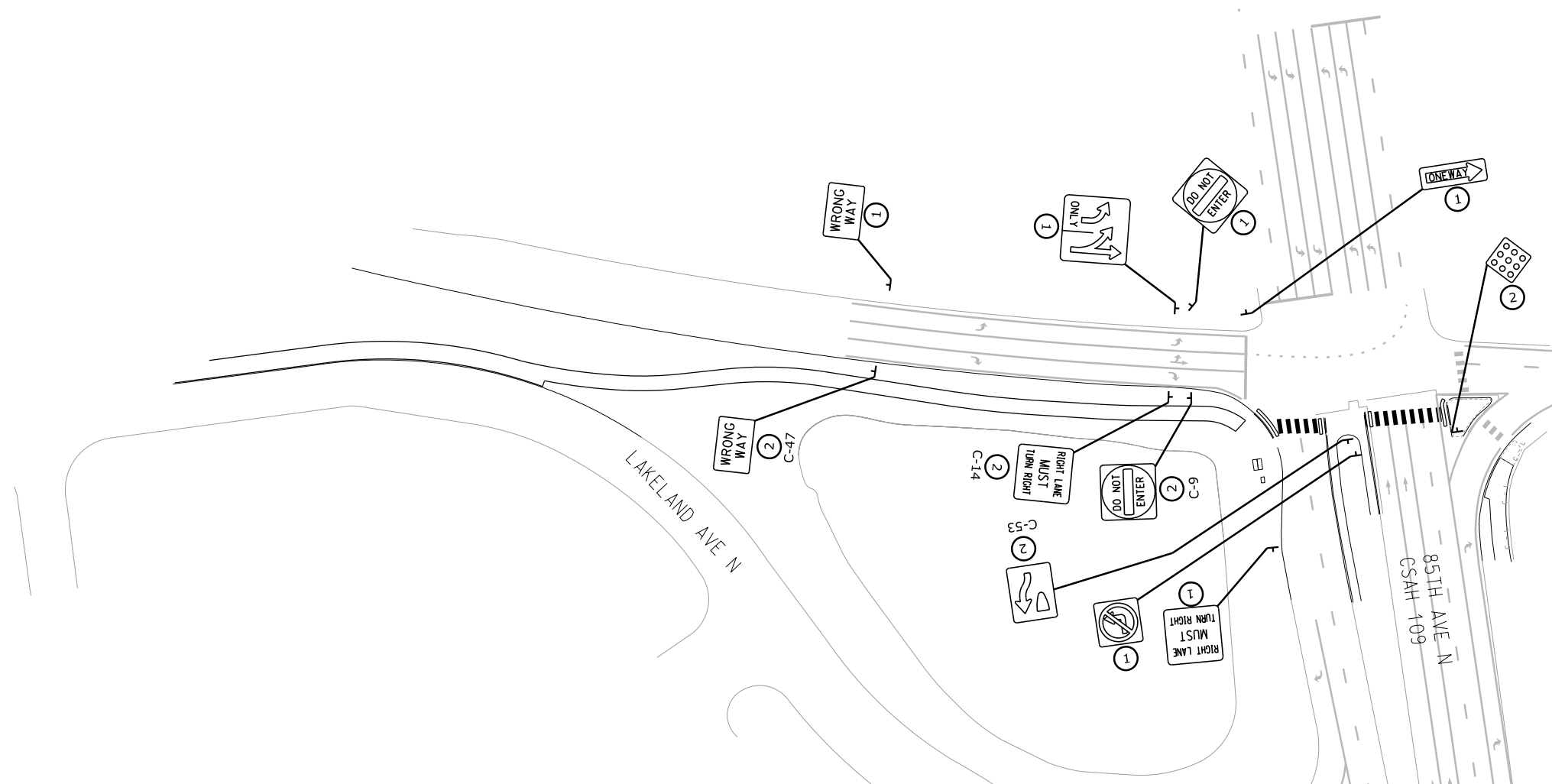




SCALE 0' 50' 100'



SPECIFIC NOTES

① INPLACE

② FURNISH AND INSTALL



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Kate Miner
 KATE E. MINER, LICENSED PROFESSIONAL ENGINEER

43801 2/28/2019
 LICENSE NO. DATE

DESIGN BY: WRB

CAD BY: WRB

CHECKED BY: KEM

LAST REVISION: / /

PERMANENT SIGNING AND STRIPING PLAN

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

ST32 / ST32



TEMPORARY SIGNAL SYSTEM G
REVISE SIGNAL SYSTEM G
C.S.A.H. 81 (BOTTINEAU BLVD) AND
C.S.A.H. 109 (85TH AVE N)
INTERSECTION

REVISE SIGNAL SYSTEM J
C.S.A.H. 109 (85TH AVE N) AND
T.H. 169 RAMPS INTERSECTION

TEMPORARY SIGNAL SYSTEM F
REVISE SIGNAL SYSTEM F
C.S.A.H. 81 (BOTTINEAU BLVD) AND
83RD AVE N INTERSECTION

REMOVE SIGNAL SYSTEM E
TRAFFIC CONTROL SIGNAL SYSTEM E
EMERGENCY VEHICLE PREEMPTION SYSTEM E
C.S.A.H. 81 (BOTTINEAU BLVD) AND
GREEN HAVEN DR/LAKELAND AVE
INTERSECTION

REMOVE SIGNAL SYSTEM D
TEMPORARY SIGNAL SYSTEM D
TRAFFIC CONTROL SIGNAL SYSTEM D
EMERGENCY VEHICLE PREEMPTION SYSTEM D
C.S.A.H. 81 (BOTTINEAU BLVD) AND
79TH AVE N INTERSECTION

REMOVE SIGNAL SYSTEM H
TRAFFIC CONTROL SIGNAL SYSTEM H
EMERGENCY VEHICLE PREEMPTION SYSTEM H
C.S.A.H. 152 (BROOKLYN BLVD) AND
JOLLY LN INTERSECTION

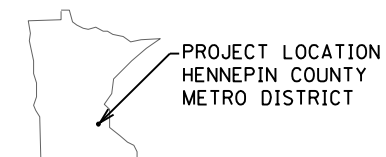
TEMPORARY SIGNAL SYSTEM K
C.S.A.H. 152 (BROOKLYN BLVD) AND
C.S.A.H. 103/130 (W BROADWAY AVE)
INTERSECTION

REMOVE SIGNAL SYSTEM C
TEMPORARY SIGNAL SYSTEM C
TRAFFIC CONTROL SIGNAL SYSTEM C
EMERGENCY VEHICLE PREEMPTION SYSTEM C
C.S.A.H. 81 (BOTTINEAU BLVD) AND
C.S.A.H. 130/152 (BROOKLYN BLVD)
INTERSECTION

REMOVE SIGNAL SYSTEM I
TRAFFIC CONTROL SIGNAL SYSTEM I
EMERGENCY VEHICLE PREEMPTION SYSTEM I
C.S.A.H. 152 (BROOKLYN BLVD) AND
PARK SQUARE CTR/STARLITE CTR INTERSECTION

REMOVE SIGNAL SYSTEM B
TEMPORARY SIGNAL SYSTEM B
TRAFFIC CONTROL SIGNAL SYSTEM B
EMERGENCY VEHICLE PREEMPTION SYSTEM B
C.S.A.H. 81 (BOTTINEAU BLVD) AND
73RD AVE N INTERSECTION

REVISE SIGNAL SYSTEM A
TEMPORARY SIGNAL SYSTEM A
C.S.A.H. 81 (BOTTINEAU BLVD) AND
71ST AVE N/W BROADWAY AVE
INTERSECTION



INDEX MAP
SCALE IN FEET
2000

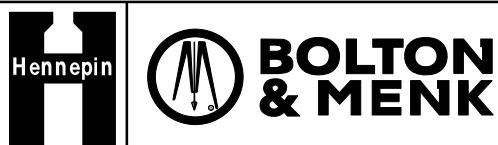
I HEREBY CERTIFY THAT SHEETS SS1 THROUGH SS126 OF THIS PLAN WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Bryan T. Nemeth
NAME BRYAN T. NEMETH LIC. NO. 43354 DATE 2-28-2019
DESIGNER MIKE S. LARSON

BROOKLYN PARK

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2/28/2019



PROJECT AREA MAP

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

SS1
SS126

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

STANDARD PLATES	
PLATE NO.	PLATE DESCRIPTION
8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED), (3 SHEETS)
(1) 8122F	PEDESTAL & PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT), (2 SHEETS)
(2) 8123G	POLE AND MAST ARM, (2 SHEETS)

(1) SEE SPECIAL PROVISIONS.
 (2) SIGNAL MOUNTING PLATE (END OF MAST ARM) APPLIES.

COLOR CODING OF CONDUCTORS

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
BLK/R	BLACK WITH RED TRACER
WH/R	WHITE WITH RED TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN
Y	YELLOW

ABBREVIATIONS WIRING DIAGRAM LEGEND

•	DENOTES TAP OF CABLED CONDUCTOR OR PARALLELING OF CABLED CONDUCTORS WITH TAPS AS INDICATED BY THE WIRING DIAGRAM
∅	PHASE
2-1	SIGNAL PHASE AND FACE NUMBER
RED	RED
YEL	YELLOW
GRN	GREEN
RLTA	RED LEFT TURN ARROW
YLTA	YELLOW LEFT TURN ARROW
FYLTA	FLASHING YELLOW LEFT TURN ARROW
GLTA	GREEN LEFT TURN ARROW
RRTA	RED RIGHT TURN ARROW
YRTA	YELLOW RIGHT TURN ARROW
FYRTA	FLASHING YELLOW RIGHT TURN ARROW
GRTA	GREEN RIGHT TURN ARROW
DW	DON'T WALK
W	WALK
NEU	NEUTRAL
SPARE	SPARE CONDUCTOR
EQG	EQUIPMENT GROUND
○	EQUIPMENT GROUND CONNECTION
PB	PUSH BUTTON
IND	INDICATOR
EVP	EMERGENCY VEHICLE PREEMPTION
PED OR P	PEDESTRIAN INDICATION
APS	ACCESSIBLE PEDESTRIAN SIGNAL
LUM	LUMINAIRE
CAC	CONTROLLER AND CABINET
SC	SERVICE CABINET
SOP	SOURCE OF POWER
HH	HANDHOLE
MA	MAST ARM
SA	SIGNAL ASSEMBLY PEDESTAL MOUNT
PFA	PEDESTRIAN FLASHER ASSEMBLY
FYEL	FLASHING YELLOW
RRFB	RECTANGULAR RAPID FLASHING BEACON
D _L	DETECTOR ZONE (L DENOTES PHASE)
TMC	TRAFFIC MANAGEMENT CAMERA
—	NEUTRAL CONDUCTOR
- - -	INPLACE STRUCTURE
— — —	INPLACE CONDUCTOR OR CONDUIT
APS	ACCESSIBLE PEDESTRIAN SIGNAL
SM	SINGLE MODE FIBER OPTIC CABLE
MM	MULTI MODE FIBER OPTIC CABLE

SIGNAL PLAN LAYOUT LEGEND

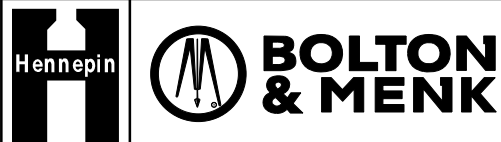
	CONTROLLER CABINET AND BATTERY BACK-UP
	READY SERVICE CABINET WITH METER AND DISCONNECT ON ONE CONCRETE PAD
	SOURCE OF POWER
	PAD MOUNTED
	POLE MOUNTED
	PVC HANDHOLE WITH METAL COVER
	MAST ARM SIGNAL POLE WITH OPTIONAL LUMINAIRE SHAFT EXTENSION AS NOTED
	SIGNAL ASSEMBLY PEDESTAL MOUNT
	APS PUSH BUTTON STATION
	SIGNAL INTERCONNECT SPLICE VAULT
	BARREL MOUNTED PEDESTAL
	INPLACE CONTROLLER AND CABINET
	INPLACE SERVICE CABINET WITH METER AND DISCONNECT
	INPLACE SOURCE OF POWER
	PAD MOUNTED
	POLE MOUNTED
	INPLACE HANDHOLE
	INPLACE MAST ARM SIGNAL POLE OR
	INPLACE SIGNAL ASSEMBLY PEDESTAL MOUNT
	INPLACE SIGNAL INTERCONNECT SPLICE VAULT
	VIDEO DETECTION CAMERA AND TRAFFIC MANAGEMENT CAMERA
	LUMINAIRE
	EMERGENCY VEHICLE PREEMPTION (EVP) ONE-WAY
	SIGNAL FACE WITH BACKGROUND SHIELD
	PEDESTRIAN INDICATION
	SIGNAL PHASE AND FACE NUMBER
	VIDEO DETECTION ZONE
	BLANKOUT SIGN
	RAILROAD GATE ARM AND FLASHER
	RAILROAD CANTILEVER AND FLASHER
	RIGID STEEL CONDUIT (RSC)
	NON-METALLIC CONDUIT (NMC)
	HIGH DENSITY POLYETHYLENE (HDPE)
	INPLACE CONDUIT

TABULATION OF ESTIMATED QUANTITIES

NOTES	ITEM DESCRIPTION	UNIT	TOTAL
(3)	REMOVE SIGNAL SYSTEM "B"	EACH	1
(3)	REMOVE SIGNAL SYSTEM "C"	EACH	1
(3)	REMOVE SIGNAL SYSTEM "D"	EACH	1
(3)	REMOVE SIGNAL SYSTEM "E"	EACH	1
(3)	REMOVE SIGNAL SYSTEM "H"	EACH	1
(3)	REMOVE SIGNAL SYSTEM "I"	EACH	1
	TEMPORARY SIGNAL SYSTEM "A"	SIG SYS	1
	TEMPORARY SIGNAL SYSTEM "B"	SIG SYS	1
	TEMPORARY SIGNAL SYSTEM "C"	SIG SYS	1
	TEMPORARY SIGNAL SYSTEM "D"	SIG SYS	1
	TEMPORARY SIGNAL SYSTEM "F"	SIG SYS	1
	TEMPORARY SIGNAL SYSTEM "G"	SIG SYS	1
	TEMPORARY SIGNAL SYSTEM "K"	SIG SYS	1
	REVISE SIGNAL SYSTEM "A"	SIG SYS	1
	TRAFFIC CONTROL SIGNAL SYSTEM "B"	SIG SYS	1
	TRAFFIC CONTROL SIGNAL SYSTEM "C"	SIG SYS	1
	TRAFFIC CONTROL SIGNAL SYSTEM "D"	SIG SYS	1
	TRAFFIC CONTROL SIGNAL SYSTEM "E"	SIG SYS	1
	REVISE SIGNAL SYSTEM "F"	SIG SYS	1
	REVISE SIGNAL SYSTEM "G"	SIG SYS	1
	TRAFFIC CONTROL SIGNAL SYSTEM "H"	SIG SYS	1
	TRAFFIC CONTROL SIGNAL SYSTEM "I"	SIG SYS	1
	REVISE SIGNAL SYSTEM "J"	SIG SYS	1
	EMERGENCY VEHICLE PREEMPTION SYSTEM "B"	LS	1
	EMERGENCY VEHICLE PREEMPTION SYSTEM "C"	LS	1
	EMERGENCY VEHICLE PREEMPTION SYSTEM "D"	LS	1
	EMERGENCY VEHICLE PREEMPTION SYSTEM "E"	LS	1
	EMERGENCY VEHICLE PREEMPTION SYSTEM "H"	LS	1
	EMERGENCY VEHICLE PREEMPTION SYSTEM "I"	LS	1
	TRAFFIC CONTROL INTERCONNECTION	LS	1

(3) SEE SPECIAL PROVISIONS.

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 Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

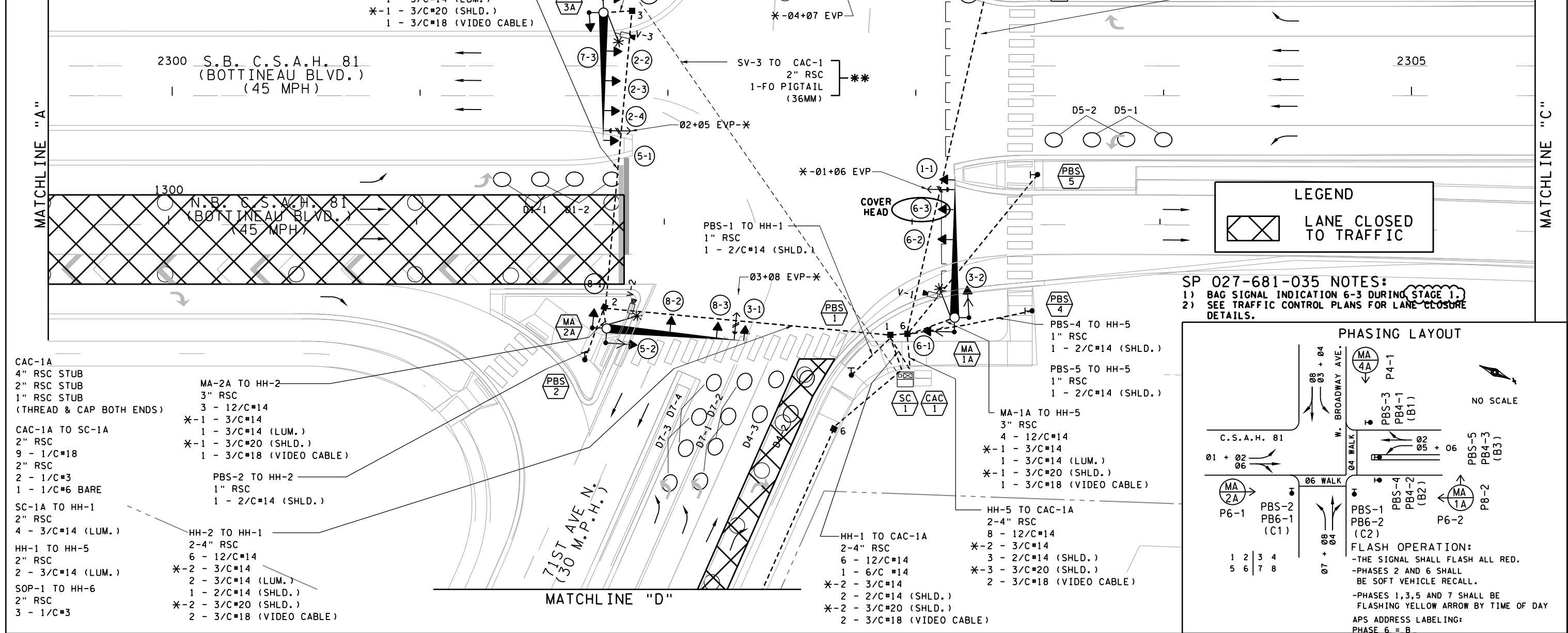
DESIGN BY: MSL
 CAD BY: SJP
 CHECKED BY: BTN
 LAST REVISION:

GENERAL SIGNAL PLAN DETAILS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS2
 SS126

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-1	(1)	20',50'
D1-2	V-1	(1)	5',35'
D2-1,D2-2,D2-3	V-3	(1)	300'
D3-1	V-2	(1)	5',20'
D3-2	V-2	(1)	-40',-55'
D4-1	V-4	(3)	120'
D4-2	V-4	(7)	5',20'
D4-3	V-4	(1)	5',20'
D5-1	V-3	(1)	20',50'
D5-2	V-3	(1)	5',35'
D6-1,D6-2	V-1	(1)	300'
D7-1,D7-3	V-4	(1)	20',50'
D7-2,D7-4	V-4	(1)	5',35'
D8-1,D8-2	V-2	(3)	120'
D8-3,D8-4	V-2	(1)	5',20'
D8-5,D8-6	V-2	(1)	-40',-55'

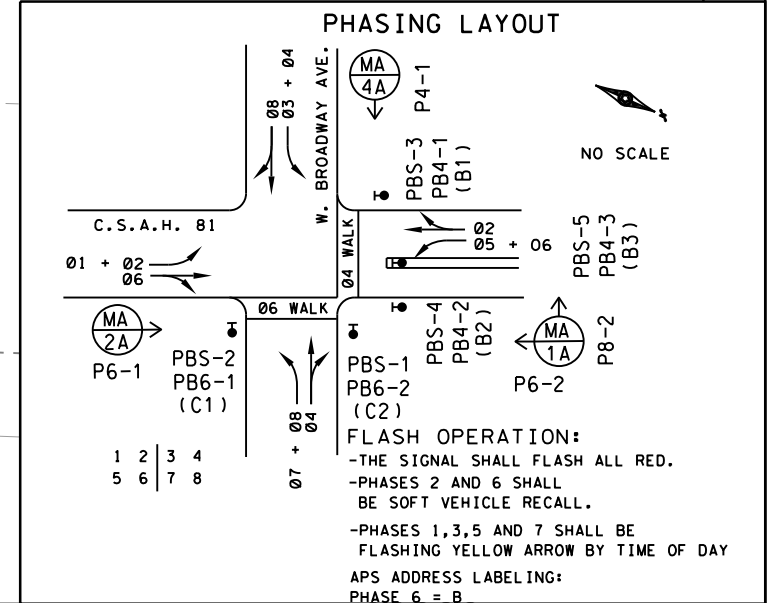
FUNCTION NOTES:
 (1) CALL & EXTEND
 (3) EXTEND ONLY
 (7) DELAY CALL / IMMEDIATE EXTEND



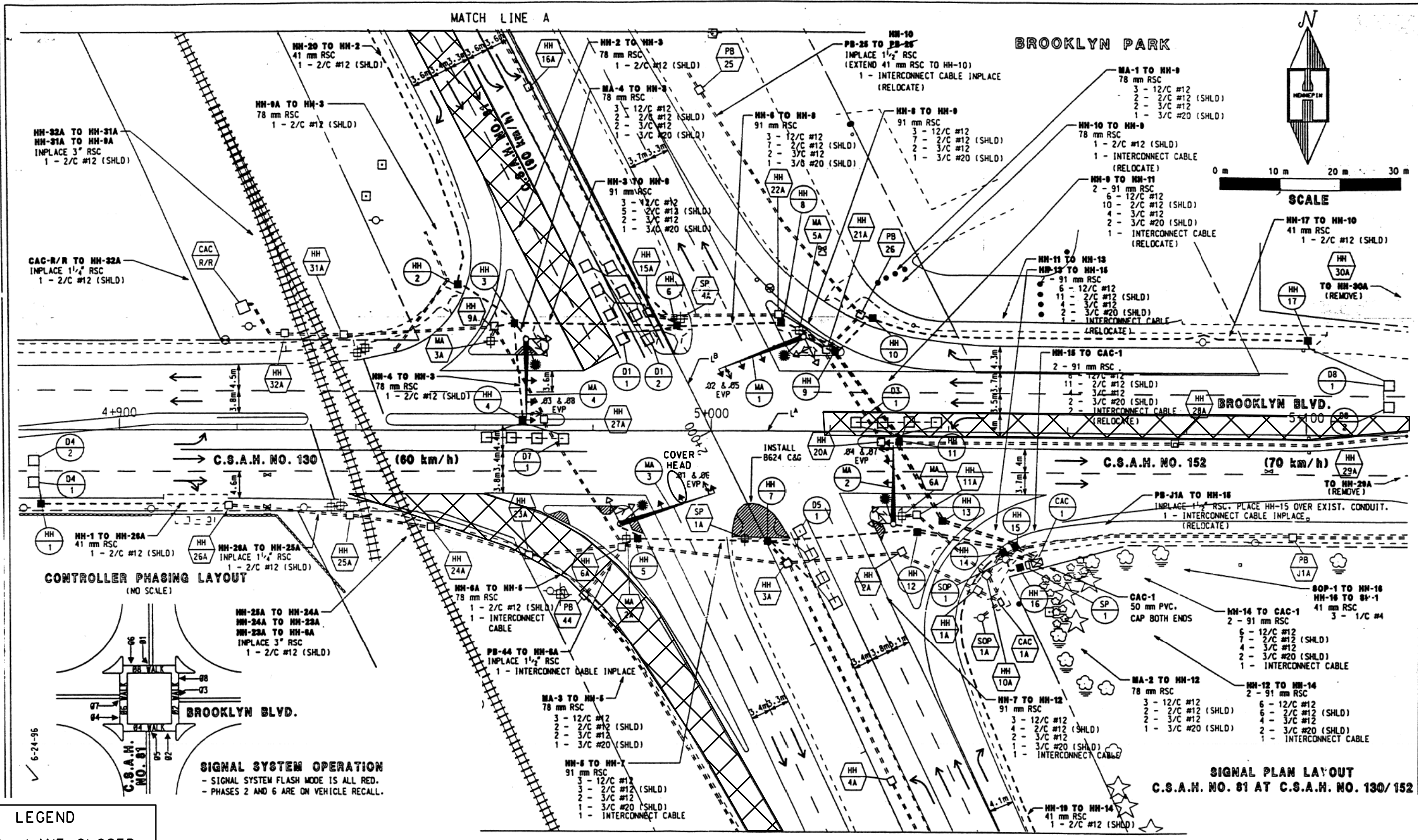
LEGEND

LANE CLOSED TO TRAFFIC

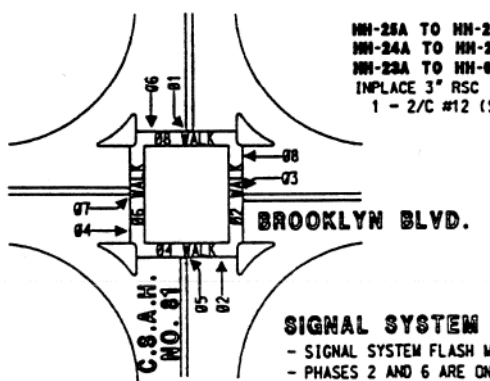
SP 027-681-035 NOTES:
 1) BAG SIGNAL INDICATION 6-3 DURING STAGE 1.
 2) SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE DETAILS.



		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. BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: MSL CAD BY: KME CHECKED BY: BTN LAST REVISION: 4/19/2019	TEMPORARY INTERSECTION LAYOUT (SYSTEM "A") (STAGE 1) C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035, S.P. 110-020-040	SHEET SS3 SS126
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CONTROLLER PHASING LAYOUT
(NO SCALE)

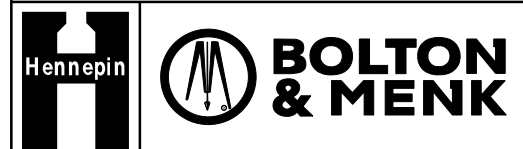


SIGNAL SYSTEM OPERATION
- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 ARE ON VEHICLE RECALL.

LEGEND
 LANE CLOSED TO TRAFFIC

SYSTEM I.D. NO. : 8034500
METER ADDRESS: 7600 HWY. 152

SP 027-681-035 NOTES:
1) BAG SIGNAL INDICATION ON MA-3A AS NOTED DURING STAGE 1.
2) SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE DETAILS.



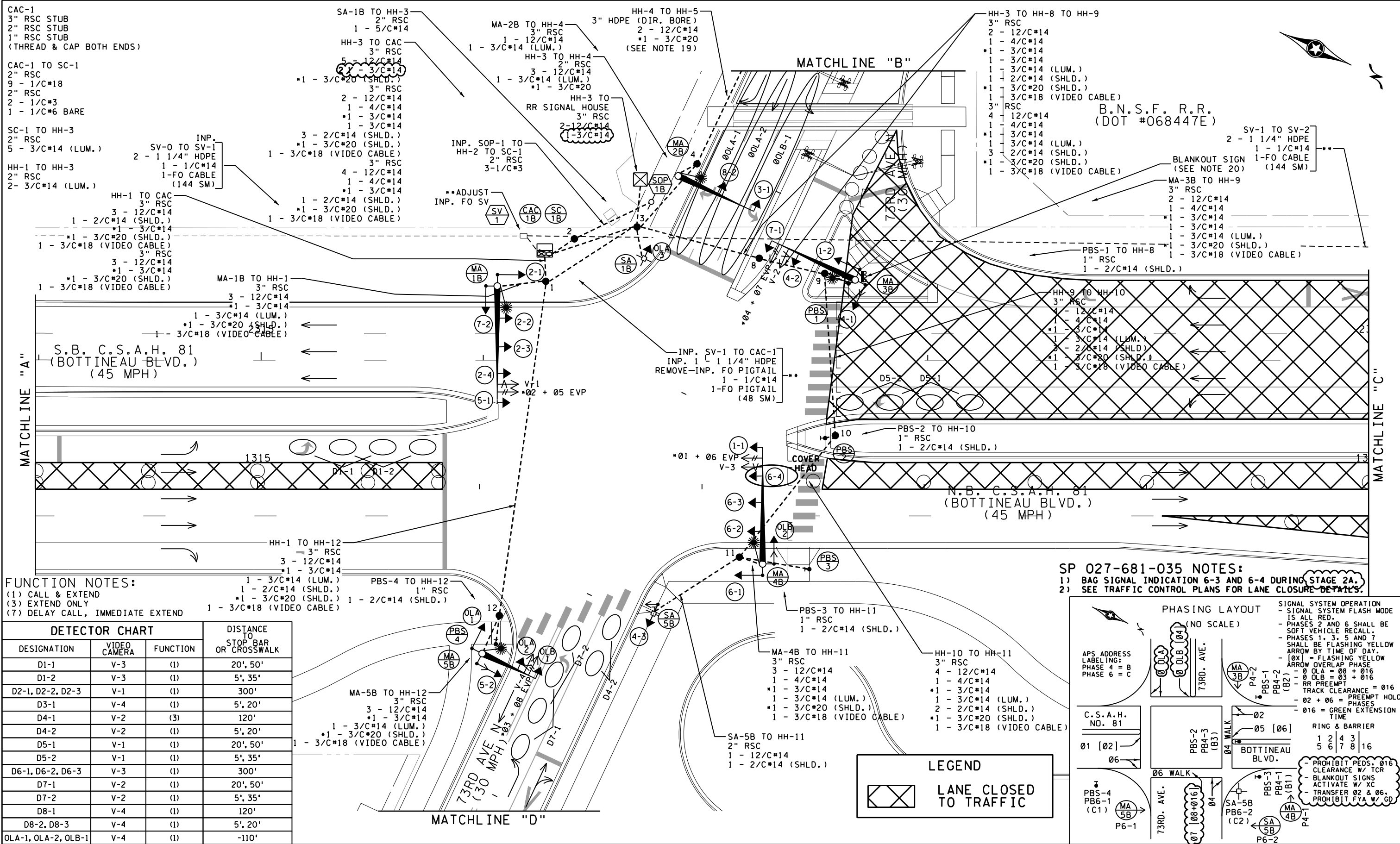
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 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 4/19/2019

TEMPORARY INTERSECTION LAYOUT (SYSTEM "C") (STAGE 1)
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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 SS4
 SS126

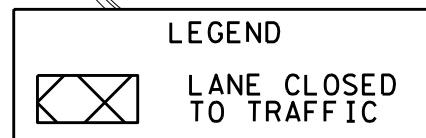
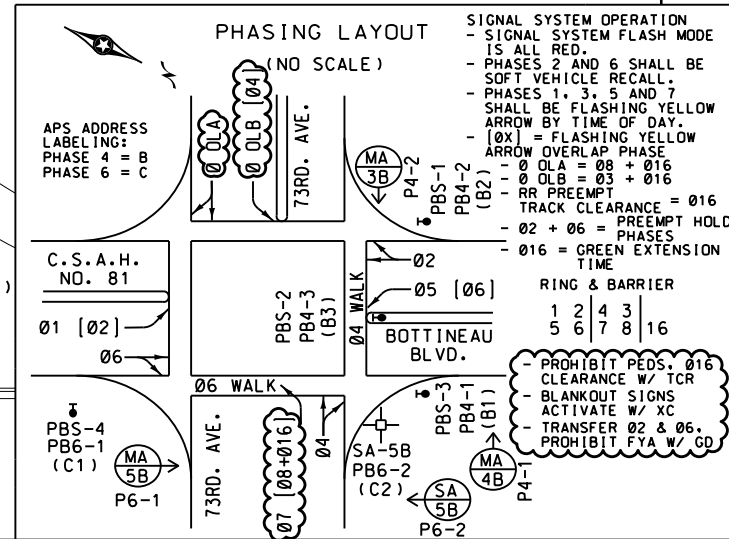
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FUNCTION NOTES:
 (1) CALL & EXTEND
 (3) EXTEND ONLY
 (7) DELAY CALL, IMMEDIATE EXTEND

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-3	(1)	20', 50'
D1-2	V-3	(1)	5', 35'
D2-1, D2-2, D2-3	V-1	(1)	300'
D3-1	V-4	(1)	5', 20'
D4-1	V-2	(3)	120'
D4-2	V-2	(1)	5', 20'
D5-1	V-1	(1)	20', 50'
D5-2	V-1	(1)	5', 35'
D6-1, D6-2, D6-3	V-3	(1)	300'
D7-1	V-2	(1)	20', 50'
D7-2	V-2	(1)	5', 35'
D8-1	V-4	(1)	120'
D8-2, D8-3	V-4	(1)	5', 20'
OLA-1, OLA-2, OLB-1	V-4	(1)	-110'

SP 027-681-035 NOTES:
 1) BAG SIGNAL INDICATION 6-3 AND 6-4 DURING STAGE 2A.
 2) SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE DETAILS.



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 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 4/19/2019

TEMPORARY INTERSECTION LAYOUT (SYSTEM "B") (STAGE 2A)

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS5
 SS126

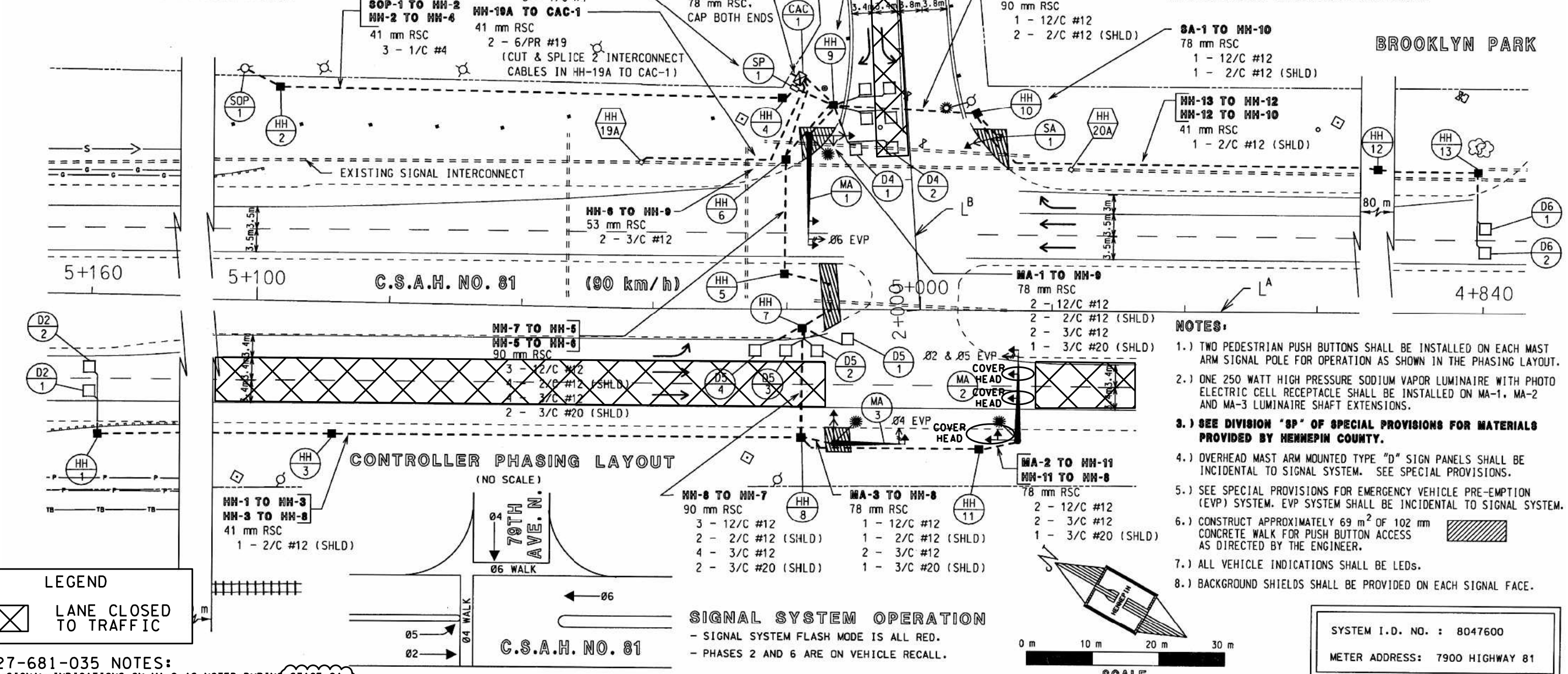
SIGNAL STRUCTURE AND COMPONENT LOCATION								
NO.	LOCATION	NO.	LOCATION	NO.	LOCATION	LOOP SIZE **	NO. OF TURNS *	DETECTOR FUNCTION
HH-1	LA 5+158.8 - 21.4 m LT.	HH-10	LA 4+991.7 - 30.0 m RT.	D2-1	LA 5+160.1 - 14.8 m LT.	(1.8 m X 1.8 m)	4	(1)
HH-2	LA 5+097.0 - 32.7 m RT.	HH-11	LA 4+991.0 - 21.2 m LT.	D2-2	LA 5+160.1 - 11.1 m LT.	(1.8 m X 1.8 m)	4	(1)
HH-3	LA 5+088.3 - 20.3 m LT.	HH-12	LA 4+917.4 - 22.1 m RT.	D4-1	LA 5+009.9 - 24.4 m RT.	3 (1.8 m X 1.8 m)	3	(3)
HH-4	LA 5+020.9 - 32.3 m RT.	HH-13	LA 4+841.0 - 21.5 m RT.	D4-2	LA 5+004.4 - 24.7 m RT.	3 (1.8 m X 1.8 m)	3	(3)
HH-5	LA 5+020.5 - 5.4 m RT.	CAC-1	LA 5+018.3 - 35.2 m RT.	D5-1	LA 5+010.9 - 4.7 m LT.	(1.8 m X 1.8 m)	3	(1)
HH-6	LA 5+020.5 - 22.9 m RT.	SP-1	WEST SIDE OF CAC-1 FND'T	D5-2	LA 5+024.7 - 6.5 m LT.	(1.8 m X 1.8 m)	3	(1)
HH-7	LA 5+017.8 - 3.0 m LT.	SOP-1	LA 5+102.6 - 35.4 m RT.	D5-3	LA 5+020.1 - 6.5 m LT.	(1.8 m X 1.8 m)	3	(1)
HH-8	LA 5+017.8 - 19.7 m LT.			D6-1	LA 4+839.8 - 12.9 m RT.	(1.8 m X 1.8 m)	4	(1)
HH-9	LA 5+013.3 - 31.2 m RT.			D6-2	LA 4+839.8 - 9.2 m RT.	(1.8 m X 1.8 m)	4	(1)

* NUMBER OF TURNS IN THE LOOP UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER.
 ** SEE STANDARD PLATE M8130D FOR 4 (1.8 m X 1.8 m) LOOP DETECTORS
 (1) CALL AND EXTEND DETECTOR AMPLIFIER.
 (3) DELAY CALL AND IMMEDIATE EXTEND DETECTOR AMPLIFIER.

IMPLACE STRUCTURES	
NO.	REMARKS
HH-19A	USE IMPLACE
HH-20A	OK AS IS

SIGNAL INDICATIONS AND BRACKETING							
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. β	INDICATION SIZE AND TYPE *			BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.
				RED LED	YEL LED	GRN LED	
MA-1	6-3	MAST ARM (END)	6	●	●	●	STD. ONE-WAY/PLATE M8124I
	6-2	MAST ARM (MID)	6	●	●	●	STD. ONE-WAY/PLATE M8124I
SA-1	5-2	PEDESTAL MOUNT	5	●	●	●	270° PLATE M8110I
	5-1	PEDESTAL MOUNT	5	●	●	●	270° PLATE M8110I
MA-2	5-1	MAST ARM (END)	5	●	●	●	STD. ONE-WAY/PLATE M8124I
	2-3	MAST ARM (MID)	2	●	●	●	STD. ONE-WAY/PLATE M8124I
	2-2	MAST ARM (INSIDE)	2	●	●	●	STD. ONE-WAY/PLATE M8124I
	2-1	MAST ARM (END)	2	●	●	●	STD. ONE-WAY/PLATE M8124I
MA-3	4-3	PEDESTAL MOUNT	4	●	●	●	270° PLATE M8110I
	4-2	PEDESTAL MOUNT	4	●	●	●	270° PLATE M8110I

* ALL SIGNAL AND PEDESTRIAN INDICATIONS SHALL BE 300 mm.
 ** PEDESTRIAN INDICATIONS SHALL BE INTERNATIONAL HAND AND WALKING PERSON SYMBOLIZED MESSAGES IN A DUAL FACE SINGLE HOUSING.



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SIGNAL STRUCTURE AND COMPONENT LOCATION

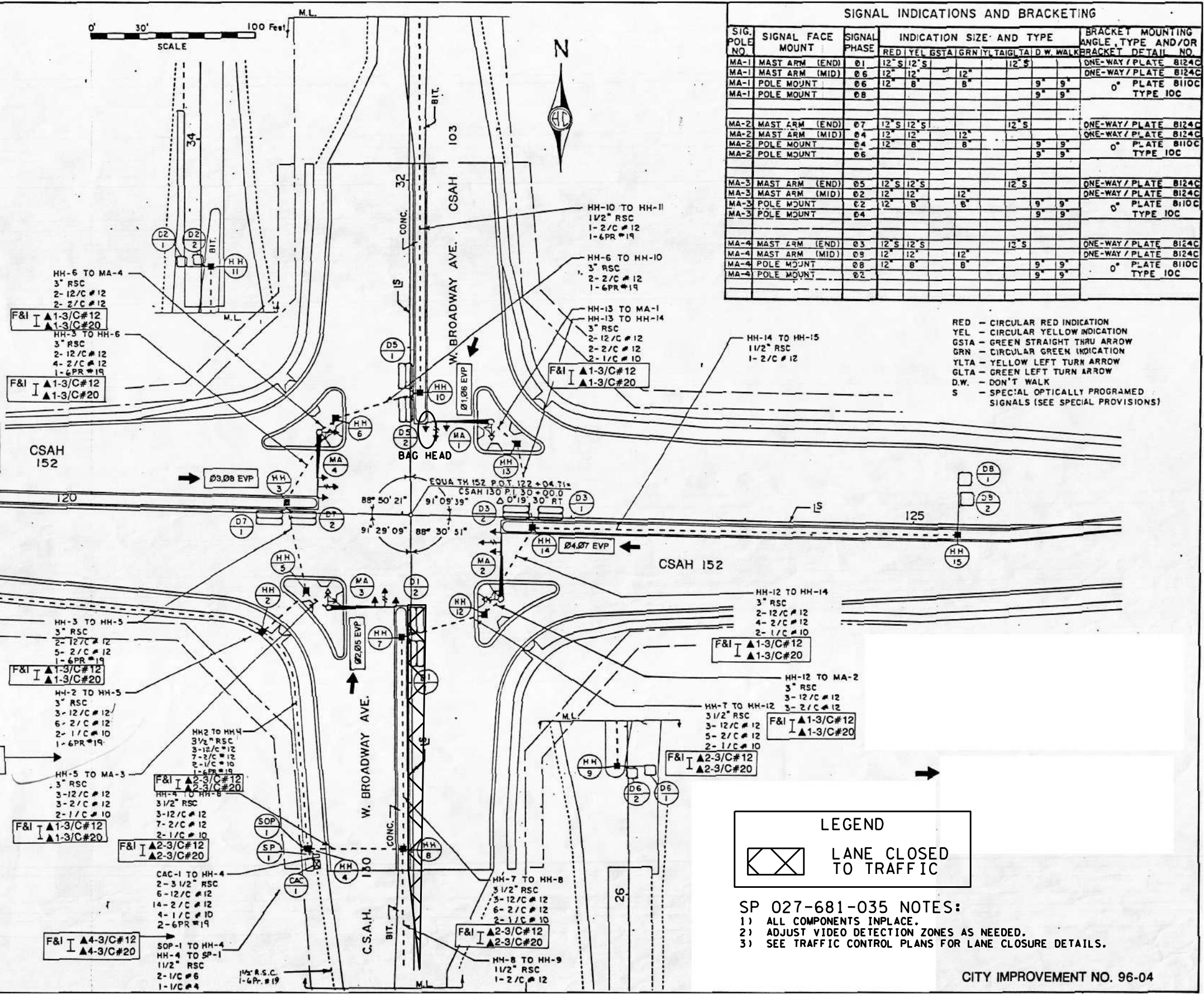
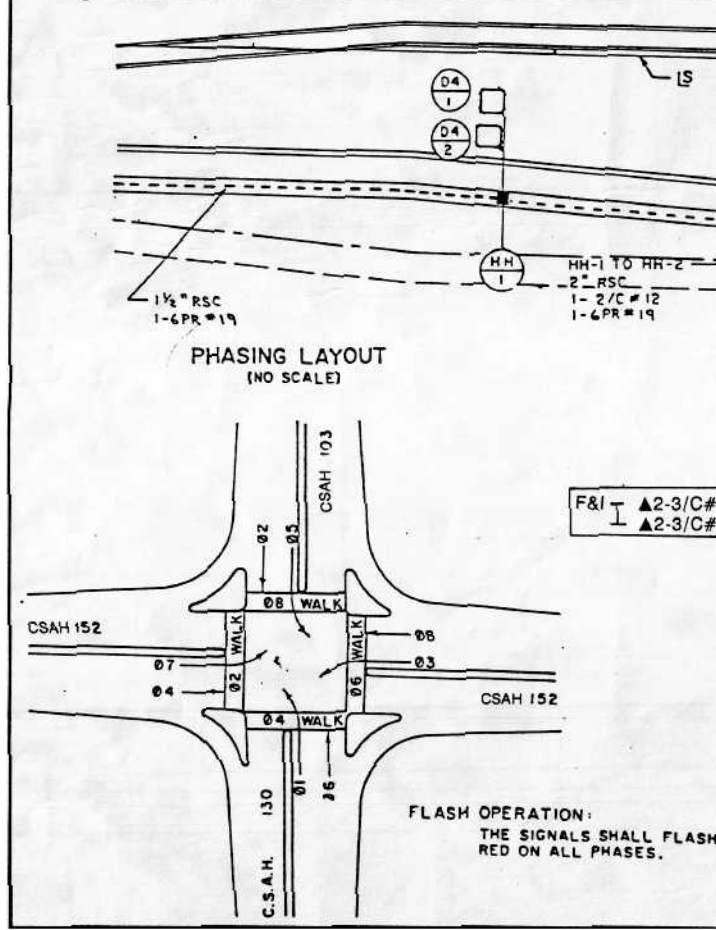
NO.	LOCATION	NO.	LOCATION
HH-1	LS 118+64 49' RT.	HH-11	LS 33+24 6' RT.
HH-2	LS 121+19 71' RT.	HH-12	LS 122+50 58' RT.
HH-3	LS 121+32 6' LT.	HH-13	LS 122+67 44' LT.
HH-4	LS 28+02 62.5' LT.	HH-14	LS 122+77 6' RT.
HH-5	LS 121+44 46' RT.	HH-15	LS 125+26 6' RT.
HH-6	LS 121+59 57' LT.		
HH-7	LS 29+27 6' LT.		
HH-8	LS 28+02 6' LT.	CAC-1	LS 27+93 57' LT.
HH-9	LS 26+77 6' LT.	SP-1	NORTH END OF CAC FOUNDATION
HH-10	LS 30+73 6' RT.	SOP-1	LS 28+02 57' LT.

NO.	LOCATION	NO.	LOCATION
MA-1	LS 30+56 49' RT. AIM ARM TO LS 30+56 (40' MAST ARM)		
MA-2	LS 122+60 49' RT. AIM ARM TO LS 122+60 (40' MAST ARM)		
MA-3	LS 29+45 49' LT. AIM ARM TO LS 29+45 (40' MAST ARM)		
MA-4	LS 121+49 49' LT. AIM ARM TO LS 121+49 (40' MAST ARM)		

NO.	LOCATION	NO. OF TURNS
D1-1	NORTH EDGE AT LS 29+25 WEST EDGE 1' LT. OF LS	8 X 15 2
D1-2	NORTH EDGE AT LS 29+45 WEST EDGE 1' LT. OF LS	8 X 15 2
D2-1	SOUTH EDGE AT LS 33+24 EAST EDGE 9' LT. OF LS	6 X 6 3
D2-2	SOUTH EDGE AT LS 33+25 EAST EDGE 1' RT. OF LS	6 X 6 3
D3-1	WEST EDGE AT LS 122+80 SOUTH EDGE 1' RT. OF LS	8 X 15 2
D3-2	WEST EDGE AT LS 122+60 SOUTH EDGE 1' RT. OF LS	8 X 15 2
D4-1	EAST EDGE AT LS 118+84 NORTH EDGE 12' RT. OF LS	8 X 8 3
D4-2	EAST EDGE AT LS 118+83 NORTH EDGE 24' RT. OF LS	8 X 8 3
D5-1	SOUTH EDGE AT LS 30+76 EAST EDGE 1' RT. OF LS	8 X 15 2
D5-2	SOUTH EDGE AT LS 30+56 EAST EDGE 1' RT. OF LS	8 X 15 2
D6-1	NORTH EDGE AT LS 26+77 WEST EDGE 9' RT. OF LS	6 X 6 3
D6-2	NORTH EDGE AT LS 26+76 WEST EDGE 1' LT. OF LS	6 X 6 3
D7-1	EAST EDGE AT LS 121+29 NORTH EDGE 1' LT. OF LS	8 X 15 2
D7-2	EAST EDGE AT LS 121+49 NORTH EDGE 1' LT. OF LS	8 X 15 2
D8-1	WEST EDGE AT LS 125+26 SOUTH EDGE 24' LT. OF LS	8 X 8 3
D8-2	WEST EDGE AT LS 125+27 SOUTH EDGE 12' LT. OF LS	8 X 8 3

* NUMBER OF TURNS IN THE LOOP UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER.

NOTE: CONTRACTOR SHALL CHECK EACH MAST ARM POLE FOR HUBS AND SHALL FURNISH AND INSTALL ANY HUBS THAT ARE NEEDED PRIOR TO BEGINNING ANY OTHER E.V.P. WORK. SEE SPECIAL PROVISIONS.



SIGNAL INDICATIONS AND BRACKETING

SIG. POLE NO.	SIGNAL FACE MOUNT	SIGNAL PHASE	INDICATION SIZE AND TYPE					BRACKET MOUNTING ANGLE, TYPE AND/OR BRACKET DETAIL NO.	
			RED	YEL	ESTA	GRN	YLTA		DLW
MA-1	MAST ARM (END)	01	12"	12"					ONE-WAY / PLATE B124C
MA-1	MAST ARM (MID)	06	12"	12"					ONE-WAY / PLATE B124C
MA-1	POLE MOUNT	08	12"	8"				9" 9"	0" PLATE B110C TYPE 10C
MA-2	MAST ARM (END)	07	12"	12"					ONE-WAY / PLATE B124C
MA-2	MAST ARM (MID)	04	12"	12"					ONE-WAY / PLATE B124C
MA-2	POLE MOUNT	04	12"	8"				9" 9"	0" PLATE B110C TYPE 10C
MA-2	POLE MOUNT	06	12"	8"				9" 9"	0" PLATE B110C TYPE 10C
MA-3	MAST ARM (END)	05	12"	12"					ONE-WAY / PLATE B124C
MA-3	MAST ARM (MID)	02	12"	12"					ONE-WAY / PLATE B124C
MA-3	POLE MOUNT	02	12"	8"				9" 9"	0" PLATE B110C TYPE 10C
MA-3	POLE MOUNT	04	12"	8"				9" 9"	0" PLATE B110C TYPE 10C
MA-4	MAST ARM (END)	03	12"	12"					ONE-WAY / PLATE B124C
MA-4	MAST ARM (MID)	09	12"	12"					ONE-WAY / PLATE B124C
MA-4	POLE MOUNT	08	12"	8"				9" 9"	0" PLATE B110C TYPE 10C
MA-4	POLE MOUNT	02	12"	8"				9" 9"	0" PLATE B110C TYPE 10C

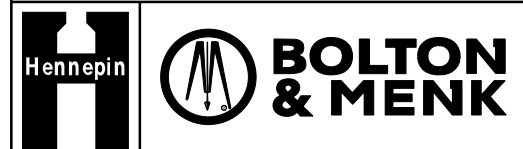
RED - CIRCULAR RED INDICATION
 YEL - CIRCULAR YELLOW INDICATION
 GSTA - GREEN STRAIGHT THRU ARROW
 GRN - CIRCULAR GREEN INDICATION
 YLTA - YELLOW LEFT TURN ARROW
 DLTA - GREEN LEFT TURN ARROW
 DW - DON'T WALK
 S - SPECIAL OPTICALLY PROGRAMMED SIGNALS (SEE SPECIAL PROVISIONS)

LEGEND
 LANE CLOSED TO TRAFFIC

SP 027-681-035 NOTES:
 1) ALL COMPONENTS INPLACE.
 2) ADJUST VIDEO DETECTION ZONES AS NEEDED.
 3) SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE DETAILS.

CITY IMPROVEMENT NO. 96-04

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 4/18/2019

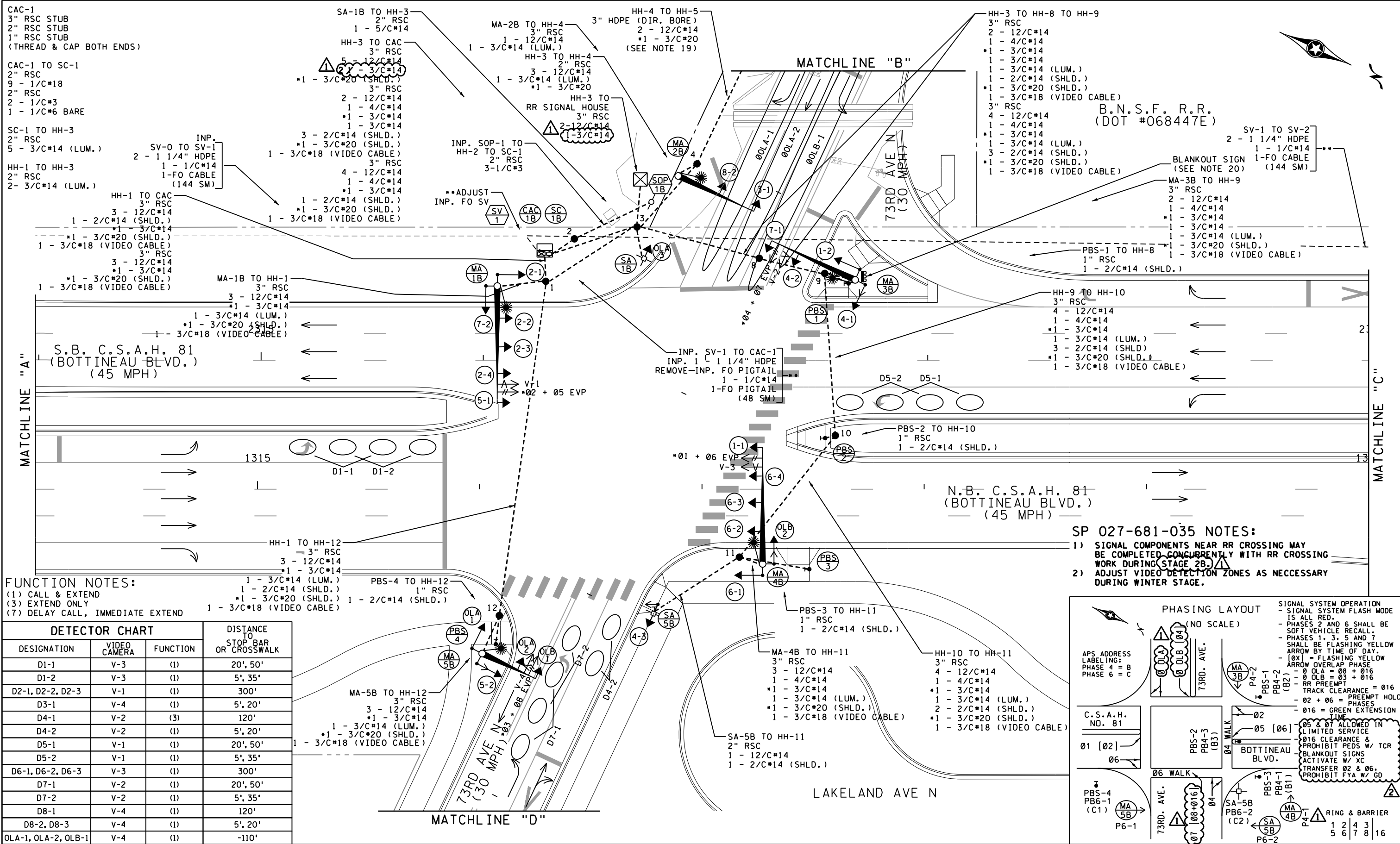


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 Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 4/19/2019

TEMPORARY INTERSECTION LAYOUT (SYSTEM "K") (STAGE 2A)
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

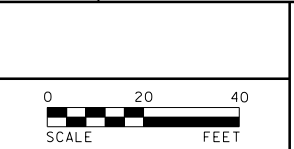
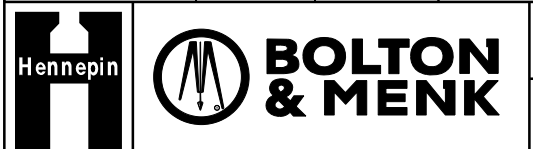
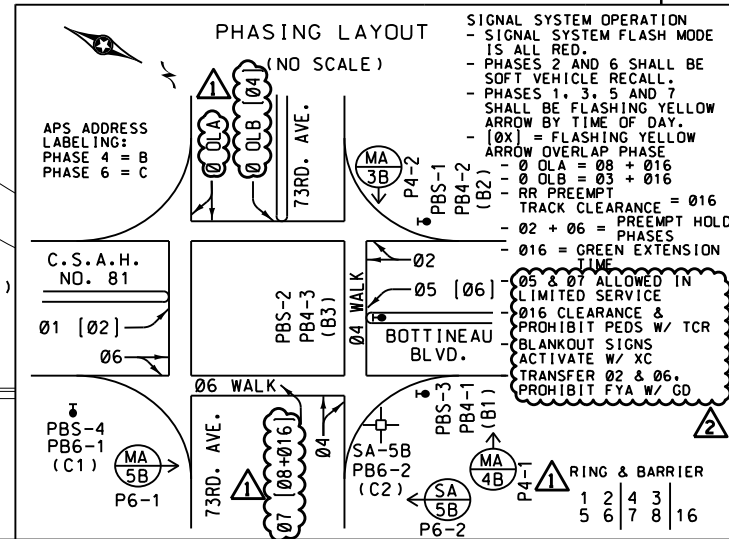
SHEET
 SS7
 SS126



FUNCTION NOTES:
 (1) CALL & EXTEND
 (3) EXTEND ONLY
 (7) DELAY CALL, IMMEDIATE EXTEND

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-3	(1)	20', 50'
D1-2	V-3	(1)	5', 35'
D2-1, D2-2, D2-3	V-1	(1)	300'
D3-1	V-4	(1)	5', 20'
D4-1	V-2	(3)	120'
D4-2	V-2	(1)	5', 20'
D5-1	V-1	(1)	20', 50'
D5-2	V-1	(1)	5', 35'
D6-1, D6-2, D6-3	V-3	(1)	300'
D7-1	V-2	(1)	20', 50'
D7-2	V-2	(1)	5', 35'
D8-1	V-4	(1)	120'
D8-2, D8-3	V-4	(1)	5', 20'
OLA-1, OLA-2, OLB-1	V-4	(1)	-110'

SP 027-681-035 NOTES:
 1) SIGNAL COMPONENTS NEAR RR CROSSING MAY BE COMPLETED CONCURRENTLY WITH RR CROSSING WORK DURING STAGE 2B.
 2) ADJUST VIDEO DETECTION ZONES AS NECESSARY DURING WINTER STAGE.

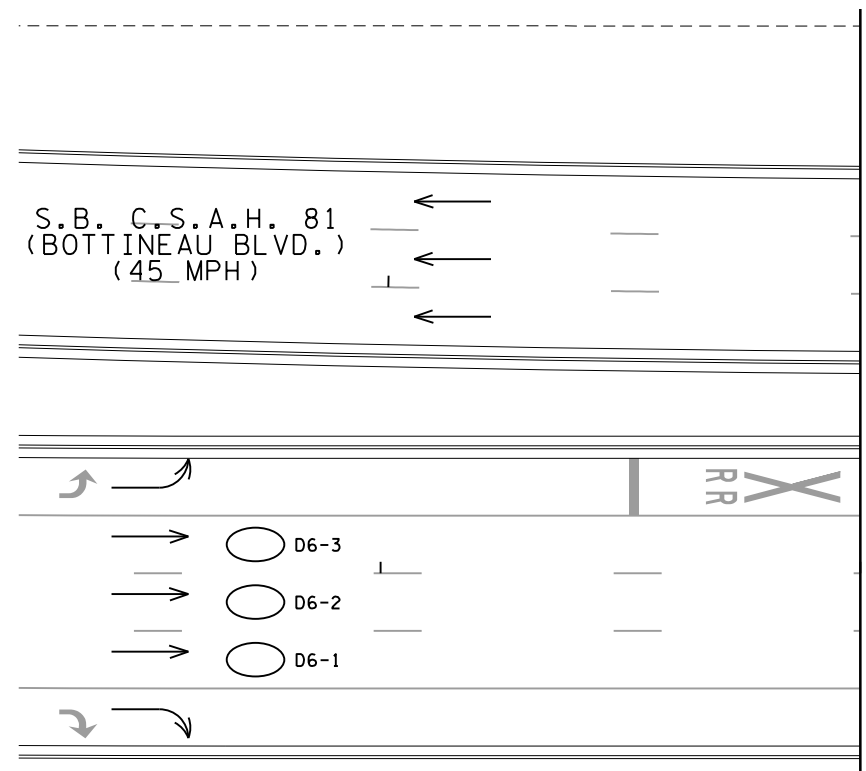


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 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 5/6/2019

TEMPORARY INTERSECTION LAYOUT (SYSTEM "B") (WINTER STAGE)
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040
SHEET
 SS8
 SS126

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 5/7/2019

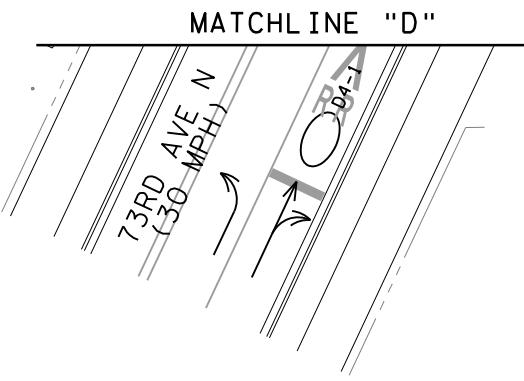


MATCHLINE "A"

HH-6 TO HH-7
2" RSC (DIR. BORE)
*1-3/C*20 (SHLD.)

SA-4B TO HH-7
2" RSC
*1 - 3/C*20 (SHLD.)

*03 + 08 EVP
DETECTOR



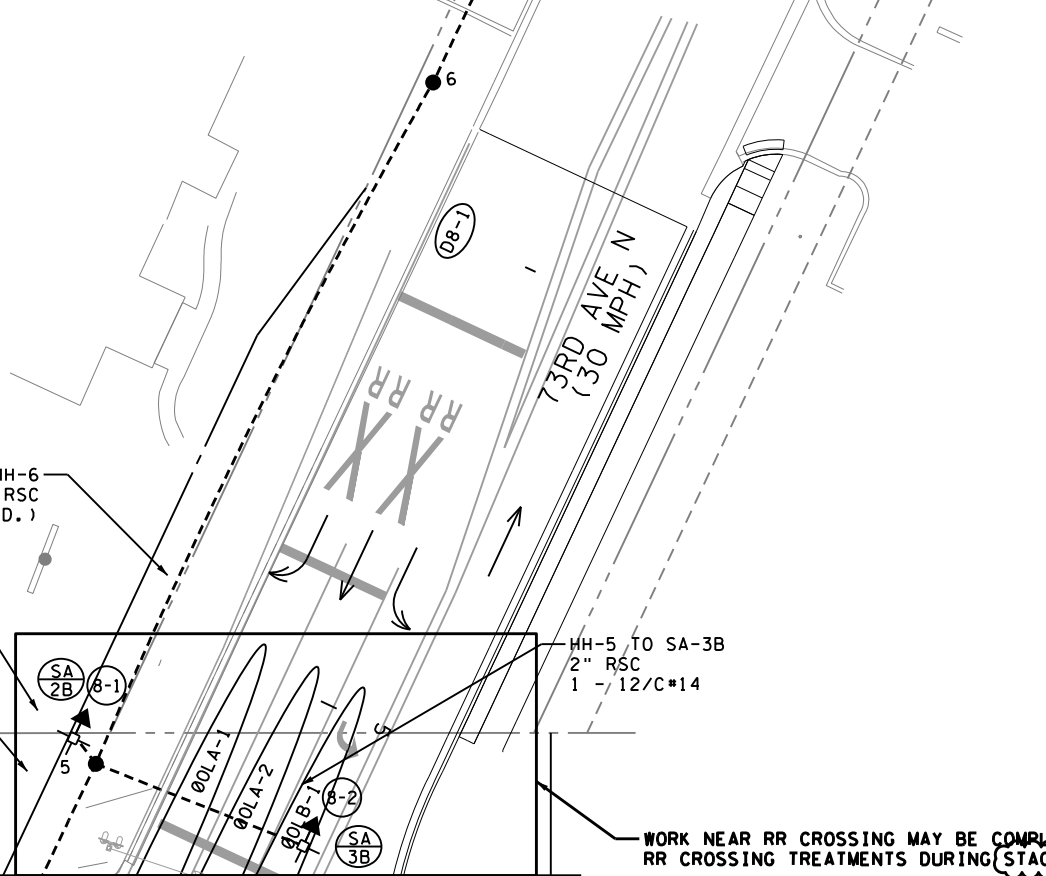
MATCHLINE "D"

HH-5 TO HH-6
2" RSC
*1 - 3/C*20 (SHLD.)

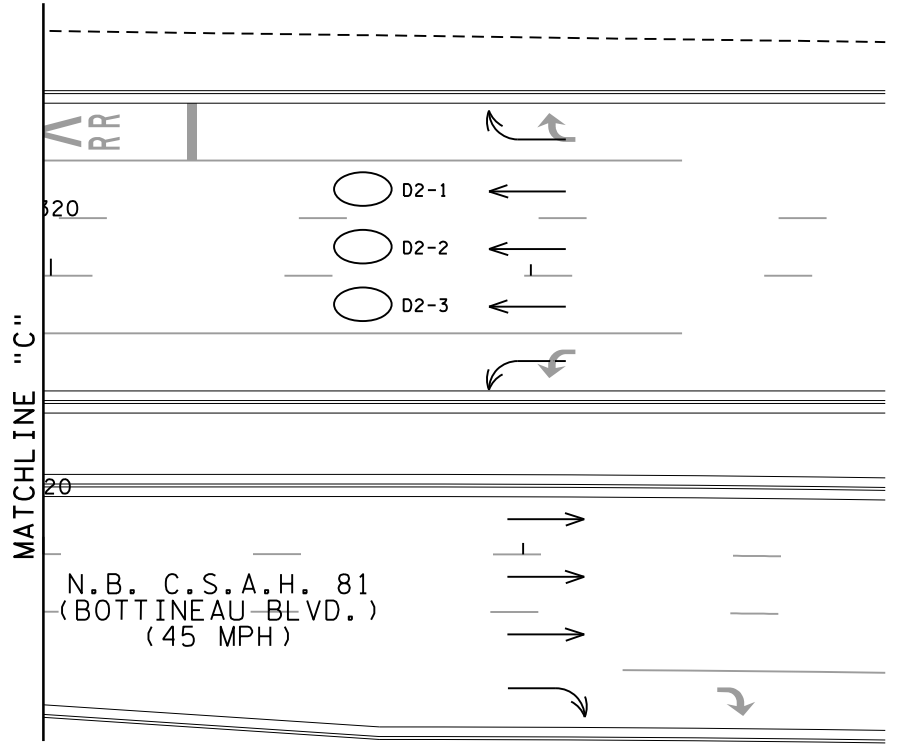
HH-5 TO SA-2B
2" RSC
1 - 12/C*14

HH-4 TO HH-5
3" HPDE (DIR. BORE)
2 - 12/C*14
*1 - 3/C*20 (SHLD.)

HH-5 TO SA-3B
2" RSC
1 - 12/C*14



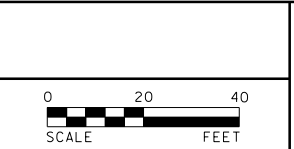
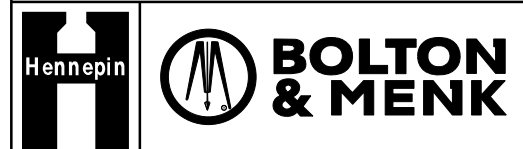
MATCHLINE "B"



MATCHLINE "C"

WORK NEAR RR CROSSING MAY BE COMPLETED CONCURRENTLY WITH RR CROSSING TREATMENTS DURING STAGE 2B

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5/7/2019



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

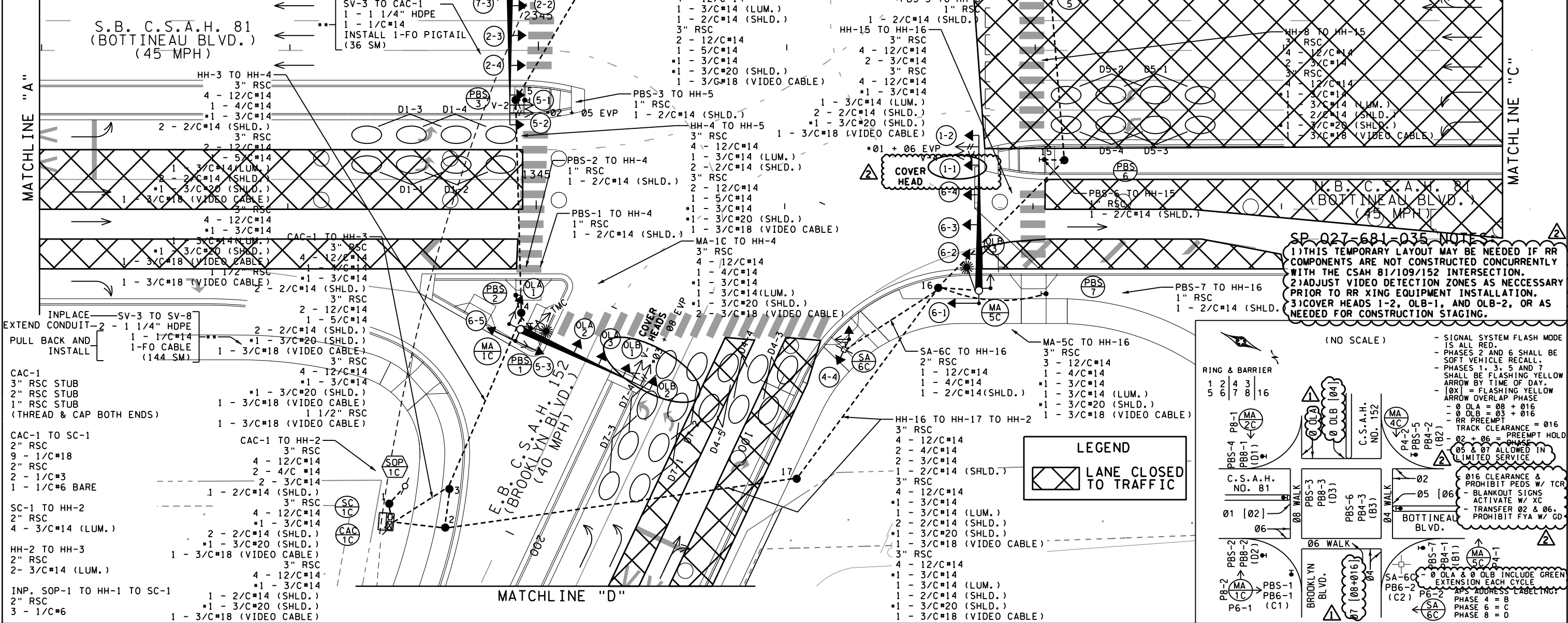
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 5/6/2019

TEMPORARY SIGNAL MATCHLINE LAYOUT (SYSTEM "B") (WINTER STAGE)
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

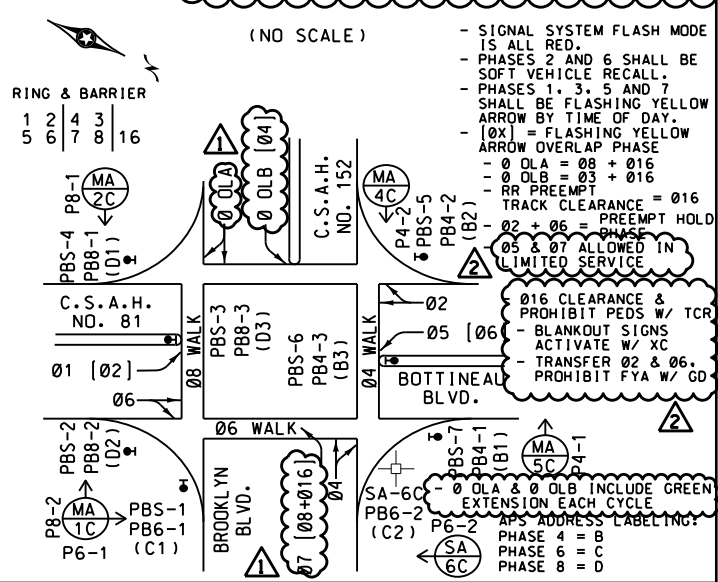
SHEET
SS9
SS126

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1, D1-3	V-4	(1)	20', 50'
D1-2, D1-4	V-4	(1)	5', 35'
D2-1, D2-2, D2-3	V-2	(1)	300'
D3-1, D3-2	V-1	(1)	5', 20'
D4-1, D4-2	V-3	(3)	250'
D4-3	V-3	(7)	5', 20'
D4-4, D4-5	V-3	(1)	5', 20'
D5-1, D5-3	V-2	(1)	20', 50'
D5-2, D5-4	V-2	(1)	5', 35'
D6-1, D6-2, D6-3	V-4	(1)	300'
D7-1, D7-3	V-3	(1)	20', 50'
D7-2, D7-4	V-3	(1)	5', 35'
D8-1, D8-2	V-1	(3)	250'
D8-3, D8-4, D8-5	V-1	(1)	5', 35'
OLA-1, OLA-2, OLB-1	V-1	(1)	-110'

FUNCTION-NOTES:
 (1) CALL & EXTEND
 (2) EXTEND ONLY
 (3) EXTEND ONLY
 (7) DELAY CALL, IMMEDIATE EXTEND



SP 027-681-035 NOTES
 1) THIS TEMPORARY LAYOUT MAY BE NEEDED IF RR COMPONENTS ARE NOT CONSTRUCTED CONCURRENTLY WITH THE CSAH 81/109/152 INTERSECTION.
 2) ADJUST VIDEO DETECTION ZONES AS NECESSARY PRIOR TO RR RING EQUIPMENT INSTALLATION.
 3) COVER HEADS 1-2, OLB-1, AND OLB-2, OR AS NEEDED FOR CONSTRUCTION STAGING.



Hennepin **BOLTON & MENK**

0 20 40
SCALE FEET

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Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: **MSL**
 CAD BY: **KME**
 CHECKED BY: **BTN**
 LAST REVISION: **5/6/2019**

TEMPORARY INTERSECTION LAYOUT (SYSTEM "C") (PRE RR RING EQUIPMENT STAGE)

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS10
SS126

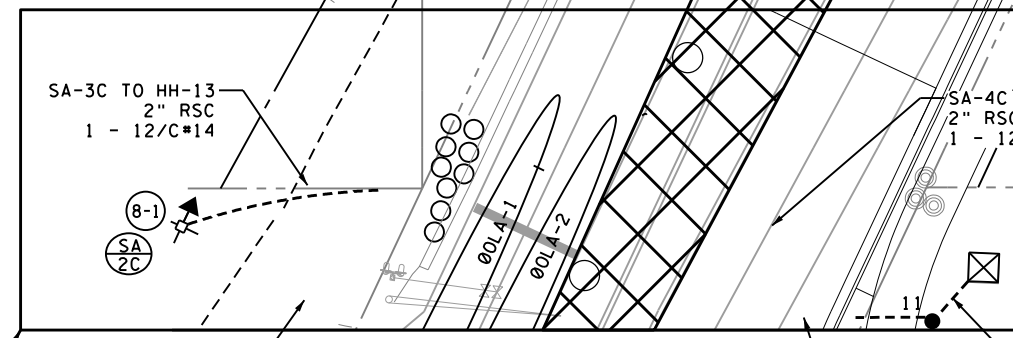
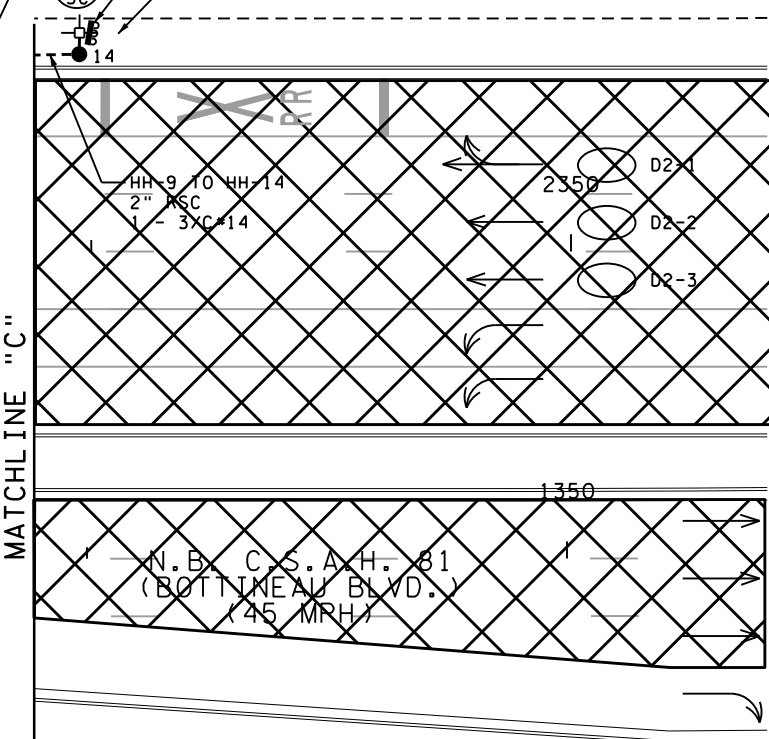
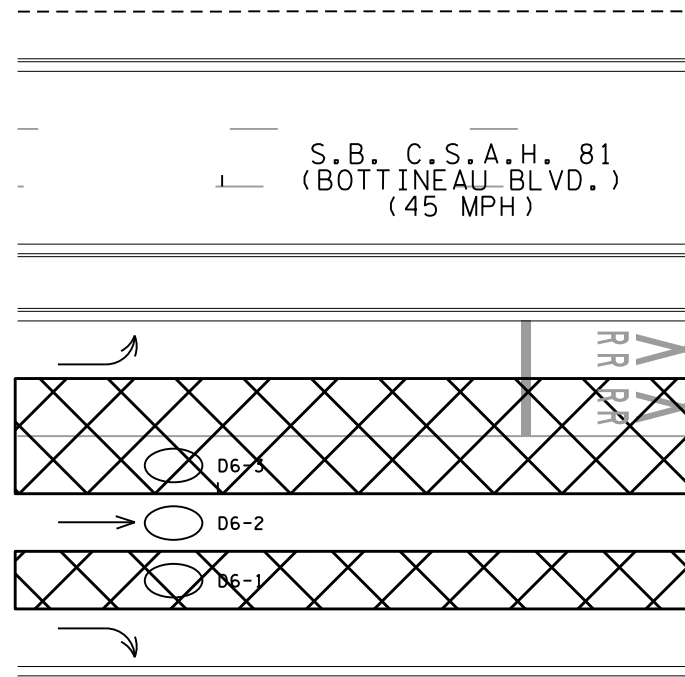
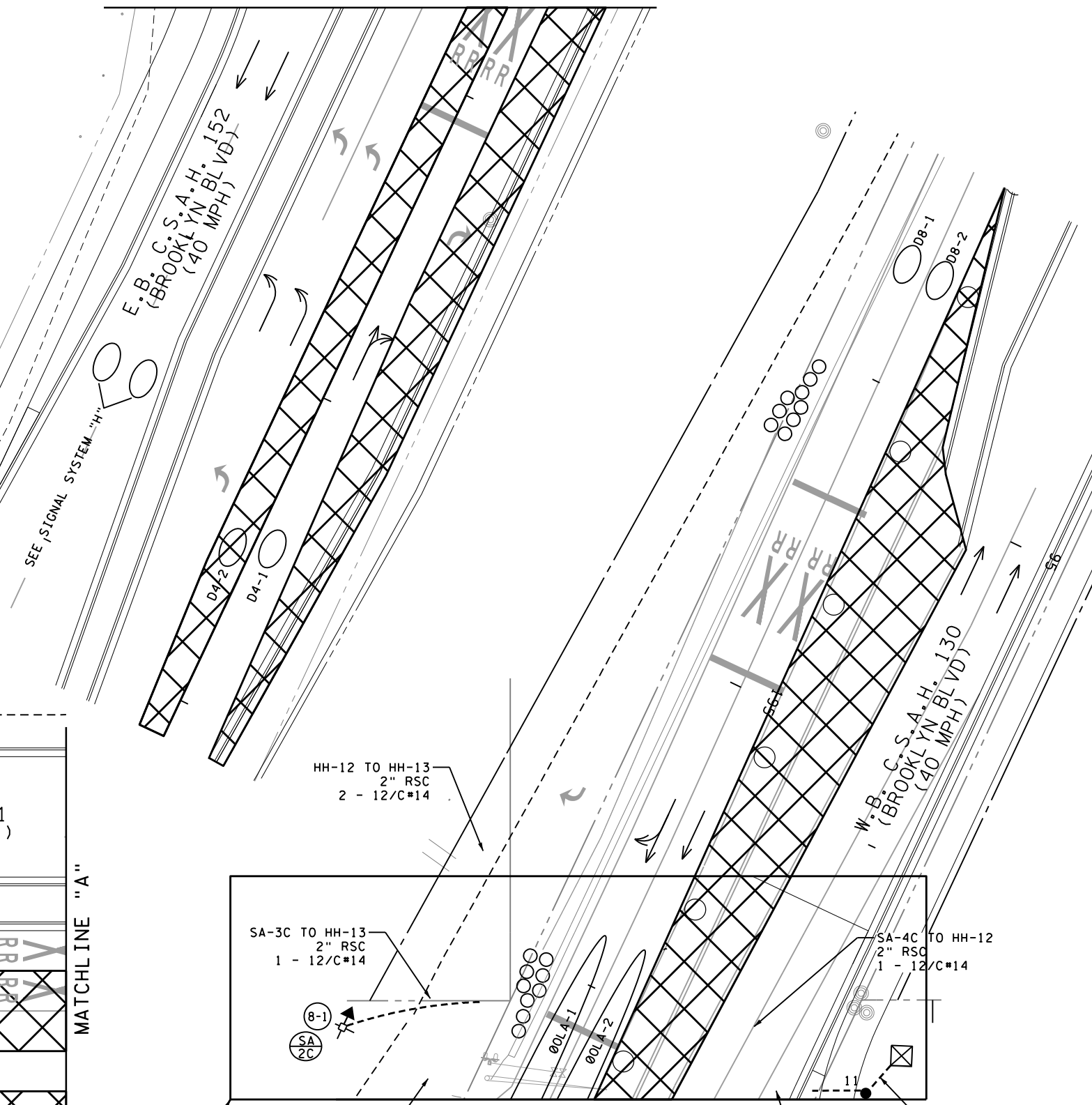
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MATCHLINE "D"



LEGEND

 LANE CLOSED TO TRAFFIC



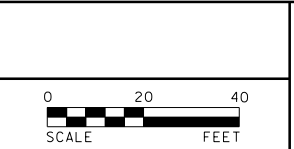
WORK NEAR RR CROSSING MAY BE COMPLETED CONCURRENTLY WITH RR CROSSING TREATMENTS DURING STAGE 2B

SP 027-681-035 NOTES:
 1) THIS TEMPORARY LAYOUT MAY BE NEEDED IF RR COMPONENTS ARE NOT CONSTRUCTED CONCURRENTLY WITH THE CSAH 81/109/152 INTERSECTION.
 2) ADJUST VIDEO DETECTION ZONES AS NECESSARY PRIOR TO RR XING EQUIPMENT INSTALLATION.

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Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 5/6/2019

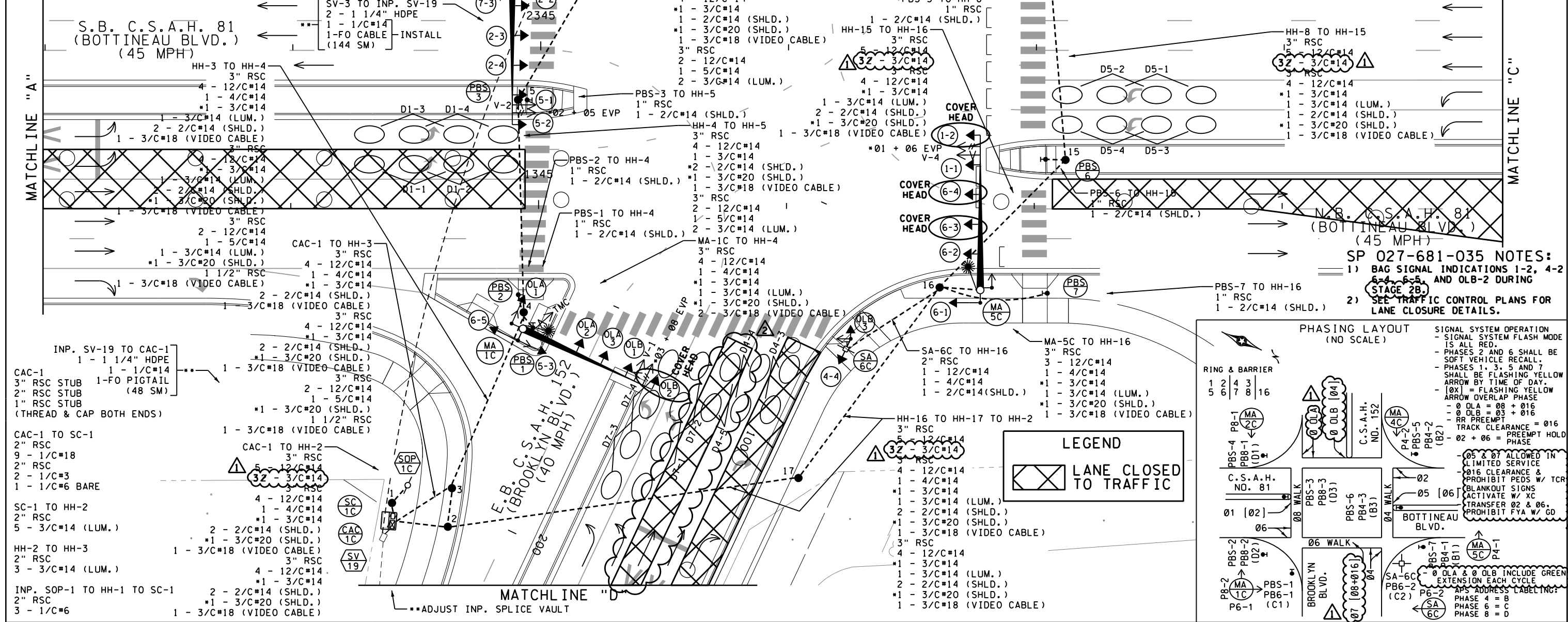
TEMPORARY SIGNAL MATCHLINE LAYOUT (SYSTEM "C") (PRE RR XING EQUIPMENT STAGE)

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS11
 SS126

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1, D1-3	V-4	(1)	20', 50'
D1-2, D1-4	V-4	(1)	5', 35'
D2-1, D2-2, D2-3	V-2	(1)	300'
D3-1, D3-2	V-1	(1)	5', 20'
D4-1, D4-2	V-3	(3)	250'
D4-3	V-3	(7)	5', 20'
D4-4, D4-5	V-3	(1)	5', 20'
D5-1, D5-3	V-2	(1)	20', 50'
D5-2, D5-4	V-2	(1)	5', 35'
D6-1, D6-2, D6-3	V-4	(1)	300'
D7-1, D7-3	V-3	(1)	20', 50'
D7-2, D7-4	V-3	(1)	5', 35'
D8-1, D8-2	V-1	(3)	250'
D8-3, D8-4, D8-5	V-1	(1)	5', 35'
OLA-1, OLA-2, OLA-3 OLB-1, OLB-2	V-1	(1)	-110'

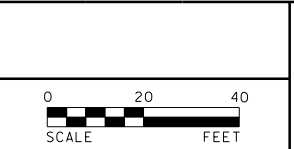
FUNCTION NOTES:
 (1) CALL & EXTEND
 (3) EXTEND ONLY
 (7) DELAY CALL, IMMEDIATE EXTEND



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5/7/2019



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 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

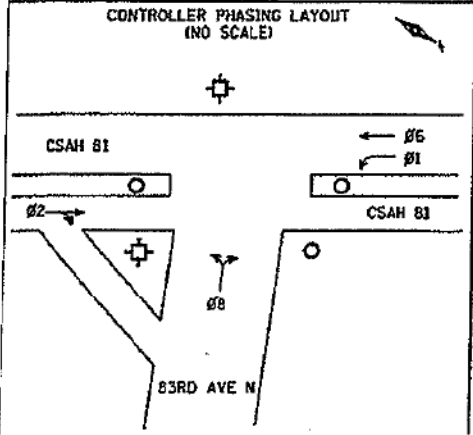
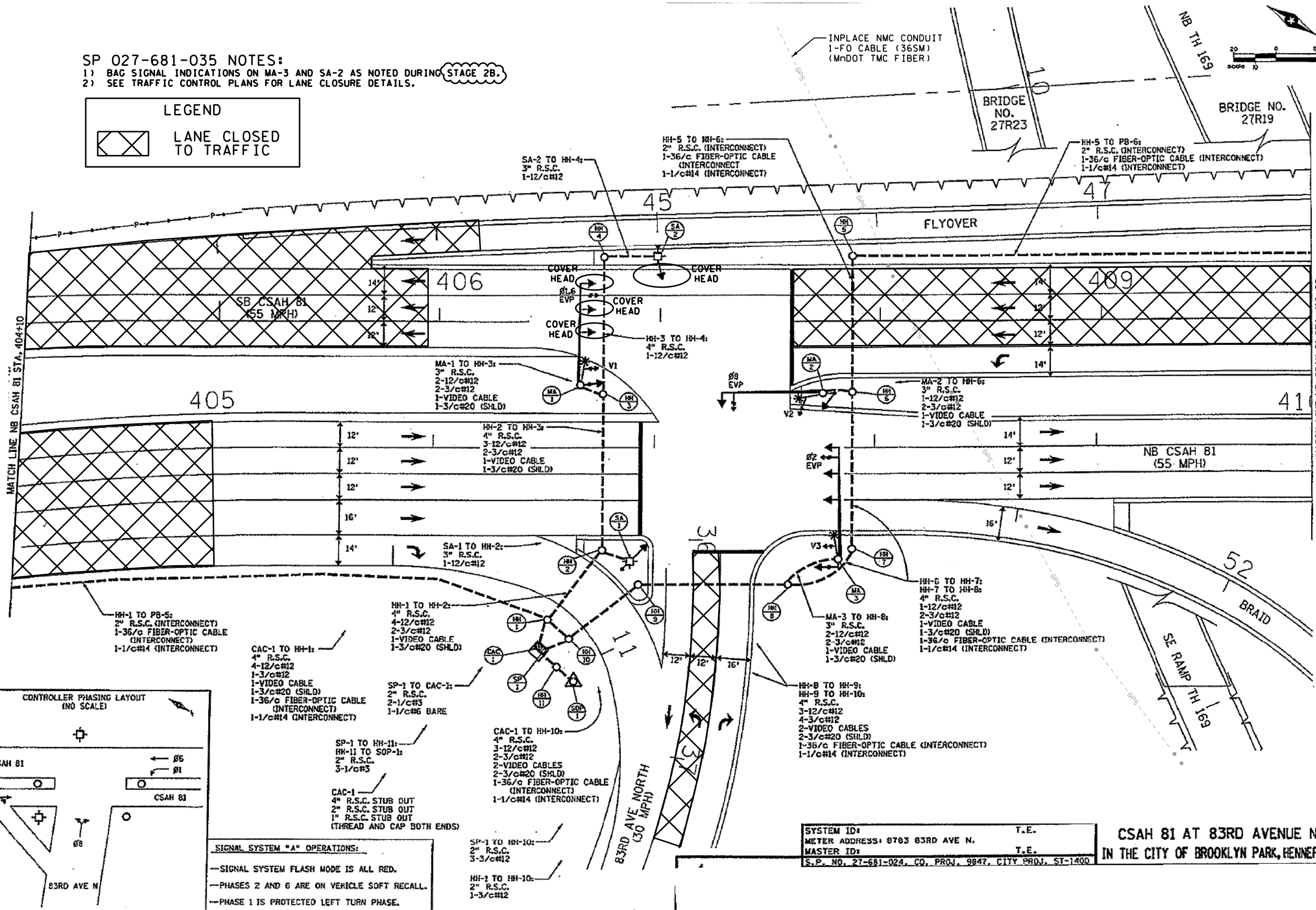
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 5/6/2019

INTERSECTION LAYOUT (SYSTEM "C") (STAGE 2B)
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS12
 SS126

SP 027-681-035 NOTES:

- 1) BAG SIGNAL INDICATIONS ON MA-3 AND SA-2 AS NOTED DURING STAGE 2B.
- 2) SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE DETAILS.



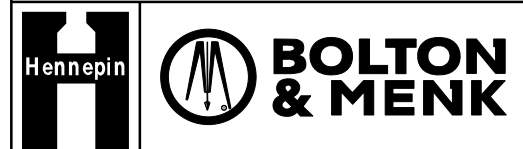
SIGNAL SYSTEM "A" OPERATIONS:

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 ARE ON VEHICLE SOFT RECALL.
- PHASE 1 IS PROTECTED LEFT TURN PHASE.

SYSTEM ID: T.E.
 METER ADDRESS: 8763 83RD AVE N.
 MASTER ID: T.E.
 S.P. NO. 27-681-024, CO. PROJ. 9847, CITY PROJ. ST-1400

CSAH 81 AT 83RD AVENUE NORTH
 IN THE CITY OF BROOKLYN PARK, HENNEPIN COUNTY

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 mikelo
 4/18/2019



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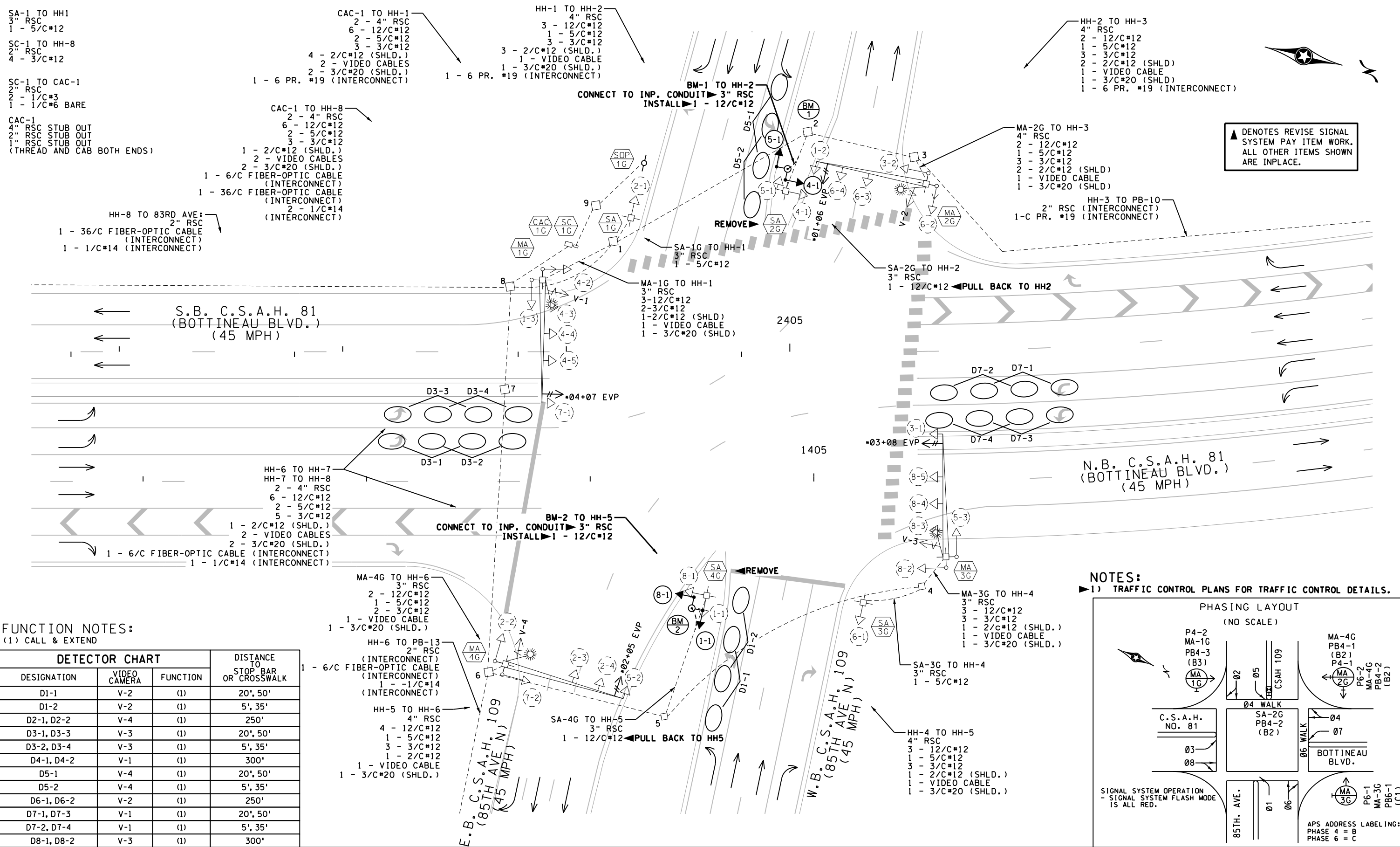
Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION: 4/19/2019

TEMPORARY INTERSECTION LAYOUT (SYSTEM "F") (STAGE 2B)

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS13
 SS126

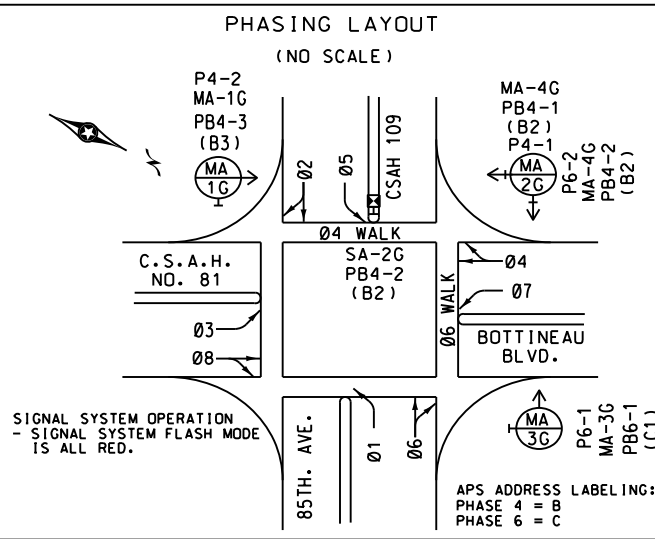


▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

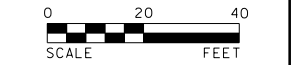
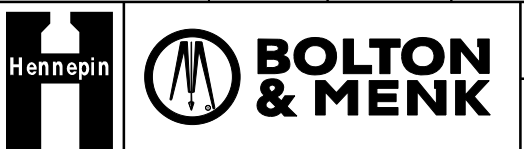
FUNCTION NOTES:
(1) CALL & EXTEND

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-2	(1)	20', 50'
D1-2	V-2	(1)	5', 35'
D2-1, D2-2	V-4	(1)	250'
D3-1, D3-3	V-3	(1)	20', 50'
D3-2, D3-4	V-3	(1)	5', 35'
D4-1, D4-2	V-1	(1)	300'
D5-1	V-4	(1)	20', 50'
D5-2	V-4	(1)	5', 35'
D6-1, D6-2	V-2	(1)	250'
D7-1, D7-3	V-1	(1)	20', 50'
D7-2, D7-4	V-1	(1)	5', 35'
D8-1, D8-2	V-3	(1)	300'

NOTES:
1) TRAFFIC CONTROL PLANS FOR TRAFFIC CONTROL DETAILS.



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mikel
2/28/2019



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BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

TEMPORARY SIGNAL SYSTEM (SYSTEM "G") - 85TH AVE.
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

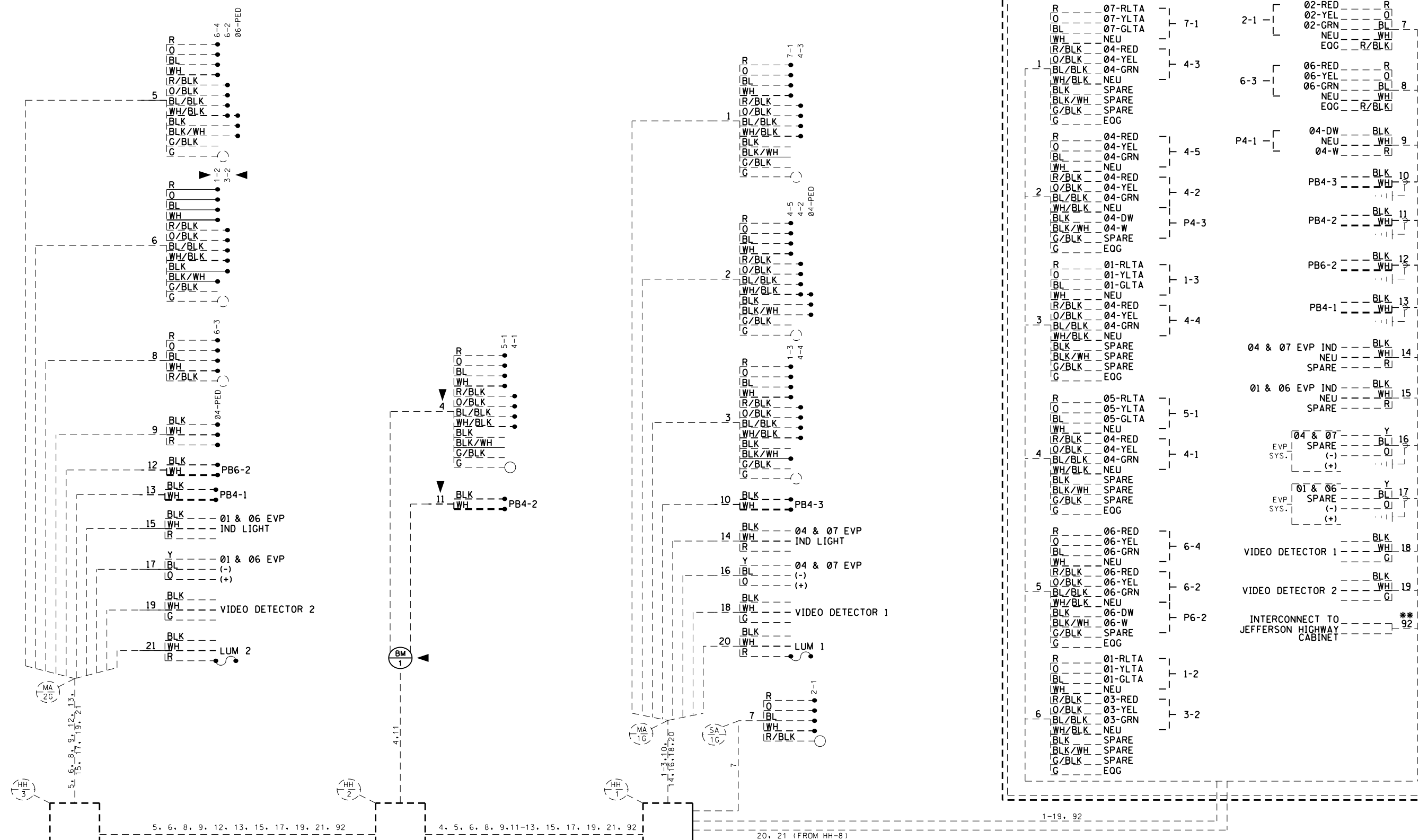
SHEET
SS14
SS126

NOTES:

▶ 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

CONTROLLER CABINET 1G

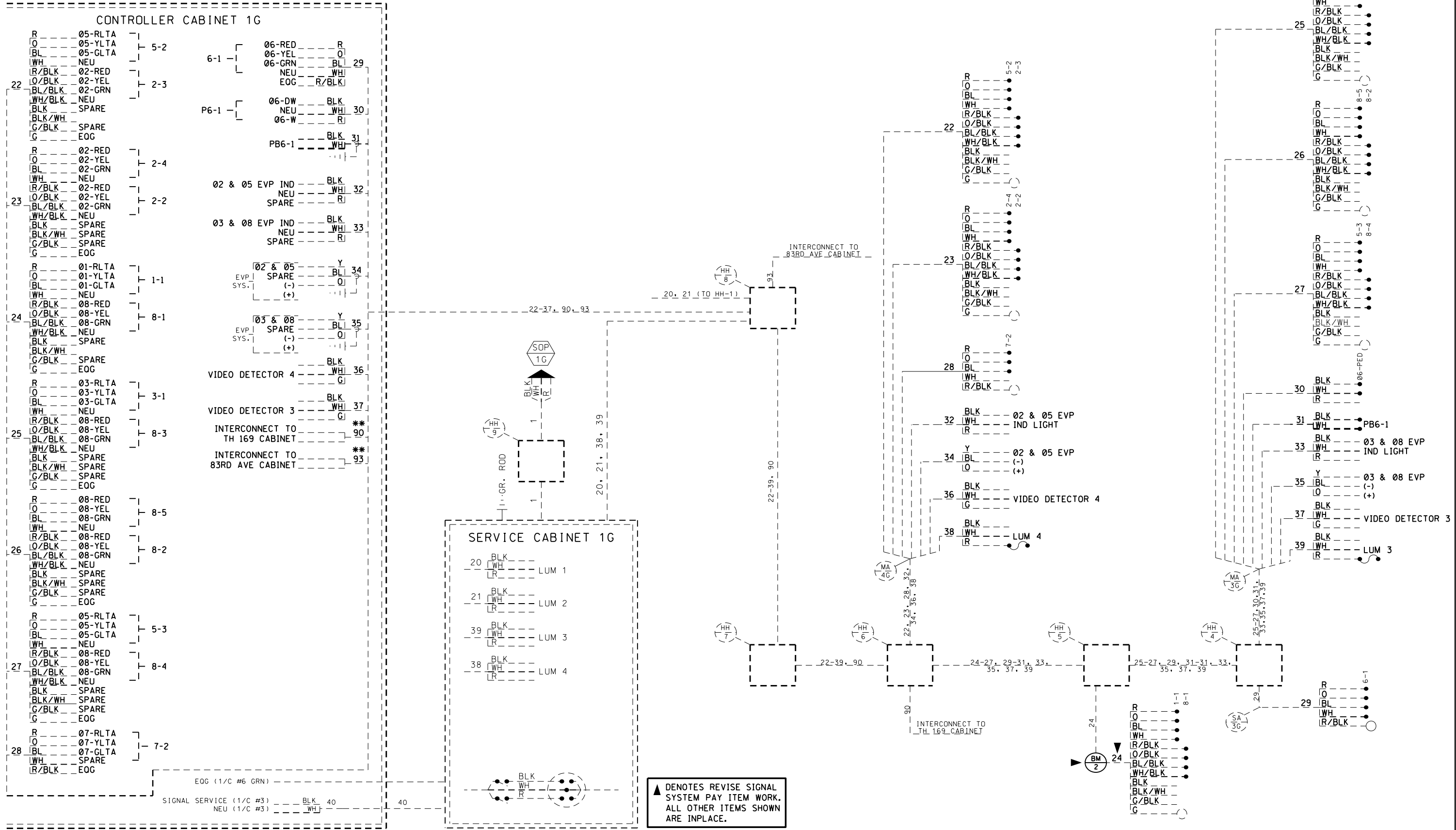


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mikel
2/28/2019

		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. BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: MSL	TEMPORARY SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "G")	SHEET SS15 / SS126
			CAD BY: KME		
			CHECKED BY: BTN		
			LAST REVISION:		

NOTES:

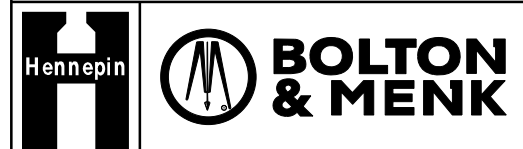
1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.



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2/28/2019



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

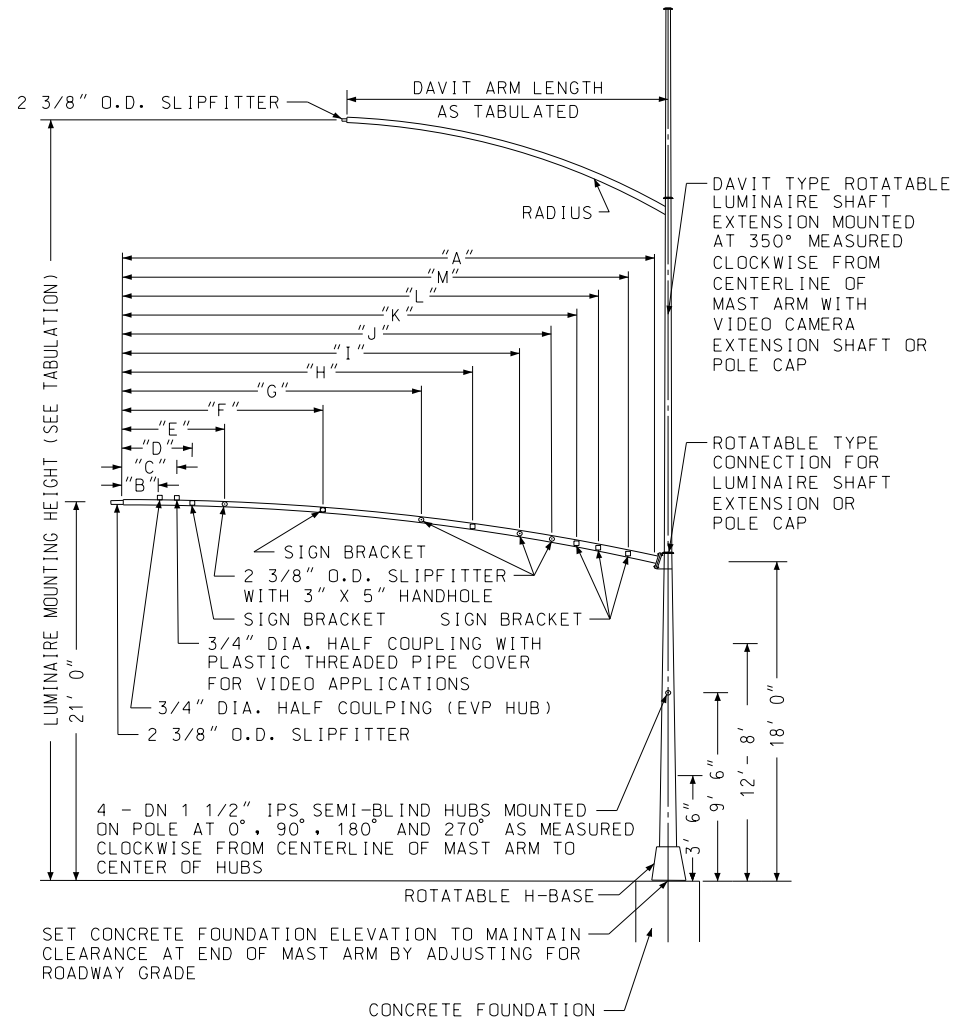
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

TEMPORARY SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "G")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS16 / SS126

CLASSIC HEAVY MAST ARM SIGNAL POLE AND ROTATABLE LUMINAIRE SHAFT EXTENSION (NO SCALE, SEE SPECIAL PROVISIONS)



NOTES:

- 1.) POLE SHAFT SHALL BE BACK RAKED TO SET PLUMB UNDER NORMAL LOAD.
- 2.) SEE SPECIAL PROVISIONS FOR PAINTING AND GALVANIZING REQUIREMENTS OF MAST ARM SIGNAL POLES.

MAST ARM POLE MOUNTING DETAILS

POLE	MAST ARM DIMENSIONS												LUMINAIRE MOUNTING HEIGHT	DAVIT ARM LENGTH
	"A" MAST ARM	"B" EVP HUB	"C" VIDEO HUB(1)	"D" FYA SIGN	"E" SIG. HEAD	"F" SIGN	"G" SIG. HEAD	"H" SIG. HEAD	"I" SIG. HEAD	"J" SIGN	"K" SIGN	"L" SIGN		
MA-1B	50.0'	3.0'	4.0'	6.0'	12.0'	-----	24.0'	37.0'	-----	40.0'	44.0'	-----	40.0'	8.0'
MA-2B	35.0'	3.0'	-----	-----	-----	10.0'	16.0'	-----	-----	-----	-----	-----	40.0'	8.0'
MA-3B	40.0'	3.0'	4.0'	6.0'	13.5'	-----	-----	-----	-----	20.5'	24.0'	27.5'	40.0'	8.0'
MA-4B	50.0'	3.0'	4.0'	6.0'	12.0'	-----	24.0'	37.0'	-----	40.0'	44.0'	-----	40.0'	8.0'
MA-5B	25.0'	3.0'	4.0'	6.0'	9.0'	-----	-----	-----	-----	12.0'	15.5'	19.5'	40.0'	8.0'
MA-1C	55.0'	3.0'	4.0'	6.0'	11.0'	-----	22.0'	33.0'	-----	35.75'	39.25'	42.75'	35.0'	8.0'
MA-2C	60.0'	3.0'	4.0'	6.0'	10.0'	-----	23.0'	35.0'	47.0'	49.75'	52.75'	55.75'	40.0'	8.0'
MA-3C	40.0'	3.0'	-----	6.0'	-----	11.0'	-----	-----	-----	-----	-----	-----	40.0'	8.0'
MA-4C	50.0'	3.0'	4.0'	6.0'	10.0'	-----	22.0'	35.0'	-----	37.75'	41.25'	44.75'	40.0'	8.0'
MA-5C	60.0'	3.0'	4.0'	6.0'	11.0'	-----	23.0'	35.0'	47.0'	49.75'	52.75'	55.75'	40.0'	8.0'
MA-1D	55.0'	3.0'	4.0'	-----	12.0'	-----	24.0'	-----	-----	27.5'	31.5'	-----	40.0'	8.0'
MA-2D	50.0'	3.0'	4.0'	6.0'	12.0'	-----	24.0'	37.0'	-----	40.5'	44.5'	-----	40.0'	8.0'
MA-3D	30.0'	3.0'	4.0'	-----	11.0'	-----	-----	-----	-----	17.0'	20.5'	24.0'	40.0'	8.0'
MA-1E	55.0'	3.0'	4.0'	6.0'	25.0'	-----	-----	-----	-----	37.75'	41.25'	44.75'	35.0'	8.0'
MA-2E	55.0'	3.0'	4.0'	6.0'	12.0'	-----	24.0'	37.0'	-----	39.25'	42.25'	45.25'	40.0'	8.0'
MA-3E	55.0'	3.0'	4.0'	7.5'	5.5' (2)	-----	17.5'	29.5'	-----	32.0'	35.5'	39.0'	40.0'	8.0'
MA-4E	60.0'	3.0'	4.0'	6.0'	11.0'	-----	23.0'	35.0'	-----	38.0'	41.0'	44.0'	40.0'	8.0'
MA-5G	0'	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	40.0'	8.0'
MA-6G	0'	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	35.0'	8.0'
MA-1H	50.0'	3.0'	4.0'	6.0'	11.0'	-----	22.0'	-----	-----	24.75'	27.75'	-----	40.0'	8.0'
MA-2H	35.0'	3.0'	4.0'	6.0'	10.0'	-----	-----	-----	-----	16.75'	19.75'	22.75'	40.0'	8.0'
MA-3H	50.0'	3.0'	4.0'	6.0'	11.0'	-----	22.0'	-----	-----	24.75'	27.75'	-----	40.0'	8.0'
MA-4H	35.0'	3.0'	4.0'	6.0'	10.0'	-----	-----	-----	-----	16.75'	19.75'	22.75'	40.0'	8.0'
MA-1I	30.0'	3.0'	4.0'	6.0'	10.0'	-----	-----	-----	-----	17.25'	20.25'	23.25'	40.0'	8.0'
MA-2I	50.0'	3.0'	4.0'	6.0'	10.0'	-----	21.0'	-----	-----	25.0'	28.0'	31.0'	40.0'	8.0'
MA-3I	30.0'	3.0'	4.0'	6.0'	10.0'	-----	-----	-----	-----	17.25'	20.25'	23.25'	40.0'	8.0'
MA-4I	50.0'	3.0'	4.0'	6.0'	11.0'	-----	22.0'	-----	-----	26.0'	29.0'	32.0'	40.0'	8.0'

SPECIFIC NOTES:

- (1) MOUNT WITH ADJUSTABLE CAMERA MOUNT (74")
- (2) INSTALL SIGN BRACKET OPPOSITE OF SIGNAL HEAD FOR DO NOT STOP ON TRACKS SIGN.

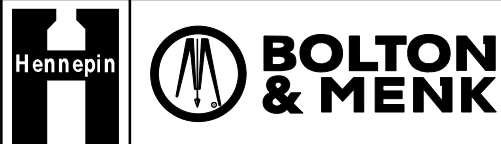
NOT TO SCALE

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION: _____

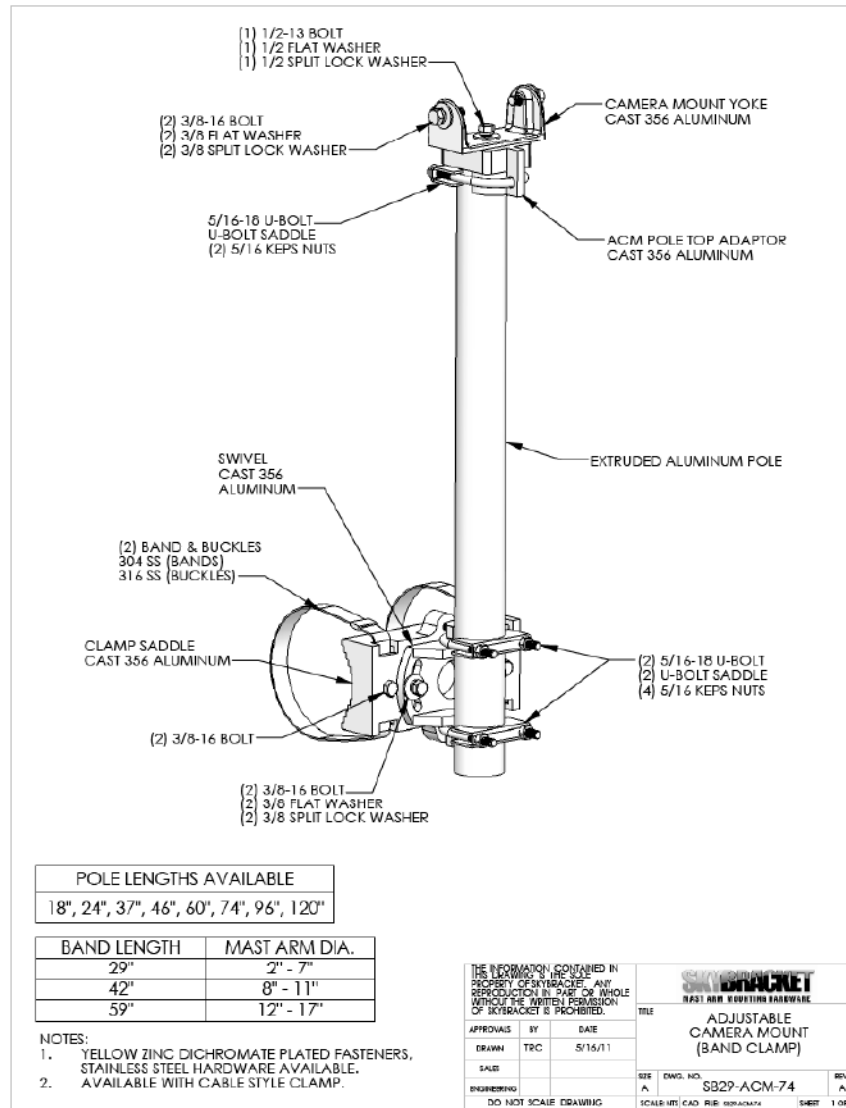
SIGNAL MAST ARM DETAILS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS17
 SS126

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 Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019



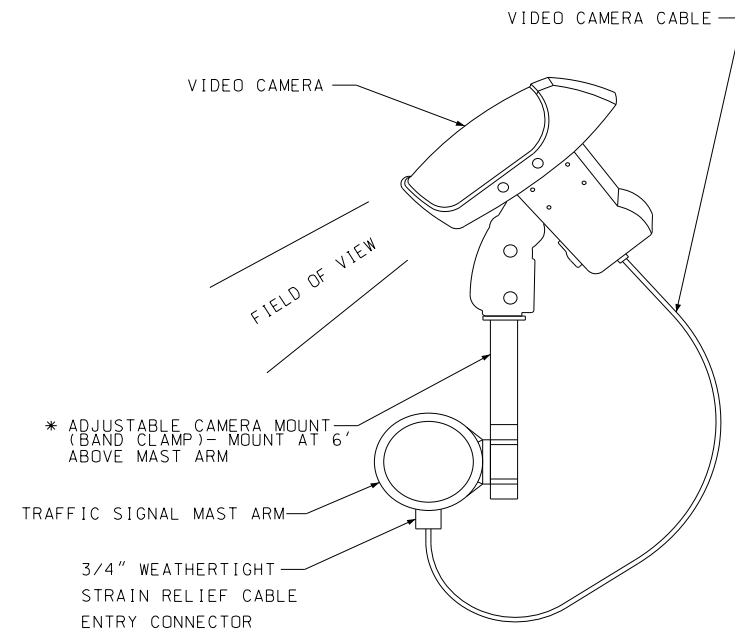
**ADJUSTABLE CAMERA MOUNTING DETAIL
(NO SCALE)**



* MAST ARM MOUNTING POLE LENGTH SHALL BE 74".
 ALL HARDWARE SHALL BE STAINLESS STEEL.
 AS DIRECTED BY THE ENGINEER

APPROVALS	BY	DATE	TITLE
DRAWN	TRC	5/16/11	ADJUSTABLE CAMERA MOUNT (BAND CLAMP)
SALES			
ENGINEERING			
DO NOT SCALE DRAWING	SCHUBERT CAD	REV: 08/20/14	SHEET 1 OF 1

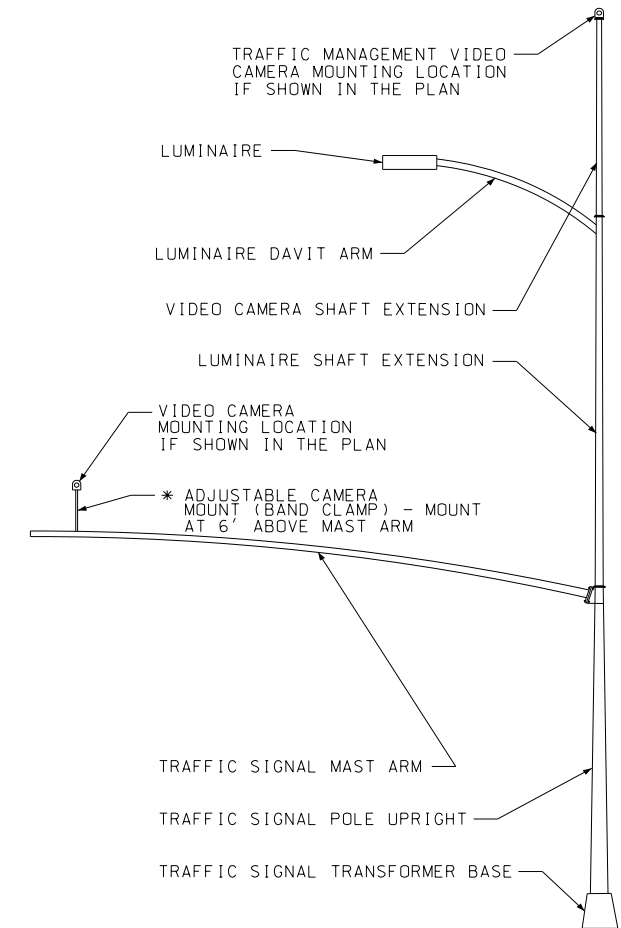
**VIDEO CAMERA MOUNTING DETAIL
(NO SCALE)**



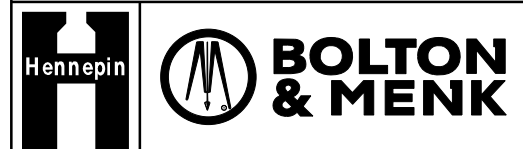
* HEIGHT OF MOUNTING BRACKET SHALL FACILITATE A CLEAR LINE OF SIGHT TO THE INTENDED FIELD OF VIEW AND ALLOW FOR FREE MOVEMENT OF THE VIDEO CAMERA. IF REQUIRED ALL COSTS TO PROVIDE AND INSTALL ADJUSTABLE CAMERA MOUNT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR TRAFFIC CONTROL SIGNAL SYSTEM (SYS).

NOT TO SCALE

**VIDEO CAMERA LOCATIONS DETAIL
(NO SCALE)**



* HEIGHT OF MOUNTING BRACKET SHALL FACILITATE A CLEAR LINE OF SIGHT TO THE INTENDED FIELD OF VIEW AND ALLOW FOR FREE MOVEMENT OF THE VIDEO CAMERA. IF REQUIRED ALL COSTS TO PROVIDE AND INSTALL ADJUSTABLE CAMERA MOUNT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR TRAFFIC CONTROL SIGNAL SYSTEM (SYS).



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Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: SJP
 CHECKED BY: BTN
 LAST REVISION:

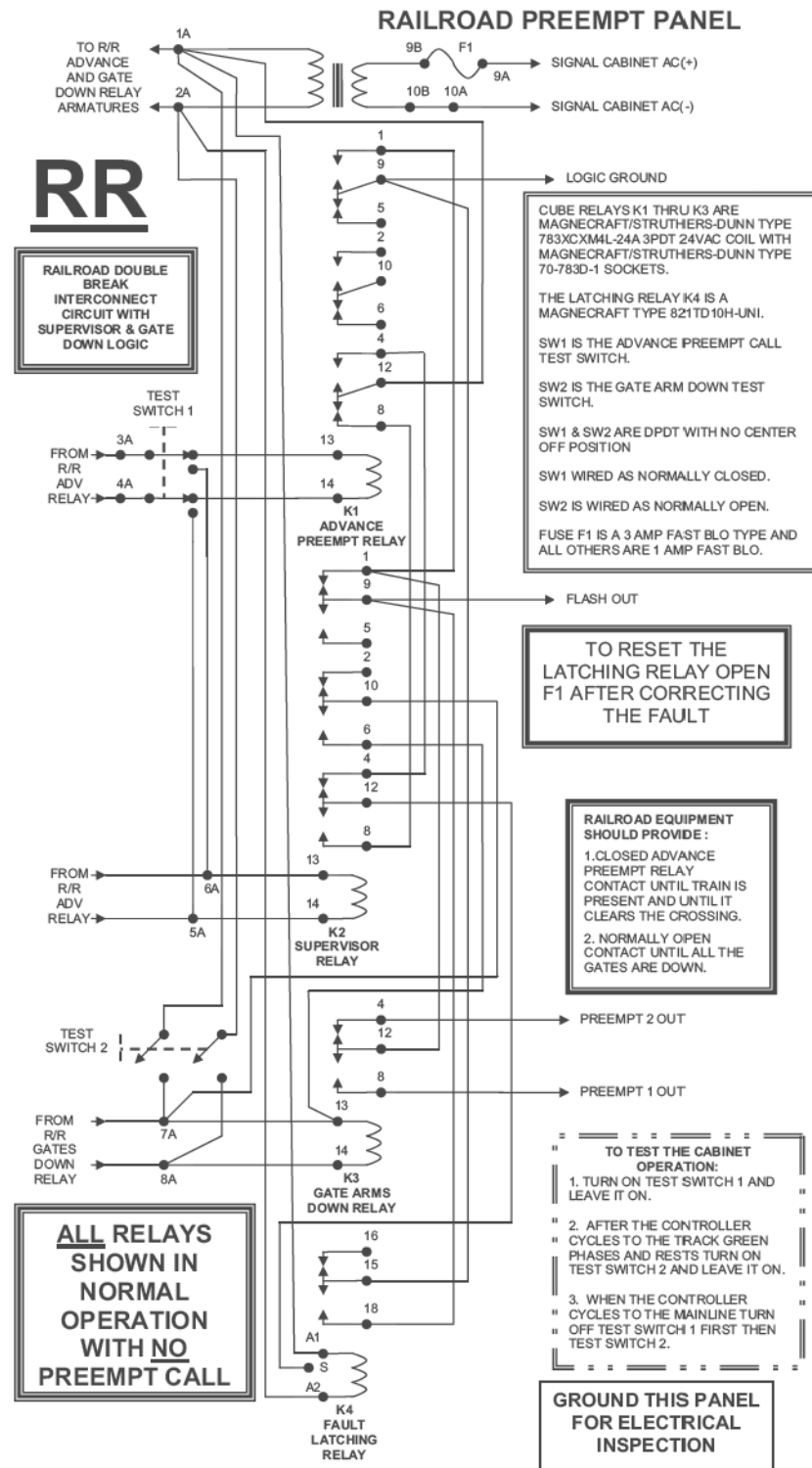
VIDEO DETECTOR DETAILS

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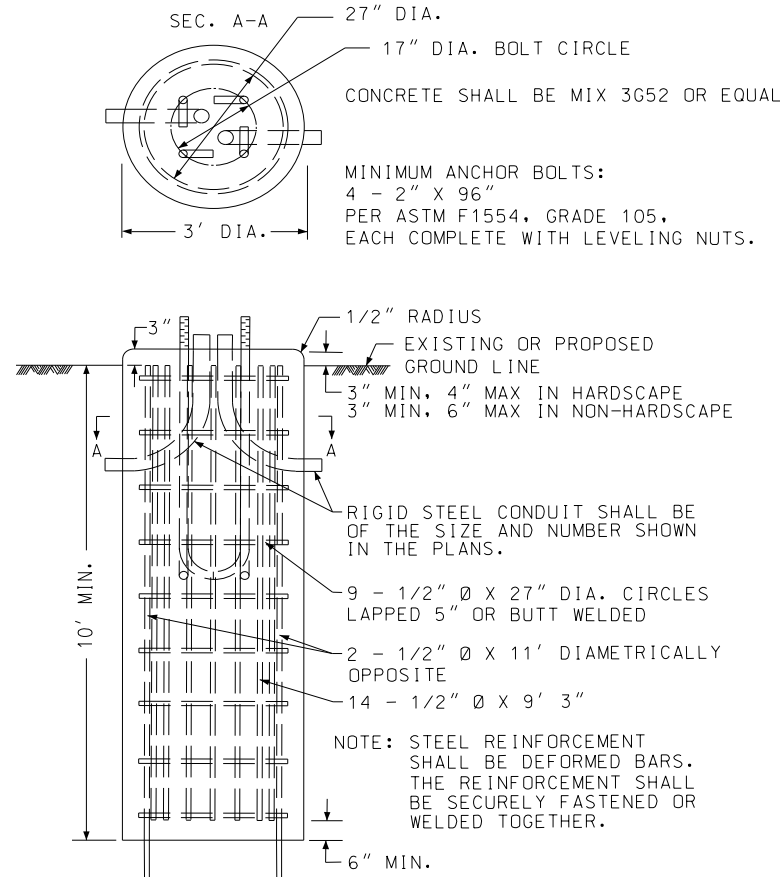
SHEET
 SS18
 SS126

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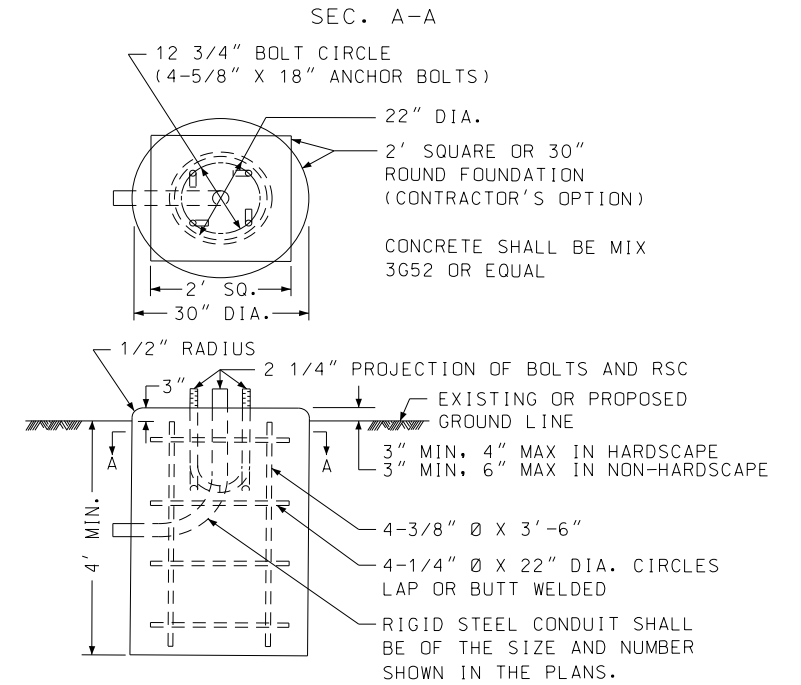
RR PREEMPT PANEL WIRING DETAIL



MAST ARM SIGNAL POLE FOUNDATION (NO SCALE)

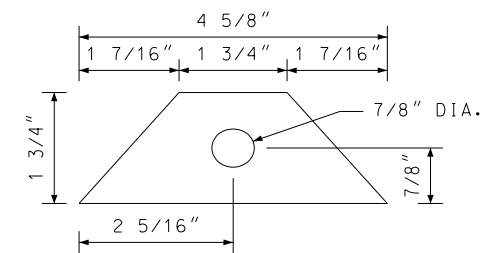


SIGNAL ASSEMBLY PEDESTAL MOUNT FOUNDATION (NO SCALE)



NOTE: STEEL REINFORCEMENT SHALL BE DEFORMED BARS. THE REINFORCEMENT SHALL BE SECURELY FASTENED OR WELDED TOGETHER.

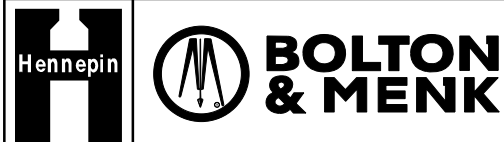
SIGNAL ASSEMBLY PEDESTAL MOUNT FLAT WASHER TYPICAL (NO SCALE)



NOTE: FLAT WASHERS SHALL BE 1/4" THICK A36 GALVANIZED STEEL.

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 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: SJP
 CHECKED BY: BTN
 LAST REVISION: _____

SIGNAL SYSTEM FOUNDATION DETAILS

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 S.P. 027-681-035, S.P. 110-020-040

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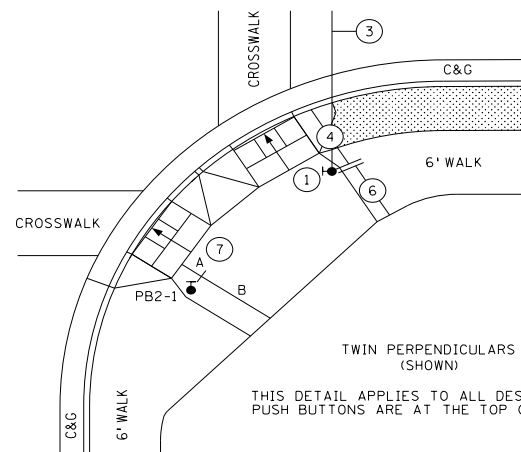
SS19
 SS126

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION
(NO SCALE)

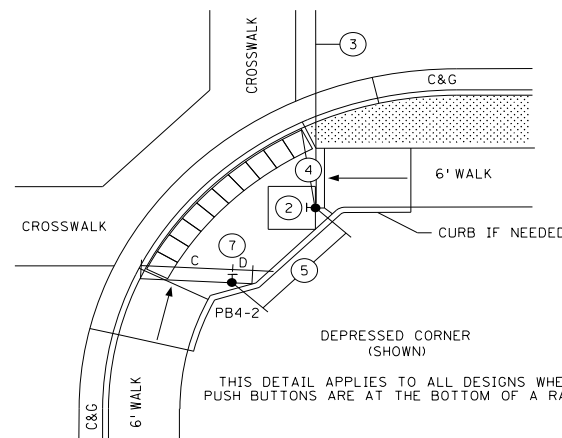
THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC INFORMATION REGARDING PEDESTRIAN RAMP LAYOUT AND PUSH BUTTON LOCATIONS, SEE THE PLAN.

SUPPLEMENTAL GUIDANCE FOR CONSTRUCTING COMPLIANT APS PUSH BUTTONS:

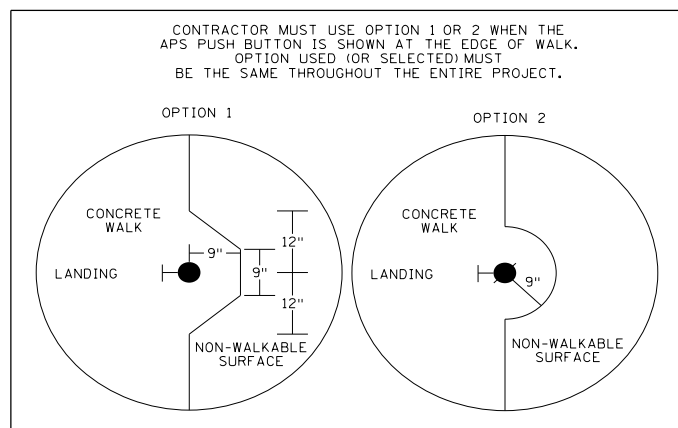
- ① THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE OUTSIDE EDGE OF CROSSWALK.
- ② A MINIMUM 4 FT X 4 FT LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON, WITH A 2 PERCENT MAXIMUM SLOPE IN ALL DIRECTIONS.
- ③ BUTTONS SHALL BE WITHIN 5 FT OF THE OUTSIDE EDGE OF THE CROSSWALK.
- ④ BUTTONS SHALL BE BETWEEN 1.5 FT AND 10 FT FROM THE BACK OF CURB OR EDGE OF ROADWAY, MEASURED IN THE DIRECTION OF TRAVEL. STANDALONE PUSH BUTTON STATIONS SHOULD BE 4' MINIMUM FROM THE BACK OF CURB TO AVOID KNOCKDOWNS.
- ⑤ BUTTONS SHALL BE AT LEAST 10 FT APART.
- ⑥ PROVIDE A MAINTENANCE ACCESS ROUTE (MAR) WHEREVER POSSIBLE FOR SNOW REMOVAL PURPOSES. A MAR REQUIRES A 6 FT MINIMUM CLEAR DISTANCE BETWEEN A PUSH BUTTON AND ANY OBSTRUCTIONS, INCLUDING BUILDINGS, V-CURB, ELECTRICAL FOUNDATIONS, SIGNAL CABINETS, OR ANOTHER PUSH BUTTON.
- ⑦ BUTTON SHOULD BE 2 FT MINIMUM FROM RAMP GRADE BREAK AND BACK OF WALK.



THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE TOP OF A RAMP



THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE BOTTOM OF A RAMP

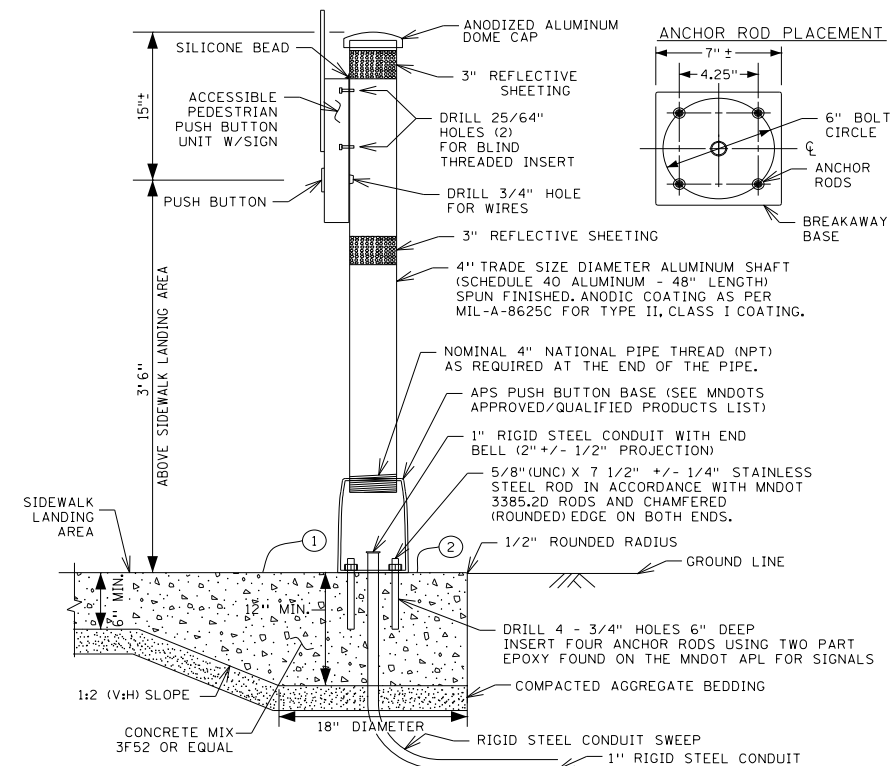


CONTRACTOR MUST USE OPTION 1 OR 2 WHEN THE APS PUSH BUTTON IS SHOWN AT THE EDGE OF WALK. OPTION USED (OR SELECTED) MUST BE THE SAME THROUGHOUT THE ENTIRE PROJECT.

- A - DISTANCE MEASURED FROM THE PUSH BUTTON TO THE FRONT OF LANDING/TOP OF RAMP
- B - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE BACK OF LANDING/EDGE OF WALK
- C - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE OUTSIDE EDGE OF DOMES IN THE DIRECTION OF TRAVEL
- D - CLEAR DISTANCE FROM THE PUSH BUTTON TO THE BACK OF LANDING MEASURED IN THE OPPOSITE DIRECTION OF TRAVEL

NOT TO SCALE

ACCESSIBLE PEDESTRIAN SIGNAL (APS)
APS PUSH BUTTON STATION
(NO SCALE)



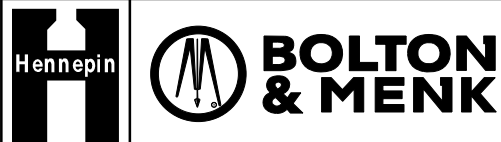
NOTES:

- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN SHUNT TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE SHAFT.
- ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.
- PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.
- INSTALL BLIND THREADED INSERTS USING MANUFACTURER'S SPECIFIC INSERTION TOOL.
- USE ZINC PLATED STEEL 1/4 - 20 UNC BLIND THREADED INSERTS SUITABLE FOR MOUNTING ON SURFACE WALL THICKNESS OF .337. APPROVED BLIND INSERTS ARE LISTED ON MNDOT'S APPROVED/QUALITY PRODUCTS LIST WEBSITE FOR TRAFFIC SIGNALS.
- USE APS 1/4 - 20 STAINLESS STEEL MOUNTING BOLTS. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
- APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" SHAFT.
- USE WHITE REFLECTIVE SHEETING AT INTERSECTION CORNERS AND YELLOW REFLECTIVE SHEETING IN CENTER MEDIANS. APPROVED TUBE DELINEATOR SHEETING IS LISTED ON MNDOT'S APPROVED/QUALIFIED PRODUCTS LIST WEBSITE FOR SIGNING.
- AN 18" X 6" FIBER FORMING TUBE MAY BE USED FOR THE LOWER HALF OF THE FOUNDATION WHEN CONDITIONS DO NOT ALLOW FOR THE 18" X 6" HOLE TO STAND OPEN.
- ① THE PUSH BUTTON STATION FOUNDATION IS MONOLITHIC (POURED AT ONE TIME) WITH THE SIDEWALK. PROVIDE A 1:2 (V:H) SLOPE GRADE WHERE THE 6" MIN SIDEWALK DEPTH TRANSITIONS TO THE 12" MIN FOUNDATION DEPTH. MAINTAIN THE COMPACTED AGGREGATE BEDDING AND THICKNESS USED FOR THE SIDEWALK THROUGHOUT THE SLOPE AND FOUNDATION GRADING. PROVIDE 1:2 (V:H) SLOPE GRADING 360 DEGREES FOR THE TRANSITION FROM THE SIDEWALK TO THE FOUNDATION WHEN THE FOUNDATION IS NOT LOCATED NEAR EDGE OF SIDEWALK AND IS SURROUNDED BY CONCRETE WALK.
- ② ENSURE CONCRETE CONTROL JOINTS AND EDGE OF CONCRETE WALK ARE A MINIMUM 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.

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mikela
2/28/2019



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

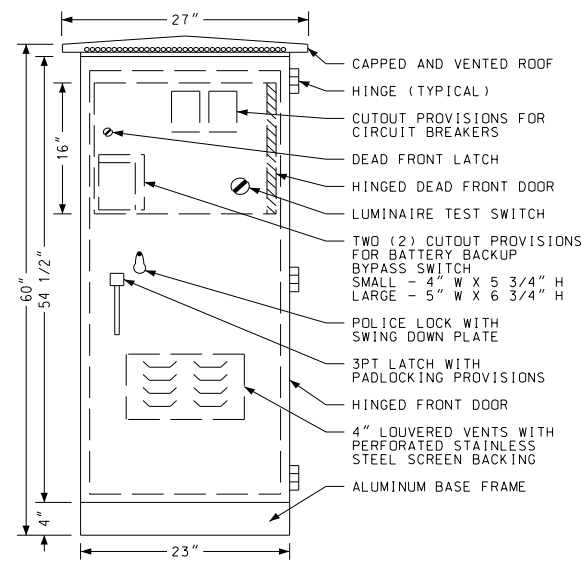
DESIGN BY: MSL
CAD BY: SJF
CHECKED BY: BTN
LAST REVISION:

APS PUSH BUTTON STATION DETAILS
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

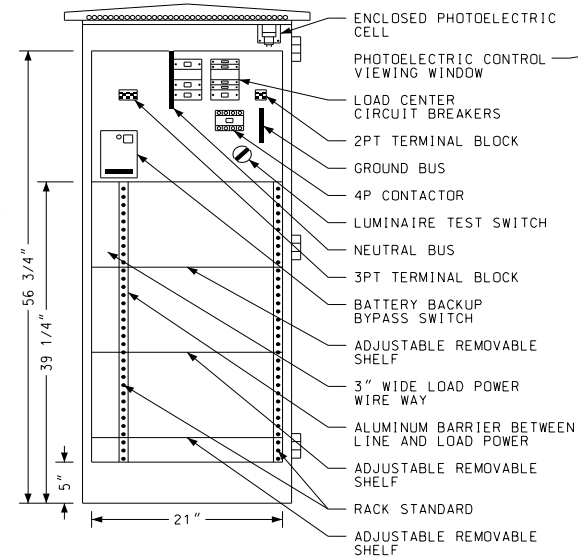
SHEET
SS20
SS126

TYPICAL SERVICE CABINET DETAILS

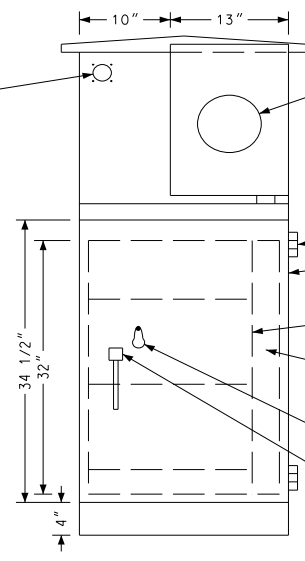
FRONT ELEVATION



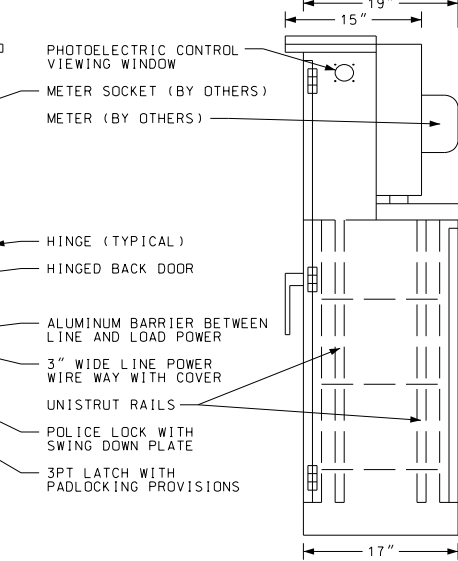
FRONT ELEVATION (DOOR REMOVED)



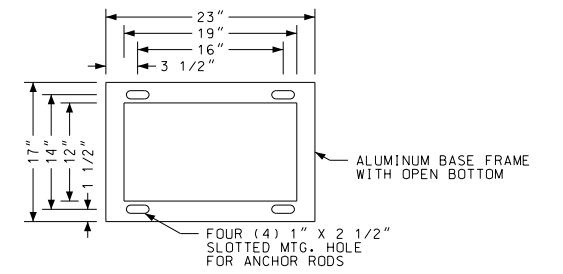
BACK ELEVATION



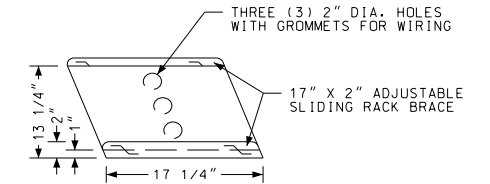
RIGHT SIDE ELEVATION



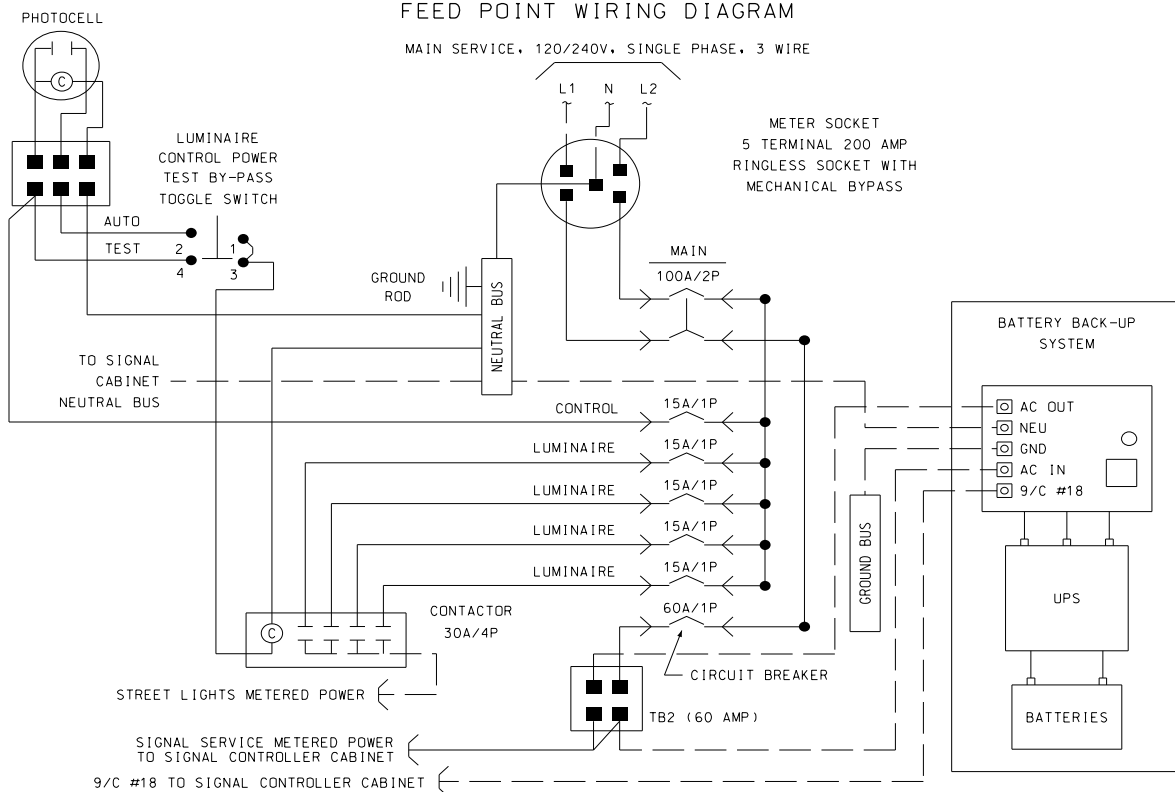
SERVICE CABINET BASE DETAILS



SERVICE CABINET SHELF DETAILS



FEED POINT WIRING DIAGRAM



CONSTRUCTION NOTES

1. EACH SERVICE CABINET SHALL BE FABRICATED FROM 1/8" ALUMINUM FOR OUTDOOR WEATHERPROOF SERVICE. AFTER FABRICATION, THE SERVICE CABINET, BOTH INSIDE AND OUTSIDE, SHALL BE PROTECTED WITH AN EXTERNAL THIRTY (30) MINUTE CLEAR ANODIZED FINISH.
2. ALL HINGES, HINGE PINS AND LOCKS SHALL BE OF NON-CORRODING CONSTRUCTION.
3. THE SERVICE CABINET DOORS SHALL BE ATTACHED TO THE ENCLOSURE WITH NON-CORRODING TAMPERPROOF CARRIAGE BOLTS AND SECURED WITH A STANDARD POLICE LOCK COMPLETE WITH A NUMBER 2 KEY AND SWING DOWN PLATE. PROVIDE ONE (1) KEY.
4. BOTH DOOR OPENINGS SHALL BE PROVIDED WITH A NEOPRENE GASKET TO FORM A COMPLETE SEAL WITH THE ENCLOSURE.
5. PROVIDE A 2" DIA. WEATHERPROOF AND VANDAL RESISTANT CLEAR PLASTIC PHOTOELECTRIC CONTROL VIEWING WINDOW. LOCATED IN THE TOP SECTION OF THE CABINET AND ON THE LEFT OR RIGHT SIDE OF THE CABINET, ORIENTED TO ELIMINATE INTERFERENCE BY MANMADE LIGHT SOURCES AND SHALL NORMALLY FACE NORTH OR EAST.
6. THE CIRCUIT BREAKERS SHALL BE 120/240 VOLT AC, 60 HZ, AND SHALL BE CLEARLY MARKED WITH THE "ON" AND "OFF" POSITIONS AND IDENTIFIED WITH THE LOAD WHICH IT IS CARRYING (E.G. "SIGNALS", "LUMINAIRE WITH NUMBER" OR "FUTURE"). ALL CIRCUIT BREAKERS SHALL BE CLEARLY MARKED IN A MANNER THAT WILL NOT DETERIORATE WITH MOISTURE OR AGE.
7. SHORT CIRCUIT RATING - 10,000 AIC SYMMETRICAL.
8. PROVIDE A PHOTOELECTRIC CONTROL CELL AND LUMINAIRE TEST SWITCH WITHIN THE CABINET.
9. PROVIDE CLEARANCE TO INSTALL OR REMOVE THE PHOTOELECTRIC CONTROL CELL.
10. ALL CONDUIT ENTERING THE FOUNDATION SHALL BE SEALED WITH AN APPROVED DUCT SEAL.
11. EACH SERVICE CABINET SHALL BE U.L. LISTED AND LABELED AS "SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT" AND APPROVED FOR OUTDOOR USE.
12. EACH SERVICE CABINET SHALL BE WELDED TO THE BASE IN ACCORDANCE WITH U.L. STANDARDS.
13. SEE THE INTERSECTION LAYOUT FOR THE REQUIRED NUMBER OF LUMINAIRES AT EACH INTERSECTION.
14. A 1/2" THICK SOLID BUTYL RUBBER GASKET SHALL BE PROVIDED BETWEEN THE CONCRETE FOUNDATION AND THE SERVICE CABINET. THE GASKET SHALL CONSIST OF FOUR (4) STRIPS, SIZED TO FIT THE BASE INCLUDING CORNER HOLE/SLOTS TO ACCOMMODATE THE ANCHOR RODS. PROVIDE A 1/2" GAP FOR DRAINAGE.
15. UNISTRUT RAILS (#A400EA OR EQUIVALENT) USED FOR SHELF SUPPORTS FOR THREE (3) ADJUSTABLE AND REMOVABLE SHELVES SHALL BE MOUNTED TO THE SIDES OF THE SERVICE CABINET.
16. THE 19" RACK IN THE BASE OF THE CABINET SHALL BE CONSTRUCTED TO TIA/EIA 3100 STANDARDS.
17. THE SERVICE CABINET SHALL BE SUPPLIED AND INSTALLED WITH BATTERY BACK-UP EQUIPMENT.
18. ONE (1) SERVICE CABINET SHALL BE INSTALLED ON EACH EQUIPMENT PAD. SEE THE EQUIPMENT PAD DETAIL SHEETS FOR ADDITIONAL DETAILS.

NOT TO SCALE

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mikela
2/28/2019



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: SJP
CHECKED BY: BTN
LAST REVISION:

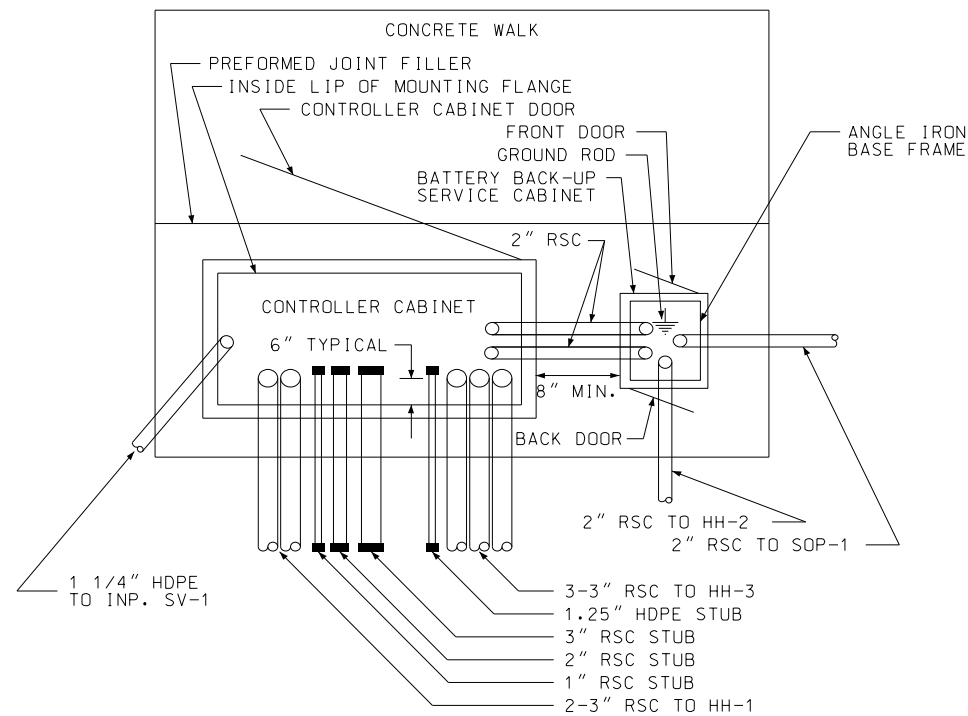
SIGNAL SYSTEM SERVICE CABINET DETAILS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

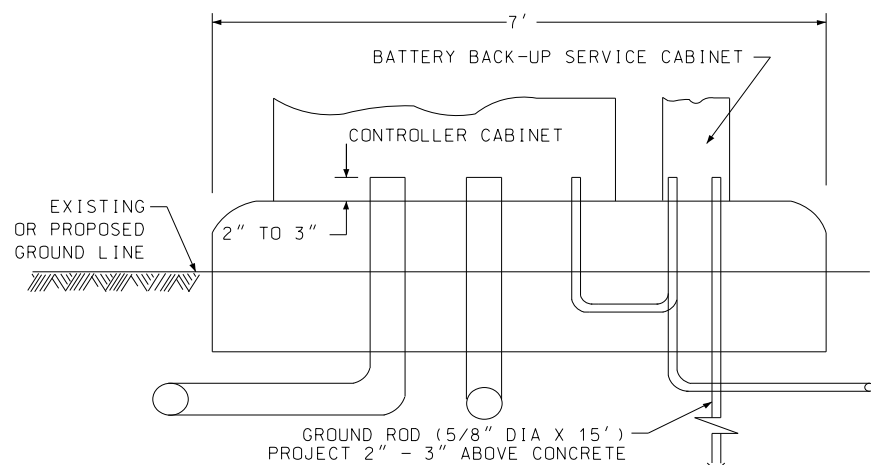
SHEET

SS21
SS126

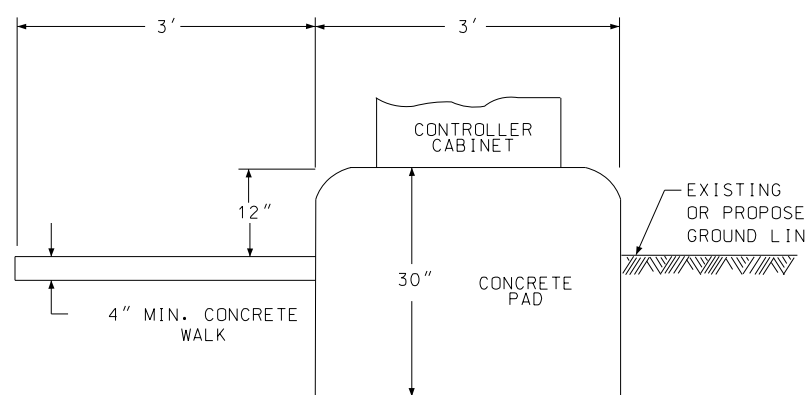
TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET
 NOT TO SCALE FOR ILLUSTRATION ONLY
 SEE SIGNAL PLAN LAYOUT FOR ADDITIONAL INFORMATION
 PLAN VIEW



FRONT VIEW



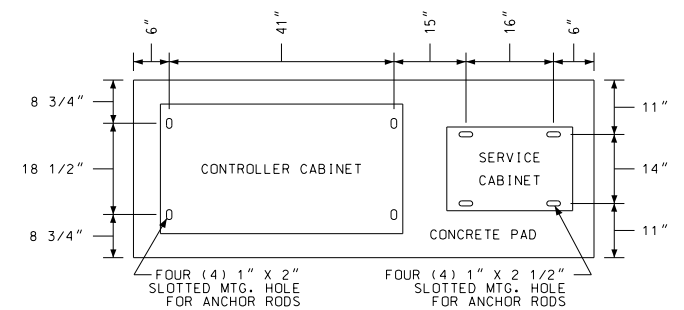
SIDE VIEW



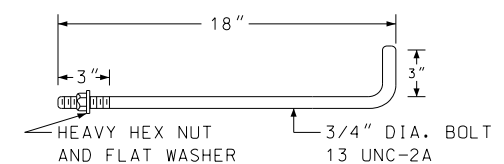
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TYPICAL ANCHOR ROD LOCATION
 CONTROLLER CABINET
 AND
 SERVICE CABINET
 (NO SCALE)



TYPICAL ANCHOR ROD
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1. Highway Agency: _____
 Phone Number: _____

2. Railroad: _____
 Phone Number: _____

3. Other: _____
 Phone Number: _____

U.S. Department of Transportation
 Federal Railroad Administration
 Federal Highway Administration
 Federal Transit Administration
 National Highway Traffic Safety Administration

WARNING LABEL TO BE PROVIDED IN CABINET

NOT TO SCALE

SIGNAL SYSTEM EQUIPMENT PAD DETAILS (SYSTEM "B")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

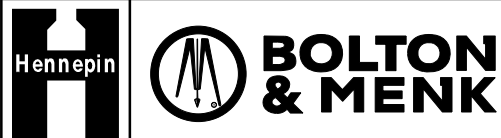
SHEET

SS22
 SS126

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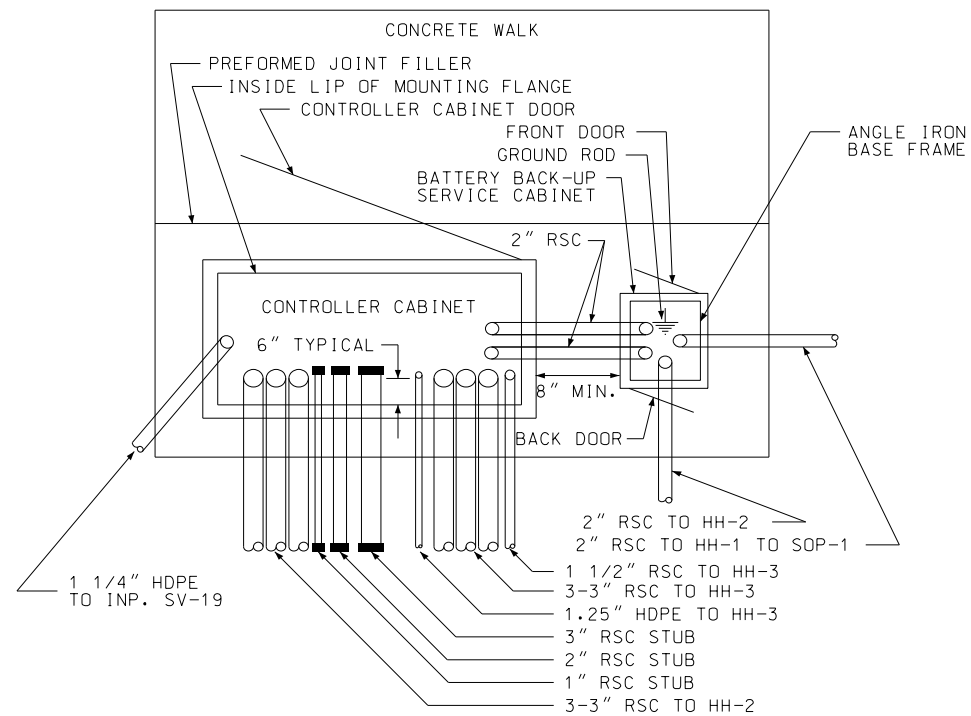
Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION: 4/19/2019

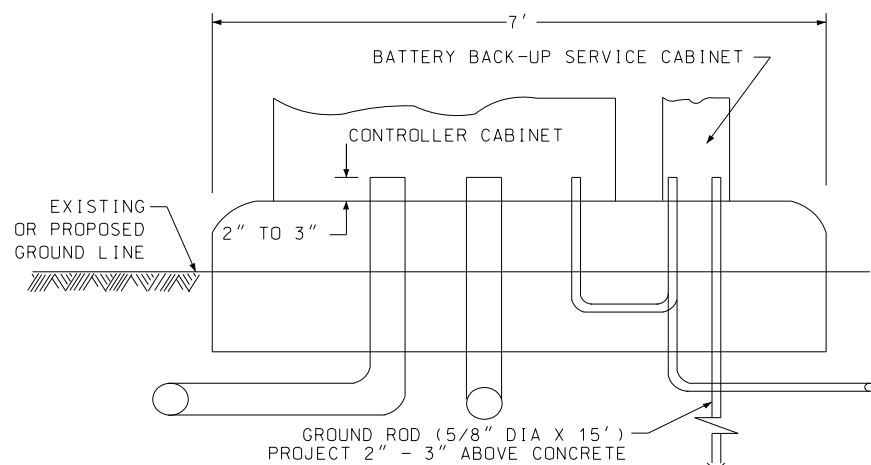


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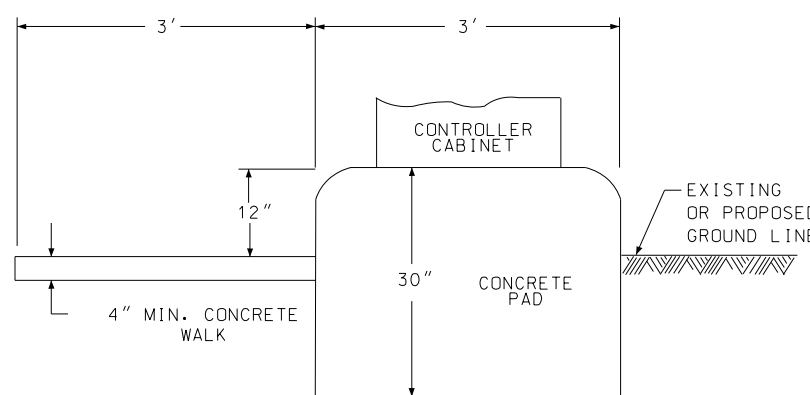
TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET
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 PLAN VIEW



FRONT VIEW



SIDE VIEW

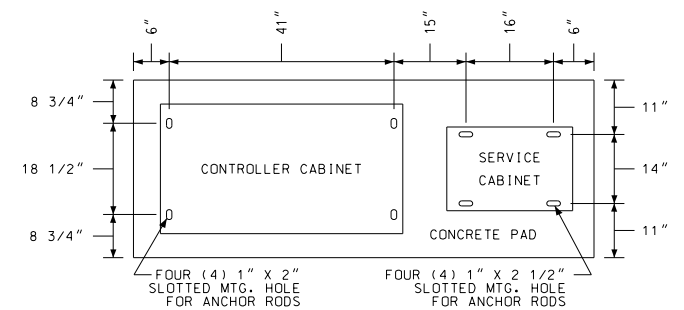


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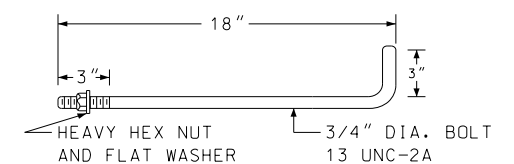
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 CONTROLLER CABINET
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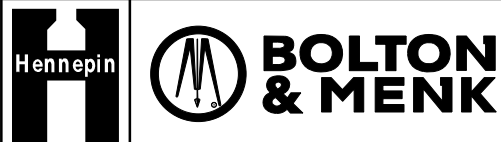
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U.S. Department of Transportation
 Federal Railroad Administration
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WARNING LABEL TO BE PROVIDED IN CABINET

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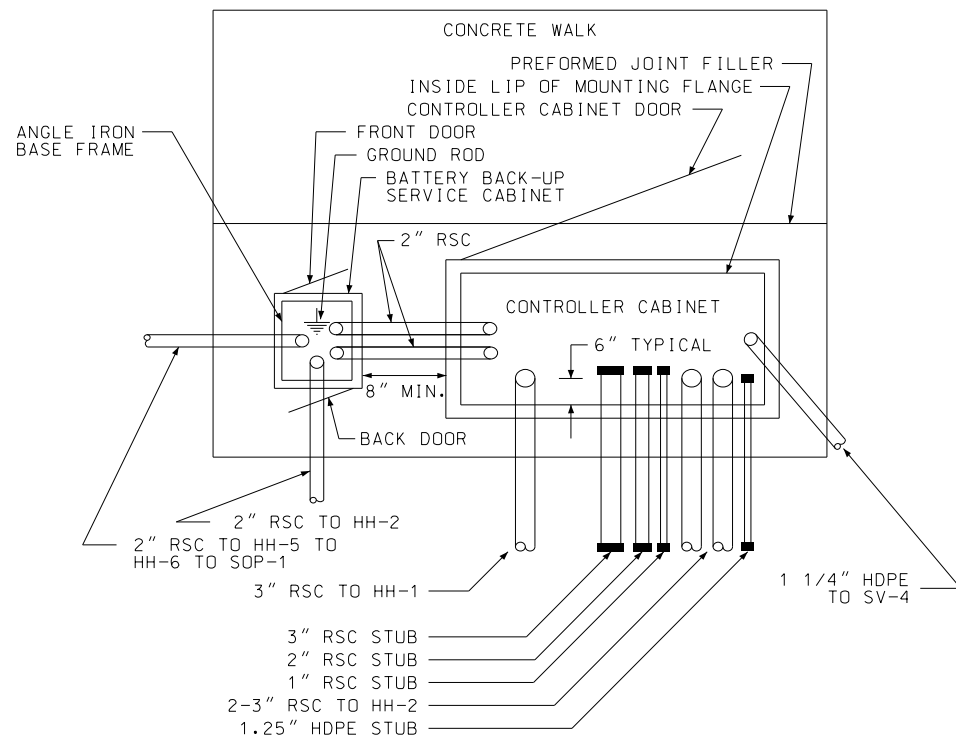
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SIGNAL SYSTEM EQUIPMENT PAD DETAILS (SYSTEM "C")

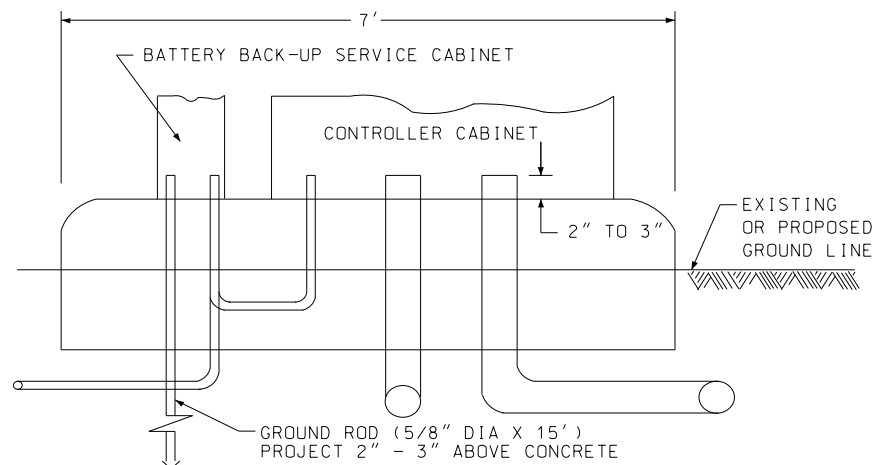
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 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS23
 SS126

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET
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 PLAN VIEW



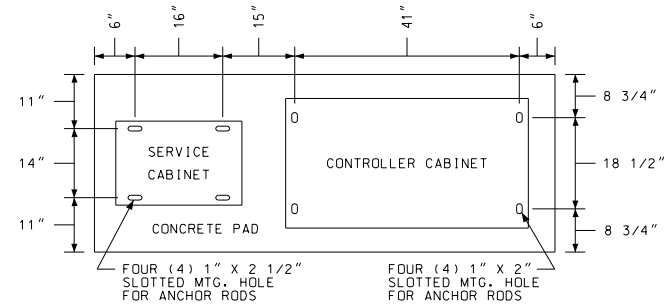
FRONT VIEW



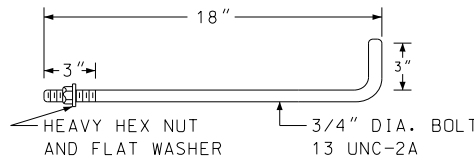
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TYPICAL ANCHOR ROD LOCATION
 CONTROLLER CABINET
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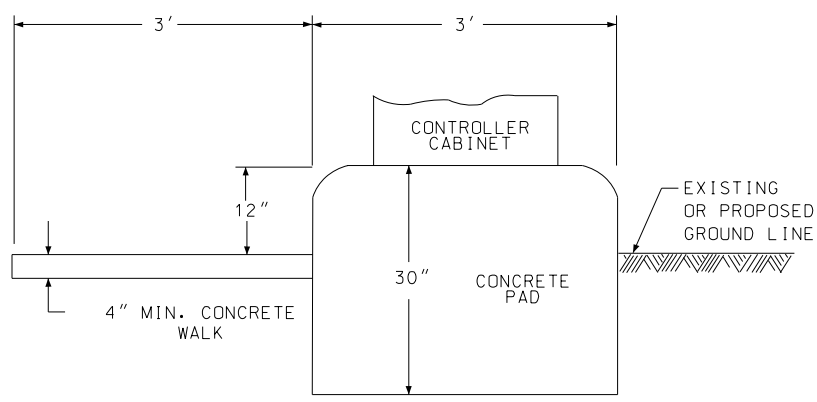
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SIDE VIEW

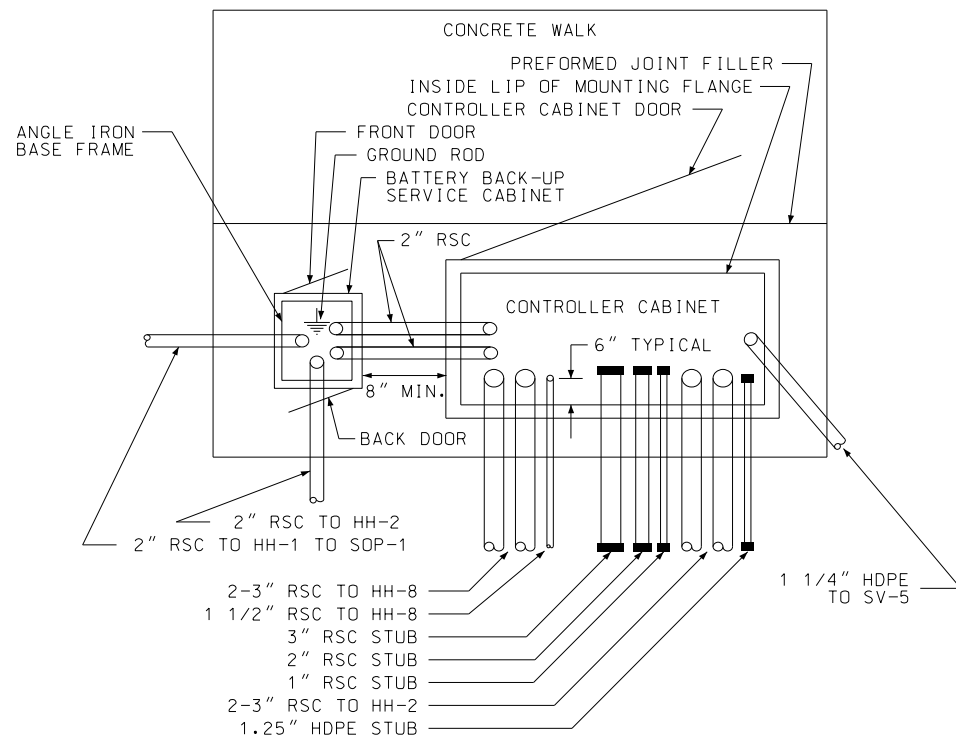


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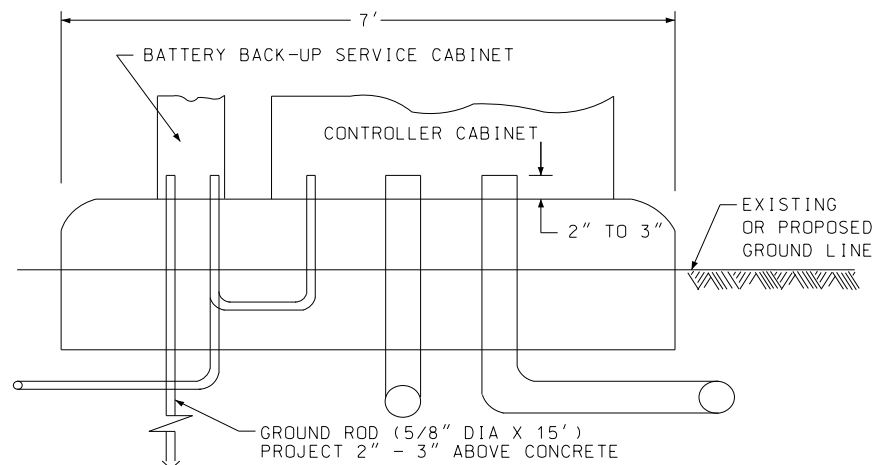
		I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: <u>MSL</u>	SIGNAL SYSTEM EQUIPMENT PAD DETAILS (SYSTEM "D")	SHEET SS24 / SS126
			CAD BY: <u>KME</u>		
LAST REVISION: _____			_____		

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 2/28/2019

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET
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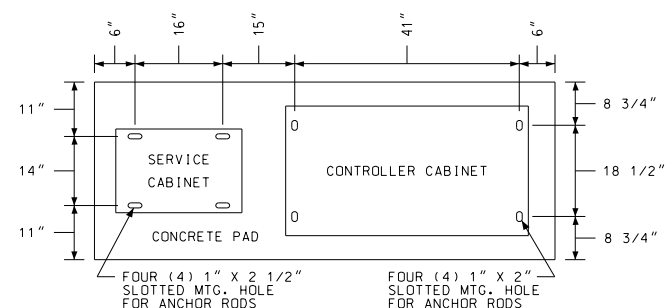
FRONT VIEW



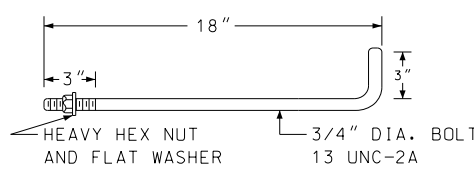
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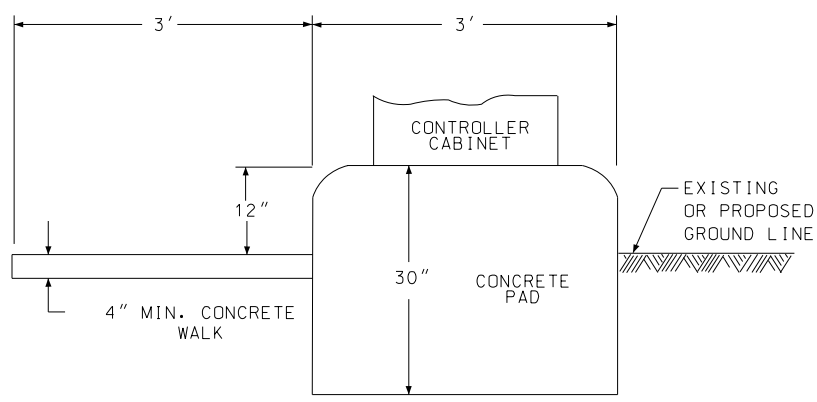
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WARNING LABEL TO BE PROVIDED IN CABINET

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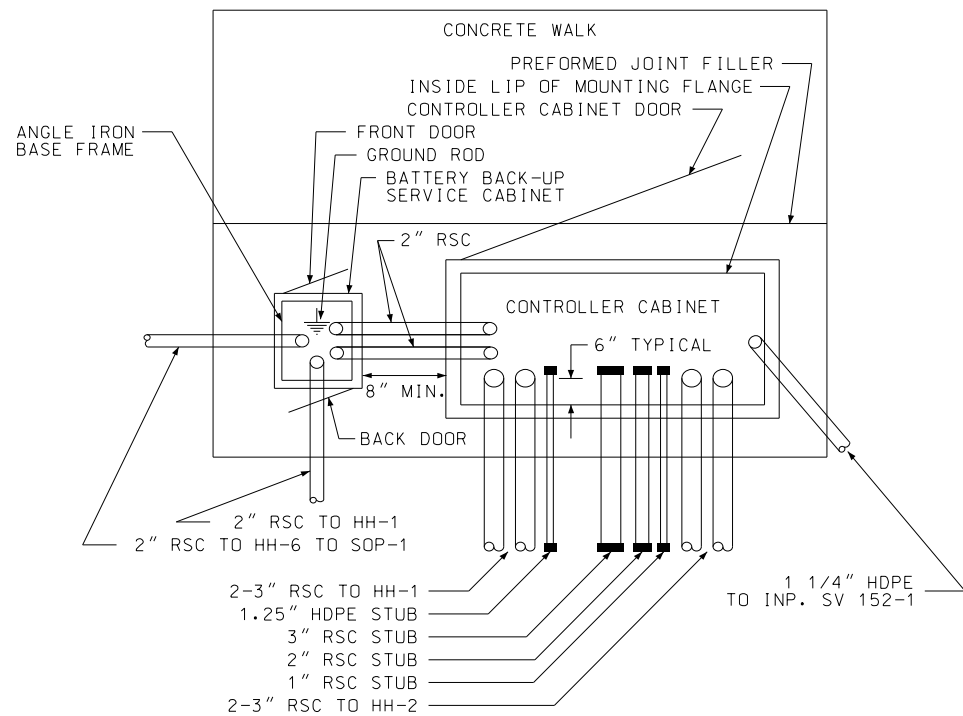
SIGNAL SYSTEM EQUIPMENT PAD DETAILS (SYSTEM "E")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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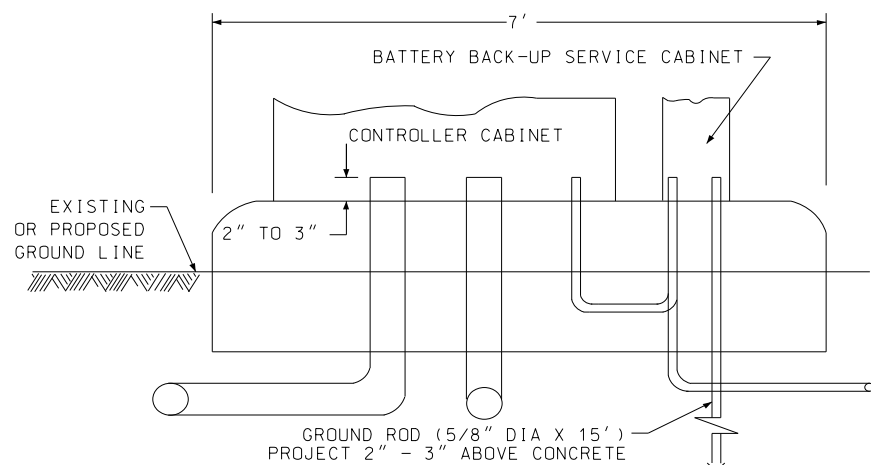
SHEET

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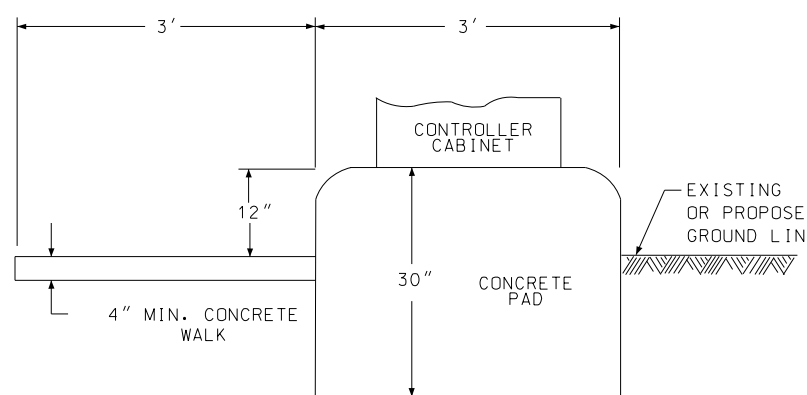
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 PLAN VIEW



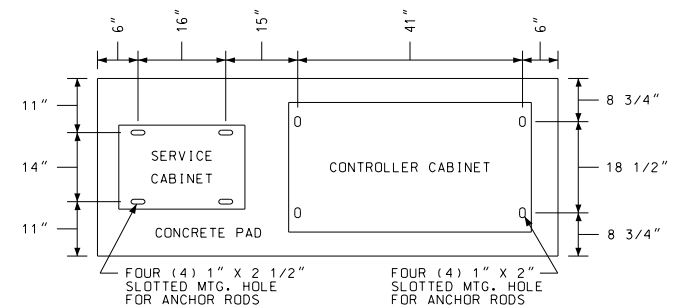
FRONT VIEW



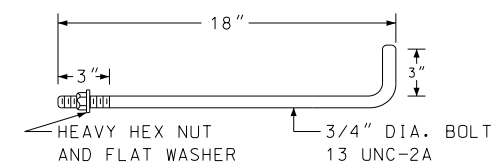
SIDE VIEW



TYPICAL ANCHOR ROD LOCATION
 CONTROLLER CABINET
 AND
 SERVICE CABINET
 (NO SCALE)



TYPICAL ANCHOR ROD
 CONTROLLER CABINET
 AND
 SERVICE CABINET
 (NO SCALE)



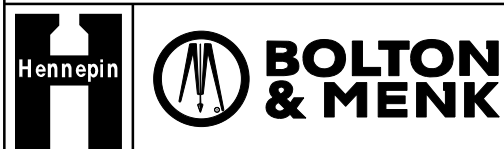
NOTES:

1. THE UPPER PART OF THE CONCRETE PAD SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER, AS DIRECTED BY THE ENGINEER.
2. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
3. THE LOCATION OF CONDUITS WITHIN THE CONCRETE PAD SHALL BE 6" TO THE CENTER OF THE CONDUIT FROM THE INSIDE LIP OF THE MOUNTING FLANGE ON THE DOOR SIDE OF THE CABINET. THE CONDUITS SHALL PROJECT 2" TO 3" ABOVE THE CONCRETE. THE CONDUITS SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (CONTROL EQUIPMENT, SUPPORTING MEMBERS, ETC.). FINAL CONDUIT LOCATIONS, AS DIRECTED BY THE ENGINEER.
4. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL BE INSTALLED WITHIN THE CONCRETE PAD.
5. A CONCRETE SIDEWALK SHALL BE ON THE DOOR SIDE OF THE CONTROLLER CABINET, AS DIRECTED BY THE ENGINEER.
6. THE CONCRETE PAD AND THE CONCRETE WALK SHALL BE CONCRETE MIX 3652 OR EQUAL, AS DIRECTED BY THE ENGINEER.
7. THE CONCRETE PAD ELEVATION SHALL BE ADJUSTED TO MAINTAIN THE 12" CLEARANCE ABOVE THE EXISTING OR PROPOSED GROUND LINE, AS DIRECTED BY THE ENGINEER.
8. THE SERVICE CABINET DOORS SHALL FACE AWAY FROM THE CONTROLLER CABINET TO AVOID CONFLICT WITH THE CONTROLLER CABINET OR THE CONTROLLER CABINET DOOR OPEN AS SHOWN.
9. THREAD AND CAP BOTH ENDS OF ALL RSC STUBS. THE CAPS LOCATED WITHIN THE CONTROLLER CABINET SHALL BE PERMANENTLY MARKED WITH AN ARROW TO INDICATE THE DIRECTION OF THE RSC STUBS. NO RSC STUB SHALL BE TERMINATED UNDER ANY FORM OF PAVEMENT OR HARD SURFACE, AS DIRECTED BY THE ENGINEER.

NOTES:

1. MATERIAL STEEL SHALL BE ASTM, A-36. 3/4" DIA. X 21" LONG BEFORE BENDING.
2. HOT DIP GALVANIZE FULL LENGTH. NUTS SHALL RUN FREE AFTER PLATING.
3. RODS TO BE SUPPLIED WITH GALVANIZED HEAVY HEX NUT AND FLAT WASHER, ASTM, A-563 ASSEMBLED AFTER ROD PLATING.

NOT TO SCALE



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.
 Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

SIGNAL SYSTEM EQUIPMENT PAD DETAILS (SYSTEM "H")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

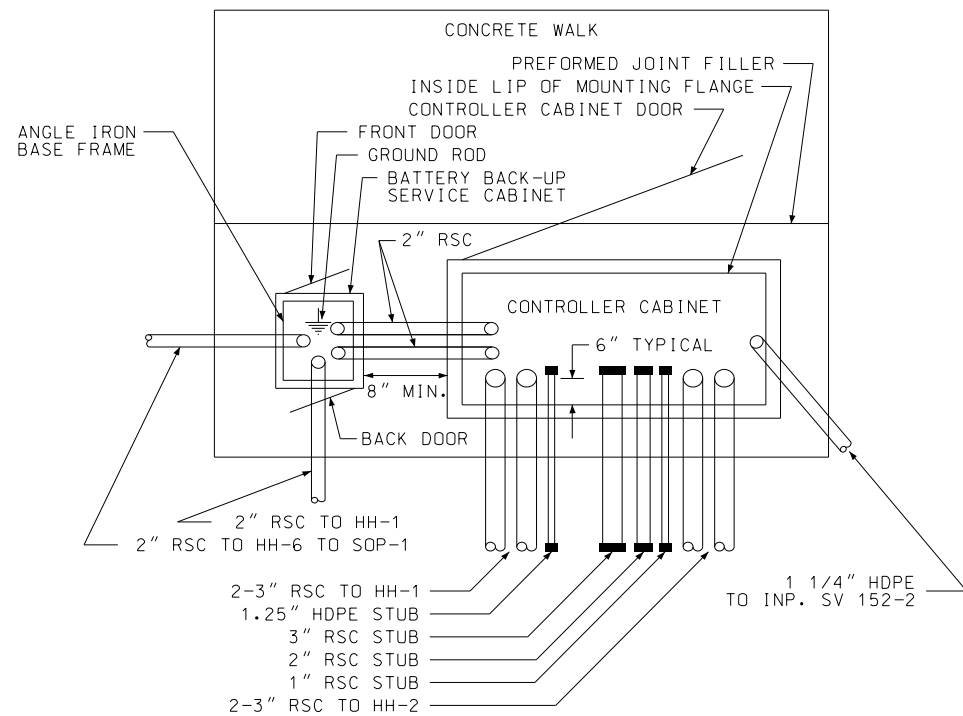
SS26
 SS126

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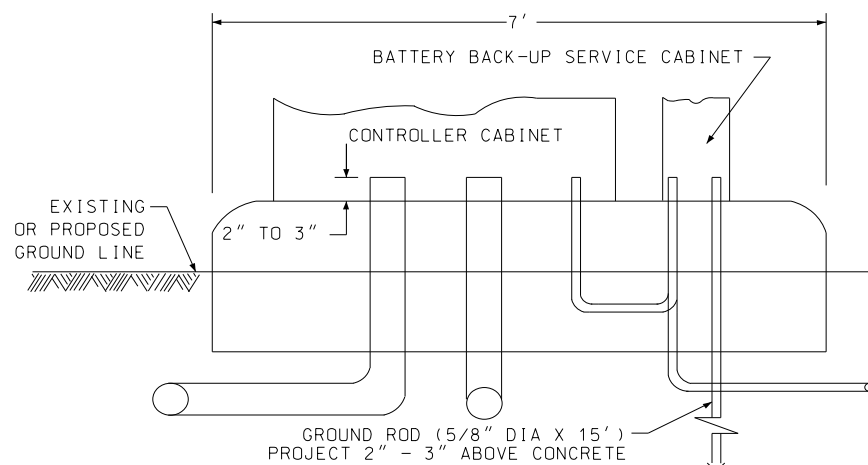
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mikela
 2/28/2019

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET
 NOT TO SCALE FOR ILLUSTRATION ONLY
 SEE SIGNAL PLAN LAYOUT FOR ADDITIONAL INFORMATION
 PLAN VIEW



FRONT VIEW

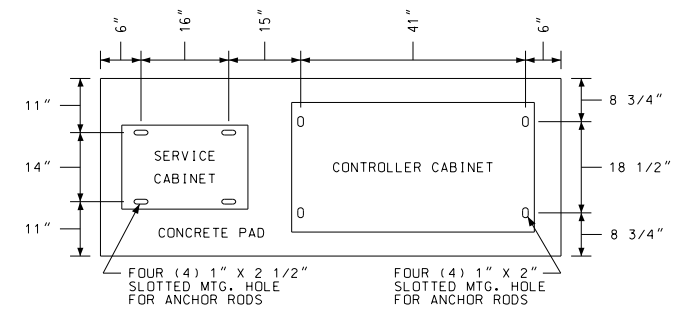


SIDE VIEW

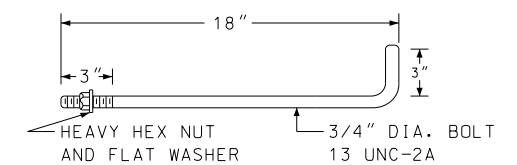
NOTES:

1. THE UPPER PART OF THE CONCRETE PAD SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER, AS DIRECTED BY THE ENGINEER.
2. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
3. THE LOCATION OF CONDUITS WITHIN THE CONCRETE PAD SHALL BE 6" TO THE CENTER OF THE CONDUIT FROM THE INSIDE LIP OF THE MOUNTING FLANGE ON THE DOOR SIDE OF THE CABINET. THE CONDUITS SHALL PROJECT 2" TO 3" ABOVE THE CONCRETE. THE CONDUITS SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (CONTROL EQUIPMENT, SUPPORTING MEMBERS, ETC.). FINAL CONDUIT LOCATIONS, AS DIRECTED BY THE ENGINEER.
4. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL BE INSTALLED WITHIN THE CONCRETE PAD.
5. A CONCRETE SIDEWALK SHALL BE ON THE DOOR SIDE OF THE CONTROLLER CABINET, AS DIRECTED BY THE ENGINEER.
6. THE CONCRETE PAD AND THE CONCRETE WALK SHALL BE CONCRETE MIX 3652 OR EQUAL, AS DIRECTED BY THE ENGINEER.
7. THE CONCRETE PAD ELEVATION SHALL BE ADJUSTED TO MAINTAIN THE 12" CLEARANCE ABOVE THE EXISTING OR PROPOSED GROUND LINE, AS DIRECTED BY THE ENGINEER.
8. THE SERVICE CABINET DOORS SHALL FACE AWAY FROM THE CONTROLLER CABINET TO AVOID CONFLICT WITH THE CONTROLLER CABINET OR THE CONTROLLER CABINET DOOR OPEN AS SHOWN.
9. THREAD AND CAP BOTH ENDS OF ALL RSC STUBS. THE CAPS LOCATED WITHIN THE CONTROLLER CABINET SHALL BE PERMANENTLY MARKED WITH AN ARROW TO INDICATE THE DIRECTION OF THE RSC STUBS. NO RSC STUB SHALL BE TERMINATED UNDER ANY FORM OF PAVEMENT OR HARD SURFACE, AS DIRECTED BY THE ENGINEER.

TYPICAL ANCHOR ROD LOCATION
 CONTROLLER CABINET
 AND
 SERVICE CABINET
 (NO SCALE)



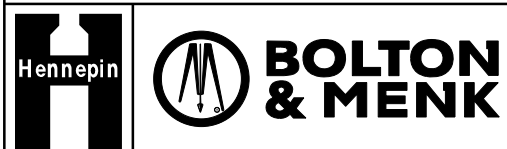
TYPICAL ANCHOR ROD
 CONTROLLER CABINET
 AND
 SERVICE CABINET
 (NO SCALE)



NOTES:

1. MATERIAL STEEL SHALL BE ASTM, A-36. 3/4" DIA. X 21" LONG BEFORE BENDING.
2. HOT DIP GALVANIZE FULL LENGTH. NUTS SHALL RUN FREE AFTER PLATING.
3. RODS TO BE SUPPLIED WITH GALVANIZED HEAVY HEX NUT AND FLAT WASHER, ASTM, A-563 ASSEMBLED AFTER ROD PLATING.

NOT TO SCALE



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 Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

SIGNAL SYSTEM EQUIPMENT PAD DETAILS (SYSTEM "I")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

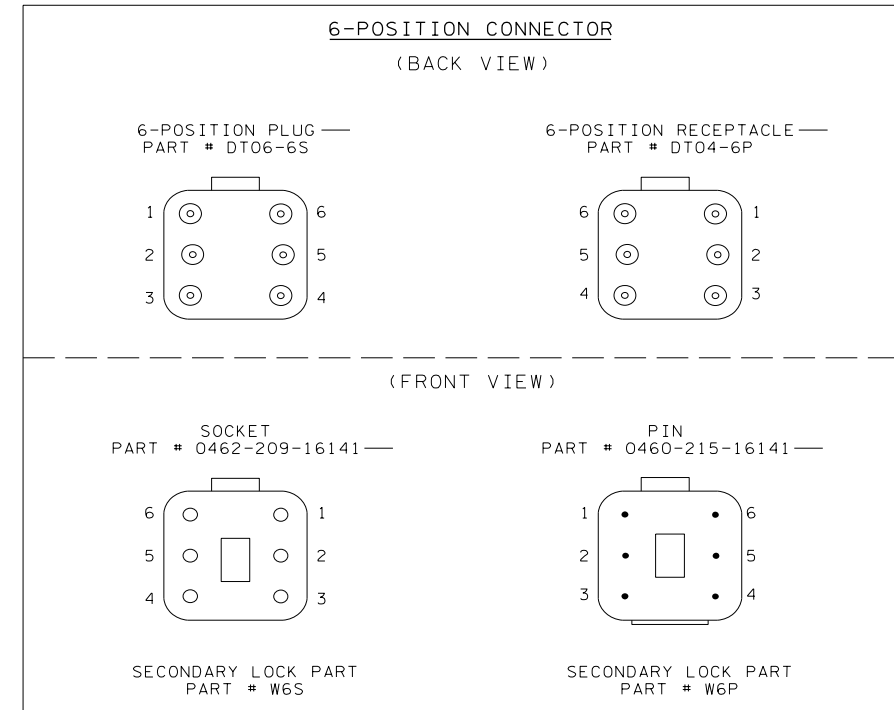
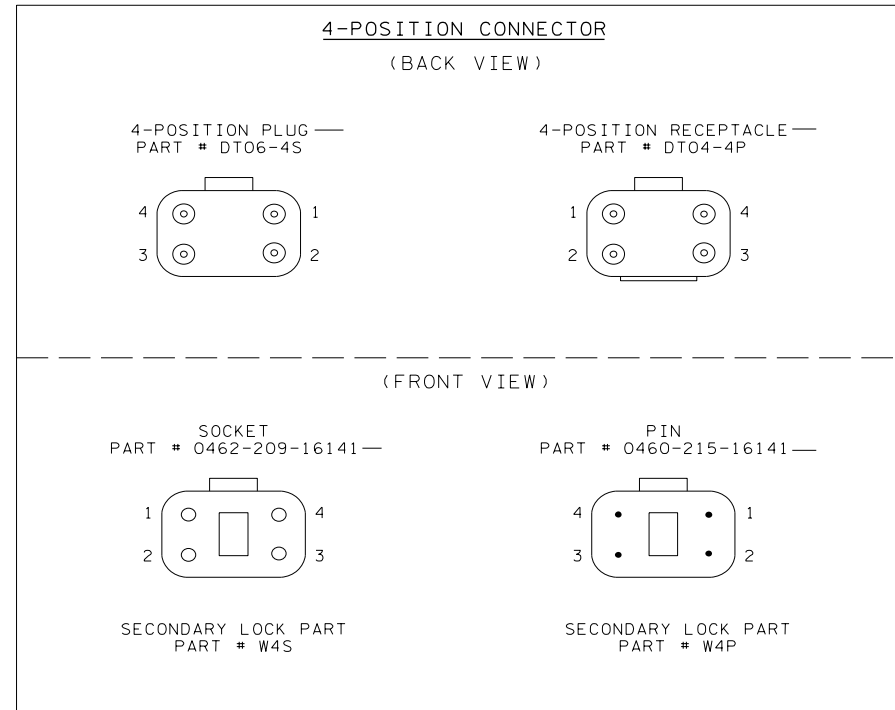
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 2/28/2019



4 Position DT Connector (3 Section Head/DWK/WLK)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R or R/BLK or BLK	1	R	RED or DWK
O or O/BLK or BLK/WH or BLK	2	BLK/R	YEL or WLK
BL or BL/BLK or BLK/R or BLK	3	BLK	GRN or SPR
WH or WH/BLK or WH/R	4	WH	NEU

6 Position DT Connector (4 and 5 Section Heads)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R	1	R	RED
O	2	O	YEL
BL	3	BL	GRN
WH	4	WH	NEU
O/BLK or BLK/R (6/C)	5	BLK/R	YLA or FYLA
BL/BLK or BLK (6/C)	6	BLK	GLA

4 Position DT Connector (EVP LHT/LUM/AWF/VID CAM/ENF LHT)
(Used with 3 Conductor Cable Only)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
BLK	1	BLK	EVP LHT or LUM or RED or YEL or VID CAM or ENF LHT or AWF
(Not Used)	2	(Not Used)	(Not Used) (See Note #8)
G	3	G	E.O.G
WH	4	WH	NEU

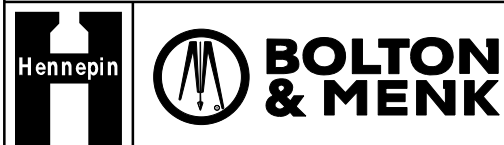
4 Position DT Connectors (Use Two Connectors for 5 Section FYA Cluster Heads)

12 Conductor Wire to Control Cabinet	Connector pin #	4 Conductor to Signal Indication	Signal Indication
R	1	R	RED
O	2	BLK/R	YEL
BL	3	BLK	GRN
WH	4	WH	NEU
R/BLK	1	R	FYA
O/BLK	2	BLK/R	YLA
BL/BLK	3	BLK	GLA
WH/BLK	4	WH	NEU

NOTES:

- DT04-P RECEPTACLE SHALL BE TERMINATED TO THE WIRING HARNESS RUNNING FROM THE BASE/JUNCTION BOX OF THE POLE TO SIGNAL INDICATIONS.
- DT06-S PLUG SHALL BE TERMINATED TO THE CABLES RUNNING FROM THE TRAFFIC SIGNAL CABINET TO THE BASE/JUNCTION BOX OF THE POLE.
- THERE SHALL BE A MINIMUM OF 24 INCHES OF SLACK ON EACH CABLE IN EVERY POLE BASE /JUNCTION BOX.
- STRIP A MAXIMUM OF 6 INCHES OF THE OUTER JACKET OF EACH SIGNAL CABLE.
- STRIP .250 INCHES OF INSULATION FROM EACH INDIVIDUAL CONDUCTOR.
- CRIMP PINS OR SOCKETS USING RATCHETING TYPE CRIMPING TOOL HDT-48-00. NO OTHER CRIMPING TOOL WILL BE ALLOWED.
- WIRES MUST BE TERMINATED AS DETAILED IN TABLES DEPENDING ON WIRE COUNT.
- ANY UNUSED PIN MUST HAVE A SEALING PLUG PLACED IN BOTH THE PLUG & RECEPTACLE (PART # 114017).
- LABEL EACH HALF OF THE CONNECTOR (PLUG AND RECEPTACLE) WITH THE DEVICE DESIGNATION (AS INDICATED IN THE WIRING DIAGRAM) USING A PERMANENT BLACK MARKER.

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2/28/2019



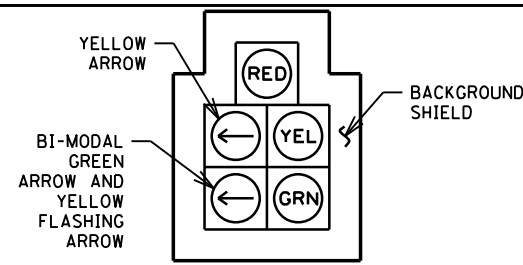
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

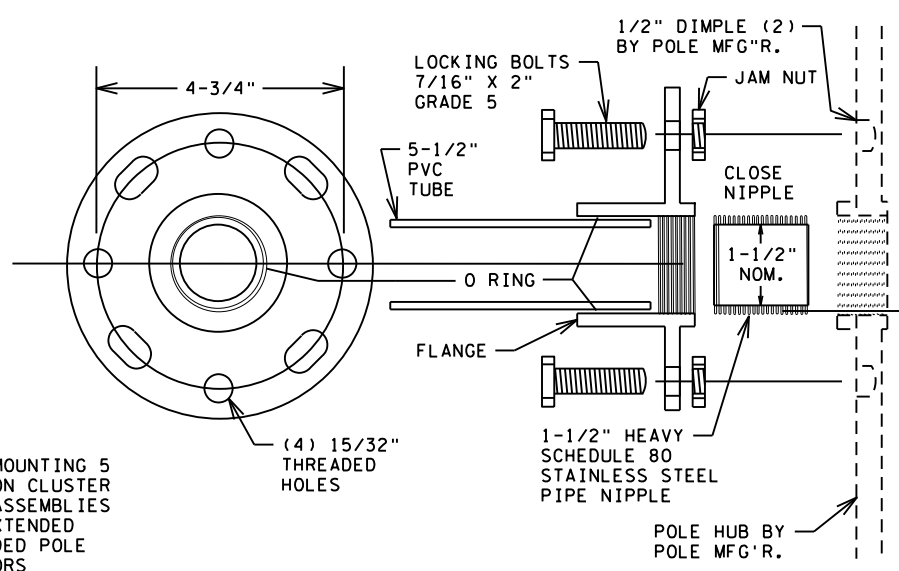
DESIGN BY: MSL
CAD BY: SJP
CHECKED BY: BTN
LAST REVISION:

WIRING CONNECTOR DETAIL
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

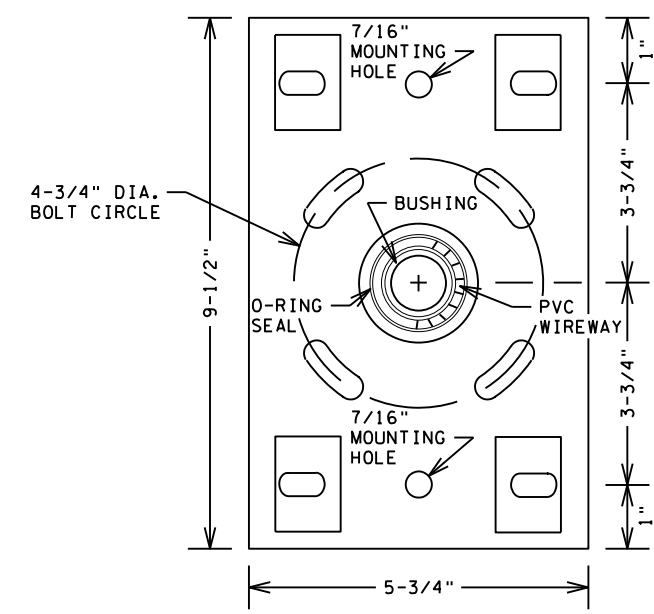
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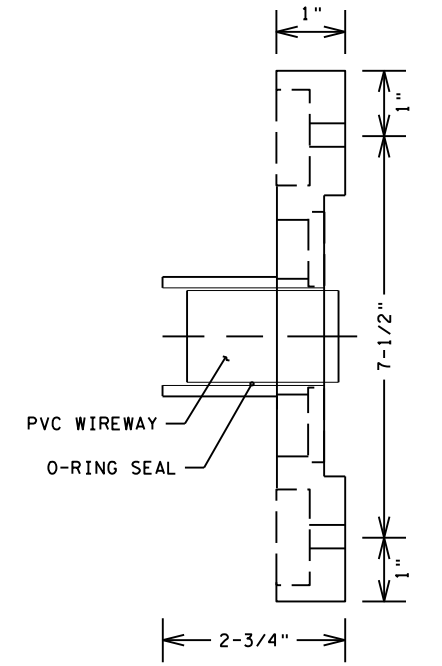
5 SECTION FYA CLUSTER HEAD DETAIL



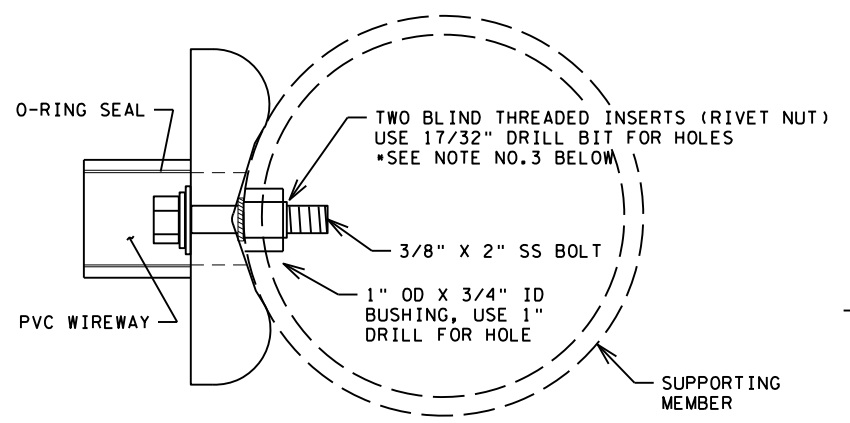
THREADED HUB AND FLANGE POLE ADAPTOR



BOLT ON HUB & FLANGE



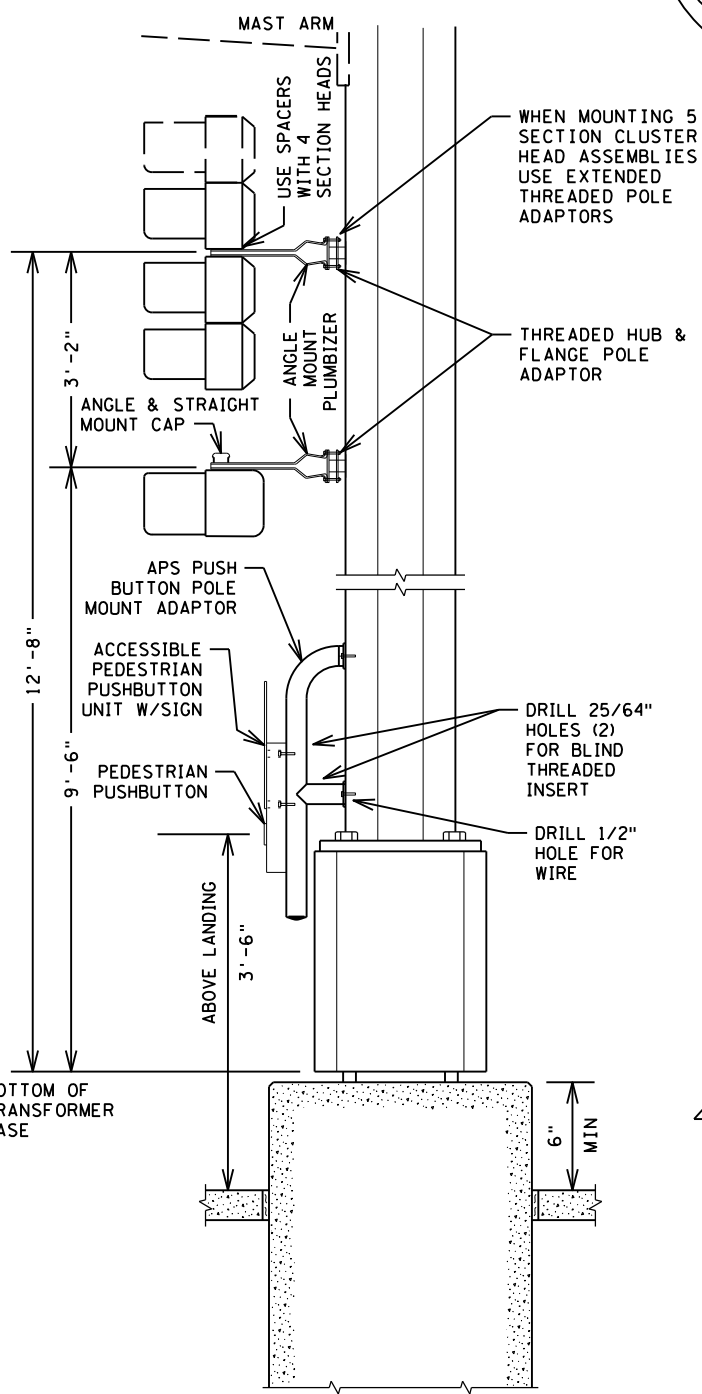
SIDE VIEW



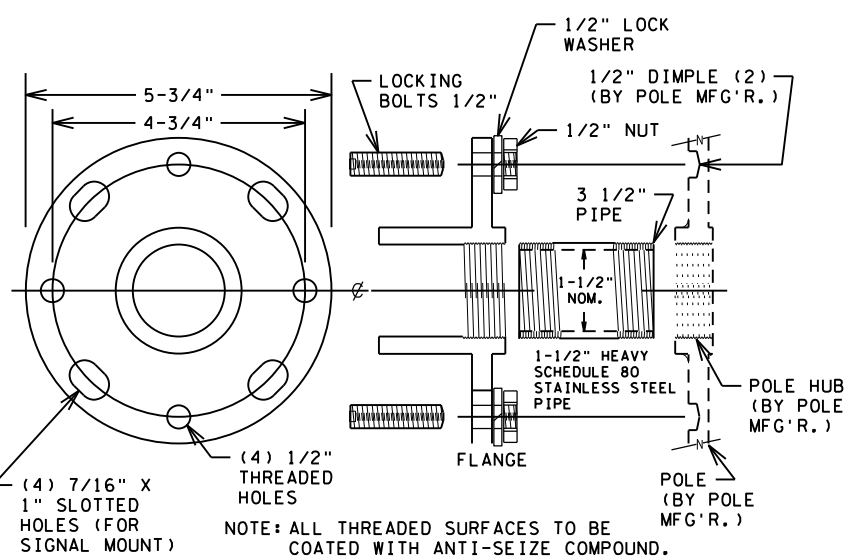
TOP VIEW



- NOTES:**
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
 4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.

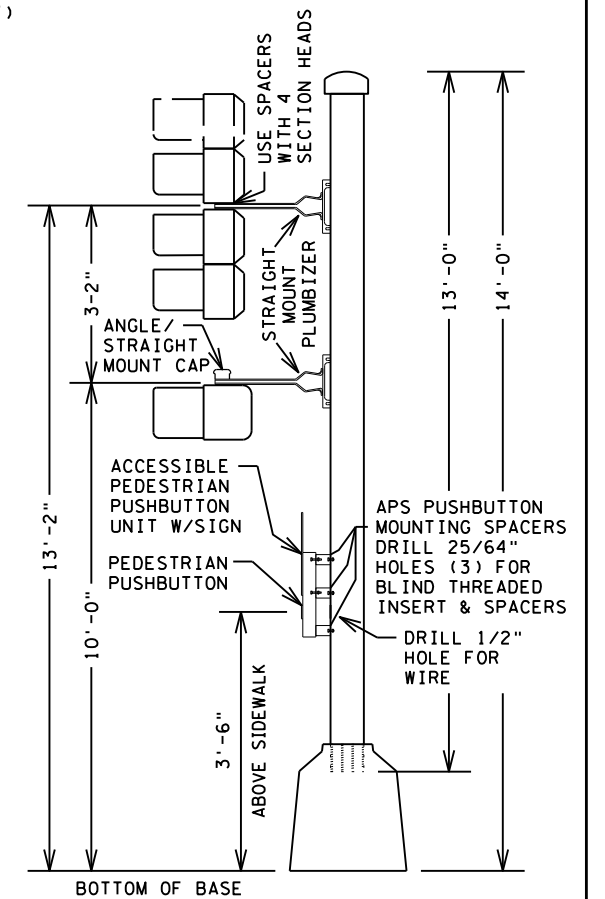


TYPICAL SIGNAL POLE MOUNTING



EXTENDED THREADED POLE ADAPTER

- NOTES:**
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
 4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



TYPICAL PEDESTAL MOUNTING

NOT TO SCALE

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2/28/2019

REV: 10-14-15 NOT TO SCALE

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BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: SJP
CHECKED BY: BTN
LAST REVISION:

SIGNAL POLE MOUNT DETAIL
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

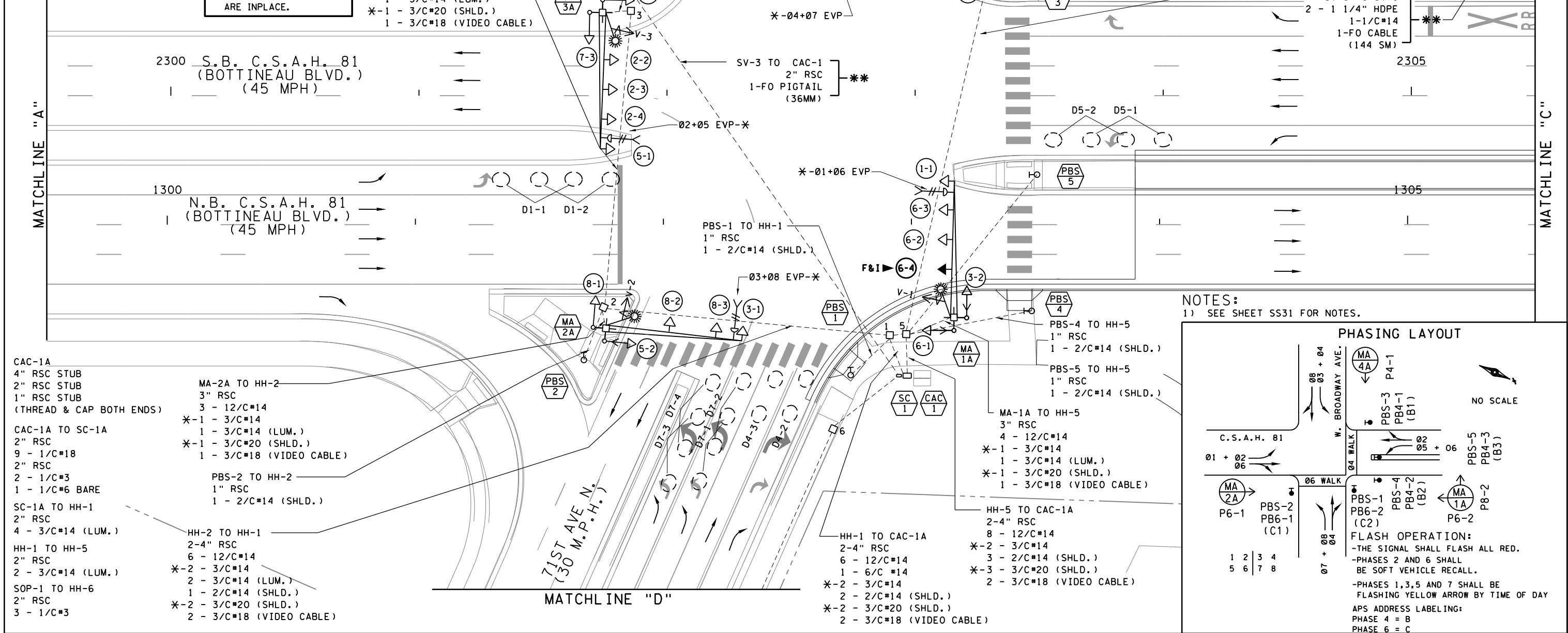
SHEET
SS29
SS126

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-1	(1)	20',50'
D1-2	V-1	(1)	5',35'
D2-1,D2-2,D2-3	V-3	(1)	300'
D3-1	V-2	(1)	5',20'
D3-2	V-2	(1)	-40',-55'
D4-1	V-4	(3)	120'
D4-2	V-4	(7)	5',20'
D4-3	V-4	(1)	5',20'
D5-1	V-3	(1)	20',50'
D5-2	V-3	(1)	5',35'
D6-1,D6-2,D6-3	V-1	(1)	300'
D7-1,D7-3	V-4	(1)	20',50'
D7-2,D7-4	V-4	(1)	5',35'
D8-1,D8-2	V-2	(3)	120'
D8-3,D8-4	V-2	(1)	5',20'
D8-5,D8-6	V-2	(1)	-40',-55'

FUNCTION NOTES:

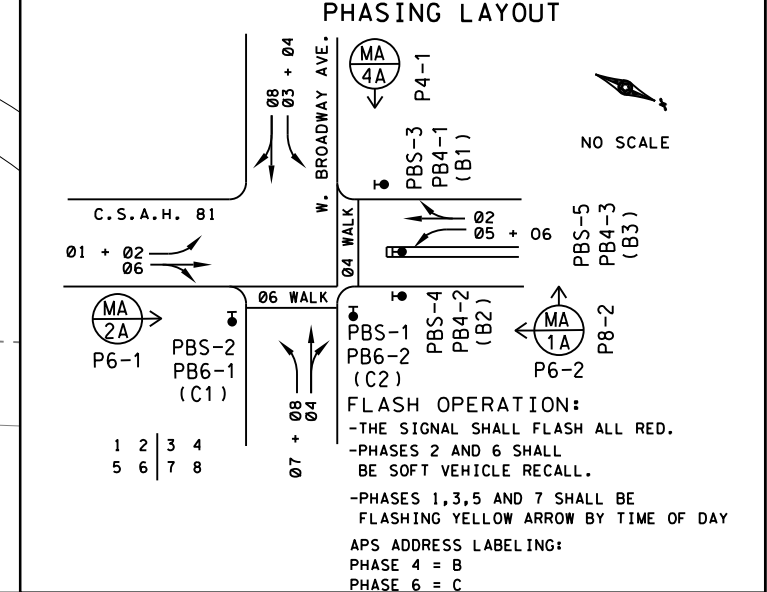
- (1) CALL & EXTEND
- (3) EXTEND ONLY
- (7) DELAY CALL / IMMEDIATE EXTEND

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.



NOTES:

- 1) SEE SHEET SS31 FOR NOTES.

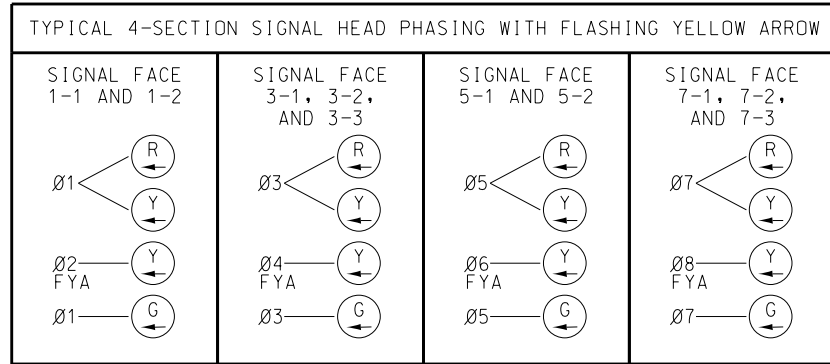


- CAC-1A
4" RSC STUB
2" RSC STUB
1" RSC STUB
(THREAD & CAP BOTH ENDS)
- CAC-1A TO SC-1A
2" RSC
9 - 1/C#18
2" RSC
2 - 1/C#3
1 - 1/C#6 BARE
- SC-1A TO HH-1
2" RSC
4 - 3/C#14 (LUM.)
- HH-1 TO HH-5
2" RSC
2 - 3/C#14 (LUM.)
- SOP-1 TO HH-6
2" RSC
3 - 1/C#3
- MA-2A TO HH-2
3" RSC
3 - 12/C#14
*-1 - 3/C#14
1 - 3/C#14 (LUM.)
*-1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)
- PBS-2 TO HH-2
1" RSC
1 - 2/C#14 (SHLD.)
- HH-2 TO HH-1
2-4" RSC
6 - 12/C#14
*-2 - 3/C#14
2 - 3/C#14 (LUM.)
2 - 3/C#14 (LUM.)
1 - 2/C#14 (SHLD.)
*-2 - 3/C#20 (SHLD.)
2 - 3/C#18 (VIDEO CABLE)
- MA-1A TO HH-5
3" RSC
4 - 12/C#14
*-1 - 3/C#14
1 - 3/C#14 (LUM.)
*-1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)
- HH-5 TO CAC-1A
2-4" RSC
8 - 12/C#14
*-2 - 3/C#14
2 - 2/C#14 (SHLD.)
2 - 2/C#14 (SHLD.)
*-2 - 3/C#20 (SHLD.)
2 - 3/C#18 (VIDEO CABLE)
- HH-1 TO CAC-1A
2-4" RSC
6 - 12/C#14
1 - 6/C#14
*-2 - 3/C#14
2 - 2/C#14 (SHLD.)
2 - 3/C#20 (SHLD.)
2 - 3/C#18 (VIDEO CABLE)
- PBS-1 TO HH-1
1" RSC
1 - 2/C#14 (SHLD.)
- PBS-4 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)
- PBS-5 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)
- PBS-4 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)
- PBS-5 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)
- HH-4 TO HH-7 TO HH-8 TO HH-9
3" RSC
*-1 - 3/C#20 (SHLD.)
- HH-4 TO RR CONTROLLER
3" RSC
1 - 12/C#14
- MA-4A TO HH-4
3" RSC
3 - 12/C#14
*-1 - 3/C#14
1 - 3/C#14 (LUM.)
*-1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)
- HH-4 TO HH-5
4" RSC
4 - 12/C#14
*-1 - 3/C#14
1 - 3/C#14 (LUM.)
1 - 2/C#14 (SHLD.)
*-2 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)
- SV-0 TO SV-1
2 - 1 1/4" HDPE
1-1/C#14
1-FO CABLE
(144 SM)
- SV-3 TO CAC-1
2" RSC
1-FO PIGTAIL
(36MM)
- SV-0
3 - 12/C#14
*-1 - 3/C#14
1 - 3/C#14 (LUM.)
*-1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)
- HH-3 TO HH-2
4" RSC
3 - 12/C#14
*-1 - 3/C#14
1 - 3/C#14 (LUM.)
*-1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)
- MA-3 TO HH-3
3" RSC
4 - 12/C#14
*-1 - 3/C#14
1 - 3/C#14 (LUM.)
*-1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)
- TO SV-0
2 - 1 1/4" HDPE
1-1/C#14
1-FO CABLE
(144 SM)

		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. BRYAN NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: MSL	INTERSECTION LAYOUT (SYSTEM "A") - 71ST AVE. C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035, S.P. 110-020-040	SHEET
			CAD BY: KME		SS30
			CHECKED BY: BTN		
			LAST REVISION:		

mikela 2/28/2019
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 bmi:tbl

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.



SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION (1)	NO.	LOCATION (1)
HH- 1	INPLACE	HH- 7	INPLACE
HH- 2	INPLACE	HH- 8	INPLACE
HH- 3	INPLACE	HH- 9	INPLACE
HH- 4	INPLACE		
HH- 5	INPLACE	CAC-1A	INPLACE
HH- 6	INPLACE	SC-1A	INPLACE
		SOP-1	INPLACE
PBS-1	INPLACE	SV-0	INPLACE
PBS-2	INPLACE		
PBS-3	INPLACE		
PBS-4	INPLACE		
PBS-5	INPLACE		
SA-1A	INPLACE		
NO.	LOCATION		MAST ARM
	FOUNDATION (1)	AIM ARM TO	
MA-1A	INPLACE		55'
MA-2A	INPLACE		55'
MA-3A	INPLACE		50'
MA-4A	INPLACE		55'

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION. ALL STATIONS AND OFFSETS ARE REFERENCED FROM C.S.A.H. 81 AND W. BROADWAY AVE. ALIGNMENTS.

SIGNAL INDICATIONS AND BRACKETING										
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS				BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.		
				RED	YEL	FYEL	GRN			
MA-1A	1-1	MAST ARM (END)	1	←	←		←	STRAIGHT MOUNT PLUMBIZER		
			2							
	6-3	MAST ARM (MID)	6	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	6-2	MAST ARM (MID)	6	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	6-4	MAST ARM (MID)	6	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	6-1	POLE MOUNT	6	•	•		•	180° PLATE 8110E TYPE 10B		
3-2	POLE MOUNT		3	←	←		←			
			4				←			

			4							
MA-2A	3-1	MAST ARM (END)	3	←	←		←	STRAIGHT MOUNT PLUMBIZER		
			4				←			
	8-3	MAST ARM (MID)	8	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	8-2	MAST ARM (MID)	8	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	8-1	POLE MOUNT	8	•	•		•	0° PLATE 8110E TYPE 10A		
	5-2	POLE MOUNT	5	←	←		←	90° PLATE 8110E TYPE 10B		
MA-3A	POLE MOUNT		5	←	←		←			
			6				←			

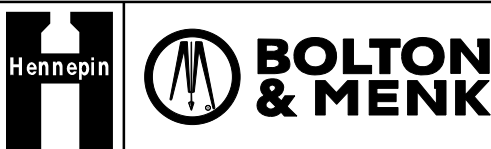
			6							
			5-1	MAST ARM (END)	5	←	←		←	STRAIGHT MOUNT PLUMBIZER
					6				←	
MA-4A	2-4	MAST ARM (MID)	2	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	2-3	MAST ARM (MID)	2	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	2-2	MAST ARM (MID)	2	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	2-1	POLE MOUNT	2	•	•		•	180° PLATE 8110E TYPE 10A		
	5-2	POLE MOUNT	5	←	←		←	90° PLATE 8110E TYPE 10A		
			6				←	***		
MA-4A	7-2	MAST ARM (END)	7	←	←		←	STRAIGHT MOUNT PLUMBIZER		
			8				←			
	7-1	MAST ARM (MID)	7	←	←		←	STRAIGHT MOUNT PLUMBIZER		
			8				←			
	4-2	MAST ARM (MID)	4	•	•		•	STRAIGHT MOUNT PLUMBIZER		
	4-1	POLE MOUNT	4	•	•		•	180° PLATE 8110E TYPE 10B		
1-2	POLE MOUNT		1	←	←		←	90° PLATE 8110E TYPE 10A		
			2				←			
			2						***	

F&I

*** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

- NOTES:
- ▶ 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
 - ▶ 2) CORE INTO MA-1A AND INSTALL SIGNAL HEAD 6-4 AT APPROXIMATELY 36' FROM END OF MAST ARM (CENTERED OVER TRAVEL LANE).
 - ▶ 3) ALL VEHICULAR AND PEDESTRIAN INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
 - ▶ 4) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
 - ▶ 5) ALL WORK PERFORMED ON SIGNAL SYSTEM "A" SHALL BE INCLUDED IN THE REVISE SIGNAL SYSTEM "A" PAY ITEM.
 - ▶ 6) FOR PAVEMENT MARKINGS, SEE STRIPING PLAN.
 - ▶ 7) FOR CONSTRUCTION OF CURB RAMPS, SEE INTERSECTION DETAILS.

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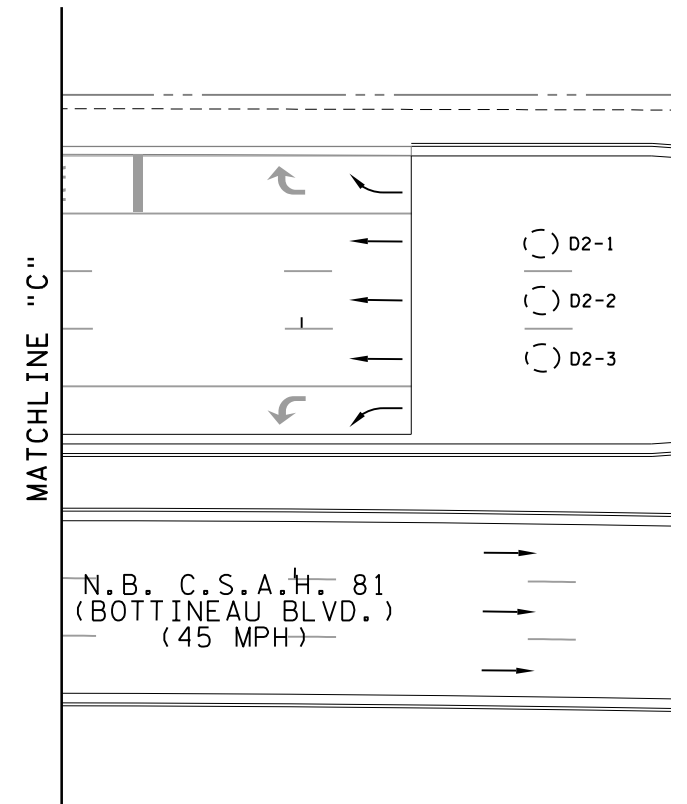
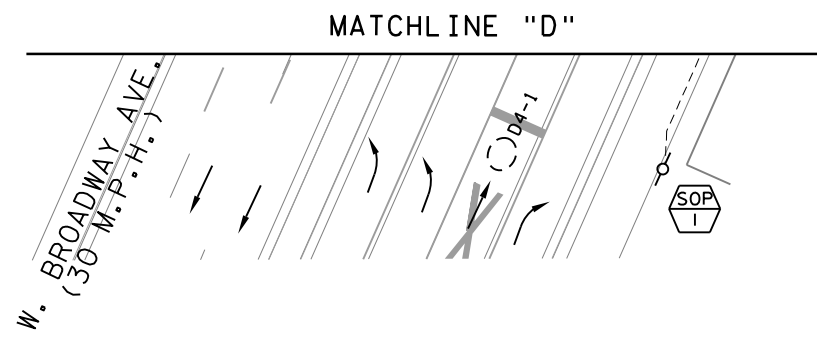
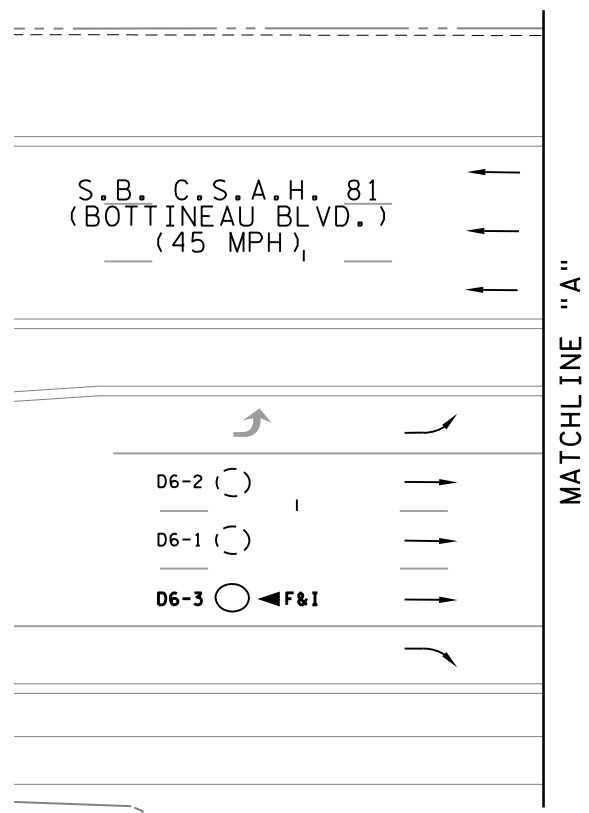
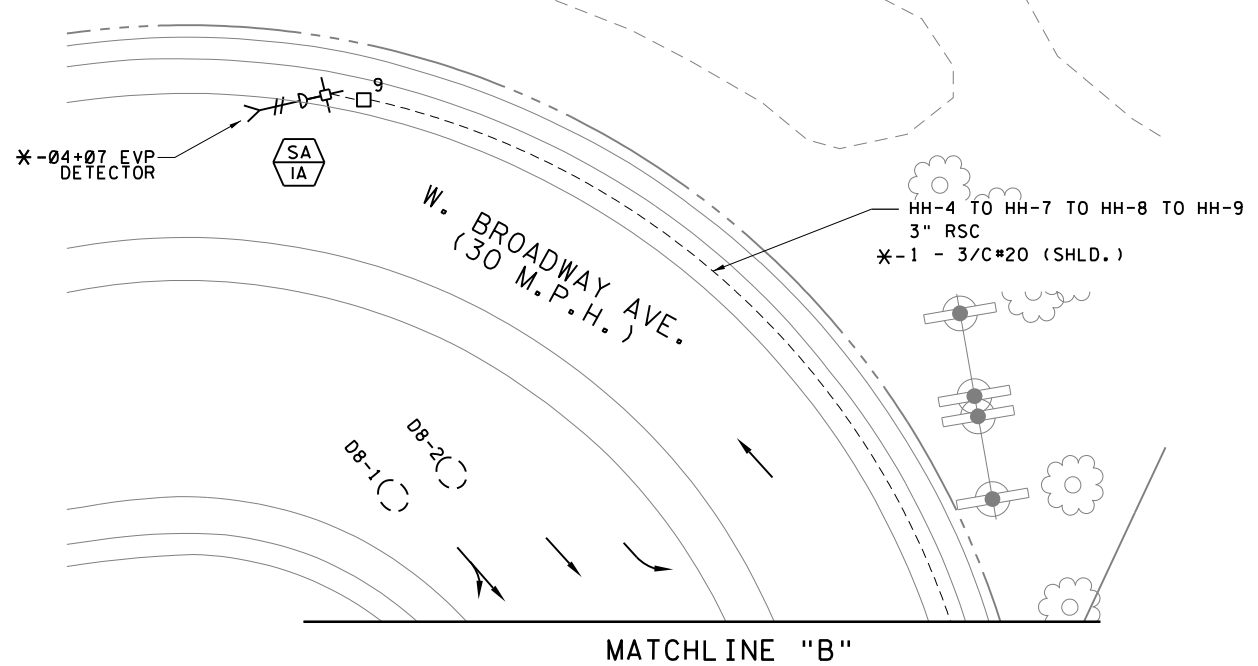
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

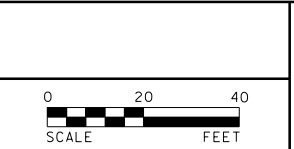
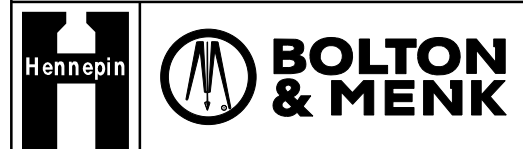
SIGNAL TABULATIONS AND NOTES (SYSTEM "A") - 71ST AVE.
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS31
SS126



▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

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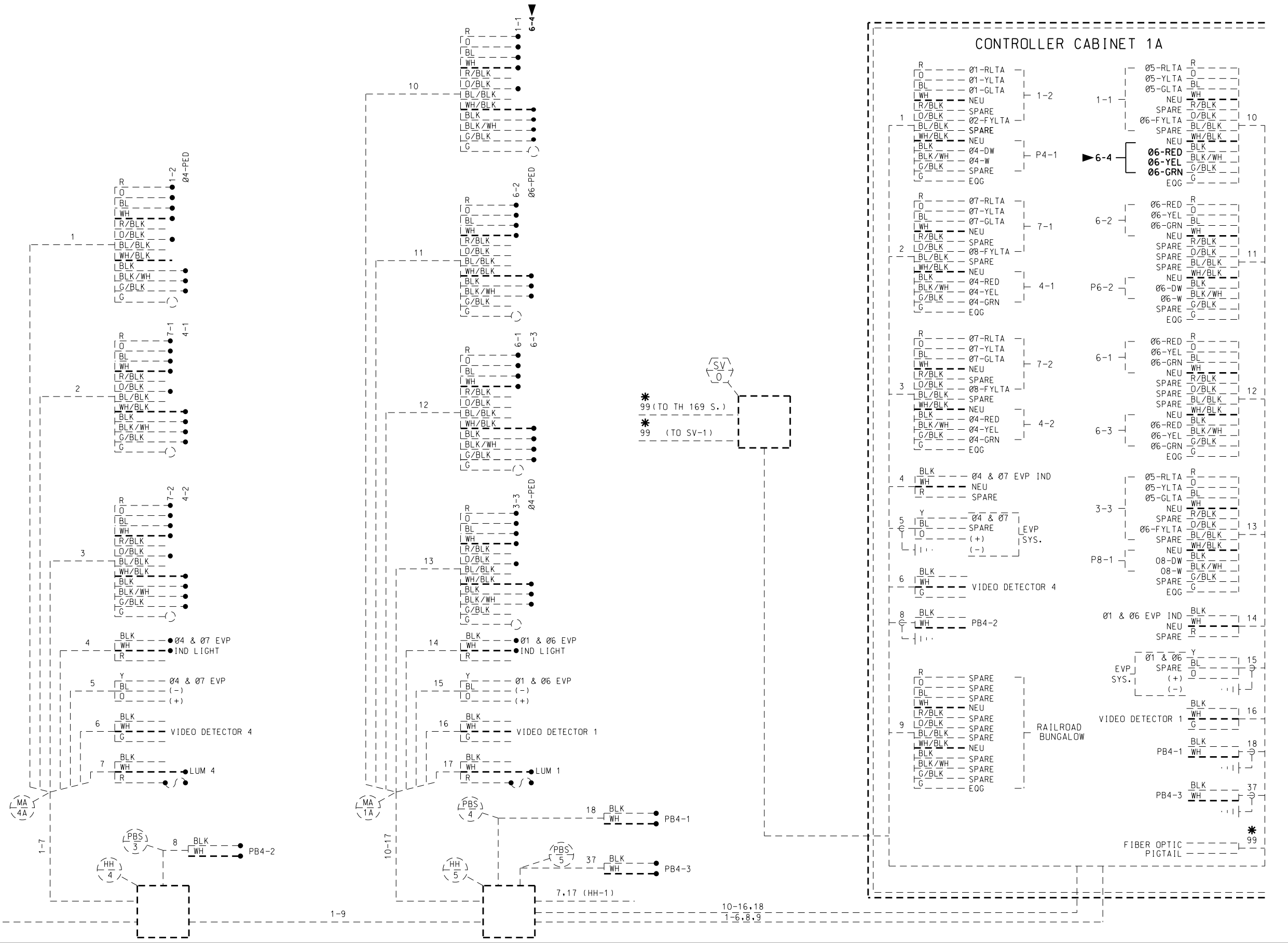
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

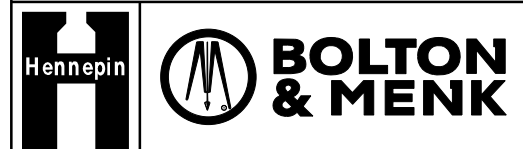
MATCH LINE LAYOUT (SYSTEM "A") - 71ST AVE.
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS32
 SS126

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.



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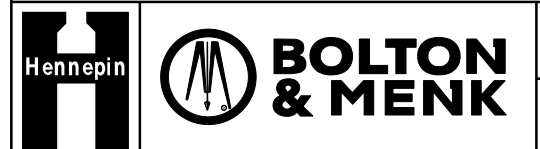
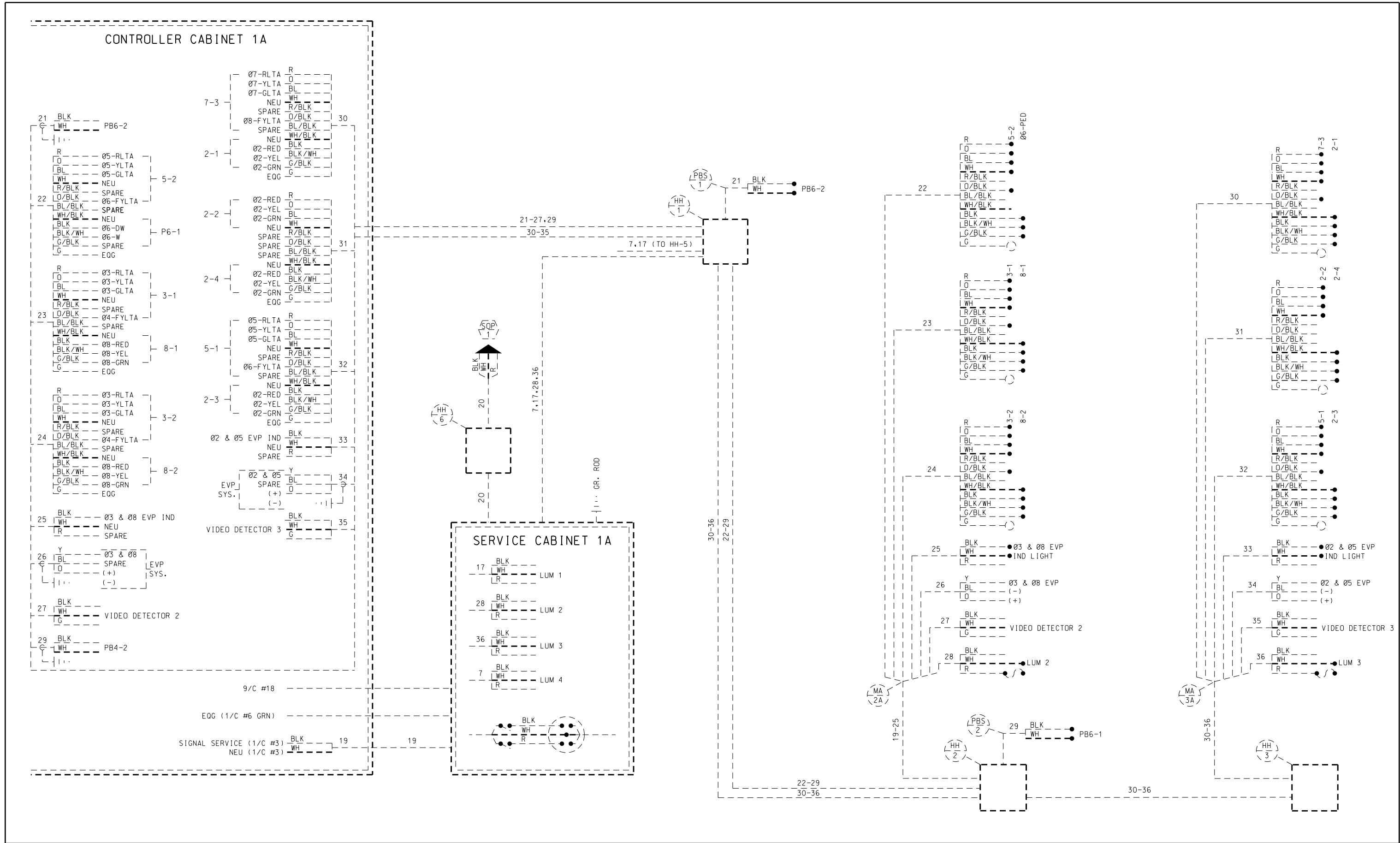
Bryan Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
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LAST REVISION:

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "A")
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S.P. 027-681-035, S.P. 110-020-040

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LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
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SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "A")
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

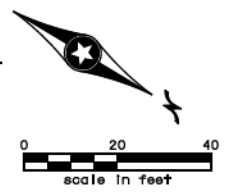
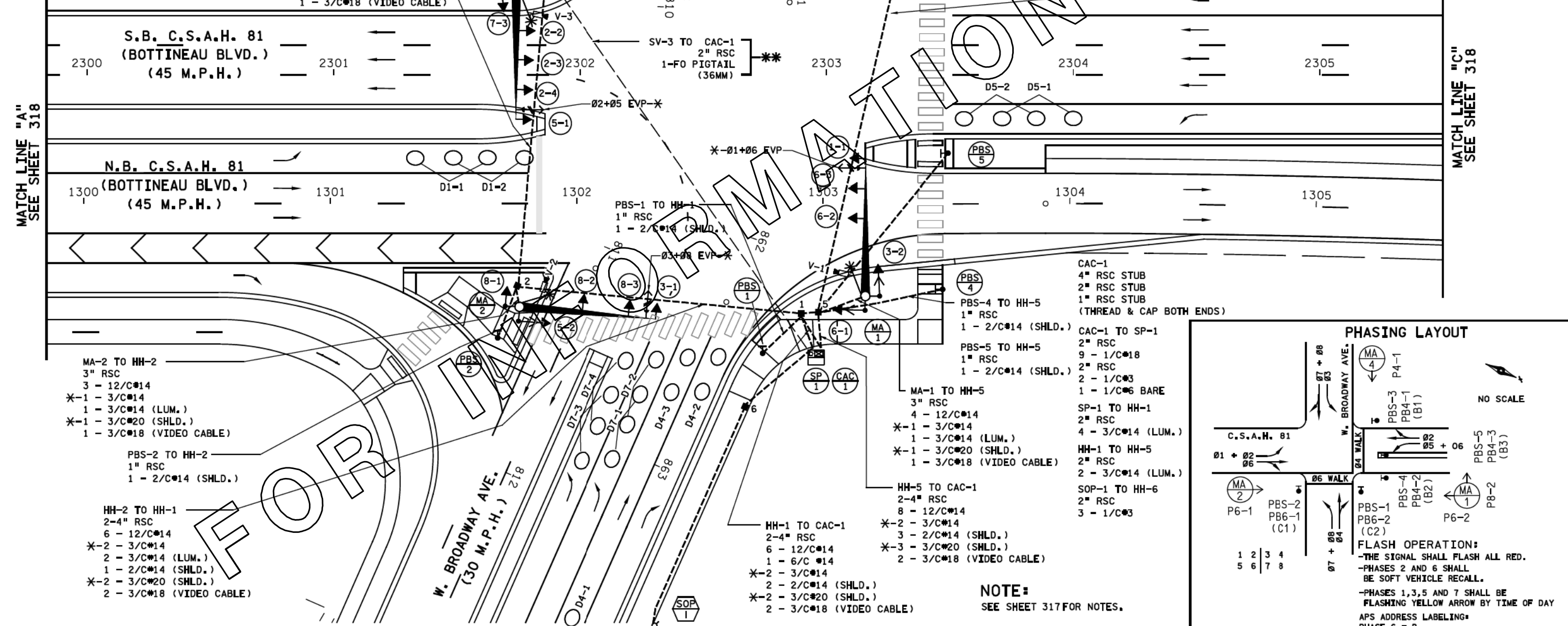
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SS126

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-1	(1)	20',50'
D1-2	V-1	(1)	5',35'
D2-1,D2-2,D2-3	V-3	(1)	300'
D3-1	V-2	(1)	5',20'
D3-2	V-2	(1)	-40',-55'
D4-1	V-4	(3)	120'
D4-2	V-4	(7)	5',20'
D4-3	V-4	(1)	5',20'
D5-1	V-3	(1)	20',50'
D5-2	V-3	(1)	5',35'
D6-1,D6-2	V-1	(1)	300'
D7-1,D7-3	V-4	(1)	20',50'
D7-2,D7-4	V-4	(1)	5',35'
D8-1,D8-2	V-2	(3)	120'
D8-3,D8-4	V-2	(1)	5',20'
D8-5,D8-6	V-2	(1)	-40',-55'

FUNCTION NOTES:

- (1) CALL & EXTEND
- (3) EXTEND ONLY
- (7) DELAY CALL / IMMEDIATE EXTEND

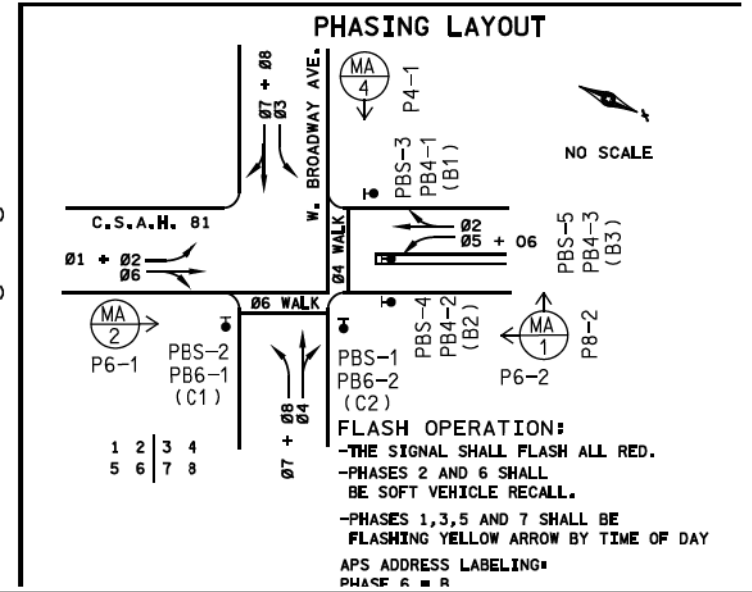
- MA-3 TO HH-3
3" RSC
4 - 12/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)
- SV-2 TO SV-3
2 - 1 1/4" HDPE
1-1/C#14
1-FO CABLE (144 SM)
- SEE NOTE 21 ON SHEET 317
- HH-3 TO HH-2
4" RSC
3 - 12/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)



MATCH LINE "A" SEE SHEET 318

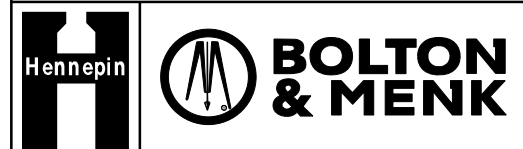
MATCH LINE "C" SEE SHEET 318

MATCH LINE "B" SEE SHEET 318



NOTE:
SEE SHEET 317 FOR NOTES.

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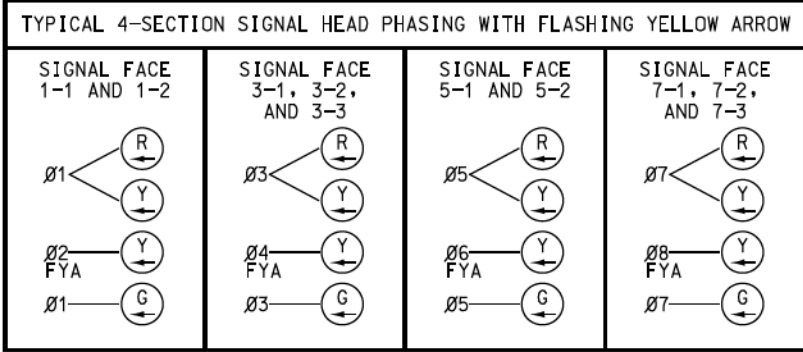


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BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "A"
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS35
SS126



SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION (1)	NO.	LOCATION (1)
HH- 1	862+56.43 - 23.07' LT	HH- 7	860+49.45 - 17.53' RT
HH- 2	1301+75.88 - 33.57' RT	HH- 8	860+21.19 - 19.64' RT
HH- 3	2301+85.77 - 34.21' LT	HH- 9	858+38.38 - 20.89' RT
HH- 4	2303+32.06 - 47.81' LT		
HH- 5	1302+98.10 - 44.08' RT	CAC-1	1302+98.92 - 59.34' RT
HH- 6	862+63.56 - 24.11' RT	SP-1	1302+95.94 - 59.34' RT
		SOP-1	BY OTHERS
PBS-1	862+35.27 - 22.57' LT	SV-3	2301+83.14 - 46.68' LT
PBS-2	811+52.15 - 24.04' RT		
PBS-3	2303+47.02 - 46.44' LT		
PBS-4	1303+48.46 - 34.78' RT		
PBS-5	1303+50.64 - 20.19' LT		
SA-1	858+31.28 - 20.08' RT		
NO.	LOCATION		MAST ARM
	FOUNDATION (1)	AIM ARM TO	
MA-1	1303+17.13 - 37.70' RT	1303+17.13 - 37.70' RT	55'
MA-2	811+36.32 - 22.06' RT	811+28.68 - 22.06' RT	55'
MA-3	2301+74.04 - 33.68' LT	2301+74.04 - 33.68' LT	50'
MA-4	860+72.21 - 30.70' LT	860+70.21 - 30.70' LT	55'

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION. ALL STATIONS AND OFFSETS ARE REFERENCED FROM C.S.A.H. 81 AND W. BROADWAY AVE. ALIGNMENTS.

SIGNAL INDICATIONS AND BRACKETING									
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS				PED SYM.	BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.
				12" INDICATIONS					
				RED	YEL	FYEL	GRN		
MA-1	1-1	MAST ARM (END)	1	←	←	←	←		(3)
	6-3	MAST ARM (MID)	6	•	•	•	•		(3)
	6-2	MAST ARM (MID)	6	•	•	•	•		(3)
	6-1	POLE MOUNT	6	•	•	•	•	(2)	180° PLATE 8110E TYPE 10B
3-2	POLE MOUNT		3	←	←	←	←		
			4	←	←	←	←	(2)	90° PLATE 8110E TYPE 10B
MA-2	3-1	MAST ARM (END)	3	←	←	←	←		(3)
	8-3	MAST ARM (MID)	8	•	•	•	•		(3)
	8-2	MAST ARM (MID)	8	•	•	•	•		(3)
	8-1	POLE MOUNT	8	•	•	•	•	(2)	0° PLATE 8110E TYPE 10A
5-2	POLE MOUNT		5	←	←	←	←		
			6	←	←	←	←	(2)	90° PLATE 8110E TYPE 10B
MA-3	5-1	MAST ARM (END)	5	←	←	←	←		(3)
	2-4	MAST ARM (MID)	2	•	•	•	•		(3)
	2-3	MAST ARM (MID)	2	•	•	•	•		(3)
	2-2	MAST ARM (MID)	2	•	•	•	•		(3)
2-1	POLE MOUNT		2	•	•	•	•	(2)	180° PLATE 8110E TYPE 10A
			7	←	←	←	←		
7-3	POLE MOUNT		8	←	←	←	←		
			8	←	←	←	←	(2)	90° PLATE 8110E TYPE 10A
MA-4	7-2	MAST ARM (END)	7	←	←	←	←		(3)
			8	←	←	←	←		
	7-1	MAST ARM (MID)	7	←	←	←	←		(3)
			8	←	←	←	←		
4-2	MAST ARM (MID)		4	•	•	•	•		(3)
	4-1	POLE MOUNT	4	•	•	•	•	(2)	180° PLATE 8110E TYPE 10B
1-2	POLE MOUNT		1	←	←	←	←		
			2	←	←	←	←	(2)	90° PLATE 8110E TYPE 10A

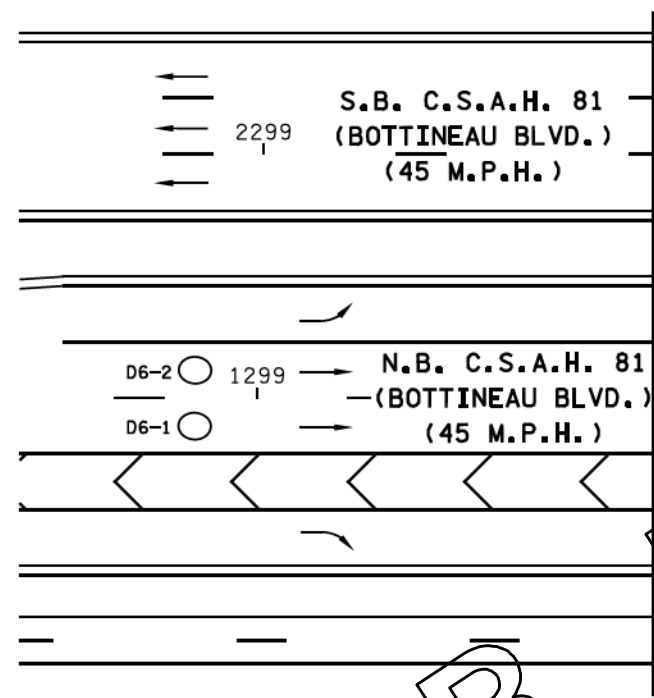
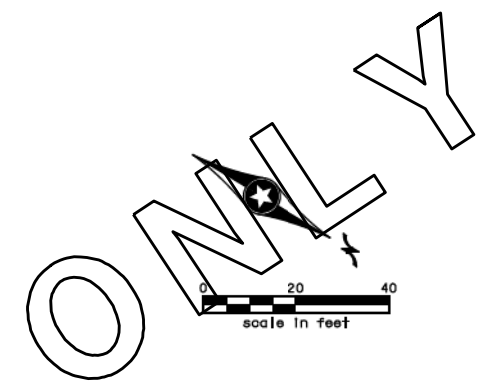
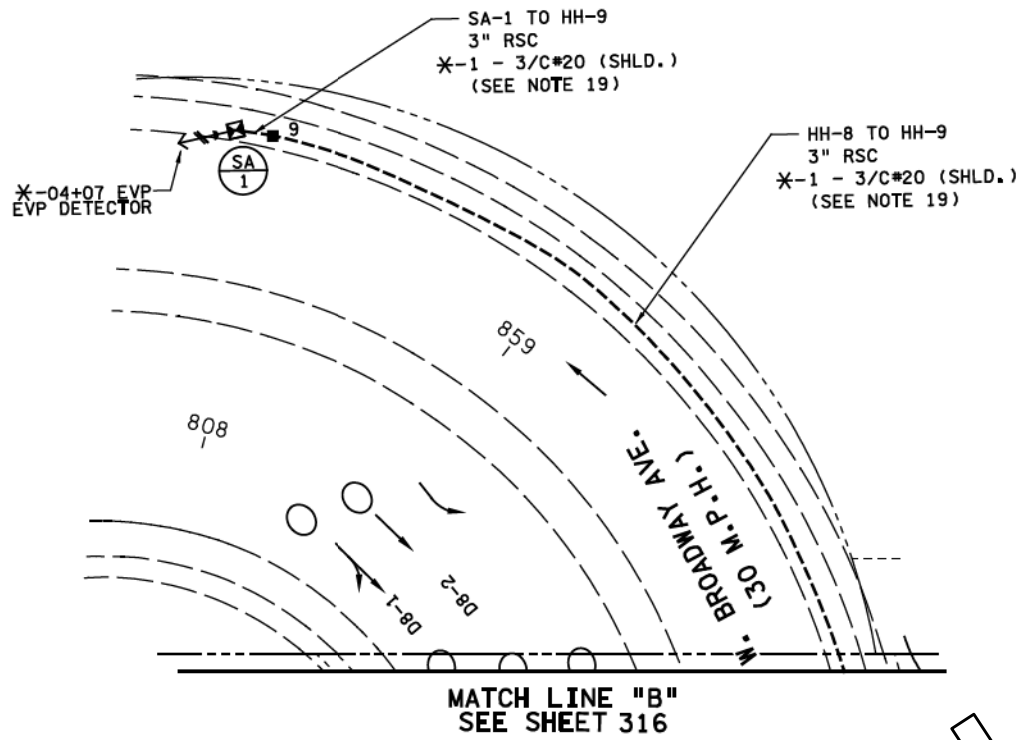
(2) PEDESTRIAN INDICATIONS SHALL BE INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.
 (3) STRAIGHT MOUNT PLUMBIZER, SEE SPECIAL PROVISIONS.

NOTES:

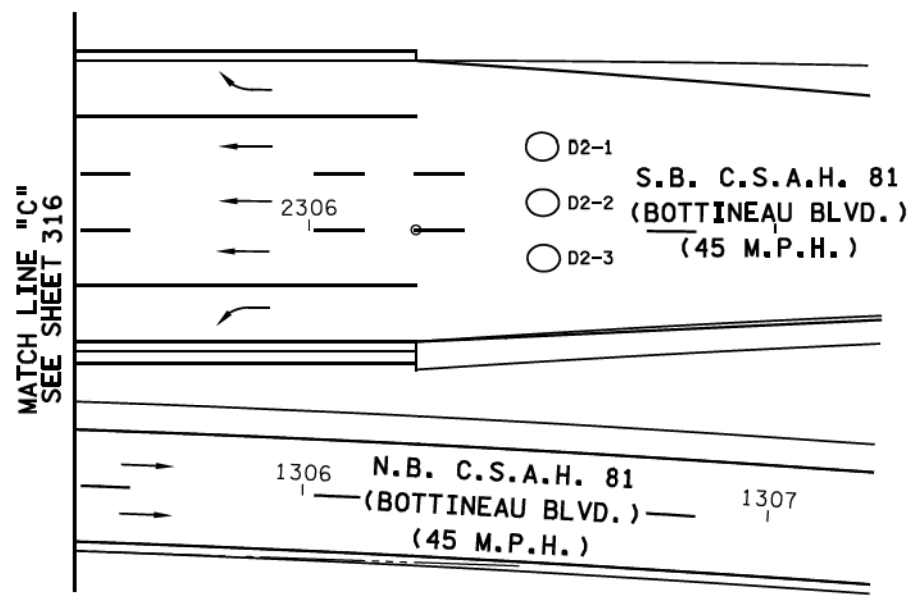
- LED LUMINAIRES SHALL BE INSTALLED ON LUMINAIRE SHAFT EXTENSIONS ON MAST ARMS 1,2,3 AND 4. (SEE MAST ARM & POLE DETAILS AND SPECIAL PROVISIONS).
- ALL HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
- THE CONTRACTOR SHALL INSTALL AND PROGRAM ALL APS EQUIPMENT. ALL PEDESTRIAN PUSHBUTTONS SHALL BE APS PUSHBUTTONS WITH SIGNS (SEE SPECIAL PROVISIONS). ONE APS PUSHBUTTON AND SIGN (LT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-2 & 4. ONE APS PUSHBUTTON AND SIGN (RT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-1 & 3. ONE APS PUSHBUTTON AND SIGN (DBL ARROW - LEFT AND RIGHT) SHALL BE FURNISHED AND INSTALLED ON PBS-5.
- INTERNATIONAL SYMBOLS SHALL BE USED FOR ALL PEDESTRIAN INDICATIONS (HAND AND WALKING PERSON). ALL PEDESTRIAN INDICATIONS SHALL HAVE COUNTDOWN TIMERS (SEE SPECIAL PROVISIONS).
- ALL VEHICULAR AND PEDESTRIAN INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
- THE ENGINEER SHALL LOCATE ALL POLES AND HANDHOLES PRIOR TO ANY CONSTRUCTION.
- ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
- THE CONTRACTOR SHALL INSTALL COUNTY FURNISHED VIDEO CAMERAS. VIDEO CAMERAS 1,2,3, AND 4 SHALL BE MOUNTED ON THE LUMINAIRE EXTENSIONS (SEE SPECIAL PROVISIONS).
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO ITS ORIGINAL CONDITION OR BETTER (SEE SPECIAL PROVISIONS).
- SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM, VIDEO DETECTION SYSTEM, BATTERY BACK-UP SIGNAL SERVICE CABINET, ACCESSIBLE PEDESTRIAN SIGNAL (APS), AND COUNTY FURNISHED ITEMS.
- COMMON BACK FILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER INCLUDED IN INCIDENTAL TO THE SIGNAL SYSTEM PAY ITEM.
- OVERHEAD MAST ARM MOUNTED TYPE "D" SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEM. (SEE SPECIAL PROVISIONS).
- ALL ITEMS SHOWN ARE FURNISH AND INSTALL UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL FURNISH AND INSTALL 4" R10-X12 (36"X42") SIGN ADJACENT TO SIGNAL INDICATION 1-1,3-1,5-1 AND 7-1.
- THE CONTRACTOR SHALL FURNISH AND INSTALL 1" R9-3a SIGN ON POLE MA-2 FACING MA-3, 1" R9-3a SIGN ON POLE MA-3 FACING POLE MA-2, 1" R9-3a SIGN ON POLE MA-3 FACING POLE MA-4, AND 1" R9-3a SIGN ON POLE MA-4 FACING POLE MA-3.
- THE REMOVAL AND DISPOSAL OF THE EXISTING SIGNAL, INCLUDING ALL MATERIALS EXCEPT CONDUIT UNDER ROADWAYS, SHALL BE INCLUDED IN THE REMOVE SIGNAL SYSTEM "C" PAY ITEM.
- * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.
- ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- ALL CONDUIT INSTALLATIONS UNDER THE RAILROAD TRACKS MUST BE A MINIMUM OF 5.5' DEEP TO AVOID CONFLICTS WITH BURLINGTON NORTHERN/SANTA FE RAILROAD.
- A 36" X 36" R3-1 "NO RIGHT TURN" BLANKOUT SIGN SHALL BE MOUNTED ON POLE MA-4 FACING SOUTHBOUND C.S.A.H. 81 TRAFFIC TO THE SATISFACTION OF THE ENGINEER.
- SEE SHEET 317 FOR INFORMATION ONLY SHEET. CONTRACTOR SHALL SALVAGE BLUETOOTH COMMUNICATION SYSTEM FROM EXISTING MAST ARM POLE 2. CONTRACTOR SHALL THEN INSTALL SALVAGED BLUETOOTH COMMUNICATIONS SYSTEM ON MAST ARM POLE 3 TO THE SATISFACTION OF THE ENGINEER.

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		H:\HEC\043116670\CAD\MS\plans\SIGNAL\cd116670_F10001.2.dgn		



MATCH LINE "A"
SEE SHEET 316



MATCH LINE "C"
SEE SHEET 316

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LIC. NO. 43354 DATE 2-28-2019

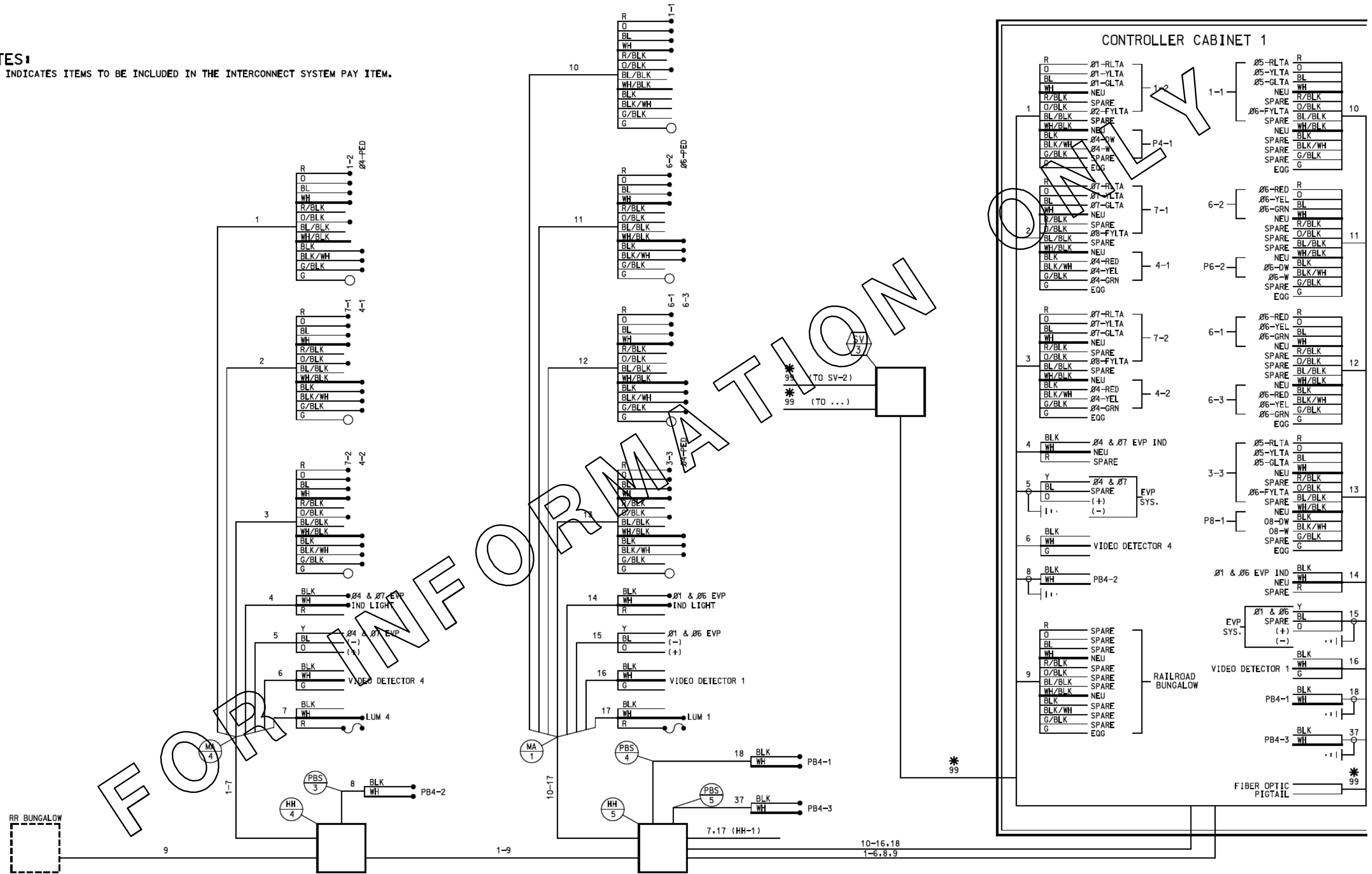
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CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "A"
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS37
SS126

NOTES:

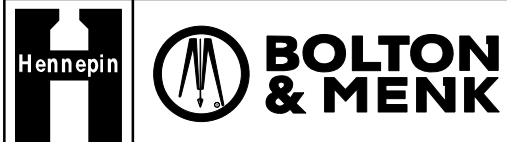
1) * INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.



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2/28/2019



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Bryan Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

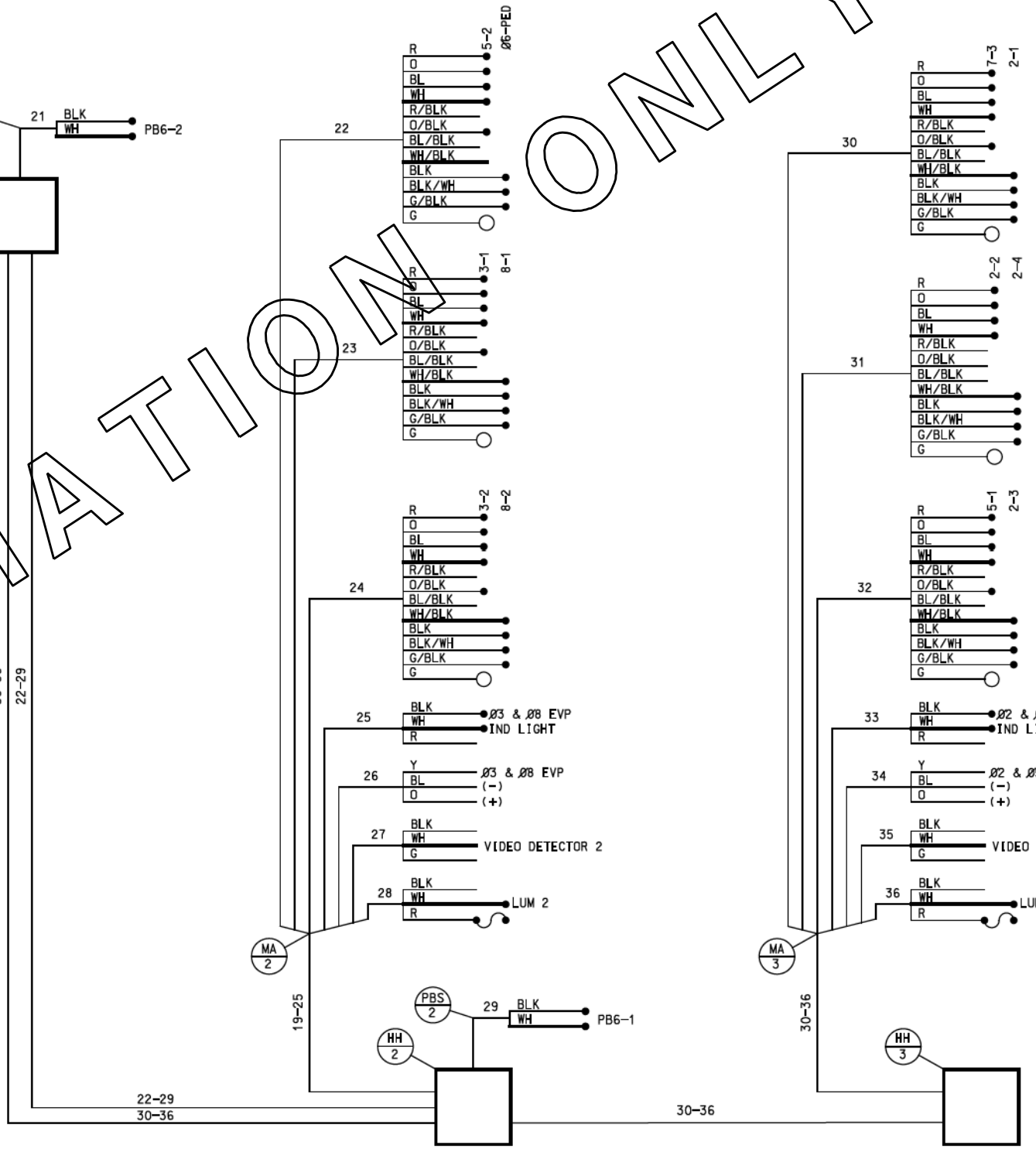
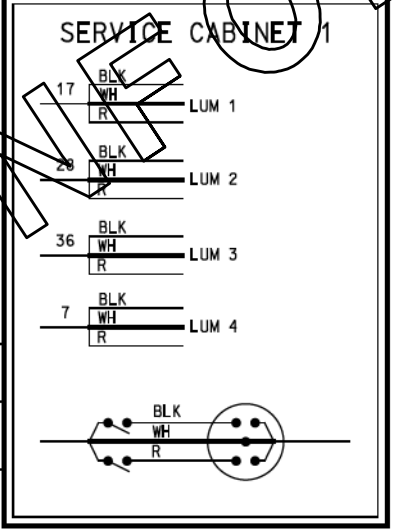
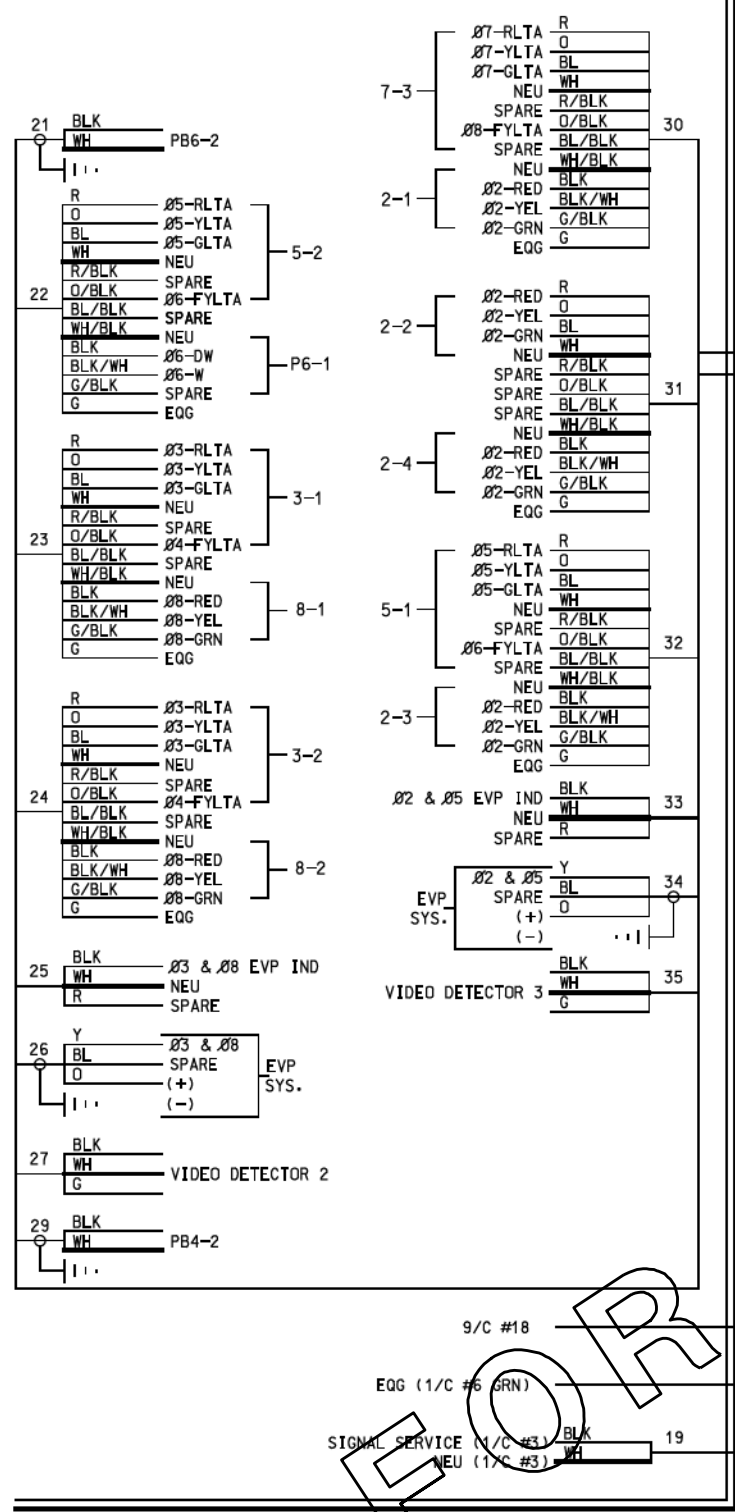
FOR INFORMATION ONLY - SIGNAL SYSTEM "A"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

SS38
SS126

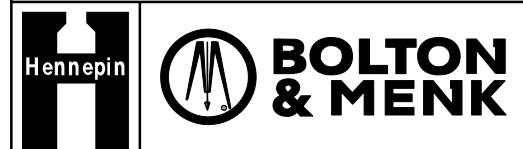
CONTROLLER CABINET 1



9/C #18
EQG (1/C #6 GRN)
SIGNAL SERVICE (1/C #3) BLK
NEU (1/C #3) WH

FOR INFORMATION ONLY

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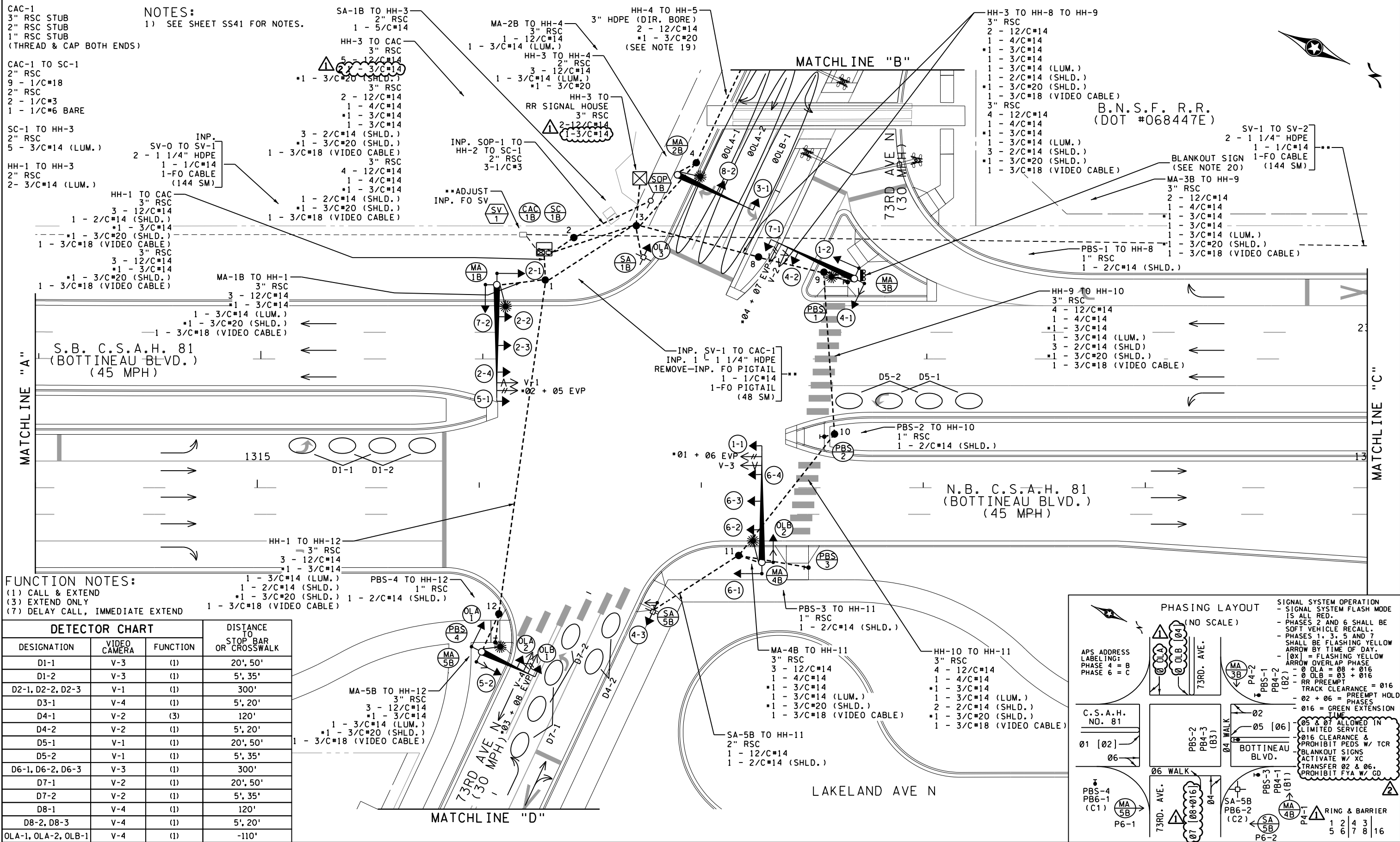


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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "A"
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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SHEET
SS39
SS126



NOTES:
 1) SEE SHEET SS41 FOR NOTES.

CAC-1
 3" RSC STUB
 2" RSC STUB
 1" RSC STUB
 (THREAD & CAP BOTH ENDS)

CAC-1 TO SC-1
 2" RSC
 9 - 1/C#18
 2" RSC
 2 - 1/C#3
 1 - 1/C#6 BARE

SC-1 TO HH-3
 2" RSC
 5 - 3/C#14 (LUM.)

HH-1 TO HH-3
 2" RSC
 2 - 3/C#14 (LUM.)

HH-1 TO CAC
 3" RSC
 3 - 12/C#14
 1 - 2/C#14 (SHLD.)
 *1 - 3/C#14
 *1 - 3/C#20 (SHLD.)
 1 - 3/C#18 (VIDEO CABLE)

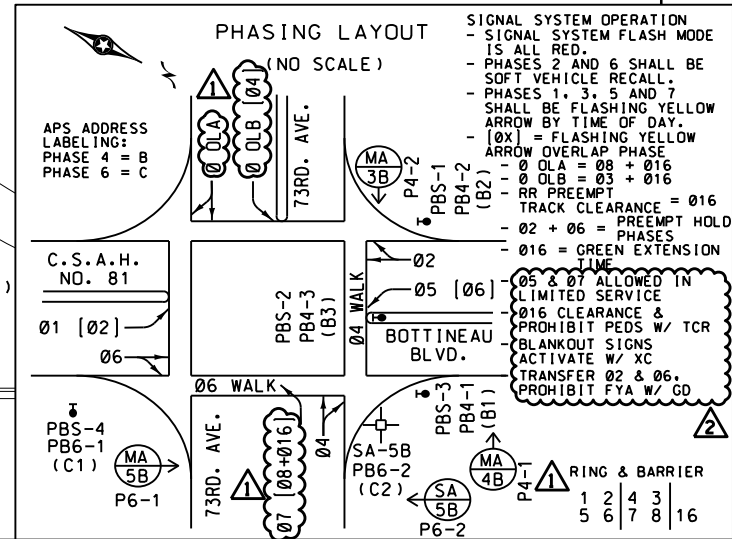
MA-1B TO HH-1
 3" RSC
 3 - 12/C#14
 *1 - 3/C#14
 1 - 3/C#14 (LUM.)
 *1 - 3/C#20 (SHLD.)
 1 - 3/C#18 (VIDEO CABLE)

HH-1 TO HH-12
 3" RSC
 3 - 12/C#14
 *1 - 3/C#14
 1 - 3/C#14 (LUM.)
 1 - 2/C#14 (SHLD.)
 *1 - 3/C#20 (SHLD.)
 1 - 2/C#14 (SHLD.)

PBS-4 TO HH-12
 1" RSC
 1 - 2/C#14 (SHLD.)
 *1 - 3/C#20 (SHLD.)
 1 - 2/C#14 (SHLD.)

FUNCTION NOTES:
 (1) CALL & EXTEND
 (3) EXTEND ONLY
 (7) DELAY CALL, IMMEDIATE EXTEND

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-3	(1)	20', 50'
D1-2	V-3	(1)	5', 35'
D2-1, D2-2, D2-3	V-1	(1)	300'
D3-1	V-4	(1)	5', 20'
D4-1	V-2	(3)	120'
D4-2	V-2	(1)	5', 20'
D5-1	V-1	(1)	20', 50'
D5-2	V-1	(1)	5', 35'
D6-1, D6-2, D6-3	V-3	(1)	300'
D7-1	V-2	(1)	20', 50'
D7-2	V-2	(1)	5', 35'
D8-1	V-4	(1)	120'
D8-2, D8-3	V-4	(1)	5', 20'
OLA-1, OLA-2, OLB-1	V-4	(1)	-110'



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BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

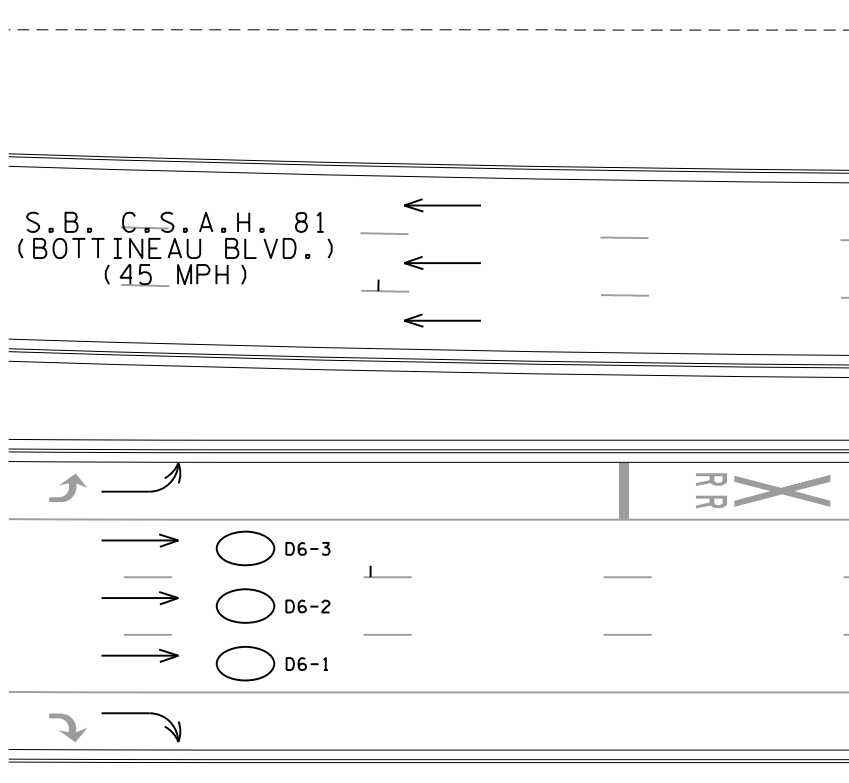
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 5/6/2019

INTERSECTION LAYOUT (SYSTEM "B") - 73RD AVE.

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 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS40 / SS126

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 5/7/2019



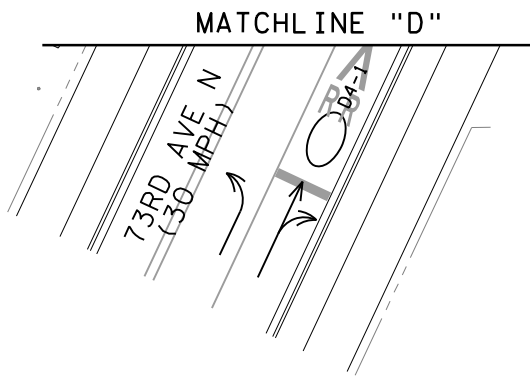
MATCHLINE "A"

HH-6 TO HH-7
2" RSC (DIR. BORE)
*1-3/C#20 (SHLD.)

SA-4B TO HH-7
2" RSC
*1 - 3/C#20 (SHLD.)

*03 + 08 FVP
DETECTOR

SA 4B



MATCHLINE "D"

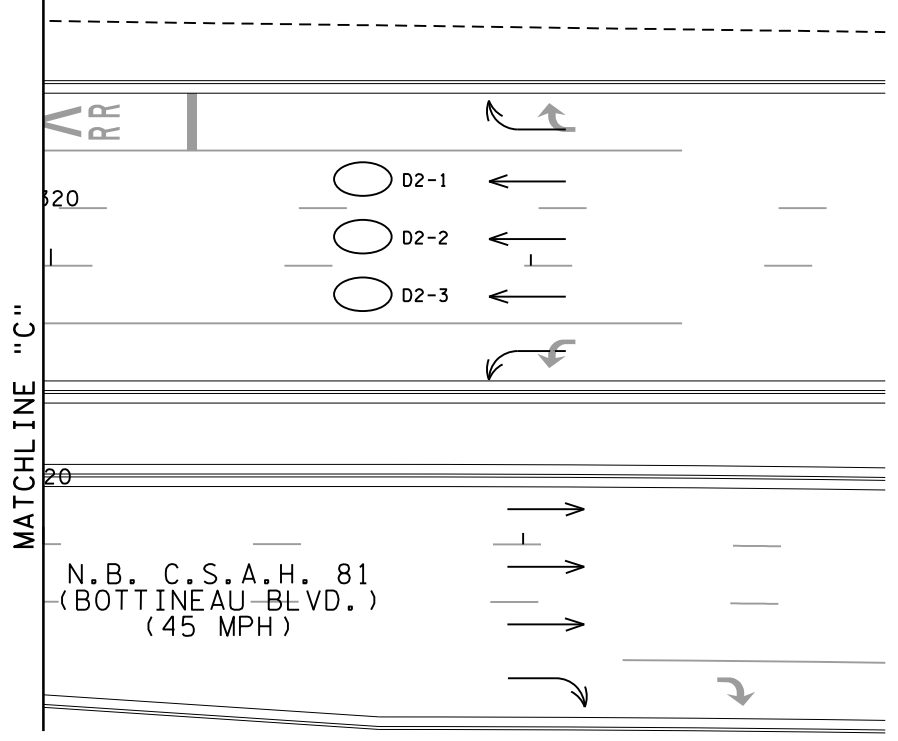
HH-5 TO HH-6
2" RSC
*1 - 3/C#20 (SHLD.)

HH-5 TO SA-2B
2" RSC
1 - 12/C#14

HH-4 TO HH-5
3" HPDE (DIR. BORE)
2 - 12/C#14
*1 - 3/C#20 (SHLD.)

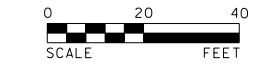
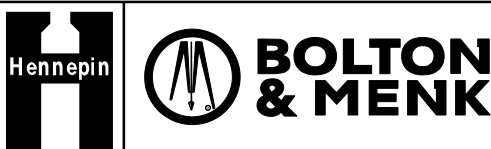
MATCHLINE "B"

HH-5 TO SA-3B
2" RSC
1 - 12/C#14



MATCHLINE "C"

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Bryan Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

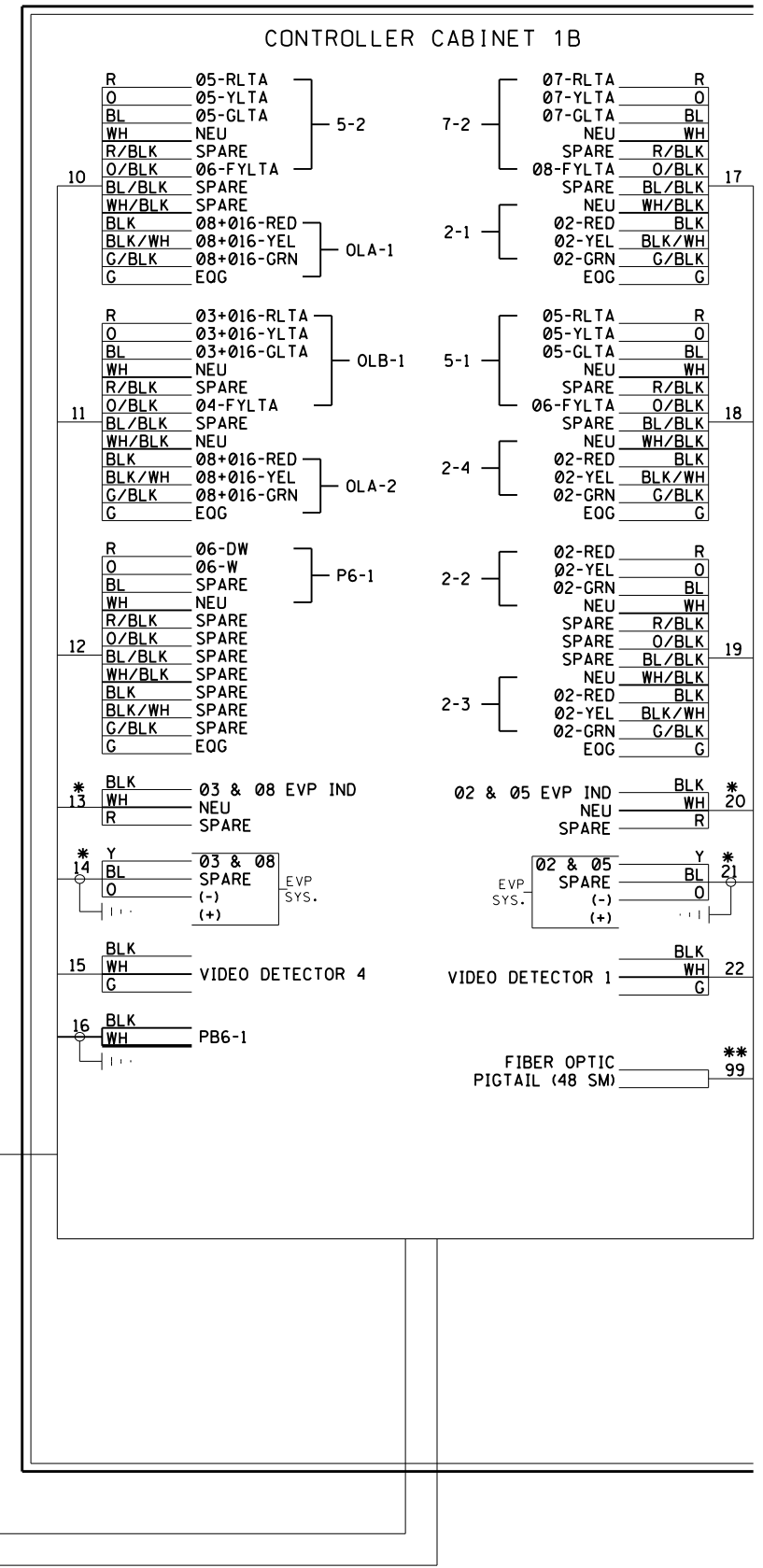
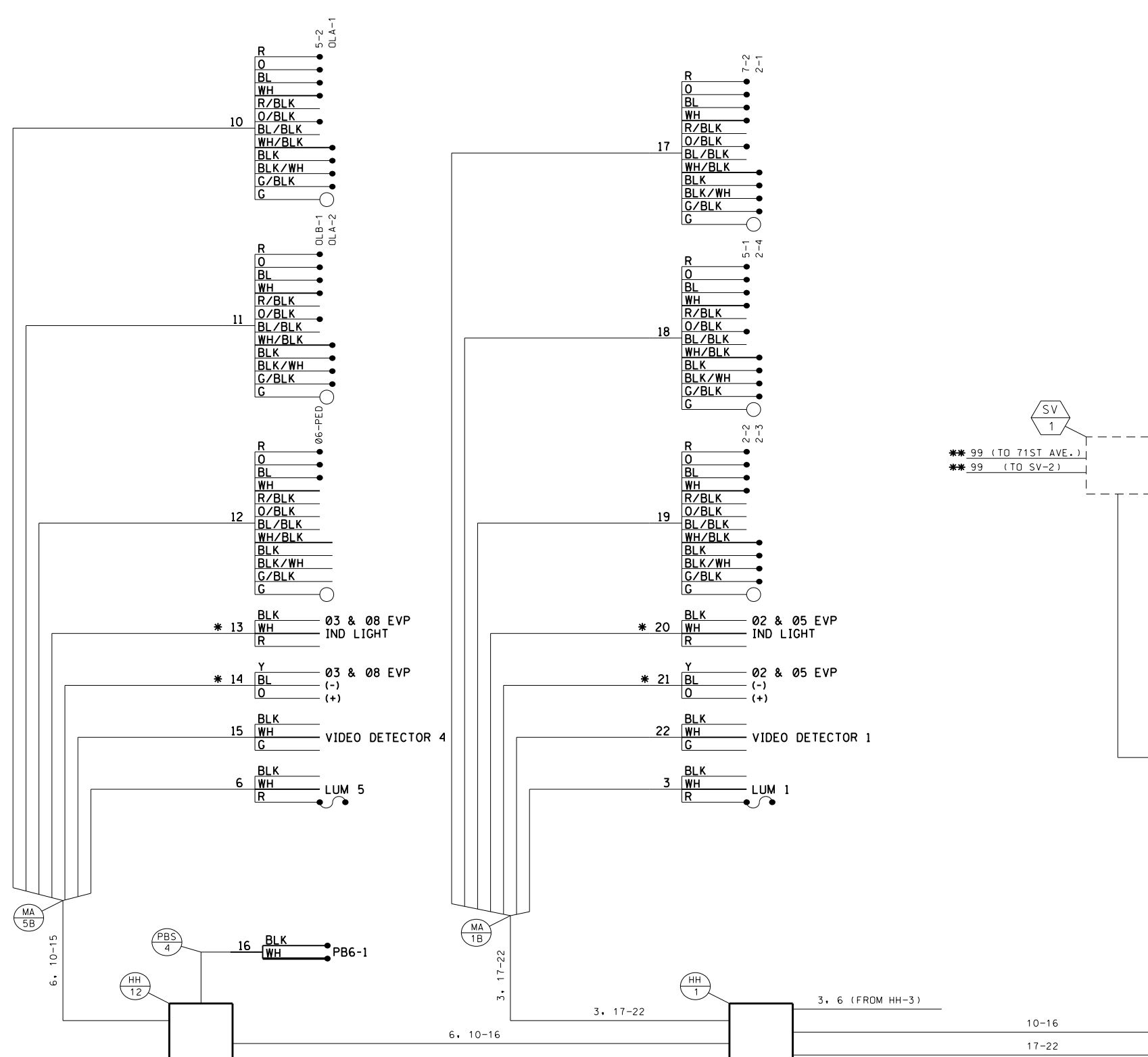
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

SIGNAL MATCHLINE LAYOUT (SYSTEM "B") -73RD AVE.
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS42
SS126

NOTES:

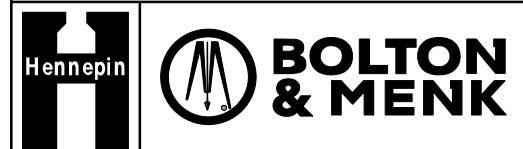
- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.



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2/28/2019



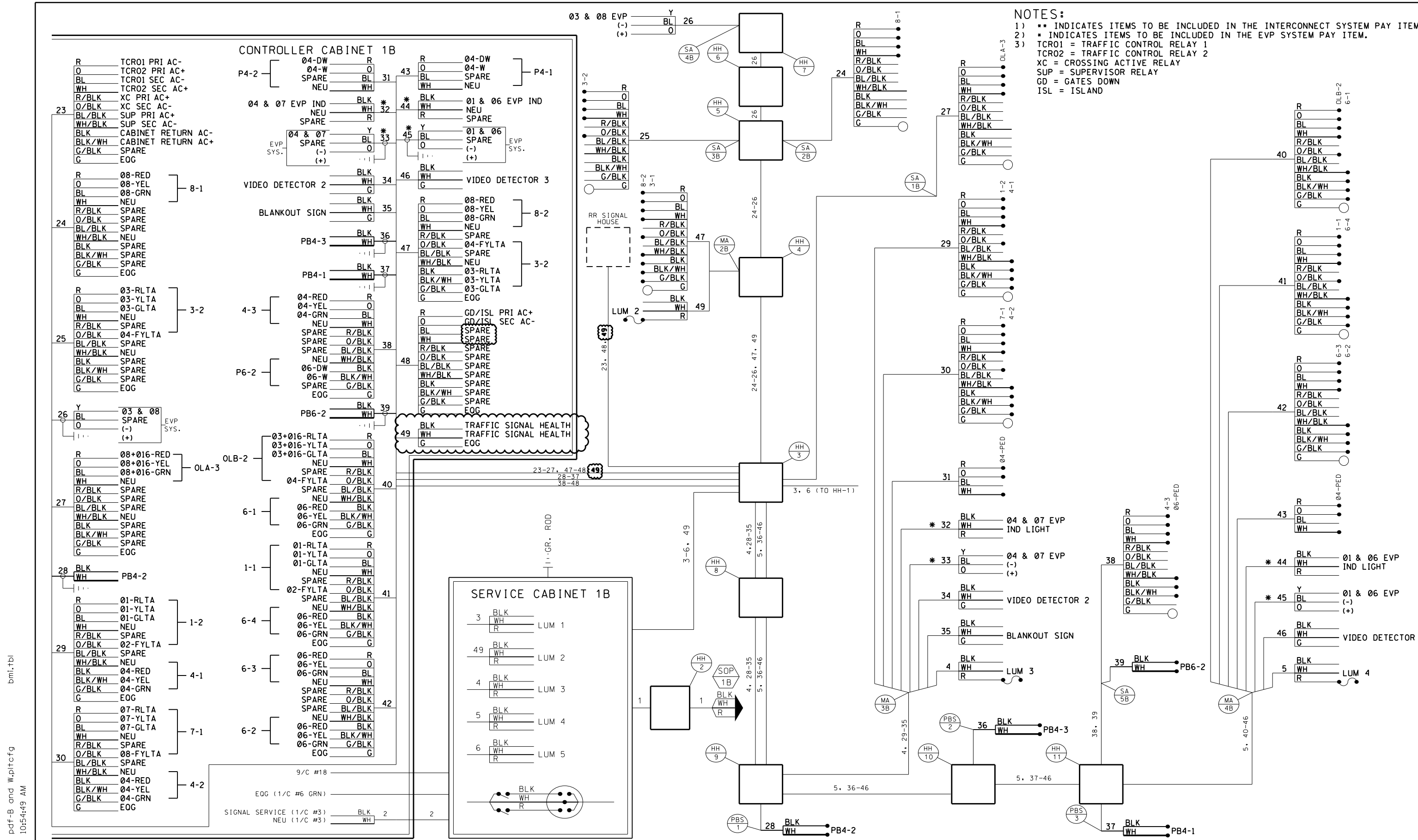
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "B")

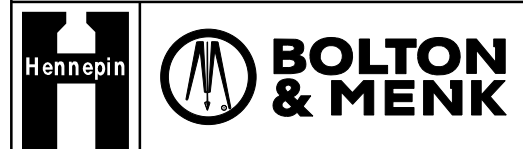
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 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS43
 SS126



NOTES:
 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.
 3) TCR01 = TRAFFIC CONTROL RELAY 1
 TCR02 = TRAFFIC CONTROL RELAY 2
 XC = CROSSING ACTIVE RELAY
 SUP = SUPERVISOR RELAY
 GD = GATES DOWN
 ISL = ISLAND

mikela 4/18/2019
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Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

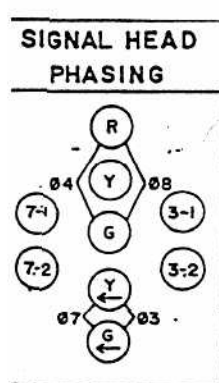
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 4/19/2019

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "B")
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS44
 SS126

SIGNAL INDICATION CHART						
SIGNAL FACE	PHASE	FL	TYPE & SIZE (IN INCHES)			
			R	Y	G	Y (2)
1-1, 1-2	1	R	12 (2)	12 (2)	12 (2)	
2-1, 2-2	2	R	12	12	12	
3-1	3,8	R	12	12	12	12 (2)
3-2	3,8	R	8	8	8	12 (2)
4-1, 4-2	4	R	12	12	12	
5-1, 5-2	5	R	12 (2)	12 (2)	12 (2)	
6-1, 6-2	6	R	12	12	12	
7-1	4,7	R	12	12	12	12 (2)
7-2	4,7	R	8	8	8	12 (2)
8-1	8	R	12	12	12	
8-2	8	R	12	12	12	

EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.



SIGNING CHART			
SIGN TYPE	SIZE (INCHES)	NOTES	POLE
R10 - 4C(L)	6" X 10"	(2)	3,4
R10 - 4C(DN)	6" X 10"	(4)	5,6
R10 - 2	36" X 48"	(1)	3,4
R3 - 5(L)	30" X 36"	(2)	3,4
R6 - 1(R)	48" X 18"	(3)	1,2
R6 - 1(L)	48" X 18"	(3)	1,2
R10 - 4C(R)	6" X 10"	(4)	1,2
R10 - 4C(L)	6" X 10"	(4)	1,2

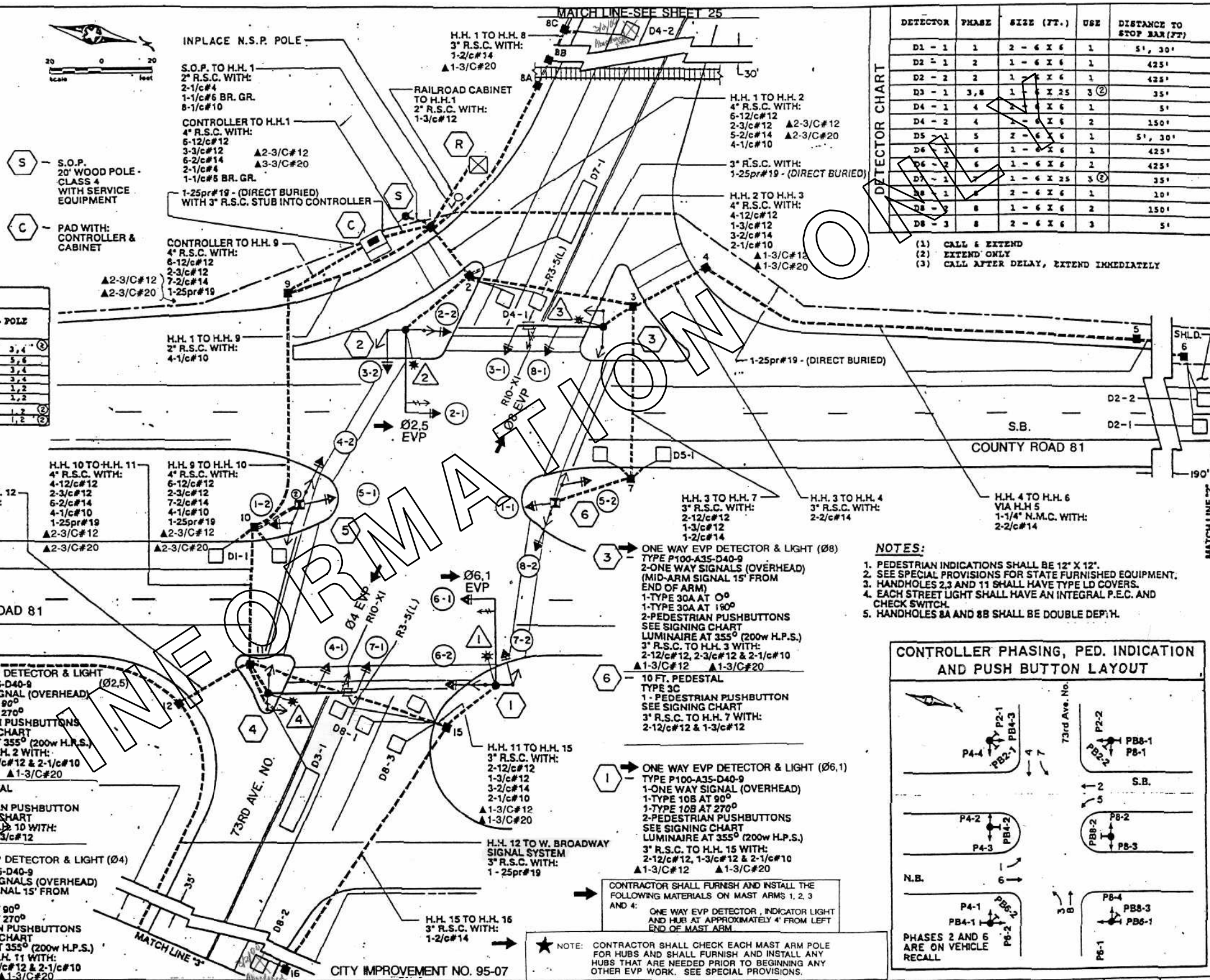
(1) MOUNTED ON MAST ARM.
 (2) TWO ON EACH POLE SHAFT.
 (3) MOUNTED ON POLE SHAFT.
 (4) ONE ON EACH POLE SHAFT.

EMERGENCY VEHICLE PRE-EMPTION SYSTEM "K" C.P. M-1174

NOTE: ALL COMPONENTS OF SIGNAL SYSTEM, EXCEPT EVP EQUIPMENT TO BE FURNISHED AND INSTALLED IN CONTROLLER CABINET OR AS INDICATED IN THE PLANS, ARE IN PLACE AND SHALL REMAIN IN PLACE AS PART OF THE REVISED SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR REQUIRED EVP EQUIPMENT IN CONTROLLER CABINET AND ADDITIONAL INFORMATION.

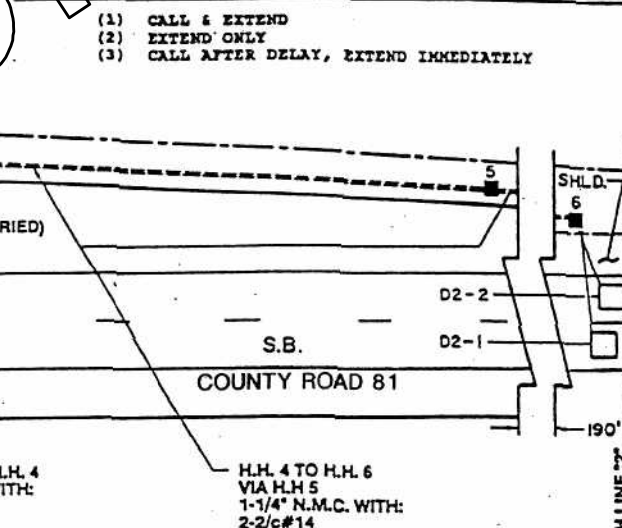
LEGEND

- ▲ NEW CABLES TO BE FAS AS PART OF EVP SYSTEM
- ← EVP DETECTOR UNIT (ONE WAY)
- ← EVP DETECTOR UNIT (TWO WAY)
- ⊗ SIGNAL PHASE
- EVP MATERIALS TO BE FAS AS PART OF EVP SYSTEM



DETECTOR	PHASE	SIZE (FT.)	USE	DISTANCE TO STOP BAR (FT)
D1 - 1	1	2 - 6 X 6	1	5', 30"
D2 - 1	2	1 - 6 X 6	1	425'
D2 - 2	2	1 - 6 X 6	1	425'
D3 - 1	3,8	1 - 6 X 25	3 (2)	35'
D4 - 1	4	2 - 6 X 6	1	5'
D4 - 2	4	2 - 6 X 6	2	150'
D5 - 1	5	2 - 6 X 6	1	5', 30"
D6 - 1	6	1 - 6 X 6	1	425'
D6 - 2	6	1 - 6 X 6	2	425'
D7 - 1	7	1 - 6 X 25	3 (2)	35'
D8 - 1	8	2 - 6 X 6	1	10'
D8 - 2	8	1 - 6 X 6	2	150'
D8 - 3	8	2 - 6 X 6	3	5'

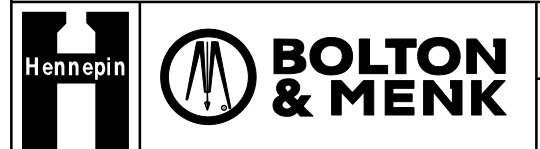
(1) CALL & EXTEND
 (2) EXTEND ONLY
 (3) CALL AFTER DELAY, EXTEND IMMEDIATELY



NOTES:

- PEDESTRIAN INDICATIONS SHALL BE 12" X 12".
- SEE SPECIAL PROVISIONS FOR STATE FURNISHED EQUIPMENT.
- HANDHOLES 2,3 AND 11 SHALL HAVE TYPE LD COVERS.
- EACH STREET LIGHT SHALL HAVE AN INTEGRAL P.E.C. AND CHECK SWITCH.
- HANDHOLES 8A AND 8B SHALL BE DOUBLE DEPTH.

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Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "B"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS45
 SS126



F&I
 7 10' PEDESTAL POLE AND-BASE
 PEDESTAL FOUNDATION
 ONE WAY EVP DETECTOR (MOUNT
 ON TOP OF POLE-FACING SOUTH)

HH.18 TO HH.17
 HH.17 TO HH.18
 HH.18 TO POLE 7
 1 1/2" R.S.C. F&I
 1-3/C#20

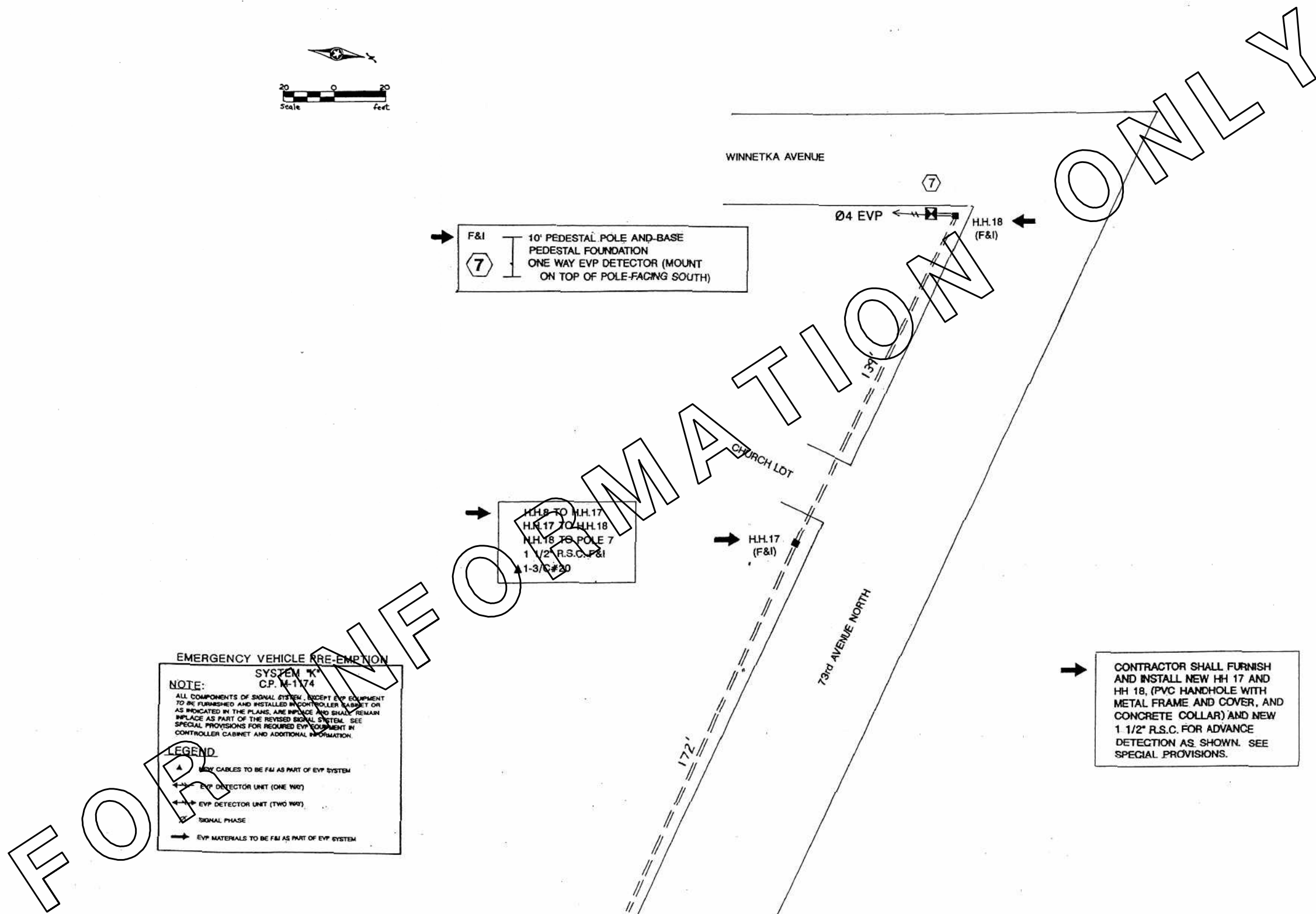
**EMERGENCY VEHICLE RE-EMPTION
 SYSTEM "B"
 C.P. M-1174**

NOTE:
 ALL COMPONENTS OF SIGNAL SYSTEM, EXCEPT EVP EQUIPMENT
 TO BE FURNISHED AND INSTALLED IN CONTROLLER CABINET OR
 AS INDICATED IN THE PLANS, ARE IN PLACE AND SHALL REMAIN
 IN PLACE AS PART OF THE REVISED SIGNAL SYSTEM. SEE
 SPECIAL PROVISIONS FOR REQUIRED EVP EQUIPMENT IN
 CONTROLLER CABINET AND ADDITIONAL INFORMATION.

LEGEND

- ▲ NEW CABLES TO BE F&I AS PART OF EVP SYSTEM
- EVP DETECTOR UNIT (ONE WAY)
- ← EVP DETECTOR UNIT (TWO WAY)
- SIGNAL PHASE
- EVP MATERIALS TO BE F&I AS PART OF EVP SYSTEM

CONTRACTOR SHALL FURNISH
 AND INSTALL NEW HH 17 AND
 HH 18, (PVC HANDHOLE WITH
 METAL FRAME AND COVER, AND
 CONCRETE COLLAR) AND NEW
 1 1/2" R.S.C. FOR ADVANCE
 DETECTION AS SHOWN. SEE
 SPECIAL PROVISIONS.



JMG 9/98 RECORD DRAWING (EVP)

MATCH LINE-SEE SHEET 24 CITY IMPROVEMENT NO. 95-07

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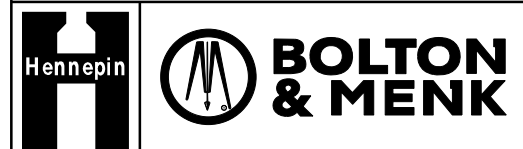
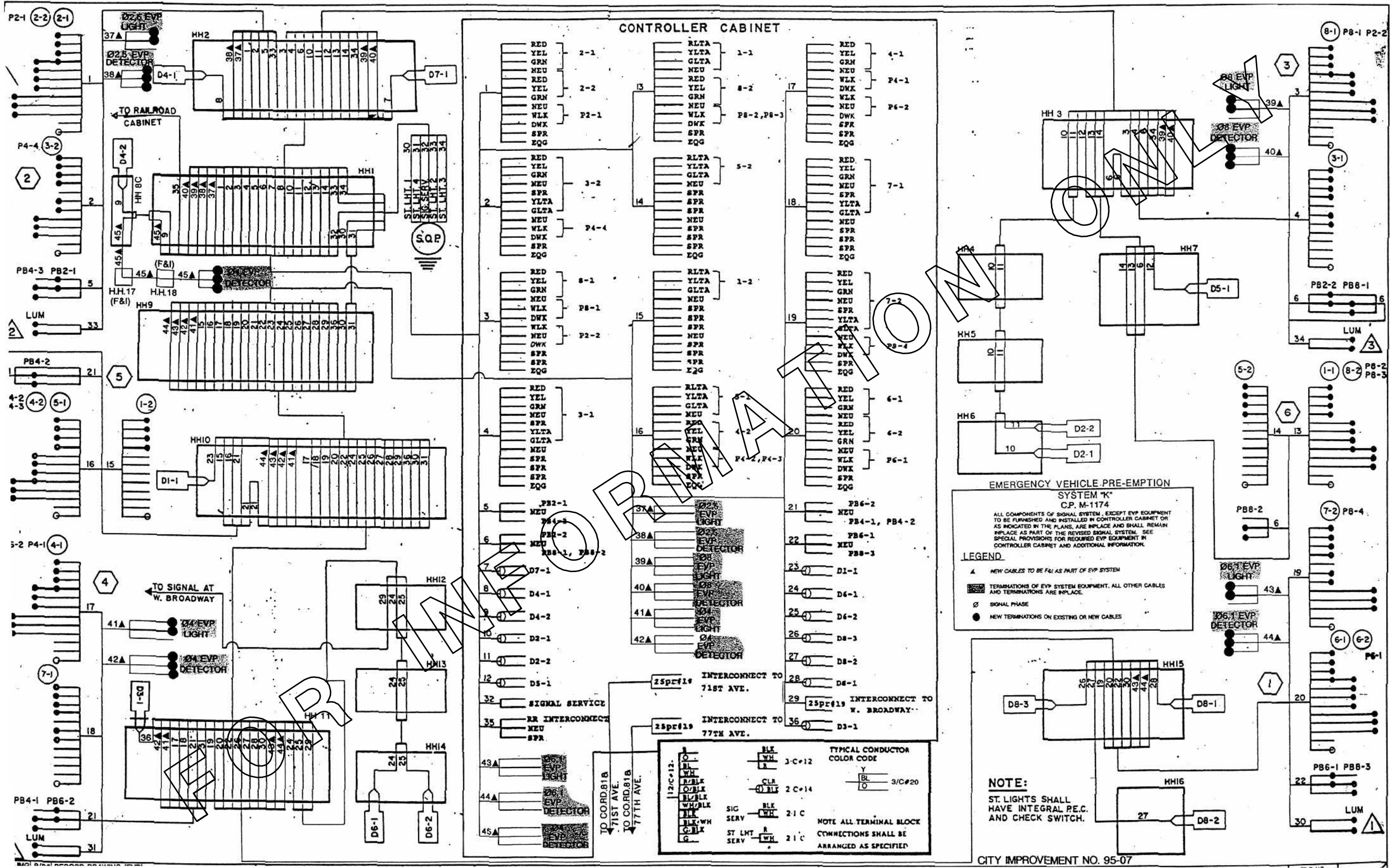
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "B"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
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 SS126

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CAD BY: KME
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LAST REVISION:

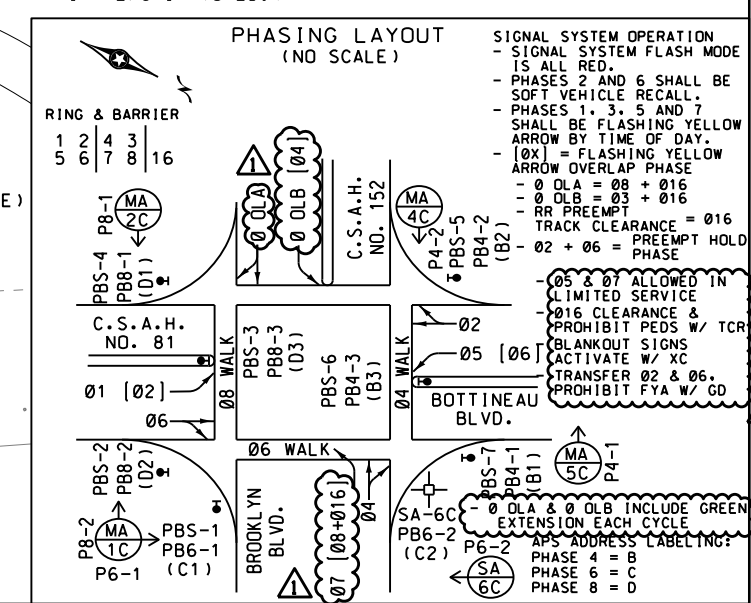
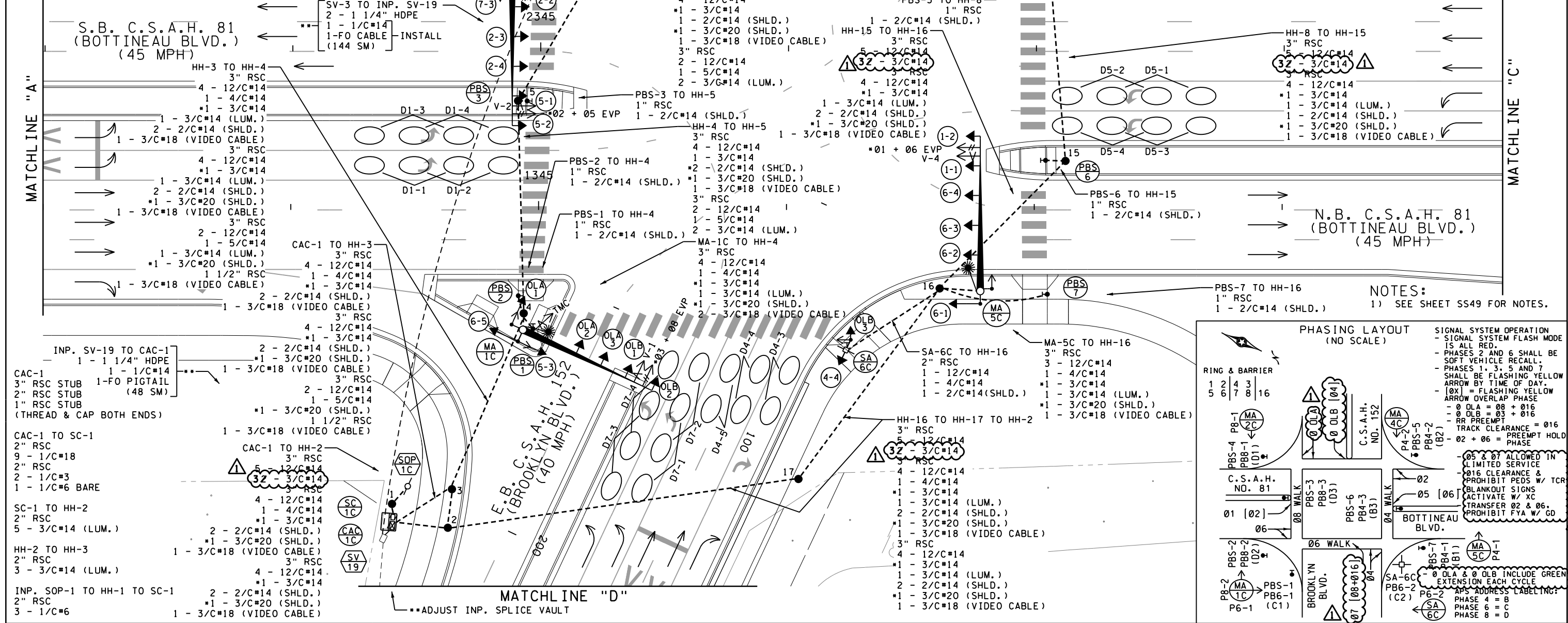
FOR INFORMATION ONLY - SIGNAL SYSTEM "B"

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SHEET
SS47
SS126

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1, D1-3	V-4	(1)	20', 50'
D1-2, D1-4	V-4	(1)	5', 35'
D2-1, D2-2, D2-3	V-2	(1)	300'
D3-1, D3-2	V-1	(1)	5', 20'
D4-1, D4-2	V-3	(3)	250'
D4-3	V-3	(7)	5', 20'
D4-4, D4-5	V-3	(1)	5', 20'
D5-1, D5-3	V-2	(1)	20', 50'
D5-2, D5-4	V-2	(1)	5', 35'
D6-1, D6-2, D6-3	V-4	(1)	300'
D7-1, D7-3	V-3	(1)	20', 50'
D7-2, D7-4	V-3	(1)	5', 35'
D8-1, D8-2	V-1	(3)	250'
D8-3, D8-4, D8-5	V-1	(1)	5', 35'
OLA-1, OLA-2, OLA-3 OLB-1, OLB-2	V-1	(1)	-110'

FUNCTION NOTES:
 (1) CALL & EXTEND
 (3) EXTEND ONLY
 (7) DELAY CALL, IMMEDIATE EXTEND



Hennepin **BOLTON & MENK**

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Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: **MSL**
 CAD BY: **KME**
 CHECKED BY: **BTN**
 LAST REVISION: **5/6/2019**

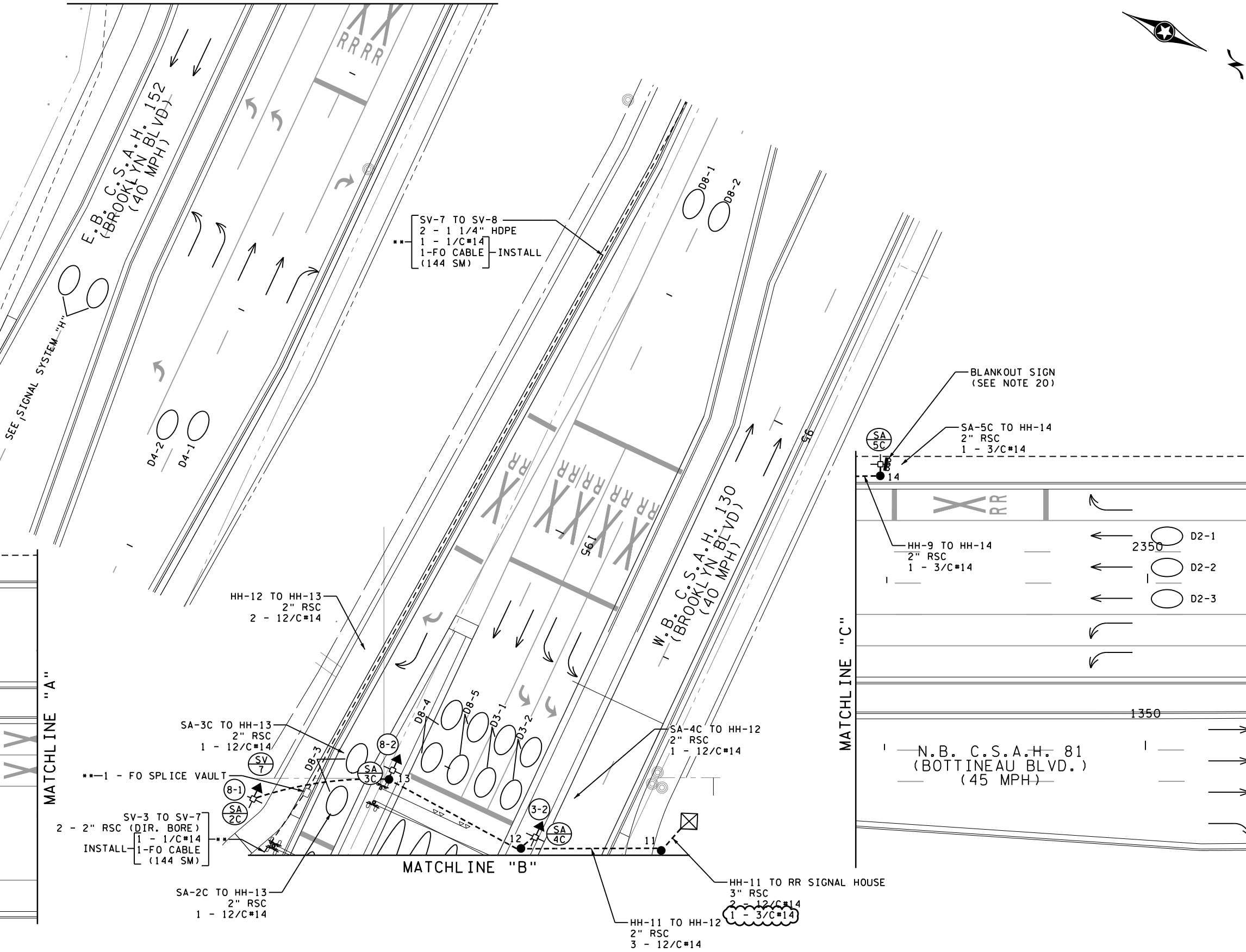
INTERSECTION LAYOUT (SYSTEM "C") - BROOKLYN BLVD.

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS48
SS126

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 5/7/2019

MATCHLINE "D"



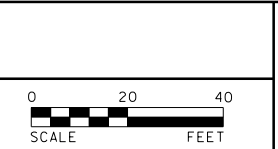
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4/18/2019

Hennepin

BOLTON & MENK



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL

CAD BY: KME

CHECKED BY: BTN

LAST REVISION: 4/19/2019

SIGNAL MATCHLINE LAYOUT (SYSTEM "C") - BROOKLYN BLVD.

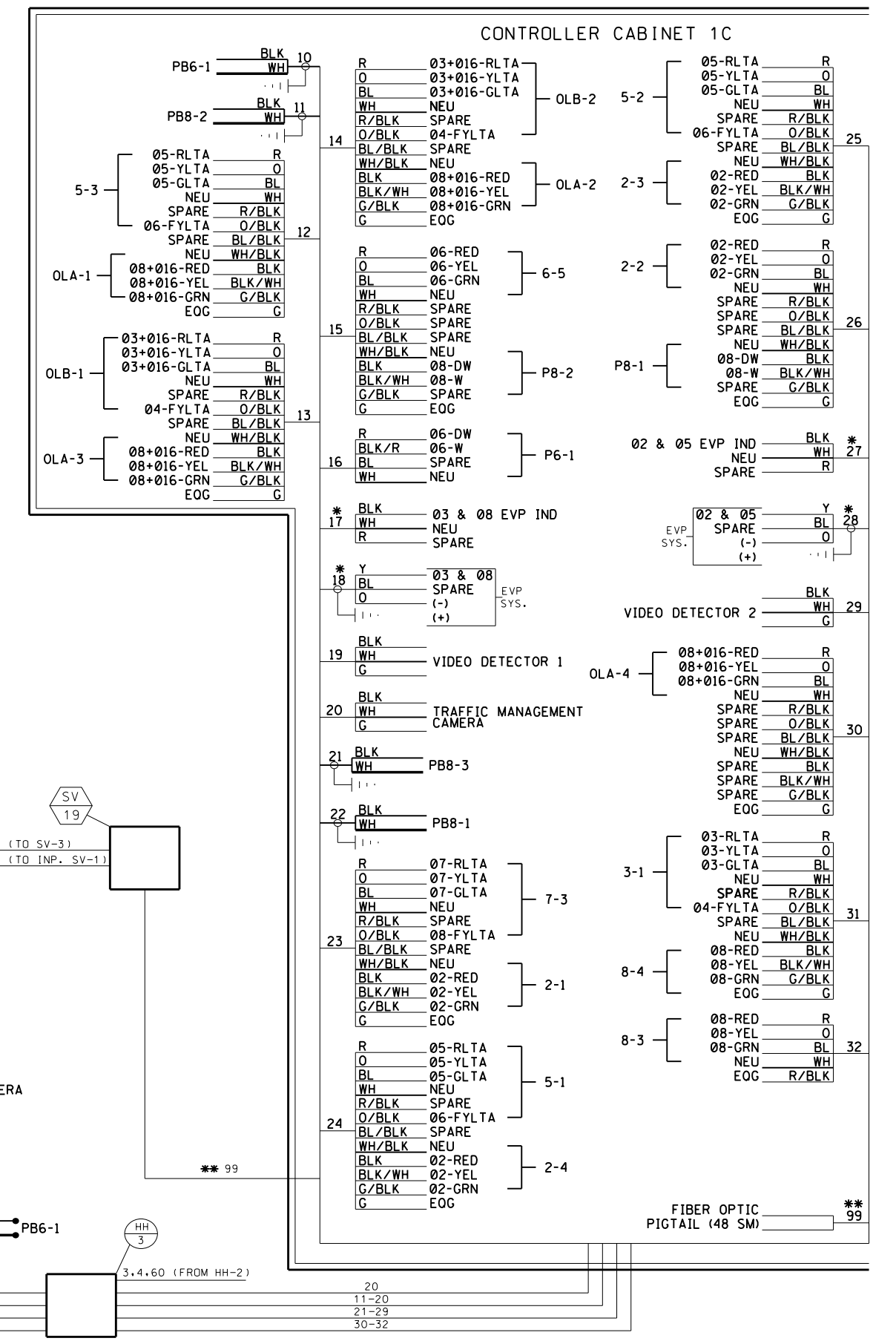
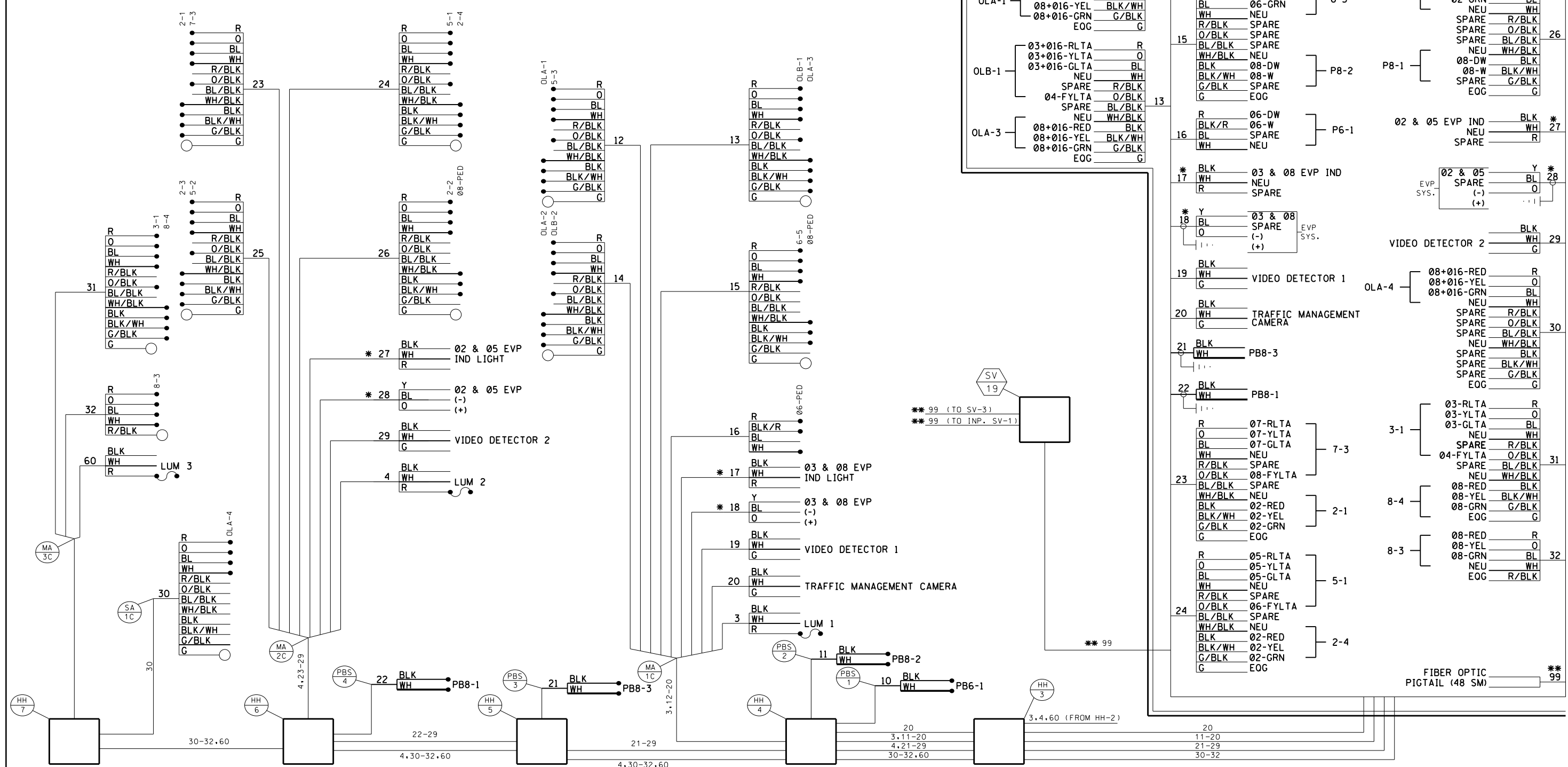
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

SS50
SS126

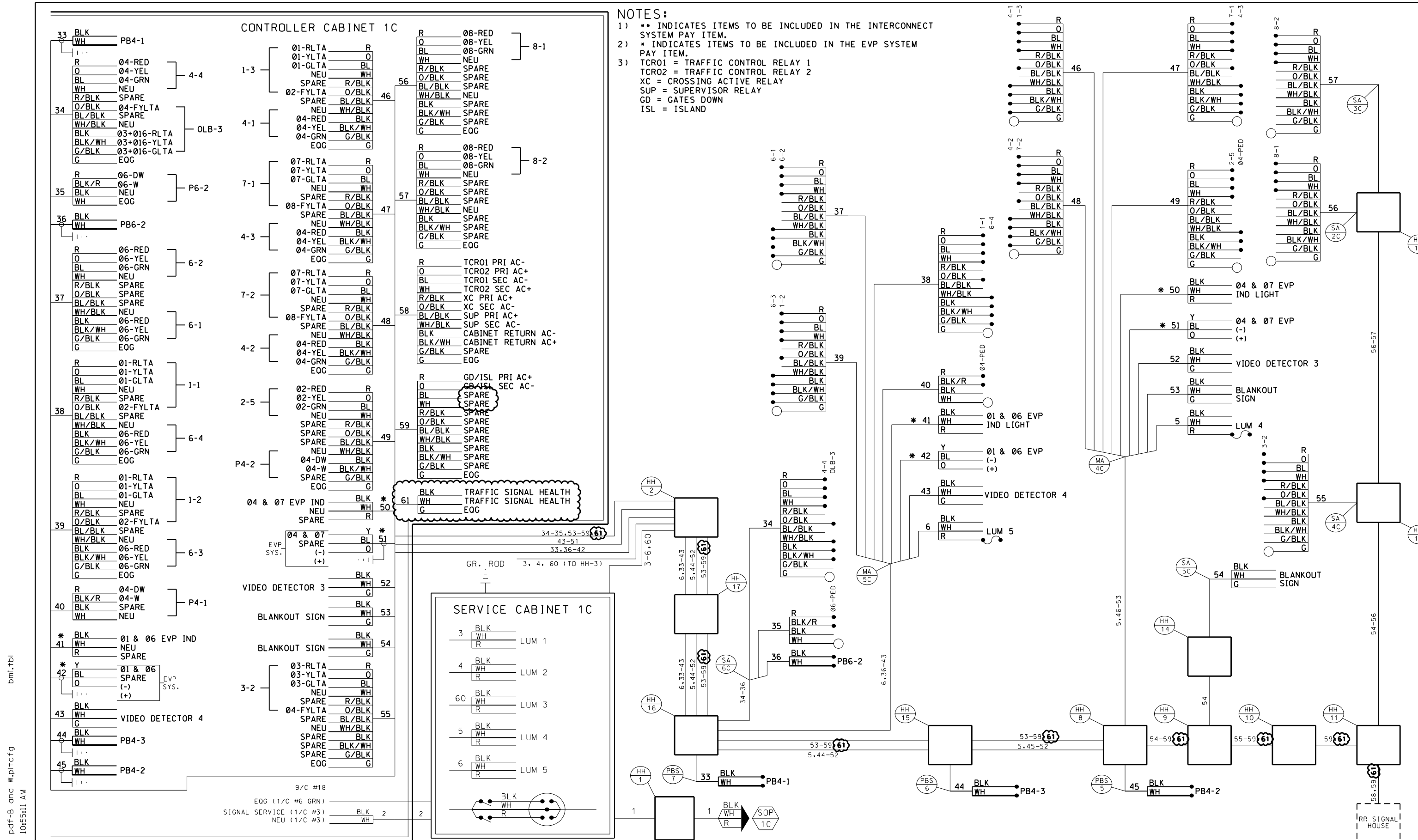
NOTES:

- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- 1) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.

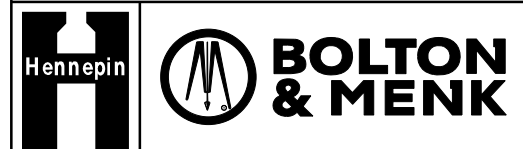


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		I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: MSL CAD BY: KME CHECKED BY: BTN LAST REVISION:	SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "C") C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035, S.P. 110-020-040	SHEET SS51 SS126
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4/18/2019



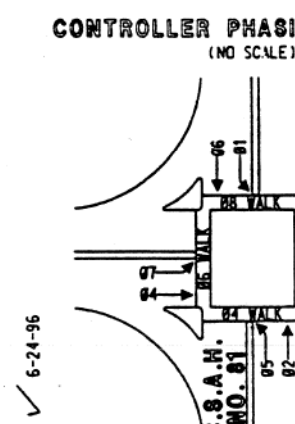
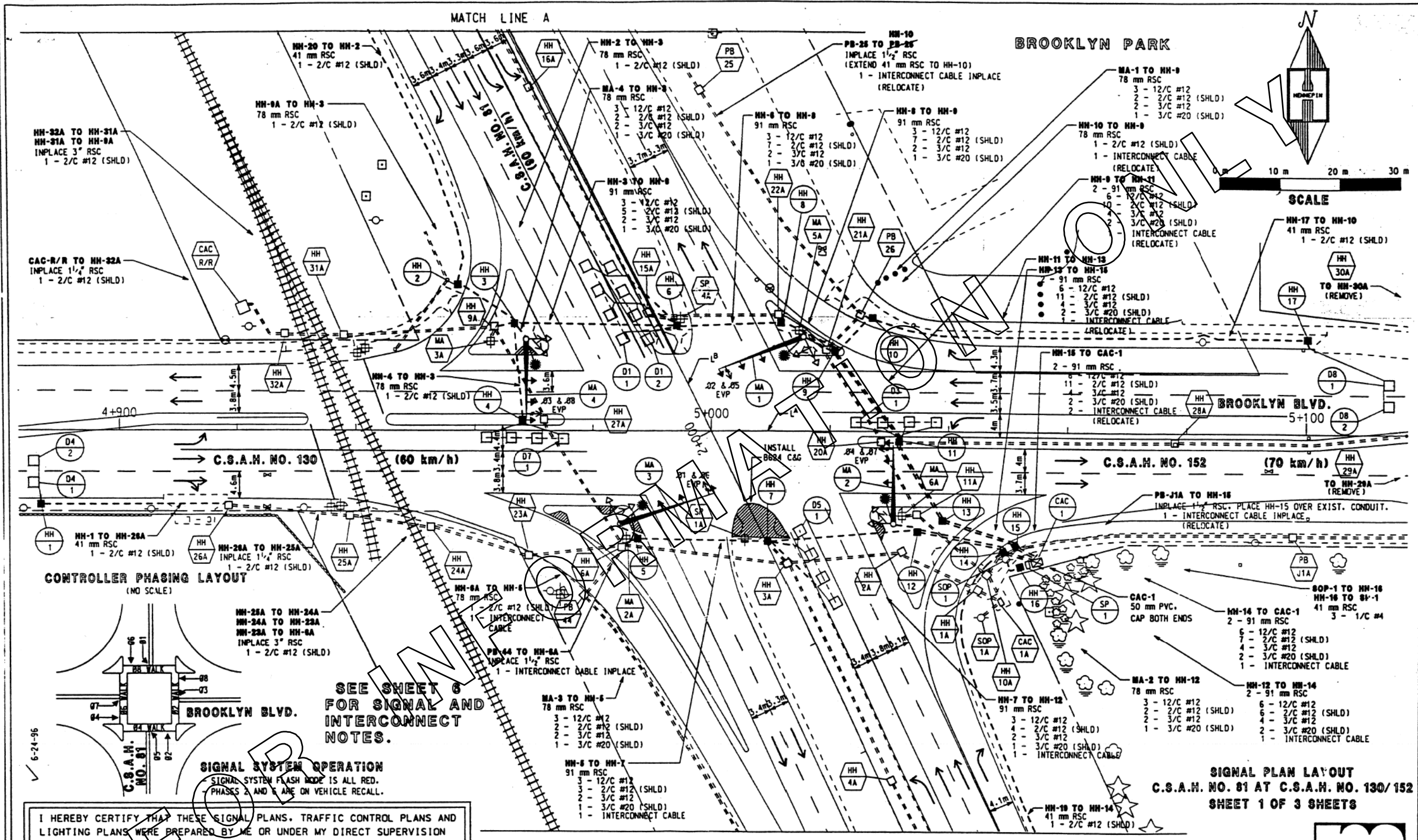
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Bryan Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 4/19/2019

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "C")
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS52
SS126



SIGNAL SYSTEM OPERATION
 SIGNAL SYSTEM FLASH MODE IS ALL RED.
 PHASES 2 AND 3 ARE ON VEHICLE RECALL.

SEE SHEET 6 FOR SIGNAL AND INTERCONNECT NOTES.

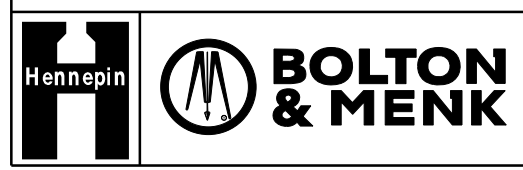
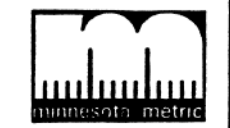
I HEREBY CERTIFY THAT THESE SIGNAL PLANS, TRAFFIC CONTROL PLANS AND LIGHTING PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY *Maram Babra* REG. NO. 12616 DATE 6/5/96
 PROFESSIONAL ENGINEER DESIGN SQUAD G. HANSON

SYSTEM I.D. NO. : 8034500
 METER ADDRESS: 7600 HWY. 152

S.P. NO. 27-681-06
 S.P. NO. 27-730-15
 S.P. NO. 27-752-08

HENN. CO., MINN. C.S.A.H. NO. 81 PROJ. NO. 9403 SHEET 4 OF 9 SHEETS



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.

Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "C"
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET SS53 / SS126

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2/28/2019



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BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

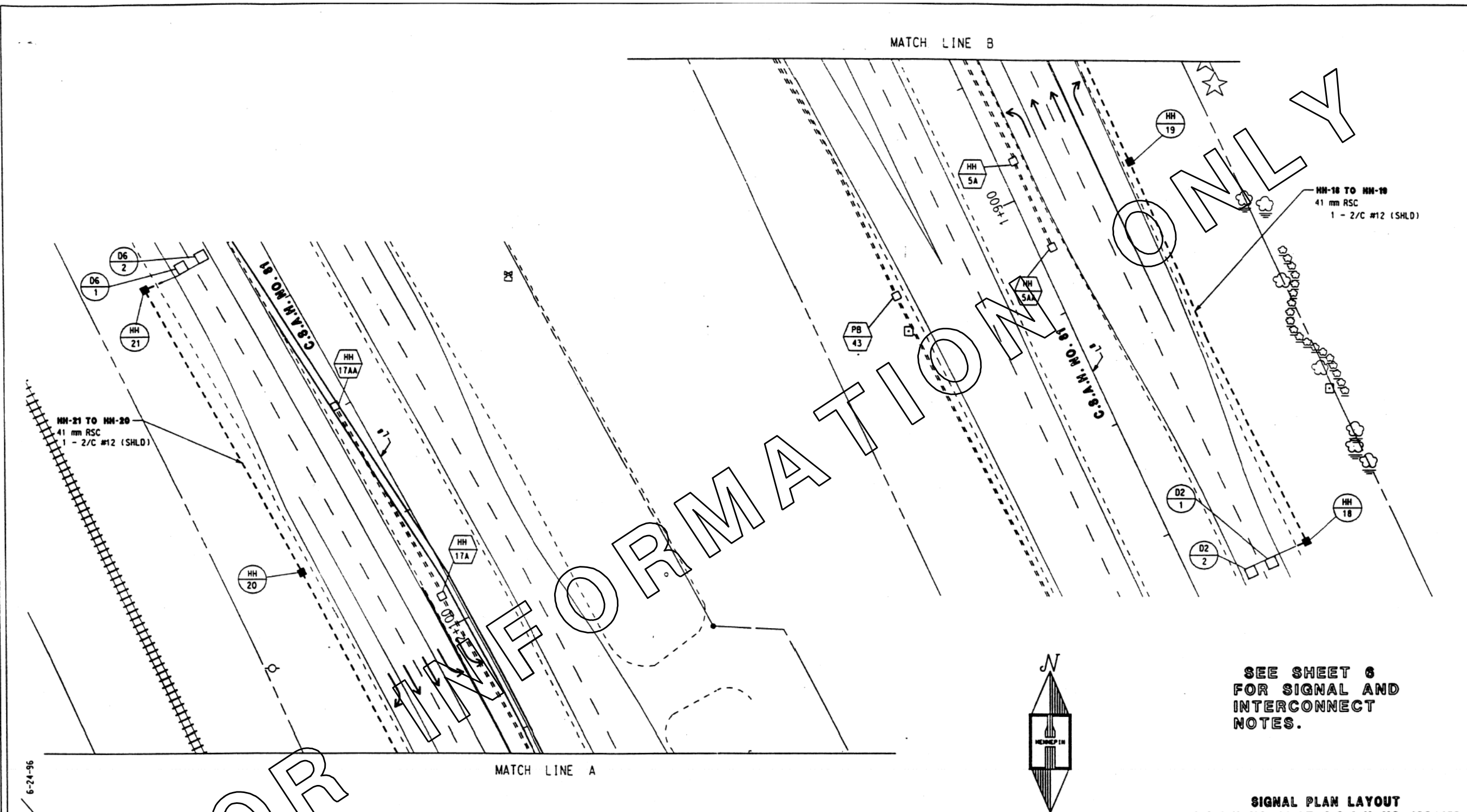
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "C"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

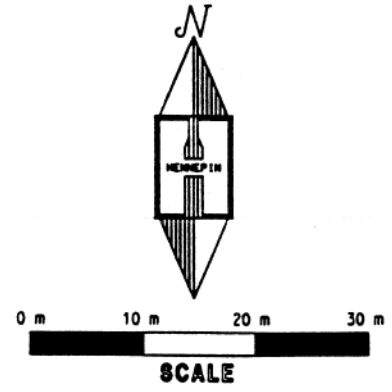
SS54
SS126



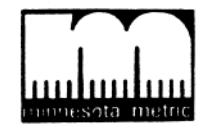
6-24-96

I HEREBY CERTIFY THAT THESE SIGNAL PLANS, TRAFFIC CONTROL PLANS AND LIGHTING PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
CERTIFIED BY *Asharam Bobra* REG. NO. 12616 DATE 6/5/96
PROFESSIONAL ENGINEER DESIGN SQUAD G. HANSON

SYSTEM I.D. NO. : 8034500
METER ADDRESS: 7600 HWY. 152



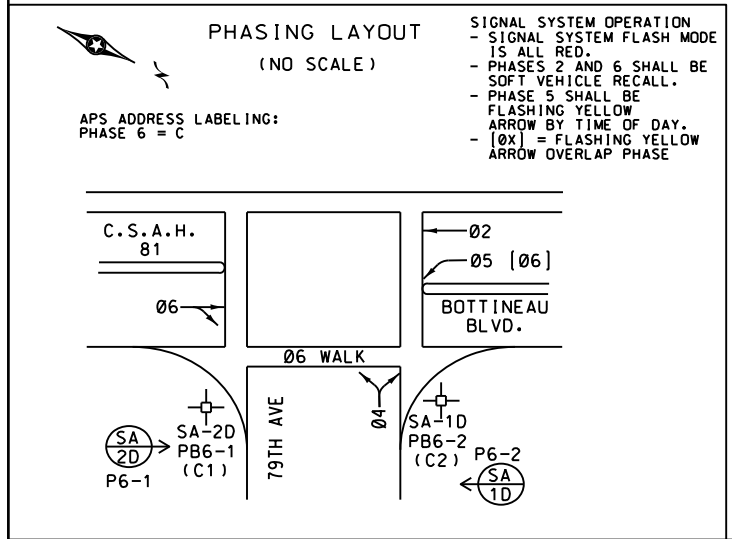
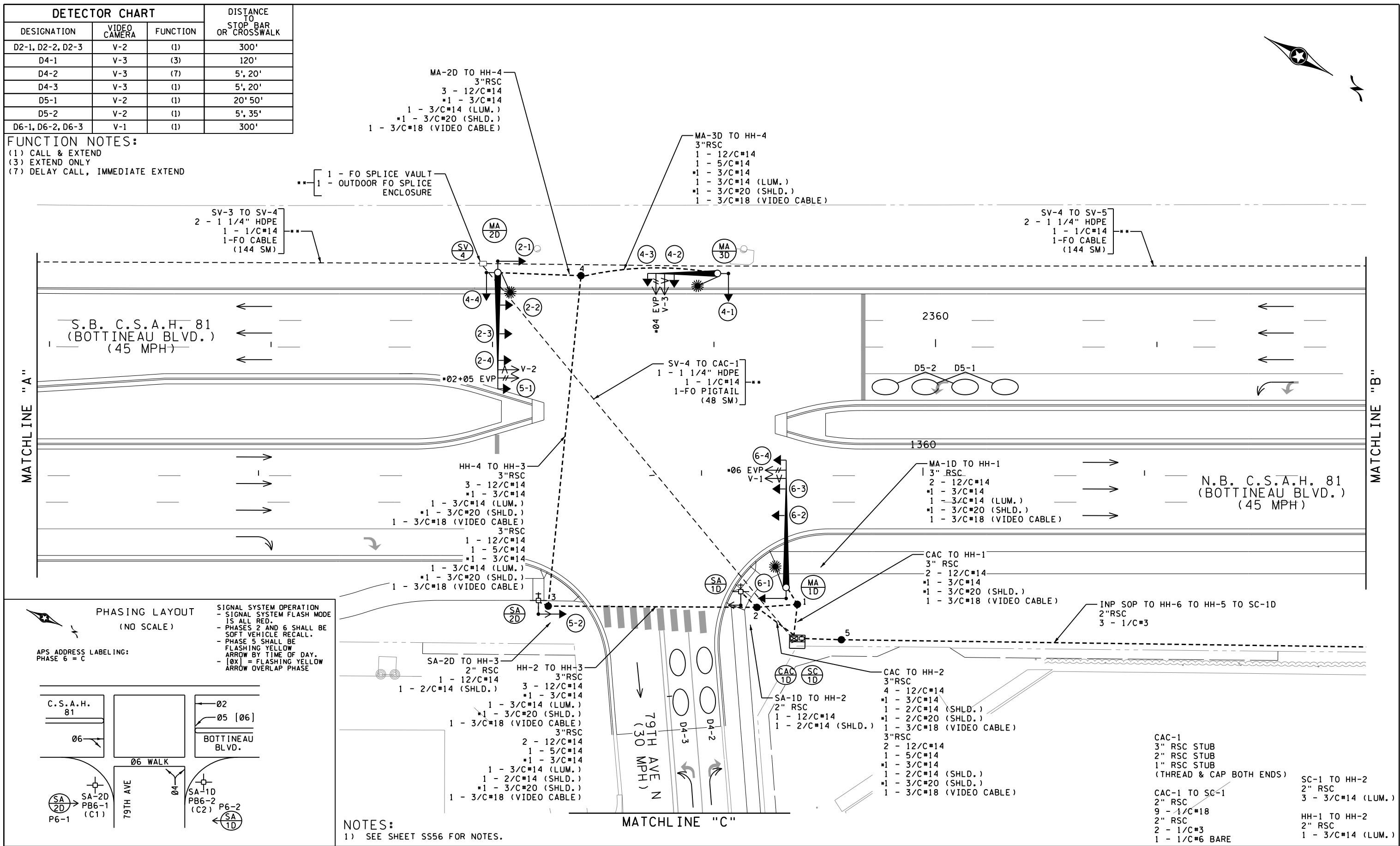
SEE SHEET 6 FOR SIGNAL AND INTERCONNECT NOTES.
SIGNAL PLAN LAYOUT
C.S.A.H. NO. 81 AT C.S.A.H. NO. 130/152
SHEET 2 OF 3 SHEETS



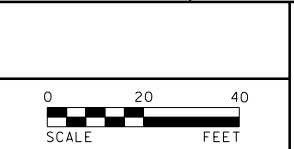
HENN. CO., MINN. C.S.A.H. NO. 81 PROJ. NO. 9403 SHEET 5 OF 9 SHEETS

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D2-1, D2-2, D2-3	V-2	(1)	300'
D4-1	V-3	(3)	120'
D4-2	V-3	(7)	5', 20'
D4-3	V-3	(1)	5', 20'
D5-1	V-2	(1)	20' 50'
D5-2	V-2	(1)	5', 35'
D6-1, D6-2, D6-3	V-1	(1)	300'

FUNCTION NOTES:
 (1) CALL & EXTEND
 (3) EXTEND ONLY
 (7) DELAY CALL, IMMEDIATE EXTEND



NOTES:
 1) SEE SHEET SS56 FOR NOTES.



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 LIC. NO. 43354 DATE 2-28-2019

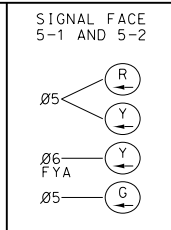
DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

INTERSECTION LAYOUT (SYSTEM "D") - 79TH AVE.
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS55
 SS126

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TYPICAL 4-SECTION SIGNAL HEAD PHASING WITH FLASHING YELLOW ARROW



SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION	NO.	LOCATION
HH-1	1359+43.29 - 58.09' RT		
HH-2	1359+25.00 - 59.43' RT	SOP-1D	BY OTHERS
HH-3	1358+30.80 - 58.88' RT		
HH-4	1358+45.59 - 90.23' LT	CAC-1D	1359+41.79 - 73.44' RT
HH-5	1359+63.15 - 74.05' RT	SC-1D	1359+45.28 - 73.43' RT
HH-6	1362+03.17 - 79.82' RT		
SA-1D	1359+17.71 - 52.35' RT	SV-4	1358+01.21 - 95.76 LT'
SA-2D	1358+26.35 - 56.35' RT		
NO.	LOCATION		MAST ARM
	FOUNDATION (1)	AIM ARM TO	
MA-1D	1359+38.20 - 50.29' RT	1359+38.20 - 6.02' RT	55'
MA-2D	1358+08.03 - 91.64' LT	1358+08.01 - 40.14' LT	50'
MA-3D	1359+07.16 - 91.24' LT	1358+75.66 - 91.25' LT	30'

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION. ALL STATIONS AND OFFSETS ARE REFERENCED FROM C.S.A.H. 81 ALIGNMENT.

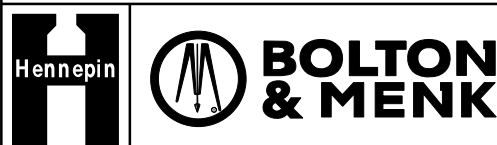
SIGNAL INDICATIONS AND BRACKETING									
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS				PED	PLUMBIZER MOUNTING ANGLE. SEE DETAIL SHEET SS29.
				RED	YEL	FYEL	GRN		
MA-1D	6-4	MAST ARM (END)	6	•	•		•		STRAIGHT MOUNT PLUMBIZER
	6-3	MAST ARM (MID)	6	•	•		•		STRAIGHT MOUNT PLUMBIZER
	6-2	MAST ARM (MID)	6	•	•		•		STRAIGHT MOUNT PLUMBIZER
	6-1	POLE MOUNT	6	•	•		•		180° ANGLE MOUNT PLUMBIZER
MA-2D	5-1	MAST ARM (END)	5	←	←		←		STRAIGHT MOUNT PLUMBIZER
	6		6			←			
	2-4	MAST ARM (MID)	2	•	•		•		STRAIGHT MOUNT PLUMBIZER
	2-3	MAST ARM (MID)	2	•	•		•		STRAIGHT MOUNT PLUMBIZER
	2-2	MAST ARM (MID)	2	•	•		•		STRAIGHT MOUNT PLUMBIZER
	2-1	POLE MOUNT	2	•	•		•		180° ANGLE MOUNT PLUMBIZER
MA-3D	4-4	POLE MOUNT	4	←	←		←		90° ANGLE MOUNT PLUMBIZER
	4-3	MAST ARM (END)	4	•	•		•/←		STRAIGHT MOUNT PLUMBIZER
	4-2	MAST ARM (MID)	4	•	•		•		STRAIGHT MOUNT PLUMBIZER
SA-1D	4-1	POLE MOUNT	4	•	•		•		180° ANGLE MOUNT PLUMBIZER
	P6-2	POLE MOUNT	6					***	180° ANGLE MOUNT PLUMBIZER
SA-2D	5-2	POLE MOUNT	5	←	←		←		90° ANGLE MOUNT PLUMBIZER
	6		6			←			
	P6-1	POLE MOUNT	6					***	90° ANGLE MOUNT PLUMBIZER

*** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

NOTES:

- LED LUMINAIRES SHALL BE INSTALLED ON LUMINAIRE SHAFT EXTENSIONS ON MAST ARMS 1, 2, AND 3.
- ALL HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
- THE CONTRACTOR SHALL INSTALL AND PROGRAM ALL APS EQUIPMENT. ALL PEDESTRIAN PUSHBUTTONS SHALL BE APS PUSHBUTTONS WITH SIGNS (SEE SPECIAL PROVISIONS). ONE APS PUSHBUTTON AND SIGN (LT ARROW) SHALL BE FURNISHED AND INSTALLED ON SA-2D. ONE APS PUSHBUTTON AND SIGN (RT ARROW) SHALL BE FURNISHED AND INSTALLED ON SA-1D.
- INTERNATIONAL SYMBOLS SHALL BE USED FOR ALL PEDESTRIAN INDICATIONS (HAND AND WALKING PERSON). ALL PEDESTRIAN INDICATIONS SHALL HAVE COUNTDOWN TIMERS (SEE SPECIAL PROVISIONS).
- ALL VEHICULAR AND PEDESTRIAN INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
- THE ENGINEER SHALL LOCATE ALL POLES AND HANDHOLES PRIOR TO ANY CONSTRUCTION.
- ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
- THE CONTRACTOR SHALL INSTALL COUNTY FURNISHED VIDEO CAMERAS. VIDEO CAMERAS 1, 2, AND 3 SHALL BE MOUNTED ON MAST ARMS (SEE SPECIAL PROVISIONS).
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO ITS ORIGINAL CONDITION OR BETTER (SEE SPECIAL PROVISIONS).
- SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM, VIDEO DETECTION SYSTEM, BATTERY BACK-UP SIGNAL SERVICE CABINET, ACCESSIBLE PEDESTRIAN SIGNAL (APS), AND COUNTY FURNISHED ITEMS.
- COMMON BACKFILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER INCLUDED AS INCIDENTAL TO THE SIGNAL SYSTEM PAY ITEM.
- OVERHEAD MAST ARM MOUNTED TYPE "D" SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEM (SEE SPECIAL PROVISIONS).
- ALL ITEMS SHOWN ARE FURNISH AND INSTALL UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL FURNISH AND INSTALL 1 - R10-X12 (36"x42") SIGN ADJACENT TO SIGNAL INDICATION 5-1.
- THE CONTRACTOR SHALL FURNISH AND INSTALL 1 - R9-3a SIGN ON POLE MA-3D FACING MA-1D, 1 - R9-3a SIGN ON POLE MA-2D FACING SA-2D, 1 - R9-3a SIGN ON POLE SA-2D FACING MA-2D, AND 1-R9-3A SIGN ON POLE SA-1D FACING MA-3D.
- THE REMOVAL AND DISPOSAL OF THE EXISTING SIGNAL, INCLUDING ALL MATERIALS AND CONDUIT UNDER ROADWAYS, SHALL BE INCLUDED IN THE REMOVE SIGNAL SYSTEM "D" PAY ITEM. REMOVAL OF EXISTING CONDUIT MAY TAKE PLACE WHERE THE MAINTENANCE OF EXISTING SIGNAL OPERATIONS ARE NO LONGER REQUIRED PER THE STAGING AND TRAFFIC CONTROL PLAN OR AT THE DISCRETION OF THE ENGINEER.
- * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.
- ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.

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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.

Bryan J. Nemeth
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LIC. NO. 43354 DATE 2-28-2019

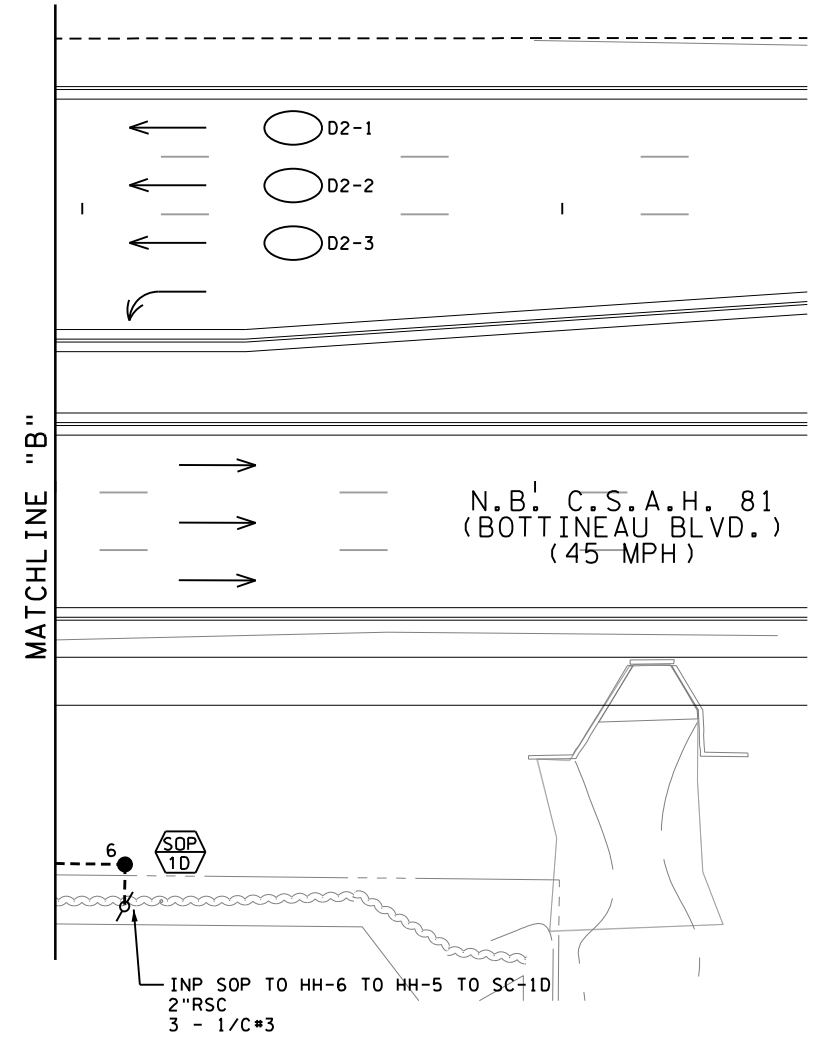
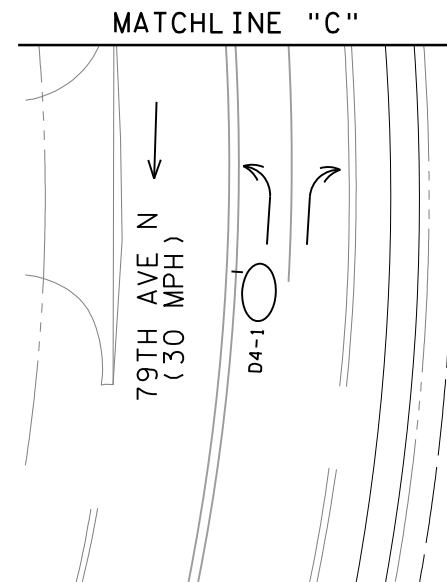
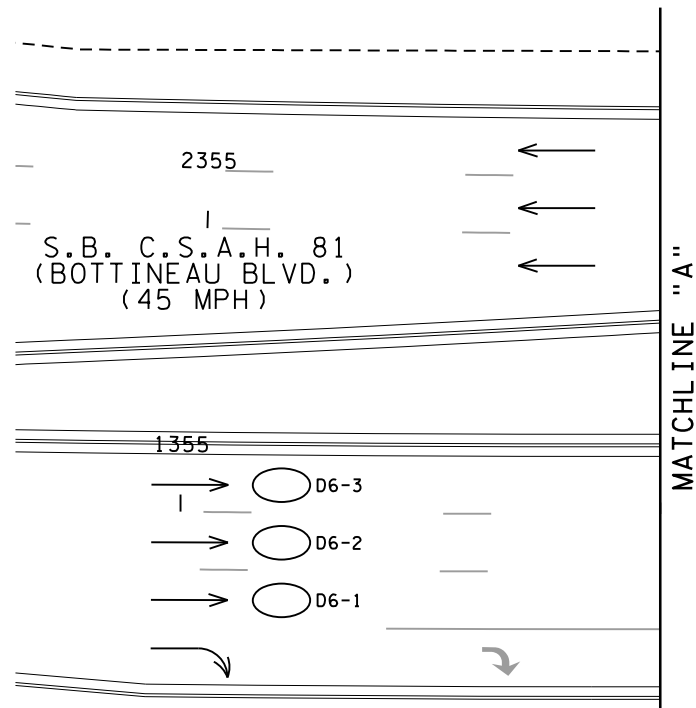
DESIGN BY: MSL
CAD BY: KME
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LAST REVISION: _____

SIGNAL TABULATIONS AND NOTES (SYSTEM "D") - 79TH AVE.

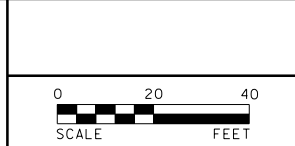
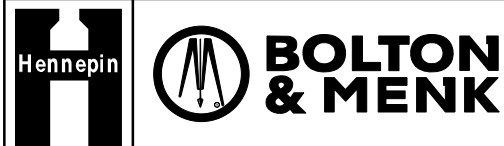
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SHEET

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LAST REVISION:

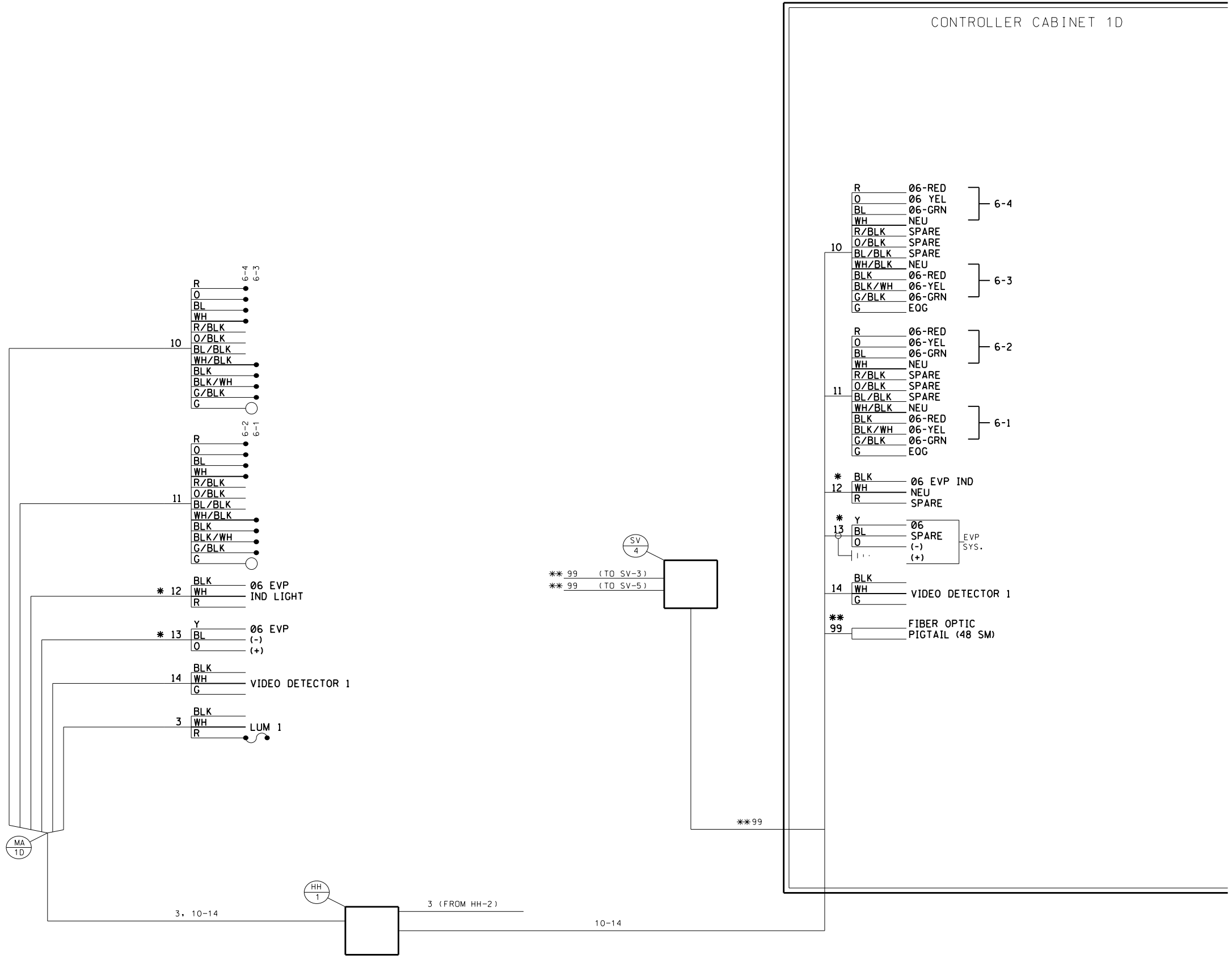
SIGNAL MATCHLINE LAYOUT (SYSTEM "D") - 79TH AVE.
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS57
 SS126

NOTES:

- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.

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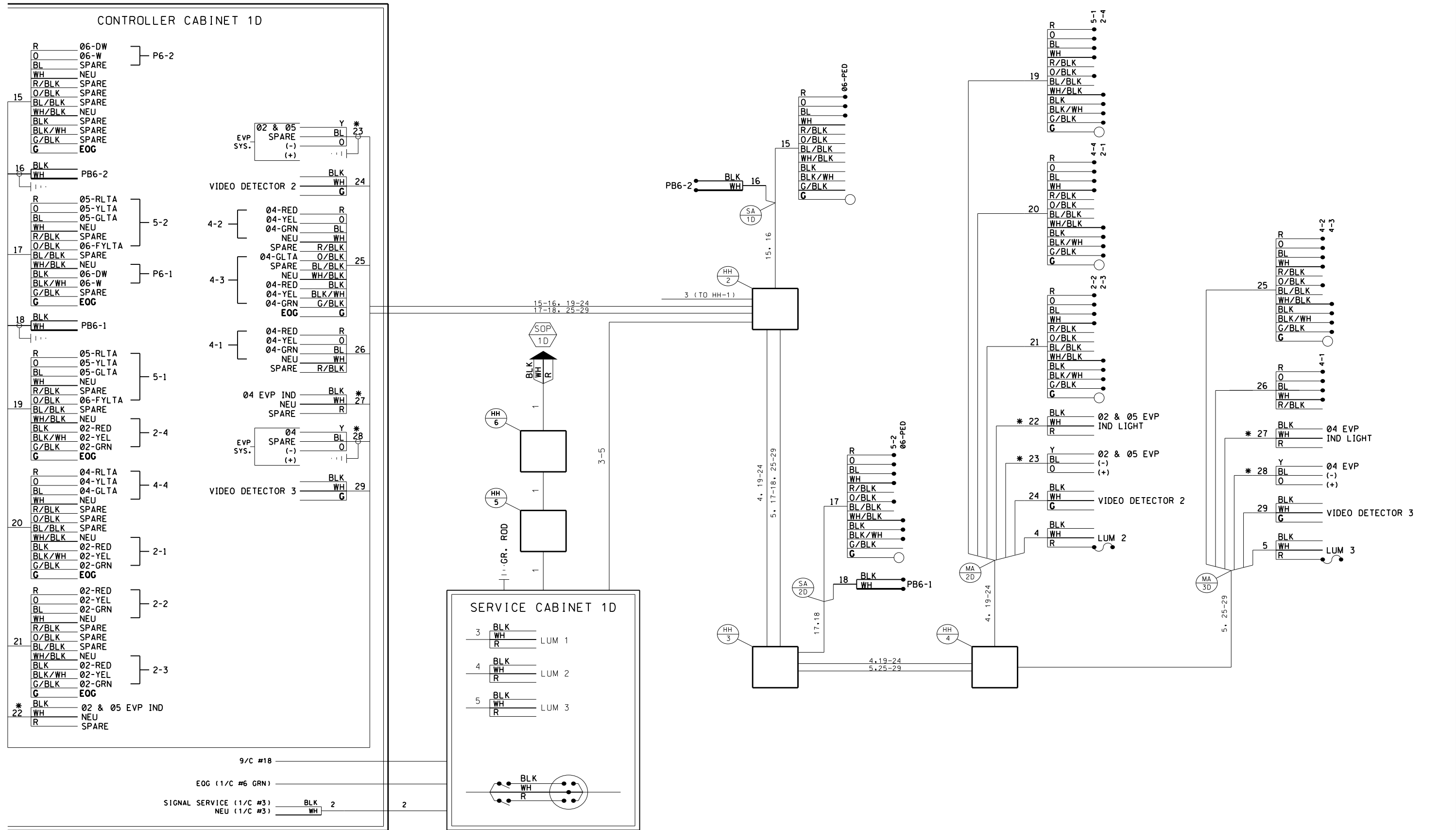
SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "D")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS58
 SS126

NOTES:

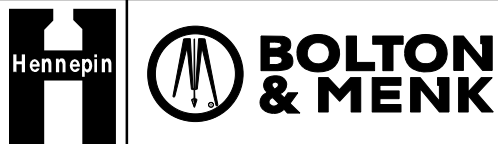
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- 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.



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2/28/2019



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BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "D")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

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SS126

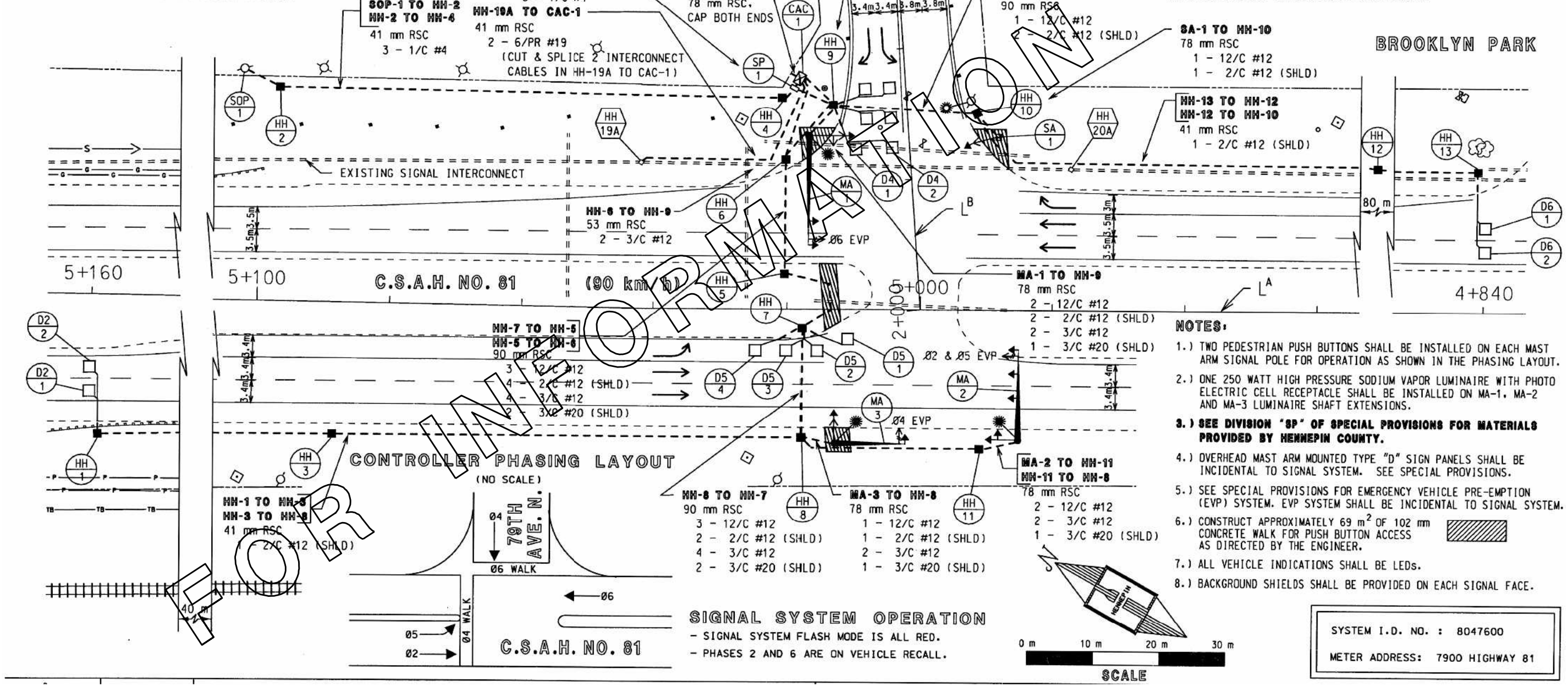
SIGNAL STRUCTURE AND COMPONENT LOCATION								
NO.	LOCATION	NO.	LOCATION	NO.	LOCATION	LOOP SIZE **	NO. OF TURNS *	DETECTOR FUNCTION
HH-1	LA 5+158.8 - 21.4 m LT.	HH-10	LA 4+991.7 - 30.0 m RT.	D2-1	LA 5+160.1 - 14.8 m LT.	(1.8 m X 1.8 m)	4	(1)
HH-2	LA 5+097.0 - 32.7 m RT.	HH-11	LA 4+991.0 - 21.2 m LT.	D2-2	LA 5+160.1 - 11.1 m LT.	(1.8 m X 1.8 m)	4	(1)
HH-3	LA 5+088.3 - 20.3 m LT.	HH-12	LA 4+917.4 - 22.1 m RT.	D4-1	LA 5+009.9 - 24.4 m RT.	3 (1.8 m X 1.8 m)	3	(3)
HH-4	LA 5+020.9 - 32.3 m RT.	HH-13	LA 4+841.0 - 21.5 m RT.	D4-2	LA 5+004.4 - 24.7 m RT.	3 (1.8 m X 1.8 m)	3	(3)
HH-5	LA 5+020.5 - 5.4 m RT.	CAC-1	LA 5+018.3 - 35.2 m RT.	D5-1	LA 5+010.9 - 4.7 m LT.	(1.8 m X 1.8 m)	3	(1)
HH-6	LA 5+020.5 - 22.9 m RT.	SP-1	WEST SIDE OF CAC-1 FND'T	D5-2	LA 5+024.7 - 6.5 m LT.	(1.8 m X 1.8 m)	3	(1)
HH-7	LA 5+017.8 - 3.0 m LT.	SP-1	WEST SIDE OF CAC-1 FND'T	D5-3	LA 5+020.1 - 6.5 m LT.	(1.8 m X 1.8 m)	3	(1)
HH-8	LA 5+017.8 - 19.7 m LT.	SOP-1	LA 5+102.6 - 35.4 m RT.	D6-1	LA 4+839.8 - 12.9 m RT.	(1.8 m X 1.8 m)	4	(1)
HH-9	LA 5+013.3 - 31.2 m RT.	SOP-1	LA 5+102.6 - 35.4 m RT.	D6-2	LA 4+839.8 - 9.2 m RT.	(1.8 m X 1.8 m)	4	(1)

* NUMBER OF TURNS IN THE LOOP UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER.
 ** SEE STANDARD PLATE M8130D FOR 4 (1.8 m X 1.8 m) LOOP DETECTORS
 (1) CALL AND EXTEND DETECTOR AMPLIFIER.
 (3) DELAY CALL AND IMMEDIATE EXTEND DETECTOR AMPLIFIER.

IMPLACE STRUCTURES	
NO.	REMARKS
HH-19A	USE IMPLACE
HH-20A	OK AS IS

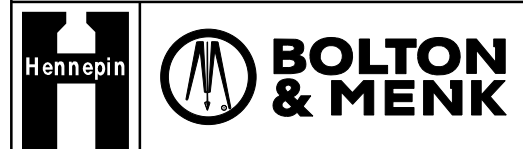
SIGNAL INDICATIONS AND BRACKETING							
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	INDICATION SIZE AND TYPE *			BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.
				RED LED	YEL LED	GRN LED	
MA-1	6-3	MAST ARM (END)	6	●	●	●	STD. ONE-WAY/PLATE M8124I
	6-2	MAST ARM (MID)	6	●	●	●	STD. ONE-WAY/PLATE M8124I
SA-1	5-2	PEDESTAL MOUNT	5	●	●	●	270° PLATE M8110I TYPE 10
	5-1	PEDESTAL MOUNT	5	●	●	●	PLATE M8111I TYPE 11
MA-2	5-1	MAST ARM (END)	5	●	●	●	STD. ONE-WAY/PLATE M8124I
	2-3	MAST ARM (MID)	3	●	●	●	STD. ONE-WAY/PLATE M8124I
	2-2	MAST ARM (INSIDE)	2	●	●	●	STD. ONE-WAY/PLATE M8124I
	2-1	PEDESTAL MOUNT	2	●	●	●	270° PLATE M8110I TYPE 20I
MA-3	4-3	MAST ARM (END)	4	●	●	●	STD. ONE-WAY/PLATE M8124I
	4-1	PEDESTAL MOUNT	4	●	●	●	270° PLATE M8110I TYPE 10I

* ALL SIGNAL AND PEDESTRIAN INDICATIONS SHALL BE 300 mm.
 ** PEDESTRIAN INDICATIONS SHALL BE INTERNATIONAL HAND AND WALKING PERSON SYMBOLIZED MESSAGES IN A DUAL FACE SINGLE HOUSING.



SYSTEM I.D. NO. : 8047600
 METER ADDRESS: 7900 HIGHWAY 81

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Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

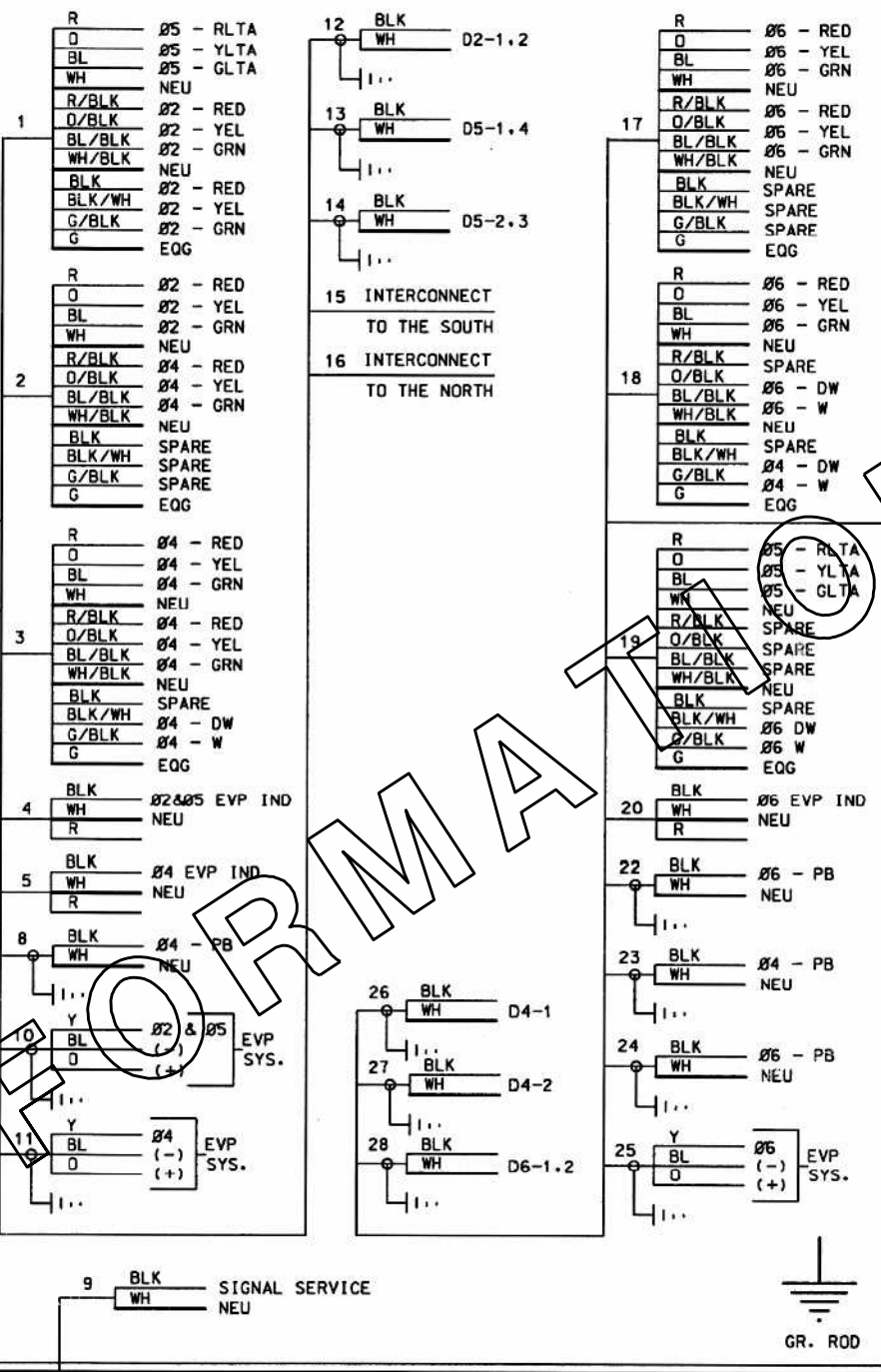
FOR INFORMATION ONLY - SIGNAL SYSTEM "D"
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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 SS60
 SS126

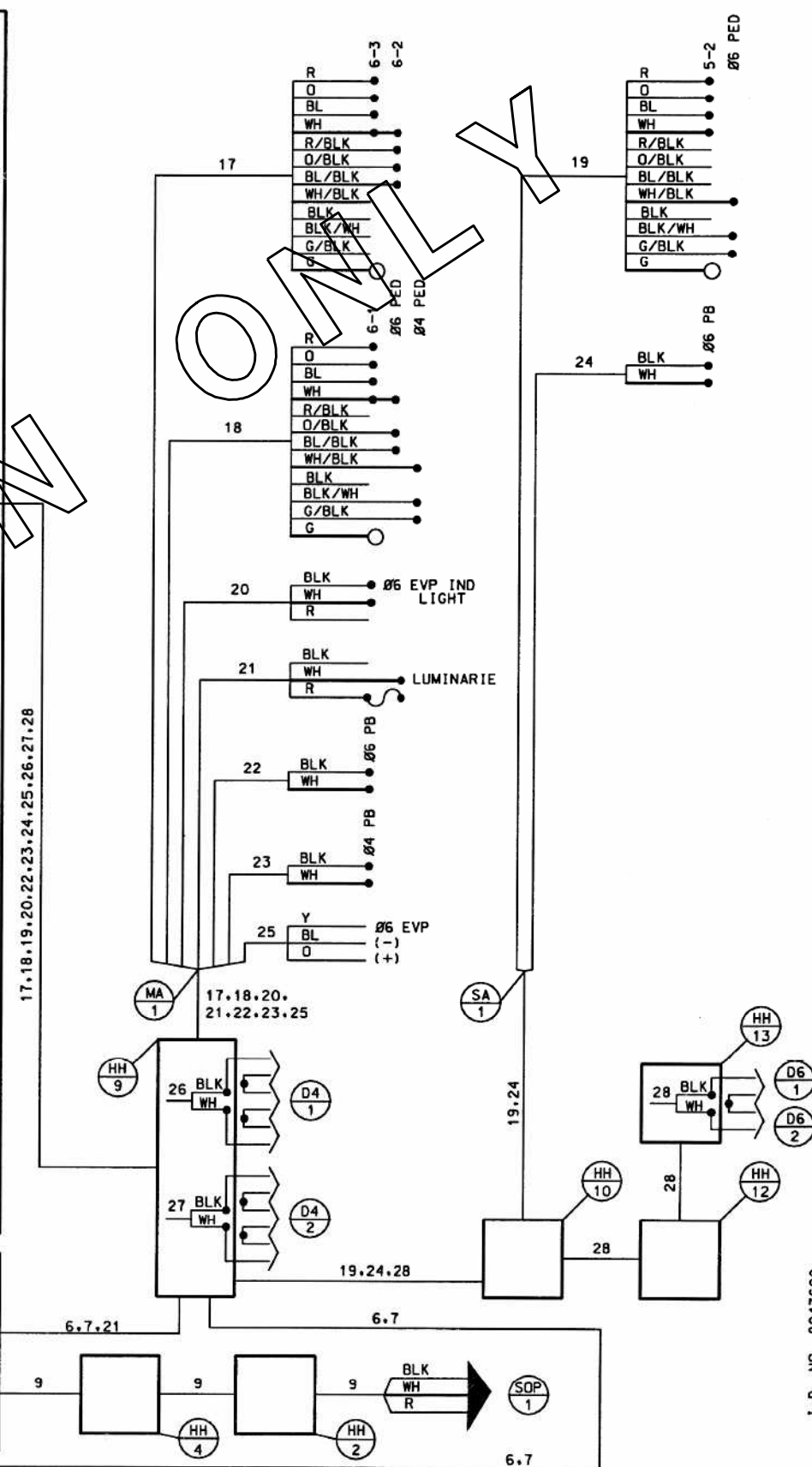
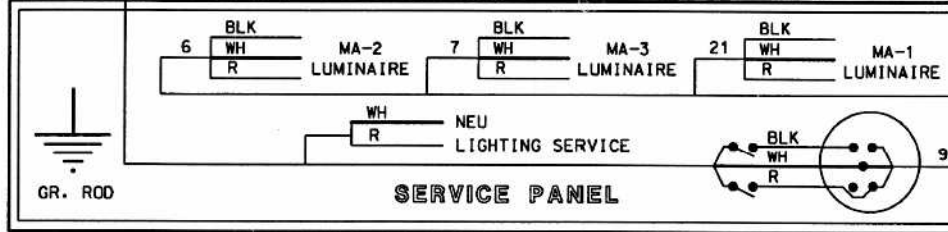
ABBREVIATIONS
EQUIPMENT AND INDICATIONS COLOR CODING OF CONDUCTORS

RED - RED	Y - YELLOW
YEL - YELLOW	R - RED
GRN - GREEN	O - ORANGE
RLTA - RED LEFT TURN ARROW	BL - BLUE
YLTA - YELLOW LEFT TURN ARROW	WH - WHITE
GLTA - GREEN LEFT TURN ARROW	R/BLK - RED WITH BLACK TRACER
W - WALK	O/BLK - ORANGE WITH BLACK TRACER
DW - DON'T WALK	BL/BLK - BLUE WITH BLACK TRACER
NEU - NEUTRAL	WH/BLK - WHITE WITH BLACK TRACER
PB - PUSH BUTTON	BLK - BLACK
D - DETECTOR LOOP (PHASE)	BLK/WH - BLACK WITH WHITE TRACER
HH - HANDHOLE	BLK/WH - GREEN WITH BLACK TRACER
MA - MAST ARM	G - GREEN
SOP - SOURCE OF POWER	● - DENOTES TAP OF CABLED CONDUCTOR OR PARALLELING OF CABLED CONDUCTORS WITH TABS AS INDICATED BY DIAGRAM
EQG - EQUIPMENT GROUND	○ - EQUIPMENT GROUND CONNECTION
SPARE - SPARE CONDUCTOR	○ 2-1 - SIGNAL PHASE AND FACE NUMBER
PED - PEDESTRIAN INDICATION	
LUM - LUMINAIRE	
Ø - PHASE	
SA - SIGNAL ASSEMBLY	
PB - PULL BOX	
INPLACE CONDUCTOR	
INPLACE STRUCTURE	
IND - INDICATOR	
EVP - EMERGENCY VEHICLE PRE-EMPTION	

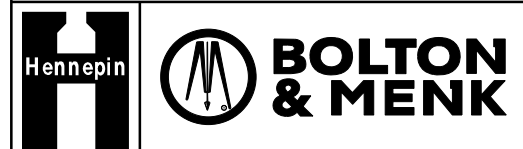
CONTROLLER CABINET



FOR MA



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2/28/2019



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 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

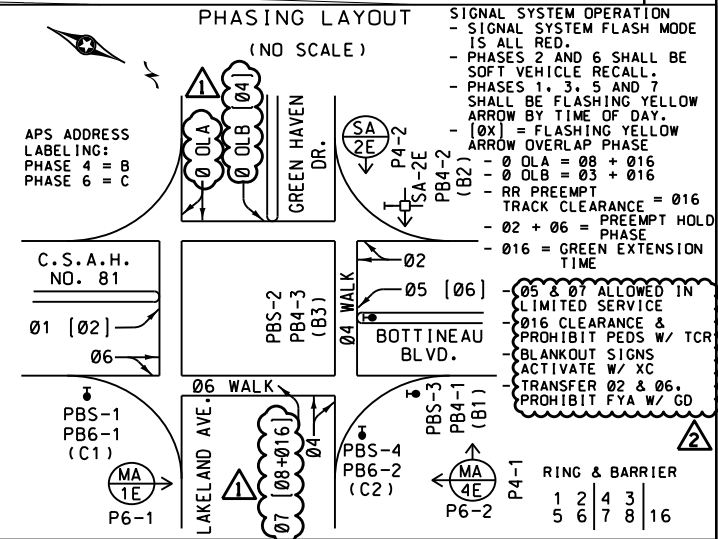
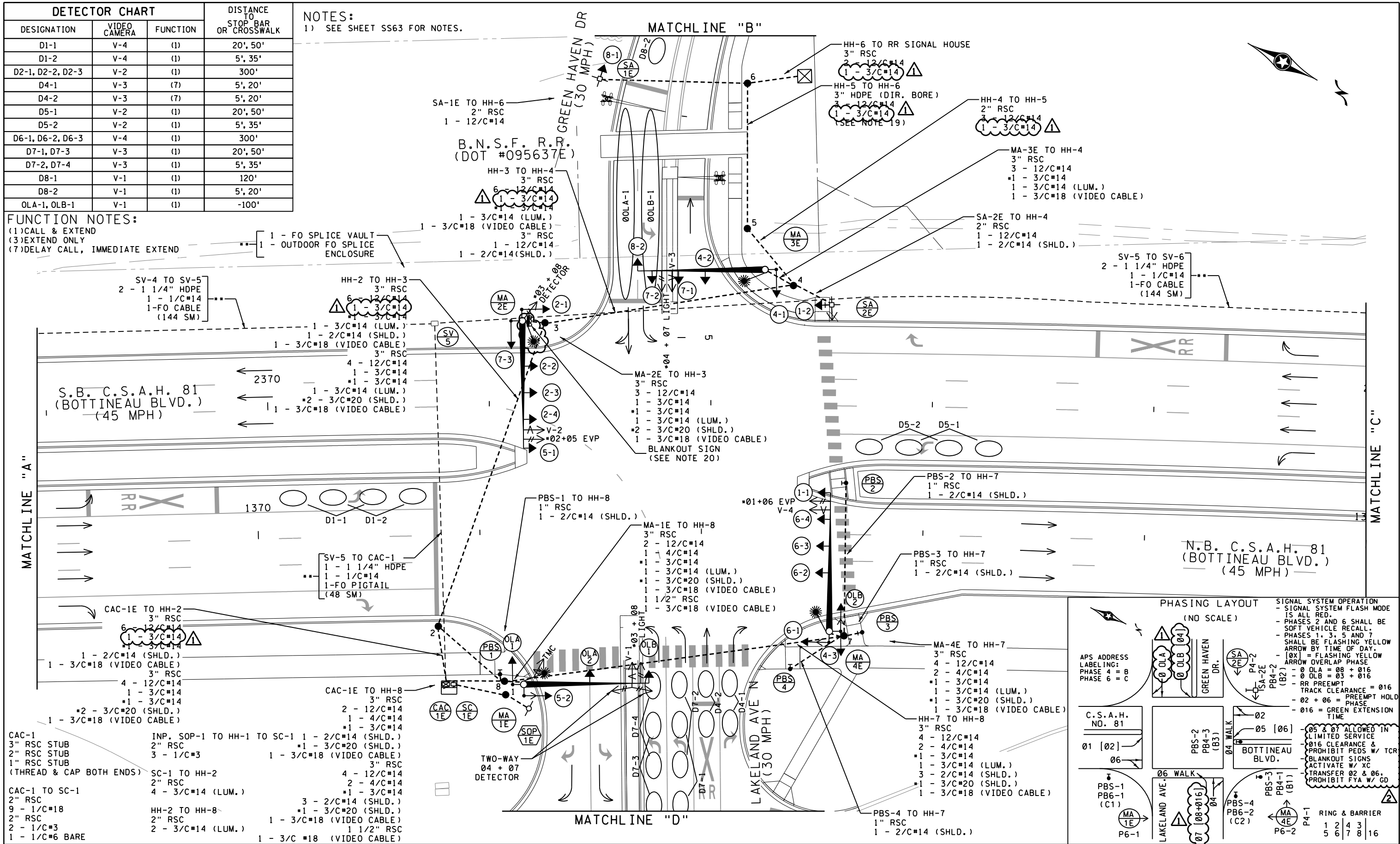
FOR INFORMATION ONLY - SIGNAL SYSTEM "D"
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 SS61
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DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-4	(1)	20', 50'
D1-2	V-4	(1)	5', 35'
D2-1, D2-2, D2-3	V-2	(1)	300'
D4-1	V-3	(7)	5', 20'
D4-2	V-3	(7)	5', 20'
D5-1	V-2	(1)	20', 50'
D5-2	V-2	(1)	5', 35'
D6-1, D6-2, D6-3	V-4	(1)	300'
D7-1, D7-3	V-3	(1)	20', 50'
D7-2, D7-4	V-3	(1)	5', 35'
D8-1	V-1	(1)	120'
D8-2	V-1	(1)	5', 20'
OLA-1, OLB-1	V-1	(1)	-100'

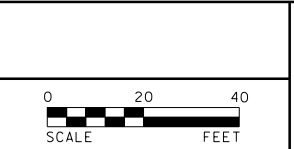
FUNCTION NOTES:
 (1)CALL & EXTEND
 (3)EXTEND ONLY
 (7)DELAY CALL, IMMEDIATE EXTEND

NOTES:
 1) SEE SHEET SS63 FOR NOTES.



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 5/7/2019

Hennepin **BOLTON & MENK**



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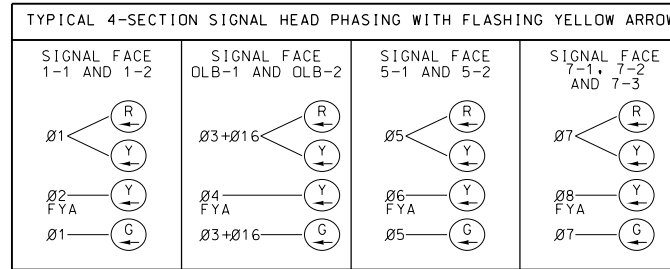
Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: **MSL**
 CAD BY: **KME**
 CHECKED BY: **BTN**
 LAST REVISION: **5/6/2019**

INTERSECTION LAYOUT (SYSTEM "E") - GREEN HAVEN DR.

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

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SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION	NO.	LOCATION
HH-1	1371+10.90 - 72.16' RT	HH-7	1372+64.81 - 45.59' RT
HH-2	1370+80.66 - 40.94' RT	HH-8	1371+10.43 - 66.08' RT
HH-3	1371+30.08 - 95.53' LT		
HH-4	1372+40.79 - 112.31' LT	CAC-1E	1370+83.73 - 67.12' RT
HH-5	1372+20.18 - 137.92' LT	SC-1E	1370+87.23 - 67.15' RT
HH-6	1372+19.98 - 203.47' LT		
		SOP-1E	BY OTHERS
PBS-1	1371+06.86 - 63.00' RT	SA-1E	1371+55.88 - 204.79' LT
PBS-2	1372+65.07 - 23.41' LT	SA-2E	1372+57.86 - 103.75' LT
PBS-3	1372+73.06 - 43.93' RT	SV-5	1370+80.85 - 95.76' LT
PBS-4	1372+40.46 - 60.36' RT		

NO.	LOCATION		MAST ARM
	FOUNDATION (1)	AIM ARM TO	
MA-1E	1371+19.20 - 67.60' RT	1371+76.20 - 67.32' RT	55'
MA-2E	1371+20.01 - 96.52' LT	1371+20.02 - 40.02' LT	55'
MA-3E	1372+28.08 - 119.41' LT	1371+72.45 - 118.75' LT	55'
MA-4E	1372+58.13 - 43.59' RT	1372+58.12 - 17.91' LT	60'

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION. ALL STATIONS AND OFFSETS ARE REFERENCED FROM C.S.A.H. 81 ALIGNMENT.

SIGNAL INDICATIONS AND BRACKETING													
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS 12" INDICATIONS				PED	OPTICALLY PROGRAMMABLE 12" LED INDICATIONS				PLUMBIZER MOUNTING ANGLE. SEE DETAIL SHEET SS29.
				RED	YEL	FYEL	GRN		RED	YEL	FYEL	GRN	
MA-1E	OLB-1	MAST ARM (END)	OLB						←	←	←		STRAIGHT MOUNT PLUMBIZER
	OLA-2	MAST ARM (MID)	OLA						•	•	←	•	STRAIGHT MOUNT PLUMBIZER
	OLA-1	POLE MOUNT	OLA						•	•		•	180° ANGLE MOUNT PLUMBIZER
	5-2	POLE MOUNT	5	←	←		←						90° ANGLE MOUNT PLUMBIZER
	P6-1	POLE MOUNT	6									***	90° ANGLE MOUNT PLUMBIZER
MA-2E	5-1	MAST ARM (END)	5	←	←		←						STRAIGHT MOUNT PLUMBIZER
	2-4	MAST ARM (MID)	2	•	•		•						STRAIGHT MOUNT PLUMBIZER
	2-3	MAST ARM (MID)	2	•	•		•						STRAIGHT MOUNT PLUMBIZER
	2-2	MAST ARM (MID)	2	•	•		•						STRAIGHT MOUNT PLUMBIZER
	2-1	POLE MOUNT	2	•	•		•						180° ANGLE MOUNT PLUMBIZER
	7-3	POLE MOUNT	7	←	←		←						90° ANGLE MOUNT PLUMBIZER
MA-3E	8-2	MAST ARM (END-OPP)	8	•	•		•						STRAIGHT MOUNT PLUMBIZER
	7-2	MAST ARM (MID)	7	←	←		←						STRAIGHT MOUNT PLUMBIZER
			8										
	7-1	MAST ARM (MID)	7	←	←		←						STRAIGHT MOUNT PLUMBIZER
			8										
	4-2	MAST ARM (MID)	4	•	•		•						STRAIGHT MOUNT PLUMBIZER
	4-1	POLE MOUNT	4	•	•		•						180° ANGLE MOUNT PLUMBIZER
MA-4E	1-1	MAST ARM (END)	1	←	←		←						STRAIGHT MOUNT PLUMBIZER
			2										
	6-4	MAST ARM (MID)	6	•	•		•						STRAIGHT MOUNT PLUMBIZER
	6-3	MAST ARM (MID)	6	•	•		•						STRAIGHT MOUNT PLUMBIZER
	6-2	MAST ARM (MID)	6	•	•		•						STRAIGHT MOUNT PLUMBIZER
	6-1	POLE MOUNT	6	•	•		•						180° ANGLE MOUNT PLUMBIZER
	P6-2	POLE MOUNT	6									***	180° ANGLE MOUNT PLUMBIZER
	OLB-2	POLE MOUNT	OLB						←	←	←		90° TWIN MOUNT PLUMBIZER
			4										
	4-3	POLE MOUNT	4	•	•		•						90° ANGLE MOUNT PLUMBIZER
	P4-1	POLE MOUNT	4									***	90° ANGLE MOUNT PLUMBIZER
SA-1E	8-1	POLE MOUNT	8	•	•		•						STRAIGHT MOUNT PLUMBIZER
SA-2E	1-2	POLE MOUNT	1	←	←		←						90° ANGLE MOUNT PLUMBIZER
			2										
	P4-2	POLE MOUNT	4									***	STRAIGHT MOUNT PLUMBIZER

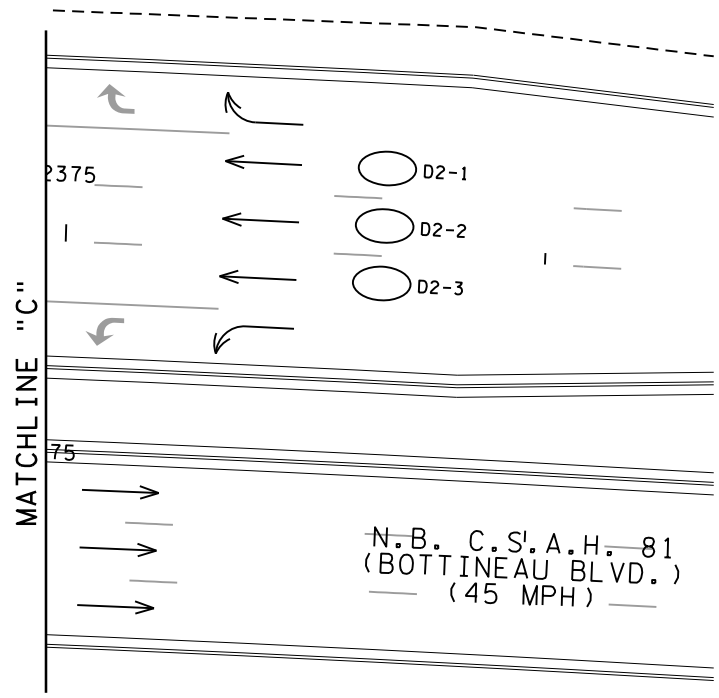
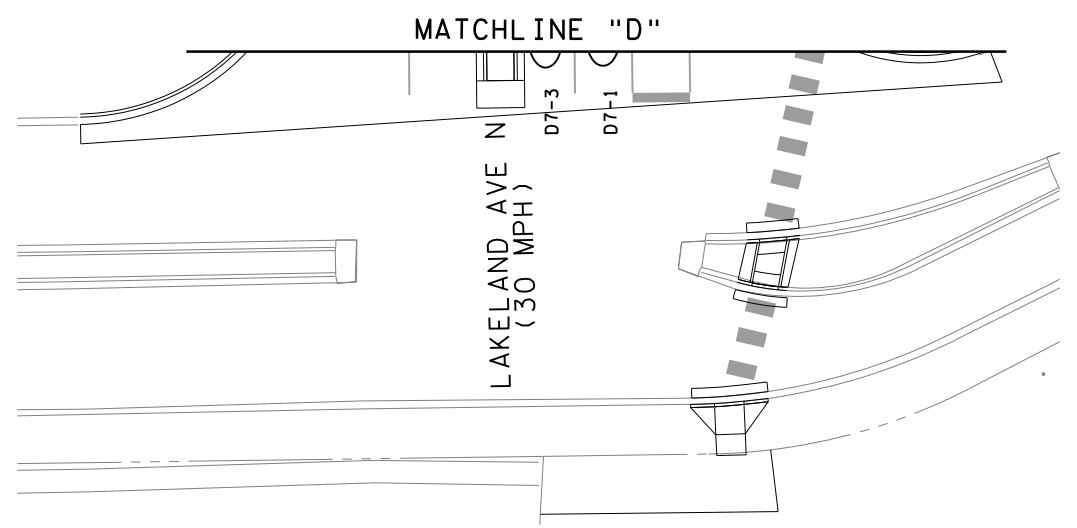
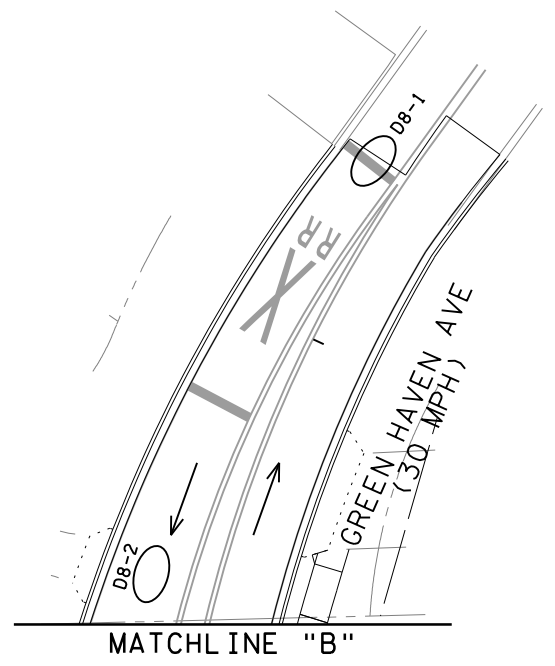
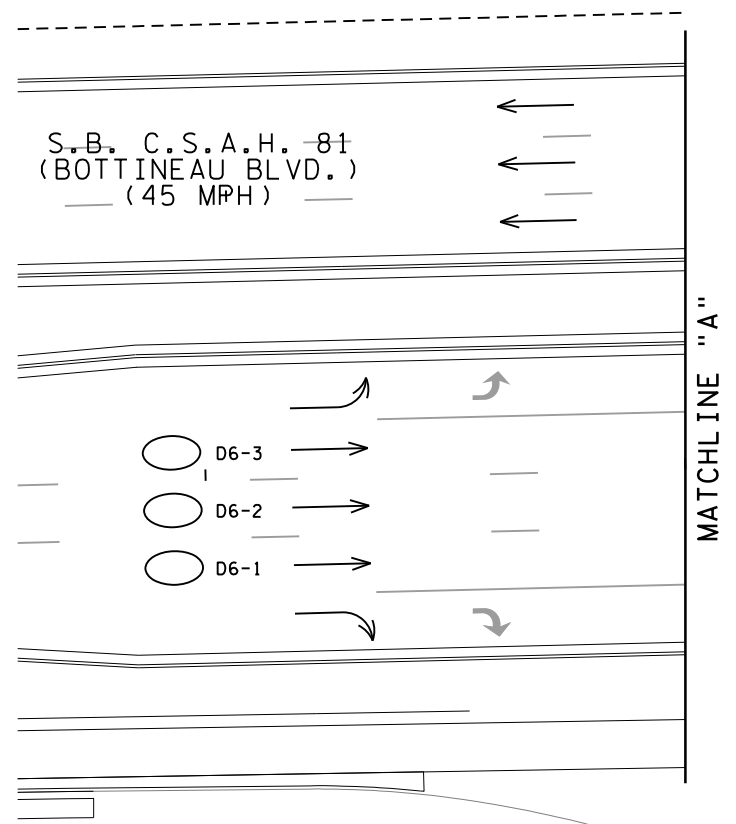
[C] CLUSTER HEAD ADAPTER WITH PLUMBIZER.
 *** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

NOTES:

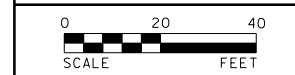
- LED LUMINAIRES SHALL BE INSTALLED ON LUMINAIRE SHAFT EXTENSIONS ON MAST ARMS 1, 2, 3, AND 4.
- ALL HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
- THE CONTRACTOR SHALL INSTALL AND PROGRAM ALL APS EQUIPMENT.
 ALL PEDESTRIAN PUSHBUTTONS SHALL BE APS PUSHBUTTONS WITH SIGNS (SEE SPECIAL PROVISIONS).
 ONE APS PUSHBUTTON AND SIGN (LT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-1 AND 3.
 ONE APS PUSHBUTTON AND SIGN (RT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-4 AND SA-2E.
 ONE APS PUSHBUTTON AND SIGN (DBL ARROW - LEFT AND RIGHT) SHALL BE FURNISHED AND INSTALLED ON PBS-2.
- INTERNATIONAL SYMBOLS SHALL BE USED FOR ALL PEDESTRIAN INDICATIONS (HAND AND WALKING PERSON).
 ALL PEDESTRIAN INDICATIONS SHALL HAVE COUNTDOWN TIMERS (SEE SPECIAL PROVISIONS).
- ALL VEHICULAR AND PEDESTRIAN INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
- THE ENGINEER SHALL LOCATE ALL POLES AND HANDHOLES PRIOR TO ANY CONSTRUCTION.
- ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
- THE CONTRACTOR SHALL INSTALL COUNTY FURNISHED VIDEO DETECTION CAMERAS. VIDEO CAMERAS 1, 2, 3, AND 4 SHALL BE MOUNTED ON MAST ARMS (SEE SPECIAL PROVISIONS). TRAFFIC MANAGEMENT CAMERA (TMC) (CONTRACTOR SHALL FURNISH AND INSTALL) SHALL BE MOUNTED ON VIDEO CAMERA EXTENSION SHAFT ON MAST ARM POLE 1 AND SHALL HAVE A DEDICATED CONDUIT RUN FROM THE CONTROLLER CABINET TO THE PTZ CAMERA.
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO ITS ORIGINAL CONDITION OR BETTER (SEE SPECIAL PROVISIONS).
- SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM, VIDEO DETECTION SYSTEM, BATTERY BACK-UP SIGNAL SERVICE CABINET, ACCESSIBLE PEDESTRIAN SIGNAL (APS), AND COUNTY FURNISHED ITEMS.
- COMMON BACKFILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER INCLUDED AS INCIDENTAL TO THE SIGNAL SYSTEM PAY ITEM.
- OVERHEAD MAST ARM MOUNTED TYPE "D" SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEM (SEE SPECIAL PROVISIONS).
- ALL ITEMS SHOWN ARE FURNISH AND INSTALL UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL FURNISH AND INSTALL 4 - R10-X12 (36"x42") SIGN ADJACENT TO SIGNAL INDICATIONS 1-1, OLB-1, 5-1, AND 7-2, AND 1 - R8-8 (36"x48") SIGN ADJACENT TO SIGNAL INDICATION 8-2.
- THE CONTRACTOR SHALL FURNISH AND INSTALL 1 - R9-3a SIGN ON POLE MA-1E FACING MA-2E, 1 - R9-3a SIGN ON POLE MA-2E FACING MA-3E, 1 - R9-3a SIGN ON POLE MA-3E FACING MA-2E, AND 1 - R9-3a SIGN ON POLE MA-2E FACING MA-1E.
- THE REMOVAL AND DISPOSAL OF THE EXISTING SIGNAL, INCLUDING ALL MATERIALS AND CONDUIT UNDER ROADWAYS, SHALL BE INCLUDED IN THE REMOVE SIGNAL SYSTEM "E" PAY ITEM. REMOVAL OF EXISTING CONDUIT MAY TAKE PLACE WHERE THE MAINTENANCE OF EXISTING SIGNAL OPERATIONS ARE NO LONGER REQUIRED PER THE STAGING AND TRAFFIC CONTROL PLAN OR AT THE THE DISCRETION OF THE ENGINEER.
- * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.
- ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- ALL CONDUIT INSTALLATIONS UNDER THE RAILROAD TRACKS MUST BE A MINIMUM OF 5.5' DEEP TO AVOID CONFLICTS WITH BURLINGTON NORTHERN/SANTA FE RAILROAD.
- A 36" X 36" R3-1 "NO RIGHT TURN" BLANKOUT SIGN SHALL BE MOUNTED ON POLE MA-2E FACING SOUTHBOUND C.S.A.H. 81 TRAFFIC TO THE SATISFACTION OF THE ENGINEER.
- CONNECT TO EXISTING RR BUNGALOW IN STAGE 1. COIL AN EXTRA 25' OF 12/C #14 CABLE IN HH-6 AND CONNECT TO RELOCATED RR SIGNAL HOUSE IN STAGE 2.
- TRAFFIC SIGNAL IS INTERCONNECTED TO THE BNSF SIGNAL SYSTEM. INTERCONNECTION MUST BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. CONTACT RICK SCOTT AT (763) 782-3492 PRIOR TO ANY WORK ON BNSF RIGHT OF WAY.

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		H:\HEC\0\T43116670\CAD\MS\plans\Signal\cd116670_sgl005A.dgn		



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

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 CAD BY: KME
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 LAST REVISION:

SIGNAL MATCHLINE LAYOUT (SYSTEM "E") - GREEN HAVEN DR.

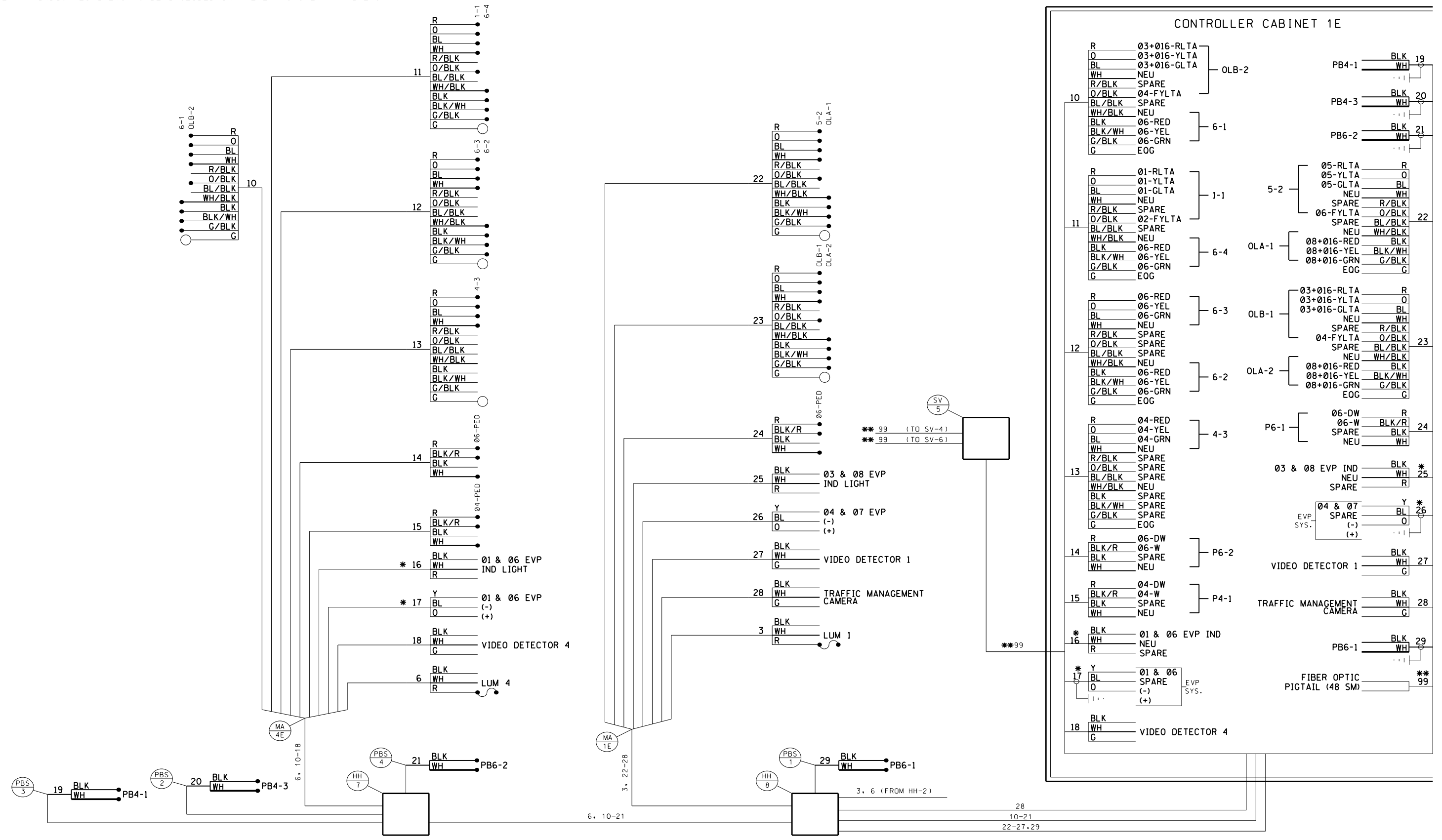
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NOTES:

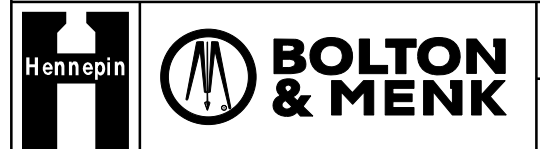
- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.



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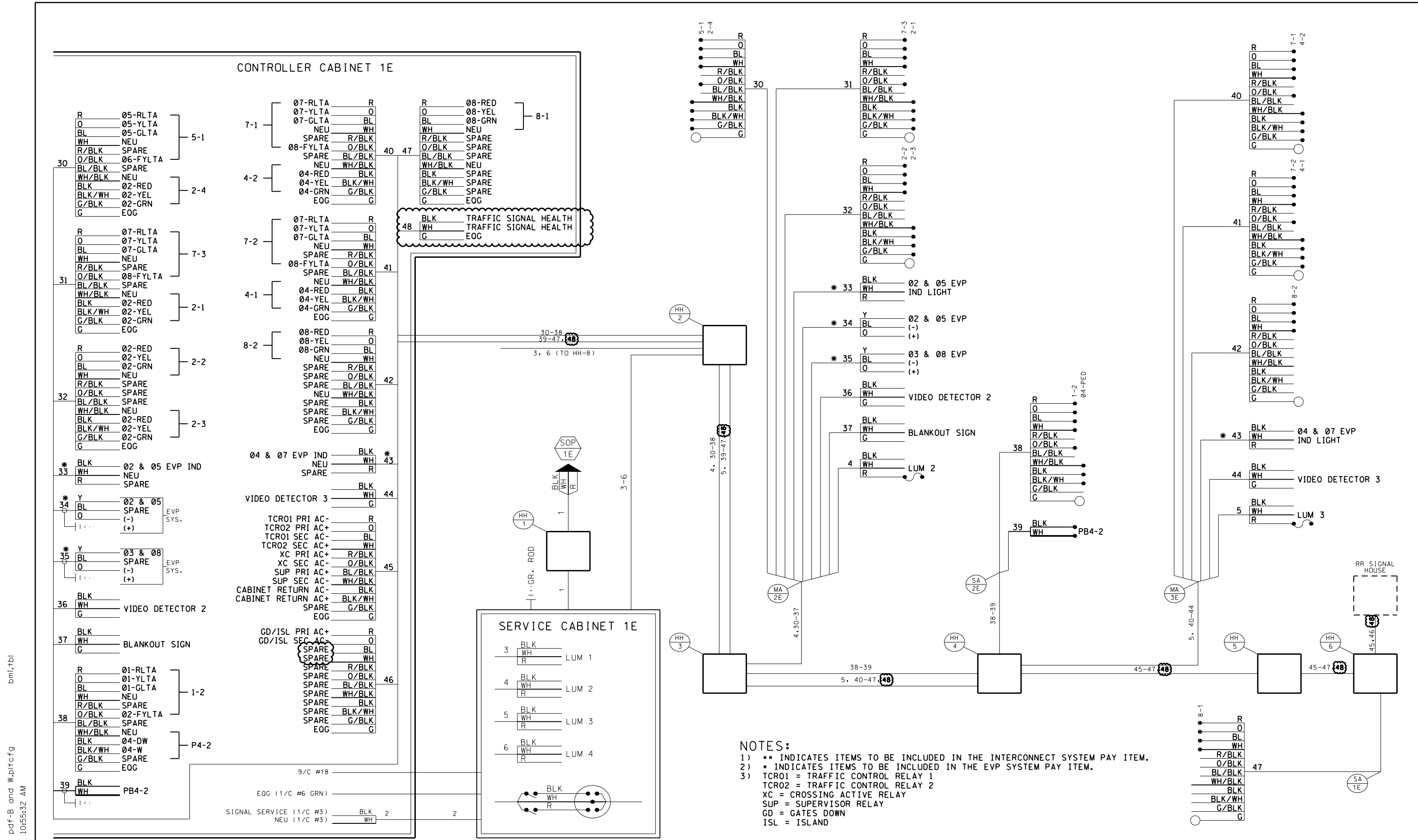
Bryan Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "E")

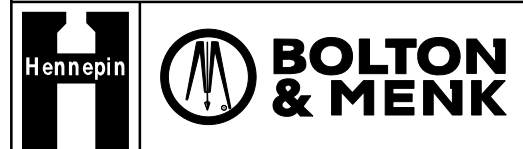
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S.P. 027-681-035, S.P. 110-020-040

SHEET
SS65
SS126



- NOTES:**
- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
 - 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.
 - 3) TCRO1 = TRAFFIC CONTROL RELAY 1
TCRO2 = TRAFFIC CONTROL RELAY 2
XC = CROSSING ACTIVE RELAY
SUP = SUPERVISOR RELAY
GD = GATES DOWN
ISL = ISLAND

mikela 4/18/2019
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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.

Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 4/19/2019

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "E")
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS66 / SS126

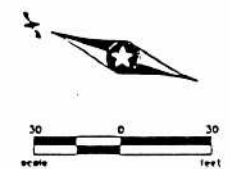
SIGNAL AND COMPONENT LOCATION*			
-NO-	- LOCATION -	-NO-	- LOCATION -
HH1	105+34 - 109' LT	HH10	103+99 - 47' LT
HH2	107+54 - 105' LT	HH11	104+21 - 120' LT
HH3	109+40 - 103' LT	HH12	INPLACE
HH4	105+48 - 30' LT	HH13	105+33 - 125' LT
HH5	105+38 - 37' LT	HH14	105+52 - 173' LT
HH6	104+98 - 54' RT	HH15	104+83 - 137' LT
HH7	104+20 - 52' RT	HH16	104+33 - 128' LT
HH8	102+47 - 31' RT	CAC-1	105+69 - 172' LT
HH9	100+10 - 22' RT	SP-1	105+65 - 172' LT
		HH17	INPLACE

-NO-	- LOCATION -	LOOP SIZE	NO. OF TURNS	LOOP FUNCTION
D1-1,2,3,4	NORTH EDGE 105+39,54,69,84 WEST EDGE 55' LT	6X6	3	(1)
D2-1	SOUTH EDGE 100+00, EAST EDGE 2' RT	6X6	3	(1)
D2-2	SOUTH EDGE 100+00, WEST EDGE 2' LT	6X6	3	(1)
D3-1,2	NORTH EDGE 104+67, 65 WEST EDGE 43', 58' RT	6X6	3	(1)
D4-1,2,3	NORTH EDGE 104+37,42,44 W EDGE 104',113',123' LT	6X6	3	(1)
D5-1,2,3,4	S EDGE 104+7,22,37,52 W EDGE 18',15',13',13' LT	6X6	3	(1)
D6-1	NORTH EDGE 109+51 WEST EDGE 80' LT	6X6	3	(1)
D6-2	NORTH EDGE 109+51 WEST EDGE 88' LT	6X6	3	(1)
D7-1,2	NORTH EDGE 104+72 WEST EDGE 113',128' LT	6X6	3	(1)
D7-3,4	NORTH EDGE 104+72 WEST EDGE 113',128' LT	6X6	3	(1)
D7-5,8	NORTH EDGE 104+56,70 WEST EDGE 191' LT	6X6	3	(2)
DB-1,2,3	N EDGE 104+85,80,77 W EDGE 33',43',58' RT	6X6	3	(3)
DB-4	NORTH EDGE 104+62 WEST EDGE 138' LT	6X6	3	(2)

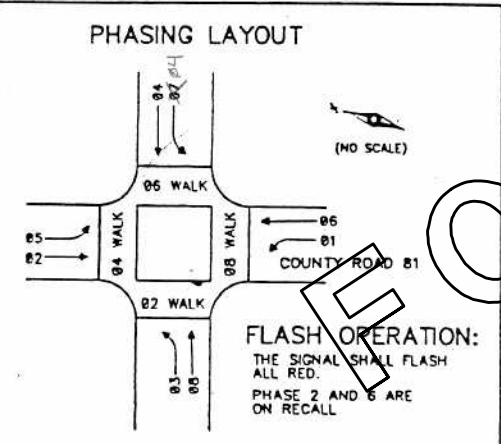
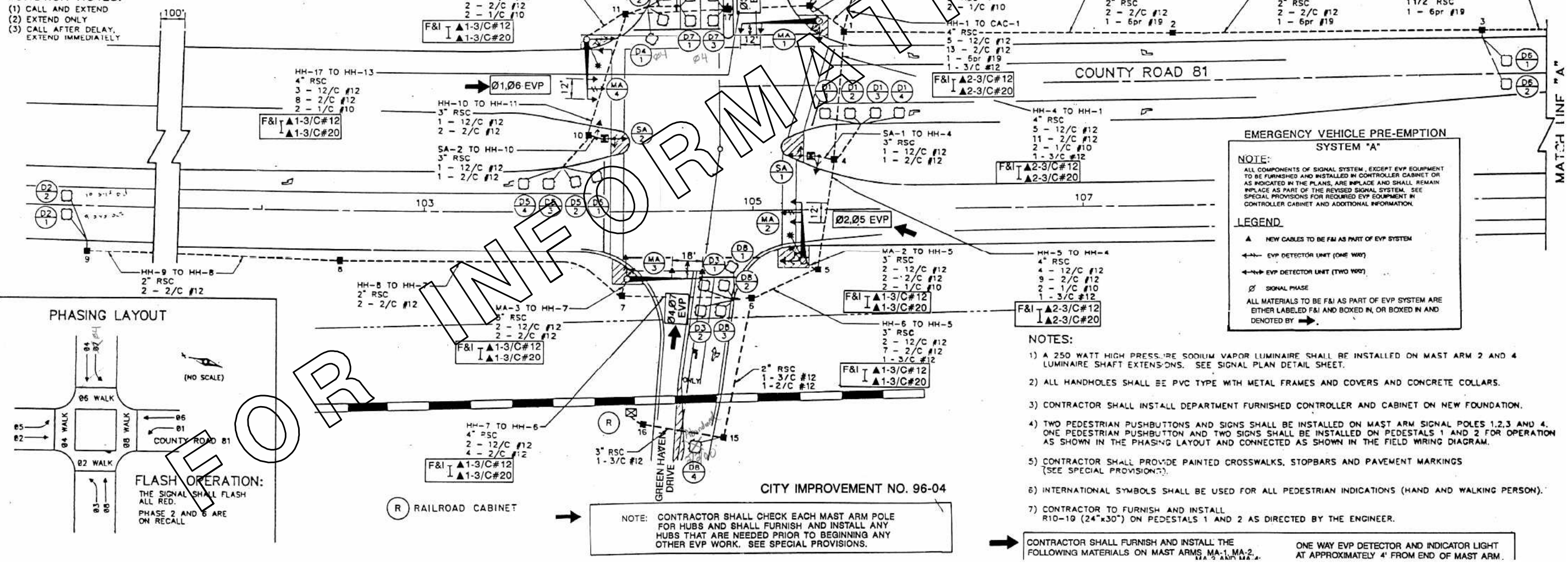
* ALL LOCATIONS REFERENCED OFF CENTERLINE C.S.A.H. 81
 ** NUMBER OF TURNS IN THE LOOP UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER.

FUNCTION NOTES:
 (1) CALL AND EXTEND
 (2) EXTEND ONLY
 (3) CALL AFTER DELAY, EXTEND IMMEDIATELY

*MAST ARMS 1 AND 3 SHALL HAVE NON-ROTATABLE BASES



SIGNAL INDICATION AND BRACKETING									
SIG. POLE NO.	SIGNAL FACE MOUNT	SIG. #	VEHICULAR INDICATION	TURN ARROWS	PEDESTRIAN	BRACKET MOUNTING ANGLE	TYPE AND STANDARD PLATE NO.		
MA-1	MAST ARM (END)	3	12" LTA	12" LTA	12" LTA		ONE-WAY MNT./P.L.T. B124D		
MA-1	MAST ARM (MID)	8	12" LTA	12" LTA	12" LTA		ONE-WAY MNT./P.L.T. B124D		
MA-1	POLE MOUNT	5		12" LTA	12" LTA	270°	TYPE 10B		
MA-1	POLE MOUNT	6			12" LTA	0°	TYPE 30A		
MA-1	POLE MOUNT	8			12" LTA		PLATE B110C		
MA-2	MAST ARM (END)	2	12" LTA	12" LTA	12" LTA		ONE-WAY MNT./P.L.T. B124D		
MA-2	MAST ARM (MID)	2	12" LTA	12" LTA	12" LTA		ONE-WAY MNT./P.L.T. B124D		
MA-2	POLE MOUNT	2	12" LTA	12" LTA	12" LTA	270°	TYPE 20C		
MA-2	POLE MOUNT	7		12" LTA	12" LTA		PLATE B110C		
MA-2	POLE MOUNT	8			12" LTA	12" LTA			
MA-2	POLE MOUNT	2			12" LTA		PLATE B110C		
MA-3	MAST ARM (END)	7	12" LTA	12" LTA	12" LTA		ONE-WAY MNT./P.L.T. B124D		
MA-3	MAST ARM (MID)	4	12" LTA	12" LTA	12" LTA		ONE-WAY MNT./P.L.T. B124D		
MA-3	POLE MOUNT	1		12" LTA	12" LTA	270°	TYPE 10B		
MA-3	POLE MOUNT	2			12" LTA	0°	TYPE 30A		
MA-3	POLE MOUNT	4			12" LTA		PLATE B110C		
MA-4	MAST ARM (END)	6	12" LTA	12" LTA	12" LTA		ONE-WAY MNT./P.L.T. B124D		
MA-4	MAST ARM (MID)	6	12" LTA	12" LTA	12" LTA		ONE-WAY MNT./P.L.T. B124D		
MA-4	POLE MOUNT	6	12" LTA	12" LTA	12" LTA	270°	TYPE 20C		
MA-4	POLE MOUNT	3		12" LTA	12" LTA		PLATE B110C		
MA-4	POLE MOUNT	4			12" LTA	12" LTA			
MA-4	POLE MOUNT	6			12" LTA		PLATE B110C		
SA-1	PEDESTAL MOUNT	5		12" LTA	12" LTA	12" LTA	TYPE 2C		
SA-1	PEDESTAL MOUNT	8	12" LTA	12" LTA	12" LTA				
SA-1	PEDESTAL MOUNT	8			12" LTA	12" LTA	PLATE B111B		
SA-1	PEDESTAL MOUNT	8			12" LTA	12" LTA			
SA-2	PEDESTAL MOUNT	1		12" LTA	12" LTA	12" LTA	TYPE 2C		
SA-2	PEDESTAL MOUNT	4	12" LTA	12" LTA	12" LTA				
SA-2	PEDESTAL MOUNT	4			12" LTA	12" LTA			
SA-2	PEDESTAL MOUNT	4			12" LTA	12" LTA	PLATE B111B		



EMERGENCY VEHICLE PRE-EMPTION SYSTEM "A"

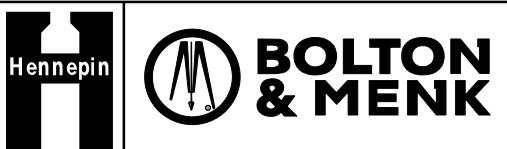
NOTE:
 ALL COMPONENTS OF SIGNAL SYSTEM, EXCEPT EVP EQUIPMENT TO BE FURNISHED AND INSTALLED IN CONTROLLER CABINET OR AS INDICATED IN THE PLANS, ARE IN PLACE AND SHALL REMAIN IN PLACE AS PART OF THE REVISED SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR REQUIRED EVP EQUIPMENT IN CONTROLLER CABINET AND ADDITIONAL INFORMATION.

LEGEND:
 ▲ NEW CABLES TO BE F&I AS PART OF EVP SYSTEM
 ← EVP DETECTOR UNIT (ONE WAY)
 ↔ EVP DETECTOR UNIT (TWO WAY)
 ∅ SIGNAL PHASE
 ALL MATERIALS TO BE F&I AS PART OF EVP SYSTEM ARE EITHER LABELED F&I AND BOXED IN, OR BOXED IN AND DENOTED BY →

- NOTES:
- 1) A 250 WATT HIGH PRESSURE SODIUM VAPOR LUMINAIRE SHALL BE INSTALLED ON MAST ARM 2 AND 4 LUMINAIRE SHAFT EXTENSIONS. SEE SIGNAL PLAN DETAIL SHEET.
 - 2) ALL HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS AND CONCRETE COLLARS.
 - 3) CONTRACTOR SHALL INSTALL DEPARTMENT FURNISHED CONTROLLER AND CABINET ON NEW FOUNDATION.
 - 4) TWO PEDESTRIAN PUSHBUTTONS AND SIGNS SHALL BE INSTALLED ON MAST ARM SIGNAL POLES 1,2,3 AND 4. ONE PEDESTRIAN PUSHBUTTON AND TWO SIGNS SHALL BE INSTALLED ON PEDESTALS 1 AND 2 FOR OPERATION AS SHOWN IN THE PHASING LAYOUT AND CONNECTED AS SHOWN IN THE FIELD WIRING DIAGRAM.
 - 5) CONTRACTOR SHALL PROVIDE PAINTED CROSSWALKS, STOPBARS AND PAVEMENT MARKINGS (SEE SPECIAL PROVISIONS).
 - 6) INTERNATIONAL SYMBOLS SHALL BE USED FOR ALL PEDESTRIAN INDICATIONS (HAND AND WALKING PERSON).
 - 7) CONTRACTOR TO FURNISH AND INSTALL R10-10 (24"x30") ON PEDESTALS 1 AND 2 AS DIRECTED BY THE ENGINEER.
- CONTRACTOR SHALL FURNISH AND INSTALL THE FOLLOWING MATERIALS ON MAST ARMS MA-1, MA-2, MA-3 AND MA-4:
 ONE WAY EVP DETECTOR AND INDICATOR LIGHT AT APPROXIMATELY 4' FROM END OF MAST ARM.

NOTE: CONTRACTOR SHALL CHECK EACH MAST ARM POLE FOR HUBS AND SHALL FURNISH AND INSTALL ANY HUBS THAT ARE NEEDED PRIOR TO BEGINNING ANY OTHER EVP WORK. SEE SPECIAL PROVISIONS.

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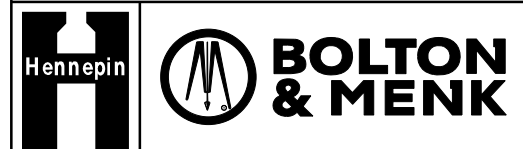
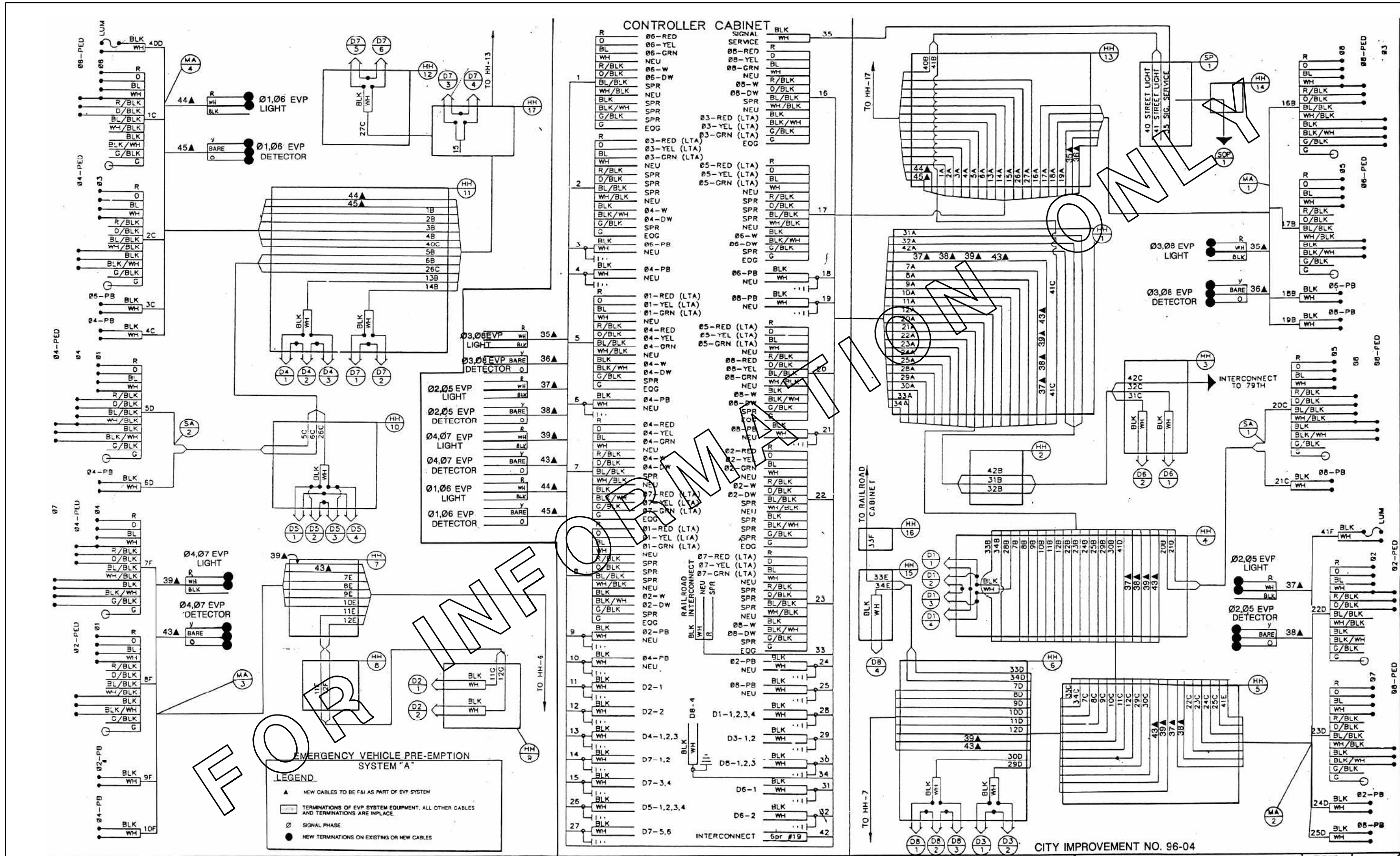
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Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "E"
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS67
 SS126



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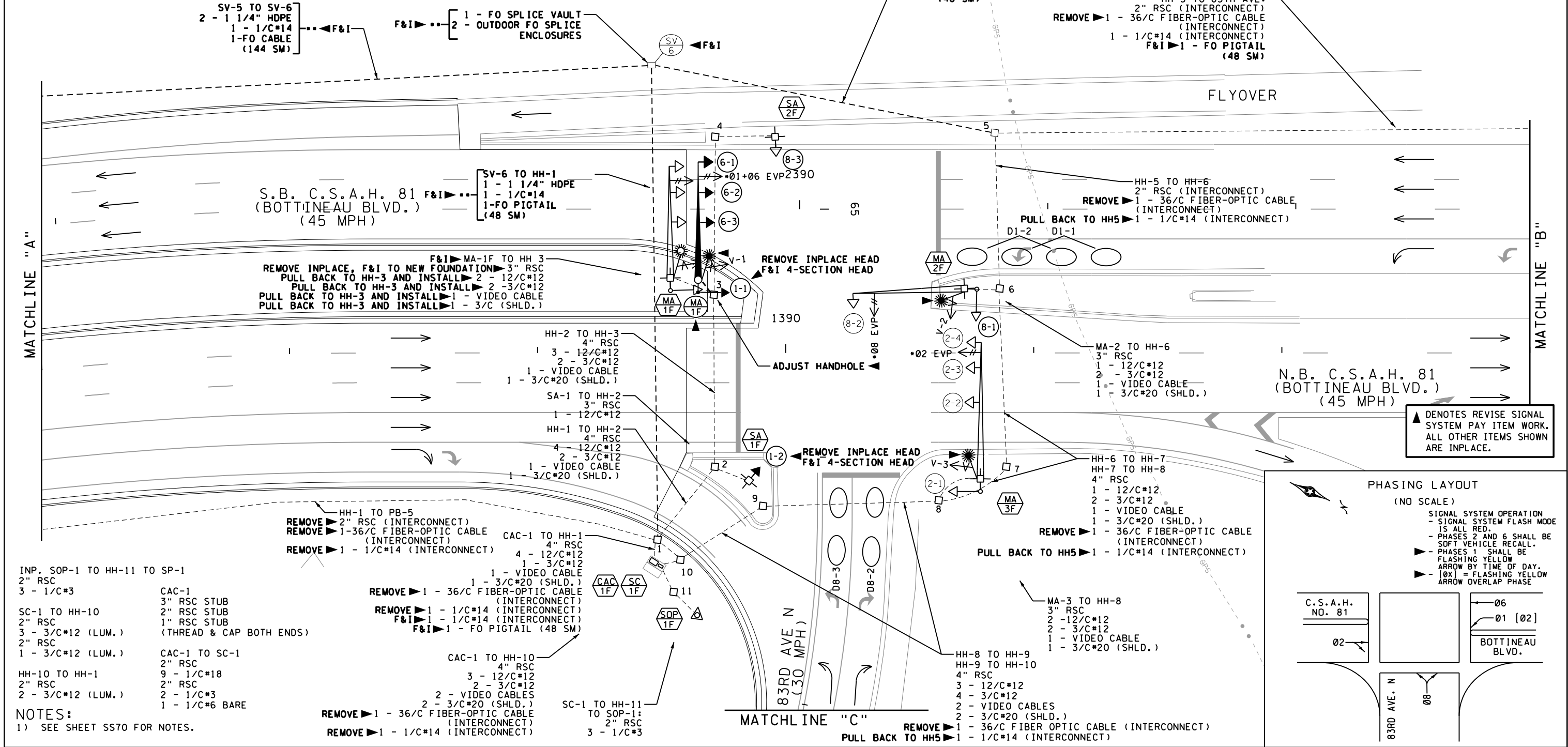
FOR INFORMATION ONLY - SIGNAL SYSTEM "E"
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS68
 SS126

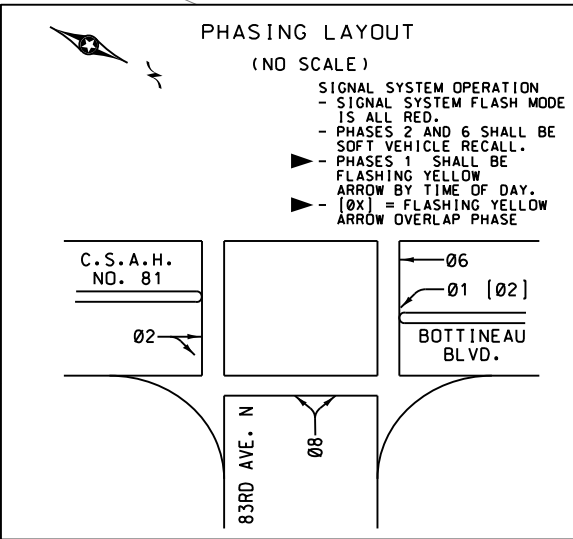
DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-1	(1)	20', 50'
D1-2	V-1	(1)	5', 35'
D2-1, D2-2, D2-3, D2-4	V-3	(1)	300'
D6-1, D6-2, D6-3	V-1	(1)	300'
D8-1	V-2	(3)	120'
D8-2	V-2	(7)	5', 20'
D8-2, D8-3	V-2	(1)	5', 20'

◀ REVISE DETECTION ZONE
 ▶ REVISE DETECTION ZONE
 ◀ REVISE DETECTION ZONE
 ▶ REVISE DETECTION ZONE

FUNCTION NOTES:
 (1) CALL & EXTEND
 (3) EXTEND ONLY
 (7) DELAY CALL, IMMEDIATE EXTEND



▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.



INP. SOP-1 TO HH-11 TO SP-1
 2" RSC
 3 - 1/C#3

SC-1 TO HH-10
 2" RSC
 3 - 3/C#12 (LUM.)
 2" RSC
 1 - 3/C#12 (LUM.)

HH-10 TO HH-1
 2" RSC
 2 - 3/C#12 (LUM.)

NOTES:
 1) SEE SHEET SS70 FOR NOTES.

REMOVE ▶ 2" RSC (INTERCONNECT)
 REMOVE ▶ 1-36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ▶ 1 - 1/C#14 (INTERCONNECT)

CAC-1 TO HH-1
 4" RSC
 4 - 12/C#12
 1 - 3/C#12
 1 - VIDEO CABLE
 1 - 3/C#20 (SHLD.)

REMOVE ▶ 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ▶ 1 - 1/C#14 (INTERCONNECT)
 F&I ▶ 1 - 1/C#14 (INTERCONNECT)
 F&I ▶ 1 - FO PIGTAIL (48 SM)

CAC-1 TO HH-10
 4" RSC
 3 - 12/C#12
 2 - 3/C#12
 2 - VIDEO CABLES
 2 - 3/C#20 (SHLD.)

REMOVE ▶ 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ▶ 1 - 1/C#14 (INTERCONNECT)

SC-1 TO HH-11 TO SOP-1:
 2" RSC
 3 - 1/C#3

HH-2 TO HH-3
 4" RSC
 3 - 12/C#12
 2 - 3/C#12
 1 - VIDEO CABLE
 1 - 3/C#20 (SHLD.)

SA-1 TO HH-2
 3" RSC
 1 - 12/C#12

HH-1 TO HH-2
 4" RSC
 4 - 12/C#12
 2 - 3/C#12
 1 - VIDEO CABLE
 1 - 3/C#20 (SHLD.)

HH-1 TO PB-5
 REMOVE ▶ 2" RSC (INTERCONNECT)
 REMOVE ▶ 1-36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ▶ 1 - 1/C#14 (INTERCONNECT)

CAC-1 TO HH-1
 4" RSC
 4 - 12/C#12
 1 - 3/C#12
 1 - VIDEO CABLE
 1 - 3/C#20 (SHLD.)

REMOVE ▶ 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ▶ 1 - 1/C#14 (INTERCONNECT)
 F&I ▶ 1 - 1/C#14 (INTERCONNECT)
 F&I ▶ 1 - FO PIGTAIL (48 SM)

SC-1 TO HH-11 TO SOP-1:
 2" RSC
 3 - 1/C#3

HH-6 TO HH-7
 HH-7 TO HH-8
 4" RSC
 1 - 12/C#12
 2 - 3/C#12
 1 - VIDEO CABLE
 1 - 3/C#20 (SHLD.)

REMOVE ▶ 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
 PULL BACK TO HH5 ▶ 1 - 1/C#14 (INTERCONNECT)

MA-3 TO HH-8
 3" RSC
 2 - 12/C#12
 2 - 3/C#12
 1 - VIDEO CABLE
 1 - 3/C#20 (SHLD.)

HH-8 TO HH-9
 HH-9 TO HH-10
 4" RSC
 3 - 12/C#12
 4 - 3/C#12
 2 - VIDEO CABLES
 2 - 3/C#20 (SHLD.)

REMOVE ▶ 1 - 36/C FIBER OPTIC CABLE (INTERCONNECT)
 PULL BACK TO HH5 ▶ 1 - 1/C#14 (INTERCONNECT)

Hennepin **BOLTON & MENK**

0 20 40
 SCALE FEET

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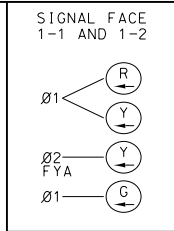
Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

INTERSECTION LAYOUT (SYSTEM "F") - 83RD AVE.
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS69
 SS126

F&I TYPICAL 4-SECTION SIGNAL HEAD PHASING WITH FLASHING YELLOW ARROW F&I



SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION	NO.	LOCATION
HH-1	INPLACE	HH-7	INPLACE
HH-2	INPLACE	HH-8	INPLACE
ADJUST HH-3	INPLACE	HH-9	INPLACE
HH-4	INPLACE	HH-10	INPLACE
REMOVE HH-5	INPLACE	HH-11	INPLACE
HH-6	INPLACE		
SA-1F	INPLACE	SOP-1F	INPLACE
SA-2F	INPLACE	SV-6	1389+45.98 - 115.96' LT F&I
		CAC-1F	INPLACE
		SC-1F	INPLACE
NO.	FOUNDATION (1)	AIM ARM TO	MAST ARM
MA-1F	INPLACE	1389+64.72 - 29.50' LT	1389+64.74 - 76.00' LT 45' F&I
MA-2F	INPLACE		45'
MA-3F	INPLACE		50'

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION. ALL STATIONS AND OFFSETS ARE REFERENCED FROM C.S.A.H. 81 ALIGNMENT.

VIDEO DETECTORS					
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	EXTENSION	CAMERA MOUNTED AT	MOUNTING HEIGHT
S&I V-1	SB CSAH 81	MA-1F	NO	LUMINAIRE EXTENSION	40'
V-2	WB 83RD AVENUE	MA-2F	NO	LUMINAIRE EXTENSION	40'
V-3	NB CSAH 81	MA-3F	NO	LUMINAIRE EXTENSION	40'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE

REMOVE INPLACE FOUNDATION F&I SIGNAL POLE FOUNDATION SALVAGE & INSTALL POLE AND MAST ARM

SIGNAL INDICATIONS AND BRACKETING									
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS 12" INDICATIONS				PED	BRACKET MOUNTING ANGLE, TYPE AND STANDARD PLATE NO.
				RED	YEL	FYEL	GRN		
MA-1F	6-1	MAST ARM (END)	6	•	•		•		STD. ONE-WAY/PLATE 8124E S&I
	6-2	MAST ARM (MID)	6	•	•		•		STD. ONE-WAY/PLATE 8124E S&I
	6-3	MAST ARM (INSIDE)	6	•	•		•		STD. ONE-WAY/PLATE 8124E S&I
	1-1	POLE MOUNT	1	←	←		←		90°, PLATE 81100, TYPE 10A REMOVE
	1-1	POLE MOUNT	2	←	←		←		90°, PLATE 8110E, TYPE 10A F&I
MA-2F	8-2	MAST ARM (END)	8	•	•		•/←		STD. ONE-WAY/PLATE 8124E
	8-1	POLE MOUNT	8	•	•		•		180°, PLATE 81100, TYPE 10A
MA-3F	2-4	MAST ARM (END)	2	•	•		•		STD. ONE-WAY/PLATE 8124E
	2-3	MAST ARM (MID)	2	•	•		•		STD. ONE-WAY/PLATE 8124E
	2-2	MAST ARM (INSIDE)	2	•	•		•		STD. ONE-WAY/PLATE 8124E
	2-1	POLE MOUNT	2	•	•		•		180°, PLATE 81100, TYPE 10A
SA-1F	1-2	POLE MOUNT	2	←	←		←		PLATE 8111D, TYPE 1A REMOVE
	1-2	POLE MOUNT	1	←	←		←		PLATE 8111E, TYPE 1A F&I
SA-2F	8-3	POLE MOUNT	8	•	←		←		PLATE 8111D, TYPE 1A

*** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

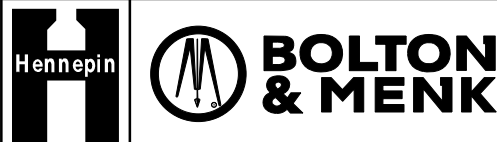
NOTE: SIGNAL FACE 8-2 SHALL BE 12' 4-SECTION R-Y-G-GLTA.

NOTES:

- REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
- REMOVE EXISTING MA-1F FOUNDATION, F&I MA-1F FOUNDATION, SALVAGE AND INSTALL MA-1F SIGNAL POLE, MAST ARM, AND SIGNAL COMPONENTS AS NOTED.
- REMOVE EXISTING HPS LUMINAIRES, F&I LED LUMINAIRES ON INPLACE LUMINAIRE EXTENSIONS.
- REMOVE SIGNAL HEADS 1-1 AND 1-2, F&I 4-SECTION HEADS.
- ALL VEHICULAR INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
- THE ENGINEER SHALL LOCATE AND VERIFY ALL POLE FOUNDATIONS PRIOR TO ANY CONSTRUCTION.
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO ITS ORIGINAL CONDITION OR BETTER (SEE SPECIAL PROVISIONS).
- COMMON BACKFILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER INCLUDED AS INCIDENTAL TO THE SIGNAL SYSTEM PAY ITEM. PROVIDE SHORING OF PROPOSED SIGNAL POLE FOUNDATION AS NEEDED.
- FURNISH AND INSTALL 1 - R10-X12 (36"x42") SIGN ON SIGNAL POLE ABOVE SIGNAL INDICATION 1-1.
- INSTALL NEW VIDEO DETECTION ZONES D2-1 & D6-1. ADJUST EXISTING ZONES AS NEEDED.
- INSTALL NEW CABINET AND CONTROLLER EQUIPMENT FOR FLASHING YELLOW ARROW PHASING AS PROVIDED BY THE COUNTY.
- THE REMOVAL AND DISPOSAL OF EXISTING SIGNAL COMPONENTS, INCLUDING ALL MATERIALS AND CONDUIT UNDER ROADWAYS, SHALL BE INCLUDED IN THE REVISE SIGNAL SYSTEM "F" PAY ITEM. REMOVAL OF EXISTING CONDUIT MAY TAKE PLACE WHERE THE MAINTENANCE OF EXISTING SIGNAL OPERATIONS ARE NO LONGER REQUIRED PER THE STAGING AND TRAFFIC CONTROL PLAN OR AT THE THE DISCRETION OF THE ENGINEER.
- FOR PAVEMENT MARKINGS, SEE STRIPING PLAN.

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

mikela 2/28/2019 pdf-B and W.plt:cfq 10:43:58 AM bmi:tbl



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 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
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SIGNAL TABULATIONS AND NOTES (SYSTEM "F") - 83RD AVE.

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

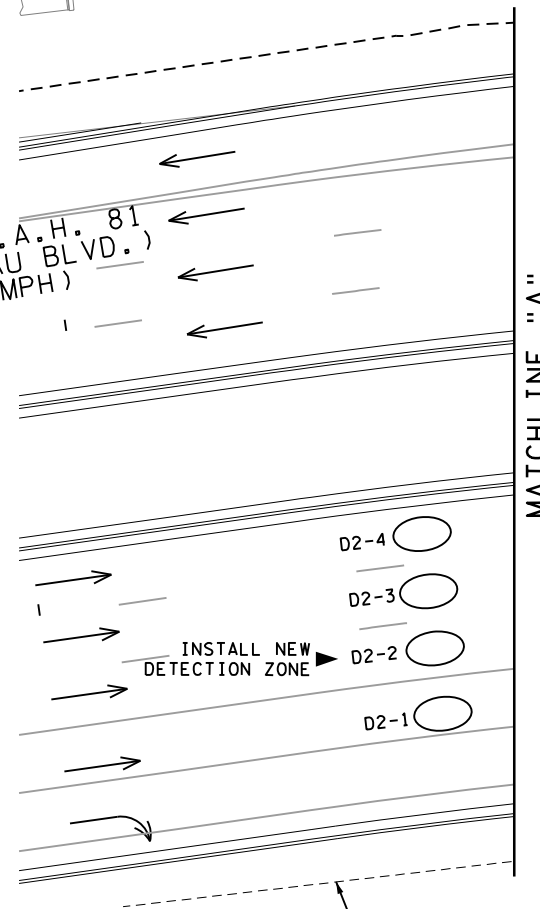
SHEET

SS70
 SS126



HH-5 TO HH-6
 REMOVE ► 2" RSC (INTERCONNECT)
 REMOVE ► 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ► 1 - 1/C*14 (INTERCONNECT)

S.B. C.S.A.H. 81
 (BOTTINEAU BLVD.)
 (45 MPH)



HH-1 TO PB-5
 REMOVE ► 2" RSC (INTERCONNECT)
 REMOVE ► 1-36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ► 1 - 1/C*14 (INTERCONNECT)

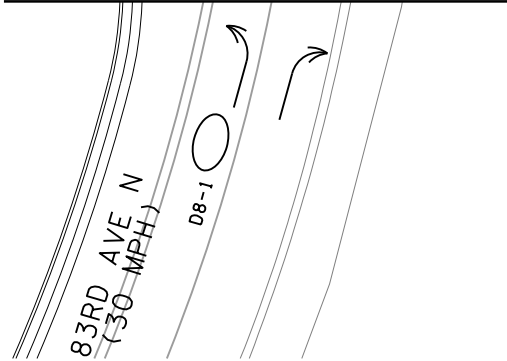
INSTALL NEW
 DETECTION ZONE ►

D6-1
 D6-2
 D6-3

MATCHLINE "B"

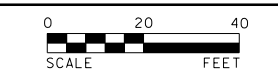
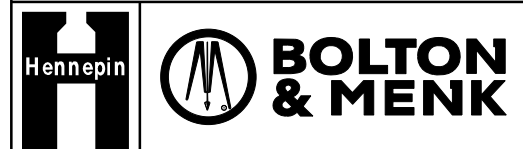
N.B. C.S.A.H. 81
 (BOTTINEAU BLVD.)
 (45 MPH)

MATCHLINE "C"



▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

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Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION: _____

SIGNAL MATCHLINE LAYOUT (SYSTEM "F") - 83RD AVE.

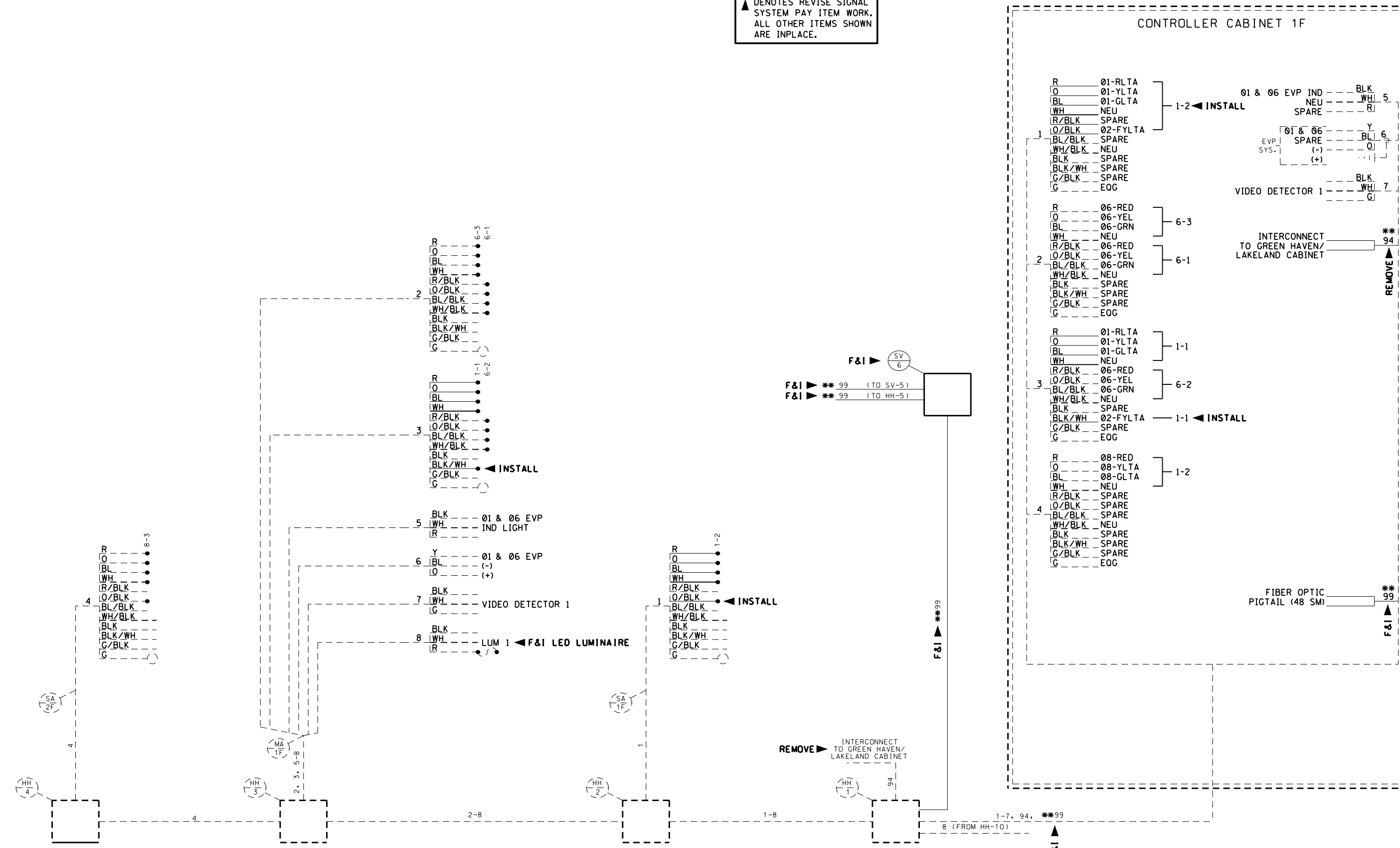
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SHEET
 SS71
 SS126

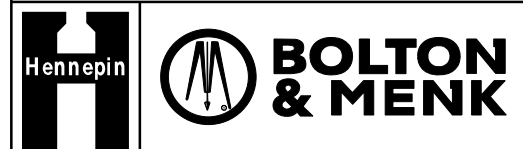
NOTES:

- ▶ 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
- ▶ 2) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.



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SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "F")

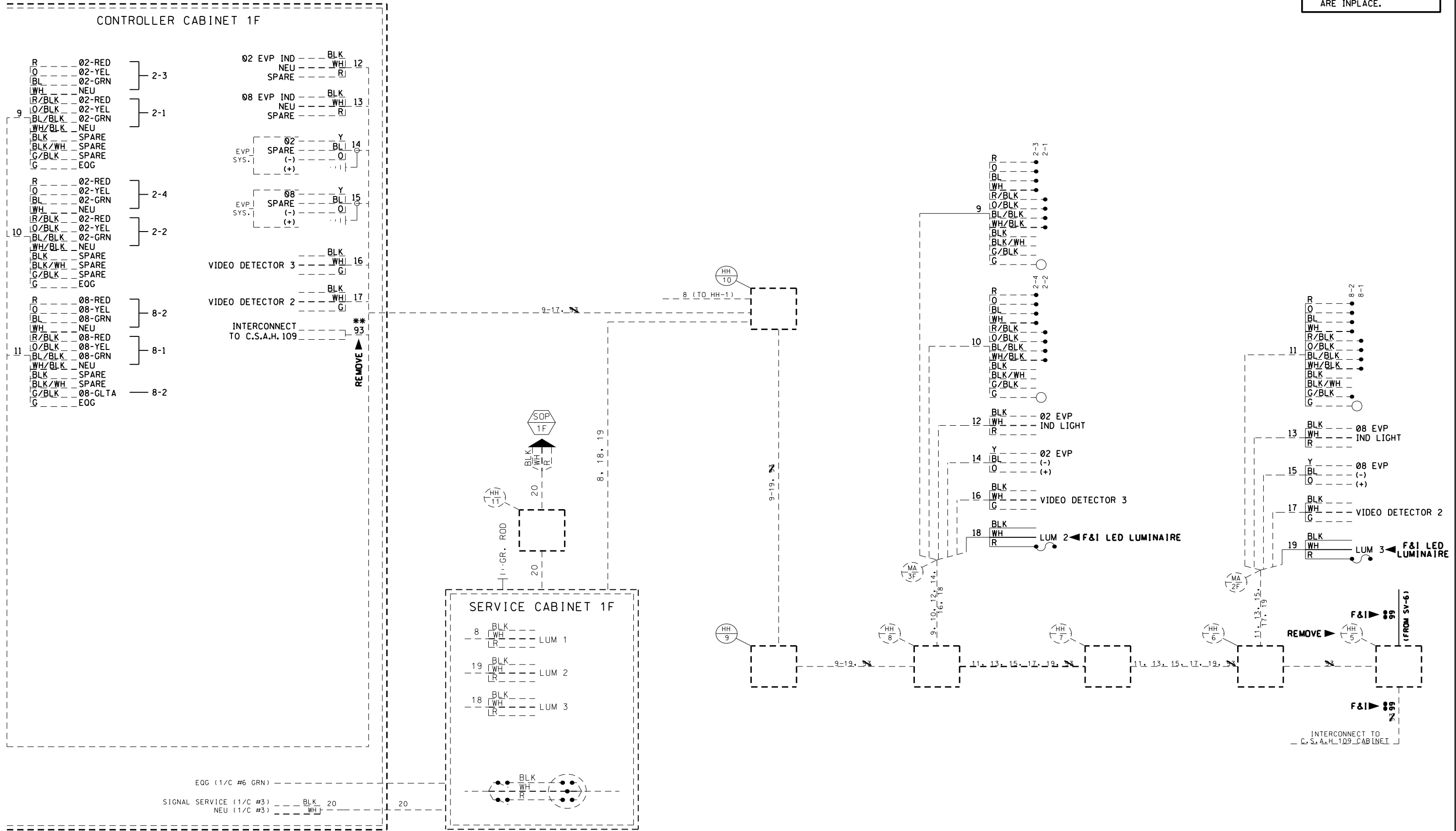
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SS72
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NOTES:

- ▶ 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
- ▶ 2) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.

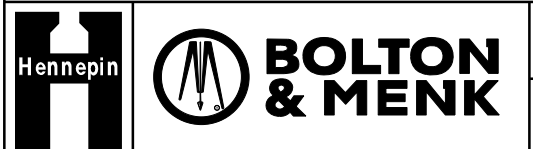
▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.



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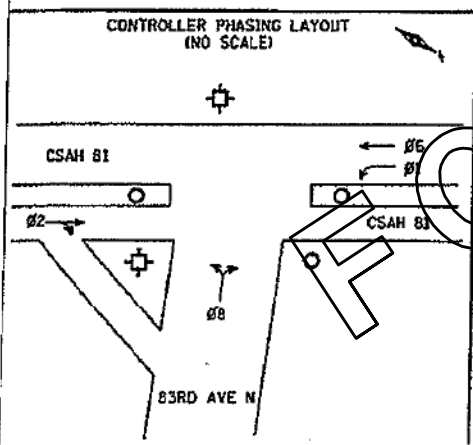
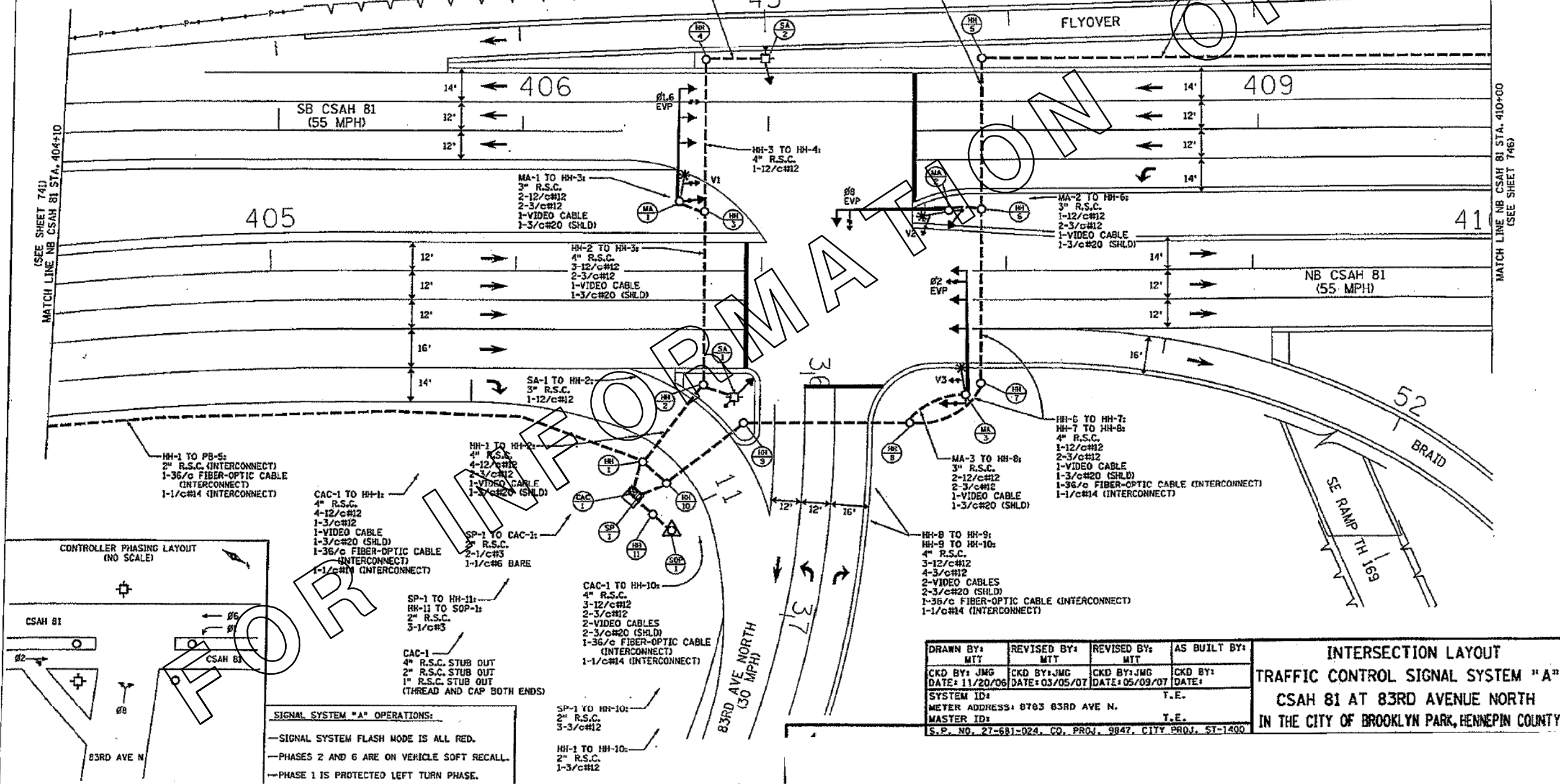
SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "F")

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SHEET
SS73
SS126

NOTES:

- 1) ONE 250 WATT HIGH PRESSURE SODIUM VAPOR "SHOEBOX" LUMINAIRE SHALL BE INSTALLED ON EACH MAST ARM LUMINAIRE SHAFT EXTENSION.
- 2) SEE DIVISION "SS-1" OF SPECIAL PROVISIONS FOR MATERIALS TO BE PROVIDED BY HENNEPIN COUNTY.
- 3) SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM AND VIDEO DETECTION SYSTEM.
- 4) COMBINATION ONE-WAY EVP DETECTOR AND INDICATOR LIGHT SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF MAST ARMS MA-1, MA-2, AND MA-3.
- 5) SEE SHEET 743 FOR SIGNAL SYSTEM TABULATIONS.
- 6) THE SIGNAL SYSTEM SHALL NOT INCLUDE THE SIGNAL INTERCONNECT QUANTITIES. (INTERCONNECT) DENOTES ITEMS TO BE FURNISHED AND INSTALLED SEPARATELY. SEE ESTIMATED QUANTITIES & SPECIAL PROVISIONS.
- 7) ALL TRAFFIC SIGNAL POLE AND MAST ARM MOUNTED SIGNING (TYPE C AND TYPE D) SHALL BE PAID FOR AS PART OF SIGNAL SYSTEM PAY ITEM. SEE DETAILS AND SPECIAL PROVISIONS.
- 8) COMMON BACK FILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER SHALL BE INCIDENTAL.
- 9) THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO IT'S ORIGINAL CONDITION OR BETTER AS DIRECTED BY THE ENGINEER AS APPLICABLE.
- 10) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY (XCEL ENERGY) TO ARRANGE FOR THE POWER CONNECTION.

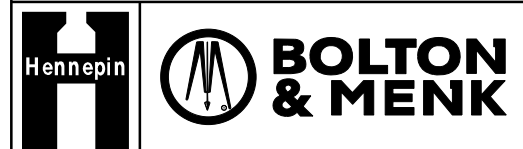


SIGNAL SYSTEM "A" OPERATIONS:

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 ARE ON VEHICLE SOFT RECALL.
- PHASE 1 IS PROTECTED LEFT TURN PHASE.

DRAWN BY: MIT	REVISED BY: MIT	REVISED BY: MIT	AS BUILT BY:
CKD BY: JMG DATE: 11/20/06	CKD BY: JMG DATE: 03/05/07	CKD BY: JMG DATE: 05/09/07	CKD BY: DATE:
SYSTEM ID:			T.E.
METER ADDRESS: 8763 83RD AVE N.			T.E.
MASTER ID:			
S.P. NO. 27-681-024, CO. PROJ. 9847, CITY PROJ. ST-1400			

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FOR INFORMATION ONLY - SIGNAL SYSTEM "F"

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SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION	NO.	LOCATION
HH- 1	L ^W 406+50 - 75' RT	HH-11	L ^W 406+54 - 91' RT
HH- 2	L ^W 406+74 - 47' RT		
HH- 3	L ^W 406+74 - 27' LT		
HH- 4	L ^W 406+71 - 30' LT		
HH- 5	L ^W 407+88 - 30' LT		
HH- 6	L ^W 407+90 - 24' LT		
HH- 7	L ^W 407+90 - 43' RT	CAC-1	L ^W 406+50 - 85' RT
HH- 8	L ^W 407+62 - 63' RT	SP-1	NORTH SIDE OF CAC-1 FOUNDATION
HH- 9	L ^W 406+92 - 63' RT		
HH-10	L ^W 406+58 - 83' RT		
		SOP-1	TO BE F & I BY XCEL

NO.	LOCATION		MAST ARM
	FOUNDATION	AIM ARM TO	
MA-1	L ^W 406+60 - 27' RT	L ^W 406+60 - 18' LT	45'
MA-2	L ^W 407+75 - 25' LT	L ^W 407+30 - 25' LT	45'
MA-3	L ^W 407+82 - 50' RT	L ^W 407+82 - 0' RT	50'
SA-1	L ^W 406+88 - 52' RT	-	**
SA-2	L ^W 406+96 - 29' LT	-	**

** 10' PEDESTAL POLE AND BASE (WITH WIND COLLAR)

SIGNAL INDICATIONS AND BRACKETING								
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. β	12" LED INDICATIONS				BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.
				RED	YEL	GRN	PED SYM.	
MA-1	6-1	MAST ARM (END)	6	●	●	●		STD. ONE-WAY/PLATE 8124E
	6-2	MAST ARM (MID)	6	●	●	●		STD. ONE-WAY/PLATE 8124E
	6-3	MAST ARM (INSIDE)	6	●	●	●		STD. ONE-WAY/PLATE 8124E
	1-1	POLE MOUNT	1	←	←	←		90° PLATE 8110D, TYPE 10A
MA-2	8-2	MAST ARM (END)	8	●	●	●		STD. ONE-WAY/PLATE 8124E
	8-1	POLE MOUNT	8	●	●	●		180°, PLATE 8110D, TYPE 10A
MA-3	2-4	MAST ARM (END)	2	●	●	●		STD. ONE-WAY/PLATE 8124E
	2-3	MAST ARM (MID)	2	●	●	●		STD. ONE-WAY/PLATE 8124E
	2-2	MAST ARM (INSIDE)	2	●	●	●		STD. ONE-WAY/PLATE 8124E
	2-1	POLE MOUNT	2	●	●	●		180°, PLATE 8110D, TYPE 10A
SA-1	1-2	POLE MOUNT	1	←	←	←		PLATE 8111D, TYPE 1A
SA-2	8-3	POLE MOUNT	8	●	←	←		PLATE 8111D, TYPE 1A

PEDESTRIAN INDICATIONS SHALL BE INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

NOTE: SIGNAL FACE 8-2 SHALL BE 12" 4-SECTION R-Y-G-GLTA.

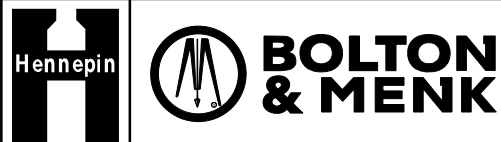
3

INSTALL VIDEO DETECTORS					
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	EXTENSION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V1	SB CSAH 81	MA-1	NO	LUMINAIRE EXTENSION	40'
V2	WB 83RD AVENUE	MA-2	NO	LUMINAIRE EXTENSION	40'
V3	NB CSAH 81	MA-3	NO	LUMINAIRE EXTENSION	40'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

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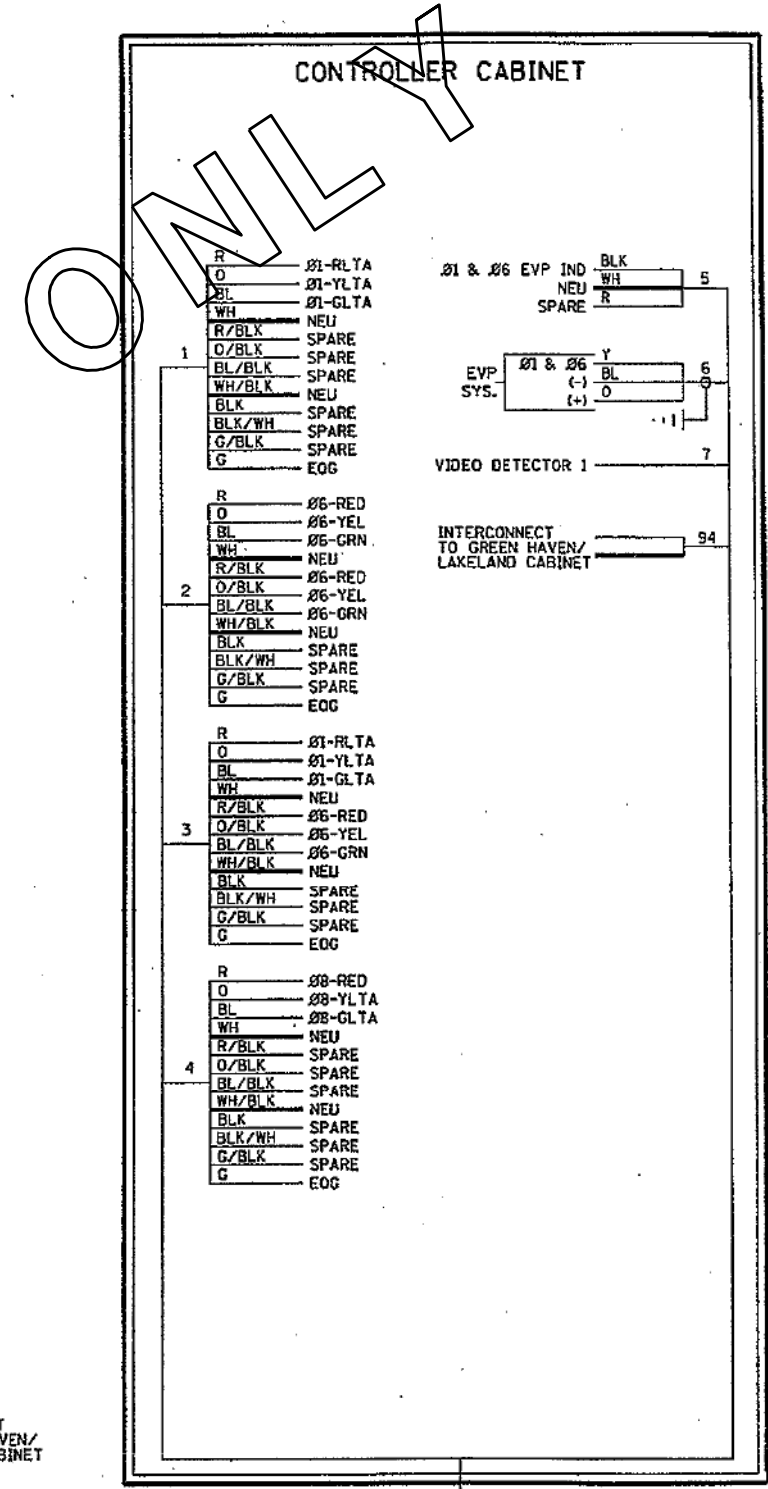
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SHEET

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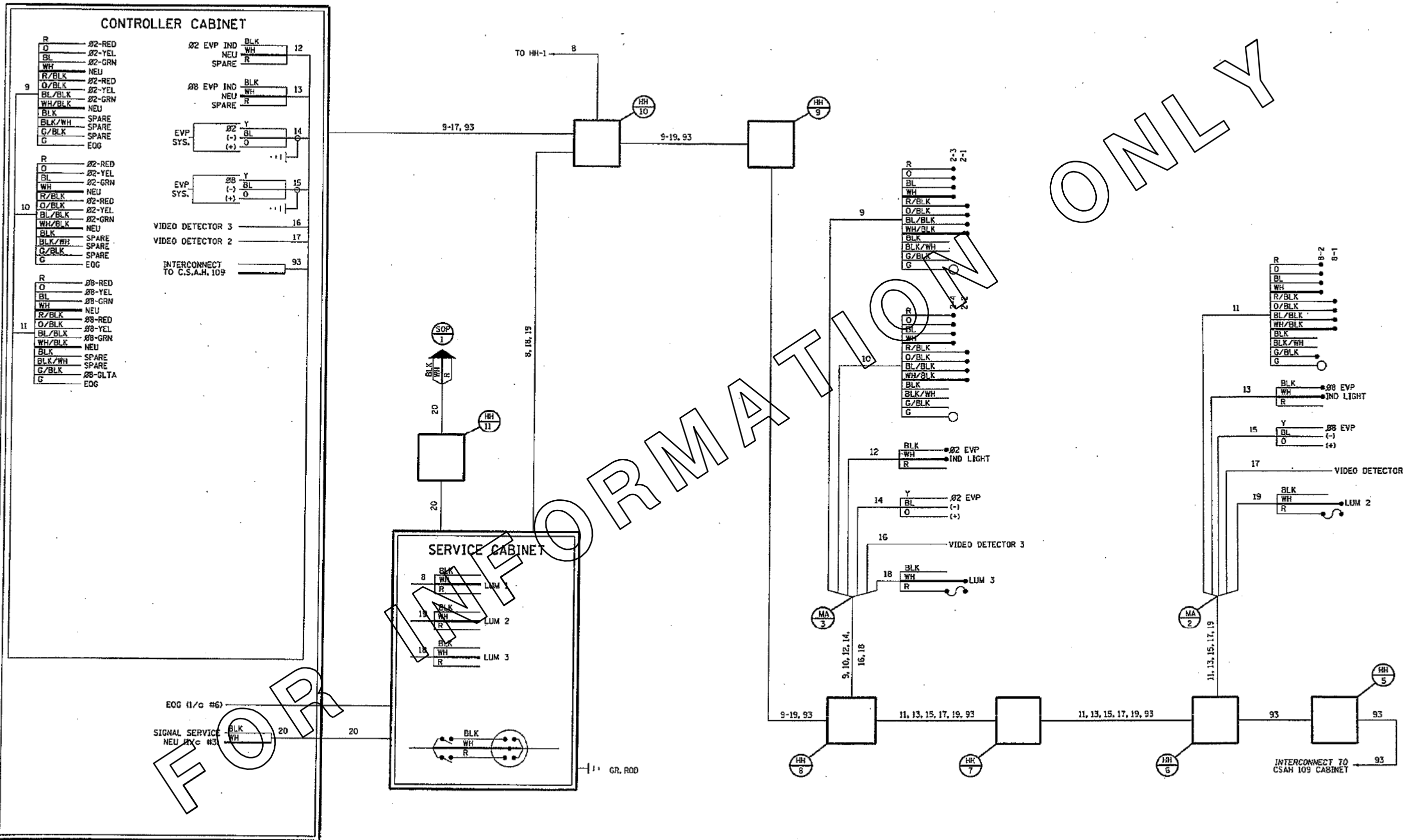
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FOR INFORMATION ONLY - SIGNAL SYSTEM "F"

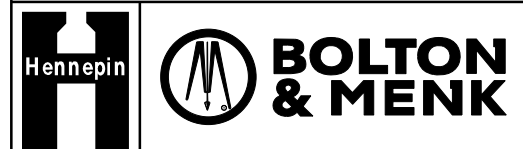
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SHEET
 SS77
 SS126

SA-1 TO HH1
3" RSC
1 - 5/C#12

SC-1 TO HH-8
4" RSC
1 - 3/C#12
2 - 3/C#14 (F&I)

SC-1 TO CAC-1
4" RSC
1 - 1/C#3
1 - 1/C#6 BARE

NOTES:
1) SEE SHEET SS79 FOR NOTES.

CAC-1 TO HH-1
2 - 4" RSC
6 - 12/C#12
2 - 5/C#12
3 - 3/C#12

2X - 2/C#12 (SHLD.)
2 - VIDEO CABLES
2 - 3/C#20 (SHLD.)

1 - 6 PR. #19 (INTERCONNECT)
1-2/C#12 (REMOVE)
2 - 5/C#14 (F&I)
1 - 3/C#14 (LUM.) (F&I)

HH-1 TO HH-2
4" RSC
3 - 12/C#12
1 - 5/C#12
3 - 3/C#12

2X - 2/C#12 (SHLD.)
1 - VIDEO CABLE
1 - 3/C#20 (SHLD.)

REMOVE 1-2/C#12
F&I 2 - 5/C#14
F&I 1 - 3/C#14 (LUM.)

HH-2 TO HH-3
4" RSC
2 - 12/C#12
1 - 5/C#12
3 - 3/C#12
2 - 2/C#12 (SHLD.)
1 - VIDEO CABLE
1 - 3/C#20 (SHLD.)
1 - 6 PR. #19 (INTERCONNECT)

MA-2G TO HH-3
4" RSC
2 - 12/C#12
1 - 5/C#12
3 - 3/C#12
2 - 2/C#12 (SHLD.)
1 - VIDEO CABLE
1 - 3/C#20 (SHLD.)

HH-3 TO PB-10
2" RSC (INTERCONNECT)
1-C PR. #19 (INTERCONNECT)

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

CAC-1
4" RSC STUB OUT
2" RSC STUB OUT
1" RSC STUB OUT
(THREAD AND CAB BOTH ENDS)

HH-8 TO 83RD AVE:
2" RSC
●●REMOVE 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
1 - 1/C#14 (INTERCONNECT)
●●F&I 1 - FO PIGTAIL (48 SM)

CAC-1 TO HH-8
2 - 4" RSC
6 - 12/C#12
2 - 5/C#12
3 - 3/C#12

1 - 2/C#12 (SHLD.)
2 - VIDEO CABLES
2 - 3/C#20 (SHLD.)

1 - 6/C FIBER-OPTIC CABLE (INTERCONNECT)
(INTERCONNECT)
2 - 1/C#14 (INTERCONNECT)

●●REMOVE 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
2 - 5/C#14 (F&I)
1 - 3/C#14 (LUM.) (F&I)
●●F&I 1 - FO PIGTAIL (48 SM)

●●REMOVE 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
1 - 1/C#14 (INTERCONNECT)
●●F&I 1 - FO PIGTAIL (48 SM)

HH-8 TO 83RD AVE:
2" RSC
●●REMOVE 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
1 - 1/C#14 (INTERCONNECT)
●●F&I 1 - FO PIGTAIL (48 SM)

CAC-1 TO HH-8
2 - 4" RSC
6 - 12/C#12
2 - 5/C#12
3 - 3/C#12

1 - 2/C#12 (SHLD.)
2 - VIDEO CABLES
2 - 3/C#20 (SHLD.)

1 - 6/C FIBER-OPTIC CABLE (INTERCONNECT)
(INTERCONNECT)
2 - 1/C#14 (INTERCONNECT)

●●REMOVE 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
2 - 5/C#14 (F&I)
1 - 3/C#14 (LUM.) (F&I)
●●F&I 1 - FO PIGTAIL (48 SM)

S.B. C.S.A.H. 81
(BOTTINEAU BLVD.)
(45 MPH)

S.B. C.S.A.H. 81
(BOTTINEAU BLVD.)
(45 MPH)

HH-6 TO HH-7
HH-7 TO HH-8
2 - 4" RSC
6 - 12/C#12
2 - 5/C#12
5 - 3/C#12

1 - 2/C#12 (SHLD.)
2 - VIDEO CABLES
2 - 3/C#20 (SHLD.)

1 - 6/C FIBER-OPTIC CABLE (INTERCONNECT)
1 - 1/C#14 (INTERCONNECT)
F&I 2 - 5/C#14
F&I 1 - 3/C#14 (LUM.)
F&I 1 - 3/C#18 (VIDEO CABLE)

MA-4G TO HH-6
3" RSC
2 - 12/C#12
1 - 5/C#12
2 - 3/C#12
1 - VIDEO CABLE
1 - 3/C#20 (SHLD.)

HH-6 TO PB-13
2" RSC
(INTERCONNECT)
1 - 6/C FIBER-OPTIC CABLE (INTERCONNECT)
1 - 1/C#14 (INTERCONNECT)

HH-5 TO HH-6
4" RSC
4 - 12/C#12
1 - 5/C#12
3 - 3/C#12
1 - 2/C#12
1 - VIDEO CABLE
1 - 3/C#20 (SHLD.)
F&I 2 - 5/C#14
F&I 1 - 3/C#14 (LUM.)
F&I 1 - 3/C#18 (VIDEO CABLE)

HH-6 TO HH-7
HH-7 TO HH-8
2 - 4" RSC
6 - 12/C#12
2 - 5/C#12
5 - 3/C#12

1 - 2/C#12 (SHLD.)
2 - VIDEO CABLES
2 - 3/C#20 (SHLD.)

1 - 6/C FIBER-OPTIC CABLE (INTERCONNECT)
1 - 1/C#14 (INTERCONNECT)
F&I 2 - 5/C#14
F&I 1 - 3/C#14 (LUM.)
F&I 1 - 3/C#18 (VIDEO CABLE)

MA-1G TO HH-1
3" RSC
3-12/C#12
2-3/C#12
1-2/C#12 (SHLD.)
1 - VIDEO CABLE
1 - 3/C#20 (SHLD.)
F&I 1 - 5/C#14

NEW HUB AT 10' FROM END OF MAST ARM
*04+07 EVP
SALVAGE AND INSTALL SIGN TO BETWEEN HEADS 4-5 AND 7-3

CONNECT TO INP. CONDUIT PULL BACK TO HH2 AND INSTALL
3" RSC
1 - 12/C#12
REMOVE 1 - 2/C#12
F&I 1 - 5/C#14
F&I 1 - 3/C#14 (LUM.)

NEW HUB AT 10' FROM END OF MAST ARM
*03+08 EVP

SA-2G TO HH-2
3" RSC
1 - 12/C#12
REMOVE 1 - 2/C#12
F&I 1 - 5/C#14
F&I 1 - 3/C#14 (LUM.)

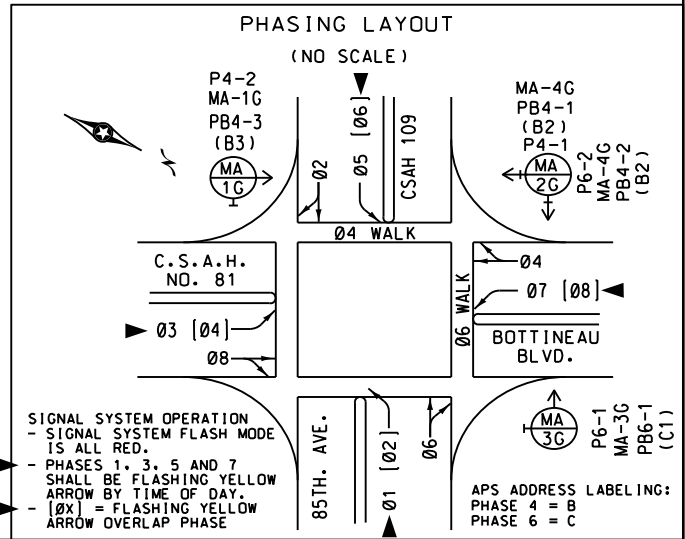
MA-3G TO HH-4
3" RSC
3 - 12/C#12
3 - 3/C#12
1 - 2/C#12 (SHLD.)
1 - VIDEO CABLE
1 - 3/C#20 (SHLD.)
F&I 1 - 5/C#14

SA-3G TO HH-4
3" RSC
1 - 5/C#12

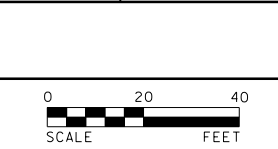
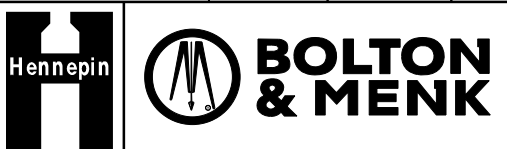
HH-4 TO HH-5
4" RSC
3 - 12/C#12
1 - 5/C#12
3 - 3/C#12
1 - 2/C#12 (SHLD.)
1 - VIDEO CABLE
1 - 3/C#20 (SHLD.)
F&I 1 - 5/C#14

FUNCTION NOTES:
(1) CALL & EXTEND

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-2	(1)	20', 50'
D1-2	V-2	(1)	5', 35'
D2-1, D2-2	V-4	(1)	250'
D3-1, D3-3	V-3	(1)	20', 50'
D3-2, D3-4	V-3	(1)	5', 35'
D4-1, D4-2, D4-3	V-1	(1)	300'
D5-1	V-4	(1)	20', 50'
D5-2	V-4	(1)	5', 35'
D6-1, D6-2	V-2	(1)	250'
D7-1, D7-3	V-1	(1)	20', 50'
D7-2, D7-4	V-1	(1)	5', 35'
D8-1, D8-2	V-3	(1)	300'



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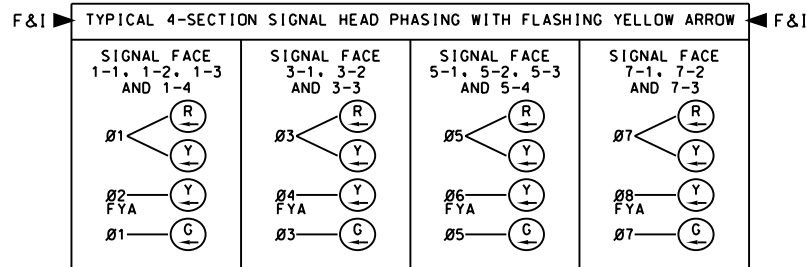
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LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

INTERSECTION LAYOUT (SYSTEM "G") - 85TH AVE.
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS78
SS126



SIGNAL STRUCTURE LOCATIONS

NO.	LOCATION	NO.	LOCATION
HH-1	INPLACE	HH-6	INPLACE
HH-2	INPLACE	HH-7	INPLACE
HH-3	INPLACE	HH-8	INPLACE
HH-4	INPLACE	HH-9	INPLACE
HH-5	INPLACE		
CAC-1	INPLACE	SOP-1G	INPLACE
SP-1	INPLACE		
		CAC-1G	INPLACE
		SC-1G	INPLACE

NO.	LOCATION	NO.	LOCATION	MAST ARM
MA-1G	INPLACE			55'
MA-2G	INPLACE			50'
MA-3G	INPLACE			55'
MA-4G	INPLACE			55'
MA-5G	1404+88.87 - 132.74' LT	N/A		0'
MA-6G	1404+50.94 - 54.60' RT	N/A		0'
SA-1G	INPLACE			(2)
SA-2G	INPLACE			(2)
SA-3G	INPLACE			(2)
SA-4G	INPLACE			(2)

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION. ALL STATIONS AND OFFSETS ARE REFERENCED FROM C.S.A.H. 81 ALIGNMENT.
 (2) 10' PEDESTAL POLE AND BASE (WITH WIND COLLAR)

VIDEO DETECTORS

CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	EXTENSION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V-1	SB CSAH 81	MA-1G	NO	LUMINAIRE EXTENSION	40'
V-2	WB CSAH 109	MA-2G	NO	LUMINAIRE EXTENSION	35'
V-3	NB CSAH 81	MA-3G	NO	LUMINAIRE EXTENSION	40'
V-4	EB CSAH 109	MA-4G	NO	LUMINAIRE EXTENSION	40'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE

NOTES:

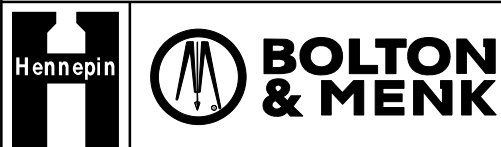
- REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
- REMOVE SIGNAL HEADS 1-1, 1-2, 3-1, 3-2, 5-1, 5-2, 7-1, AND 7-2. F&I 4-SECTION HEADS.
- ALL VEHICULAR INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
- FURNISH AND INSTALL 4 - R10-X12 (36"X42") SIGN ADJACENT TO SIGNAL INDICATION 1-1, 3-3, 5-1, AND 7-3.
- FURNISH AND INSTALL 2 - R4-7 (24"X30") SIGN ON MA-5G AND MA-6G.
- THE CONTRACTOR SHALL FURNISH AND INSTALL 1 - R9-3a SIGN ON POLE MA-6G FACING SA-3G, AND 1 - R9-3a ON POLE MA-6G FACING MA-4G.
- INSTALL NEW EQUIPMENT INTO CABINET FOR FLASHING YELLOW ARROW PHASING AS PROVIDED BY THE COUNTY. SALVAGE CELLULAR MODEM AND MASTER CONTROLLER TO COUNTY.
- THE REMOVAL AND DISPOSAL OF EXISTING SIGNAL COMPONENTS, INCLUDING ALL MATERIALS EXCEPT CONDUIT UNDER ROADWAYS, SHALL BE INCLUDED IN THE REVISE SIGNAL SYSTEM "G" PAY ITEM.
- FOR PAVEMENT MARKINGS, SEE STRIPING PLAN.
- TRAFFIC MANAGEMENT CAMERA (TMC) (CONTRACTOR SHALL FURNISH AND INSTALL) SHALL BE MOUNTED ON VIDEO CAMERA EXTENSION SHAFT ON MAST ARM POLE 6.
- REFER TO TEMPORARY SIGNAL PLANS FOR STAGING OF SIGNAL REVISONS.

SIGNAL INDICATIONS AND BRACKETING

SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS				PLUMBIZER OR BRACKET MOUNTING ANGLE, TYPE AND STANDARD PLATE NO. (1)	
				RED	YEL	FYEL	GRN		
MA-1G	7-1	MAST ARM (END)	7	←	←	←	←	STD. ONE-WAY/PLATE 8124E	REMOVE
	7-1	MAST ARM (END)	7	←	←	←	←	STRAIGHT MOUNT PLUMBIZER	F&I
	7-3	MAST ARM (MID)	7	←	←	←	←	STRAIGHT MOUNT PLUMBIZER	F&I
	4-5	MAST ARM (MID)	4	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	4-4	MAST ARM (MID)	4	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	4-3	MAST ARM (INSIDE)	4	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	4-2	POLE MOUNT	4	•	•	•	•	180°, PLATE 8110D, TYPE 10B	
	1-3	POLE MOUNT	1	←	←	←	←	90°, PLATE 8110D, TYPE 10A	REMOVE
	1-3	POLE MOUNT	1	←	←	←	←	90°, PLATE 8110E, TYPE 10A	F&I
				2					
MA-2G	1-2	MAST ARM (END)	1	←	←	←	←	STD. ONE-WAY/PLATE 8124E	REMOVE
	1-2	MAST ARM (END)	1	←	←	←	←	STRAIGHT MOUNT PLUMBIZER	F&I
			2						
	6-4	MAST ARM (MID)	6	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	6-3	MAST ARM (INSIDE)	6	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	6-2	POLE MOUNT	6	•	•	•	•	180°, PLATE 8110D, TYPE 10B	
	3-2	POLE MOUNT	3	←	←	←	←	90°, PLATE 8110D, TYPE 10B	REMOVE 3-SECTION HEAD, SALVAGE PED IND.
	3-2	POLE MOUNT	4					90°, PLATE 8110E, TYPE 10B	F&I 4 SECTION HEAD, INSTALL PED IND.
			3	←	←	←	←		
			4						
MA-3G	3-1	MAST ARM (END)	3	←	←	←	←	STD. ONE-WAY/PLATE 8124E	REMOVE
	3-1	MAST ARM (END)	3	←	←	←	←	STRAIGHT MOUNT PLUMBIZER	F&I
			4						
	3-3	MAST ARM (MID)	3	←	←	←	←	STRAIGHT MOUNT PLUMBIZER	F&I
			4						
	8-5	MAST ARM (MID)	8	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	8-4	MAST ARM (MID)	8	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	8-3	MAST ARM (INSIDE)	8	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	8-2	POLE MOUNT	8	•	•	•	•	180°, PLATE 8110D, TYPE 10A	
	5-3	POLE MOUNT	5	←	←	←	←	90°, PLATE 8110D, TYPE 10B	REMOVE 3-SECTION HEAD, SALVAGE PED IND.
		6							
		5	←	←	←	←	90°, PLATE 8110E, TYPE 10B	F&I 4 SECTION HEAD, INSTALL PED IND.	
		6							
MA-4G	5-2	MAST ARM (END)	5	←	←	←	←	STD. ONE-WAY/PLATE 8124E	REMOVE
	5-2	MAST ARM (END)	5	←	←	←	←	STRAIGHT MOUNT PLUMBIZER	F&I
			6						
	2-4	MAST ARM (MID)	2	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	2-3	MAST ARM (INSIDE)	2	•	•	•	•	STD. ONE-WAY/PLATE 8124E	
	2-2	POLE MOUNT	2	•	•	•	•	180°, PLATE 8110D, TYPE 10A	
	7-2	POLE MOUNT	7	←	←	←	←	90°, PLATE 8110D, TYPE 10A	REMOVE
	7-2	POLE MOUNT	7	←	←	←	←	90°, PLATE 8110E, TYPE 10A	F&I
		8							
MA-5G	1-4	POLE MOUNT	1	←	←	←	←	0°, STRAIGHT MOUNT PLUMBIZER	
			2						
	5-1	POLE MOUNT	5	←	←	←	←	180°, STRAIGHT MOUNT PLUMBIZER	
		6							
4-1	POLE MOUNT	4	•	•	•	•	270°, STRAIGHT MOUNT PLUMBIZER		
MA-6G	5-4	POLE MOUNT	5	←	←	←	←	0°, STRAIGHT MOUNT PLUMBIZER	
			6						
	1-1	POLE MOUNT	1	←	←	←	←	180°, STRAIGHT MOUNT PLUMBIZER	
		2							
8-1	POLE MOUNT	8	•	•	•	•	270°, STRAIGHT MOUNT PLUMBIZER		
SA-1G	2-1	POLE MOUNT	2	•	•	•	•	PLATE 8111D, TYPE 1A	
SA-2G	4-1	POLE MOUNT	4	•	•	•	•	PLATE 8111D, TYPE 2A	
	5-1	POLE MOUNT	5	←	←	←	←	PLATE 8111D, TYPE 2A	
SA-3G	6-1	POLE MOUNT	6	•	•	•	•	PLATE 8111D, TYPE 1A	
SA-4G	8-1	POLE MOUNT	8	•	•	•	•	PLATE 8111D, TYPE 2A	
	1-1	POLE MOUNT	1	←	←	←	←	PLATE 8111D, TYPE 2A	

(1) SEE SHEET SS29 FOR PLUMBIZER MOUNTING DETAILS.
 *** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.



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.
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

SIGNAL TABULATIONS AND NOTES (SYSTEM "G") - 85TH AVE.

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

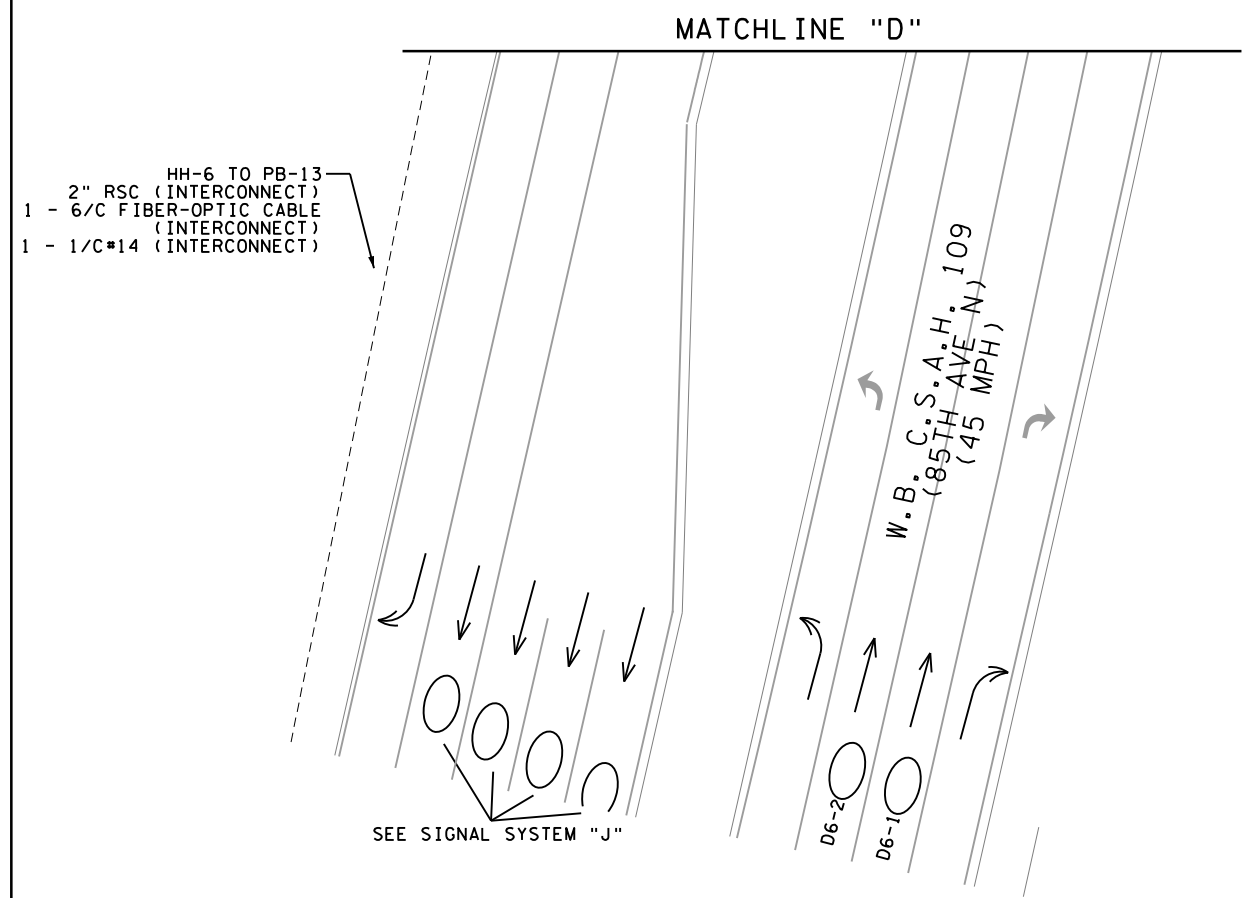
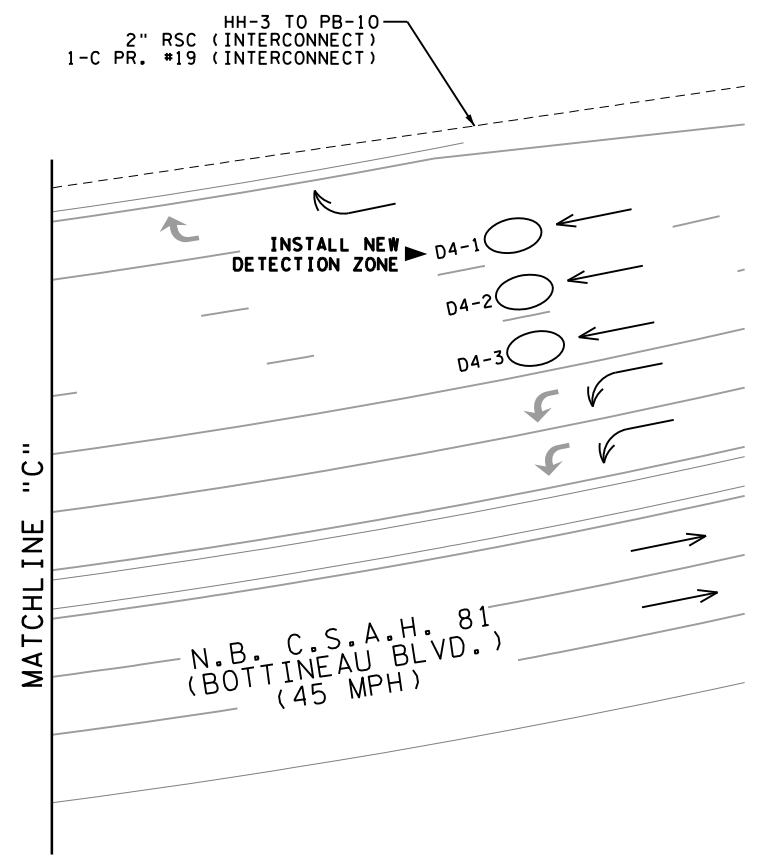
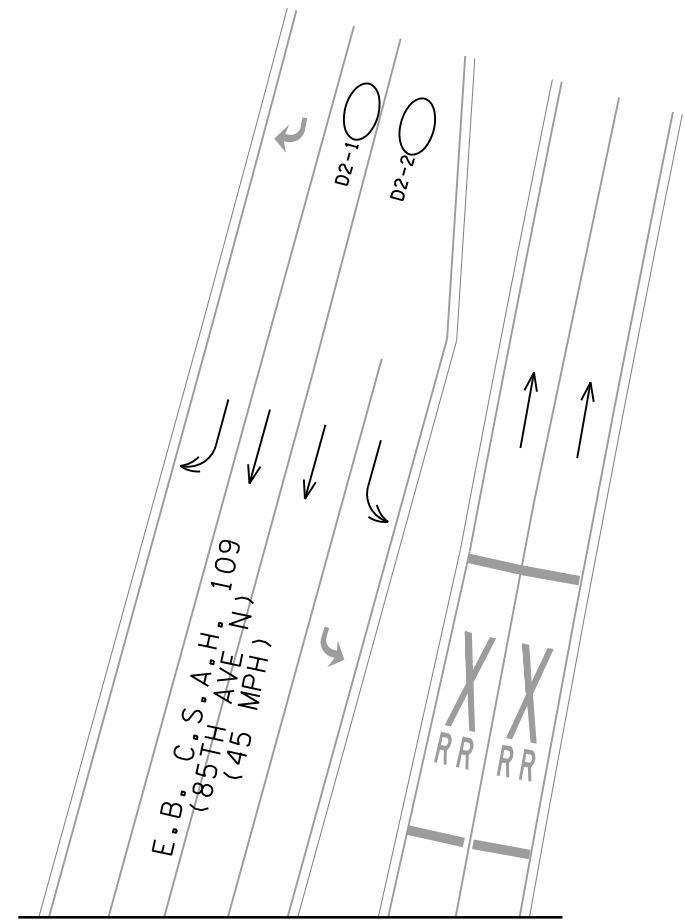
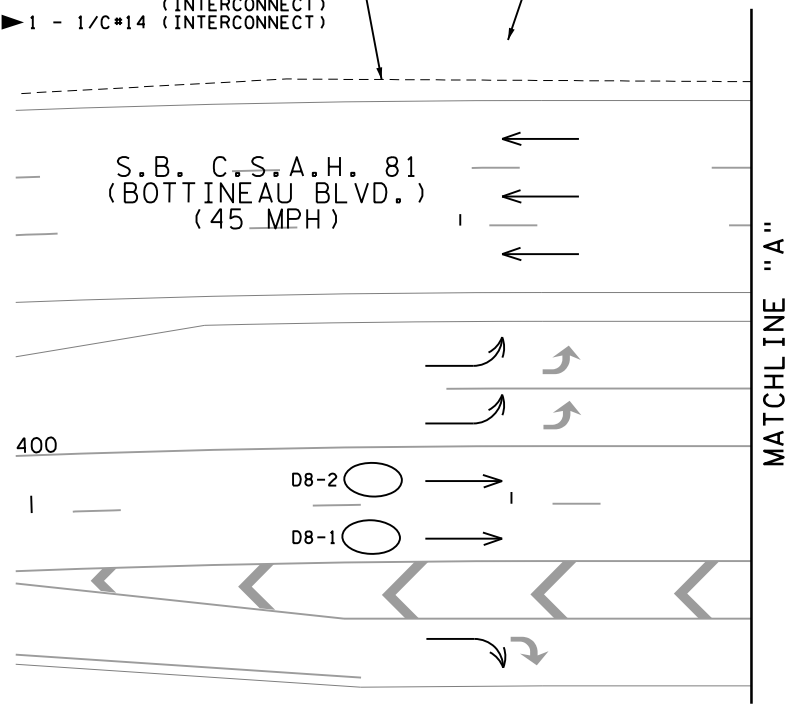
SS79
 SS126



REMOVE ► 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ► 1 - 1/2" RSC (INTERCONNECT)
 REMOVE ► 1 - 1/C#14 (INTERCONNECT)

HH-8 TO PB-9:
 REMOVE ► 1 - 36/C FIBER-OPTIC CABLE (INTERCONNECT)
 REMOVE ► 1 - 1/2" RSC (INTERCONNECT)
 REMOVE ► 1 - 1/C#14 (INTERCONNECT)

F&I ► SV-6 TO SV-7
 2 - 1 1/4" HDPE
 1 - 1/C#14
 1-FO CABLE (144 SM)

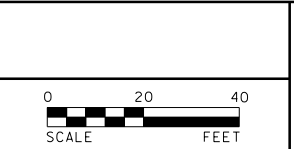


▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

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 2/28/2019

Hennepin

BOLTON & MENK



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Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
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SIGNAL MATCHLINE LAYOUT (SYSTEM "G") - 85TH AVE.

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

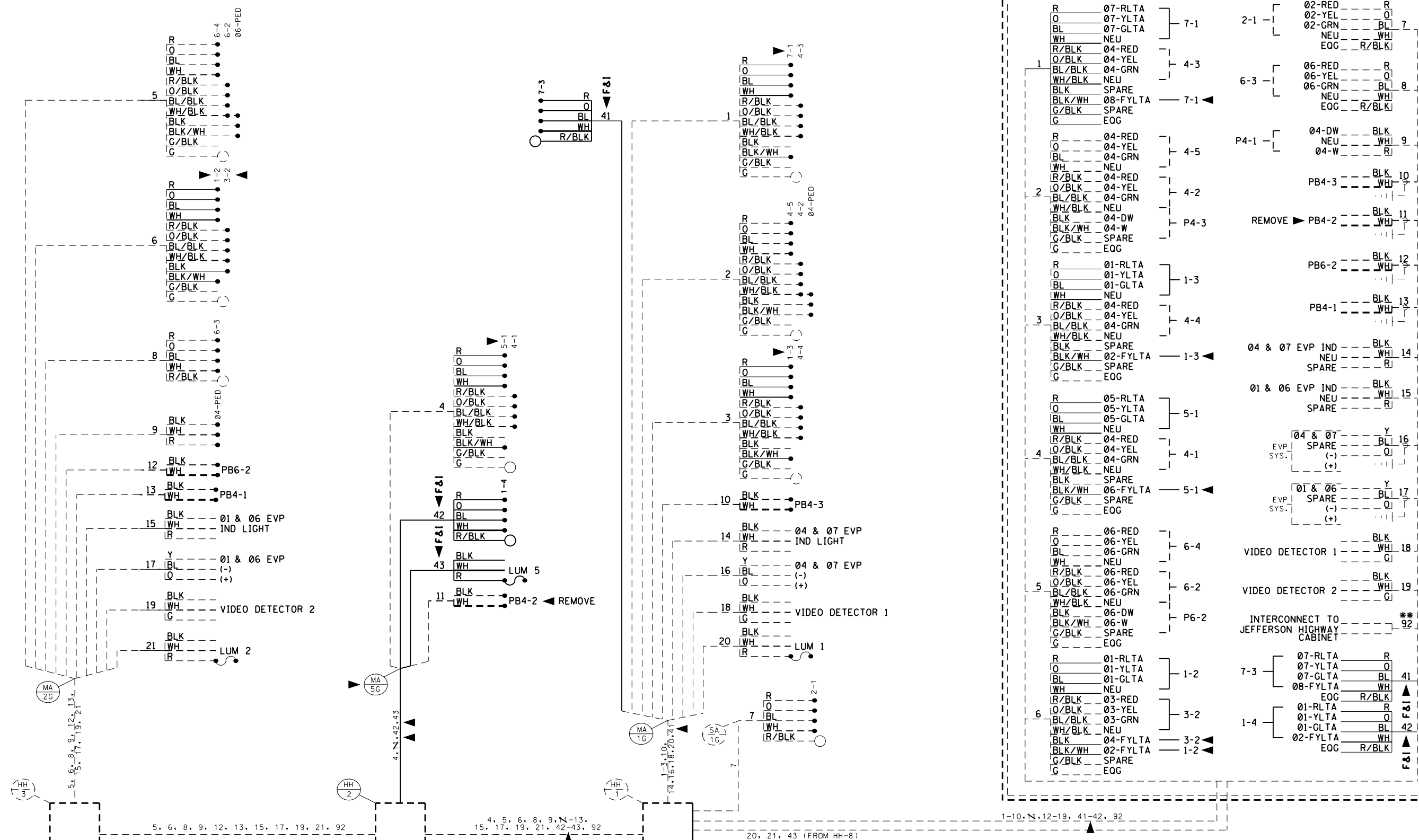
SHEET
 SS80
 SS126

NOTES:

- ▶ 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
- ▶ 2) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

CONTROLLER CABINET 1G



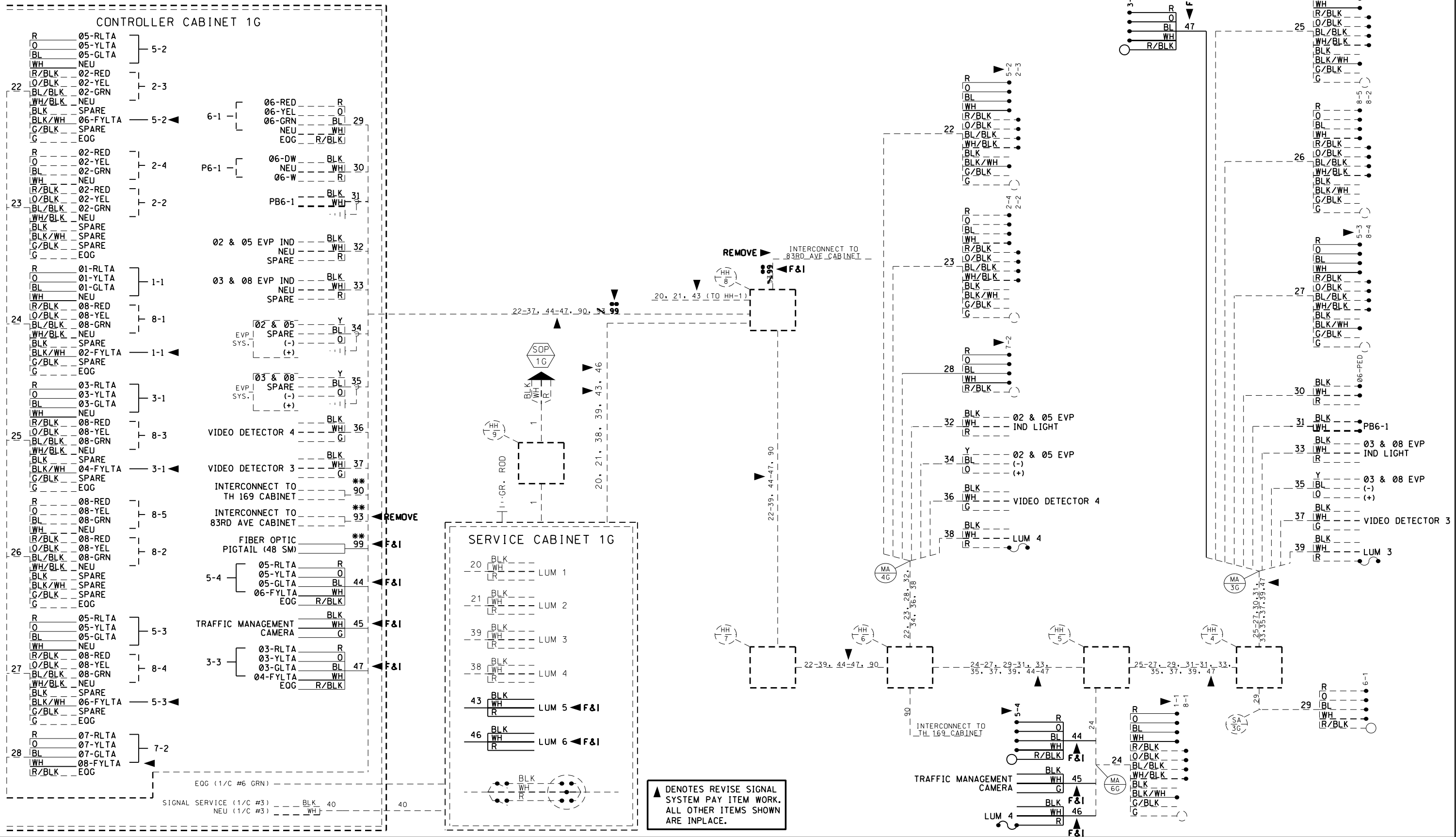
R	07-RLTA	7-1	02-RED	R	01	
O	07-YLTA		02-YEL	O	7	
BL	07-GLTA		02-GRN	BL	7	
WH	NEU		NEU	WH		
R/BLK	04-RED		EOG	R/BLK		
O/BLK	04-YEL	4-3				
BL/BLK	04-GRN		06-RED	R		
WH/BLK	NEU		06-YEL	O		
BLK	SPARE		06-GRN	BL	8	
BLK/WH	08-FYLTA	7-1	NEU	WH		
G/BLK	SPARE		EOG	R/BLK		
G	EOG					
R	04-RED		04-DW	BLK	9	
O	04-YEL		NEU	WH		
BL	04-GRN		04-W	R		
WH	NEU					
IR/BLK	04-RED		PB4-3	BLK	10	
O/BLK	04-YEL			WH		
BL/BLK	04-GRN					
WH/BLK	NEU		REMOVE	PB4-2	BLK	11
BLK	04-DW			WH		
BLK/WH	04-W					
G/BLK	SPARE					
G	EOG					
R	01-RLTA		PB6-2	BLK	12	
O	01-YLTA			WH		
BL	01-GLTA					
WH	NEU					
IR/BLK	04-RED		PB4-1	BLK	13	
O/BLK	04-YEL			WH		
BL/BLK	04-GRN					
WH/BLK	NEU					
BLK	SPARE					
BLK/WH	02-FYLTA		04 & 07 EVP IND	BLK	14	
G/BLK	SPARE		NEU	WH		
G	EOG		SPARE	R		
R	05-RLTA		01 & 06 EVP IND	BLK	15	
O	05-YLTA		NEU	WH		
BL	05-GLTA		SPARE	R		
WH	NEU					
IR/BLK	04-RED		04 & 07	Y	16	
O/BLK	04-YEL		EVP SYS.] SPARE	BL	17	
BL/BLK	04-GRN		(-)	O		
WH/BLK	NEU		(+)			
BLK	SPARE					
BLK/WH	06-FYLTA		01 & 06	Y	17	
G/BLK	SPARE		EVP SYS.] SPARE	BL	18	
G	EOG		(-)	O		
			(+)			
R	06-RED		VIDEO DETECTOR 1	BLK	18	
O	06-YEL			WH		
BL	06-GRN		VIDEO DETECTOR 2	BLK	19	
WH	NEU			WH		
IR/BLK	06-RED					
O/BLK	06-YEL					
BL/BLK	06-GRN					
WH/BLK	NEU					
BLK	06-DW					
BLK/WH	06-W					
G/BLK	SPARE					
G	EOG					
R	01-RLTA		INTERCONNECT TO	**	92	
O	01-YLTA		JEFFERSON HIGHWAY			
BL	01-GLTA		CABINET			
WH	NEU					
IR/BLK	03-RED					
O/BLK	03-YEL					
BL/BLK	03-GRN					
WH/BLK	NEU					
BLK	04-FYLTA					
BLK/WH	02-FYLTA					
G/BLK	SPARE					
G	EOG					

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		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. BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: MSL CAD BY: KME CHECKED BY: BTN LAST REVISION:	SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "G") C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035, S.P. 110-020-040	SHEET SS81 / SS126
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NOTES:

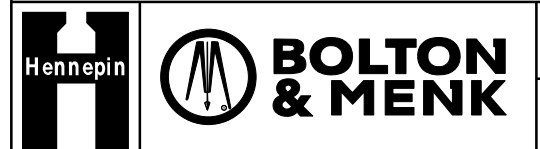
- ▶ 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
- ▶ 2) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

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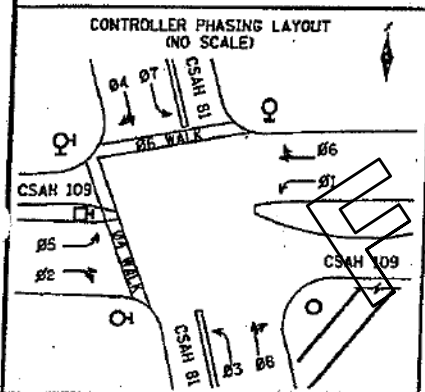
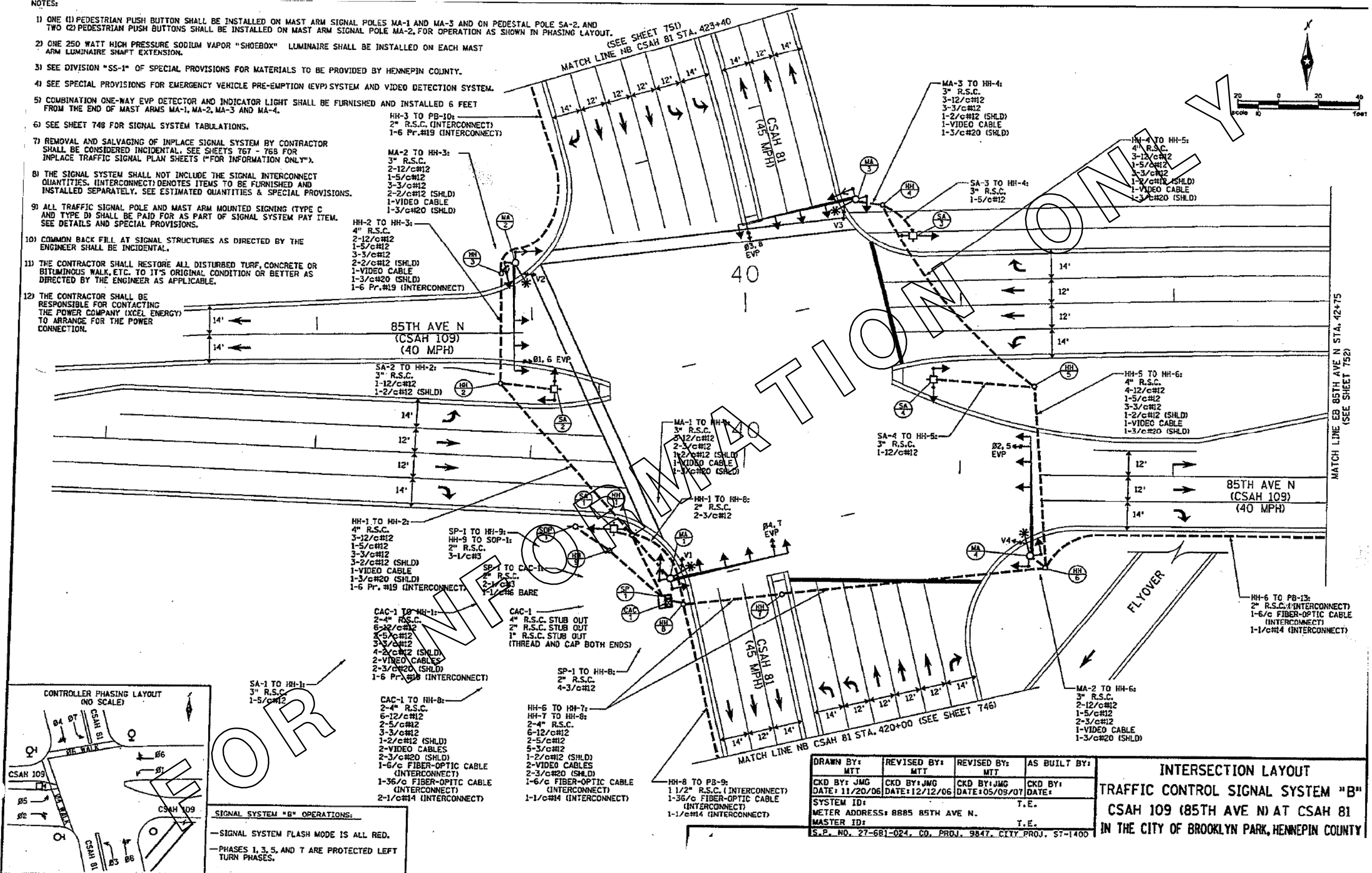
SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "G")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS82
SS126

NOTES:

- 1) ONE (1) PEDESTRIAN PUSH BUTTON SHALL BE INSTALLED ON MAST ARM SIGNAL POLES MA-1 AND MA-3 AND ON PEDESTAL POLE SA-2, AND TWO (2) PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED ON MAST ARM SIGNAL POLE MA-2, FOR OPERATION AS SHOWN IN PHASING LAYOUT.
- 2) ONE 250 WATT HIGH PRESSURE SODIUM VAPOR "SHOEBOX" LUMINAIRE SHALL BE INSTALLED ON EACH MAST ARM LUMINAIRE SHAFT EXTENSION.
- 3) SEE DIVISION "SS-1" OF SPECIAL PROVISIONS FOR MATERIALS TO BE PROVIDED BY HENNEPIN COUNTY.
- 4) SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM AND VIDEO DETECTION SYSTEM.
- 5) COMBINATION ONE-WAY EVP DETECTOR AND INDICATOR LIGHT SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF MAST ARMS MA-1, MA-2, MA-3 AND MA-4.
- 6) SEE SHEET 746 FOR SIGNAL SYSTEM TABULATIONS.
- 7) REMOVAL AND SALVAGING OF INPLACE SIGNAL SYSTEM BY CONTRACTOR SHALL BE CONSIDERED INCIDENTAL. SEE SHEETS 767 - 768 FOR INPLACE TRAFFIC SIGNAL PLAN SHEETS ("FOR INFORMATION ONLY").
- 8) THE SIGNAL SYSTEM SHALL NOT INCLUDE THE SIGNAL INTERCONNECT QUANTITIES. (INTERCONNECT) DENOTES ITEMS TO BE FURNISHED AND INSTALLED SEPARATELY. SEE ESTIMATED QUANTITIES & SPECIAL PROVISIONS.
- 9) ALL TRAFFIC SIGNAL POLE AND MAST ARM MOUNTED SIGNING (TYPE C AND TYPE D) SHALL BE PAID FOR AS PART OF SIGNAL SYSTEM PAY ITEM. SEE DETAILS AND SPECIAL PROVISIONS.
- 10) COMMON BACK FILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER SHALL BE INCIDENTAL.
- 11) THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO IT'S ORIGINAL CONDITION OR BETTER AS DIRECTED BY THE ENGINEER AS APPLICABLE.
- 12) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY (XCEL ENERGY) TO ARRANGE FOR THE POWER CONNECTION.



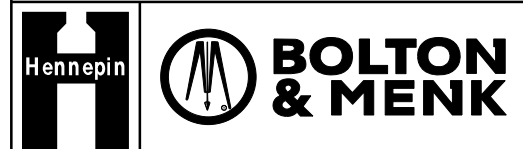
SIGNAL SYSTEM "B" OPERATIONS:

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 1, 3, 5, AND T ARE PROTECTED LEFT TURN PHASES.

DRAWN BY: MTT	REVISED BY: MTT	REVISED BY: MTT	AS BUILT BY:
CKD BY: JMG	CKD BY: JMG	CKD BY: JMG	CKD BY:
DATE: 11/20/06	DATE: 12/12/06	DATE: 05/09/07	DATE:
SYSTEM ID:			T.E.
METER ADDRESS: 8885 85TH AVE N.			T.E.
MASTER ID:			T.E.
S.P. NO. 27-681-024, CO. PROJ. 9847, CITY PROJ. S7-1400			

INTERSECTION LAYOUT
TRAFFIC CONTROL SIGNAL SYSTEM "B"
CSAH 109 (85TH AVE N) AT CSAH 81
IN THE CITY OF BROOKLYN PARK, HENNEPIN COUNTY

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2/28/2019



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Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "G"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS83
 SS126

SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION	NO.	LOCATION
HH- 1	L ⁶⁸ 39+50 - 34' RT		
HH- 2	L ⁶⁸ 38+84 - 35' LT		
HH- 3	L ⁶⁸ 38+86 - 23' LT		
HH- 4	L ⁶⁸ 40+65 - 49' LT		
HH- 5	L ⁶⁸ 41+34 - 42' LT		
HH- 6	L ⁶⁸ 41+41 - 44' RT		
HH- 7	L ⁶⁸ 40+21 - 60' RT	CAC-1	L ⁶⁸ 39+68 - 66' RT
HH- 8	L ⁶⁸ 39+75 - 66' RT	SP-1	NORTH SIDE OF CAC-1 FOUNDATION
HH- 9	L ⁶⁸ 39+40 - 42' RT	SOP-1	TO BE F & I BY XCEL

NO.	LOCATION		MAST ARM
	FOUNDATION	AIM ARM TO	
MA-1	L ⁶⁸ 39+66 - 54' RT	L ⁶⁸ 40+23 - 40' RT	55'
MA-2	L ⁶⁸ 38+93 - 26' LT	L ⁶⁸ 38+90 - 24' RT	50'
MA-3	L ⁶⁸ 40+52 - 52' LT	L ⁶⁸ 39+98 - 42' LT	55'
MA-4	L ⁶⁸ 41+34 - 37' RT	L ⁶⁸ 41+33 - 18' LT	55'
SA-1	L ⁶⁸ 39+41 - 32' RT	-	**
SA-2	L ⁶⁸ 39+09 - 35' LT	-	**
SA-3	L ⁶⁸ 40+79 - 35' LT	-	**
SA-4	L ⁶⁸ 40+87 - 45' LT	-	**

** 10' PEDESTAL POLE AND BASE (WITH WIND COLLAR)

INSTALL VIDEO DETECTORS					
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	EXTENSION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V1	SB CSAH 81	MA-1	NO	LUMINAIRE EXTENSION	40'
V2	WB CSAH 109	MA-2	NO	LUMINAIRE EXTENSION	35'
V3	NB CSAH 81	MA-3	NO	LUMINAIRE EXTENSION	40'
V4	EB CSAH 109	MA-4	NO	LUMINAIRE EXTENSION	40'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

SIGNAL INDICATIONS AND BRACKETING							
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. #	12" LED INDICATIONS			BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.
				RED	YEL	GRN	
MA-1	7-1	MAST ARM (END)	7	←	←	←	STD. ONE-WAY/PLATE 8124E
	4-5	MAST ARM (MID)	4	•	•	•	STD. ONE-WAY/PLATE 8124E
	4-4	MAST ARM (MID)	4	•	•	•	STD. ONE-WAY/PLATE 8124E
	4-3	MAST ARM (INSIDE)	4	•	•	•	STD. ONE-WAY/PLATE 8124E
	4-2	POLE MOUNT	4	•	•	•	180°, PLATE 8110D, TYPE 10B
MA-2	1-3	POLE MOUNT	1	←	←	←	90°, PLATE 8110D, TYPE 10A
	1-2	MAST ARM (END)	1	←	←	←	STD. ONE-WAY/PLATE 8124E
	6-4	MAST ARM (MID)	6	•	•	•	STD. ONE-WAY/PLATE 8124E
	6-3	MAST ARM (INSIDE)	6	•	•	•	STD. ONE-WAY/PLATE 8124E
	6-2	POLE MOUNT	6	•	•	•	180°, PLATE 8110D, TYPE 10B
MA-3	3-2	POLE MOUNT	3	←	←	←	90°, PLATE 8110D, TYPE 10B
	3-1	MAST ARM (END)	3	←	←	←	STD. ONE-WAY/PLATE 8124E
	8-5	MAST ARM (MID)	8	•	•	•	STD. ONE-WAY/PLATE 8124E
	8-4	MAST ARM (MID)	8	•	•	•	STD. ONE-WAY/PLATE 8124E
	8-3	MAST ARM (INSIDE)	8	•	•	•	STD. ONE-WAY/PLATE 8124E
MA-4	8-2	POLE MOUNT	8	•	•	•	180°, PLATE 8110D, TYPE 10A
	5-3	POLE MOUNT	5	←	←	←	90°, PLATE 8110D, TYPE 10B
	5-2	MAST ARM (END)	5	←	←	←	STD. ONE-WAY/PLATE 8124E
	2-4	MAST ARM (MID)	2	•	•	•	STD. ONE-WAY/PLATE 8124E
	2-3	MAST ARM (INSIDE)	2	•	•	•	STD. ONE-WAY/PLATE 8124E
SA-1	2-2	POLE MOUNT	2	•	•	•	180°, PLATE 8110D, TYPE 10A
	7-2	POLE MOUNT	7	←	←	←	90°, PLATE 8110D, TYPE 10A
SA-2	4-1	POLE MOUNT	4	•	•	•	PLATE 8111D, TYPE 2A
	5-1		5	←	←	←	
SA-3	6-1	POLE MOUNT	6	•	•	•	PLATE 8111D, TYPE 1A
	8-1		8	•	•	•	
SA-4	1-1	POLE MOUNT	1	←	←	←	PLATE 8111D, TYPE 2A
	8-1		8	•	•	•	

* PEDESTRIAN INDICATIONS SHALL BE INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

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 Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "G"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

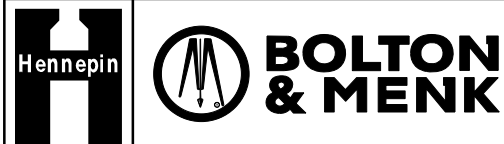
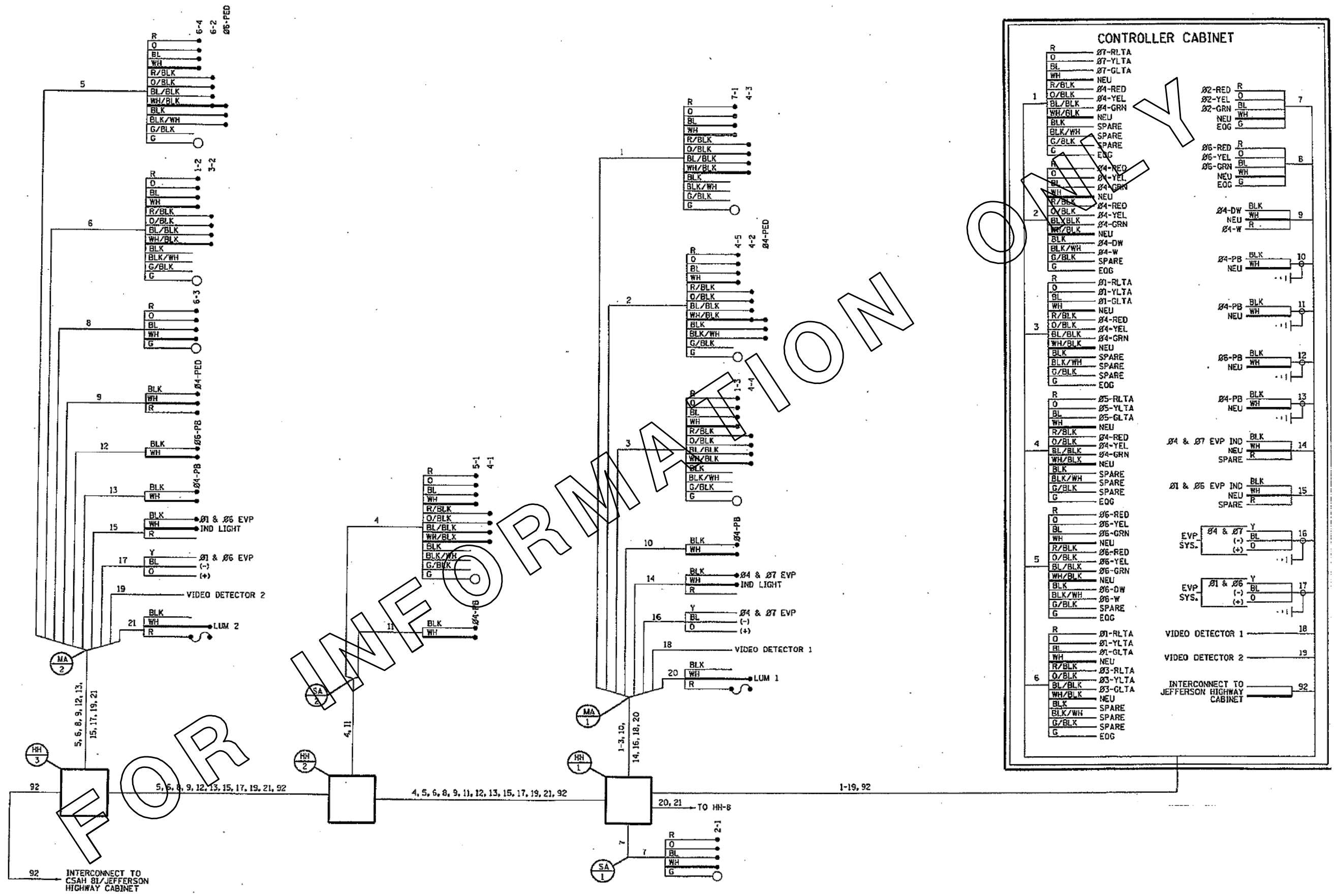
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 BRYAN J. NEMETH
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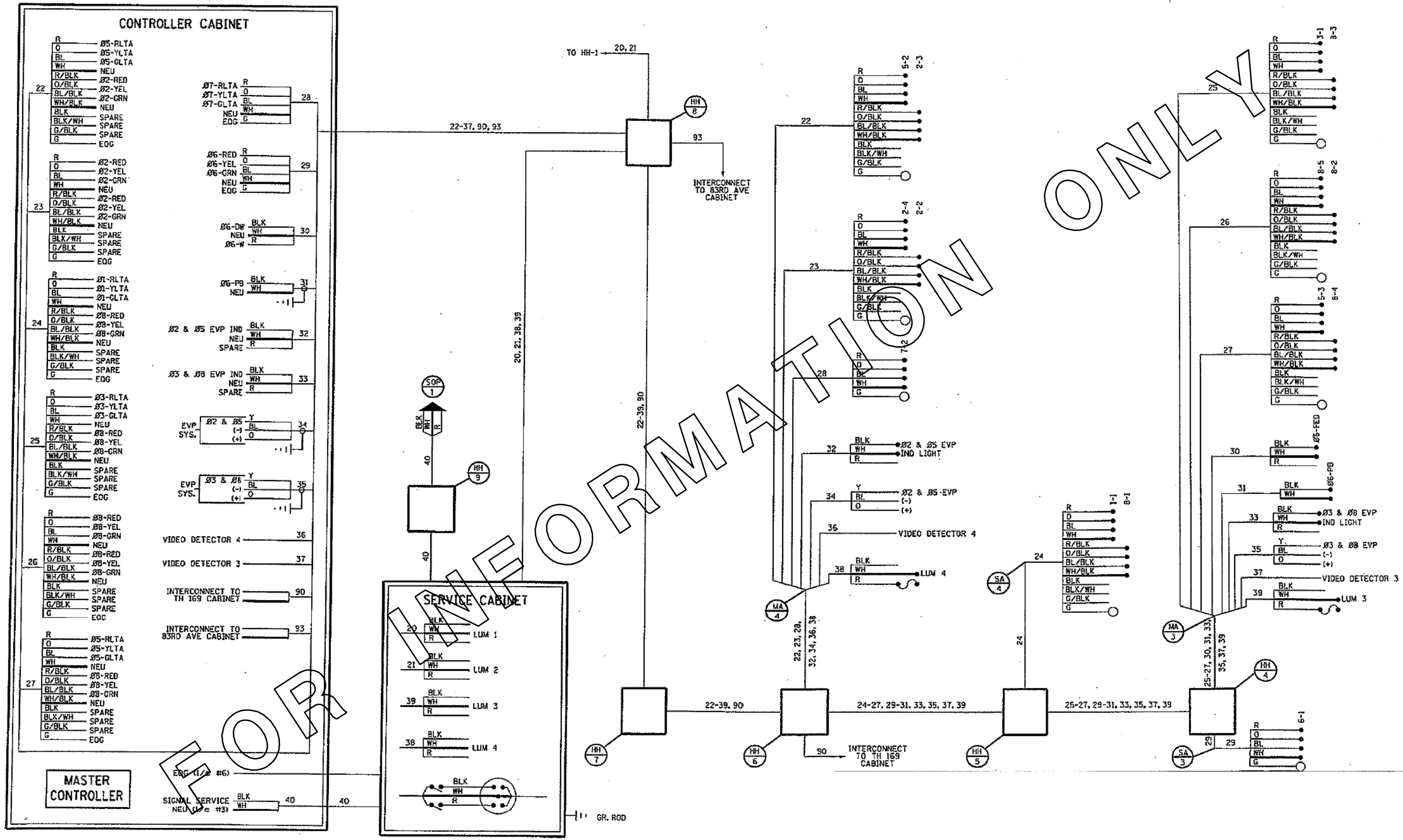
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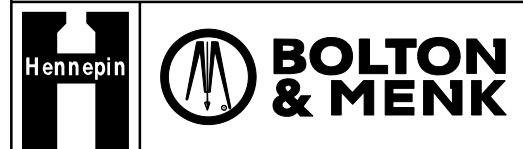
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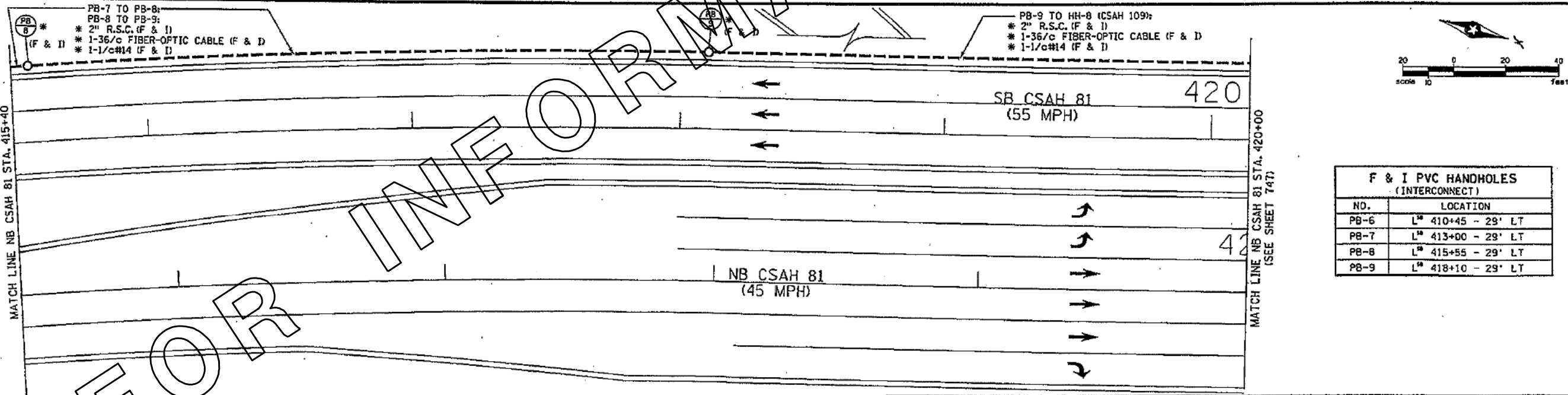
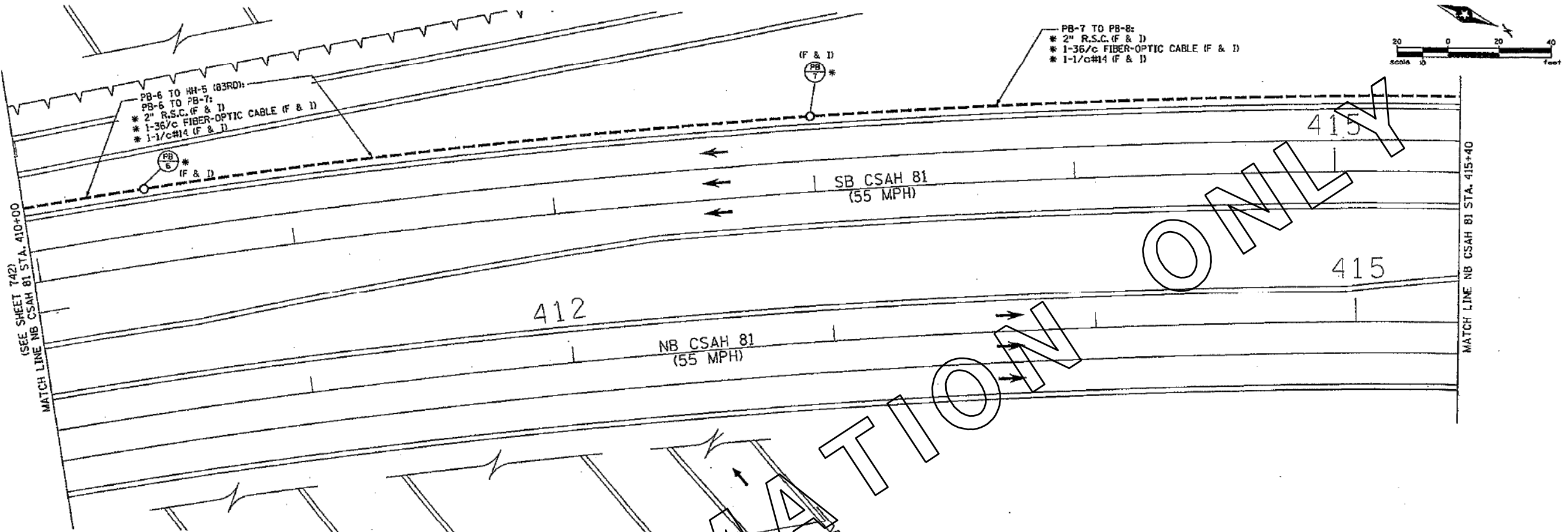
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LIC. NO. 43354 DATE 2-28-2019

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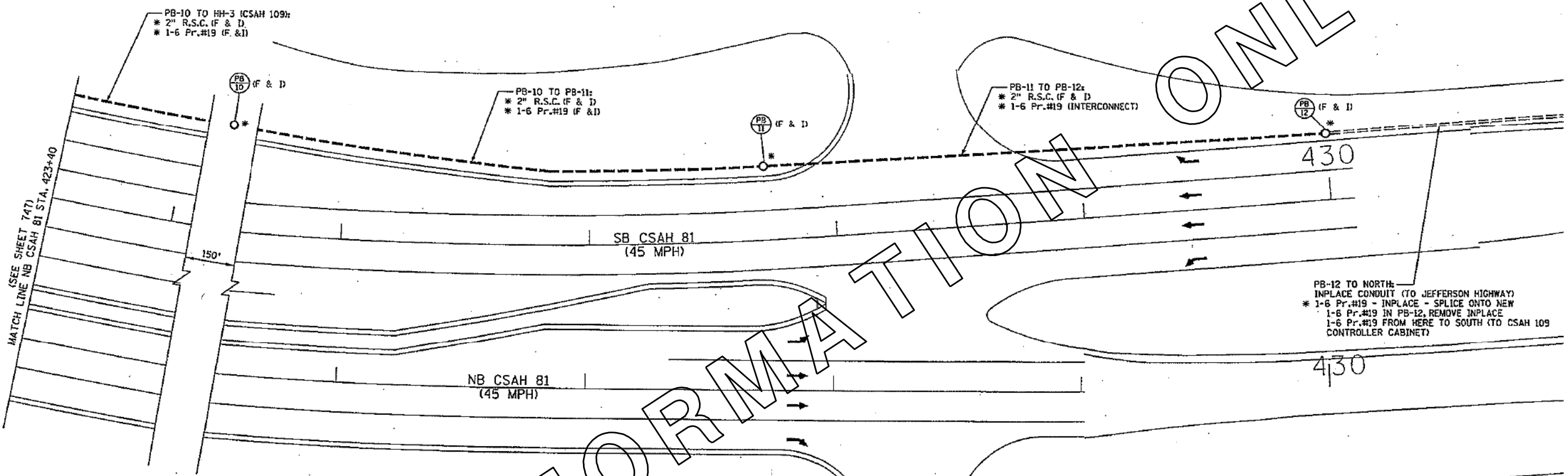


F & I PVC HANDHOLES (INTERCONNECT)	
NO.	LOCATION
PB-6	L ⁸ 410+45 - 29' LT
PB-7	L ⁸ 413+00 - 29' LT
PB-8	L ⁸ 415+55 - 29' LT
PB-9	L ⁸ 418+10 - 29' LT

- NOTES:
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002). THIS IS REQUIRED BY MINNESOTA STATUTE 21060.
 - UNLESS NOTED AS INPLACE, ALL INTERCONNECT SYSTEMS SHALL BE FURNISHED AND INSTALLED.
 - F & I = INTERCONNECT ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER INTERCONNECT PAY ITEMS.

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		H:\HECO\T43116670\CAD\MS\plans\Signal\cd116670_F10007_5.dgn		



MATCH LINE NB CSAH 81 STA. 423+40
(SEE SHEET 747)

PB-10 TO HH-3 (CSAH 109):
* 2" R.S.C. (F & D)
* 1-6 Pr.#19 (F & I)

PB-10 TO PB-11:
* 2" R.S.C. (F & D)
* 1-6 Pr.#19 (F & I)

PB-11 TO PB-12:
* 2" R.S.C. (F & D)
* 1-6 Pr.#19 (INTERCONNECT)

PB-12 TO NORTH:
INPLACE CONDUIT (TO JEFFERSON HIGHWAY)
* 1-6 Pr.#19 - INPLACE - SPLICE ONTO NEW
1-6 Pr.#19 IN PB-12, REMOVE INPLACE
1-6 Pr.#19 FROM HERE TO SOUTH (TO CSAH 109
CONTROLLER CABINET)

F & I PVC HANDHOLES (INTERCONNECT)	
NO.	LOCATION
PB-10	L ⁴²⁵ +15 (3' BEHIND CURB)
PB-11	L ⁴²⁷ +70 - 30' LT
PB-12	L ⁴³⁰ +00 - 27' LT

NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002). THIS IS REQUIRED BY MINNESOTA STATUTE 2106C.
- 2) UNLESS NOTED AS INPLACE, ALL INTERCONNECT SYSTEMS SHALL BE FURNISHED AND INSTALLED.
- 3) (F & I) = INTERCONNECT ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER INTERCONNECT PAY ITEMS.
- 4) * = ITEMS INCLUDED UNDER INTERCONNECT PAY ITEMS.
- 5) INPLACE INTERCONNECT CABLE REMOVAL AND INTERCONNECT CABLE SPLICE WORK

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Bryan Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: _____

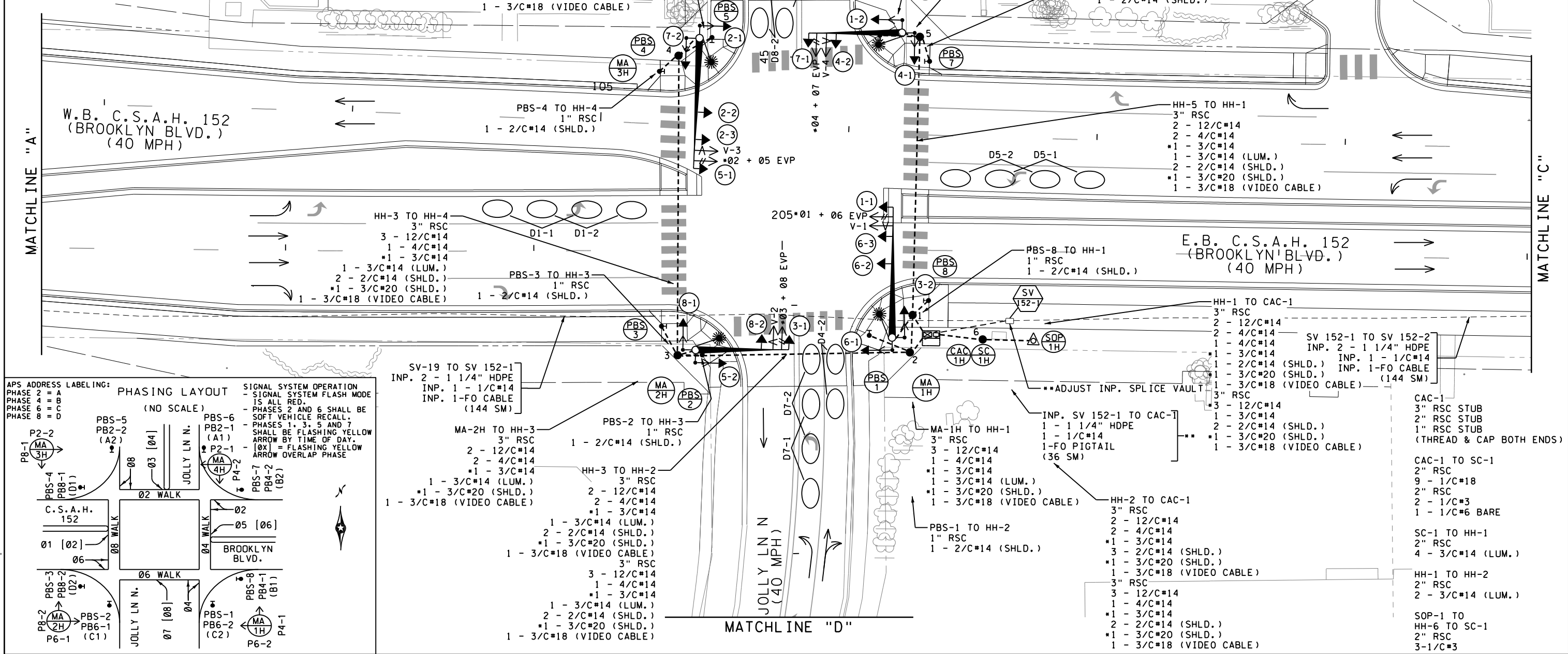
FOR INFORMATION ONLY - SIGNAL SYSTEM "G"
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS88
SS126

DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-1	(1)	20', 50'
D1-2	V-1	(1)	5', 35'
D2-1, D2-2	V-3	(1)	250'
D3-1	V-2	(1)	20', 50'
D3-2	V-2	(1)	5', 20'
D4-1	V-4	(3)	250'
D4-2	V-4	(1)	5', 20'
D5-1	V-3	(1)	20', 50'
D5-2	V-3	(1)	5', 35'
D6-1, D6-2	V-1	(1)	250'
D7-1	V-4	(1)	20', 50'
D7-2	V-4	(1)	5', 35'
D8-1	V-2	(3)	120'
D8-2	V-2	(1)	5', 20'

NOTES:
1) SEE SHEET SS90 FOR NOTES.

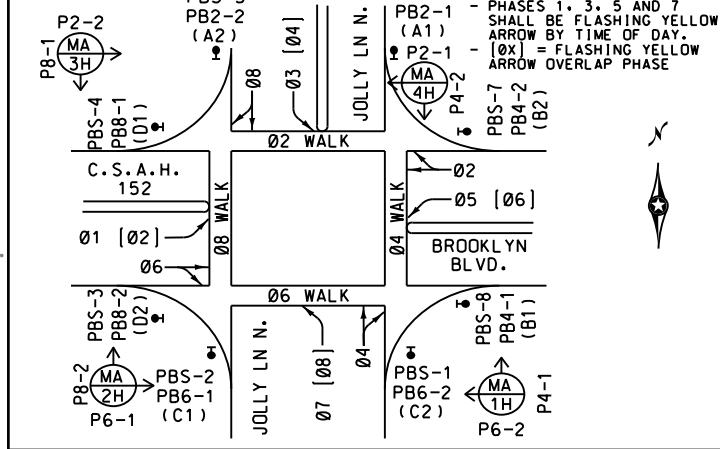
FUNCTION NOTES:
(1) CALL & EXTEND
(3) EXTEND ONLY



APS ADDRESS LABELING:
PHASE 2 = A
PHASE 4 = B
PHASE 6 = C
PHASE 8 = D

PHASING LAYOUT (NO SCALE)

SIGNAL SYSTEM OPERATION - SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 SHALL BE SOFT VEHICLE RECALL.
- PHASES 1, 3, 5 AND 7 SHALL BE FLASHING YELLOW ARROW BY TIME OF DAY.
- [ØX] = FLASHING YELLOW ARROW OVERLAP PHASE



SV-19 TO SV 152-1
INP. 2 - 1 1/4" HDPE
INP. 1 - 1/C*14
INP. 1-FO CABLE (144 SM)

MA-2H TO HH-3
3" RSC
2 - 12/C*14
2 - 4/C*14
*1 - 3/C*14 (LUM.)
*1 - 3/C*20 (SHLD.)
1 - 3/C*18 (VIDEO CABLE)

HH-3 TO HH-2
3" RSC
2 - 12/C*14
2 - 4/C*14
*1 - 3/C*14 (LUM.)
*1 - 3/C*20 (SHLD.)
1 - 3/C*18 (VIDEO CABLE)

SV 152-1 TO SV 152-2
INP. 2 - 1 1/4" HDPE
INP. 1 - 1/C*14
1-FO PIGTAIL (36 SM)

**ADJUST INP. SPLICE VAULT

INP. SV 152-1 TO CAC-1
1 - 1 1/4" HDPE
1 - 1/C*14
1-FO PIGTAIL (36 SM)

HH-2 TO CAC-1
3" RSC
2 - 12/C*14
2 - 4/C*14
*1 - 3/C*14 (LUM.)
*1 - 3/C*20 (SHLD.)
1 - 3/C*18 (VIDEO CABLE)

HH-1 TO HH-2
2" RSC
2 - 3/C*14 (LUM.)

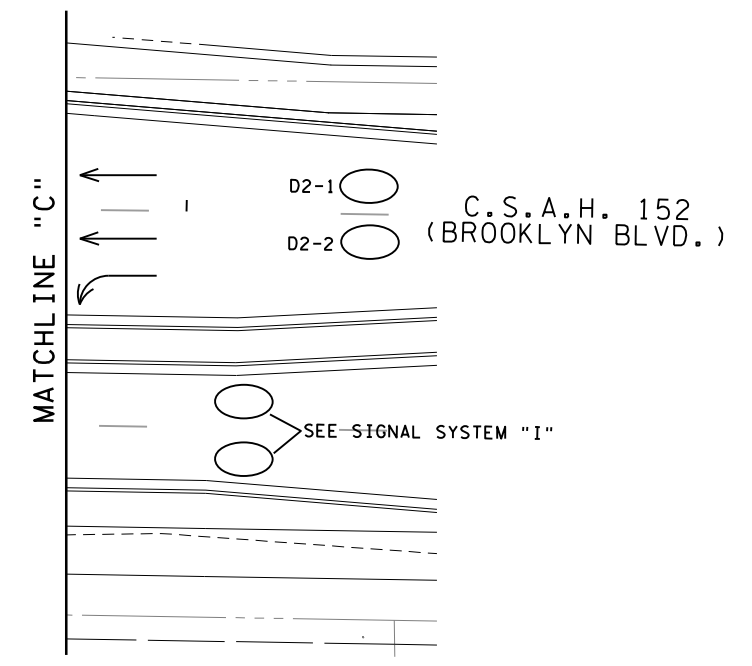
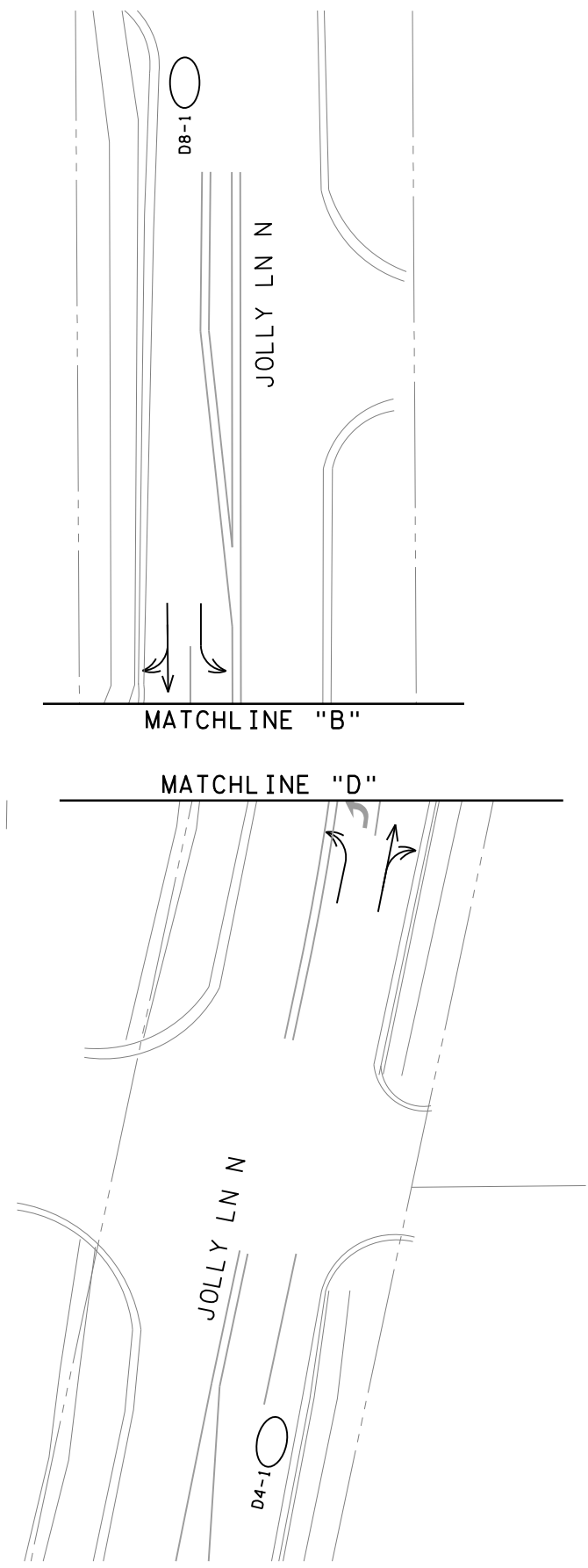
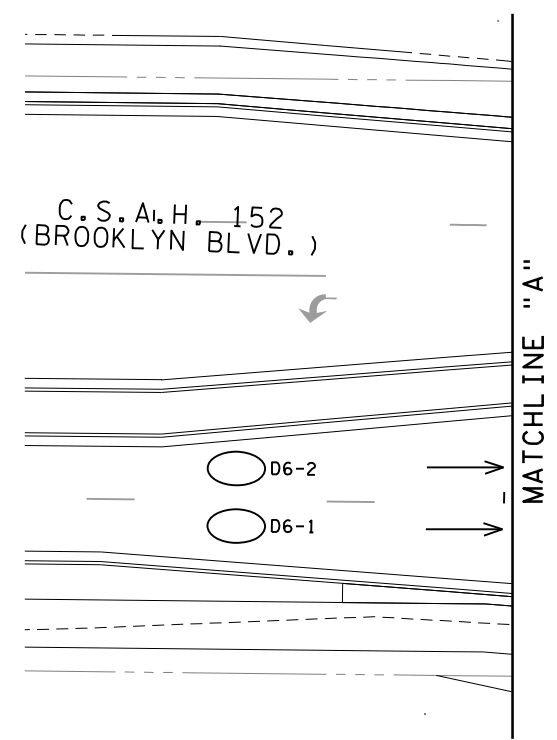
SOP-1 TO HH-6 TO SC-1
2" RSC
3-1/C*3

CAC-1
3" RSC STUB
2" RSC STUB
1" RSC STUB (THREAD & CAP BOTH ENDS)

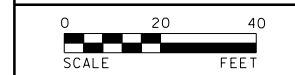
CAC-1 TO SC-1
2" RSC
9 - 1/C*18
2" RSC
2 - 1/C*3
1 - 1/C*6 BARE

DESIGN BY: MSL CAD BY: KME CHECKED BY: BTN LAST REVISION:	INTERSECTION LAYOUT (SYSTEM "H") - JOLLY LN.		SHEET SS89 SS126
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035, S.P. 110-020-040		
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	BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019		

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BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

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SIGNAL MATCHLINE LAYOUT (SYSTEM "H") - JOLLY LN.

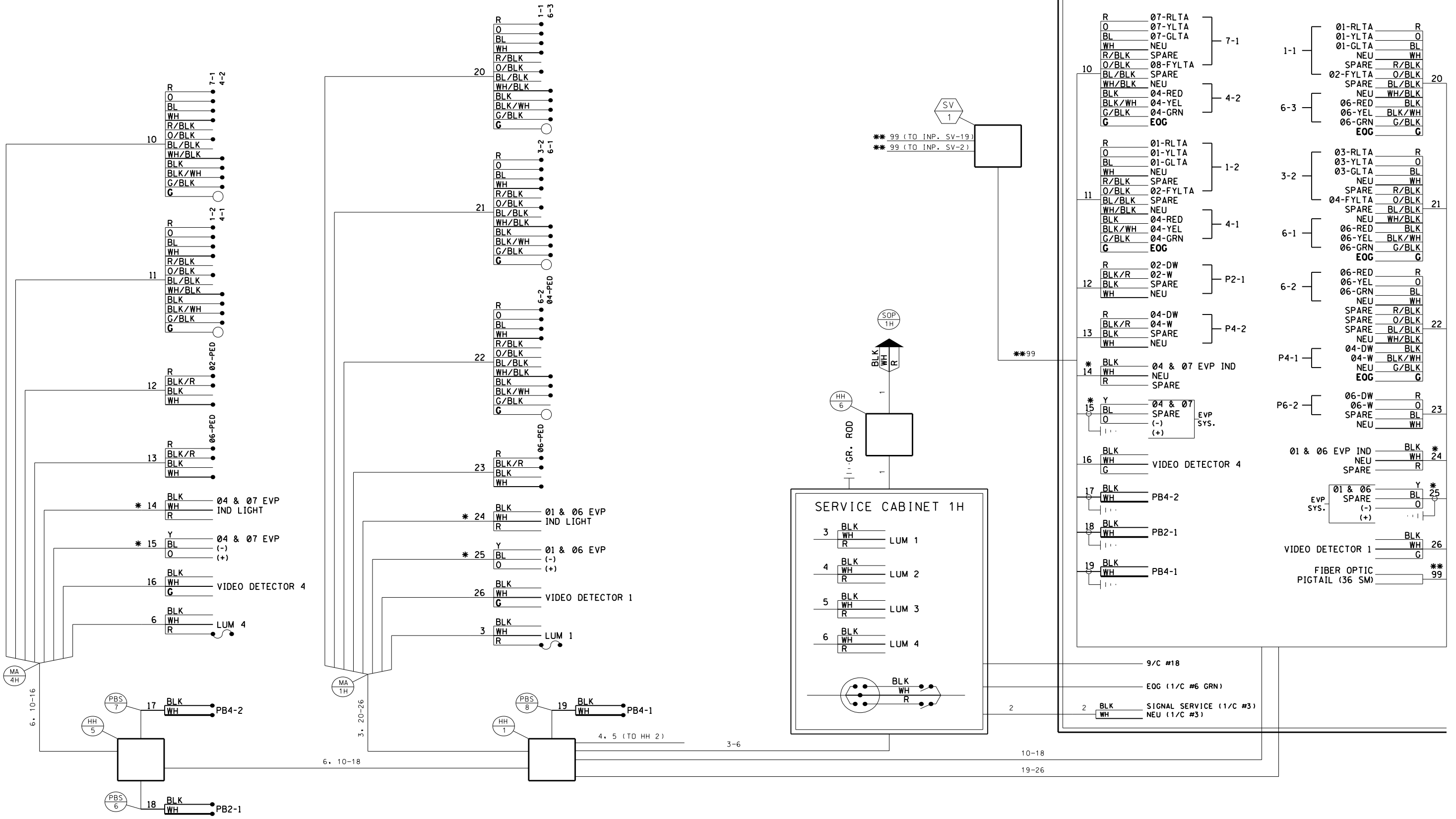
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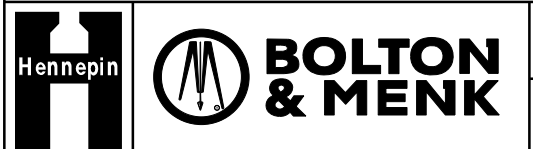
SS91
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NOTES:

- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.



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SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "H")

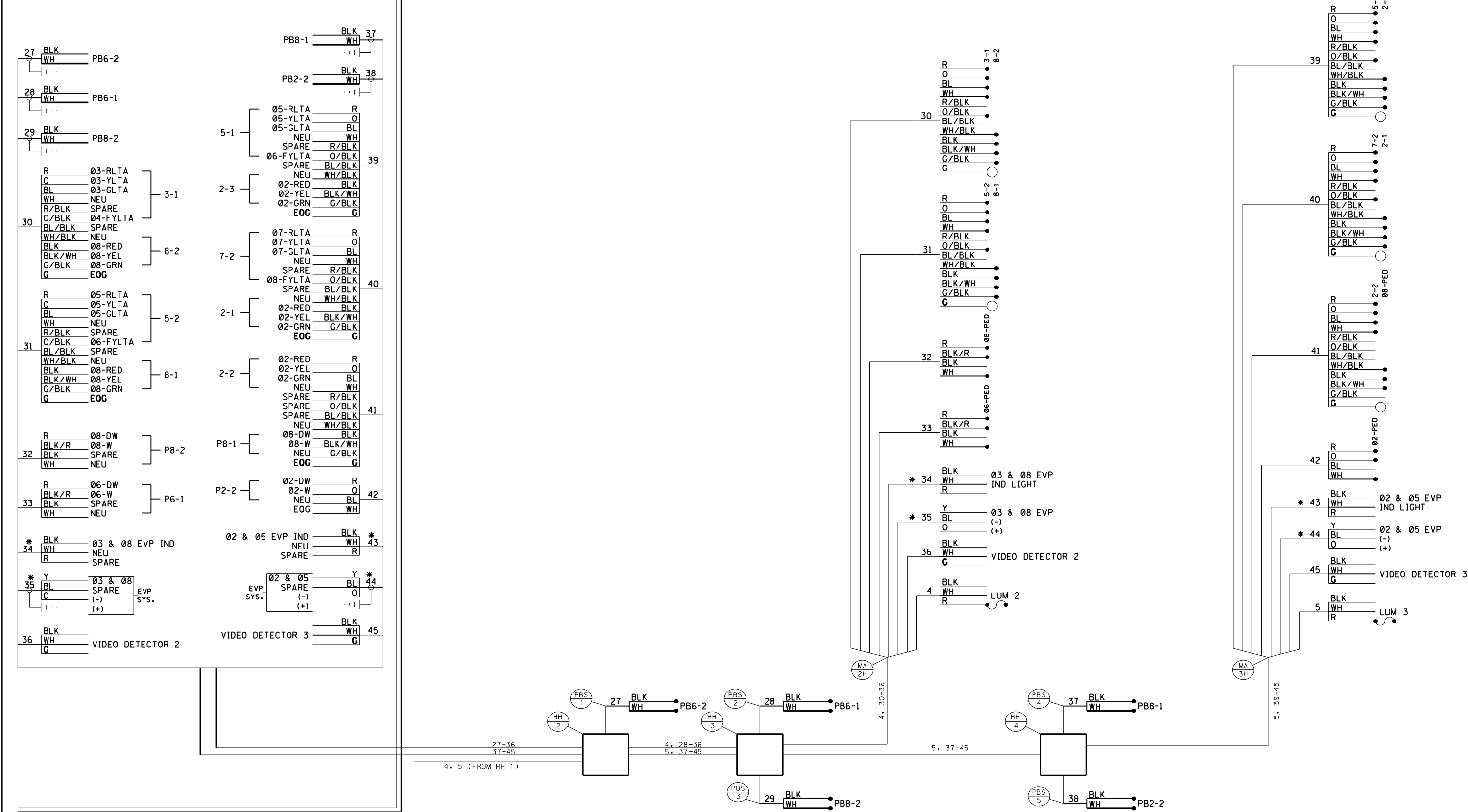
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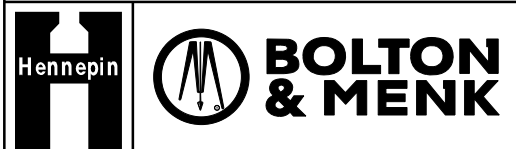
NOTES:

- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.

CONTROLLER CABINET 1H



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SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "H")

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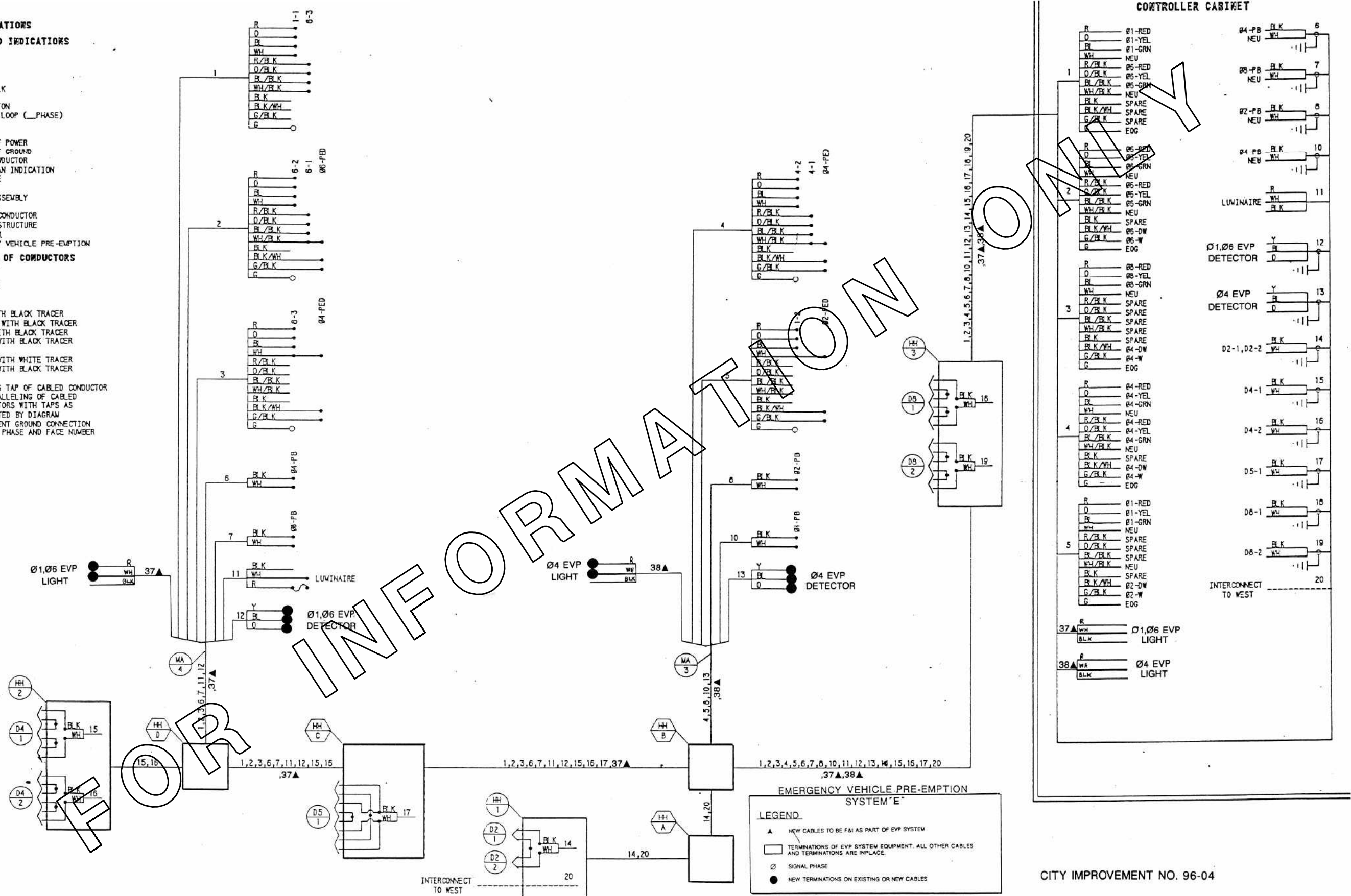
ABBREVIATIONS

EQUIPMENT AND INDICATIONS

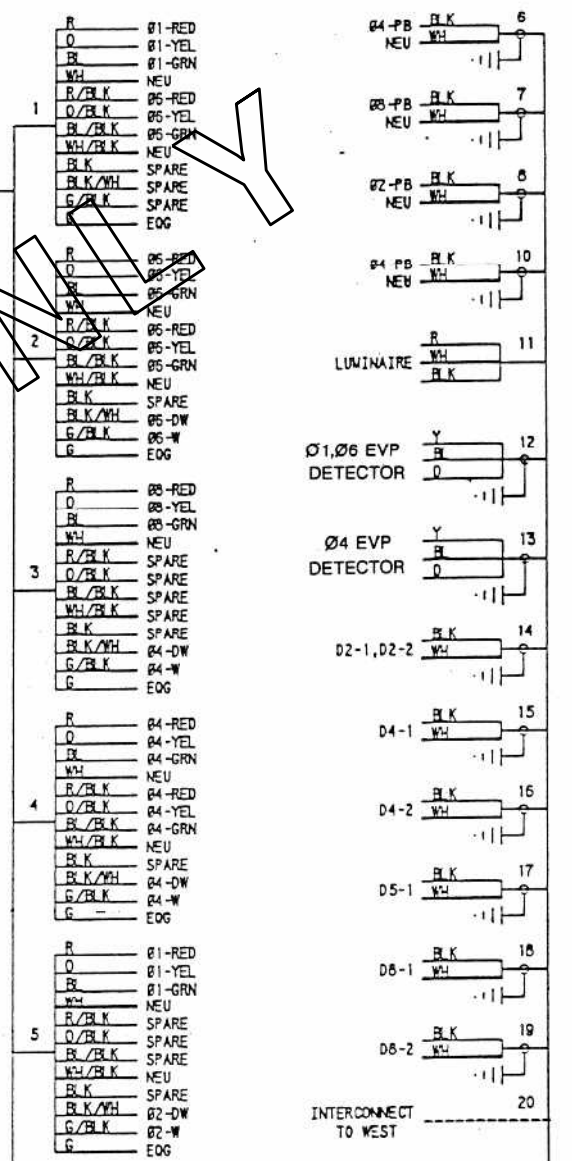
- RED - RED
- YEL - YELLOW
- GRN - GREEN
- W - WALK
- DW - DON'T WALK
- NEU - NEUTRAL
- PB - PUSH BUTTON
- D - DETECTOR LOOP (PHASE)
- HH - HANDHOLE
- MA - MAST ARM
- SOP - SOURCE OF POWER
- EOG - EQUIPMENT GROUND
- SPARE - SPARE CONDUCTOR
- PED - PEDESTRIAN INDICATION
- LUM - LUMINAIRE
- Ø - PHASE
- SA - SIGNAL ASSEMBLY
- PB - PULL BOX
- INPLACE CONDUCTOR
- - - INPLACE STRUCTURE
- IND - INDICATOR
- EVP - EMERGENCY VEHICLE PRE-EMPTION

COLOR CODING OF CONDUCTORS

- Y - YELLOW
- R - RED
- O - ORANGE
- BL - BLUE
- WH - WHITE
- R/BLK - RED WITH BLACK TRACER
- O/BLK - ORANGE WITH BLACK TRACER
- BL/BLK - BLUE WITH BLACK TRACER
- WH/BLK - WHITE WITH BLACK TRACER
- BLK - BLACK
- BLK/WH - BLACK WITH WHITE TRACER
- G/BLK - GREEN WITH BLACK TRACER
- G - GREEN
- - DENOTES TAP OF CABLED CONDUCTOR OR PARALLELING OF CABLED CONDUCTORS WITH TAPS AS INDICATED BY DIAGRAM
- - EQUIPMENT GROUND CONNECTION
- 2-1 - SIGNAL PHASE AND FACE NUMBER



CONTROLLER CABINET



EMERGENCY VEHICLE PRE-EMPTION SYSTEM "E"

LEGEND

- ▲ NEW CABLES TO BE F&I AS PART OF EVP SYSTEM
- TERMINATIONS OF EVP SYSTEM EQUIPMENT. ALL OTHER CABLES AND TERMINATIONS ARE INPLACE.
- ⊙ SIGNAL PHASE
- NEW TERMINATIONS ON EXISTING OR NEW CABLES

CITY IMPROVEMENT NO. 96-04

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LIC. NO. 43354 DATE 2-28-2019

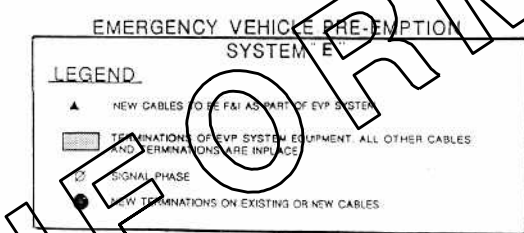
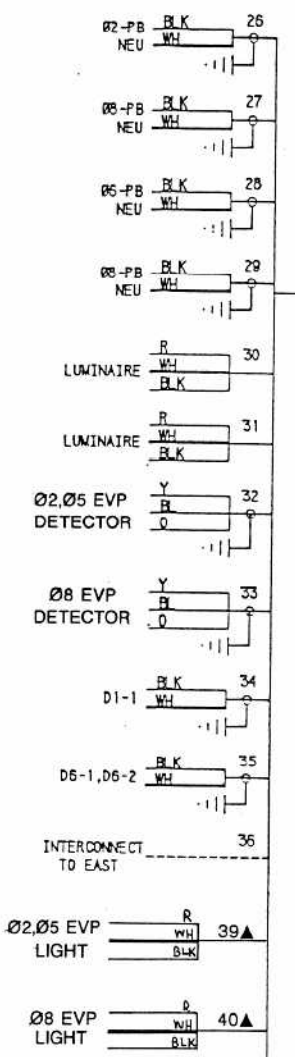
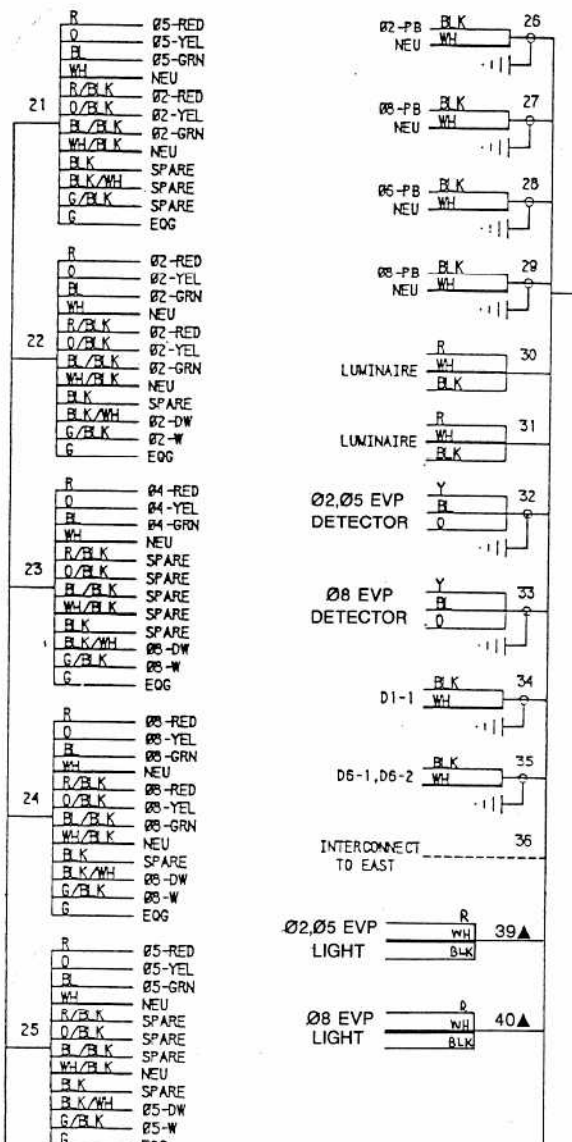
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CHECKED BY: BTN
LAST REVISION:

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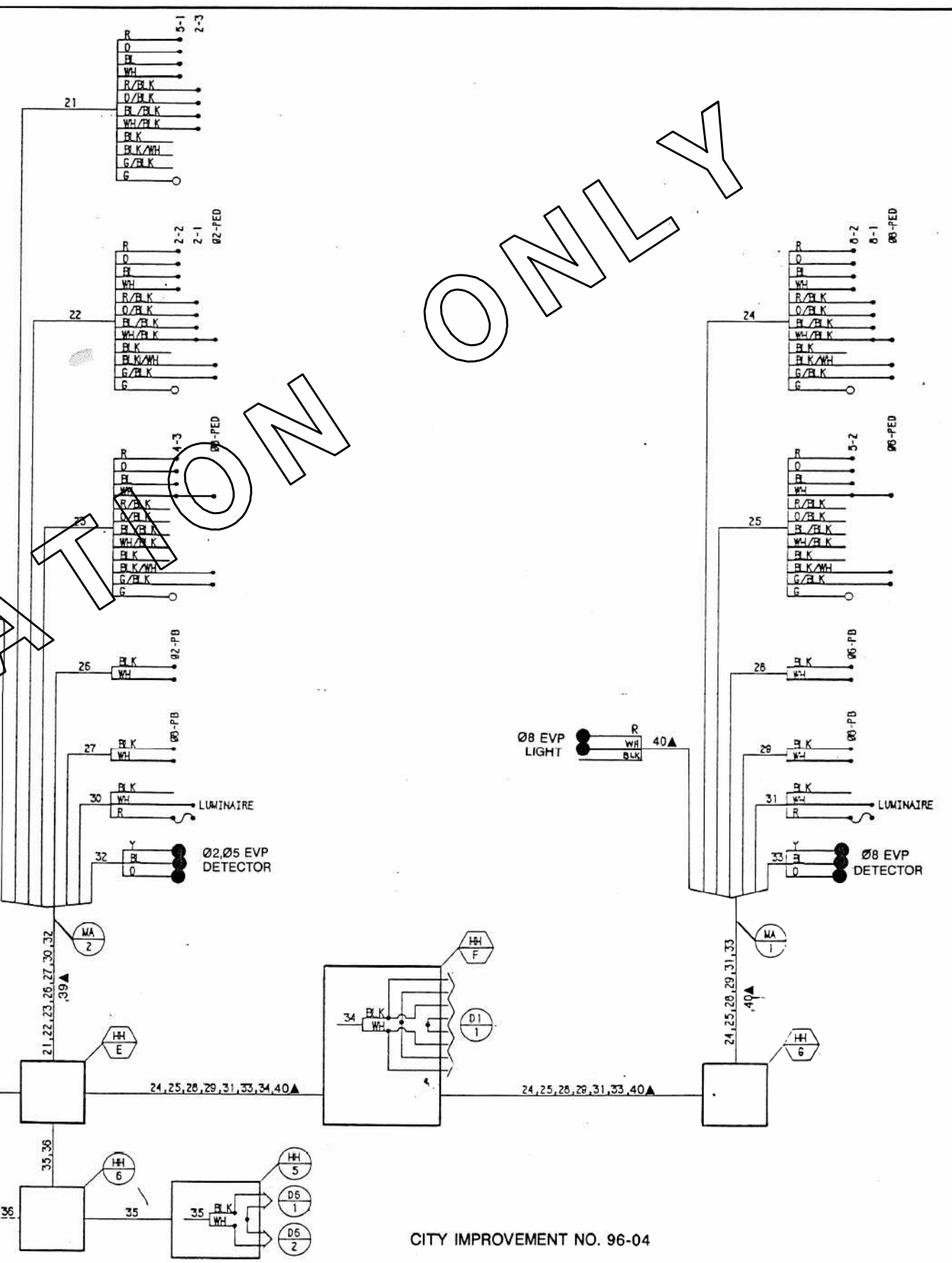
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CONTROLLER CABINET



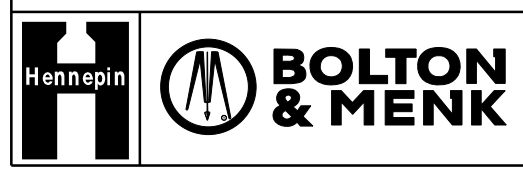
LEGEND
 ▲ NEW CABLES TO BE F&I AS PART OF EVP SYSTEM
 □ TERMINATIONS OF EVP SYSTEM EQUIPMENT. ALL OTHER CABLES AND TERMINATIONS ARE IN PLACE
 ○ SIGNAL PHASE
 ● NEW TERMINATIONS ON EXISTING OR NEW CABLES

21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40



CITY IMPROVEMENT NO. 96-04

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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.
 Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

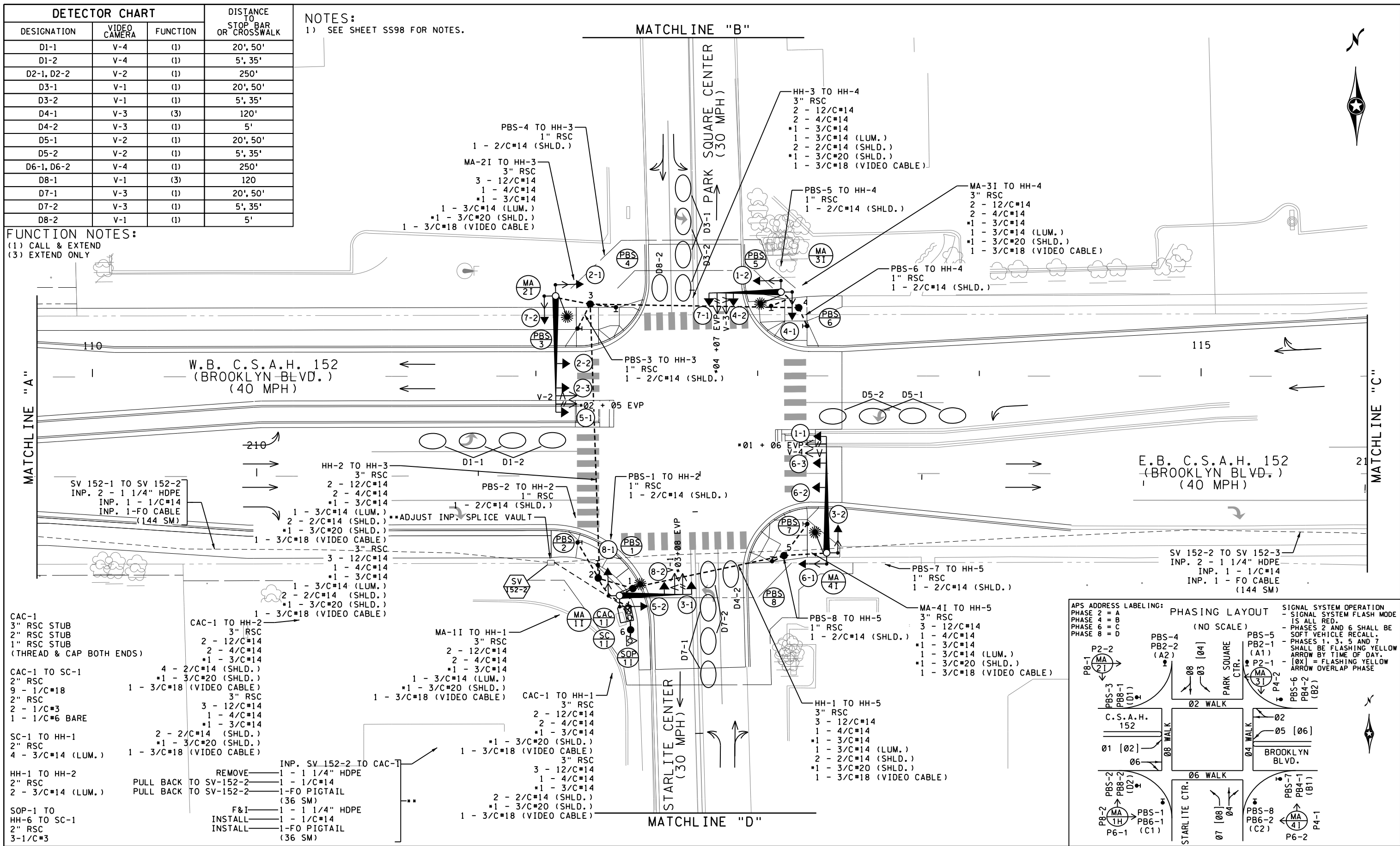
FOR INFORMATION ONLY - SIGNAL SYSTEM "H"
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS96
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DETECTOR CHART			DISTANCE TO STOP BAR OR CROSSWALK
DESIGNATION	VIDEO CAMERA	FUNCTION	
D1-1	V-4	(1)	20', 50'
D1-2	V-4	(1)	5', 35'
D2-1, D2-2	V-2	(1)	250'
D3-1	V-1	(1)	20', 50'
D3-2	V-1	(1)	5', 35'
D4-1	V-3	(3)	120'
D4-2	V-3	(1)	5'
D5-1	V-2	(1)	20', 50'
D5-2	V-2	(1)	5', 35'
D6-1, D6-2	V-4	(1)	250'
D8-1	V-1	(3)	120'
D7-1	V-3	(1)	20', 50'
D7-2	V-3	(1)	5', 35'
D8-2	V-1	(1)	5'

NOTES:
1) SEE SHEET SS98 FOR NOTES.

FUNCTION NOTES:
(1) CALL & EXTEND
(3) EXTEND ONLY



CAC-1
3" RSC STUB
2" RSC STUB
1" RSC STUB
(THREAD & CAP BOTH ENDS)

CAC-1 TO SC-1
2" RSC
9 - 1/C#18
2" RSC
2 - 1/C#3
1 - 1/C#6 BARE

SC-1 TO HH-1
2" RSC
4 - 3/C#14 (LUM.)

HH-1 TO HH-2
2" RSC
2 - 3/C#14 (LUM.)

SOP-1 TO HH-6 TO SC-1
2" RSC
3-1/C#3

REMOVE
1 - 1 1/4" HDPE
PULL BACK TO SV-152-2
1 - 1/C#14
PULL BACK TO SV-152-2
1-FO PIGTAIL
(36 SM)

F&I
1 - 1 1/4" HDPE
INSTALL
1 - 1/C#14
INSTALL
1-FO PIGTAIL
(36 SM)

CAC-1 TO HH-2
3" RSC
2 - 12/C#14
2 - 4/C#14
*1 - 3/C#14

CAC-1 TO SC-1
3" RSC
4 - 2/C#14 (SHLD.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

CAC-1 TO HH-1
3" RSC
2 - 12/C#14
2 - 4/C#14
*1 - 3/C#14 (LUM.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

HH-2 TO HH-3
3" RSC
2 - 12/C#14
2 - 4/C#14
*1 - 3/C#14
2 - 2/C#14 (SHLD.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

HH-1 TO HH-5
3" RSC
3 - 12/C#14
1 - 4/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
2 - 2/C#14 (SHLD.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

HH-3 TO HH-4
3" RSC
2 - 12/C#14
2 - 4/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
2 - 2/C#14 (SHLD.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

HH-2 TO HH-3
3" RSC
2 - 12/C#14
2 - 4/C#14
*1 - 3/C#14
2 - 2/C#14 (SHLD.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

HH-3 TO HH-4
3" RSC
2 - 12/C#14
2 - 4/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
2 - 2/C#14 (SHLD.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

HH-4 TO HH-5
3" RSC
3 - 12/C#14
1 - 4/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
2 - 2/C#14 (SHLD.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

HH-5 TO HH-6
3" RSC
3 - 12/C#14
1 - 4/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
2 - 2/C#14 (SHLD.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

MA-1I TO HH-1
3" RSC
2 - 12/C#14
2 - 4/C#14
*1 - 3/C#14 (LUM.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

MA-2I TO HH-3
3" RSC
3 - 12/C#14
1 - 4/C#14
*1 - 3/C#14
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

MA-3I TO HH-4
3" RSC
2 - 12/C#14
2 - 4/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

MA-4I TO HH-5
3" RSC
3 - 12/C#14
1 - 4/C#14
*1 - 3/C#14
1 - 3/C#14 (LUM.)
*1 - 3/C#20 (SHLD.)
1 - 3/C#18 (VIDEO CABLE)

PBS-1 TO HH-2
1" RSC
1 - 2/C#14 (SHLD.)

PBS-2 TO HH-2
1" RSC
1 - 2/C#14 (SHLD.)

PBS-3 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-4 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-5 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-6 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-7 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-8 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-1 TO HH-1
1" RSC
1 - 2/C#14 (SHLD.)

PBS-2 TO HH-2
1" RSC
1 - 2/C#14 (SHLD.)

PBS-3 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-4 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-5 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-6 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-7 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-8 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-1 TO HH-1
1" RSC
1 - 2/C#14 (SHLD.)

PBS-2 TO HH-2
1" RSC
1 - 2/C#14 (SHLD.)

PBS-3 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-4 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-5 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-6 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-7 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-8 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-1 TO HH-1
1" RSC
1 - 2/C#14 (SHLD.)

PBS-2 TO HH-2
1" RSC
1 - 2/C#14 (SHLD.)

PBS-3 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-4 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-5 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-6 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-7 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-8 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-1 TO HH-1
1" RSC
1 - 2/C#14 (SHLD.)

PBS-2 TO HH-2
1" RSC
1 - 2/C#14 (SHLD.)

PBS-3 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

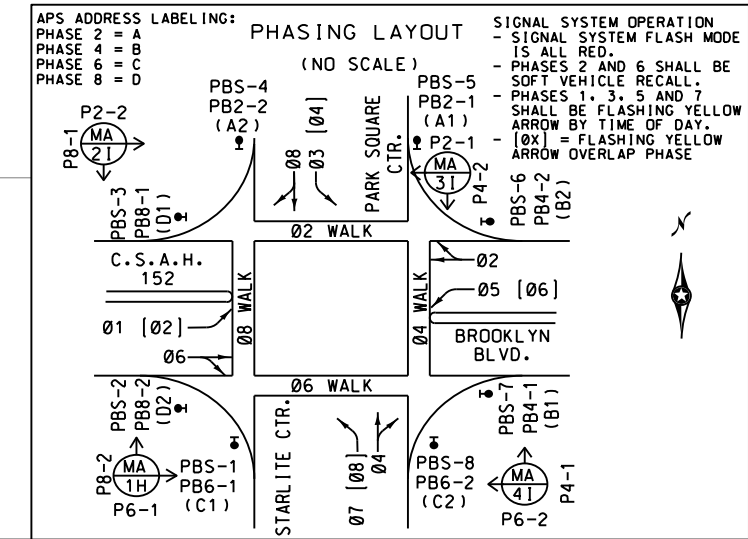
PBS-4 TO HH-3
1" RSC
1 - 2/C#14 (SHLD.)

PBS-5 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

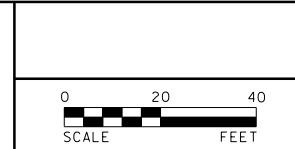
PBS-6 TO HH-4
1" RSC
1 - 2/C#14 (SHLD.)

PBS-7 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)

PBS-8 TO HH-5
1" RSC
1 - 2/C#14 (SHLD.)



Hennepin **BOLTON & MENK**



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Bryan Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

INTERSECTION LAYOUT (SYSTEM "I") - PARK SQUARE/STARLITE

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

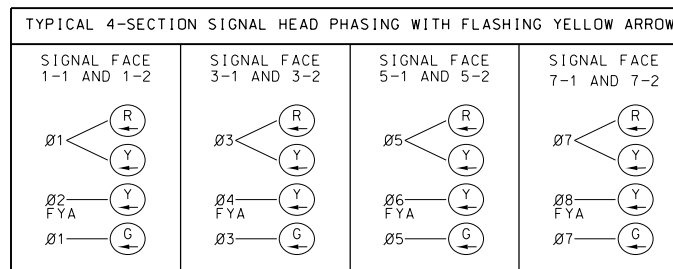
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SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION	NO.	LOCATION
HH-1	211+69.91 - 50.81' RT	HH-4	113+18.53 - 30.79' LT
HH-2	211+54.16 - 46.14' RT	HH-5	212+38.35 - 35.31' RT
HH-3	112+24.54 - 32.43' LT	HH-6	211+68.96 - 69.43' RT
CAC-1I	211+67.82 - 60.58' RT	SOP-1	BY OTHERS
SC-1I	211+68.53 - 64.05' RT		
PBS-1	211+53.96 - 40.27' RT	PBS-5	113+06.03 - 31.55' LT
PBS-2	211+44.77 - 30.07' RT	PBS-6	113+22.26 - 22.51' LT
PBS-3	112+18.81 - 21.45' LT	PBS-7	212+48.65 - 20.89' RT
PBS-4	112+36.14 - 31.00' LT	PBS-8	212+32.94 - 37.93' RT
		SV-2	INPLACE

NO.	LOCATION		MAST ARM
	FOUNDATION (1)	AIM ARM TO	
MA-1I	211+63.85 - 54.01' RT	211+95.57 - 53.27' RT	30'
MA-2I	112+08.94 - 36.16' LT	112+08.94 - 15.34' RT	50'
MA-3I	113+10.42 - 37.85' LT	112+79.02 - 37.40' LT	30'
MA-4I	212+57.61 - 33.80' RT	212+56.70 - 17.69' RT	50'

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION.
ALL STATIONS AND OFFSETS ARE REFERENCED FROM C.S.A.H. 130/152 ALIGNMENTS.



SIGNAL INDICATIONS AND BRACKETING									
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS				PED	PLUMBIZER MOUNTING ANGLE. SEE DETAIL SHEET SS29.
				RED	YEL	FYEL	GRN		
MA-1I	3-1	MAST ARM (END)	3	←	←		←		STRAIGHT MOUNT PLUMBIZER
	4		4						
	8-2	MAST ARM (MID)	8	•	•		•		STRAIGHT MOUNT PLUMBIZER
	8-1	POLE MOUNT	8	•	•		•		180° ANGLE MOUNT PLUMBIZER
	P8-2	POLE MOUNT	8					***	180° ANGLE MOUNT PLUMBIZER
	5-2	POLE MOUNT	5	←	←		←		90° ANGLE MOUNT PLUMBIZER
MA-2I	P6-1	POLE MOUNT	6					***	90° ANGLE MOUNT PLUMBIZER
	5-1	MAST ARM (END)	5	←	←		←		STRAIGHT MOUNT PLUMBIZER
	6		6						
	2-3	MAST ARM (MID)	2	•	•		•		STRAIGHT MOUNT PLUMBIZER
	2-2	MAST ARM (MID)	2	•	•		•		STRAIGHT MOUNT PLUMBIZER
	2-1	POLE MOUNT	2	•	•		•		180° ANGLE MOUNT PLUMBIZER
MA-3I	P2-2	POLE MOUNT	2					***	180° ANGLE MOUNT PLUMBIZER
	7-2	POLE MOUNT	7	←	←		←		90° ANGLE MOUNT PLUMBIZER
	8		8						
	P8-1	POLE MOUNT	8					***	90° ANGLE MOUNT PLUMBIZER
	7-1	MAST ARM (END)	7	←	←		←		STRAIGHT MOUNT PLUMBIZER
	8		8						
MA-4I	4-2	MAST ARM (MID)	4	•	•		•		STRAIGHT MOUNT PLUMBIZER
	4-1	POLE MOUNT	4	•	•		•		180° ANGLE MOUNT PLUMBIZER
	P4-2	POLE MOUNT	4					***	180° ANGLE MOUNT PLUMBIZER
	1-2	POLE MOUNT	1	←	←		←		90° ANGLE MOUNT PLUMBIZER
	2		2						
	P2-1	POLE MOUNT	2					***	90° ANGLE MOUNT PLUMBIZER
MA-1I	1-1	MAST ARM (END)	1	←	←		←		STRAIGHT MOUNT PLUMBIZER
	2		2						
	6-3	MAST ARM (MID)	6	•	•		•		STRAIGHT MOUNT PLUMBIZER
	6-2	MAST ARM (MID)	6	•	•		•		STRAIGHT MOUNT PLUMBIZER
	6-1	POLE MOUNT	6	•	•		•		180° ANGLE MOUNT PLUMBIZER
	P6-2	POLE MOUNT	6					***	180° ANGLE MOUNT PLUMBIZER
MA-4I	3-2	POLE MOUNT	3	←	←		←		90° ANGLE MOUNT PLUMBIZER
	4		4						
	P4-1	POLE MOUNT	4					***	90° ANGLE MOUNT PLUMBIZER

*** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

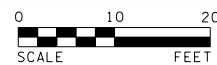
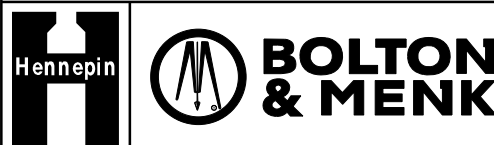
NOTES:

- LED LUMINAIRES SHALL BE INSTALLED ON LUMINAIRE SHAFT EXTENSIONS ON MAST ARMS 1, 2, 3, AND 4.
- ALL HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
- THE CONTRACTOR SHALL INSTALL AND PROGRAM ALL APS EQUIPMENT. ALL PEDESTRIAN PUSHBUTTONS SHALL BE APS PUSHBUTTONS WITH SIGNS (SEE SPECIAL PROVISIONS). ONE APS PUSHBUTTON AND SIGN (LT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-1, 3, 5, AND 7. ONE APS PUSHBUTTON AND SIGN (RT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-2, 4, 6, AND 8.
- INTERNATIONAL SYMBOLS SHALL BE USED FOR ALL PEDESTRIAN INDICATIONS (HAND AND WALKING PERSON). ALL PEDESTRIAN INDICATIONS SHALL HAVE COUNTDOWN TIMERS (SEE SPECIAL PROVISIONS).
- ALL VEHICULAR AND PEDESTRIAN INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
- THE ENGINEER SHALL LOCATE ALL POLES AND HANDHOLES PRIOR TO ANY CONSTRUCTION.
- ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
- THE CONTRACTOR SHALL INSTALL COUNTY FURNISHED VIDEO CAMERAS. VIDEO CAMERAS 1, 2, 3, AND 4 SHALL BE MOUNTED ON MAST ARMS (SEE SPECIAL PROVISIONS).
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO ITS ORIGINAL CONDITION OR BETTER (SEE SPECIAL PROVISIONS).
- SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM, VIDEO DETECTION SYSTEM, BATTERY BACK-UP SIGNAL SERVICE CABINET, ACCESSIBLE PEDESTRIAN SIGNAL (APS), AND COUNTY FURNISHED ITEMS.
- COMMON BACKFILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER INCLUDED AS INCIDENTAL TO THE SIGNAL SYSTEM PAY ITEM.
- OVERHEAD MAST ARM MOUNTED TYPE "D" SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEM (SEE SPECIAL PROVISIONS).
- ALL ITEMS SHOWN ARE FURNISH AND INSTALL UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL FURNISH AND INSTALL 4 - R10-X12 (36"X42") SIGNS ADJACENT TO SIGNAL INDICATION 1-1, 3-1, 5-1 AND 7-1.
- THE REMOVAL AND DISPOSAL OF THE EXISTING SIGNAL, INCLUDING ALL MATERIALS AND CONDUIT UNDER ROADWAYS, SHALL BE INCLUDED IN THE REMOVE SIGNAL SYSTEM "I" PAY ITEM. REMOVAL OF EXISTING CONDUIT MAY TAKE PLACE WHERE THE MAINTENANCE OF EXISTING SIGNAL OPERATIONS ARE NO LONGER REQUIRED PER THE STAGING AND TRAFFIC CONTROL PLAN OR AT THE DISCRETION OF THE ENGINEER.
- * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.
- ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.

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mikela
2/28/2019



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Bryan J. Nemeth
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LIC. NO. 43354 DATE 2-28-2019

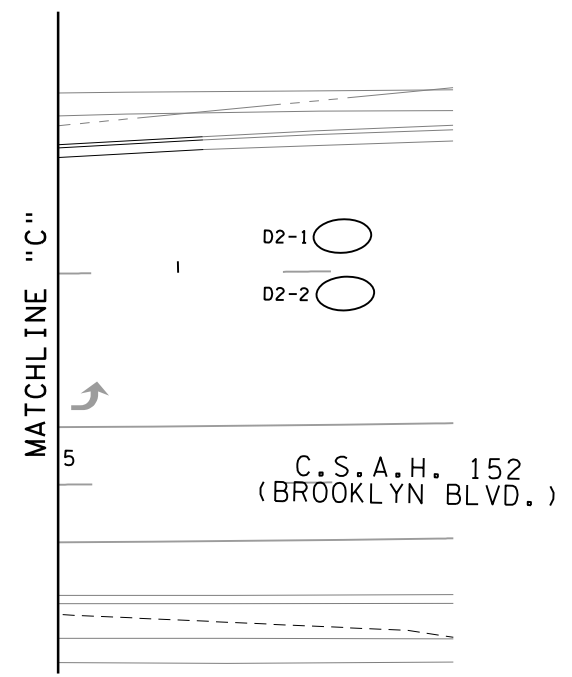
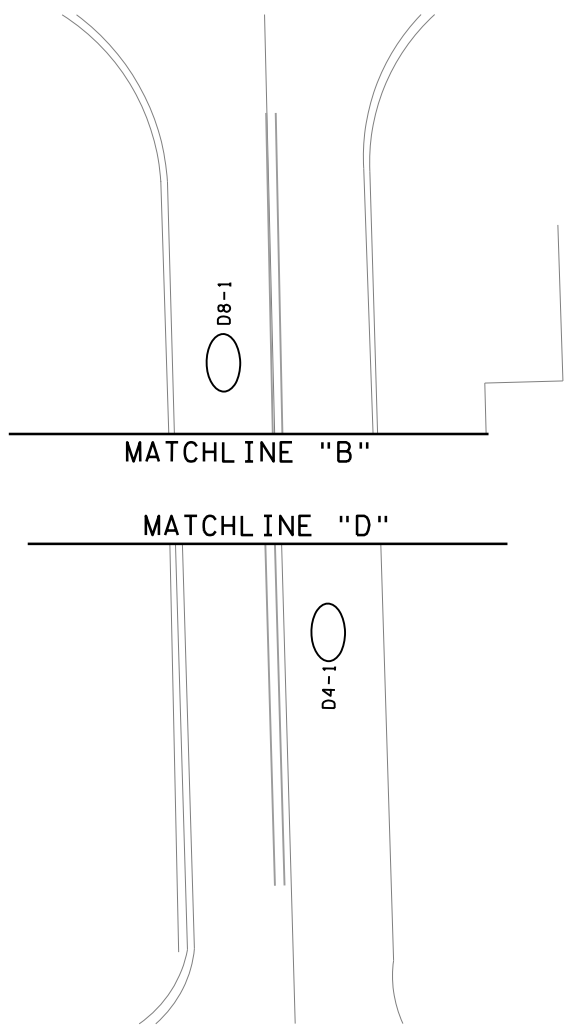
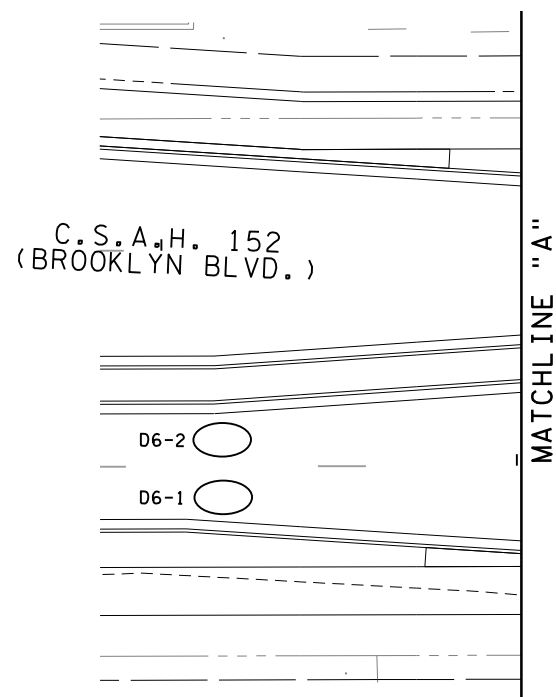
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: _____

SIGNAL TABULATIONS AND NOTES (SYSTEM "I") - PARK SQUARE/STARLITE

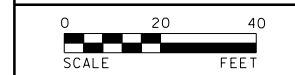
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S.P. 027-681-035, S.P. 110-020-040

SHEET

SS98
SS126



mikela 2/28/2019 pdf-B and W.pltcfq 10:44:57 AM bmi,tbl



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION: _____

SIGNAL MATCHLINE LAYOUT (SYSTEM "I") - PARK SQUARE/STARLITE

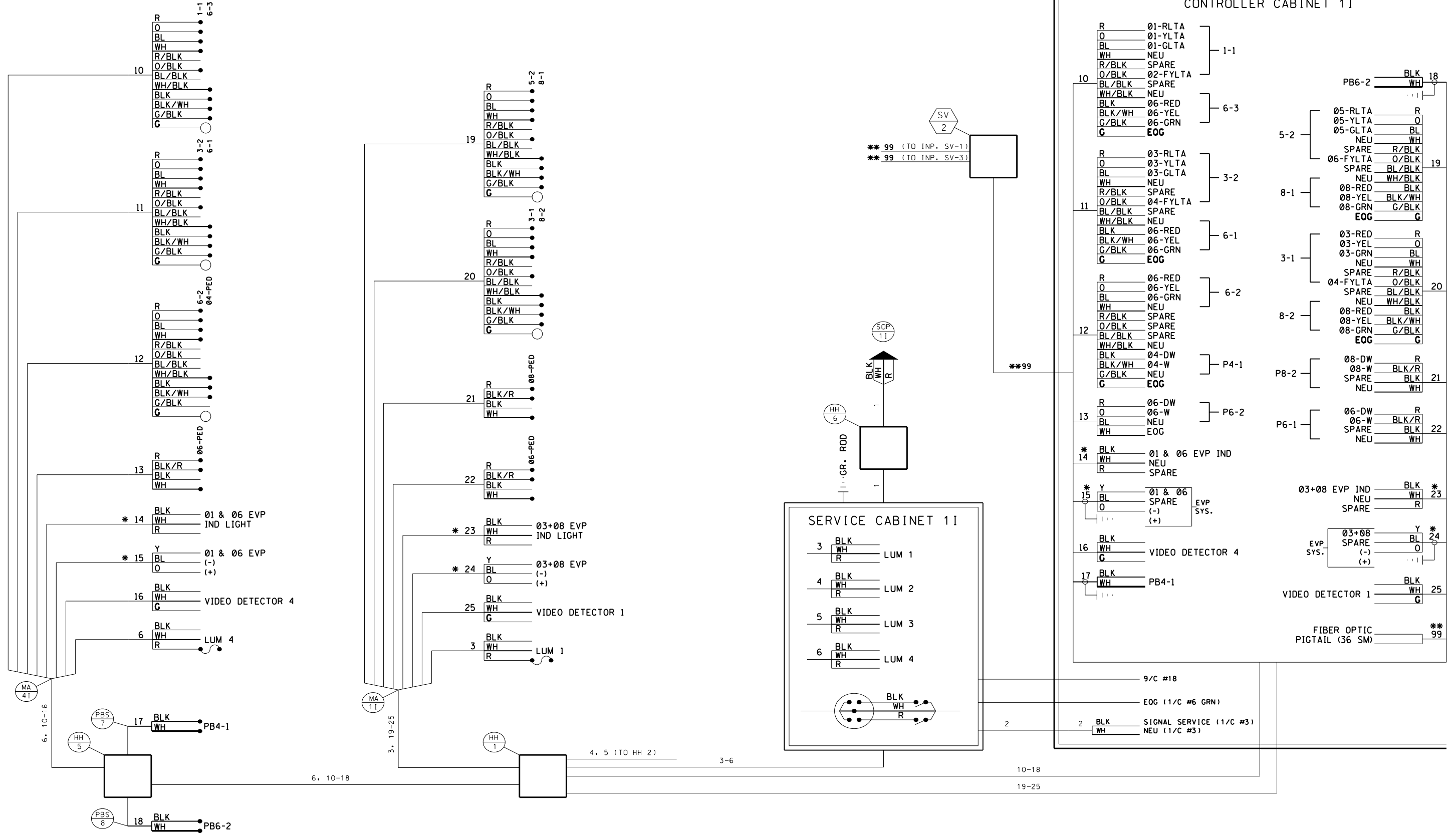
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 S.P. 027-681-035, S.P. 110-020-040

SHEET

SS99
 SS126

NOTES:

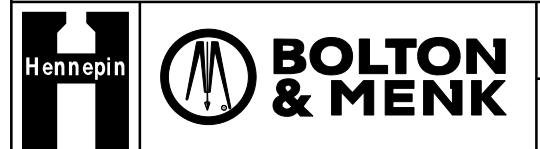
- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.



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mikela
2/28/2019



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 BRYAN J. NEMETH
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DESIGN BY: MSL
CAD BY: KME
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LAST REVISION:

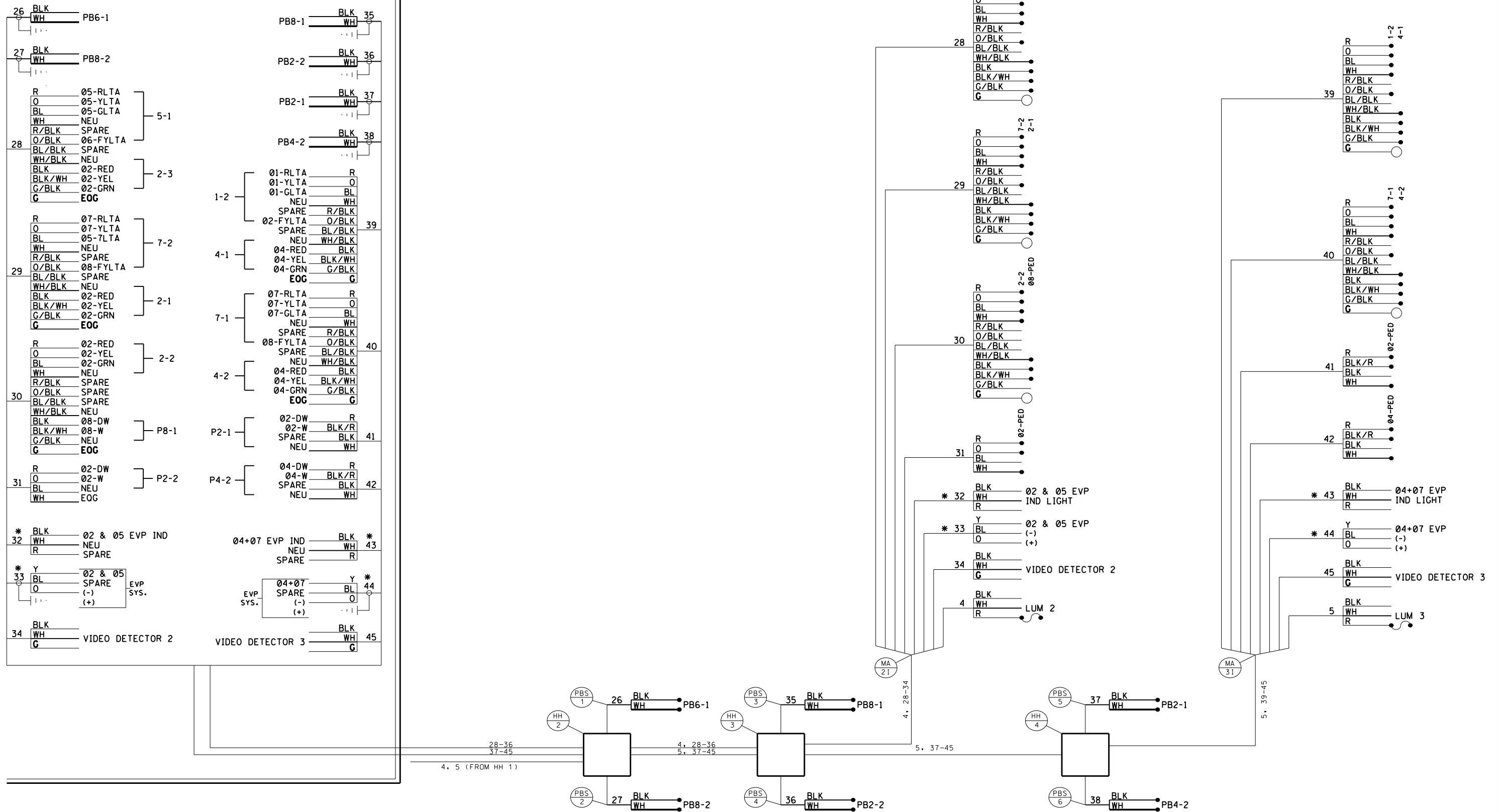
SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "I")
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS100
 SS126

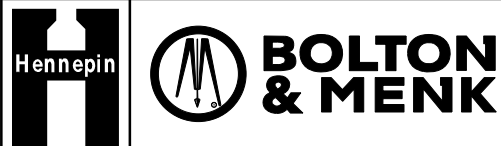
NOTES:

- 1) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- 2) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.

CONTROLLER CABINET 11



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mikel
2/28/2019



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.
 Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "I")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

SS101
 SS126

SIGNAL STRUCTURE AND COMPONENT LOCATION

NO.	LOCATION	NO.	LOCATION	NO.	LOCATION ***	LOOP SIZE**	NO. OF TURNS*	DETECTOR FUNCTION
HH-1	LA 8 - 50 - 56' RT.	CAC-1	LA 8 - 77 - 95' RT.	D1-1	LA 8 - 72 - 4' RT.	4(6'X5')	4	1
HH-2	LA 8 - 50 - 6' LT.	SP-1	N.W. END OF CAC-1 FND'T	D2-1	LA 12 - 54 - 16' LT.	6'X5'	3	1
HH-3	LA 8 - 50 - 6' LT.			D2-2	LA 12 - 55 - 28' LT.	6'X5'	3	1
HH-4	LA 8 - 73 - 86' RT.	SOP-1	LA 7 - 66 - 61' RT.	D2-3	LA 12 - 55 - 40' LT.	6'X5'	4	1
HH-5	LA 8 - 79 - 81' RT.			D2-4	LA 9 - 54 - 16' LT.	6'X5'	3	2
HH-6	LA 8 - 85 - 73' LT.			D2-5	LA 9 - 54 - 28' LT.	6'X5'	3	1
HH-7	LA 9 - 40 - 74' LT.			D2-6	LA 9 - 54 - 40' LT.	6'X5'	4	2
HH-8	LA 9 - 41 - 80' RT.			D4-1	LA 9 - 20 - 83' RT.	5'X15'	2	3
HH-9	LA 9 - 58 - 56' LT.			D4-2	LA 9 - 19 - 63' RT.	5'X15'	2	3
HH-10	LA 9 - 76 - 6' RT.	HH-A	USE IMPLACE	D4-3	LA 9 - 31 - 83' RT.	5'X15'	2	3
HH-11	LA 9 - 76 - 6' RT.	HH-B	USE IMPLACE	D4-4	LA 9 - 30 - 63' RT.	5'X15'	2	3
HH-12	LA 12 - 51 - 52' LT.	HH-C	USE IMPLACE	D5-1	LA 9 - 54 - 4' LT.	4(6'X5')	4	1
				D6-1	LA 5 - 73 - 16' RT.	6'X6'	3	1
				D6-2	LA 5 - 72 - 28' RT.	6'X6'	3	1
				D6-3	LA 8 - 72 - 16' RT.	6'X6'	3	2
				D6-4	LA 8 - 72 - 28' RT.	6'X6'	3	2
				D8-1	LA 9 - 07 - 83' LT.	5'X15'	2	3
				D8-2	LA 9 - 08 - 63' LT.	5'X15'	2	3
				D8-3	LA 8 - 96 - 83' LT.	5'X15'	2	3
				D8-4	LA 8 - 97 - 63' LT.	5'X15'	2	3

NO.	FOUNDATION	LOCATION	AIM ARM TO	M.A. LENGTH
MA-1	LA 9 - 49 - 60' LT.	LA 9 - 19 - 60' LT.		30'
MA-2	LA 9 - 64 - 53' RT.	LA 9 - 64 - 6' RT.		45'
MA-3	LA 8 - 67 - 73' RT.	LA 9 - 07 - 72' RT.		40'
MA-4	LA 8 - 62 - 52' LT.	LA 8 - 62 - 6' LT.		45'

* NUMBER OF TURNS IN THE LOOP UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER
 ** SEE STANDARD PLATE 81300 FOR 4(6'X5') LOOP DETECTORS
 *** CENTER OF LOOP DETECTOR

(1) CALL AND EXTEND DETECTOR AMPLIFIER
 (2) CALL ONLY DETECTOR AMPLIFIER
 (3) DELAY CALL AND EXTEND DETECTOR AMPLIFIER

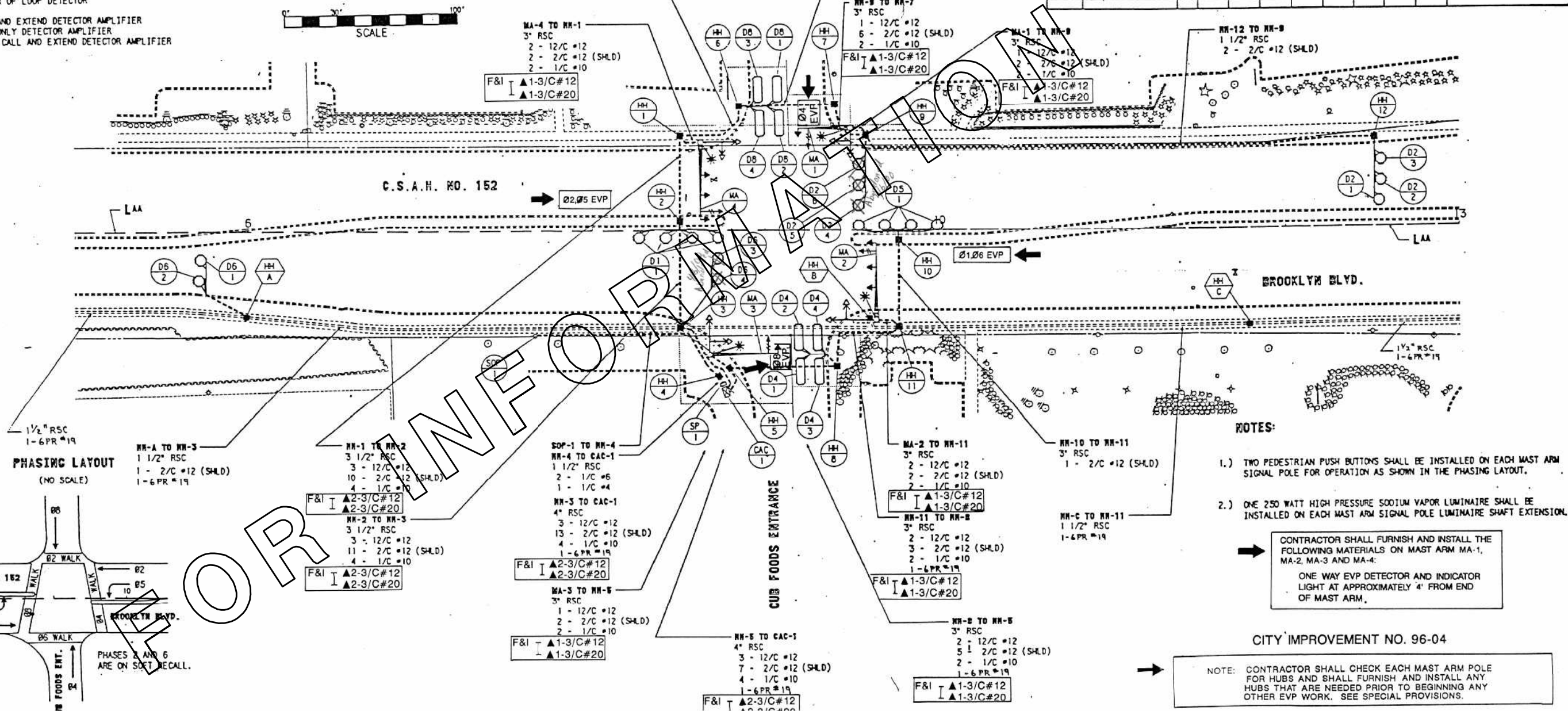
EMERGENCY VEHICLE PRE-EMPTION SYSTEM "F"

NOTE:
 ALL COMPONENTS OF SIGNAL SYSTEM, EXCEPT EVP EQUIPMENT TO BE FURNISHED AND INSTALLED IN CONTROLLER CABINET OR AS INDICATED IN THE PLANS, ARE IMPLACE AND SHALL REMAIN IMPLACE AS PART OF THE REVISED SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR REQUIRED EVP EQUIPMENT IN CONTROLLER CABINET AND ADDITIONAL INFORMATION.

LEGEND:
 ▲ NEW CABLES TO BE F&I AS PART OF EVP SYSTEM
 ← EVP DETECTOR UNIT (ONE WAY)
 ← EVP DETECTOR UNIT (TWO WAY)
 ⊕ SIGNAL PHASE
 ALL MATERIALS TO BE F&I AS PART OF EVP SYSTEM ARE EITHER LABELED F&I AND BOXED IN, OR BOXED IN AND DENOTED BY →

SIGNAL INDICATION AND BRACKETING

SIG. POLE NO.	SIGNAL FACE MOUNT	SIG. #	INDICATION SIZE AND TYPE						BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.		
			CIRCULAR			LT. TURN ARROW					
			RED	YEL	GRN	RED	YEL	GRN	WALK	WALK	
MA-1	MAST ARM (END)	4	12"	12"	12"	12"	12"	12"	12"	12"	270° PLATE 8110C TYPE 20C
	POLE MOUNT	1									
	POLE MOUNT	2	12"	12"	12"						
MA-2	MAST ARM (END)	1				12"	12"	12"			STD. ONE-WAY/PLATE 8124D
	MAST ARM (MID)	6	12"	12"	12"						STD. ONE-WAY/PLATE 8124D
	MAST ARM (INSIDE)	6	12"	12"	12"						STD. ONE-WAY/PLATE 8124D
MA-3	MAST ARM (END)	8	12"	12"	12"	12"	12"	12"			STD. ONE-WAY/PLATE 8124D
	POLE MOUNT	6							12"	12"	270° PLATE 8110C TYPE 20C
	POLE MOUNT	8	12"	12"	12"						
MA-4	MAST ARM (END)	5				12"	12"	12"			STD. ONE-WAY/PLATE 8124D
	MAST ARM (MID)	2	12"	12"	12"						STD. ONE-WAY/PLATE 8124D
	MAST ARM (INSIDE)	2	12"	12"	12"						STD. ONE-WAY/PLATE 8124D
	POLE MOUNT	4	12"	12"	12"				12"	12"	270° PLATE 8110C TYPE 20C
	POLE MOUNT	8	12"	12"	12"						
	POLE MOUNT	8	12"	12"	12"						



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Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

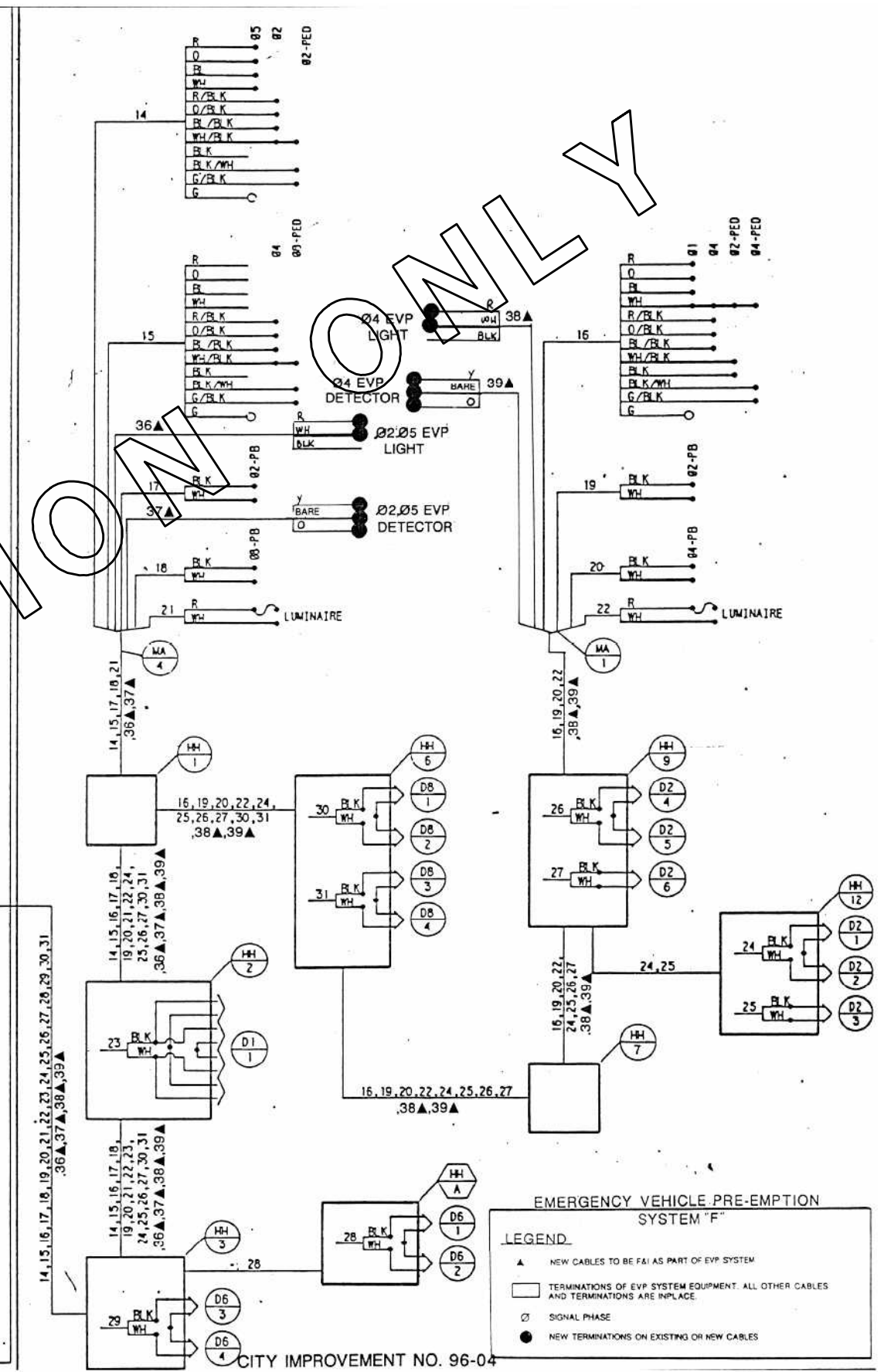
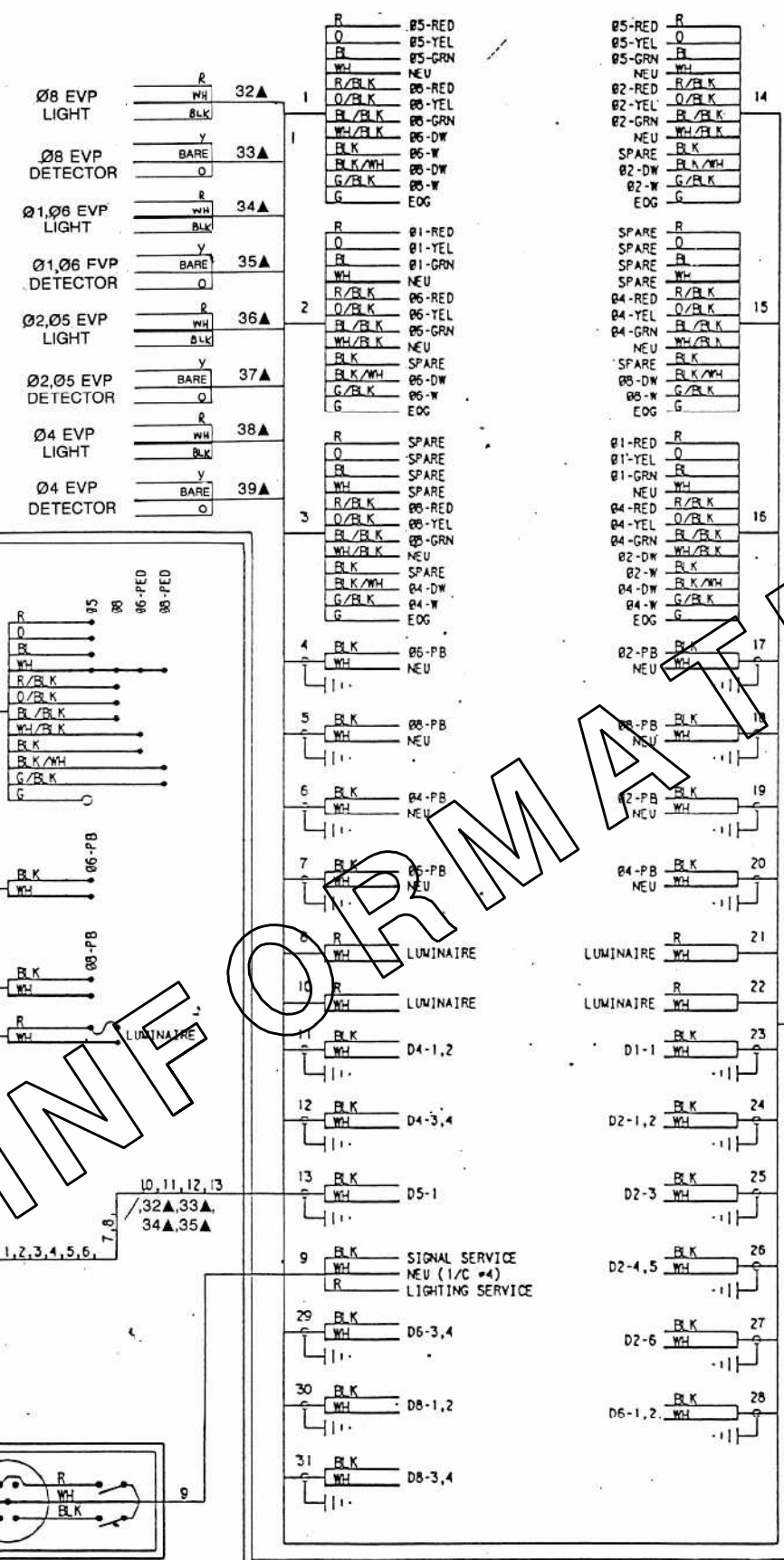
DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "I"
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS102
 SS126

- ABBREVIATIONS**
- EQUIPMENT AND INDICATIONS**
- RED - RED
 - YEL - YELLOW
 - GRN - GREEN
 - W - WALK
 - DW - DON'T WALK
 - NEU - NEUTRAL
 - PB - PUSH BUTTON
 - D - DETECTOR LOOP (___PHASE)
 - HH - HANDHOLE
 - MA - MAST ARM
 - SOP - SOURCE OF POWER
 - EOG - EQUIPMENT GROUND
 - SPARE - SPARE CONDUCTOR
 - PED - PEDESTRIAN INDICATION
 - LUM - LUMINAIRE
 - Ø - PHASE
 - SA - SIGNAL ASSEMBLY
 - PB - PULL BOX
 - INPLACE CONDUCTOR
 - INPLACE STRUCTURE
- COLOR CODING OF CONDUCTORS**
- Y - YELLOW
 - R - RED
 - O - ORANGE
 - BL - BLUE
 - WH - WHITE
 - R/BLK - RED WITH BLACK TRACER
 - O/BLK - ORANGE WITH BLACK TRACER
 - BL/BLK - BLUE WITH BLACK TRACER
 - WH/BLK - WHITE WITH BLACK TRACER
 - BLK - BLACK
 - BLK/WH - BLACK WITH WHITE TRACER
 - G/BLK - GREEN WITH BLACK TRACER
 - G - GREEN
 - - DENOTES TAP OF CABLED CONDUCTOR OR PARALLELING OF CABLED CONDUCTORS WITH TAPS AS INDICATED BY DIAGRAM
 - - EQUIPMENT GROUND CONNECTION

CONTROLLER CABINET

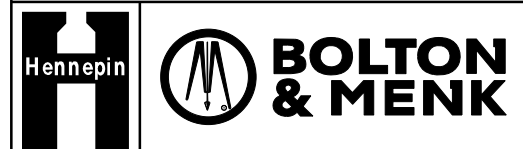


EMERGENCY VEHICLE PRE-EMPTION SYSTEM "F"

LEGEND:

- ▲ NEW CABLES TO BE FAI AS PART OF EVP SYSTEM
- TERMINATIONS OF EVP SYSTEM EQUIPMENT. ALL OTHER CABLES AND TERMINATIONS ARE INPLACE
- ⊙ SIGNAL PHASE
- NEW TERMINATIONS ON EXISTING OR NEW CABLES

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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "I"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS103
SS126

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

MATCHLINE "B"

DETECTOR CHART

DESIGNATION	VIDEO CAMERA	FUNCTION	DISTANCE TO STOP BAR OR CROSSWALK
D1-1, D1-2	V-2	(1)	20', 50'
D1-3, D1-4	V-2	(1)	5', 35'
D2-1, D2-2, D2-3, D2-4	V-4	(1)	250'
D3-1, 3-2	V-3	(3)	120'
D3-3	V-3	(7)	5'
D3-4, D3-5	V-3	(1)	20', 50'
D3-6, D3-7	V-3	(1)	5', 35'
D4-1, D4-2	V-5	(3)	120'
D4-3	V-5	(7)	5'
D4-4, D4-5	V-5	(1)	20', 50'
D4-6, D4-7	V-5	(1)	5', 35'
D6-1, D6-2, D6-3, D6-4	V-2	(1)	250'
D7-1, 7-2	V-1	(3)	20', 50'
7-3, 7-4	V-1	(3)	5', 35'

FUNCTION NOTES:

- (1) CALL & EXTEND
- (3) EXTEND ONLY
- (7) DELAY CALL, IMMEDIATE EXTEND

- HH-7 TO HH-8
- 4" RSC
- 2 - 12/C#12
- 2 - 3/C#12
- 1 - 2/C#12
- 1 - VIDEO CABLE
- 1 - 3/C#20 (SHLD.)

INPLACE NMC CONDUIT
1-FO CABLE (12SM)
(MnDOT TMC FIBER)

- MA-6J TO HH-3
- 4" RSC
- 2 - 12/C#12
- 2 - 3/C#12
- 1 - 2/C#12
- 1 - VIDEO CABLE
- 1 - 3/C#20 (SHLD.)

- HH-9 TO HH-10
- 4" RSC
- 4 - 12/C#12
- 1 - 5/C#12
- 5 - 3/C#12
- 2 - 2/C#12 (SHLD.)
- 2 - VIDEO CABLES
- 2 - 3/C#20 (SHLD.)
- 1 - 2/C#12 (SHLD.)
- 1 - 2/C#14 (SHLD.)

- MA-3J TO HH-10
- 3" RSC
- 2 - 12/C#12
- 2 - 3/C#12
- 1 - VIDEO CABLE
- 1 - 3/C#20 (SHLD.)
- 1 - 2/C#12 (SHLD.)
- 1 - 4/C#14

- PBS-3 TO HH-10
- 1" RSC
- 1 - 2/C#14 (SHLD.)

- PBS-2 TO HH-10
- 1" RSC
- 1 - 2/C#12 (SHLD.)

- HH-10 TO HH-11
- 2 - 4" RSC
- 6 - 12/C#12
- 1 - 5/C#12
- 7 - 3/C#12
- 3 - 2/C#12 (SHLD.)
- 3 - VIDEO CABLES
- 3 - 3/C#20 (SHLD.)
- 3 - 3/C#14 (SHLD.)
- REMOVE F&I 1 - 2/C#12 (SHLD.)
- REMOVE F&I 1 - 4/C#14
- REMOVE F&I 2 - 2/C#14 (SHLD.)

- SA-1J TO HH-11
- 3" RSC
- 1-12/C#12
- REMOVE F&I 1 - 2/C#14 (SHLD.)

- HH-11 TO HH-12
- 2" RSC (INTERCONNECT)
- 7 - 12/C#12
- 1 - 6/C FIBER-OPTIC CABLE (INTERCONNECT)
- 1 - 5/C#12
- 7 - 3/C#12
- 1 - 1/C#14 (INTERCONNECT)
- 3 - 2/C#12 (SHLD.)
- 3 - VIDEO CABLES
- 3 - 3/C#20 (SHLD.)
- REMOVE F&I 1 - 2/C#12 (SHLD.)
- REMOVE F&I 1 - 4/C#14
- REMOVE F&I 3 - 2/C#14 (SHLD.)

- CAC-1 TO HH-12
- 2 - 4" RSC
- 7 - 12/C#12
- 1 - 5/C#12
- 4 - 3/C#12
- 3 - 2/C#12 (SHLD.)
- 3 - VIDEO CABLES
- 3 - 3/C#20 (SHLD.)
- 1 - 6/C FIBER-OPTIC CABLE (INTERCONNECT)
- 1 - 1/C#14 (INTERCONNECT)
- REMOVE F&I 1 - 2/C#12 (SHLD.)
- REMOVE F&I 1 - 4/C#14
- REMOVE F&I 3 - 2/C#14 (SHLD.)

- PBS-1 TO HH-1
- 1" RSC
- 1 - 2/C#14 (SHLD.)

- CAC-1 TO HH-1
- 2 - 4" RSC
- 7 - 12/C#12
- 1 - 5/C#12
- 4 - 3/C#12
- 4 - 2/C#12 (SHLD.)
- 3 - VIDEO CABLES
- 3 - 3/C#20 (SHLD.)
- 1 - 6/C FIBER-OPTIC CABLE (INTERCONNECT)
- 1 - 1/C#14 (INTERCONNECT)
- REMOVE F&I 1 - 2/C#14 (SHLD.)

- SP1 TO HH-13 TO SOP-1
- 2" RSC
- 3 - 1/C#3

- SC-1 TO HH-2
- 2" RSC
- 6 - 3/C#14

- HH-1 TO HH-12
- 2" RSC
- 2 - 1/C#3
- 1 - 1/C#6 BARE

W.B. C.S.A.H. 109
(85TH AVE N)
(40 MPH)

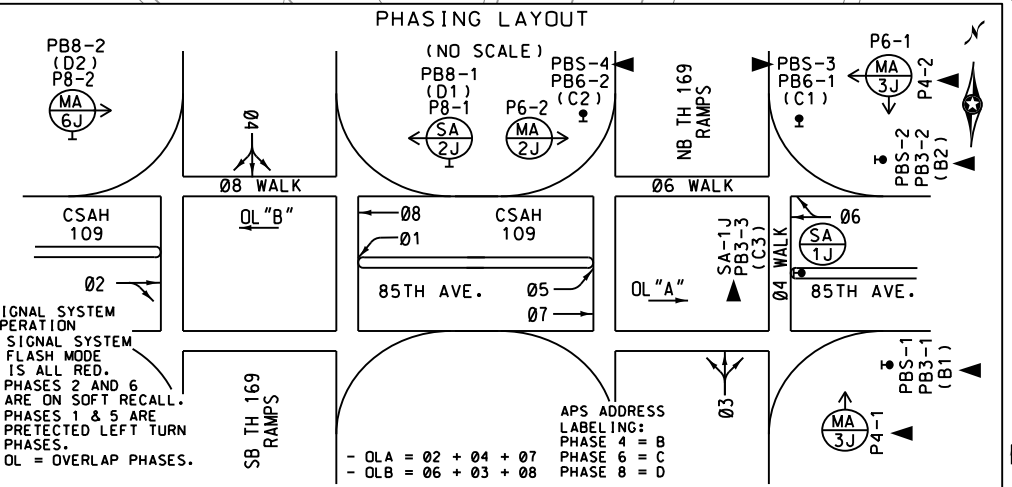
E.B. C.S.A.H. 109
(85TH AVE N)
(40 MPH)

N.B. T.H. 169

S.B. T.H. 169

MATCHLINE "A"

MATCHLINE "C"



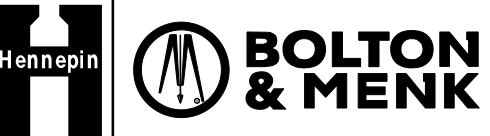
NOTES:
1) SEE SHEET SS105 FOR NOTES.

MATCHLINE "D"

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

INTERSECTION LAYOUT (SYSTEM "J") - T.H. 169 RAMP
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040
S.P. 2750-101 (TH 169)

SHEET
SS104
SS126



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BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

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2/28/2019

SIGNAL STRUCTURE LOCATIONS				
NO.	LOCATION	NO.	LOCATION	
HH-1	INPLACE	HH-8	INPLACE	
HH-2	INPLACE	HH-9	INPLACE	
HH-3	INPLACE	HH-10	INPLACE	
HH-4	INPLACE	HH-11	INPLACE	
HH-5	INPLACE	HH-12	INPLACE	
HH-6	INPLACE	HH-13	INPLACE	
HH-7	INPLACE			
		CAC-1J	INPLACE	
SOP-1J	INPLACE	SP-1J	INPLACE	
F&I	PBS-1	XXX+XX.XX - XX.XX' LT	PBS-4	XXX+XX.XX - XX.XX' LT
F&I	PBS-2	XXX+XX.XX - XX.XX' LT	PBS-5	XXX+XX.XX - XX.XX' LT
F&I	PBS-3	XXX+XX.XX - XX.XX' LT		
NO.	LOCATION		MAST ARM	
	FOUNDATION (1)	AIM ARM TO		
MA-1J	INPLACE	INPLACE	45'	
MA-2J	INPLACE	INPLACE	45'	
MA-3J	INPLACE	INPLACE	30'	
MA-4J	INPLACE	INPLACE	45'	
MA-5J	INPLACE	INPLACE	35'	
MA-6J	INPLACE	INPLACE	40'	
SA-1J	INPLACE			
SA-2J	INPLACE			
SA-3J	INPLACE			

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION.
 ALL STATIONS AND OFFSETS ARE REFERENCED FROM C.S.A.H. 109 ALIGNMENT.

VIDEO DETECTORS					
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	EXTENSION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V-1	EB LEFT TURN LANE	MA-1J	NO	MAST ARM MOUNT	20'
V-2	WB CSAH 109	MA-2J	NO	LUMINAIRE EXTENSION	40'
V-3	NB TH 169 RAMP	MA-3J	NO	LUMINAIRE EXTENSION	40'
V-4	EB CSAH 109	MA-4J	NO	LUMINAIRE EXTENSION	40'
V-5	SB TH 169 RAMP	MA-5J	NO	LUMINAIRE EXTENSION	40'
V-6	WB LEFT TURN LANE	MA-6J	NO	MAST ARM MOUNT	20'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE

NOTES:

- ▶ 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
- ▶ 2) REMOVE EXISTING PUSH BUTTONS AND SIGNS ON MA-3J, MA-2J, SA-3J, AND MA6J.
- ▶ 3) PULL BACK PUSH BUTTON CABLES FROM POLES TO NEAREST HANDHOLES.
- ▶ 4) THE CONTRACTOR SHALL INSTALL AND PROGRAM ALL APS EQUIPMENT.
 ALL PEDESTRIAN PUSHBUTTONS SHALL BE APS PUSHBUTTONS WITH SIGNS (SEE SPECIAL PROVISIONS).
 ONE APS PUSHBUTTON AND SIGN (LT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-3 AND 1.
 ONE APS PUSHBUTTON AND SIGN (RT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-2 AND 4.
 ONE APS PUSHBUTTON AND SIGN (DBL ARROW - LEFT AND RIGHT) SHALL BE FURNISHED AND INSTALLED ON SA-1J.
- ▶ 5) INTERNATIONAL SYMBOLS SHALL BE USED FOR ALL PEDESTRIAN INDICATIONS (HAND AND WALKING PERSON).
 ALL PEDESTRIAN INDICATIONS SHALL HAVE COUNTDOWN TIMERS (SEE SPECIAL PROVISIONS).
- ▶ 6) ALL VEHICULAR AND PEDESTRIAN INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
- ▶ 7) THE ENGINEER SHALL LOCATE AND VERIFY ALL PUSH BUTTON STATIONS PRIOR TO ANY CONSTRUCTION.
- ▶ 8) THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC.
 TO ITS ORIGINAL CONDITION OR BETTER (SEE SPECIAL PROVISIONS).
- ▶ 9) SEE SPECIAL PROVISIONS FOR ACCESSIBLE PEDESTRIAN SIGNAL (APS), AND COUNTY FURNISHED ITEMS.
- ▶ 10) REMOVE 1 - R9-3a SIGN ON POLE MA-1J FACING POLE SA-1J, 1 - R9-3a SIGN ON POLE SA-1J FACING POLE MA-1J, 1 - R9-3a SIGN ON POLE SA-1J FACING POLE MA-3J, AND 1 - R9-3a SIGN ON POLE MA-3J FACING POLE SA-1J.
- ▶ 11) ADJUST EXISTING VIDEO DETECTION ZONES AS NEEDED.
- ▶ 12) FURNISH AND INSTALL EQUIPMENT INTO CABINET FOR APS.
- ▶ 13) THE REMOVAL AND DISPOSAL OF EXISTING SIGNAL COMPONENTS, INCLUDING ALL MATERIALS EXCEPT CONDUIT UNDER ROADWAYS, SHALL BE INCLUDED IN THE REVISE SIGNAL SYSTEM "J" PAY ITEM.
- ▶ 14) FOR PAVEMENT MARKINGS, SEE STRIPING PLAN.
- ▶ 15) FOR PEDESTRIAN RAMP DETAILS, SEE CONSTRUCTION PLANS.

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

SIGNAL INDICATIONS AND BRACKETING									
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS					BRACKET MOUNTING ANGLE, TYPE AND STANDARD PLATE NO.
				12" INDICATIONS				PED	
				RED	YEL	FYEL	GRN		
MA-1J	5-1	MAST ARM (END)	5	←	←		←		STD. ONE-WAY/PLATE 8124E
	7-2	MAST ARM (MID)	7	•	•		•		STD. ONE-WAY/PLATE 8124E
	7-1	POLE MOUNT	7	•	•		•		180°, PLATE 8110D, TYPE 10A
	P3-1	POLE MOUNT	4					***	90°, PLATE 8110E, TYPE 30A
MA-2J	6-4	MAST ARM (END)	6	•	•		•		STD. ONE-WAY/PLATE 8124E
	6-3	MAST ARM (MID)	6	•	•		•		STD. ONE-WAY/PLATE 8124E
	6-2	MAST ARM (MID)	6	•	•		•		STD. ONE-WAY/PLATE 8124E
	6-1	POLE MOUNT	6	•	•		•	***	180°, PLATE 8110D, TYPE 10B
MA-3J	3-4	POLE MOUNT	3	•	•		•		90°, PLATE 8110D, TYPE 10A
	3-3	MAST ARM (END)	3	•	•		•		STD. ONE-WAY/PLATE 8124E
	3-2	POLE MOUNT	3	•	•		•		180°, PLATE 8110D, TYPE 10A
	P3-2	POLE MOUNT	4					***	180°, PLATE 8110E, TYPE 10B
MA-4J	5-3	POLE MOUNT	5	←	←		←		90°, PLATE 8110D, TYPE 10B
	6		6					***	
	2-5	MAST ARM (END)	2	•	•		•		STD. ONE-WAY/PLATE 8124E
	2-3	MAST ARM (MID)	2	•	•		•		STD. ONE-WAY/PLATE 8124E
MA-5J	2-2	MAST ARM (MID)	2	•	•		•		STD. ONE-WAY/PLATE 8124E
	2-1	POLE MOUNT	2	•	•		•		180°, PLATE 8110D, TYPE 10A
	4-4	POLE MOUNT	4	•	•		•		90°, PLATE 8110D, TYPE 10A
	4-3	MAST ARM (END)	4	•	•		•		STD. ONE-WAY/PLATE 8124E
MA-6J	4-2	POLE MOUNT	4	•	•		•		180°, PLATE 8110D, TYPE 10A
	1-3	POLE MOUNT	1	←	←		←		90°, PLATE 8110D, TYPE 10A
	1-3	MAST ARM (END)	1	←	←		←		STD. ONE-WAY/PLATE 8124E
SA-1J	8-2	MAST ARM (MID)	8	•	•		•		STD. ONE-WAY/PLATE 8124E
	8-1	POLE MOUNT	8	•	•		•	***	180°, PLATE 8110D, TYPE 10B
	5-2	POLE MOUNT	5	←	←		←		PLATE 8111D, TYPE 2A
SA-2J	3-1	POLE MOUNT	3	•	•		•		
	1-2	POLE MOUNT	1	←	←		←		PLATE 8111D, TYPE 2A
SA-3J	4-1	POLE MOUNT	4	•	•		•		
	P8-1	POLE MOUNT	8					***	PLATE 8111D, TYPE 4C

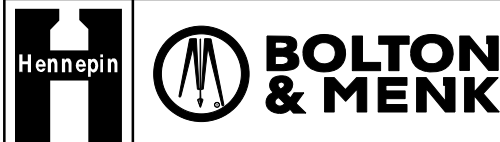
*** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

◀ F&I PED. IND. AND BRACKET

◀ SALVAGE HEAD, REMOVE BRACKET
 ◀ F&I PED. IND. & BRACKET
 INSTALL HEAD 3-2

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2/28/2019



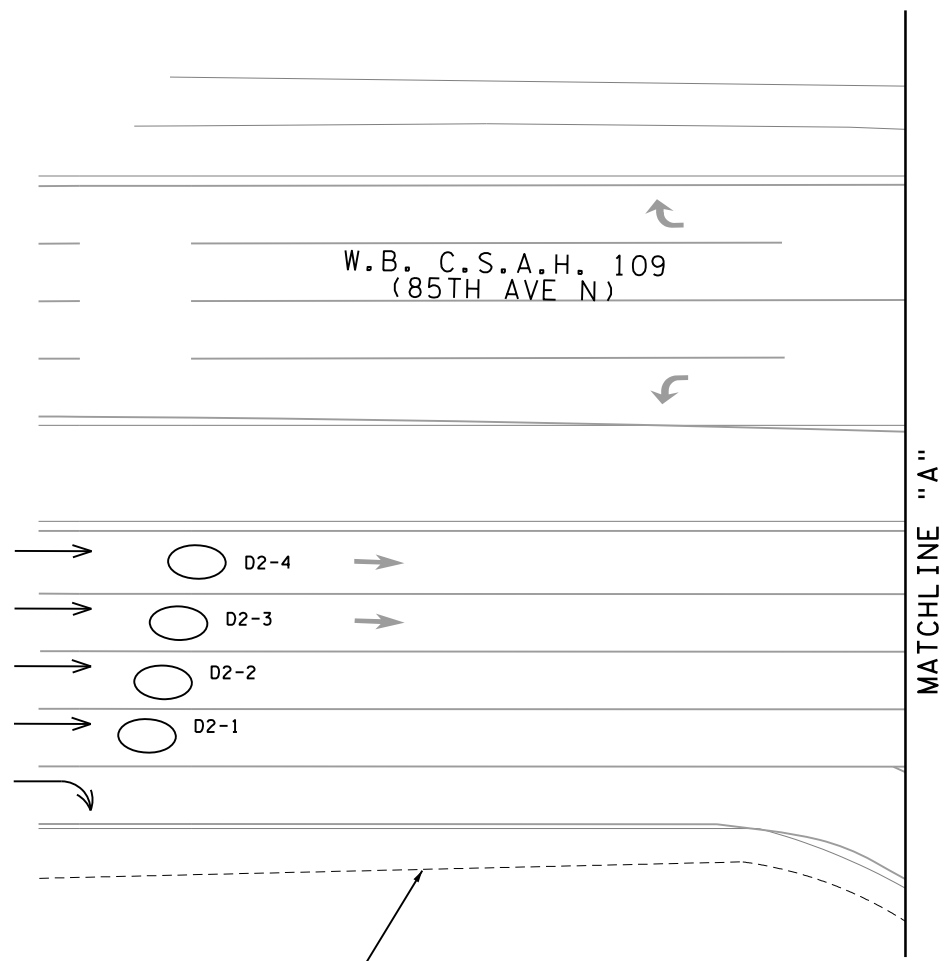
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 Bryan J. Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION:

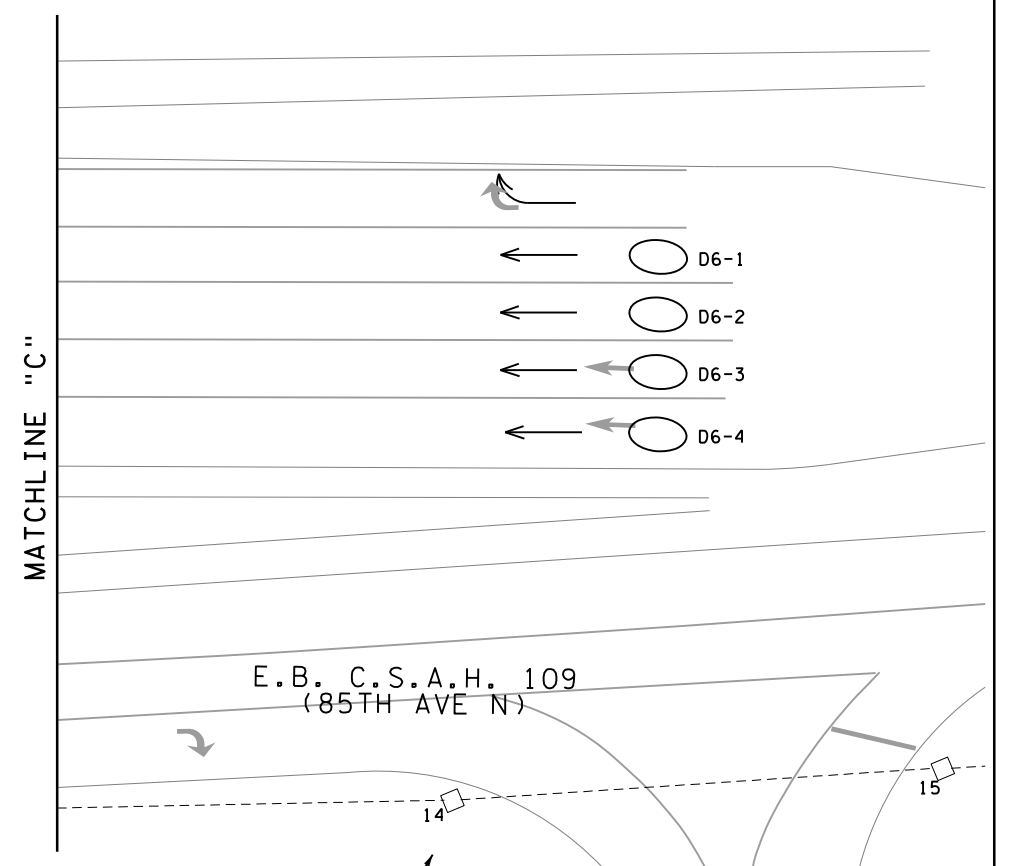
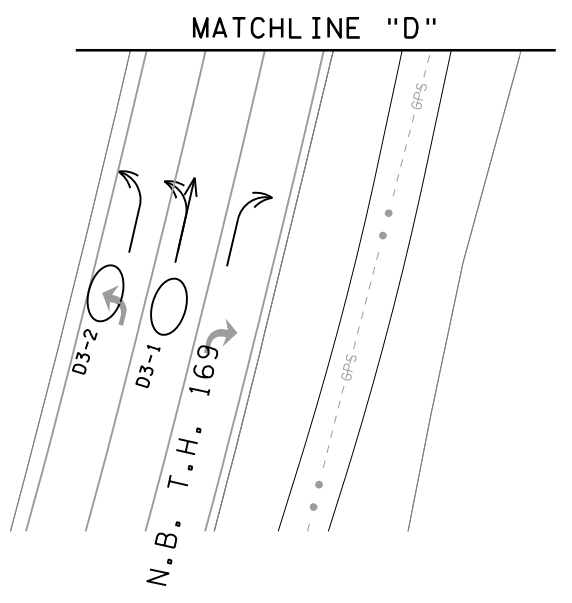
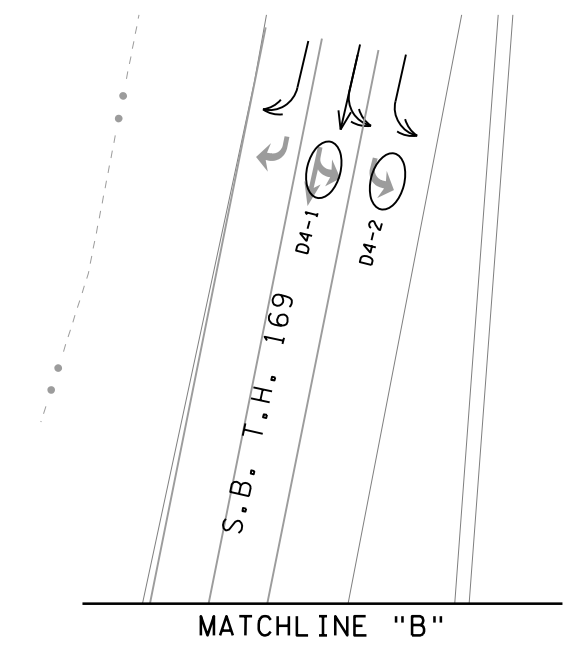
SIGNAL TABULATIONS AND NOTES (SYSTEM "J") - T.H. 169 RAMPS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040
 S.P. 2750-101 (TH 169)

SHEET
 SS105
 SS126

▲ DENOTES REVISE SIGNAL SYSTEM PAY ITEM WORK. ALL OTHER ITEMS SHOWN ARE INPLACE.

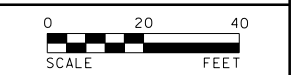
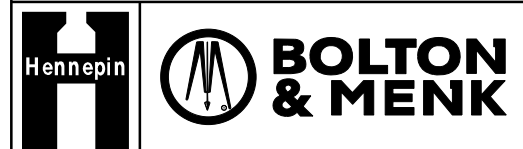


HH-5 TO PB-13
2" RSC
1-6/C FIBER-OPTIC CABLE
(INTERCONNECT)
1-1/C*14 (INTERCONNECT)



HH-12 TO PB-14
PB-14 TO PB-15
2" RSC (INTERCONNECT)
1-6/C FIBER-OPTIC CABLE
(INTERCONNECT)
1-1/C*14 (INTERCONNECT)

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LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

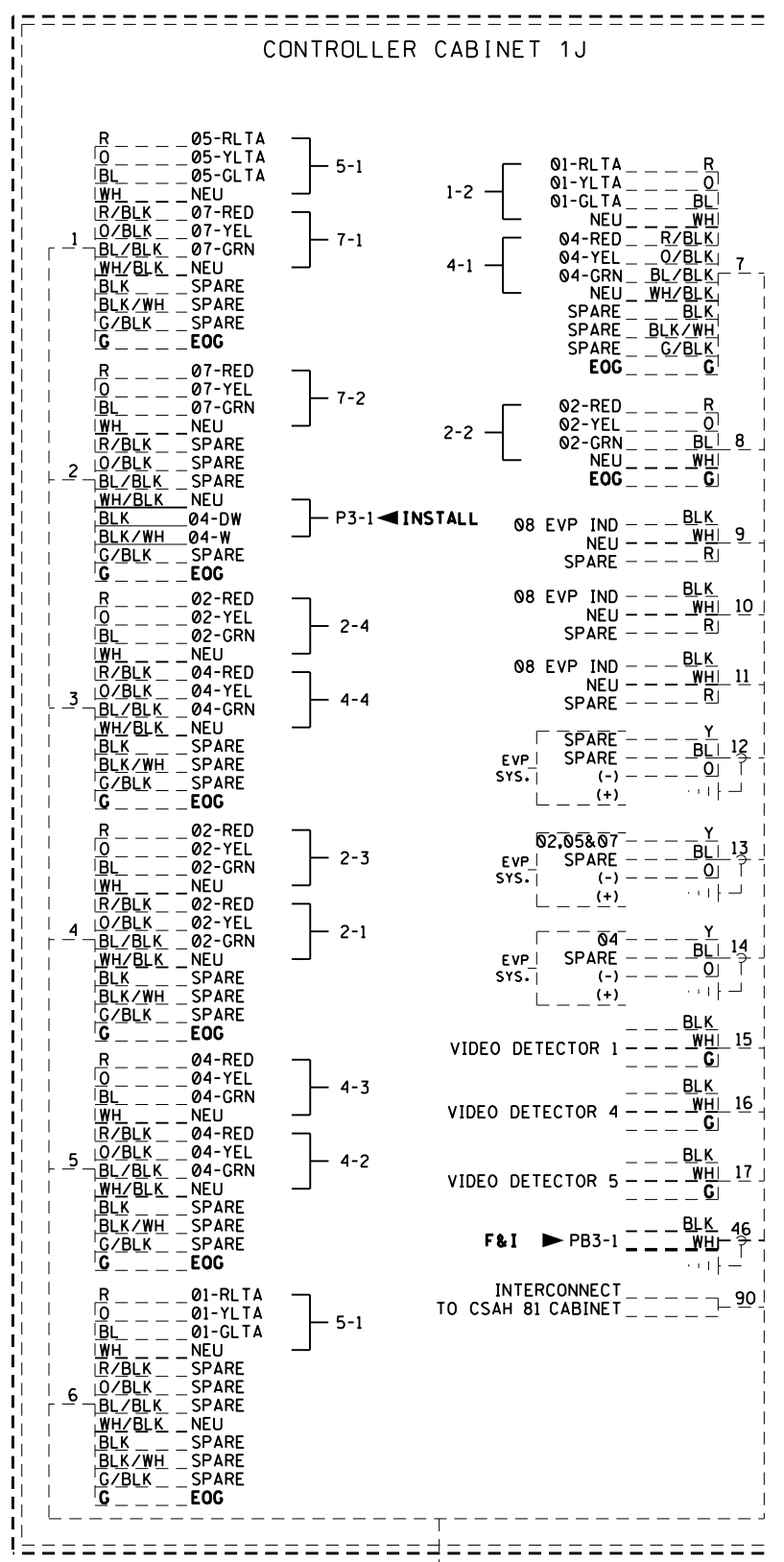
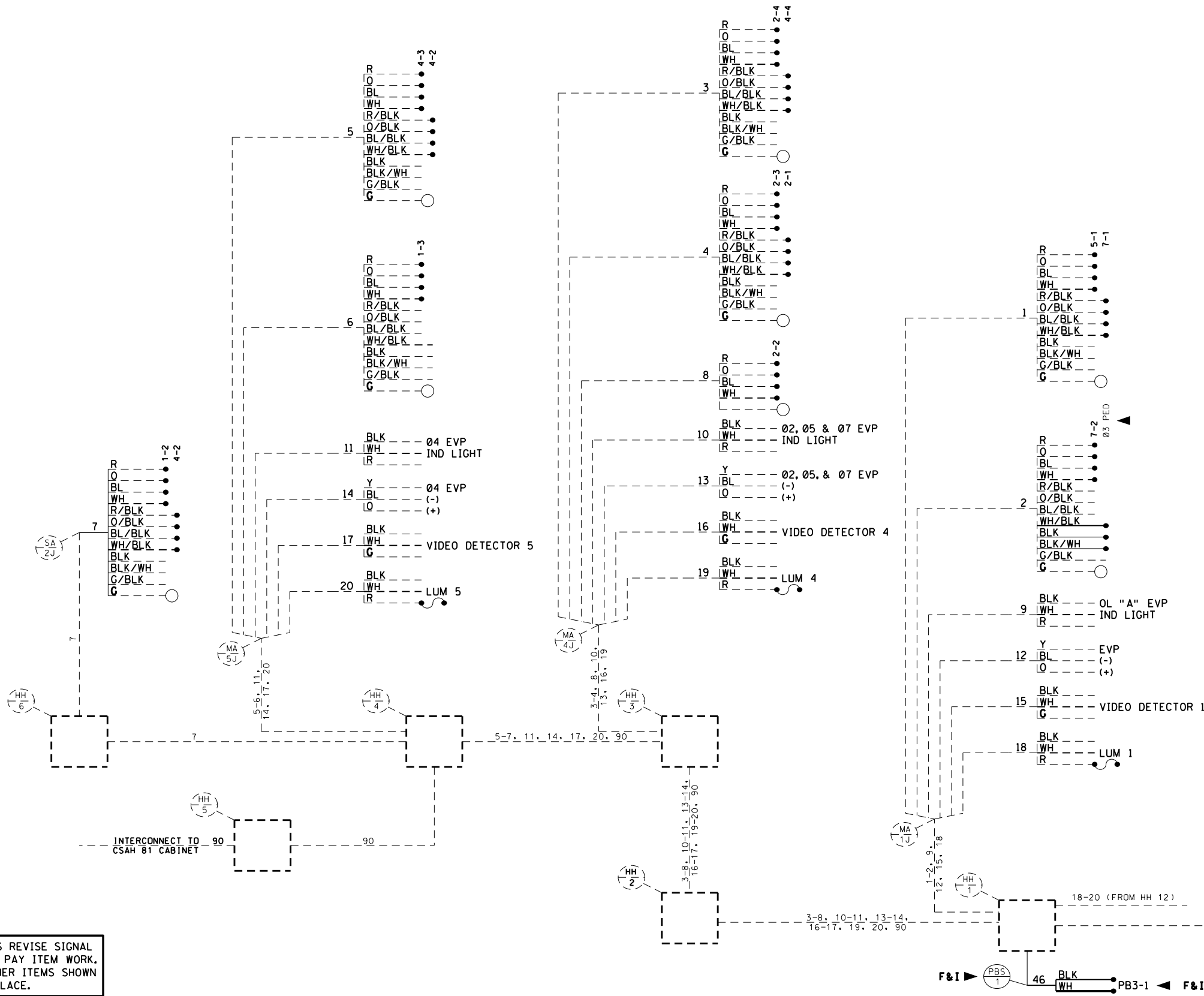
SIGNAL MATCHLINE LAYOUT (SYSTEM "J") - T.H. 169 RAMPS

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040
S.P. 2750-101 (TH 169)

SHEET
SS106
SS126

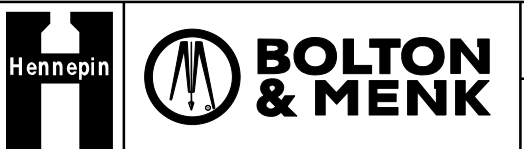
NOTES:

▶ 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.



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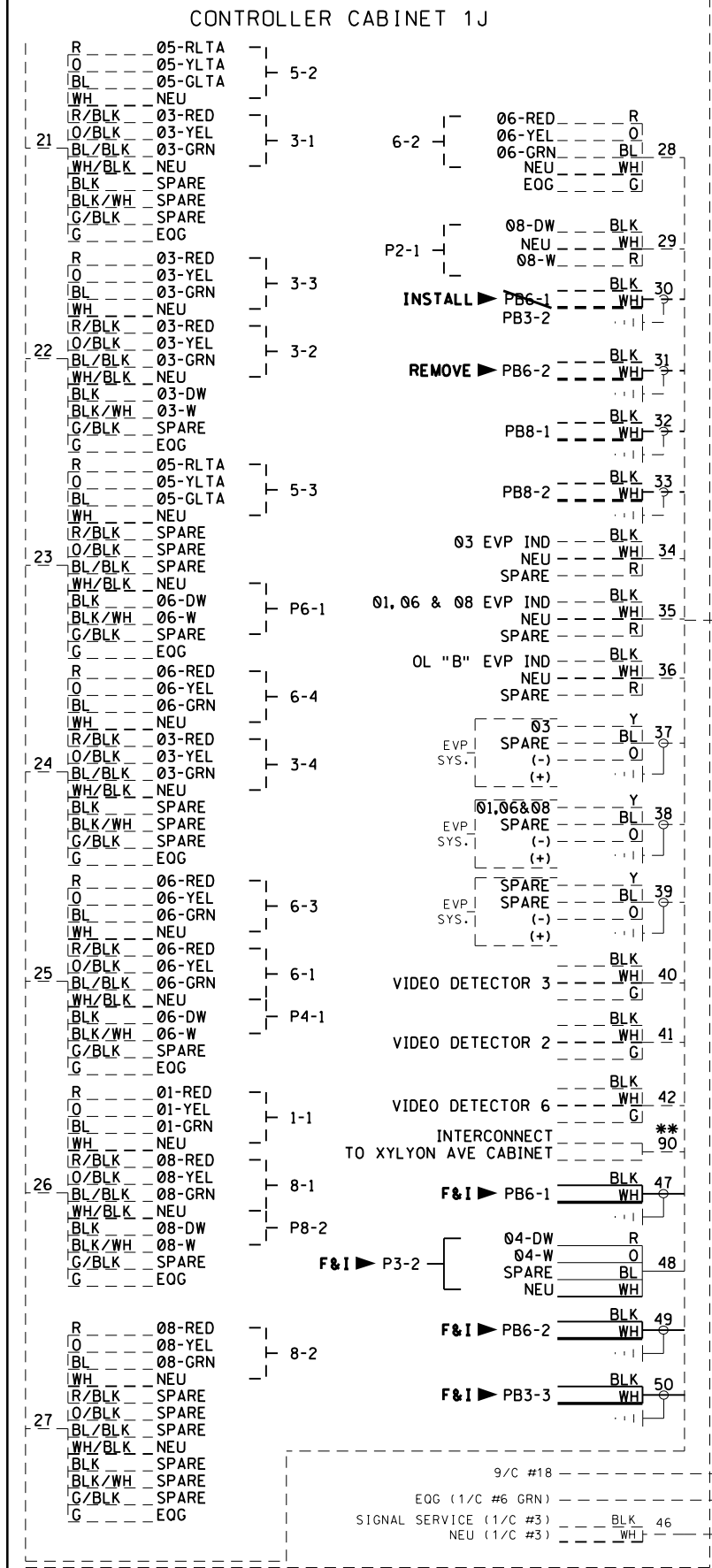
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "J")

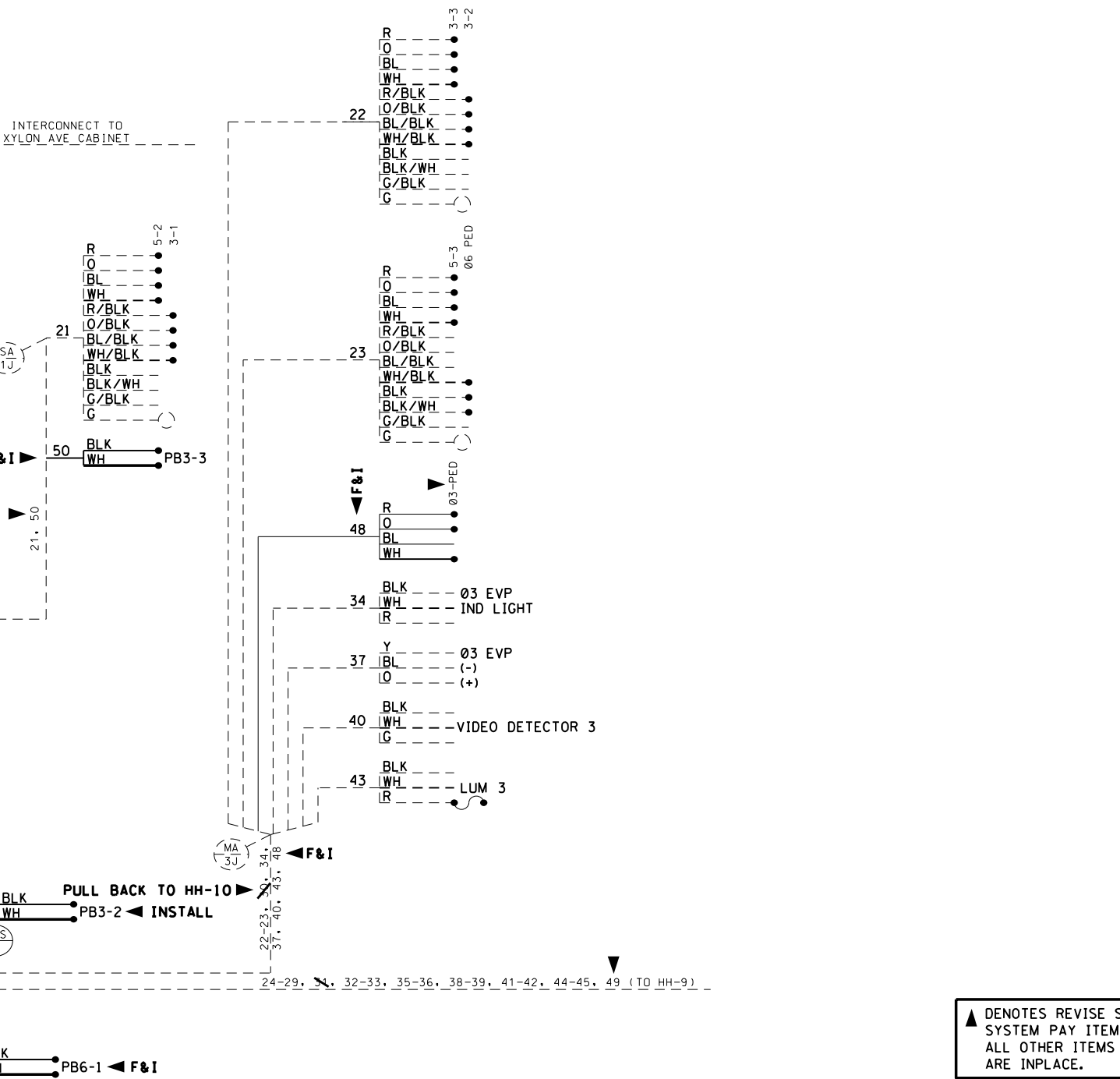
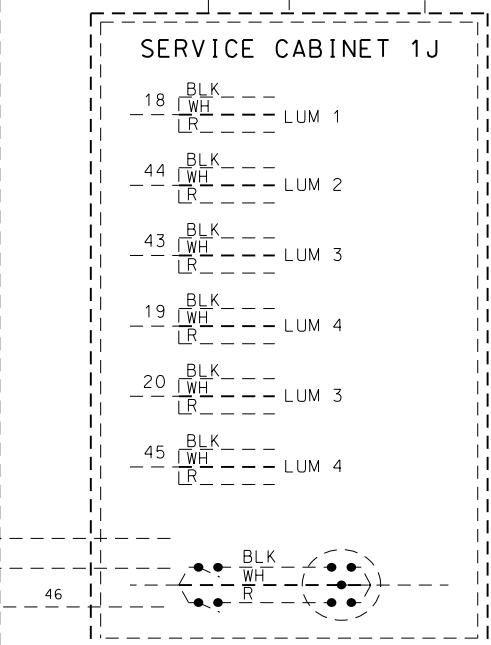
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040
S.P. 2750-101 (TH 169)

SHEET
SS107
SS126

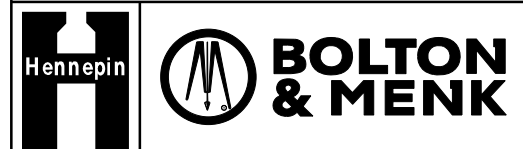
NOTES:
 1) REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.



9/C #18
 EOG (1/C #6 GRN)
 SIGNAL SERVICE (1/C #3) BLK 46
 NEU (1/C #3) WH 46



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BRYAN J. NEMETH
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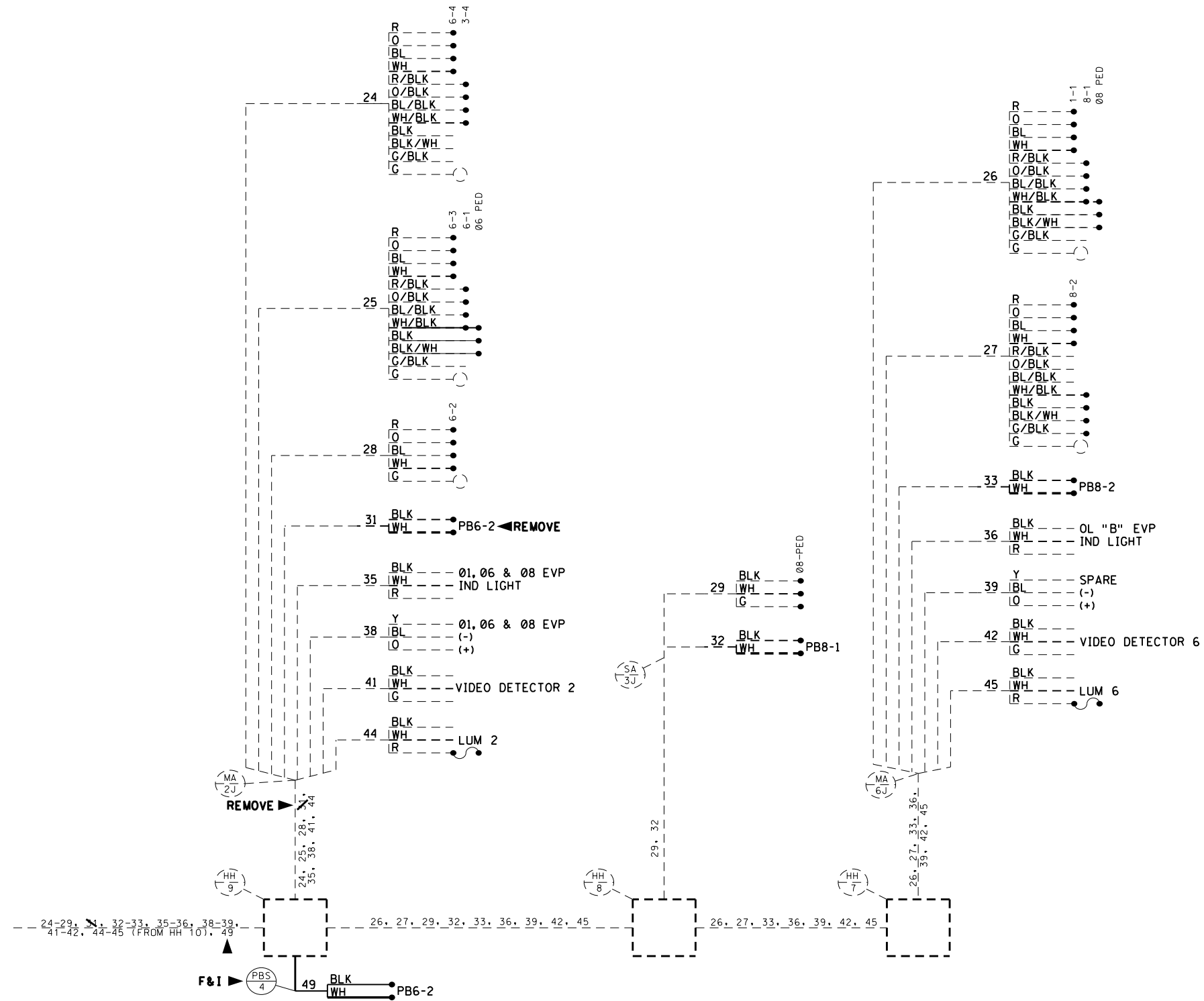
SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "J")

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040
 S.P. 2750-101 (TH 169)

SHEET
 SS108
 SS126

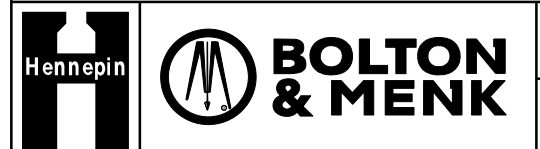
NOTES:

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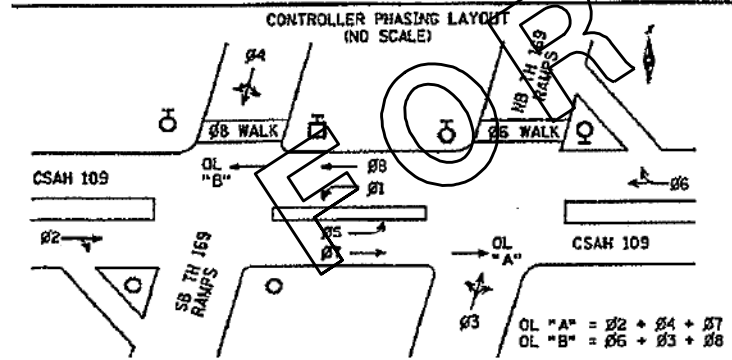
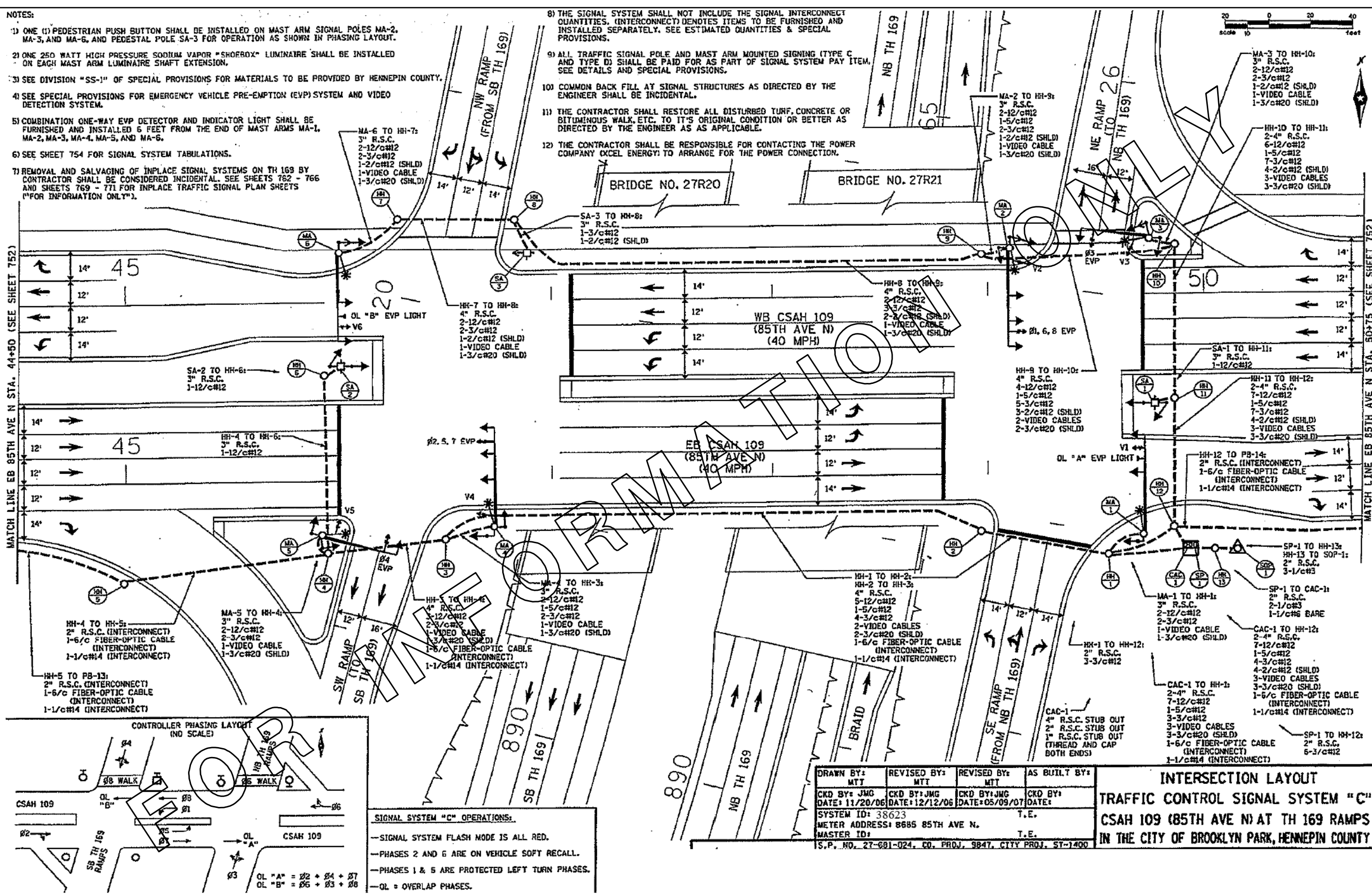
SIGNAL SYSTEM FIELD WIRING DIAGRAM (SYSTEM "J")
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040
 S.P. 2750-101 (TH 169)

SHEET
 SS109
 SS126

NOTES:

- ONE (1) PEDESTRIAN PUSH BUTTON SHALL BE INSTALLED ON MAST ARM SIGNAL POLES MA-2, MA-3, AND MA-6, AND PEDESTAL POLE SA-3 FOR OPERATION AS SHOWN IN PHASING LAYOUT.
- ONE 250 WATT HIGH PRESSURE SODIUM VAPOR "SHOROX" LUMINAIRE SHALL BE INSTALLED ON EACH MAST ARM LUMINAIRE SHAFT EXTENSION.
- SEE DIVISION "SS-1" OF SPECIAL PROVISIONS FOR MATERIALS TO BE PROVIDED BY HENNEPIN COUNTY.
- SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM AND VIDEO DETECTION SYSTEM.
- COMBINATION ONE-WAY EVP DETECTOR AND INDICATOR LIGHT SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF MAST ARMS MA-1, MA-2, MA-3, MA-4, MA-5, AND MA-6.
- SEE SHEET 754 FOR SIGNAL SYSTEM TABULATIONS.
- REMOVAL AND SALVAGING OF INPLACE SIGNAL SYSTEMS ON TH 169 BY CONTRACTOR SHALL BE CONSIDERED INCIDENTAL. SEE SHEETS 762 - 766 AND SHEETS 769 - 771 FOR INPLACE TRAFFIC SIGNAL PLAN SHEETS ("FOR INFORMATION ONLY").

- THE SIGNAL SYSTEM SHALL NOT INCLUDE THE SIGNAL INTERCONNECT QUANTITIES. (INTERCONNECT) DENOTES ITEMS TO BE FURNISHED AND INSTALLED SEPARATELY. SEE ESTIMATED QUANTITIES & SPECIAL PROVISIONS.
- ALL TRAFFIC SIGNAL POLE AND MAST ARM MOUNTED SIGNING (TYPE C AND TYPE D) SHALL BE PAID FOR AS PART OF SIGNAL SYSTEM PAY ITEM. SEE DETAILS AND SPECIAL PROVISIONS.
- COMMON BACK FILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER SHALL BE INCIDENTAL.
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO IT'S ORIGINAL CONDITION OR BETTER AS DIRECTED BY THE ENGINEER AS APPLICABLE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY (XCEL ENERGY) TO ARRANGE FOR THE POWER CONNECTION.



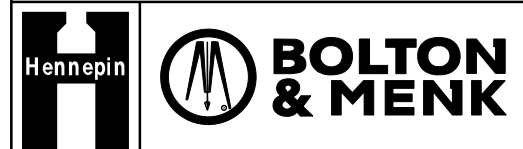
SIGNAL SYSTEM "C" OPERATIONS:

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 ARE ON VEHICLE SOFT RECALL.
- PHASES 1 & 5 ARE PROTECTED LEFT TURN PHASES.
- QL = OVERLAP PHASES.

DRAWN BY: MTT	REVISED BY: MTT	REVISED BY: MTT	AS BUILT BY:
CKD BY: JMG	CKD BY: JMG	CKD BY: JMG	CKD BY:
DATE: 11/20/06	DATE: 12/12/06	DATE: 05/09/07	DATE:
SYSTEM ID: 38623			T.E.
METER ADDRESS: 8685 85TH AVE N.			T.E.
MASTER ID:			
S.P. NO. 27-681-024, CO. PROJ. 9847, CITY PROJ. 57-1400			

INTERSECTION LAYOUT
TRAFFIC CONTROL SIGNAL SYSTEM "C"
CSAH 109 (85TH AVE N) AT TH 169 RAMP
IN THE CITY OF BROOKLYN PARK, HENNEPIN COUNTY

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Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "J"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040
 S.P. 2750-101 (TH 169)

SHEET
 SS110
 SS126

SIGNAL STRUCTURE LOCATIONS			
NO.	LOCATION	NO.	LOCATION
HH- 1	L ⁶⁰ 49+57 - 39' RT	HH-12	L ⁶⁰ 49+85 - 26' RT
HH- 2	L ⁶⁰ 48+97 - 26' RT	HH-13	L ⁶⁰ 50+00 - 34' RT
HH- 3	L ⁶⁰ 46+50 - 28' RT		
HH- 4	L ⁶⁰ 45+93 - 36' RT		
HH- 5	L ⁶⁰ 45+01 - 48' RT		
HH- 6	L ⁶⁰ 45+94 - 52' LT		
HH- 7	L ⁶⁰ 46+28 - 40' LT	CAC-1	L ⁶⁰ 49+93 - 33' RT
HH- 8	L ⁶⁰ 46+83 - 40' LT	SP-1	EAST SIDE OF CAC-1 FOUNDATION
HH- 9	L ⁶⁰ 48+97 - 19' LT		
HH-10	L ⁶⁰ 49+85 - 24' LT		
HH-11	L ⁶⁰ 49+85 - 30' LT	SOP-1	TO BE F & I BY XCEL

NO.	LOCATION		MAST ARM
	FOUNDATION	AIM ARM TO	
MA-1	L ⁶⁰ 49+75 - 27' RT	L ⁶⁰ 49+75 - 18' LT	45'
MA-2	L ⁶⁰ 49+08 - 21' LT	L ⁶⁰ 49+08 - 24' RT	45'
MA-3	L ⁶⁰ 49+78 - 28' LT	L ⁶⁰ 49+47 - 32' LT	30'
MA-4	L ⁶⁰ 46+73 - 21' RT	L ⁶⁰ 46+73 - 24' LT	45'
MA-5	L ⁶⁰ 45+90 - 27' RT	L ⁶⁰ 45+26 - 34' RT	35'
MA-6	L ⁶⁰ 45+99 - 22' LT	L ⁶⁰ 45+99 - 18' RT	40'
SA-1	L ⁶⁰ 49+80 - 29' LT	-	**
SA-2	L ⁶⁰ 46+02 - 31' RT	-	**
SA-3	L ⁶⁰ 46+88 - 23' LT	-	**

** 10' PEDESTAL POLE AND BASE (WITH WIND COLLAR)

INSTALL VIDEO DETECTORS					
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	EXTENSION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V1	EB LEFT TURN LANE	MA-1	NO	MAST ARM MOUNT	20'
V2	WB CSAH 109	MA-2	NO	LUMINAIRE EXTENSION	40'
V3	NB TH 169 RAMP	MA-3	NO	LUMINAIRE EXTENSION	40'
V4	EB CSAH 109	MA-4	NO	LUMINAIRE EXTENSION	40'
V5	SB TH 169 RAMP	MA-5	NO	LUMINAIRE EXTENSION	40'
V6	WB LEFT TURN LANE	MA-6	NO	MAST ARM MOUNT	20'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

SIGNAL INDICATIONS AND BRACKETING								
SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. #	12" LED INDICATIONS				BRACKET MOUNTING ANGLE, TYPE, AND STANDARD PLATE NO.
				RED	YEL	GRN	PED SYM.	
MA-1	5-1	MAST ARM (END)	5	←	←	←		STD. ONE-WAY/PLATE 8124E
	7-2	MAST ARM (INSIDE)	7	•	•	•		STD. ONE-WAY/PLATE 8124E
	7-1	POLE MOUNT	7	•	•	•	*	180°, PLATE 8110D, TYPE 10A
MA-2	6-4	MAST ARM (END)	6	•	•	•		STD. ONE-WAY/PLATE 8124E
	6-3	MAST ARM (MID)	6	•	•	•		STD. ONE-WAY/PLATE 8124E
	6-2	MAST ARM (INSIDE)	6	•	•	•		STD. ONE-WAY/PLATE 8124E
	6-1	POLE MOUNT	6	•	•	•	*	180°, PLATE 8110D, TYPE 10B
	3-4	POLE MOUNT	3	•	•	•		90°, PLATE 8110D, TYPE 10A
MA-3	3-3	MAST ARM (END)	3	•	•	•		STD. ONE-WAY/PLATE 8124E
	3-2	POLE MOUNT	3	•	•	•		180°, PLATE 8110D, TYPE 10A
	5-3	POLE MOUNT	5	←	←	←		90°, PLATE 8110D, TYPE 10B
MA-4	2-4	MAST ARM (END)	2	•	•	•		STD. ONE-WAY/PLATE 8124E
	2-3	MAST ARM (MID)	2	•	•	•		STD. ONE-WAY/PLATE 8124E
	2-2	MAST ARM (INSIDE)	2	•	•	•		STD. ONE-WAY/PLATE 8124E
	2-1	POLE MOUNT	2	•	•	•	*	180°, PLATE 8110D, TYPE 10A
MA-5	4-4	POLE MOUNT	4	•	•	•		90°, PLATE 8110D, TYPE 10A
	4-3	MAST ARM (END)	4	•	•	•		STD. ONE-WAY/PLATE 8124E
	4-2	POLE MOUNT	4	•	•	•		180°, PLATE 8110D, TYPE 10A
MA-6	1-3	POLE MOUNT	1	←	←	←		90°, PLATE 8110D, TYPE 10A
	1-1	MAST ARM (END)	1	←	←	←		STD. ONE-WAY/PLATE 8124E
	8-2	MAST ARM (INSIDE)	8	•	•	•		STD. ONE-WAY/PLATE 8124E
SA-1	5-2	POLE MOUNT	5	←	←	←		PLATE 8111D, TYPE 2A
	3-1		3	•	•	•		
SA-2	1-2	POLE MOUNT	1	←	←	←		PLATE 8111D, TYPE 2A
	4-1		4	•	•	•		
SA-3	-	POLE MOUNT	8				*	PLATE 8111D; TYPE 4C

* PEDESTRIAN INDICATIONS SHALL BE INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

DRAWN BY: MTT	REVISED BY: MTT	REVISED BY: MTT	AS BUILT BY:	SIGNAL TABULATION SHEET TRAFFIC CONTROL SIGNAL SYSTEMS "J"
CKD BY: JMG	CKD BY: JMG	CKD BY: JMG	CKD BY: JMG	
DATE: 10/11/06	DATE: 11/20/06	DATE: 12/12/06	DATE: 04/03/08	



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

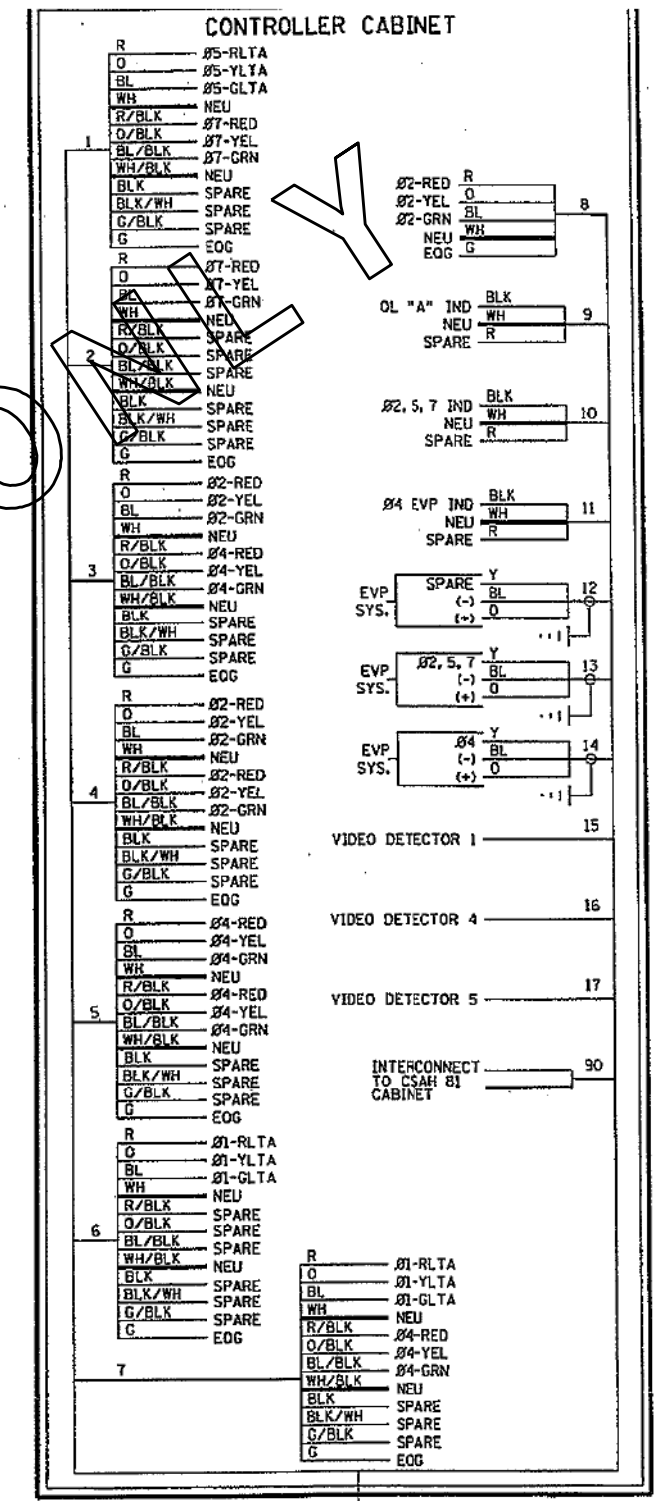
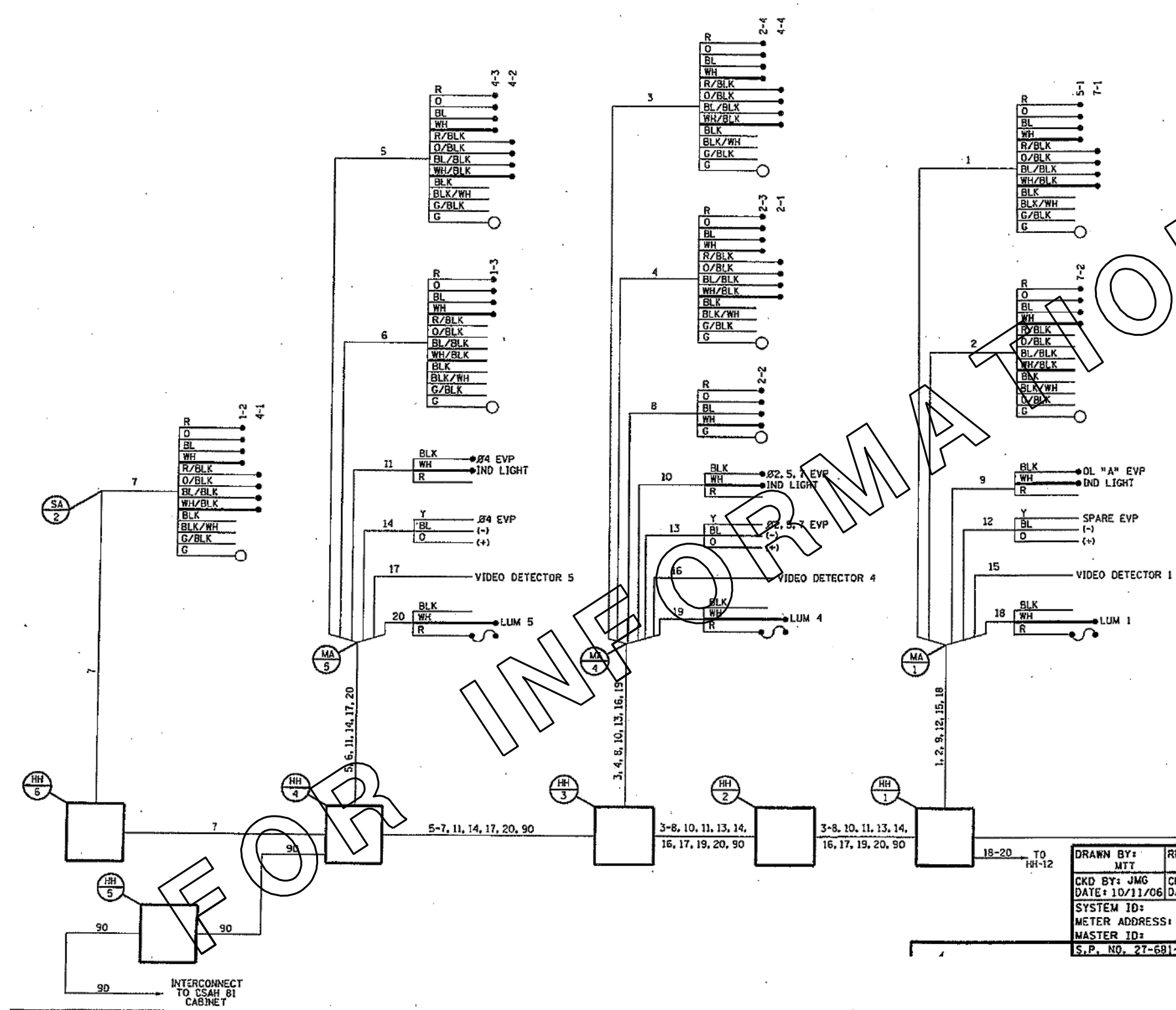
FOR INFORMATION ONLY - SIGNAL SYSTEM "J"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040
S.P. 2750-101 (TH 169)

SHEET

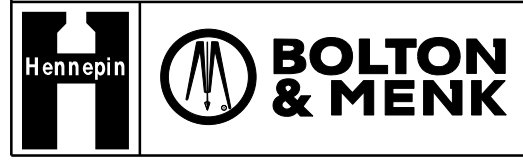
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2/28/2019



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SYSTEM ID: METER ADDRESS: 8685 85TH AVE N.			T.E.
MASTER ID:			T.E.
S.P. NO. 27-681-024, CO. PROJ. 9847, CITY PROJ. ST-1400			

SIGNAL FIELD WIRING DIAGRAM
(SHEET 1 OF 3 SHEETS)
TRAFFIC CONTROL SIGNAL SYSTEM "C"
CSAH 109 (85TH AVE N) AT TH 169 RAMPS
IN THE CITY OF BROOKLYN PARK, HENNEPIN COUNTY



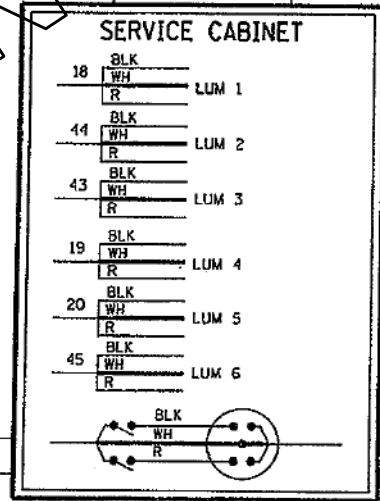
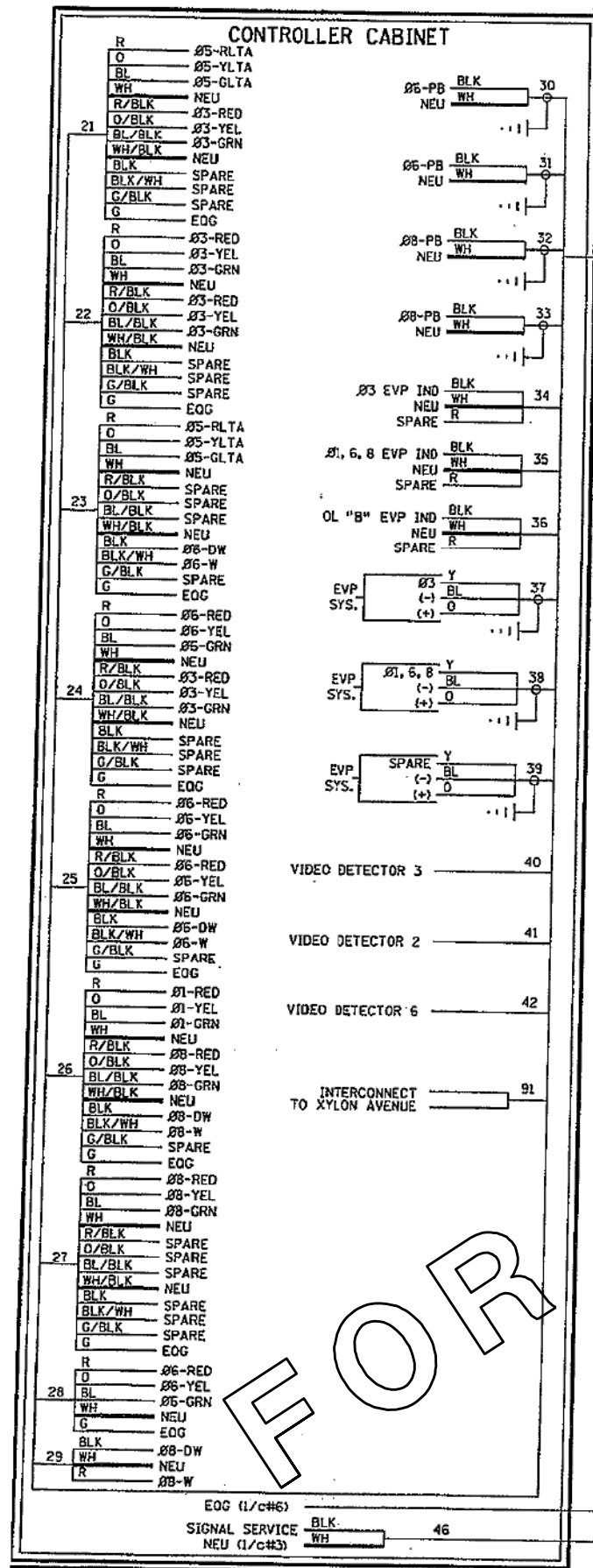
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LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

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C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040
S.P. 2750-101 (TH 169)

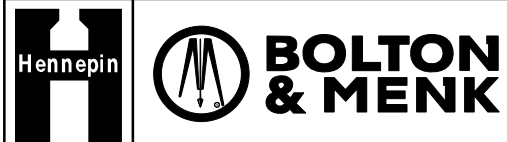
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SS112
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2/28/2019



DRAWN BY: MTT	REVISED BY: MTT	REVISED BY: MTT	AS BUILT BY:
CKD BY: JMG DATE: 10/11/06	CKD BY: JMG DATE: 11/20/06	CKD BY: JMG DATE: 12/12/06	CKD BY:
SYSTEM ID:			T.E.
METER ADDRESS: 8685 85TH AVE N.			T.E.
MASTER ID:			T.E.

SIGNAL FIELD WIRING DIAGRAM
(SHEET 2 OF 3 SHEETS)
TRAFFIC CONTROL SIGNAL SYSTEM "C"
CSAH 109 (85TH AVE N) AT TH 169 RAMPS
IN THE CITY OF BROOKLYN PARK, HENNEPIN COUNTY



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.

Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

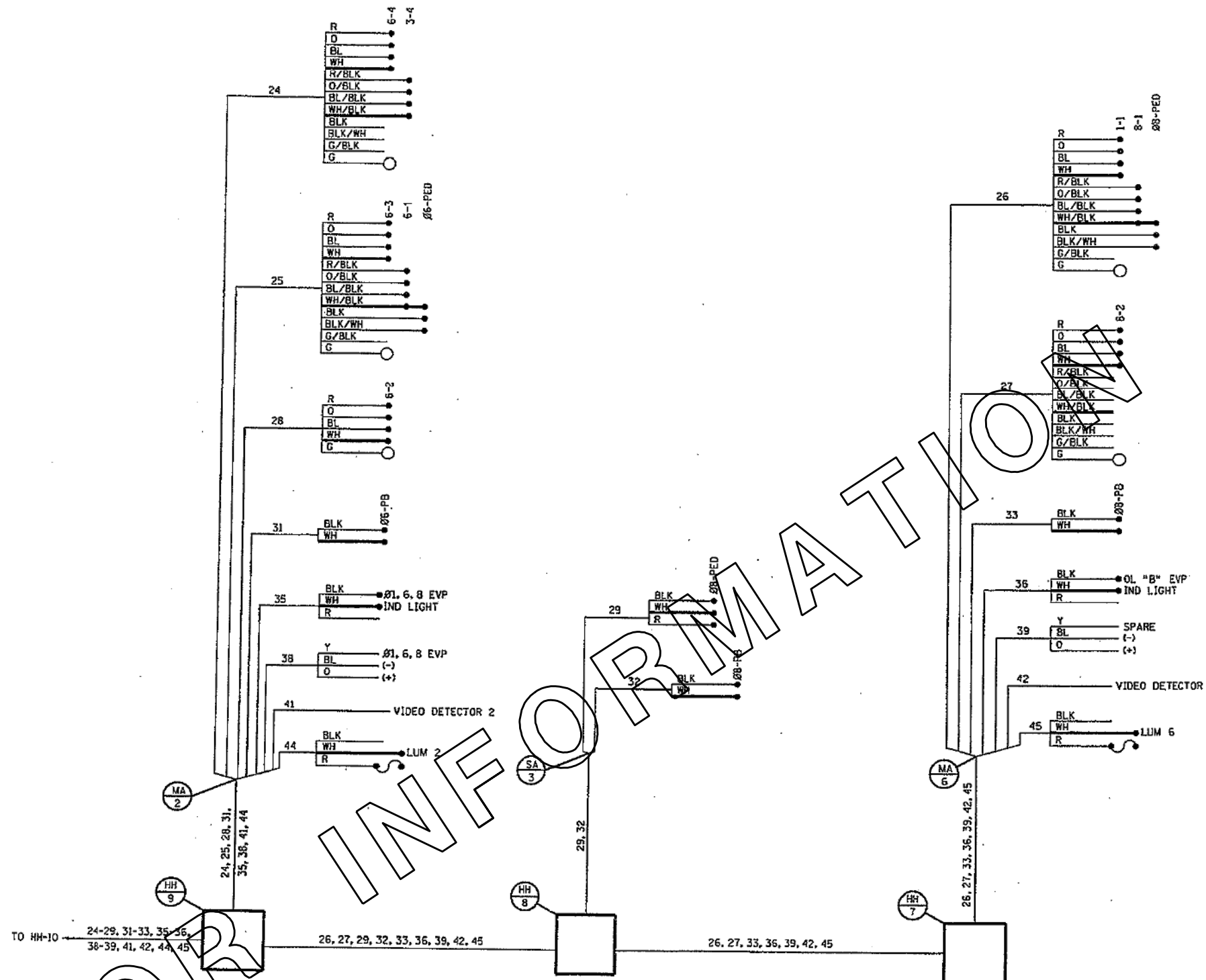
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "J"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040
S.P. 2750-101 (TH 169)

SHEET

SS113
SS126



ONLY

TO HH-10
24-29, 31-33, 35-36,
38-39, 41, 42, 44, 45

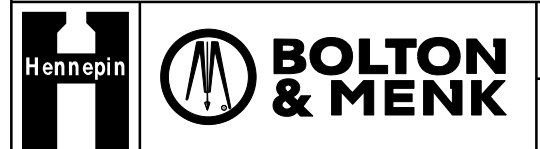
26, 27, 29, 32, 33, 36, 39, 42, 45

26, 27, 33, 36, 39, 42, 45

DRAWN BY: MTT	REVISED BY: MTT	REVISED BY: MTT	AS BUILT BY:
CKD BY: JMG DATE: 10/11/06	CKD BY: JMG DATE: 11/20/06	CKD BY: JMG DATE: 12/12/06	CKD BY:
SYSTEM ID:			T.E.
METER ADDRESS: 8785 85TH AVE N.			T.E.
MASTER ID:			T.E.

SIGNAL FIELD WIRING DIAGRAM
(SHEET 3 OF 3 SHEETS)
TRAFFIC CONTROL SIGNAL SYSTEM "C"
CSAH 109 (85TH AVE N) AT TH 169 RAMPS
IN THE CITY OF BROOKLYN PARK HENNEPIN COUNTY

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2/28/2019



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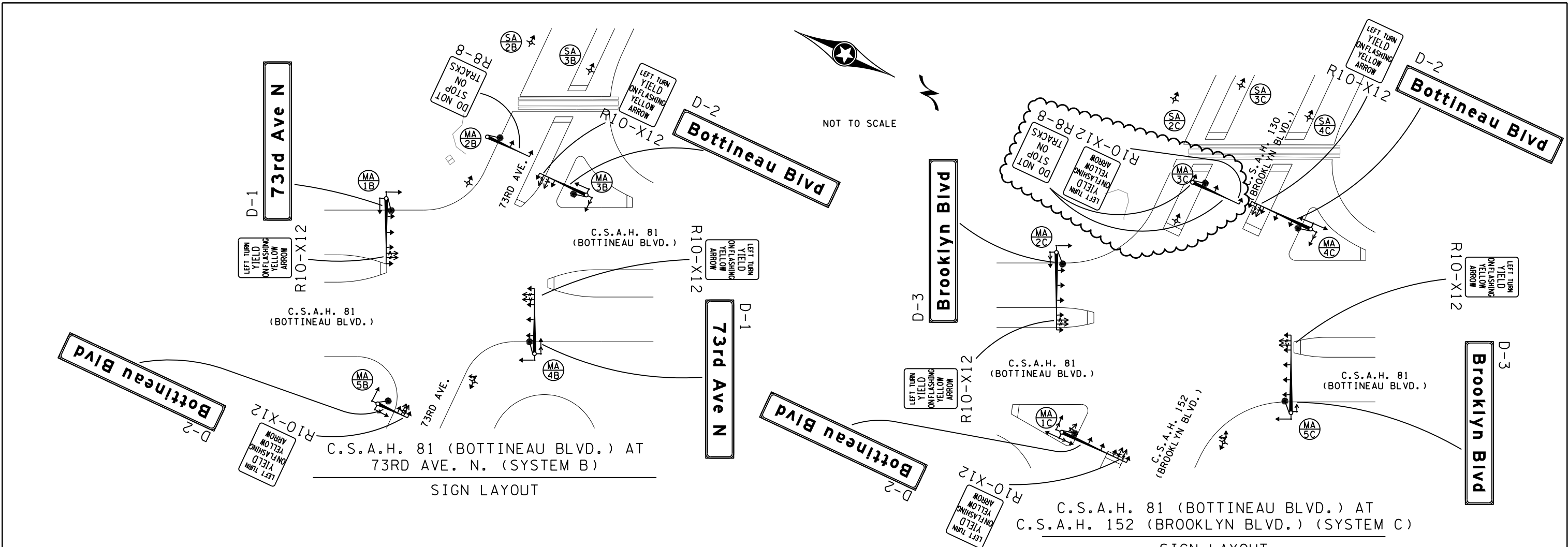
Bryan Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION:

FOR INFORMATION ONLY - SIGNAL SYSTEM "J"

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040
S.P. 2750-101 (TH 169)

SHEET
SS114
SS126

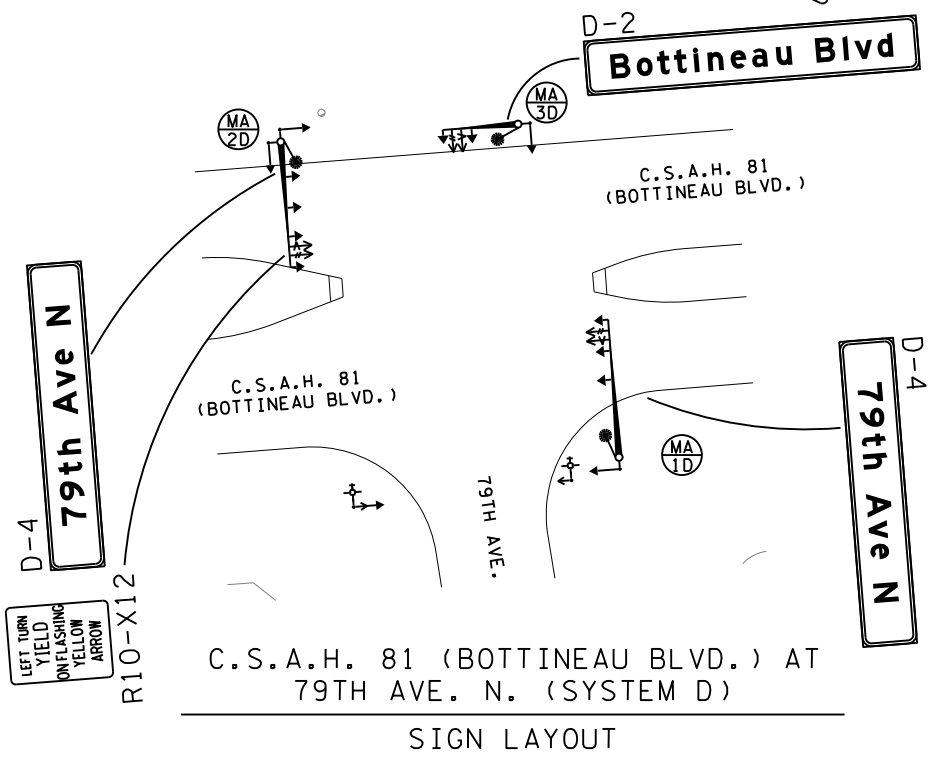


SIGN LAYOUT

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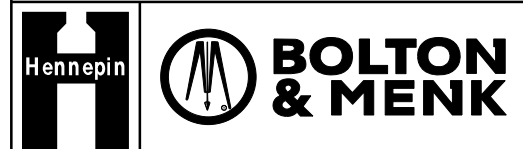
NOTES:

- 1) SEE SIGNAL PLAN DETAIL SHEET FOR SIGN MOUNTING PLATE LOCATIONS.
- 2) COLOR - WHITE LEGEND AND BORDER ON GREEN BACKGROUND. ALL SIGNING SHALL USE DG3 SIGN SHEETING.
- 3) CORNERS EXTRUDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- 4) FURNISH AND INSTALL MAST ARM MOUNTED SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEMS (SEE SPECIAL PROVISIONS).
- 5) CONTRACTOR SHALL FURNISH AND INSTALL R8-8 SIGNS MOUNTED ON MAST ARMS (36" X 48") AND POLES (24" X 30") AS SHOWN IN THE PLANS.



SIGN LAYOUT

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mikeo
4/18/2019

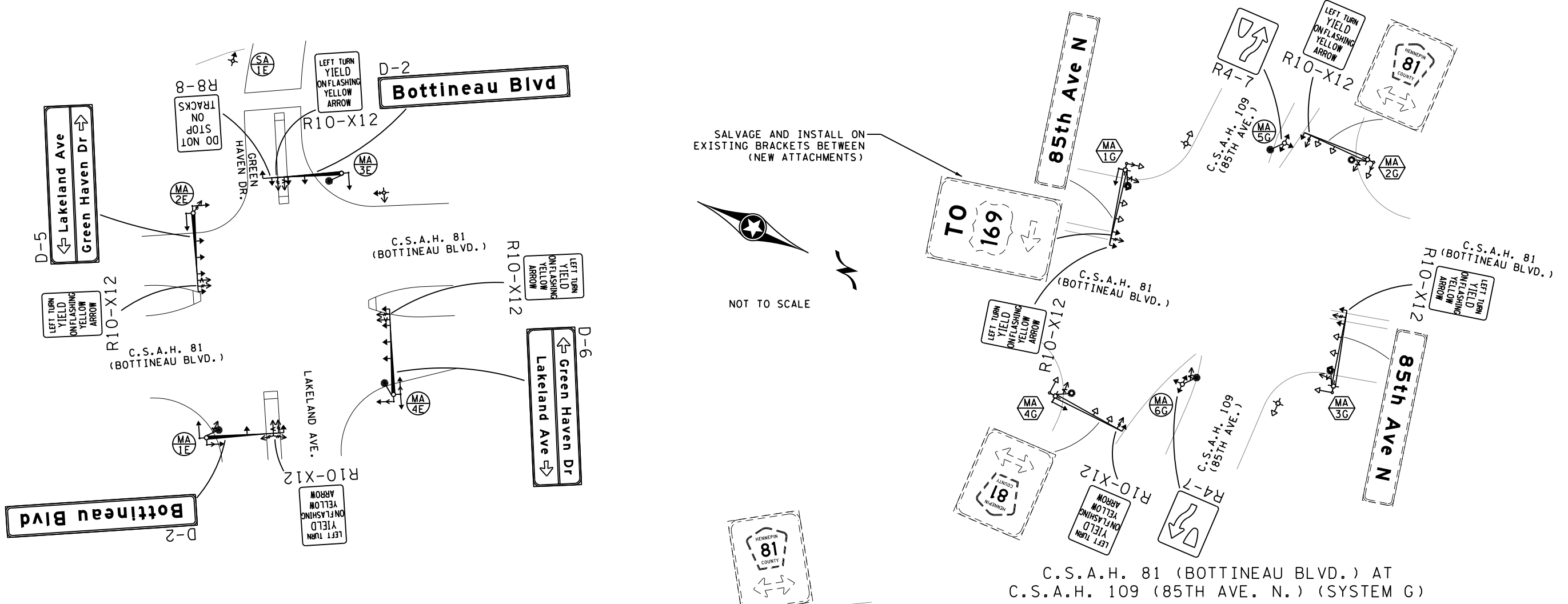


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Bryan Nemeth
 BRYAN J. NEMETH
 LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION: 4/19/2019

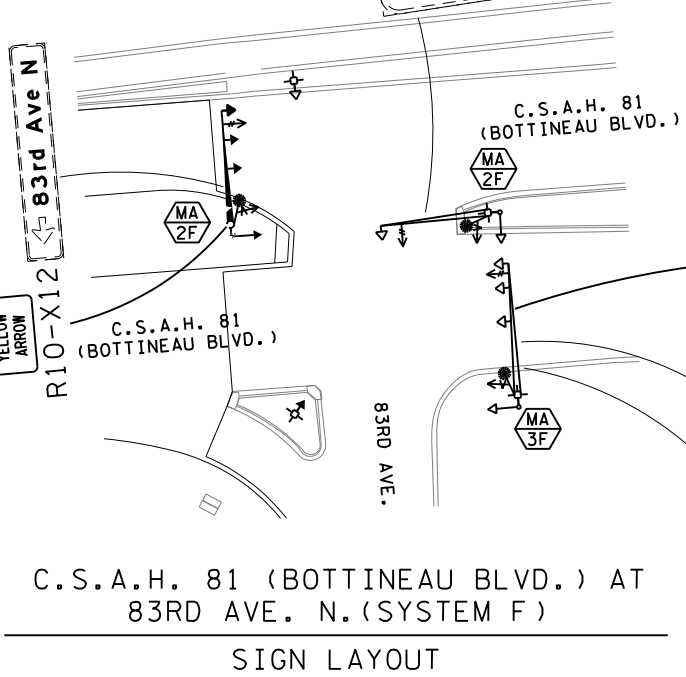
MAST ARM SIGN PANEL DETAILS
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS115
 SS126



C.S.A.H. 81 (BOTTINEAU BLVD.) AT LAKELAND AVE./GREEN HAVEN DR. (SYSTEM E)
SIGN LAYOUT

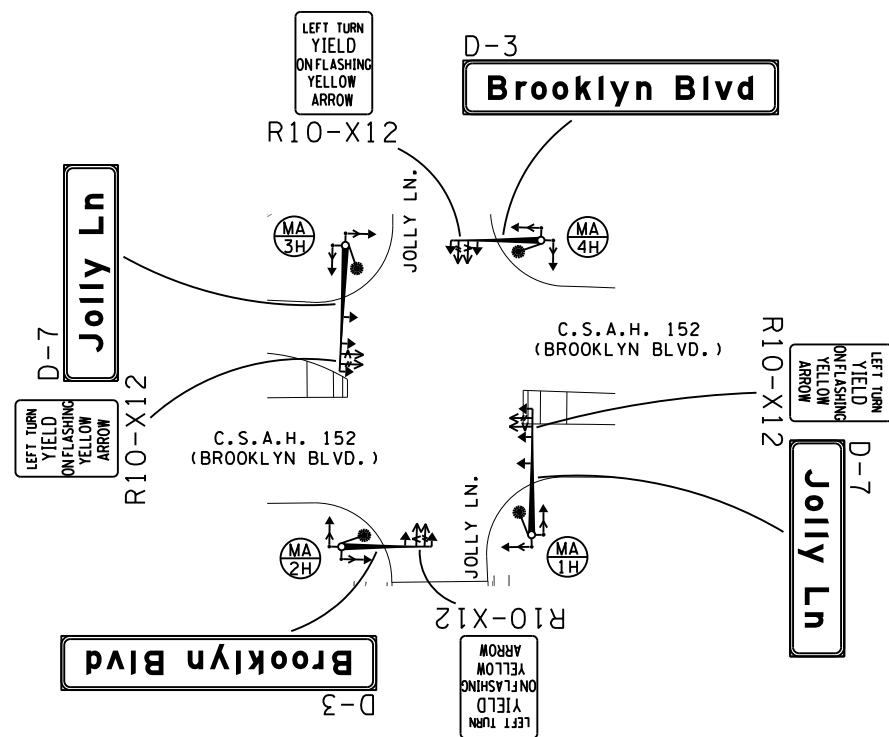
C.S.A.H. 81 (BOTTINEAU BLVD.) AT C.S.A.H. 109 (85TH AVE. N.) (SYSTEM G)
SIGN LAYOUT



- NOTES:
- 1) SEE SIGNAL PLAN DETAIL SHEET FOR SIGN MOUNTING PLATE LOCATIONS.
 - 2) COLOR - WHITE LEGEND AND BORDER ON GREEN BACKGROUND. ALL SIGNING SHALL USE DG3 SIGN SHEETING.
 - 3) CORNERS EXTRUDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
 - 4) FURNISH AND INSTALL MAST ARM MOUNTED SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEMS (SEE SPECIAL PROVISIONS).
 - 5) CONTRACTOR SHALL FURNISH AND INSTALL R8-8 SIGNS MOUNTED ON MAST ARMS (36" X 48") AS SHOWN IN THE PLANS.

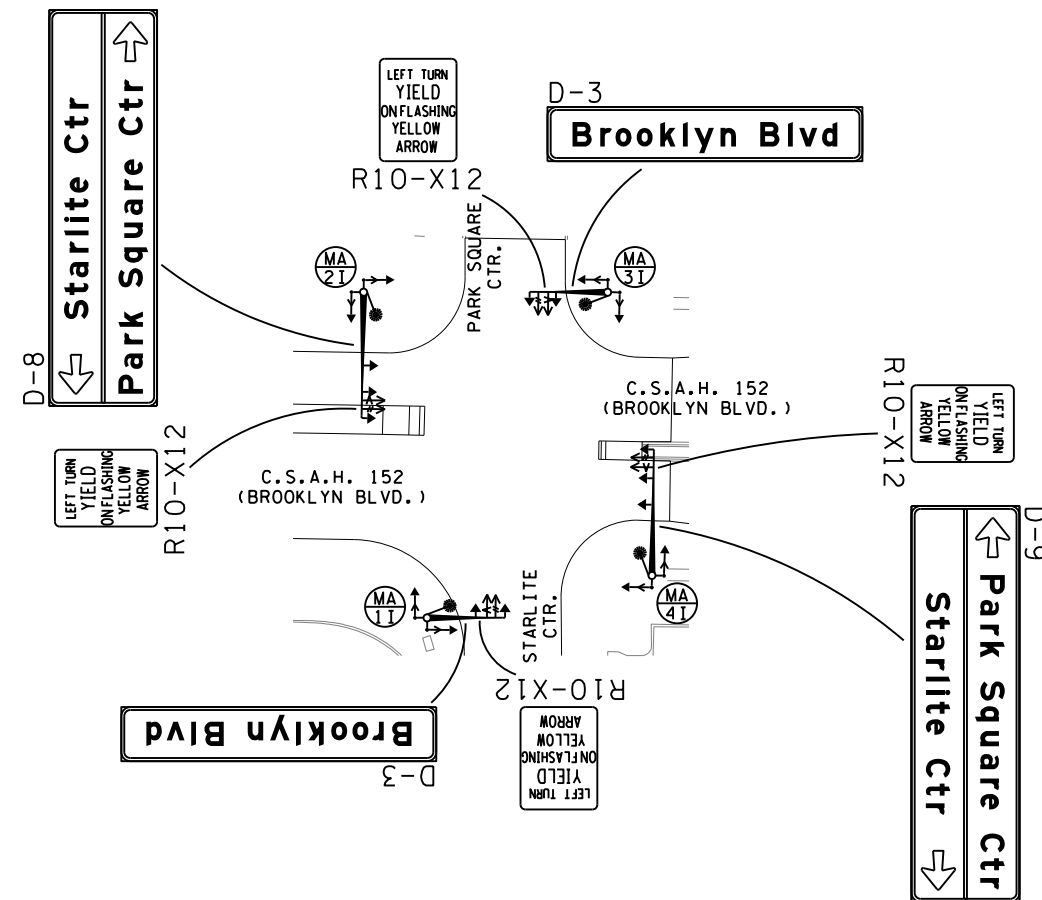
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2/28/2019

	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. BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: MSL CAD BY: KME CHECKED BY: BTN LAST REVISION:	MAST ARM SIGN PANEL DETAILS C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035, S.P. 110-020-040	SHEET SS116 SS126
		H:\HECO\T43116670\CAD\MS\plans\Signal\cd116670_ss002.dgn		



C.S.A.H. 152 (BROOKLYN BLVD.) AT
JOLLY LN. (SYSTEM H)

SIGN LAYOUT



C.S.A.H. 152 (BROOKLYN BLVD.) AT
PARK SQUARE CTR./STARLITE CTR. (SYSTEM I)

SIGN LAYOUT

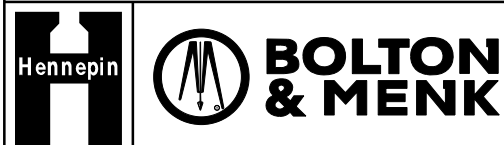
NOTES:

- 1) SEE SIGNAL PLAN DETAIL SHEET FOR SIGN MOUNTING PLATE LOCATIONS.
- 2) COLOR - WHITE LEGEND AND BORDER ON GREEN BACKGROUND. ALL SIGNING SHALL USE DG3 SIGN SHEETING.
- 3) CORNERS EXTRUDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- 4) FURNISH AND INSTALL MAST ARM MOUNTED SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEMS (SEE SPECIAL PROVISIONS).

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2/28/2019



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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

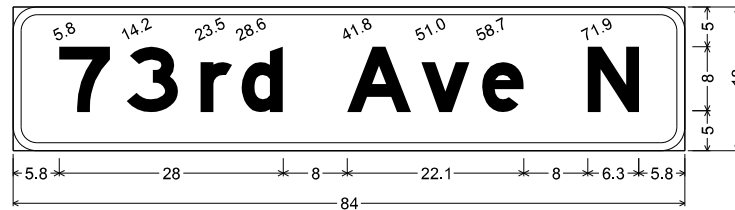
DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: _____

MAST ARM SIGN PANEL DETAILS

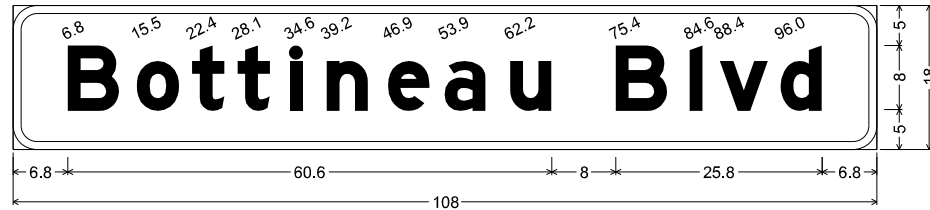
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET

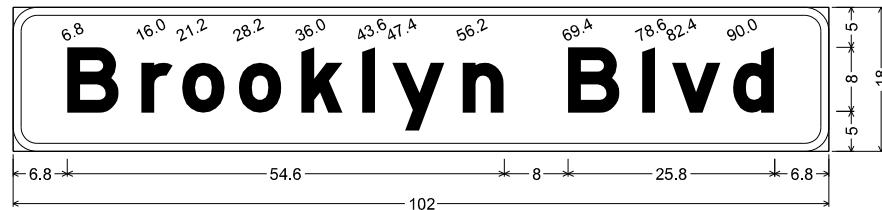
SS117
SS126



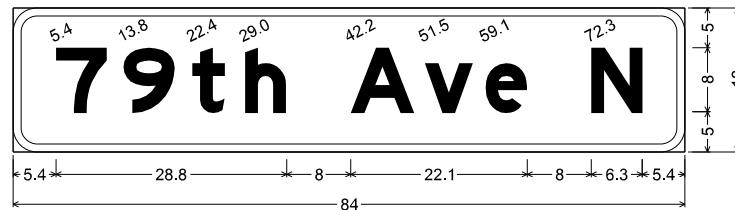
D-1; 3.0" Radius, 1.0" Border, White on Green;
[73rd Ave N] E Mod;



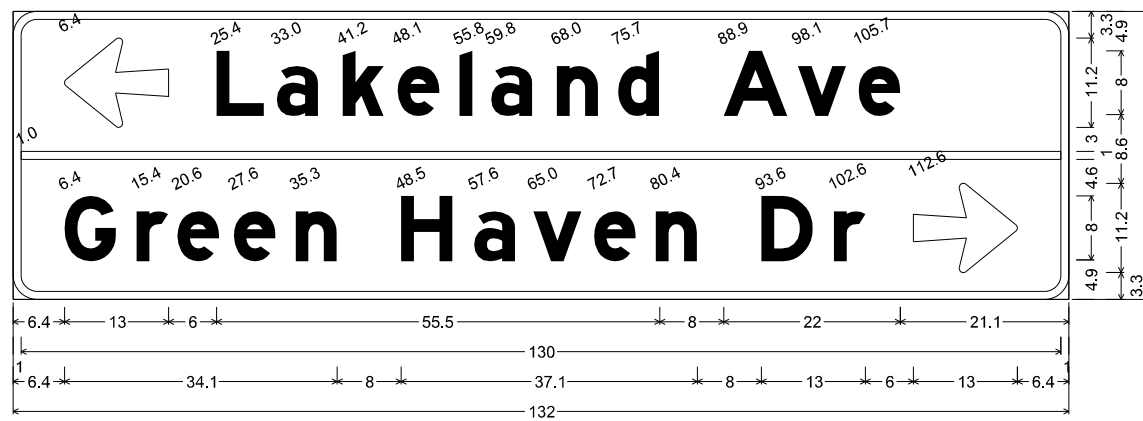
D-2; 3.0" Radius, 1.0" Border, White on Green;
[Bottineau Blvd] E Mod;



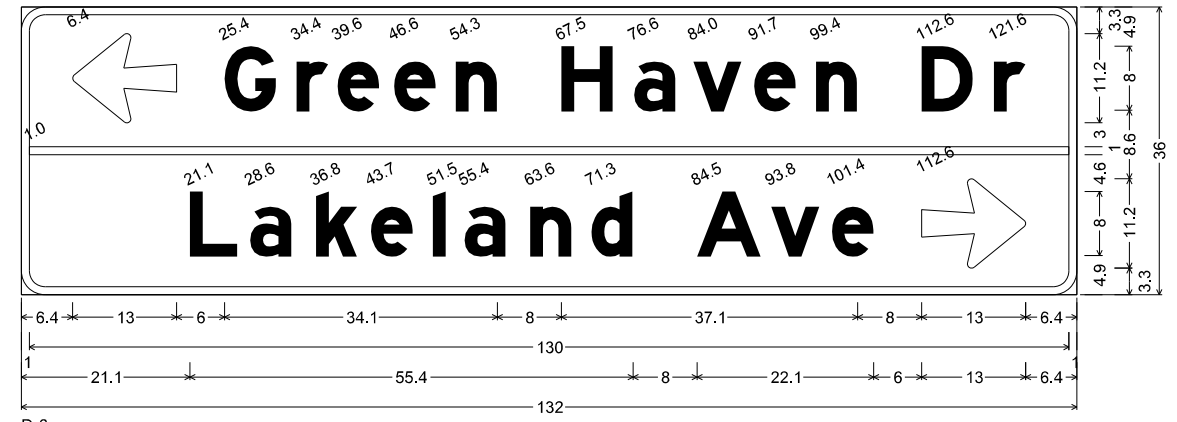
D-3; 3.0" Radius, 1.0" Border, White on Green;
[Brooklyn Blvd] E Mod;



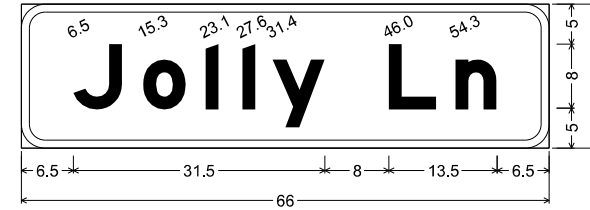
D-4; 3.0" Radius, 1.0" Border, White on Green;
[79th Ave N] E Mod;



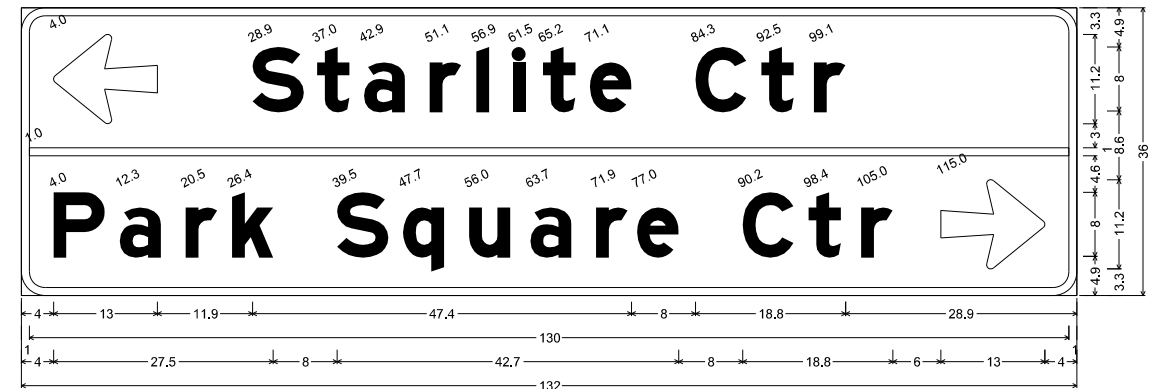
D-5;
3.0" Radius, 1.0" Border, White on Green;
Arrow 5 - 13.0" 180"; [Lakeland Ave] E Mod; [Green Haven Dr] E Mod; Arrow 5 - 13.0" 0°;



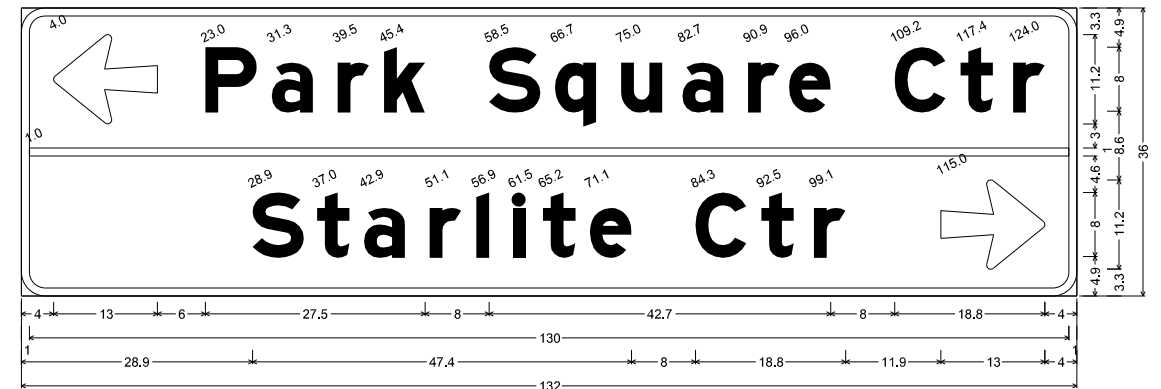
D-6;
3.0" Radius, 1.0" Border, White on Green;
Arrow 5 - 13.0" 180"; [Green Haven Dr] E Mod; [Lakeland Ave] E Mod; Arrow 5 - 13.0" 0°;



D-7; 3.0" Radius, 1.0" Border, White on Green;
[Jolly Ln] E Mod;

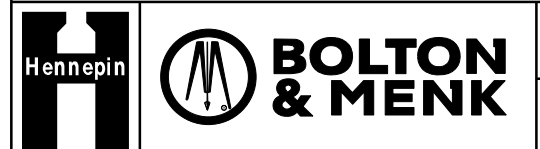


D-8;
3.0" Radius, 1.0" Border, White on Green;
Arrow 5 - 13.0" 180"; [Starlite Ctr] E Mod; [Park Square Ctr] E Mod; Arrow 5 - 13.0" 0°;



D-9;
3.0" Radius, 1.0" Border, White on Green;
Arrow 5 - 13.0" 180"; [Park Square Ctr] E Mod; [Starlite Ctr] E Mod; Arrow 5 - 13.0" 0°;

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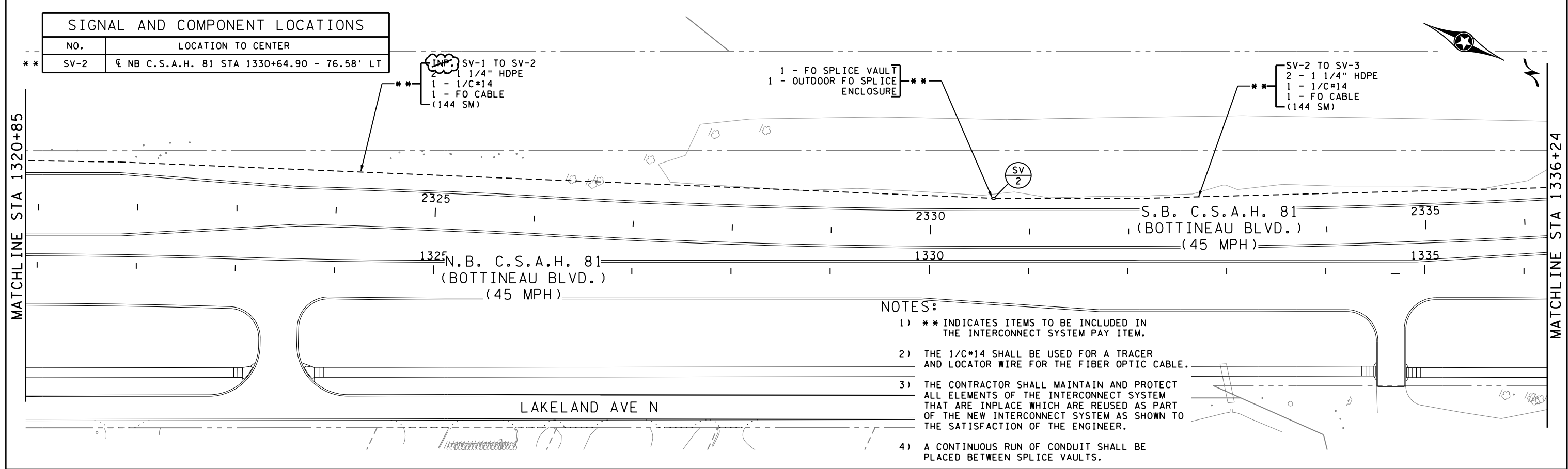
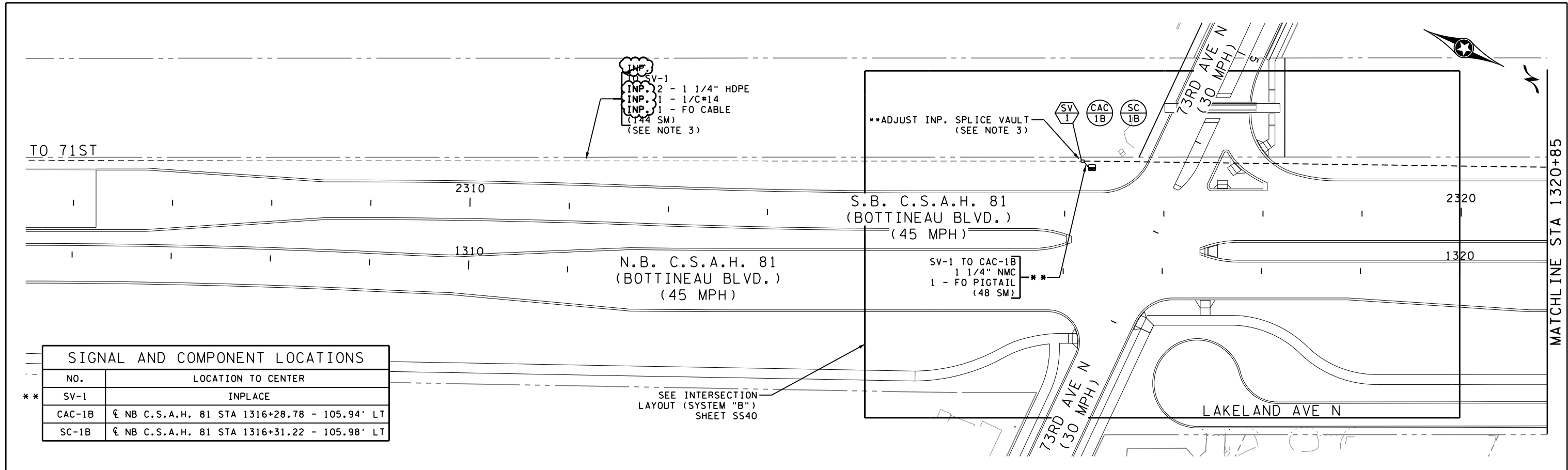


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Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
CHECKED BY: BTN
LAST REVISION: _____




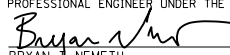
MAST ARM SIGN PANEL DETAILS
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

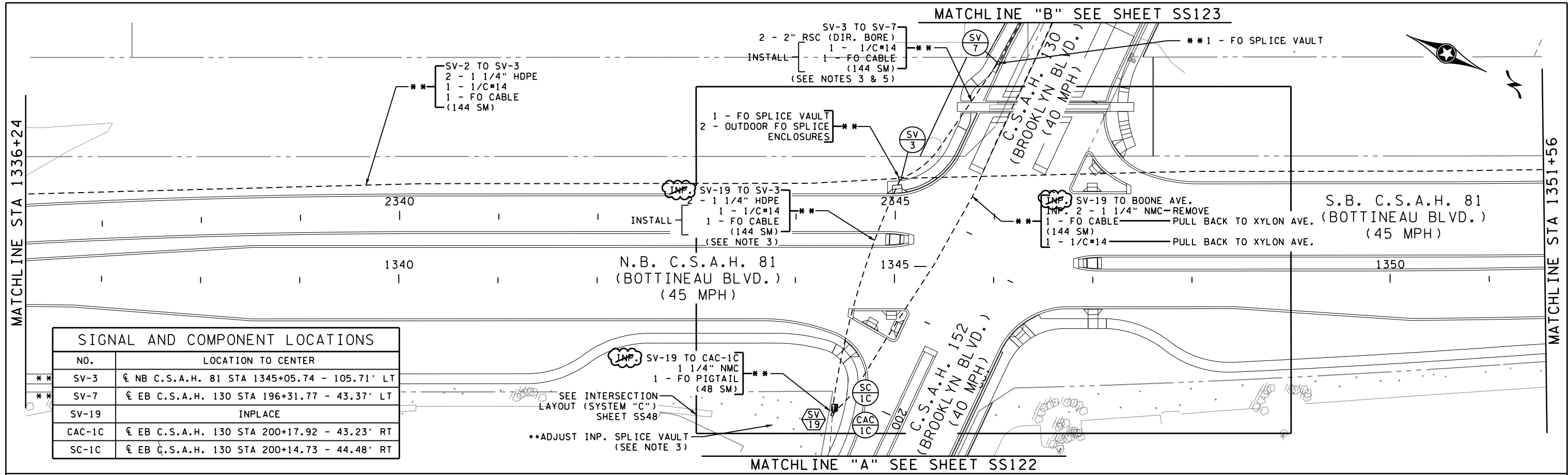
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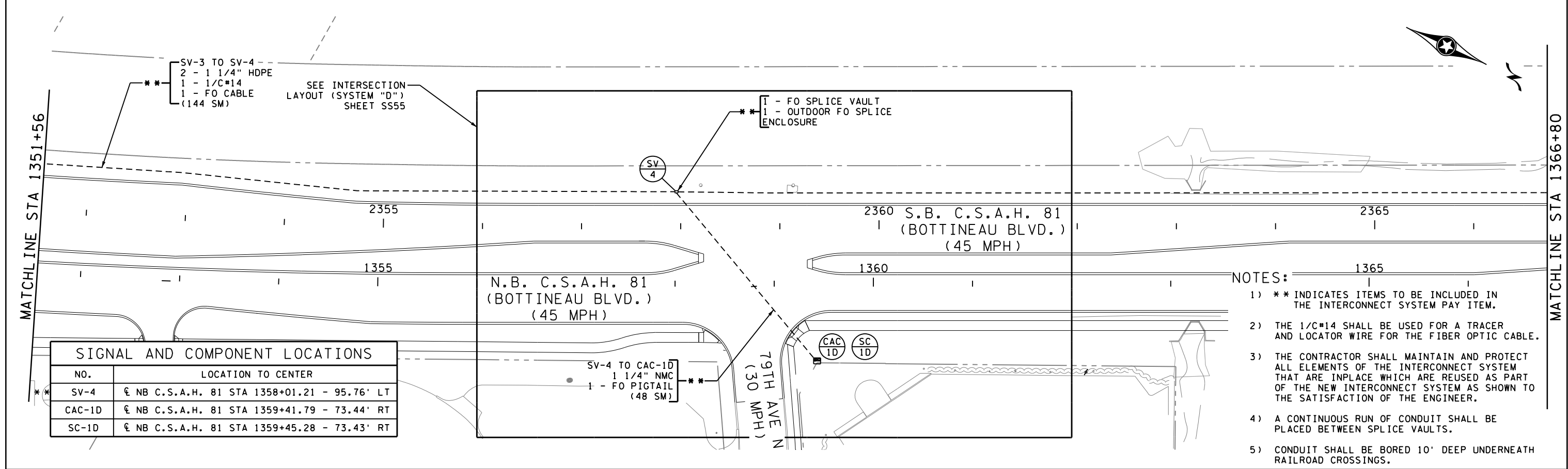
- NOTES:**
- ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
 - THE 1/C*14 SHALL BE USED FOR A TRACER AND LOCATOR WIRE FOR THE FIBER OPTIC CABLE.
 - THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL ELEMENTS OF THE INTERCONNECT SYSTEM THAT ARE INPLACE WHICH ARE REUSED AS PART OF THE NEW INTERCONNECT SYSTEM AS SHOWN TO THE SATISFACTION OF THE ENGINEER.
 - A CONTINUOUS RUN OF CONDUIT SHALL BE PLACED BETWEEN SPLICE VAULTS.

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			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.  BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: MSL CAD BY: KME CHECKED BY: BTN LAST REVISION: 5/6/2019	INTERCONNECT LAYOUT C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035, S.P. 110-020-040	SHEET SS119 SS126
				H:\HECO\T43116670\CAD\MS\plans\Signal\cd116670_1p001.dgn		



SIGNAL AND COMPONENT LOCATIONS	
NO.	LOCATION TO CENTER
** SV-3	☉ NB C.S.A.H. 81 STA 1345+05.74 - 105.71' LT
** SV-7	☉ EB C.S.A.H. 130 STA 196+31.77 - 43.37' LT
SV-19	INPLACE
CAC-1C	☉ EB C.S.A.H. 130 STA 200+17.92 - 43.23' RT
SC-1C	☉ EB C.S.A.H. 130 STA 200+14.73 - 44.48' RT

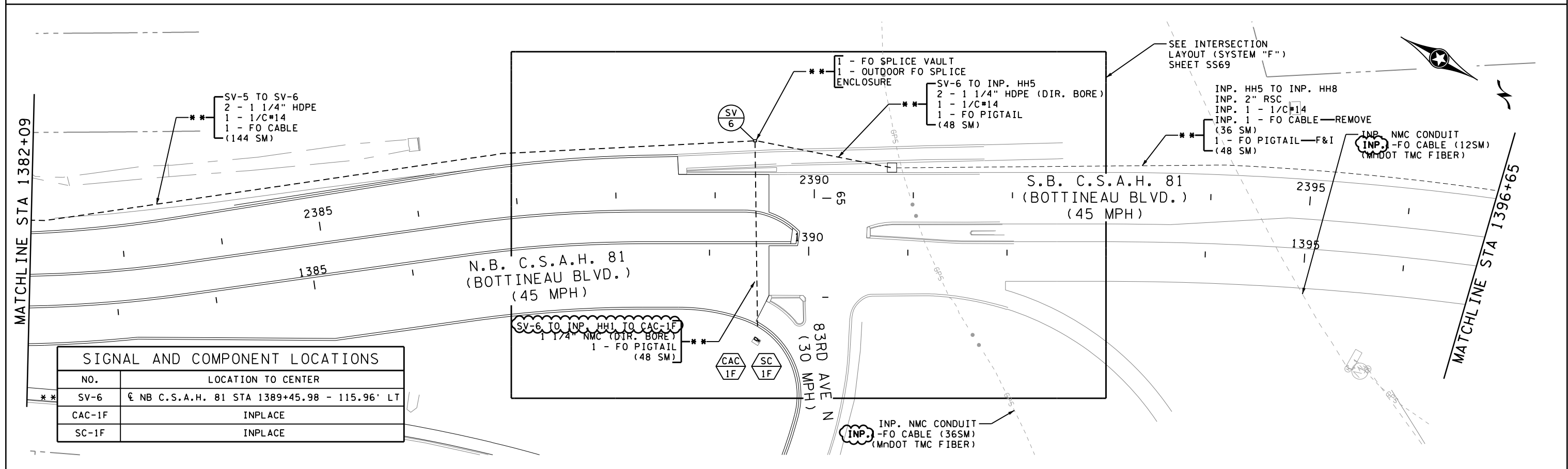
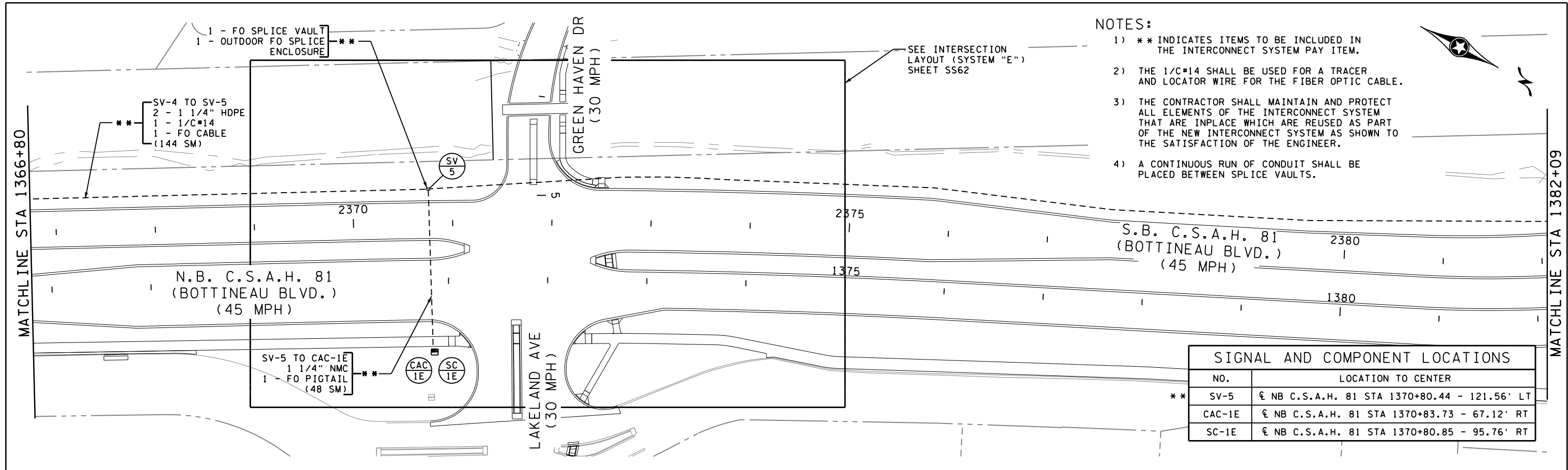


SIGNAL AND COMPONENT LOCATIONS	
NO.	LOCATION TO CENTER
** SV-4	☉ NB C.S.A.H. 81 STA 1358+01.21 - 95.76' LT
CAC-1D	☉ NB C.S.A.H. 81 STA 1359+41.79 - 73.44' RT
SC-1D	☉ NB C.S.A.H. 81 STA 1359+45.28 - 73.43' RT

- NOTES:
- ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
 - THE 1/C#14 SHALL BE USED FOR A TRACER AND LOCATOR WIRE FOR THE FIBER OPTIC CABLE.
 - THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL ELEMENTS OF THE INTERCONNECT SYSTEM THAT ARE INPLACE WHICH ARE REUSED AS PART OF THE NEW INTERCONNECT SYSTEM AS SHOWN TO THE SATISFACTION OF THE ENGINEER.
 - A CONTINUOUS RUN OF CONDUIT SHALL BE PLACED BETWEEN SPLICE VAULTS.
 - CONDUIT SHALL BE BORED 10' DEEP UNDERNEATH RAILROAD CROSSINGS.

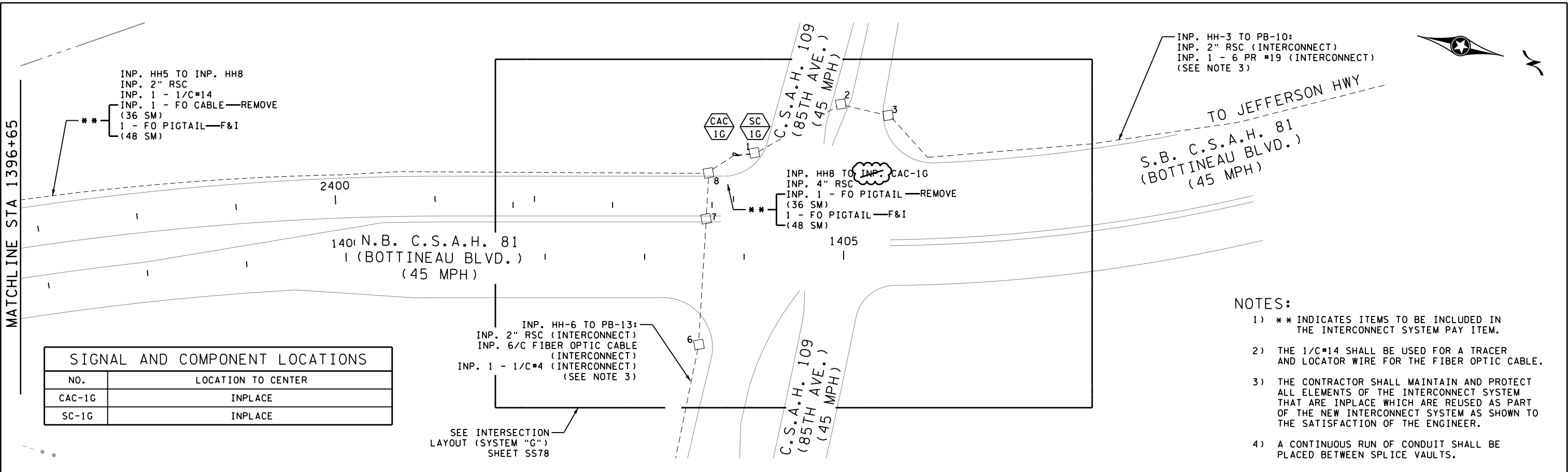
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5/7/2019

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				CAD BY: KME		
				CHECKED BY: BTN		
				LAST REVISION: 5/6/2019		



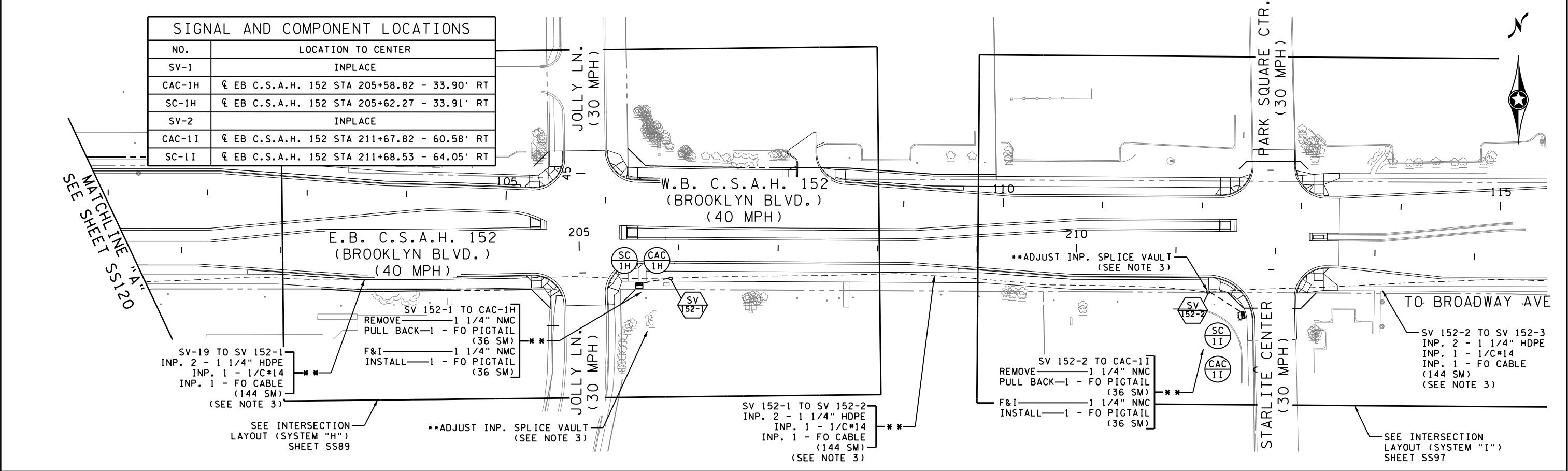
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5/7/2019

		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. BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019	DESIGN BY: MSL	INTERCONNECT LAYOUT	SHEET SS121 / SS126
			CAD BY: KME		



SIGNAL AND COMPONENT LOCATIONS	
NO.	LOCATION TO CENTER
CAC-1G	INPLACE
SC-1G	INPLACE

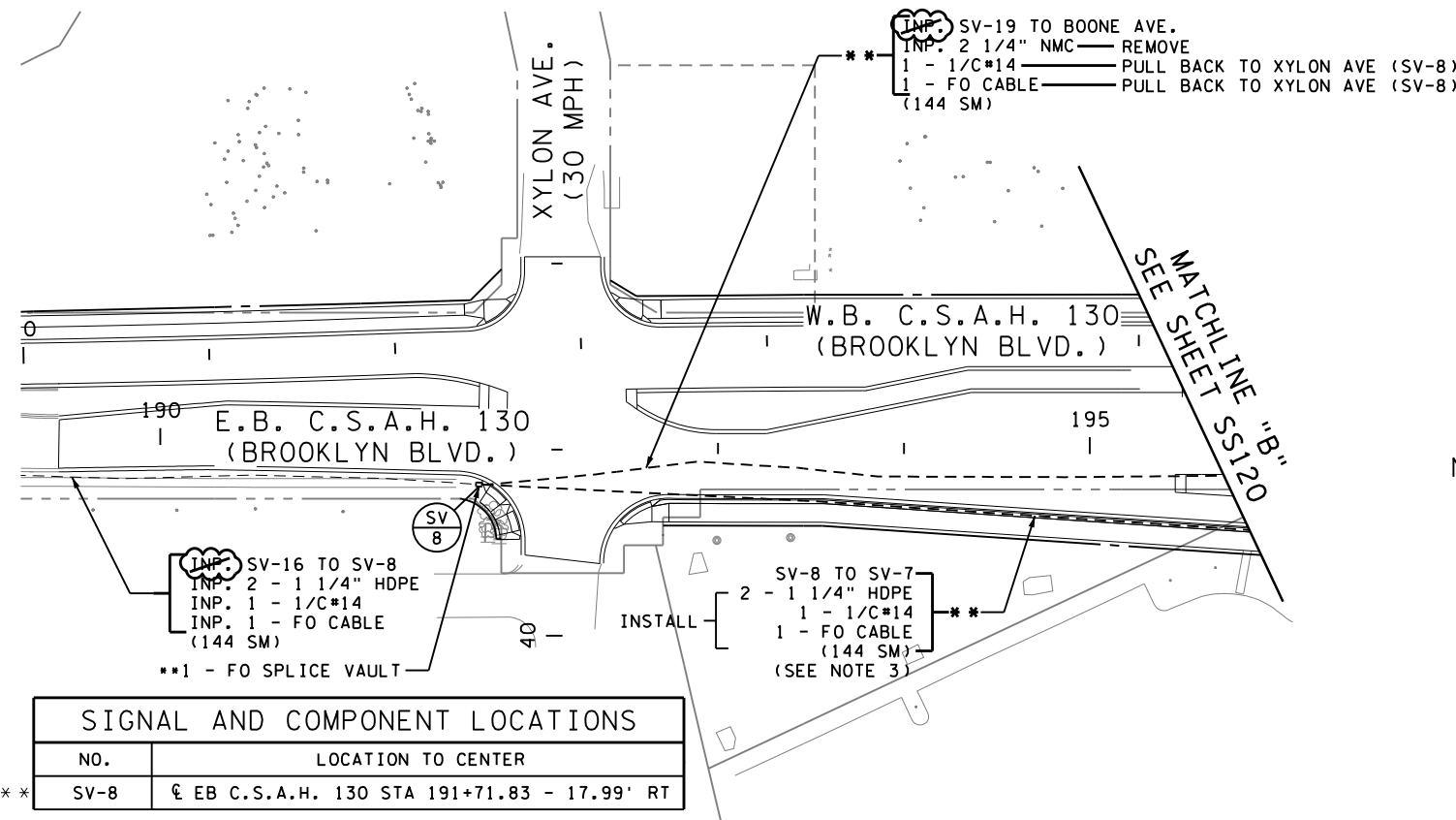
- NOTES:
- ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
 - THE 1/C#14 SHALL BE USED FOR A TRACER AND LOCATOR WIRE FOR THE FIBER OPTIC CABLE.
 - THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL ELEMENTS OF THE INTERCONNECT SYSTEM THAT ARE INPLACE WHICH ARE REUSED AS PART OF THE NEW INTERCONNECT SYSTEM AS SHOWN TO THE SATISFACTION OF THE ENGINEER.
 - A CONTINUOUS RUN OF CONDUIT SHALL BE PLACED BETWEEN SPLICE VAULTS.



SIGNAL AND COMPONENT LOCATIONS	
NO.	LOCATION TO CENTER
SV-1	INPLACE
CAC-1H	℄ EB C.S.A.H. 152 STA 205+58.82 - 33.90' RT
SC-1H	℄ EB C.S.A.H. 152 STA 205+62.27 - 33.91' RT
SV-2	INPLACE
CAC-1I	℄ EB C.S.A.H. 152 STA 211+67.82 - 60.58' RT
SC-1I	℄ EB C.S.A.H. 152 STA 211+68.53 - 64.05' RT

			<p>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.</p> <p><i>Bryan J. Nemeth</i> BRYAN J. NEMETH LIC. NO. 43354 DATE 2-28-2019</p>	DESIGN BY: MSL CAD BY: KME CHECKED BY: BTN LAST REVISION: 5/6/2019	<p style="text-align: center;">INTERCONNECT LAYOUT</p> <p style="text-align: center;">C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035, S.P. 110-020-040</p>	<p style="text-align: center;">SHEET</p> <p style="text-align: center;">SS122 SS126</p>

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5/7/2019



SIGNAL AND COMPONENT LOCATIONS

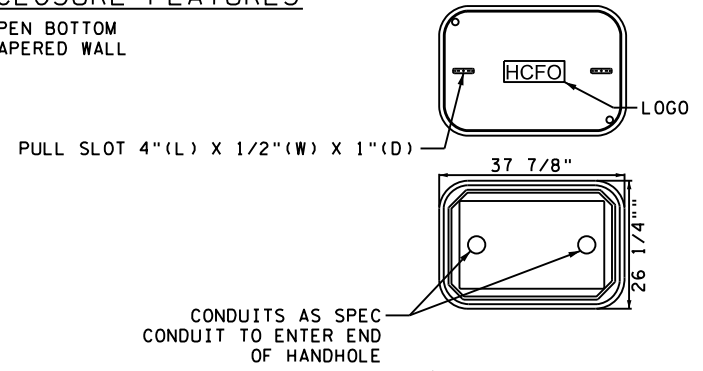
NO.	LOCATION TO CENTER
** SV-8	EB C.S.A.H. 130 STA 191+71.83 - 17.99' RT

NOTES:

- ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
- THE 1/C#14 SHALL BE USED FOR A TRACER AND LOCATOR WIRE FOR THE FIBER OPTIC CABLE.
- THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL ELEMENTS OF THE INTERCONNECT SYSTEM THAT ARE INPLACE WHICH ARE REUSED AS PART OF THE NEW INTERCONNECT SYSTEM AS SHOWN TO THE SATISFACTION OF THE ENGINEER.
- VERIFY LOCATION OF INPLACE FIBER OPTIC CABLE WHEN PLACING SPLICE VAULTS.
- A CONTINUOUS RUN OF CONDUIT SHALL BE PLACED BETWEEN SPLICE VAULTS.

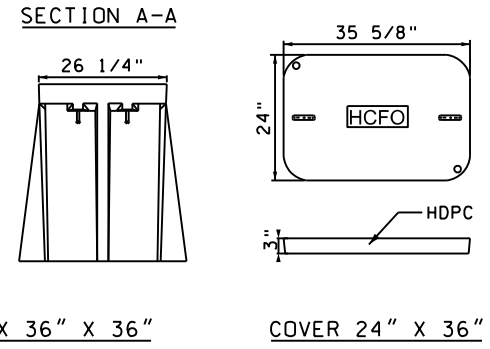
ENCLOSURE FEATURES

- OPEN BOTTOM
- TAPERED WALL



COVER FEATURES

- HIGH DENSITY POLYMER CONCRETE (HDPC).
- LOGO EMBOSSED WITH 7/8" TEXT HEIGHT AS SHOWN.
- SKID RESISTANT SURFACE (0.5 COF SKID).
- SECURED WITH PENTA BOLTS.



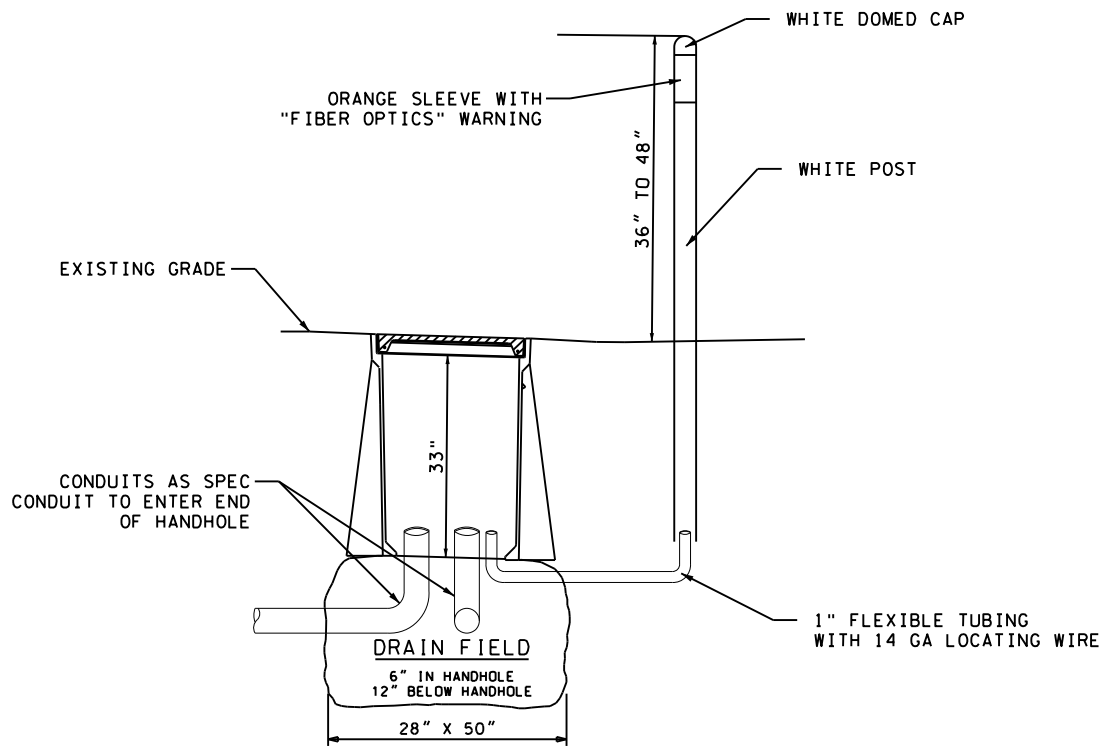
INSIDE DIMENSIONS

LENGTH	WIDTH	DEPTH
33 1/8"	21 1/2"	33"
44 1/8"	32 1/2"	

NOT TO SCALE

NOTES

- COVER AND BOX SHALL MEET ANSI/SCTE 77- "T15/20K" RATING.
- COLOR - CEMENT GRAY
- ALL DIMENSIONS ARE NOMINAL.
- INSTALLATION SHALL BE IN ACCORDANCE WITH HENNEPIN COUNTY STANDARD SPECIFICATIONS.

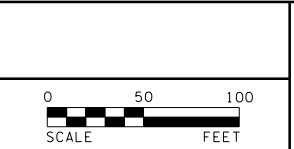


NOTES

- INSTALL SO THAT LID AND FRAME ARE 1" BELOW SURROUNDING GRADE.
- WHEN LOCATED IN SIDEWALK AREAS INSTALL SO THAT LID AND FRAME ARE FLUSH WITH SURROUNDING GRADE.

NOT TO SCALE

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mikel
5/7/2019



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.

Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

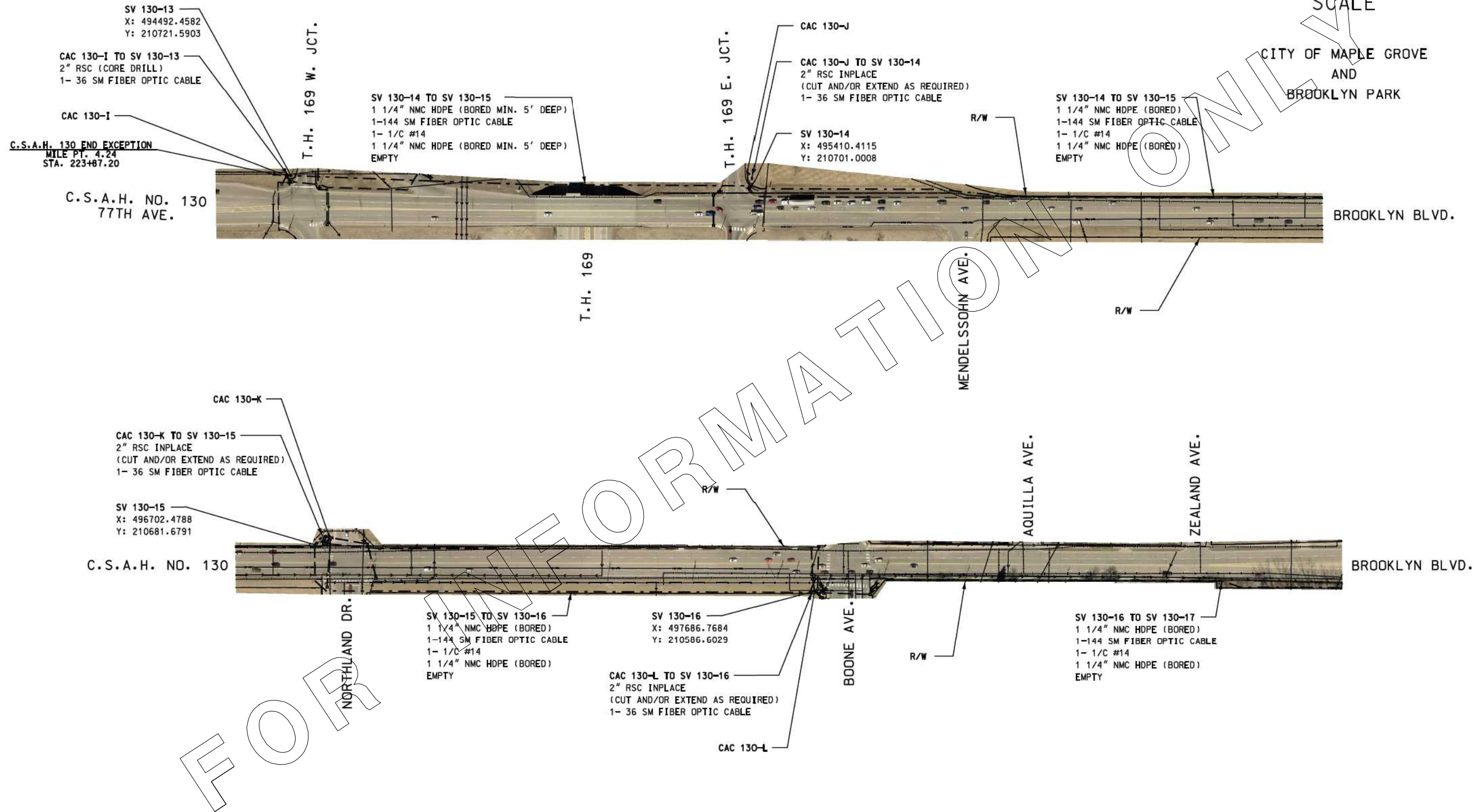
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CAD BY: KME
CHECKED BY: BTN
LAST REVISION: 5/6/2019

INTERCONNECT LAYOUT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS123
SS126

NOTE:
A FIBER OPTIC TRAFFIC CONTROL
INTERCONNECT SYSTEM IS INPLACE
FROM MAIN ST. TO T.H. 169 W. JCT.



bmi,tbl

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10:45:30 AM

mikela
2/28/2019

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.

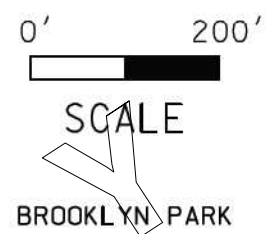
Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

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LAST REVISION: _____

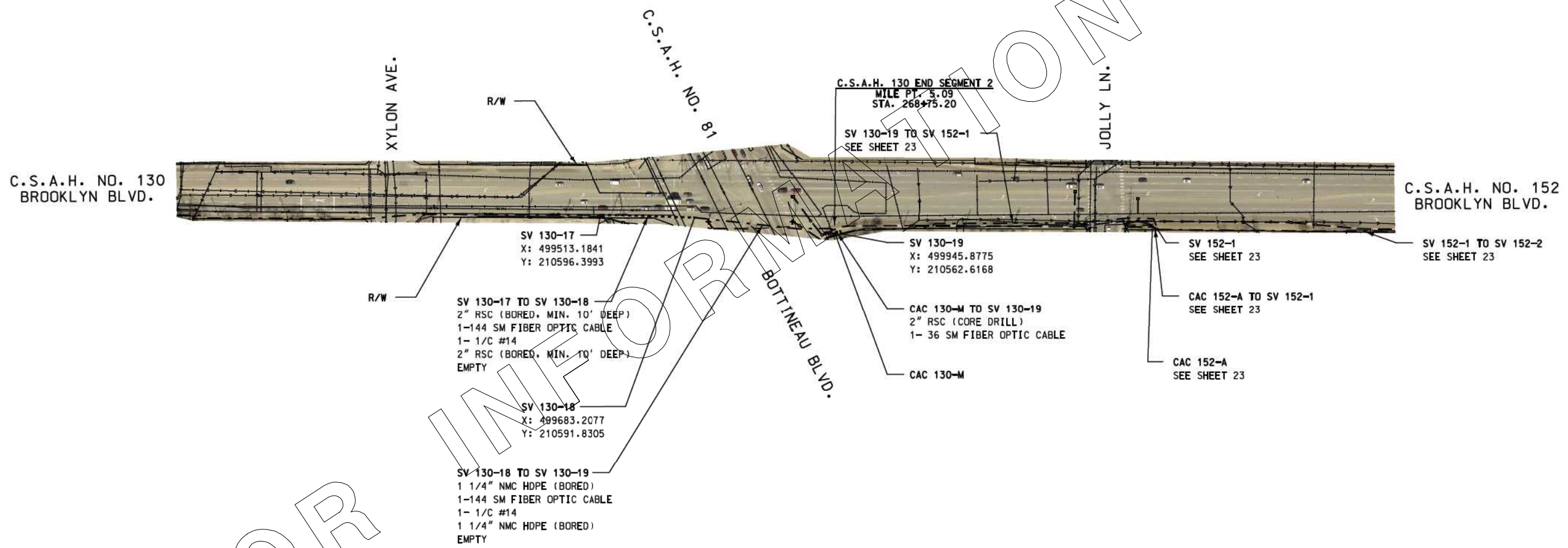
FOR INFORMATION ONLY - C.S.A.H. 130 INTERCONNECT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

SHEET
SS124
SS126



ONLY



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mikela
2/28/2019

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.

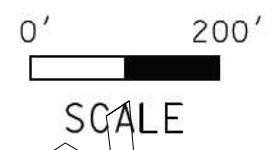
Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
 CAD BY: KME
 CHECKED BY: BTN
 LAST REVISION: _____

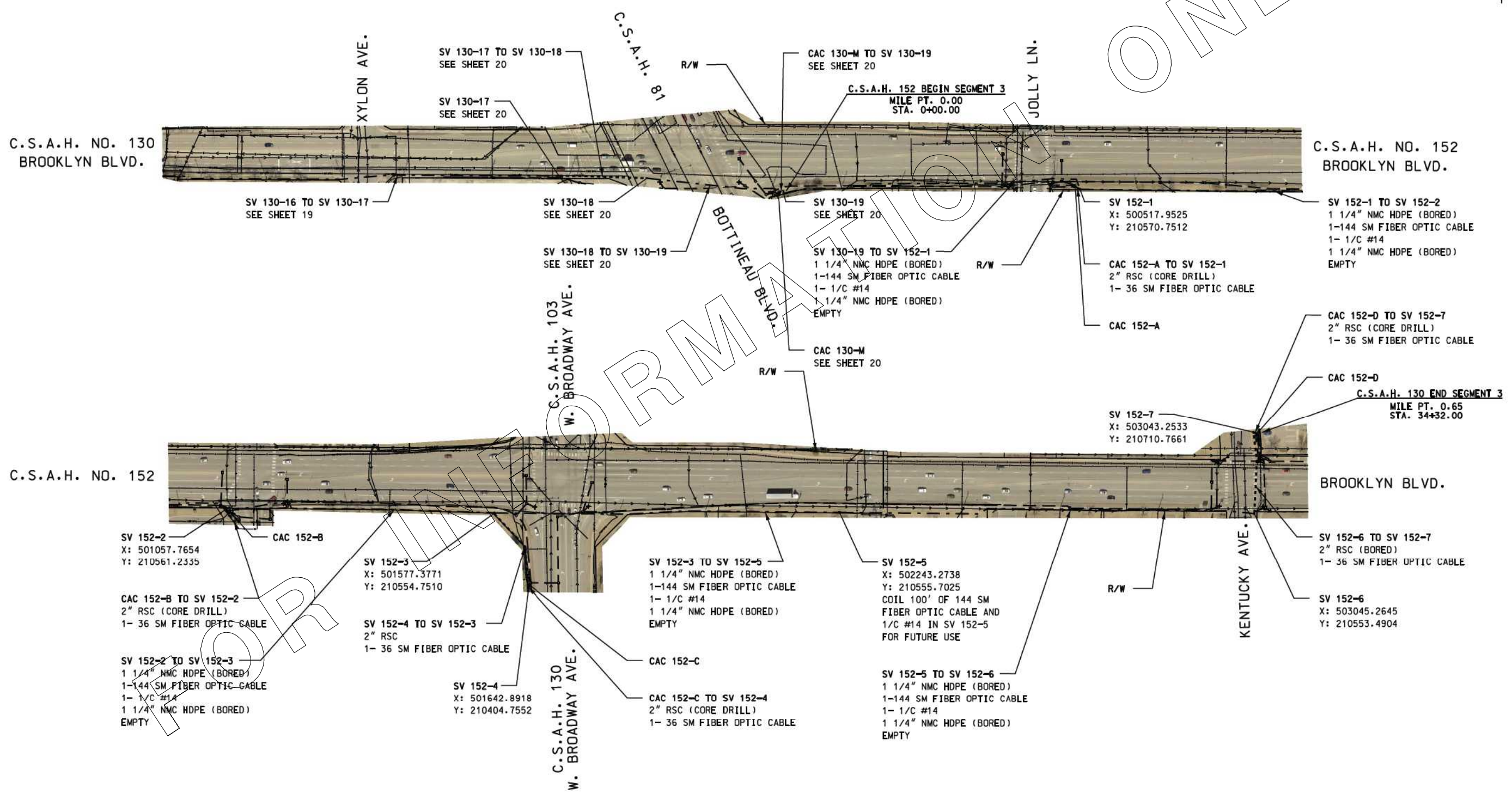
FOR INFORMATION ONLY - C.S.A.H. 130/152 INTERCONNECT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 SS125
 SS126



BROOKLYN PARK



ONLY

bmi,tbl
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mikel
2/28/2019

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.

Bryan J. Nemeth
BRYAN J. NEMETH
LIC. NO. 43354 DATE 2-28-2019

DESIGN BY: MSL
CAD BY: KME
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LAST REVISION:

FOR INFORMATION ONLY - C.S.A.H. 152 INTERCONNECT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

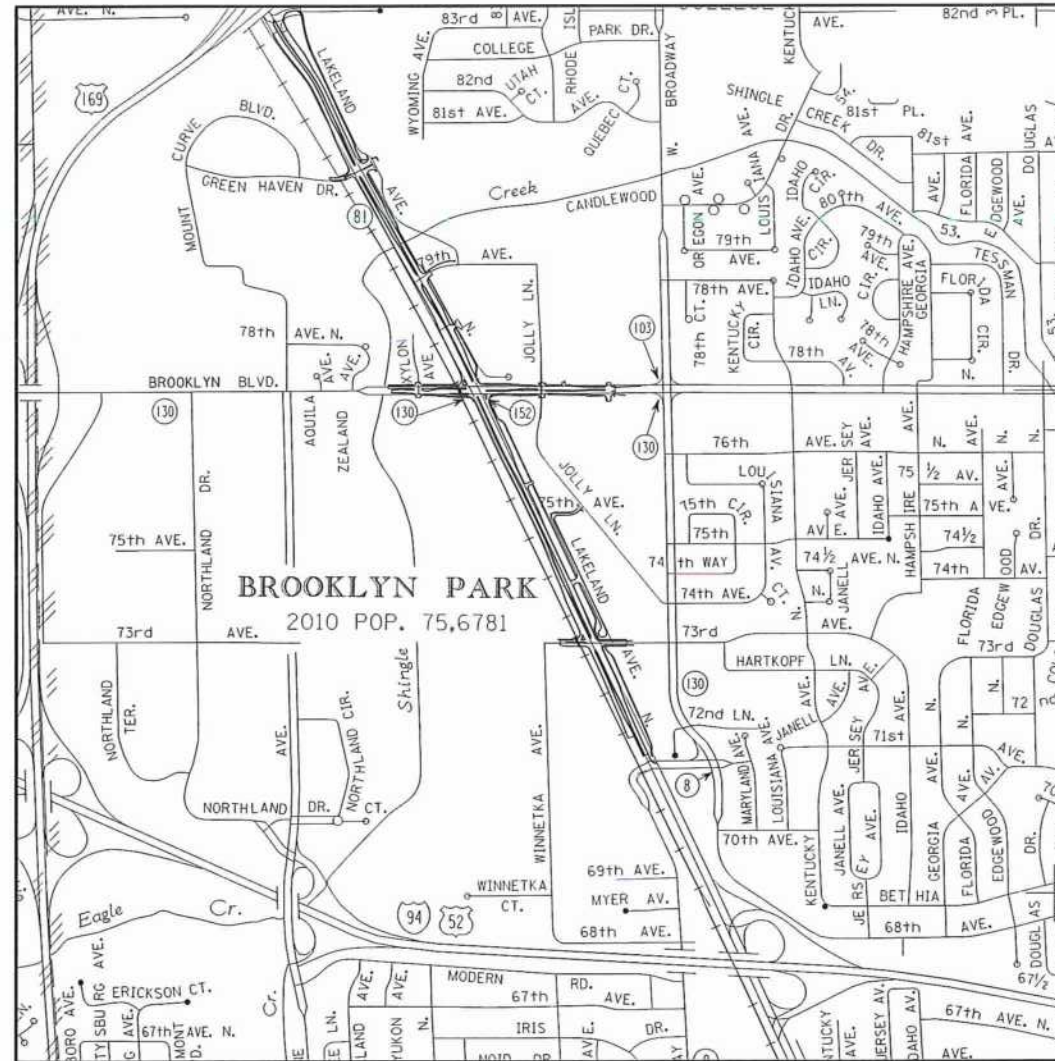
SHEET
SS126
SS126

CITY OF BROOKLYN PARK

HENNEPIN COUNTY, MINNESOTA
 PLANS FOR: SANITARY SEWER AND WATER MAIN

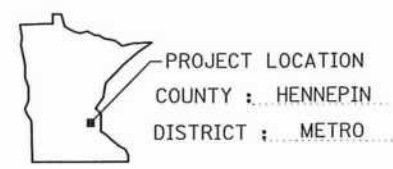
SANITARY SEWER AND WATER MAIN IMPROVEMENTS

CITY PROJECT NO. 403219



SCALE
 INDEX MAP 1000'

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY



PLAN SYMBOLS

- STATE LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT-OF-WAY LINE
- PRESENT RIGHT-OF-WAY LINE
- CONTROL OF ACCESS LINE
- PROPERTY LINE (Except Land Lines)
- VACATED PLATTED PROPERTY
- CORPORATE OR CITY LIMITS
- TRUNK HIGHWAY CENTER LINE
- CONC. RETAINING WALL
- RAILROAD
- RAILROAD RIGHT-OF-WAY LINE
- RIVER OR CREEK
- DRY RUN
- DRAINAGE DITCH
- DRAIN TILE
- CULVERT
- DROP INLET
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- RAILROAD SNOW FENCE
- STONE WALL OR FENCE
- HEDGE
- RAILROAD CROSSING SIGN
- RAILROAD CROSSING BELL
- ELECTRIC WARNING SIGN
- CROSSING GATE
- MEANDER CORNER
- MAIL BOX
- SPRINGS
- MARSH
- TIMBER
- ORCHARD
- BRUSH
- NURSERY
- CATCH BASIN
- FIRE HYDRANT
- CATTLE GUARD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame)
- F-FRAME C-CONCRETE
- S-STONE T-TILE
- B-BRICK ST-STUCCO
- IRON PIPE OR ROD
- MONUMENT (STONE, CONCRETE, OR METAL)
- WOODEN HUB
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY

UTILITY SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE AND POWER ON POWER POLES
- ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PEDESTAL TELEPHONE CABLE TERMINAL
- GAS MAIN
- WATER MAIN
- CONDUIT
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE
- BURIED ELECTRIC CABLE
- AERIAL TELEPHONE CABLE
- SEWER (SANITARY)
- SEWER (STORM)
- SEWER MANHOLE
- HANDHOLE

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

CITY OF BROOKLYN PARK STANDARD SPECIFICATION FOR UTILITY AND STREET CONSTRUCTION 2019.

INDEX

SHEET NO.	SHEET DESCRIPTION
SW1	TITLE SHEET AND LEGEND
SW2-SW3	INPLACE SANITARY SEWER AND WATER MAIN TABULATIONS
SW4	PROPOSED SANITARY SEWER AND WATER MAIN TABULATIONS
SW5-SW7	SANITARY SEWER AND WATER MAIN DETAILS
SW8-SW10	EXISTING UTILITIES / SANITARY SEWER AND WATER MAIN REMOVAL PLANS
SW11-SW16	SANITARY SEWER AND WATER MAIN PLANS AND PROFILES

THIS PLAN CONTAINS SW16 SHEETS



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.

SIGNATURE *Kyle F. Harrison*
 DATE 03/05/19 LIC. NO. 53658 PRINT NAME KYLE F. HARRISON

RECOMMENDED FOR APPROVAL CITY ENGINEER, CITY OF BROOKLYN PARK 20

RECOMMENDED FOR APPROVAL HENNEPIN COUNTY ENGINEER 20

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THIS PLAN AND/OR SPECIFICATION WAS PREPARED SPECIFICALLY FOR THIS PROJECT, AND ANY RE-USE OF DETAILS OR SPECIFICATIONS ON OTHER PROJECTS IS NOT INTENDED OR AUTHORIZED BY THE DESIGNER. LIABILITY FOR ANY RE-USE ON OTHER PROJECTS IS THE RESPONSIBILITY OF THE PERSON, AGENCY, OR CORPORATION USING PLAN OR SPECIFICATION DATA FROM THIS PROJECT.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

S.A.P.

SHEET NO. SW1 OF SW16 SHEETS

EXISTING SANITARY SEWER										A
ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	RECONSTRUCT DRAINAGE STRUCTURE LIN FT	SALVAGE CASTING INSTALL CASTING EACH	ELEVATIONS		NOTES	
	STATION	OFFSET					EXISTING RIM	PROPOSED RIM		
	73RD	11+15.77					24.6' LT	MH		
73RD	11+15.77 TO 14+93.16	24.6' LT TO 25.0' LT	8" VCP SAN	X						
73RD	14+93.16	25.0' LT	MH	X						
PROJECT TOTALS					4.9	1				

EXISTING WATERMAIN												B	
ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE					WATERMAIN LINING (3) LIN FT	ADJUST GATE VALVE & BOX EACH	NOTES	
	STATION	OFFSET			WATERMAIN LIN FT	MANHOLE EACH	STEEL CASING LIN FT	GATE VALVE & BOX EACH	HYDRANT EACH				CURB STOP & BOX EACH
	73RD	2+07 TO 4+17			13' LT TO 13' LT	8" CIP WM	X						
73RD	4+17 TO 5+00	13' LT TO 14' LT	8" CIP WM		83								
72nd	5+00 TO 6+25	13' LT TO 14' LT	8" CIP WM	X									
73RD	5+00 TO 6+25	13' LT TO 14' LT	STEEL CASING	X						125			
73RD	6+25 TO 8+38	14' LT TO 16' LT	8" CIP WM		213								
73RD	6+35 TO 7+85	14' LT TO 15' LT	STEEL CASING			150							
73RD	8+38 TO 8+59	16' LT TO 10' LT	8" CIP WM		21								
73RD	8+59 TO 8+80	10' LT TO 9' LT	8" CIP WM		21								
73RD	8+80	9' LT	WATERMAIN VALVE				X						
73RD	8+80 TO 10+72	8' LT TO 10' LT	8" CIP WM		192								
73RD	9+05 TO 8+93	8' LT TO 37' RT	6" CIP WM		47								
73RD	8+93	37' RT	HYDRANT					X					
73RD	10+72 TO 14+78	10' LT TO 11' LT	8" CIP WM	X									
73RD	10+02	10' LT TO 36' LT	1" COPPER SERVICE		X							(1)	
73RD	10+02	36' LT	CURB STOP							X			
73RD	10+05	10' LT TO 37' RT	1" COPPER SERVICE		X							(1)	
73RD	10+05	37' RT	CURB STOP							X			
73RD	10+69	10' LT TO 38' LT	1" COPPER SERVICE		X							(1)	
73RD	10+69	38' LT	CURB STOP							X			
EB BROOKLYN BLVD	186+76 TO 189+52	7' RT TO 10' RT	18" WM	X									
EB BROOKLYN BLVD	189+52	10' RT	WATER MH				X						
EB BROOKLYN BLVD	189+52 TO 192+05	10' RT TO 7' RT	18" WM		252								
EB BROOKLYN BLVD	192+04 TO 192+05	7' RT TO 34' RT	8" WM		17								
EB BROOKLYN BLVD	192+05 TO 192+08	34' RT TO 182' RT	8" WM	X									
EB BROOKLYN BLVD	191+70 TO 192+04	24' TO 23' RT	6" DIP WM		34								
EB BROOKLYN BLVD	191+70	24' RT	HYDRANT										
EB BROOKLYN BLVD	192+04	7' RT	WATERMAIN VALVE				X						
EB BROOKLYN BLVD	192+06	8' RT	WATERMAIN VALVE				X						
EB BROOKLYN BLVD	192+05	34' RT	WATERMAIN VALVE								X		
EB BROOKLYN BLVD	192+05	7' RT TO 62' LT	8" WM		74								
EB BROOKLYN BLVD	192+05	62' LT TO 69' LT	8" WM		5								
EB BROOKLYN BLVD	192+05	69' LT	WATERMAIN VALVE								X		
EB BROOKLYN BLVD	192+05 TO 192+00	69' LT TO 114' LT	8" WM	X									
EB BROOKLYN BLVD	192+05 TO 195+99	7' RT TO 1' LT	18" WM		396								
EB BROOKLYN BLVD	195+99 TO 197+19	1' RT TO 3' LT	18" WM	X									
EB BROOKLYN BLVD	197+19 TO 197+66	3' LT	18" WM		46								
EB BROOKLYN BLVD	195+94 TO 195+93	1' LT TO 19' RT	6" DIP WM		20								
EB BROOKLYN BLVD	195+93	19' RT	HYDRANT					X					
EB BROOKLYN BLVD	195+99 TO 197+19	1' LT TO 3' LT	STEEL CASING	X							120		
EB BROOKLYN BLVD	197+66 TO 197+76	4' LT TO 8' RT	18" WM		15								
EB BROOKLYN BLVD	197+76 TO 199+85	8' RT TO 15' RT	18" WM		209								

NOTES:

CONTRACTOR SHALL COMPLETE ALL WORK WITH WATER MAIN AND SANITARY SEWER AS SPECIFIED IN THE TABULATIONS.

- (1) REMOVAL OF EXISTING WATER MAIN SHALL BE INCIDENTAL IF INSTALLED IN THE SAME TRENCH AS THE NEW WATER MAIN PIPE.
- (2) ADJUST TOP SECTION OF MANHOLE TO AVOID CASTING PLACEMENT WITHIN PROPOSED CURB & GUTTER.
- (3) CIPP LINING.

GENERAL NOTES:

UTILITIES ARE SHOWN AT APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF ALL UTILITIES IN THE FIELD.

THE TABLE ABOVE IS BASED ON UPON BEST INFORMATION AVAILABLE AND MAY NOT REFLECT THE ACTUAL EFFECTS ON THE UTILITIES BY CONSTRUCTION. ACTUAL DETERMINATION WILL BE MADE IN THE FIELD DURING CONSTRUCTION.

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4/16/2019	KFH	MJM	KFH	ADDENDUM #1
NO	DATE	BY	CHKD	APPR
REVISION				

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.

Print Name: KYLE F. HARRISON

[Signature]

Date: 04/16/19 License # 53658

STATE AID PROJECT NO. X

STATE PROJECT NO. X

COUNTY PROJECT NO. X

CITY PROJECT NO. 403219

DRAWN BY J. VAN BECK

DESIGNED BY K. HARRISON

CHECKED BY M. MOHS

COMM. NO. 1811530



CITY OF BROOKLYN PARK
INPLACE SANITARY SEWER AND WATER MAIN TABULATIONS
SANITARY SEWER AND WATER MAIN IMPROVEMENTS

**SHEET
SW2
OF
SW16**

EXISTING WATERMAIN

B

ALIGNMENT	LOCATION		EXISTING ITEM	LEAVE AS IS	REMOVE					WATERMAIN LINING (3)	ADJUST GATE VALVE & BOX	NOTES	
					WATERMAIN	MANHOLE	STEEL CASING	GATE VALVE & BOX	HYDRANT				CURB STOP & BOX
					LIN FT	EACH	LIN FT	EACH	EACH				EACH
EB BROOKLYN BLVD	197+76 TO 199+76	8' RT TO 15' RT	STEEL CASING			200							
EB BROOKLYN BLVD	199+76	15' RT	AIR RELIEF MH		X								
EB BROOKLYN BLVD	199+85 TO 200+26	15' RT TO 4' LT	18" WM										
EB BROOKLYN BLVD	199+92	11' RT	WATERMAIN VALVE				X						
EB BROOKLYN BLVD	200+26 TO 204+75	4' LT TO 2' LT	18" WM			449							
EB BROOKLYN BLVD	201+46	6' LT	WATERMAIN VALVE				X						
EB BROOKLYN BLVD	202+68 TO 202+67	6' LT TO 61' LT	4" WM			55							
EB BROOKLYN BLVD	202+67	61' LT	WATERMAIN VALVE				X						
EB BROOKLYN BLVD	203+96 TO 203+96	5' LT TO 77' LT	1" COPPER SERVICE		X							(1)	
EB BROOKLYN BLVD	203+96	77' LT	CURB STOP							X			
EB BROOKLYN BLVD	204+75 TO 212+64	2' L TO 8' LT	18" WM			789							
JOLLY LN N	43+00 TO 43+67	30' LT TO 30' LT	8" DIP WM	X									
JOLLY LN N	43+67 TO 44+26	30' LT TO 32' LT	8" DIP WM			57							
JOLLY LN N	43+79 TO 43+79	30' LT TO 35' LT	6" DIP WM			5							
JOLLY LN N	43+79	33' LT	WATERMAIN VALVE				X						
JOLLY LN N	43+79	35' LT	HYDRANT					X					
JOLLY LN N	44+24 TO 45+06	31' LT TO 29' LT	8" DIP WM			82							
JOLLY LN N	44+81	31' LT	WATERMAIN VALVE				X						
JOLLY LN N	45+06 TO 45+23	29' LT TO 30' LT	10" DIP WM			17							
JOLLY LN N	45+23 T 45+28	30' LT TO 31' LT	10" DIP WM	X									
JOLLY LN N	45+28 TO 45+50	31' LT O 20' LT	10" DIP WM	X									
SHOP ACCESS	0+62 TO 2+00	43' LT TO 43' LT	8" DIP WM			138							
SHOP ACCESS	0+79	42' LT TO 87' LT	6" DIP WM			44							
SHOP ACCESS	0+79	87' LT	HYDRANT					X					
SHOP ACCESS	1+07	43' LT TO 43' LT	WATERMAIN VALVE				X						
SHOP ACCESS	1+70	43' LT TO 43' LT	WATERMAIN VALVE				X						
NB CSAH 81	1344+82 TO 1346+54	118' RT TO 85' RT	8" DIP WM			175							
NB CSAH 81	1346+44	92' RT	HYDRANT					X					
NB CSAH 81	1346+54	85' RT	WATERMAIN VALVE				X						
NB CSAH 81	1346+44 TO 1346+54	92' RT TO 85' RT	6" DIP WM			13							
NB CSAH 81	1346+54 TO 1352+42	85' RT TO 44' RT	10" DIP WM			591							
NB CSAH 81	1347+03 TO 1347+05	81' RT TO 103' RT	2" COPPER SERVICE			23							
NB CSAH 81	1347+68 TO 1347+70	76' RT TO 101' RT	2" COPPER SERVICE			25							
NB CSAH 81	1352+42	44' RT	WATERMAIN VALVE				X						
NB CSAH 81	1350+62 TO 1350+64	54' RT TO 79' RT	6" DIP WM			26							
NB CSAH 81	1350+64	76' RT	WATERMAIN VALVE				X						
NB CSAH 81	1350+64	79' RT	HYDRANT					X					
NB CSAH 81	1352+42 TO 1352+99	44' RT TO 47' RT	10 DIP WM	X									
NB CSAH 81	1352+99	47' RT	WATERMAIN VALVE	X									
NB CSAH 81	1352+99 TO 1353+58	47' RT TO 47' RT	10" DIP WM	X									
NB CSAH 81	1353+58	47' RT	WATERMAIN VALVE	X									
PROJECT TOTALS						4171	2	350	13	6	4	245	2

NOTES:

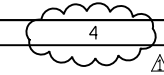
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4/16/2019 KFH MJM KFH ADDENDUM #1	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: <u>KYLE F. HARRISON</u> Date: <u>04/16/19</u> License # <u>53658</u>	STATE AID PROJECT NO. X STATE PROJECT NO. X COUNTY PROJECT NO. X CITY PROJECT NO. 403219	DRAWN BY J. VAN BECK DESIGNED BY K. HARRISON CHECKED BY M. MOHS COMM. NO. 1811530	<p>CITY OF BROOKLYN PARK</p> <p>INPLACE SANITARY SEWER AND WATER MAIN TABULATIONS SANITARY SEWER AND WATER MAIN IMPROVEMENTS</p>	SHEET SW3 OF SW16
NO DATE BY CKD APPR REVISION ...F:\InaIP\an\11530+tbpu02.dgn					

WATER MAIN										D
ALIGNMENT	STATION TO STATION	DUCTILE IRON FITTINGS POUND	CONNECT TO EXISTING WATER MAIN EACH	HYDRANT EACH	1" CORPORATION STOP EACH	6" GATE VALVE & BOX EACH	8" GATE VALVE & BOX EACH	16" GATE VALVE & BOX EACH	1" CURB STOP & BOX EACH	
73RD AVE	4+16.98 TO 10+74.49	79.5	2	1	3	1	2		3	
WM_LAKELAND	0+00.00 TO 1+67.12	243		1		1				
EB BROOKLYN BLVD	189+52.22 TO 214+55.13	3245.5	3	1		1		3		
JOLLY LANE	43+67.37 TO 45+22.89	133.5	2	1	1	1	2		1	
SHOP ACCESS	0+00.00 TO 2+43.86	79.5	2	1		1	2			
NB CSAH 81	1345+06.80 TO 1353+57.54	649.5	1	2		2	3			
PROJECT TOTALS		4430.5	10	7	4	7	9	3	4	

WATER MAIN								D
ALIGNMENT	STATION TO STATION	1" TYPE K COPPER PIPE LIN FT	6" WATERMAIN DUCTILE IRON CL 52 LIN FT	8" WATERMAIN DUCTILE IRON CL 52 LIN FT	10" WATERMAIN DUCTILE IRON CL 52 LIN FT	16" WATERMAIN DUCTILE IRON CL 51 LIN FT	4" POLYSTYRENE INSULATION SQ YD	
73RD AVE	4+16.98 TO 10+74.49	112	50	655				
WM_LAKELAND	0+00.00 TO 1+67.12		10	168			10	
EB BROOKLYN BLVD	189+52.22 TO 214+55.13		65	103	45	2311	20	
JOLLY LANE	43+67.37 TO 45+22.89	88	6	156			10	
SHOP ACCESS	0+00.00 TO 2+43.86		44	139			23	
NB CSAH 81	1345+06.80 TO 1353+57.54		47	765				
PROJECT TOTALS		200	222	1986	45	2311	63	

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4/16/2019	KFH	MJM	KFH	ADDENDUM #1
NO	DATE	BY	CKD	APPR
				REVISION

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.

Print Name: KYLE F. HARRISON

Kyle Harrison

Date: 04/16/19 License # 53658

STATE AID PROJECT NO. X

STATE PROJECT NO. X

COUNTY PROJECT NO. X

CITY PROJECT NO. 403219

DRAWN BY J. VAN BECK

DESIGNED BY K. HARRISON

CHECKED BY M. MOHS

COMM. NO. 1811530

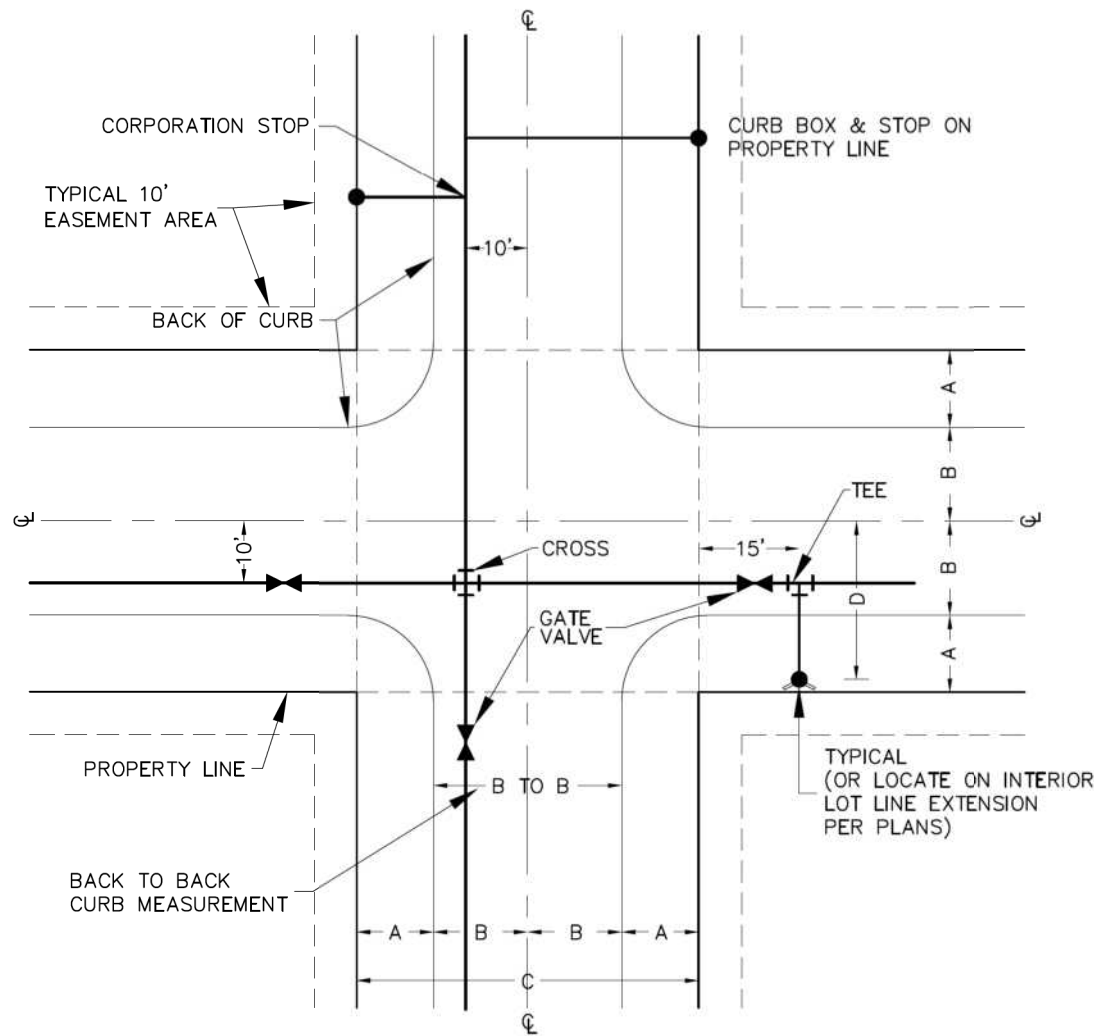


CITY OF BROOKLYN PARK

PROPOSED SANITARY SEWER AND WATER MAIN TABULATIONS

SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET SW4 OF SW16

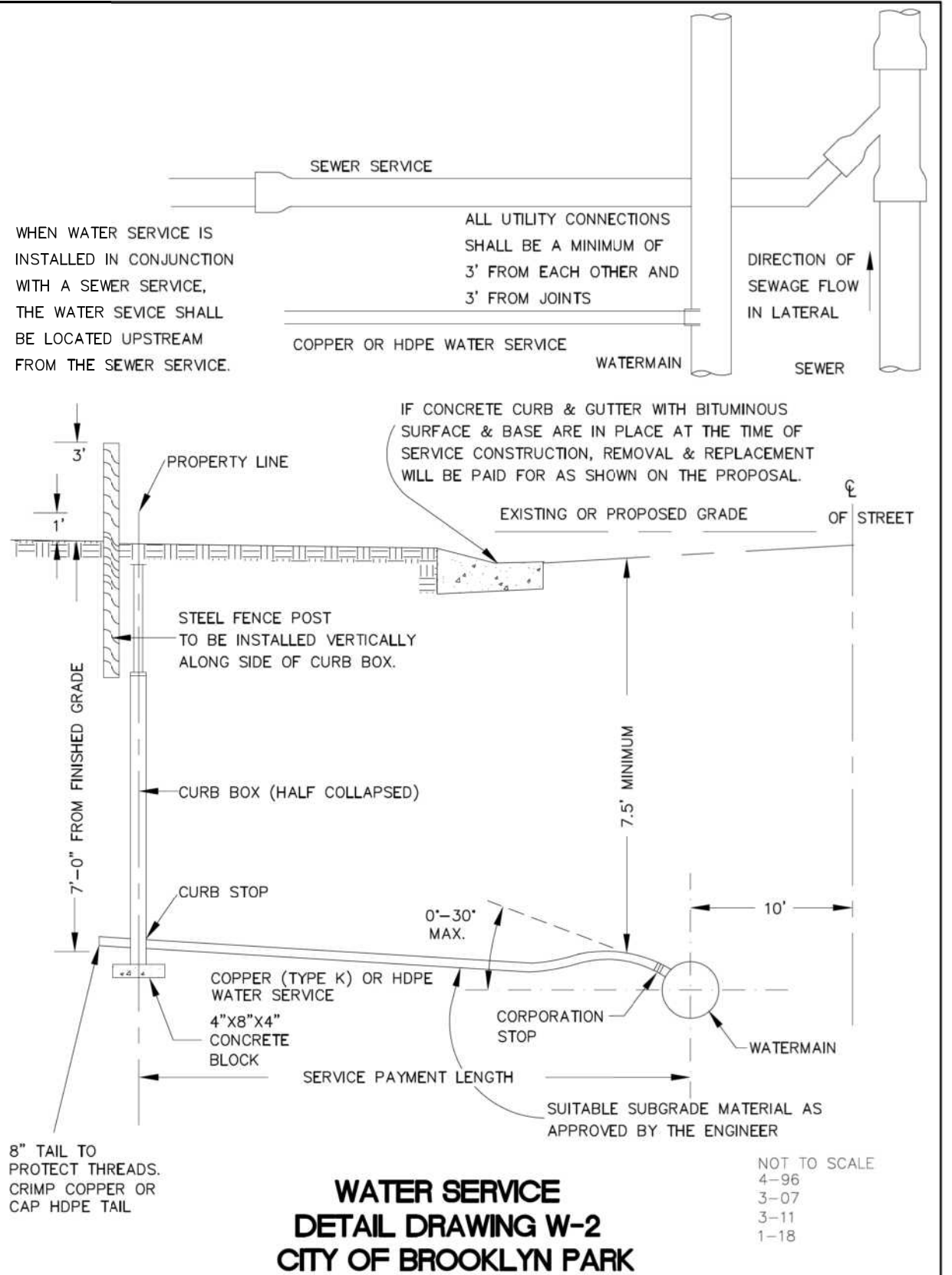


CURB MEASUREMENTS																
	50' R/W			60' R/W			66' R/W			80' R/W						
B TO B	A	B	C	D	A	B	C	D	A	B	C	D				
32'	9'	16'	50'	23'	14'	16'	60'	28'	17'	16'	66'	31'	24'	16'	80'	38'
46'									10'	23'	66'	31'	17'	23'	80'	38'

NOTE: FOR R/W WIDTHS OTHER THAN SHOWN, THE WATERMAIN LAYOUT SHALL BE AS APPROVED BY THE CITY ENGINEER.

**TYPICAL WATERMAIN LAYOUT
DETAIL DRAWING W-1
CITY OF BROOKLYN PARK**

NOT TO SCALE
4-96
11-15



**WATER SERVICE
DETAIL DRAWING W-2
CITY OF BROOKLYN PARK**

NOT TO SCALE
4-96
3-07
3-11
1-18

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NO	DATE	BY	CKD	APPR	REVISION

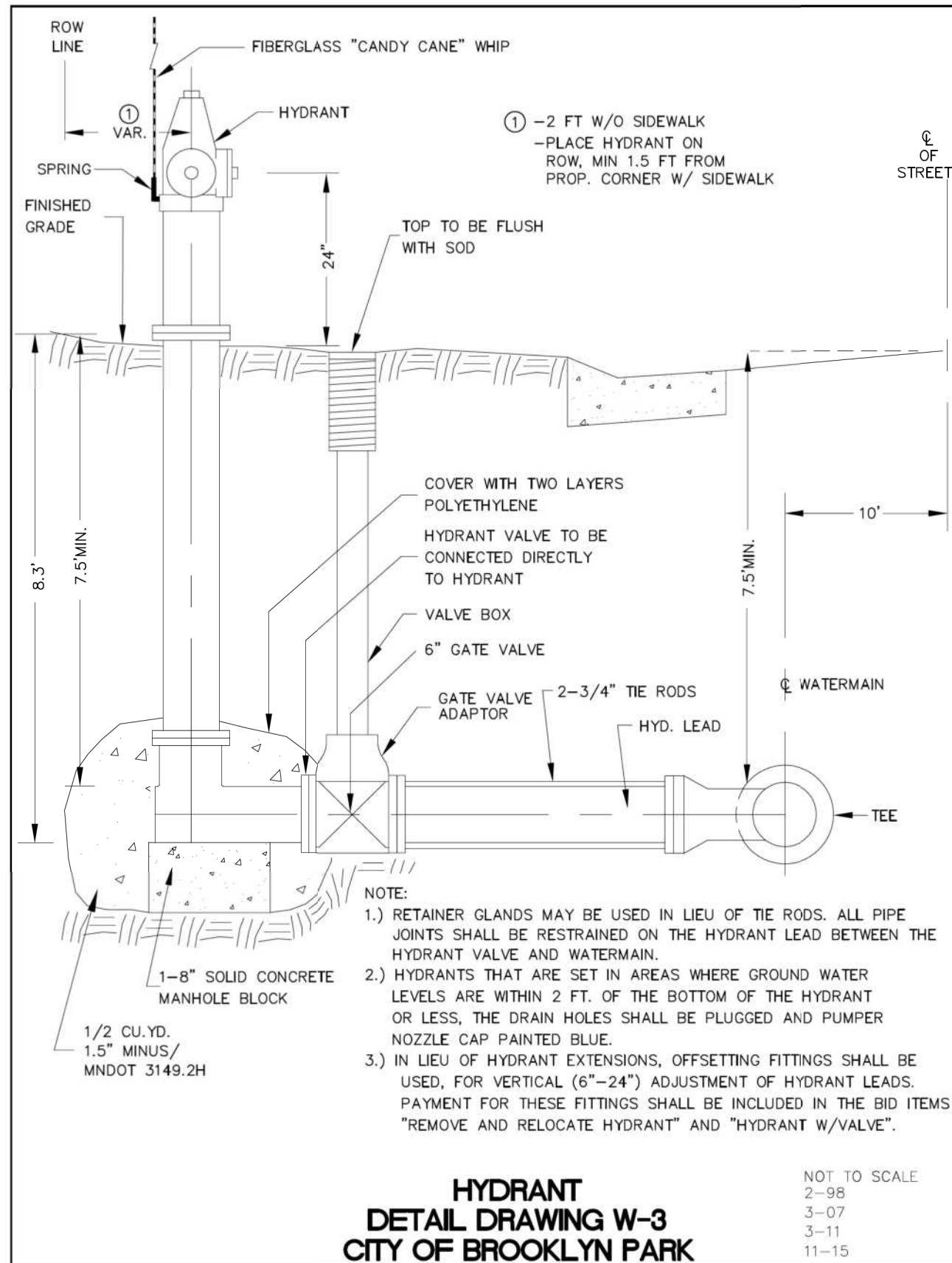
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: KYLE F. HARRISON
Kyle Harrison
Date: 03/05/19 License # 53658

STATE AID PROJECT NO. X
STATE PROJECT NO. X
COUNTY PROJECT NO. X
CITY PROJECT NO. 403219
DRAWN BY J. VAN BECK
DESIGNED BY K. HARRISON
CHECKED BY M. MOHS
COMM. NO. 1811530



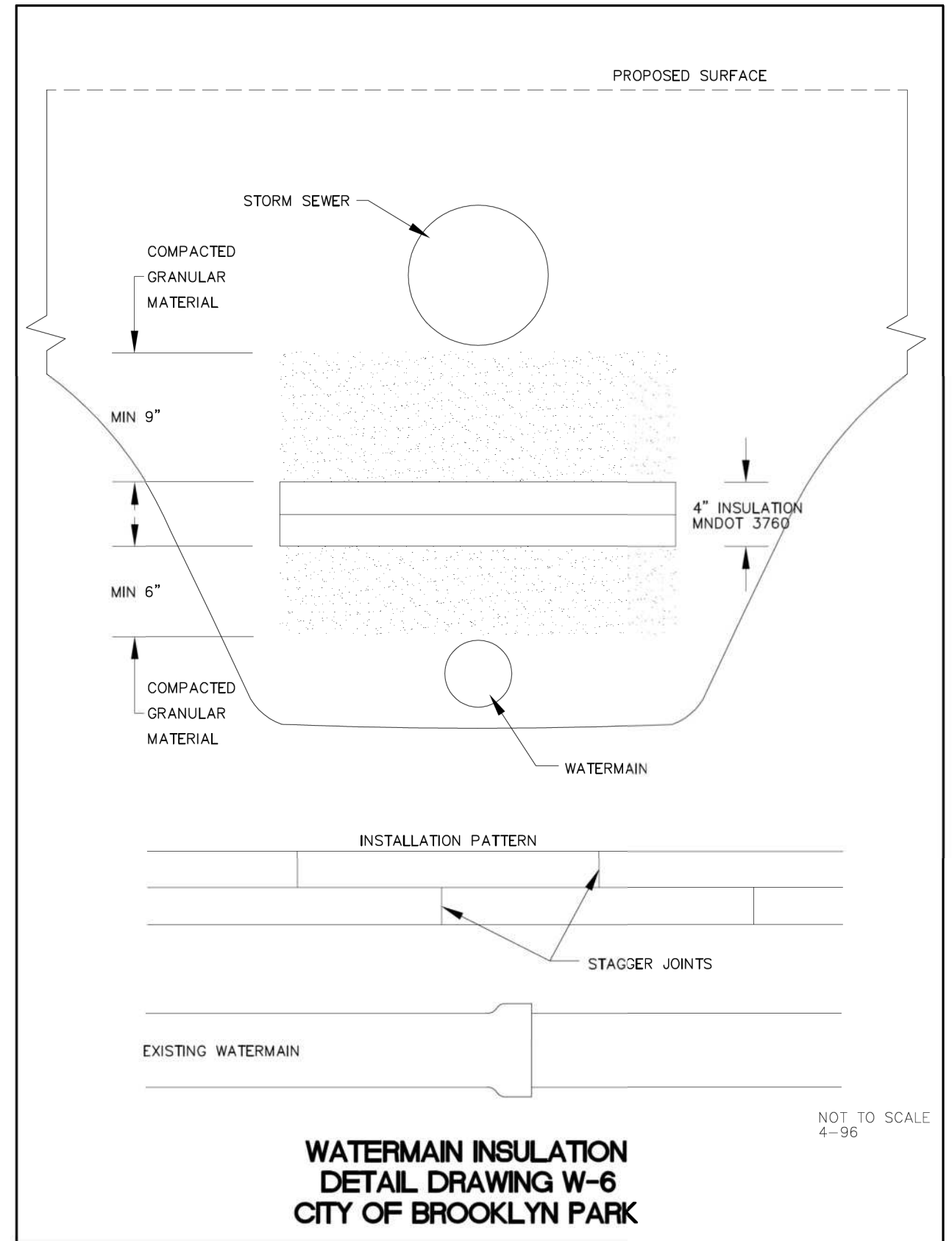
CITY OF BROOKLYN PARK
SANITARY SEWER AND WATER MAIN DETAILS
SANITARY SEWER AND WATER MAIN IMPROVEMENTS

**SHEET
SW5
OF
SW16**



**HYDRANT
DETAIL DRAWING W-3
CITY OF BROOKLYN PARK**

NOT TO SCALE
2-98
3-07
3-11
11-15



**WATERMAIN INSULATION
DETAIL DRAWING W-6
CITY OF BROOKLYN PARK**

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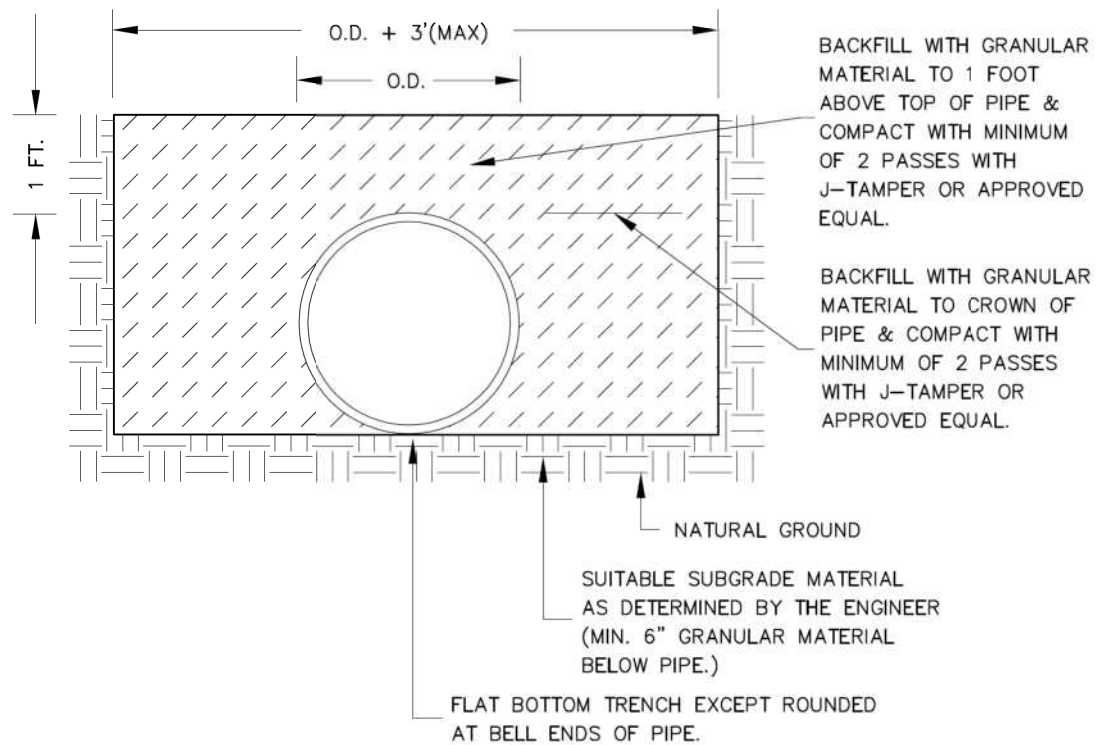
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CITY OF BROOKLYN PARK
SANITARY SEWER AND WATER MAIN DETAILS
SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET
SW6
OF
SW16



NOT TO SCALE
4-96

**BEDDING FOR 8" PIPE AND LARGER
DETAIL DRAWING B
CITY OF BROOKLYN PARK**

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Kyle Harrison

Date: 03/05/19 License # 53658

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STATE PROJECT NO. X	DESIGNED BY K. HARRISON
COUNTY PROJECT NO. X	CHECKED BY M. MOHS
CITY PROJECT NO. 403219	COMM. NO. 1811530



CITY OF BROOKLYN PARK

SANITARY SEWER AND WATER MAIN DETAILS
SANITARY SEWER AND WATER MAIN IMPROVEMENTS

**SHEET
SW7
OF
SW16**

GENERAL NOTES:

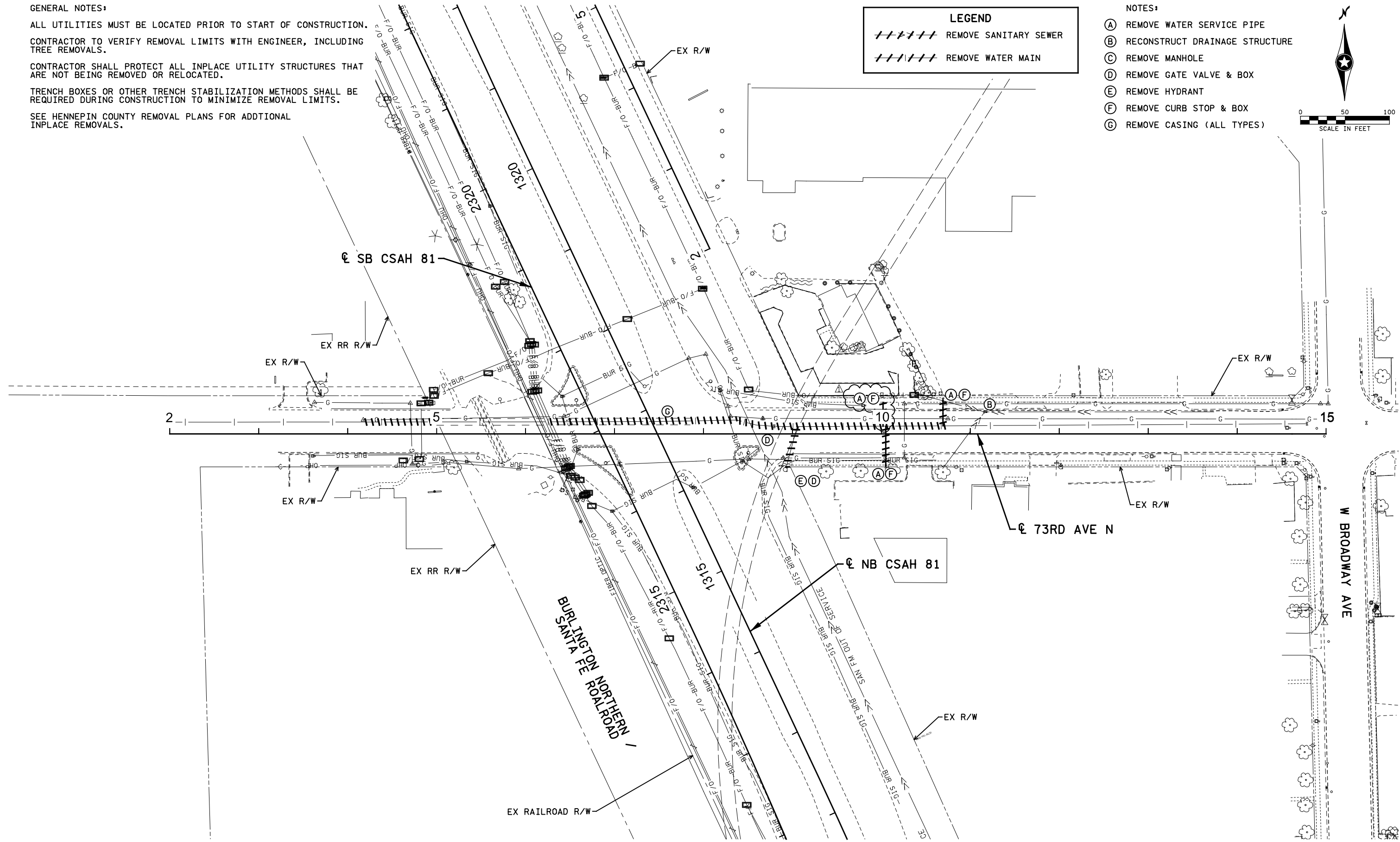
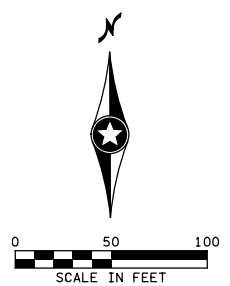
ALL UTILITIES MUST BE LOCATED PRIOR TO START OF CONSTRUCTION.
 CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER, INCLUDING TREE REMOVALS.
 CONTRACTOR SHALL PROTECT ALL INPLACE UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
 TRENCH BOXES OR OTHER TRENCH STABILIZATION METHODS SHALL BE REQUIRED DURING CONSTRUCTION TO MINIMIZE REMOVAL LIMITS.
 SEE HENNEPIN COUNTY REMOVAL PLANS FOR ADDITIONAL INPLACE REMOVALS.

LEGEND

- ////// REMOVE SANITARY SEWER
- ////// REMOVE WATER MAIN

NOTES:

- (A) REMOVE WATER SERVICE PIPE
- (B) RECONSTRUCT DRAINAGE STRUCTURE
- (C) REMOVE MANHOLE
- (D) REMOVE GATE VALVE & BOX
- (E) REMOVE HYDRANT
- (F) REMOVE CURB STOP & BOX
- (G) REMOVE CASING (ALL TYPES)



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4/16/2019	KFH	MJM	KFH	ADDENDUM #1
NO	DATE	BY	CKD	APPR
REVISION				
...F Ina IP an\11530_rem01.dgn				

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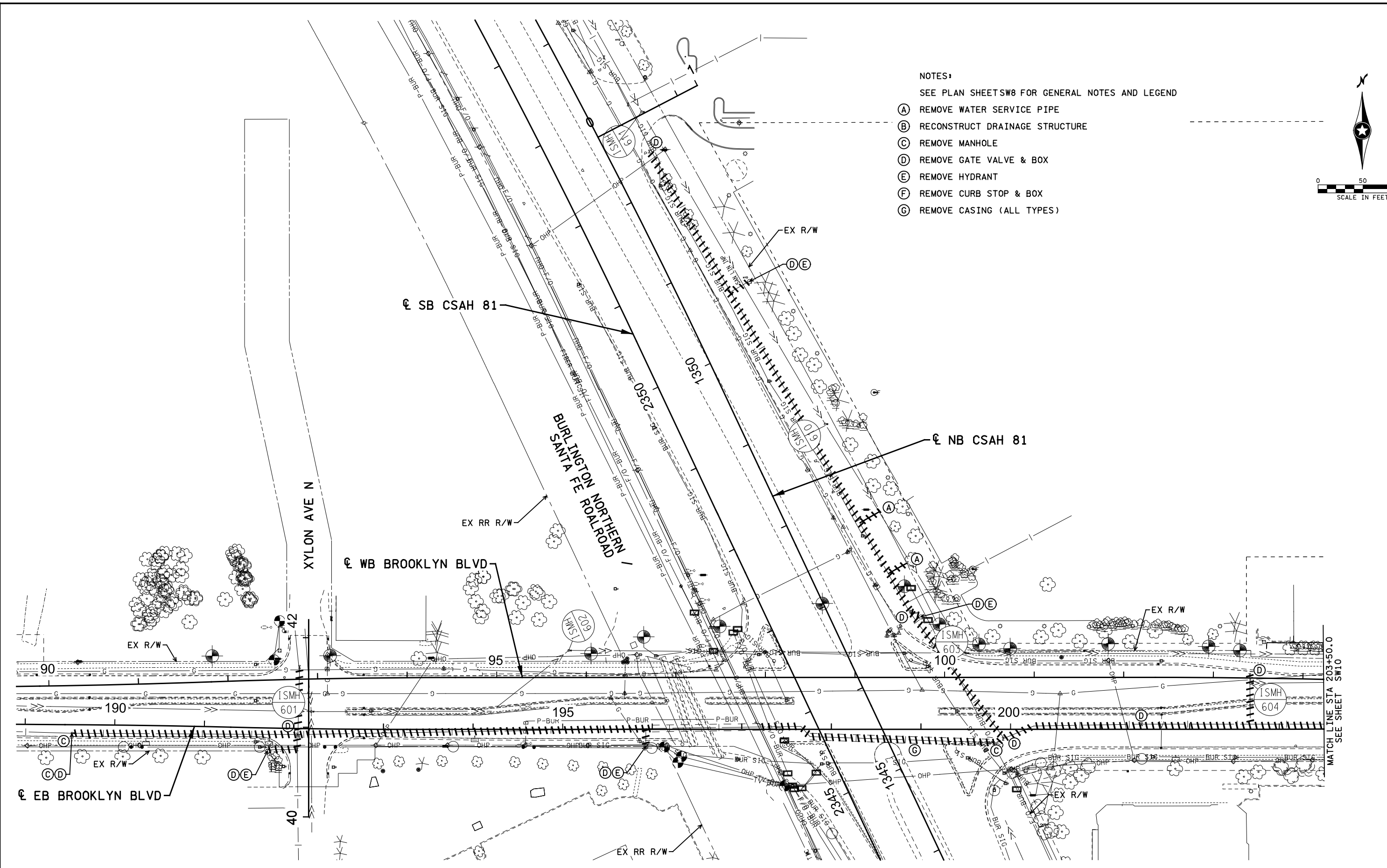
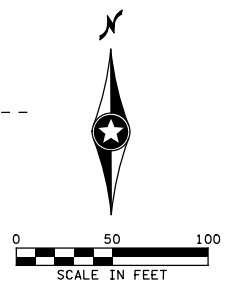
STATE AID PROJECT NO. X
 STATE PROJECT NO. X
 COUNTY PROJECT NO. X
 CITY PROJECT NO. 403219
 DRAWN BY J. VAN BECK
 DESIGNED BY K. HARRISON
 CHECKED BY M. MOHS
 COMM. NO. 1811530



CITY OF BROOKLYN PARK
 EXISTING UTILITIES / SANITARY SEWER AND WATER MAIN REMOVAL PLANS
 SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET SW8 OF SW16

- NOTES:
- SEE PLAN SHEETS SW8 FOR GENERAL NOTES AND LEGEND
 - (A) REMOVE WATER SERVICE PIPE
 - (B) RECONSTRUCT DRAINAGE STRUCTURE
 - (C) REMOVE MANHOLE
 - (D) REMOVE GATE VALVE & BOX
 - (E) REMOVE HYDRANT
 - (F) REMOVE CURB STOP & BOX
 - (G) REMOVE CASING (ALL TYPES)



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Print Name: **KYLE F. HARRISON**

Kyle Harrison

Date: 03/05/19 License #: 53658

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 CITY PROJECT NO. 403219

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 DESIGNED BY K. HARRISON
 CHECKED BY M. MOHS
 COMM. NO. 1811530



CITY OF BROOKLYN PARK

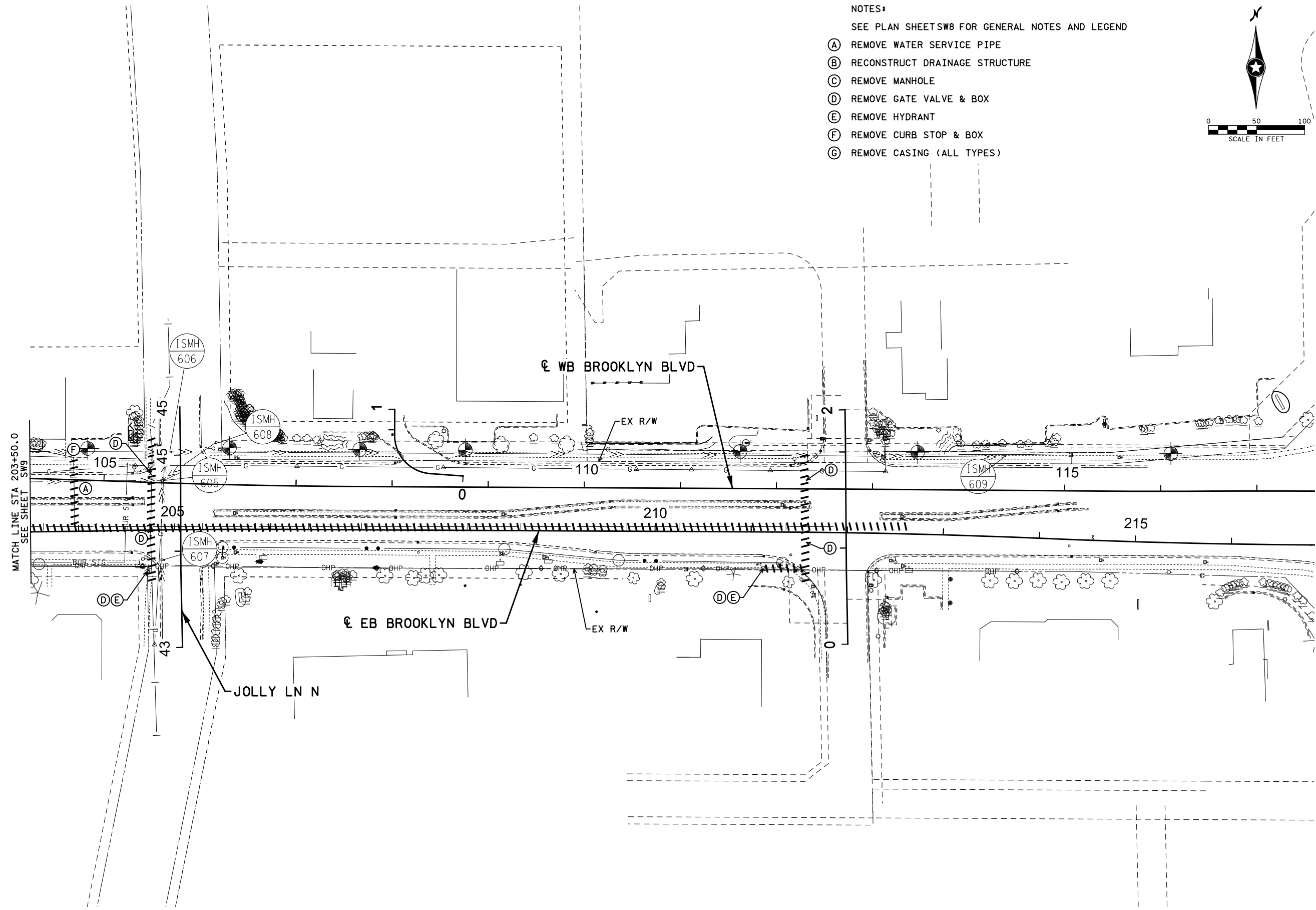
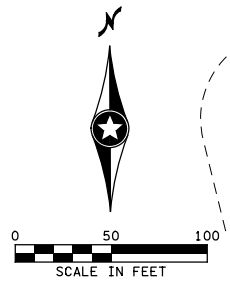
EXISTING UTILITIES / SANITARY SEWER AND WATER MAIN REMOVAL PLANS
SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET SW9 OF SW16

NOTES:

SEE PLAN SHEET SW8 FOR GENERAL NOTES AND LEGEND

- (A) REMOVE WATER SERVICE PIPE
- (B) RECONSTRUCT DRAINAGE STRUCTURE
- (C) REMOVE MANHOLE
- (D) REMOVE GATE VALVE & BOX
- (E) REMOVE HYDRANT
- (F) REMOVE CURB STOP & BOX
- (G) REMOVE CASING (ALL TYPES)



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Kyle Harrison

Date: 03/05/19 License # 53658

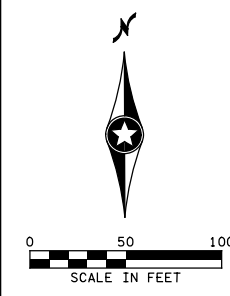
STATE AID PROJECT NO. X	DRAWN BY J. VAN BECK
STATE PROJECT NO. X	DESIGNED BY K. HARRISON
COUNTY PROJECT NO. X	CHECKED BY M. MOHS
CITY PROJECT NO. 403219	COMM. NO. 1811530



CITY OF BROOKLYN PARK

EXISTING UTILITIES / SANITARY SEWER AND WATER MAIN REMOVAL PLANS
SANITARY SEWER AND WATER MAIN IMPROVEMENTS

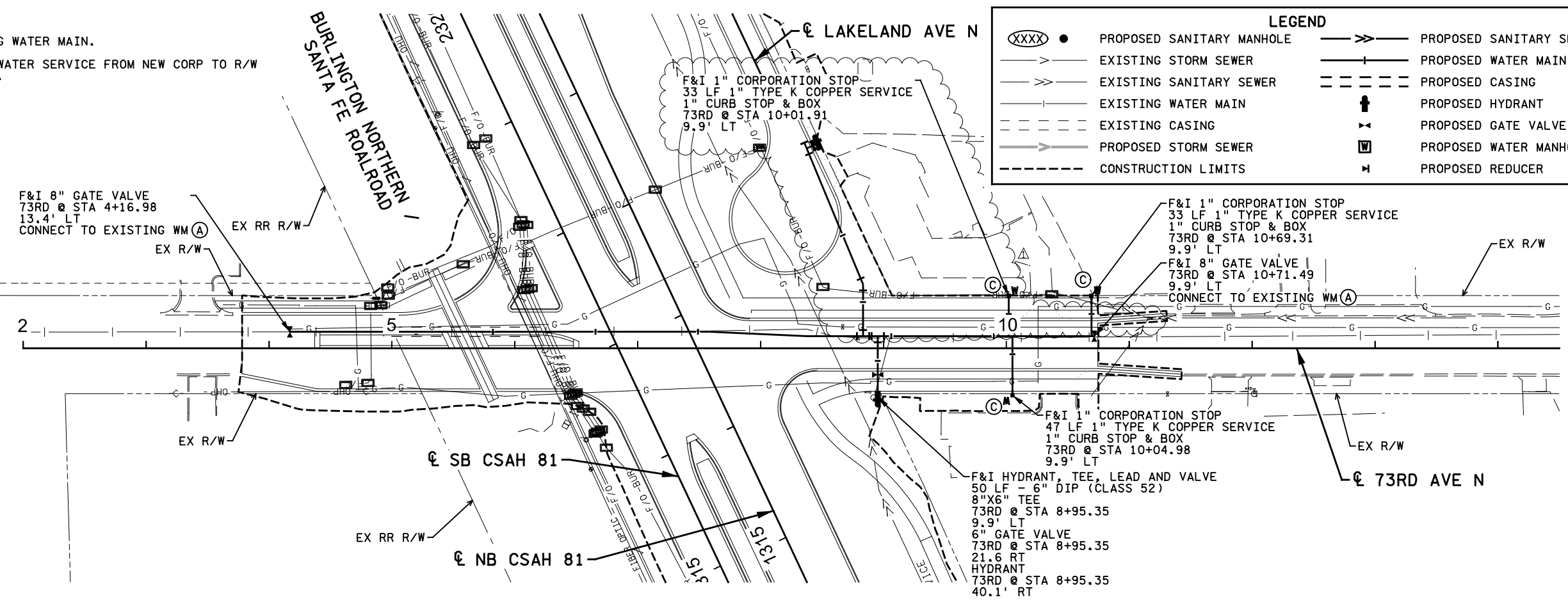
**SHEET
 SW10
 OF
 SW16**



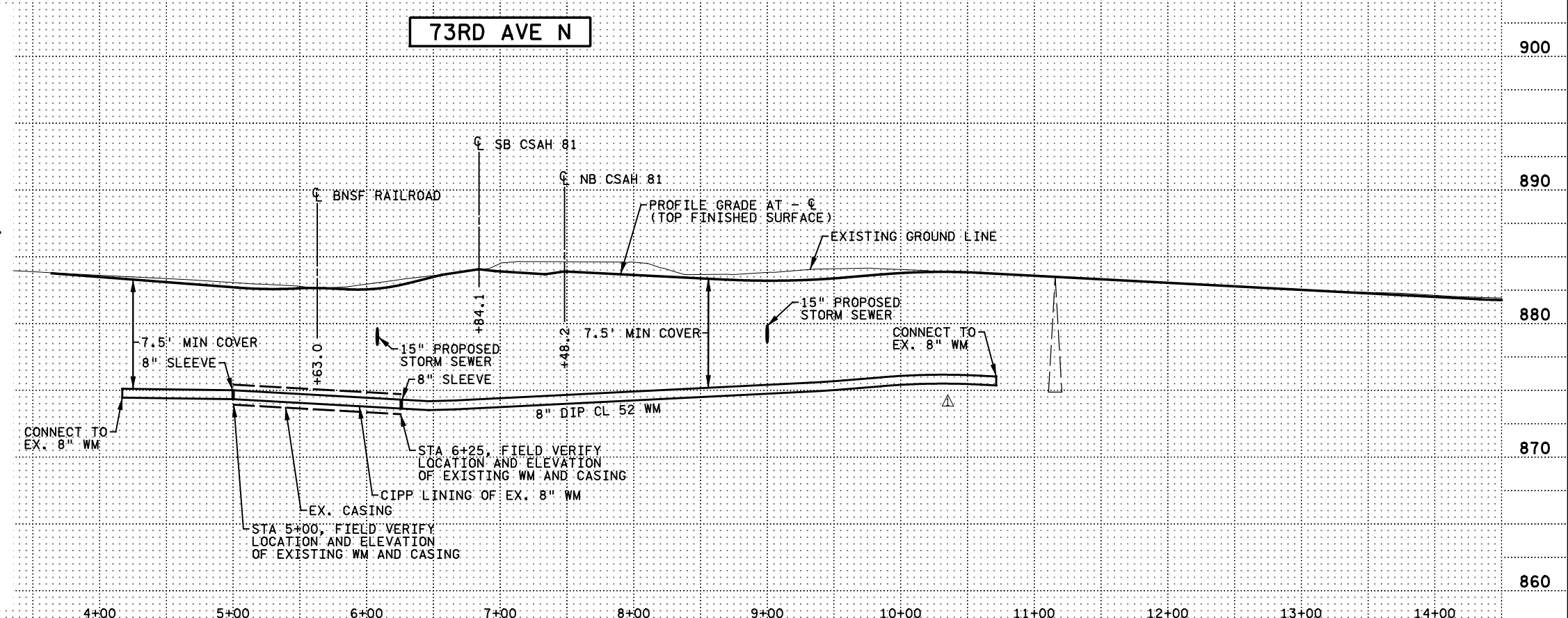
- NOTES:
- (A) CONNECT TO EXISTING WATER MAIN.
 - (C) F&I TYPE K COPPER WATER SERVICE FROM NEW CORP TO R/W WITH NEW CURB STOP.

LEGEND

(XXXX) ●	PROPOSED SANITARY MANHOLE	—>—	PROPOSED SANITARY SEWER
—>—	EXISTING STORM SEWER	—+—	PROPOSED WATER MAIN
—>—	EXISTING SANITARY SEWER	- - - -	PROPOSED CASING
—+—	EXISTING WATER MAIN	↑	PROPOSED HYDRANT
- - - -	EXISTING CASING	⊗	PROPOSED GATE VALVE
—>—	PROPOSED STORM SEWER	⊞	PROPOSED WATER MANHOLE
- - - -	CONSTRUCTION LIMITS	⊞	PROPOSED REDUCER



- GENERAL NOTES:**
- 900 CONTRACTOR SHALL CONTACT UTILITY OWNERS FOR LOCATION OF ALL UNDERGROUND WIRES, CABLES, CONDUIT, PIPES, MANHOLES, VALVES, OR OTHER BURIED STRUCTURES BEFORE DIGGING. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIR OF THE ABOVE WHICH ARE REMOVED OR DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.
 - 890 FIELD VERIFY SANITARY AND WATER SERVICE LOCATIONS AND ALL CONNECTIONS TO EXISTING PIPE LOCATIONS. FIELD VERIFY ALL EXISTING WATERMAIN ELEVATIONS.
 - 880 MAINTAIN A MINIMUM OF 7.5' COVER ABOVE ALL WATER MAIN (INCIDENTAL UNLESS OTHERWISE NOTED). 4 INCHES OF INSULATION ABOVE ALL WATER MAIN WITH LESS THAN 7.5' OF COVER AND SEWER CROSSINGS WITH LESS THAN 24" OF CLEARANCE. MAINTAIN A MINIMUM OF 10.0' HORIZONTAL SEPARATION BETWEEN SEWERS AND WATER MAIN. MAINTAIN A MINIMUM OF 1.5' VERTICAL SEPARATION BETWEEN STORM/SANITARY SEWER AND WATER MAIN CROSSINGS. STATION AND OFFSET LOCATIONS ARE TO CENTER OF STRUCTURE. ALL CURB BOXES SHALL BE LOCATED AND ADJUSTED AS DIRECTED BY THE ENGINEER IN THE FIELD. TEMPORARY CURB BOX LOCATION MARKERS MUST BE MAINTAINED AT ALL TIMES THROUGHOUT THE PROJECT.
 - 870 CONSTRUCT WATER MAIN TO AVOID PROPOSED AND EXISTING SEWER BY OFFSET OR OVERDEPTH. ANY OVERDEPTH WATER MAIN CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL. CASTING SHALL BE NEENAH FOUNDRY CO. R-1733 WITH A PLATEN LID WITH 2 C.I. LIFT HANDLES AND "BROOKLYN PARK SANITARY SEWER" IMPRINTED ON COVER. VERTICAL OFFSETS NOT INDICATED WITH MECHANICAL BENDS TO BE ACHIEVED WITH JOINT DEFLECTION WITHIN THE DEFLECTION LIMITS DESCRIBED BY THE DUCTILE IRON PIPE RESEARCH ASSOCIATION.
 - 860 SEE SPECIAL PROVISIONS FOR AREAS REQUIRING TRENCH BOX USE FOR UTILITY CONSTRUCTION.



4/16/2019	KFH	MJM	KFH	ADDENDUM #1
NO	DATE	BY	CKD	APPR
				REVISION

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Print Name: **KYLE F. HARRISON**

Date: 04/16/19 License #: 53658

STATE AID PROJECT NO. X
 STATE PROJECT NO. X
 COUNTY PROJECT NO. X
 CITY PROJECT NO. 403219

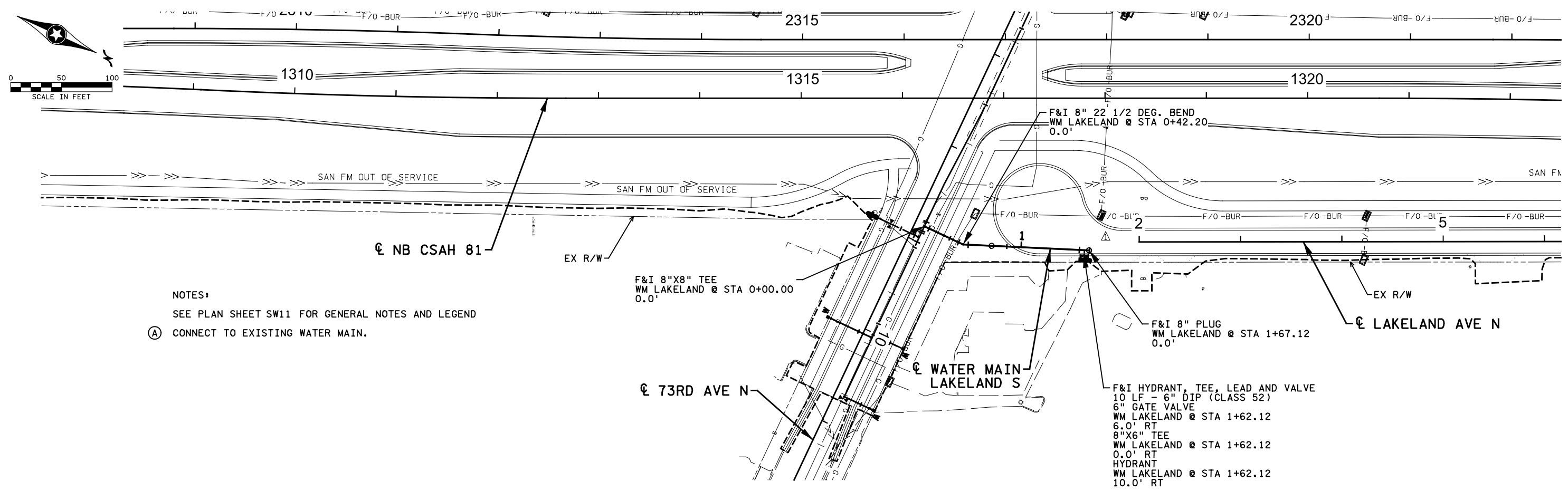
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 DESIGNED BY K. HARRISON
 CHECKED BY M. MOHS
 COMM. NO. 1811530



CITY OF BROOKLYN PARK
 SANITARY SEWER AND WATER MAIN PLANS AND PROFILES
 SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET SW11 OF SW16

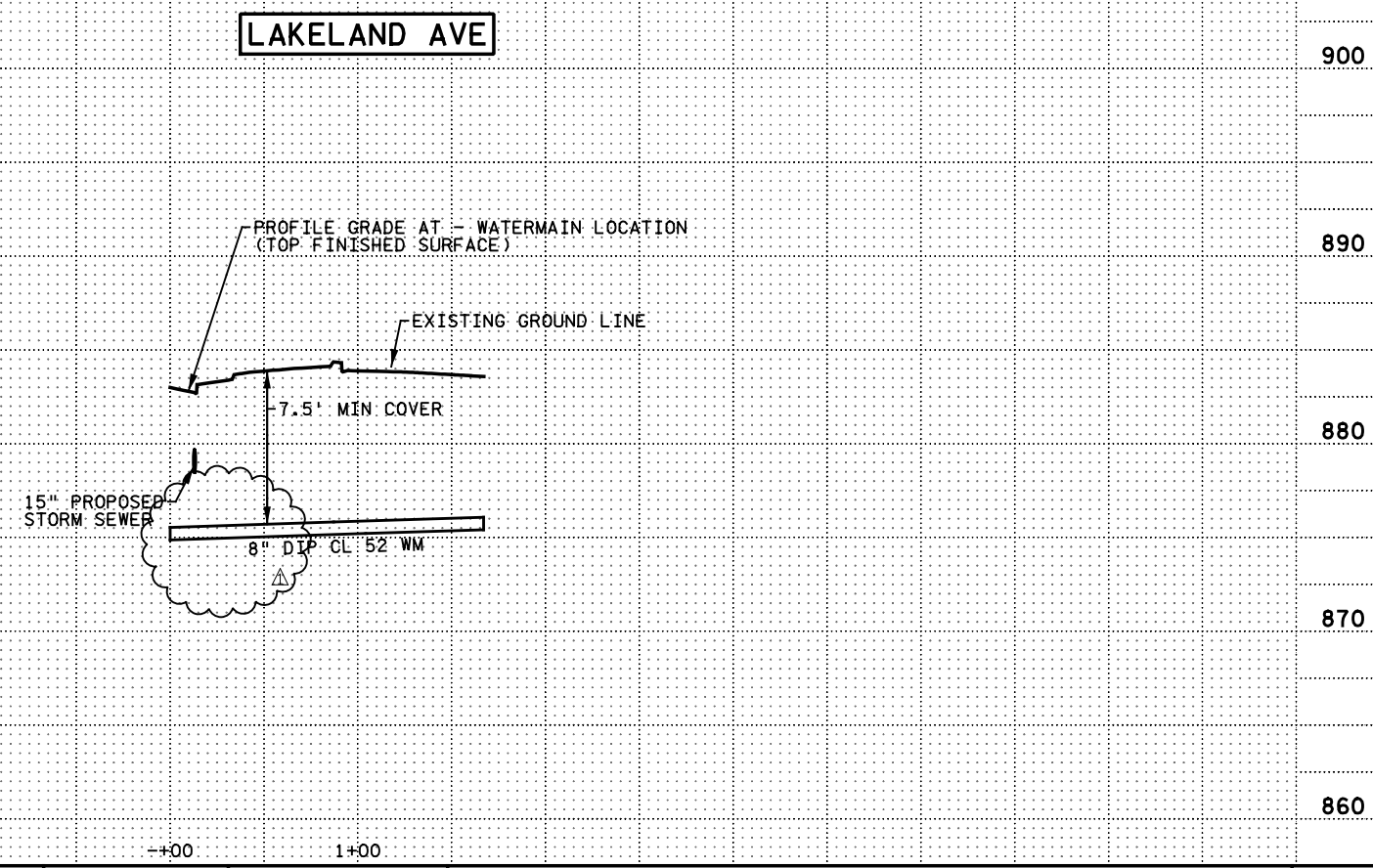
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NOTES:
 SEE PLAN SHEET SW11 FOR GENERAL NOTES AND LEGEND
 (A) CONNECT TO EXISTING WATER MAIN.

ALIGNMENT TABULATION										
POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
			SPIRAL CURVE DATA							
ANGLE (θs)	DEGREE	ST	LT	LS						
☉ WATER MAIN LAKELAND S <LAKELAND_2>										
80	POT	☉ LAKELAND_2	0+00.000					501,116.0188	208,004.3392	
81	POT		0+42.198					501,116.2074	208,046.5365	
82	POT		1+67.118					501,068.9188	208,162.1602	

NOTES:
 <XXXX> INDICATES GEOPAK ALIGNMENT NAME.



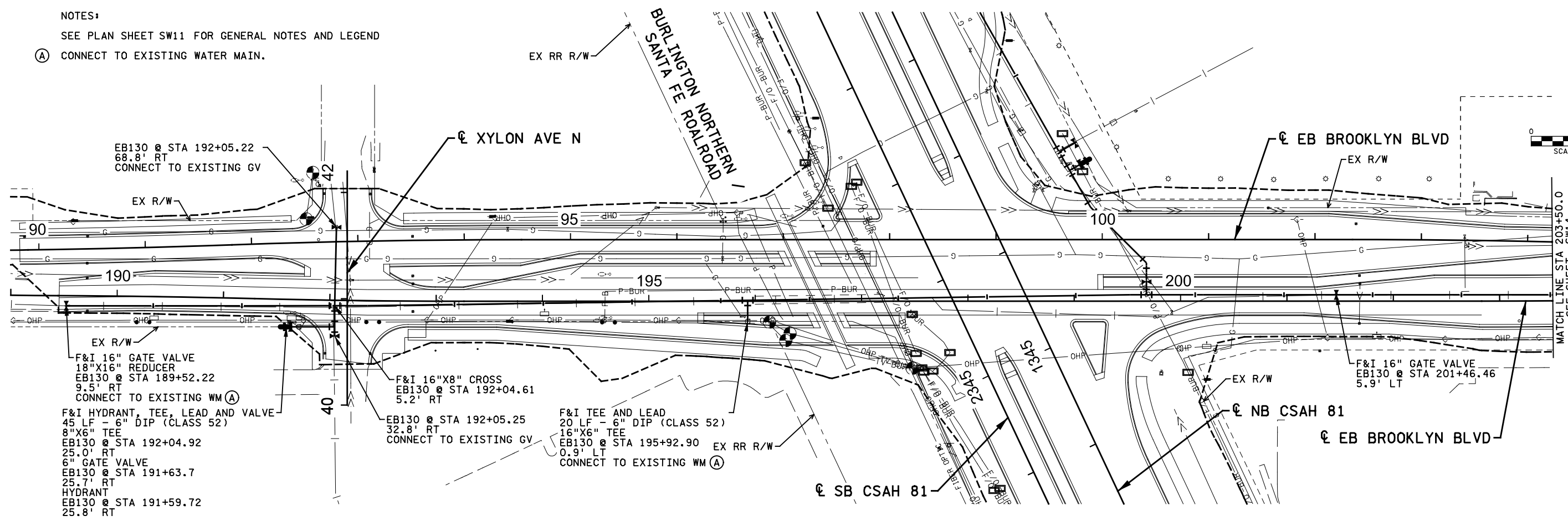
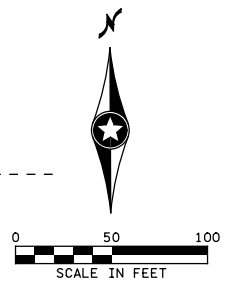
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4/16/2019	KFH	MJM	KFH	ADDENDUM #1	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: KYLE F. HARRISON <i>Kyle Harrison</i> Date: <u>04/16/19</u> License # <u>53658</u>	STATE AID PROJECT NO. X	DESIGNED BY J. VAN BECK	SRH	CITY OF BROOKLYN PARK SANITARY SEWER AND WATER MAIN PLANS AND PROFILES SANITARY SEWER AND WATER MAIN IMPROVEMENTS	SHEET SW12 OF SW16
NO	DATE	BY	CKD	APPR		REVISION	STATE PROJECT NO. X			
...F:\InaIP\an\11530_sw02.dgn					Date: <u>04/16/19</u> License # <u>53658</u>	CITY PROJECT NO. 403219	COMM. NO. 1811530			

NOTES:

SEE PLAN SHEET SW11 FOR GENERAL NOTES AND LEGEND

(A) CONNECT TO EXISTING WATER MAIN.



EB130 @ STA 192+05.22
68.8' RT
CONNECT TO EXISTING GV

F&I 16" GATE VALVE
18"X16" REDUCER
EB130 @ STA 189+52.22
9.5' RT
CONNECT TO EXISTING WM (A)

F&I HYDRANT, TEE, LEAD AND VALVE
45 LF - 6" DIP (CLASS 52)
8"X6" TEE
EB130 @ STA 192+04.92
25.0' RT
6" GATE VALVE
EB130 @ STA 191+63.7
25.7' RT
HYDRANT
EB130 @ STA 191+59.72
25.8' RT

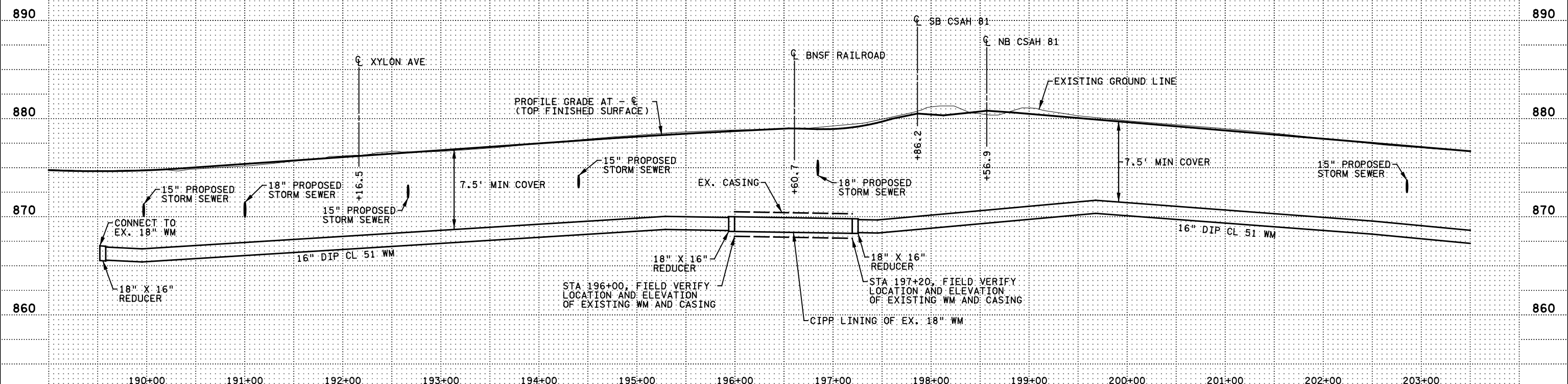
F&I 16"X8" CROSS
EB130 @ STA 192+04.61
5.2' RT

EB130 @ STA 192+05.25
32.8' RT
CONNECT TO EXISTING GV

F&I TEE AND LEAD
20 LF - 6" DIP (CLASS 52)
16"X6" TEE
EB130 @ STA 195+92.90
0.9' LT
CONNECT TO EXISTING WM (A)

F&I 16" GATE VALVE
EB130 @ STA 201+46.46
5.9' LT

EB BROOKLYN BLVD



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NO	DATE	BY	CKD	APPR	REVISION

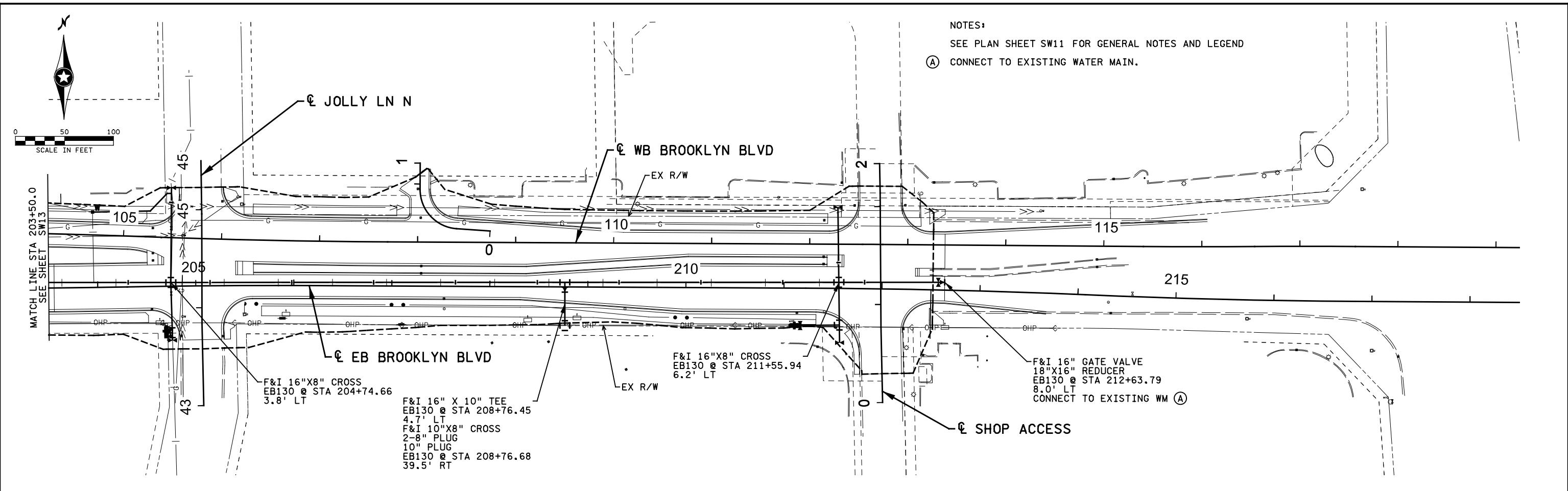
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 Date: 03/05/19 License # 53658

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 COUNTY PROJECT NO. X
 CITY PROJECT NO. 403219
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 DESIGNED BY K. HARRISON
 CHECKED BY M. MOHS
 COMM. NO. 1811530

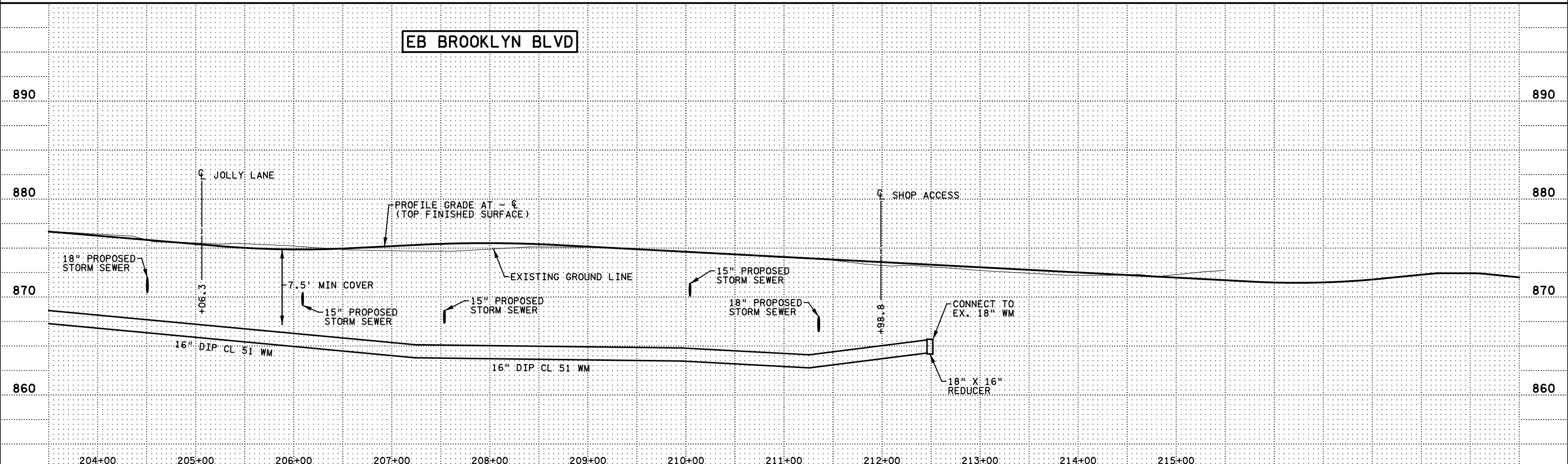


CITY OF BROOKLYN PARK
 SANITARY SEWER AND WATER MAIN PLANS AND PROFILES
 SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET SW13 OF SW16



NOTES:
 SEE PLAN SHEET SW11 FOR GENERAL NOTES AND LEGEND
 (A) CONNECT TO EXISTING WATER MAIN.



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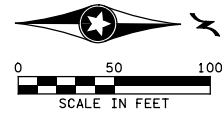
STATE AID PROJECT NO. X
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 CITY PROJECT NO. 403219
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CITY OF BROOKLYN PARK
 SANITARY SEWER AND WATER MAIN PLANS AND PROFILES
 SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET
 SW14
 OF
 SW16

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F&I HYDRANT, TEE, LEAD AND VALVE-
6 LF - 6" DIP (CLASS 52)
8"X6" TEE
JOLLY @ STA 43+75.04
30.4' LT
6" GATE VALVE
JOLLY @ STA 43+75.00
32.4' LT
HYDRANT
JOLLY @ STA 43+75.00
36.4' LT

F&I 8" GATE VALVE
JOLLY @ STA 43+67.37
30.3' LT
CONNECT TO EXISTING WM (A)

F&I 1" CURB STOP & BOX
JOLLY @ STA 44+99.18
111.3' LT

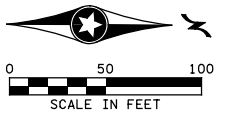
F&I 8" GATE VALVE
10"X8" REDUCER
JOLLY @ STA 45+22.89
30.5' LT
CONNECT TO EXISTING WM (A)

F&I 1" CORPORATION STOP
88 LF 1" TYPE K COPPER SERVICE
JOLLY @ STA 45+17.09
30.6' LT

NOTES:

SEE PLAN SHEET SW11 FOR GENERAL NOTES AND LEGEND

- (A) CONNECT TO EXISTING WATER MAIN.
- (C) F&I TYPE K COPPER WATER SERVICE FROM NEW CORP TO R/W WITH NEW CURB STOP.



F&I HYDRANT, TEE, LEAD AND VALVE
6 LF DIP (CLASS 52)
8"X6" TEE
JOLLY @ STA 43+75.04
30.4' LT
6" GATE VALVE
JOLLY @ STA 43+75.00
32.4' LT
HYDRANT
JOLLY @ STA 43+75.00
36.4' LT

F&I 8" GATE VALVE
JOLLY @ STA 43+67.37
30.3' LT
CONNECT TO EXISTING WM (A)

F&I 8" GATE VALVE
SHOP ACCESS @ STA 45+22.89
30.5' LT
CONNECT TO EXISTING WM (A)

EB BROOKLYN BLVD
EX R/W

JOLLY LN N

EB BROOKLYN BLVD

SHOP ACCESS

JOLLY LANE

SHOP ACCESS

890

890

880

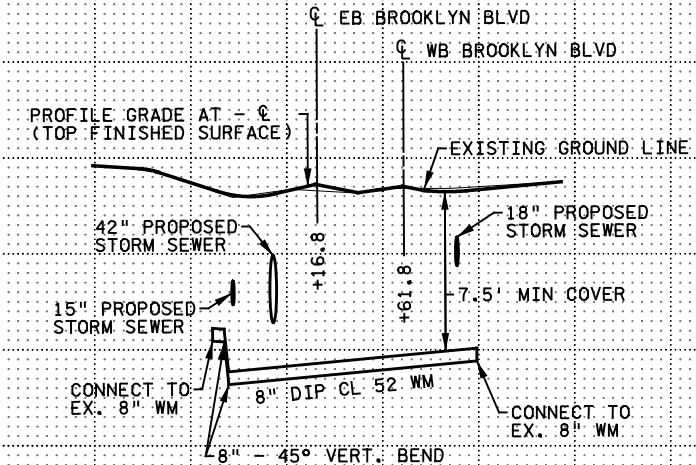
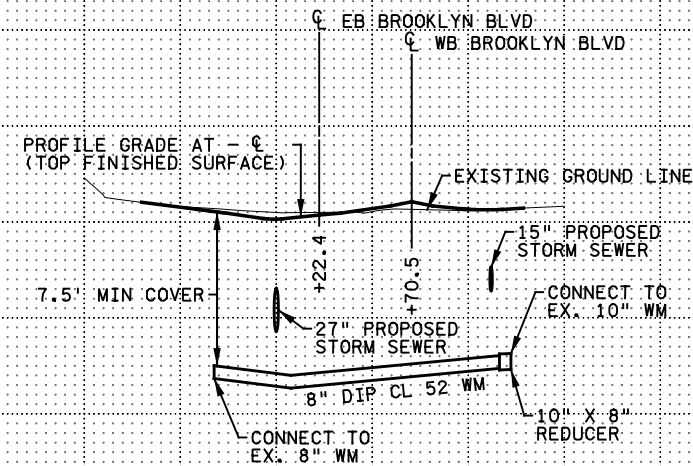
880

870

870

860

860



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COUNTY PROJECT NO. X
CITY PROJECT NO. 403219

DRAWN BY J. VAN BECK
DESIGNED BY K. HARRISON
CHECKED BY M. MOHS
COMM. NO. 1811530

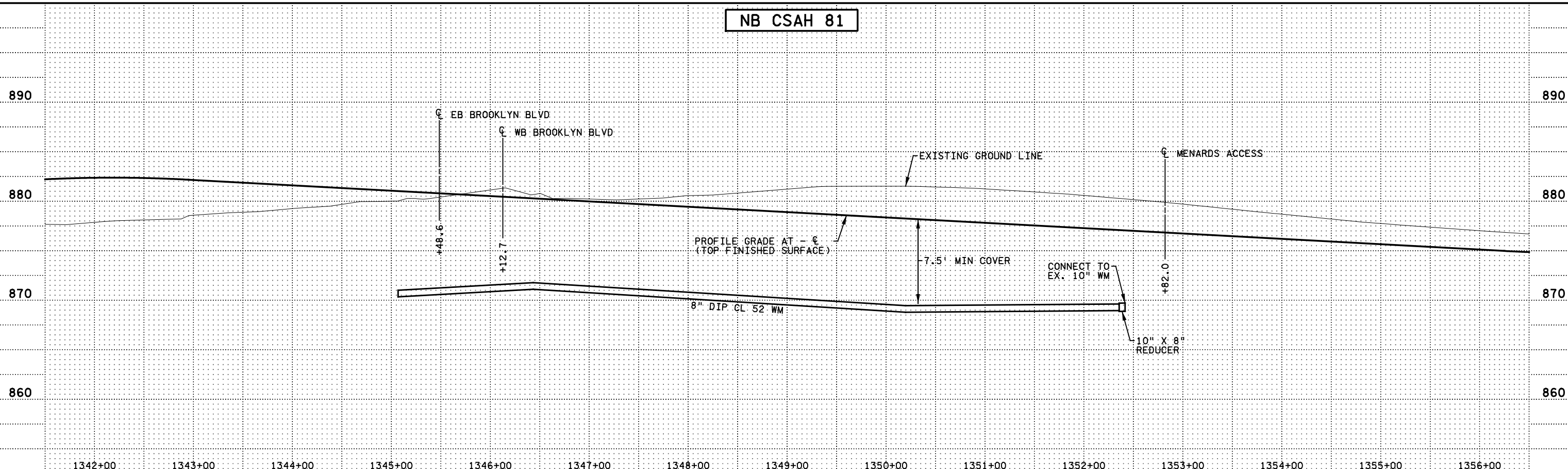
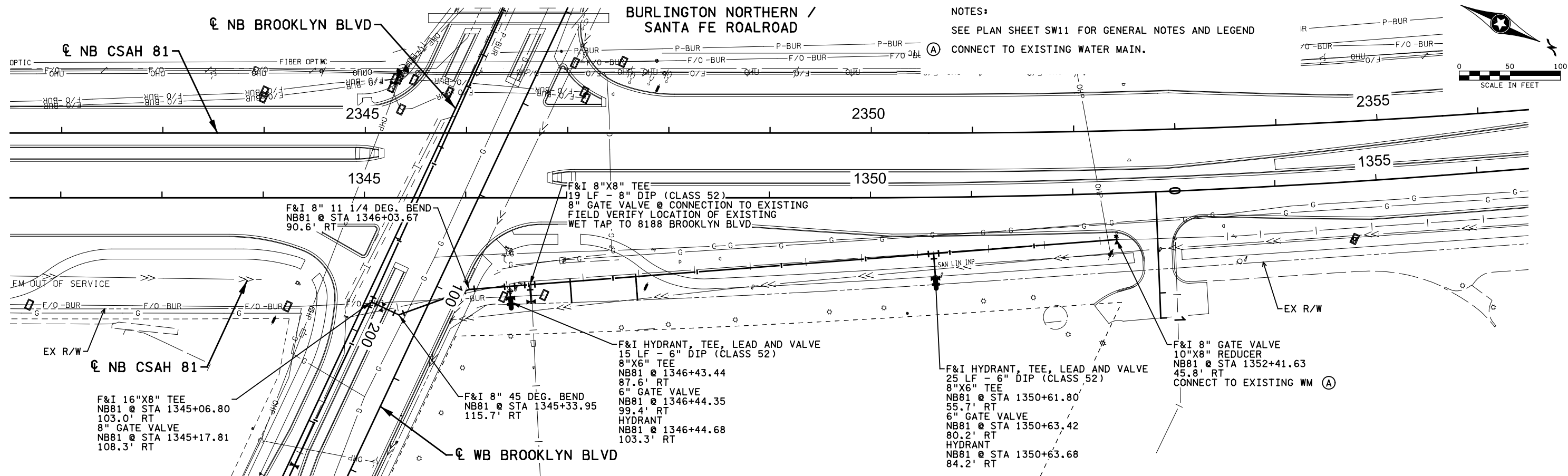


CITY OF BROOKLYN PARK
SANITARY SEWER AND WATER MAIN PLANS AND PROFILES
SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET SW15 OF SW16

3:09:44 PM
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NO	DATE	BY	CKD	APPR	REVISION



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.
 Print Name: **KYLE F. HARRISON**
 Date: *03/05/19* License #: **53658**

STATE AID PROJECT NO. X
 STATE PROJECT NO. X
 COUNTY PROJECT NO. X
 CITY PROJECT NO. 403219
 DRAWN BY J. VAN BECK
 DESIGNED BY K. HARRISON
 CHECKED BY M. MOHS
 COMM. NO. 1811530



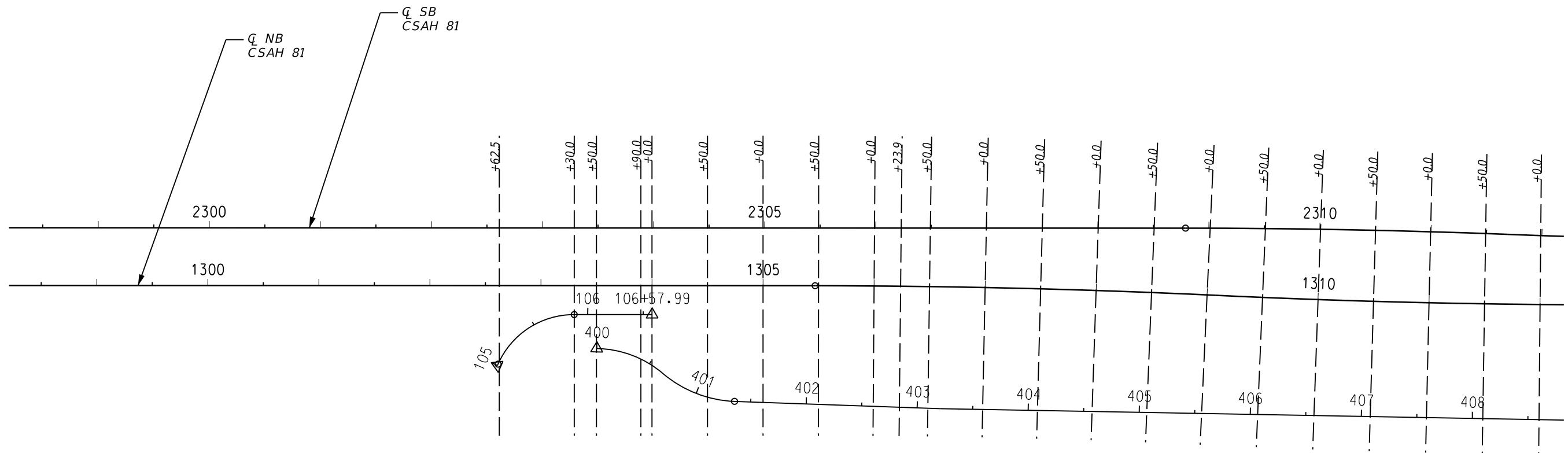
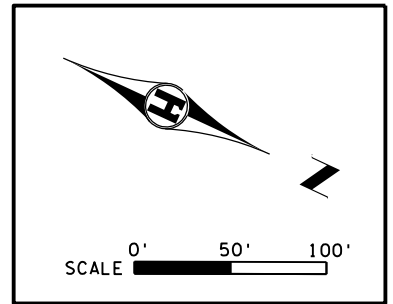
CITY OF BROOKLYN PARK
 SANITARY SEWER AND WATER MAIN PLANS AND PROFILES
 SANITARY SEWER AND WATER MAIN IMPROVEMENTS

SHEET SW16 OF SW16

3:09:45 PM
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NO	DATE	BY	CKD	APPR	REVISION

...FInaIPlan\11530_sw05.dgn



CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
73RD AVE N	XS140-XS144
LAKELAND AVE.	XS145-XS163
SIDEWALK ON 79TH AVE.	XS164
GREEN HAVEN DR.	XS165-XS166
TRAIL ON LAKELAND AVE.	XS167
83RD AVE.	XS168
TRAIL SOUTH OF 85TH AVE.	XS169-XS176



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

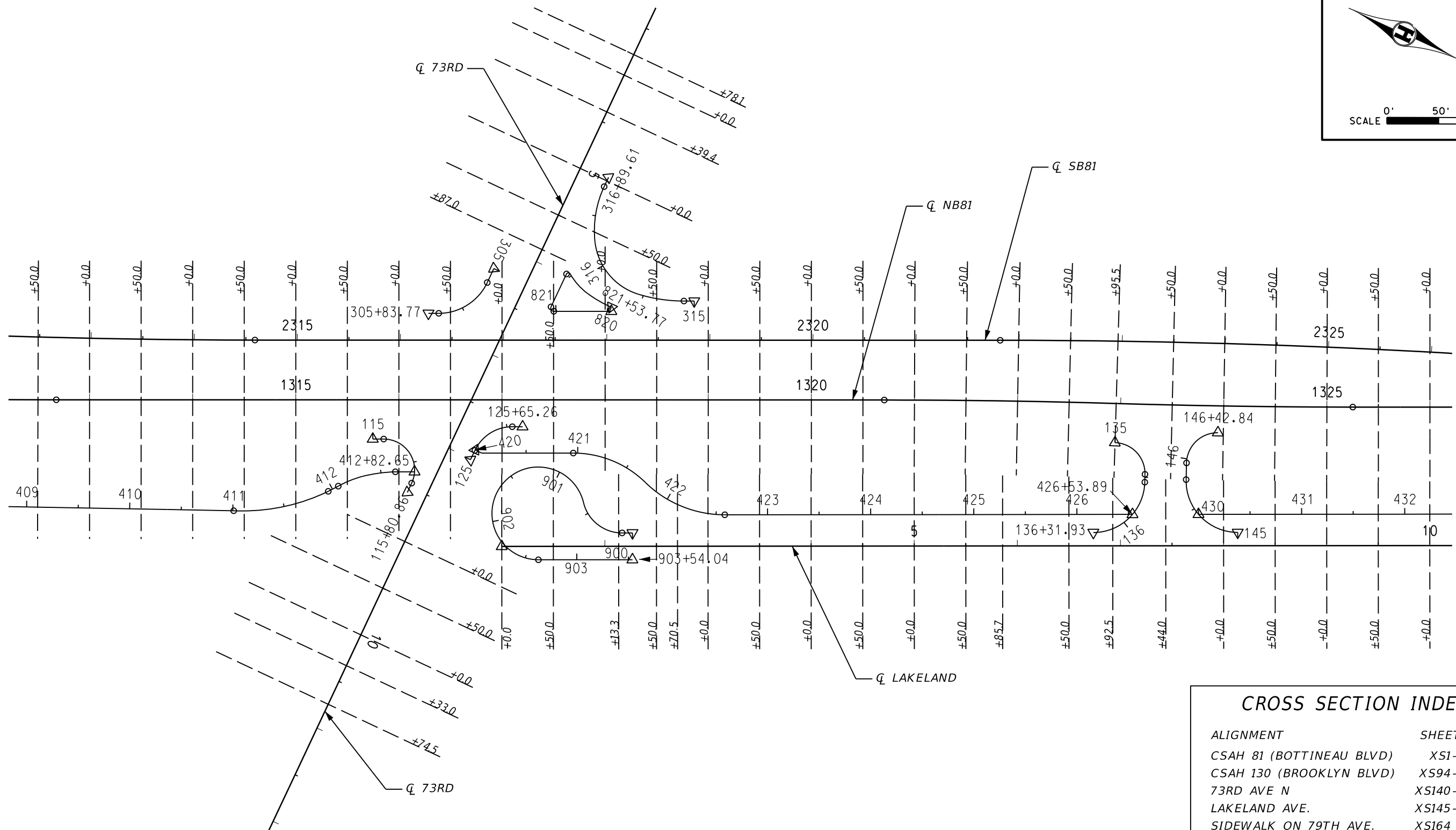
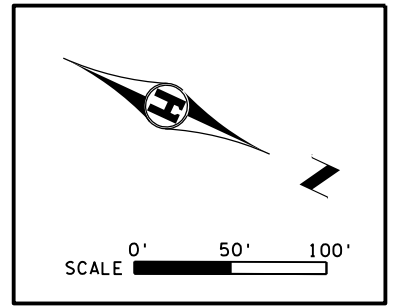
49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: S. PARK
CAD BY: E. GUIR
CHECKED BY: L. LANGNER
LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 XM1
 244



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Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

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 LICENSE NO. DATE

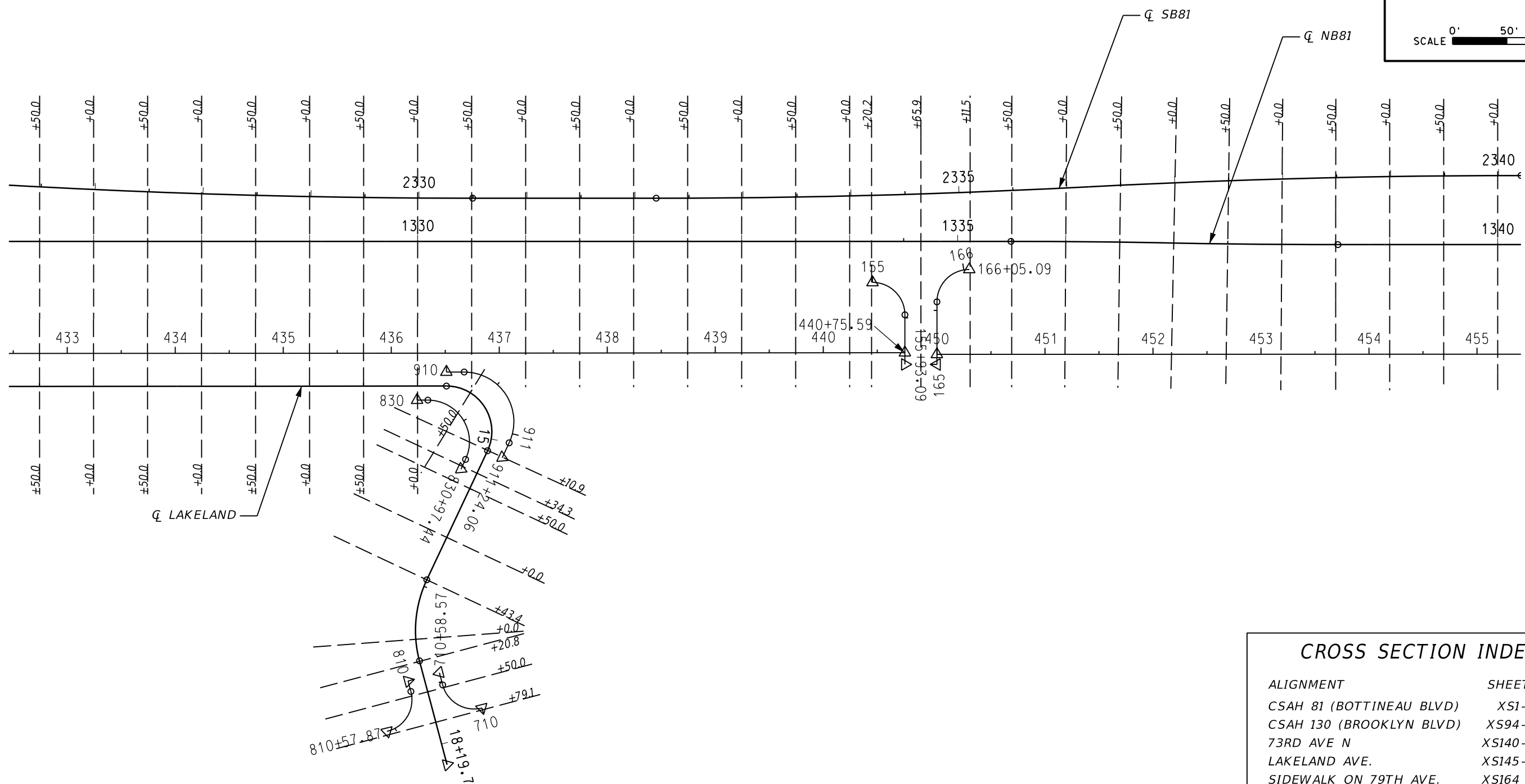
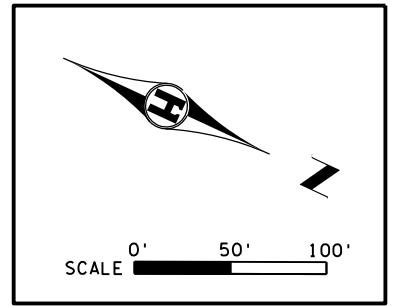
DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

XM2
 244



CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
73RD AVE N	XS140-XS144
LAKELAND AVE.	XS145-XS163
SIDEWALK ON 79TH AVE.	XS164
GREEN HAVEN DR.	XS165-XS166
TRAIL ON LAKELAND AVE.	XS167
83RD AVE.	XS168
TRAIL SOUTH OF 85TH AVE.	XS169-XS176



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 LICENSE NO. DATE

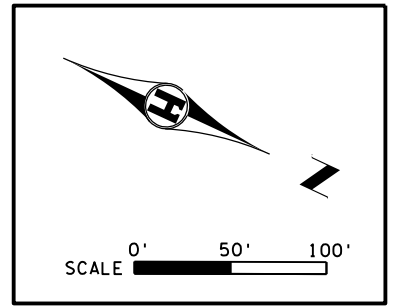
DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

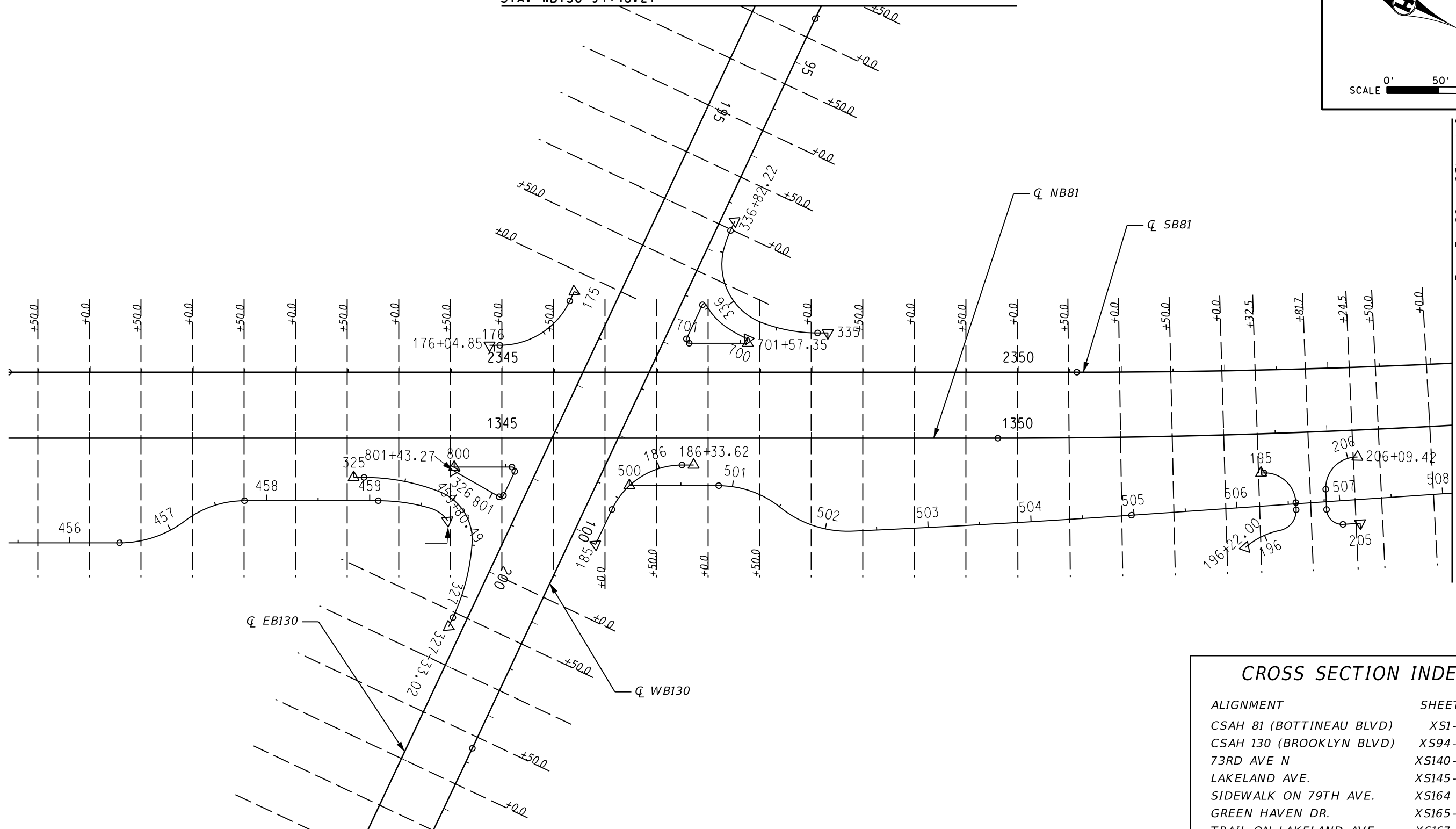
SHEET

XM3
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MATCH LINE SEE SHEET XM5
STA. WB130 94+40.27

MATCH LINE SEE SHEET XM7
STA. NB81 1354+21.72



MATCH LINE SEE SHEET XM6
STA. WB130 103+24.51

CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
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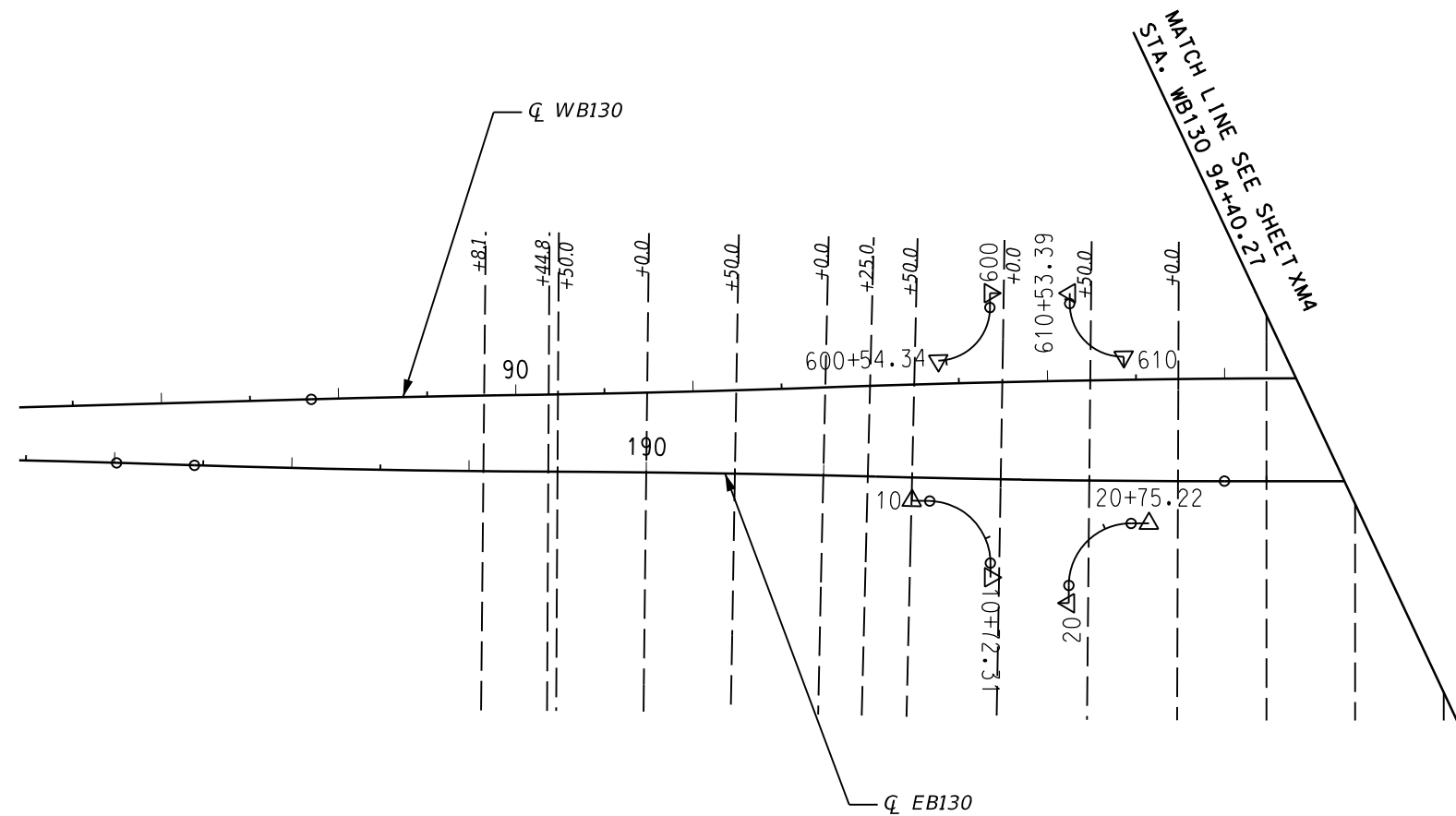
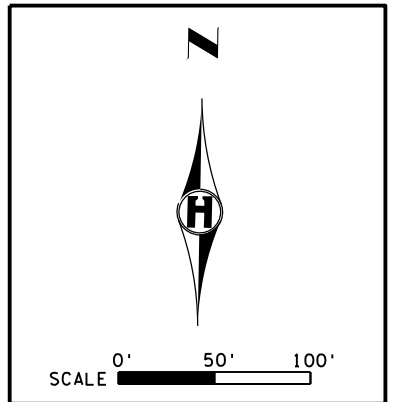
Kelly Agosto
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 CHECKED BY: L. LANGNER
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CROSS SECTIONS MATCH LINE LAYOUT

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 S.P. 027-681-035, S.P. 110-020-040

SHEET
 XM4
 244



CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
73RD AVE N	XS140-XS144
LAKELAND AVE.	XS145-XS163
SIDEWALK ON 79TH AVE.	XS164
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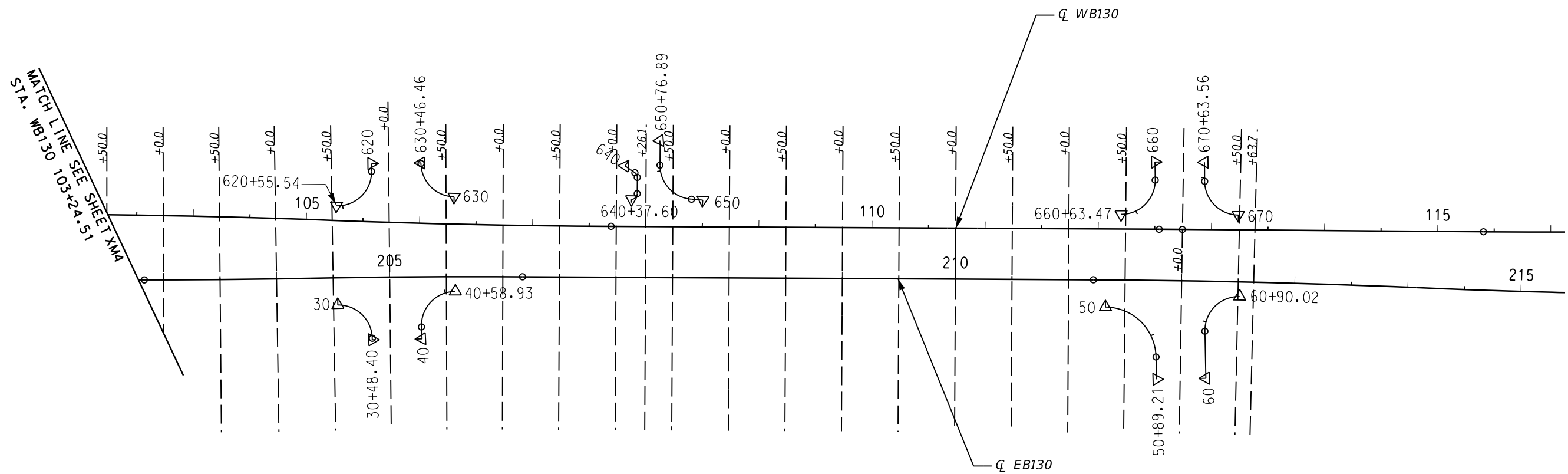
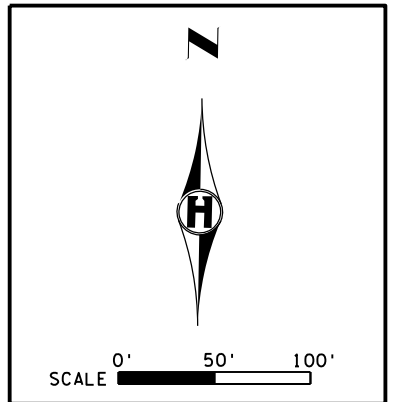
DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

XM5
 244



CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
73RD AVE N	XS140-XS144
LAKELAND AVE.	XS145-XS163
SIDEWALK ON 79TH AVE.	XS164
GREEN HAVEN DR.	XS165-XS166
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83RD AVE.	XS168
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 LICENSE NO. DATE

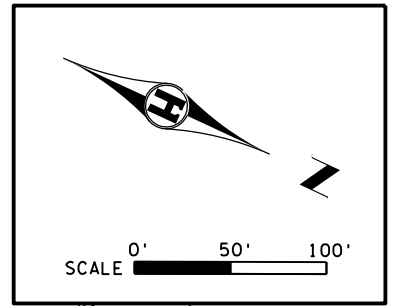
DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT

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 S.P. 027-681-035, S.P. 110-020-040

SHEET

XM6
 244



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 LICENSE NO. DATE

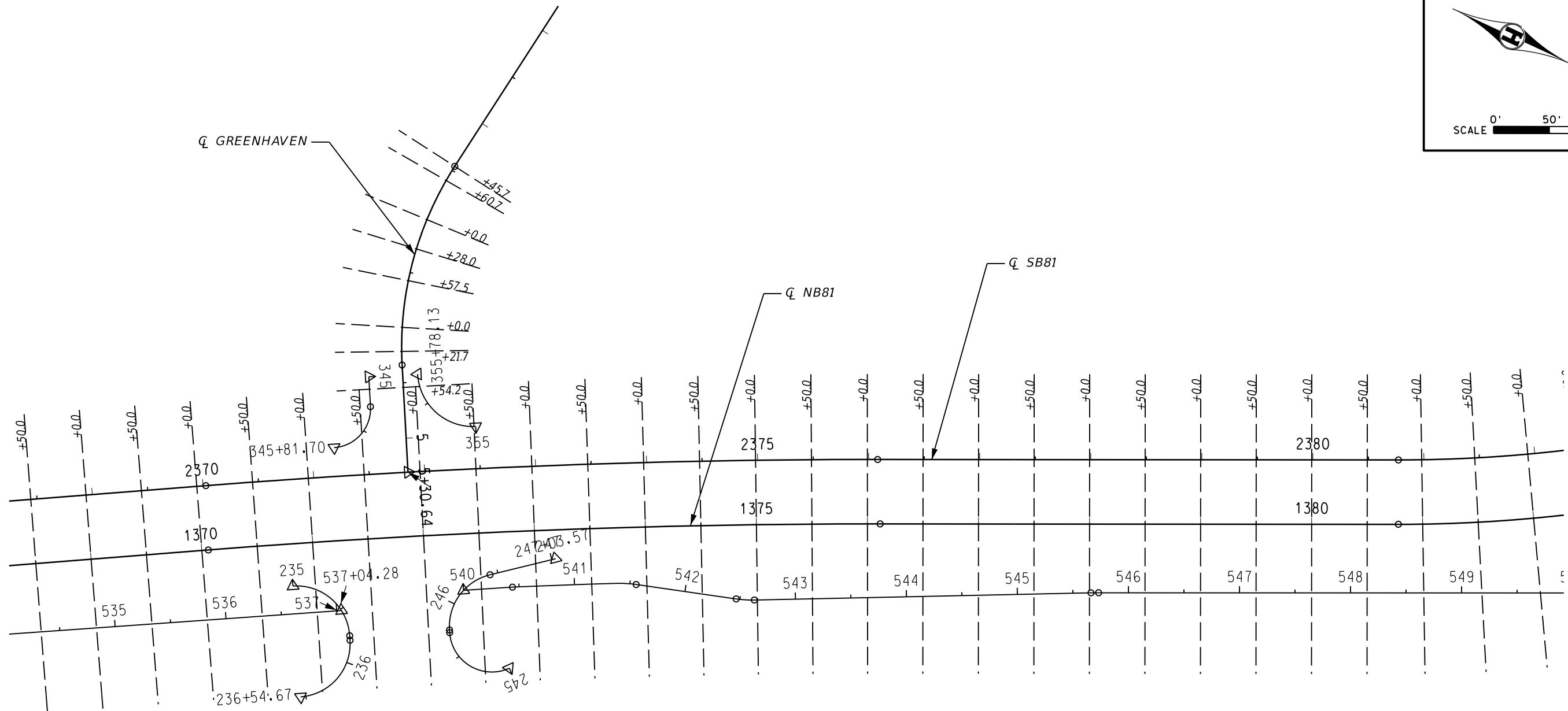
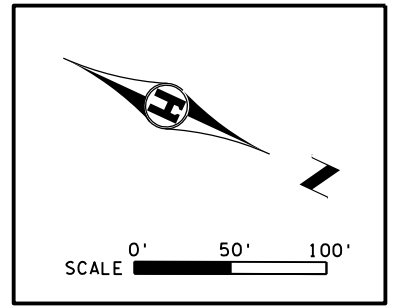
DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET

XM7
 244



CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
73RD AVE N	XS140-XS144
LAKELAND AVE.	XS145-XS163
SIDEWALK ON 79TH AVE.	XS164
GREEN HAVEN DR.	XS165-XS166
TRAIL ON LAKELAND AVE.	XS167
83RD AVE.	XS168
TRAIL SOUTH OF 85TH AVE.	XS169-XS176



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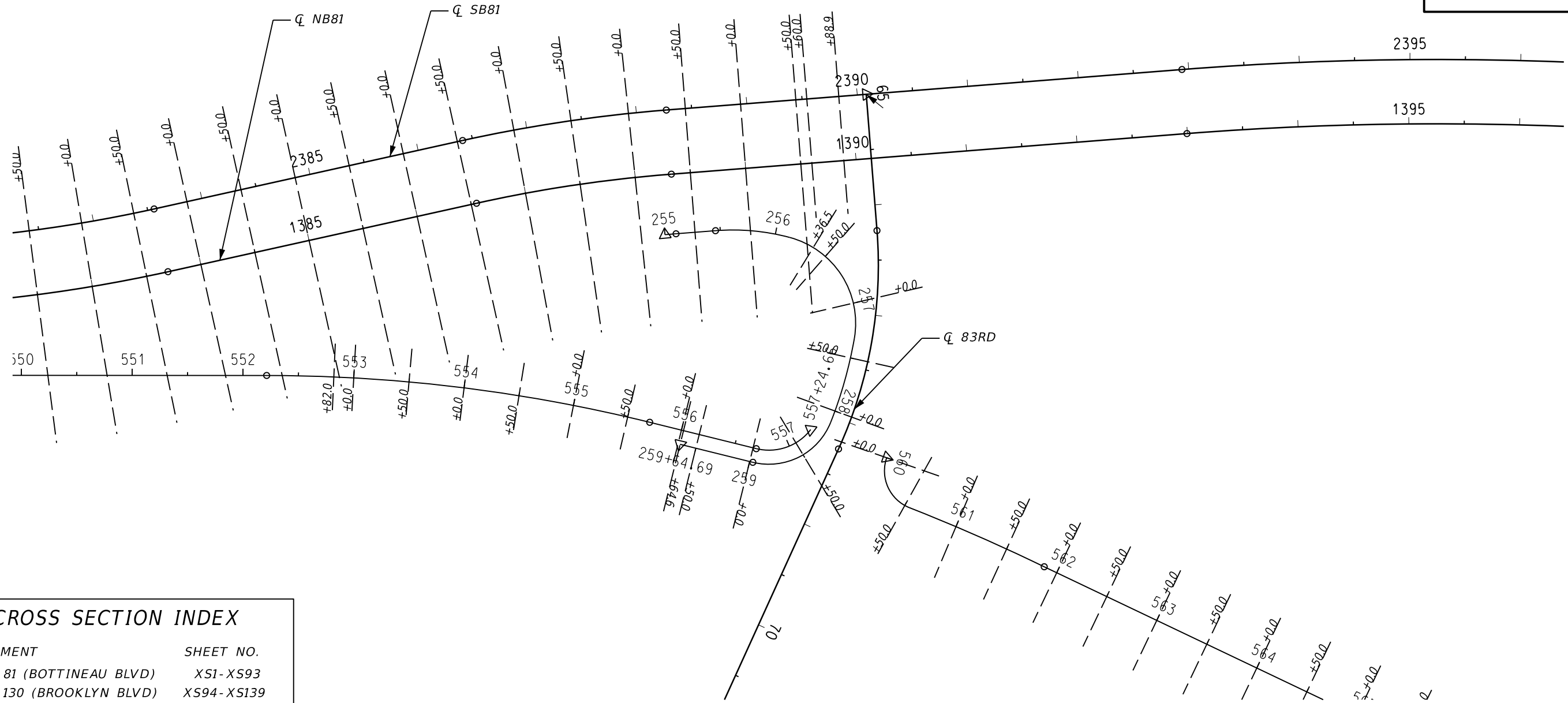
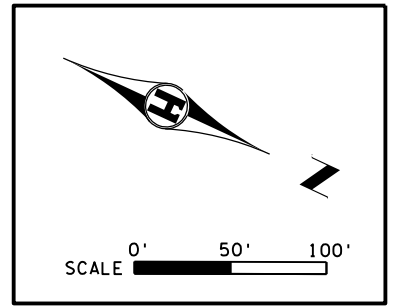
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER
 49075 LICENSE NO.
 3/15/19 DATE

DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 XM8
 244



CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
73RD AVE N	XS140-XS144
LAKELAND AVE.	XS145-XS163
SIDEWALK ON 79TH AVE.	XS164
GREEN HAVEN DR.	XS165-XS166
TRAIL ON LAKELAND AVE.	XS167
83RD AVE.	XS168
TRAIL SOUTH OF 85TH AVE.	XS169-XS176



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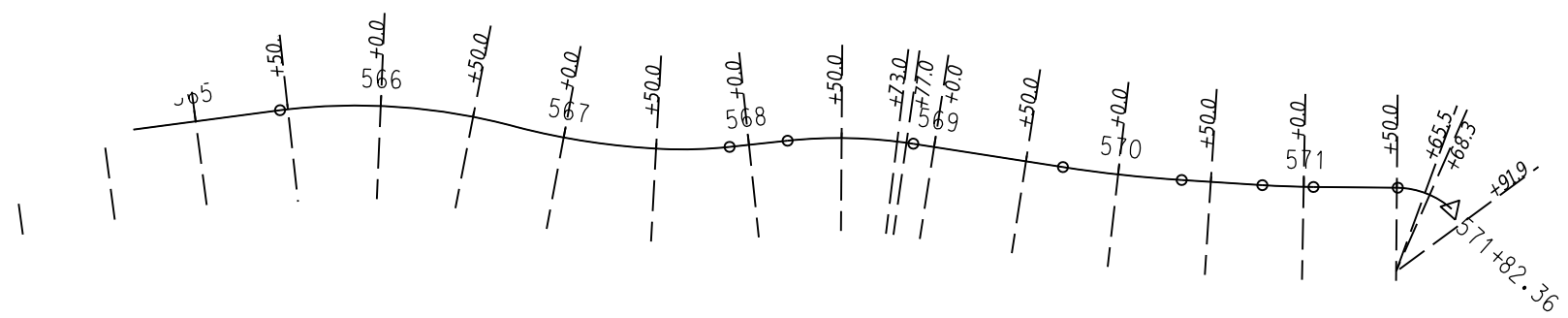
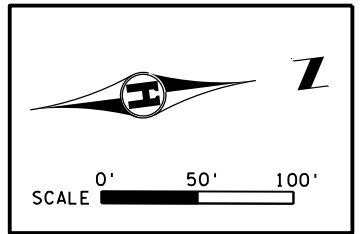
Kelly Agosto
 KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER

49075 3/15/19
 LICENSE NO. DATE

DESIGN BY: S. PARK
 CAD BY: E. GUIR
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035, S.P. 110-020-040

SHEET
 XM9
 244



CROSS SECTION INDEX	
ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
73RD AVE N	XS140-XS144
LAKELAND AVE.	XS145-XS163
SIDEWALK ON 79TH AVE.	XS164
GREEN HAVEN DR.	XS165-XS166
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83RD AVE.	XS168
TRAIL SOUTH OF 85TH AVE.	XS169-XS176



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Kelly Agosto

KELLY AGOSTO, LICENSED PROFESSIONAL ENGINEER **49075** **3/15/19**

LICENSE NO. DATE

DESIGN BY: S. PARK

CAD BY: E. GUIR

CHECKED BY: L. LANGNER

LAST REVISION: / /

CROSS SECTIONS MATCH LINE LAYOUT

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035, S.P. 110-020-040

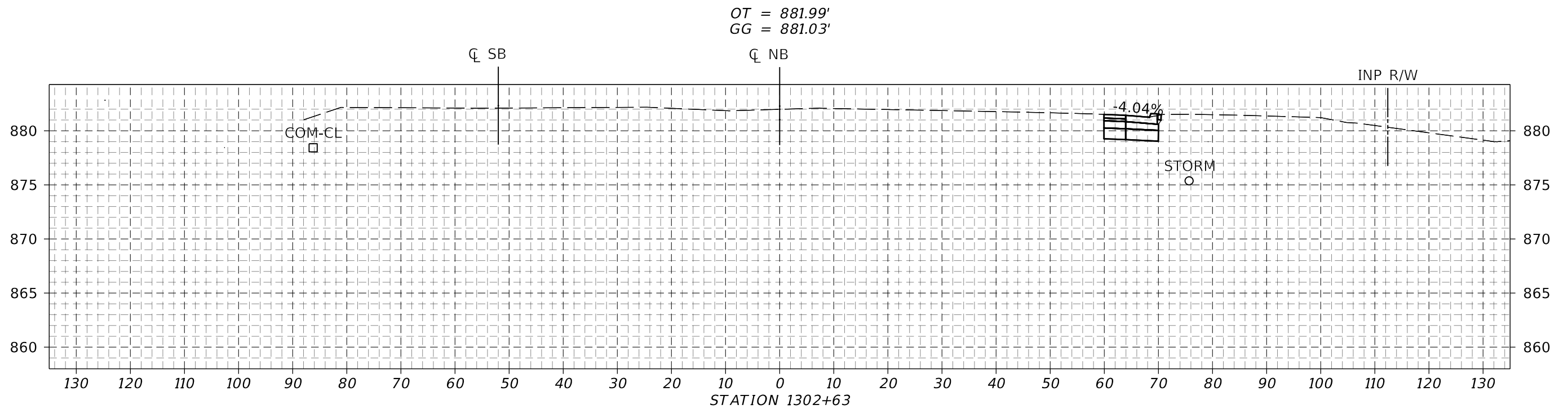
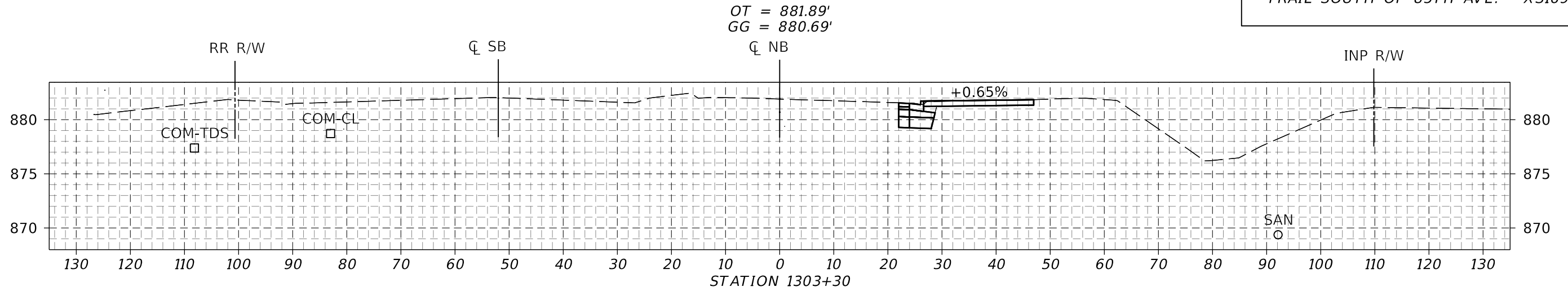
SHEET

XM10
244

CROSS SECTION INDEX

NOTES:
SEE EARTHWORK TABULATION SHEETS FOR EARTHWORK QUANTITIES.

ALIGNMENT	SHEET NO.
CSAH 81 (BOTTINEAU BLVD)	XS1-XS93
CSAH 130 (BROOKLYN BLVD)	XS94-XS139
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TRAIL ON LAKELAND AVE.	XS167
83RD AVE.	XS168
TRAIL SOUTH OF 85TH AVE.	XS169-XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

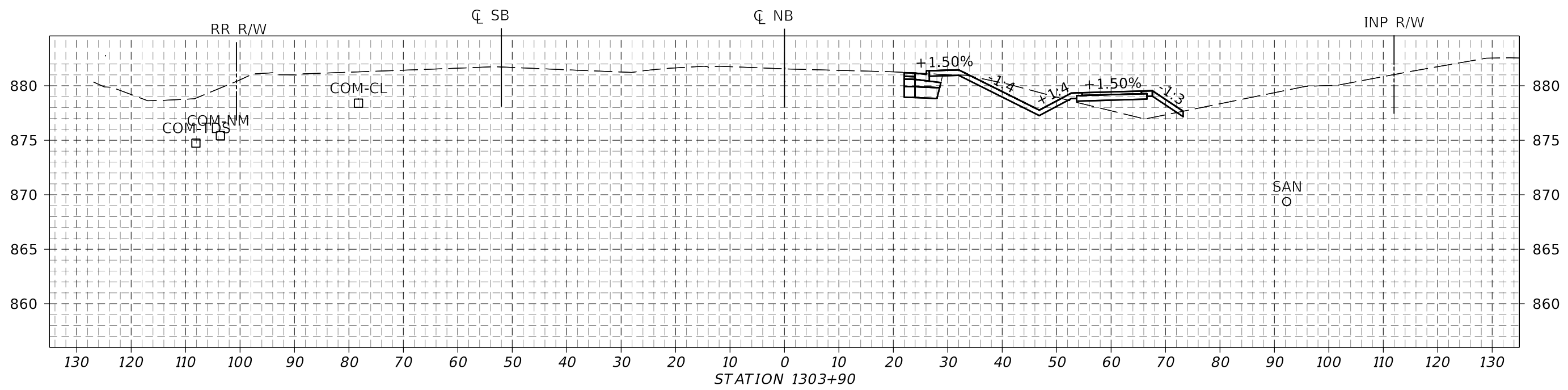
X-SECTIONS STATION 1302+62.50 TO STATION 1303+30.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

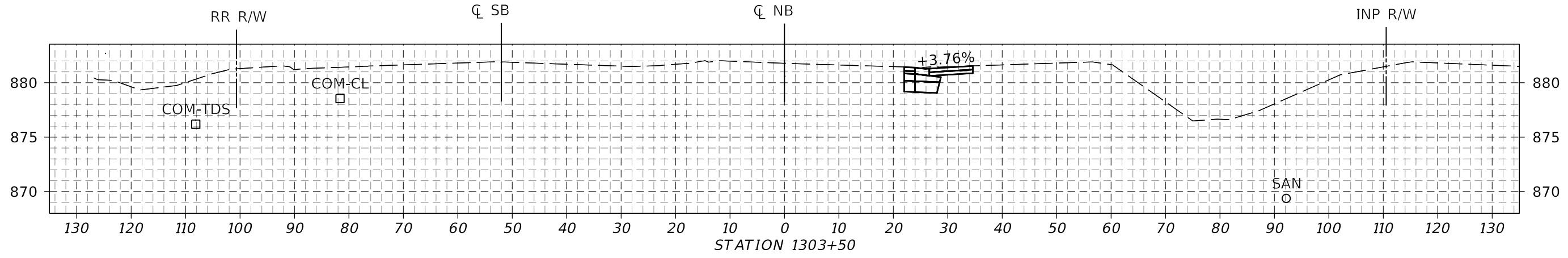
SHEET

XS1
XS176

OT = 881.55'
GG = 880.39'



OT = 881.78'
GG = 880.59'



CSAH 81 (BOTTINEAU BLVD)



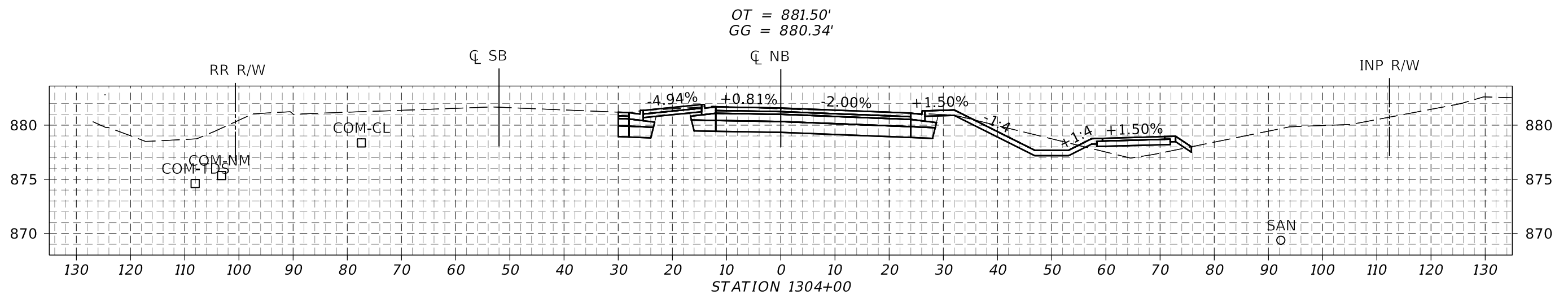
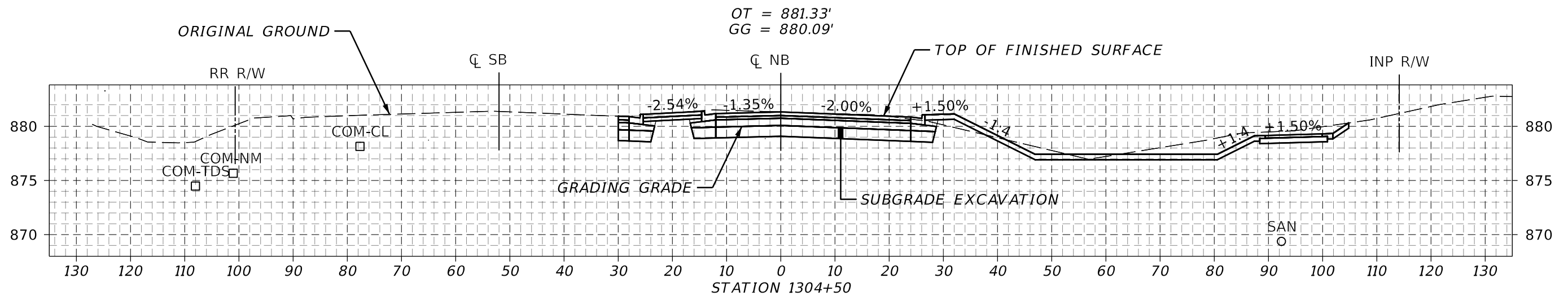
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1303+50.00 TO STATION 1303+90.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS2
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

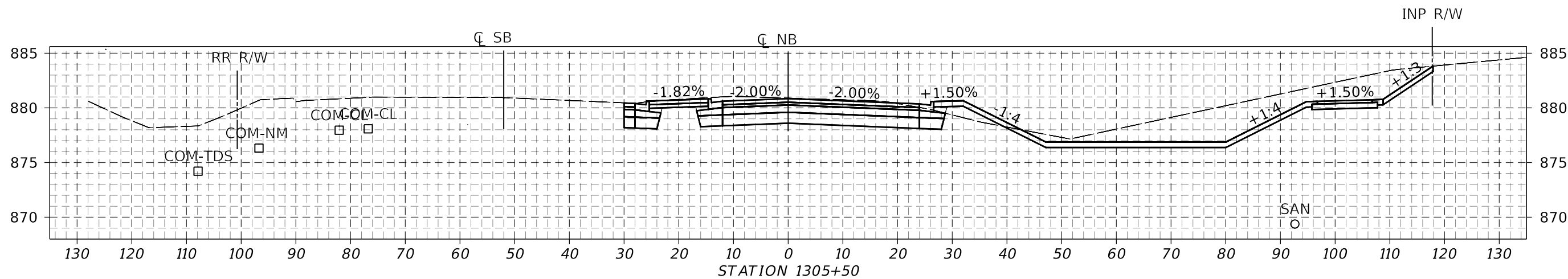
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C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

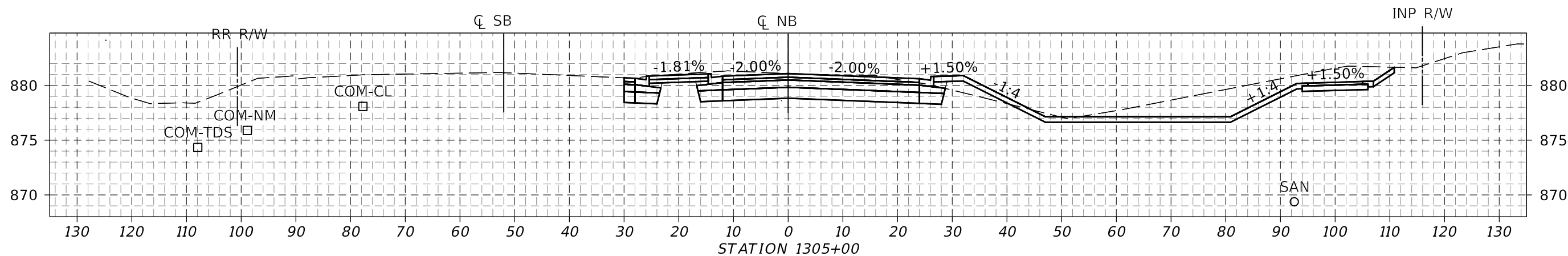
SHEET

XS3
XS176

OT = 880.88'
GG = 879.59'



OT = 881.08'
GG = 879.84'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1305+00.00 TO STATION 1305+50.00

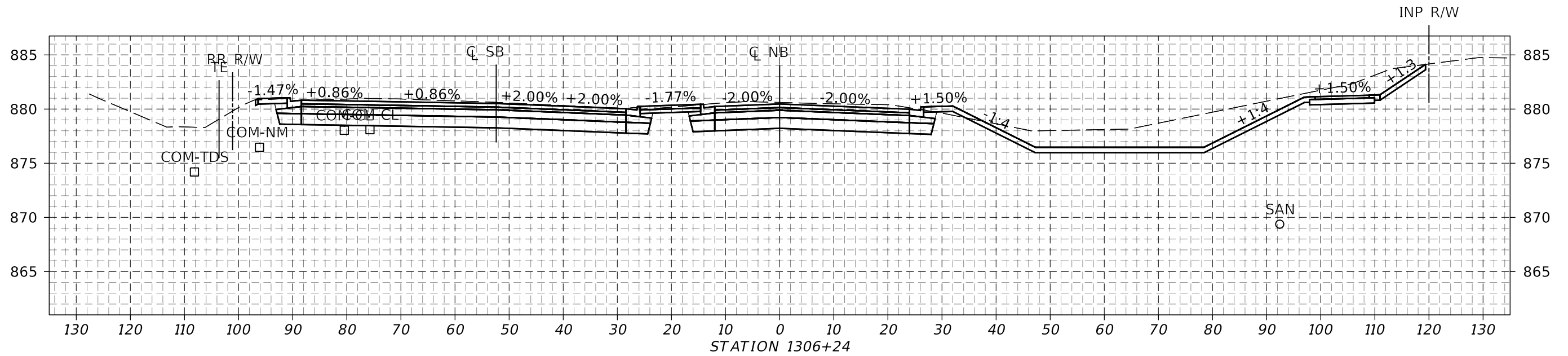
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

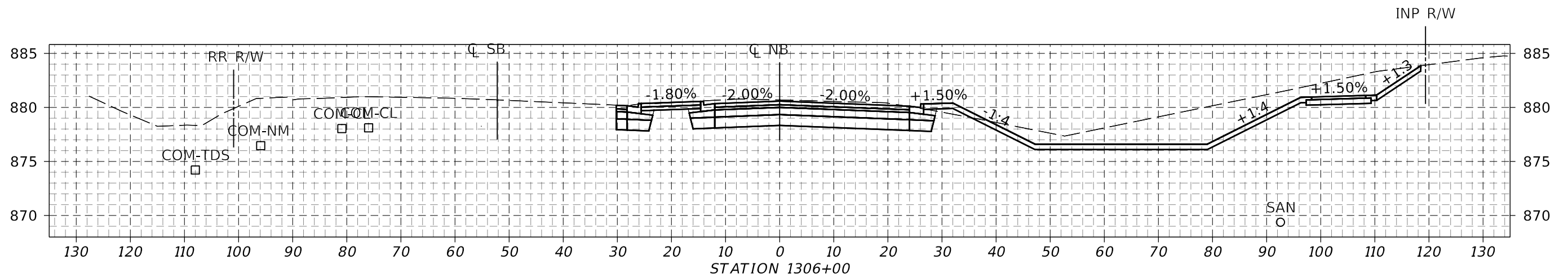
XS4
XS176

OT = 880.62'
GG = 879.26'

OT = 880.62'
GG = 879.22'



OT = 880.70'
GG = 879.34'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1306+00.00 TO STATION 1306+23.90

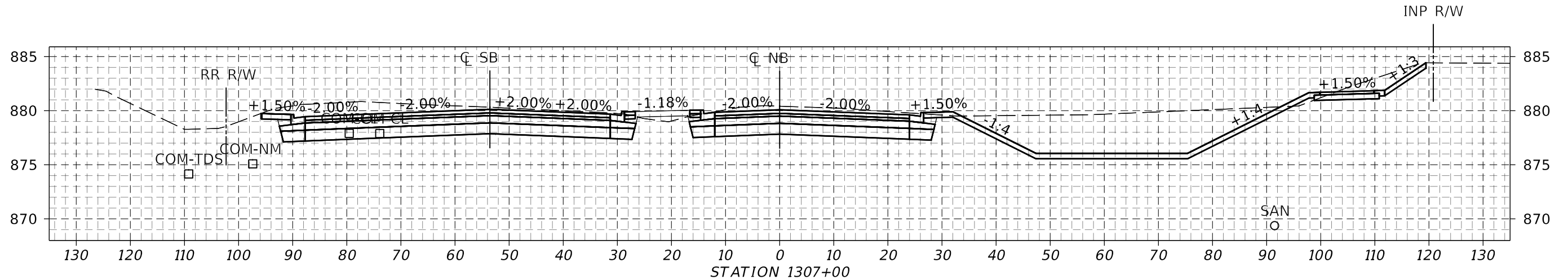
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS5
XS176

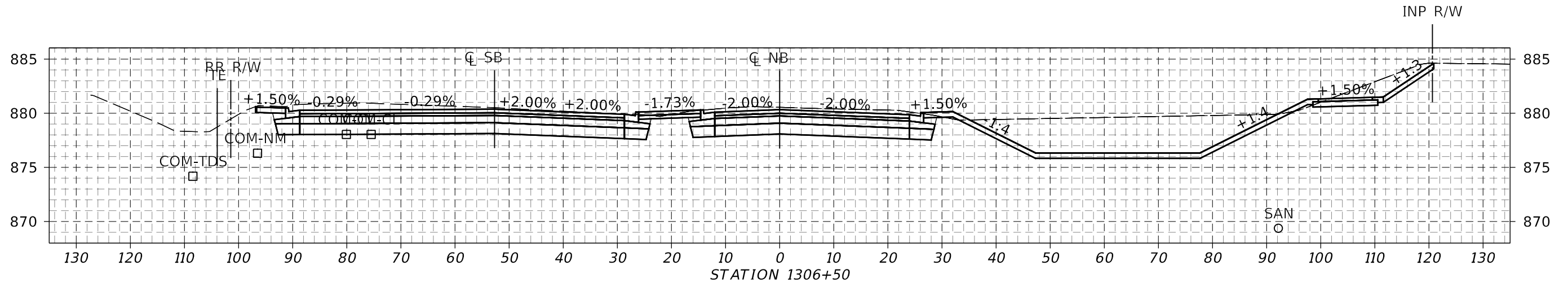
OT = 880.33'
GG = 878.88'

OT = 880.42'
GG = 878.84'



OT = 880.52'
GG = 879.13'

OT = 880.55'
GG = 879.09'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1306+50.00 TO STATION 1307+00.00

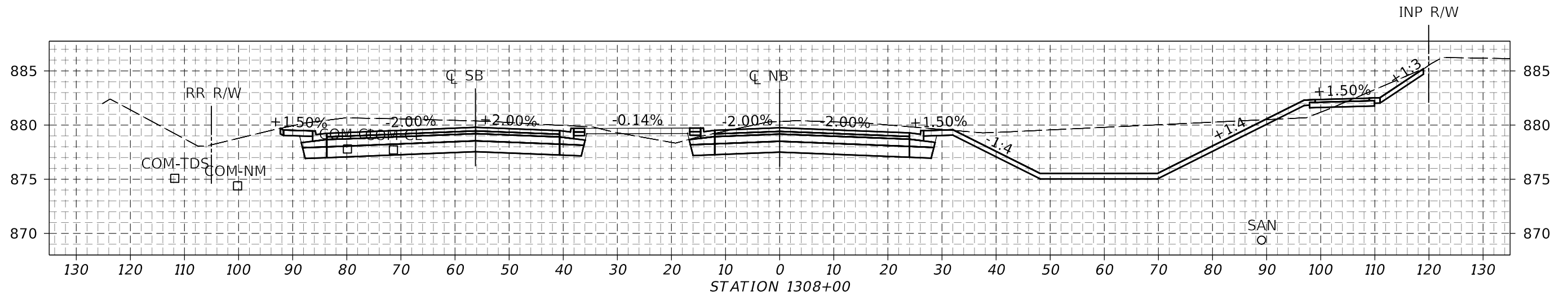
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS6
XS176

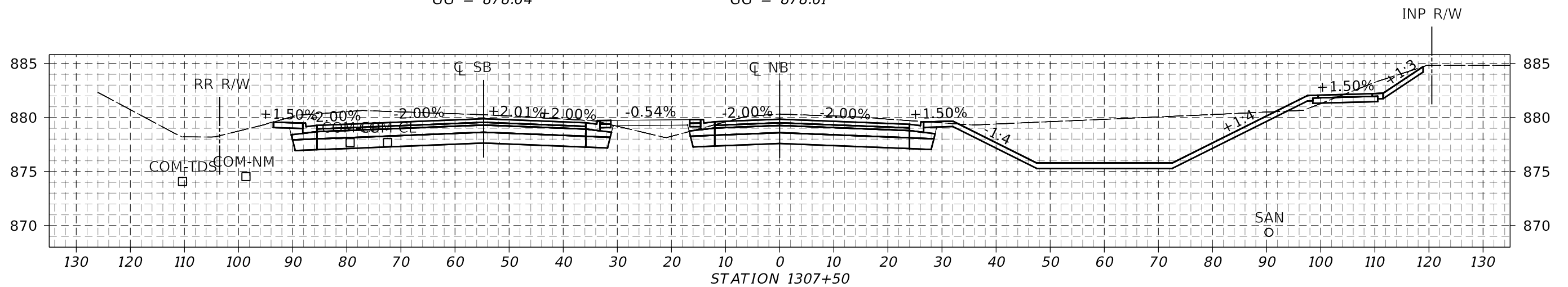
OT = 880.38'
GG = 878.54'

OT = 880.33'
GG = 878.51'



OT = 880.26'
GG = 878.64'

OT = 880.33'
GG = 878.61'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1307+50.00 TO STATION 1308+00.00

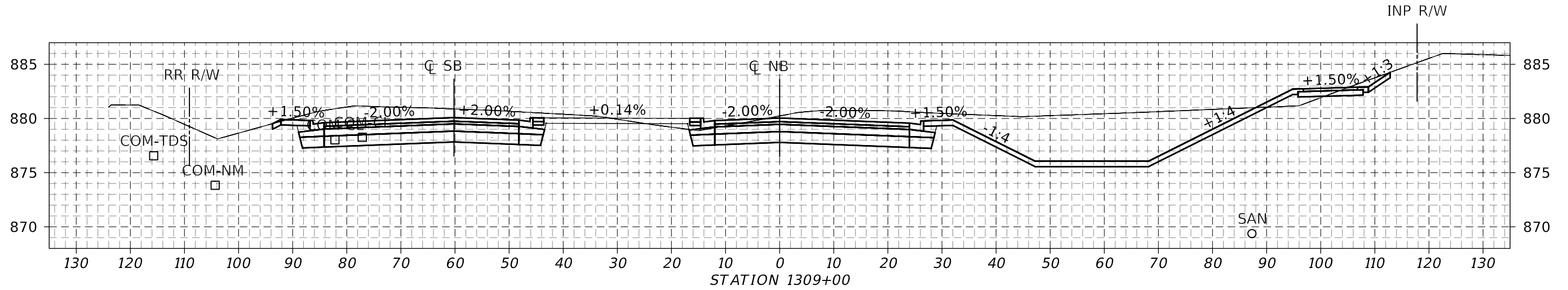
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS7
XS176

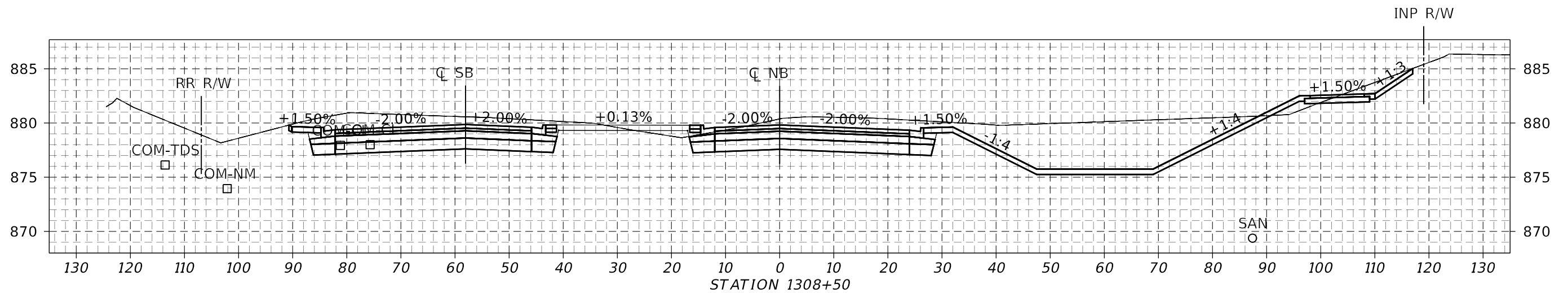
OT = 880.87'
GG = 878.84'

OT = 880.23'
GG = 878.79'



OT = 880.58'
GG = 878.61'

OT = 880.38'
GG = 878.57'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1308+50.00 TO STATION 1309+00.00

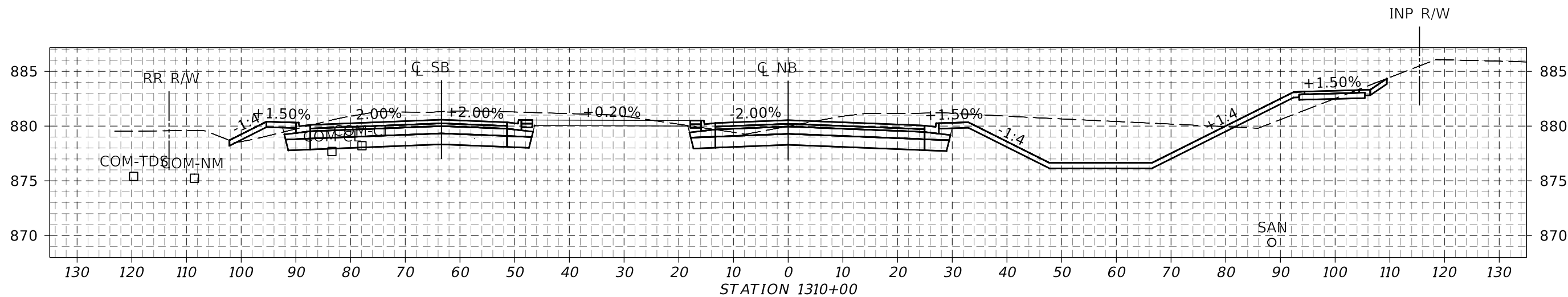
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS8
XS176

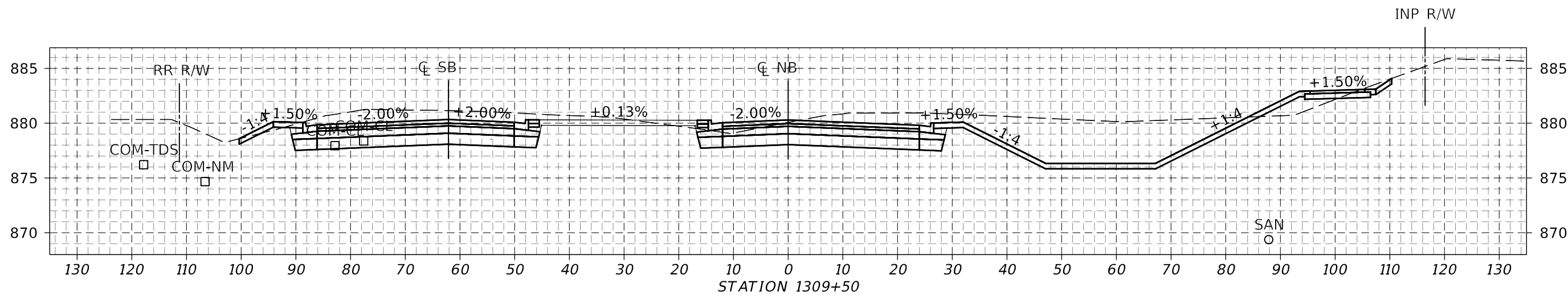
OT = 881.32'
GG = 879.33'

OT = 879.98'
GG = 879.29'



OT = 881.16'
GG = 879.08'

OT = 880.07'
GG = 879.04'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1309+50.00 TO STATION 1310+00.00

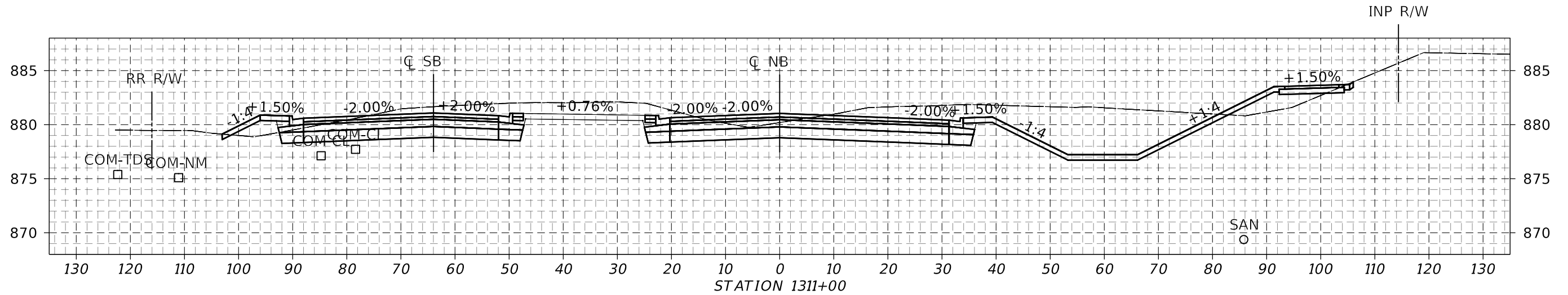
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS9
XS176

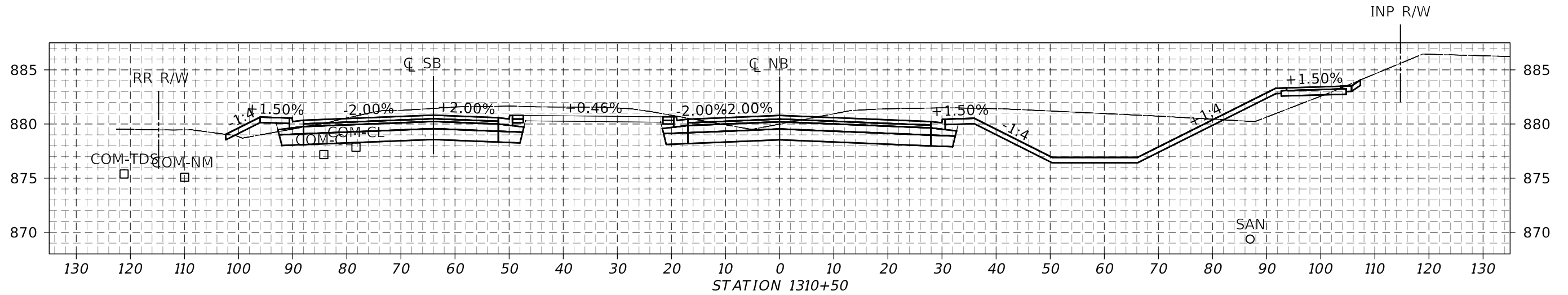
OT = 881.66'
GG = 879.83'

OT = 880.19'
GG = 879.79'



OT = 881.45'
GG = 879.58'

OT = 880.00'
GG = 879.54'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

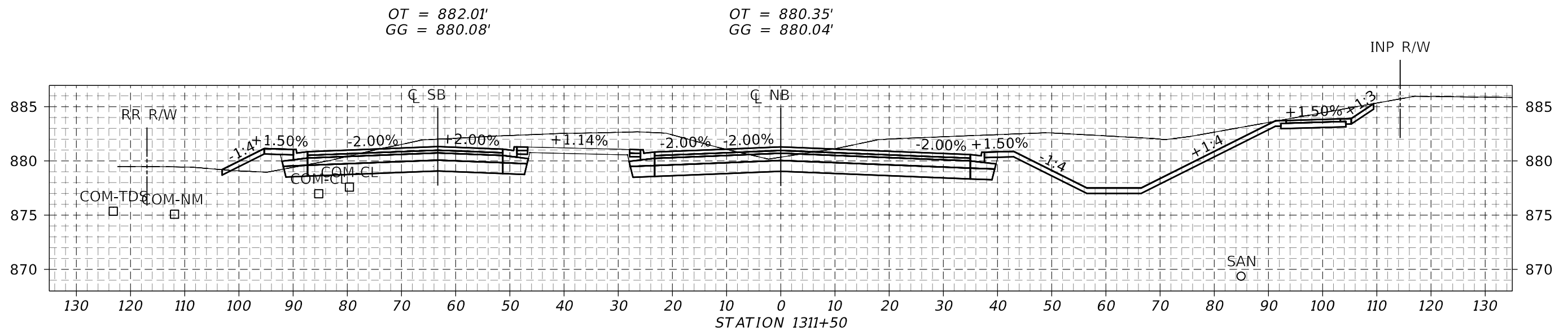
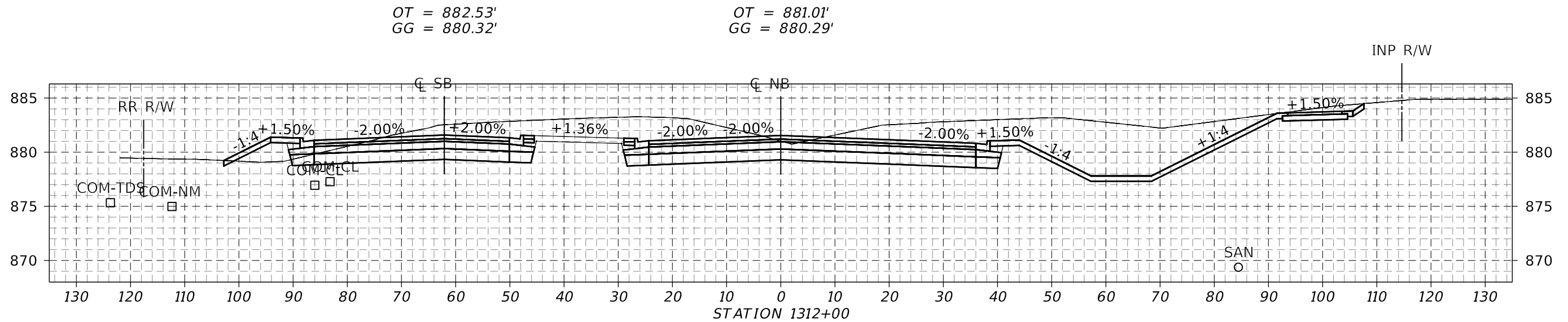
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1310+50.00 TO STATION 1311+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS10
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

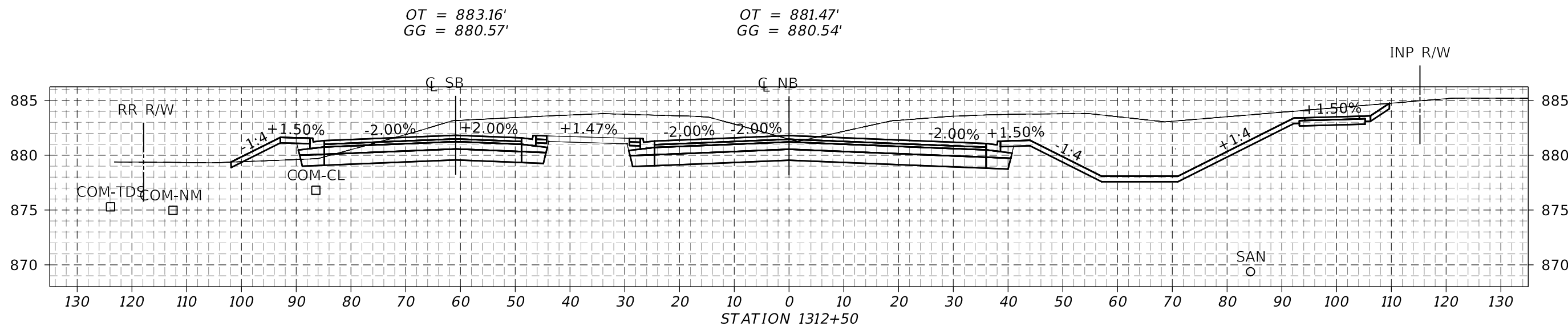
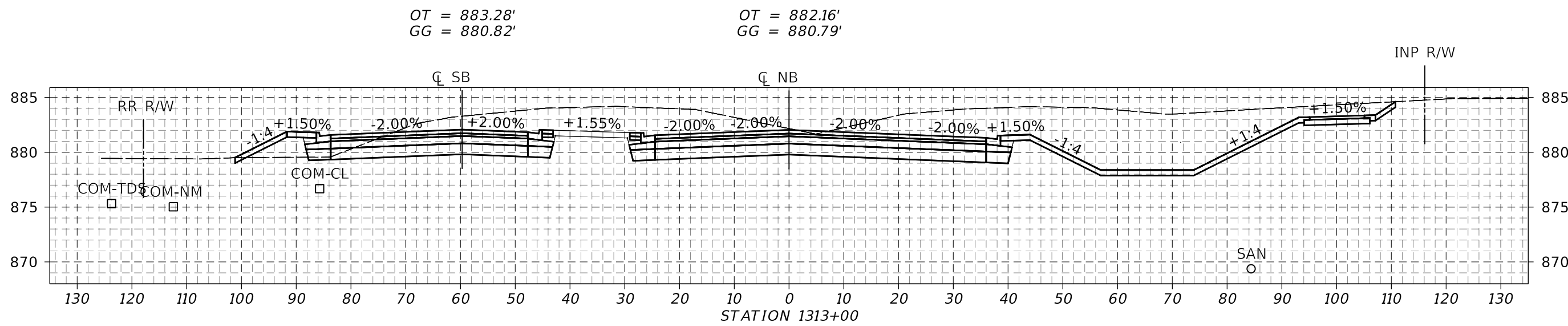
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1311+50.00 TO STATION 1312+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS11
 XS176



CSAH 81 (BOTTINEAU BLVD)

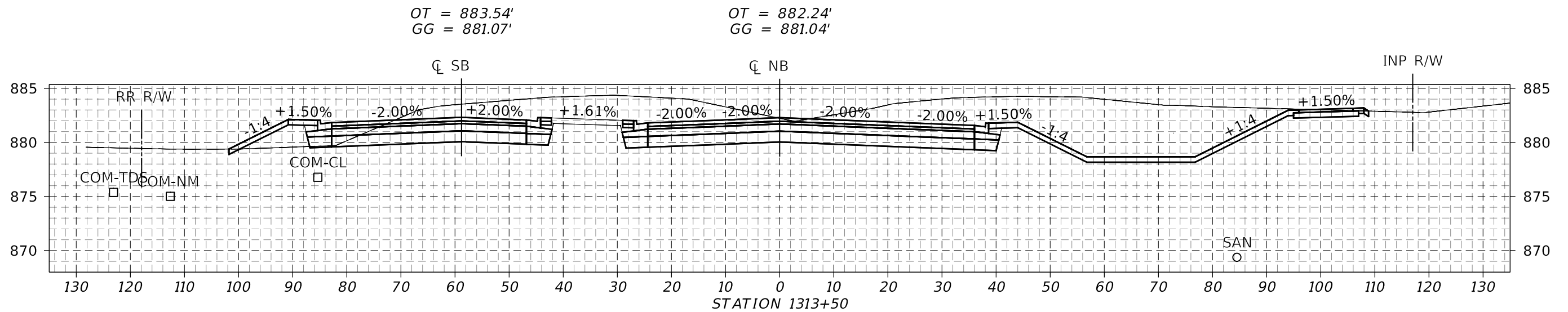
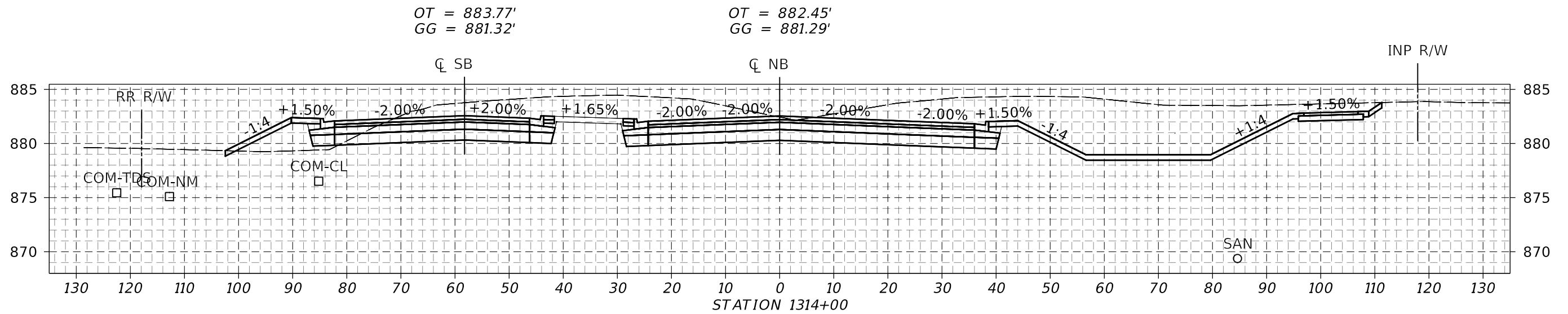


SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1312+50.00 TO STATION 1313+00.00
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS12
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

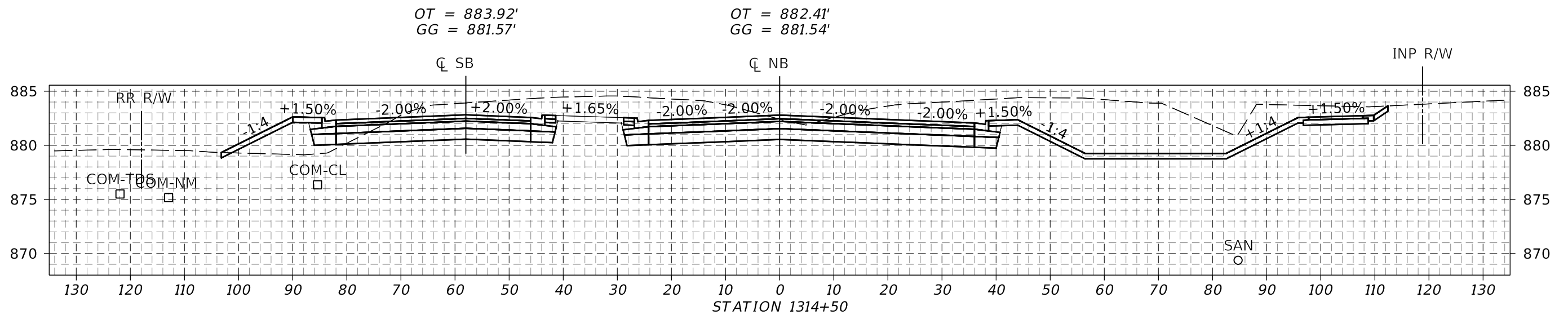
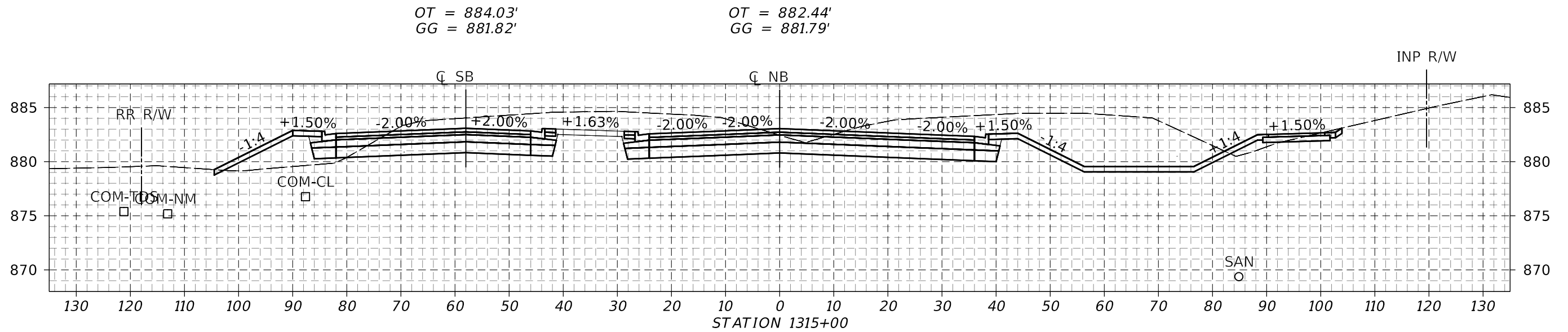
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1313+50.00 TO STATION 1314+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS13
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

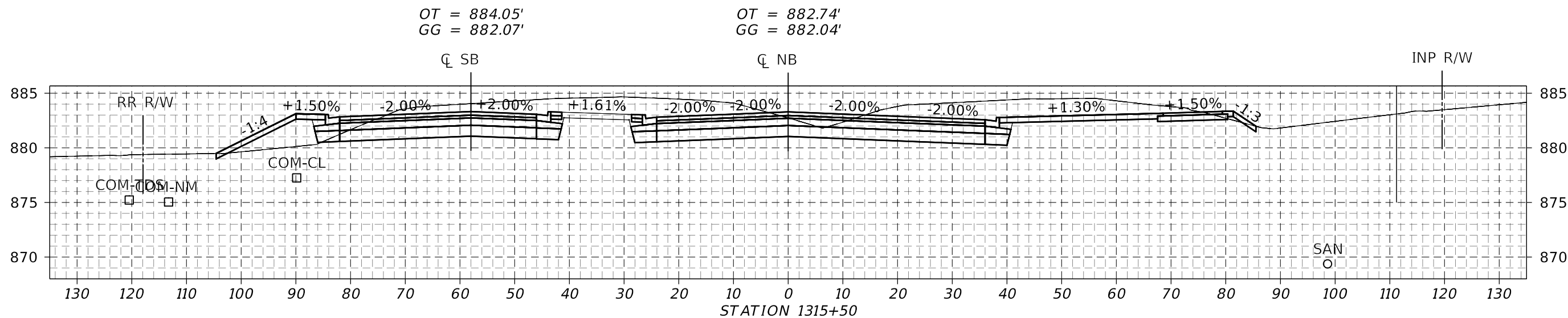
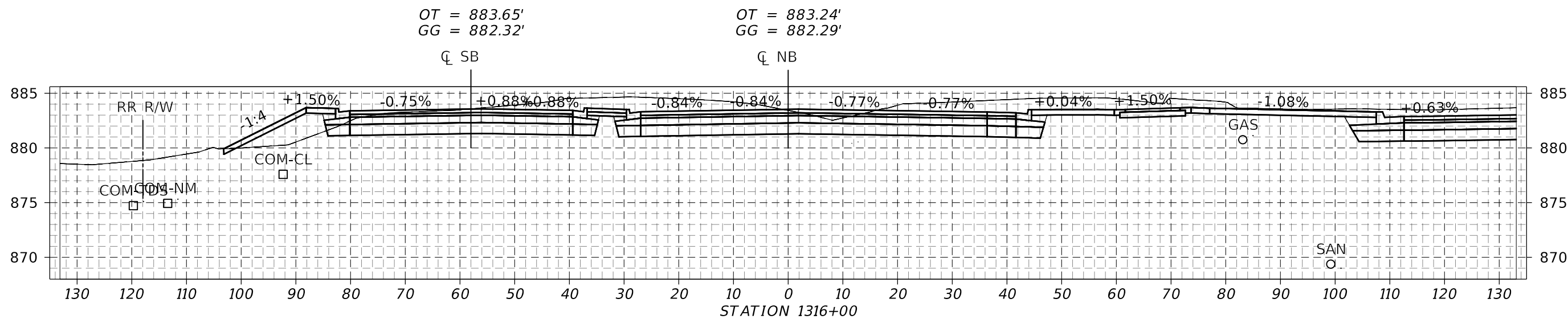
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1314+50.00 TO STATION 1315+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS14
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

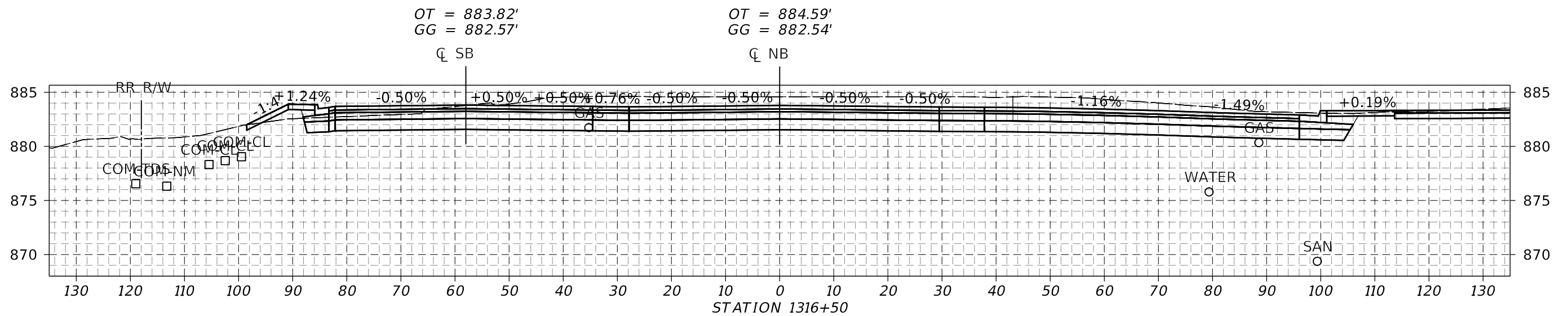
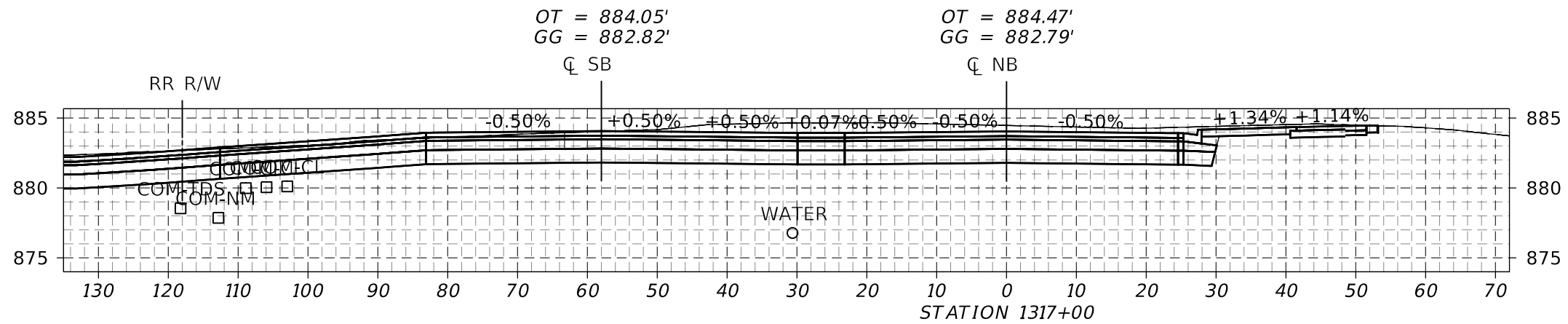
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1315+50.00 TO STATION 1316+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS15
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

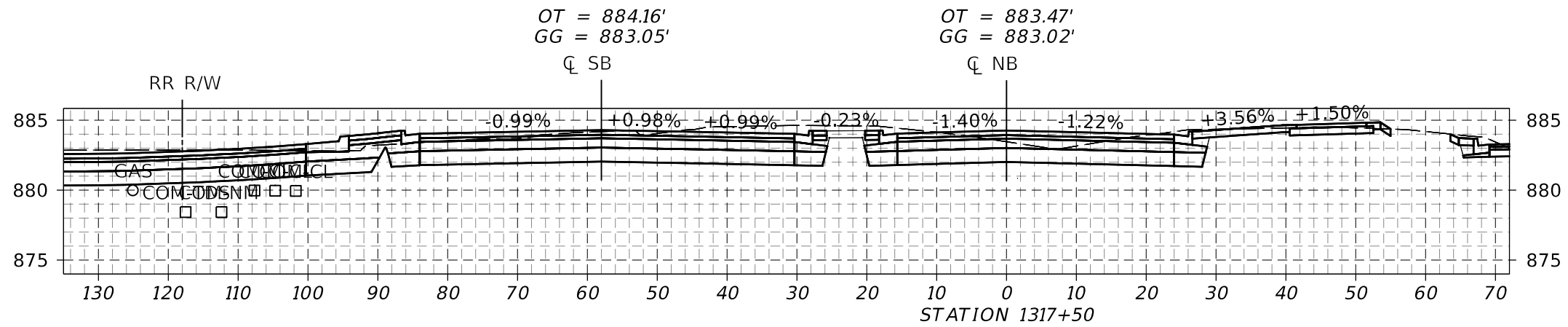
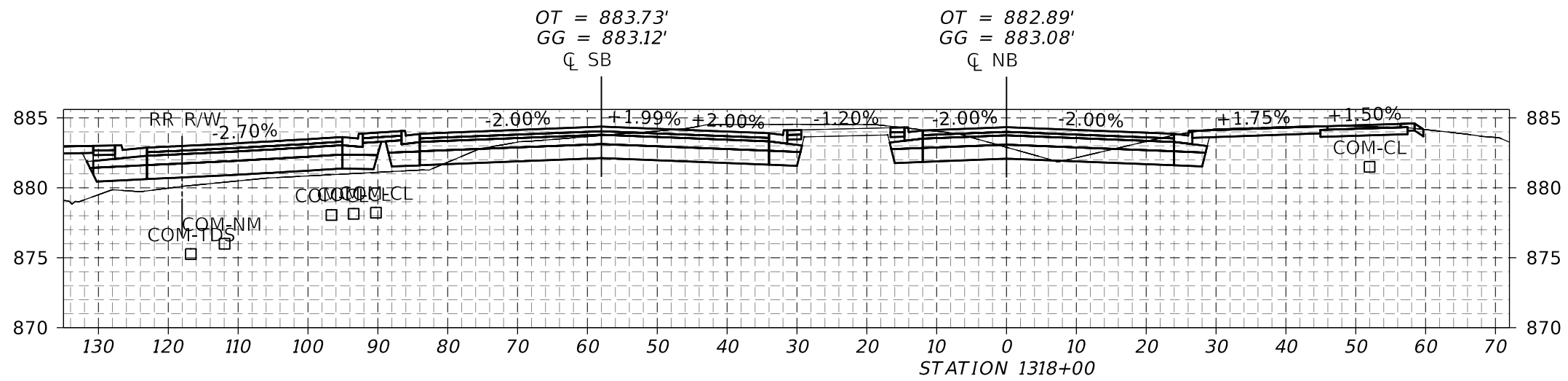
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1316+50.00 TO STATION 1317+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS16
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

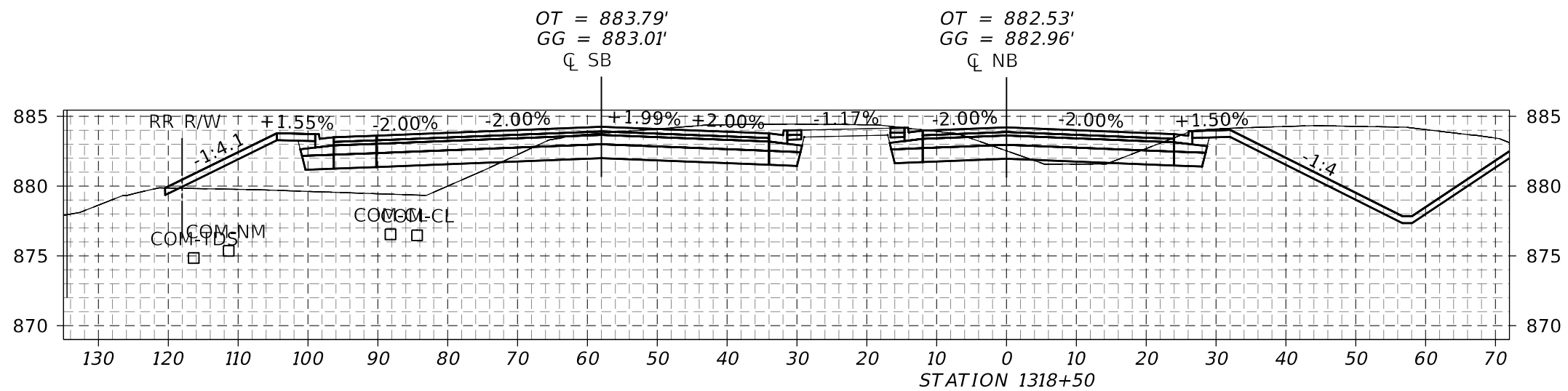
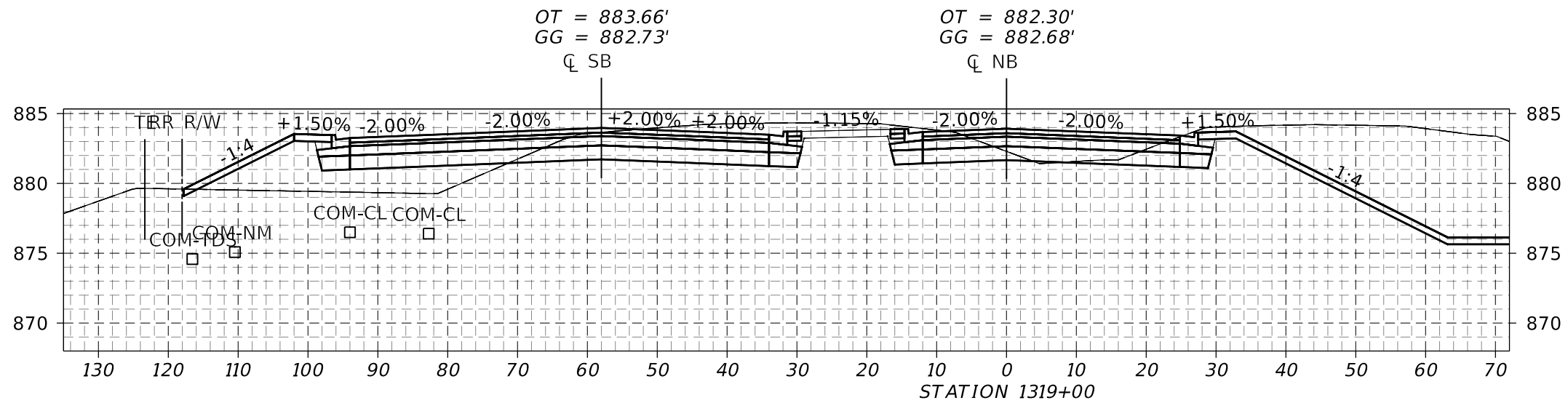
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1317+50.00 TO STATION 1318+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS17
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

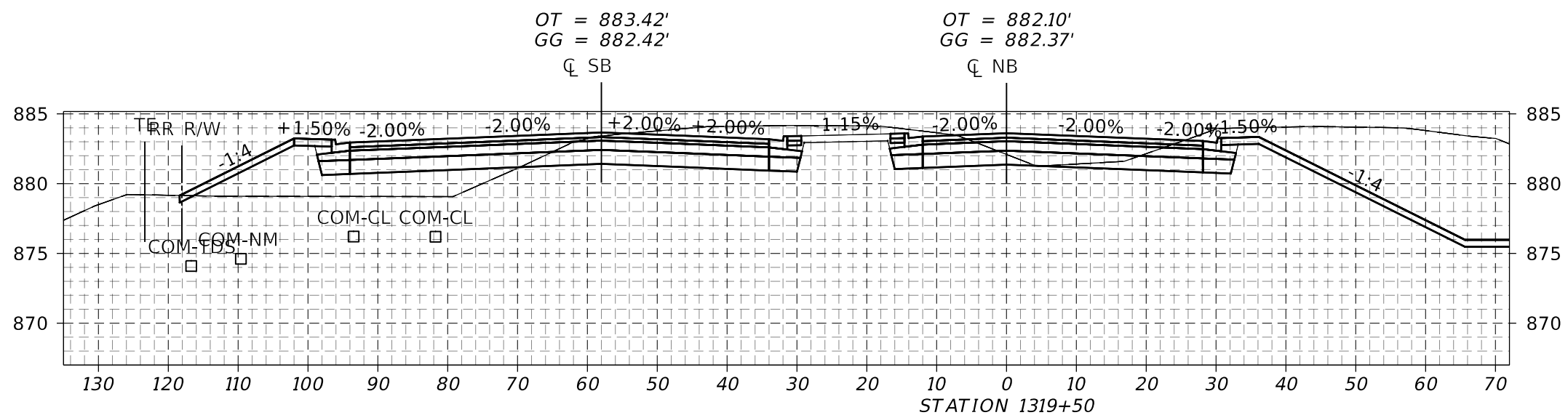
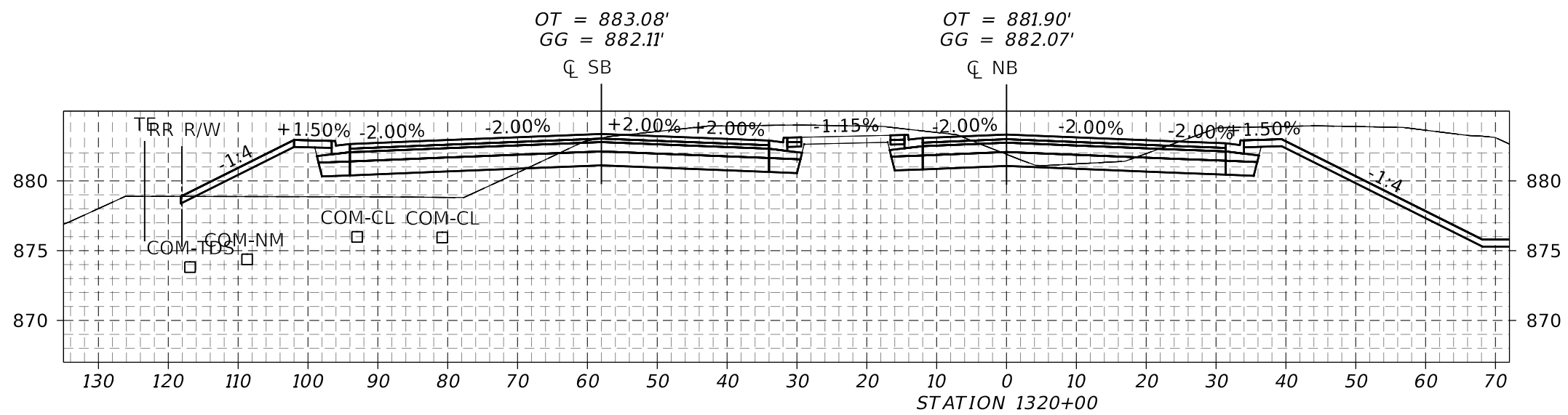
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1318+50.00 TO STATION 1319+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS18
 XS176



CSAH 81 (BOTTINEAU BLVD)

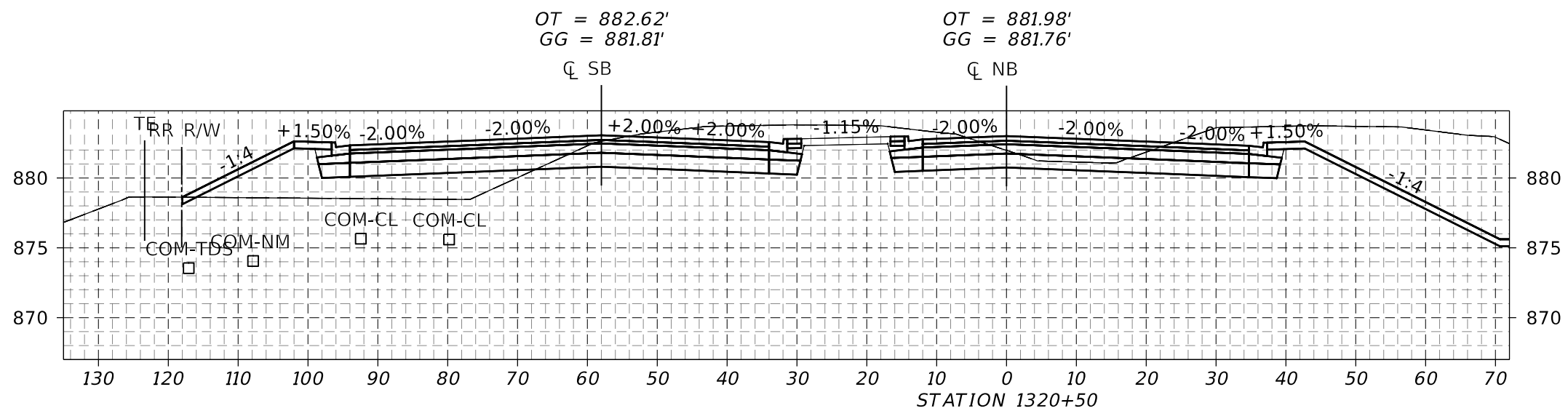
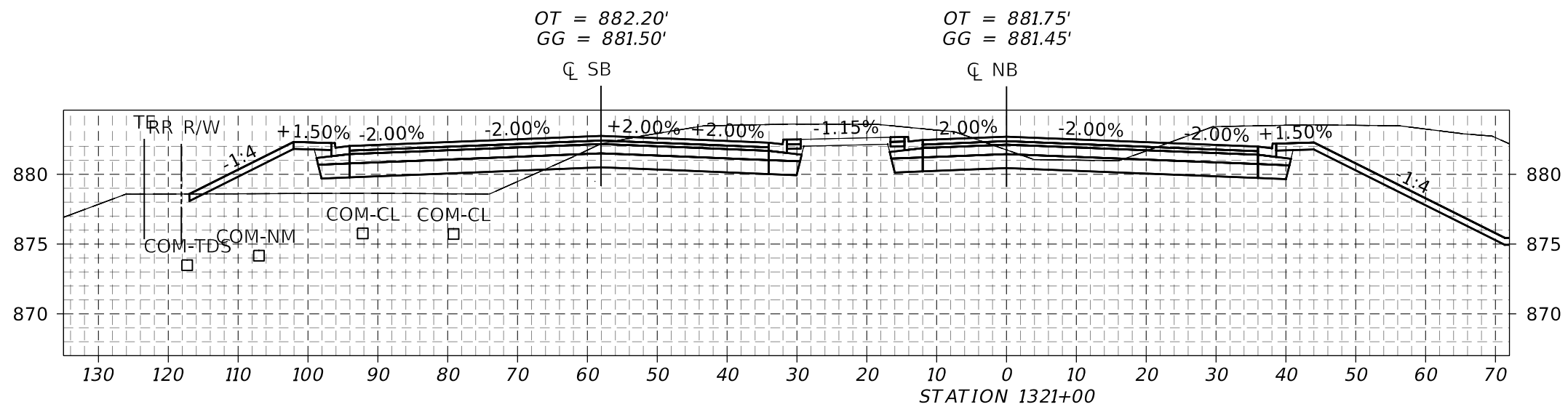


SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1319+50.00 TO STATION 1320+00.00
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS19
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

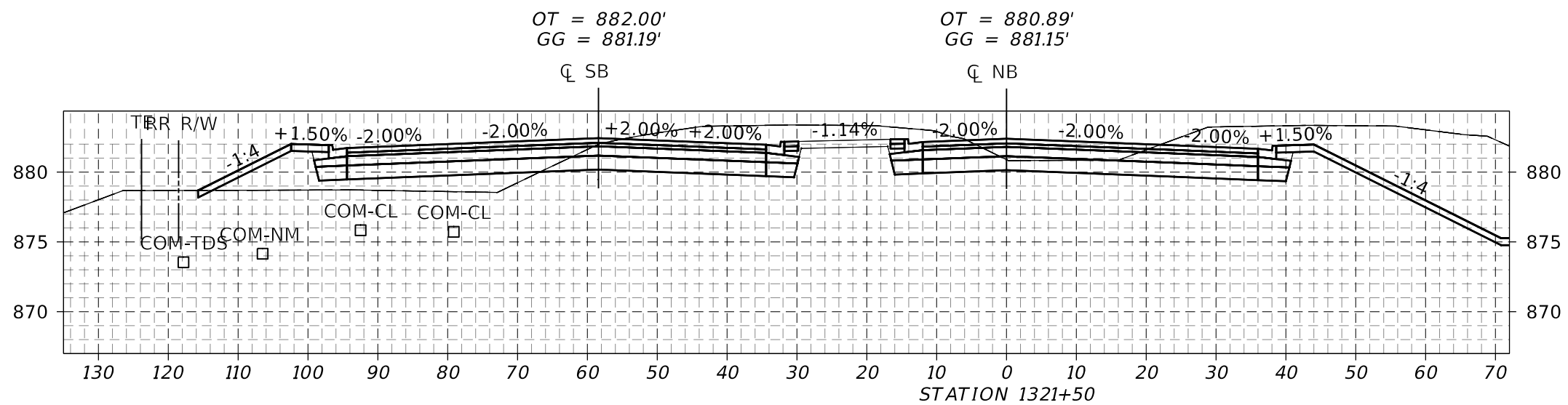
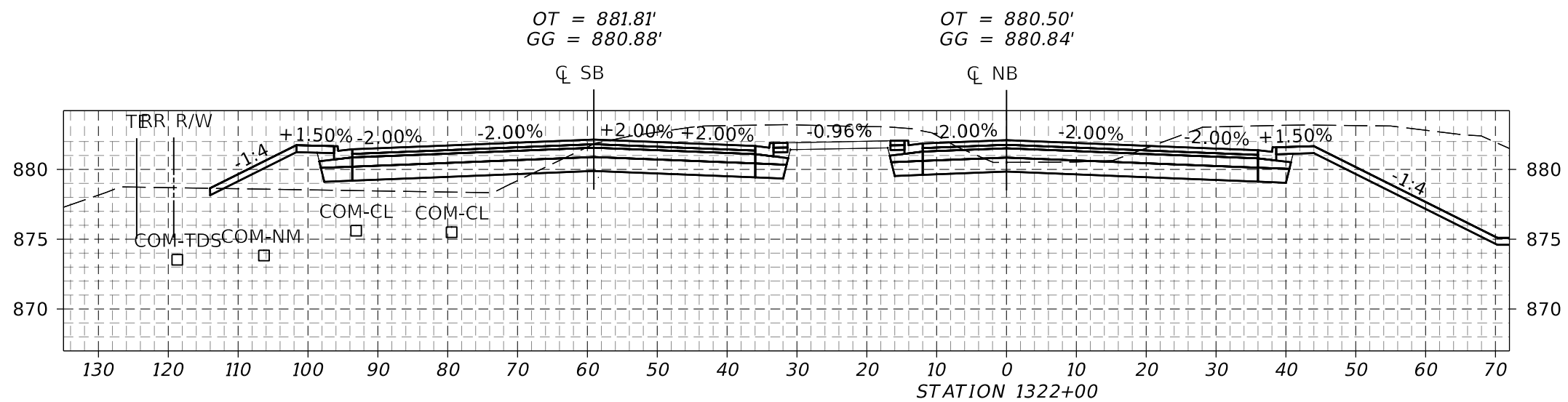
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1320+50.00 TO STATION 1321+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS20
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

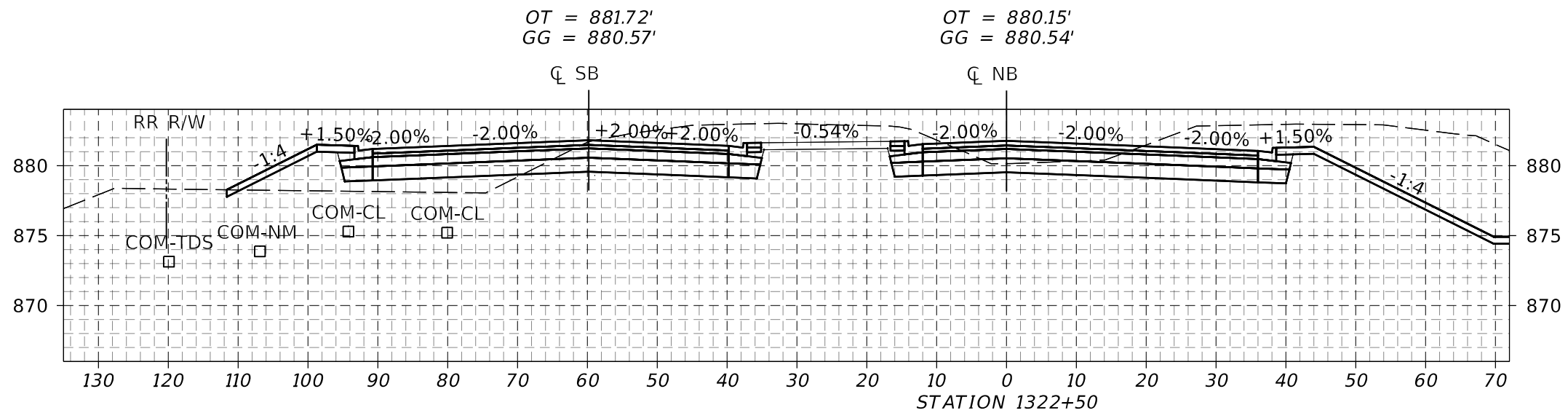
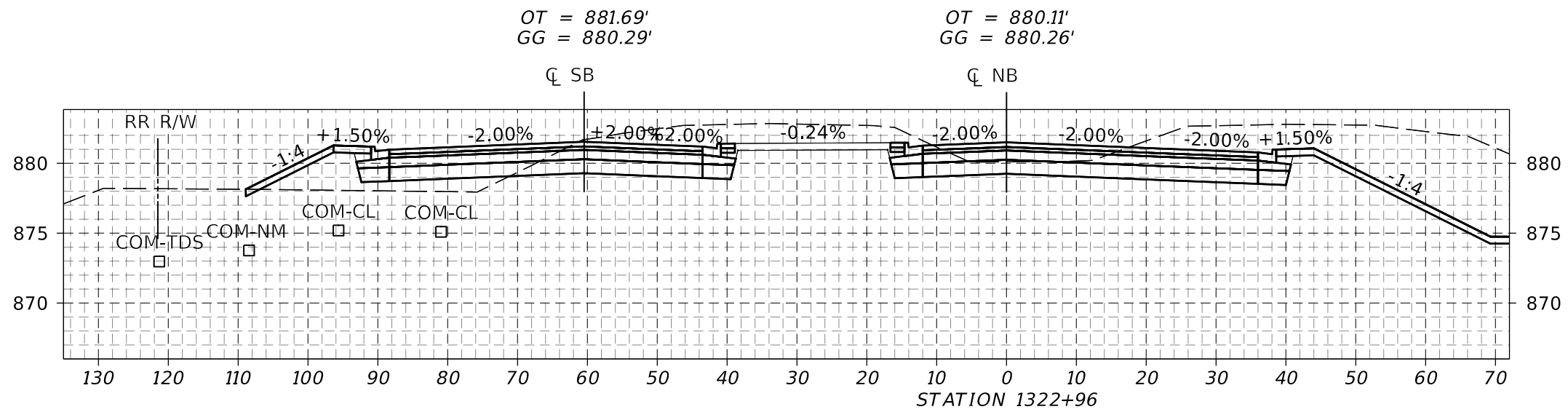
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1321+50.00 TO STATION 1322+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS21
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

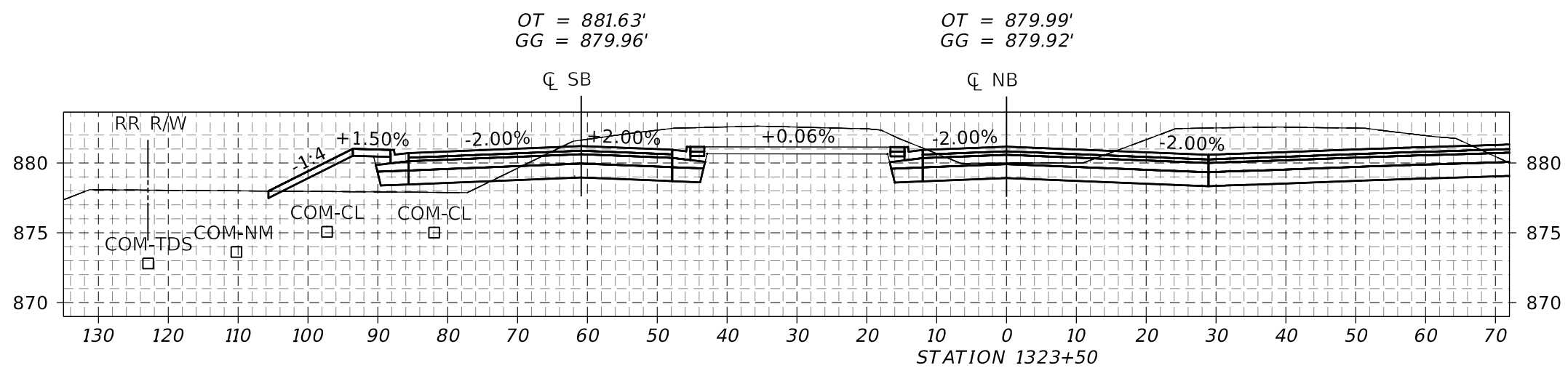
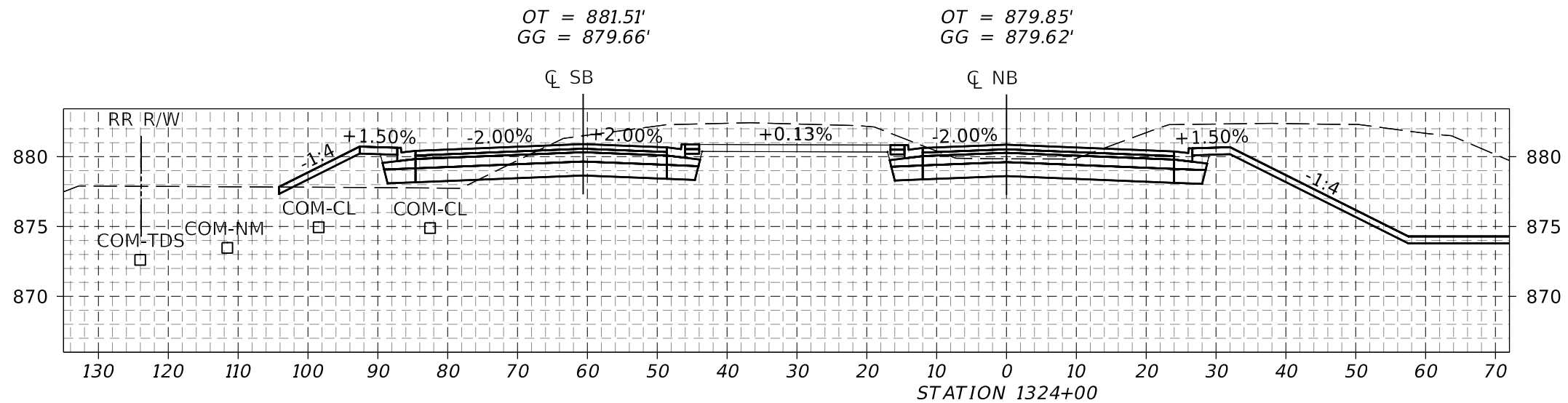
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1322+50.00 TO STATION 1322+95.60

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS22
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

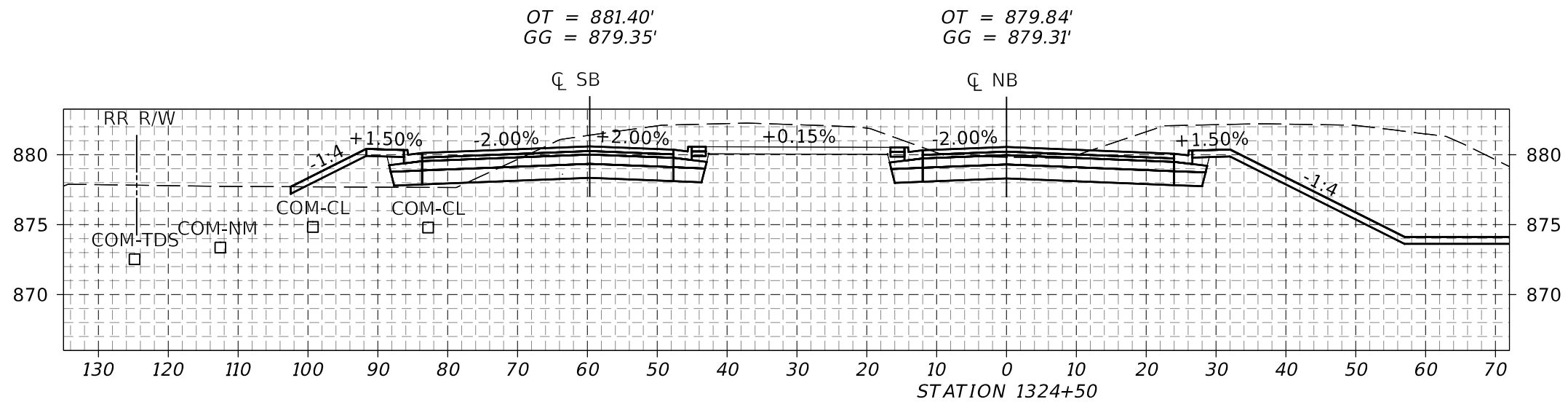
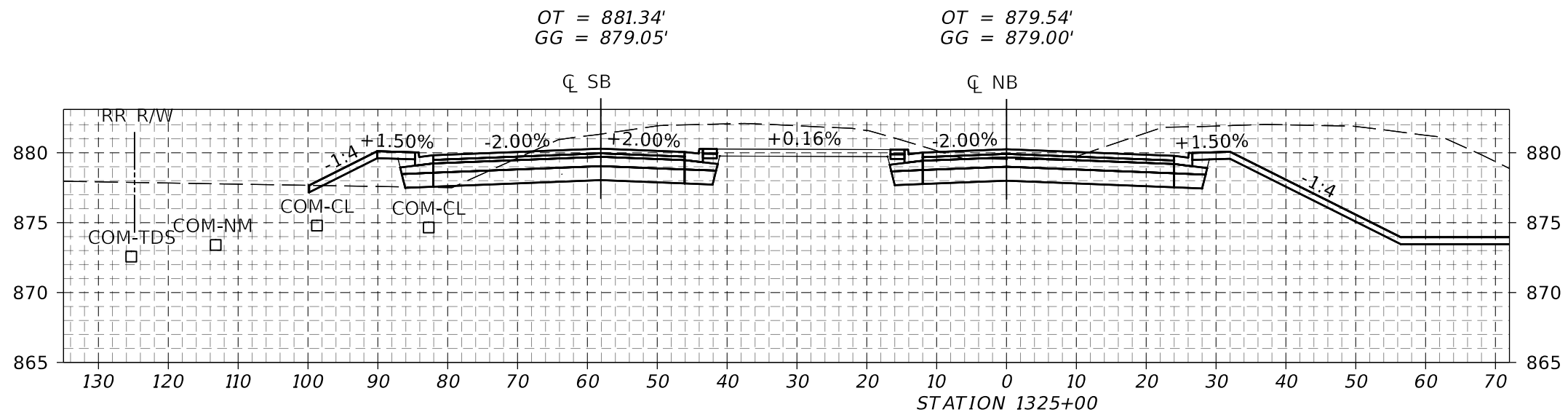
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1323+50.00 TO STATION 1324+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS23
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

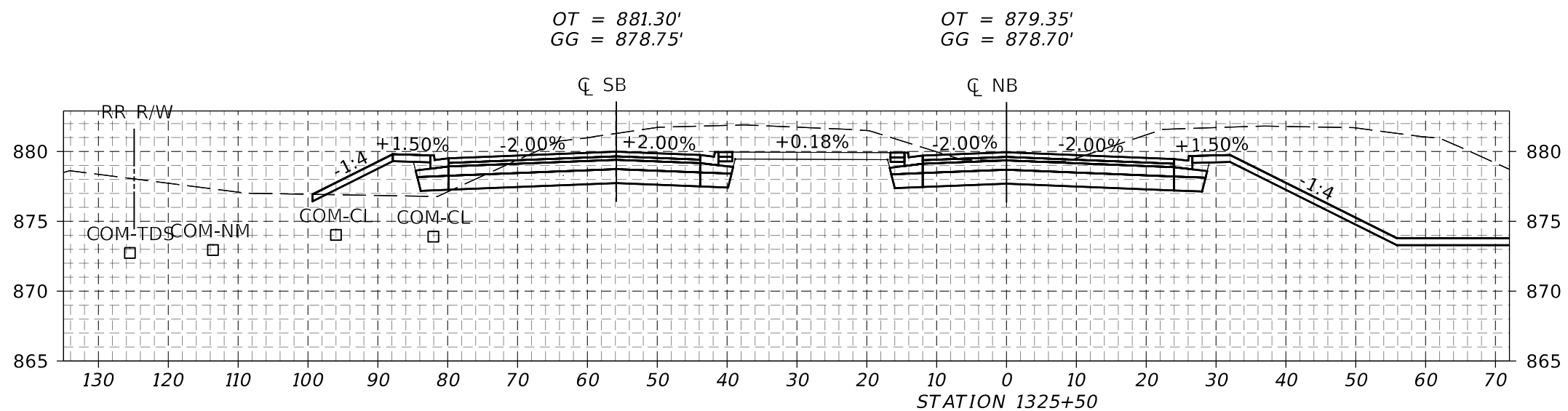
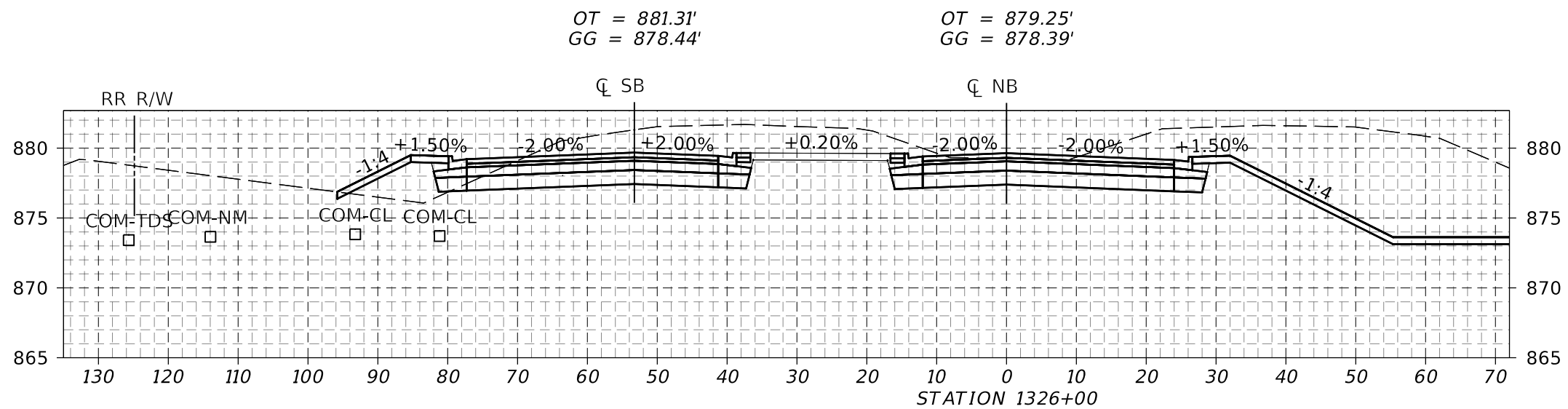
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1324+50.00 TO STATION 1325+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS24
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1325+50.00 TO STATION 1326+00.00

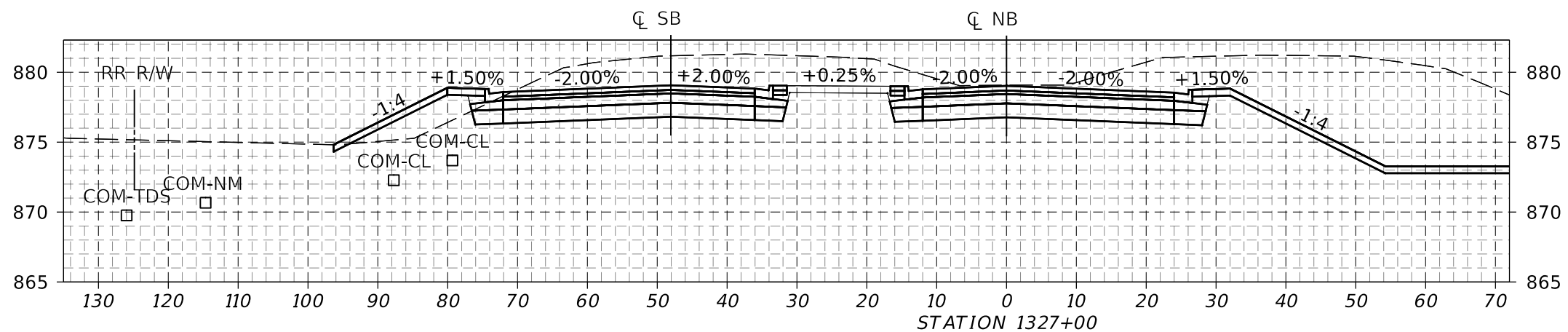
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS25
XS176

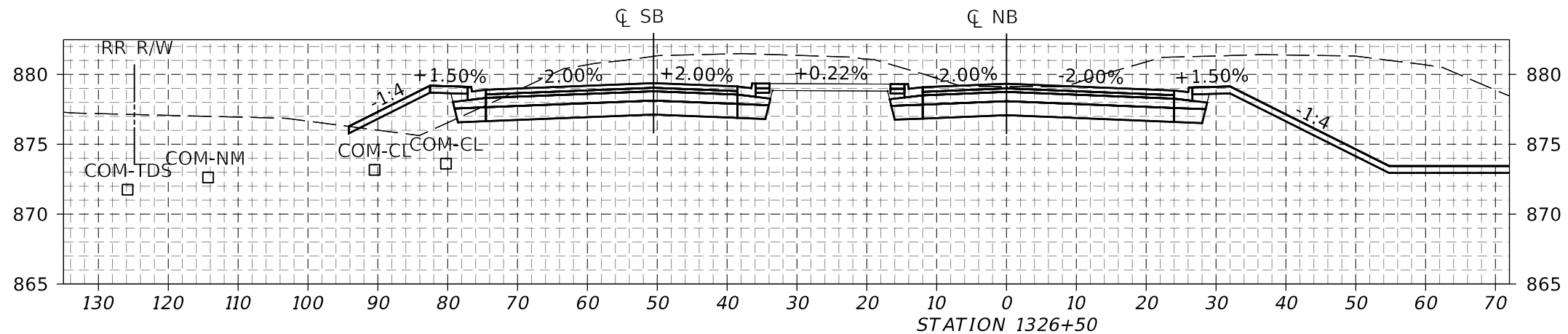
OT = 881.19'
GG = 877.83'

OT = 879.09'
GG = 877.78'



OT = 881.31'
GG = 878.13'

OT = 879.13'
GG = 878.08'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

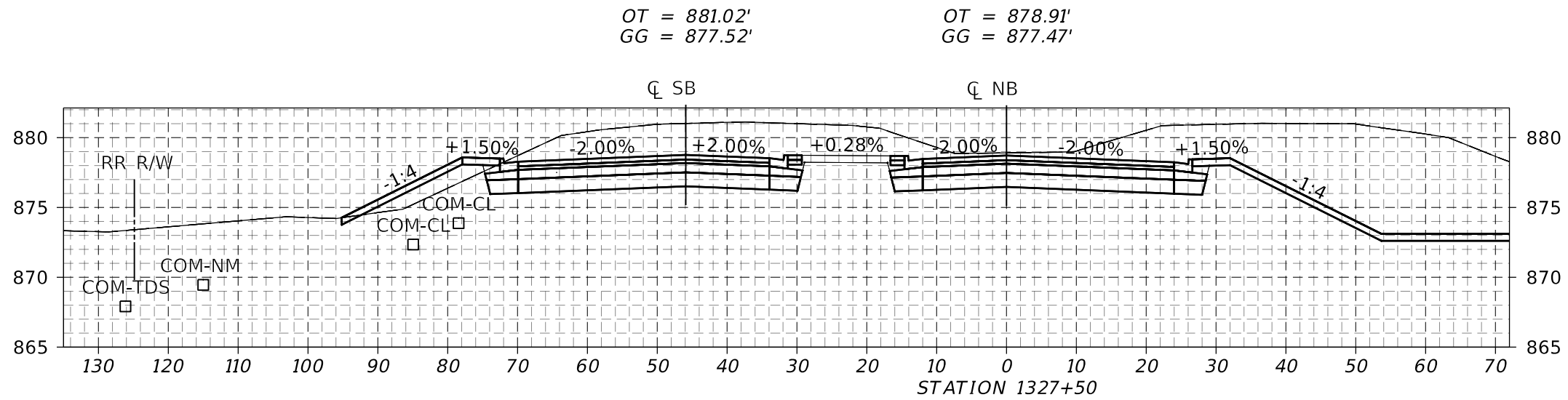
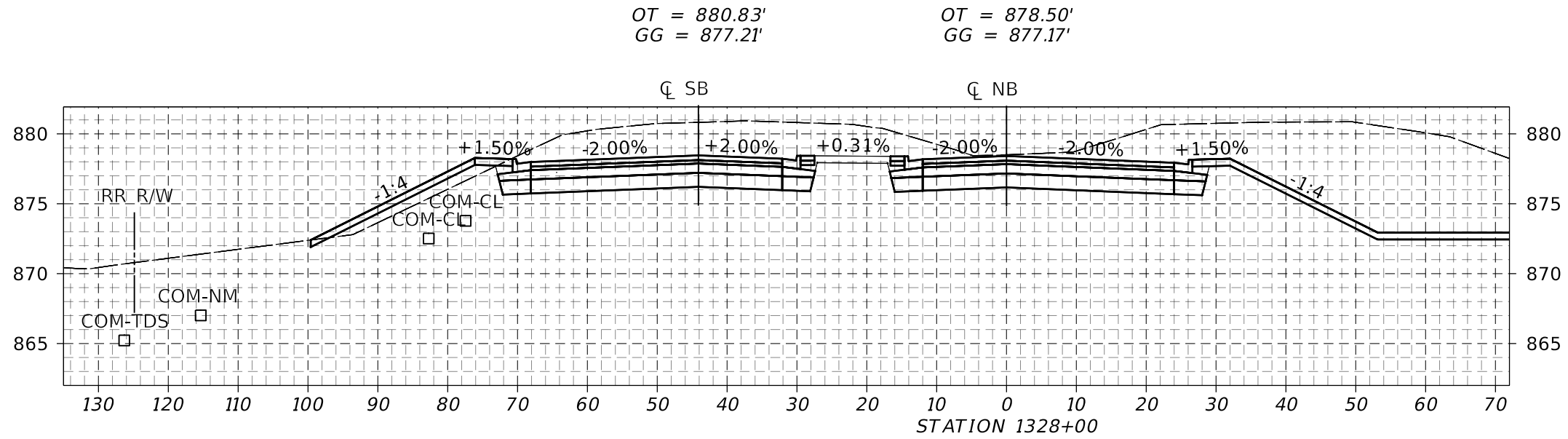
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1326+50.00 TO STATION 1327+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS26
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1327+50.00 TO STATION 1328+00.00

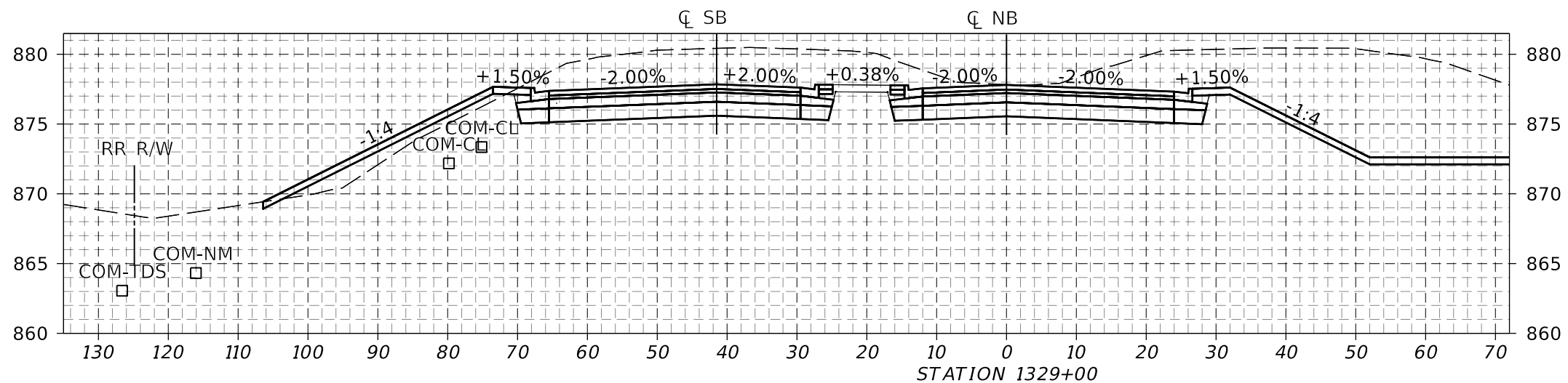
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS27
 XS176

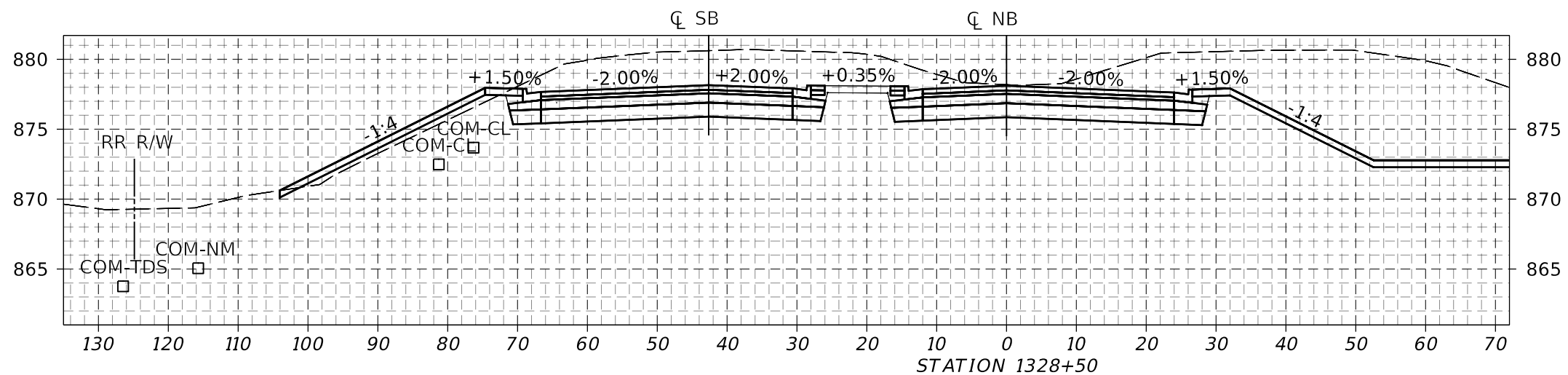
OT = 880.42'
GG = 876.60'

OT = 877.82'
GG = 876.55'



OT = 880.63'
GG = 876.91'

OT = 878.19'
GG = 876.86'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1328+50.00 TO STATION 1329+00.00

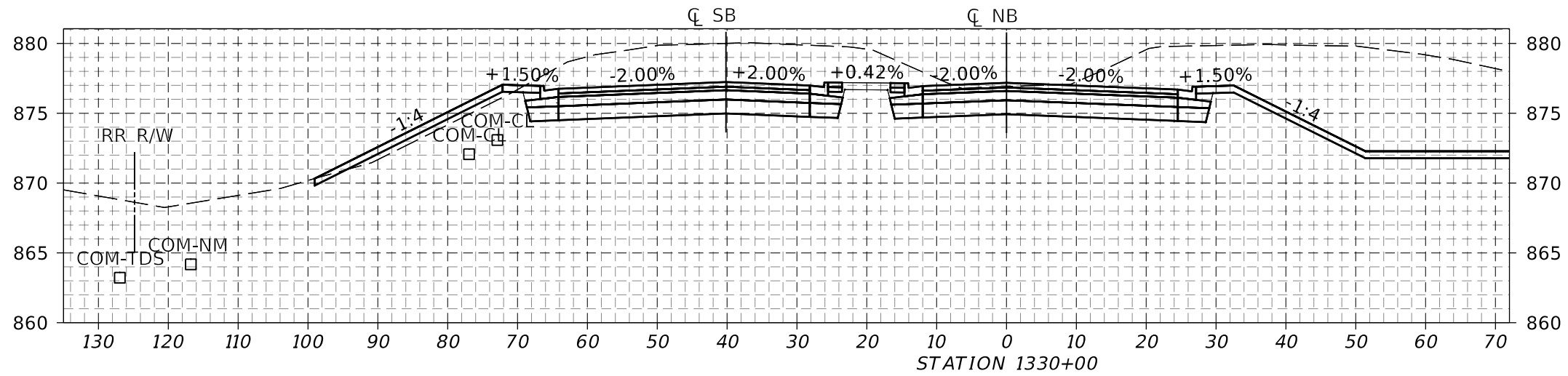
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

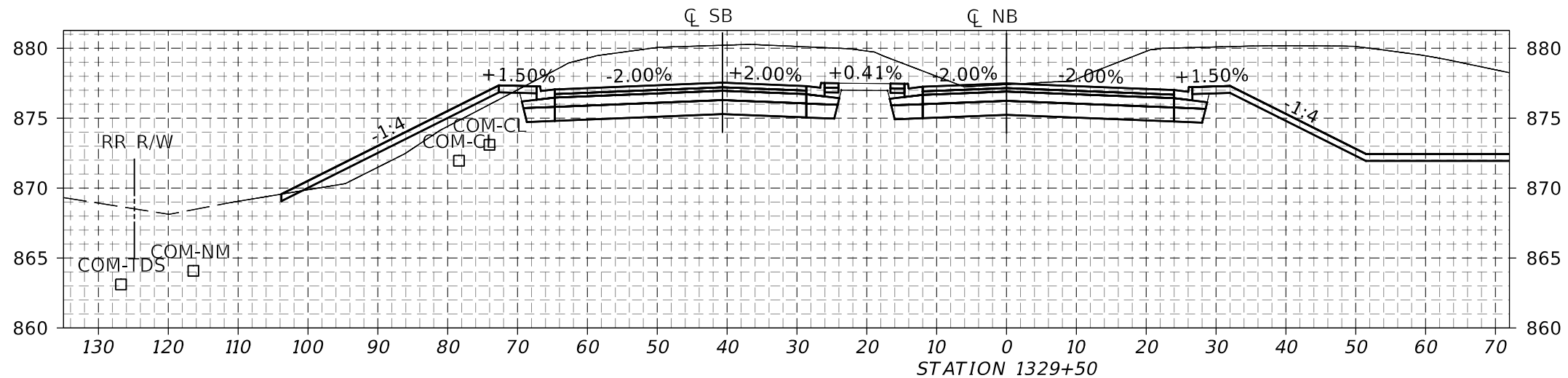
XS28

XS176

OT = 880.01' OT = 876.92'
 GG = 875.99' GG = 875.94'



OT = 880.21' OT = 877.41'
 GG = 876.29' GG = 876.25'



CSAH 81 (BOTTINEAU BLVD)



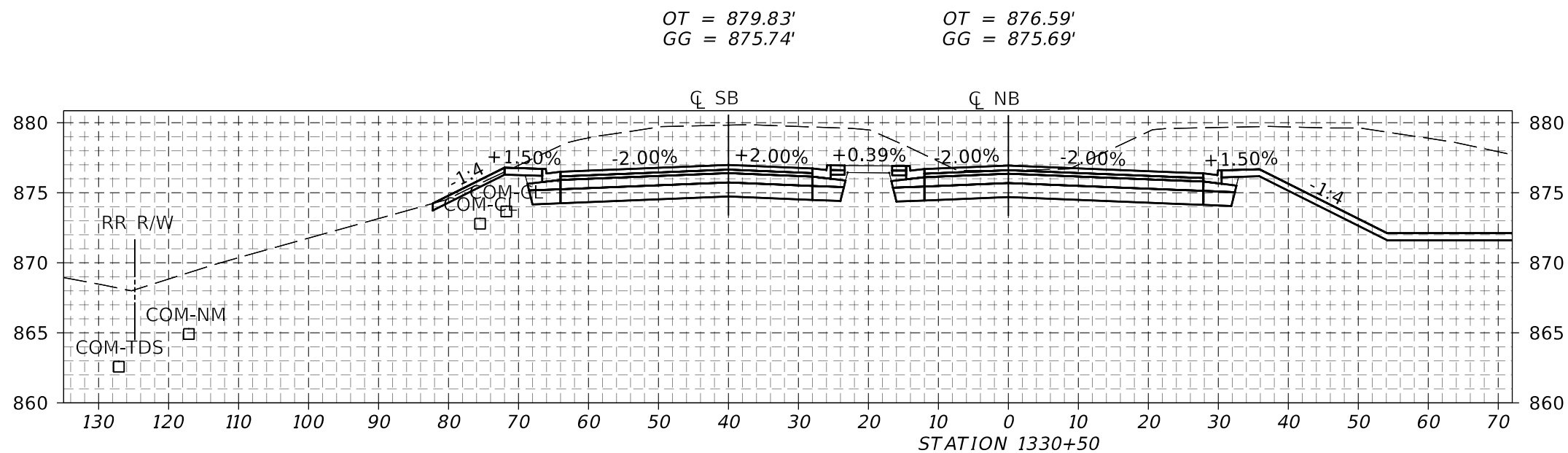
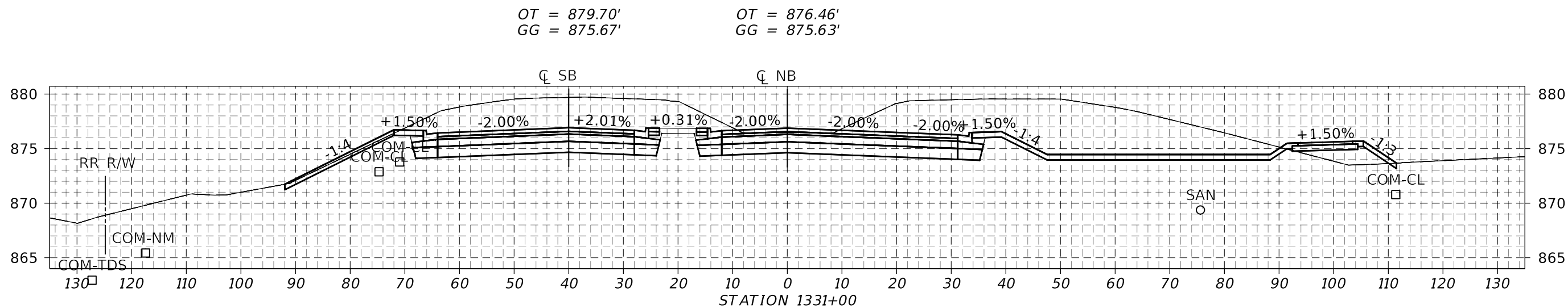
SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1329+50.00 TO STATION 1330+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS29
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

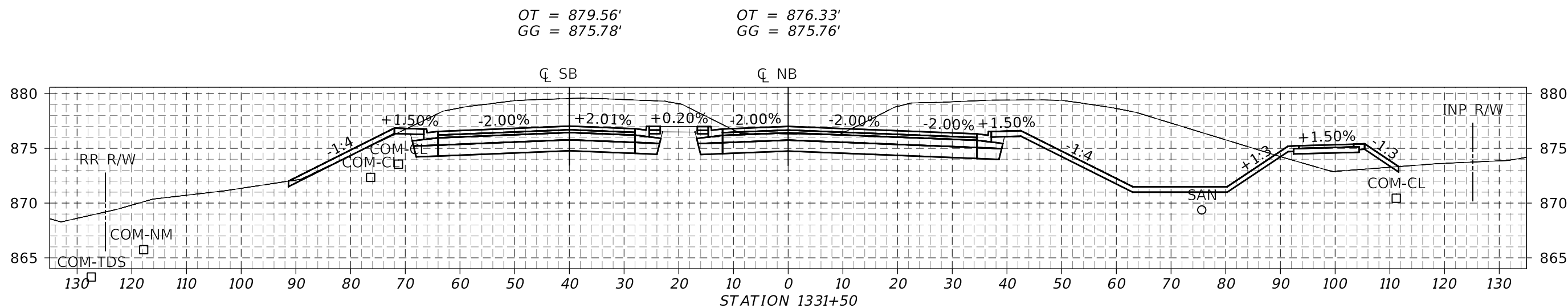
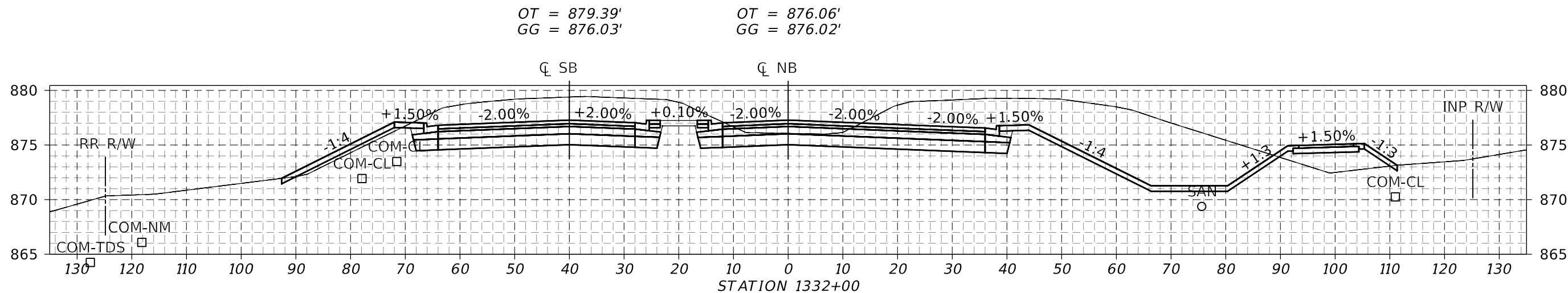
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1330+50.00 TO STATION 1331+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS30
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

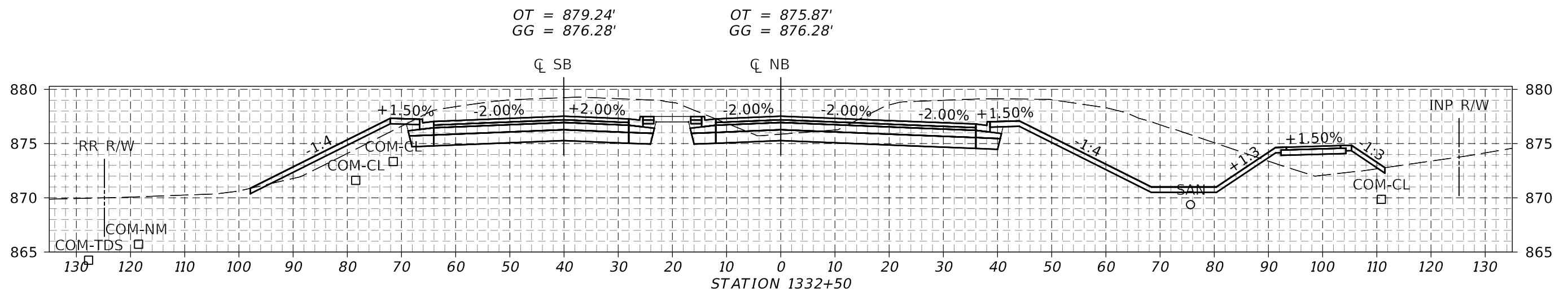
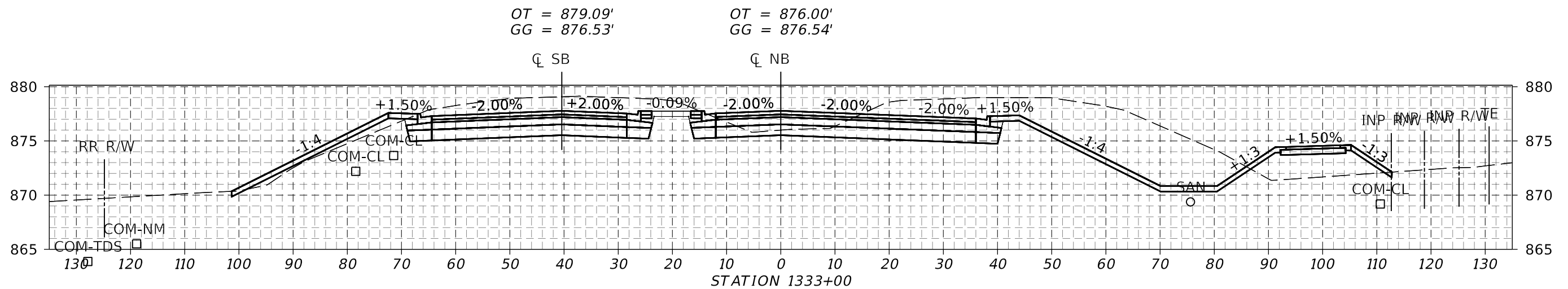
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1331+50.00 TO STATION 1332+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS31
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

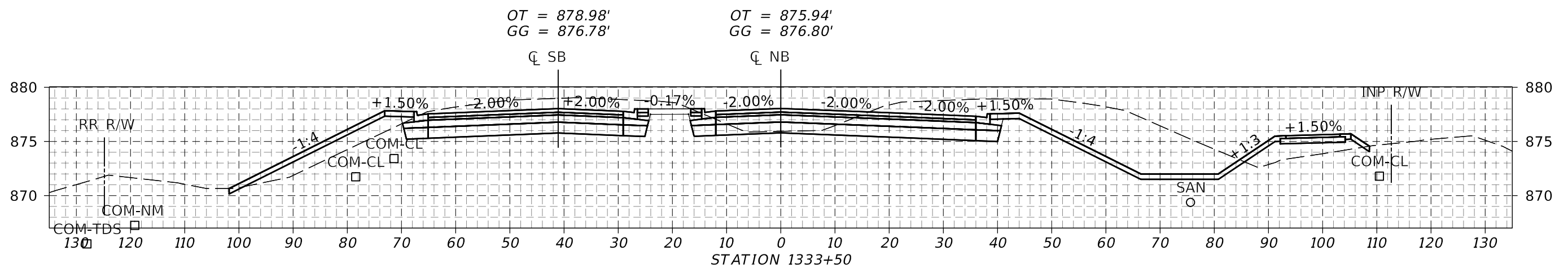
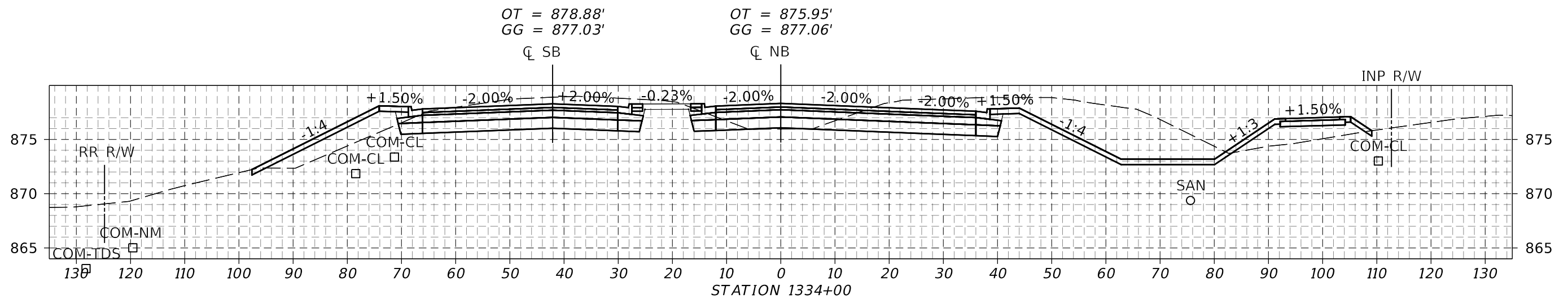
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1332+50.00 TO STATION 1333+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS32
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

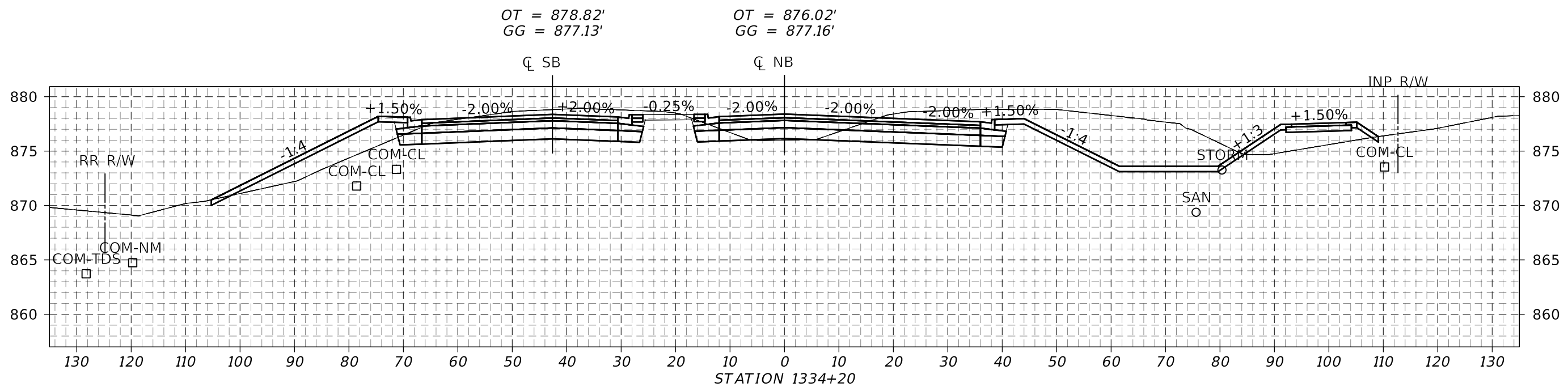
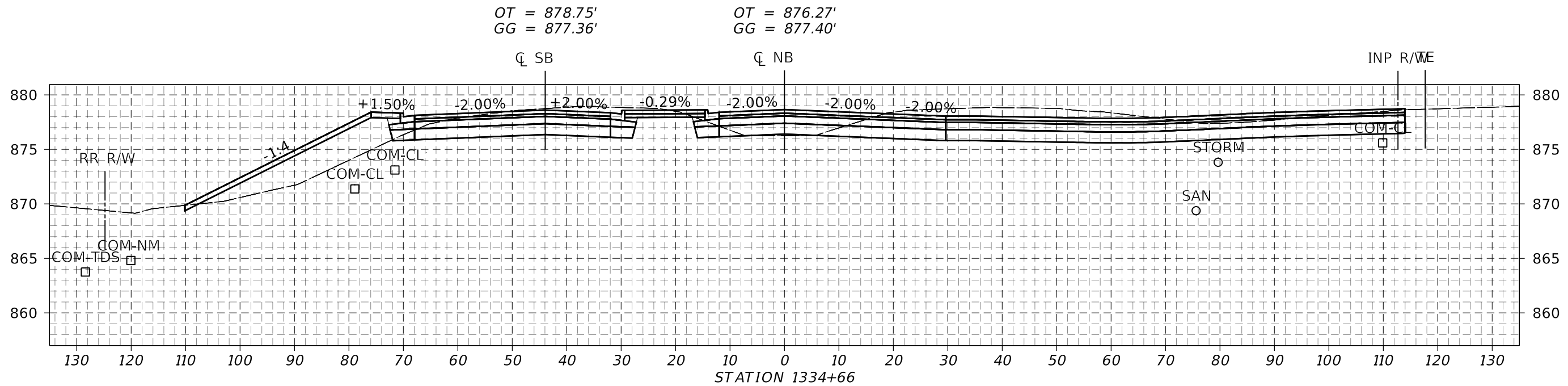
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1333+50.00 TO STATION 1334+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS33
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

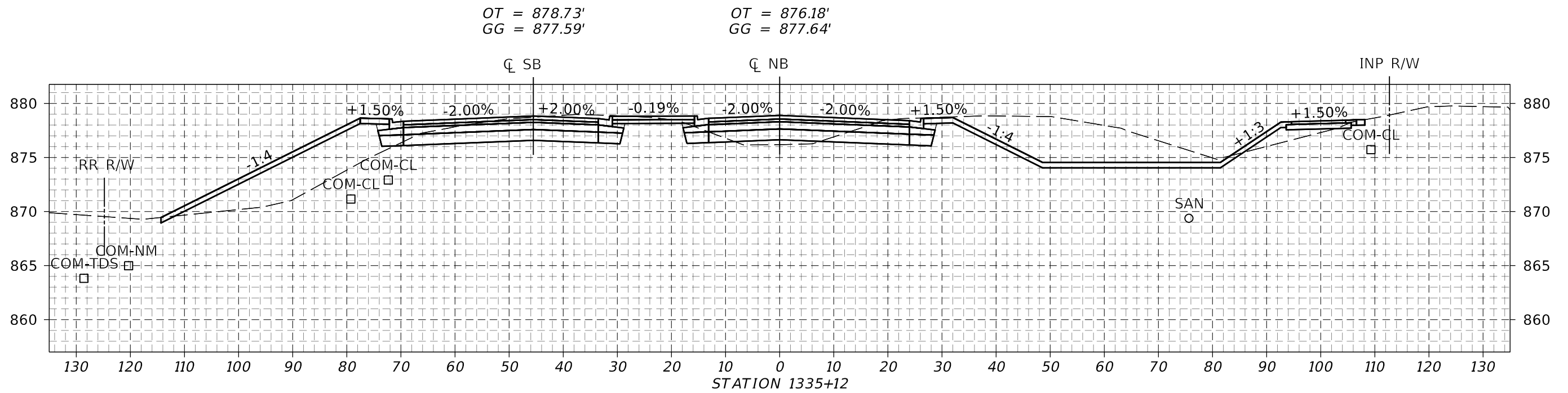
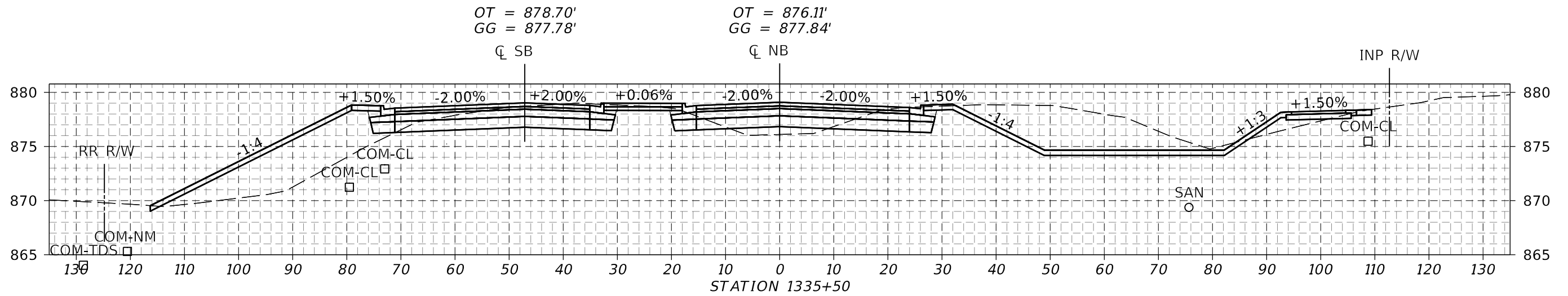
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1334+20.17 TO STATION 1334+65.92

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS34
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

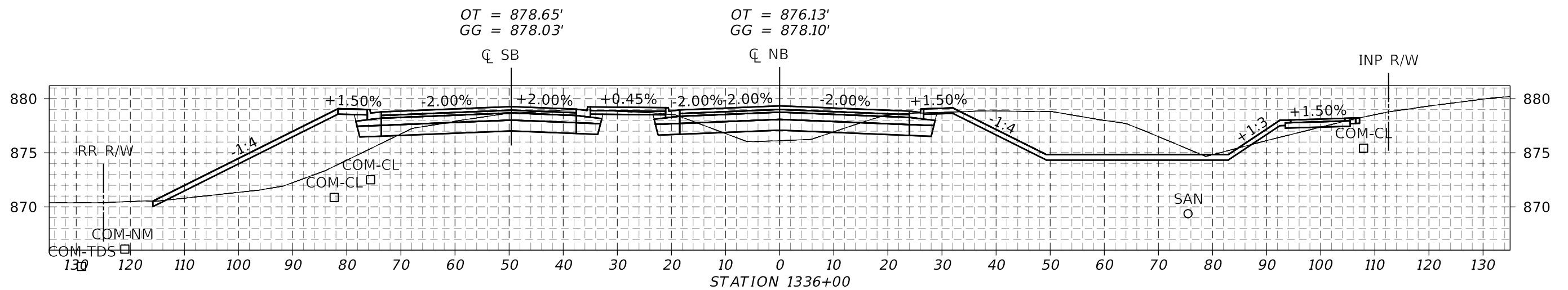
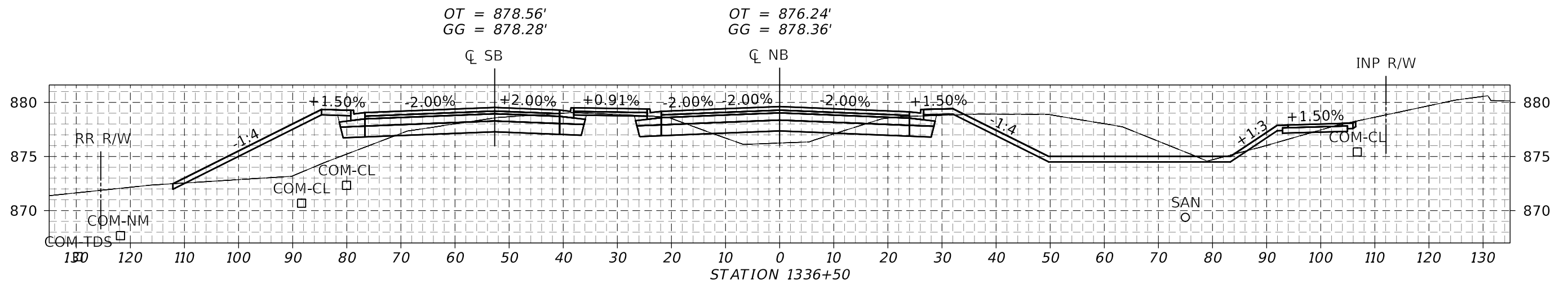
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1335+11.50 TO STATION 1335+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS35
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

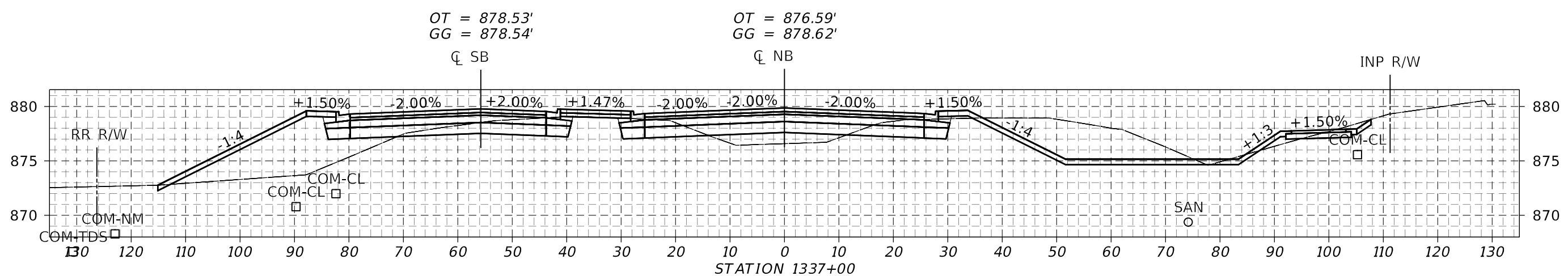
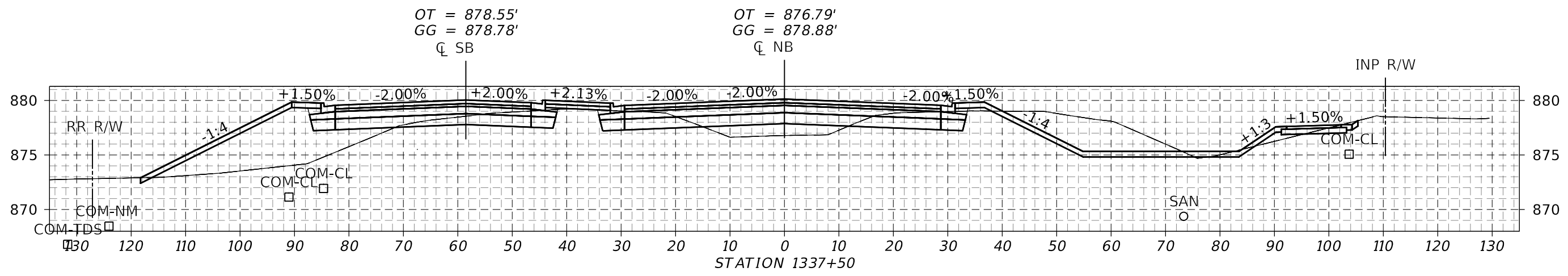
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1336+00.00 TO STATION 1336+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS36
XS176



CSAH 81 (BOTTINEAU BLVD)

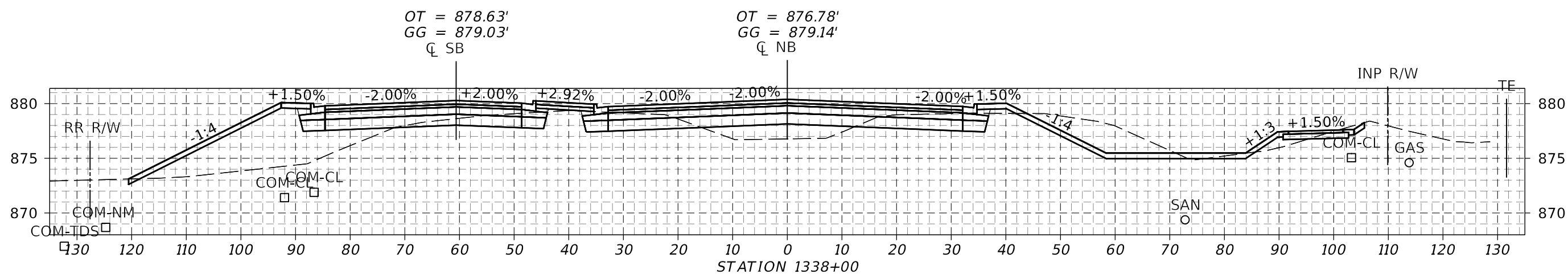
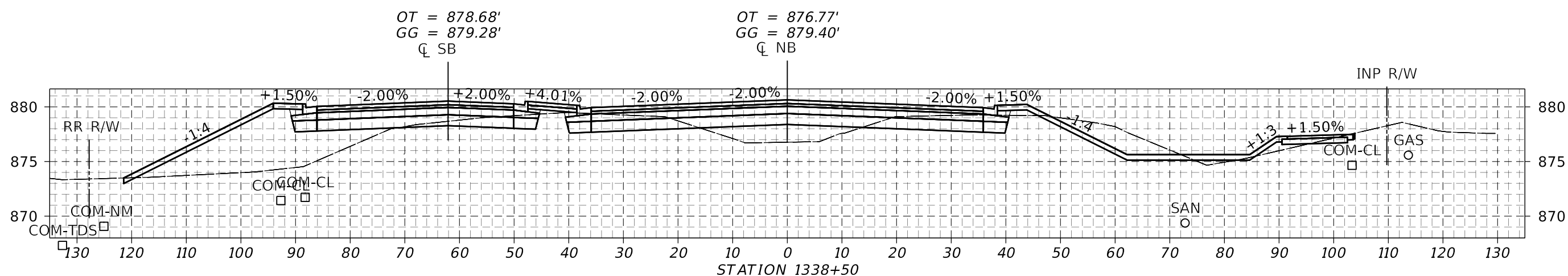


SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1337+00.00 TO STATION 1337+50.00
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS37
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

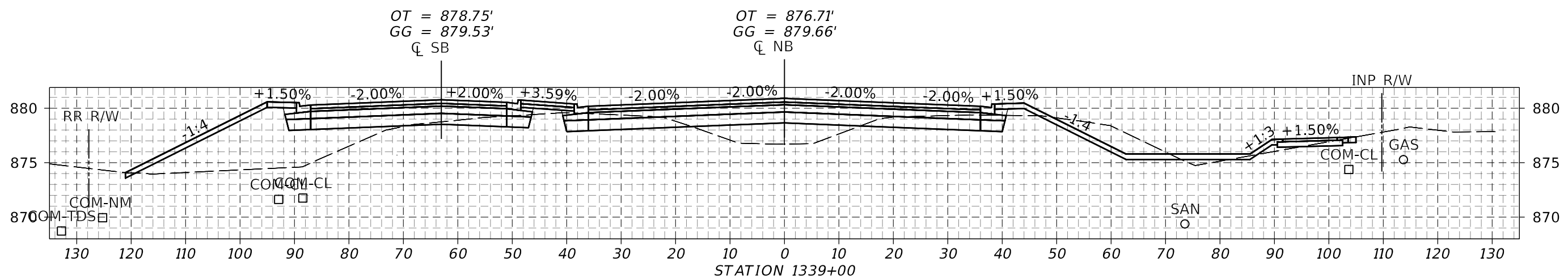
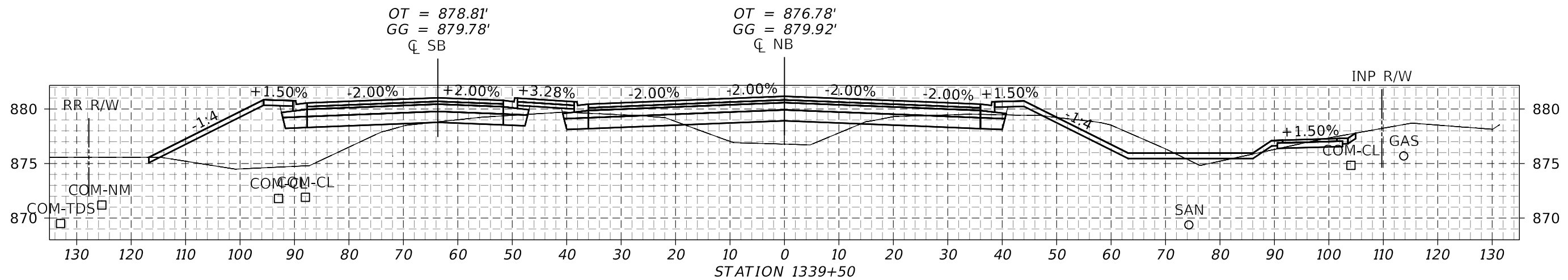
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1338+00.00 TO STATION 1338+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS38
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

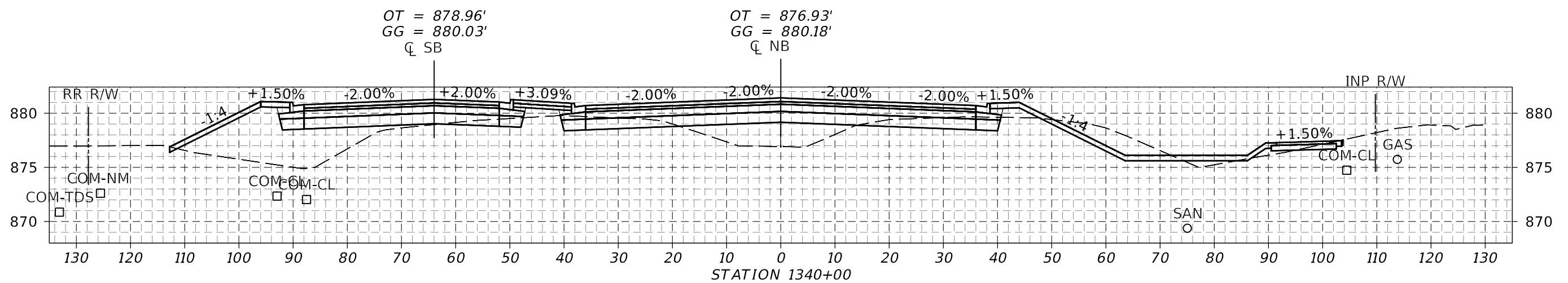
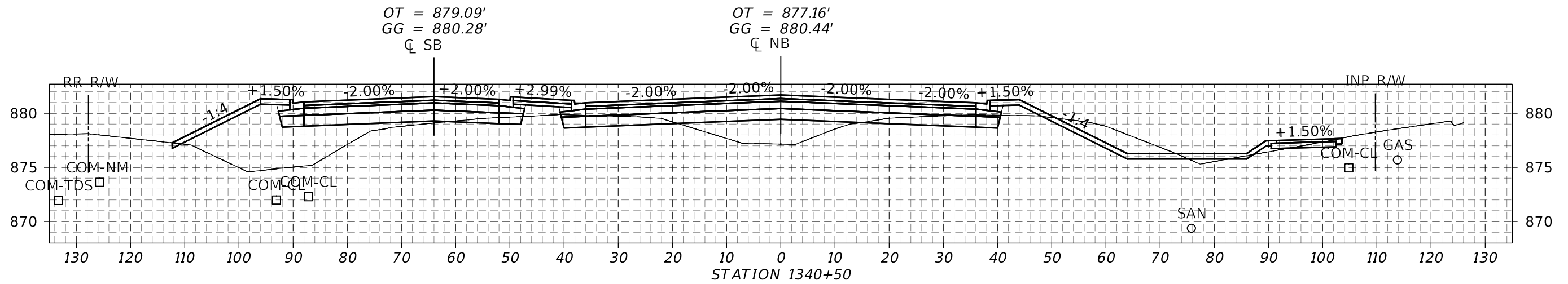
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1339+00.00 TO STATION 1339+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS39
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

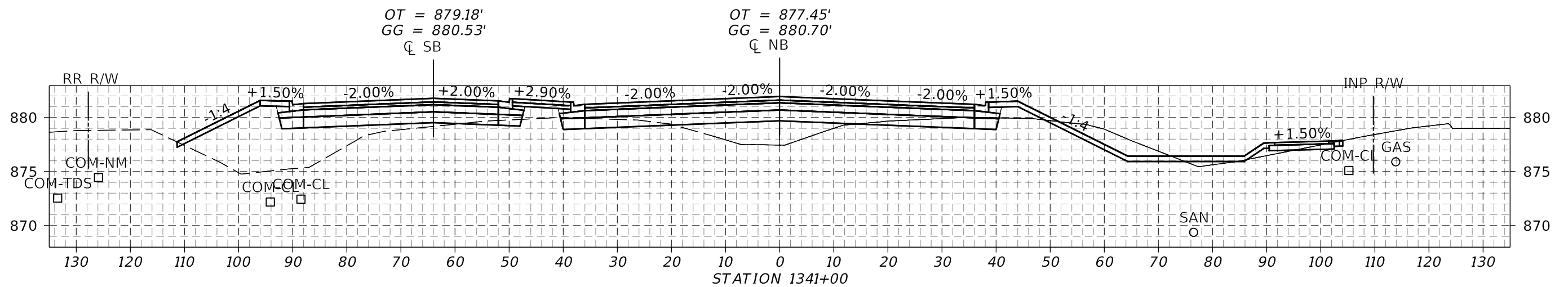
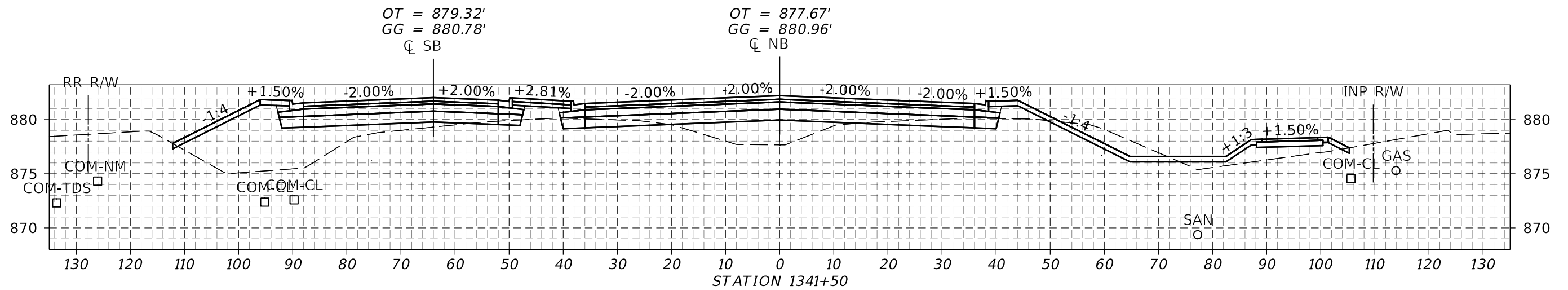
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1340+00.00 TO STATION 1340+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS40
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

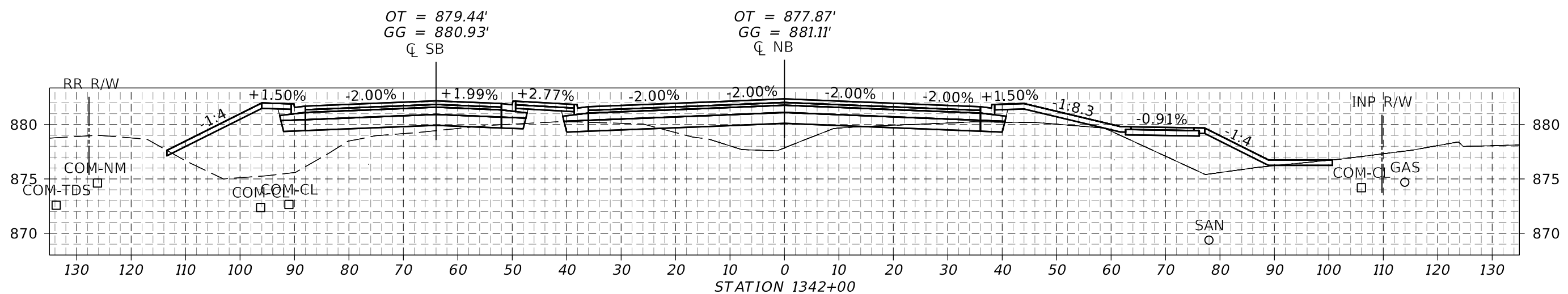
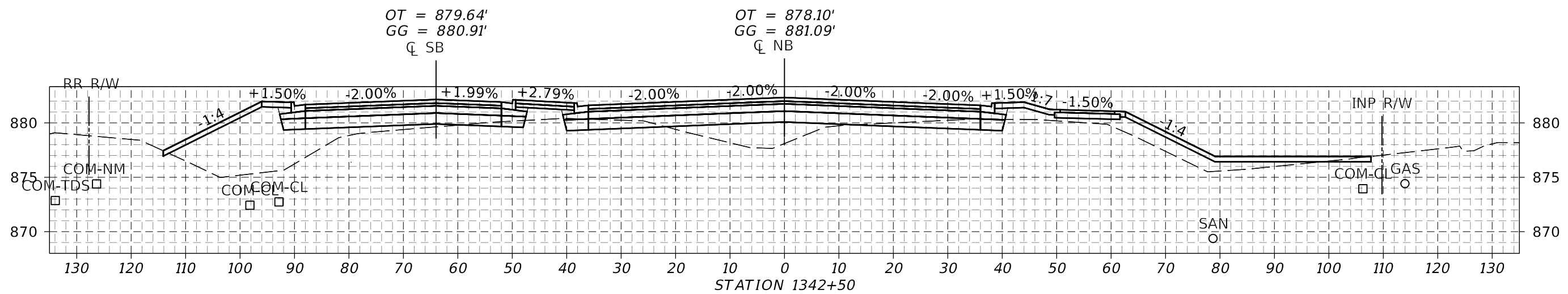
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1341+00.00 TO STATION 1341+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS41
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

LAST REVISION: / /

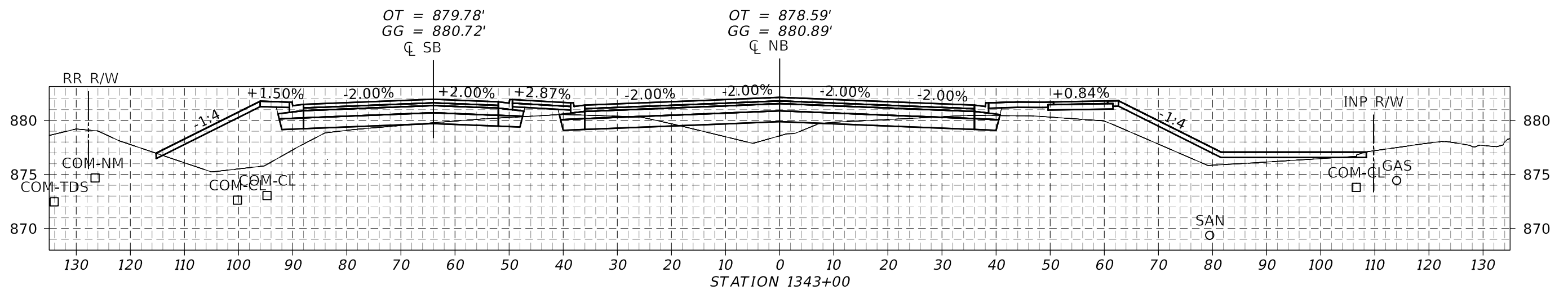
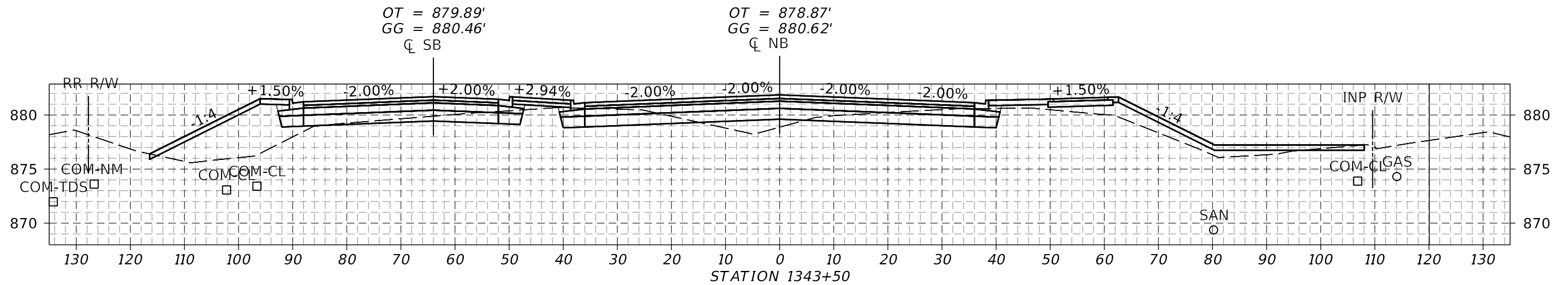
X-SECTIONS STATION 1342+00.00 TO STATION 1342+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS42

XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

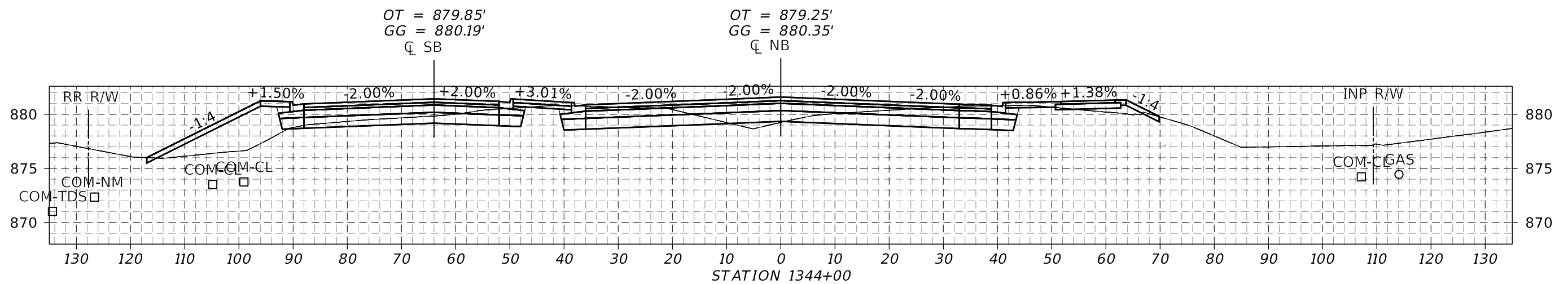
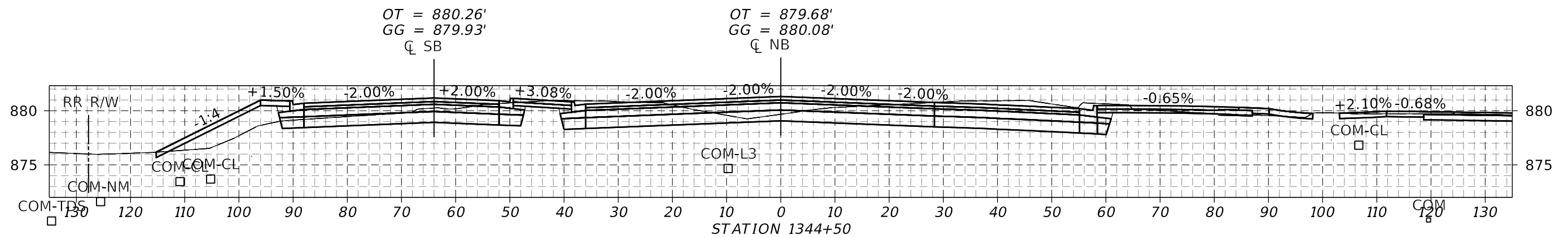
LAST REVISION: / /

X-SECTIONS STATION 1343+00.00 TO STATION 1343+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS43
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

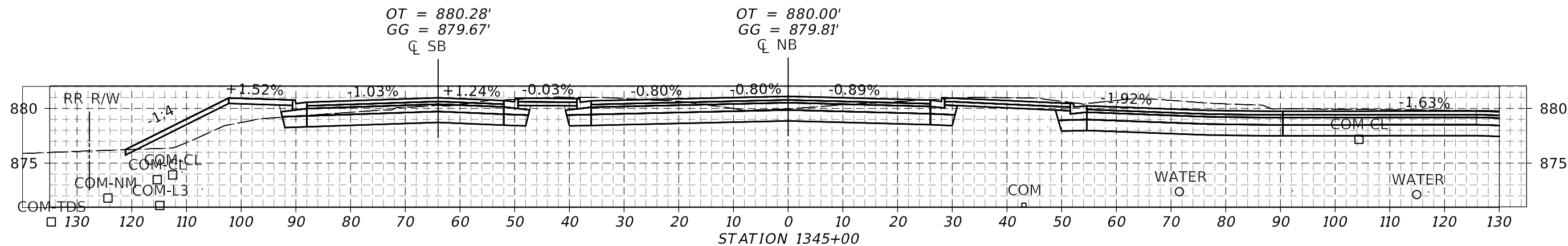
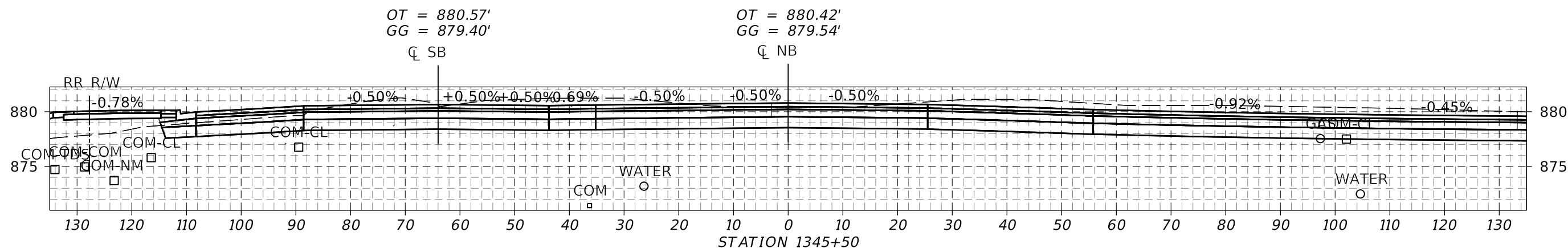
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1344+00.00 TO STATION 1344+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS44
XS176



CSAH 81 (BOTTINEAU BLVD)

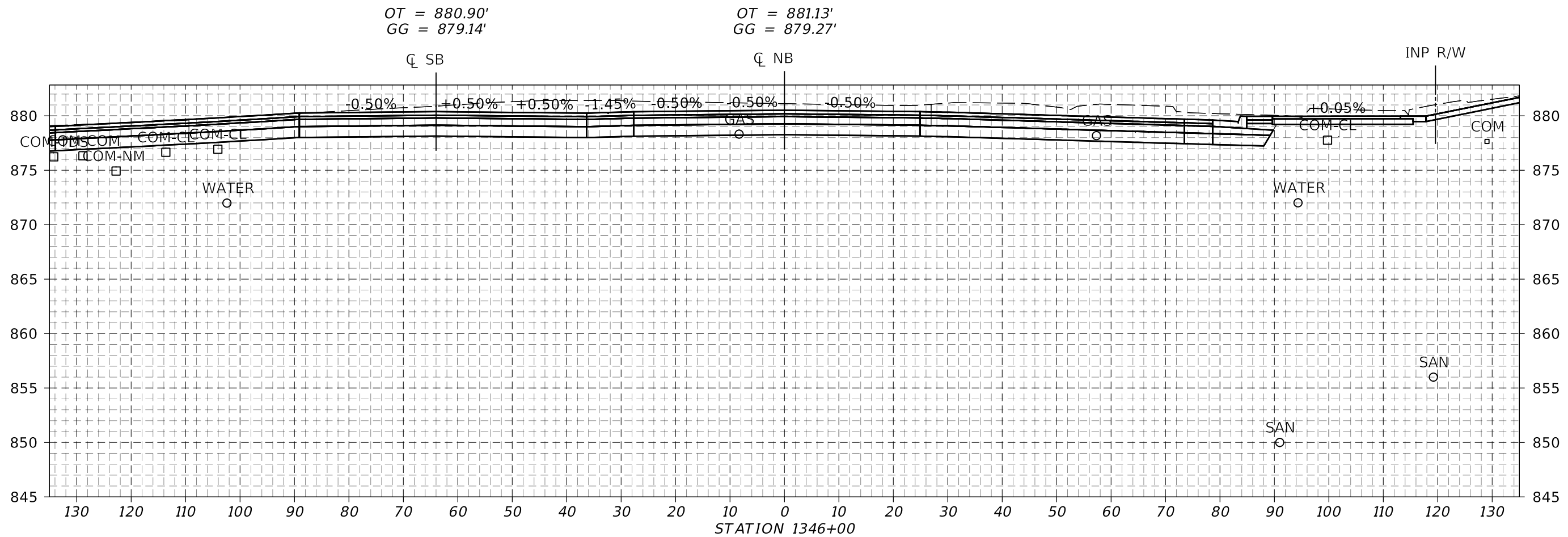


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1345+00.00 TO STATION 1345+50.00
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS45
XS176



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

LAST REVISION: / /

X-SECTIONS STATION 1346+00.00 TO STATION 1346+00.00

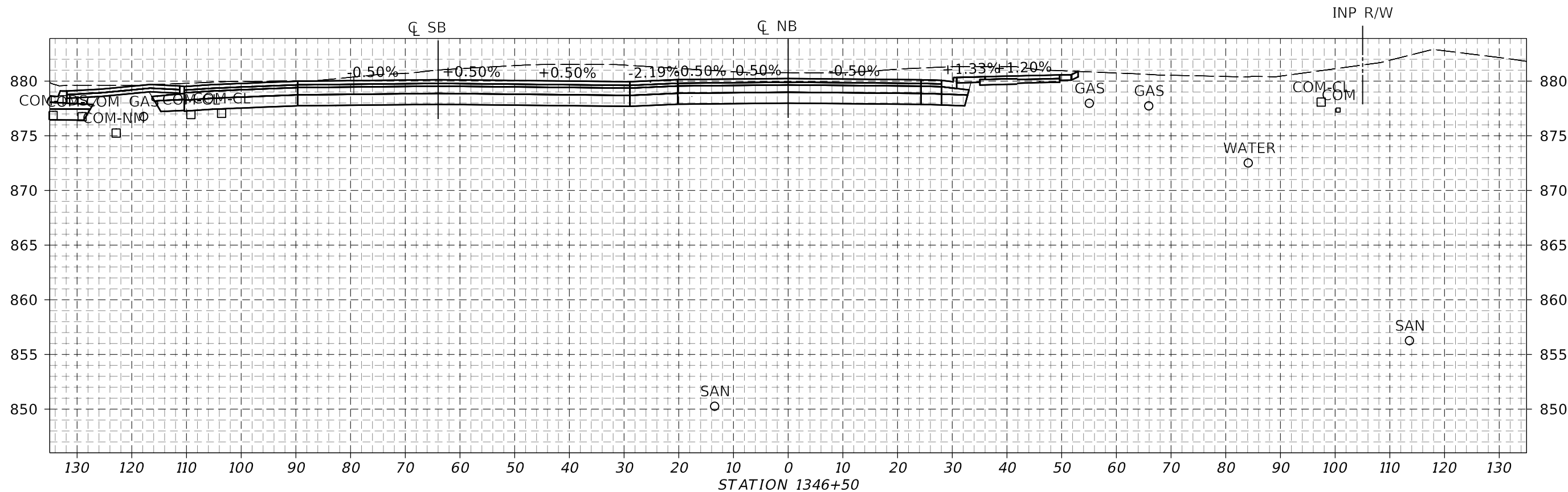
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS46
XS176

OT = 881.01'
GG = 878.88'

OT = 880.78'
GG = 879.00'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1346+50.00 TO STATION 1346+50.00

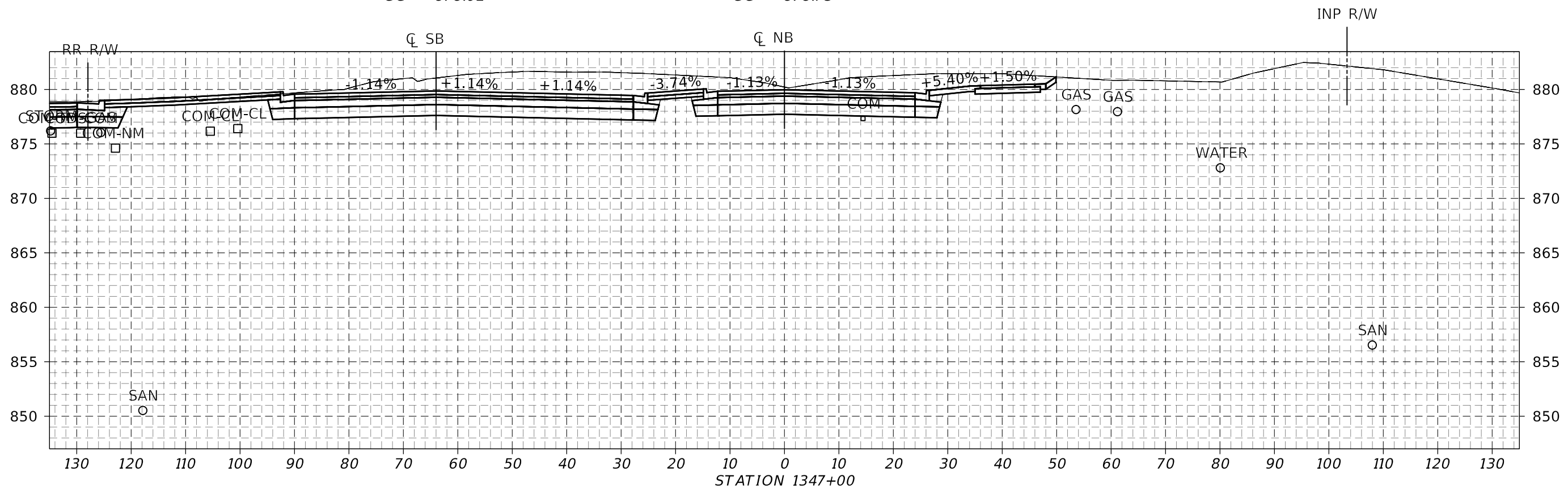
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS47
XS176

OT = 881.05'
GG = 878.62'

OT = 880.22'
GG = 878.73'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

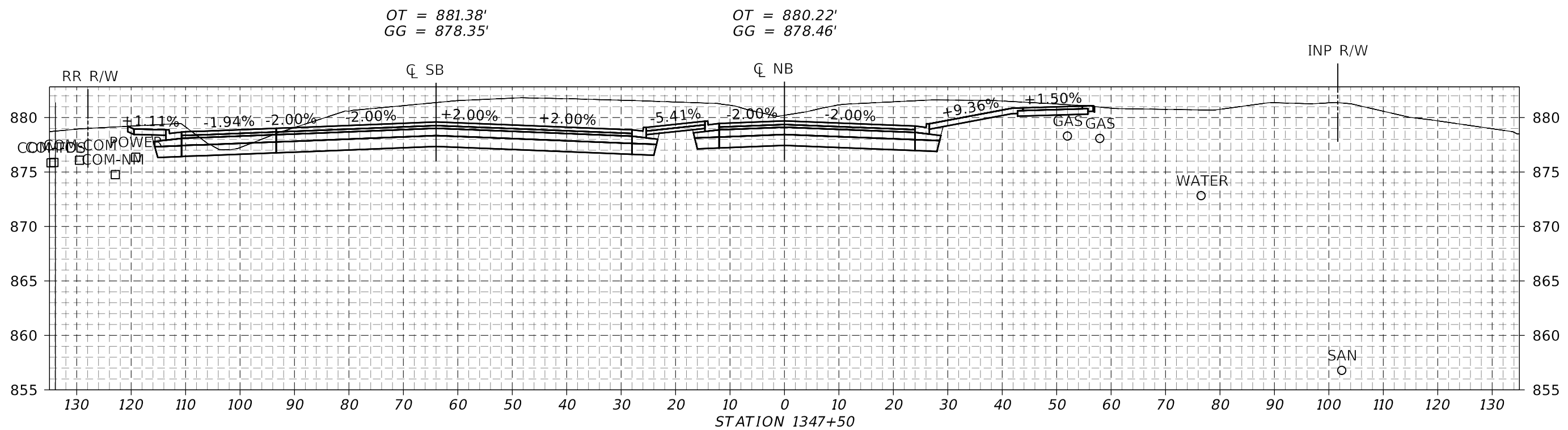
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1347+00.00 TO STATION 1347+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS48
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1347+50.00 TO STATION 1347+50.00

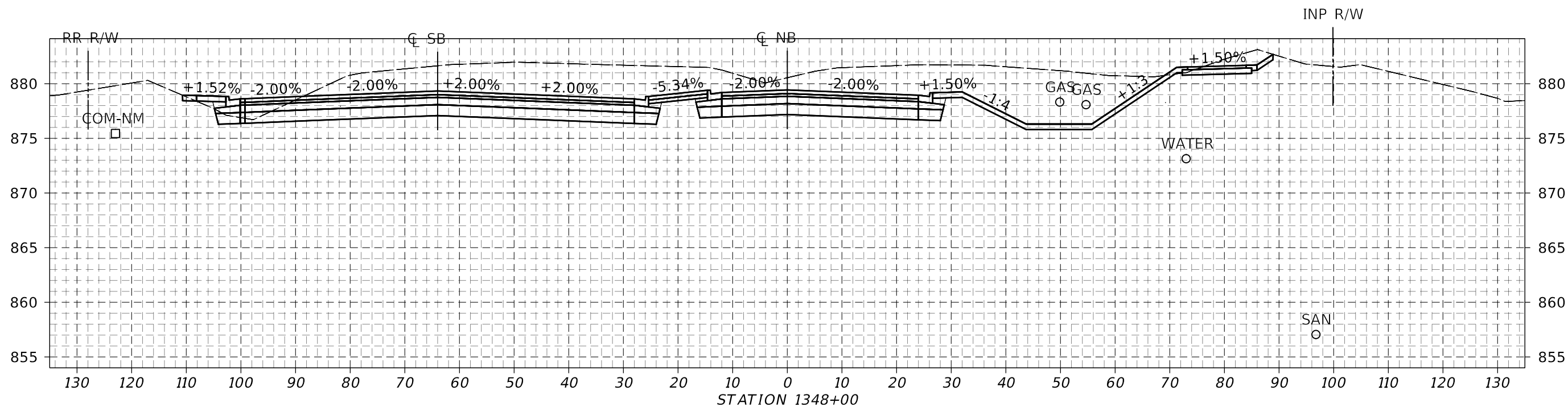
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS49
XS176

OT = 881.64'
GG = 878.09'

OT = 880.55'
GG = 878.18'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1348+00.00 TO STATION 1348+00.00

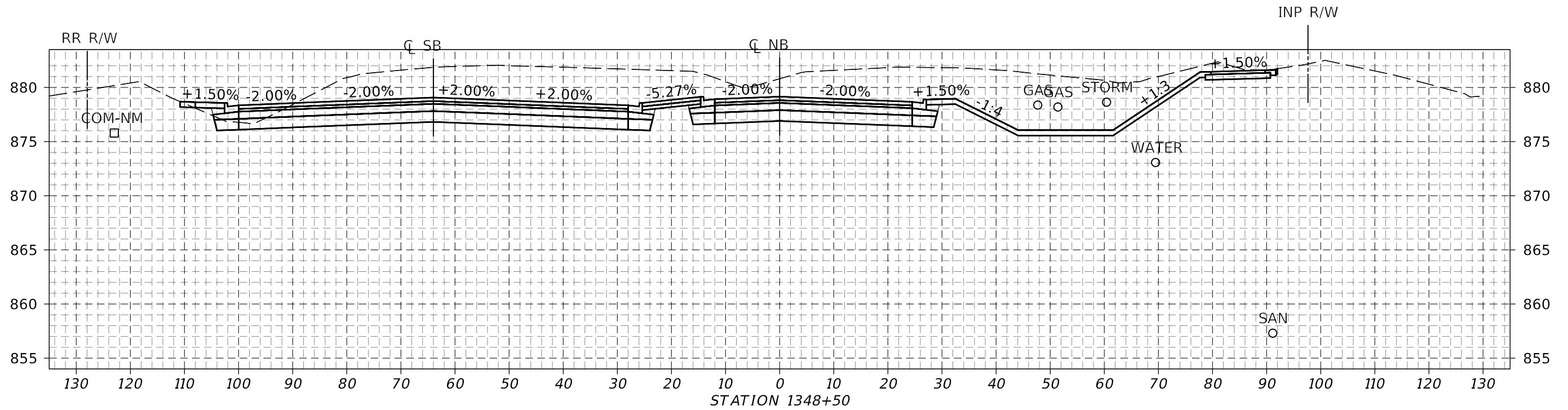
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS50
XS176

OT = 881.86'
GG = 877.83'

OT = 880.81'
GG = 877.91'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

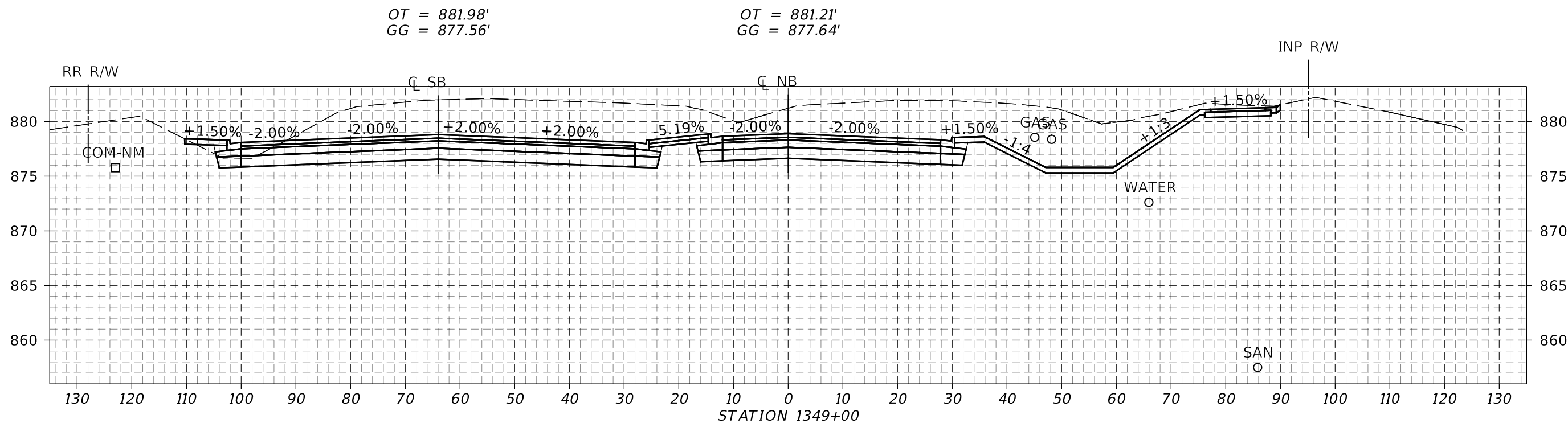
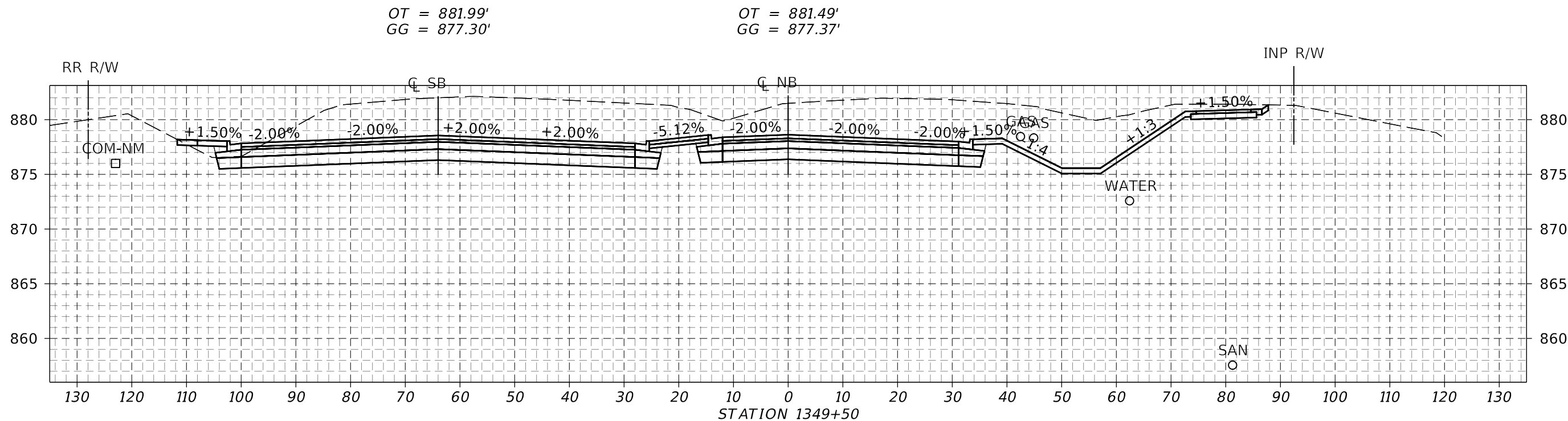
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1348+50.00 TO STATION 1348+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS51
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

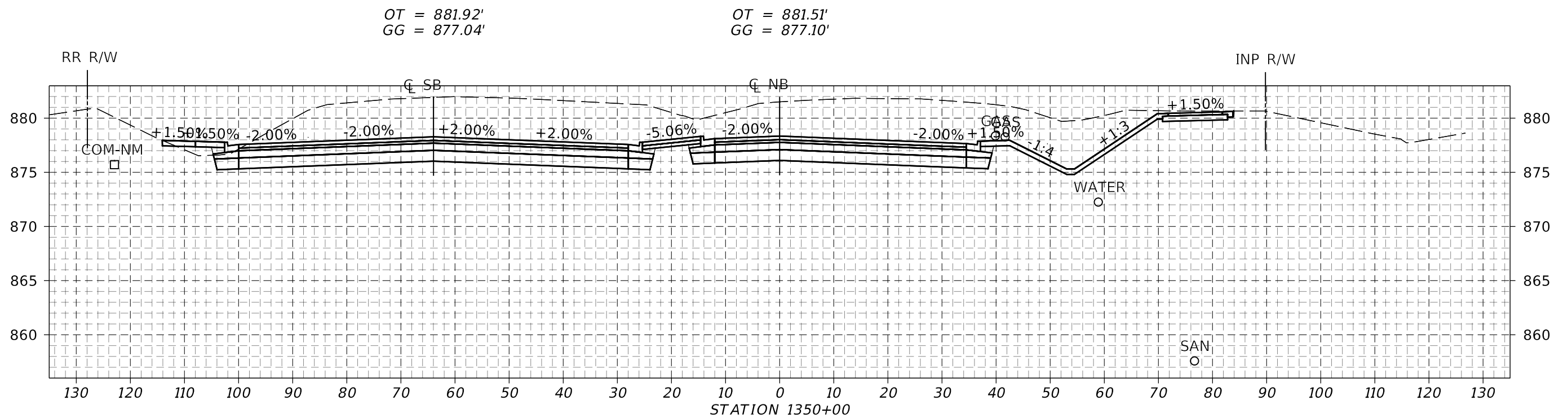
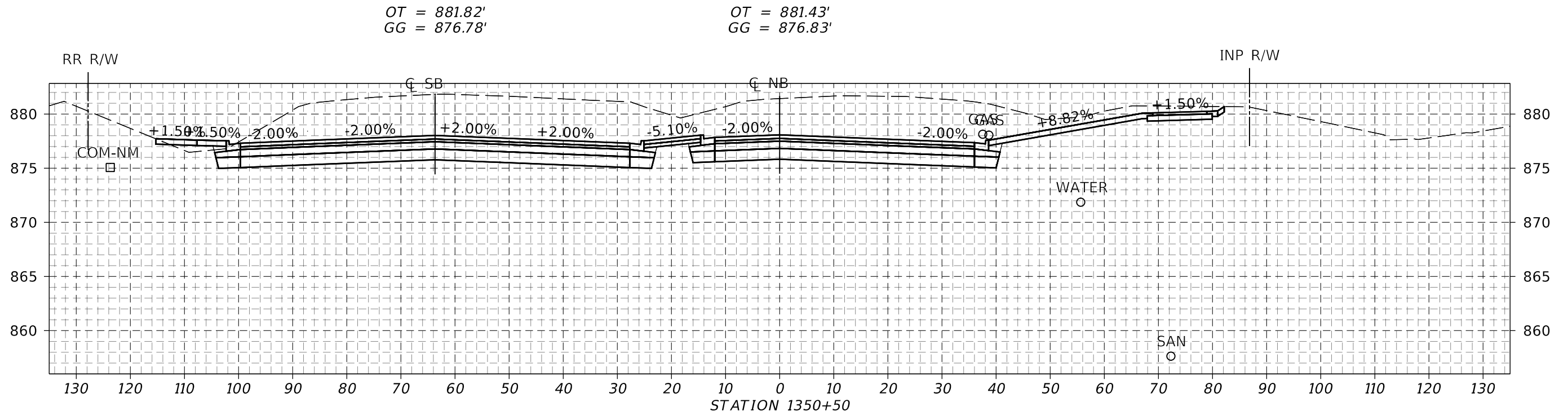
LAST REVISION: / /

X-SECTIONS STATION 1349+00.00 TO STATION 1349+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS52
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1350+00.00 TO STATION 1350+50.00

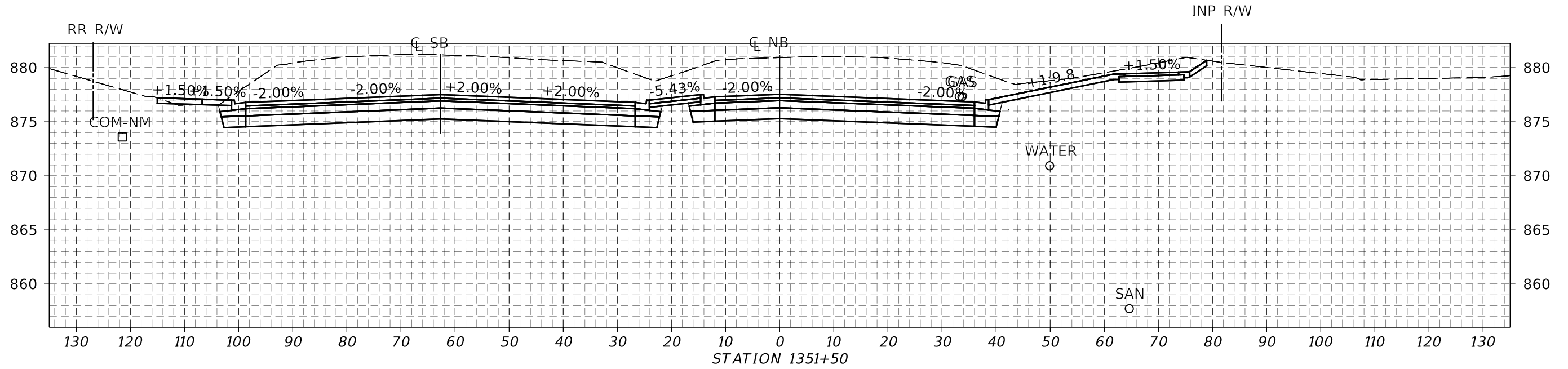
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS53
XS176

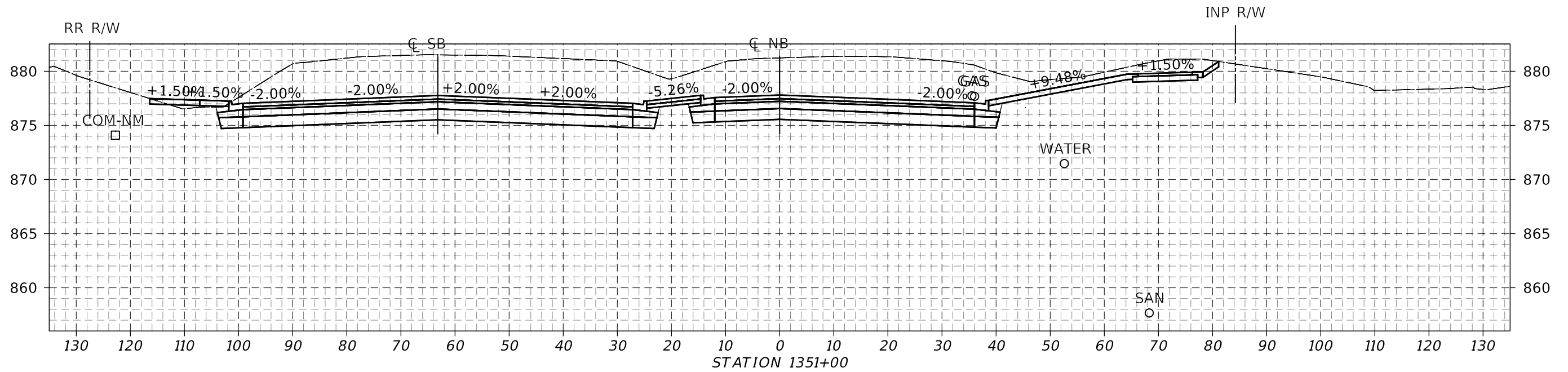
OT = 881.19'
GG = 876.26'

OT = 880.93'
GG = 876.29'



OT = 881.53'
GG = 876.52'

OT = 881.24'
GG = 876.56'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1351+00.00 TO STATION 1351+50.00

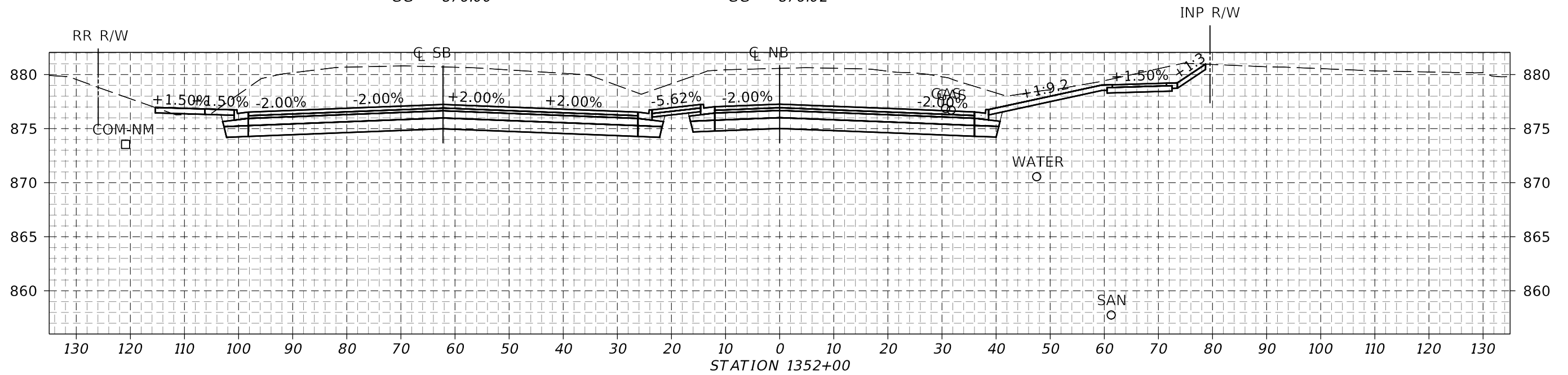
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS54
XS176

OT = 880.72'
GG = 876.00'

OT = 880.58'
GG = 876.02'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1352+00.00 TO STATION 1352+00.00

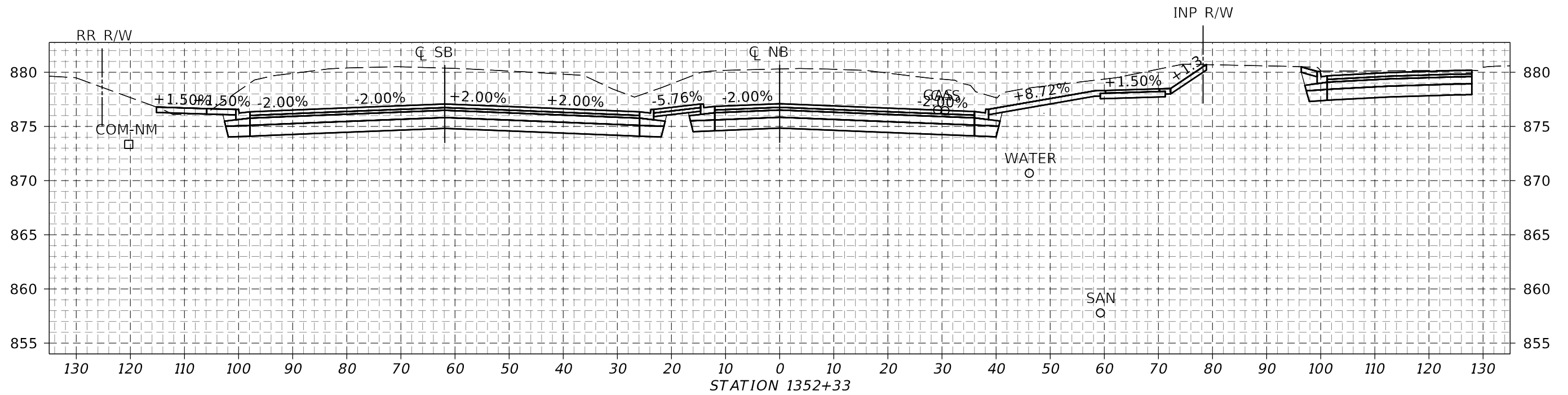
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS55
XS176

OT = 880.40'
GG = 875.83'

OT = 880.31'
GG = 875.85'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1352+32.50 TO STATION 1352+32.50

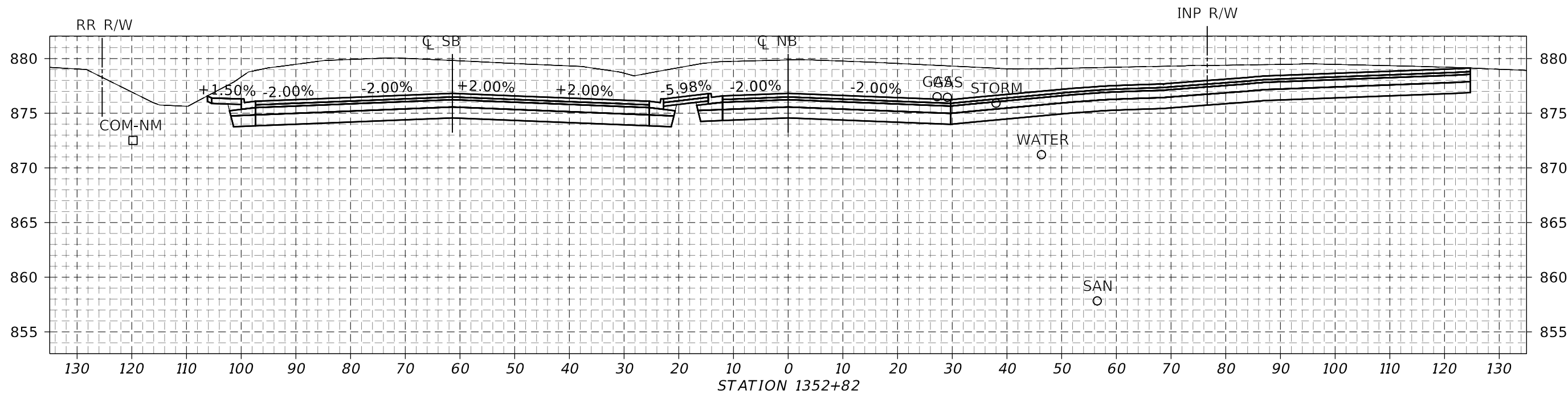
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS56
XS176

OT = 879.84'
GG = 875.57'

OT = 879.89'
GG = 875.58'



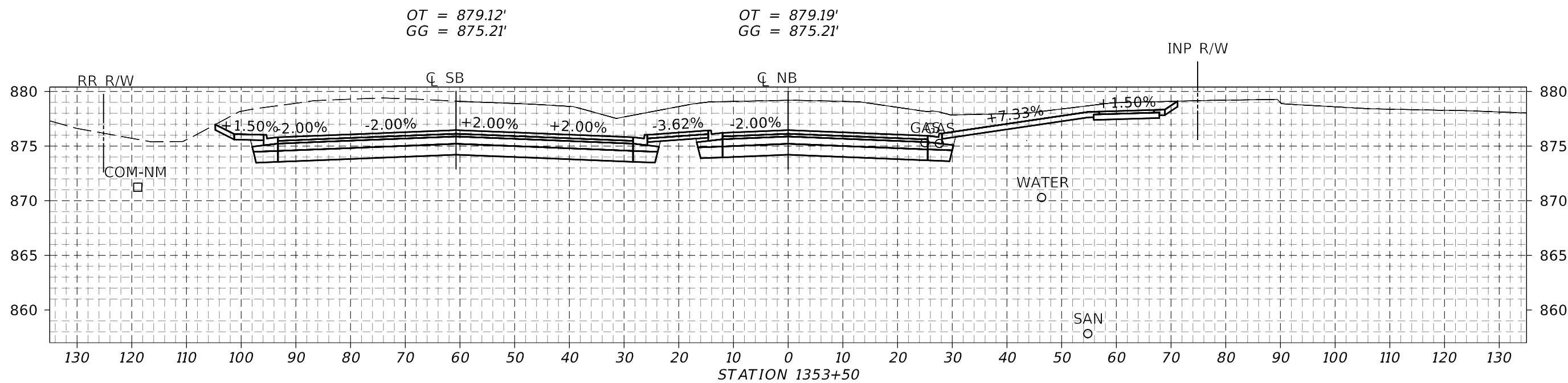
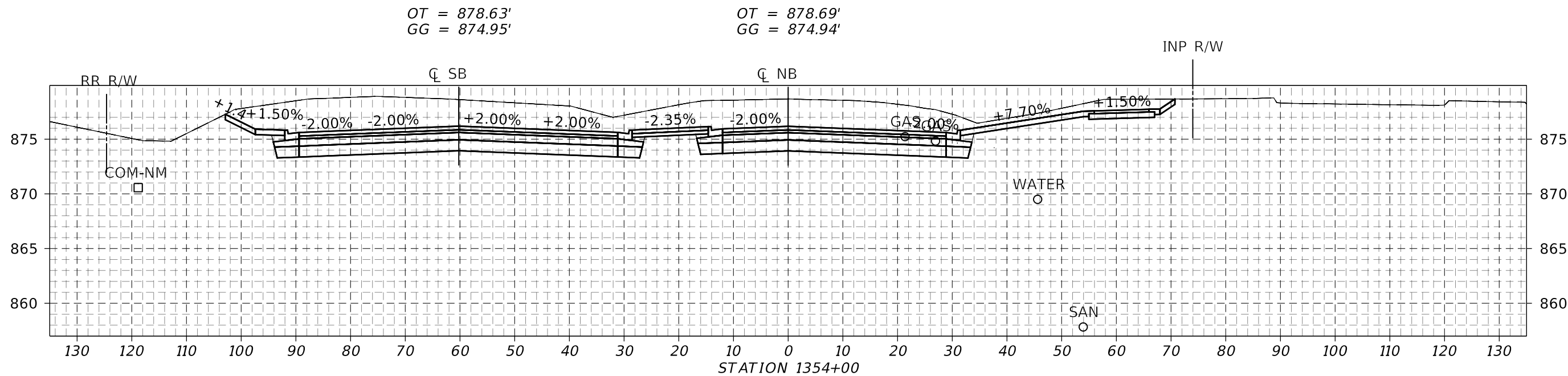
CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 1352+81.70 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS57 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

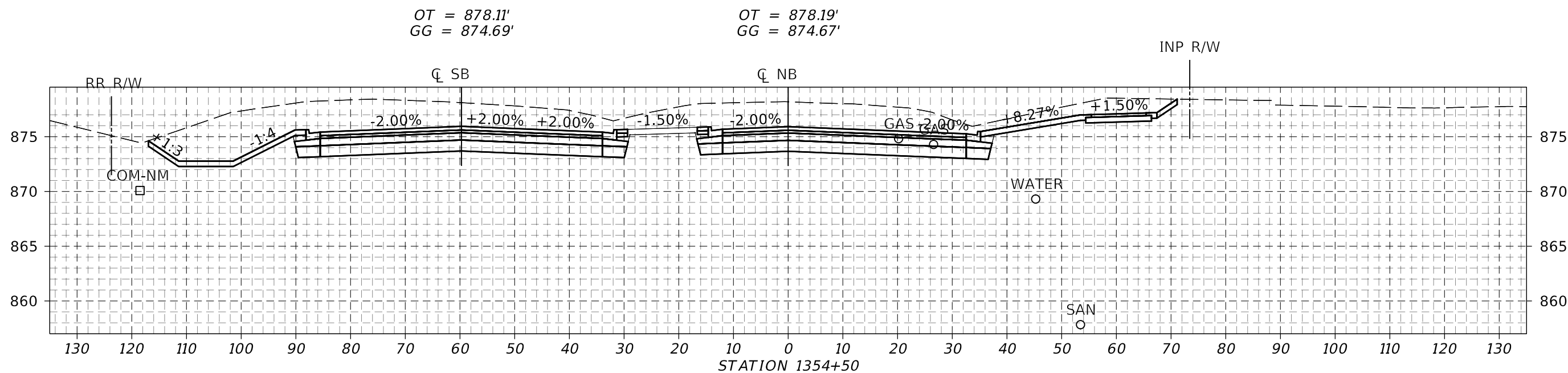
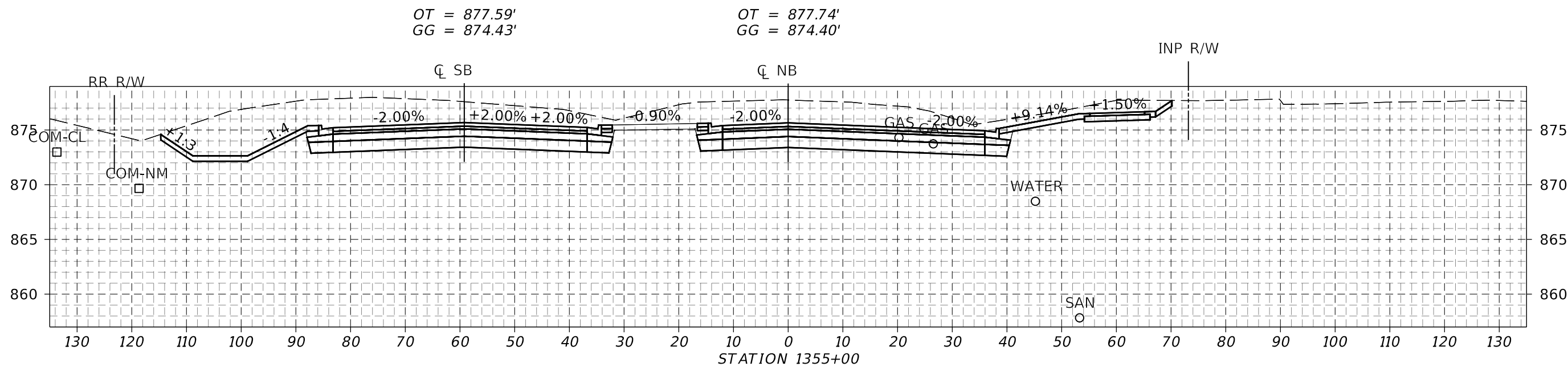
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1353+50.00 TO STATION 1354+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS58
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

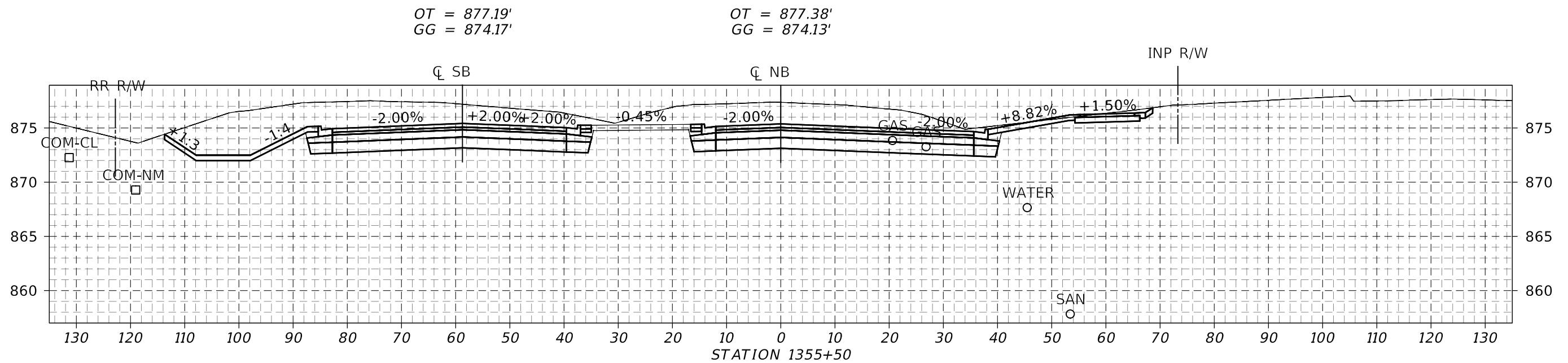
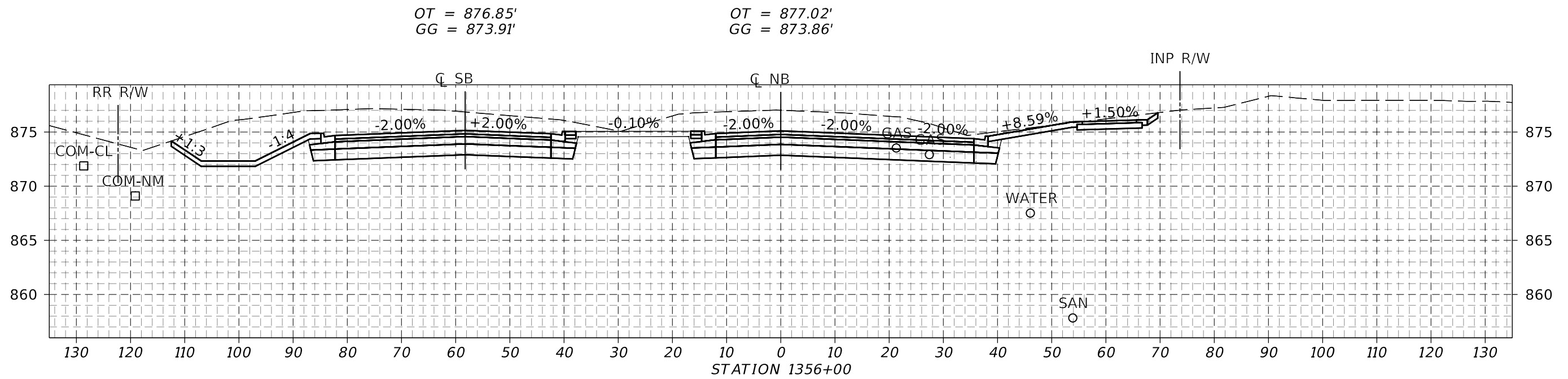
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1354+50.00 TO STATION 1355+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS59
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

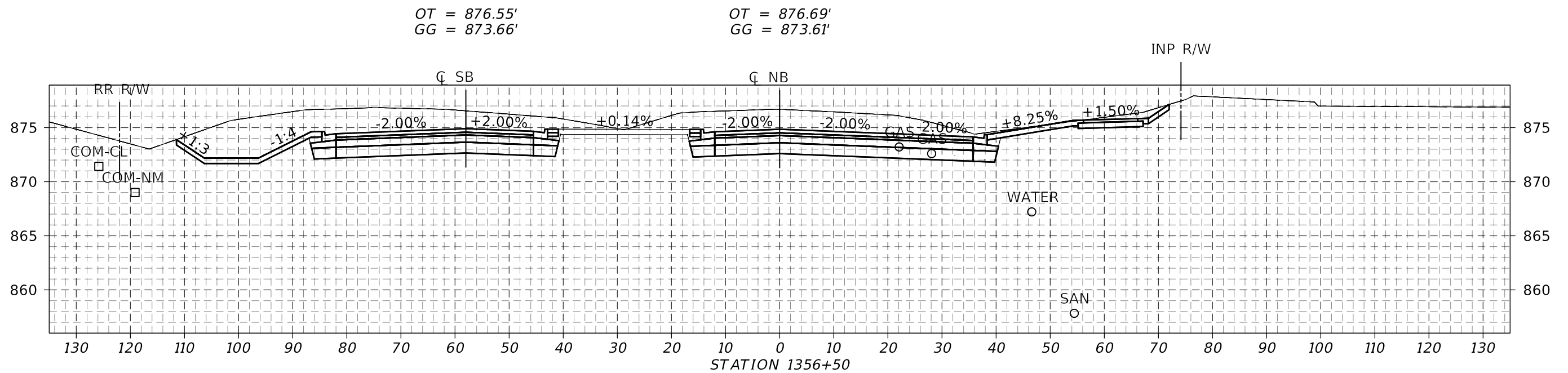
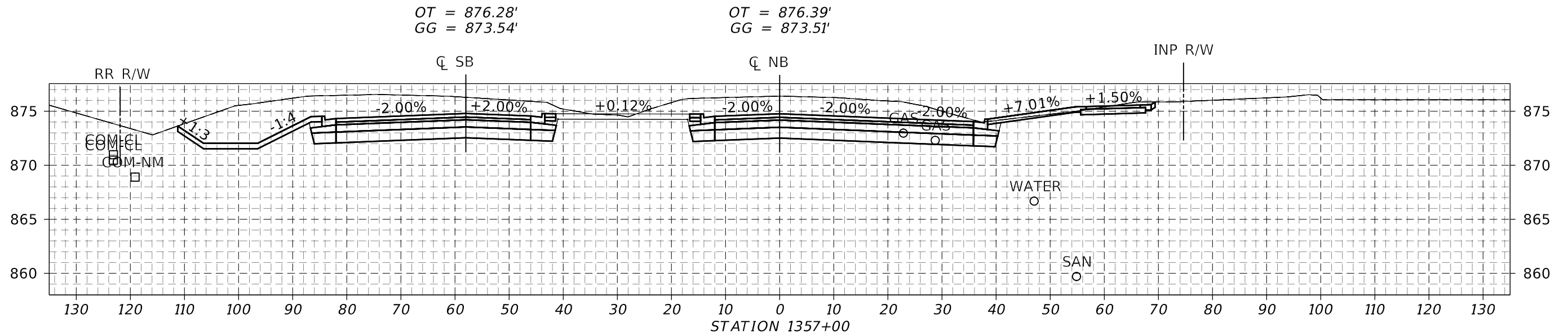
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1355+50.00 TO STATION 1356+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS60
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

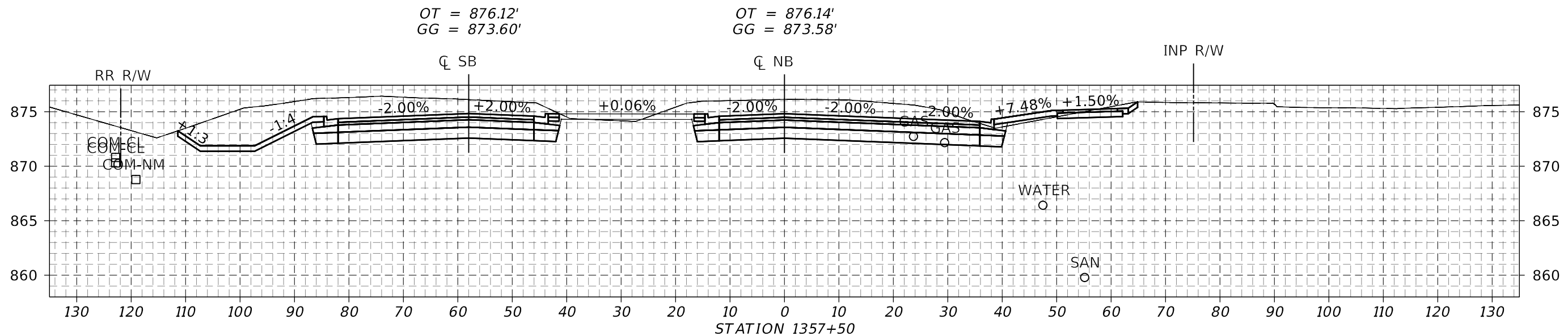
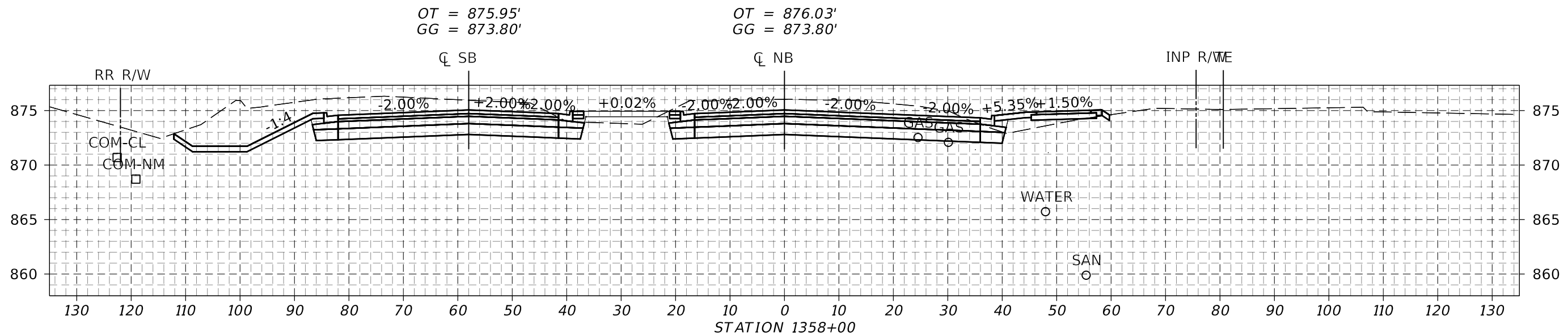
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1356+50.00 TO STATION 1357+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS61
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

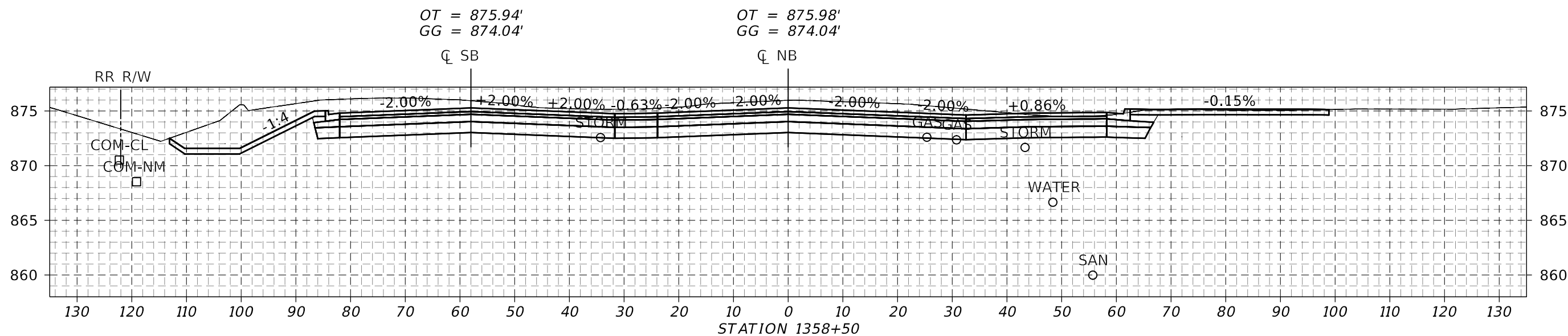
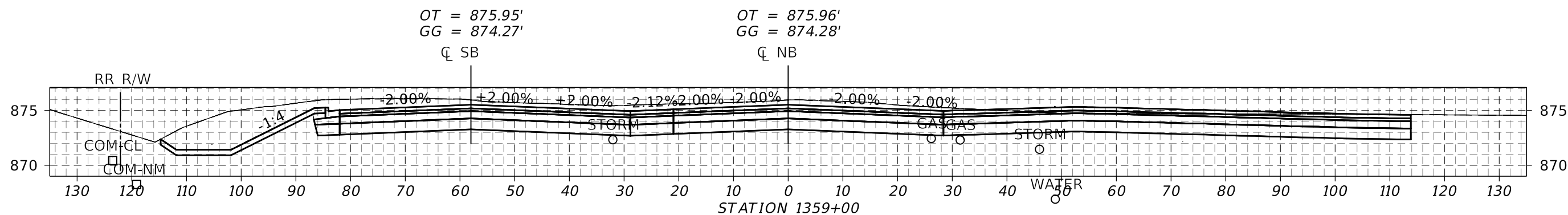
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1357+50.00 TO STATION 1358+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS62
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

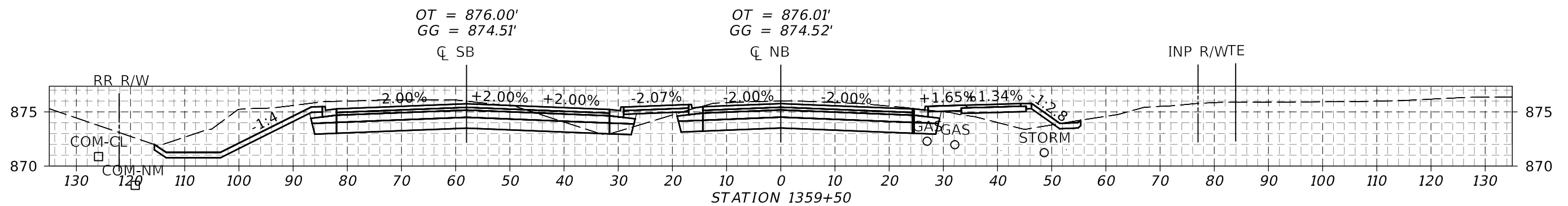
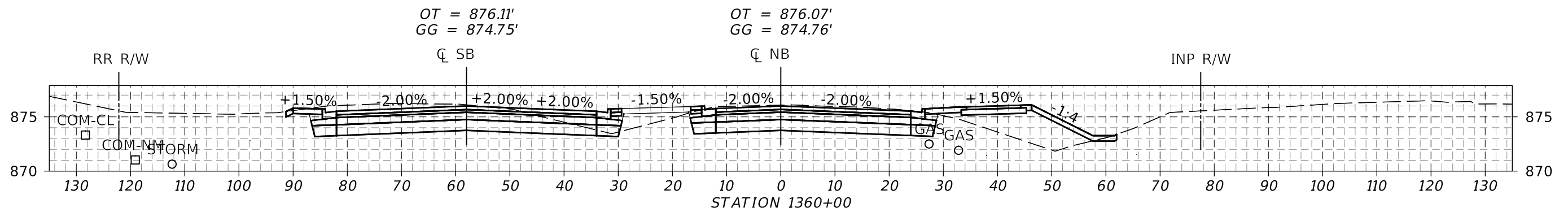
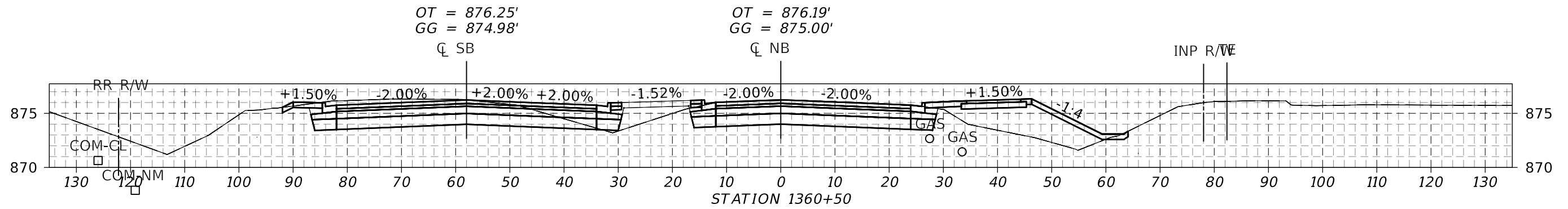
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1358+50.00 TO STATION 1359+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS63
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

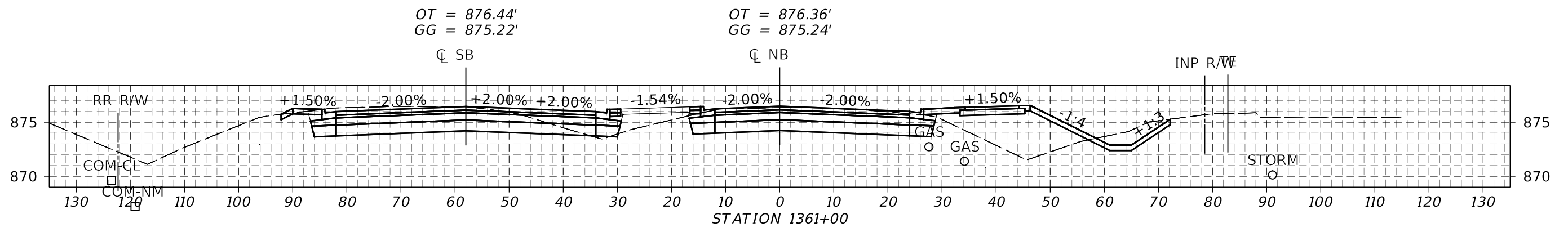
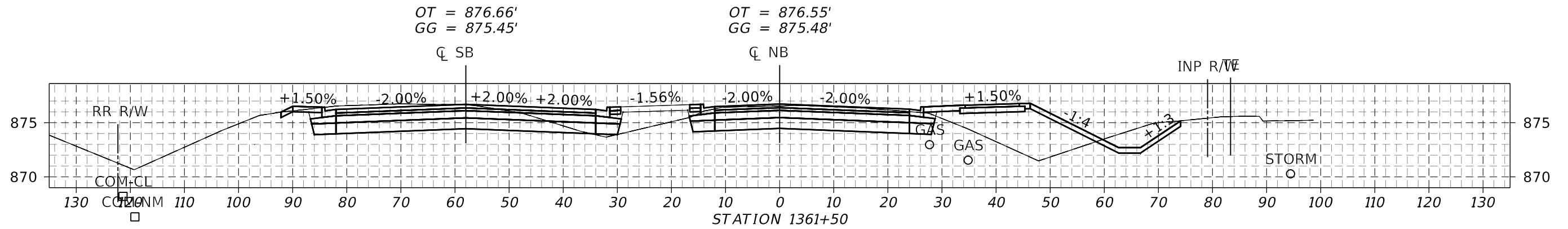
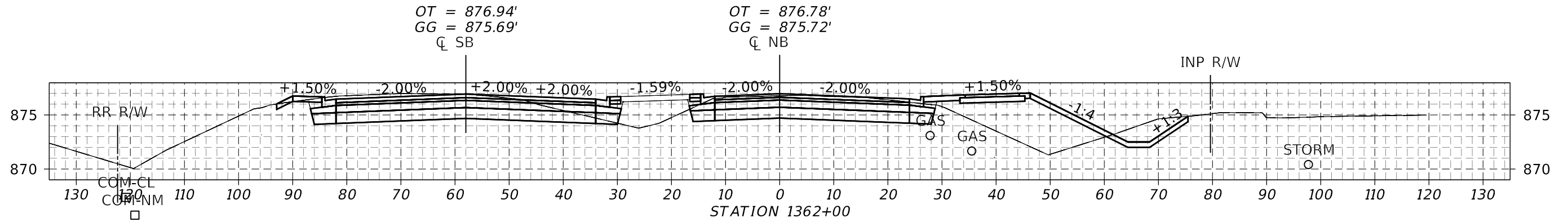
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1359+50.00 TO STATION 1360+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS64
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

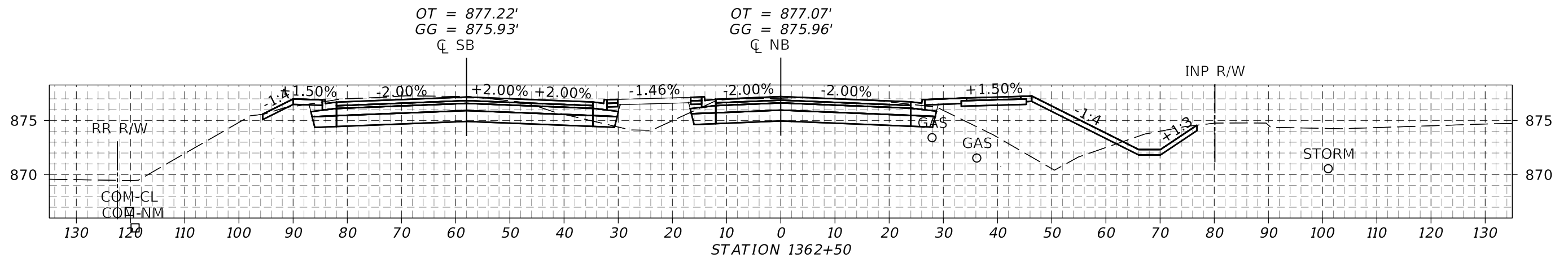
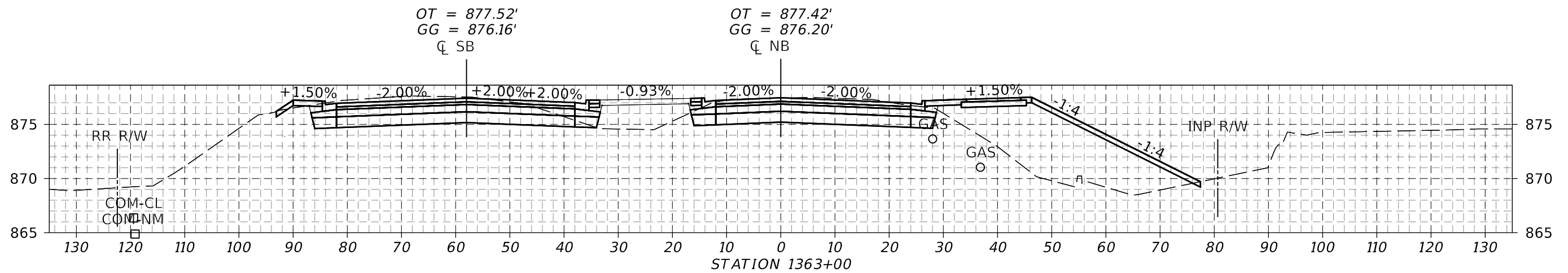
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1361+00.00 TO STATION 1362+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS65
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

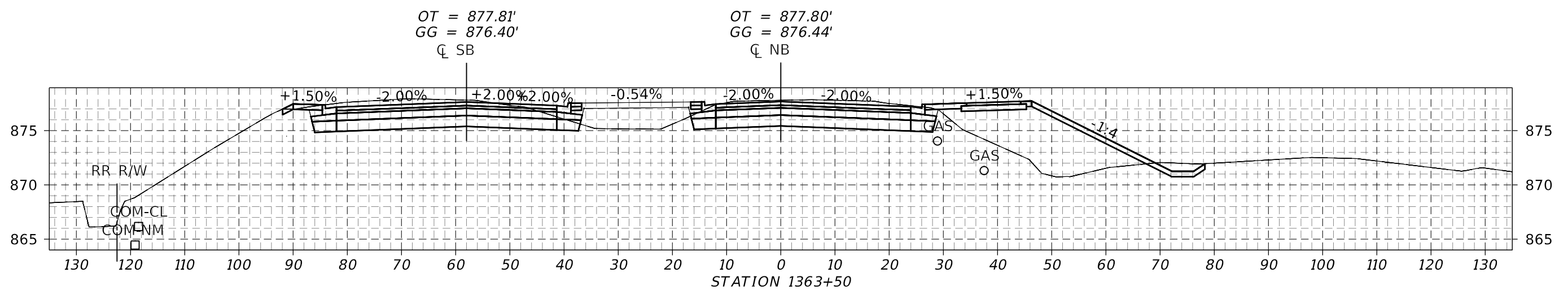
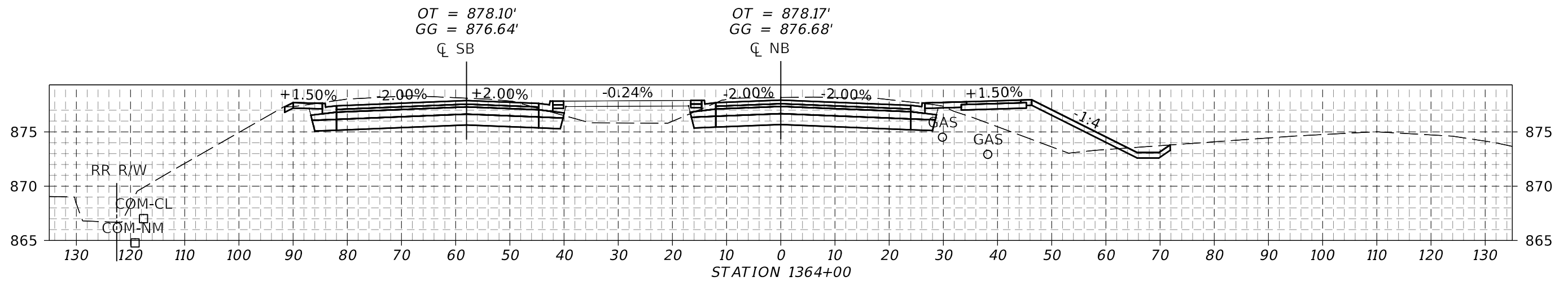
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1362+50.00 TO STATION 1363+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS66
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

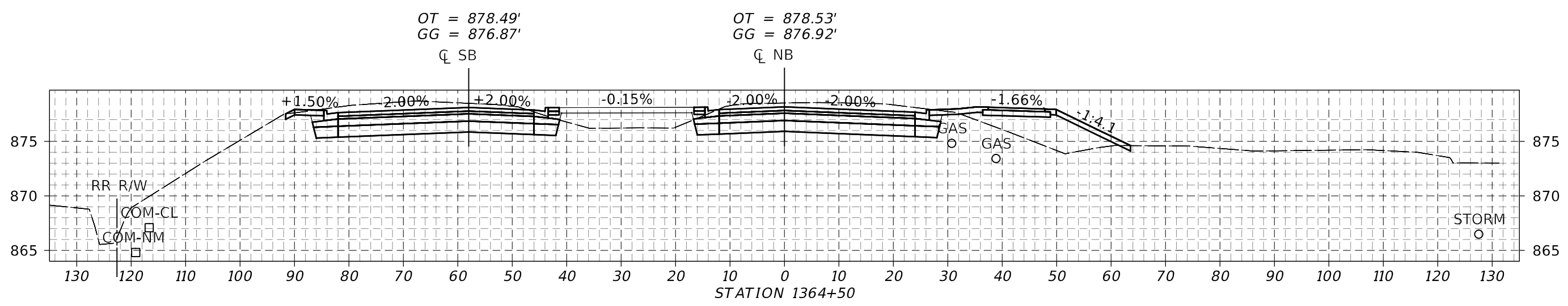
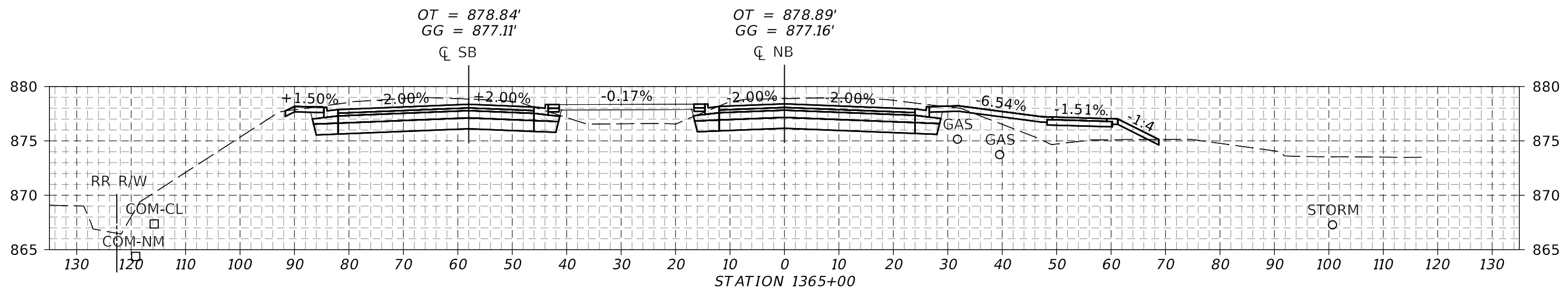
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1363+50.00 TO STATION 1364+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS67
 XS176



CSAH 81 (BOTTINEAU BLVD)

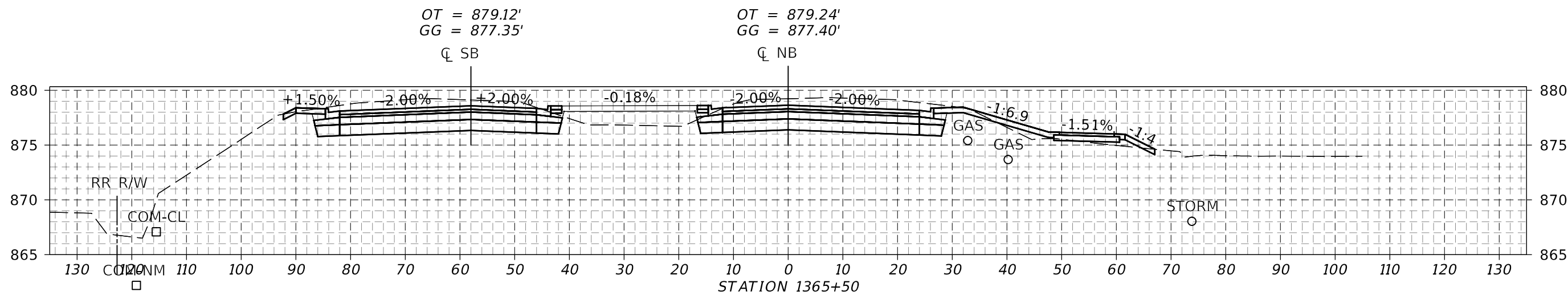
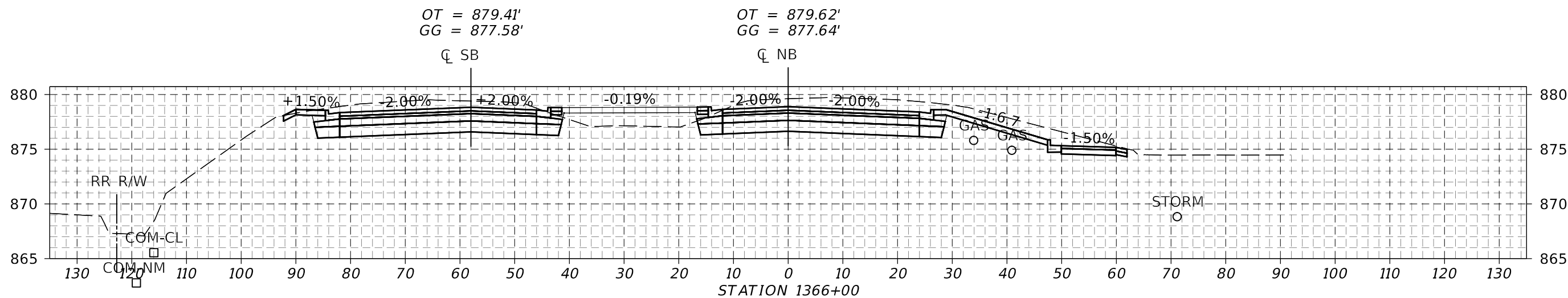


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1364+50.00 TO STATION 1365+00.00
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS68
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

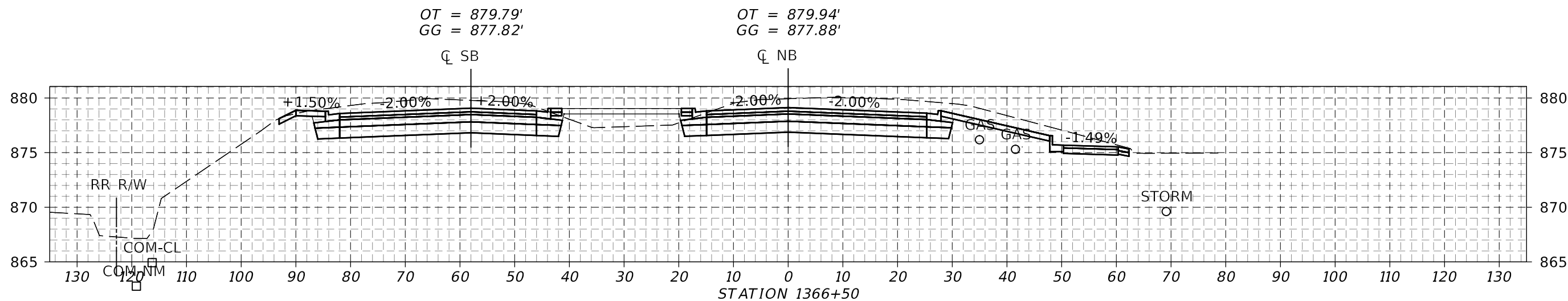
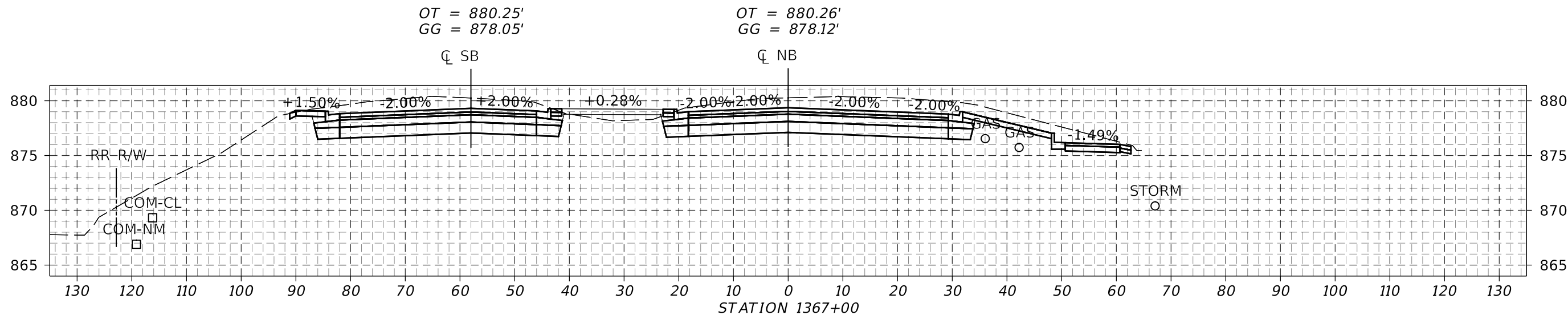
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1365+50.00 TO STATION 1366+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS69
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

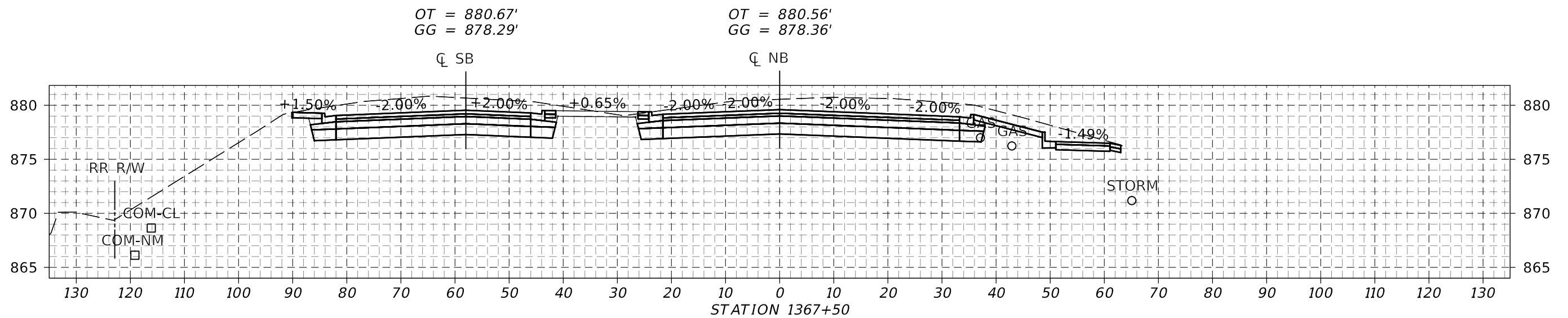
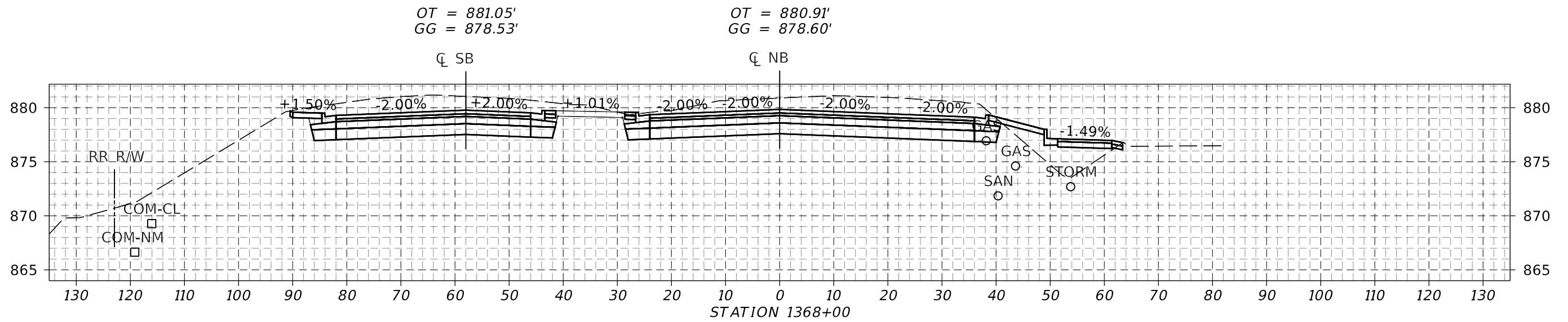
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1366+50.00 TO STATION 1367+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS70
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

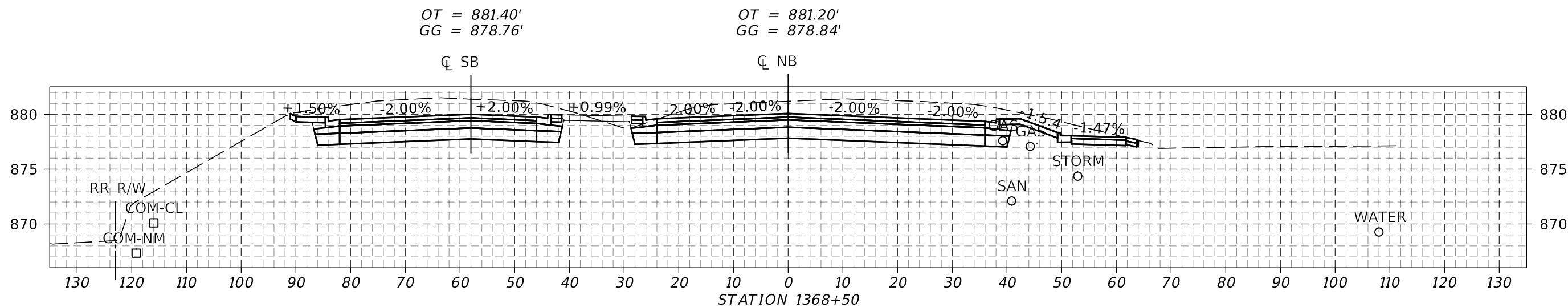
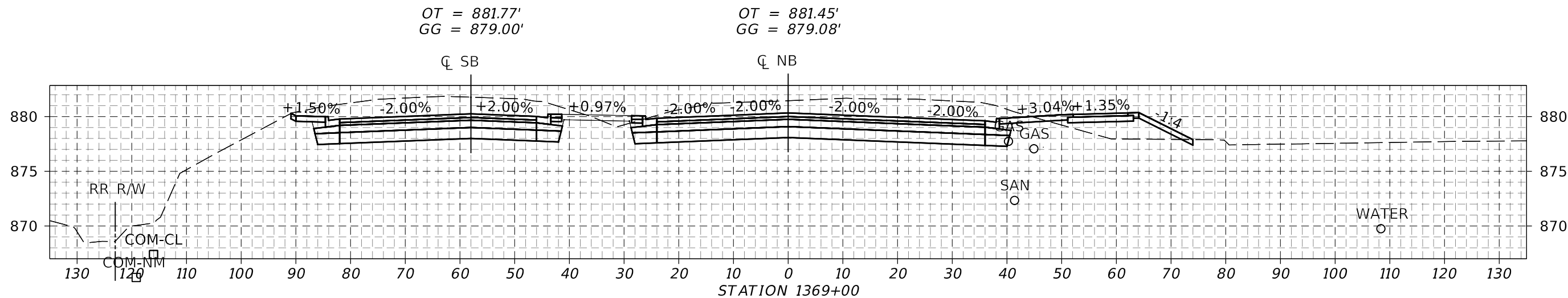
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1367+50.00 TO STATION 1368+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS71
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

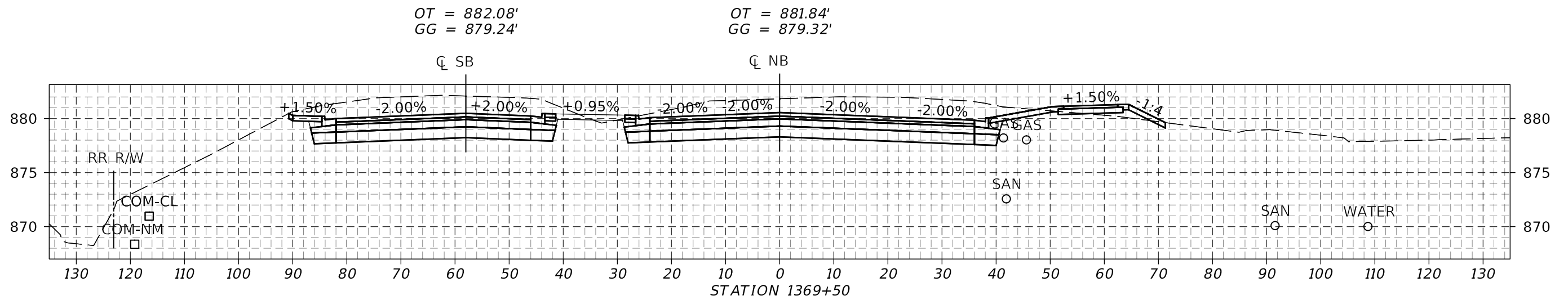
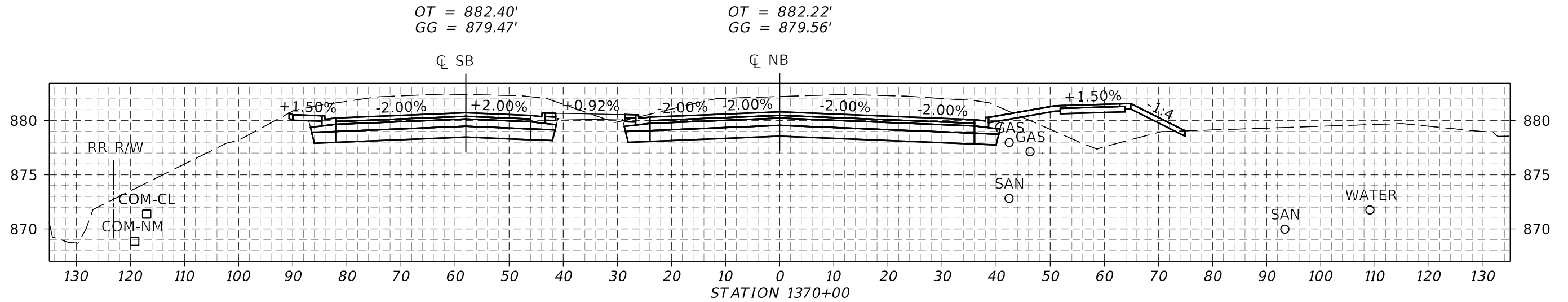
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1368+50.00 TO STATION 1369+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS72
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

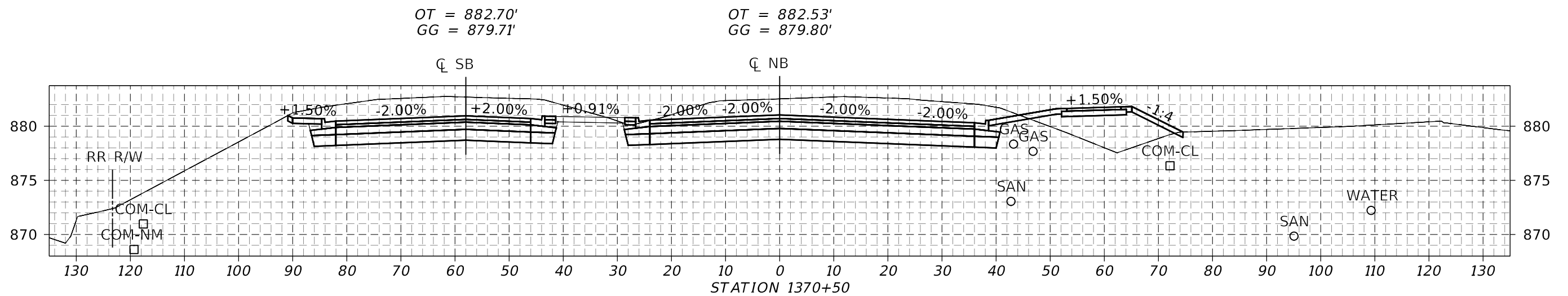
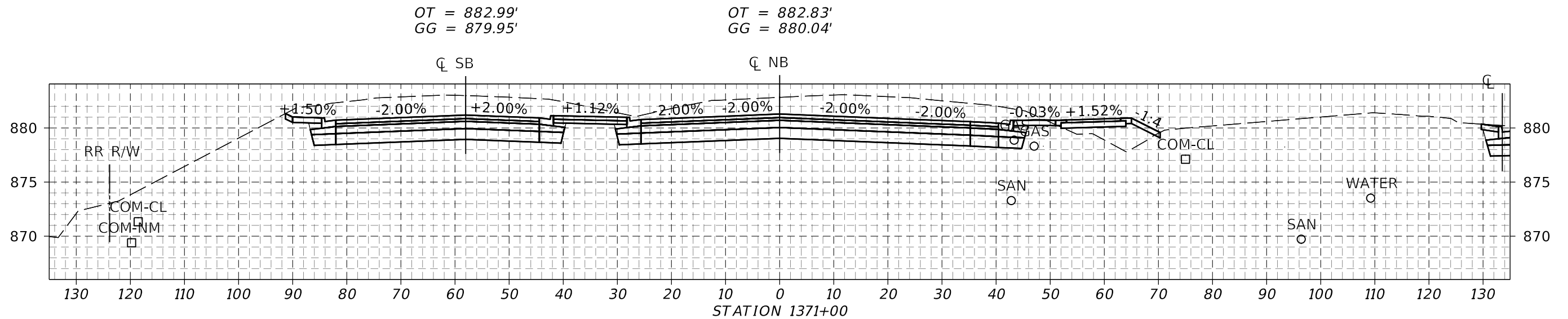
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1369+50.00 TO STATION 1370+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS73
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

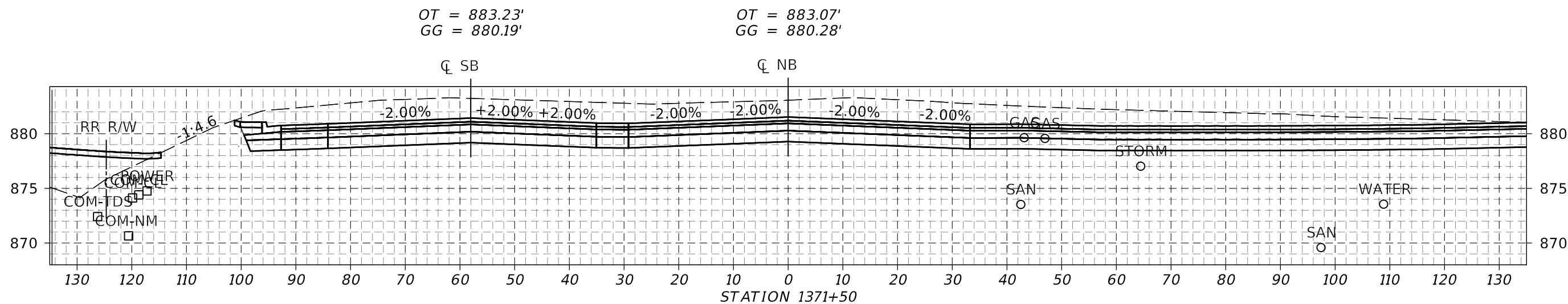
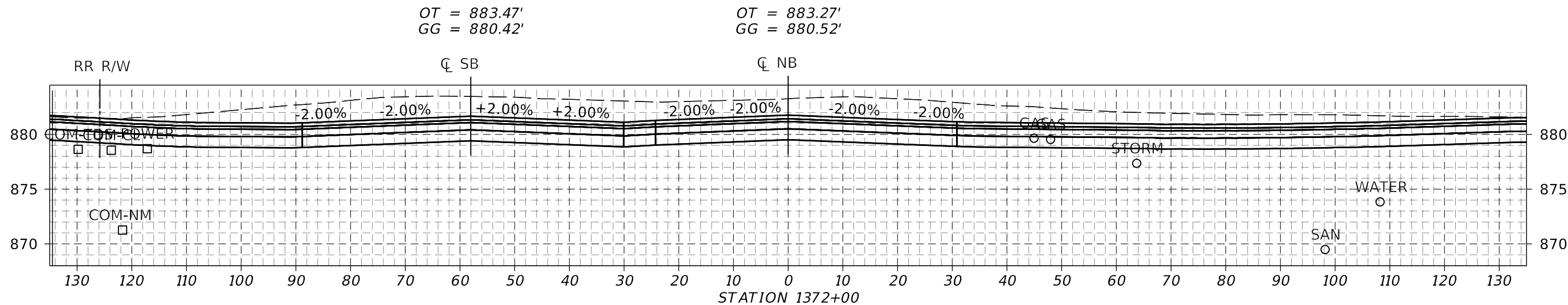
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1370+50.00 TO STATION 1371+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS74
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

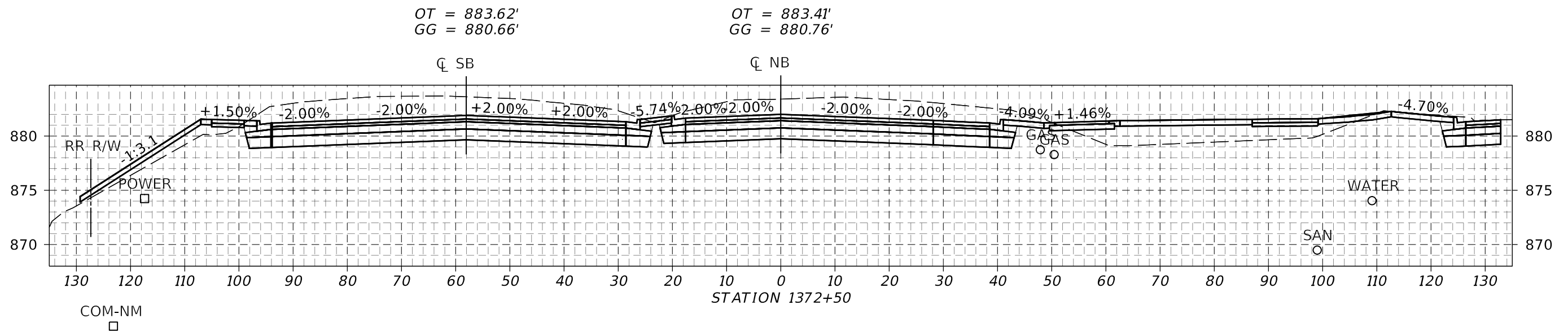
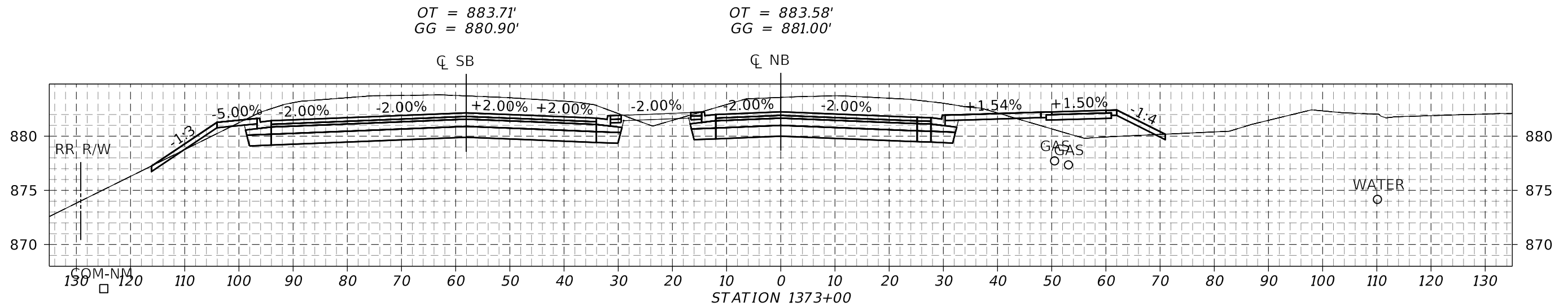
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1371+50.00 TO STATION 1372+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS75
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1372+50.00 TO STATION 1373+00.00

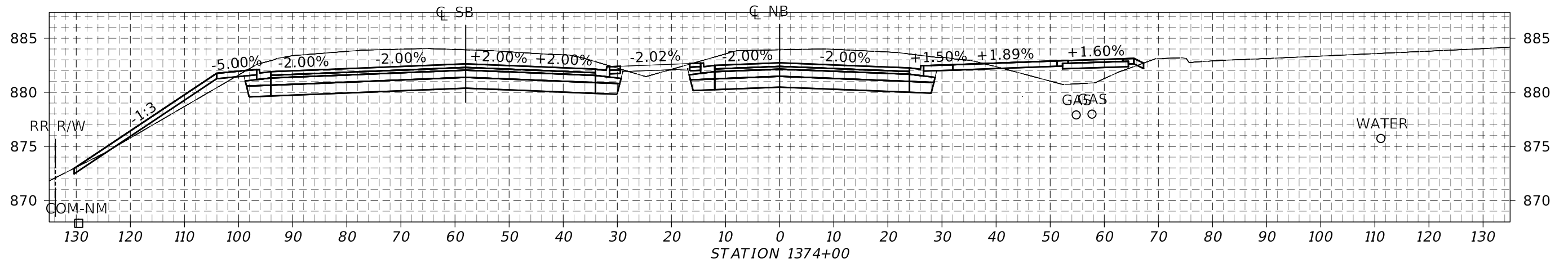
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS76
 XS176

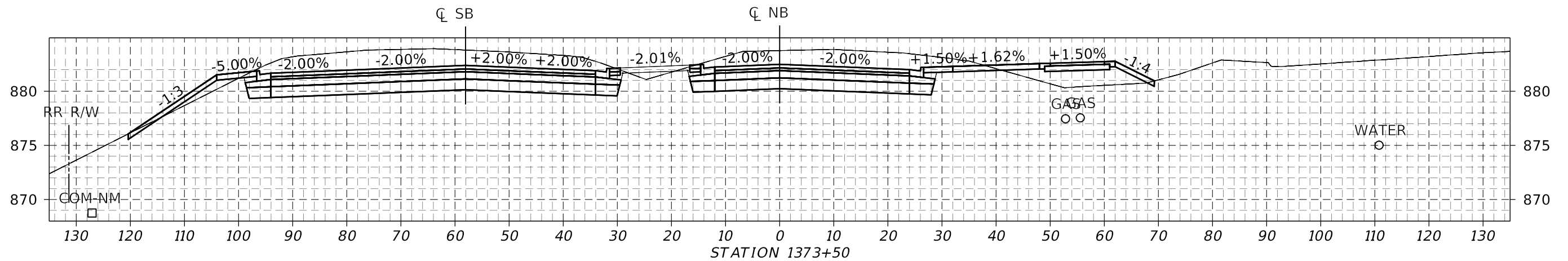
OT = 883.92'
GG = 881.38'

OT = 883.93'
GG = 881.48'



OT = 883.81'
GG = 881.14'

OT = 883.76'
GG = 881.24'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1373+50.00 TO STATION 1374+00.00

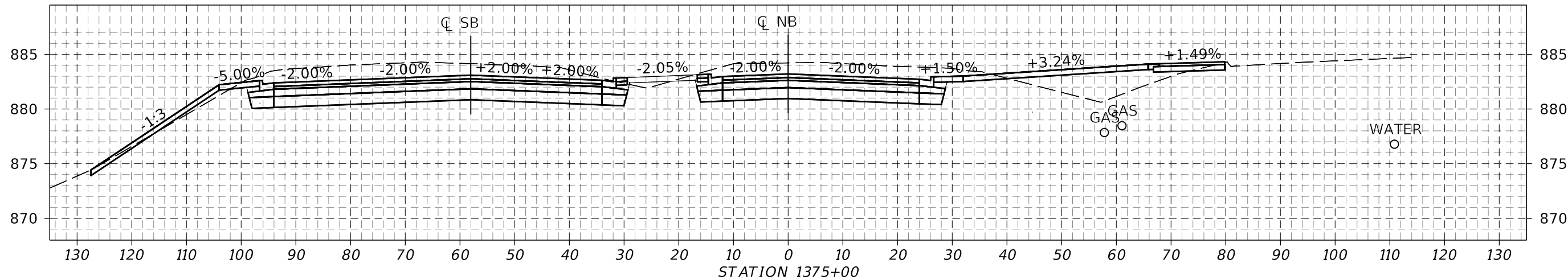
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS77
XS176

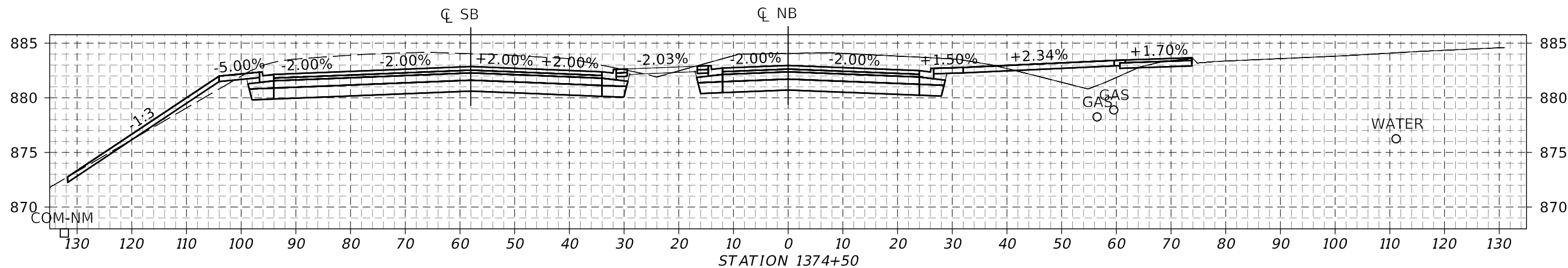
OT = 884.15'
GG = 881.85'

OT = 884.23'
GG = 881.96'



OT = 884.04'
GG = 881.61'

OT = 884.07'
GG = 881.72'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1374+50.00 TO STATION 1375+00.00

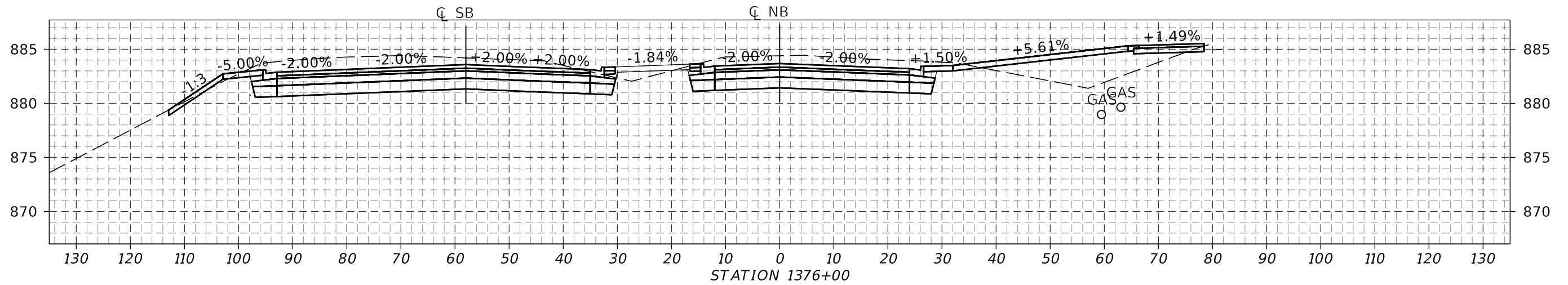
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS78
XS176

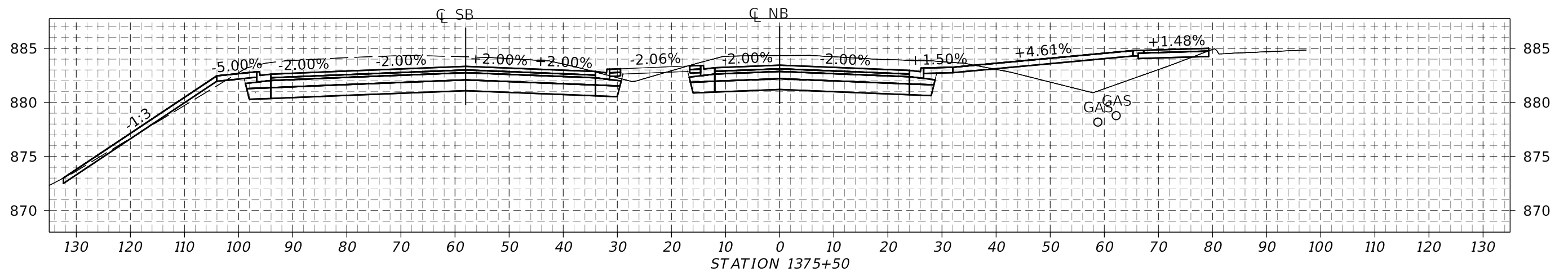
OT = 884.20'
GG = 882.33'

OT = 884.39'
GG = 882.44'



OT = 884.23'
GG = 882.09'

OT = 884.34'
GG = 882.20'



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

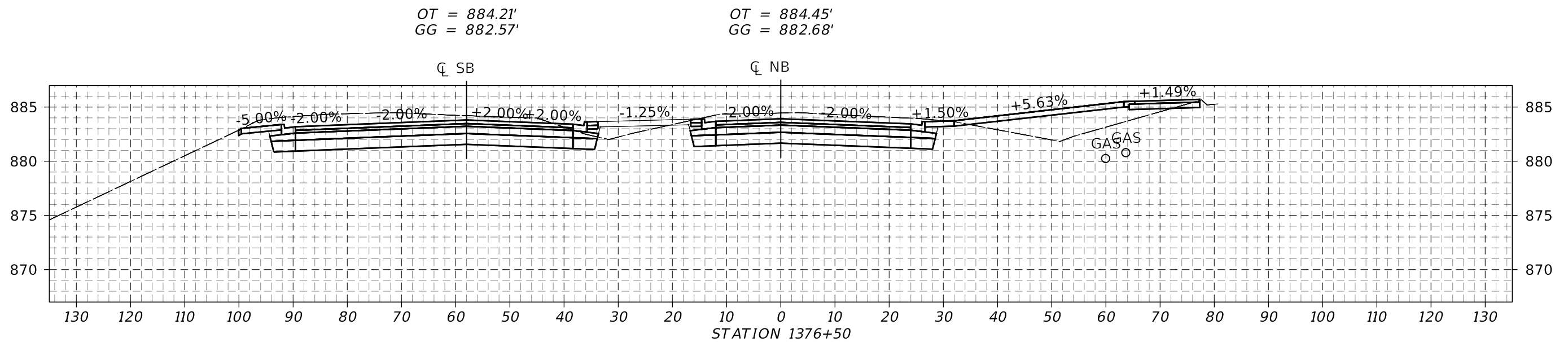
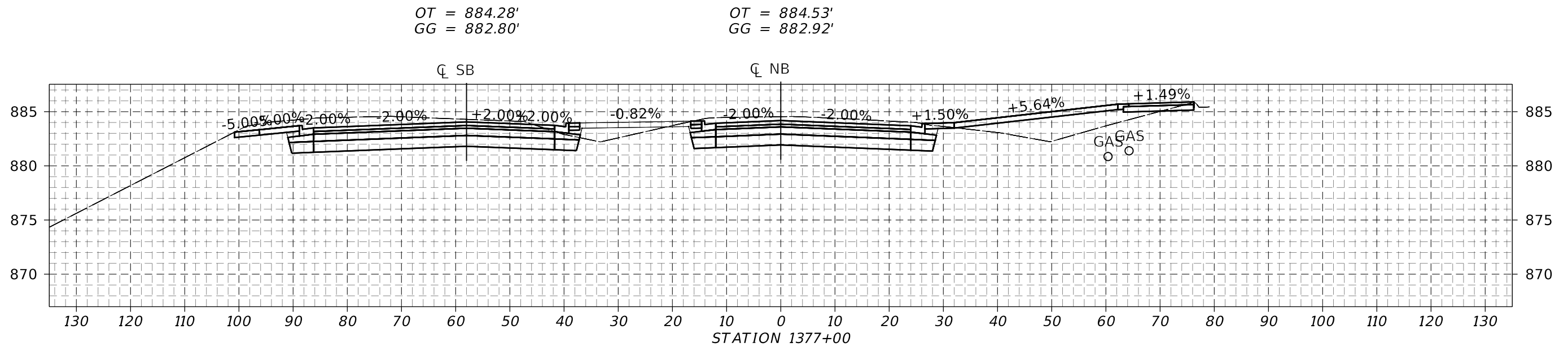
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1375+50.00 TO STATION 1376+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS79
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

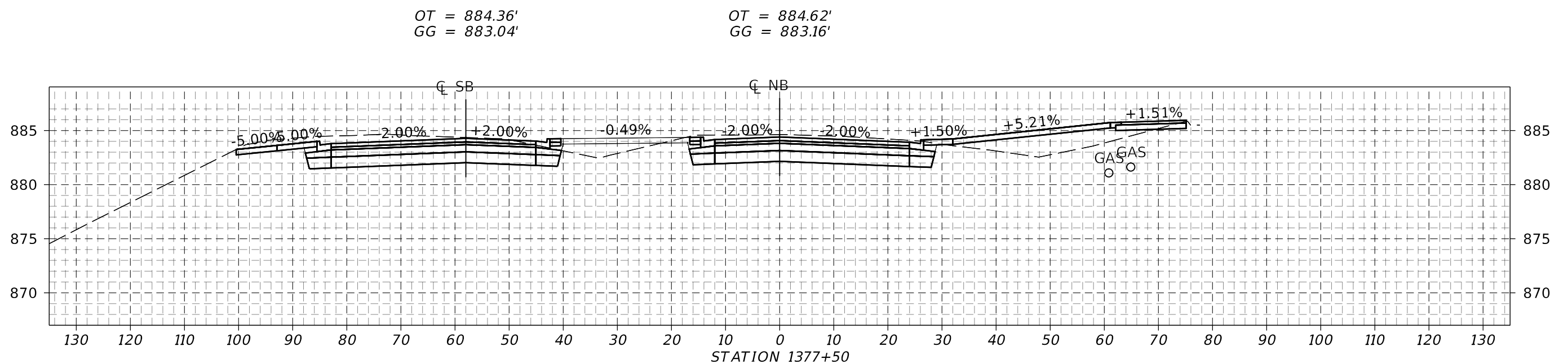
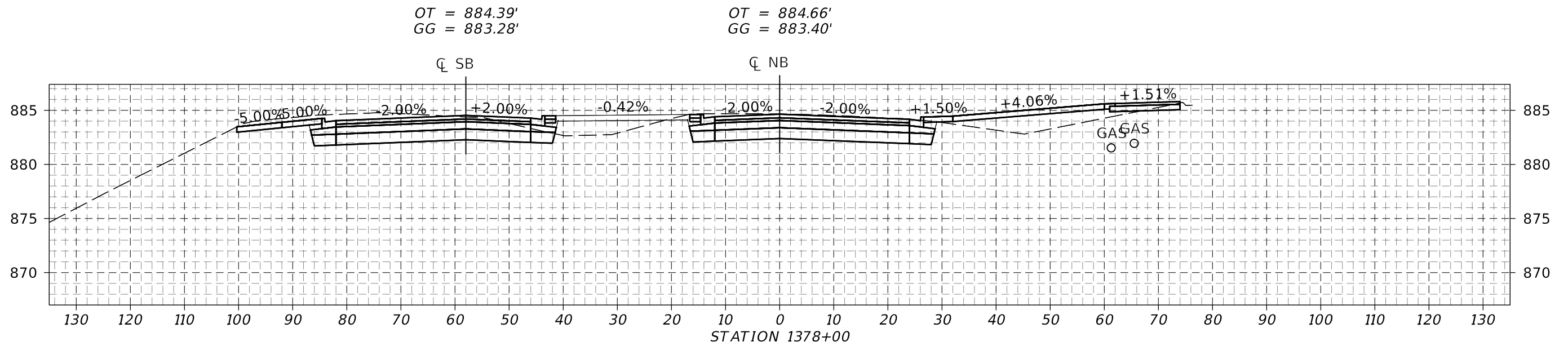
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1376+50.00 TO STATION 1377+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS80
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

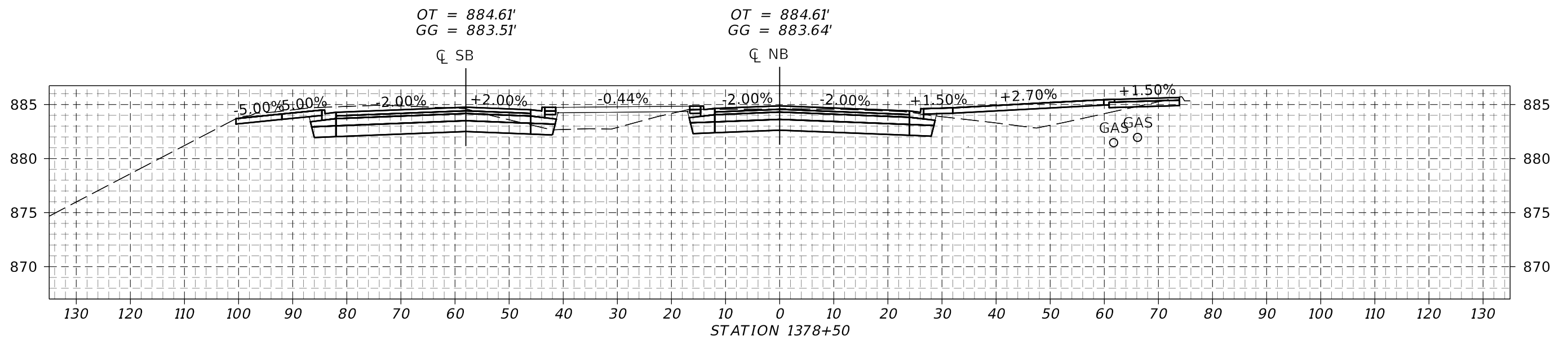
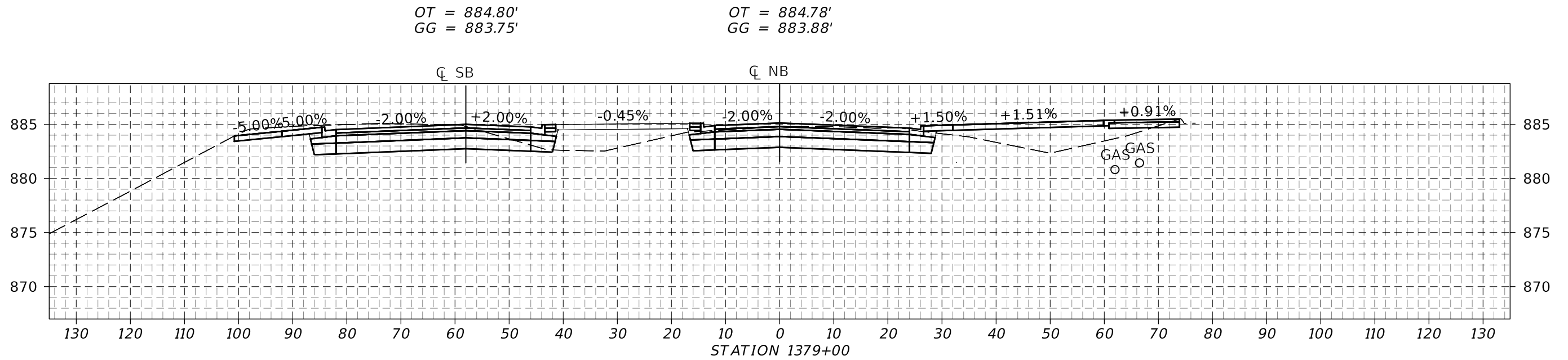
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1377+50.00 TO STATION 1378+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS81
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

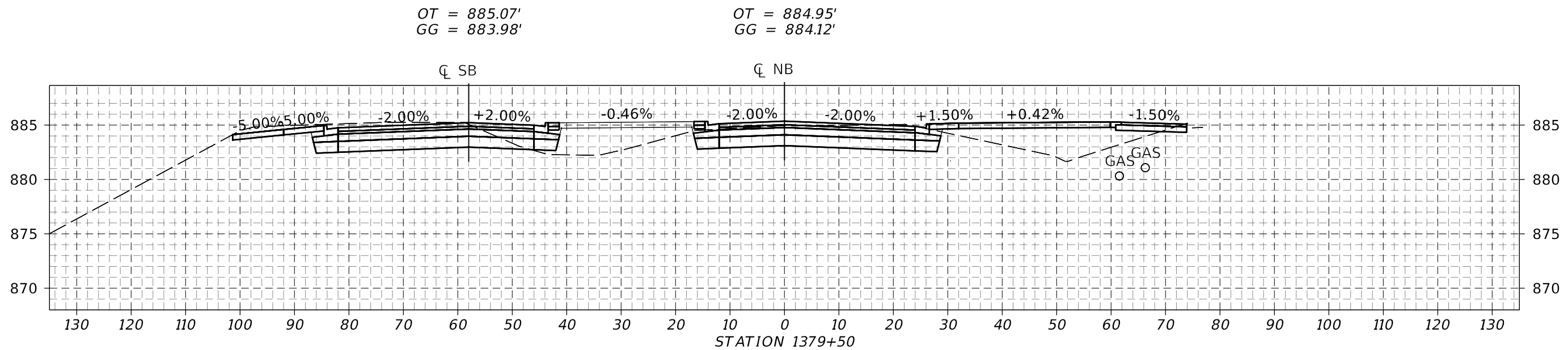
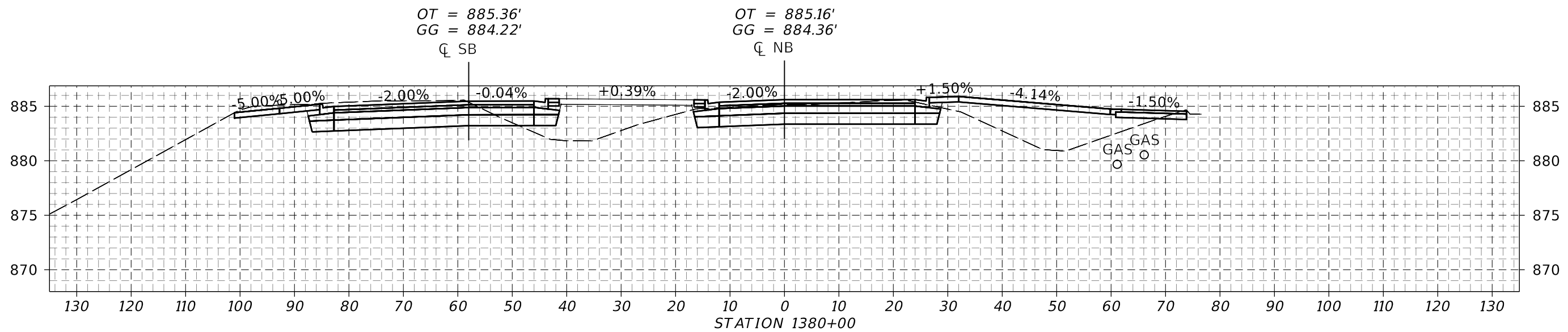
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1378+50.00 TO STATION 1379+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS82
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

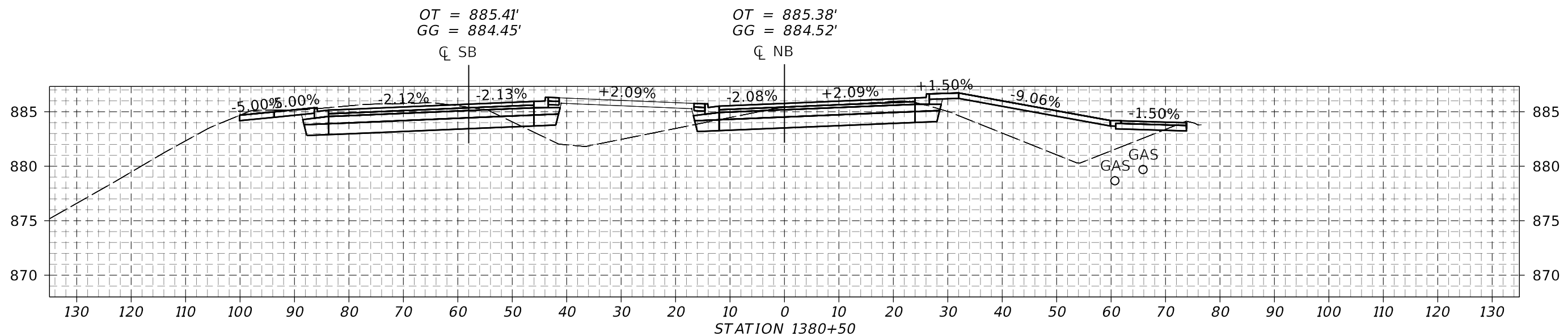
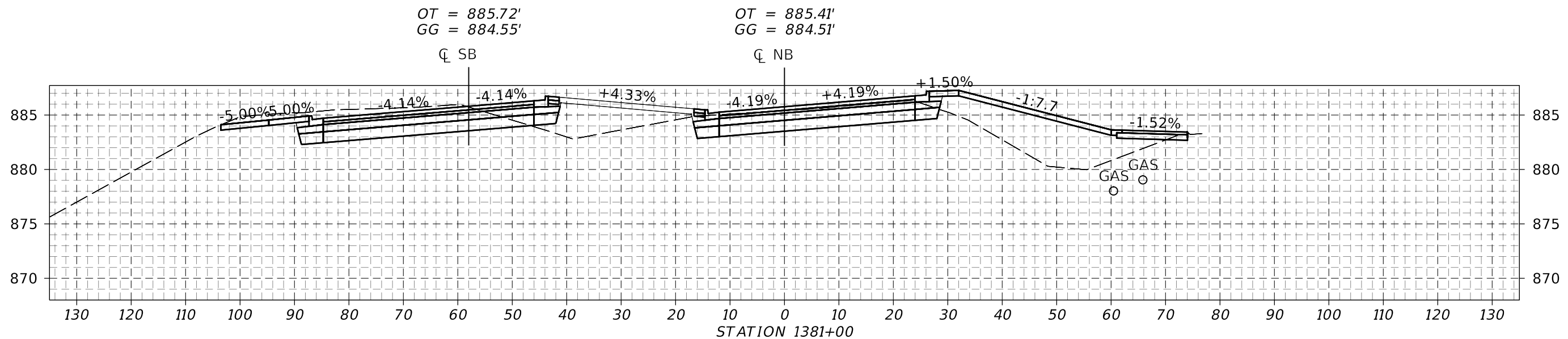
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1379+50.00 TO STATION 1380+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS83
 XS176



CSAH 81 (BOTTINEAU BLVD)

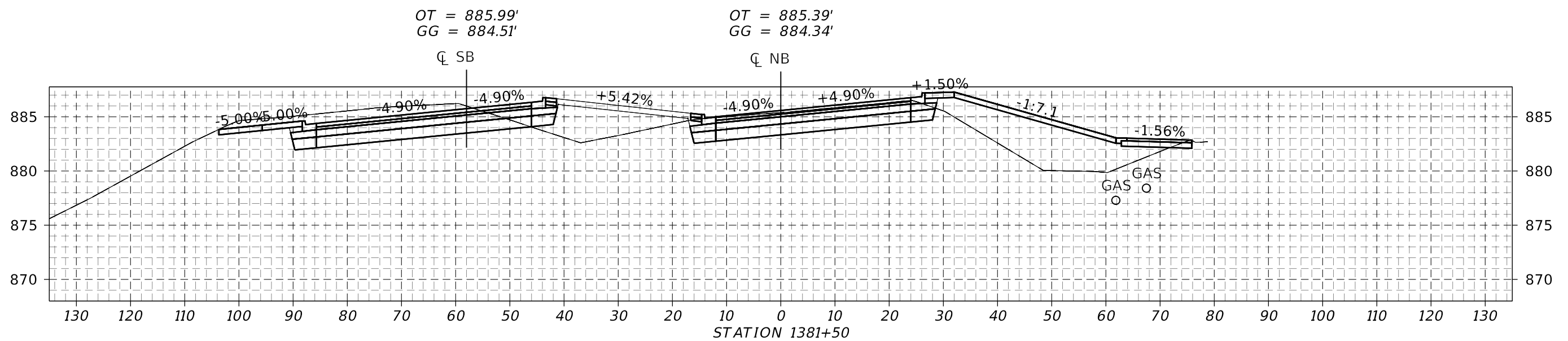
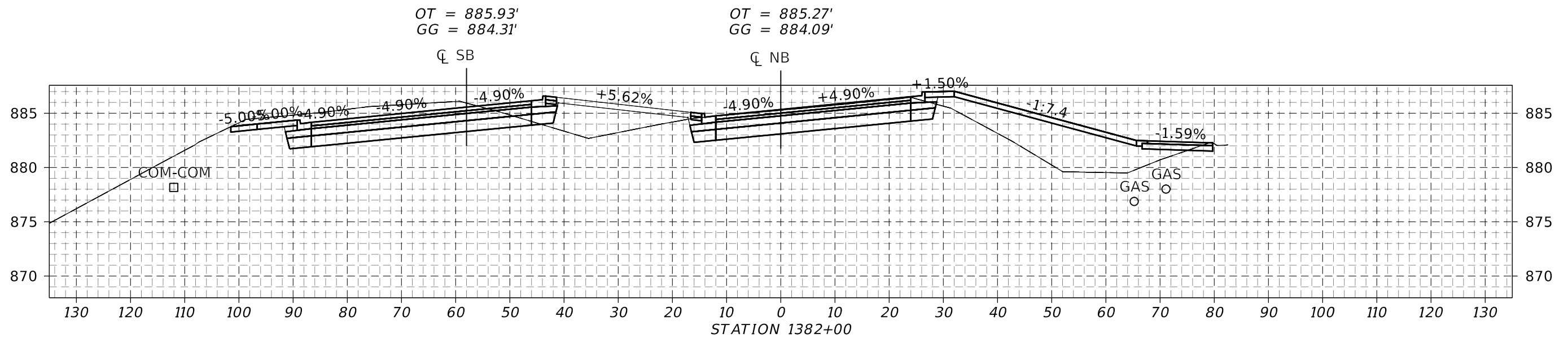


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1380+50.00 TO STATION 1381+00.00
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS84
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

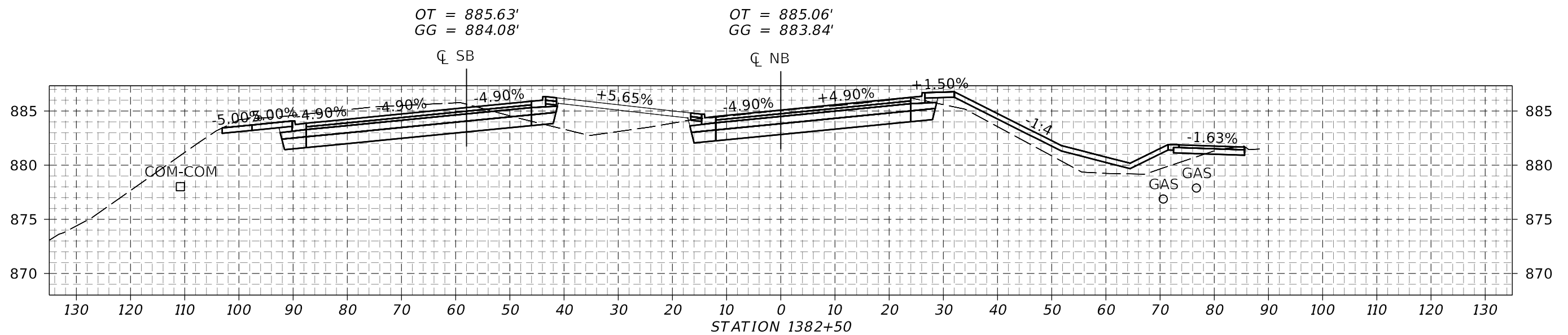
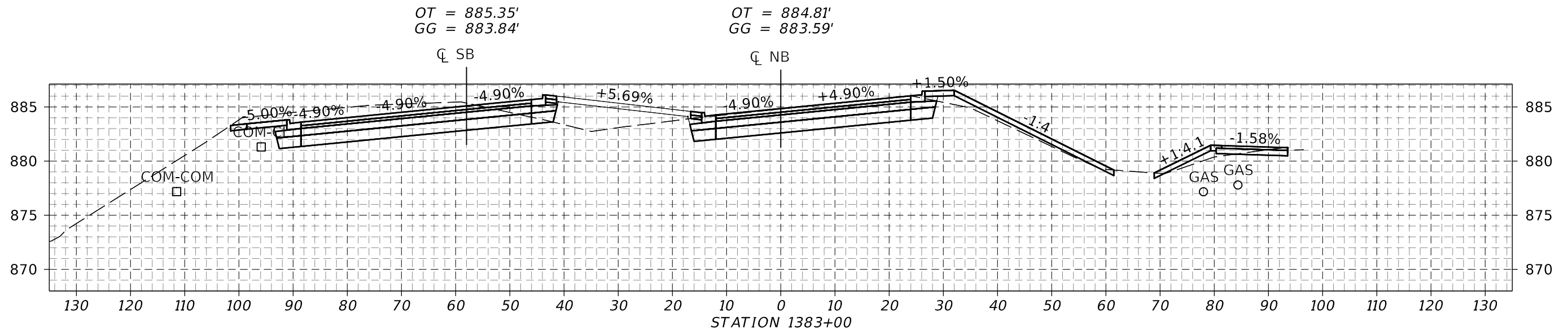
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1381+50.00 TO STATION 1382+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS85
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

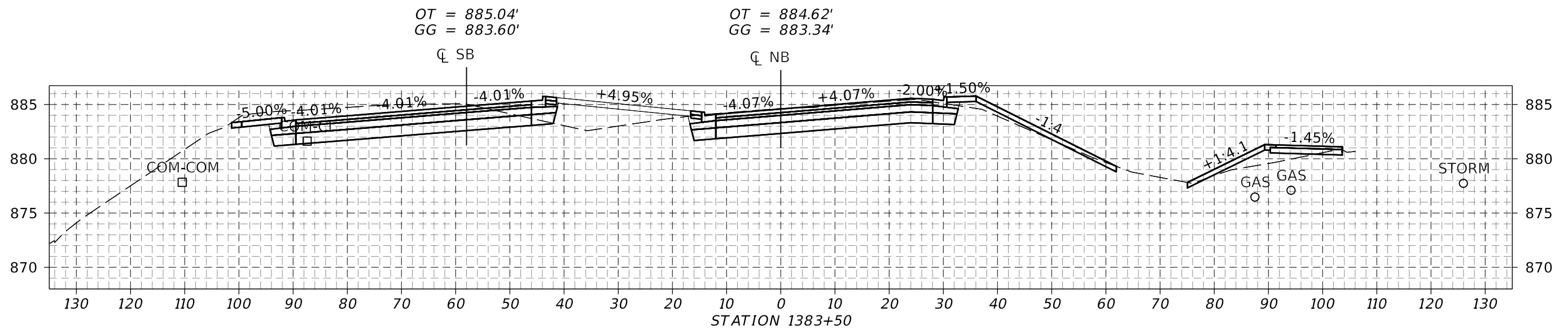
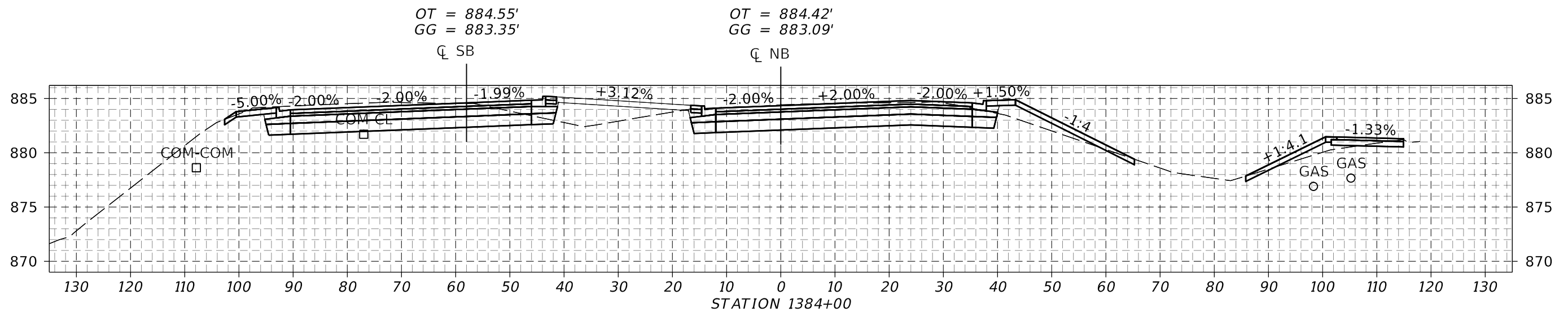
LAST REVISION: / /

X-SECTIONS STATION 1382+50.00 TO STATION 1383+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS86
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

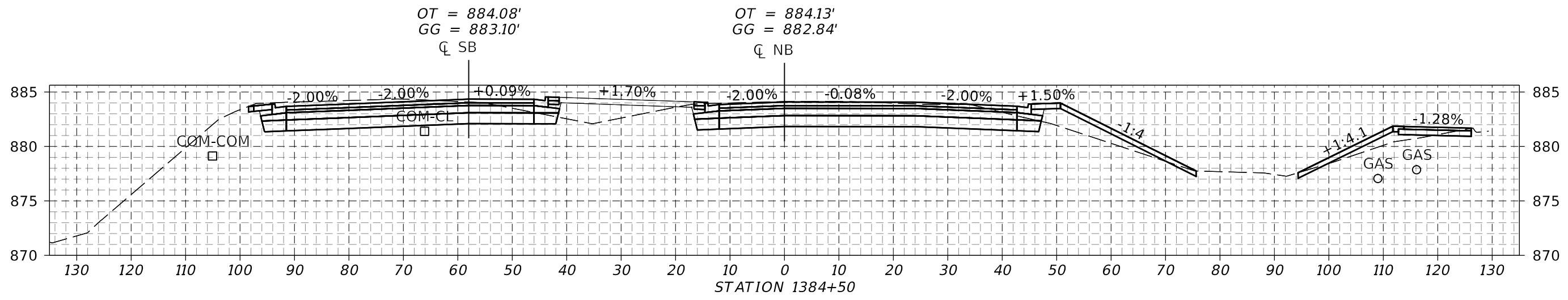
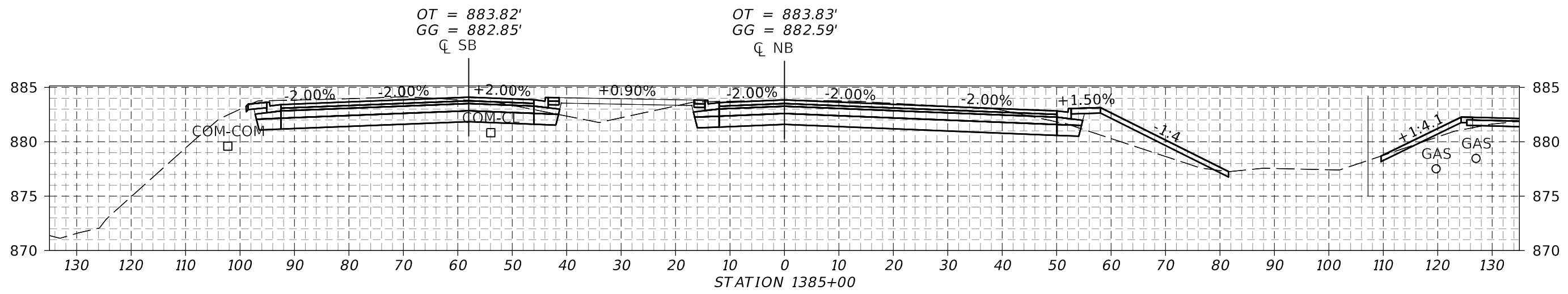
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1383+50.00 TO STATION 1384+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS87
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

LAST REVISION: / /

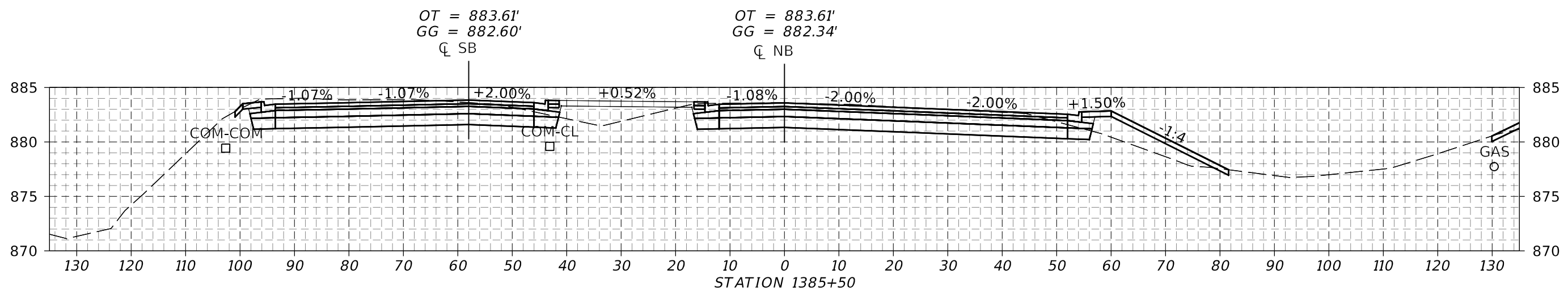
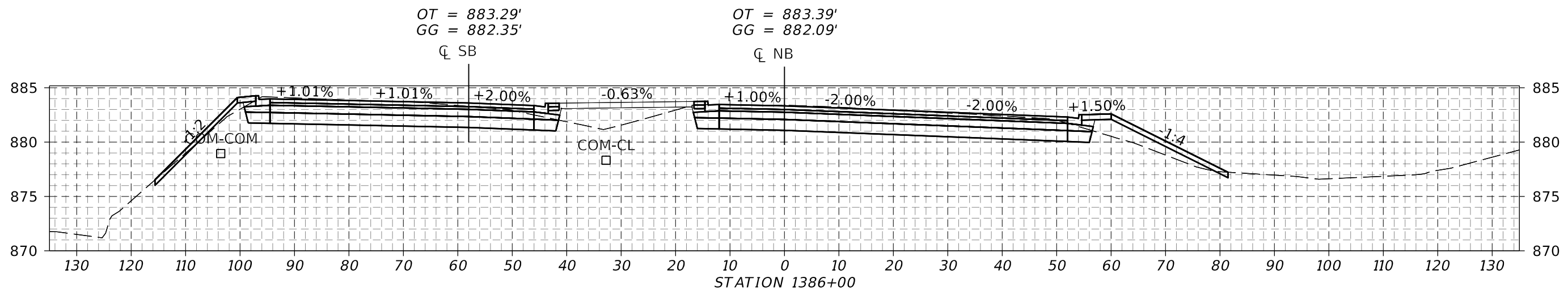
X-SECTIONS STATION 1384+50.00 TO STATION 1385+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS88

XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

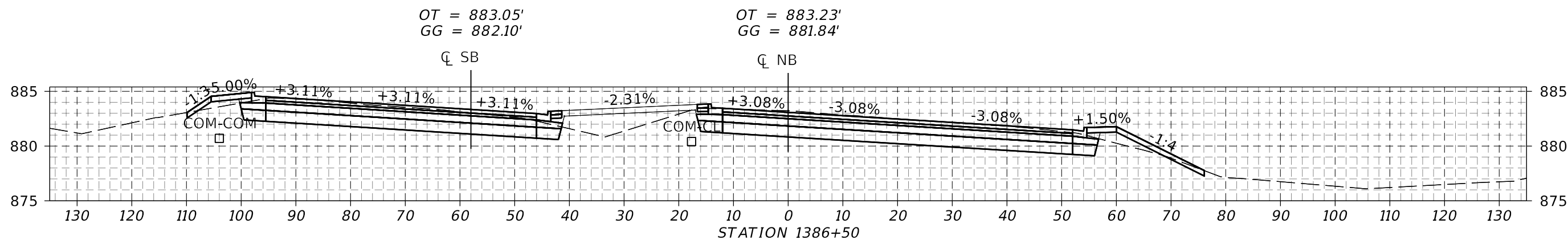
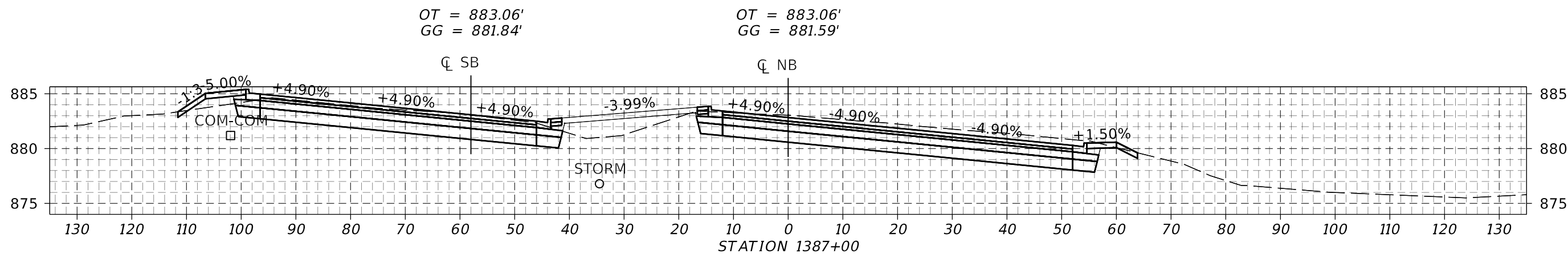
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 1385+50.00 TO STATION 1386+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS89
XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

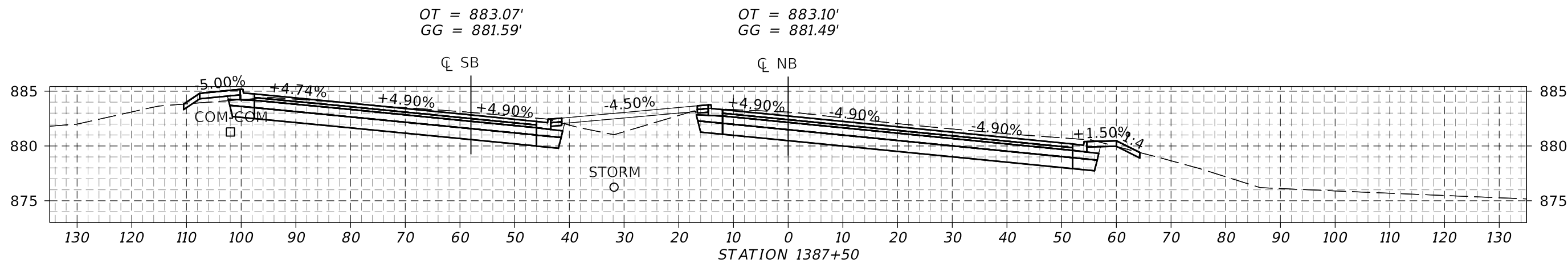
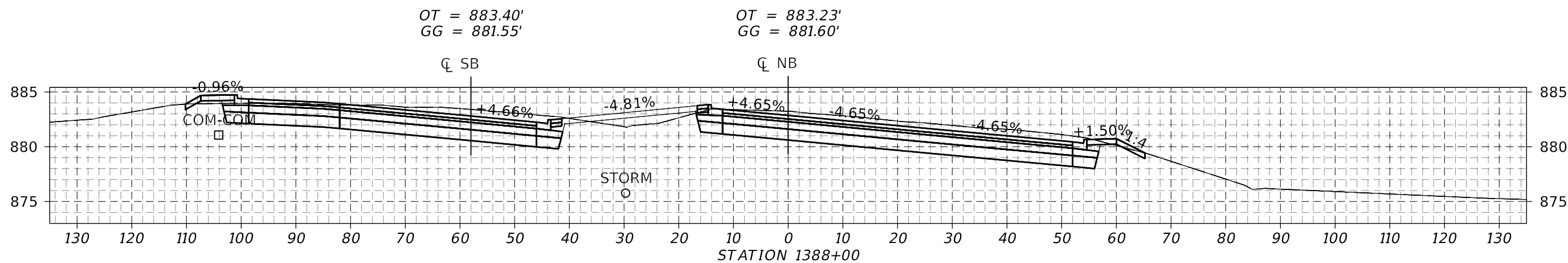
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1386+50.00 TO STATION 1387+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS90
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

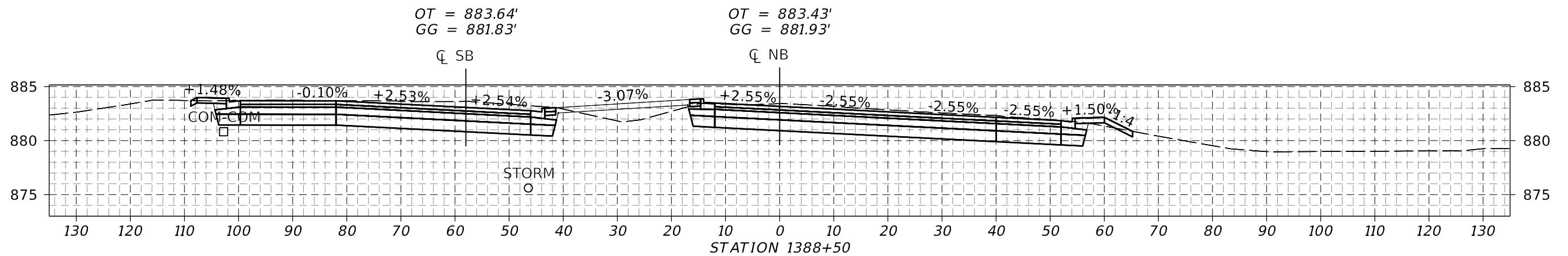
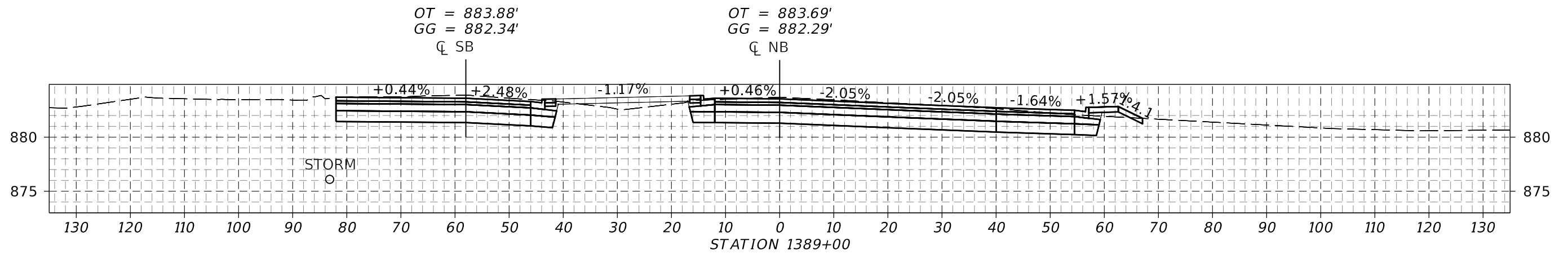
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1387+50.00 TO STATION 1388+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS91
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

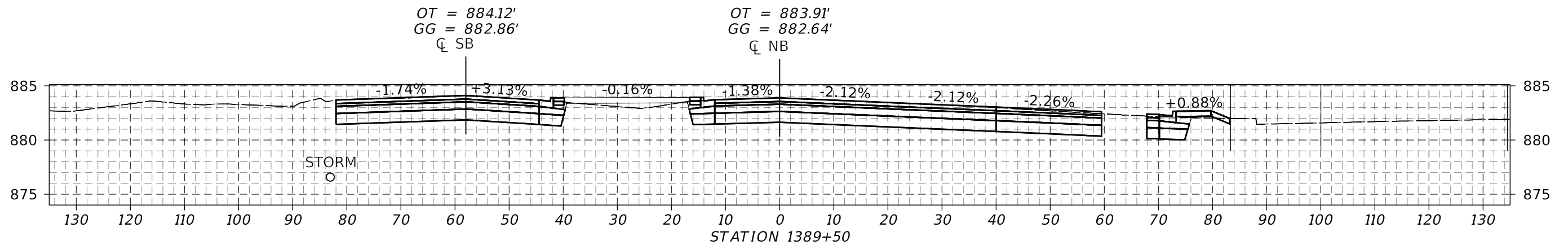
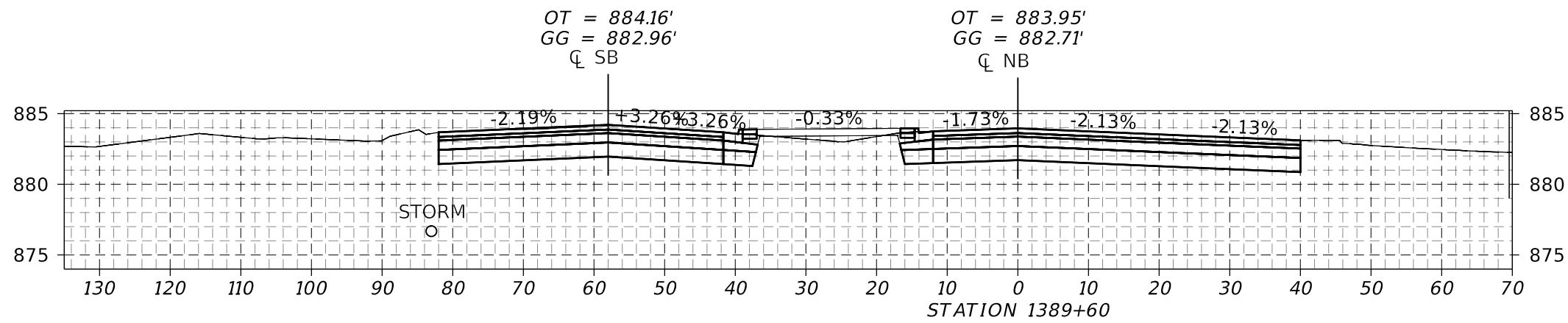
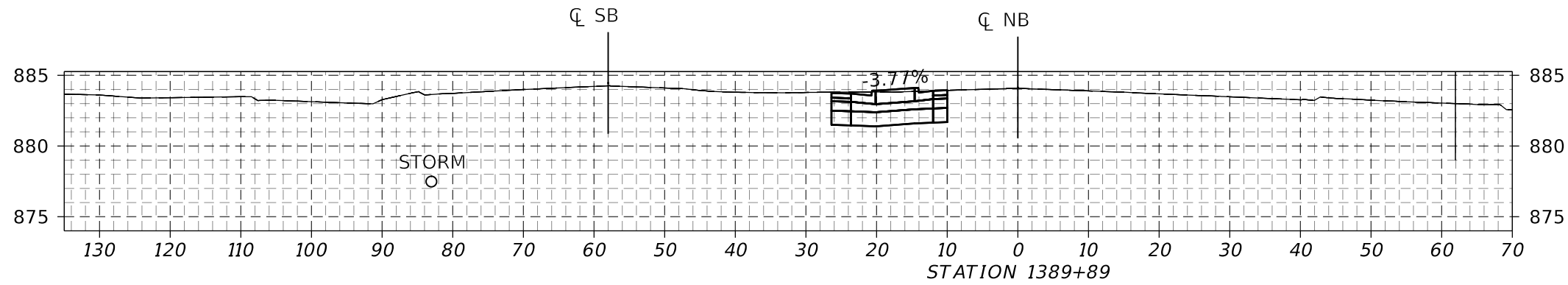
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 1388+50.00 TO STATION 1389+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS92
 XS176



CSAH 81 (BOTTINEAU BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

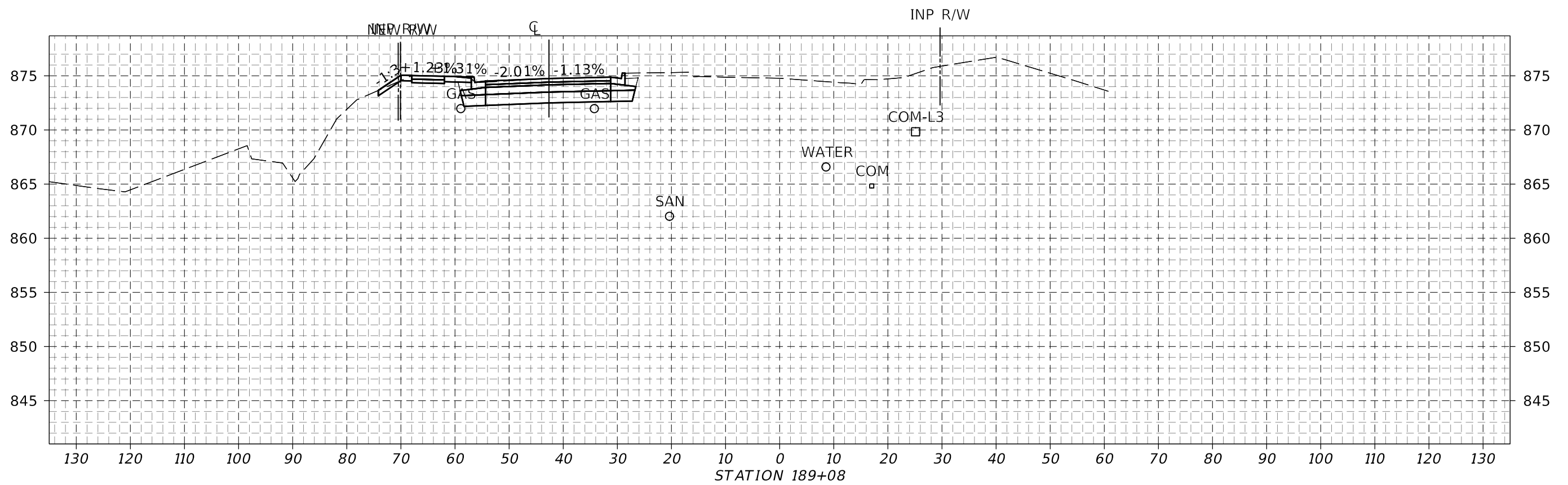
X-SECTIONS STATION 1389+50.00 TO STATION 1389+88.93

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS93
XS176

OT = 874.76'
 GG = 873.50'



CSAH 130 (BROOKLYN BLVD)

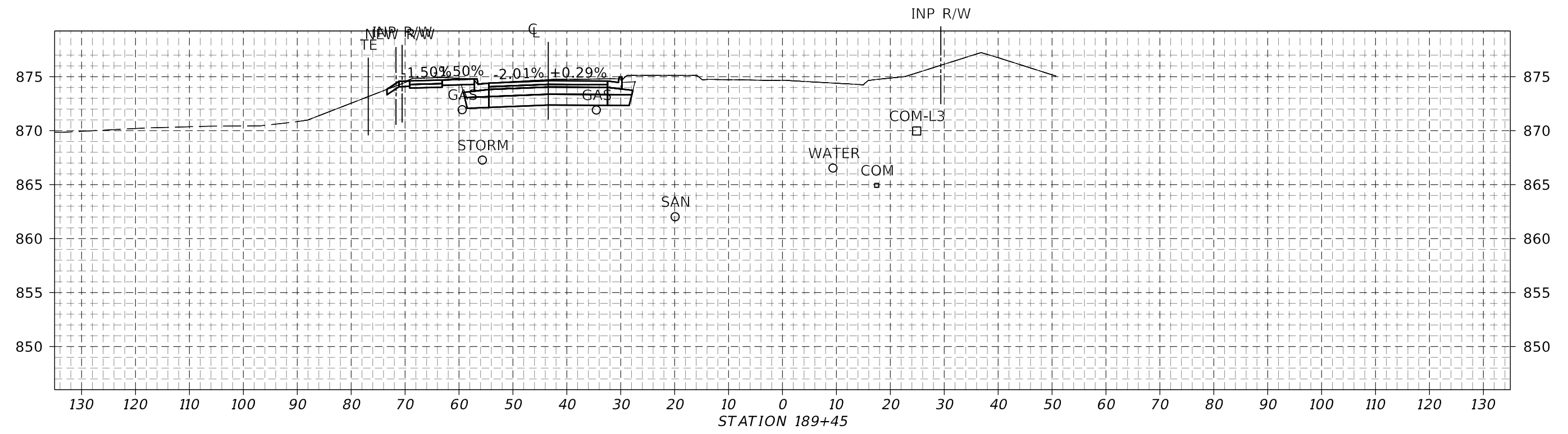


SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS	STATION 189+08.12 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS94 XS176

OT = 874.73'
 GG = 873.38'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

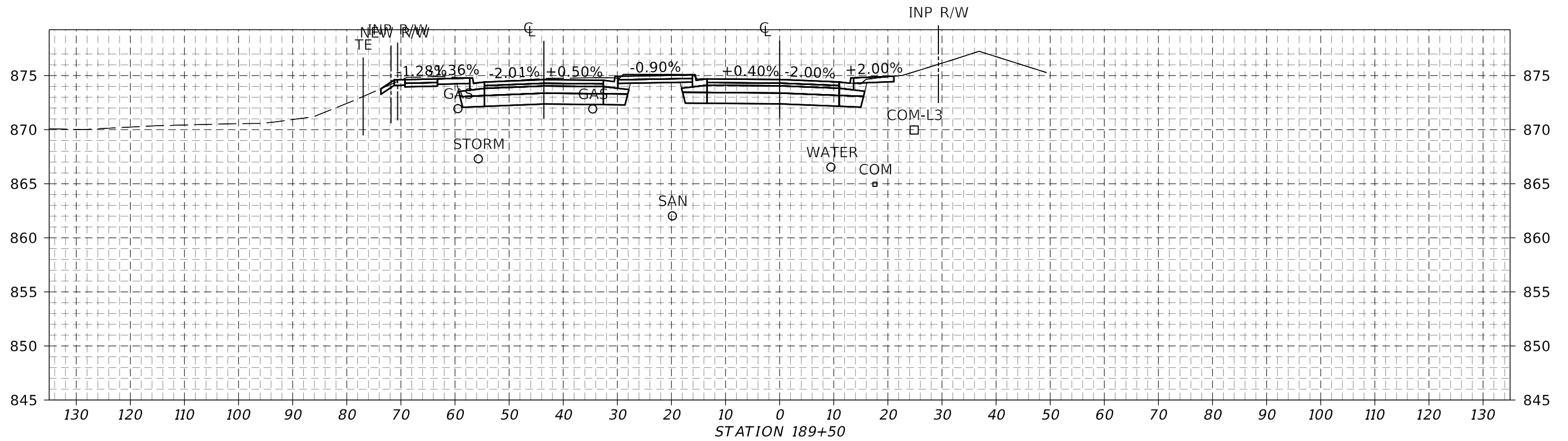
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 189+45.46 TO STATION
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS95
 XS176

OT = 874.73'
GG = 873.38'

OT = 874.67'
GG = 873.39'



CSAH 130 (BROOKLYN BLVD)



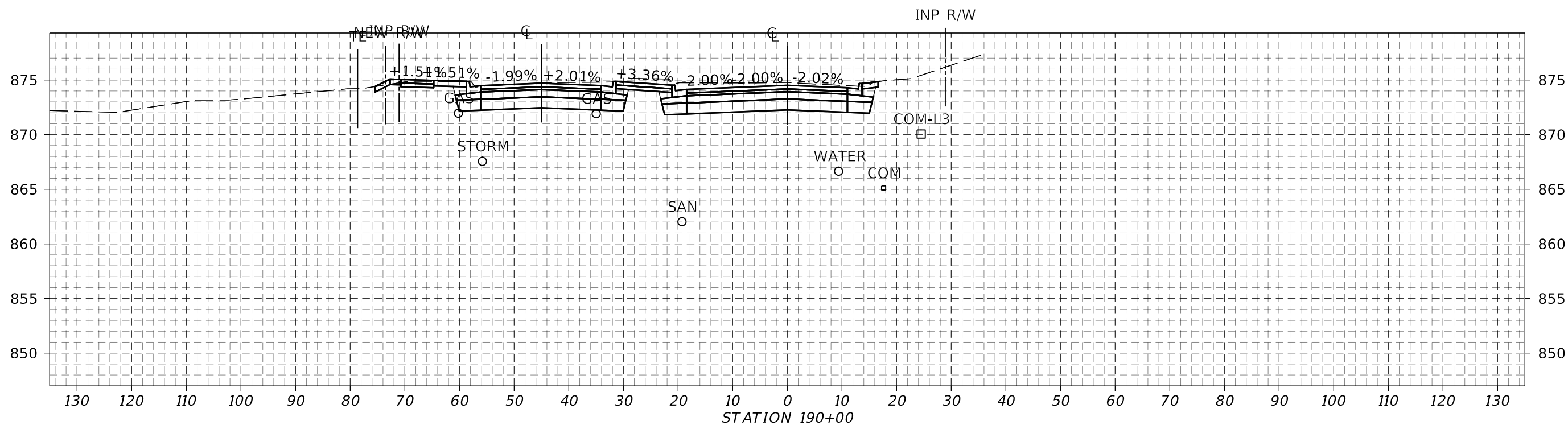
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 189+50.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS96 XS176

OT = 874.73'
GG = 873.47'

OT = 874.78'
GG = 873.27'



CSAH 130 (BROOKLYN BLVD)



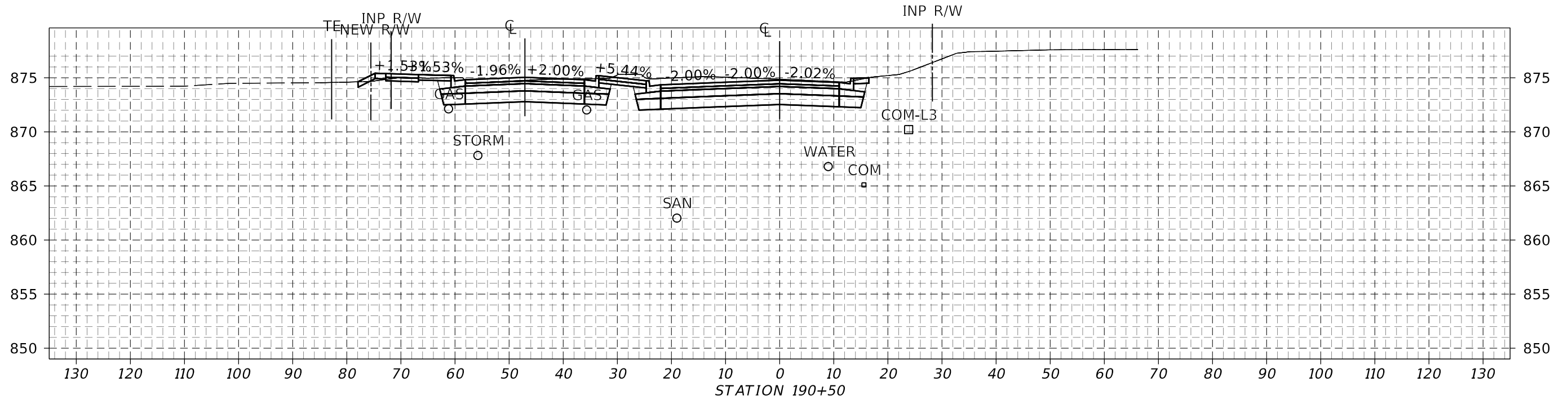
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 190+00.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS97 XS176

OT = 874.77'
GG = 873.79'

OT = 874.87'
GG = 873.54'



CSAH 130 (BROOKLYN BLVD)



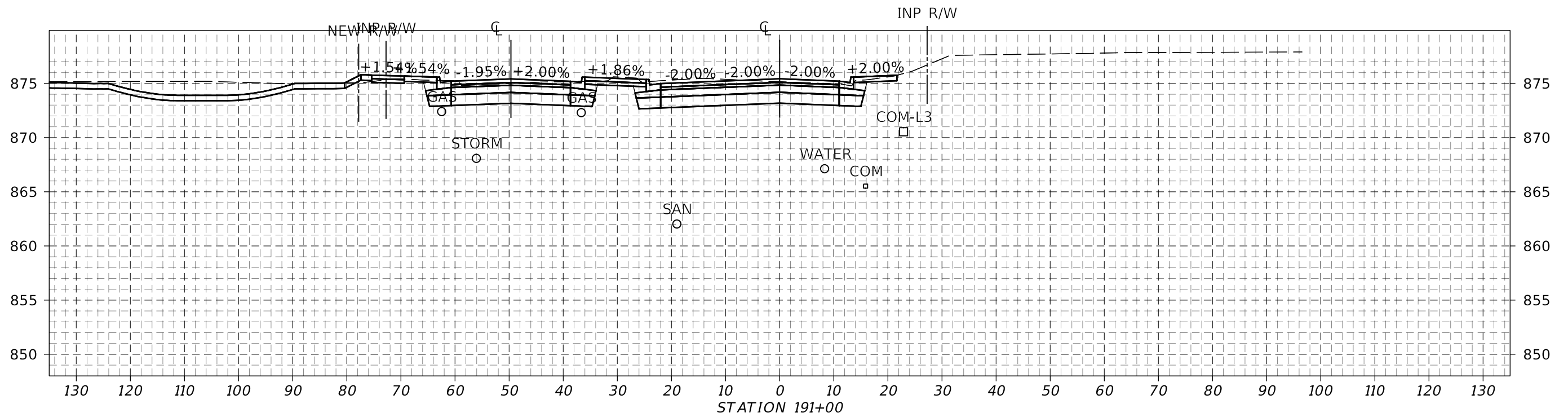
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 190+50.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS98 XS176

OT = 875.01'
GG = 874.17'

OT = 875.16'
GG = 874.18'



CSAH 130 (BROOKLYN BLVD)



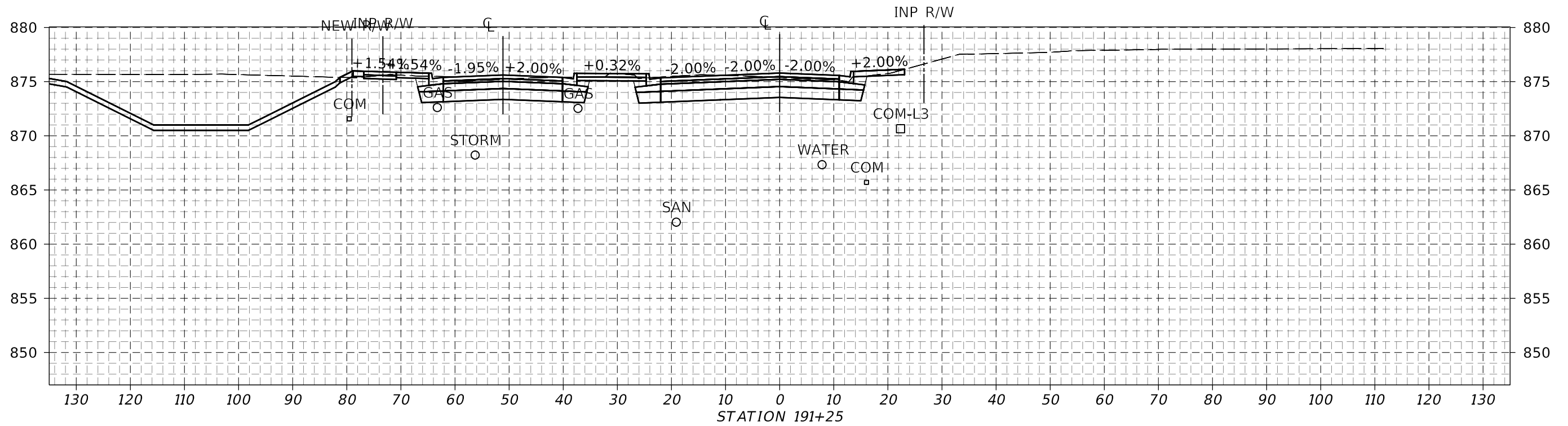
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 191+00.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS99 XS176

OT = 875.22'
GG = 874.36'

OT = 875.40'
GG = 874.54'



CSAH 130 (BROOKLYN BLVD)



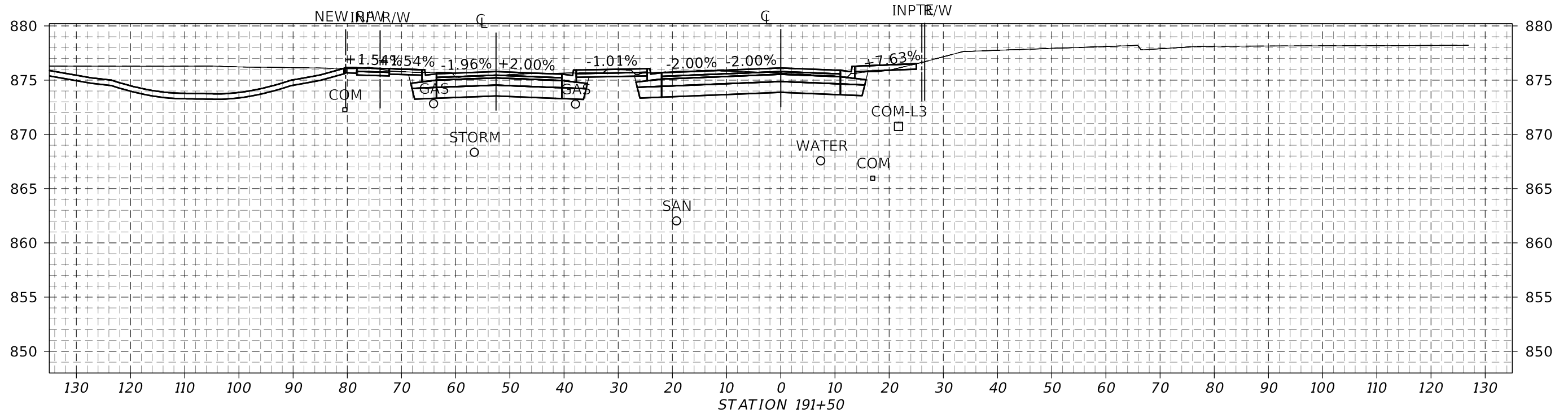
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 191+25.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS100 XS176

OT = 875.45'
GG = 874.55'

OT = 875.66'
GG = 874.88'



CSAH 130 (BROOKLYN BLVD)



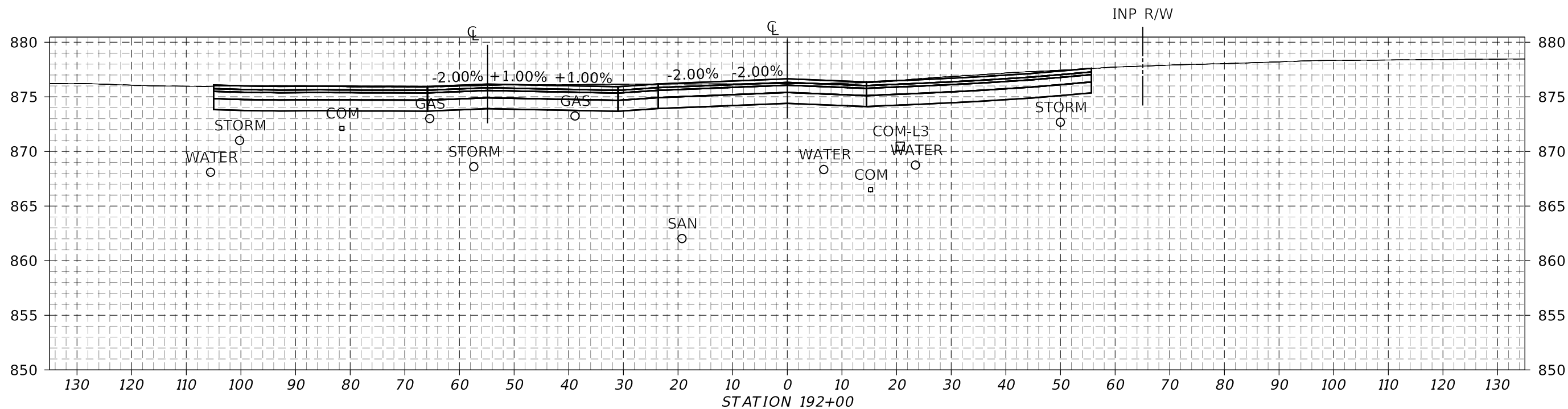
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 191+50.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS101 XS176

OT = 876.05'
GG = 874.92'

OT = 876.19'
GG = 875.40'



CSAH 130 (BROOKLYN BLVD)

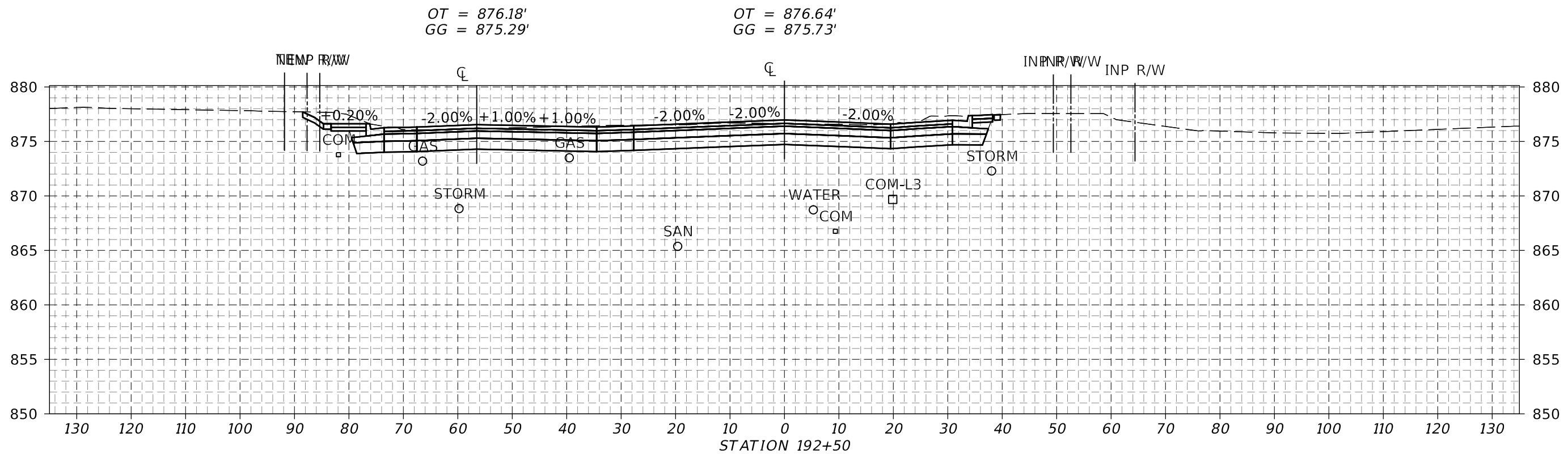


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 192+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS102
XS176



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

LAST REVISION: / /

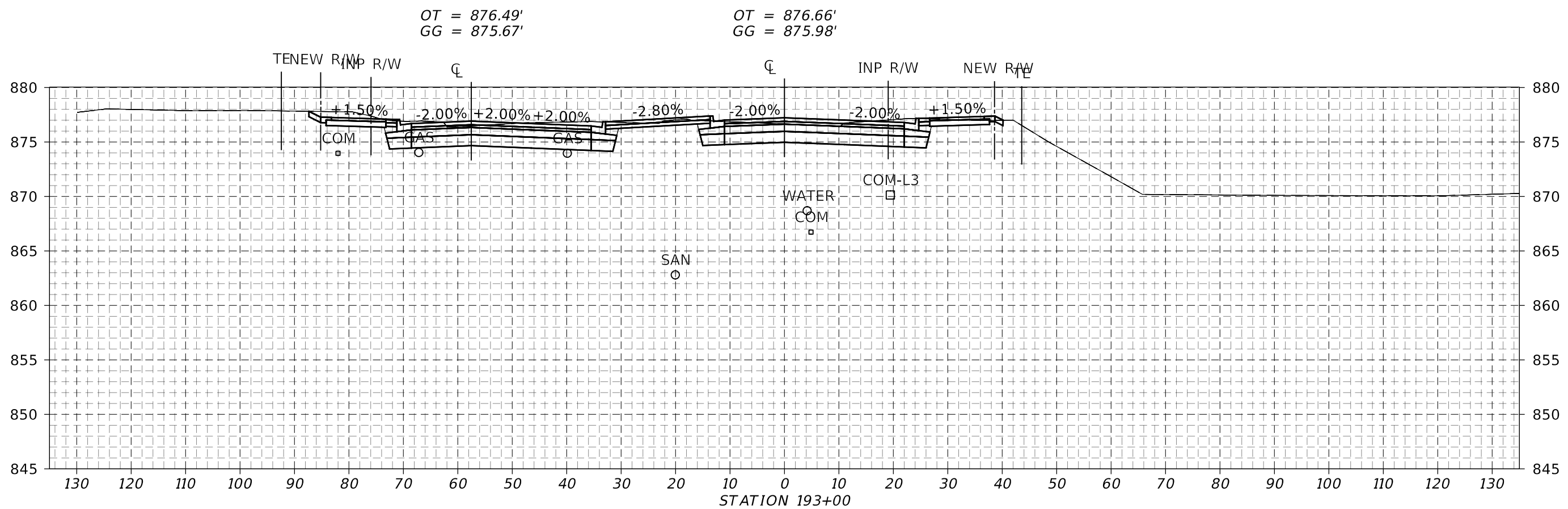
X-SECTIONS STATION 192+50.00 TO STATION

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS103

XS176



CSAH 130 (BROOKLYN BLVD)

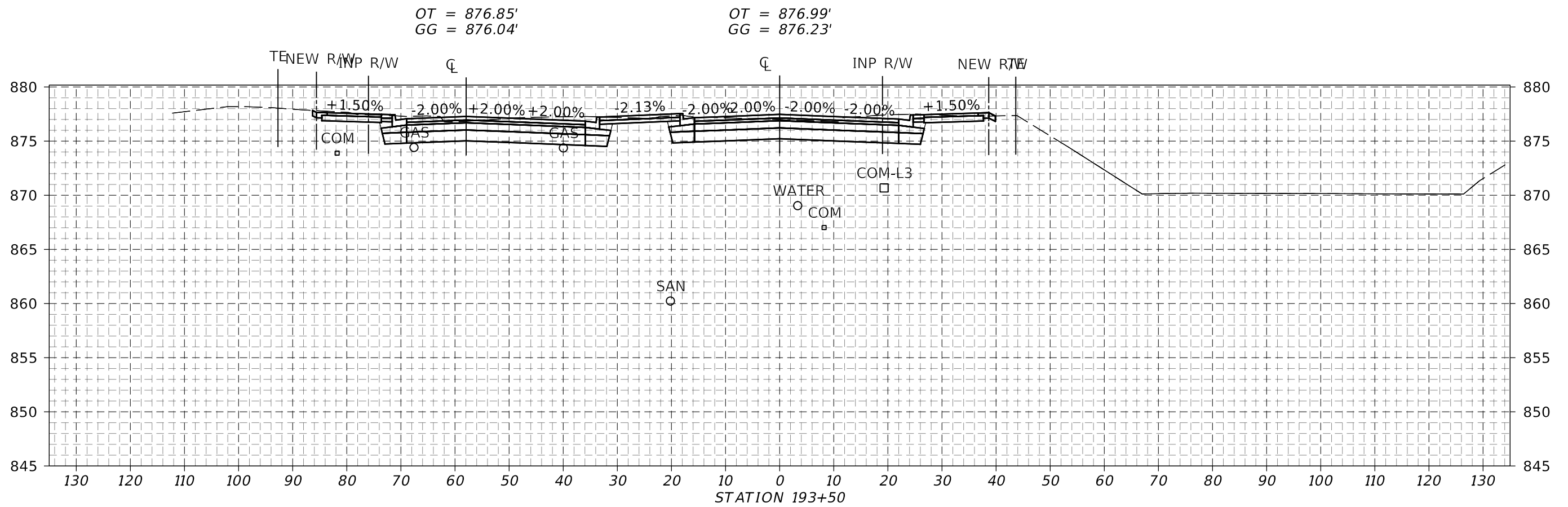


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 193+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS104
XS176



CSAH 130 (BROOKLYN BLVD)

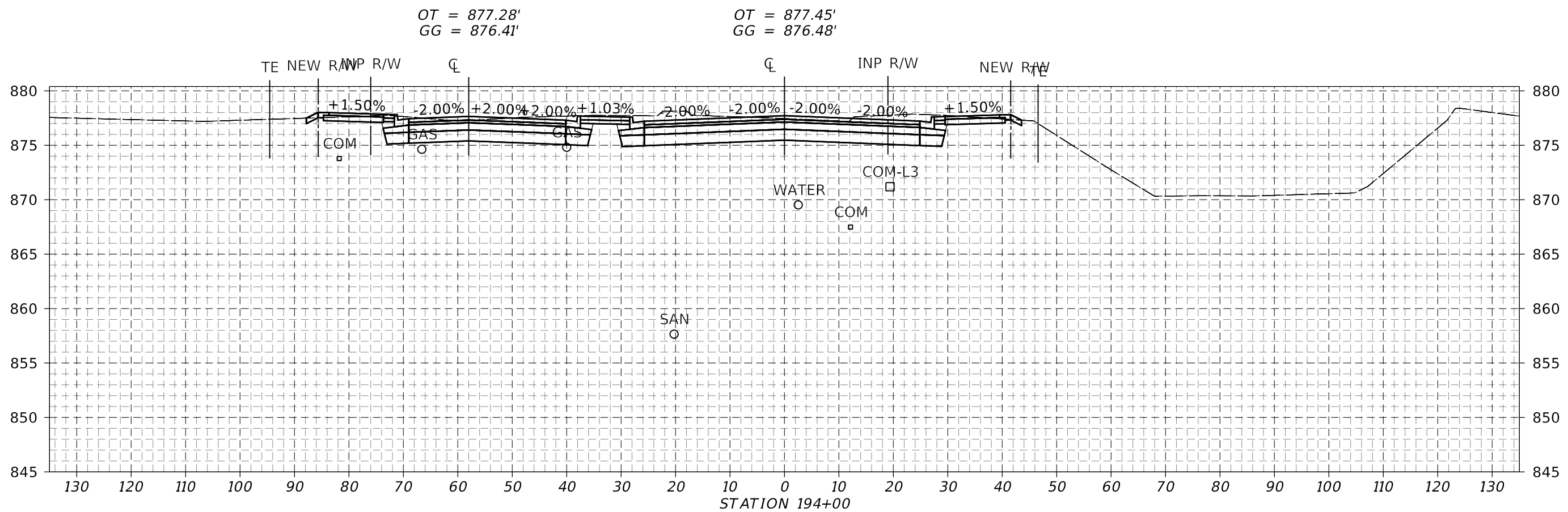


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 193+50.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS105
XS176



CSAH 130 (BROOKLYN BLVD)

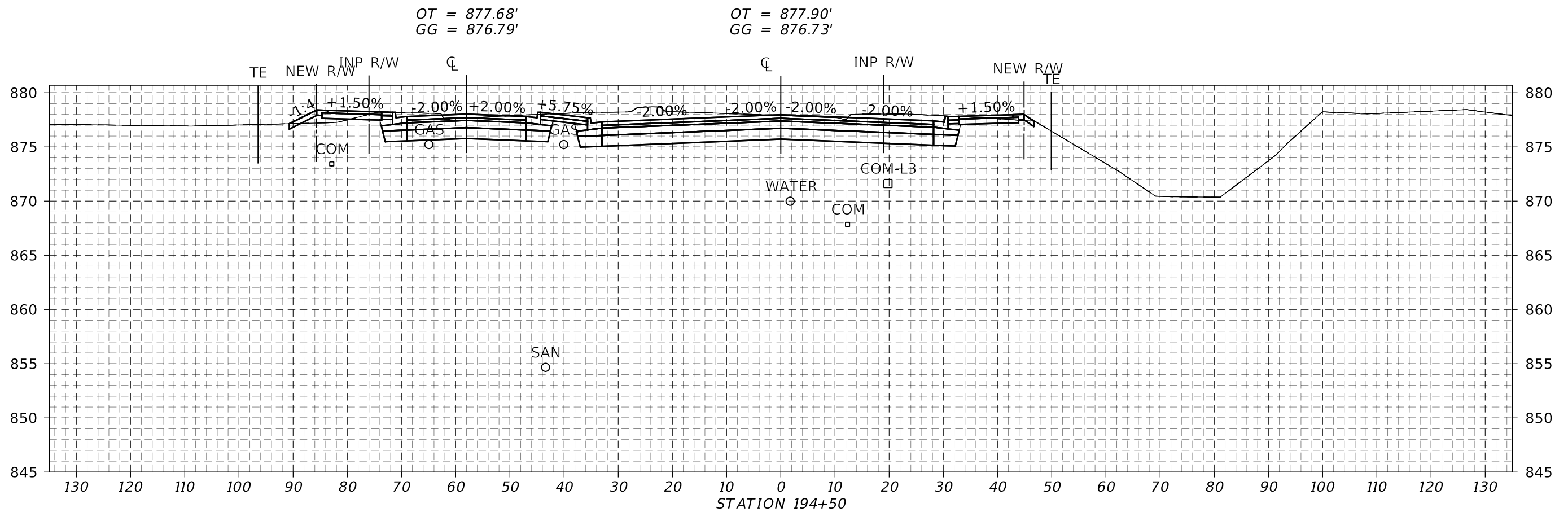


SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 194+00.00 TO STATION
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS106
 XS176



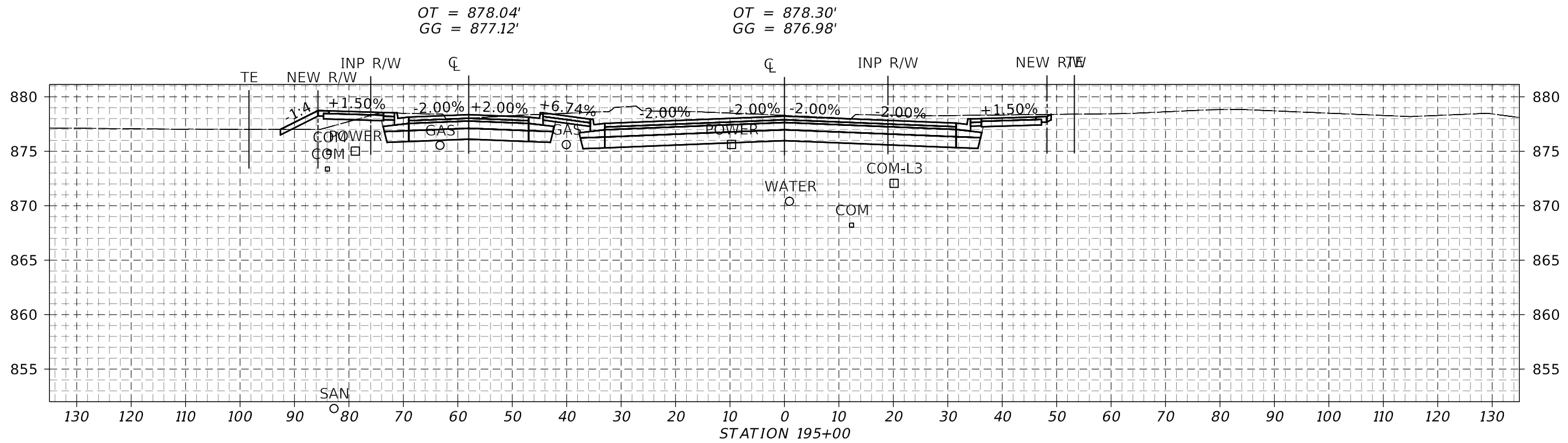
CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 194+50.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS107 XS176



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

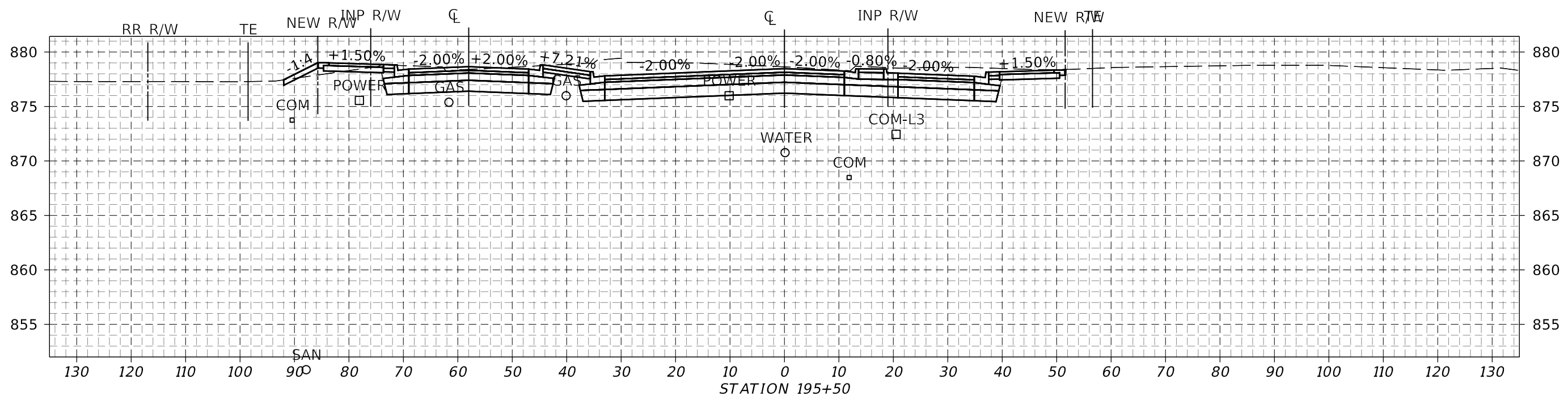
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 195+00.00 TO STATION
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS108
 XS176

OT = 878.41'
GG = 877.41'

OT = 878.64'
GG = 877.22'



CSAH 130 (BROOKLYN BLVD)

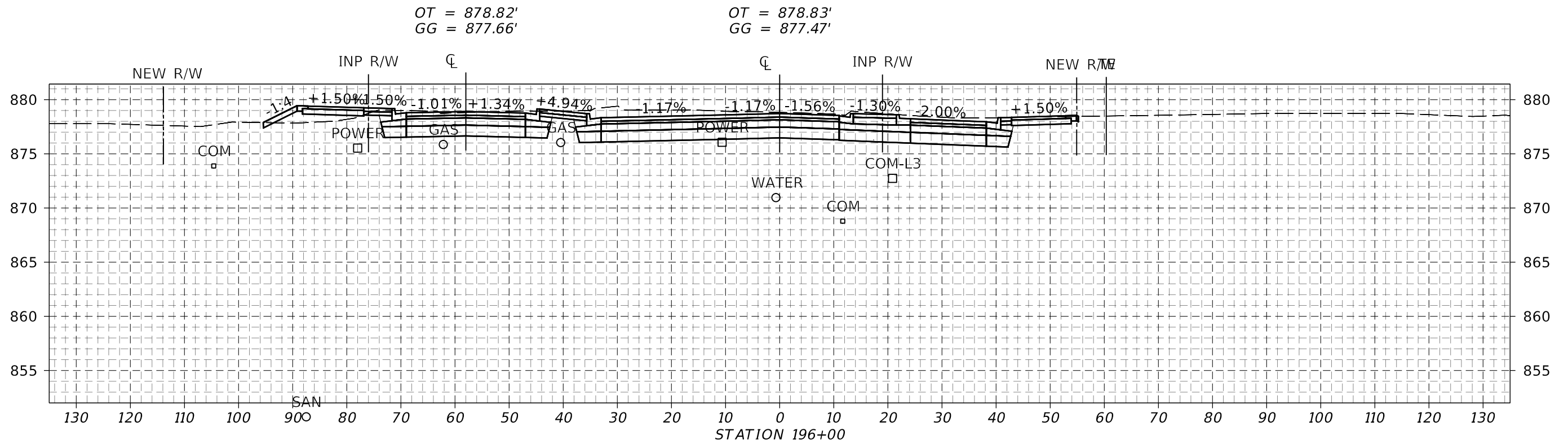


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 195+50.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS109
XS176



CSAH 130 (BROOKLYN BLVD)

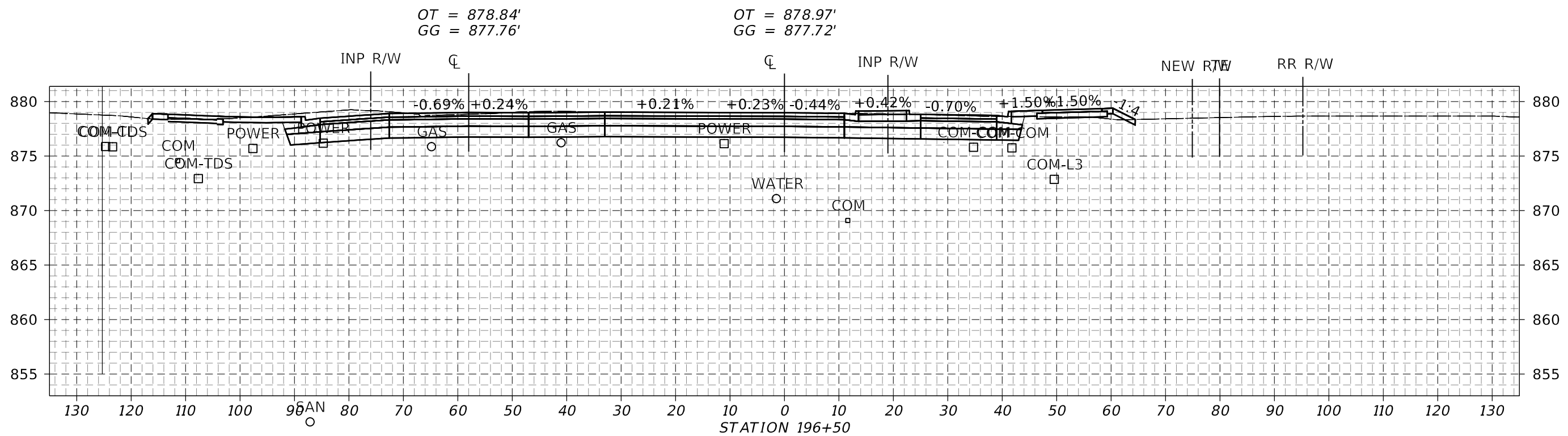


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 196+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS110
XS176



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

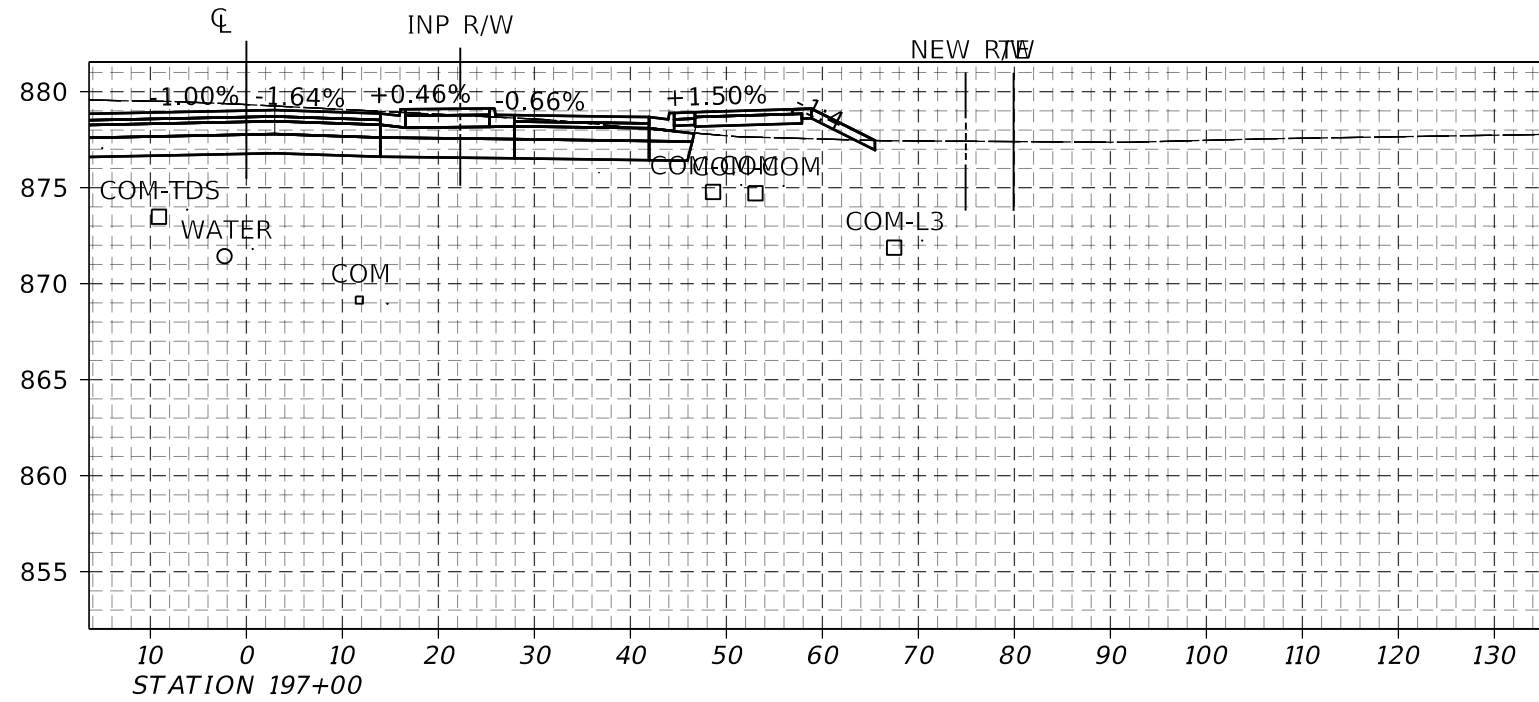
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 196+50.00 TO STATION

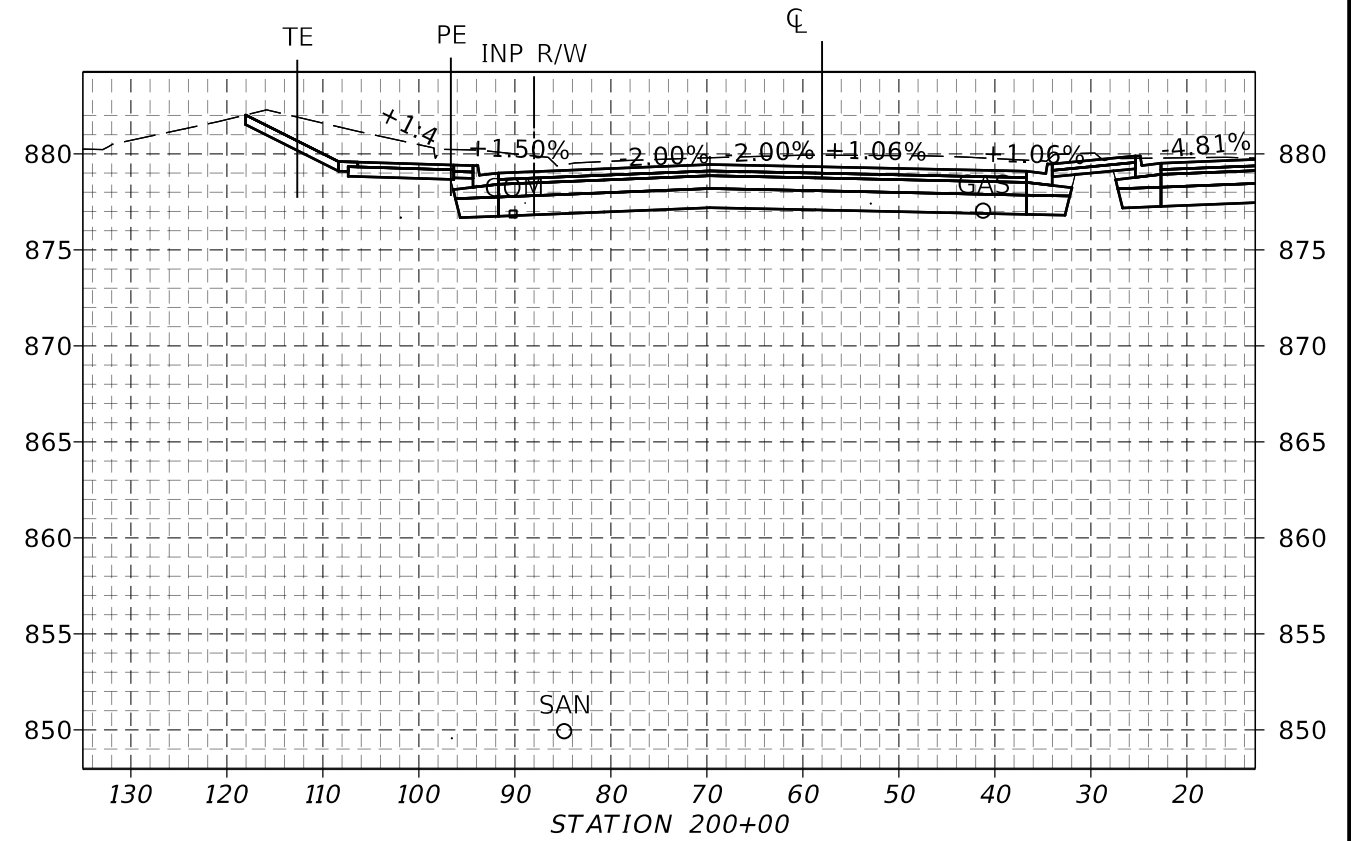
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS111
 XS176

OT = 879.25'
GG = 877.80'



OT = 879.81'
GG = 878.20'



CSAH 130 (BROOKLYN BLVD)



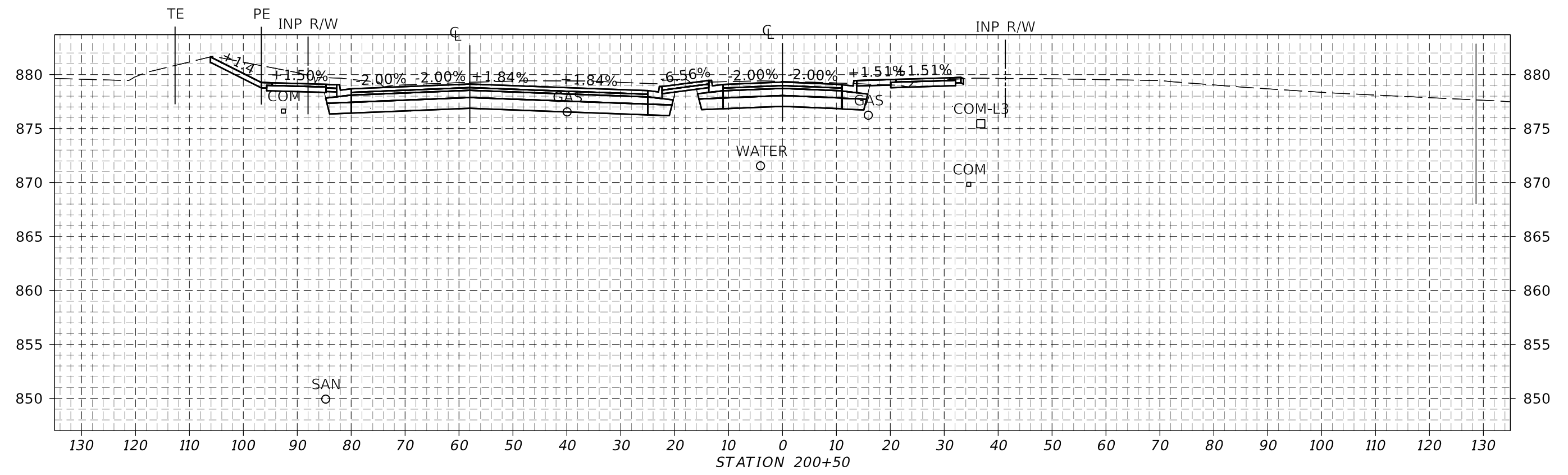
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 197+00.00 TO STATION 200+00.00	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS112 XS176

OT = 879.29'
GG = 877.88'

OT = 879.37'
GG = 878.06'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

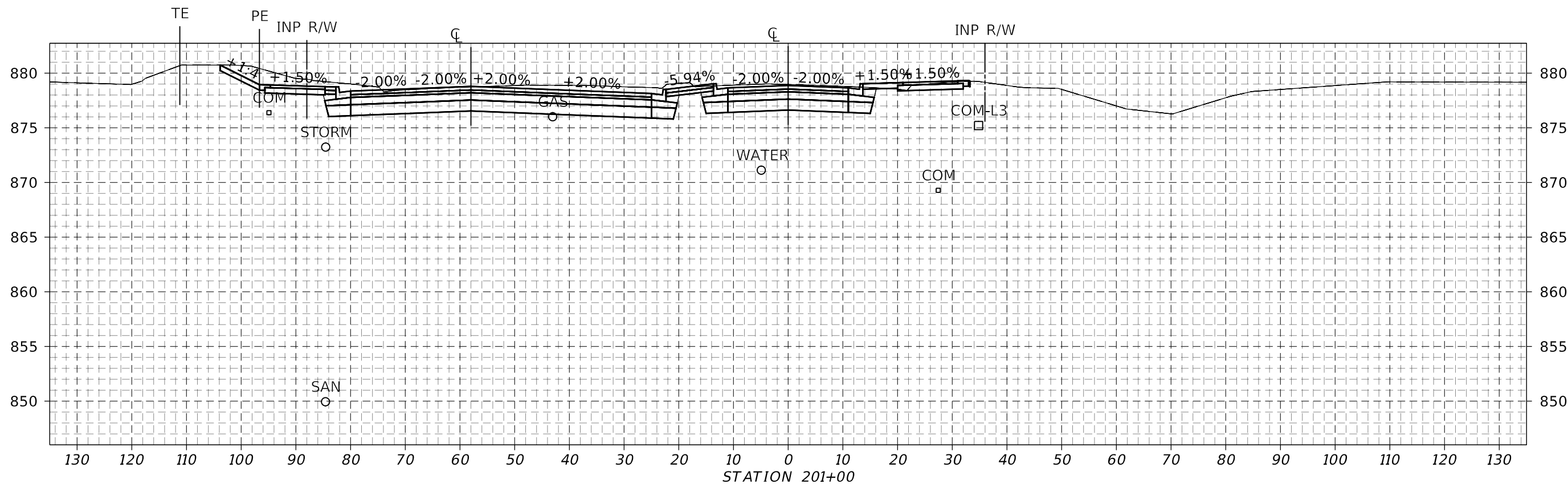
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 200+50.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS113
XS176

OT = 878.75'
GG = 877.55'

OT = 878.96'
GG = 877.63'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

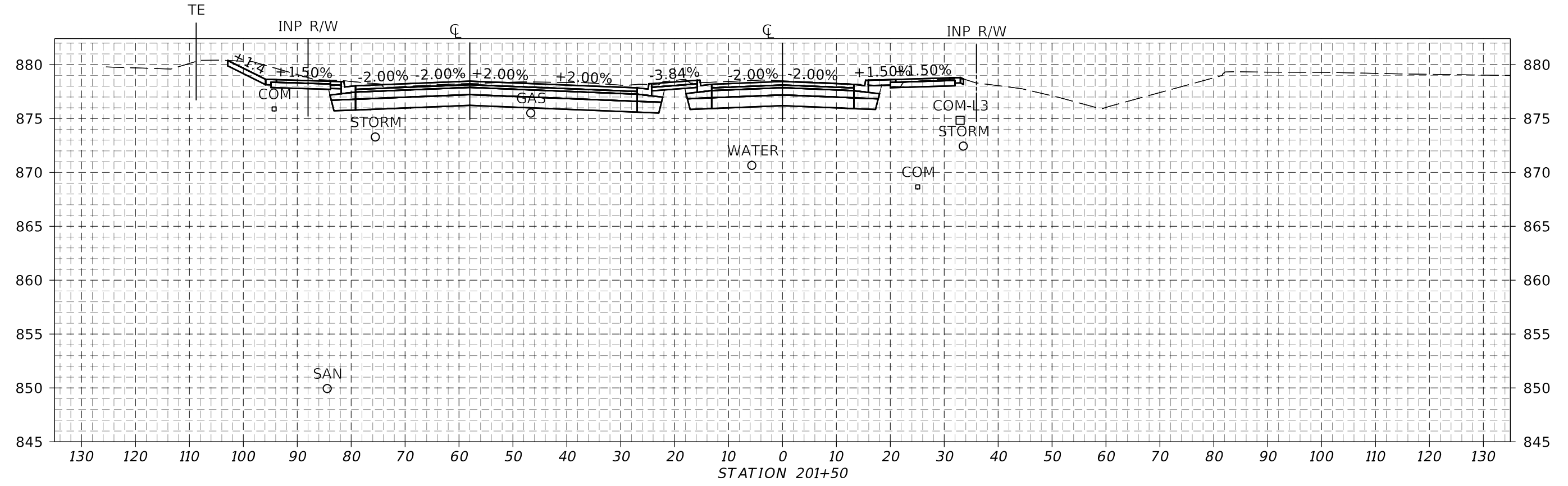
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 201+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS114
XS176

OT = 878.25'
GG = 877.23'

OT = 878.51'
GG = 877.19'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

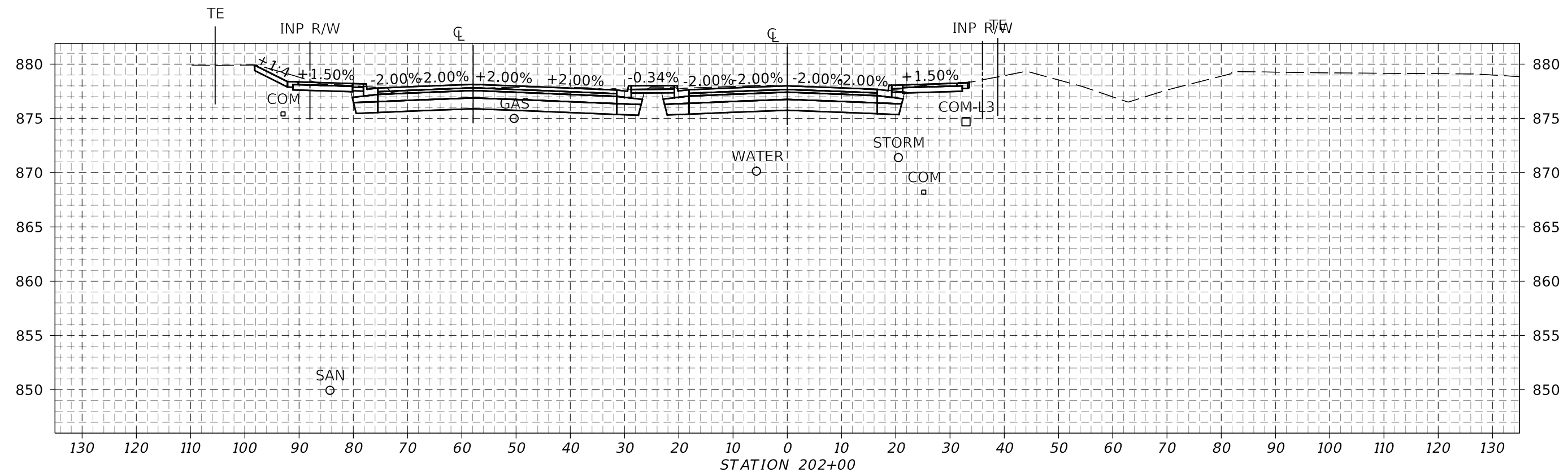
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 201+50.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS115
XS176

OT = 877.78'
GG = 876.90'

OT = 877.98'
GG = 876.76'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

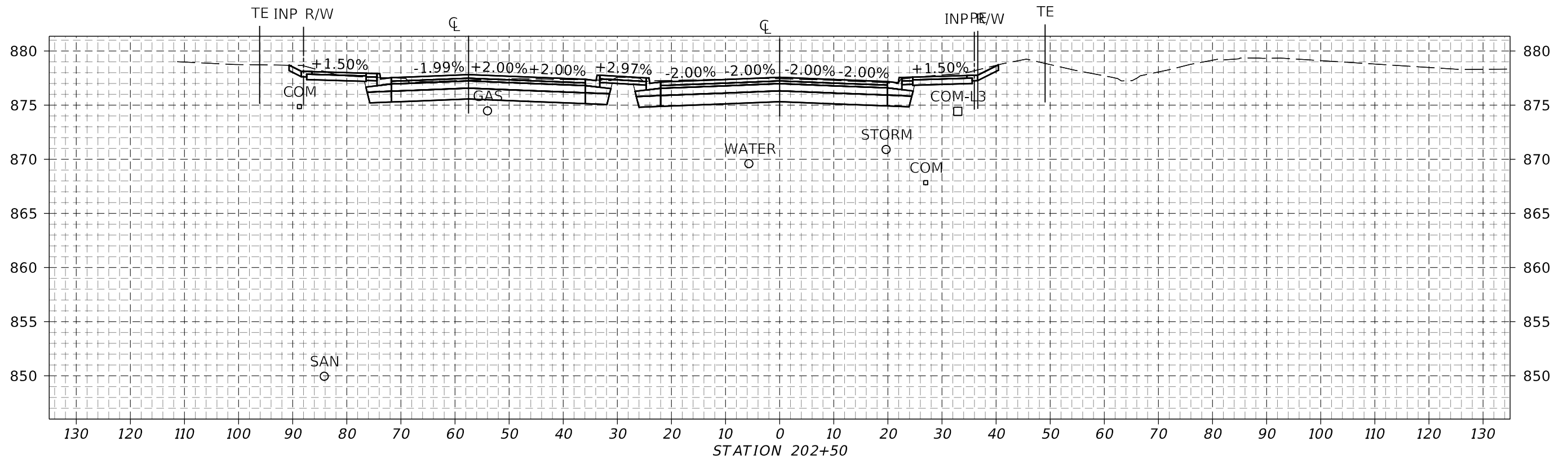
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 202+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS116
XS176

OT = 877.29'
GG = 876.58'

OT = 877.43'
GG = 876.33'



CSAH 130 (BROOKLYN BLVD)



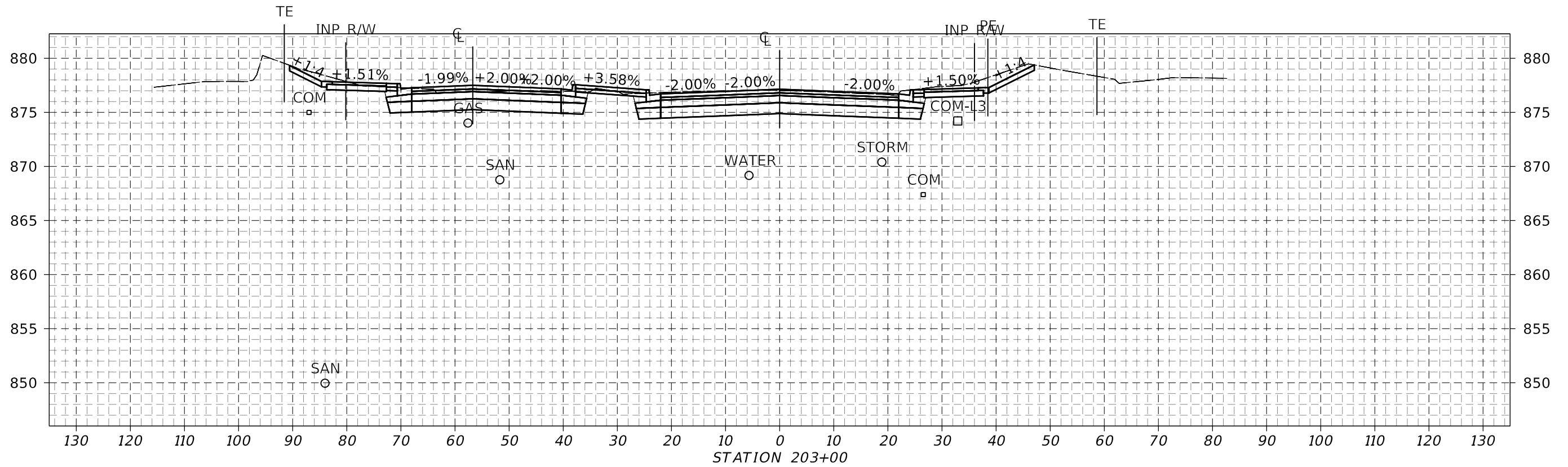
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 202+50.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS117 XS176

OT = 876.89'
GG = 876.25'

OT = 877.02'
GG = 875.90'



CSAH 130 (BROOKLYN BLVD)



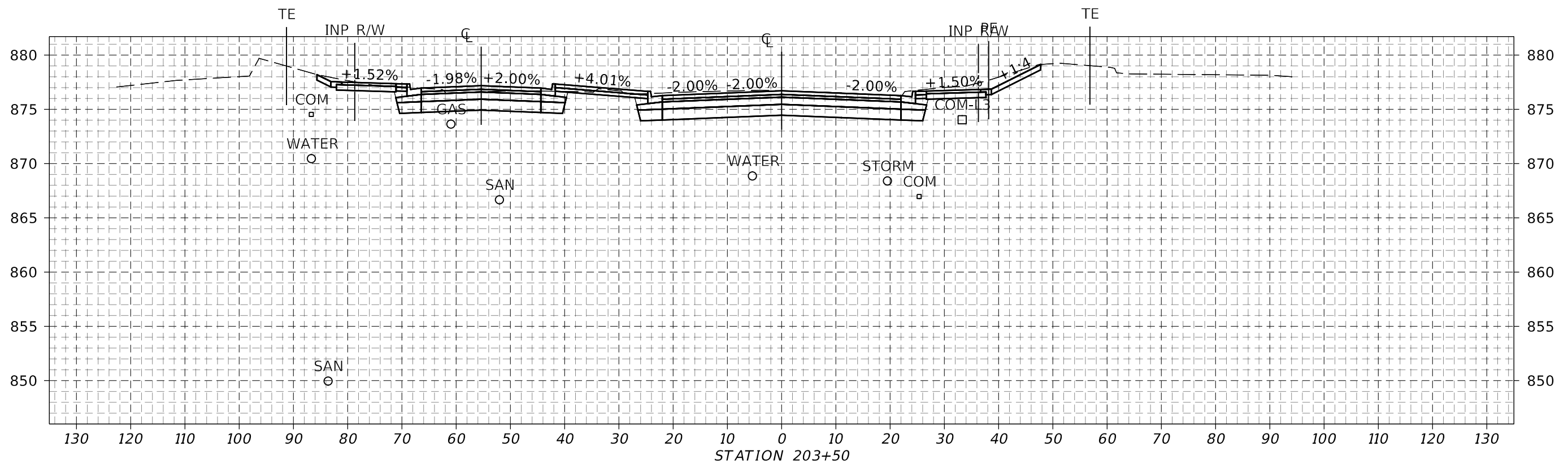
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 203+00.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS118 XS176

OT = 876.63'
GG = 875.93'

OT = 876.71'
GG = 875.46'



CSAH 130 (BROOKLYN BLVD)



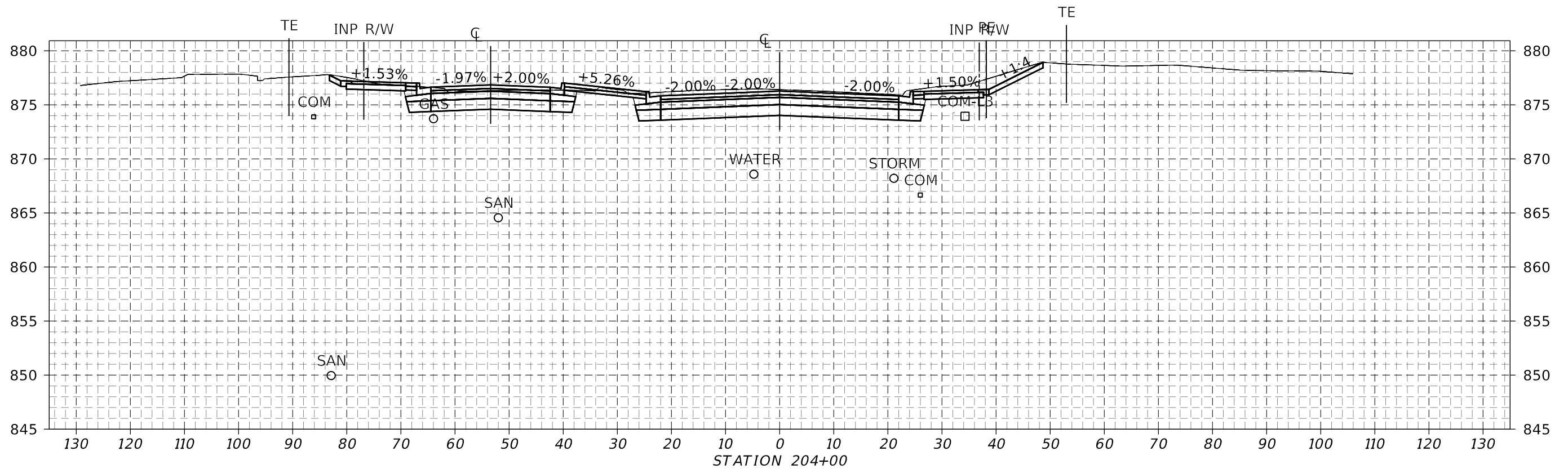
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 203+50.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS119 XS176

OT = 876.31'
GG = 875.61'

OT = 876.41'
GG = 875.03'



CSAH 130 (BROOKLYN BLVD)



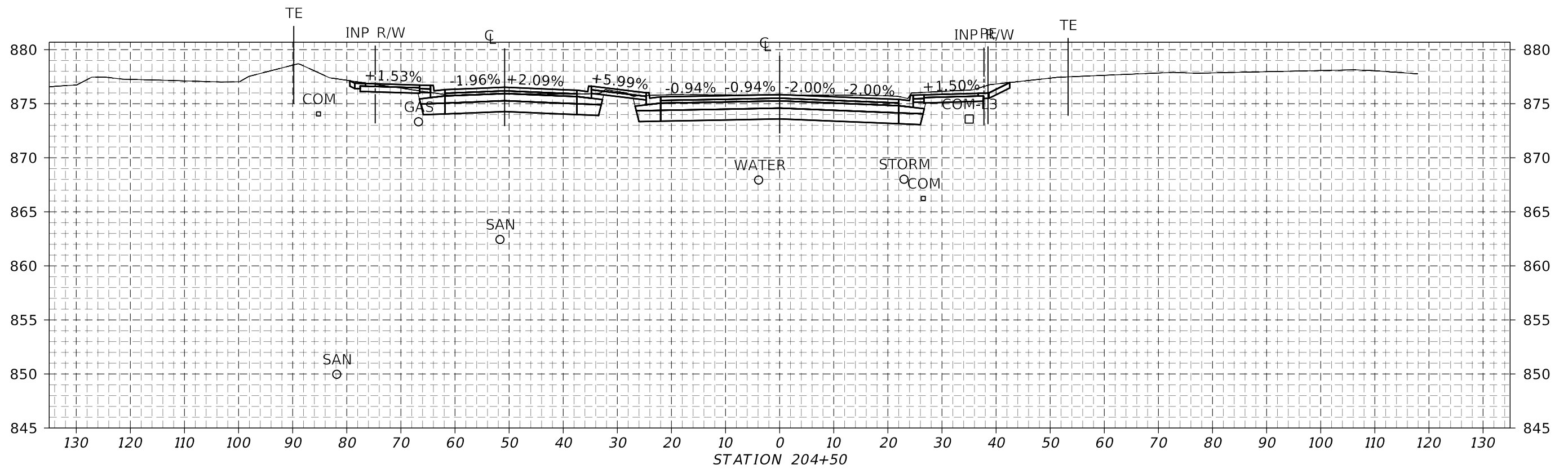
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 204+00.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS120 XS176

OT = 875.89'
GG = 875.28'

OT = 875.82'
GG = 874.60'



CSAH 130 (BROOKLYN BLVD)



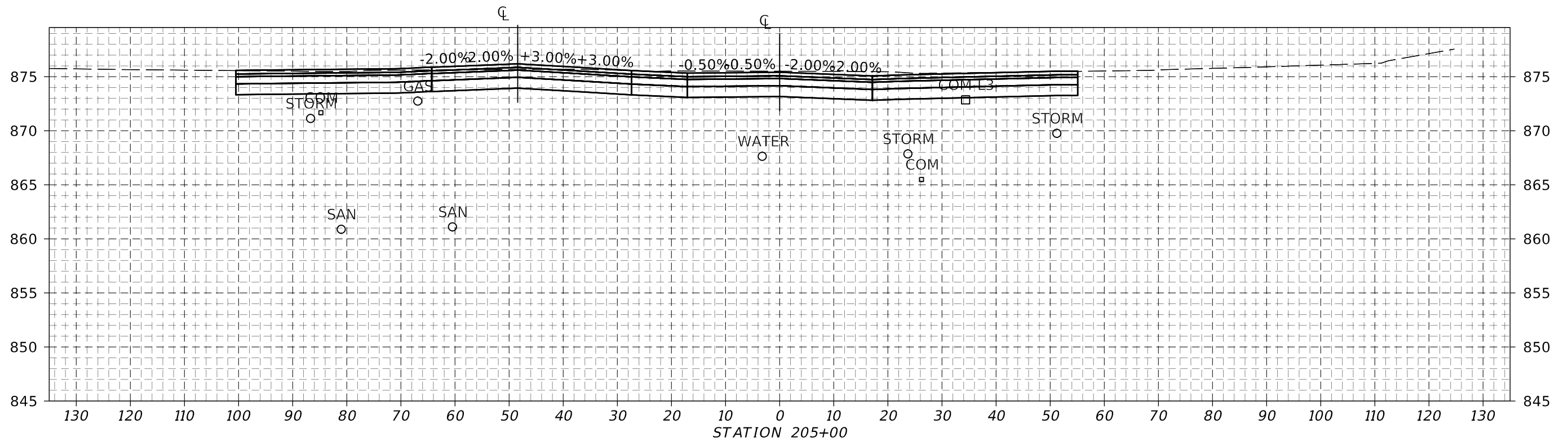
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 204+50.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS121 XS176

OT = 875.67'
GG = 874.95'

OT = 875.52'
GG = 874.17'



CSAH 130 (BROOKLYN BLVD)



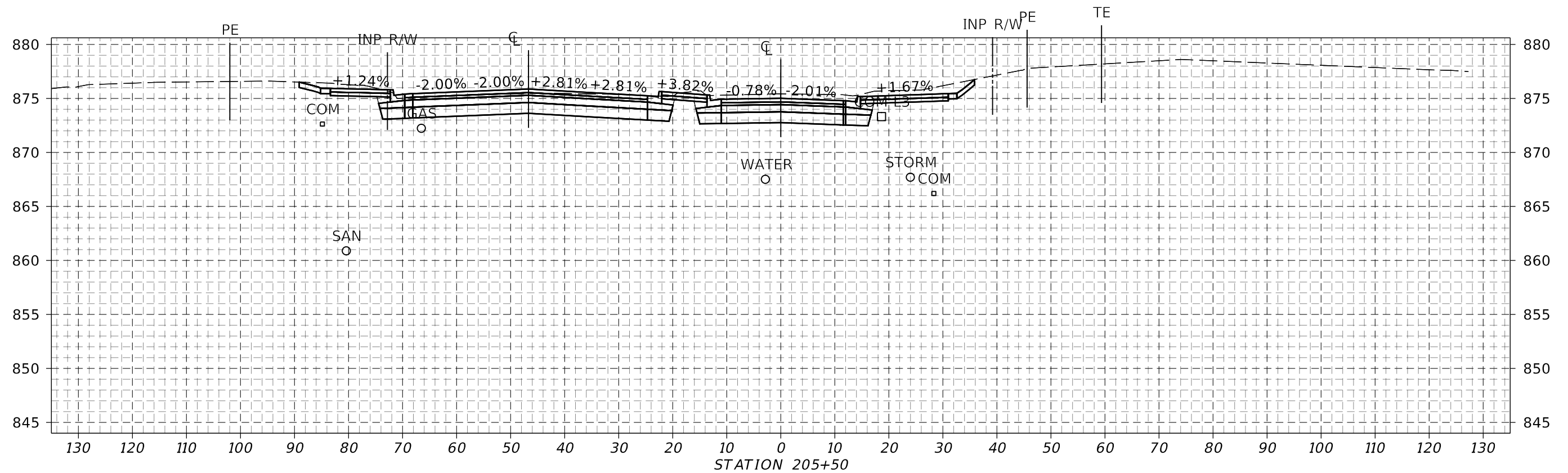
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 205+00.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS122 XS176

OT = 875.47'
GG = 874.63'

OT = 875.42'
GG = 873.77'



CSAH 130 (BROOKLYN BLVD)



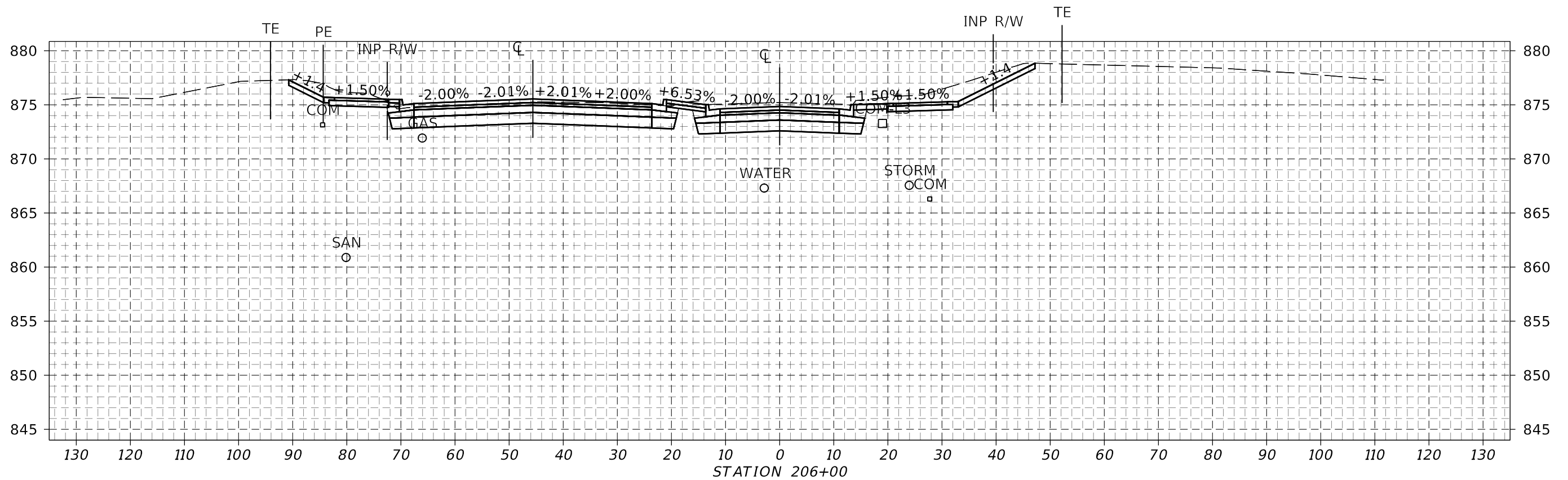
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 205+50.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS123 XS176

OT = 875.24'
GG = 874.30'

OT = 875.20'
GG = 873.61'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

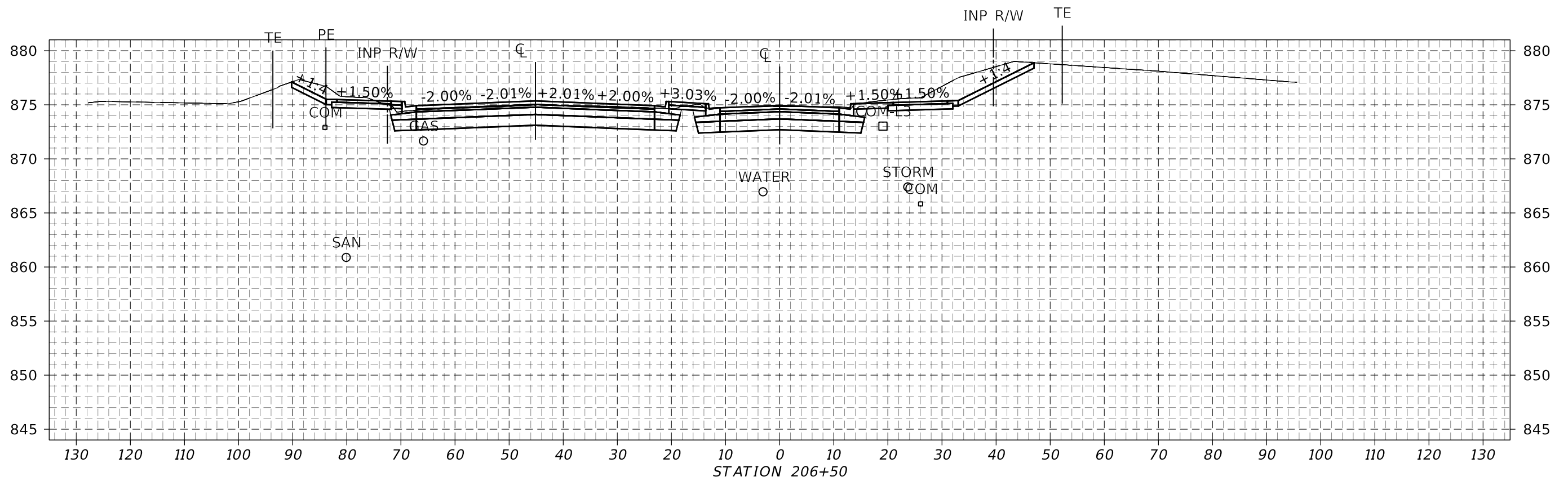
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 206+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS124
XS176

OT = 874.98'
GG = 874.12'

OT = 874.85'
GG = 873.69'



CSAH 130 (BROOKLYN BLVD)



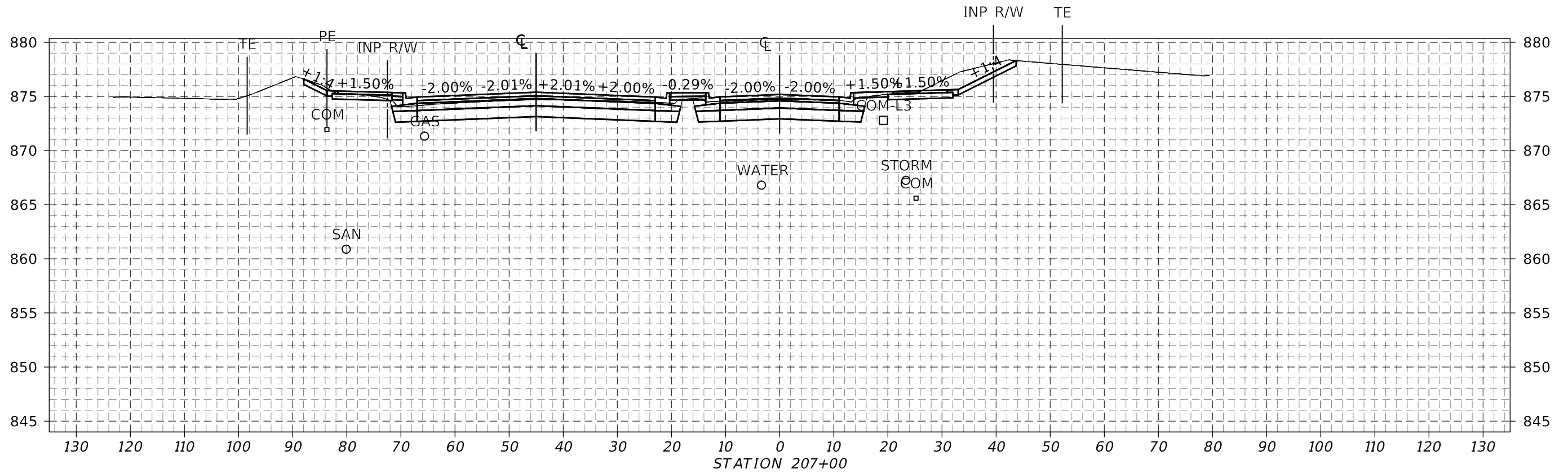
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 206+50.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS125 XS176

OT = 874.72'
GG = 874.14'

OT = 874.72'
GG = 873.94'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

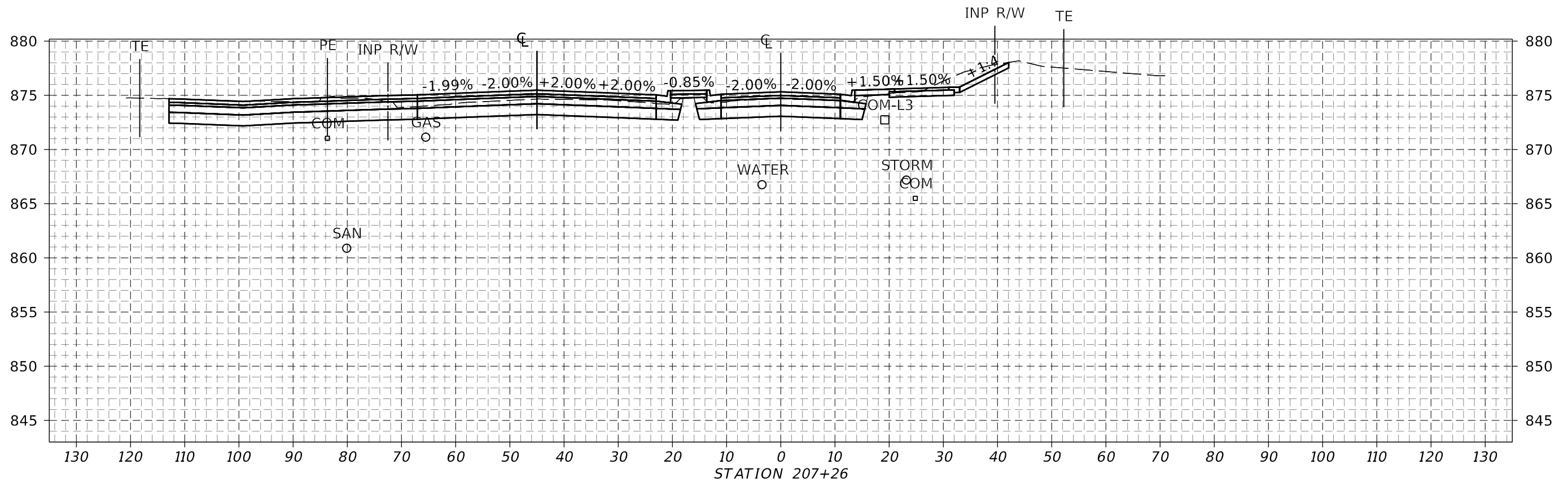
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 207+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS126
XS176

OT = 874.66'
GG = 874.23'

OT = 874.69'
GG = 874.07'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

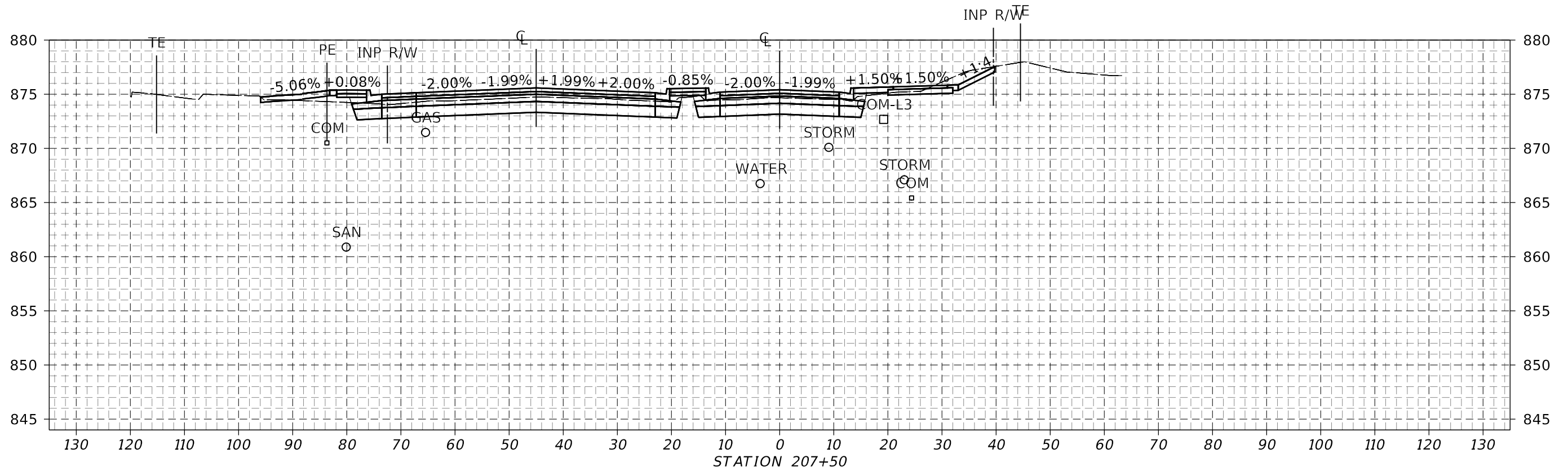
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 207+26.12 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS127
XS176

OT = 874.75'
GG = 874.33'

OT = 874.68'
GG = 874.17'



CSAH 130 (BROOKLYN BLVD)



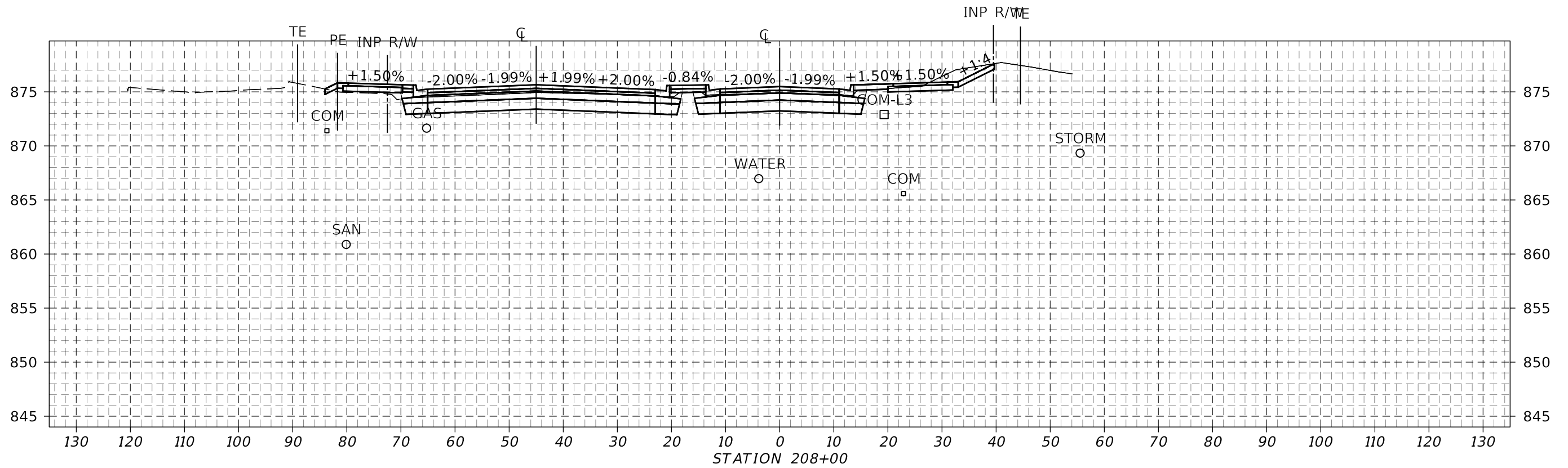
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 207+50.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS128 XS176

OT = 874.94'
GG = 874.40'

OT = 874.88'
GG = 874.24'



CSAH 130 (BROOKLYN BLVD)



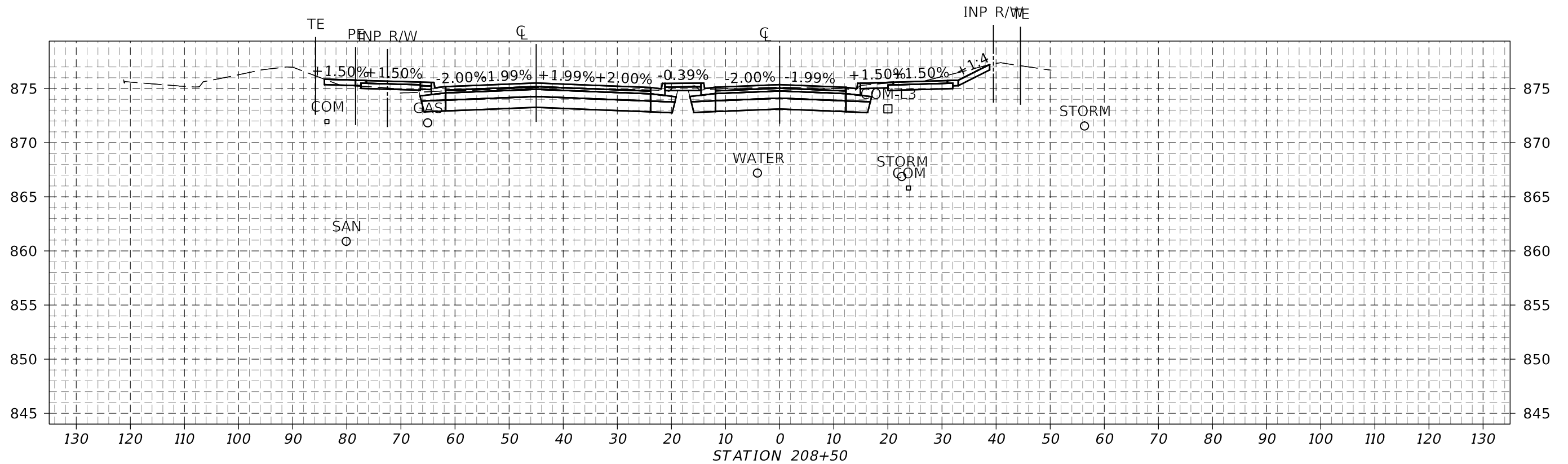
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 208+00.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS129 XS176

OT = 875.09'
GG = 874.27'

OT = 875.12'
GG = 874.11'



CSAH 130 (BROOKLYN BLVD)



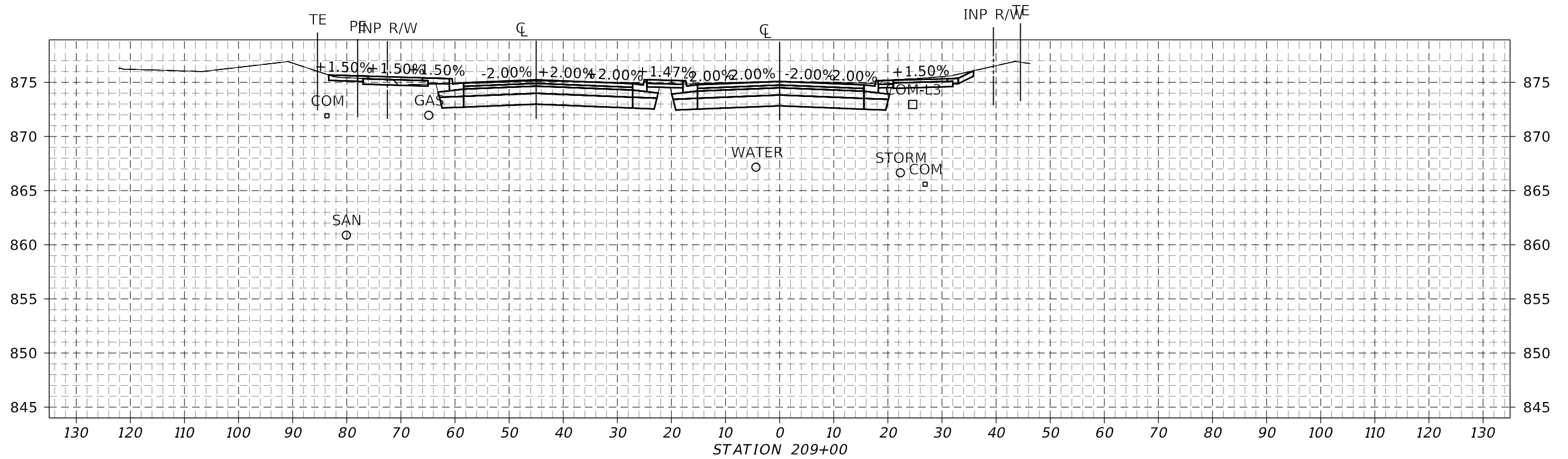
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 208+50.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS130 XS176

OT = 875.13'
GG = 873.99'

OT = 875.08'
GG = 873.84'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

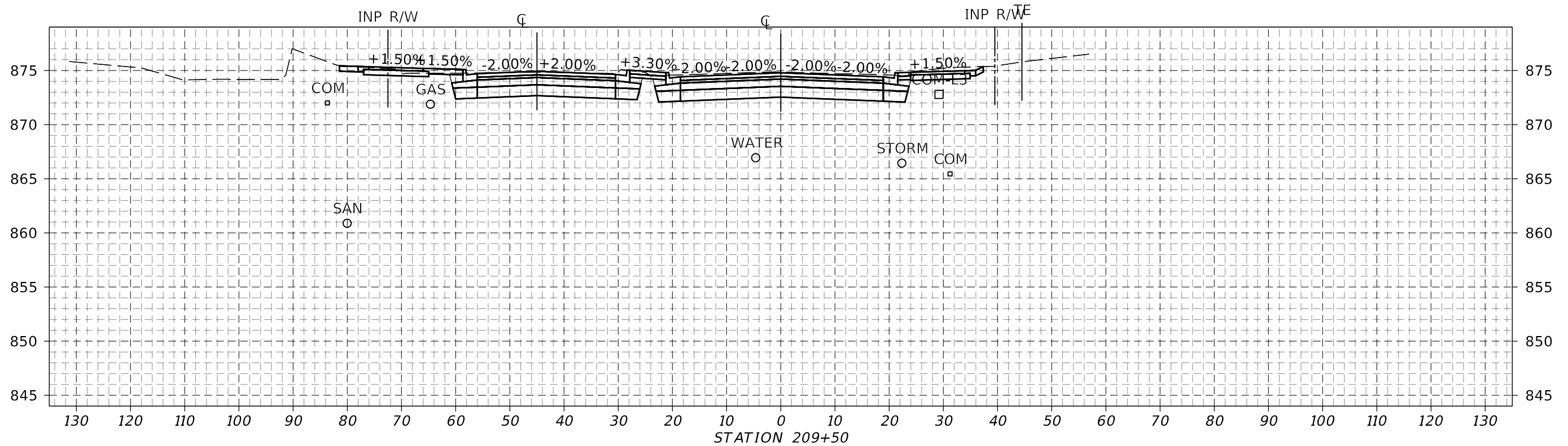
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 209+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS131
XS176

OT = 874.86'
GG = 873.69'

OT = 874.87'
GG = 873.55'



CSAH 130 (BROOKLYN BLVD)



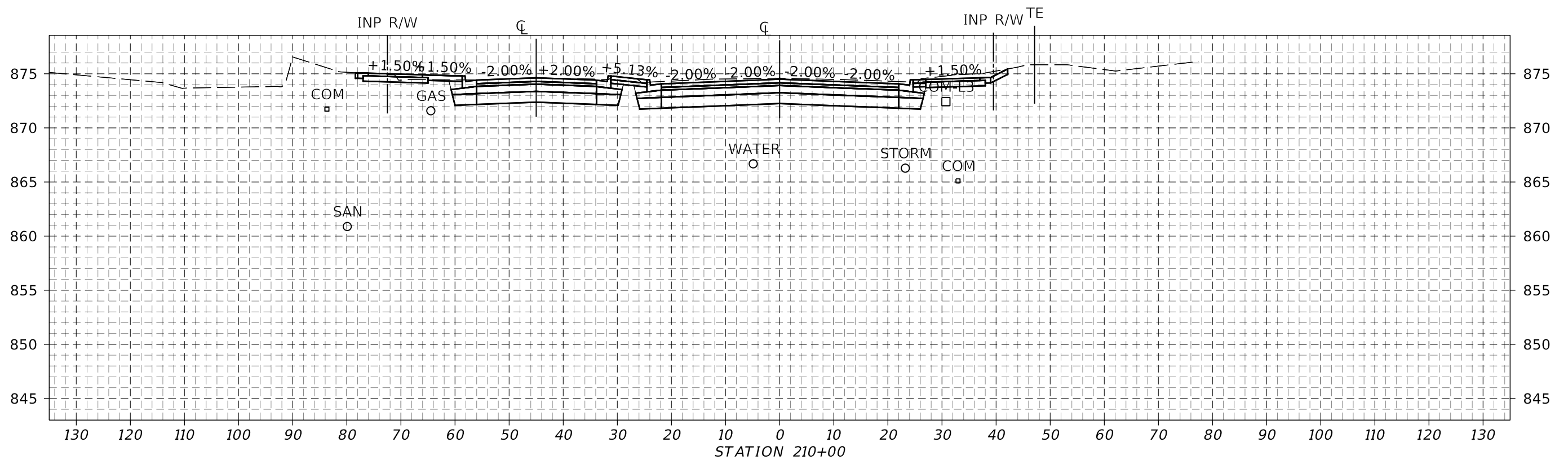
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 209+50.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS132 XS176

OT = 874.60'
GG = 873.39'

OT = 874.59'
GG = 873.26'



CSAH 130 (BROOKLYN BLVD)



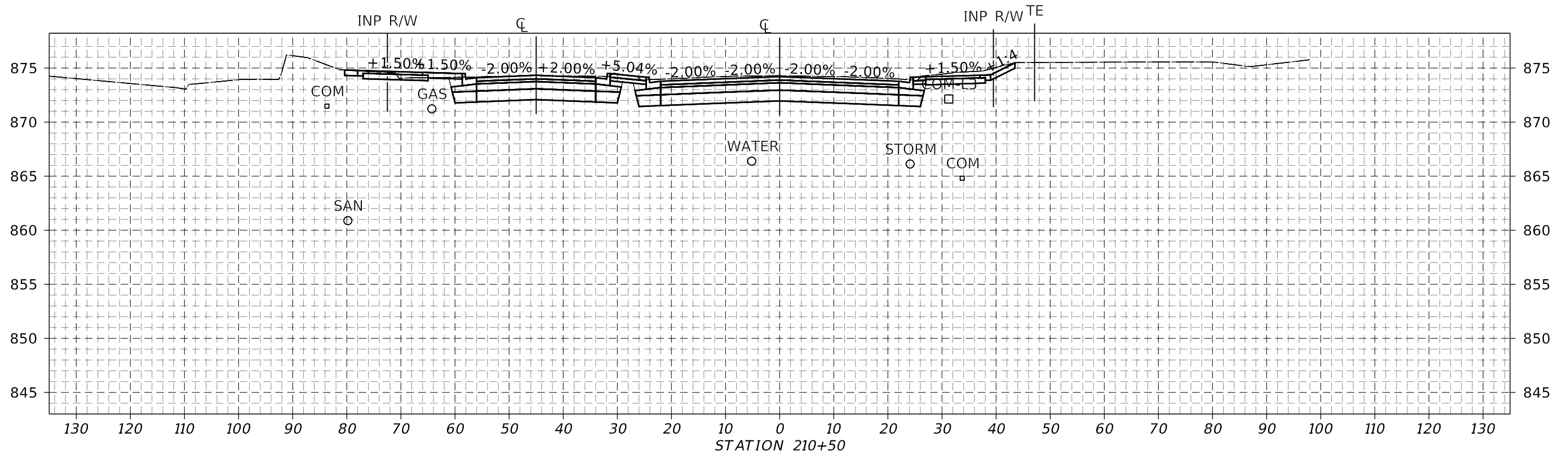
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 210+00.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS133 XS176

OT = 874.31'
GG = 873.09'

OT = 874.30'
GG = 872.97'



CSAH 130 (BROOKLYN BLVD)



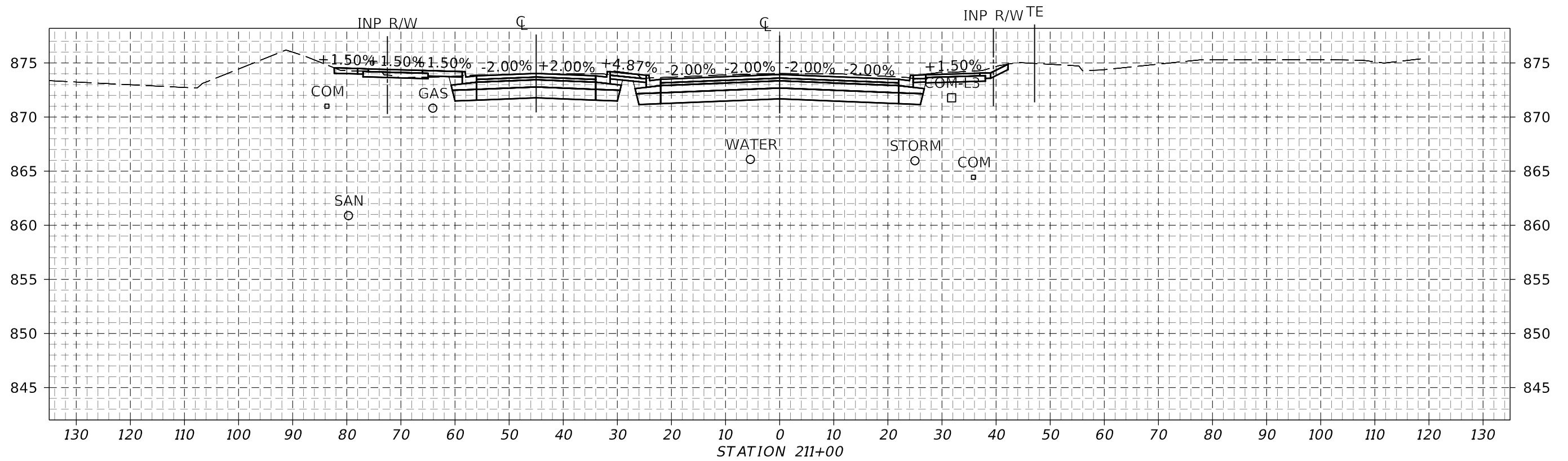
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 210+50.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS134 XS176

OT = 874.02'
GG = 872.79'

OT = 874.03'
GG = 872.68'



CSAH 130 (BROOKLYN BLVD)



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

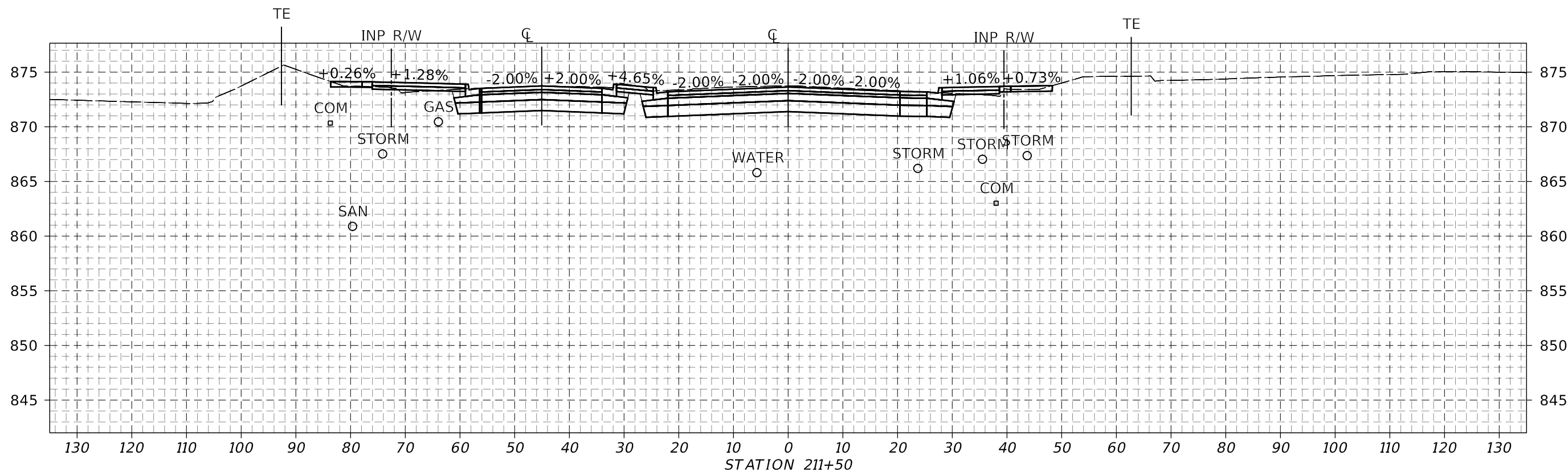
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 211+00.00 TO STATION
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS135
XS176

OT = 873.73'
GG = 872.49'

OT = 873.74'
GG = 872.39'



CSAH 130 (BROOKLYN BLVD)



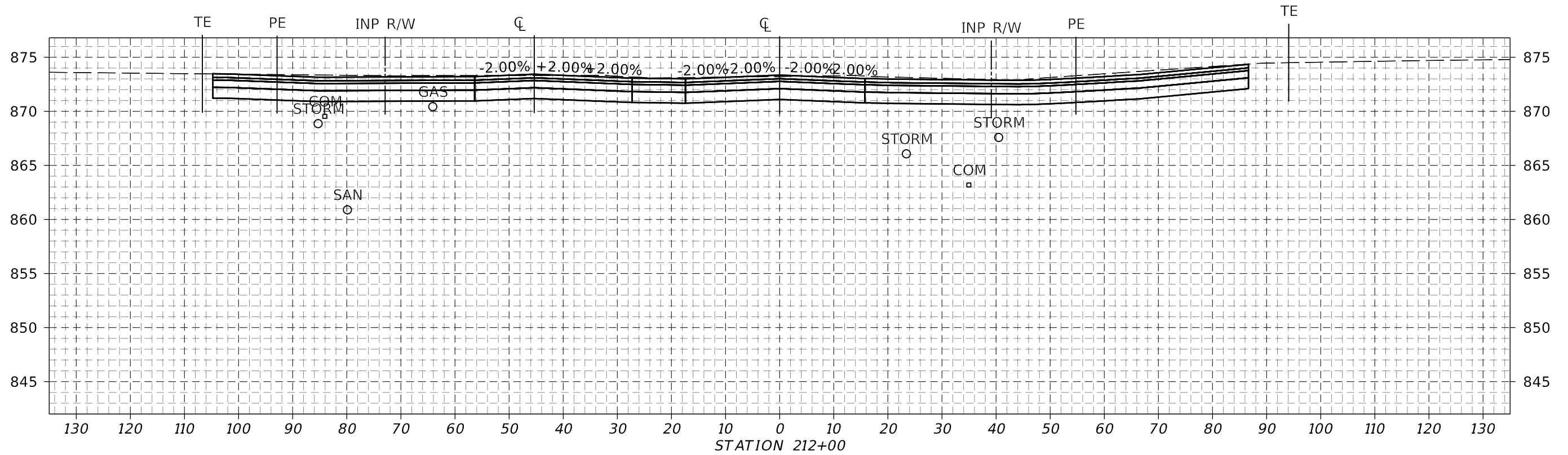
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 211+50.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS136 XS176

OT = 873.32'
GG = 872.18'

OT = 873.23'
GG = 872.10'



CSAH 130 (BROOKLYN BLVD)



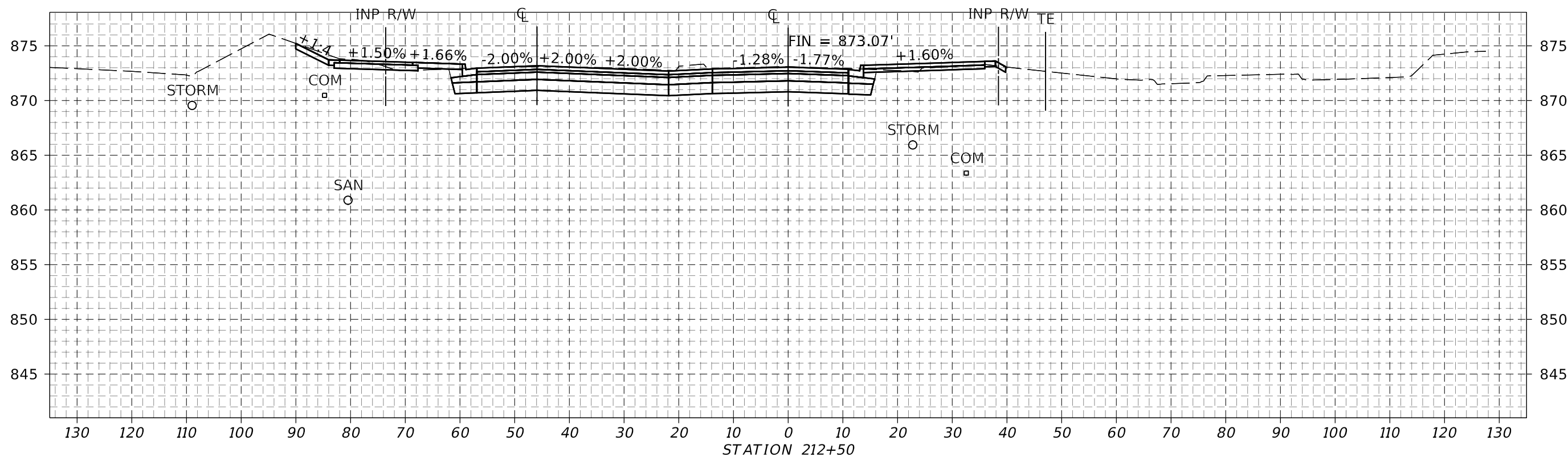
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 212+00.00 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS137 XS176

OT = 873.12'
GG = 871.93'

OT = 873.09'
GG = 871.82'



CSAH 130 (BROOKLYN BLVD)



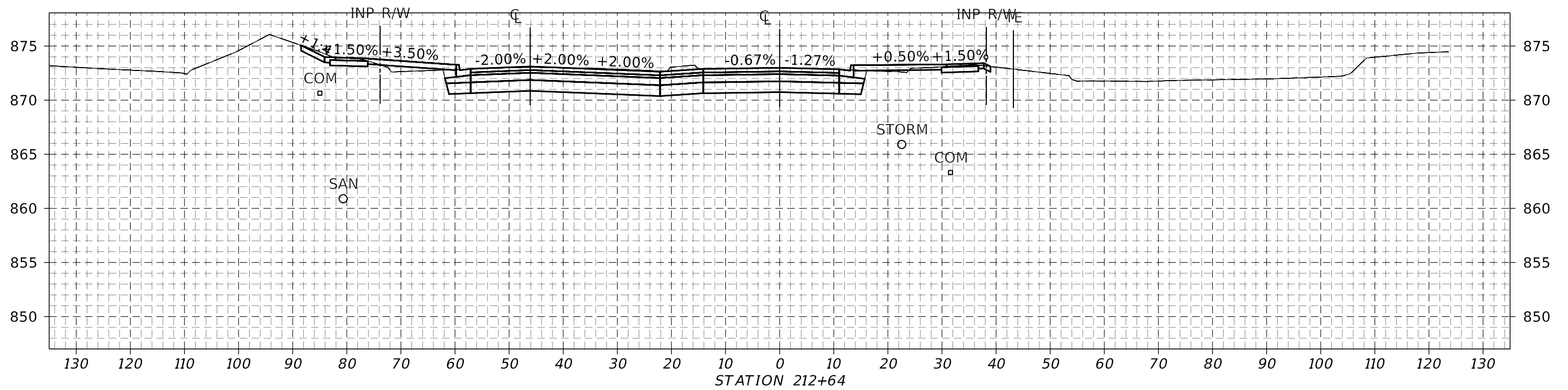
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 212+50.00 TO STATION	SHEET
	C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX	XS138 XS176

OT = 873.05'
GG = 871.86'

OT = 872.99'
GG = 871.74'



CSAH 130 (BROOKLYN BLVD)

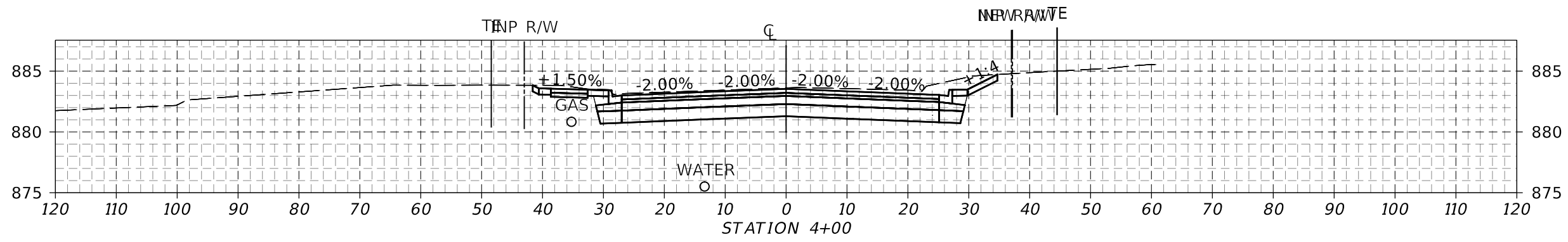


SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

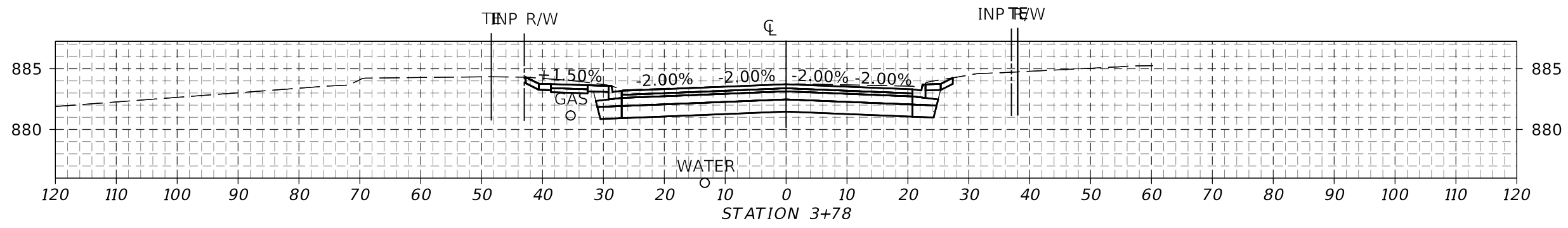
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 212+63.66 TO STATION	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS139 XS176

OT = 883.61'
GG = 882.29'



OT = 883.72'
GG = 882.47'



73RD AVE N



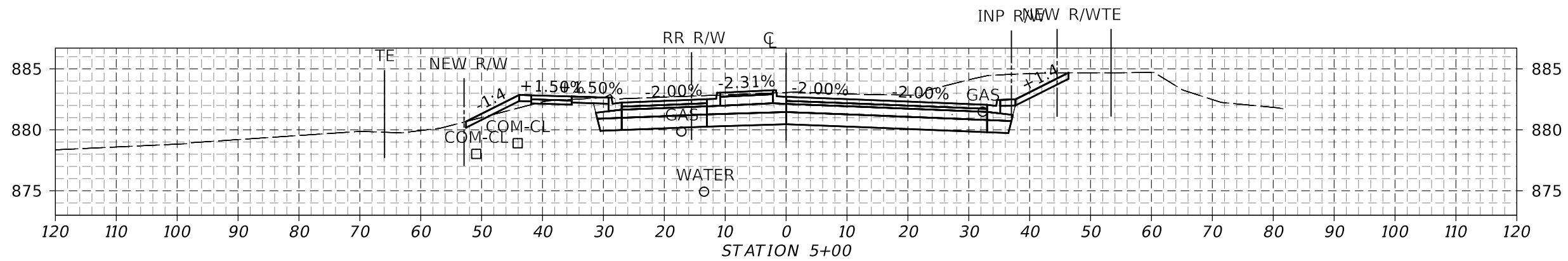
SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

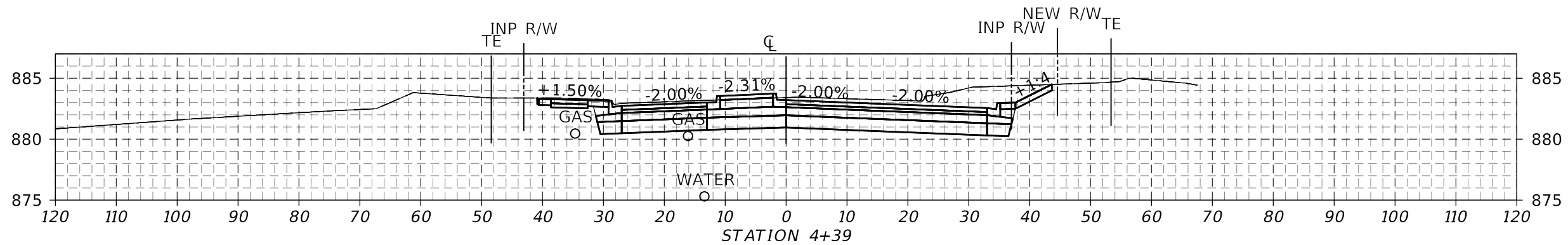
X-SECTIONS STATION 3+78.08 TO STATION 4+00.00
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
XS140
XS176

OT = 883.07'
GG = 881.46'



OT = 883.42'
GG = 881.97'



73RD AVE N



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

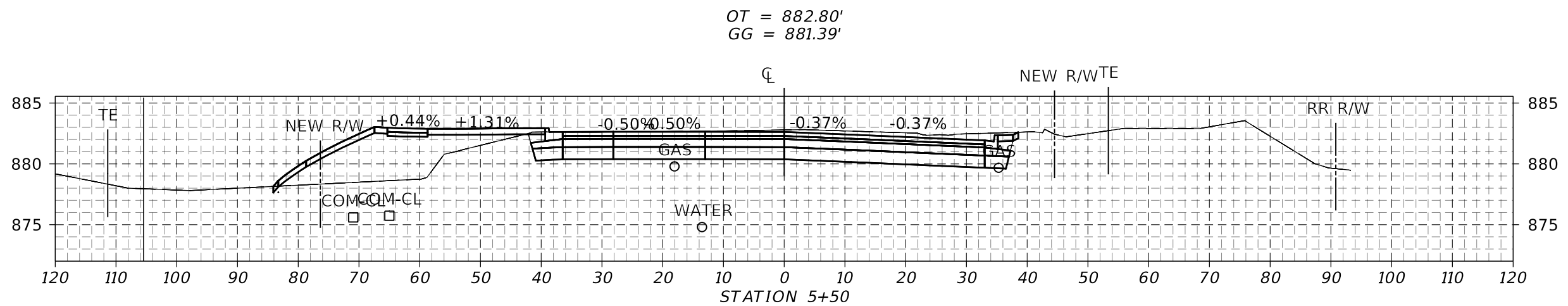
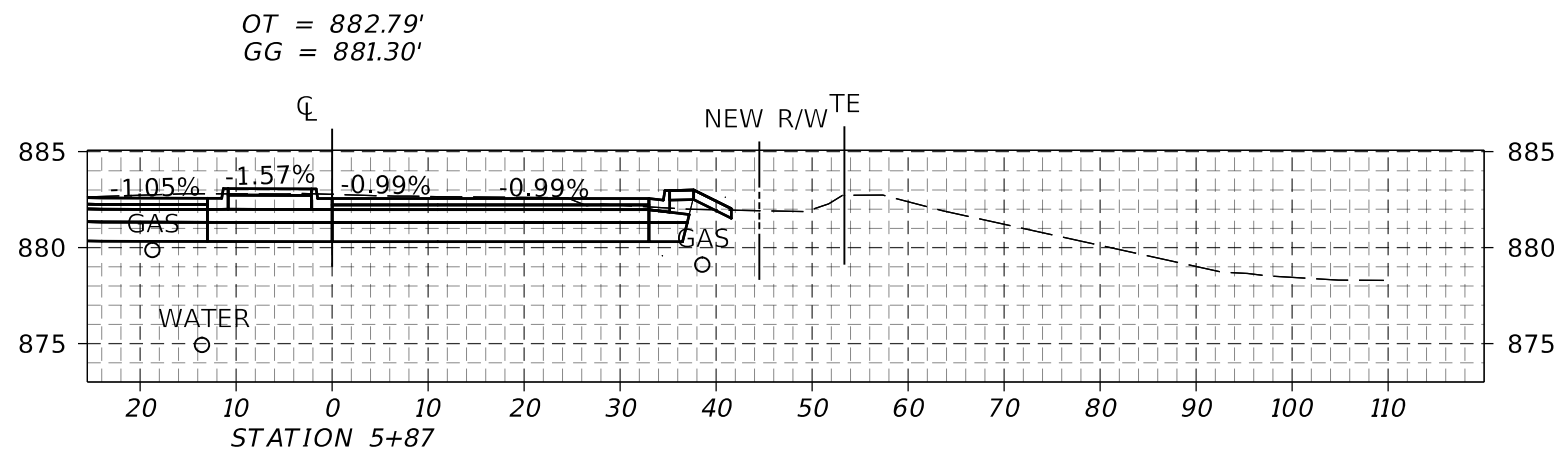
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 4+39.43 TO STATION 5+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS141
XS176



73RD AVE N



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

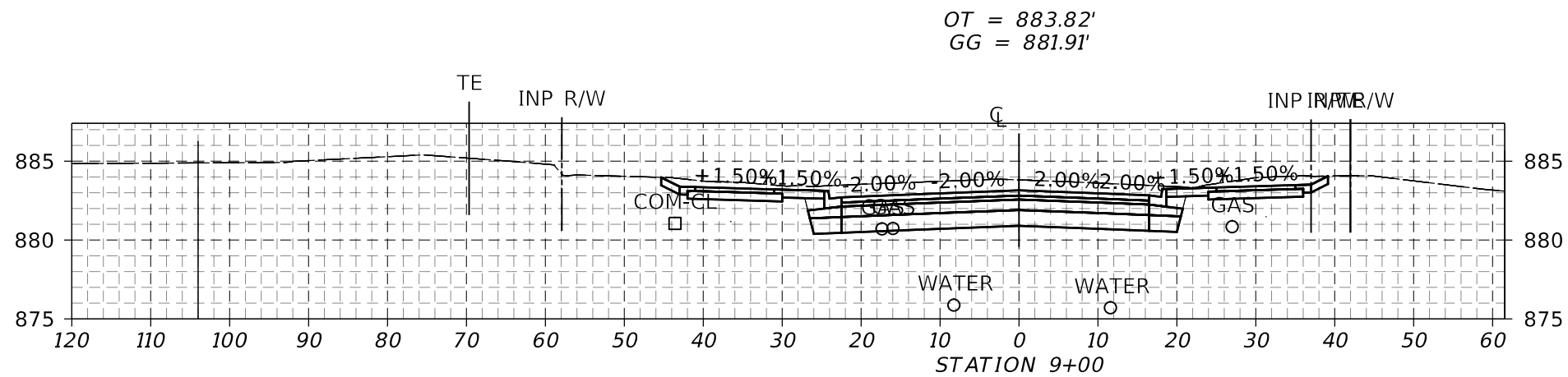
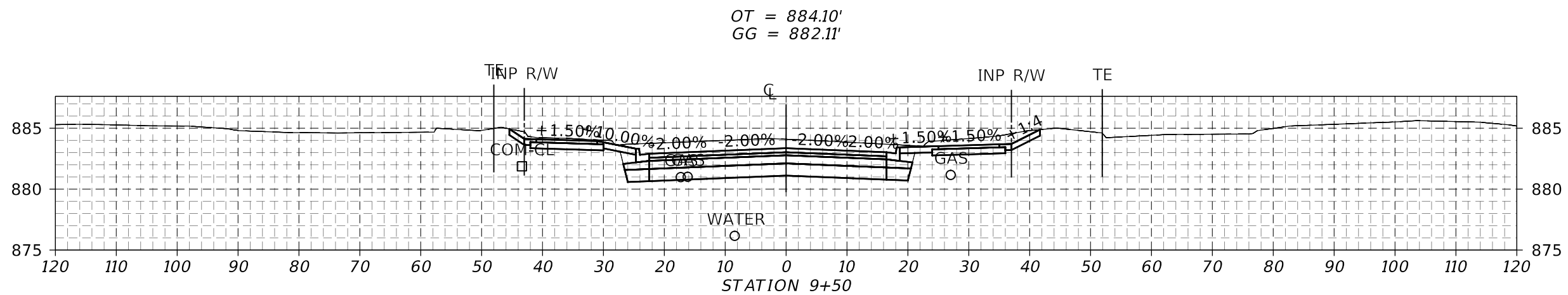
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 5+50.00 TO STATION 5+87.03

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS142
XS176



73RD AVE N



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

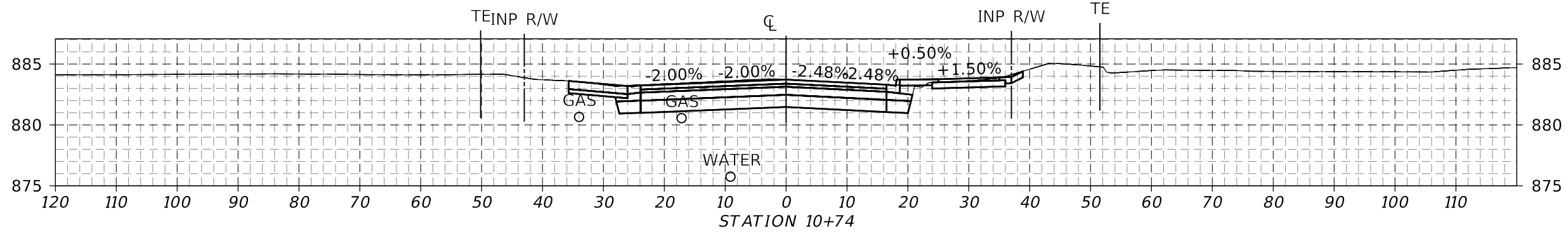
X-SECTIONS STATION 9+00.00 TO STATION 9+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

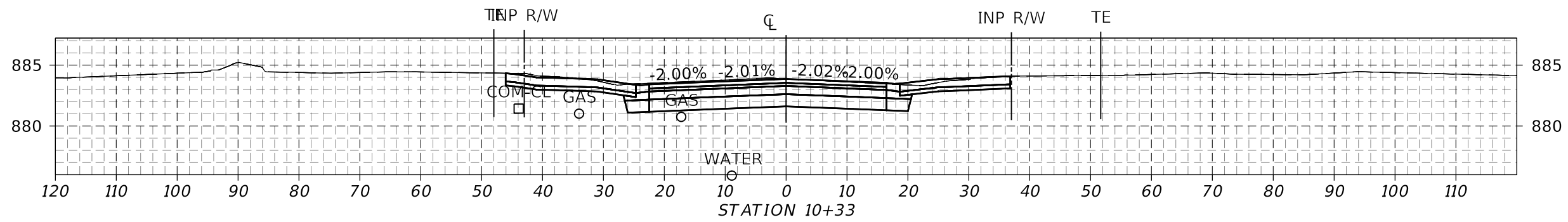
SHEET

XS143
XS176

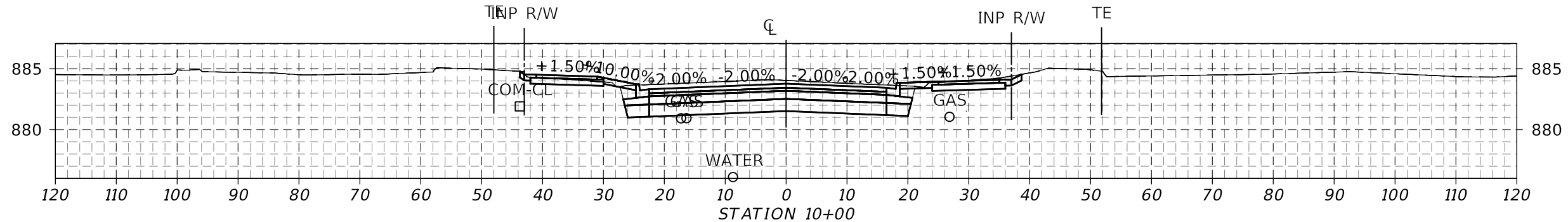
OT = 883.70'
GG = 882.46'



OT = 883.87'
GG = 882.62'



OT = 884.05'
GG = 882.53'



73RD AVE N



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

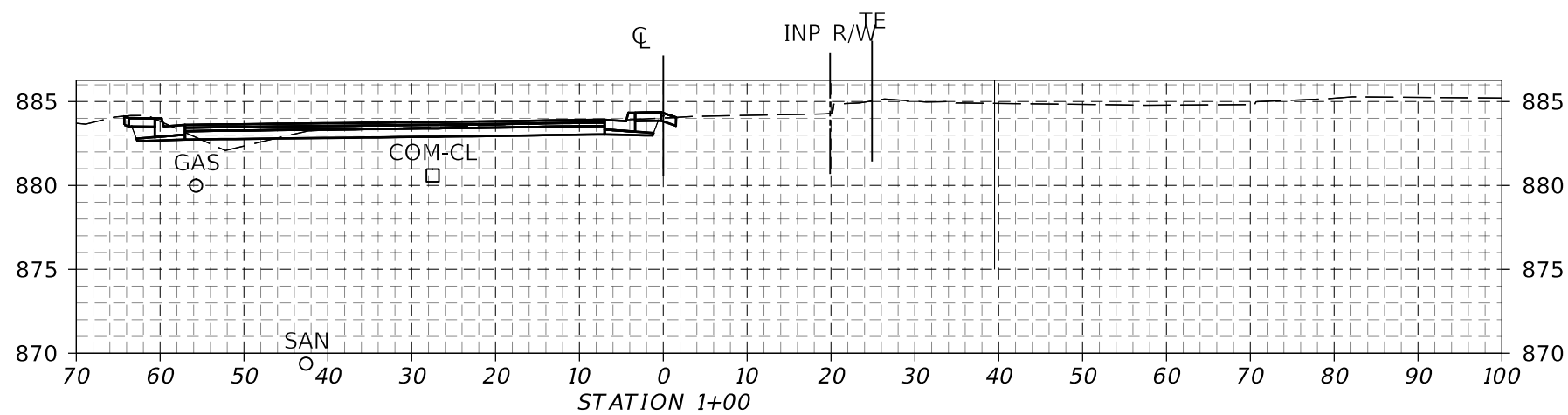
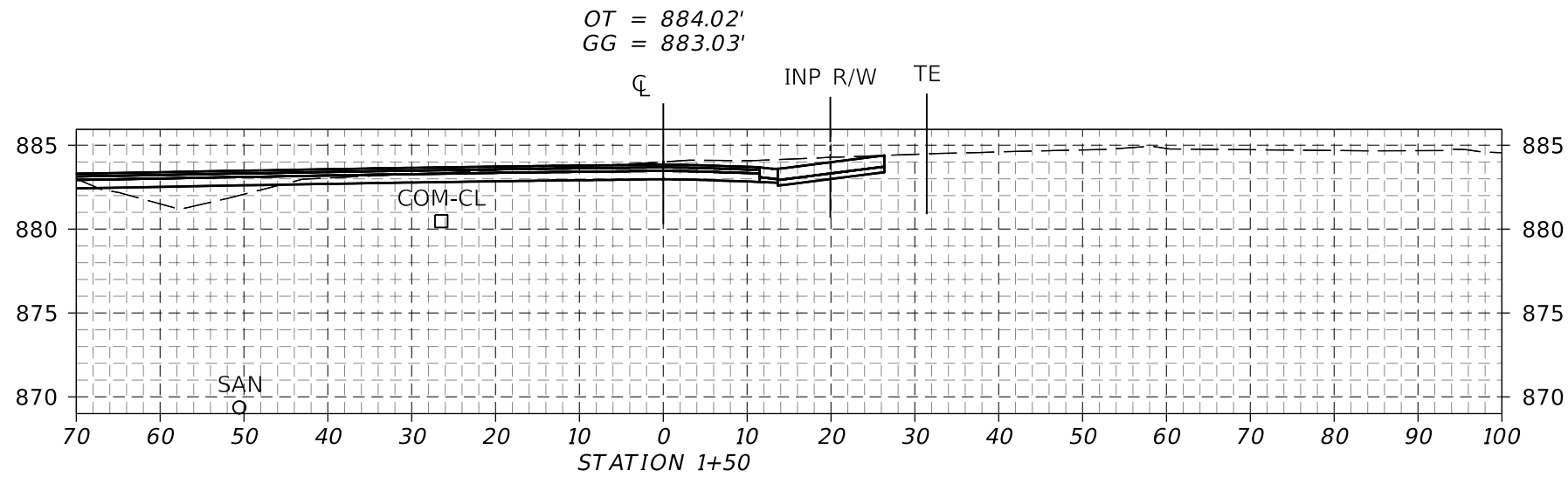
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 10+00.00 TO STATION 10+74.49

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS144
XS176



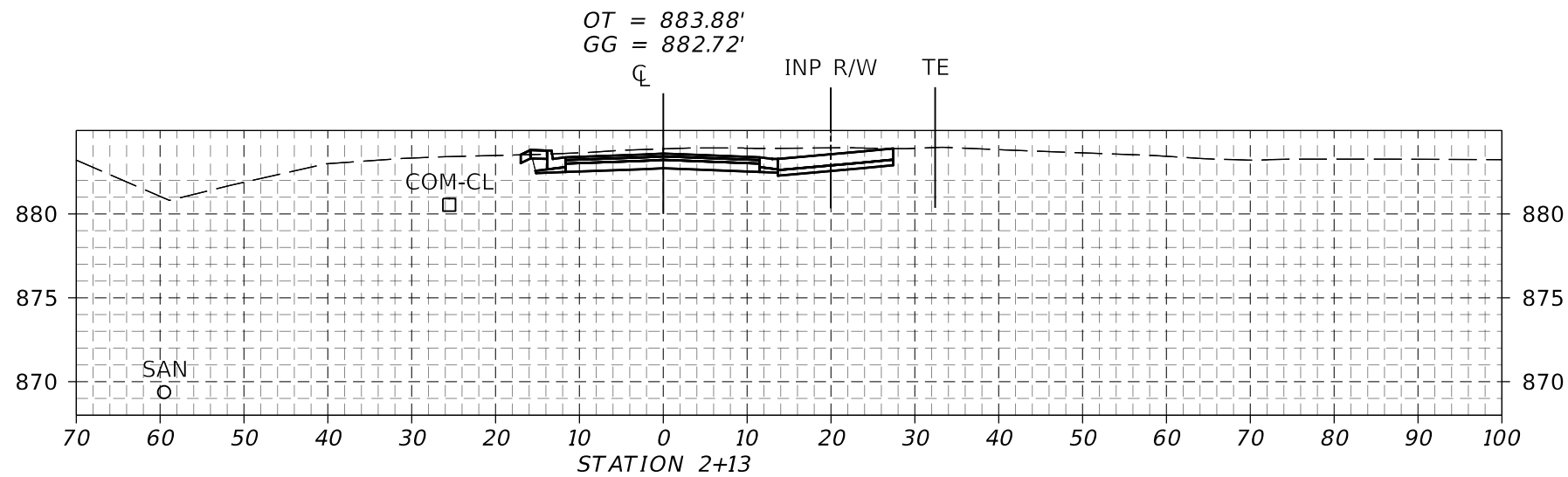
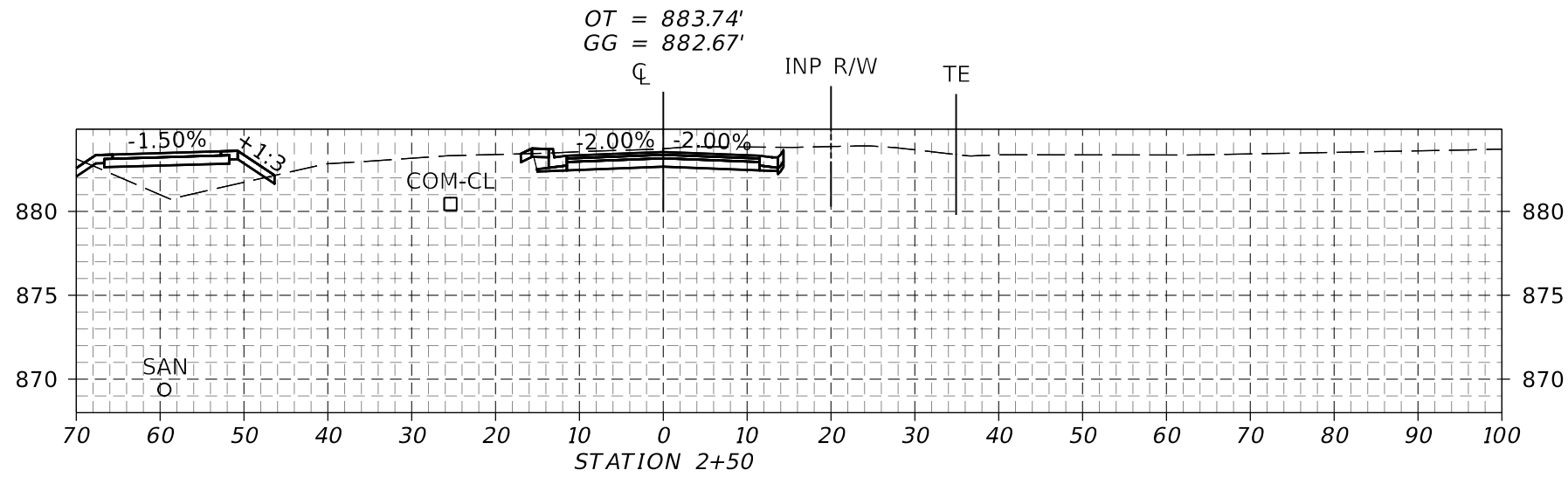
LAKELAND AVE



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS	STATION 1+00.00 TO STATION 1+50.00	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS145 XS176



LAKELAND AVE



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

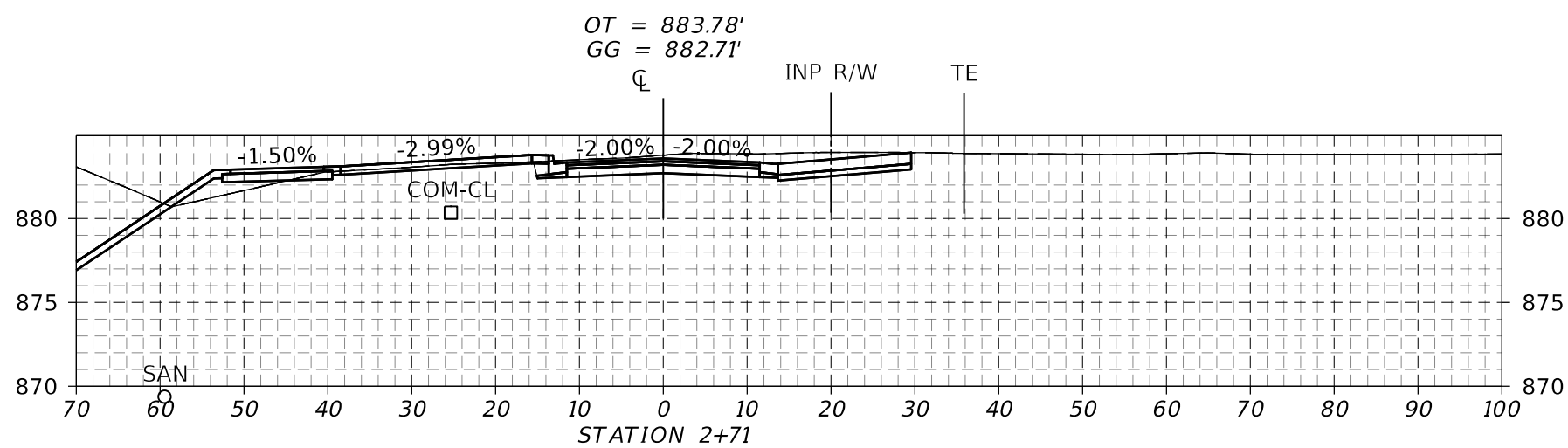
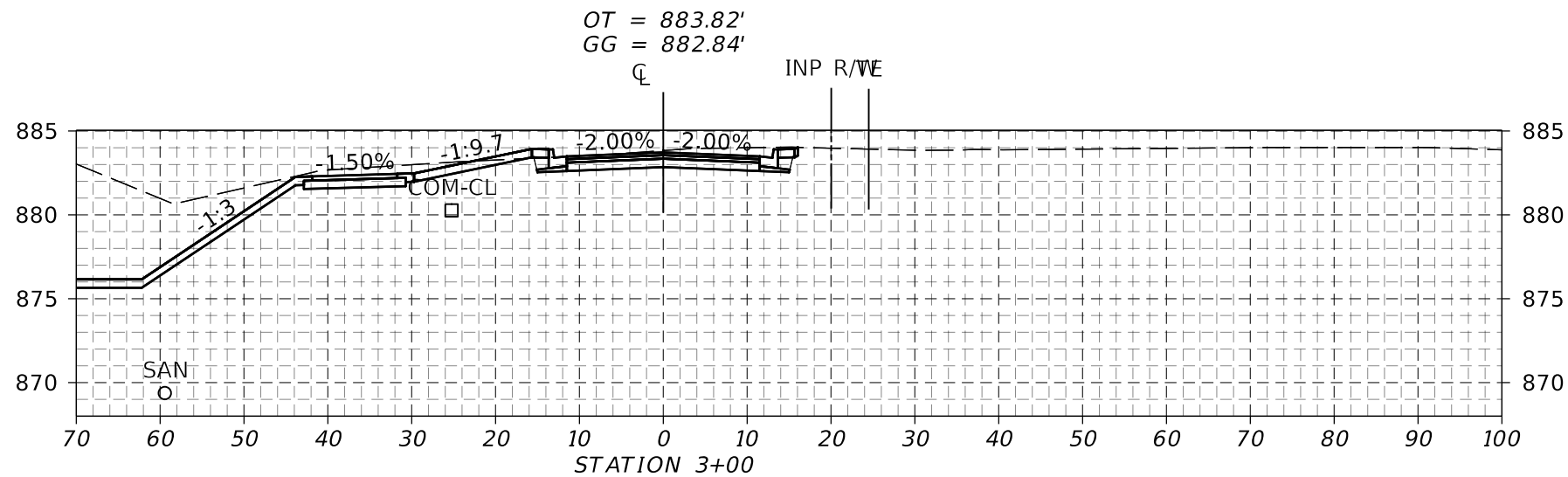
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 2+13.33 TO STATION 2+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS146
 XS176



LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

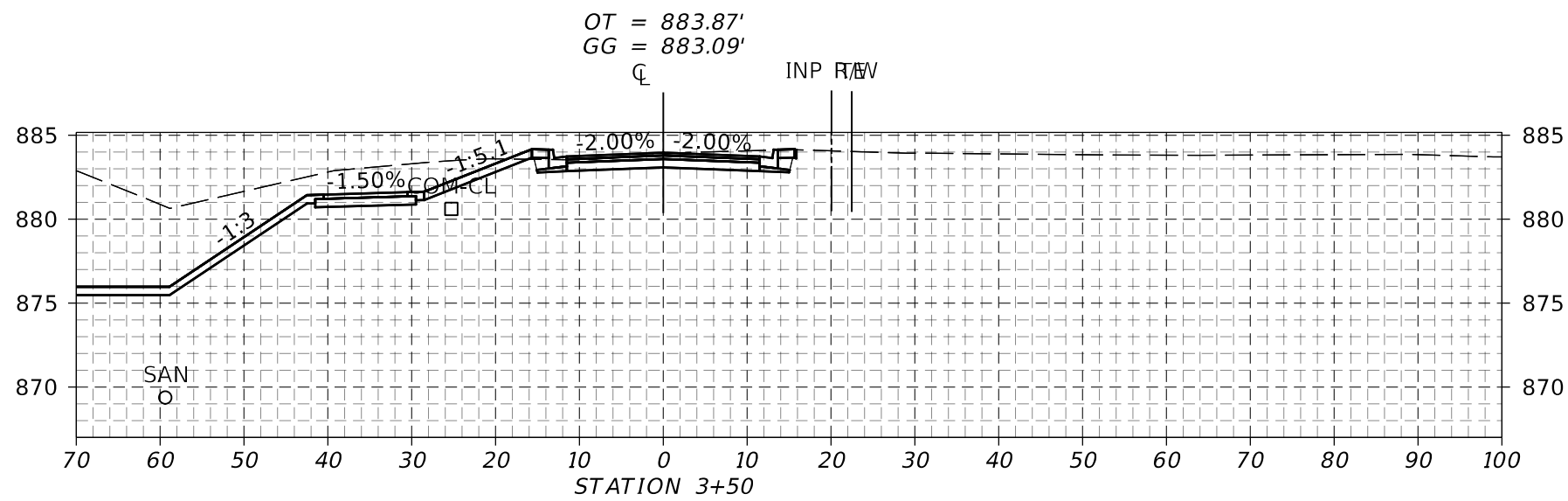
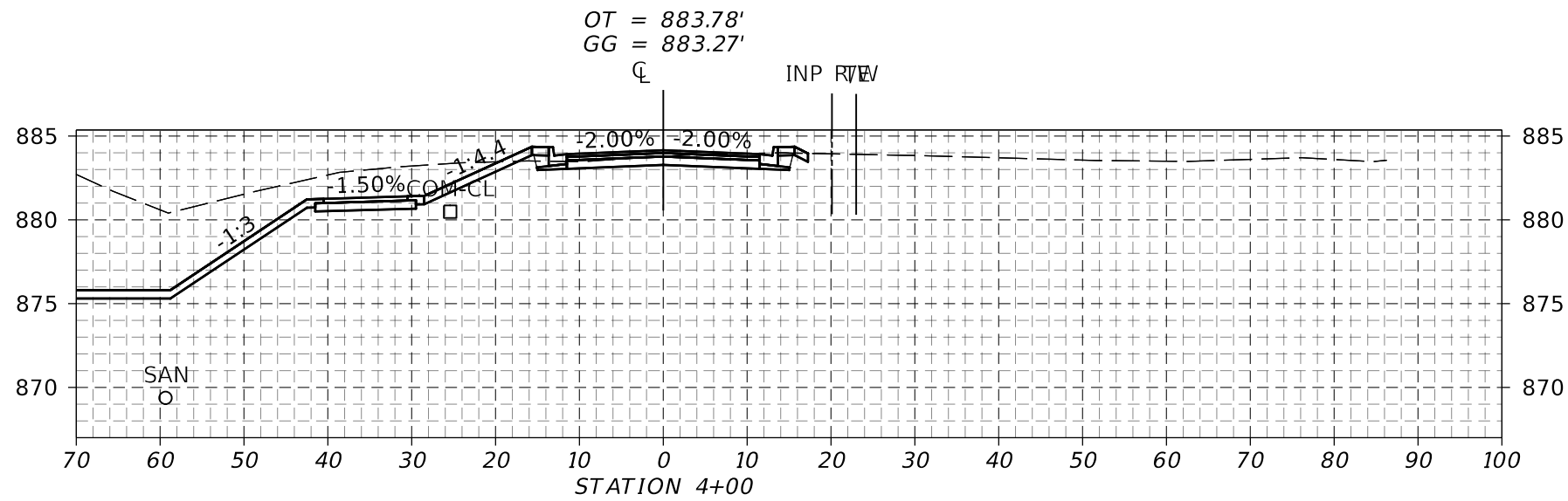
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 2+70.53 TO STATION 3+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS147
XS176



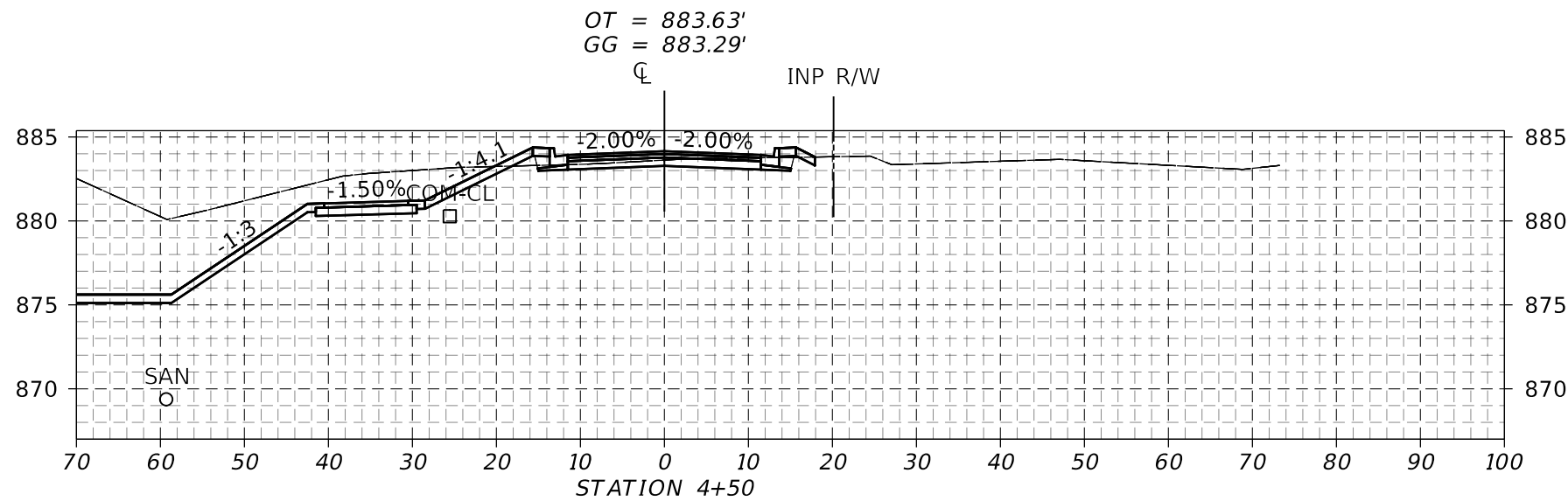
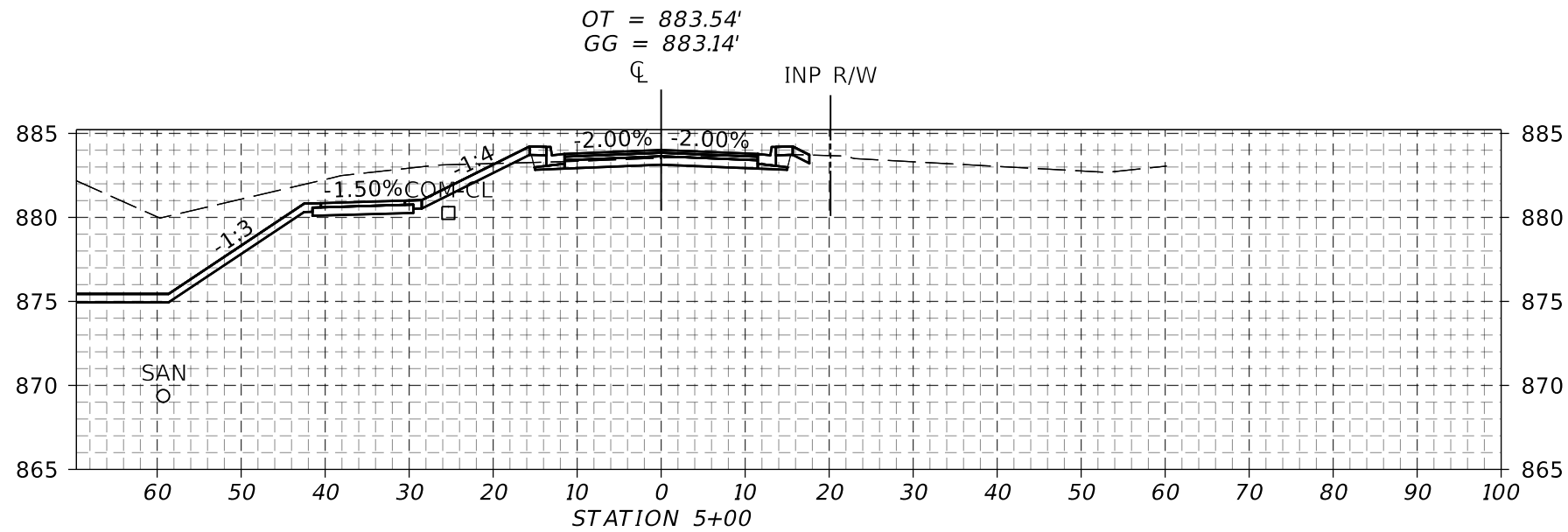
LAKELAND AVE



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS	STATION 3+50.00 TO STATION 4+00.00	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS148 XS176



LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

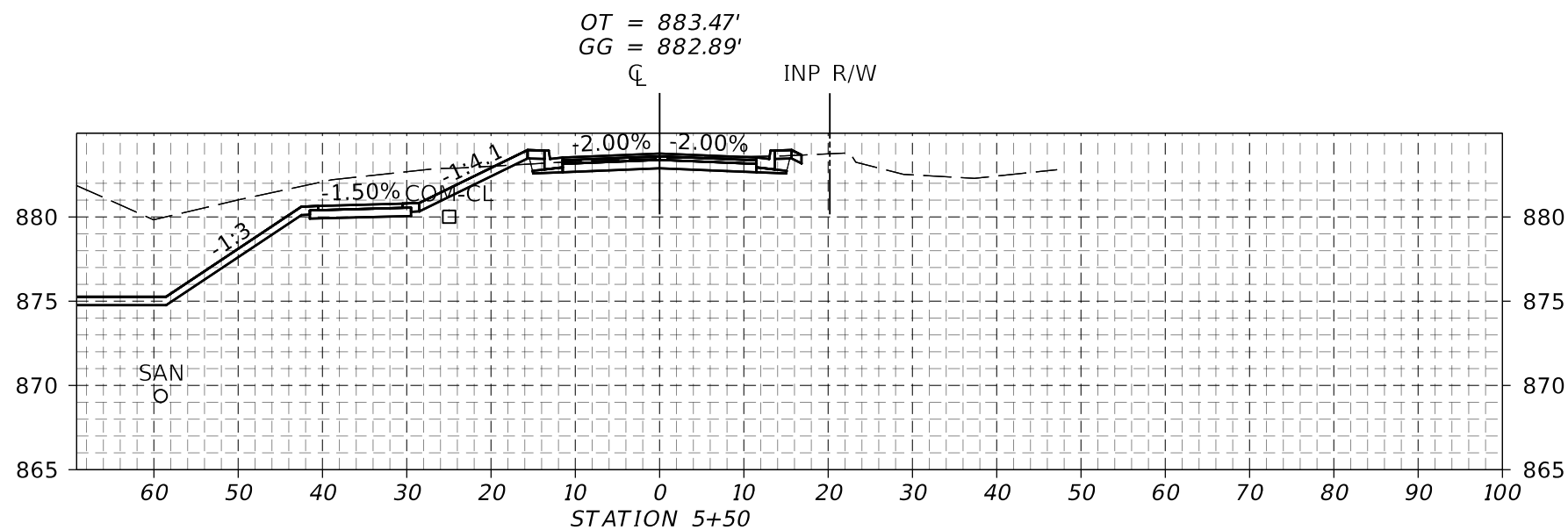
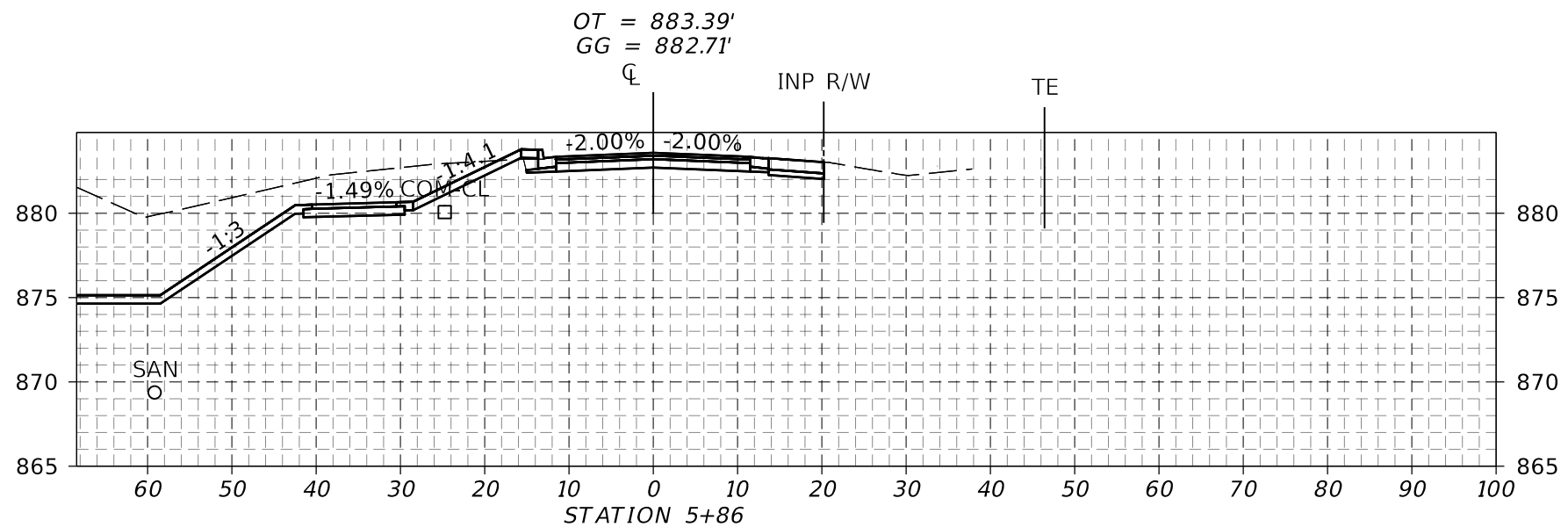
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 4+50.00 TO STATION 5+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS149
XS176



LAKELAND AVE



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

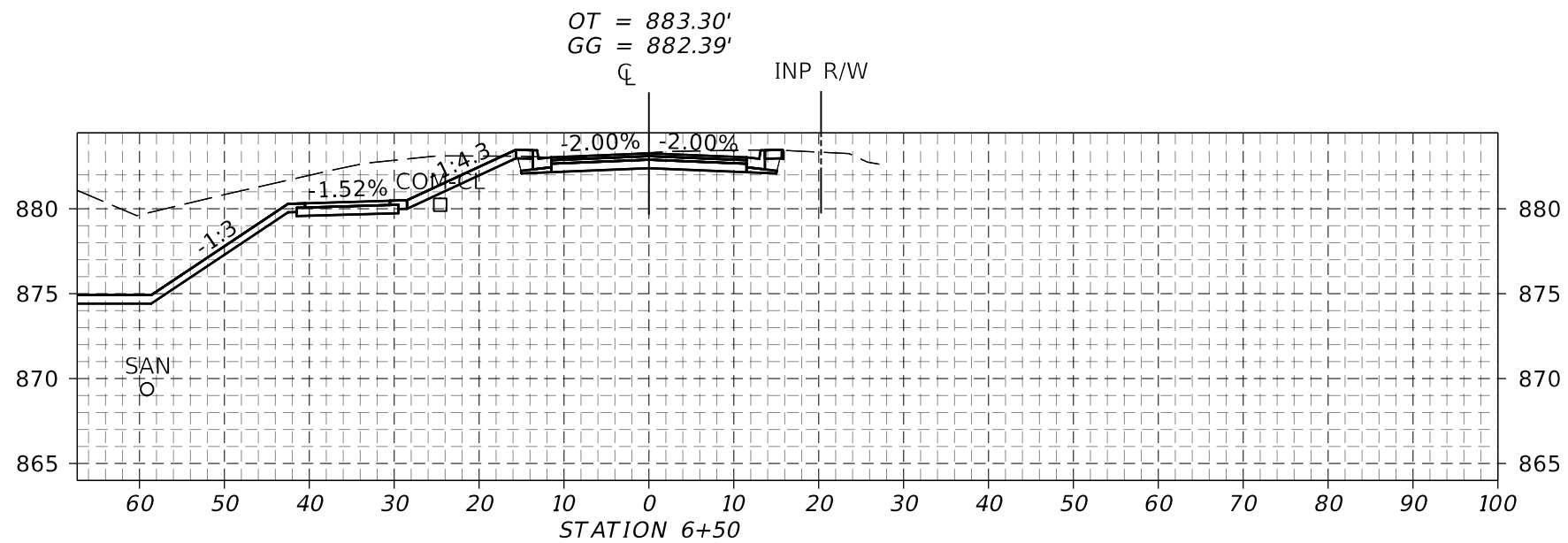
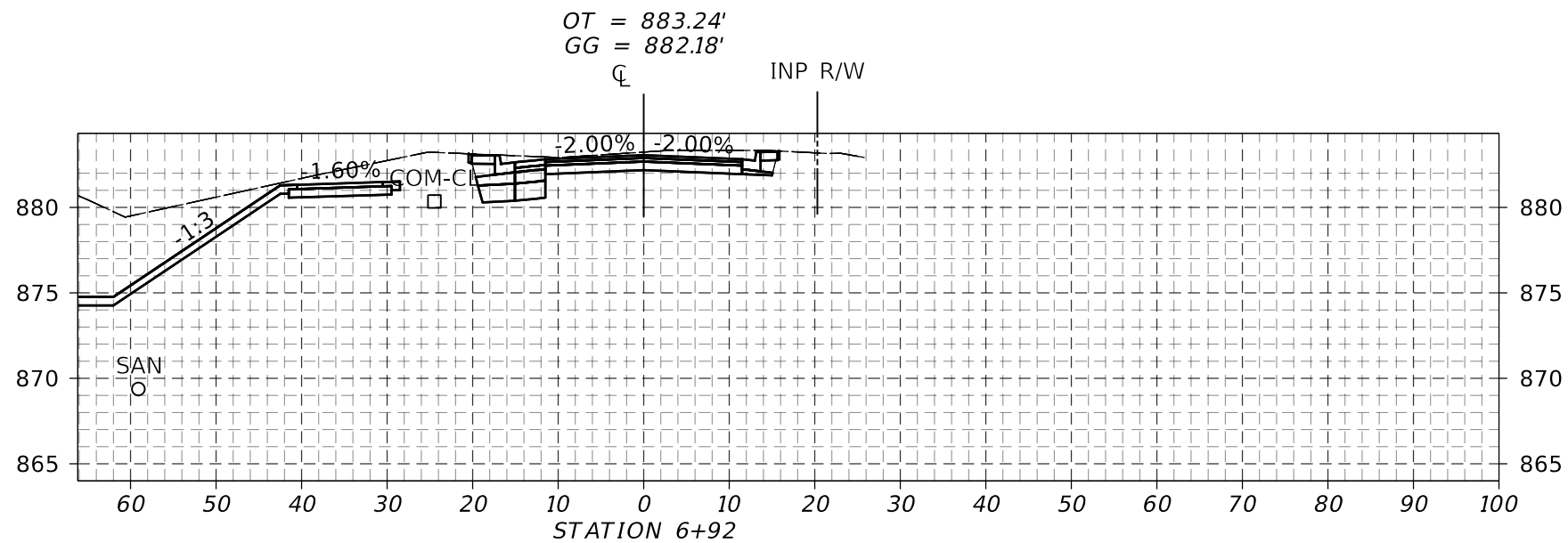
LAST REVISION: / /

X-SECTIONS STATION 5+50.00 TO STATION 5+85.74

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS150
XS176



LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

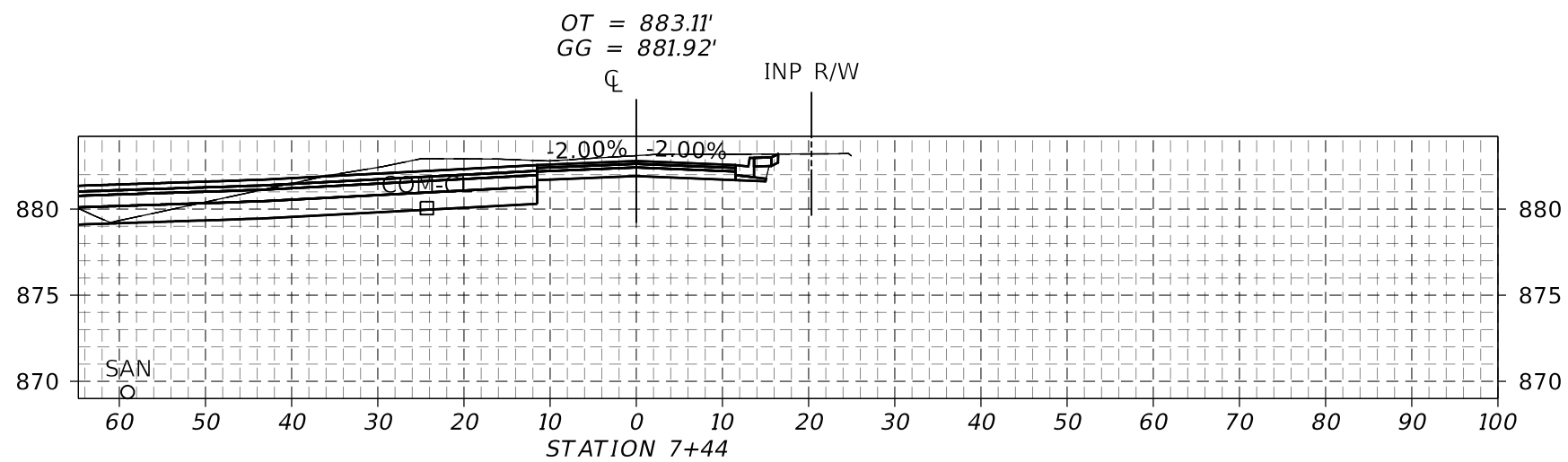
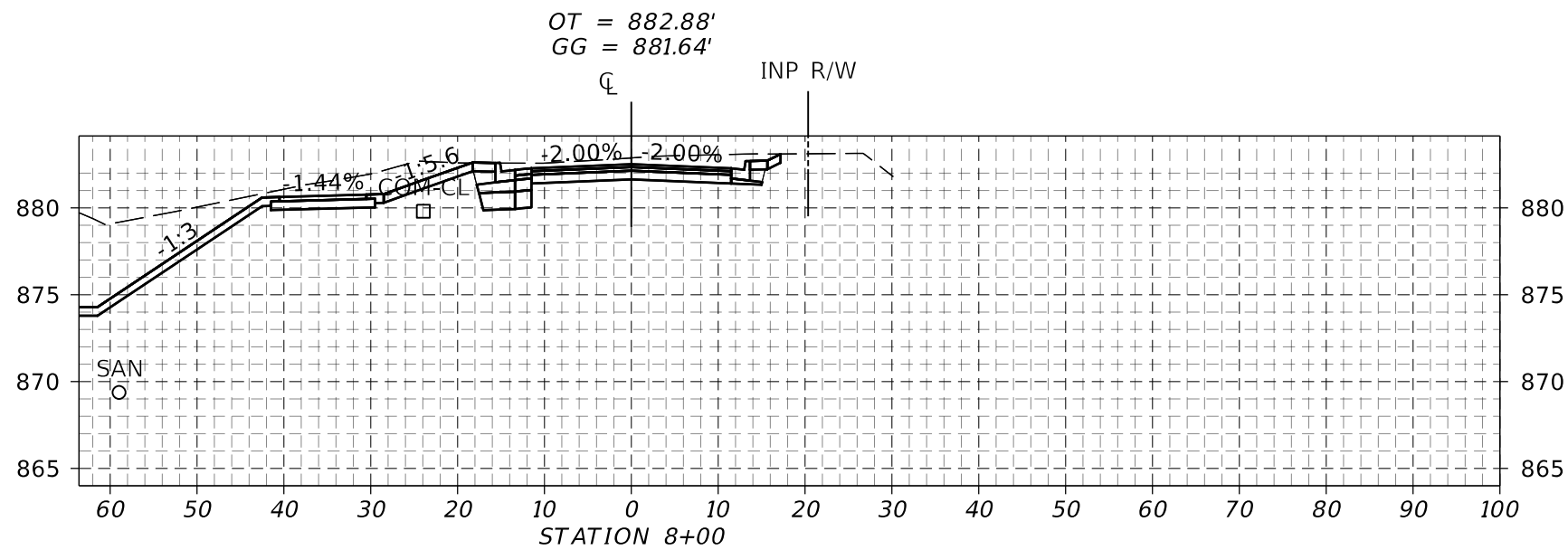
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 6+50.00 TO STATION 6+92.50

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS151
XS176



LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

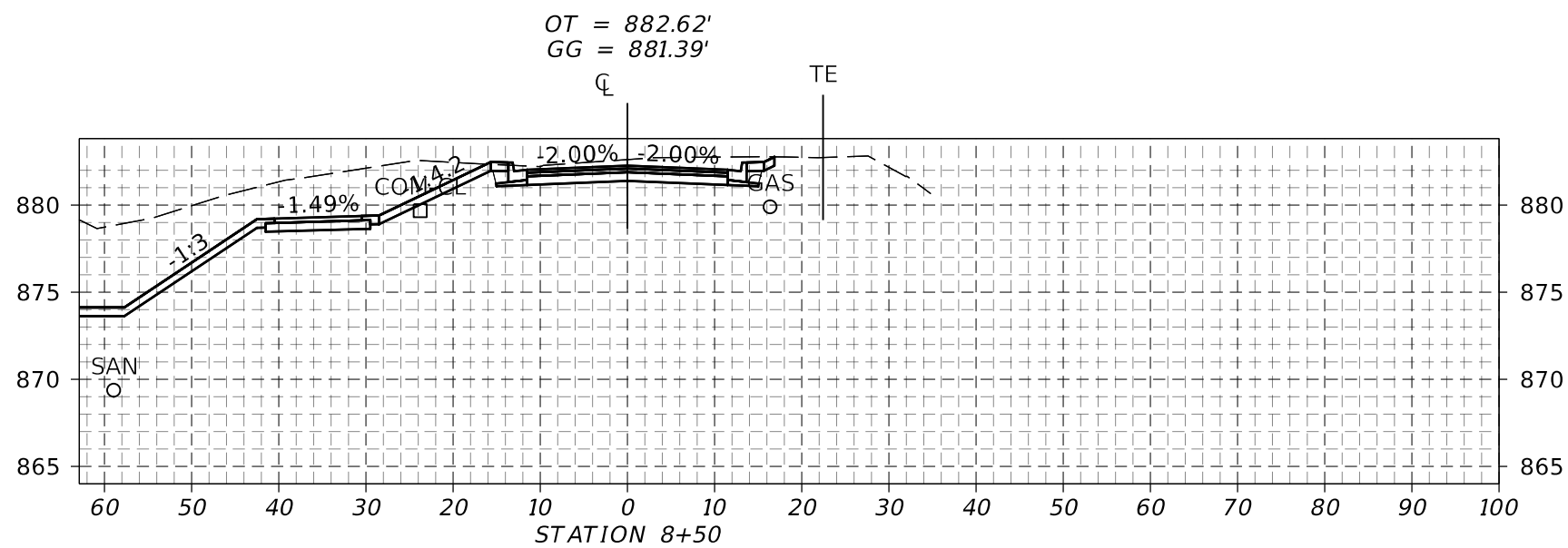
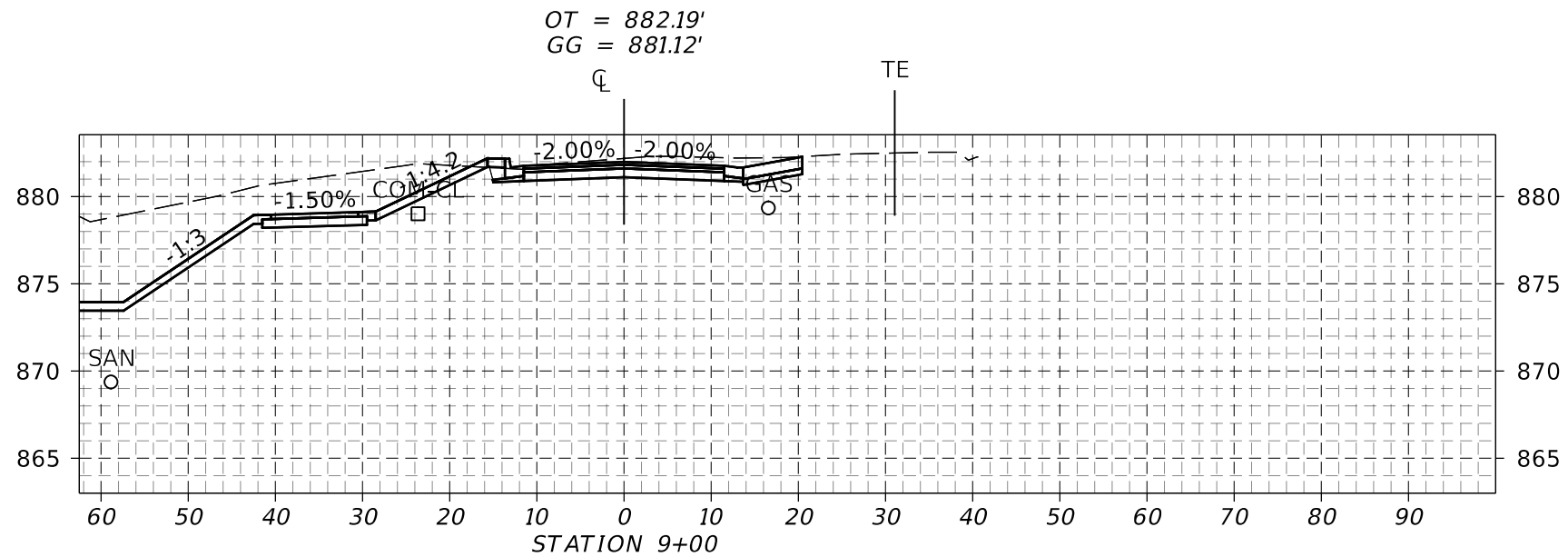
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 7+44.00 TO STATION 8+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS152
XS176



LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

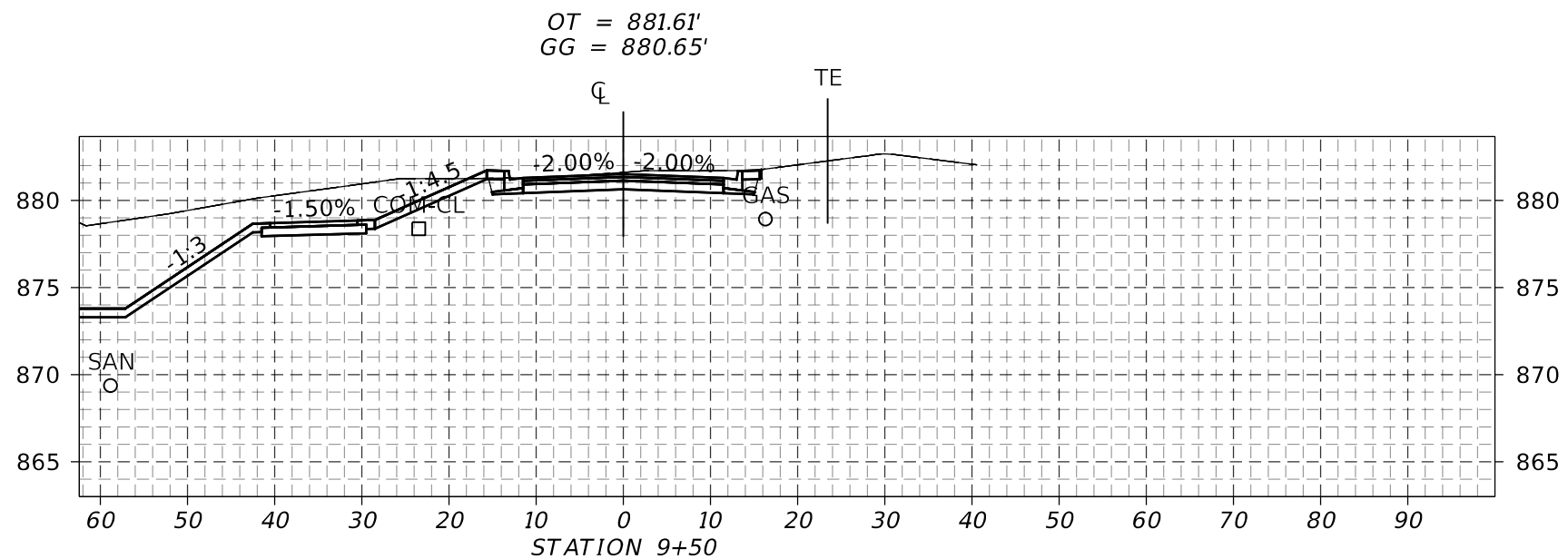
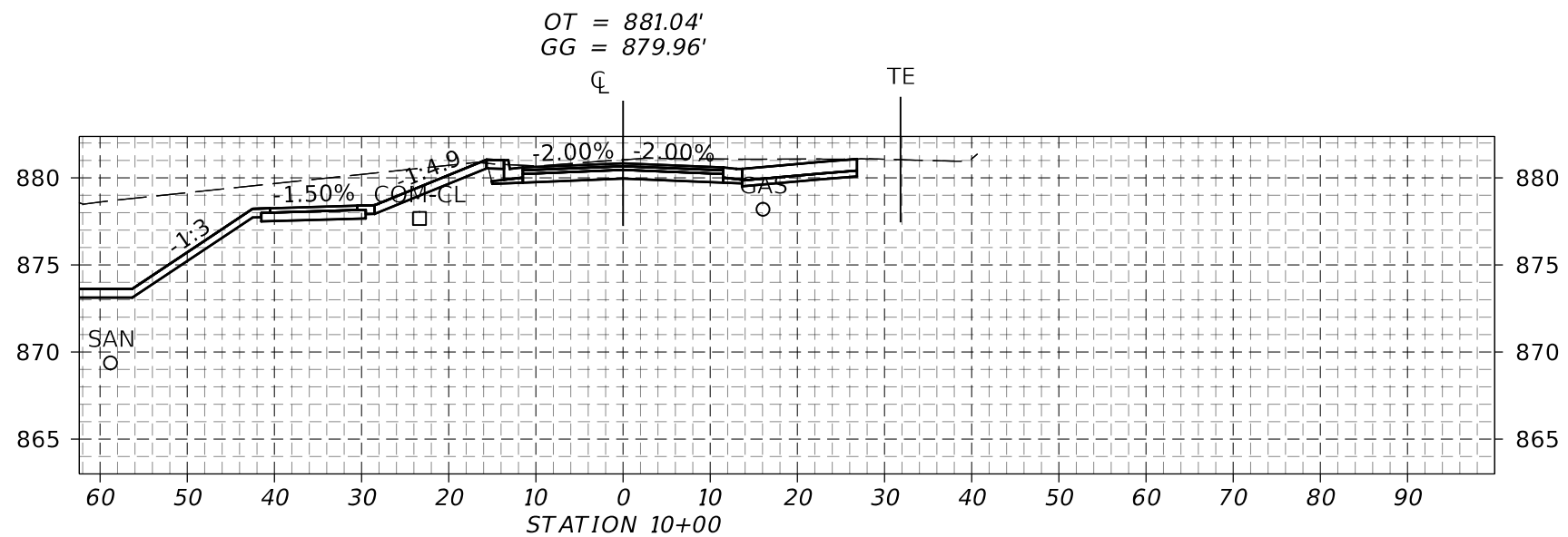
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 8+50.00 TO STATION 9+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS153
XS176



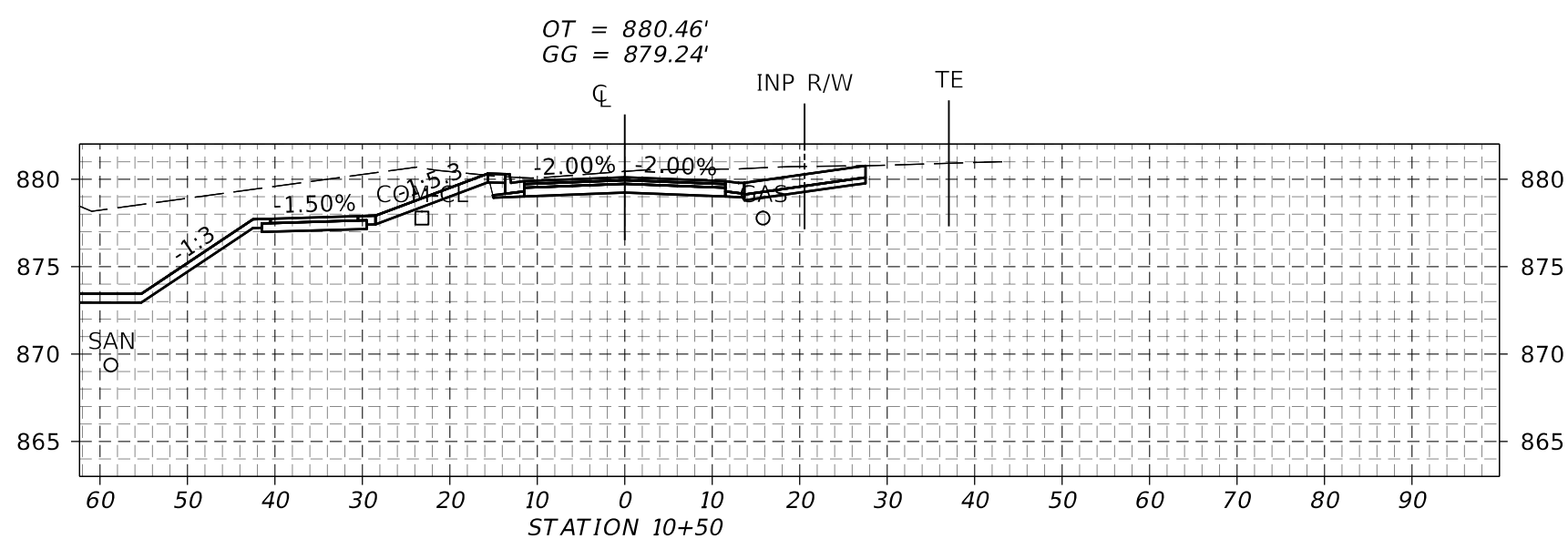
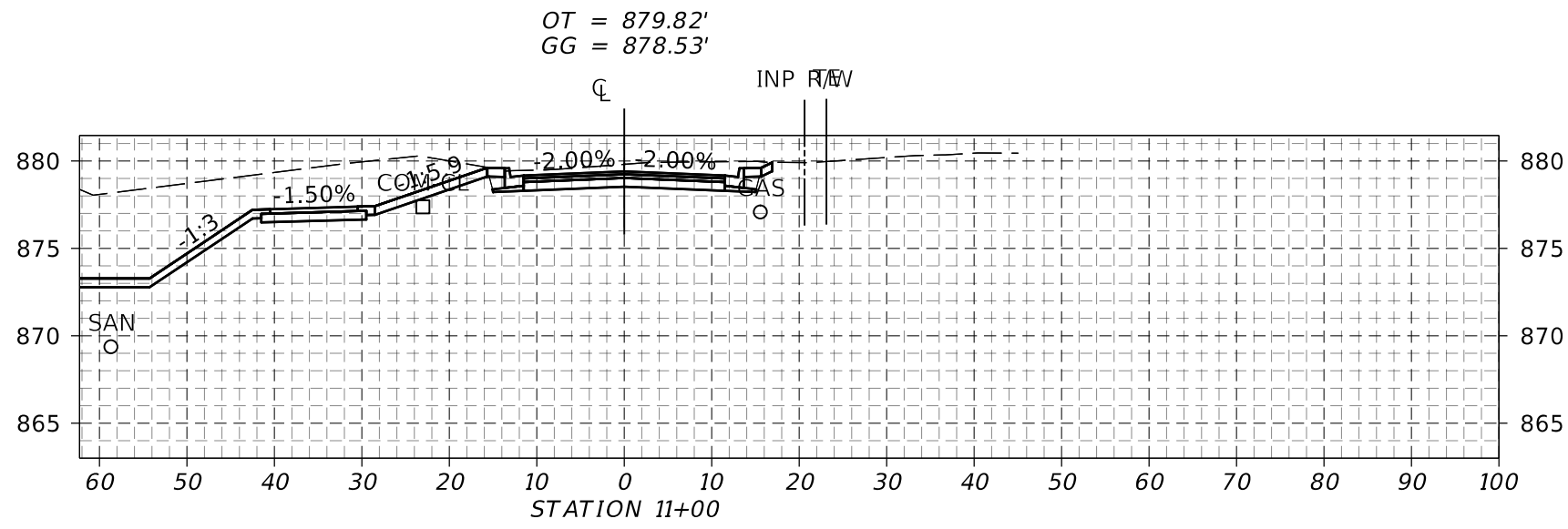
LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 9+50.00 TO STATION 10+00.00	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS154 XS176



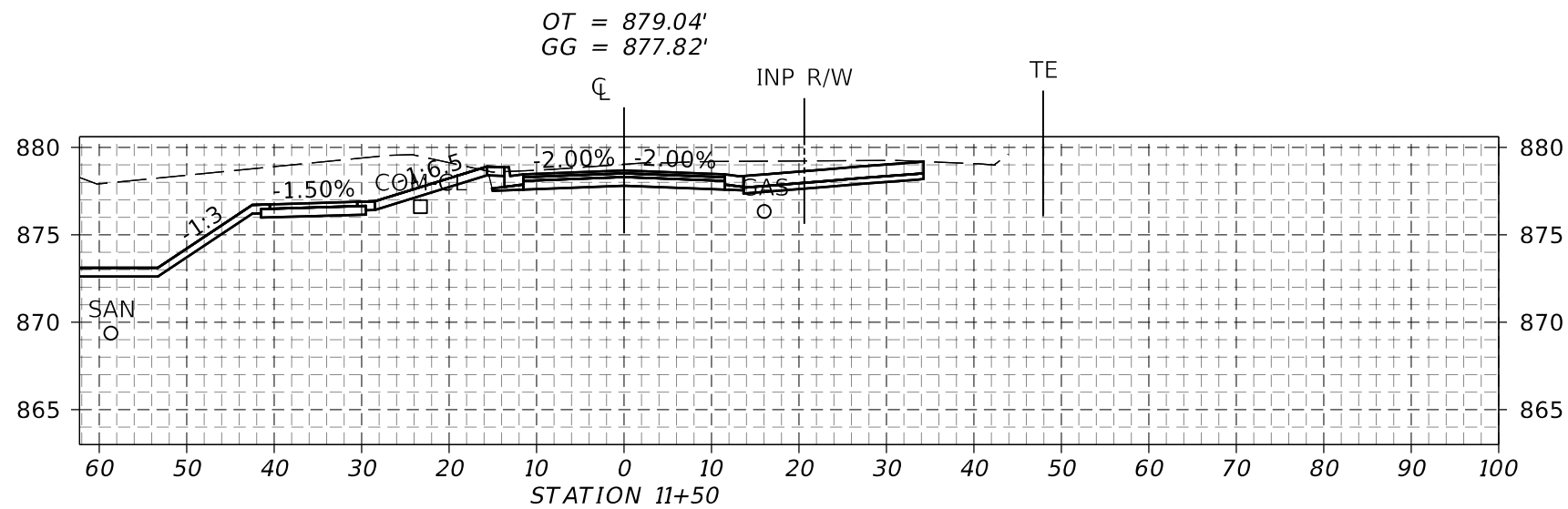
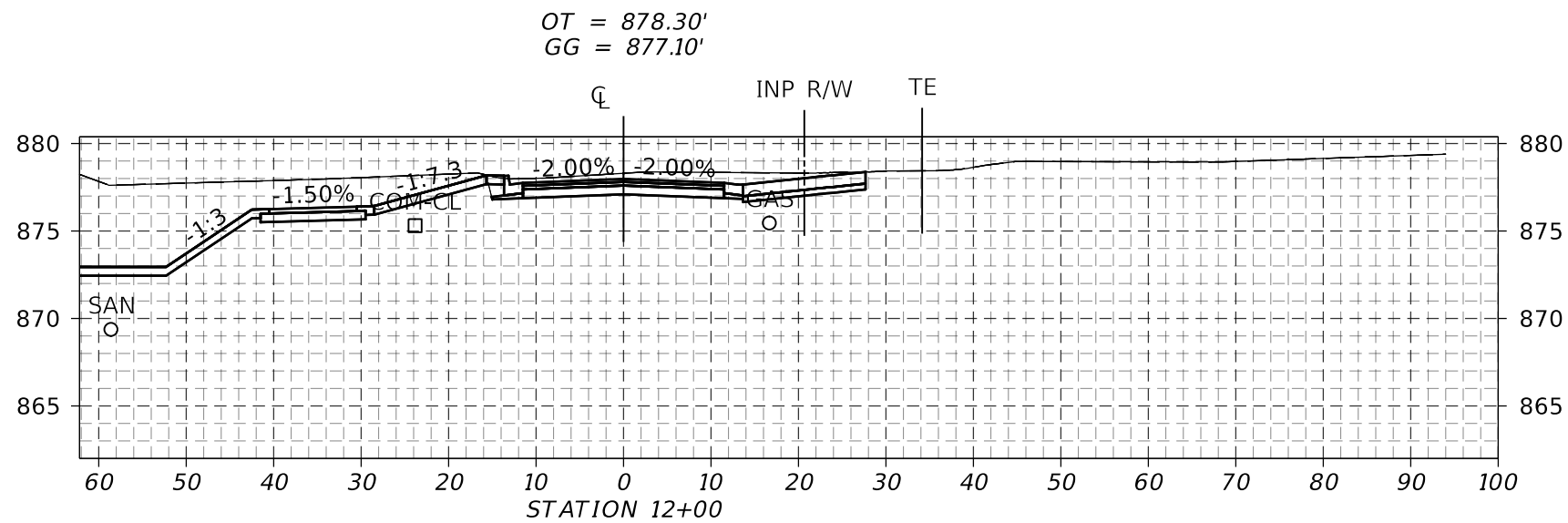
LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 10+50.00 TO STATION 11+00.00	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS155 XS176



LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

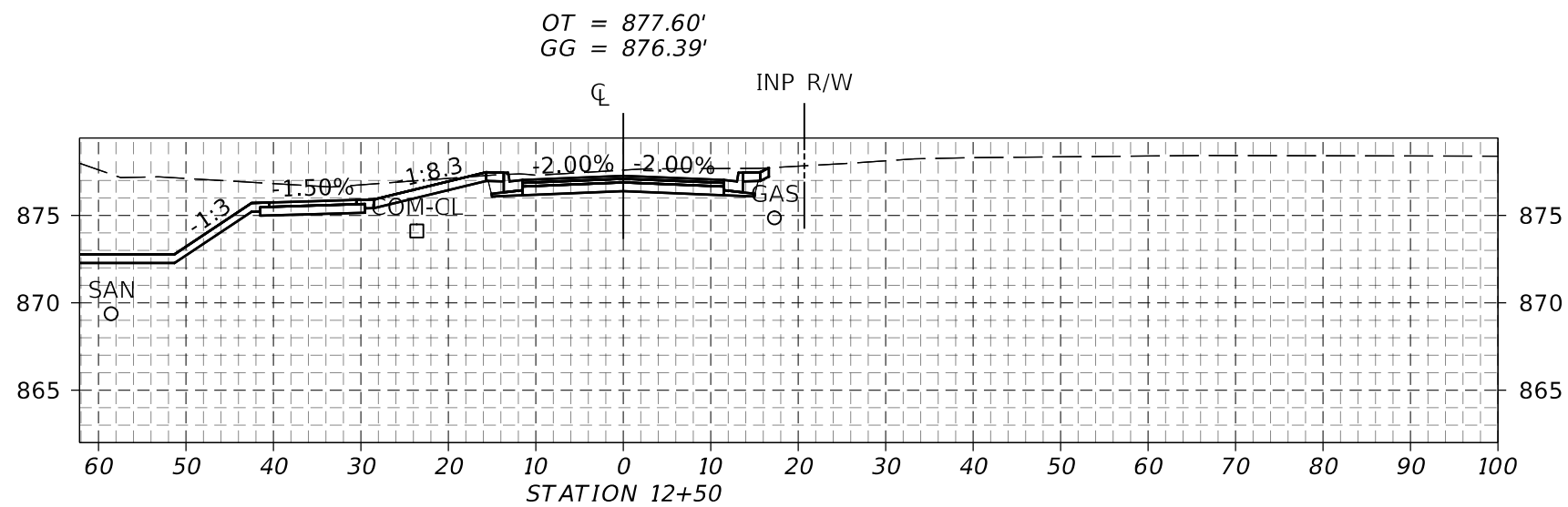
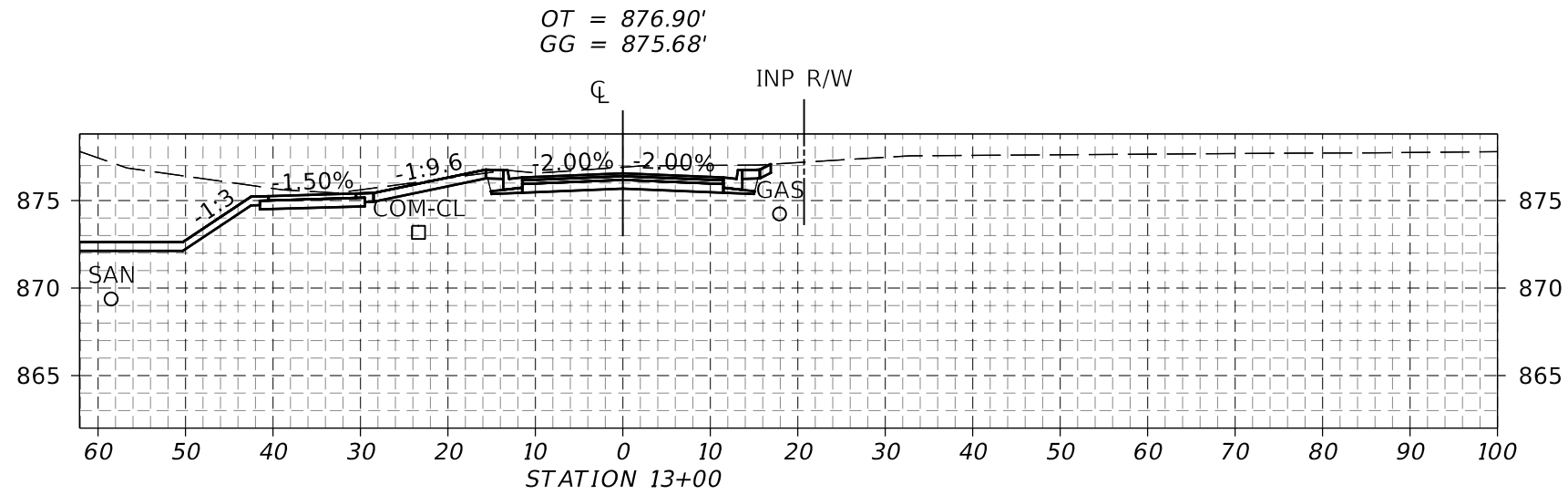
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 11+50.00 TO STATION 12+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS156
XS176



LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

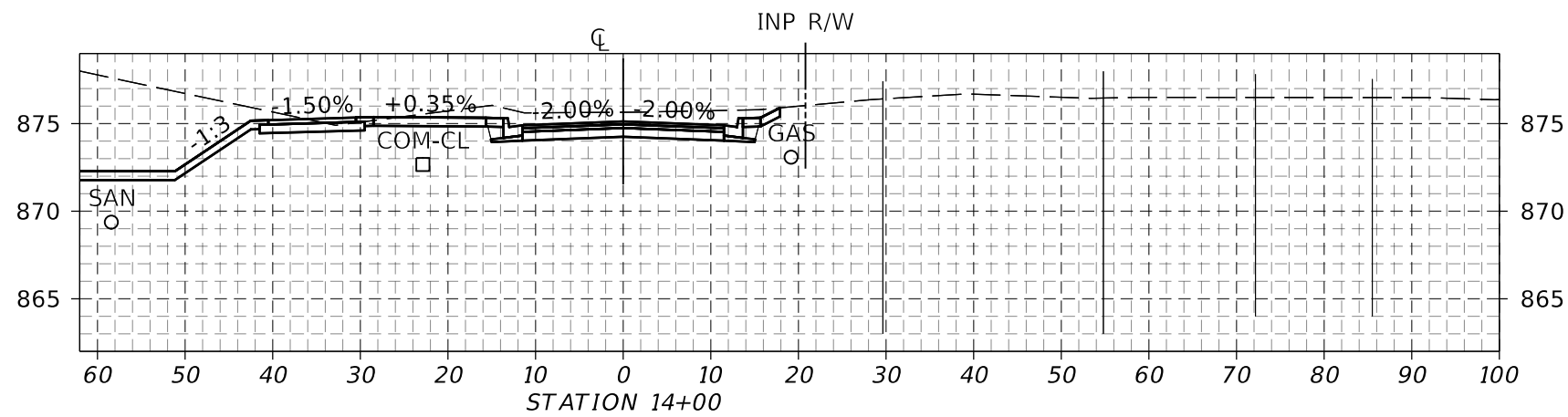
X-SECTIONS STATION 12+50.00 TO STATION 13+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

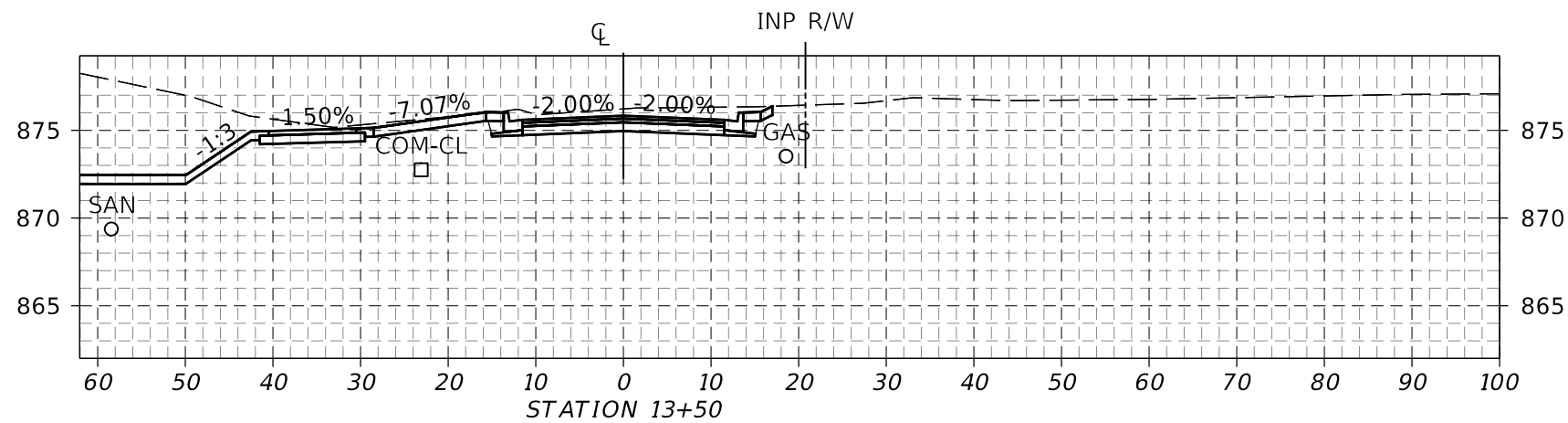
SHEET

XS157
XS176

OT = 875.65'
GG = 874.25'



OT = 876.23'
GG = 874.96'



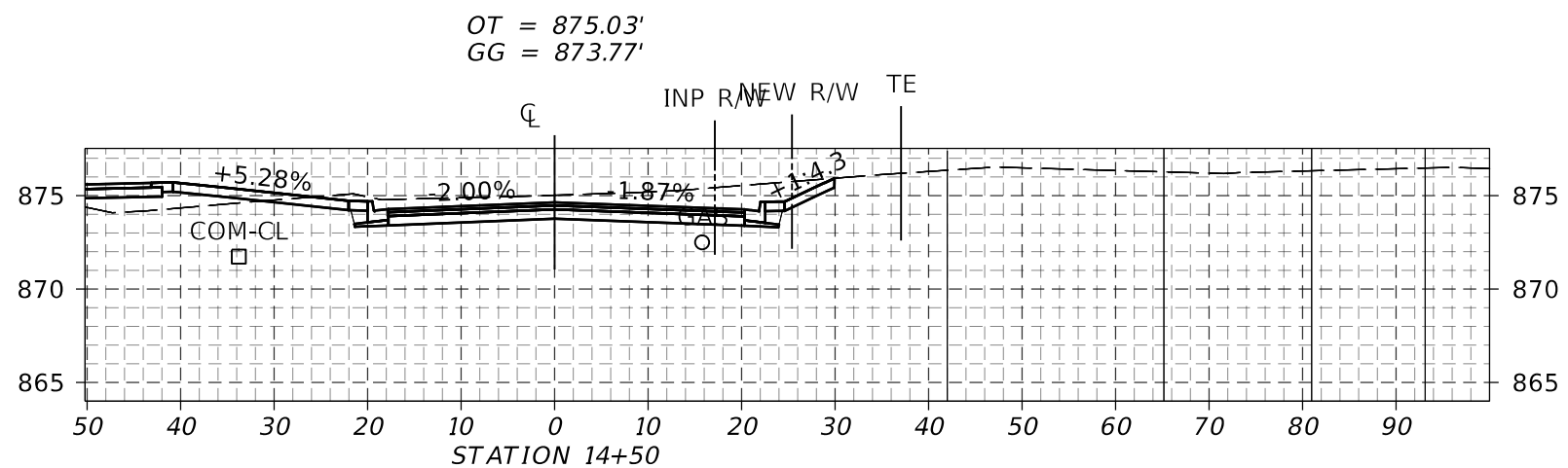
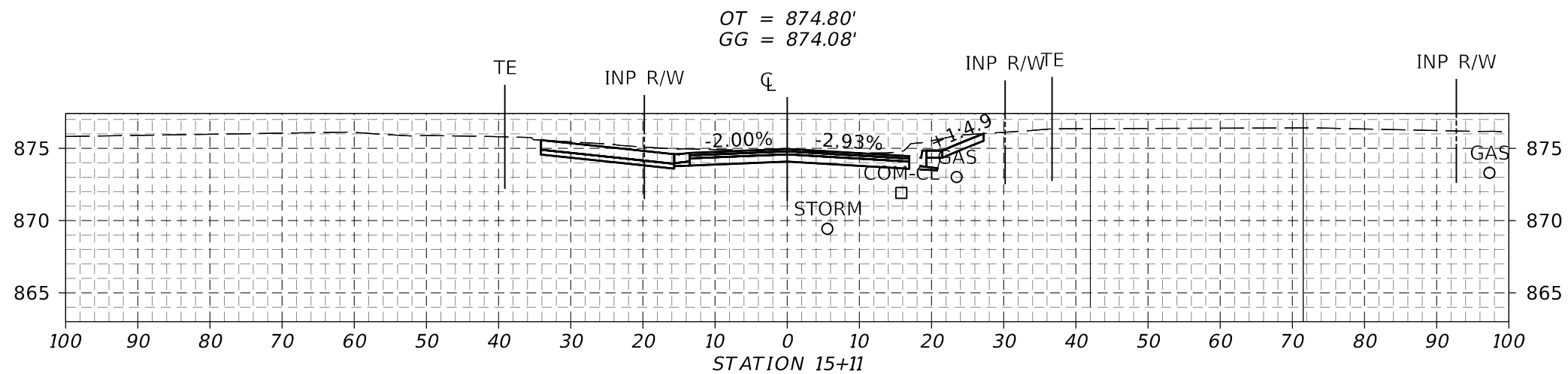
LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS	STATION 13+50.00 TO STATION 14+00.00	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS158 XS176



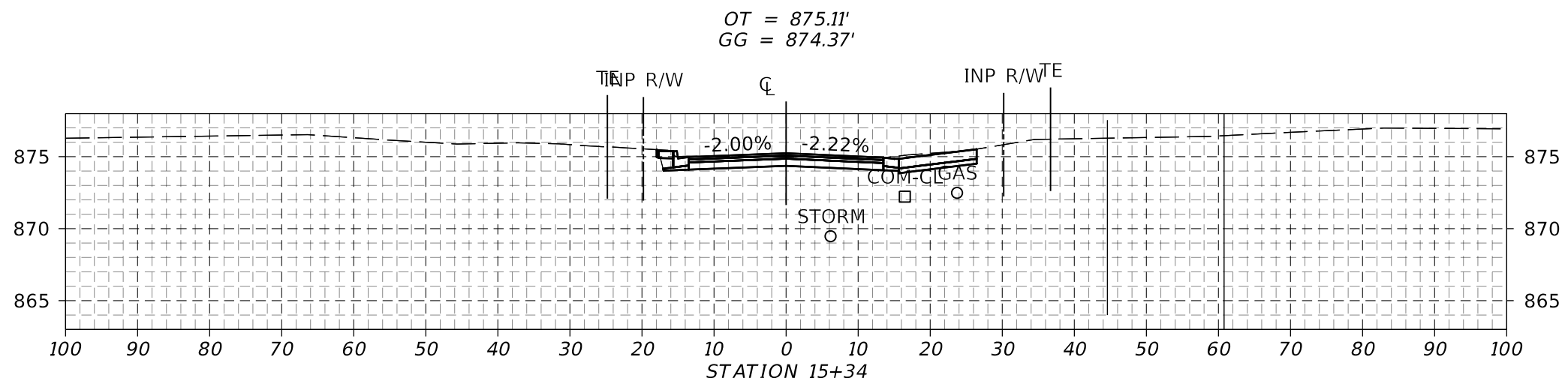
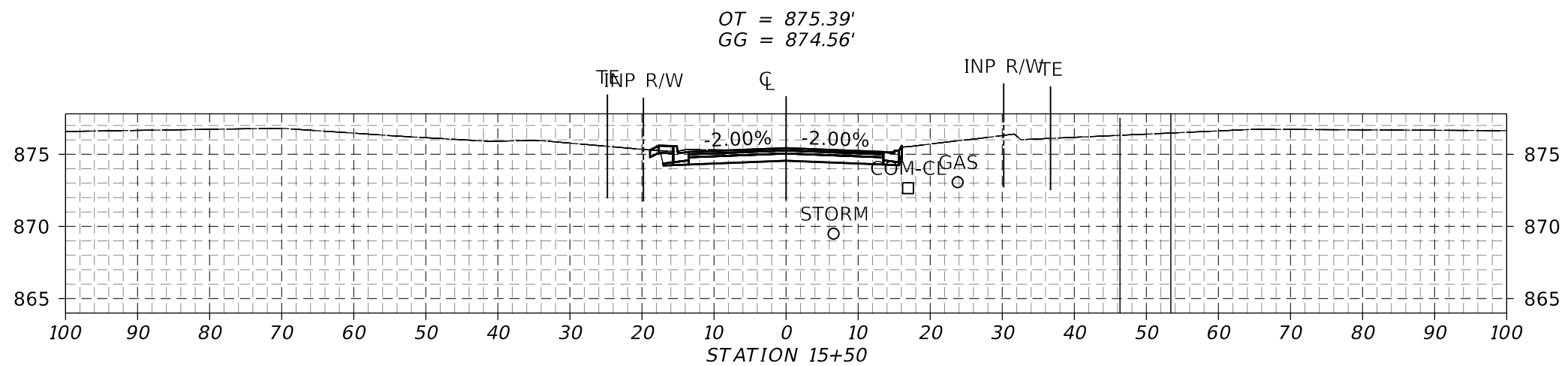
LAKELAND AVE



SCALE H 0' 5' 20'
 SCALE V 0' 5' 10'

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS	STATION 14+50.00 TO STATION 15+10.90	SHEET
C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922 S.P. 027-681-035 S.P. XXX-XXX-XXX		XS159 XS176



LAKELAND AVE

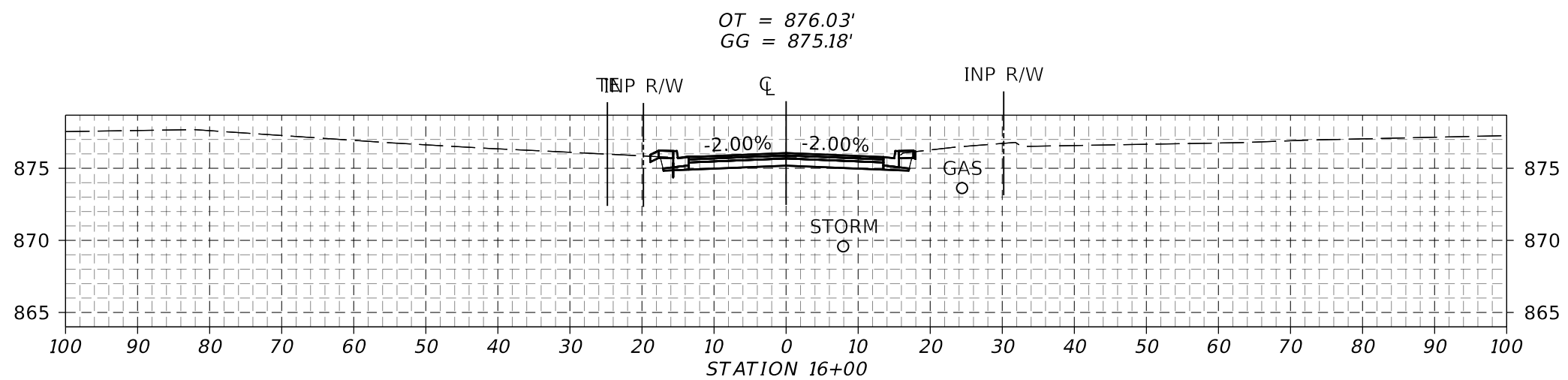
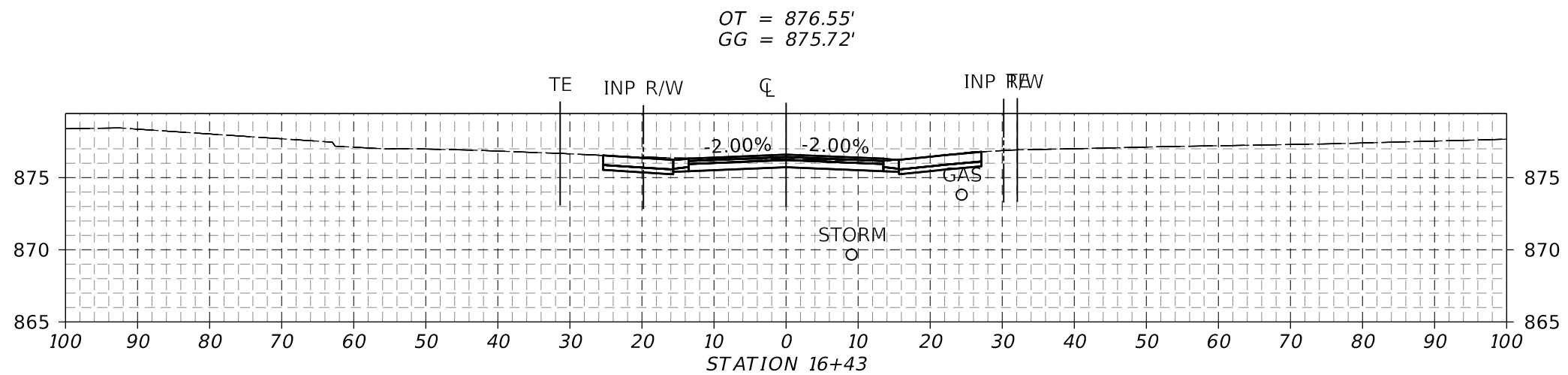


SCALE H $0' \quad 5' \quad 20'$
 SCALE V $0' \quad 5' \quad 10'$

DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 15+34.29 TO STATION 15+50.00
 C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET
 XS160
 XS176



LAKELAND AVE



SCALE H $0' \quad 5' \quad 20'$
 SCALE V $0' \quad 5' \quad 10'$

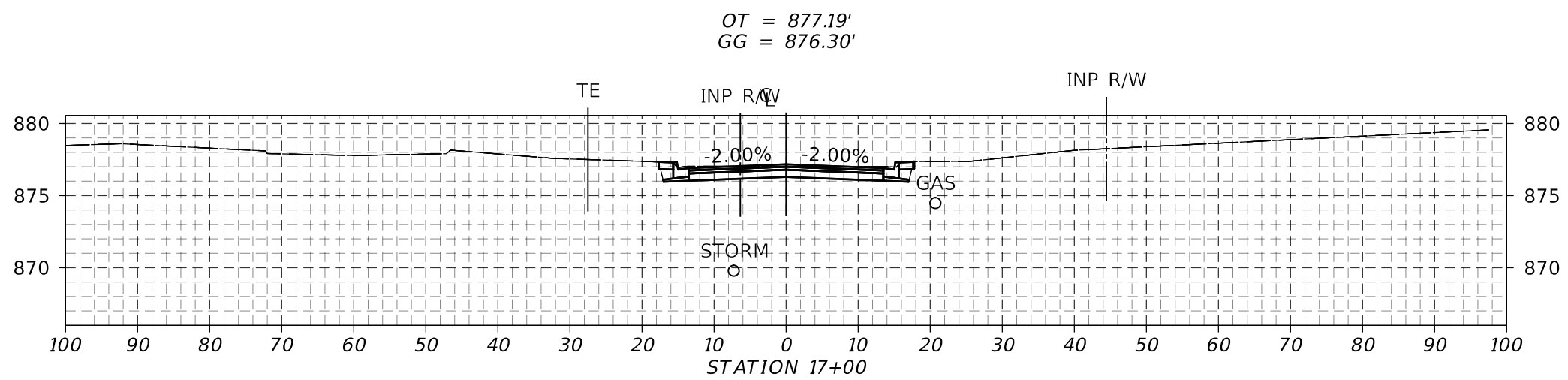
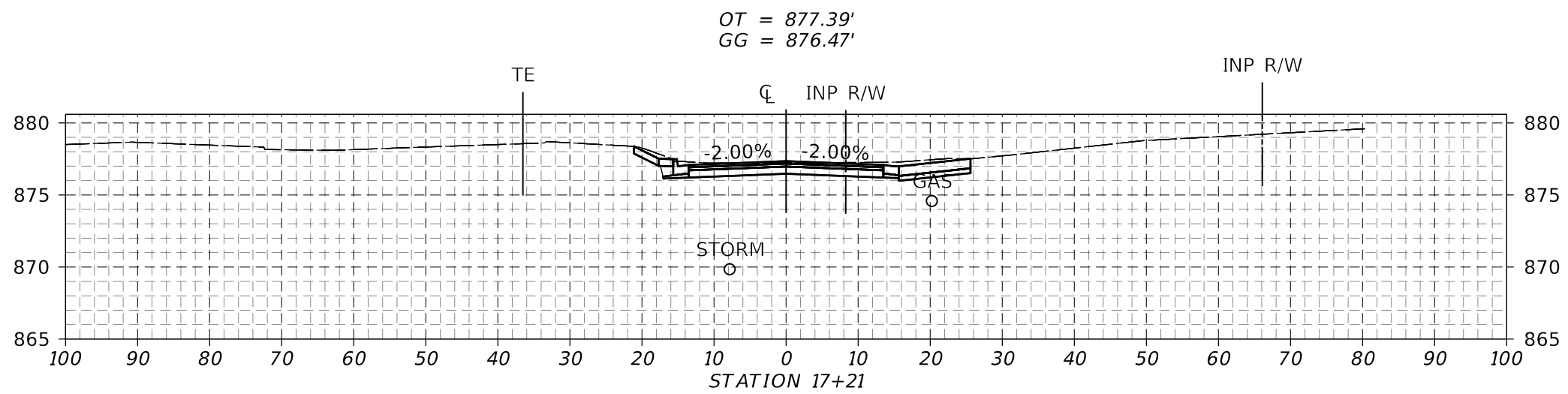
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 16+00.00 TO STATION 16+43.37

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS161
 XS176



LAKELAND AVE



SCALE H $0' = 5' = 20'$
 SCALE V $0' = 5' = 10'$

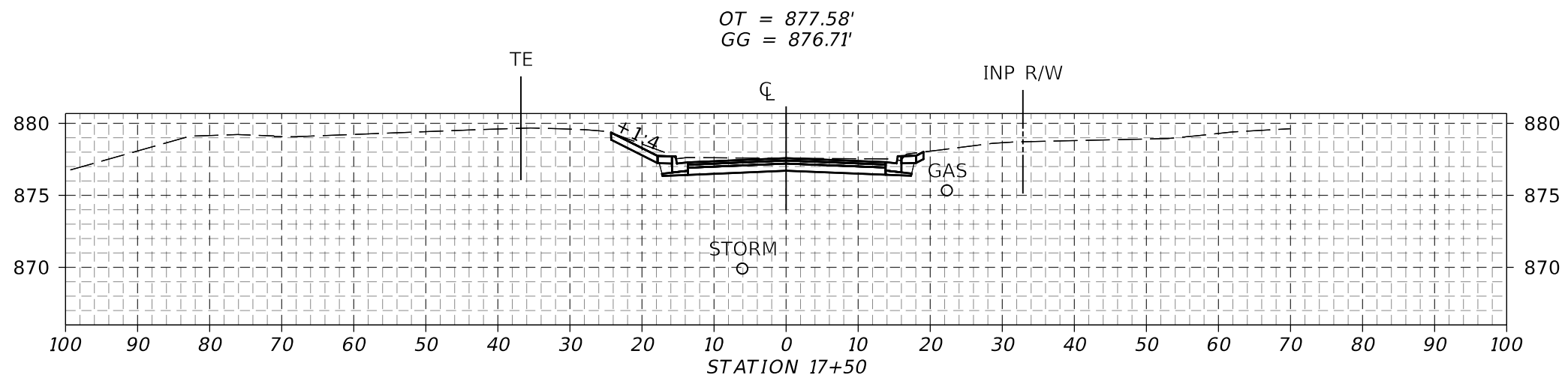
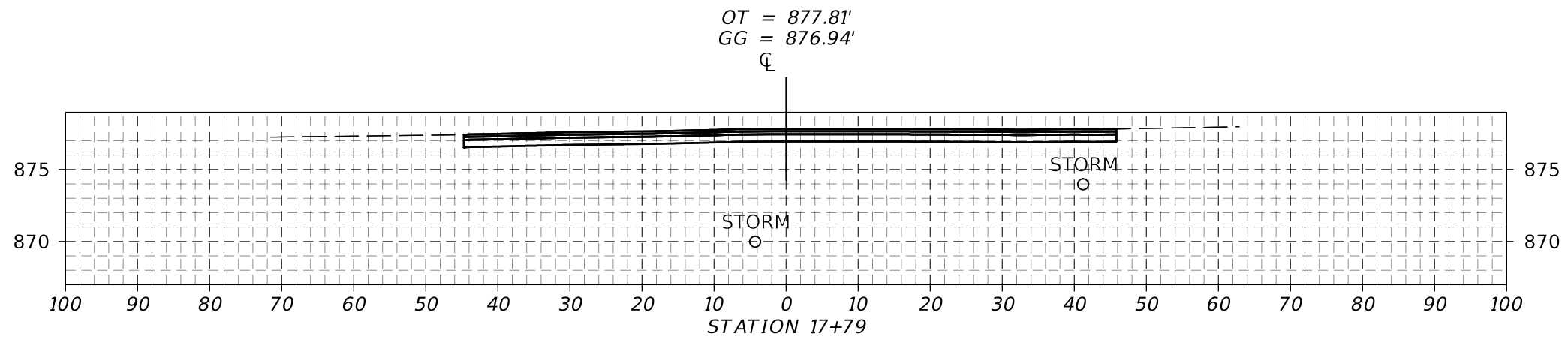
DESIGN BY: S. PARK
 CAD BY: R. DECOTEAU
 CHECKED BY: L. LANGNER
 LAST REVISION: / /

X-SECTIONS STATION 17+00.00 TO STATION 17+20.78

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
 S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS162
 XS176



LAKELAND AVE



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

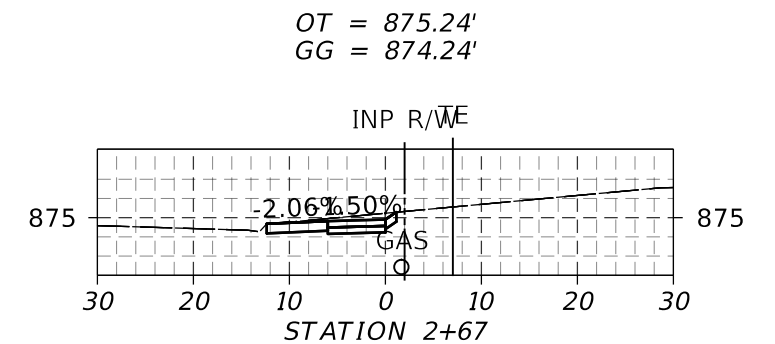
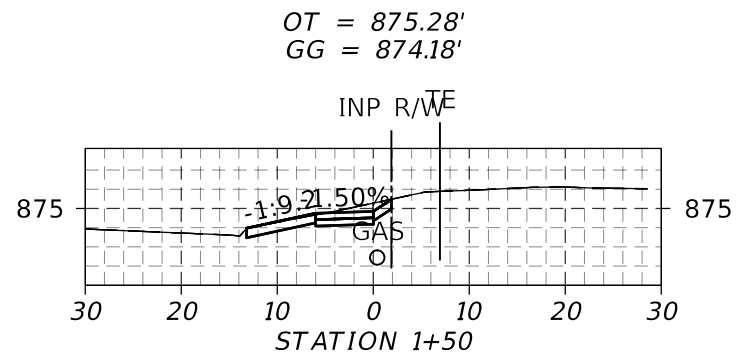
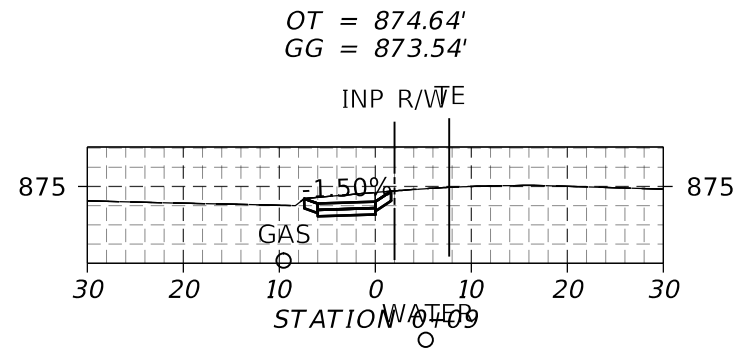
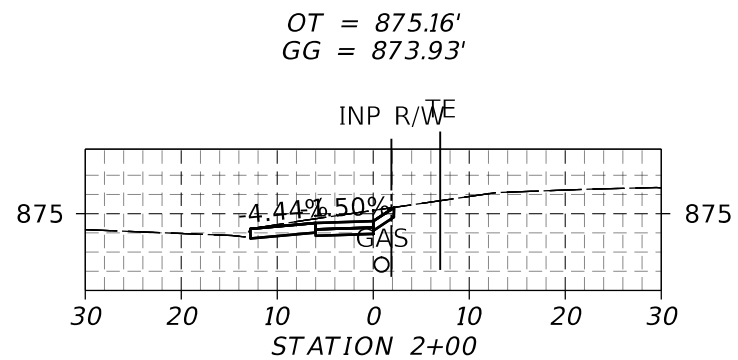
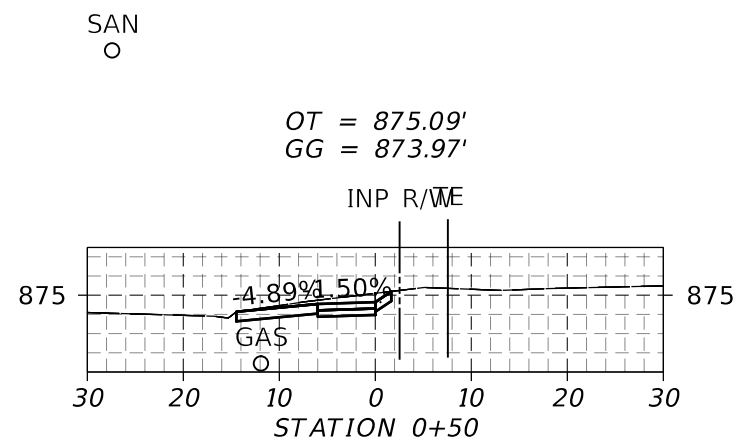
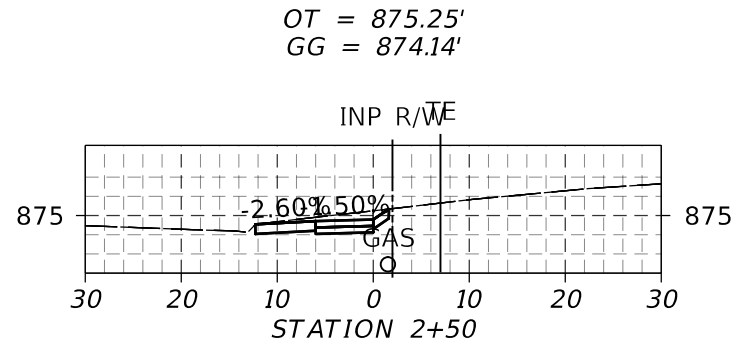
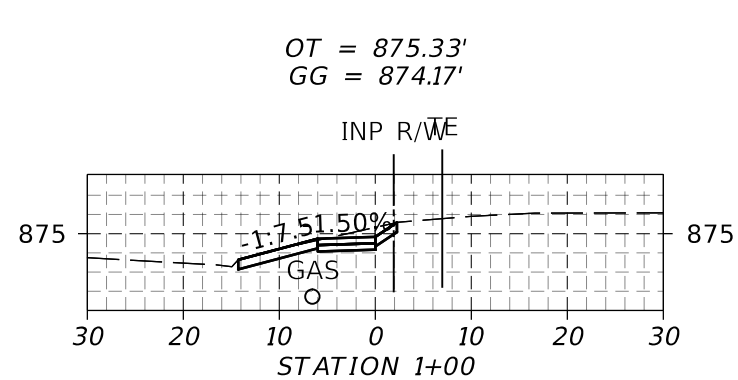
LAST REVISION: / /

X-SECTIONS STATION 17+50.00 TO STATION 17+79.14

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS163
XS176



SIDEWALK ON 79TH AVE



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

LAST REVISION: / /

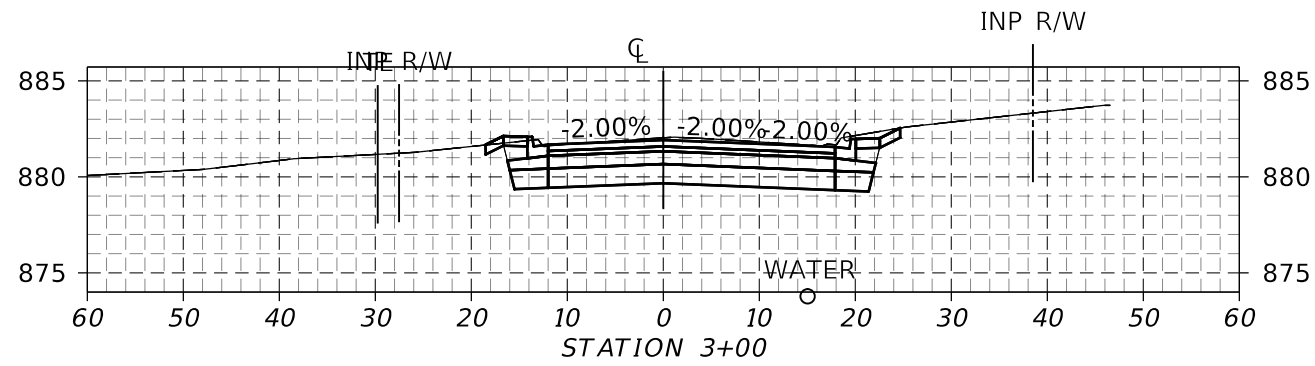
X-SECTIONS STATION 0+08.64 TO STATION 2+67.02

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

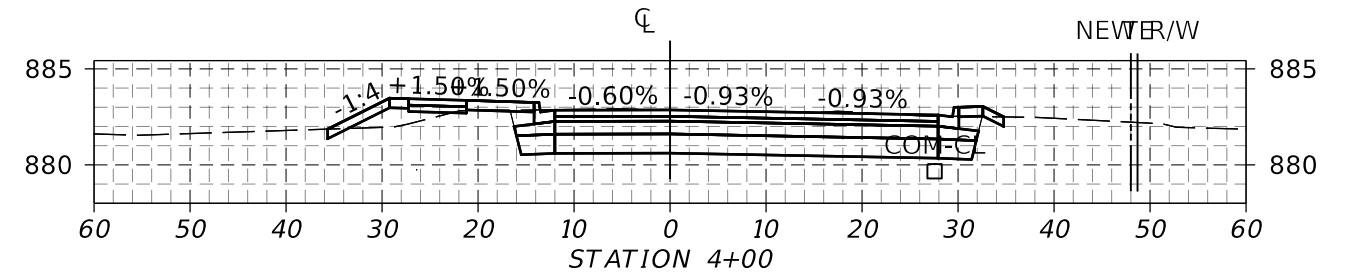
SHEET

XS164
XS176

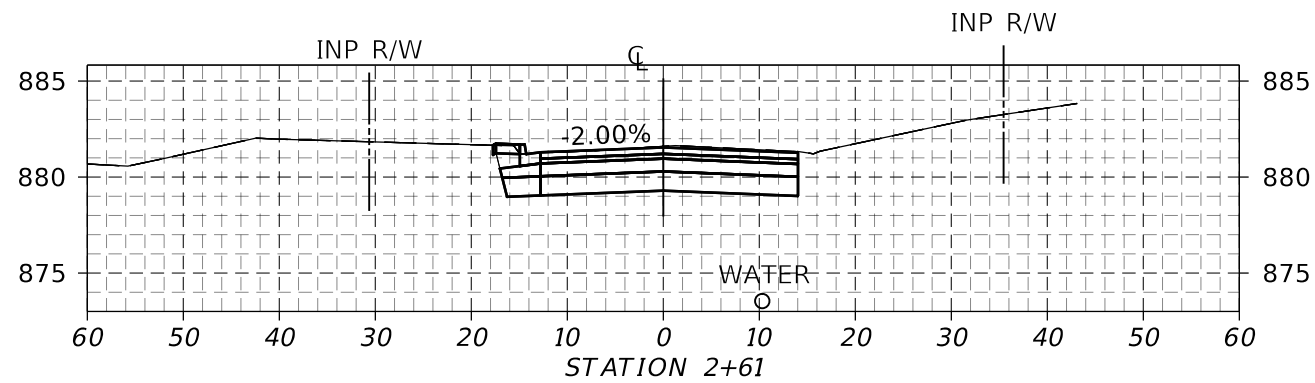
OT = 882.03'
GG = 880.66'



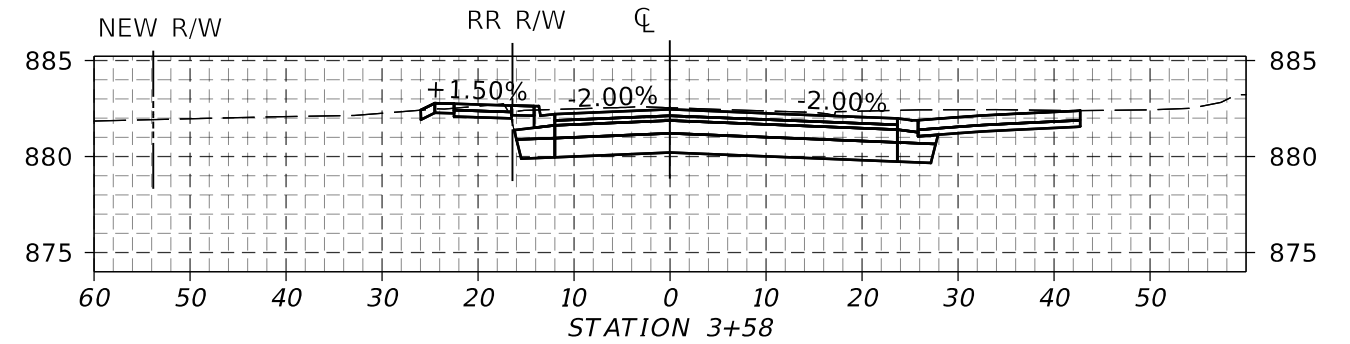
OT = 882.85'
GG = 881.61'



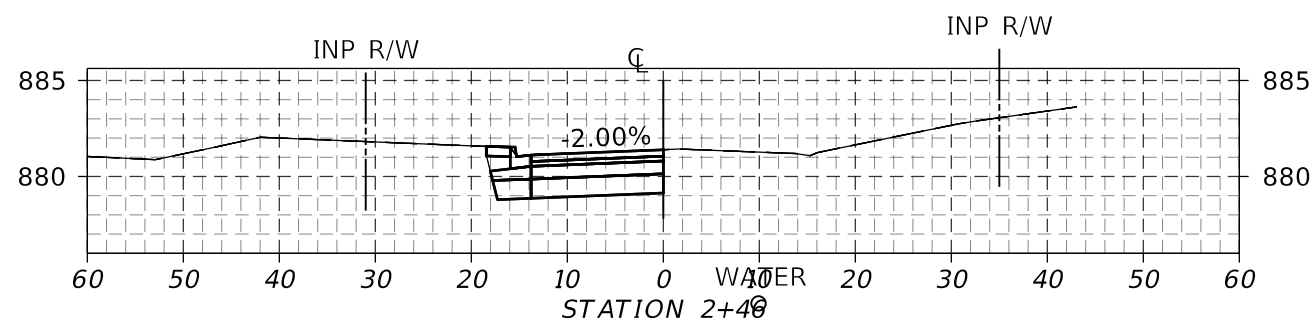
OT = 881.60'
GG = 880.29'



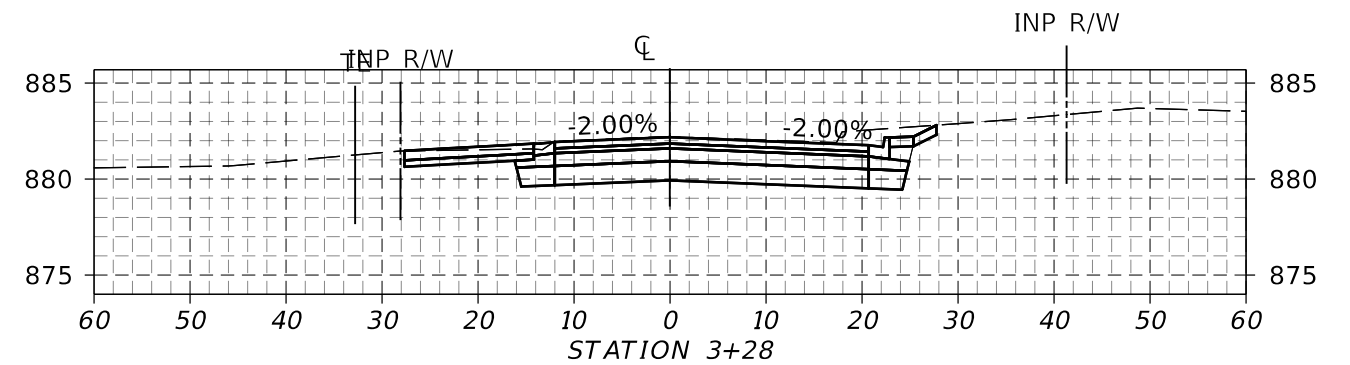
OT = 882.55'
GG = 881.21'



OT = 881.40'
GG = 880.15'



OT = 882.21'
GG = 880.93'



GREEN HAVEN DRIVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

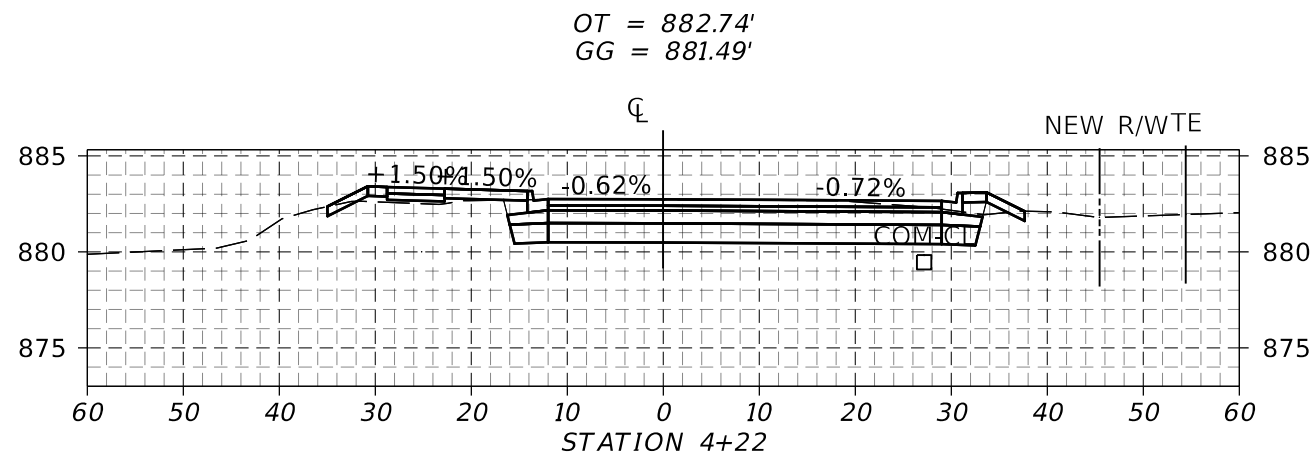
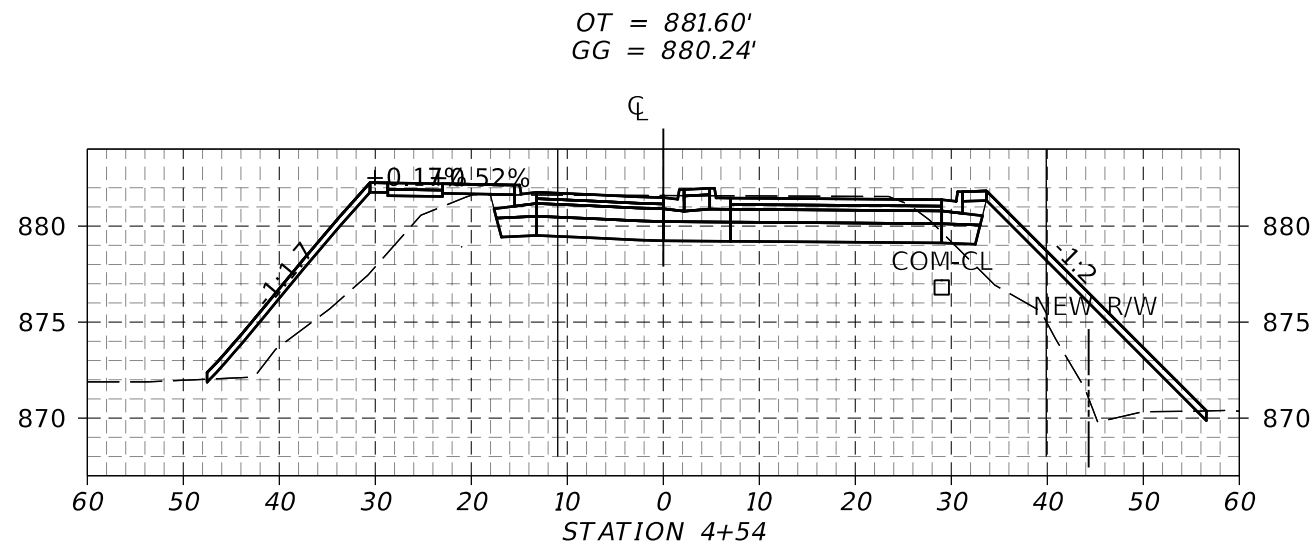
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 2+45.70 TO STATION 4+00.10

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS165
XS176



GREEN HAVEN DRIVE



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

LAST REVISION: / /

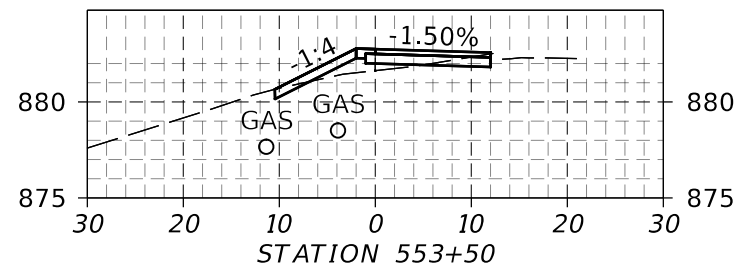
X-SECTIONS STATION 4+21.68 TO STATION 4+54.20

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

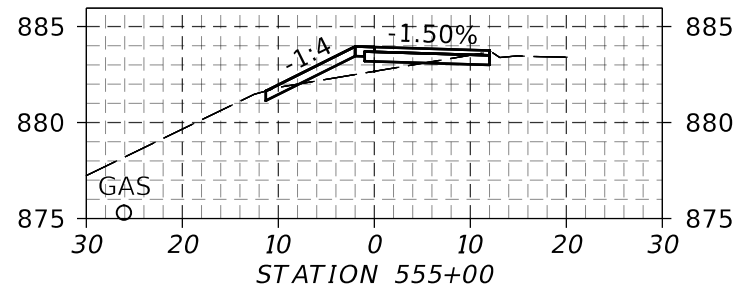
SHEET

XS166
XS176

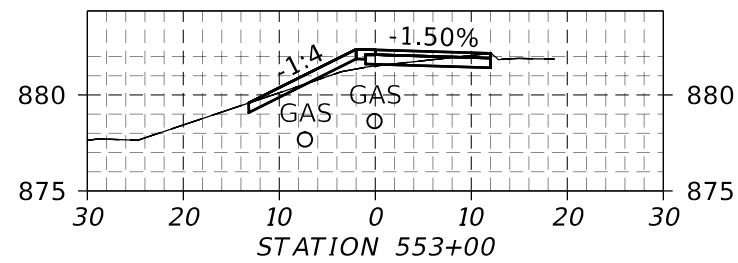
OT = 881.63'
GG = 882.00'



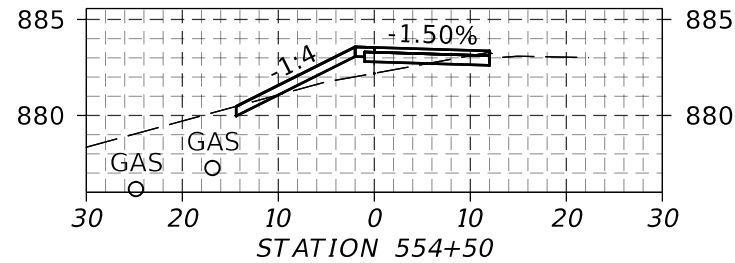
OT = 882.67'
GG = 883.18'



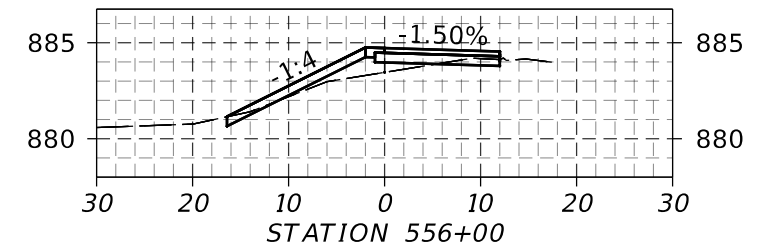
OT = 881.52'
GG = 881.60'



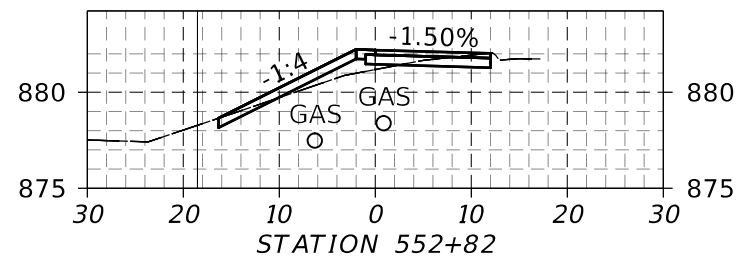
OT = 882.19'
GG = 882.79'



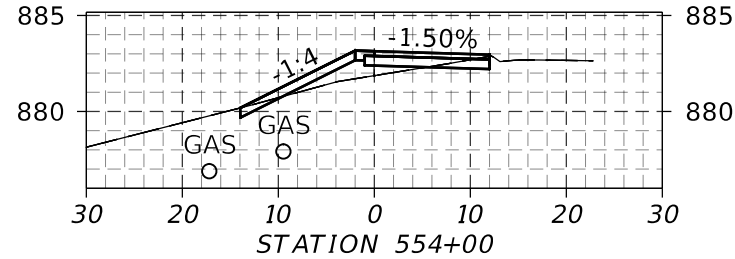
OT = 883.47'
GG = 883.98'



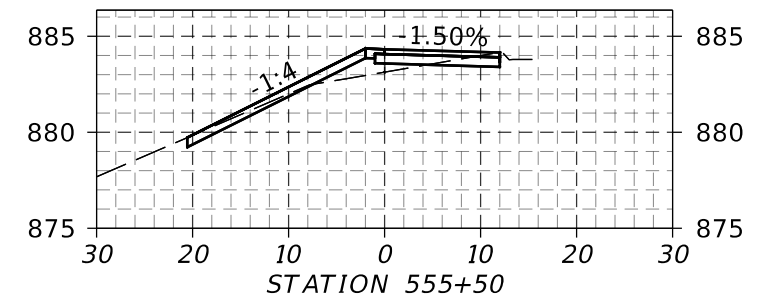
OT = 881.19'
GG = 881.46'



OT = 881.87'
GG = 882.39'



OT = 883.13'
GG = 883.58'



TRAIL ON LAKELAND AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

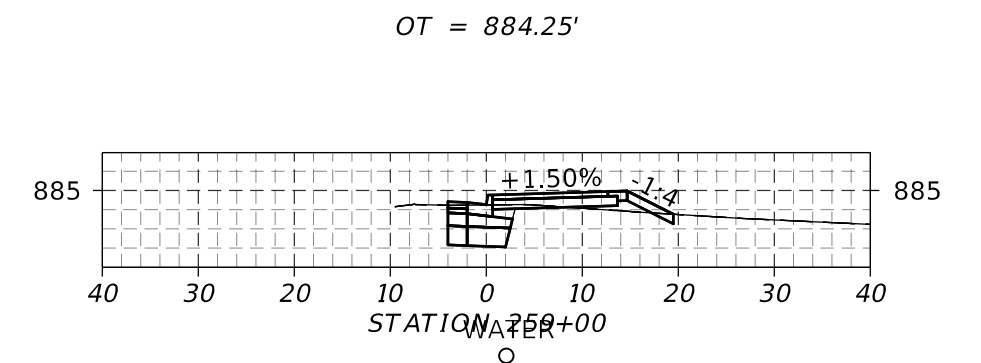
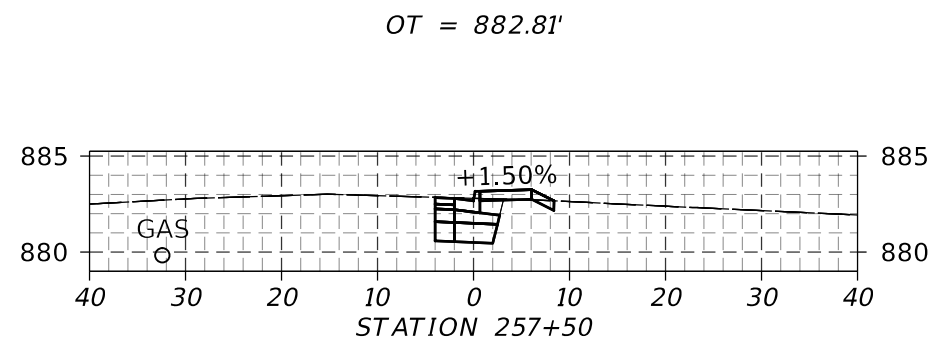
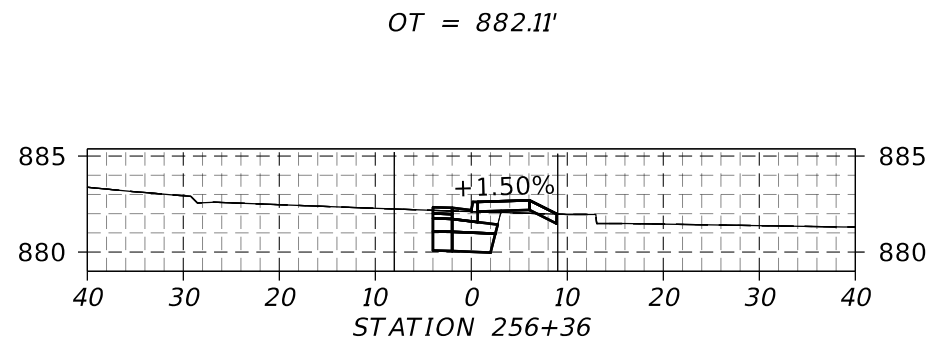
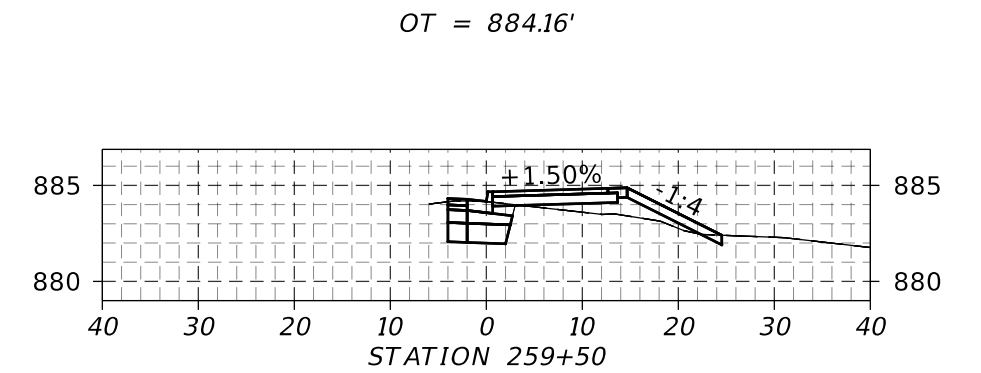
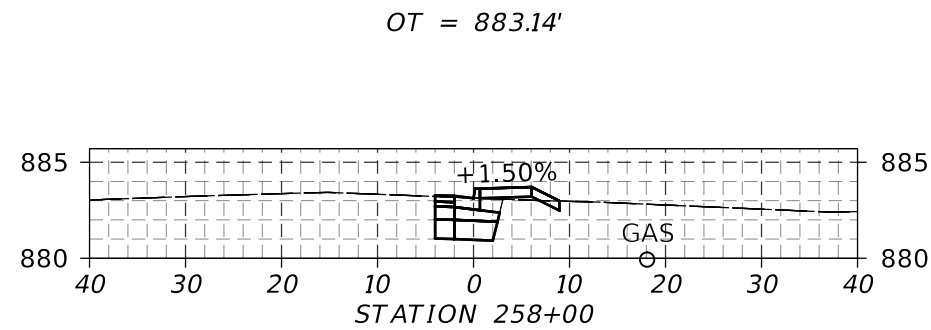
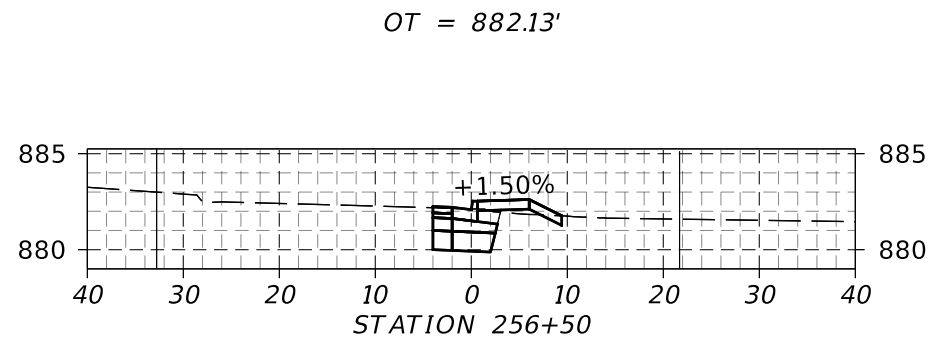
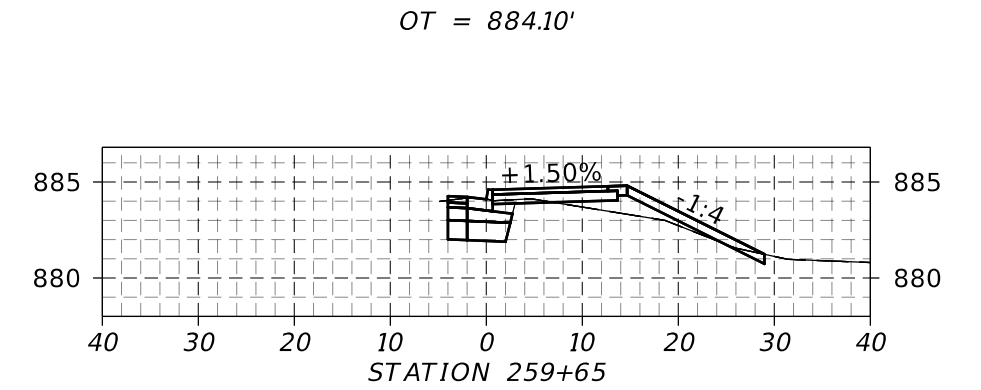
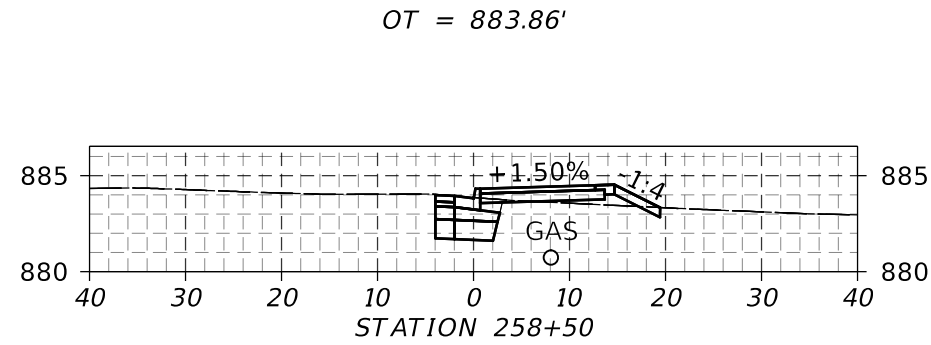
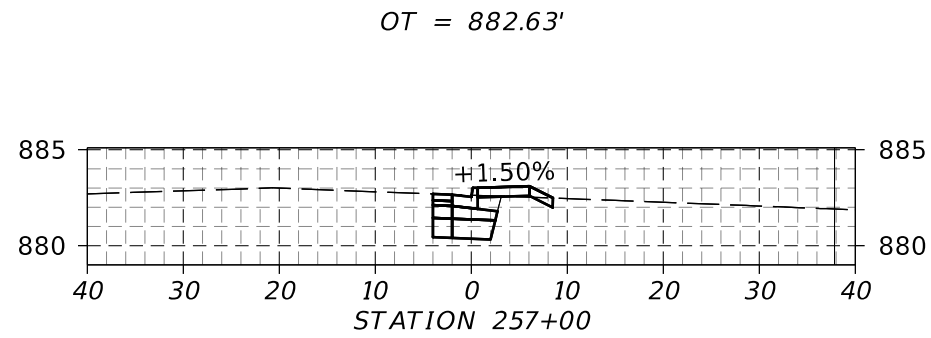
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 552+82.00 TO STATION 556+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS167
XS176



83RD AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

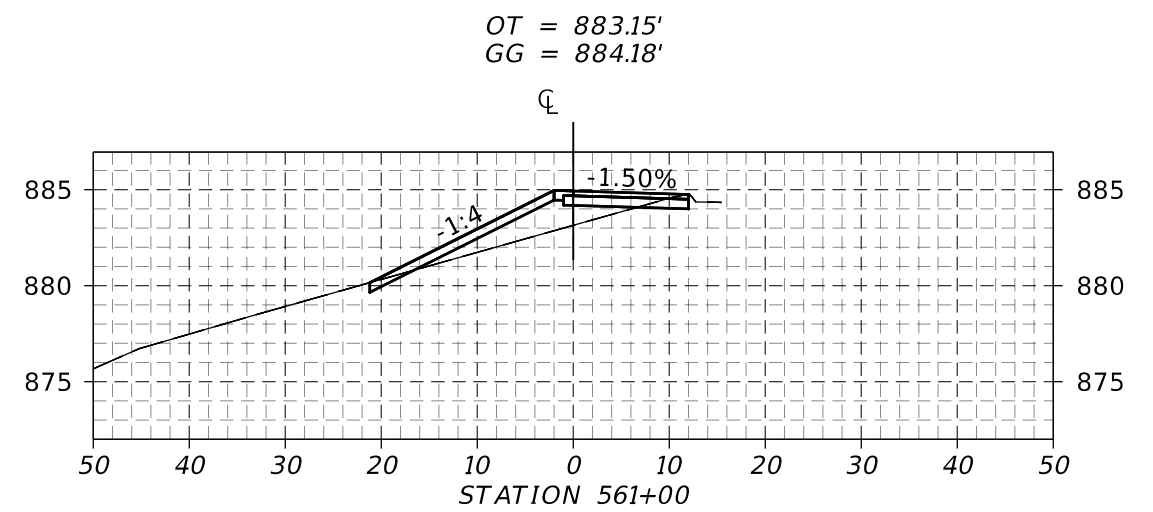
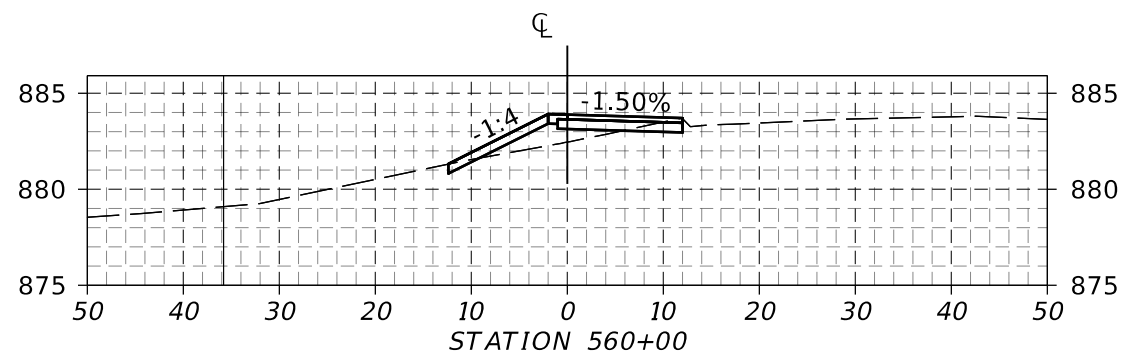
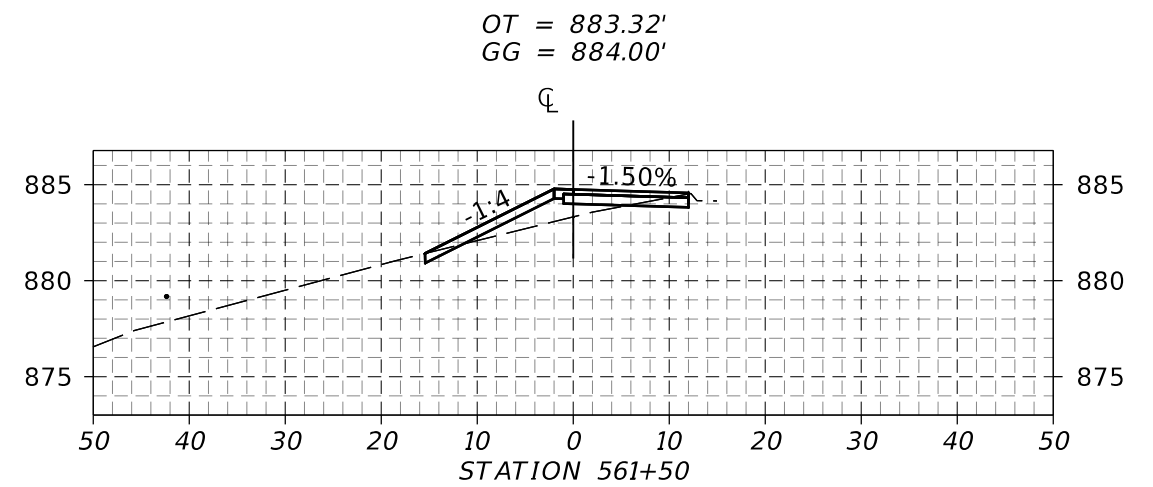
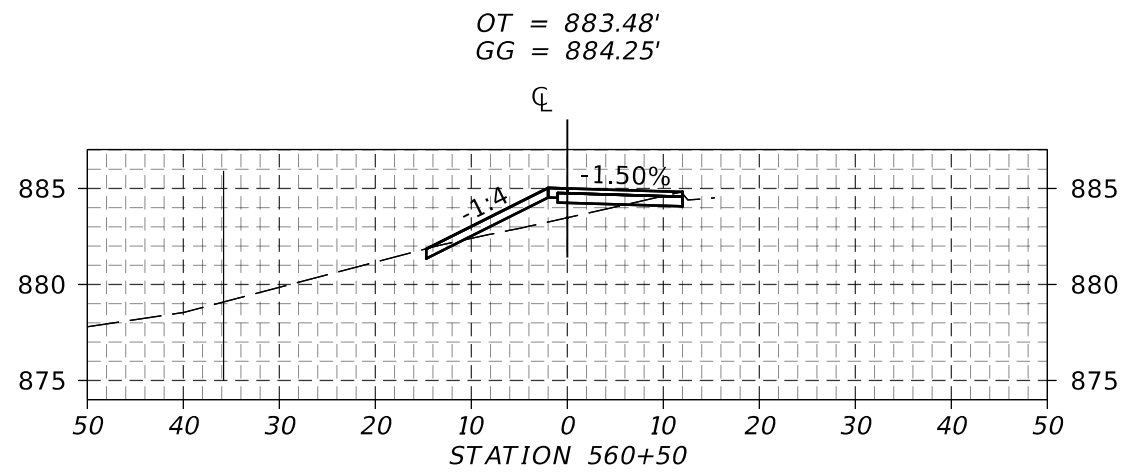
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 256+36.48 TO STATION 259+64.57

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS168
XS176



TRAIL SOUTH OF 85TH AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

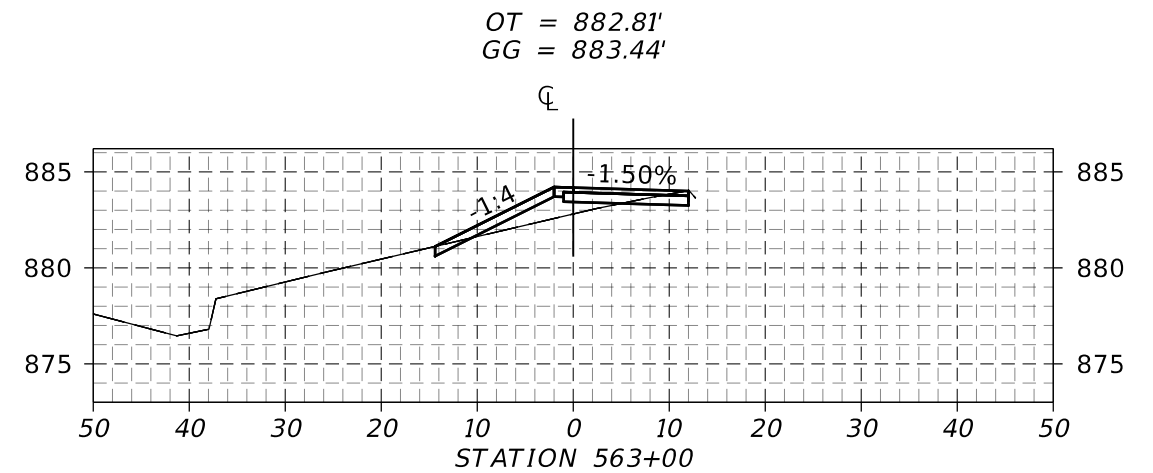
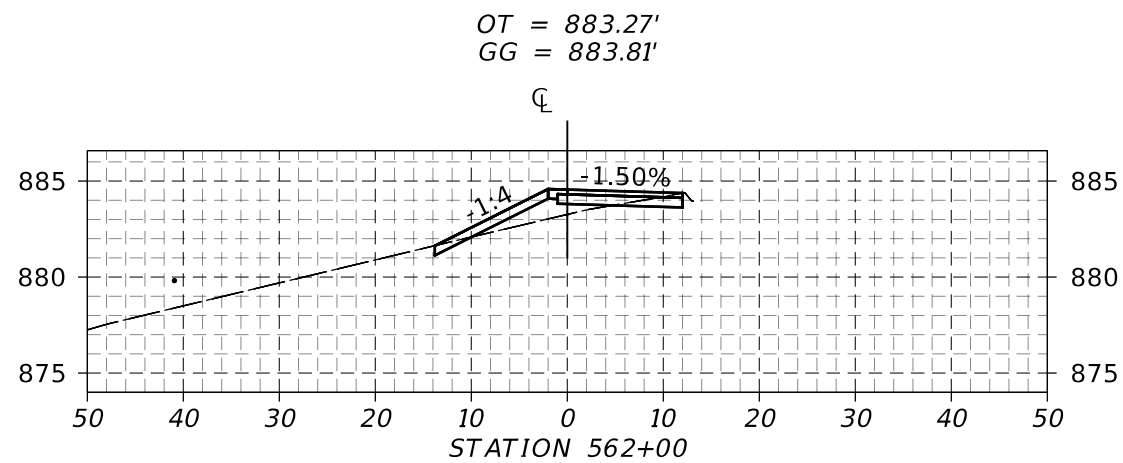
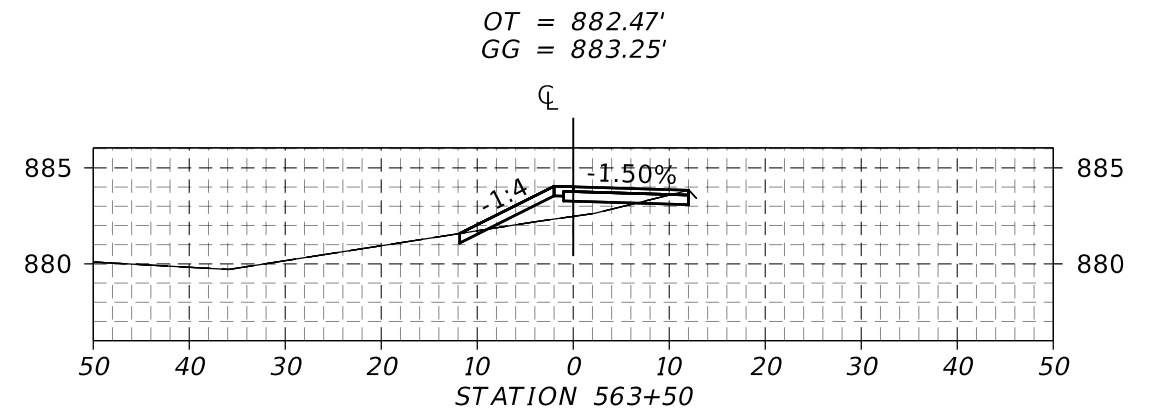
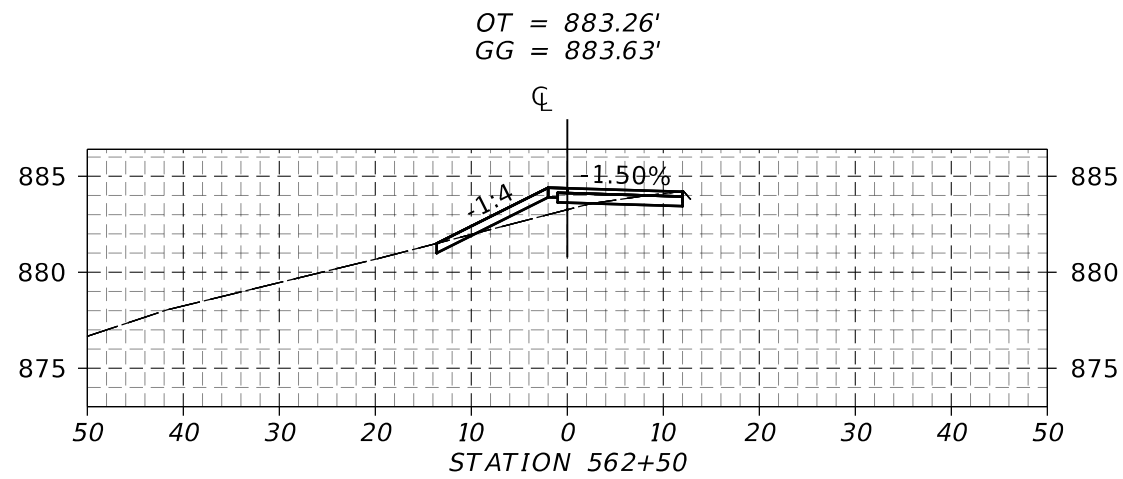
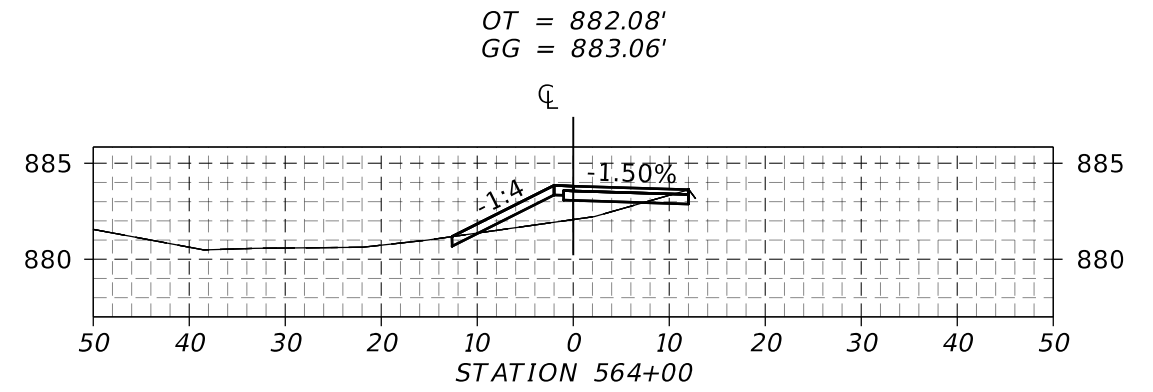
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 560+00.00 TO STATION 561+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS169
XS176



TRAIL SOUTH OF 85TH AVE



SCALE H 0' 5' 20'

SCALE V 0' 5' 10'

DESIGN BY: S. PARK

CAD BY: R. DECOTEAU

CHECKED BY: L. LANGNER

LAST REVISION: / /

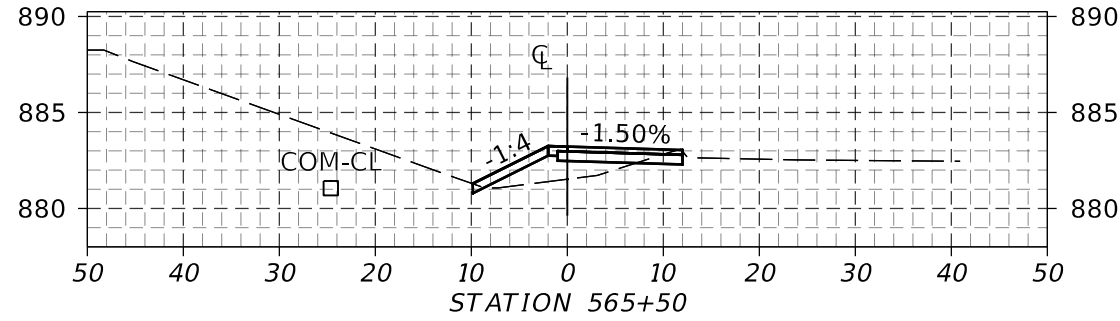
X-SECTIONS STATION 562+00.00 TO STATION 564+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

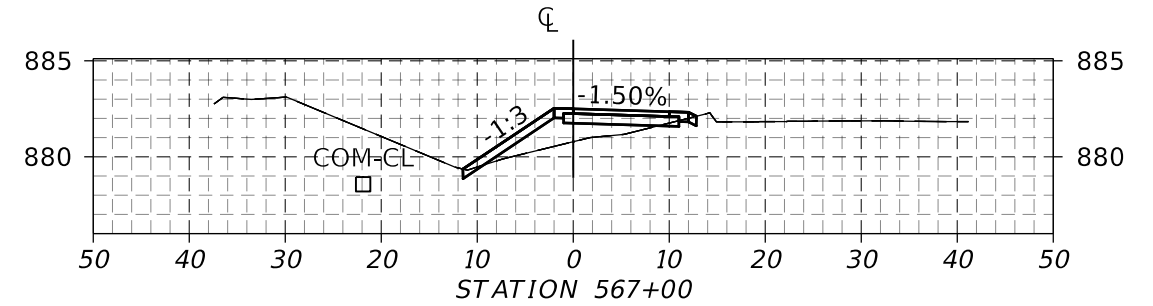
SHEET

XS170
XS176

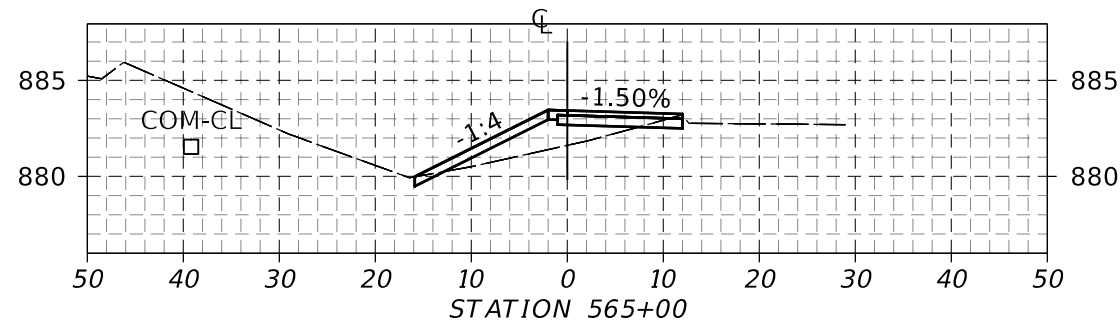
OT = 881.53'
GG = 882.48'



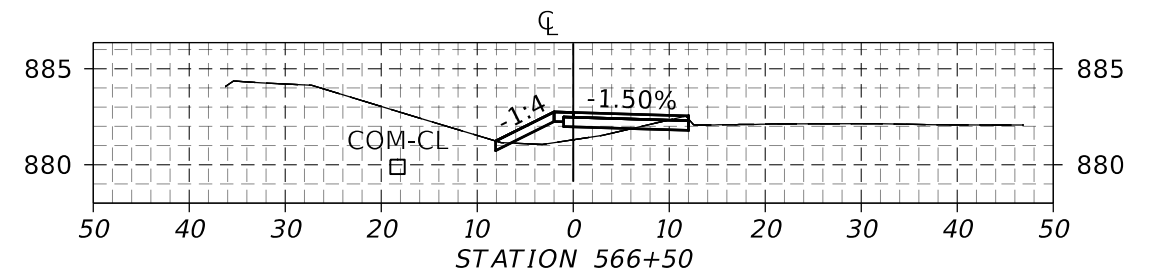
OT = 880.79'
GG = 881.74'



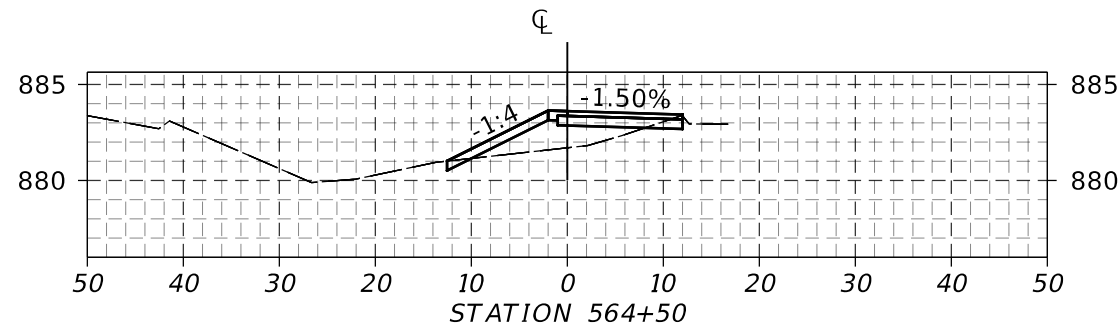
OT = 881.62'
GG = 882.67'



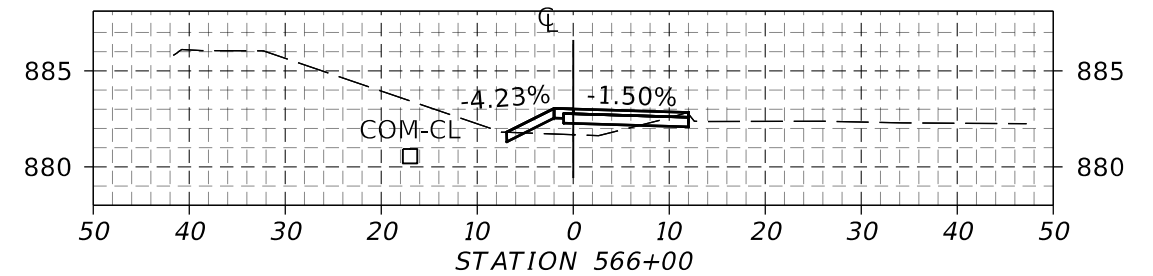
OT = 881.29'
GG = 881.97'



OT = 881.71'
GG = 882.87'



OT = 881.68'
GG = 882.27'



TRAIL SOUTH OF 85TH AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

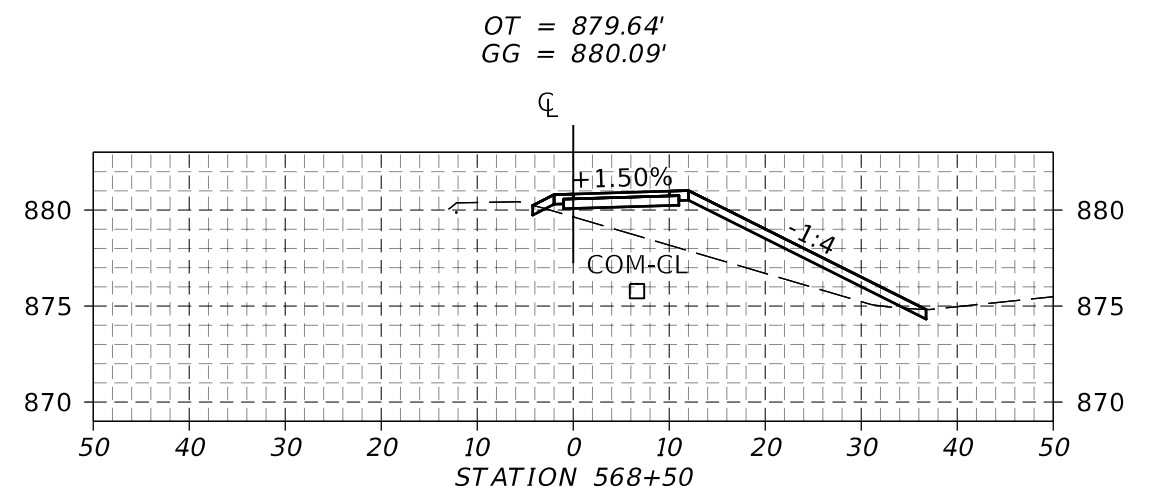
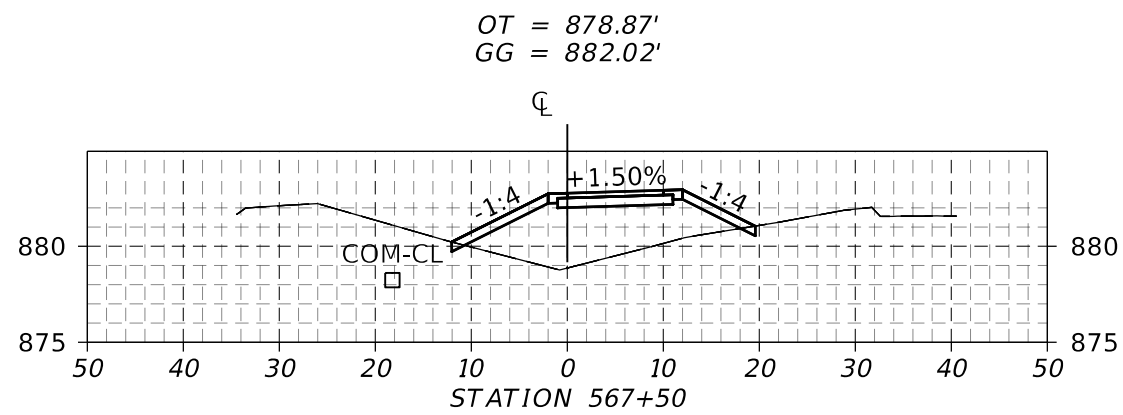
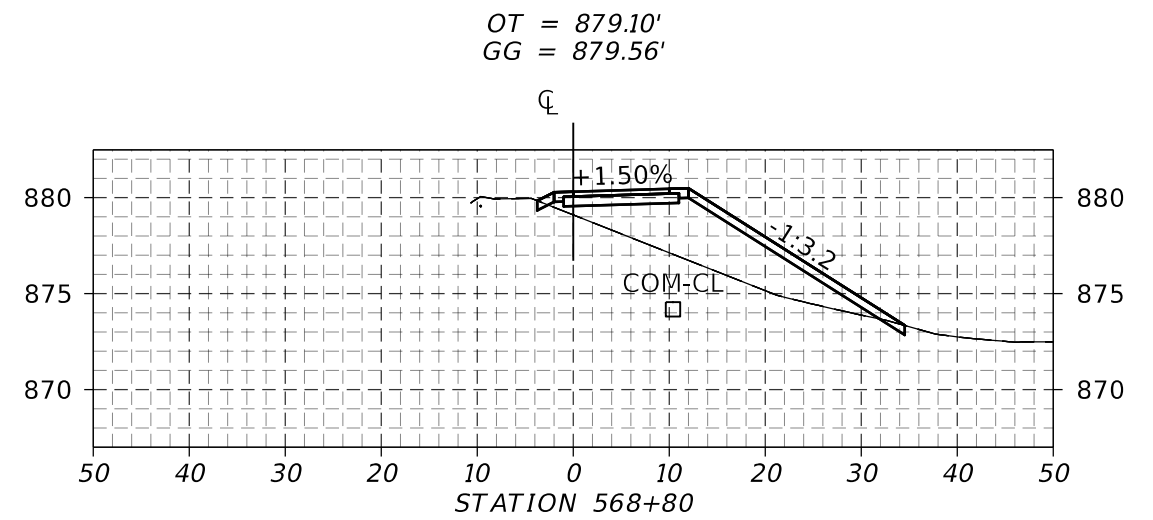
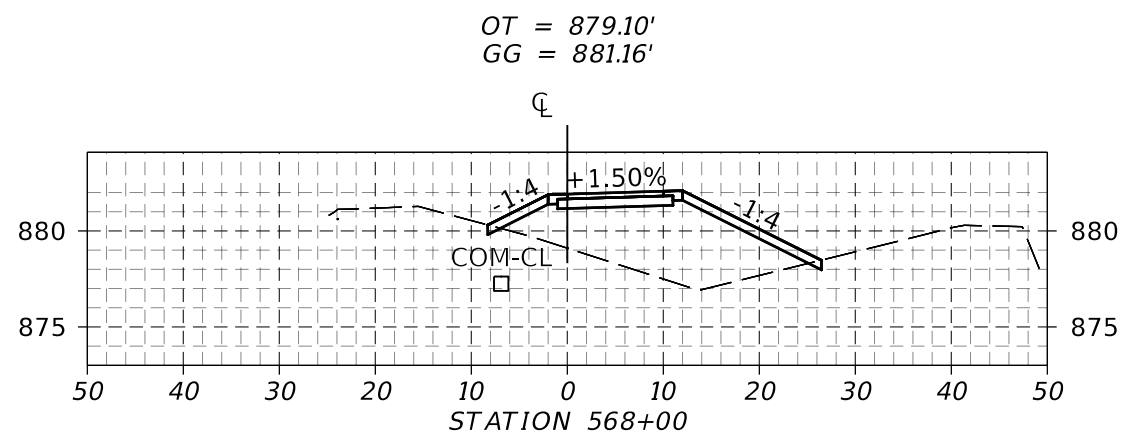
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 564+50.00 TO STATION 567+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS171
XS176



TRAIL SOUTH OF 85TH AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

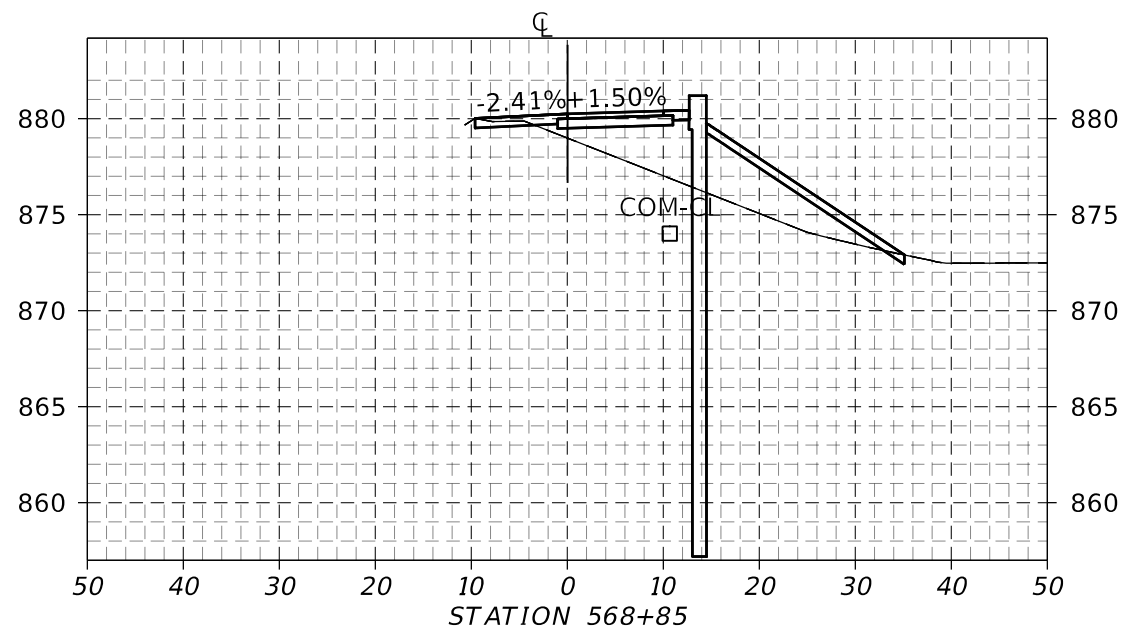
X-SECTIONS STATION 567+50.00 TO STATION 568+80.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

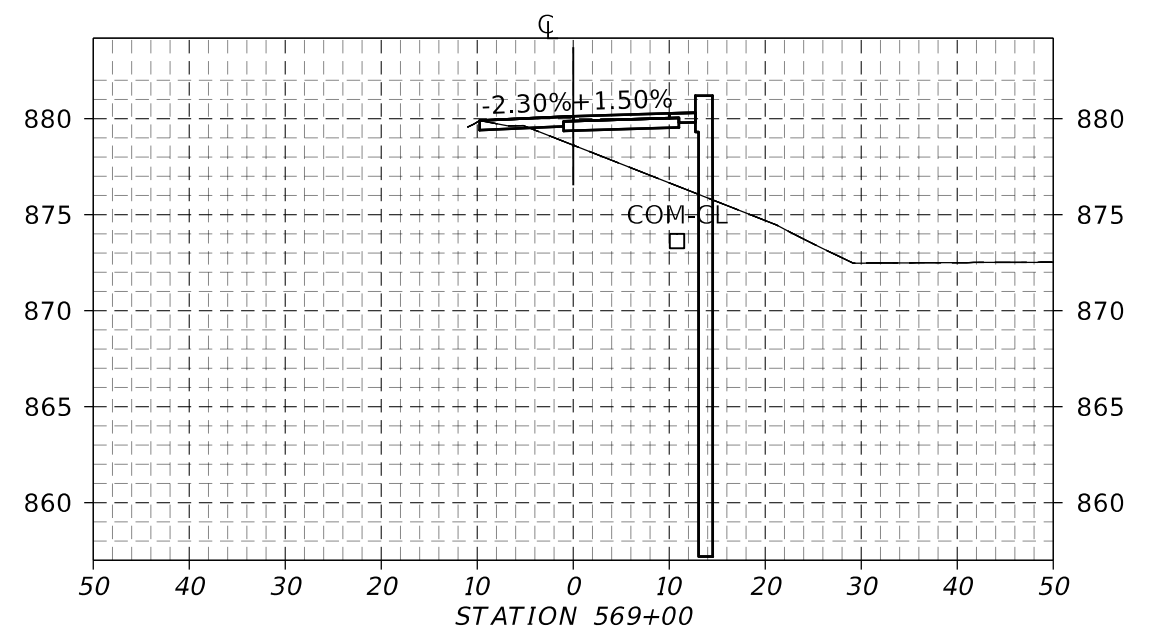
SHEET

XS172
XS176

OT = 878.99'
GG = 879.50'



OT = 878.62'
GG = 879.38'



TRAIL SOUTH OF 85TH AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

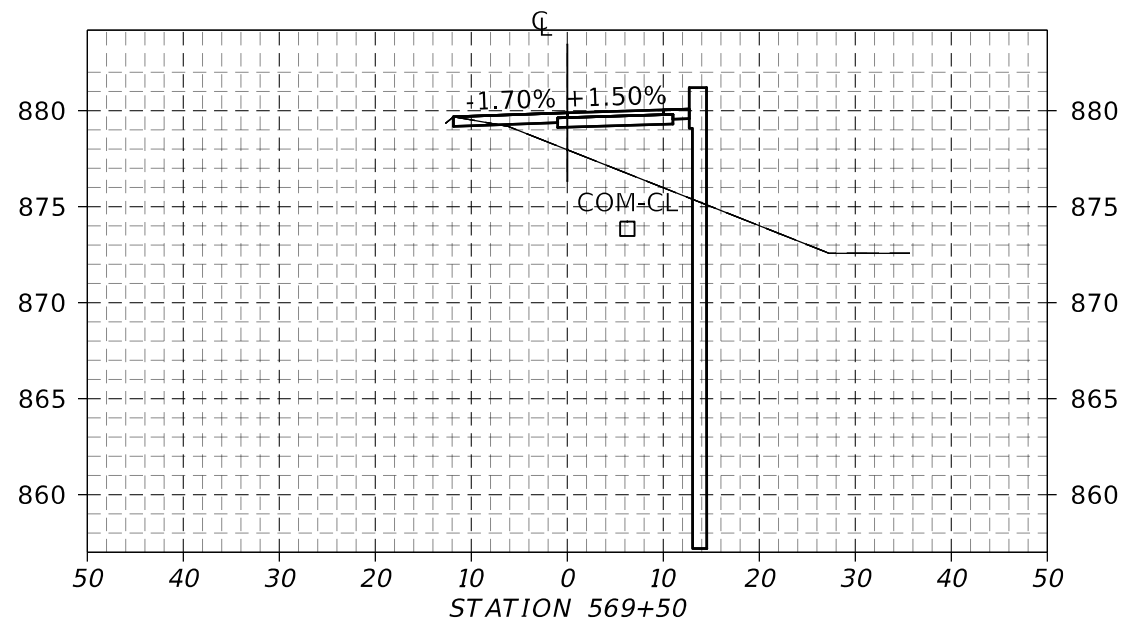
X-SECTIONS STATION 568+85.00 TO STATION 569+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

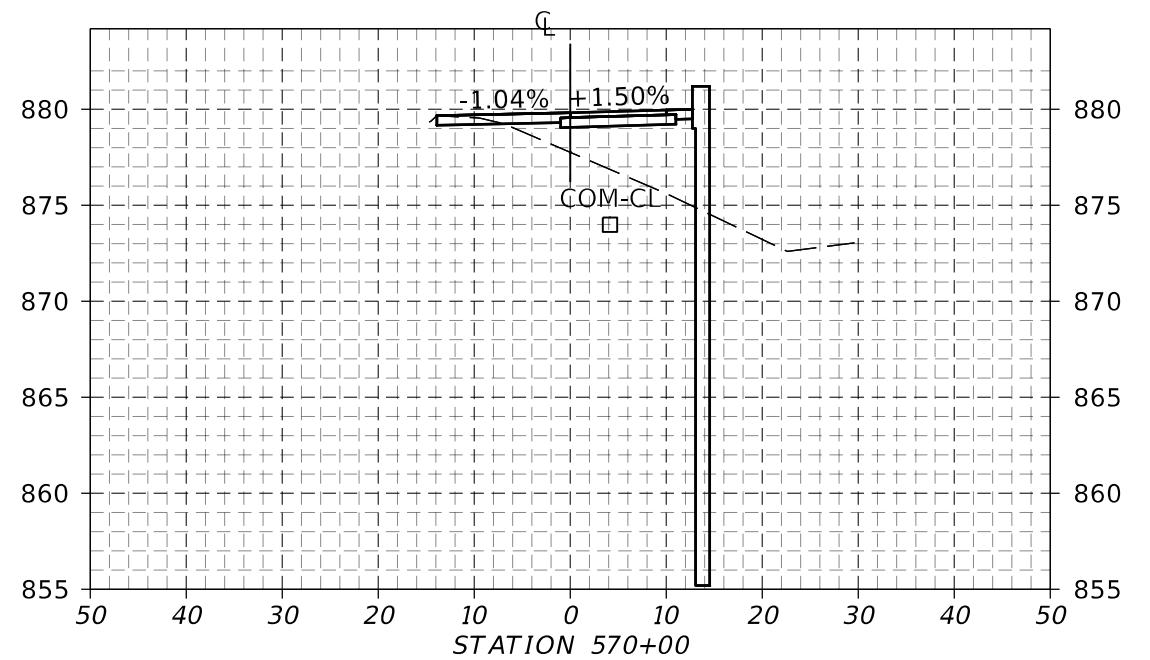
SHEET

XS173
XS176

OT = 877.96'
GG = 879.14'



OT = 877.76'
GG = 879.07'



TRAIL SOUTH OF 85TH AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

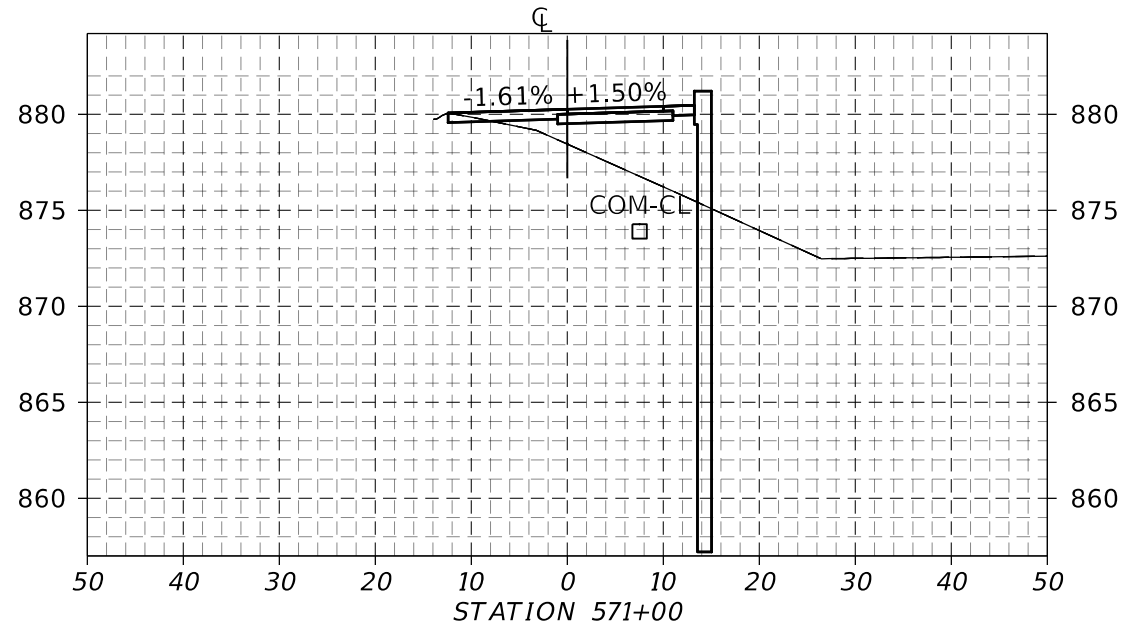
X-SECTIONS STATION 569+50.00 TO STATION 570+00.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

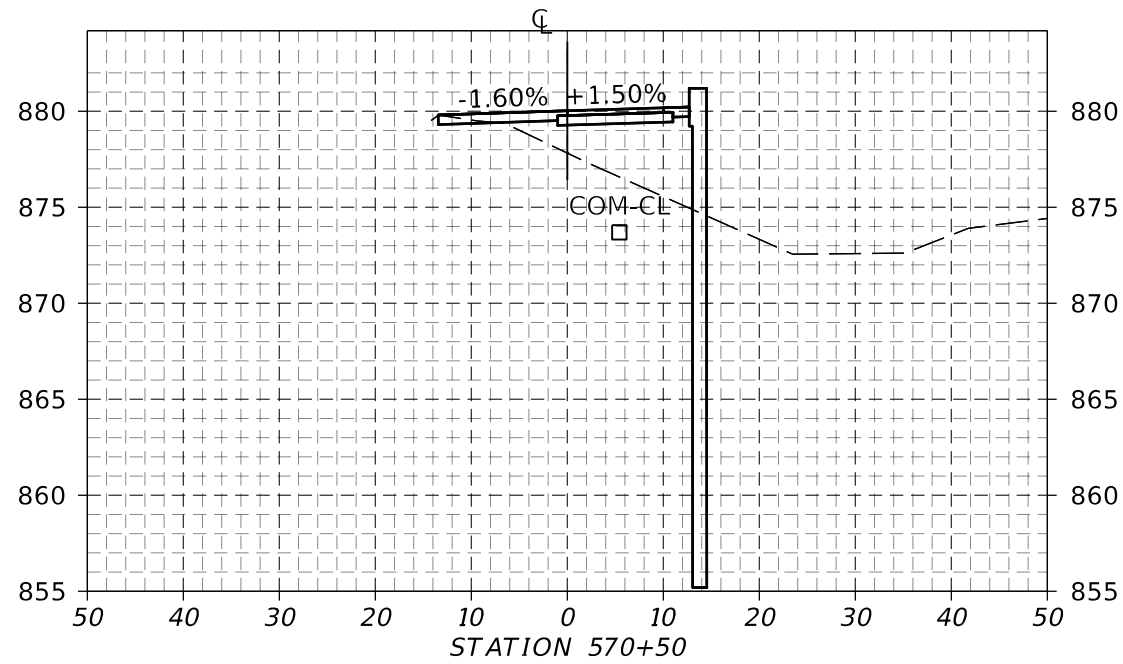
SHEET

XS174
XS176

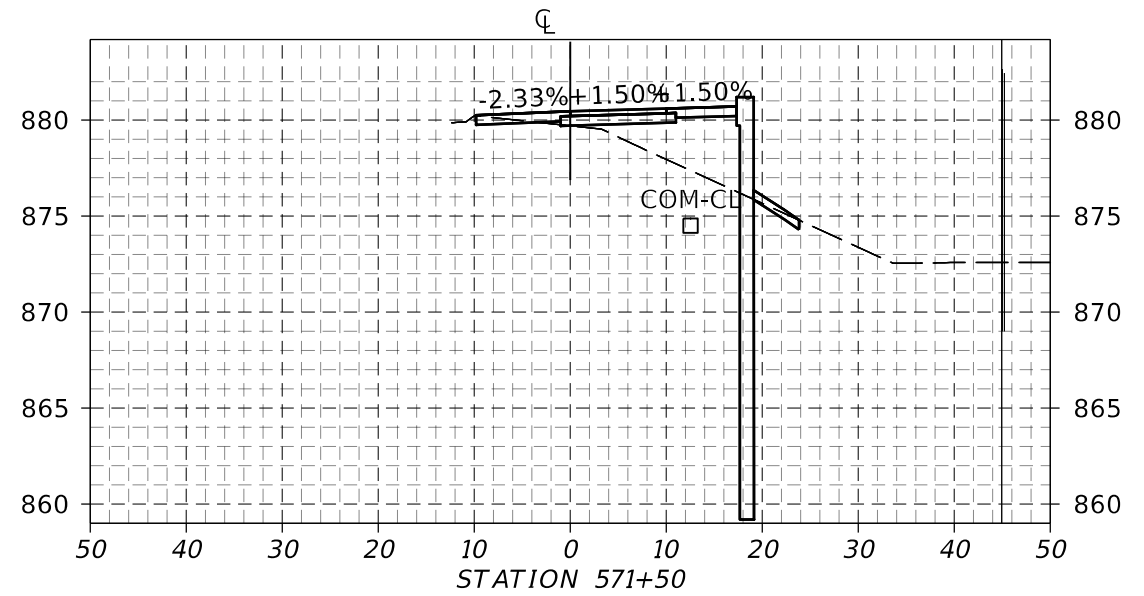
OT = 878.45'
GG = 879.51'



OT = 877.82'
GG = 879.28'



OT = 879.71'
GG = 879.73'



TRAIL SOUTH OF 85TH AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

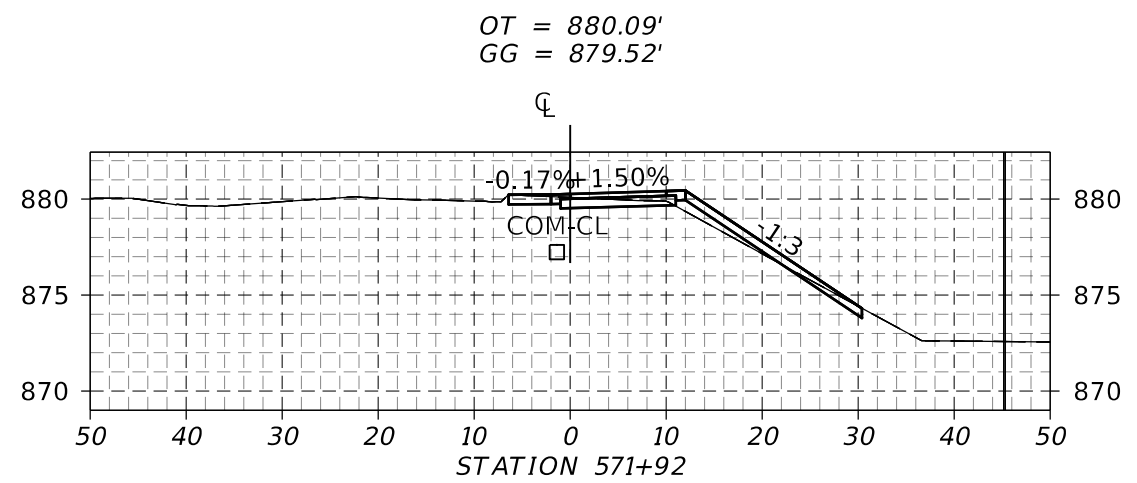
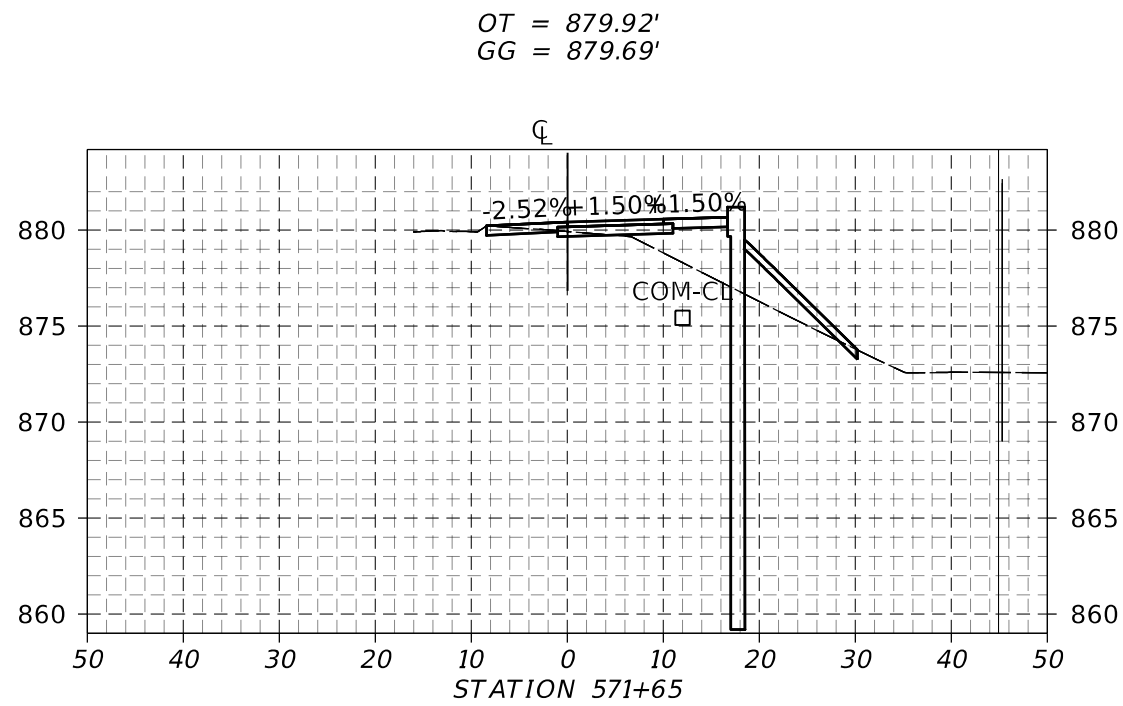
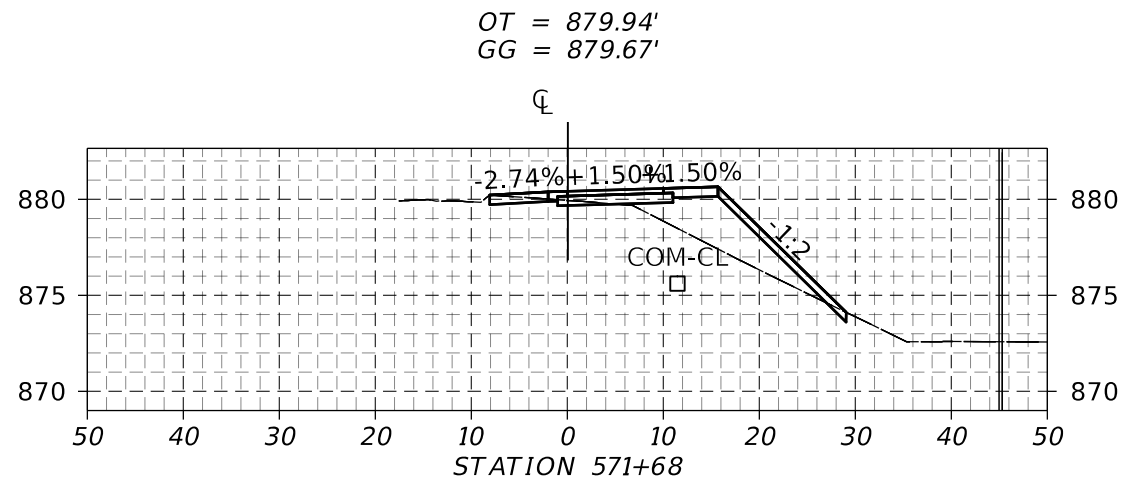
DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 570+50.00 TO STATION 571+50.00

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS175
XS176



TRAIL SOUTH OF 85TH AVE



SCALE H 0' 5' 20'
SCALE V 0' 5' 10'

DESIGN BY: S. PARK
CAD BY: R. DECOTEAU
CHECKED BY: L. LANGNER
LAST REVISION: / /

X-SECTIONS STATION 571+65.50 TO STATION 571+91.87

C.S.A.H. 81 / HENNEPIN COUNTY PROJECT 0922
S.P. 027-681-035 S.P. XXX-XXX-XXX

SHEET

XS176
XS176