NOTES:

1) LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY ENGINEER.

2) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.

3) PEDESTRIAN INDICATIONS SHALL BE ONE SECTION HAND/WALKING PERSON FILLED LED INDICATIONS.

4) SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING COUNTY FURNISHED MATERIALS.

5) ALL POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE MOUNTED USING ONE-WAY SIGNAL HEAD MOUNTS. SEE SPECIAL PROVISIONS.

6) A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED 6' FROM THE END OF EACH MAST ARM (FOR EVP).

7) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.

8) (INTERCONNECT) DENOTES ITEMS TO BE MEASURED & PAID FOR UNDER ITEM NO.2565 (TRAFFIC CONTROL INTERCONNECTION). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

9) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNING TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL).

10) CONTRACTOR SHALL COORDINATE ALL SIGNAL INSTALLATION WORK WITH ROAD AND BRIDGE CONSTRUCTION WORK TO BE COMPLETED BY OTHERS AS PART OF THIS PROJECT.

11) LOOP DETECTOR WIRES FOR NMC LOOP DETECTORS SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 1/2" OR 3/4" N.M.C. SEE DETAILS AND SPECIAL PROVISIONS.

NMC LOOP DETECTORS

NUMBER	SIZE (FEET)	LOCATION	FUNCTION
D1-1	6x6	40'	1
D1-2	6x6	40'	1
D1-3	6x6	10'	1
D1-4	6x6	10'	1
D2-1	6x6	300'	1
D2-2	6x6	300'	1
D4-1	6x6	120'	2
D4-2	6x6	120'	2
D4-3	6x6	120'	2
D4-4	6x12 & 6x6	5'&20'	3
D4-5	2-6x6	5'&20'	1
D4-6	2-6x6	5'&20'	1
D6-1	6x6	300'	1
D6-2	6x6	300'	1

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

LOOP DETECTOR FUNCTIONS:
1) CALL AND EXTEND
2) EXTEND ONLY
3) DELAYED CALL, IMMEDIATE EXTEND

(1) PA90 POLE FOUNDATION
TYPE PA90-A-35-D40-9 (DAVIT AT 350°)
LUMINAIRE-250 W HPS
2-ONE WAY SIGNALS-OVERHEAD (0' AND 11' FROM END OF MAST ARM)
1-ONE WAY SIGNAL-POLE MOUNTED 225°
2-R9-3a SIGN PANELS-FACING POLES 2 AND 5
1-R6-1R SIGN PANEL-POLE MOUNTED 180°
ONE WAY EVP DETECTOR AND LIGHT (Ø6,1)
TYPE "D" SIGN PANEL-OVERHEAD (D-5)
EXTEND INTO H.H.11:
3"R.S.C.
2-12/c#12
2-3/c#12
1-3/c#20
1-3/c#12 (LUM)

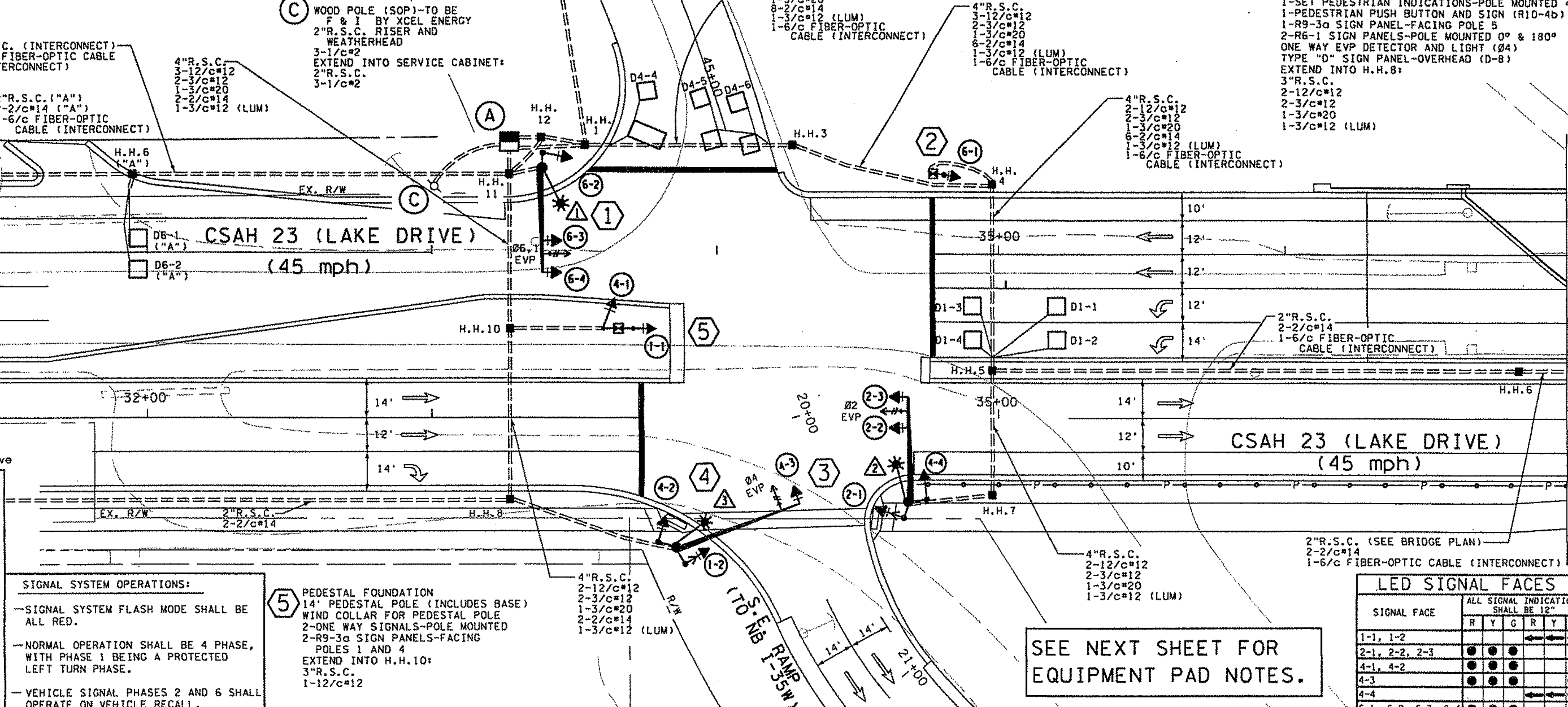
(2) PEDESTAL FOUNDATION
14' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
1-ONE WAY SIGNAL-POLE MOUNTED
2-R9-3a SIGN PANEL-FACING POLES 1 AND 3
2-R6-1 SIGN PANELS (NORTH AND SOUTH SIDES OF POLE)
EXTEND INTO H.H.4:
3"R.S.C.
1-12/c#12

(3) PA90 POLE FOUNDATION
TYPE PA90-A-35-D40-9 (DAVIT AT 350°)
LUMINAIRE-250 W HPS
2-ONE WAY SIGNALS-OVERHEAD (0' AND 11' FROM END OF MAST ARM)
2-ONE WAY SIGNALS-POLE MOUNTED 45° AND 225°
1-SET PEDESTRIAN INDICATIONS-POLE MOUNTED 225°
1-PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b)
1-R9-3a SIGN PANEL-FACING POLE 2
1-R6-1L SIGN PANEL-POLE MOUNTED 0°
ONE WAY EVP DETECTOR AND LIGHT (Ø2)
2-TYPE "D" SIGN PANELS-OVERHEAD (D-6,7)
EXTEND INTO H.H.7:
3"R.S.C.
2-12/c#12
2-3/c#12
1-3/c#20
1-3/c#12 (LUM)

(4) PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350°)
LUMINAIRE-250 W HPS
1-ONE WAY SIGNAL-OVERHEAD
2-ONE WAY SIGNALS-POLE MOUNTED 45° AND 225°
1-SET PEDESTRIAN INDICATIONS-POLE MOUNTED 45°
1-PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b)
1-R9-3a SIGN PANEL-FACING POLE 5
2-R6-1 SIGN PANELS-POLE MOUNTED 0° & 180°
ONE WAY EVP DETECTOR AND LIGHT (Ø4)
TYPE "D" SIGN PANEL-OVERHEAD (D-8)
EXTEND INTO H.H.8:
3"R.S.C.
2-12/c#12
2-3/c#12
1-3/c#20
1-3/c#12 (LUM)

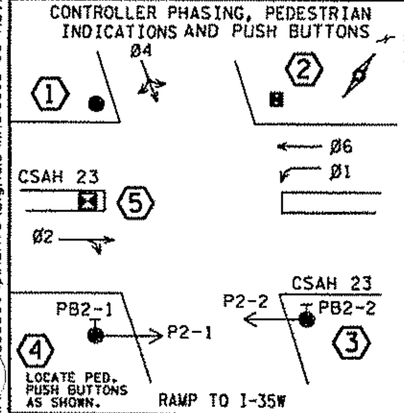
(5) PEDESTAL FOUNDATION
14' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
2-ONE WAY SIGNALS-POLE MOUNTED
2-R9-3a SIGN PANELS-FACING POLES 1 AND 4
EXTEND INTO H.H.10:
3"R.S.C.
1-12/c#12

SCALE 20'



SYSTEM ID = 38509
TE# = 4162
Meter Address = 7597 Lake Drive

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASE 1 BEING A PROTECTED LEFT TURN PHASE.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON VEHICLE RECALL.

SEE NEXT SHEET FOR EQUIPMENT PAD NOTES.

LED SIGNAL FACES

SIGNAL FACE	ALL SIGNAL INDICATIONS SHALL BE 12" R	Y	G	R	Y	G
1-1, 1-2				←	←	←
2-1, 2-2, 2-3	●	●	●			
4-1, 4-2	●	●	●			
4-3	●	●	●			←
4-4				←	←	←
6-1, 6-2, 6-3, 6-4	●	●	●			

NO.	BY	DATE	REVISIONS
1	JMG	7/24/06	REVISED TO COUNTY STDS
2	JMG	11/21/06	STATE COMMENTS
3	JMG	12/11/06	REVISED EQUIP. PAD
4	JMG	1/9/07	COUNTY COMMENTS

DESIGN TEAM
DRAWN BY: GEN
DESIGNER: JMG
CHECKED BY: JMG

I hereby certify that this plan 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.
Certified By: Licensed Professional Engineer Lic. No. 22457
Printed Name: JOHN M. GRAY Date: 1/9/2007

SEH
PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

CITY OF LINO LAKES

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE PROJ. NO. 0280-55 (TH 35W)
STATE AID PROJ. NO. 02-623-13 & 210-020-04
C.S.A.H. 23 (LAKE DRIVE)

TRAFFIC SIGNAL SYSTEM "B" INTERSECTION LAYOUT

LAKE DRIVE (CSAH 23) AT I-35W SOUTH RAMPS (NORTH JUNCTION WITH I-35W)

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3/23/2007
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(A) SIGNAL/LIGHTING CABINET
FOUNDATION (SEE DETAILS)
INSTALL CONTROLLER AND CABINET
(FURNISHED BY COUNTY)
(SYSTEM "B") SIGNAL SERVICE CABINET

CONTROLLER CABINET TO H.H.12:
METERED SIGNAL SERVICE
2"R.S.C.
3-1/c#6

CONTROLLER CABINET TO H.H.1:

4"R.S.C.	4"R.S.C.
3-12/c#12	(FOR FUTURE USE)
2-3/c#12	
1-3/c#20	
12-2/c#14	
1-6/c FIBER-OPTIC CABLE (INTERCONNECT)	

CONTROLLER CABINET TO H.H.11:

4"R.S.C.	4"R.S.C.
3-12/c#12	2-12/c#12
2-3/c#12	2-3/c#12
1-3/c#20	1-3/c#20
2-2/c#14	1-6/c FIBER-OPTIC CABLE (INTERCONNECT)

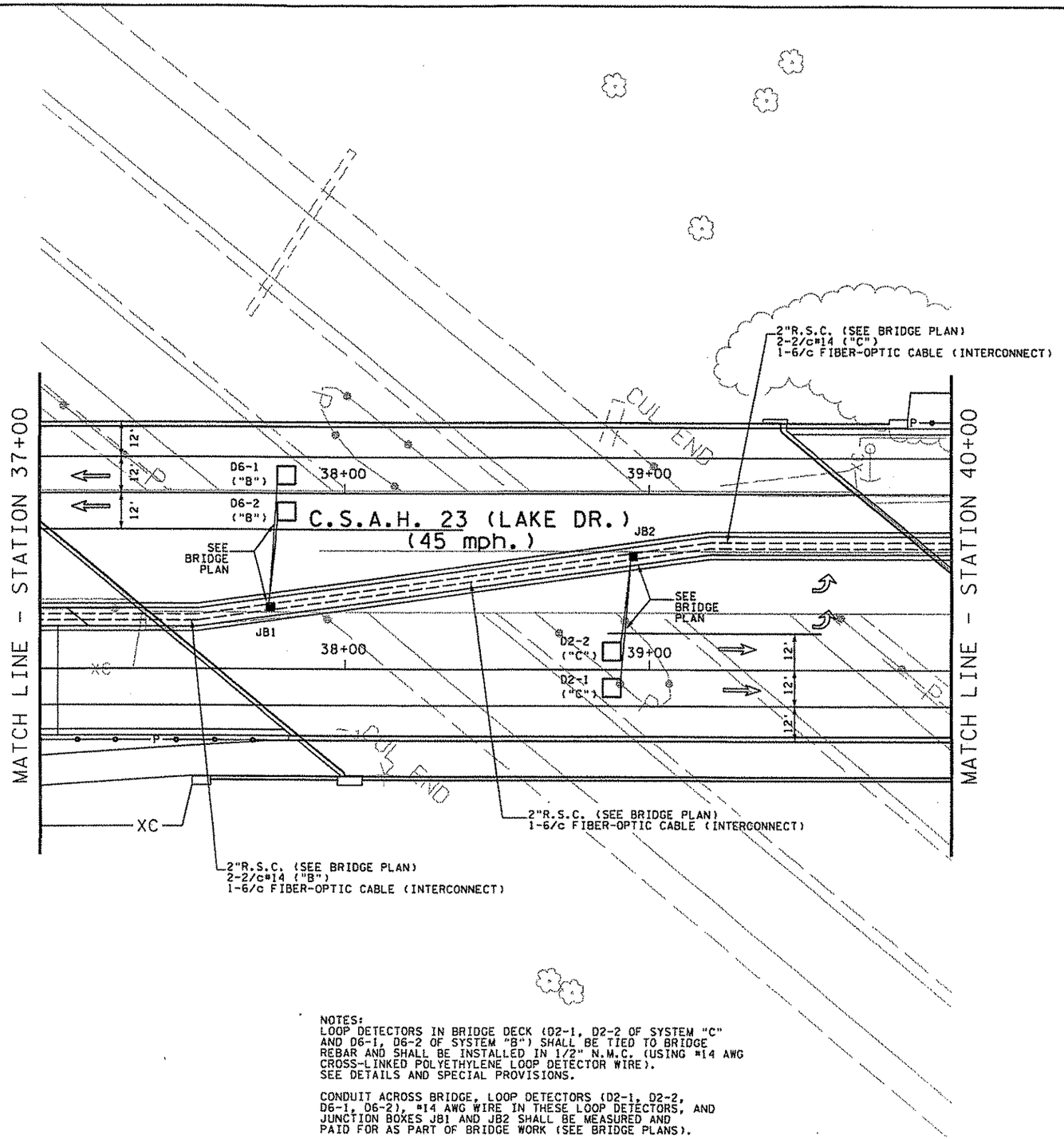
STUB OUT 2-3"R.S.C. FROM CONTROLLER CABINET TO NORTH (THREAD AND CAP BOTH ENDS-FOR FUTURE USE)

STUB OUT 1-1" N.M.C. FROM CONTROLLER CABINET (CAP BOTH ENDS-FOR FUTURE PHONE LINE)

SERVICE CABINET TO H.H.12:
2"R.S.C.
METERED SIGNAL SERVICE
3-1/c#6
UNMETERED STREET LIGHT SERVICE
3-3/c#12 (LUM)

BETWEEN H.H.1 AND H.H.12:
2"R.S.C.
1-3/c#12 (LUM)

BETWEEN H.H.11 AND H.H.12:
2"R.S.C.
2-3/c#12 (LUM)



NOTES:
LOOP DETECTORS IN BRIDGE DECK (D2-1, D2-2 OF SYSTEM "C" AND D6-1, D6-2 OF SYSTEM "B") SHALL BE TIED TO BRIDGE REBAR AND SHALL BE INSTALLED IN 1/2" N.M.C. (USING #14 AWG CROSS-LINKED POLYETHYLENE LOOP DETECTOR WIRE). SEE DETAILS AND SPECIAL PROVISIONS.

CONDUIT ACROSS BRIDGE, LOOP DETECTORS (D2-1, D2-2, D6-1, D6-2), #14 AWG WIRE IN THESE LOOP DETECTORS, AND JUNCTION BOXES JB1 AND JB2 SHALL BE MEASURED AND PAID FOR AS PART OF BRIDGE WORK (SEE BRIDGE PLANS).

LOOP DETECTOR LEAD-IN CABLE, LOOP DETECTOR SPLICE KITS, AND TESTING FOR LOOP DETECTORS D2-1, D2-2, D6-1 AND D6-2 SHALL BE CONSIDERED PART OF THE TRAFFIC SIGNAL SYSTEM "B-C" PAY ITEMS (ITEM NO. 2565).

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: BDF	1	JMG	7/25/06	REVISED TO COUNTY STDS
DESIGNER: JMG	2	JMG	11/21/06	STATE COMMENTS
CHECKED BY: JMG	3	JMG	12/11/06	REVISED EQUIP. PAD
	4	JMG	1/9/07	COUNTY COMMENTS

I hereby certify that this plan 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.
Certified By: _____ Lic. No. 22457
Licensed Professional Engineer
Printed Name: JOHN M. GRAY Date: 1/9/2007

SEH
PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

CITY OF LINO LAKES

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE PROJ. NO. 0280-55 (TH 35W)
STATE AID PROJ. NO. 02-623-13 & 210-020-04
C.S.A.H. 23 (LAKE DRIVE)

TRAFFIC SIGNAL SYSTEMS "B-C"
INTERSECTION LAYOUT
CSAH 23 (LAKE DRIVE) @ I-35W NORTH & SOUTH RAMPS
(NORTH JUNCTION WITH I-35W)

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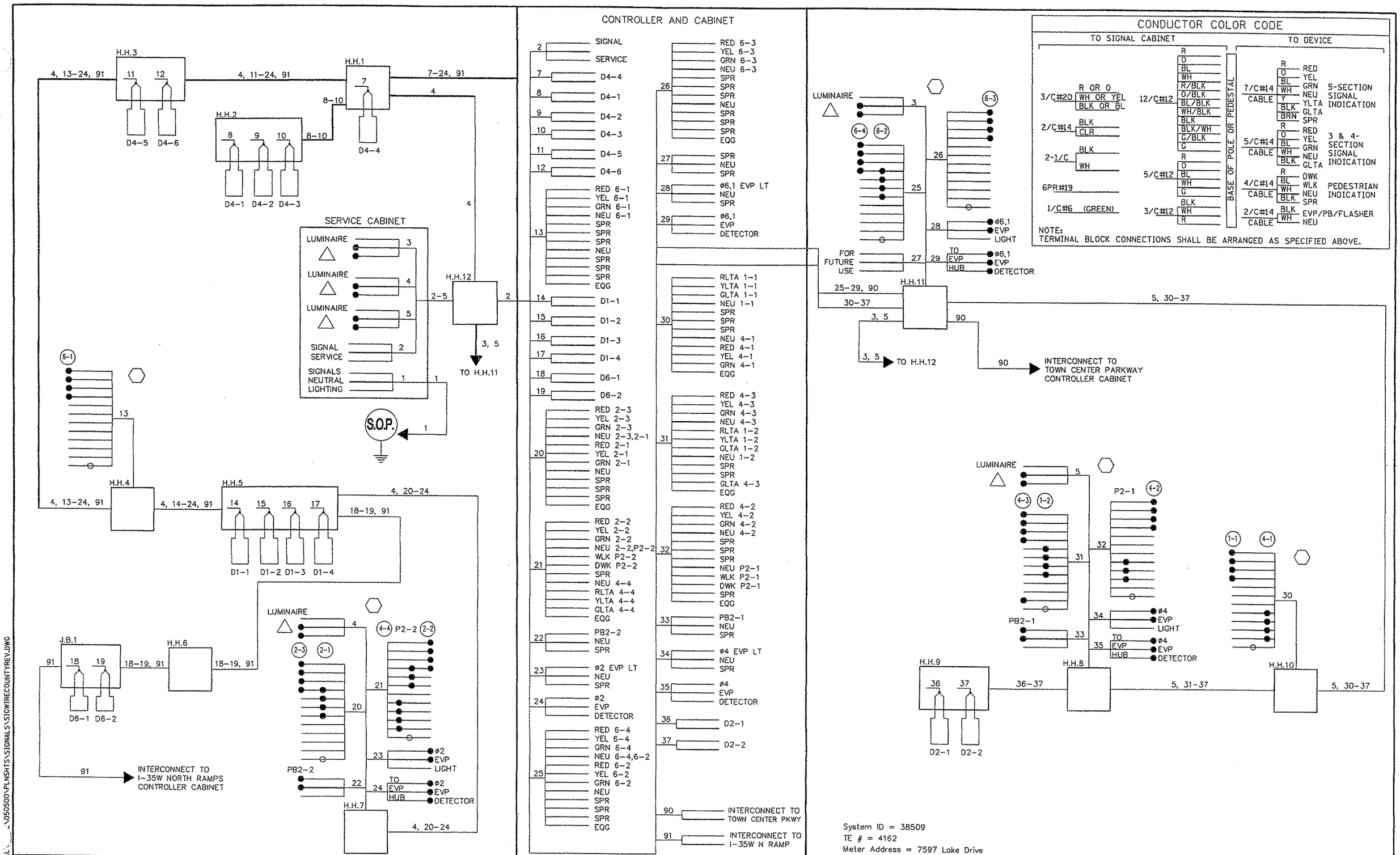

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: JMG	1	JMG	7/24/06	REVISED TO COUNTY STD.
DESIGNER: JMG	2	JMG	11/21/06	STATE COMMENTS
CHECKED BY: JMG	3	JMG	1/09/07	COUNTY COMMENTS

I hereby certify that this plan 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.
Certified By: _____ Licensed Professional Engineer Lic. No. 22457
Printed Name: JOHN M. GRAY Date: 3/26/2007

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STATE PROJ. NO. 0280-55(TH 35W)
STATE AID PROJ. NO. 02-623-13 & 210-020-04
C.S.A.H. 23 (LAKE DRIVE)

TRAFFIC SIGNAL SYSTEM "B"
FIELD WIRING DIAGRAM
LAKE DRIVE (CSAH 23) AT I-35W SOUTH RAMPS
(NORTH JUNCTION WITH I-35W)

FILE NO. AL.NOL.0505,00
SG12 OF SG18
135 / 198

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