

ENGINEERING

2015 INTERNATIONAL BUILDING CODE NEW JERSEY EDITION
2014 NATIONAL ELECTRIC CODE
TIA/EIA-222-G OR LATEST EDITION

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

PROJECT DESCRIPTION

PROPOSED INSTALLATION AT A FUTURE TELECOMMUNICATIONS FACILITY INCLUDING INSTALLATION OF (12) NEW ANTENNAS (4 PER SECTOR), (15) RADIO HEAD UNITS (5 PER SECTOR), ASSOCIATED SURGE SUPPRESSION AND APPURTENANCES ON PROPOSED ANTENNA PLATFORM ON FUTURE 95' MONOPINE, AS WELL AS THE INSTALLATION OF A DIESEL GENERATOR AND NEW EQUIPMENT IN NEW EQUIPMENT SHELTER.

SITE INFORMATION

PROPERTY OWNER:	DOUGLAS W. LOGAN P.O. BOX 188 COLD SPRINGS, NY 10516
SITE ADDRESS:	15 ROCKLEDGE ROAD NELSONVILLE, NY 10516
TOWER OWNER:	HOMELAND TOWERS, LLC 9 HARMONY STREET, 2ND FL DANBURY, CT 06810
COUNTY:	PUTNAM COUNTY
LATITUDE (NAD 83):	41.422007
LONGITUDE (NAD 83):	-73.94137
ZONING:	MR "MOUNTAIN RESIDENTIAL"
SECTION:	49.6
BLOCK:	1
LOTS:	7

PROJECT CONTACTS

A/E:	COM-EX CONSULTANTS, LLC 862-209-4300
PROJECT MANAGER	PATRICK CONNELL BLACK & VEATCH
RF:	PAUL SCHWEDHELM BLACK & VEATCH
CONSTRUCTION:	ROBIN NEGRON OCI / BLACK & VEATCH
SITE ACQUISITION:	ALEX CONTANTOPE'S BLACK & VEATCH

RF DATA NOTE

DESIGN BASED ON RF DATA SHEET, VERSION 3.1, DATED 11/09/2016. CONTRACTOR SHALL OBTAIN LATEST RF DATA SHEET AND CONFIRM SAME WITH BLACK & VEATCH RF AND CONSTRUCTION MANAGER PRIOR TO START OF CONSTRUCTION.

IF USING 11"x17" PLOT, DRAWINGS
WILL BE HALF SCALE

CONTACT INFORMATION

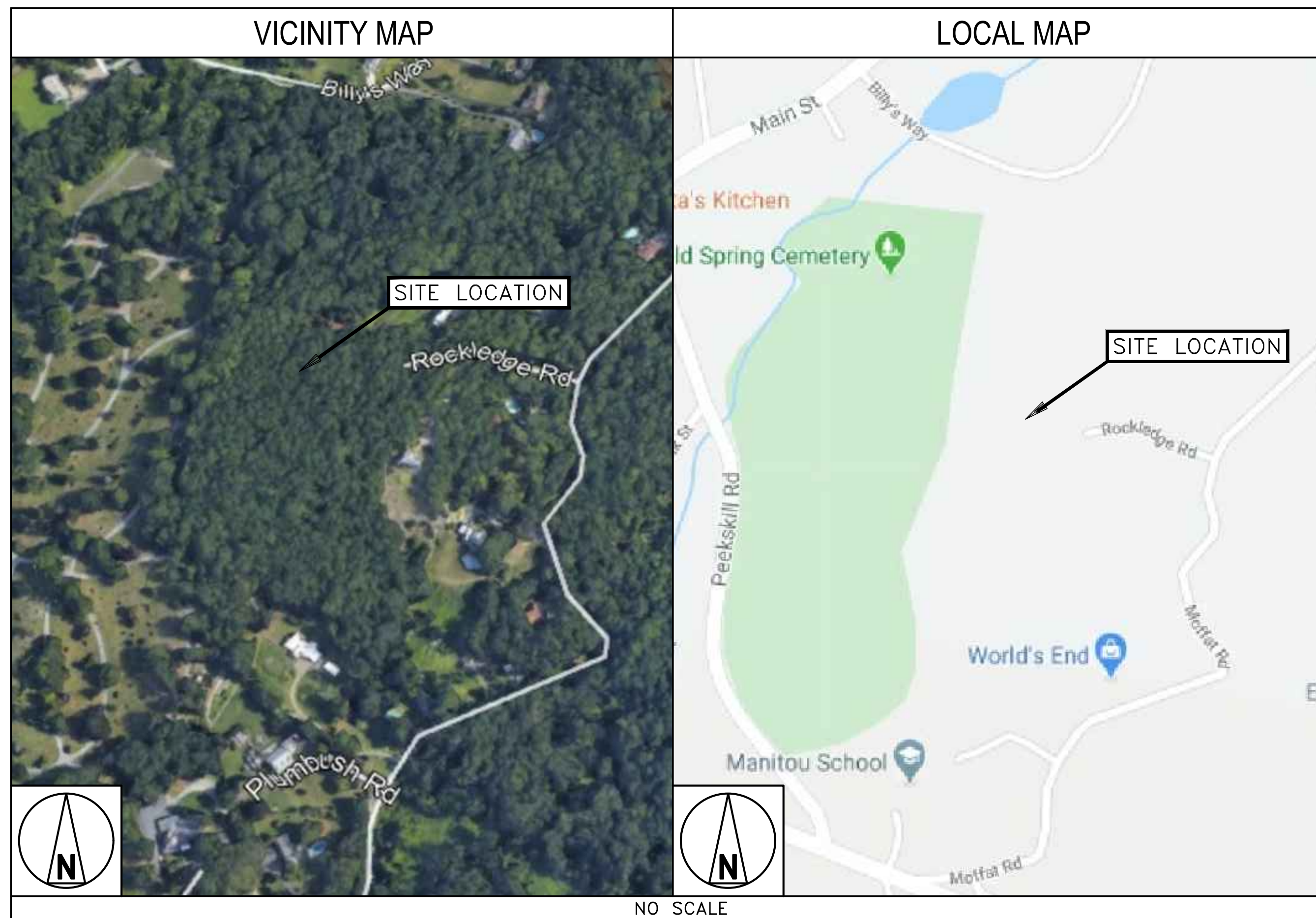
ENGINEER: COM-EX CONSULTANTS, LLC
115 ROUTE 46, SUITE E39
MOUNTAIN LAKES, NJ 07046

CONTACT: NICHOLAS D. BARILE

PHONE: 862-209-4300



NSB
NATIONAL SITE-ID #: NYNANYX301
FA#: 11623924
PACE ID#: MRNYC003783

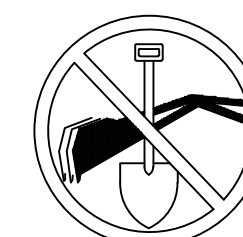


DRAWING INDEX

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DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME



**UNDERGROUND SERVICE ALERT
DIG SAFELY NY
811 or (800) 962-7962
WWW.DIGSAFELYNEWYORK.COM**

3 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION



BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

COM  EX
ENGINEERING OF NY

309 BAILEY ROAD
PURLING, NEW YORK 12470
PHONE: 862.209.4300
FAX: 862.209.4301

COMEX ENGINEERING OF NY, PLLC, STATE OF NY
CERTIFICATE OF AUTHORIZATION # 27-3179723

SCHEDULE OF REVISIONS

7		
6		
5		
4		
3		
2		
1	3/13/20	CLIENT COMMENTS
0	03/06/20	INITIAL SUBMISSION
REV. NO.	DATE	DESCRIPTION OF CHANGES

DRAWN BY: KCD

CHECKED BY: *NDB*

SCALE: AS NOTED

JOB NO: 20065-BLV

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NICHOLAS D. BARILE

PROFESSIONAL ENGINEER, N.Y. LIC. No. 90133
COMEX ENGINEERING OF NY STATE OF NY
CERTIFICATE OF AUTHORIZATION 5-27-3170727

CONSTRUCTION DRAWINGS
NYNYNX301

**33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY**

DRAWING TITLE:

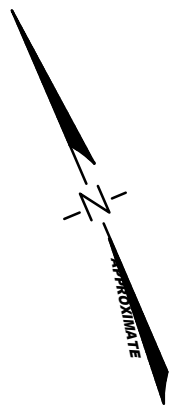
TITLE SHEET

DRAWING SHEET:

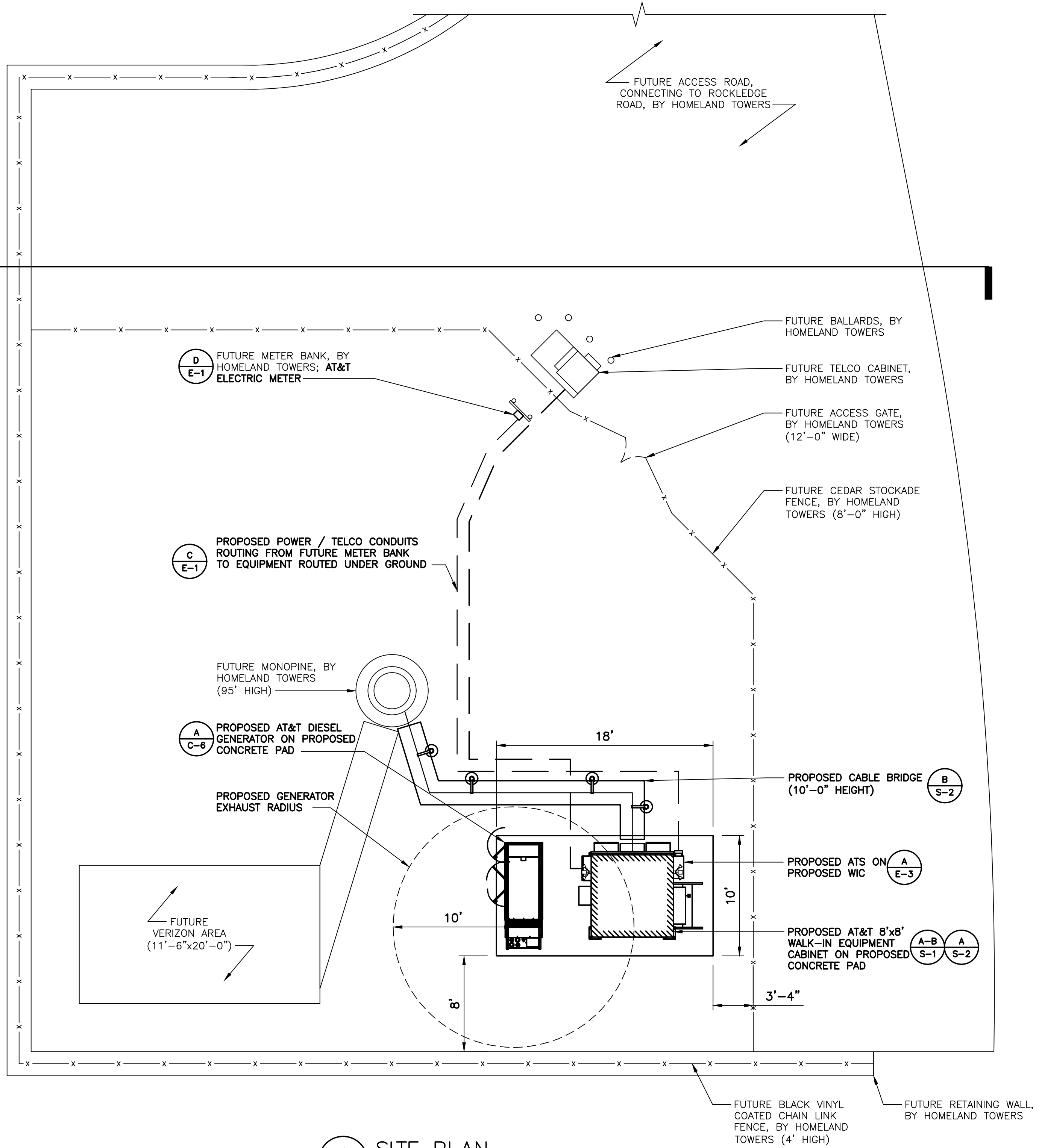
T-1

GENERAL NOTES:

- SUBJECT PROPERTY IS KNOWN AS SECTION 49.6, BLOCK 1, LOT 7 AS SHOWN ON AN OFFICIAL VILLAGE OF NELSONVILLE TAX MAP.
- CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL INSURANCE REQUIRED BY NEW CINGULAR WIRELESS, PCS, LLC (AT&T), THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
- THE PROPOSED WIRELESS IMPROVEMENTS ARE NOT INTENDED FOR PERMANENT EMPLOYEE OCCUPANCY AND THEREFORE POTABLE WATER, SANITARY SEWERS, ADDITIONAL SITE PARKING AND HANDICAP ACCESS ARE NOT REQUIRED.
- THIS FACILITY SHALL BE VISITED ON AN AVERAGE OF ONCE EVERY SIX (6) WEEKS FOR MAINTENANCE AND SHALL BE MONITORED FROM A REMOTE FACILITY.
- FINAL CONNECTION TO ELECTRICAL AND TELEPHONE TO BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY.
- THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION".
- SITE INFORMATION SHOWN OBTAINED FROM A SET OF ZONING DRAWINGS TITLED "SITE ZONING DRAWINGS, NY170, NELSONVILLE" CREATED FOR HOMELAND TOWERS, LLC, BY JMC, PLLC, DATED 12/10/19.
- THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
- THE PROPOSED IMPROVEMENTS WILL CAUSE ONLY A "DE MINIMIS" INCREASE IN STORMWATER RUNOFF. THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
- NO NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
- THE PROPOSED DEVELOPMENT DOES NOT INCLUDE STREET SIGNS OF ANY TYPE.
- THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES OR OTHER PUBLIC AUTHORITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
- THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THIS PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
- THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.
- CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
- DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE 2015 NJ EDITION AND THE EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
- CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" (800-272-1000) TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
- IF ANY PIPING EXISTS BENEATH THE SITE AREA, CONTRACTOR MUST LOCATE IT AND CONTACT OWNERS REPRESENTATIVE.
- THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
- THE CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. THE CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUB-CONTRACTORS AND RELATED PARTIES. THE SUB-CONTRACTOR SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
- THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON THE SITE AT ALL TIMES AND INSURE THE DISTRIBUTION OF NEW DRAWINGS TO SUB-CONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH 1 SET OF REDLINE "AS-BUILT" DRAWINGS TO THE CLIENT UPON COMPLETION OF THE WORK.
- DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- ALL MATERIAL PROVIDED BY THE CLIENT IS TO BE REVIEWED BY THE CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS PRIOR TO INSTALLATION. ANY DEFICIENCIES TO PROVIDE MATERIALS SHALL BE BROUGHT TO THE CONSTRUCTION MANAGER'S ATTENTION IMMEDIATELY.
- THE MATERIALS INSTALLED SHALL MEET REQUIREMENTS OF CONTRACTORS DOCUMENTS. NO SUBSTITUTIONS ARE ALLOWED.
- THE CONTRACTOR SHALL COORDINATE ALL CIVIL, STRUCTURAL AND ELECTRICAL DRAWINGS FOR THE LOCATIONS OF ALL OPENINGS, RECESSES, BUILT-IN WORK, ETC..
- THE CONTRACTOR SHALL RECEIVE CLARIFICATION AND AUTHORIZATION IN WRITING TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONSTRUCTION DOCUMENTS.
- ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST-ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAND PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS MAY TAKE PRECEDENCE.
- THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
- THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITIONS AND FREE FROM PAINT SPOTS, DUST OR SMUDGES OF ANY NATURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
- BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORKS, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.
- TECHNICIAN TO PARK IN ANY AVAILABLE PARKING SPOT. NO NEW PARKING IS PROPOSED.



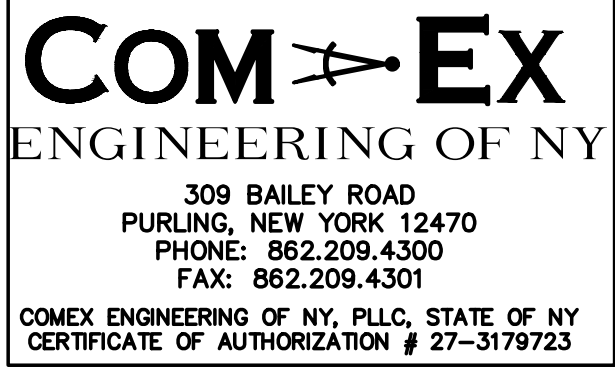
1
C-2



1
C-1

SITE PLAN
SCALE: 1"=6'-0" (22"x34" SHEET)
SCALE: 1"=12'-0" (11"x17" SHEET)

(IN FEET)
1 Inch = 6 Feet



SCHEDULE OF REVISIONS		
7		
6		
5		
4		
3		
2		
1	3/13/20	CLIENT COMMENTS
0	03/06/20	INITIAL SUBMISSION
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CONSTRUCTION DRAWINGS
NYNYNYX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

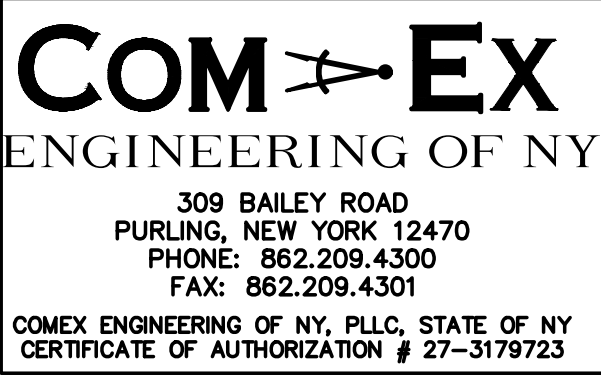
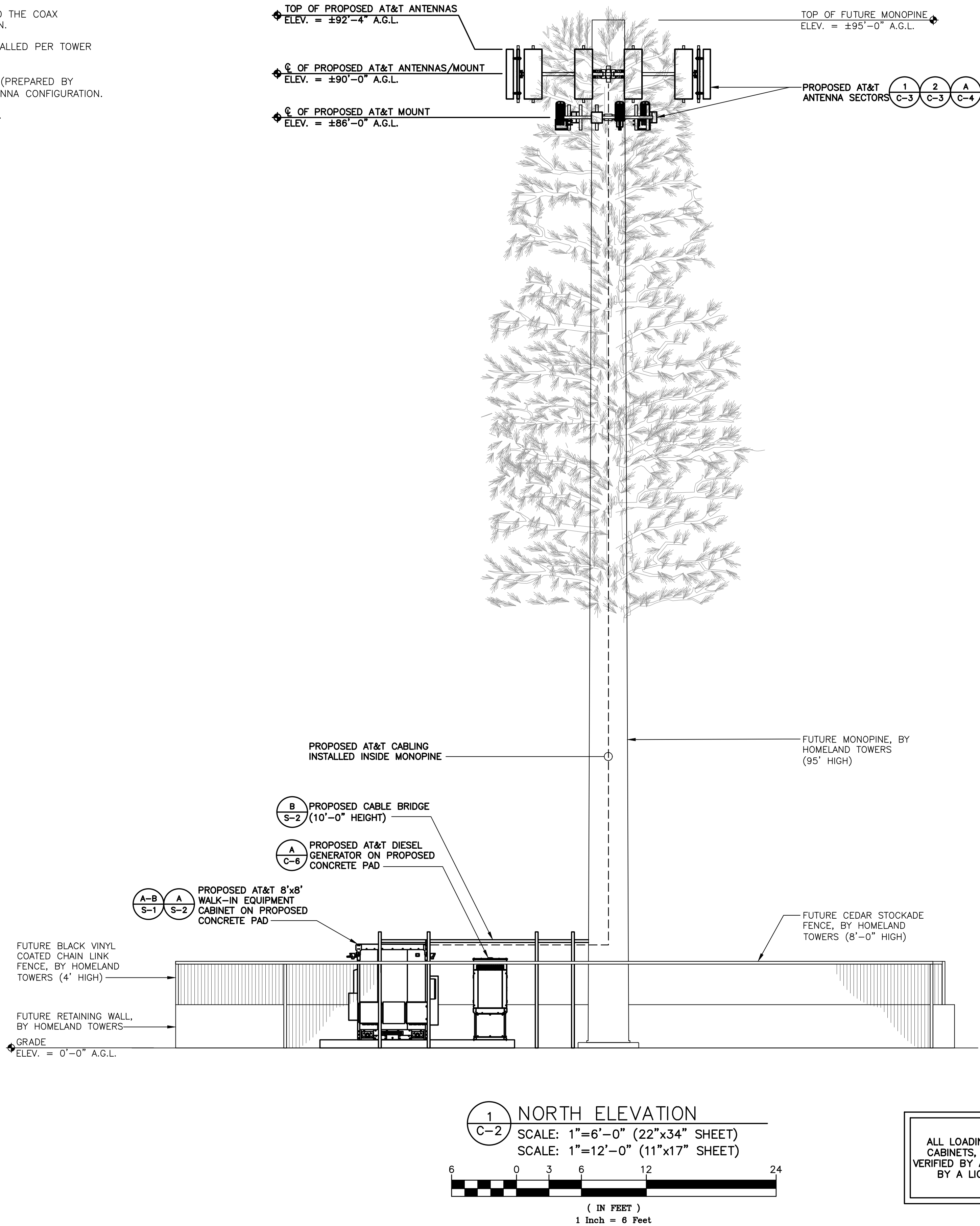
SITE PLAN & GENERAL NOTES

DRAWING SHEET:

C-1

ELEVATION GENERAL NOTES

1. ALL PROPOSED GROUNDING BAR DOWNLOADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUNDING BAR DOWNLOADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUNDING BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ANTENNA AND THE COAX CONFIGURATION IS THE CORRECT MAKE AND MODELS, PRIOR TO INSTALLATION.
3. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S SPECIFICATION & RECOMMENDATIONS.
4. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS REPORT (PREPARED BY OTHERS TBD) FOR DIRECTIONS ON CABLE DISTRIBUTION, ROUTING, AND ANTENNA CONFIGURATION.
5. DISTANCE FROM RRHs TO SURGE ARRESTOR TO BE A MAXIMUM OF 16 FEET.



SCHEDULE OF REVISIONS		
7		
6		
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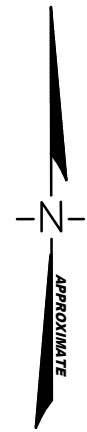
CONSTRUCTION DRAWINGS
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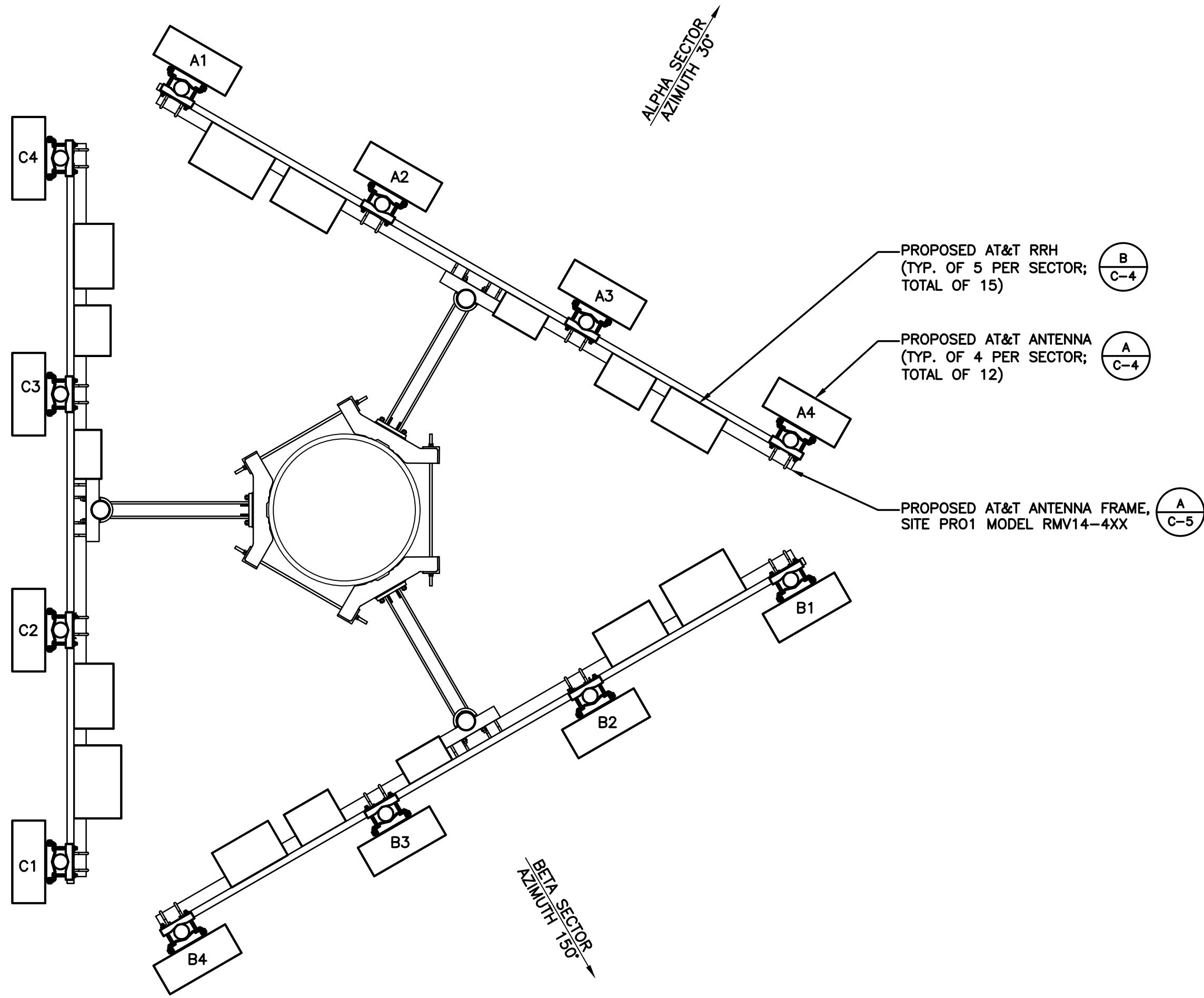
ELEVATION

DRAWING SHEET:

C-2

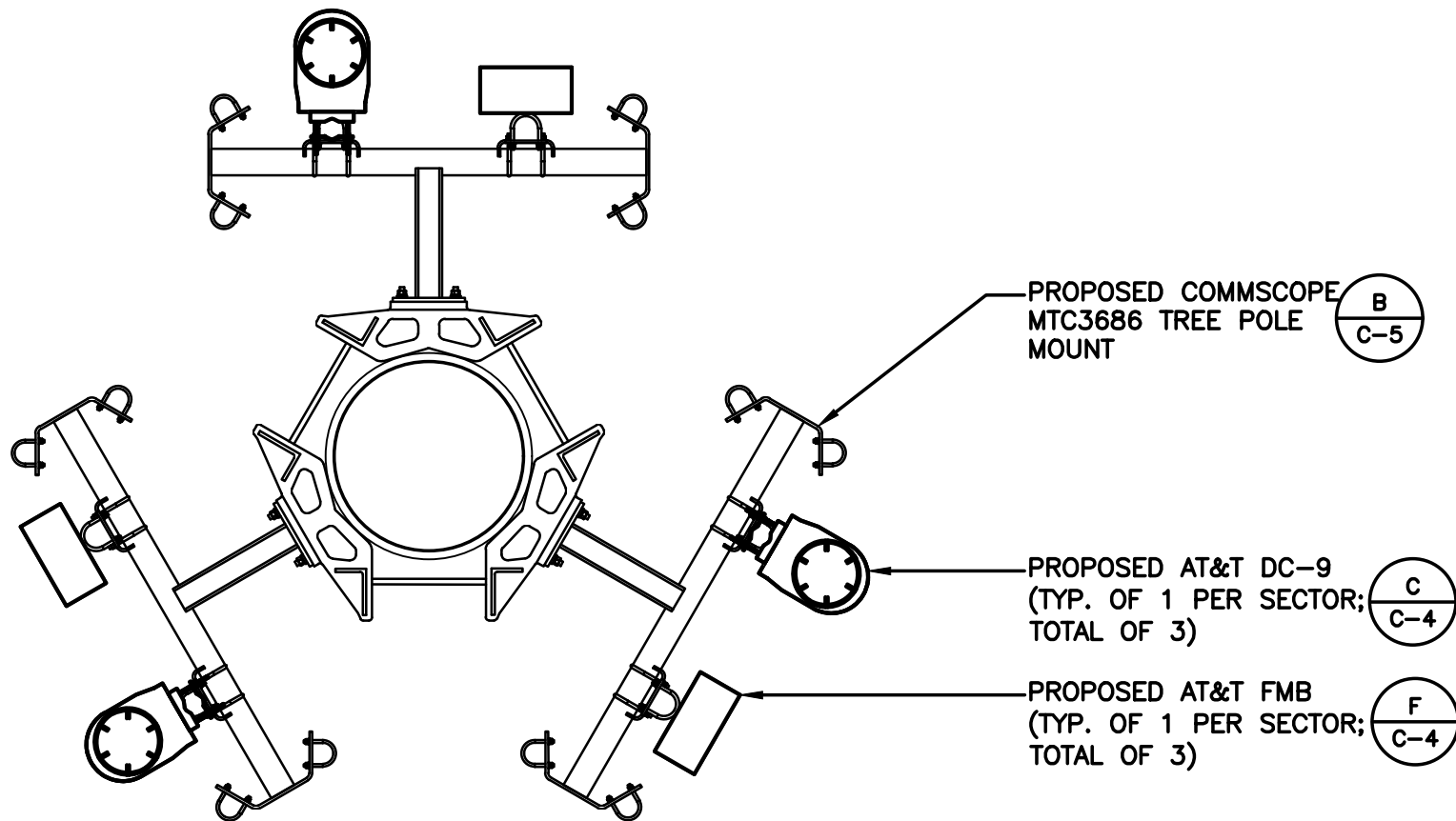


GAMMA SECTOR
AZIMUTH 270°



NOTE:
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1
C-3 **ANTENNA ORIENTATION AT 90°**
SCALE: 1"=2'-0" (22"x34" SHEET)
SCALE: 1"=4'-0" (11"x17" SHEET)



2
C-3 **DC-9 & FMB ORIENTATION AT 86°**
SCALE: 1"=2'-0" (22"x34" SHEET)
SCALE: 1"=4'-0" (11"x17" SHEET)

ALL LOADING ASSOCIATED WITH PROPOSED EQUIPMENT CABINETS, ANTENNAS, AND CABLE ROUTING SHALL BE VERIFIED BY A PASSING STRUCTURAL ANALYSIS PERFORMED BY A LICENSED ENGINEER PRIOR TO INSTALLATION

PROPOSED ANTENNA AND TRANSMISSION CABLES REQUIREMENT

SECTOR	ANTENNA TYPE	TECHNOLOGY	ANTENNA AZIMUTH	TRANSMISSION CABLE	
				LENGTH + / -	TYPE
A1	NNHH-65B-R4	LTE	30°	120'	(1) 2" INNERDUCT WITH (1) FIBER TRUNK & (2) DC TRUNKS
A2	NNHH-65B-R4	LTE	30°	120'	
A3	NNHH-65B-R4	LTE	30°	120'	
A4	NNHH-65B-R4	LTE	30°	120'	
B1	NNHH-65B-R4	LTE	150°	120'	(1) 2" INNERDUCT WITH (1) FIBER TRUNK & (2) DC TRUNKS
B2	NNHH-65B-R4	LTE	150°	120'	
B3	NNHH-65B-R4	LTE	150°	120'	
B4	NNHH-65B-R4	LTE	150°	120'	
C1	NNHH-65B-R4	LTE	270°	120'	(1) 2" INNERDUCT WITH (1) FIBER TRUNK & (2) DC TRUNKS
C2	NNHH-65B-R4	LTE	270°	120'	
C3	NNHH-65B-R4	LTE	270°	120'	
C4	NNHH-65B-R4	LTE	270°	120'	
GPS	TBD	TBD	N/A	15'	½" CABLE

ANTENNA MOUNTING NOTES:

- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
- ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
- PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.
- JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
- CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
- TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.
- ANTENNAS SHALL HAVE A 4'-0" MIN CENTER TO CENTER HORIZONTAL SEPARATION.

TORQUE REQUIREMENTS:

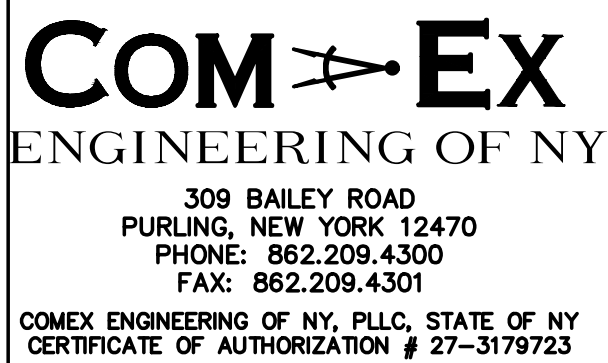
- ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
- ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
 - RF CONNECTION BOTH SIDES OF THE CONNECTOR.
 - GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
- ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
- ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
- ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
- ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 - 29.8 NM).
- ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).

FIBER & POWER CABLE MOUNTING NOTES:

- THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
- THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
- WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

GENERAL ANTENNA NOTES:

- IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
- ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
- ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
- IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
 - TEMPERATURE SHALL BE ABOVE 50° F.
 - PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
 - FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
 - DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.



SCHEDULE OF REVISIONS

7		
6		
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1	3/13/20	CLIENT COMMENTS
0	03/06/20	INITIAL SUBMISSION

REV. NO.	DATE	DESCRIPTION OF CHANGES
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DRAWN BY:	KCD
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	20065-BLV

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, N.Y. LIC. No. 90133
COMEX ENGINEERING OF NY STATE OF NY
CERTIFICATE OF AUTHORIZATION # 27-3179723

CONSTRUCTION DRAWINGS
NYNYNX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

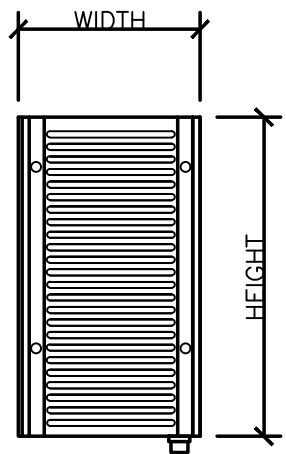
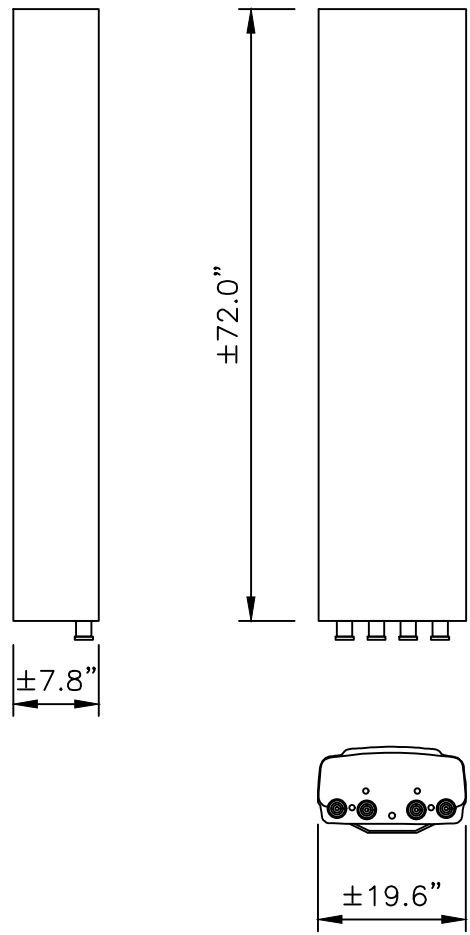
**ANTENNA
LAYOUT**

DRAWING SHEET:

C-3

COMMSCOPE PANEL ANTENNA: NNHH-65B-R4

RADOME MATERIAL: GRP
RADOME COLOR: LIGHT GRAY
ANTENNA WEIGHT: 66.1 LBS.

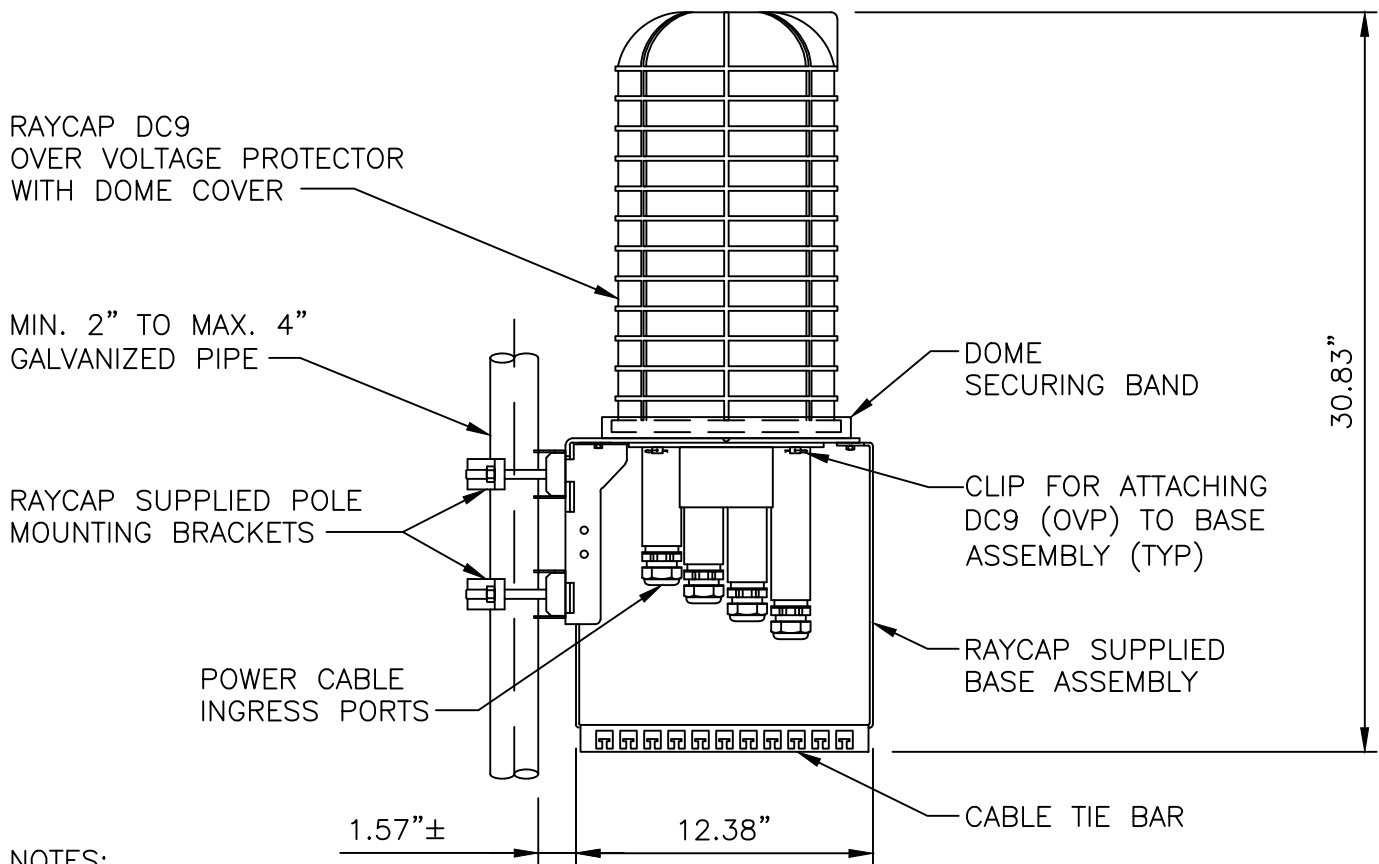


SIZE AND WEIGHT TABLE

RRH	WIDTH	DEPTH	HEIGHT	WEIGHT WITH BRACKET
RRH 4T4R B12/B14	12.1"	6.9"	22"	101.4 LBS.
RRH 4T4R B25/B66	15.4"	9.4"	28.7"	88.2 LBS.
RRH 4T4R B5	11.6"	6.5"	13.3"	36.8 LBS.
RRH2x40-07L-DE	15"	8.2"	15.4"	50 LBS.
RRH4X25-WCS-4R	12"	8.7"	31.5"	70 LBS.

ONE OF EACH PER SECTOR

RAYCAP SURGE SUPPRESSOR



NOTES:

- RAYCAP VIA AT&T SUPPLIES THE DC9 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

TYPICAL ANTENNA SPECIFICATIONS

NO SCALE

A

TYPICAL RRH SPECIFICATIONS

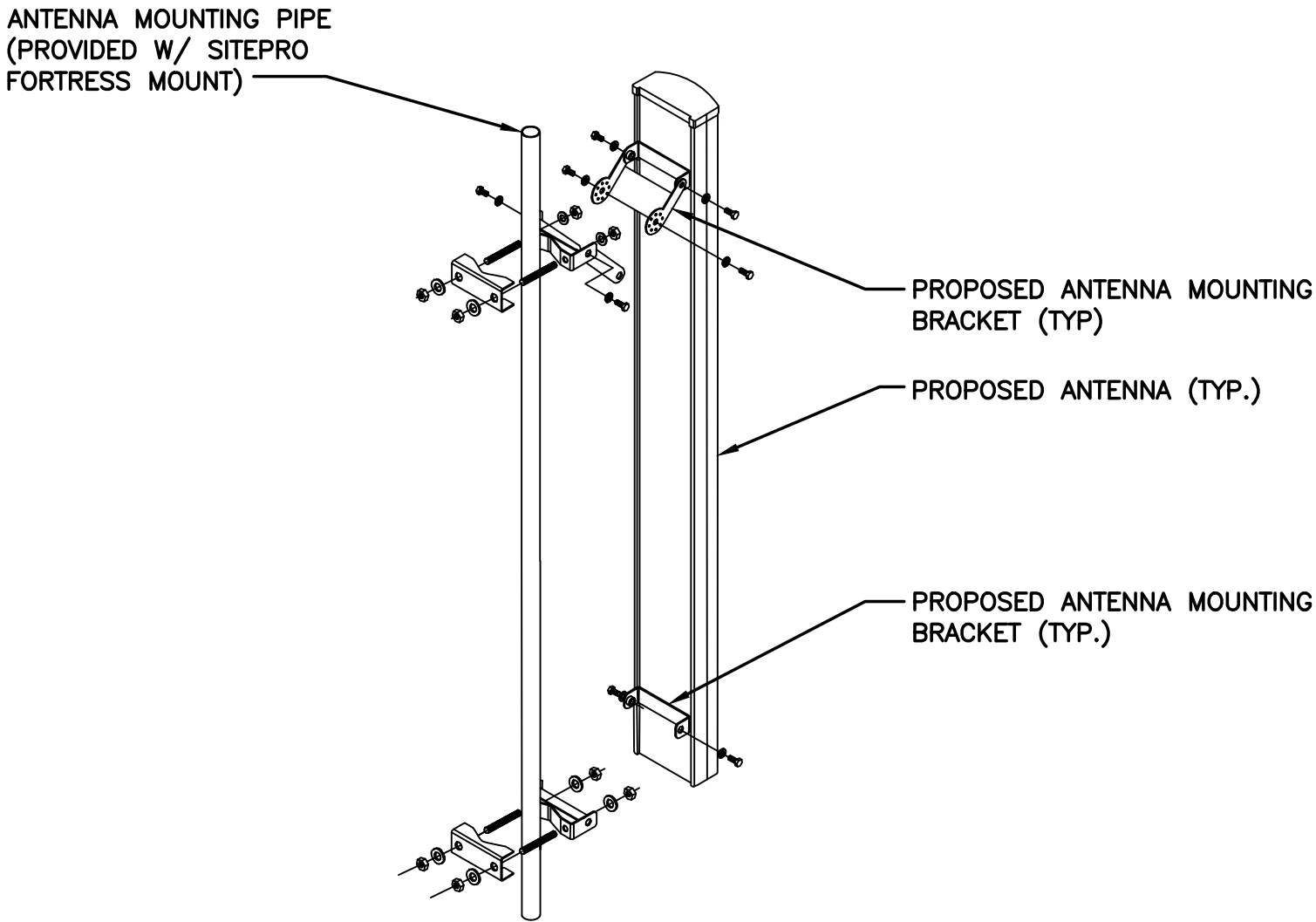
NO SCALE

B

TYPICAL SURGE SUPPRESSION DETAIL

NO SCALE

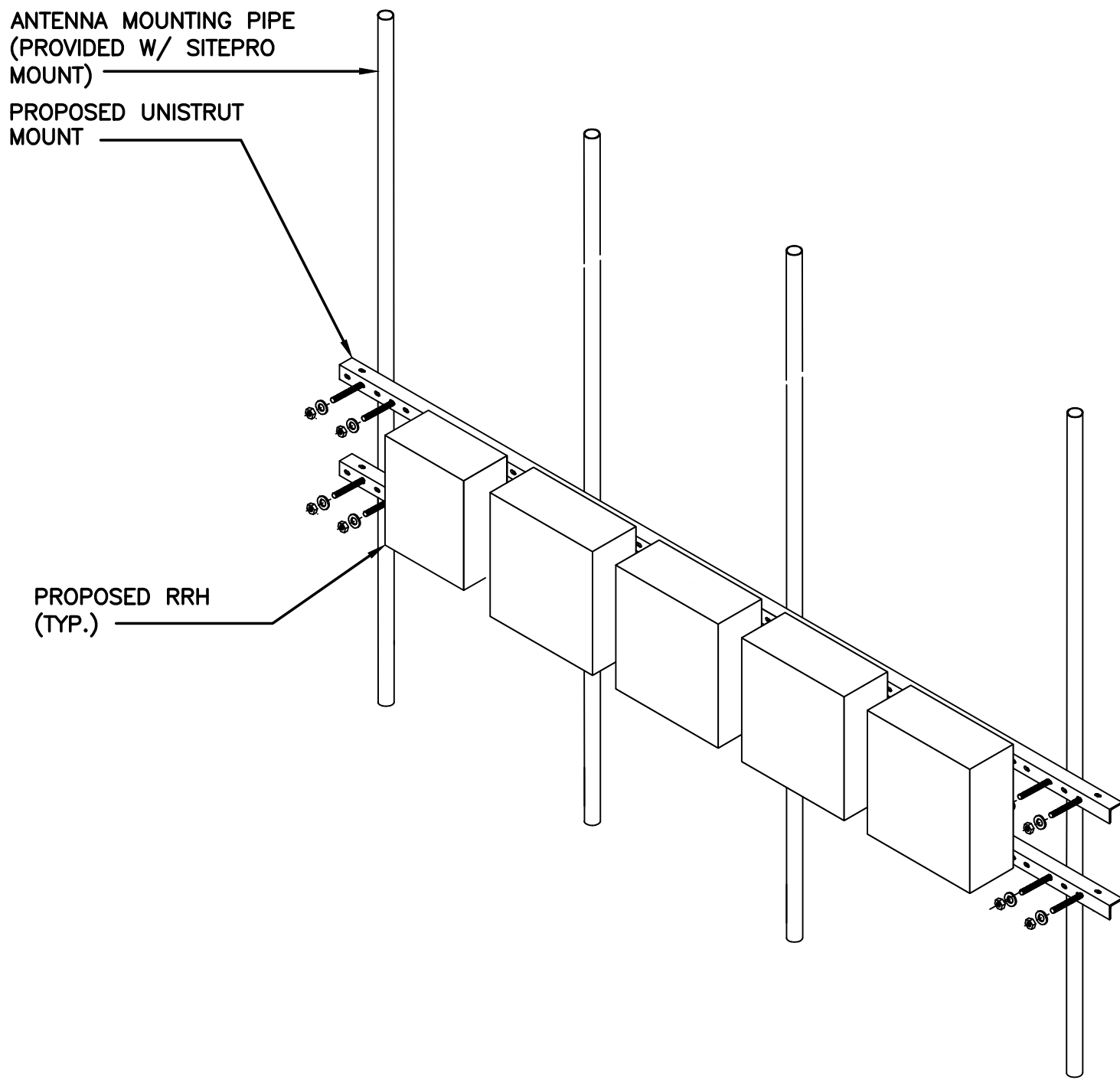
C



ANTENNA MOUNTING DETAIL

NO SCALE

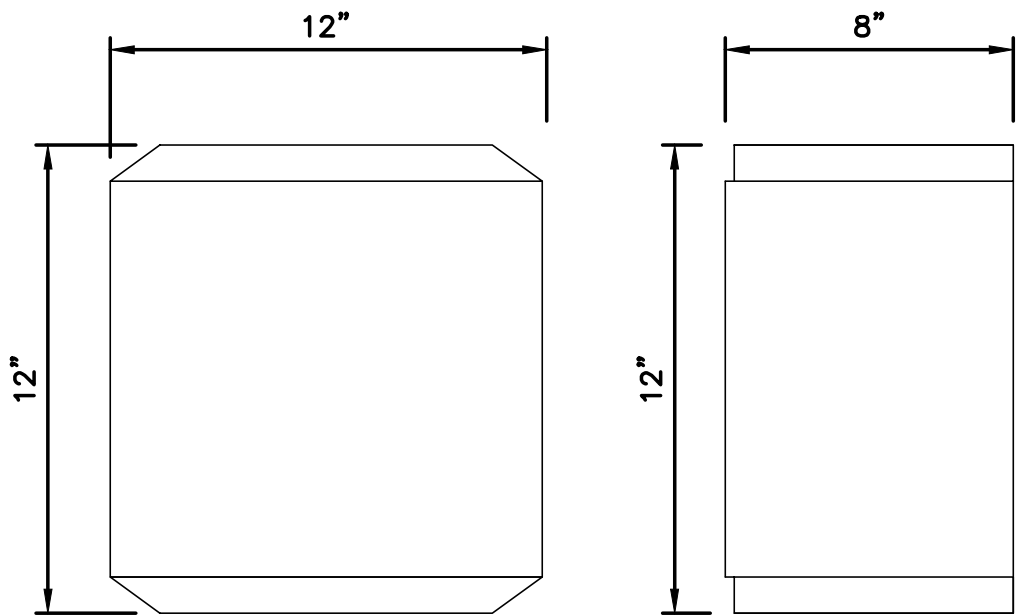
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RRH MOUNTING DETAIL

NO SCALE

E



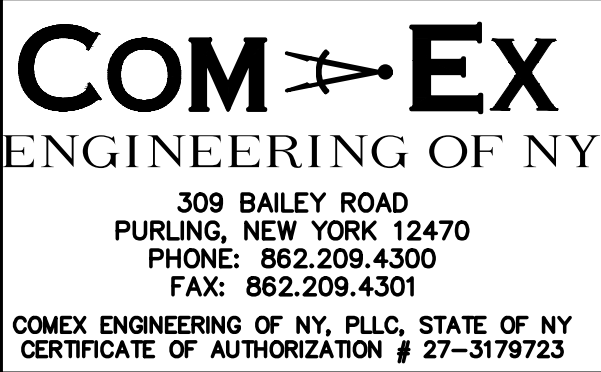
JSOURCE FMB DETAIL

NO SCALE

F

NOTES:

- A SUPPORT FOR A SINGLE RRH SHALL HAVE A MINIMUM OF TWO ANCHORS/FASTENERS FOR EACH UNISTRUT CHANNEL.
- INSTALL ANCHORS/FASTENERS A MAXIMUM OF 2'-0" ON CENTERS.
 - WOOD STUDS - 1/4"Ø LAG BOLT W/ 2" EMBEDMENT IN WOOD.
 - CONCRETE - 1/2"Ø HILTI KWIK BOLT III W/ 2-1/4" EMBEDMENT OR EQUIVALENT.
 - THROUGH BOLT - 1/4"Ø A36/A307 THREADED ROD W/ NUTS AND WASHERS.
 - MASONRY - 1/2"Ø THREADED ROD WITH HILTI HY70 W/5" MINIMUM EMBEDMENT.ANCHORS AND UNISTRUT CHANNEL SHALL HAVE HOT-DIPPED GALVANIZED FINISH.
- MOUNT RRH TO UNISTRUT WITH 3/8"Ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET. SUBCONTRACTOR SHALL SUPPLY.
- NO PAINTING OF THE RRH OR SOLAR SHIELD IS ALLOWED.



SCHEDULE OF REVISIONS

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2		
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0	03/06/20	INITIAL SUBMISSION
REV. NO.	DATE	DESCRIPTION OF CHANGES

DRAWN BY: KCD

CHECKED BY: NDB

SCALE: AS NOTED

JOB NO: 20065-BLV

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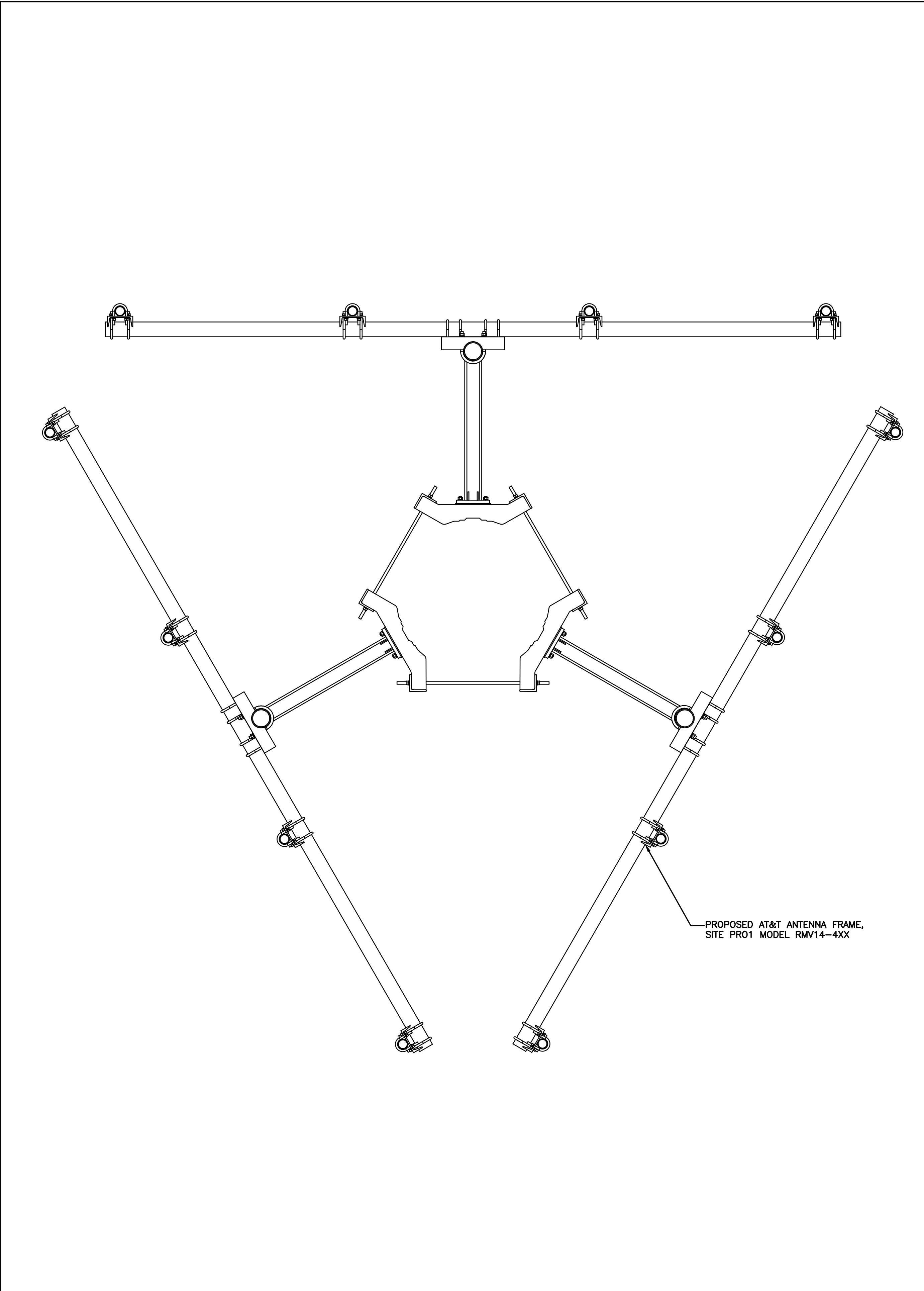
CONSTRUCTION DRAWINGS
NUNYNYX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

ANTENNA
INSTALLATION
DETAILS

DRAWING SHEET:

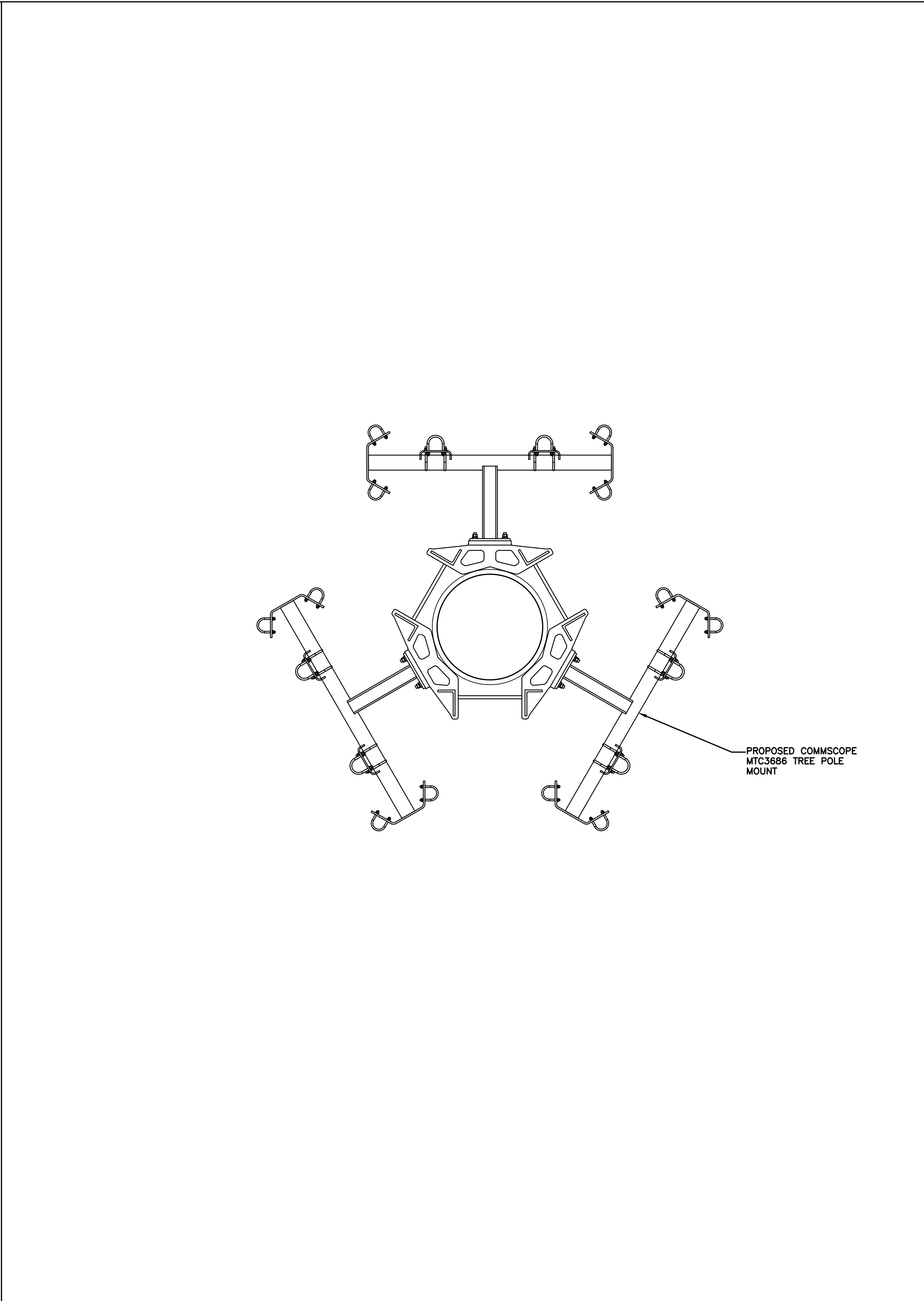
C-4



TYPICAL ANTENNA MOUNT

NO SCALE

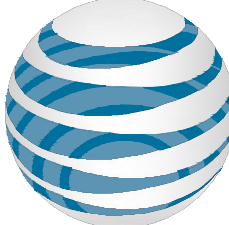
A



TYPICAL EQUIPMENT MOUNT

NO SCALE

B



at&t

NEW CINGULAR WIRELESS PCS, LLC
ONE AT&T WAY
BEDMINSTER, NJ 07921



BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

COM-Ex

ENGINEERING OF NY

309 BAILEY ROAD
PURLING, NEW YORK 12470
PHONE: 862.209.4300
FAX: 862.209.4301
COMEX ENGINEERING OF NY, PLLC, STATE OF NY
CERTIFICATE OF AUTHORIZATION # 27-3179723

SCHEDULE OF REVISIONS		
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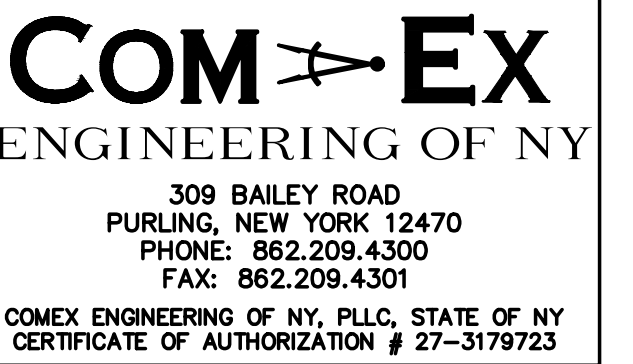
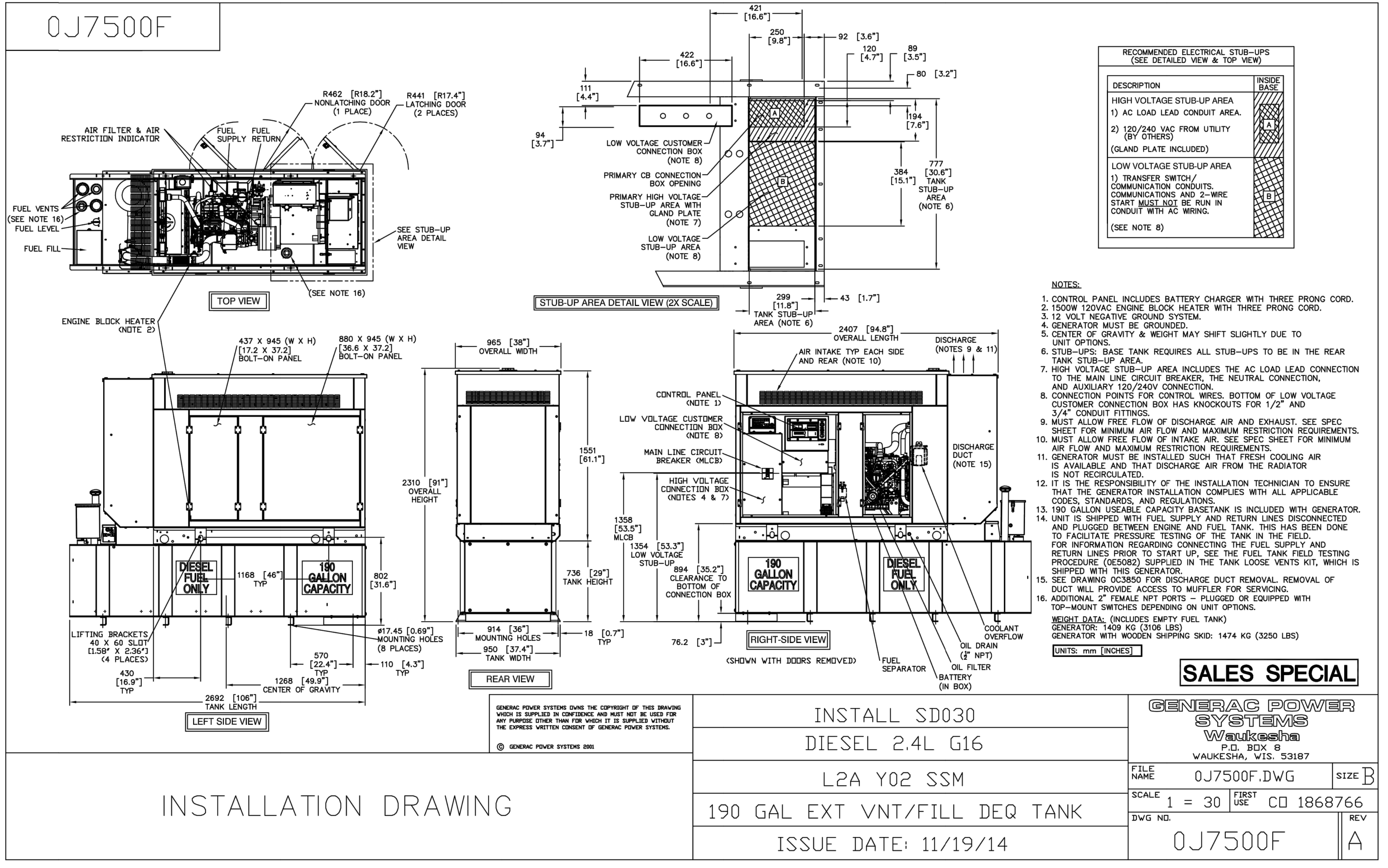
DRAWING TITLE:

ANTENNA MOUNT
DETAILS

DRAWING SHEET:

C-5

0J7500F



SCHEDULE OF REVISIONS		
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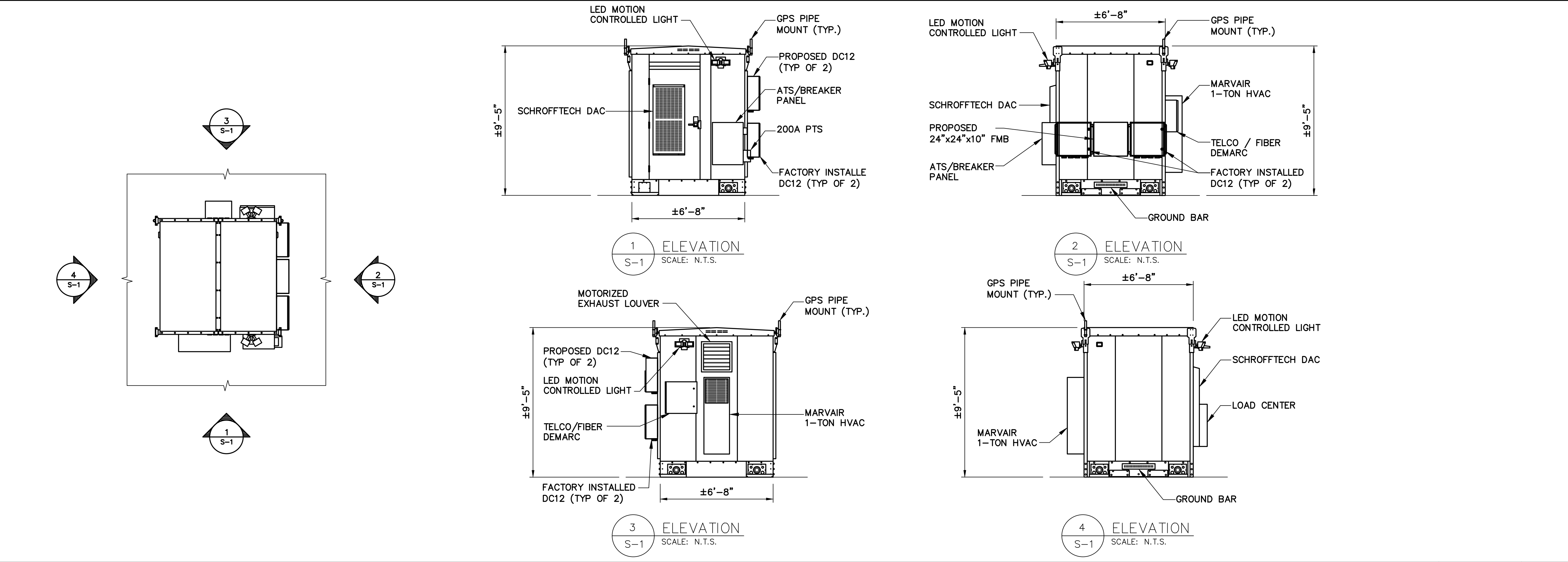
CONSTRUCTION DRAWINGS
NYNYNX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

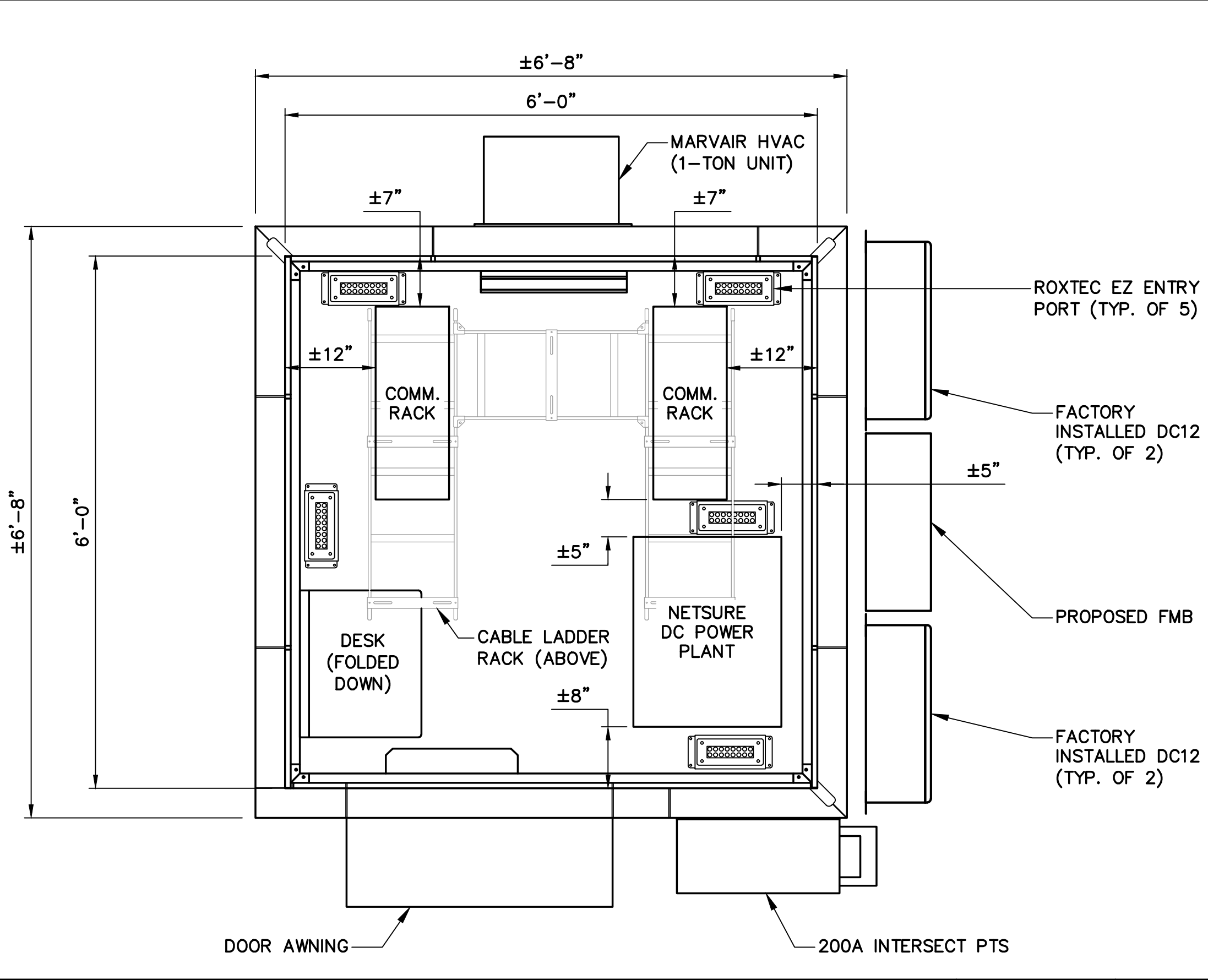
GENERATOR
SPEC

DRAWING SHEET:

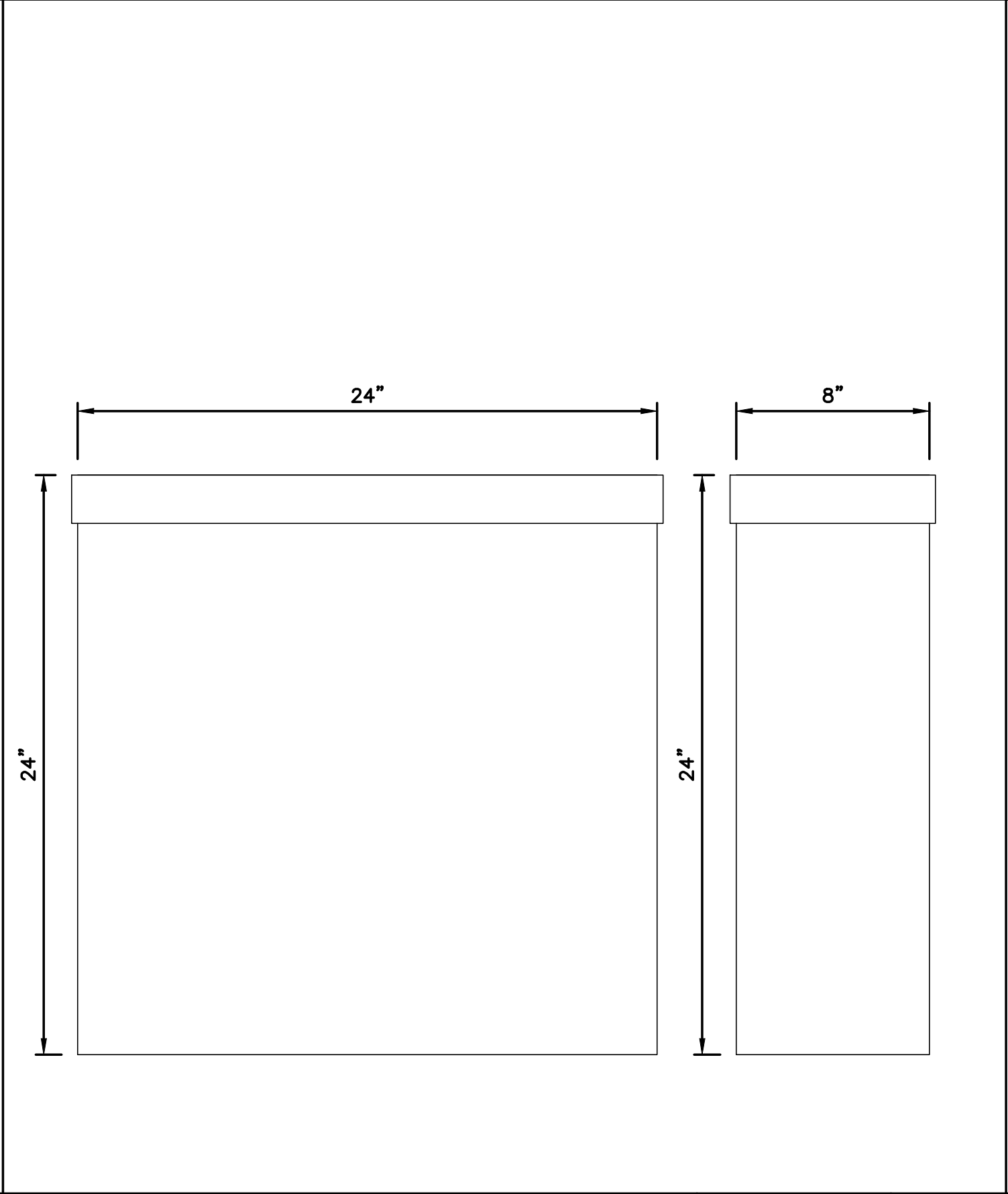
C-6



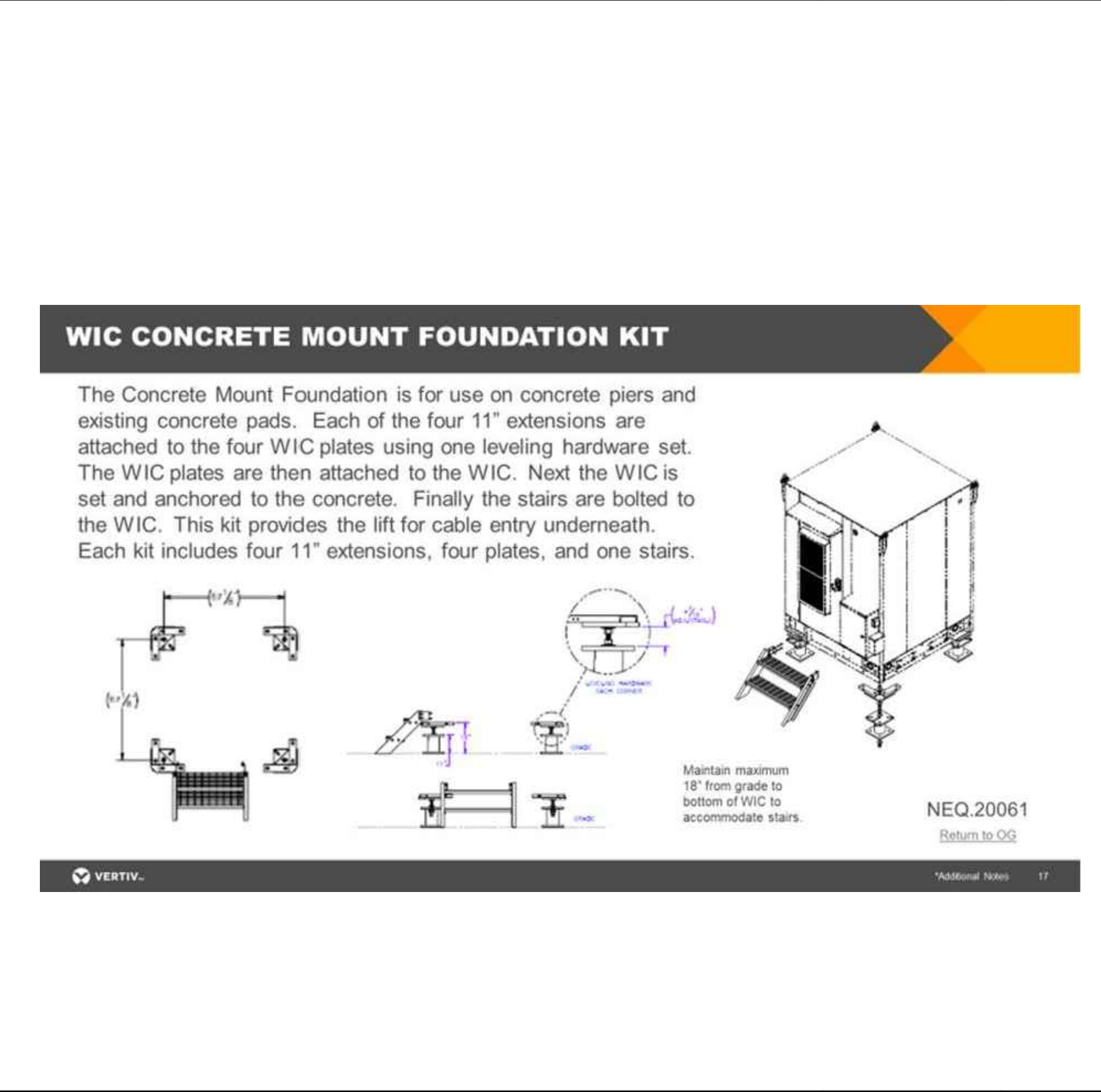
SHELTER ELEVATION DETAIL – WIC (SMARTMOD UE)



SHELTER LAYOUT – WIC (SMARTMOD UE)




WIC FMB DETAIL



WIC POST UP

**at&t**
NEW CINGULAR WIRELESS PCS, LLC
ONE AT&T WAY
BEDMINSTER, NJ 07921

**BLACK & VEATCH**
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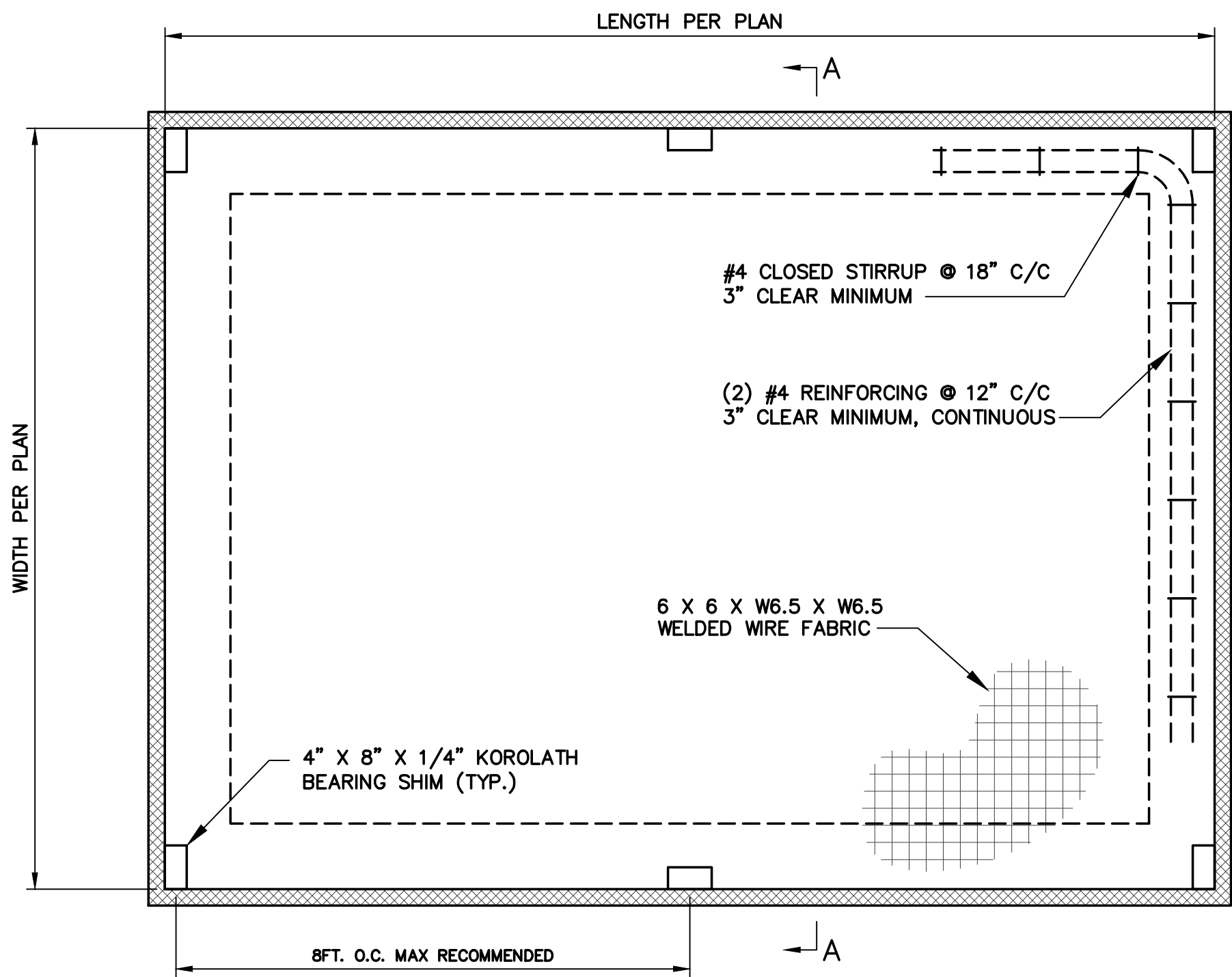
CONSTRUCTION DRAWINGS
NYNYNYX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

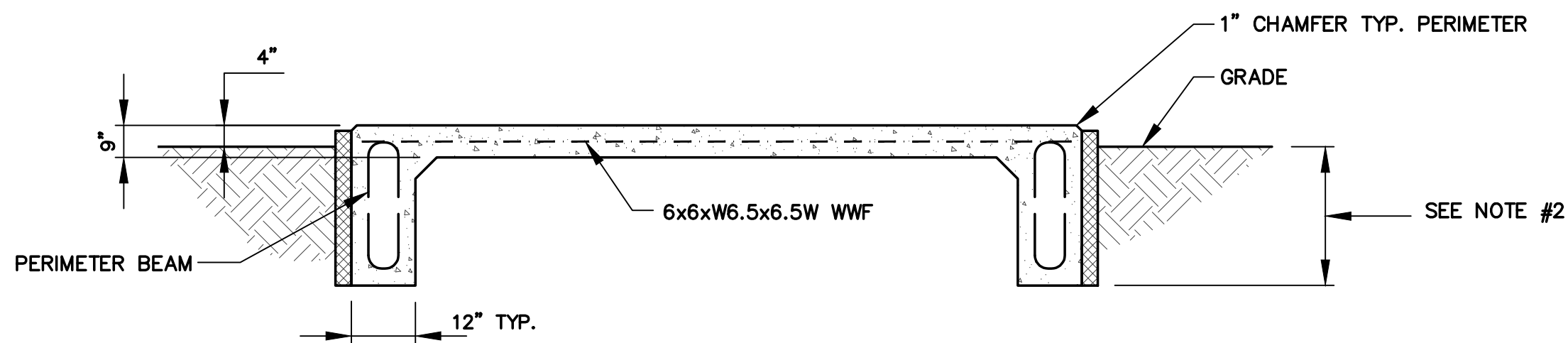
WIC PLAN & DETAILS

DRAWING SHEET:

S-1



SLAB FOUNDATION

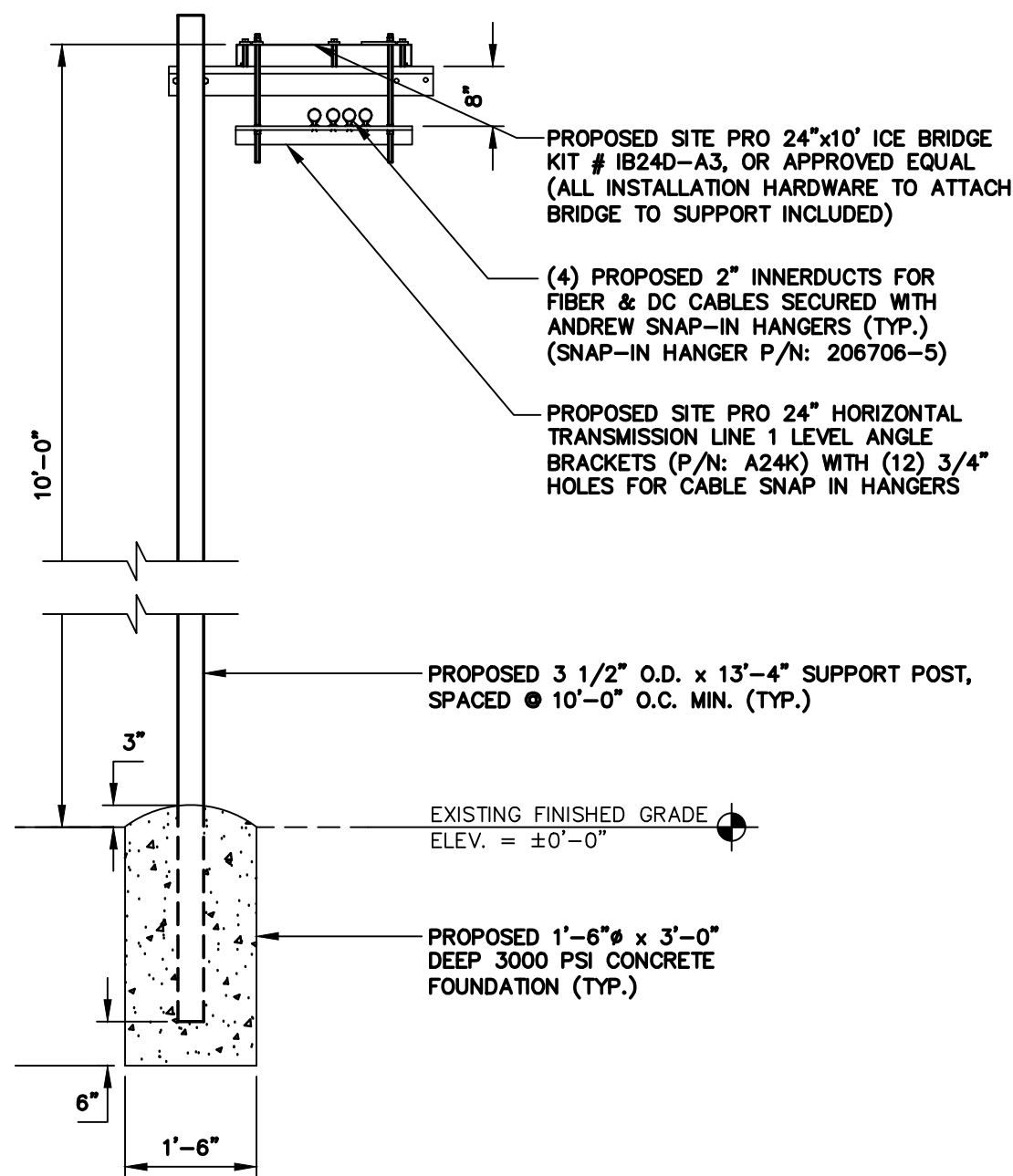


SECTION "A-A"

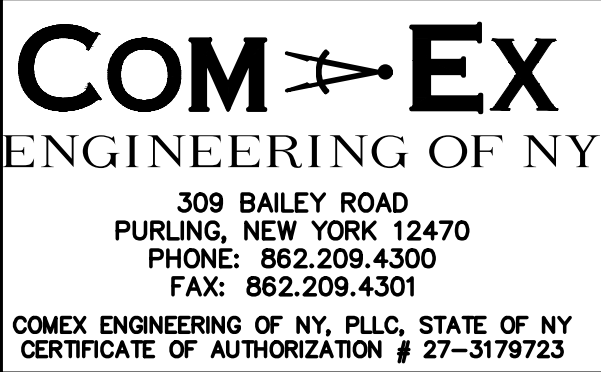
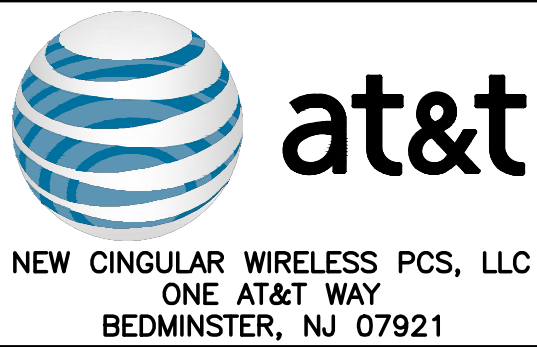
OPTIONAL REINFORCING BAR		
SIZE	GRADE	LAT/LONG SPACING
#3	40	9" C/C
#4	40	16" C/C
#5	40	18" C/C
#3	60	10" C/C
#4	60	18" C/C
#5	60	18" C/C

NOTES:

1. WELDED WIRE FABRIC OR OPTIONAL REINFORCING BAR MAY BE USED AS AVAILABLE. SEE CHART FOR SIZED, GRADE, AND SPACING OF REBAR
2. BOTTOM OF FOOTING TO BE 24" MINIMUM, OR 6" BELOW LOCAL FROST LINE, OR TO 2000 PSF SOIL BEARING CAPACITY, WHICHEVER IS GREATER.
3. USE OF THIS DESIGN REQUIRES VERIFICATION OF SOIL BEARING CAPACITY.
4. SLAB TOLERANCE IS $\pm 1/4"$
5. SLOPE GRADE AWAY FROM FOUNDATION.
6. W6.5 AS SPECIFIED FOR THE WWF HAS 0.288" DIAMETER.
7. WWF IS 60 KSI MINIMUM.
8. OVERLAP SPLICES ARE ALLOWED FOR REINFORCING BAR, USE 18" MINIMUM LAP.
9. ALL REQUIRED TIE DOWN PLATES, SHIMS, BOLTS AND ANCHORS SHALL BE PLACED INSIDE SHELTER PRIOR TO SHIPMENT FROM MANUFACTURER.
10. CONCRETE STRENGTH, $F_c' = 3000$ PSI @ 28 DAYS.
11. USE SHIMS AS REQUIRED TO ASSURE SHELTER IS BEARING AT PERIMETER. SEAL PERIMETER W/ CAULK OR GROUT AS DESIRED.
12. REBAR TO BE GROUNDED W/ SOLID COPPER WIRE, #4 MIN. ONE LOCATION MIN, DEFAULT TO BE AT ELECTRICAL SERVICE ENTRY LOCATION. QTY. SIZE, & LOCATION(S) MAY VARY AS SPECIFIED BY CUSTOMER. PIGTAIL(S) TO BE MADE ACCESSIBLE FOR BONDING TO SERVICE GROUND.
13. SLAP INSULATION ONLY TO BE INSTALLED BY SITE CONTRACTOR AS REQUIRED, EXTENDING FROM TOP OF SLAB TO BOTTOM OF FOOTING. INSULATION VALUE, ATTACHMENT METHOD, AND COVERING OBTAINED FROM LOCALITY'S ENERGY CODE.



TYPICAL CABLE BRIDGE DETAIL



SCHEDULE OF REVISIONS

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CONSTRUCTION DRAWINGS
NUNYNYX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

CONSTRUCTION
DETAILS

DRAWING SHEET:

S-2

SHELTER FOUNDATION DETAILS

NO SCALE

A

NO SCALE

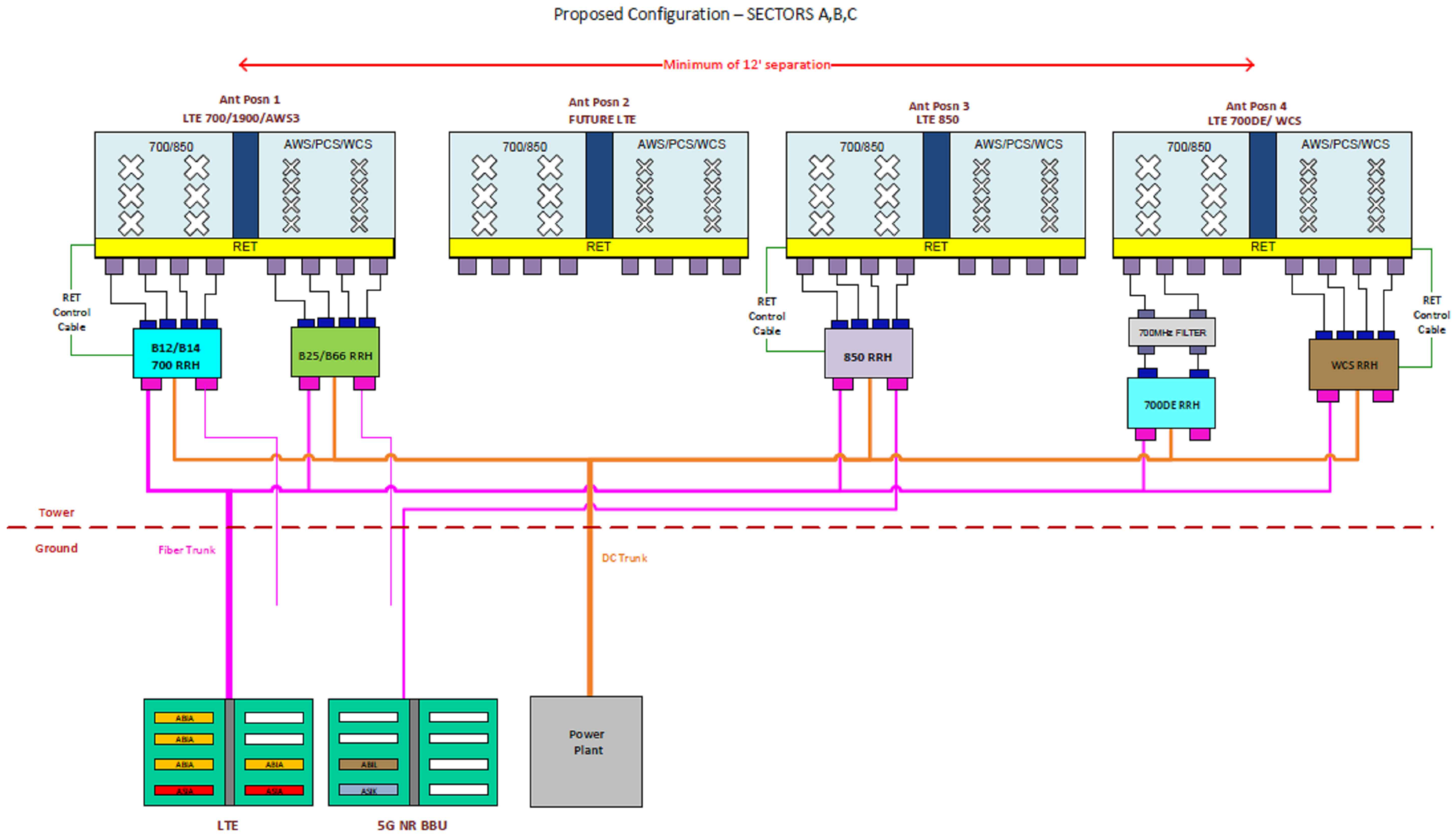
B

NOTES:

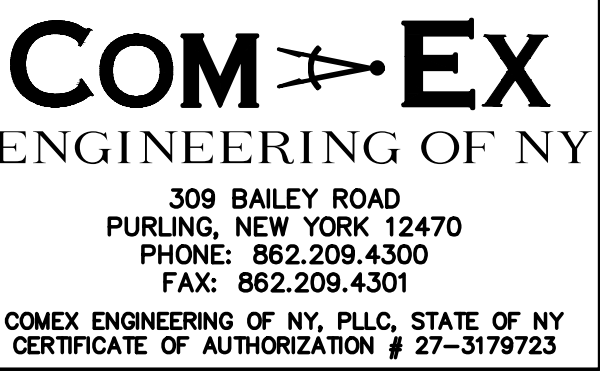
1. GRAY (Gr) TAPING SHALL BE USED FOR 700 MHZ AND PURPLE TAPING SHALL BE USED FOR AWS. TAPING SHALL FOLLOW AT&T STANDARD N000027 REV.1.7.
2. SCHEMATIC SHOWN TYPICAL FOR EACH DC-6 SURGE SUPPRESSOR.

ABBREVIATIONS:

R RED
B BLUE
G GREEN
GR GRAY



ANTENNAS, CONNECTORS, &
CABLE CONFIGURATION
NO SCALE



SCHEDULE OF REVISIONS		
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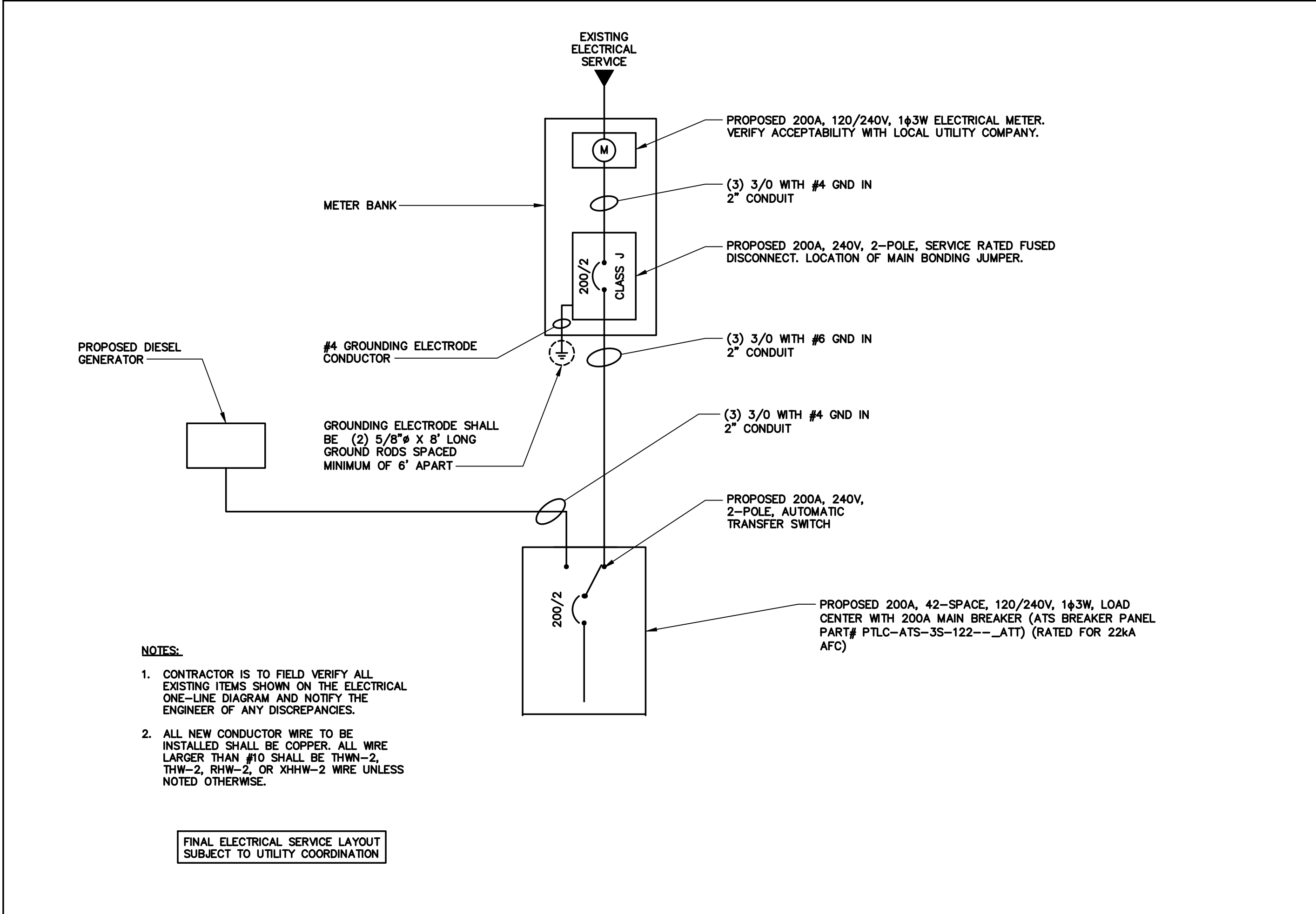
CONSTRUCTION DRAWINGS
NYNYNX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

LTE
CONFIGURATION

DRAWING SHEET:

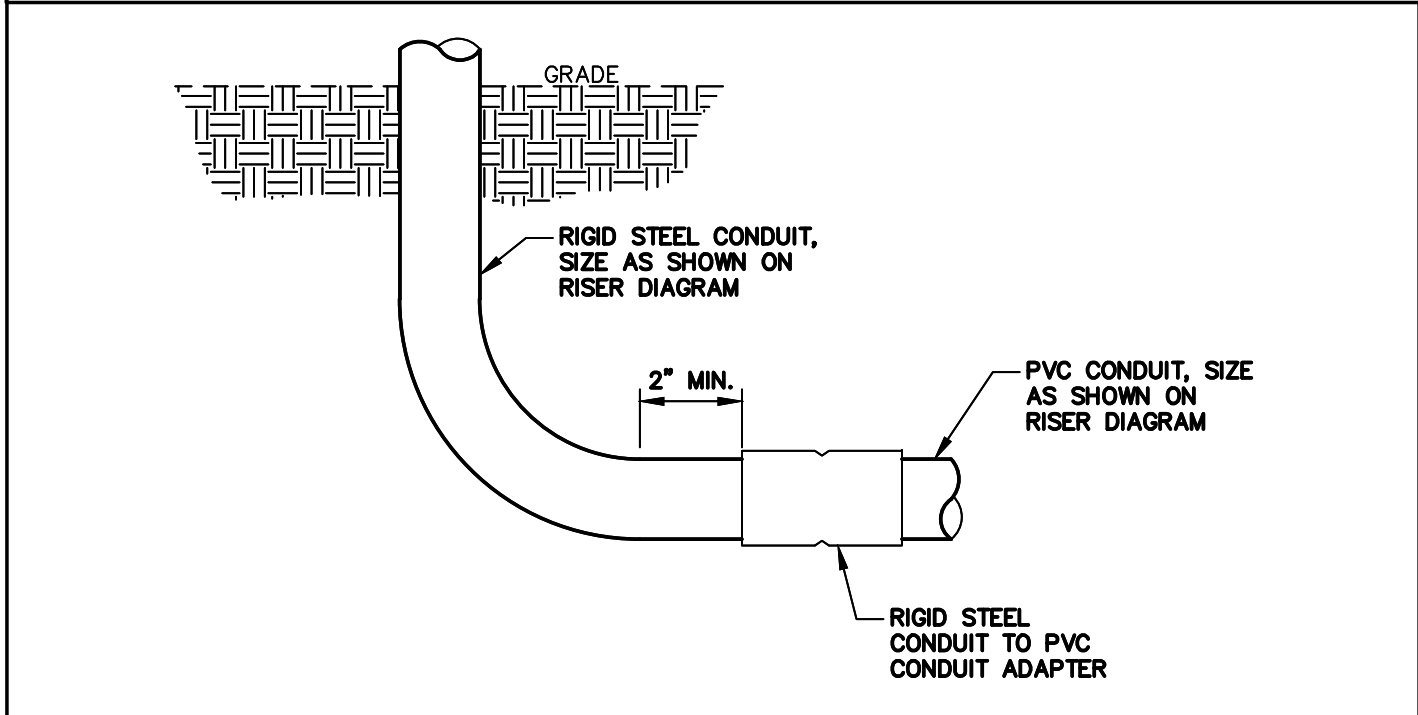
RF-1



TYPICAL ONE-LINE DIAGRAM

NO SCALE

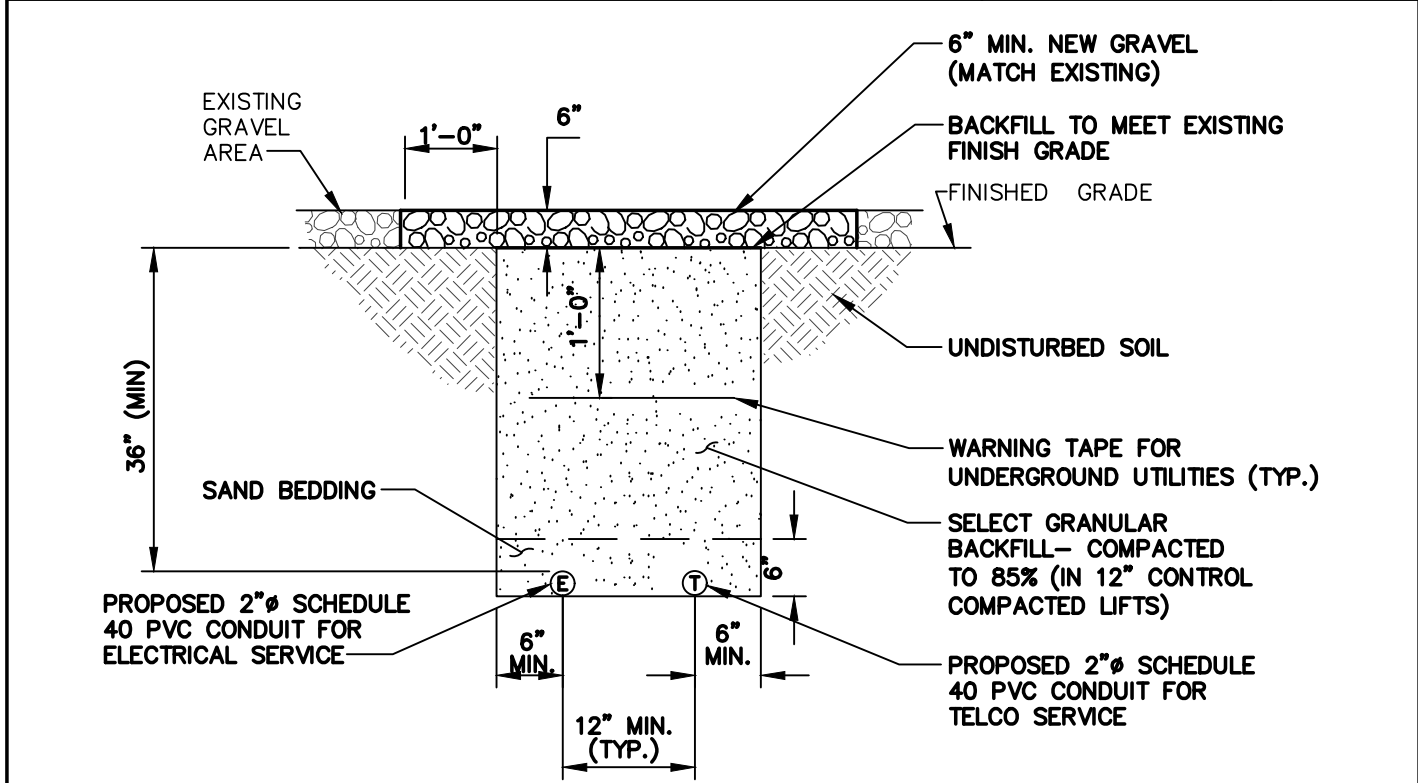
A



PVC TO RGS DETAIL

NO SCALE

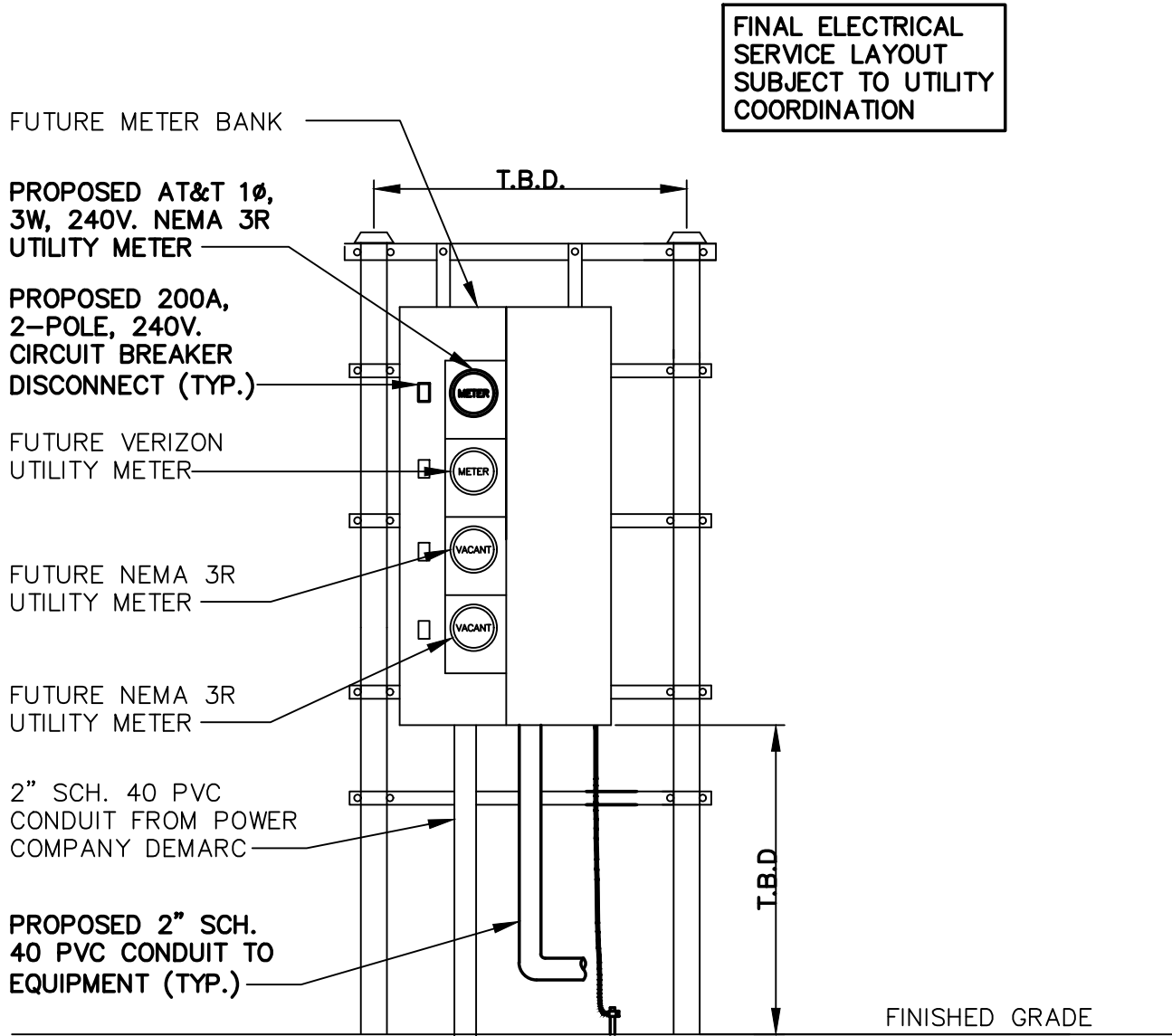
B



TYPICAL UTILITY CONDUIT DETAIL

NO SCALE

C



TYPICAL UTILITY FRAME DETAIL

NO SCALE

D

GENERAL ELECTRIC NOTES:

1. GENERAL REQUIREMENTS:

- THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES, AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
- ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE 2011 EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK:
- THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
- ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
- THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.
- CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS PROVIDED BY OTHER TRADES.
- PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
- KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
- ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.
- THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.
- THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.
- ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTOR'S EXPENSE.
- BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY ACQUAINT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSIDERED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.
- UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
- UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
- EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.
- IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER, LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.

- THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.
- DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLEMENT ONE ANOTHER, AND WHAT IS SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.
- ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIREMENTS.
- ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.
- THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 36" BELOW FINISHED GRADE.

2. PROJECT COORDINATION:

- THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
- THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
- THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
- SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONE MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
- ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
- THE CONTRACTOR SHALL CONTACT THE BUILDING MANAGER TO OBTAIN A COPY OF THE GENERAL REQUIREMENTS AND/OR CONDITIONS TO BE USED FOR THIS PROJECT.
- INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. TEMPORARY SHUT DOWNS OF ANY SYSTEM SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER AND ARCHITECT.

3. PROTECTION OF WORK:

- EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

4. WARRANTIES AND BONDS:

- ALL MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
- OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

5. PERMITS:

- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

6. RACEWAYS:

- ALL CONDUIT SHALL BE MINIMUM SIZE OF 3/4" FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE GRC (GALVANIZED RIGID METAL CONDUIT). ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE RMC (RIGID NONMETALLIC CONDUIT). CHANGE TO RIGID METALLIC CONDUIT OR INTERMEDIATE METALLIC CONDUIT BEFORE EXITING OUT OF CONCRETE OR PENETRATING A WALL, FLOOR OR ROOF. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
- ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
- CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES. SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
- ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
- ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
- ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
- ALL RACEWAY AND WIRING SHALL BE CONCEALED IN FINISHED AREAS. RACEWAY IN MECHANICAL ROOMS, BASEMENTS AND CRAWL SPACES MAY BE SURFACE MOUNTED.
- FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1-1/4", AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.
- THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH APPROVED FIRE RATED SEALANT. ALL PENETRATIONS THROUGH ALL WALLS AND FLOORS SHALL BE SEALED. FOR ALL SLAB PENETRATIONS THE METHOD, DEPTHS AND LOCATIONS SHALL BE PRE-APPROVED BY THE BUILDING ENGINEER PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
- EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.
- ALL PENETRATIONS THROUGH FLOORS SHALL BE FIRE STOPPED AND SEALED WITH APPROVED SEALANT.
- ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY SUCH AS MOTORS, TRANSFORMERS, ETC., SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT METALLIC CONDUIT.
- SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS IN HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS IN METAL, BEAM CLAMPS IN FRAMEWORK AND WOOD SCREWS IN WOOD. NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES.
- DO NOT RUN RACEWAYS CLOSER THAN 6 INCHES WHEN PARALLEL TO HOT WATER OR STEAM PIPES. WHEN CROSSING WATER OR STEAM PIPES CROSS A MINIMUM OF 3 INCHES ABOVE. IF CROSSING BELOW IS UNAVOIDABLE, PROVIDE DRIP SHIELDS EXTENDING 6 INCHES BEYOND THE WATER OR STEAMPIPE. BOXES INSTALLED IN PROXIMITY TO WATER OR STEAM PIPE SHALL BE RATED NEMA 4X.

7. GROUNDING:

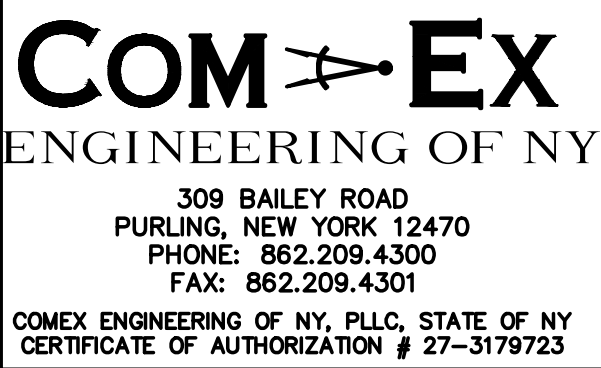
- PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250, OF THE NEC, AND AS SPECIFIED HEREIN.
- ALL BRANCH CIRCUITS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.

8. WIRING:

- ALL WIRE SHALL BE COPPER WITH TYPE THHN/THWN 600 VOLT INSULATION, MINIMUM #12 AWG FOR POWER AND LIGHTING CIRCUITS AND #16 AWG FOR CONTROL CIRCUITS.
- UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPICED.
- ALL COMPUTER CIRCUITS SHALL HAVE SEPARATE NEUTRAL CONDUCTORS. ALL OTHER CIRCUITS MAY SHARE GROUND AND NEUTRAL CONDUCTORS.
- WHERE EQUIPMENT, LIGHTING FIXTURES AND WIRING DEVICES ARE SHOWN WITH CIRCUIT NUMBERS ONLY, THE MINIMUM BRANCH CIRCUITTING REQUIREMENTS SHALL BE AS FOLLOWS:
 - BRANCH CIRCUIT BREAKERS (120 VOLT) - 1P, 20A
 - HOMERUNS TO PANEL BOARDS SHALL CONTAIN NO MORE THAN THREE CIRCUITS.
- CONTRACTOR SHALL INCREASE SIZE OF CIRCUIT WIRING/CONDUCTORS TO COMPENSATE FOR VOLTAGE DROP.
- WIRE SIZES SHALL BE INCREASED TO COMPENSATE FOR VOLTAGE DROP AS FOLLOWS:
 - 120V AND 208V CIRCUITS LONGER THAN 80' SHALL UTILIZE MIN. #10 AWG.
 - 208V CIRCUITS LONGER THAN 150' SHALL UTILIZE MIN. #10 AWG.

9. PANELBOARDS:

- PANELBOARDS: SWITCHING UNITS SHALL BE 120/240V, 1-PHASE, 3-WIRE, 200A, 45 KAIC CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED ON PANEL SCHEDULES. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98% CONDUCTIVITY, AND SILVER OR TIN-PLATED JOINTS. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME-PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN. HIGH DOORS) OR VAULT HANDLE, LOCK AND 3-POINT CATCH (LARGER THAN 48 IN. HIGH DOORS). HINGES SHALL BE SEMI-CONCEALED, 5-KNUCKLE STEEL WITH NONFERROUS PINS, 180 DEGREE OPENING, LOCATED A MAXIMUM 26 IN. ON CENTERS. PROVIDE DOOR-IN-DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5- BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER.
- PROVIDE A NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR EACH PANEL AFFECTED BY THIS PROJECT.
- CIRCUIT NUMBERS SHOWN SHALL BE GENERALLY FOLLOWED. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS ON ALL PHASES AND MAY ALTER ASSIGNMENT OF CIRCUITS FOR BALANCING PHASES.
- CIRCUIT SCHEDULES ARE INTENDED TO REPRESENT THE GENERAL WIRING NEEDS OF THE EQUIPMENT SERVICED FROM THE PANEL. THE EXACT CIRCUIT ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND PANELS ACTUALLY FURNISHED.



SCHEDULE OF REVISIONS		
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2		
1	3/13/20	CLIENT COMMENTS
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CERTIFICATE OF AUTHORIZATION # 27-3179723

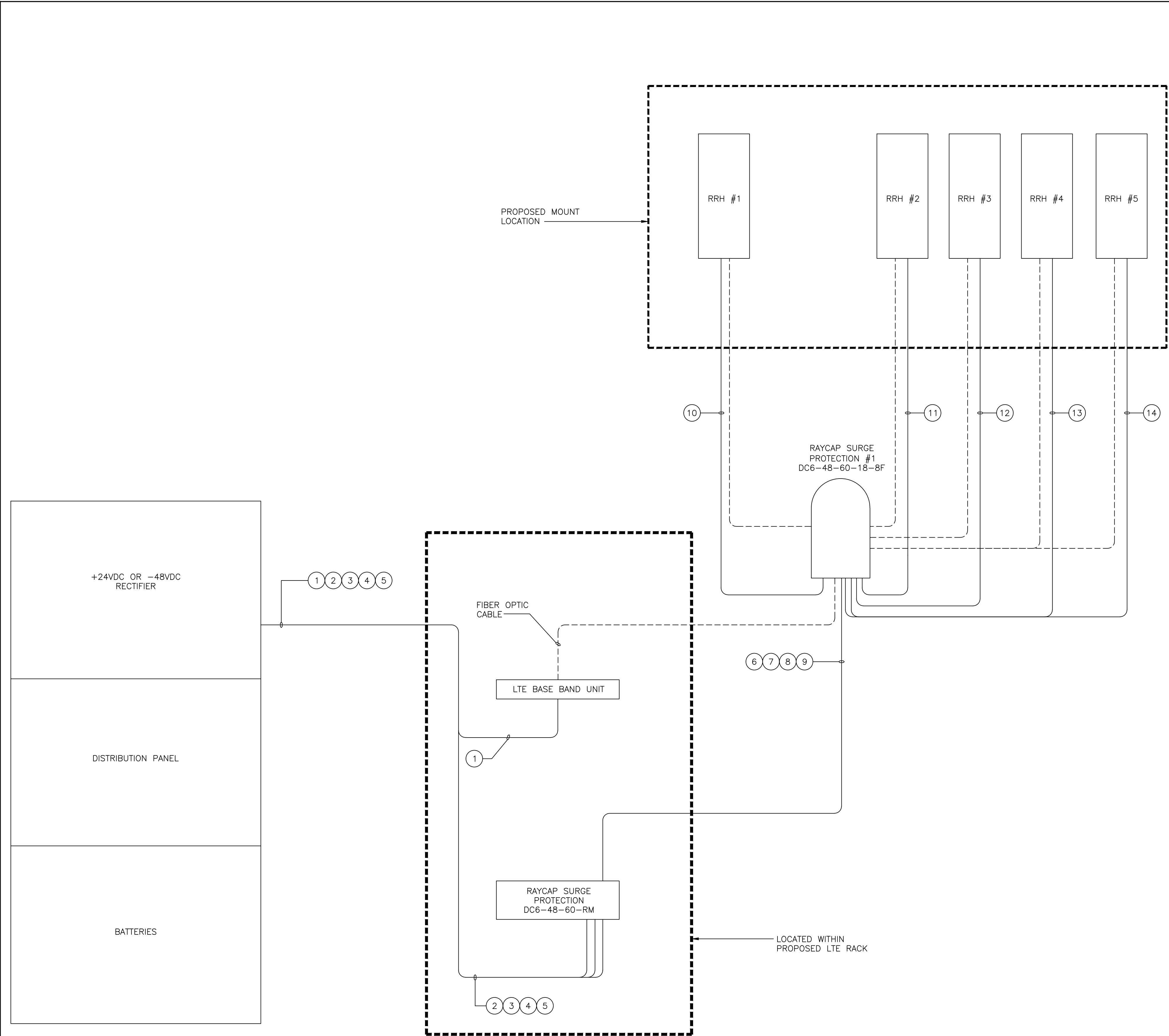
CONSTRUCTION DRAWINGS
NYNYNYX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

ELECTRICAL
NOTES &
DETAILS

DRAWING SHEET:

E-1



DC CIRCUIT SCHEDULE			
	FROM	TO	CONFIGURATION
①	-48VDC DISTRIBUTION PANEL	LTE BASE BAND UNIT	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
②	-48VDC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC6-48-60-RM	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
③	-48VDC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC6-48-60-RM	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
④	-48VDC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC6-48-60-RM	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑤	-48VDC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC6-48-60-RM	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑥	RAYCAP SURGE PROTECTION DC6-48-60-RM	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	(1) 6-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑦	RAYCAP SURGE PROTECTION DC6-48-60-RM	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	(1) 6-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑧	RAYCAP SURGE PROTECTION DC6-48-60-RM	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	(1) 6-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑨	RAYCAP SURGE PROTECTION DC6-48-60-RM	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	(1) 6-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑩	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRH REMOTE RADIO HEAD #1	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑪	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRH REMOTE RADIO HEAD #2	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑫	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRH REMOTE RADIO HEAD #3	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑬	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRH REMOTE RADIO HEAD #4	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
⑭	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRH REMOTE RADIO HEAD #5	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE

NEW CINGULAR WIRELESS PCS, LLC
ONE AT&T WAY
BEDMINSTER, NJ 07921

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

ENGINEERING OF NY
309 BAILEY ROAD
PURLING, NEW YORK 12470
PHONE: 862.209.4300
FAX: 862.209.4301
COMEX ENGINEERING OF NY, PLLC, STATE OF NY
CERTIFICATE OF AUTHORIZATION # 27-3179723

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CONSTRUCTION DRAWINGS
NYNYNX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

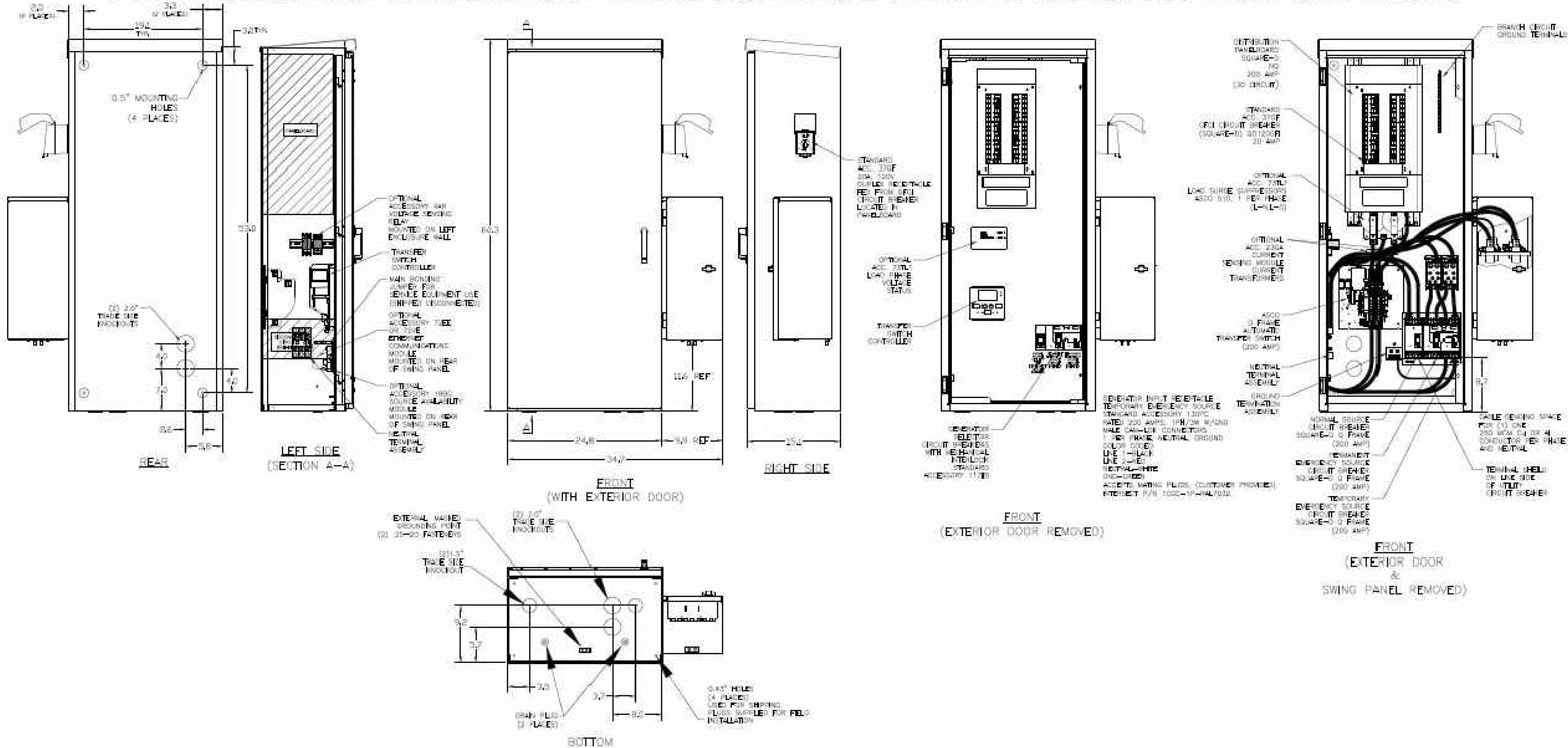
DRAWING TITLE:

ELECTRICAL
DC ONE-LINE
DIAGRAM

DRAWING SHEET:

E-2

ASCO D300L Series Power Transfer Load Center Rated 200 Amps, 240 Vac max., Single Phase/3 Wire, Three Source, Type 3R Enclosed

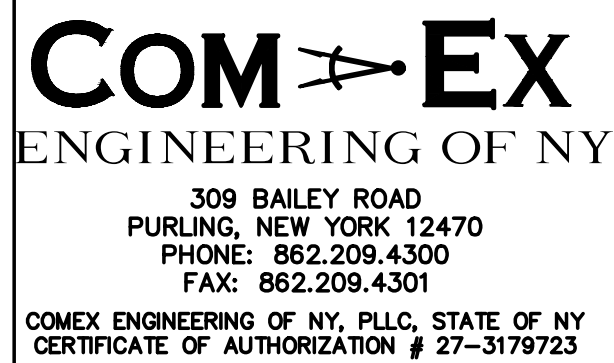


NOTES:

- Power Transfer Load Center constructed in accordance with UL 67 Standard for Panelboards. Suitable for Use as Service Equipment.
- Automatic Power Transfer Switch: ASCO D3ATS, 2 Pole, 200 Amp, 240 Vac max. UL Listed to UL 1008, Standard for Transfer Switching Equipment.
Transfer Controller — ASCO Group G Automatic Transfer Switch Controller including:
Automatic Engine Starting Contacts
Single Phase voltage sensing of Normal and Emergency sources.
Frequency sensing of Emergency source.
- Short Circuit Ratings: Options are Acc. 117CB5 or Acc. 117CB10
Optional Acc. 117CB5:
(Main): Normal Source — Utility Main Disconnect circuit breaker, 2 Pole, 200 Amps at 240 Vac max., 22kA — Square-D Type QD
Optional Acc. 117CB10:
(Main): Normal Source — Utility Main Disconnect circuit breaker, 2 Pole, 200 Amps at 240 Vac max., 42kA — Square-D Type QG
Standard:
Permanent Emergency Source — Permanent Emergency Source circuit breaker, 2 Pole, 200 Amps at 240 Vac max., 10kA — Square-D Type QB
Temporary Emergency Source — Temporary Emergency Source circuit breaker, 2 Pole, 200 Amps at 240 Vac max., 10kA — Square-D Type QB
(Branch): Branch ratings as follows when used with the specified branch devices and in combination with selected optional normal and emergency source short-circuit ratings.
42kA using Sq-D QH or QHB rated: 1 Pole 15-30A, 2 Pole 15-30A, 3 Pole 15-30A.
22kA using Sq-D QO-VH or QOB-VH rated: 2 Pole 150A, 3 Pole 35-150A.
10kA using Sq-D QO or QOB rated: 1 Pole 15-70A, 2 Pole 15-125A, 3 Pole 15-30A.

- Panelboard: Square-D NQ, 200 Amps max., 240 Vac max., single phase with 100% rated neutral. 30 Circuits, accepts bolt-on or plug-on branch devices.
- Accessory 4AR (Optional) — Voltage Sensing Relay — Indicates the presence of the Normal Source "Utility" voltage ahead of the Normal Source main disconnect circuit breaker, regardless of the position of the circuit breaker.
- Accessory 11BE (Optional) — Four-Function Software Bundle that provides the following functions:
 - Serial Communications (RS-485)
 - Programmable Engine Exerciser with Battery Back-up
 - Event Log
 - Common alarm signal capability on Group G Controller "OP1" output.
- Accessory 18BG (Optional) — Signals the availability of the Normal & Emergency sources when provided. Output contacts "RL5" (Emergency Source Available) and "RL6" (Normal Source Available) change position when the source is acceptable.
- Accessory 23GA (Optional) — Single Phase Current Sensing Module with current transformers and shunting blocks. Phase current measurements are available for display on the Group G Controller.
- Accessory 37GF (Standard) — Square-D QO120GFI, 20 Amp, 120 Vac ground fault circuit interrupter (GFCI) circuit breaker, wired to a duplex outlet.
- Accessory 72EE OR 72VE (Optional) — ASCO 5140 Ethernet Connectivity Module. Provides remote transfer switch and Generator control, Monitoring and Connectivity Features via integrated web page dashboards.
- Accessory 73TL1 (Standard) — Transient Surge Protection — Connected to line side of panelboard for L-N (and L-G if used as service equipment) mode protection. ASCO 510 Series TVSS with phase monitoring, alarm module, and load phase voltage availability indicator's (LED) on front of swing panel.

- Accessory 117B (Standard) — Generator Selector Circuit Breakers (Permanent Emergency & Temporary Emergency Sources) One each two pole, 200A circuit breaker for two separate generator inputs. UL 1008 approved manual slide type interlock to permit connection of only one generator to the transfer switch Emergency Source input.
- Accessory 130PC (Standard) — Generator Input Receptacle (Emergency Source #1) Rated 200 amps, 1 PH/3 W with ground. Constructed with male Cam-Lok connectors, 1 per phase, neutral and ground. Color coded (Line 1-Black, Line 2-Red, Neutral-White, GND-Green. Accepts mating female plugs, (customer provided), for (1) #2-4/0 Cu conductor. Type 3R enclosure with bottom conductor entry. UL 1008 Listed Withstand Current Rating: 10,000 amps at 240 VAC max. with any molded case circuit breaker.
- Main Bonding Jumper factory installed and shipped in the disconnected position.
- When used for Service Entrance the Main Bonding Jumper is to be removed from the disconnected position and re-installed in the connected position, with the existing hardware and (1) additional 1/4-20 thread forming screw, which connects the main bonding jumper to the neutral terminal assembly.
- Enclosure:
Type 3R Listed to UL 50/50E. Single Compartment Wall Mount Compartment provides Type 1 protection with exterior open and swing panels closed.
Box & Doors — Constructed of 0.095 thick aluminum alloy (5052-H32).
Finish — All interior and exterior surfaces: Textured Polyester Powder Coat, Pebble Gray (RAL 7032).
- Grounding provisions for Normal, Emergency & Load.
- Overall Dimensions: 60.3"H x 24.8"W x 15"D (excluding generator input receptacle)
60.3"H x 34.7"W x 15"D (including generator input receptacle)
- Weight: Approx. 180 lbs. (and depending on optional accessories)



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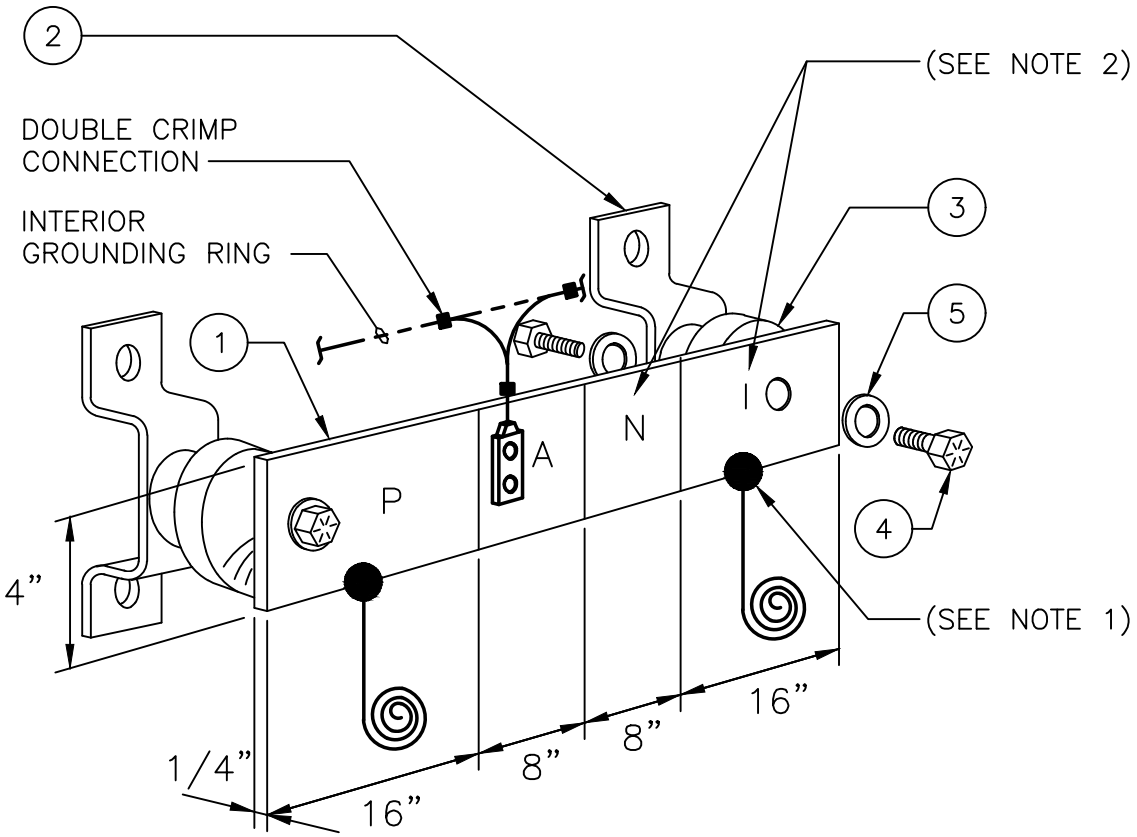
DRAWING TITLE:

ELECTRICAL
DETAILS

DRAWING SHEET:

E-3

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO	REQUIRED	PART NUMBER	DESCRIPTION
①	1	1/4"x4"x48"	SOLID GROUNDING BAR
②	2	A-6056	WALL MOUNTING BRACKET
③	2	3061-4	INSULATORS
④	4	3012-1	5/8"-11x1" H.H.C.S.
⑤	4	3015-8	5/8" LOCKWASHER



EACH GROUNDING CONDUCTOR TERMINATING ON ANY GROUNDING BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PROTECTORS

- (EC) CELL REFERENCE GROUNDING BAR (IF COLLOCATED)
- (EC) GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
- (EC) TELCO GROUNDING BAR (#2 AWG)
- (EC) COMMERCIAL POWER COMMON NEUTRAL/GROUNDING BOND (3/0)
- (EC) FIBER GROUNDING BAR (#2 AWG)
- (EC) POWER ROOM REFERENCE GROUNDING BAR (#2 AWG)
- (AT&T) RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS

- (EC) INTERIOR GROUNDING RING (#2 AWG)
- (EC) EXTERNAL EARTH GROUNDING FIELD (BURIED GROUNDING RING) (#2 AWG)
- (EC) METALLIC COLD WATER PIPE (IF AVAILABLE) (1/0 AWG)
- (EC) BUILDING STEEL (IF AVAILABLE) (1/0 AWG)

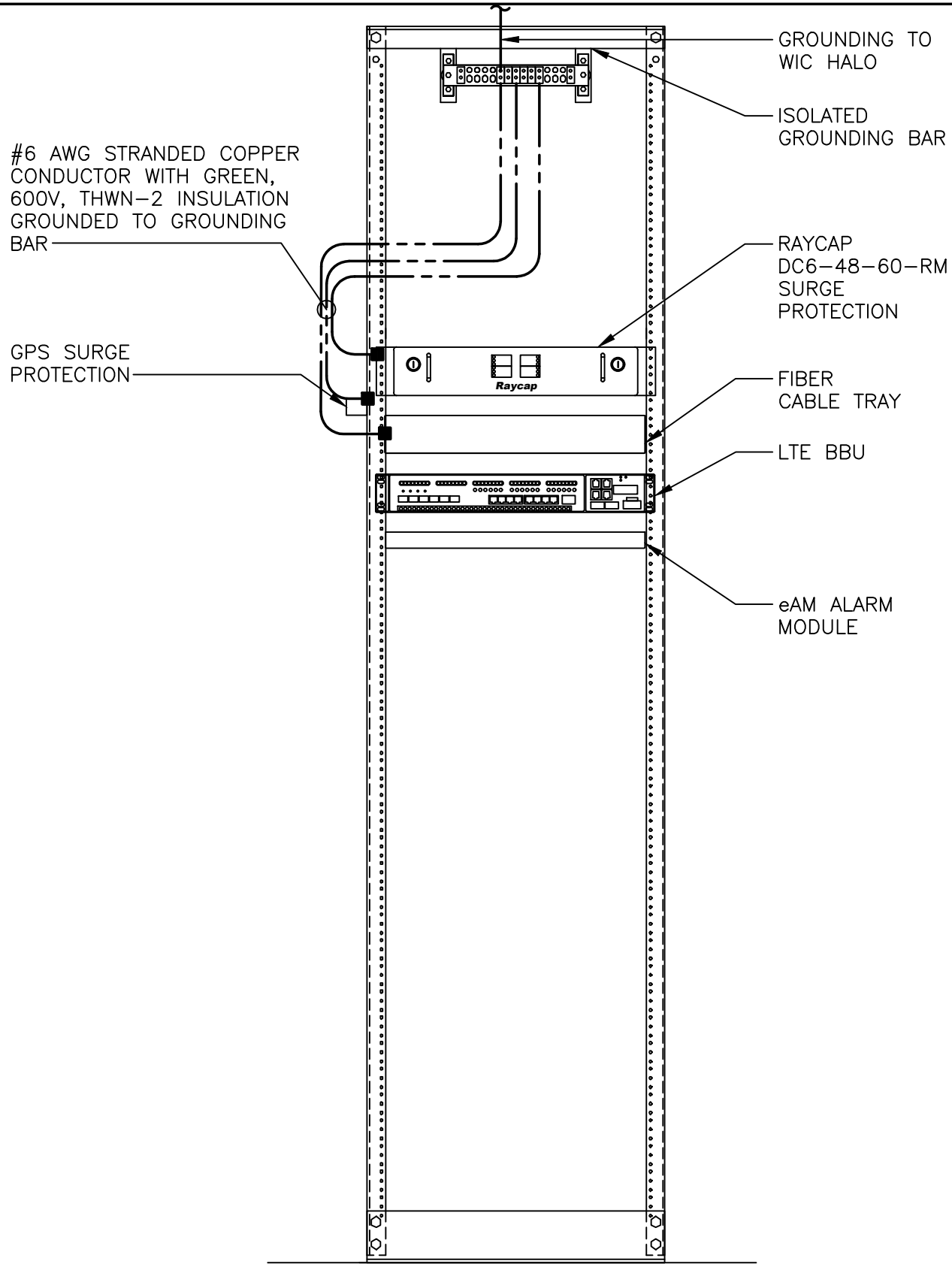
SECTION "N" – NON-ISOLATED GROUNDING ZONE EQUIPMENT

- (EC) MISC. NON-ISOLATED GROUNDING ZONE EQUIPMENT (AT&T)-48V POWER SUPPLY RETURN BARE

SECTION "I" – ISOLATED GROUNDING ZONE

- (AT&T) ALL ISOLATED GROUNDING REFERENCE
- (AT&T) GROUNDING WINDOW BAR

INSTALL NEW GROUND BARS AS NEEDED TO ACCOMMODATE NEW EQUIPMENT



GENERAL GROUNDING NOTES:

- EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- ALL GROUNDING BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
- ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUNDING CONDUCTOR DOWN TO GROUNDING BUS.
- NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUNDING TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
- SUPPLIED AND INSTALLED BY CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUNDING BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
- ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).
- ALL PROPOSED GROUNDING BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUNDING BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUNDING BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.

(MGB) REFERENCE GROUNDING BAR

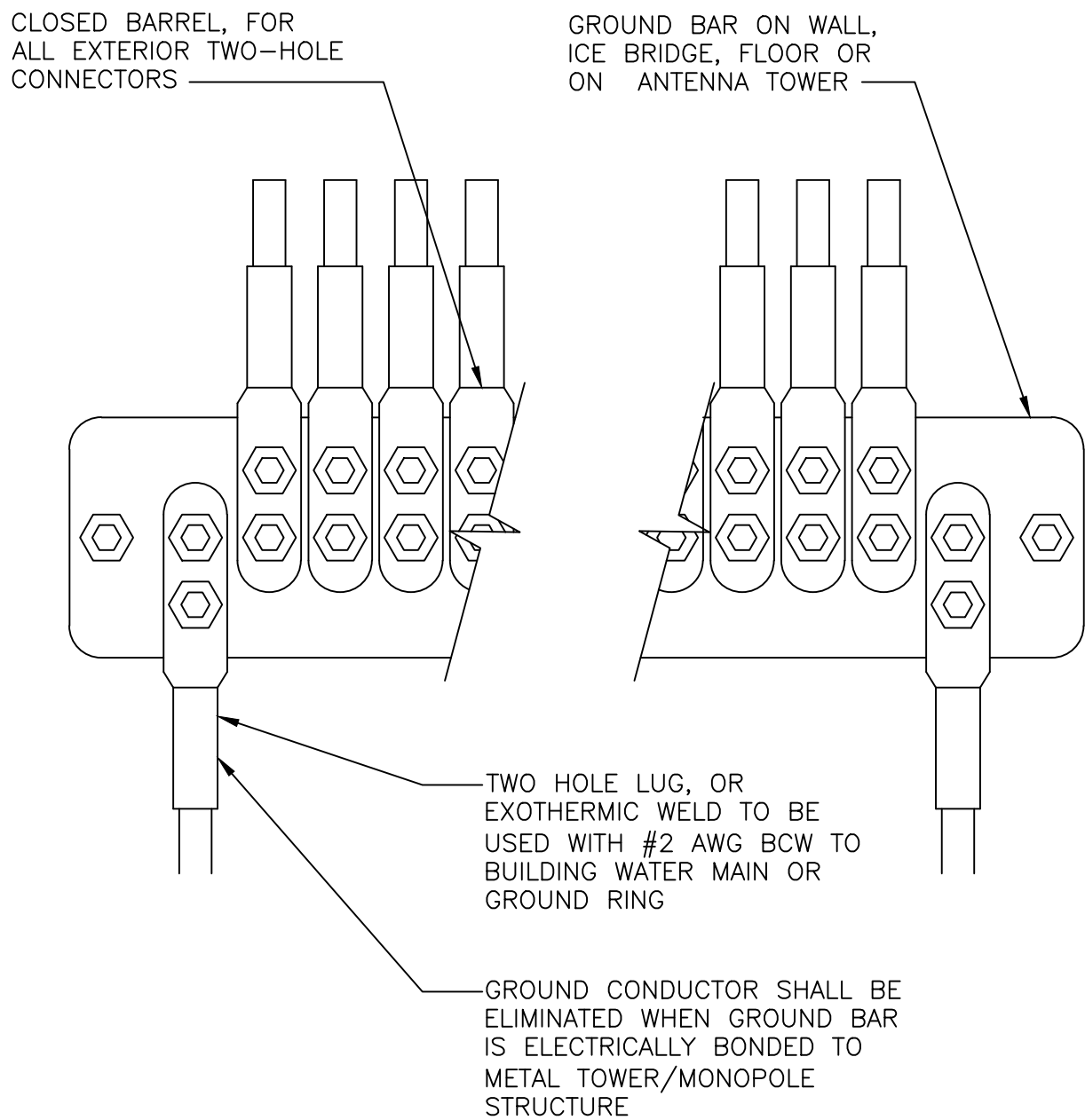
NO SCALE

A

LTE RACK GROUNDING

NO SCALE

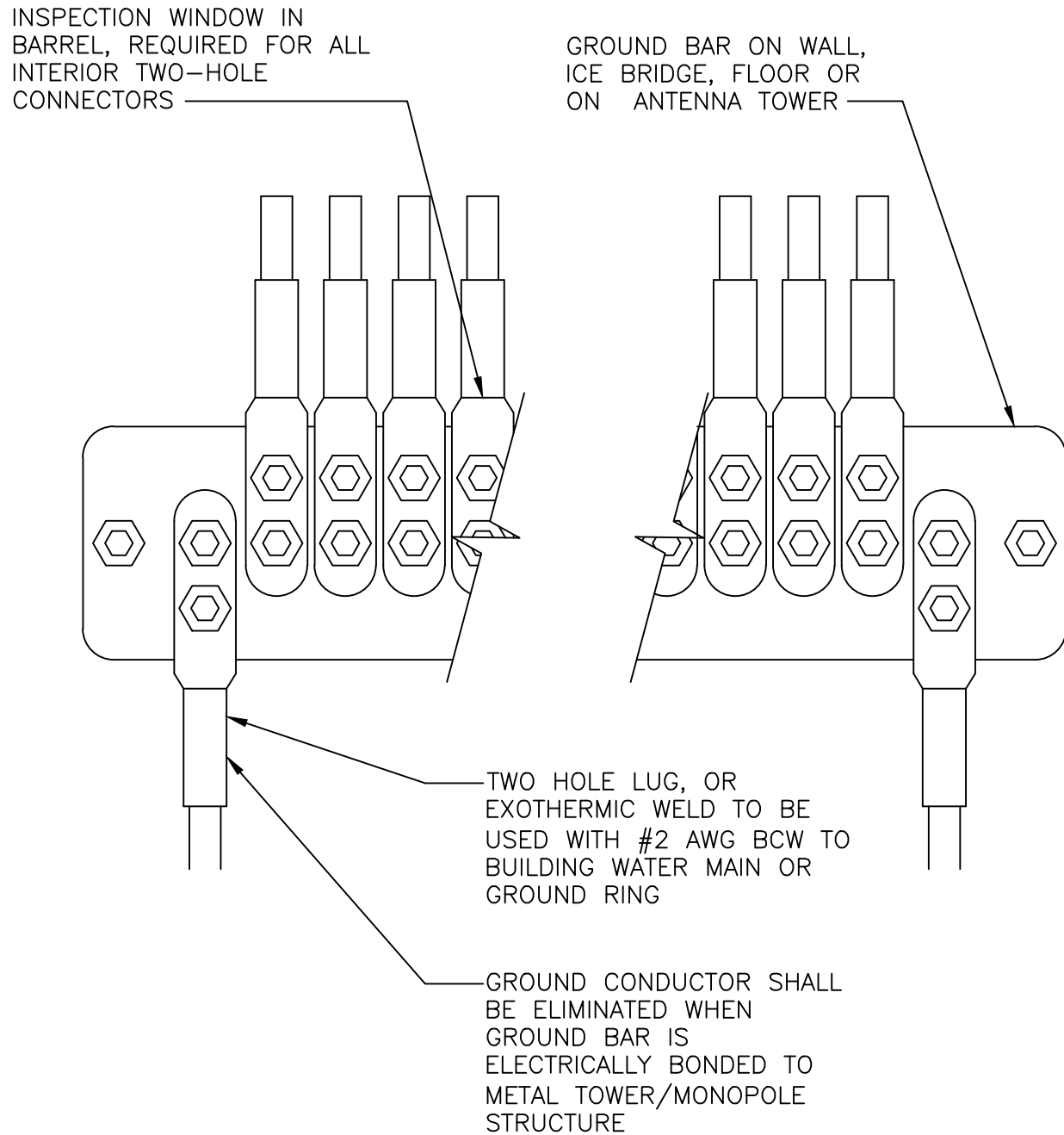
B



EXTERIOR TWO HOLE LUG DETAIL

NO SCALE

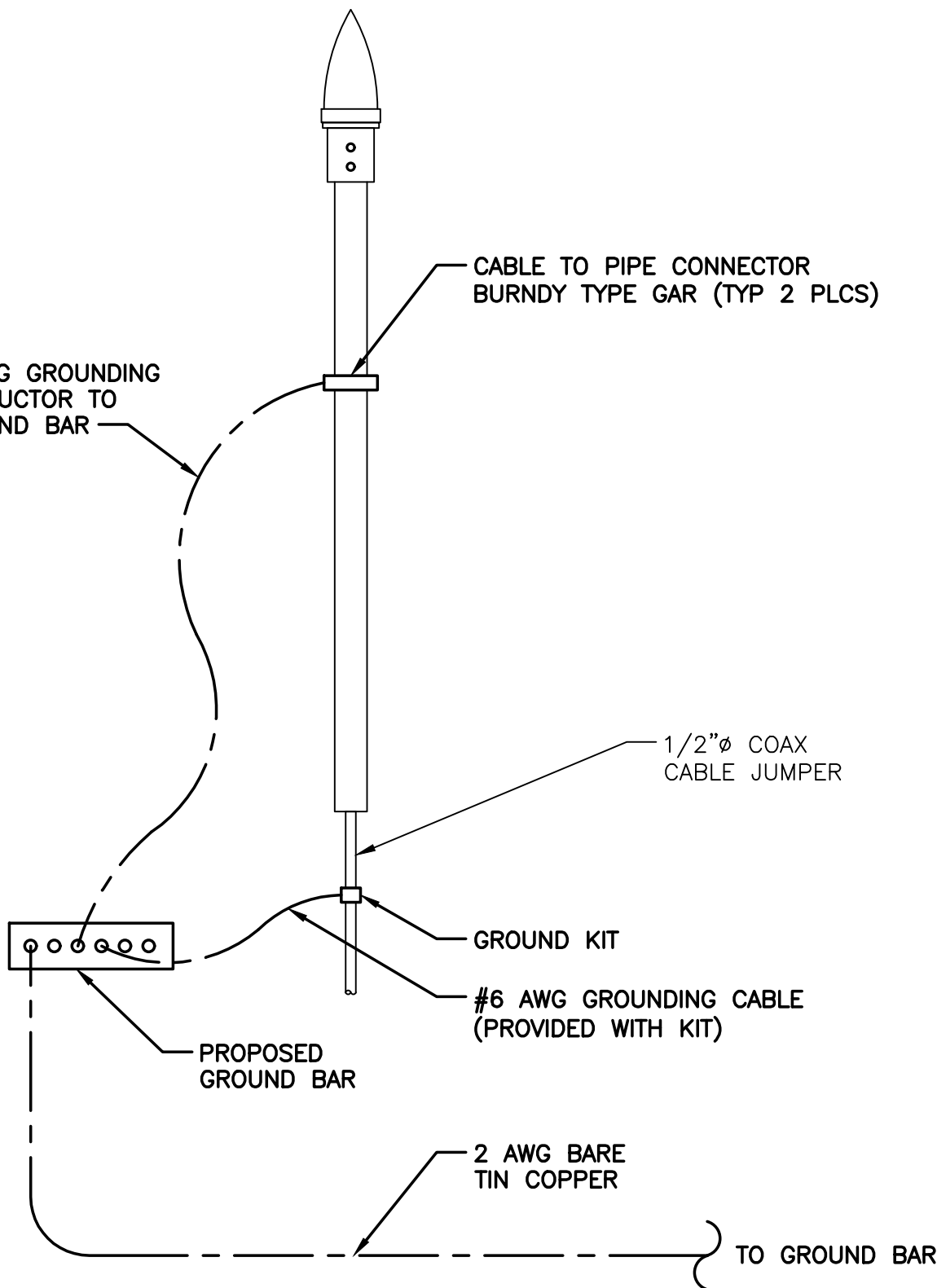
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INTERIOR TWO HOLE LUG DETAIL

NO SCALE

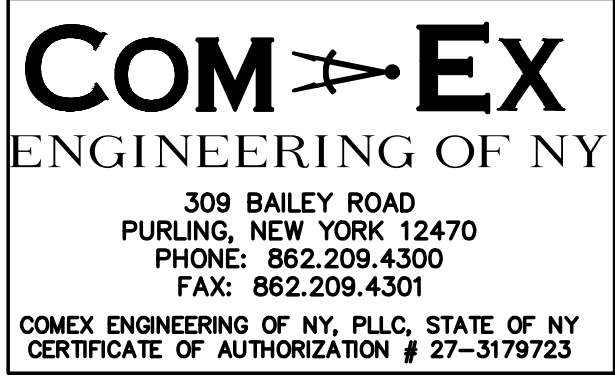
D



GPS GROUNDING DETAIL

NO SCALE

E



SCHEDULE OF REVISIONS

7		
6		
5		
4		
3		
2		
1	3/13/20	CLIENT COMMENTS
0	03/06/20	INITIAL SUBMISSION
REV. NO.	DATE	DESCRIPTION OF CHANGES

DRAWN BY: KCD

CHECKED BY: NDB

SCALE: AS NOTED

JOB NO: 20065-BLV

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NICHOLAS D. BARILE

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CERTIFICATE OF AUTHORIZATION # 27-3179723

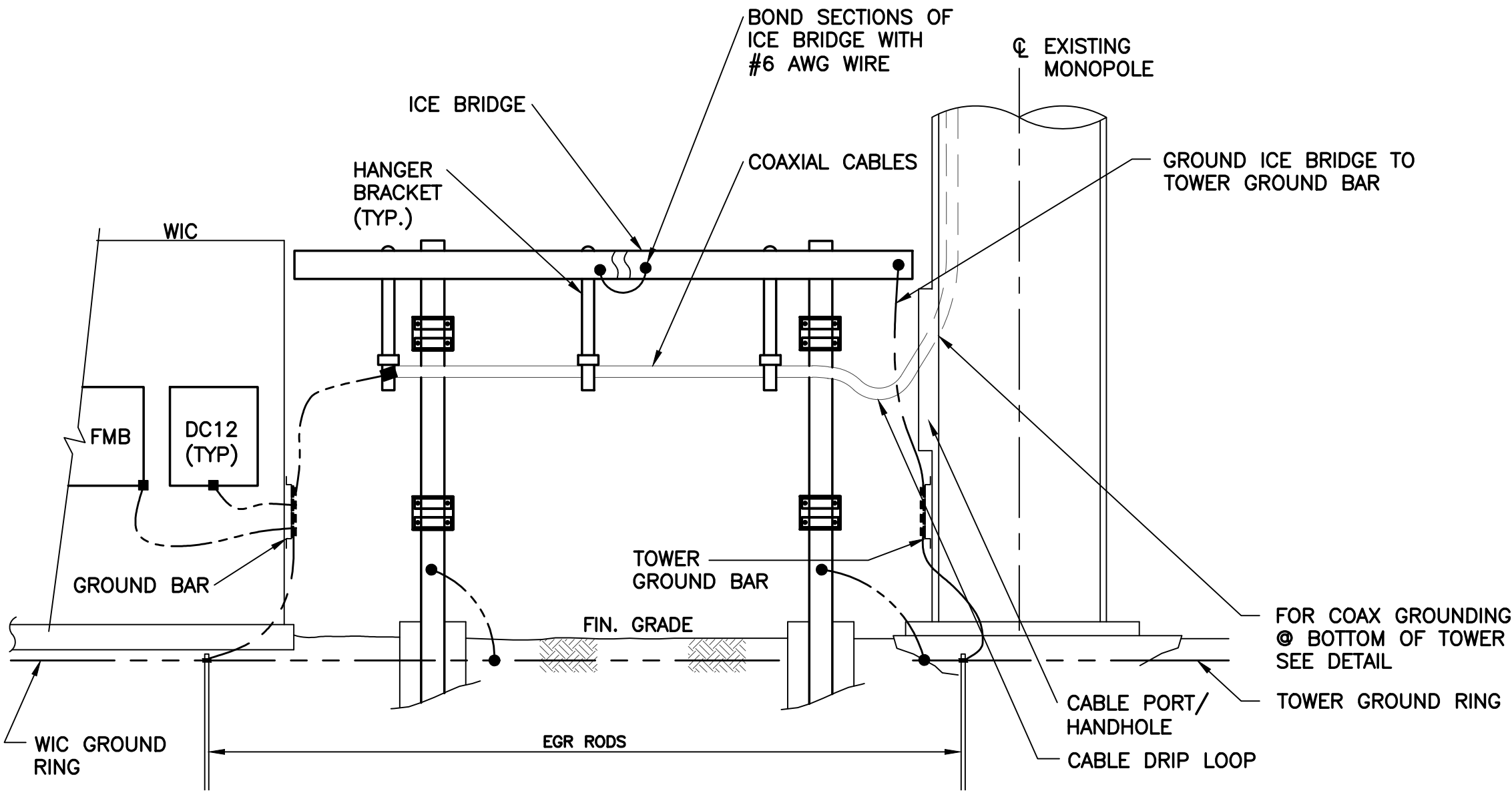
CONSTRUCTION DRAWINGS
NUNYNYX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

GROUNDING
DETAILS

DRAWING SHEET:

G-1

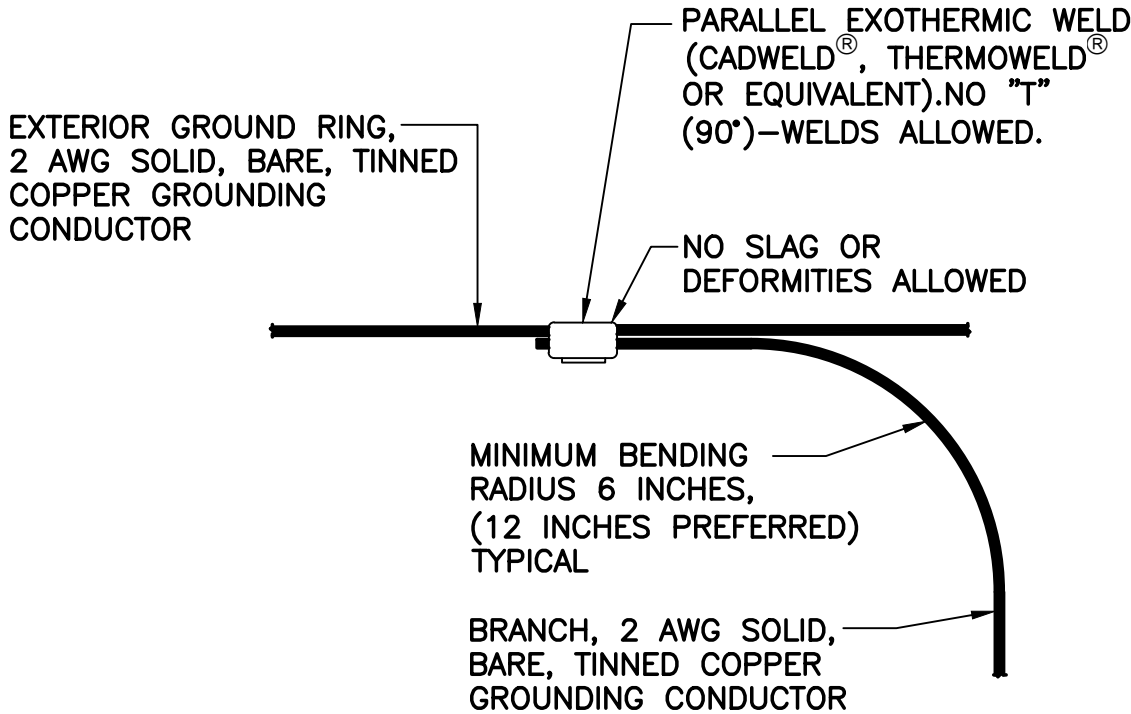


CONNECTION LEGEND:	
■	MECHANICAL CONNECTION
●	CADWELD CONNECTION

ICE BRIDGE GROUNDING DETAIL

NO SCALE

A



EXT. GROUND RING CONNECTION

NO SCALE

B



at&t

NEW CINGULAR WIRELESS PCS, LLC
ONE AT&T WAY
BEDMINSTER, NJ 07921



BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
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309 BAILEY ROAD
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COMEX ENGINEERING OF NY, PLLC, STATE OF NY
CERTIFICATE OF AUTHORIZATION # 27-3179723

SCHEDULE OF REVISIONS

7		
6		
5		
4		
3		
2		
1	3/13/20	CLIENT COMMENTS
0	03/06/20	INITIAL SUBMISSION
REV. NO.	DATE	DESCRIPTION OF CHANGES

DRAWN BY: KCD

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CERTIFICATE OF AUTHORIZATION # 27-3179723

CONSTRUCTION DRAWINGS

NYNYNX301

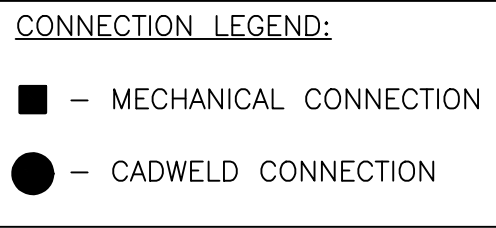
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

GROUNDING
DETAILS

DRAWING SHEET:

G-1.1



NO SCALE

A

NOTES:

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND AT&T GROUNDING AND BONDING REQUIREMENTS (ATT-TP-76416) AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUNDING CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 36 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING. (ATT-TP-76416 2.2.3.5/7.5.1)

(B) EXISTING TOWER GROUND RING: AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS. (ATT-TP-76416 7.5.1)

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUND TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR. (ATT-TP-76416 7.6.4)

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING. (ATT-TP-76416 7.5.2.2)

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL, MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. ALL GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR. (ATT-TP-76416 1.4 / 7.5.1)

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS. (ATT-76416 7.6.5)

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AND EXOTHERMIC WELD AND INSPECTION SLEEVE. (ATT-TP-76416 7.6.7.2)

(I) TOWER EXIT GROUND BAR: #2 AWG SOLID TINNED COPPER BOND TO THE TOWER GROUND RING. (ATT-TP-76416 7.5.5)

(J) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR AND EXTERIOR GROUND RING. (ATT-TP-76416 7.6.8)

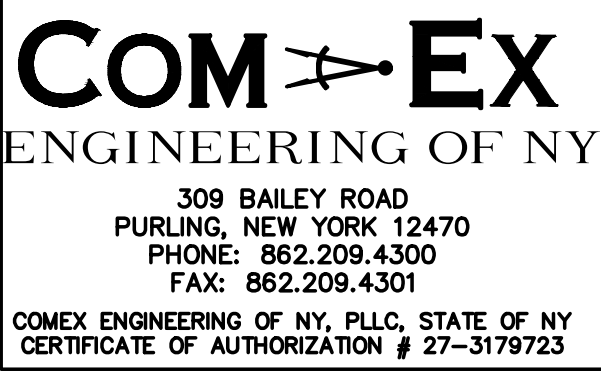
(K) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK. BOND THE FRAME GROUND BUS TO THE "1" SECTION OF THE CELL REFERENCE GROUND BAR. (ATT-TP-76416 7.8)

(L) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING. (ATT-TP-76416 7.12.3.1)

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. (ATT-TP-76416 7.4.2.6)

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING. (ATT-TP-76416 7.4.2.6)

EXTERIOR OF WIC GROUND BAR



7		
6		
5		
4		
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2		
1	3/13/20	CLIENT COMMENTS
0	03/06/20	INITIAL SUBMISSION
REV. NO.	DATE	DESCRIPTION OF CHANGES

JOB NO: 20065-BLV

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PROFESSIONAL ENGINEER, N.Y. LIC. No. 90133
COMEX ENGINEERING OF NY STATE OF NY
CERTIFICATE OF AUTHORIZATION # 27-317972

**33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY**

EQUIPMENT GROUNDING PLAN

G-1.2

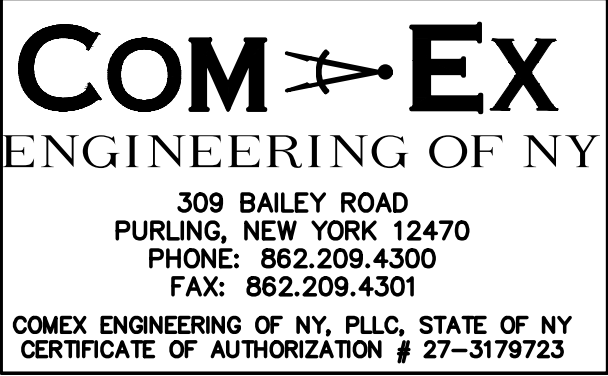
GENERAL CONSTRUCTION NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
GENERAL CONTRACTOR – OVERLAND CONTRACTING INC. (B&V)
CONTRACTOR: (CONSTRUCTION)
OWNER – AT&T
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OT 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.
40. ALL COAXIAL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

Color Code for Hard-Line Coax to TMA's/Diplexers or Antennas					
Sector	Coax Line	A1	A2	A3	A5 (A4)
Alpha	1st Line	1 Green	3 Green	5 Green	7 Green
	2nd Line Same Antenna	2 Green	4 Green	6 Green	8 Green
* Note: Pipe 1 is to the left if you are standing behind the antennas in this sector. *Note: Coax to A5 antenna is not typical but shown here in case required.					
Integrators will mark diversity lines with a single BROWN					
Beta					
Beta	1st Line	1 Blue	3 Blue	5 Blue	7 Blue
	2nd Line Same Antenna	2 Blue	4 Blue	6 Blue	8 Blue
* Note: Pipe 1 is to the left if you are standing behind the antennas in this sector. *Note: Coax to B5 antenna is not typical but shown here in case required.					
Integrators will mark diversity lines with a single BROWN					
Gamma					
Gamma	1st Line	1 White	3 White	5 White	7 White
	2nd Line Same Antenna	2 White	4 White	6 White	8 White
* Note: Pipe 1 is to the left if you are standing behind the antennas in this sector. *Note: Coax to G5 antenna is not typical but shown here in case required.					
Integrators will mark diversity lines with a single BROWN					
Delta					
Delta	1st Line	1 Red	3 Red	5 Red	7 Red
	2nd Line Same Antenna	2 Red	4 Red	6 Red	8 Red
* Note: Pipe 1 is to the left if you are standing behind the antennas in this sector. *Note: Coax to D5 antenna is not typical but shown here in					
Integrators will mark diversity lines with a single BROWN					
Epsilon					
Epsilon	1st Line	1 Brown	3 Brown	5 Brown	7 Brown
	2nd Line Same Antenna	2 Brown	4 Brown	6 Brown	8 Brown
* Note: Pipe 1 is to the left if you are standing behind the antennas in this sector. *Note: Coax to E5 antenna is not typical but shown here in					
Integrators will mark diversity lines with a single BROWN					

Color Code for Jumpers to TMA's & Diplexers - AND - to Hard-Line Coax to Single-Port Antennas														
Sector	Technology	Frequency	TX / RX	1st band	2nd band	3rd Band	4th band	5th band	6th band	7th band	8th band	9th band	10th band	Notes
A1	GSM	850	T/M/R/M	Green	Orange									
	GSM	850	T/D/R/D	Green	Green	Orange								
	GSM	1900	T/M/R/M	Green	Violet									
	GSM	1900	T/D/R/D	Green	Green	Violet								
A2	UMTS	850	T/M/R/M	Green	Green	Green	Orange	Yellow						
A2	UMTS	850	T/D/R/D	Green	Green	Green	Green	Orange	Yellow					
A3	UMTS	1900	T/M/R/M	Green	Green	Green	Green	Green	Violet	Yellow				
A3	UMTS	1900	T/D/R/D	Green	Green	Green	Green	Green	Green	Violet	Yellow			
A5	LTE	700	T/M/R/M	Green	Green	Green	Green	Green	Green	Green	Green	Orange	Gray	
A5	LTE	700	T/D/R/D	Green	Green	Green	Green	Green	Green	Green	Green	Orange	Gray	Gray
A5	LTE	2100	T/M/R/M	Green	Green	Green	Green	Green	Green	Green	Violet	Gray		
A5	LTE	2100	T/D/R/D	Green	Green	Green	Green	Green	Green	Green	Green	Violet	Gray	Gray
B1	GSM	850	T/M/R/M	Blue	Orange									
B1	GSM	850	T/D/R/D	Blue	Blue	Orange								
B1	GSM	1900	T/M/R/M	Blue	Violet									
B1	GSM	1900	T/D/R/D	Blue	Blue	Violet								
B2	UMTS	850	T/M/R/M	Blue	Blue	Blue	Orange	Yellow						
B2	UMTS	850	T/D/R/D	Blue	Blue	Blue	Blue	Orange	Yellow					
B3	UMTS	1900	T/M/R/M	Blue	Blue	Blue	Blue	Blue	Violet	Yellow				
B3	UMTS	1900	T/D/R/D	Blue	Blue	Blue	Blue	Blue	Blue	Violet	Yellow			
B5	LTE	700	T/M/R/M	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Orange	Gray	
B5	LTE	700	T/D/R/D	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Orange	Gray
B5	LTE	2100	T/M/R/M	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Violet	Gray	
B5	LTE	2100	T/D/R/D	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Violet	Gray	Gray
G1	GSM	850	T/M/R/M	White	Orange									
G1	GSM	850	T/D/R/D	White	White	Orange								
G1	GSM	1900	T/M/R/M	White	Violet									
G1	GSM	1900	T/D/R/D	White	White	Violet								
G2	UMTS	850	T/M/R/M	White	White	White	Orange	Yellow						
G2	UMTS	850	T/D/R/D	White	White	White	White	Orange	Yellow					
G3	UMTS	1900	T/M/R/M	White	White	White	White	White	Violet	Yellow				
G3	UMTS	1900	T/D/R/D	White	White	White	White	White	White	Violet	Yellow			
G5	LTE	700	T/M/R/M	White	White	White	White	White	White	White	Orange	Gray		
G5	LTE	700	T/D/R/D	White	White	White	White	White	White	White	White	Orange	Gray	Gray
G5	LTE	2100	T/M/R/M	White	White	White	White	White	White	White	Violet	Gray		
G5	LTE	2100	T/D/R/D	White	White	White	White	White	White	White	White	Violet	Gray	Gray
D1	GSM	850	T/M/R/M	Red	Orange									
D1	GSM	850	T/D/R/D	Red	Red	Orange								
D1	GSM	1900	T/M/R/M	Red	Violet									
D1	GSM	1900	T/D/R/D	Red	Red	Violet								
D2	UMTS	850	T/M/R/M	Red	Red	Red	Orange	Yellow						
D2	UMTS	850	T/D/R/D	Red	Red	Red	Red	Orange	Yellow					
D3	UMTS	1900	T/M/R/M	Red	Red	Red	Red	Red	Violet	Yellow				
D3	UMTS	1900	T/D/R/D	Red	Red	Red	Red	Red	Red	Violet	Yellow			
D5	LTE	700	T/M/R/M	Red	Red	Red	Red	Red	Red	Red	Orange	Gray		
D5	LTE	700	T/D/R/D	Red	Red	Red	Red	Red	Red	Red	Red	Orange	Gray	Gray
D5	LTE	2100	T/M/R/M	Red	Red	Red	Red	Red	Red	Red	Violet	Gray		
D5	LTE	2100	T/D/R/D	Red	Red	Red	Red	Red	Red	Red	Red	Violet	Gray	Gray
E1	GSM	850	T/M/R/M	Brown	Orange									
E1	GSM	850	T/D/R/D	Brown	Brown	Orange								
E1	GSM	1900	T/M/R/M	Brown	Violet									
E1	GSM	1900	T/D/R/D	Brown	Brown	Violet								
E2	UMTS	850	T/M/R/M	Brown	Brown	Brown	Orange	Yellow						
E2	UMTS	850	T/D/R/D	Brown	Brown	Brown	Brown	Orange	Yellow					
E3	UMTS	1900	T/M/R/M	Brown	Brown	Brown	Brown	Brown	Violet	Yellow				
E3	UMTS	1900	T/D/R/D	Brown	Brown	Brown	Brown	Brown	Brown	Violet	Yellow			
E5	LTE	700	T/M/R/M	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Orange	Gray		
E5	LTE	700	T/D/R/D	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Orange	Gray	Gray
E5	LTE	2100	T/M/R/M	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Violet	Gray		
E5	LTE	2100	T/D/R/D	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Violet	Gray	Gray



SCHEDULE OF REVISIONS		
7		
6		
5		
4		
3		
2		
1	3/13/20	CLIENT COMMENTS
0	03/06/20	INITIAL SUBMISSION
REV. NO.	DATE	DESCRIPTION OF CHANGES
DRAWN BY: KCD		
CHECKED BY: NDB		
SCALE: AS NOTED		
JOB NO: 20065-BLV		

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CERTIFICATE OF AUTHORIZATION # 27-3179723

CONSTRUCTION DRAWINGS
NYNYNYX301
33 PEEKSKILL ROAD
COLD SPRING
NY 10516
PUTNAM COUNTY

DRAWING TITLE:

**GENERAL
CONSTRUCTION
NOTES**

DRAWING SHEET:

GN-1