

PLOTTED/REVISED: 5-JUN-2019

DISTRICT #: Metro
I/PLOT NAME: T22322L.sgl
PATH & FILENAME: Projects\DM_R05\012\0000\T\raffc\Signals\22322L\22322L.sgl.dgn

NMC LOOP DETECTOR CHART

DESIGNATION	SIZE (FT.)	LOCATION
D1-1,D5-1	2-6X6	20 & 50
D1-2,D5-2	2-6X6	5 & 35
D2-1	6X6	400
D4-1,D4-2,D8-1,D8-2	6X6	120
D4-3,D4-4,D8-4,D8-5	2-6X6	5 & 20
D6-1	6X6	400
D8-3	6X6	5

LOCATION:
DISTANCE FROM CROSSWALK/STOP LINE IN FEET.

ENFORCMENT LIGHT LAYOUT

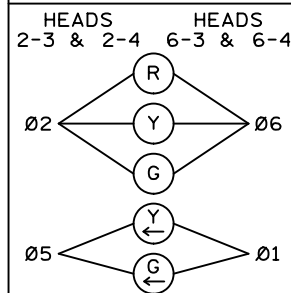
ENFORCMENT LIGHT	POLE NO.	LOCATION ON POLE	ENFORCMENT DIRECTION
EL2-1	2	EAST	EB TH 12
EL4-1	3	SOUTH	SB CSAH 129
EL6-1	5	WEST	WB TH 12
EL8-1	1	NORTH	NB CSAH 129

SIGNAL FACES

FACE	R	Y	G	Y	G
2-1, 2-2	○	○	○		
2-3, 2-4	○	○	○	←	←
4-1, 4-2, 4-3	○	○	○		
6-2	○	○	○		
6-3, 6-4	○	○	○	←	←
8-1, 8-2, 8-3	○	○	○		

-ALL SIGNAL INDICATIONS SHALL BE 12".
 -ALL SIGNAL INDICATIONS SHALL BE LED
 -ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD

SIGNAL HEAD PHASING



② PA100 POLE FOUNDATION
 TYPE PA100-A40
 2-TYPE 10A POLE MOUNTED (90 AND 180 DEG)
 ENFORCEMENT LIGHT EL2-1
 ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT
 PHASE 6+1 AT 6' FROM END OF MAST ARM
 2-R9-3A SIGNS POLE MOUNTED FACING POLE 1 AND 3
 R10-12 SIGN (36"X48") ADJACENT TO SIGNAL HEAD ON
 END OF MAST ARM
 EXTEND INTO HH 4:
 3" RSC WITH
 2-12/C #12
 1-3/C #20

③ PA100 POLE FOUNDATION
 TYPE PA100-A40-D40-9 (DAVIT AT 350 DEG)
 ONE WAY SIGNAL OVERHEAD
 1-TYPE 10A POLE MOUNTED (90 DEG)
 ENFORCEMENT LIGHT EL4-1
 1-C.D. PED IND
 1-APS PB AND SIGN (RT ARROW) (PB8-2)
 LUMINAIRE-200 WATT HPS
 1-TYPE 10B POLE MOUNTED (180 DEG)
 ONE WAY EVP DETECTOR AND CONFIRMATORY
 LIGHT PHASE 8 AT 6' FROM END OF MAST ARM
 1-R9-3A SIGN POLE MOUNTED FACING POLE 2
 EXTEND INTO HH 7:
 3" RSC WITH
 1-12/C #12
 2-3/C #12
 1-3/C #20
 2-3/C #12
 1-7/C #12

① PA100 POLE FOUNDATION
 TYPE PA100-A40-D40-9 (DAVIT AT 350 DEG)
 ONE WAY SIGNAL OVERHEAD
 1-TYPE 10A POLE MOUNTED (90 DEG)
 1-TYPE 10B POLE MOUNTED (180 DEG)
 ENFORCEMENT LIGHT EL8-1
 LUMINAIRE-200 WATT HPS
 1-C.D. PED IND
 ONE WAY EVP DETECTOR AND CONFIRMATORY
 LIGHT PHASE 4 AT 6' FROM END OF MAST ARM
 1-R9-3A SIGN POLE MOUNTED FACING POLE 2
 EXTEND INTO HH 14:
 3" RSC WITH
 1-12/C #12
 4-3/C #12
 1-3/C #20
 1-7/C #12

⑤ PA100 POLE FOUNDATION
 TYPE PA100-A45
 2-ONE WAY SIGNALS OVERHEAD
 2-TYPE 10 B POLE MOUNTED (90 AND 180 DEG)
 2-C.D. PED IND
 ENFORCEMENT LIGHT EL6-1
 ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT
 PHASE 2+5 AT 6' FROM END OF MAST ARM
 R10-12 SING (36"X48") ADJACENT TO SIGNAL HEAD
 ON END OF MAST ARM
 EXTEND INTO HH 11:
 3" RSC WITH
 2-12/C #12
 2-3/C #12
 1-3/C #20
 1-2/C #14

④ SOP-INP. WOOD POLE WITH TRANSFORMER
 2" RSC RISER WITH WEATHERHEAD
 AND CONDUIT TO HH 15 WITH 3-1/C #4

⑥ EQUIPMENT PAD
 CONTROLLER CABINET AND CONTROLLER
 LOAD CENTER

CONTROLLER CABINET TO HH 1:
 4" RSC
 3-12/C #12
 1-3/C #12
 3-3/C #20
 12-2/C #14
 2-3/C #12
 1-7/C #12

CONTROLLER CABINET TO HH 14:
 4" RSC
 3-12/C #12
 5-3/C #12
 1-5/C #12
 3-3/C #20
 9-2/C #14
 1-7/C #12

CONTROLLER CABINET TO LOAD CENTER
 2" RSC
 2-1/C #6
 2-1/C #6 INS. GR.

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 5 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

BY	DATE	REVISIONS
SJK	05/28/19	OPERATION PLAN

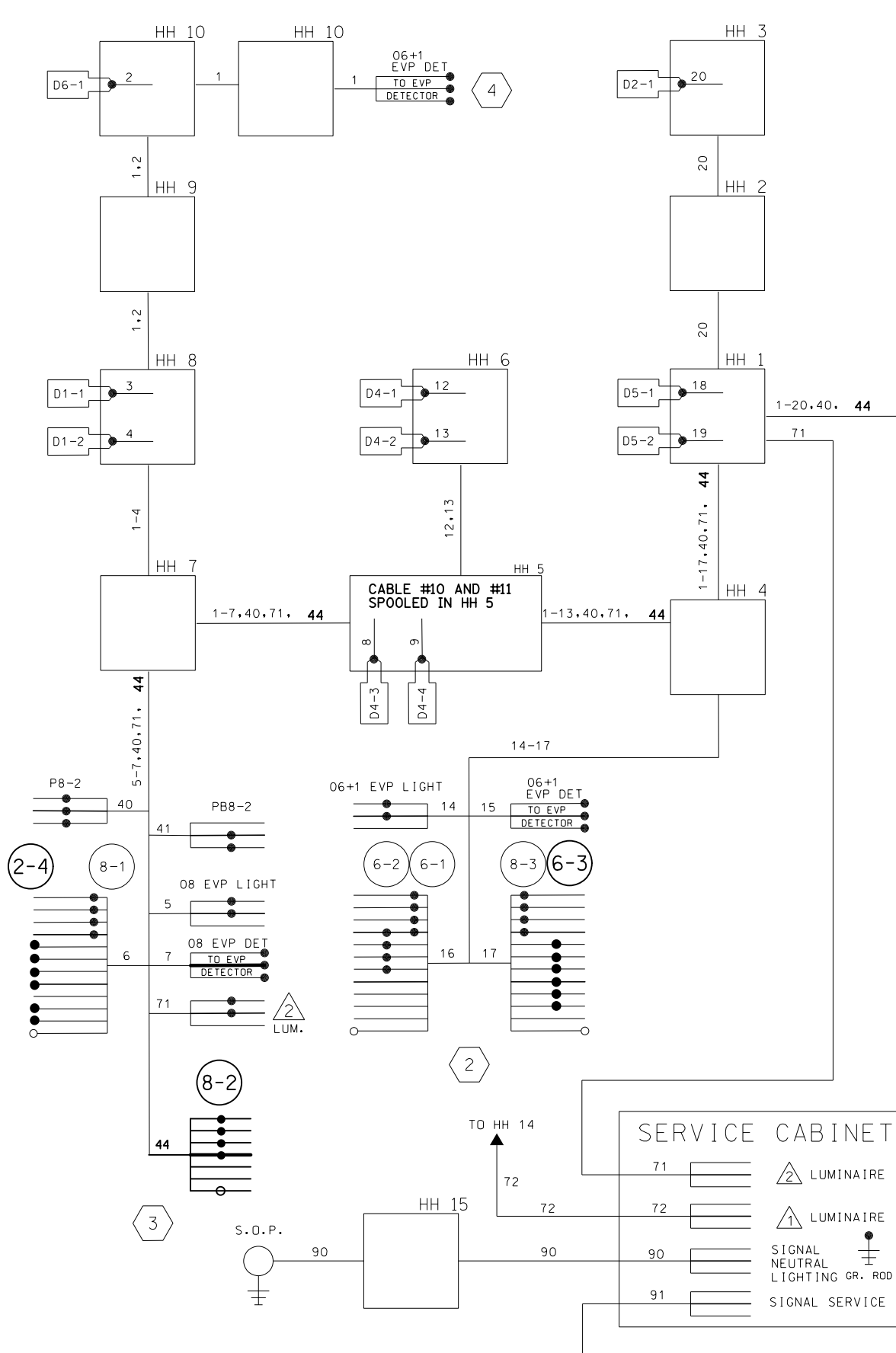
SYSTEM ID: 1736212	T.E.
METER ADDRESS:	
MASTER ID: 22322	T.E.

INTERSECTION LAYOUT T.H. 12 AT C.S.A.H. 83 (HALGREN RD.) IN MAPLE PLAIN, HENNEPIN COUNTY

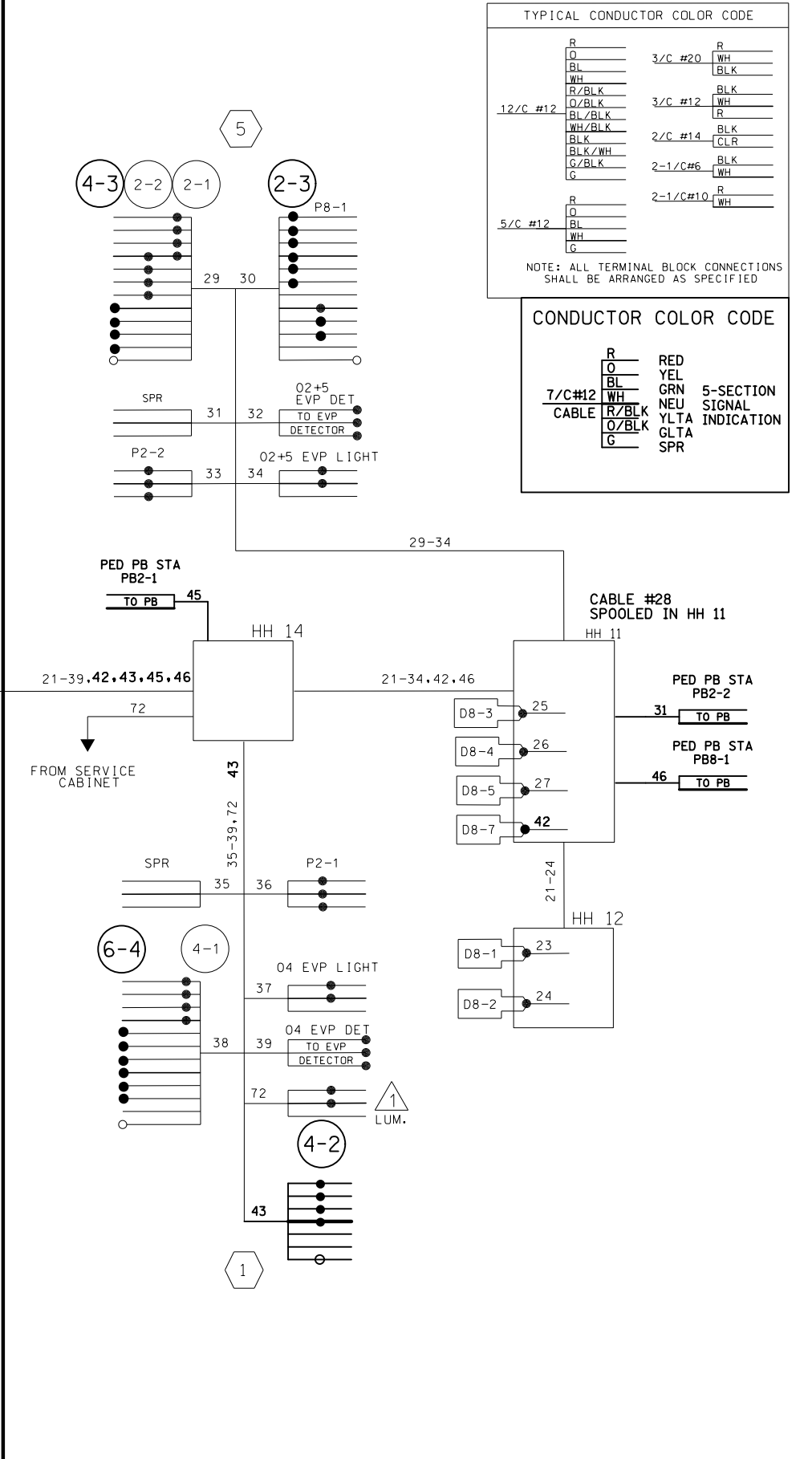
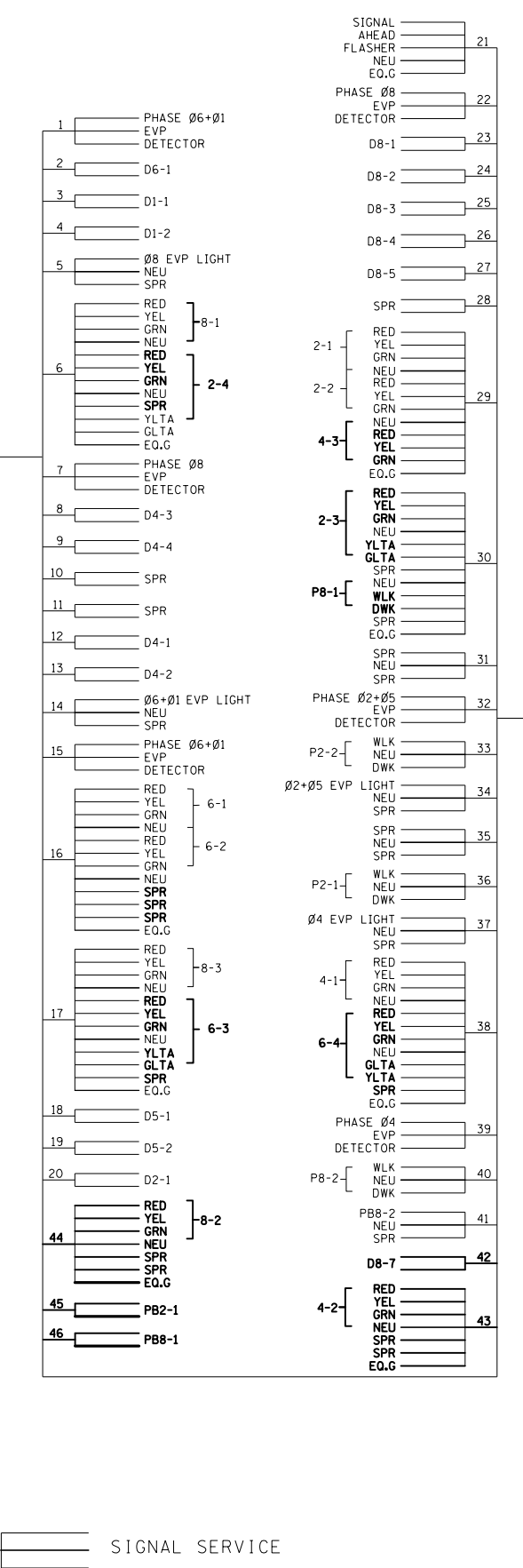
S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO. (T.H.12)	SHEET NO.	OF	SHEETS

DISTRICT #: Metro
 PLOT NAME: T22322L.sgl
 PATH & FILENAME: Projects\DM_R05\02\0000\Trafic\Signals\22322L\22322L.sgl.dgn

PLOTTED/REVISED: 5-JUN-2019



CONTROLLER CABINET



TYPICAL CONDUCTOR COLOR CODE

R	WH	R
O	BLK	3/C #20
BL	BLK	3/C #12
WH	WH	BLK
R/BLK	WH	R
O/BLK	BLK	2/C #14
BL/BLK	CLR	BLK
WH/BLK	CLR	2-1/C#6
BLK	WH	WH
BLK/WH	WH	2-1/C#10
G/BLK	R	R
G	WH	WH

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED

CONDUCTOR COLOR CODE

R	RED
O	YEL
BL	GRN
WH	NEU
R/BLK	YLTA
O/BLK	GLTA
G	SPR

5-SECTION SIGNAL INDICATION

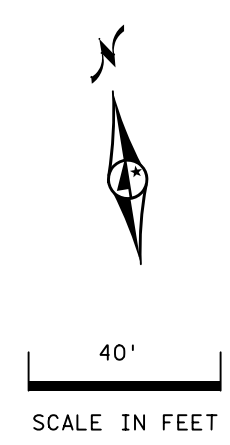
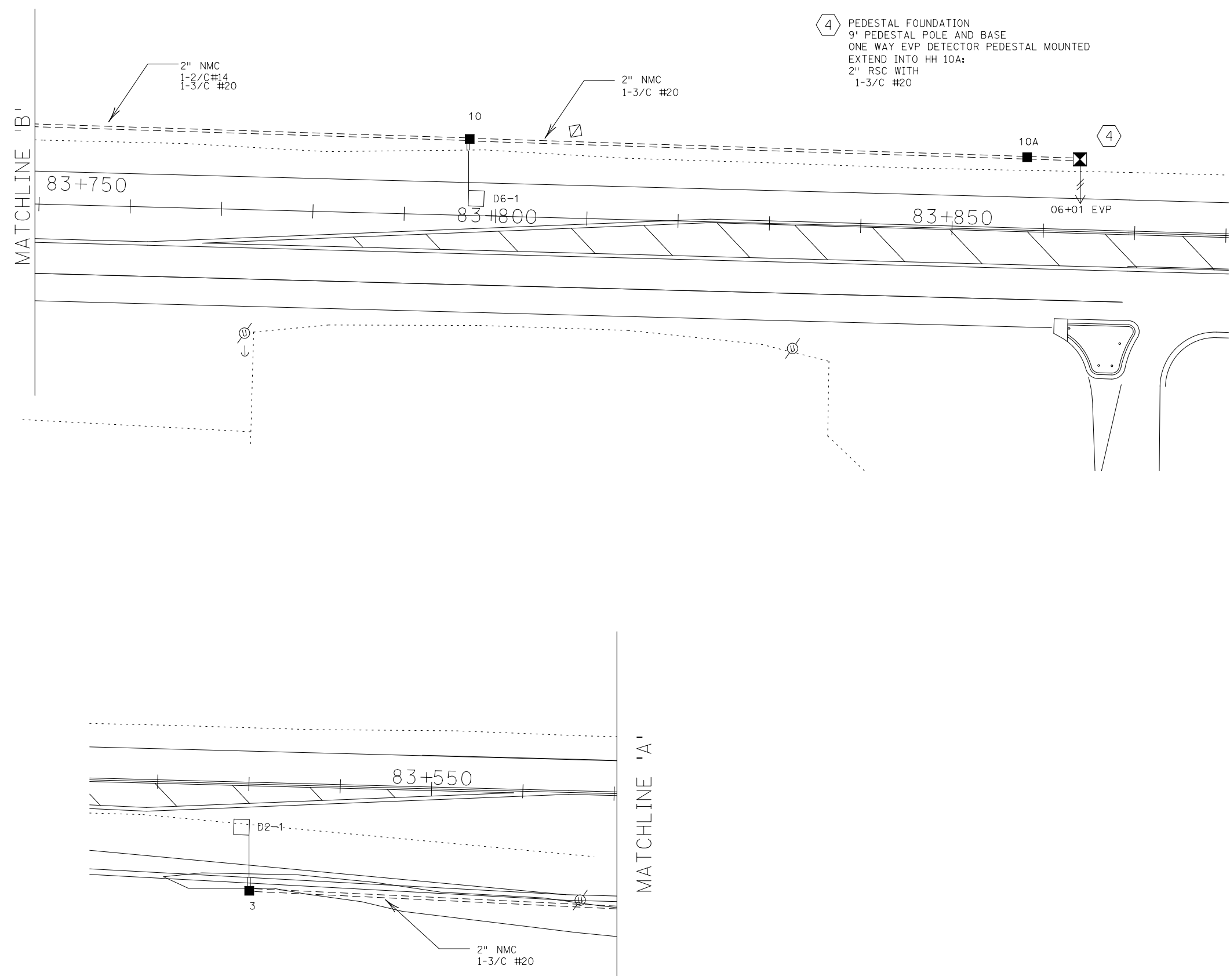
BY	DATE	REVISIONS
SJK	05/28/19	OPERATION PLAN

SYSTEM ID: 1736212 T.E.
 METER ADDRESS:
 MASTER ID: 22322 T.E.

FIELD WIRING DIAGRAM
T.H. 12 AT C.S.A.H. 83 (HALGREN RD.)
IN MAPLE PLAIN, HENNEPIN COUNTY

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO.	(T.H. 12)	SHEET NO.	OF SHEETS

DISTRICT #: Metro
 PLOT NAME: T22322L.sgl
 PATH & FILENAME: Projects\DM_R05\02\0000\Traffic\Signals\22322L\22322L.sgl.dgn



BY	DATE	REVISIONS	SYSTEM ID: 1736212	T.E.	S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
SJK	05/28/19	OPERATION PLAN	METER ADDRESS:		CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
			MASTER ID: 22322	T.E.	MATCH LINES T.H. 12 AT C.S.A.H. 83 (HALGREN RD.) IN MAPLE PLAIN, HENNEPIN COUNTY			
					STATE PROJ. NO.	(T.H.12)	SHEET NO.	OF SHEETS

LOOP DETECTOR CHART

DESIGNATION	SIZE (FT.)	LOCATION	TYPE
D1-1, D5-1	2-6x6	20 & 50	NMC
D1-2, D5-2	2-6x6	5 & 35	NMC
D2-1	6x6	400	NMC
D4-1, D4-2, D8-1, D8-2	6x6	120	NMC
D4-3, D4-4, D8-4, D8-5	2-6x6	5 & 20	NMC
D6-1	6x6	400	NMC
D8-3	6x6	5	NMC

LOCATION:
DISTANCE FROM CROSSWALK/STOP LINE IN FEET.

② PA100 POLE FOUNDATION
TYPE PA100-A40
2-ONE WAY SIGNALS OVERHEAD
2-TYPE 10A POLE MOUNTED (90° AND 180°)
ONE WAY EVP DETECTOR & CONFIRMATORY
LIGHT PHASE 6+1 @ 6' FROM END OF MASTARM
EXTEND INTO HH 4:
3" RSC WITH
2-12/C #12
1-3/C #20
2-R9-3A SIGNS POLE MOUNTED FACING POLE 1 AND POLE 3
R10-12 SIGN (36"X48") ADJACENT
TO SIGNAL HEAD ON END OF MAST ARM

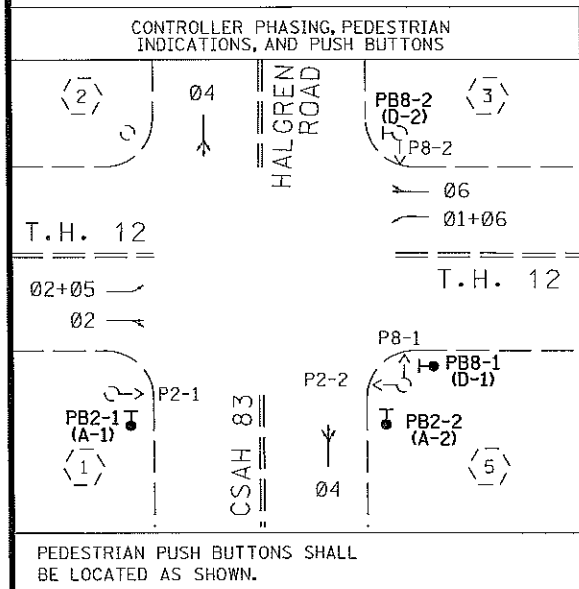
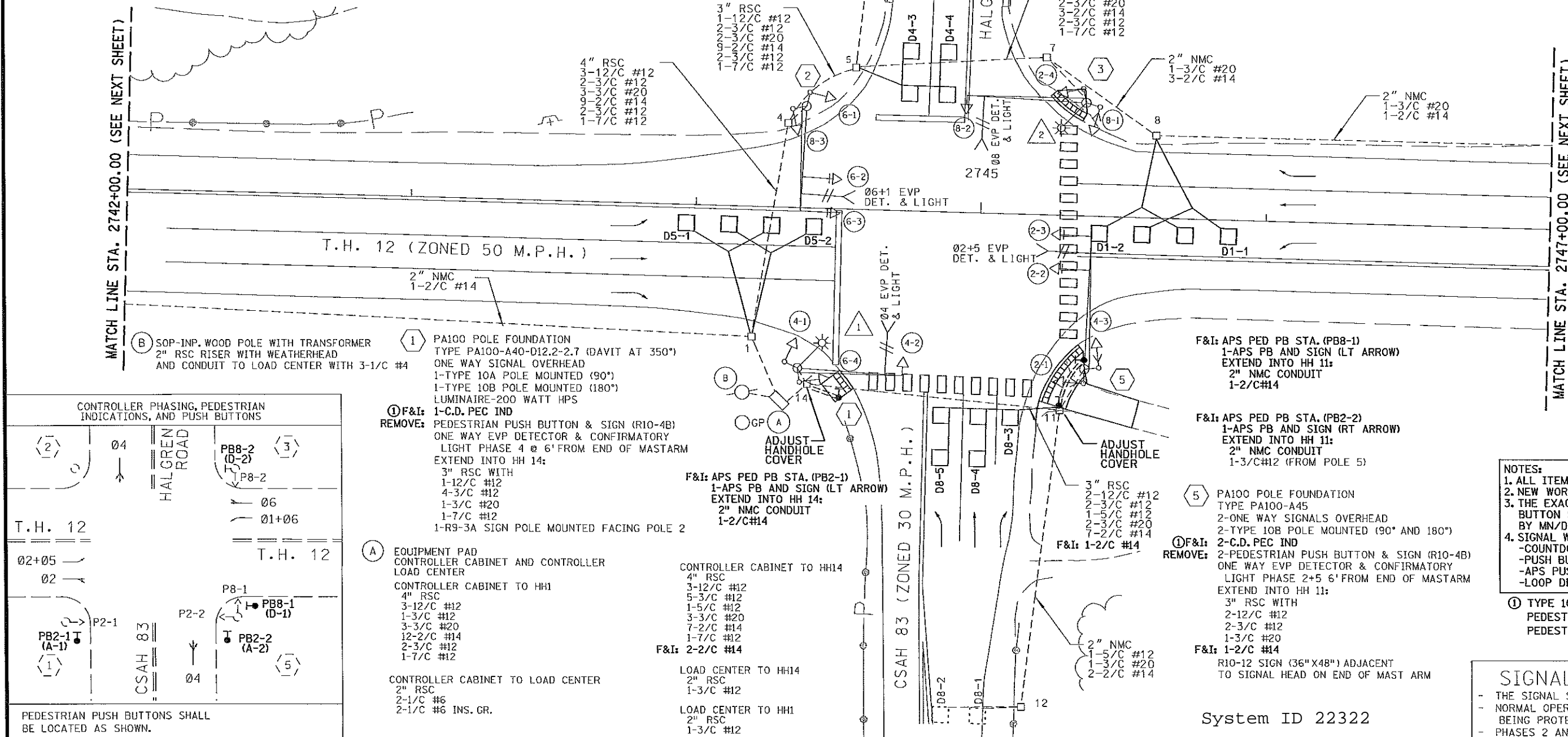
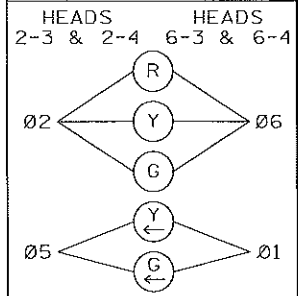
③ PA100 POLE FOUNDATION
TYPE PA100-A40-D40-9 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
1-TYPE 10A POLE MOUNTED (90°)
LUMINAIRE-200 WATT HPS
1-TYPE 10B POLE MOUNTED (180°)
ONE WAY EVP DETECTOR & CONFIRMATORY
LIGHT PHASE 8 @ 6' FROM END OF MASTARM
EXTEND INTO HH 7:
3" RSC WITH
1-12/C #12
2-3/C #12
1-3/C #20
2-3/C #12
1-7/C #12
1-R9-3A SIGN POLE MOUNTED FACING POLE 2

SIGNAL FACES

FACE	R	Y	G	Y	G
2-1, 2-2	○	○	○		
2-3, 2-4	○	○	○	◀	◀
4-1, 4-2, 4-3	○	○	○		
6-2	○	○	○		
6-3, 6-4	○	○	○	◀	◀
8-1, 8-2, 8-3	○	○	○		

-ALL SIGNAL INDICATIONS SHALL BE 12".
-ALL SIGNAL INDICATIONS SHALL BE LED
-ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD

SIGNAL HEAD PHASING



① PA100 POLE FOUNDATION
TYPE PA100-A40-D12.2-2.7 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
1-TYPE 10A POLE MOUNTED (90°)
1-TYPE 10B POLE MOUNTED (180°)
LUMINAIRE-200 WATT HPS
① F&I: 1-C.D. PEC IND
REMOVE: PEDESTRIAN PUSH BUTTON & SIGN (R10-4B)
ONE WAY EVP DETECTOR & CONFIRMATORY
LIGHT PHASE 4 @ 6' FROM END OF MASTARM
EXTEND INTO HH 14:
3" RSC WITH
1-12/C #12
4-3/C #12
1-3/C #20
1-7/C #12
1-R9-3A SIGN POLE MOUNTED FACING POLE 2

④ EQUIPMENT PAD
CONTROLLER CABINET AND CONTROLLER LOAD CENTER
CONTROLLER CABINET TO HH1
4" RSC
3-12/C #12
1-3/C #12
3-3/C #20
12-2/C #14
2-3/C #12
1-7/C #12
CONTROLLER CABINET TO LOAD CENTER
2" RSC
2-1/C #6
2-1/C #6 INS. GR.

CONTROLLER CABINET TO HH14
4" RSC
3-12/C #12
5-3/C #12
1-5/C #12
3-3/C #20
7-2/C #14
1-7/C #12
F&I: 2-2/C #14

LOAD CENTER TO HH14
2" RSC
1-3/C #12

LOAD CENTER TO HH1
2" RSC
1-3/C #12

⑤ PA100 POLE FOUNDATION
TYPE PA100-A45
2-ONE WAY SIGNALS OVERHEAD
2-TYPE 10B POLE MOUNTED (90° AND 180°)
① F&I: 2-C.D. PEC IND
REMOVE: 2-PEDESTRIAN PUSH BUTTON & SIGN (R10-4B)
ONE WAY EVP DETECTOR & CONFIRMATORY
LIGHT PHASE 2+5 6' FROM END OF MASTARM
EXTEND INTO HH 11:
3" RSC WITH
2-12/C #12
2-3/C #12
1-3/C #20
F&I: 1-2/C #14

① F&I: APS PED PB STA. (PB8-1)
1-APS PB AND SIGN (LT ARROW)
EXTEND INTO HH 11:
2" NMC CONDUIT
1-2/C#14

① F&I: APS PED PB STA. (PB2-2)
1-APS PB AND SIGN (RT ARROW)
EXTEND INTO HH 11:
2" NMC CONDUIT
1-3/C#12 (FROM POLE 5)

① F&I: APS PED PB STA. (PB2-1)
1-APS PB AND SIGN (LT ARROW)
EXTEND INTO HH 14:
2" NMC CONDUIT
1-2/C#14

NOTES:
1. ALL ITEMS ARE INPLACE UNLESS NOTED.
2. NEW WORK IS INDICATED BY BOLD TEXT.
3. THE EXACT LOCATION OF PED STA. AND PUSH BUTTON SHALL BE DETERMINED IN THE FIELD BY MN/DOT TRAFFIC OFFICE PERSONNEL.
4. SIGNAL WORK CONSISTS OF:
-COUNTDOWN PED. INDICATIONS
-PUSH BUTTON STATIONS
-APS PUSH BUTTONS
-LOOP DETECTORS

① TYPE 10B MOUNTING - REPLACE EXISTING PEDESTRIAN INDICATION(S) WITH COUNTDOWN PEDESTRIAN INDICATION(S).

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 5 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NO	DATE	BY	CKD	REVISION

DRAWN BY: NCM
DESIGNED BY: JMH
CHECKED BY: SVS
YCA PROJ. NO.: 11603

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *Scott V. Samuelson*
PRINTED NAME: SCOTT V. SAMUELSON
DATE: 2/7/12 LICENSE NO: 20770

YAGGY COLBY ASSOCIATES
ENGINEERS
LANDSCAPE ARCHITECTS
SURVEYORS - PLANNERS

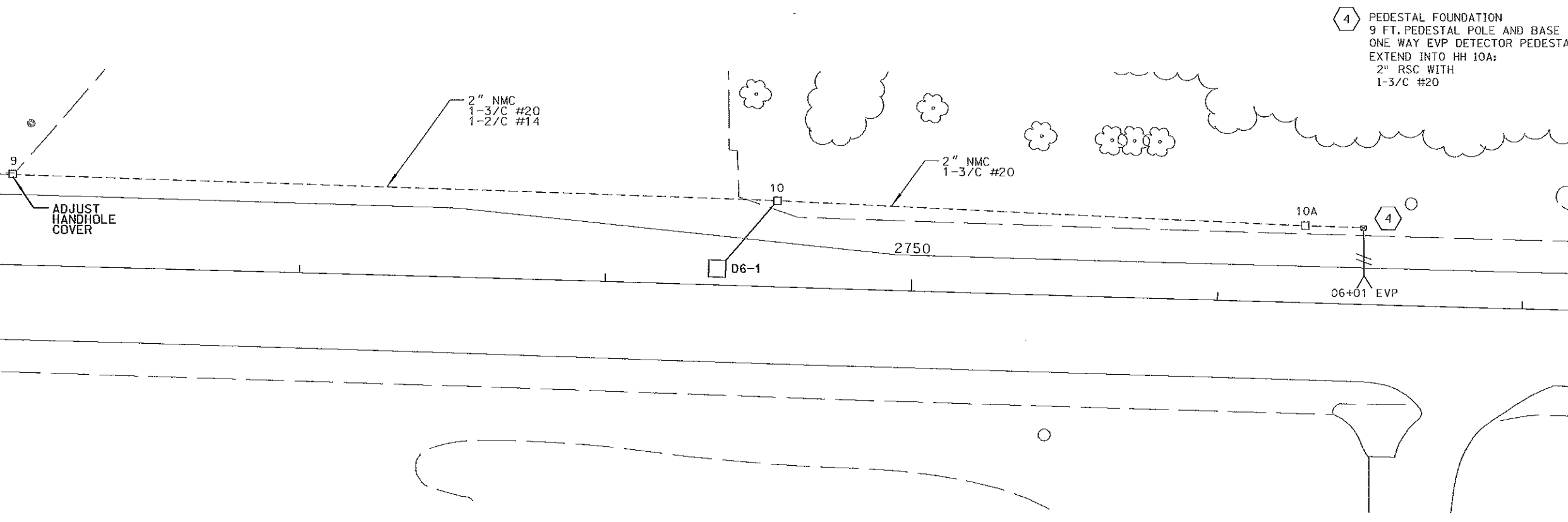
MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGNAL LAYOUT
T.H. 12 & C.S.A.H. 83

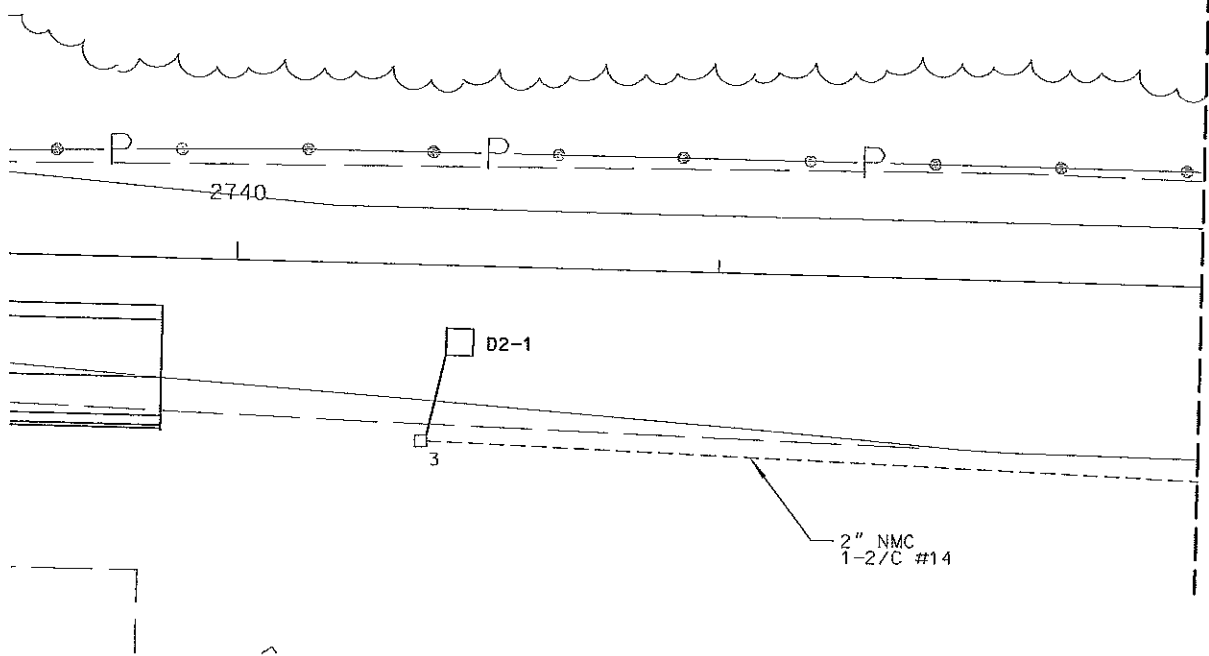
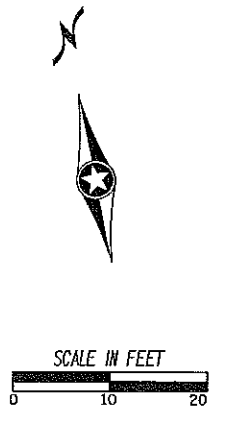
SHEET 73 OF 124

S.P. 2713-88 (T.H. 12)

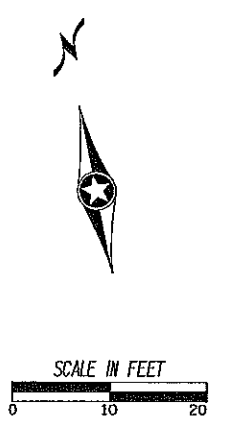
MATCH LINE STA. 2747+00.00 (SEE PREVIOUS SHEET)



4 PEDESTAL FOUNDATION
 9 FT. PEDESTAL POLE AND BASE
 ONE WAY EVP DETECTOR PEDESTAL MOUNTED
 EXTEND INTO HH 10A:
 2" RSC WITH
 1-3/C #20



MATCH LINE STA. 2742+00.00 (SEE PREVIOUS SHEET)



NO	DATE	BY	CKD	REVISION

... \Signal\cd271388_sg102.dgn bblood 2/6/2012

DRAWN BY: NCM
 DESIGNED BY: JMH
 CHECKED BY: SVS
 YCA PROJ. NO.: 11603

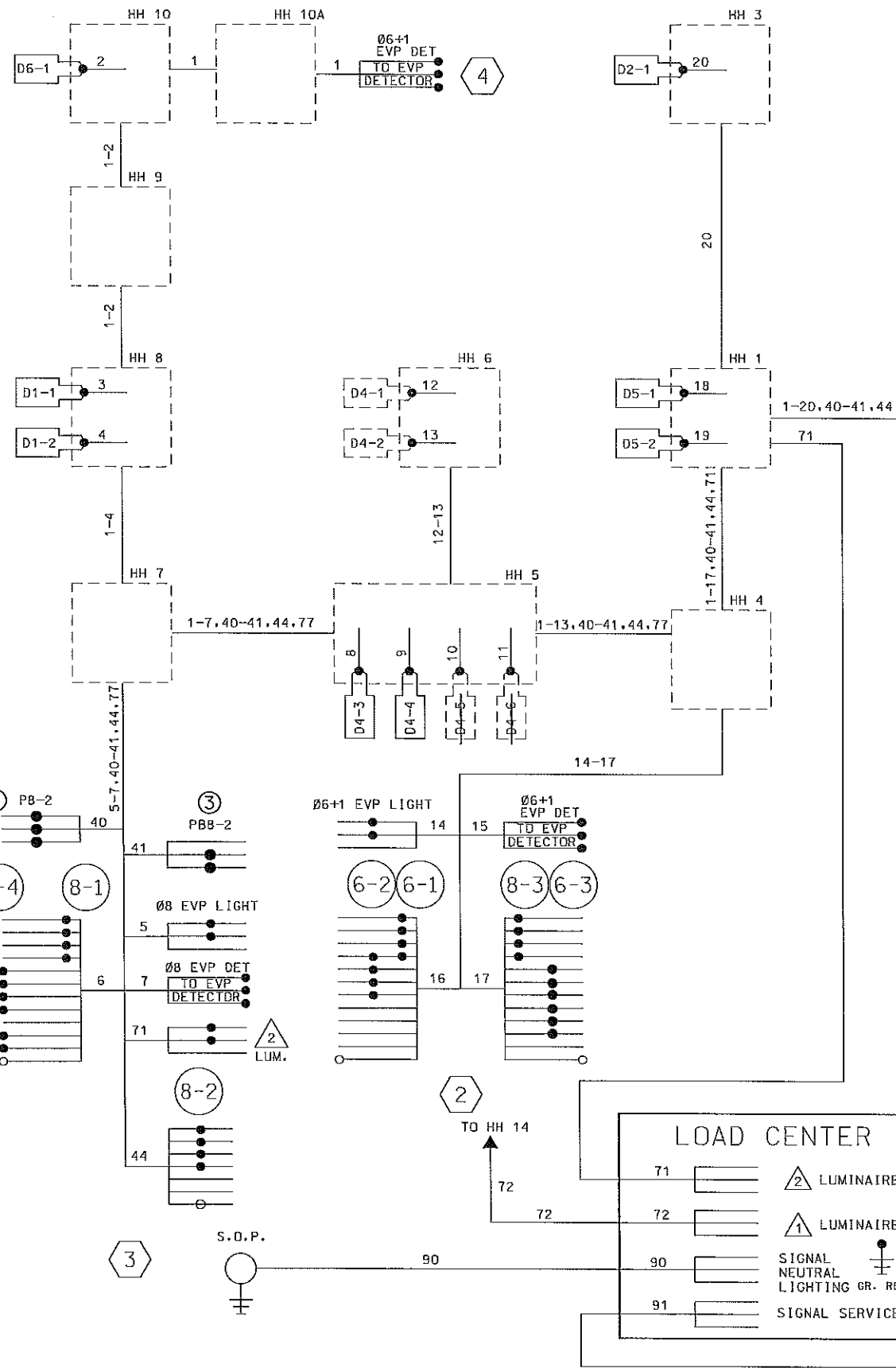
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *Scott V. Samuelson*
 PRINTED NAME: SCOTT V. SAMUELSON
 DATE: 2/7/12 LICENSE NO.: 20770

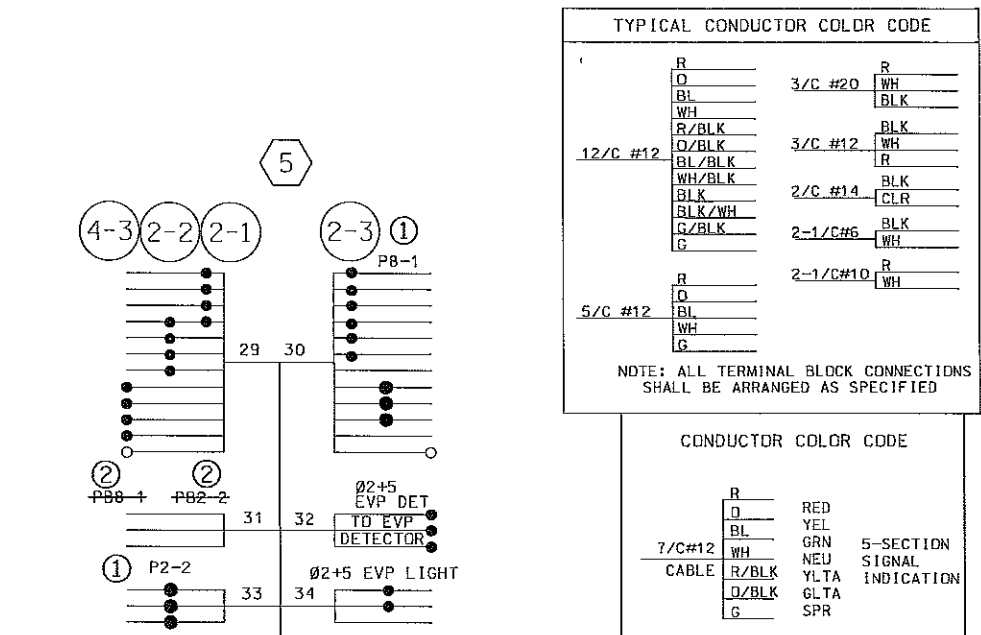
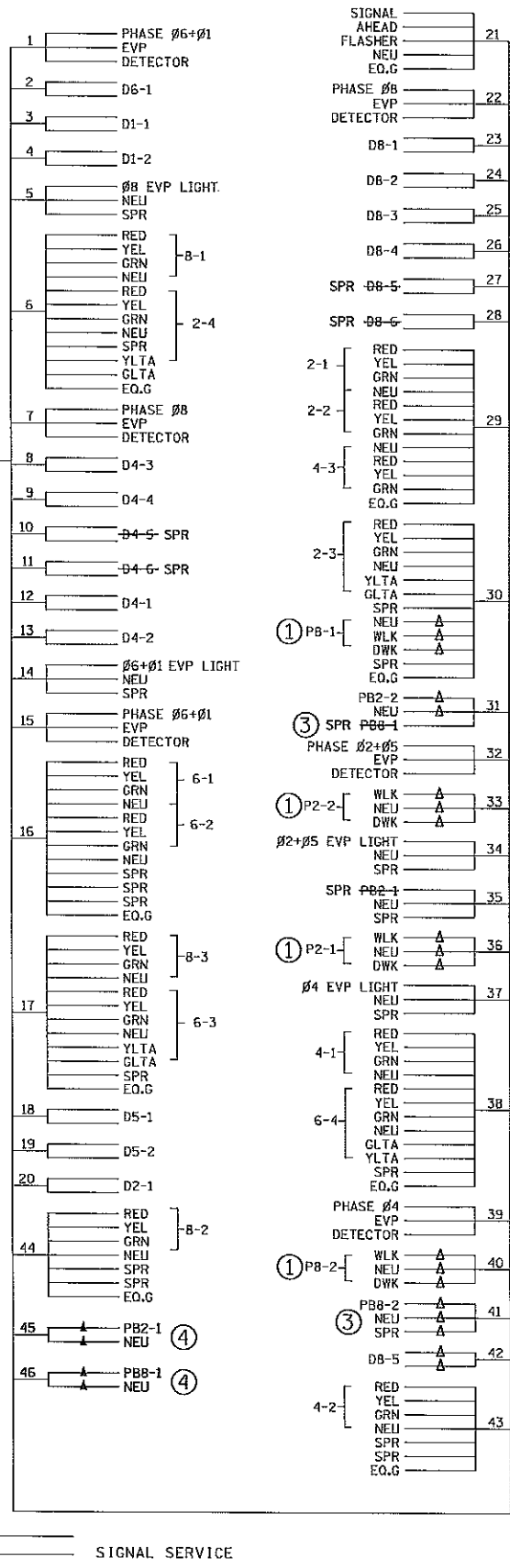
YAGGY COLBY ASSOCIATES
 ENGINEERS
 LANDSCAPE ARCHITECTS
 SURVEYORS • PLANNERS

SIGNAL LAYOUT
 T.H. 12 & C.S.A.H. 83

SHEET
 74
 OF
 124



CONTROLLER CABINET



TYPICAL CONDUCTOR COLOR CODE

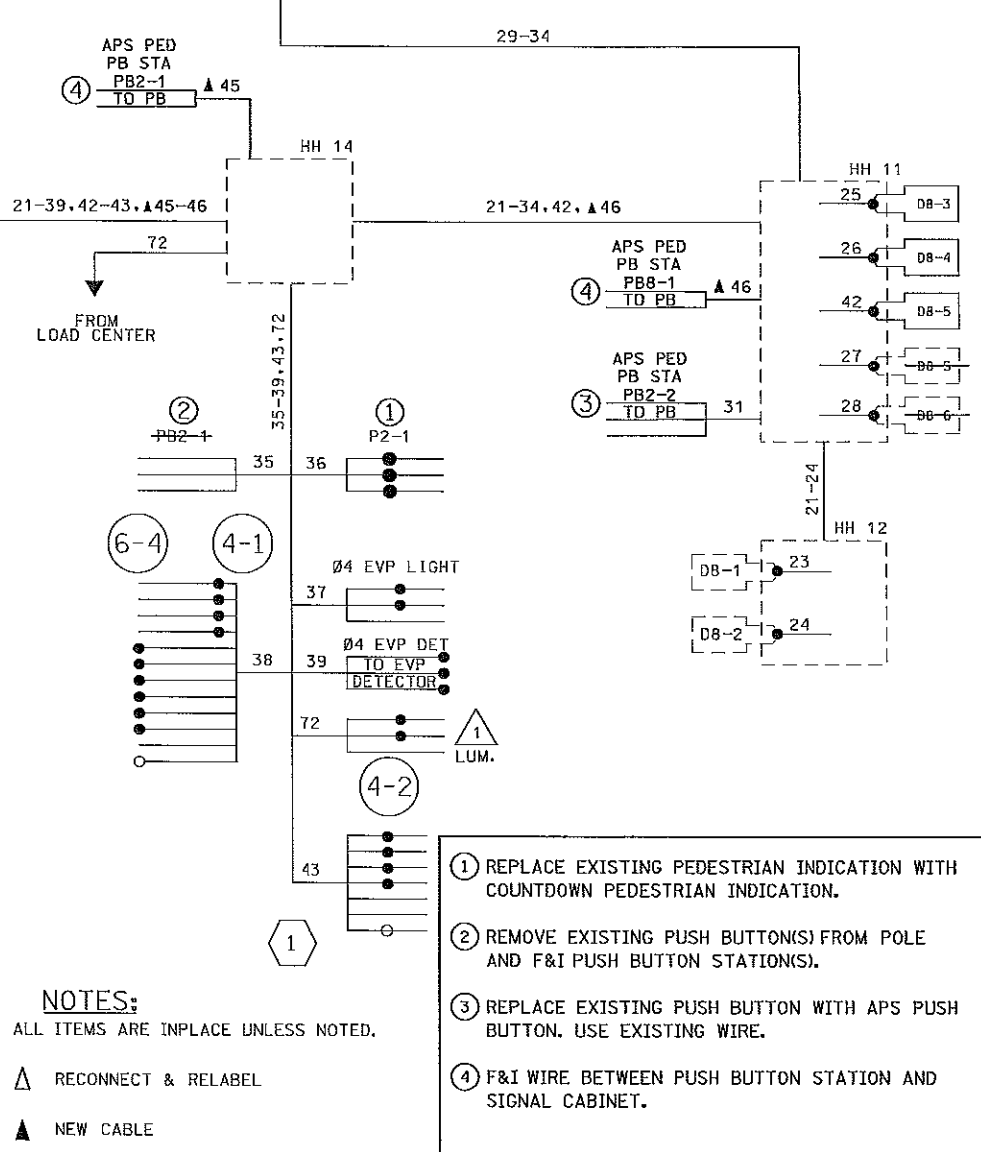
R	RED
O	ORANGE
BL	BLACK
WH	WHITE
R/BLK	RED/BLACK
O/BLK	ORANGE/BLACK
BL/BLK	BLACK/BLACK
WH/BLK	WHITE/BLACK
BLK	BLACK
BLK/WH	BLACK/WHITE
G/BLK	GREEN/BLACK
G	GREEN

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED

CONDUCTOR COLOR CODE

R	RED
O	ORANGE
BL	BLACK
WH	WHITE
R/BLK	RED/BLACK
O/BLK	ORANGE/BLACK
BL/BLK	BLACK/BLACK
WH/BLK	WHITE/BLACK
BLK	BLACK
BLK/WH	BLACK/WHITE
G/BLK	GREEN/BLACK
G	GREEN

5-SECTION SIGNAL INDICATION



NOTES:
ALL ITEMS ARE IN PLACE UNLESS NOTED.
▲ RECONNECT & RELABEL
▲ NEW CABLE

- ① REPLACE EXISTING PEDESTRIAN INDICATION WITH COUNTDOWN PEDESTRIAN INDICATION.
- ② REMOVE EXISTING PUSH BUTTON(S) FROM POLE AND F&I PUSH BUTTON STATIONS.
- ③ REPLACE EXISTING PUSH BUTTON WITH APS PUSH BUTTON. USE EXISTING WIRE.
- ④ F&I WIRE BETWEEN PUSH BUTTON STATION AND SIGNAL CABINET.

NO	DATE	BY	CKD	REVISION

... \Signal\ed271388_sa103.dgn

DRAWN BY: NCM
DESIGNED BY: JMH
CHECKED BY: SVS
YCA PROJ. NO.: 11603

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *Scott V. Samuelson*
PRINTED NAME: SCOTT V. SAMUELSON
DATE: 2/7/12 LICENSE NO: 20770



ENGINEERS
LANDSCAPE ARCHITECTS
SURVEYORS - PLANNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

SIGNAL LAYOUT
WIRING DIAGRAM

S.P. 2713-88 (T.H. 12)

SHEET
75
OF
124