

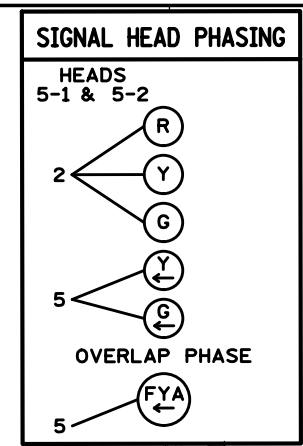
PLOTTED/REVISED: 1/2/2013

DISTRICT #: METRO
PLOT NAME: T20582LO
PATH & FILENAME: IP_PWP-d1484052VT20582A_SGL.dgn

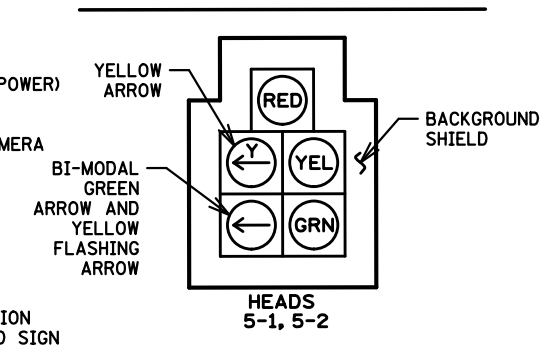
DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION	STATUS
V2-1, V2-2	6 X 6	180'	F & I
V5-1	2-6 X 6	35'	F & I
V5-2	2-6 X 6	5'	F & I
D6-1, D6-2	6 X 6	180'	F & I
D8-1, D8-2	6 X 6	120'	INPLACE
D8-3, D8-4	2-6 X 6	5' & 20'	INPLACE
D8-5	6 X 6	5'	INPLACE

-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET
-ITEMS DENOTED WITH A "V" INDICATES VIDEO DETECTION



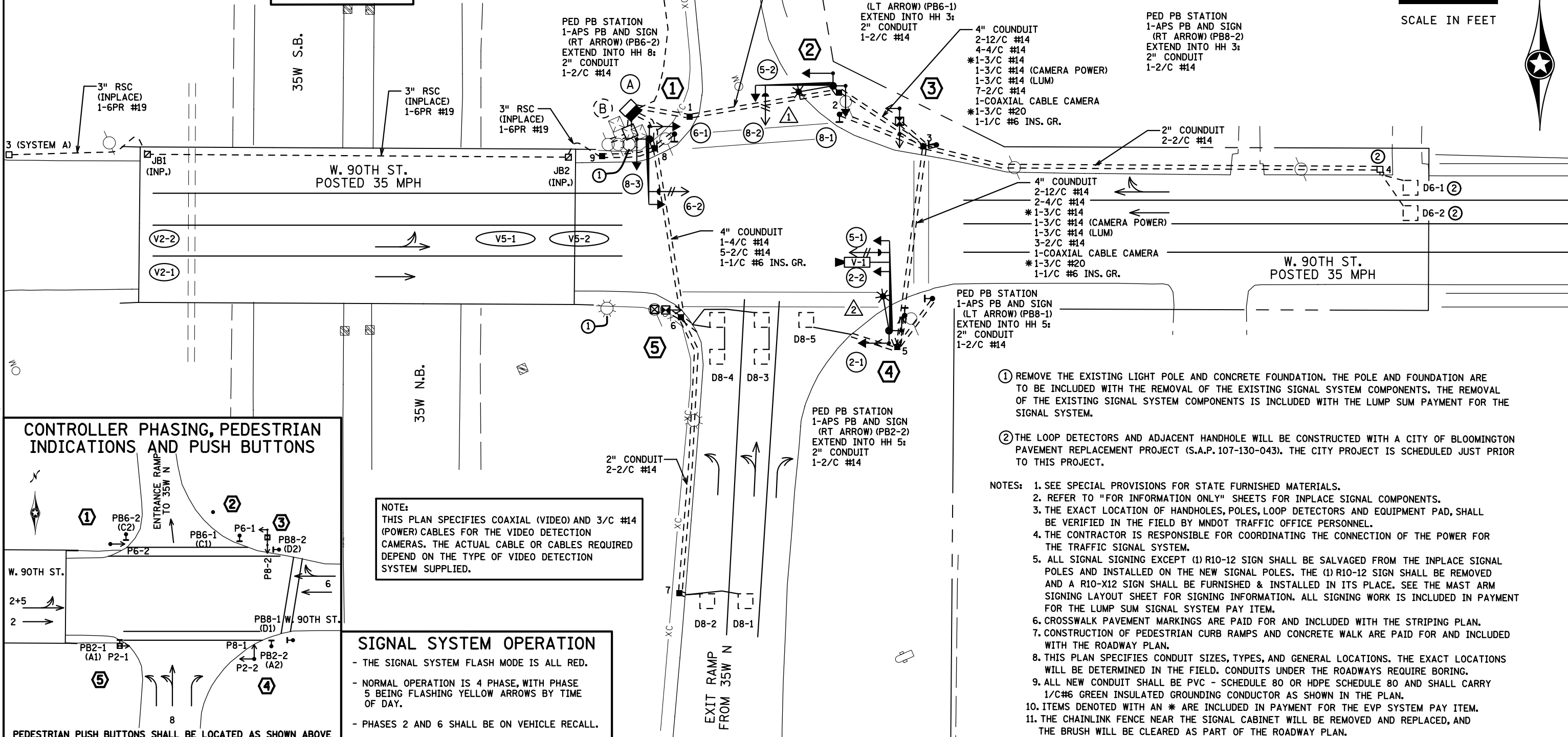
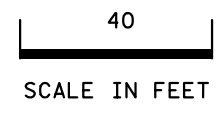
5 SECTION FYA BI-MODAL HEAD DETAIL



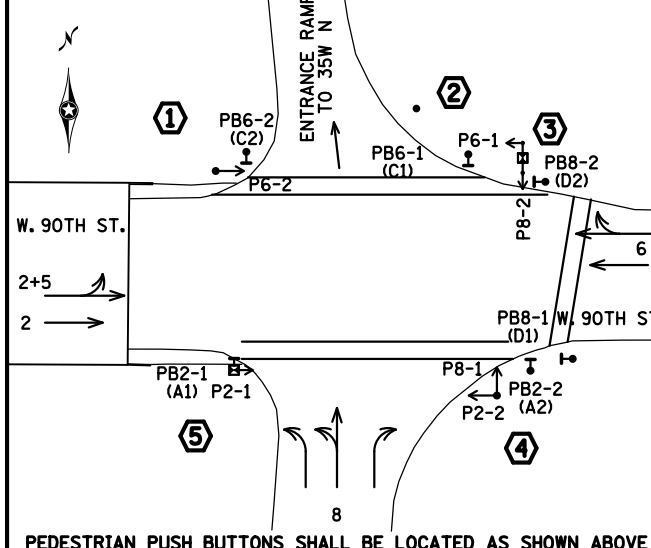
SIGNAL FACE CHART

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

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



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



NOTE:
THIS PLAN SPECIFIES COAXIAL (VIDEO) AND 3/C #14 (POWER) CABLES FOR THE VIDEO DETECTION CAMERAS. THE ACTUAL CABLE OR CABLES REQUIRED DEPEND ON THE TYPE OF VIDEO DETECTION SYSTEM SUPPLIED.

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.

- NOTES:**
1. SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
 2. REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
 3. THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD, SHALL BE VERIFIED IN THE FIELD BY MNDOT TRAFFIC OFFICE PERSONNEL.
 4. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
 5. ALL SIGNAL SIGNING EXCEPT (1) R10-12 SIGN SHALL BE SALVAGED FROM THE INPLACE SIGNAL POLES AND INSTALLED ON THE NEW SIGNAL POLES. THE (1) R10-12 SIGN SHALL BE REMOVED AND A R10-X12 SIGN SHALL BE FURNISHED & INSTALLED IN ITS PLACE. SEE THE MAST ARM SIGNING LAYOUT SHEET FOR SIGNING INFORMATION. ALL SIGNING WORK IS INCLUDED IN PAYMENT FOR THE LUMP SUM SIGNAL SYSTEM PAY ITEM.
 6. CROSSWALK PAVEMENT MARKINGS ARE PAID FOR AND INCLUDED WITH THE STRIPING PLAN.
 7. CONSTRUCTION OF PEDESTRIAN CURB RAMPS AND CONCRETE WALK ARE PAID FOR AND INCLUDED WITH THE ROADWAY PLAN.
 8. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
 9. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
 10. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 11. THE CHAINLINK FENCE NEAR THE SIGNAL CABINET WILL BE REMOVED AND REPLACED, AND THE BRUSH WILL BE CLEARED AS PART OF THE ROADWAY PLAN.

BY	DATE	REVISIONS	SYSTEM ID: 20582	T.E. 5702	INTERSECTION LAYOUT TRAFFIC CONTROL SIGNAL SYSTEM "B" T.H. 35W EAST RAMP AT W 90TH ST. IN BLOOMINGTON, HENNEPIN COUNTY		S.A.P. NO. 107-130-043	DRAWN BY: BAM	CKD BY: CDB	DATE: 12/13/12
			METER ADDRESS:				CERTIFIED BY: <i>Michael P. Galbraith</i>	LIC. NO. 19863	DATE: 12/13/12	
			MASTER ID:	T.E.						

STATE PROJ. NO. 2782-321 (T.H. 35W) SHEET NO. SS13 OF SS23 SHEETS

PLOTTED/REVISED: 1/2/2013

DISTRICT #: METRO
PLOT NAME: notes east ramp
PATH & FILENAME: IP_PWP-d1484052\T20582A_SGL.dgn

①

PA85 POLE FOUNDATION
TYPE PA85-A-25
① (A 3/4" THREADED HALF COUPLING (FOR EVP MOUNTING), SHALL BE F&I 3' FROM THE END OF THE MAST ARM)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
1-ANGLE MOUNT C.D. PED IND 180 DEG
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 6+1)
1-TYPE D SIGN (SALVAGE AND INSTALL)
3" CONDUIT TO HH 8:
2-12/C #14
1-4/C #14
* 1-3/C #14
* 1-3/C #20
1-1/C #6 INS. GR.

②

PA90 POLE FOUNDATION
TYPE PA90-A-30-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 8)
LUMINAIRE-250W HPS
2-ONE WAY SIGNS (R6-1) (SALVAGE AND INSTALL)
1-TYPE D SIGN (SALVAGE AND INSTALL)
3" CONDUIT TO HH 2:
2-12/C #14
* 1-3/C #14
1-3/C #14 (LUM)
* 1-3/C #20
1-1/C #6 INS. GR.

③

PEDESTAL FOUNDATION
TYPE 4A
10' PEDESTAL POLE PLUS BASE
2-C.D. PED IND
3" CONDUIT TO HH 4:
2-4/C #14
1-1/C #6 INS. GR.

Ⓐ

EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET (SSB)
CONTROLLER AND CABINET (STATE FURNISHED)
4" CONDUIT TO HH 8: 4" CONDUIT TO HH 1:
2-12/C #14 4-12/C #14
2-4/C #14 4-4/C #14
* 1-3/C #14 * 2-3/C #14
6-2/C #14 1-3/C #14 (CAMERA POWER)
* 1-3/C #20 7-2/C #14
1-6PR #19 1-COAXIAL CABLE CAMERA
1-1/C #6 INS. GR. * 2-3/C #20
1-1/C #6 INS. GR.

1-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
3/4" CONDUIT STUBBED OUT (FOR TELEPHONE LINE)

CONTROLLER CABINET TO SERVICE CABINET:
2" CONDUIT
2-1/C #6
1-1/C #6 INS. GR.

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

Ⓑ

CONTROLLER CABINET TO FIBER OPTIC SPLICE VAULT
1-1 1/2" CONDUIT (EXTEND CONDUIT TO EXISTING CONDUIT)
1-FO CABLE (6-SM) PULL BACK TO SPLICE VAULT AND INSTALL

SERVICE CABINET TO GROUND MOUNTED TRANSFORMER:
2" CONDUIT
3-1/C #2

SERVICE CABINET TO HH 1:
2" CONDUIT
2-3/C #14 (LUM)

① MAST ARMS FOR POLES NO. 1 & NO. 4 HAVE NON-STANDARD EVP MOUNTING LOCATIONS DUE TO CONFLICTS WITH MAST ARM SIGNING.

② THERE IS AN EXISTING FIBER OPTIC PIGTAIL (6-SM) ROUTED FROM A SPLICE VAULT TO THE EXISTING SIGNAL CABINET. THIS PIGTAIL SHALL BE CAREFULLY PULLED BACK TO THE SPLICE VAULT AND THEN REINSTALLED TO THE NEW SIGNAL CABINET. THE CABLE SHALL BE RE-TERMINATED IF NEEDED, AND THEN TESTED TO MAKE SURE THE CABLE WASN'T DAMAGED.

⑤

PEDESTAL FOUNDATION
TYPE 4A
10' PEDESTAL POLE PLUS BASE
1-C.D. PED IND
1-APS PB AND SIGN (LT ARROW) (PB2-1)
2-ONE WAY SIGNS (R6-1) (SALVAGE AND INSTALL)
3" CONDUIT TO HH 4:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

④

PA90 POLE FOUNDATION
TYPE PA90-A-35-D40-9 (DAVIT AT 350 DEG)
① (A 3/4" THREADED HALF COUPLING (FOR EVP MOUNTING), SHALL BE F&I 4.5' FROM THE END OF THE MAST ARM)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'
1-ANGLE MOUNT SIGNAL AT 90 DEG
2-ANGLE MOUNT C.D. PED IND AT 90 AND 180 DEG
* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5)
1-VIDEO CAMERA MOUNTED ON 6' EXTENSION ON MAST ARM AT 2'
LUMINAIRE-250W HPS
1-R10-X12 SIGN ADJACENT TO HEAD (5-1)
1-TYPE D SIGN (SALVAGE AND INSTALL)
3" CONDUIT TO HH 5:
2-12/C #14
2-4/C #14
* 1-3/C #14
1-3/C #14 (CAMERA POWER)
1-3/C #14 (LUM)
1-COAXIAL CABLE CAMERA
* 1-3/C #20
1-1/C #6 INS. GR.

Ⓑ

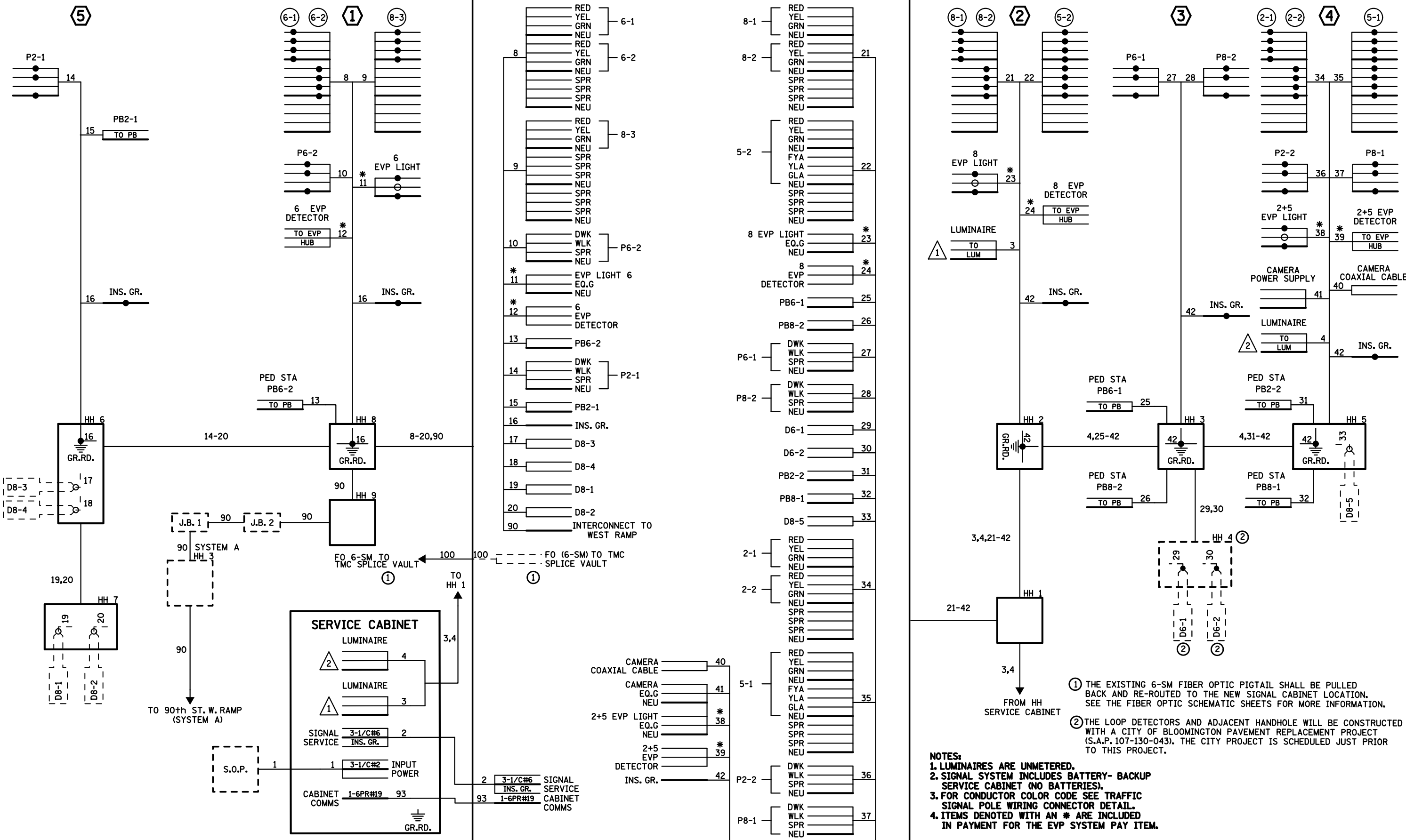
INPLACE SOP
GROUND MOUNTED (STEP DOWN) TRANSFORMER
EXTEND INTO SERVICE CABINET:
2" CONDUIT AND WEATHERHEAD
WITH 3-1/C #2

BY	DATE	REVISIONS	SYSTEM ID: 20582	T.E. 5702	INTERSECTION LAYOUT POLE NOTES TRAFFIC CONTROL SIGNAL SYSTEM "B" T.H. 35W EAST RAMP AT W 90TH ST. IN BLOOMINGTON, HENNEPIN COUNTY	S.A.P. NO. 107-130-043	DRAWN BY: BAM	CKD BY: CDB	DATE: 12/13/12
			METER ADDRESS:			CERTIFIED BY: <i>Michael P. Gubinsky</i>	LIC. NO. 19863	DATE: 12/13/12	
			MASTER ID:	T.E.		STATE PROJ. NO. 2782-321 (T.H. 35W) SHEET NO. SS14 OF SS23 SHEETS			

PLOTTED/REVISED: 1/21/2013

DISTRICT #: METRO
IPLOT NAME: T20582WIRE
PATH & FILENAME: IP_PWP-d1484052YT20582A_SGL.dgn

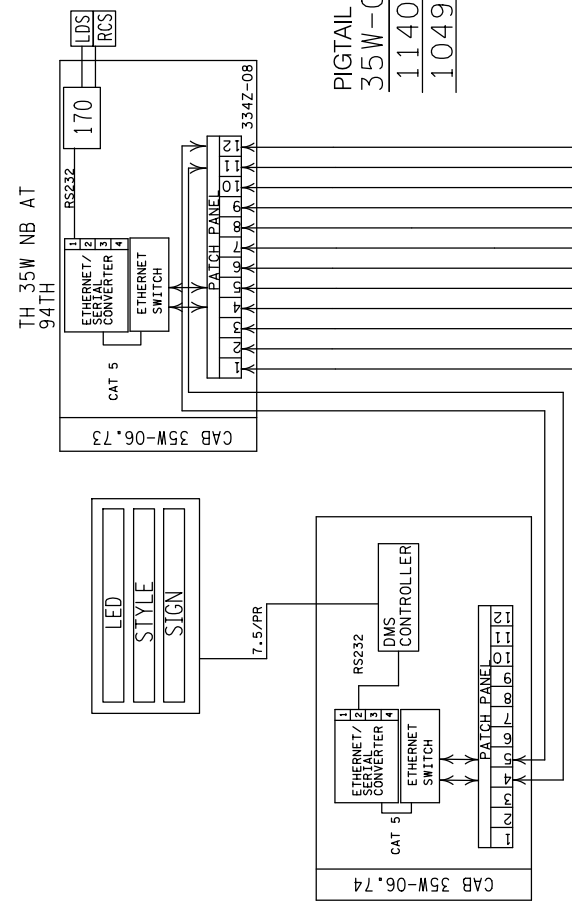
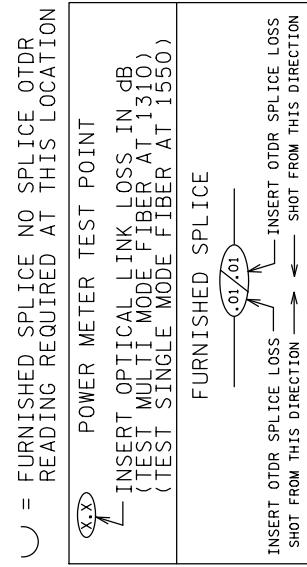
CONTROLLER CABINET



- NOTES:**
- LUMINAIRES ARE UNMETERED.
 - SIGNAL SYSTEM INCLUDES BATTERY- BACKUP SERVICE CABINET (NO BATTERIES).
 - FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
 - ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
- ① THE EXISTING 6-SM FIBER OPTIC PIGTAIL SHALL BE PULLED BACK AND RE-ROUTED TO THE NEW SIGNAL CABINET LOCATION. SEE THE FIBER OPTIC SCHEMATIC SHEETS FOR MORE INFORMATION.
- ② THE LOOP DETECTORS AND ADJACENT HANDHOLE WILL BE CONSTRUCTED WITH A CITY OF BLOOMINGTON PAVEMENT REPLACEMENT PROJECT (S.A.P. 107-130-043). THE CITY PROJECT IS SCHEDULED JUST PRIOR TO THIS PROJECT.

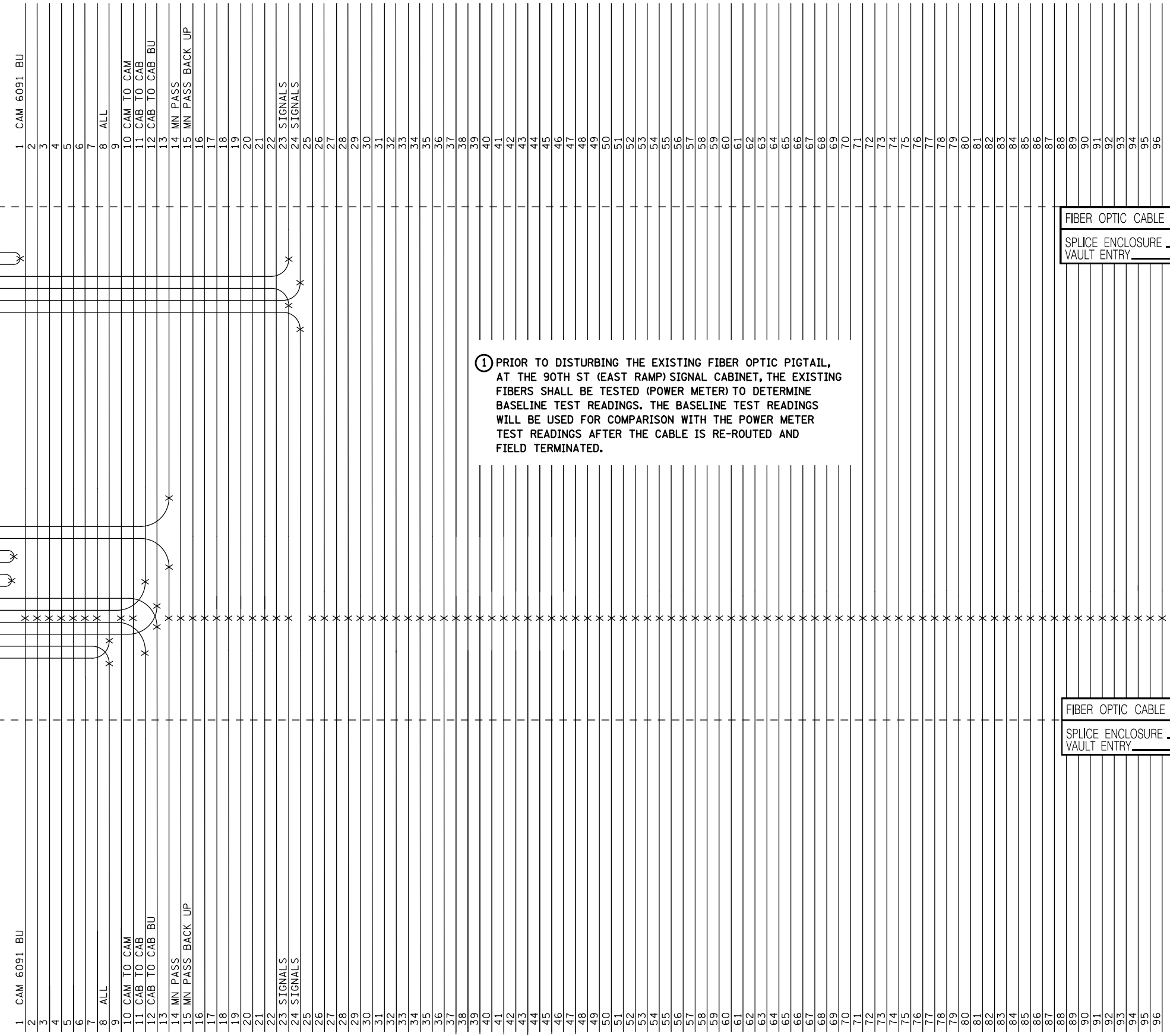
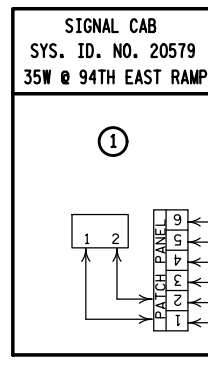
BY	DATE	REVISIONS	SYSTEM ID: 20582	T.E. 5702	S.A.P. NO. 107-130-043	DRAWN BY: BAM	CKD BY: CDB	DATE: 12/13/12
			METER ADDRESS:		CERTIFIED BY: <i>Michael P. Gubinsky</i>	LIC. NO. 19863		DATE: 12/13/12
			MASTER ID:	T.E.	STATE PROJ. NO. 2782-321 (T.H. 35W) SHEET NO. SS15 OF SS23 SHEETS			

**FIELD WIRING DIAGRAM
TRAFFIC CONTROL SIGNAL SYSTEM "B"
T.H. 35W EAST RAMP AT W 90TH ST.
IN BLOOMINGTON, HENNEPIN COUNTY**



PIGTAIL ID#:
 SIG 35W-94
 0923 m B
 0876 m E

PIGTAIL ID#:
 35W-06.73
 1140 m B
 1049 m E



① PRIOR TO DISTURBING THE EXISTING FIBER OPTIC PIGTAIL, AT THE 90TH ST (EAST RAMP) SIGNAL CABINET, THE EXISTING FIBERS SHALL BE TESTED (POWER METER) TO DETERMINE BASELINE TEST READINGS. THE BASELINE TEST READINGS WILL BE USED FOR COMPARISON WITH THE POWER METER TEST READINGS AFTER THE CABLE IS RE-ROUTED AND FIELD TERMINATED.

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 1520M
 VAULT ENTRY 1540M

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 3083M
 VAULT ENTRY 3097M

F-35WU.44

F-35WU.47

VAULT @ NOR OF
 94TH (WEST)

INDEX OF REFRACTION 1.467

BY	DATE	REVISIONS

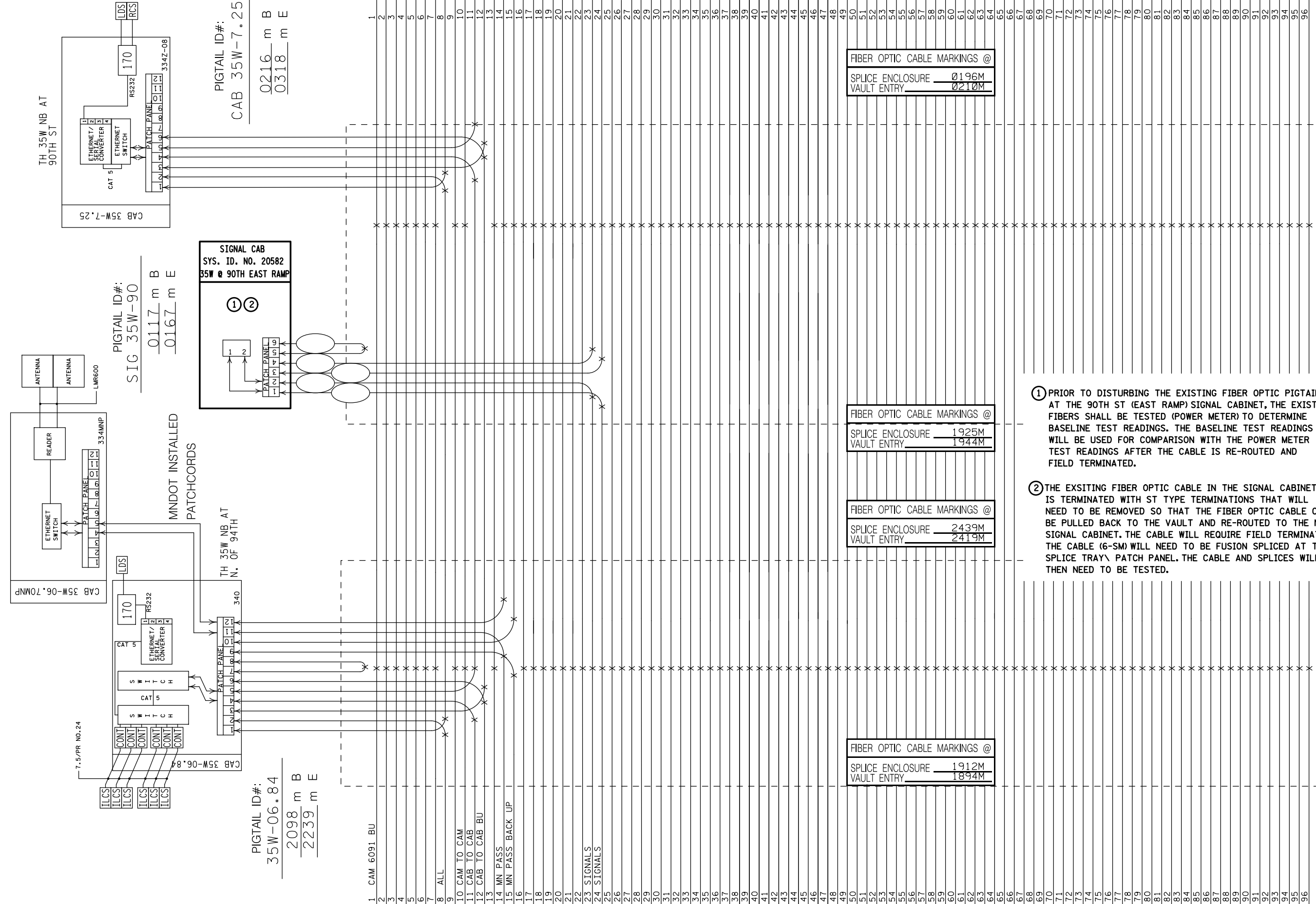
SYSTEM ID: 20582, 20584 T.E.
 METER ADDRESS:
 MASTER ID: T.E.

FIBER OPTIC SCHEMATIC

S.A.P. NO. 107-130-043 DRAWN BY: BAM CKD BY: CDB DATE: 12/13/12

CERTIFIED BY *Michael P. Gelinsky* LIC. NO. 19863 DATE: 12/13/12
LICENSED PROFESSIONAL ENGINEER

STATE PROJ. NO. 2782-321 (T.H.35W) SHEET NO. SS17 OF SS23 SHEETS



FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 0196M
 VAULT ENTRY 0210M

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 1925M
 VAULT ENTRY 1944M

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 2439M
 VAULT ENTRY 2419M

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 1912M
 VAULT ENTRY 1894M

- ① PRIOR TO DISTURBING THE EXISTING FIBER OPTIC PIGTAIL, AT THE 90TH ST (EAST RAMP) SIGNAL CABINET, THE EXISTING FIBERS SHALL BE TESTED (POWER METER) TO DETERMINE BASELINE TEST READINGS. THE BASELINE TEST READINGS WILL BE USED FOR COMPARISON WITH THE POWER METER TEST READINGS AFTER THE CABLE IS RE-ROUTED AND FIELD TERMINATED.
- ② THE EXISTING FIBER OPTIC CABLE IN THE SIGNAL CABINET IS TERMINATED WITH ST TYPE TERMINATIONS THAT WILL NEED TO BE REMOVED SO THAT THE FIBER OPTIC CABLE CAN BE PULLED BACK TO THE VAULT AND RE-ROUTED TO THE NEW SIGNAL CABINET. THE CABLE WILL REQUIRE FIELD TERMINATIONS. THE CABLE (6-SM) WILL NEED TO BE FUSION SPLICED AT THE SPLICE TRAY\ PATCH PANEL. THE CABLE AND SPLICES WILL THEN NEED TO BE TESTED.

1	CAM 6091 BU
2	
3	
4	
5	
6	
7	
8	ALL
9	
10	CAM TO CAM
11	CAB TO CAB
12	CAB TO CAB BU
13	
14	MN PASS
15	MN PASS BACK UP
16	
17	
18	
19	
20	
21	
22	
23	SIGNALS
24	SIGNALS
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	
70	
71	
72	
73	
74	
75	
76	
77	
78	
79	
80	
81	
82	
83	
84	
85	
86	
87	
88	
89	
90	
91	
92	
93	
94	
95	
96	

PIGTAIL ID#:
 CAB 35W-7.25
 0216 m B
 0318 m E

PIGTAIL ID#:
 SIG 35W-90
 0117 m B
 0167 m E

PIGTAIL ID#:
 35W-06.84
 2098 m B
 2239 m E

INDEX OF REFRACTION 1.467

F-35WU.53
 VAULT @ 90TH (EAST)

F-35WU.50

F-35WU.47
 VAULT @ 94TH (EAST)
 NOR OF 94TH (EAST)

BY	DATE	REVISIONS

SYSTEM ID: 20582, 20584	T.E.
METER ADDRESS:	
MASTER ID:	T.E.

FIBER OPTIC SCHEMATIC

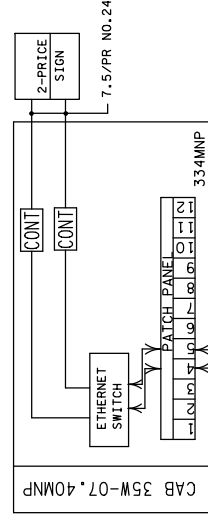
S.A.P. NO. 107-130-043	DRAWN BY: BAM	CKD BY: CDB	DATE: 12/13/12
CERTIFIED BY: <i>Michael P. Gelinsky</i>	LIC. NO. 19863	DATE: 12/13/12	
STATE PROJ. NO. 2782-321 (T.H.35W)		SHEET NO. SS18 OF SS23 SHEETS	

⊗ = FURNISHED SPLICE NO SPLICE OTRD READING REQUIRED AT THIS LOCATION
 ⊘ = FURNISHED SPLICE NO SPLICE OTRD READING REQUIRED AT THIS LOCATION

⊗ ⊘ POWER METER TEST POINT
 ⊗ ⊘ INSERT OPTICAL LINK LOSS IN dB (TEST MULTI-MODE FIBER AT 1310) (TEST SINGLE MODE FIBER AT 1550)

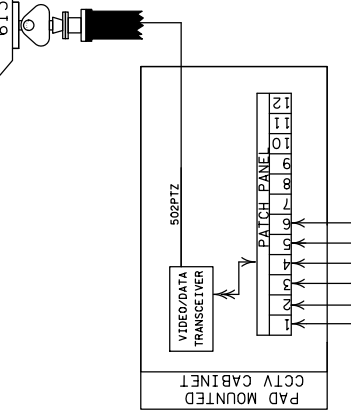
⊗ ⊘ FURNISHED SPLICE
 ⊗ ⊘ INSERT OTRD SPLICE LOSS SHOT FROM THIS DIRECTION
 ⊗ ⊘ INSERT OTRD SPLICE LOSS SHOT FROM THIS DIRECTION

MNDOT INSTALLED PATCHCORDS



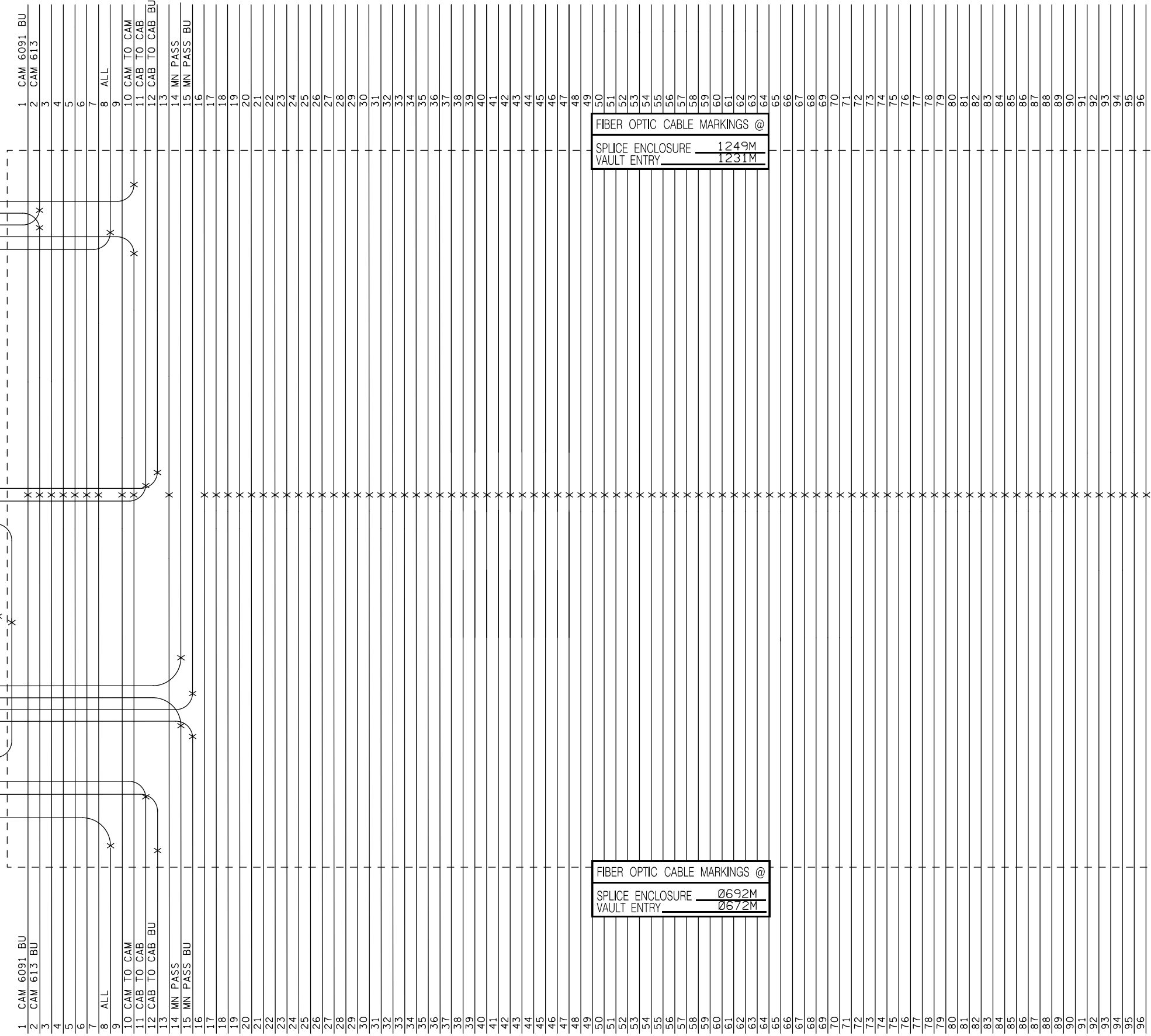
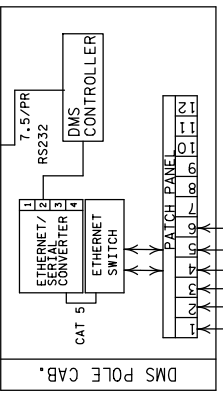
TH 35W NB AT N. OF 90TH

PIGTAIL ID#:
 CAB 35W-07.40
 1538 m B
 1321 m E



PIGTAIL ID#:
 DMS07.55
 0047 m B
 0061 m E

PIGTAIL ID#:
 C613
 1301 m B
 1237 m E



FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 0692M
 VAULT ENTRY 0672M

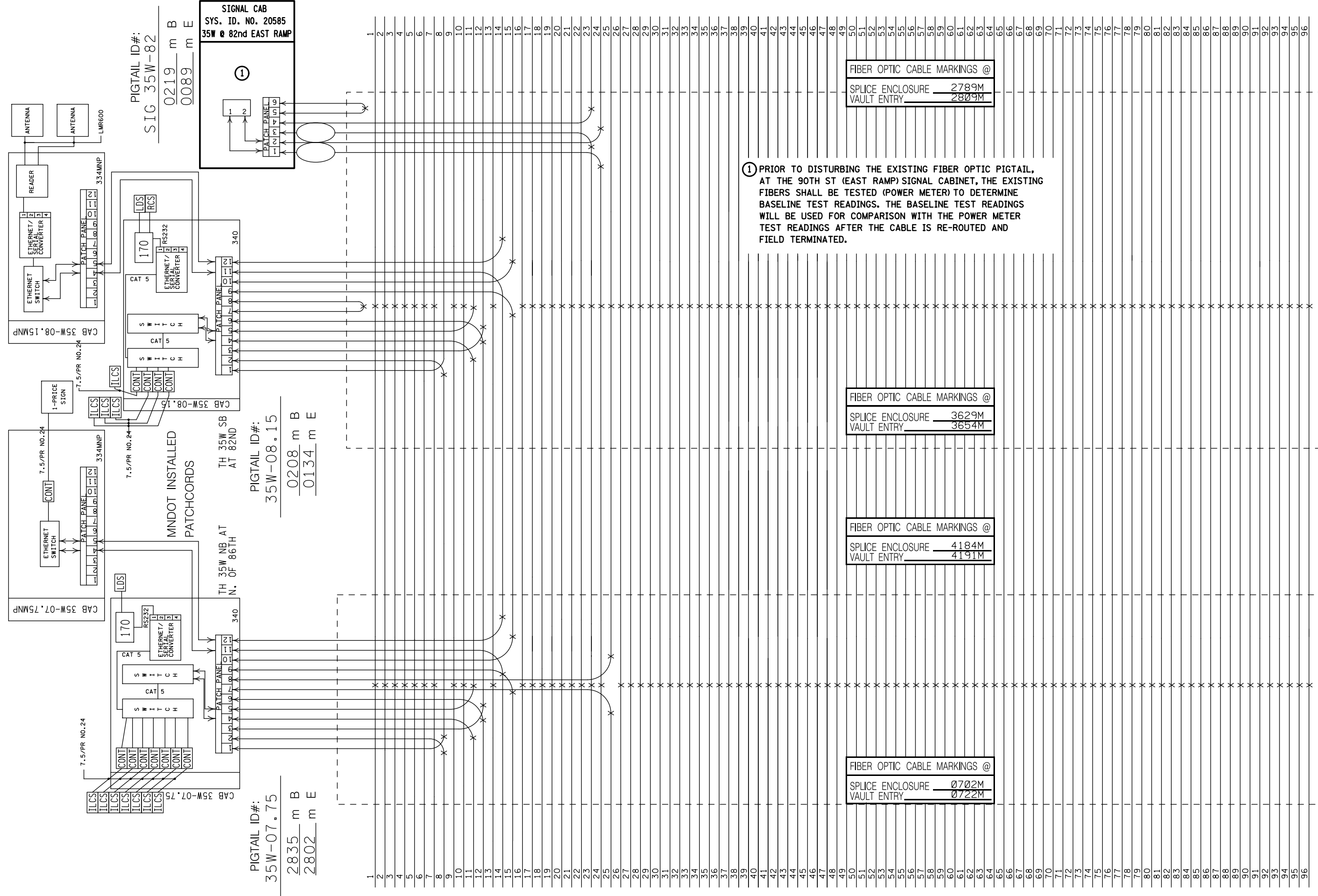
FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 1249M
 VAULT ENTRY 1231M

BY	DATE	REVISIONS

SYSTEM ID: 20582, 20584	T.E.
METER ADDRESS:	
MASTER ID:	T.E.

FIBER OPTIC SCHEMATIC

S.A.P. NO. 107-130-043	DRAWN BY: BAM	CKD BY: CDB	DATE: 12/13/12
CERTIFIED BY: <i>Michael P. Delaney</i>	LIC. NO. 19863	DATE: 12/13/12	
STATE PROJ. NO. 2782-321 (T.H.35W)		SHEET NO. SS19 OF SS23 SHEETS	



① PRIOR TO DISTURBING THE EXISTING FIBER OPTIC PIGTAIL, AT THE 90TH ST (EAST RAMP) SIGNAL CABINET, THE EXISTING FIBERS SHALL BE TESTED (POWER METER) TO DETERMINE BASELINE TEST READINGS. THE BASELINE TEST READINGS WILL BE USED FOR COMPARISON WITH THE POWER METER TEST READINGS AFTER THE CABLE IS RE-ROUTED AND FIELD TERMINATED.

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 2789M
 VAULT ENTRY 2809M

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 3629M
 VAULT ENTRY 3654M

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 4184M
 VAULT ENTRY 4191M

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 0702M
 VAULT ENTRY 0722M

PIGTAIL ID#:
 35W-08.15
 0208 m B
 0134 m E

PIGTAIL ID#:
 35W-07.75
 2835 m B
 2802 m E

PIGTAIL ID#:
 SIG 35W-82
 0219 m B
 0089 m E

F-35WU.62
 VAULT @ 82ND (EAST)

F-35WU.59

VAULT @
 N.OF 86TH (EAST)

F-35WU.56
 INDEX OF REFRACTION 1.467

BY	DATE	REVISIONS

SYSTEM ID: 20582, 20584	T.E.
METER ADDRESS:	
MASTER ID:	T.E.

FIBER OPTIC SCHEMATIC

S.A.P. NO. 107-130-043	DRAWN BY: BAM	CKD BY: CDB	DATE: 12/13/12
CERTIFIED BY: <i>Michael P. Gelinsky</i>	LIC. NO. 19863	DATE: 12/13/12	
STATE PROJ. NO. 2782-321 (T.H.35W)		SHEET NO. SS20 OF SS23 SHEETS	