SEL

APR 2014

PROJECT ID: 1693-47-70

WITH: 2718-01-92, 2718-01-93, 2718-09-70

COUNTY: WAUKESHA

ORDER OF SHEETS

TOTAL SHEETS = 76

N

15

DESIGN DESIGNATION

A.A.D.T.	=	VARIOUS
A.A.D.T.	=	N/A
D.H.V.	=	N/A
D.D.	=	N/A
T.	=	N/A
DESIGN SPEED	=	VARIOUS
ESALS	=	N/A

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE (PL + 58.1)
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

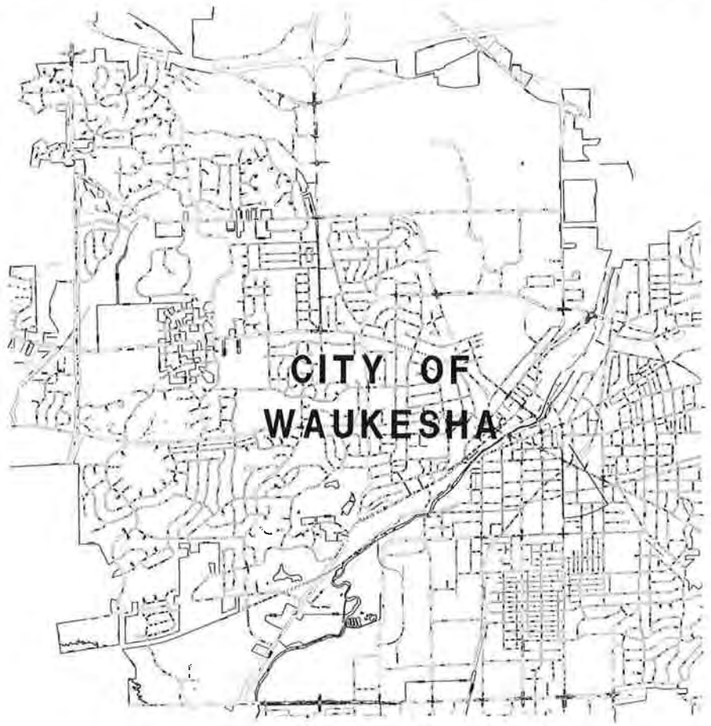
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1693-47-70	WISC 2013378	1
2718-01-92	WISC 2014046	1
2718-01-93	WISC 2014047	1
2718-09-70	WISC 2014048	1

CBD PROPOSED INTERCONNECT SYSTEM
CITY OF WAUKESHA
CMAQ
LOCAL STREET
WAUKESHA COUNTY
STATE PROJECT NUMBER 1693-47-70

PEDESTRIAN COUNTDOWN TIMERS
18 LOCAL STREET INTERSECTIONS
CITY OF WAUKESHA
LOCAL STREET
WAUKESHA COUNTY
STATE PROJECT NUMBER 2718-01-92

PEDESTRIAN COUNTDOWN TIMERS
2 CONNECTING HIGHWAY INTERSECTIONS
CITY OF WAUKESHA
VARIOUS HIGHWAYS
WAUKESHA COUNTY
STATE PROJECT NUMBER 2718-01-93

LED RETROFIT
12 VARIOUS INTERSECTIONS
CITY OF WAUKESHA
NON-HIGHWAY
WAUKESHA COUNTY
STATE PROJECT NUMBER 2718-09-70



LAYOUT
NOT TO SCALE

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

"Coordinates on this plan are referenced to the Wisconsin State Plane Coordinate System (WSPCS), South Zone."

ACCEPTED FOR
CITY of WAUKESHA
10/30/13 (Date) (Signature)
(Date) (Signature)

ORIGINAL PLANS PREPARED BY
TRAFFIC ANALYSIS & DESIGN, INC.

WISCONSIN
JEFFREY G. FAIT
E-33536
FOX POINT, WI
PROFESSIONAL ENGINEER

10-31-13 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: CITY OF WAUKESHA
Designer: TRAFFIC ANALYSIS & DESIGN, INC.
Management Consultant: DAAR ENGINEERING
C.O. Examiner:

APPROVED FOR THE DEPARTMENT
DATE: 10/31/13 (Management Consultant Signature)

E

STANDARD ABBREVIATIONS

AP	ACCESS POINT
AC	ACRE
AH	AHEAD
AC	ASPHALT CEMENT
ASPH	ASPHALTIC
AVG	AVERAGE
ADT	AVERAGE DAILY TRAFFIC
BK	BACK
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
CB	CATCH BASIN
C/L	CENTER LINE
C/L CONST	CENTER LINE CONSTRUCTION
△	CENTRAL ANGLE OR DELTA
CONC	CONCRETE
CONST	CONSTRUCTION
CMCP	CORRUGATED METAL CULVERT PIPE
CSCP	CORRUGATED STEEL CULVERT PIPE
CSPA	CORRUGATED STEEL PIPE ARCH
CTH	COUNTY TRUNK HIGHWAY
CABC	CRUSHED AGGREGATE BASE COURSE
CFS	CUBIC FEET PER SECOND
CY	CUBIC YARD
CP	CULVERT PIPE
C & G	CURB AND GUTTER
D	DEGREE OF CURVE
DHV	DESIGN HOUR VOLUME
DIA	DIAMETER
DD	DIRECTIONAL DISTRIBUTION
DWY	DRIVEWAY
E	EAST
X	EAST GRID COORDINATE
EB	EASTBOUND
EL	ELEVATION
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
FERT	FERTILIZE
FE	FIELD ENTRANCE
FL	FLOW LINE
FT	FOOT
GN	GRID NORTH
HES	HIGH EARLY STRENGTH
HYD	HYDRANT
INL	INLET
ID	INSIDE DIAMETER
I	INTERSECTION ANGLE
INV	INVERT
IP	IRON PIPE OR PIN
JT	JOINT
LT	LEFT
L	LENGTH OF CURVE
LF	LINEAR FOOT
LS	LUMP SUM
MH	MANHOLE
MPH	MILES PER HOUR
MIN	MINIMUM
MON	MONUMENT
NOM	NOMINAL
NC	NORMAL CROWN
N	NORTH
Y	NORTH GRID COORDINATE
NB	NORTHBOUND
NO	NUMBER
OD	OUTSIDE DIAMETER
PAVT	PAVEMENT
PLE	PERMANENT LIMITED EASEMENT
PT	POINT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVC	POLYVINYL CHLORIDE
PCC	PORTLAND CEMENT CONCRETE
LB	POUND
PSI	POUNDS PER SQUARE INCH
PE	PRIVATE ENTRANCE
PGL	PROFILE GRADE LINE
PL	PROPERTY LINE
Q100	100-YEAR FLOW RATE
R	RADIUS
RR	RAILROAD
R	RANGE
R/L	REFERENCE LINE
RCAEW	REINFORCED CONCRETE APRON ENDWALL FOR CULVERT PIPE
RCCP	REINFORCED CONCRETE CULVERT PIPE
RCHECP	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CULVERT PIPE
RCPSS	REINFORCED CONCRETE PIPE STORM SEWER
REINF	REINFORCING OR REINFORCEMENT
REQD	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
RD	ROAD
RDWY	ROADWAY
SEC	SECTION
SHLDR	SHOULDER
S	SOUTH
SB	SOUTHBOUND
SQ	SQUARE
SF	SQUARE FEET
SW	SIDEWALK
SY	SQUARE YARD
SDD	STANDARD DETAIL DRAWINGS
STH	STATE TRUNK HIGHWAYS
STA	STATION
SS	STORM SEWER
ST	STREET
STR	STRUCTURE OR STRUCTURAL
SE	SUPERELEVATION
T	TANGENT
TEMP	TEMPORARY
TI	TEMPORARY INTEREST
TLE	TEMPORARY LIMITED EASEMENT
†	TON
T	TOWN
T/L	TRANSIT LINE
T	TRUCKS (PERCENT OF)
TYP	TYPICAL
USH	UNITED STATES HIGHWAY
VAR	VARIABLE
V	VELOCITY OF DESIGN SPEED
VERT	VERTICAL
VC	VERTICAL CURVE
VOL	VOLUME
WM	WATER MAIN
WV	WATER VALVE
W	WEST
WB	WESTBOUND
YD	YARD

CITY OF WAUKESHA
DEPARTMENT OF PUBLIC WORKS
TRAFFIC SIGNALS ENGINEERING DIVISION
130 DELAFIELD STREET
WAUKESHA, WI 53188-3616
MR. MICHAEL F. GRULKE, PE, PTOE
262-524-3590

PROJECT DESIGNER
TRAFFIC ANALYSIS & DESIGN, INC.
N36 W7505 BUCHANAN COURT
CEDARBURG, WI 53012
414-350-2292

UTILITIES

CITY OF WAUKESHA PARKS,
RECREATION AND FORESTRY DEPARTMENT
MR. PETE TRACZEK
1400 AVIATION DRIVE
WAUKESHA, WI 53188
262-524-3710

WE-ENERGIES
MR. DAN SANDE
REGULATORY AND UTILITY ACCOMMODATIONS
333 W. EVERETT STREET, A279
MILWAUKEE, WI 53203
414-221-4578

WE-ENERGIES (GAS)
MR. JOE DABLE
1830 S. WEST AVENUE
WAUKESHA, WIL 53185
262-574-3057

WE-ENERGIES (ELECTRIC)
MR. TERRY CONNELLY
513 W33800 HWY 18
DELAFIELD, WI 53018
262-968-5771

TDS METROCOM
MR. MICHAEL JOHNSON
20875 CROSSROADS CIRCLE, SUITE 800
WAUKESHA, WI 53186
262-754-3052

WAUKESHA WATER UTILITY
MR. THOMAS KRAUSE
115 DELAFIELD STREET
WAUKESHA, WI 53188
262-521-5272

DNR LIAISON
WIS DNR
CRAIG WEBSTER
ENVIRONMENTAL REVIEW SPECIALIST
262-574-2141

AT & T WISCONSIN
MR. TOM CROWLEY
2005 PEWAUKEE ROAD
WAUKESHA, WI 53188
262-896-7427

AT & T LEGACY T/TCG (TCG MILWAUKEE)
MR. DON DIETSCH
282 WILLIAMSTOWNE, SUITE B
DELAFIELD, WI 53018
262-646-5602

TIME WARNER CABLE
MR. STEVE CRAMER
1320 N. MARTIN LUTHER KING DRIVE
MILWAUKEE, WI 53212
414-277-4045

SANITARY SEWER
CITY OF WAUKESHA DEPARTMENT OF PUBLIC WORKS
MR. CHRIS LANGEMAK
130 DELAFIELD STREET
WAUKESHA, WI 53188-3616
262-524-3598

CITY LIGHTING AND CITY FIBER OPTIC
CITY OF WAUKESHA DEPARTMENT OF PUBLIC WORKS
MR. DALE EVANS
130 DELAFIELD STREET
WAUKESHA, WI 53188-3616
262-524-3583

GENERAL NOTES

1. NO SHRUBS OR TREES ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.
2. PERMANENT RESTORATION - ANY DISTURBED AREA WITHIN LANDSCAPED AREAS OF THE RIGHT OF WAY SHALL BE FERTILIZED, SEEDED, AND MULCHED. PAYMENT IS INCIDENTAL TO BID ITEM RESULTING IN DISTURBED AREA.
3. ALL OPENINGS OF HOLES BELOW SUBGRADE RESULTING FROM REMOVALS OR ABANDONMENTS SHALL BE BACKFILLED WITH GRANULAR BACKFILL AND HOT ASPHALTIC MIX.
4. RESTORATION OF EXPOSED AREAS SHALL TAKE PLACE IMMEDIATELY AFTER FINISHED GRADING IS COMPLETED WITH MATERIALS IDENTICAL TO WHAT WAS REMOVED FROM THEM.

DIGGERS HOTLINE
Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

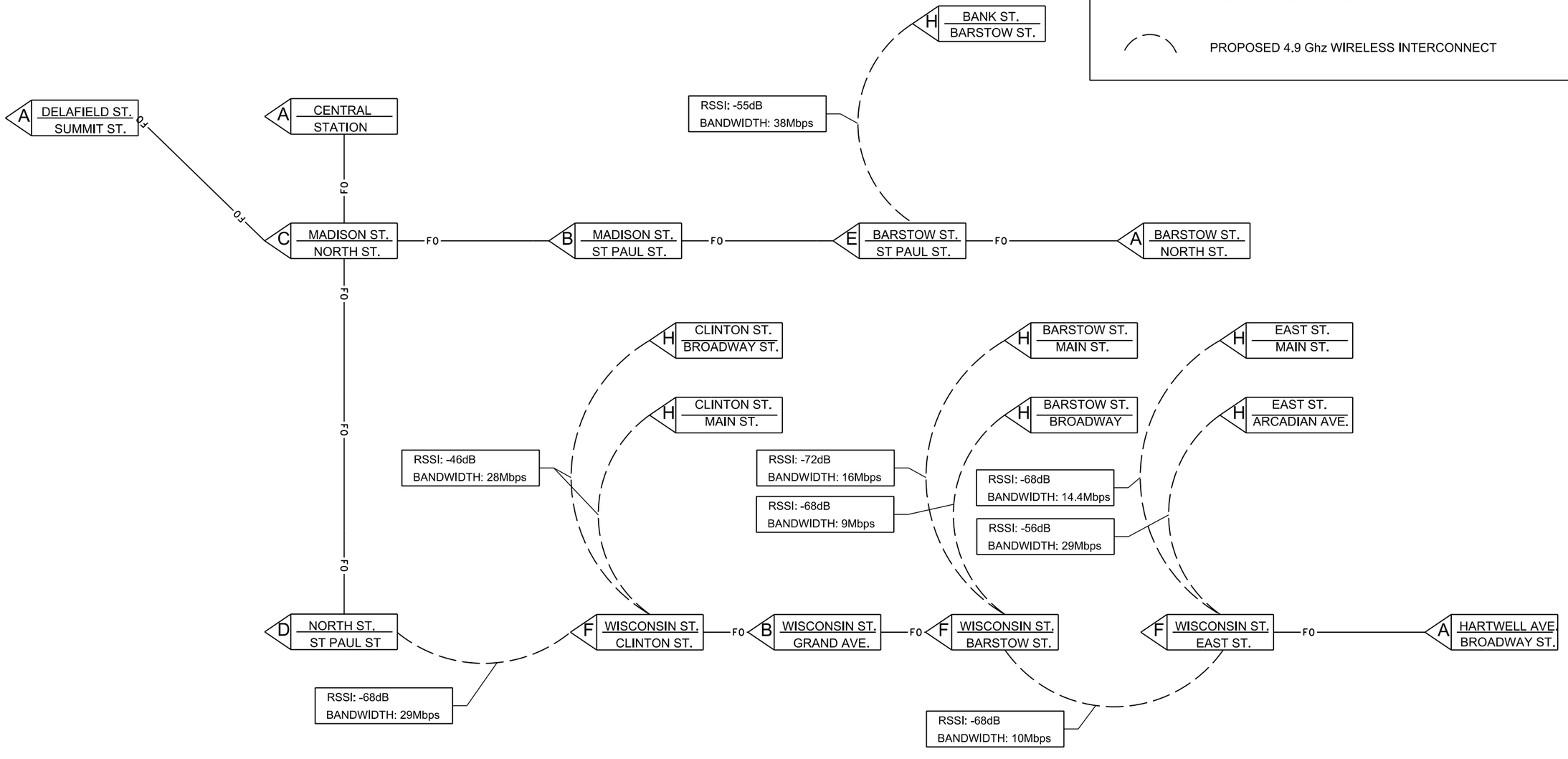
ADDITIONAL PROJECT IDS: 2718-01-92, 2718-01-93, 2718-09-70

PROJECT NO: 1693-47-70	HWY: EAST MAIN STREET	COUNTY: WAUKESHA	GENERAL NOTES	SHEET 2	E

2

LEGEND

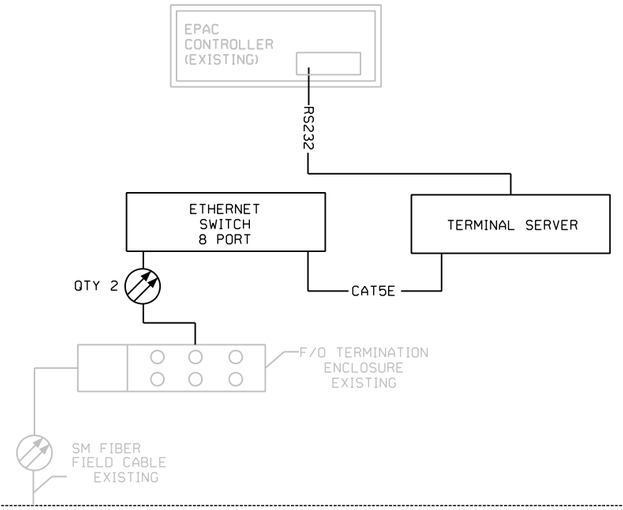
- X — SEE CABINET DETAIL SHEETS
- FO — EXISTING FIBER INTERCONNECT
- PROPOSED 4.9 Ghz WIRELESS INTERCONNECT



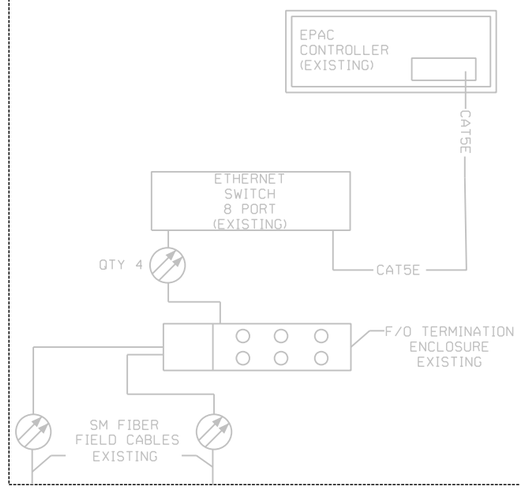
PROJECT NO: 1693-47-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	COMMUNICATIONS PLAN	SHEET 3	E

2

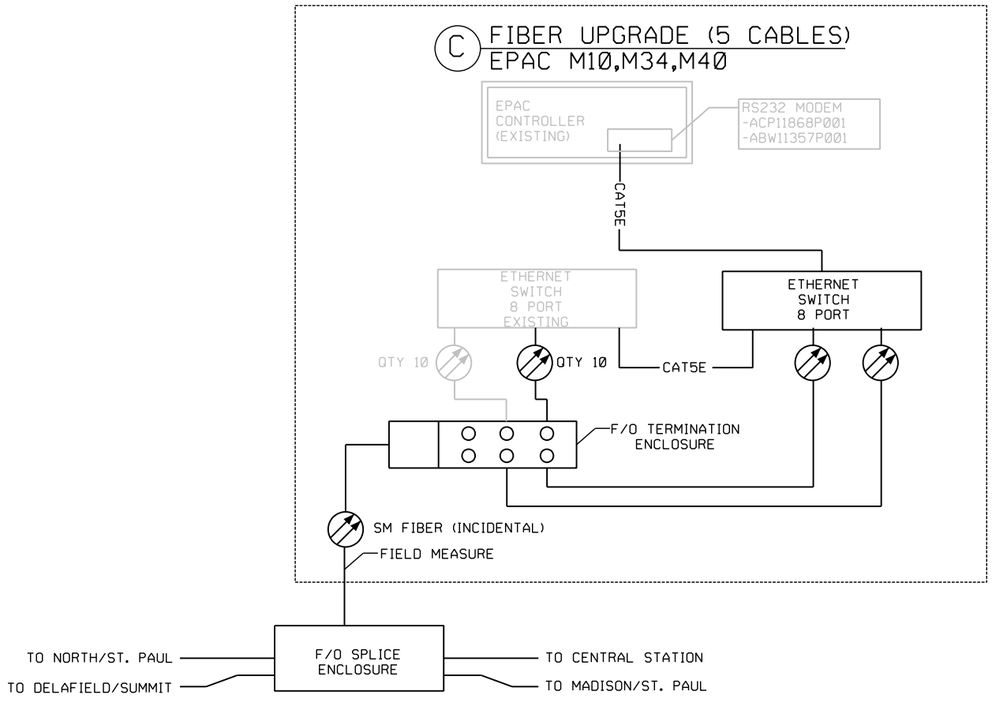
A FIBER UPGRADE (1 CABLE) EPAC M10,M34,M40



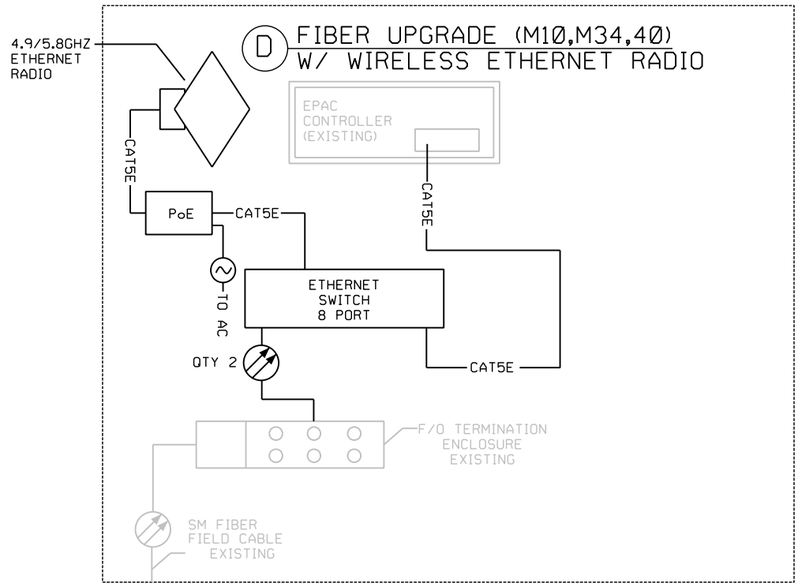
B FIBER UPGRADE (2 CABLES) EPAC M10,M34,M40



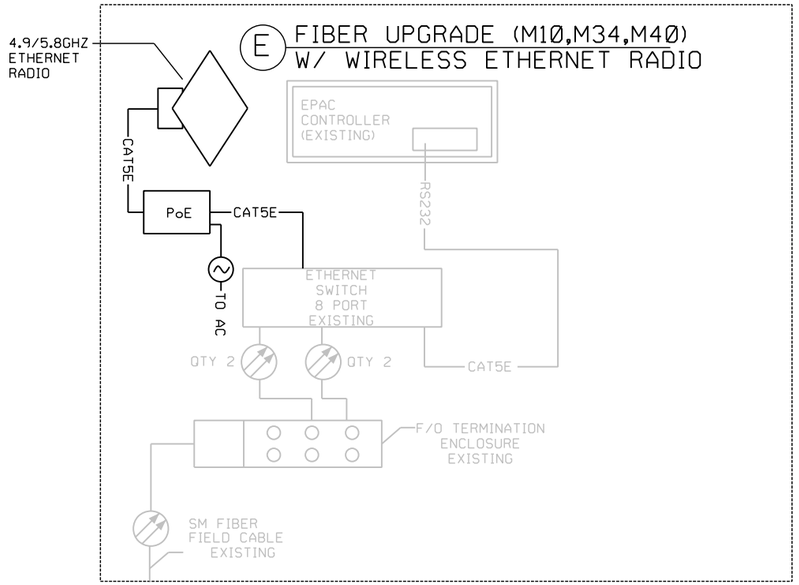
C FIBER UPGRADE (5 CABLES) EPAC M10,M34,M40

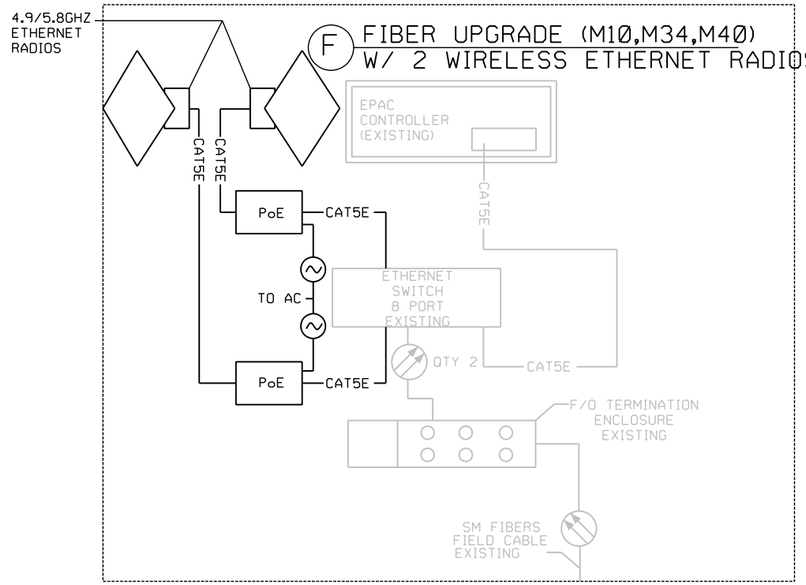


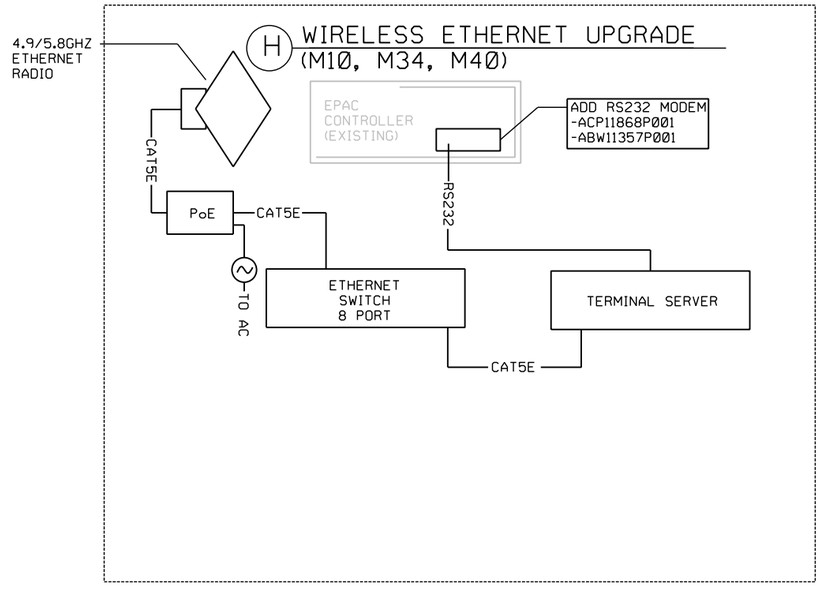
D FIBER UPGRADE (M10,M34,40) W/ WIRELESS ETHERNET RADIO



PROJECT NO: 1693-47-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	CABINET DETAILS	SHEET 4	E

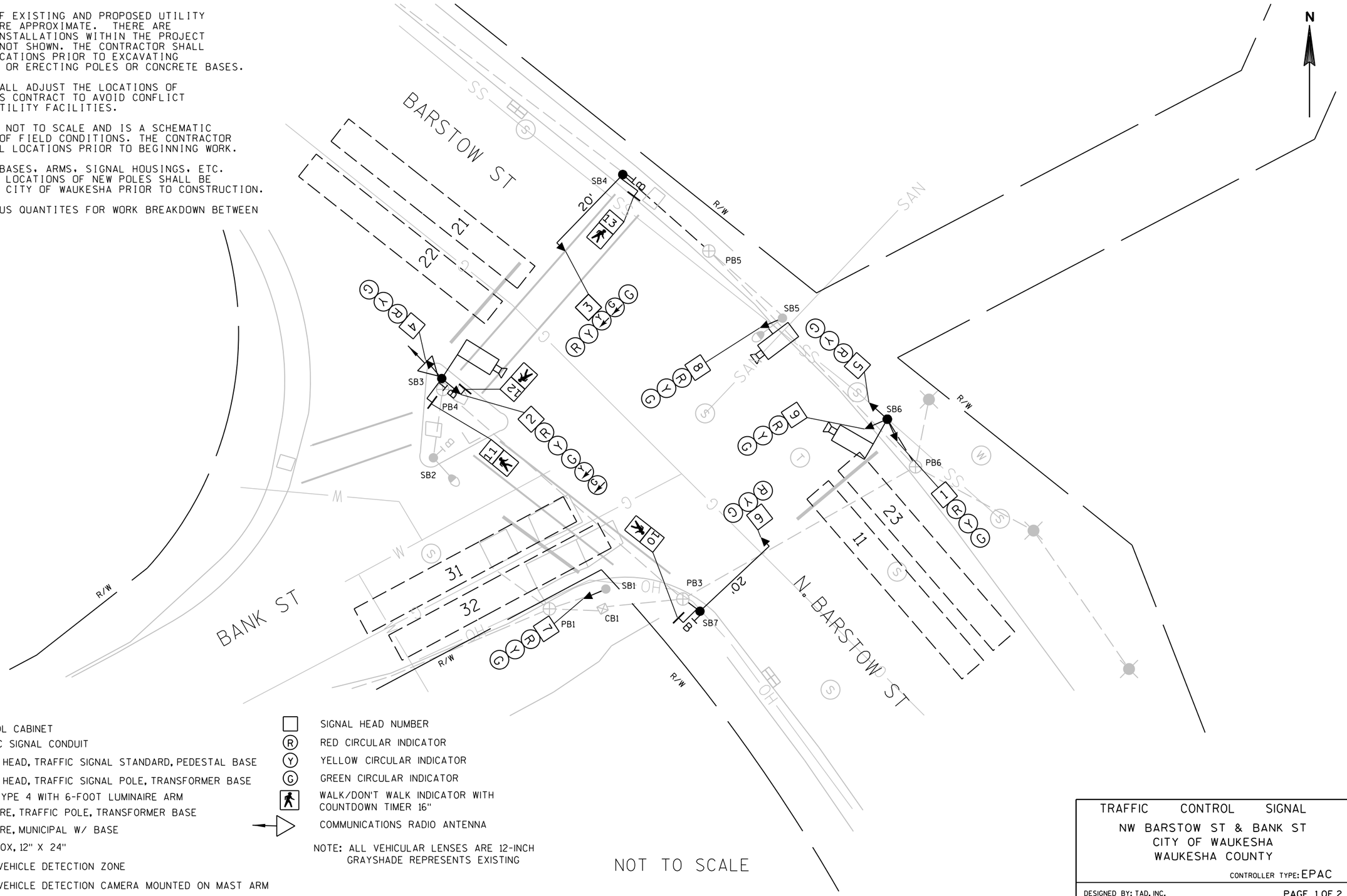

E
FIBER UPGRADE (M10,M34,M40)
W/ WIRELESS ETHERNET RADIO
4.9/5.8GHZ
ETHERNET
RADIO
CAT5E
EPAC
CONTROLLER
(EXISTING)
RS232
PoE
CAT5E
TO AC
ETHERNET
SWITCH
8 PORT
EXISTING
QTY 2
QTY 2
CAT5E
F/O TERMINATION
ENCLOSURE
EXISTING
SM FIBER
FIELD CABLE
EXISTING


F
FIBER UPGRADE (M10,M34,M40)
W/ 2 WIRELESS ETHERNET RADIOS
4.9/5.8GHZ
ETHERNET
RADIOS
CAT5E
CAT5E
EPAC
CONTROLLER
(EXISTING)
CAT5E
PoE
CAT5E
TO AC
ETHERNET
SWITCH
8 PORT
EXISTING
PoE
CAT5E
QTY 2
CAT5E
F/O TERMINATION
ENCLOSURE
EXISTING
SM FIBERS
FIELD CABLE
EXISTING


H
WIRELESS ETHERNET UPGRADE
(M10, M34, M40)
4.9/5.8GHZ
ETHERNET
RADIO
CAT5E
EPAC
CONTROLLER
(EXISTING)
ADD RS232 MODEM
-ACP11868P001
-ABW11357P001
RS232
PoE
CAT5E
TO AC
ETHERNET
SWITCH
8 PORT
TERMINAL SERVER
CAT5E

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.
4. ALL NEW POLES, BASES, ARMS, SIGNAL HOUSINGS, ETC. SHALL BE BLACK. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.
5. SEE MISCELLANEOUS QUANTITES FOR WORK BREAKDOWN BETWEEN PROJECT ID'S.



LEGEND

- CONTROL CABINET
- TRAFFIC SIGNAL CONDUIT
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- POLE, TYPE 4 WITH 6-FOOT LUMINAIRE ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- PULL BOX, 12" X 24"
- VIDEO VEHICLE DETECTION ZONE
- VIDEO VEHICLE DETECTION CAMERA MOUNTED ON MAST ARM
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"
- COMMUNICATIONS RADIO ANTENNA

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

NOT TO SCALE

TRAFFIC CONTROL SIGNAL
NW BARSTOW ST & BANK ST
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 2

PROJECT NO: 1693-47-70, 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 6 E

SEQUENCE OF OPERATION

N

		Ø1 (OLA)							Ø2 (OLA)							Ø3							Ø4 (NOT USED)							FLASH
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO						
	HEAD NUMBERS	R/W	**	Ø2					R/W	**	Ø1					R/W	**						R/W	**						
Ø1	2,3	G ←	Y ←	-					-	-	-					-	-	-												-
Ø2	4,5,6	R	R	R					G	Y	R					R	R	R												R
Ø3	7,8,9	R	R	R					R	R	R					G	Y	R												R
Ø4																														
RING 1 Ø5																														
Ø6																														
Ø7																														
Ø8																														
OLA	1,2,3	G	Y	R	G	G			R	R	R	G	G			R	R	R												R
Ø2P	10,11	D	D	D	D	D			*	D	D	D	D			D	D	D												
Ø3P	12,13	D	D	D	D	D			D	D	D	D	D			*	D	D												
Ø8P																														

NOT USED | NOT USED | NOT USED | NOT USED

		Ø5							Ø6							Ø7							Ø8						
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO					
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**					
Ø1	2,3																												
Ø2	4,5,6																												
Ø3	7,8,9																												
RING 2 Ø4																													
Ø5																													
Ø6																													
Ø7																													
Ø8																													
OLA	1,2,3																												
Ø2P	10,11																												
Ø3P	12,13																												
Ø8P																													

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	NONE	2,3
2	NONE	1,3
3	NONE	1,2
4		
5		
6		
7		
8		

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11	1	X			1	1					VIDEO
21	2	X			2	2					VIDEO
22	3	X			2	2					VIDEO
23	4	X			2	2					VIDEO
31	5	X			3	3					VIDEO
32	6	X			3	3					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" = 1,2
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
RADIO	x
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	x
3M	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	x
IN TRAFFIC SIGNAL CABINET	
IN SEPARATE DOT LIGHTING CABINET	

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

TRAFFIC CONTROL SIGNAL
NW BARSTOW ST & BANK ST
CITY OF WAUKESHA
WAUKESHA COUNTY

DESIGNED BY: TAD, INC.

PROJECT NO: 1693-47-70, 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET 7	E

LEGEND

- CONTROL CABINET
- TRAFFIC SIGNAL CONDUIT
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- POLE, TYPE 4 WITH 6-FOOT LUMINAIRE ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- PULL BOX, 12" X 24"
- VIDEO VEHICLE DETECTION ZONE
- VIDEO VEHICLE DETECTION CAMERA MOUNTED ON MAST ARM
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"
- COMMUNICATIONS RADIO ANTENNA

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

N

NOT TO SCALE

N. BARSTOW ST

SOUTH ST

W. BROADWAY ST

PB PB1 PB2 PB3 PB4 PB6 PB7 PB8 PB9 PB10 PB11 PB12 PB13 PB14 PB15 PB16 PB17

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12

CB1 CB2

21 22 23 24 31 41 42

R/W 20'

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.
4. ALL NEW POLES, BASES, ARMS, SIGNAL HOUSINGS, ETC. SHALL BE BLACK. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.
5. SEE MISCELLANEOUS QUANTITES FOR WORK BREAKDOWN BETWEEN PROJECT ID'S.

TRAFFIC CONTROL SIGNAL

N. BARSTOW ST & SOUTH ST
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

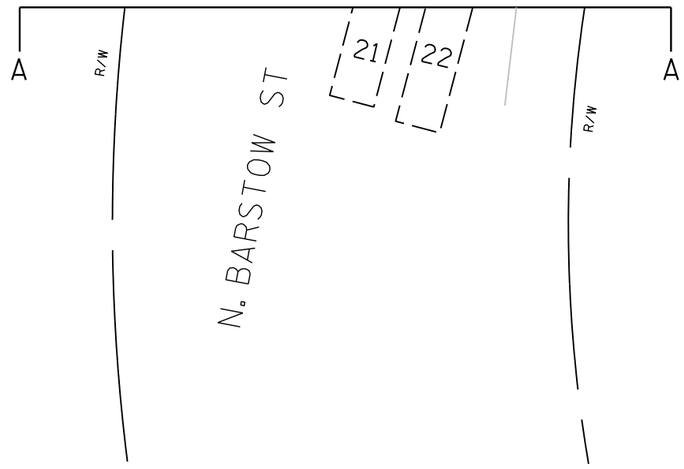
PAGE 1 OF 3

PROJECT NO: 1693-47-70, 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 8	E

FILE NAME : Barstow at Broadway.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ' / in.

WISDOT/CADDS SHEET 42

2



TRAFFIC CONTROL SIGNAL
N. BARSTOW ST & SOUTH ST
CITY OF WAUKESHA
WAUKESHA COUNTY

DESIGNED BY: TAD, INC.

PROJECT NO: 1693-47-70, 2718-01-02	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 9	E

FILE NAME : Barstow at Broadway.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 / in.

SEQUENCE OF OPERATION

N

NOT USED

	HEAD NUMBERS	Ø1 R/W	Ø1 **	Ø1 CLEAR TO	Ø2 R/W	Ø2 **	Ø2 CLEAR TO	Ø3 R/W	Ø3 **	Ø3 CLEAR TO	Ø4 R/W	Ø4 **	Ø4 CLEAR TO	FLASH
Ø1														
Ø2	1,2,3,4,5,6,7,8				G	Y	R	R	R	R	R	R	R	R
Ø3	16,17,18				R	Y	R	G, G	Y	R	R	R	R	R
Ø4	9,10,11,12,13,14,15				R	R	R	R	R	R	G	Y	R	R
Ø5														
Ø6														
Ø7														
Ø8														
Ø2P	19,20,23,24,25,26				*	D	D	D	D	D	D	D	D	
Ø4P	21,22,27,28				D	D	D	*	D	D	D	D	D	
Ø6P														
Ø8P														

RING 1

NOT USED | NOT USED | NOT USED | NOT USED

	HEAD NUMBERS	Ø5 R/W	Ø5 **	Ø5 CLEAR TO	Ø6 R/W	Ø6 **	Ø6 CLEAR TO	Ø7 R/W	Ø7 **	Ø7 CLEAR TO	Ø8 R/W	Ø8 **	Ø8 CLEAR TO
Ø1													
Ø2													
Ø3													
Ø4													
Ø5													
Ø6													
Ø7													
Ø8													
Ø2P													
Ø4P													
Ø6P													
Ø8P													

RING 2

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	NONE	3,4
3	NONE	2,4
4	NONE	2,3
5		
6		
7		
8		

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21	1	X			2	2					VIDEO
22	2	X			2	2					VIDEO
23	3	X			2	2					VIDEO
24	4	X			2	2					VIDEO
31	5	X			3	3					VIDEO
41	6	X			4	4					VIDEO
42	7	X			4	4					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
RADIO	x
*LOCATION OF MASTER CONTROLLER NO: S-	
SIGNAL SYSTEM #: SS- -	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	x
3M	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	x
IN TRAFFIC SIGNAL CABINET	
IN SEPARATE DOT LIGHTING CABINET	

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

TRAFFIC CONTROL SIGNAL
N. BARSTOW ST & SOUTH ST
CITY OF WAUKESHA
WAUKESHA COUNTY

DESIGNED BY: TAD, INC.

PROJECT NO: 1693-47-70, 2718-01-02	HWY: LOCAL ROAD	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET 10	E

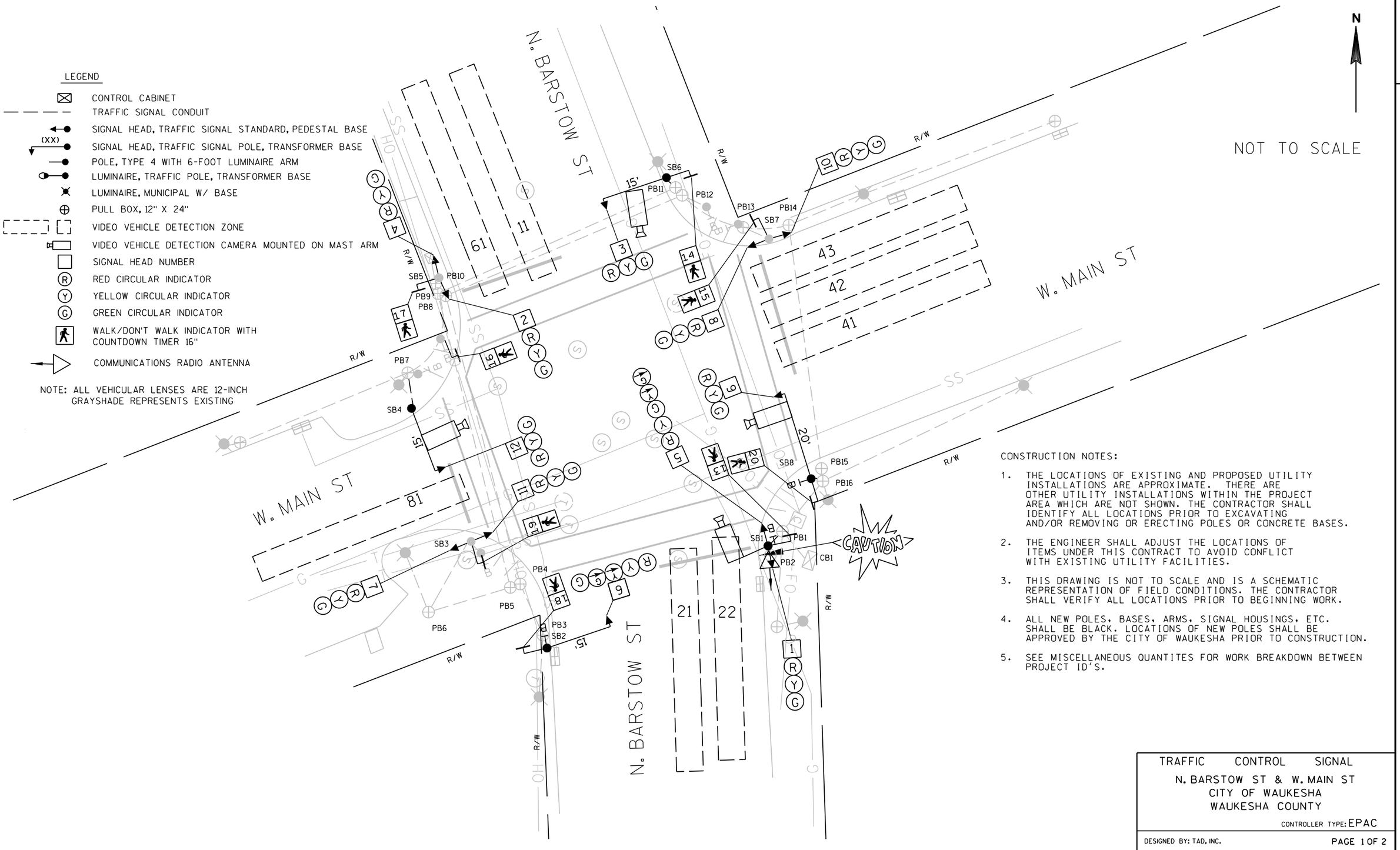
FILE NAME : Barstow at Broadway.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 / in.
WISDOT/CADDS SHEET 42

2

LEGEND

- CONTROL CABINET
- TRAFFIC SIGNAL CONDUIT
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- POLE, TYPE 4 WITH 6-FOOT LUMINAIRE ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- PULL BOX, 12" X 24"
- VIDEO VEHICLE DETECTION ZONE
- VIDEO VEHICLE DETECTION CAMERA MOUNTED ON MAST ARM
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"
- COMMUNICATIONS RADIO ANTENNA

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



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.
4. ALL NEW POLES, BASES, ARMS, SIGNAL HOUSINGS, ETC. SHALL BE BLACK. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.
5. SEE MISCELLANEOUS QUANTITES FOR WORK BREAKDOWN BETWEEN PROJECT ID'S.

TRAFFIC CONTROL SIGNAL

N. BARSTOW ST & W. MAIN ST
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PROJECT NO: 1693-47-70, 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 11 E

FILE NAME : Barstow at Main.dgn
PLOT DATE : 10/31/2013
PLOT BY : JFAIT-TADI
PLOT NAME :
PLOT SCALE : 20.0000 / in.
WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

N

		Ø1							Ø2							Ø3							Ø4							FLASH
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO						
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**						
Ø1	5,6	G	Y	R					R	R	R												R	R	R					
Ø2	1,2,3	R	R	R					G	Y	R												R	R	R					R
Ø3																														
Ø4	10,11,12	R	R	R					R	R	R												G	Y	R					R
RING 1 Ø5																														
Ø6	4,5,6	R	R	R					R	R	R												R	R	R					R
Ø7																														
Ø8	7,8,9	R	R	R					R	R	R												R	R	R					R
Ø2P	13,14	D	D	D					*	D	D												D	D	D					
Ø4P	15,16	D	D	D					D	D	D												*	D	D					
Ø6P	17,18	D	D	D					D	D	D												D	D	D					
Ø8P	19,20	D	D	D					D	D	D												D	D	D					

		Ø5							Ø6							Ø7							Ø8						
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO					
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**					
Ø1	5,6								R	R	R												R	R	R				
Ø2	1,2,3								R	R	R												R	R	R				
Ø3																													
RING 2 Ø4	10,11,12								R	R	R												R	R	R				
Ø5																													
Ø6	4,5,6								G	Y	R												R	R	R				
Ø7																													
Ø8	7,8,9								R	R	R												G	Y	R				
Ø2P	13,14								D	D	D												D	D	D				
Ø4P	15,16								D	D	D												D	D	D				
Ø6P	17,18								*	D	D												D	D	D				
Ø8P	19,20								D	D	D												*	D	D				

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	6	2,4,8
2	6	1,4,8
3		
4	8	1,2,6
5		
6	1,2	4,8
7		
8	4	1,2,6

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11	1	X			1	1					VIDEO
21	2	X			2	2					VIDEO
22	2	X			2	2					VIDEO
41	3	X			4	4					VIDEO
42	3	X			4	4					VIDEO
43	4	X			4	4					VIDEO
61	5	X			6	6					VIDEO
81	6	X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
RADIO	x
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	x
3M	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	x
IN TRAFFIC SIGNAL CABINET	
IN SEPARATE DOT LIGHTING CABINET	

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

TRAFFIC CONTROL SIGNAL
N. BARSTOW ST & W. MAIN ST
CITY OF WAUKESHA
WAUKESHA COUNTY

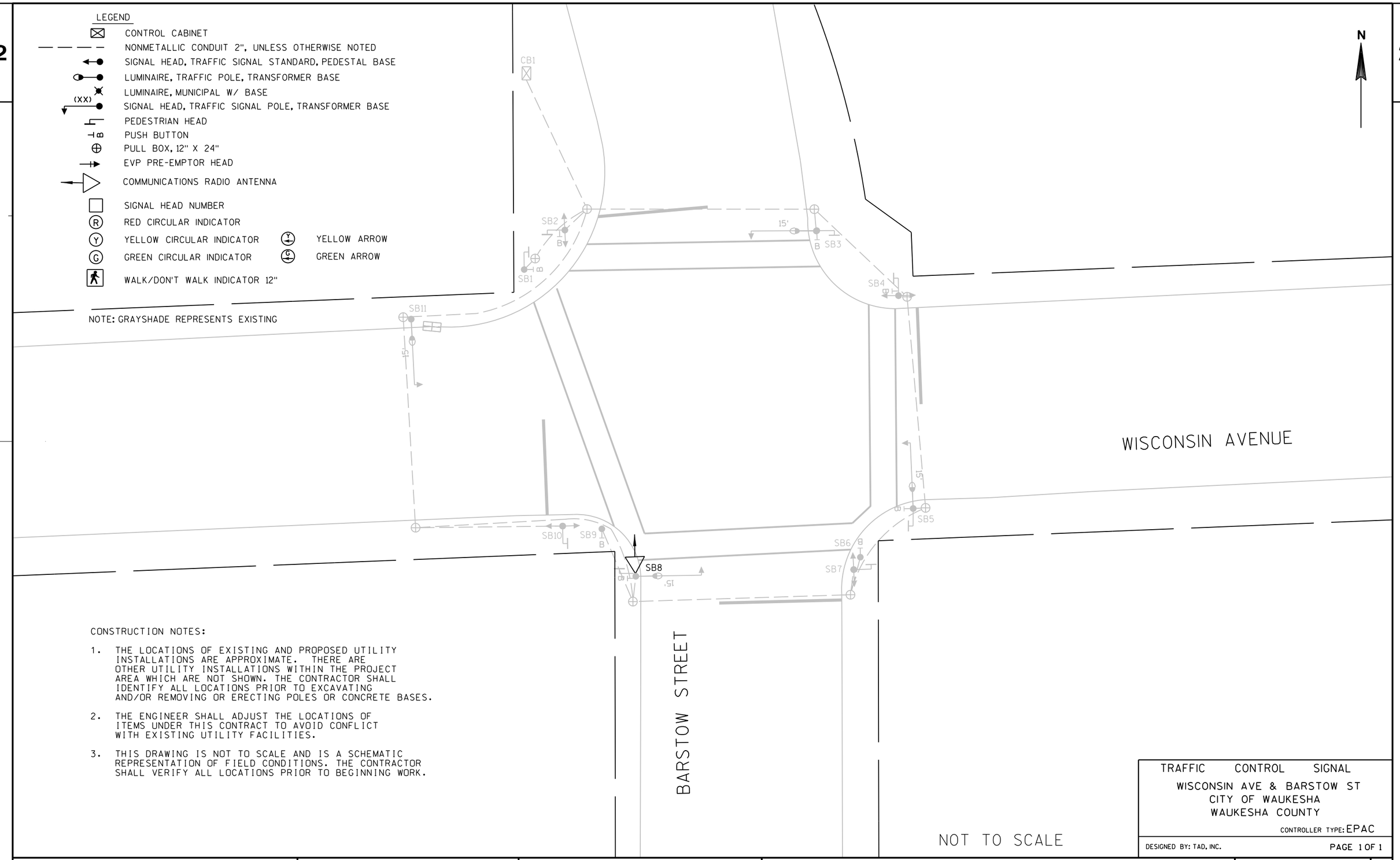
DESIGNED BY: TAD, INC.

PROJECT NO: 1693-47-70, 2718-09-70 | HWY: LOCAL ROAD | COUNTY: WAUKESHA | SEQUENCE OF OPERATIONS | SHEET 12 | E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- COMMUNICATIONS RADIO ANTENNA
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR — (Y) YELLOW ARROW
- (G) GREEN CIRCULAR INDICATOR — (G) GREEN ARROW
- WALK/DON'T WALK INDICATOR 12"

NOTE: GRAYSHADE REPRESENTS EXISTING



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.

NOT TO SCALE

TRAFFIC CONTROL SIGNAL
WISCONSIN AVE & BARSTOW ST
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 1693-47-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 13 E

LEGEND

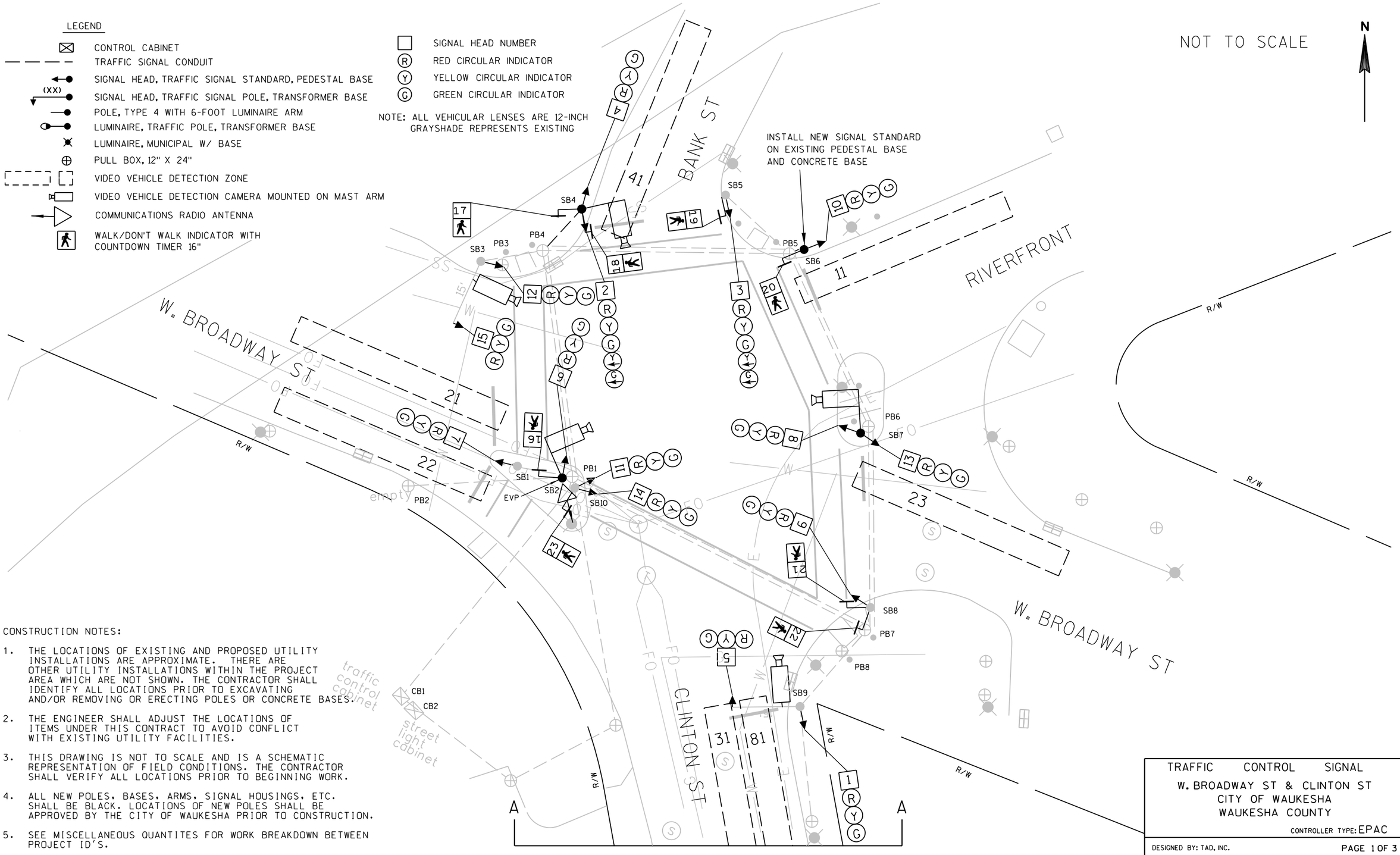
- CONTROL CABINET
- TRAFFIC SIGNAL CONDUIT
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- POLE, TYPE 4 WITH 6-FOOT LUMINAIRE ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- PULL BOX, 12" X 24"
- VIDEO VEHICLE DETECTION ZONE
- VIDEO VEHICLE DETECTION CAMERA MOUNTED ON MAST ARM
- COMMUNICATIONS RADIO ANTENNA
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR

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

NOT TO SCALE

N



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
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4. ALL NEW POLES, BASES, ARMS, SIGNAL HOUSINGS, ETC. SHALL BE BLACK. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.
5. SEE MISCELLANEOUS QUANTITES FOR WORK BREAKDOWN BETWEEN PROJECT ID'S.

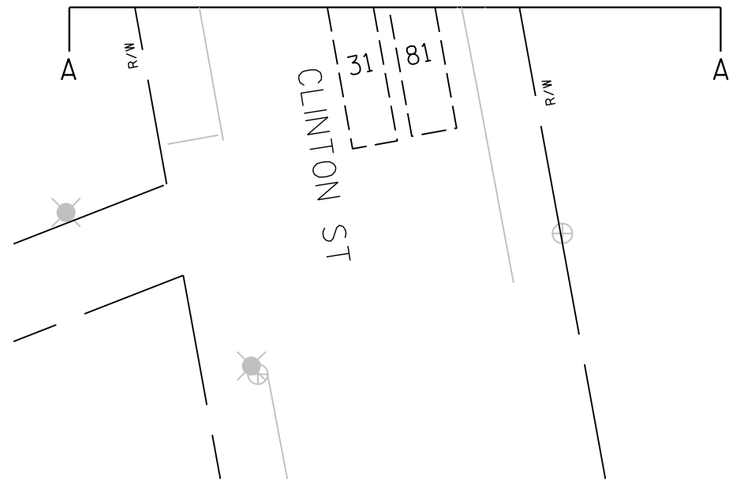
TRAFFIC CONTROL SIGNAL
W. BROADWAY ST & CLINTON ST
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 3

PROJECT NO: 1693-47-70, 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 14	E

2



TRAFFIC CONTROL SIGNAL
W. BROADWAY ST & CLINTON ST
CITY OF WAUKESHA
WAUKESHA COUNTY

DESIGNED BY: TAD, INC.

PAGE 2 OF 3

PROJECT NO: 1693-47-70, 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 15	E

SEQUENCE OF OPERATION

N

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø1 CLEAR TO	Ø1 CLEAR TO	Ø2 R/W	Ø2 CLEAR TO **	Ø2 CLEAR TO	Ø2 CLEAR TO	Ø3 R/W	Ø3 CLEAR TO **	Ø3 CLEAR TO	Ø3 CLEAR TO	Ø4 R/W	Ø4 CLEAR TO **	Ø4 CLEAR TO	Ø4 CLEAR TO	FLASH
Ø1	10,11,12	G	Y	R		R	R	R		R	R	R		R	R	R		R
Ø2	7,8,9,13,14,15	R	R	R		G	Y	R		R	R	R		R	R	R		R
Ø3	2,3	R	R	R		R	R	R		G	Y	R		R	R	R		-
Ø4	4,5,6	R	R	R		R	R	R		R	R	R		G	Y	R		R
Ø5																		
Ø6																		
Ø7																		
Ø8	1,2,3	R	R	R		R	R	R		R	R	R		R	R	R		R
Ø1P		*	D	D		D	D	D		D	D	D		D	D	D		
Ø2P	18,19,22,23	D	D	D		*	D	D		D	D	D		D	D	D		
Ø4P	20,21	D	D	D		D	D	D		D	D	D		*	D	D		
Ø8P	16,17	D	D	D		D	D	D		D	D	D		D	D	D		

NOT USED | NOT USED | NOT USED

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø5 CLEAR TO	Ø5 CLEAR TO	Ø6 R/W	Ø6 CLEAR TO **	Ø6 CLEAR TO	Ø6 CLEAR TO	Ø7 R/W	Ø7 CLEAR TO **	Ø7 CLEAR TO	Ø7 CLEAR TO	Ø8 R/W	Ø8 CLEAR TO **	Ø8 CLEAR TO	Ø8 CLEAR TO
Ø1	10,11,12													R	R	R	
Ø2	7,8,9,13,14,15													R	R	R	
Ø3	2,3													R	R	R	
Ø4	4,5,6													R	R	R	
Ø5																	
Ø6														R	R	R	
Ø7																	
Ø8	1,2,3													G	Y	R	
Ø1P														D	D	D	
Ø2P	18,19,22,23													D	D	D	
Ø4P	20,21													D	D	D	
Ø8P	16,17													*	D	D	

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	NONE	2,3,4,8
2	NONE	1,3,4,8
3	8	1,2,4
4	8	1,2,3
5		
6		
7		
8	4	1,2,3

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11	1	X			1	1					VIDEO
21	2	X			2	2					VIDEO
22	3	X			2	2					VIDEO
23	4	X			2	2					VIDEO
31	5	X			3	3					VIDEO
41	6	X			4	4					VIDEO
81	7	X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
RADIO	x
*LOCATION OF MASTER CONTROLLER NO: S-	
SIGNAL SYSTEM *: SS- -	

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	x
3M	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	x
IN TRAFFIC SIGNAL CABINET	
IN SEPARATE DOT LIGHTING CABINET	

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

TRAFFIC CONTROL SIGNAL
W. BROADWAY ST & CLINTON ST
CITY OF WAUKESHA
WAUKESHA COUNTY

DESIGNED BY: TAD, INC.

PROJECT NO: 1693-47-70, 2718-09-70 | HWY: LOCAL ROAD | COUNTY: WAUKESHA | SEQUENCE OF OPERATIONS | SHEET 16 | E

FILE NAME : Broadway at Clinton.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 / in.
WISDOT/CADDS SHEET 42

2

N

CONFIGURATION WITH HEAD NUMBERS		
P 13,14,15,16 17,18,19,20 16-INCH	3-V 1,2,4 5,7,10	5-V 8,11
3-H 3,6	5-H 9,12	

N. EAST AVENUE

E. BROADWAY

21+00 22+00 23+00 24+00 25+00 26+00

6'X 16' 3 TURNS

180' TO STOP BAR

4 - 6'X 20' 3 TURNS EACH

6'X 18' 3 TURNS

6'X 16' 4 TURNS

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.
4. ALL NEW POLES, BASES, ARMS, SIGNAL HOUSINGS, ETC. SHALL BE BLACK. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.
5. SEE MISCELLANEOUS QUANTITES FOR WORK BREAKDOWN BETWEEN PROJECT ID'S.

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, PEDESTAL MOUNT
- (XX) SIGNAL HEAD, MAST-ARM MOUNT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- LUMINAIRE, 8-FOOT ARM
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"
- 3-V / 5 MOUNTING CONFIGURATION SIGNALS HEAD NUMBER
- X EVP PRE-EMPTOR DESIGNATOR
- EVP PRE-EMPTOR HEAD
- COMMUNICATIONS RADIO ANTENNA

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

NOT TO SCALE

TRAFFIC CONTROL SIGNAL

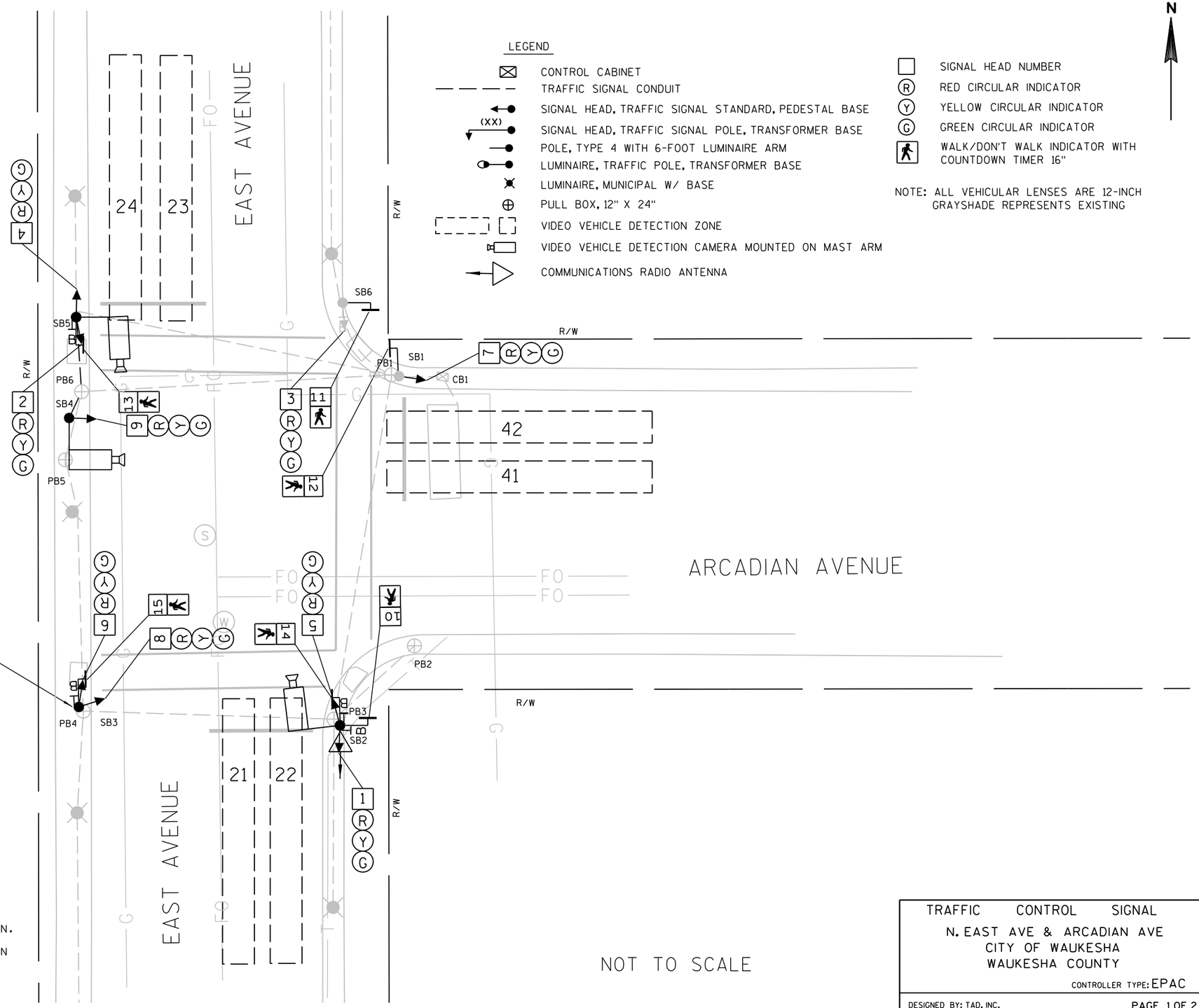
N. EAST AVENUE &
E. BROADWAY

SCALE 0 20

CITY CONTACT:
DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 1693-47-70, 2718-01-92	HWY: N. EAST AVENUE	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 17	E



REPLACE SIGNAL STANDARD
AND PEDESTAL BASE
ON EXISTING CONCRETE BASE

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
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5. SEE MISCELLANEOUS QUANTITES FOR WORK BREAKDOWN BETWEEN PROJECT ID'S.

TRAFFIC CONTROL SIGNAL
N. EAST AVE & ARCADIAN AVE
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 2

PROJECT NO: 1693-47-70, 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 18 E

SEQUENCE OF OPERATION

N

NOT USED | ⇕ | NOT USED | ⇔

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1										
Ø2	1,2,3,4,5,6			G Y R				R R R		R
Ø3										
Ø4	7,8,9			R R R				G Y R		R
Ø5										
Ø6										
Ø7										
Ø8										
Ø2P	10,11			* D D				D D D		
Ø4P	12,13,14,15			D D D				* D D		
Ø6P										
Ø8P										

RING 1

NOT USED | NOT USED | NOT USED | NOT USED

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1									
Ø2	1,2,3,4,5,6								
Ø3									
Ø4	7,8,9								
Ø5									
Ø6									
Ø7									
Ø8									
Ø2P	10,11								
Ø4P	12,13,14,15								
Ø6P									
Ø8P									

RING 2

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	NONE	4
3		
4	NONE	2
5		
6		
7		
8		

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21	1	X			2	2					VIDEO
22	2	X			2	2					VIDEO
23	3	X			2	2					VIDEO
24	4	X			2	2					VIDEO
41	5	X			4	4					VIDEO
42	6	X			4	4					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
RADIO	x
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	x
3M	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	x
IN TRAFFIC SIGNAL CABINET	
IN SEPARATE DOT LIGHTING CABINET	

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

TRAFFIC CONTROL SIGNAL
N. EAST AVE & ARCADIAN AVE
CITY OF WAUKESHA
WAUKESHA COUNTY

DESIGNED BY: TAD, INC.

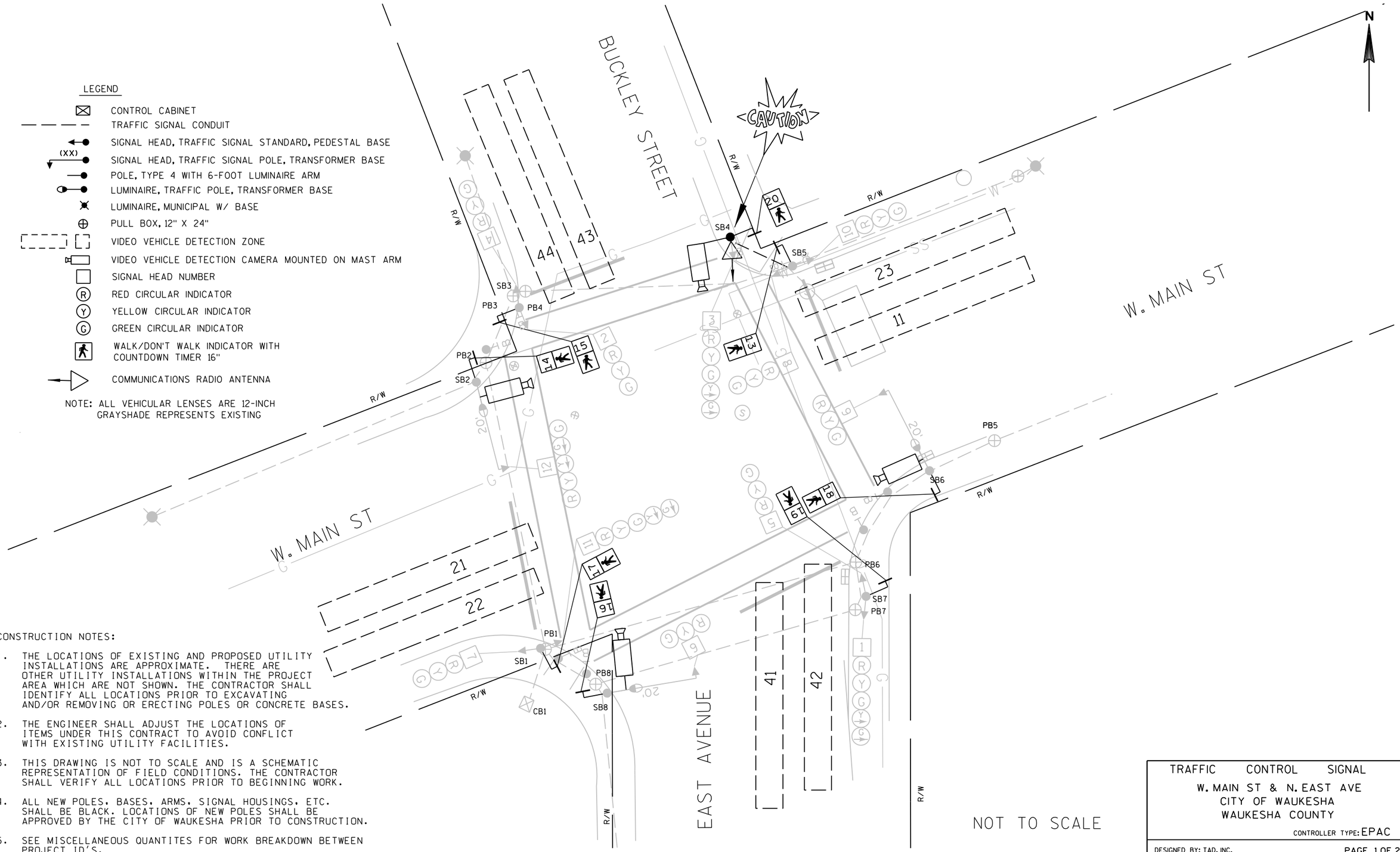
PROJECT NO: 1693-47-70, 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET 19	E

FILE NAME : East at Arcadian.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 / in.
WISDOT/CADDS SHEET 42

LEGEND

- CONTROL CABINET
- TRAFFIC SIGNAL CONDUIT
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- POLE, TYPE 4 WITH 6-FOOT LUMINAIRE ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- PULL BOX, 12" X 24"
- VIDEO VEHICLE DETECTION ZONE
- VIDEO VEHICLE DETECTION CAMERA MOUNTED ON MAST ARM
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"
- COMMUNICATIONS RADIO ANTENNA

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



CONSTRUCTION NOTES:

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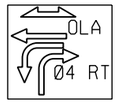
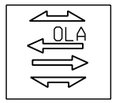
5. SEE MISCELLANEOUS QUANTITES FOR WORK BREAKDOWN BETWEEN PROJECT ID'S.

TRAFFIC CONTROL SIGNAL
W. MAIN ST & N. EAST AVE
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 2

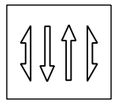
PROJECT NO: 1693-47-70, 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 20	E

SEQUENCE OF OPERATION





NOT USED



RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø1 CLEAR TO Ø2	Ø2 R/W	Ø2 CLEAR TO **	Ø2 CLEAR TO Ø1	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	1,3,11,12	G ←	Y ←	-	-	-	-			-	- -	-
Ø2	7,8,9	R	R	R	G	Y	R			R	R R	R
Ø3												
Ø4	1,2,3,4,5,6	R	R	R	R	R	R			G	Y R	R
	1RT, 3RT	G →	Y →	-	-	-	-			-	- -	-
Ø5												
Ø6												
Ø7												
Ø8												
OLA	10,11,12	G	Y	R G G	R	R	R G G			R	R R	R
Ø2P	02 PED HEADS	D	D	D D D	*	D	D D D			D	D D	
	OLA PED HEADS	*	D	D * *	*	D	D * *			D	D D	
Ø4P	04 PED HEADS	D	D	D D D		D	D D D			*	D D	
Ø8P												

NOT USED | NOT USED | NOT USED | NOT USED

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	1,3,11,12								
Ø2	7,8,9								
Ø3									
Ø4	1,2,3,4,5,6 1RT, 3RT								
Ø5									
Ø6									
Ø7									
Ø8									
OLA	10,11,12								
Ø2P	Ø2 PED HEADS OLA PED HEADS								
Ø4P	Ø4 PED HEADS								
Ø8P									

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

N

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11	1	X			1	1					VIDEO
21	2	X			2	2					VIDEO
22	3	X			2	2					VIDEO
23	4	X			2	2					VIDEO
41	5	X			4	4					VIDEO
42	6	X			4	4					VIDEO
43	7	X			4	4					VIDEO
44	8	X			4	4					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" = 1,2
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
RADIO	x
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	x
3M	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

TYPE OF LIGHTING	
BY OTHER AGENCY	x
IN TRAFFIC SIGNAL CABINET	
IN SEPARATE DOT LIGHTING CABINET	

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	NONE	2,4
2	NONE	1,4
3		
4	NONE	1,2
5		
6		
7		
8		

GENERAL NOTES:

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TRAFFIC CONTROL SIGNAL
W. MAIN ST & N. EAST AVE
CITY OF WAUKESHA
WAUKESHA COUNTY

DESIGNED BY: TAD, INC.

PROJECT NO: 1693-47-70, 2718-01-92 | HWY: LOCAL ROAD | COUNTY: WAUKESHA | SEQUENCE OF OPERATIONS | SHEET 21 | E

FILE NAME : East at Main.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ' / in.
WISDOT/CADDS SHEET 42

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
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3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.
4. ALL NEW POLES, BASES, ARMS, SIGNAL HOUSINGS, ETC. SHALL BE BLACK. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.
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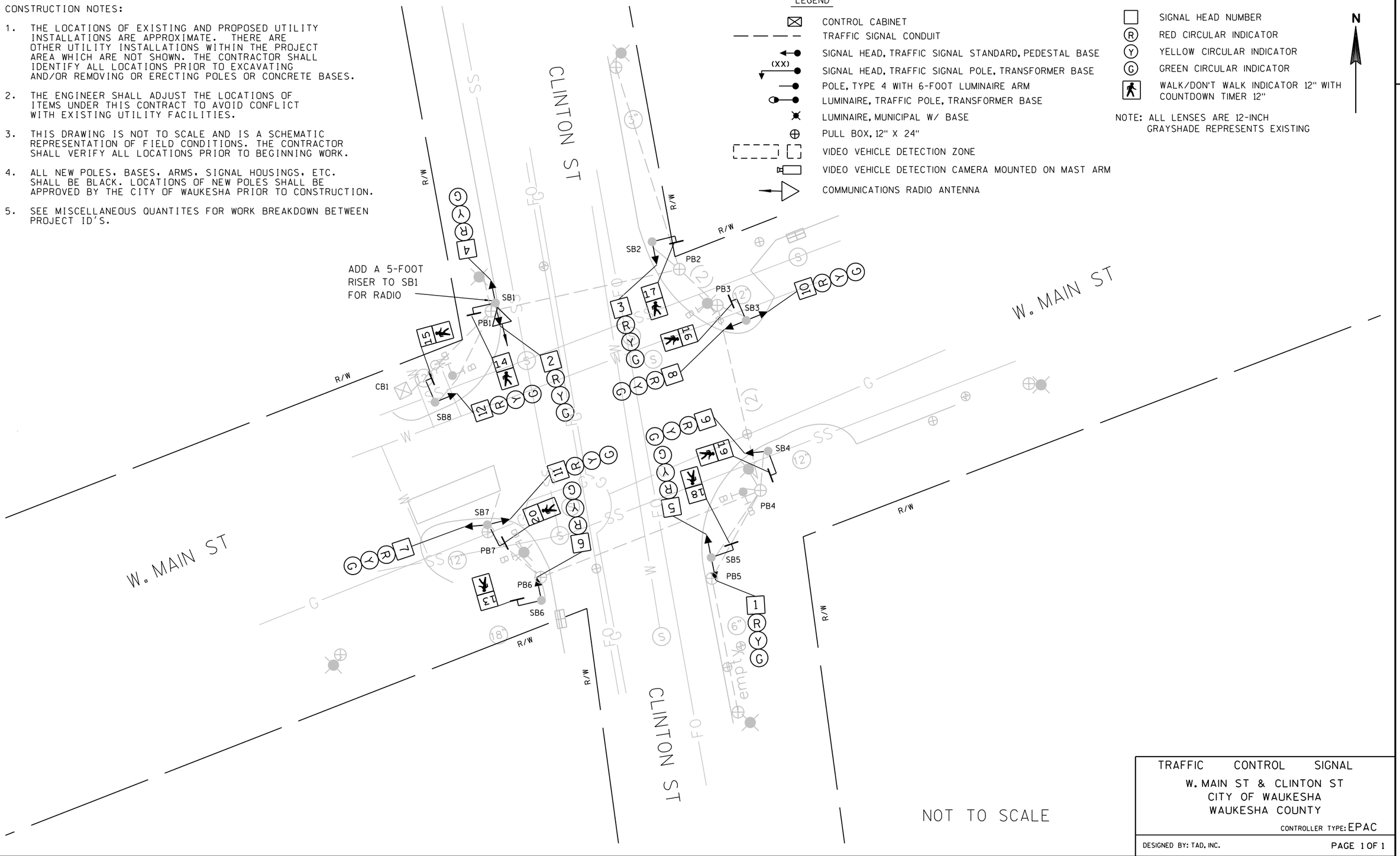


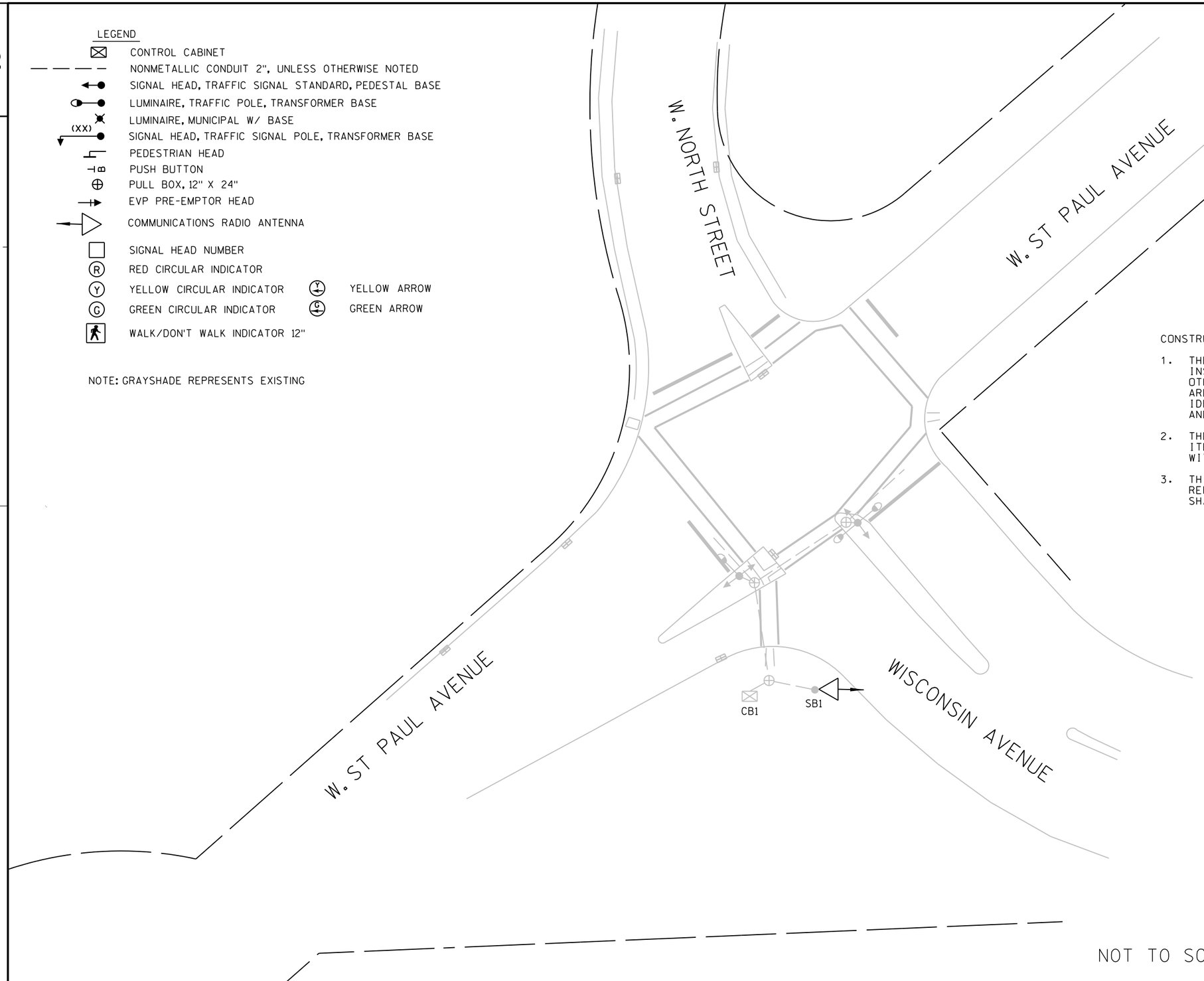
TRAFFIC CONTROL SIGNAL
W. MAIN ST & CLINTON ST
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 1693-47-70, 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 22	E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- COMMUNICATIONS RADIO ANTENNA
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR — (Y) YELLOW ARROW
- (G) GREEN CIRCULAR INDICATOR — (G) GREEN ARROW
- WALK/DON'T WALK INDICATOR 12"

NOTE: GRAYSHADE REPRESENTS EXISTING



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NOT TO SCALE

TRAFFIC CONTROL SIGNAL
ST PAUL & NORTH/WISCONSIN
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

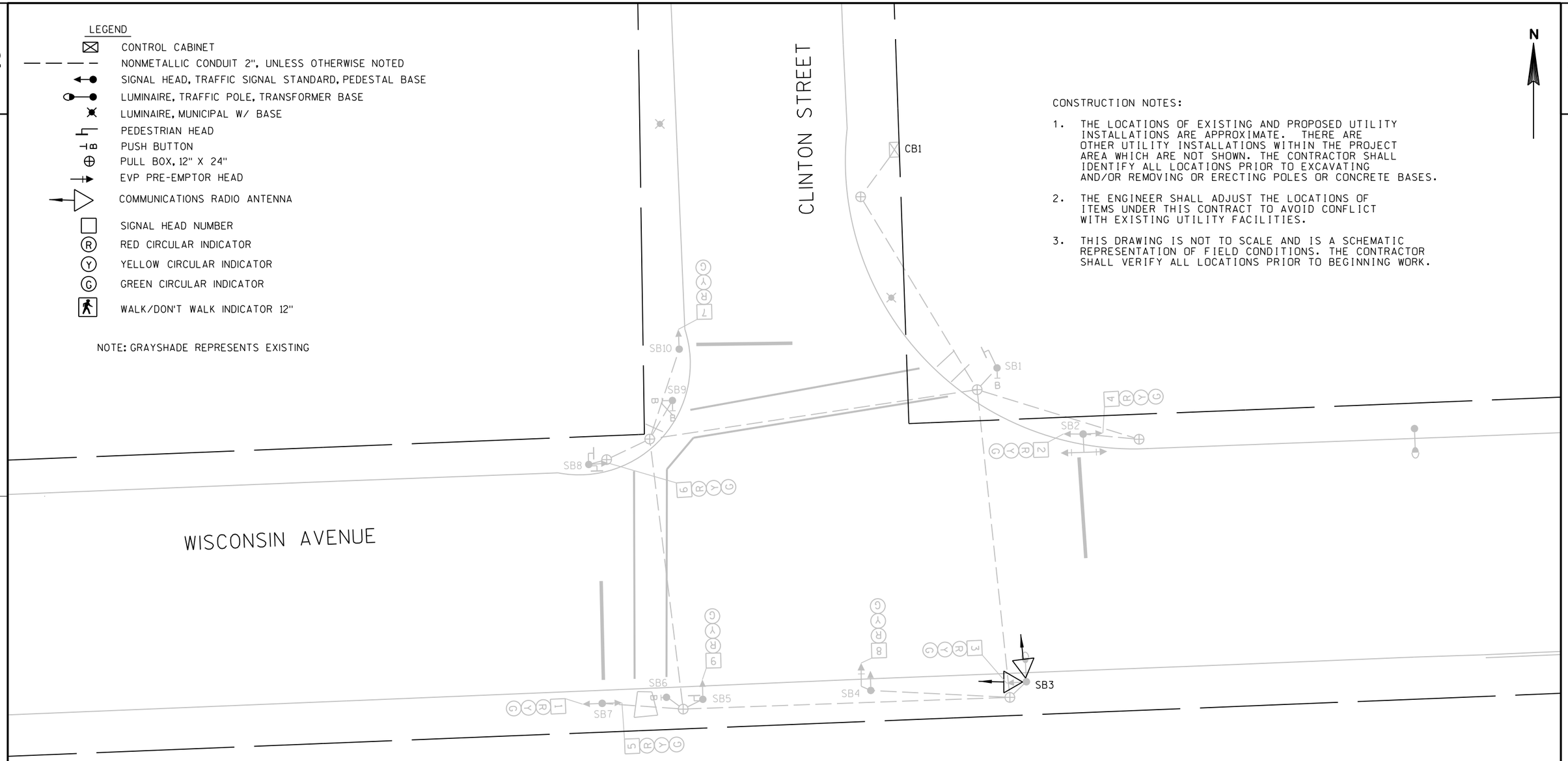
PROJECT NO: 1693-47-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 23 E

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- PEDESTRIAN HEAD
- PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- COMMUNICATIONS RADIO ANTENNA
- SIGNAL HEAD NUMBER
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR 12"

NOTE: GRAYSHADE REPRESENTS EXISTING



2

CONSTRUCTION NOTES:

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NOT TO SCALE

TRAFFIC CONTROL SIGNAL

WISCONSIN AVE & CLINTON ST
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

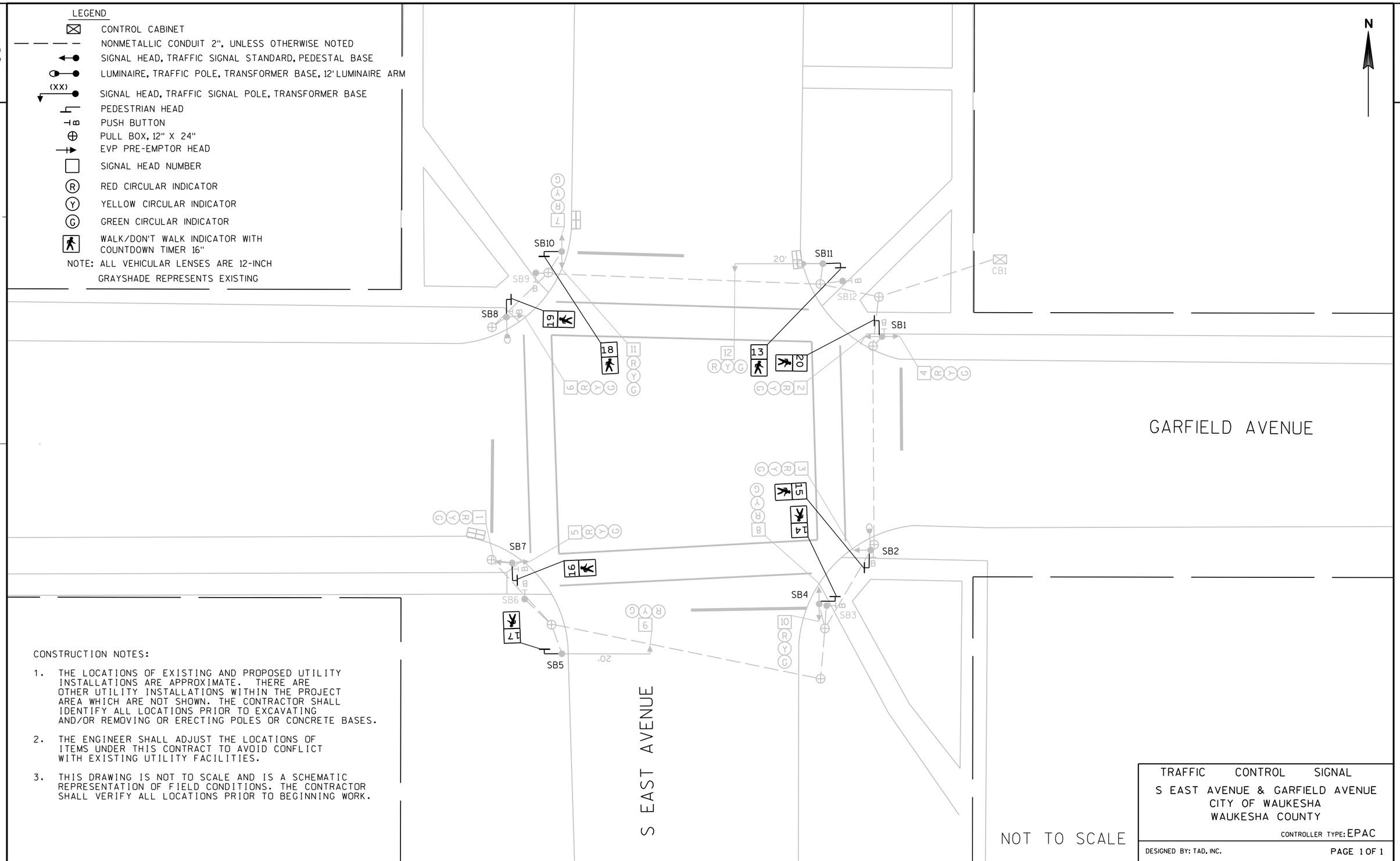
PROJECT NO: 1693-47-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 24	E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

NOTE: ALL VEHICULAR LENSES ARE 12-INCH

GRAYSHADE REPRESENTS EXISTING



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TRAFFIC CONTROL SIGNAL

S EAST AVENUE & GARFIELD AVENUE
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 25 E

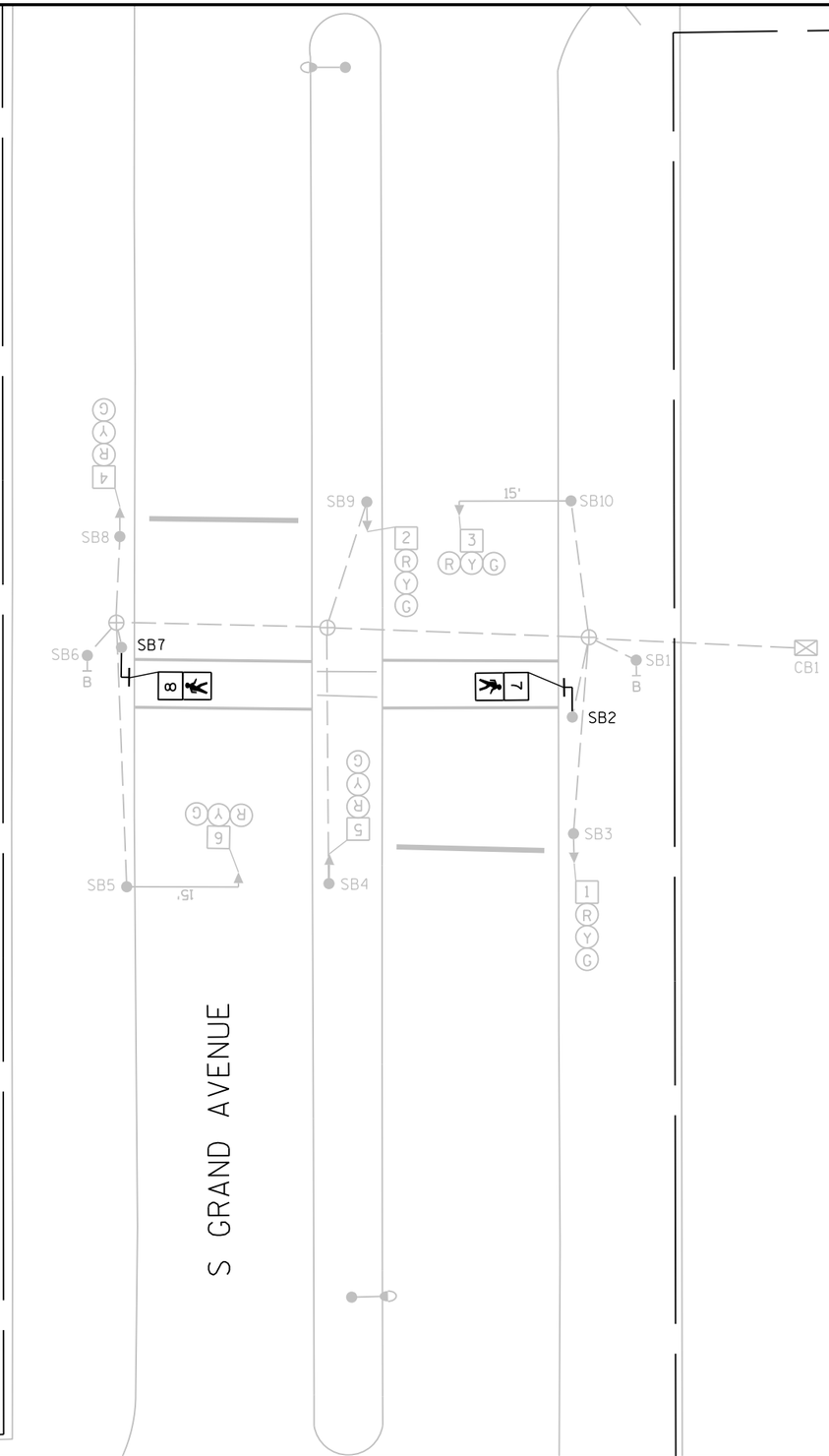
LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.



NOT TO SCALE

TRAFFIC CONTROL SIGNAL
S GRAND AVE & ROBERTA PLAYGROUND
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC. PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 26 E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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

N

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12

CB1

20' 20' 20' 20'

W SUNSET DR

S GRAND AVE

CONSTRUCTION NOTES:

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NOT TO SCALE

TRAFFIC CONTROL SIGNAL
S GRAND AVE & W SUNSET DR
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 27 E

FILE NAME : Grand at Sunset.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ' / in.

WISDOT/CADDS SHEET 42

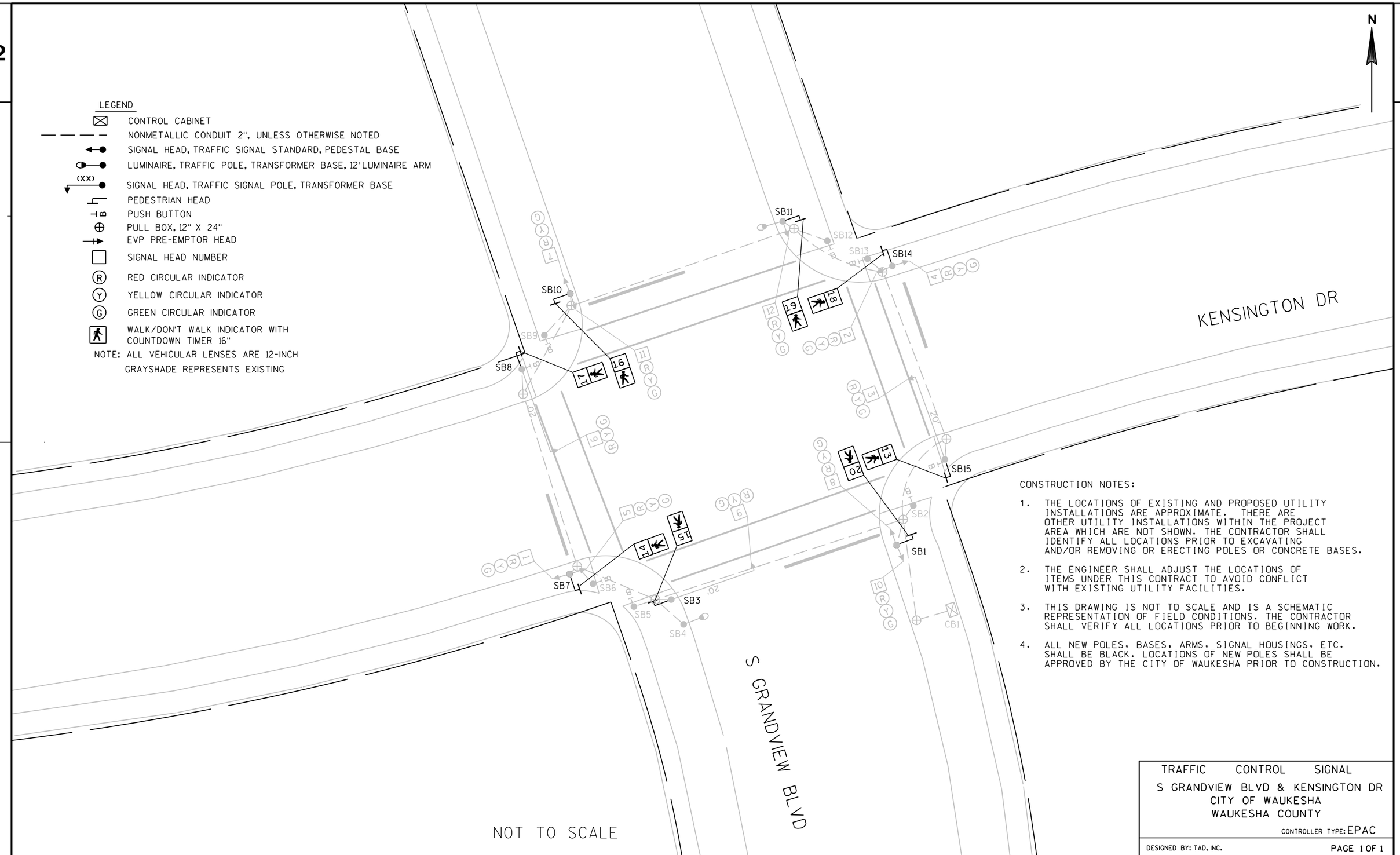
2

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12'LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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



CONSTRUCTION NOTES:

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4. ALL NEW POLES, BASES, ARMS, SIGNAL HOUSINGS, ETC. SHALL BE BLACK. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.

TRAFFIC CONTROL SIGNAL

S GRANDVIEW BLVD & KENSINGTON DR
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 28	E

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.

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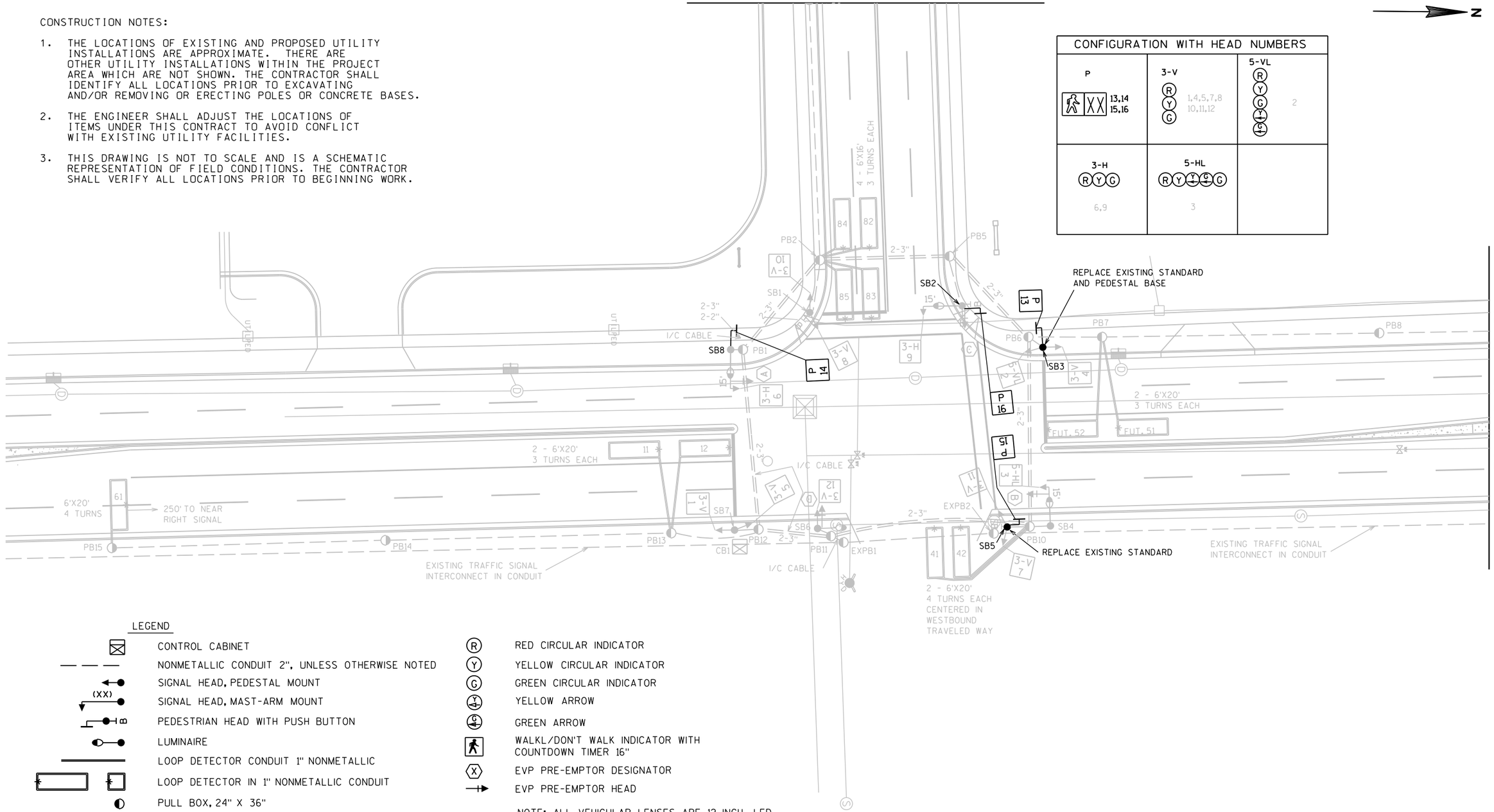


LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, PEDESTAL MOUNT
- (XX) SIGNAL HEAD, MAST-ARM MOUNT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- LUMINAIRE
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"
- 3-V 5 MOUNTING CONFIGURATION SIGNALS HEAD NUMBER

- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW
- WALKL/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"
- (X) EVP PRE-EMPTOR DESIGNATOR
- EVP PRE-EMPTOR HEAD

NOTE: ALL VEHICULAR LENSES ARE 12-INCH, LED
GRAYSHADE REPRESENTS EXISTING

NOT TO SCALE

TRAFFIC CONTROL SIGNAL

GRANDVIEW BLVD & MEADOW LANE
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

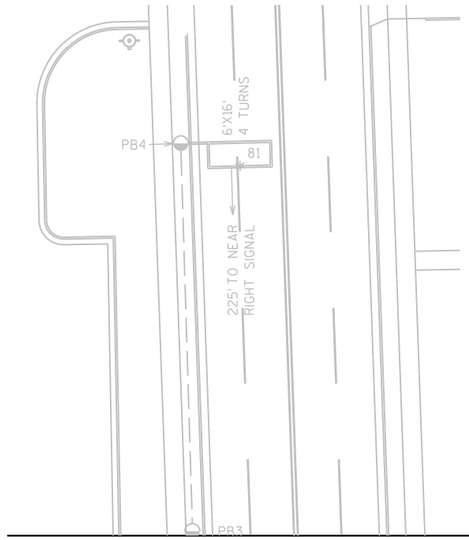
DESIGNED BY: TAD, INC.

PAGE 1 OF 2

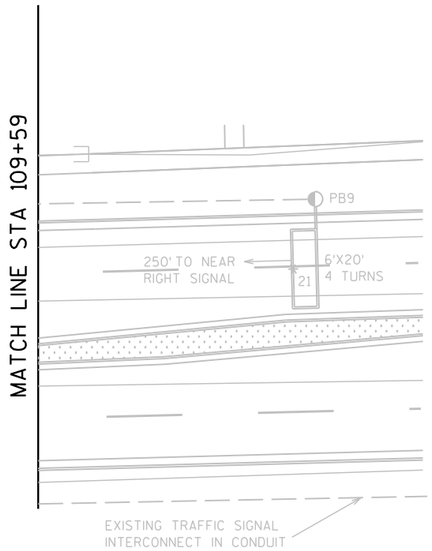
PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 29	E

2

N



MATCH LINE STA 28+20



NOT TO SCALE

TRAFFIC CONTROL SIGNAL
GRANDVIEW BLVD & MEADOW LANE
CITY OF WAUKESHA
WAUKESHA COUNTY

DESIGNED BY: TAD, INC.

PAGE 2 OF 2

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 30	E

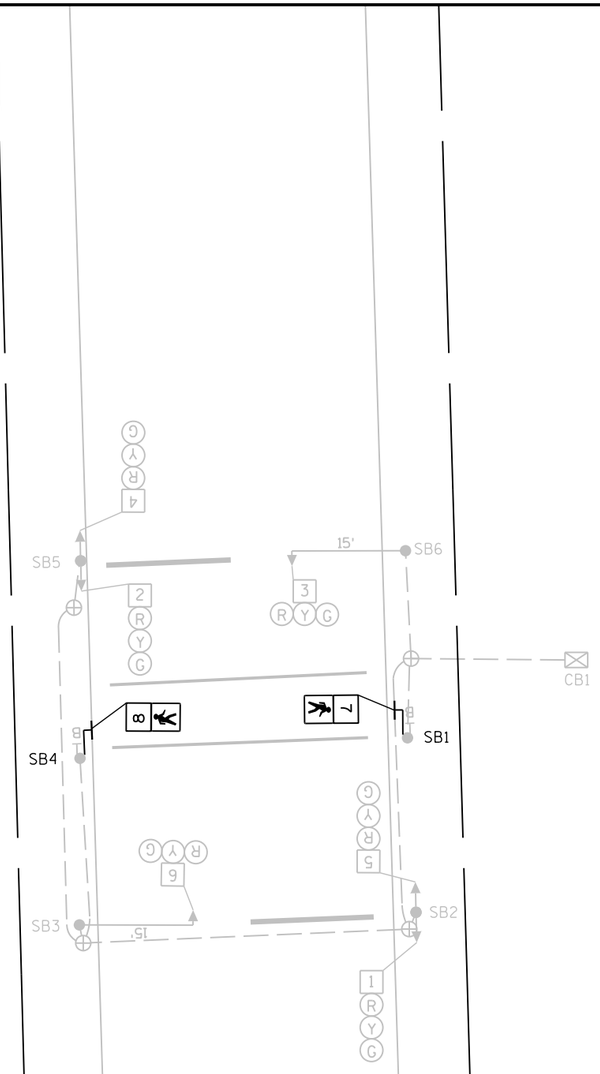
FILE NAME : Grandview at Meadow.dgn
PLOT DATE : 10/14/2013
PLOT BY : JFAIT-TADI
PLOT NAME :
PLOT SCALE : 40.0000 ' / in.
WISDOT/CADDS SHEET 42

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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



GRANDVIEW PARK

2

CONSTRUCTION NOTES:

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NOT TO SCALE

TRAFFIC CONTROL SIGNAL
N GRANDVIEW BLVD & GRANDVIEW PARK
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 31	E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER

CONSTRUCTION NOTES:

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- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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

N

SILVERNAIL RD

N GRANDVIEW BLVD

NOT TO SCALE

TRAFFIC CONTROL SIGNAL
N GRANDVIEW BLVD & SILVERNAIL RD
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 32 E

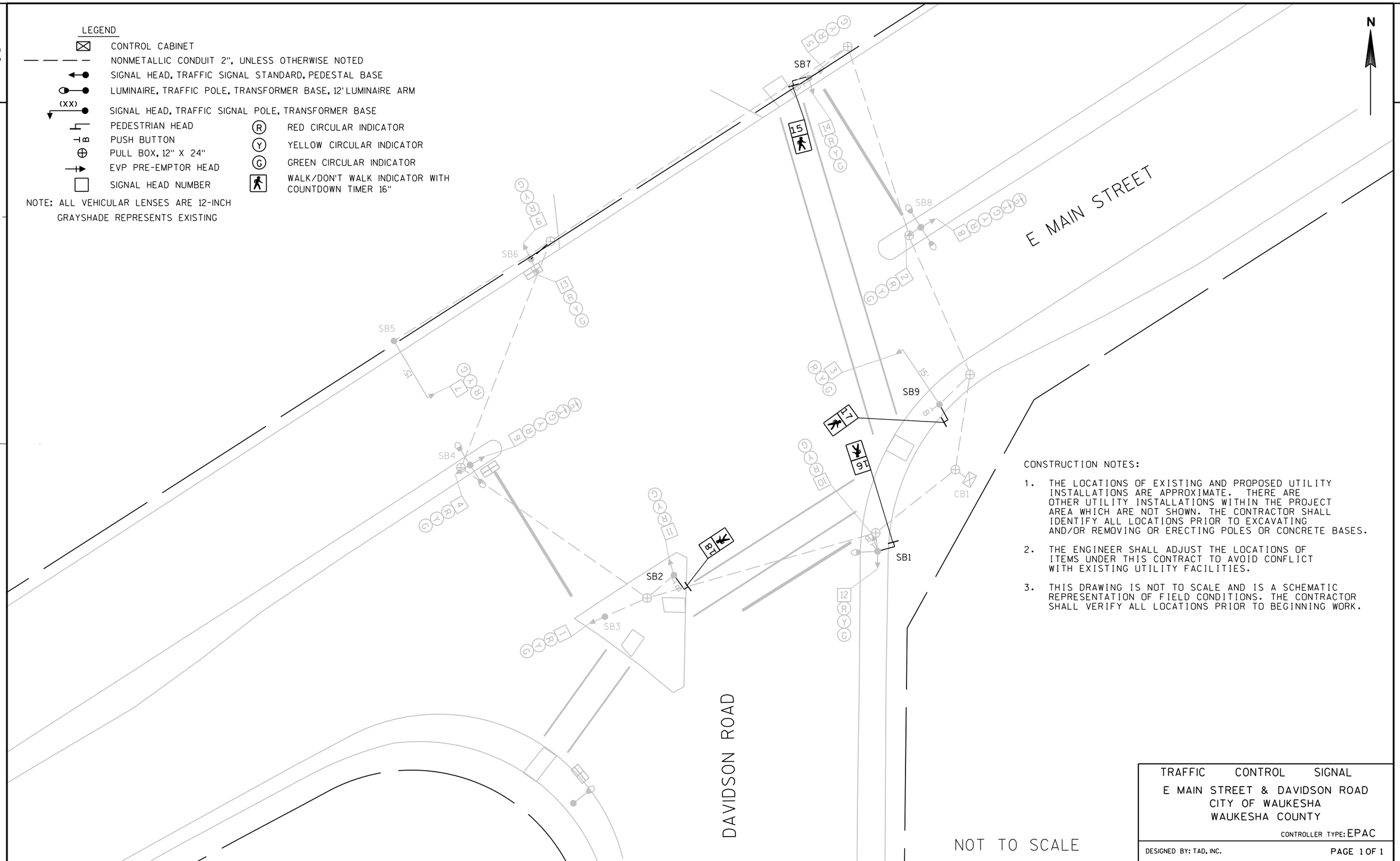
FILE NAME : Grandview at Silvernail.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ' / in.

WISDOT/CADDS SHEET 42

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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



CONSTRUCTION NOTES:

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TRAFFIC CONTROL SIGNAL
E MAIN STREET & DAVIDSON ROAD
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC. PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 33 E

2

CONSTRUCTION NOTES:

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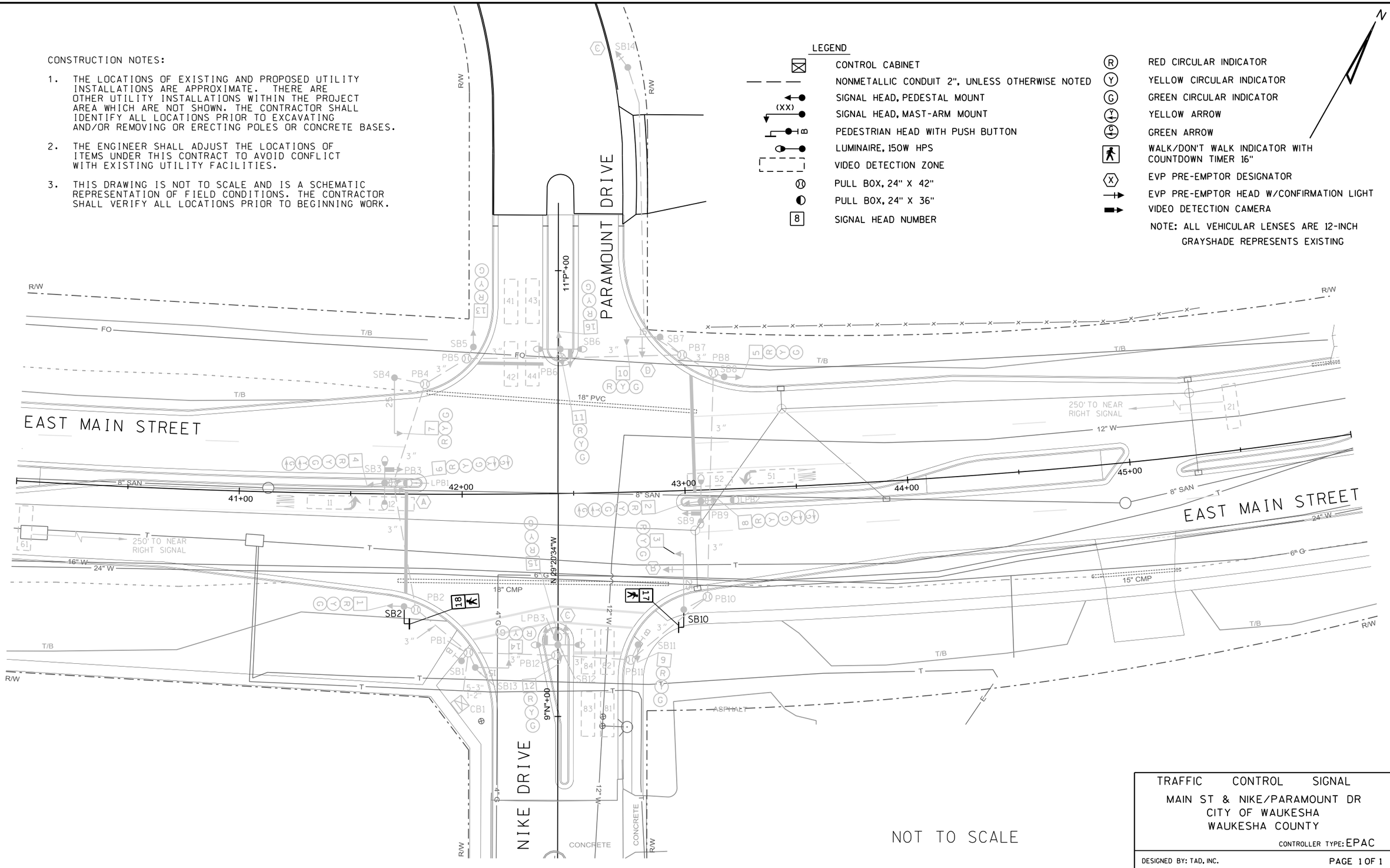
LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, PEDESTAL MOUNT
- (XX) SIGNAL HEAD, MAST-ARM MOUNT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- LUMINAIRE, 150W HPS
- VIDEO DETECTION ZONE
- PULL BOX, 24" X 42"
- PULL BOX, 24" X 36"
- 8 SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"
- (X) EVP PRE-EMPTOR DESIGNATOR
- EVP PRE-EMPTOR HEAD W/CONFIRMATION LIGHT
- VIDEO DETECTION CAMERA

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

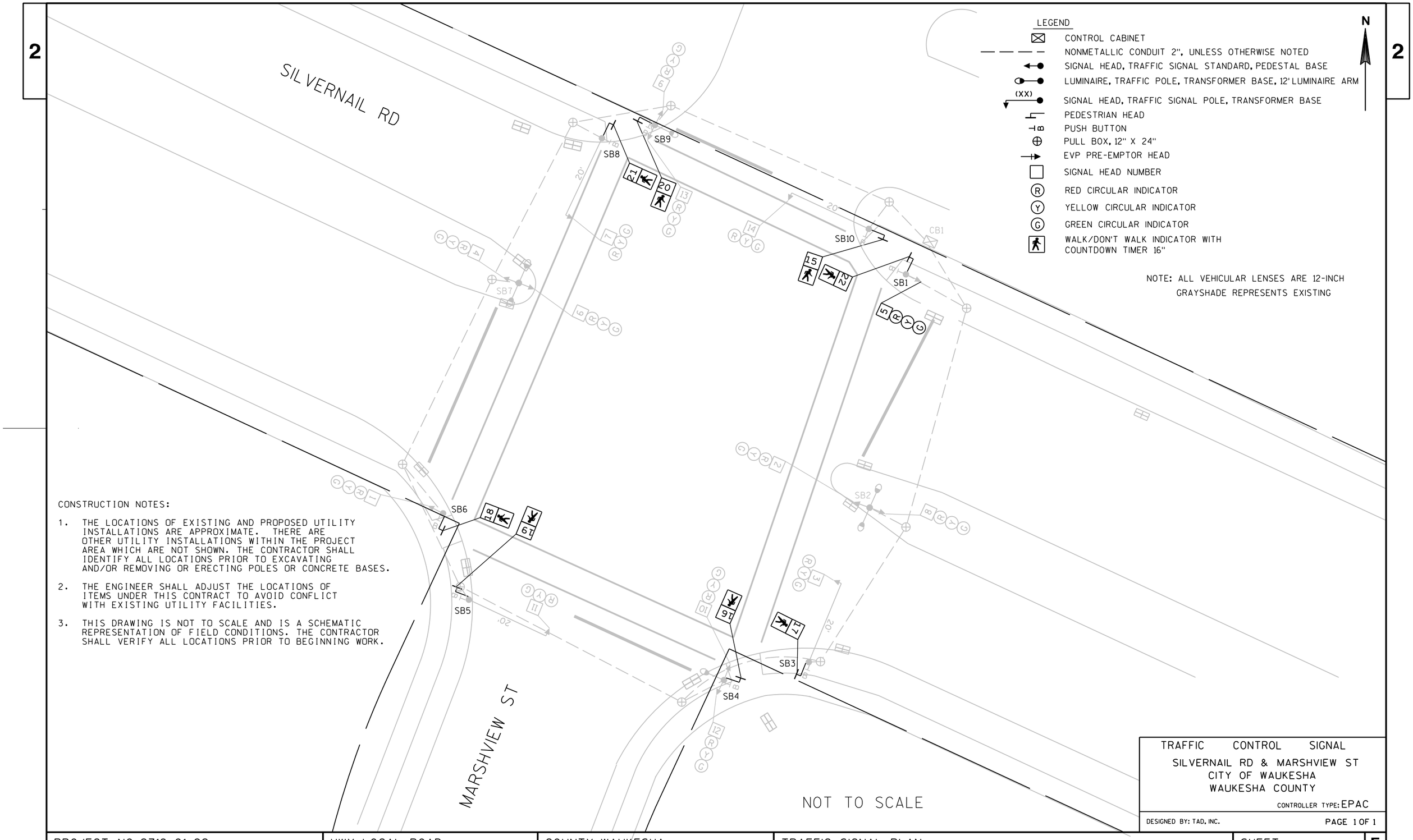


NOT TO SCALE

TRAFFIC CONTROL SIGNAL
MAIN ST & NIKE/PARAMOUNT DR
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 34	E

FILE NAME : Main at Nike.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 40.0000 ' / in.



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

CONSTRUCTION NOTES:

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TRAFFIC CONTROL SIGNAL

SILVERNAIL RD & MARSHVIEW ST
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

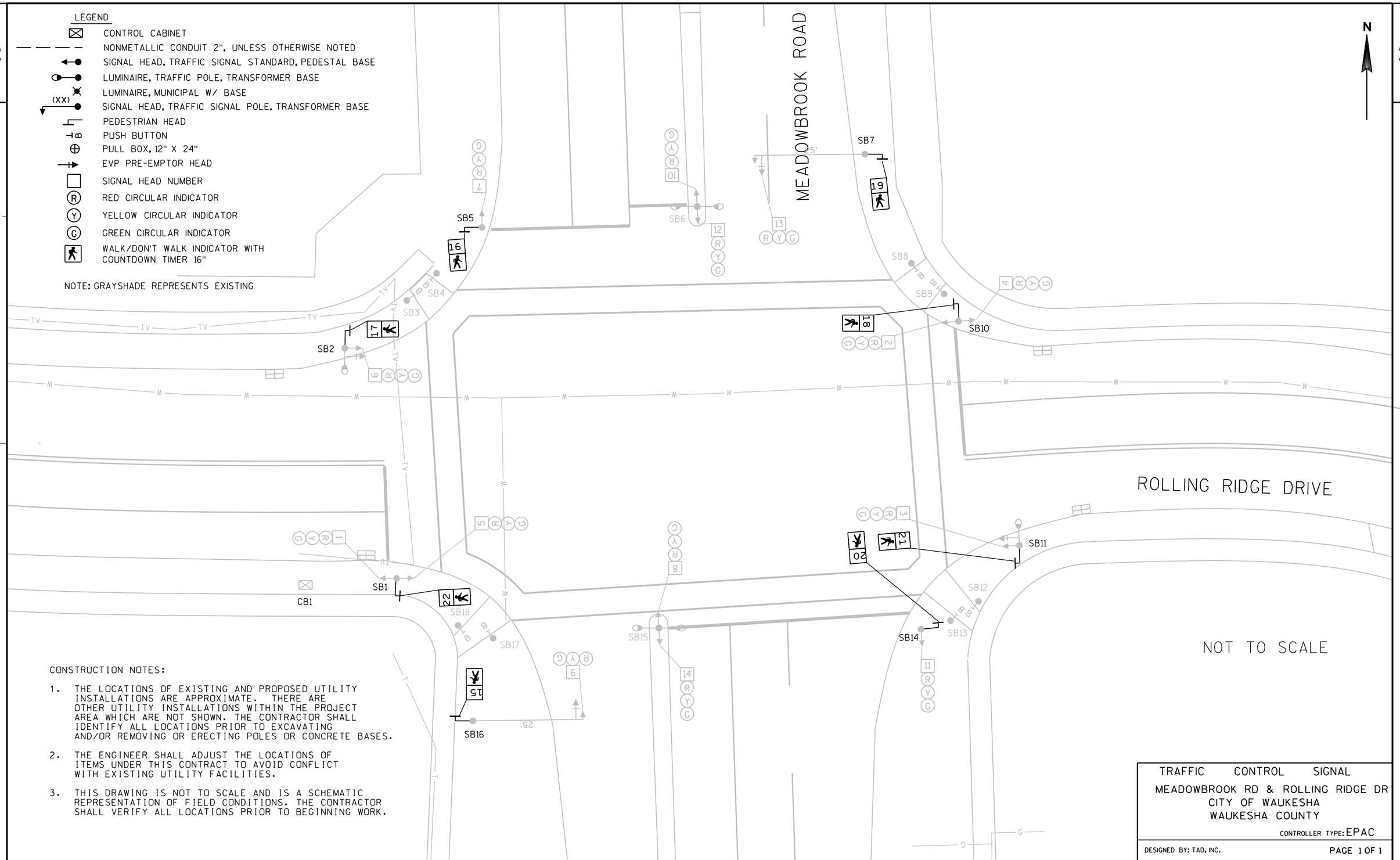
PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 35 E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

NOTE: GRAYSHADE REPRESENTS EXISTING



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TRAFFIC CONTROL SIGNAL

MEADOWBROOK RD & ROLLING RIDGE DR
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

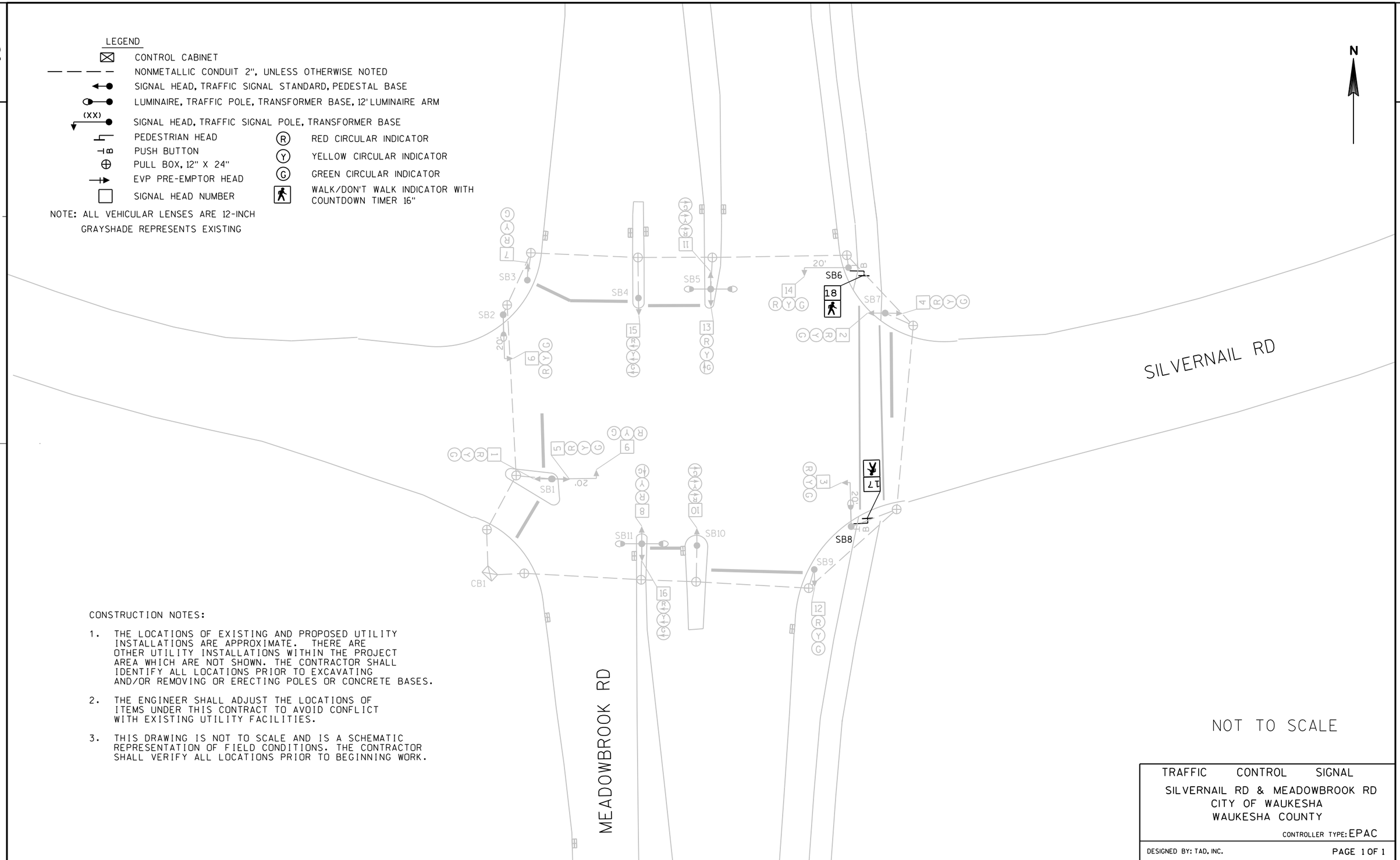
PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 36 E

FILE NAME : Meadowbrook at Rolling Ridge.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ft / in.

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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



CONSTRUCTION NOTES:

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NOT TO SCALE

TRAFFIC CONTROL SIGNAL
SILVERNAIL RD & MEADOWBROOK RD
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

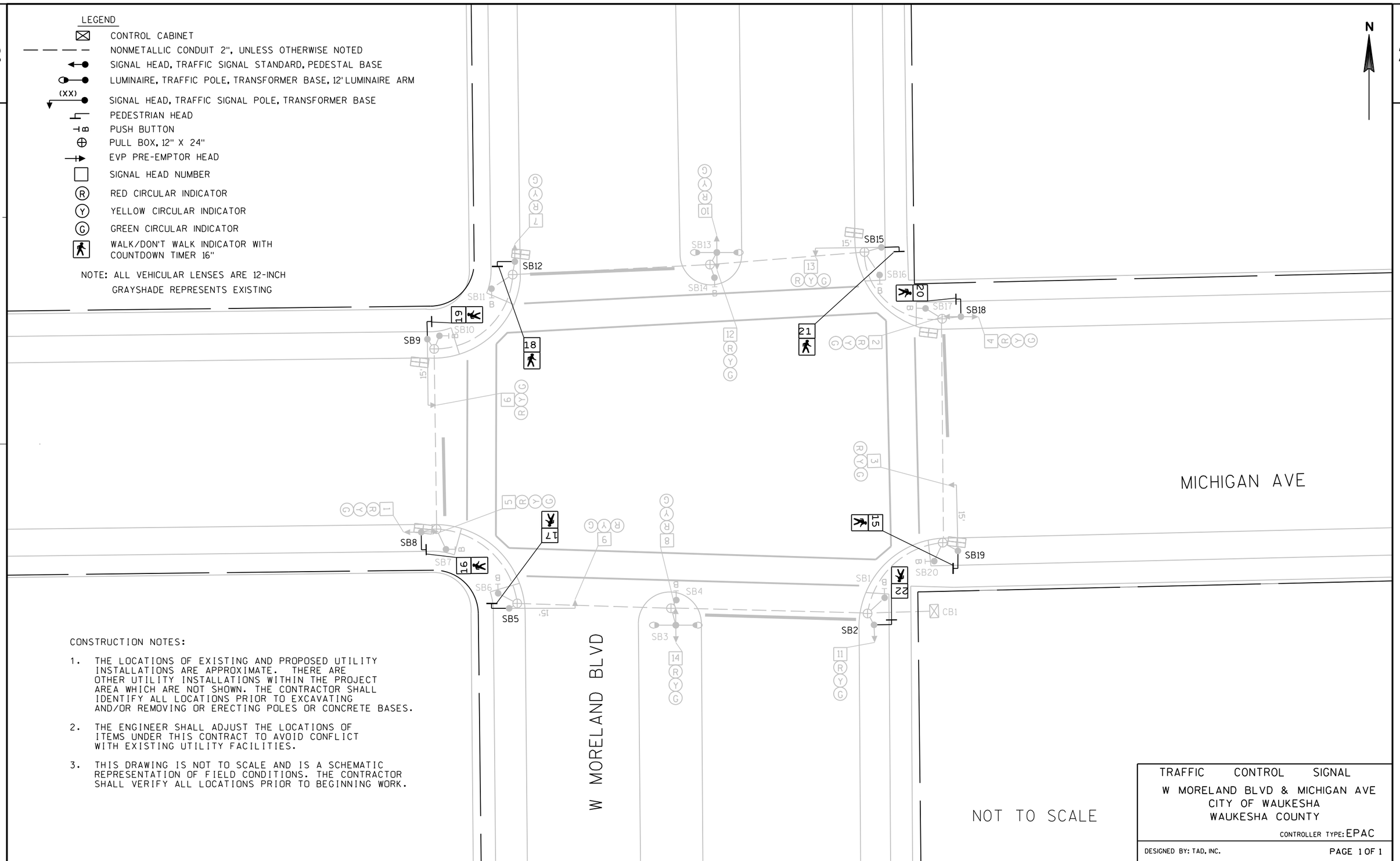
PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 37 E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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



CONSTRUCTION NOTES:

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TRAFFIC CONTROL SIGNAL

W MORELAND BLVD & MICHIGAN AVE
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 38 E

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.

N

2

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 CB1

20'

W SUNSET DR

S PRAIRIE AVE

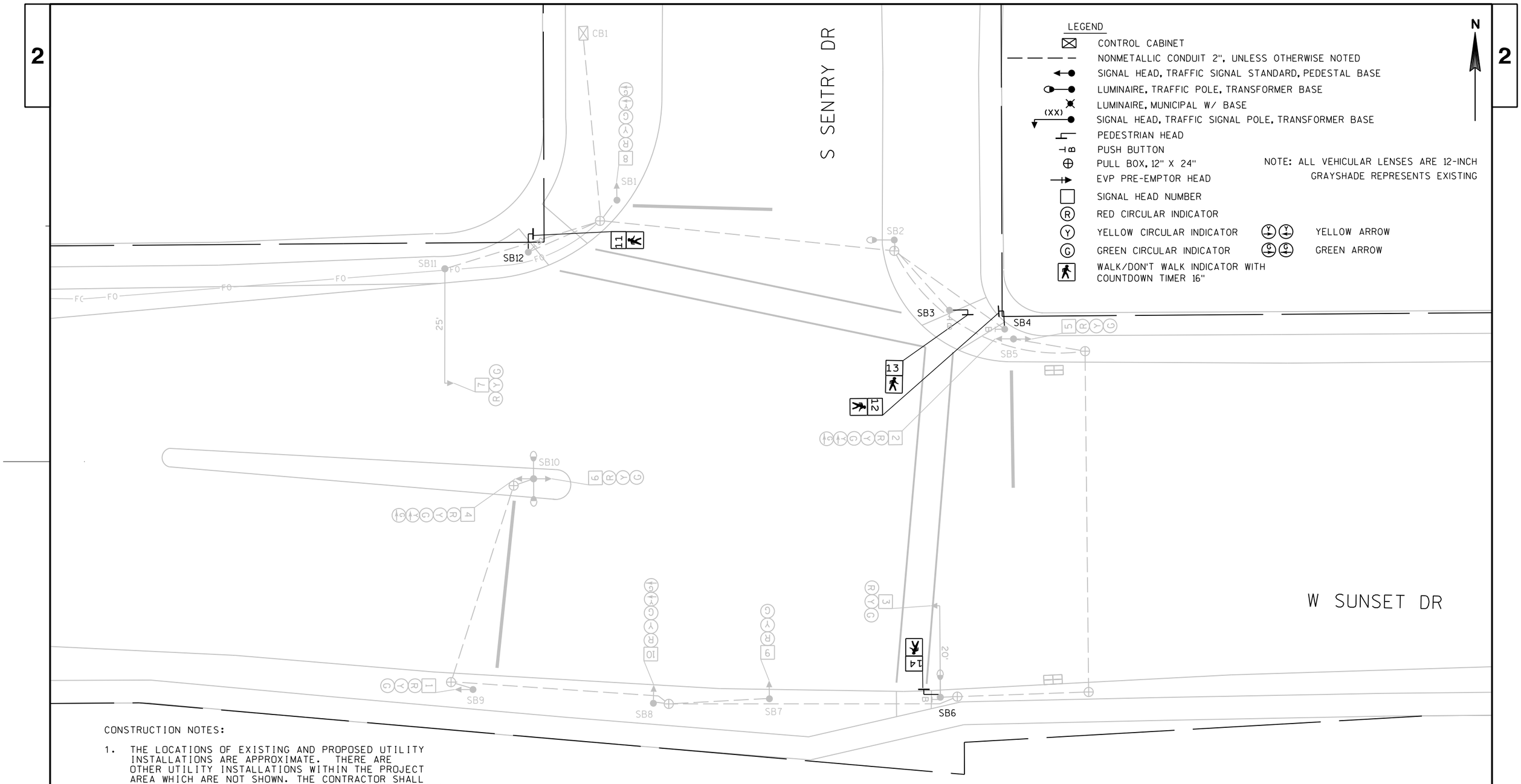
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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

NOT TO SCALE

TRAFFIC CONTROL SIGNAL
W SUNSET DR & PRAIRIE AVE
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 39	E



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
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3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.

NOT TO SCALE

TRAFFIC CONTROL SIGNAL

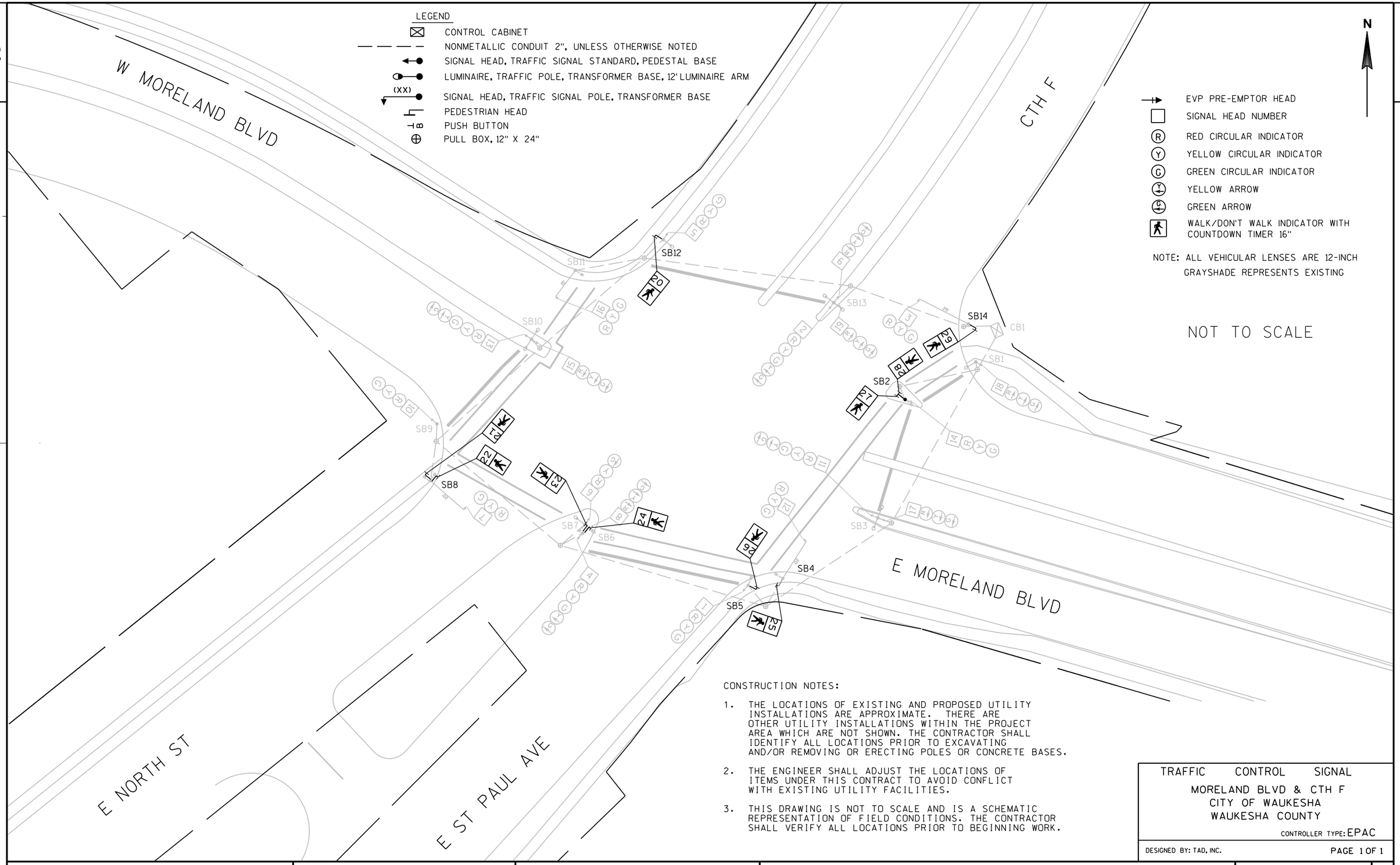
W SUNSET DR & S SENTRY DR
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-01-92	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 40	E



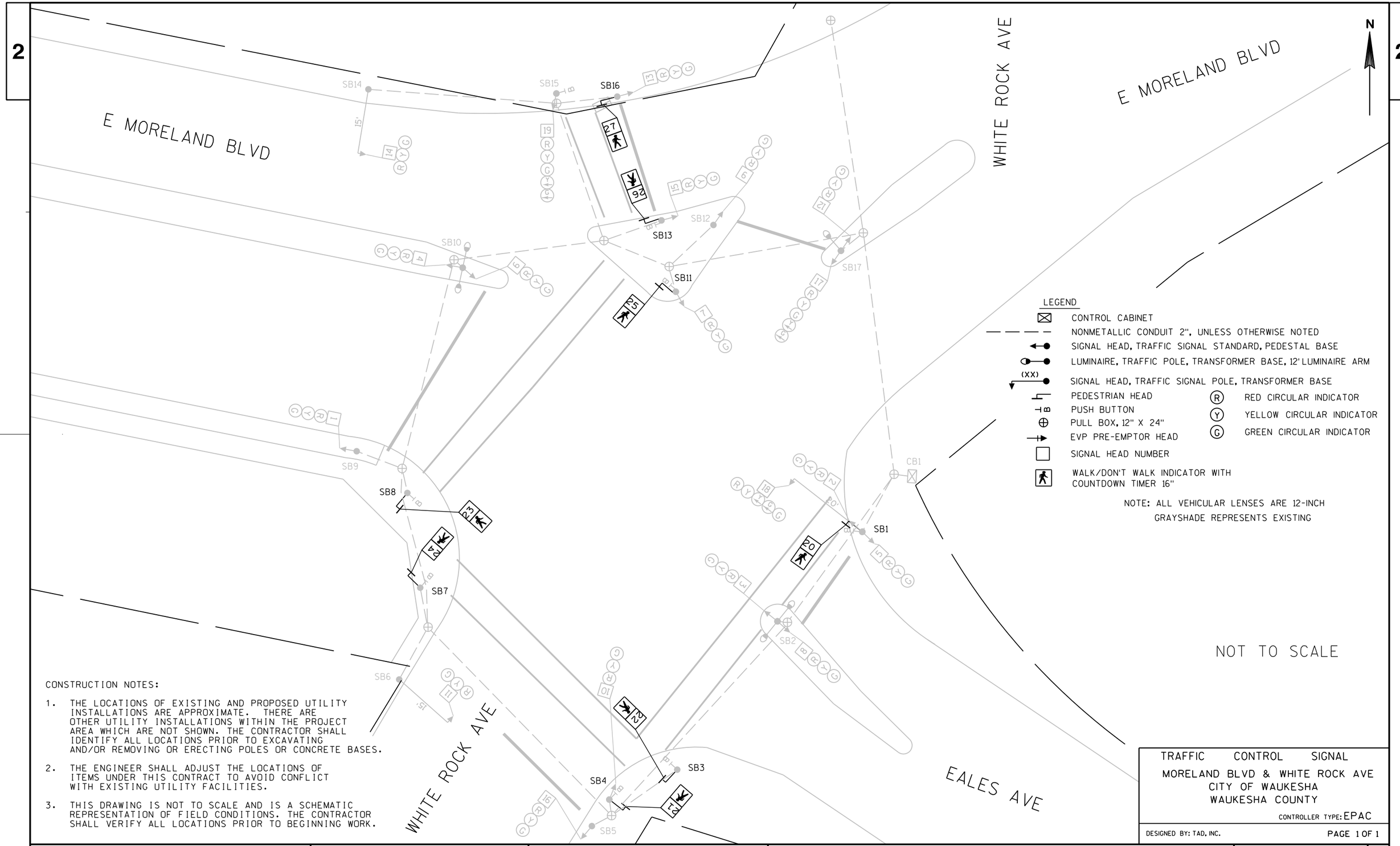
CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.

TRAFFIC CONTROL SIGNAL
MORELAND BLVD & CTH F
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 2718-01-93	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 41 E

FILE NAME : Moreland at St Paul.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 40.0000 ' / in.



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.

TRAFFIC CONTROL SIGNAL

MORELAND BLVD & WHITE ROCK AVE
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-01-93	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 42	E

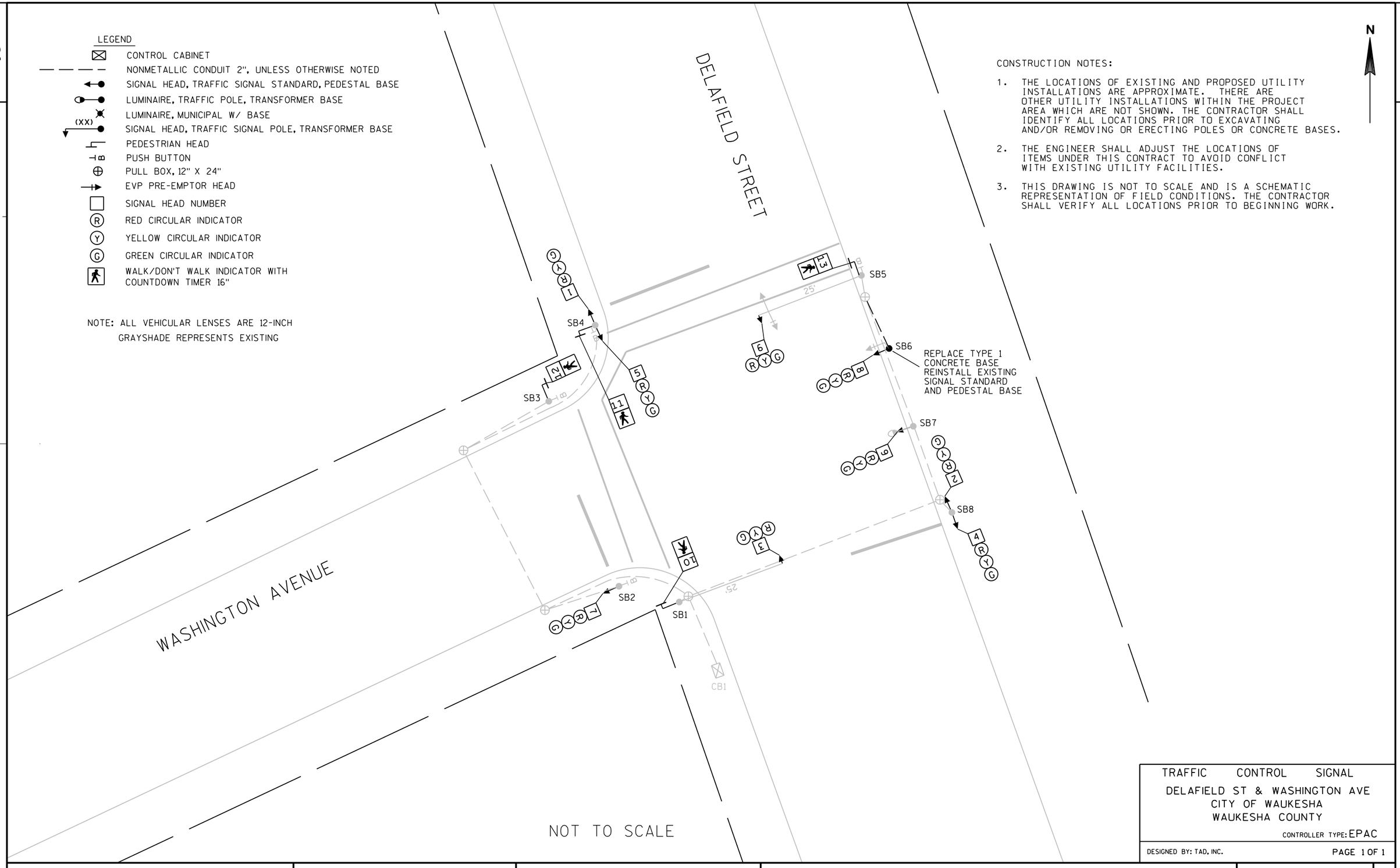
LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- (XX) LUMINAIRE, MUNICIPAL W/ BASE
- SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.



TRAFFIC CONTROL SIGNAL
DELAFIELD ST & WASHINGTON AVE
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 43 E

FILE NAME : Delafield at Washington.dgn PLOT DATE : 10/16/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ' / in.

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER

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

- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (Y) YELLOW ARROW
- (G) GREEN CIRCULAR INDICATOR
- (G) GREEN ARROW
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.
4. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.
5. REMOVE EXISTING PEDESTRIAN PUSH BUTTONS AND EVP EQUIPMENT AND REINSTALL ON NEW POLES AT LOCATIONS SHOWN.

N GRANDVIEW BLVD

MADISON STREET

REPLACE EXISITNG STANDARD WITH A NEW 10-FT STANDARD ON EXISTING PEDESTAL BASE AND CONCRETE BASE

CITY TO REMOVE EXISTING LIGHT POLE

INSTALL SB3 NORTH OF FIRE HYDRANT

CITY TO REMOVE EXISTING LIGHT POLE

CAUTION

CAUTION

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12 SB13 SB14

CB1

OH G SS

20'

NOT TO SCALE

TRAFFIC CONTROL SIGNAL
GRANDVIEW BLVD & MADISON ST
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 44 E

FILE NAME : Grandview at Madison.dgn PLOT DATE : 10/31/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ' / in.

WISDOT/CADDS SHEET 42

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, MUNICIPAL W/ BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (Y) YELLOW ARROW
- (G) GREEN CIRCULAR INDICATOR
- (G) GREEN ARROW
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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

N GRANDVIEW BLVD

NORTHVIEW ROAD

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12 SB13

CB1

15' 20'

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
2. THE ENGINEER SHALL ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.
4. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.

NOT TO SCALE

TRAFFIC CONTROL SIGNAL
GRANDVIEW BLVD & NORTHVIEW RD
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 45 E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR — (Y) YELLOW ARROW
- (G) GREEN CIRCULAR INDICATOR — (G) GREEN ARROW
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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

N GRANDVIEW BLVD

WOODBURN ROAD

CB1 SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12

20' 15' 20' 25'

CONSTRUCTION NOTES:

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NOT TO SCALE

TRAFFIC CONTROL SIGNAL
GRANDVIEW BLVD & WOODBURN RD
CITY OF WAUKESHA
WAUKESHA COUNTY
CONTROLLER TYPE: EPAC
DESIGNED BY: TAD, INC.
PAGE 1 OF 1

PROJECT NO: 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 46 E

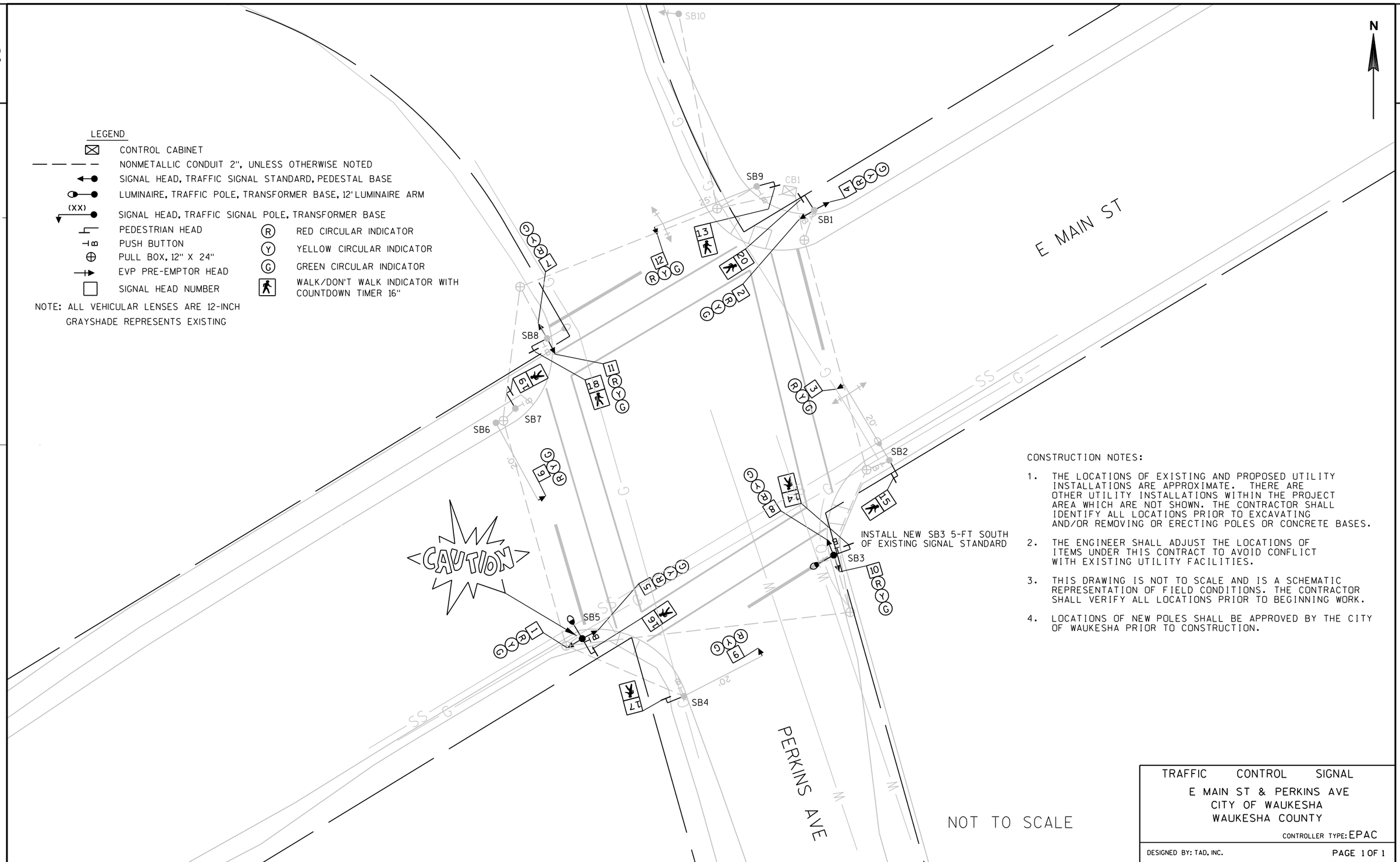
FILE NAME : Grandview at Woodburn.dgn PLOT DATE : 10/14/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ' / in.

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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



CONSTRUCTION NOTES:

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4. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.

TRAFFIC CONTROL SIGNAL

E MAIN ST & PERKINS AVE
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

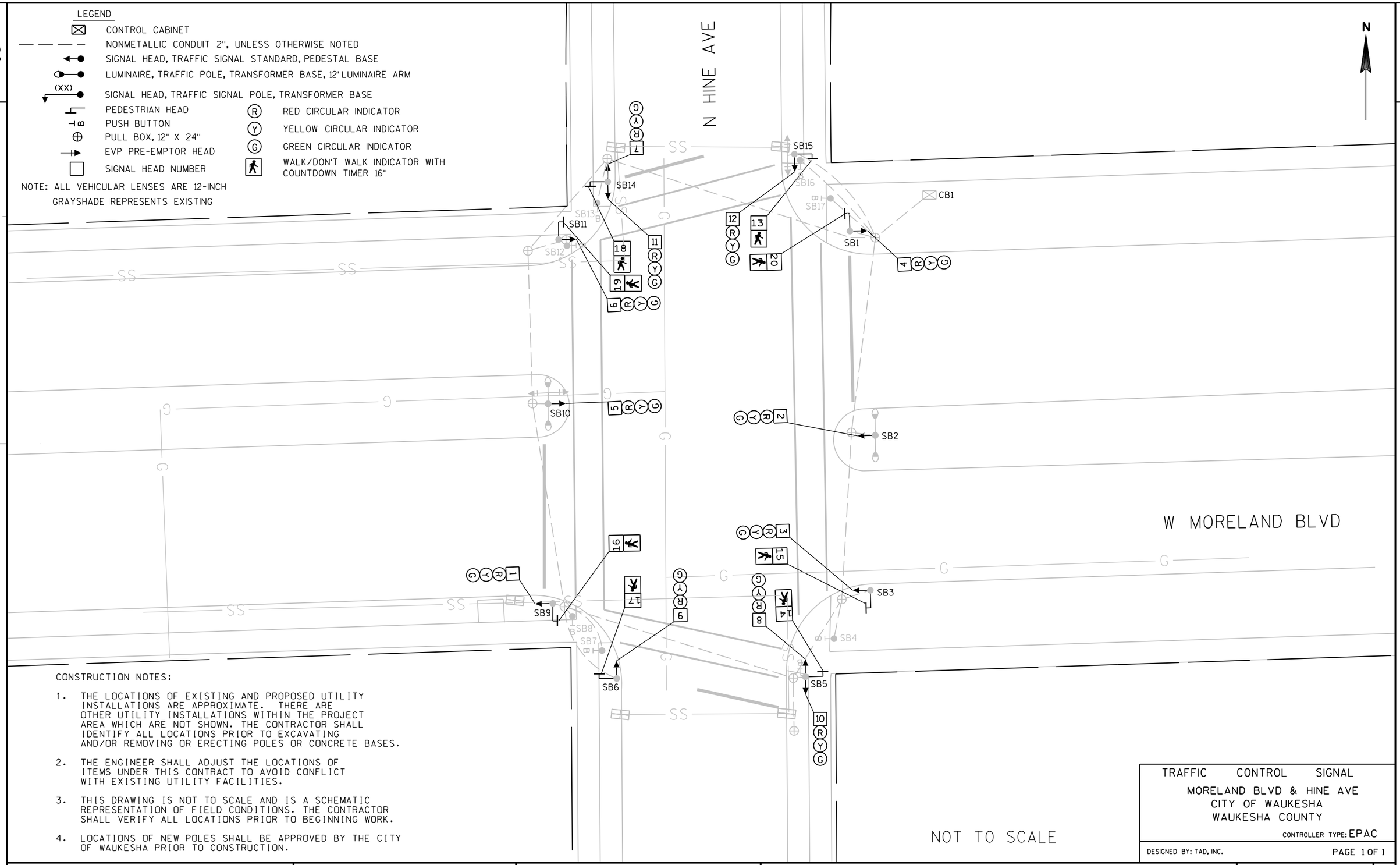
PAGE 1 OF 1

PROJECT NO: 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 47	E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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



CONSTRUCTION NOTES:

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4. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.

TRAFFIC CONTROL SIGNAL

MORELAND BLVD & HINE AVE
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 48	E

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE, 12' LUMINAIRE ARM
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD
- PB PUSH BUTTON
- PULL BOX, 12" X 24"
- EVP PRE-EMPTOR HEAD
- SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (Y) YELLOW ARROW
- (G) GREEN ARROW
- WALK/DON'T WALK INDICATOR WITH COUNTDOWN TIMER 16"

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

PEWAUKEE RD

MORELAND BLVD

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10

CB1

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE ARE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL IDENTIFY ALL LOCATIONS PRIOR TO EXCAVATING AND/OR REMOVING OR ERECTING POLES OR CONCRETE BASES.
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3. THIS DRAWING IS NOT TO SCALE AND IS A SCHEMATIC REPRESENTATION OF FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING WORK.
4. LOCATIONS OF NEW POLES SHALL BE APPROVED BY THE CITY OF WAUKESHA PRIOR TO CONSTRUCTION.
5. REMOVE EXISTING PEDESTRIAN PUSH BUTTONS AND EVP EQUIPMENT AND REINSTALL ON NEW POLES WHERE SHOWN.
6. NEW POLES TO BE INSTALLED ON EXISTING CONCRETE BASES.

NOT TO SCALE

TRAFFIC CONTROL SIGNAL

MORELAND BLVD & PEWAUKEE RD
CITY OF WAUKESHA
WAUKESHA COUNTY

CONTROLLER TYPE: EPAC

DESIGNED BY: TAD, INC.

PAGE 1 OF 1

PROJECT NO: 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET 49	E

FILE NAME : Moreland at Pewaukee.dgn PLOT DATE : 10/16/2013 PLOT BY : JFAIT-TADI PLOT NAME : PLOT SCALE : 20.0000 ' / in.

WISDOT/CADDS SHEET 42

DATE 12FEB14 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1693-47-70 QUANTITY	2718-01-92 QUANTITY	2718-01-93 QUANTITY	2718-09-70 QUANTITY
0010	204.0195	REMOVING CONCRETE BASES	EACH	25.000	11.000			14.000
0020	602.0405	CONCRETE SIDEWALK 4-INCH	SF	500.000	285.000			215.000
0030	619.1000	MOBILIZATION	EACH	1.000	0.360	0.180	0.050	0.410
0040	631.1000	SOD LAWN	SY	18.000				18.000
0050	643.0100	TRAFFIC CONTROL (PROJECT) 01. 1693-47-70	EACH	1.000	1.000			
0060	643.0100	TRAFFIC CONTROL (PROJECT) 02. 2718-01-92	EACH	1.000		1.000		
0070	643.0100	TRAFFIC CONTROL (PROJECT) 03. 2718-01-93	EACH	1.000			1.000	
0080	643.0100	TRAFFIC CONTROL (PROJECT) 04. 2718-09-70	EACH	1.000				1.000
0090	652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	440.000	190.000			250.000
0100	654.0101	CONCRETE BASES TYPE 1	EACH	1.000				1.000
0110	654.0102	CONCRETE BASES TYPE 2	EACH	24.000	11.000			13.000
0120	655.0240	CABLE TRAFFIC SIGNAL 7-14 AWG	LF	2,500.000	1,100.000			1,400.000
0130	655.0260	CABLE TRAFFIC SIGNAL 12-14 AWG	LF	1,400.000	700.000			700.000
0140	655.0305	CABLE TYPE UF 2-12 AWG GROUNDED	LF	825.000				825.000
0150	655.0515	ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG	LF	970.000	550.000			420.000
0160	655.0610	ELECTRICAL WIRE LIGHTING 12 AWG	LF	720.000				720.000
0170	657.0100	PEDESTAL BASES	EACH	7.000		1.000		6.000
0180	657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	EACH	24.000	11.000			13.000
0190	657.0305	POLES TYPE 2	EACH	7.000				7.000
0200	657.0310	POLES TYPE 3	EACH	3.000				3.000
0210	657.0315	POLES TYPE 4	EACH	14.000	11.000			3.000
0220	657.0425	TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT	EACH	8.000		2.000		6.000
0230	657.0430	TRAFFIC SIGNAL STANDARDS ALUMINUM 10-FT	EACH	1.000				1.000
0240	657.0585	TROMBONE ARMS 15-FT	EACH	3.000				3.000
0250	657.0590	TROMBONE ARMS 20-FT	EACH	7.000				7.000
0260	657.0614	LUMINAIRE ARMS SINGLE MEMBER 4-INCH CLAMP 8-FT	EACH	15.000	11.000			4.000
0270	657.0709	LUMINAIRE ARMS TRUSS TYPE 4-INCH CLAMP 12-FT	EACH	2.000				2.000
0280	658.0110	TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL	EACH	100.000				100.000
0290	658.0120	TRAFFIC SIGNAL FACE 5-12 INCH VERTICAL	EACH	20.000				20.000
0300	658.0155	TRAFFIC SIGNAL FACE 3-12 INCH HORIZONTAL	EACH	19.000				19.000
0310	658.0165	TRAFFIC SIGNAL FACE 5-12 INCH HORIZONTAL	EACH	7.000				7.000
0320	658.0215	BACKPLATES SIGNAL FACE 3 SECTION 12-INCH	EACH	119.000				119.000
0330	658.0225	BACKPLATES SIGNAL FACE 5 SECTION 12-INCH	EACH	27.000				27.000
0340	658.0416	PEDESTRIAN SIGNAL FACE 16-INCH	EACH	206.000		110.000	16.000	80.000
0350	658.0600	LED MODULES 12-INCH RED BALL	EACH	146.000				146.000
0360	658.0605	LED MODULES 12-INCH YELLOW BALL	EACH	146.000				146.000
0370	658.0610	LED MODULES 12-INCH GREEN BALL	EACH	146.000				146.000
0380	658.0620	LED MODULES 12-INCH YELLOW ARROW	EACH	27.000				27.000
0390	658.0625	LED MODULES 12-INCH GREEN ARROW	EACH	27.000				27.000
0400	658.0635	LED MODULES PEDESTRIAN COUNTDOWN TIMER 16-INCH	EACH	206.000		110.000	16.000	80.000
0410	678.0200	FIBER OPTIC SPLICE ENCLOSURE	EACH	1.000	1.000			
0420	678.0300	FIBER OPTIC SPLICE	EACH	4.000	4.000			
0430	678.0500	COMMUNICATION SYSTEM TESTING	LS	1.000	1.000			
0440	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	HRS	150.000	75.000	23.000	7.000	45.000
0450	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	200.000	100.000	30.000	10.000	60.000
0460	SPV.0060	SPECIAL 01. FURNISH AND INSTALL 4.9 GHZ IP WIRELESS RADIO AND ANTENNAS	EACH	15.000	15.000			
0470	SPV.0060	SPECIAL 02. FURNISH AND INSTALL IP SINGLE PORT TERMINAL SERVER	EACH	9.000	9.000			

3

DATE 12FEB14 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1693-47-70 QUANTITY	2718-01-92 QUANTITY	2718-01-93 QUANTITY	2718-09-70 QUANTITY
0480	SPV.0060	SPECIAL 03. FURNISH AND INSTALL ETHERNET SWITCH	EACH	15.000	15.000			
0490	SPV.0060	SPECIAL 04. FURNISH AND INSTALL RS-232 INTERNAL DATA MODEM	EACH	7.000	7.000			
0500	SPV.0060	SPECIAL 05. VIDEO MONITOR	EACH	6.000	6.000			
0510	SPV.0060	SPECIAL 06. LED LUMINAIRES	EACH	6.000				6.000
0520	SPV.0060	SPECIAL 07. UTILITY LINE OPENING	EACH	12.000	6.000			6.000
0530	SPV.0060	SPECIAL 08. REMOVE AND SALVAGE PEDESTRIAN SIGNAL HEAD	EACH	206.000		110.000	16.000	80.000
0540	SPV.0060	SPECIAL 09. REMOVE AND SALVAGE POST MOUNTED TRAFFIC SIGNAL HEAD	EACH	126.000				126.000
0550	SPV.0060	SPECIAL 10. REMOVE AND SALVAGE TROMBONE ARM MOUNTED TRAFFIC SIGNAL HEAD	EACH	20.000				20.000
0560	SPV.0105	SPECIAL 01. VIDEO VEHICLE DET SYS INTERSEC OF BARSTOW AT BANK	LS	1.000	1.000			
0570	SPV.0105	SPECIAL 02. VIDEO VEHICLE DET SYS INTERSEC OF BARSTOW AT MAIN	LS	1.000	1.000			
0580	SPV.0105	SPECIAL 03. VIDEO VEHICLE DET SYS INTERSEC OF BARSTOW AT BROADWAY	LS	1.000	1.000			
0590	SPV.0105	SPECIAL 04. VIDEO VEHICLE DET SYS INTERSEC OF EAST AT MAIN	LS	1.000	1.000			
0600	SPV.0105	SPECIAL 05. VIDEO VEHICLE DET SYS INTERSEC OF EAST AT ARCADIAN	LS	1.000	1.000			
0610	SPV.0105	SPECIAL 06. VIDEO VEHICLE DET SYS INTERSEC OF BROADWAY/MADISON AT CLINTON	LS	1.000	1.000			
0620	SPV.0105	SPECIAL 07. MODIFY TRAFFIC SIGNALS FOR CBD INTERSEC OF BARSTOW AT BANK	LS	1.000	1.000			
0630	SPV.0105	SPECIAL 08. MODIFY TRAFFIC SIGNALS FOR CBD INTERSEC OF BARSTOW AT MAIN	LS	1.000	1.000			
0640	SPV.0105	SPECIAL 09. MODIFY TRAFFIC SIGNALS FOR CBD INTERSEC OF BARSTOW AT BROADWAY	LS	1.000	1.000			
0650	SPV.0105	SPECIAL 10. MODIFY TRAFFIC SIGNALS FOR CBD INTERSEC OF MAIN AT CLINTON	LS	1.000	1.000			
0660	SPV.0105	SPECIAL 11. MODIFY TRAFFIC SIGNALS FOR CBD INTERSEC OF EAST AT MAIN	LS	1.000	1.000			
0670	SPV.0105	SPECIAL 12. MODIFY TRAFFIC SIGNALS FOR CBD INTERSEC OF EAST AT ARCADIAN	LS	1.000	1.000			
0680	SPV.0105	SPECIAL 13. MODIFY TRAFFIC SIGNALS FOR CBD INTERSEC OF BROADWAY/MADISON AT CLINTON	LS	1.000	1.000			
0690	SPV.0105	SPECIAL 14. MOD TRAF SIG & ST LIGHTING FOR LED & COUNTDOWN GRANDVIEW AT MEADOW	LS	1.000		1.000		
0700	SPV.0105	SPECIAL 15. MODIFY TRAF SIG & ST LGHT FOR LED & COUNTDOWN EAST AT ARCADIAN	LS	1.000				1.000
0710	SPV.0105	SPECIAL 16. MODIFY TRAF SIG & ST LGHT FOR LED & COUNTDOWN BARSTOW AT BANK	LS	1.000				1.000
0720	SPV.0105	SPECIAL 17. MODIFY TRAF SIG & ST LGHT FOR LED & COUNTDOWN DELAFIELD AT WASHINGTON	LS	1.000				1.000
0730	SPV.0105	SPECIAL 18. MODIFY TRAF SIG & ST LGHT FOR LED & COUNTDOWN GRANDVIEW AT MADISON	LS	1.000				1.000
0740	SPV.0105	SPECIAL 19. MODIFY TRAF SIG & ST LGHT FOR LED & COUNTDOWN MAIN AT PERKINS	LS	1.000				1.000
0750	SPV.0105	SPECIAL 20. MODIFY TRAF SIG & ST LGHT FOR LED & COUNTDOWN MORELAND AT PEWAUKEE	LS	1.000				1.000
0760	SPV.0105	SPECIAL 47. SIGNAL COMMUNICATIONS HUB	LS	1.000	1.000			
0770	SPV.0165	SPECIAL 01. REMOVE SALVAGE AND REINSTALL BRICK PAVER SIDEWALK	SF	255.000	165.000			90.000

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CONCRETE BASES

LOCATION	SB NO.	654.0102 * CONCRETE BASES TYPE 2 EACH
BARSTOW AT BANK	SB3	1
	SB6	1
SUBTOTAL		2
BARSTOW AT BROADWAY	SB12	1
SUBTOTAL		1
BARSTOW AT MAIN	SB1	1
SUBTOTAL		1
BROADWAY/MADISON AT CLINTON	SB2	1
	SB4	1
	SB7	1
SUBTOTAL		3
EAST AT ARCADIAN	SB2	1
	SB4	1
	SB5	1
SUBTOTAL		3
EAST AT MAIN	SB4	1
SUBTOTAL		1
TOTAL		11

(1) NEW BASES REPLACE EXISTING BASES IN SAME LOCATION
* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVING CONCRETE BASES

LOCATION	SB NO.	204.0195 * REMOVING CONCRETE BASES EACH
BARSTOW AT BANK	SB3	1
	SB6	1
SUBTOTAL		2
BARSTOW AT BROADWAY	SB12	1
SUBTOTAL		1
BARSTOW AT MAIN	SB1	1
SUBTOTAL		1
BROADWAY/MADISON AT CLINTON	SB2	1
	SB4	1
	SB7	1
SUBTOTAL		3
EAST AT ARCADIAN	SB2	1
	SB4	1
	SB5	1
SUBTOTAL		3
EAST AT MAIN	SB4	1
SUBTOTAL		1
TOTAL		11

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

SIGNAL BASES, POLES, ARMS, AND LUMINAIRES

LOCATION	SB NO.	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE EACH	657.0315 POLES TYPE 4 EACH	657.0614 LUMINAIRE ARMS SINGLE MEMBER 4-INCH CLAMP 8-FOOT EACH
BARSTOW AT BANK	SB3	1	1	1
	SB6	1	1	1
SUBTOTAL		2	2	2
BARSTOW AT BROADWAY	SB12	1	1	1
SUBTOTAL		1	1	1
BARSTOW AT MAIN	SB1	1	1	1
SUBTOTAL		1	1	1
BROADWAY/MADISON AT CLINTON	SB2	1	1	1
	SB4	1	1	1
	SB7	1	1	1
SUBTOTAL		3	3	3
EAST AT ARCADIAN	SB2	1	1	1
	SB4	1	1	1
	SB5	1	1	1
SUBTOTAL		3	3	3
EAST AT MAIN	SB4	1	1	1
SUBTOTAL		1	1	1
TOTAL		11	11	11

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

FIBER OPTIC SPLICE

LOCATION	678.0200 FIBER OPTIC SPLICE ENCLOSURE EACH	678.0300 FIBER OPTIC SPLICE EACH
MADISON/DELAFIELD AT NORTH	1	4
TOTAL	1	4

INTERCONNECT TESTING AND INTEGRATION

LOCATION	678.0500 COMMUNICATIONS SYSTEM TESTING LS
CENTRAL STATION	1
TOTAL	1

VIDEO VEHICLE DETECTION

	SPV.0060.05 VIDEO MONITOR	SPV.0105.01 VIDEO VEHICLE DETECTION SYSTEM LS	SPV.0105.02 VIDEO VEHICLE DETECTION SYSTEM LS	SPV.0105.03 VIDEO VEHICLE DETECTION SYSTEM LS	SPV.0105.04 VIDEO VEHICLE DETECTION SYSTEM LS	SPV.0105.05 VIDEO VEHICLE DETECTION SYSTEM LS	SPV.0105.06 VIDEO VEHICLE DETECTION SYSTEM LS	NOTE
BARSTOW AT BANK	1	1	–	–	–	–	–	3 APPROACHES
BARSTOW AT MAIN	1	–	1	–	–	–	–	4 APPROACHES
BARSTOW AT BROADWAY	1	–	–	1	–	–	–	5 APPROACHES
EAST AT MAIN	1	–	–	–	1	–	–	4 APPROACHES
EAST AT ARCADIAN	1	–	–	–	–	1	–	3 APPROACHES
BROADWAY/MADISON AT CLINTON	1	–	–	–	–	–	1	5 APPROACHES
TOTAL	6	1	1	1	1	1	1	

ALL ITEMS ARE CATEGORY 0010
SHEET 1 OF 3

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COMMUNICATIONS EQUIPMENT

LOCATION	SPV.0060.01 FURNISH AND INSTALL 4.9 GHz IP WIRELESS RADIO AND ANTENNAS EACH	SPV.0060.02 FURNISH AND INSTALL IP SINGLE PORT TERMINAL SERVER EACH	SPV.0060.03 FURNISH AND INSTALL ETHERNET SWITCH EACH	SPV.0060.04 FURNISH AND INSTALL RS-232 INTERNAL DATA MODEM EACH	SPV.0105.47 SIGNAL COMMUNICATION HUB LS
DELAFIELD AT SUMMIT (A)	-	-	1	-	-
EAST AT HARTWELL (A)	-	1	1	-	-
CENTRAL STATION (A)	-	1	1	-	1
MADISON/DELAFIELD AT NORTH (C)	-	-	1	-	-
NORTH AT ST PAUL (D)	1	-	1	-	-
ST PAUL AT BARSTOW (E)	1	-	-	-	-
WISCONSIN AT CLINTON (F)	2	-	1	-	-
WISCONSIN AT EAST (F)	2	-	1	-	-
WISCONSIN AT BARSTOW (F)	2	-	1	-	-
BANK AT BARSTOW (H)	1	1	1	1	-
BROADWAY/MADISON AT CLINTON (H)	1	1	1	1	-
MAIN AT CLINTON (H)	1	1	1	1	-
BARSTOW AT MAIN (H)	1	1	1	1	-
BARSTOW AT BROADWAY (H)	1	1	1	1	-
EAST AT MAIN (H)	1	1	1	1	-
EAST AT ARCADIAN (H)	1	1	1	1	-
TOTAL	15	9	15	7	1

MISCELLANEOUS ITEMS

DESCRIPTION	ITEM NUMBER	UNIT	QUANTITY
MOBILIZATION	619.1000	EACH	0.36
TRAFFIC CONTROL (PROJECT)	643.0100	EACH	1

MODIFY TRAFFIC SIGNALS FOR CBD

	SPV.0105.07 MODIFY TRAFFIC SIGNALS FOR CBD LS	SPV.0105.08 MODIFY TRAFFIC SIGNALS FOR CBD LS	SPV.0105.9 MODIFY TRAFFIC SIGNALS FOR CBD LS	SPV.0105.10 MODIFY TRAFFIC SIGNALS FOR CBD LS	SPV.0105.11 MODIFY TRAFFIC SIGNALS FOR CBD LS	SPV.0105.12 MODIFY TRAFFIC SIGNALS FOR CBD LS	SPV.0105.13 MODIFY TRAFFIC SIGNALS FOR CBD LS
BARSTOW AT BANK	1	-	-	-	-	-	-
BARSTOW AT MAIN	-	1	-	-	-	-	-
BARSTOW AT BROADWAY	-	-	1	-	-	-	-
MAIN AT CLINTON	-	-	-	1	-	-	-
EAST AT MAIN	-	-	-	-	1	-	-
EAST AT ARCADIAN	-	-	-	-	-	1	-
BROADWAY/MADISON AT CLINTON	-	-	-	-	-	-	1
TOTAL	1	1	1	1	1	1	1

NON-METALLIC CONDUIT

LOCATION	LOCATION	652.0225 * CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH L.F.
BARSTOW AT BANK	SB3	10
	SB6	20
SUBTOTAL		30
BARSTOW AT BROADWAY	SB12	20
SUBTOTAL		20
BARSTOW AT MAIN	SB1	10
SUBTOTAL		10
BROADWAY/MADISON AT CLINTON	SB2	10
	SB4	25
	SB6	10
	SB7	10
SUBTOTAL		55
EAST AT ARCADIAN	SB2	10
	SB4	15
	SB5	25
SUBTOTAL		50
EAST AT MAIN	SB4	25
SUBTOTAL		25
TOTAL		190

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

UTILITY LINE OPENINGS

LOCATION	SPV.0060.07 * UTLITY LINE OPENING EACH
BARSTOW AT BANK	1
BARSTOW AT BROADWAY	1
BARSTOW AT MAIN	1
BROADWAY/MADISON AT CLINTON	1
EAST AT ARCADIAN	1
EAST AT MAIN	1
TOTAL	6

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS ARE CATEGORY 0010
SHEET 2 OF 3

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TRAFFIC SIGNAL CABLE

LOCATION	LOCATION	655.0240 * CABLE TRAFFIC SIGNAL 7-14 AWG L.F.	655.0260 * CABLE TRAFFIC SIGNAL 12-14 AWG L.F.
BARSTOW AT BANK	SB3	100	-
	SB6	100	-
SUBTOTAL		200	0
BARSTOW AT BROADWAY	SB12	100	-
SUBTOTAL		100	0
BARSTOW AT MAIN	SB1	100	-
SUBTOTAL		100	0
BROADWAY/MADISON AT CLINTON	SB2	100	-
	SB4	100	-
	SB7	100	-
SUBTOTAL		300	0
EAST AT ARCADIAN	SB2	100	-
	SB4	100	-
	SB5	100	-
SUBTOTAL		300	0
EAST AT MAIN	SB4	100	-
SUBTOTAL		100	0
UNDISTRIBUTED		-	700
SUBTOTAL		0	700
TOTAL		1,100	700

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

RESTORATION ITEMS

LOCATION	LOCATION	602.0405 * CONCRETE SIDEWALK 4-INCH SF	SPV.0165.01 * REMOVE SALVAGE AND REINSTALL BRICK PAVER SIDEWALK SF
BARSTOW AT BANK	SB3	25	-
	SB6	-	35
SUBTOTAL		25	35
BARSTOW AT BROADWAY	SB12	-	70
SUBTOTAL		0	70
BARSTOW AT MAIN	SB1	25	-
SUBTOTAL		25	0
BROADWAY/MADISON AT CLINTON	SB2	25	-
	SB4	30	-
	SB6	25	-
	SB7	25	-
SUBTOTAL		105	0
EAST AT ARCADIAN	SB2	25	-
	SB4	30	-
	SB5	75	-
SUBTOTAL		130	0
EAST AT MAIN	SB4	-	60
SUBTOTAL		0	60
TOTAL		285	165

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

EQUIPMENT GROUNDING CONDUCTORS

LOCATION	LOCATION	655.0515 * ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG (GREEN) L.F.
BARSTOW AT BANK	SB3	50
	SB6	50
SUBTOTAL		100
BARSTOW AT BROADWAY	SB12	50
SUBTOTAL		50
BARSTOW AT MAIN	SB1	50
SUBTOTAL		50
BROADWAY/MADISON AT CLINTON	SB2	50
	SB4	50
	SB7	50
SUBTOTAL		150
EAST AT ARCADIAN	SB2	50
	SB4	50
	SB5	50
SUBTOTAL		150
EAST AT MAIN	SB4	50
SUBTOTAL		50
TOTAL		550

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS ARE CATEGORY 0010
SHEET 3 OF 3

3

SIGNAL FACES

LOCATION	658.0416 * PEDESTRIAN SIGNAL FACES 16-INCH EACH	658.0635 * LED MODULES PEDESTRIAN COUNTDOWN TIMER 16-INCH EACH	SPV.0060.08 * REMOVE AND SALVAGE PEDESTRIAN SIGNAL HEAD EACH
EAST AT BROADWAY	8	8	8
MAIN AT DAVIDSON	4	4	4
EAST AT GARFIELD	8	8	8
BARSTOW AT BROADWAY	10	10	10
EAST AT MAIN	8	8	8
GRAND AT ROBERTA PLAYGROUND	2	2	2
GRAND AT SUNSET	8	8	8
GRANDVIEW AT KENSINGTON	8	8	8
GRANDVIEW AT MEADOW	4	4	4
GRANDVIEW AT GRANDVIEW PARK	2	2	2
GRANDVIEW AT SILVERNAIL	8	8	8
MAIN AT NIKE	2	2	2
MARSHVIEW AT SILVERNAIL	8	8	8
MEADOWBROOK AT ROLLING RIDGE	8	8	8
MEADOWBROOK AT SILVERNAIL	2	2	2
MORELAND AT MICHIGAN	8	8	8
SUNSET AT PRAIRIE	8	8	8
SUNSET AT SENTRY	4	4	4
TOTAL	110	110	110

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

SIGNAL BASES, POLES, ARMS, AND LUMINAIRES

LOCATION	SB NO.	657.0100 * PEDESTAL BASES EACH	657.0425 * TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT EACH
GRANDVIEW AT MEADOW	SB3	1	1
	SB5	-	1
TOTAL		1	2

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

MISCELLANEOUS ITEMS

DESCRIPTION	ITEM NUMBER	UNIT	QUANTITY
MOBILIZATION	619.1000	EACH	0.18
TRAFFIC CONTROL (PROJECT)	643.0100	EACH	1

MODIFY TRAFFIC SIGNALS

	SPV.0105.14 MODIFY TRAFFIC SIGNALS AND STREET LIGHTING FOR LED & COUNTDOWN LS
GRANDVIEW AT MEADOW	1
TOTAL	1

ALL ITEMS ARE CATEGORY 0010
SHEET 1 OF 1

SIGNAL FACES

LOCATION	658.0416 * PEDESTRIAN SIGNAL FACES 16-INCH EACH	658.0635 * LED MODULES PEDESTRIAN COUNTDOWN TIMER 16-INCH EACH	SPV.0060.08 * REMOVE AND SALVAGE PEDESTRIAN SIGNAL HEAD EACH
MORELAND AT WHITE ROCK	8	8	8
MORELAND AT ST PAUL	8	8	8
TOTAL	16	16	16

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

MISCELLANEOUS ITEMS

DESCRIPTION	ITEM NUMBER	UNIT	QUANTITY
MOBILIZATION	619.1000	EACH	0.05
TRAFFIC CONTROL (PROJECT)	643.0100	EACH	1

ALL ITEMS ARE CATEGORY 0010
SHEET 1 OF 1

3

CONCRETE BASES

LOCATION	SB NO.	654.0101 * CONCRETE BASES TYPE 1 EACH	654.0102 * CONCRETE BASES TYPE 2 EACH
BARSTOW AT BANK	SB4	-	1
	SB7	-	1
SUBTOTAL		0	2
BARSTOW AT MAIN	SB2	-	1
	SB4	-	1
	SB6	-	1
	SB8	-	1
SUBTOTAL		0	4
DELAFIELD AT WASHINGTON	SB6	1	-
SUBTOTAL		1	0
GRANDVIEW AT MADISON	SB3	-	1
	SB6	-	1
	SB10	-	1
	SB12	-	1
	SB13	-	1
SUBTOTAL		0	5
MAIN AT PERKINS	SB3	-	1
	SB5	-	1
SUBTOTAL		0	2
TOTAL		1	13

(1) NEW BASES REPLACE EXISTING BASES IN SAME LOCATION
* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVING CONCRETE BASES

LOCATION	SB NO.	204.0195 * REMOVING CONCRETE BASES EACH
BARSTOW AT BANK	SB4	1
	SB7	1
SUBTOTAL		2
BARSTOW AT MAIN	SB2	1
	SB4	1
	SB6	1
	SB8	1
SUBTOTAL		4
DELAFIELD AT WASHINGTON	SB6	1
SUBTOTAL		1
GRANDVIEW AT MADISON	SB3	1
	SB6	1
	SB10	1
	SB12	1
	SB13	1
SUBTOTAL		5
MAIN AT PERKINS	SB3	1
	SB5	1
SUBTOTAL		2
TOTAL		14

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

MISCELLANEOUS ITEMS

DESCRIPTION	ITEM NUMBER	UNIT	QUANTITY
MOBILIZATION	619.1000	EACH	0.41
TRAFFIC CONTROL (PROJECT)	643.0100	EACH	1

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LIGHTING ELECTRICAL WIRE

LOCATION	LOCATION	655.0610 ELECTRICAL WIRE, LIGHTING, 12 AWG L.F.
GRANDVIEW AT MADISON	SB3-LUMINAIRE 1	120
	SB6-LUMINAIRE 1	120
	SB12-LUMINAIRE	120
	SB10-LUMINAIRE	120
SUBTOTAL		480
MAIN AT PERKINS	SB3-LUMINAIRE 1	120
	SB5-LUMINAIRE 1	120
SUBTOTAL		240
TOTAL		720

LIGHTING ELECTRICAL CABLE

LOCATION	LOCATION	655.0305 CABLE TYPE UF, 2-12 AWG GROUNDED L.F.
GRANDVIEW AT MADISON	CB1-SB3	135
	SB3-SB6	140
	CB1-SB12	130
	SB12-SB10	100
SUBTOTAL		505
MAIN AT PERKINS	CB1-SB3	175
	SB3-SB5	145
SUBTOTAL		320
TOTAL		825

UTILITY LINE OPENINGS

LOCATION	SPV.0060.07 * UTLITY LINE OPENING EACH
BARSTOW AT MAIN	1
MAIN AT PERKINS	2
GRANDVIEW AT MADISON	3
TOTAL	6

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS ARE CATEGORY 0010
SHEET 1 OF 4

SIGNAL FACES

LOCATION	658.0110 TRAFFIC SIGNAL FACES 3-12 INCH VERTICAL R-Y-G EACH	658.0120 TRAFFIC SIGNAL FACES, 5-12 INCH VERTICAL R-Y-G<-Y<-G EACH	658.0155 TRAFFIC SIGNAL FACES, 3-12 INCH HORIZONTAL R-Y-G EACH	658.0165 TRAFFIC SIGNAL FACES, 5-12 INCH HORIZONTAL R-Y<-Y<-G-G EACH	658.0215 BACKPLATES SIGNAL FACE 3-SECTION 12-INCH EACH	658.0225 BACKPLATES, SIGNAL FACE 5-SECTION 12-INCH EACH	658.0416 * PEDESTRIAN SIGNAL FACES 16-INCH EACH	658.0600 LED MODULES 12-INCH RED BALL EACH	658.0605 LED MODULES 12-INCH YELLOW BALL EACH	658.0610 LED MODULES 12-INCH GREEN BALL EACH	658.0620 LED MODULES 12-INCH YELLOW ARROW EACH	658.0625 LED MODULES 12-INCH GREEN ARROW EACH	658.0635 * LED MODULES PEDESTRIAN COUNTDOWN TIMER 16-INCH EACH
EAST AT ARCADIAN	9	-	-	-	9	-	6	9	9	9	-	-	6
BARSTOW AT BANK	6	1	1	1	7	2	4	9	9	9	2	2	4
BROADWAY/MADISON AT CLINTON	11	2	2	-	13	2	8	15	15	15	2	2	8
BARSTOW AT MAIN	7	1	3	1	10	2	8	12	12	12	2	2	8
MAIN AT CLINTON	12	-	-	-	12	-	8	12	12	12	-	-	8
DELAFIELD AT WASHINGTON	7	-	2	-	9	-	4	9	9	9	-	-	4
GRANDVIEW AT MADISON	5	3	1	3	6	6	8	12	12	12	6	6	8
GRANDVIEW AT NORTHVIEW	4	6	2	2	6	8	6	14	14	14	8	8	6
GRANDVIEW AT WOODBURN	7	4	4	-	11	4	4	15	15	15	4	4	4
MORELAND AT HINE	12	-	-	-	12	-	8	12	12	12	-	-	8
MAIN AT PERKINS	8	-	4	-	12	-	8	12	12	12	-	-	8
MORELAND AT PEWAUKEE	12	3	-	-	12	3	8	15	15	15	3	3	8
TOTAL	100	20	19	7	119	27	80	146	146	146	27	27	80

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

NON-METALLIC CONDUIT

LOCATION	LOCATION	652.0225 * CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH L.F.
BARSTOW AT BANK	SB4	30
	SB7	10
SUBTOTAL		40
BARSTOW AT MAIN	SB2	10
	SB6	10
	SB8	10
SUBTOTAL		30
DELAFIELD AT WASHINGTON	SB6	20
SUBTOTAL		20
GRANDVIEW AT MADISON	SB3	20
	SB6	20
	SB10	35
	SB12	15
	SB13	20
SUBTOTAL		110
MAIN AT PERKINS	SB3	25
	SB5	25
TOTAL		250

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVE SIGNAL FACES

LOCATION	SPV.0060.08 REMOVE AND SALVAGE PEDESTRIAN SIGNAL HEAD EACH	SPV.0060.09 REMOVE AND SALVAGE POST MOUNTED TRAFFIC SIGNAL HEAD EACH	SPV.0060.10 REMOVE AND SALVAGE TROMBONE ARM MOUNTED TRAFFIC SIGNAL HEAD EACH
EAST AT ARCADIAN	6	9	-
BARSTOW AT BANK	4	7	2
BROADWAY/MADISON AT CLINTON	8	13	2
BARSTOW AT MAIN	8	8	4
MAIN AT CLINTON	8	12	-
DELAFIELD AT WASHINGTON	4	7	2
GRANDVIEW AT MADISON	8	12	-
GRANDVIEW AT NORTHVIEW	6	12	2
GRANDVIEW AT WOODBURN	4	11	4
MORELAND AT HINE	8	12	-
MAIN AT PERKINS	8	8	4
MORELAND AT PEWAUKEE	8	15	-
TOTAL	80	126	20

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS ARE CATEGORY 0010
SHEET 2 OF 4

SIGNAL BASES, POLES, ARMS, AND LUMINAIRES

LOCATION	SB NO.	657.0100 PEDESTAL BASES EACH	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH EACH	657.0305 POLES, TYPE 2 EACH	657.0310 POLES, TYPE 3 EACH	657.0315 POLES TYPE 4 EACH	657.0430 TRAFFIC SIGNAL STANDARDS ALUMINUM 10-FT EACH	657.0425 TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT EACH	657.0585 TROMBONE ARMS, 15-FOOT EACH	657.0590 TROMBONE ARMS, 20-FOOT EACH	SPV.0060.06 LED LUMINAIRES EACH	657.0614 LUMINAIRE ARMS SINGLE MEMBER 4-INCH CLAMP 8-FOOT EACH	657.0709 LUMINAIRE ARMS, TRUSS TYPE, 4-INCH CLAMP, 12-FOOT EACH
BARSTOW AT BANK	SB4	-	1	1	-	-	-	-	-	1	-	-	-
	SB7	-	1	1	-	-	-	-	-	1	-	-	-
SUBTOTAL		0	2	2	0	0	0	0	0	2	0	0	0
BARSTOW AT MAIN	SB2	-	1	1	-	-	-	-	1	-	-	-	-
	SB4	-	1	1	-	-	-	-	1	-	-	-	-
	SB6	-	1	1	-	-	-	-	1	-	-	-	-
	SB8	-	1	1	-	-	-	-	-	1	-	-	-
SUBTOTAL		0	4	4	0	0	0	0	3	1	0	0	0
BROADWAY/MADISON AT CLINTON	SB6	-	-	-	-	-	-	1	-	-	-	-	-
SUBTOTAL		0	0	0	0	0	0	1	0	0	0	0	0
EAST AT ARCADIAN	SB3	1	-	-	-	-	-	1	-	-	-	-	-
SUBTOTAL		1	0	0	0	0	0	1	0	0	0	0	0
GRANDVIEW AT MADISON	SB3	-	1	-	1	-	-	-	-	1	1	1	-
	SB6	-	1	-	1	-	-	-	-	1	1	1	-
	SB10	-	1	-	1	-	-	-	-	1	1	1	-
	SB12	-	1	-	-	1	-	-	-	-	1	1	-
	SB13	-	1	1	-	-	-	-	-	1	-	-	-
	SB14	1	-	-	-	-	1	-	-	-	-	-	-
SUBTOTAL		1	5	1	3	1	1	0	0	4	4	4	0
MAIN AT PERKINS	SB3	-	1	-	-	1	-	-	-	-	1	-	1
	SB5	-	1	-	-	1	-	-	-	-	1	-	1
SUBTOTAL		0	2	0	0	2	0	0	0	0	2	0	2
MORELAND AT PEWAUKEE	SB2	1	-	-	-	-	-	1	-	-	-	-	-
	SB3	1	-	-	-	-	-	1	-	-	-	-	-
	SB5	1	-	-	-	-	-	1	-	-	-	-	-
	SB10	1	-	-	-	-	-	1	-	-	-	-	-
SUBTOTAL		4	0	0	0	0	0	4	0	0	0	0	0
TOTAL		6	13	7	3	3	1	6	3	7	6	4	2

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS ARE CATEGORY 0010
SHEET 3 OF 4

3

RESTORATION ITEMS

LOCATION	LOCATION	602.0405 * CONCRETE SIDEWALK 4-INCH SF	631.1000 SOD LAWN SY	SPV.0165.01 * REMOVE SALVAGE AND REINSTALL BRICK PAVER SIDEWALK SF
BARSTOW AT BANK	SB4	100	-	-
	SB7	35	-	-
SUBTOTAL		135	0	0
BARSTOW AT MAIN	SB2	-	-	30
	SB4	-	-	30
	SB6	-	-	30
	SB8	30	-	-
SUBTOTAL		30	0	90
DELAFIELD AT WASHINGTON	SB6	-	3	-
SUBTOTAL		0	3	0
GRANDVIEW AT MADISON	SB3	-	3	-
	SB6	-	3	-
	SB10	-	3	-
	SB12	-	3	-
	SB13	-	3	-
SUBTOTAL		0	15	0
MAIN AT PERKINS	SB3	25	-	-
	SB5	25	-	-
SUBTOTAL		50	0	0
TOTAL		215	18	90

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRAFFIC SIGNAL CABLE

LOCATION	LOCATION	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG L.F.	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG L.F.
BARSTOW AT BANK	SB4	100	-
	SB7	100	-
SUBTOTAL		200	0
BARSTOW AT MAIN	SB2	100	-
	SB4	100	-
	SB6	100	-
	SB8	100	-
SUBTOTAL		400	0
DELAFIELD AT WASHINGTON	SB6	100	-
SUBTOTAL		100	0
GRANDVIEW AT MADISON	SB3	100	-
	SB6	100	-
	SB10	100	-
	SB12	100	-
	SB13	100	-
SUBTOTAL		500	0
MAIN AT PERKINS	SB3	100	-
	SB5	100	-
SUBTOTAL		200	0
UNDISTRIBUTED		-	700
SUBTOTAL		0	700
TOTAL		1,400	700

EQUIPMENT GROUNDING CONDUCTORS

LOCATION	LOCATION	655.0515 * ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG (GREEN) L.F.
BARSTOW AT BANK	SB4	60
	SB7	20
SUBTOTAL		80
BARSTOW AT MAIN	SB2	20
	SB4	40
	SB6	20
	SB8	20
SUBTOTAL		100
DELAFIELD AT WASHINGTON	SB6	35
SUBTOTAL		35
GRANDVIEW AT MADISON	SB3	20
	SB6	20
	SB10	40
	SB12	20
	SB13	45
SUBTOTAL		145
MAIN AT PERKINS	SB3	30
	SB5	30
SUBTOTAL		60
TOTAL		420

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

MODIFY TRAFFIC SIGNALS

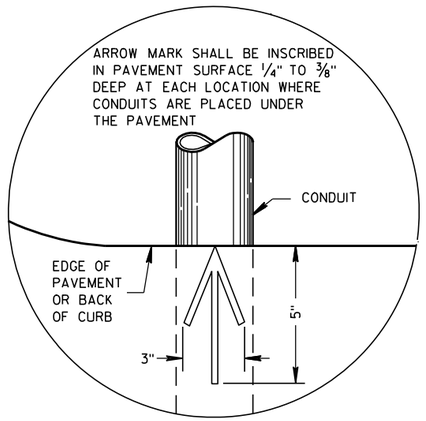
	SPV.0105.15 MODIFY TRAFFIC SIGNALS AND STREET LIGHTING FOR LED & COUNTDOWN LS	SPV.0105.16 MODIFY TRAFFIC SIGNALS AND STREET LIGHTING FOR LED & COUNTDOWN LS	SPV.0105.17 MODIFY TRAFFIC SIGNALS AND STREET LIGHTING FOR LED & COUNTDOWN LS	SPV.0105.18 MODIFY TRAFFIC SIGNALS AND STREET LIGHTING FOR LED & COUNTDOWN LS	SPV.0105.19 MODIFY TRAFFIC SIGNALS AND STREET LIGHTING FOR LED & COUNTDOWN LS	SPV.0105.20 MODIFY TRAFFIC SIGNALS AND STREET LIGHTING FOR LED & COUNTDOWN LS
EAST AT ARCADIAN	1	-	-	-	-	-
BARSTOW AT MAIN	-	1	-	-	-	-
DELAFIELD AT WASHINGTON	-	-	1	-	-	-
GRANDVIEW AT MADISON	-	-	-	1	-	-
MAIN AT PERKINS	-	-	-	-	1	-
MORELAND AT PEWAUKEE	-	-	-	-	-	1
TOTAL	1	1	1	1	1	1

ALL ITEMS ARE CATEGORY 0010
SHEET 4 OF 4

PROJECT NO: 2718-09-70	HWY: LOCAL ROAD	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET 60	E

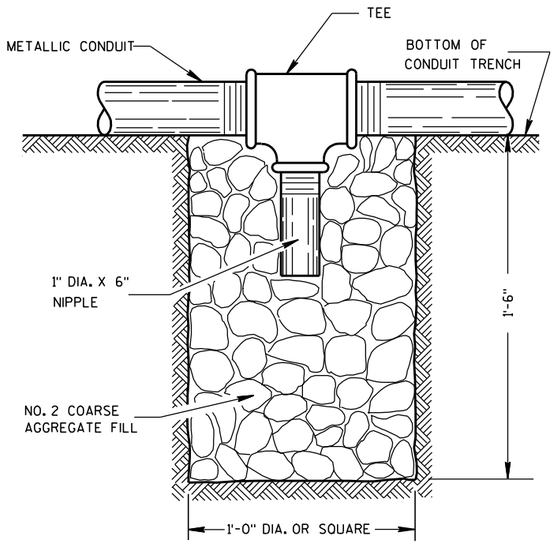
Standard Detail Drawing List

09B02-07	CONDUIT
09B04-10	PULL BOX
09C02-06	CONCRETE BASES, TYPES 1, 2 & 5
09C03-03	TRANSFORMER/PEDESTAL BASES
09E01-12A	POLE MOUNTINGS FOR TRAFFIC SIGNALS TYPE 2
09E01-12B	POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 3 (HEAVY DUTY)
09E01-12C	POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 4
09E01-12G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E03-04	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
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15D20-02	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY



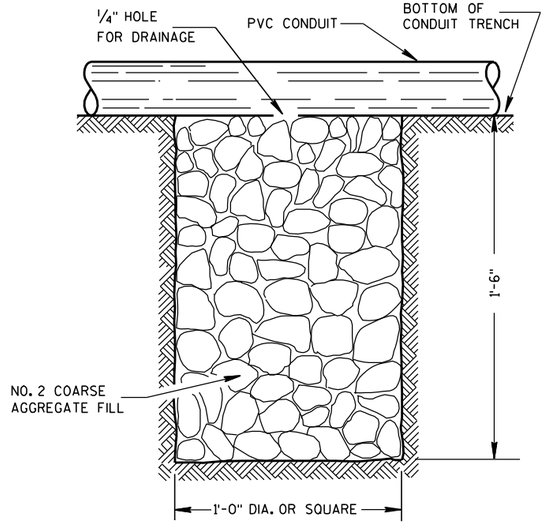
PLAN VIEW

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.

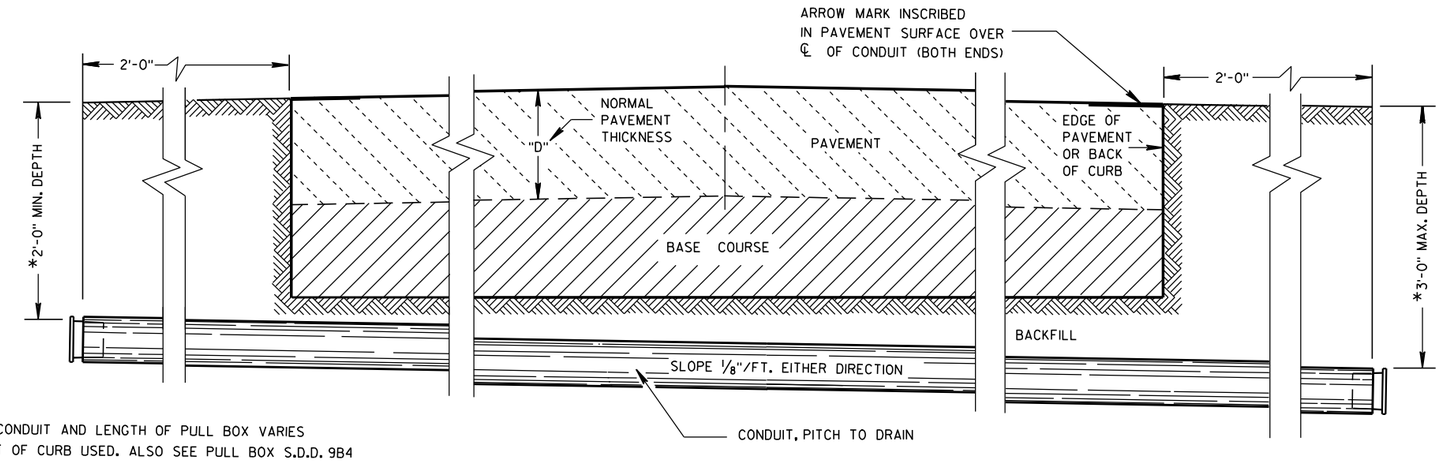
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/23/03 — DATE

/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGI

FHWA

HWYS

6

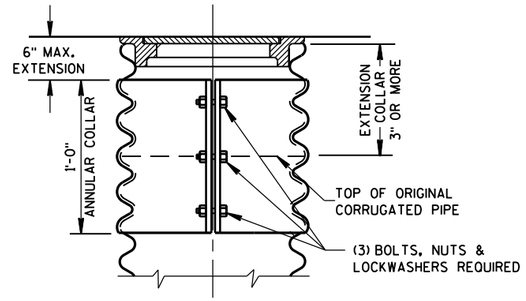
S.D.D. 9 B 2-7

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

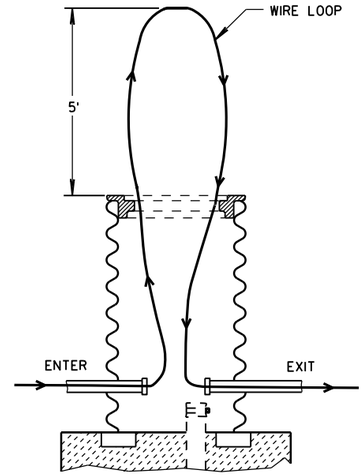
DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	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.

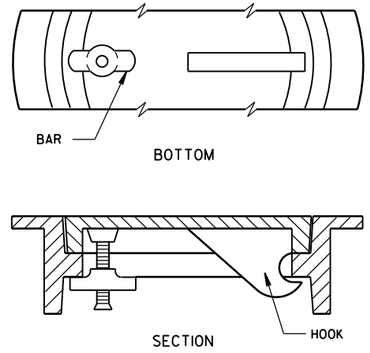
** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



CORRUGATED PIPE EXTENDER

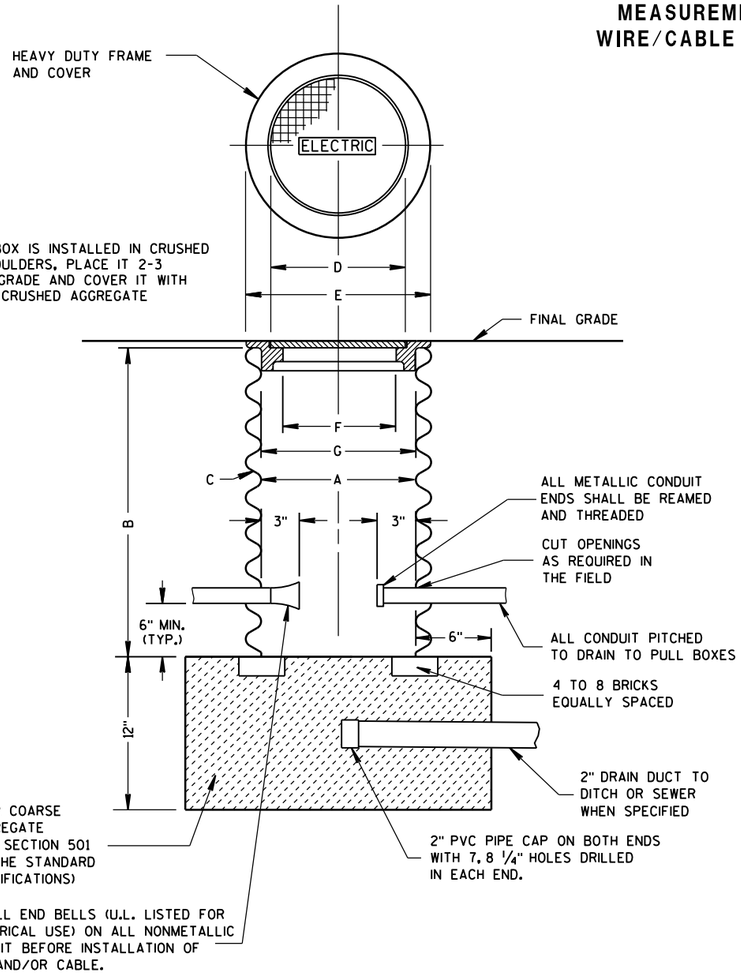


MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX

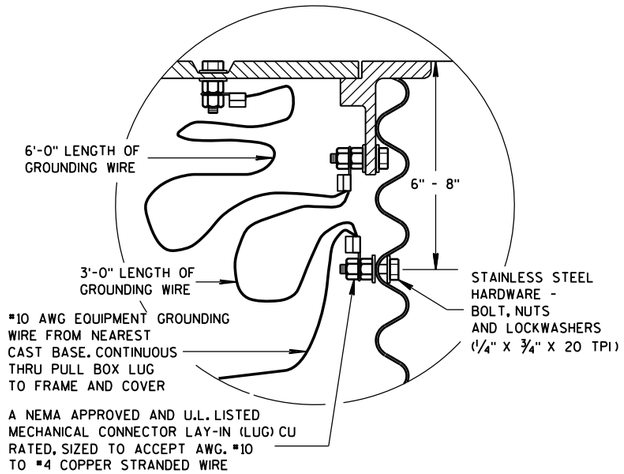


ALTERNATE COVER (LOCKING)

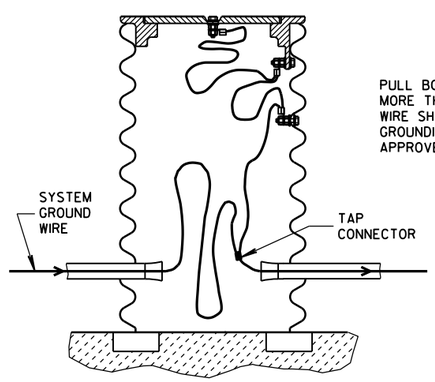
TIGHTENING BAR TYPE



PULL BOX



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES



PULL BOX TO NEAREST BASE DISTANCE MORE THAN 20 FEET. PULL BOX GROUND WIRE SHALL CONNECT AT SYSTEM GROUNDING WIRE. USE DEPARTMENT APPROVED TAP CONNECTOR.

EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

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.

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

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

S.D.D. 9B2, "CONDUIT", APPLIES TO THIS DRAWING.

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

2-7-2013
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL

FHWA

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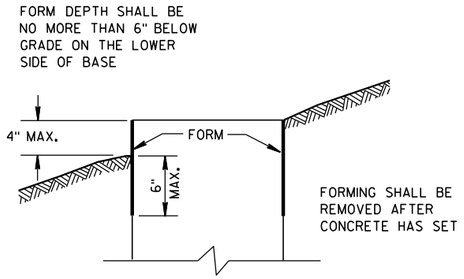
S.D.D. 9 B 4-10



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5
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

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 SMOOTH 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 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

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

GENERAL NOTES (CONTINUED)

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) FOR TYPE 2 AND TYPE 5 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE OF THE TYPE 2 AND TYPE 5 BASES 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.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-449, OR ASTM A-687 (GRADE 105).

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

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

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

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

(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 EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

(2) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(3) (4) 1" DIA. X 5'-0" ANCHOR RODS.

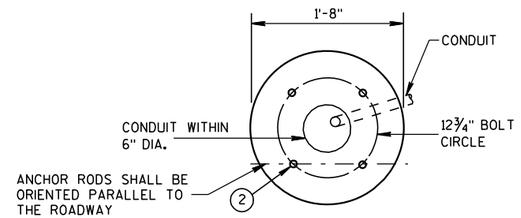
(4) (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

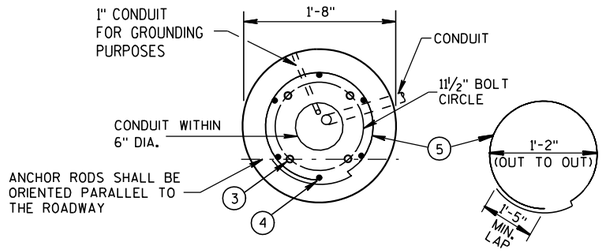
(5) (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

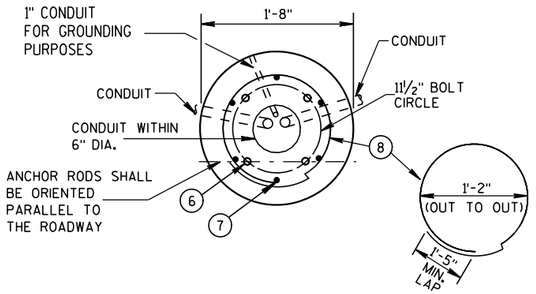
(6) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(7) (6) NO.4 X 4'-8" BAR STEEL REINFORCEMENT.

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

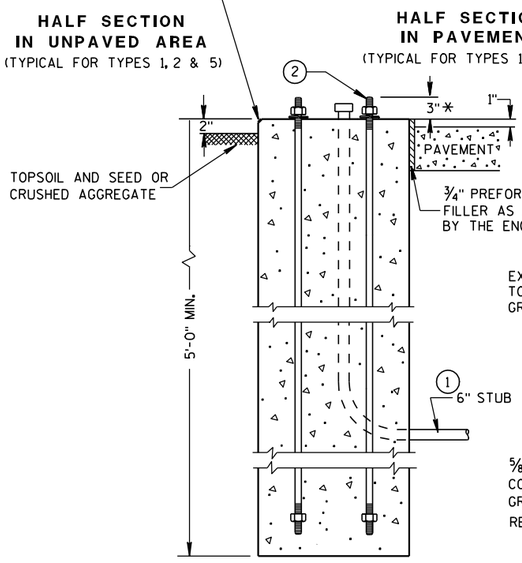






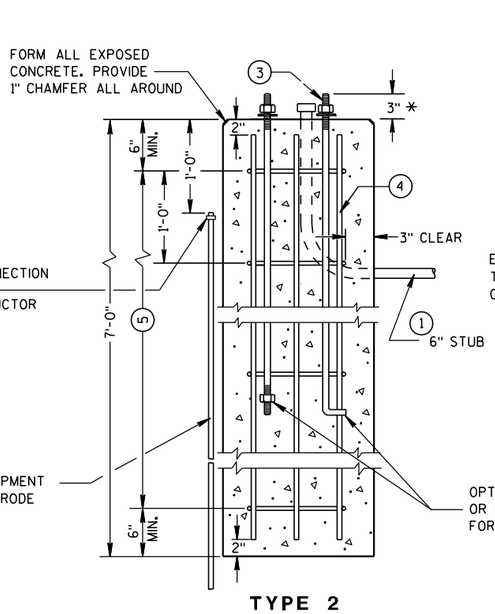
FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

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

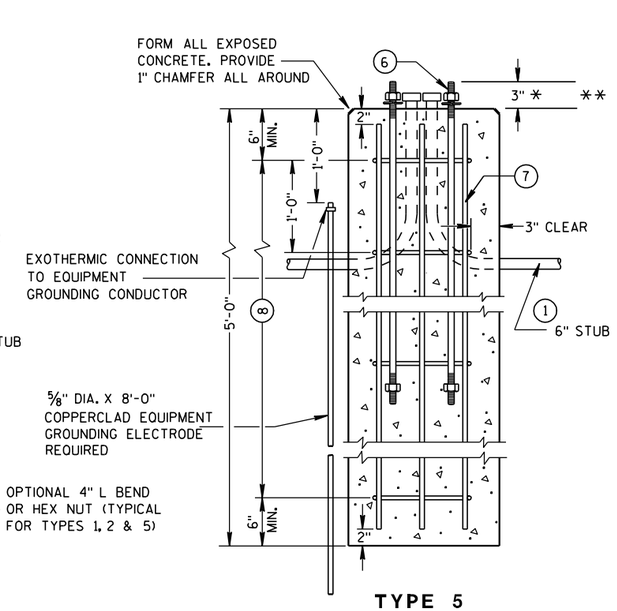


HALF SECTION IN PAVEMENT
(TYPICAL FOR TYPES 1, 2 & 5)

TYPE 1



TYPE 2



TYPE 5

CONCRETE BASES

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2¾" OR LONGER THAN 3¼" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

** FOR NONBREAKAWAY INSTALLATIONS, 4½" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

CONCRETE BASES, TYPES 1, 2 & 5

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/3/10 — DATE
/S/ Joanna L. Rush — STATE ELECTRICAL ENGI
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FHWA

GENERAL NOTES

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

FOUR (4) BOLTS 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, ASTM A-325, (92,000 YIELD) HEAVY HEX NUT AND BE GALVANIZED IN ACCORDANCE WITH ASTM A-153, CLASS C.

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

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

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

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

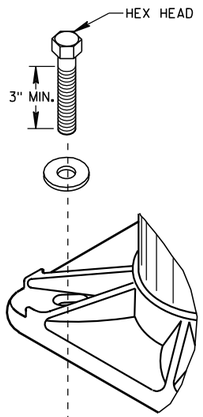
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

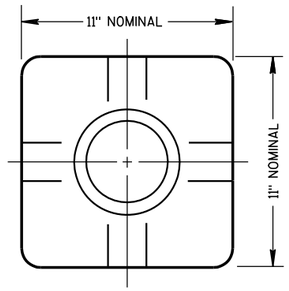
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

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

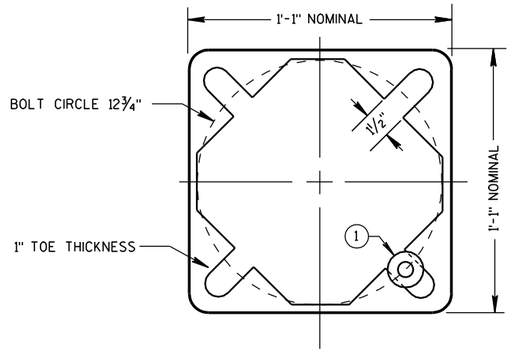
BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1½", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

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

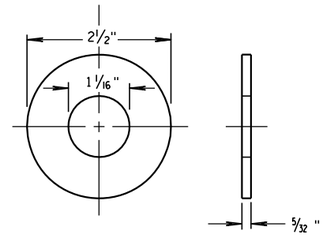




TOP VIEW
(PEDESTAL BASE)

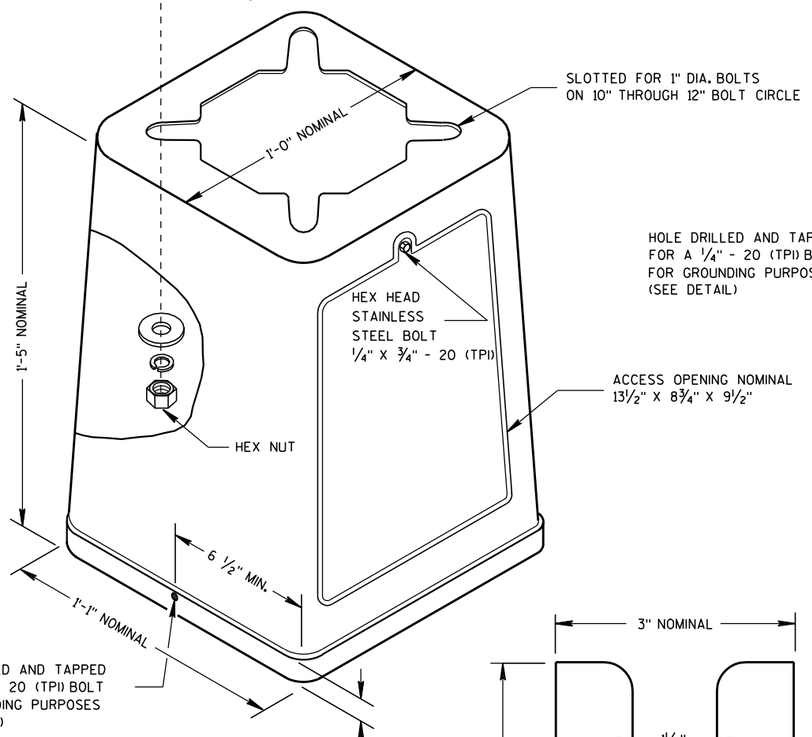


BOTTOM VIEW
(PEDESTAL BASE)

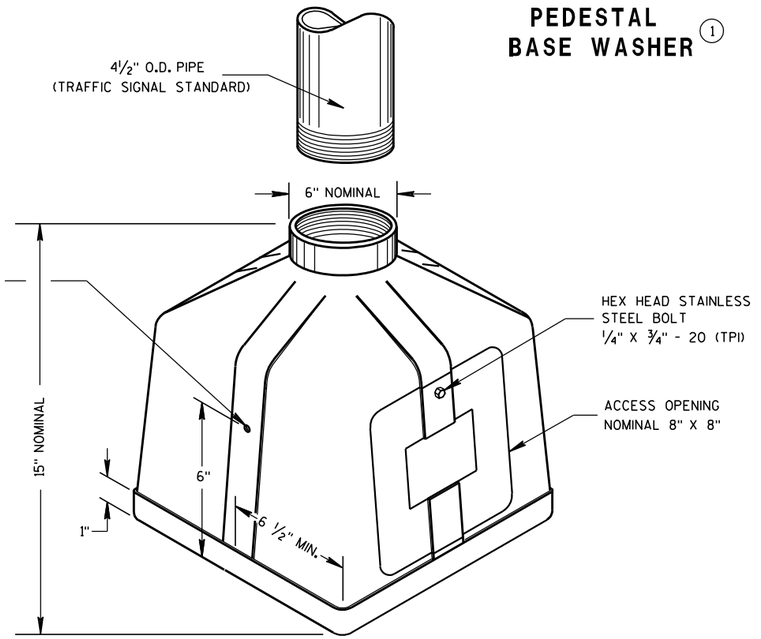


ZINC COATED STEEL WASHER
TO BE PROVIDED BY THE CONTRACTOR

PEDESTAL BASE WASHER (1)

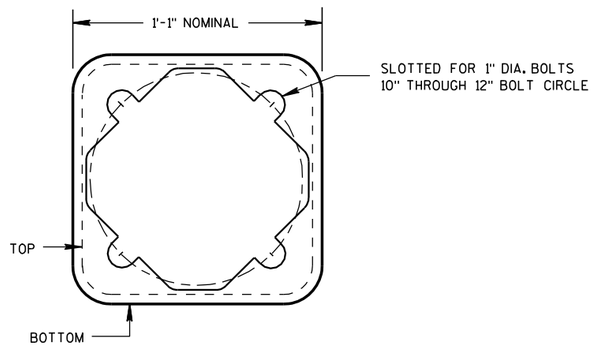


ISOMETRIC VIEW

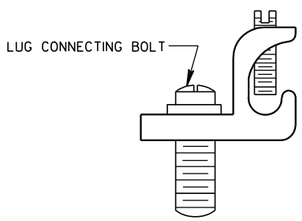


ISOMETRIC VIEW

PEDESTAL BASE



BOTTOM VIEW
(TRANSFORMER BASE)

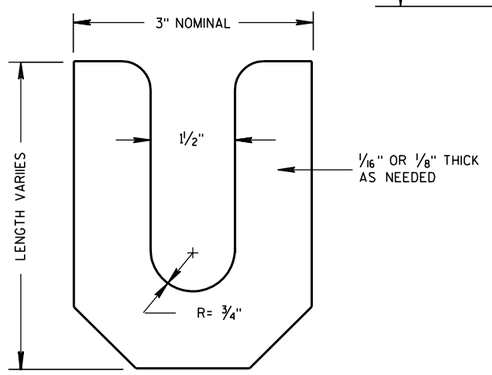


TYPICAL MECHANICAL CONNECTOR LUG

TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE

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



LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/27/09 — DATE
/S/ Joanna L. Rich — STATE ELECTRICAL ENGI 65 — HWYS
FHWA

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S.D.D. 9 C 3-3

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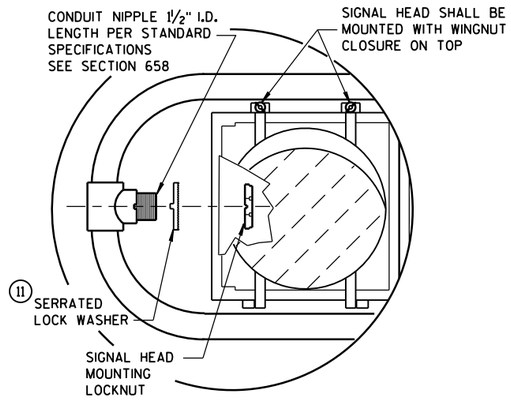
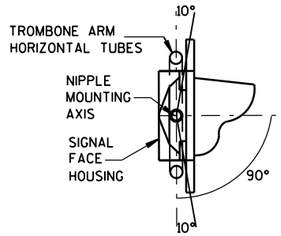
S.D.D. 9 C 3-3



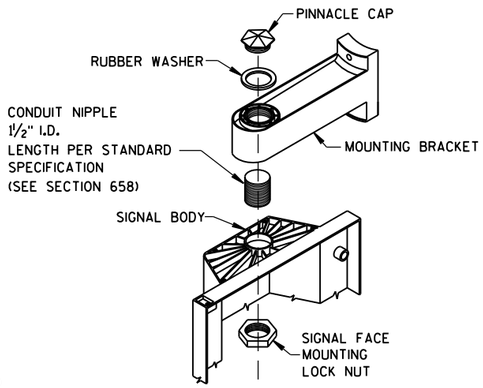
HORIZONTAL SIGNAL HEAD MOUNTING DETAIL *

* SIGNAL HEAD ATTACHMENT ALSO APPLYS TO MOUNTING AT CROSS BAR



SECTION A-A

(10 DEGREES TILT REQUIREMENT OF FACE(S) IN THE TROMBONE MOUNTING)



SIGNAL FACE MOUNTING DETAIL

(BANDED)

GENERAL NOTES

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

POLES SHALL BE EITHER ALUMINUM OR GALVANIZED STEEL AS CALLED FOR IN THE CONTRACT.

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.

TYPE 2 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063-T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

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

(1) 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) ¼" X ¾" - 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 1⅜" 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 FACES.

(6) CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.

(7) MOUNTING BRACKET NIPPLES FOR THE SIGNAL FACE(S) SHALL BE 2 INCHES IN LENGTH AND 1½ INCHES IN DIAMETER. (SEE STANDARD SPECIFICATION - SECTION 658).

(8) VERTICAL STRUT (ADJUSTABLE). ONE (1) SET SCREW (¼" X ¾" LONG - 20 TPI, STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.

(9) FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.

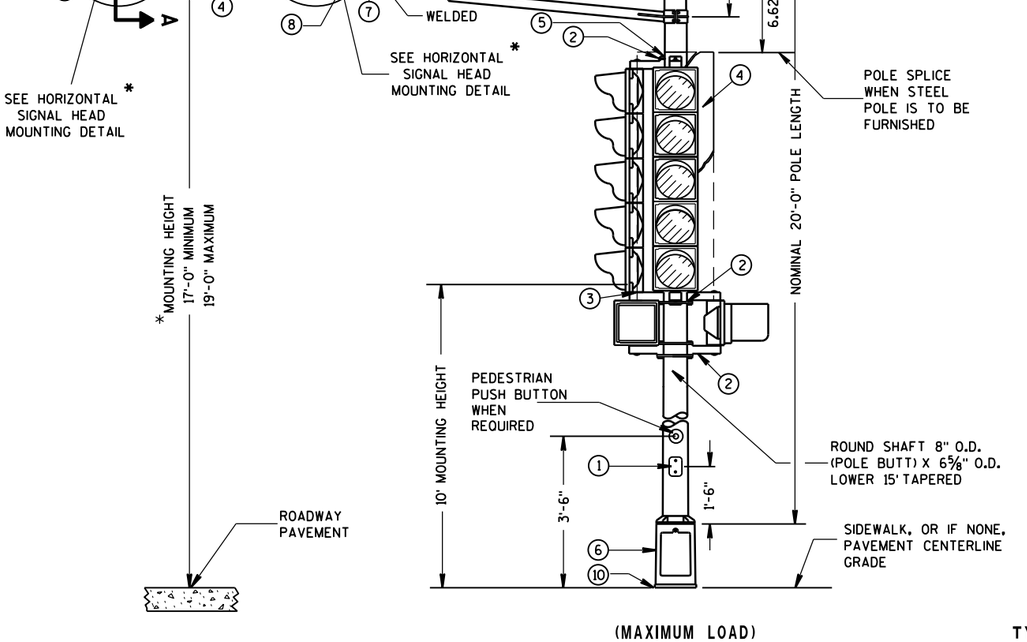
(10) SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.

(11) USE SERRATED LOCK WASHERS WITH NOTCHES BETWEEN END TEE AND SIGNAL HEAD.

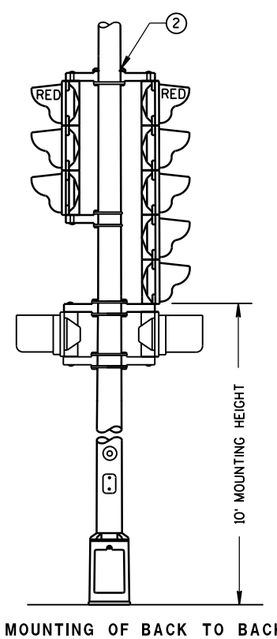
*MOUNTING HEIGHT LIMITATION DIMENSIONS OF THE TROMBONE MAST ARM WILL BE DEPENDENT UPON THE USE/NON-USE OF A TRANSFORMER BASE.

FOR MANUFACTURERS USE ONLY

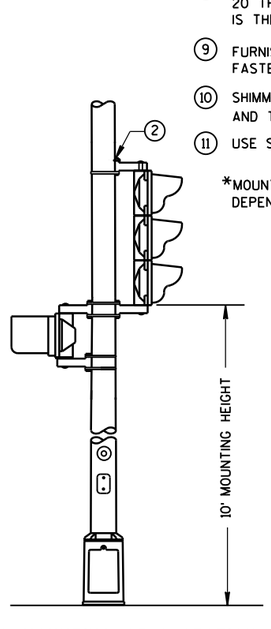
WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 1.5-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN/BRIDGE FOR VERIFICATION AND APPROVAL.



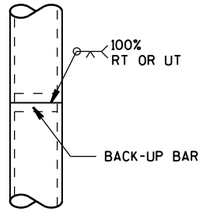
(MAXIMUM LOAD)



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



TYPICAL MOUNTING OF 3 SECTION SIGNAL FACE



POLE SPLICE DETAIL

TYPE 2 POLE MOUNTING CONFIGURATION

POLE MOUNTINGS FOR TRAFFIC SIGNALS TYPE 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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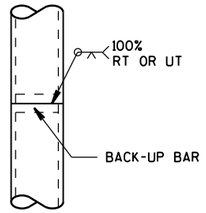
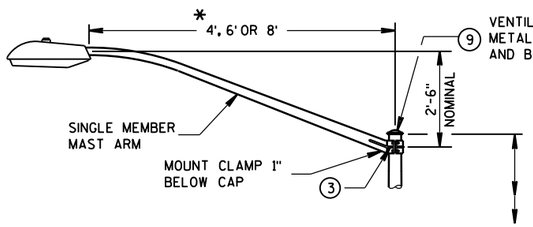
S.D.D. 9 E 1-12a

FOR MANUFACTURERS USE ONLY

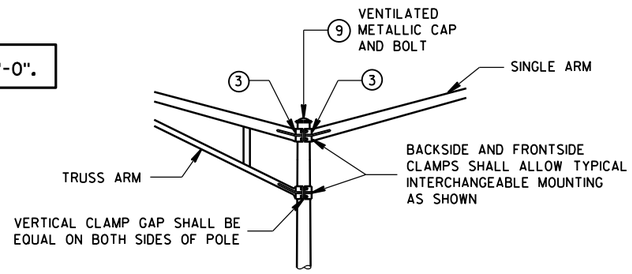
WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 1.5-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN/BRIDGE FOR VERIFICATION AND APPROVAL.

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





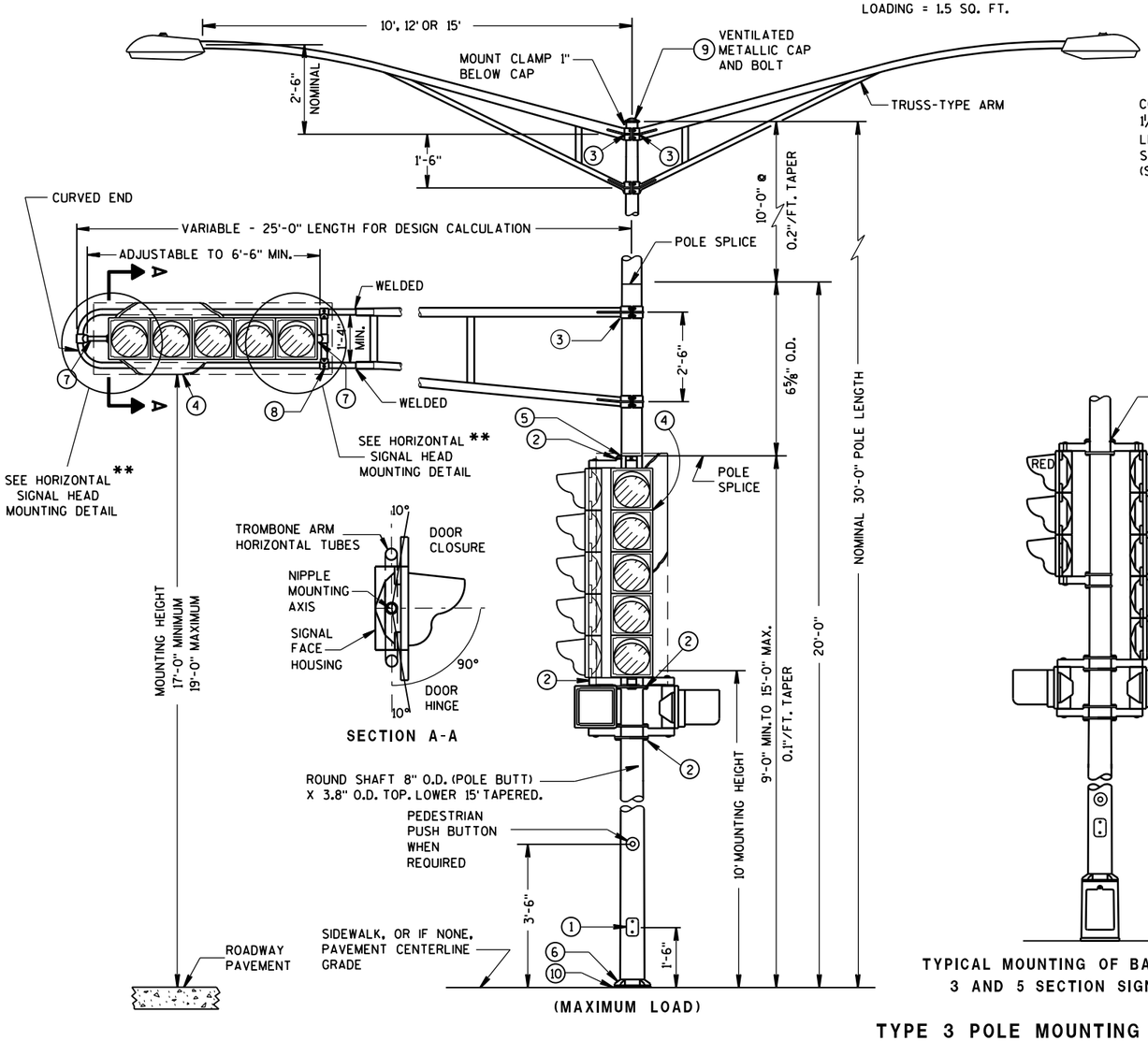
POLE SPLICE DETAIL



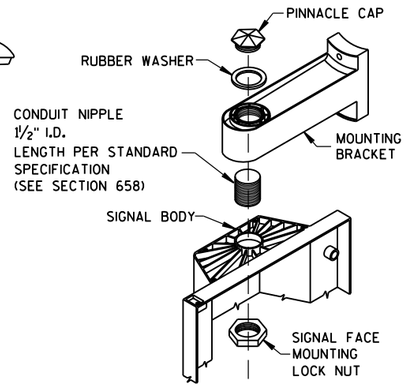
INTERCHANGEABLE MOUNTING DETAIL

LUMINAIRE

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

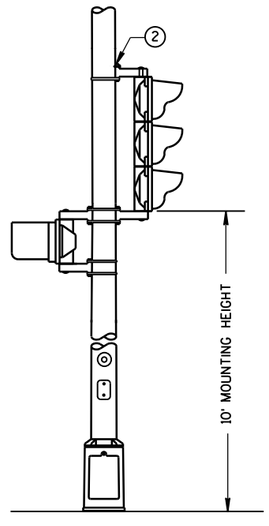


TYPE 3 POLE MOUNTING CONFIGURATION



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 2⅜ 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.

(1) 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) ¼" X ¾" - 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 1⅜" 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) TYPE 3 POLE CONFIGURATIONS SHALL BE MOUNTED DIRECTLY TO THEIR CONCRETE BASES.

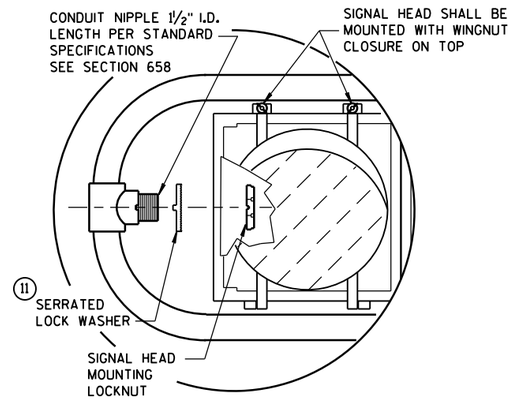
(7) MOUNTING BRACKET NIPPLES FOR THE SIGNAL FACE(S) SHALL BE 2 INCHES IN LENGTH AND 1½ INCHES IN DIAMETER. (SEE STANDARD SPECIFICATION - SECTION 658)

(8) VERTICAL STRUT (ADJUSTABLE). ONE (1) SET SCREW (1/4 " X ¾" -20 TPI, STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.

(9) FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.

(10) SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND POLE.

(11) 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 TRANSPOI

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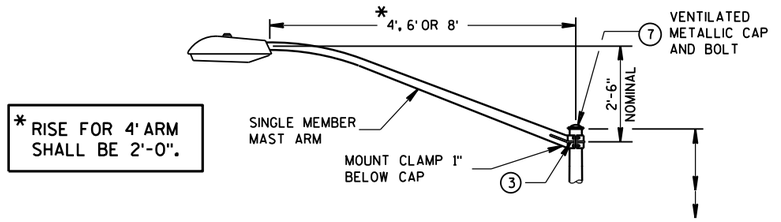
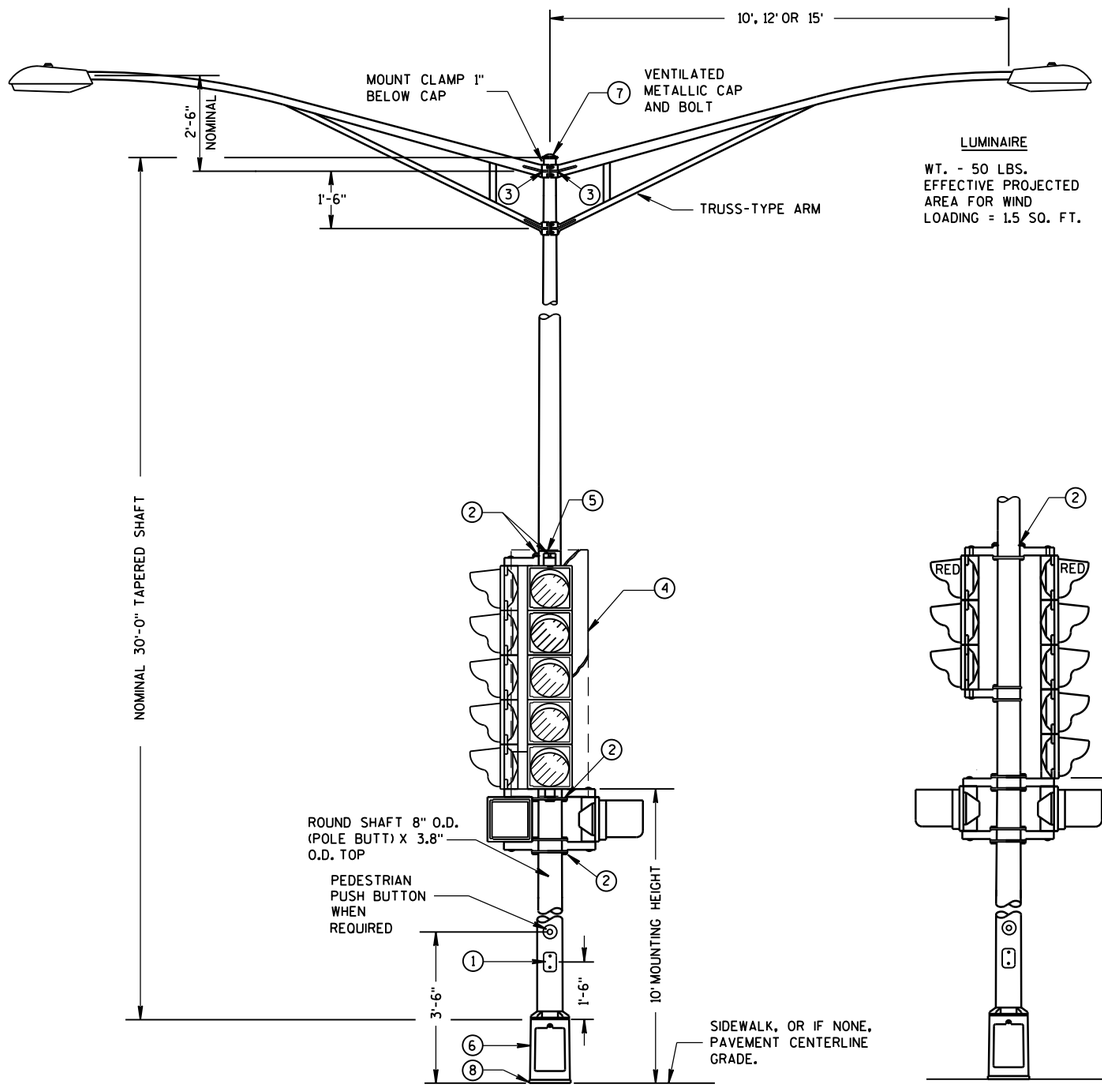
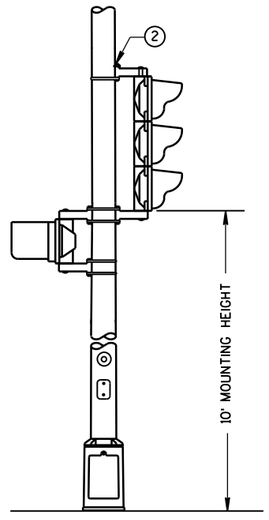
S.D.D. 9 E 1-12b





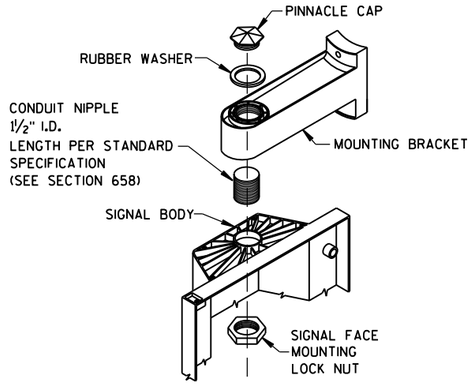
(MAXIMUM LOAD)

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



TYPICAL MOUNTING OF 3 SECTION SIGNAL FACE

TYPE 4 POLE MOUNTING CONFIGURATION



SIGNAL FACE MOUNTING DETAIL

(BANDED)

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 2⅜ 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) ¼" X ¾" - 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 1⅜" HOLE IN POLE SHAFT FOR WIRING.

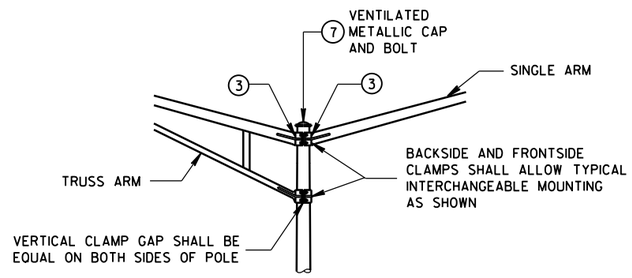
(4) SECURELY MOUNT DULL BLACK POLYCARBONATE BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURER'S RECOMMENDATIONS.

(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) ¼" X ¾" - 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

POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 4

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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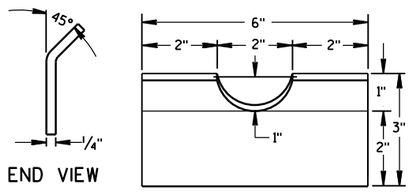
S.D.D. 9 E 1-12c

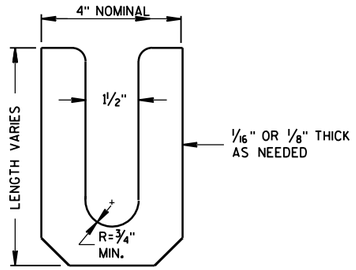


END VIEW

FRONT VIEW

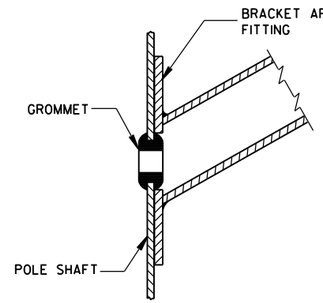
RECTANGULAR CLAMP SHIM

(4 TO A SET)

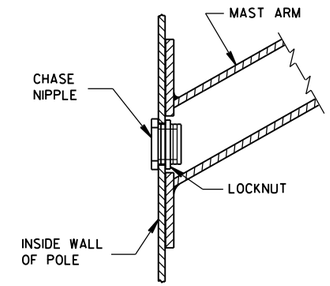


LEVELING SHIM (15)

SHALL BE ALUMINUM



TYPICAL APPLICATION OF GROMMET IN POLE SHAFT



TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

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".

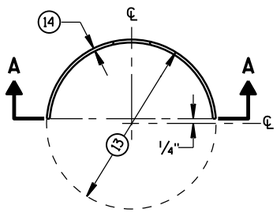
SHIM MATERIAL SHALL BE ALUMINUM ALLOY.

SHIM THICKNESS SHALL BE IMPRESSED INTO EACH SHIM. NUMERALS SHALL BE 1/4" HIGH AND LEGIBLE.

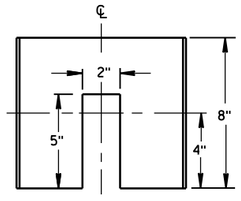
THE CONTRACTOR SHALL SUBMIT TWO COPIES OF ALL SHIM SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.

(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.



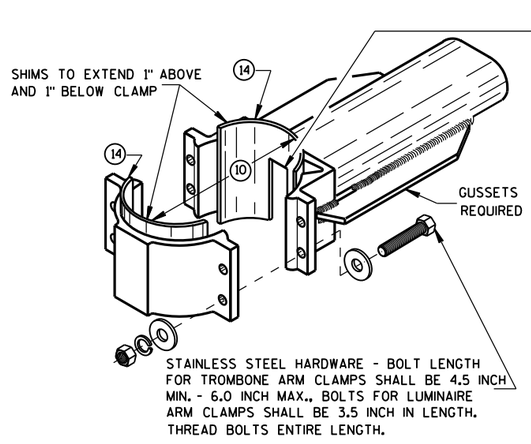
PLAN VIEW



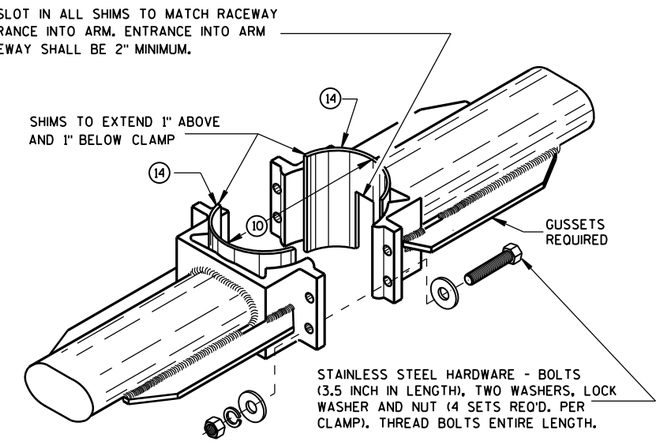
SECTION A-A

CIRCULAR CLAMP SHIM

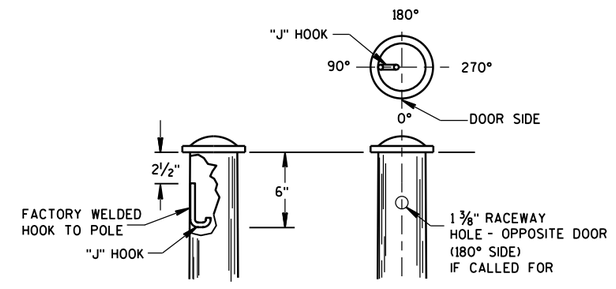
(2 TO A SET)



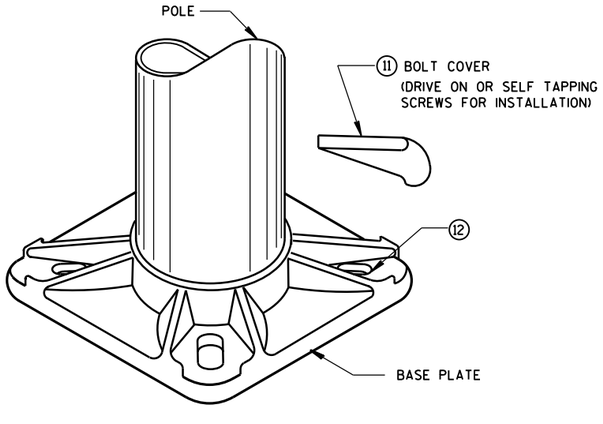
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



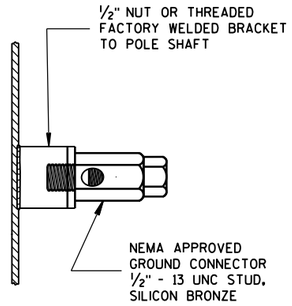
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS

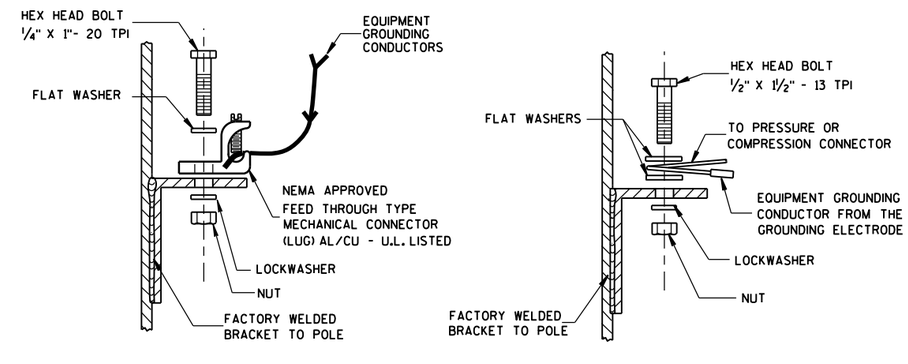


TYPICAL "J" HOOK LOCATION



BASE PLATE





TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/7/2013 DATE
/S/ Ahmet Demirbilek
STATE ELECTRICAL
FHWA

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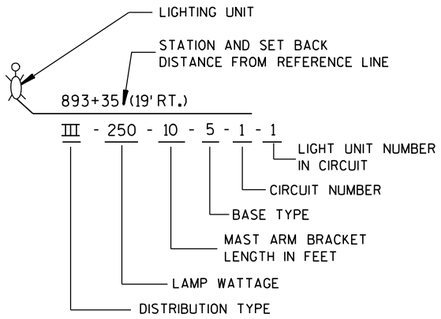
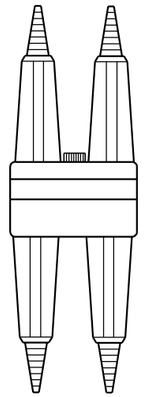
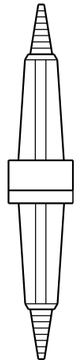


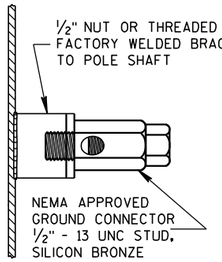
LIGHTING UNIT CODE
(TYPICAL)

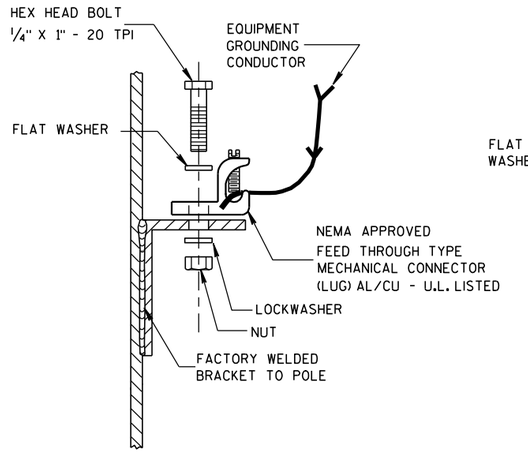


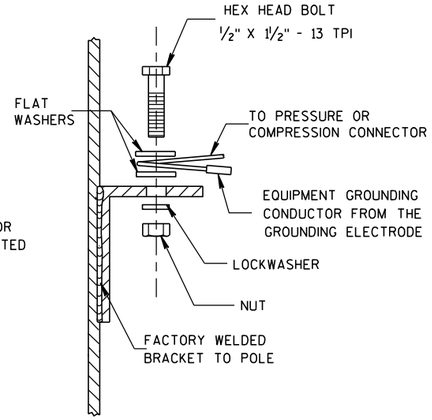
DETAIL "A"
BREAKAWY
DOUBLE POLE WITH
WATERPROOF
INSULATING BOOT



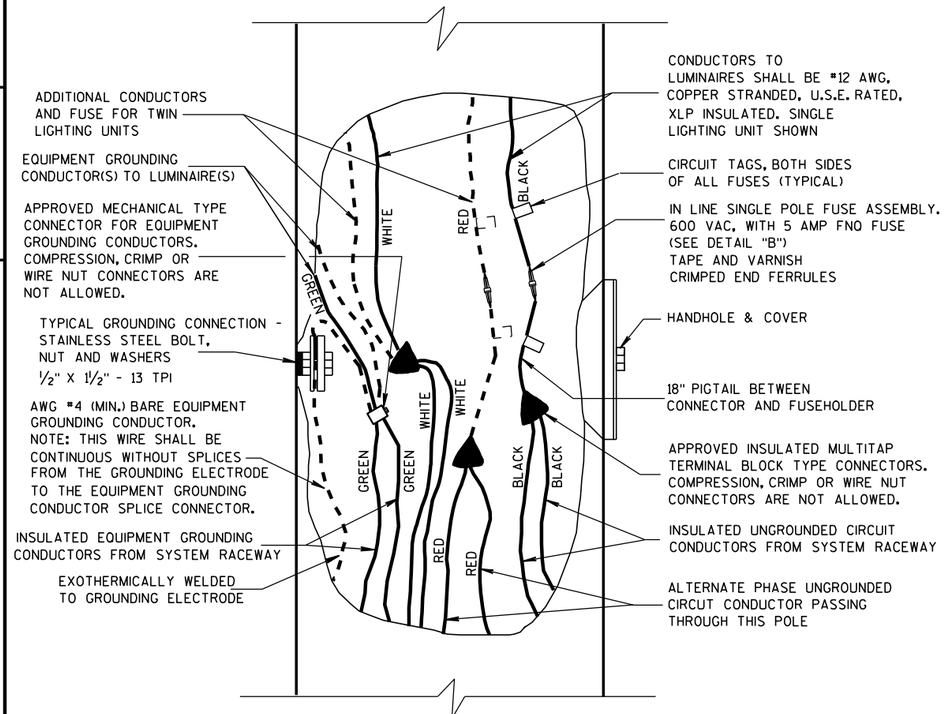
DETAIL "B"
BREAKAWY
SINGLE POLE WITH
WATERPROOF
INSULATING BOOT



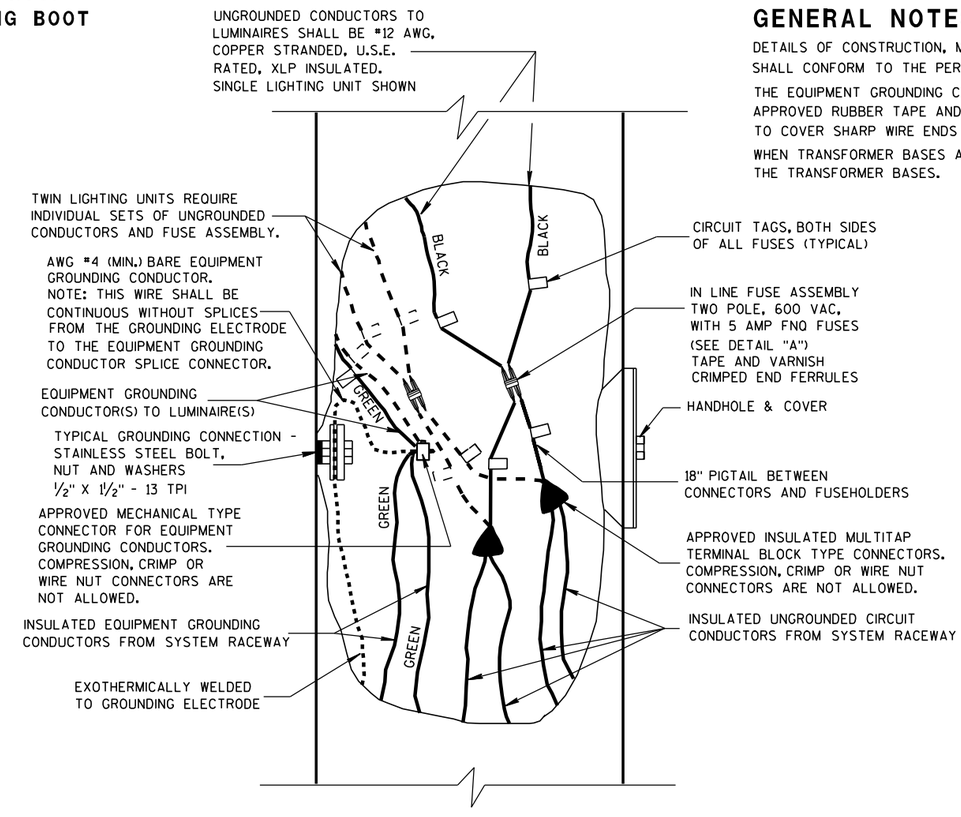




TYPICAL GROUNDING CONNECTIONS
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL



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



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

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.

NON-FREEWAY LIGHTING UNIT POLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 — DATE

/S/ Thomas J. Gosnine — STATE ELECTRICAL ENGI

HWYS

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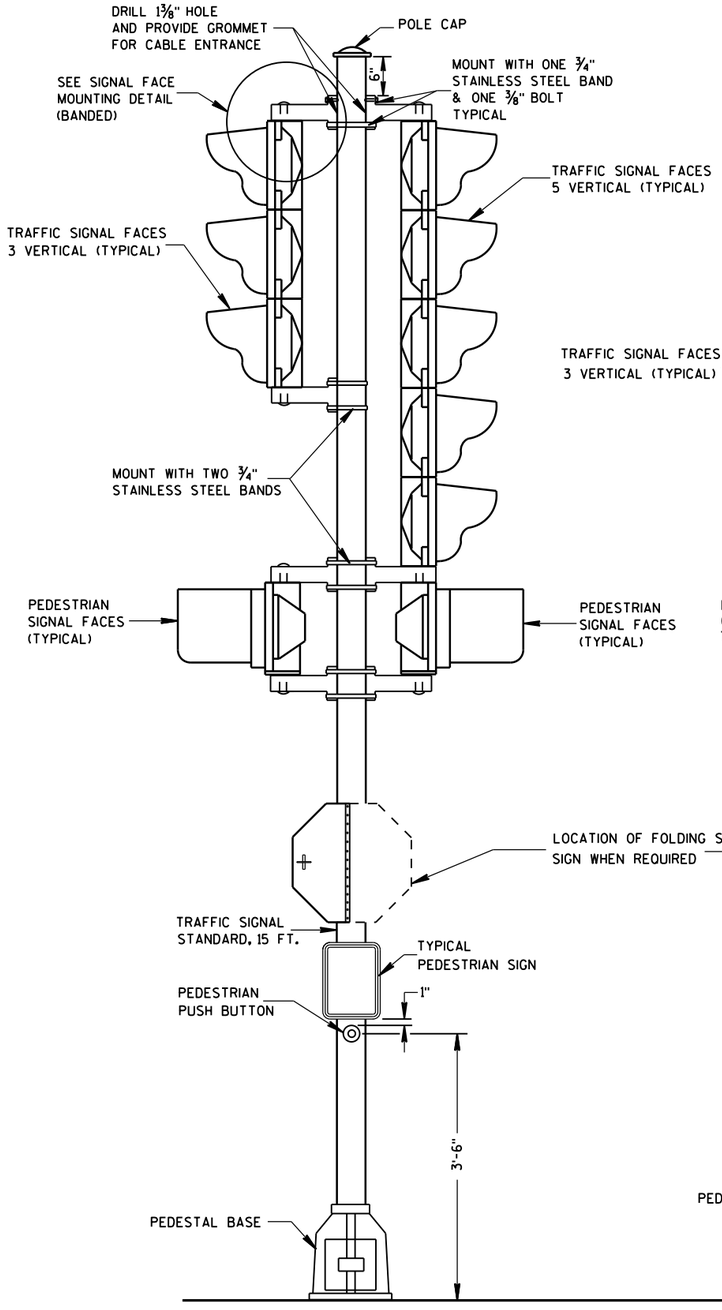
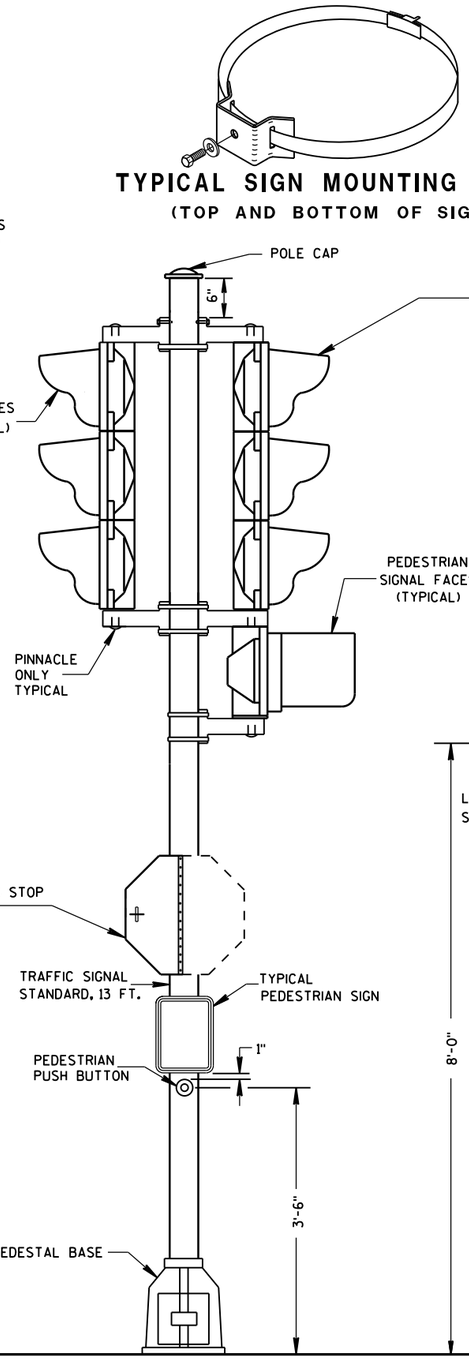
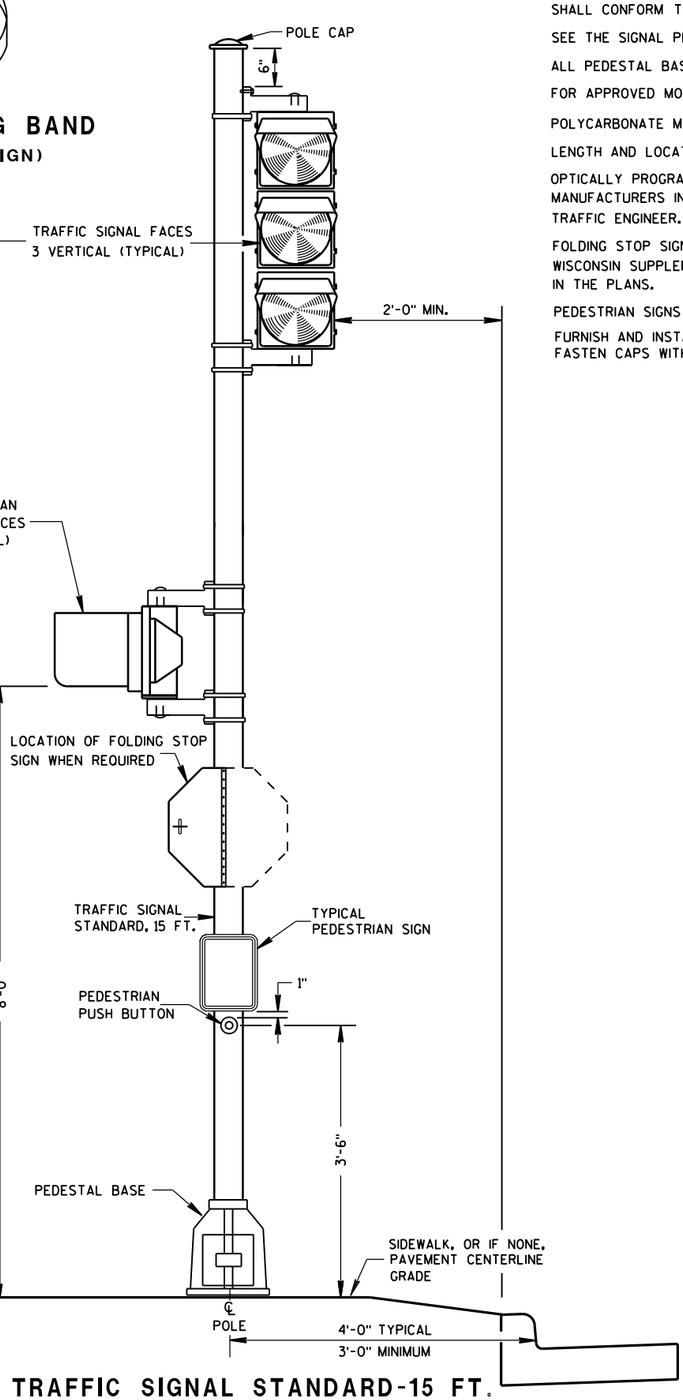


TRAFFIC SIGNAL STANDARD-15 FT.



TRAFFIC SIGNAL STANDARD-13 FT.

TYPICAL SIGN MOUNTING BAND
(TOP AND BOTTOM OF SIGN)



TRAFFIC SIGNAL STANDARD-15 FT.
3M MOUNTING (TYPICAL)

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.

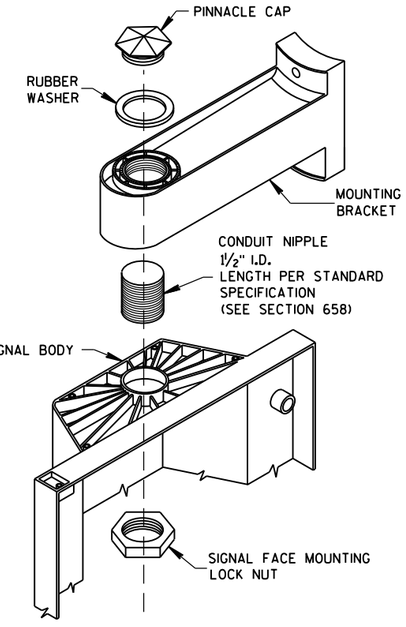
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

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 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) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



SIGNAL FACE MOUNTING DETAIL
(BANDED)

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
FHWA

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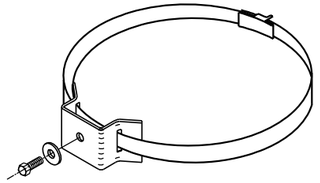
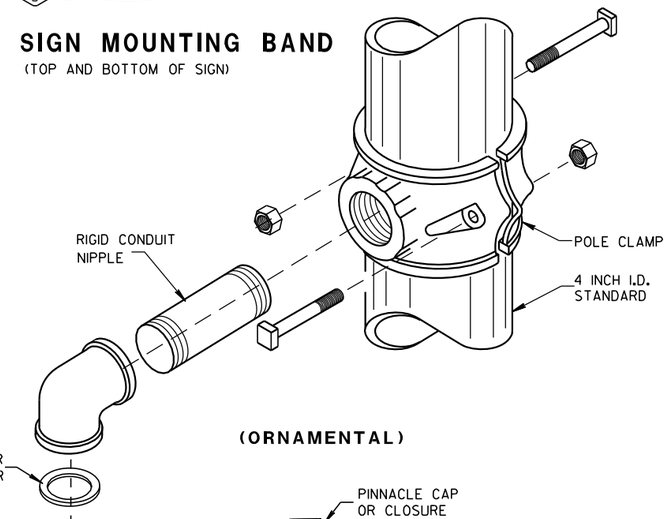
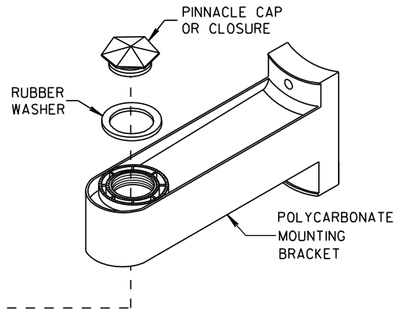


TYPICAL SIGN MOUNTING BAND
(TOP AND BOTTOM OF SIGN)



(ORNAMENTAL)



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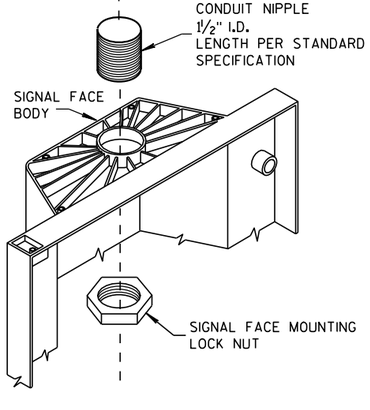
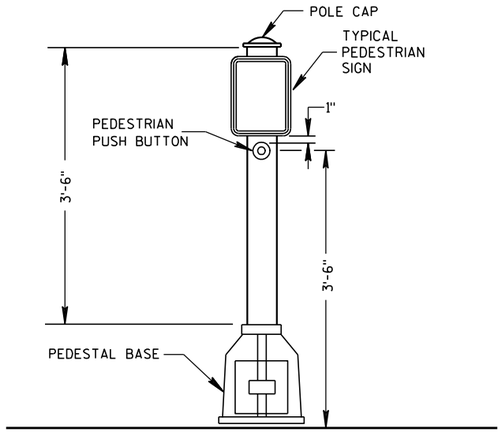


SIGNAL FACE MOUNTING DETAILS



PEDESTRIAN PUSH BUTTON TYPICAL MOUNTING

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.

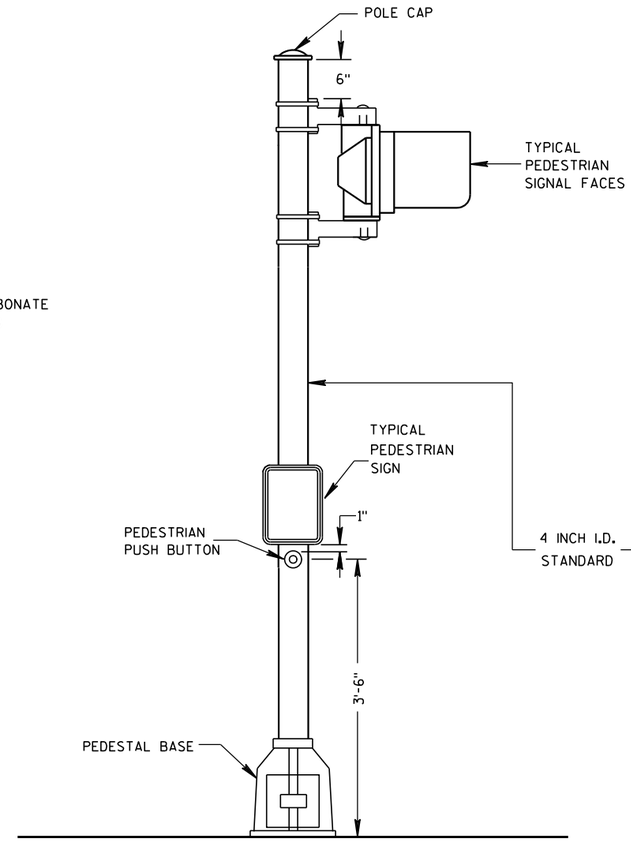
POLYCARBONATE SIGNAL FACE MOUNTING BRACKETS SHALL BE USED UNLESS ORNAMENTAL POLE CLAMPS ARE SPECIFIED.

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

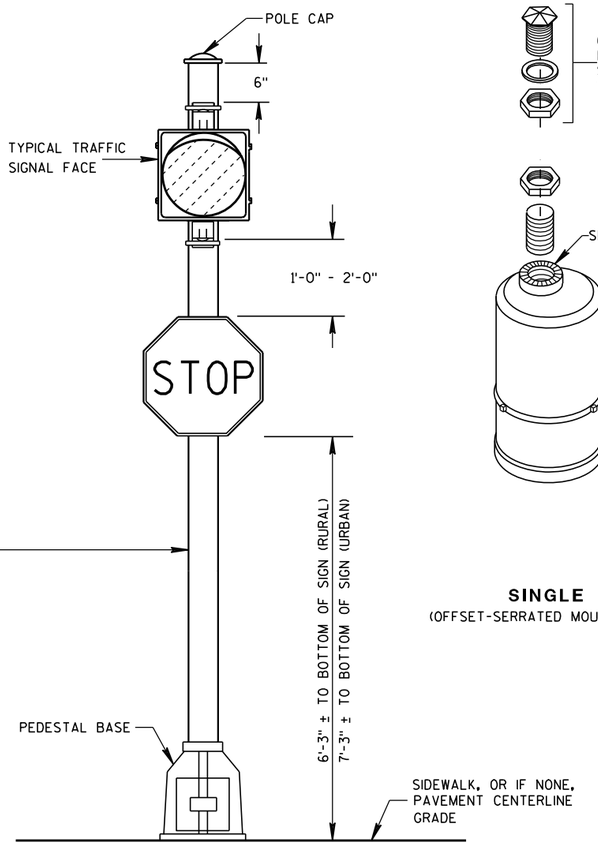
MOUNTINGS AND BRACKETS SHALL BE AS SHOWN ON THE PLANS OR DESCRIBED IN THE SPECIAL PROVISIONS (BY THE DISTRICT TRAFFIC ENGINEER).

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

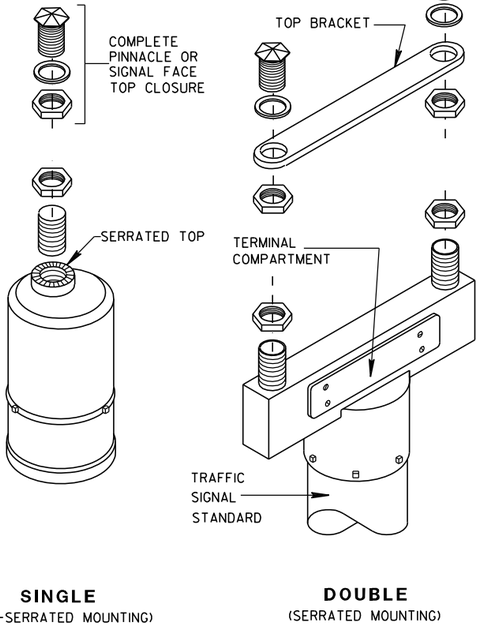
FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



PEDESTRIAN FACE STANDARD-10 FT.
(WALK-DON'T WALK)



STANDARD FLASHER.
10 FOOT, 13 FOOT OR 15 FOOT AS REQUIRED



SINGLE
(OFFSET-SERRATED MOUNTING)

DOUBLE
(SERRATED MOUNTING)

SLIPFITTERS

TRAFFIC SIGNAL STANDARD PEDESTRIAN AND FLASHER TYPICAL MOUNTING DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/11/10
DATE

/S/ John Corbin
STATE ELECTRICAL ENGI

FHWA

HWYS

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LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA

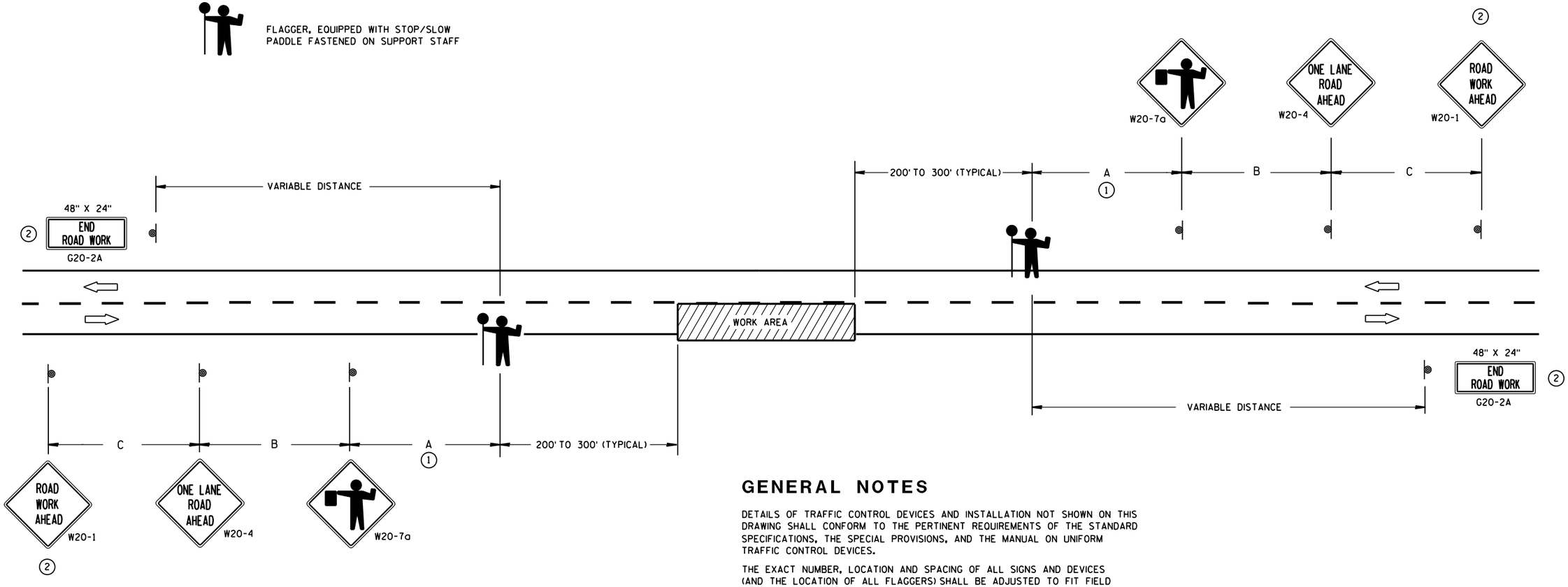
FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W3-4

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



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

GENERAL NOTES

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

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

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

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

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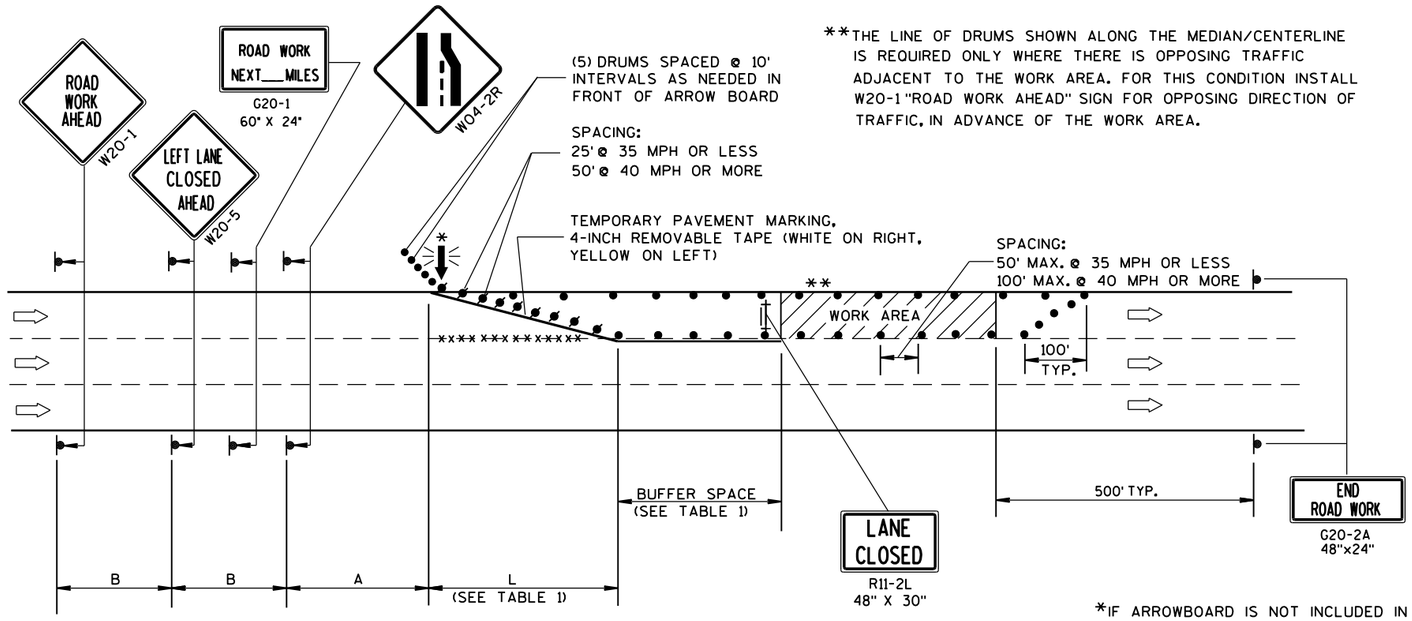
S.D.D. 15 C 12-4



**THE LINE OF DRUMS SHOWN ALONG THE MEDIAN/CENTERLINE IS REQUIRED ONLY WHERE THERE IS OPPOSING TRAFFIC ADJACENT TO THE WORK AREA. FOR THIS CONDITION INSTALL W20-1 "ROAD WORK AHEAD" SIGN FOR OPPOSING DIRECTION OF TRAFFIC, IN ADVANCE OF THE WORK AREA.

B=400' AT 25-30 MPH
700' AT 35-40 MPH
1000' AT 45-55 MPH

A=200' AT 25-30 MPH
350' AT 35-40 MPH
500' AT 45-55 MPH

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)

*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.

W01-6
48"x24"

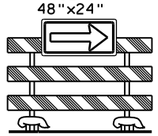


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

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

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.

TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

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Notes

Wisconsin Department of Transportation

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