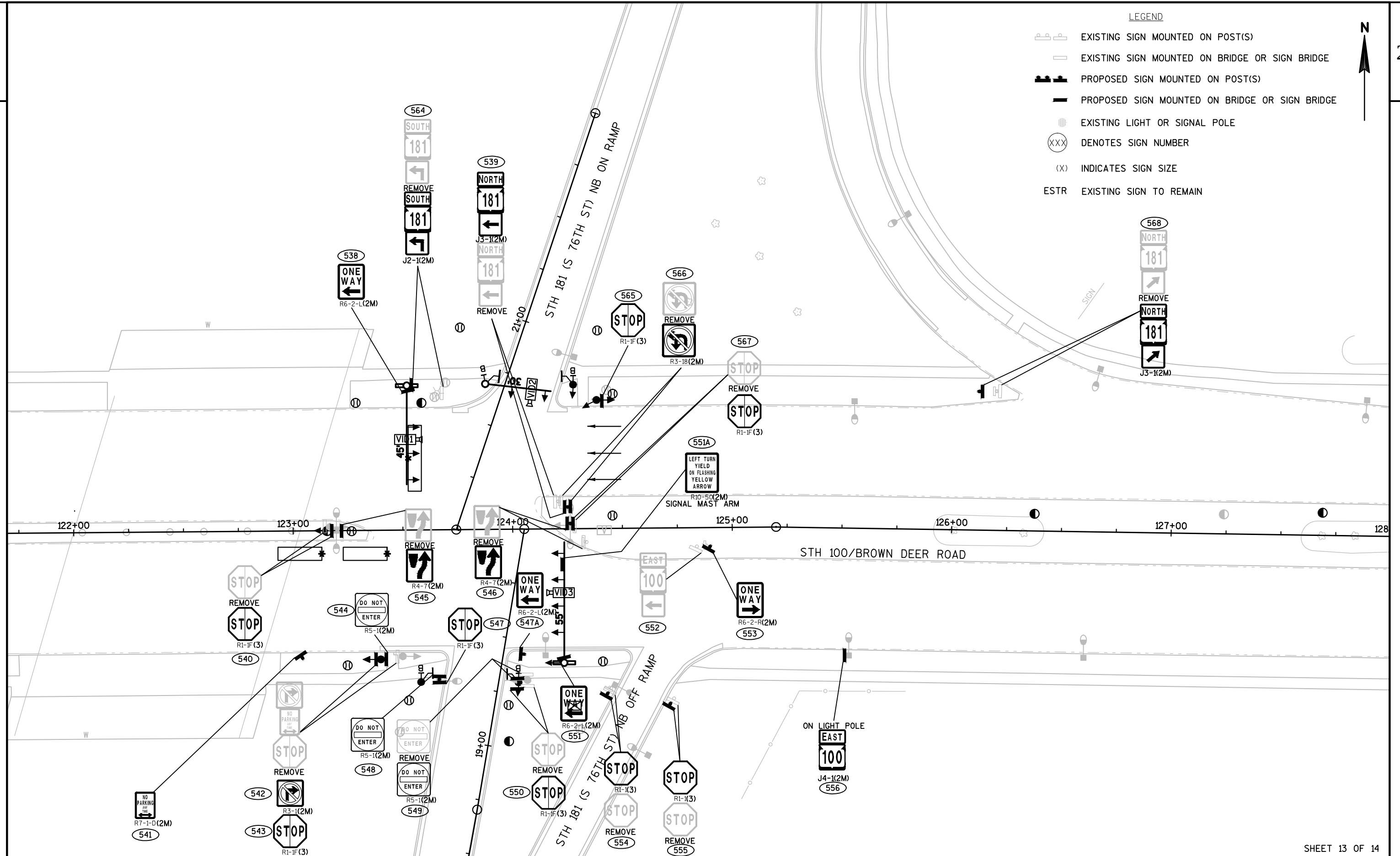
SHEET 11 OF 14

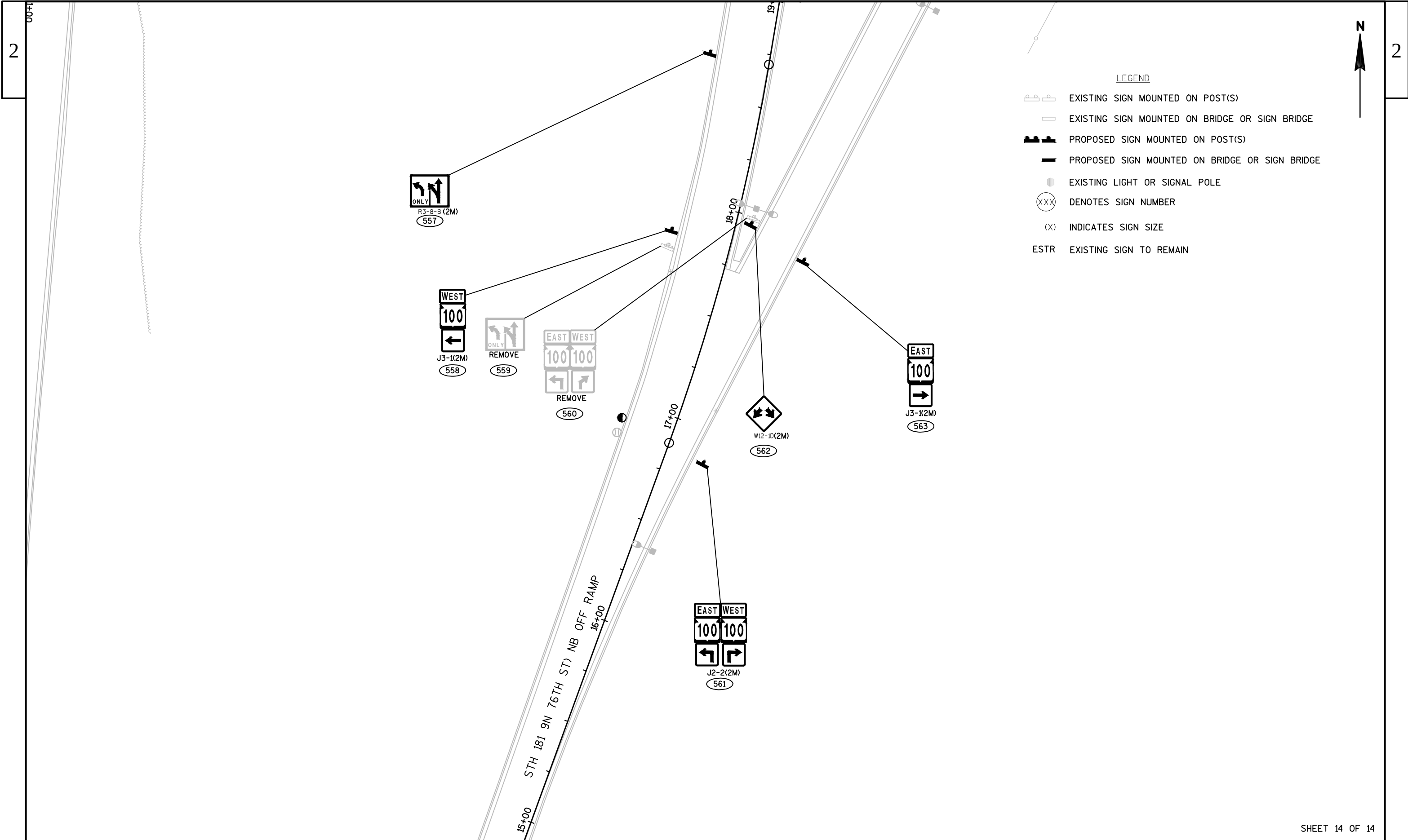
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	PROPOSED SIGN MOUNTED ON POST(S)
	PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
	EXISTING LIGHT OR SIGNAL POLE
	DENOTES SIGN NUMBER
(X)	INDICATES SIGN SIZE
ESTR	EXISTING SIGN TO REMAIN



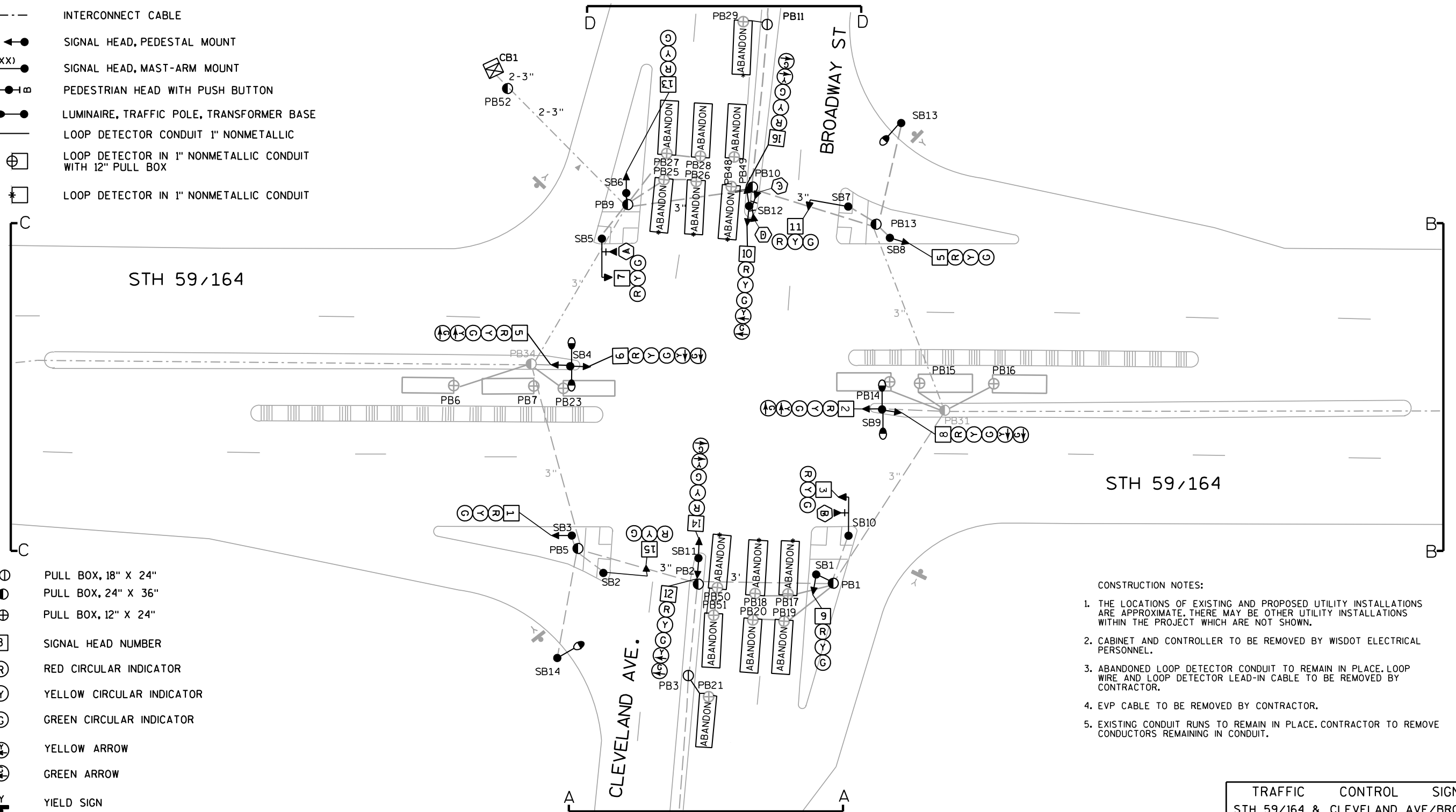
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- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- EXISTING LIGHT OR SIGNAL POLE
- DENOTES SIGN NUMBER
- INDICATES SIGN SIZE
- EXISTING SIGN TO REMAIN

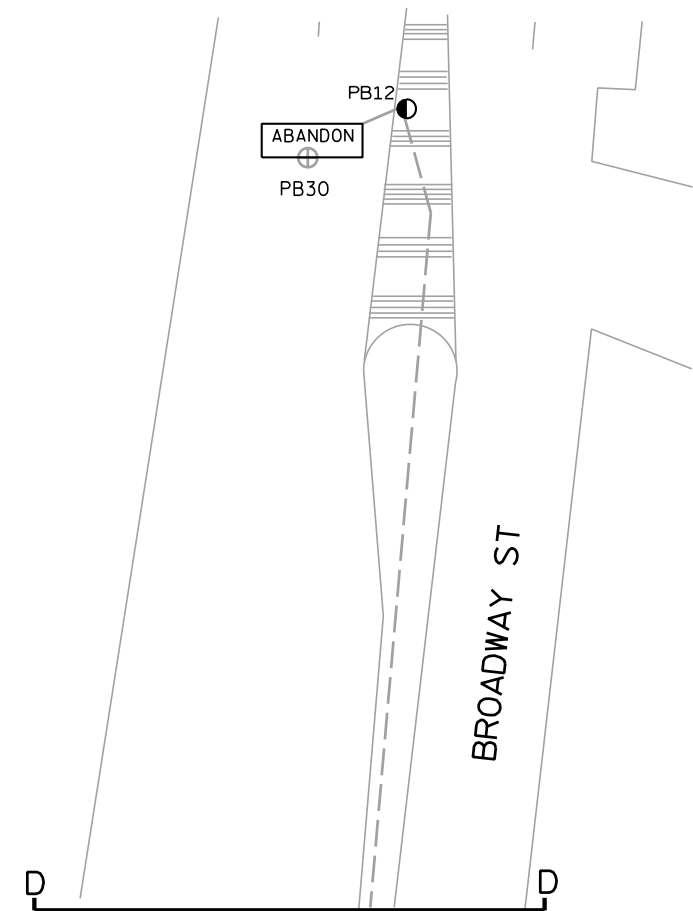
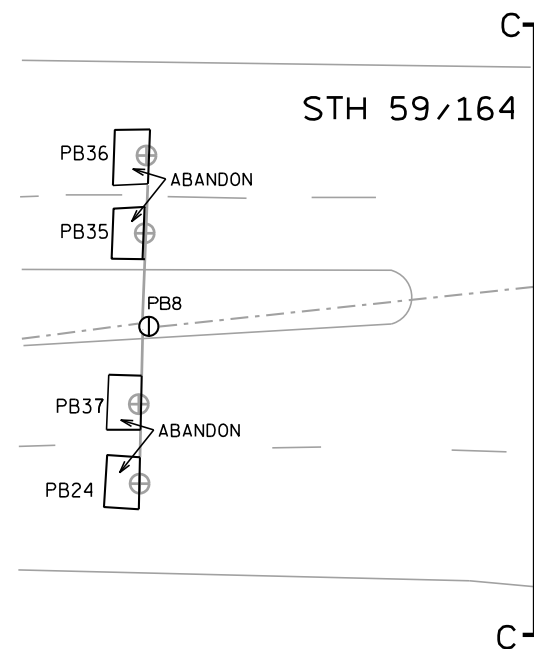
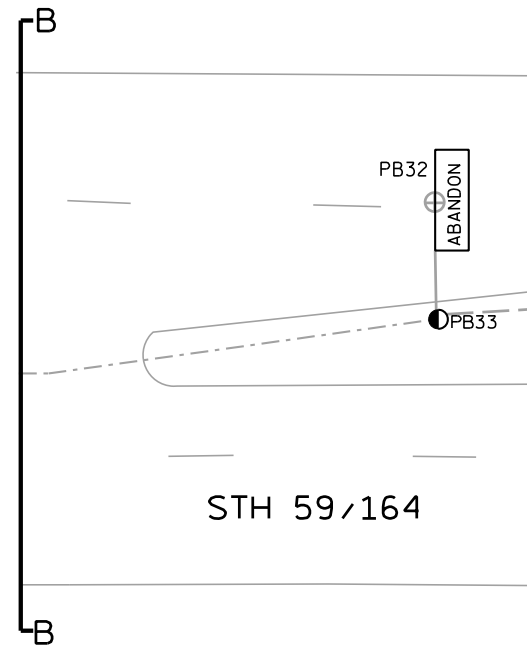
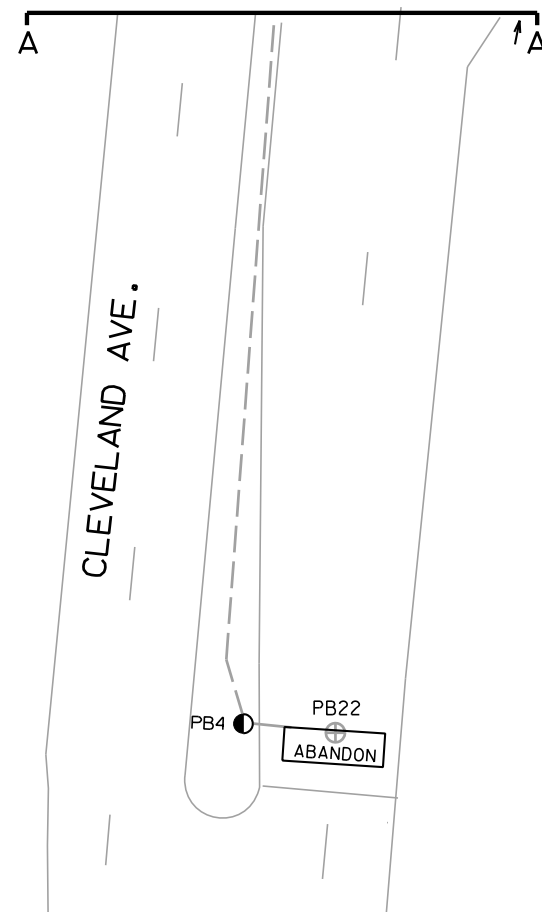




- NOTE: GRAYSHADE REPRESENTS EXISTING
BOLD REPRESENTS ITEMS TO BE REMOVED



- | | |
|--|-------------|
| TRAFFIC CONTROL SIGNAL | |
| STH 59/164 & CLEVELAND AVE/BROADWAY ST | |
| CITY OF WAUKESHA | |
| WAUKESHA COUNTY | |
| SIGNAL NO. S67-0297 | |
| REGION CONTACT: JARRETT GATES | PAGE 1 OF 2 |
| DESIGNED BY: | |
| REVISED BY: R.A.SMITH NATIONAL | |

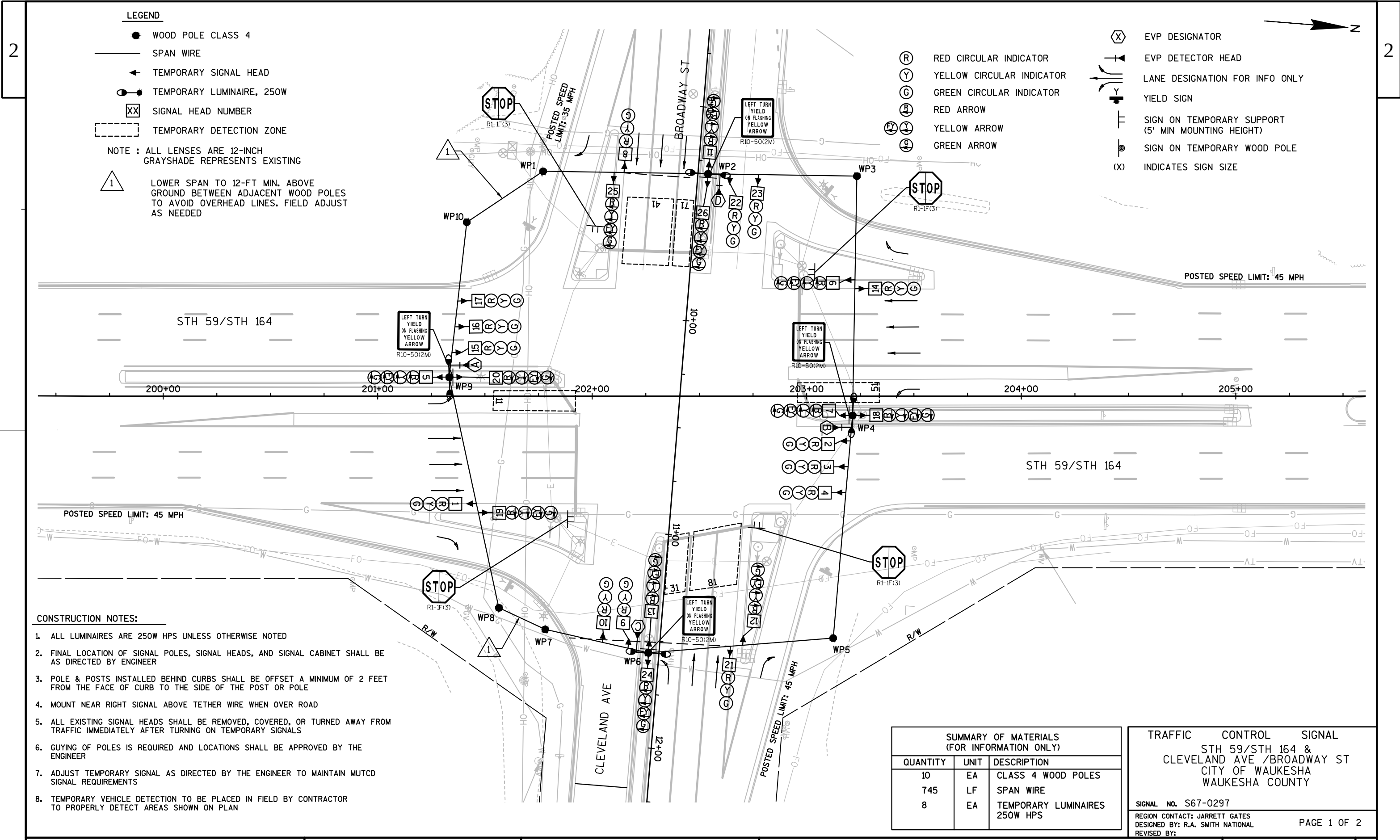


TRAFFIC CONTROL SIGNAL
STH 59/164 & CLEVELAND AVE/BROADWAY ST
CITY OF WAUKESHA
WAUKESHA COUNTY

SIGNAL NO. S67-0297

REGION CONTACT: JARRETT GATES
DESIGNED BY:
REVISED BY: R.A. SMITH NATIONAL

PAGE 2 OF 2



LEGEND

- WOOD POLE CLASS 4
- SPAN WIRE
- TEMPORARY SIGNAL HEAD
- TEMPORARY LUMINAIRE, 250W
- SIGNAL HEAD NUMBER
- TEMPORARY DETECTION ZONE

NOTE : ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

LOWER SPAN TO 12-FT MIN. ABOVE
GROUND BETWEEN ADJACENT WOOD POLES
TO AVOID OVERHEAD LINES. FIELD ADJUST
AS NEEDED

- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW

- EVP DESIGNATOR
- EVP DETECTOR HEAD
- LANE DESIGNATION FOR INFO ONLY
- YIELD SIGN
- SIGN ON TEMPORARY SUPPORT
(5' MIN MOUNTING HEIGHT)
- SIGN ON TEMPORARY WOOD POLE
- INDICATES SIGN SIZE

CONSTRUCTION NOTES:

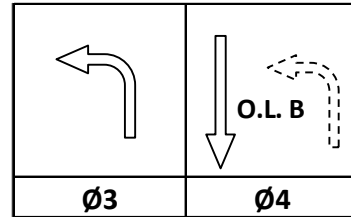
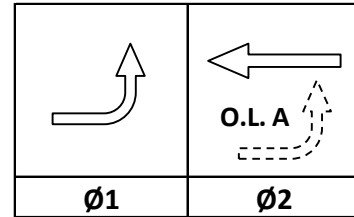
- ALL LUMINAIRES ARE 250W HPS UNLESS OTHERWISE NOTED
- FINAL LOCATION OF SIGNAL POLES, SIGNAL HEADS, AND SIGNAL CABINET SHALL BE AS DIRECTED BY ENGINEER
- POLE & POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE
- MOUNT NEAR RIGHT SIGNAL ABOVE TETHER WIRE WHEN OVER ROAD
- ALL EXISTING SIGNAL HEADS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM TRAFFIC IMMEDIATELY AFTER TURNING ON TEMPORARY SIGNALS
- GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER
- ADJUST TEMPORARY SIGNAL AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS
- TEMPORARY VEHICLE DETECTION TO BE PLACED IN FIELD BY CONTRACTOR TO PROPERLY DETECT AREAS SHOWN ON PLAN

SUMMARY OF MATERIALS (FOR INFORMATION ONLY)		
QUANTITY	UNIT	DESCRIPTION
10	EA	CLASS 4 WOOD POLES
745	LF	SPAN WIRE
8	EA	TEMPORARY LUMINAIRES 250W HPS

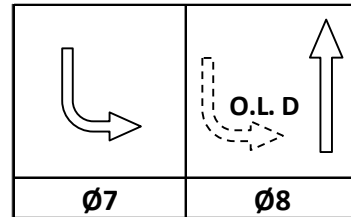
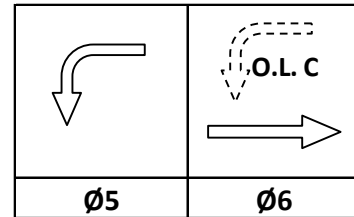
TRAFFIC CONTROL SIGNAL STH 59/STH 164 & CLEVELAND AVE /BROADWAY ST CITY OF WAUKESHA WAUKESHA COUNTY
SIGNAL NO. S67-0297
REGION CONTACT: JARRETT GATES DESIGNED BY: R.A. SMITH NATIONAL REVISED BY:
PAGE 1 OF 2

	HEAD NUMBERS	F L A S H
Ø1	5, 6, 7	--
Ø2	14, 15, 16, 17	R
Ø3	24, 25, 26	--
Ø4	8, 9, 10	R
Ø5	18, 19, 20	--
Ø6	1, 2, 3, 4	R
Ø7	11, 12, 13	--
Ø8	21, 22, 23	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLA	5, 6, 7	
OLB	24, 25, 26	
OLC	18, 19, 20	
OLD	11, 12, 13	

RING 1



RING 2



BARRIER

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MAX	X
3		8		X
4		8		X
5		2		X
6	X	2	MAX	X
7		4		X
8		4		X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+7	8+3

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+7 OR 8+3, CONTROLLER SHALL RETURN TO PHASES 4+8.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER	
CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	31	41	51	71	81		
ASSIGNED PHASE	1	3	4	5	7	8		
OPERATION MODE	VEH	VEH	VEH	VEH	VEH	VEH		
SWITCH								
EXTEND								
DELAY								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)								
ASSIGNED PHASE								
OPERATION MODE								
SWITCH								
EXTEND								
DELAY								

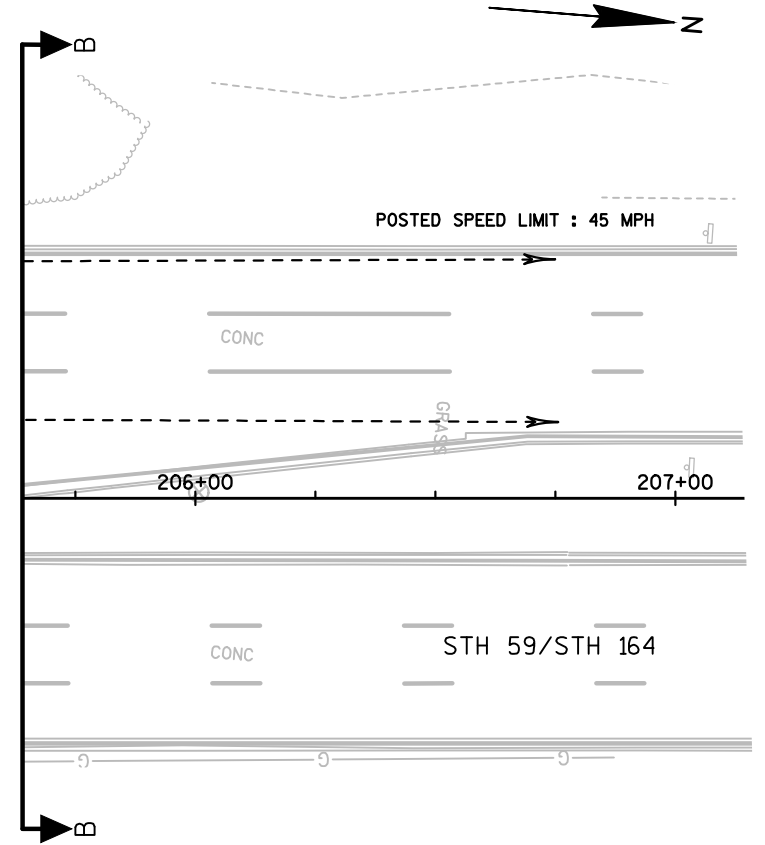
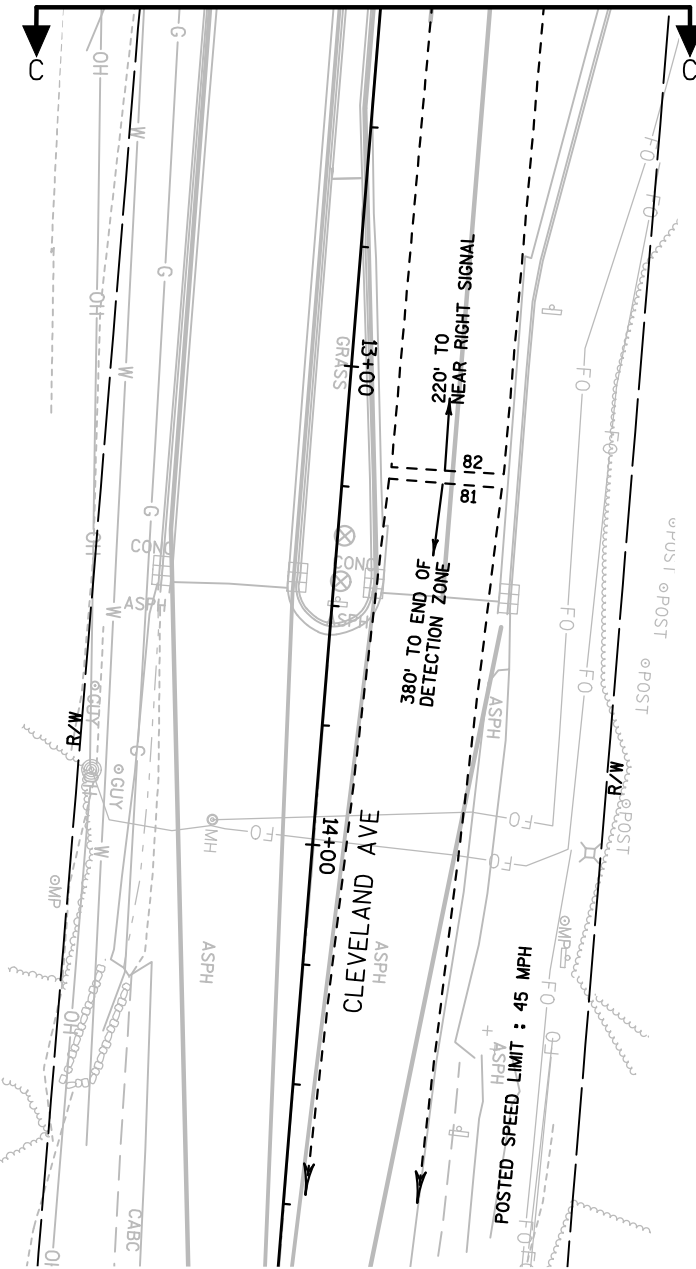
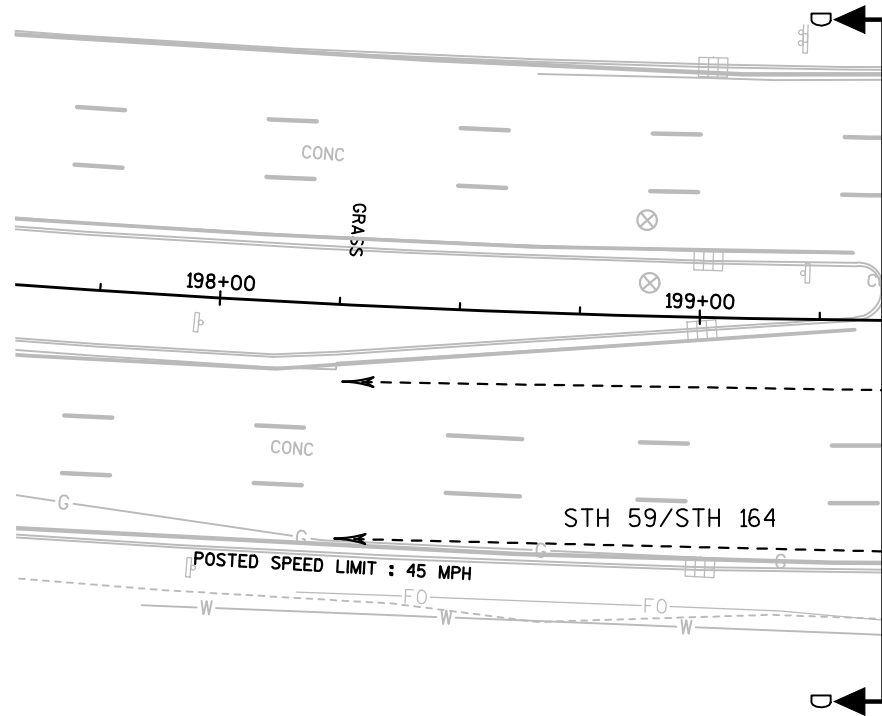
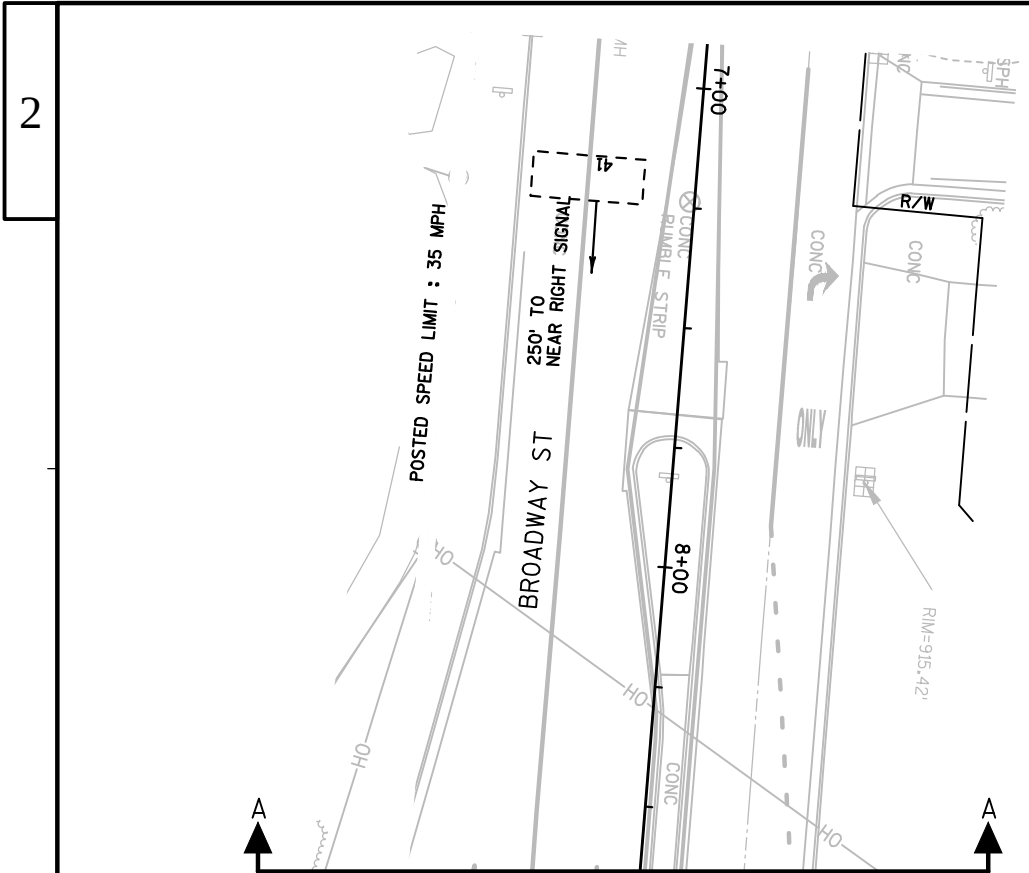
DETECTOR INPUT	19	17	23	21	27	25	31	29
PLAN LOOP DETECTOR*(S)								
ASSIGNED PHASE								
OPERATION MODE								
SWITCH								
EXTEND								
DELAY								

DETECTOR INPUT	20	18	24	22	28	26	32	30
PLAN LOOP DETECTOR*(S)								
ASSIGNED PHASE								
OPERATION MODE								
SWITCH								
EXTEND								
DELAY								

DETECTOR INPUT								
PLAN LOOP DETECTOR*(S)								
ASSIGNED PHASE								
OPERATION MODE								
SWITCH								
EXTEND								
DELAY								

DETECTOR INPUT								
PLAN LOOP DETECTOR*(S)								
ASSIGNED PHASE								
OPERATION MODE								
SWITCH								
EXTEND								
DELAY								

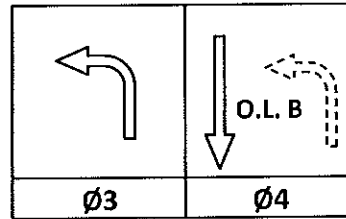
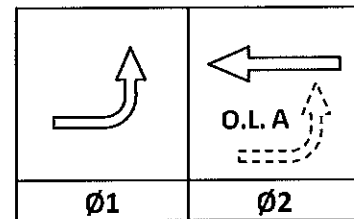
STH 59/STH 164 & CLEVELAND AVE/BROADWAY ST	
CITY OF WAUKESHA	
WAUKESHA COUNTY	
SIGNAL NO: S67-0297	
DATE: FEBRUARY 2015	PAGE NO. 2 OF 2
CONTROLLER TYPE: TEMP	



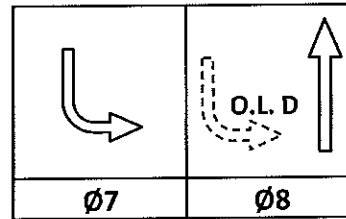
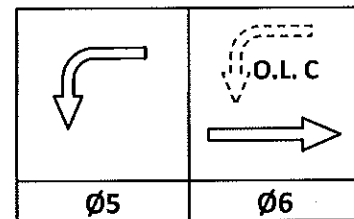
TRAFFIC CONTROL SIGNAL	
STH 59/STH 164 & CLEVELAND AVE / BROADWAY ST	
CITY OF WAUKESHA	
WAUKESHA COUNTY	
SIGNAL NO. S67-0297	CABINET TYPE: TS2 CONTROLLER TYPE: EPAC
REGION CONTACT: JARRETT GATES	
DESIGNED BY: RA SMITH NATIONAL	PAGE 2 OF 3
REVISED BY:	

	HEAD NUMBERS	FLASH
Ø1	5, 6	--
Ø2	12, 13, 14, 15	R
Ø3	21, 22	--
Ø4	7, 8, 9	R
Ø5	16, 17	--
Ø6	1, 2, 3, 4	R
Ø7	10, 11	--
Ø8	18, 19, 20	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLA	5, 6	R
OLB	21, 22	R
OLC	16, 17	R
OLD	10, 11	R

RING 1



RING 2



BARRIER

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MIN	X
3		8		X
4		8		X
5		2		X
6	X	2	MIN	X
7		4		X
8		4		X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+7	8+3

AFTER PREEMPTION SEQUENCE 2+5 OR 1+6, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+7 OR 3+8, CONTROLLER SHALL RETURN TO PHASES 4+8.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION

NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER	
CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING

BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT

NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	X
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11/12	51/52					41	71
ASSIGNED PHASE	1	5					4	7
OPERATION MODE	VEH	VEH					VEH	VEH
SWITCH	2	6						8
EXTEND							X	
DELAY								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	13	53					42	
ASSIGNED PHASE	1	5					4	
OPERATION MODE	VEH	VEH					VEH	
SWITCH	2	6						
EXTEND								
DELAY								

19	17	23	21	27	25	31	29
21	31	61	81	83			
2	3	6	8	8			
VEH	VEH	VEH	VEH	VEH			
	4						
X		X	X				

20	18	24	22	28	26	32	30
22		62	82				
2		6	8				
VEH		VEH	VEH				

DETECTOR INPUT
PLAN LOOP DETECTOR*(S)
ASSIGNED PHASE
OPERATION MODE
SWITCH
EXTEND
DELAY

DETECTOR INPUT
PLAN LOOP DETECTOR*(S)
ASSIGNED PHASE
OPERATION MODE
SWITCH
EXTEND
DELAY

STH 59/STH 164 & CLEVELAND AVE/BROADWAY ST	
CITY OF WAUKESHA	
WAUKESHA COUNTY	
SIGNAL NO: S67-0297	CABINET TYPE: TS2
CONTROLLER TYPE: EPAC	
DATE: FEBRUARY 2015	PAGE NO. 3 OF 3

2

2

PROJECT ID:	3700-20-74
INTERSECTION:	STH 59 / STH 164 & CLEVELAND AVE / BROADWAY ST

Signal Wire Color Coding	BLK - black	RED - red	GRN - green
	WHT - white	BLU - blue	ORG - orange

DATE	2/1/15
------	--------

CB1 TO	# OF COND.	HEAD NO.	SIGNAL INDICATION WIRE COLOR								PED BUTTON	OTHER	
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	<FLASHING YELLOW>	D/WALK			WALK
SB1	15	7	RED/BLK	ORG/BLK	GRN/BLK								
		13	RED	ORG	GRN								
		14	RED	ORG	GRN								
		15	RED	ORG	GRN								
		21				RED/WHT	BLU/WHT	GRN/WHT	BLK/WHT				
SB2	15	5				RED	ORG	GRN	BLK/WHT				
		12	RED/BLK	ORG/BLK	GRN/BLK								
		19	RED/WHT	BLU/WHT	GRN/WHT								
		20	RED/WHT	BLU/WHT	GRN/WHT								
		22				RED/BLK	ORG/BLK	GRN/BLK	BLU/BLK				
SB3	7	6				RED	ORG	GRN	WHT/BLK				
SB4	15	2	RED	ORG	GRN								
		3	RED	ORG	GRN								
		4	RED	ORG	GRN								
		10				RED/BLK	ORG/BLK	GRN/BLK	BLK/WHT				
		18	RED/WHT	BLU/WHT	GRN/WHT								
SB5	15	1	RED	ORG	GRN								
		8	RED/WHT	BLU/WHT	GRN/WHT								
		9	RED/WHT	BLU/WHT	GRN/WHT								
		11				BLK	BLU/BLK	WHT/BLK	BLU				
		16				RED/BLK	ORG/BLK	GRN/BLK	BLK/WHT				
SB6	7	17				RED	ORG	GRN	WHT/BLK				

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	CB1

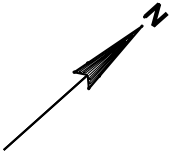
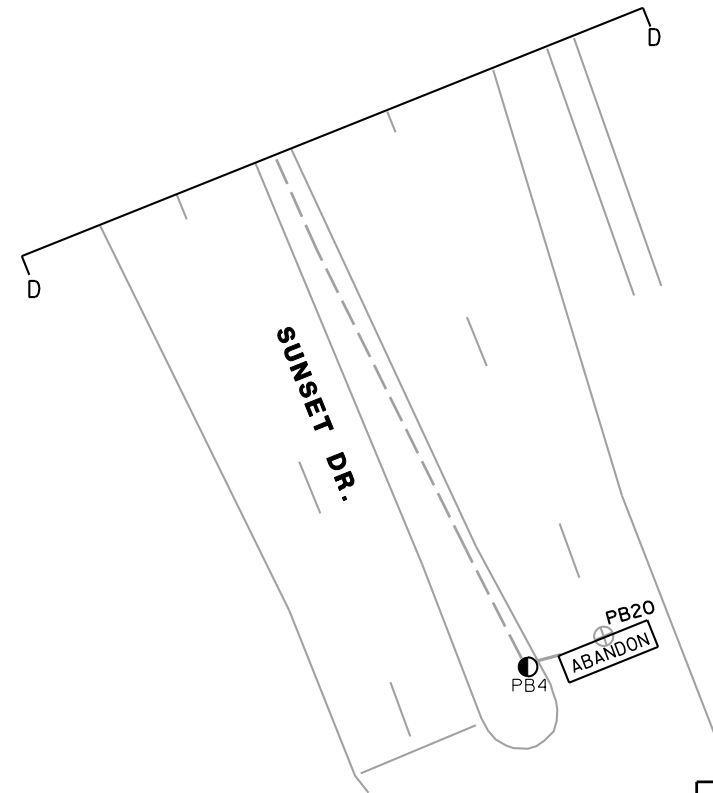
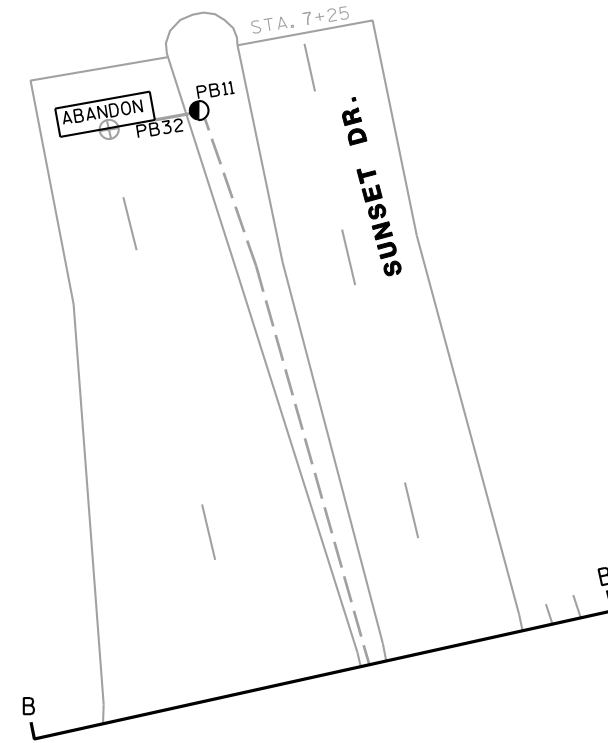
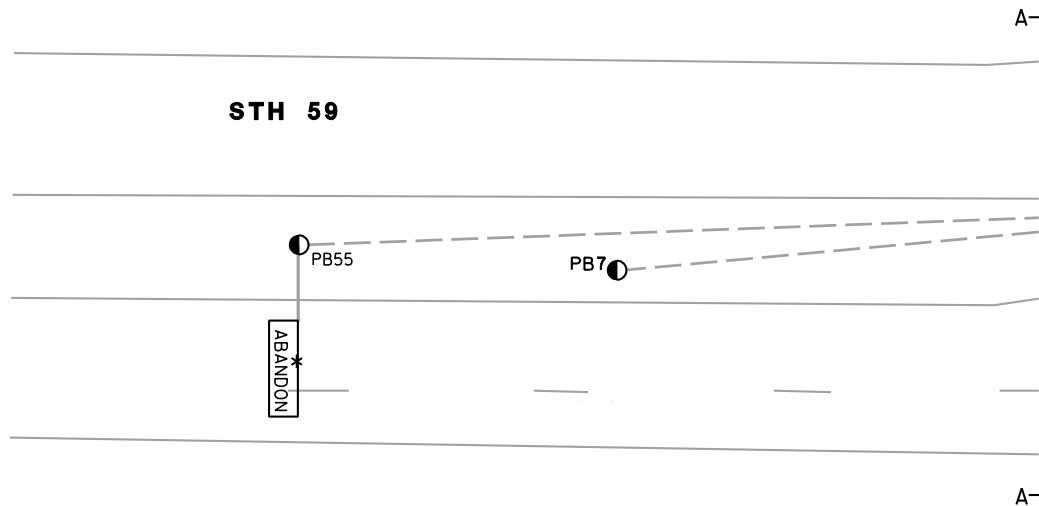
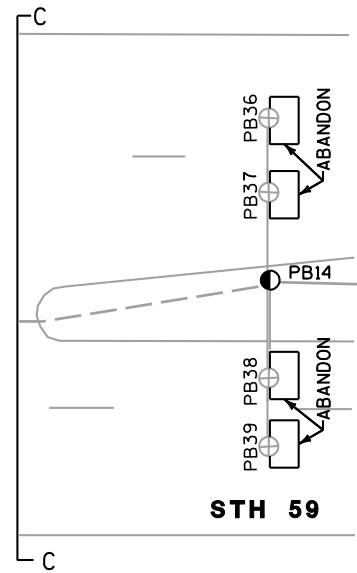
LIGHTING UF #10 AWG W/GROUND	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
CB1	SB6
SB6	SB5
SB5	SB4

PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
PB1	CB1
PB2	SB1
PB3	CB1
PB4	SB2
PB5	SB2
PB6	SB3
PB8	SB4
PB9	SB4
PB10	SB5
PB11	SB5
PB12	SB5
PB13	SB6
PB15	CB1

VIDEO DETECTOR CABLE	
FROM	TO
CB1	VID1 (SB5)

RADAR DETECTOR CABLE	
FROM	TO
CB1	RA1 (SB5)
CB1	RA2 (SB2)
CB1	RA3 (SB4)
CB1	RM1 (SB3)

EMERGENCY VEHICLE PREEMPTION (EVP) CABLE	
From	To
CB1	HEAD A (SB1)
CB1	HEAD B (SB4)
CB1	HEAD C (SB5)
CB1	HEAD D (SB2)



TRAFFIC CONTROL SIGNAL
STH 59 & SUNSET DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY

SIGNAL NO. S67-0299

REGION CONTACT: JARRETT GATES

DESIGNED BY:

REVISED BY: R.A.SMITH NATIONAL

PAGE 2 OF 2

PROJECT NO: 3700-20-74

HWY: STH 59

COUNTY: WAUKESHA

TRAFFIC SIGNAL REMOVAL PLAN

SHEET

38

E

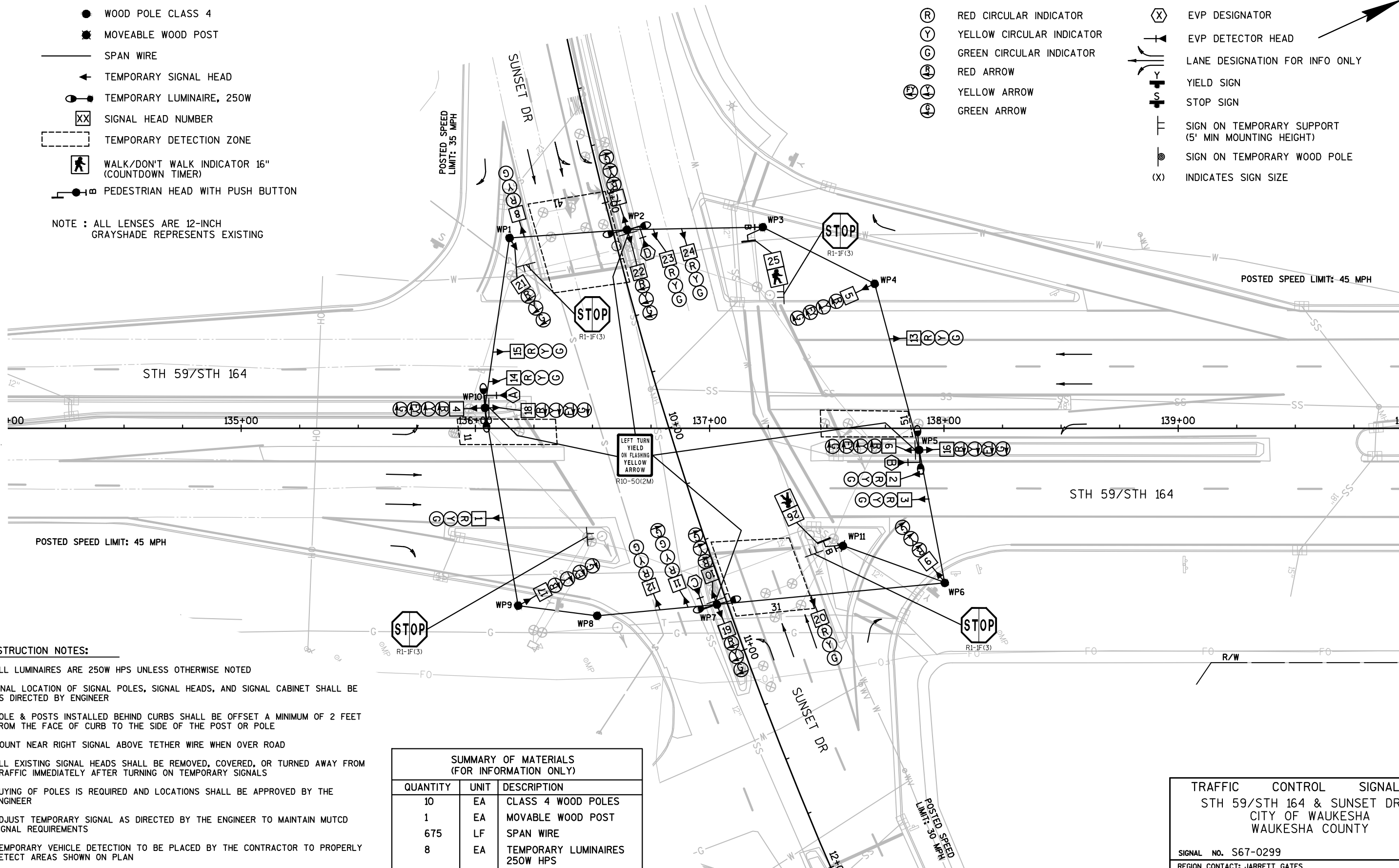
LEGEND

- WOOD POLE CLASS 4
- MOVEABLE WOOD POST
- SPAN WIRE
- ← TEMPORARY SIGNAL HEAD
- TEMPORARY LUMINAIRE, 250W
- XX SIGNAL HEAD NUMBER
- TEMPORARY DETECTION ZONE
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- PEDESTRIAN HEAD WITH PUSH BUTTON

NOTE : ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) YELLOW ARROW
- (G) GREEN ARROW

- (X) EVP DESIGNATOR
- EVP DETECTOR HEAD
- LANE DESIGNATION FOR INFO ONLY
- YIELD SIGN
- STOP SIGN
- SIGN ON TEMPORARY SUPPORT (5' MIN MOUNTING HEIGHT)
- SIGN ON TEMPORARY WOOD POLE
- (X) INDICATES SIGN SIZE



CONSTRUCTION NOTES:

1. ALL LUMINAIRES ARE 250W HPS UNLESS OTHERWISE NOTED
2. FINAL LOCATION OF SIGNAL POLES, SIGNAL HEADS, AND SIGNAL CABINET SHALL BE AS DIRECTED BY ENGINEER
3. POLE & POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE
4. MOUNT NEAR RIGHT SIGNAL ABOVE TETHER WIRE WHEN OVER ROAD
5. ALL EXISTING SIGNAL HEADS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM TRAFFIC IMMEDIATELY AFTER TURNING ON TEMPORARY SIGNALS
6. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER
7. ADJUST TEMPORARY SIGNAL AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS
8. TEMPORARY VEHICLE DETECTION TO BE PLACED BY THE CONTRACTOR TO PROPERLY DETECT AREAS SHOWN ON PLAN

SUMMARY OF MATERIALS (FOR INFORMATION ONLY)		
QUANTITY	UNIT	DESCRIPTION
10	EA	CLASS 4 WOOD POLES
1	EA	MOVABLE WOOD POST
675	LF	SPAN WIRE
8	EA	TEMPORARY LUMINAIRES 250W HPS

TRAFFIC CONTROL SIGNAL
STH 59/STH 164 & SUNSET DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY

SIGNAL NO. S67-0299

REGION CONTACT: JARRETT GATES
DESIGNED BY: R.A. SMITH NATIONAL
REVISED BY:

PAGE 1 OF 2

PROJECT NO: 3700-20-74

HWY: STH 59/STH 164

COUNTY: WAUKESHA

TEMPORARY TRAFFIC SIGNAL PLAN

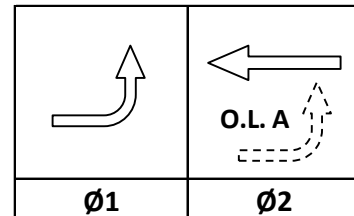
SHEET

39

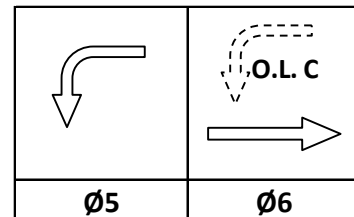
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	HEAD NUMBERS	FLASH
Ø1	4, 5, 6	-
Ø2	13, 14, 15	R
Ø3	19, 20, 21, 22, 23, 24	R, R
Ø4	7, 8, 9, 10, 11, 12	R, R
Ø5	16, 17, 18	--
Ø6	1, 2, 3	R
Ø7		
Ø8		
Ø2P		
Ø3P	25, 26	
Ø4P		
Ø6P		
OLA	4, 5, 6	R
OLB		
OLC	16, 17, 18	R
OLD		

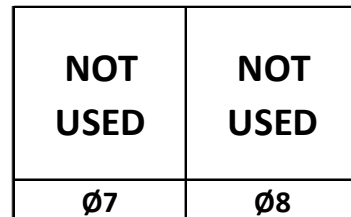
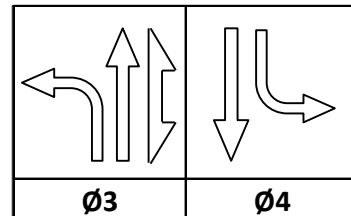
RING 1



RING 2



BARRIER



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MAX	X
3				X
4				X
5		2		X
6	X	2	MAX	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4	3

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 3, CONTROLLER SHALL RETURN TO PHASE 3.

AFTER PREEMPTION SEQUENCE 4, CONTROLLER SHALL RETURN TO PHASE 4.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	31	41	51				
ASSIGNED PHASE	1	3	4	5				
OPERATION MODE	VEH	VEH	VEH	VEH				
SWITCH								
EXTEND								
DELAY								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)								
ASSIGNED PHASE								
OPERATION MODE								
SWITCH								
EXTEND								
DELAY								

19	17	23	21	27	25	31	29

20	18	20	18	24	26	32	30

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

STH 59/STH 164 & SUNSET DRIVE		
CITY OF WAUKESHA		
WAUKESHA COUNTY		
SIGNAL NO:	S67-0299	
DATE: FEBRUARY 2015		CONTROLLER TYPE: TEMP
PAGE NO. 2 OF 2		

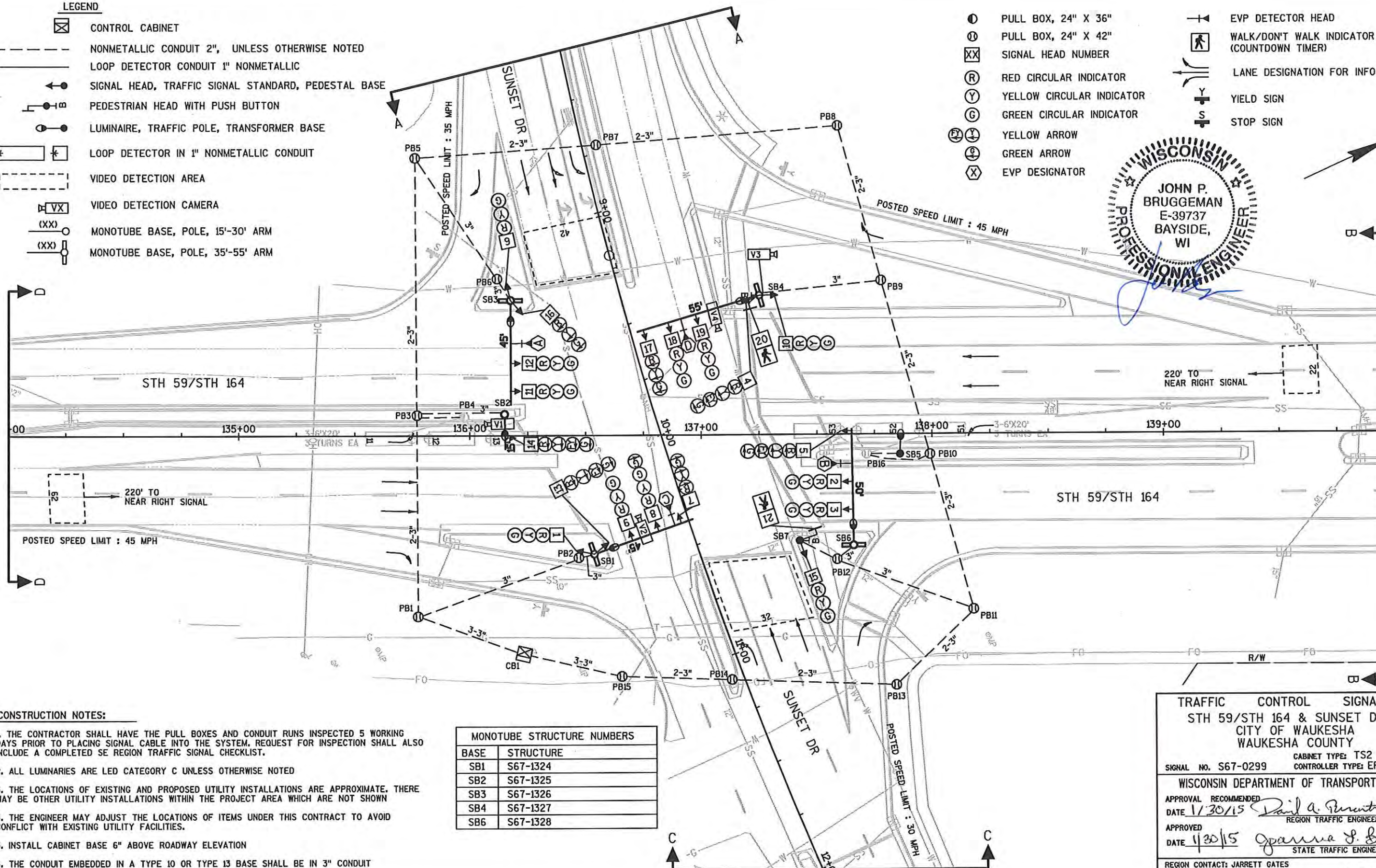
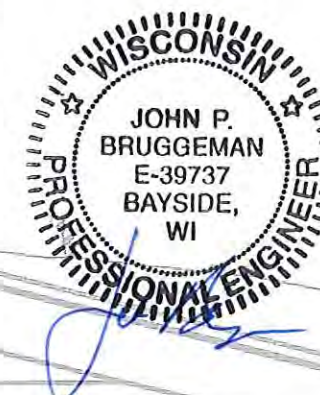
2

2

LEGEND

- CONTROL CABINET
 NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
 LOOP DETECTOR CONDUIT 1" NONMETALLIC
 SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
 PEDESTRIAN HEAD WITH PUSH BUTTON
 LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
 LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
 VIDEO DETECTION AREA
 VIDEO DETECTION CAMERA
 MONOTUBE BASE, POLE, 15'-30' ARM
 MONOTUBE BASE, POLE, 35'-55' ARM

- PULL BOX, 24" X 36"
 PULL BOX, 24" X 42"
 SIGNAL HEAD NUMBER
 RED CIRCULAR INDICATOR
 YELLOW CIRCULAR INDICATOR
 GREEN CIRCULAR INDICATOR
 YELLOW ARROW
 GREEN ARROW
 EVP DESIGNATOR
 EVP DETECTOR HEAD
 WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
 LANE DESIGNATION FOR INFO ONLY
 YIELD SIGN
 STOP SIGN



CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO THE SYSTEM. REQUEST FOR INSPECTION SHALL ALSO INCLUDE A COMPLETED SE REGION TRAFFIC SIGNAL CHECKLIST.
2. ALL LUMINARIES ARE LED CATEGORY C UNLESS OTHERWISE NOTED
3. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN
4. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
5. INSTALL CABINET BASE 6" ABOVE ROADWAY ELEVATION
6. THE CONDUIT EMBEDDED IN A TYPE 10 OR TYPE 13 BASE SHALL BE IN 3" CONDUIT

MONOTUBE STRUCTURE NUMBERS	
BASE	STRUCTURE
SB1	S67-1324
SB2	S67-1325
SB3	S67-1326
SB4	S67-1327
SB6	S67-1328

TRAFFIC CONTROL SIGNAL
 STH 59/STH 164 & SUNSET DRIVE
 CITY OF WAUKESHA
 WAUKESHA COUNTY

CABINET TYPE: TS2
 SIGNAL NO. S67-0299 CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
 DATE 1/30/15 *Daniel A. Bruner, P.E.*
 REGION TRAFFIC ENGINEER

APPROVED
 DATE 1/30/15 *Janina S. Bush*
 STATE TRAFFIC ENGINEER

REGION CONTACT: JARRETT GATES
 DESIGNED BY: RA SMITH NATIONAL
 REVISED BY:

PAGE 1 OF 3

PROJECT NO: 3700-20-74

HWY: STH 59/STH 164

COUNTY: WAUKESHA

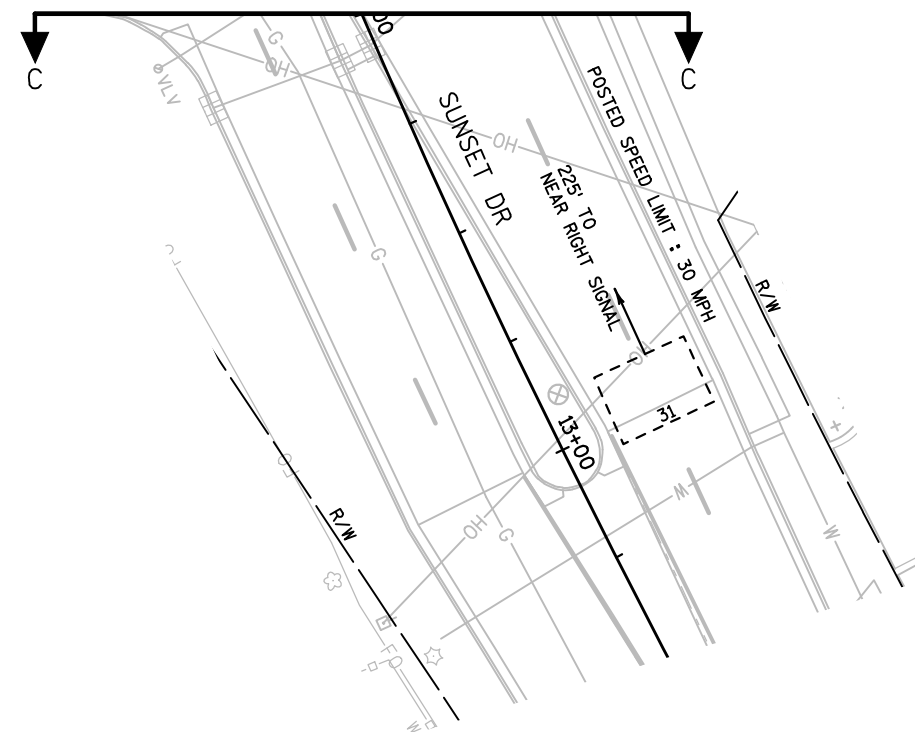
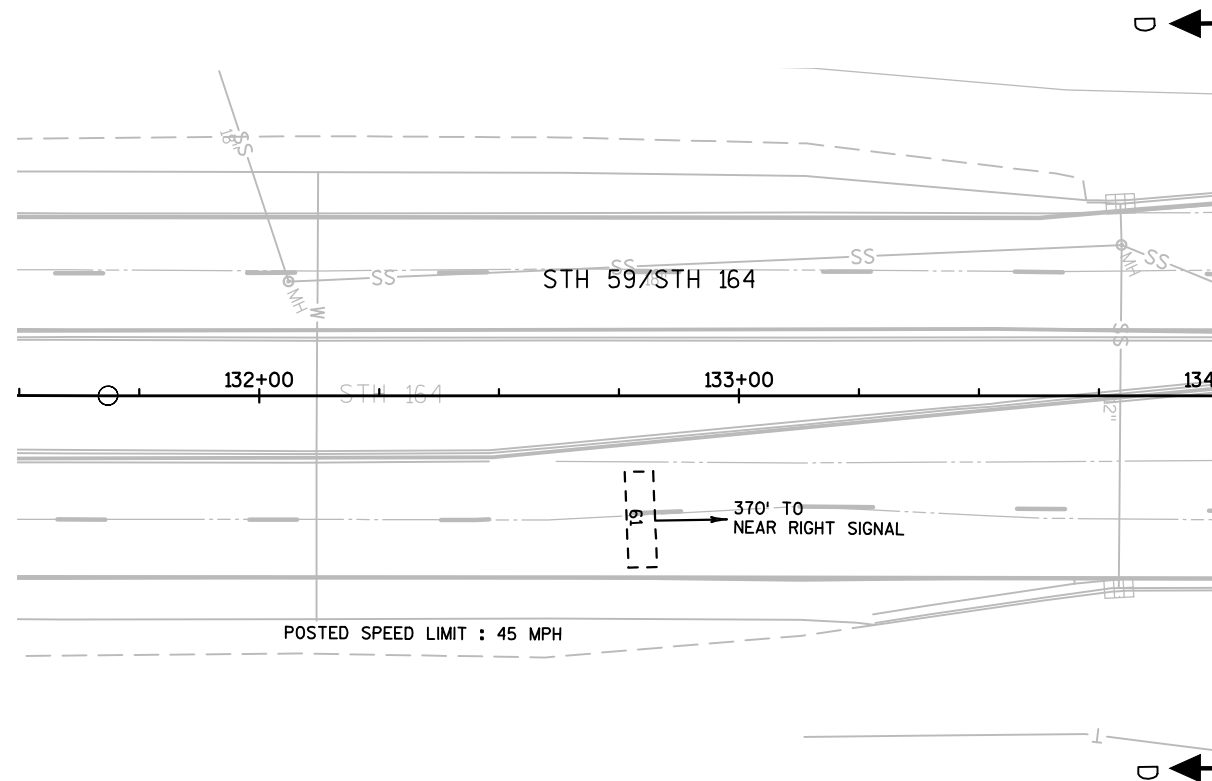
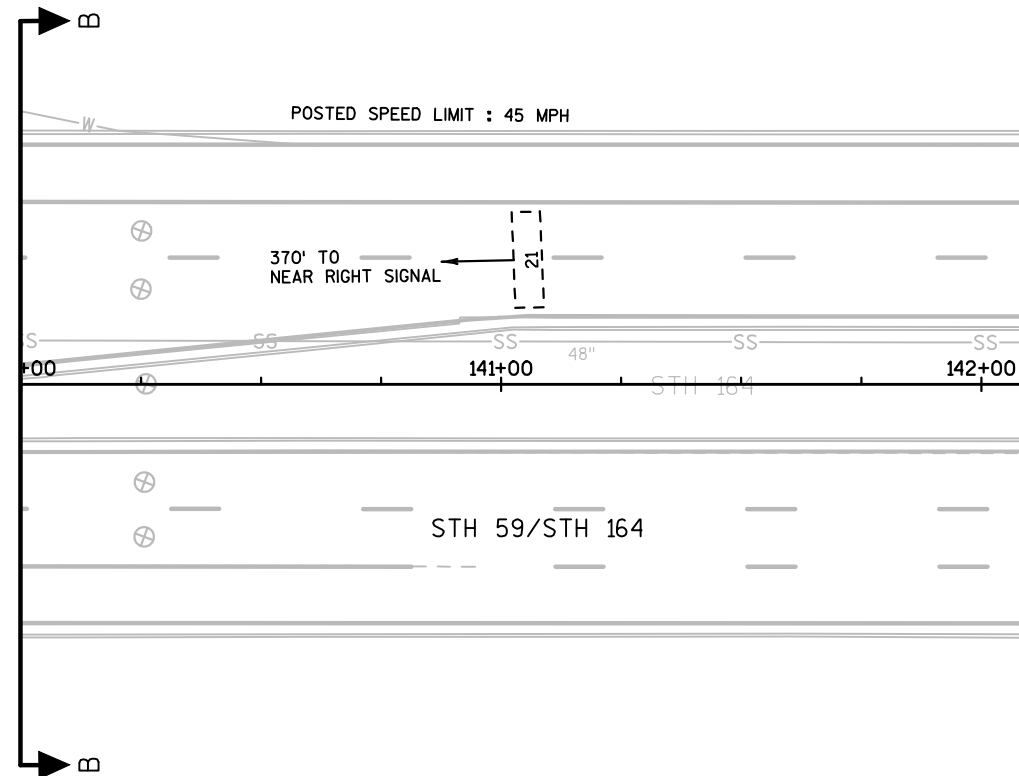
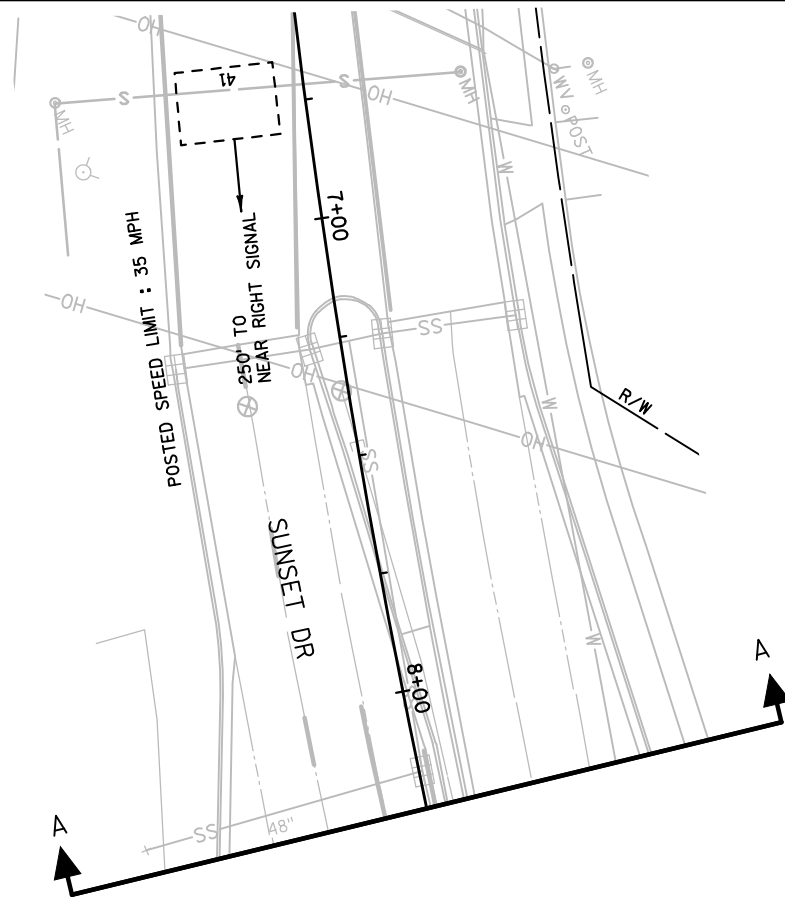
TRAFFIC SIGNAL PLAN

SHEET

41

E

JMG 1/30/2015



TRAFFIC CONTROL SIGNAL
STH 59/164 & SUNSET DRIVE
CITY OF WAUKESHA
WAUKESHA COUNTY
SIGNAL NO. S67-0299
CABINET TYPE: TS2
CONTROLLER TYPE: EPAC
REGION CONTACT: JARRETT GATES
DESIGNED BY: RA SMITH NATIONAL
REVISED BY:

PAGE 2 OF 3

PROJECT NO: 3700-20-74

HWY: STH 59/STH 164

COUNTY: WAUKESHA

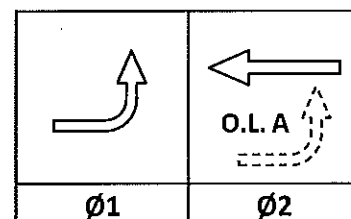
TRAFFIC SIGNAL PLAN

SHEET 42

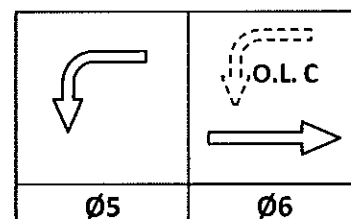
E

	HEAD NUMBERS	F L A S H
Ø1	4, 5	--
Ø2	10, 11, 12	R
Ø3	15, 16, 17, 18, 19	R, R
Ø4	6, 7, 8, 9	R, R
Ø5	13, 14	--
Ø6	1, 2, 3	R
Ø7		
Ø8		
Ø2P		
Ø3P	20, 21	
Ø4P		
Ø6P		
Ø8P		
OLA	4, 5	R
OLB		
OLC	13, 14	R
OLD		

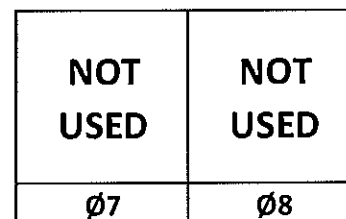
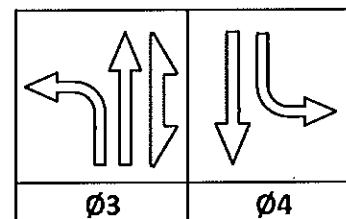
RING 1



RING 2



BARRIER



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MIN	X
3				X
4				X
5		2		X
6	X	2	MIN	X
7				
8				

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4	3

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 3, CONTROLLER SHALL RETURN TO PHASE 3.

AFTER PREEMPTION SEQUENCE 4, CONTROLLER SHALL RETURN TO PHASE 4.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	X
TOMAR	
HARDWARE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11/12	51/52						
ASSIGNED PHASE	1	5						
OPERATION MODE	VEH	VEH						
SWITCH	2	6						
EXTEND								
DELAY								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	13	53						
ASSIGNED PHASE	1	5						
OPERATION MODE	VEH	VEH						
SWITCH	2	6						
EXTEND								
DELAY								

19	17	23	21	27	25	31	29
21	31	41	61				
2	3	4	6				
VEH	VEH	VEH	VEH				
	X	X					

20	18	24	22	28	26	32	30
22	32	42	62				
2	3	4	6				
VEH	VEH	VEH	VEH				

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

STH 59/STH 164 & SUNSET DRIVE	
CITY OF WAUKESHA	
WAUKESHA COUNTY	
SIGNAL NO: S67-0299	CABINET TYPE: TS2
CONTROLLER TYPE: EPAC	
DATE: FEBRUARY 2015	PAGE NO. 3 OF 3

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	CB1

PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
PB1	CB1
PB2	SB1
PB3	SB2
PB5	SB3
PB6	SB3
PB7	SB3
PB8	SB4
PB9	SB4
PB10	SB5
PB11	SB6
PB12	SB6
PB13	SB6
PB14	CB1
PB15	CB1

VIDEO DETECTOR CABLE	
FROM	TO
CB1	VID 1 (SB2)
CB1	VID 2 (SB1)
CB1	VID 3 (SB4)
CB1	VID 4 (SB4)

LIGHTING UF #10 AWG W/GROUND	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
CB1	SB6
SB6	SB5
SB5	SB4

EMERGENCY VEHICLE PREEMPTION (EVP) CABLE	
From	To
CB1	HEAD A (SB3)
CB1	HEAD B (SB6)
CB1	HEAD C (SB1)
CB1	HEAD D (SB4)

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, PEDESTAL MOUNT
- SIGNAL HEAD, MAST-ARM MOUNT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LUMINAIRE
- VIDEO DETECTION UNIT

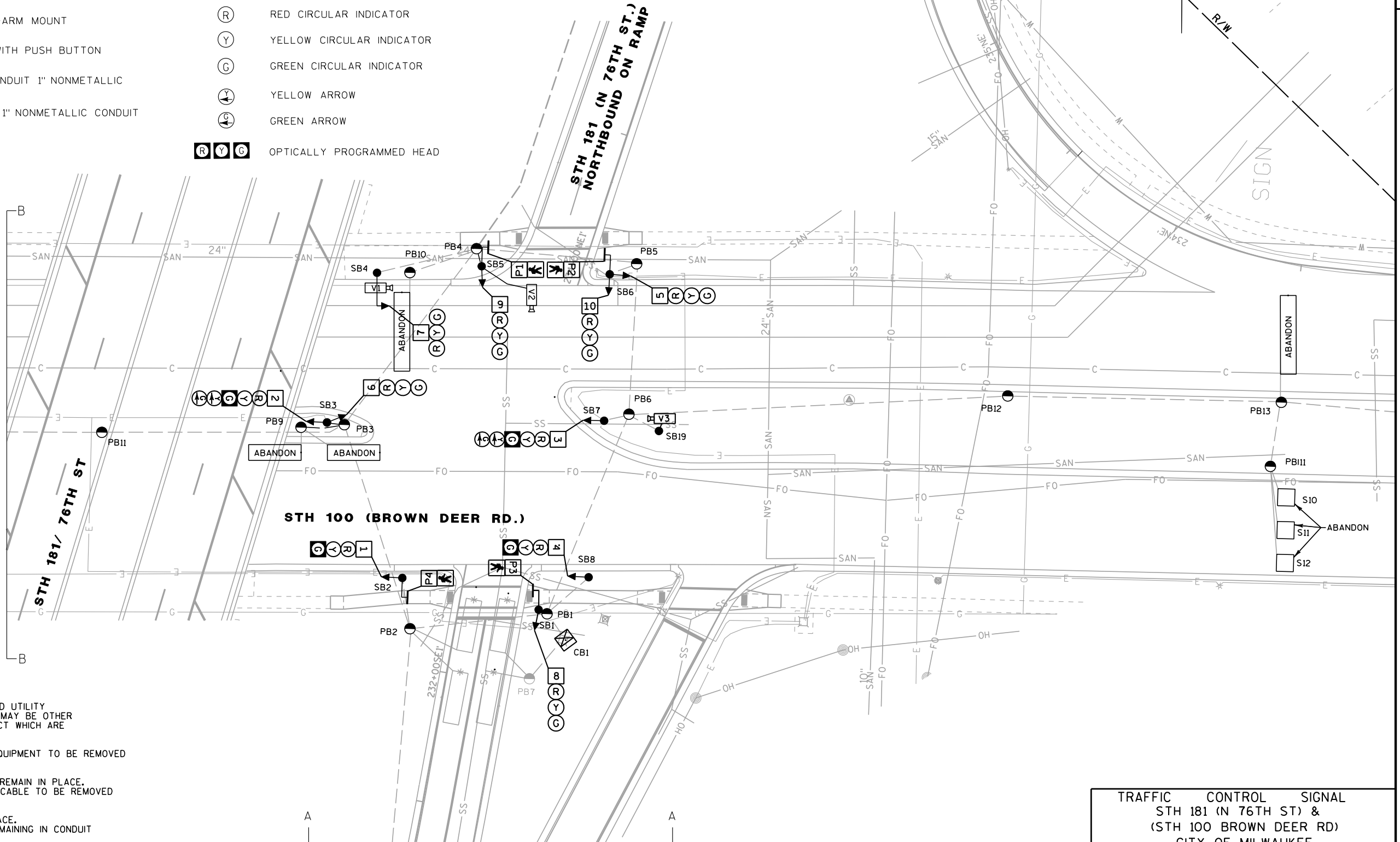
LEGEND (CONT'D)

- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- SIGNAL HEAD NUMBER
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW
- OPTICALLY PROGRAMMED HEAD



DON'T WALK INDICATOR 16"
WALK INDICATOR 16"

NOTE: GRAYSHADE REPRESENTS EXISTING
BOLD REPRESENTS ITEMS TO BE REMOVED



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. CABINET, CONTROLLER & VIDEO CAMERA EQUIPMENT TO BE REMOVED BY WISDOT ELECTRICAL PERSONNEL.
3. ABANDONED LOOP DETECTOR CONDUIT TO REMAIN IN PLACE. LOOP WIRE AND LOOP DETECTOR LEAD-IN CABLE TO BE REMOVED BY CONTRACTOR.
4. EXISTING CONDUIT RUNS TO REMAIN IN PLACE. CONTRACTOR TO REMOVE CONDUCTORS REMAINING IN CONDUIT

TRAFFIC CONTROL SIGNAL
STH 181 (N 76TH ST) &
(STH 100 BROWN DEER RD)
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S40-1164

REGION CONTACT: JARRETT GATES

DESIGNED BY:

REVISED BY: R.A.SMITH NATIONAL

PAGE 1 OF 3

2

2



TRAFFIC CONTROL SIGNAL	
STH 181 (N 76TH ST) & (STH 100 BROWN DEER RD)	
CITY OF MILWAUKEE	
MILWAUKEE COUNTY	
SIGNAL NO. S40-1164	
REGION CONTACT: JARRETT GATES	
DESIGNED BY:	
REVISED BY: R.A.SMITH NATIONAL	PAGE 3 OF 3

PROJECT NO:3700-20-74

HWY: STH 100

COUNTY:MILWAUKEE

TRAFFIC SIGNAL REMOVAL PLAN

SHEET	48	E
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FILE NAME : T:\1142709.01\cadd\Civil3D\37002004\SheetsPlan\024001-sr_76_brown deer.dgn

PLOT DATE : 1/28/2015

PLOT BY : wdw

PLOT NAME :

PLOT SCALE : \$\$.....plotscale.....\$\$ WISDOT/CADDs SHEET 42

WISDOT/CADDS SHEET 42

LEGEND

- WOOD POLE CLASS 4

■ MOVEABLE WOOD POST

— SPAN WIRE

← TEMPORARY SIGNAL HEAD

● TEMPORARY LUMINAIRE, 250W

XX SIGNAL HEAD NUMBER

TEMPORARY VEHICLE DETECTION ZONE

WALK/DON'T WALK INDICATOR
16" (COUNTDOWN TIMER)

PEDESTRIAN HEAD
- Ⓡ RED CIRCULAR INDICATOR

Ⓢ YELLOW CIRCULAR INDICATOR

Ⓣ GREEN CIRCULAR INDICATOR

Ⓡ RED ARROW

Ⓢ YELLOW ARROW

Ⓣ GREEN ARROW
- LANE DESIGNATION FOR INFO ONLY

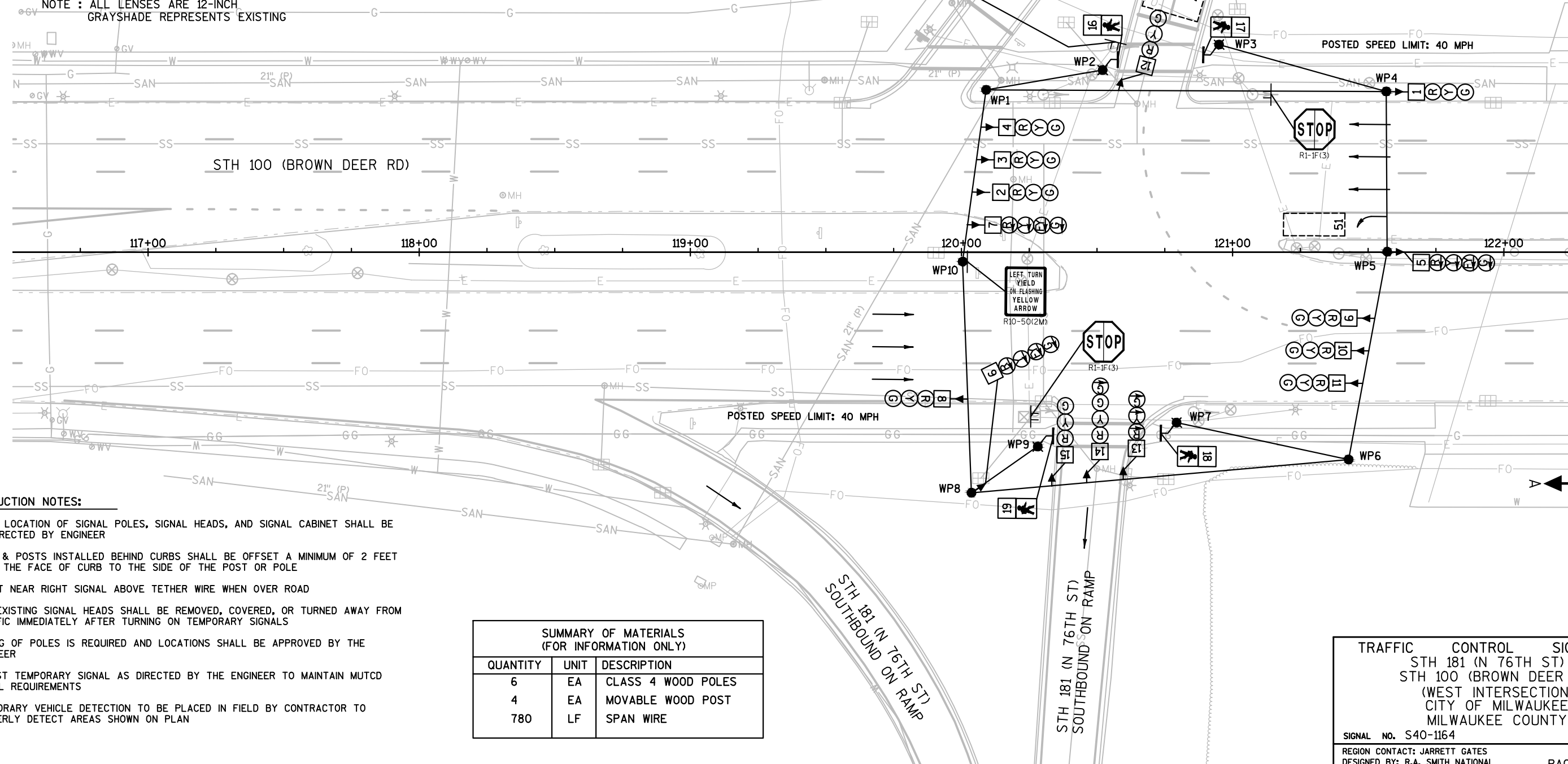
STOP SIGN

SIGN ON TEMPORARY SUPPORT
(5' MIN MOUNTING HEIGHT)

SIGN ON TEMPORARY WOOD POLE

(X) INDICATES SIGN SIZE

NOTE : ALL LENSES ARE 12-INCH.
GRAYSHADE REPRESENTS EXISTING



CONSTRUCTION NOTES:

1. FINAL LOCATION OF SIGNAL POLES, SIGNAL HEADS, AND SIGNAL CABINET SHALL BE AS DIRECTED BY ENGINEER
2. POLE & POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE
3. MOUNT NEAR RIGHT SIGNAL ABOVE TETHER WIRE WHEN OVER ROAD
4. ALL EXISTING SIGNAL HEADS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM TRAFFIC IMMEDIATELY AFTER TURNING ON TEMPORARY SIGNALS
5. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER
6. ADJUST TEMPORARY SIGNAL AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS
7. TEMPORARY VEHICLE DETECTION TO BE PLACED IN FIELD BY CONTRACTOR TO PROPERLY DETECT AREAS SHOWN ON PLAN

SUMMARY OF MATERIALS (FOR INFORMATION ONLY)		
QUANTITY	UNIT	DESCRIPTION
6	EA	CLASS 4 WOOD POLES
4	EA	MOVABLE WOOD POST
780	LF	SPAN WIRE

TRAFFIC CONTROL SIGNAL
STH 181 (N 76TH ST) &
STH 100 (BROWN DEER RD)
(WEST INTERSECTION)
CITY OF MILWAUKEE
MILWAUKEE COUNTY

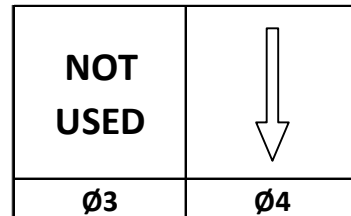
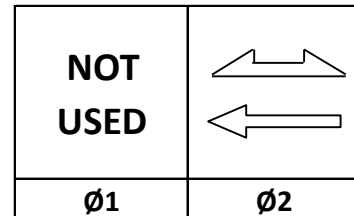
SIGNAL NO. S40-1164

REGION CONTACT: JARRETT GATES
DESIGNED BY: R.A. SMITH NATIONAL
REVISED BY:

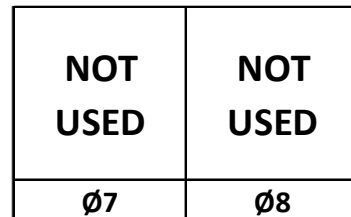
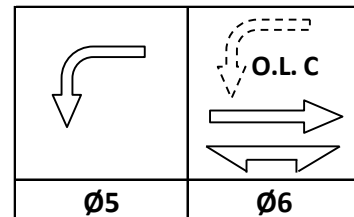
PAGE 1 OF 2

	HEAD NUMBERS	F L A S H
Ø1		
Ø2	1, 2, 3, 4	R
Ø3		
Ø4	12, 13, 14, 15	R, 
Ø5	5, 6, 7	--
Ø6	8, 9, 10, 11	R
Ø7		
Ø8		
Ø2P	16, 17	
Ø4P		
Ø6P	18, 19	
Ø8P		
OLA		
OLB		
OLC	5, 6, 7	
OLD		

RING 1



RING 2



BARRIER

N


CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MAX/PED	X
3				
4				X
5		2		X
6	X	2	MAX/PED	X
7				
8				

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION

NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING

BY OTHER AGENCY	X
IN TRAFFIC CABINET	
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT

NONE	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	41	51						
ASSIGNED PHASE	4	5						
OPERATION MODE	VEH	VEH						
SWITCH								
EXTEND								
DELAY								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)								
ASSIGNED PHASE								
OPERATION MODE								
SWITCH								
EXTEND								
DELAY								

19	17	23	21	27	25	31	29

20	18	24	22	28	26	32	30

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

STH 181 (N. 76TH ST) & STH 100 (BROWN DEER RD) -
WEST INTERSECTION
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO: S40-1164

CONTROLLER TYPE: TEMP

DATE: FEBRUARY 2015

PAGE NO. 2 OF 2

PROJECT NO: 3700-20-74

HWY: STH 100

COUNTY: MILWAUKEE

SEQUENCE OF OPERATIONS – ALL STAGES

SHEET NO: 50

E

FILE NAME : _____

PLOT DATE : _____

PLOT BY : _____

PLOT NAME : _____

PLOT SCALE : 1:1

LEGEND

- WOOD POLE CLASS 4
- ✱ MOVEABLE WOOD POST
- SPAN WIRE
- ← TEMPORARY SIGNAL HEAD
- XX SIGNAL HEAD NUMBER
- TEMPORARY VEHICLE DETECTION ZONE
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- PEDESTRIAN HEAD

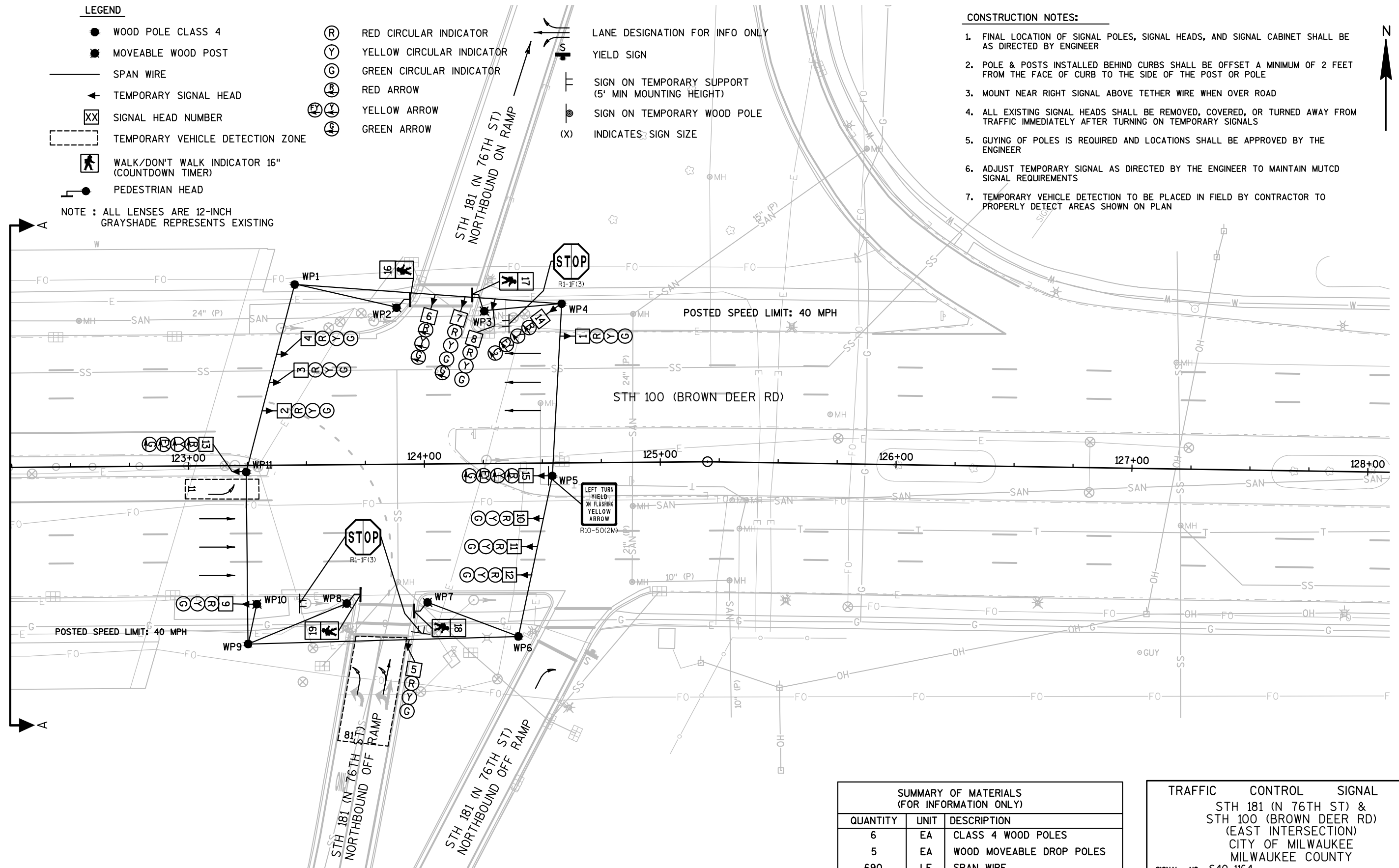
NOTE : ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

- Ⓡ RED CIRCULAR INDICATOR
- Ⓢ YELLOW CIRCULAR INDICATOR
- Ⓢ GREEN CIRCULAR INDICATOR
- Ⓢ RED ARROW
- Ⓢ YELLOW ARROW
- Ⓢ GREEN ARROW

- LANE DESIGNATION FOR INFO ONLY
- YIELD SIGN
- SIGN ON TEMPORARY SUPPORT (5' MIN MOUNTING HEIGHT)
- SIGN ON TEMPORARY WOOD POLE
- (X) INDICATES SIGN SIZE

CONSTRUCTION NOTES:

1. FINAL LOCATION OF SIGNAL POLES, SIGNAL HEADS, AND SIGNAL CABINET SHALL BE AS DIRECTED BY ENGINEER
2. POLE & POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE
3. MOUNT NEAR RIGHT SIGNAL ABOVE TETHER WIRE WHEN OVER ROAD
4. ALL EXISTING SIGNAL HEADS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM TRAFFIC IMMEDIATELY AFTER TURNING ON TEMPORARY SIGNALS
5. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER
6. ADJUST TEMPORARY SIGNAL AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS
7. TEMPORARY VEHICLE DETECTION TO BE PLACED IN FIELD BY CONTRACTOR TO PROPERLY DETECT AREAS SHOWN ON PLAN

SUMMARY OF MATERIALS
(FOR INFORMATION ONLY)

QUANTITY	UNIT	DESCRIPTION
6	EA	CLASS 4 WOOD POLES
5	EA	WOOD MOVEABLE DROP POLES
690	LF	SPAN WIRE

TRAFFIC CONTROL SIGNAL
STH 181 (N 76TH ST) &
STH 100 (BROWN DEER RD)
(EAST INTERSECTION)
CITY OF MILWAUKEE
MILWAUKEE COUNTY

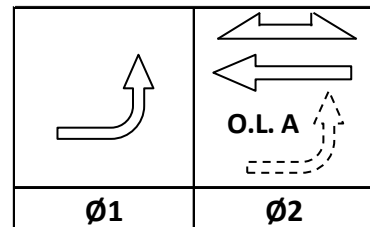
SIGNAL NO. S40-1164

REGION CONTACT: JARRETT GATES
DESIGNED BY: R.A. SMITH NATIONAL
REVISED BY:

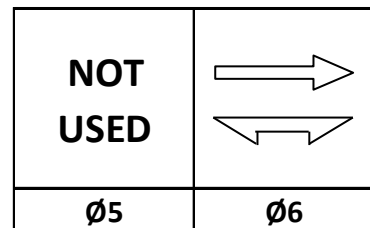
PAGE 1 OF 2

	HEAD NUMBERS	F L A S H
Ø1	13, 14, 15	--
Ø2	1, 2, 3, 4	R
Ø3		
Ø4		
Ø5		
Ø6	9, 10, 11, 12	R
Ø7		
Ø8	5, 6, 7, 8	R, R
Ø2P	16, 17	
Ø4P		
Ø6P	18, 19	
Ø8P		
OLA	13, 14, 15	R
OLB		
OLC		
OLD		

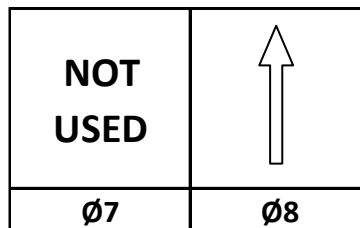
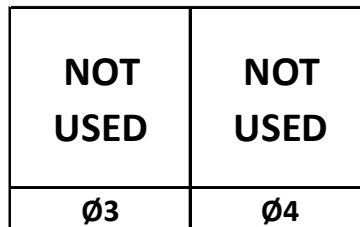
RING 1



RING 2



BARRIER



N

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1		6		X
2	X	6	MAX/PED	X
3				
4				X
5				
6	X	2	MAX/PED	X
7				
8				X

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	X
IN TRAFFIC CABINET	
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	11	81						
ASSIGNED PHASE	1	8						
OPERATION MODE	VEH	VEH						
SWITCH								
EXTEND								
DELAY								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)								
ASSIGNED PHASE								
OPERATION MODE								
SWITCH								
EXTEND								
DELAY								

19	17	23	21	27	25	31	29

20	18	24	22	28	26	32	30

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

STH 181 (N. 76TH ST) & STH 100 (BROWN DEER RD) -
EAST INTERSECTION
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO: S40-1164

CONTROLLER TYPE: TEMP

DATE: FEBRUARY 2015

PAGE NO. 2 OF 2

PROJECT NO: 3700-20-74

HWY: STH 100

COUNTY: MILWAUKEE

SEQUENCE OF OPERATIONS – ALL STAGES

SHEET NO: 52

E

FILE NAME : _____

PLOT DATE : _____

PLOT BY : _____

PLOT NAME : _____

PLOT SCALE : 1:1

2

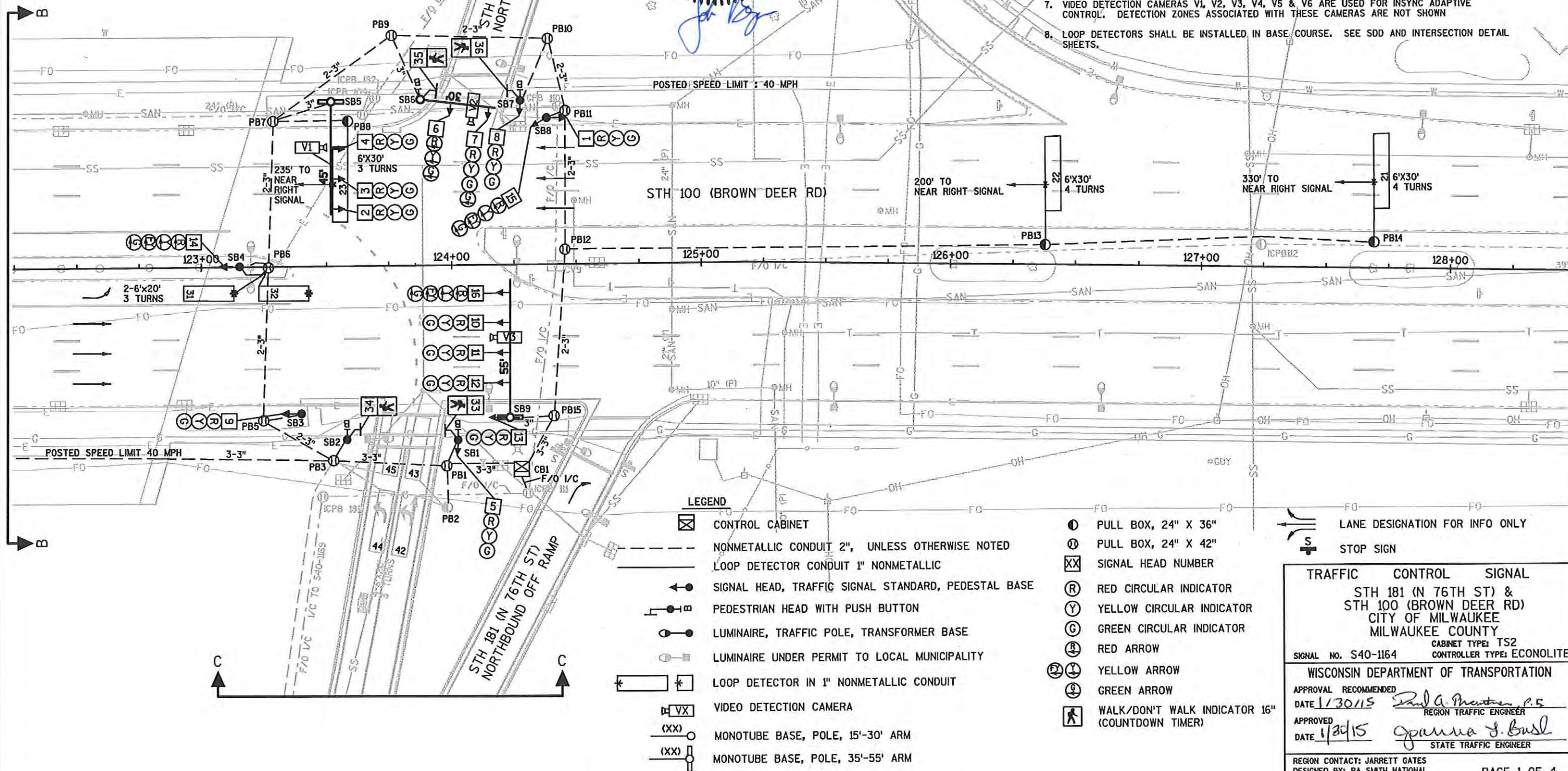
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MONOTUBE STRUCTURE NUMBERS	
BASE	STRUCTURE
SB5	S40-1521
SB6	S40-1522
SB9	S40-1523
SB11	S40-1524
SB13	S40-1525
SB15	S40-1526

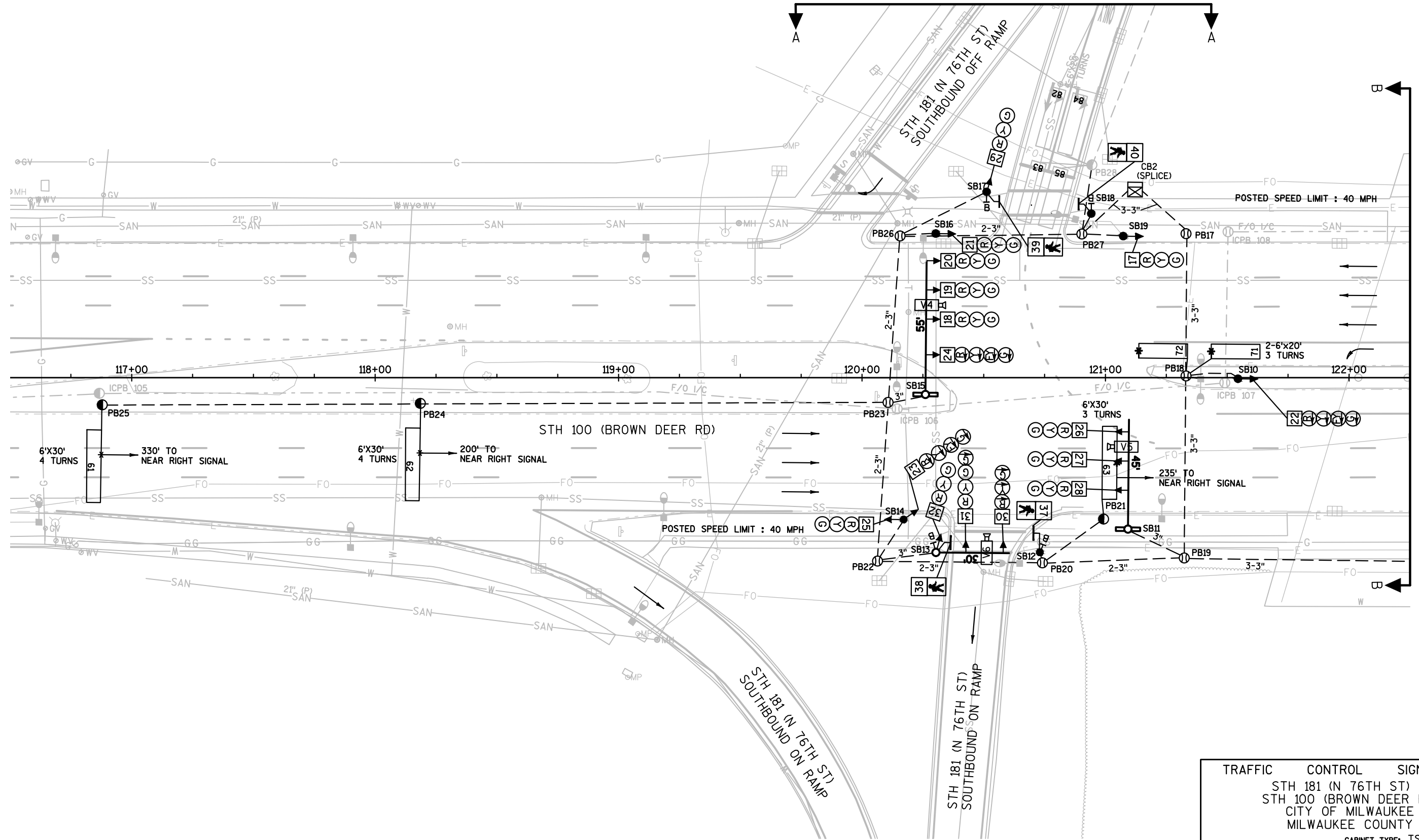


CONSTRUCTION NOTES:

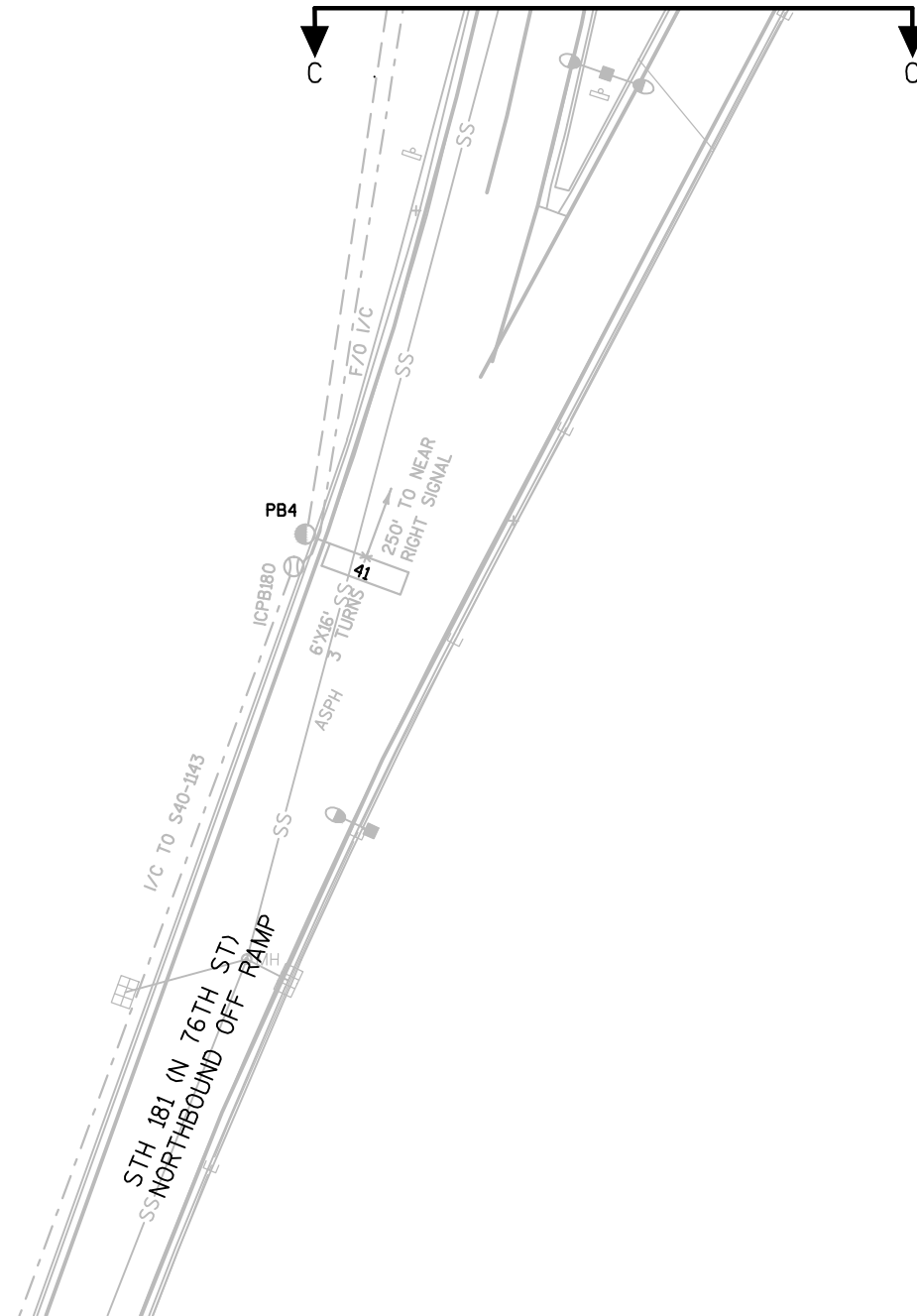
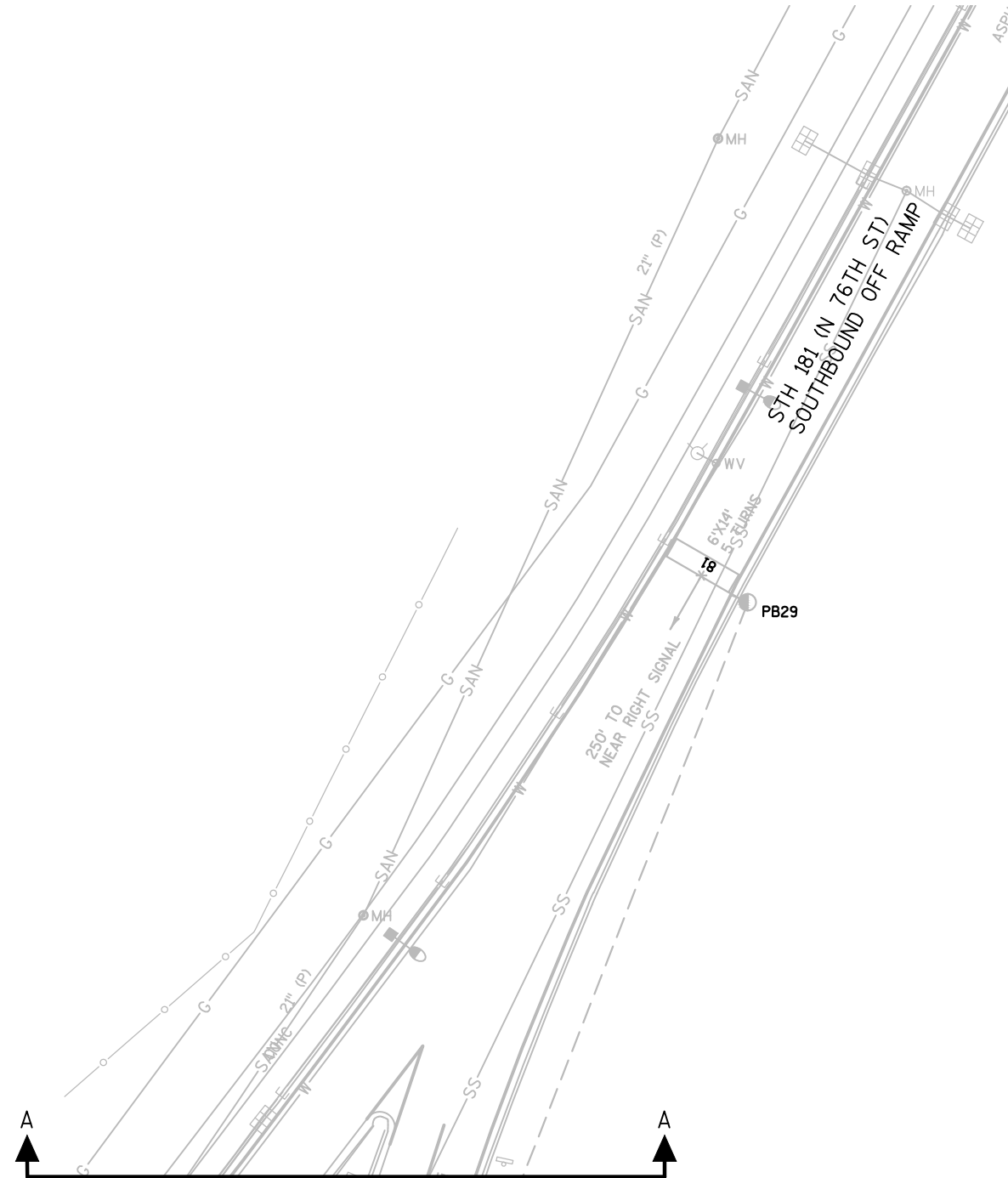
- * LOCATION IS TO FRONT CENTER OF DETECTOR LOOP
- THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO THE SYSTEM. REQUESTS FOR INSPECTION SHALL ALSO INCLUDE A COMPLETED SE REGION TRAFFIC SIGNAL CHECKLIST.
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN
- THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
- INSTALL CABINET BASE 6" ABOVE ROADWAY ELEVATION
- THE CONDUIT EMBEDDED IN A TYPE 10 OR TYPE 13 BASE SHALL BE IN 3" CONDUIT
- VIDEO DETECTION CAMERAS V1, V2, V3, V4, V5 & V6 ARE USED FOR INSYNC ADAPTIVE CONTROL. DETECTION ZONES ASSOCIATED WITH THESE CAMERAS ARE NOT SHOWN
- LOOP DETECTORS SHALL BE INSTALLED IN BASE COURSE. SEE SDD AND INTERSECTION DETAIL SHEETS.



JMG 1/30/2015

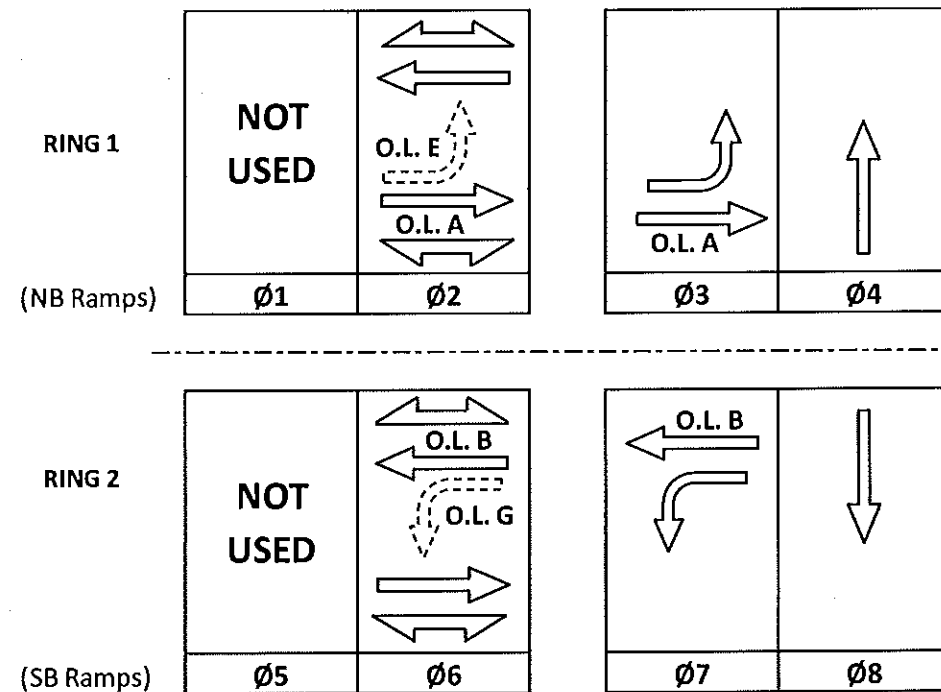


TRAFFIC CONTROL SIGNAL
STH 181 (N 76TH ST) &
STH 100 (BROWN DEER RD)
CITY OF MILWAUKEE
MILWAUKEE COUNTY
CABINET TYPE: TS2
SIGNAL NO. S40-1164 CONTROLLER TYPE: ECONOLITE
REGION CONTACT: JARRETT GATES
DESIGNED BY: RASMITH NATIONAL
REVISED BY: PAGE 2 OF 4



TRAFFIC CONTROL SIGNAL	
STH 181 (N 76TH ST) & STH 100 (BROWN DEER RD) CITY OF MILWAUKEE MILWAUKEE COUNTY	
SIGNAL NO. S40-1164	CABINET TYPE: TS2 CONTROLLER TYPE: ECONOLITE
REGION CONTACT: JARRETT GATES DESIGNED BY: RA SMITH NATIONAL REVISED BY:	

	HEAD NUMBERS	F L A S H
Ø1		
Ø2	1, 2, 3, 4	R
Ø3	14, 15, 16	R
Ø4	5, 6, 7, 8	R, R
Ø5		
Ø6	25, 26, 27, 28	R
Ø7	22, 23, 24	R
Ø8	29, 30, 31, 32	R, R
Ø2P	33, 34, 35, 36	
Ø4P		
Ø6P	37, 38, 39, 40	
Ø8P		
OLA	9, 10, 11, 12, 13	R
OLB	17, 18, 19, 20, 21	R
OLC		
OLD		
OLE	14, 15, 16	--
OLF		
OLG	22, 23, 24	--



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MIN	X
3				X
4				X
5				
6	X	2	MIN	X
7				X
8				X

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	X
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	X
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	X
IN TRAFFIC CABINET	
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	21/22	31/32	41	42/43	61/62	71/72	81	82/83
CALLLED PHASE	2	3	4	4	6	7	8	8
CALL OPTION	X	X		X	X	X		X
DELAY TIME								
EXTENTION OPTION	X	X	X	X	X	X	X	X
EXTEND TIME			X				X	
USE ADDED INITIAL								
CROSS SWITCH PHASE								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	23			44/45	63			84/85
CALLLED PHASE	2			4	6			8
CALL OPTION	X			X	X			X
DELAY TIME								
EXTENTION OPTION	X			X	X			X
EXTEND TIME								
USE ADDED INITIAL								
CROSS SWITCH PHASE								

19	17	23	21	27	25	31	29

20	18	24	22	28	26	32	30

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
CALLLED PHASE	
CALL OPTION	
DELAY TIME	
EXTENTION OPTION	
EXTEND TIME	
USE ADDED INITIAL	
CROSS SWITCH PHASE	

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
CALLLED PHASE	
CALL OPTION	
DELAY TIME	
EXTENTION OPTION	
EXTEND TIME	
USE ADDED INITIAL	
CROSS SWITCH PHASE	

GENERAL NOTES:

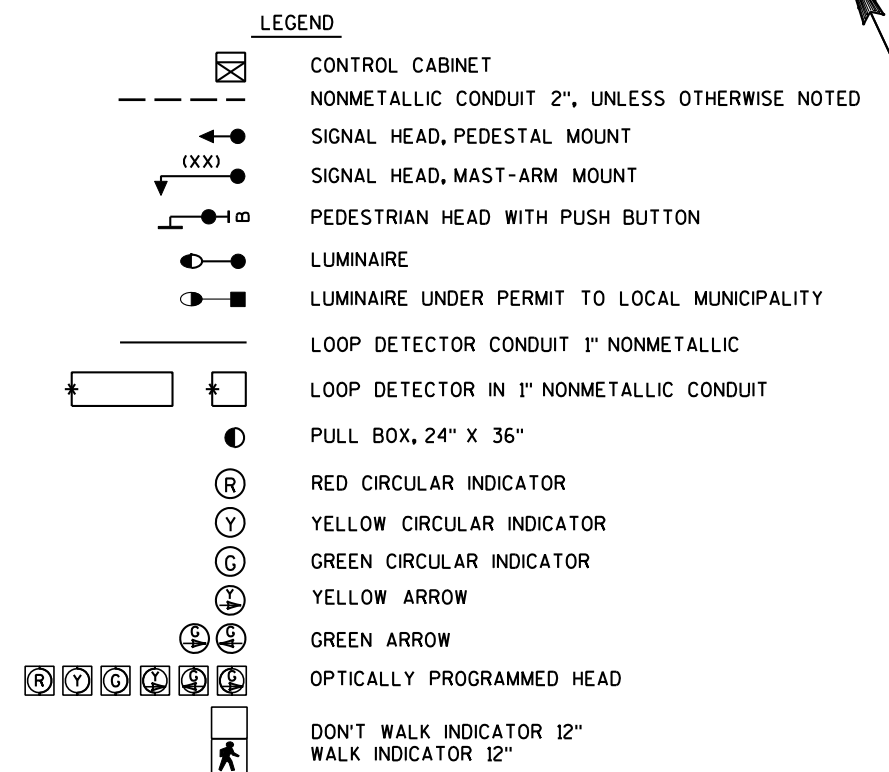
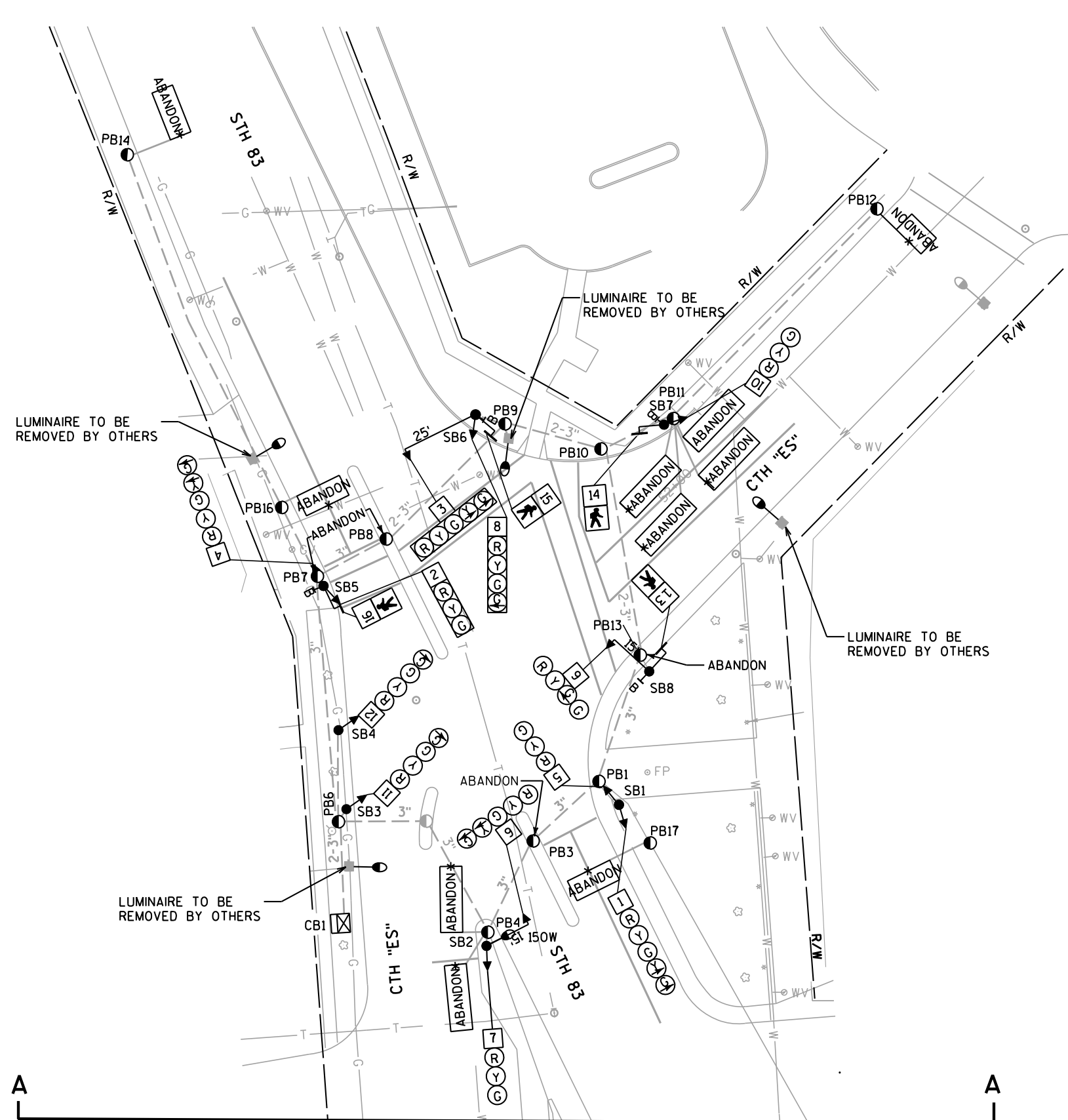
- INTERSECTION UTILIZES CAMERAS FOR INSYNC ADAPTIVE CONTROL. THESE CAMERAS ARE NOT INCLUDED IN THE DETECTION LOGIC CHART. REFER TO INSYNC PROGRAMMING FOR DETAILS.

STH 181 (N. 76TH ST) & STH 100 (BROWN DEER RD)	
CITY OF MILWAUKEE	
MILWAUKEE COUNTY	
SIGNAL NO: 540-1164	CABINET TYPE: TS2
CONTROLLER TYPE: ECONOLITE	
DATE: FEBRUARY 2015	PAGE NO. 4 OF 4

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	CB1
CB1	CB2
CB2	SB10
SB10	SB11
SB11	SB12
SB12	SB13
SB13	SB14
SB14	SB15
SB15	SB16
SB16	SB17
SB17	SB18
SB18	SB19
SB19	CB2

PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
PB1	SB1
PB3	SB2
PB5	SB3
PB6	SB4
PB7	SB5
PB9	SB6
PB10	SB7
PB11	SB8
PB12	SB8
PB15	SB9
PB16	CB2
PB17	SB10
PB18	SB11
PB19	SB12
PB21	SB13
PB22	SB15
PB25	SB16
PB26	SB18

VIDEO DETECTOR CABLE	
FROM	TO
CB1	VID1 (SB5)
CB1	VID2 (SB6)
CB1	VID3 (SB9)
CB1	VID4 (SB15)
CB1	VID5 (SB11)
CB1	VID6 (SB13)



NOTE: GRAYSHADE REPRESENTS EXISTING
BOLD REPRESENTS ITEMS TO BE REMOVED

CONSTRUCTION NOTES:

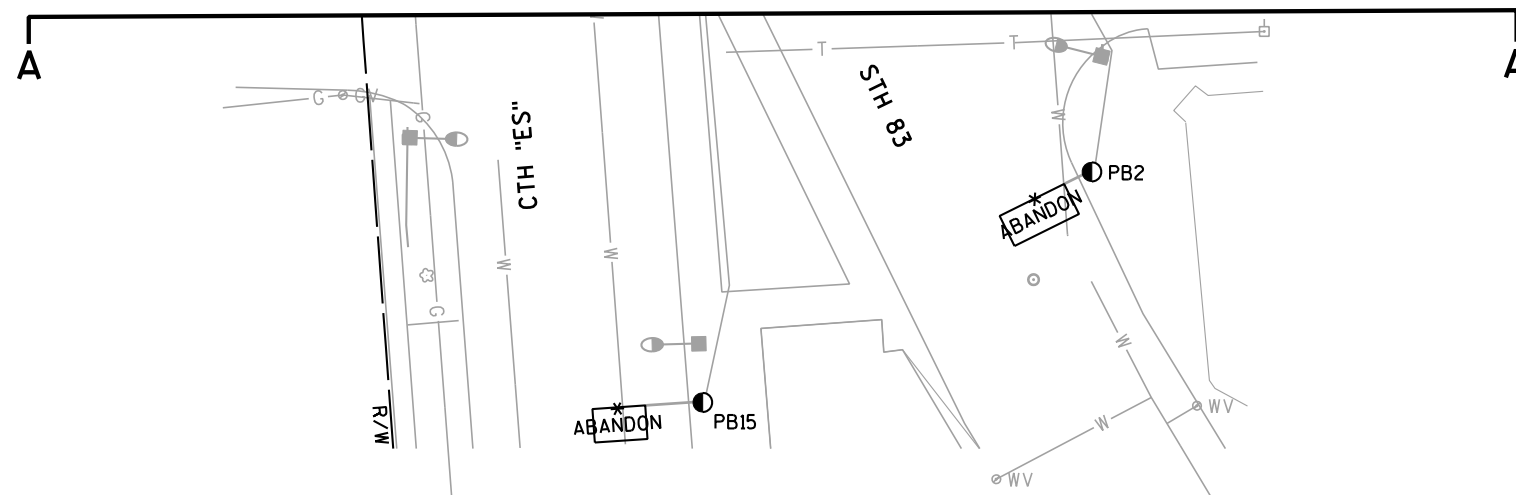
1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. CABINET AND CONTROLLER TO BE REMOVED BY WISDOT ELECTRICAL PERSONNEL.
3. ABANDONED LOOP DETECTOR CONDUIT TO REMAIN IN PLACE. LOOP WIRE AND LOOP DETECTOR LEAD-IN CABLE TO BE REMOVED BY CONTRACTOR.
4. EXISTING CONDUIT RUNS TO REMAIN IN PLACE. CONTRACTOR TO REMOVE CONDUCTORS REMAINING IN CONDUIT.

TRAFFIC CONTROL SIGNAL
STH 83 & CTH ES
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY

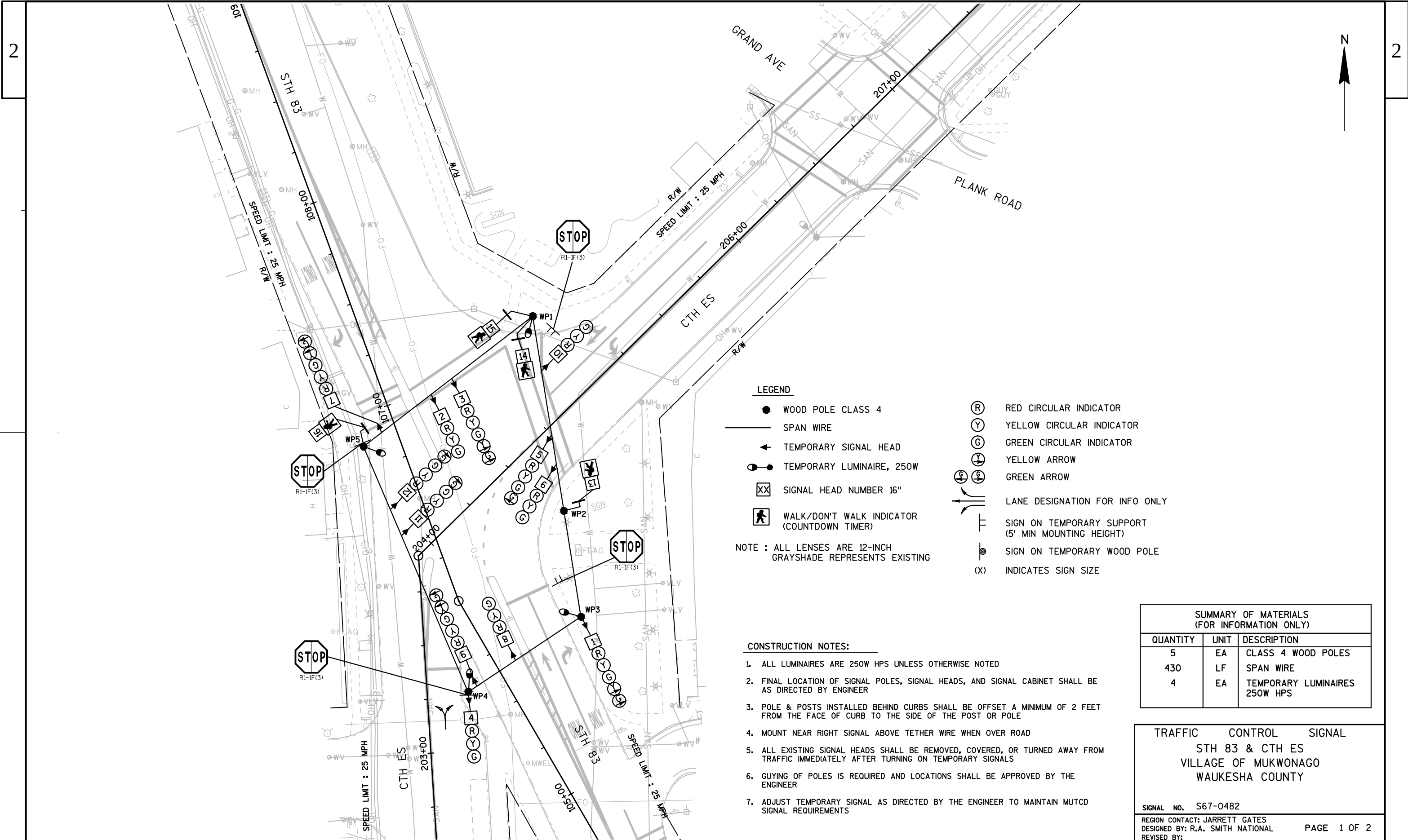
SIGNAL NO. S67-0482

REGION CONTACT: JARRETT GATES
DESIGNED BY:
REVISED BY: R.A. SMITH NATIONAL

PAGE 1 OF 2



TRAFFIC CONTROL SIGNAL	
STH 83 & CTH ES	
VILLAGE OF MUKWONAGO	
WAUKESHA COUNTY	
SIGNAL NO. S67-0482	
REGION CONTACT: JARRETT GATES	PAGE 2 OF 2
DESIGNED BY:	
REVISED BY: R.A.SMITH NATIONAL	



LEGEND

- WOOD POLE CLASS 4
- SPAN WIRE
- TEMPORARY SIGNAL HEAD
- TEMPORARY LUMINAIRE, 250W
- SIGNAL HEAD NUMBER 16"
- WALK/DON'T WALK INDICATOR (COUNTDOWN TIMER)

- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW
- LANE DESIGNATION FOR INFO ONLY
- SIGN ON TEMPORARY SUPPORT (5' MIN MOUNTING HEIGHT)
- SIGN ON TEMPORARY WOOD POLE
- INDICATES SIGN SIZE

NOTE : ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

- CONSTRUCTION NOTES:**
- ALL LUMINAIRES ARE 250W HPS UNLESS OTHERWISE NOTED
 - FINAL LOCATION OF SIGNAL POLES, SIGNAL HEADS, AND SIGNAL CABINET SHALL BE AS DIRECTED BY ENGINEER
 - POLE & POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE
 - MOUNT NEAR RIGHT SIGNAL ABOVE TETHER WIRE WHEN OVER ROAD
 - ALL EXISTING SIGNAL HEADS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM TRAFFIC IMMEDIATELY AFTER TURNING ON TEMPORARY SIGNALS
 - GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER
 - ADJUST TEMPORARY SIGNAL AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS

SUMMARY OF MATERIALS (FOR INFORMATION ONLY)		
QUANTITY	UNIT	DESCRIPTION
5	EA	CLASS 4 WOOD POLES
430	LF	SPAN WIRE
4	EA	TEMPORARY LUMINAIRES 250W HPS

TRAFFIC CONTROL SIGNAL

STH 83 & CTH ES

VILLAGE OF MUKWONAGO

WAUKESHA COUNTY

SIGNAL NO. S67-0482

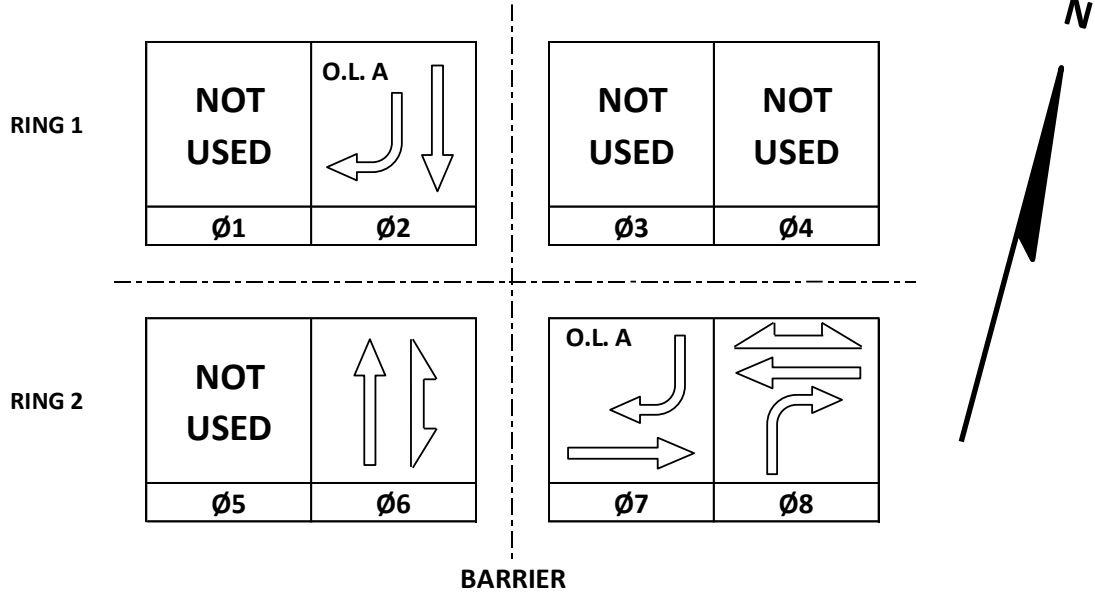
REGION CONTACT: JARRETT GATES

DESIGNED BY: R.A. SMITH NATIONAL

REVISED BY:

PAGE 1 OF 2

	HEAD NUMBERS	F L A S H
Ø1		
Ø2	7, 8, 9	R
Ø3		
Ø4		
Ø5		
Ø6	1, 2, 3	R
Ø7	4, 5, 6	R
Ø8	1, 3, 10, 11, 12	R
Ø2P		
Ø4P		
Ø6P	13, 14	
Ø8P	15, 16	
OLA	7, 9	--
OLB		
OLC		
OLD		



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MAX	X
3				
4				
5				
6	X	2	MAX	X
7			MAX	X
8			MAX	X

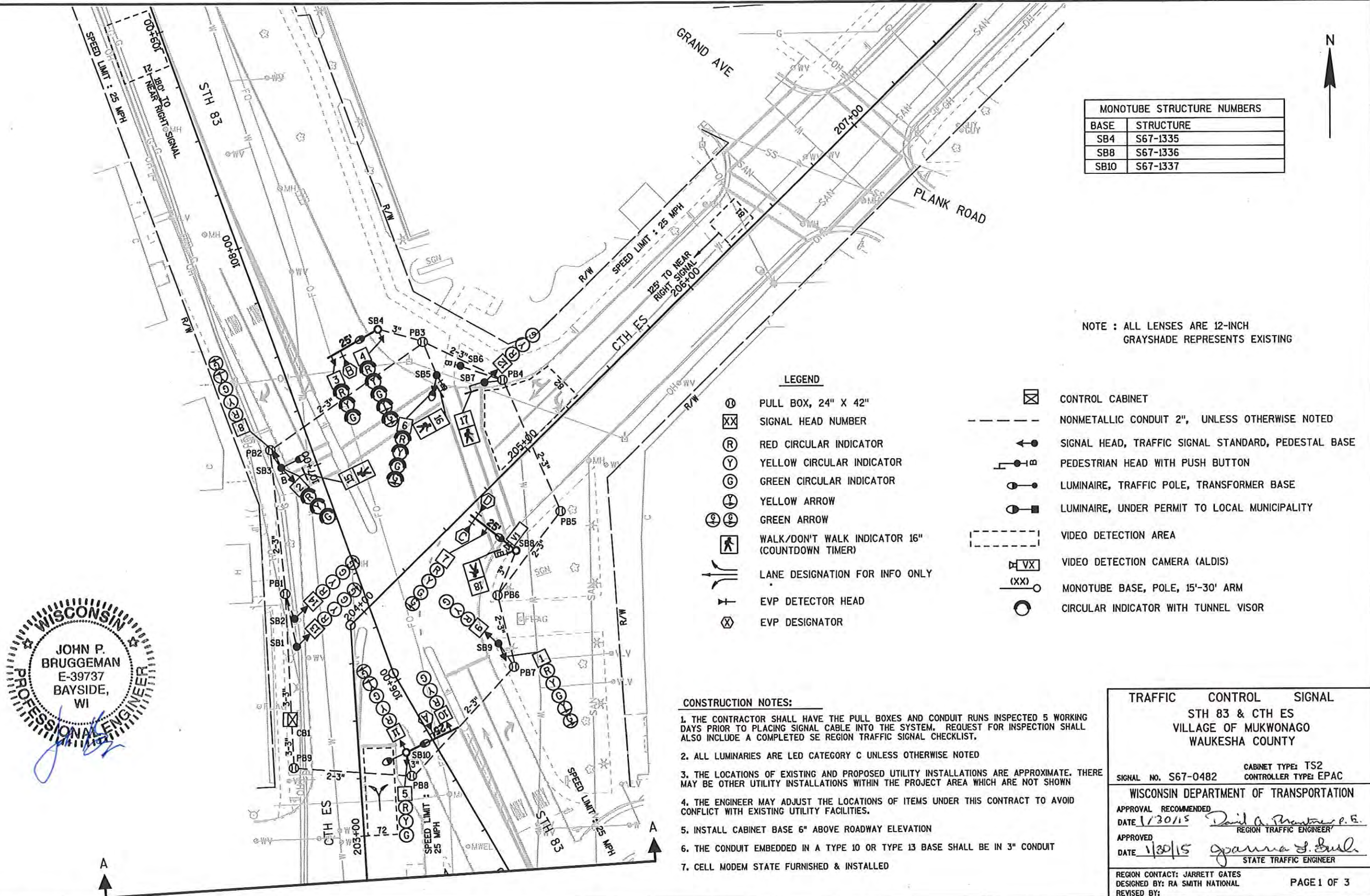
TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

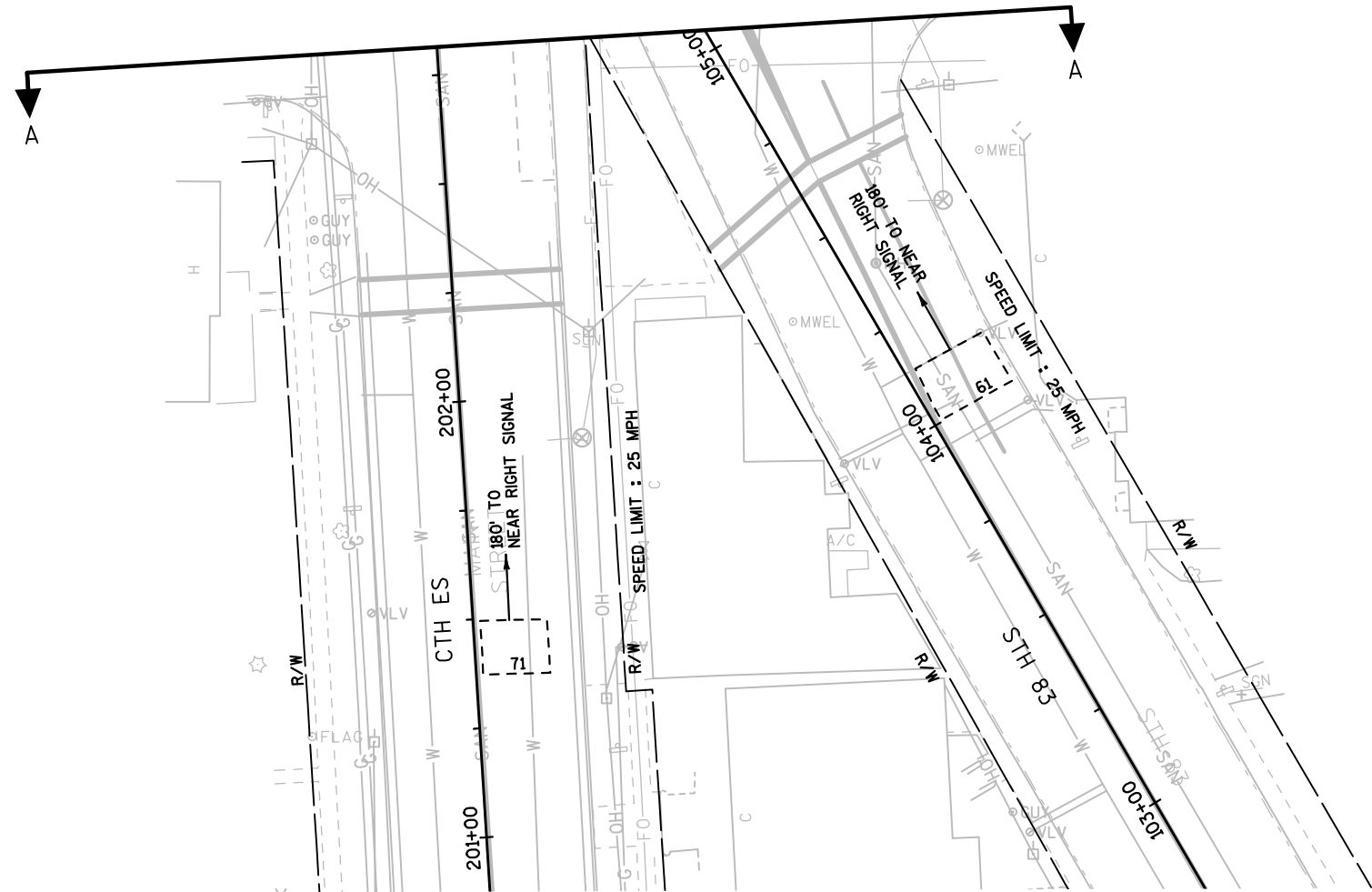
TYPE OF COORDINATION	
NONE	X
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

STH 83 & CTH ES VILLAGE OF MUKWONAGO WAUKESHA COUNTY		
SIGNAL NO: S67-0482		
CONTROLLER TYPE: TEMP		
DATE: FEBRUARY 2015	PAGE NO. 2 OF 2	

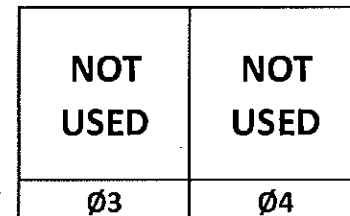
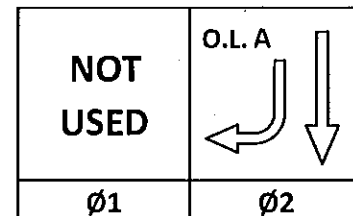




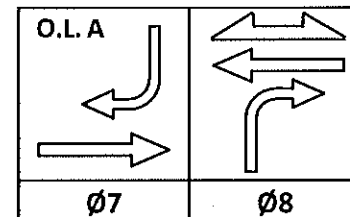
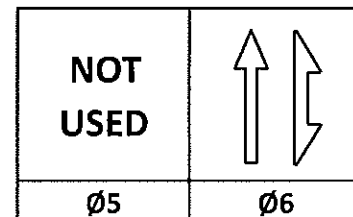
TRAFFIC CONTROL SIGNAL	
STH 83 & CTH ES VILLAGE OF MUKWONAGO WAUKESHA COUNTY	
SIGNAL NO. S67-0482	CABINET TYPE: TS2 CONTROLLER TYPE: EPAC
REGION CONTACT: JARRETT GATES DESIGNED BY: RASMITH NATIONAL REVISED BY:	
PAGE 2 OF 3	

	HEAD NUMBERS	F L A S H
Ø1		
Ø2	8, 9, 10, 11	R
Ø3		
Ø4		
Ø5		
Ø6	1, 2, 3, 4	R
Ø7	5, 6, 7	R
Ø8	1, 4, 12, 13, 14	R
Ø2P		
Ø4P		
Ø6P	17, 18	
Ø8P	15, 16	
OLA	8, 11	--
OLB		
OLC		
OLD		

RING 1



RING 2



BARRIER

N

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MIN	X
3				
4				X
5				
6	X	2	MIN	X
7				X
8				X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT	↓↑	↓↑	→	←
PHASE	2 + 6	2 + 6	7	8

AFTER PREEMPTION SEQUENCE 2+6, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 7, CONTROLLER SHALL RETURN TO PHASE 7.

AFTER PREEMPTION SEQUENCE 8, CONTROLLER SHALL RETURN TO PHASE 8.

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	21	61	71	81				
ASSIGNED PHASE	2	6	7	8				
OPERATION MODE	VEH	VEH	VEH	VEH				
SWITCH								
EXTEND			X	X				
DELAY								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)			72	82				
ASSIGNED PHASE			7	8				
OPERATION MODE			VEH	VEH				
SWITCH								
EXTEND								
DELAY								

19	17	23	21	27	25	31	29

20	18	24	22	28	26	32	30

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	X

TYPE OF COORDINATION	
NONE	X
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	X
TOMAR	
HARDWARE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

PROJECT ID:	3700-20-74	Signal Wire Color Coding	BLK - black	RED - red	GRN - green	DATE	2/1/15
INTERSECTION:	STH 83 & CTH ES		WHT - white	BLU - blue	ORG - orange		

CB1 TO	# OF COND.	HEAD NO.	SIGNAL INDICATION WIRE COLOR								PED BUTTON	OTHER
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	D/WALK	WALK		
SB1	7	13	RED	ORG	GRN			GRN				
SB2	7	14	RED	ORG	GRN			GRN				
SB3	15	2	RED	ORG	GRN							
		8	RED/BLK	ORG/BLK	GRN/BLK		BLU/WHT	GRN/WHT				
		15							BLK	BLU		
		BUTTON									WHT/BLK	
SB4	12	3	RED	ORG	GRN							
		4	RED	ORG	GRN		ORG/BLK	GRN/BLK				
SB5	12	6	RED	ORG	GRN			GRN				
		16							BLK	BLU		
		BUTTON									WHT/BLK	
SB6	7	BUTTON									WHT/BLK	
SB7	7	12	RED	ORG	GRN							
		17							BLK	BLU		
SB8	12	7	RED	ORG	GRN			GRN				
		18							BLK	BLU		
		BUTTON									WHT/BLK	
SB9	12	1	RED	ORG	GRN		BLK	BLU				
		9	RED/BLK	ORG/BLK	GRN/BLK							
SB10	12	5	RED	ORG	GRN							
		10	RED/BLK	ORG/BLK	GRN/BLK							
		11	RED/BLK	ORG/BLK	GRN/BLK		BLK	BLU				

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	CB1

LIGHTING UF #10 AWG W/GROUND	
FROM	TO
CB1	SB3
SB3	SB4
SB4	SB5
CB1	SB10
SB10	SB8

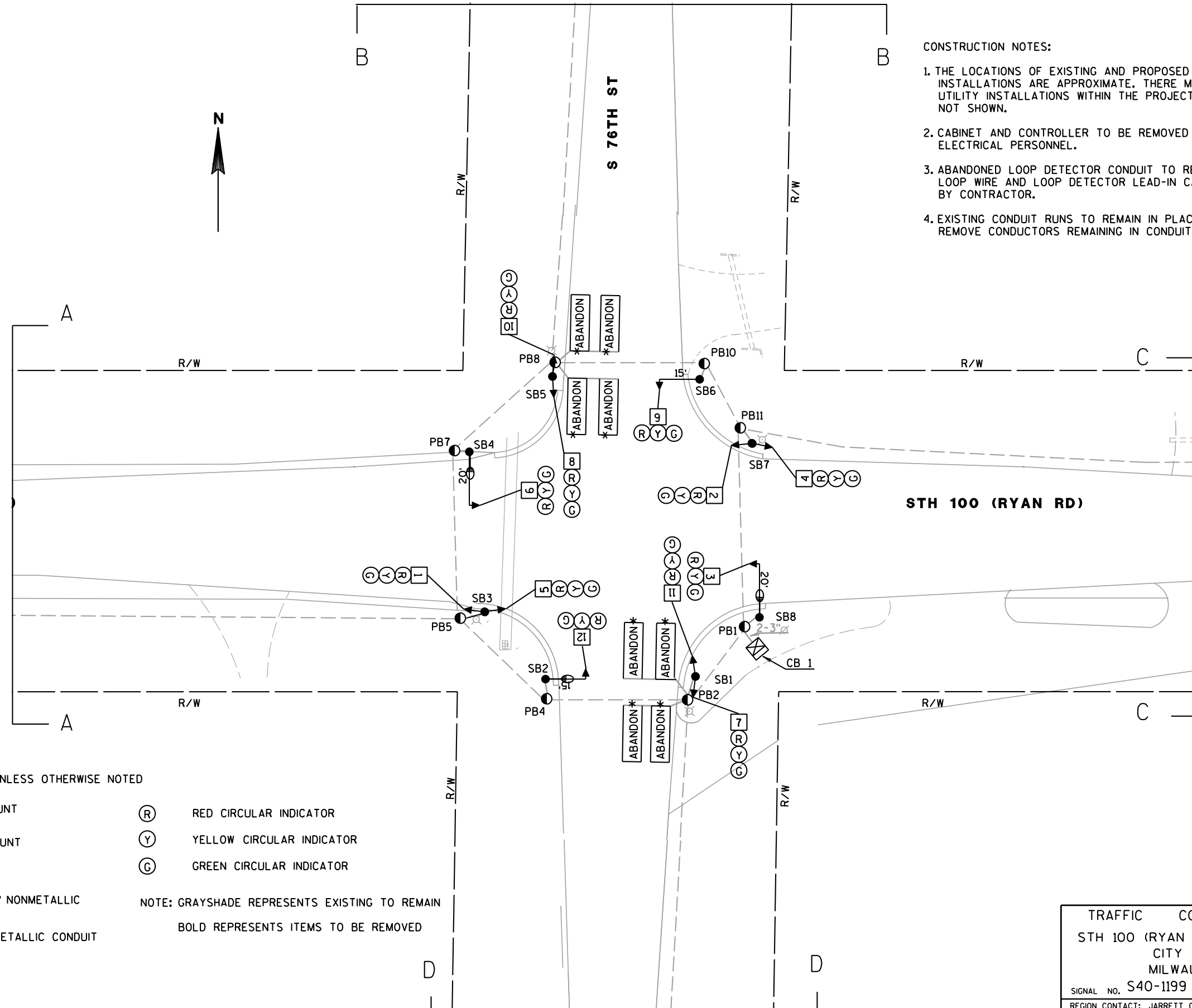
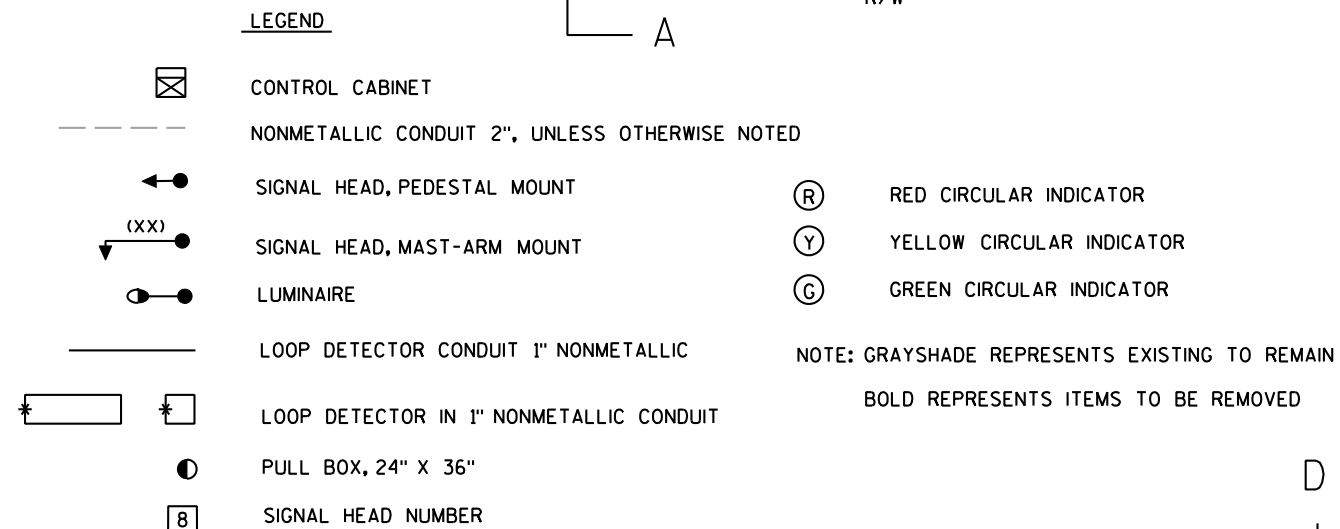
PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
PB1	SB2
PB2	SB3
PB3	SB5
PB4	SB7
PB5	SB8
PB6	SB8
PB7	SB9
PB8	SB10
PB9	CB1

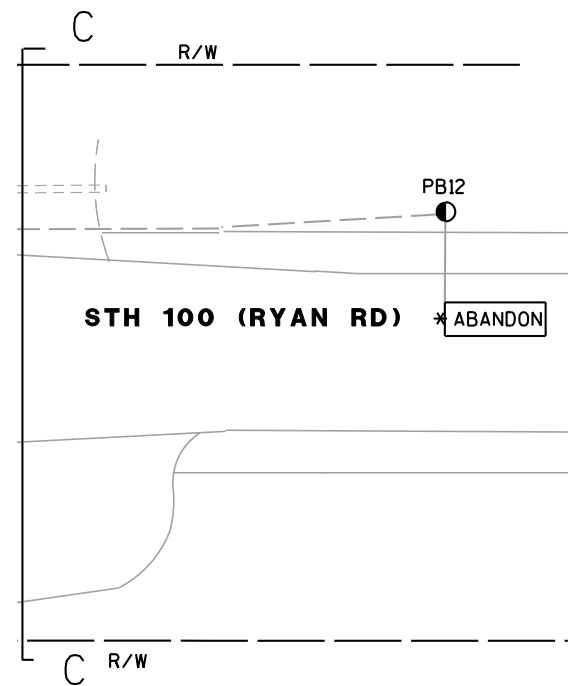
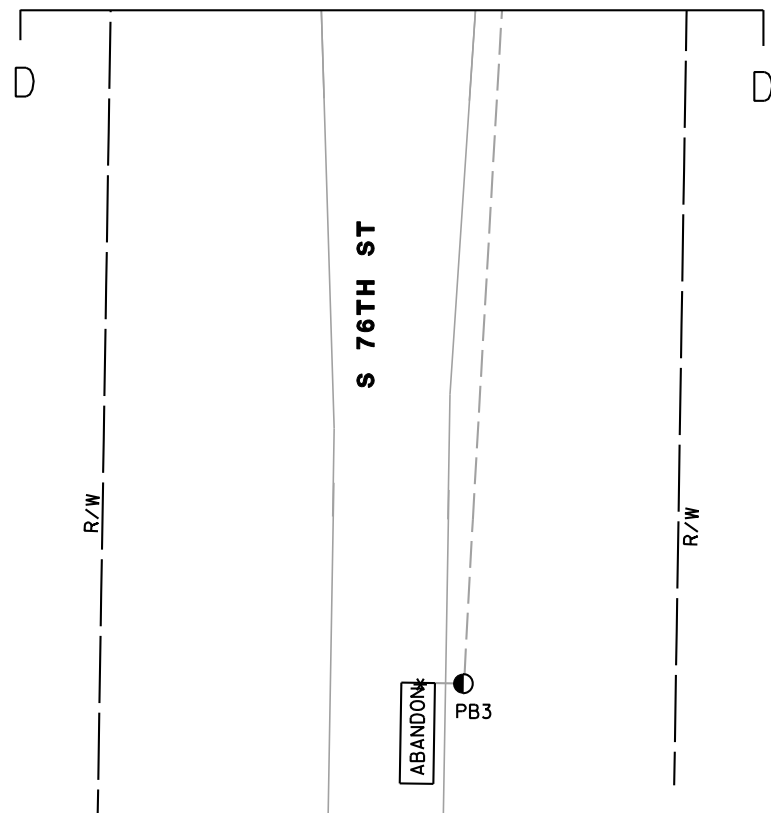
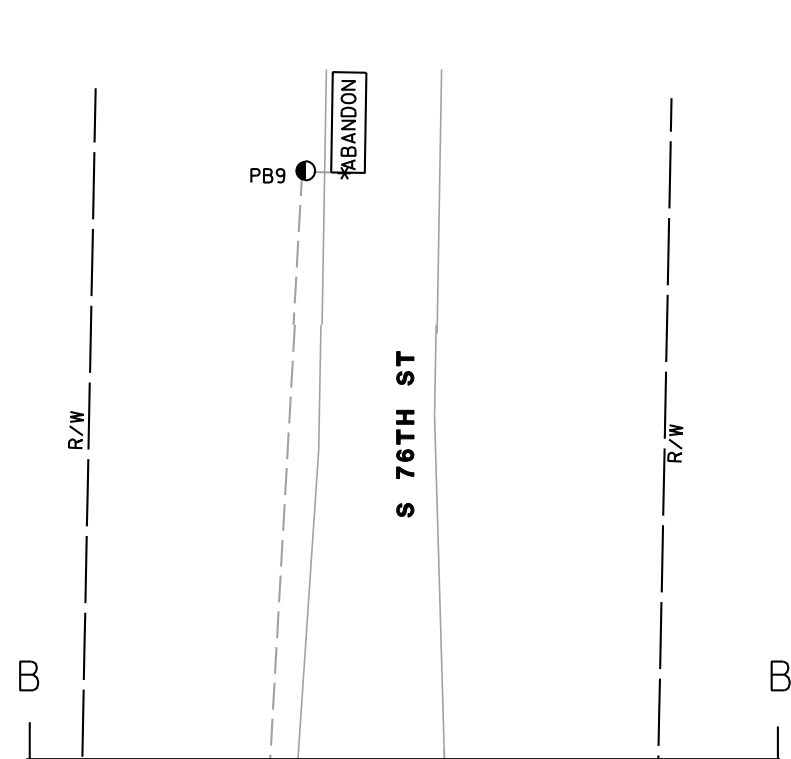
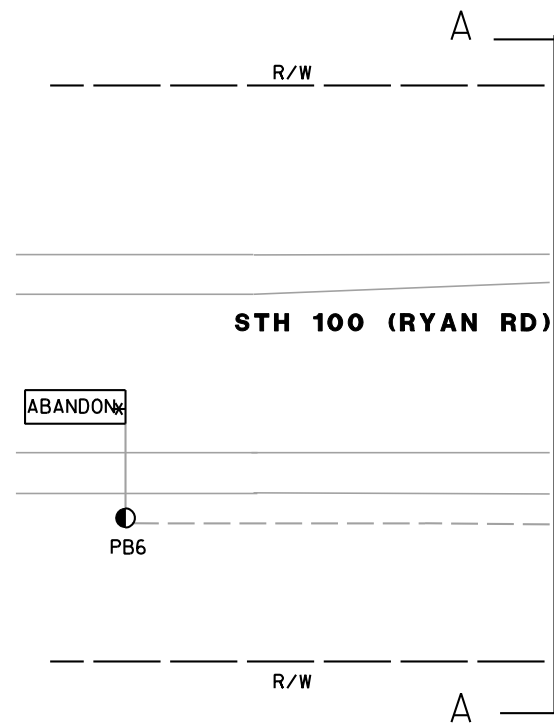
VIDEO DETECTOR CABLE	
FROM	TO
CB1	SB8 (VID1)

EMERGENCY VEHICLE PREEMPTION (EVP) CABLE	
From	To
CB1	HEAD A (SB10)
CB1	HEAD B (SB4)
CB1	HEAD C (SB8)
CB1	HEAD D (SB8)

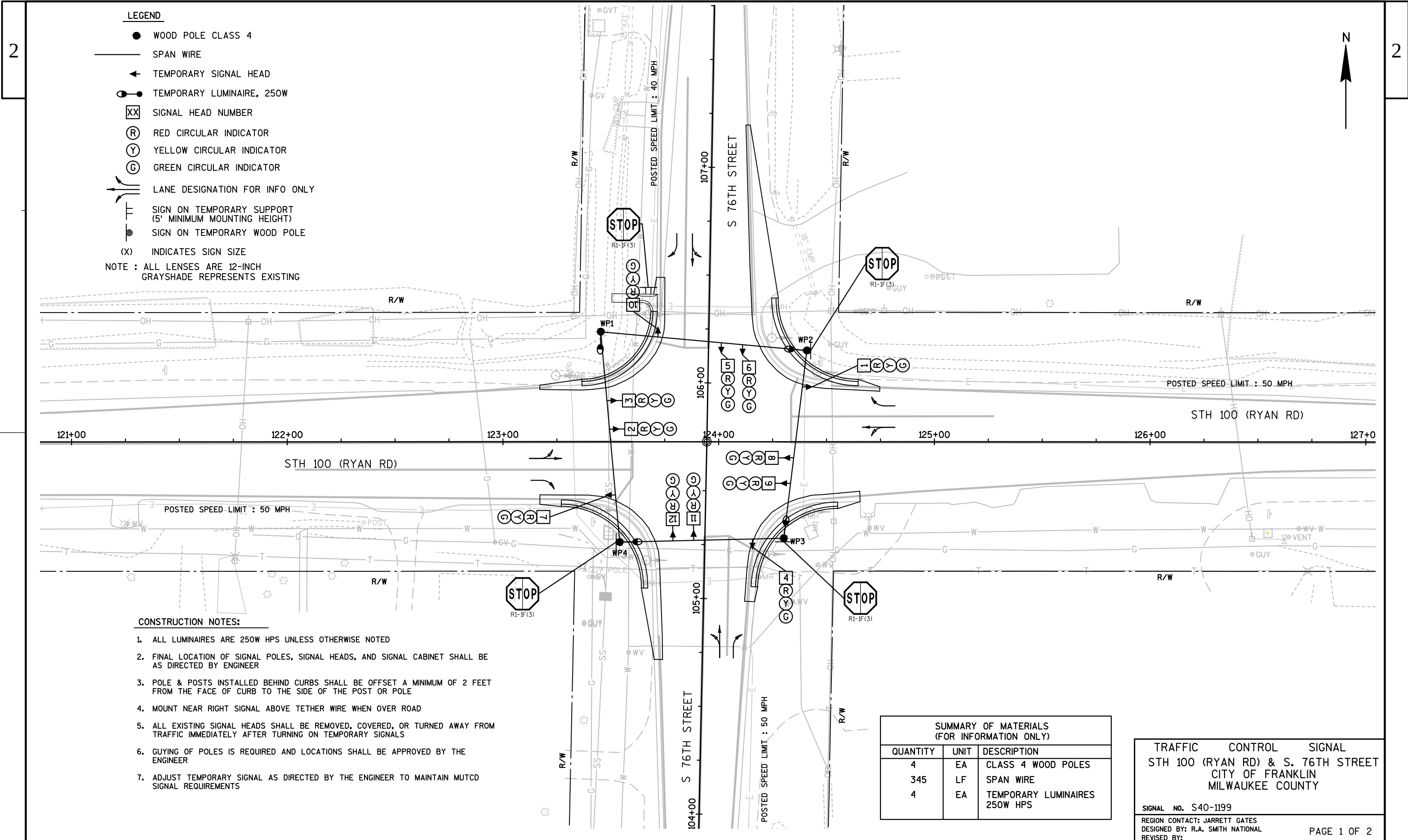
CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. CABINET AND CONTROLLER TO BE REMOVED BY WISDOT ELECTRICAL PERSONNEL.
3. ABANDONED LOOP DETECTOR CONDUIT TO REMAIN IN PLACE. LOOP WIRE AND LOOP DETECTOR LEAD-IN CABLE TO BE REMOVED BY CONTRACTOR.
4. EXISTING CONDUIT RUNS TO REMAIN IN PLACE. CONTRACTOR TO REMOVE CONDUCTORS REMAINING IN CONDUIT.





TRAFFIC CONTROL SIGNAL		
STH 100 (RYAN RD) & SOUTH 76TH ST		
CITY OF FRANKLIN		
MILWAUKEE COUNTY		
SIGNAL NO. S40-1199		
REGION CONTACT: JARRETT GATES		
DESIGNED BY:		PAGE 2 OF 2
REVISED BY: R.A. SMITH NATIONAL		



LEGEND

- WOOD POLE CLASS 4
- SPAN WIRE
- ← TEMPORARY SIGNAL HEAD
- TEMPORARY LUMINAIRE, 250W
- XX SIGNAL HEAD NUMBER
- Ⓡ RED CIRCULAR INDICATOR
- Ⓨ YELLOW CIRCULAR INDICATOR
- ⓖ GREEN CIRCULAR INDICATOR
- ↔ LANE DESIGNATION FOR INFO ONLY
- SIGN ON TEMPORARY SUPPORT (5' MINIMUM MOUNTING HEIGHT)
- ⦿ SIGN ON TEMPORARY WOOD POLE
- (X) INDICATES SIGN SIZE

NOTE : ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

CONSTRUCTION NOTES:

1. ALL LUMINAIRES ARE 250W HPS UNLESS OTHERWISE NOTED
2. FINAL LOCATION OF SIGNAL POLES, SIGNAL HEADS, AND SIGNAL CABINET SHALL BE AS DIRECTED BY ENGINEER
3. POLE & POSTS INSTALLED BEHIND CURBS SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE FACE OF CURB TO THE SIDE OF THE POST OR POLE
4. MOUNT NEAR RIGHT SIGNAL ABOVE TETHER WIRE WHEN OVER ROAD
5. ALL EXISTING SIGNAL HEADS SHALL BE REMOVED, COVERED, OR TURNED AWAY FROM TRAFFIC IMMEDIATELY AFTER TURNING ON TEMPORARY SIGNALS
6. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER
7. ADJUST TEMPORARY SIGNAL AS DIRECTED BY THE ENGINEER TO MAINTAIN MUTCD SIGNAL REQUIREMENTS

SUMMARY OF MATERIALS (FOR INFORMATION ONLY)		
QUANTITY	UNIT	DESCRIPTION
4	EA	CLASS 4 WOOD POLES
345	LF	SPAN WIRE
4	EA	TEMPORARY LUMINAIRES 250W HPS

TRAFFIC CONTROL SIGNAL
STH 100 (RYAN RD) & S. 76TH STREET
CITY OF FRANKLIN
MILWAUKEE COUNTY

SIGNAL NO. S40-1199
REGION CONTACT: JARRETT GATES
DESIGNED BY: R.A. SMITH NATIONAL
REVISED BY:

PAGE 1 OF 2

	HEAD NUMBERS	F L A S H
Ø1		
Ø2	1, 2, 3	R
Ø3		
Ø4	10, 11, 12	R
Ø5		
Ø6	7, 8, 9	R
Ø7		
Ø8	4, 5, 6	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLA		
OLB		
OLC		
OLD		

RING 1

NOT USED	←
Ø1	Ø2

NOT USED	↓
Ø3	Ø4

RING 2

NOT USED	→
Ø5	Ø6

NOT USED	↑
Ø7	Ø8

BARRIER

N



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MAX	X
3				
4			MAX	X
5				
6	X	2	MAX	X
7				
8			MAX	X

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	X
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

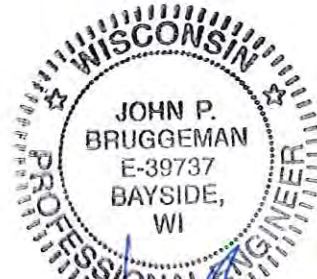
TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

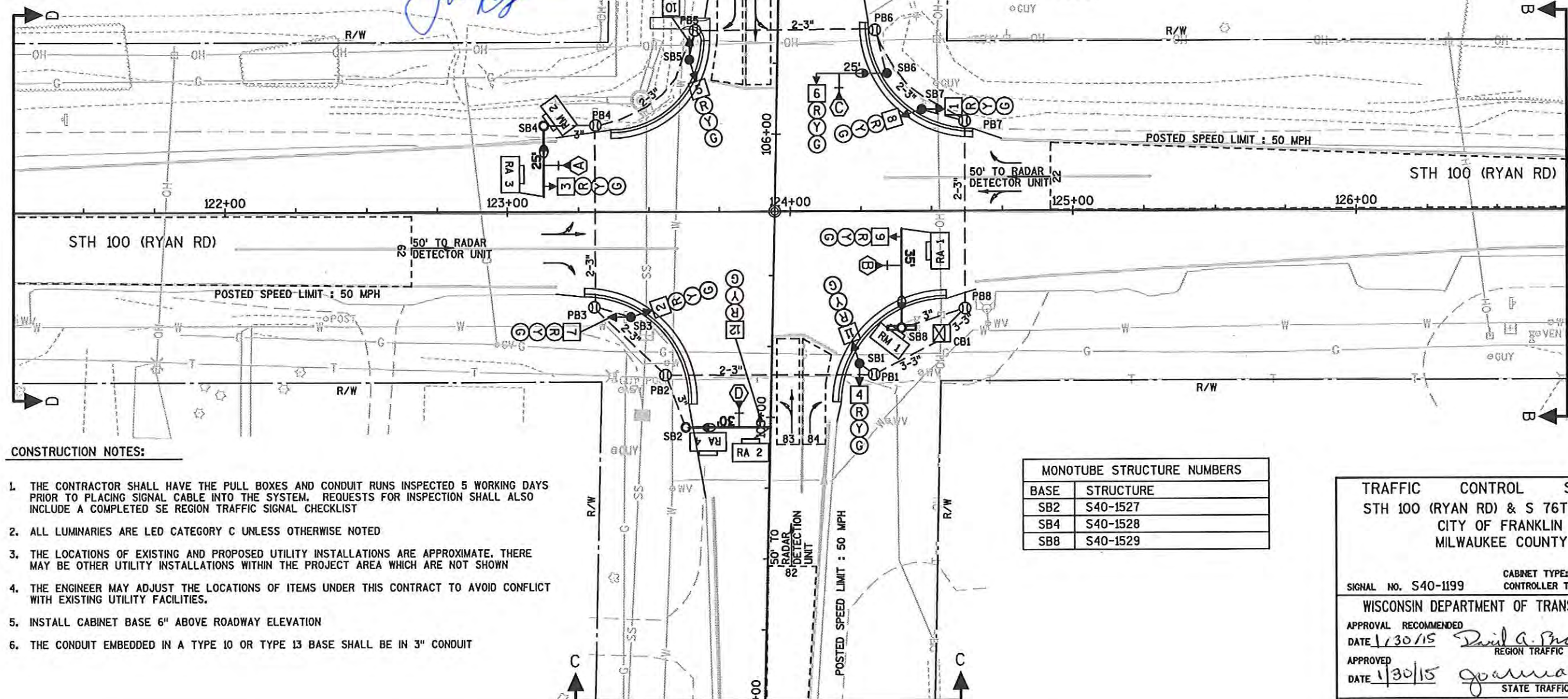
STH 100 (RYAN RD) & S 76TH ST.	
CITY OF FRANKLIN	
MILWAUKEE COUNTY	
SIGNAL NO: S40-1199	
CONTROLLER TYPE: TEMP	
DATE: FEBRUARY 2015	PAGE NO. 2 OF 2

LEGEND

- CONTROL CABINET
 NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
 SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
 PEDESTRIAN HEAD WITH PUSH BUTTON
 LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
 VEHICLE DETECTION AREA
 MONOTUBE BASE, POLE, 15'-30' ARM
 MONOTUBE BASE, POLE, 35'-55' ARM
 SIGNAL HEAD, MAST ARM MOUNT
 EVP DETECTOR HEAD
 EVP DESIGNATOR



- PULL BOX, 24" X 42"
 SIGNAL HEAD NUMBER
 RED CIRCULAR INDICATOR
 YELLOW CIRCULAR INDICATOR
 GREEN CIRCULAR INDICATOR
 RADAR DETECTOR (ADVANCE)
 RADAR DETECTOR (MATRIX)
 LANE DESIGNATION (FOR INFO ONLY)



CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO THE SYSTEM. REQUESTS FOR INSPECTION SHALL ALSO INCLUDE A COMPLETED SE REGION TRAFFIC SIGNAL CHECKLIST
2. ALL LUMINARIES ARE LED CATEGORY C UNLESS OTHERWISE NOTED
3. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN
4. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
5. INSTALL CABINET BASE 6" ABOVE ROADWAY ELEVATION
6. THE CONDUIT EMBEDDED IN A TYPE 10 OR TYPE 13 BASE SHALL BE IN 3" CONDUIT

MONOTUBE STRUCTURE NUMBERS	
BASE	STRUCTURE
SB2	S40-1527
SB4	S40-1528
SB8	S40-1529

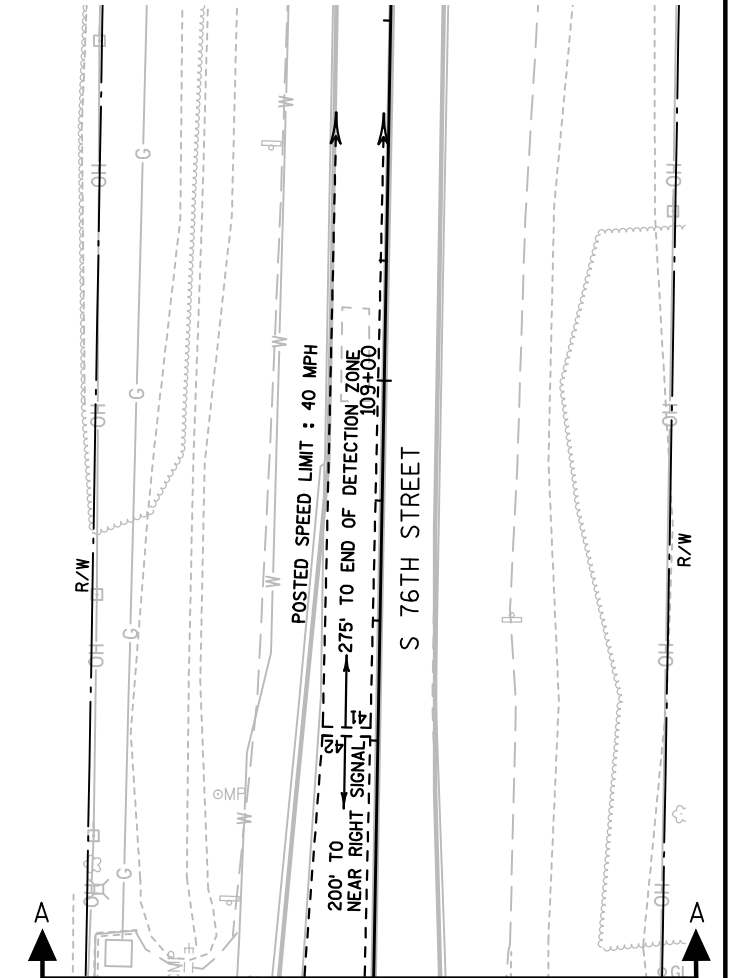
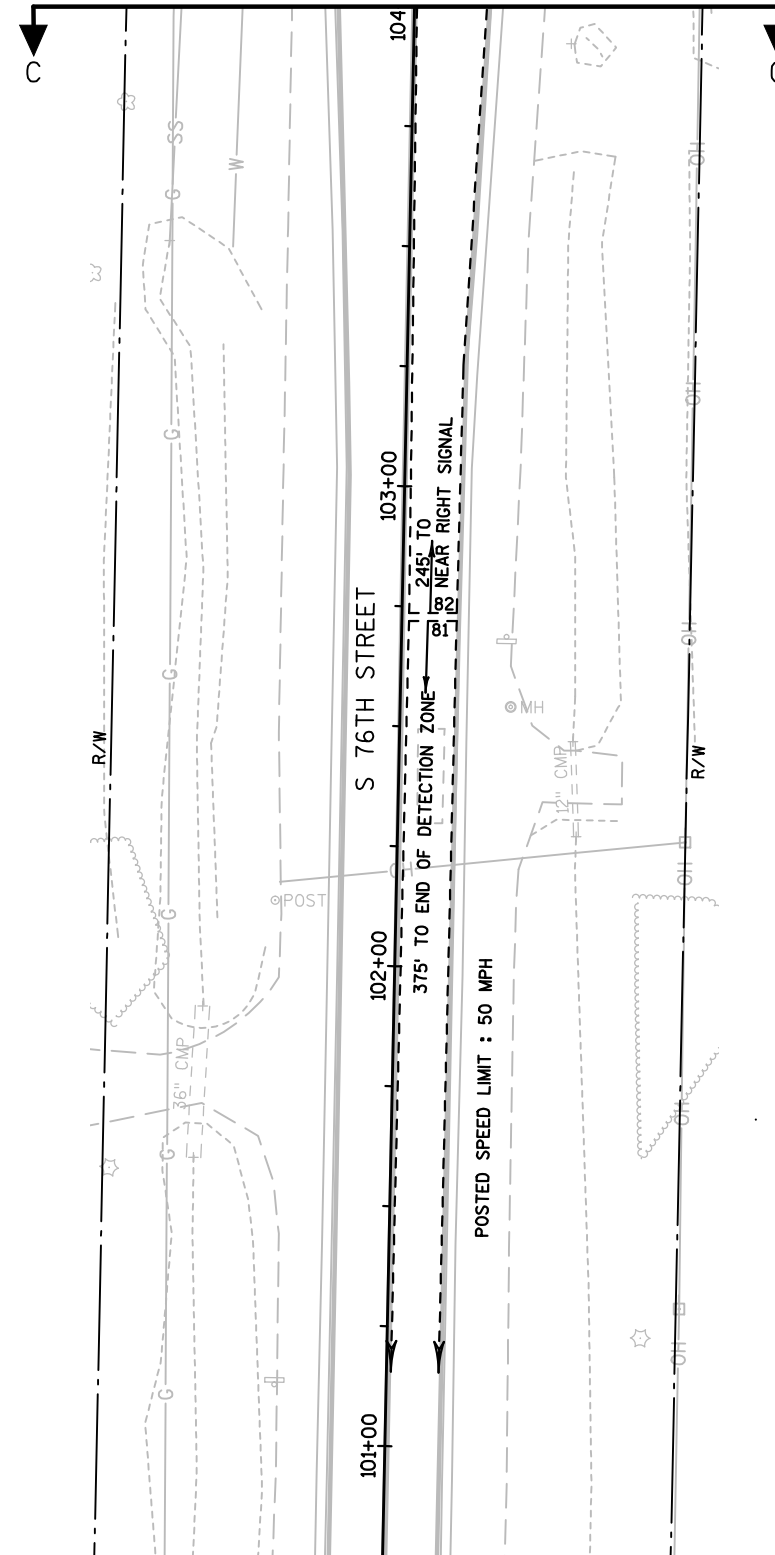
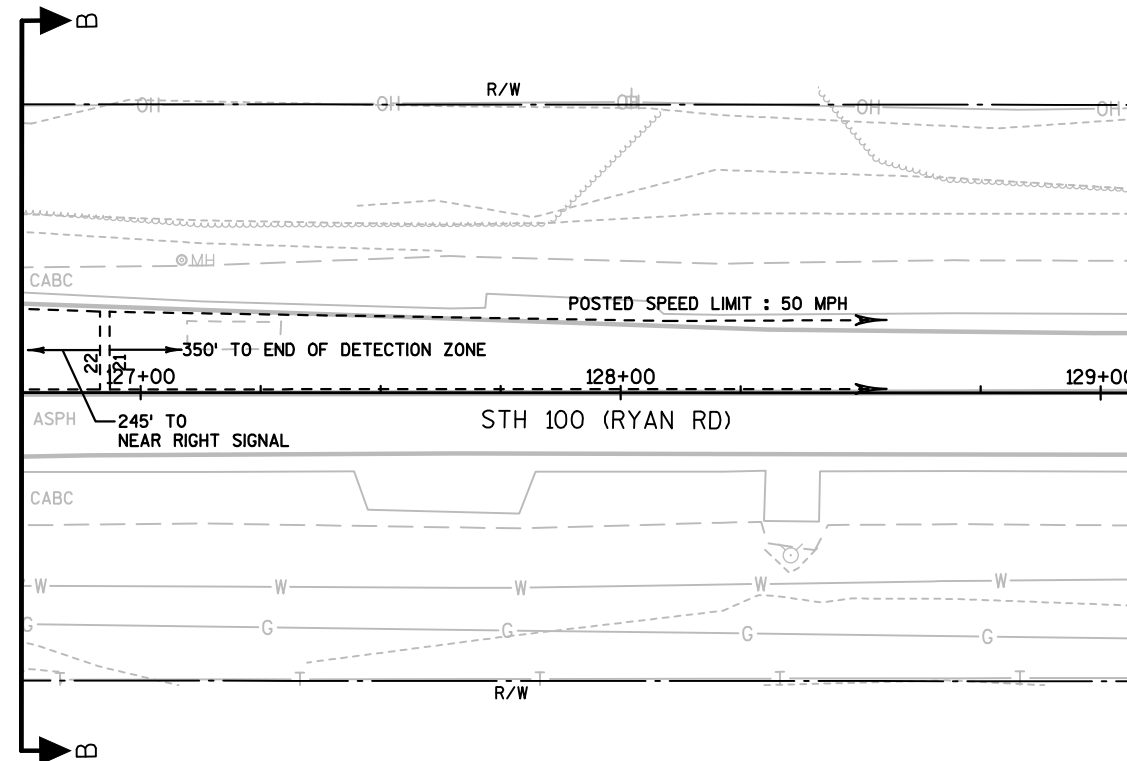
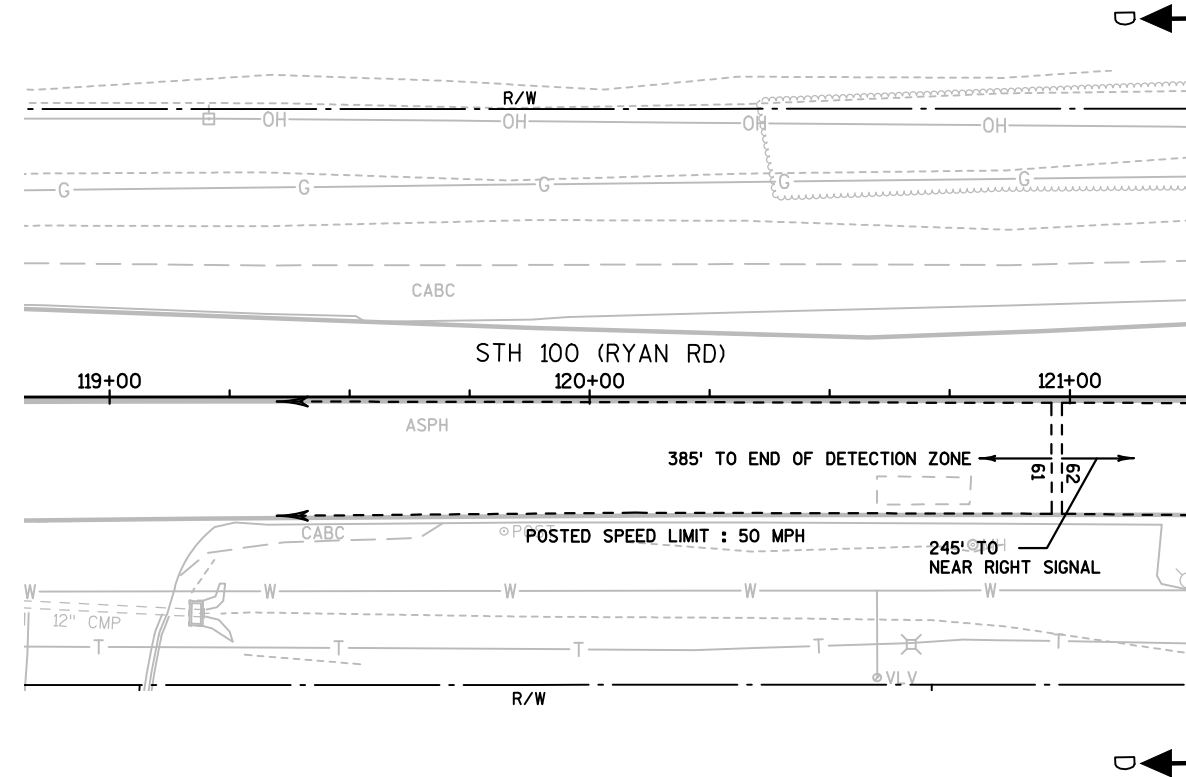
TRAFFIC CONTROL SIGNAL
 STH 100 (RYAN RD) & S 76TH STREET
 CITY OF FRANKLIN
 MILWAUKEE COUNTY

SIGNAL NO. S40-1199 CABINET TYPE: TS2
 CONTROLLER TYPE: EPAC
 WISCONSIN DEPARTMENT OF TRANSPORTATION
 APPROVAL RECOMMENDED
 DATE 1/30/15 *David A. Bruntz P.E.* REGION TRAFFIC ENGINEER
 APPROVED
 DATE 1/30/15 *Joanna Bush* STATE TRAFFIC ENGINEER

REGION CONTACT: JARRETT GATES
 DESIGNED BY: RA SMITH NATIONAL
 REVISED BY:

PAGE 1 OF 3

JMG 1/30/2015



TRAFFIC CONTROL SIGNAL	
STH 100 (RYAN RD) 100 & S 76TH STREET	
CITY OF FRANKLIN	
MILWAUKEE COUNTY	
SIGNAL NO. S40-1199	CABINET TYPE: TS2
DESIGNED BY: RA SMITH NATIONAL	CONTROLLER TYPE: EPAC
REVISOR BY:	

PROJECT NO: 3700-20-74

HWY: STH 100

COUNTY: MILWAUKEE

TRAFFIC SIGNAL PLAN

SHEET

74

E

FILE NAME : T:\1142709.01\CADD\CIVIL3D\37002004\SHEETSPLAN\024201-SP 100_RYAN.DWG
LAYOUT NAME - 024201-SP 100_RYAN-02

PLOT DATE : 1/28/2015 10:03 AM

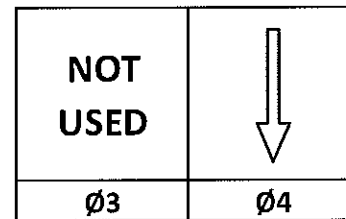
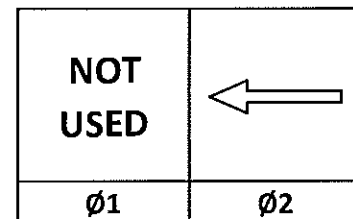
PLOT BY : WANDSCHNEIDER, BILL PLOT NAME :

PLOT SCALE : 1 IN:40 FT

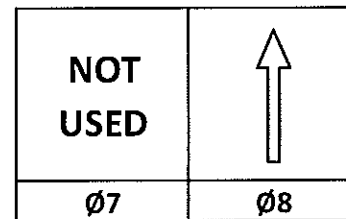
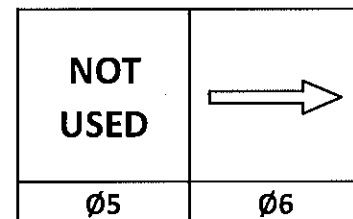
WISDOT/CADD SHEET 42

	HEAD NUMBERS	F L A S H
Ø1		
Ø2	1, 2, 3	R
Ø3		
Ø4	10, 11, 12	R
Ø5		
Ø6	7, 8, 9	R
Ø7		
Ø8	4, 5, 6	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLA		
OLB		
OLC		
OLD		

RING 1



RING 2



BARRIER

N

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MIN	X
3				
4		8		X
5				
6	X	2	MIN	X
7				
8		4		X

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT	←→	←→	↑↓	↑↓
PHASE	2+6	2+6	4+8	4+8

AFTER PREEMPTION SEQUENCE 2+6, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+8, CONTROLLER SHALL RETURN TO PHASES 4+8.

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	X
TBC	
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER	
CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS-

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	X
IN SEPARATE DOT LIGHTING CABINET	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	X
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)	21	41	43	61	81	83		
ASSIGNED PHASE	2	4	4	6	8	8		
OPERATION MODE	VEH	VEH	VEH	VEH	VEH	VEH		
SWITCH								
EXTEND	X	X		X	X			
DELAY								

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)	22	42	44	62	82	84		
ASSIGNED PHASE	2	4	4	6	8	8		
OPERATION MODE	VEH	VEH	VEH	VEH	VEH	VEH		
SWITCH								
EXTEND								
DELAY			X			X		

19	17	23	21	27	25	31	29

20	18	24	22	28	26	32	30

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

DETECTOR INPUT	
PLAN LOOP DETECTOR*(S)	
ASSIGNED PHASE	
OPERATION MODE	
SWITCH	
EXTEND	
DELAY	

STH 100 & S. 76TH ST.	
CITY OF FRANKLIN	
MILWAUKEE COUNTY	
SIGNAL NO: S40-1199	CABINET TYPE: TS2
CONTROLLER TYPE: EPAC	
DATE: FEBRUARY 2015	PAGE NO. 3 OF 3

2

2

DATE	2/1/15
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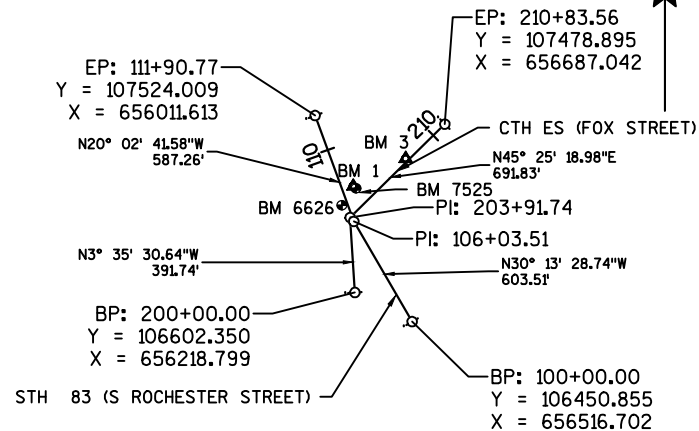
EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	CB1

PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
PB1	SB1
PB2	SB2
PB3	SB3
PB4	SB4
PB5	SB5
PB6	SB6
PB7	SB7
PB8	CB1

RADAR DETECTOR CABLE	
FROM	TO
CB1	RA2 (SB2)
CB1	RA4 (SB2)
CB1	RA3 (SB4)
CB1	RM2 (SB4)
CB1	RA1 (SB8)
CB1	RM1 (SB8)

LIGHTING UF #10 AWG W/GROUND	
FROM	TO
CB1	SB2
SB2	SB4
CB1	SB8
SB8	SB6

EMERGENCY VEHICLE PREEMPTION (EVP) CABLE	
From	To
CB1	HEAD A (SB4)
CB1	HEAD B (SB8)
CB1	HEAD C (SB6)
CB1	HEAD D (SB2)



STH 83 (S ROCHESTER STREET) &
CTH ES (FOX STREET)

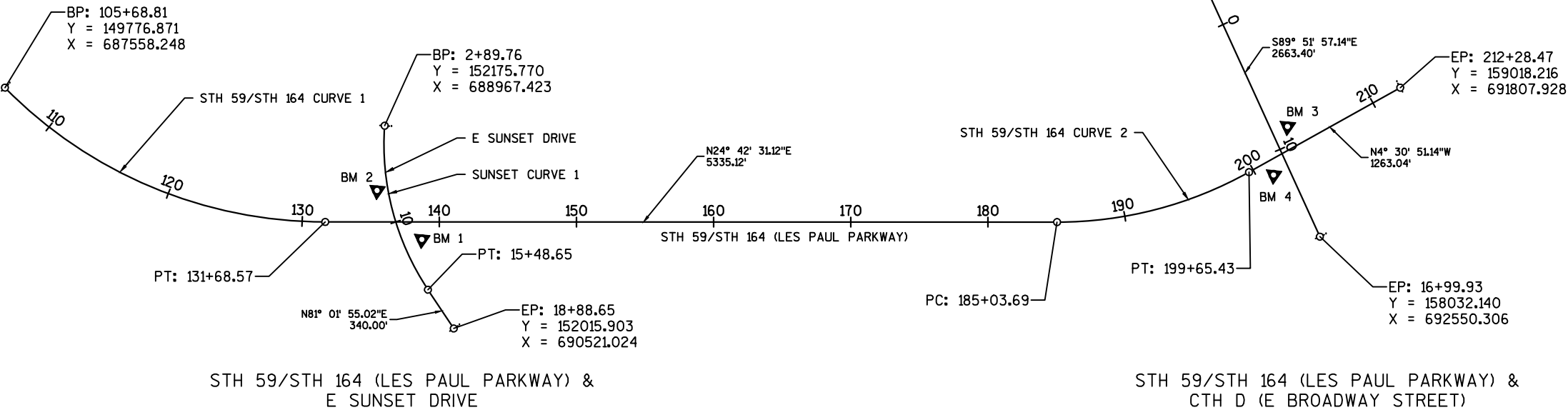
STH 83 AND CTH ES INTERSECTION BENCHMARKS

NO.	STATION/OFFSET	DESCRIPTION	ELEV.	X	Y
6626	107+03.34, 28.68' RT	CONCRETE STEP	839.65	656,151.74	107,056.28
7525	107+61.89, 70.06' LT	SIGN BASE	841.24	656,224.43	107,145.12
1	107+76.45, 60.83' LT	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	838.83	656,210.77	107,155.64
3	208+12.36, 15.97' LT	CHISELED "T"	838.76	656,482.65	107,299.92

E SUNSET DRIVE CURVE 1
PI STA = 9+43.03
Y = 151861.068
X = 689539.896
DELTA = 37°46'00"
D = 3°00'00"
T = 653.27'
L = 1258.89'
R = 1909.86'
PC STA = 2+89.76
Y = 152175.770
X = 688967.423
PT STA = 15+48.65
Y = 151962.903
X = 690185.181
BK = S61°12'05.0"E
AH = N81°01'55.0"E

STH 59/STH 164 CURVE 1
PI STA = 119+41.59
Y = 150241.784
X = 688849.906
DELTA = 45°29'45"
D = 1°45'00"
T = 1372.78'
L = 2599.76'
R = 3274.04'
PC STA = 105+68.81
Y = 149776.871
X = 687558.248
PT STA = 131+68.57
Y = 151488.879
X = 689423.734
BK = N70°12'16.0"E
AH = N24°42'31.1"E

STH 59/STH 164 CURVE 2
PI STA = 192+50.82
Y = 157014.273
X = 691966.141
DELTA = 29°13'22"
D = 1°59'57"
T = 747.14'
L = 1461.74'
R = 2865.96'
PC STA = 185+03.69
Y = 156335.540
X = 691653.835
PT STA = 199+65.43
Y = 157759.092
X = 691907.337
BK = N24°42'31.1"E
AH = N04°30'51.1"W



STH 59/STH 164 (LES PAUL PARKWAY) &
E SUNSET DRIVE

STH 59/STH 164 (LES PAUL PARKWAY) &
CTH D (E BROADWAY STREET)

STH 164 AND SUNSET DRIVE INTERSECTION BENCHMARKS

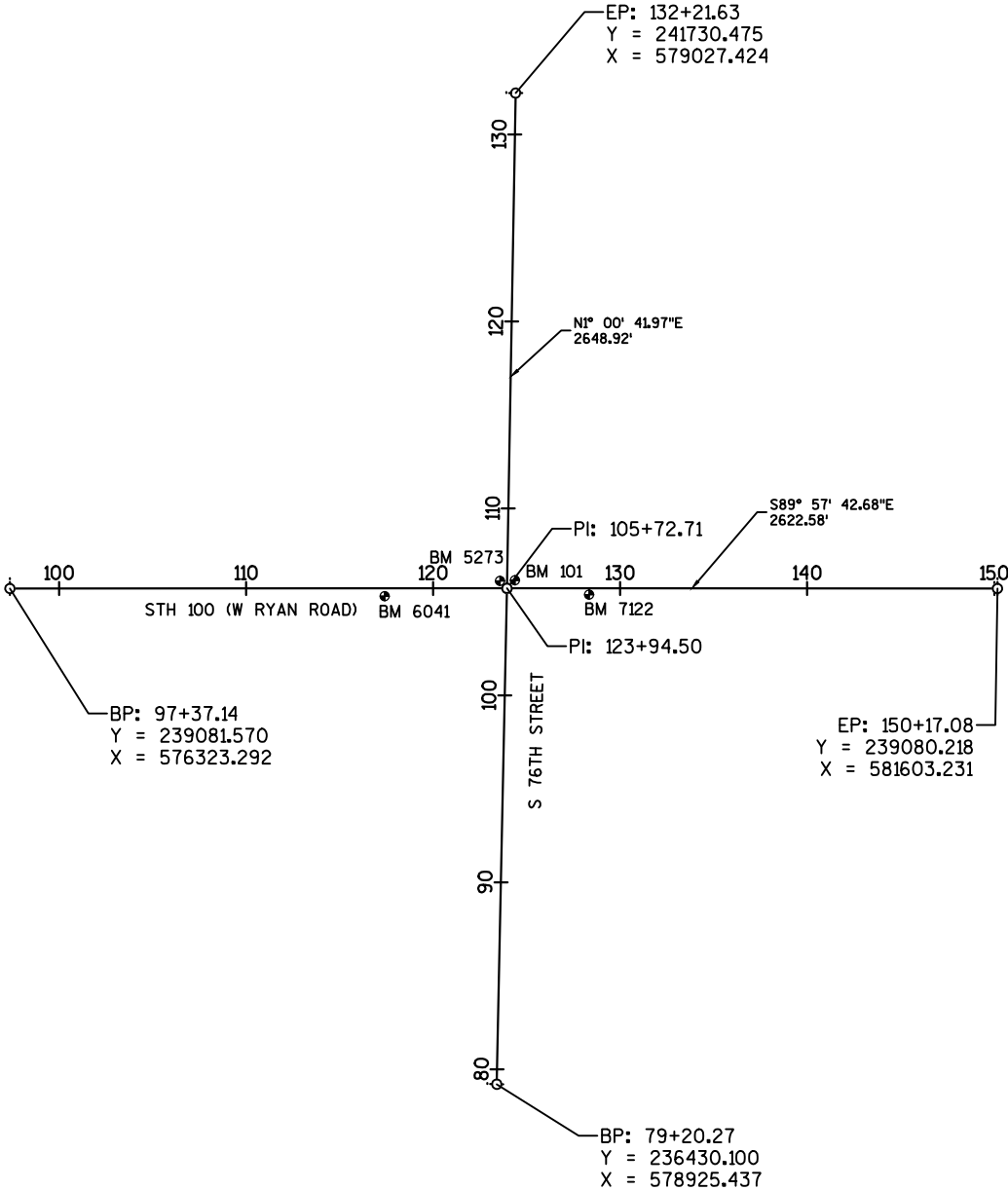
NO.	STATION/OFFSET	DESCRIPTION	ELEV.	X	Y
1	138+73.54, 127.30' RT	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	858.79	689,834.07	152,076.10
2	135+47.53, 229.75' LT	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	853.53	689,373.42	151,929.18

STH 59 AND CTH "D" INTERSECTION BENCHMARKS

NO.	STATION/OFFSET	DESCRIPTION	ELEV.	X	Y
3	203+72.97, 152.89' LT	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	912.45	691,722.84	158,153.34
4	201+11.69, 109.52' RT	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	902.91	692,005.00	157,913.53

STH 100 AND 76TH STREET INTERSECTION BENCHMARKS

NO.	STATION/OFFSET	DESCRIPTION	ELEV.	X	Y
101	124+38.69, 42.97' LT	CONCRETE MONUMENT WITH ALUMINUM CAP	735.015	579,024.87	239,124.90
5273	123+57.87, 39.86' LT	CHISELED CROSS	735.535	578,944.02	239,121.82
7122	128+35.14, 33.30' RT	NW UPPER FLANGE BOLT OF HYDRANT	724.225	579,421.27	239,048.37
6041	117+41.87, 42.50' RT	NW UPPER FLANGE BOLT OF HYDRANT	746.62		



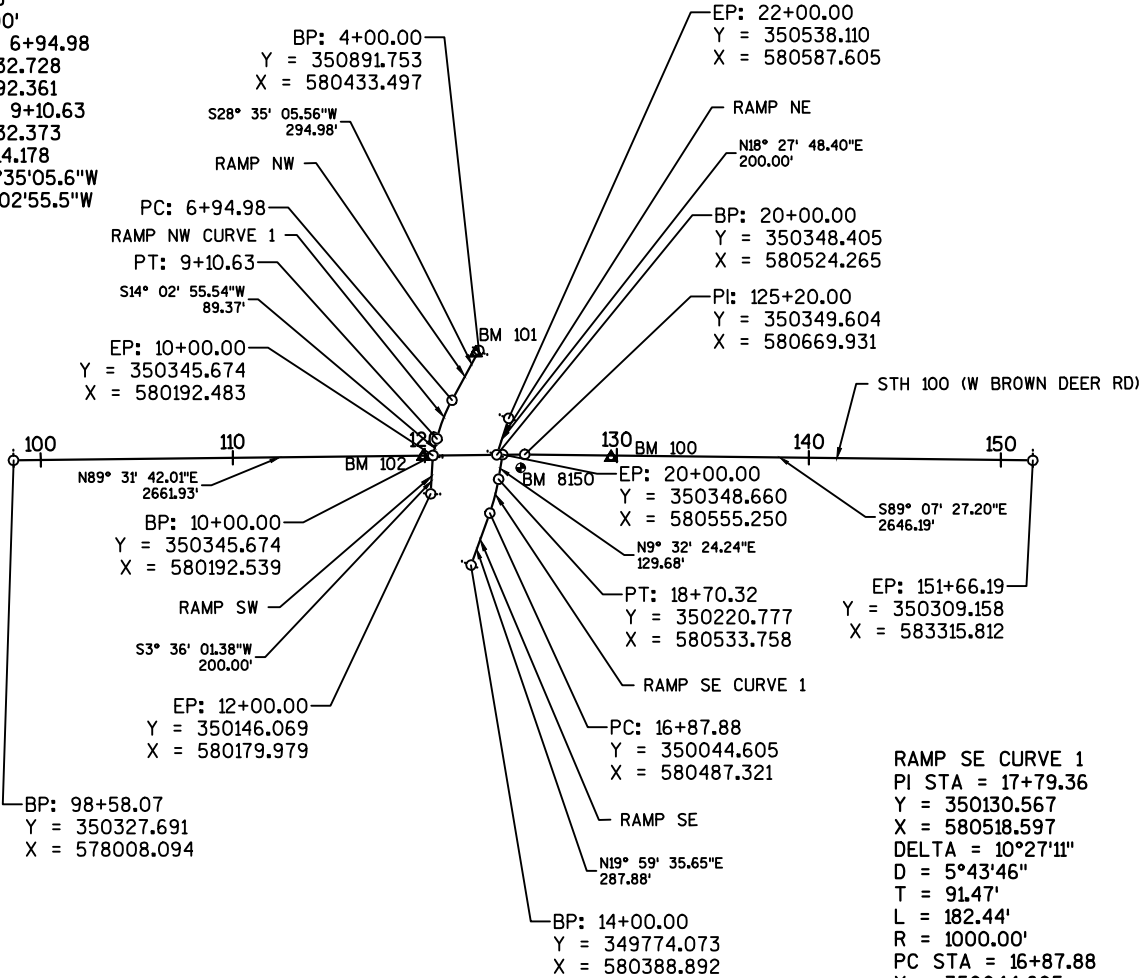
STH 100 (W RYAN ROAD) &
S 76TH STREET

STH 100 AND STH 181 INTERSECTION BENCHMARKS

NO.	STATION/OFFSET	DESCRIPTION	ELEV.	X	Y
102	119+91.59, 4.90' RT	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	690.92	580,141.58	350,340.36
8150	124+99.03, 70.84' RT	NW CORNER OF TRANSFORMER PAD	691.17		
100	129+69.94, 10.33' RT	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	695.46	581,119.66	350,332.40
101	4+19.16, 79.97' RT	39" BERNTSEN FENO MONUMENT WITH ALUMINUM CAP	694.90	580,417.33	350,878.74



RAMP NW CURVE 1
PI STA = 8+03.39
Y = 350537.536
X = 580240.493
DELTA = 14°32'10"
D = 6°44'26"
T = 108.41'
L = 215.65'
R = 850.00'
PC STA = 6+94.98
Y = 350632.728
X = 580292.361
PT STA = 9+10.63
Y = 350432.373
X = 580214.178
BK = S28°35'05.6"W
AH = S14°02'55.5"W



STH 100 (W BROWN DEER RD) &
STH 181 (N 76TH STREET)

3

DATE 17MAR15		E S T I M A T E O F Q U A N T I T I E S			
LINE				3700-20-74	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	204.0110	Removing Asphaltic Surface	SY	611.000	611.000
0020	204.0150	Removing Curb & Gutter	LF	199.000	199.000
0030	204.0155	Removing Concrete Sidewalk	SY	223.000	223.000
0040	204.0195	Removing Concrete Bases	EACH	62.000	62.000
0050	204.0220	Removing Inlets	EACH	1.000	1.000
0060	205.0100	Excavation Common	CY	16.000	16.000
0070	205.0501.S	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	TON	100.000	100.000
0080	208.0100	Borrow	CY	72.000	72.000
0090	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	300.000	300.000
0100	390.0403	Base Patching Concrete Shes	SY	362.000	362.000
0110	416.0610	Drilled Tie Bars	EACH	80.000	80.000
0120	416.0620	Drilled Dowel Bars	EACH	432.000	432.000
0130	455.0605	Tack Coat	GAL	18.000	18.000
0140	465.0105	Asphaltic Surface	TON	211.000	211.000
0150	502.5010	Masonry Anchors Type L No. 6 Bars	EACH	14.000	14.000
0160	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0170	521.0130	Culvert Pipe Corrugated Steel 30-Inch	LF	24.000	24.000
0180	521.0749	Pipe Arch Corrugated Steel 49x33-Inch	LF	6.000	6.000
0190	521.1530	Apron Endwalls for Culvert Pipe Sloped	EACH	1.000	1.000
0200	521.1630	Side Drains Steel 30-Inch 6 to 1 Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 30-Inch 10 to 1	EACH	1.000	1.000
0210	601.0105	Concrete Curb Type A	LF	100.000	100.000
0220	601.0553	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D	LF	240.000	240.000
0230	602.0405	Concrete Sidewalk 4-Inch	SF	2,050.000	2,050.000
0240	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	14.000	14.000
0250	606.0100	Riprap Light	CY	5.000	5.000
0260	611.0545	Manhole Covers Type L	EACH	1.000	1.000
0270	611.0642	Inlet Covers Type MS	EACH	2.000	2.000
0280	611.2006	Manholes 6-FT Diameter	EACH	1.000	1.000
0290	611.3902	Inlets Median 2 Grate	EACH	1.000	1.000
0300	619.1000	Mobilization	EACH	1.000	1.000
0310	625.0500	Salvaged Topsoil	SY	550.000	550.000
0320	628.1504	Silt Fence	LF	200.000	200.000
0330	628.1520	Silt Fence Maintenance	LF	200.000	200.000
0340	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0350	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0360	628.2008	Erosion Mat Urban Class I Type B	SY	400.000	400.000
0370	628.7005	Inlet Protection Type A	EACH	3.000	3.000
0380	628.7015	Inlet Protection Type C	EACH	25.000	25.000
0390	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0400	628.7555	Culvert Pipe Checks	EACH	5.000	5.000
0410	629.0210	Fertilizer Type B	CWT	0.400	0.400
0420	630.0130	Seeding Mixture No. 30	LB	10.000	10.000
0430	631.1000	Sod Lawn	SY	180.000	180.000
0440	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	49.000	49.000
0450	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	80.000	80.000
0460	637.2210	Signs Type II Reflective H	SF	1,647.210	1,647.210
0470	637.2215	Signs Type II Reflective H Folding	SF	246.180	246.180
0480	637.2230	Signs Type II Reflective F	SF	228.670	228.670
0490	638.2102	Moving Signs Type II	EACH	5.000	5.000
0500	638.2602	Removing Signs Type II	EACH	123.000	123.000

3

3

DATE 17MAR15		E S T I M A T E O F Q U A N T I T I E S			
LINE				3700-20-74	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0510	638.3000	Removing Small Sign Supports	EACH	58.000	58.000
0520	643.0200	Traffic Control Surveillance and Maintenance (project) 01. 3700-20-74	DAY	230.000	230.000
0530	643.0300	Traffic Control Drums	DAY	25,250.000	25,250.000
0540	643.0420	Traffic Control Barricades Type III	DAY	920.000	920.000
0550	643.0705	Traffic Control Warning Lights Type A	DAY	1,840.000	1,840.000
0560	643.0715	Traffic Control Warning Lights Type C	DAY	5,500.000	5,500.000
0570	643.0900	Traffic Control Signs	DAY	5,680.000	5,680.000
0580	643.1050	Traffic Control Signs PCMS	DAY	90.000	90.000
0590	650.4000	Construction Staking Storm Sewer	EACH	4.000	4.000
0600	650.4500	Construction Staking Subgrade	LF	470.000	470.000
0610	650.5000	Construction Staking Base	LF	470.000	470.000
0620	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	232.000	232.000
0630	650.8500	Construction Staking Electrical Installations (project) 01. 3700-20-74	LS	1.000	1.000
0640	650.9910	Construction Staking Supplemental Control (project) 01. 3700-20-74	LS	1.000	1.000
0650	652.0215	Conduit Rigid Nonmetallic Schedule 40 1 1/4-Inch	LF	10.000	10.000
0660	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	1,158.000	1,158.000
0670	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	1,875.000	1,875.000
0680	652.0605	Conduit Special 2-Inch	LF	150.000	150.000
0690	652.0615	Conduit Special 3-Inch	LF	7,659.000	7,659.000
0700	652.0700.S	Install Conduit into Existing Item	EACH	7.000	7.000
0710	652.0800	Conduit Loop Detector	LF	740.000	740.000
0720	653.0135	Pull Boxes Steel 24x36-Inch	EACH	11.000	11.000
0730	653.0140	Pull Boxes Steel 24x42-Inch	EACH	62.000	62.000
0740	653.0905	Removing Pull Boxes	EACH	71.000	71.000
0750	654.0101	Concrete Bases Type 1	EACH	24.000	24.000
0760	654.0102	Concrete Bases Type 2	EACH	2.000	2.000
0770	654.0105	Concrete Bases Type 5	EACH	1.000	1.000
0780	654.0110	Concrete Bases Type 10	EACH	10.000	10.000
0790	654.0113	Concrete Bases Type 13	EACH	13.000	13.000
0800	654.0217	Concrete Control Cabinet Bases Type 9 Special	EACH	6.000	6.000
0810	655.0230	Cable Traffic Signal 5-14 AWG	LF	3,869.000	3,869.000
0820	655.0240	Cable Traffic Signal 7-14 AWG	LF	4,333.000	4,333.000
0830	655.0260	Cable Traffic Signal 12-14 AWG	LF	6,831.000	6,831.000
0840	655.0270	Cable Traffic Signal 15-14 AWG	LF	2,079.000	2,079.000
0850	655.0320	Cable Type UF 2-10 AWG Grounded	LF	3,049.000	3,049.000
0860	655.0515	Electrical Wire Traffic Signals 10 AWG	LF	11,104.000	11,104.000
0870	655.0520	Electrical Wire Traffic Signals 8 AWG	LF	555.000	555.000
0880	655.0610	Electrical Wire Lighting 12 AWG	LF	2,962.000	2,962.000
0890	655.0700	Loop Detector Lead In Cable	LF	11,494.000	11,494.000
0900	655.0800	Loop Detector Wire	LF	2,458.000	2,458.000
0910	655.0900	Traffic Signal EVP Detector Cable	LF	4,935.000	4,935.000
0920	656.0200	Electrical Service Meter Breaker Pedestal (location) 01. STH 59 & CTH D	LS	1.000	1.000
0930	656.0200	Electrical Service Meter Breaker Pedestal (location) 02. STH 59 & Sunset Dr.	LS	1.000	1.000

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DATE 17MAR15		E S T I M A T E O F Q U A N T I T I E S			
LINE					3700-20-74
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0940	656.0200	Electrical Service Meter Breaker Pedestal (location) 03. STH 83 & CTH ES	LS	1.000	1.000
0950	656.0200	Electrical Service Meter Breaker Pedestal (location) 04. STH 100/Brown Deer Rd & STH 181 Ramps	LS	1.000	1.000
0960	656.0200	Electrical Service Meter Breaker Pedestal (location) 05. STH 100/Ryan Rd & 76th St	LS	1.000	1.000
0970	657.0100	Pedestal Bases	EACH	23.000	23.000
0980	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	4.000	4.000
0990	657.0310	Poles Type 3	EACH	1.000	1.000
1000	657.0315	Poles Type 4	EACH	2.000	2.000
1010	657.0322	Poles Type 5-Aluminum	EACH	1.000	1.000
1020	657.0405	Traffic Signal Standards Aluminum 3.5-FT	EACH	1.000	1.000
1030	657.0420	Traffic Signal Standards Aluminum 13-FT	EACH	12.000	12.000
1040	657.0425	Traffic Signal Standards Aluminum 15-FT	EACH	7.000	7.000
1050	657.0430	Traffic Signal Standards Aluminum 10-FT	EACH	3.000	3.000
1060	657.0595	Trombone Arms 25-FT	EACH	1.000	1.000
1070	657.0610	Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT	EACH	4.000	4.000
1080	657.1345	Install Poles Type 9	EACH	2.000	2.000
1090	657.1350	Install Poles Type 10	EACH	8.000	8.000
1100	657.1355	Install Poles Type 12	EACH	4.000	4.000
1110	657.1360	Install Poles Type 13	EACH	9.000	9.000
1120	657.1515	Install Monotube Arms 15-FT	EACH	3.000	3.000
1130	657.1525	Install Monotube Arms 25-FT	EACH	4.000	4.000
1140	657.1530	Install Monotube Arms 30-FT	EACH	3.000	3.000
1150	657.1535	Install Monotube Arms 35-FT	EACH	1.000	1.000
1160	657.1545	Install Monotube Arms 45-FT	EACH	4.000	4.000
1170	657.1550	Install Monotube Arms 50-FT	EACH	1.000	1.000
1180	657.1555	Install Monotube Arms 55-FT	EACH	7.000	7.000
1190	657.1815	Install Luminaire Arms Steel 15-FT	EACH	18.000	18.000
1200	658.0110	Traffic Signal Face 3-12 Inch Vertical	EACH	70.000	70.000
1210	658.0115	Traffic Signal Face 4-12 Inch Vertical	EACH	25.000	25.000
1220	658.0120	Traffic Signal Face 5-12 Inch Vertical	EACH	4.000	4.000
1230	658.0215	Backplates Signal Face 3 Section 12-Inch	EACH	70.000	70.000
1240	658.0220	Backplates Signal Face 4 Section 12-Inch	EACH	25.000	25.000
1250	658.0225	Backplates Signal Face 5 Section 12-Inch	EACH	4.000	4.000
1260	658.0412	Pedestrian Signal Face 12-Inch	EACH	12.000	12.000
1270	658.0416	Pedestrian Signal Face 16-Inch	EACH	2.000	2.000
1280	658.0500	Pedestrian Push Buttons	EACH	14.000	14.000
1290	658.0600	Led Modules 12-Inch Red Ball	EACH	76.000	76.000
1300	658.0605	Led Modules 12-Inch Yellow Ball	EACH	76.000	76.000
1310	658.0610	Led Modules 12-Inch Green Ball	EACH	76.000	76.000
1320	658.0615	Led Modules 12-Inch Red Arrow	EACH	23.000	23.000
1330	658.0620	Led Modules 12-Inch Yellow Arrow	EACH	45.000	45.000
1340	658.0625	Led Modules 12-Inch Green Arrow	EACH	34.000	34.000
1350	658.0635	Led Modules Pedestrian Countdown Timer 16-Inch	EACH	2.000	2.000
1360	658.0660	Led Modules Countdwn Timer 12-Inch	EACH	12.000	12.000
1370	658.5069	Signal Mounting Hardware (location) 01. STH 59 & CTH D	LS	1.000	1.000
1380	658.5069	Signal Mounting Hardware (location) 02. STH 59 & Sunset Dr.	LS	1.000	1.000

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DATE 17MAR15		E S T I M A T E O F Q U A N T I T I E S			
LINE					3700-20-74
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
1390	658.5069	Signal Mounting Hardware (location) 03. STH 83 & CTH ES	LS	1.000	1.000
1400	658.5069	Signal Mounting Hardware (location) 04. STH 100/Brown Deer Rd & STH 181 Ramps	LS	1.000	1.000
1410	658.5069	Signal Mounting Hardware (location) 05. STH 100/Ryan Rd & 76th St	LS	1.000	1.000
1420	659.1125	Luminaires Utility LED C	EACH	22.000	22.000
1430	661.0200	Temporary Traffic Signals for Intersections (location) 01. STH 59 & CTH D	LS	1.000	1.000
1440	661.0200	Temporary Traffic Signals for Intersections (location) 02. STH 59 & Sunset Dr.	LS	1.000	1.000
1450	661.0200	Temporary Traffic Signals for Intersections (location) 03. STH 83 & CTH ES	LS	1.000	1.000
1460	661.0200	Temporary Traffic Signals for Intersections (location) 04. STH 100/Brown Deer Rd & STH 181 SB Ramps	LS	1.000	1.000
1470	661.0200	Temporary Traffic Signals for Intersections (location) 05. STH 100/Brown Deer Rd & STH 181 NB Ramps	LS	1.000	1.000
1480	661.0200	Temporary Traffic Signals for Intersections (location) 06. STH 100/Ryan Rd & 76th St	LS	1.000	1.000
1490	674.0300	Remove Cable	LF	150.000	150.000
1500	674.0400	Reinstall Cable	LF	150.000	150.000
1510	690.0150	Sawing Asphalt	LF	675.000	675.000
1520	690.0250	Sawing Concrete	LF	940.000	940.000
1530	SPV.0060	Special 01. Abandon Pull Boxes	EACH	47.000	47.000
1540	SPV.0090	Special 01. Fiber Optic Warning Tape	LF	156.000	156.000
1550	SPV.0105	Special 01. Remove Traffic Signals STH 59 & CTH D	LS	1.000	1.000
1560	SPV.0105	Special 02. Remove Traffic Signals STH 59 & Sunset Dr	LS	1.000	1.000
1570	SPV.0105	Special 03. Remove Traffic Signals STH 83 & CTH ES	LS	1.000	1.000
1580	SPV.0105	Special 04. Remove Traffic Signals STH 100/Brown Deer Rd & STH 181	LS	1.000	1.000
1590	SPV.0105	Special 05. Remove Traffic Signals STH 100/Ryan Rd & 76th St	LS	1.000	1.000
1600	SPV.0105	Special 06. Install State Furnished Traffic Sgnl Cabinet STH 59 & CTH D	LS	1.000	1.000
1610	SPV.0105	Special 07. Install State Furnished Traffic Sgnl Cabinet STH 59 & Sunset Dr.	LS	1.000	1.000
1620	SPV.0105	Special 08. Install State Furnished Traffic Sgnl Cabinet STH 83 & CTH ES	LS	1.000	1.000
1630	SPV.0105	Special 09. Inst State Furn Traffic Sgnl Cabinet STH 100/Brwn Deer Rd & SB STH 181	LS	1.000	1.000
1640	SPV.0105	Special 10. Inst State Furn Traffic Sgnl Cabinet STH 100/Brwn Deer Rd & NB STH 181	LS	1.000	1.000
1650	SPV.0105	Special 11. Install State Furnished Traffic Sgnl Cabinet STH 100 / Ryan Rd & 76th St	LS	1.000	1.000
1660	SPV.0105	Special 12. Transporting Signal and Lighting Materials STH 59 & CTH D	LS	1.000	1.000

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DATE 17MAR15		E S T I M A T E O F Q U A N T I T I E S			
LINE					3700-20-74
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
1670	SPV.0105	Special 13. Transporting Signal and Lighting Materials STH 59 & Sunset Dr.	LS	1.000	1.000
1680	SPV.0105	Special 14. Transporting Signal and Lighting Materials STH 83 & CTH ES	LS	1.000	1.000
1690	SPV.0105	Special 15. Transporting Signal and Lighting Materials STH 100/Brown Deer & STH 181	LS	1.000	1.000
1700	SPV.0105	Special 16. Transporting Signal and Lighting Materials STH 100/Ryan Rd & 76th St	LS	1.000	1.000
1710	SPV.0105	Special 17. Transport and Install State Furnshed Video Detection System STH 59 & CTH D	LS	1.000	1.000
1720	SPV.0105	Special 18. Transport and Install State Furnshed Video Detection Sys STH 59 & Sunset Dr	LS	1.000	1.000
1730	SPV.0105	Special 19. Transport and Install State Furnshed Video Detection System STH 83 & CTH ES	LS	1.000	1.000
1740	SPV.0105	Special 20. Install State Furnished EVP Detector Heads STH 59 & CTH D	LS	1.000	1.000
1750	SPV.0105	Special 21. Install State Furnished EVP Detector Heads STH 59 & Sunset Dr	LS	1.000	1.000
1760	SPV.0105	Special 22. Install State Furnished EVP Detector Heads STH 83 & STH ES	LS	1.000	1.000
1770	SPV.0105	Special 23. Install State Furnished EVP Detector Heads STH 100 & S. 76th St	LS	1.000	1.000
1780	SPV.0105	Special 24. Temporary Infrared EVP System STH 59 & CTH D	LS	1.000	1.000
1790	SPV.0105	Special 25. Temporary Infrared EVP System STH 59 & Sunset Dr	LS	1.000	1.000
1800	SPV.0105	Special 26. Remove Loop Detector Wire & Lead-in Cable STH 59 & CTH D	LS	1.000	1.000
1810	SPV.0105	Special 27. Remove Loop Detector Wire & Lead-in Cable STH 59 & Sunset Dr.	LS	1.000	1.000
1820	SPV.0105	Special 28. Remove Loop Detector Wire & Lead-in Cable STH 83 & CTH ES	LS	1.000	1.000
1830	SPV.0105	Special 29. Remove Loop Detector Wire & Lead-in Cable STH 100/Brown Deer Rd & STH 181	LS	1.000	1.000
1840	SPV.0105	Special 30. Remove Loop Detector Wire & Lead-in Cable STH 100/Ryan Rd & 76th Street	LS	1.000	1.000
1850	SPV.0105	Special 31. Temporary Vehicle Detection STH 59/ 164 & CTH D	LS	1.000	1.000
1860	SPV.0105	Special 32. Temporary Vehicle Detection STH 59 & Sunset Dr.	LS	1.000	1.000
1870	SPV.0105	Special 33. Temporary Vehicle Detection STH 100/Brown Deer Rd & STH 181 SB Ramps	LS	1.000	1.000
1880	SPV.0105	Special 34. Temporary Vehicle Detection STH 100/Brown Deer Rd & STH 181 NB Ramps	LS	1.000	1.000
1890	SPV.0105	Special 35. Install Fiber Optic Comm in Cabinet STH 100/Brown Deer Rd & STH 181	LS	1.000	1.000
1900	SPV.0105	Special 36. Rmv Slvg & Reinstall InSync Adptv Trffc Sgnl Equip STH 100 & STH 181	LS	1.000	1.000
1910	SPV.0105	Special 37. Transport and Install State Furnshed Radar Detect System STH 59 & CTH D	LS	1.000	1.000

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DATE 17MAR15			E S T I M A T E O F Q U A N T I T I E S		
LINE			3700-20-74		
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
1920	SPV.0105	Special 38. Transport and Install State Furnished Radar Detect Syst STH100/Ryan Rd&76thSt	LS	1.000	1.000

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REMOVALS

LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0150 REMOVING CURB & GUTTER LF	204.0155 REMOVING CONCRETE SIDEWALK SY	204.0220 REMOVING INLETS EACH
STH 59/STH 164 & CTH D (E. BROADWAY ST)	210	--	113	--
STH 59/STH 164 & E. SUNSET DR	242	--	75	--
STH 100 (RYAN ROAD) & S. 76TH STREET	159	199	--	1
STH 100 (BROWN DEER RD) & STH 181	--	--	--	--
STH 83 & CTH ES	--	--	35	--
UNDISTRIBUTED				
TOTALS	611	199	223	1

EXCAVATING, HAULING, AND DISPOSAL (BIOREMEDIATION)
OF PETROLEUM CONTAMINATED SOIL

LOCATION	205.0501.S TON
STH 100 (RYAN RD) & 76TH STREET	
UNDISTRIBUTED	100
TOTAL	100

3

BASE AGGREGATE

LOCATION	305.0120 BASE AGGREGATE DENSE A 1 1/4-INCH TON
STH 59/STH 164 & CTH D (E. BROADWAY ST)	--
STH 59/STH 164 & E. SUNSET DR	--
STH 100 (RYAN ROAD) & S. 76TH STREET	260
STH 100 (BROWN DEER RD) & STH 181	--
STH 83 & CTH ES	--
UNDISTRIBUTED	40
TOTALS	300

GRADING & FINISHING

LOCATION	205.0100 EXCAVATION COMMON CY	208.0100 BORROW CY
STH 100 (W. RYAN ROAD) AND S. 76TH STREET	16	72
STH 100 (BROWN DEER RD) & STH 181	0	0
TOTAL	16	72

LOOP DETECTOR PLACEMENT

LOCATION	390.0403 BASE PATCHING CONCRETE SHES SY	416.0610 DRILLED TIE BARS EACH	416.0620 DRILLED DOWEL BARS EACH
STH 100 (BROWN DEER RD) & STH 181 *			
STA. 126+35 - STA. 126+45 LT	40	10	48
STA. 127+67 - STA. 127+77 LT	40	10	48
STA. 123+51 - STA. 123+61 LT	40	10	48
STA. 122+90 - STA. 123+45 RT	61	10	72
STA. 116+80 - STA. 116+90 RT	40	10	48
STA. 118+10 - STA. 118+20 RT	40	10	48
STA. 120+97 - STA. 121+07 RT	40	10	48
STA. 121+10 - STA. 121+65 LT	61	10	72
TOTALS	362	80	432

* EXISTING PAVEMENT STRUCTURE CONSISTS OF 3" ASPHALTIC PAVEMENT ON 9" CONCRETE.

ASPHALTIC SURFACE

LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
STH 59/STH 164 & CTH D (E. BROADWAY ST)	--	30
STH 59/STH 164 & E. SUNSET DR	--	35
STH 100 (RYAN ROAD) & S. 76TH STREET	18	84
STH 100 (BROWN DEER RD) & STH 181	--	62
STH 83 & CTH ES	--	--
TOTALS	18	211

ASPHALT THICKNESS IN MEDIANS & ISLANDS TO BE PLACED AT THE DIRECTION OF THE ENGINEER. MATCH EXISTING THICKNESS.

ALL ITEMS CATEGORY 0010 UNLESS NOTED

CONCRETE ITEMS

	601.0105 CONCRETE CURB & GUTTER TYPE A	601.0553 CONCRETE CURB & GUTTER 4-INCH SLOPED 36 INCH TYPE D	602.0405 CONCRETE SIDEWALK 4.-INCH	602.0505 CURB RAMP DETECTABLE WARNING FIELD YELLOW
LOCATION	LF	LF	SF	SF
STH 59/STH 164 & CTH D (E. BROADWAY ST)	--	--	1015	14
STH 59/STH 164 & E. SUNSET DR	--	--	675	--
STH 100 (RYAN ROAD) & S. 76TH STREET	--	232	--	--
STH 100 (BROWN DEER RD) & STH 181	--	--	--	--
STH 83 & CTH ES	--	--	317	--
UNDISTRIBUTED	100	8	43	--
TOTALS	100	240	2,050	14

EROSION CONTROL & RESTORATION

	606.0100	625.0500	628.1504	628.1520	628.1905	628.1910	628.2008	628.7005	628.7015	628.7504	628.7555	629.0210	630.0130	631.1000
					MOBILIZATIONS	MOBILIZATIONS	EROSION MAT			TEMPORARY	CULVERT		SEEDING	
	RIPRAP	SALVAGED	SILT	SILT FENCE	EROSION	EMERGENCY	URBAN CLASS I	INLET PROTECTION		DITCH	PIPE	FERTILIZER	MIXTURE	SOD
LOCATION	LIGHT	TOPSOIL	FENCE	MAINTENANCE	CONTROL	EROSION COTROL	TYPE B	TYPE A	TYPE C	CHECKS	CHECKS	TYPE B	NO. 30	LAWN
	CY	SY	LF	LF	EACH	EACH	SY	EACH	EACH	LF	EACH	CWT	LB	SY
STH 59/STH 164 & CTH D (E. BROADWAY ST)	--	60	--	--	1	1	60	--	--	--	--	0.04	1	--
STH 59/STH 164 & E. SUNSET DR	--	60	--	--	1	1	60	--	--	--	--	0.04	1	--
STH 100 (RYAN ROAD) & S. 76TH STREET	5	260	180	180	1	1	110	2	--	40	4	0.07	2	140
STH 100 (BROWN DEER RD) & STH 181	--	60	--	--	1	1	60	--	--	--	--	0.04	1	--
STH 83 & CTH ES	--	60	--	--	1	1	60	--	--	--	--	0.04	1	--
UNDISTRIBUTED	--	50	20	20	--	--	50	1	25	10	1	0.17	4	40
TOTALS	5	550	200	200	5	5	400	3	25	50	5	0.40	10	180

ALL ITEMS CATEGORY 0010 UNLESS NOTED

STORM SEWER STRUCTURES

STRUCTURE NUMBER	STATION	OFFSET	RIM ELEV	STR DEPTH FEET	611.0545 MANHOLE COVERS TYPE L EACH	61.0642 INLET COVERS TYPE MS EACH	611.2006 MANHOLES 6-FT DIAMETER EACH	611.3902 INLETS MEDIAN 2 GRATE EACH
1	123+35	39.5' LT			--	--	--	--
2	123+51	51.0' LT			--	--	--	--
3	123+47	39.5' LT	736.12	5.3	1	--	1	--
4	123+47	71.7 RT	733.65	5.3	--	2	--	1
TOTAL:					1	2	1	1

1. RIM ELEVATIONS ARE GIVEN AT THE CENTER OF STRUCTURE.
2. STATIONS AND OFFSETS ARE TO THE CENTER OF STRUCTURES OR TO THE END OF PIPE WHERE THERE IS AN ENDWALL.
3. PIPE LENGTHS ARE MEASURED TO THE CENTER OF STRUCTURES.
4. STR DEPTH = RIM ELEV - INV - CASTING HEIGHT - ADJUSTMENT
- CASTING HEIGHT = 4" FOR TYPE L COVERS; NO CASTING FOR TYPE MS COVERS
- ADJUSTMENT = 4" TYPICAL; NO ADJUSTMENT FOR INLETS MEDIAN 2 GRATE.

STORM SEWER PIPE

FROM STR	TO STR	INLET ELEV	DISCH ELEV	SLOPE (FT/FT)	502.5010 MASONRY ANCHORS TYPE L NO. 6 BARS EACH	520.8000 CONCRETE COLLARS EACH	521.0130 CULVERT PIPE CORRUGATED STEEL 30-INCH LF	521.0749 CULVERT PIPE CORRUGATED STEEL 49x33-INCH LF	521.1530 APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 30-INCH 6 TO 1 EACH	521.1630 APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 30-INCH 10 TO 1 EACH	COMMENTS
1	3	733.05	732.34	0.0600	--	--	12.0	--	--	1	
2	3	732.25	732.01	0.0200	--	--	12.0	--	1	--	
3	EXIST BOX	731.80	731.74	0.0100	14	1	--	6.0	--	--	CONNECT CMP TO EXISTING BOX CULVERT
4	EXIST AEW	728.39	723.92	0.0298	--	--	--	--	--	--	
TOTAL:					14	1	24.0	6.0	1	1	

ALL ITEMS CATEGORY 0010 UNLESS NOTED

TRAFFIC CONTROL

	643.0200	643.0300	643.0420	643.0705	643.0715	643.0900	643.1050
	TRAFFIC CONTROL	TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC
	SURVEILLANCE	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL	CONTROL
	AND MAINTENANCE	DRUMS	BARRICADES	WARNING LIGHTS	WARNING LIGHTS	SIGNS	SIGNS
	(PROJECT)		TYPE III	TYPE A	TYPE C		PCMS
LOCATION	DAY	DAY	DAY	DAY	DAY	DAY	DAY
STH 59/STH 164 & CTH D (E. BROADWAY ST)	45	4,500	180	360	900	1,260	0
STH 59/STH 164 & E. SUNSET DR	45	4,500	180	360	900	1,260	0
STH 100 (RYAN ROAD) & S. 76TH STREET	50	5,000	200	400	1,000	1,000	0
STH 100 (BROWN DEER RD) & STH 181	45	9,000	180	360	1,800	1,260	90
STH 83 & CTH ES	45	2,250	180	360	900	900	0
TOTALS	230	25,250	920	1,840	5,500	5,680	90

NOTE: FOLDING STOP SIGNS [R1-1F(3)] AND FLASHING YELLOW ARROW SIGNS [R10-50(2M)] SHOWN ON THE TEMPORARY TRAFFIC SIGNAL PLANS SHALL BE PAID FOR AS TRAFFIC CONTROL SIGNS AND REMOVED WITH THE TEMPORARY SIGNAL POLES.

CONSTRUCTION STAKING

	650.4000	650.4500	650.5000	650.5500	650.8500	650.9910
	STORM	SUBGRADE	BASE	CURB	ELETRICAL	SUPPLEMENTAL
	SEWER			GUTTER AND	INSTALLATIONS	CONTROL
				CURB & GUTTER	PROJECT (3700-20-74)	
LOCATION	EACH	LF	LF	LF	LS	LS
STH 59/STH 164 & CTH D (E. BROADWAY ST)	--	--	--	--	--	--
STH 59/STH 164 & E. SUNSET DR	--	--	--	--	--	--
STH 100 (RYAN ROAD) & S. 76TH STREET	4	470	470	232	--	--
STH 100 (BROWN DEER RD) & STH 181	--	--	--	--	--	--
STH 83 & CTH ES	--	--	--	--	--	--
PROJECT	--	--	--	--	1	1
TOTALS	4	470	470	232	1	1

SAWING

	690.0150	692.0250
	SAWING	SAWING
	ASPHALT	CONCRETE
LOCATION	LF	LF
STH 59/STH 164 & CTH D (E. BROADWAY ST)	40	40
STH 59/STH 164 & E. SUNSET DR	105	45
STH 100 (RYAN ROAD) & S. 76TH STREET	530	--
STH 100 (BROWN DEER RD) & STH 181	--	820
STH 83 & CTH ES	--	35
UNDISTRIBUTED	70	95
TOTALS	675	940

ALL ITEMS CATEGORY 0010 UNLESS NOTED

TYPE I & II PERMANENT SIGNING													CATEGORY CODE 0010	
SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II	637.2210	637.2215	637.2230	634.0616	634.0618	638.2602	638.3000	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION	
			SIGN SIZE W x H [IN.] x [IN.]	SIGNS TYPE II REFLECTIVE H [SF]	SIGNS TYPE II REFLECTIVE H FOLDING [SF]	SIGNS TYPE II REFLECTIVE F [SF]	POSTS WOOD 4X6-INCH X 16-FT [EA]	POSTS WOOD 4X6-INCH X 18-FT [EA]	REMOVING SIGNS TYPE II [EA]	REMOVING SMALL SIGN SUPPORTS [EA]	MOVING SIGNS TYPE II [EA]			
101	M1-94S	CTH U/S 76TH ST	84 x 18	10.50	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM	
102	J4-1(3)	--	36 x 54	13.50	--	--	--	--	--	--	--	--	ON SIGNAL POLE	
	M3-4	--	36 x 18	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 100	36 x 36	--	--	--	--	--	--	--	--	--	--	
103	M1-94S	STH 100/RYAN RD	84 x 18	10.50	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM	
104	R1-1F	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE	
105	W5-52L	--	-- x --	--	--	--	--	--	1	1	--	--	--	
106	J4-1(2S)	--	24 x 36	6.00	--	--	--	1	1	1	--	--	--	
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
	M1-5A	CTH U	24 x 24	--	--	--	--	--	--	--	--	--	--	
107	R7-1D(2S)	--	18 x 24	3.00	--	--	1	--	1	1	--	--	--	
108	J13-1(3)	--	36 x 66	16.50	--	--	--	1	1	1	--	--	--	
	M1-5A	CTH U	36 x 36	--	--	--	--	--	--	--	--	--	--	
	M6-4	--	30 x 30	--	--	--	--	--	--	--	--	--	--	
109	R1-1F	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE	
110	M1-94S	CTH U/S 76TH ST	84 x 18	10.50	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM	
111	J13-1	--	-- x --	--	--	--	--	--	1	--	--	--	--	
112	R1-1F	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE	
113	J13-1(3)	--	36 x 66	16.50	--	--	--	1	1	1	--	--	--	
	M1-5A	CTH U	36 x 36	--	--	--	--	--	--	--	--	--	--	
114	M6-4	--	30 x 30	--	--	--	--	--	--	--	--	--	--	
115	M1-94	S 76TH ST	-- x --	--	--	--	--	--	1	--	--	--	--	
116	M1-94	RYAN RD	-- x --	--	--	--	--	--	1	--	--	--	--	
	J4-1(2S)	--	24 x 36	6.00	--	--	--	1	--	--	--	--	--	
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
117	M1-5A	CTH U	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M1-94S	STH 100/RYAN RD	84 x 18	10.50	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM	
118	R1-1F	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE	
119	J4-1(3)	--	36 x 54	13.50	--	--	--	1	1	--	--	--	ON SIGNAL POLE	
	M3-2	--	36 x 18	--	--	--	--	--	1	--	--	--	--	
120	M1-6	STH 100	36 x 36	--	--	--	--	--	--	--	--	--	--	
	ADOPT	--	-- x --	--	--	--	1	--	--	--	1	--	--	
--	--	--	-- x --	--	--	--	--	--	--	--	--	--	--	
	SUBTOTALS			117.00	29.84	0.00	2	5	14	5	1	--	--	

CONTINUED ON NEXT SHEET
SHEET 1 OF 11

3

TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGN TYPE II REFLECTIVE H [SF]	637.2215 SIGN TYPE II REFLECTIVE H FOLDING [SF]	637.2230 SIGN TYPE II REFLECTIVE F [SF]	634.0616 POSTS WOOD 4X6-INCH X 16-FT [EA]	634.0618 POSTS WOOD 4X6-INCH X 18-FT [EA]	638.2602 REMOVING SIGN TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION
201	R2-1(3)	45 MPH	36 x 48	12.00	--	--	--	1	--	--	--	--
202	R2-1(3)	45 MPH	36 x 48	12.00	--	--	--	1	--	--	--	--
203	JV4-2(3)	--	36 x 108	27.00	--	--	--	2	--	--	--	--
	M3-4	--	36 x 18	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	36 x 36	--	--	--	--	--	--	--	--	--
	M3-3	--	36 x 18	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	36 x 36	--	--	--	--	--	--	--	--	--
204	R1-2(2S)	--	36 x 31	3.88	--	--	--	1	1	1	--	--
205	R6-2L(2M)	--	30 x 36	7.50	--	--	1	--	--	--	--	--
206	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	207	--
207	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	206	--
208	W12-1D(3)	--	30 x 30	--	--	6.25	1	--	--	--	--	2' MOUNTING HEIGHT
209	R1-1F(3)	--	36 x 36	--	7.46	--	--	1	1	--	213	--
210	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	209	--
211	M1-94S	STH 59/STH 164, LES PAUL PKWY	102 x 30	21.25	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
211A	R10-50(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
212	R5-1(3)	--	36 x 36	9.00	--	--	--	--	--	--	--	ON SIGNAL POLE
213	R4-7(2M)	--	24 x 30	5.00	--	--	--	--	1	--	209	ON SIGNAL POLE
214	R6-2L(2M)	--	30 x 36	7.50	--	--	1	--	--	--	--	--
215	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	216	ON SIGNAL POLE
215A	R10-50(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	ABOVE SIGNALS
216	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	215	--
217	R4-7(2M)	--	24 x 30	5.00	--	--	1	--	1	--	--	--
217A	R5-1(3)	--	36 x 36	9.00	--	--	--	1	--	--	227	--
218	M1-94	CTH D, W CLEVELAND AVE/E BROADWAY ST	126 x 36	31.50	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
219	M1-94	CTH D, W CLEVELAND AVE/E BROADWAY ST	126 x 36	31.50	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
219A	R6-2L(2M)	--	30 x 36	7.50	--	--	1	--	--	--	--	--
220	M1-94S	STH 59/STH 164, LES PAUL PKWY	102 x 30	21.25	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
220A	R10-50(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
221	R4-7(2M)	--	24 x 30	5.00	--	--	1	--	1	--	229	--
221A	R5-1(3)	--	36 x 36	9.00	--	--	--	--	--	--	--	ON SIGNAL POLE
222	R3-20L(3)	--	36 x 54	13.50	--	--	--	1	--	--	--	--
223	J3-1(3)	--	36 x 84	21.00	--	--	--	1	1	1	--	--
	M3-2	--	36 x 18	--	--	--	--	--	--	--	--	--
	M1-5A	CTH D	36 x 36	--	--	--	--	--	--	--	--	--
224	M6-1	--	30 x 30	--	--	--	--	--	--	--	--	--
225	W12-1D(3)	--	30 x 30	--	--	6.25	1	--	--	--	--	2' MOUNTING HEIGHT
226	R1-2(2S)	--	36 x 31	3.88	--	--	--	1	1	1	--	--
227	W4-2R(3)	--	36 x 36	--	--	9.00	--	1	1	1	231	--
	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	228	ON SIGNAL POLE
228	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	227	--
229	R1-1F	--	-- x --	--	--	--	--	--	1	--	221	ON SIGNAL POLE
229A	R6-2L(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	ON SIGNAL POLE
230	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	229	--
231	R5-1A(3)	--	42 x 30	8.75	--	--	--	--	1	--	226	--
232	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	233	ON SIGNAL POLE
233	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	232	--
234	W12-1D(3)	--	30 x 30	--	--	6.25	1	--	--	--	--	2' MOUNTING HEIGHT
235	R1-2(2S)	--	36 x 31	3.88	--	--	--	1	1	1	--	--
236	R5-1(3)	--	36 x 36	9.00	--	--	--	--	--	--	--	ON SIGNAL POLE

3

CONTINUED ON NEXT SHEET

SHEET 2 OF 11

PROJECT NO:3700-20-74

HWY:STH 100 @ S 76TH ST

COUNTY:MILWAUKEE

MISCELLANEOUS QUANTITIES

SHEET: 91

E

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TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLECTIVE H [SF]	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING [SF]	637.2230 SIGNS TYPE II REFLECTIVE F [SF]	634.0616 POSTS WOOD 4X6-INCH X 16-FT [EA]	634.0618 POSTS WOOD 4X6-INCH X 18-FT [EA]	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION
237	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	ON SIGNAL POLE
237A	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--
238	R1-2(2S)	--	31 x 36	3.88	--	--	--	1	1	1	--	--
239	J3-1(3)	--	36 x 84	21.00	--	--	--	1	1	1	--	--
	M3-2	--	36 x 18	--	--	--	--	--	--	--	--	--
	M1-5A	CTH D	36 x 36	--	--	--	--	--	--	--	--	--
	M6-1	--	30 x 30	--	--	--	--	--	1	--	--	ON SIGNAL POLE
240	R4-7(2M)	--	24 x 30	5.00	--	--	--	--	1	--	--	--
240A	R10-50(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	ABOVE SIGNALS
241	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	242	ON SIGNAL POLE
242	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	241	--
243	R2-1	45 MPH	-- x --	--	--	--	--	--	1	1	--	--
244	R2-1	45 MPH	-- x --	--	--	--	--	--	1	1	--	--
245	JV4-2(3)	--	36 x 108	27.00	--	--	--	2	1	1	--	--
	M3-2	--	36 x 18	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	36 x 36	--	--	--	--	--	--	--	--	--
	M3-1	--	36 x 18	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	36 x 36	--	--	--	--	--	--	--	--	--
246	R2-1(3)	45 MPH	36 x 48	12.00	--	--	--	1	--	--	--	--
247	R2-1(3)	45 MPH	36 x 48	12.00	--	--	--	1	--	--	--	--
248	W6-3(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--
249	W6-2	--	-- x --	--	--	--	--	--	1	1	--	--
250	W6-2(2S)	--	36 x 36	--	--	9.00	--	--	--	--	ESTR	--
251	W4-2R(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--
252	JV1-2(2S)	--	24 x 63	10.50	--	--	--	1	--	--	--	--
	M2-1	--	21 x 15	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--
253	JV1-2	--	-- x --	--	--	--	--	--	1	1	--	--
254	R4-7(2S)	--	24 x 30	5.00	--	--	--	1	1	1	255	--
255	W5-54(2S)	--	18 x 18	--	--	2.25	--	--	--	--	254	--
256	JV3-1(2S)	--	24 x 93	15.50	--	--	--	1	--	--	--	--
	M3-2	--	24 x 12	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--
257	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--
	JV3-1(2S)	--	24 x 93	15.50	--	--	--	1	--	--	--	--
	M3-4	--	24 x 12	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--
258	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--
	JV3-1(2S)	--	24 x 93	15.50	--	--	--	1	--	--	--	--
	M3-2	--	24 x 12	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--
	M3-1	--	14 x 12	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--
259	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--
	JV3-1	--	-- x --	--	--	--	--	--	1	1	--	--

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CONTINUED ON NEXT SHEET

SHEET 3 OF 11

3

TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II	637.2210	637.2215	637.2230	634.0616	634.0618	638.2602	638.3000	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION
			SIGN SIZE W x H [IN.] x [IN.]	SIGNS TYPE II REFLECTIVE H [SF]	SIGNS TYPE II REFLECTIVE H FOLDING [SE]	SIGNS TYPE II REFLECTIVE F [SF]	POSTS WOOD 4X6-INCH X 16-FT [EA]	POSTS WOOD 4X6-INCH X 18-FT [EA]	REMOVING SIGNS TYPE II [EA]	REMOVING SMALL SIGN SUPPORTS [EA]		
260	JV3-1(2S)	--	24 x 93	15.50	--	--	--	1	--	--	--	--
	M3-4	--	24 x 12	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--
261 262	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--
	R6-2L(2S)	--	24 x 36	6.00	--	--	1	--	--	--	--	--
	JV1-2(2S)	--	24 x 63	10.50	--	--	--	1	--	--	--	--
	M2-1	--	21 x 15	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--
263 264 265 266	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--
	W4-2R(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--
	W6-2(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--
	W6-2	--	-- x --	--	--	--	--	--	1	1	--	--
	R4-7(2S)	--	24 x 30	5.00	--	--	--	1	1	1	267	--
267 268 --	W5-54(2S)	--	18 x 18	--	--	2.25	--	--	--	--	266	--
	W6-3(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--
	--	--	-- x --	--	--	--	--	--	--	--	--	--
SUBTOTALS				542.27	52.22	86.25	14	26	30	16	--	--

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CONTINUED ON NEXT SHEET
SHEET 4 OF 11

3

TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010													REMARKS NEW SIGN LOCATION
SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLECTIVE H [SF]	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING [SE]	637.2230 SIGNS TYPE II REFLECTIVE F [SF]	634.0616 POSTS WOOD 4X6-INCH X 16-FT [EA]	634.0618 POSTS WOOD 4X6-INCH X 18-FT [EA]	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	638.2102 MOVING SIGNS TYPE II [EA]	MOUNT ON SAME POST AS SIGN #	
301	R2-1(3)	45 MPH	36 x 48	12.00	--	--	--	1	1	1	--	--	--
302	R2-1(3)	45 MPH	36 x 48	12.00	--	--	--	1	1	1	--	--	--
303	JV4-2(3)	--	36 x 108	27.00	--	--	--	2	1	1	--	--	--
	M3-4	--	36 x 18	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	36 x 36	--	--	--	--	--	--	--	--	--	--
	M3-3	--	36 x 18	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	36 x 36	--	--	--	--	--	--	--	--	--	--
304	M1-94	SUNSET DR	72 x 18	9.00	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
305	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE
306	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--	--
307	R1-1(3)	--	36 x 36	7.46	--	--	1	--	1	1	--	--	--
308	R6-2L(2M)	--	30 x 36	7.50	--	--	1	--	--	--	--	--	--
309	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	--	1	--	--	ON SIGNAL POLE
310	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--	--
311	W12-1D(3)	--	30 x 30	--	--	6.25	1	--	--	--	--	--	2' MOUNTING HEIGHT
312	R5-1(3)	--	36 x 36	9.00	--	--	--	--	--	--	--	--	ON SIGNAL POLE
313	R4-7(2M)	--	24 x 30	5.00	--	--	--	1	1	--	--	--	--
314	NOT USED	--	-- x --	--	--	--	--	--	--	--	--	--	--
315	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	--
316	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--	--
317	R4-7(2M)	--	24 x 30	5.00	--	--	--	--	1	--	--	--	ON SIGNAL POLE
317A	R10-50(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	--	ABOVE SIGNALS
318	R5-1(3)	--	36 x 36	9.00	--	--	--	--	--	--	--	--	ON SIGNAL POLE
319	R3-20L(3)	--	36 x 54	13.50	--	--	--	1	1	1	--	--	--
320	W12-1D(3)	--	30 x 30	--	--	6.25	1	--	--	--	--	--	2' MOUNTING HEIGHT
321	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE
322	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--	--
323	R6-2L(3)	--	30 x 36	7.50	--	--	1	--	--	--	--	--	--
324	R1-2(2S)	--	36 x 31	3.88	--	--	--	1	1	--	--	--	--
325	M1-94S	STH 59/STH 164, LES PAUL PKWY	102 x 30	21.25	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
326	M1-94S	STH 59/STH 164, LES PAUL PKWY	102 x 30	21.25	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
327	R6-2L(2M)	--	30 x 36	7.50	--	--	1	--	--	--	--	--	--
328	R1-2(2S)	--	36 x 31	3.88	--	--	--	1	1	1	--	--	--
329	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE
330	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--	--
331	W12-1D(3)	--	30 x 30	--	--	6.25	1	--	--	--	--	--	2' MOUNTING HEIGHT
332	R3-20L(3)	--	36 x 54	13.50	--	--	--	1	--	--	--	--	--
333	W3-3(3)	--	36 x 36	--	--	9.00	--	1	1	1	--	--	--
334	W3-3(3)	--	36 x 36	--	--	9.00	--	1	1	1	--	--	--
335	R1-1F(3)	--	36 x 36	--	7.46	--	--	1	1	--	--	338	--
336	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--	--
337	R5-1(3)	--	36 x 36	9.00	--	--	--	--	--	--	--	--	ON SIGNAL POLE
338	R4-7(2M)	--	24 x 30	5.00	--	--	--	--	1	--	--	335	--
339	R4-7(2M)	--	24 x 30	5.00	--	--	1	--	1	--	--	340	--
340	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	339	--

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CONTINUED ON NEXT SHEET
SHEET 5 OF 11

3

TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010													REMARKS NEW SIGN LOCATION	
SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLECTIVE H [SF]	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING [SF]	637.2230 SIGNS TYPE II REFLECTIVE F [SF]	634.0616 POSTS WOOD 4X6-INCH X 16-FT [EA]	634.0618 POSTS WOOD 4X6-INCH X 18-FT [EA]	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	638.2102 MOVING SIGNS TYPE II [EA]	MOUNT ON SAME POST AS SIGN #		
341	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--	--	
342	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE	
343	R6-3(3)	--	30 x 24	5.00	--	--	--	--	--	--	--	--	--	
344	R5-1(3)	--	36 x 36	9.00	--	--	--	--	--	--	--	--	ON SIGNAL POLE	
345	R6-2L(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	--	ON SIGNAL POLE	
346	W12-1D(3)	--	30 x 30	--	--	6.25	1	--	--	--	--	--	2' MOUNTING HEIGHT	
347	R1-2(2S)	--	36 x 31	3.88	--	--	--	1	--	--	--	--	--	
348	M1-94	SUNSET DR	72 x 18	9.00	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM	
349	R7-1L(3)	--	24 x 30	5.00	--	--	1	--	1	1	--	--	--	
350	R2-1(3)	45 MPH	36 x 48	12.00	--	--	--	1	1	1	--	--	--	
351	JV4-2	--	-- x --	--	--	--	--	1	--	1	1	--	--	
352	W6-3(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--	--	
353	NOT USED	--	-- x --	--	--	--	--	--	--	--	--	--	--	
354	R5-1(3)	--	36 x 36	9.00	--	--	1	--	1	1	--	--	--	
355	W6-2(2S)	--	36 x 36	--	--	9.00	--	--	1	--	--	--	--	
356	W6-1(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--	--	
357	JV1-2(2S)	--	24 x 63	10.50	--	--	--	1	--	--	--	--	--	
	M2-1	--	21 x 15	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--	--	
358	R3-8N(2S)	--	30 x 48	10.00	--	--	1	--	1	1	--	--	--	
359	JV2-2(2S)	--	48 x 93	31.00	--	--	--	2	--	--	--	--	--	
	M3-2	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M5-1L	--	21 x 21	--	--	--	--	--	--	--	--	--	--	
	M3-4	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
360	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M5-1R	--	21 x 21	--	--	--	--	--	--	--	--	--	--	
	JV2-2	--	-- x --	--	--	--	--	--	1	1	--	--	--	
361	R4-7(3)	--	36 x 48	12.00	--	--	--	1	1	1	--	--	--	
362	W5-54(2S)	--	18 x 18	--	--	2.25	--	--	--	--	--	--	--	
363	JV2-1(2S)	--	48 x 93	31.00	--	--	--	2	--	--	--	--	--	
	M3-2	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--	
	M3-4	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--	--	
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--	--	
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--	--	

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CONTINUED ON NEXT SHEET
SHEET 6 OF 11

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TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLECTIVE H [SF]	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING [SF]	637.2230 SIGNS TYPE II REFLECTIVE F [SF]	634.0616 POSTS WOOD 4X6-INCH X 16-FT [EA]	634.0618 POSTS WOOD 4X6-INCH X 18-FT [EA]	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	638.2102 MOVING SIGNS TYPE II [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION
364	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
	JV2-2(2S)	--	48 x 93	31.00	--	--	--	2	--	--	--	--	--
	M3-4	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--	--
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--	--
	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
	M3-2	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--	--
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--	--
365 366 367	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--	--
	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
	R4-7(3)	--	36 x 48	12.00	--	--	--	1	--	--	--	--	--
	W5-54(2S)	--	18 x 18	--	--	2.25	--	--	--	--	--	--	--
	NOT USED	--	-- x --	--	--	--	--	--	--	--	--	--	--
368 369	W6-1(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--	--
	JV1-2(2S)	--	24 x 63	10.50	--	--	--	1	--	--	--	--	--
	M2-1	--	21 x 15	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 59	24 x 24	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 164	24 x 24	--	--	--	--	--	--	--	--	--	--
370 371 372 373	R4-7(3)	--	36 x 48	12.00	--	--	--	1	--	--	--	--	--
	W6-2(2S)	--	36 x 36	--	--	9.00	1	--	1	1	--	372	--
	R5-1(3)	--	36 x 36	9.00	--	--	--	--	1	--	--	371	--
	W6-3(2S)	--	36 x 36	--	--	9.00	1	--	--	--	--	--	--
	SUBTOTALS			486.10	59.68	101.50	17	26	29	17	1	--	--

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CONTINUED ON NEXT SHEET
SHEET 7 OF 11

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TYPE I & II PERMANENT SIGNING

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE		637.2210	637.2215	637.2230	634.0616	634.0618	638.2602	638.3000	638.2102	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION	
			W [IN.]	x [IN.]	H [IN.]	SIGNS TYPE II	SIGNS TYPE II	SIGNS TYPE II	POSTS WOOD	POSTS WOOD	REMOVING	REMOVING			MOVING
						REFLECTIVE H [SF]	REFLECTIVE H FOLDING [SE]	REFLECTIVE F [SF]	4X6-INCH X 16-FT [EA]	4X6-INCH X 18-FT [EA]	SIGNS TYPE II [EA]	SMALL SIGN SUPPORTS [EA]			SIGNS TYPE II [EA]
501	J4-1(2M)	--	24	x	36	6.00	--	--	--	--	--	--	--	ON LIGHT POLE	
502	R6-2R(2M)	--	30	x	36	7.50	--	--	1	--	--	--	--	--	
503	R1-1(3)	--	36	x	36	7.46	--	--	1	--	1	--	--	--	
504	J2-2(2M)	--	48	x	57	19.00	--	--	--	1	--	--	507	--	
	M3-2	--	24	x	14	--	--	--	--	--	--	--	--	--	
	M1-6	STH 100	24	x	24	--	--	--	--	--	--	--	--	--	
	M5-1L	--	21	x	21	--	--	--	--	--	--	--	--	--	
	M3-4	--	24	x	14	--	--	--	--	--	--	--	--	--	
	M1-6	STH 100	24	x	24	--	--	--	--	--	--	--	--	--	
	M5-1R	--	21	x	21	--	--	--	--	--	--	--	--	--	
505	J2-2	--	--	x	--	--	--	--	--	1	1	--	--	--	
506	J3-1(2M)	--	24	x	57	9.50	--	--	--	--	--	--	--	--	
	M3-4	--	24	x	14	--	--	--	--	--	--	--	--	--	
	M1-6	STH 100	24	x	24	--	--	--	--	--	--	--	--	--	
	m6-1	--	21	x	21	--	--	--	--	--	--	--	--	--	
507	R5-1A(3)	--	42	x	30	--	--	--	--	--	--	--	504	--	
507A	R5-1A(3)	--	42	x	30	--	--	--	1	--	--	--	--	--	
508	R1-1(3)	--	36	x	36	7.46	--	--	1	--	1	--	--	--	
509	R1-1F(3)	--	36	x	36	--	7.46	--	--	1	--	--	--	ON SIGNAL POLE	
509A	R6-3(3)	--	30	x	24	5.00	--	--	--	--	--	--	--	--	
510	W12-1D(2M)	--	24	x	24	--	--	4.00	1	--	--	--	--	2' MOUNTING HEIGHT	
511	R3-8	--	--	x	--	--	--	--	--	1	1	--	--	--	
512	J3-1(2M)	--	24	x	57	9.50	--	--	--	--	--	--	--	--	
	M3-2	--	24	x	12	--	--	--	--	--	--	--	--	--	
	M1-6	STH 100	24	x	24	--	--	--	--	--	--	--	--	--	
	M6-1	--	21	x	21	--	--	--	--	--	--	--	--	--	
513	R3-8B(2M)	--	30	x	36	7.50	--	--	1	--	--	--	--	--	
514	R5-1(2M)	--	36	x	36	9.00	--	--	--	--	--	--	--	ON SIGNAL POLE	
515	J3-1	--	--	x	--	--	--	--	--	1	1	--	--	--	
516	J3-1	--	--	x	--	--	--	--	--	1	--	--	--	--	
517	R5-1(3)	--	36	x	36	9.00	--	--	--	1	--	--	--	ON SIGNAL POLE	
518	R5-1(3)	--	36	x	36	9.00	--	--	--	--	--	--	--	ON LIGHT POLE	
518A	R6-2R(2M)	--	30	x	36	7.50	--	--	--	--	--	--	--	ON LIGHT POLE	
519	R3-1(2M)	--	36	x	36	9.00	--	--	--	1	--	--	537	ON SIGNAL POLE	
520	W3-3(2M)	--	36	x	36	--	--	9.00	--	1	--	--	--	--	
521	W3-3(2M)	--	36	x	36	--	--	9.00	--	1	--	--	--	--	
522	W3-3	--	--	x	--	--	--	--	--	1	1	--	--	--	
523	J3-1(2M)	--	24	x	57	9.50	--	--	--	1	--	--	--	ON LIGHT POLE	
	M3-3	--	24	x	12	--	--	--	--	--	--	--	--	--	
	M1-6	STH 181	24	x	24	--	--	--	--	--	--	--	--	--	
	M6-2	--	21	x	21	--	--	--	--	--	--	--	--	--	
524	J3-1(2M)	--	24	x	57	9.50	--	--	--	1	1	--	--	--	
	M3-3	--	24	x	12	--	--	--	--	--	--	--	--	--	
	M1-6	STH 181	24	x	24	--	--	--	--	--	--	--	--	--	
	M6-2	--	21	x	21	--	--	--	--	--	--	--	--	--	
525	R3-18(2M)	--	36	x	36	9.00	--	--	1	--	1	--	--	--	
526	R7-1D(2M)	--	24	x	30	5.00	--	--	1	--	--	--	--	--	
527	R1-1F(3)	--	36	x	36	--	7.46	--	--	--	--	--	--	ON SIGNAL POLE	
527A	R10-50(2M)	--	30	x	36	7.50	--	--	--	--	--	--	--	ON SIGNAL MAST ARM	
528	R1-1F(3)	--	36	x	36	--	7.46	--	--	1	--	--	--	ON SIGNAL POLE	

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CONTINUED ON NEXT SHEET
SHEET 8 OF 11

TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLECTIVE H [SF]	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING [SF]	637.2230 SIGNS TYPE II REFLECTIVE F [SF]	634.0616 POSTS WOOD 4X6-INCH X 16-FT [EA]	634.0618 POSTS WOOD 4X6-INCH X 18-FT [EA]	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	638.2102 MOVING SIGNS TYPE II [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION
529	R5-1(2M)	--	36 x 36	9.00	--	--	--	--	--	--	--	--	ON SIGNAL POLE
530	J3-1(2M)	--	24 x 57	9.50	--	--	--	--	--	--	--	--	ON SIGNAL POLE
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 181	24 x 24	--	--	--	--	--	--	--	--	--	--
	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
531	R4-7(2M)	--	24 x 30	5.00	--	--	--	--	1	--	--	--	ON SIGNAL POLE
532	R4-7(2M)	--	24 x 30	5.00	--	--	--	--	1	--	--	--	ON SIGNAL POLE
533	R6-2L(2M)	--	30 x 36	7.50	--	--	1	--	--	--	--	--	--
534	J3-1	--	-- x --	--	--	--	--	--	1	--	--	--	--
535	J3-1(2M)	--	24 x 57	9.50	--	--	--	--	1	--	--	--	--
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 181	24 x 24	--	--	--	--	--	--	--	--	--	--
	M5-1L	--	21 x 21	--	--	--	--	--	--	--	--	--	--
536	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	--
537	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	519	--
538	R6-2L(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	--	ON SIGNAL POLE
539	J3-1(2M)	--	24 x 57	9.50	--	--	--	1	1	1	--	566	--
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 181	24 x 24	--	--	--	--	--	--	--	--	--	--
	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
540	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE
541	R7-1D(2M)	--	24 x 30	5.00	--	--	1	--	--	--	--	--	--
542	R3-1(2M)	--	36 x 36	9.00	--	--	--	--	1	--	--	--	ON SIGNAL POLE
543	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	--	--	--	--	ON SIGNAL POLE
544	R5-1(2M)	--	36 x 36	9.00	--	--	--	--	--	--	--	--	ON SIGNAL POLE
545	R4-7(2M)	--	24 x 30	5.00	--	--	--	--	1	--	--	--	ON SIGNAL POLE
546	R4-7(2M)	--	24 x 30	5.00	--	--	--	1	1	--	--	567	ON SIGNAL POLE
547	R1-1F(3)	--	36 x 36	--	7.46	--	--	1	1	--	--	548	--
547A	R6-2L(2M)	--	30 x 36	7.50	--	--	1	--	--	--	--	--	--
548	R5-1(2M)	--	36 x 36	9.00	--	--	--	--	--	--	--	547	--
549	R5-1(2M)	--	36 x 36	9.00	--	--	--	--	1	--	--	--	ON SIGNAL POLE
550	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE
551	R6-2L(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	--	ON SIGNAL POLE
551A	R10-50(2M)	--	30 x 36	7.50	--	--	--	--	--	--	--	--	ON SIGNAL MAST ARM
552	J3-1	--	-- x --	--	--	--	--	--	1	1	--	--	--
553	R6-2R(2M)	--	30 x 36	7.50	--	--	1	--	--	--	--	--	--
554	R1-1(3)	--	36 x 36	7.46	--	--	1	--	1	1	--	--	--
555	R1-1(3)	--	36 x 36	7.46	--	--	1	--	1	1	--	--	--
556	J4-1(2M)	--	24 x 36	6.00	--	--	--	--	--	--	--	--	ON LIGHT POLE
	M3-2	--	24 x 12	--	--	--	--	--	--	--	--	--	--
557	M1-6	STH 100	24 x 24	--	--	--	--	--	--	--	--	--	--
	R3-8B(2M)	--	36 x 30	7.50	--	--	1	--	--	--	--	--	--
558	J3-1(2M)	--	24 x 57	9.50	--	--	--	1	--	--	--	--	--
	M3-4	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 100	24 x 24	--	--	--	--	--	--	--	--	--	--

CONTINUED ON NEXT SHEET
SHEET 9 OF 11

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TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLECTIVE H [SF]	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING [SF]	637.2230 SIGNS TYPE II REFLECTIVE F [SF]	634.0616 POSTS WOOD 4X6-INCH X 16-FT [EA]	634.0618 POSTS WOOD 4X6-INCH X 18-FT [EA]	638.2602 REMOVING SIGNS TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	638.2102 MOVING SIGNS TYPE II [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION
559	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
560	R3-8	--	-- x --	--	--	--	--	--	1	1	--	--	--
561	J3-2	--	-- x --	--	--	--	--	--	1	1	--	--	--
	J2-2(2M)	--	48 x 57	19.00	--	--	--	1	--	--	--	--	--
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 100	24 x 24	--	--	--	--	--	--	--	--	--	--
	M5-1L	--	21 x 21	--	--	--	--	--	--	--	--	--	--
	M3-4	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 100	24 x 24	--	--	--	--	--	--	--	--	--	--
	M5-1R	--	21 x 21	--	--	--	--	--	--	--	--	--	--
562	W12-1D(2M)	--	24 x 24	--	--	4.00	1	--	--	--	--	--	2' MOUNTING HEIGHT
563	J2-1(2M)	--	24 x 57	9.50	--	--	--	1	--	--	--	--	--
	M3-2	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 100	24 x 24	--	--	--	--	--	--	--	--	--	--
	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
564	J2-1(2M)	--	24 x 57	9.50	--	--	--	1	1	--	--	--	ON SIGNAL POLE
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 181	24 x 24	--	--	--	--	--	--	--	--	--	--
	M5-1L	--	21 x 21	--	--	--	--	--	--	--	--	--	--
565	R1-1F(3)	--	36 x 36	--	--	7.46	--	--	--	--	--	--	ON SIGNAL POLE
566	R3-18(2M)	--	36 x 36	9.00	--	--	--	--	1	--	--	539	--
567	R1-1F(3)	--	36 x 36	--	--	7.46	--	--	1	--	--	546	--
568	J3-1(2M)	--	24 x 57	9.50	--	--	--	1	1	1	--	--	--
	M3-1	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 181	24 x 24	--	--	--	--	--	--	--	--	--	--
--	M6-2	--	21 x 21	--	--	--	--	--	--	--	--	--	--
--	--	--	-- x --	--	--	--	--	--	--	--	--	--	--
	SUBTOTALS			400.84	67.14	40.92	16	14	37	15	0	--	--

3

CONTINUED ON NEXT SHEET
SHEET 10 OF 11

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TYPE I & II PERMANENT SIGNING

CATEGORY CODE 0010

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGN TYPE II REFLECTIVE H [SF]	637.2215 SIGN TYPE II REFLECTIVE H FOLDING [SF]	637.2230 SIGN TYPE II REFLECTIVE F [SF]	634.0616 POSTS WOOD 4X6-INCH X 16-FT [EA]	634.0618 POSTS WOOD 4X6-INCH X 18-FT [EA]	638.2602 REMOVING SIGN TYPE II [EA]	638.3000 REMOVING SMALL SIGN SUPPORTS [EA]	638.2102 MOVING SIGN TYPE II [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS NEW SIGN LOCATION
401	J3-1(2S)	--	24 x 57	9.50	--	--	--	1	1	1	1	--	--
	M3-4	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-5A	CTH ES	24 x 24	--	--	--	--	--	--	--	--	--	--
	M6-2	--	21 x 21	--	--	--	--	--	--	--	--	--	--
402	R1-1F(3)	--	36 x 36	--	7.46	--	--	1	1	1	--	403	--
403	R3-2(2S)	--	24 x 24	4.00	--	--	--	--	--	--	--	402	--
404	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE
405	R4-7(2S)	--	24 x 30	5.00	--	--	--	1	1	--	--	406	--
406	R3-2(2S)	--	24 x 24	4.00	--	--	--	--	--	--	--	405	--
407	M1-94S	CTH ES, FOX ST	66 x 18	8.25	--	--	--	--	1	--	--	--	ON SIGNAL MAST ARM
408	R10-11B(3)	--	30 x 30	6.25	--	--	--	--	1	--	--	--	ON SIGNAL POLE
409	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	1	--	--	--	ON SIGNAL POLE
410	M3-2	--	24 x 24	4.00	--	--	--	--	--	--	--	--	ADD TO EXISTING SIGN
411	R4-7(2S)	--	24 x 30	5.00	--	--	--	1	1	1	--	423	--
411A	R3-2(2S)	--	24 x 24	4.00	--	--	--	--	--	--	--	--	--
412	--	WEST ES ONLY RA	-- x --	--	--	--	--	1	--	--	1	--	--
413	--	SOUTH 83 ONLY LA	-- x --	--	--	--	--	1	--	--	1	--	--
414	M1-94S	CTH ES, MAIN ST	78 x 18	9.75	--	--	--	--	--	--	--	--	ON SIGNAL POLE
415	R3-1(2S)	--	24 x 24	4.00	--	--	--	--	1	--	--	--	ON SIGNAL POLE
416	J23-1(2S)	--	24 x 36	6.00	--	--	--	--	--	--	--	--	--
	M4-5	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 83	24 x 24	--	--	--	--	--	--	--	--	--	--
417	J3-1(2S)	--	24 x 57	9.50	--	--	--	1	1	1	--	--	--
	M3-3	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-6	STH 83	24 x 24	--	--	--	--	--	--	--	--	--	--
418	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
	M3-4(2S)	--	24 x 12	2.00	--	--	--	--	--	--	--	--	ADD TO EXISTING SIGN
419	J3-1(2S)	--	24 x 57	9.50	--	--	--	1	1	1	--	--	--
	M3-2	--	24 x 12	--	--	--	--	--	--	--	--	--	--
	M1-5A	CTH ES	24 x 24	--	--	--	--	--	--	--	--	--	--
420	M6-1	--	21 x 21	--	--	--	--	--	--	--	--	--	--
	R10-11B(3)	--	30 x 30	6.25	--	--	--	--	1	--	--	421	ON SIGNAL POLE
421	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	--	--	--	420	ON SIGNAL POLE
422	R3-2(2S)	--	24 x 24	4.00	--	--	--	1	1	--	--	423	--
423	R1-1F(3)	--	36 x 36	--	7.46	--	--	--	--	--	--	411	--
--	--	--	-- x --	--	--	--	--	--	--	--	--	--	--
	SUBTOTALS			101.00	37.30	0.00	0	9	13	5	3	--	--

	TOTALS			1647.21	246.18	228.67	49	80	123	58	5	--	--
--	--------	--	--	---------	--------	--------	----	----	-----	----	---	----	----

CONTINUED ON NEXT SHEET
SHEET 11 OF 11

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SUMMARY OF STATE FURNISHED MATERIALS		
QUANTITY	UNIT	DESCRIPTION
2	EACH	POLES TYPE 10
4	EACH	POLES TYPE 13
2	EACH	MONOTUBE ARMS 15-FT
4	EACH	MONOTUBE ARMS 55-FT
6	EACH	LUMINAIRE ARMS STEEL 15-FT
1	EACH	TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 8-PHASE
1	EACH	VIDEO DETECTION CAMERAS
4	EACH	EVP DETECTOR HEADS
4	EACH	RADAR DETECTION UNITS
1	EACH	TRAFFIC SIGNAL CABINET

3

*REMOVAL QUANTITIES				
LOCATION	ITEM NO.	204.0195 REMOVING CONCRETE	SPV.0060.01 ABANDONING PULL BOXES	653.0905 REMOVING PULL BOXES
		BASES EACH	EACH	EACH
STH 59 & CTH D	PB1			1
	PB2			1
	PB3			1
	PB4			1
	PB5			1
	PB8			1
	PB9			1
	PB10			1
	PB11			1
	PB12			1
	PB13			1
	PB17		1	
	PB18		1	
	PB19		1	
	PB20		1	
	PB21		1	
	PB22		1	
	PB24		1	
	PB25		1	
	PB26		1	
	PB27		1	
	PB28		1	
	PB29		1	
	PB30		1	
	PB32		1	
	PB33			1
	PB35		1	
	PB36		1	
	PB37		1	
	PB48		1	

*REMOVAL QUANTITIES				
LOCATION	ITEM NO.	204.0195 REMOVING CONCRETE	SPV.0060.01 ABANDONING PULL BOXES	653.0905 REMOVING PULL BOXES
		BASES EACH	EACH	EACH
STH 59 & CTH D	PB49		1	
	PB50		1	
	PB51		1	
	PB52			1
	CB1	1		
	SB1	1		
	SB2	1		
	SB3	1		
	SB4	1		
	SB5	1		
	SB6	1		
	SB7	1		
	SB8	1		
	SB9	1		
	SB10	1		
	SB11	1		
	SB12	1		
	SB13	1		
	SB14	1		
TOTAL		15	21	13

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 &
CLEVELAND AVE/BROADWAY ST (CTH D)

SIGNAL NO: S67-0297 PAGE 1 OF 7

*SIGNAL BASES AND POLES

LOCATION	SIG. BASE NO.	657.1350	657.1360	657.1515	657.1555	657.1815	659.1125
		INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	LUMINAIRES
		POLES	POLES	MONOTUBE	MONOTUBE	LUMINAIRE ARMS	UTILITY
		TYPE 10	TYPE 13	ARMS 15-FT	ARMS 55-FT	STEEL 15-FT	LED C
STH 59 & CTH D	SB1		1		1	1	1
	SB2		1		1	1	1
	SB3	1		1		1	1
	SB4		1		1	1	1
	SB5		1		1	1	1
	SB6	1		1		1	1
TOTAL		2	4	2	4	6	6

*SIGNAL FACES

LOCATION	SIG. BASE NO.	SIG. HEAD NO.	TYPE OF MOUNT	658.0110	658.0115	658.0600	658.0605	658.0610	658.0615	658.0620	658.0625	658.0215	658.0220
				3-12"	4-12"	LED	LED	LED	LED	LED	LED	BCKPLT	BCKPLT
				VERT. EACH	VERT. EACH	RED BALL EACH	YELLOW BALL EACH	GREEN BALL EACH	RED ARROW EACH	YELLOW ARROW EACH	GREEN ARROW EACH	3-SEC. EACH	4-SEC. EACH
STH 59 & CTH D	SB1	7	POST MOUNT VERTICAL	1		1	1	1				1	
		13	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		14	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		15	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		21	POST MOUNT VERTICAL		1				1	2	1		1
	SB2	5	POST MOUNT VERTICAL		1				1	2	1		1
		12	POST MOUNT VERTICAL	1		1	1	1				1	
		19	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		20	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		22	MONOTUBE ARM MOUNT VERTICAL		1				1	2	1		1
	SB3	6	MONOTUBE ARM MOUNT VERTICAL		1				1	2	1		1
	SB4	2	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		3	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		4	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		10	POST MOUNT VERTICAL		1				1	2	1		1
		18	POST MOUNT VERTICAL	1		1	1	1				1	
	SB5	1	POST MOUNT VERTICAL	1		1	1	1				1	
		8	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		9	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1	
		11	MONOTUBE ARM MOUNT VERTICAL		1				1	2	1		1
		16	POST MOUNT VERTICAL		1				1	2	1		1
	SB6	17	MONOTUBE ARM MOUNT VERTICAL		1				1	2	1		1
TOTAL				14	8	14	14	14	8	16	8	14	8

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 &
CLEVELAND AVE/BROADWAY ST (CTH D)

SIGNAL NO: S67-0297 PAGE 2 OF 7

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*TRAFFIC DETECTOR LOOPS

LOCATION	LOOP NO.	HOME RUN PB	STATION/OFFSET	SDD INSTALLATION REFERENCE	655.0700 LOOP DETECTOR LEAD IN CABLE
					LF
STH 59 & CTH D	51	PB7	203+26, 8' RT	LOOP LEAD-IN CABLE ONLY	428
	52	PB7	203+26, 8' RT	LOOP LEAD-IN CABLE ONLY	428
	12	PB14	201+65, 8' LT	LOOP LEAD-IN CABLE ONLY	181
	13	PB14	201+65, 8' LT	LOOP LEAD-IN CABLE ONLY	181
TOTAL					1218

*CONDUIT ITEMS

LOCATION	FROM	TO	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	652.0615 CONDUIT SPECIAL 3-INCH	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM EACH
			LF	LF	LF	
STH 59 & CTH D	CB1	PB1		60		
	PB1	PB2			30	
	PB2	SB1		10		
	PB1	PB3			170	
	PB3	PB4			220	
	PB4	PB5			55	
	PB5	SB2		17		
	PB4	PB6			190	
	PB6	PB7	35			1
	PB6	SB3			55	
	PB6	PB8			146	
	PB8	PB9			80	
	PB9	SB4		8		
	PB8	PB10			260	
	PB10	PB11			170	
	PB11	PB12			42	
	PB12	SB5		18		
	PB11	PB13			210	
	PB13	PB14	28			1
	PB13	SB6		18		
	PB13	PB15			124	
	PB15	CB1		120		
TOTAL			63	251	1752	2

*PULL BOXES

LOCATION	PULL BOX NO.	STATION/OFFSET	653.0140 PULL BOXES STEEL 24" x 42" EACH
STH 59 & CTH D	PB1	201+68, 102' LT	1
	PB2	202+04, 86' LT	1
	PB3	202+53, 95' LT	1
	PB4	203+63, 86' LT	1
	PB5	203+17, 60' LT	1
	PB6	203+60, 09' RT	1
	PB8	203+58, 81' RT	1
	PB9	202+79, 77' RT	1
	PB10	202+29, 89' RT	1
	PB11	201+44, 94' RT	1
	PB12	201+67, 59' RT	1
	PB13	201+37, 09' LT	1
	PB15	201+33, 69' LT	1
TOTAL			13

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 &
CLEVELAND AVE/BROADWAY ST (CTH D)

SIGNAL NO: S67-0297 PAGE 3 OF 7

*TRAFFIC SIGNAL CABLE												
LOCATION	LOC.	TO	LOC.	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG LF	655.0270 CABLE TRAFFIC SIGNAL 15-14 AWG LF	655.0320 CABLE TYPE UF 2-10 AWG GROUNDED LF	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG LF	655.0900 EVP DETECTOR CABLE LF	(INCIDENTAL) VIDEO DETECTION CABLE LF	(INCIDENTAL) RADAR CABLE LF
STH 59 & CTH D	CB1		SB1			113	113			178		
	CB1		SB2			358				393		343
	CB1		SB3		435							420
	CB1		SB4			571				576		526
	CB1		SB5			334				369	369	638
	CB1		SB6		162		162					
	SB1		SB2					402				
	SB2		SB3					272				
	SB3		SB4					265				
	SB4		SB5					442				
	SB5		SB6					232				
	PB1		CB1					43				
	PB2		SB1					30				
	PB3		CB1					143				
	PB4		SB2					105				
	PB5		SB2					38				
	PB6		SB3					72				
	PB8		SB4					121				
	PB9		SB4					26				
	PB10		SB5					193				
	PB11		SB5					93				
	PB12		SB5					38				
	PB13		SB6					38				
	PB15		CB1					63				
	SB1		HEAD 7	26								
	SB1		HEAD 13	80								
	SB1		HEAD 14	70								
	SB1		HEAD 15	60								
	SB1		HEAD 21		22							
	SB1		LUMINAIRE						145			

(CONTINUED ON NEXT PAGE)

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 &
CLEVELAND AVE/BROADWAY ST (CTH D)

SIGNAL NO: S67-0297 PAGE 4 OF 7

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*TRAFFIC SIGNAL CABLE (CONTINUED)												
LOCATION	LOC.	TO	LOC.	655.0230	655.0240	655.0270	655.0320	655.0515	655.0610	655.0900	(INCIDENTAL)	(INCIDENTAL)
				CABLE	CABLE	CABLE	CABLE	ELECTRICAL	ELECTRICAL	EVP	VIDEO DETECTION	RADAR
STH 59 & CTH D				TRAFFIC	TRAFFIC	TRAFFIC	TYPE UF	WIRE TRAFFIC	WIRE	DETECTOR	CABLE	CABLE
				SIGNAL	SIGNAL	SIGNAL	2-10 AWG	SIGNALS	LIGHTING	CABLE	CABLE	CABLE
				5-14 AWG	7-14 AWG	15-14 AWG	GROUND	10 AWG	12 AWG			
				LF	LF	LF	LF	LF	LF	LF	LF	LF
	SB2		HEAD 5		22							
	SB2		HEAD 12	19								
	SB2		HEAD 19	70								
	SB2		HEAD 20	60								
	SB2		HEAD 22		80							
	SB2		LUMINAIRE						145			
	SB3		HEAD 6		40							
	SB3		LUMINAIRE						145			
	SB4		HEAD 2	80								
	SB4		HEAD 3	70								
	SB4		HEAD 4	60								
	SB4		HEAD 10		22							
	SB4		HEAD 18	19								
	SB4		LUMINAIRE						145			
	SB5		HEAD 1	19								
	SB5		HEAD 8	70								
	SB5		HEAD 9	60								
	SB5		HEAD 11		80							
	SB5		HEAD 16		22							
	SB5		LUMINAIRE						145			
	SB6		HEAD 17		40							
	SB6		LUMINAIRE									
TOTAL				763	925	1376	275	2616	725	1516	369	1927

*CONCRETE BASES						
LOCATION	SIGNAL	BASE	STATION/OFFSET	654.0110	654.0113	654.0217
				CONCRETE	CONCRETE	CONCRETE
				BASES	BASES	CONTROL CABINET
				TYPE 10	TYPE 13	BASE TYPE 9
				EACH	EACH	SPECIAL
STH 59 & CTH D	CB1		201+45, 105' LT			1
	SB1		202+00, 75' LT		1	
	SB2		203+00, 62' LT		1	
	SB3		203+08, 9' RT	1		
	SB4		202+82, 71' RT		1	
	SB5		201+83, 61' RT		1	
	SB6		201+56, 7' LT	1		
TOTAL				2	4	1

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 & CLEVELAND AVE/BROADWAY ST (CTH D)

SIGNAL NO: S67-0297 PAGE 5 OF 7

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REMOVE TRAFFIC SIGNALS	
	SPV.0105.01 REMOVE TRAFFIC SIGNALS (STH 59 & CTH D)
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET	
	SPV.0105.06 INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET (STH 59 & CTH D)
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

TRANSPORTING SIGNAL AND LIGHTING MATERIALS	
	SPV.0105.12 TRANSPORTING SIGNAL AND LIGHTING MATERIALS (STH 59 & CTH D)
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE-FURNISHED VIDEO DETECTION SYSTEM	
	SPV.0105.17 TRANSPORTING AND INSTALLING STATE-FURNISHED VIDEO DETECTION SYSTEM (STH 59 & CTH D)
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

INSTALL STATE-FURNISHED EVP DETECTOR HEADS	
	SPV.0105.20 INSTALL STATE-FURNISHED EVP DETECTOR HEADS (STH 59 & CTH D)
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

TEMPORARY EVP SYSTEM	
	SPV.0105.24 TEMPORARY INFRARED EVP SYSTEM (STH 59 & CTH D)
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 &
CLEVELAND AVE/BROADWAY ST (CTH D)

SIGNAL NO: S67-0297 PAGE 6 OF 7

3

REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE

SPV.0105.26 REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE (STH 59 & CTH D)	
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

TEMPORARY VEHICLE DETECTION SYSTEM

SPV.0105.31 TEMPORARY VEHICLE DETECTION (STH 59 & CTH D)	
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE-FURNISHED RADAR DETECTION SYSTEM

SPV.0105.37 TRANSPORTING AND INSTALLING STATE-FURNISHED RADAR DETECTION SYSTEM (STH 59 & CTH D)	
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

METER BREAKER PEDESTAL

656.0200.01 ELECTRICAL SERVICE METER BREAKER PEDESTAL (STH 59 & CTH D)	
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

SIGNAL MOUNTING HARDWARE

658.5069.01 SIGNAL MOUNTING HARDWARE (STH 59 & CTH D)	
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

TEMPORARY TRAFFIC SIGNALS

661.0200.01 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (STH 59 & CTH D)	
LOCATION	LS
STH 59 & CTH D	1
TOTAL	1

ALL ITEMS CATEGORY 0010 UNLESS
OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS
LISTED ELSEWHERE

STH 59/STH 164 &
CLEVELAND AVE/BROADWAY ST (CTH D)

SIGNAL NO: S67-0297 PAGE 7 OF 7

SUMMARY OF STATE FURNISHED MATERIALS		
QUANTITY	UNIT	DESCRIPTION
1	EACH	POLES TYPE 10
4	EACH	POLES TYPE 13
1	EACH	MONOTUBE ARMS 15-FT
2	EACH	MONOTUBE ARMS 45-FT
1	EACH	MONOTUBE ARMS 50-FT
1	EACH	MONOTUBE ARMS 55-FT
5	EACH	LUMINAIRE ARMS STEEL 15-FT
1	EACH	TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 8-PHASE
4	EACH	VIDEO DETECTION CAMERAS
4	EACH	EVP DETECTOR HEADS
1	EACH	TRAFFIC SIGNAL CABINET

*REMOVAL QUANTITIES				
LOCATION	ITEM NO.	204.0195	SPV.0060.01	653.0905
		REMOVING CONCRETE BASES EACH	ABANDONING PULL BOXES EACH	REMOVING PULL BOXES EACH
STH 59 & SUNSET DR	PB1		1	
	PB2			1
	PB3			1
	PB4			1
	PB6			1
	PB7			1
	PB8			1
	PB9			1
	PB11			1
	PB12		1	
	PB14			1
	PB15		1	
	PB16		1	
	PB17		1	
	PB18		1	
	PB19		1	
	PB20		1	
	PB25		1	
	PB26		1	
	PB27		1	
	PB28		1	
	PB29		1	
	PB30		1	
	PB31		1	
	PB32		1	

*REMOVAL QUANTITIES				
LOCATION	ITEM NO.	204.0195	SPV.0060.01	653.0905
		REMOVING CONCRETE BASES EACH	ABANDONING PULL BOXES EACH	REMOVING PULL BOXES EACH
	PB36		1	
	PB37		1	
	PB38		1	
	PB39		1	
	PB53		1	
	PB54		1	
	PB55			1
	PB56			1
	PB57			1
	PB58			1
	PB59			1
	CB1	1		
	SB1	1		
	SB2	1		
	SB3	1		
	SB4	1		
	SB5	1		
	SB6	1		
	SB7	1		
	SB8	1		
	SB9	1		
TOTALS		10	22	14

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 & SUNSET DRIVE

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*SIGNAL BASES AND POLES

LOCATION	SIG. BASE NO.	657.0100	657.0255	657.0322	657.0420	657.0610	657.1350	657.1360	657.1515	657.1545	657.1550	657.1555	657.1815	658.0500	659.1125
		PEDESTAL	TRANSFORMER	POLES	TRAFFIC SIGNAL	LUMINAIRE	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	PEDESTRIAN	LUMINAIRES
		BASE	BASES	TYPE 5	STANDARDS	ARMS SINGLE	POLES	POLES	MONOTUBE	MONOTUBE	MONOTUBE	MONOTUBE	LUMINAIRE	PUSH	UTILITY
		EACH	11 1/2 INCH	ALUMINUM	ALUMINUM	MEMBER 4 1/2-INCH	TYPE 10	TYPE 13	ARMS	ARMS	ARMS	ARMS	STEEL	BUTTONS	LED C
					13-FT	CLAMP 6-FT			15-FT	45-FT	50-FT	55-FT	15-FT		
					EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
STH 59 & SUNSET DR	SB1							1		1			1		1
	SB2						1		1				1		1
	SB3							1		1			1		1
	SB4							1				1	1	1	1
	SB5		1	1		1									1
	SB6							1			1		1		1
	SB7	1			1									1	
TOTALS		1	1	1	1	1	1	4	1	2	1	1	5	2	6

*SIGNAL FACES

LOCATION	SIG. BASE NO.	SIG. HEAD NO.	TYPE OF MOUNT	658.0110	658.0115	658.0600	658.0605	658.0610	658.0615	658.0620	658.0625	658.0215	658.0220	658.0416	658.0635	
				3-12"	4-12"	LED	LED	LED	LED	LED	LED	LED	BCKPLT	BCKPLT	PEDESTRIAN	PEDESTRIAN
				VERT. EACH	VERT. EACH	RED BALL EACH	YELLOW BALL EACH	GREEN BALL EACH	RED ARROW EACH	YELLOW ARROW EACH	GREEN ARROW EACH	3-SEC. EACH	4-SEC. EACH	SIGNAL FACE 16-INCH EACH	COUNTDOWN TIMER 16" EACH	
STH 59 & SUNSET DR	SB1	1	POST MOUNT VERTICAL	1		1	1	1				1				
		7	MONOTUBE ARM MOUNT VERTICAL	1					1	1	1	1				
		8	MONOTUBE ARM MOUNT VERTICAL		1	1	1	1			1		1			
		9	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1				
		13	POST MOUNT VERTICAL		1				1	2	1		1			
	SB2	14	MONOTUBE ARM MOUNT VERTICAL		1				1	2	1		1			
	SB3	6	POST MOUNT VERTICAL	1		1	1	1				1				
		11	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1				
		12	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1				
		16	POST MOUNT VERTICAL	1					1	1	1	1				
	SB4	4	POST MOUNT VERTICAL		1					1	2	1		1		
		10	POST MOUNT VERTICAL	1		1	1	1				1				
		17	MONOTUBE ARM MOUNT VERTICAL	1					1	1	1	1				
		18	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1				
		19	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1				
		20	PEDESTRIAN											1	1	
	SB6	2	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1				
		3	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1				
		5	MONOTUBE ARM MOUNT VERTICAL		1				1	2	1		1			
	SB7	15	POST MOUNT VERTICAL	1		1	1	1				1				
		21	PEDESTRIAN											1	1	
TOTALS				14	5	12	12	12	7	11	8	14	5	2	2	

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 & SUNSET DRIVE

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*CONDUIT ITEMS						
LOCATION	FROM	TO	652.0225	652.0235	652.0615	652.0700.S
			CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF	CONDUIT SPECIAL 3-INCH LF	INSTALL CONDUIT INTO EXISTING ITEM EACH
STH 59 & SUNSET DR	CB1	PB1		150		
	PB1	PB2			75	
	PB2	SB1		7		
	PB1	PB3			174	
	PB3	PB4	15			1
	PB3	SB2		34		
	PB3	PB5			224	
	PB5	PB6			64	
	PB6	SB3		12		
	PB5	PB7			160	
	PB7	PB8			220	
	PB8	PB9			140	
	PB9	SB4			58	
	PB9	PB10			155	
	PB10	SB5	20			
	PB10	PB11			110	
	PB10	PB16	33			1
	PB11	PB12			60	
	PB12	SB6		10		
	PB12	SB7	18			
	PB11	PB13			120	
	PB13	PB14			144	
	PB14	PB15			88	
	PB15	CB1		132		
TOTALS			86	345	1792	2

*CONCRETE BASES						
LOCATION	SIGNAL BASE NO.	STATION/OFFSET	654.0101	654.0105	654.0110	654.0113
			CONCRETE BASES TYPE 1 EACH	CONCRETE BASES TYPE 5 EACH	CONCRETE BASES TYPE 10 EACH	CONCRETE BASES TYPE 13 EACH
STH 59 & SUNSET DR	CB1	136+24, 95' RT				
	SB1	136+54, 52' RT				1
	SB2	136+15, 10' LT			1	
	SB3	136+18, 59' LT				1
	SB4	137+25, 60' LT				1
	SB5	137+87, 9' RT		1		
	SB6	137+65, 49' RT				1
	SB7	137+42, 47' RT	1			
TOTALS			1	1	1	4

654.0217 CONCRETE CONTROL CABINET						
		BASE TYPE 9		SPECIAL		
				EACH		
				1		

3

*PULL BOXES			
LOCATION	PULL BOX NO.	STATION/OFFSET	653.0140
			PULL BOXES STEEL 24" x 42" EACH
STH 59 & SUNSET DR	PB1	135+87, 81' RT	1
	PB2	136+47, 53' RT	1
	PB3	135+82, 09' LT	1
	PB5	135+76, 120' LT	1
	PB6	136+12, 68' LT	1
	PB7	136+55, 126' LT	1
	PB8	137+33, 131' LT	1
	PB9	137+47, 80' LT	1
	PB10	138+05, 9RT	1
	PB11	137+91, 77' RT	1
	PB12	137+59, 54' RT	1
	PB13	137+84, 108' RT	1
	PB14	137+13, 106' RT	1
	PB15	136+66, 104' RT	1
TOTALS			14

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 & SUNSET DRIVE

SIGNAL NO: S67-0299 PAGE 3 OF 7

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*TRAFFIC SIGNAL CABLE													
LOCATION	LOC.	TO	LOC.	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG LF	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG LF	655.0270 CABLE TRAFFIC SIGNAL 15-14 AWG LF	655.0320 CABLE TYPE UF 2-10 AWG GROUNDED LF	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG LF	655.0700^ LOOP DETECTOR LEAD-IN CABLE LF	655.0900 EVP DETECTOR CABLE LF	(INCIDENTAL) VIDEO DETECTION CABLE LF
STH 59 & SUNSET DR	CB1		SB1			157		157				212	212
	CB1		SB2		208								233
	CB1		SB3			392						417	
	CB1		SB4				513					528	1056
	CB1		SB6			378		378				393	
	CB1		SB7			386							
	SB1		SB2					254	254				
	SB2		SB3					277	277				
	SB3		SB4						404				
	SB4		SB5					177	177				
	SB5		SB6					191	191				
	SB6		SB7						53				
	PB1		CB1						63				
	PB2		SB1						27				
	PB3		SB2						54				
	PB5		SB3						111				
	PB6		SB3						32				
	PB7		SB3						206				
	PB8		SB4						119				
	PB9		SB4						50				
	PB10		SB5						35				
	PB11		SB6						84				
	PB12		SB6						30				
	PB13		SB6						132				
	PB14		CB1						126				
	PB15		CB1						67				
	SB1		HEAD 1	19									
	SB1		HEAD 7	70									
	SB1		HEAD 8	60									
	SB1		HEAD 9	50									
	SB1		HEAD 13	19									
	SB1		LUMINAIRE							145			
	SB2		HEAD 14	40									
	SB2		LUMINAIRE							145			
	SB3		HEAD 6	19									

(CONTINUED ON NEXT PAGE)

^ ITEM LISTED IN MULTIPLE TABLES FOR THIS INTERSECTION

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 & SUNSET DRIVE

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*TRAFFIC SIGNAL CABLE (CONTINUED)

LOCATION	LOC.	TO	LOC.	655.0230	655.0240	655.0260	655.0270	655.0320	655.0515	655.0610	655.0700^	655.0900	(INCIDENTAL)
				CABLE TRAFFIC SIGNAL 5-14 AWG LF	CABLE TRAFFIC SIGNAL 7-14 AWG LF	CABLE TRAFFIC SIGNAL 12-14 AWG LF	CABLE TRAFFIC SIGNAL 15-14 AWG LF	CABLE TYPE UF 2-10 AWG GROUNDED LF	ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF	ELECTRICAL WIRE LIGHTING 12 AWG LF	LOOP DETECTOR LEAD-IN CABLE LF	EVP DETECTOR CABLE LF	VIDEO DETECTION CABLE LF
STH 59 & SUNSET DR	SB3		HEAD 11	70									
	SB3		HEAD 12	60									
	SB3		HEAD 16	19									
	SB3		LUMINAIRE							145			
	SB4		HEAD 4	22									
	SB4		HEAD 10	19									
	SB4		HEAD 17	80									
	SB4		HEAD 18	70									
	SB4		HEAD 19	60									
	SB4		HEAD 20	15									
	SB4		PB								6		
	SB4		LUMINAIRE							145			
	SB6		HEAD 2	60									
	SB6		HEAD 3	50									
	SB6		HEAD 5	75									
	SB6		LUMINAIRE							145			
	SB7		HEAD 15	19									
	SB7		HEAD 21	15									
	SB7		PB								6		
	SB7		LUMINAIRE							145			
TOTALS				911	208	1313	513	1434	2492	870	12	1550	1501

*TRAFFIC DETECTOR LOOPS

LOCATION	LOOP NO.	HOME RUN PB	STATION/OFFSET	SDD INSTALLATION REFERENCE	655.0700^ LOOP DETECTOR LEAD IN CABLE
					LF
STH 59 & SUNSET DR		PB4	135+98, 8' LT	LOOP LEAD-IN CABLE ONLY	348
		PB4	135+98, 8' LT	LOOP LEAD-IN CABLE ONLY	348
		PB10	137+86, 9'RT	LOOP LEAD-IN CABLE ONLY	208
		PB10	137+86, 9'RT	LOOP LEAD-IN CABLE ONLY	208
TOTALS					1112

^ ITEM LISTED IN MULTIPLE TABLES FOR THIS INTERSECTION
ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 59/STH 164 & SUNSET DRIVE

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REMOVE TRAFFIC SIGNALS	
	SPV.0105.02 REMOVE TRAFFIC SIGNALS (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET	
	SPV.0105.07 INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

TRANSPORTING SIGNAL AND LIGHTING MATERIALS	
	SPV.0105.13 TRANSPORTING SIGNAL AND LIGHTING MATERIALS (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

3

TRANSPORTING & INSTALLING STATE-FURNISHED VIDEO DETECTION SYSTEM	
	SPV.0105.18 TRANSPORTING & INSTALLING STATE-FURNISHED VIDEO DETECTION SYSTEM (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

INSTALL STATE FURNISHED EMERGENCY VEHICLE PREEMPTION DETECTOR HEADS	
	SPV.0105.21 INSTALL STATE FURNISHED EVP DETECTOR HEADS (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

TEMPORARY EVP SYSTEM	
	SPV.0105.25 TEMPORARY INFRARED EVP SYSTEM (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1
ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED	
* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE	
STH 59/STH 164 & SUNSET DRIVE	
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REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE	
	SPV.0105.27 REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

SIGNAL MOUNTING HARDWARE	
	658.5069.02 SIGNAL MOUNTING HARDWARE (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

TEMPORARY VEHICLE DETECTION SYSTEM	
	SPV.0105.32 TEMPORARY VEHICLE DETECTION (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

TEMPORARY TRAFFIC SIGNALS	
	661.0200.02 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

METER BREAKER PEDESTAL	
	656.0200.02 ELECTRICAL SERVICE METER BREAKER PEDESTAL (STH 59 & SUNSET DR)
LOCATION	LS
STH 59 & SUNSET DR	1
TOTALS	1

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED	
* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE	
STH 59/STH 164 & SUNSET DRIVE	
SIGNAL NO: S67-0299	PAGE 7 OF 7

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SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
3	EACH	POLES TYPE 10
3	EACH	MONOTUBE ARMS 25-FT
4	EACH	LUMINAIRE ARMS STEEL 15-FT
1	EACH	TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 8-PHASE
1	EACH	VIDEO DETECTION CAMERA (ALDIS)
1	EACH	TRAFFIC SIGNAL CABINET
4	EACH	EVP DETECTOR HEADS

*PULL BOXES

LOCATION	PULL BOX NO.	STATION/OFFSET	653.0140 PULL BOXES STEEL 24" x 42"
			EACH
STH 83 & CTH ES	PB1	106+52, 33' LT	1
	PB2	107+13, 17' LT	1
	PB3	107+34, 61' RT	1
	PB4	107+07, 88' RT	1
	PB5	106+45, 92' RT	1
	PB6	106+20, 54' RT	1
	PB7	105+79, 47' RT	1
	PB8	105+61, 15' LT	1
	PB9	105+90, 58' LT	1
TOTALS			9

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*REMOVAL QUANTITIES

LOCATION	ITEM NO.	204.0195 REMOVING CONCRETE BASES	SPV.0060.01 ABANDONING PULL BOXES	653.0905 REMOVING PULL BOXES
		EACH	EACH	EACH
STH 83 & CTH ES	PB1			1
	PB2			1
	PB3		1	
	PB4			1
	PB6			1
	PB7		1	
	PB8		1	
	PB9			1
	PB10			1
	PB11			1
	PB12			1
	PB13		1	
	PB14			1
	PB15			1
	PB16			1
	SB1	1		
	SB2	1		
	SB3	1		
	SB4	1		
	SB5	1		
	SB6	1		
	SB7	1		
	SB8	1		
	CB1	1		
TOTALS		9	4	11

*CONCRETE BASES

LOCATION	SIGNAL BASE NO.	STATION/OFFSET	654.0101 CONCRETE BASES TYPE 1	654.0102 CONCRETE BASES TYPE 2	654.0110 CONCRETE BASES TYPE 10	654.0217 CONCRETE CONTROL CABINET BASE TYPE 9 SPECIAL
			EACH	EACH	EACH	EACH
STH 83 & CTH ES	CB1	203+52, 28' LT				1
	SB1	106+31, 35' LT	1			
	SB2	106+41, 32' LT	1			
	SB3	107+04, 15' LT		1		
	SB4	107+46, 45' RT			1	
	SB5	107+19, 62' RT	1			
	SB6	107+19, 72' RT	1			
	SB7	107+09, 81' RT	1			
	SB8	106+35, 68' RT			1	
	SB9	105+92, 46' RT	1			
TOTALS	SB10	105+70, 13'RT			1	
			6	1	3	1

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 83 & CTH ES

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*SIGNAL BASES AND POLES

LOCATION	SIG. BASE NO.	657.0100	657.0255	657.0315	657.0420	657.0425	657.0405	657.0610	657.1350	657.1525	657.1815	658.0500	659.1125
		PEDESTAL	TRANSFORMER	POLES	TRAFFIC SIGNAL	TRAFFIC SIGNAL	TRAFFIC SIGNAL	LUMINAIRE	INSTALL	INSTALL	INSTALL	PEDESTRIAN	LUMINAIRES
		BASE	BASES	TYPE 4	STANDARDS	STANDARDS	STANDARDS	ARMS SINGLE	POLES	MONOTUBE	LUMINAIRE ARMS	PUSH	UTILITY
		EACH	BREAKAWAY 11 1/2 INCH EACH	EACH	ALUMINUM 13-FT EACH	ALUMINUM 15-FT EACH	ALUMINUM 3.5-FT EACH	MEMBER 4 1/2-INCH CLAMP 6-FT EACH	TYPE 10 EACH	ARMS 25-FT EACH	STEEL 15-FT EACH	BUTTONS EACH	LED C EACH
STH 83 & CTH ES	SB1	1				1							
	SB2	1				1							
	SB3		1	1				1				1	1
	SB4								1	1	1		1
	SB5		1	1				1				1	1
	SB6	1					1					1	
	SB7	1			1								
	SB8								1	1	1	1	1
	SB9	1				1							
	SB10								1	1	2		2
TOTALS		5	2	2	1	3	1	2	3	3	4	4	6

*SIGNAL FACES

LOCATION	SIG. BASE NO.	SIG. HEAD NO.	TYPE OF MOUNT	658.0110	658.0115	658.0120	658.0600	658.0605	658.0610	658.0620	658.0625	658.0215	658.0220	658.0225	658.0412	658.0660
				3-12"	4-12"	5-12"	LED	LED	LED	LED	LED	BCKPLT	BCKPLT	BCKPLT	PEDESTRIAN	LED MODULES
				VERT. EACH	VERT. EACH	VERT. EACH	RED BALL EACH	YELLOW BALL EACH	GREEN BALL EACH	YELLOW ARROW EACH	GREEN ARROW EACH	3-SEC. EACH	4-SEC. EACH	5-SEC. EACH	SIGNAL 12-INCH EACH	COUNTDOWN TIMER 12" EACH
STH 83 & CTH ES	SB1	13	POST MOUNT VERTICAL		1		1	1	1		1		1			
	SB2	14	POST MOUNT VERTICAL		1		1	1	1		1		1			
	SB3	2	POST MOUNT VERTICAL	1			1	1	1			1				
		8	POST MOUNT VERTICAL			1	1	1	1	1	1			1		
		15	PEDESTRIAN												1	1
	SB4	3	MONOTUBE ARM MOUNT VERTICAL	1			1	1	1			1				
		4	POST MOUNT VERTICAL			1	1	1	1	1	1			1		
	SB5	6	POST MOUNT VERTICAL		1		1	1	1		1		1			
		16	PEDESTRIAN												1	1
	SB7	12	POST MOUNT VERTICAL	1			1	1	1			1				
		17	PEDESTRIAN												1	1
	SB8	7	MONOTUBE ARM MOUNT VERTICAL		1		1	1	1		1		1			
		18	PEDESTRIAN												1	1
	SB9	1	POST MOUNT VERTICAL			1	1	1	1	1	1			1		
		9	POST MOUNT VERTICAL	1			1	1	1			1				
	SB10	5	POST MOUNT VERTICAL	1			1	1	1			1				
		10	MONOTUBE ARM MOUNT VERTICAL	1			1	1	1			1				
		11	POST MOUNT VERTICAL			1	1	1	1	1	1			1		
				6	4	4	14	14	14	4	8	6	4	4	4	4

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 83 & CTH ES

SIGNAL NO: S67-0482

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*TRAFFIC SIGNAL CABLE													
LOCATION	LOC.	TO	LOC.	655.0230	655.0240	655.0260	655.0270	655.0320	655.0515	655.0610	655.0700	655.0900	(INCIDENTAL)
				CABLE TRAFFIC SIGNAL 5-14 AWG	CABLE TRAFFIC SIGNAL 7-14 AWG	CABLE TRAFFIC SIGNAL 12-14 AWG	CABLE TRAFFIC SIGNAL 15-14 AWG	CABLE TYPE UF 2-10 AWG GROUNDED	ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG	ELECTRICAL WIRE LIGHTING 12 AWG	LOOP DETECTOR LEAD-IN CABLE	EVP DETECTOR CABLE	VIDEO DETECTION CABLE
STH 83 & CTH ES	CB1		SB1	LF	125								
	CB1		SB2	LF	115								
	CB1		SB3				190	190					
	CB1		SB4			297						312	
	CB1		SB5			293							
	CB1		SB6		350								
	CB1		SB7		338								
	CB1		SB8			257						544	272
	CB1		SB9			201							
	CB1		SB10			118		118				133	
	SB1		SB2							59			
	SB2		SB3							145			
	SB3		SB4							152			
	SB4		SB5					61		62			
	SB5		SB6							115			
	SB6		SB7							53			
	SB7		SB88							193			
	SB88		SB9							107			
	SB9		SB10							128			
	PB1		SB2							32			
	PB2		SB3							30			
	PB3		SB5							37			
	PB4		SB7							28			
	PB5		SB8							103			
	PB6		SB8							42			
	BP7		SB9							33			
	PB8		SB10							30			
	PB9		CB1							45			
	SB3		SB4					150					
	SB10		SB8					182					
	SB1	HEAD 13		22									
	SB2	HEAD 14		22									
	SB3	HEAD 2		19									
	SB3	HEAD 8			23								
	SB3	HEAD 15		15									

(CONTINUED ON NEXT PAGE)

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 83 & CTH ES

SIGNAL NO: S67-0482

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*TRAFFIC SIGNAL CABLE (CONTINUED)													
LOCATION	LOC.	TO	LOC.	655.0230	655.0240	655.0260	655.0270	655.0320	655.0515	655.0610	655.0700	655.0900	(INCIDENTAL)
				CABLE	CABLE	CABLE	CABLE	CABLE	ELECTRICAL	ELECTRICAL	LOOP	EVP	VIDEO DETECTION
				TRAFFIC	TRAFFIC	TRAFFIC	TRAFFIC	TYPE UF	WIRE TRAFFIC	WIRE	DETECTOR	DETECTOR	CABLE
				SIGNAL	SIGNAL	SIGNAL	SIGNAL	2-10 AWG	SIGNALS	LIGHTING	LEAD-IN	CABLE	CABLE
				5-14 AWG	7-14 AWG	12-14 AWG	15-14 AWG	GROUND	10 AWG	12 AWG	CABLE	LF	LF
STH 83 & CTH ES	SB3		PB									6	
	SB3		LUMINAIRE							117			
	SB4		HEAD 3	50									
	SB4		HEAD 4		23								
	SB4		LUMINAIRE							145			
	SB5		HEAD 6	22									
	SB5		HEAD 16	15									
	SB5		PB								6		
	SB5		LUMINAIRE							117			
	SB6		PB								6		
	SB7		HEAD 12	19									
	SB7		HEAD 17	15									
	SB8		HEAD 7	45									
	SB8		HEAD 18	15									
	SB8		PB								6		
	SB8		LUMINAIRE							145			
	SB9		HEAD 1		23								
	SB9		HEAD 9	19									
	SB10		HEAD 5	19									
	SB10		HEAD 10	50									
	SB10		HEAD 11		23								
	SB10		LUMINAIRE							263			
CATEGORY 0010 TOTAL				347	1020	1166	190	701	1394	787	24		272
CATEGORY 0020 TOTAL												989	

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 83 & CTH ES

SIGNAL NO: S67-0482 PAGE 4 OF 6

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REMOVE TRAFFIC SIGNALS

SPV.0105.03
REMOVE
TRAFFIC
SIGNALS
(STH 83 & CTH ES)

LOCATION	LS
STH 83 & CTH ES	1
TOTALS	1

INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET

SPV.0105.08
INSTALL STATE-FURNISHED
TRAFFIC SIGNAL
CABINET
(STH 83 & CTH ES)

LOCATION	LS
STH 83 & CTH ES	1
TOTALS	1

TRANSPORTING SIGNAL AND LIGHTING MATERIALS

SPV.0105.14
TRANSPORTING SIGNAL
AND LIGHTING
MATERIALS
(STH 83 & CTH ES)

LOCATION	LS
STH 83 & CTH ES	1
TOTALS	1

3

*CONDUIT ITEMS

652.0225
CONDUIT RIGID
NONMETALLIC
SCHEDULE 40
2-INCH

652.0235
CONDUIT RIGID
NONMETALLIC
SCHEDULE 40
3-INCH

652.0615
CONDUIT
SPECIAL
3-INCH

LOCATION	FROM	TO	LF	LF	LF
STH 83 & CTH ES	CB1	PB1		165	
	PB1	SB1	22		
	PB1	SB2	12		
	PB1	PB2		126	
	PB2	SB3	10		
	PB2	PB3			166
	PB3	SB4		20	
	PB3	SB5	18		
	PB3	PB4			78
	PB4	SB7	10		
	PB4	SB6	20		
	PB4	PB5			128
	PB5	PB6		90	
	PB6	SB8		22	
	PB6	PB7			66
	PB7	SB9	13		
	PB7	PB8			130
	PB8	SB10		12	
	PB8	PB9			84
	PB9	CB1			60
TOTALS			105	435	712

ALL ITEMS CATEGORY 0010 UNLESS
OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS
LISTED ELSEWHERE

STH 83 & CTH ES

SIGNAL NO: S67-0482

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TRANSPORTING AND INSTALLING STATE-FURNISHED VIDEO DETECTION SYSTEM		
SPV.0105.19 TRANSPORTING AND INSTALLING STATE-FURNISHED VIDEO DETECTION SYSTEM (STH 83 & CTH ES)		
LOCATION	LS	
STH 83 & CTH ES	1	
TOTALS	1	

INSTALL STATE FURNISHED EMERGENCY VEHICLE PREEMPTION DETECTOR HEADS		
SPV.0105.22 INSTALL STATE FURNISHED EVP DETECTOR HEADS (STH 83 & CTH ES)		
CATEGORY	LOCATION	LS
0020	STH 83 & CTH ES	1
TOTALS	1	

REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE		
SPV.0105.28 REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE (STH 83 & CTH ES)		
LOCATION	LS	
STH 83 & CTH ES	1	

METER BREAKER PEDESTAL		
656.0200.03 ELECTRICAL SERVICE METER BREAKER PEDESTAL (STH 83 & CTH ES)		
LOCATION	LS	
STH 83 & CTH ES	1	
TOTALS	1	

SIGNAL MOUNTING HARDWARE		
658.5069.03 SIGNAL MOUNTING HARDWARE (STH 83 & CTH ES)		
LOCATION	LS	
STH 83 & CTH ES	1	
TOTALS	1	

TEMPORARY TRAFFIC SIGNALS		
661.0200.03 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (STH 83 & CTH ES)		
LOCATION	LS	
STH 83 & CTH ES	1	
TOTALS	1	

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 83 & CTH ES

SIGNAL NO: S67-0482

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3

*REMOVAL QUANTITIES			
LOCATION	ITEM NO.	204.0195	653.0905
		REMOVING CONCRETE BASES EACH	REMOVING PULL BOXES EACH
STH 100 & STH 181	PB1		1
	PB2		1
	PB3		1
	PB4		1
	PB5		1
	PB6		1
	PB9		1
	PB10		1
	PB11		1
	PB12		1
	PB13		1
	PB14		1
	PB21		1
	PB22		1
	PB23		1
	PB24		1
	PB25		1
	PB26		1
	PB27		1
	PB31		1
	PBI11		1
	SB1	1	
	SB2	1	
	SB3	1	
	SB4	1	
	SB5	1	
	SB6	1	
	SB7	1	
	SB8	1	
	SB11	1	
	SB12	1	
	SB13	1	
	SB14	1	
	SB15	1	
	SB16	1	
	SB17	1	
	SB18	1	
	SB19	1	
	SB20	1	
	CB1	1	
TOTALS		19	21

PROJECT NO: 3700-20-74

HWY: STH 100

COUNTY: MILWAUKEE

MISCELLANEOUS QUANTITIES

SHEET NO: 121

E

PLOT DATE : 2/20/2015 2:20 PM

PLOT BY :

PLOT NAME : 030201_mq

PLOT SCALE : 1.000000:1.000000

WISDOT / CADDs SHEET 42

3

SUMMARY OF STATE FURNISHED MATERIALS						
QUANTITY		UNIT	DESCRIPTION			
2		EACH	POLES TYPE 9			
4		EACH	POLES TYPE 12			
2		EACH	MONOTUBE ARMS 30-FT			
2		EACH	MONOTUBE ARMS 45-FT			
2		EACH	MONOTUBE ARMS 55-FT			
1		EACH	TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 8-PHASE			
1		EACH	TRAFFIC SIGNAL CABINET			
<u>*CONCRETE BASES</u>						
	SIGNAL		654.0101	654.0110	654.0113	654.0217
	BASE		CONCRETE	CONCRETE	CONCRETE	CONCRETE
			BASES	BASES	BASES	CONTROL CABINET
			TYPE 1	TYPE 10	TYPE 13	BASE TYPE 9
LOCATION	NO.	STATION/OFFSET	EACH	EACH	EACH	SPECIAL
STH 100 & STH 181	CB1	124+27, 80' RT				1
	SB1	124+02, 70' RT	1			
	SB2	123+58, 70' RT	1			
	SB3	123+40, 59' RT	1			
	SB4	123+15, 00' RT	1			
	SB5	123+52, 66' LT			1	
	SB6	123+88, 66' LT		1		
	SB7	124+28, 66' LT	1			
	SB8	124+39, 59' LT	1			
	SB9	124+23, 61' RT			1	
	CB2	121+12, 77' LT				1
	SB10	121+55, 00' RT	1			
	SB11	121+09, 62' RT			1	
	SB12	120+73, 72' RT	1			
	SB13	120+30, 72' RT		1		
	SB14	120+17, 58'RT	1			
	SB15	120+26, 7' RT			1	
	SB16	120+30, 59' LT	1			
	SB17	120+51, 76' RT	1			
	SB18	120+94, 67' LT	1			
	SB19	121+07, 58' LT	1			
TOTALS			13	2	4	2

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) & STH 181 (N 76TH ST)

SIGNAL NO: S40-1164

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*SIGNAL BASES AND POLES

		657.0100	657.0420	657.0425	657.0430	657.1345	657.1355	657.1530	657.1545	657.1555	658.0500
		PEDESTAL	TRAFFIC SIGNAL	TRAFFIC SIGNAL	TRAFFIC SIGNAL	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	PEDESTRIAN
		BASE	STANDARDS	STANDARDS	STANDARDS	POLES	POLES	MONOTUBE	MONOTUBE	MONOTUBE	PUSH
			ALUMINUM	ALUMINUM	ALUMINUM	TYPE 9	TYPE 12	ARMS	ARMS	ARMS	BUTTONS
		13-FT	15-FT	10-FT				30-FT	45-FT	55-FT	
LOCATION	SIG.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
	BASE										
	NO.										
STH 100 & STH 181	SB1	1	1								1
	SB2	1			1						1
	SB3	1	1								
	SB4	1		1							
	SB5						1		1		
	SB6					1		1			1
	SB7	1	1								1
	SB8	1		1							
	SB9						1			1	
	SB10	1		1							
	SB11						1		1		
	SB12	1			1						1
	SB13					1		1			1
	SB14	1		1							
	SB15						1			1	
	SB16	1	1								
	SB17	1	1								1
	SB18	1			1						1
	SB19	1	1								
TOTALS		13	6	4	3	2	4	2	2	2	8

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) &
STH 181 (N 76TH ST)

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

SIGNAL NO: S40-1164 PAGE 2 OF 11

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*SIGNAL FACES															
LOCATION	SIG. BASE NO.	SIG. HEAD NO.	TYPE OF MOUNT	658.0110	658.0115	658.0600	658.0605	658.0610	658.0615	658.0620	658.0625	658.0215	658.0220	658.0412	658.0660
				3-12" VERT. EACH	4-12" VERT. EACH	LED RED BALL EACH	LED YELLOW BALL EACH	LED GREEN BALL EACH	LED RED ARROW EACH	LED YELLOW ARROW EACH	LED GREEN ARROW EACH	BCKPLT 3-SEC. EACH	BCKPLT 4-SEC. EACH	PEDESTRIAN SIGNAL FACE 12-INCH EACH	LED MODULES COUNTDOWN TIMER 12" EACH
STH 100 & STH 181	SB1	5	POST MOUNT VERTICAL	1		1	1	1				1			
		33	PEDESTRIAN											1	1
	SB2	34	PEDESTRIAN											1	1
	SB3	9	POST MOUNT VERTICAL	1		1	1	1				1			
	SB4	14	POST MOUNT VERTICAL		1				1	2	1		1		
	SB5	2	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		3	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		4	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
	SB6	6	MONOTUBE ARM MOUNT VERTICAL	1					1	1	1	1			
		7	MONOTUBE ARM MOUNT VERTICAL		1	1	1	1			1		1		
		35	PEDESTRIAN											1	1
	SB7	8	POST MOUNT VERTICAL	1		1	1	1				1			
		36	PEDESTRIAN											1	1
	SB8	1	POST MOUNT VERTICAL	1		1	1	1				1			
		15	POST MOUNT VERTICAL		1				1	2	1		1		
	SB9	10	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		11	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		12	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		13	POST MOUNT VERTICAL	1		1	1	1				1			
		16	MONOTUBE ARM MOUNT VERTICAL		1				1	2	1		1		
	SB10	22	POST MOUNT VERTICAL		1				1	2	1		1		
	SB11	26	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		27	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		28	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
	SB12	37	PEDESTRIAN											1	1
	SB13	30	MONOTUBE ARM MOUNT VERTICAL	1					1	1	1	1			
		31	MONOTUBE ARM MOUNT VERTICAL		1	1	1	1			1		1		
		32	POST MOUNT VERTICAL	1		1	1	1				1			
		38	PEDESTRIAN											1	1
	SB14	23	POST MOUNT VERTICAL		1				1	2	1		1		
		25	POST MOUNT VERTICAL	1		1	1	1				1			
	SB15	18	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		19	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		20	MONOTUBE ARM MOUNT VERTICAL	1		1	1	1				1			
		24	MONOTUBE ARM MOUNT VERTICAL		1				1	2	1		1		
	SB16	21	POST MOUNT VERTICAL	1		1	1	1				1			
	SB17	29	POST MOUNT VERTICAL	1		1	1	1				1			
		39	PEDESTRIAN											1	1
	SB18	40	PEDESTRIAN											1	1
	SB19	17	POST MOUNT VERTICAL	1		1	1	1				1			
TOTALS				24	8	24	24	24	8	14	10	24	8	8	8

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) &
STH 181 (N 76TH ST)

SIGNAL NO: S40-1164 PAGE 3 OF 11

*CONDUIT ITEMS

LOCATION	FROM	TO	652.0215	652.0225	652.0235	652.0605	652.0615	652.0700.S
			CONDUIT RIGID NONMETALLIC SCHEDULE 40 1 1/4-INCH LF	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF	CONDUIT SPECIAL 2-INCH LF	CONDUIT SPECIAL 3-INCH LF	INSTALL CONDUIT INTO EXISTING ITEM EACH
STH 100 & STH 181	CB1	PB1			90			
	CB1	ICPB111	10					1
	PB1	PB2		18				1
	PB1	SB1		13				
	PB1	PB3					135	
	PB3	PB18					675	
	PB3	SB2		10				
	PB3	PB5					66	
	PB5	SB3		15				
	PB5	PB6					124	
	PB6	SB4		15				
	PB6	PB7					116	
	PB7	SB5			25			
	PB7	PB8		30				
	PB7	PB9					116	
	PB9	SB6					29	
	PB9	PB10					128	
	PB10	SB7				28		
	PB10	PB11					60	
	PB11	SB8		8				
	PB11	PB12					110	
	PB12	PB13		193				
	PB13	PB14		135				
	PB12	PB15					136	
	PB15	SB9			18			
	PB15	CB1			75			
	CB2	PB16					81	
	PB16	PB17					180	
	PB17	SB10		30				
	PB17	PB18					225	
	PB18	SB11					26	
	PB28	PB19			118			
	PB19	PB20				32		
	PB19	SB12		5				
	PB19	PB21					140	

(CONTINUED ON NEXT PAGE)

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) &
STH 181 (N 76TH ST)

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

SIGNAL NO: S40-1164

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*CONDUIT ITEMS (CONTINUED)

LOCATION	FROM	TO	652.0215	652.0225	652.0235	652.0605	652.0615	652.0700.S
			CONDUIT RIGID	CONDUIT RIGID	CONDUIT RIGID	CONDUIT	CONDUIT	INSTALL
			NONMETALLIC	NONMETALLIC	NONMETALLIC	SPECIAL	SPECIAL	CONDUIT INTO
			SCHEDULE 40	SCHEDULE 40	SCHEDULE 40			EXISTING
			1 1/4-INCH	2-INCH	3-INCH	2-INCH	3-INCH	ITEM
			LF	LF	LF	LF	LF	EACH
STH 100 & STH 181	PB21	SB13			25			
	PB21	SB14				20		
	PB21	PB22					132	
	PB22	PB23		193				
	PB23	PB24		132				
	PB22	SB15			16			
	PB22	PB25					138	
	PB25	SB16		15				
	PB25	SB17				40		
	PB25	PB26					150	
	PB26	PB27				30		1
	PB26	SB18		9				
	PB26	SB19		17				
	PB26	CB2					90	
TOTALS			10	838	367	150	2857	3

*PULL BOXES

LOCATION	PULL BOX NO.	STATION/OFFSET	653.0135	653.0140
			PULL BOXES	PULL BOXES
			STEEL	STEEL
			24" x 36"	24" x 42"
			EACH	EACH
STH 100 & STH 181	PB1	123+98, 80' RT		1
	PB2	123+98, 97' RT	1	
	PB3	123+52, 78' RT		1
	PB4	123+13, 291' RT	1	
	PB5	123+24, 61' RT		1
	PB6	123+27, 0' RT		1
	PB7	123+29, 58' LT	1	
	PB8	123+59, 58' LT		1
	PB9	123+77, 92' LT	1	
	PB10	124+39, 90' LT		1
	PB11	124+46, 61' LT		1
	PB12	124+46, 6' LT		1
	PB13	126+38, 8' LT		1
	PB14	127+69, 10' LT	1	
	PB15	124+41, 61' LT	1	

*PULL BOXES (CONTINUED)

LOCATION	PULL BOX NO.	STATION/OFFSET	653.0135	653.0140
			PULL BOXES	PULL BOXES
			STEEL	STEEL
			24" x 36"	24" x 42"
			EACH	EACH
	PB16	121+33, 59' LT		1
	PB17	121+33, 1' LT		1
	PB18	121+32, 74' RT		1
	PB19	120+74, 76' RT		1
	PB20	120+99, 58' RT		1
	PB21	120+06, 75' RT	1	
	PB22	120+11, 10' RT		1
	PB23	118+19, 11' RT		1
	PB24	116+88, 11' RT	1	
	PB25	120+16, 58' LT	1	
	PB26	120+90, 59' LT		1
	PB27	120+95, 87' LT		1
	PB28	121+75, 294' LT	1	

TOTALS

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ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

^ ITEM LISTED IN MULTIPLE TABLES FOR THIS INTERSECTION

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) & STH 181 (N 76TH ST)

SIGNAL NO: S40-1164

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TRAFFIC DETECTOR LOOPS

LOCATION	LOOP NO.	HOME RUN PB	STATION/OFFSET	SIZE	SDD INSTALLATION REFERENCE	NO. OF TURNS	PAVEMENT TYPE	652.0800	655.0700^	655.0800
								CONDUIT LOOP DETECTOR LF	LOOP DETECTOR LEAD IN CABLE LF	LOOP DETECTOR WIRE LF
STH 100 & STH 181	83	PB27	123+98, 97' RT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	86	-
	85	PB27	123+98, 97' RT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	86	-
	82	PB27	123+52, 78' RT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	113	-
	84	PB27	123+52, 78' RT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	113	-
	81	PB28	123+13, 292' RT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	353	-
	31	PB6	123+15, 0' RT	6' X 20'	9F15-4a	3	ASPHALT	62	273	181
	32	PB6	123+15, 0' RT	6' X 20'	9F15-4a	3	ASPHALT	62	273	181
	23	PB8	123+59, 58' LT	6' X 30'	9F15-4a	3	ASPHALT	82	356	241
	22	PB13	126+38, 8' LT	6' X 30'	9F15-4a	4	ASPHALT	82	339	313
	21	PB14	127+69, 10' LT	6' X 30'	9F15-4a	4	ASPHALT	82	489	313
	71	PB17	121+33, 1' LT	6' X 20'	9F15-4a	3	ASPHALT	62	443	181
	72	PB17	121+33, 1' LT	6' X 20'	9F15-4a	3	ASPHALT	62	443	181
	63	PB20	120+99, 58' RT	6' X 30'	9F15-4a	3	ASPHALT	82	474	241
	62	PB23	118+19, 10' RT	6' X 30'	9F15-4a	4	ASPHALT	82	801	313
	61	PB24	116+88, 11' RT	6' X 30'	9F15-4a	4	ASPHALT	82	948	313
	42	PB2	120+95, 87' LT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	650	-
	43	PB2	120+95, 87' LT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	650	-
	44	PB3	120+95, 87' LT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	650	-
	45	PB3	120+95, 87' LT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	650	-
	41	PB4	121+75, 294' LT	EXISTING	LOOP DETECTOR LEAD-IN ONLY	-	-	-	890	-
TOTAL								740	9080	2458

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) &
STH 181 (N 76TH ST)

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

SIGNAL NO: S40-1164 PAGE 6 OF 11

*TRAFFIC SIGNAL CABLE												
LOCATION	LOC.	TO	LOC.	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG LF	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG LF	655.0520 ELECTRICAL WIRE TRAFFIC SIGNALS 8 AWG LF	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF	655.0700^ LOOP DETECTOR LEAD-IN CABLE LF	674.0300 REMOVE CABLE LF	674.0400 REINSTALL CABLE LF	SPV.0090.01 FIBER OPTIC WARNING TAPE LF
STH 100 & STH 181	CB1		SB1			71		71				
	CB1		SB2		128							
	CB1		SB3		181							
	CB1		SB4		258							
	CB1		SB5		341							
	CB1		SB6			359						
	CB1		SB7			279						
	CB1		SB8			214						
	CB1		SB9			71		71				
	CB1		CV9							150	150	156
	CB1		CB2			1110	555					
	CB2		SB10		135			135				
	CB2		SB11		246							
	CB2		SB12		299							
	CB2		SB13			338						
	CB2		SB14			333						
	CB2		SB15			248						
	CB2		SB16		163							
	CB2		SB17		188							
	CB2		SB18			67						
	CB2		SB19		75			75				
	SB1		SB2					108				
	SB2		SB3					98				
	SB3		SB4					132				
	SB4		SB5					138				
	SB5		SB6					152				
	SB6		SB7					161				
	SB7		SB8					106				
	SB8		SB9					204				
	SB10		SB11					146				
	SB11		SB12					130				
	SB12		SB13					140				
	SB13		SB14					70				
	SB14		SB15					142				
	SB15		SB16					140				
	SB16		SB17					80				
	SB17		SB18					164				
	SB18		SB19					51				
	PB1		SB1					33				
	PB3		SB2					30				
	PB5		SB3					35				
	PB6		SB4					35				
	PB7		SB5					45				
	PB9		SB6					49				
	PB10		SB7					48				

(CONTINUED ON NEXT PAGE)

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

^ ITEM LISTED IN MULTIPLE TABLES FOR THIS INTERSECTION

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) &
STH 181 (N 76TH ST)

SIGNAL NO: S40-1164 PAGE 7 OF 11

*TRAFFIC SIGNAL CABLE (CONTINUED)												
LOCATION	LOC.	TO	LOC.	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG LF	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG LF	655.0520 ELECTRICAL WIRE TRAFFIC SIGNALS 8 AWG LF	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF	655.0700^ LOOP DETECTOR LEAD-IN CABLE LF	674.0300 REMOVE CABLE LF	674.0400 REINSTALL CABLE LF	SPV.0090.01 FIBER OPTIC WARNING TAPE LF
STH 100 & STH 181	PB11		SB8					28				
	PB12		SB8					98				
	PB15		SB9					38				
	PB16		CB2					50				
	PB17		SB10					45				
	PB18		SB11					46				
	PB19		SB12					25				
	PB21		SB13					40				
	PB22		SB15					36				
	PB25		SB16					35				
	PB26		SB18					29				
	SB1		HEAD 5	19								
	SB1		HEAD 33	15								
	SB1		PB						6			
	SB2		HEAD 34	15								
	SB2		PB						6			
	SB3		HEAD 9	19								
	SB4		HEAD 14	22								
	SB5		HEAD 2	70								
	SB5		HEAD 3	60								
	SB5		HEAD 4	50								
	SB6		HEAD 6	45								
	SB6		HEAD 7	55								
	SB6		HEAD 35	15								
	SB6		PB						6			
	SB7		HEAD 8	19								
	SB7		HEAD 36	15								
	SB7		PB						6			
	SB8		HEAD 1	19								
	SB8		HEAD 15	22								
	SB9		HEAD 10	70								
	SB9		HEAD 11	60								
	SB9		HEAD 12	50								
	SB9		HEAD 13	19								
	SB9		HEAD 16	80								

(CONTINUED ON NEXT PAGE)

^ ITEM LISTED IN MULTIPLE TABLES FOR THIS INTERSECTION

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) &
STH 181 (N 76TH ST)

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

SIGNAL NO: S40-1164 PAGE 8 OF 11

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*TRAFFIC SIGNAL CABLE (CONTINUED)												
				655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG	655.0520 ELECTRICAL WIRE TRAFFIC SIGNALS 8 AWG	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG	655.0700^ LOOP DETECTOR LEAD-IN CABLE	674.0300 REMOVE CABLE	674.0400 REINSTALL CABLE	SPV.0090.01 FIBER OPTIC WARNING TAPE
LOCATION	LOC.	TO	LOC.	LF	LF	LF	LF	LF	LF	LF	LF	LF
	SB11		HEAD 26	70								
	SB11		HEAD 27	60								
	SB11		HEAD 28	50								
	SB12		HEAD 37	15								
	SB12		PB						6			
	SB13		HEAD 30	55								
	SB13		HEAD 31	45								
	SB13		HEAD 32	22								
	SB13		HEAD 38	15								
	SB13		PB						6			
	SB14		HEAD 23	22								
	SB14		HEAD 25	19								
	SB15		HEAD 18	60								
	SB15		HEAD 19	70								
	SB15		HEAD 20	80								
	SB15		HEAD 24	50								
	SB16		HEAD 21	19								
	SB17		HEAD 29	19								
	SB17		HEAD 39	15								
	SB17		PB						6			
	SB18		HEAD 40	15								
	SB18		PB						6			
	SB19		HEAD 17	19								
INTERSECTION TOTAL				1481	2014	3090	555	3259	48	150	150	156

^ ITEM LISTED IN MULTIPLE TABLES FOR THIS INTERSECTION

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) &
STH 181 (N 76TH ST)

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

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METER BREAKER PEDESTAL		
	656.0200.04	
	ELECTRICAL	
	SERVICE METER	
	BREAKER PEDESTAL	
	(STH 100 & STH 181)	
LOCATION	LS	
STH 100 & STH 181	1	
TOTAL	1	

SIGNAL MOUNTING HARDWARE		
	658.5069.04	
	SIGNAL MOUNTING	
	HARDWARE	
	(STH 100 & STH 181)	
LOCATION	LS	
STH 100 & STH 181	1	
TOTAL	1	

TEMPORARY TRAFFIC SIGNALS			
	661.0200.04	661.0200.05	
	TEMPORARY	TEMPORARY	
	TRAFFIC SIGNALS	TRAFFIC SIGNALS	
	FOR INTERSECTIONS	FOR INTERSECTIONS	
	(STH 100 & STH 181 SB RAMPS)	(STH 100 & STH 181 NB RAMPS)	
LOCATION	LS	LS	
STH 100 & STH 181 SB RAMPS	1		
STH 100 & STH 181 NB RAMPS		1	
TOTAL	1	1	

3

REMOVE TRAFFIC SIGNALS		
	SPV.0105.04	
	REMOVE	
	TRAFFIC	
	SIGNALS	
	(STH 100 & STH 181)	
LOCATION	LS	
STH 100 & STH 181	1	
TOTAL	1	

INSTALL STATE FURNISHED TRAFFIC SIGNAL CABINET			
	SPV.0105.09	SPV.0105.10	
	INSTALL STATE	INSTALL STATE	
	FURNISHED TRAFFIC	FURNISHED TRAFFIC	
	(STH 100 & STH 181 SB RAMPS)	(STH 100 & STH 181 NB RAMPS)	
LOCATION	EACH	EACH	
STH 100 & STH 181 SB RAMPS (SPLICE CABINET)	1		
STH 100 & STH 181 NB RAMPS		1	
TOTAL	1	1	

TRANSPORTING SIGNAL AND LIGHTING MATERIALS		
	SPV.0105.15	
	TRANSPORTING SIGNAL	
	AND LIGHTING	
	MATERIALS	
	(STH 100 & STH 181)	
LOCATION	LS	
STH 100 & STH 181	1	
TOTAL	1	

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (BROWN DEER RD) & STH 181 (N 76TH ST)

SIGNAL NO: S40-1164 PAGE 10 OF 11

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REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE

SPV.0105.29
REMOVE LOOP
DETECTOR WIRE AND
LEAD-IN CABLE
(STH 100 & STH 181)

LOCATION	LS
STH 100 & STH 181	1
TOTAL	1

3

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET

SPV.0105.35
INSTALL FIBER OPTIC
COMMUNICATIONS
IN CABINET
(STH 100 & STH 181)

LOCATION	LS
STH 100 & STH 181	1
TOTAL	1

TEMPORARY VEHICLE DETECTION SYSTEM

SPV.0105.33
TEMPORARY
VEHICLE
DETECTION
(STH 100 & STH 181 SB RAMPS)

SPV.0105.34
TEMPORARY
VEHICLE
DETECTION
(STH 100 & STH 181 NB RAMPS)

LOCATION	LS	LS
STH 100 & STH 181 SB RAMPS	1	
STH 100 & STH 181 NB RAMPS		1
TOTAL	1	1

REMOVE, SALVAGE, AND REINSTALL INSYNC ADAPTIVE TRAFFIC SIGNAL EQUIPMENT

SPV.0105.36
REMOVE, SALVAGE, AND
REINSTALL INSYNC ADAPTIVE
TRAFFIC SIGNAL EQUIPMENT
(STH 100 & STH 181)

LOCATION	LS
STH 100 & STH 181	1
TOTAL	1

* ADDITIONAL QUANTITIES FOR THESE ITEMS
LISTED ELSEWHERE

STH 100 (BROWN DEER RD) &
STH 181 (N 76TH ST)

ALL ITEMS CATEGORY 0010 UNLESS
OTHERWISE NOTED

SIGNAL NO: S40-1164 PAGE 11 OF 11

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*SIGNAL BASES AND POLES													
	657.0100 PEDESTAL BASE	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2 INCH	657.0310 POLES TYPE 3	657.0420 TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT	657.0595 TROMBONE ARMS 25-FT	657.0610 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT	657.1350 INSTALL POLES TYPE 10	657.1360 INSTALL POLES TYPE 13	657.1525 INSTALL MONOTUBE ARMS 25-FT	657.1530 INSTALL MONOTUBE ARMS 30-FT	657.1535 INSTALL MONOTUBE ARMS 35-FT	657.1815 INSTALL LUMINAIRE ARMS STEEL 15-FT	659.1125 LUMINAIRES UTILITY LED C
LOCATION	SIG. BASE NO.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
STH 100 & S 76TH ST	SB1	1		1									
	SB2						1			1		1	1
	SB3	1											
	SB4						1		1			1	1
	SB5	1			1								
	SB6		1	1		1							1
	SB7	1			1								
	SB8							1			1	1	1
TOTALS		4	1	1	4	1	2	1	1	1	1	3	4

3

*REMOVAL QUANTITIES				SUMMARY OF STATE FURNISHED MATERIALS		
LOCATION	ITEM NO.	204.0195 REMOVING CONCRETE BASES EACH	653.0905 REMOVING PULL BOXES EACH	QUANTITY	UNIT	DESCRIPTION
STH 100 & S 76TH ST	PB1		1	2	EACH	POLES TYPE 10
	PB2		1	1	EACH	POLES TYPE 13
	PB3		1	1	EACH	MONOTUBE ARMS 25-FT
	PB4		1	1	EACH	MONOTUBE ARMS 30-FT
	PB5		1	1	EACH	MONOTUBE ARMS 35-FT
	PB6		1	3	EACH	LUMINAIRE ARMS STEEL 15-FT
	PB7		1	1	EACH	TRAFFIC SIGNAL CONTROLLER, FULLY ACTUATED, 8-PHASE
	PB8		1	1	EACH	RADAR DETECTION SYSTEM
	PB9		1	1	EACH	TRAFFIC SIGNAL CABINET
	PB10		1	1	EACH	CELL MODEM (STATE-FURNISHED & INSTALLED)
	PB11		1	4	EACH	EVP DETECTOR HEADS
	PB12		1			
	SB1	1				
	SB2	1				
	SB3	1				
	SB4	1				
	SB5	1				
	SB6	1				
	SB7	1				
	SB8	1				
	CB1	1				
TOTALS		9	12			
				REMOVE TRAFFIC SIGNALS		
LOCATION						SPV.0105.05 REMOVE TRAFFIC SIGNALS (STH 100 & S 76TH ST) LS
STH 100 & S 76TH ST						1
TOTAL						1
				ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED		
				* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE		
				STH 100 (RYAN RD) & S 76TH ST		
				SIGNAL NO: S40-1199		
				PAGE 1 OF 4		

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*CONDUIT ITEMS					
			652.0225	652.0235	652.0615
			CONDUIT RIGID	CONDUIT RIGID	CONDUIT
			NONMETALLIC	NONMETALLIC	SPECIAL
			SCHEDULE 40	SCHEDULE 40	
			2-INCH	3-INCH	3-INCH
LOCATION	FROM	TO	LF	LF	LF
STH 100 & S 76TH ST	CB1	PB1		87	
	PB1	SB1	7		
	PB1	PB2			150
	PB2	SB2		21	
	PB2	PB3		70	
	PB3	SB3	14		
	PB3	PB4			130
	PB4	SB4		19	
	PB4	PB 5		120	
	PB5	SB5	12		
	PB5	PB6			130
	PB6	SB6	17		
	PB6	PB7		90	
	PB7	SB7	16		
	PB7	PB8			136
	PB8	SB8		25	
	PB8	CB1		45	
TOTALS			66	477	546

*CONCRETE BASES							
			654.0101	654.0102	654.0110	654.0113	654.0217
	SIGNAL		CONCRETE	CONCRETE	CONCRETE	CONCRETE	CONCRETE
	BASE		BASES	BASES	BASES	BASES	CONTROL CABINET
	NO.	STATION/OFFSET	TYPE 1	TYPE 2	TYPE 10	TYPE 13	BASE TYPE 9
LOCATION			EACH	EACH	EACH	EACH	SPECIAL
							EACH
STH 100 & S 76TH ST	CB1	124+50, 43' RT					1
	SB1	124+25, 54' RT	1				
	SB2	123+65, 76' RT			1		
	SB3	123+45, 37' RT	1				
	SB4	123+13, 30' LT			1		
	SB5	123+65, 54' LT	1				
	SB6	124+30, 49' LT		1			
	SB7	124+47, 36' LT	1				
	SB8	124+40, 41' RT				1	
TOTALS			4	1	2	1	1

3

*SIGNAL FACES								
				658.0110	658.0600	658.0605	658.0610	658.0215
	SIG.	SIG.		3-12"	LED	LED	LED	
	BASE	HEAD		VERT.	RED	YELLOW	GREEN	BCKPLT
LOCATION	NO.	NO.	TYPE OF MOUNT	EACH	EACH	EACH	EACH	3-SEC.
STH 100 & S 76TH ST	SB1	4	POST MOUNT VERTICAL	1	1	1	1	1
		11	POST MOUNT VERTICAL	1	1	1	1	1
	SB2	12	MONOTUBE ARM MOUNT VERTICAL	1	1	1	1	1
	SB3	2	POST MOUNT VERTICAL	1	1	1	1	1
		7	POST MOUNT VERTICAL	1	1	1	1	1
	SB4	3	MONOTUBE ARM MOUNT VERTICAL	1	1	1	1	1
	SB5	5	POST MOUNT VERTICAL	1	1	1	1	1
		10	POST MOUNT VERTICAL	1	1	1	1	1
	SB6	6	TROMBONE ARM MOUNT VERTICAL	1	1	1	1	1
	SB7	1	POST MOUNT VERTICAL	1	1	1	1	1
		8	POST MOUNT VERTICAL	1	1	1	1	1
	SB8	9	MONOTUBE ARM MOUNT VERTICAL	1	1	1	1	1
TOTALS				12	12	12	12	12

*PULL BOXES			
LOCATION	PULL BOX NO.	STATION/OFFSET	653.0140
			PULL BOXES
			STEEL
			24" x 42"
			EACH
STH 100 & S 76TH ST			
	PB1	124+30, 58' RT	1
	PB2	123+56, 58' RT	1
	PB3	123+31, 34' RT	1
	PB4	123+31, 31' LT	1
	PB5	123+66, 64' LT	1
	PB6	124+30, 64' LT	1
	PB7	124+62, 32' LT	1
	PB8	124+62, 34' RT	1
*TOTALS			8
ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED			
* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE			
STH 100 (RYAN RD) & S 76TH ST			
SIGNAL NO: S40-1199			
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*TRAFFIC SIGNAL CABLE											
LOCATION	LOC.	TO	LOC.	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG LF	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG LF	655.0320 CABLE TYPE UF 2-10 AWG GROUNDED LF	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG LF	655.0900 EVP DETECTOR CABLE LF	(INCIDENTAL) RADAR DETECTION CABLE LF
STH 100 & S 76TH ST	CB1		SB1			64		64			
	CB1		SB2		166		166			228	456
	CB1		SB3			211					
	CB1		SB4			296				301	602
	CB1		SB5			278					
	CB1		SB6			203				223	
	CB1		SB7			142					
	CB1		SB8			68	68	68		128	256
	SB1		SB2					143			
	SB2		SB3					110			
	SB2		SB4				195				
	SB3		SB4					138			
	SB4		SB5					131			
	SB5		SB6					134			
	SB6		SB7					120			
	SB6		SB8				210				
	SB7		SB8					151			
	PB1		SB1					27			
	PB2		SB2					41			
	PB3		SB3					34			
	PB4		SB4					39			
	PB5		SB5					32			
	PB6		SB6					37			
	PB7		SB7					36			
	PB8		CB1					38			
	SB1		HEAD 4	19							
	SB1		HEAD 11	19							
	SB2		HEAD 12	55							
	SB2		LUMINAIRE						145		
	SB3		HEAD 2	19							
	SB3		HEAD 7	19							
	SB4		HEAD 3	50							
	SB4		LUMINAIRE						145		
	SB5		HEAD 5	19							
	SB5		HEAD 10	19							
	SB6		HEAD 6	50							
	SB6		LUMINAIRE						145		
	SB7		HEAD 1	19							
	SB7		HEAD 8	19							
	SB8		HEAD 9	60							
	SB8		LUMINAIRE						145		

CATEGORY 0010 TOTAL	367	166	1262	639	1343	580		1314
CATEGORY 0030 TOTAL							880	

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (RYAN RD) & S 76TH ST

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INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET	
SPV.0105.11 INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET (STH 100 & S 76TH ST)	
LOCATION	LS
STH 100 & S 76TH ST	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE-FURNISHED RADAR DETECTION SYSTEM	
SPV.0105.38 TRANSPORTING AND INSTALLING STATE-FURNISHED RADAR DETECTION SYSTEM (STH 100 & S 76TH ST)	
LOCATION	LS
STH 100 & S 76TH ST	1
TOTAL	1

3

TRANSPORTING SIGNAL AND LIGHTING MATERIALS	
SPV.0105.16 TRANSPORTING SIGNAL AND LIGHTING MATERIALS (STH 100 & S 76TH ST)	
LOCATION	LS
STH 100 & S 76TH ST	1
TOTAL	1

METER BREAKER PEDESTAL	
656.0200.05 ELECTRICAL SERVICE METER BREAKER PEDESTAL (STH 100 & S 76TH ST)	
LOCATION	LS
STH 100 & S 76TH ST	1
TOTAL	1

INSTALL STATE FURNISHED EMERGENCY VEHICLE PREEMPTION DETECTOR HEADS		
SPV.0105.23 INSTALL STATE FURNISHED EVP DETECTOR HEADS (STH 100 & S 76TH ST)		
CATEGORY	LOCATION	LS
0030	STH 100 & S 76TH ST	1
TOTALS		1

SIGNAL MOUNTING HARDWARE	
658.5069.05 SIGNAL MOUNTING HARDWARE (STH 100 & S 76TH ST)	
LOCATION	LS
STH 100 & S 76TH ST	1
TOTAL	1

REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE	
SPV.0105.30 REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE (STH 100 & S 76TH ST)	
LOCATION	LS
STH 100 & S 76TH ST	1
TOTAL	1

TEMPORARY TRAFFIC SIGNALS	
661.0200.06 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (STH 100 & S 76TH ST)	
LOCATION	LS
STH 100 & S 76TH ST	1
TOTAL	1

ALL ITEMS CATEGORY 0010 UNLESS OTHERWISE NOTED

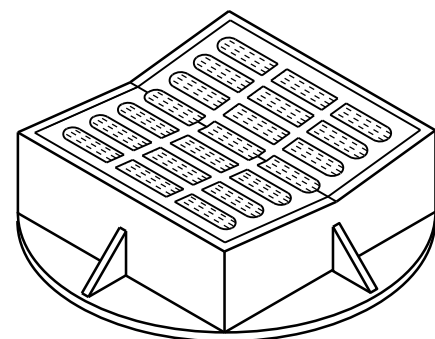
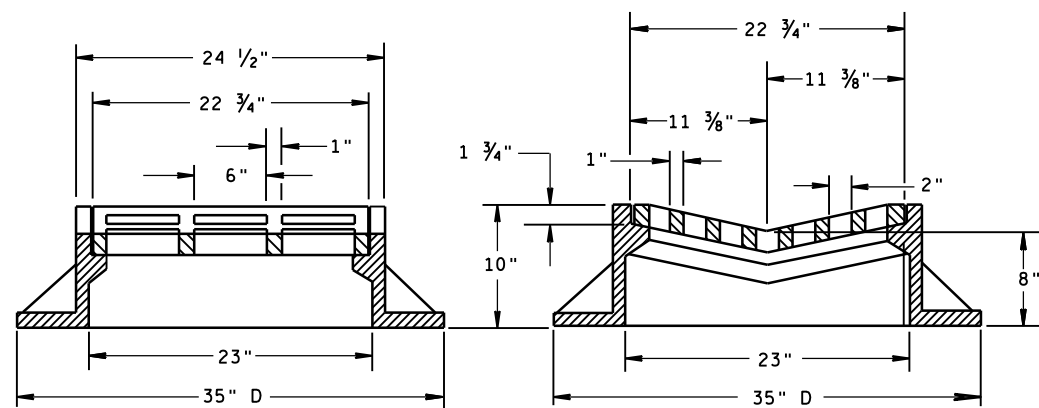
* ADDITIONAL QUANTITIES FOR THESE ITEMS LISTED ELSEWHERE

STH 100 (RYAN RD) & S 76TH ST

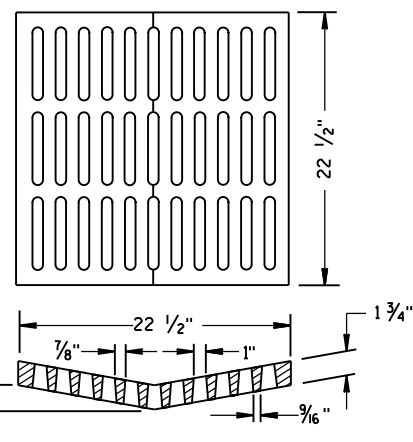
SIGNAL NO: S40-1199 PAGE 4 OF 4

Standard Detail Drawing List

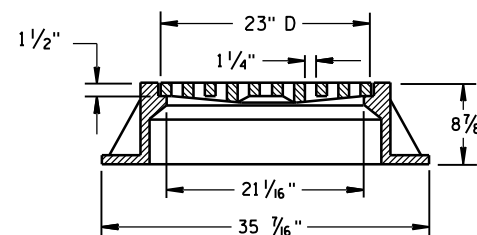
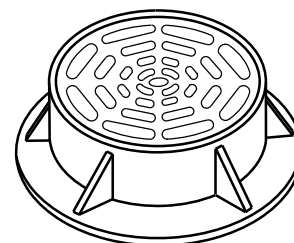
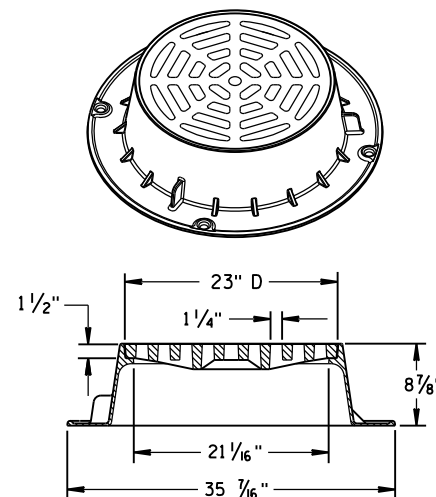
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C08-01	INLETS MEDIAN 1 AND 2 GRATE
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-15A	CURB RAMPS TYPES 1 AND 1-A
08D05-15B	CURB RAMPS TYPES 2 AND 3
08D05-15C	CURB RAMPS TYPES 4A AND 4A1
08D05-15D	CURB RAMPS TYPE 4B AND 4B1
08D05-15E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE FRAINS
09B02-08	CONDUIT UNDER PAVED HIGHWAYS
09B04-11	PULL BOX
09C02-07	CONCRETE BASES, TYPES 1, 2, 5, & 6
09C03-04	TRANSFORMER/PEDESTAL BASES
09C06-07	CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL
09C11-05	CONCRETE BASE TYPE 10
09C12-05A	CONCRETE BASE TYPE 13
09C12-05B	CONCRETE BASE TYPE 13
09D01-05	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09E01-13B	POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 3 (HEAVY DUTY)
09E01-13C	POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 4
09E01-13G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E03-05	NON-FREEWAY LIGHTING UNIT POLE WIRING
09E06-05	TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.
09E07-05	TRAFFIC SIGNAL STANDARD PEDESTRIAN AND FLASHER TYPICAL MOUNTING DETAILS
09E08-06A	TYPE 9 POLE 15'-30' MONOTUBE ARM
09E08-06B	TYPE 10 POLE 15'-30' MONOTUBE ARM
09E08-06C	TYPE 12 POLE 35'-55' MONOTUBE ARM
09E08-06D	TYPE 13 POLE 35'-55' MONOTBE ARM
09E08-06E	GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS
09F15-04A	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 1)
09G01-03A	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-03B	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-03C	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-03D	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-03E	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-03F	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-03G	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
13C14-04A	BASE PATCHING CONCRETE
13C14-04B	BASE PATCHING CONCRETE
13C14-04C	BASE PATCHING CONCRETE
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-02	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15D20-02	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-02	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D22-02	TRAFFIC CONTROL, TWO LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D23-02	TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-02	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D30-01	TRAFFIC CONTROL, SIDEWALK CLOSURE
16A01-06	LANDMARK REFERENCE MONUMENTS AND COVERS



TYPE "B"

ALTERNATIVE GRATE FOR
TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
 NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

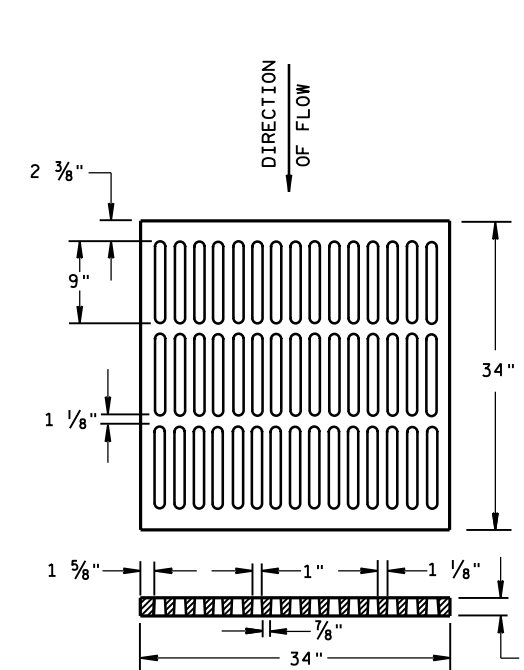
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

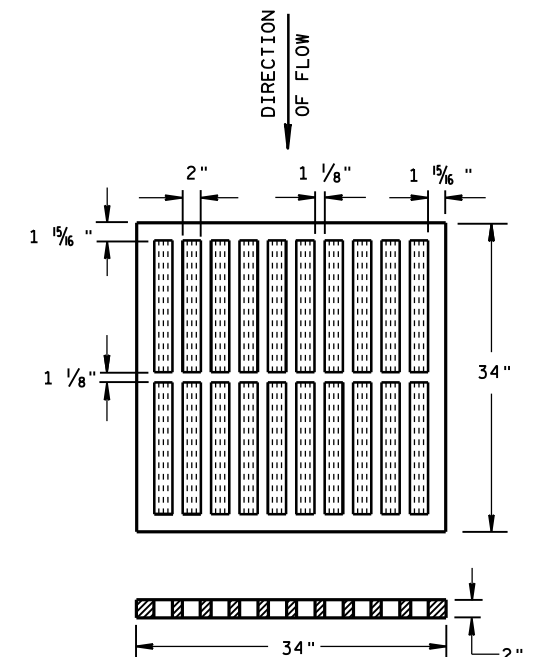
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



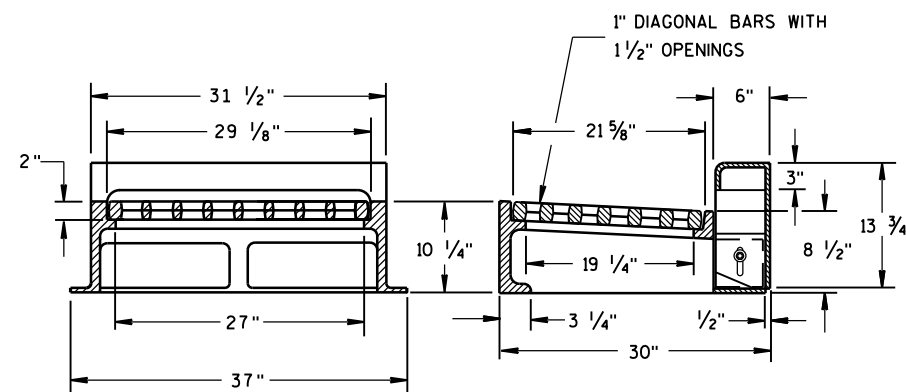
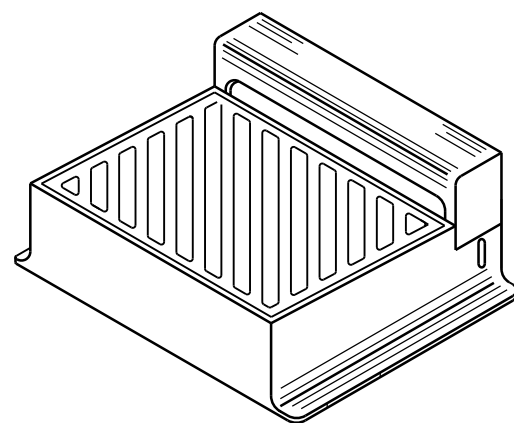
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
 NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
 NOTED AS TYPE MS ON DRAINAGE TABLE



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

DIAGONAL SLOTS, SHALL BE ORIENTED
 TO THE DIRECTION OF FLOW AS ILLUSTRATED.
 GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION
OF FLOW

INLET COVERS
 TYPE B, B-A, C,
 MS, MS-A, & WM

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11/27/2013

DATE

FHWA

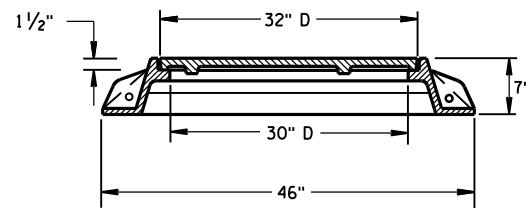
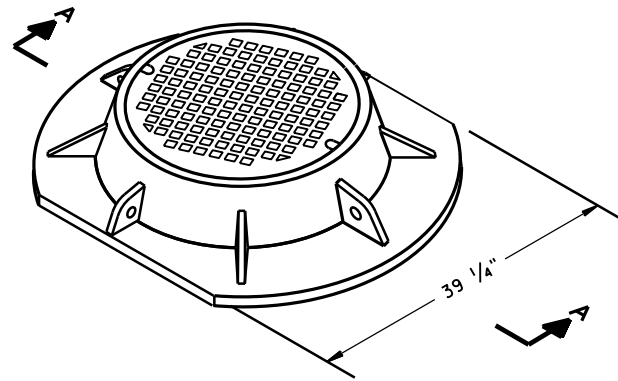
/S/ Jerry H. Zogg

ROADWAY STANDARDS

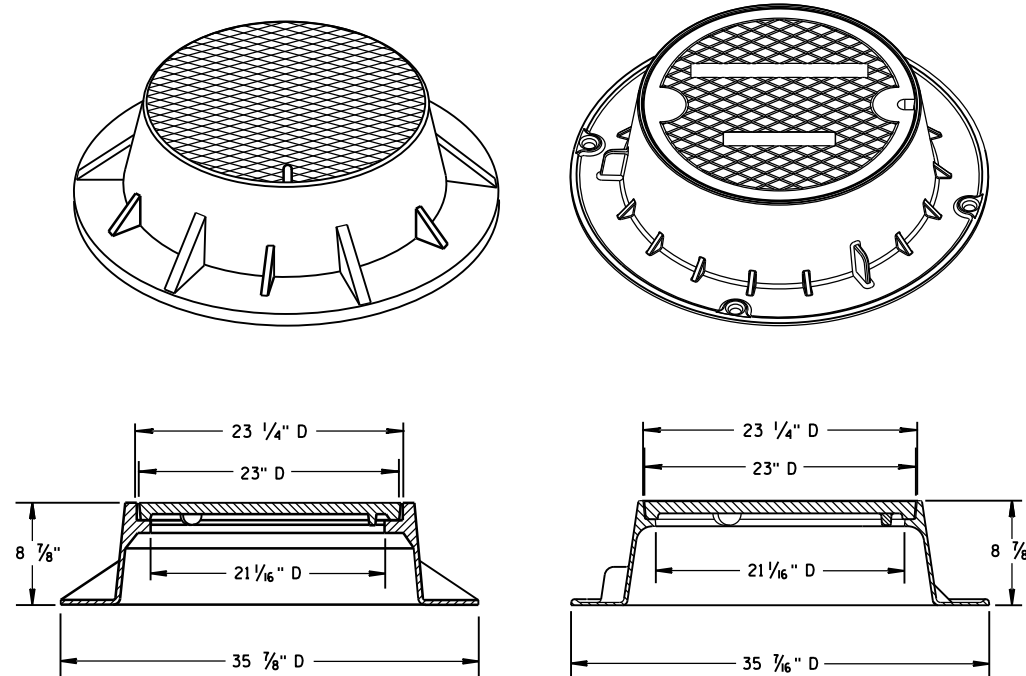
ENGINEER

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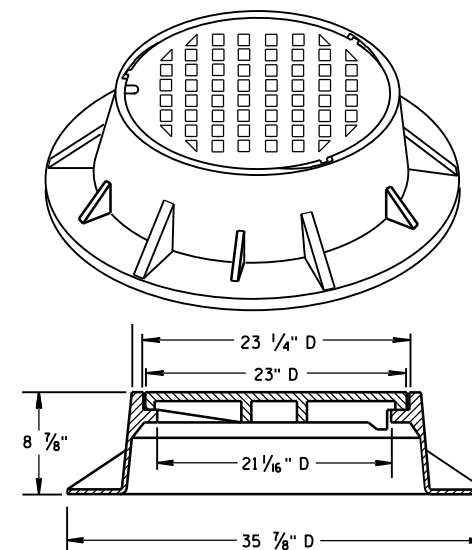
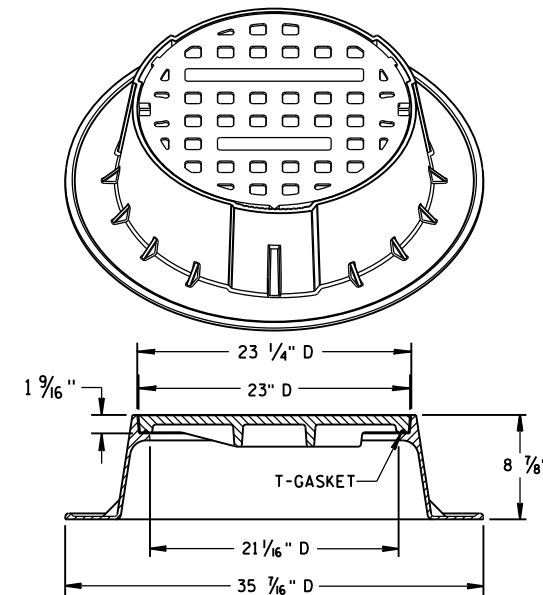


SECTION A-A
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

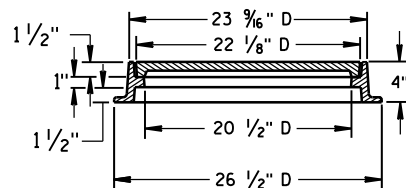
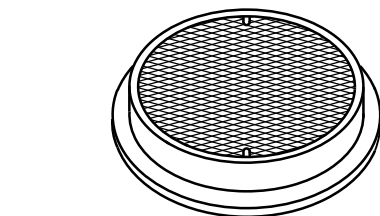


TYPE "J" SPECIAL

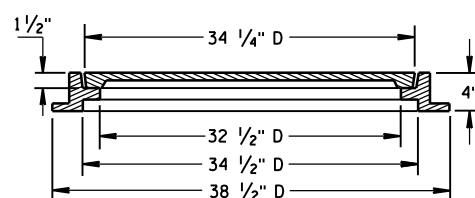
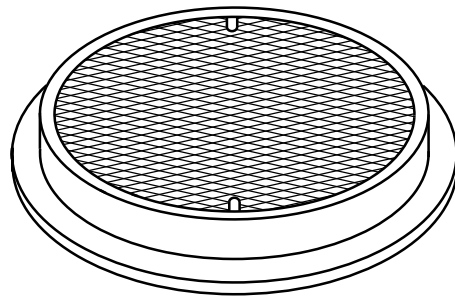
TYPE "B" NON-ROCKING SELF-SEAL LID

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

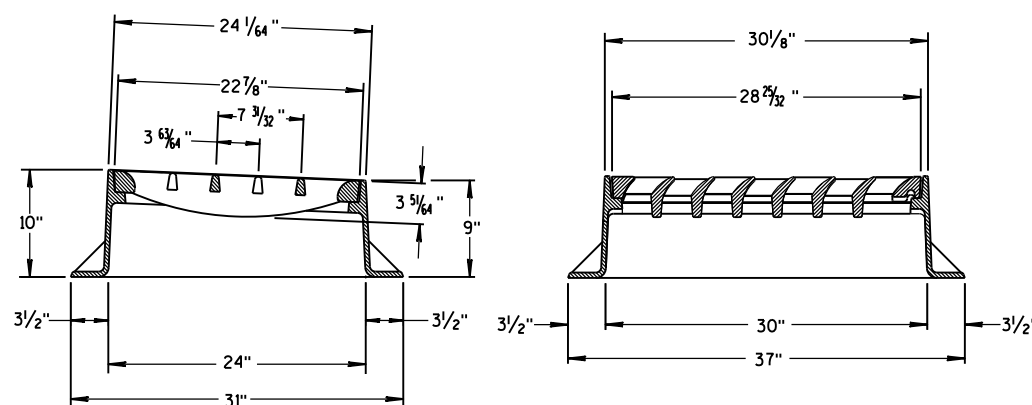
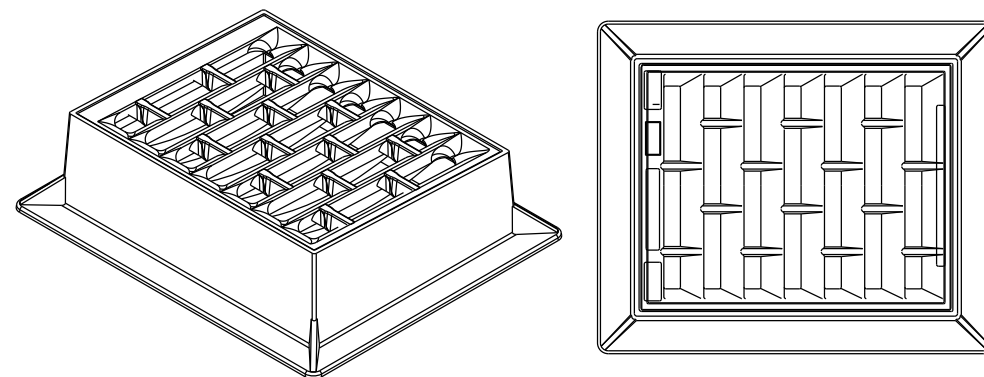
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

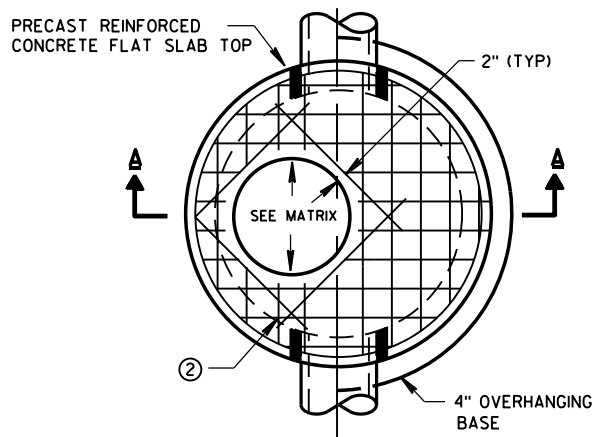
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

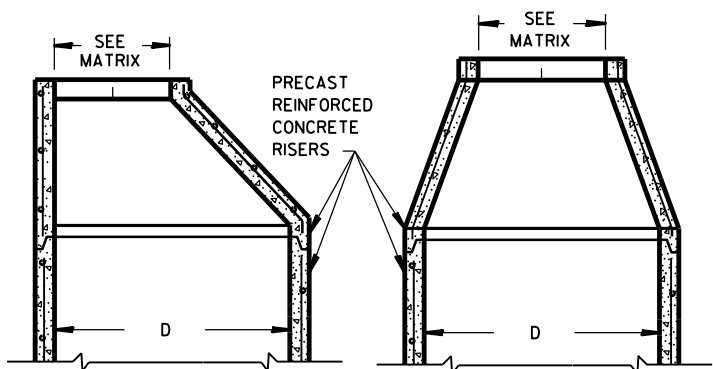
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE
FWHA

/S/ Jerry H. Zogg
ROADWAY STANDARDS 138
ENGINEER

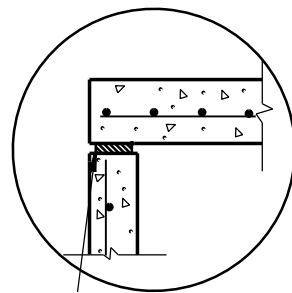


PLAN VIEW CIRCULAR OPENING

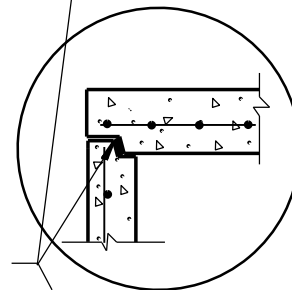


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

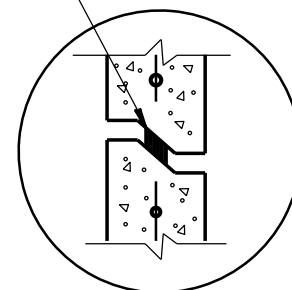
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



TOP WITH PLAIN END JOINT



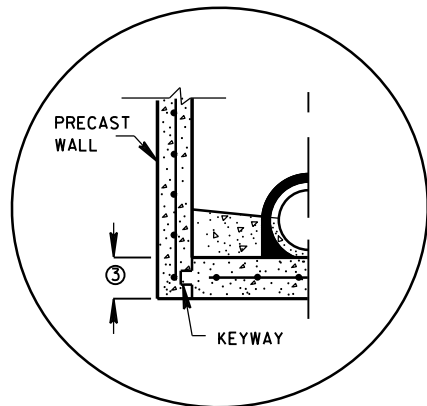
TOP WITH TONGUE AND GROOVE JOINT



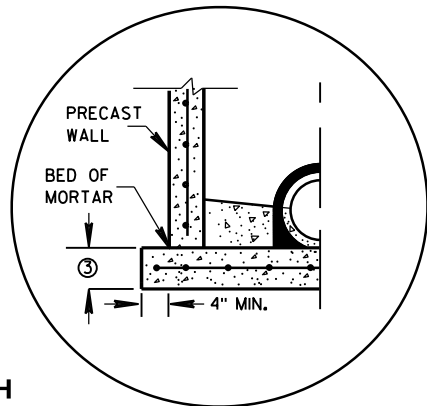
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

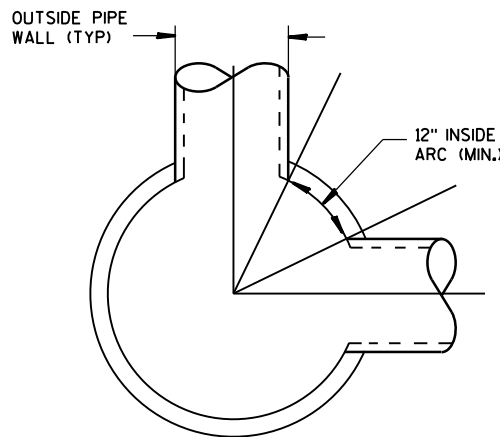


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

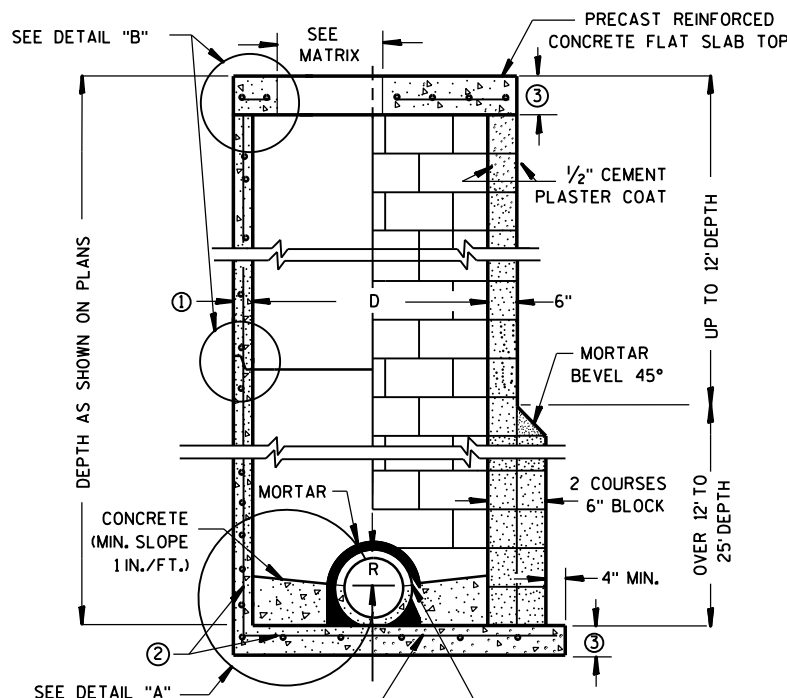


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"



CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

PRECAST REINFORCED CONCRETE BLOCK WITH CONCRETE WITH MONOLITHIC BASE CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED. CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.
- ② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

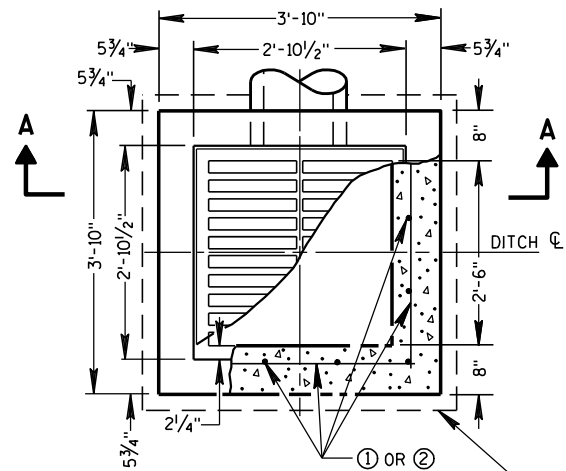
PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

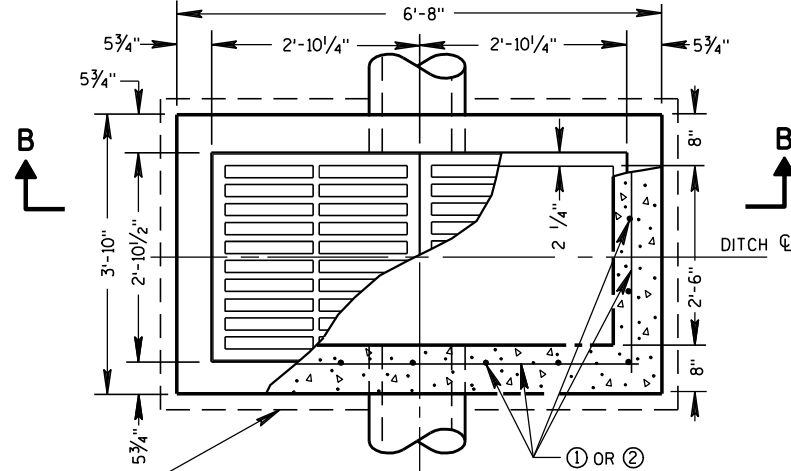
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 139
FHWA

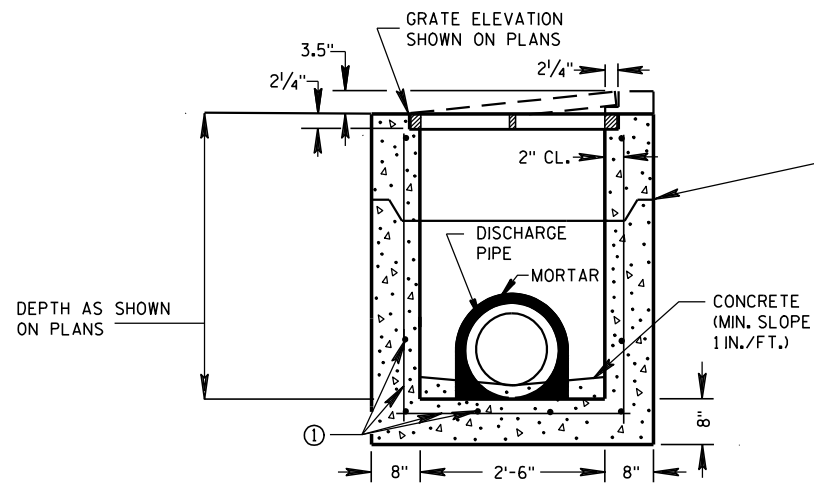


PLAN VIEW

4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



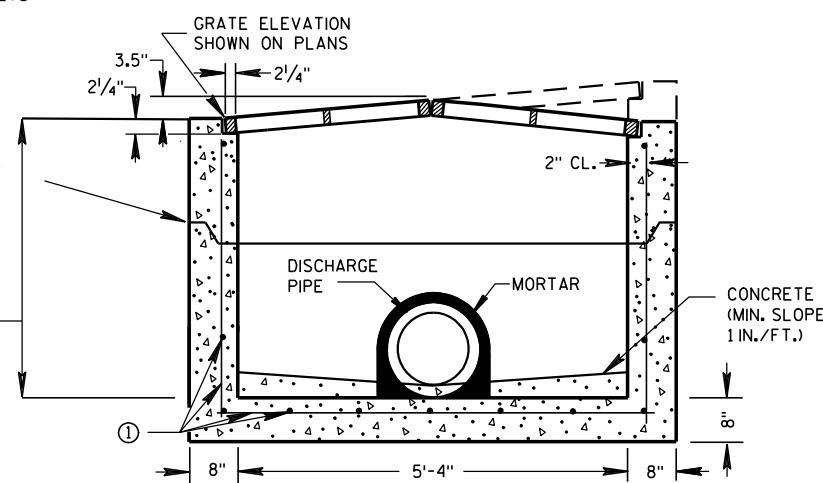
PLAN VIEW



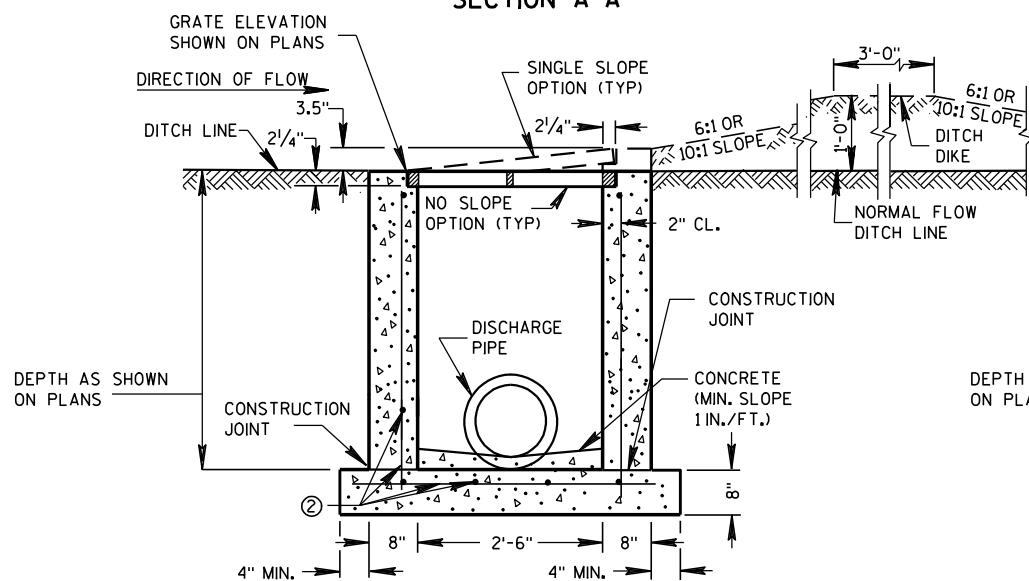
PRECAST REINFORCED CONCRETE SECTION A-A

DEPTH AS SHOWN ON PLANS

SEE DETAIL "B"

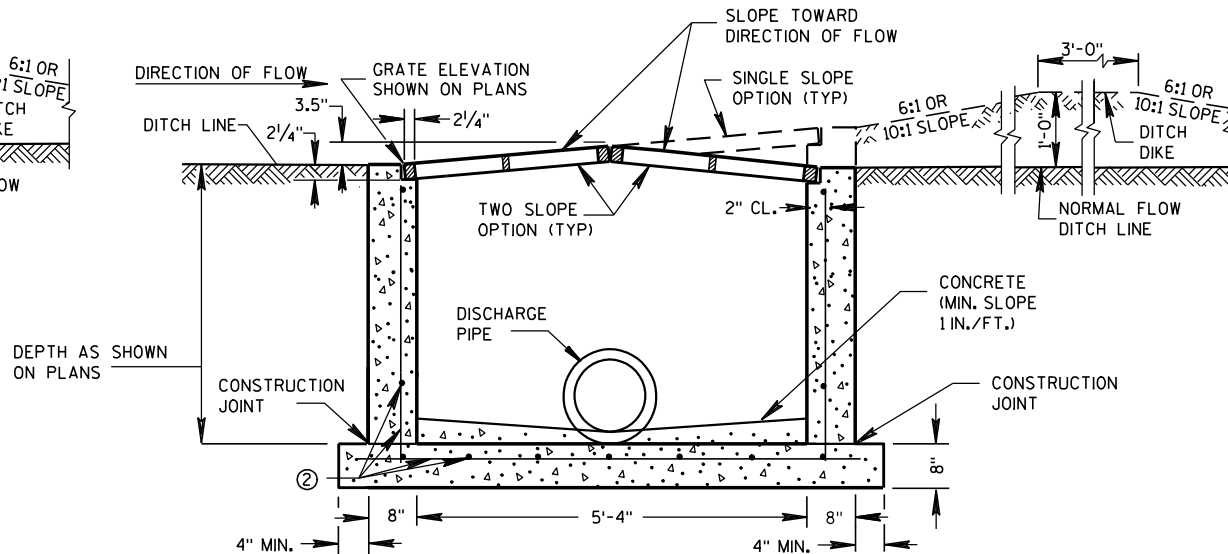


PRECAST REINFORCED CONCRETE SECTION B-B



REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A

INLETS MEDIAN 1 GRATE



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

INLETS MEDIAN 2 GRATE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, IG-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

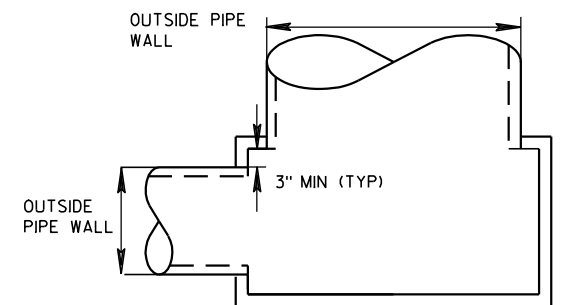
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

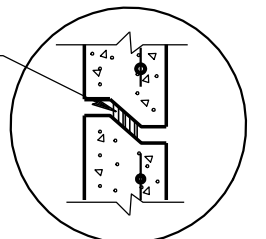
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42



DETAIL "A"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



DETAIL "B"

INLETS MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012

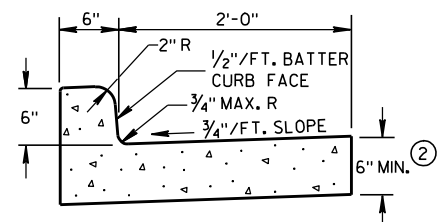
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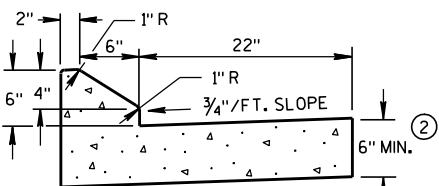
/s/ Jerry H. Zoon

ROADWAY STANDARDS ENGINEER

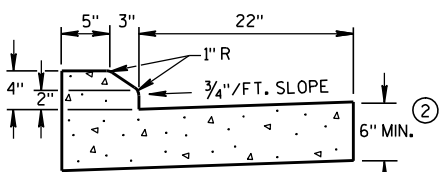
INT



TYPES A & D ①



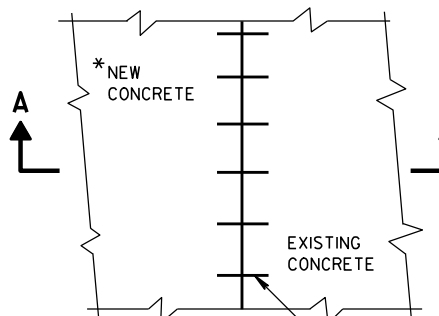
6" SLOPED CURB TYPES G & J ①



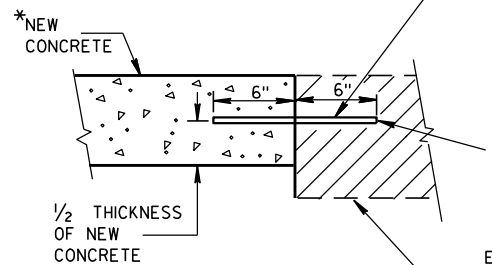
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

* NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.



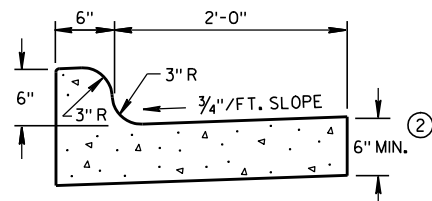
PLAN VIEW

SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

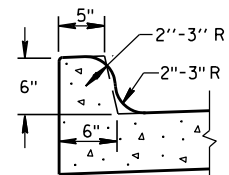
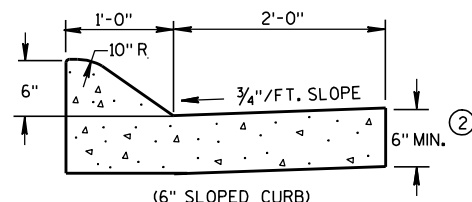
NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

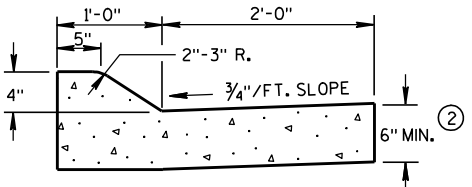
EXISTING
CONCRETE



TYPES K & L ①

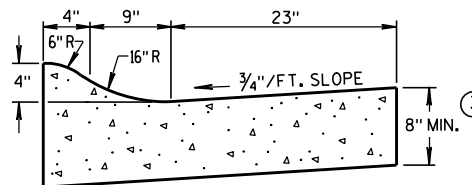
OPTIONAL CURB SHAPE
FOR TYPES K & L ①

(6" SLOPED CURB)

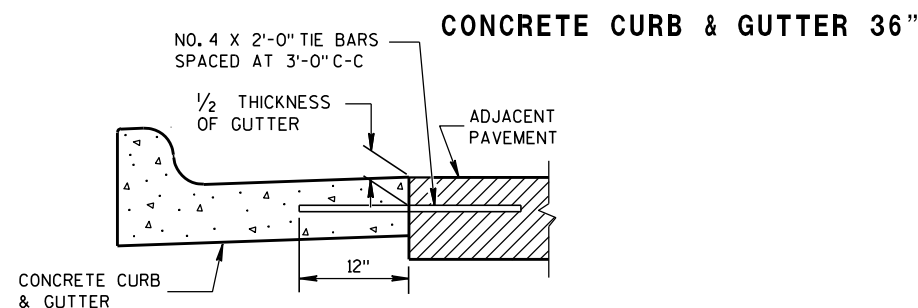


(4" SLOPED CURB)

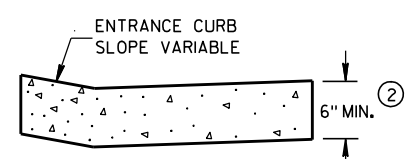
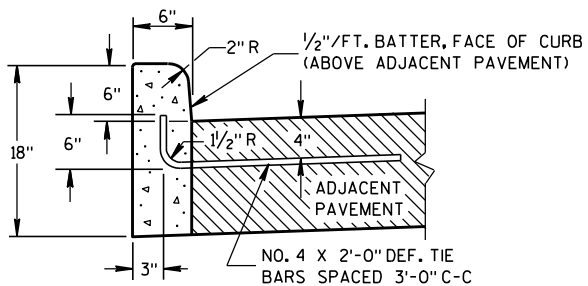
TYPES A & D ①



4" SLOPED CURB TYPES R & T ① ④

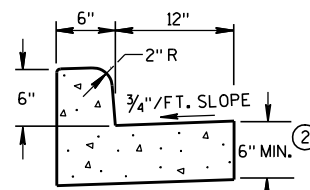
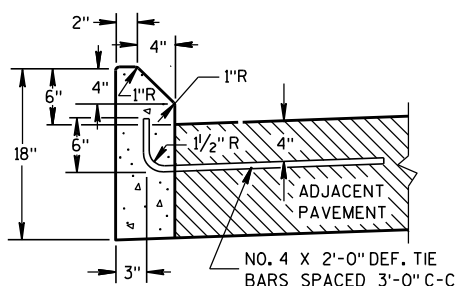


TYPICAL TIE BAR LOCATION ①

DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

TYPES A & D ①

CONCRETE CURB

TYPES A & D
CONCRETE CURB & GUTTER 18"

TYPES G & J ①

GENERAL NOTES

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

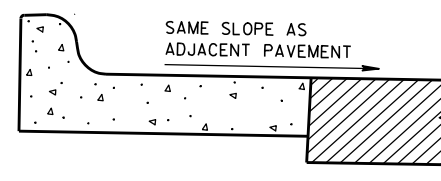
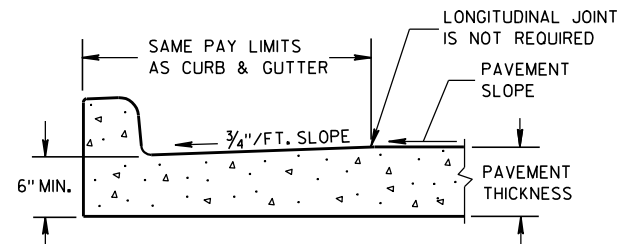
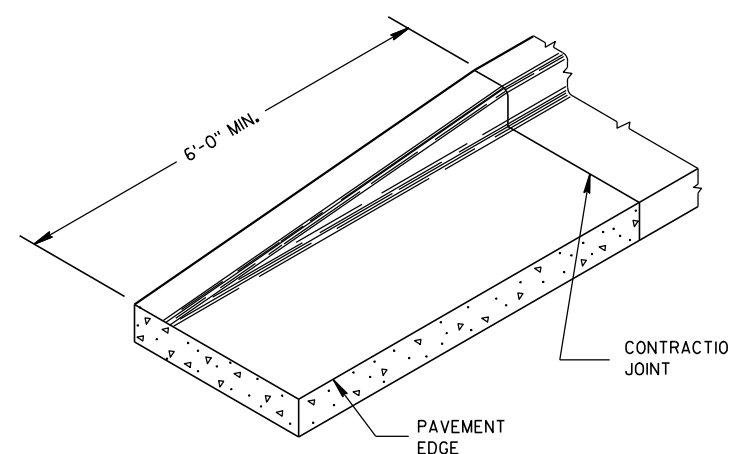
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

REVERSE SLOPE GUTTER ⑤
(TYPICAL FOR ALL CURB & GUTTER TYPES)PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER

END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/4/08

DATE

FHWA

/S/ Jerry H. 7

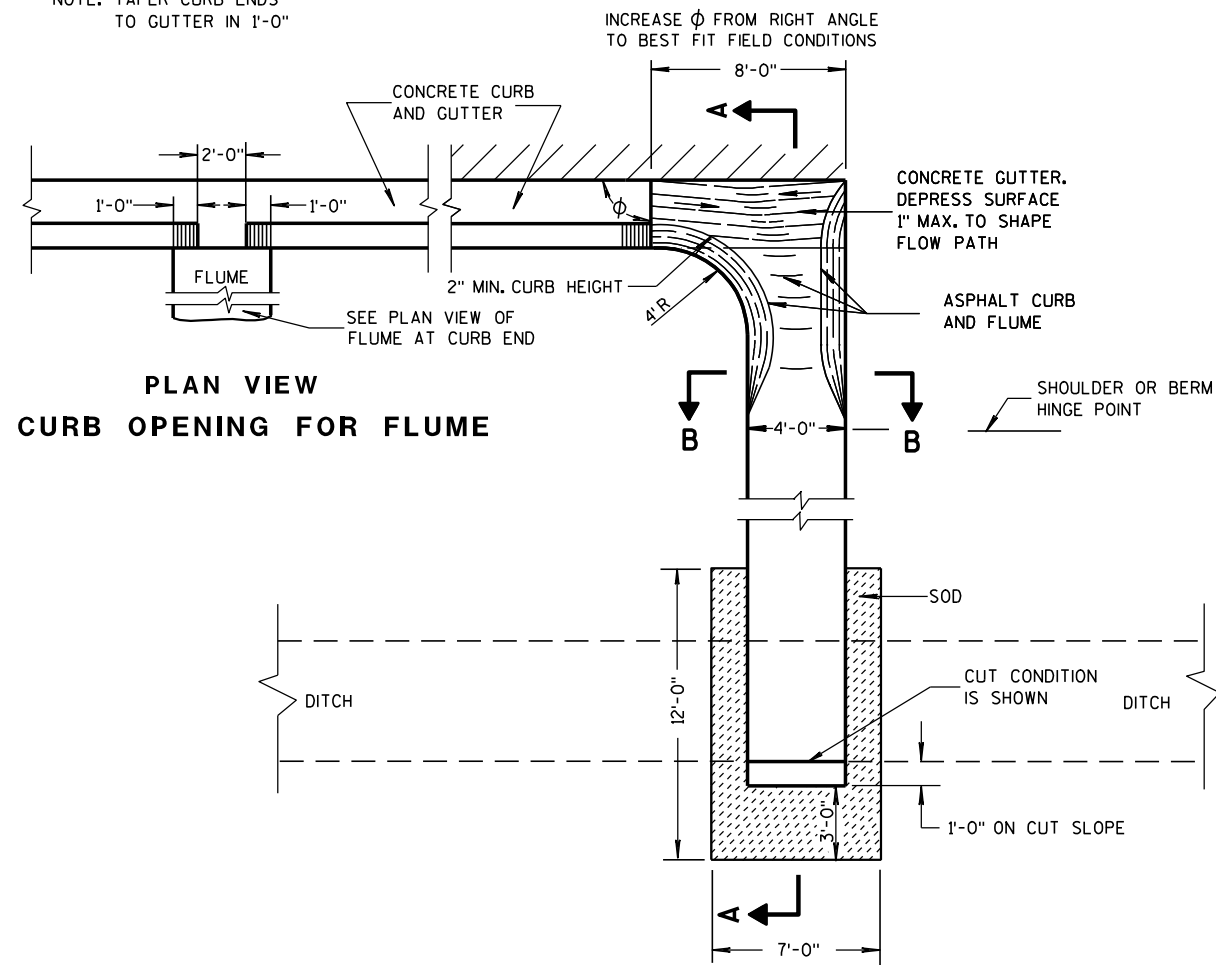
ROADWAY STANDARDS 141

ENGINEER

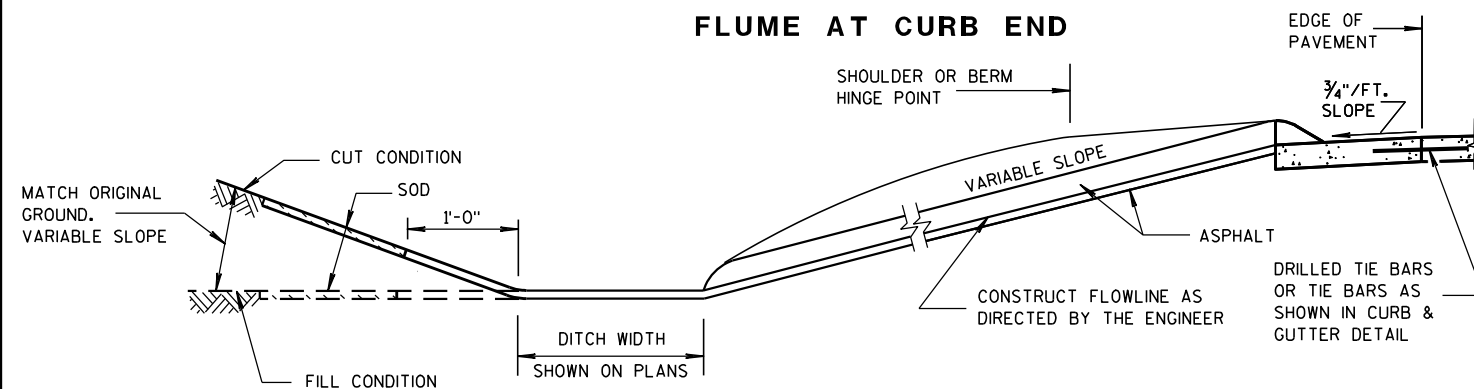
ENT

ASPHALTIC FLUME

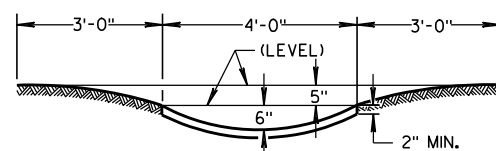
NOTE: TAPER CURB ENDS
TO GUTTER IN 1'-0"



PLAN VIEW FLUME AT CURB END



SECTION A-A



SECTION B-B

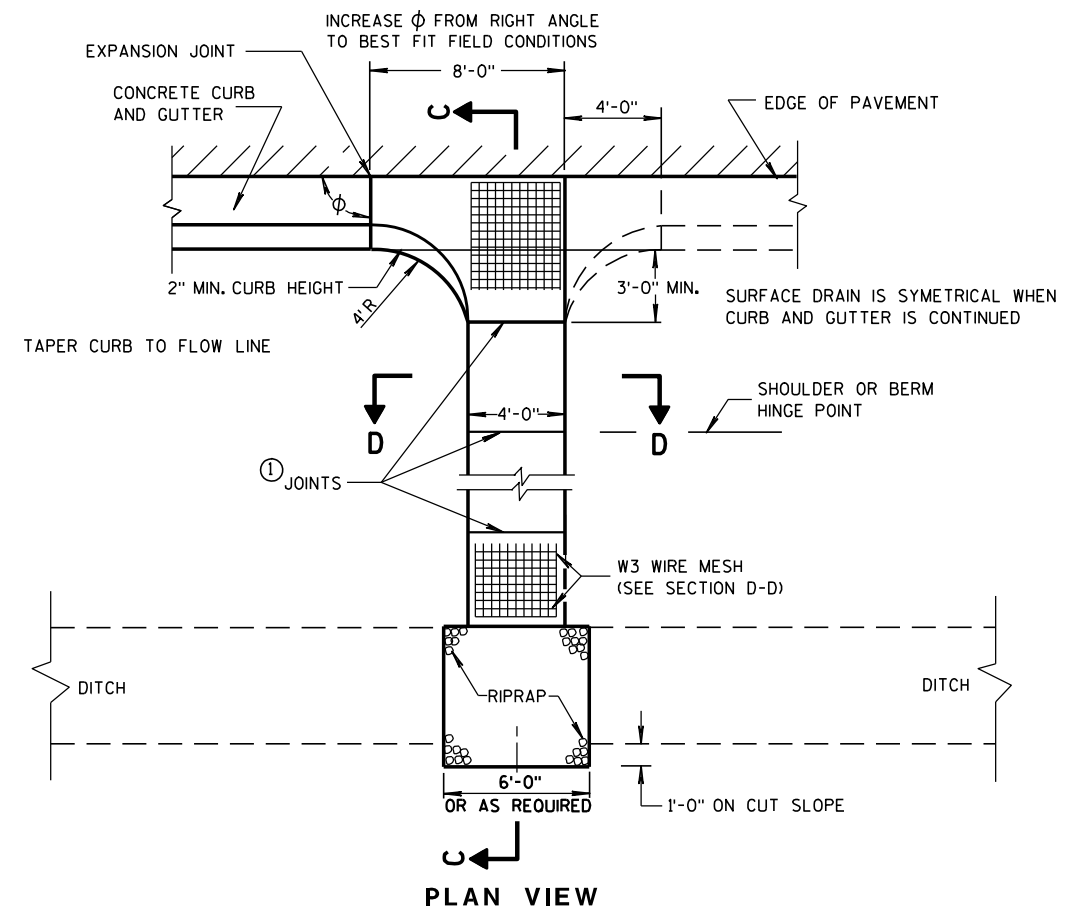
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

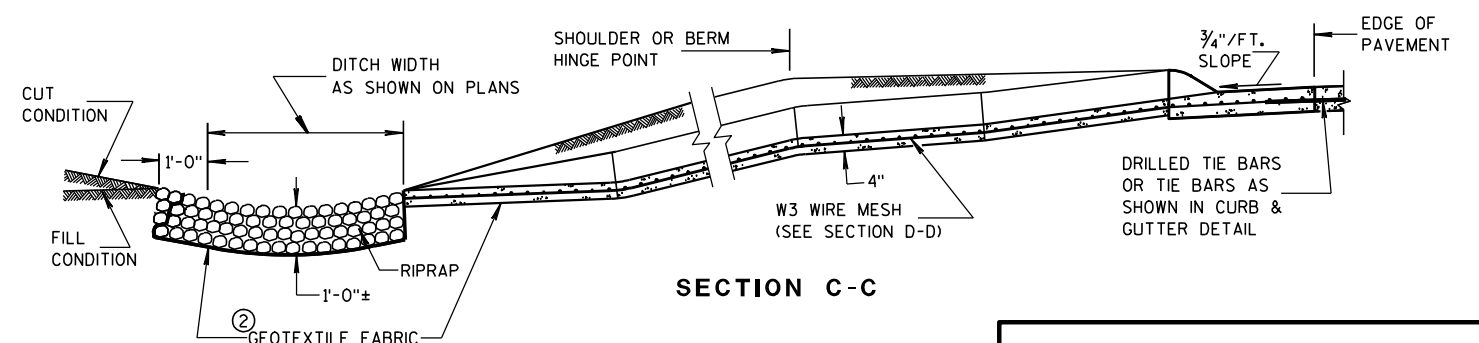
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE 1/8" TO 1/4" INCH WIDE BY 1 1/2" INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

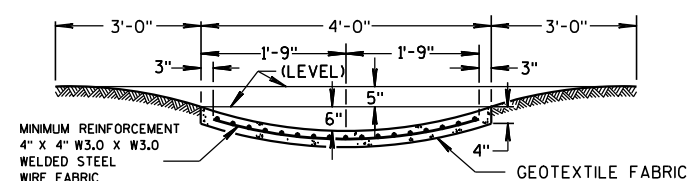
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9-4-08

DATE

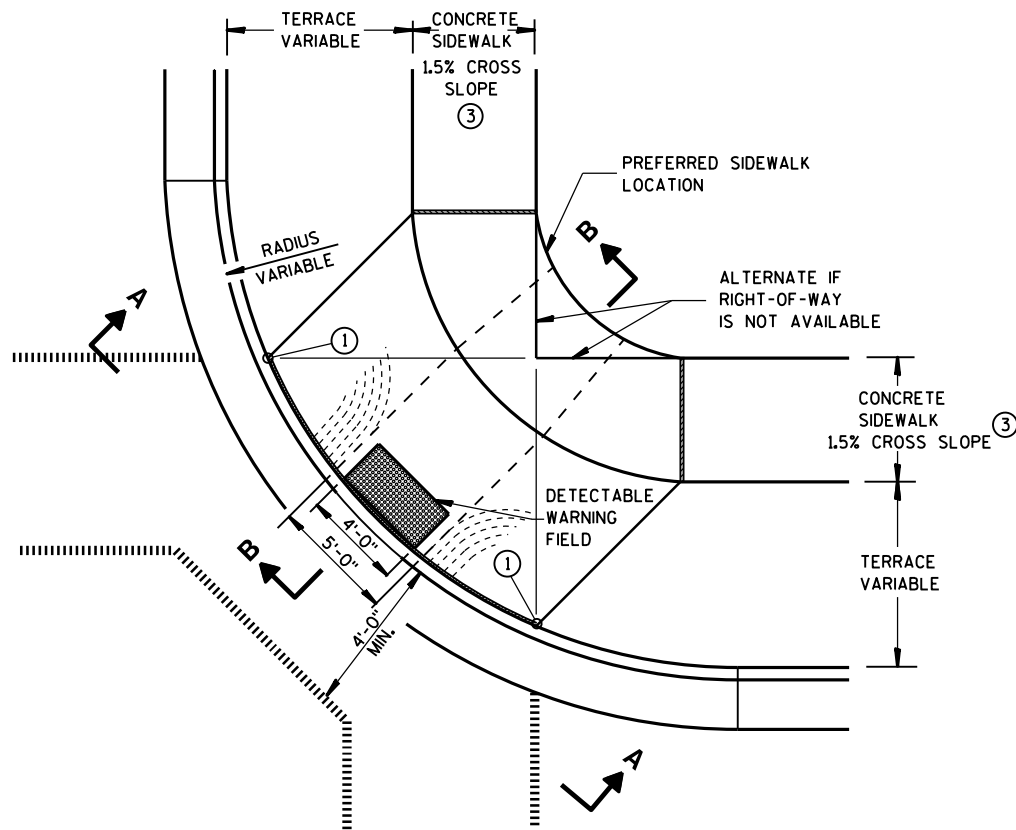
FHWA

/S/ Jerry H. 7000

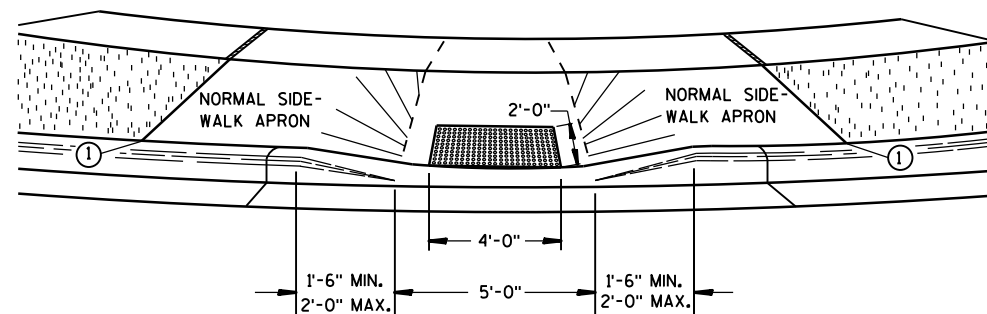
ROADWAY STANDARDS 142

ENGINEER

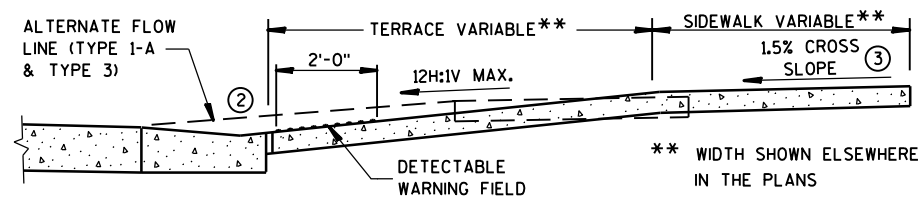
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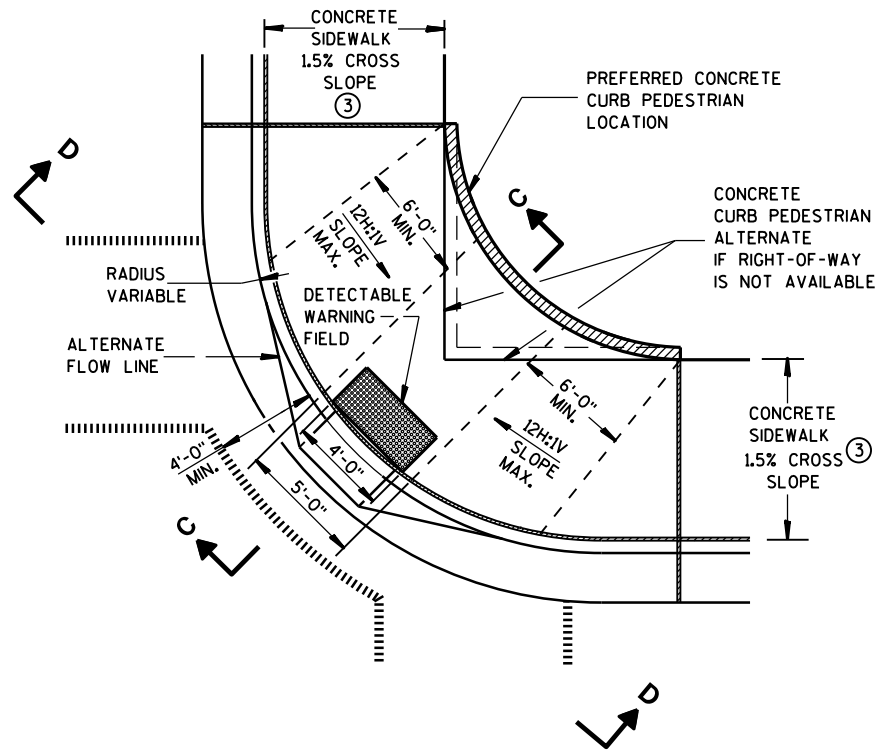
**PLAN VIEW
TYPE 1 RAMP**
(CENTER OF CORNER RADIUS)



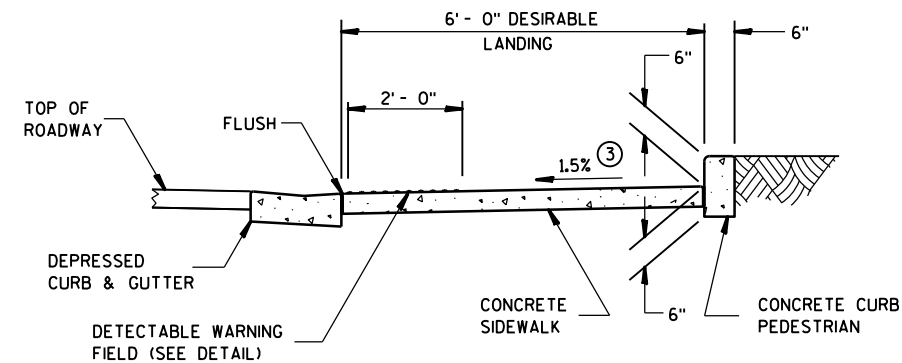
VIEW A-A



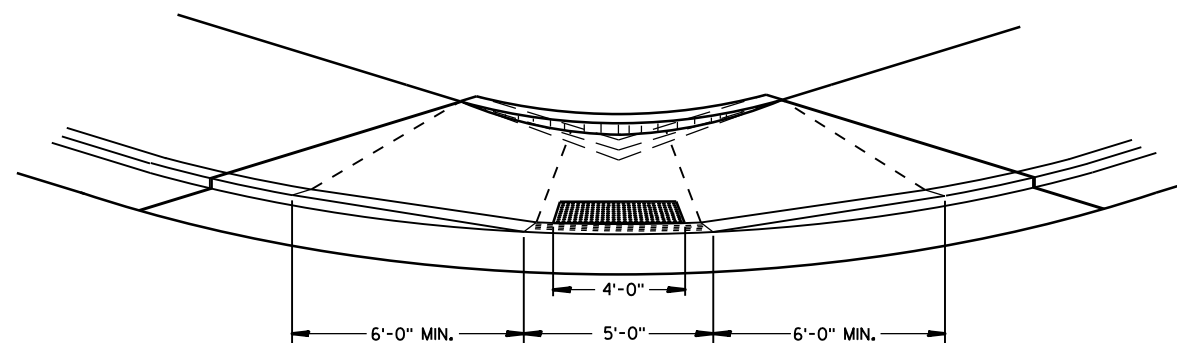
SECTION B-B



**PLAN VIEW
TYPE 1-A RAMP**
(NO TERRACE)



SECTION C-C



VIEW D-D

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

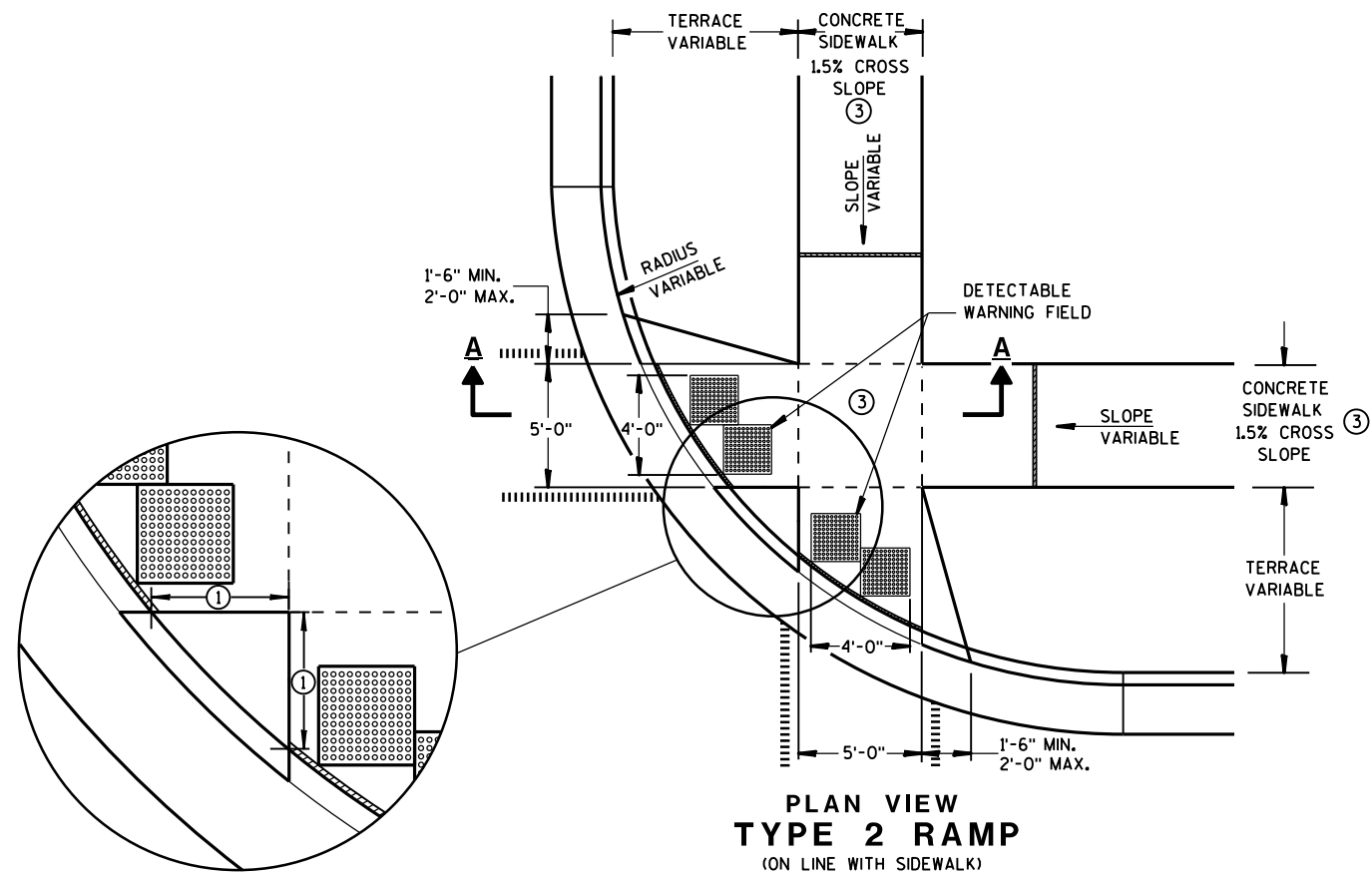
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.
- ③ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

LEGEND

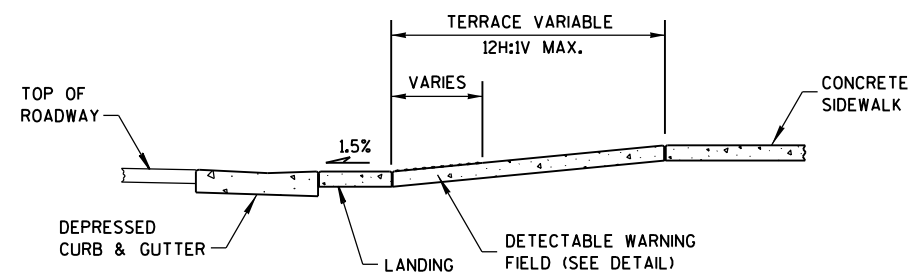
- 1/2" EXPANSION JOINT-SIDEWALK
- - - - - CONTRACTION JOINT FIELD LOCATED
- ||||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT

**CURB RAMPS
TYPES 1 AND 1-A**

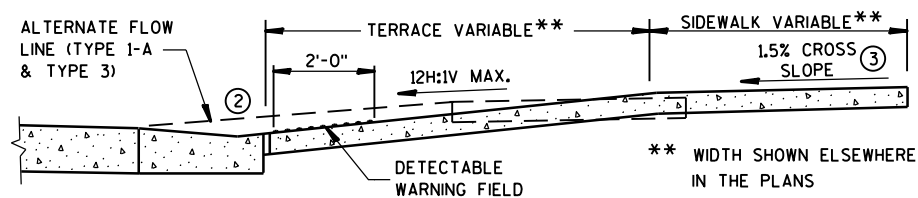
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 143



**PLAN VIEW
TYPE 2 RAMP**
(ON LINE WITH SIDEWALK)



SECTION A-A



SECTION B-B

GENERAL NOTES

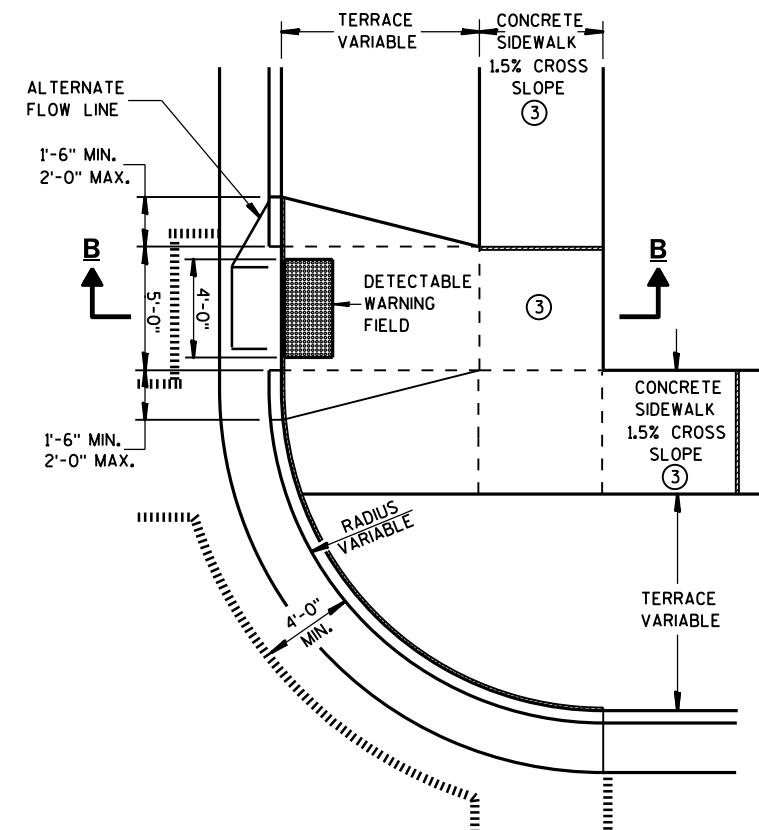
USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- ① WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.
- ③ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



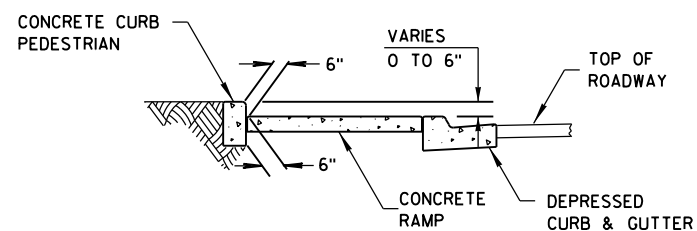
**PLAN VIEW
TYPE 3 RAMP**
(OUTSIDE OF CROSSWALK AREA)

**CURB RAMPS
TYPES 2 AND 3**

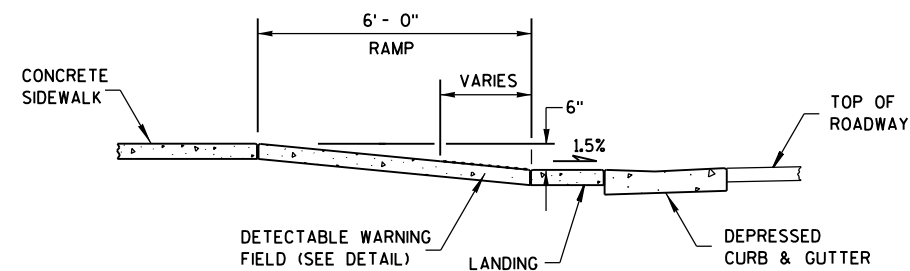
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 144



CURB RAMP TYPE 4A
PLAN VIEW



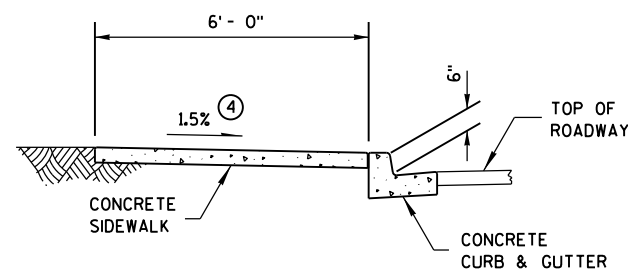
SECTION C-C FOR TYPE 4A



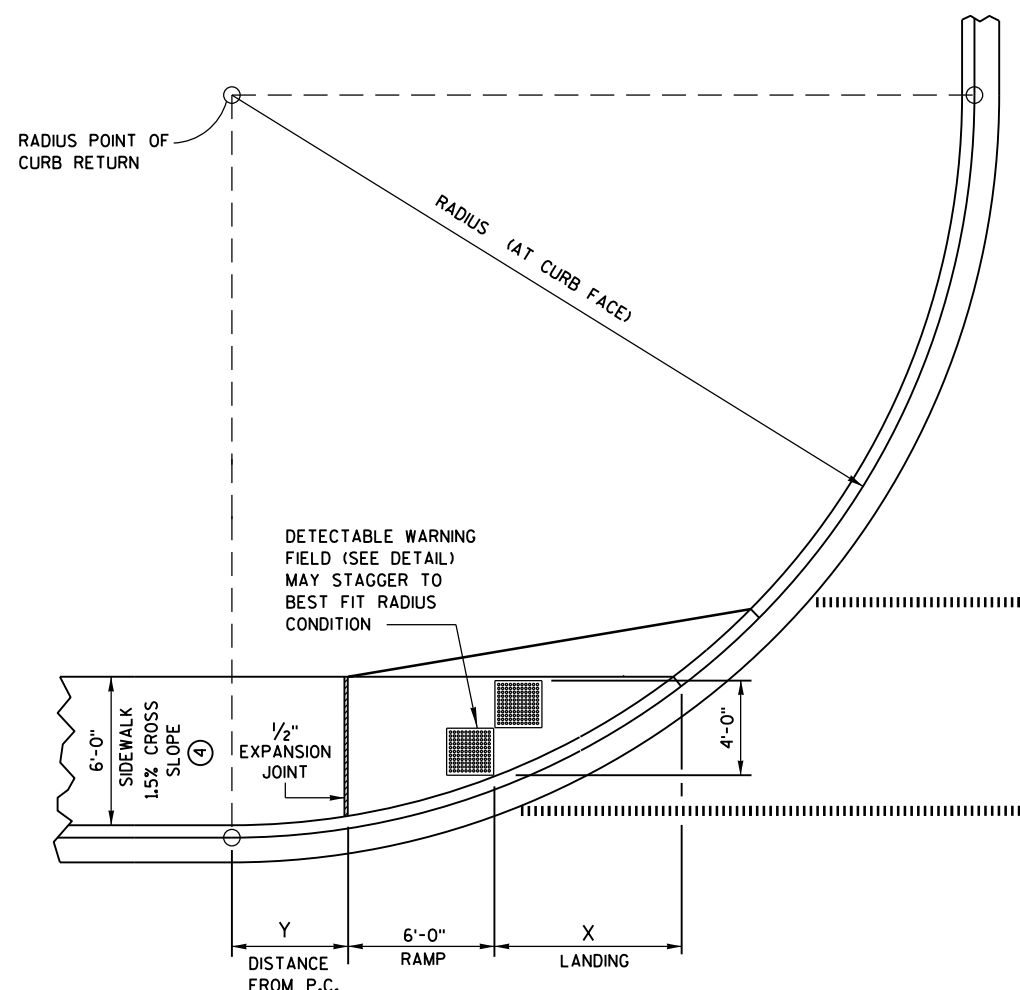
SECTION B-B FOR TYPE 4A

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-1 $\frac{3}{4}$ "	2'-7 $\frac{1}{4}$ "
30 FEET	7'-11 $\frac{3}{4}$ "	4'-8 $\frac{1}{4}$ "
40 FEET	9'-5 $\frac{1}{4}$ "	6'-5"
50 FEET	10'-8 $\frac{3}{4}$ "	7'-11 $\frac{1}{4}$ "
60 FEET	11'-10 $\frac{1}{4}$ "	9'-3 $\frac{1}{2}$ "

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A FOR TYPE 4A



CURB RAMP TYPE 4A1
PLAN VIEW

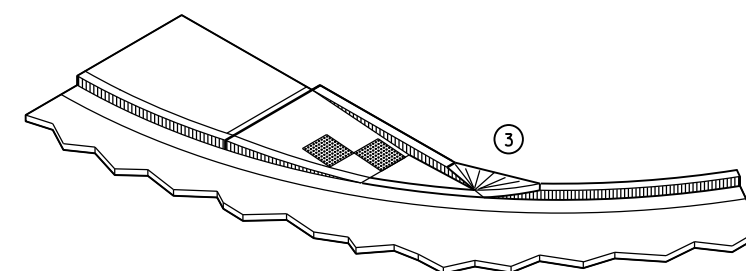
GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

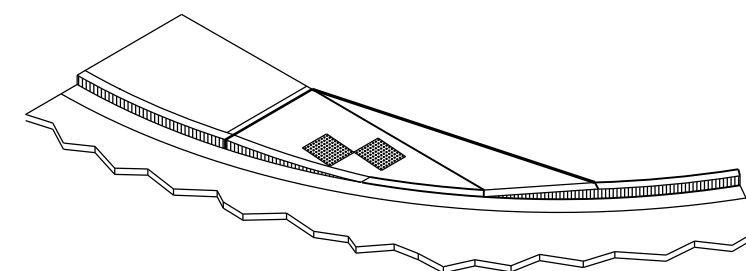
RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- ③ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.)
DO NOT MARK TRANSITION NOSE.
- ④ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



ISOMETRIC VIEW FOR TYPE 4A



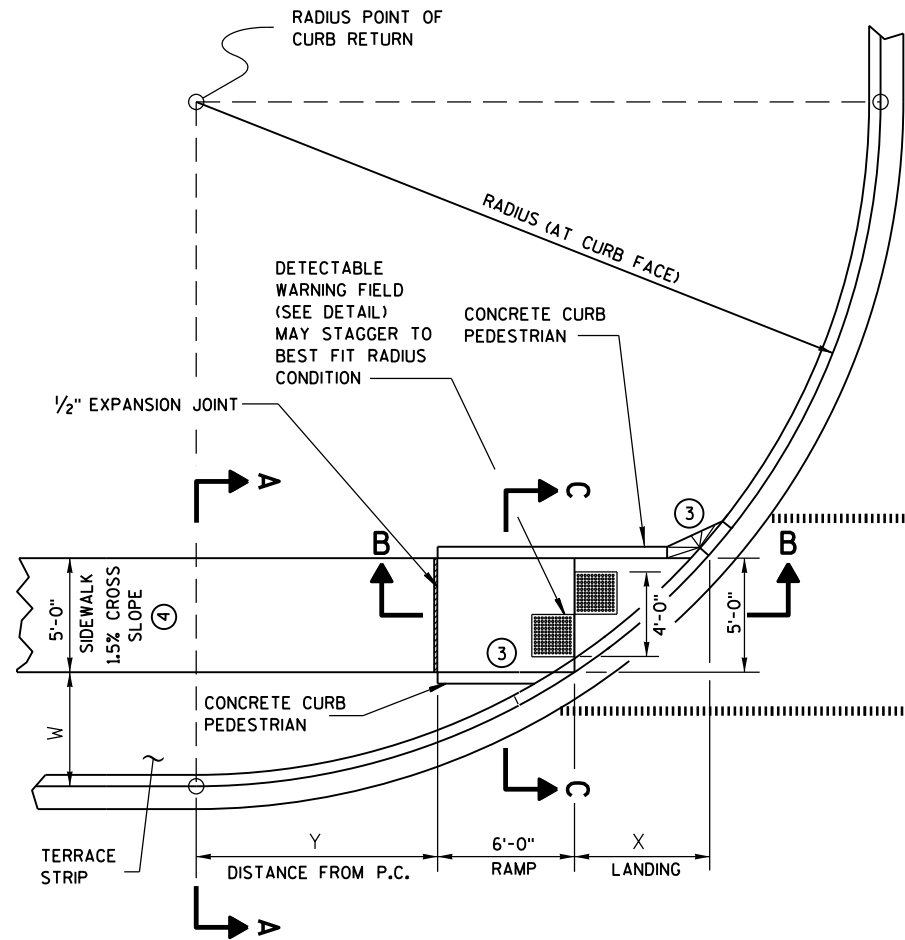
ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

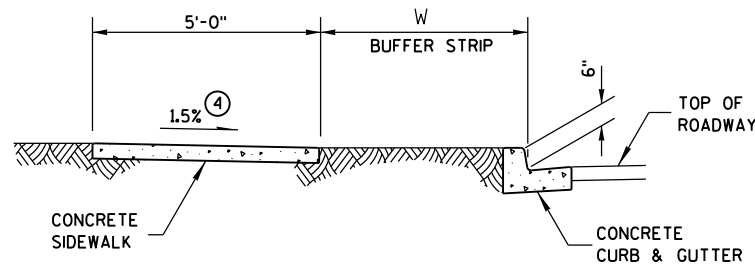
- | | |
|---|------------------------------------|
| | 1/2" EXPANSION JOINT-SIDEWALK |
|  | CONTRACTION JOINT FIELD LOCATED |
|  | PAVEMENT MARKING CROSSWALK (WHITE) |

CURB RAMPS TYPES 4A AND 4A1

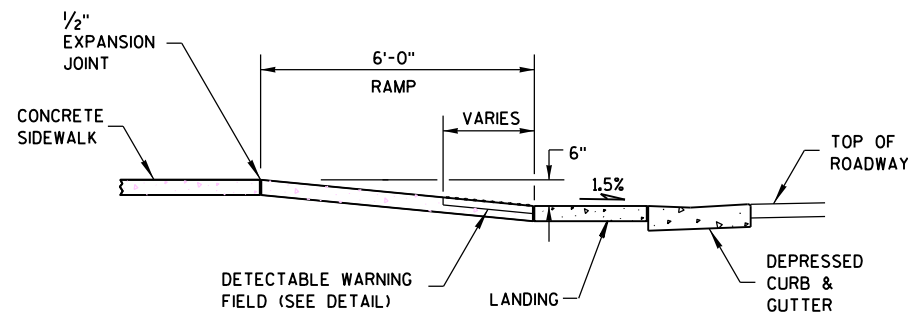
STATE OF WISCONSIN
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**CURB RAMP TYPE 4B
PLAN VIEW**



SECTION A-A FOR TYPE 4B

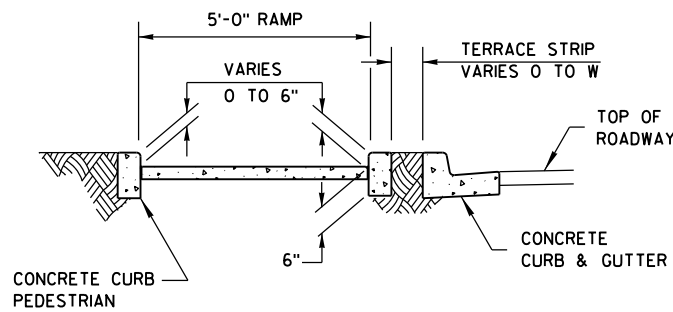


SECTION B-B FOR TYPE 4B

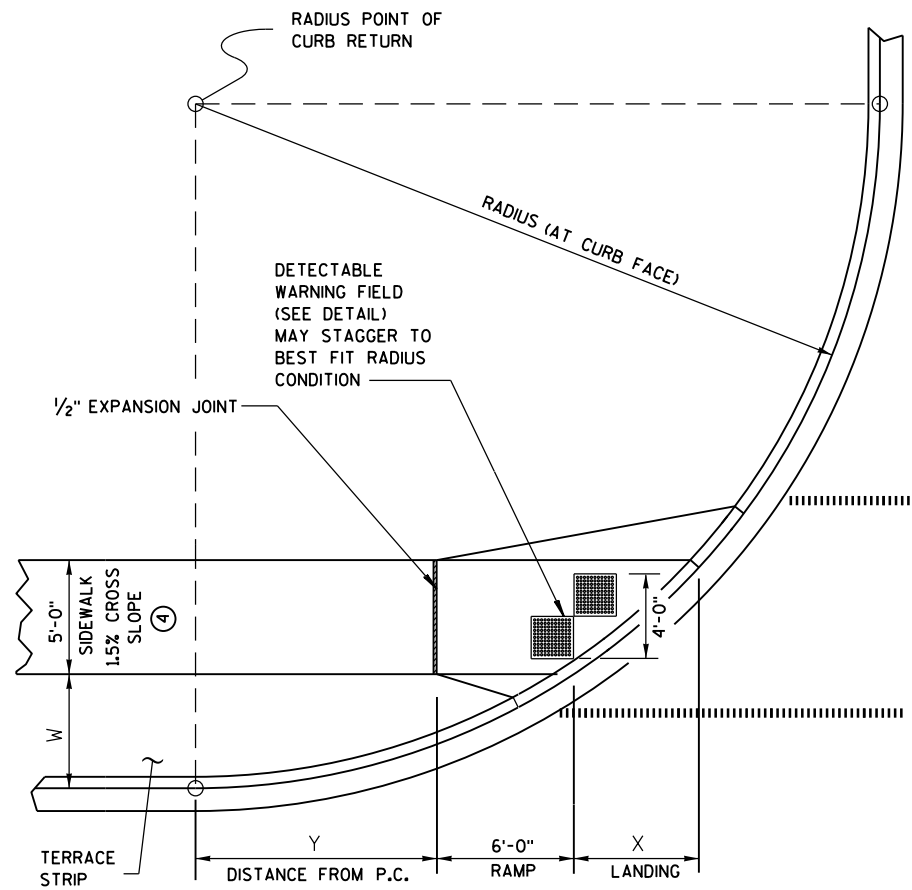
- LEGEND**
- 1/2" EXPANSION JOINT-SIDEWALK
 - - - CONTRACTION JOINT FIELD LOCATED
 - ===== PAVEMENT MARKING CROSSWALK (WHITE)

RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5 1/2"	4'-6 1/2"	4'-8 1/2"	6'-0"	4'-1"	7'-2 3/4"	3'-7"	8'-3 1/2"	3'-1 1/2"	9'-2 1/2"
30 FEET	7'-3 3/4"	7'-1"	6'-5 1/2"	8'-11 1/2"	5'-9 1/4"	10'-7"	5'-2 1/2"	12'-0"	4'-8 3/4"	13'-3 1/4"
40 FEET	8'-9 1/2"	9'-2 1/2"	7'-10"	11'-5 1/4"	7'-1"	13'-4 1/2"	6'-5 3/4"	15'-3/4"	5'-11 1/2"	16'-7 1/4"
50 FEET	10'-3/4"	11'-3/4"	9'-1/4"	13'-7 1/4"	8'-2 1/2"	15'-9 1/2"	7'-6 1/2"	17'-9"	6'-11 3/4"	19'-6 1/4"
60 FEET	11'-2 1/2"	12'-8 3/4"	10'-3/4"	15'-6 1/2"	9'-2 1/4"	17'-11 3/4"	8'-5 3/4"	20'-1 3/4"	7'-10 1/2"	22'-1 1/2"

INTERMEDIATE RADII CAN BE INTERPOLATED



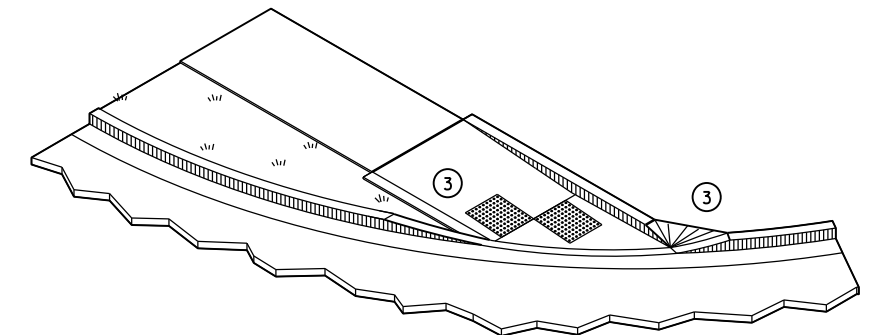
SECTION C-C FOR TYPE 4B



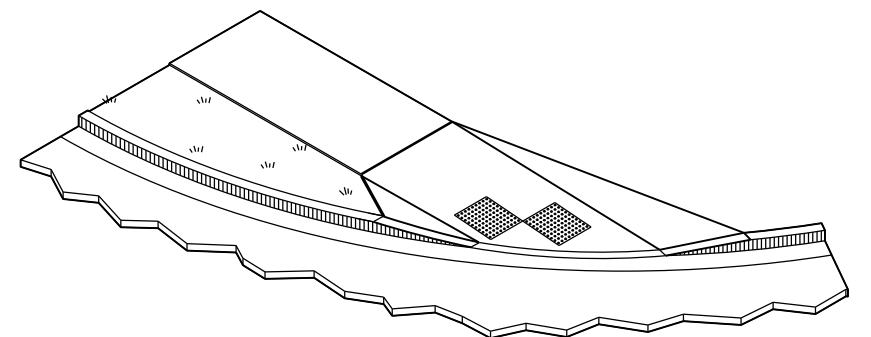
**CURB RAMP TYPE 4B1
PLAN VIEW**

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ③ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



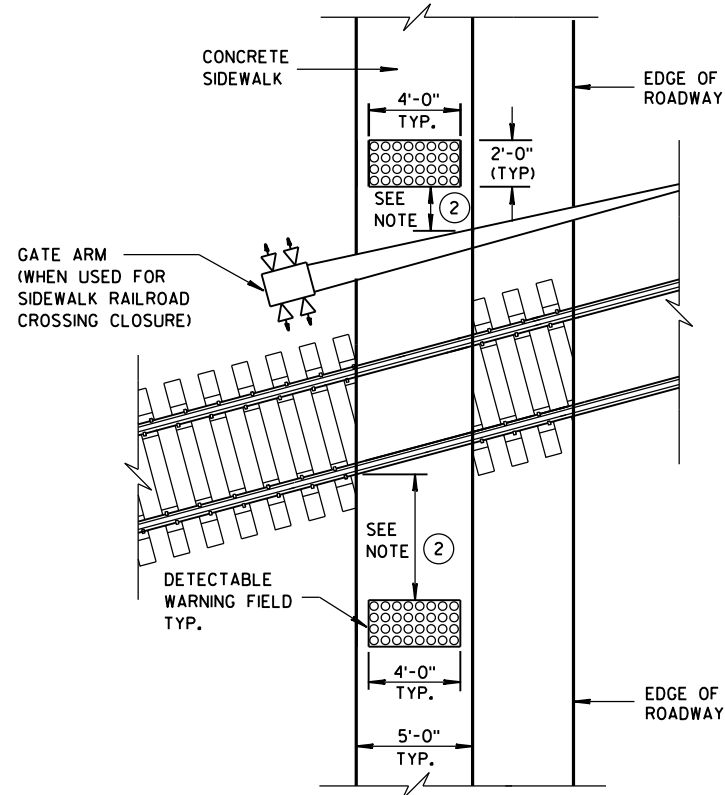
ISOMETRIC VIEW FOR TYPE 4B



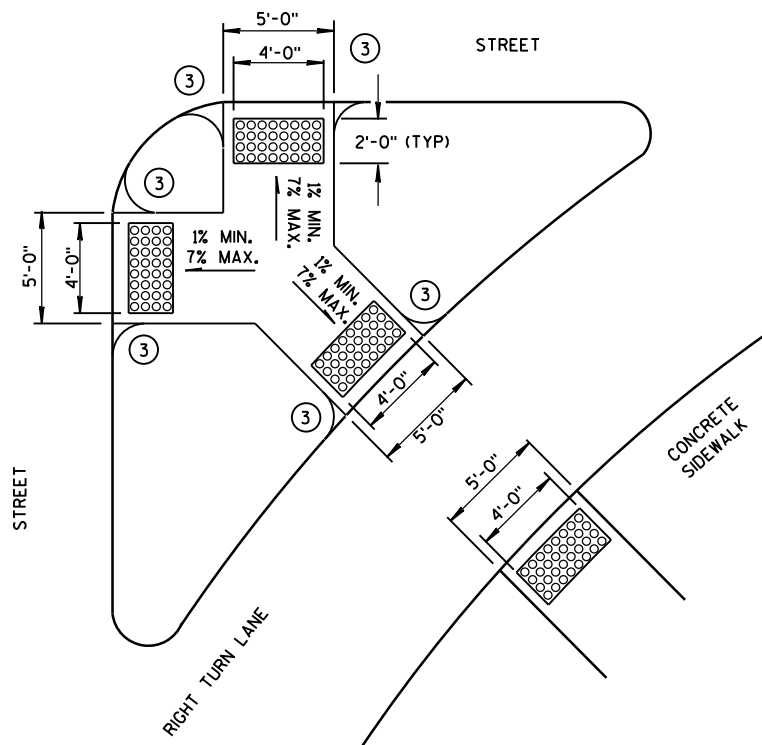
ISOMETRIC VIEW FOR TYPE 4B1

**CURB RAMPS
TYPE 4B AND 4B1**

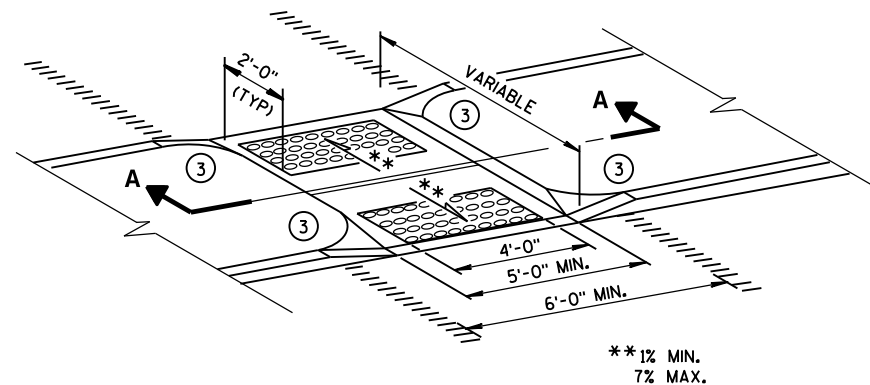
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 146



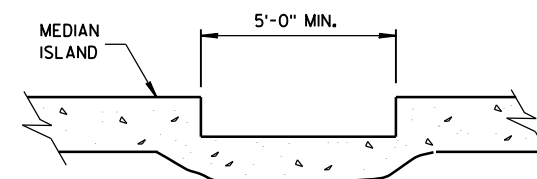
TYPE 8
DETECTABLE WARNINGS
AT RAILROAD CROSSING



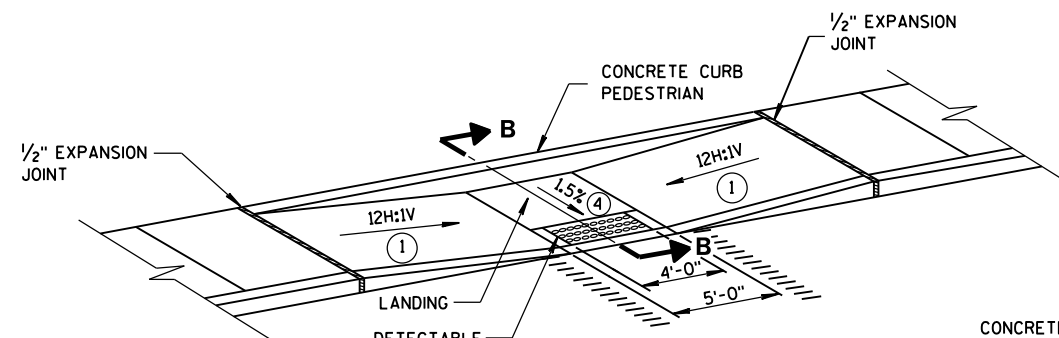
TYPE 6
DETECTABLE WARNING AT ISLANDS



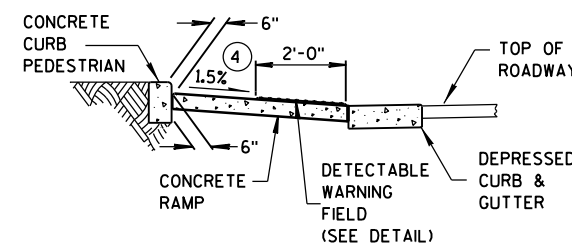
MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5



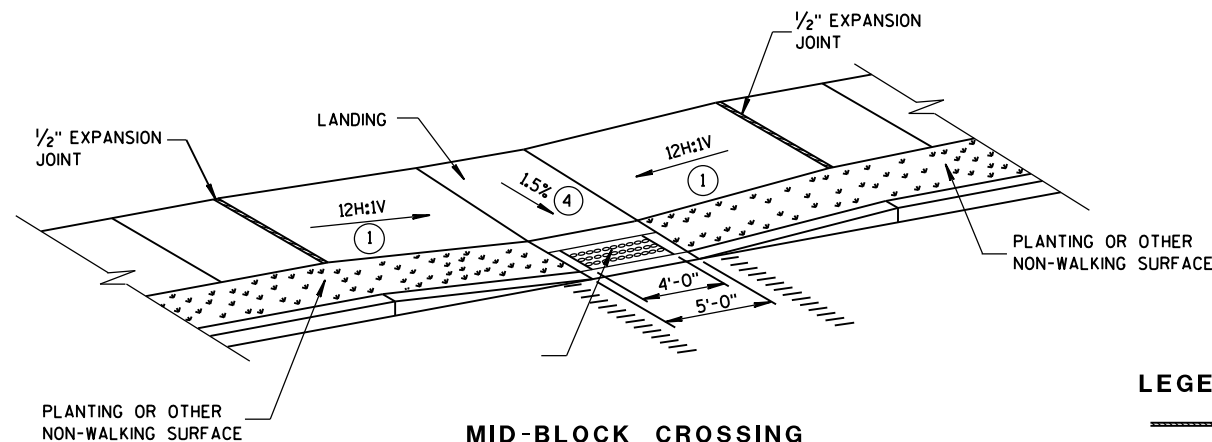
SECTION A-A



MID-BLOCK CROSSING
TYPE 7A



SECTION B-B



MID-BLOCK CROSSING
TYPE 7B

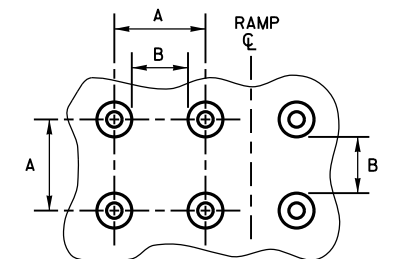
NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

GENERAL NOTES

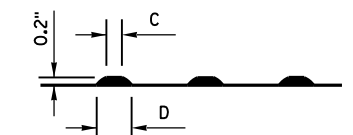
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- 1 SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- 2 THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET $\pm$ 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.
- 3 INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.
- 4 $\pm$ 0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.



PLAN VIEW

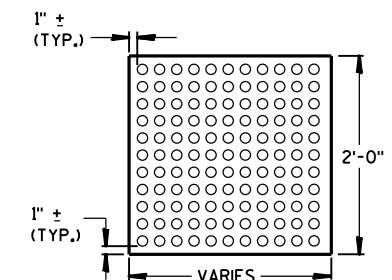


ELEVATION VIEW

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

TRUNCATED DOMES
DETECTABLE WARNING
PATTERN DETAIL



PLAN VIEW

DETECTABLE WARNING
FIELD (TYPICAL)

LEGEND

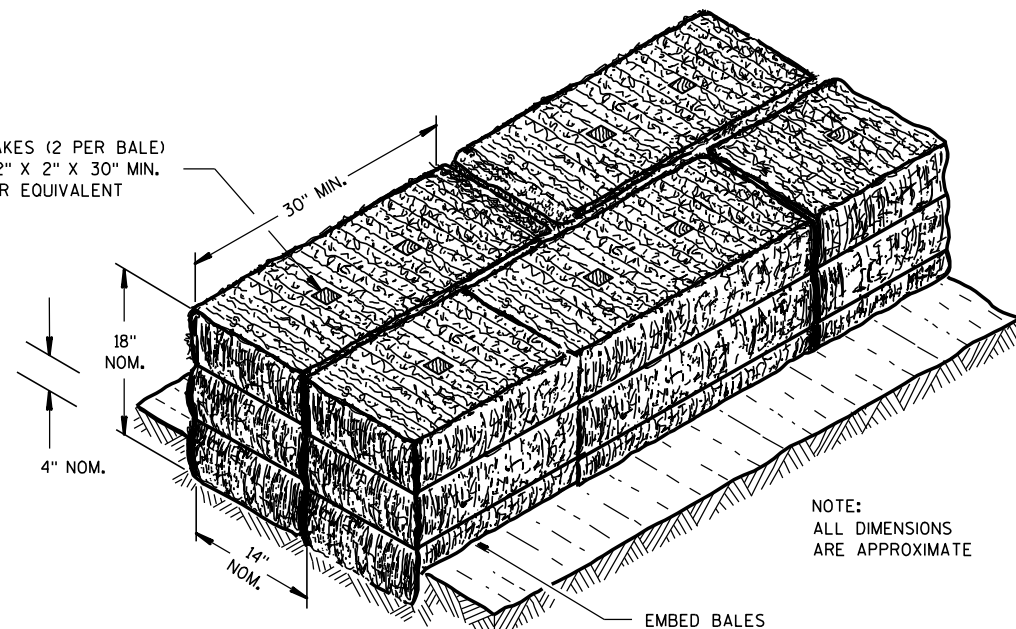
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 5, 6, 7A, 7B & 8

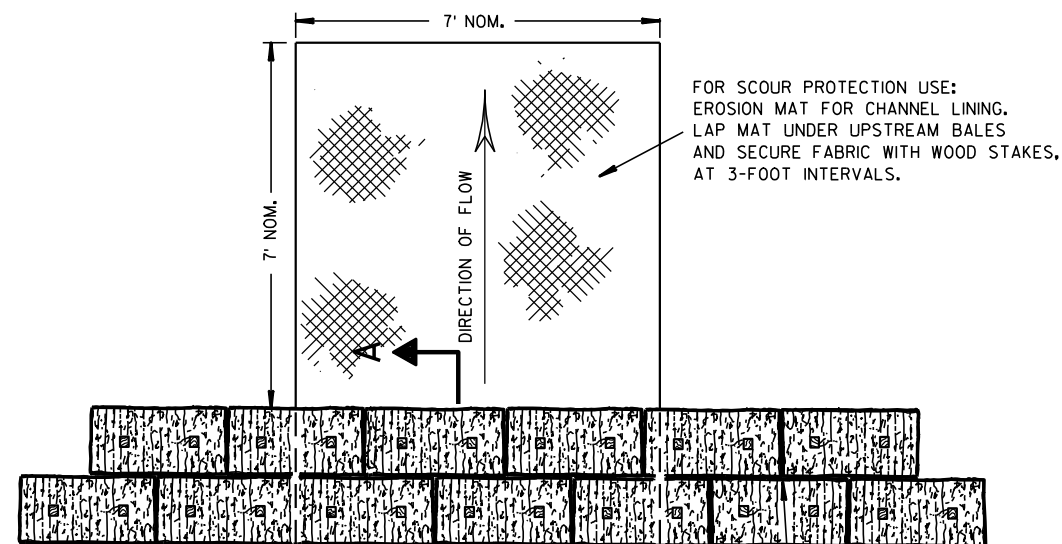
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2-6-2013 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 147 INT
ENGINEER
FHWA

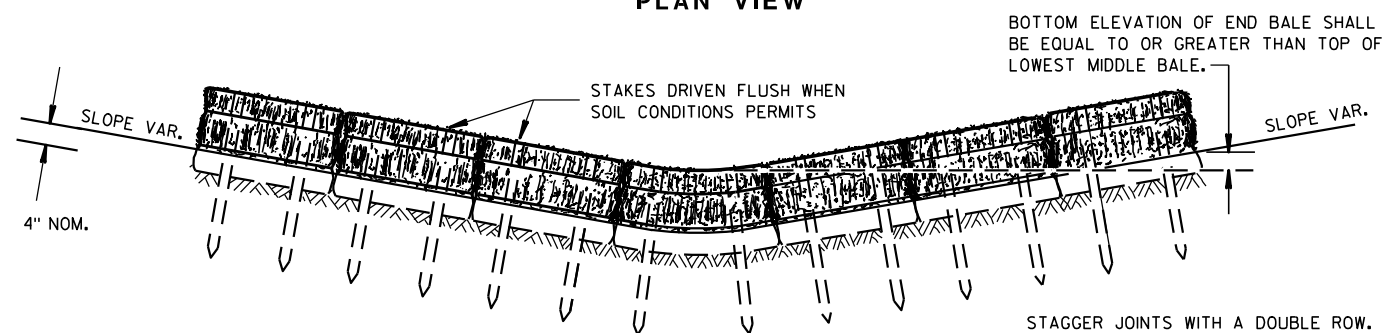
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



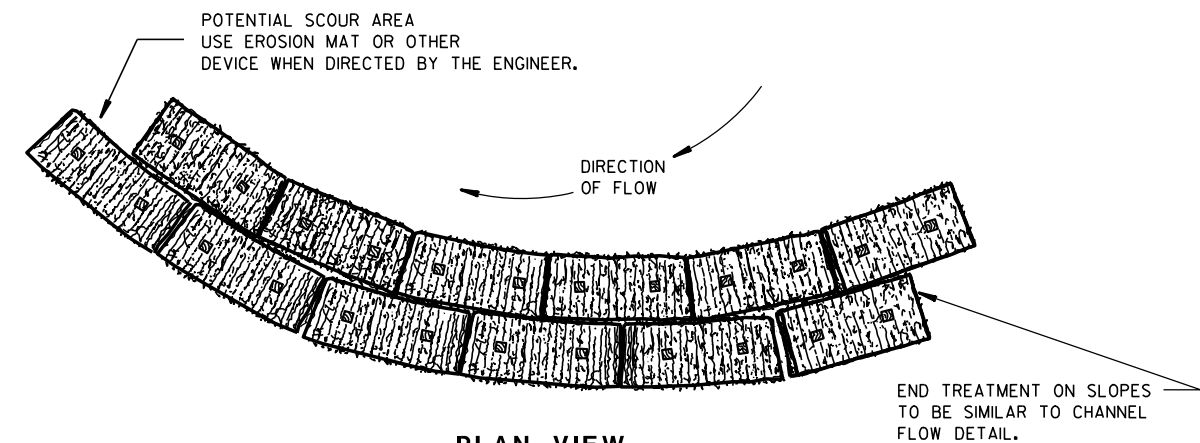
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

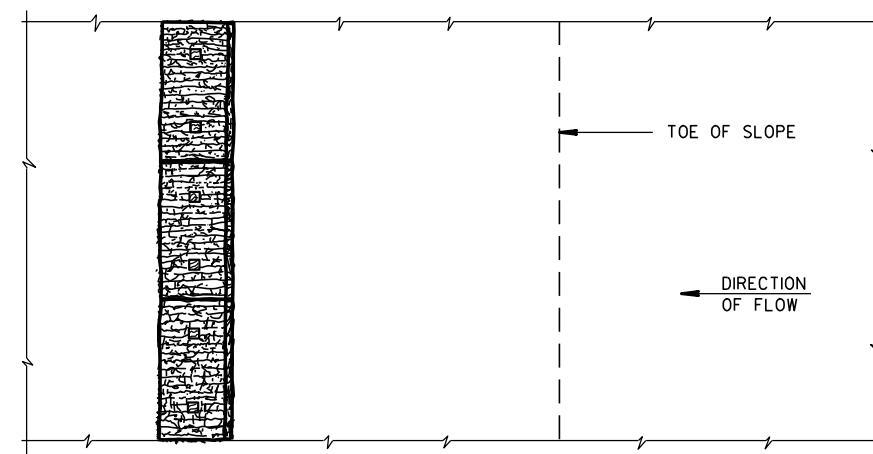
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

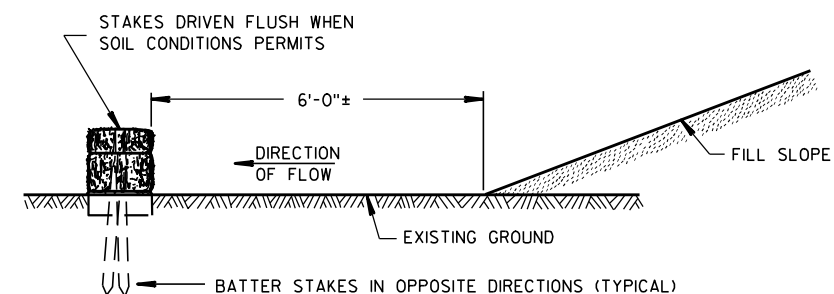


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

/S/ Beth Conn
CHIEF ROADWAY DEVELOPER

ENGINEER

FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

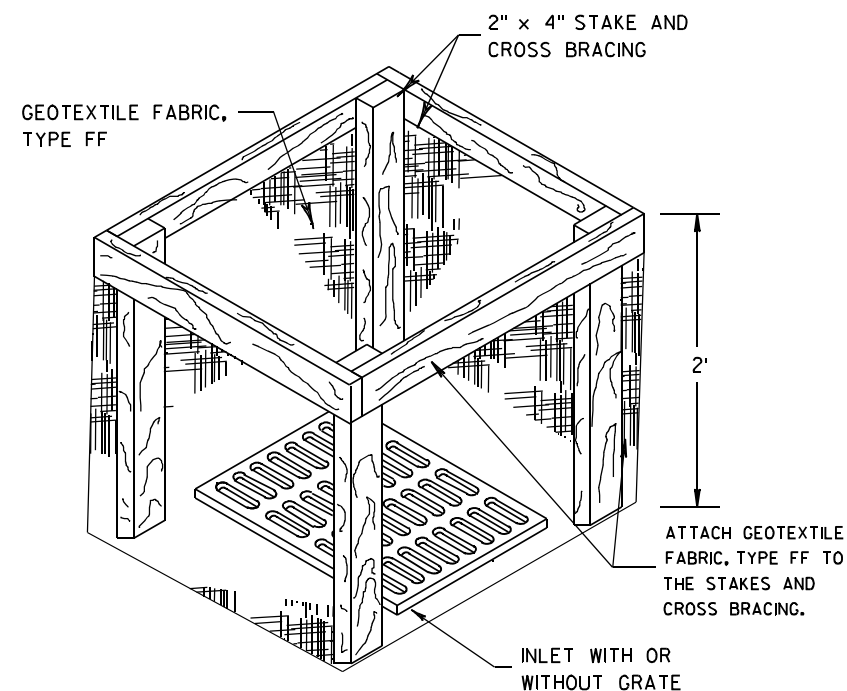
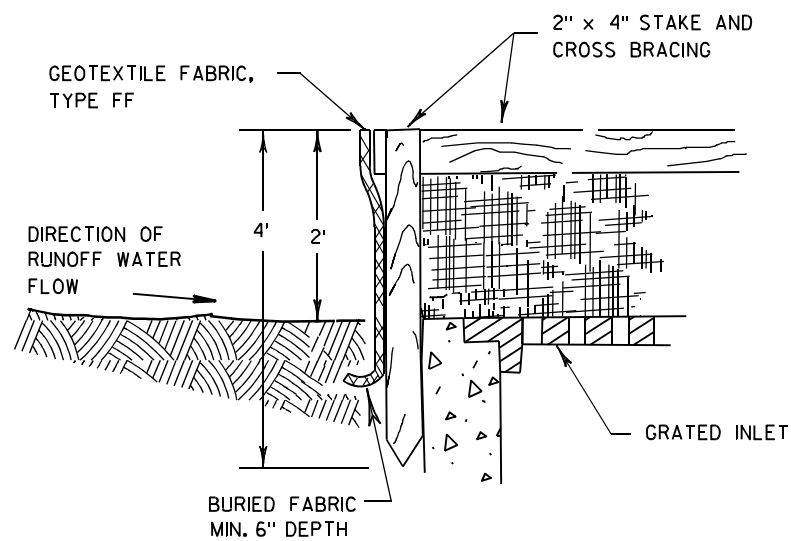


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Connolly
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



INLET PROTECTION, TYPE A

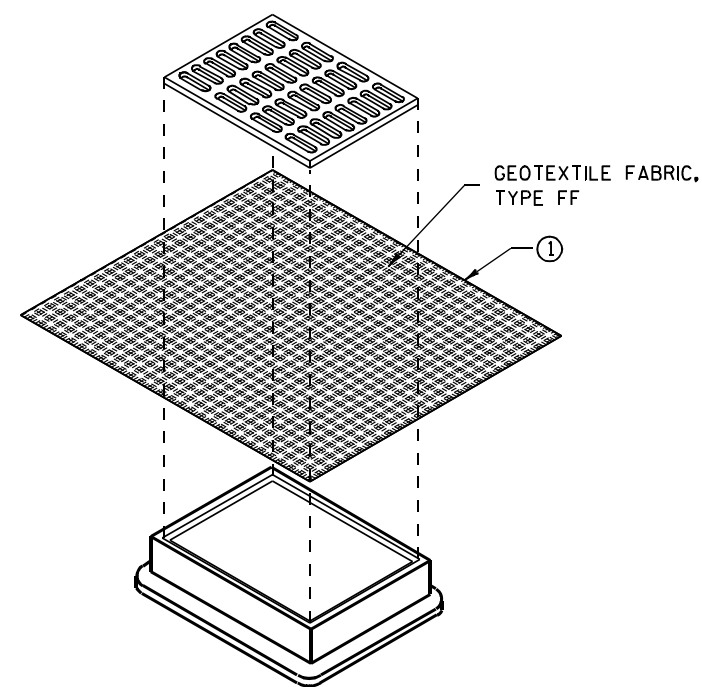
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

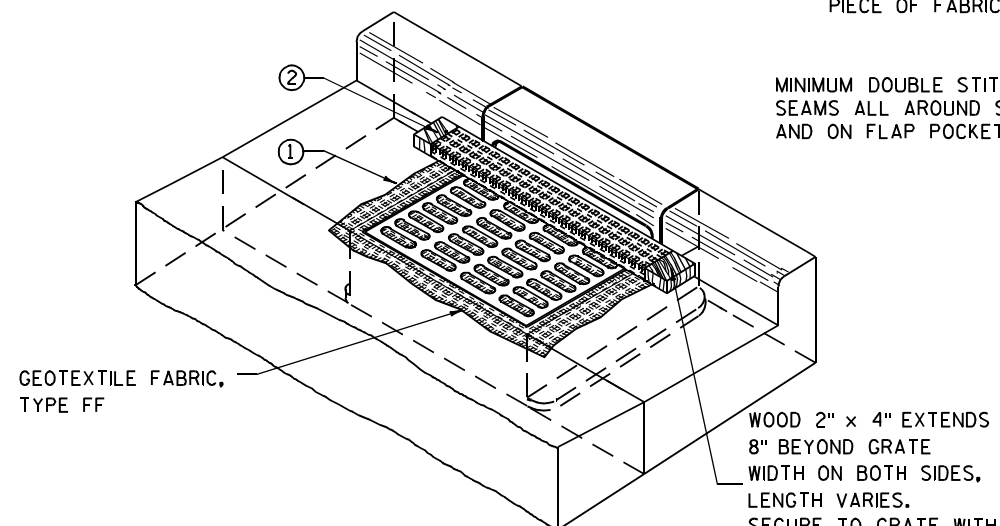
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

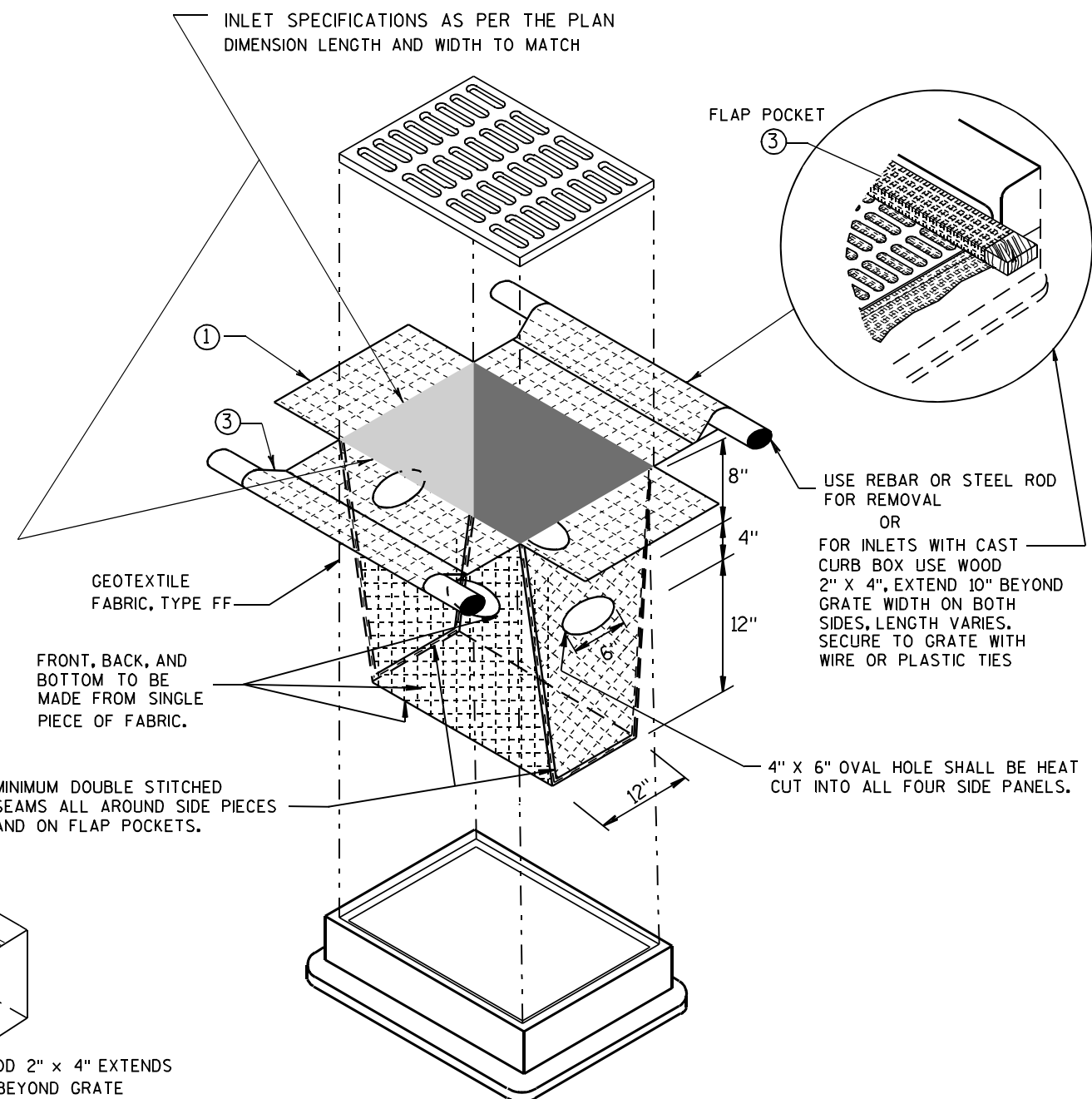
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



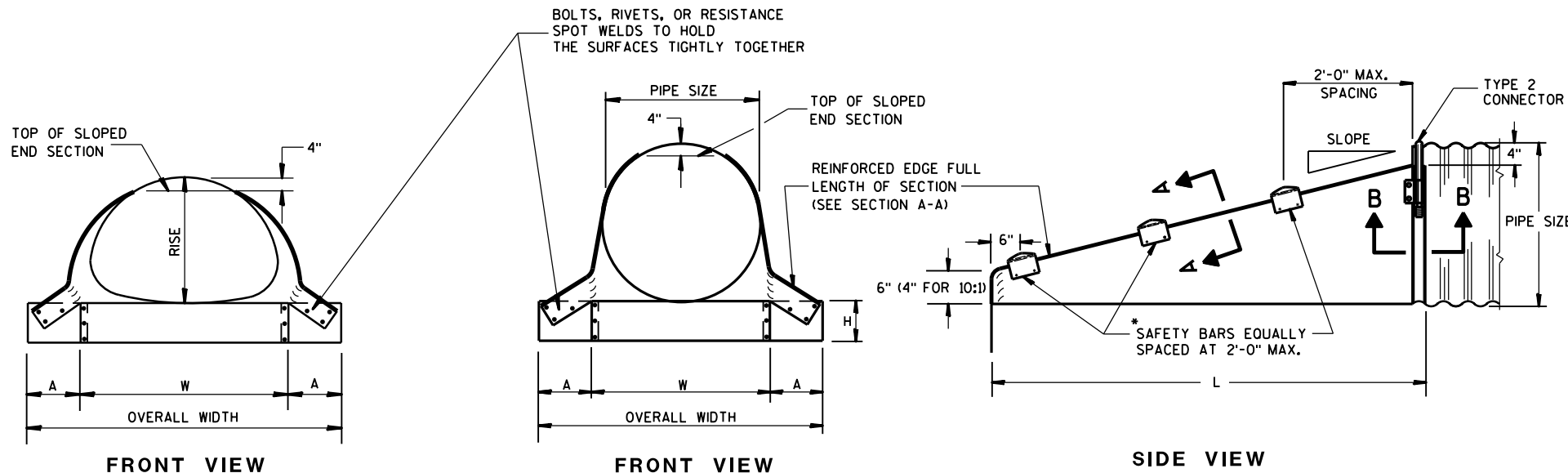
INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 150
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



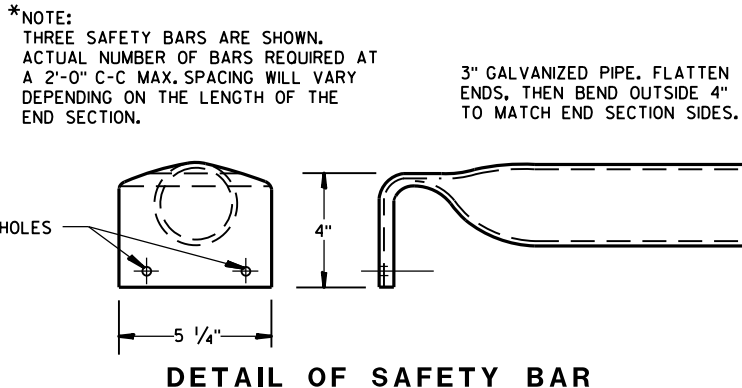
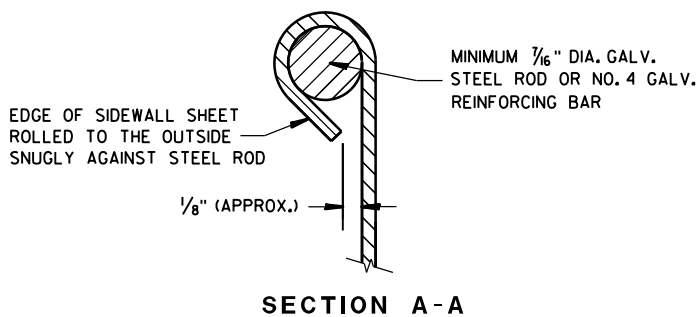
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

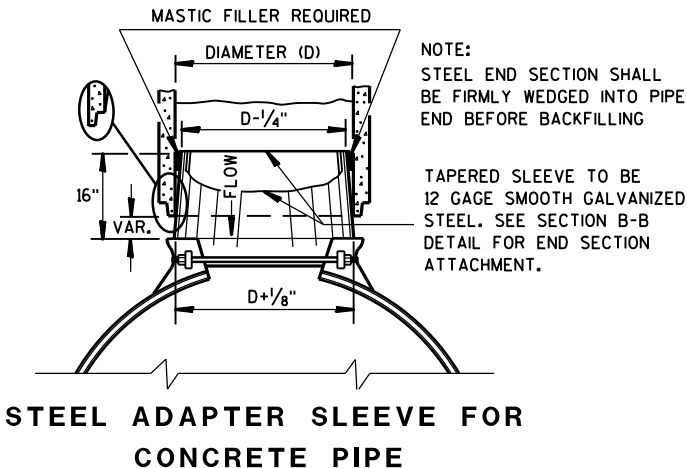
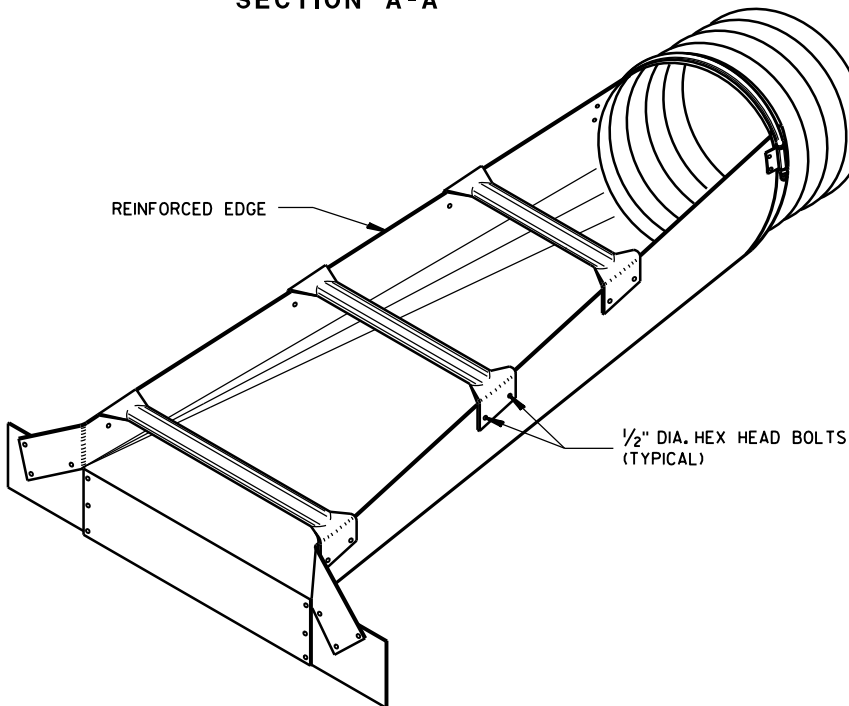
SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



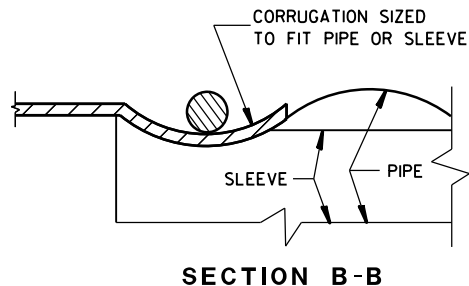
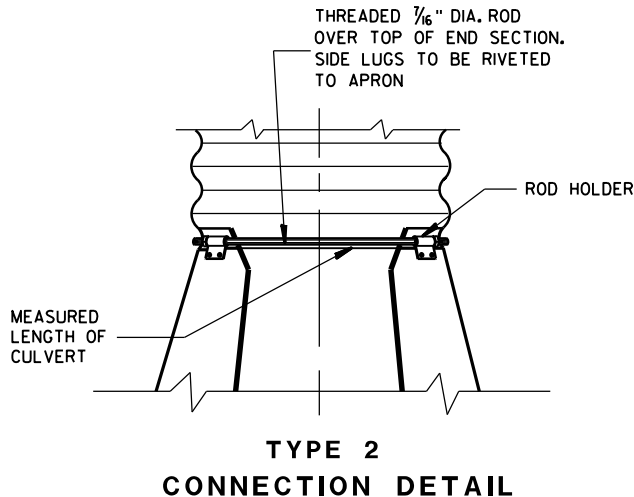
STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS											
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS			
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114
42	49	33	.109	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	16	12	70	102	4:1	132	6:1	198

① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".
② ACTUAL SLOPE GREATER THAN 10:1.



NOTE: STEEL END SECTION SHALL BE FIRMLY WEDGED INTO PIPE END BEFORE BACKFILLING

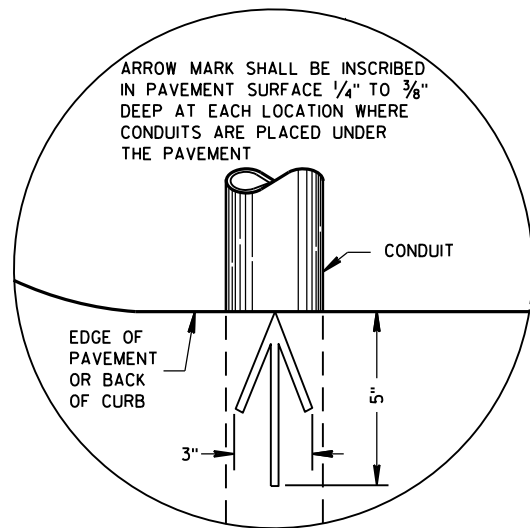
TAPERED SLEEVE TO BE 12 GAGE SMOOTH GALVANIZED STEEL. SEE SECTION B-B DETAIL FOR END SECTION ATTACHMENT.



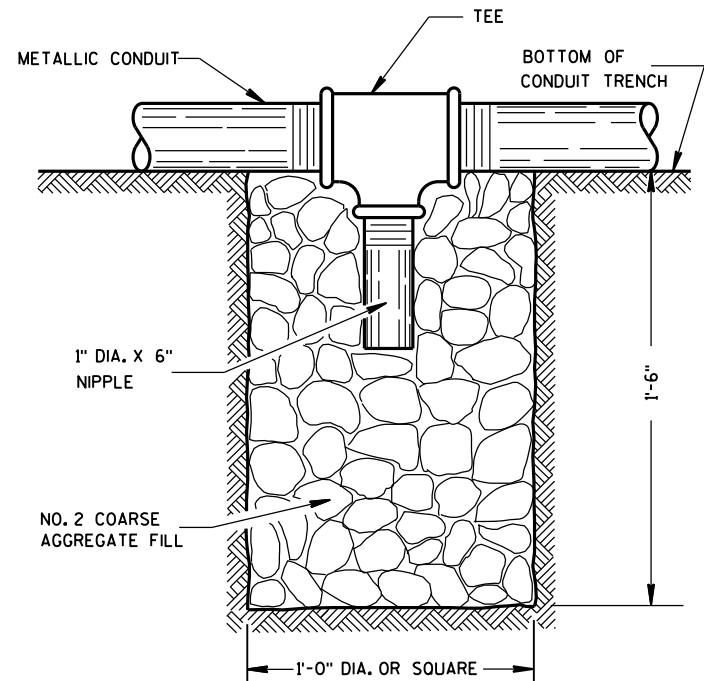
STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/2012
DATE
/S/ Jerry H. Zoog
ROADWAY STANDARDS ENGINEER
151
NT
FHWA

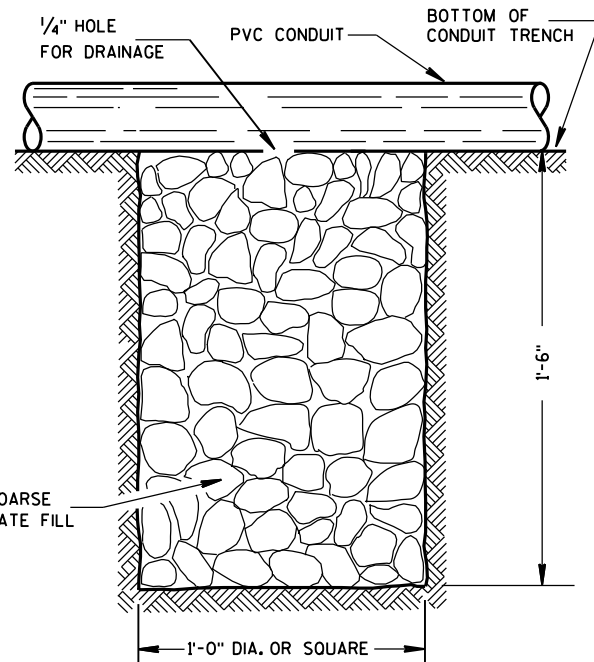


PLAN VIEW
ARROW MARK



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

DRAIN SUMP FOR METALLIC CONDUIT



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

DRAIN SUMP FOR PVC CONDUIT

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 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) 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 AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

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

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

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

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

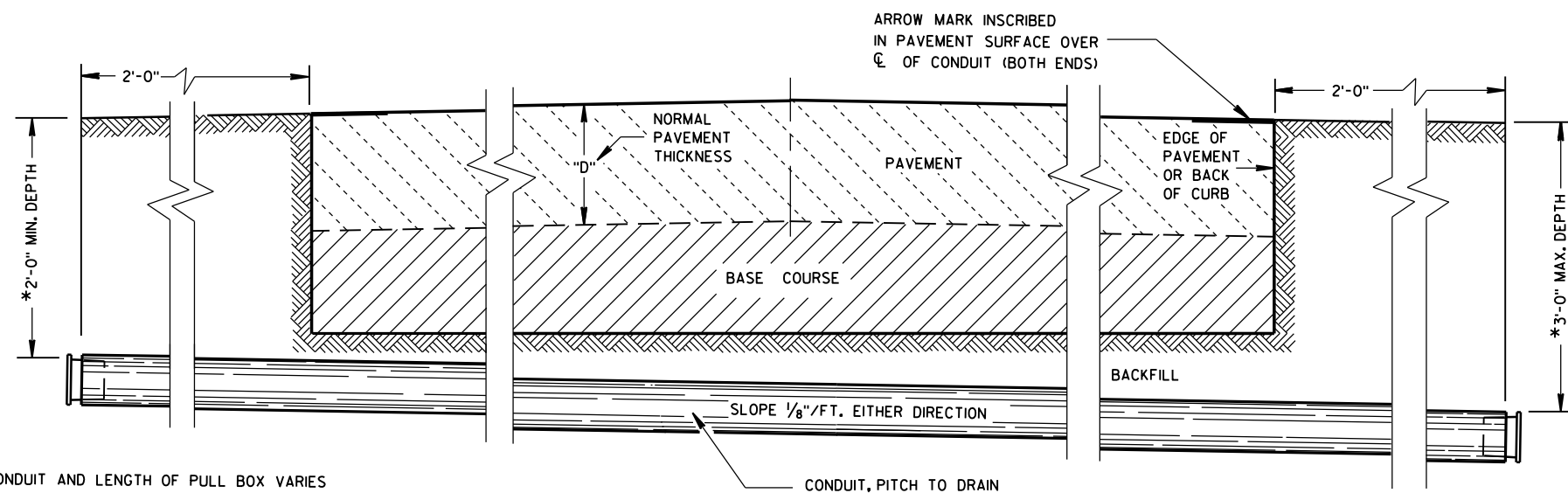
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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

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

POLY ROPE OR A PULL WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

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.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT UNDER PAVED HIGHWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014

DATE

FHWA

/S/ Ahmet Demirbilek

STATE ELECTRICAL 152

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* 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). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.

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.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

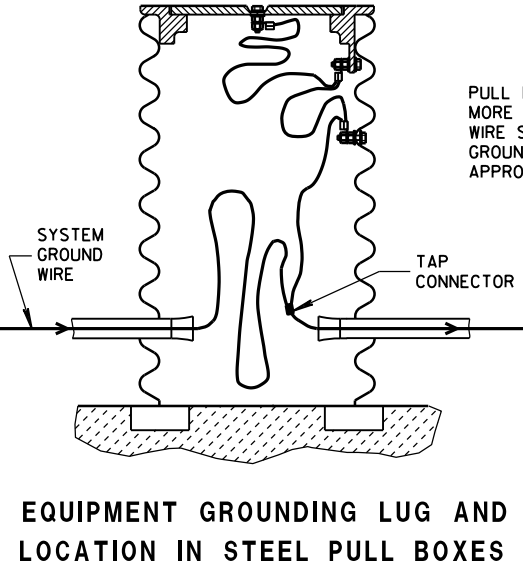
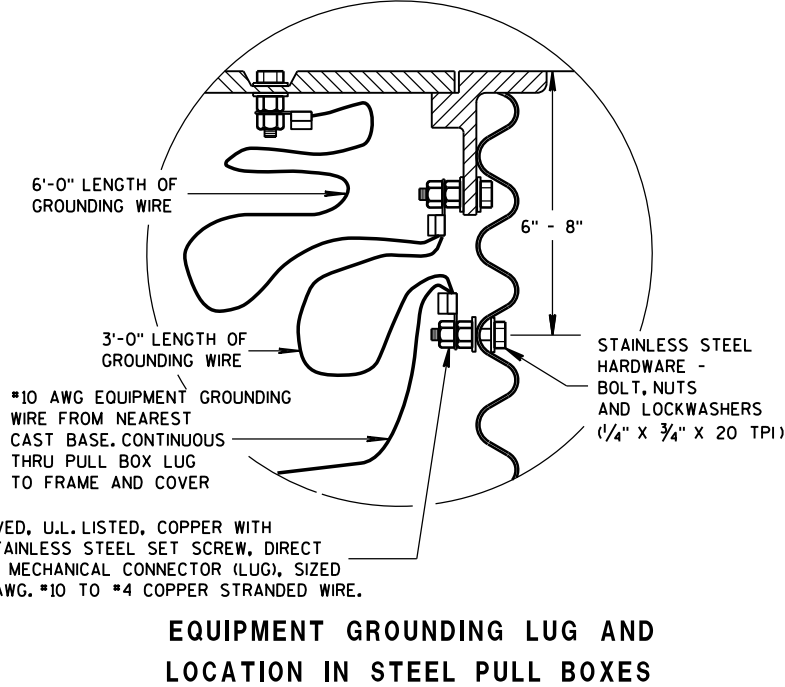
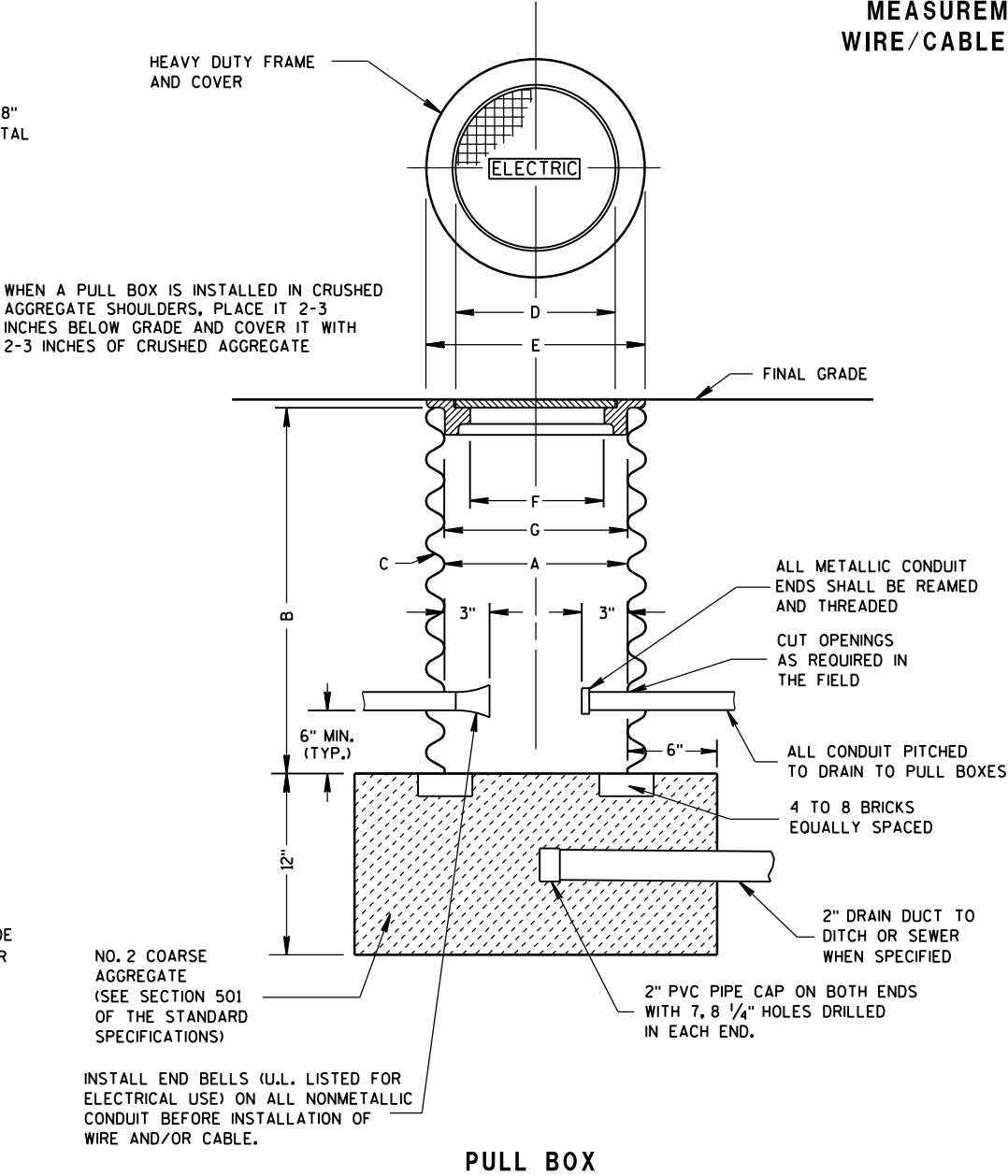
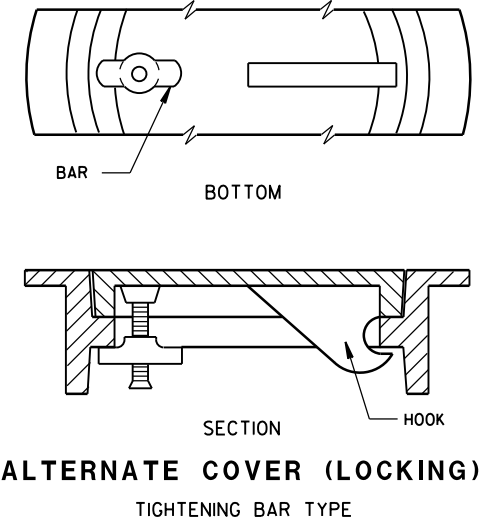
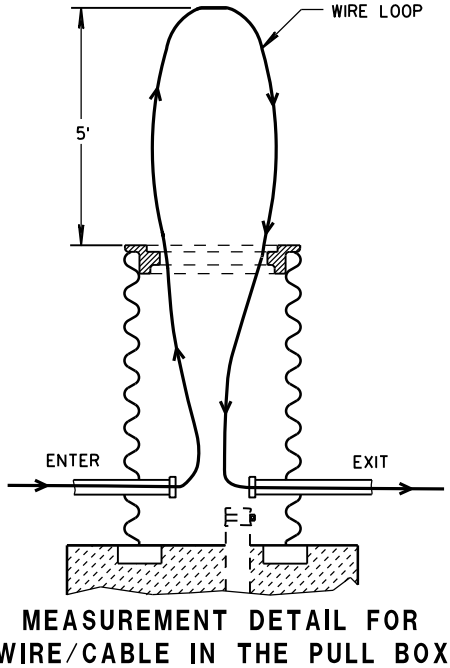
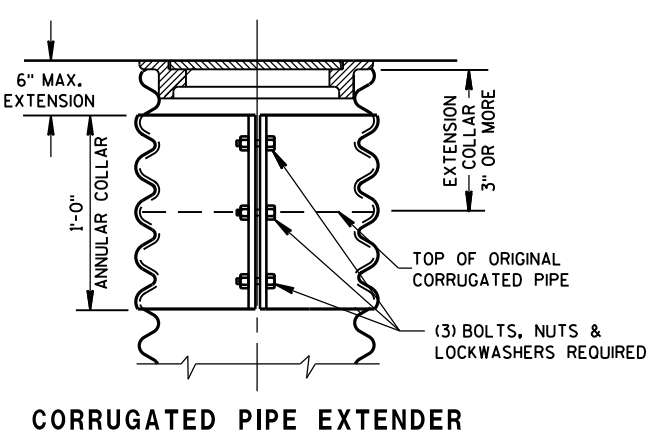
ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

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.

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

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.



PULL BOX	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Sept. 2014 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL 153
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4" MAX.

FORM

6" MAX.

FORMING SHALL BE REMOVED AFTER CONCRETE HAS SET

**HALF SECTION
IN UNPAVED AREA**
(TYPICAL FOR TYPES 1, 2, 5, & 6)

5/8" DIA. X 8'-0"
COPPERCLAD
EQUIPMENT
GROUNDING
ELECTRODE
REQUIRED

5/8" DIA. X 8'-0"
COPPERCLAD EQUIPMENT
GROUNDING ELECTRODE
REQUIRED

FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

SECTION

DUCTOR

IPMENT

RODE

OP

OR

FO

AL

6" MIN.

1'-0"

2"

3" *

3" CLEAR

6" STUB

7'-0"

6" MIN.

1

2

3

4

5

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5 & 6
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

ANCHOR RODS SHALL
BE ORIENTED _____
PARALLEL TO
THE ROADWAY

FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

6

3" *

2"

6" MIN.

1'-0"

1'-0"

CONNECTION CONDUCTOR

5'-0"

8

3" CLEAR

1

6" STUD

8'-0"

D EQUIPMENT ELECTRODE

6" MIN.

2"

END TYPICAL 5, & 6)

(8) (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

STATE ELECTRICAL 154

** FOR NONBREAKAWAY INSTALLATIONS, $4\frac{1}{2}$ " $\pm$ ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

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 SHALL 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 SECTION 641.2.2 OF THE STANDARD SPECIFICATIONS.

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, U.L. LISTED, COPPER WITH BRASS OR STAINLESS STEEL SET SCREW, DIRECT BURY RATED, MECHANICAL CONNECTOR (LUG), SIZED TO ACCEPT AWG. #10 TO #4 COPPER STRANDED WIRE SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

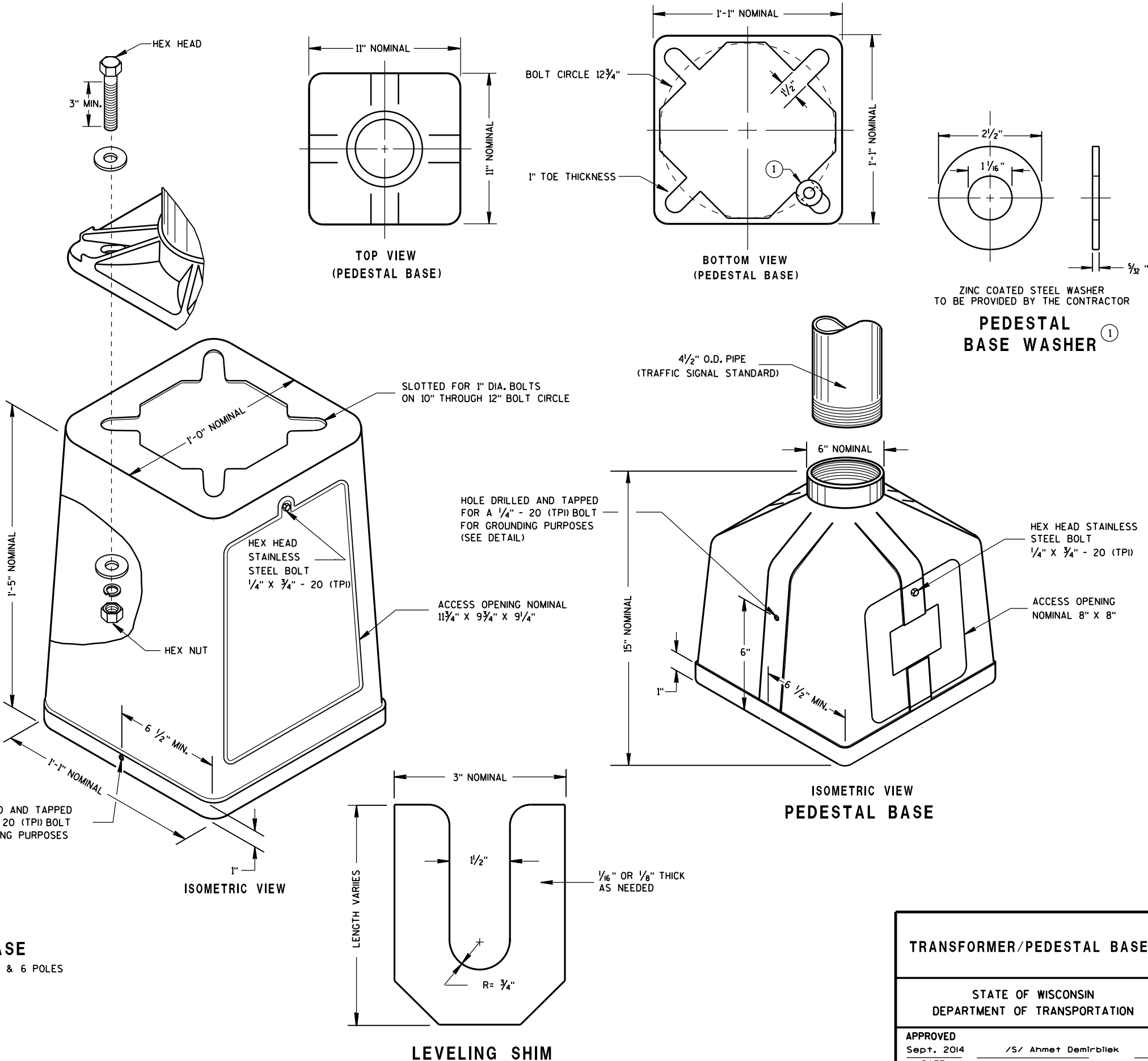
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

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.

PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.



6

6

S.D.D. 9 C 3-4

S.D.D. 9 C 3-4

TYPICAL MECHANICAL
CONNECTOR LUG
TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE
INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES

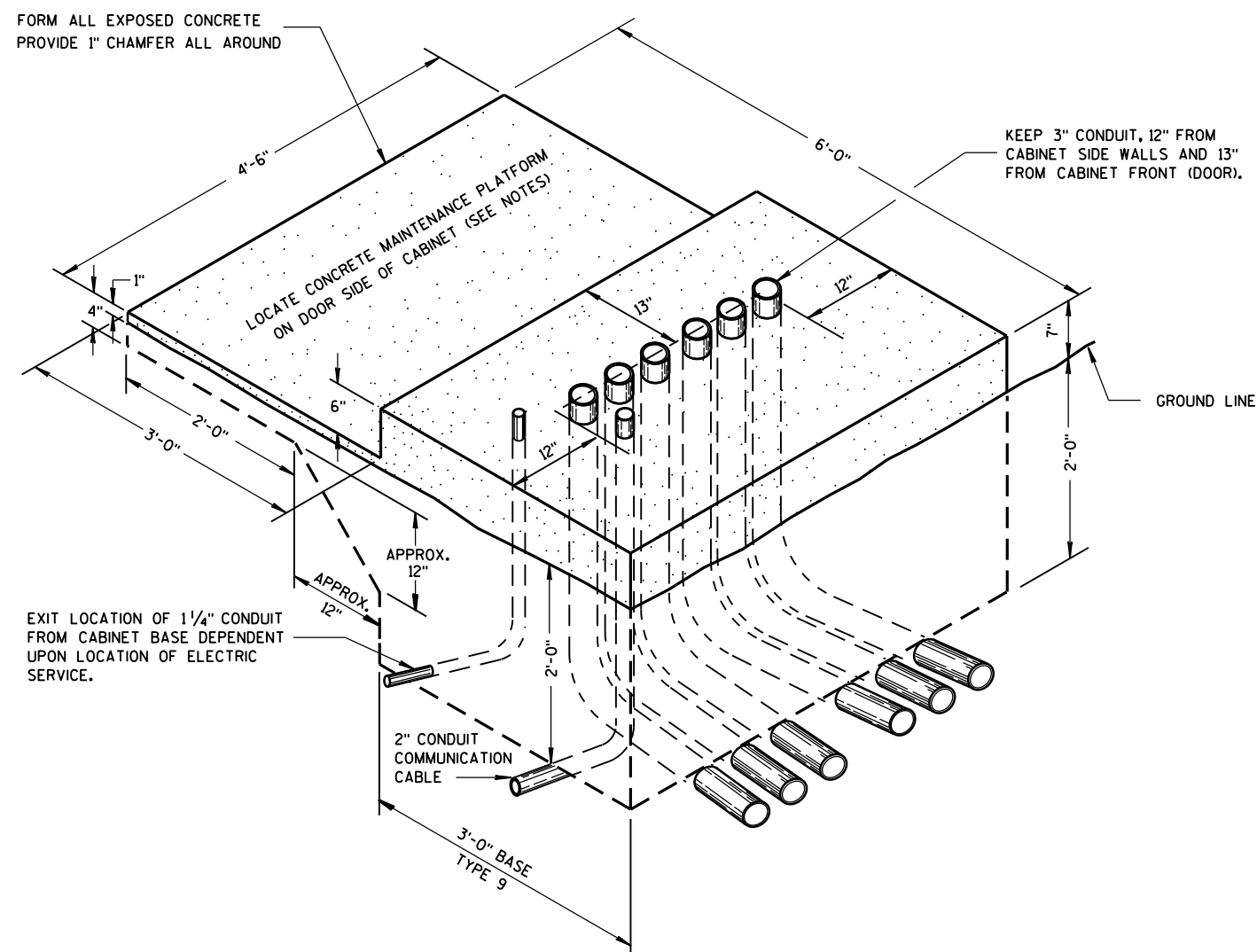
ISOMETRIC VIEW
PEDESTAL BASE

LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

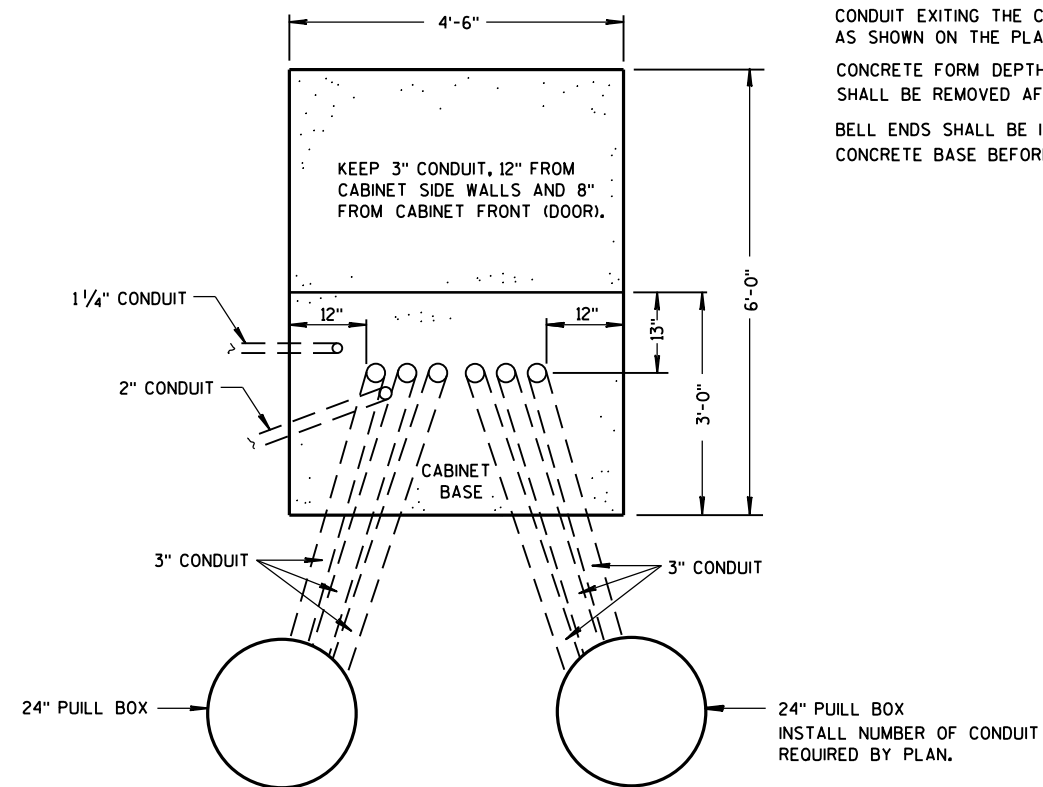
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 155
FHWA



ISOMETRIC VIEW
TYPE 9, SPECIAL

(C.Y. CONCRETE = APPROX. 1.56)



PLAN VIEW

CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL

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 STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS WITH A PULLOUT STRENGTH OF 9,000 LBS. TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS 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 SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND BE 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.

CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

PLUG ALL BELOW GRADE NONMETALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

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.

CONDUIT EXITING THE CONCRETE BASE (SIX THREE INCH) SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.

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

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

CONCRETE CONTROL CABINET
BASE, TYPE 9, SPECIAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

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GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 4 INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL END INSTALLED. ALL CONDUIT SHALL BE SLOPED TO PULL BOX.

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. CONDUIT IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

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

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

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

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL ENTER THE BASE THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

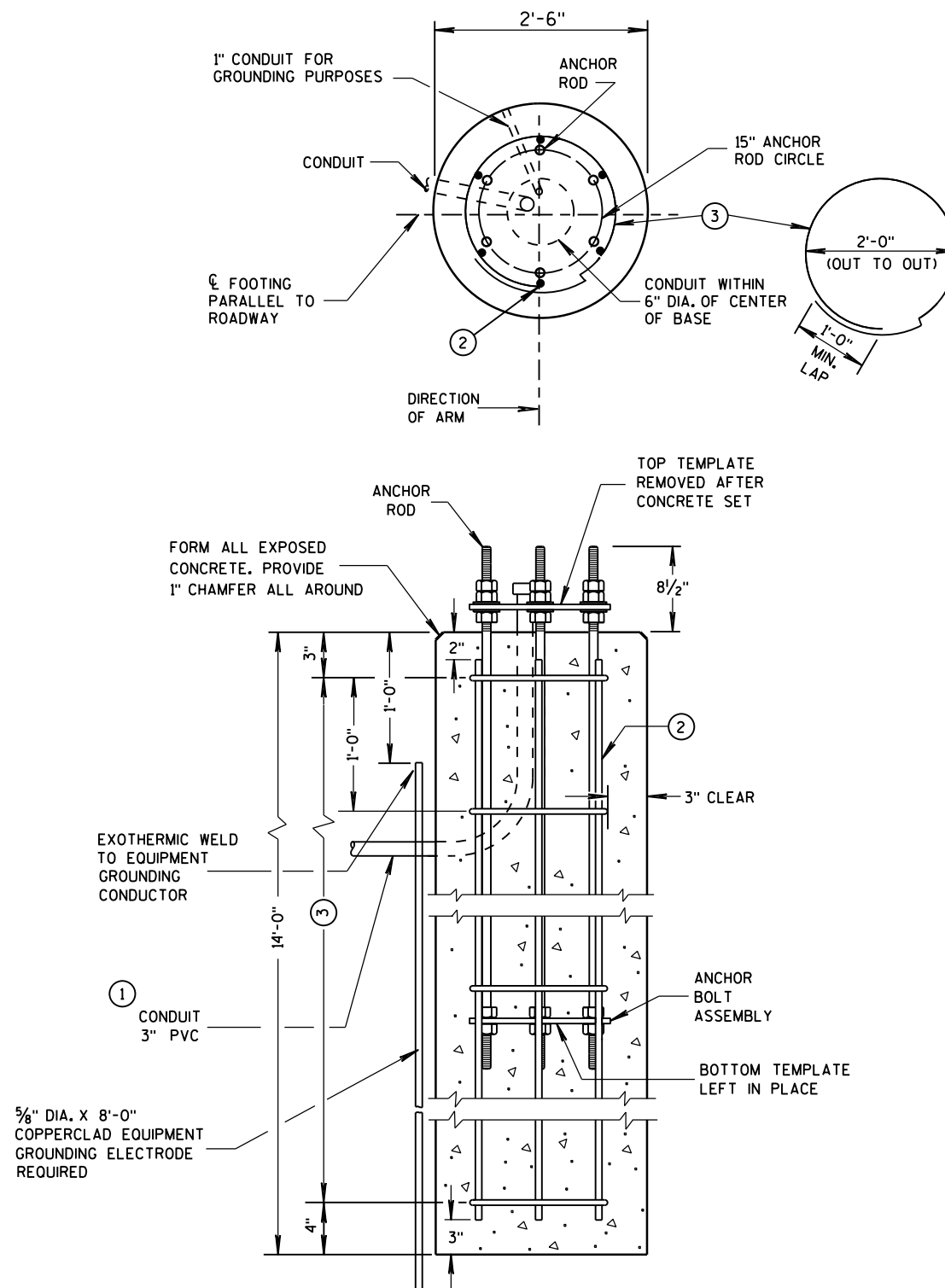
ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

- ① THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES, (GREATER THAN 36 INCHES IF INSTALLED IN BREAKER-RUN), EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

- ② (6) NO. 6 X 13'-7" BAR STEEL REINFORCEMENT.

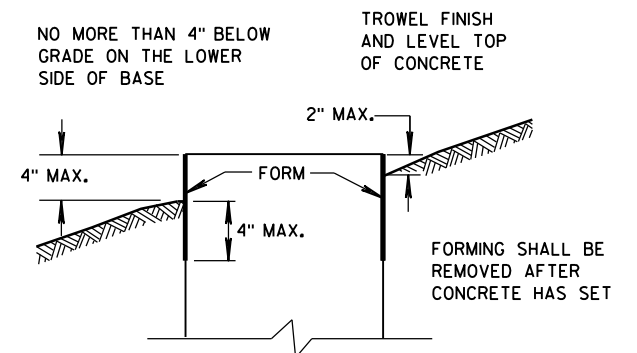
- ③ (15) NO. 4 X 7'-4" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

CONCRETE MASONRY	-----	$f_c=3,500$ p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	-----	$f_y=60,000$ p.s.i.
ANCHOR RODS, AASHTO M314 GRADE 55	-----	$f_y=55,000$ p.s.i.
TEMPLATES, ASTM, A709 GRADE 36	-----	$f_y=36,000$ p.s.i.

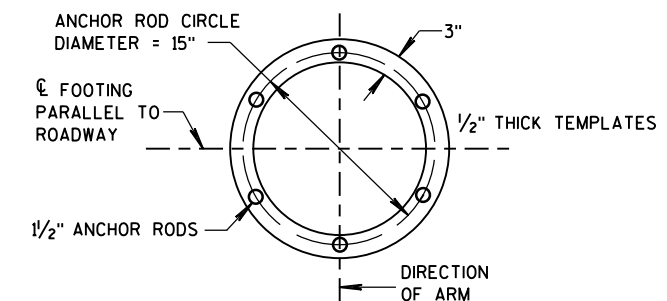


CONCRETE BASE TYPE 10 (FOR TYPE 9 & 10 POLES)

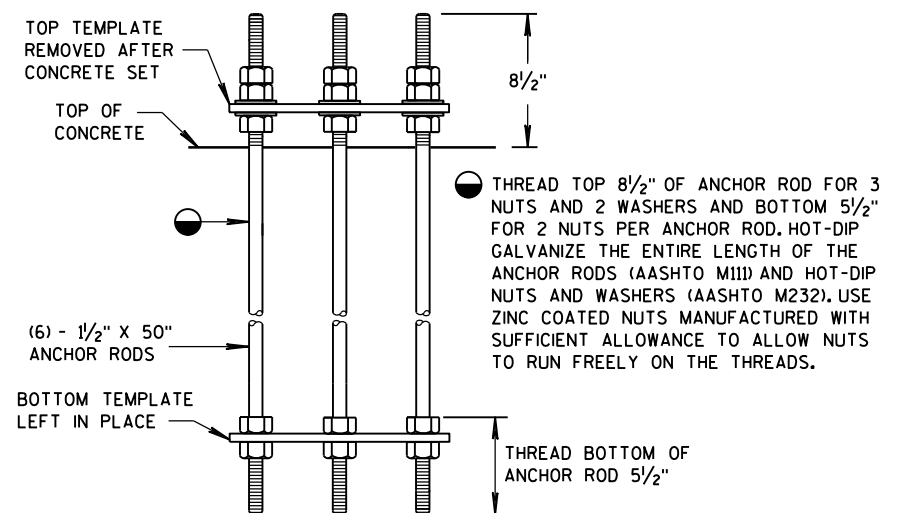
TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION. SEE S.D.D. 9C13-2 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.



FORMING DETAIL



TOP AND BOTTOM TEMPLATES



ANCHOR BOLT ASSEMBLY DETAIL

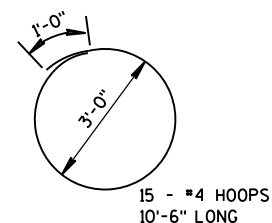
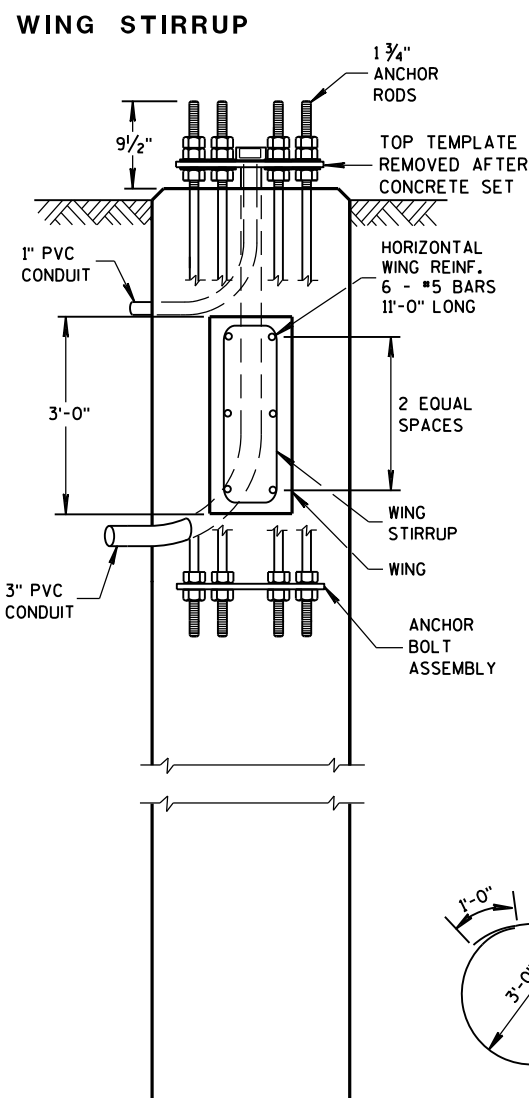
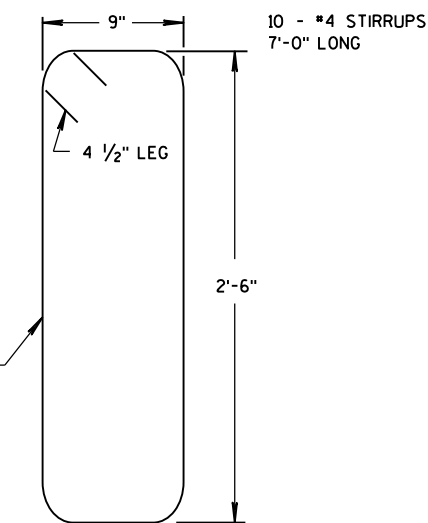
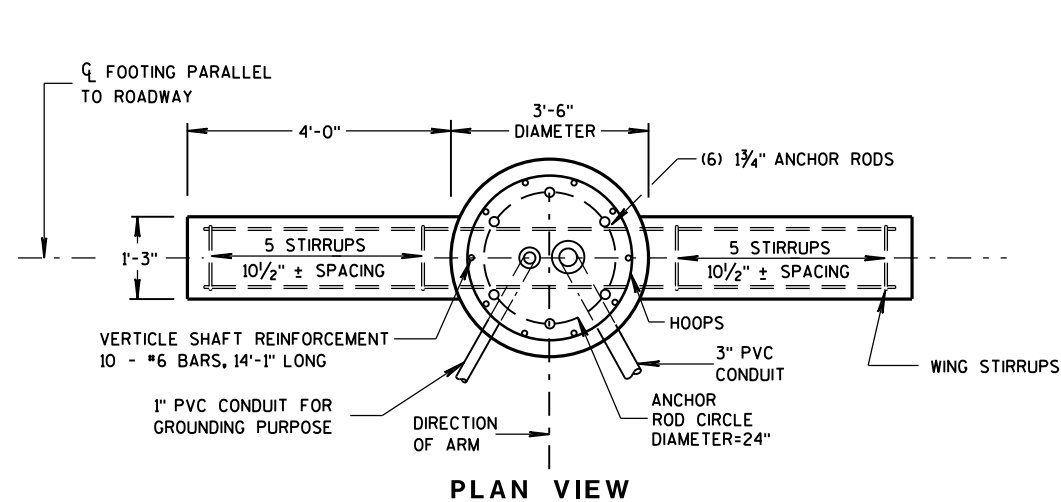
CONCRETE BASE TYPE 10 ANCHOR ASSEMBLY

QUANTITY REQUIREMENTS	
APPROX. CUBIC YARDS OF CONCRETE	2.5
LBS. OF HOOP BAR STEEL	69
LBS. OF VERTICAL BAR STEEL	122

CONCRETE BASE TYPE 10

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 157
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GENERAL NOTES

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

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR ROD PROJECTION ABOVE TOP OF CONCRETE FOOTING BASE PER THIS SHEET.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF THE UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

WELDING OF ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

BASES (SHAFT), BELOW THE WING, SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

CONDUIT SIZE AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASE SHALL BE 4 1/2" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

ALL CONDUIT ENDS AT THE TOP OF THE 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 INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

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

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTOR FITTINGS, UL LISTED FOR ELECTRICAL USE, SHALL BE USED.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE THROUGH A 1-INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4-FOOT COIL OF WIRE ABOVE THE CONCRETE BASE, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS.

THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVEL WAY SHALL BE 24-INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18-INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36-INCHES, (GREATER THAN 36-INCHES IF INSTALLED IN BREAKER-RUN), EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR RODS, AASHTO M314 GRADE 55	fy=55,000 p.s.i.
TEMPLATES, ASTM A709 GRADE 36	fy=36,000 p.s.i.

(FOR TYPE 12 & 13 POLES)

CONCRETE = 6.3 C.Y.
H.S. REINFORCEMENT = 433 LBS.

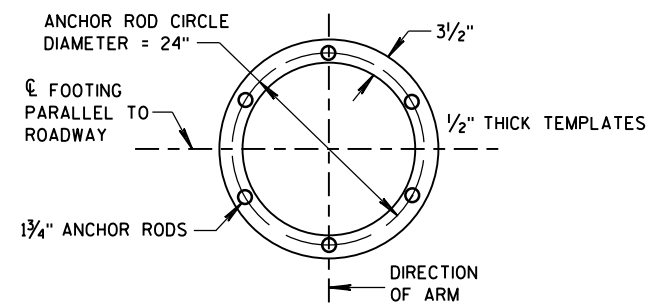
H.S. REINFORCEMENT = 433 LBS.

TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION.
SEE S.D.D. 9C13-2 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.

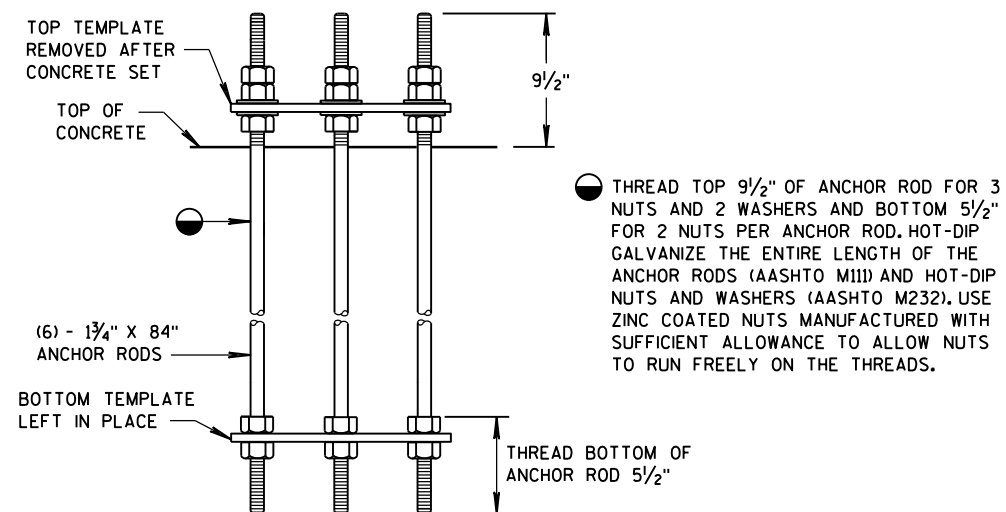
CONCRETE BASE TYPE 13

STATE OF WISCONSIN
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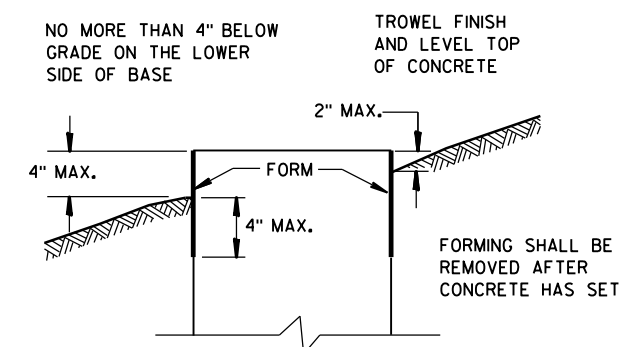


TOP AND BOTTOM TEMPLATES



ANCHOR BOLT ASSEMBLY DETAIL

CONCRETE BASE TYPE 13 ANCHOR ASSEMBLY



FORMING DETAIL

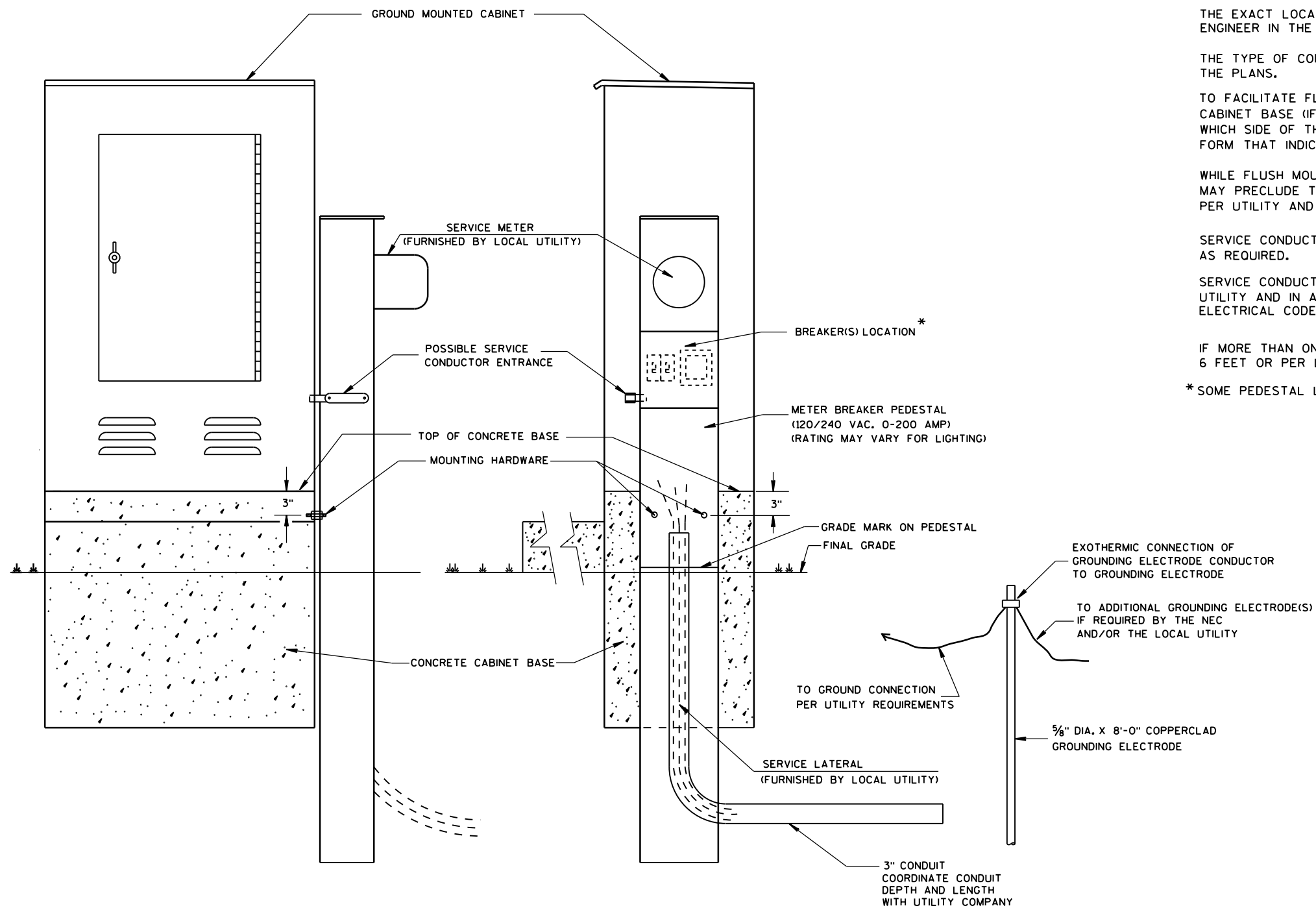
CONCRETE BASE TYPE 13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014
DATE/S/ Ahmet Demirelek
STATE ELECTRICAL 159

FHWA



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.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE, CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH, THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

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

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

IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION
(METER BREAKER PEDESTAL)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL 160

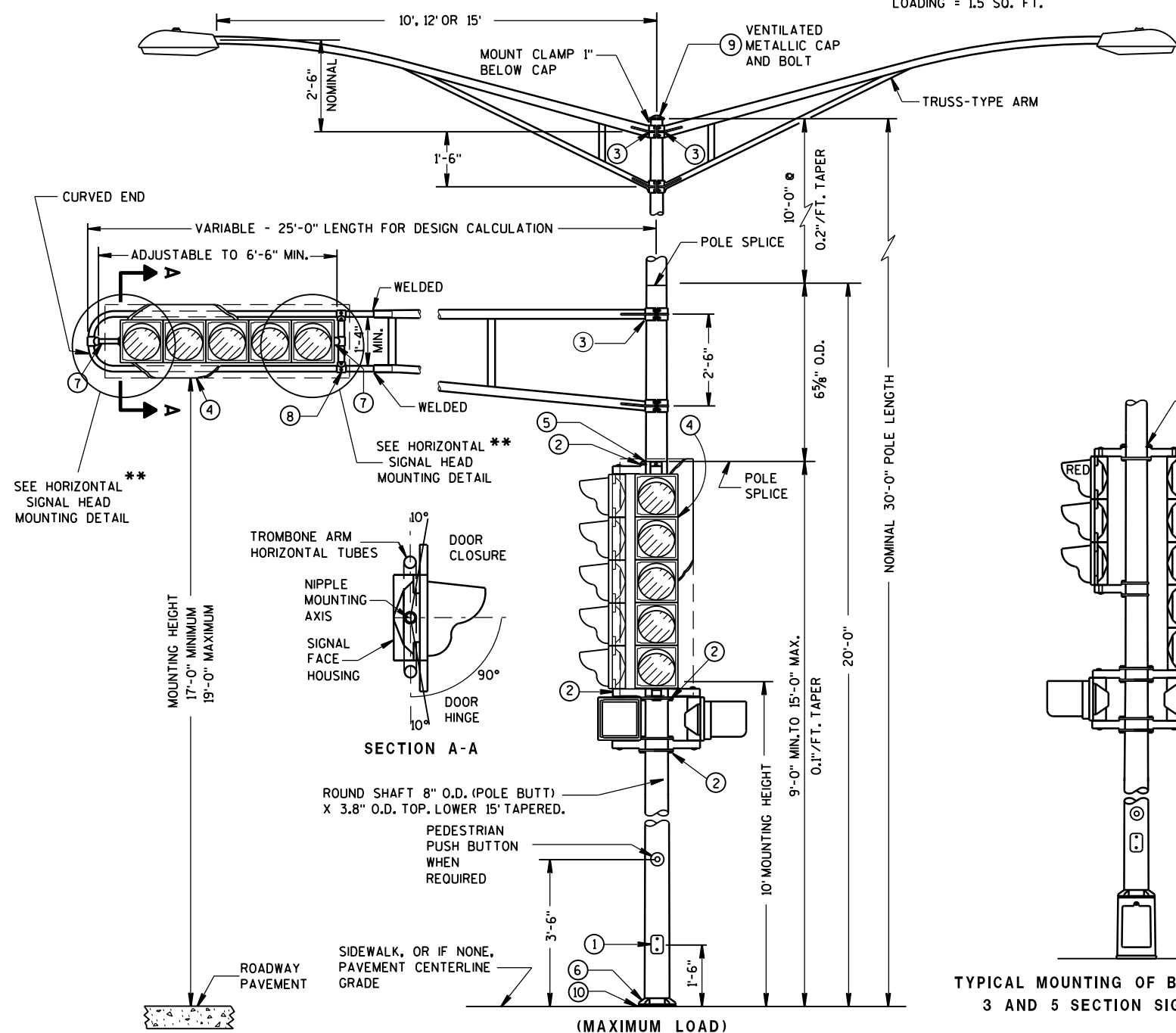
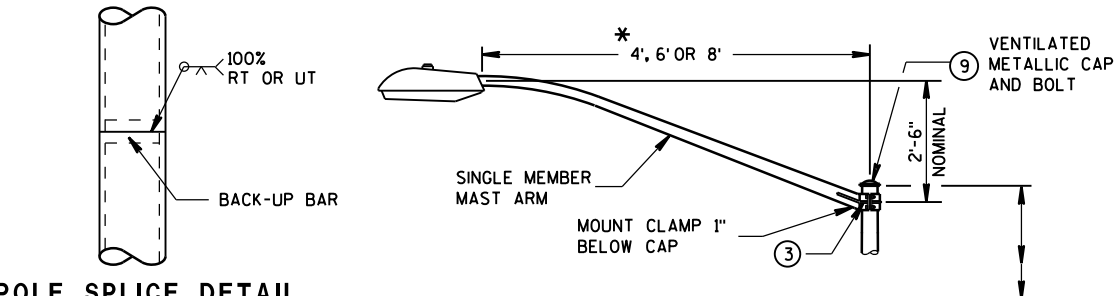
FHWA

FOR MANUFACTURERS USE ONLY

WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 1.5-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN/BRIDGE FOR VERIFICATION AND APPROVAL.

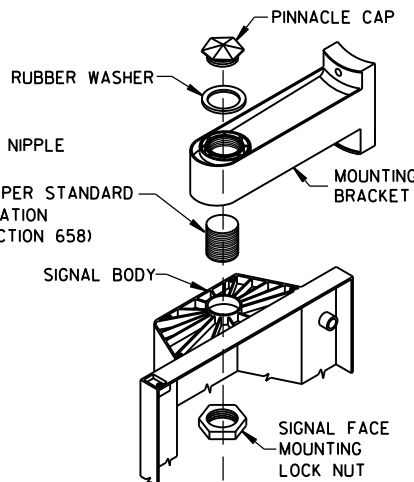
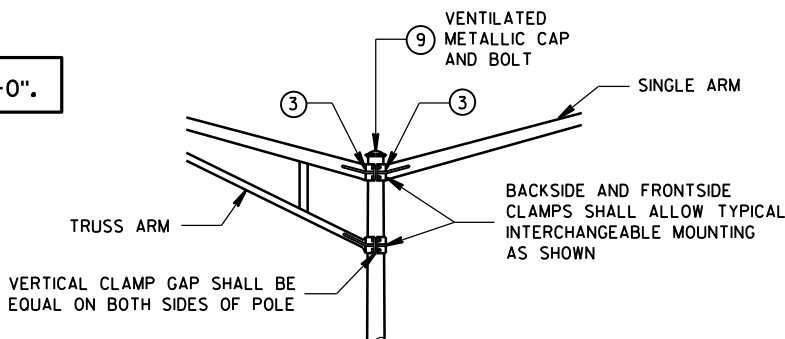
* RISE FOR 4' ARM SHALL BE 2'-0".

POLE SPLICE DETAIL

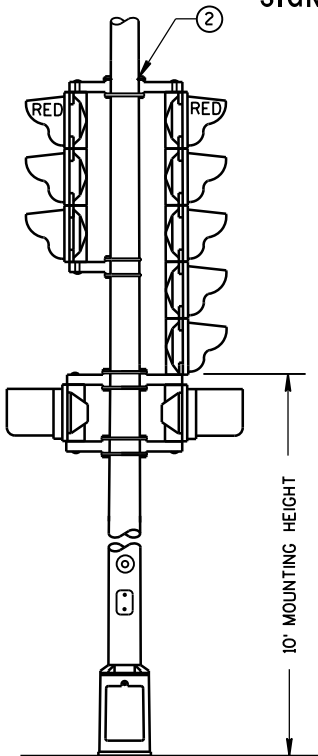


LUMINAIRE
WT. - 50 LBS.
EFFECTIVE PROJECTED
AREA FOR WIND
LOADING = 1.5 SQ. FT.

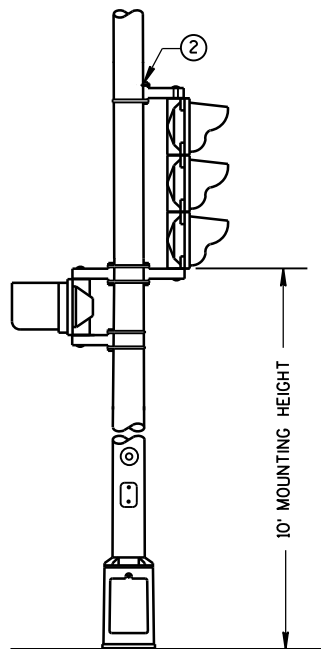
INTERCHANGEABLE MOUNTING DETAIL



SIGNAL FACE MOUNTING DETAIL (BANDED)



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



TYPICAL MOUNTING OF 3 SECTION
SIGNAL FACE

GENERAL NOTES

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

ALL TYPE 3 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL.

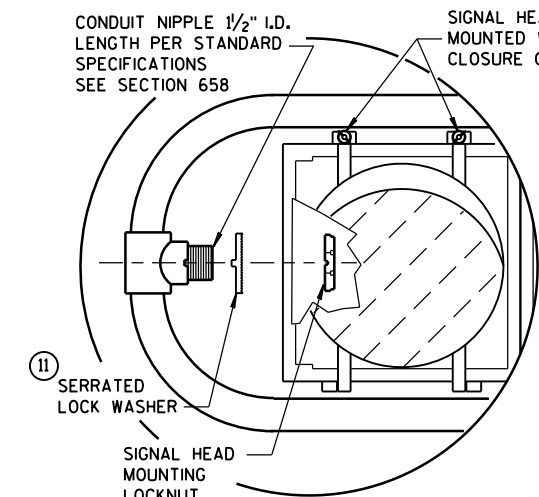
SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

A PULL WIRE/ROPE IN ACCORDANCE WITH STANDARD SPECIFICATION 652, SHALL BE INSTALLED IN EACH TROMBONE ARM RACEWAY DURING THE MANUFACTURING PROCESS.

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.

WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

- 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) 1/4" X 3/4" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
- SIGNAL FACE MOUNTING BRACKETS, MOUNT WITH CAP SCREWS AND BANDING. (SEE STANDARD SPECIFICATIONS - SEC. 658)
- GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" HOLE IN POLE SHAFT FOR WIRING.
- SECURELY MOUNT DULL BLACK POLYCARBONATE BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURER'S RECOMMENDATIONS.
- POLE MOUNTED SIGNAL FACES SHALL REQUIRE 1 OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACE.
- TYPE 3 POLE CONFIGURATIONS SHALL BE MOUNTED DIRECTLY TO THEIR CONCRETE BASES.
- MOUNTING BRACKET NIPPLES FOR THE SIGNAL FACE(S) SHALL BE 2 INCHES IN LENGTH AND 1/2" INCHES IN DIAMETER. (SEE STANDARD SPECIFICATION - SECTION 658)
- VERTICAL STRUT (ADJUSTABLE). ONE (1) SET SCREW (1/4" X 3/4" - 20 TPI, STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.
- 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.
- SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND POLE.
- USE SERRATED LOCK WASHERS WITH NOTCHES BETWEEN END TEE AND SIGNAL HEAD.



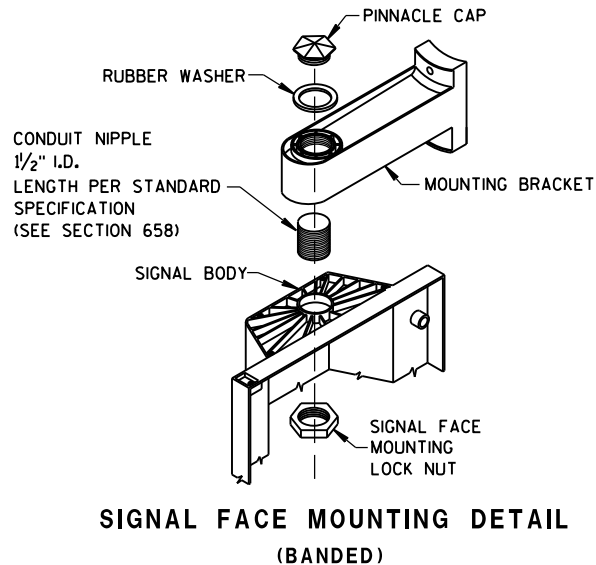
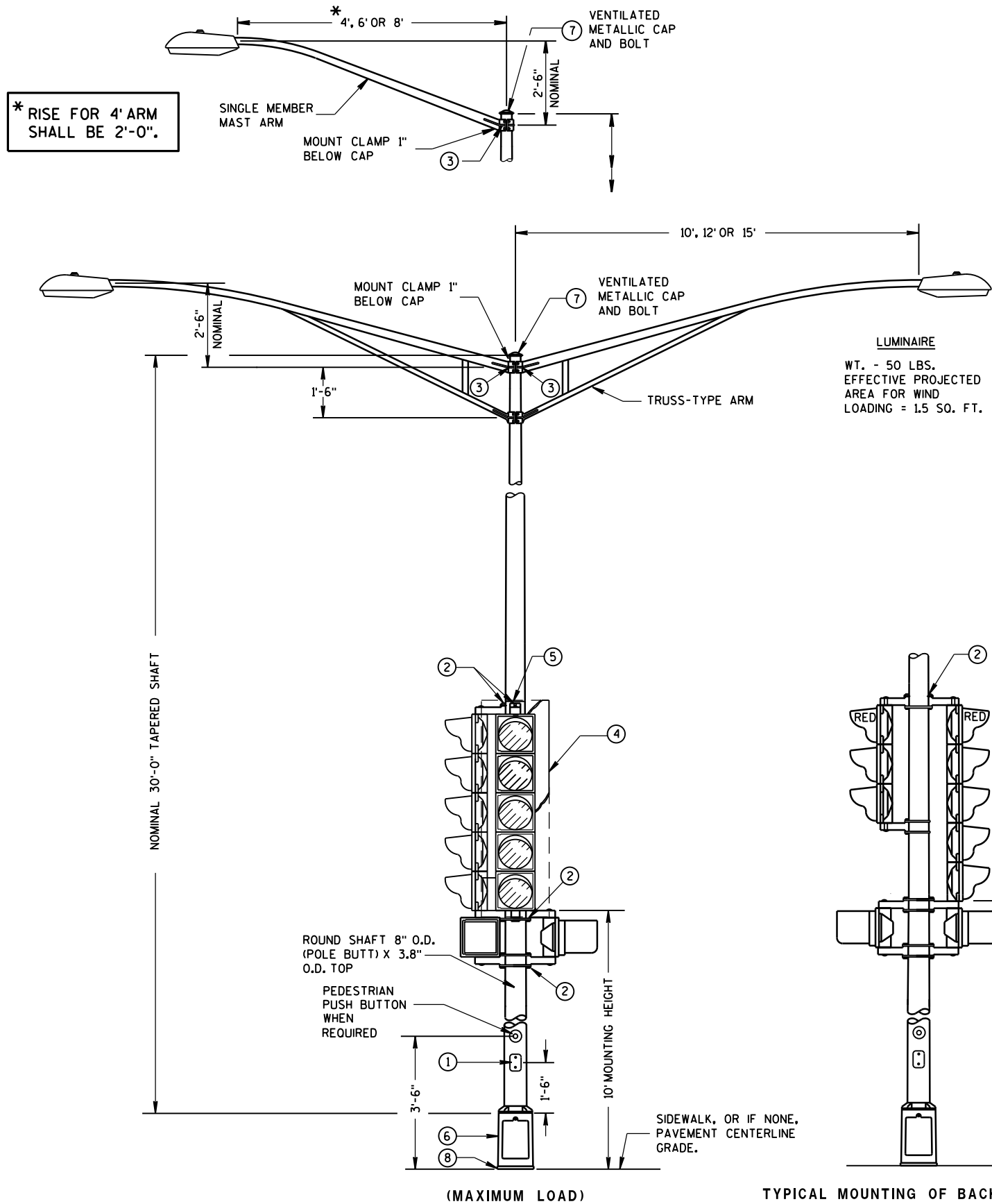
HORIZONTAL SIGNAL HEAD MOUNTING DETAIL **

** SIGNAL HEAD ATTACHMENT ALSO APPLYS TO MOUNTING AT CROSS BAR

**POLE MOUNTINGS FOR
TRAFFIC SIGNALS AND
LIGHTING UNITS, TYPE 3
(HEAVY DUTY)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 161

TYPE 3 POLE MOUNTING CONFIGURATION



GENERAL NOTES

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

ALL TYPE 4 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

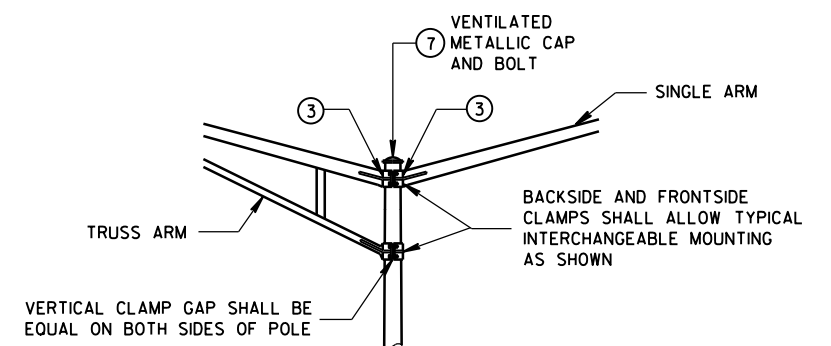
POLES SHALL BE GALVANIZED STEEL WITH A MINIMUM WALL THICKNESS OF U.S. STANDARD 11 GAGE (.1196").

SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

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.

WHEN TRANSFORMER BASES ARE USED, CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

- 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 STANDARD SPECIFICATIONS - SEC. 658).
- 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 SECURELY MOUNT DULL BLACK POLYCARBONATE BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURER'S RECOMMENDATIONS.
- 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.

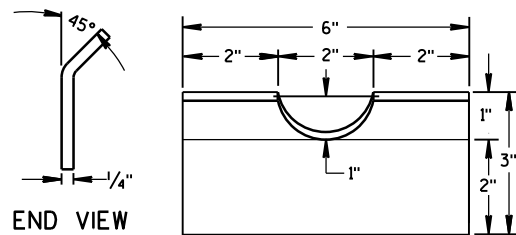


INTERCHANGEABLE MOUNTING DETAIL

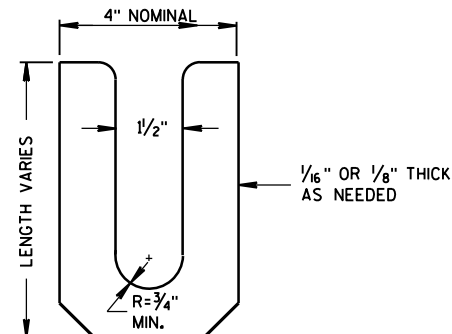
TYPE 4 POLE MOUNTING CONFIGURATION

POLE MOUNTINGS FOR
TRAFFIC SIGNALS AND
LIGHTING UNITS, TYPE 4

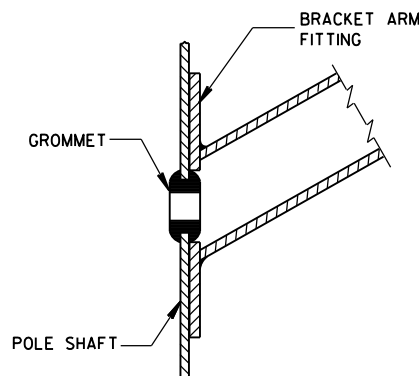
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 162



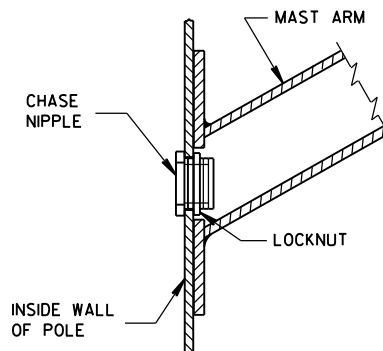
FRONT VIEW
RECTANGULAR CLAMP SHIM
(4 TO A SET)



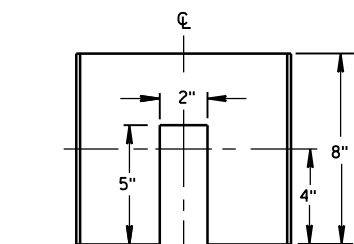
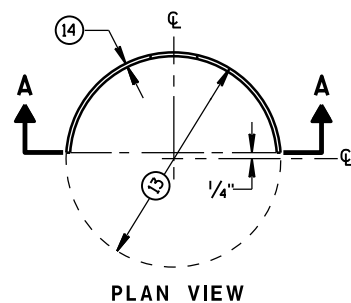
LEVELING SHIM
SHALL BE ALUMINUM



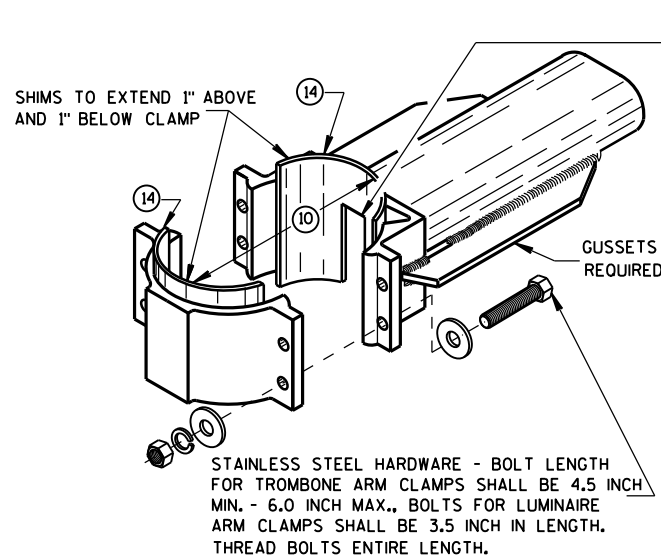
TYPICAL APPLICATION OF
GROMMET IN POLE SHAFT



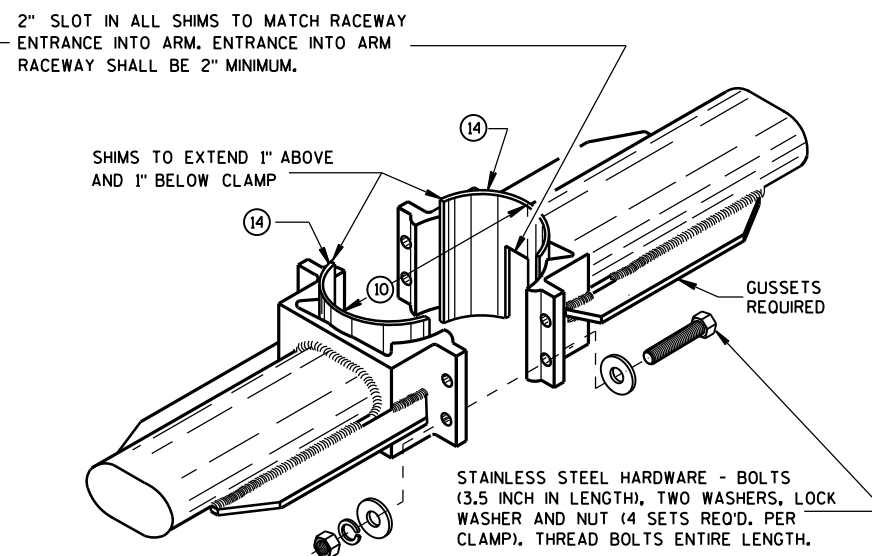
TYPICAL APPLICATION OF
CHASE NIPPLE IN POLE SHAFT



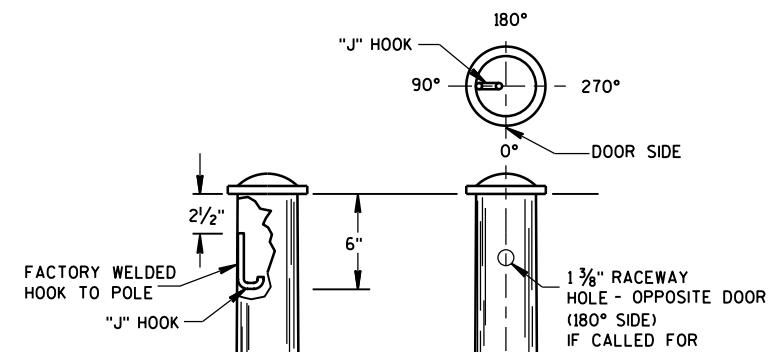
SECTION A-A
CIRCULAR CLAMP SHIM
(2 TO A SET)



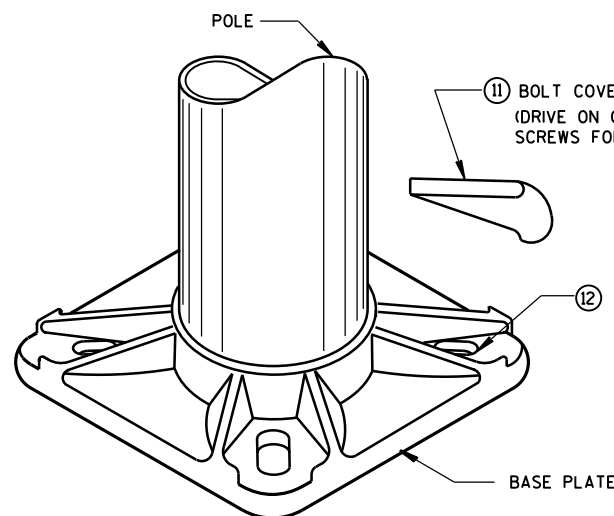
TYPICAL TROMBONE MAST ARM AND SINGLE
LUMINAIRE MAST ARM MOUNTING CLAMP



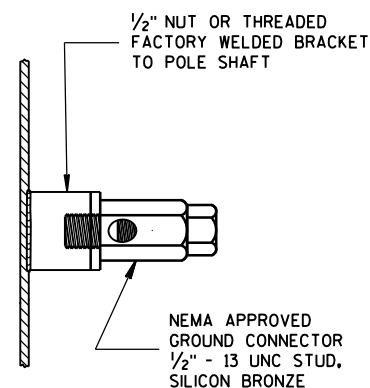
TYPICAL LUMINAIRE MAST ARM
(DOUBLE) MOUNTING BRACKETS



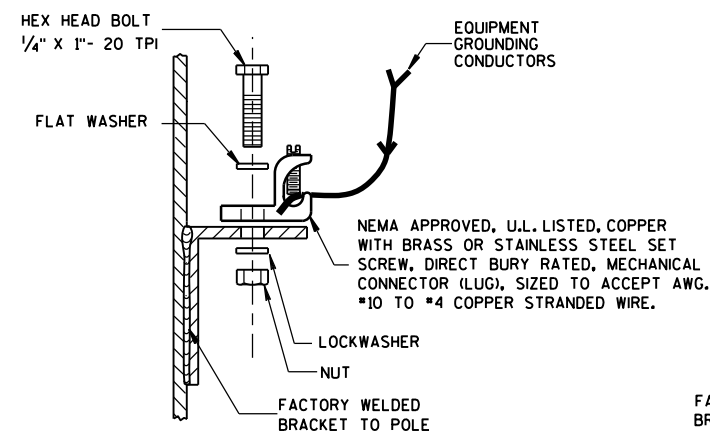
TYPICAL "J" HOOK LOCATION



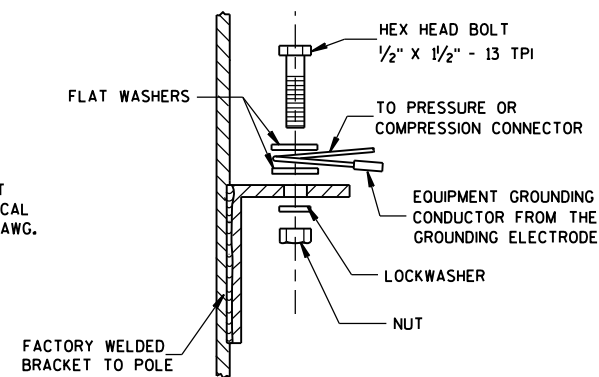
BASE PLATE



NEMA APPROVED
GROUND CONNECTOR
1/2" - 13 UNC STUD,
SILICON BRONZE



TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL
BE STAINLESS STEEL



GENERAL NOTES

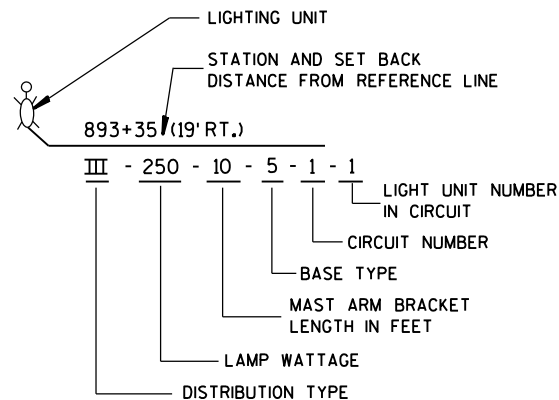
CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

- 10 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.
- 11 INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)
- 12 BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.
- 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 0.25", 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.
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

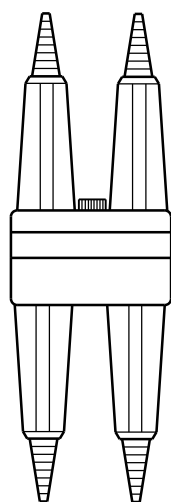
HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

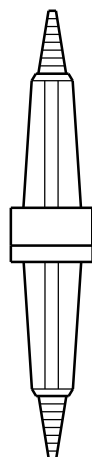
APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 163
FHWA



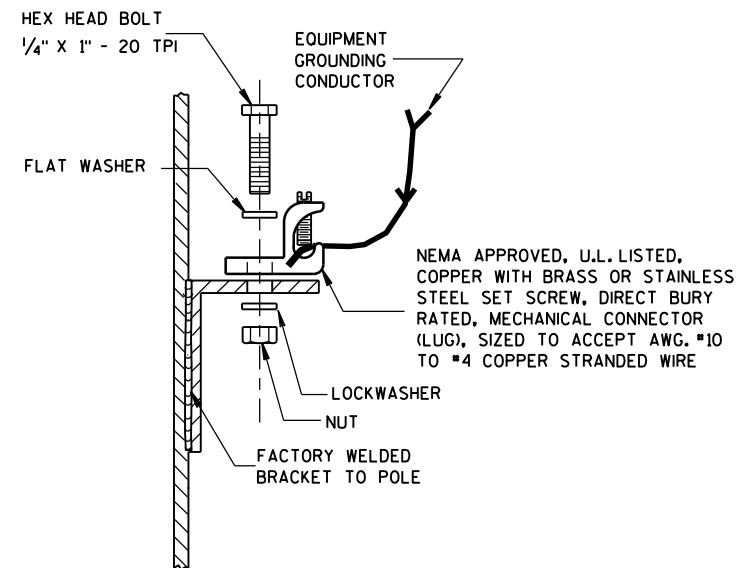
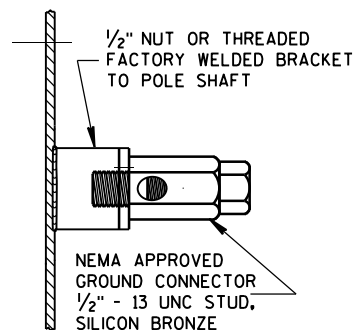
**LIGHTING UNIT CODE
(TYPICAL)**



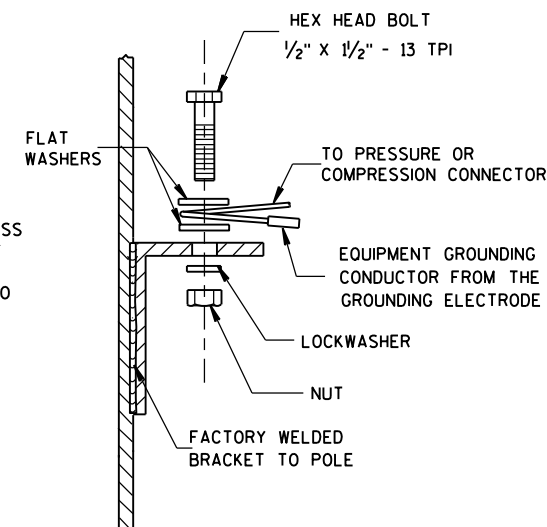
**DETAIL "A"
BREAKAWY
DOUBLE POLE WITH
WATERPROOF
INSULATING BOOT**



**DETAIL "B"
BREAKAWY
SINGLE POLE WITH
WATERPROOF
INSULATING BOOT**

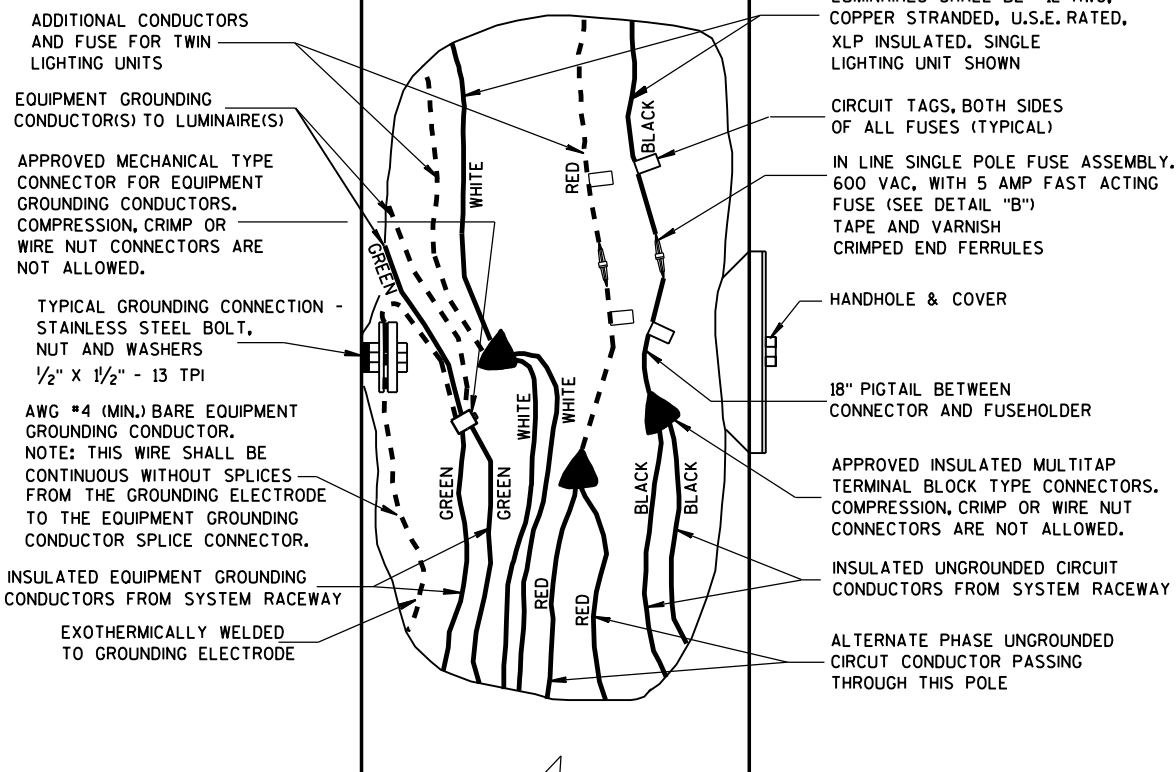


TYPICAL GROUNDING CONNECTIONS
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL

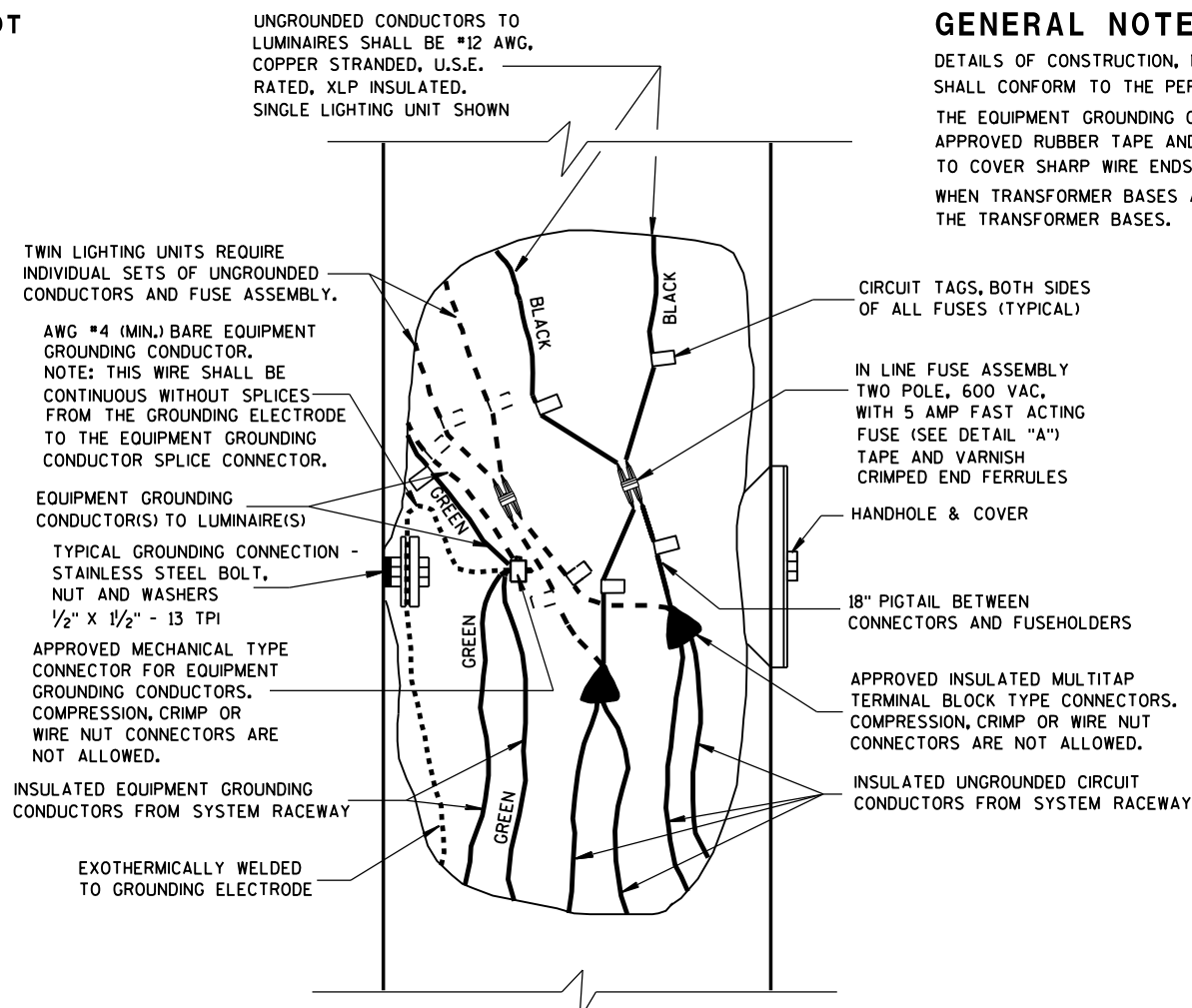


GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
THE EQUIPMENT GROUNDING CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND THEN 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.
WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.



**3 WIRE - 120, 240 OR 480 VAC (UNGROUND CONDUCTOR)
WITH GROUNDED CONDUCTOR AND
WITH EQUIPMENT GROUNDING CONDUCTOR**

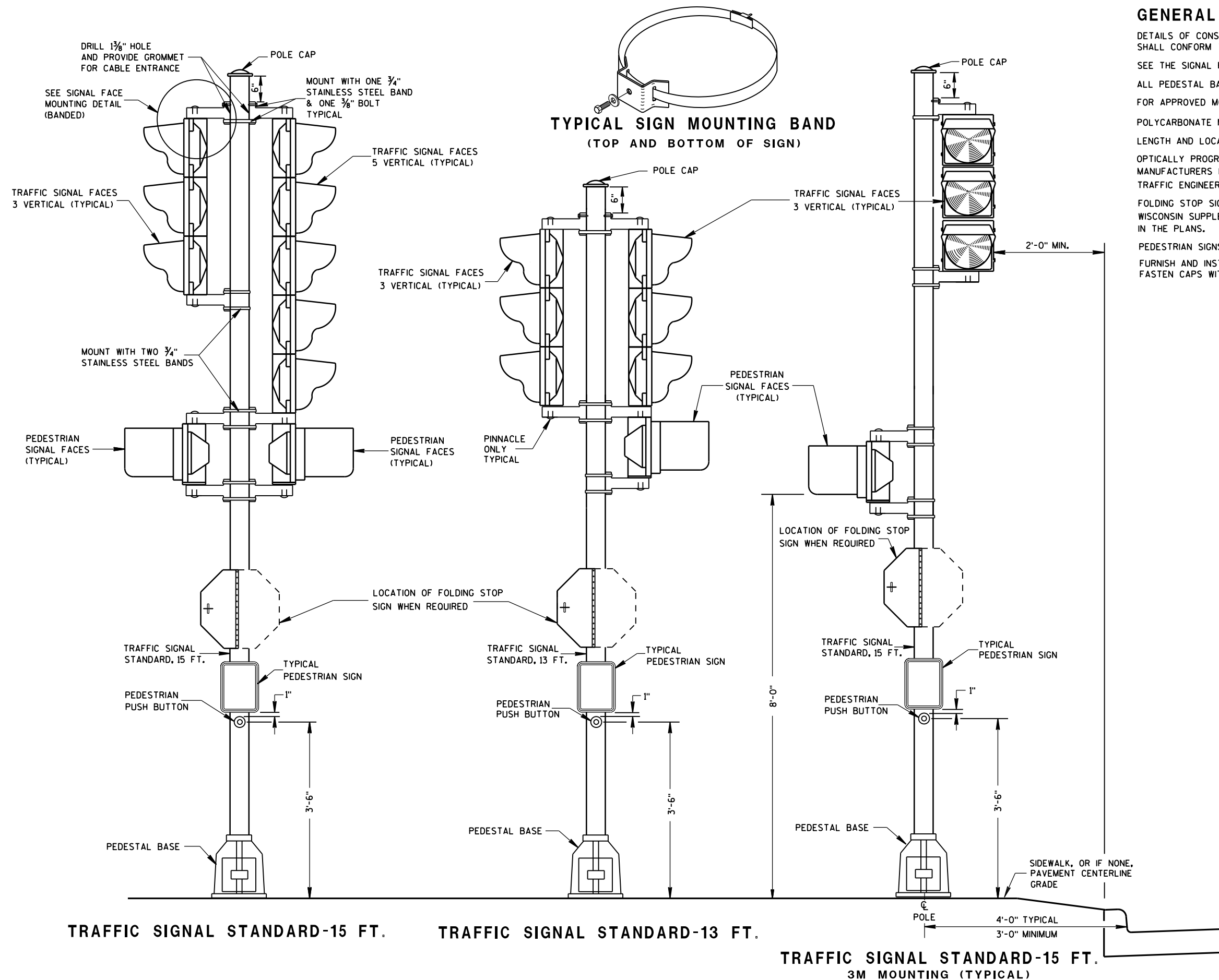


**2 WIRE - 240 OR 480 VAC (UNGROUND CONDUCTORS)
WITH EQUIPMENT GROUNDING CONDUCTOR**

**NON-FREEWAY LIGHTING UNIT
POLE WIRING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 164
FHWA



GENERAL NOTES

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

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

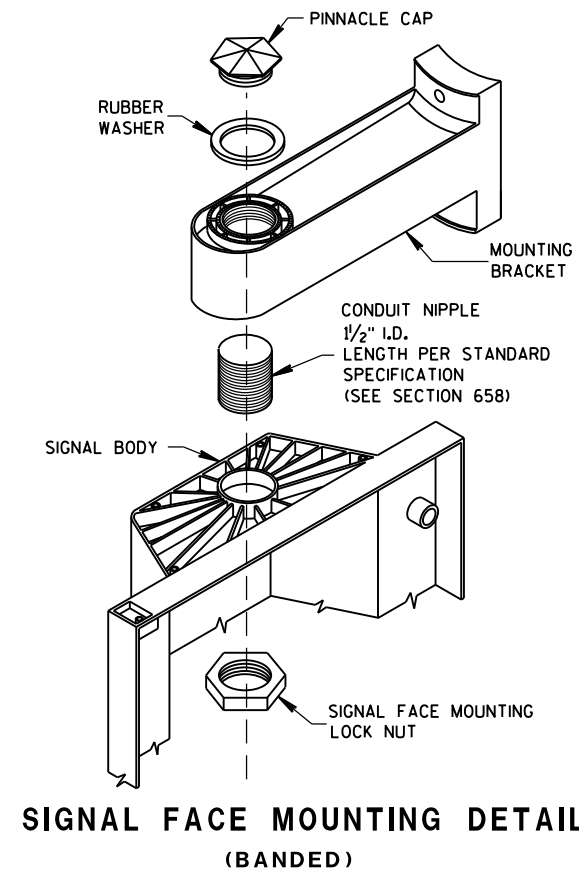
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE REGION TRAFFIC ENGINEER.

FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) $\frac{1}{4}$ " X $\frac{3}{4}$ " - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



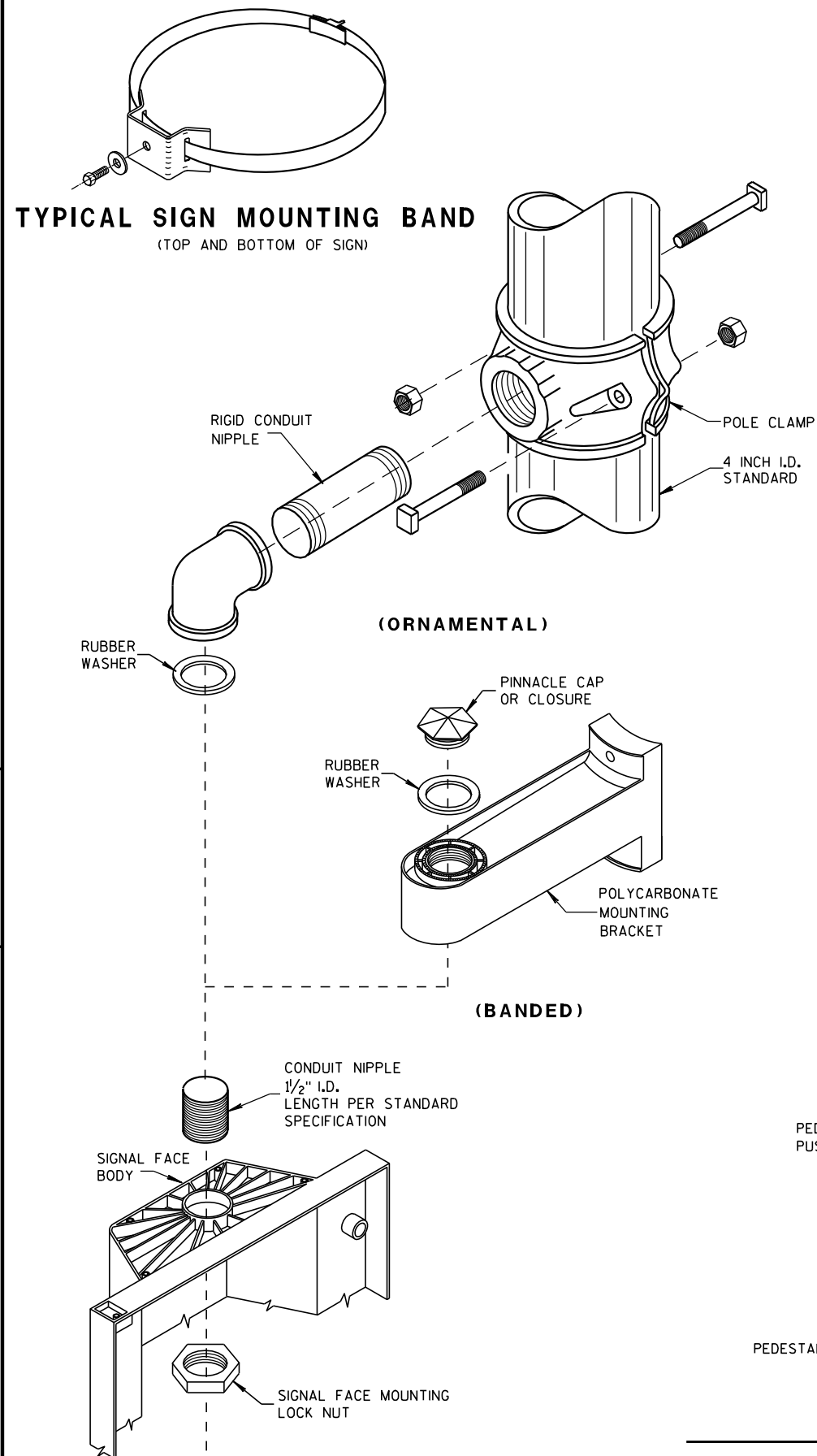
TRAFFIC SIGNAL STANDARD
POLY BRACKET MOUNTINGS
(TYPICAL) 13 FT. OR 15 FT.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

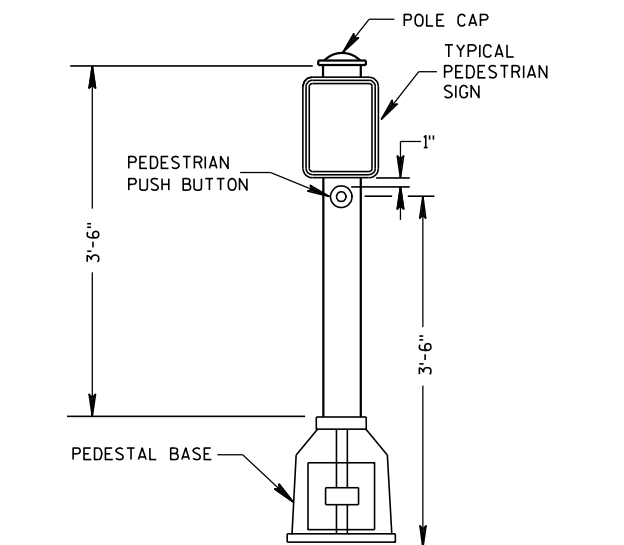
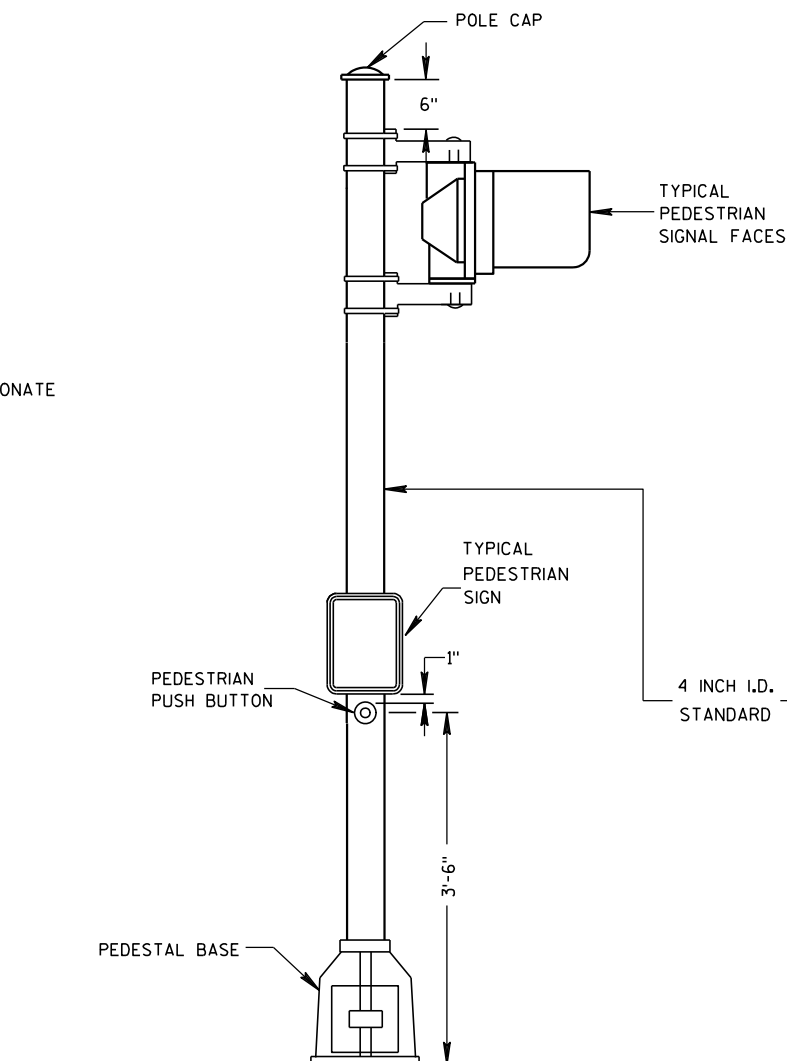
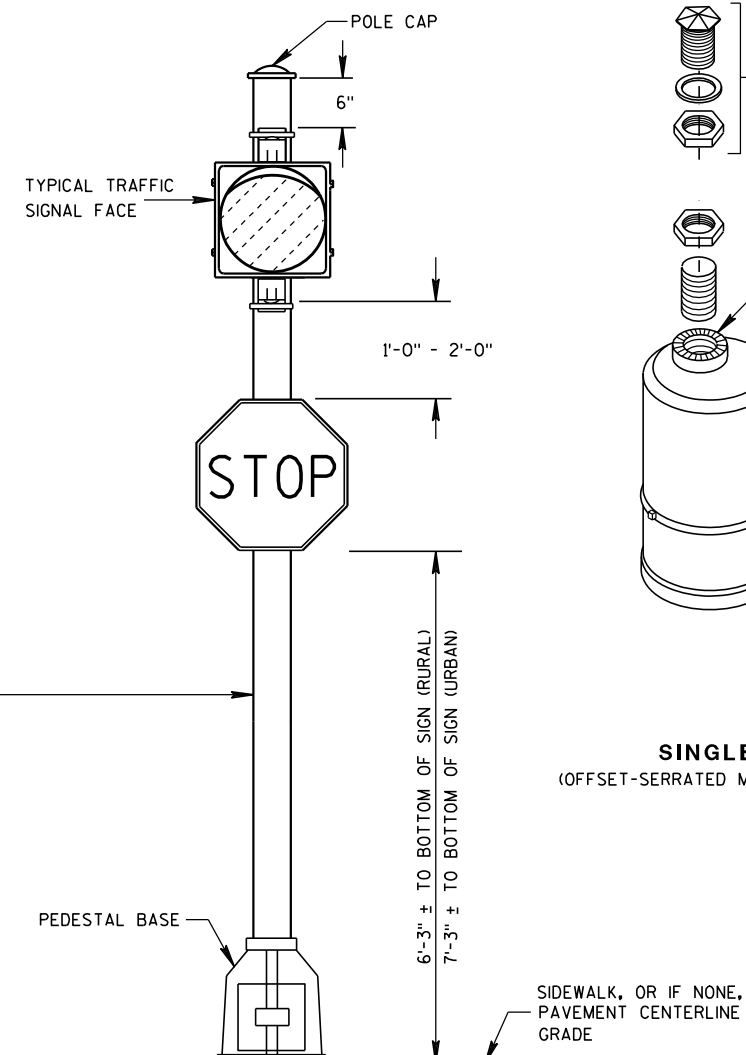
APPROVED
2/28/2013
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL 165

FHWA



SIGNAL FACE MOUNTING DETAILS

PEDESTRIAN PUSH BUTTON
TYPICAL MOUNTINGPEDESTRIAN FACE STANDARD-10 FT.
(WALK-DON'T WALK)STANDARD FLASHER.
10 FOOT, 13 FOOT OR 15 FOOT AS REQUIRED

GENERAL NOTES

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

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIFICATIONS.

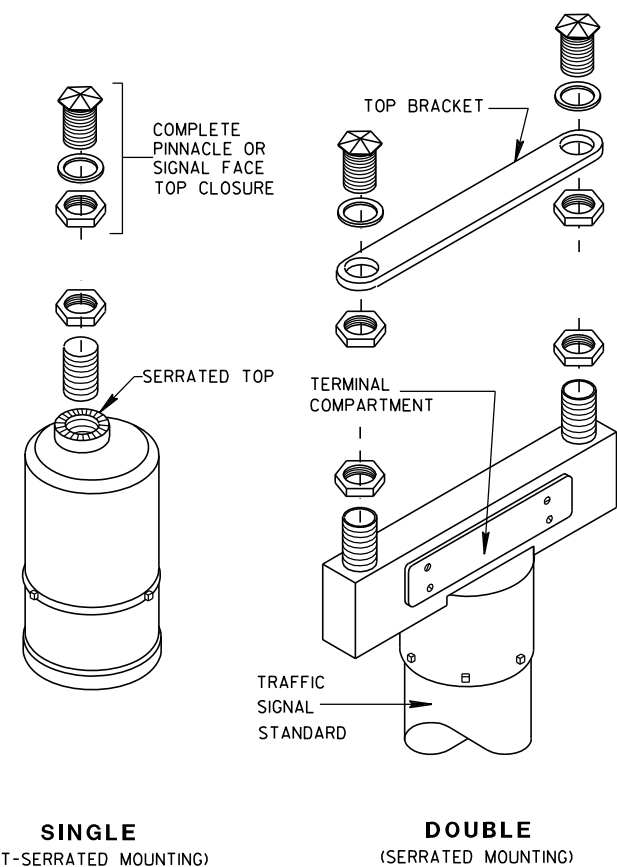
POLYCARBONATE SIGNAL FACE MOUNTING BRACKETS SHALL BE USED UNLESS ORNAMENTAL POLE CLAMPS ARE SPECIFIED.

LENGTH OF TRAFFIC STANDARDS SHALL BE AS SHOWN ON THE PLANS.

MOUNTINGS AND BRACKETS SHALL BE AS SHOWN ON THE PLANS OR DESCRIBED IN THE SPECIAL PROVISIONS (BY THE DISTRICT TRAFFIC ENGINEER).

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

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.



SLIPFITTERS

TRAFFIC SIGNAL STANDARD
PEDESTRIAN AND FLASHER
TYPICAL MOUNTING DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

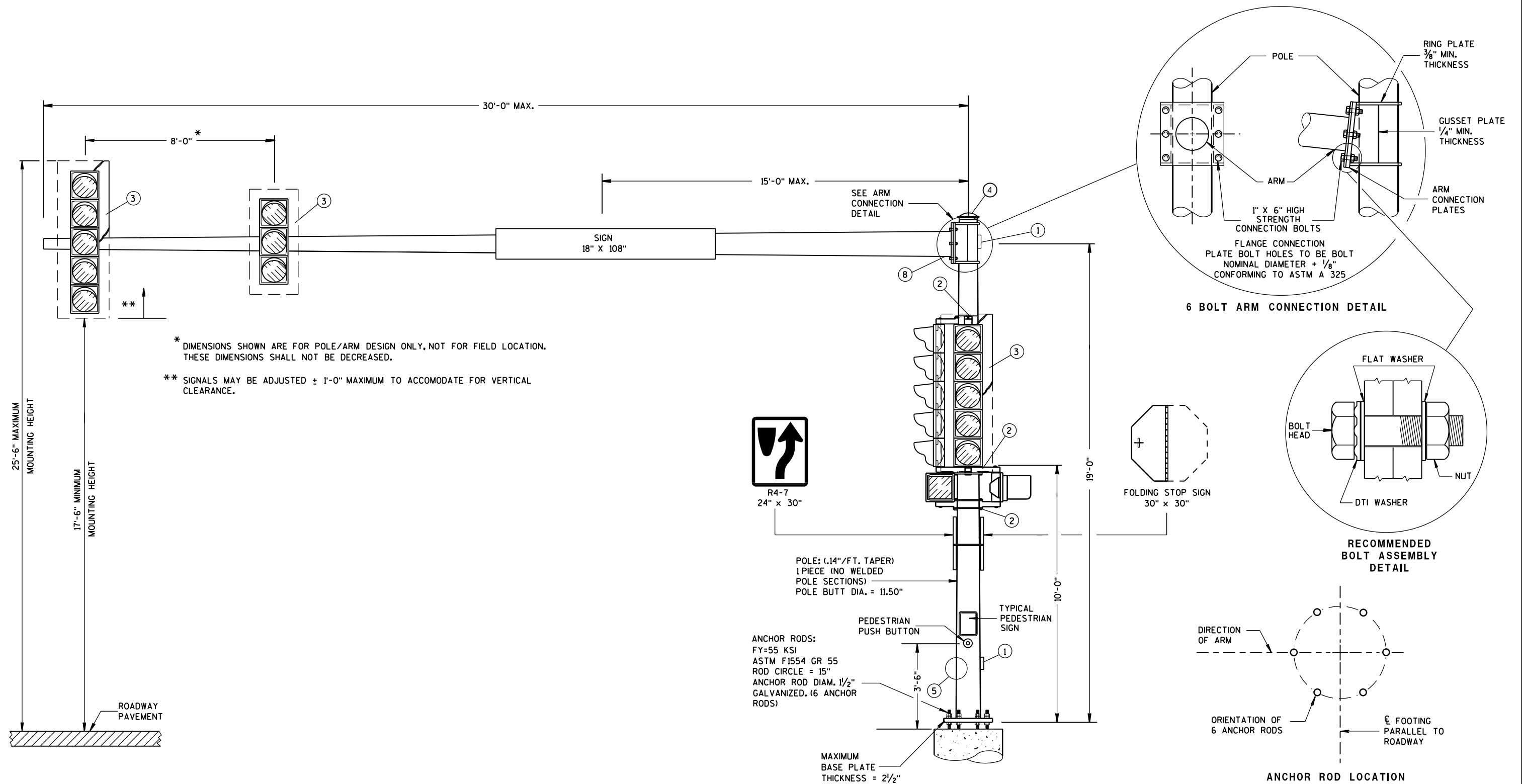
APPROVED

5/11/10
DATE

FHWA

/S/ John Corbett
STATE ELECTRICAL ENGR 166

HWYS



(MAXIMUM LOAD)

TYPE 9 POLE 15' - 30' MONOTUBE ARM

TYPE 9 POLE
15' - 30' MONOTUBE ARMSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014

DATE

FHWA

/S/ Ahmet Demirelek
STATE ELECTRICAL 167



TYPE 12 POLE	
35' - 55' MONOTUBE ARM	
STATE OF WISCONSIN	
DEPARTMENT OF TRANSPORTATION	
APPROVED Sept., 2014 DATE	/S/ Ahmet Demirelek STATE ELECTRICAL 169
FHWA	



GENERAL NOTES

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

POLE TYPES 9 AND 10 ARE FOR ARM LENGTHS 15-FOOT TO 30-FOOT.

POLE TYPES 12 AND 13 ARE FOR ARM LENGTHS 35-FOOT TO 55-FOOT.

MONOTUBE POLE AND ARM SHALL BE GALVANIZED STEEL.

RING-STIFFENED BUILT-UP BOX TYPE OF ATTACHMENT FOR TRAFFIC SIGNAL ARM.

ONE (1) PIECE POLE CONSTRUCTION (NO WELDED POLE SECTIONS).

STANDARD STRAIGHT ARM DESIGN (3 ½ ± RISE).

SECTION 657, POLES OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

PROVIDE WIREWAY THRU POLE WALL AND ARM CONNECTION PLATES. PROVIDE ROUND, SMOOTH INSIDE SURFACE.

MANUFACTURER'S SUBMITTED POLE DESIGNS AND DRAWINGS SHALL BE SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED AS BEING IN COMPLIANCE WITH THE AASHTO 2013 6TH EDITION AND ALL PERTINENT WISDOT SPECIFICATIONS AND DRAWINGS FOR TRAFFIC AND LIGHTING STRUCTURES AND AS FOLLOWS:

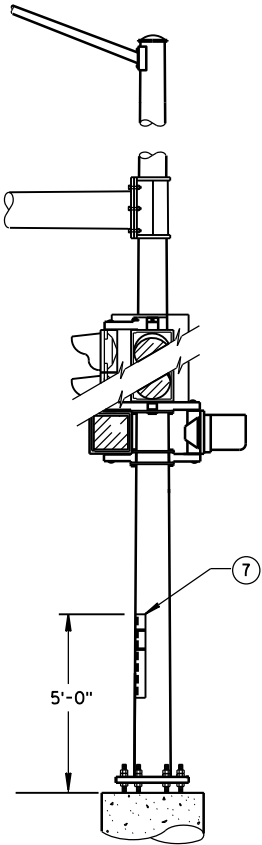
- CATEGORY III FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 AND TYPE 10 STRUCTURES.
- CATEGORY II FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 12 AND TYPE 13 STRUCTURES.
- 90 MPH (3-SECOND GUST) WIND SPEED AND A 50 YEAR DESIGN LIFE.

SECURE THE OPENING BELOW THE BASE PLATE WITH STAINLESS STEEL OR GALVANIZED STEEL MESH AND SECURE THE MESH WITH ¾" S.S. BANDING AROUND THE LEVELING NUTS.

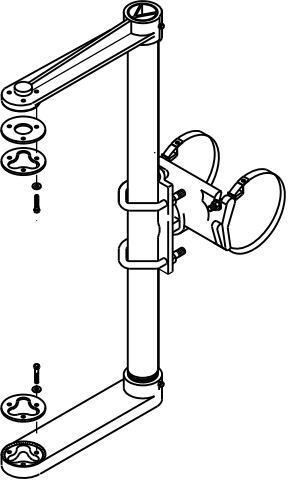
INDENT PRINT (NOMINAL ½" HIGH) THE POLE LENGTH AND FIRST TWO LETTERS OF THE MANUFACTURERS NAME ON TWO SIDES OF THE BASE PLATE 180 DEGREES APART, BEFORE GALVANIZING. THE ARM SHALL BE IDENTIFIED WITH THE SAME INFORMATION BY INDENT PRINT.

SIGNAL FACE SHALL BE MOUNTED 6 INCHES (NOMINAL) FROM THE END OF THE MONOTUBE ARM OR AS SHOWN ON THE PLAN CONSTRUCTION DETAIL OR AS DIRECTED BY THE PROJECT ENGINEER/ELECTRICAL OPERATIONS PERSONNEL. MOUNT ALL LIKE HEADS AT SAME ELEVATION.

SIGN MOUNTING BRACKETS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 637 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

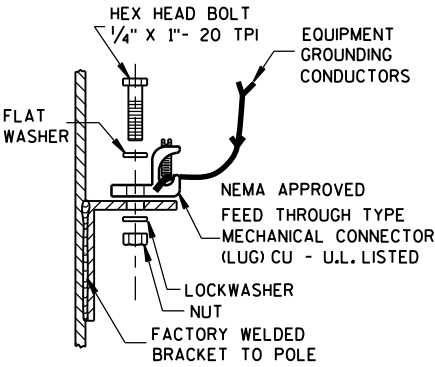


STRUCTURAL IDENTIFICATION
PLAQUE PLACEMENT



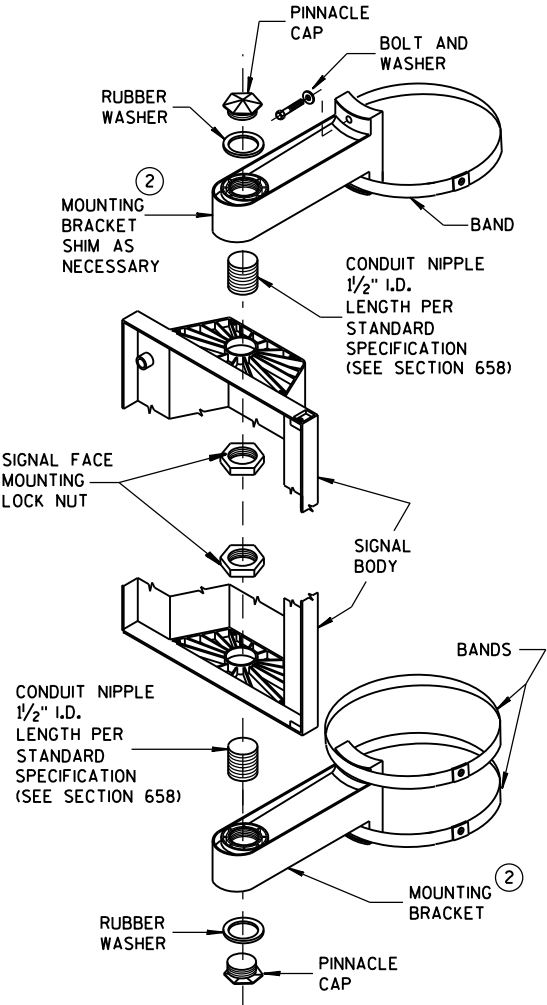
SIGNAL FACE MOUNTING BRACKET
DETAIL FOR MONOTUBE ARM

(MOUNT PER MANUFACTURER'S RECOMMENDATION)

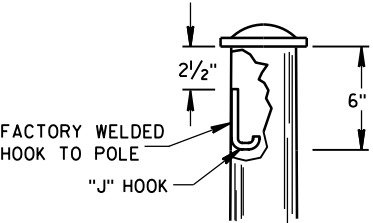


TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL
BE STAINLESS STEEL



SIGNAL FACE
VERTICAL MOUNTING DETAIL



"J" HOOK WIRE SUPPORT

- DESIGN FOR MAXIMUM ALLOWABLE HANDHOLE WITH COVER ASSEMBLY WITH TWO ¼" x ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLTS.
- SIGNAL MOUNTING BRACKETS FOR POLE MOUNTING, MOUNT WITH CAP SCREW AND BANDING, (SEE SPECIFICATIONS SEC. 658).
- SECURELY MOUNT BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURERS RECOMMENDATIONS.
- THE TOP OF THE POLE SHAFT AND THE END OF THE MONOTUBE ARM SHALL BE EQUIPPED WITH A REMOVABLE, VENTILATED CAP HELD SECURELY IN PLACE WITH SET SCREWS.
- FACTORY-WELDED BRACKET FOR GROUNDING LUG, OPPOSITE HANDHOLE, (LUG AND HARDWARE PAID UNDER SEPARATE ITEM). PROVIDE HOLE IN BRACKET FOR ¼" x ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLT.
- FACTORY-WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.
- INSTALL DEPARTMENT PROVIDED STRUCTURAL IDENTIFICATION PLAQUES.

STRUCTURAL IDENTIFICATION PLAQUES SHALL BE PLACED ON THE POLES IN THE SAME DIRECTION AS THE ARM.

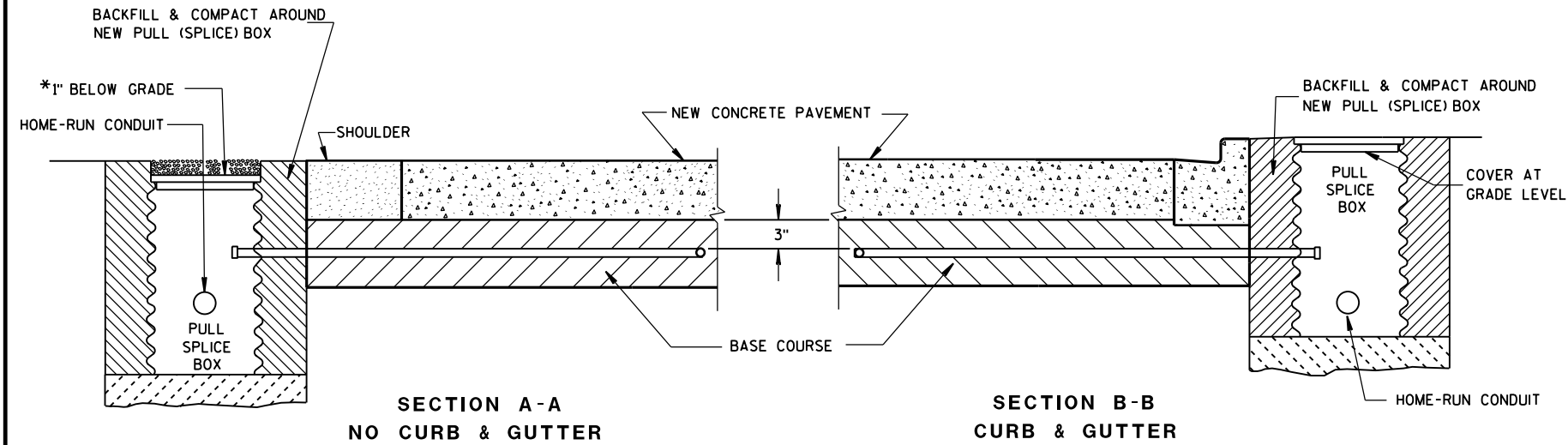
MOUNTING HEIGHT SHALL BE 5'-0" ABOVE THE CURB OR SHOULDER . ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

- FACTORY DRILLED ½" DRAIN HOLE 2" FROM FLANGE CONNECTION PLATE.

GENERAL NOTES AND HARDWARE
DETAILS FOR TYPE 9, 10, 12 & 13
POLES WITH MONOTUBE ARMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 171
FHWA



*RECESS PULL (SPlice) BOX SO THAT THE COVER IS 3\"/>

LOOP DETECTOR INSTALLATION DETAIL

GENERAL NOTES

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

LOOP SIZE, CONFIGURATION LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL (SPlice) BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

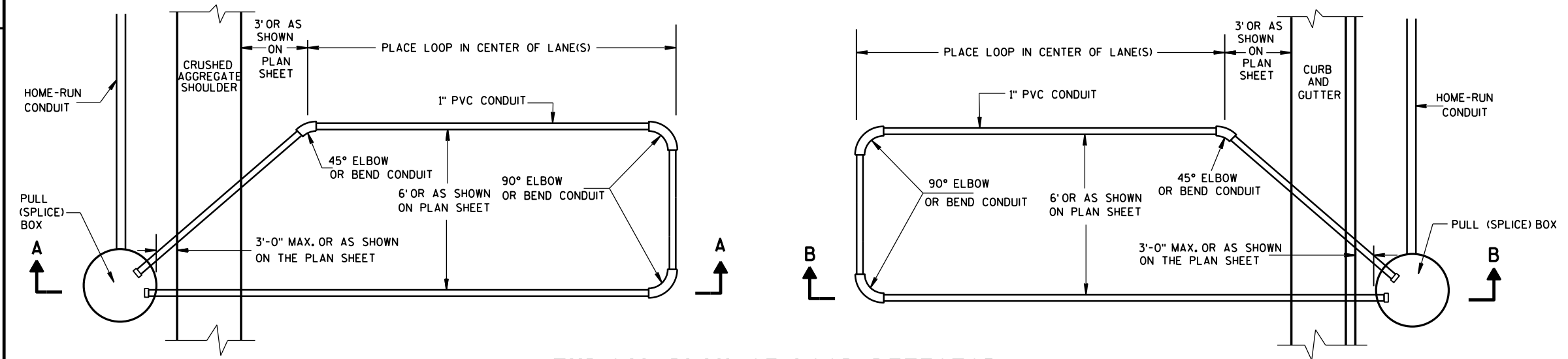
THE #12 AWG LOOP WIRE IN THE PULL (SPlice) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL (SPlice) BOXES AT THE SIDE OF THE ROAD.

THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPlice) BOX THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPlice) BOX, AND BE INSTALLED IN ONE, NON-SPLICE CONTINUOUS LENGTH.

PROTECTION OF THE CONDUIT IN THE BASE COURSE, SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW PAVEMENT IS INSTALLED.

SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE DONE UNDER THE DIRECTION OF THE PROJECT ENGINEER.



TYPICAL PLAN OF LOOP DETECTOR WITH 18\"/>

LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPlice) BOX OFF ROADWAY (OPTION 1)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE <u>Sept. 2014</u>	/S/ Ahmet Demirbilek STATE ELECTRICAL 172
FHWA	

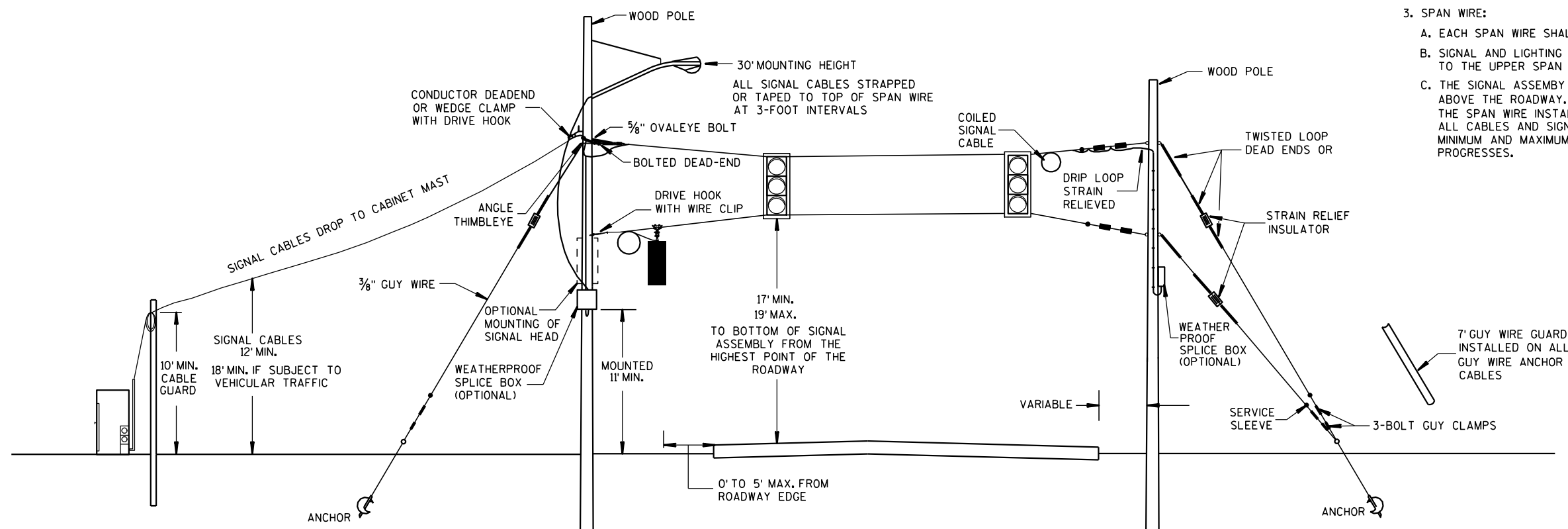
GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.

2. SIGNAL FACES:
 A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
 B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
 C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
 D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY, IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.

3. SPAN WIRE:
 A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
 B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
 C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.



SPAN WIRE TEMPORARY SIGNALS

MINIMUM POLE LENGTHS	POLE BURIEL DEPTHS
25'	5'
30'	6'
35'	7'
40'	8'
45'	9'

SPAN WIRE TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7-14-08
DATE

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STATE ELECTRICAL ENGI 173 HWYS

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SPAN WIRE TEMPORARY SIGNALS 4 LANE ROADWAYS

3. SPAN WIRE:

- A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
- B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
- C. THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

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DATE STATE ELECTRICAL ENGR 174 HWYS
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DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP
NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE
PERTINENT REQUIREMENTS OF THE CONTRACT.

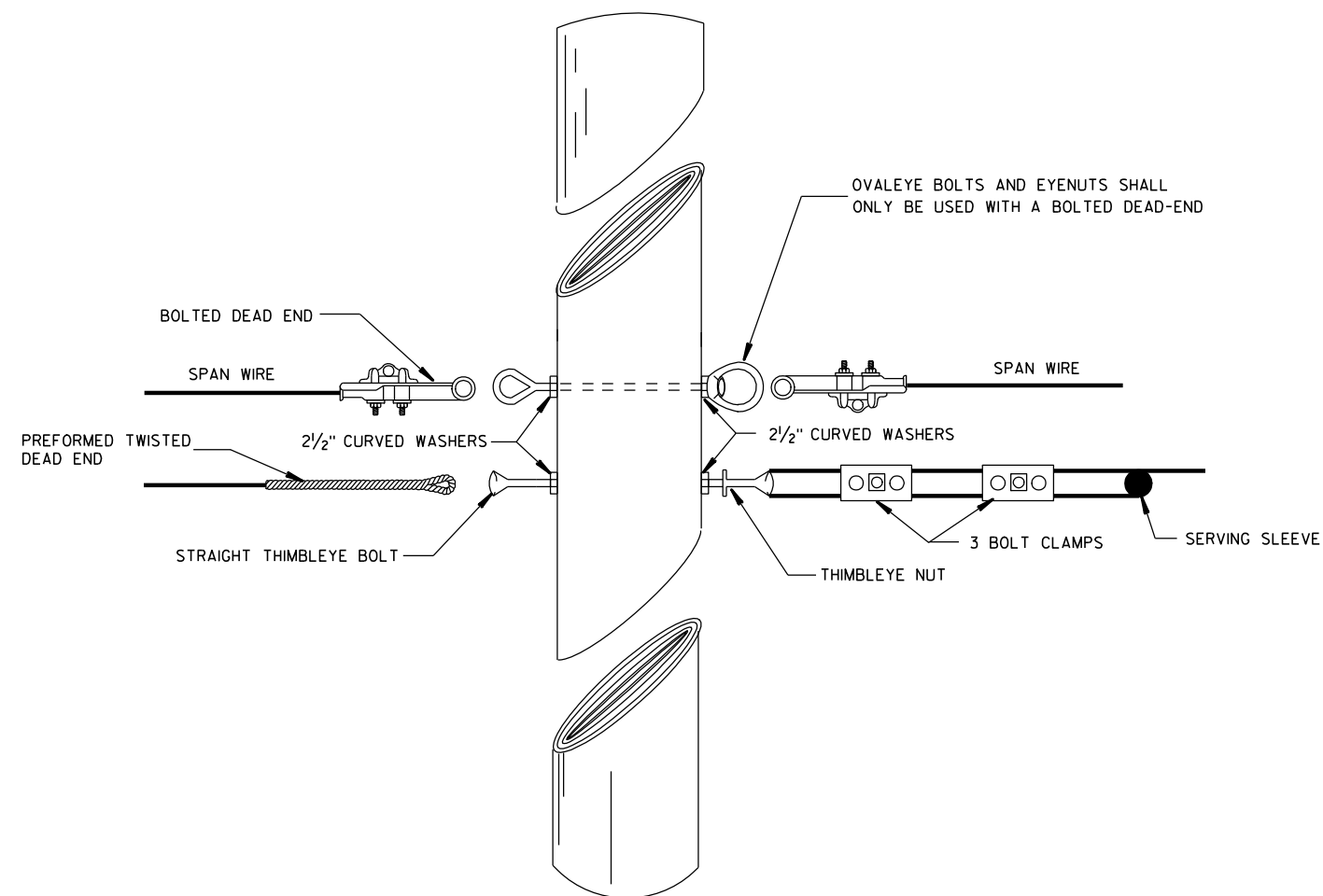
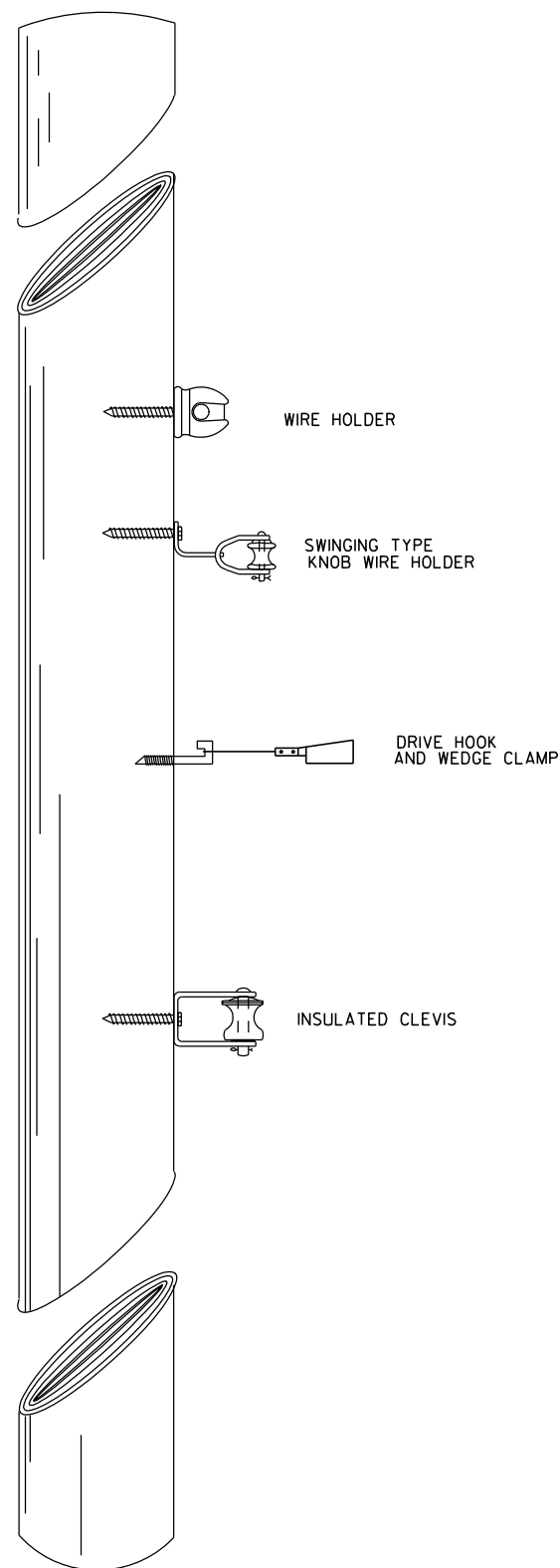
3. SPAN WIRE:
- A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
 - B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
 - C. THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

MINIMUM POLE LENGTHS	CLASS	MIN. BURIAL DEPTHS
25'	<u>V</u>	5'
30'	<u>V</u>	6'
35'	<u>IV</u>	7'
40'	<u>IV</u>	8'
45'	<u>IV</u>	9'

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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TYPICAL CABLE HANGERS

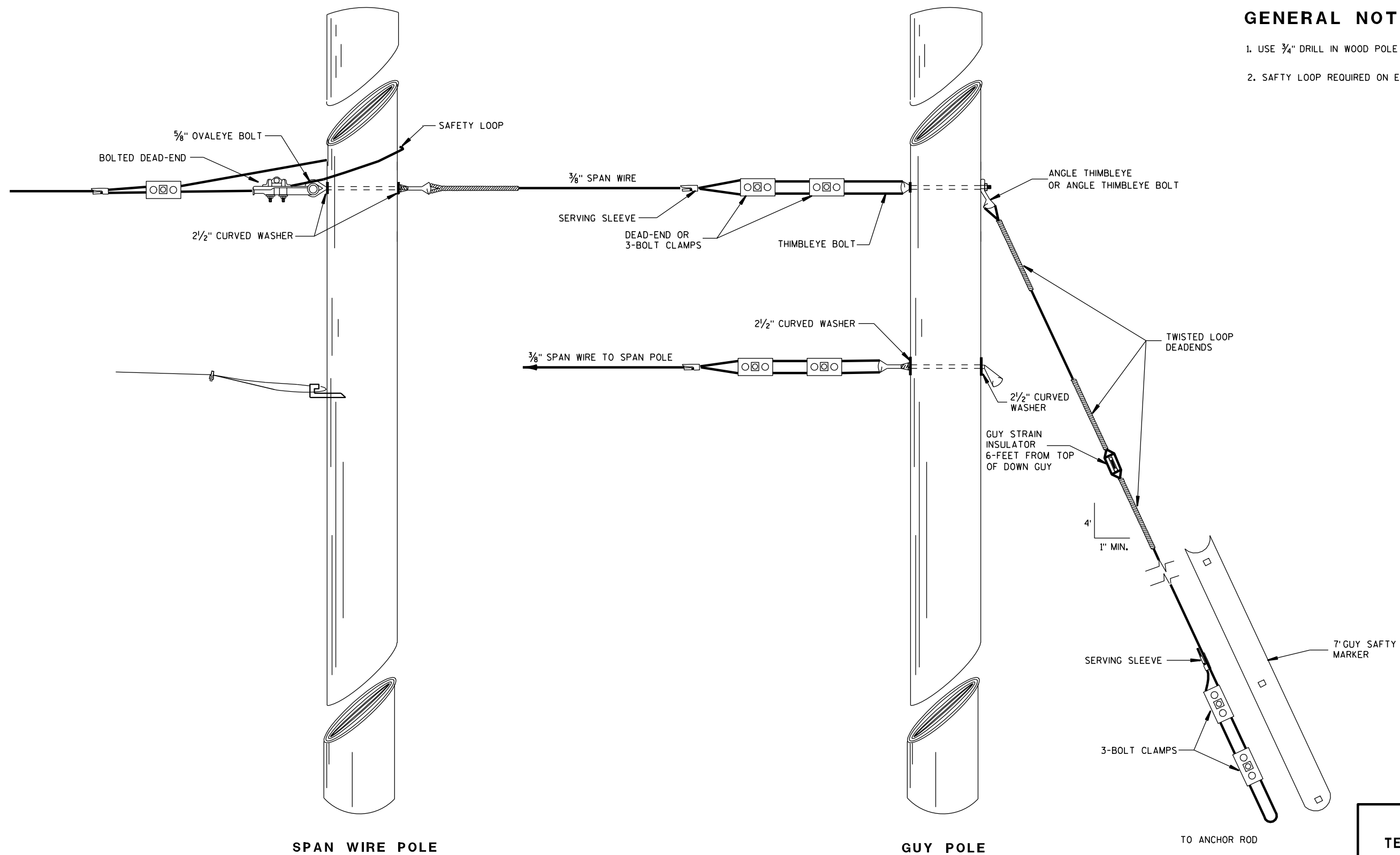


TYPICAL DEAD-ENDING

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
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STATE ELECTRICAL ENGI 176 HWYS
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GENERAL NOTES

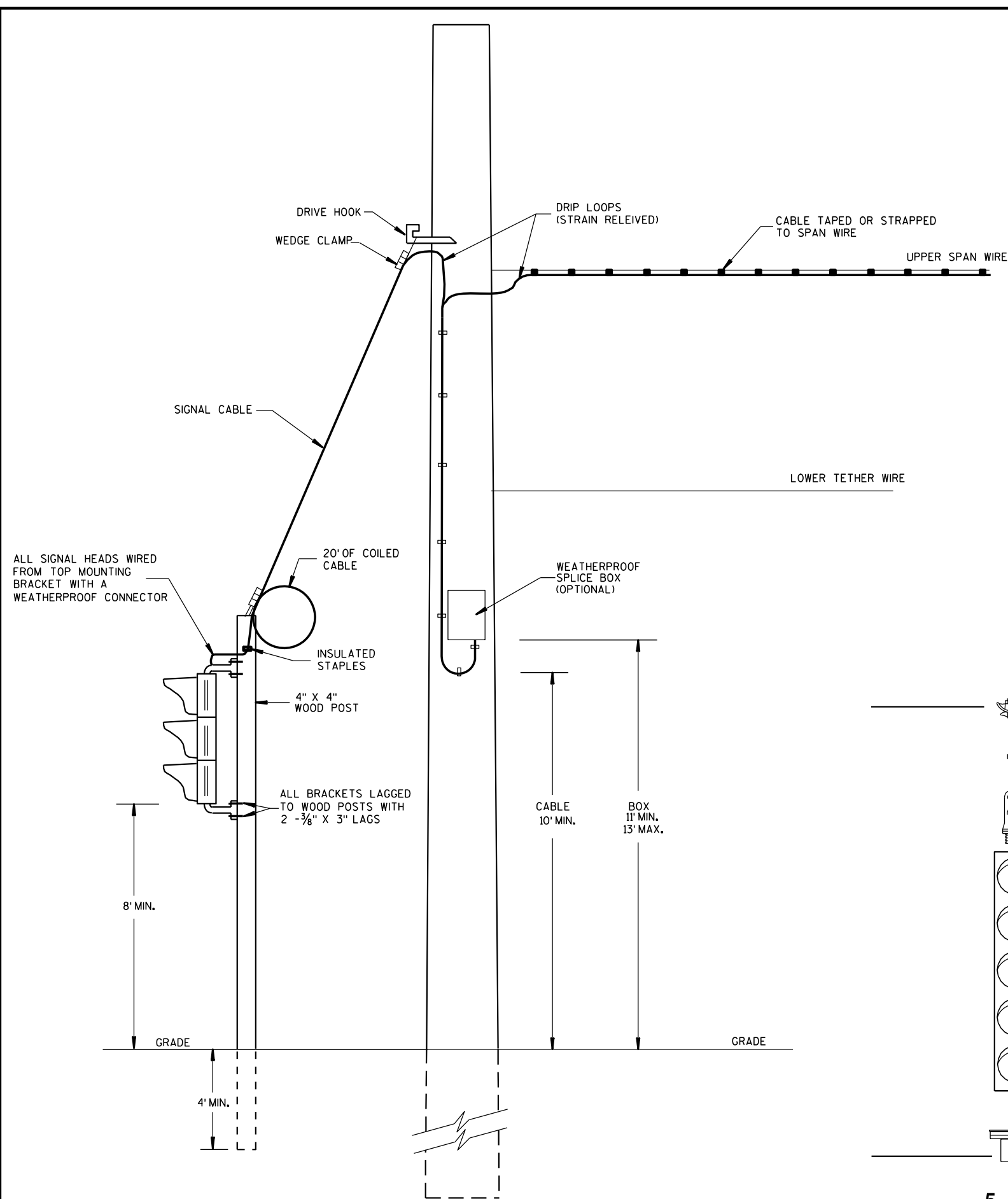
1. USE $\frac{3}{4}$ " DRILL IN WOOD POLE TO PROVIDE HOLE FOR $\frac{5}{8}$ " BOLTS.
2. SAFETY LOOP REQUIRED ON EACH END OF ALL SPAN WIRES.

TYPICAL DEAD-ENDINGS OR GUYING

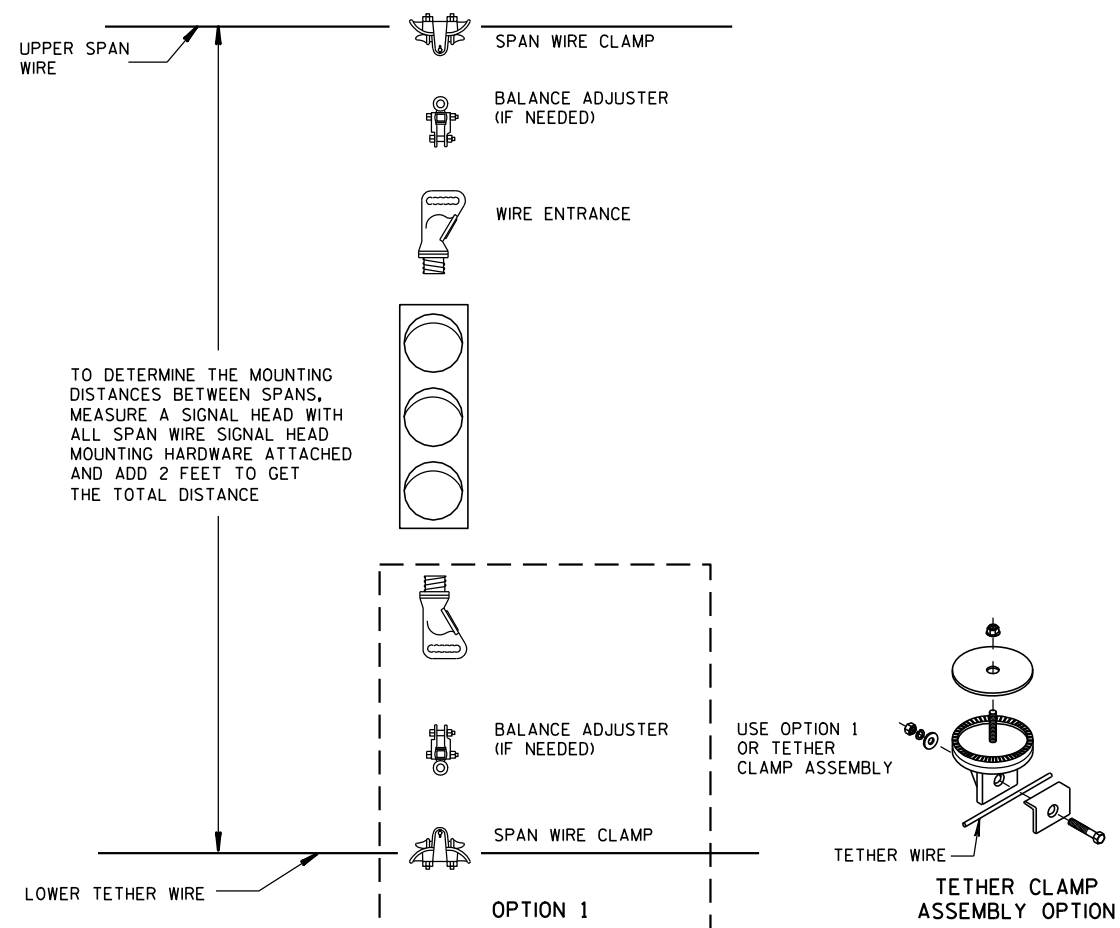
SPAN WIRE TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

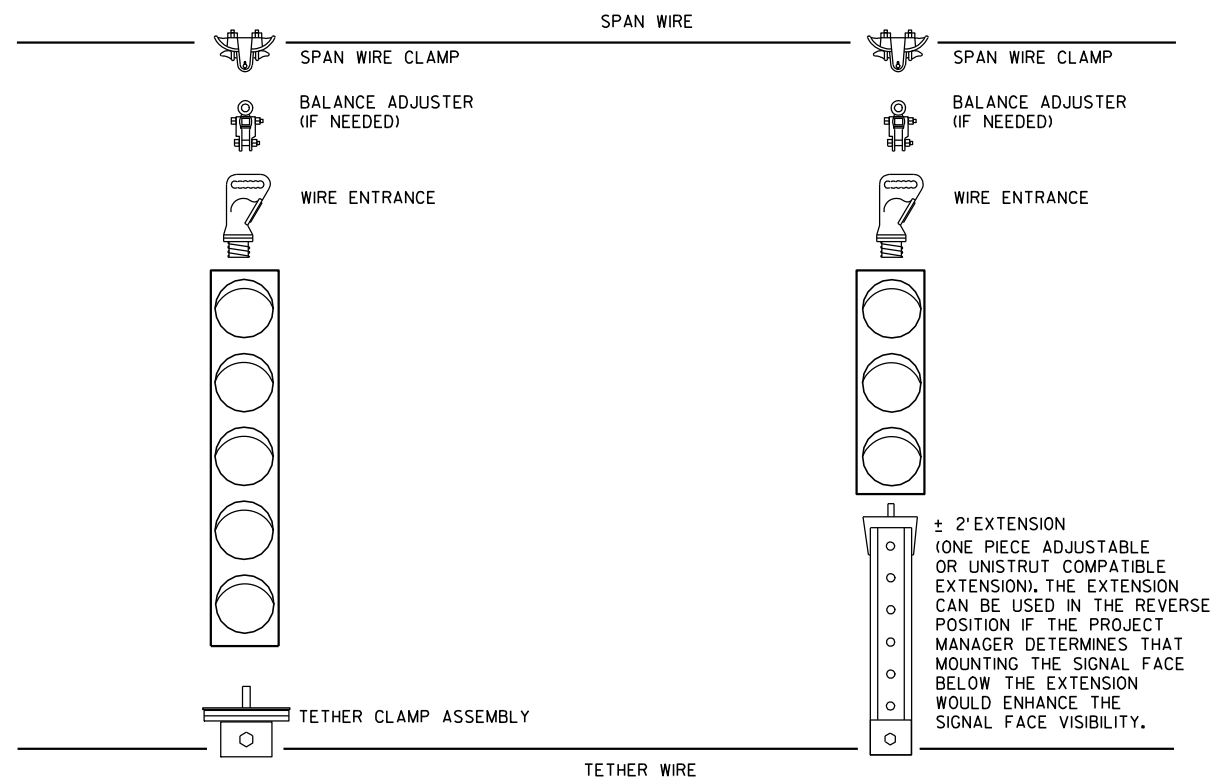
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TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL



TYPICAL SPAN WIRE MOUNTING HARDWARE

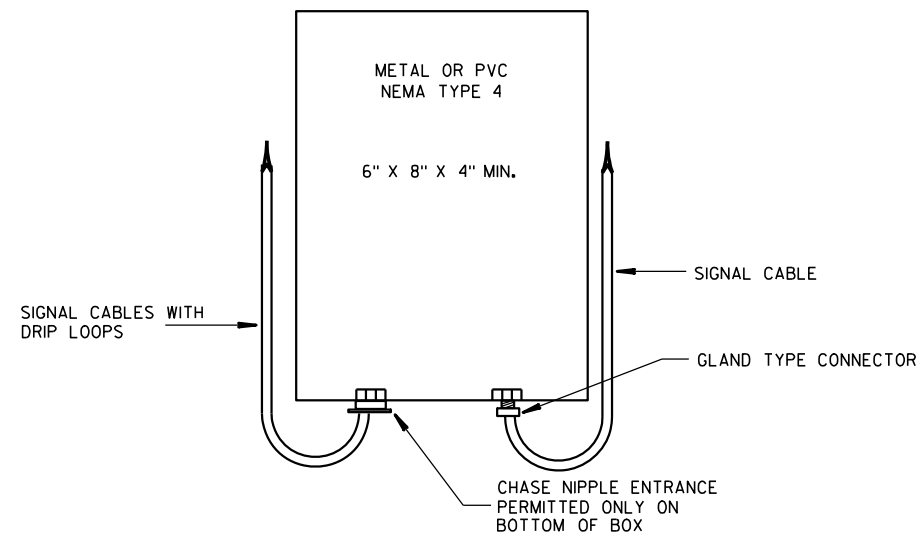
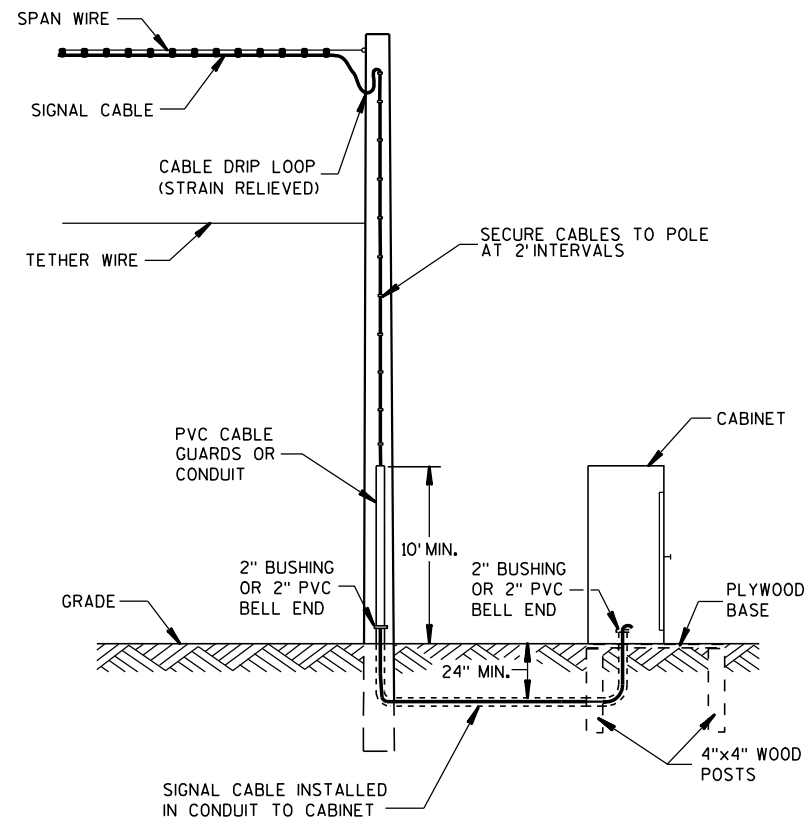
5 SECTION VERTICAL WITH 3 SECTION
VERTICAL ON ONE SPAN WIRESPAN WIRE
TEMPORARY TRAFFIC SIGNALSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

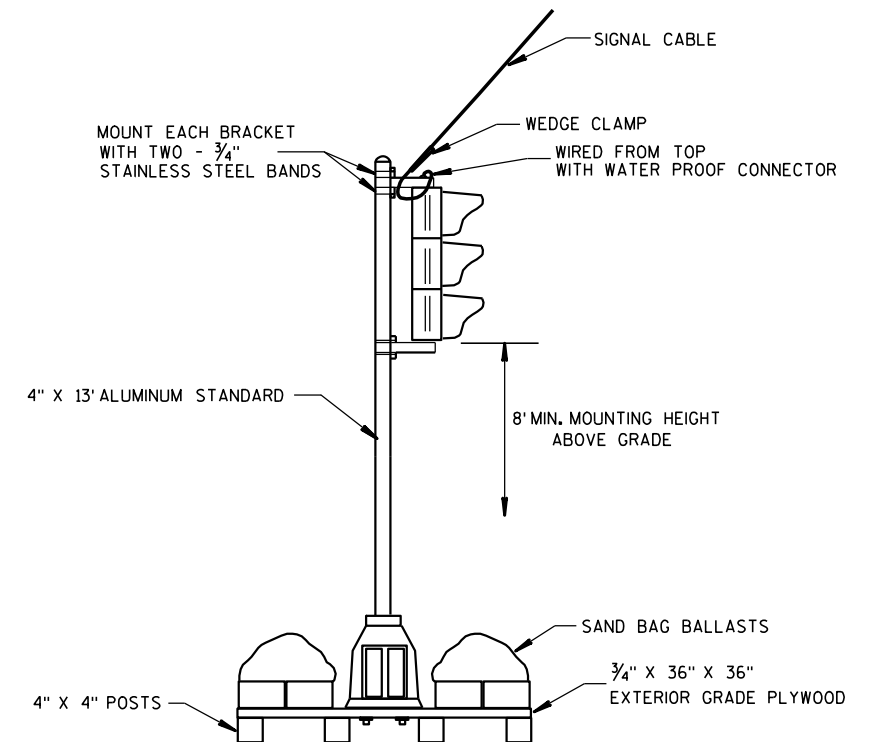
7-14-08
DATE/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGI 178

HWYS

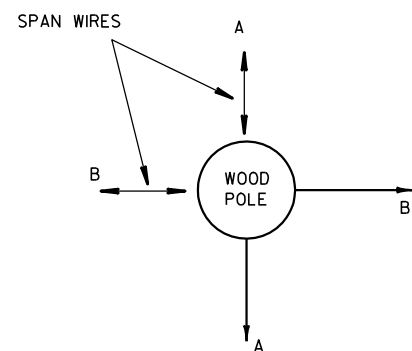
FHWA



SPLICE BOX

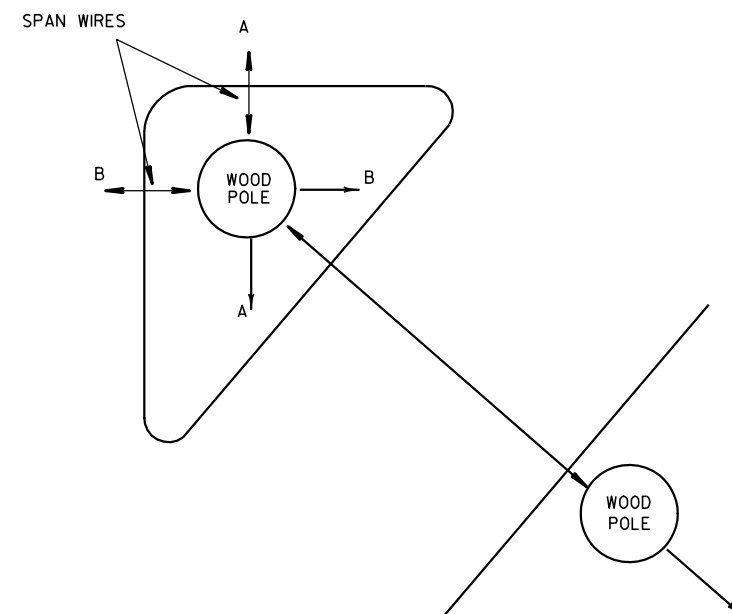


TYPICAL SKID TYPE TEMPORARY

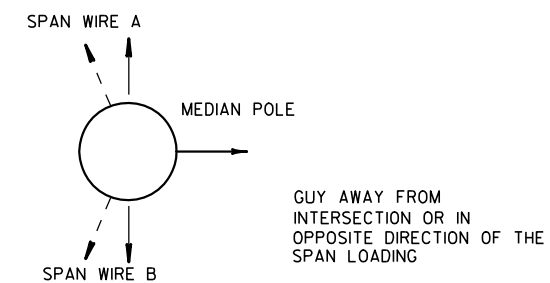


ALL DOWN OR SIDEWALK GUYS SHALL BE INSTALLED IN THE OPPOSITE DIRECTION OF THE STRAIN OF THE SPAN WIRE

CORNER POLES



ISLAND POLES



MEDIAN POLES

**SPAN WIRE
TEMPORARY TRAFFIC SIGNAL**

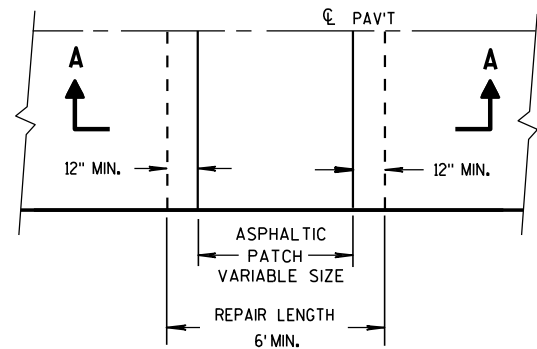
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

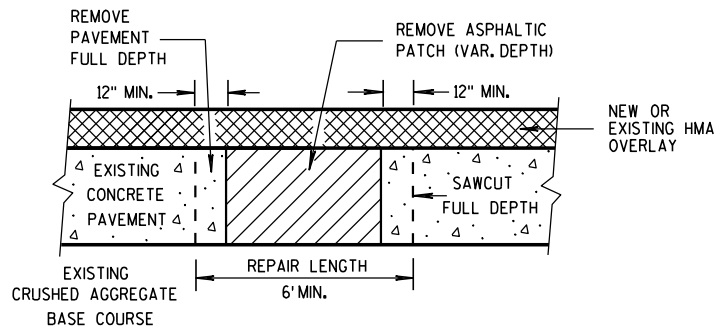
7-14-08
DATE

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/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGI 179 HWYS

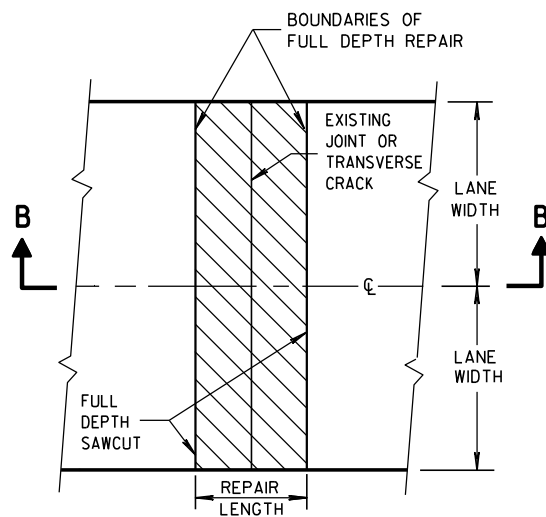


PLAN VIEW

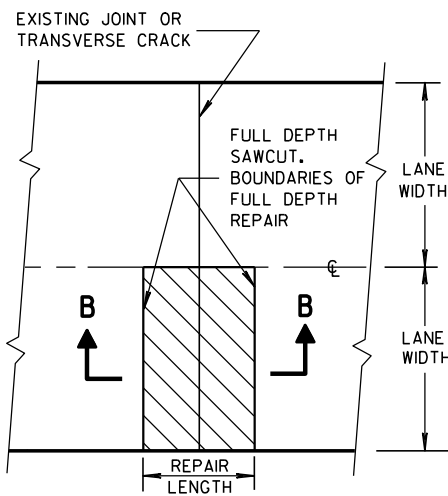


SECTION A-A

HMA PATCH REMOVAL



PLAN VIEW
(DOUBLE LANE REPAIR)



PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL

(SEE NOTE)

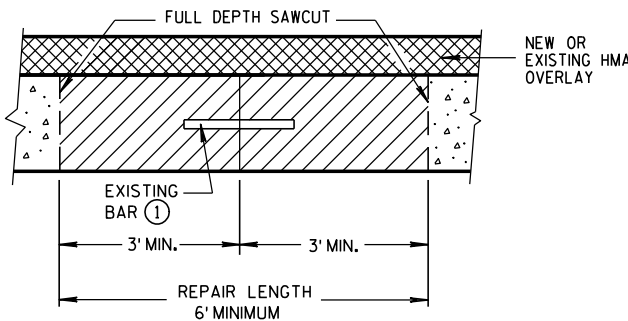
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES. ADDITIONAL SAW CUTS ARE NOT PAID FOR BY THE DEPARTMENT.

PROVIDE 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

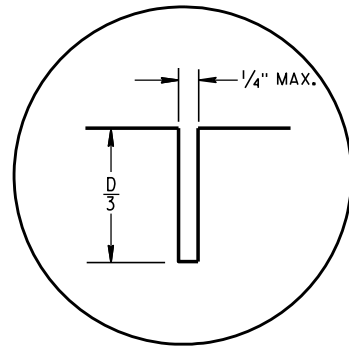
① DOWEL BARS MIGHT NOT EXIST.



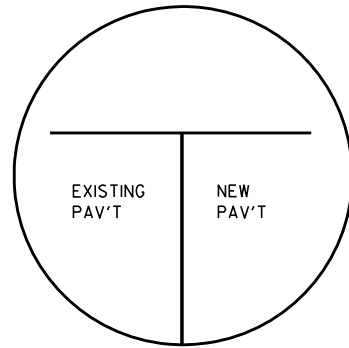
SECTION B-B
CONCRETE REMOVAL

BASE PATCHING CONCRETE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

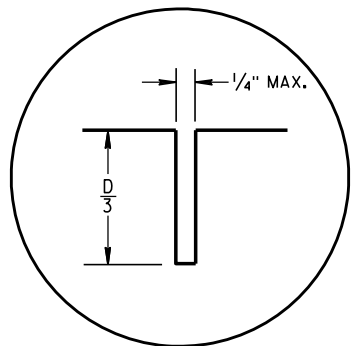


C1

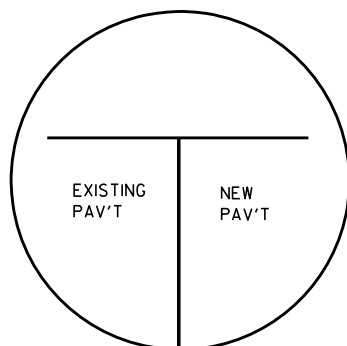


C2

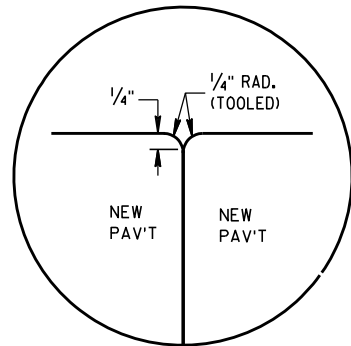
TRANSVERSE JOINTS



L1

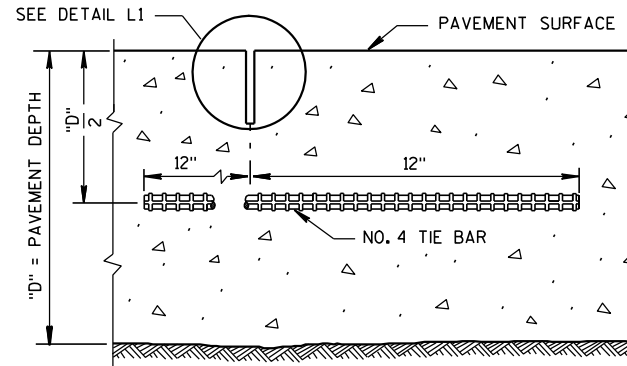


L2

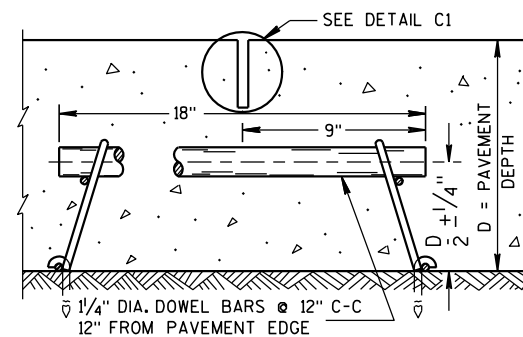


L3

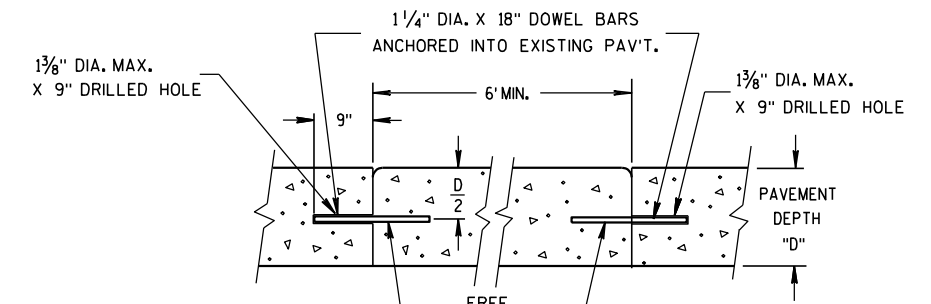
LONGITUDINAL JOINTS



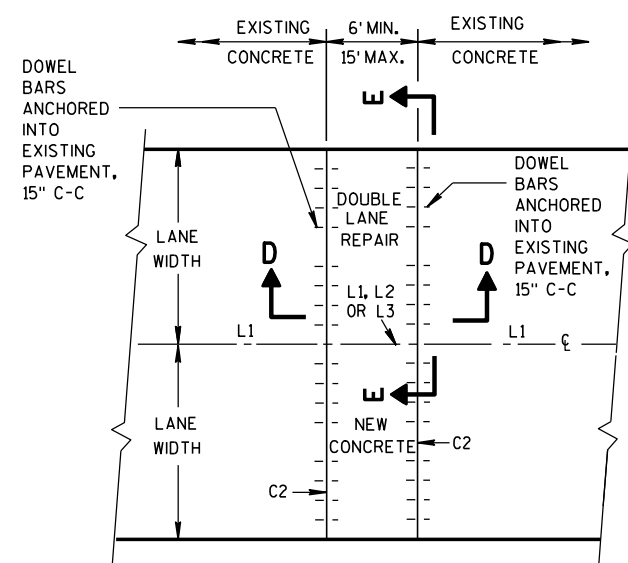
SECTION C-C
SAWED LONGITUDINAL JOINT



SECTION F-F
CONTRACTION JOINT

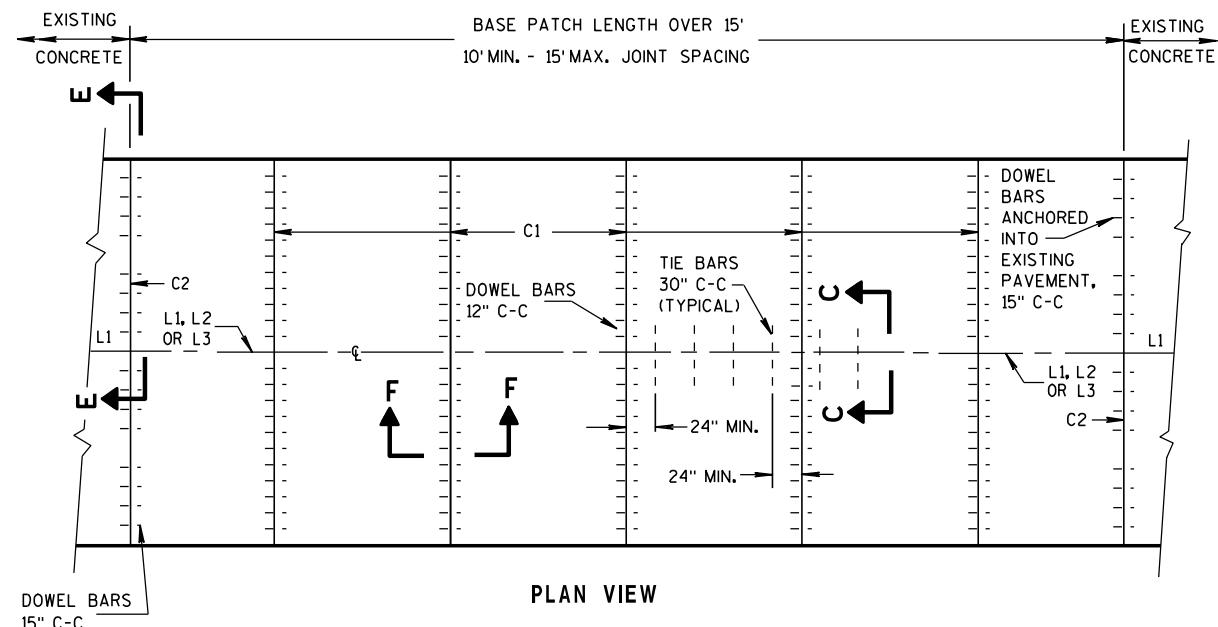


SECTION D-D



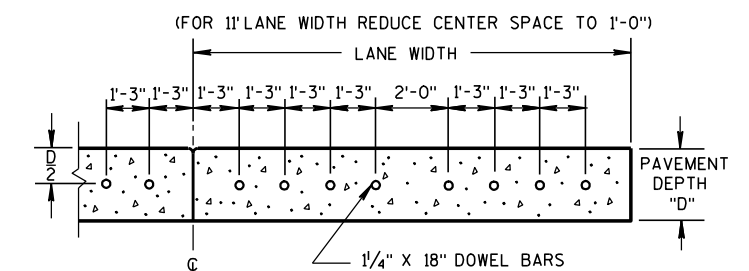
PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH
15' MAXIMUM LENGTH



PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH
GREATER THAN 15' IN LENGTH



SECTION E-E

SPACING OF DOWEL BARS
ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE BASE PATCHES OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

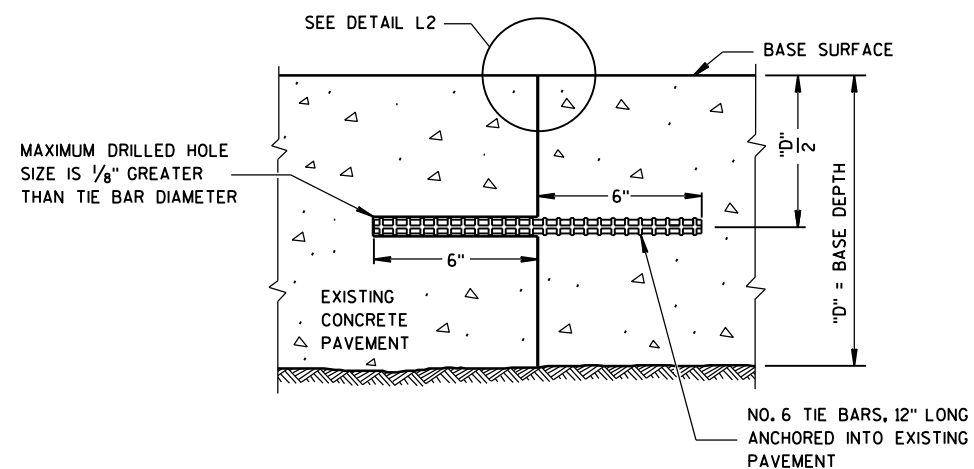
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 24 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

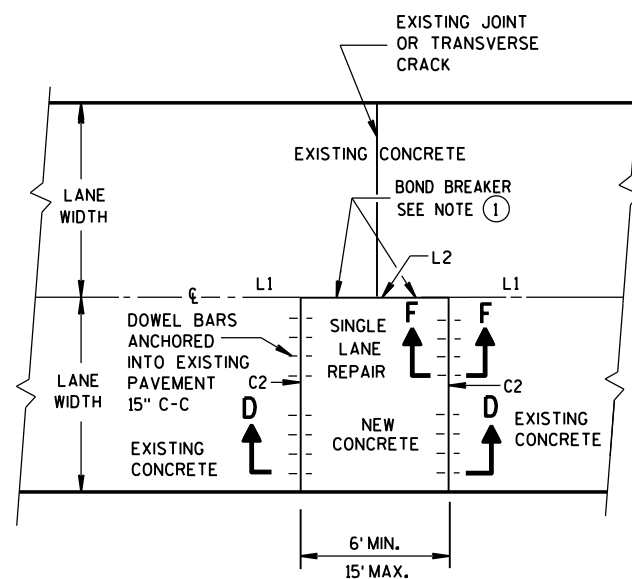
- APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

GENERAL NOTES

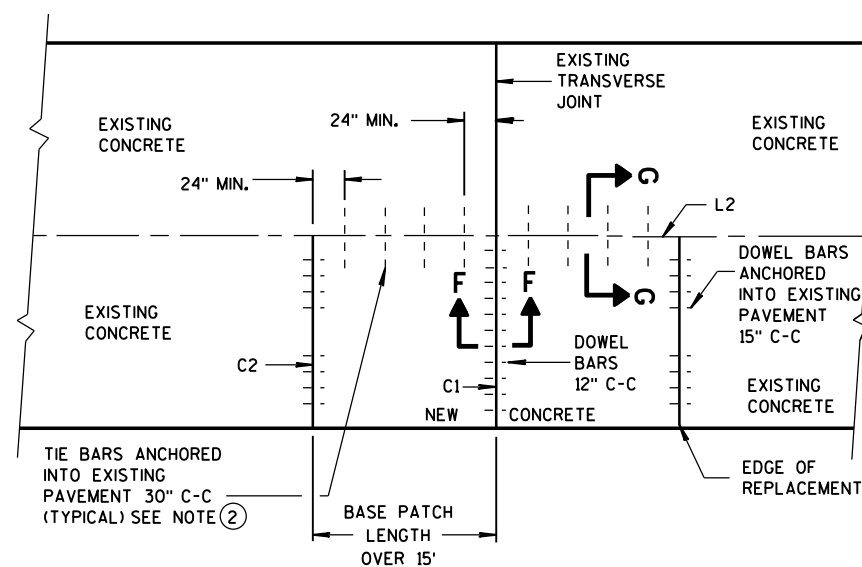
- ① USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE BASE PATCHES UP TO 15 FEET IN LENGTH.
- ② WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, DRILLED TIE BARS MAY BE INSTALLED ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES AND TO SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.



SECTION G-G
TIE BARS ANCHORED
INTO EXISTING PAVEMENT



PLAN VIEW
SINGLE LANE CONCRETE BASE PATCH
15' MAXIMUM LENGTH



PLAN VIEW
SINGLE LANE CONCRETE BASE PATCH
GREATER THAN 15' IN LENGTH

BASE PATCHING CONCRETE

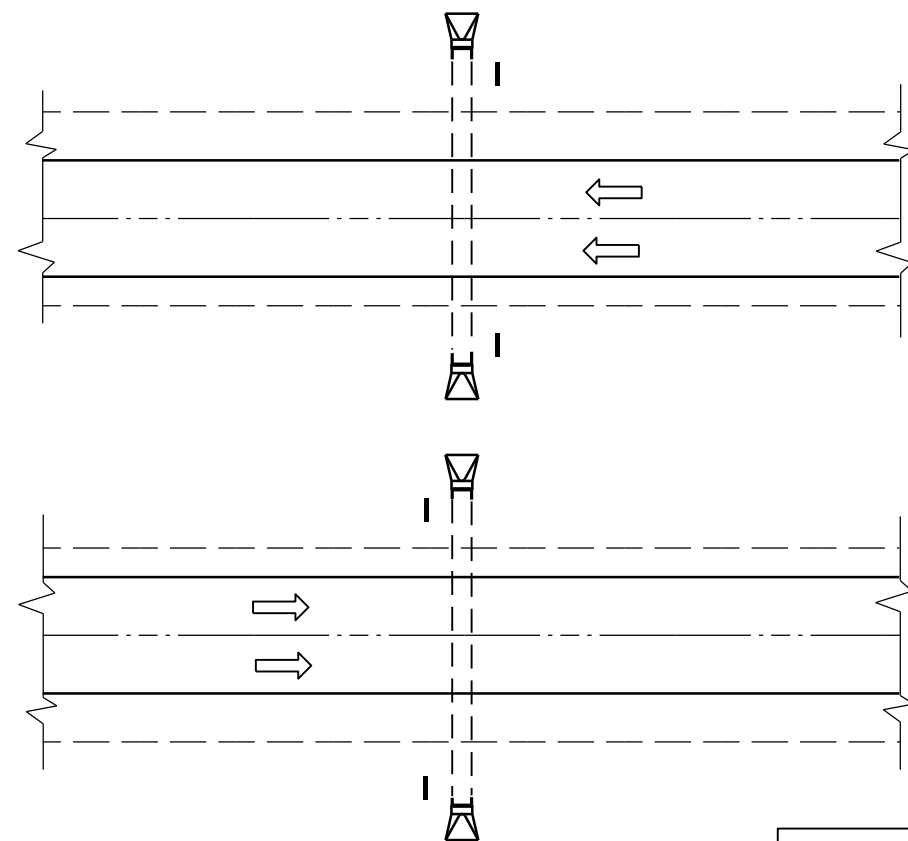
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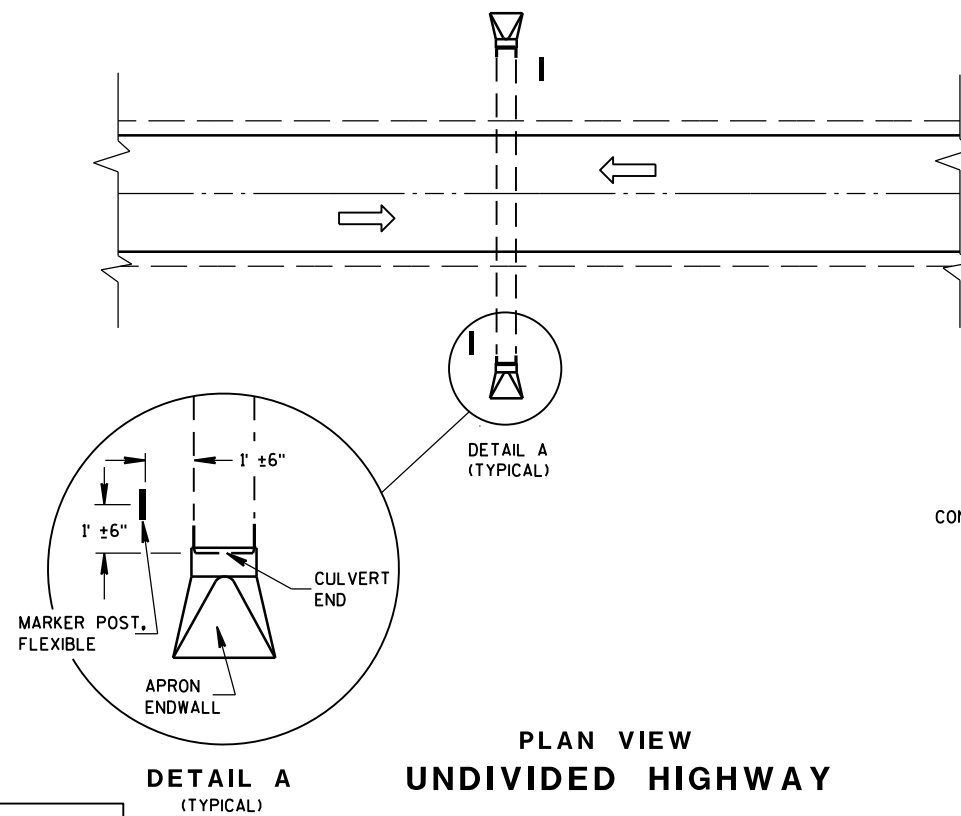
12-11-2009
DATE/S/ Deb Bischoff
PAVEMENT POLICY & DE

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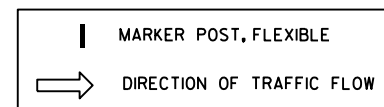
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PLAN VIEW
DIVIDED HIGHWAY



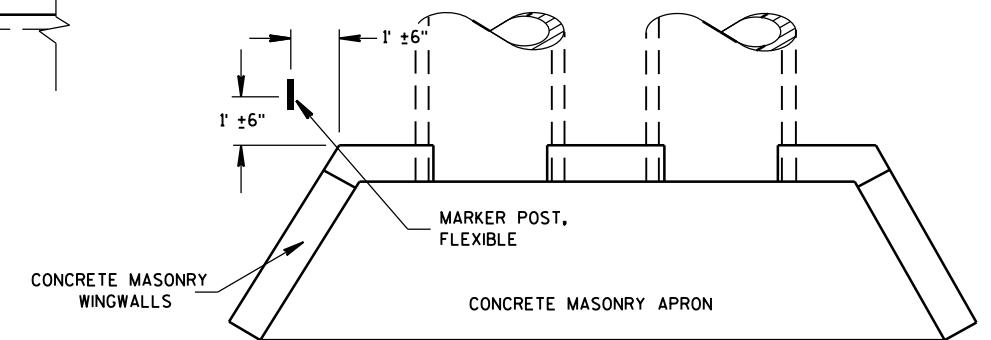
PLAN VIEW
UNDIVIDED HIGHWAY



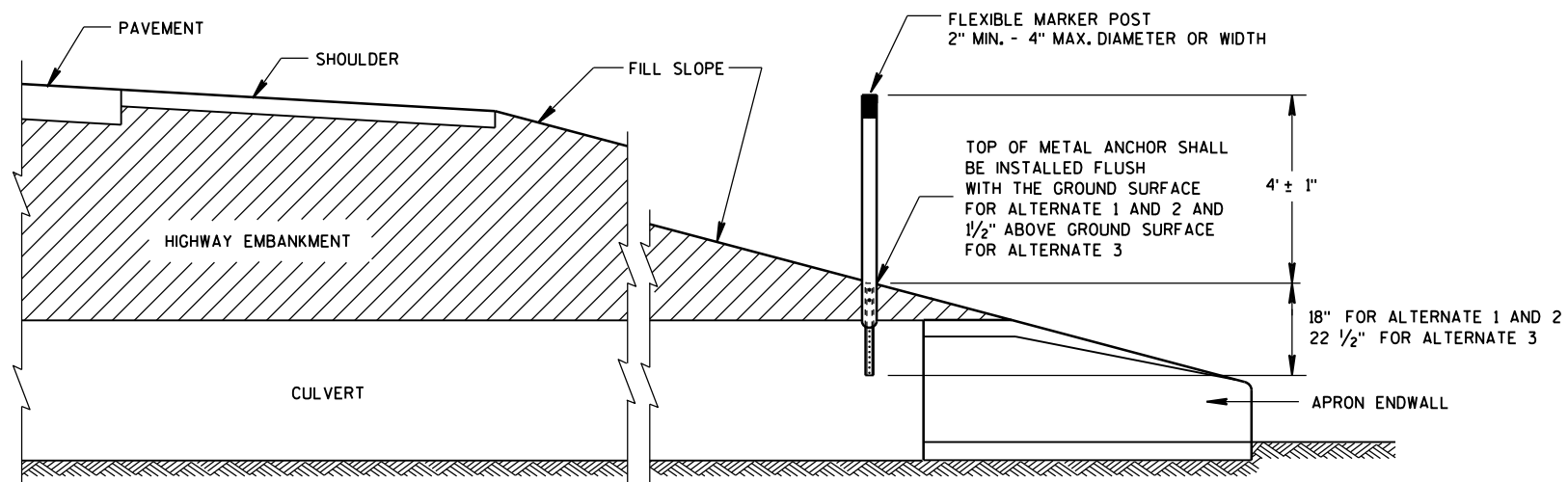
FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



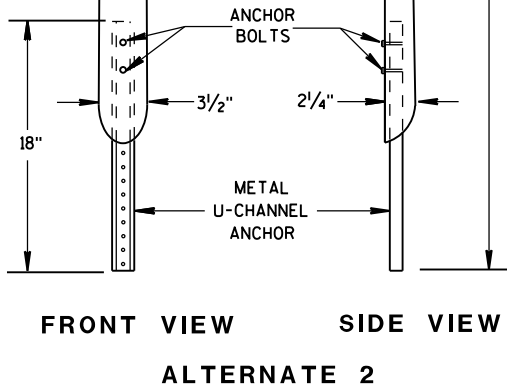
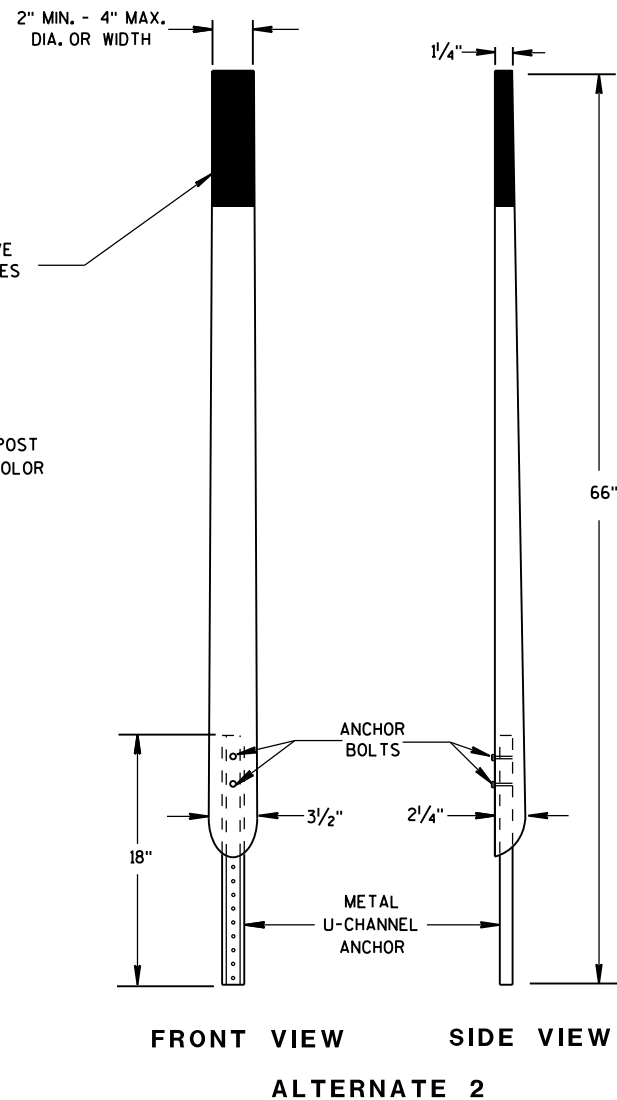
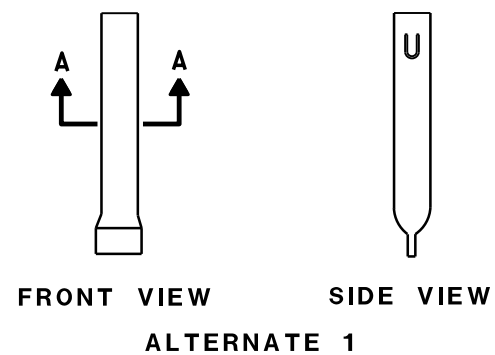
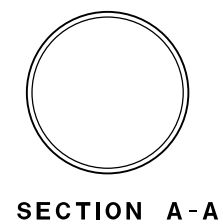
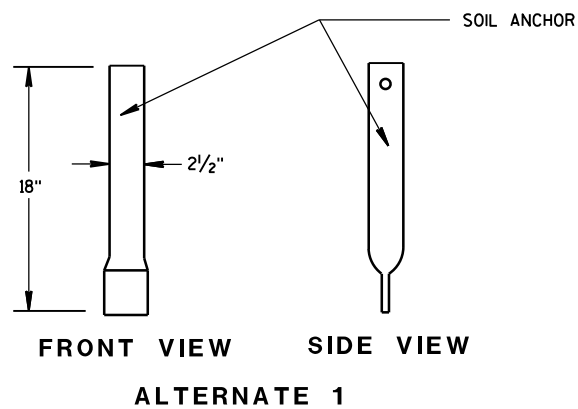
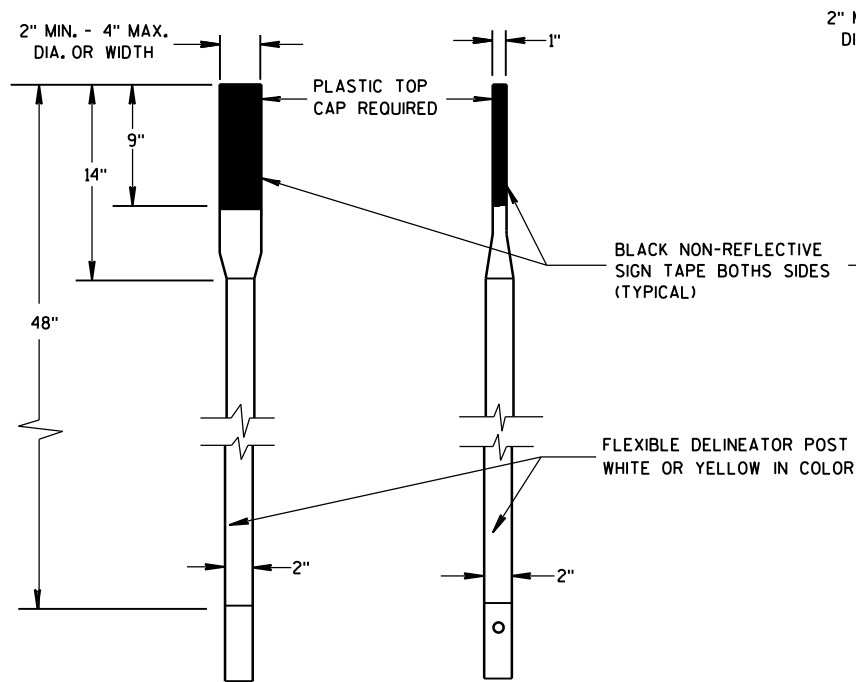
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



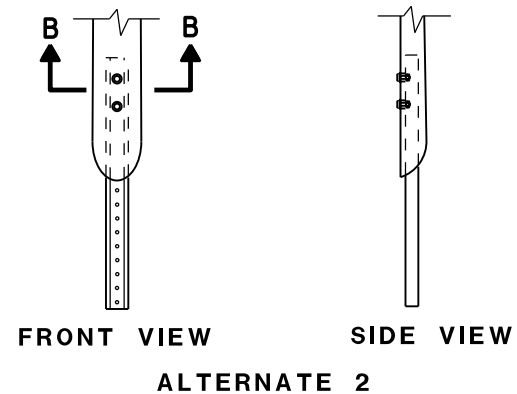
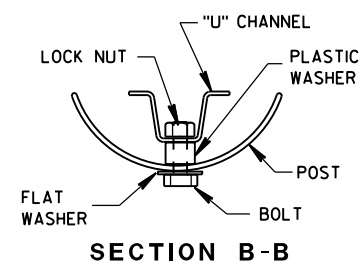
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

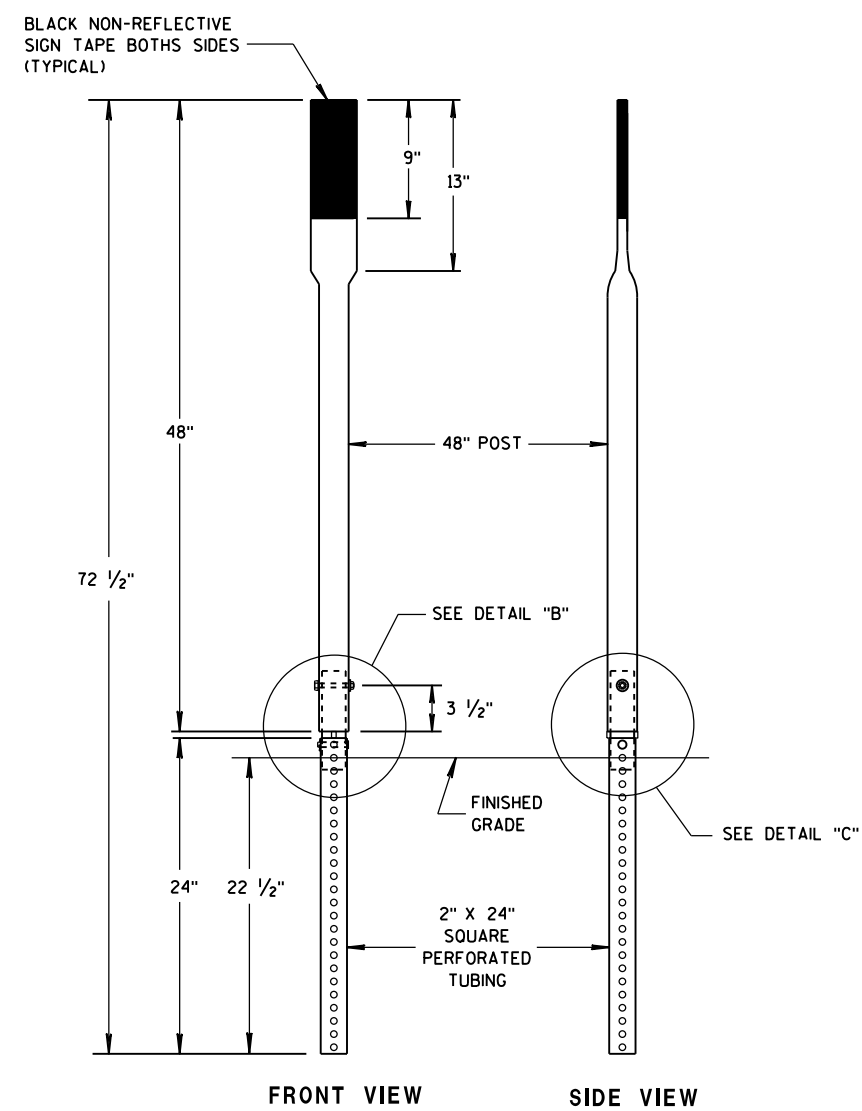
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 183



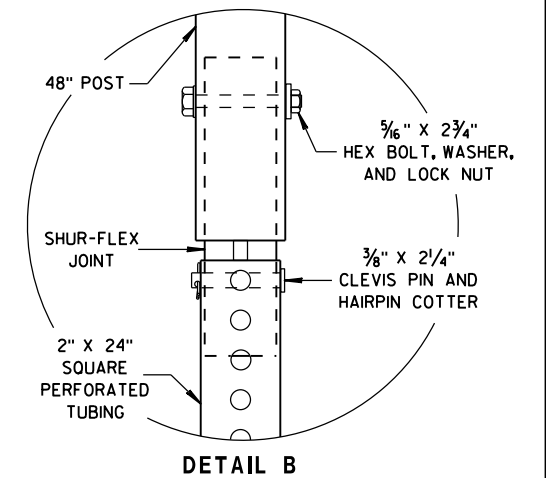
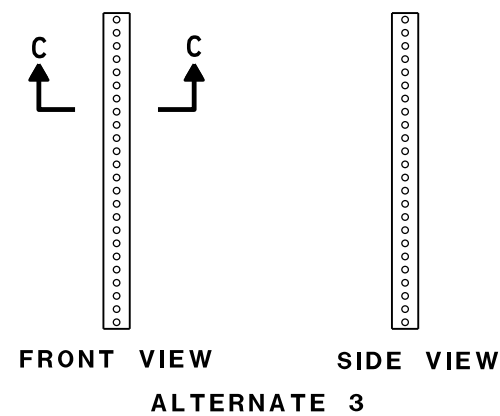
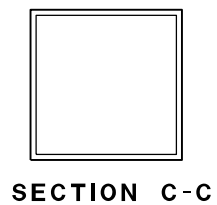
FLEXIBLE MARKER POSTS



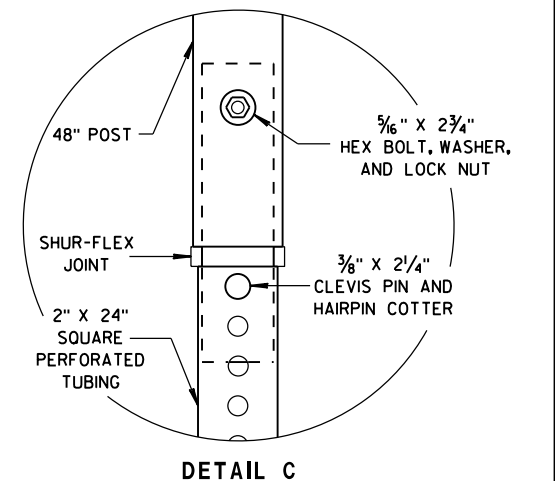
FLEXIBLE MARKER POST ANCHORS



FRONT VIEW SIDE VIEW
ALTERNATE 3



DETAIL B



DETAIL C

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

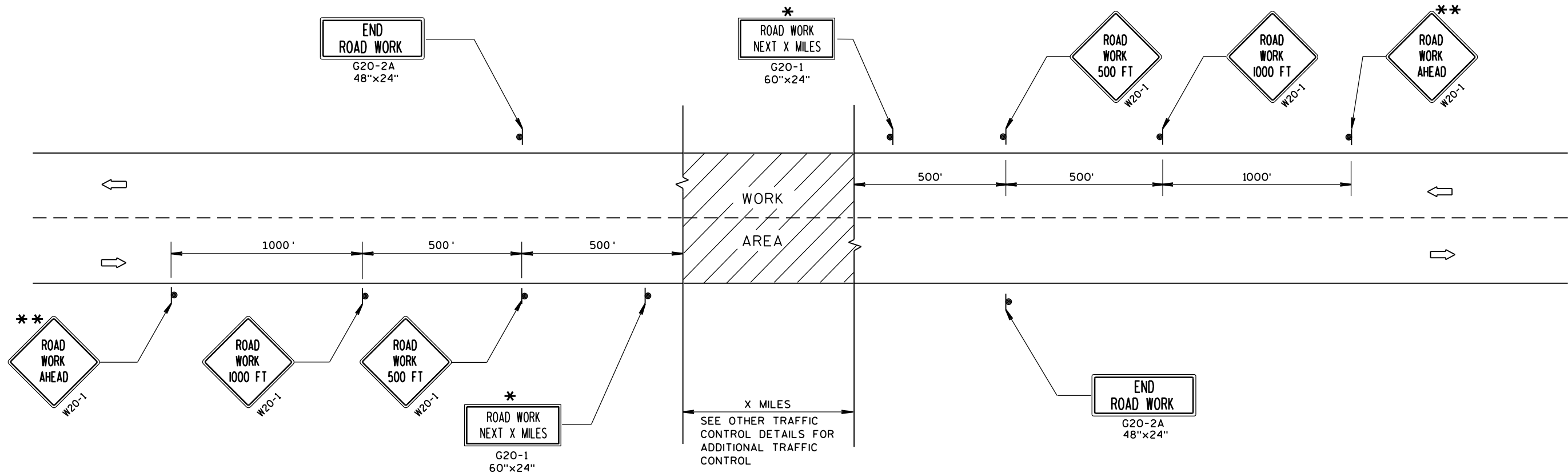
10/1/2012

DATE

FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER 184

IGN



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

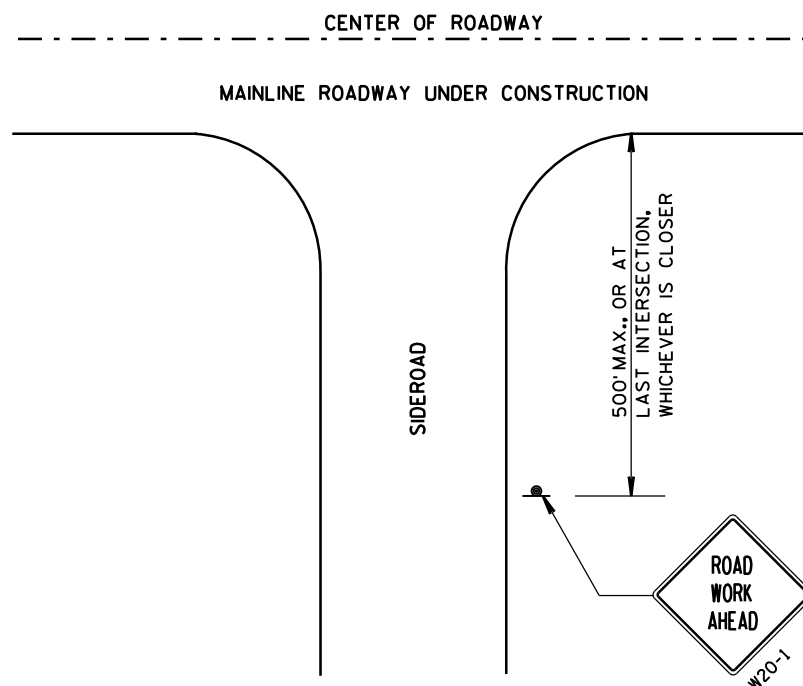
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

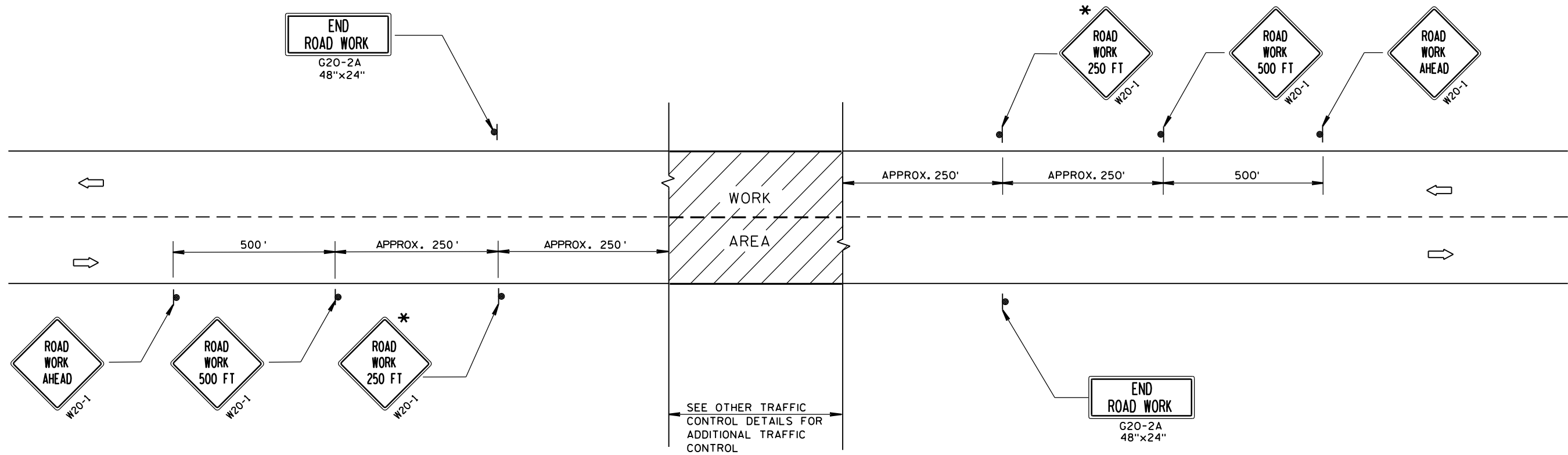
** PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER 185 SIGN
FHWA	



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

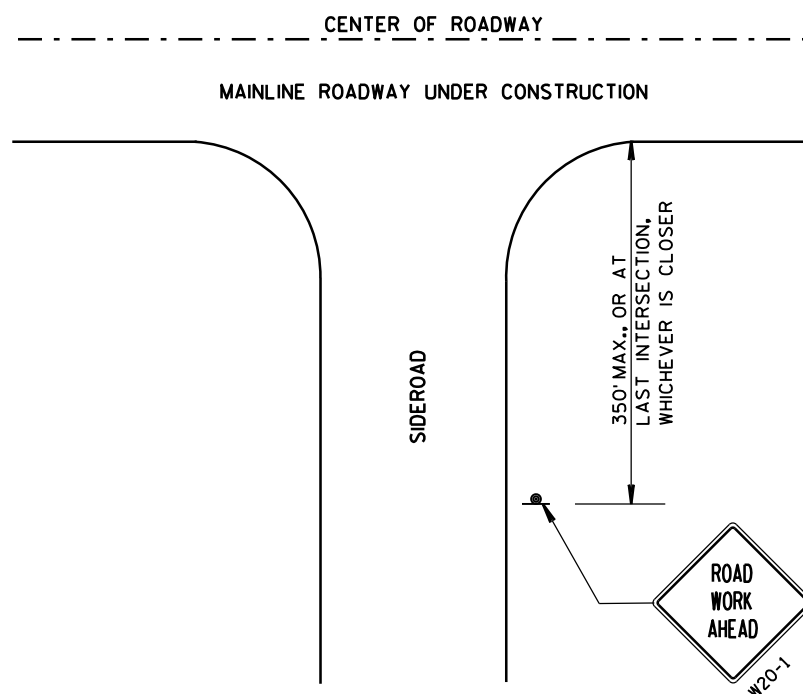
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

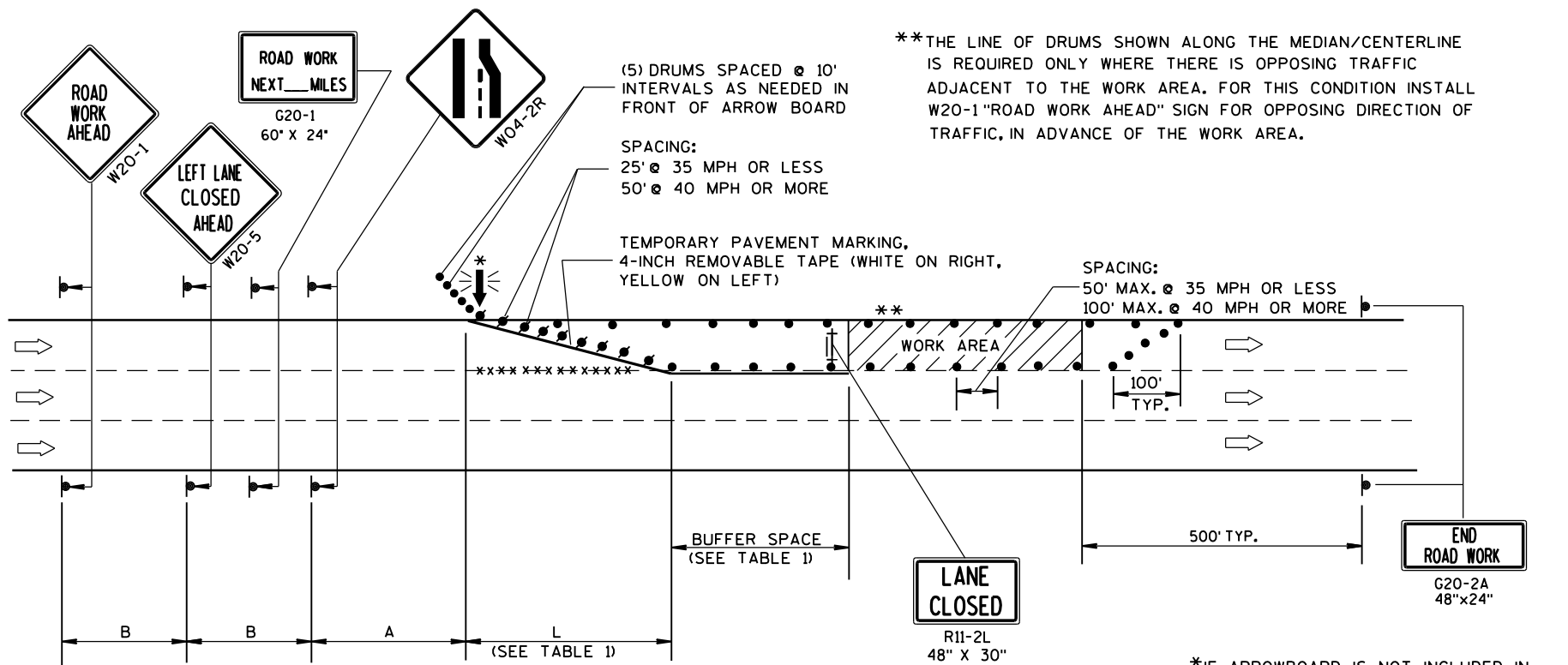
TRAFFIC CONTROL, ADVANCE
WARNING SIGNS 40 M.P.H.
OR LESS TWO-WAY UNDIVIDED
ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER SIGN

FHWA



GENERAL NOTES

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

TABLE 1
TAPER AND BUFFER SPACE
FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

L = TAPER LENGTH IN FEET

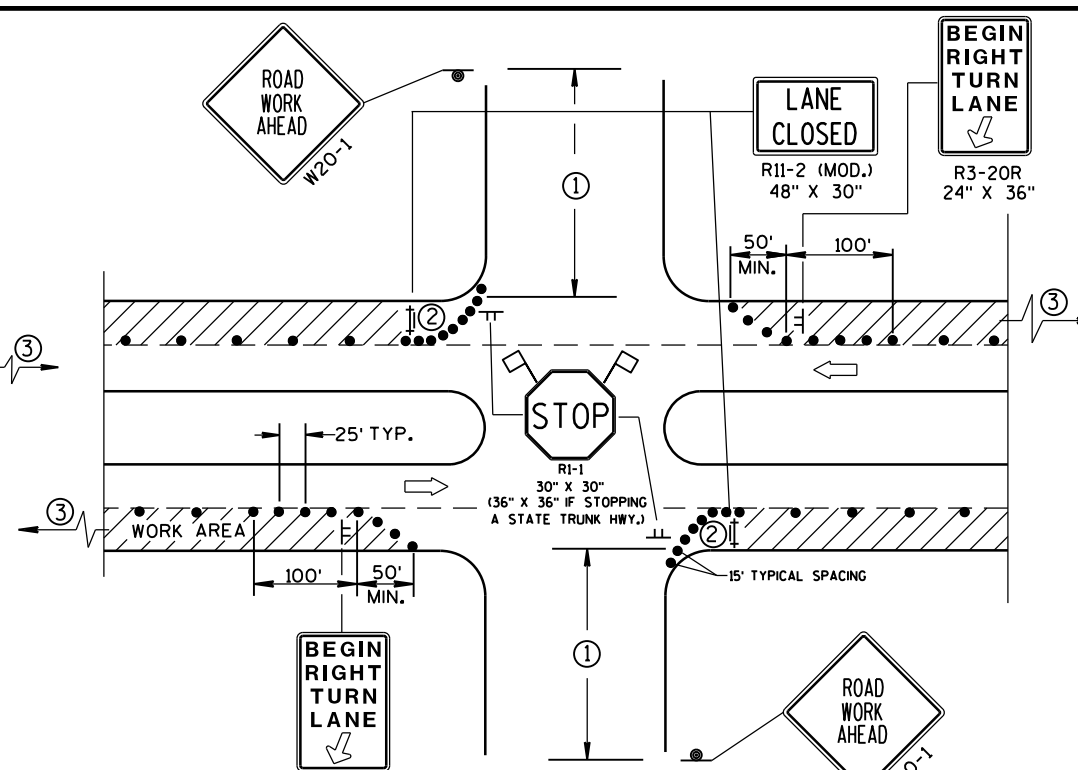
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- WORK AREA

TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED	/S/ Travis Feltes		
8/2013	DATE	STATE TRAFFIC ENGINE 187	SIGN
FHWA			

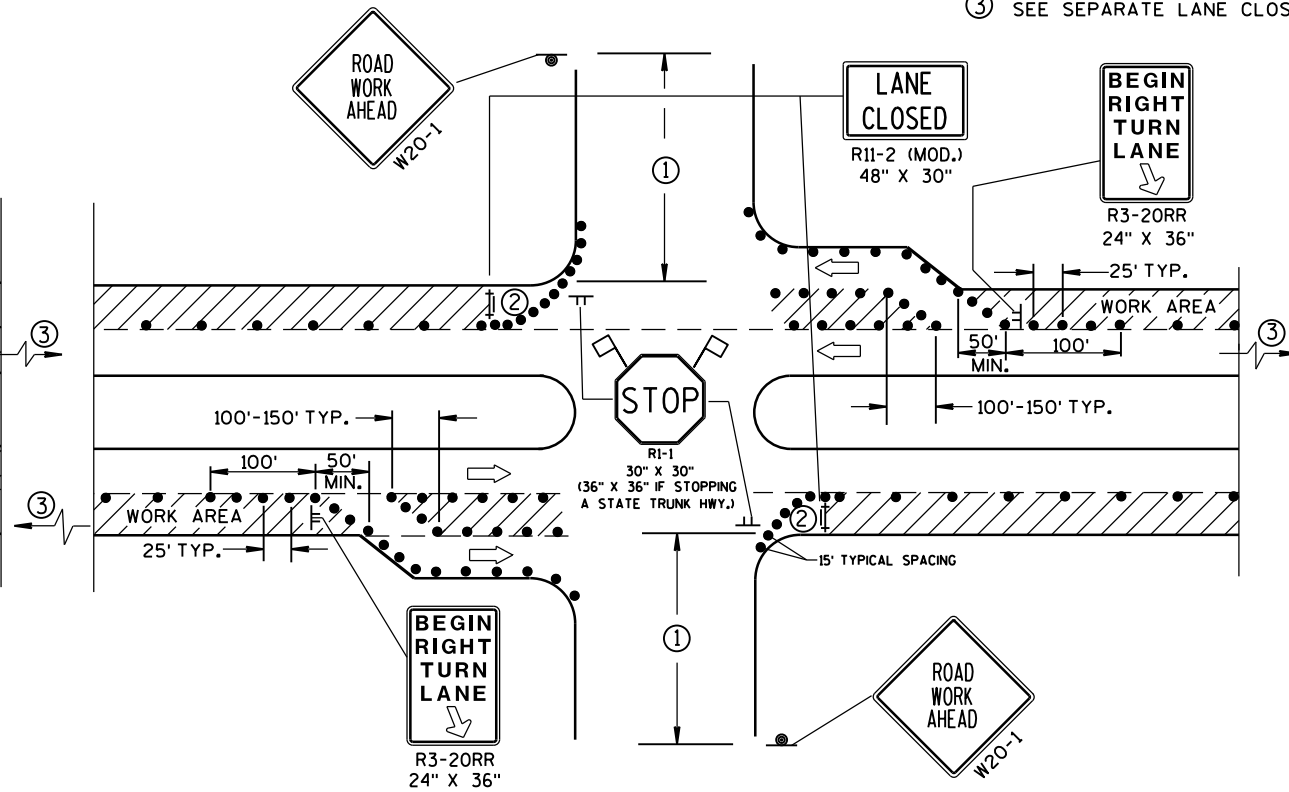


36" DETAIL B
FOR RIGHT LANE CLOSURE
AT INTERSECTION

GENERAL NOTES

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35-40 MPH.
200' IF 25-30 MPH.
- ② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.



**FOR RIGHT LANE CLOSURE AT INTERSECTION
(WITH RIGHT TURN BAY OPEN)**

LEGEND

- | | |
|---|--|
|  | TRAFFIC CONTROL DRUM |
|  | SIGN ON PERMANENT SUPPORT |
|  | SIGN ON TEMPORARY SUPPORT (5' MIN.
MOUNTING HEIGHT) |
|  | TYPE III BARRICADE WITH ATTACHED SIGN
AND TYPE "A" WARNING LIGHT (FLASHING) |
|  | DIRECTION OF TRAFFIC |
|  | FLAGS, 16" X 16" MIN., (ORANGE) |
|  | WORK AREA |

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINE 188 SIGN
FHWA

TABLE 1
TAPER AND BUFFER SPACE
FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

$L = WS$ AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TRAFFIC CONTROL DRUM
-  FLASHING ARROW BOARD
-  DIRECTION OF TRAFFIC
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT TWO LANES. FOR CLOSING THE LEFT TWO LANES, REVERSE THE TRAFFIC CONTROL.

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

W20-1, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

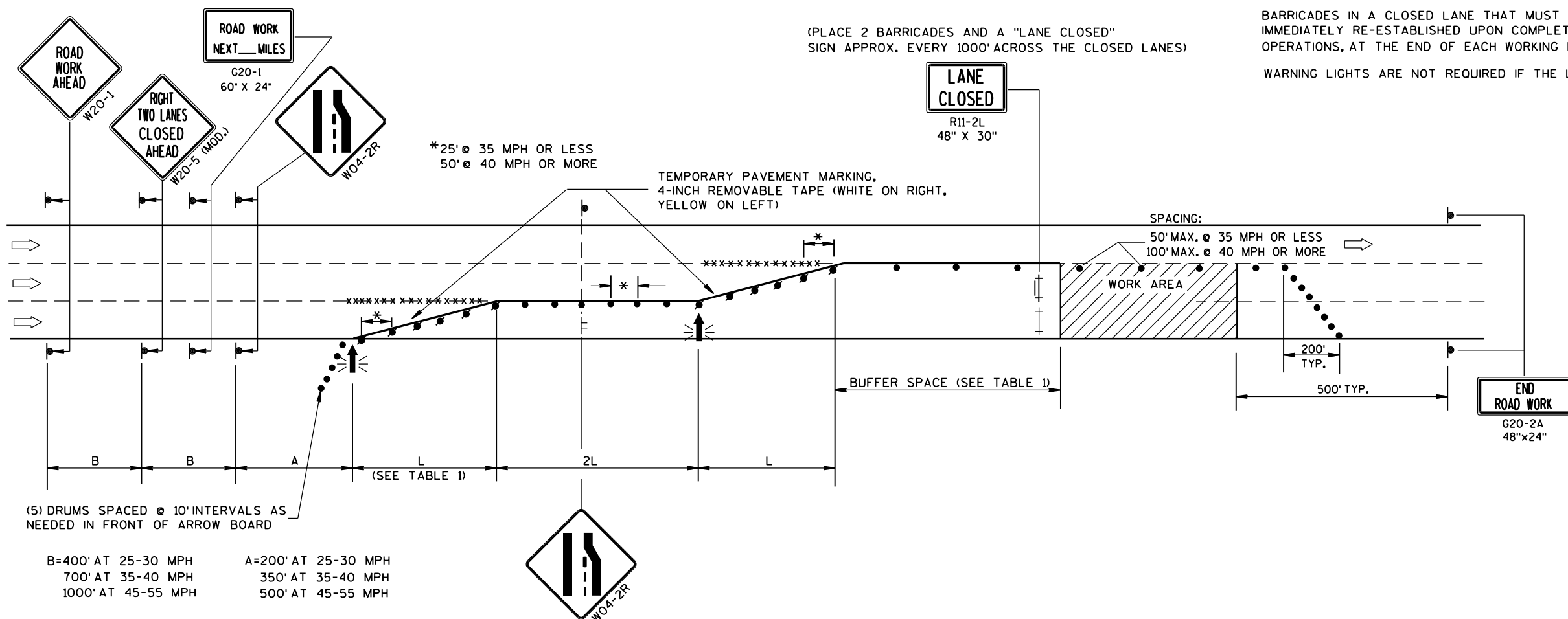
CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

WHERE THE SHOULDER OR TERRACE HAS INSUFFICIENT SPACE TO LOCATE THE ARROWBOARD AS SHOWN, PLACE THE ARROWBOARD IN THE LANE CLOSURE TAPER AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE TAPER.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.



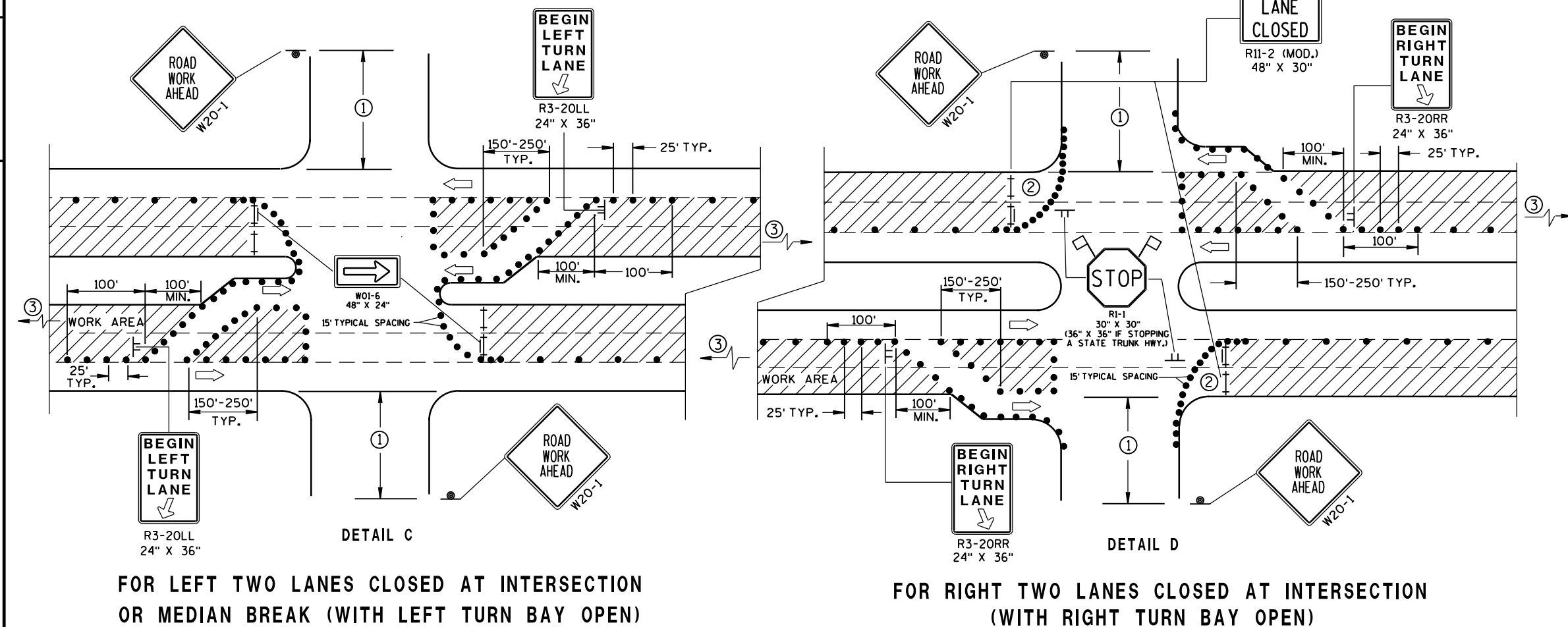
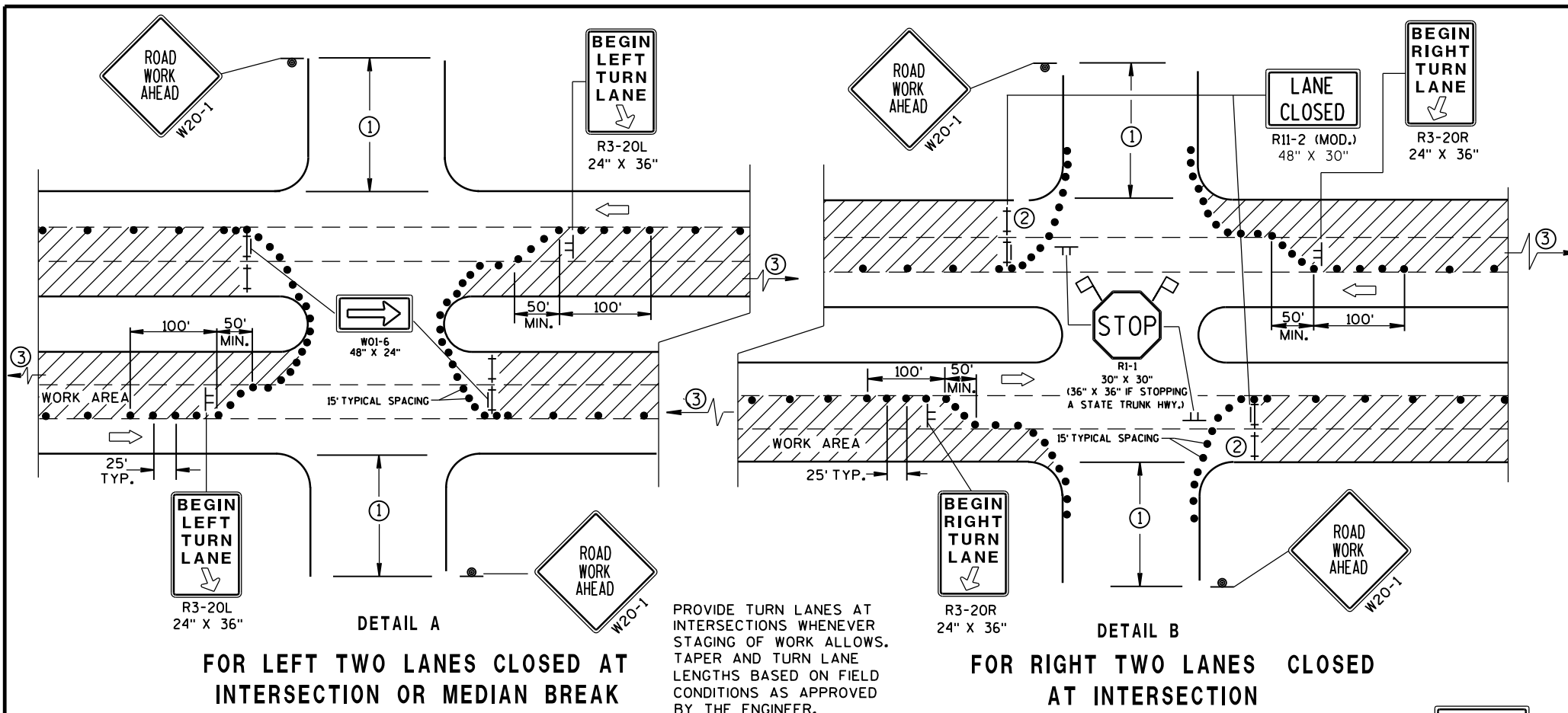
TRAFFIC CONTROL,
TWO LANE CLOSURE,
NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER SIGN

FHWA



TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED 8/2013	/S/ Travis Feltes	
DATE	STATE TRAFFIC ENGINE	190
FHWA		

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

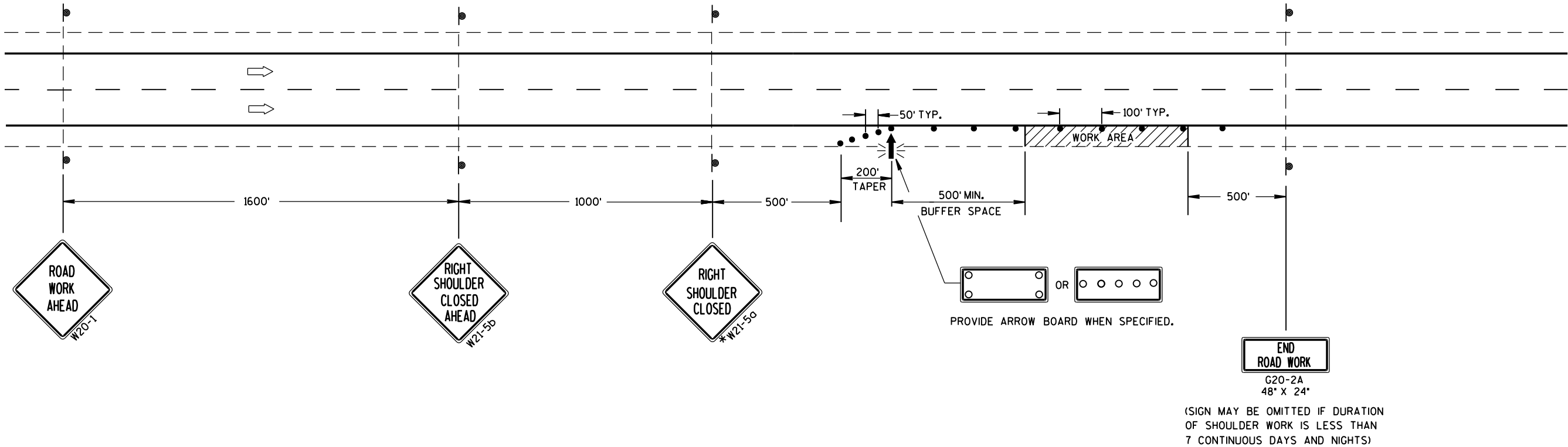
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A 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 APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 /S/ Travis Feltz
DATE STATE TRAFFIC ENGINE 191 SIGN
FHWA

GENERAL NOTES

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

W20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

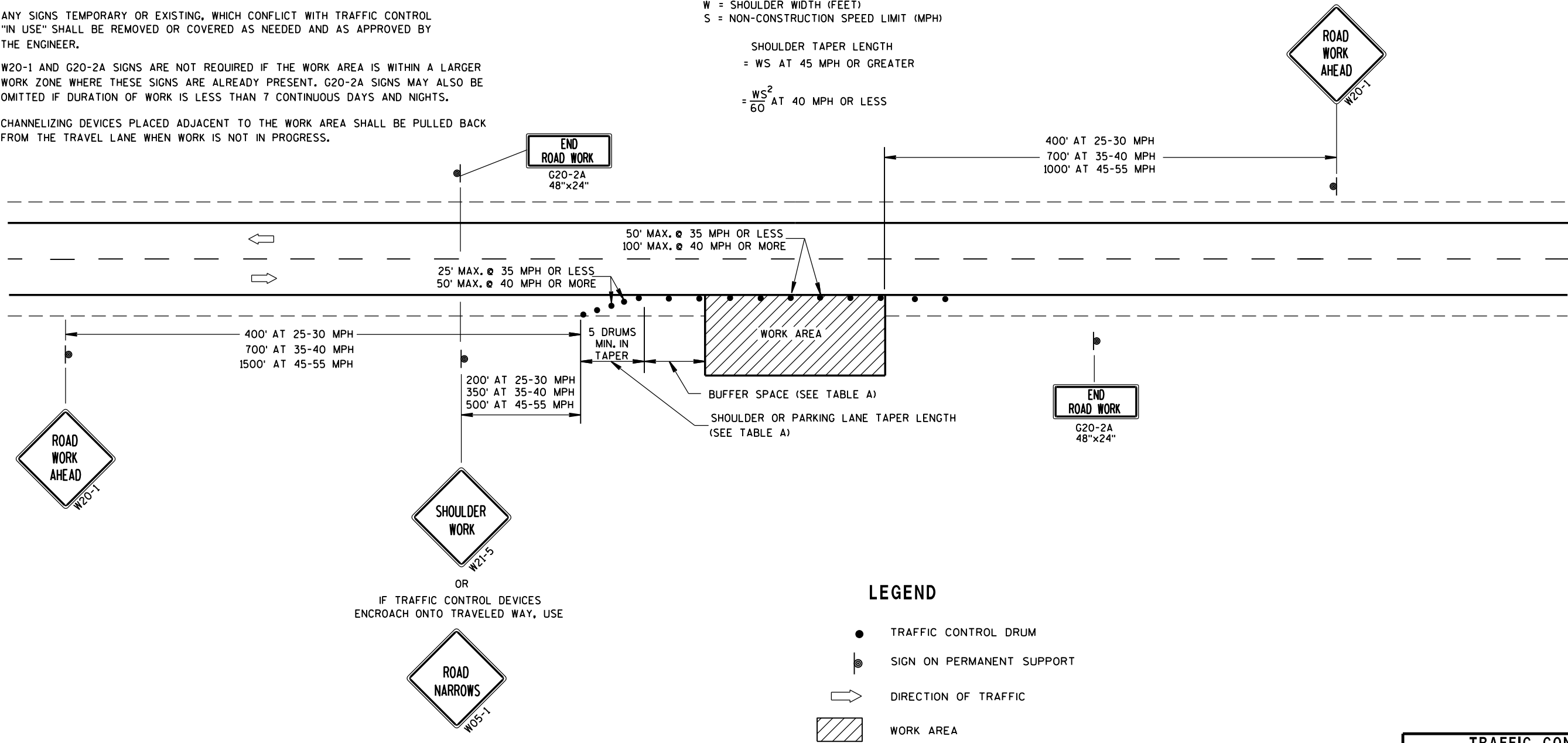
TABLE A

SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S \ W	4	6	8	10	
30	20	30	40	50	85
35	30	45	55	70	120
40	40	55	75	90	170
45	60	90	120	150	220
50	70	100	135	170	280
55	75	110	150	185	335

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

SHOULDER TAPER LENGTH
= WS AT 45 MPH OR GREATER

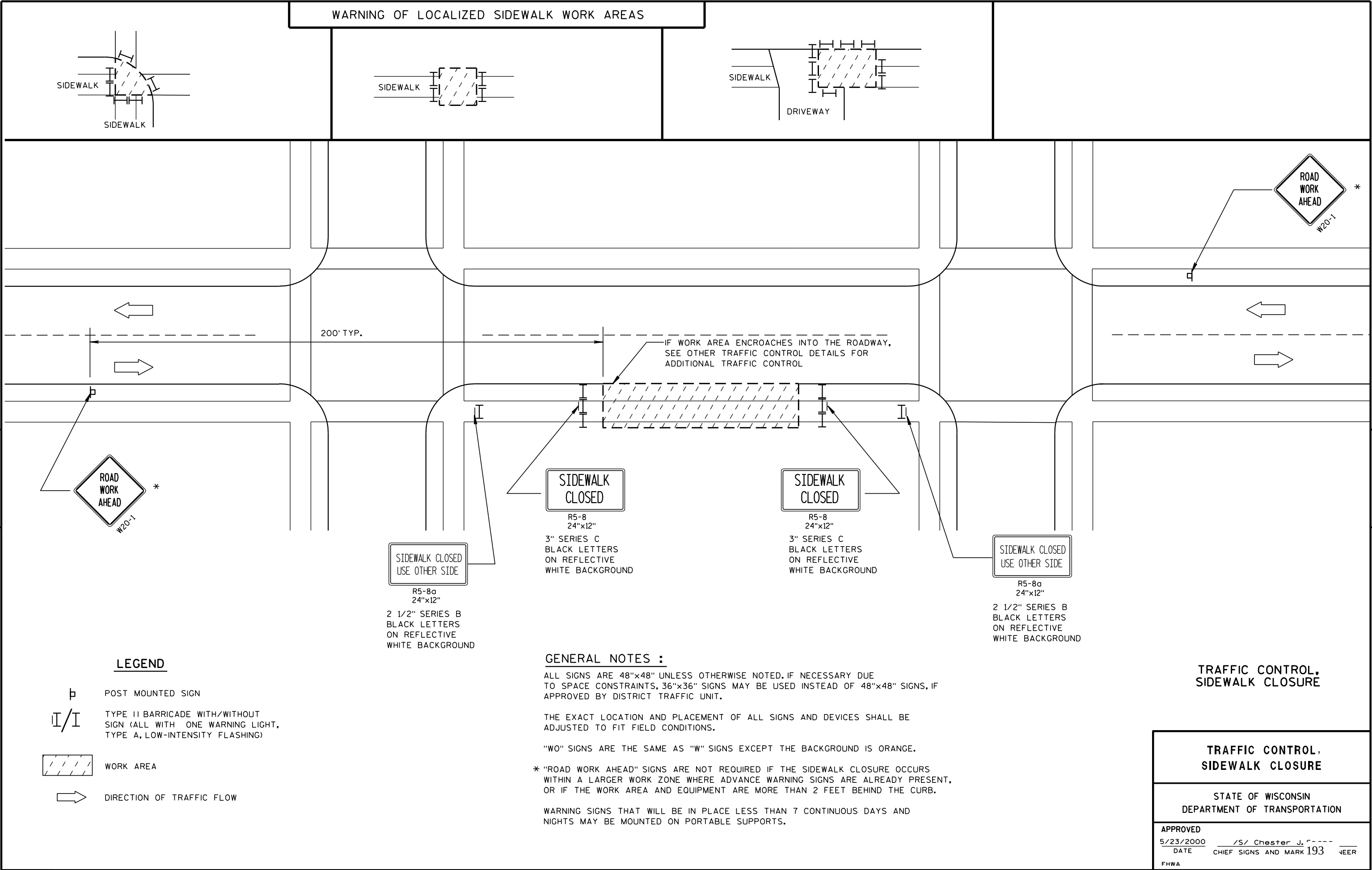
= $\frac{WS^2}{60}$ AT 40 MPH OR LESS

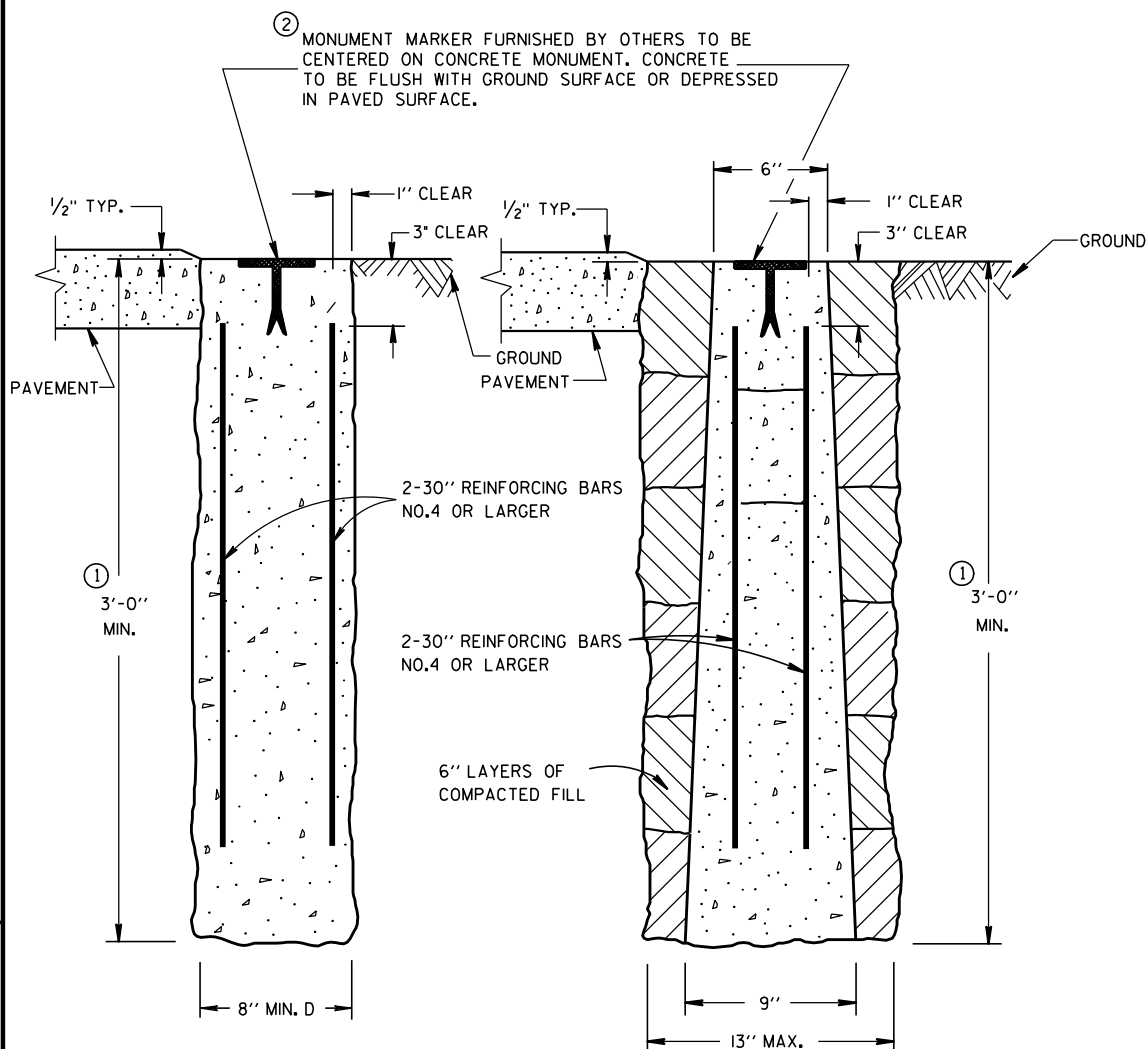


LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED 8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINE 192	ESIGN
FHWA		



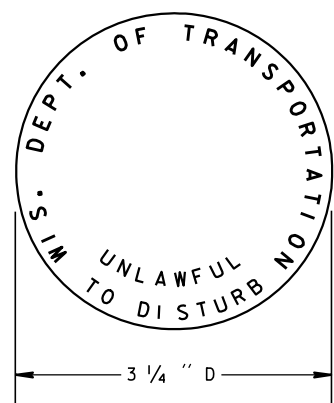


CAST-IN-PLACE

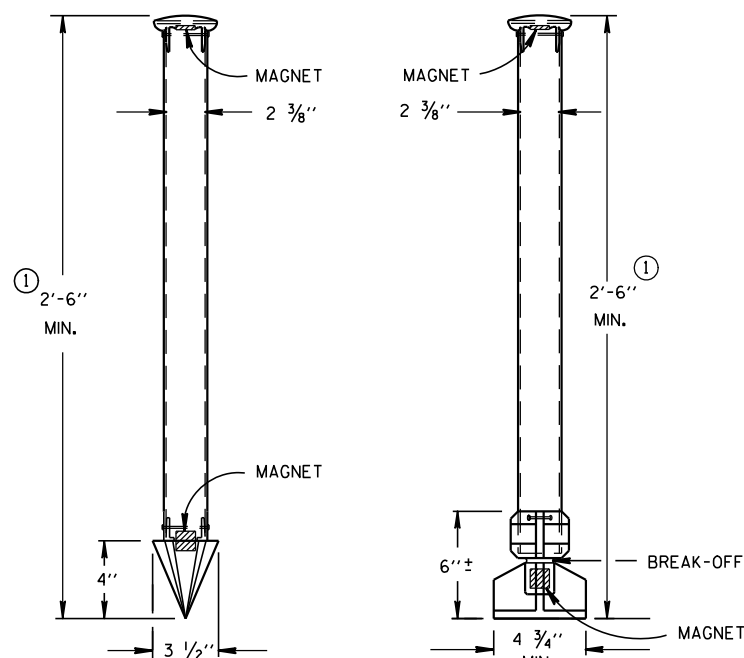
PRECAST

CONCRETE MONUMENTS

TYPE A



② WIS DOT MONUMENT MARKER LOGO
FOR TYPES "A", "C" & "D"



TYPE C

TYPE D

DRIVE-IN MONUMENT

BREAK-OFF MONUMENT

ALUMINUM MONUMENTS

(INCLUDES MARKER)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAILED DRAWINGS OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

INSTALLED METAL MONUMENTS MUST BE EASILY DETECTED WITH A DIP NEEDLE. INSERT PERMANENT MAGNETS SHALL BE ATTACHED NEAR THE TOP AND BOTTOM OF THOSE MONUMENTS CONSTRUCTED OF A METAL ALLOY WHICH IS NOT ATTRACTIVE TO A DIP NEEDLE.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

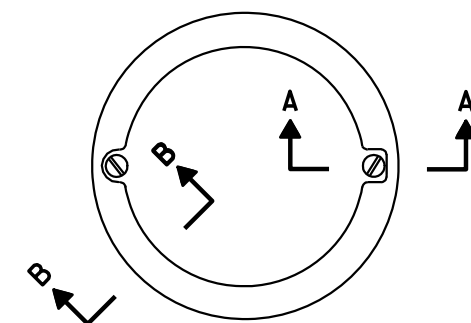
ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.

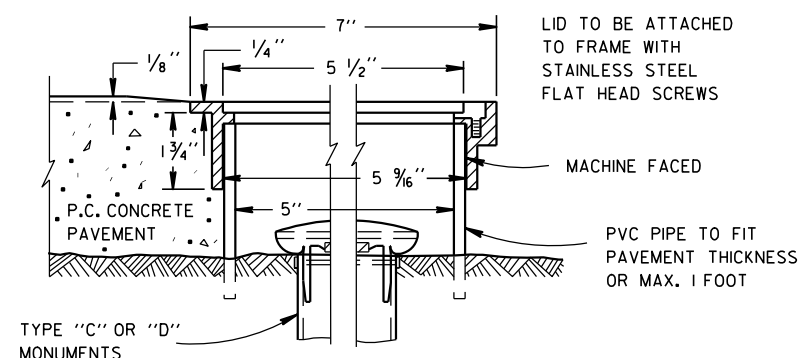
MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER.

① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.

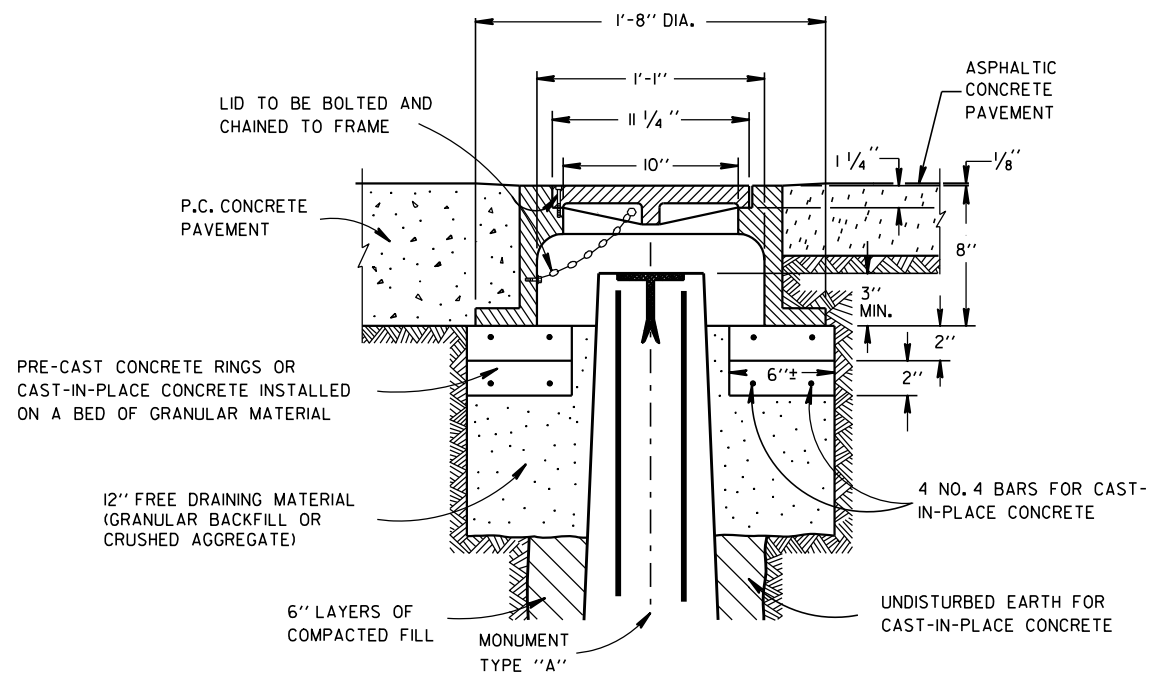
② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WIS DOT MARKER.



TOP VIEW

SECTION B-B SECTION A-A
ALUMINUM MONUMENT COVER

(APPROXIMATE WEIGHT 2 LBS)
(FOR CONCRETE PAVEMENT ONLY)



CAST IRON MONUMENT COVER

(APPROXIMATE WEIGHT - 95 LBS.)

LANDMARK REFERENCE
MONUMENTS AND COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/22/1999

DATE

FHWA

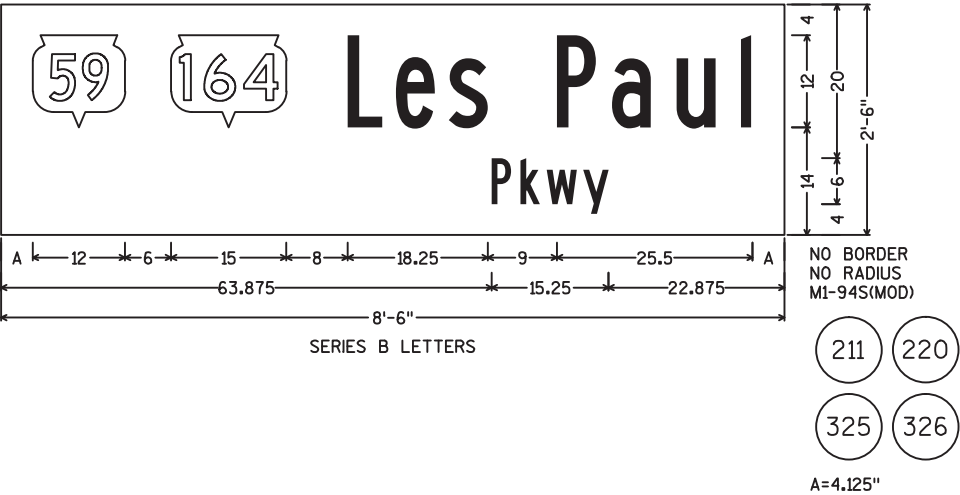
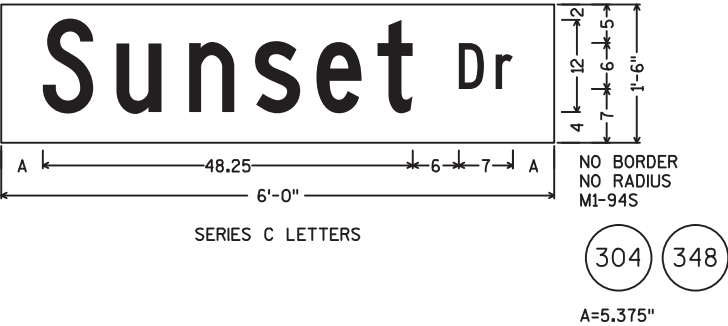
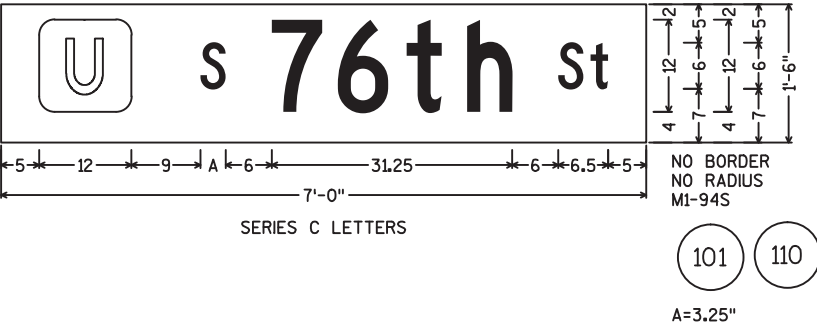
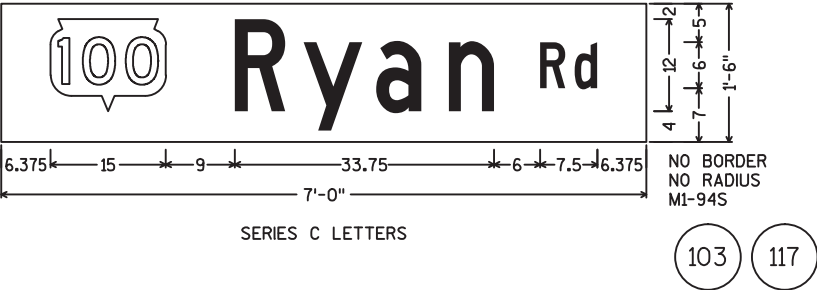
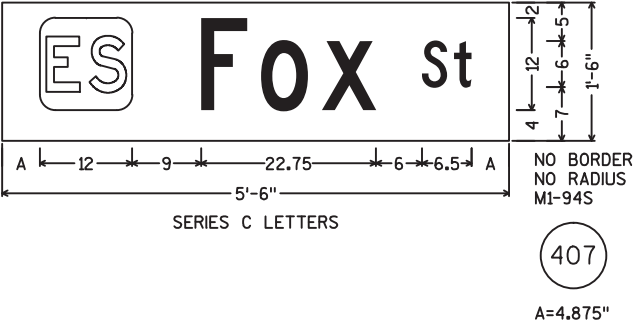
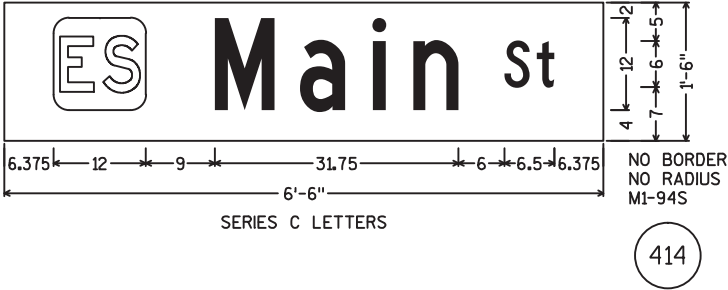
/S/ Rory L. Rhinehart

CHIEF ROADWAY DEVELOPER

194 NEER

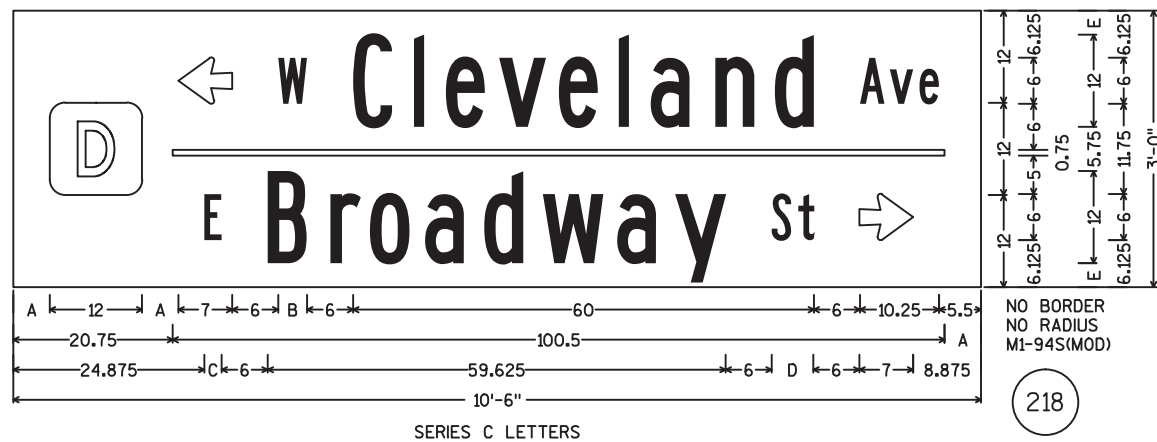
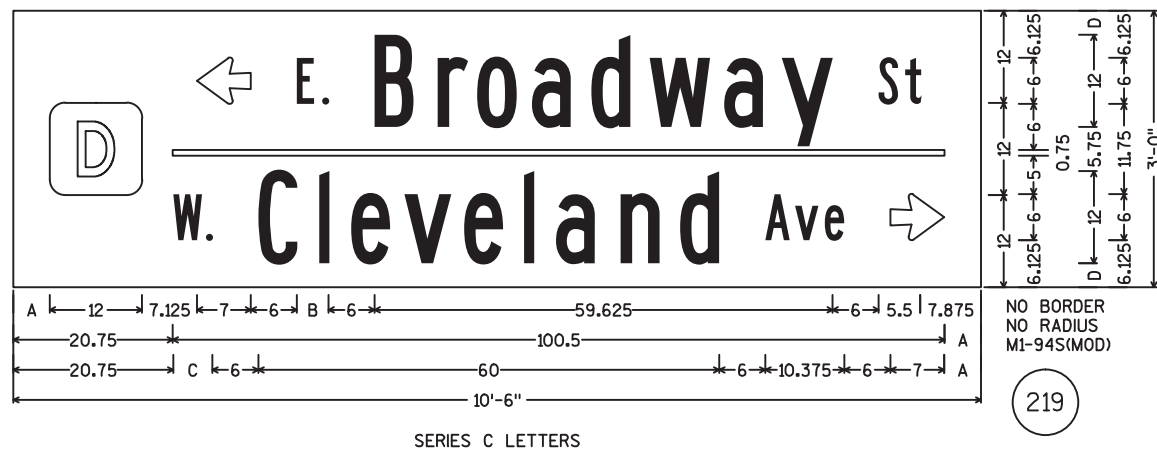
GENERAL NOTES:

1. DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE PLANS.
2. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET ARE "SIGNS, TYPE II".
3. UNLESS OTHERWISE NOTED, TYPE II SIGNS ON THIS SHEET SHALL HAVE "TYPE H REFLECTIVE SHEETING" AND "TYPE H MESSAGE MATERIAL". TYPE I SIGNS SHALL HAVE "TYPE SH REFLECTIVE SHEETING".
4. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET SHALL HAVE A GREEN BACKGROUND AND WHITE MESSAGE.
5. TYPE II SIGNS ALL UPPERCASE MESSAGE (EXCEPT ON SHIELDS OR WHERE OTHERWISE NOTED) SHALL BE "SERIES E". ALL LOWERCASE MESSAGE WITH AN INITIAL UPPERCASE LETTER SHALL BE "SERIES E".
6. TYPE I SIGNS ALL UPPERCASE MESSAGE (EXCEPT ON SHIELDS OR WHERE OTHERWISE NOTED) SHALL BE "SERIES E MODIFIED". ALL LOWER CASE MESSAGE WITH AN INITIAL UPPERCASE LETTER SHALL BE "SERIES E MODIFIED". ALL CAP WORDS ARE "SERIES E".
7. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET SHALL HAVE "TYPE A" OR "TYPE C" ARROWS AS SHOWN. SEE THE STANDARD SIGN PLATES FOR FURTHER DETAILS.
8. SEE THE STANDARD SIGN PLATES FOR FURTHER DETAILS ON ROUTE MARKER SHIELDS.
9. THE SIGN NUMBER IS DENOTED IN THE CIRCLE NEAR EACH DETAIL.
10. NUMBER FRACTIONS FOR INTERCHANGE SEQUENCE SIGNS SHALL BE "SERIES E" PER PLATES A11-7 AND A11-10.
11. DO NOT SCALE.

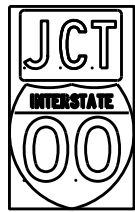


GENERAL NOTES:

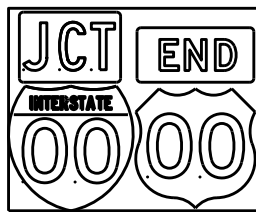
1. DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE PLANS.
2. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET ARE "SIGNS, TYPE II".
3. UNLESS OTHERWISE NOTED, TYPE II SIGNS ON THIS SHEET SHALL HAVE "TYPE H REFLECTIVE SHEETING" AND "TYPE H MESSAGE MATERIAL". TYPE I SIGNS SHALL HAVE "TYPE SH REFLECTIVE SHEETING".
4. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET SHALL HAVE A GREEN BACKGROUND AND WHITE MESSAGE.
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6. TYPE I SIGNS ALL UPPERCASE MESSAGE (EXCEPT ON SHIELDS OR WHERE OTHERWISE NOTED) SHALL BE "SERIES E MODIFIED". ALL LOWER CASE MESSAGE WITH AN INITIAL UPPERCASE LETTER SHALL BE "SERIES E MODIFIED". ALL CAP WORDS ARE "SERIES E".
7. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET SHALL HAVE "TYPE A" OR "TYPE C" ARROWS AS SHOWN. SEE THE STANDARD SIGN PLATES FOR FURTHER DETAILS.
8. SEE THE STANDARD SIGN PLATES FOR FURTHER DETAILS ON ROUTE MARKER SHIELDS.
9. THE SIGN NUMBER IS DENOTED IN THE CIRCLE NEAR EACH DETAIL.
10. NUMBER FRACTIONS FOR INTERCHANGE SEQUENCE SIGNS SHALL BE "SERIES E" PER PLATES A11-7 AND A11-10.
11. DO NOT SCALE.



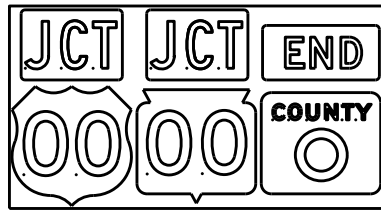
TYPICAL ASSEMBLIES



J1-1



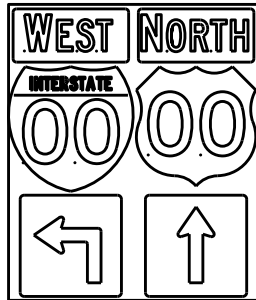
J1-2



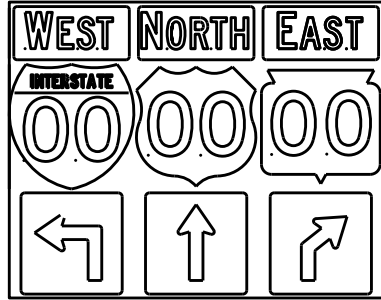
J1-3



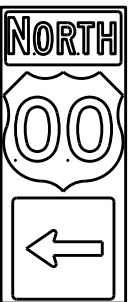
J2-1



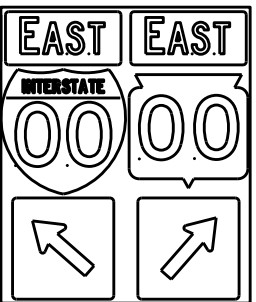
J2-2



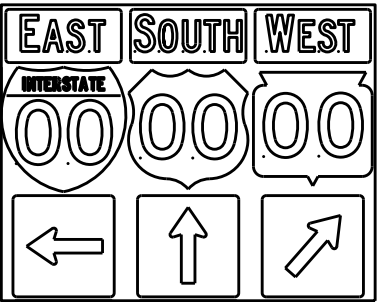
J2-3



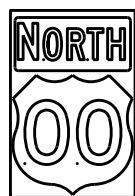
J3-1



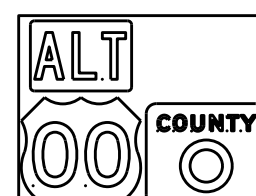
J3-2



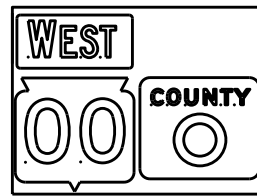
J3-3



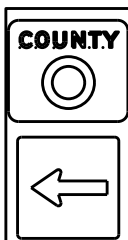
J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



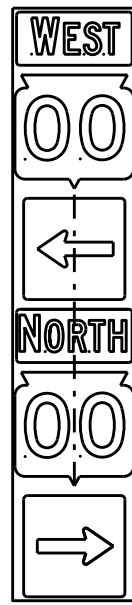
J33-1



J23-1

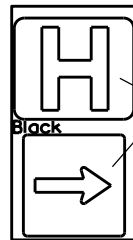


J22-1



JV

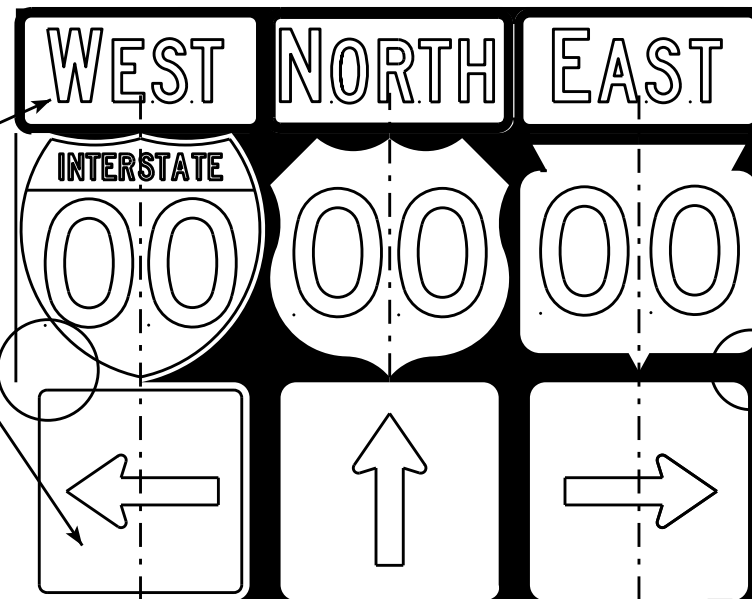
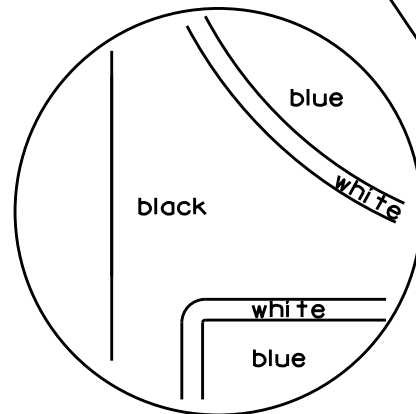
(Typical Vertical J-Assembly
See Note 10 and 11)



JH-1

Blue Background

[blue background
with interstate]



[black background]

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/06/14 PL 197 A2-1S.8

SHEET NO: E

NOTES

- Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Black Non-reflective
Message - see Note 5
- Message Series - See Note 5
- Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
- The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
- Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
- Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
- Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- All Vertical J Assemblies are given a Sign Code of JV
- For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

PROJECT NO:

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A21S.DGN

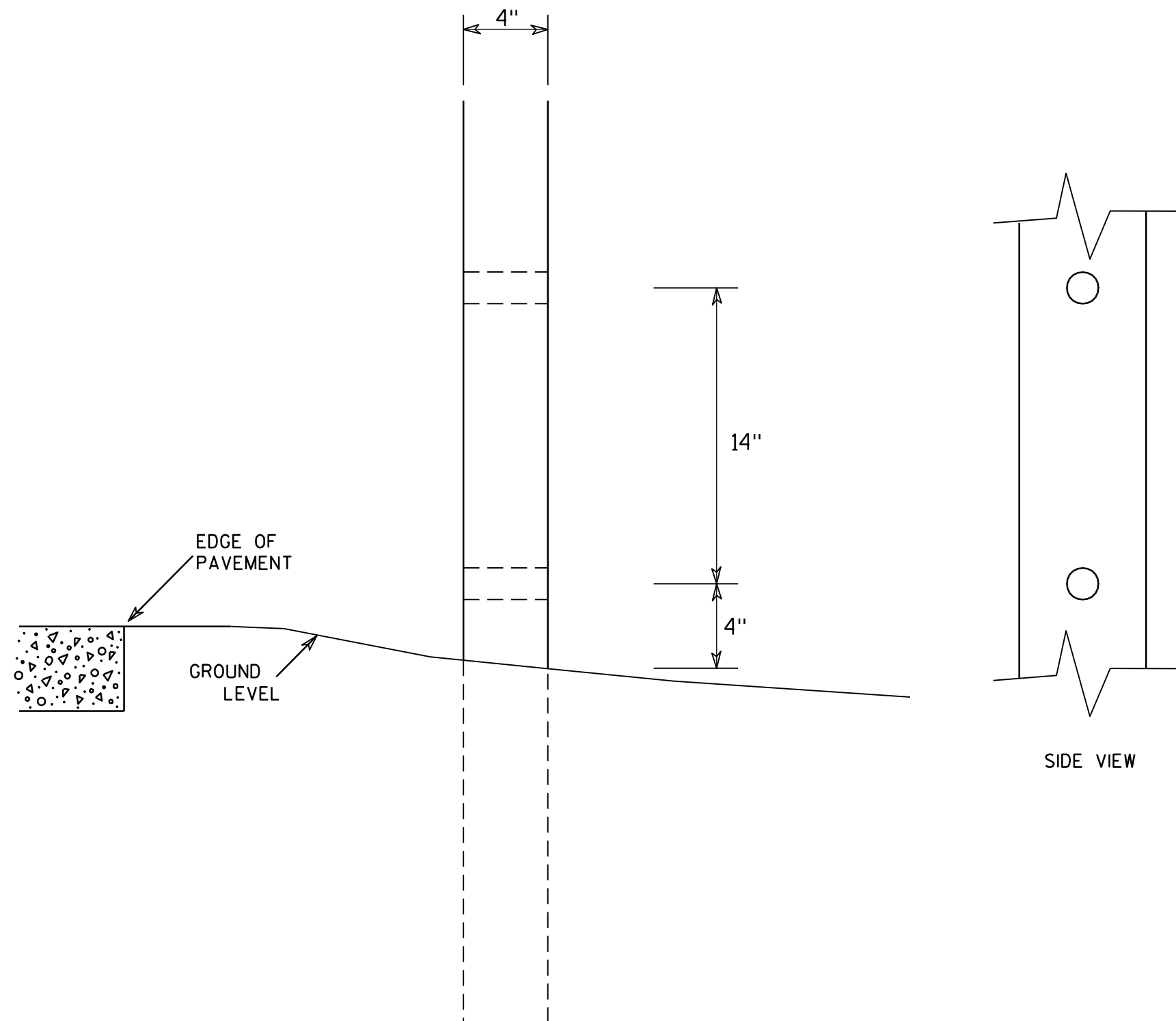
PLOT DATE : 06-FEB-2014 14:10

PLOT BY : mscs.ja

PLOT NAME :

WISDOT/CADDs SHEET 42

7



GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

SIDE VIEW

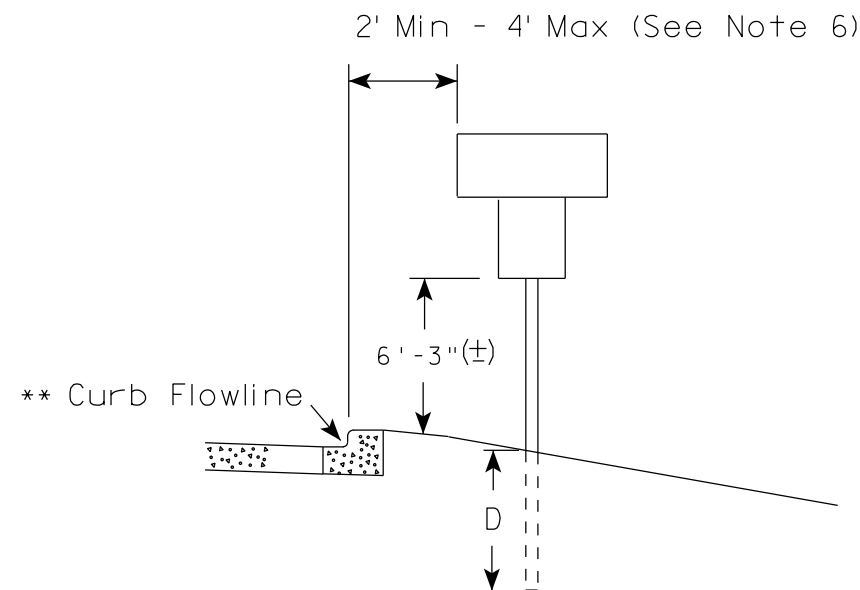
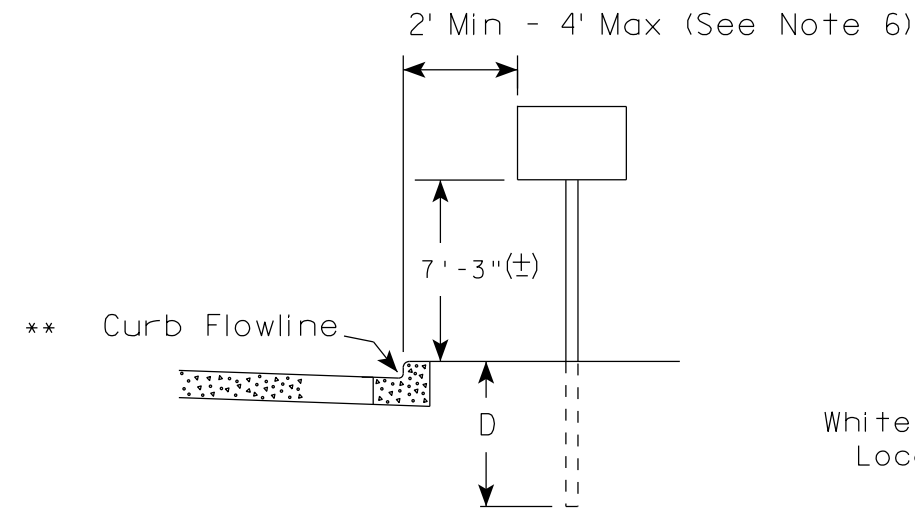
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J. Spang
for State Traffic Engineer
DATE 3/27/97 PLATE NO. A4-11.2

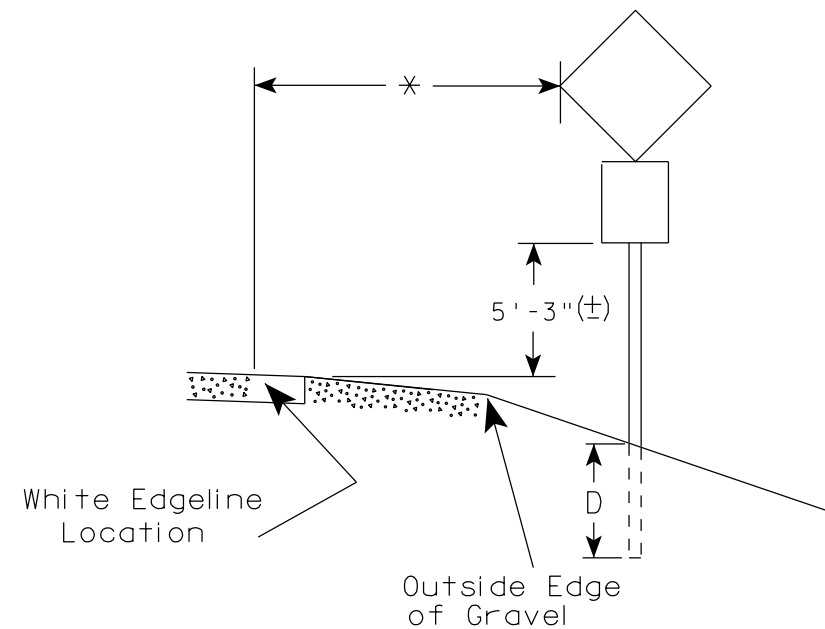
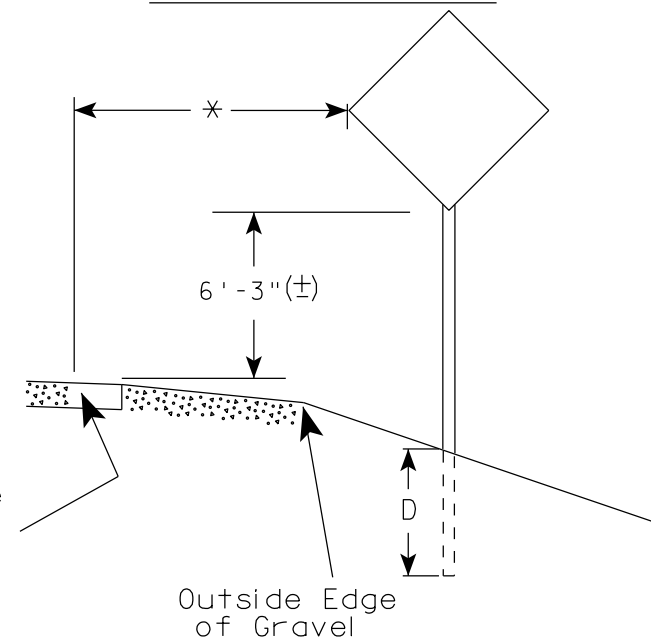
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 198	E
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URBAN AREA



White Edgeline Location

RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

×× The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 11/12/14

PLATE NO. A4-3.19

199

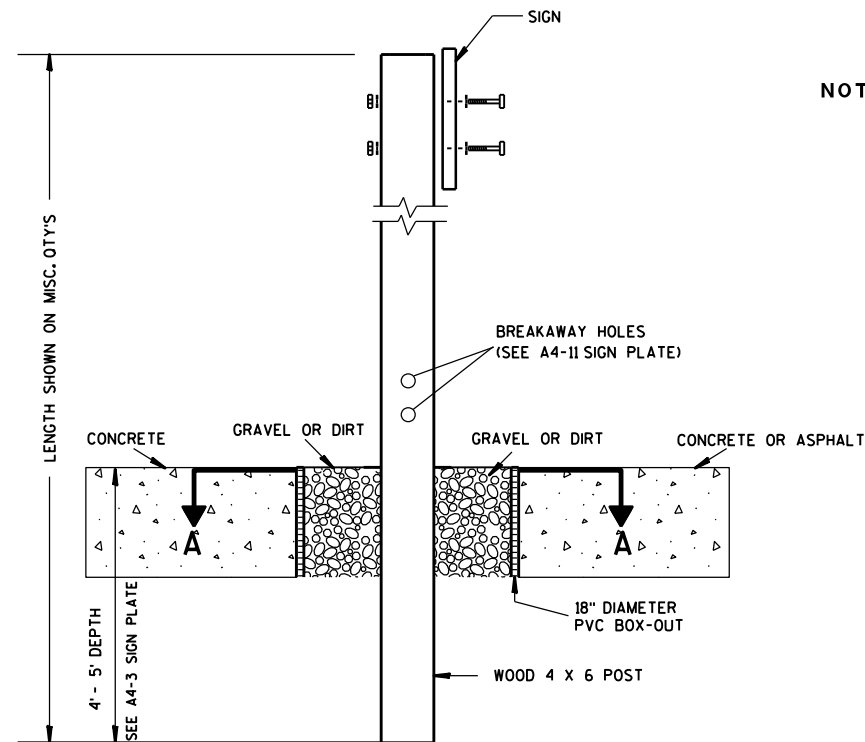
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

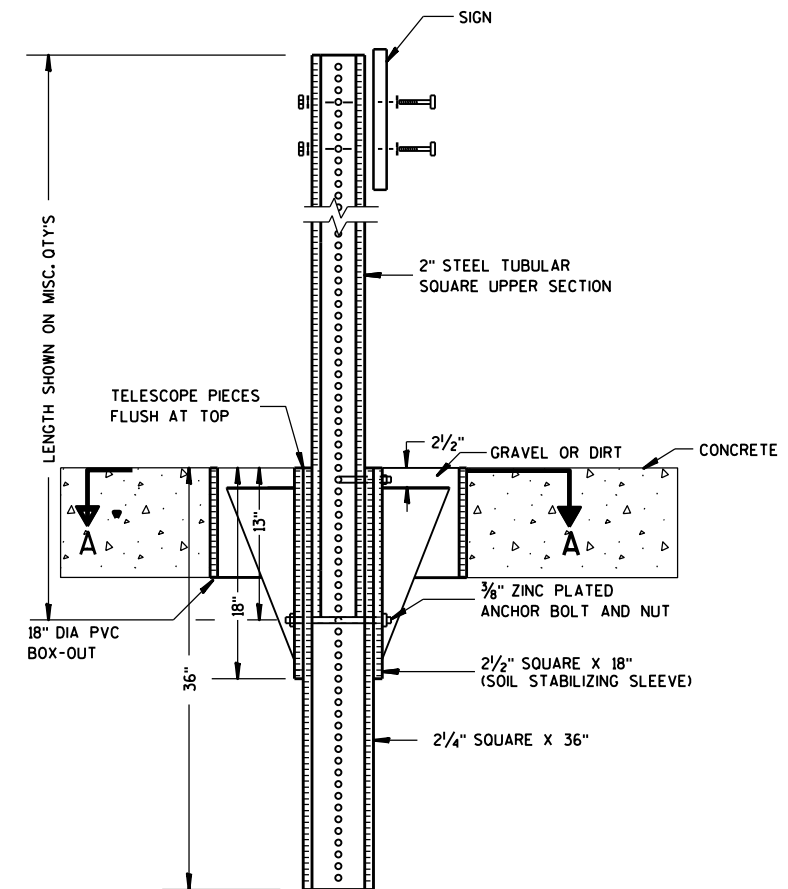
E



ELEVATION VIEW

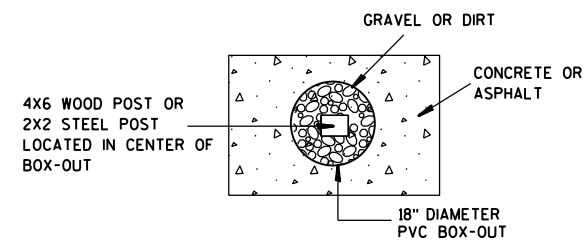
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 200 A4-3B.1

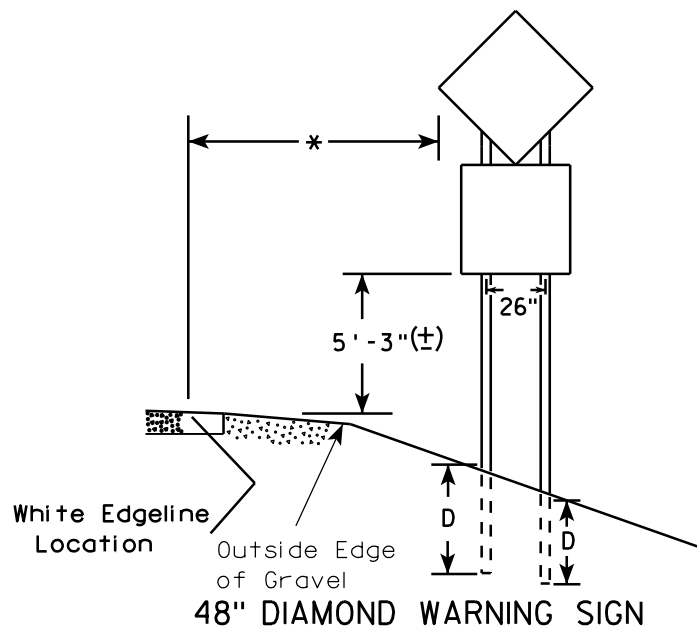
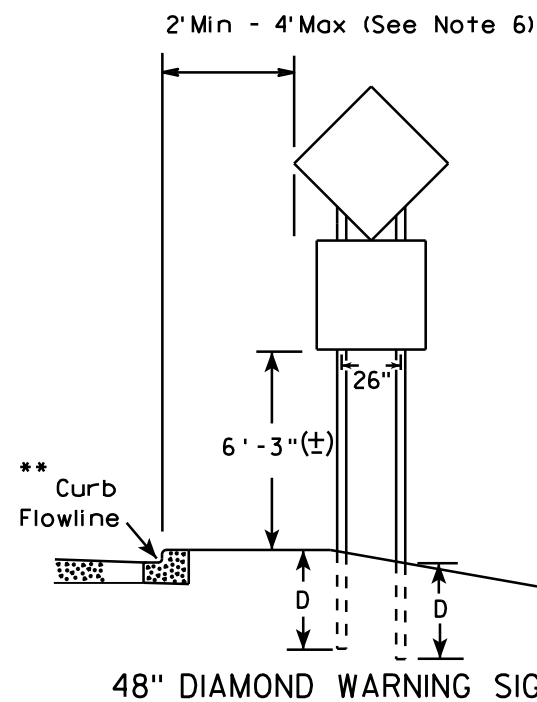
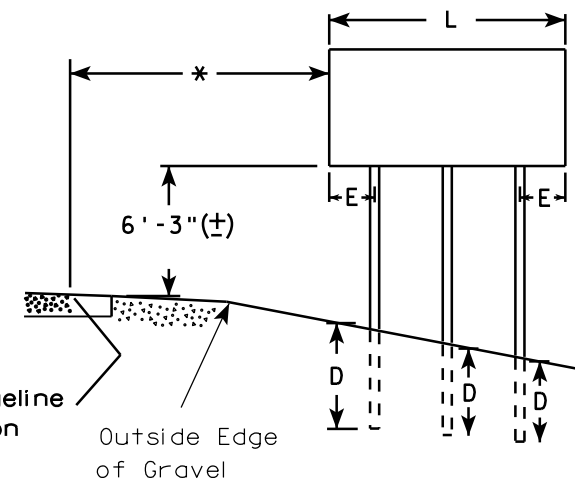
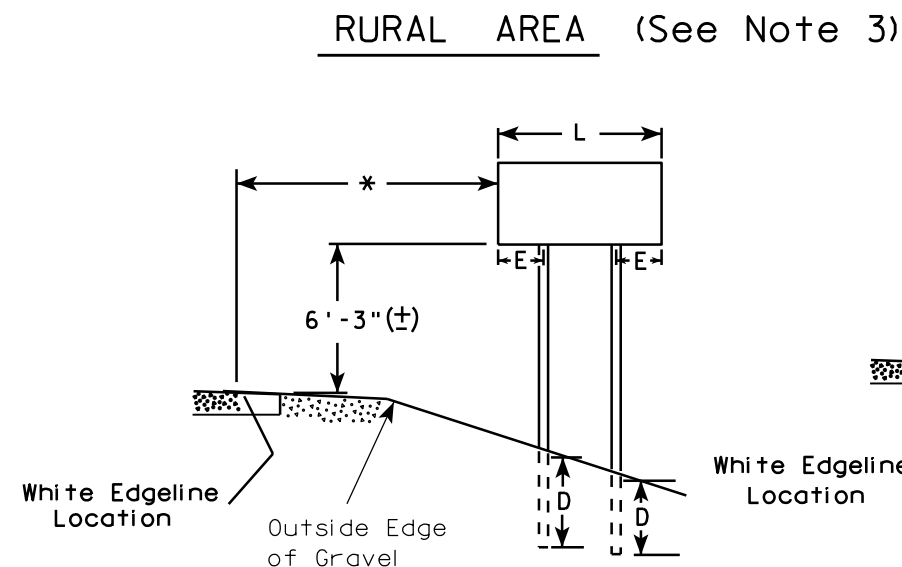
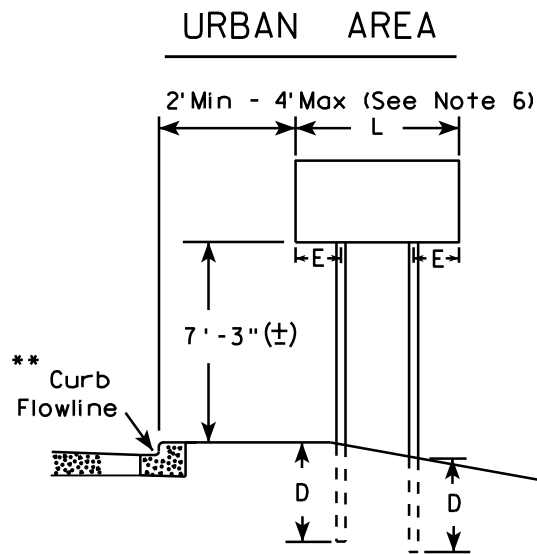
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



- GENERAL NOTES**
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width or less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

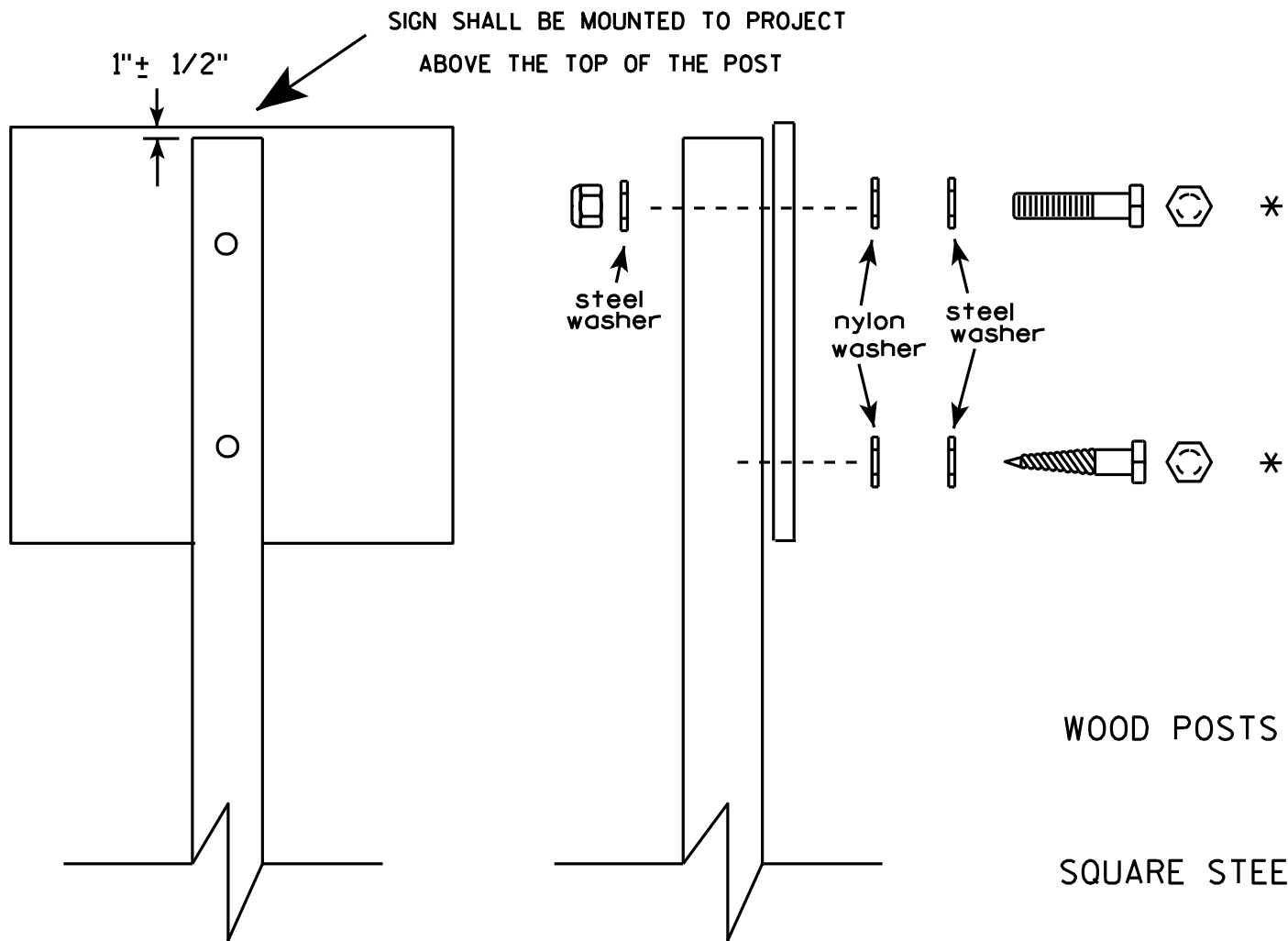
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/14 PLATE NO. 13

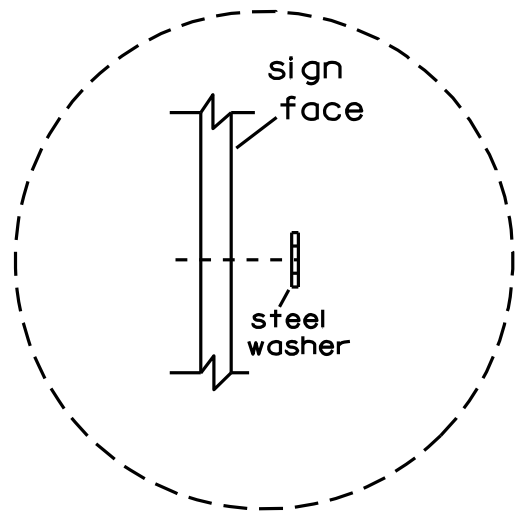


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.

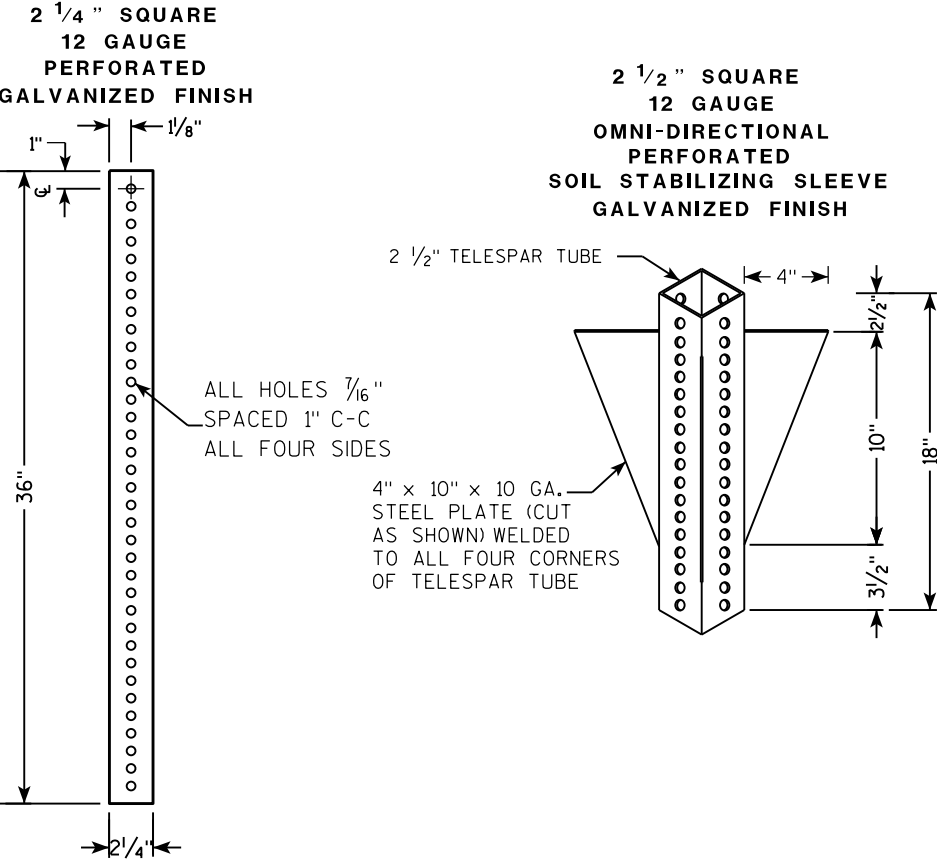


Washer Placement when Sign Has Other Than Type H or Type F Face

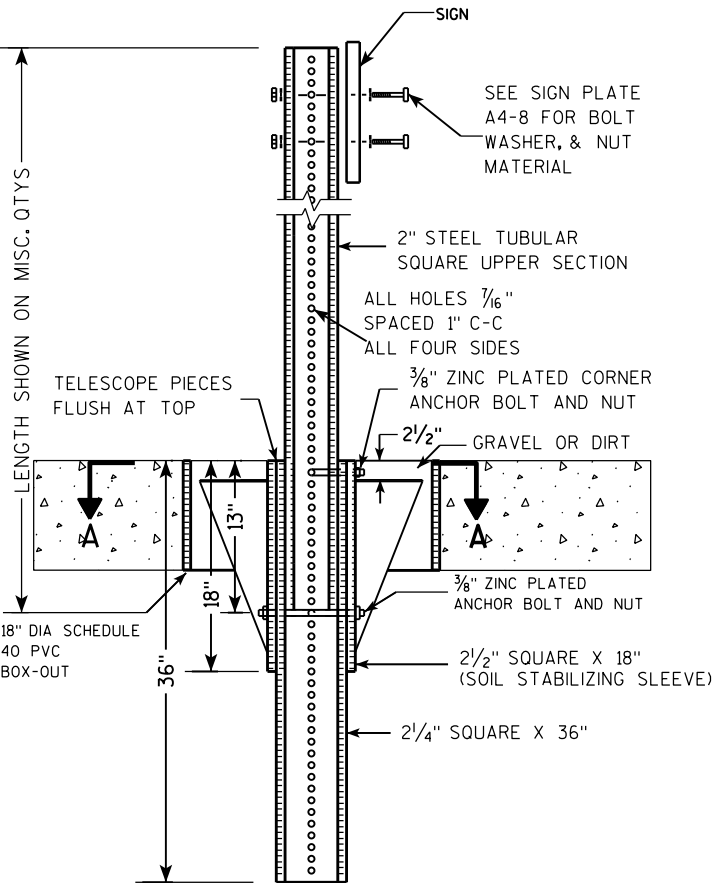
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7

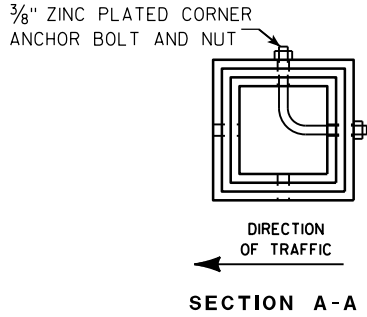
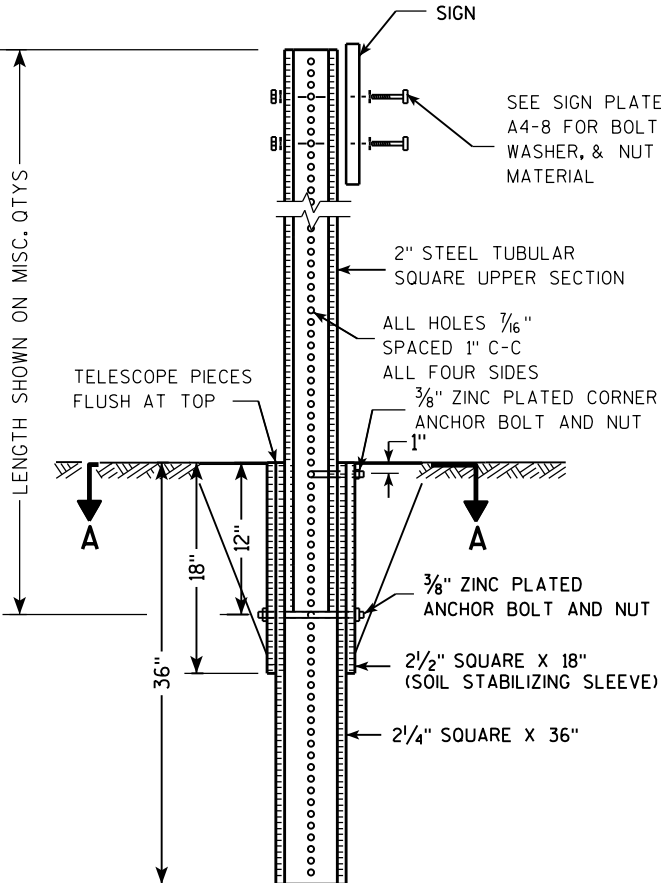
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

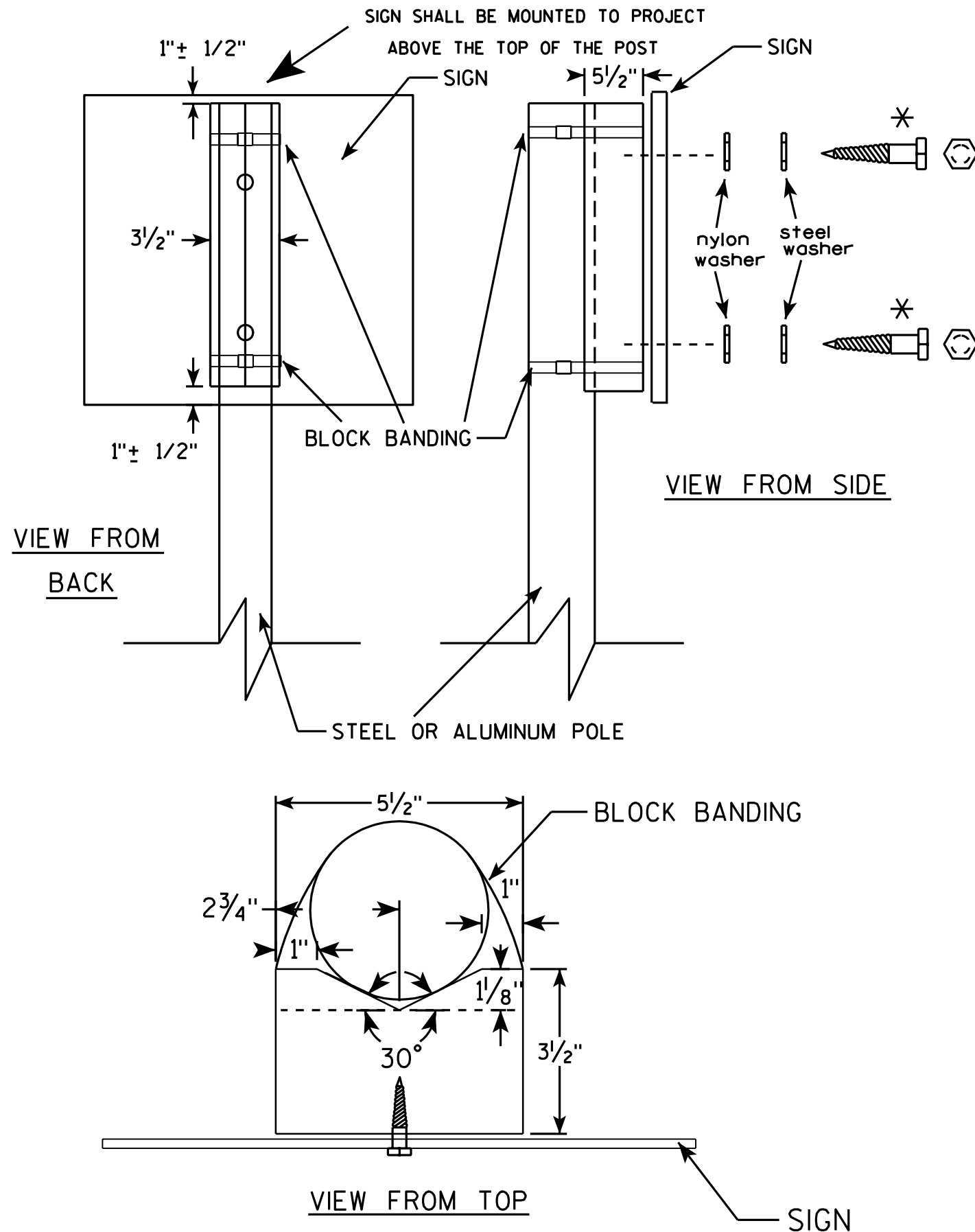
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 203 14-9.9



GENERAL NOTES

1. WOOD 4"x6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D, or
 - b. Cadmium plated in accordance with ASTM Designation : B 766 TYPE 3, Class 12, or
 - c. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL (V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/12/07 PLATE NO. A5-10.1

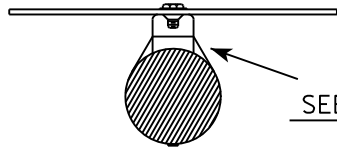
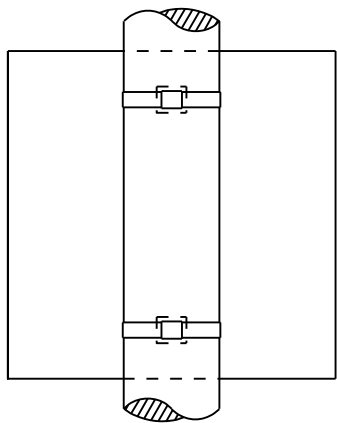
PROJECT NO:

SHEET NO: 204

E

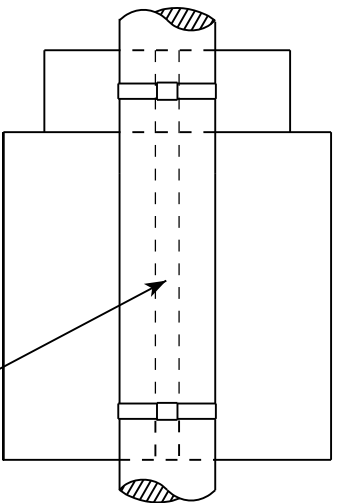
BANDING

SINGLE SIGN

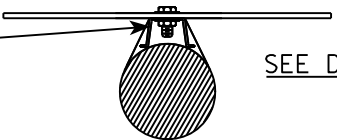


SEE DETAIL A

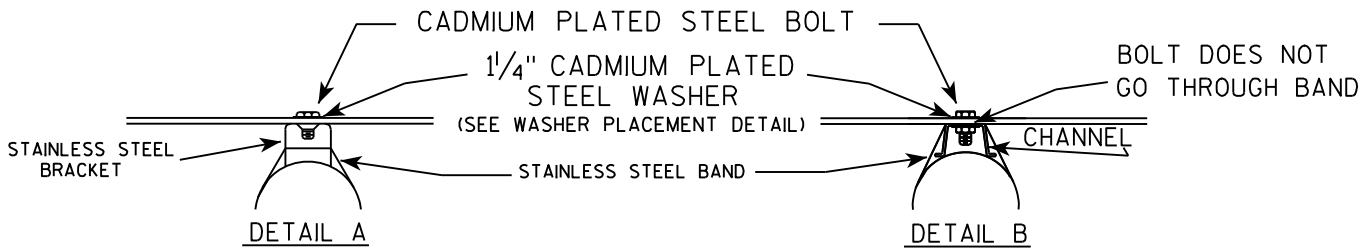
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



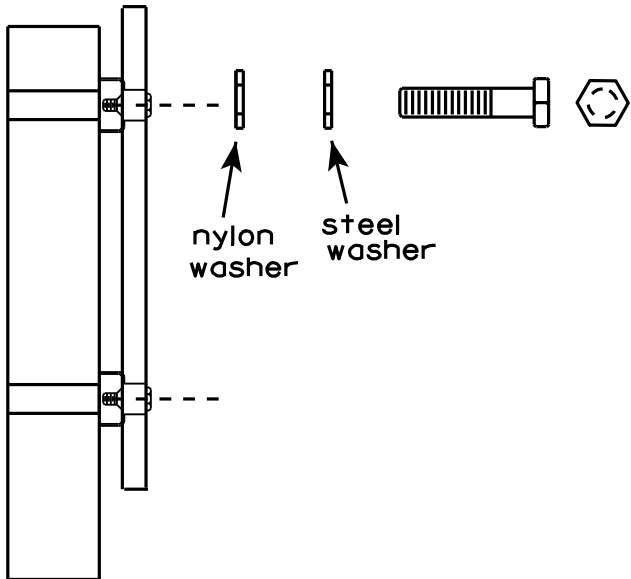
SEE DETAIL B



GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.

WASHER PLACEMENT



WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

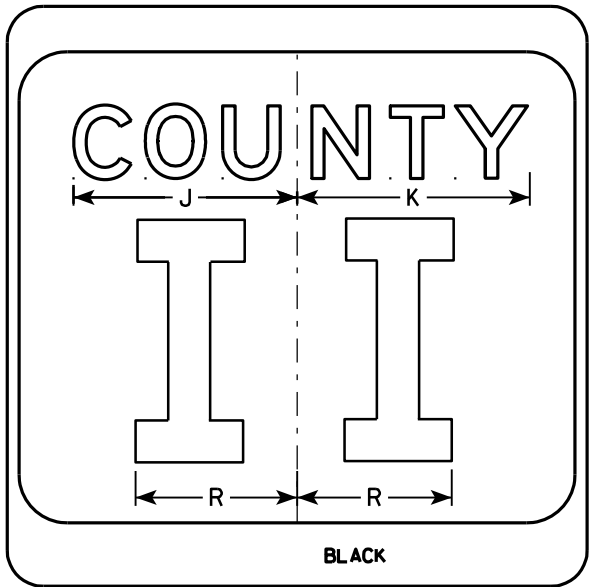
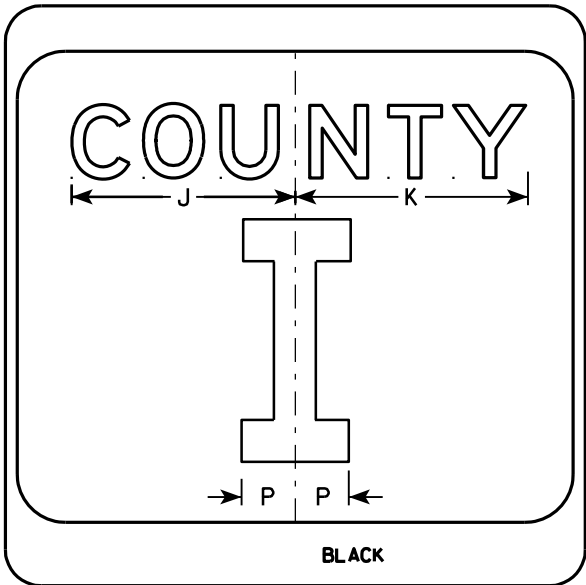
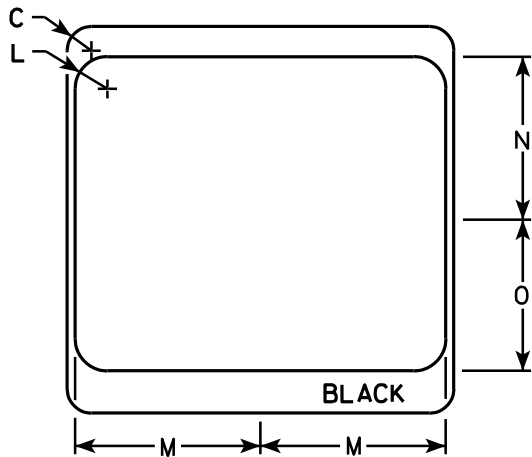
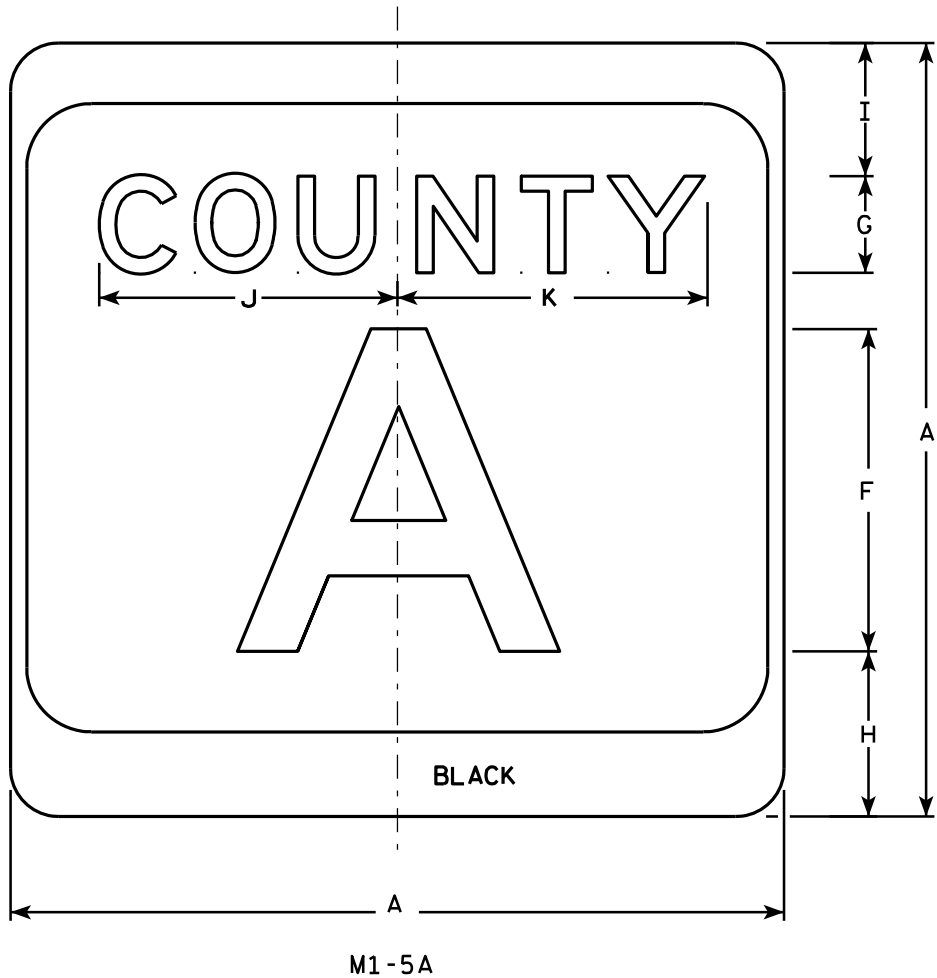
STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/16/13 PLATE NO. A5-9.3

7



NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 206

E

CTH MARKER

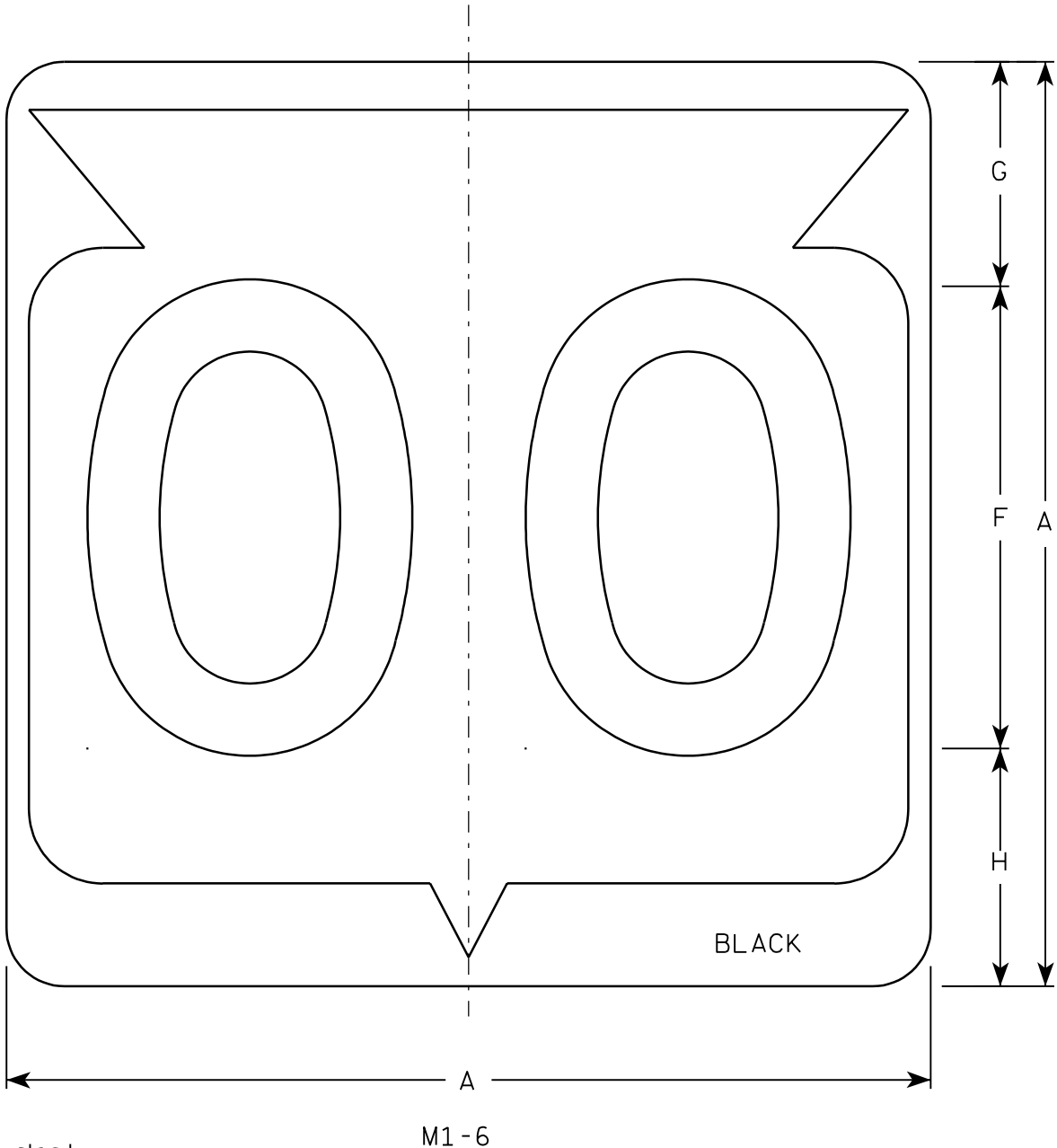
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8

7



Metric equivalent
for this sign is:

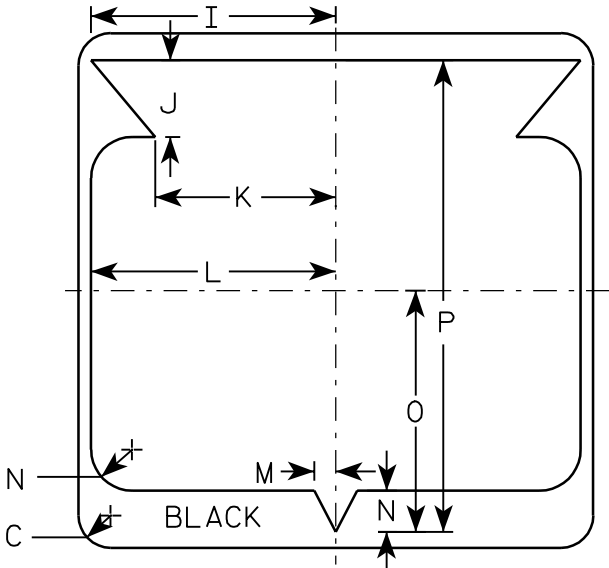
SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m ²
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

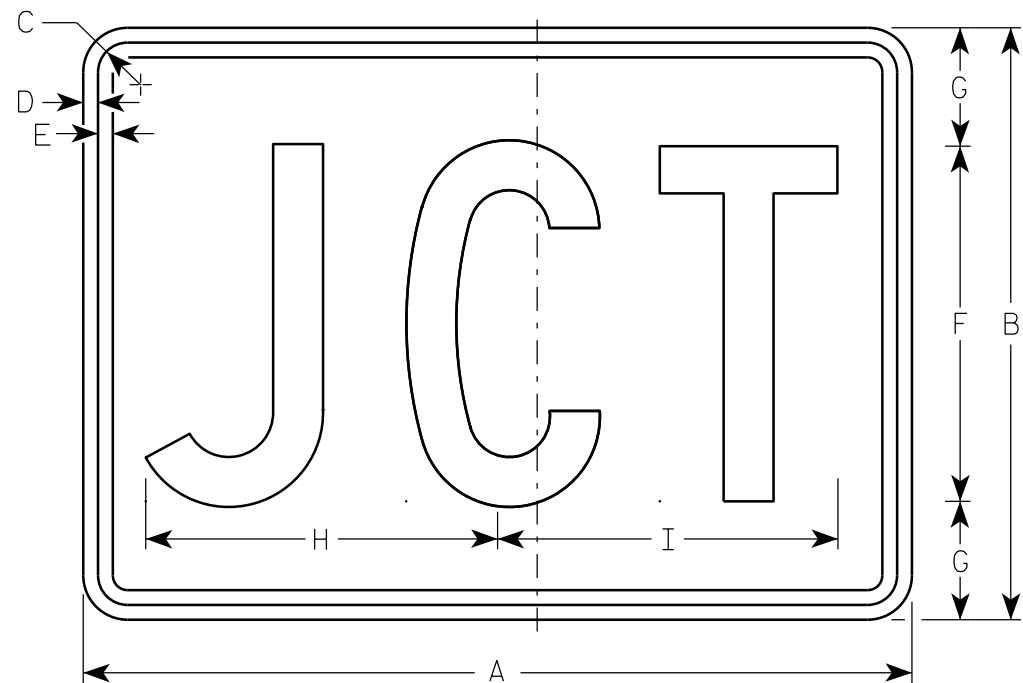
PROJECT NO:				HWY:				COUNTY:																SHEET NO: 207				E
-------------	--	--	--	------	--	--	--	---------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---------------	--	--	--	---

NOTES

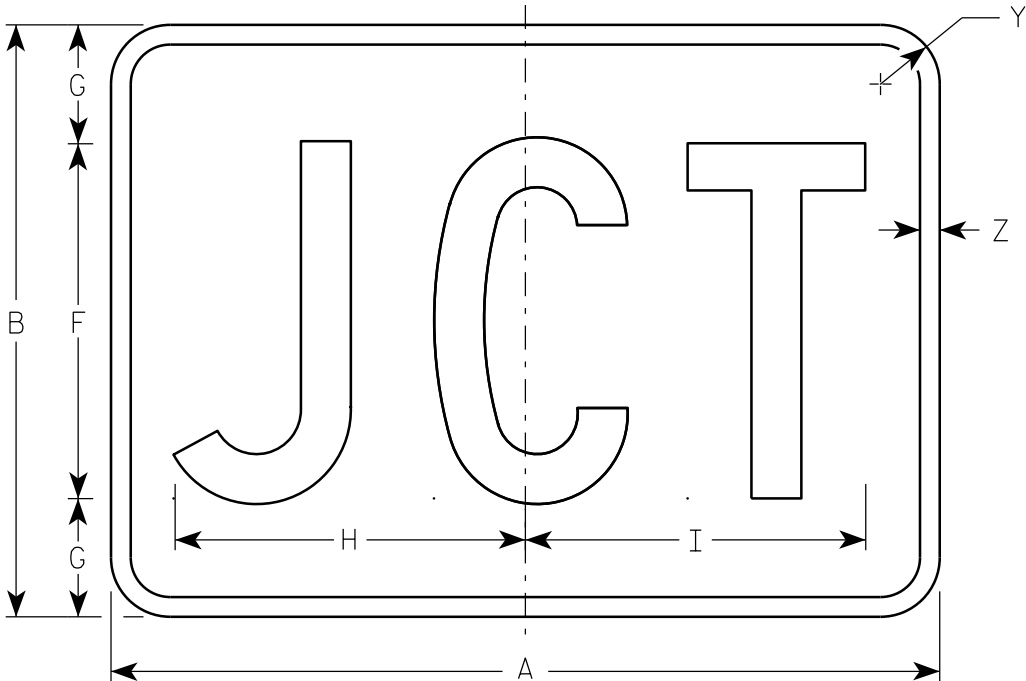
- Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - White & Black - See Note 6
Message - Black
- Message Series - See note 5
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
- Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective



7



M2-1
MK2-1
MM2-1
MN2-1
MR2-1



MB2-1

NOTES

- 1. Sign is Type II - Type H
- 2. Color:
 - Background - See note 5
 - Message - See note 5
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. M2-1 Background - White
 Message - Black
 MB2-1 Background - Blue
 Message - White
 MK2-1 Background - Green
 Message - White
 MM2-1 Background - White
 Message - Green
 MN2-1 Background - Brown
 Message - White
 MR2-1 Background - Brown
 Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40

STANDARD SIGN

M2 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

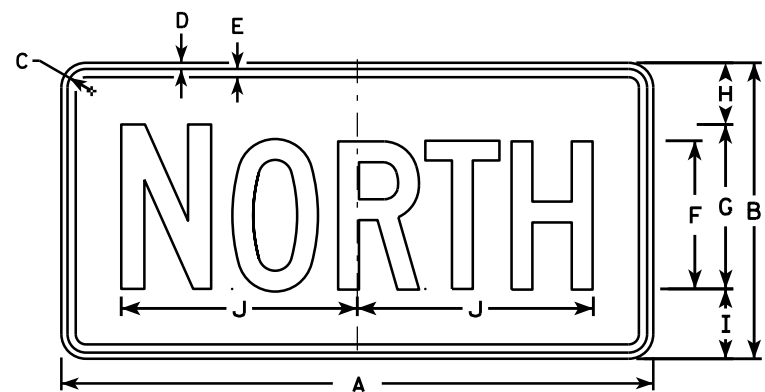
Matthew R. Rauch

For State Traffic Engineer

DATE 6/30/14

PLATE 208

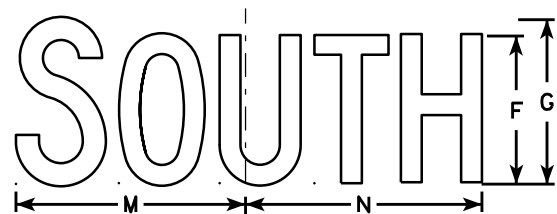
'2-1.11



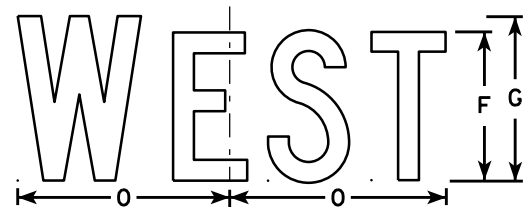
M3-1
MK3-1
MM3-1
MN3-1



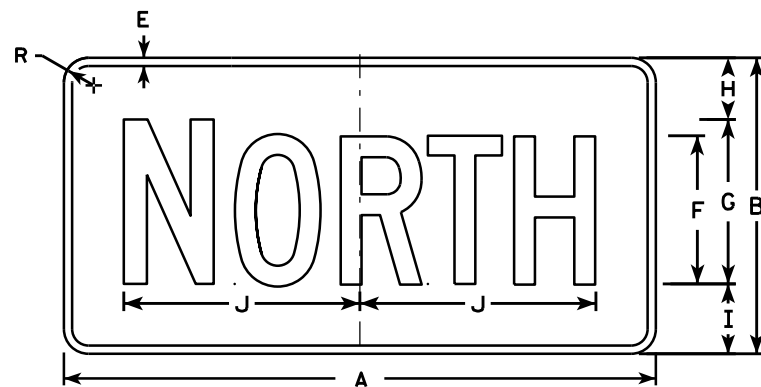
M3-2
MK3-2
MM3-2
MN3-2



M3-3
MK3-3
MM3-3
MN3-3



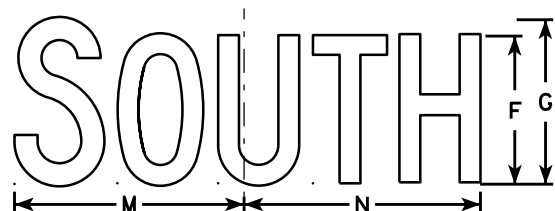
M3-4
MK3-4
MM3-4
MN3-4



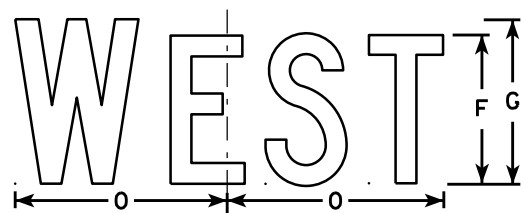
MB3-1



MB3-2



MB3-3



MB3-4

NOTES

1. All Signs Type II - Type H
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
6. Note the first letter of each direction is larger than the remainder of the message.

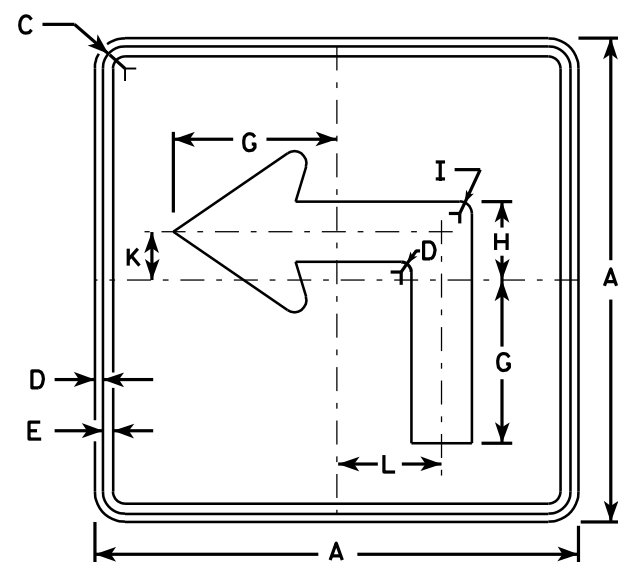
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

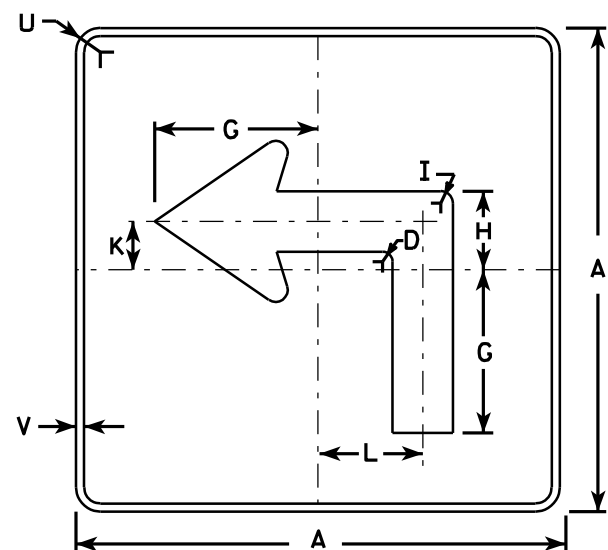
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

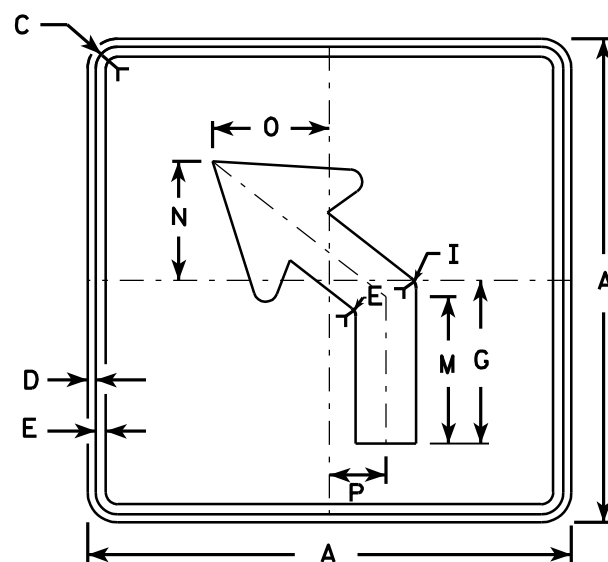
DATE 6/30/14 PLAT 209 M3-1.13



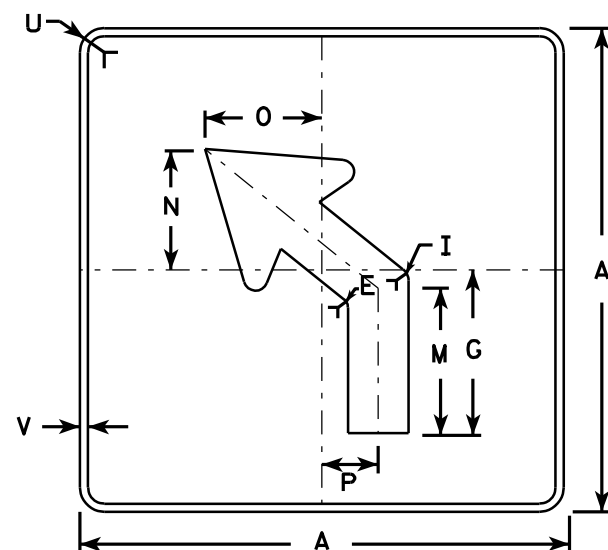
M5-1L
MK5-1L
MM5-1L
M05-1L
MP5-1L
MR5-1L



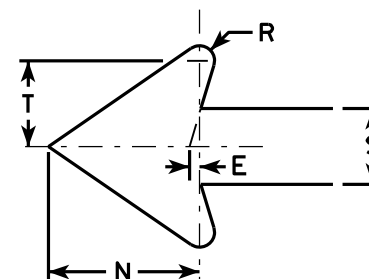
MB5-1L
MG5-1L
MN5-1L



M5-2L
MK5-2L
MM5-2L
M05-2L
MP5-2L
MR5-2L



MB5-2L
MG5-2L
MN5-2L

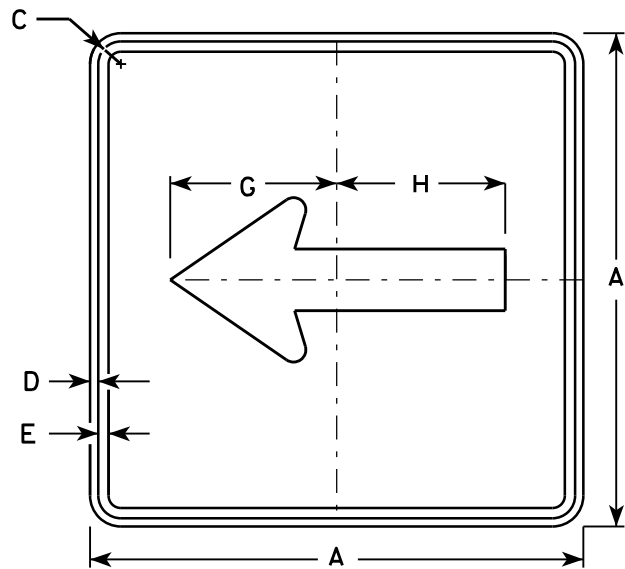


NOTES

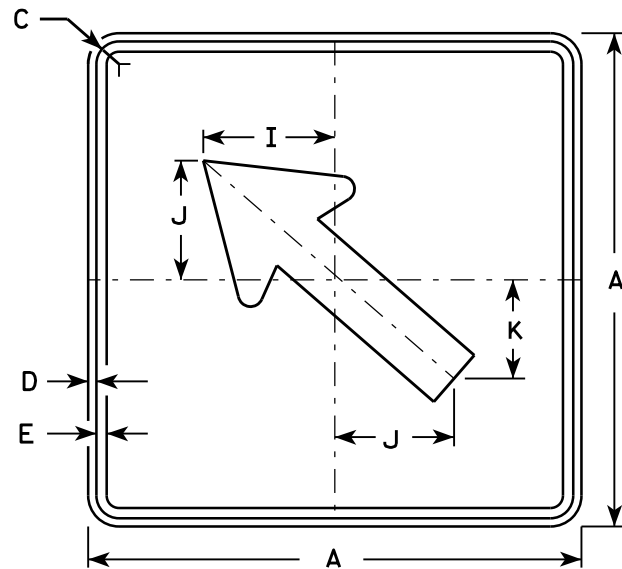
1. Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - See note 4
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M5-1 and M5-2 Background - White - Type H Reflective
Message - Black
MB5-1 and MB5-2 Background - Blue
Message - White - Type H Reflective
MG5-1 and MG5-2 Background - Green
Message - White - Type H Reflective
MK5-1 and MK5-2 Background - Green
Message - White Type H Reflective
MM5-1 and MM5-2 Background - White - Type H Reflective
Message - Green
MN5-1 and MN5-2 Background - Brown
Message - White - Type H Reflective
M05-1 and M05-2 Background - Orange - Type F Reflective
Message - Black
MP5-1 and MP5-2 Background - White - Type H Reflective
Message - Blue
MR5-1 and MR5-2 Background - Brown
Message - Yellow - Type H Reflective
5. M5-1R same as M5-1L except arrow points right.
6. M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

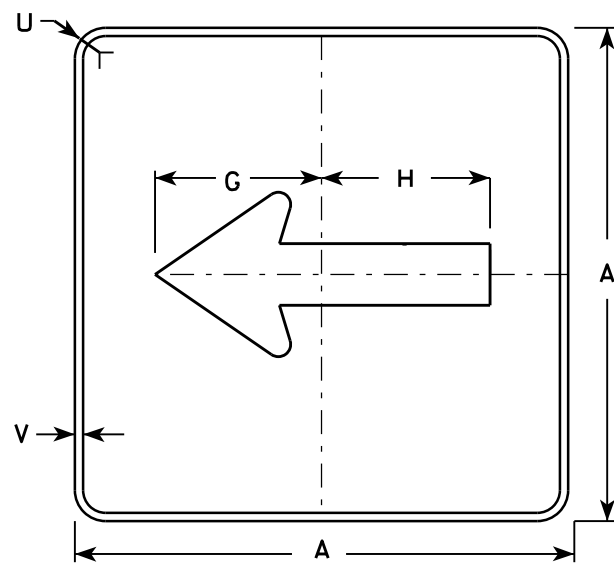
STANDARD SIGN	
M5-1 & M5-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 7/29/13	PLATE NO. M5-1.12



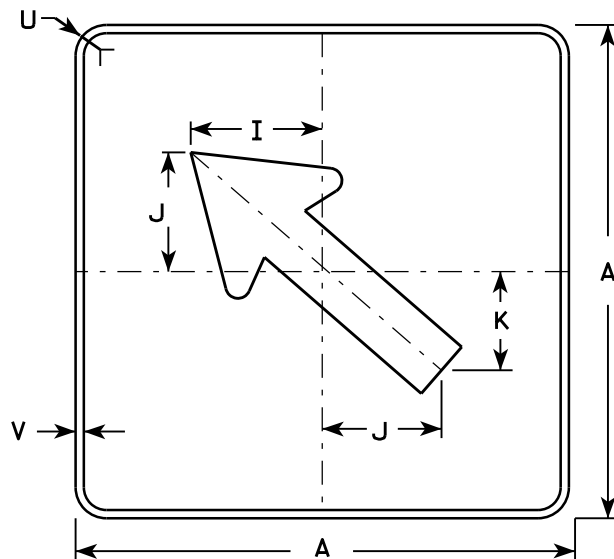
M6 - 1
MK6 - 1
MM6 - 1
MN6 - 1
M06 - 1
MP6 - 1
MR6 - 1



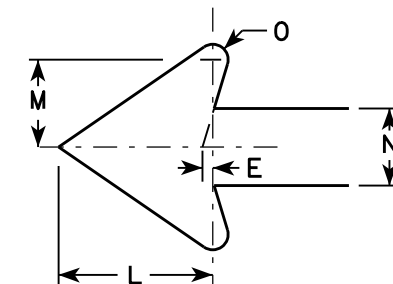
M6 - 2
MK6 - 2
MM6 - 2
MN6 - 2
M06 - 2
MP6 - 2
MR6 - 2



MB6 - 1



MB6 - 2



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MG6-1 and MG6-2 Background - Green
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

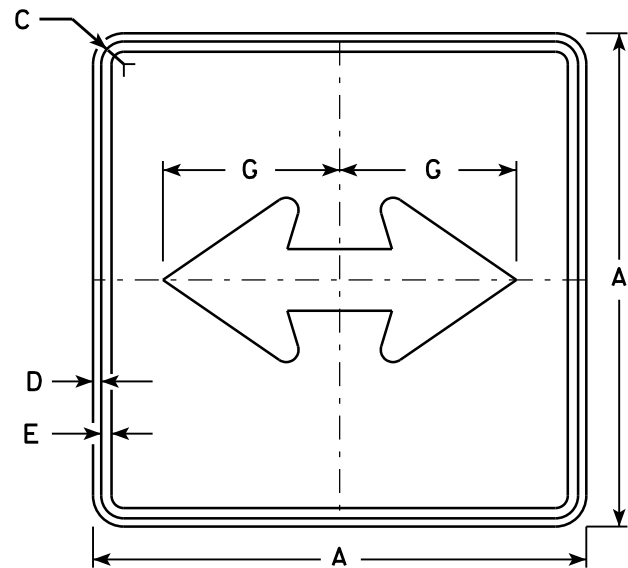
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

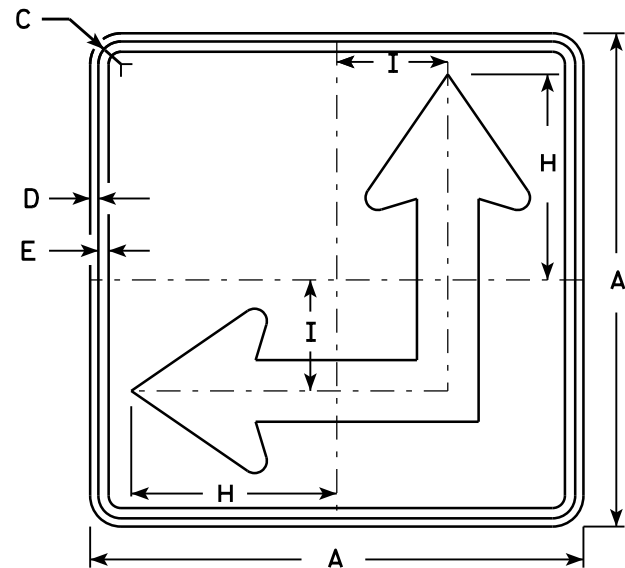
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

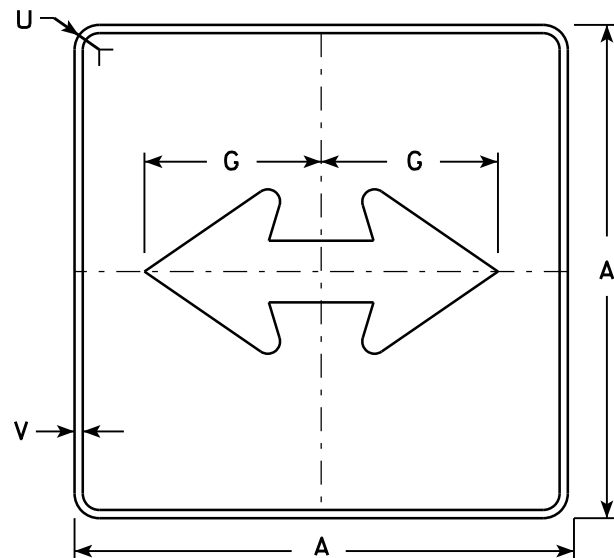
DATE 7/03/14 PLAT 211 M6-1.14



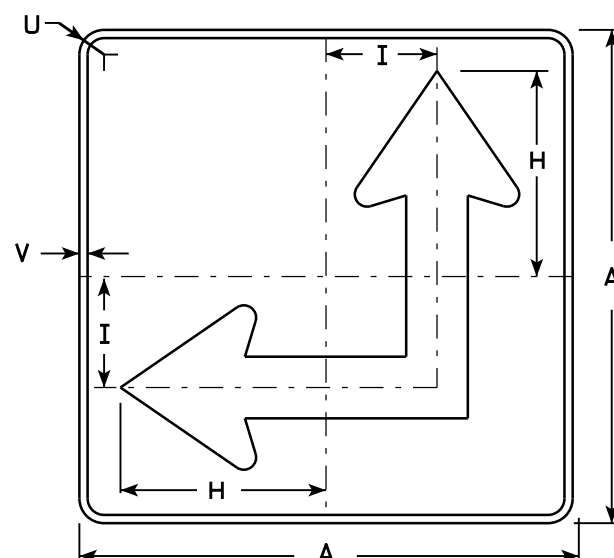
M6 - 4
MK6 - 4
MM6 - 4
MN6 - 4
MO6 - 4
MP6 - 4
MR6 - 4



M6 - 6
MK6 - 6
MM6 - 6
MN6 - 6
MO6 - 6
MP6 - 6
MR6 - 6



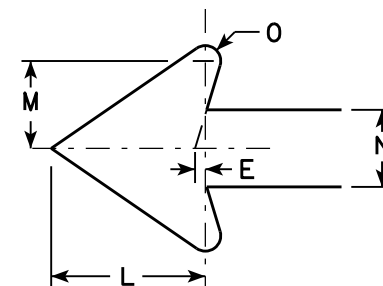
MB6 - 4



MB6 - 6

NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See Note 4
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White
MK6-4 and MK6-6 Background - Green
Message - White
MM6-4 and MM6-6 Background - White
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White
MO6-4 and MO6-6 Background - Orange - Type F Reflective
Message - Black
MP6-4 and MP6-6 Background - White
Message - Blue
MR6-4 and MR6-6 Background - Brown
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



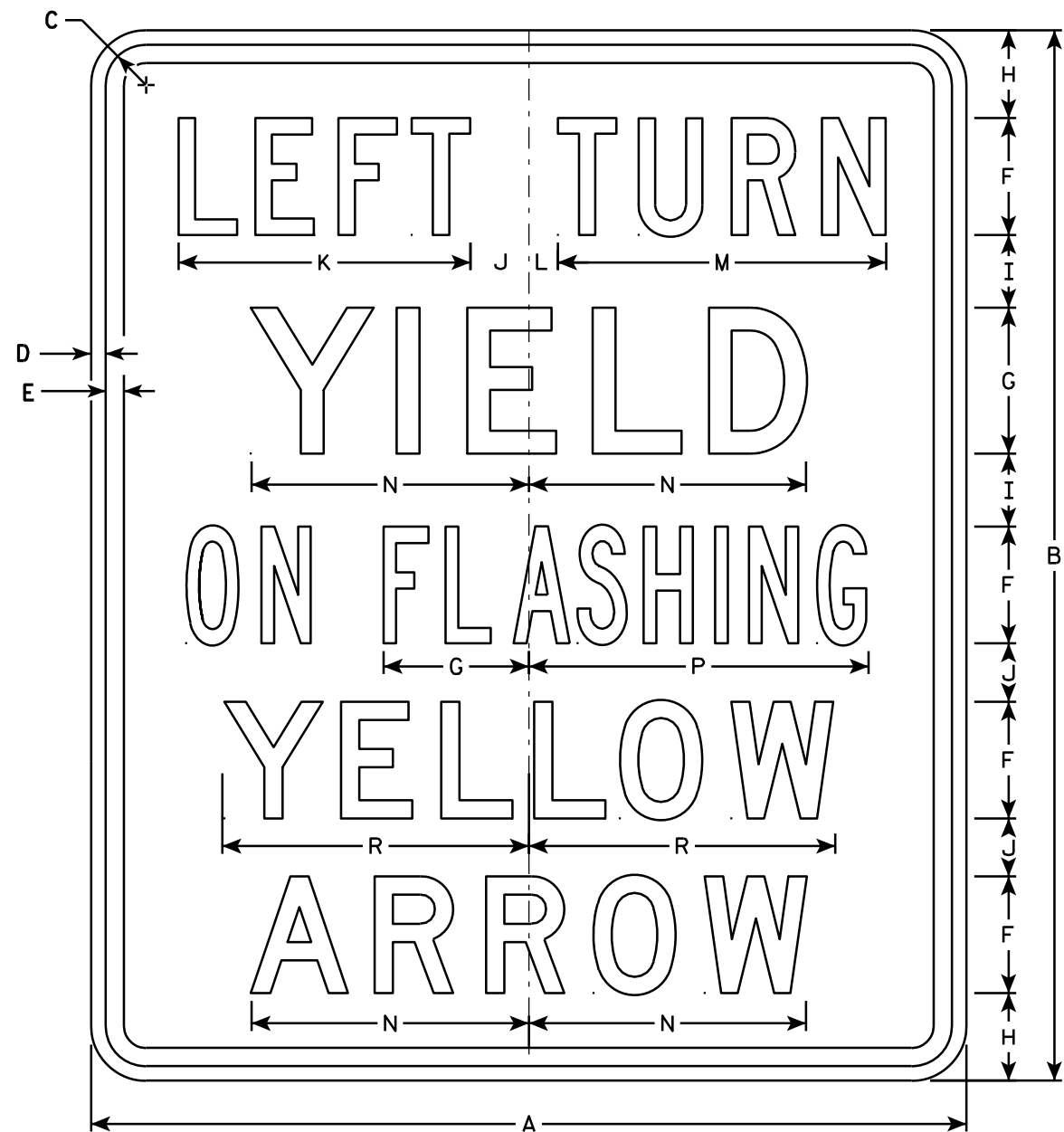
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN
M6 - 4 & M6 - 6
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/03/14 PLAT 212 '16-4.9

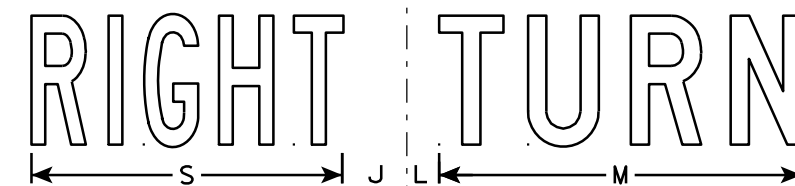


R10-50L

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series C.
Lines 2, 4 and 5 are Series D.
Line 3 is Series B.

"RIGHT" Is Series B



R10-50R

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	36	1 3⁄8	1⁄2	5⁄8	4	5	3	2 1⁄2	2	10	1	11 1⁄4	9 1⁄2	4 1⁄4	11 5⁄8		10 1⁄2	9 5⁄8								7.5
2M	30	36	1 3⁄8	1⁄2	5⁄8	4	5	3	2 1⁄2	2	10	1	11 1⁄4	9 1⁄2	4 1⁄4	11 5⁄8		10 1⁄2	9 5⁄8								7.5
3																											
4																											
5																											

STANDARD SIGN R10-50

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 4/11/13

PLATE NO. R10-50.2

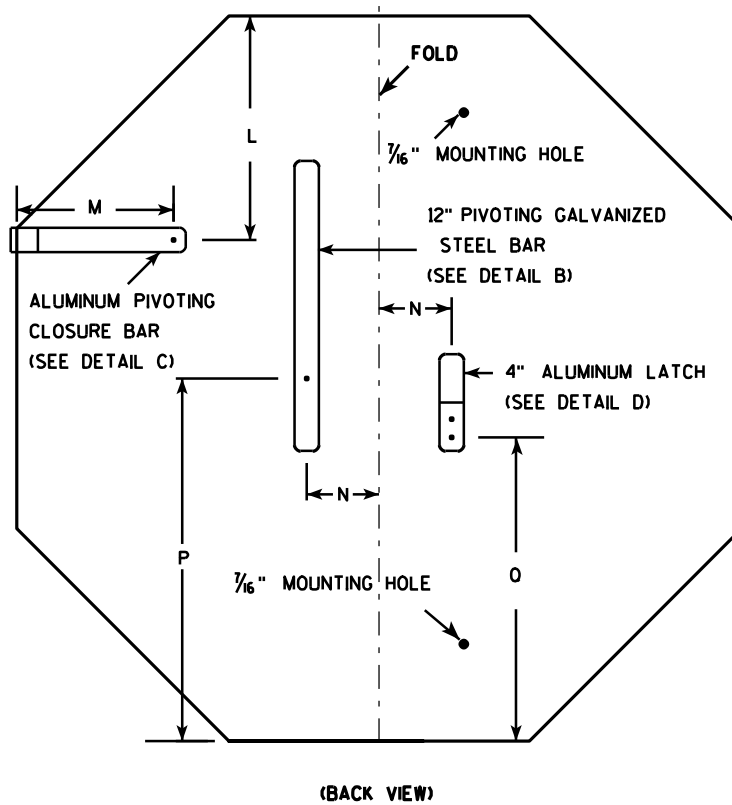
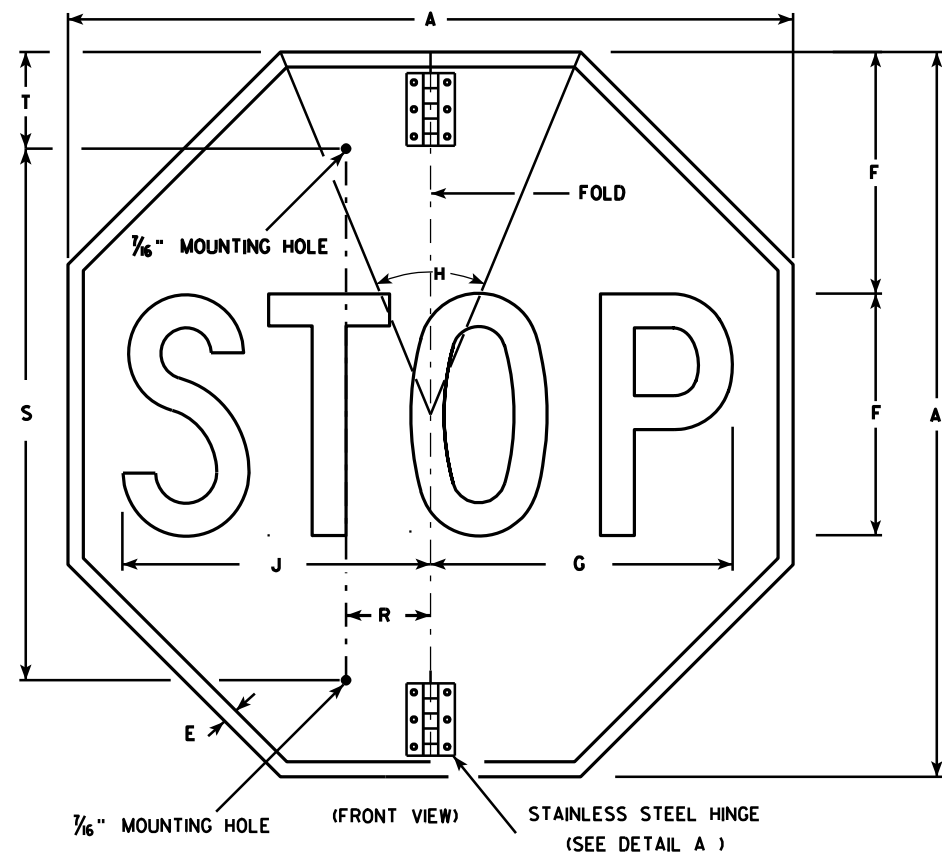
PROJECT NO:

HWY:

COUNTY:

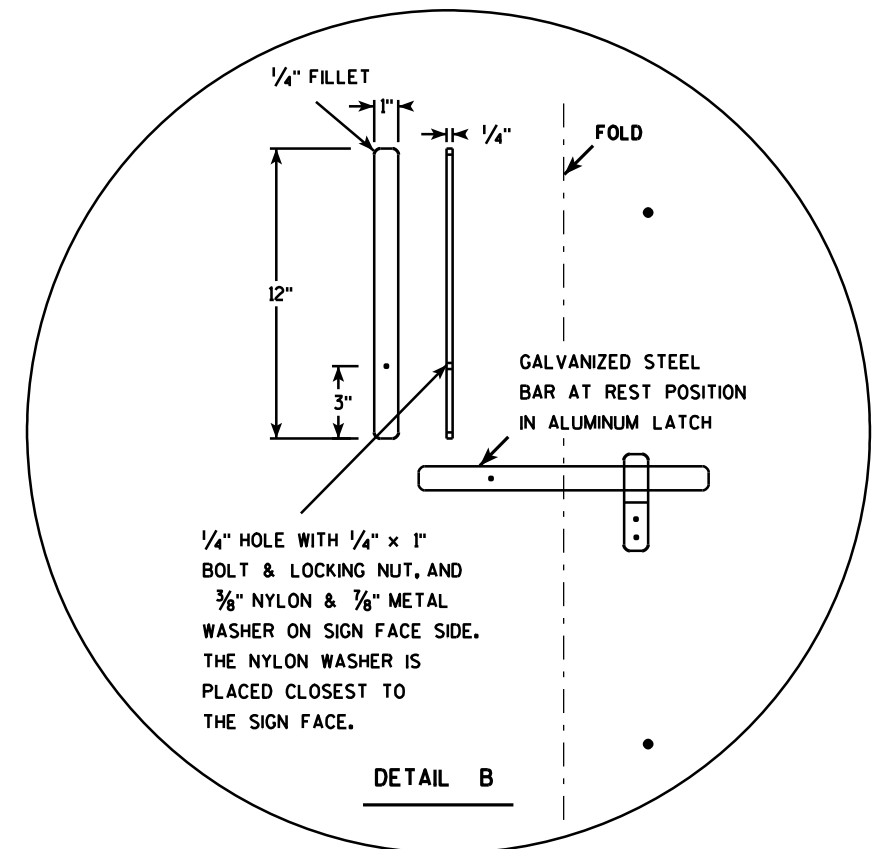
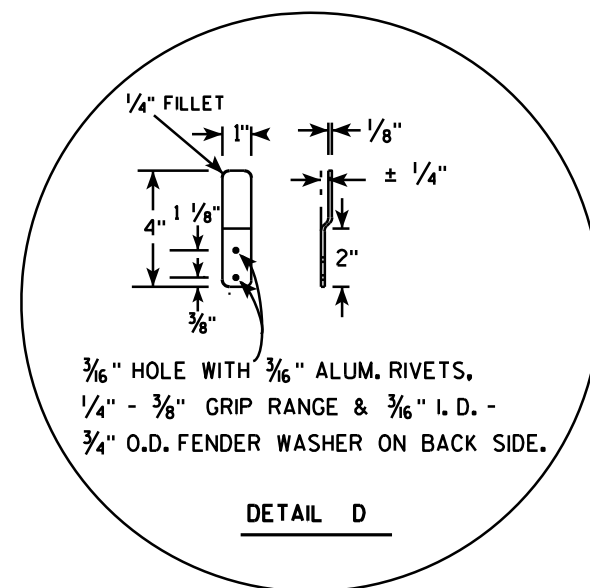
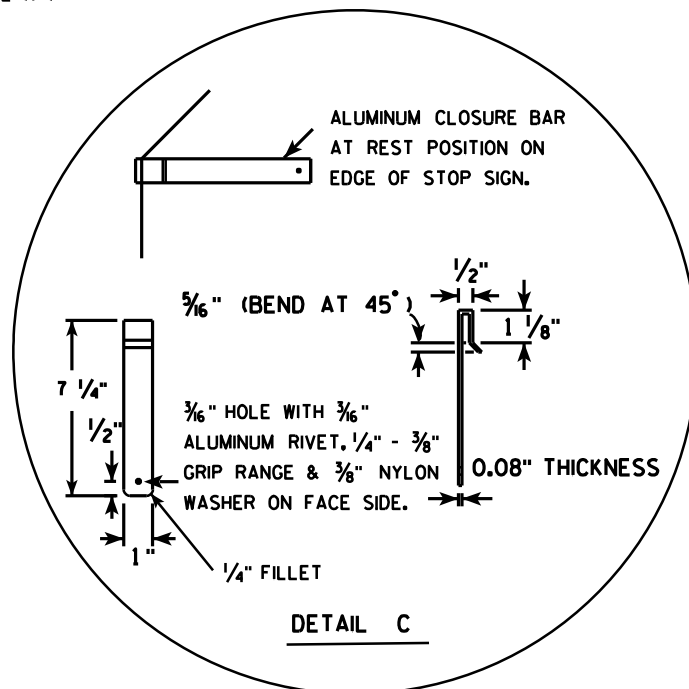
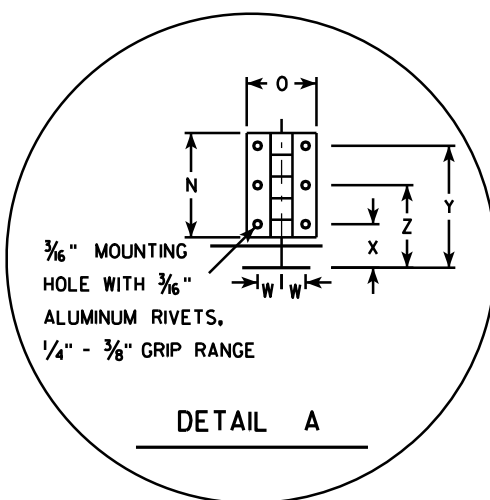
SHEET NO: 213

E



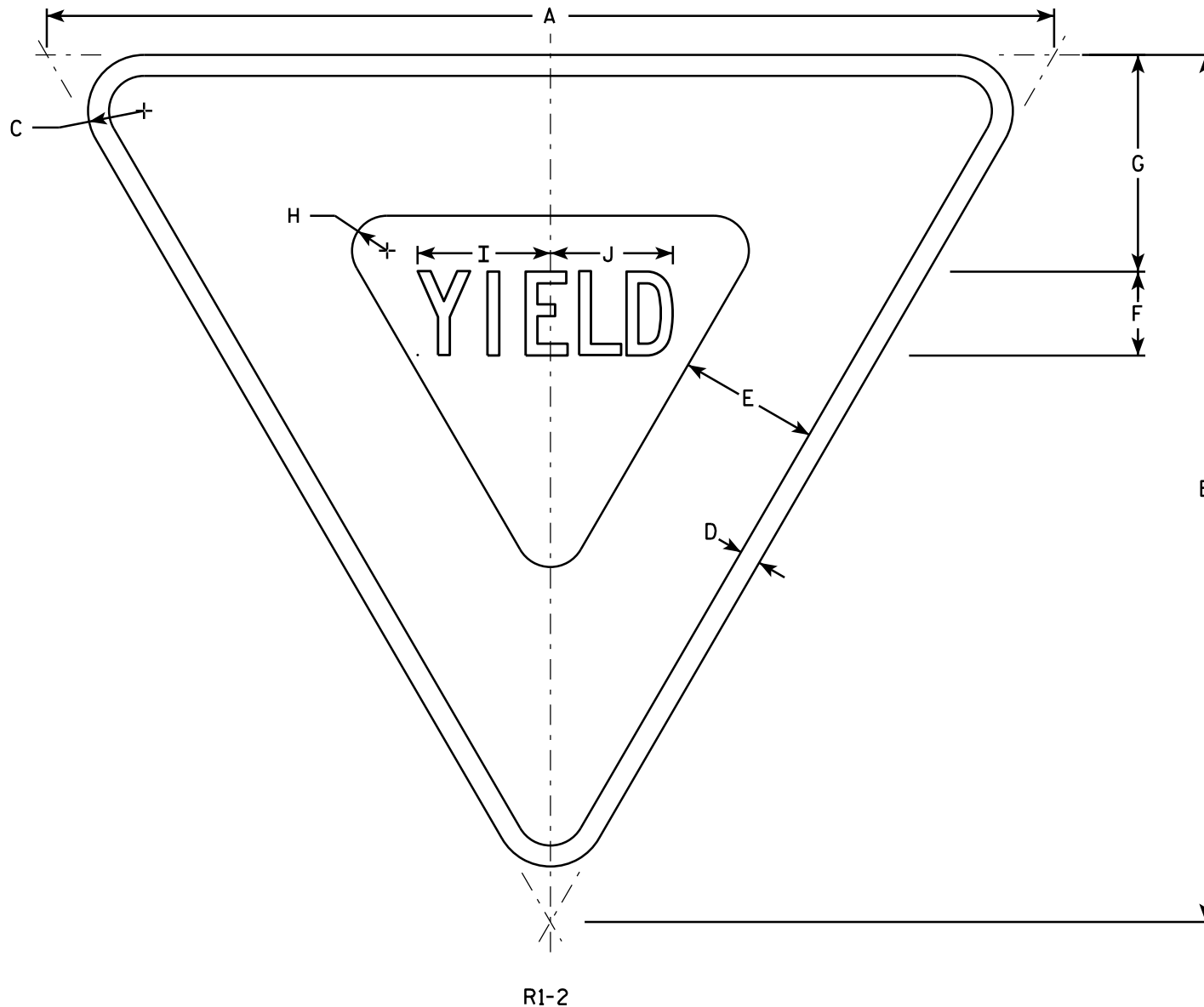
NOTES

- Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Red
Message - White
- Message Series - C
- All hardware used on the folding STOP sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30				5/8	10	12 1/2	45		12 3/4		9 1/4	6 1/2	3	2	15	12 3/8	2 1/2	22	5			11/16	1 1/4	3 1/2	2 3/8	5.18
2M	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			11/16	1 1/4	3 1/2	2 3/8	7.46
3	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			11/16	1 1/4	3 1/2	2 3/8	7.46
4																											
5																											

STANDARD SIGN R1-1F	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 12/03/10	PLATE NO. R1-1F.3



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The border strip and word message are reflectorized red.

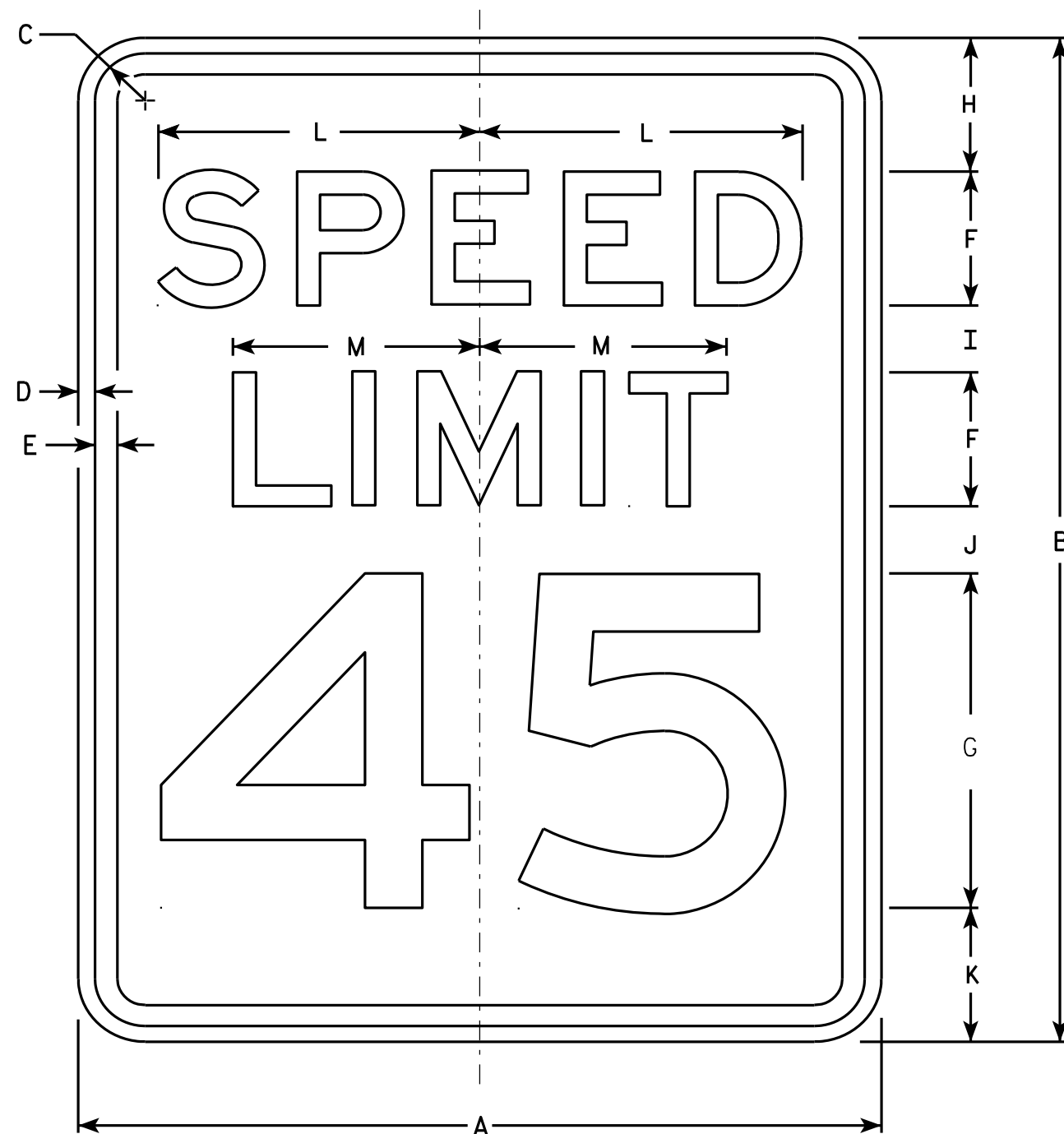
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	26	1 1/2	5/8	4	2 1/2	6 3/8	7/8	4	3 5/8																	2.71
2S	36	31	2	3/4	5	3	7 3/4	1 1/4	4 3/4	4 3/8																	3.88
2M	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
3	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
4	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
5	60	52	3	1 1/2	8	5	13	2 1/2	7 7/8	7 1/4																	10.83
6																											
7	18	15 1/2	1	3/8	2 1/2	1 1/2	3 7/8	5/8	2 3/8	2 1/4																	0.97

STANDARD SIGN
R1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/13/14 PLATE 215 P1-2.12



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

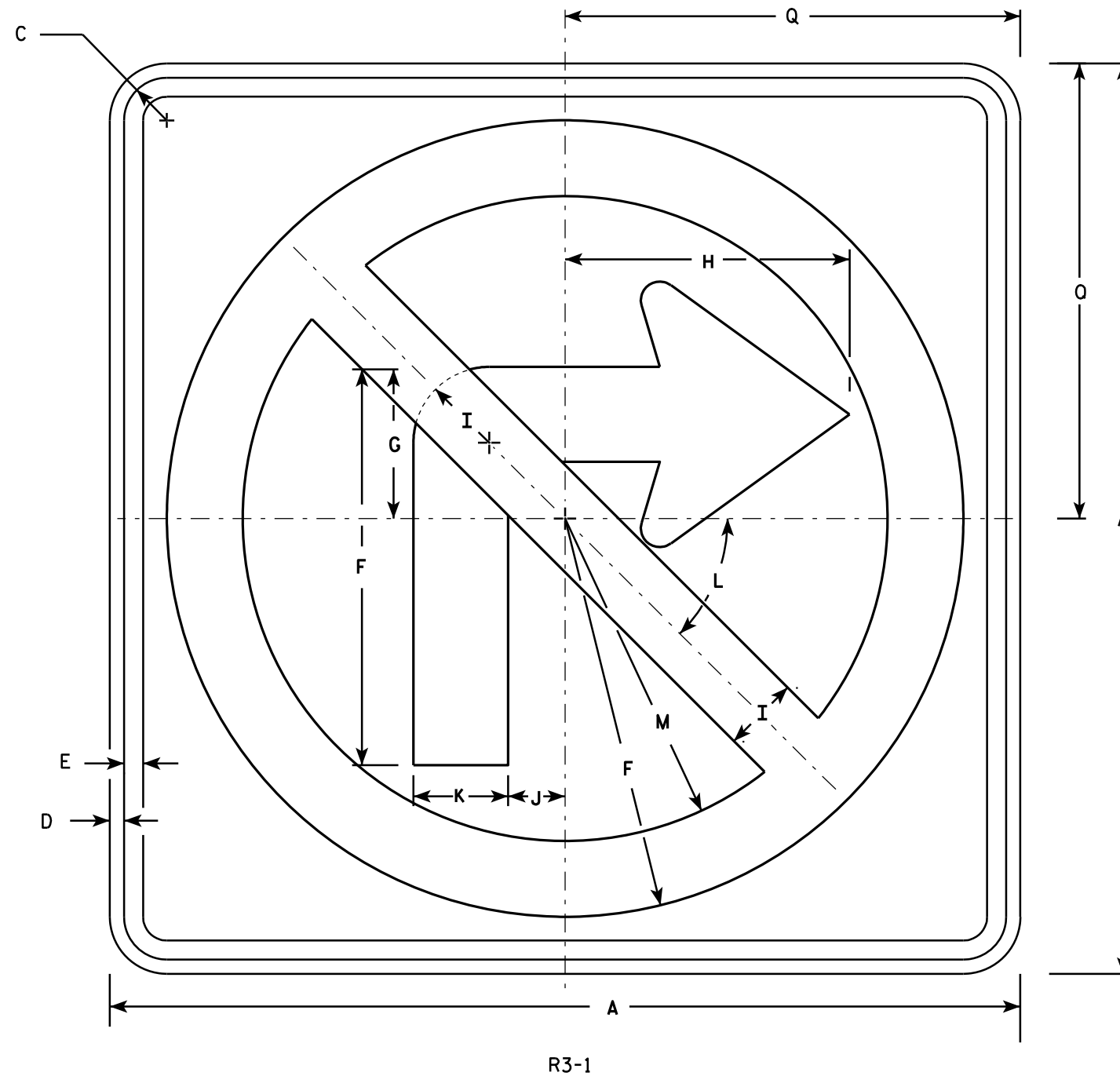
STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

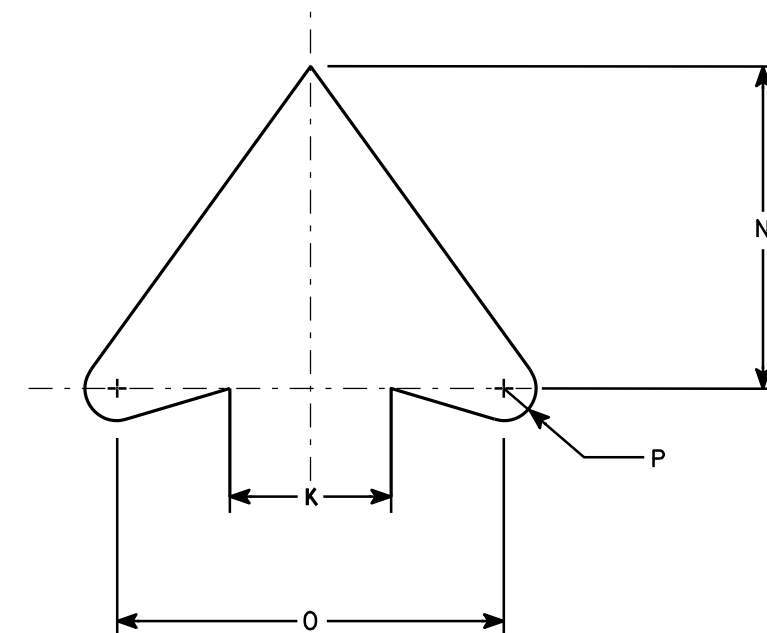
DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: HWY: COUNTY: SHEET NO: 216 E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45	8 1/2	5	6	1/2	12										4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2	12										4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4	18										9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1	24										16.0

STANDARD SIGN

R3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-1.5

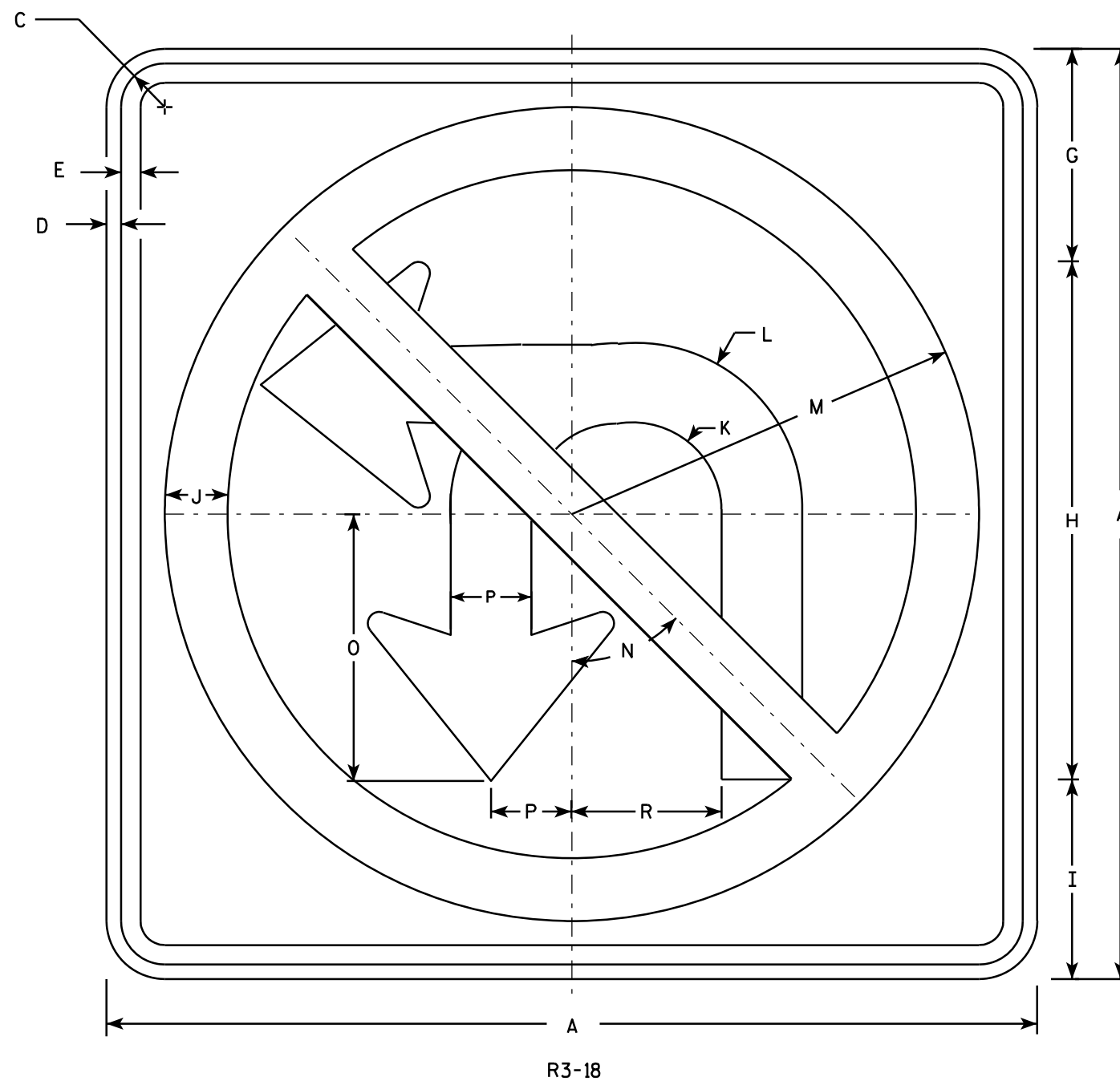
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 217

E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24		1 1/8	3/8	1/2		5 1/2	13 3/8	5 1/8	1 5/8	2 1/4	4 1/4	10 1/2	45°	6 7/8	2 1/8		3 7/8									4.0
2M	36		1 5/8	5/8	3/4		8 1/4	20	7 3/4	2 1/2	3 3/8	6 1/2	15 3/4	45°	10 3/8	3 1/8		5 3/4									9.0
3	36		1 5/8	5/8	3/4		8 1/4	20	7 3/4	2 1/2	3 3/8	6 1/2	15 3/4	45	10 3/8	3 1/8		5 3/4									9.0
4	36		1 5/8	5/8	3/4		8 1/4	20	7 3/4	2 1/2	3 3/8	6 1/2	15 3/4	45	10 3/8	3 1/8		5 3/4									9.0
5	48		2 1/4	3/4	1		11	26 3/4	10 1/4	3 1/4	4 5/8	8 5/8	21	45°	13 3/4	4 1/8		7 3/4									16.0

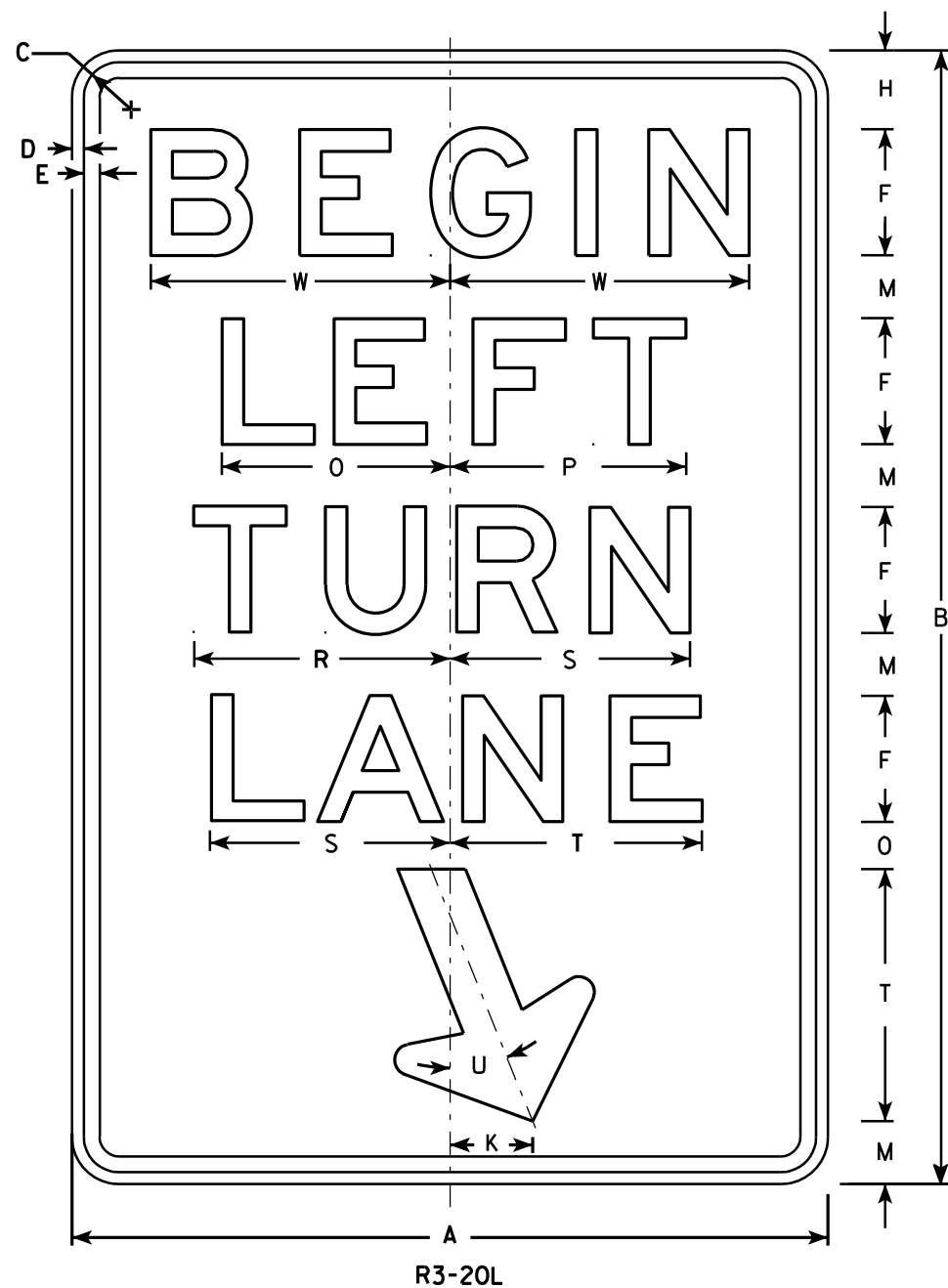
STANDARD SIGN R3-18

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

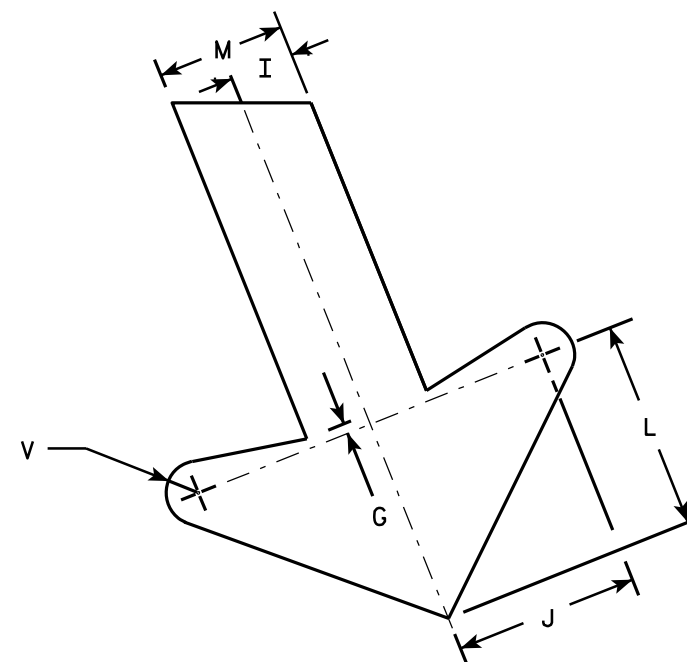
DATE 11/21/10 PLATE NO. R3-18.2

PROJECT NO: HWY: COUNTY: SHEET NO: 218 E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



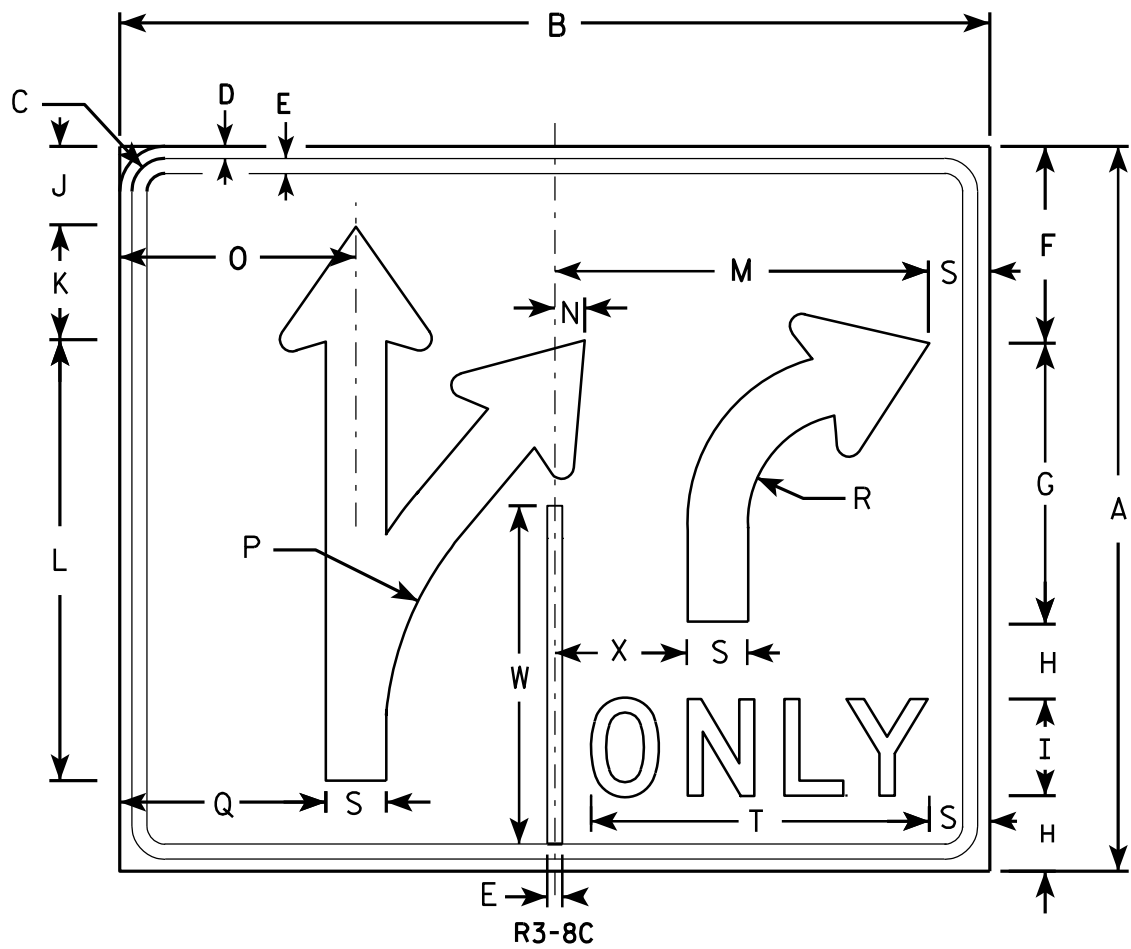
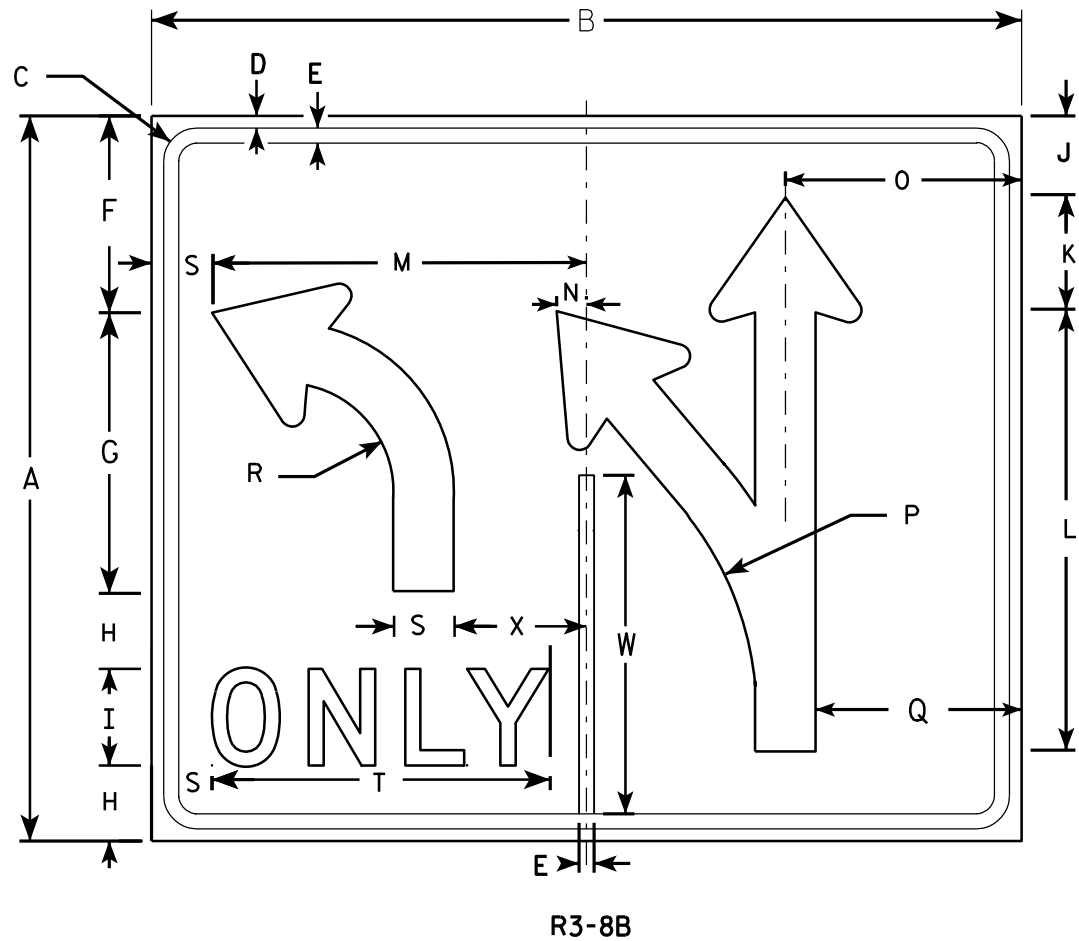
ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	10 7/8	11 1/4		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

STANDARD SIGN R3-20L	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 10/18/10	PLATE NO. R3-20L.7

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - WHITE
Message - BLACK
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R3-8B & R3-8C is the same but reversed.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	36	1 3⁄8	1⁄2	5⁄8	8 1⁄8	11 5⁄8	3 1⁄8	4	3 1⁄4	4 3⁄4	18 1⁄4	15 1⁄2	1 1⁄4	9 3⁄4	13 1⁄4	8 1⁄2	4 1⁄2	2 1⁄2	14	2 5⁄8	3⁄8	14	5 1⁄4			7.5
2M	30	36	1 3⁄8	1⁄2	5⁄8	8 1⁄8	11 5⁄8	3 1⁄8	4	3 1⁄4	4 3⁄4	18 1⁄4	15 1⁄2	1 1⁄4	9 3⁄4	13 1⁄4	8 1⁄2	4 1⁄2	2 1⁄2	14	2 5⁄8	3⁄8	14	5 1⁄4			7.5
3																											
4	48	54	2 1⁄4	3⁄4	1	13 1⁄4	18 1⁄2	5 1⁄8	6	5 1⁄4	7 1⁄8	29 5⁄8	23 1⁄8	1 7⁄8	14 5⁄8	21 7⁄8	12 3⁄4	7 1⁄4	3 3⁄4	20 5⁄8	4	5⁄8	22 3⁄8	8 1⁄8			18.0
5	48	54	2 1⁄4	3⁄4	1	13 1⁄4	18 1⁄2	5 1⁄8	6	5 1⁄4	7 1⁄8	29 5⁄8	23 1⁄8	1 7⁄8	14 5⁄8	21 7⁄8	12 3⁄4	7 1⁄4	3 3⁄4	20 5⁄8	4	5⁄8	22 3⁄8	8 1⁄8			18.0

STANDARD SIGN
R3-8B & R3-8C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 3/18/2011

PLATE NO. R3-8B.2

PROJECT NO:

HWY:

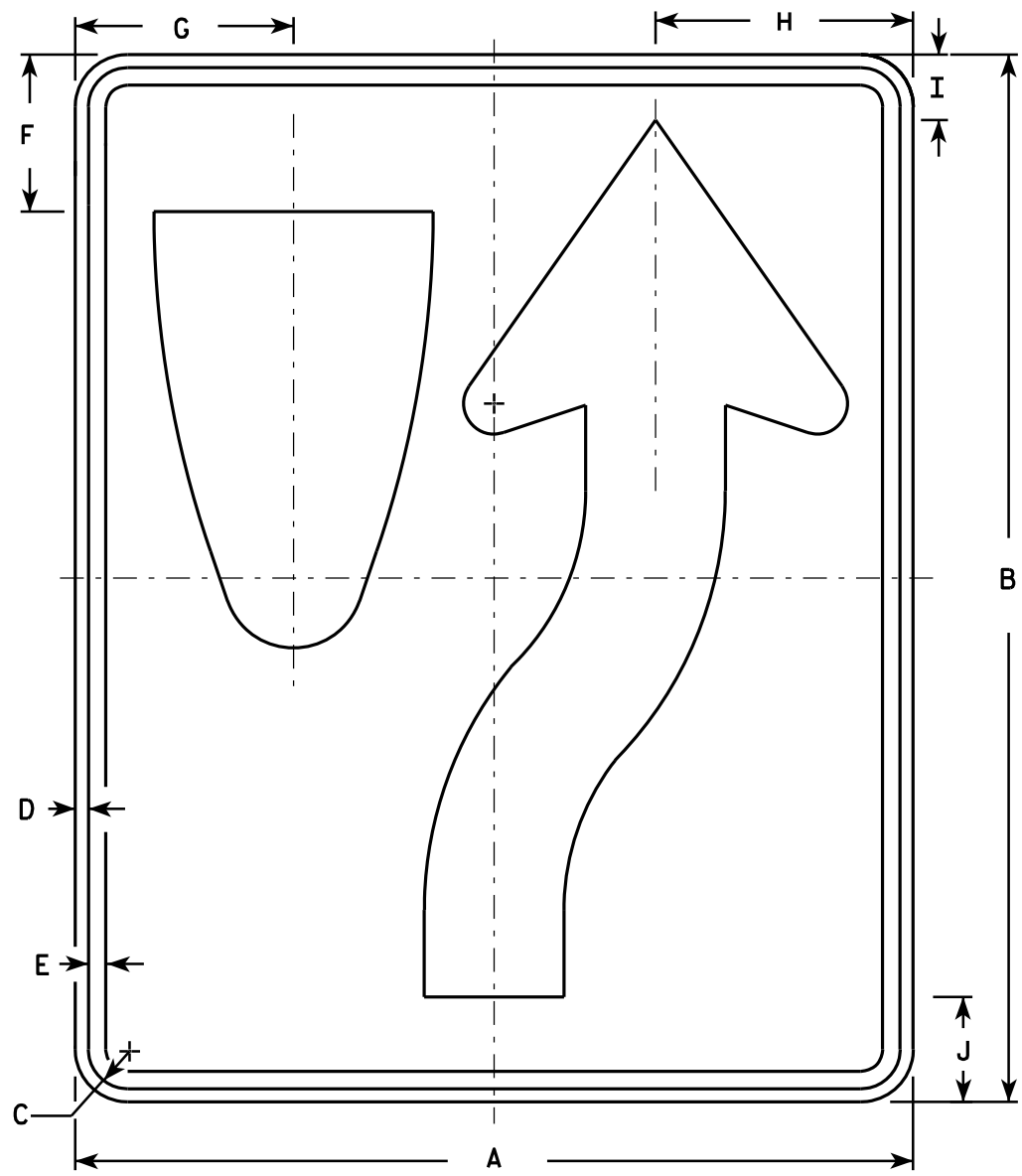
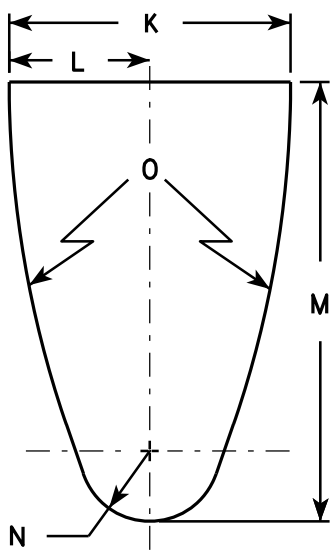
COUNTY:

SHEET NO: 220

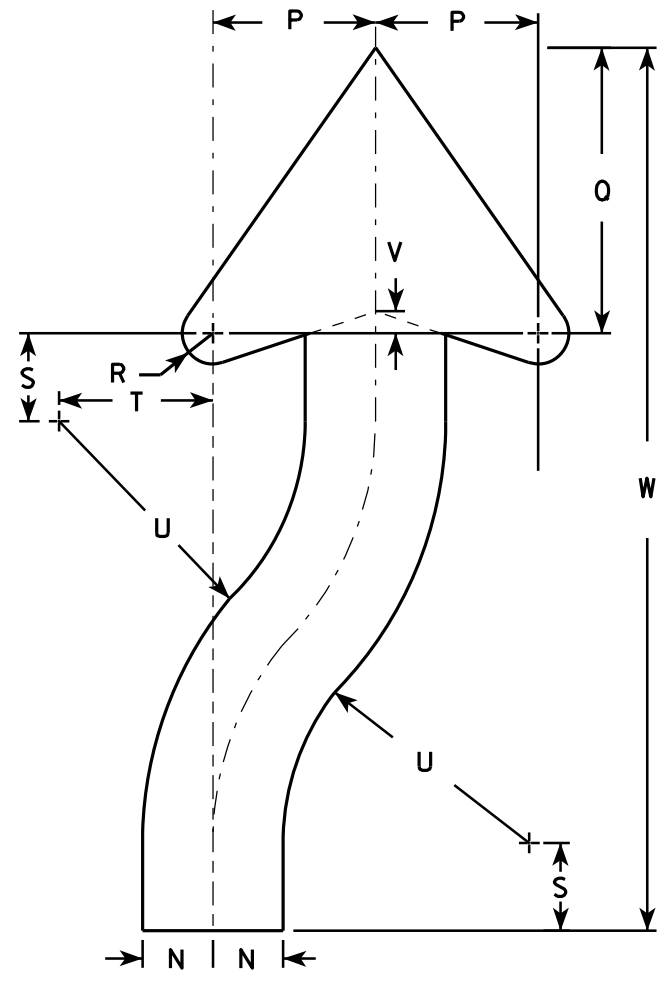
E

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
- 2. Color:
Background - White
Message - Black
- 3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
- 4. R4-8 is the same as R4-7 except Legend is reversed.



R4-7



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

STANDARD SIGN

R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

PROJECT NO:

HWY:

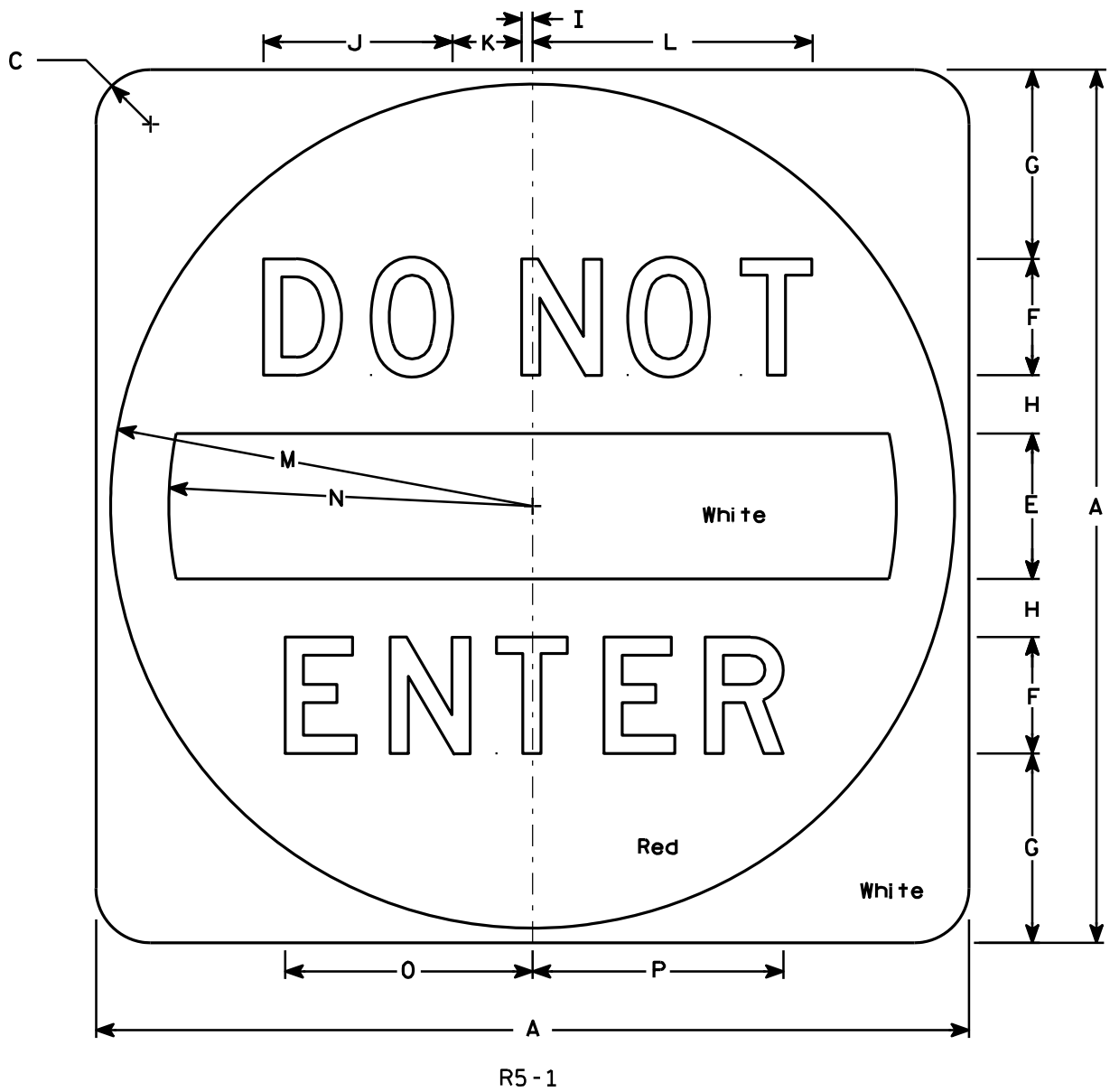
COUNTY:

SHEET NO: 221

E

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
 - Background - See detail
 - Message - White - Type H Reflective
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but when base material is metal, the corners shall be rounded.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7⁄8		5	4	6 1⁄2	2	3⁄8	6 1⁄2	2 3⁄8	9 5⁄8	14 1⁄2	12 1⁄2	8 1⁄2	8 5⁄8											6.26
2M	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
3	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
4	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
5	48		3		8	6	11	3	5⁄8	9 3⁄4	3 5⁄8	14 1⁄2	23 1⁄2	20	12 3⁄4	12 7⁄8											16.0

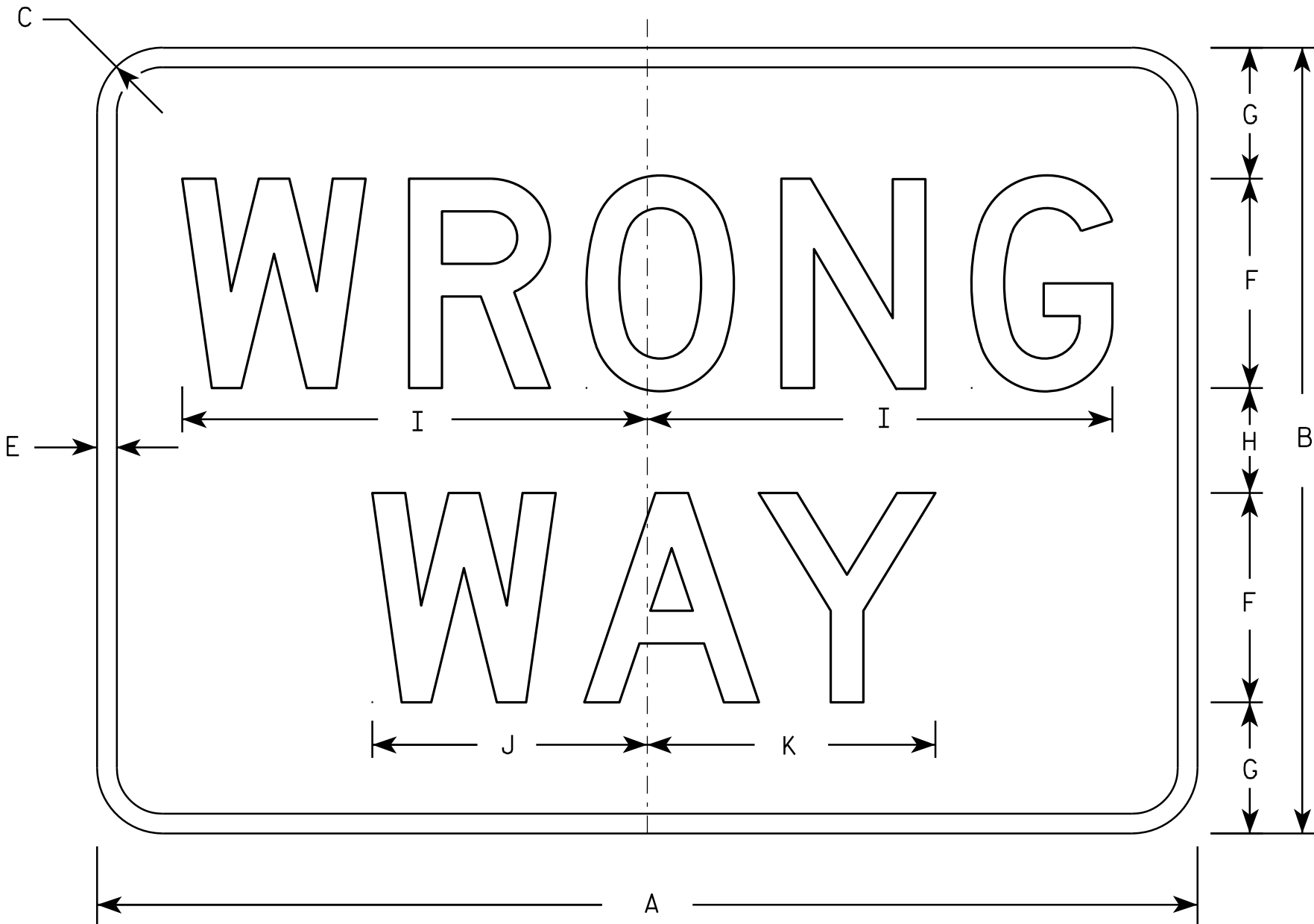
STANDARD SIGN

R5 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1.15



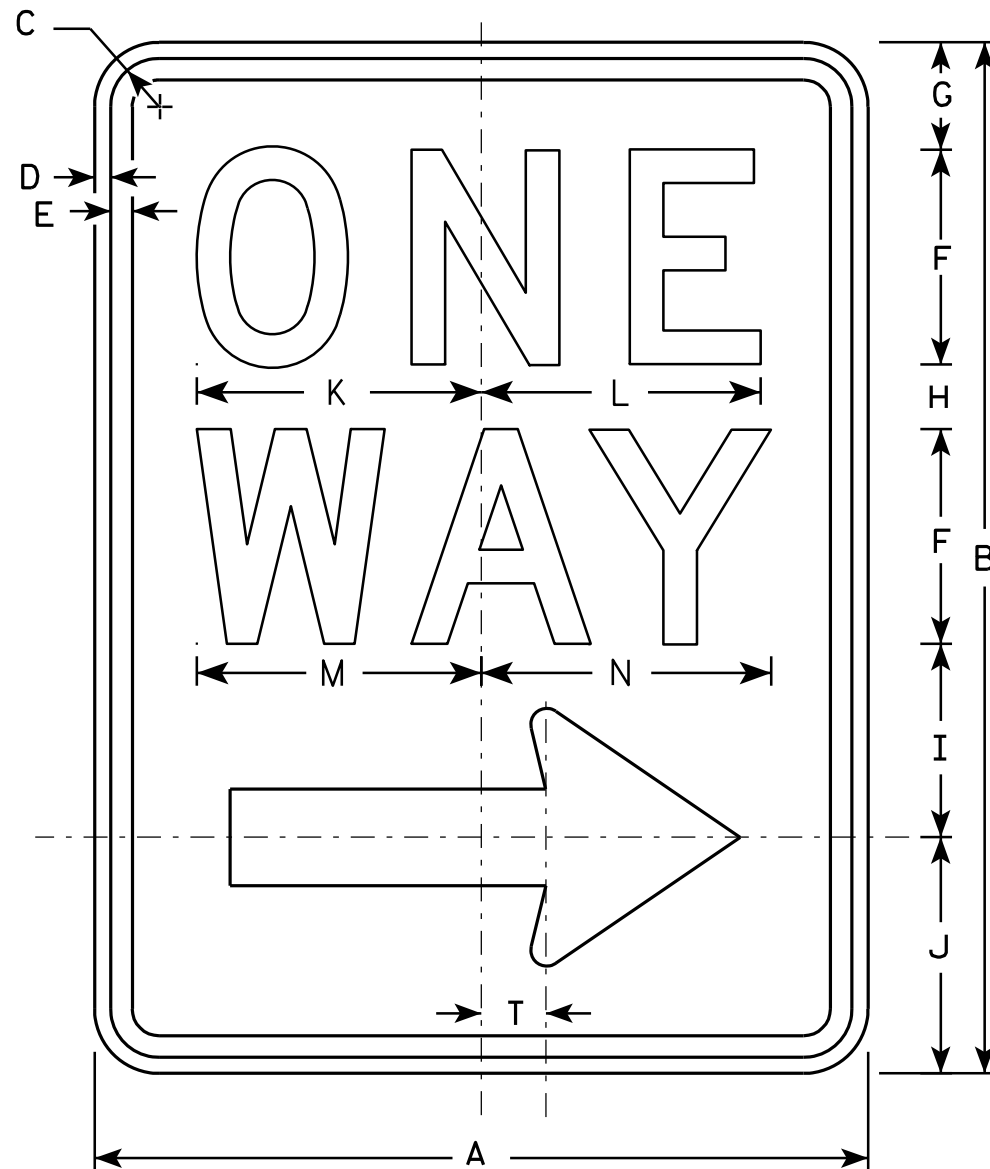
R5-1A

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Red
Message - White
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8																3.75
2S	36	24	2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4																6.00
2M	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
3	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
4	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
5	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75

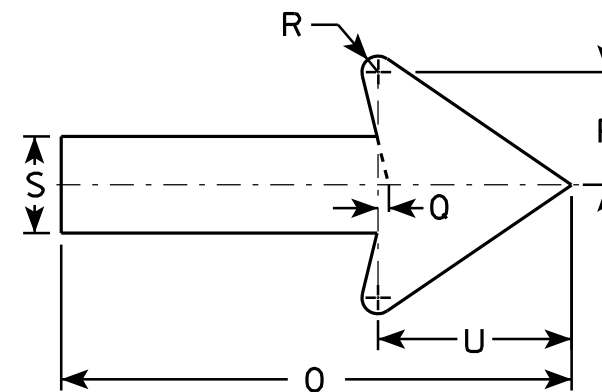
STANDARD SIGN R5-1A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 12/17/10	PLATE NO. R5-1A.2



R6-2R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R6-2L same as R6-2R except arrow points to the left.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z
1	18	24	1 1/8	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	30	1 1/8	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 3/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

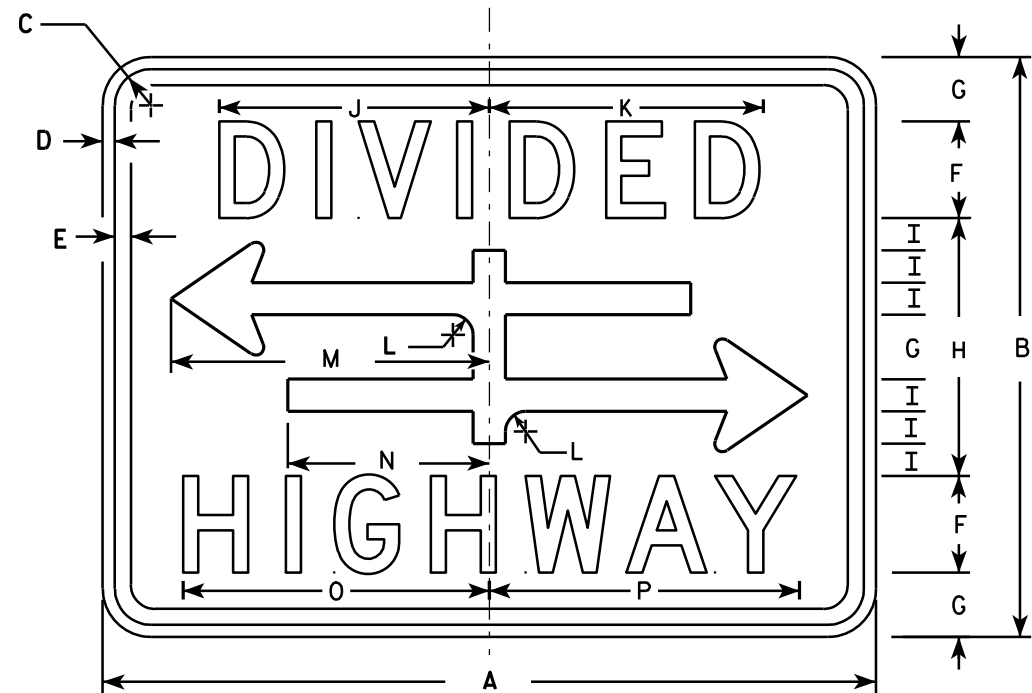
STANDARD SIGN
R6-2 R&L

WISCONSIN DEPT OF TRANSPORTATION

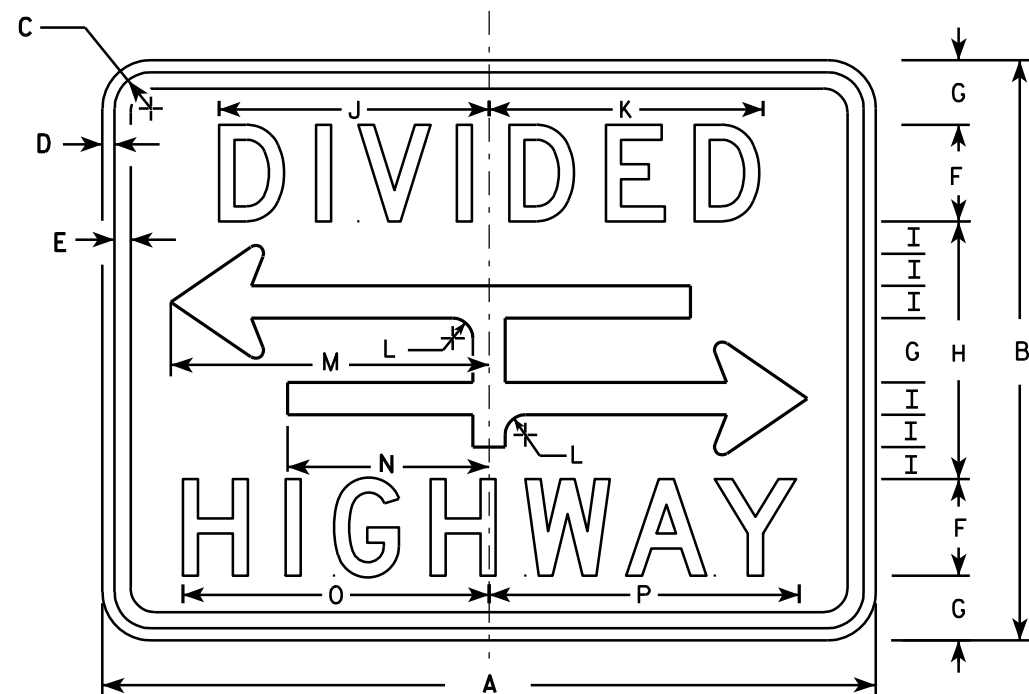
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/2/10 PLATE NO. R6-2.8

PROJECT NO: HWY: COUNTY: SHEET NO: 224 E



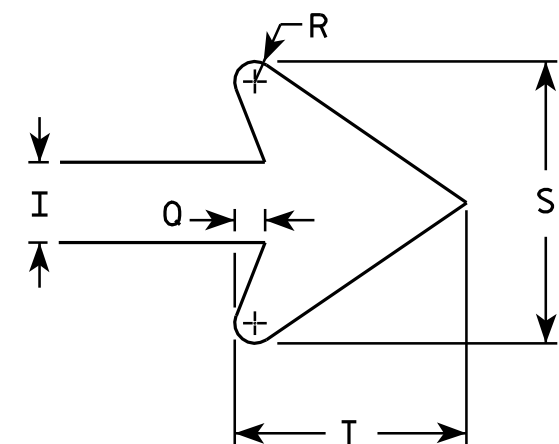
R6-3



R6-3A

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24	18	1 1/8	3/8	3/8	3	2	8	1	8 3/8	8 1/2	5/8	9 7/8	6 1/4	9 1/2	9 5/8	3/8	1/4	3 1/2	2 3/4							3.0
2S	30	24	1 1/8	3/8	1/2	4	2 5/8	10 3/4	1 3/8	10 1/2	10 5/8	7/8	12 1/2	7 7/8	12 1/4	12 3/8	1/2	3/8	4 5/8	3 5/8							5.0
2M	30	24	1 1/8	3/8	1/2	4	2 5/8	10 3/4	1 3/8	10 1/2	10 5/8	7/8	12 1/2	7 7/8	12 1/4	12 3/8	1/2	3/8	4 5/8	3 5/8							5.0
3																											
4																											
5																											

STANDARD SIGN R6-3 & R6-3A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R6-3.5

PROJECT NO:

SHEET NO: 225

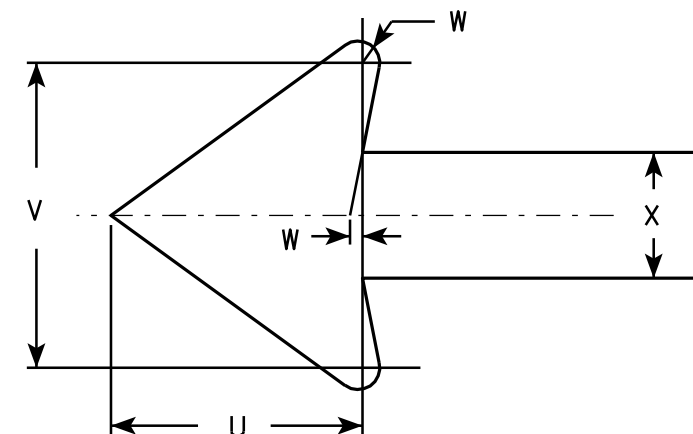
E



R7-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Red
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1, 3 and 4 are series C, line 2 is series B.
6. R7-1D (double arrow)
R7-1L (left arrow)
R7-1R (right arrow)



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/8	3/8	3/8	3	1 7/8	2	7/8	5/8	1 1/2	2 1/2	2	2	4 7/8	4 7/8	2 1/4	2 1/8	2 1/2	3 7/8	1 1/2	1 3/4	1/8	3/4			1.5
2S	18	24	1 1/8	3/8	1/2	4	2 1/2	2 1/2	1 1/4	1	2	3 1/4	2 3/4	2 5/8	7 1/8	7	2 3/4	2 5/8	3 1/8	5 7/8	2 1/4	2 5/8	1/4	1 1/8			3.0
2M	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2			5.0
3	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2			5.0
4																											
5																											

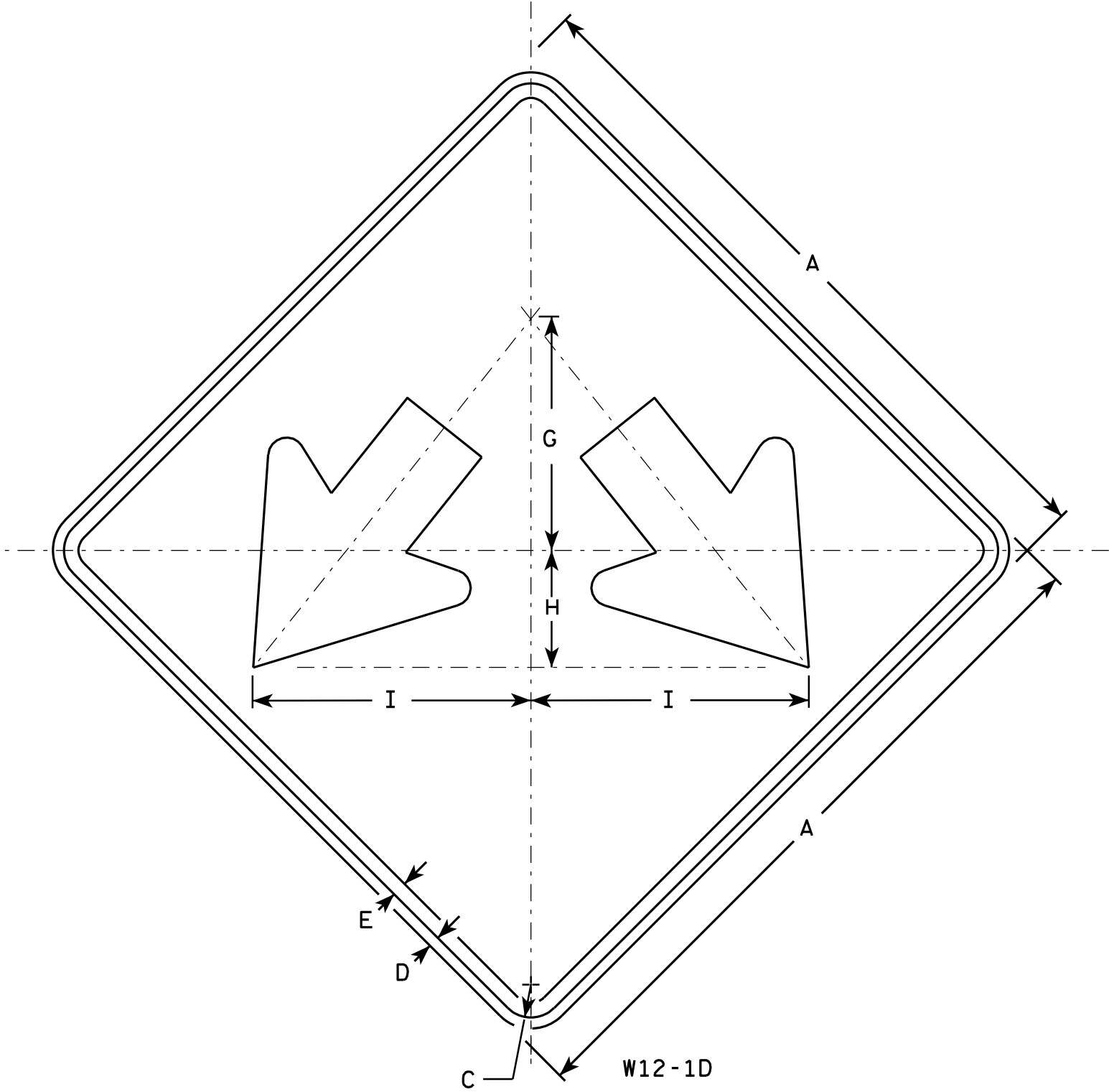
STANDARD SIGN
R7-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

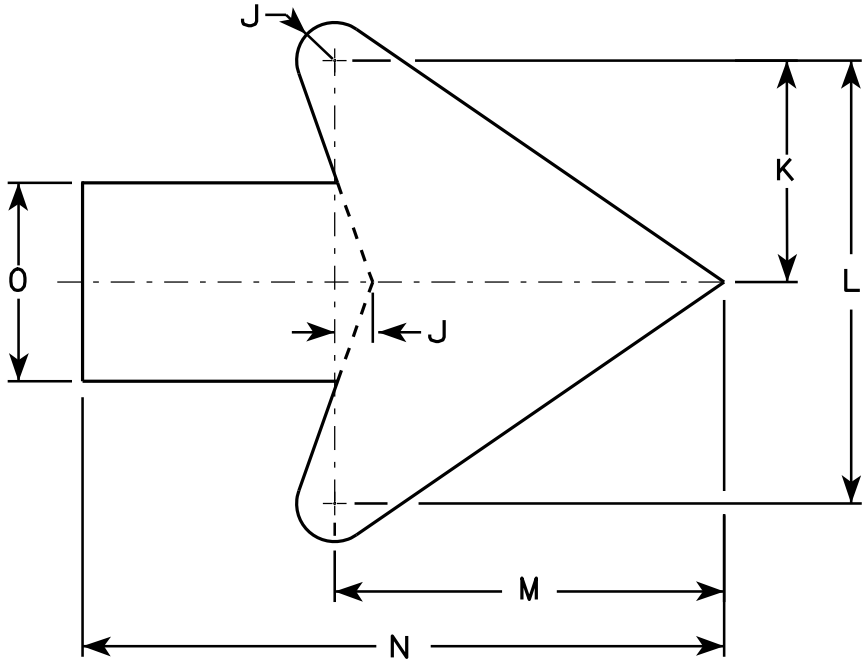
DATE 3/31/2011 PLATE NO. R7-1.9

PROJECT NO: HWY: COUNTY: SHEET NO: 226 E



NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Yellow
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



Arrow Detail

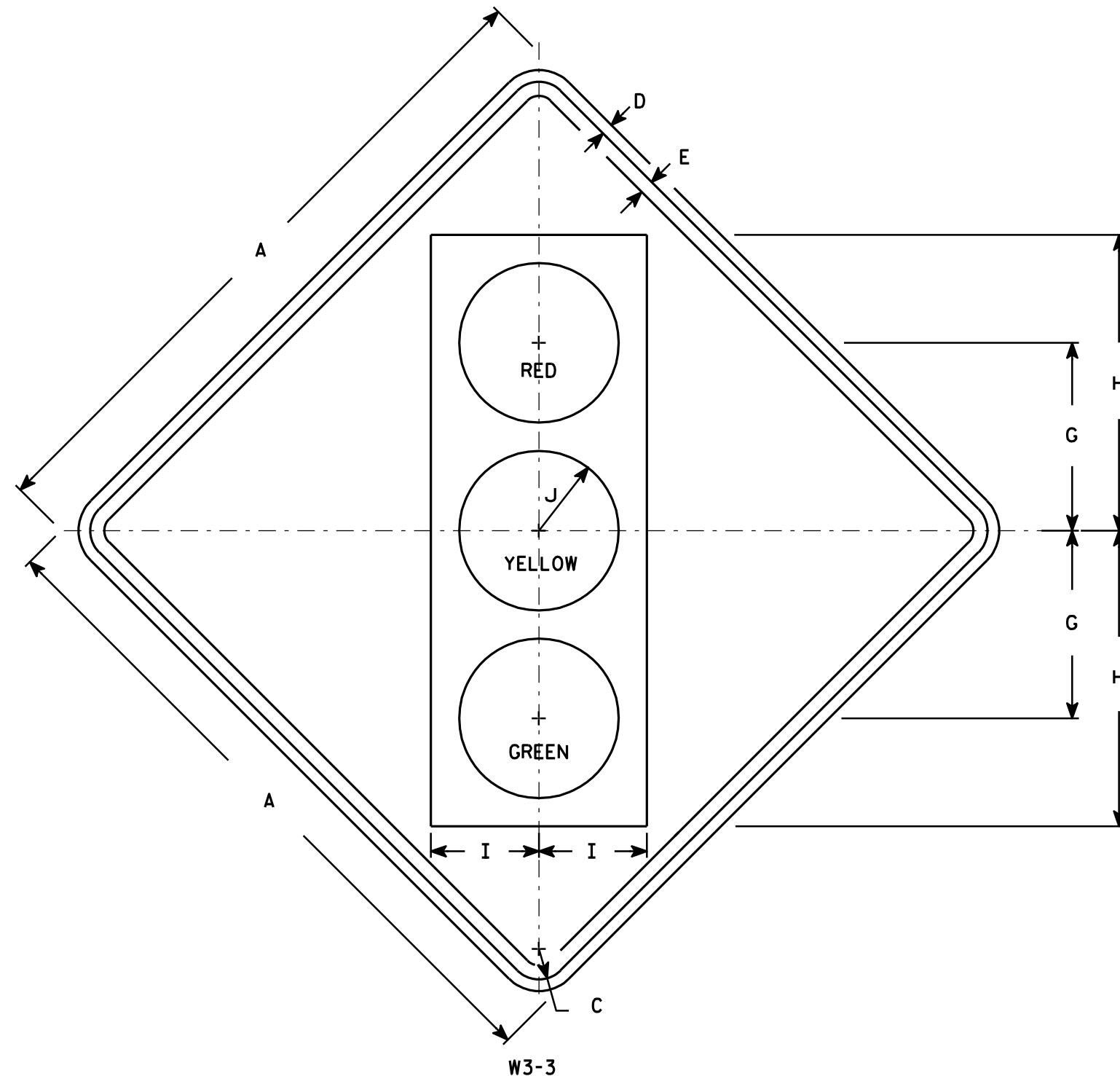
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2M	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0
5	48		2 1/4	3/4	1		16	8	19	1 1/4	7 1/4	14 1/2	12 3/4	21	6 1/4												16.0

STANDARD SIGN
W12-1D

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W12-1D.15



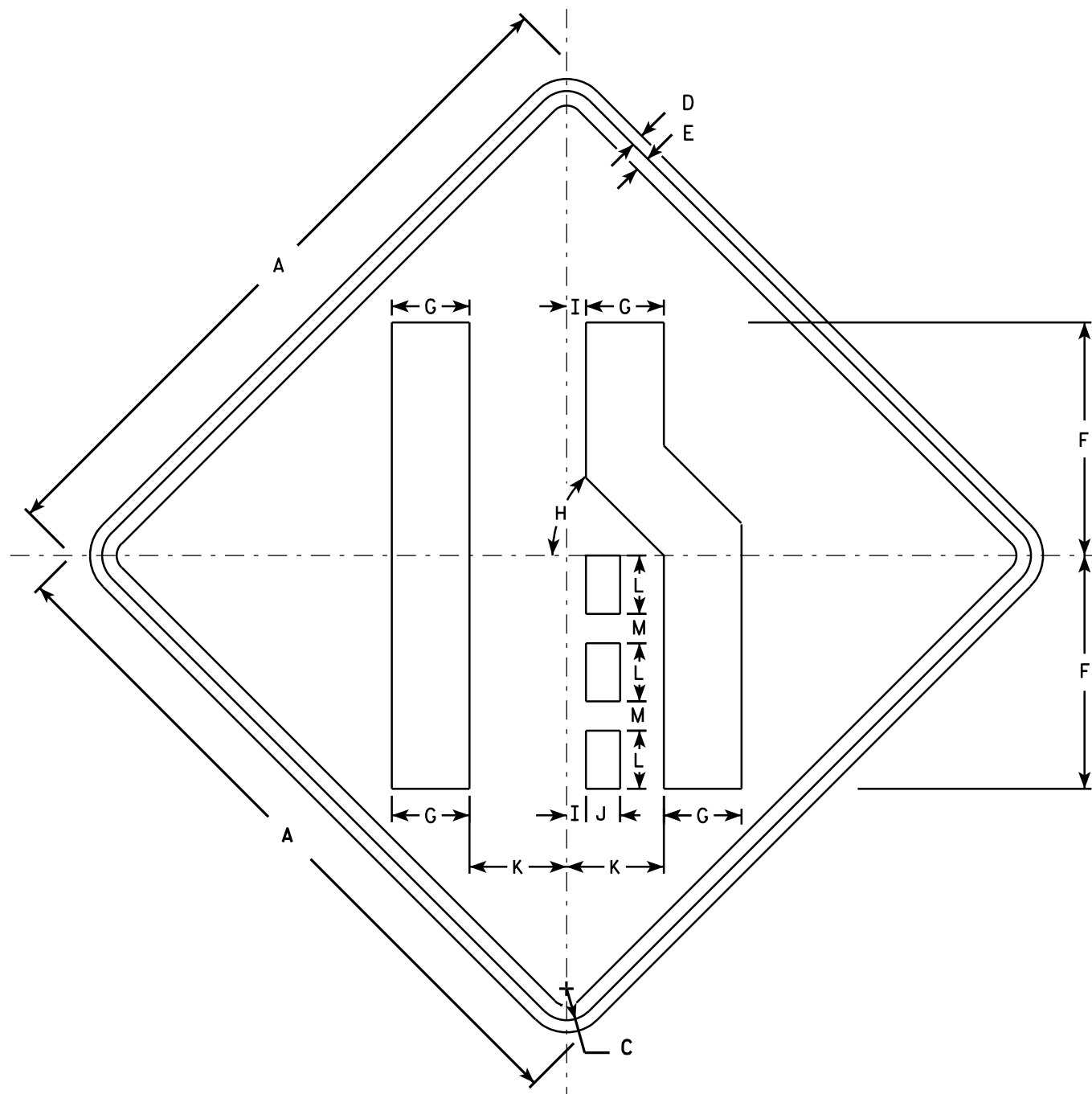
NOTES

- Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Yellow
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- Symbol and border are non-reflective black.
Top circle - Type H Reflectorized Red
Center circle - Same as background
Bottom circle - Type H Reflectorized Green

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8		8 3/4	13 3/4	5	3 3/4																	6.25
2S	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
2M	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
3	36		1 5/8	5/8	3/4		10	15 3/4	5 3/4	4 1/4																	9.0
4	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0
5	48		2 1/4	3/4	1		12 1/2	20	7 1/2	5																	16.0

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 228	E
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STANDARD SIGN W3-3	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 6/7/10	PLATE NO. W3-3.11



W4-2R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W4-2L is the same as W4-2R except the symbols is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	10	3 3/8	45°	7/8	1 1/2	4 1/4	2 1/2	1 1/4														6.25
2S	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2M	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
3	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
4	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

STANDARD SIGN W4-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

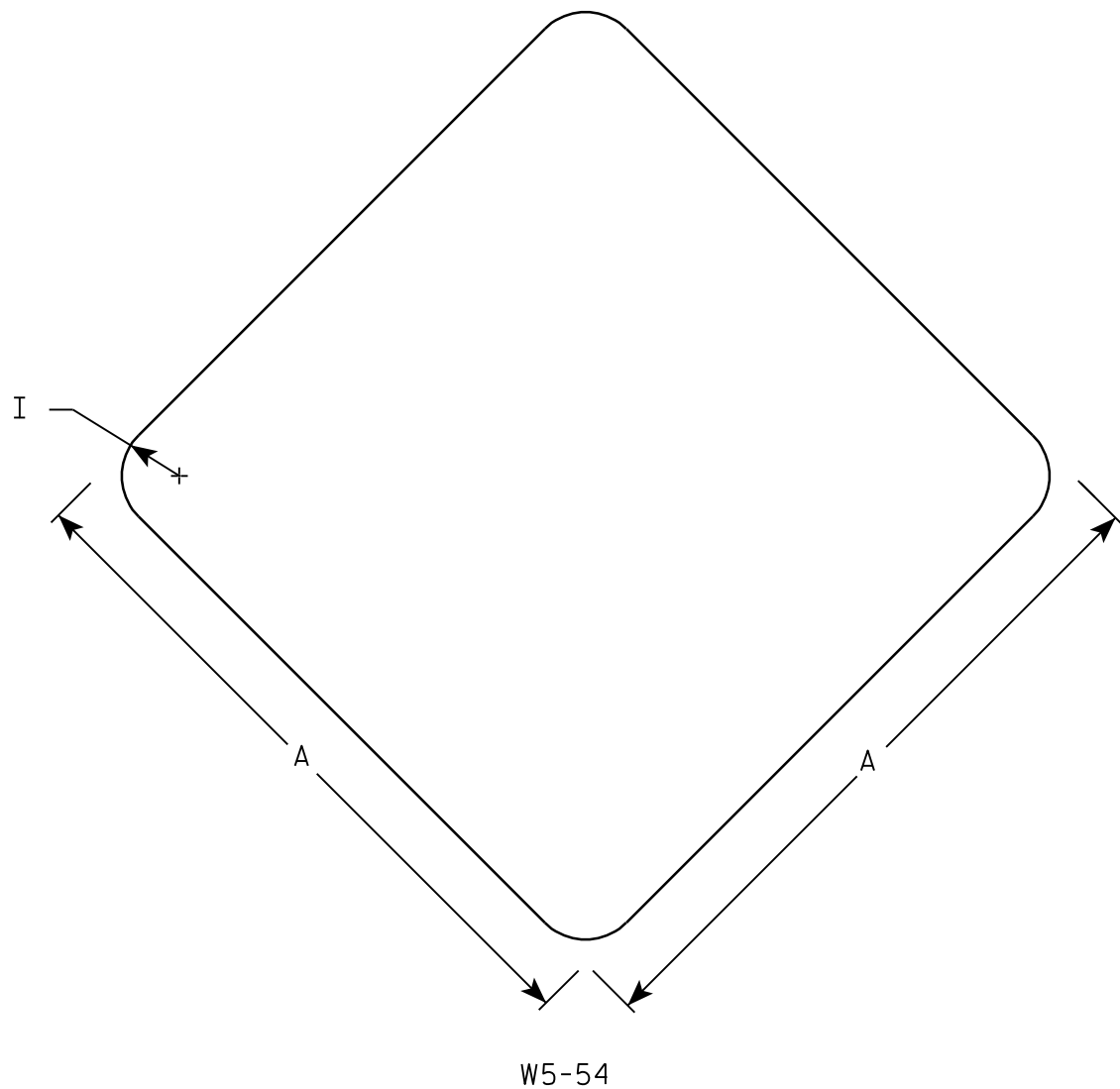
DATE 3/12/13 PLATE NO. W4-2.14

PROJECT NO:

SHEET NO: 229

E

7



NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Yellow
- 3. Corners may be square or rounded when base material is plywood. When base material is metal the corners shall be rounded.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12								1																		1.0
2S	18								1 1/2																		2.25
2M	18								1 1/2																		2.25
3																											
4																											
5																											

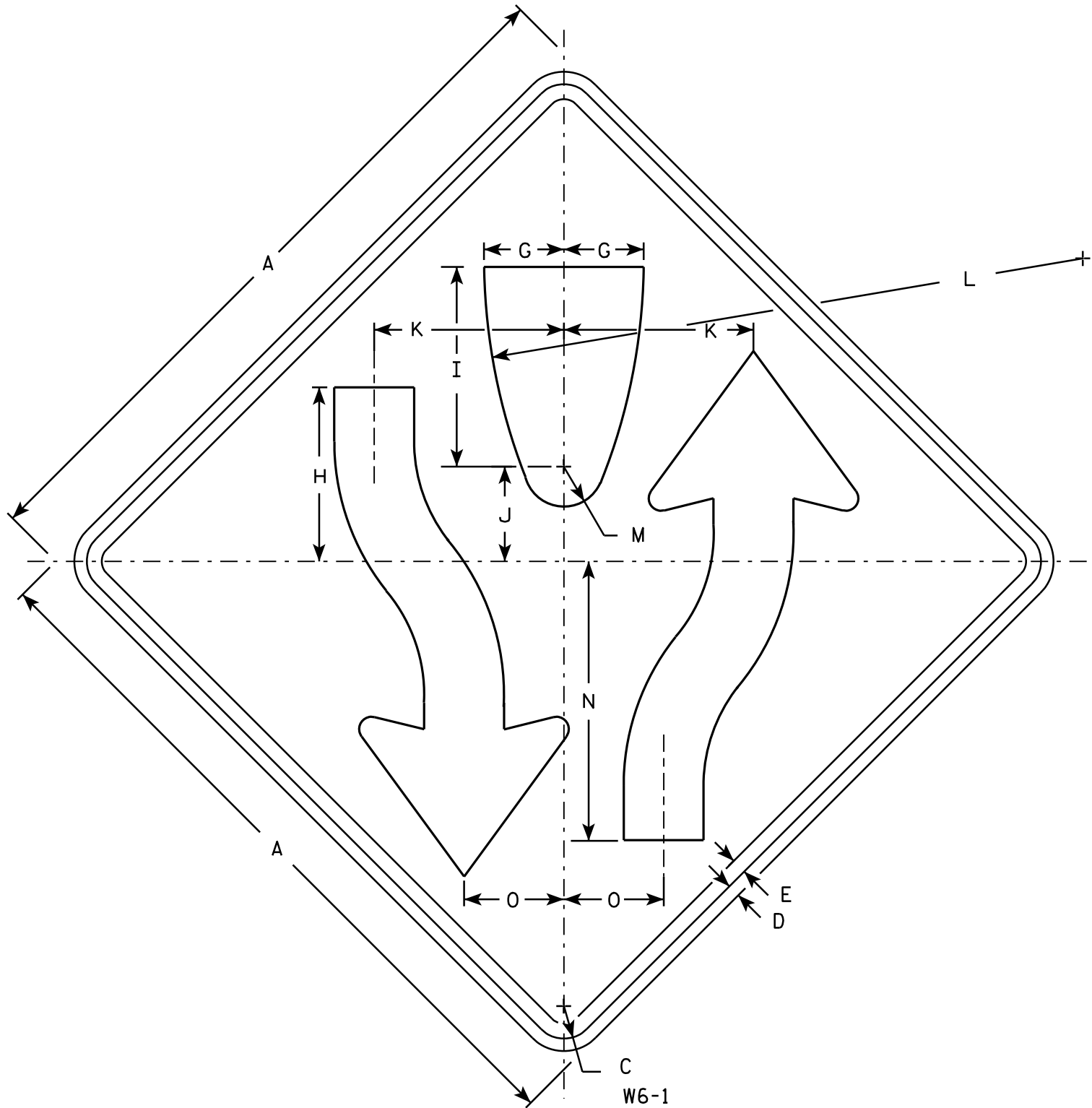
STANDARD SIGN

W5-54

WISCONSIN DEPT OF TRANSPORTATION

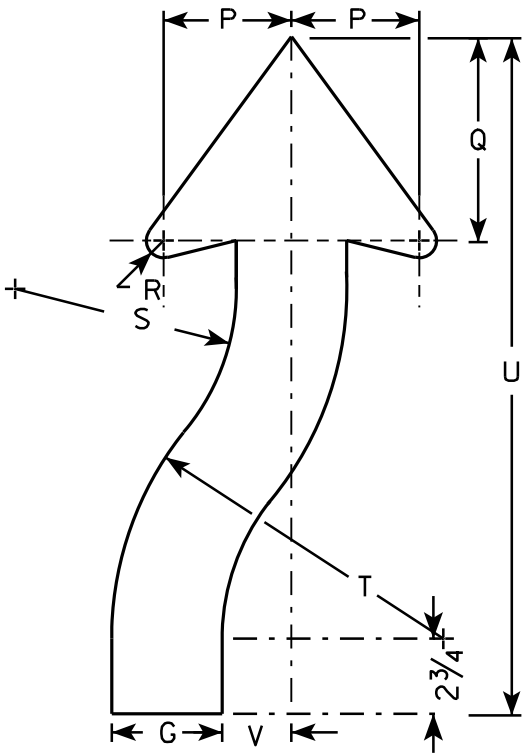
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 11/3/10 PLATE NO. W5-54.8



NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Yellow
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. W6-2 same as W6-1 but is rotated 180° when mounted.



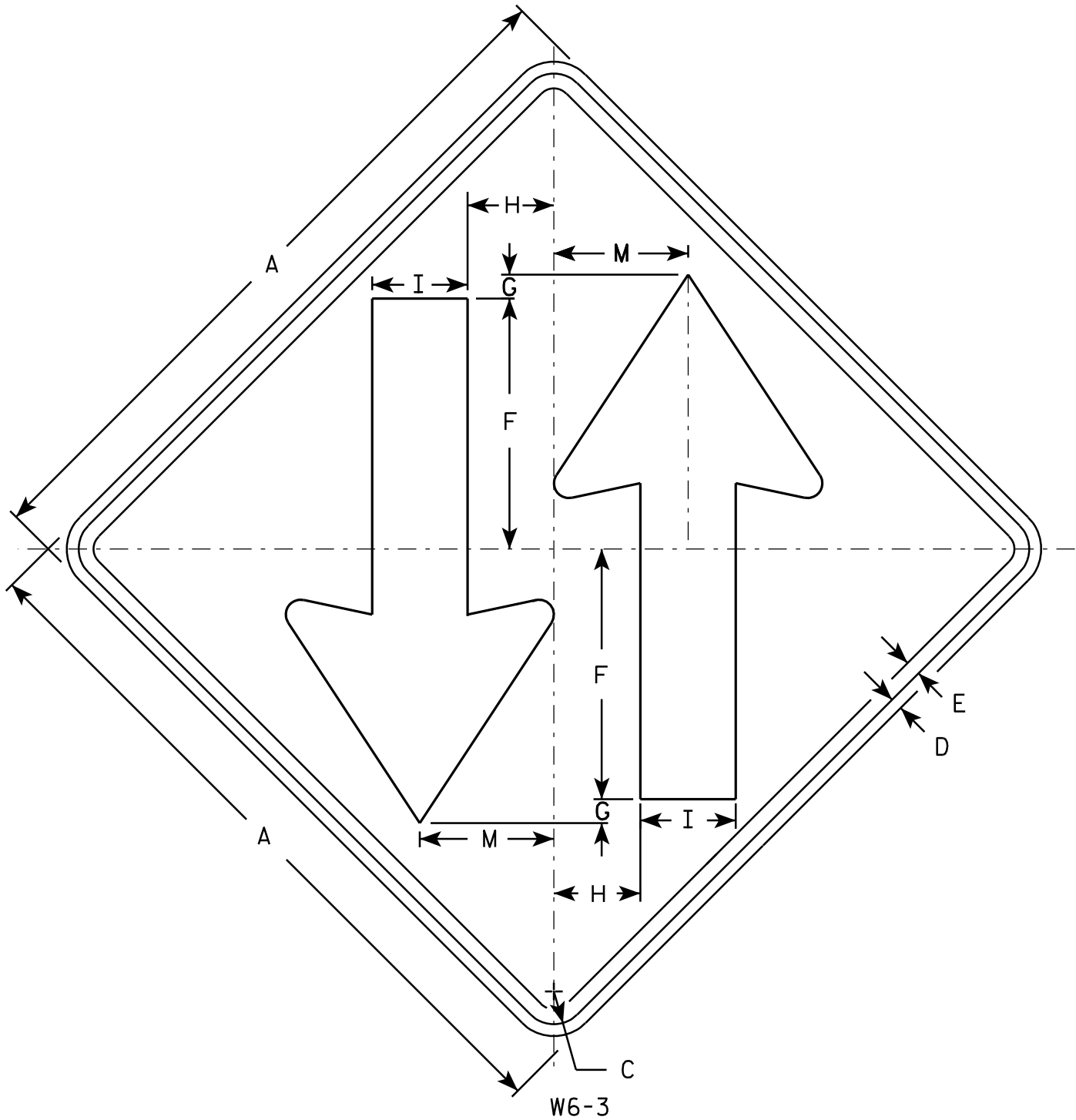
ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8		3 1/4	8	8 1/4	4 1/8	7 7/8	25	1 3/4	11 5/8	4 1/8	3 7/8	6 3/4	5/8	6 5/8	9 7/8	21 5/8	2					6.25
2S	36		1 5/8	5/8	3/4		4	8 3/4	10	4 3/4	9 1/2	30	2	14	5	4 5/8	7 3/8	7/8	8	12	24 1/2	2 1/2					9.0
2M	36		1 5/8	5/8	3/4		4	8 3/4	10	4 3/4	9 1/2	30	2	14	5	4 5/8	7 3/8	7/8	8	12	24 1/2	2 1/2					9.0
3																											
4	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0
5	48		2 1/4	3/4	1		5 3/8	11 5/8	13 3/8	6 3/8	12 5/8	40	2 5/8	18 5/8	6 5/8	6 1/4	9 7/8	1 1/4	10 5/8	16	32 5/8	3 3/8					16.0

STANDARD SIGN
W6-1 & W6-2

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 03/12/13 PLATE NO. W6-1.14

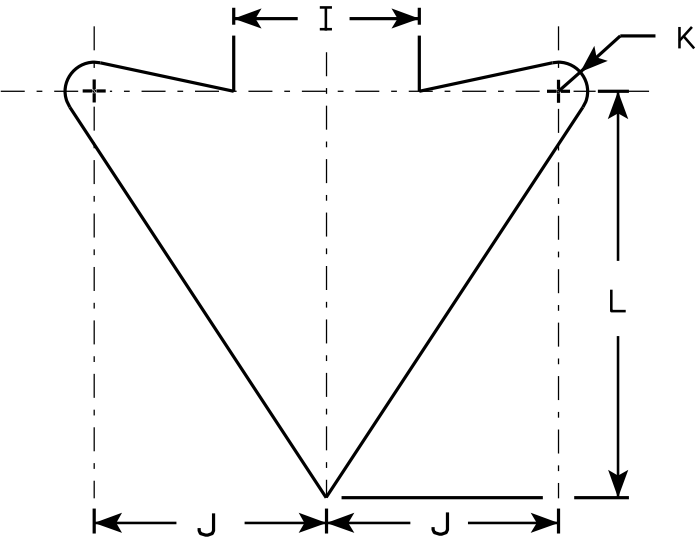
7



W6-3

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Yellow
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	10 1/2	1	3 5/8	4	5	5/8	8 3/4	5 5/8														6.25
2S	36		1 5/8	5/8	3/4	12	1	4 1/4	5	6	3/4	10 1/2	6 3/4														9.0
2M	36		1 5/8	5/8	3/4	12	1	4 1/4	5	6	3/4	10 1/2	6 3/4														9.0
3																											
4	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0
5	48		2 1/4	3/4	1	15 1/2	1	6	6	8	1	14	9														16.0

STANDARD SIGN
W6 - 3

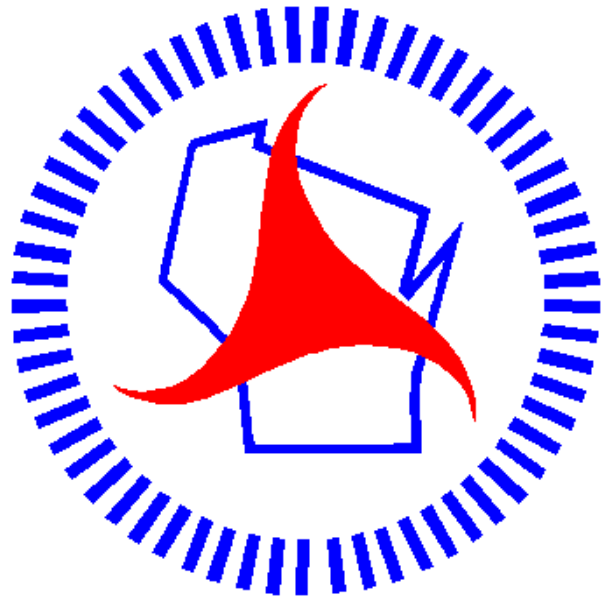
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 03/12/13 PLATE NO. W6-3.10

7

Notes



Wisconsin Department of Transportation

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