

SIGNAL HEAD CHART

FACE	R	Y	FYA	G	G
2-1, 2-2, 2-3	●	●		●	
5-1, 5-2	←	←	←	←	
6-1, 6-2, 6-3	●	●		●	
8-1	●	●		●	
8-2, 8-3	●	●		●	←

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
 -ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
 -FYA DENOTES FLASHING YELLOW ARROW

DETECTOR CHART

NUMBER	CAMERA	LOCATION
D2-1, D2-2	V-1	250
D5-1	V-1	5
D6-1, D6-2	V-2	250
D8-1	V-3	250
D8-2, D8-3	V-3	5

-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

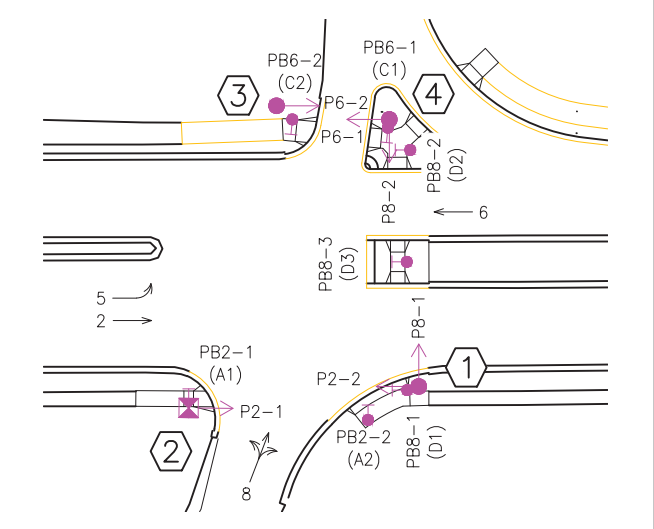
SEE SHEET 184

SEE SHEET 191

CSAH 26
(LONE OAK ROAD)
POSTED SPEED 40 MPH

- NOTES:
1. ALL ITEMS ARE FURNISH AND INSTALL UNLESS OTHERWISE NOTED.
 2. SEE SPECIAL PROVISIONS FOR STATE AND COUNTY FURNISHED MATERIALS.
 3. REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
 4. THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
 5. ENSURE THE EXACT LOCATION OF THE HANDHOLES, VAULTS, POLES, AND EQUIPMENT PAD ARE VERIFIED IN THE FIELD BY MNDOT OFFICE PERSONNEL.
 6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
 7. FOR MAST ARM SIGNS SEE DETAIL SHEET. ALL SIGNS REQUIRED ARE INCIDENTAL.
 8. FOR PAVEMENT MARKINGS SEE CONSTRUCTION PLANS.
 9. FOR CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK, AND MEDIAN WORK SEE CONSTRUCTION PLANS.
 10. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
 11. USE PVC OR HDPE FOR ALL NEW CONDUIT.
 12. CONDUIT SIZES ARE NOMINAL DIAMETER.
 13. ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).
 14. ITEMS DENOTED WITH * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 15. ITEMS DENOTED WITH ** AND **** ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT PAY ITEMS. ** DENOTES COUNTY INTERCONNECT AND **** DENOTES MNDOT INTERCONNECT.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE, WITH PHASE 5 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE



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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Print Name: GEORGE M. STUEMPFEG <i>George M. Stuempfeg</i> Date: 2019-04-29 License #: 121849		COUNTY PROJECT NO. 26-56 STATE PROJECT NO. 019-030-008 EAGAN PROJECT NO. 195-020-027	DRAWN BY L. JAMES DESIGNED BY L. JAMES CHECKED BY G. STUEMPFEG COMM. NO. 11493		DAKOTA COUNTY TRAFFIC SIGNAL PLANS CSAH 26, 28, 31, & 43 INTERSECTION IMPROVEMENTS SYSTEM S - CSAH 26 (LONE OAK ROAD) AND I-35E EAST RAMPS INTERSECTION LAYOUT	SHEET 187 OF 386
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- ① PA100 POLE FOUNDATION
TYPE PA100-A-45
X6-350/CAM 400 EXTENSION (DAVIT AT 350 DEG)
1 - ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2 - STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23'
1 - ANGLE MOUNT SIGNAL AT 180 DEG
2 - ANGLE MOUNT COUNTDOWN PED HEADS AT 180 AND 270 DEG
INSTALL - 1 - VIDEO DETECTION CAMERA (STATE FURNISHED) AT 5' (V-1)
*1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT AT 6' (PHASE 2)
1 - LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
INSTALL - 1 - PTZ CAMERA (STATE FURNISHED)
1 - R10-X12 SIGN ADJACENT TO HEAD 5-1 (SEE MAST ARM SIGNING DETAILS)
1 - TYPE D SIGN (D-1) (SEE MAST ARM SIGNING DETAILS)
3" CONDUIT TO HH 6:
2 -12/C 14
2 - 4/C 14
1 - 3/C 14 (LUM)
*1 - 3/C 14
*1 - 3/C 20
1 - CAT 5E (VIDEO DET)
1 - CAT 5E (PTZ)
1 - 1/C 6 INS. GR.

- ② PEDESTAL FOUNDATION
10' PEDESTAL POLE PLUS BASE
1 - STRAIGHT MOUNT COUNTDOWN PED HEAD AT 0 DEG
1 - APS PB AND SIGN (LT ARROW) (PB2-1) AND MOUNTING SPACERS
1 - R9-3 SIGN (18" x 18") FACING NORTH
3" CONDUIT TO HH 2:
1 - 4/C 14
1 - 2/C 14
1 - 1/C 6 INS. GR.

- ③ PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350 DEG)
1 - ANGLE MOUNT SIGNAL OVERHEAD AT 0'
1 - STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'
1 - ANGLE MOUNT SIGNAL AT 90 DEG
1 - STRAIGHT MOUNT SIGNAL AT 270 DEG
1 - STRAIGHT MOUNT COUNTDOWN PED HEAD AT 270 DEG
INSTALL - 1 - VIDEO DETECTION CAMERA (STATE FURNISHED) AT 7' (V-2)
*1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT AT 6' (PHASE 6)
1 - LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
2 - TYPE D SIGNS (D-5 AND D-3) (SEE MAST ARM SIGNING DETAILS)
1 - R9-3 SIGN (18" x 18") FACING SOUTH
3" CONDUIT TO HH 3:
2 -12/C 14
1 - 4/C 14
1 - 3/C 14 (LUM)
*1 - 3/C 14
*1 - 3/C 20
1 - CAT 5E (VIDEO DET)
1 - 1/C 6 INS. GR.

- ④ PA85 POLE FOUNDATION
TYPE PA85-A-15-X40-TWIN6 (LUMINAIRE ARMS AT 135 AND 315 DEG)
1 - ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2 - ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
2 - ANGLE MOUNT COUNTDOWN PED HEADS AT 90 AND 180 DEG
INSTALL - 1 - VIDEO DETECTION CAMERA (STATE FURNISHED) AT 10' (V-3)
*1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT AT 6' (PHASE 8)
2 - LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
3" CONDUIT TO HH 4:
2 -12/C 14
2 - 4/C 14
2 - 3/C 14 (LUM)
*1 - 3/C 14
*1 - 3/C 20
1 - CAT 5E (VIDEO DET)
1 - 1/C 6 INS. GR.

- Ⓐ EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET (SSB) NO BATTERY BACKUP SYSTEM OR BATTERIES
INSTALL - CONTROLLER AND CABINET (STATE FURNISHED)

- **** 2 - FO SPLICE/PATCH PANEL
**** 2 - FO PIGTAIL TERMINATION

- 3" CONDUIT TO HH 1:
1 - 2/C 14

- 3" CONDUIT TO HH 1:
1 - 4/C 14
1 - 2/C 14
1 - 1/C 6 INS. GR.

- 3" CONDUIT TO HH 6:
2 -12/C 14
2 - 4/C 14
*1 - 3/C 14
*1 - 3/C 20
1 - 2/C 14
1 - CAT 5E (VIDEO DET)
1 - CAT 5E (PTZ)

- 3" CONDUIT TO HH 6:
2 -12/C 14
2 - 4/C 14
*1 - 3/C 14
*1 - 3/C 20
2 - 2/C 14
1 - CAT 5E (VIDEO DET)

- 3" CONDUIT TO HH 6:
2 -12/C 14
1 - 4/C 14
*1 - 3/C 14
*1 - 3/C 20
2 - 2/C 14
1 - CAT 5E (VIDEO DET)
1 - 1/C 6 INS. GR.

- ** INSTALL - 1 1/2" CONDUIT TO SV 21:
** INSTALL - 1 - 1/C 12 (TRACER)

- **** 1.5" NMC TO PV:
**** 2 - FO PIGTAIL (6SM)

- 1 - 3" CONDUIT STUBBED OUT OF CONTROLLER CABINET (CAPPED BOTH ENDS)
1 - 2" CONDUIT STUBBED OUT OF CONTROLLER CABINET (CAPPED BOTH ENDS)

- CONTROLLER CABINET TO SERVICE CABINET:
2" CONDUIT
3 - 1/C 6

- CONTROLLER CABINET TO SERVICE CABINET (COMMS):
2" CONDUIT
1 - 6PR 19

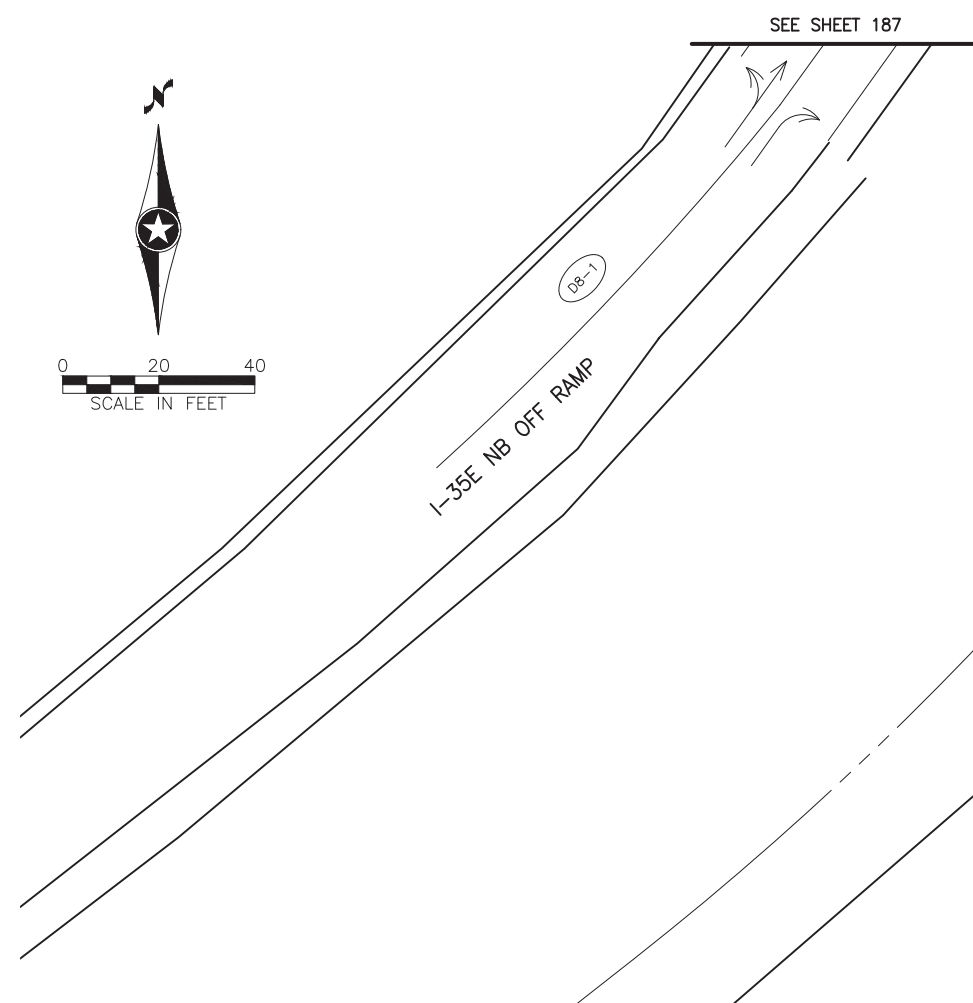
- SERVICE CABINET TO HH 6:
2" CONDUIT
4 - 3/C 14 (LUM)

- 1 - 2" CONDUIT STUBBED OUT OF SERVICE CABINET (CAPPED BOTH ENDS)

- SERVICE CABINET TO EXTERNAL GROUND ROD:
1" CONDUIT
1 - 1/C 6 INS. GR.
(SEE EQUIPMENT PAD LAYOUT)

- SERVICE CABINET TO SOP:
2" CONDUIT
3 - 1/C 2

- Ⓑ SOP - GROUND MOUNTED TRANSFORMER (DAKOTA ELECTRIC)
2" CONDUIT INTO SERVICE CABINET:
3 - 1/C 2



SYSTEM ID: 2564658
TE: 13791

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NO	DATE	BY	CHKD	APPR

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: GEORGE M. STUEMPFIG
George M. Stuempfig
Date: 2019-04-29 License # 121849

COUNTY PROJECT NO.
26-56
STATE PROJECT NO.
019-030-008
EAGAN PROJECT NO.
195-020-027

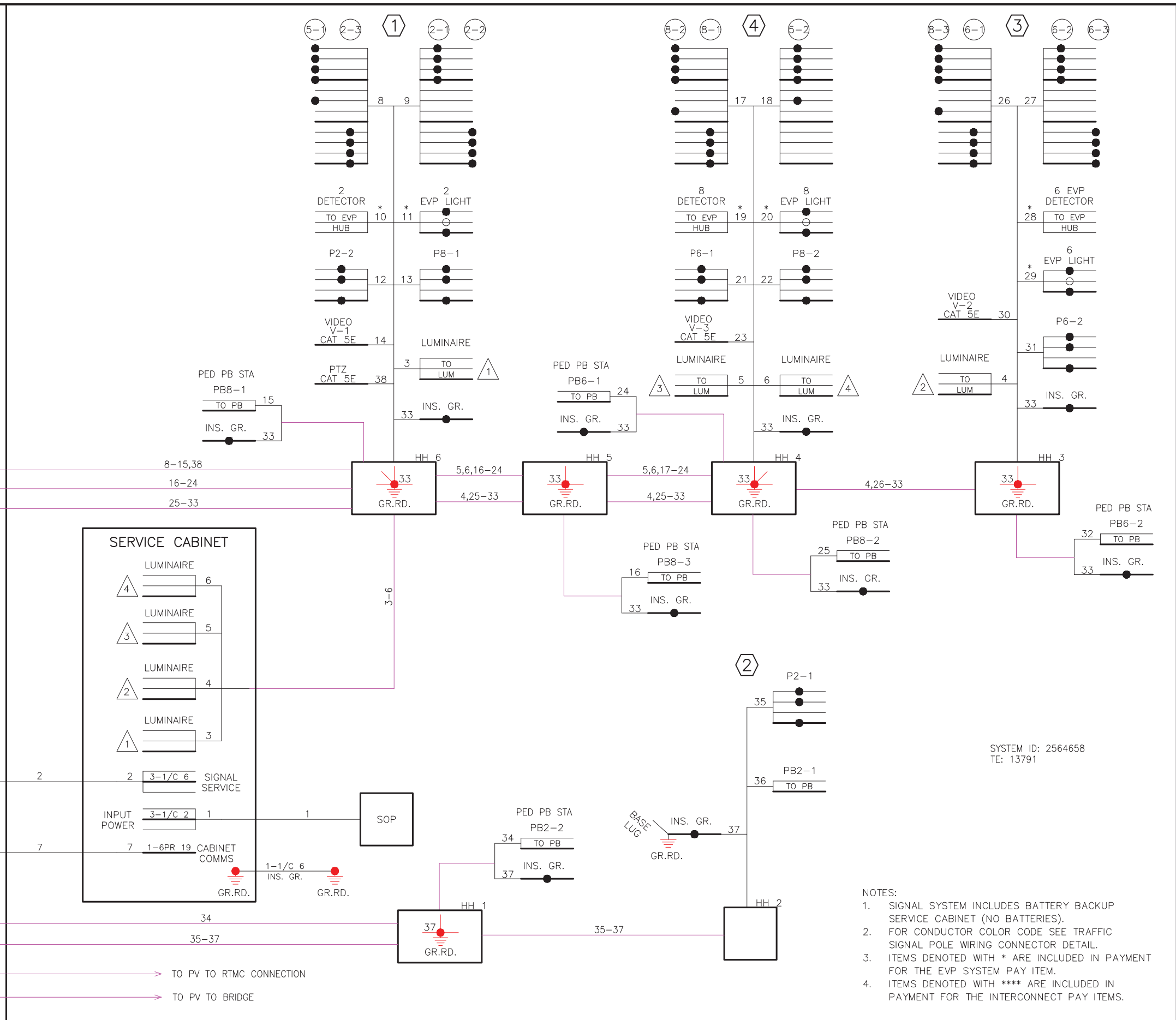
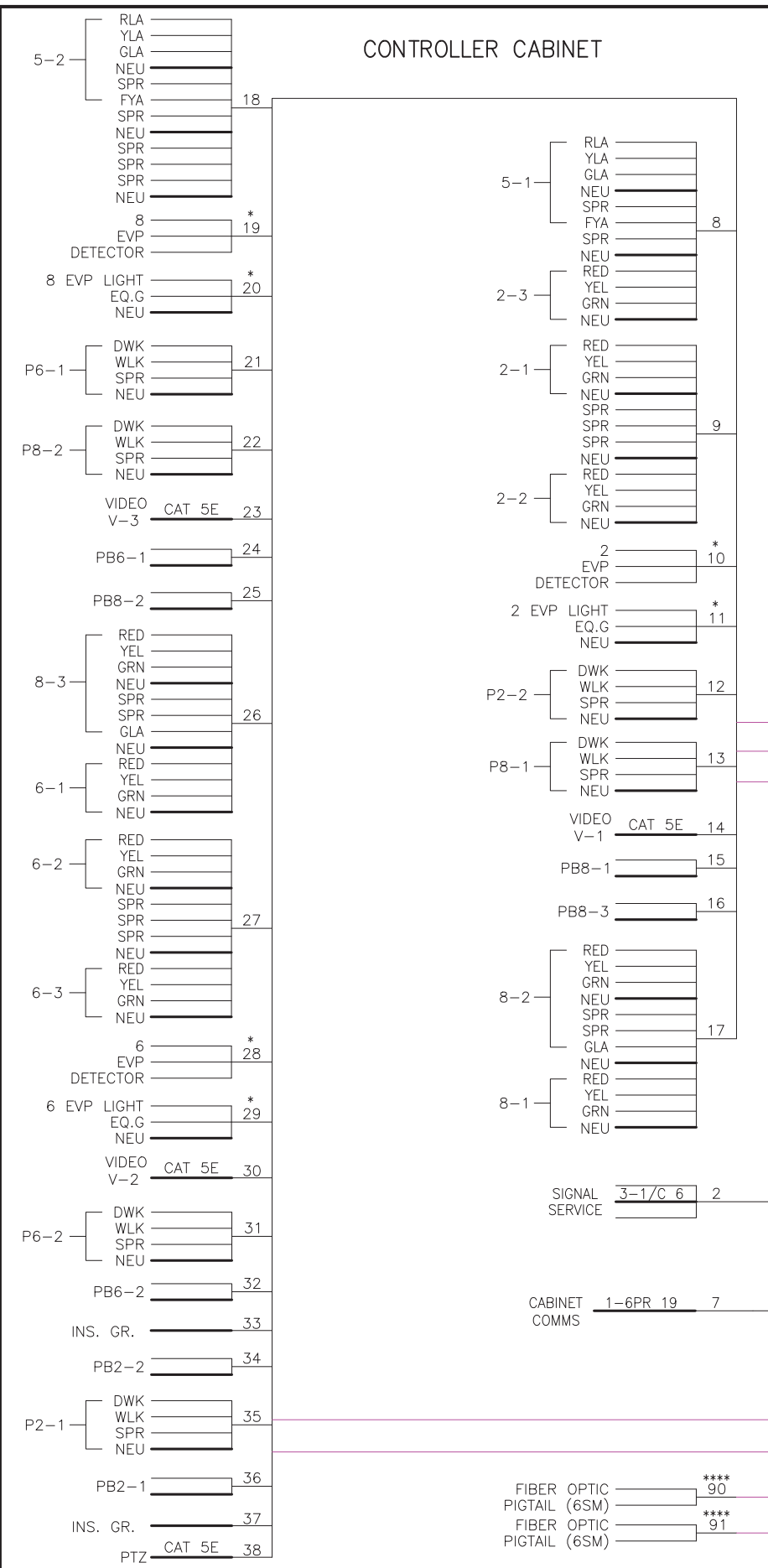
DRAWN BY
L. JAMES
DESIGNED BY
L. JAMES
CHECKED BY
G. STUEMPFIG
COMM. NO. 11493



DAKOTA COUNTY
TRAFFIC SIGNAL PLANS
CSAH 26, 28, 31, & 43 INTERSECTION IMPROVEMENTS
SYSTEM S - CSAH 26 (LONE OAK ROAD) AND I-35E EAST RAMPS
INTERSECTION NOTES

SHEET
188
OF
386

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- NOTES:
1. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET (NO BATTERIES).
 2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
 3. ITEMS DENOTED WITH * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
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COUNTY PROJECT NO. 26-56
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DRAWN BY D. RASMUSSEN
 DESIGNED BY D. RASMUSSEN
 CHECKED BY G. STUEMPFEG
 COMM. NO. 11493



DAKOTA COUNTY
 TRAFFIC SIGNAL PLANS
 CSAH 26, 28, 31, & 43 INTERSECTION IMPROVEMENTS
 SYSTEM S - CSAH 26 (LONE OAK ROAD) AND I-35E EAST RAMPS
 FIELD WIRING DIAGRAM

SHEET 189 OF 386

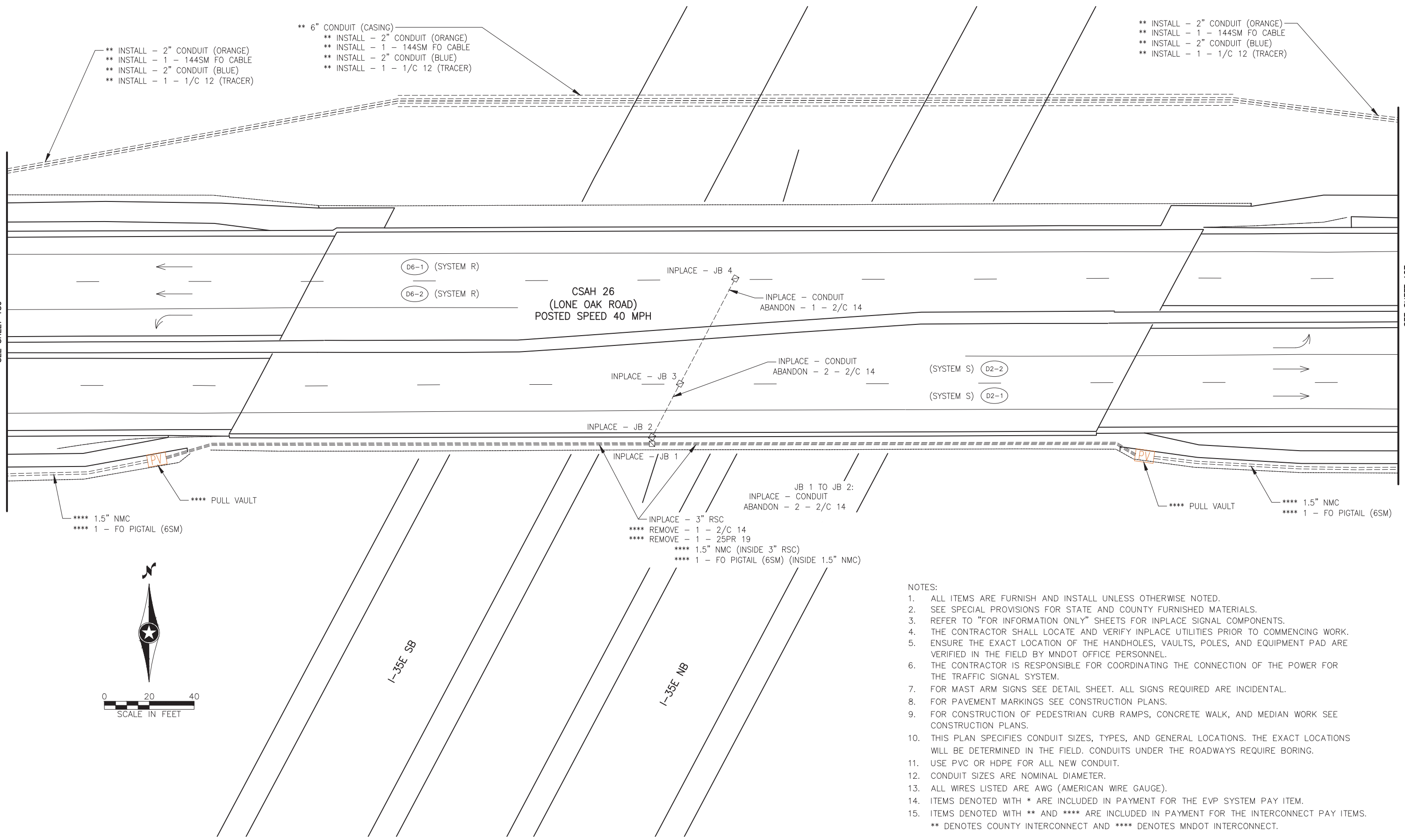
SEE SHEET 180

SEE SHEET 187

** INSTALL - 2" CONDUIT (ORANGE)
 ** INSTALL - 1 - 144SM FO CABLE
 ** INSTALL - 2" CONDUIT (BLUE)
 ** INSTALL - 1 - 1/C 12 (TRACER)

** 6" CONDUIT (CASING)
 ** INSTALL - 2" CONDUIT (ORANGE)
 ** INSTALL - 1 - 144SM FO CABLE
 ** INSTALL - 2" CONDUIT (BLUE)
 ** INSTALL - 1 - 1/C 12 (TRACER)

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NO	DATE	BY	CKD	APPR

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 Print Name: GEORGE M. STUEMPFIG
George M. Stuempfig
 Date: 2019-04-29 License # 121849

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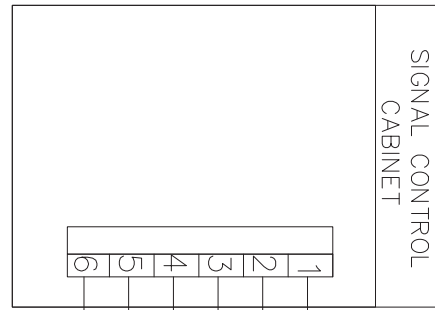
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 DESIGNED BY
L. JAMES
 CHECKED BY
G. STUEMPFIG
 COMM. NO. 11493



DAKOTA COUNTY
 TRAFFIC SIGNAL PLANS
 CSAH 26, 28, 31, & 43 INTERSECTION IMPROVEMENTS
 INTERCONNECT LAYOUT

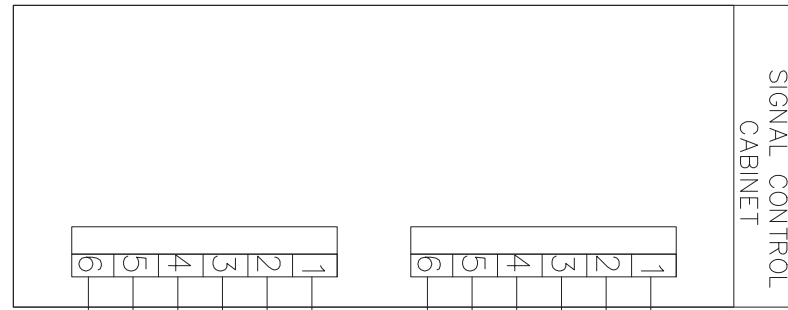
SHEET
184
 OF
386

SIGNAL CONTROL
CABINET SYSTEM R



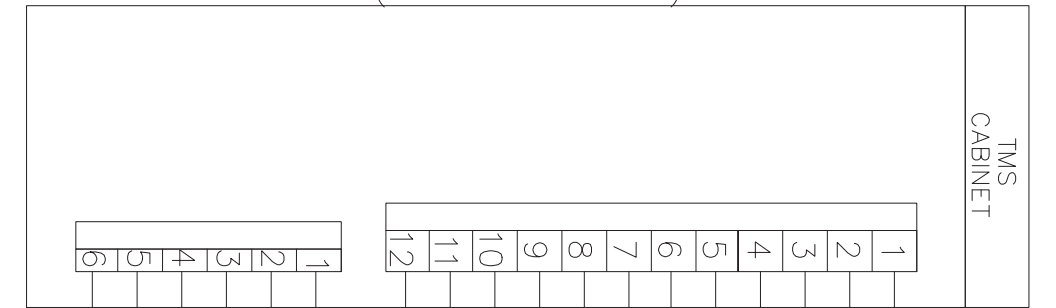
PIGTAIL ID#
SIG 20543 6SM

SIGNAL CONTROL CABINET
SYSTEM S



PIGTAIL ID#
SIG 20541 6SM

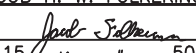
GROUND MOUNTED TMS CABINET
(CAB 35E-98.5)



PIGTAIL ID#
POLE 35E-98.5

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NO	DATE	BY	CKD	APPR

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Print Name: JACOB H. W. FOLKERINGA

 Date 2019-03-15 License # 50911

COUNTY PROJECT NO.
26-56
 STATE PROJECT NO.
019-030-008
 EAGAN PROJECT NO.
195-020-027

DRAWN BY
D. RICKBEIL
 DESIGNED BY
Z. HANSON
 CHECKED BY
J. FOLKERINGA
 COMM. NO. 11493



DAKOTA COUNTY
 TRAFFIC SIGNAL PLANS
 CSAH 26, 28, 31, & 43 INTERSECTION IMPROVEMENTS
 INTERCONNECT SCHEMATIC

SHEET
185
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