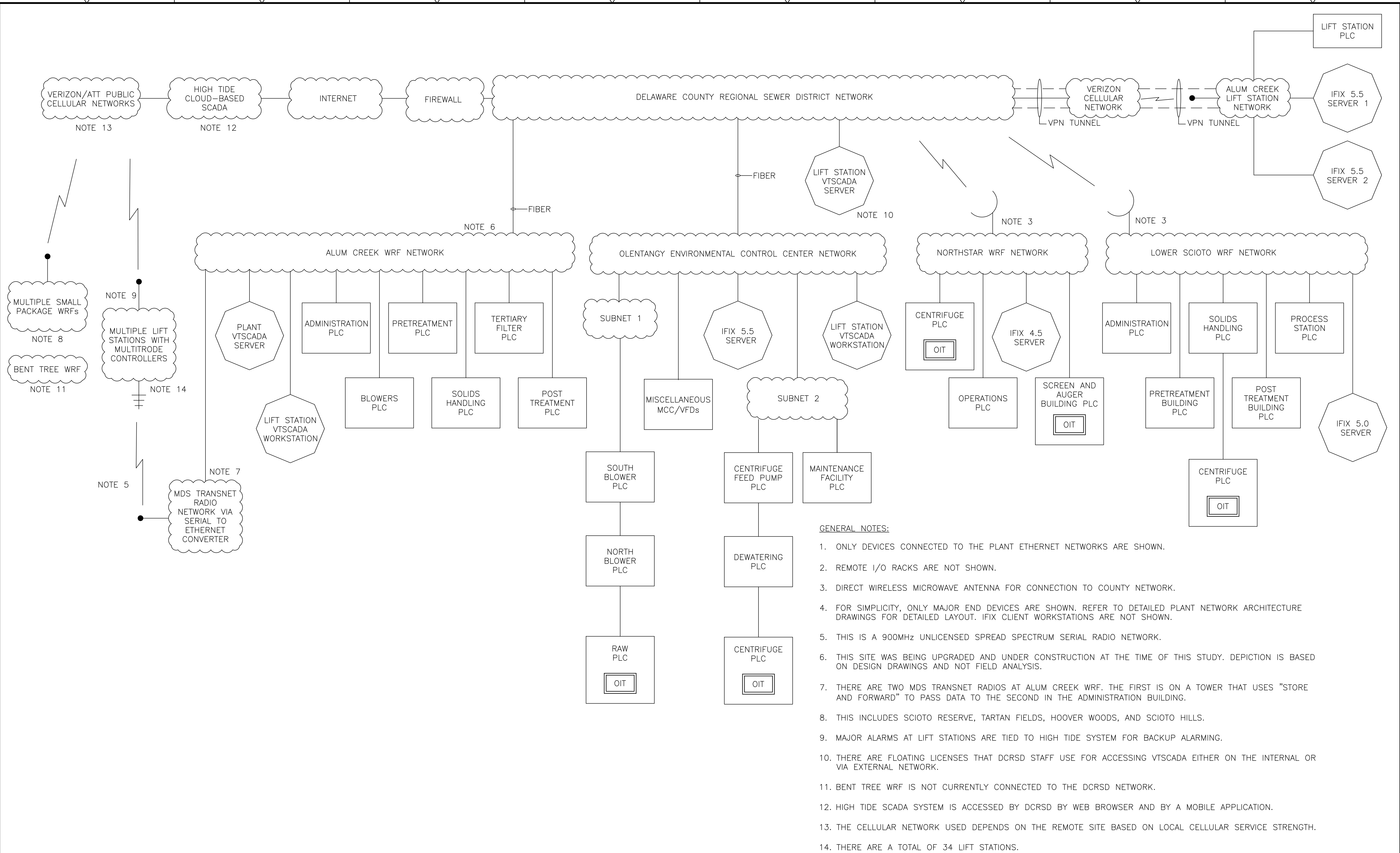


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- GENERAL NOTES:**
1. ONLY DEVICES CONNECTED TO THE PLANT ETHERNET NETWORKS ARE SHOWN.
 2. REMOTE I/O RACKS ARE NOT SHOWN.
 3. DIRECT WIRELESS MICROWAVE ANTENNA FOR CONNECTION TO COUNTY NETWORK.
 4. FOR SIMPLICITY, ONLY MAJOR END DEVICES ARE SHOWN. REFER TO DETAILED PLANT NETWORK ARCHITECTURE DRAWINGS FOR DETAILED LAYOUT. IFIX CLIENT WORKSTATIONS ARE NOT SHOWN.
 5. THIS IS A 900MHz UNLICENSED SPREAD SPECTRUM SERIAL RADIO NETWORK.
 6. THIS SITE WAS BEING UPGRADED AND UNDER CONSTRUCTION AT THE TIME OF THIS STUDY. DEPICTION IS BASED ON DESIGN DRAWINGS AND NOT FIELD ANALYSIS.
 7. THERE ARE TWO MDS TRANSNET RADIOS AT ALUM CREEK WRF. THE FIRST IS ON A TOWER THAT USES "STORE AND FORWARD" TO PASS DATA TO THE SECOND IN THE ADMINISTRATION BUILDING.
 8. THIS INCLUDES SCIOTO RESERVE, TARTAN FIELDS, HOOVER WOODS, AND SCIOTO HILLS.
 9. MAJOR ALARMS AT LIFT STATIONS ARE TIED TO HIGH TIDE SYSTEM FOR BACKUP ALARMING.
 10. THERE ARE FLOATING LICENSES THAT DCRSD STAFF USE FOR ACCESSING VTSCADA EITHER ON THE INTERNAL OR VIA EXTERNAL NETWORK.
 11. BENT TREE WRF IS NOT CURRENTLY CONNECTED TO THE DCRSD NETWORK.
 12. HIGH TIDE SCADA SYSTEM IS ACCESSED BY DCRSD BY WEB BROWSER AND BY A MOBILE APPLICATION.
 13. THE CELLULAR NETWORK USED DEPENDS ON THE REMOTE SITE BASED ON LOCAL CELLULAR SERVICE STRENGTH.
 14. THERE ARE A TOTAL OF 34 LIFT STATIONS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. MILLER
 DRAWN BY: L. HUGHES
 SHEET CHK'D BY: E. HEYOB
 CROSS CHK'D BY: X
 APPROVED BY: X
 DATE: SEP 2019

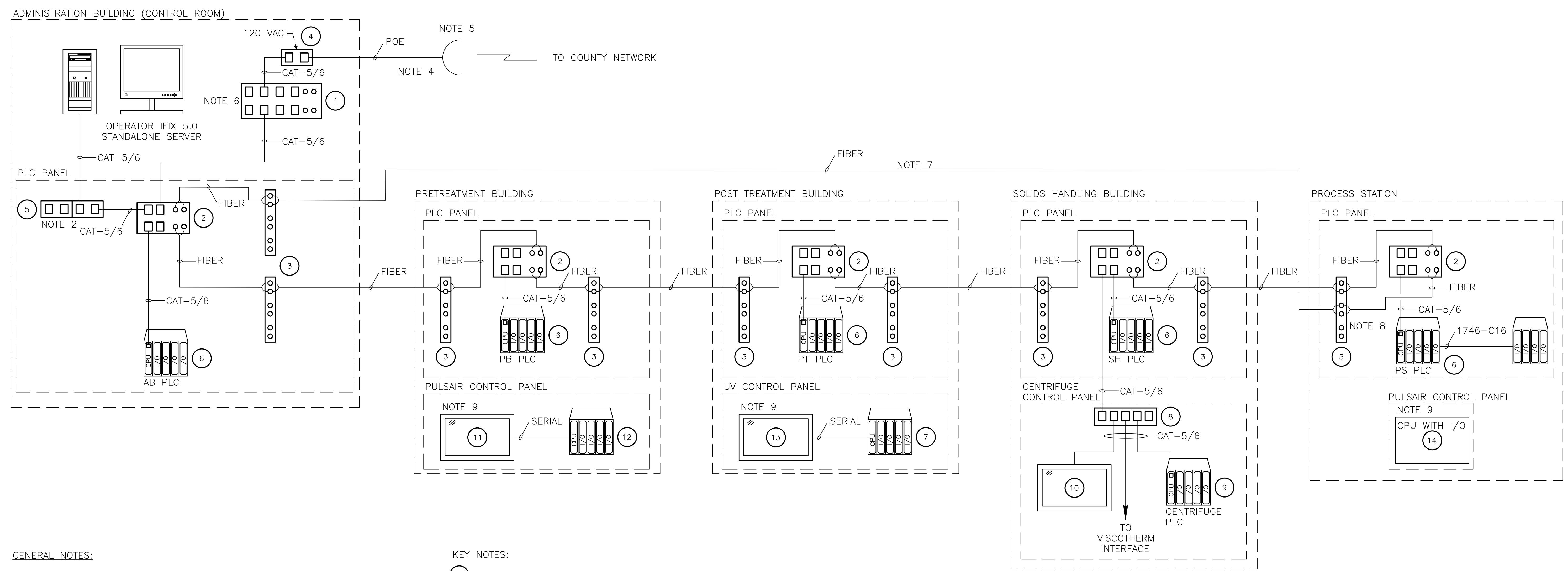


DELAWARE COUNTY REGIONAL SEWER DISTRICT
CONTROL SYSTEM PLANNING

DELAWARE COUNTY REGIONAL SEWER DISTRICT
NETWORK STRUCTURE (EXISTING)

PROJECT NO. 253527-22B048
 FILE NAME: xxxxxxxx
 SHEET NO.
I-1

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GENERAL NOTES:

1. NOT ALL SWITCH, PATCH PANEL, AND MEDIA CONVERTER PORTS ARE SHOWN FOR CLARITY.
2. THIS DEVICE IS CONNECTED BUT DOES NOT APPEAR TO BE IN USE, OTHER THAN AS A PASS-THROUGH ETHERNET SWITCH. CONSIDER REMOVING.
3. NOT ALL PLC I/O SLOTS AND MODULES ARE SHOWN FOR CLARITY.
4. THERE IS ALSO AN OMNI-DIRECTIONAL ANTENNA ON THIS RADIO TOWER. THE ASSOCIATED ENCLOSURE WAS LOCKED DURING THE STUDY. DCRSD BELIEVES AN MDS TRANSNET STORE-AND-FORWARD RADIO IS CONNECTED TO THIS ANTENNA, AND USED FOR COMMUNICATIONS AMONGST REMOTE SITES NOT ASSOCIATED WITH LOWER SCIOTO WRF.
5. DIRECT WIRELESS RADAR ANTENNA FOR CONNECTION TO COUNTY NETWORK.
6. NOT ALL CONNECTIONS TO DATA CENTER SWITCHES ARE ACCOUNTED FOR.
7. WHILE THE FIBER NETWORK IS A RING TOPOLOGY, THE CABLING IS MOSTLY VIA THE SAME CONDUITS. THUS, THERE IS REDUNDANT CABLING BUT NOT REDUNDANT PATHS.
8. THERE ARE TWO 6-STRAND PATCH PANELS IN THE FIBER TERMINATION BOX, AND TWO 6-STRAND FIBER CABLES. HOWEVER, THE INDIVIDUAL STRANDS ARE WEAVED TOGETHER AND ONLY ONE PATCH PANEL IS USED. THE REMAINING SIX STRANDS ARE NOT TERMINATED. WHILE IT APPEARS THAT THE FIBER RING IS COMPLETED, CDM SMITH CAN NOT BE CERTAIN WITHOUT DISCONNECTING THE LIVE TERMINATIONS AND UNWINDING THE FIBER STRANDS.
9. NO COMPONENTS IN THIS CONTROL PANEL ARE CONNECTED TO THE LOWER SCIOTO WRF SCADA NETWORK.

KEY NOTES:

1. EXTREME NETWORKS X440-G2-12P-10GE4, 12-PORT COPPER, 4-PORT FIBER SWITCH
2. CTRLINK EIS6-100T/FC, 4-PORT COPPER, 2-PORT FIBER SWITCH
3. FIBER PATCH PANEL
4. MIMOSA 10/100/1000BASE-TX GIGABIT POWER OVER ETHERNET SWITCHING POWER SUPPLY
5. ALLEN-BRADLEY 9300-RADES REMOTE ACCESS DIAL-IN ETHERNET MODEM
6. ALLEN-BRADLEY SLC 5/05 PLC
7. ALLEN-BRADLEY SLC 5/04 PLC
8. CTRLINK EISK5-100T 5-PORT 10/100 MBPS SWITCH
9. ALLEN-BRADLEY COMPACTLOGIX PLC
10. ALLEN-BRADLEY PANELVIEW PLUS 700 OPERATOR INTERFACE TERMINAL
11. MITSUBISHI GT15 OPERATOR INTERFACE TERMINAL
12. MITSUBISHI MELSEC-Q SERIES PLC
13. TOTAL CONTROL (GE) QUICKPANEL JR. OPERATOR INTERFACE TERMINAL
14. MITSUBISHI MELSEC-FX1N PLC

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. MILLER
DRAWN BY: L. HUGHES
SHEET CHK'D BY: X
CROSS CHK'D BY: X
APPROVED BY: X
DATE: SEP 2018

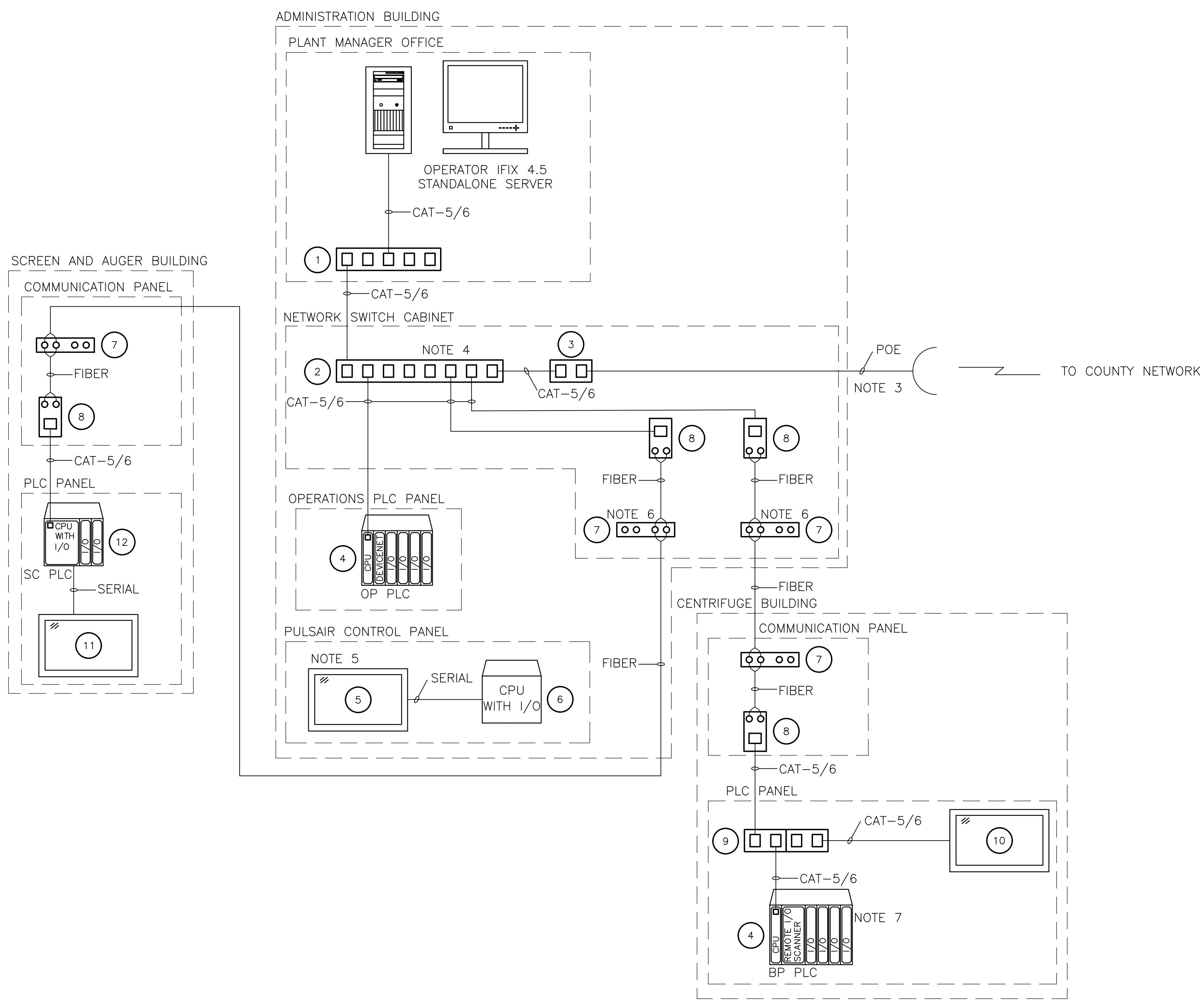


DELAWARE COUNTY REGIONAL SEWER DISTRICT
CONTROL SYSTEM PLANNING

**LOWER SCIOTO WRF
NETWORK ARCHITECTURE (EXISTING)**

PROJECT NO. 253527-228048
FILE NAME: xxxxxxxx
SHEET NO. I-3

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- GENERAL NOTES:**
1. NOT ALL SWITCH, PATCH PANEL, AND MEDIA CONVERTER PORTS ARE SHOWN FOR CLARITY.
 2. NOT ALL PLC I/O SLOTS AND MODULES ARE SHOWN FOR CLARITY.
 3. DIRECT WIRELESS RADAR ANTENNA FOR CONNECTION TO COUNTY NETWORK.
 4. THERE ARE SIX CABLES CONNECTED TO THIS SWITCH THAT ARE NOT CONNECTED TO ACTIVE END DEVICES. PREVIOUS END DEVICES INCLUDE MCC-1, MCC-2, MCC TOUCH PANEL, DIGITAL VIDEO MONITORING RECORDER, AND TWO CONNECTIONS TO A DELL POWERVault FILE SERVER.
 5. NO COMPONENTS IN THIS PANEL ARE CONNECTED TO THE NORTHSTAR WRF SCADA NETWORK.
 6. THERE ARE OTHER FIBER CONNECTIONS FOR THE VIDEO MONITORING SYSTEM, WHICH IS NO LONGER IN USE. NOT ALL FIBER CABLING DETAILS ARE SHOWN ON THESE DRAWINGS.
 7. THIS PLC IS ABANDONED-IN-PLACE, ALTHOUGH STILL CONNECTED TO THE NETWORK. IT WAS IN A FAILED STATE DURING SITE INSPECTION. THUS, CONNECTIONS TO THE REMOTE I/O SCANNER WERE NOT INVESTIGATED.
 8. THE NORTHSTAR LIFT STATION DOES NOT COMMUNICATE TO THE NORTHSTAR WRF. THE LIFT STATION IS CONTROLLED VIA A MULTITRODE MULTISMART CONTROLLER AND DATA IS COMMUNICATED THROUGH AN MDS TRANSNET RADIO BACK TO THE DEL-CO FLYING J WATER TANK AND ON TO ALUM CREEK WRF. THE LIFT STATION SCADA IS VIA VTSCADA.

- KEY NOTES:**
- 1 CISCO SGD100D-05 5-PORT UNMANAGED GIGABIT SWITCH
 - 2 NETGEAR GS116 PROSAFE 16-PORT GIGABIT SWITCH
 - 3 TRANZEO WIRELESS TECHNOLOGIES POWER OVER ETHERNET POWER SUPPLY TR-SUR-001
 - 4 ALLEN-BRADLEY SLC 5/05 PLC
 - 5 MITSUBISHI F940GOT-SWD-E OPERATOR INTERFACE TERMINAL
 - 6 MITSUBISHI MELSEC-FX2N PLC
 - 7 FIBER PATCH PANEL
 - 8 SIGNAMAX MEDIA CONVERTER 065-1110
 - 9 ALLEN-BRADLEY 9300-RADES REMOTE ACCESS DIAL-IN ETHERNET MODEM
 - 10 ALLEN-BRADLEY PANELVIEW PLUS 1250 OPERATOR INTERFACE TERMINAL
 - 11 ALLEN-BRADLEY PANELVIEW PLUS 400 OPERATOR INTERFACE TERMINAL
 - 12 ALLEN-BRADLEY MICROLOGIX 1100 PLC

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. MILLER
 DRAWN BY: L. HUGHES
 SHEET CHK'D BY: X
 CROSS CHK'D BY: X
 APPROVED BY: X
 DATE: SEP 2018

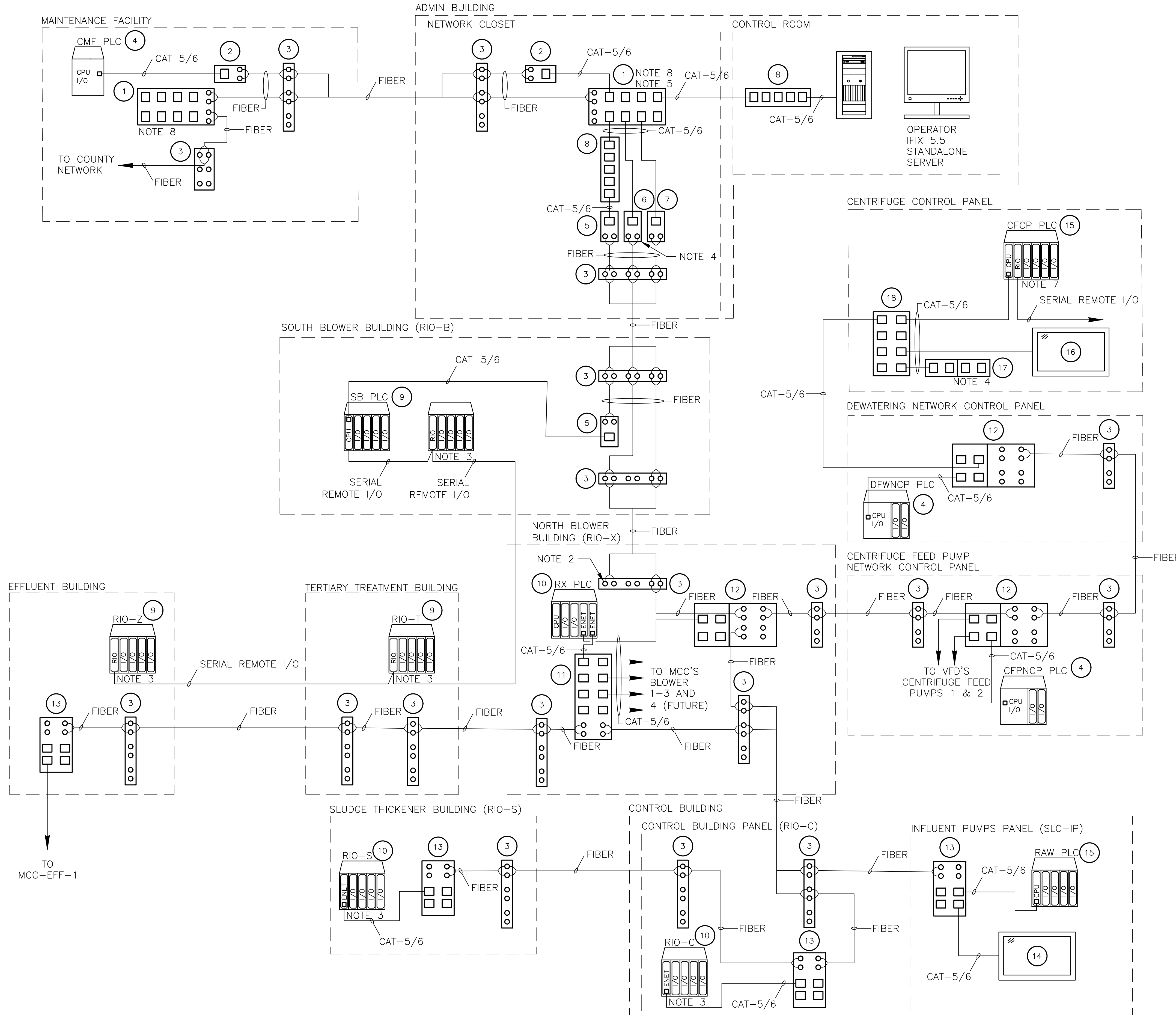


DELAWARE COUNTY REGIONAL SEWER DISTRICT
CONTROL SYSTEM PLANNING

**NORTHSTAR WRF
 NETWORK ARCHITECTURE (EXISTING)**

PROJECT NO. 253527-22B048
 FILE NAME: xxxxxxxx
 SHEET NO.
I-4

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- GENERAL NOTES:**
1. NOT ALL SWITCH, PATCH PANEL, AND MEDIA CONVERTER PORTS ARE SHOWN FOR CLARITY.
 2. IT DOES NOT APPEAR THAT THIS FIBER LINK BETWEEN THE ADMIN BUILDING AND NORTH BLOWER BUILDING IS CONNECTED TO ANY REMOTE END DEVICES.
 3. THIS IS A REMOTE I/O RACK.
 4. THIS DEVICE IS CONNECTED BUT DOES NOT APPEAR TO STILL BE IN USE.
 5. THERE ARE MULTIPLE SUBNETS ON THIS NETWORK. IT IS BELIEVED THIS SWITCH PERFORMS THE ROUTING, BUT THIS SHOULD BE CONFIRMED.
 6. NOT ALL PLC I/O SLOTS AND MODULES ARE SHOWN FOR CLARITY.
 7. THIS MODULE IS FOR SERIAL CONNECTION TO ADDITIONAL REMOTE I/O.
 8. NOT ALL CONNECTIONS TO DATA CENTER SWITCHES ARE ACCOUNTED FOR.

- KEY NOTES:**
- 1 EXTREME NETWORKS SUMMIT X460-G2-48P-10GE4, 48-PORT COPPER, 4-PORT FIBER SWITCH
 - 2 BLACK BOX 10/100 MBPS MEDIA CONVERTER SWITCH
 - 3 FIBER PATCH PANEL
 - 4 ALLEN-BRADLEY MICROLOGIX 1100 PLC
 - 5 HIRSCHMANN SPIDER 4TX/1FX-ST SWITCH
 - 6 CENTRECOM MC12T AND MX40F/ST MEDIA CONVERTER
 - 7 TRENDNET MMF MEDIA CONVERTER
 - 8 NETGEAR FS105 5-PORT 10/100 MBPS SWITCH
 - 9 ALLEN-BRADLEY PLC-5
 - 10 ALLEN-BRADLEY CONTROLLOGIX PLC
 - 11 ALLEN-BRADLEY STRATIX 5700 10-PORT COPPER, 2-PORT FIBER SWITCH
 - 12 HIRSCHMANN MM2-4TX1 AND MM3-4FXM2 4-PORT COPPER, 4-PORT FIBER SWITCH
 - 13 BLACK BOX HARDENED 10/100 MBPS EDGE SWITCH
 - 14 ALLEN-BRADLEY PANELVIEW 600 OPERATOR INTERFACE TERMINAL
 - 15 ALLEN-BRADLEY SLC 5/05 PLC
 - 16 ALLEN-BRADLEY PANELVIEW PLUS 1000 OPERATOR INTERFACE TERMINAL
 - 17 ALLEN-BRADLEY 9300-RADES REMOTE ACCESS DIAL-IN ETHERNET MODEM
 - 18 PHOENIX CONTACT FL SWITCH 8TX 8-PORT COPPER SWITCH

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. MILLER
 DRAWN BY: L. HUGHES
 SHEET CHK'D BY: X
 CROSS CHK'D BY: X
 APPROVED BY: X
 DATE: SEP 2018

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 Cambridge, MA 02139
 Tel: (617) 452-6000

DELAWARE COUNTY REGIONAL SEWER DISTRICT
CONTROL SYSTEM PLANNING

**OLENTANGY ENVIRONMENTAL
 CONTROL CENTER
 NETWORK ARCHITECTURE (EXISTING)**

PROJECT NO. 253527-228048
 FILE NAME: xxxxxxxx
 SHEET NO.
I-2

NOT FOR CONSTRUCTION