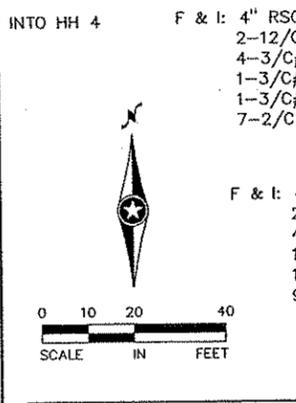
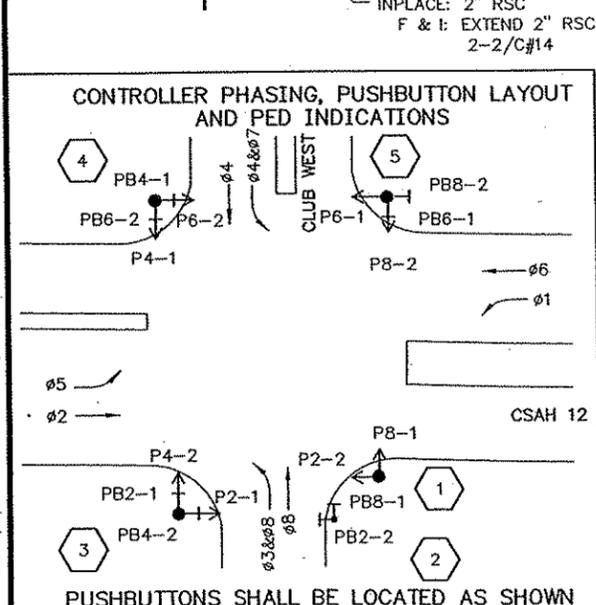
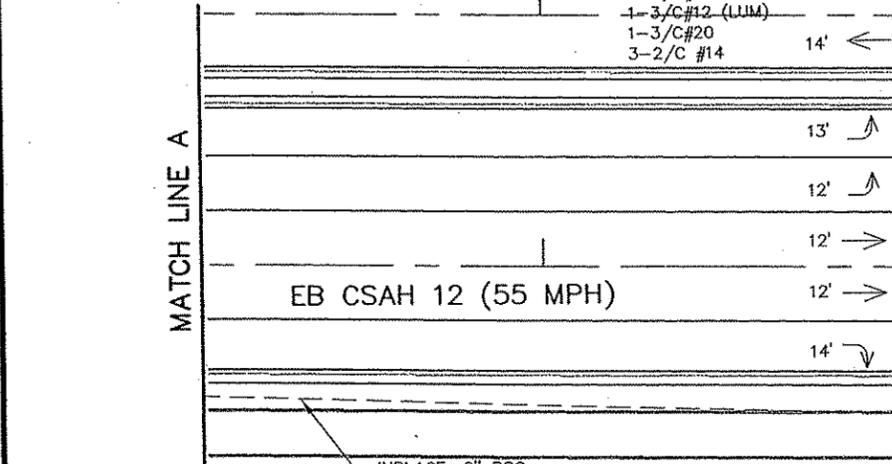


NMC LOOP DETECTORS						
INSTALLATION METHOD (SEE DETAIL SHEET 138)	STATUS	NUMBER	PHASE	SIZE (ft)	FUNCTION	LOCATION
NMC - NEW BIT.	F & I	D1-1	1	6' x 6'	1	40'
NMC - NEW BIT.	F & I	D1-2	1	6' x 6'	1	10'
NMC - NEW BIT.	F & I	D2-1, D2-2	2	6' x 6'	1	300'
NMC - MILL	F & I	D3-1	3	2-6' x 6'	1	10' & 40'
NMC - MILL	F & I	D3-2	3	2-6' x 6'	1	-5' & 25'
NMC - MILL	F & I	D4-1	4	6' x 6'	1	120'
NMC - NEW BIT.	F & I	D4-2	4	2-6' x 6'	7	-5' & 10'
NMC - NEW BIT.	F & I	D4-3	4	2-6' x 6'	1	0' & 15'
NMC - NEW BIT.	F & I	D5-1	5	6' x 6'	1	40'
NMC - NEW BIT.	F & I	D5-2	5	6' x 6'	1	40'
NMC - NEW BIT.	F & I	D5-3	5	6' x 6'	1	10'
NMC - NEW BIT.	F & I	D5-4	5	6' x 6'	1	10'
NMC - NEW BIT.	F & I	D6-1, D6-2	6	6' x 6'	1	475'
NMC - MILL	F & I	D7-1	7	2-6' x 6'	1	10' & 40'
NMC - MILL	F & I	D7-2	7	2-6' x 6'	1	-5' & 25'
NMC - NEW BIT.	INPLACE	D8-1	8	6' x 6'	1	AS SHOWN
NMC - NEW BIT.	F & I	D8-2	8	1-6'x6' & 1-6'x10'	7	10' & -10'
NMC - NEW BIT.	F & I	D8-3	8	6' x 6'	1	-5'

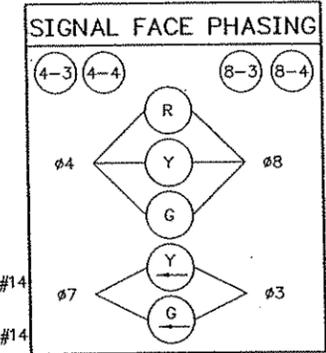
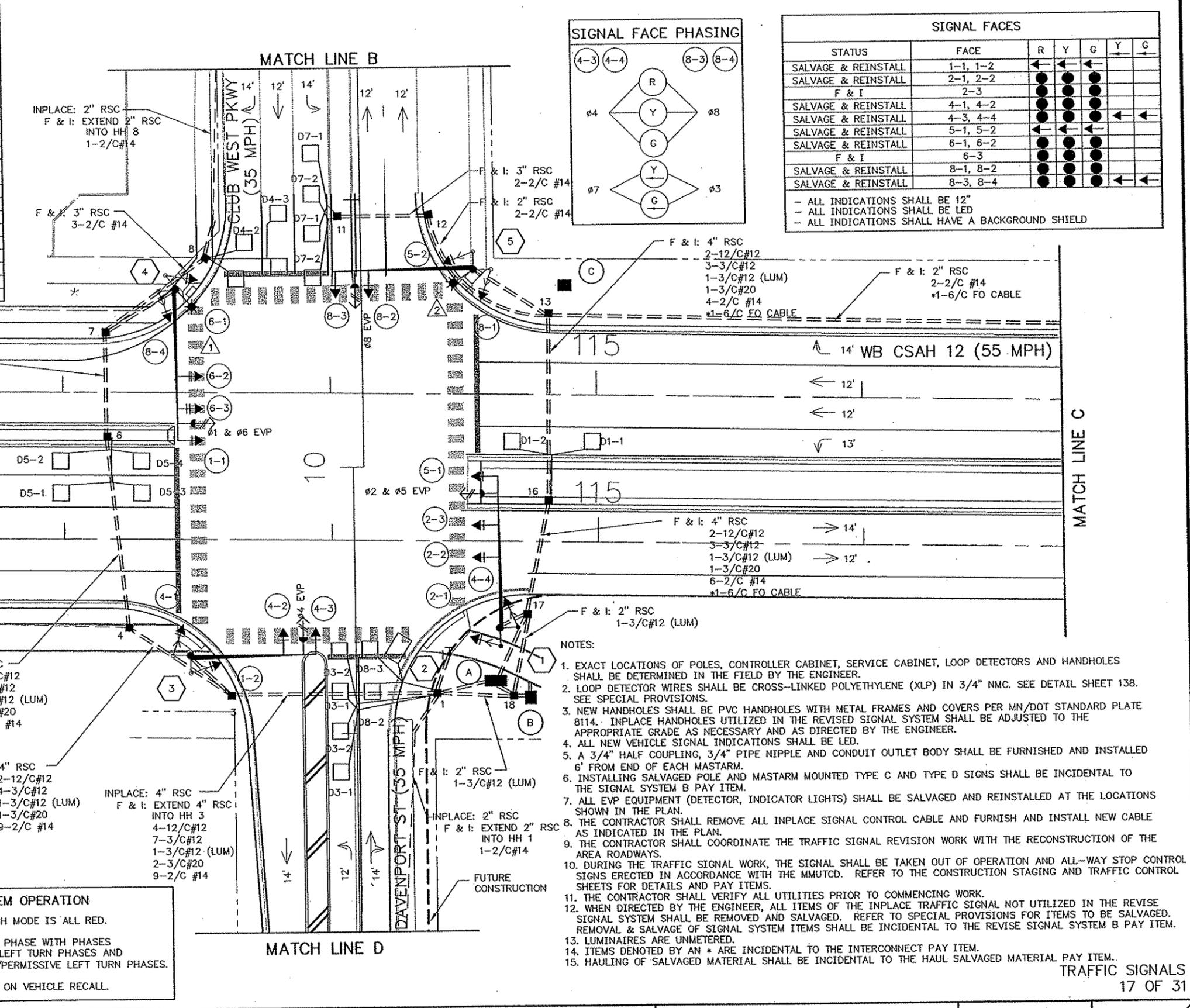
NOTE: LOCATION = DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

DETECTOR FUNCTION NOTES:
 1 - CALL AND EXTEND
 3 - EXTEND ONLY
 5 - DELAY CALL ONLY
 7 - DELAY CALL & IMMEDIATE EXTEND



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS 'ALL RED.'
- NORMAL OPERATION IS 8 PHASE WITH PHASES 1 & 5 BEING PROTECTED LEFT TURN PHASES AND 3 & 7 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES.
- PHASES 2 & 6 SHALL BE ON VEHICLE RECALL.



SIGNAL FACES						
STATUS	FACE	R	Y	G	Y	G
SALVAGE & REINSTALL	1-1, 1-2	●	●	●		
SALVAGE & REINSTALL	2-1, 2-2	●	●	●		
F & I	2-3	●	●	●		
SALVAGE & REINSTALL	4-1, 4-2	●	●	●		
SALVAGE & REINSTALL	4-3, 4-4	●	●	●	●	●
SALVAGE & REINSTALL	5-1, 5-2	●	●	●		
SALVAGE & REINSTALL	6-1, 6-2	●	●	●		
F & I	6-3	●	●	●		
SALVAGE & REINSTALL	8-1, 8-2	●	●	●		
SALVAGE & REINSTALL	8-3, 8-4	●	●	●	●	●

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

- NOTES:
- EXACT LOCATIONS OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" NMC. SEE DETAIL SHEET 138. SEE SPECIAL PROVISIONS.
 - NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MN/DOT STANDARD PLATE 8114. INPLACE HANDHOLES UTILIZED IN THE REVISED SIGNAL SYSTEM SHALL BE ADJUSTED TO THE APPROPRIATE GRADE AS NECESSARY AND AS DIRECTED BY THE ENGINEER.
 - ALL NEW VEHICLE SIGNAL INDICATIONS SHALL BE LED.
 - A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6' FROM END OF EACH MASTARM.
 - INSTALLING SALVAGED POLE AND MASTARM MOUNTED TYPE C AND TYPE D SIGNS SHALL BE INCIDENTAL TO THE SIGNAL SYSTEM B PAY ITEM.
 - ALL EVP EQUIPMENT (DETECTOR, INDICATOR LIGHTS) SHALL BE SALVAGED AND REINSTALLED AT THE LOCATIONS SHOWN IN THE PLAN.
 - THE CONTRACTOR SHALL REMOVE ALL INPLACE SIGNAL CONTROL CABLE AND FURNISH AND INSTALL NEW CABLE AS INDICATED IN THE PLAN.
 - THE CONTRACTOR SHALL COORDINATE THE TRAFFIC SIGNAL REVISION WORK WITH THE RECONSTRUCTION OF THE AREA ROADWAYS.
 - DURING THE TRAFFIC SIGNAL WORK, THE SIGNAL SHALL BE TAKEN OUT OF OPERATION AND ALL-WAY STOP CONTROL SIGNS ERECTED IN ACCORDANCE WITH THE MMUTCD. REFER TO THE CONSTRUCTION STAGING AND TRAFFIC CONTROL SHEETS FOR DETAILS AND PAY ITEMS.
 - THE CONTRACTOR SHALL VERIFY ALL UTILITIES PRIOR TO COMMENCING WORK.
 - WHEN DIRECTED BY THE ENGINEER, ALL ITEMS OF THE INPLACE TRAFFIC SIGNAL NOT UTILIZED IN THE REVISED SIGNAL SYSTEM SHALL BE REMOVED AND SALVAGED. REFER TO SPECIAL PROVISIONS FOR ITEMS TO BE SALVAGED. REMOVAL & SALVAGE OF SIGNAL SYSTEM ITEMS SHALL BE INCIDENTAL TO THE REVISED SIGNAL SYSTEM B PAY ITEM.
 - LUMINAIRES ARE UNMETERED.
 - ITEMS DENOTED BY AN * ARE INCIDENTAL TO THE INTERCONNECT PAY ITEM.
 - HAULING OF SALVAGED MATERIAL SHALL BE INCIDENTAL TO THE HAUL SALVAGED MATERIAL PAY ITEM.

REV. NO.	BY	DATE	REVISIONS DESCRIPTION

DESIGN FILE: 31809-791

DRAWN BY: JAS

DESIGN BY: MRA

CHKD. BY: RJG

DWG. NAME: TS02

DATE: AUG 18, 2005

URS

700 Third Street South
 Minneapolis, MN 55415
 612.271.0700 Fax
 612.271.0710

ALLIANT ENGINEERING INCORPORATED

233 PARK AVENUE SOUTH
 SUITE 200
 MINNEAPOLIS, MN 55415
 (612)738-5240
 (612)738-3099 FAX

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.

MICHAEL R. ANDERSON
 DATE: 8/18/05 MN LIC. NO. 42828

ANOKA COUNTY

HIGHWAY DEPT.

CSAH 12 RECONSTRUCTION

REVISE SIGNAL SYSTEM B

INTERSECTION LAYOUT

CSAH 12 (109TH AVE) & DAVENPORT ST (1 OF 2)

S.P. 02-612-11	SHEET NO.
S.P.106-020-025	152
S.P.	
S.P.	211

PLOT DATE: AUG 18, 2005 12:00pm DISK FILE NAME: (16.1) C:\Documents and Settings\jsharbone\My Documents\Work-stuff\31809791\TS04.dwg

- 1 REMOVE: PA100 POLE FOUNDATION
 SALVAGE: 1-TYPE A-40 MAST ARM
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 SALVAGE & REINSTALL: 1-TYPE PA100-A (TRANSFORMER BASE & POLE SHAFT)
 2-ONE WAY SIGNALS-OVERHEAD
 2-TYPE 10B POLE MOUNTED AT 90° & 180°
 1-TYPE D SIGN PANEL OVERHEAD (D-3)
 1-ONE WAY EVP DETECTOR AND INDICATOR LIGHT (#2 & #5)
 F & I: PA100 POLE FOUNDATION
 (Q EB CSAH 12 STA. 114+64, 32.6'RT.)
 1-TYPE R6-1L (ONE WAY) POLE MOUNTED
 1-TYPE R6-1R (ONE WAY) POLE MOUNTED
 1-TYPE A-55 (MAST ARM-OVERHEADS AT 0', 17', & 29' FROM END OF MAST ARM)
 1-ONE WAY SIGNAL-OVERHEAD

- F & I: EXTEND INTO HH 17:
 3" RSC
 2-12/C#12
 3-3/C#12
 1-3/C#20

- 2 F & I: PEDESTRIAN PUSH BUTTON STATION FOUNDATION
 (Q EB CSAH 12 STA. 114+44.5, 42.4'RT.)
 PEDESTRIAN PUSH BUTTON STATION (MNDOT STD. PLATE 8115)
 2-PEDESTRIAN PUSH BUTTONS

- F & I: EXTEND INTO HH 1:
 1-1/4" RSC
 1-3/C#12

- 3 REMOVE: PA100 POLE FOUNDATION
 SALVAGE: 1-TYPE A-35 MAST ARM
 2-PEDESTRIAN PUSH BUTTONS
 SALVAGE & REINSTALL: 1-TYPE PA100-A (TRANSFORMER BASE & POLE SHAFT)
 2-ONE WAY SIGNALS-OVERHEAD (0' & 13' FROM END OF MAST ARM)
 2-TYPE 10B-POLE MOUNTED AT 90° & 180°
 1-TYPE D SIGN PANEL OVERHEAD (D-2)
 1-R10-12 SIGN PANEL MOUNTED ADJACENT TO SIGNAL FACE 4-3
 1-ONE WAY EVP DETECTOR AND INDICATOR LIGHT (#4)
 F & I: PA100 POLE FOUNDATION
 (Q EB CSAH 12 STA. 113+46.8, 43.5'RT.)
 1-TYPE A-45 MAST ARM WITH OVERHEADS AT 0' & 11' FROM END OF MAST ARM
 2-PEDESTRIAN PUSH BUTTONS

- F & I: EXTEND INTO HH 3:
 3" RSC
 2-12/C#12
 3-3/C#12
 1-3/C#20

- 4 REMOVE: PA100 POLE FOUNDATION
 SALVAGE: 1-TYPE A-40 MAST ARM
 2-PEDESTRIAN PUSH BUTTONS
 SALVAGE & REINSTALL: 1-TYPE PA100-A-D40-9 (TRANSFORMER BASE, POLE SHAFT & DAVIT AT 350°)
 1-LUMINAIRE 200 W HPS
 2-ONE WAY SIGNALS-OVERHEAD
 2-TYPE 10B-POLE MOUNTED AT 90° & 180°
 1-TYPE D SIGN PANEL OVERHEAD (D-4)
 1-ONE WAY EVP DETECTOR AND INDICATOR LIGHT (#1 & #6)
 F & I: PA100 POLE FOUNDATION
 (Q WB CSAH 12 STA. 113+41.9, 38.5'LT.)
 1-TYPE A-55 MAST ARM WITH OVERHEADS AT 0', 11' & 23' FROM END OF MAST ARM
 1-TYPE R6-1L (ONE WAY) POLE MOUNTED
 1-TYPE R6-1R (ONE WAY) POLE MOUNTED
 2-PEDESTRIAN PUSH BUTTONS
 1-ONE WAY SIGNAL-OVERHEAD

- F & I: EXTEND INTO HH 7:
 3" RSC
 2-12/C#12
 4-3/C#12
 1-3/C#12 (LUM)
 1-3/C#20

- C PROPOSED GROUND MOUNTED TRANSFORMER PAD (SOP)
 (RELOCATED BY CONNEXUS ENERGY)
 (POWER BY CONNEXUS ENERGY)

F & I: 2" RSC
 1-2/C #14
 INPLACE: 2" RSC
 F & I: 1-2/C #14

INPLACE: 2" RSC
 F & I: EXTEND 2" RSC INTO HH 5
 2-2/C #14

INPLACE: 2" RSC
 F & I: 1-2/C #14

- A REMOVE: EQUIPMENT PAD FOUNDATION
 SALVAGE & REINSTALL: CONTROLLER AND CABINET
 F & I: EQUIPMENT PAD FOUNDATION (SEE SHEET 139)
 (Q EB CSAH 12 STA. 114+62, 53'RT.)

- F & I: METERED SIGNAL SERVICE
 EXTEND INTO HH 18:
 2" RSC
 3-1/C#6

- F & I: EXTEND INTO HH 1:
 4" RSC
 4-12/C#12
 8-3/C#12
 2-3/C#20
 14-2/C#14

- F & I: EXTEND INTO HH 17:
 4" RSC
 4-12/C#12
 6-3/C#12
 2-3/C#20
 6-2/C#14
 *1-6/C FO CABLE

- F & I: 3" RSC STUB OUT
 (THREAD AND CAP BOTH ENDS)

- B REMOVE: SERVICE CABINET FOUNDATION
 SALVAGE & REINSTALL: SIGNAL SERVICE CABINET
 F & I: SERVICE CABINET FOUNDATION (SEE SHEET 139)
 (Q EB CSAH 12 STA. 114+75, 59'RT.)

- F & I: EXTEND INTO HH 18:
 2" RSC
 METERED SIGNAL SERVICE
 3-1/C#6
 UNMETERED STREET LIGHT SERVICE
 2-3/C#12 (LUM)

- F & I: 2" RSC STUB OUT
 (POWER BY CONNEXUS ENERGY)

F & I: 2" RSC
 2-2/C #14
 *1-6/C FO CABLE

F & I: *2" RSC
 *1-6/C FO CABLE
 SEE INTERCONNECT LAYOUT

WB CSAH 12 (55 MPH)

EB CSAH 12 (55 MPH)

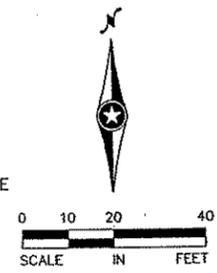
MATCH LINE D

DAVENPORT ST (35 MPH)

INPLACE: 2" RSC
 F & I: 1-2/C #14
 FUTURE CONSTRUCTION

- 5 REMOVE: PA100 POLE FOUNDATION
 SALVAGE: 1-TYPE A-45 MAST ARM
 2-PEDESTRIAN PUSH BUTTONS
 SALVAGE & REINSTALL: 1-TYPE PA100-A-D40-9 (TRANSFORMER BASE, POLE SHAFT, & DAVIT AT 350°)
 1-LUMINAIRE 200 W HPS
 2-ONE WAY SIGNALS-OVERHEAD
 2-TYPE 10B-POLE MOUNTED AT 90° & 180°
 1-TYPE D SIGN PANEL OVERHEAD (D-2)
 1-R10-12 SIGN PANEL MOUNTED ADJACENT TO SIGNAL FACE 8-3
 1-ONE WAY EVP DETECTOR AND INDICATOR LIGHT (#8)
 1-R6-1L (ONE WAY) POLE MOUNTED
 1-R6-1R (ONE WAY) POLE MOUNTED
 F & I: PA100 POLE FOUNDATION
 (Q WB CSAH 12 STA. 114+53.7, 46.5'LT.)
 1-TYPE A-50 MAST ARM WITH OVERHEADS AT 0' & 12' FROM THE END OF MAST ARM
 2-PEDESTRIAN PUSH BUTTONS

- F & I: EXTEND INTO HH 13:
 3" RSC
 2-12/C#12
 3-3/C#12
 1-3/C#12 (LUM)
 1-3/C#20



TRAFFIC SIGNALS
 18 OF 31

REV. NO.	BY	DATE	REVISIONS DESCRIPTION

DESIGN FILE: 31809-791	DRAWN BY: JAS	DESIGN BY: MRA
CHKD. BY: RJK	DWG. NAME: TS04	
DATE: AUG 18, 2005		

URS
 100 Third Street South
 Minneapolis, MN 55415
 612.774.1100 Fax
 612.774.1109

ALLIANT ENGINEERING
 INCORPORATED
 233 PARK AVENUE SOUTH
 SUITE 200
 MINNEAPOLIS, MN 55415
 (612)758-3000
 (612)758-3099 FAX

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Michael R. Anderson
 MICHAEL R. ANDERSON
 DATE: 8/18/05 MN LIC. NO. 42828

ANOKA COUNTY
 HIGHWAY DEPT.

CSAH 12
 RECONSTRUCTION
 REVISE SIGNAL SYSTEM B
 INTERSECTION LAYOUT - MATCH LINES
 CSAH 12 (109TH AVE.) & DAVENPORT ST. (2 OF 2)

S.P. 02-612-11	SHEET NO.
S.P. 106-020-025	153
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