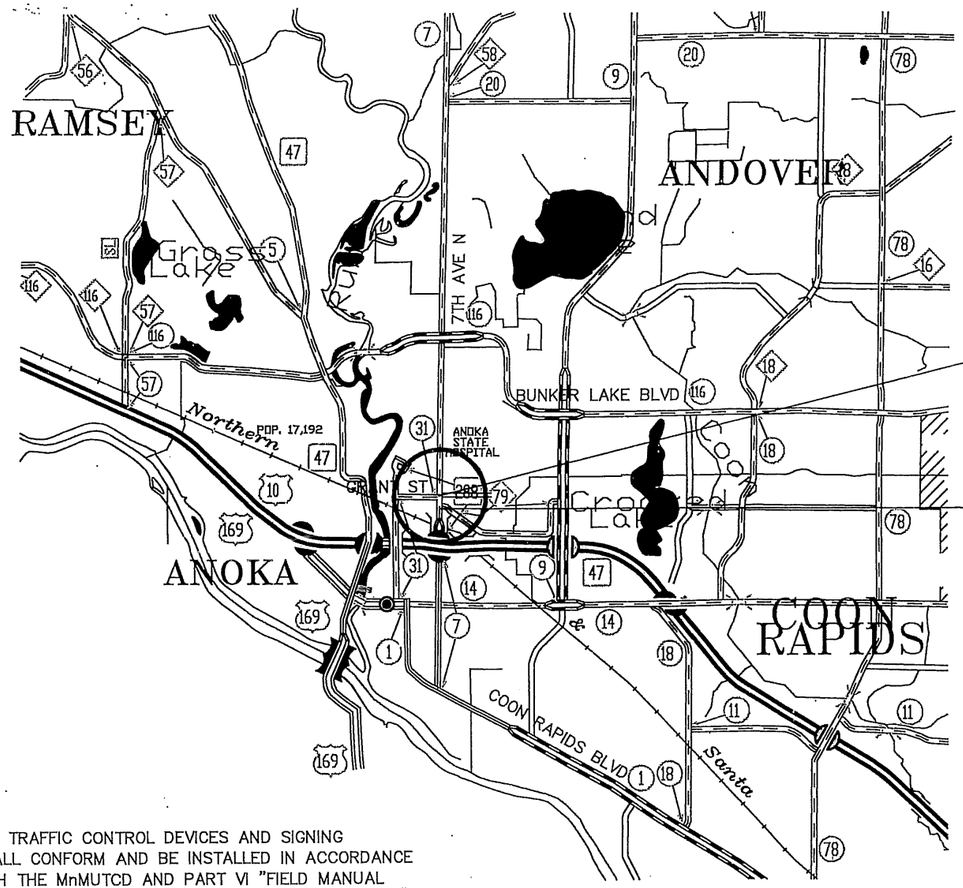
MINNESOTA DEPARTMENT OF TRANSPORTATION

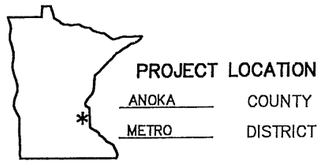
ANOKA COUNTY, MINNESOTA
CITY OF ANOKA

CONSTRUCTION PLAN FOR: ONE (1) TRAFFIC CONTROL SIGNAL SYSTEM, SIGNING, STRIPING, AND PEDESTRIAN CURB RAMP IMPROVEMENTS

CSAH 7 (7TH AVENUE NORTH) AT GRANT STREET/CSAH 31

STATE AID PROJECT NO. 002-607-023
COUNTY PROJECT NO. 15-65-07
CITY PROJECT NO. 2015-157





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TRAFFIC SIGNAL SYSTEM
BEGIN TRAFFIC CONTROL INTERCONNECTION
CSAH 7 (7TH AVENUE NORTH) AT GRANT STREET/CSAH 31
STATE AID PROJECT NO. 002-607-023
COUNTY PROJECT NO. 15-65-07
CITY PROJECT NO. 2015-157

END TRAFFIC CONTROL INTERCONNECTION "A"
CSAH 7 (7TH AVENUE NORTH) AT CR 79/BUCHANAN ST
STATE AID PROJECT NO. 002-607-023
COUNTY PROJECT NO. 15-65-07

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE MnMUTCD AND PART VI "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS." (CURRENT EDITION).

THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS GAS, TELEPHONE, FIBEROPTIC, ELECTRIC, CABLE TV AND PIPE LINES ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL BEFORE COMMENCING EXCAVATION.
GOPHER STATE ONE CALL SYSTEM – 1-800-252-1166

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL "D". THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 3802, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

GEOMETRICS DESIGN DESCRIPTION	CSAH 7 (7TH AVE N)	GRANT STREET
EXISTING A.D.T. (2016)	14,300	2,700
PROJECTED A.D.T. (2036)	19,300	3,600
NO. OF TRAFFIC LANES	4	2
NO. OF PARKING LANES	0	0
DESIGN SPEED (MPH)	35	30
POSTED SPEED (MPH)	35	30
ROADWAY CLASSIFICATION	ARTERIAL	COLLECTOR

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
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
WOODEN FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
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 COMMUNICATION CABLE
BURIED TELEPHONE CABLE
BURIED ELECTRIC CABLE
SEWER, (SANITARY)
SEWER, (STORM)
SEWER MANHOLE
HANDHOLE
CATCH BASIN

SCALE

INDEX MAP	3000'
GENERAL LAYOUT	20'
PED RAMP LAYOUT	10'

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

THIS PLAN CONTAINS 29 SHEETS.

DESIGN ENGINEER: 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: _____ DATE: 1/25/16

PRINTED NAME: JOHN M. GRAY LIC.NO. 22457

SIGNAL DESIGN ENGINEER: I HEREBY CERTIFY THAT THESE SIGNAL PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, THAT THIS PLAN CONFORMS TO THE MMUTCD (EXCEPT WHERE A VARIANCE HAS BEEN GRANTED), AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: _____ DATE: 1/25/16

PRINTED NAME: JOHN M. GRAY LIC.NO. 22457

APPROVED _____ ANOKA COUNTY ENGINEER DATE 1/28/16

APPROVED _____ CITY OF ANOKA ENGINEER DATE 1/29/16

APPROVED _____ DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY DATE 2/4/16

APPROVED _____ APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER DATE 2/4/16

ANOKA COUNTY, MINNESOTA
CITY OF ANOKA

TITLE SHEET

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

ONE (1) TRAFFIC CONTROL SIGNAL SYSTEM, SIGNING, STRIPING, AND PEDESTRIAN CURB RAMP IMPROVEMENTS

FILE NO. ANOKC 132413

STATE AID PROJ NO: 002-607-023
COUNTY PROJECT NO: 15-65-07
CITY PROJECT NO: 2015-157

1 / 29

STATEMENT OF ESTIMATED QUANTITIES

	ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	PARTICIPATION	
					SAP 002–607–023	CITY PROJ 2015–157
	2102.501	PAVEMENT MARKING REMOVAL	SF	594	594	
	2102.502	PAVEMENT MARKING REMOVAL	LF	420	420	
	2104.501	REMOVE CURB & GUTTER	LF	148	148	
	2104.501	REMOVE RETAINING WALL	LF	20	20	
(2)	2104.503	REMOVE CONCRETE WALK	SF	345	345	
(1)	2104.503	REMOVE BITUMINOUS PAVEMENT	SF	296	296	
	2104.509	REMOVE SIGNAL SYSTEM	EACH	1	0.375	0.625
(1)	2104.513	SAWING BITUMINOUS PAVEMENT	LF	156	156	
	2104.523	SALVAGE SIGN	EACH	10	9	1
(3)	2105.501	COMMON EXCAVATION	CY	74	74	
(3)	2123.610	SKID LOADER	HOUR	8	8	
(4)	2231.502	BITUMINOUS PATCHING MIXTURE	CY	5.6	5.6	
	2521.501	6" CONCRETE WALK	SF	1189	345	844
	2531.501	CONCRETE CURB & GUTTER DESIGN B618	LF	148	74	74
	2531.502	CONCRETE CURB DESIGN V6	LF	70	35	35
	2531.618	TRUNCATED DOMES	SF	100		100
	2563.601	TRAFFIC CONTROL	LS	1	0.49	0.51
	2563.602	PORTABLE CHANGEABLE MESSAGE SIGN	EACH	4	1.96	2.04
	2563.610	POLICE OFFICER	HOUR	1	0.49	0.51
	2564.531	SIGN PANELS TYPE C	SF	63.5	63.5	
	2564.531	SIGN PANELS TYPE D SIGNALS	SF	62	62	
	2564.537	INSTALL SIGN TYPE C	EACH	9	9	
	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM	SIG. SYS.	1	0.375	0.625
	2565.513	EMERGENCY VEHICLE PREEMPTION SYSTEM	LS	1		1
	2565.514	TRAFFIC CONTROL INTERCONNECT	LS	1	1	
	2565.602	SIGNAL SERVICE CABINET	EACH	1	0.375	0.625
	2574.525	COMMON TOPSOIL BORROW	CY	17	17	
	2575.501	SEEDING	ACRE	0.04	0.04	
	2575.502	SEED MIXTURE 25–131	LB	14	14	
	2575.523	EROSION CONTROL BLANKETS CATEGORY 0	SY	144	144	
	2582.501	PAVT MSSG PREF THERMO	SF	30	30	
	2582.502	4" SOLID LINE EPOXY	LF	200	200	
	2582.502	4" BROKEN LINE EPOXY	LF	360	360	
	2582.502	4" DBLE SOLID LINE EPOXY	LF	1200	1200	
	2582.502	24" SOLID LINE EPOXY	LF	100	100	
	2582.503	CROSSWALK PREF THERMO	SF	594	594	

(1) INCLUDES SAWING AND REMOVAL OF BITUMINOUS PAVEMENT NECESSARY TO ALLOW FOR NEW CONCRETE CURB AND GUTTER AND PEDESTRIAN CURB RAMP INSTALLATIONS.
(2) INCLUDES REMOVAL OF ALL INPLACE PEDESTRIAN CURB RAMPS.
(3) PAY ITEMS TO BE USED FOR GRADING AND SHAPING BOULEVARD AREAS BEHIND NEW V–CURBS AND FOR 1:4 SLOPE AREAS.
(4) INCLUDES PLACEMENT OF BITUMINOUS PAVEMENT WEAR COURSE (MATCHING EXISTING PAVEMENT DEPTH AND TYPE)

TRAFFIC SIGNAL STANDARD PLATES

THESE TRAFFIC SIGNAL STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:

PLATE NO.	DESCRIPTION
* 7035 N	CONCRETE WALK & CURB RETURNS AT ENTRANCES
* 7038 A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
* 7100 H	CONCRETE CURB & GUTTER (DESIGN B & V)
* 8000 I	STANDARD BARRICADES
* 8112 I	PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)
* 8118 D	SERVICE EQUIPMENT & POLE–TRAFFIC CONTROL SIGNALS
* 8119 C	GROUND MOUNTED CABINET FOUNDATION
* 8120 Q	POLE FOUNDATION (PA 85)
* 8121 H	TRANSFORMER BASE & POLE BASE PLATE (2 SHEETS)
* 8122 F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT) (2 SHEETS)
* 8123 G	POLE & MAST ARM–LUMINAIRES & TRAFFIC LIGHTS ASSEMBLY (2 SHEETS)
* 8126 L	POLE FOUNDATION (PA90 & PA100)
* 8129 A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)

* – APPLIES TO THIS PROJECT

TRAFFIC CONTROL NOTES:

1) ITEM NO. 2563.601 SHALL INCLUDE ALL LABOR AND MATERIALS REQUIRED TO MAINTAIN VEHICULAR AND PEDESTRIAN TRAFFIC THROUGH THE INTERSECTION DURING THE ENTIRE CONSTRUCTION PERIOD. THIS INCLUDES BUT IS NOT LIMITED TO: ALL REQUIRED SIGNS AND SIGN SUPPORTS ("STOP", "STOP AHEAD", "ROAD WORK AHEAD", "LEFT/RIGHT LANE CLOSED", "SIDEWALK CLOSED", ETC.), CONES, BARRELS, STANDARD BARRICADES, ARROW BOARDS, ETC. AS WELL AS SAND BAGS NEEDED TO KEEP SIGNS UPRIGHT AND VISIBLE TO ONCOMING TRAFFIC AND PEDESTRIANS AT ALL TIMES.
2) ALL TRAFFIC CONTROL DEVICES MUST CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" (CURRENT EDITION).
3) ALL TRAFFIC LANES MUST BE KEPT OPEN TO TRAFFIC AT ALL TIMES, EXCEPT FOR ALLOWABLE SHORT TERM LANE CLOSURES TO COMPLETE INSTALLATION OF LOOP DETECTORS AND TRAFFIC SIGNAL POLES, AND ALSO TO COMPLETE CURB AND GUTTER AND SIDEWALK REMOVAL AND INSTALLATION WORK. SHORT TERM LANE CLOSURES ARE LIMITED TO THE HOURS OF 9:00 AM TO 3:00 PM, MONDAY THROUGH THURSDAY, UNLESS OTHERWISE APPROVED BY ENGINEER FOR THESE TIME LIMITS TO BE EXTENDED TO ACCOMMODATE IMMEDIATE WORK AT THE INTERSECTION. LONG TERM LANE CLOSURES WILL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4) CONTRACTOR MUST PROVIDE, MAINTAIN, COVER (WHEN NOT IN USE) OR TURN AWAY FROM TRAFFIC ALL REQUIRED TRAFFIC CONTROL DEVICES AT ALL TIMES. NOTE THAT ENGINEER WILL SUSPEND WORK IF REQUIRED TRAFFIC CONTROL DEVICES ARE NOT INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE FIELD MANUAL FOR THE APPROPRIATE TRAFFIC CONTROL SITUATIONS.
5) ELECTRIC FLASHING ARROW BOARDS WILL BE REQUIRED TO BE PROVIDED, INSTALLED, AND MAINTAINED FOR ALL SHORT TERM LANE CLOSURES IMPLEMENTED ON EITHER APPROACH OF CSAH 7 (7TH AVENUE NORTH) (INCIDENTAL).
6) A SIGNAL SYSTEM MUST BE IN OPERATION AT THE INTERSECTION AT ALL TIMES, EXCEPT THAT THE EXISTING SIGNAL SYSTEM MAY BE TURNED OFF (AND AN ALL–WAY STOP PROVIDED AND INSTALLED) FOR UP TO 28 CONSECUTIVE CALENDAR DAYS IN ORDER TO COMPLETE REMOVAL OF THE EXISTING SIGNAL SYSTEM, INSTALLATION AND OPERATION OF THE NEW PERMANENT SIGNAL SYSTEM, AND COMPLETION OF ALL SIDEWALK, CURB/GUTTER AND CURB RAMP WORK.
7) DURING ANY SIGNAL DOWN TIME, CONTRACTOR MUST PROVIDE, INSTALL, AND MAINTAIN AN ALL–WAY STOP AT THE INTERSECTION (TWO 48" STOP SIGNS AND TWO 48" STOP AHEAD SIGNS ON EACH CSAH 7 APPROACH, AND ONE 48" STOP SIGN AND ONE 48" STOP AHEAD SIGN ON EACH GRANT STREET APPROACH).
8) ACCESSIBLE BUS STOPS MUST BE MAINTAINED AT ALL TIMES ON EACH INTERSECTION APPROACH WHERE BUSES ARE NOTED TO BE STOPPING AT THE INTERSECTION.
9) CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE FOUR (4) PORTABLE CHANGEABLE MESSAGE SIGNS (ONE ON EACH INTERSECTION APPROACH) FOR THE FOLLOWING PERIODS, WITH THE FOLLOWING MESSAGES (INCLUDED AS PART OF PAY ITEM FOR ITEM NO. 2563.602 – PORTABLE CHANGEABLE MESSAGE SIGN):
   - TEN (10) DAYS IN ADVANCE OF CONSTRUCTION, AND UP UNTIL WHEN THE SIGNAL SYSTEM IS TURNED OFF OR PUT INTO FLASH: "SIGNAL WORK / BEGINS (DATE) / EXPECT DELAYS"
   - ONCE SIGNAL SYSTEM IS TURNED OFF OR PUT INTO RED FLASH, DISPLAY THE FOLLOWING MESSAGE THROUGHOUT THIS PERIOD: "SIGNAL WORK / ALL WAY STOP AHEAD / EXPECT DELAYS"
   - FOR TWO WEEKS FOLLOWING TURN ON OF NEW SIGNAL SYSTEM, DISPLAY THE FOLLOWING MESSAGE THROUGHOUT THIS PERIOD: "TRAFFIC CONTROL CHANGE / NEW SIGNAL AHEAD"
10) A PAY ITEM HAS BEEN INCLUDED FOR THE CONTRACTOR TO PROVIDE THE SERVICES OF A POLICE OFFICER FOR DIRECTING TRAFFIC DURING THOSE PERIODS REQUESTED BY EITHER THE COUNTY OR THE CITY OF ANOKA. AN HOURLY RATE SHALL BE ESTABLISHED WITH THIS PAY ITEM FOR USE DURING CONSTRUCTION AT THE DISCRETION OF THE CITY OR COUNTY (ITEM NO. 2563.601 – POLICE OFFICER).
11) CONTRACTOR MUST PROVIDE TO THE ENGINEER, FOR APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION, A DETAILED TRAFFIC CONTROL AND STAGING PLAN NOTING TRAFFIC CONTROL DEVICES TO BE USED AND THEIR PLACEMENT, DETAILS SHOWING HOW TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION, AND ESTIMATED MILESTONE DATES FOR EACH STAGE OF CONSTRUCTION. NO WORK WILL BE ALLOWED ON THE PROJECT UNTIL TRAFFIC CONTROL AND STAGING PLAN IS APPROVED BY THE ENGINEER.
12) SEE DIVISION S OF THE SPECIAL PROVISIONS FOR FURTHER INFORMATION REGARDING TRAFFIC CONTROL TO BE PROVIDED, INSTALLED, MAINTAINED AND REMOVED BY THE CONTRACTOR DURING THE ENTIRE PROJECT.

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M. Gray PE
Date: January 25, 2016 Lic. No. 22457

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ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
STANDARD PLATES AND
STATEMENT OF ESTIMATED QUANTITIES
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

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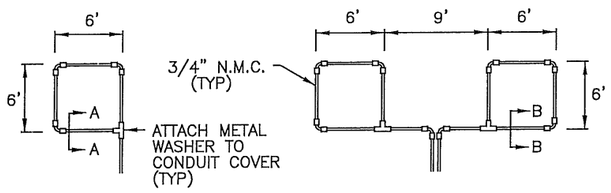
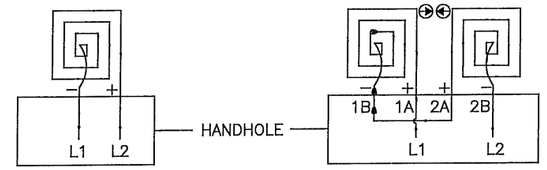




LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

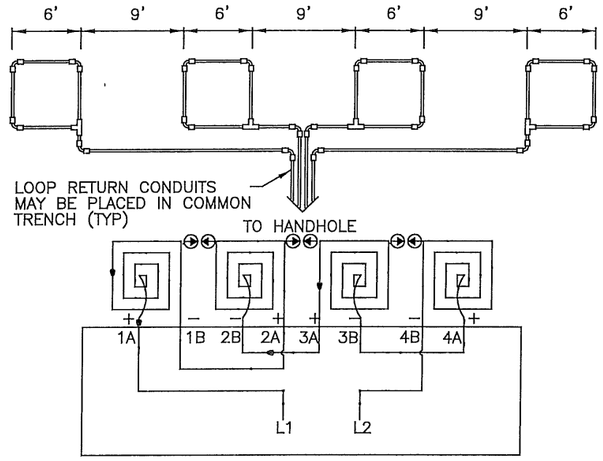
L1 TO 1A
1B TO 2A
2B TO L2

LOOP DETECTOR DETAIL 'A'

(LOOP PHASING FOR SINGLE CONNECTION)

LOOP DETECTOR DETAIL 'B'

(LOOP PHASING FOR SERIES CONNECTION)



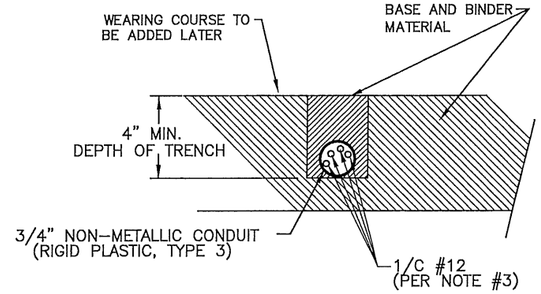
LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

L1 TO 1A
1B TO 2A
2B TO 3A
3B TO 4A
4B TO L2

SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ECT)

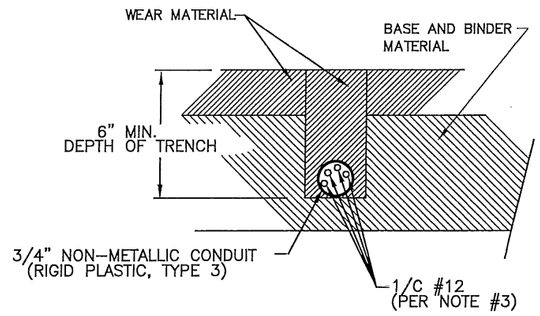
LOOP DETECTOR DETAIL 'C'

(LOOP PHASING FOR SERIES CONNECTION)



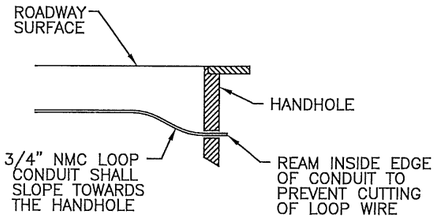
SECTION A–A

DETAIL FOR LOOP INSTALLATION IN NEW ROADWAY



SECTION B–B

DETAIL FOR LOOP INSTALLATION IN EXISTING ROADWAY



DRAINAGE DETAIL

LOOP DETECTOR WIRING

1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's — (A)
SIGNAL BASE NO. — (1)
SIGNAL FACE NO. — (1)
LUMINAIRE NO. — (1)
CONTROLLER AND CABINET
CONTROLLER AND CABINET – IN PLACE
HANDHOLE
HANDHOLE – IN PLACE
RIGID STEEL CONDUIT (RSC)
RIGID STEEL CONDUIT (RSC) – IN PLACE
SIGNAL FACE WITH BACKGROUND SHIELD
SIGNAL FACE W/O BACKGROUND SHIELD
SIGNAL FACE – IN PLACE
PEDESTRIAN INDICATORS
PEDESTRIAN INDICATORS – IN PLACE
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE — H
PEDESTRIAN PUSH BUTTON STATION
TRAFFIC SIGNAL PEDESTAL
TRAFFIC SIGNAL PEDESTAL – INPLACE
TRAFFIC SIGNAL POLE AND MAST ARM
TRAFFIC SIGNAL POLE AND MAST ARM – IN PLACE
STREET LIGHT POLE AND LUMINAIRE
STREET LIGHT POLE AND LUMINAIRE – IN PLACE
MAST ARM AND LUMINAIRE
MAST ARM AND LUMINAIRE – INPLACE
WOOD POLE
WOOD POLE – IN PLACE
SOURCE OF POWER
RAILROAD SIGNAL – IN PLACE
RIGHT OF WAY LINE
CENTERLINE
EDGE OF ROADWAY
SHOULDERLINE
CURB LINE
STOP BAR
EMERGENCY VEHICLE PREEMPTION DETECTOR — ⟷

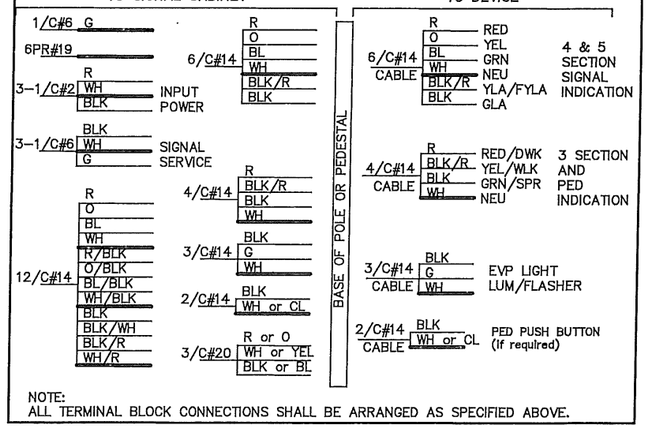
ABBREVIATIONS

3–1(EG)	SIGNAL HEAD PHASE "3" – NO "1"	P2–1(EG)	PED INDICATION PHASE "2" – NO. "1"
BR. GR.	BARE GROUND	PB	PUSH BUTTON
CH. SW.	CHECK SWITCH	PB2–1(EG)	PUSH BUTTON PHASE "2" – NO. "1"
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2–1(EG)	DETECTOR PHASE "2" – NO. "1"	PED	PEDESTRIAN
DWK	DON'T WALK	R	RED
EQG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE–EMPTION	RLTA	RED LEFT TURN ARROW
F&I	FURNISH AND INSTALL	RRTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SOP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR. R	GROUND ROD	STA	STATION
GRTA	GREEN RIGHT TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HH	HANDHOLE	S&R	SALVAGE AND REINSTALL
HPS	HIGH PRESSURE SODIUM	TDW	TELEPHONE DROP WIRE
JB	JUNCTION BOX	WLK	WALK
LUM	LUMINAIRE	YEL	YELLOW
NEU	NEUTRAL	YLTA	YELLOW LEFT TURN ARROW
NMC	NONMETALLIC CONDUIT	YRTA	YELLOW RIGHT TURN ARROW
		YTHA	YELLOW THRU ARROW

CONDUCTOR COLOR CODE

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

CONDUCTOR COLOR CODE (14 GAUGE)



NOTE:
ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: January 25, 2016 Name: John M. Gray PE Lic. No. 22457

SEH
PHONE: (651) 490–2000
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ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
TRAFFIC SIGNAL DETAILS/CHARTS
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

3/29

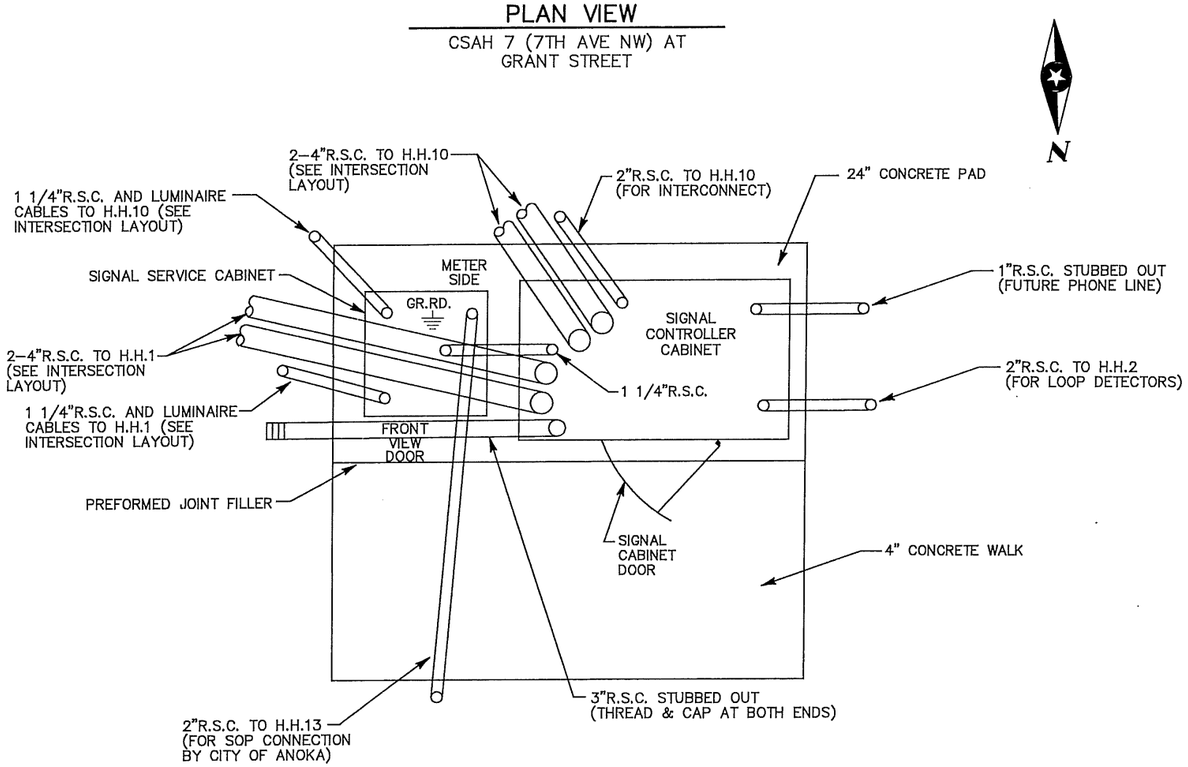
S:\AE\A\ANOKC\COMMON\SIGNALS\7-GRANT\GRANT-SIGDETS.DWG

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

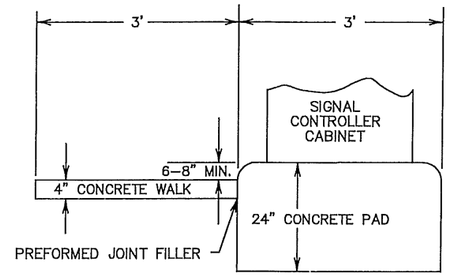
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

PLAN VIEW

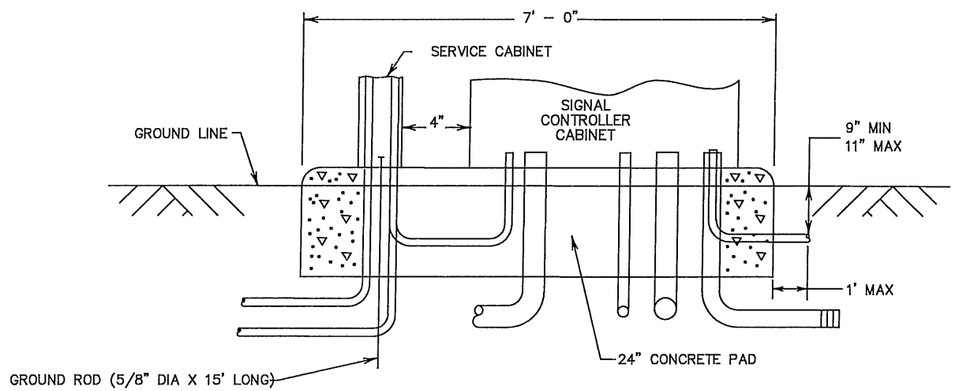
CSAH 7 (7TH AVE NW) AT
GRANT STREET



SIDE VIEW



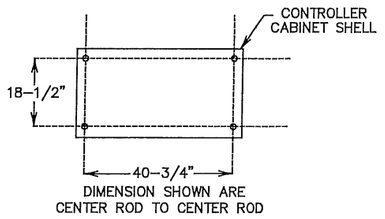
FRONT VIEW



NOTES:

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE COUNTY FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR.
2. THE UPPER PART OF THE NEW EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
9. CONTRACTOR SHALL PROVIDE MINIMUM 4–INCH CLEARANCE BETWEEN CONTROLLER AND SERVICE CABINETS ON THE EQUIPMENT PAD FOUNDATION AS SHOWN.

CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



DIMENSION SHOWN ARE CENTER ROD TO CENTER ROD

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

DRAWN BY: JMG	NO.	BY	DATE	REVISIONS
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM				

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Name: John M. Gray PE
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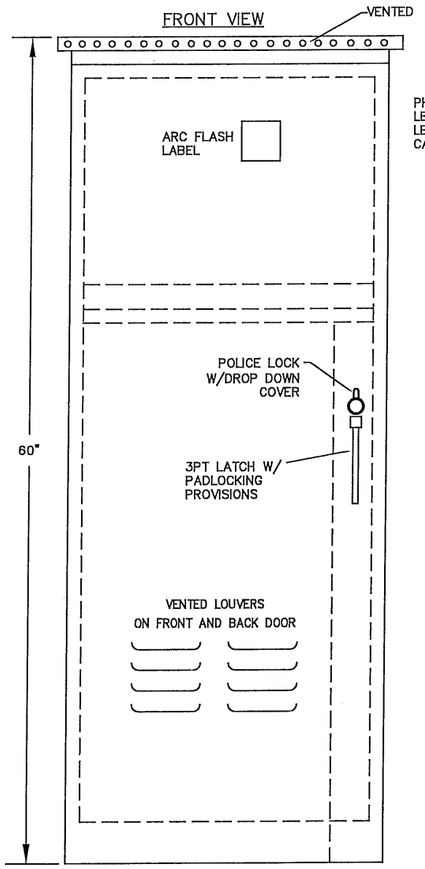
ANOKA COUNTY
CITY OF ANOKA

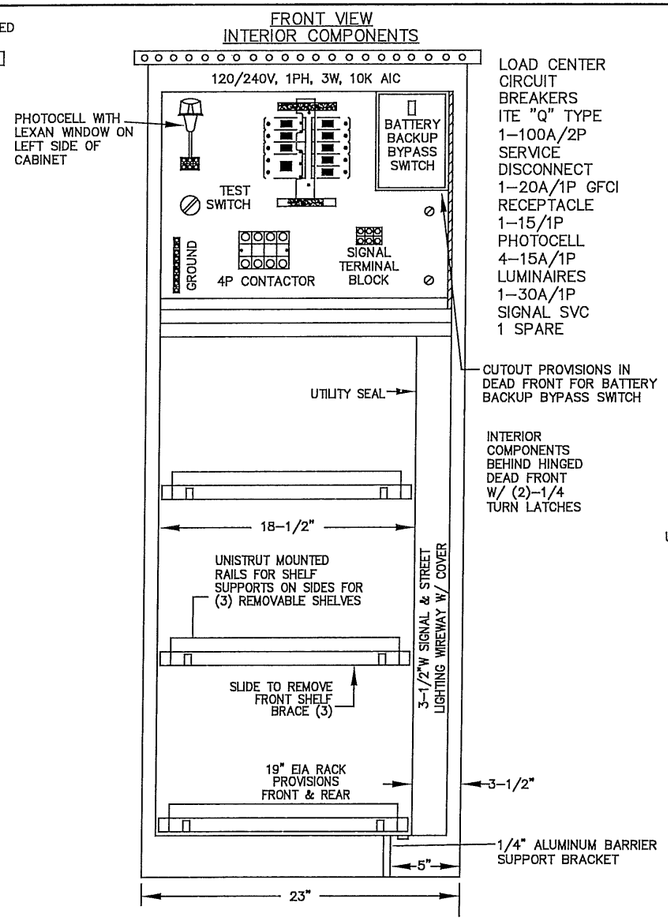
TRAFFIC CONTROL SIGNAL SYSTEM
EQUIPMENT PAD DETAILS
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

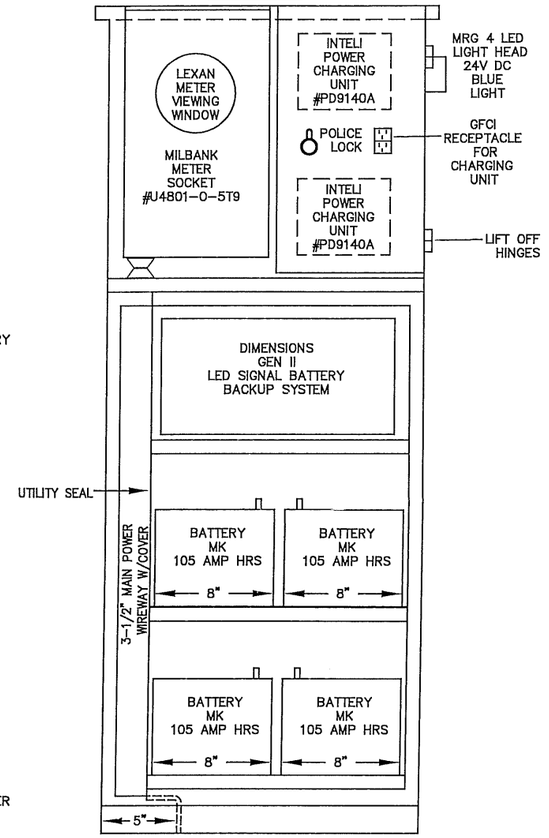
FILE NO. ANOKC 132413

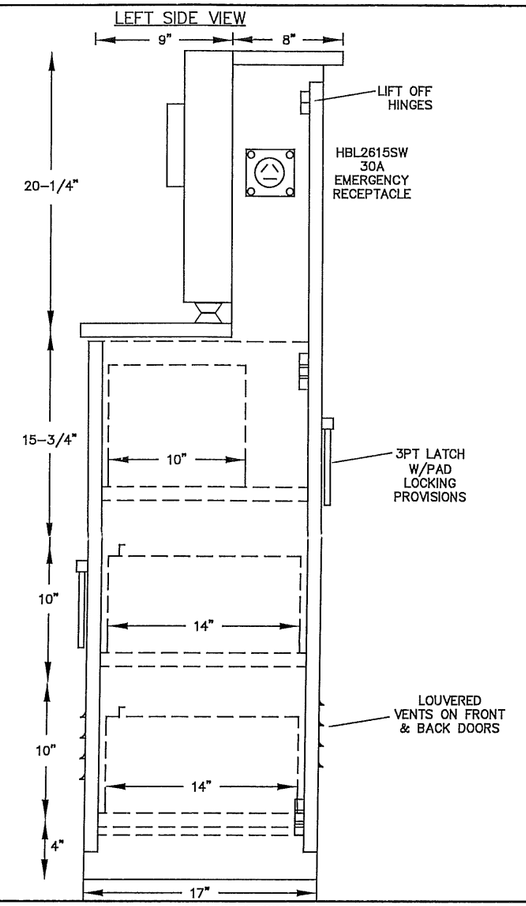
4/29

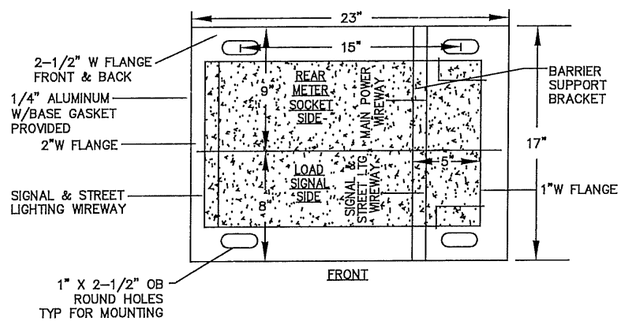
S:\ME\A\ANOKC\COMMON\SIGNALS\7–GRANT\GRANT–SIGDETS.DWG







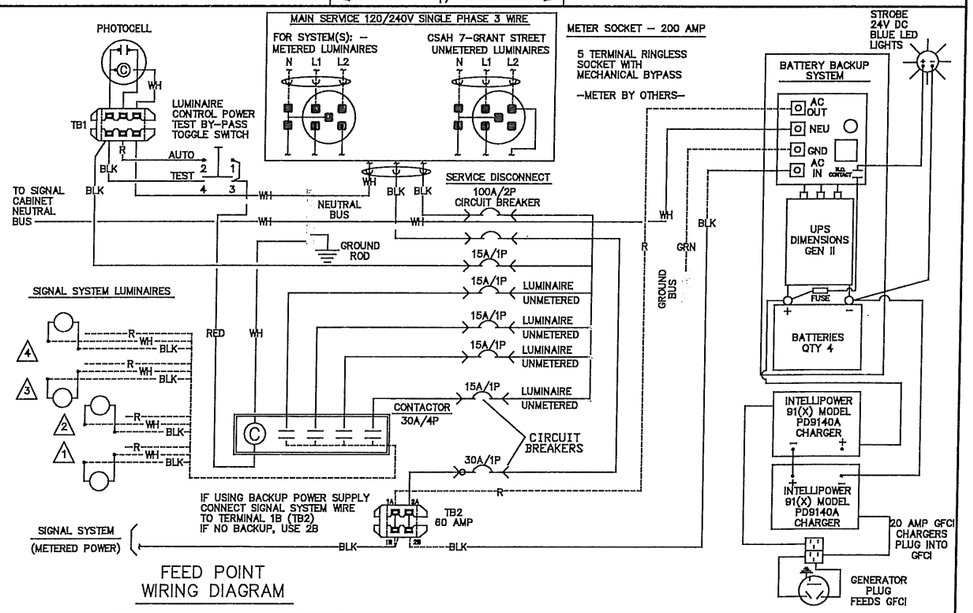




CABINET CONSTRUCTION

-NEMA 3R
-1/8" ALUMINUM 5052-H32
-ANODIZED 30 MINUTE CLEAR
-NEOPRENE GASKETED DOORS
-NON-CORRODING HARDWARE
-ETL LISTED IN ACCORDANCE W/UL508A

SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING SEPARATE PAY ITEM FOR FURNISHING & INSTALLING NEW BATTERY BACK-UP SIGNAL SERVICE CABINET.



FEED POINT WIRING DIAGRAM

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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

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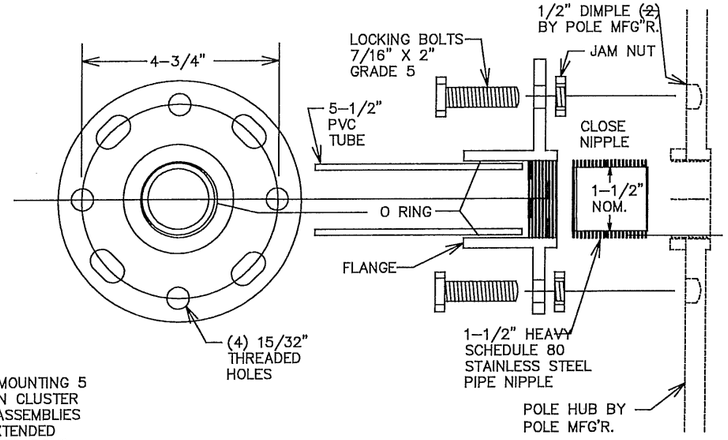
ANOKA COUNTY
CITY OF ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
SIGNAL SERVICE CABINET DETAILS
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

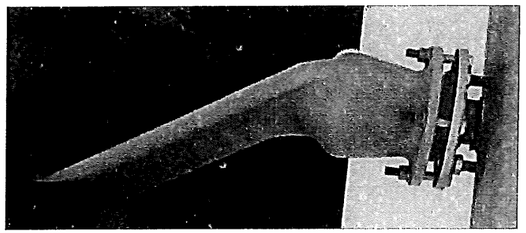
FILE NO. ANOKC 132413

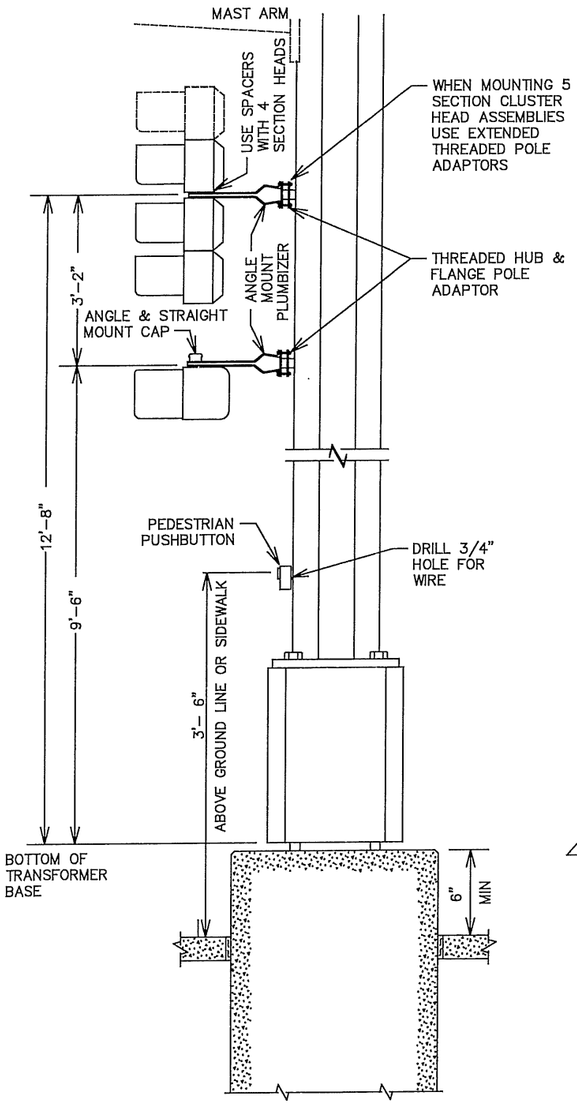
5/29

S:\AE\A\ANOKC\COMMON\SIGNALS\7-GRANT\GRANT-SIDEETS.DWG



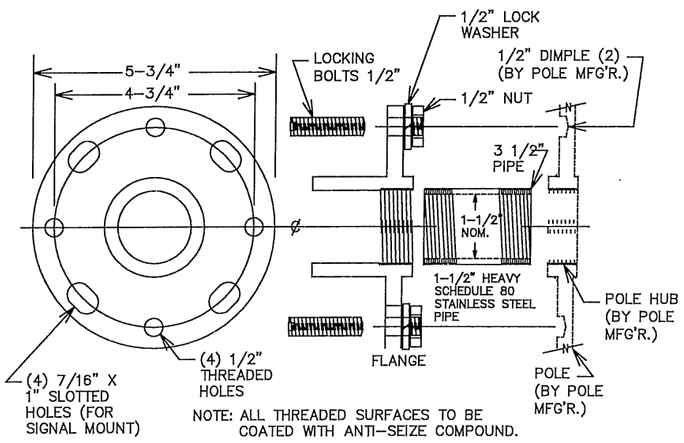
THREADED HUB AND FLANGE POLE ADAPTOR





TYPICAL SIGNAL POLE MOUNTING

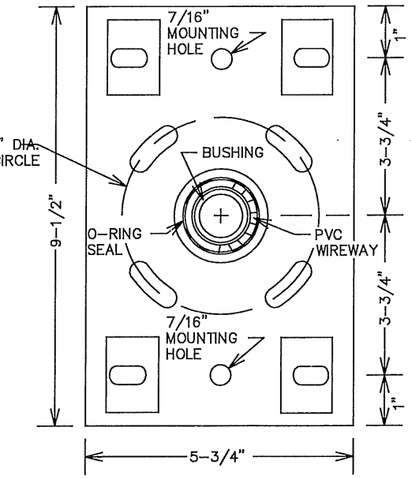
NOT TO SCALE



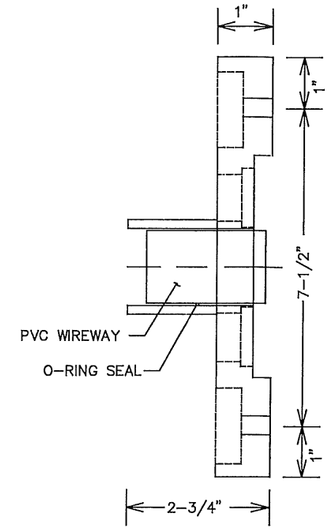
NOTE: ALL THREADED SURFACES TO BE COATED WITH ANTI–SEIZE COMPOUND.

EXTENDED THREADED POLE ADAPTER

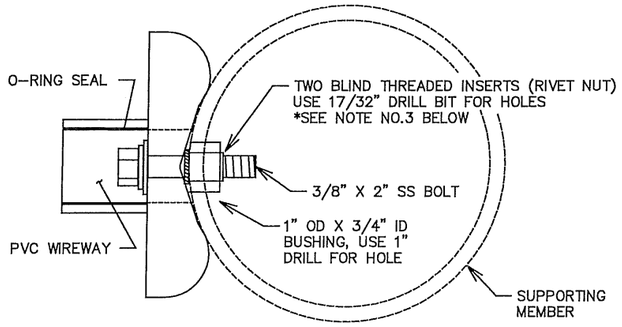
NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI–SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



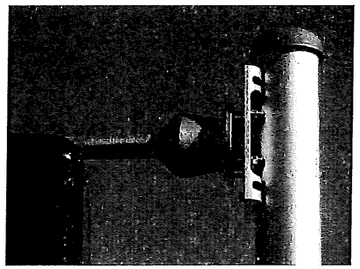
BOLT ON HUB & FLANGE



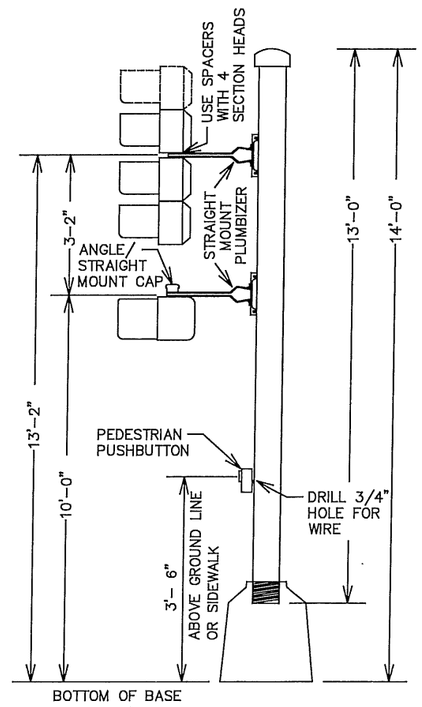
SIDE VIEW



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 PEDESTAL MOUNTING

NOT TO SCALE

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

S:\AE\A\ANOKC\COMMON SIGNALS\7–GRANT\GRANT–SIGDETS.DWG

DRAWN BY: JMG DESIGNER: JMG CHECKED BY: JMG DESIGN TEAM	NO.	BY	DATE	REVISIONS	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. Date: January 25, 2016 Name: John M. Gray PE Lic. No. 22457

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ANOKA COUNTY
CITY OF ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
POLE MOUNT DETAILS
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

6/29

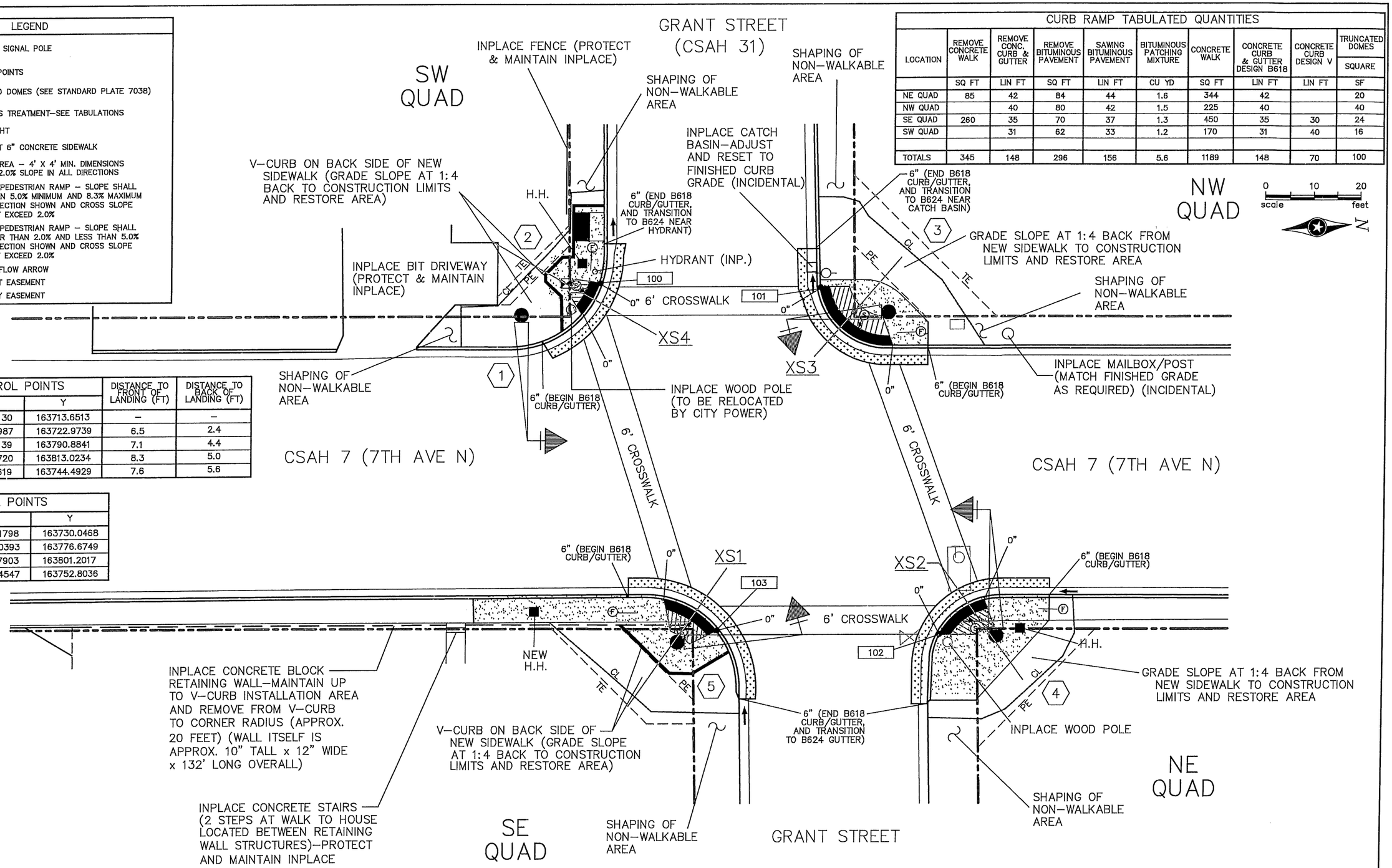
LEGEND

- PROPOSED SIGNAL POLE
- XXX — CONTROL POINTS
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- BITUMINOUS TREATMENT–SEE TABULATIONS
- X" — CURB HEIGHT
- CONSTRUCT 6" CONCRETE SIDEWALK
- LANDING AREA – 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- (S) INDICATES PEDESTRIAN RAMP – SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) INDICATES PEDESTRIAN RAMP – SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- PE — PERMANENT EASEMENT
- TE — TEMPORARY EASEMENT

SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
POINT NO.	X	Y		
POLE 1	471270.6130	163713.6513	–	–
POLE 2	471263.9987	163722.9739	6.5	2.4
POLE 3	471272.9139	163790.8841	7.1	4.4
POLE 4	471342.0720	163813.0234	8.3	5.0
POLE 5	471340.7619	163744.4929	7.6	5.6

CONTROL POINTS		
POINT NO.	X	Y
100	471264.1798	163730.0468
101	471267.0393	163776.6749
102	471341.7903	163801.2017
103	471338.4547	163752.8036

CURB RAMP TABULATED QUANTITIES									
LOCATION	REMOVE CONCRETE WALK	REMOVE CONC. CURB & GUTTER	REMOVE BITUMINOUS PAVEMENT	SAWING BITUMINOUS PAVEMENT	BITUMINOUS PATCHING MIXTURE	CONCRETE WALK	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB DESIGN V	TRUNCATED DOMES
	SQ FT	LIN FT	SQ FT	LIN FT	CU YD	SQ FT	LIN FT	LIN FT	SQUARE SF
NE QUAD	85	42	84	44	1.6	344	42		20
NW QUAD		40	80	42	1.5	225	40		40
SE QUAD	260	35	70	37	1.3	450	35	30	24
SW QUAD		31	62	33	1.2	170	31	40	16
TOTALS	345	148	296	156	5.6	1189	148	70	100



SEE SHEET 8 REGARDING CROSS SECTIONS FOR EACH SIDEWALK/CORNER LOCATION (DENOTED BY "XS1", "XS2", ETC.).

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

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

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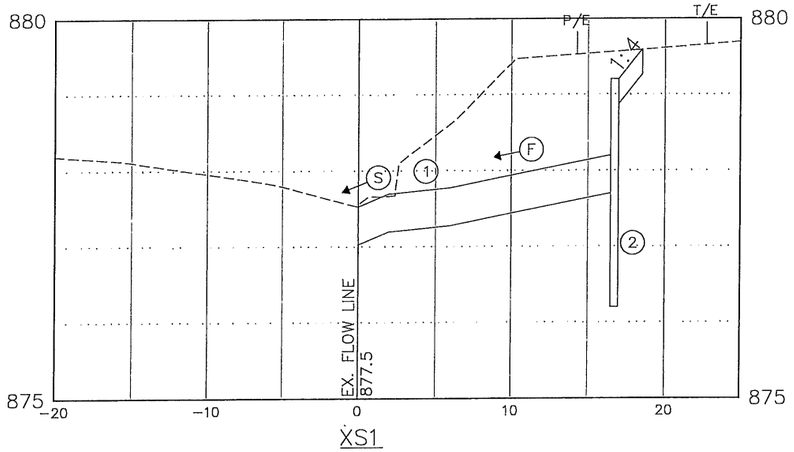
ANOKA COUNTY
CITY OF ANOKA

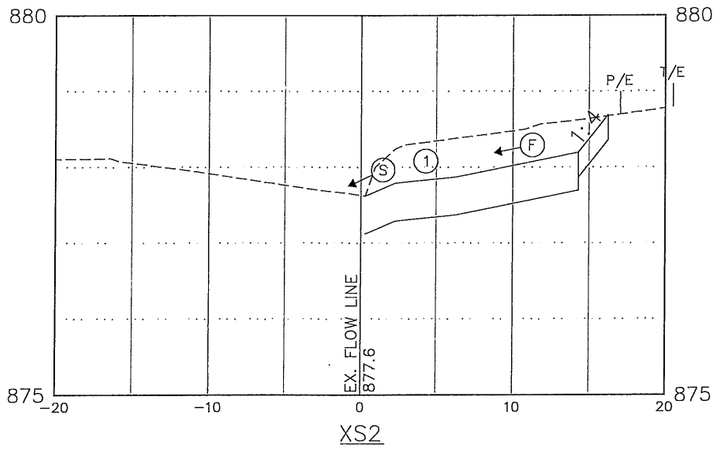
TRAFFIC SIGNAL SYSTEM
CURB RAMP AND SIDEWALK LAYOUT
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

7/29



XS1



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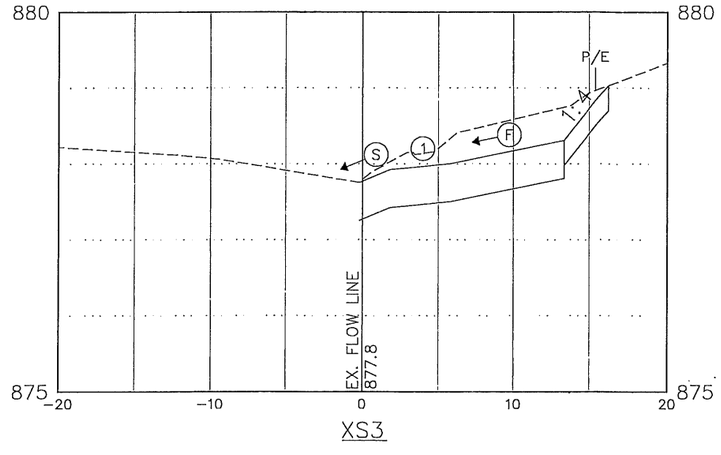
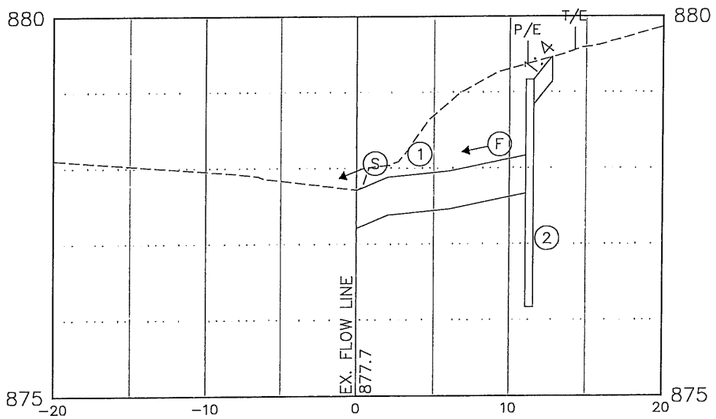


XS3



XS4

LEGEND:

(1)	MAXIMUM 2% SLOPE
(2)	DESIGN V6 CONCRETE CURB
(S)↓	INDICATES PEDESTRIAN RAMP– SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
(F)↓	INDICATES PEDESTRIAN RAMP– SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

VERTICAL SCALE 1 0 1 2 feet (scale .5)

HORIZONTAL SCALE 5 0 5 10 feet (scale 2.5)

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

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

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ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
CROSS-SECTIONS FOR BOULEVARDS
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

8
29

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SOILS AND CONSTRUCTION NOTES AND GUIDELINES:

1) TOP OF "GRADING GRADE" IS HEREBY DEFINED AS THE TOP OF THE GRANULAR MATERIAL OR THE BOTTOM OF THE AGGREGAGE BASE.
2) UNSUITABLE MATERIALS ARE TOPSOILS, OTHER ORGANIC SOILS, SILT SOILS, CLAY LOAM, AND DEBRIS.
3) SUITABLE MATERIALS SHALL BE ALL OTHER MINERAL SOILS ENCOUNTERED ON THE PROJECT OR FROM BORROW, NOT PREVIOUSLY DEFINED AS BEING UNSUITABLE.
4) COMPACTION OF AGGREGATE BASE SHALL BE IN ACCORDANCE WITH THE QUALITY COMPACTION METHOD.
5) BITUMINOUS PATCHING MIXTURE SHALL MEET THE REQUIREMENTS OF MNDOT 2360 TYPE SP 9.5 WEARING COURSE (SPWEA340E).
6) BITUMINOUS PATCHING MIXTURE SHALL BE PLACED AND COMPACTED IN 3" MAXIMUM LIFTS.
7) BITUMINOUS PATCHING MIXTURE SHALL MATCH THE EXISTING ADJACENT BITUMINOUS PAVEMENT THICKNESS.
8) STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING IN AREAS TO BE DISTURBED BY CONSTRUCTION AND, IF PRACTICAL, STOCKPILE FOR REUSE AS SLOPE DRESSING. SLOPE DRESSING ON THIS PROJECT IS DEFINED AS THE INPLACE TOPSOIL OR OTHER SOIL PLACED DURING PRIOR CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.
9) BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OUTSIDE OF RIGHT OF WAY IN ACCORDANCE WITH MNDOT 2104.
10) CONTRACTOR SHALL CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE AREA. CONTACT MUST BE MADE THROUGH GOPHER STATE ONE-CALL.
11) ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONTRACTOR OFF OF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER.
12) CONTRACTOR SHALL PROVIDE TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING PAVEMENT IN ACCORDANCE WITH MNDOT 2357 (INCIDENTAL).

MISCELLANEOUS NOTES:

1) PROVIDE A SAW CUT AT ALL REMOVAL LIMITS OR REMOVE TO NEAREST JOINT.
2) ALL CURB RAMPS AND LANDING AREAS SHALL BE 6" CONCRETE WALK ON 3" CLASS 5 AGGREGATE BASE. ALL EXCAVATION SUBGRADE PREPARATION, AGGREGATE BASE, COMMON BORROW, AND TOPSOIL BORROW SHALL BE INCIDENTAL.
3) ALL DISTURBED AREAS SHALL HAVE 4" MINIMUM TOPSOIL AND SHALL BE TREATED AS FOLLOWS:
   - SEEDING.
   - SEED MIXTURE 25-131 AT A RATE OF 220 LB/ACRE.
   - TYPE 0 EROSION BLANKET.
4) RESTORATION WILL BE MEASURED AND PAID FOR SEPARATELY.

EXCAVATION AND RESTORATION TABULATED QUANTITIES

LOCATION	COMMON EXCAVATION	COMMON TOPSOIL BORROW	SEED MIXTURE 25-131	SEEDING	EROSION CONTROL BLANKETS CATEGORY 0	SKID LOADER
	CU YD	CU YD	LB	ACRE	SQ YD	HOUR
NE QUAD	17	2	2	0.01	21	2
NW QUAD	8	7	6	0.01	60	2
SE QUAD	29	4	3	0.01	32	2
SW QUAD	20	4	3	0.01	31	2
TOTALS	74	17	14	0.04	144	8

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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DESIGNER: JMG
CHECKED BY: JMG
DESIGN TEAM

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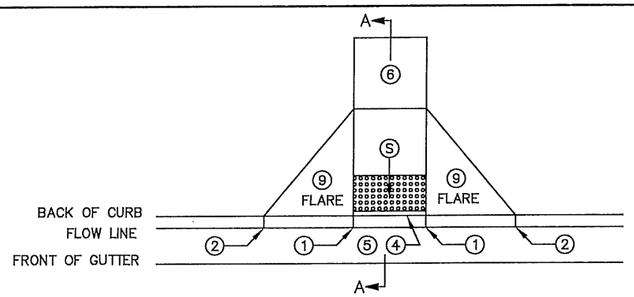
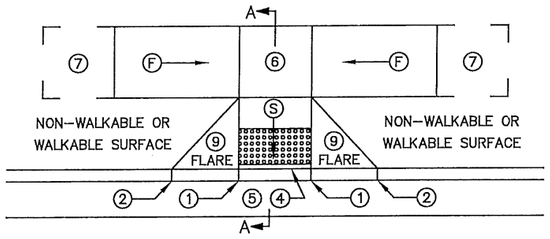
ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
CURB RAMP NOTES
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413



PERPENDICULAR



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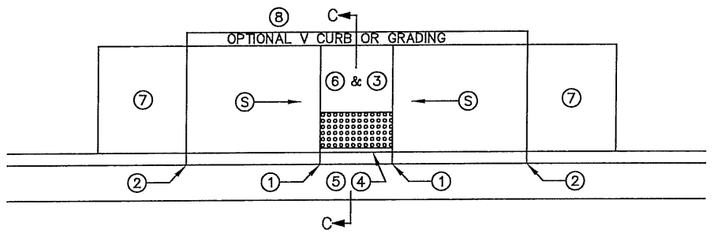
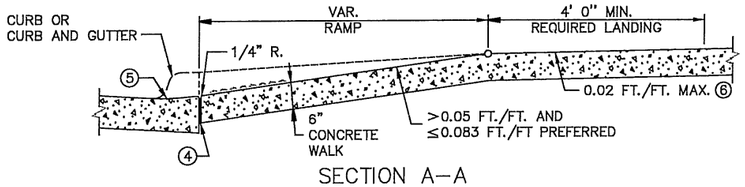
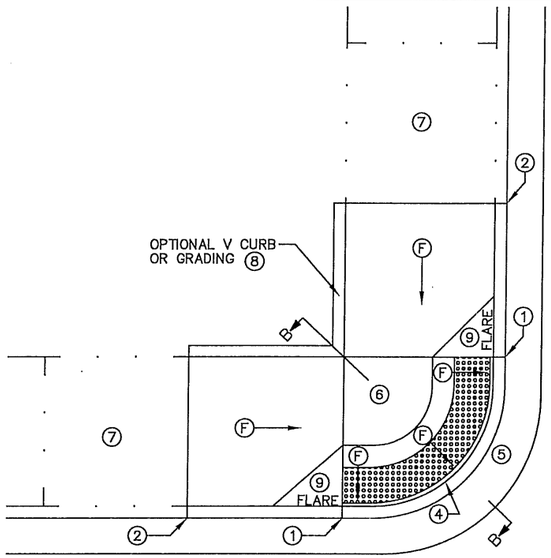


PARALLEL

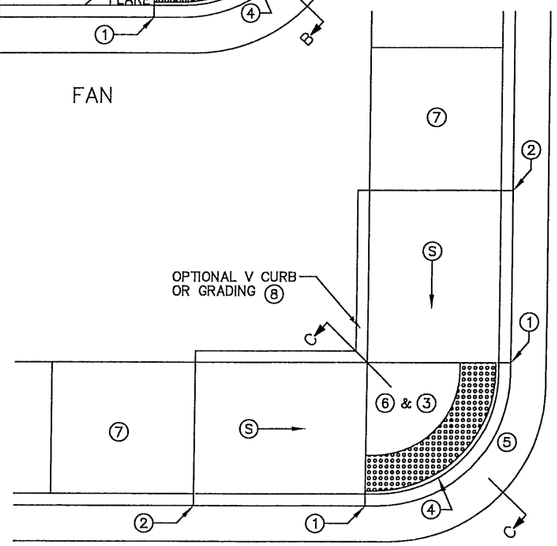


SECTION A–A

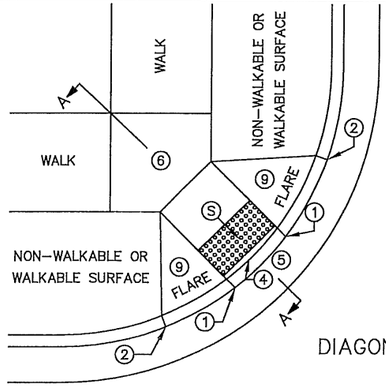
PERPENDICULAR/TIERED/DIAGONAL



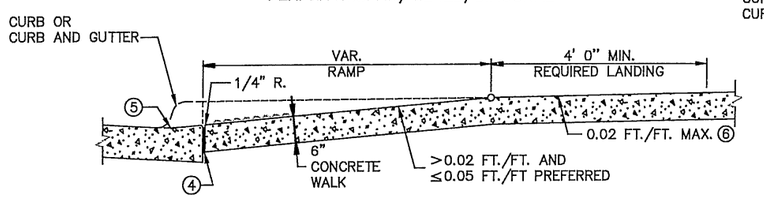
FAN



DEPRESSED CORNER

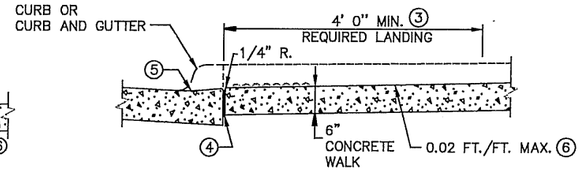


DIAGONAL (10)



SECTION B–B

FAN



SECTION C–C

PARALLEL/DEPRESSED CORNER

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

(1) 0" CURB HEIGHT.

(2) FULL CURB HEIGHT.

(3) DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.

(4) 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

(5) SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.

(6) 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.

(7) IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.

(8) V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.

(9) SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

(10) DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
S	INDICATES PEDESTRIAN RAMP – SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
F	INDICATES PEDESTRIAN RAMP – SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

REVISION:
APPROVED: 8–6–2014
OPERATIONS ENGINEER

REVISED:
STATE DESIGN ENGINEER
APPROVED: 8–6–2014

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250

1 OF 5

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: January 25, 2016
Name: John M. Gray PE
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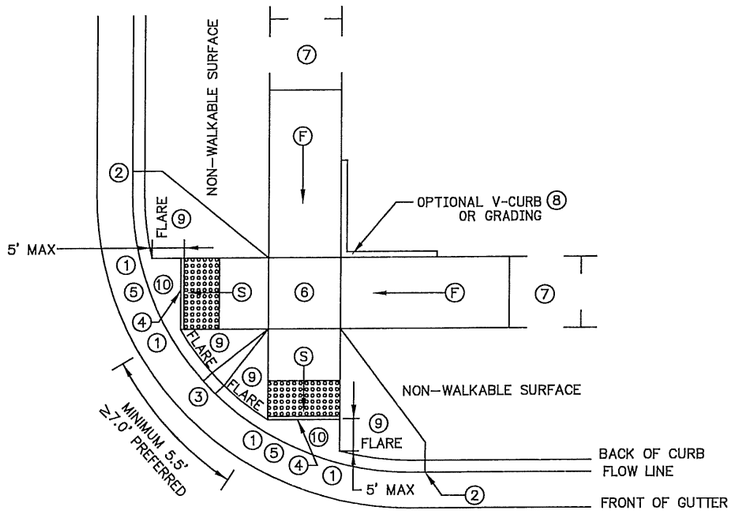
ANOKA COUNTY
CITY OF ANOKA

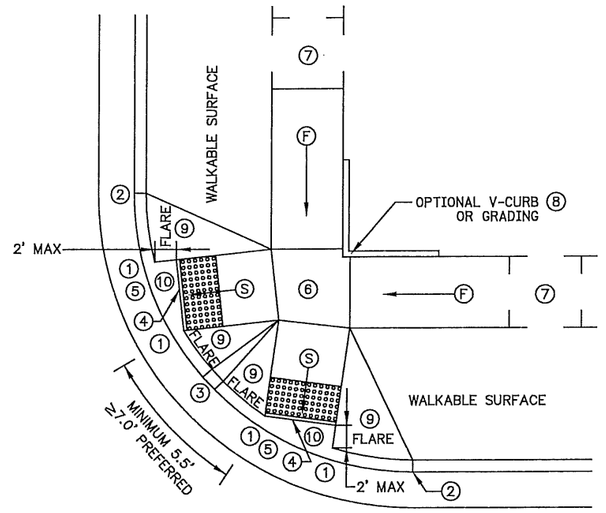
TRAFFIC SIGNAL SYSTEM
PEDESTRIAN CURB RAMP DETAILS
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

10/29

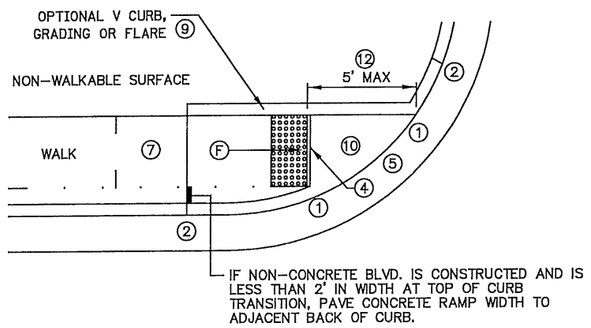


ADJACENT TO NON-WALKABLE SURFACE

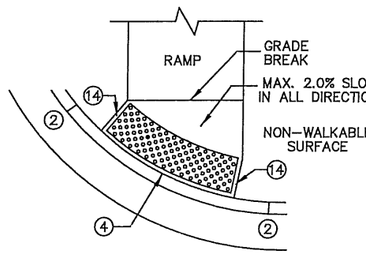


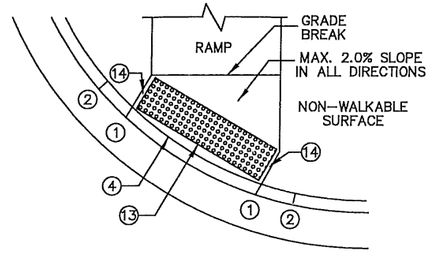
ADJACENT TO WALKABLE SURFACE

COMBINED DIRECTIONAL (15)

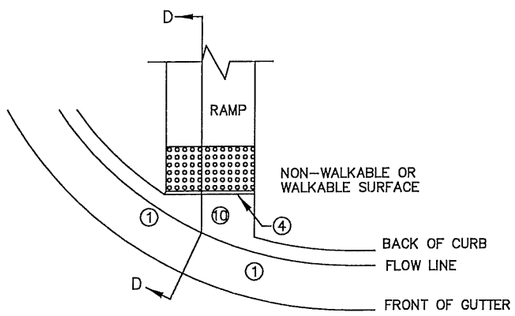


ONE-WAY DIRECTIONAL

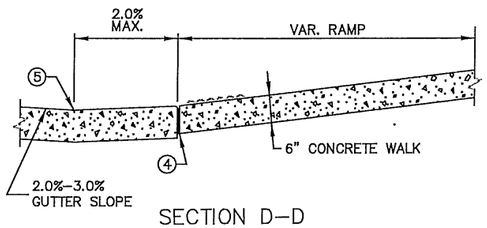




DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



CURB FOR DIRECTIONAL RAMPS (11)



SECTION D-D

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

(1) 0" CURB HEIGHT.

(2) FULL CURB HEIGHT.

(3) 3" MINIMUM CURB HEIGHT, 4" PREFERRED.

(4) 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MIN. TO 6"MAX. FROM THE BACK OF CURB.

(5) SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.

(6) 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.

(7) IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.

(8) V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

(9) SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

(10) MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

(11) TO BE USED FOR ALL DIRECTIONAL RAMPS.

(12) PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

(13) RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

(14) WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

(15) FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER

LEGEND
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
(S) INDICATES PEDESTRIAN RAMP – SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
(F) INDICATES PEDESTRIAN RAMP – SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

REVISION:
APPROVED: 8-6-2014
OPERATIONS ENGINEER

REVISED:
STATE DESIGN ENGINEER
APPROVED: 8-6-2014

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 2 OF 5

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M. Gray PE
Date: January 25, 2016 Lic. No. 22457

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PHONE: (651) 490-2000
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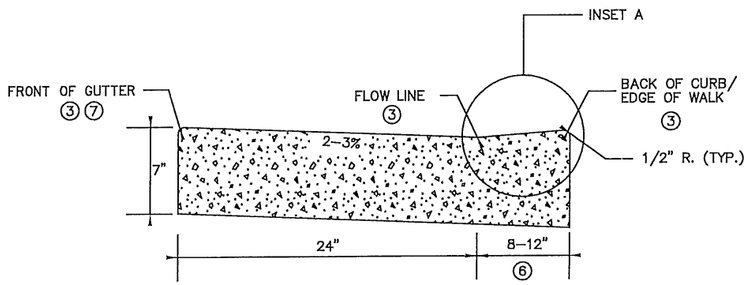
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANOKA

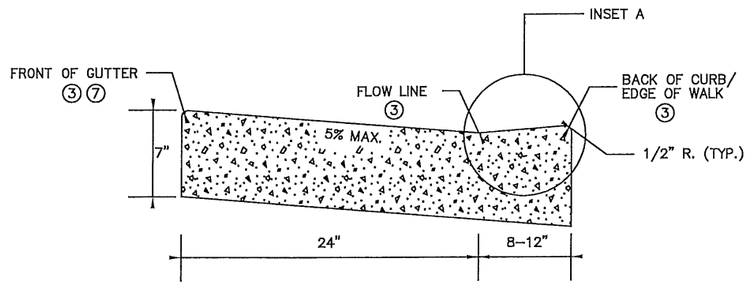
TRAFFIC SIGNAL SYSTEM
PEDESTRIAN CURB RAMP DETAILS
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

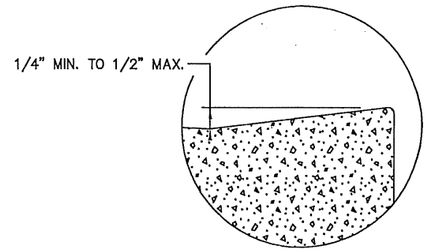
11/29



NON PERPENDICULAR ①

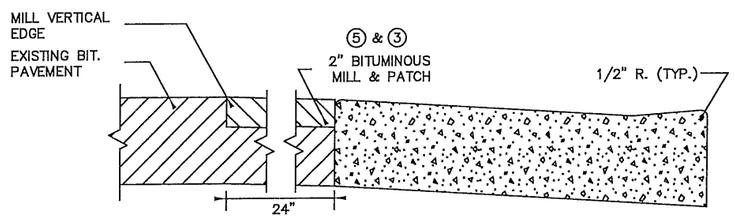


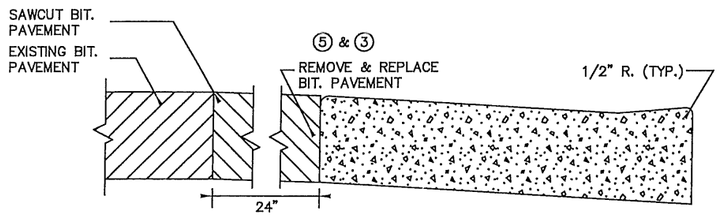
PERPENDICULAR ②

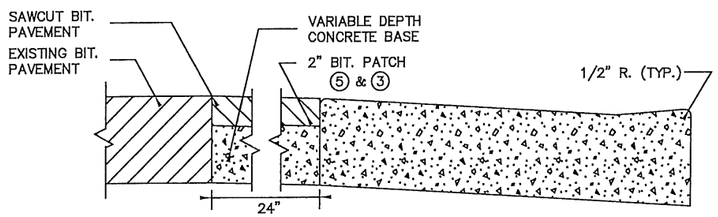


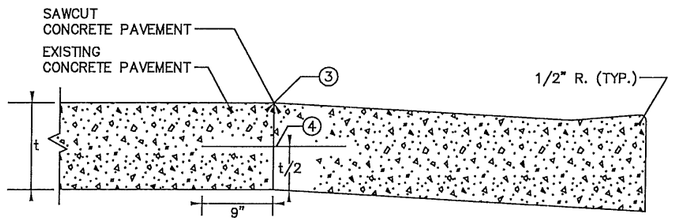
INSET A

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



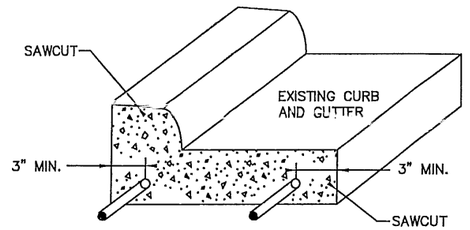






PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



CURB AND GUTTER ⑧ REINFORCEMENT

FOR USE ON CURB RAMP RETROFITS

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.

② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

④ DRILL AND GROUT NO. 4 EPOXY–COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ WHERE PLAN SPECIFIES, DRILL AND GROUT 2 – NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED).

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

REVISION:
APPROVED: 8–6–2014
OPERATIONS ENGINEER

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APPROVED: 8–6–2014
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 3 OF 5

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M. Gray PE
Date: January 25, 2016
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ANOKA COUNTY
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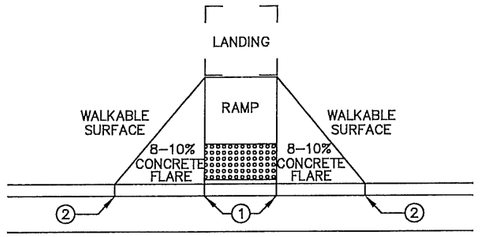
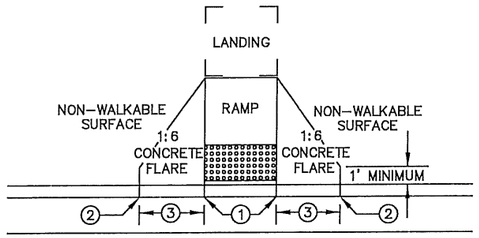
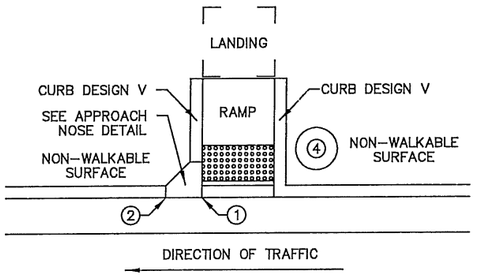
12/29



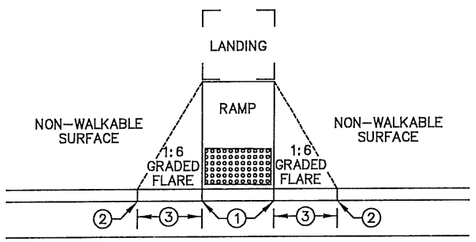
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON–WALKABLE SURFACE

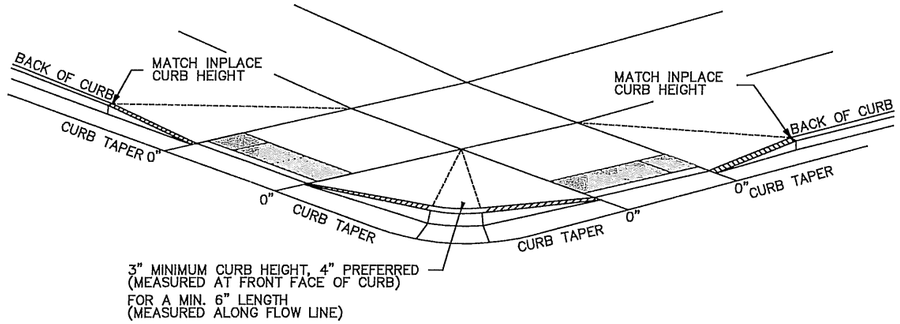


RETURNED CURB

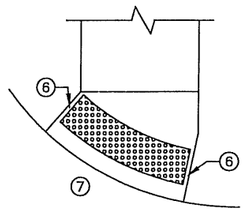


GRADED FLARES

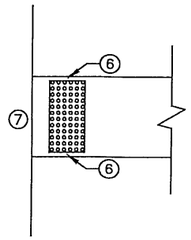
TYPICAL SIDE TREATMENT OPTIONS ⑤



DETECTABLE EDGE WITH
CURB AND GUTTER ⑧

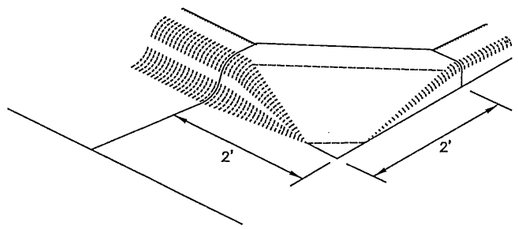


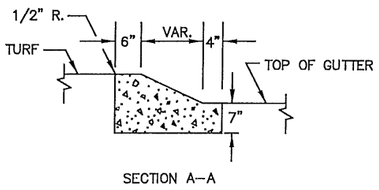
RADIAL DETECTABLE WARNING



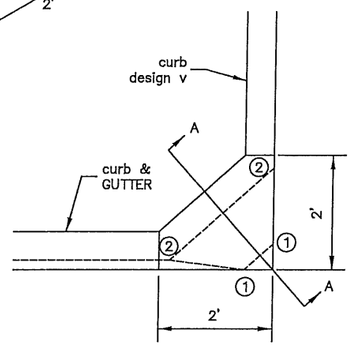
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER





SECTION A–A



APPROACH NOSE DETAIL
FOR DOWNSTREAM SIDE OF TRAFFIC

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.

CONCRETE FLARE LENGTHS ADJACENT TO NON–WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT.
② FULL CURB HEIGHT.
③ 2' – 3' FLARE.
④ IMMOVABLE OBJECT OR OBSTRUCTION.
⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE VISUAL CONTRAST.
⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO–INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3–INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

REVISION:
APPROVED: 8–6–2014
OPERATIONS ENGINEER

REVISED:
APPROVED: 8–6–2014
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250

4 OF 5

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

NO.	BY	DATE	REVISIONS

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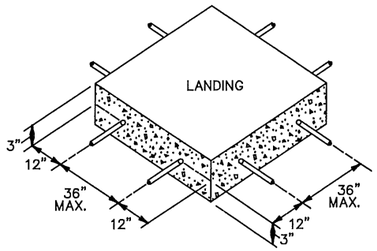
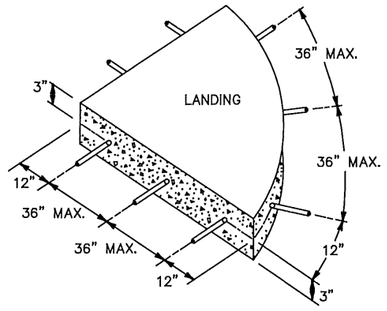
ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
PEDESTRIAN CURB RAMP DETAILS
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

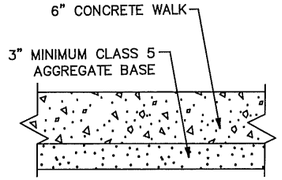
FILE NO.
ANOKC 132413

13
29

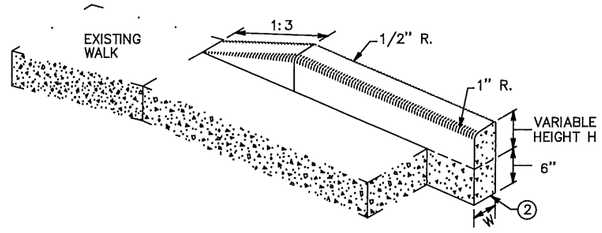




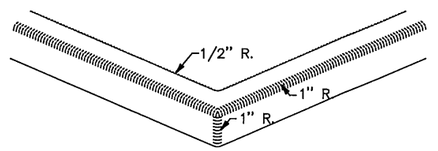
SIDEWALK REINFORCEMENT ⑥ ⑦



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

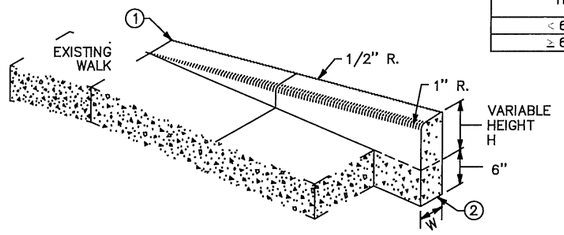


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

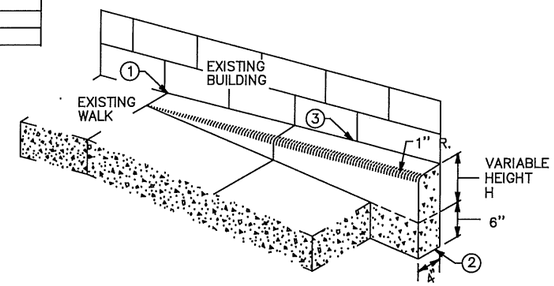


V CURB INTERSECTION

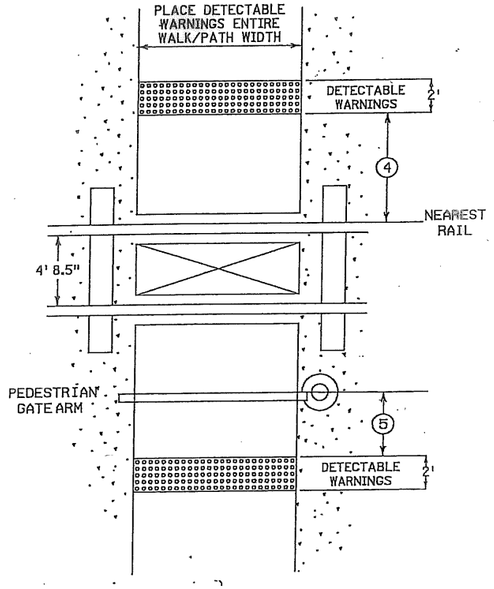
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
≤ 6"	4"
≥ 6"	6"



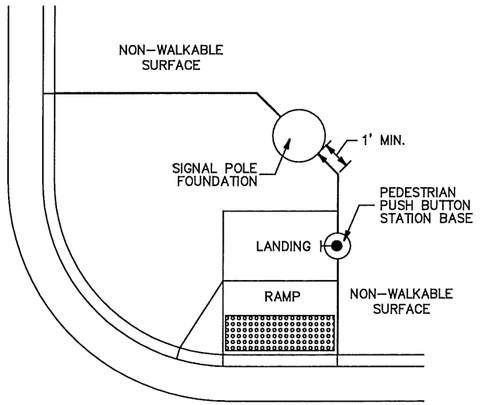
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



V CURB ADJACENT TO BUILDING OR BARRIER



RAILROAD CROSSING
PLAN VIEW



CONCRETE WALK EDGES ADJACENT
TO CONCRETE STRUCTURES

NOTES:

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.

④ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑤ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM.

⑥ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).

⑦ TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

REVISION:
APPROVED: 2-9-2015
OPERATIONS ENGINEER

REVISED:
APPROVED: 2-9-2015
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 5 OF 5

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

NO.	BY	DATE	REVISIONS

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

TRAFFIC SIGNAL SYSTEM
PEDESTRIAN CURB RAMP DETAILS
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

14/29

STRIPING NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

EPOXY:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

FOR 15 MIL APPLICATIONS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROADWAY PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES F OR GREATER.

PREFORM THERMOPLASTIC APPLICATION:

MAT TEMPERATURE SHALL BE CHECKED USING A THERMOMETER TO MAKE SURE THE INLAY IS BEING DONE IN THE PROPER TEMPERATURE RANGE. THE TEMPERATURE SHOULD MEASURE BETWEEN 150 DEGREES F (ASPHALT FIRM ENOUGH TO WALK ON) AND 120 DEGREES F. APPLICATION BELOW 120 DEGREES F MAY NOT GET A PROPER INLAY. INLAYS ARE NOT RECOMMENDED AFTER SEPTEMBER 15 AS THE ASPHALT COOLS TOO FAST AT THIS TIME OF YEAR.

NO PRIMERS ARE USED FOR INLAY APPLICATION. DO NOT INSTALL LANE LINES ON AN ASPHALT SEAM. ROLLING OF ALL THE MARKINGS SHOULD BE LENGTHWISE IN THE DIRECTION THEY WERE LAID. FOR CROSSWALKS AND STOP BARS, INITIAL TAMPING WITH THE TAMPING CART IS RECOMMENDED USING ONLY 100 LBS OF WEIGHT.

USE COMPACTION ROLLER TO EMBED (INLAY) MARKINGS INTO PAVEMENT SURFACE. USE MINIMUM SPEED AND WATER ON ROLLER. DO NOT USE VIBRATOR IF MARKING BUCKLES OR DISTORTS SEVERELY IN FRONT OF ROLLER. MAT TEMPERATURE OR ROLLER SPEED MAY BE TOO HIGH.

SYMBOLS & MATERIALS LEGEND

ZEBRA CROSSWALK (WHITE) – 6' x 3' BLOCKS

PAVEMENT MESSAGE (RIGHT ARROW)–PREFORM THERMOPLASTIC

24 INCH SOLID WHITE STOP BAR–EPOXY

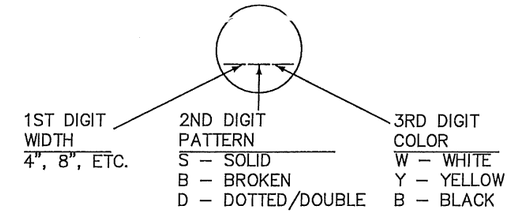
STRIPING KEY

CIRCLE – EPOXY

SQUARE – PREFORM THERMOPLASTIC

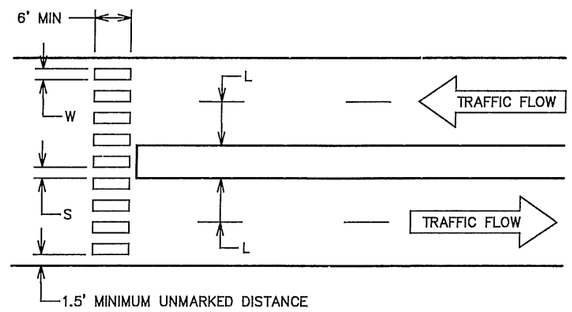
TRIANGLE – PAINT

PENTAGON – REMOVEABLE PREFORMED PLASTIC MARKING



EXAMPLE: (4SW) = 4" SOLID LINE WHITE – EPOXY

CROSSWALK PAVEMENT MARKING DETAIL



WIDTH OF INSIDE LANE (L)	WIDTH OF MARKED AREA (W)	WIDTH OF SPACE (S)
9'	3'	3'
10'	3'	3'
11'	3'	3'
12'	3'	3'
13'	3'	3'

NOTES:
1. CROSSWALK AREAS TO BE CENTERED/ALIGNED ON CENTER LINE AND LANE LINES.
2. A MINIMUM OF 1.5' CLEAR DISTANCE MUST BE LEFT ADJACENT TO CURB. IF LAST MARKED AREA FALLS INTO THIS DISTANCE, IT MUST BE OMITTED.

PAVEMENT MARKING TABULATION

ITEM	UNIT	TOTAL ESTIMATED QUANTITY
PAVEMENT MARKING REMOVAL (LANE LINE, STOP BARS)	LIN. FT.	420
PAVEMENT MARKING REMOVAL (ZEBRA CROSSWALK)	SQ. FT.	594
4 INCH SOLID LINE WHITE–EPOXY (LANE LINE)	LIN. FT.	200
4 INCH BROKEN LINE WHITE–EPOXY (LANE LINE)	LIN. FT.	360
24 INCH SOLID LINE WHITE–EPOXY (STOP BAR)	LIN. FT.	100
4 INCH DOUBLE SOLID LINE YELLOW–EPOXY (CENTER LINE)	LIN. FT.	1200
PAVEMENT MESSAGE (RT ARROW) PREFORM THERMOPLASTIC	EACH	2
CROSSWALK PREFORM THERMOPLASTIC	SQ. FT.	594

NOTE: EACH TURN ARROW IS ASSUMED TO BE 15 SQUARE FEET FOR BIDDING PURPOSES.

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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

NO.	BY	DATE	REVISIONS

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Date: January 25, 2016
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ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
STRIPING NOTES AND TABULATIONS
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

15/29

SIGN PANELS TYPE C (FURNISH AND INSTALL)

TOTAL QUANTITY	POSTS: NO. & TYPE	POSTS: KNEE BRACES QUANTITY	POSTS: LENGTH (FT)	MTG HT. (FT)	PANELS: SIZE (IN.)	PANELS: UNIT AREA (SQ FT)	PANELS: TOTAL AREA (PROJECT) (SQ FT)	CODE NO.	PANEL LEGEND
1	1–U	–	13.0	7	30 x 30	6.25	6.25	R3–X1	RIGHT TURN LANE
2	Ⓑ	–	–	–	36 x 48	12.00	24.00	R10–12	LEFT TURN YIELD ON GREEN
1	1–U	–	13.0	7	24 x 24	4.00	4.00	M1–6	ANOKA COUNTY ROUTE MARKER (31)
1	Ⓐ	–	–	–	21 x 15	2.19	2.19	M6–1L	LEFT ARROW
1	2–U	–	13.5	7	36 x 36	9.00	9.00	W3–3	SIGNAL AHEAD
2	2–U Ⓒ	–	15.5	9	36 x 36	9.00	18.00	W3–3	SIGNAL AHEAD
8							63.44		

MAST ARM MOUNTED SIGNS

SIGN PANELS – TYPE D SIGNALS (FURNISH AND INSTALL)

SIGN PANEL	SIZE (in.)	NO. REQ.	NO. POSTS/ STIFFENERS PER SIGN	BAND SPACING (**)	SQ. FT. PER SIGN	POLE NO.	a	b
D–1	96x24	1	4	–	16.00	1	16'	–
D–2	90x24	1	4	–	15.00	3	8'	–
D–3	96x24	1	4	–	16.00	4	–	16'
D–4	90x24	1	4	–	15.00	5	8'	–
TOTAL QUANTITIES		4			62.00			

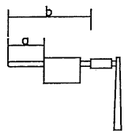
(**)= SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE SPECIAL PROVISIONS AND STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 7/06/07) FOR BRACKET SPACING REQUIREMENTS.

SALVAGE SIGNS

TOTAL PROJECT QUANTITY	POSTS: NO. & TYPE	PANELS: SIZE (IN.)	CODE NO.	PANEL LEGEND
1	1–U	24 x 24	R8–3	NO PARKING (SYMBOL)
1	1–U	24 x 24	M1–6	ANOKA COUNTY ROUTE MARKER (7)
2	1–U	24 x 24	M1–6	ANOKA COUNTY ROUTE MARKER (31)
1	Ⓐ	24 x 12	M4–6a	END
1	Ⓐ	21 x 15	M6–1R	RIGHT ARROW
1	Ⓐ	21 x 15	M6–4a	DOUBLE ARROW
2	1–U	18 x 18	–	MTC SIGN
1	1–ROUND	–	–	STREET NAME SIGNS
10				

INSTALL SIGN – TYPE C

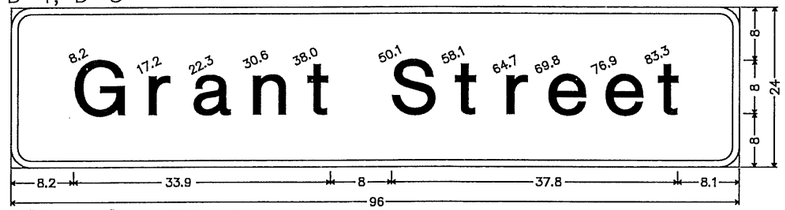
TOTAL PROJECT QUANTITY	POSTS: NO. & TYPE	PANELS: SIZE (IN.)	CODE NO.	PANEL LEGEND
1	Ⓐ	24 x 24	R8–3	NO PARKING (SYMBOL)
1	1–U	24 x 24	M1–6	ANOKA COUNTY ROUTE MARKER (7)
2	1–U	24 x 24	M1–6	ANOKA COUNTY ROUTE MARKER (31)
1	Ⓐ	24 x 12	M4–6a	END
1	Ⓐ	21 x 15	M6–1R	RIGHT ARROW
1	Ⓐ	21 x 15	M6–4a	DOUBLE ARROW
1	1–U	18 x 18	–	MTC SIGN
1	Ⓐ	18 x 18	–	MTC SIGN
9				



GENERAL SIGNING NOTES:

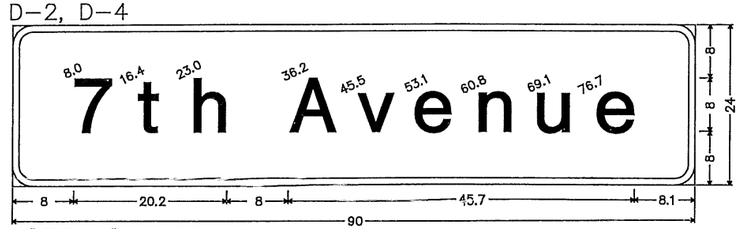
1) COLOR FOR ALL TYPE D SIGNS SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED. CORNERS OF STANDARD SIGN PANELS WITH MARGINS SHALL BE TRIMMED.
3) SEE SIGNAL PLAN DETAIL SHEET FOR SIGN MOUNTING PLATE LOCATIONS, FOR MAST ARM MOUNTED SIGN PANELS.
4) SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWINGS OF TYPE C SIGN PANELS.
5) FURNISHING AND INSTALLING NEW TYPE C AND D SIGNS SHALL BE MEASURED AND PAID FOR SEPARATELY. SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
6) SALVAGING INPLACE SIGN PANELS AND POSTS THAT WILL NOT BE REINSTALLED AS PART OF PROJECT SHALL BE MEASURED AND PAID FOR SEPARATELY. SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
7) SALVAGING AND REINSTALLING INPLACE SIGN PANELS WILL BE MEASURED AND PAID FOR SEPARATELY. SEE STATEMENT OF ESTIMATED QUANTITIES & SPECIAL PROVISIONS. THIS INCLUDES REUSING EXISTING SIGN POSTS AND MOUNTING HARDWARE FOR INPLACE SALVAGED AND INSTALLED SIGNS.
8) FURNISHING AND INSTALLING NEW R10–3e PEDESTRIAN PUSH BUTTON INSTRUCTION SIGNS IS INCIDENTAL. SEE SPECIAL PROVISIONS AND PLANS FOR FURTHER INFORMATION.
9) FABRICATE ALL NEW TYPE C AND D SIGN PANELS USING DG3 SHEETING. SEE SPECIAL PROVISIONS.
10) Ⓐ = SIGN PANEL MOUNTED ON SAME POST WITH OTHER SIGN.
11) Ⓑ = TRAFFIC SIGNAL MAST ARM MOUNTED SIGN PANEL (MOUNT NEW SIGN PANELS AT 1' FROM LEFT END OF MAST ARM).
12) Ⓒ = INSTALL SALVAGED SIGN PANEL BELOW NEW W3–3 SIGN PANEL ON SAME POSTS.
13) ALL TRAFFIC CONTROL, MOBILIZATION AND WORK RELATED TO THE INSTALLATION OF THE SIGNING AND PAVEMENT MARKINGS SHOWN IN THE PLANS IS INCIDENTAL.
14) POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
15) SEE SIGN DETAIL PLAN SHEETS FOR STRUCTURAL DETAILS.
16) SEE MnDOT STANDARD SIGNS MANUAL FOR ARROW DETAILS, PUNCHING CODE & DETAILED DRAWING OF TYPE C SIGN PANELS.
17) MOUNTING HEIGHT IS MINIMUM. SEE DETAIL SHEETS FOR TYPICAL MOUNTING.

D–1, D–3



3.0" Radius, 1.0" Border, White on Green;
[Grant Street] E Mod;

D–2, D–4



3.0" Radius, 1.0" Border, White on Green;
[7th Avenue] E Mod;

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M. Gray PE
Date: January 25, 2016 Lic. No. 22457

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

ANOKA COUNTY
CITY OF ANOKA

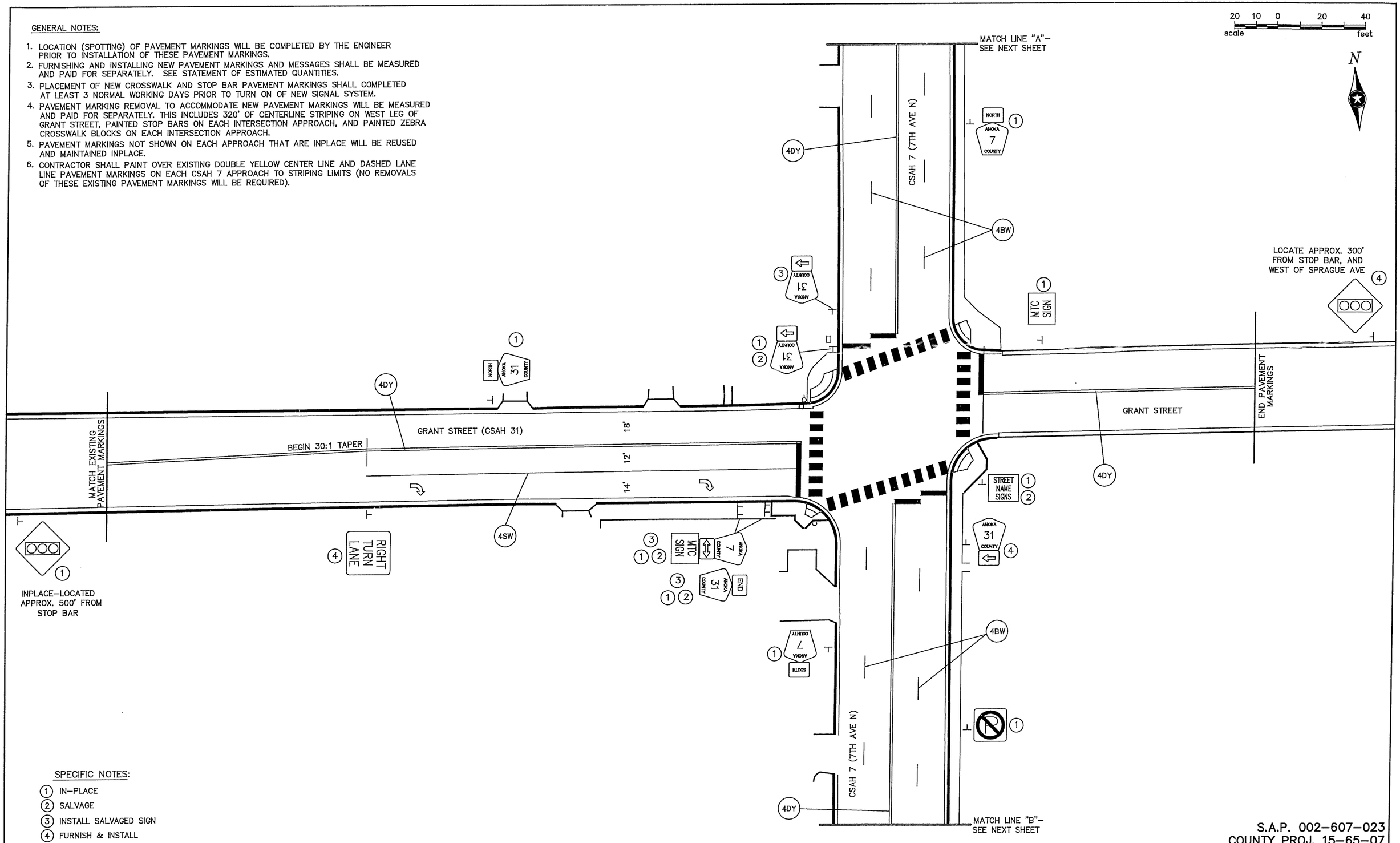
TRAFFIC SIGNAL SYSTEM
SIGN TABULATIONS
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

16
29

GENERAL NOTES:

1. LOCATION (SPOTTING) OF PAVEMENT MARKINGS WILL BE COMPLETED BY THE ENGINEER PRIOR TO INSTALLATION OF THESE PAVEMENT MARKINGS.
2. FURNISHING AND INSTALLING NEW PAVEMENT MARKINGS AND MESSAGES SHALL BE MEASURED AND PAID FOR SEPARATELY. SEE STATEMENT OF ESTIMATED QUANTITIES.
3. PLACEMENT OF NEW CROSSWALK AND STOP BAR PAVEMENT MARKINGS SHALL COMPLETED AT LEAST 3 NORMAL WORKING DAYS PRIOR TO TURN ON OF NEW SIGNAL SYSTEM.
4. PAVEMENT MARKING REMOVAL TO ACCOMMODATE NEW PAVEMENT MARKINGS WILL BE MEASURED AND PAID FOR SEPARATELY. THIS INCLUDES 320' OF CENTERLINE STRIPING ON WEST LEG OF GRANT STREET, PAINTED STOP BARS ON EACH INTERSECTION APPROACH, AND PAINTED ZEBRA CROSSWALK BLOCKS ON EACH INTERSECTION APPROACH.
5. PAVEMENT MARKINGS NOT SHOWN ON EACH APPROACH THAT ARE INPLACE WILL BE REUSED AND MAINTAINED INPLACE.
6. CONTRACTOR SHALL PAINT OVER EXISTING DOUBLE YELLOW CENTER LINE AND DASHED LANE LINE PAVEMENT MARKINGS ON EACH CSAH 7 APPROACH TO STRIPING LIMITS (NO REMOVALS OF THESE EXISTING PAVEMENT MARKINGS WILL BE REQUIRED).



SPECIFIC NOTES:

(1) IN–PLACE
(2) SALVAGE
(3) INSTALL SALVAGED SIGN
(4) FURNISH & INSTALL

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

DRAWN BY: JMG DESIGNER: JMG CHECKED BY: JMG DESIGN TEAM	NO.	BY	DATE	REVISIONS	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. Date: January 25, 2016 Name: John M. Gray PE Lic. No. 22457

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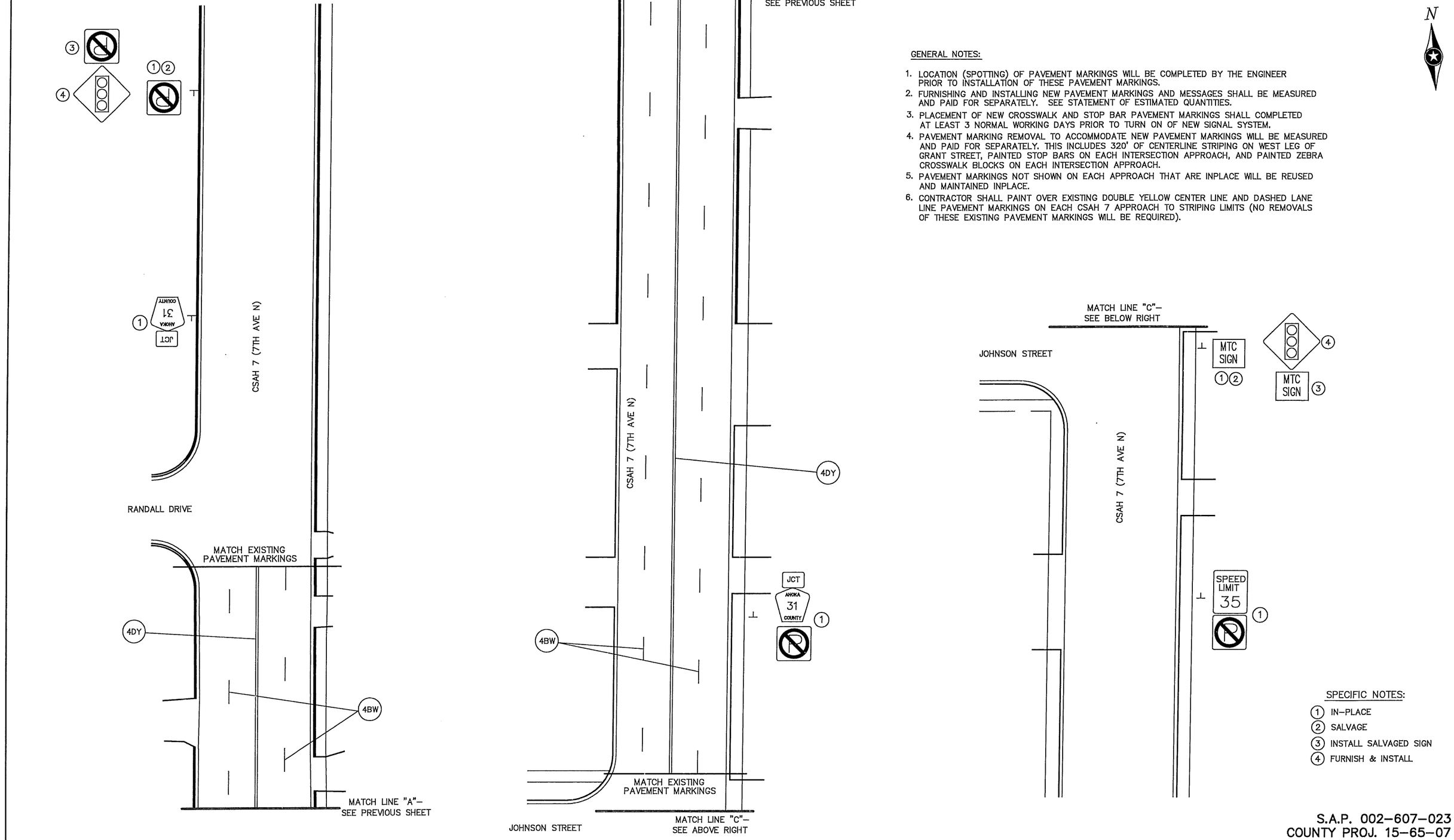
ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
SIGNING AND STRIPING LAYOUT
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

17/29



GENERAL NOTES:

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S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

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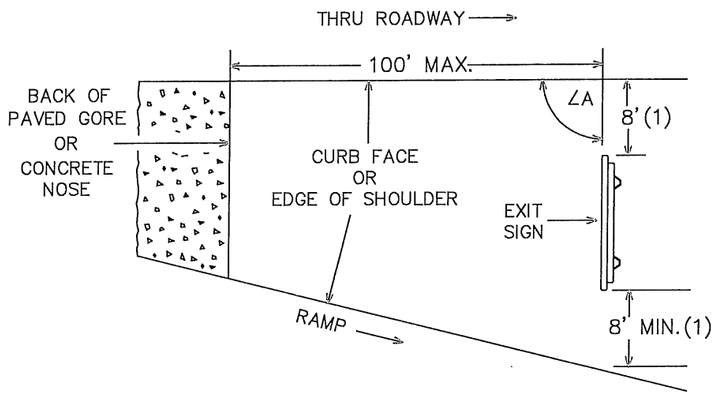
CITY OF ANOKA

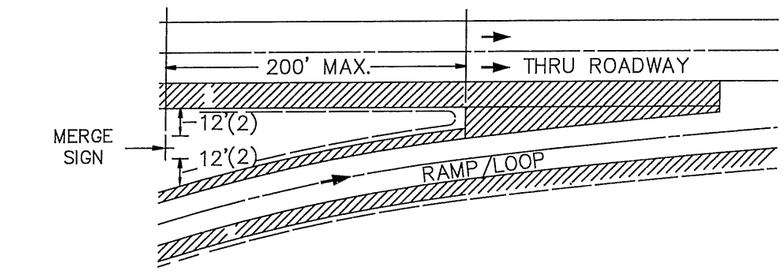
TRAFFIC SIGNAL SYSTEM
SIGNING AND STRIPING LAYOUT
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

18
29

GORE PLACEMENT





SPECIFIC NOTES:

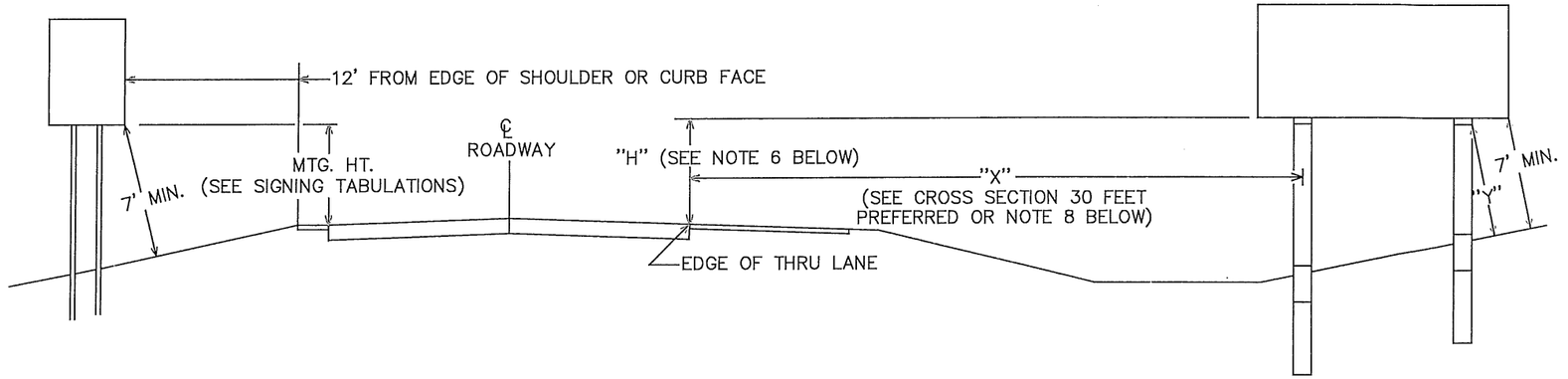
(1) EXIT SIGNS

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

(2) MERGE SIGNS

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

ROADSIDE PLACEMENT



ROUTE MARKER, REGULATORY & WARNING SIGNS – TYPE C
GUIDE SIGNS – TYPE D

GUIDE SIGN – TYPE A

NOTES:

1. ALL TYPE C AND D MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF PAVEMENT IN RURAL AREAS OR TO THE TOP OF THE CURB OR IN THE ABSCENCE OF CURB, TO THE NEAR EDGE OF THE TRAVELED WAY.
2. SIGN FACES SHALL BE VERTICAL.
3. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
4. TO AVOID SPECULAR GLARE, ∠A SHALL BE APPROXIMATELY 93 FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
5. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
6. WHERE "X" IS LESS THAN 30', "H" SHALL BE 7'. WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
7. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
8. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 8 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

SIGN PLACEMENT

REVISED: 7-23-15

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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

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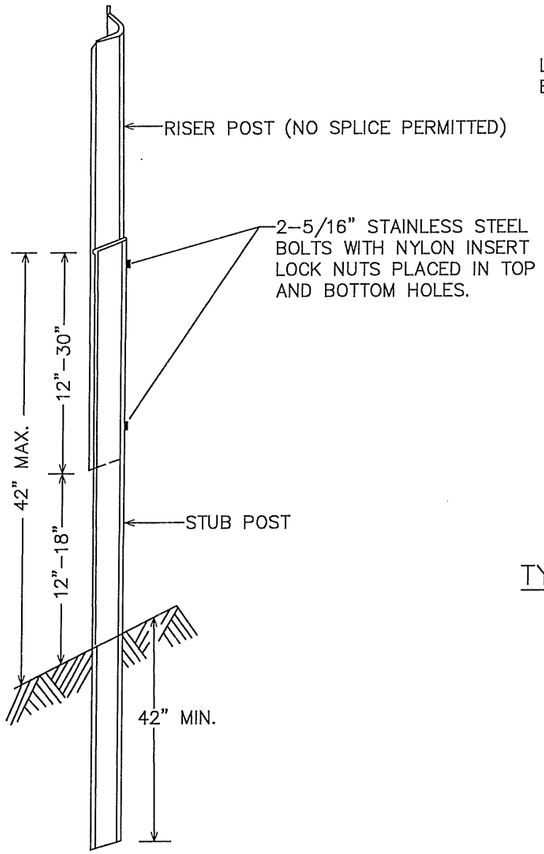
ANOKA COUNTY
CITY OF ANOKA

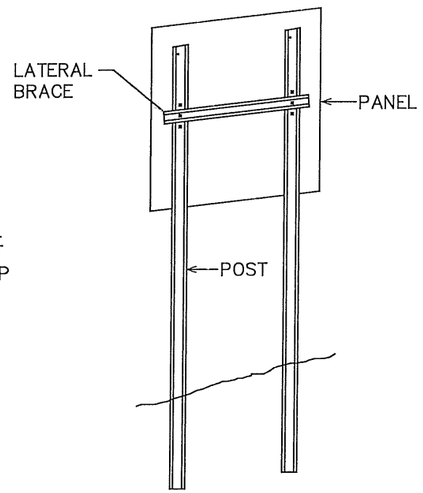
TRAFFIC SIGNAL SYSTEM
SIGN PLACEMENT DETAILS
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

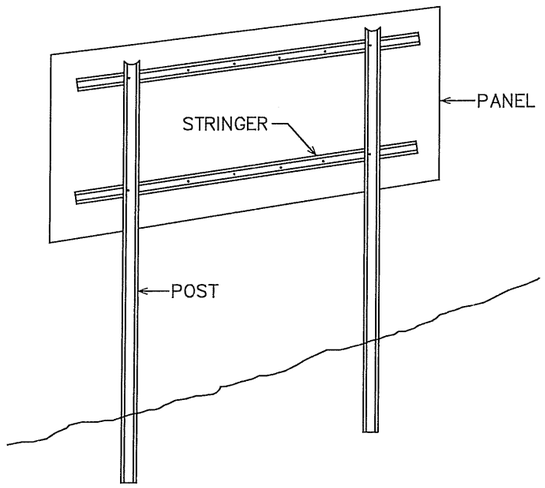
TYPE C & D POST



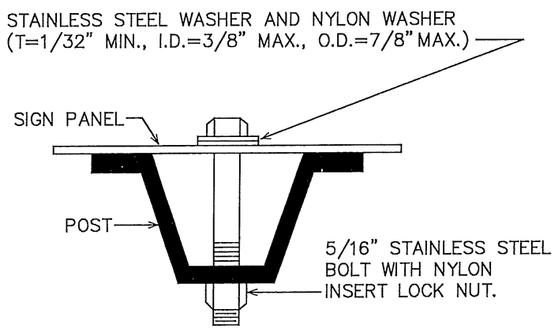
U POST BREAKAWAY SPLICE



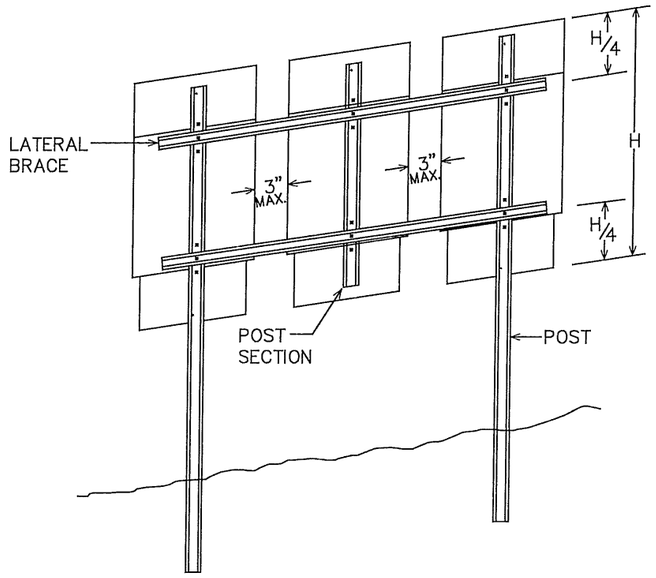
TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



U POST MOUNTING TYPE C SIGNS



MODIFIED TYPE C INSTALLATION

NOTES:

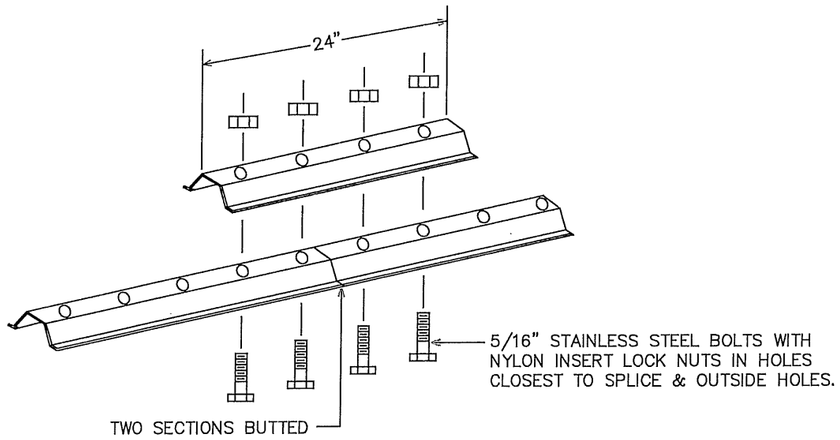
1. USE 3 LB/FT STUB POSTS. SHALL CONFORM TO MNDOT 3401.
2. USE 2.5 LB/FT RISER POSTS, STRINGERS, KNEE BRACES AND LATERAL BRACES. ALL SHALL CONFORM TO MNDOT 3401.
3. SEE SIGN DATA SHEETS FOR NUMBER OF POSTS, KNEE BRACES, POST LENGTHS AND SPACINGS, AS DETERMINED FROM TEM CHARTS 6.3 AND 6.4.
4. IF MORE THAN TWO POSTS ARE NEEDED, THE MINIMUM SPACING SHALL BE 45" BETWEEN POSTS.
5. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL–JOINT DETAIL (SEE STANDARD SIGNS MANUAL).
6. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
7. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
8. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
9. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
10. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 42".
11. A–FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
12. COLLARS SHALL BE USED TO SHIM OVERLAYS AND LEGEND COMPONENTS AWAY FROM PANEL WHERE INTER–FERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A6.
13. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
14. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
15. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN STRUCTURAL DETAILS

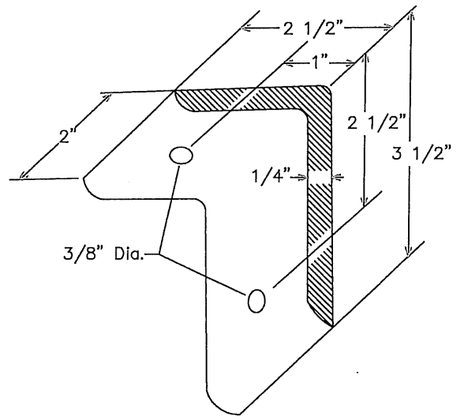
REVISED: 3–7–2014

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

DRAWN BY: JMG DESIGNER: JMG CHECKED BY: JMG DESIGN TEAM	NO.	BY	DATE	REVISIONS	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. Date: January 25, 2016 Name: John M. Gray PE Lic. No. 22457	SEH PHONE: (651) 490–2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY CITY OF ANOKA	TRAFFIC SIGNAL SYSTEM SIGN STRUCTURAL DETAILS CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)	FILE NO. ANOKC 132413	20 29

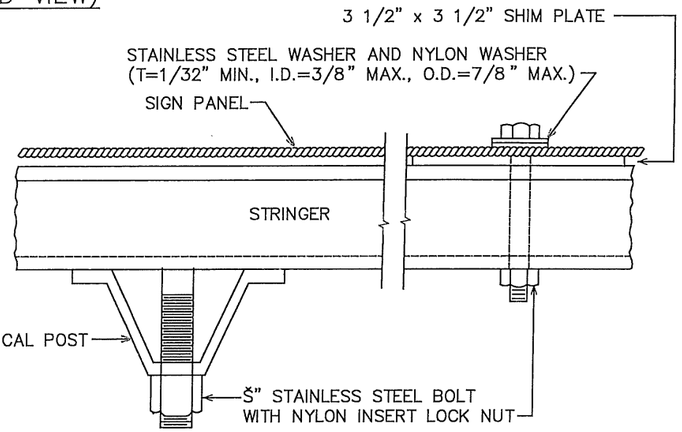


LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)

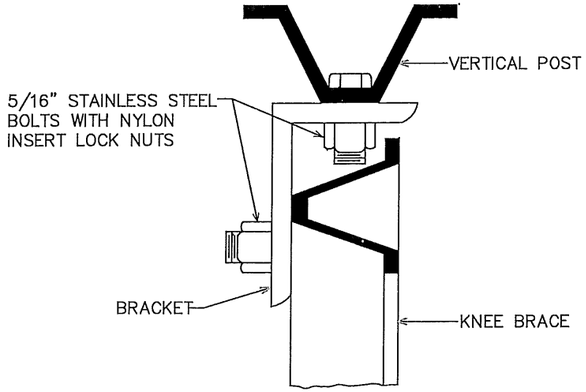


A–FRAME BRACKET

(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)



SECTION B–B

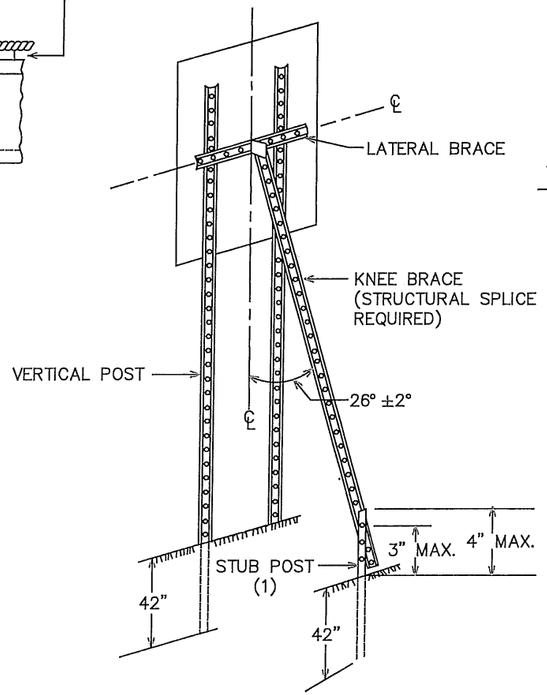


SECTION A–A

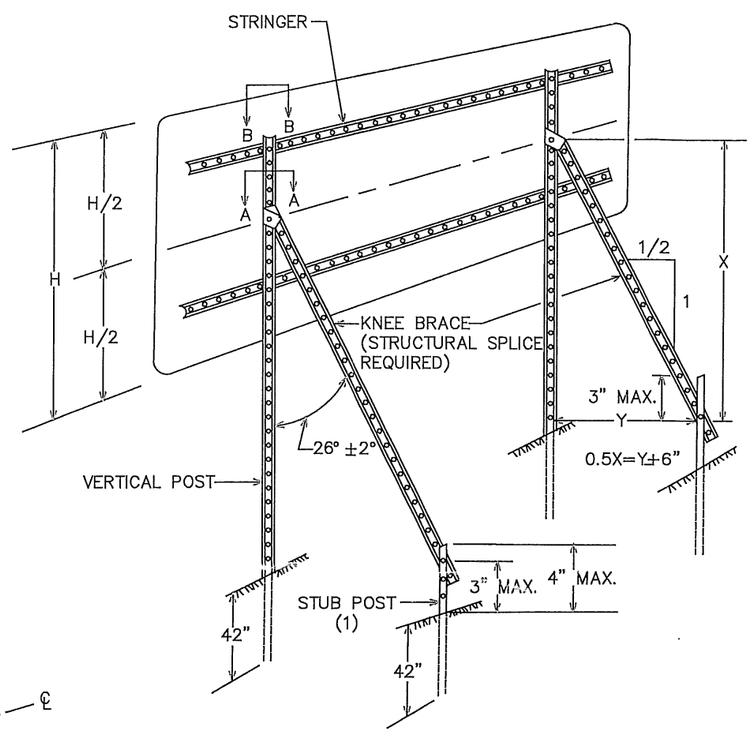
STRUCTURAL SPLICE

(USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)

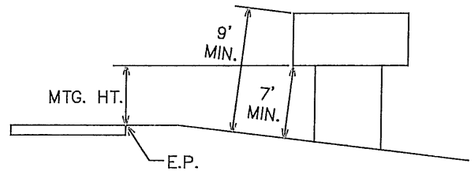
REVISED: 12–4–2013



TYPICAL "A–FRAME" INSTALLATION
TYPE "C" SIGNS



TYPICAL "A–FRAME" INSTALLATION
TYPE "D" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.

TYPE C & D SIGN
STRUCTURAL DETAILS

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

DRAWN BY: JMG	NO.	BY	DATE	REVISIONS
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CHECKED BY: JMG				
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ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
SIGN STRUCTURAL DETAILS
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

NOTES:

1) THE EXACT LOCATION OF HANDHOLES, FOUNDATIONS, AND LOOP DETECTORS SHALL BE DETERMINED IN FIELD BY ENGINEER.
2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS.
4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE LEFT END OF MAST ARMS 1 AND 4, AND 5 FEET FROM THE RIGHT END OF MAST ARMS 3 AND 5 (FOR EVP).
5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION.
6) THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS, CURB RAMPS, AND SIDEWALK TO BE F & I BY CONTRACTOR.
8) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION "FILLED" COUNTDOWN TIMER HAND/WALKING PERSON INDICATION.
9) ALL VEHICLE SIGNAL INDICATIONS, AND ALL PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
10) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
11) SEE DETAILS, SPECIAL PROVISIONS, AND STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).

PVC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D2-1	6x6	180'	1
D2-2	6x6	180'	1
D4-1	6x6	120'	3,8
D4-2	2-6x6	0 '& 15'	7
D4-3	2-6x6	0 '& 15'	7
D5-1	2-6x6	20' & 50'	5,8,11
D5-2	2-6x6	5' & 35'	5,8,11
D5-3	6x10	30'	3,12
D6-1	6x6	180'	1
D6-2	6x6	180'	1
D8-1	6x6	120'	3,8
D8-2	2-6x10	0 '& 15'	7

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

LOOP DETECTORS FUNCTIONS:

1) CALL AND EXTEND
3) EXTEND ONLY
5) DELAYED CALL ONLY
8) CARRY OVER (STRETCH)
11) OPERATE DURING PHASE 2 CLEARANCE ONLY
12) OPERATE DURING PHASE 5 ONLY

(2) PEDESTAL FOUNDATION
10' PEDESTAL POLE (INCLUDES BASE, WIND COLLAR)
2-STRAIGHT MOUNT C.D. PED INDICATIONS-POLE MOUNTED (FACING EAST/NORTH)
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
EXTEND INTO H.H.1:
3"R.S.C.
1-12/c#14
2-2/c#14
1-1/c#6 (GRD)

(3) PA85 POLE FOUNDATION
TYPE PA85-A-20-D30-9 (DAVIT AT 270 DEG)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90/180 DEG
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
TYPE D SIGN PANEL-OVERHEAD (D-2)
(*) INSTALL ONE WAY EVP DETECTOR AND CONFIRMATION LIGHT (FURNISHED BY COUNTY) (ø8)
(*) ONE WAY EVP MOUNTING HARDWARE AND HUB AT 15' FROM END OF MAST ARM
EXTEND INTO H.H.3:
3"R.S.C.
2-12/c#14
(*) 1-3/c#14
2-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 (GRD)

(A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)
EQUIPMENT PAD FOUNDATION
BATTERY BACK-UP SIGNAL SERVICE CABINET
BETWEEN CONTROLLER CABINET AND SERVICE CABINET:
METERED SIGNAL SERVICE
1 1/4"R.S.C.
3-1/c#6
CONTROLLER CABINET TO H.H.1:
4"R.S.C.: 3-12/c#14, (*) 1-3/c#14, 8-2/c#14, (*) 1-3/c#20, 1-1/c#6 (GRD)
4"R.S.C.: 2-12/c#14, 1-6/c#14, (*) 1-3/c#14, 7-2/c#14, (*) 1-3/c#20
CONTROLLER CABINET TO H.H.10:
4"R.S.C.: 2-12/c#14, (*) 1-3/c#14, 2-2/c#14, (*) 1-3/c#20, 1-1/c#6 (GRD)
4"R.S.C.: 2-12/c#14, (*) 1-3/c#14, 4-2/c#14, (*) 1-3/c#20
CONTROLLER CABINET TO H.H.2:
2"R.S.C.
1-2/c#14
CONTROLLER CABINET TO H.H.10:
(**) 2"R.S.C.
(**) 1-12 SM FIBER OPTIC CABLE

SERVICE CABINET TO H.H.1:
1 1/4"R.S.C.
UNMETERED STREET LIGHT SERVICE
1-3/c#14 (LUM)
SERVICE CABINET TO H.H.10:
1 1/4"R.S.C.
UNMETERED STREET LIGHT SERVICE
2-3/c#14 (LUM)
SERVICE CABINET TO H.H.13:
2" CONDUIT
3-1/c#2
STUB OUT 1"R.S.C. FROM CONTROLLER CABINET TO WEST (FOR FUTURE PHONE LINE BY OTHERS)
STUB OUT 3"R.S.C. FROM CONTROLLER CABINET TO EAST (THREAD AND CAP-FOR FUTURE USE)

20 10 0 20 40
scale feet

N

H.H.12 TO H.H.13:
2"R.S.C. - INPLACE
(**) 1-6 Pr #19-INPLACE (REMOVE)
(**) 1-12 SM FO CABLE (F&I)

H.H.11 TO H.H.12:
1 1/4" R.S.C. INPLACE (REMOVE)
(**) 2"R.S.C. - (F&I)
(**) 1-6 Pr #19-INPLACE (REMOVE)
(**) 1-12 SM FO CABLE (F&I)

H.H.10 TO H.H.11:
2"R.S.C.
2-2/c#14
(**) 2"R.S.C.
(**) 1-12 SM FO CABLE

H.H.1 TO H.H.3:
2-4" CONDUITS
4-12/c#14
1-6/c#14
(*) 2-3/c#14
10-2/c#14
(*) 2-3/c#20
1-3/c#14 (LUM)
1-1/c#6 (GRD)

H.H.3 TO H.H.4:
4"R.S.C.
2-12/c#14
1-6/c#14
(*) 1-3/c#14
7-2/c#14
(*) 1-3/c#20
1-1/c#6 (GRD)

H.H.4 TO H.H.5:
2"R.S.C.
2-2/c#14

H.H.4 TO H.H.6:
4" CONDUIT
2-12/c#14
1-6/c#14
(*) 1-3/c#14
5-2/c#14
(*) 1-3/c#20
1-1/c#6 (GRD)

H.H.6 TO H.H.7:
2"R.S.C.
3-2/c#14

H.H.7 TO H.H.8:
2"R.S.C.
1-2/c#14

H.H.9 TO H.H.10:
4" CONDUIT
2-12/c#14
(*) 1-3/c#14
4-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 (GRD)

(B) INPLACE WOOD POLE (S.O.P.) (CITY OF ANOKA)
2"R.S.C. RISER AND WEATHERHEAD
3-1/c#2
EXTEND INTO H.H.13:
2"R.S.C.
3-1/c#2

(1) PA90 POLE FOUNDATION
TYPE PA90-A-25-D30-9 (DAVIT AT 350 DEG)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/270 DEG
R10-12 SIGN PANEL-ADJACENT TO 6-3
TYPE D SIGN PANEL-OVERHEAD (D-1)
(*) INSTALL ONE WAY EVP DETECTOR AND CONFIRMATION LIGHT (FURNISHED BY COUNTY) (ø6)
(*) ONE WAY EVP MOUNTING HARDWARE AND HUB AT 6' FROM END OF MAST ARM
EXTEND INTO H.H.10:
3"R.S.C.
2-12/c#14
(*) 1-3/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 (GRD)

(4) PA90 POLE FOUNDATION
TYPE PA90-A-25
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 10'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90/180 DEG
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
R10-12 SIGN PANEL-ADJACENT TO 2-3
TYPE D SIGN PANEL-OVERHEAD (D-3)
(*) INSTALL ONE WAY EVP DETECTOR AND CONFIRMATION LIGHT (FURNISHED BY COUNTY) (ø2,5)
(*) ONE WAY EVP MOUNTING HARDWARE AND HUB AT 6' FROM END OF MAST ARM
EXTEND INTO H.H.6:
3"R.S.C.
2-12/c#14
1-6/c#14
(*) 1-3/c#14
2-2/c#14
(*) 1-3/c#20
1-1/c#6 (GRD)

(5) PA85 POLE FOUNDATION
TYPE PA85-A-25-D30-9 (DAVIT AT 350 DEG)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90/180 DEG
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90/180 DEG
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
TYPE D SIGN PANEL-OVERHEAD (D-4)
(*) INSTALL ONE WAY EVP DETECTOR AND CONFIRMATION LIGHT (FURNISHED BY COUNTY) (ø4)
(*) ONE WAY EVP MOUNTING HARDWARE AND HUB AT 20' FROM END OF MAST ARM
EXTEND INTO H.H.9:
3"R.S.C.
2-12/c#14
(*) 1-3/c#14
2-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 (GRD)

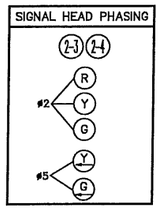
MATCH LINE "A" - STATION 46+97

CSAH 7 (7TH AVE N) (35 mph)

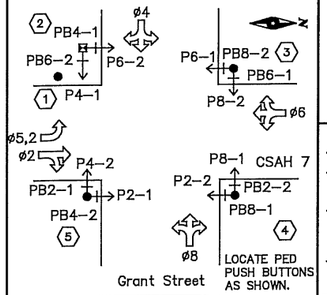
GRANT STREET (CSAH 31) (30 mph)

GRANT STREET (30 mph)

SIGNAL HEAD PHASING



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATIONS:

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

12) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
13) ALL VEHICLE AND PEDESTRIAN SIGNAL HOUSINGS, BACKGROUND SHIELDS, AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
14) (*) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
15) (**) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
16) CONTRACTOR SHALL REMOVE ENTIRE INPLACE SIGNAL SYSTEM. SEE ESTIMATED QUANTITIES, SPECIAL PROVISIONS, AND "FOR INFORMATION ONLY" PLAN.

LED SIGNAL HEADS					
SIGNAL HEAD	ALL SIGNAL INDICATIONS SHALL BE 12".				
	R	Y	G	Y	G
2-1, 2-2	●	●	●		
2-3, 2-4	●	●	●	←	←
4-1, 4-2, 4-3	●	●	●		
6-1, 6-2	●	●	●		
6-3, 6-4	●	●	●		
8-1, 8-2, 8-3	●	●	●		

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: January 25, 2016
Name: John M. Gray PE
Lic. No. 22457

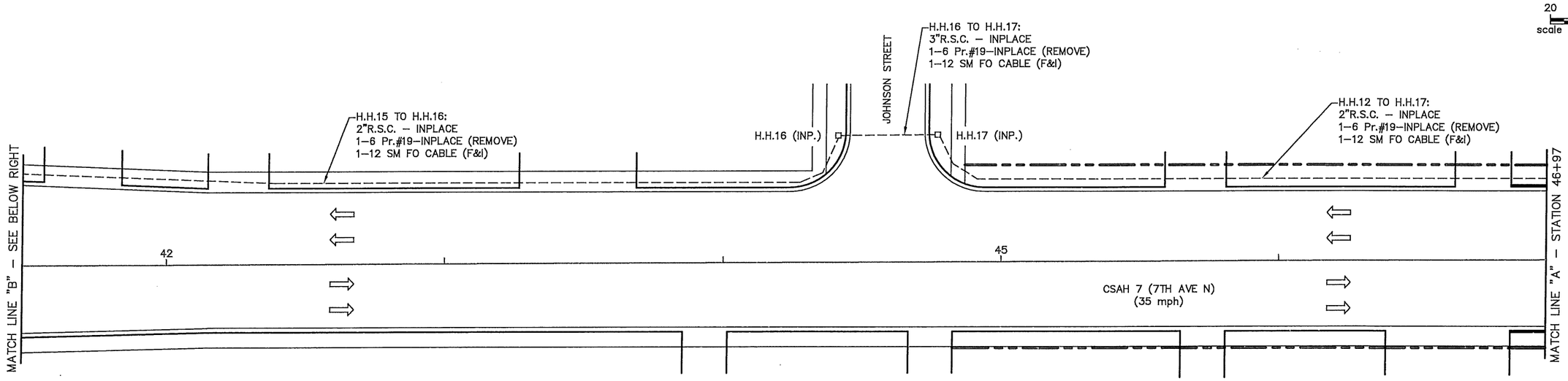
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

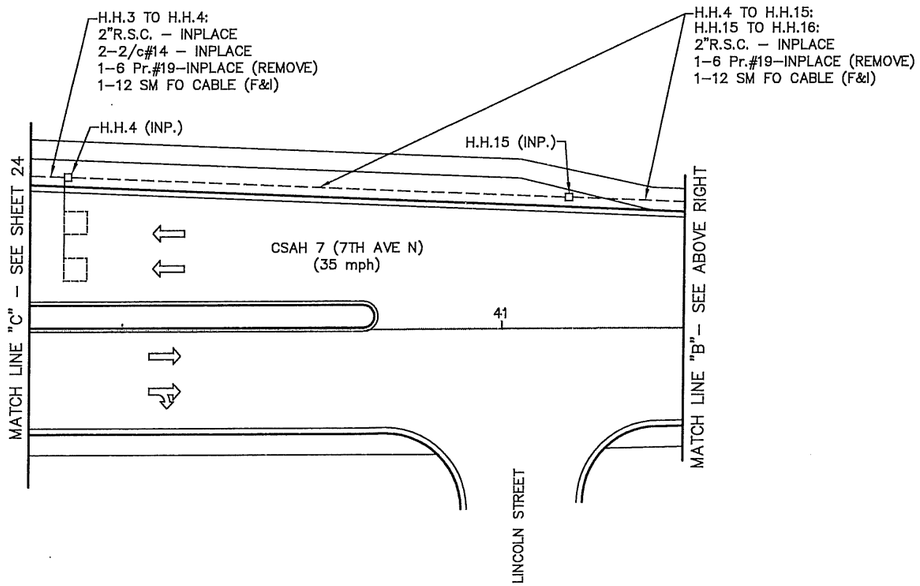
ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

22/29





NOTES:

1) IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651–454–0002), AS REQUIRED BY MINNESOTA STATUTE 2160.
2) (**) DENOTES ITEMS TO BE MEASURED AND PAID FOR SEPARATELY BY CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES.
3) ALL HANDHOLES AND CONDUIT SHOWN ON THIS PLAN SHEET ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE.
4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

S.A.P. 002–607–023
COUNTY PROJ. 15–65–07
CITY PROJ. 2015–157

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG
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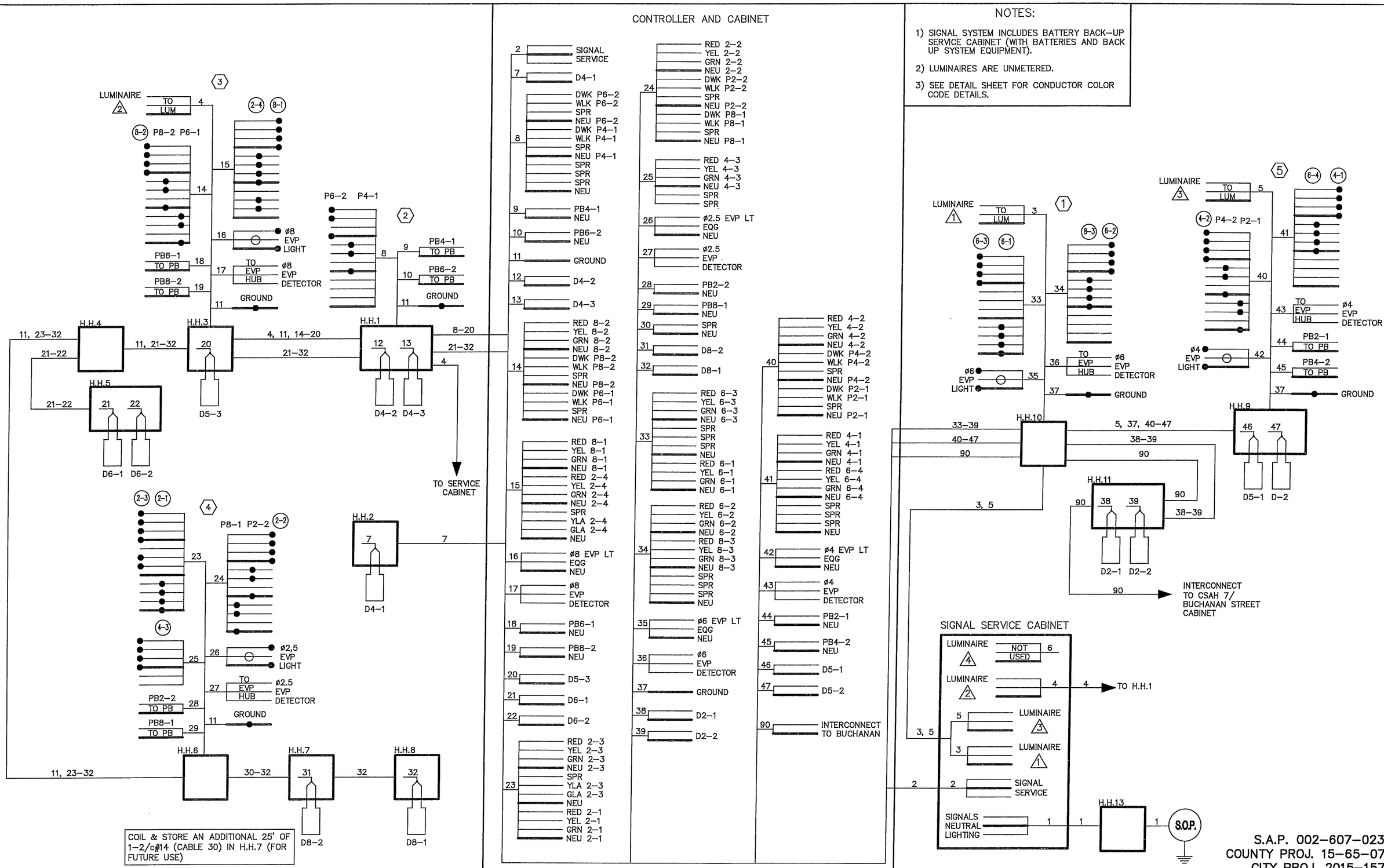
ANOKA COUNTY
CITY OF ANOKA

TRAFFIC CONTROL INTERCONNECTION
INTERSECTION LAYOUT
CSAH 7 (7th AVE NORTH)
(GRANT STREET TO BUCHANAN STREET)

FILE NO.
ANOKC 132413



S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
FIELD WIRING DIAGRAM
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

SIGNAL INDICATION CHART

ALL SIGNAL INDICATIONS SHALL BE 300 mm
ALL CIRCULAR & ARROW INDICATIONS SHALL BE LED

SIGNAL FACE	R	Y	G	RLTA	YLTA	GLTA
2-1,2-2	●	●	●			
2-3,2-4	●	●	●		←	←
4-1,4-2,4-3	●	●	●			
6-1,6-2	●	●	●			
6-3,6-4	●	●	●		←	←
8-1,8-2,8-3	●	●	●			

SIGNAL HEAD PHASING

FACE	PHASE
2-3, 2-4	Ø2 & Ø6
6-3, 6-4	Ø5 & Ø1

(A) CONTROLLER FOUNDATION - SEE DETAIL
CONTROLLER & CABINET
EXTEND 103 mm RSC INTO HH-1 WITH:
6 - 12/C #12, 4 - 3/C #12, 10 - 2/C #14,
2 - 3/C #20

(**) 1-6 Pr.#19-INPLACE (REMOVE)
(**) 1-12 SM FO CABLE (F&I)

EXTEND 103 mm RSC INTO HH-12 WITH:
6 - 12/C #12, 4 - 3/C #12, 4 - 2/C #14,
2 - 3/C #20 AND 1 - 6pr #19
EXTEND 35 mm RSC INTO HH-13 WITH:
3 - 1/C #6
1 - 78 mm RSC STUB OUT OF CABINET
(THREAD AND CAP BOTH ENDS)

(2) PA85 POLE FOUNDATION
TYPE PA85-A-7.6 m
1 - ONE WAY SIGNAL (OVERHEAD)
TYPE 10B POLE MOUNTED AT 90°
TYPE 10B POLE MOUNTED AT 180°
ONE WAY EVP DETECTOR AND LIGHT
(1.8 m FROM END OF MAST ARM), 21 mm HUB
2 - PEDESTRIAN PUSHBUTTONS
EXTEND 78 mm RSC INTO HH-2 WITH:
3 - 12/C #12, 2 - 3/C #12
AND 1 - 3/C #20

LOOP DETECTOR CHART

DESIGNATION	SIZE	FUNCTION	DISTANCE FROM STOP LINE
D1-1	1-1.7m x 1.7m	(7)	15 m
D2-1,D2-2	1-1.7m x 1.7m	(1)	55 m
D2-3	2-1.7m x 1.7m	(1)	0, 4.7 m
D4-1	1-1.7m x 1.7m	(3)	37 m
D4-2	2-1.7m x 1.7m	(1)	0, 4.7 m
D4-3	2-1.7m x 1.7m	(7)	-3.4, 1 m
D5-1	1-1.7m x 1.7m	(7)	15 m
D6-1,D6-2	1-1.7m x 1.7m	(1)	55 m
D6-3	2-1.7m x 1.7m	(1)	0, 4.7 m
D8-1	1-1.7m x 1.7m	(3)	37 m
D8-2	2-1.7m x 1.7m	(1)	0, 4.7 m
D8-3	2-1.7m x 1.7m	(7)	-3.4, 1 m

FUNCTIONS:
(1) CALL AND EXTEND
(3) EXTEND ONLY
(7) DELAY CALL, IMMEDIATE EXTEND

(1) PA90 POLE FOUNDATION
TYPE PA90-A-9.1 m-D12.2 m-2.7 m (DAVIT AT 350°)
2 - ONE WAY SIGNALS (OVERHEAD)
(0 AND 3.4 m FROM END OF MAST ARM)
TYPE 10B POLE MOUNTED AT 90°
TYPE 10B POLE MOUNTED AT 180°
LUMINAIRE - 200 WATT H.P.S.
ONE WAY EVP DETECTOR AND LIGHT
(1.8 m FROM END OF MAST ARM), 21 mm HUB
2 - PEDESTRIAN PUSHBUTTONS
1 - R10-12 (36"x48") SIGN ADJACENT TO 6-3
EXTEND 78 mm RSC INTO HH-12 WITH:
3 - 12/C #12, 2 - 3/C #12
1 - 3/C #12 (LUM.) AND 1 - 3/C #20

(C) SOURCE OF POWER
INPLACE WOOD POLE
35 mm RSC RISER AND
WEATHERHEAD WITH:
3 - 1/C #6

(**) 1-6 Pr.#19-INPLACE (REMOVE)
(**) 1-12 SM FO CABLE (F&I)

(B) SERVICE CABINET FOUNDATION
SIGNAL SERVICE CABINET
EXTEND 35 mm RSC INTO HH-13
3 - 1/C #6
EXTEND 35 mm RSC INTO HH-1
2 - 3/C #12 (LUM.)
EXTEND 35 mm RSC INTO HH-14
3 - 1/C #6

H.H.3 TO H.H.4:
2"R.S.C. - INPLACE
2-2/c#14 - INPLACE

(**) 1-6 Pr.#19-INPLACE (REMOVE)
(**) 1-12 SM FO CABLE (F&I)

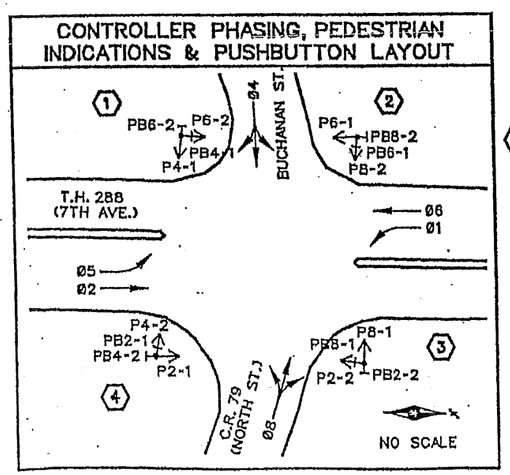
H.H.4 TO H.H.15:
2"R.S.C. - INPLACE

(**) 1-6 Pr.#19-INPLACE (REMOVE)
(**) 1-12 SM FO CABLE (F&I)

(3) PA90 POLE FOUNDATION
TYPE PA90-A-9.1 m-D12.2 m-2.7 m (DAVIT AT 350°)
2 - ONE WAY SIGNALS (OVERHEAD)
(0 AND 3.4 m FROM END OF MAST ARM)
TYPE 10B POLE MOUNTED AT 90°
TYPE 10B POLE MOUNTED AT 180°
LUMINAIRE - 200 WATT H.P.S.
ONE WAY EVP DETECTOR AND LIGHT
(1.8 m FROM END OF MAST ARM), 21 mm HUB
2 - PEDESTRIAN PUSHBUTTONS
1 - R10-12 (36"x48") SIGN ADJACENT TO 2-3
EXTEND 78 mm RSC INTO HH-6 WITH:
3 - 12/C #12, 2 - 3/C #12
1 - 3/C #12 (LUM.) AND 1 - 3/C #20

(4) PA90 POLE FOUNDATION
TYPE PA90-A-10.7 m
1 - ONE WAY SIGNAL (OVERHEAD)
TYPE 10B POLE MOUNTED AT 90°
TYPE 10B POLE MOUNTED AT 180°
ONE WAY EVP DETECTOR AND LIGHT
(1.8 m FROM END OF MAST ARM), 21 mm HUB
2 - PEDESTRIAN PUSHBUTTONS
EXTEND 78 mm RSC INTO HH-8 WITH:
3 - 12/C #12, 2 - 3/C #12
AND 1 - 3/C #20

CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT



SIGNAL OPERATION NOTES

- NORMAL OPERATION IS 6 PHASE
- FLASH MODE SHALL BE ALL RED
- Ø1 & Ø5 SHALL BE PROTECTED/PERMISSIVE LEFT TURNS
- Ø2 & Ø6 SHALL BE ON VEHICLE RECALL

INTERCONNECT NOTES:

1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED BY (**).
2) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR, AND MEASURED AND PAID FOR SEPARATELY UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES.
3) ALL HANDHOLES AND CONDUIT SHOWN ON THIS PLAN SHEET ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE.
4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

20 10 0 20 40
scale feet

N

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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

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Name: John M. Gray PE
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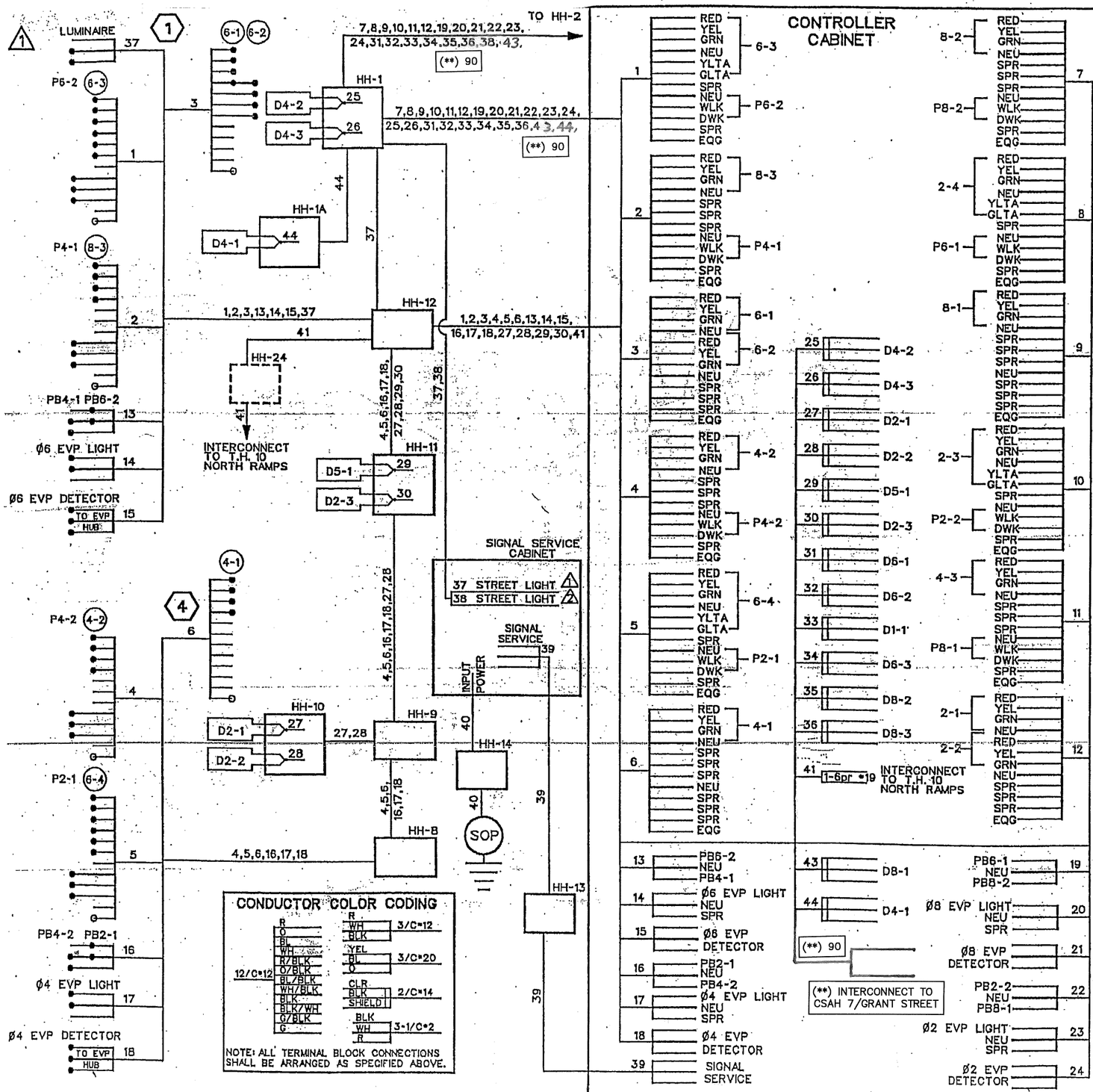
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANOKA

TRAFFIC CONTROL INTERCONNECT
INTERSECTION LAYOUT
CSAH 7 (7th AVE NORTH) AT
CO. RD. 79/BUCHANAN STREET

FILE NO.
ANOKC 132413

25
29



S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

INTERCONNECT NOTES:

1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED, PROTECTED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED BY (**) (INTERCONNECT ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR).
2) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
3) CONTRACTOR SHALL REMOVE AND DISPOSE OF INPLACE CABLE 42 (1-6 Pr.#19) FROM COUNTY ROAD 79/BUCHANAN STREET CONTROLLER CABINET TO GRANT STREET CONTROLLER CABINET (INCIDENTAL TO ITEM NO. 2565 - TRAFFIC CONTROL INTERCONNECTION).

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

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ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANOKA

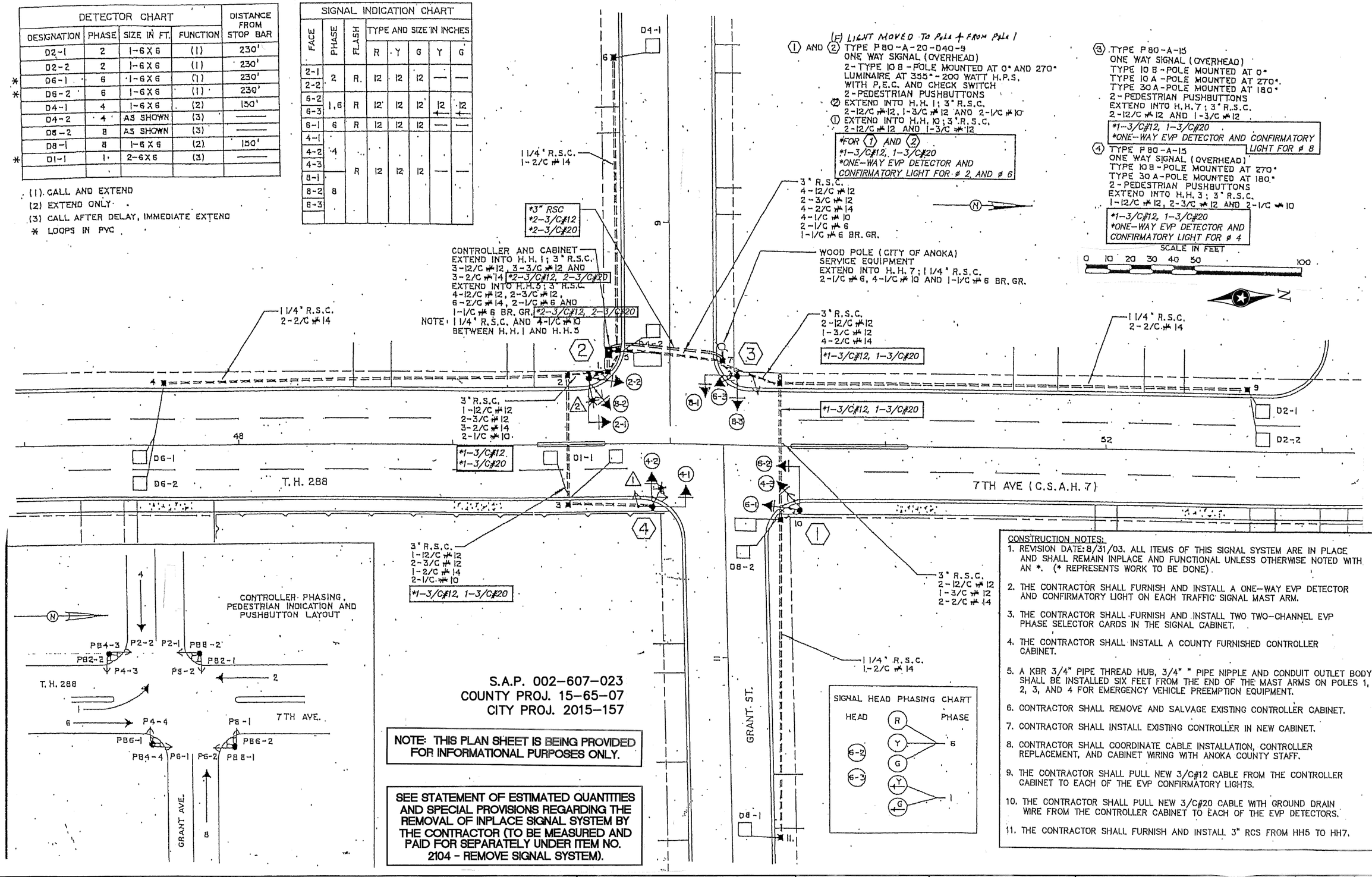
TRAFFIC CONTROL INTERCONNECT
FIELD WIRING DIAGRAM
CSAH 7 (7th AVE NORTH) AT
CO. RD. 79/BUCHANAN STREET

FILE NO. ANOKC 132413

DETECTOR CHART				DISTANCE FROM STOP BAR
DESIGNATION	PHASE	SIZE IN FT.	FUNCTION	
D2-1	2	1-6X6	(1)	230'
D2-2	2	1-6X6	(1)	230'
* D6-1	6	1-6X6	(1)	230'
* D6-2	6	1-6X6	(1)	230'
D4-1	4	1-6X6	(2)	150'
D4-2	4	AS SHOWN	(3)	———
D8-2	8	AS SHOWN	(3)	———
D8-1	8	1-6X6	(2)	150'
* D1-1	1	2-6X6	(3)	———

(1). CALL AND EXTEND
(2) EXTEND ONLY
(3) CALL AFTER DELAY, IMMEDIATE EXTEND
* LOOPS IN PVC

SIGNAL INDICATION CHART							
FACE	PHASE	FLASH	TYPE AND SIZE IN INCHES				
			R	Y	G	Y	G
2-1	2	R	12	12	12	—	—
2-2							
6-2	1,6	R	12	12	12	12	12
6-3						4	4
6-1	6	R	12	12	12	—	—
4-1	4	R	12	12	12	—	—
4-2							
4-3							
8-1	8	R	12	12	12	—	—
8-2							
8-3							



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COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS REGARDING THE REMOVAL OF INPLACE SIGNAL SYSTEM BY THE CONTRACTOR (TO BE MEASURED AND PAID FOR SEPARATELY UNDER ITEM NO. 2104 - REMOVE SIGNAL SYSTEM).

SIGNAL HEAD PHASING CHART

HEAD		PHASE
6-2	R, Y, G	6
6-3	Y, G	1

CONSTRUCTION NOTES:

1. REVISION DATE: 8/31/03. ALL ITEMS OF THIS SIGNAL SYSTEM ARE IN PLACE AND SHALL REMAIN INPLACE AND FUNCTIONAL UNLESS OTHERWISE NOTED WITH AN *. (* REPRESENTS WORK TO BE DONE).
2. THE CONTRACTOR SHALL FURNISH AND INSTALL A ONE-WAY EVP DETECTOR AND CONFIRMATORY LIGHT ON EACH TRAFFIC SIGNAL MAST ARM.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL TWO TWO-CHANNEL EVP PHASE SELECTOR CARDS IN THE SIGNAL CABINET.
4. THE CONTRACTOR SHALL INSTALL A COUNTY FURNISHED CONTROLLER CABINET.
5. A KBR 3/4" PIPE THREAD HUB, 3/4" " PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE INSTALLED SIX FEET FROM THE END OF THE MAST ARMS ON POLES 1, 2, 3, AND 4 FOR EMERGENCY VEHICLE PREEMPTION EQUIPMENT.
6. CONTRACTOR SHALL REMOVE AND SALVAGE EXISTING CONTROLLER CABINET.
7. CONTRACTOR SHALL INSTALL EXISTING CONTROLLER IN NEW CABINET.
8. CONTRACTOR SHALL COORDINATE CABLE INSTALLATION, CONTROLLER REPLACEMENT, AND CABINET WIRING WITH ANOKA COUNTY STAFF.
9. THE CONTRACTOR SHALL PULL NEW 3/C#12 CABLE FROM THE CONTROLLER CABINET TO EACH OF THE EVP CONFIRMATORY LIGHTS.
10. THE CONTRACTOR SHALL PULL NEW 3/C#20 CABLE WITH GROUND DRAIN WIRE FROM THE CONTROLLER CABINET TO EACH OF THE EVP DETECTORS.
11. THE CONTRACTOR SHALL FURNISH AND INSTALL 3" RCS FROM HH5 TO HH7.

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

NO.	BY	DATE	REVISIONS

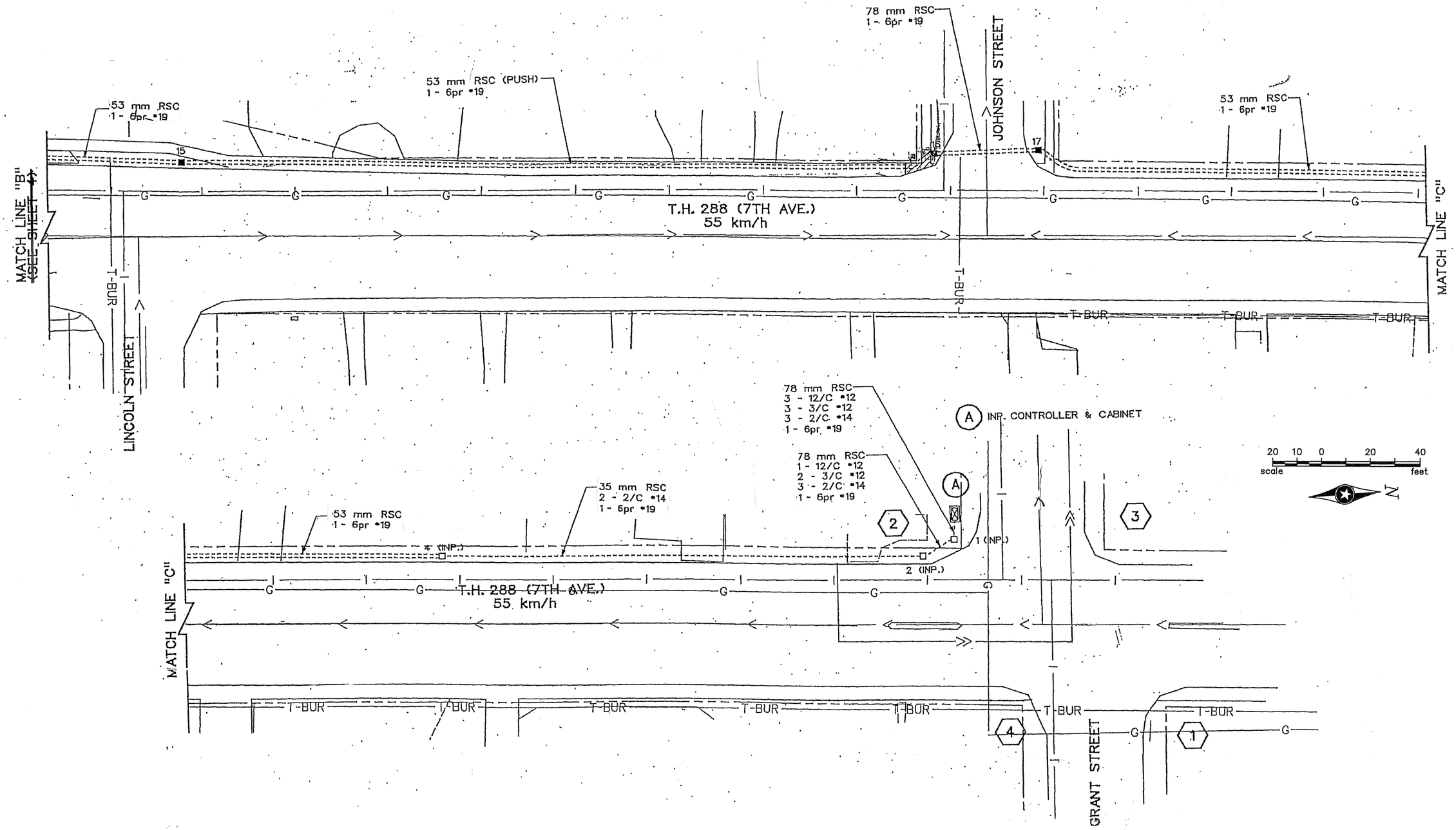
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANOKA

INPLACE SIGNAL SYSTEM
"FOR INFORMATION ONLY"
CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

27
29



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S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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ANOKA COUNTY
CITY OF ANOKA

INPLACE SIGNAL SYSTEM
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CSAH 7 (7th AVE NORTH) AT
GRANT STREET (CSAH 31)

FILE NO.
ANOKC 132413

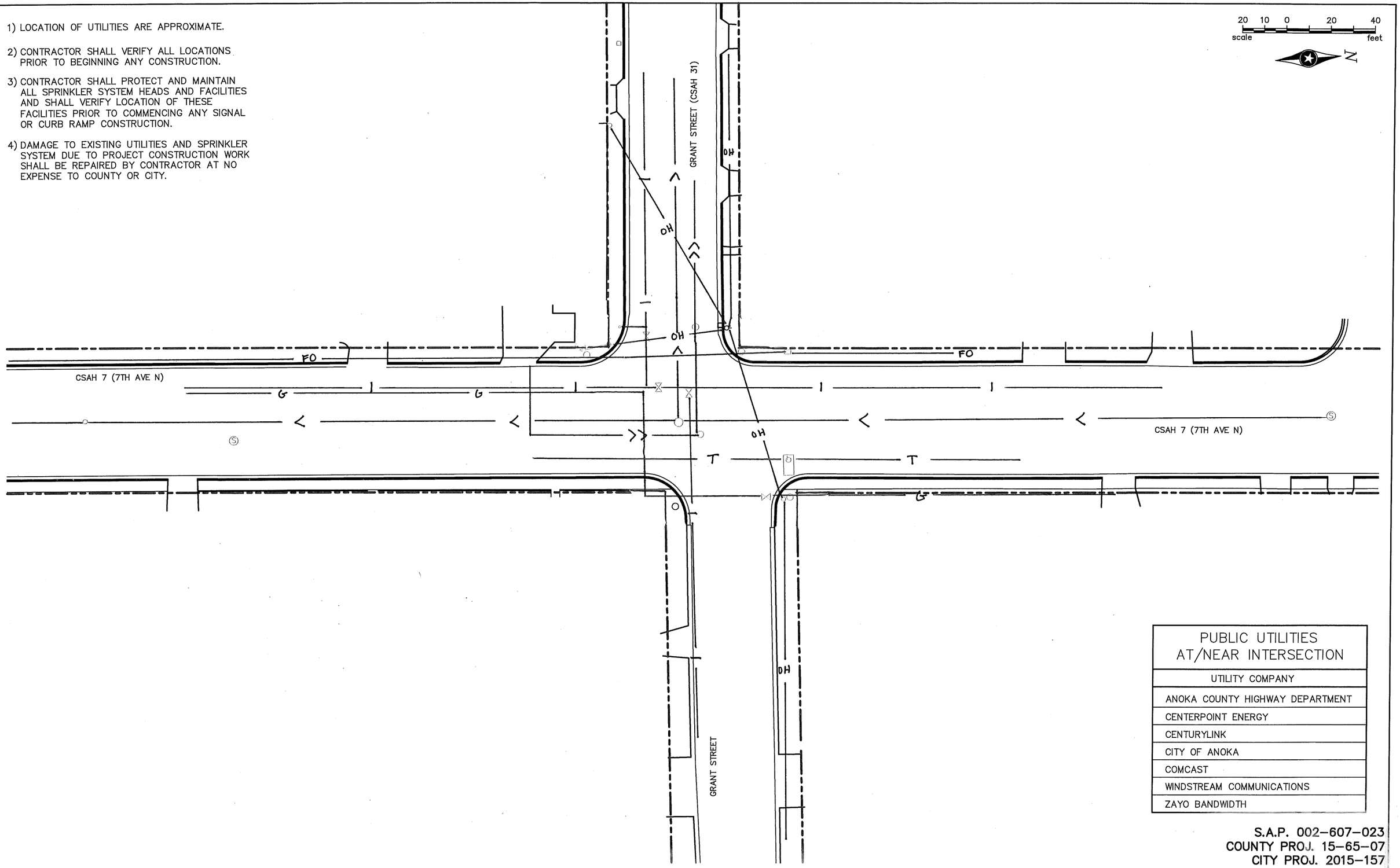
28
29

1) LOCATION OF UTILITIES ARE APPROXIMATE.

2) CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING ANY CONSTRUCTION.

3) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL SPRINKLER SYSTEM HEADS AND FACILITIES AND SHALL VERIFY LOCATION OF THESE FACILITIES PRIOR TO COMMENCING ANY SIGNAL OR CURB RAMP CONSTRUCTION.

4) DAMAGE TO EXISTING UTILITIES AND SPRINKLER SYSTEM DUE TO PROJECT CONSTRUCTION WORK SHALL BE REPAIRED BY CONTRACTOR AT NO EXPENSE TO COUNTY OR CITY.



PUBLIC UTILITIES AT/NEAR INTERSECTION
UTILITY COMPANY
ANOKA COUNTY HIGHWAY DEPARTMENT
CENTERPOINT ENERGY
CENTURYLINK
CITY OF ANOKA
COMCAST
WINDSTREAM COMMUNICATIONS
ZAYO BANDWIDTH

S.A.P. 002-607-023
COUNTY PROJ. 15-65-07
CITY PROJ. 2015-157

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M. Gray PE
Date: January 25, 2016 Lic. No. 22457

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

ANOKA COUNTY
CITY OF ANOKA

TRAFFIC SIGNAL SYSTEM
UTILITIES
CSAH 7 (7th AVE NORTH) AT GRANT STREET (CSAH 31)

FILE NO. ANOKC 132413

29/29