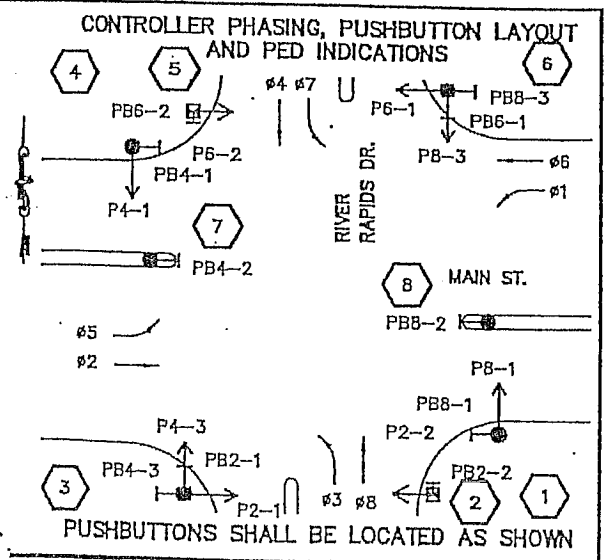
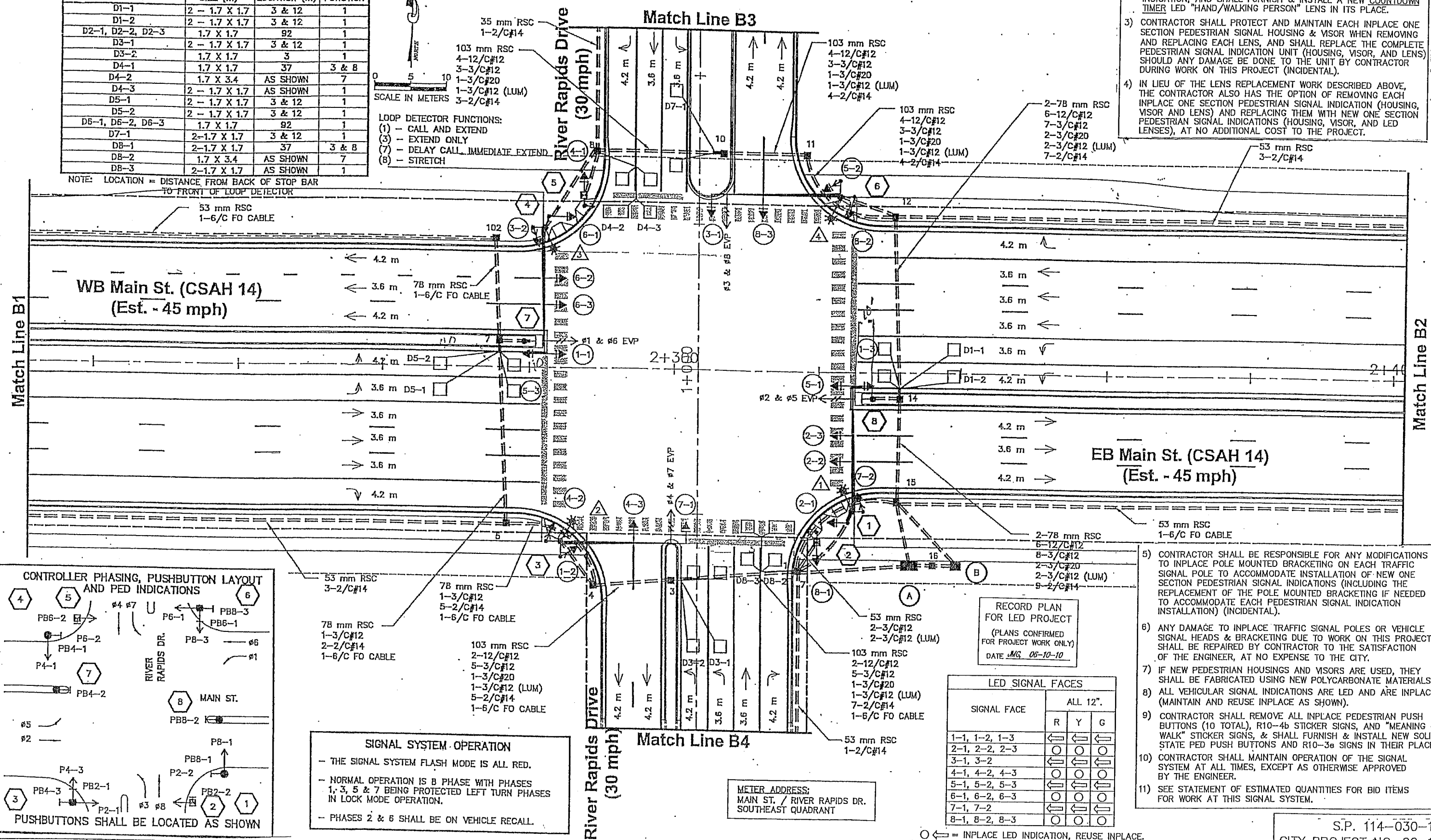


LOOP DETECTORS (NMC)			
NUMBER	SIZE (m)	LOCATION (m)	FUNCTION
D1-1	2 - 1.7 X 1.7	3 & 12	1
D1-2	2 - 1.7 X 1.7	3 & 12	1
D2-1, D2-2, D2-3	1.7 X 1.7	92	1
D3-1	2 - 1.7 X 1.7	3 & 12	1
D3-2	1.7 X 1.7	3	1
D4-1	1.7 X 1.7	37	3 & B
D4-2	1.7 X 3.4	AS SHOWN	7
D4-3	2 - 1.7 X 1.7	AS SHOWN	1
D5-1	2 - 1.7 X 1.7	3 & 12	1
D5-2	2 - 1.7 X 1.7	3 & 12	1
D6-1, D6-2, D6-3	1.7 X 1.7	92	1
D7-1	2-1.7 X 1.7	3 & 12	1
DB-1	2-1.7 X 1.7	37	3 & B
DB-2	1.7 X 3.4	AS SHOWN	7
DB-3	2-1.7 X 1.7	AS SHOWN	1

LOOP DETECTOR FUNCTIONS:  
 (1) - CALL AND EXTEND  
 (3) - EXTEND ONLY  
 (7) - DELAY CALL IMMEDIATE EXTEND  
 (8) - STRETCH

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

- LED RETROFIT-SYSTEM "00" NOTES:
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE IN PLACE AND SHALL BE REUSED AND MAINTAINED IN PLACE, UNLESS OTHERWISE NOTED ON PLANS.
  - 2) CONTRACTOR SHALL REMOVE THE INPLACE "HAND/WALKING PERSON" LENS FROM EACH INPLACE ONE SECTION PED SIGNAL INDICATION, AND SHALL FURNISH & INSTALL A NEW COUNTDOWN TIMER LED "HAND/WALKING PERSON" LENS IN ITS PLACE.
  - 3) CONTRACTOR SHALL PROTECT AND MAINTAIN EACH INPLACE ONE SECTION PEDESTRIAN SIGNAL HOUSING & VISOR WHEN REMOVING AND REPLACING EACH LENS, AND SHALL REPLACE THE COMPLETE PEDESTRIAN SIGNAL INDICATION UNIT (HOUSING, VISOR, AND LENS) SHOULD ANY DAMAGE BE DONE TO THE UNIT BY CONTRACTOR DURING WORK ON THIS PROJECT (INCIDENTAL).
  - 4) IN LIEU OF THE LENS REPLACEMENT WORK DESCRIBED ABOVE, THE CONTRACTOR ALSO HAS THE OPTION OF REMOVING EACH INPLACE ONE SECTION PEDESTRIAN SIGNAL INDICATION (HOUSING, VISOR AND LENS) AND REPLACING THEM WITH NEW ONE SECTION PEDESTRIAN SIGNAL INDICATIONS (HOUSING, VISOR, AND LED LENSES), AT NO ADDITIONAL COST TO THE PROJECT.



**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS B PHASE WITH PHASES 1, 3, 5 & 7 BEING PROTECTED LEFT TURN PHASES IN LOCK MODE OPERATION.
- PHASES 2 & 6 SHALL BE ON VEHICLE RECALL.

RECORD PLAN FOR LED PROJECT  
 (PLANS CONFIRMED FOR PROJECT WORK ONLY)  
 DATE: 06-10-10

SIGNAL FACE	ALL 12"		
	R	Y	G
1-1, 1-2, 1-3	←	←	←
2-1, 2-2, 2-3	○	○	○
3-1, 3-2	←	←	←
4-1, 4-2, 4-3	○	○	○
5-1, 5-2, 5-3	←	←	←
6-1, 6-2, 6-3	○	○	○
7-1, 7-2	←	←	←
8-1, 8-2, 8-3	○	○	○

- 5) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS TO INPLACE POLE MOUNTED BRACKETING ON EACH TRAFFIC SIGNAL POLE TO ACCOMMODATE INSTALLATION OF NEW ONE SECTION PEDESTRIAN SIGNAL INDICATIONS (INCLUDING THE REPLACEMENT OF THE POLE MOUNTED BRACKETING IF NEEDED TO ACCOMMODATE EACH PEDESTRIAN SIGNAL INDICATION INSTALLATION) (INCIDENTAL).
- 6) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL POLES OR VEHICLE SIGNAL HEADS & BRACKETING DUE TO WORK ON THIS PROJECT SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE CITY.
- 7) IF NEW PEDESTRIAN HOUSINGS AND VISORS ARE USED, THEY SHALL BE FABRICATED USING NEW POLYCARBONATE MATERIALS.
- 8) ALL VEHICULAR SIGNAL INDICATIONS ARE LED AND ARE INPLACE (MAINTAIN AND REUSE INPLACE AS SHOWN).
- 9) CONTRACTOR SHALL REMOVE ALL INPLACE PEDESTRIAN PUSH BUTTONS (10 TOTAL), R10-4b STICKER SIGNS, AND "MEANING OF WALK" STICKER SIGNS, & SHALL FURNISH & INSTALL NEW SOLID STATE PED PUSH BUTTONS AND R10-3a SIGNS IN THEIR PLACE.
- 10) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.
- 11) SEE STATEMENT OF ESTIMATED QUANTITIES FOR BID ITEMS FOR WORK AT THIS SIGNAL SYSTEM.

○ ← = INPLACE LED INDICATION, REUSE INPLACE.

DRAWN BY: JMG	1	JMG	6/10	RECORD DRAWING FOR PROJECT
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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

Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: May 18, 2009

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

COON RAPIDS, MINNESOTA

LED RETROFIT-SYSTEM "00" INTERSECTION LAYOUT  
 CSAH 14 AT RIVER RAPIDS DRIVE

S.P. 114-030-10  
 CITY PROJECT NO. 09-18

FILE NO. 107418  
 DATE 05/18/2009  
 96  
 131

114

- 1 TYPE PA100 POLE FOUNDATION  
TYPE PA100-A-16.8-X9.1  
LUMINAIRE ARM AT 350°  
(SEE SPECIAL PROVISIONS)  
LUMINAIRE 250 WATT METAL HALIDE  
WITH P.E.C. AND CHECK SWITCH  
(SEE SPECIAL PROVISIONS)  
1 - TWO WAY SIGNAL OVERHEAD (0 m)  
2 - ONE WAY SIGNALS OVERHEAD  
(6.9 m & 10.5 m FROM END OF MAST ARM)  
1 - TYPE 10A POLE MOUNTED AT 180°  
1 - TYPE 10B POLE MOUNTED AT 90°  
1 - PEDESTRIAN PUSHBUTTON  
INTERNALLY ILLUMINATED SIGN (D-2) WITH P.E.C.  
AND SIGN SWITCH ON POLE  
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
(#2 & #5) (1.8 m FROM END OF MAST ARM)

- 3 TYPE PA100 POLE FOUNDATION  
TYPE PA100-A-16.8-X9.1  
LUMINAIRE ARM AT 350°  
(SEE SPECIAL PROVISIONS)  
LUMINAIRE 250 WATT METAL HALIDE  
WITH P.E.C. AND CHECK SWITCH  
(SEE SPECIAL PROVISIONS)  
2 - ONE WAY SIGNALS OVERHEAD (0 m &  
6.9 m FROM END OF MAST ARM)  
2 - TYPE 10B POLE MOUNTED AT 90° & 180°  
2 - PEDESTRIAN PUSHBUTTONS  
INTERNALLY ILLUMINATED SIGN (D-1) WITH P.E.C.  
AND SIGN SWITCH ON POLE  
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
(#4 & #7) (1.8 m FROM END OF MAST ARM)

- 4 TYPE PA100 POLE FOUNDATION  
TYPE PA100-A-16.8-X9.1  
LUMINAIRE ARM AT 350°  
(SEE SPECIAL PROVISIONS)  
LUMINAIRE 250 WATT METAL HALIDE  
WITH P.E.C. AND CHECK SWITCH  
(SEE SPECIAL PROVISIONS)  
1 - TWO WAY SIGNAL OVERHEAD (0 m)  
2 - ONE WAY SIGNALS OVERHEAD  
(6.9 m & 10.5 m FROM END OF MAST ARM)  
1 - TYPE 10A POLE MOUNTED AT 180°  
1 - TYPE 10B POLE MOUNTED AT 90°  
1 - PEDESTRIAN PUSHBUTTON  
INTERNALLY ILLUMINATED SIGN (D-2) WITH P.E.C.  
AND SIGN SWITCH ON POLE  
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
(#1 & #6) (1.8 m FROM END OF MAST ARM)

- 6 TYPE PA100 POLE FOUNDATION  
TYPE PA100-A-16.8-X9.1  
LUMINAIRE ARM AT 350°  
(SEE SPECIAL PROVISIONS)  
LUMINAIRE 250 WATT METAL HALIDE  
WITH P.E.C. AND CHECK SWITCH  
(SEE SPECIAL PROVISIONS)  
2 - ONE WAY SIGNALS OVERHEAD (0 m &  
6.9 m FROM END OF MAST ARM)  
2 - TYPE 10B POLE MOUNTED AT 90° & 180°  
2 - PEDESTRIAN PUSHBUTTONS  
INTERNALLY ILLUMINATED SIGN (D-1) WITH P.E.C.  
AND SIGN SWITCH ON POLE  
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
(#3 & #8) (1.8 m FROM END OF MAST ARM)

- EXTEND INTO HH 1:  
78 mm RSC  
3-12/C#12  
3-3/C#12  
1-3/C#20  
1-3/C#12 (LUM)

- 2 PEDESTAL FOUNDATION  
3 m PEDESTAL POLE AND BASE  
TYPE 1B  
1 - PEDESTRIAN PUSHBUTTON

EXTEND INTO HH 1:  
53 mm RSC  
1-12/C#12  
2-3/C#12

- EXTEND INTO HH 4:  
78 mm RSC  
2-12/C#12  
4-3/C#12  
1-3/C#20  
1-3/C#12 (LUM)

- 7 PEDESTAL FOUNDATION  
1.5 m PEDESTAL POLE & BASE  
PEDESTRIAN PUSHBUTTON

EXTEND INTO HH 7:  
53 mm RSC  
1-3/C#12

- EXTEND INTO HH 8:  
78 mm RSC  
3-12/C#12  
3-3/C#12  
1-3/C#20  
1-3/C#12 (LUM)

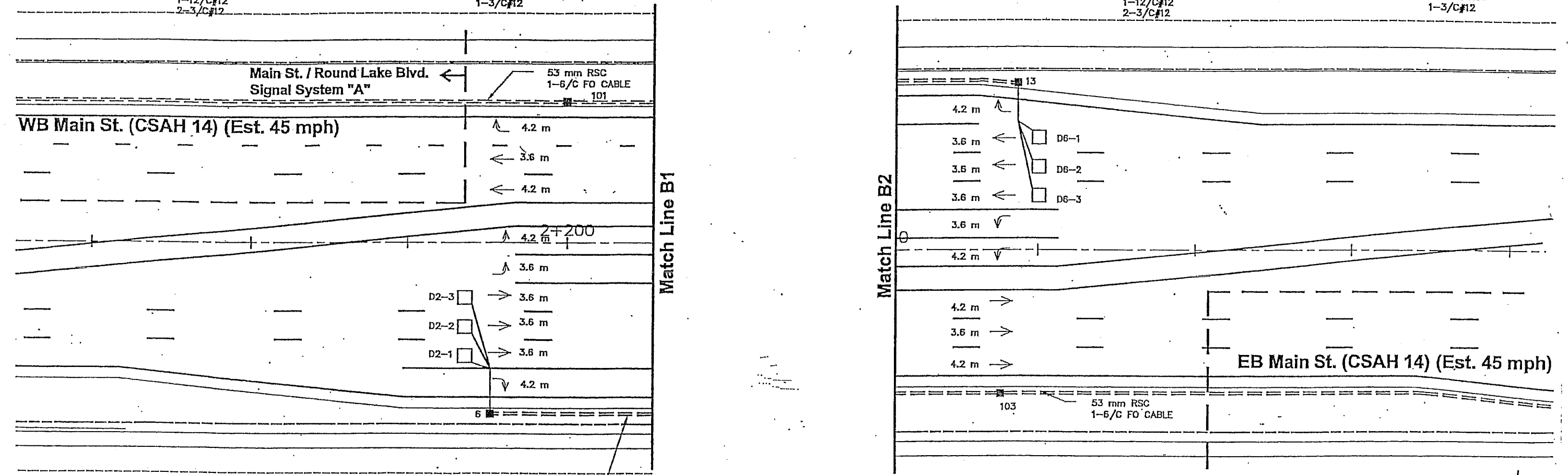
- 5 PEDESTAL FOUNDATION  
3 m PEDESTAL POLE AND BASE  
TYPE 1B  
1 - PEDESTRIAN PUSHBUTTON

EXTEND INTO HH 8:  
53 mm RSC  
1-12/C#12  
2-3/C#12

- EXTEND INTO HH 12:  
78 mm RSC  
2-12/C#12  
4-3/C#12  
1-3/C#20  
1-3/C#12 (LUM)

- 8 PEDESTAL FOUNDATION  
1.5 m PEDESTAL POLE & BASE  
PEDESTRIAN PUSHBUTTON

EXTEND INTO HH 14:  
53 mm RSC  
1-3/C#12



- A INSTALL CONTROLLER AND CABINET  
(FURNISHED BY ANOKA COUNTY)  
CABINET FOUNDATION

EXTEND INTO HH 15:  
2-78 mm RSC  
6-12/C#12  
6-3/C#12  
2-3/C#20  
9-2/C#14  
1-6/C FO CABLE

EXTEND INTO HH 1:  
2-78 mm RSC  
6-12/C#12  
6-3/C#12  
2-3/C#20  
10-2/C#14  
1-6/C FO CABLE

EXTEND INTO HH 16:  
METERED SIGNAL SERVICE  
35 mm RSC  
3-1/C#6

STUB OUT 78 mm RSC FROM CABINET TO NORTH  
(THREAD AND CAP BOTH ENDS)

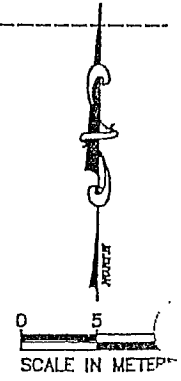
- B SERVICE CABINET  
CABINET FOUNDATION

EXTEND INTO HH 16:  
METERED SIGNAL SERVICE  
35 mm RSC  
3-1/C#6

EXTEND INTO HH 15:  
53 mm RSC  
UNMETERED STREET LIGHT SERVICE  
4-3/C#12 (LUM)  
UNMETERED ILLUMINATED SIGN SERVICE  
4-3/C#12

53 mm RSC TO WEST  
(FOR POWER BY CONNEXUS)

RECORD PLAN  
FOR LED PROJECT  
(PLANS CONFIRMED  
FOR PROJECT WORK ONLY)  
DATE MG 06-10-10



S:\PROJECTS\COMMON SIGNALS-LED\LEDBASES.DWG

DRAWN BY: JMG	1	JMG	6/10	RECORD DRAWING FOR PROJECT
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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.

Date: May 18, 2009 Name: John M. Gray, PE Lic. No. 22457

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COON RAPIDS,  
MINNESOTA

LED RETROFIT-SYSTEM '00'  
INTERSECTION LAYOUT  
CSAH 14 AT RIVER RAPIDS DRIVE

S.P. 114-030-10  
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