Attachment 1 – Site Plans

EVERSOURCE ENERGY

EAST WINDSOR AWC
112 PROSPECT HILL RD
EAST WINDSOR, CT 06088

PROJECT SUMMARY

THE GENERAL SCOPE OF WORK CONSISTS OF THE FOLLOWING:

1. REMOVE AND REPLACE EXISTING ANTENNA PIPE MAST ON BUILDING WALL
2. INSTALL (1) NEW OMNI/WHIP ANTENNA AT ELEVATION 52'–0"± AGL
3. INSTALL (1) NEW RACK WITH DMR EQUIPMENT IN EXISTING TELECOM ROOM

GOVERNING CODES

2018 CONNECTICUT STATE BUILDING CODE (2015 IBC BASIS)
2017 NATIONAL ELECTRIC CODE
TIA–222–H

GENERAL NOTES

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.

SITE INFORMATION

SITE NAME:	EAST WINDSOR AWC
SITE ID NUMBER:	#01239000
SITE ADDRESS:	112 PROSPECT HILL RD EAST WINDSOR, CT 06088
MAP:	092
BLOCK:	17
LOT:	033
ZONE:	M–1
LATITUDE:	41° 55' 40.4" N
LONGITUDE:	72° 36' 17.9" W
ELEVATION:	182'± AMSL
FEMA/FIRM DESIGNATION:	X
ACREAGE:	0.23± AC (BOOK: 0064, PAGE: 0280)

CONTACT INFORMATION

APPLICANTS:
EVERSOURCE ENERGY
107 SELDEN STREET
BERLIN, CT 06037

PROPERTY OWNER:
EVERSOURCE ENERGY
107 SELDEN STREET
BERLIN, CT 06037

EVERSOURCE ENERGY
PROJECT MANAGER:
NIKOLL PRECI
(860) 655–3079

POWER PROVIDER:
EVERSOURCE ENERGY
(800) 286–2000

TELCO PROVIDER:
FRONTIER
(800) 921–8102

CALL BEFORE YOU DIG:
(800) 922–4455

LOCATION MAP

NO SCALE

DESIGN TYPE

SITE UPGRADE
ROOFTOP

DRAWING INDEX

SHEET NO:	SHEET TITLE
T–1	TITLE SHEET
C–1	ABUTTERS MAP
C–2	PARTIAL SITE PLAN
C–3	ROOFTOP PLAN
C–4	BUILDING ELEVATION
S–1	STRUCTURAL DETAILS
G–1	GROUNDING DETAILS
N–1	NOTES & SPECIFICATIONS
N–2	NOTES & SPECIFICATIONS
N–3	NOTES & SPECIFICATIONS

DO NOT SCALE DRAWINGS

SUBCONTRACTOR 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

UTILITIES PROTECTION CENTER, INC.
811

48 HOURS BEFORE YOU DIG

EVERSOURCE ENERGY
107 SELDEN STREET
BERLIN, CT 06037
PHONE: (800) 286–2000

BLACK & VEATCH
6800 W 115TH ST, SUITE 2292
OVERLAND PARK, KS 66211
PHONE: (913) 458–3595

PROJECT NO:	403093
DRAWN BY:	TYW
CHECKED BY:	JR

REV	DATE	DESCRIPTION
0	03/19/20	ISSUED FOR FILING

STATE OF CONNECTICUT
JOSHUA J. RILEY
33208
LICENSED PROFESSIONAL ENGINEER
03/25/2020

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

EAST WINDSOR AWC
112 PROSPECT HILL RD
EAST WINDSOR, CT 06088

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

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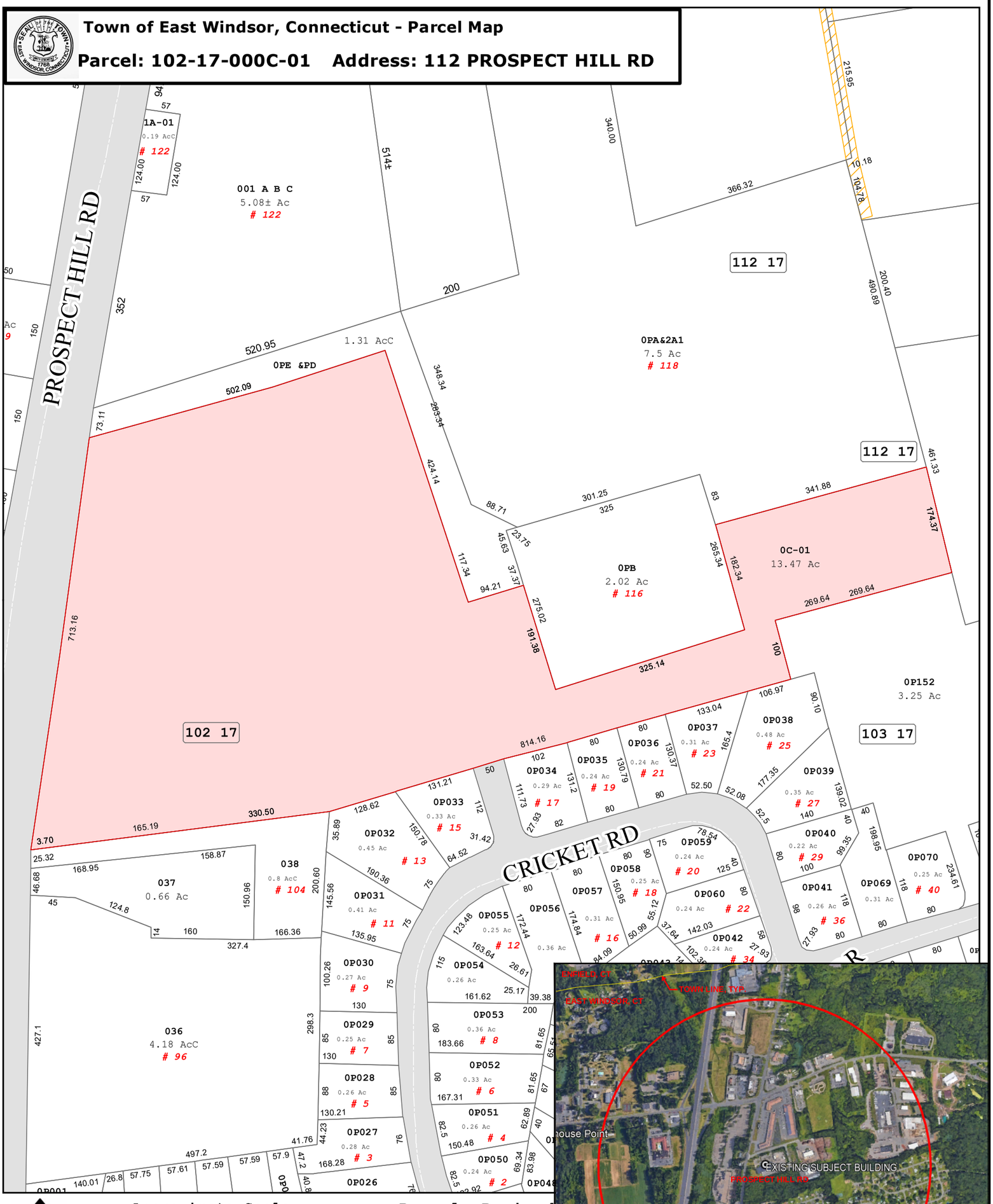
SHEET TITLE
ABUTTERS MAP

SHEET NUMBER
C-1

Town of East Windsor, Connecticut - Parcel Map

Parcel: 102-17-000C-01 Address: 112 PROSPECT HILL RD



MUNICIPALITY NOTIFICATION LIMIT MAP

N

Approximate Scale:
1 inch = 200 feet

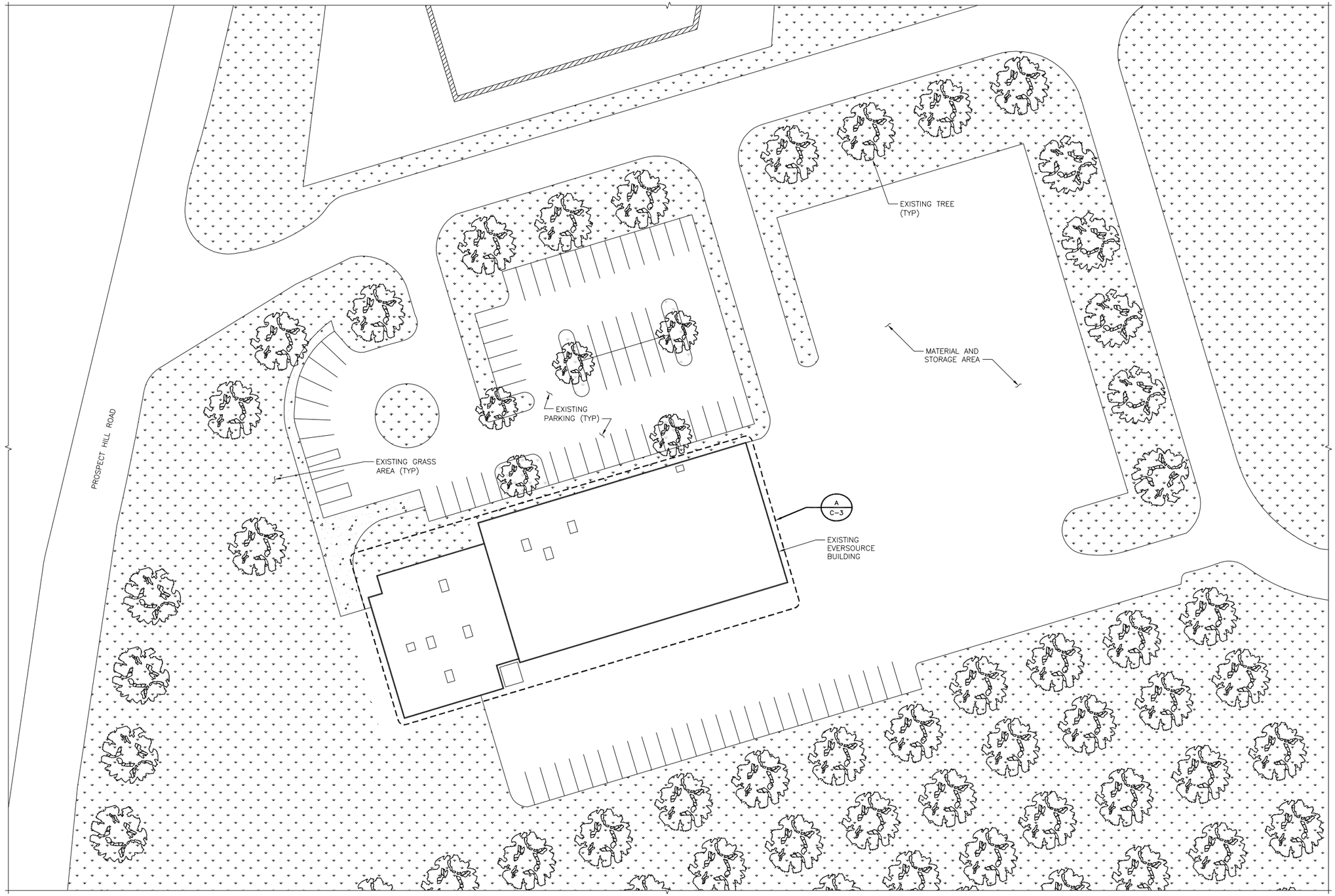
50 0 50 100 150 Feet

Parcels Revised
October 2018

Map Created
February 2019

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of East Windsor and its mapping contractors
assume no legal responsibility for the
information contained herein.

ABUTTERS MAP



PARTIAL SITE PLAN
NO SCALE

N

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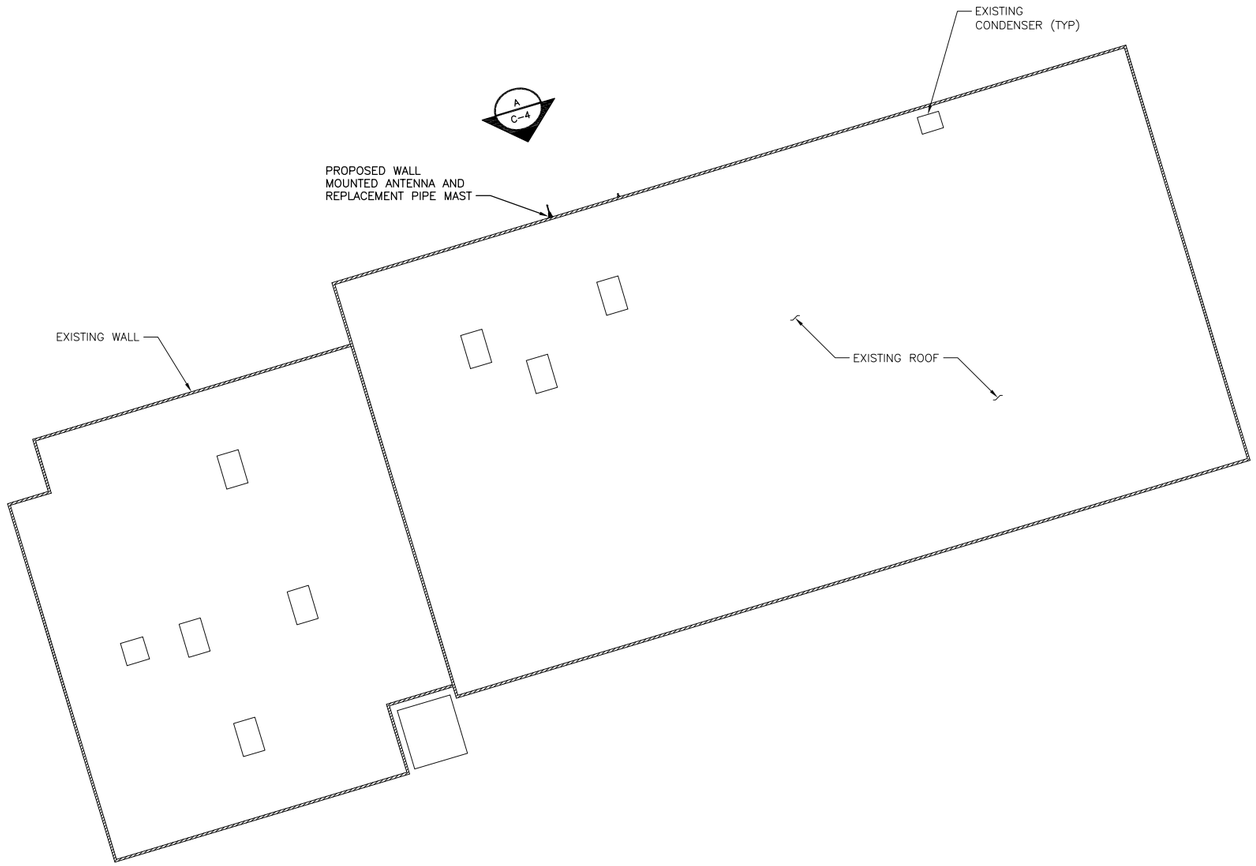
SHEET TITLE
PARTIAL SITE PLAN

SHEET NUMBER
C-2



DETAIL A
ROOFTOP PLAN
NO SCALE

N

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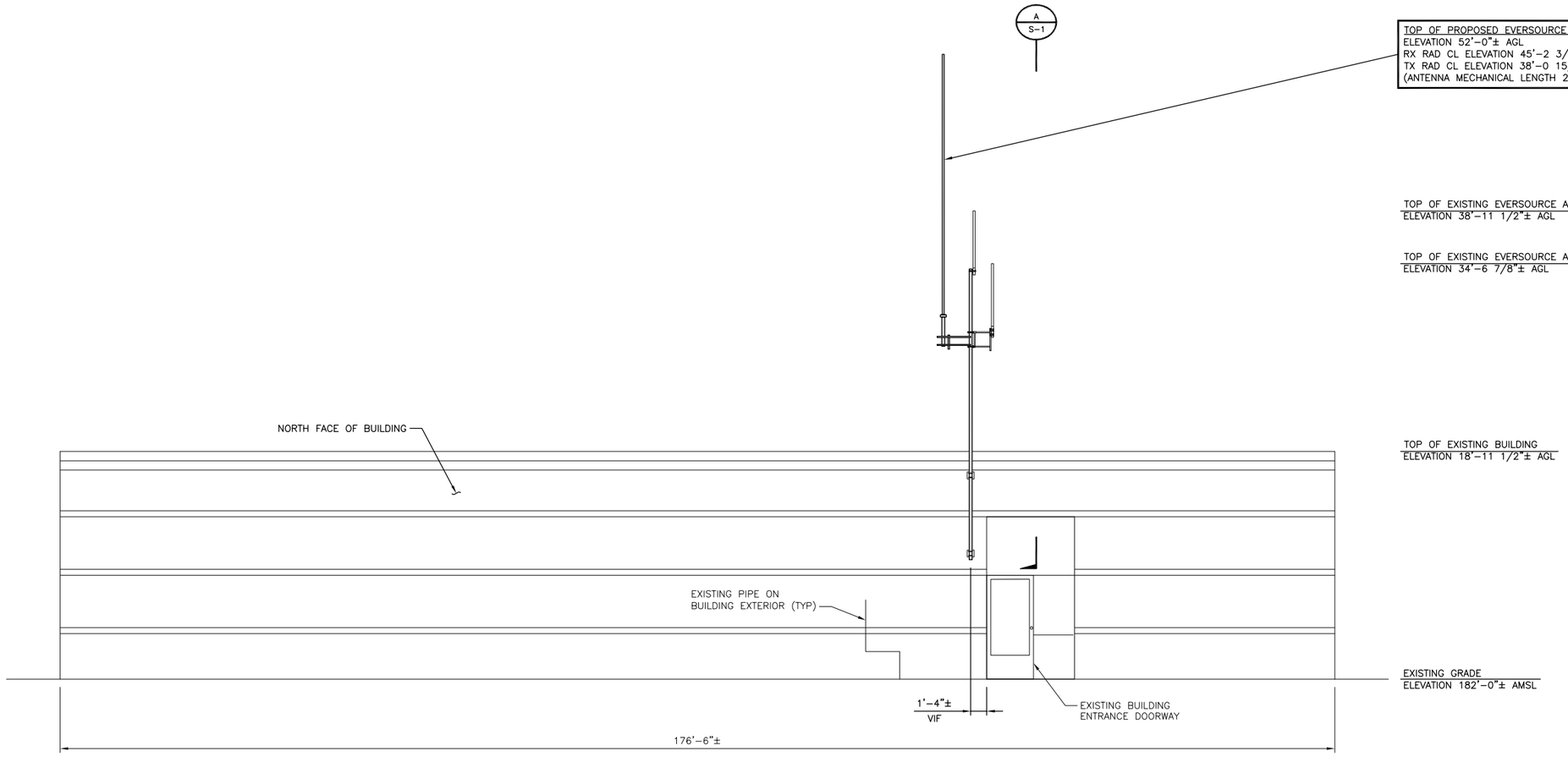
SHEET TITLE
ROOFTOP PLAN

SHEET NUMBER
C-3



DETAIL A
BUILDING ELEVATION
NO SCALE

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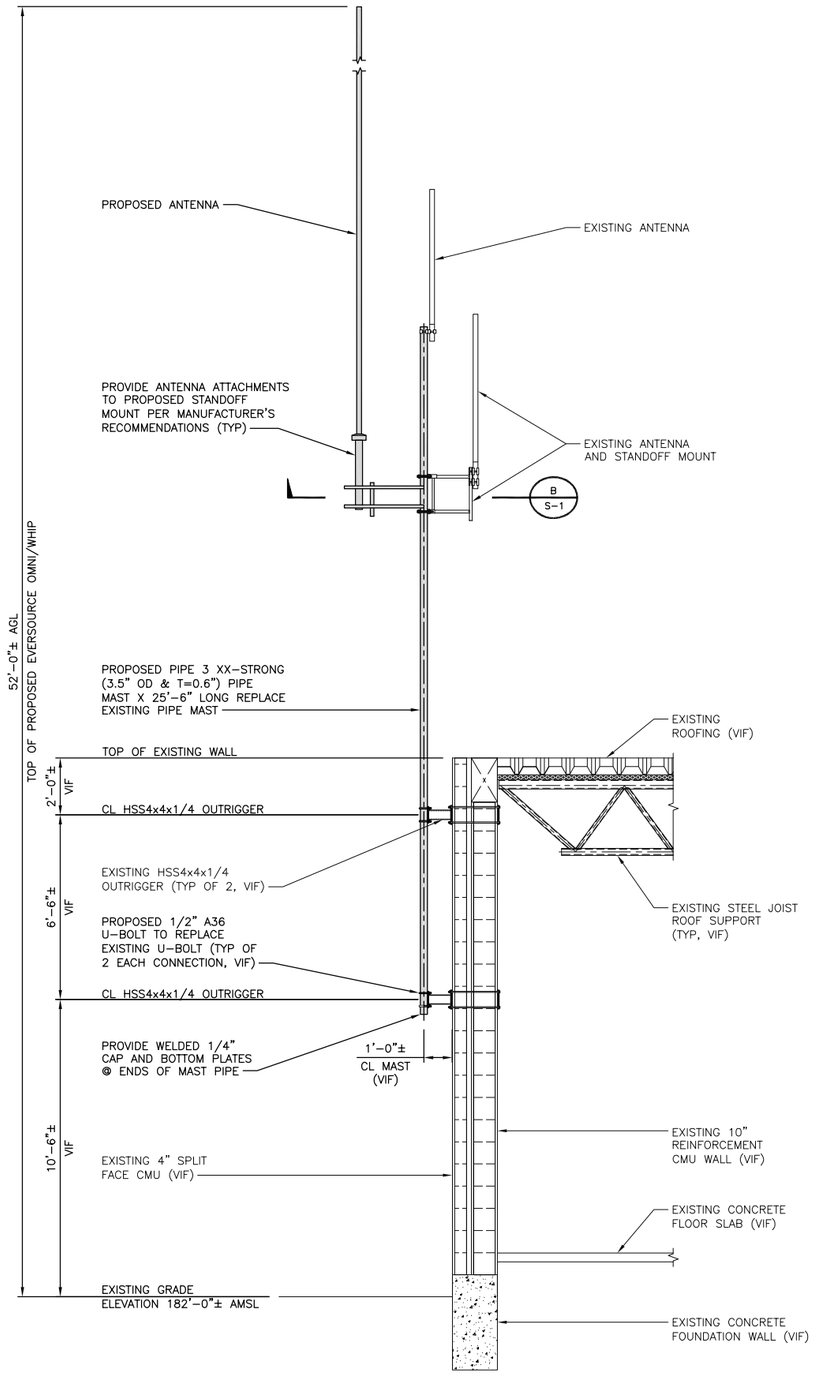
SHEET TITLE
BUIDLING ELEVATION

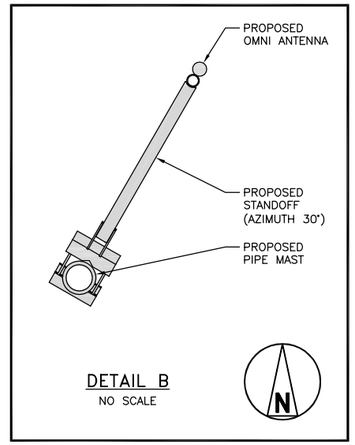
SHEET NUMBER
C-4



DETAIL A
NO SCALE

NOTES

1. ATTACH THE (2) PROPOSED 7/8"ø COAX CABLES (NOT SHOWN FOR CLARITY) TO EXISTING COAX SNAP-IN HANGERS USING SITE PRO 1 P/N SIC2 SNAP-IN HANGERS KIT. FOLLOW MANUFACTURERS RECOMMENDATIONS FOR INSTALLATION (TYP TOTAL OF 1 KIT). DO NOT EXCEED 4'-0" VERTICAL SPACING BETWEEN HANGERS.
2. COORDINATE FINAL LOCATION OF PROPOSED MAST SO AS TO NOT INTERFERE WITH EXISTING UTILITY CONDUITS LOCATED ON THE WALL OF THE EXISTING RADIO EQUIPMENT ROOM.
3. COORDINATE LOCATION OF COAX CABLE PENETRATIONS THROUGH EXISTING CMU WALL WITH EVERSOURCE ENERGY. PROVIDE A WEATHERTIGHT SEAL.
4. INSTALL COAX GROUND KITS AT BOTTOM OF ANTENNA AND BEFORE COAX ENTERS BUILDING. CONNECT TO #6 AWG GROUND WIRE RUNNING FROM EGB TO ANTENNA MOUNT.



DETAIL B
NO SCALE

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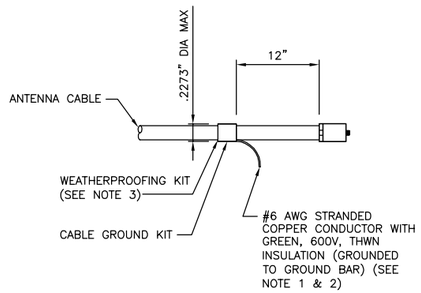
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-1

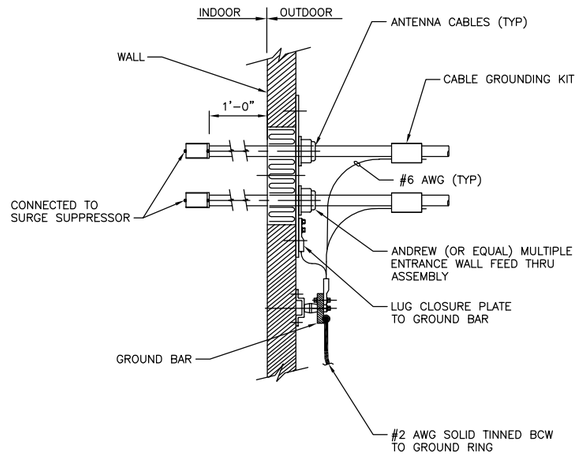


NOTES

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

NO SCALE



CABLE INSTALLATION WITH WALL FEED THRU ASSEMBLY

NO SCALE

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SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

G-1

DESIGN BASIS

1. GOVERNING CODE: 2018 CONNECTICUT STATE BUILDING CODE (2015 IBC BASIS).

GENERAL CONDITIONS

1. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL BUILDING CODES, PERMIT CONDITIONS AND SAFETY CODES DURING CONSTRUCTION.

2. THE ENGINEER IS NOT: A GUARANTOR OF THE INSTALLING CONTRACTOR'S WORK; RESPONSIBLE FOR SAFETY IN, ON OR ABOUT THE WORK SITE; IN CONTROL OF THE SAFETY OR ADEQUACY OF ANY BUILDING COMPONENT, SCAFFOLDING OR SUPERINTENDING THE WORK.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL PERMITS, INSPECTIONS, TESTING AND CERTIFICATES NEEDED FOR LEGAL OCCUPANCY OF THE FINISHED PROJECT.

4. THE CONTRACTOR IS RESPONSIBLE TO REVIEW THIS COMPLETE PLAN SET AND VERIFY THE EXISTING CONDITIONS SHOWN IN THESE PLANS AS THEY RELATE TO THE WORK PRIOR TO SUBMITTING PRICE. SIGNIFICANT DEVIATIONS FROM WHAT IS SHOWN AFFECTING THE WORK SHALL BE REPORTED IMMEDIATELY TO THE CONSTRUCTION MANAGER.

5. DETAILS INCLUDED IN THIS PLAN SET ARE TYPICAL AND APPLY TO SIMILAR CONDITIONS.

6. EXISTING ELECTRICAL AND MECHANICAL FIXTURES, PIPING, WIRING, AND EQUIPMENT OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER. TEMPORARY SERVICE INTERRUPTIONS MUST BE COORDINATED WITH OWNER.

7. THE CONTRACTOR SHALL DILIGENTLY PROTECT THE EXISTING BUILDING/SITE CONDITIONS AND THOSE OF ANY ADJOINING BUILDING/SITES AND RESTORE ANY DAMAGE CAUSED BY HIS ACTIVITIES TO THE PRE-CONSTRUCTION CONDITION.

8. THE CONTRACTOR SHALL SAFEGUARD AGAINST: CREATING A FIRE HAZARD, AFFECTING TENANT EGRESS OR COMPROMISING BUILDING SITE SECURITY MEASURES.

9. THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND CONSTRUCTION WASTE FROM THE SITE EACH DAY. WORK AREAS SHALL BE SWEPT AND MADE CLEAN AT THE END OF EACH WORK DAY.

10. THE CONTRACTOR'S HOURS OF WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES AND BE APPROVED BY OWNER.

11. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER IF ASBESTOS IS ENCOUNTERED DURING THE EXECUTION OF HIS WORK. THE CONTRACTOR SHALL CEASE ALL ACTIVITIES WHERE THE ASBESTOS MATERIAL IS FOUND UNTIL NOTIFIED BY THE CONSTRUCTION MANAGER TO RESUME OPERATIONS.

THERMAL & MOISTURE PROTECTION

1. FIRE-STOP ALL PENETRATIONS FOR ELECTRICAL CONDUITS OR WAVEGUIDE CABLING THROUGH BUILDING WALLS, FLOORS, AND CEILINGS SHALL BE FIRESTOPPED WITH ACCEPTED MATERIALS TO MAINTAIN THE FIRE RATING OF THE EXISTING ASSEMBLY. ALL FILL MATERIAL SHALL BE SHAPED, FITTED, AND PERMANENTLY SECURED IN PLACE. FIRESTOPPING SHALL BE INSTALLED IN ACCORDANCE WITH ASTM E814.

2. HILTI CP620 FIRE FOAM OR 3M FIRE BARRIER FILL, VOID OR CAVITY MATERIAL OR ACCEPTED EQUAL SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ASSOCIATED UNDERWRITERS LABORATORIES (UL) SYSTEM NUMBER.

3. FIRESTOPPING SHALL BE APPLIED AS SOON AS PRACTICABLE AFTER PENETRATIONS ARE MADE AND EQUIPMENT INSTALLED.

4. FIRESTOPPED PENETRATIONS SHALL BE LEFT EXPOSED AND MADE AVAILABLE FOR INSPECTION BEFORE CONCEALING SUCH PENETRATIONS. FIRESTOPPING MATERIAL CERTIFICATES SHALL BE MADE AVAILABLE AT THE TIME OF INSPECTION.

5. ANY BUILDING ROOF PENETRATION AND/OR RESTORATION SHALL BE PERFORMED SO THAT THE ROOF WARRANTY IN PLACE IS NOT COMPROMISED. CONTRACTOR SHALL ARRANGE FOR OWNER'S ROOFING CONTRACTOR TO PERFORM ANY AND ALL ROOFING WORK IF SO REQUIRED BY EXISTING ROOF WARRANTY. OTHERWISE, ROOF SHALL BE MADE WATERTIGHT WITH LIKE CONSTRUCTION AS SOON AS PRACTICABLE AND AT COMPLETION OF CONSTRUCTION.

6. ALL PENETRATIONS INTO AND/OR THROUGH BUILDING EXTERIOR WALLS SHALL BE SEALED WITH SILICONE SEALER.

7. WHERE CONDUIT AND CABLES PENETRATES FIRE RATED WALLS AND FLOORS, FIRE GROUT ALL PENETRATIONS IN ORDER TO MAINTAIN THE FIRE RATING USING A LISTED FIRE SEALING DEVICE OR GROUT.

8. CONTRACTOR TO REMOVE AND RE-INSTALL ALL FIRE PROOFING AS REQUIRED DURING CONSTRUCTION.

SUBMITTALS

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW PRIOR TO FABRICATION.

2. CONTRACTOR TO NOTIFY ENGINEER FOR INSPECTION PRIOR TO CLOSING PENETRATIONS.

3. CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. THE ENGINEER SHALL BE NOTIFIED OF ANY CONDITIONS WHICH PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

4. ALL STEEL MATERIAL EXPOSED TO WEATHER SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 " ZINC (HOT-DIPPED GALVANIZED) COATINGS" ON IRON AND STEEL PRODUCTS.

5. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS FOR REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.

STEEL

1. MATERIAL:

WIDE FLANGE:	ASTM A572, GR 50
TUBING:	ASTM A500, GR C
PIPE:	ASTM A53, GR B
BOLTS:	ASTM A325
GRATING:	TYPE GW-2 (1"x3/16" BARS)
MISC. MATERIAL:	ASTM A36

ALL STEEL SHAPES SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123 WITH A COATING WEIGHT OF 2 OZ/SF.

2. DAMAGED GALVANIZED SURFACES SHALL BE CLEANED WITH A WIRE BRUSH AND PAINTED WITH TWO COATS OF COLD ZINC, "GALVANOX", "DRY GALV", "ZINC IT", OR APPROVED EQUIVALENT, IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES. TOUCH UP DAMAGED NON GALVANIZED STEEL WITH SAME PAINT IN SHOP OR FIELD.

3. DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC "MANUAL OF STEEL CONSTRUCTION" 13TH EDITION.

4. THE STEEL STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER COMPLETION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION.

5. ALL STEEL ELEMENTS SHALL BE INSTALLED PLUMB AND LEVEL.

6. TOWER MANUFACTURER'S DESIGNS SHALL PREVAIL FOR TOWER.

CONNECTIONS

1. CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE AISC "MANUAL OF STEEL CONSTRUCTION" 13TH EDITION. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION UNLESS OTHERWISE DETAILED. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

2. DESIGN CONNECTIONS AT BEAM ENDS FOR 10 KIPS (MIN).

3. ALL BUILDING CONNECTION POINTS ARE TO BE CENTERED OVER BEARING WALLS

4. CONNECTIONS SHALL BE MADE USING ASTM A325 BOLTS (SNUG TIGHT OR SLIP CRITICAL) OR WELDS. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.

5. NUT LOCKING DEVICES ARE REQUIRED FOR ALL BOLT ASSEMBLIES.

6. GRATING SHALL BE ATTACHED USING FOR GRATING CLAMPS OR 1/4 INCH FILLET WELDS. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY BE 5/8" DIAMETER GALVANIZED ASTM A307 BOLTS UNLESS OTHERWISE NOTED.

7. ALL BOLTS, ANCHORS, AND MISCELLANEOUS HARDWARE EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".

8. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". UPON COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED. SEE NOTE ABOVE.

9. USE THE LARGER OF 1/4 INCH FILLET WELDS OR MINIMUM SIZE PER AISC REQUIREMENTS WHERE NO WELD SIZE IS SHOWN ON THE DRAWINGS.

10. ALL ARC AND GAS WELDING SHALL BE DONE BY LICENSED AND CERTIFIED WELDER IN ACCORDANCE WITH AMERICAN WELDING SOCIETY.

11. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. UPON THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATINGS SHALL REPAIRED.

12. USE PRECAUTIONS AND PROCEDURES PER AWS D1.1 WHEN WELDING GALVANIZED METALS.

ANCHORS

1. EXPANSION ANCHORS SHALL BE USED WHERE ATTACHING TO CONCRETE. MASONRY MOUNTS SHALL HAVE INJECTION ADHESIVE ANCHORING.

2. EXPANSION BOLTS SHALL BE HILTI KWIK BOLT 3 OR APPROVED EQUAL. MINIMUM EMBEDMENT SHALL BE 4 INCHES.

3. INJECTION ADHESIVE ANCHORING IN MASONRY WITH VOIDS SHALL BE HILTI HY-70 OR EQUAL WITH THREADED ROD AND SCREEN TUBES TO THE FOLLOWING BASE MATERIALS.

   BRICK WITH HOLES:
   SPACE ANCHORS 2 COMPLETE BRICKS APART MINIMUM.
   MAINTAIN 2 COMPLETE BRICKS OR 16 INCHES FROM FREE EDGES (WHICHEVER IS LESS).
   EMBEDMENT: 3 1/2 INCHES MINIMUM.

   HOLLOW CONCRETE BLOCK:
   USE 50% MORE ANCHORS THAN SHOWN IN DETAIL.
   SPACING: ONE ANCHOR MAXIMUM PER BLOCK CELL.
   MAINTAIN 12 INCH SPACING FROM FREE EDGES.
   EMBEDMENT: THROUGH FACE.

4. INJECTION ADHESIVE ANCHORING IN SOLID MASONRY AND GROUT FILLED BLOCK SHALL BE HILTI HIT HY-200 OR EQUAL WITH THREADED ROD. MAINTAIN 12 INCH SPACING BETWEEN ANCHORS AND ALL FREE EDGES. MINIMUM SPACING BETWEEN ANCHORS IS 8 INCHES.

5. ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT BE INSTALLED IN MORTAR JOINTS.

6. GRATING SHALL BE ATTACHED USING FOR GRATING CLAMPS OR 1/4 INCH FILLET WELDS. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY BE 5/8" DIAMETER GALVANIZED ASTM A307 BOLTS UNLESS OTHERWISE NOTED.

SITE GENERAL

1. CONTRACTOR SHALL FOLLOW CONDITIONS OF ALL APPLICABLE PERMITS AND WORK IN ACCORDANCE WITH OSHA REGULATIONS.

2. THESE PLANS DEPICT KNOWN UNDERGROUND STRUCTURES, CONDUITS, AND/OR PIPELINES. THE LOCATIONS FOR THESE ELEMENTS ARE BASED UPON THE VARIOUS RECORD DRAWINGS AVAILABLE. THE CONTRACTOR IS HEREBY ADVISED THAT THESE DRAWINGS MAY NOT ACCURATELY DEPICT AS-BUILT LOCATIONS AND OTHER UNKNOWN STRUCTURES. THE CONTRACTOR SHALL THEREFORE DETERMINE THE EXACT LOCATION OF EXISTING UNDERGROUND ELEMENTS AND EXCAVATE WITH CARE AFTER CALLING MARKOUT SERVICE AT 1-800-272-4480 48 HOURS BEFORE DIGGING, DRILLING OR BLASTING.

3. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, AND OTHER UTILITIES WHERE ENCOUNTERED, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION, SHALL BE RELOCATED AS DIRECTED BY ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL HAND DIG UTILITIES AS NEEDED. CONTRACTOR SHALL PROVIDE, BUT IS NOT LIMITED TO, APPROPRIATE A) FALL PROTECTION, B) CONFINED SPACE ENTRY, C) ELECTRICAL SAFETY, AND D) TRENCHING AND EXCAVATION.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, OR OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT THE POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE CONSTRUCTION MANAGER.

6. CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING STRUCTURES OR UTILITIES DAMAGED DURING CONSTRUCTION.

7. CONTRACTOR SHALL PROTECT EXISTING PAVED AND GRAVEL SURFACES, CURBS, LANDSCAPE AND STRUCTURES AND RESTORE SITE OR PRE-CONSTRUCTION CONDITION WITH AS GOOD, OR BETTER, MATERIALS. NEW MATERIALS SHALL MATCH EXISTING THICKNESS AND TYPE.

8. THE CONTRACTOR SHALL SHORE ALL TRENCH EXCAVATIONS GREATER THAN 5 FEET IN DEPTH OR LESS WHERE SOIL CONDITIONS ARE DEEMED UNSTABLE. ALL SHEETING AND/OR SHORING METHODS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.

9. THE CONTRACTOR IS RESPONSIBLE FOR MANAGING GROUNDWATER LEVELS IN THE VICINITY OF EXCAVATIONS TO PROTECT ADJACENT PROPERTIES AND NEW WORK. GROUNDWATER SHALL BE DRAINED IN ACCORDANCE WITH LOCAL SEDIMENTATION AND EROSION CONTROL GUIDELINES.

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PROJECT NO:	403093
DRAWN BY:	TYW
CHECKED BY:	JR

REV	DATE	DESCRIPTION
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EAST WINDSOR AWC
112 PROSPECT HILL RD
EAST WINDSOR, CT 06088

SHEET TITLE
NOTES & SPECIFICATIONS

SHEET NUMBER
N-1

ELECTRICAL

1. CONTRACTOR SHALL VERIFY EXISTING ELECTRIC SERVICE TYPE AND CAPACITY AND ORDER NEW ELECTRIC SERVICE FROM LOCAL ELECTRIC UTILITY, WHERE APPLICABLE.
2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES, AND SHALL BE ACCEPTABLE TO ALL AUTHORITIES HAVING JURISDICTION. WHERE A CONFLICT EXISTS BETWEEN CODES, PLAN AND SPECIFICATIONS, OR AUTHORITIES HAVING JURISDICTION, THE MORE STRINGENT AUTHORITIES SHALL APPLY.
3. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC, FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN AND/OR OTHERWISE REQUIRED.
4. ALL ELECTRICAL CONDUCTORS SHALL BE 100% COPPER AND SHALL HAVE TYPE THHN INSULATION UNLESS INDICATED OTHERWISE.
5. CONDUIT SHALL BE THREADED RIGID GALVANIZED STEEL OR EMT WITH ONLY COMPRESSION TYPE COUPLINGS AND CONNECTORS, ALL MADE UP WRENCH TIGHT.
6. ALL BURIED CONDUIT SHALL BE MINIMUM SCH 40 PVC UNLESS NOTED OTHERWISE, OR AS PER LOCAL CODE REQUIREMENTS.
7. PROVIDE FLEXIBLE STEEL CONDUIT OR LIQUID TIGHT FLEXIBLE STEEL CONDUIT TO ALL VIBRATING EQUIPMENT, INCLUDING HVAC UNITS, TRANSFORMERS, MOTORS, ETC, OR WHERE EQUIPMENT IS PLACED UPON A SLAB ON GRADE.
8. ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR BONDED TO ALL ENCLOSURES, PULLBOXES, ETC.
9. CONDUIT AND CABLE WITHIN CORRIDORS SHALL BE CONCEALED AND EXPOSED ELSEWHERE, UNLESS NOTED OTHERWISE.
10. ELECTRICAL MATERIALS INSTALLED ON ROOFTOP SHALL BE LISTED FOR NEMA 3R USE. –AND ALL WIRING WITHIN A VENTILATION DUCT SHALL BE LISTED FOR SUCH USE. IN GENERAL WIRING METHODS WITHIN A DUCT SHALL BE AN MC CABLE WITH SMOOTH OR CORRUGATED METAL JACKET AND HAVE NO OUTER COVERING OVER THE METAL JACKET. INTERLOCKED ARMOR TYPE OF MC CABLE IS NOT ACCEPTABLE FOR THIS APPLICATION. CONTRACTOR CAN ALSO USE TYPE MI CABLE IN THE VENTILATION DUCT PROVIDED IT DOES NOT HAVE ANY OUTER COVERINGS OVER THE METAL EXTERIOR.
11. WIRING DEVICES SHALL BE SPECIFICATION GRADE, AND WIRING DEVICE COVER PLATES SHALL BE PLASTIC WITH ENGRAVING AS SPECIFIED.
12. GROUNDING SYSTEM RESISTANCE SHALL BE MEASURED, RECORDED, AND DATED USING MEGGER DET14 OR SIMILAR INSTRUMENT. GROUND RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION.
13. COORDINATE WITH BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK INVOLVING EXISTING SYSTEMS OR EQUIPMENT IN ORDER TO DETERMINE THE EFFECT, IF ANY, ON OTHER TENANTS WITHIN THE BUILDING, AND TO DETERMINE THE APPROPRIATE TIME FOR PERFORMING THIS WORK.
14. THE CONTRACTOR SHALL BE REQUIRED TO VISIT THE SITE PRIOR TO SUBMITTING BID IN ORDER TO DETERMINE THE EXTENT OF THE EXISTING CONDITIONS.
15. ALL CONDUCTOR ENDS SHALL BE TAGGED AND ELECTRICAL EQUIPMENT LABELED WITH ENGRAVED IDENTIFICATION PLATES.
16. CONTRACTOR IS RESPONSIBLE FOR ALL CONTROL WIRING AND ALARM TIE–INS.

GROUNDING

1. #6 THWN SHALL BE STRANDED #6 COPPER WITH GREEN THWN INSULATION SUITABLE FOR WET INSTALLATIONS.
2. #2 THWN SHALL BE STRANDED #2 COPPER WITH THWN INSULATION SUITABLE FOR WET INSTALLATIONS.
3. #2 BARE TINNED SHALL BE SOLID COPPER TINNED. ALL BURIED WIRE SHALL MEET THIS CRITERIA.
4. ALL LUGS SHALL BE 2–HOLE, LONG BARREL, TINNED SOLID COPPER UNLESS OTHERWISE SPECIFIED, LUGS SHALL BE THOMAS AND BETTS SERIES 548##BE OR EQUIVALENT (IE #2 THWN – 54856BE, #2 SOLID – 54856BE, AND #6 THWN – 54852BE).
5. ALL HARDWARE, BOLTS, NUTS, AND WASHERS SHALL BE 18–8 STAINLESS STEEL. EVERY CONNECTION SHALL BE BOLT–FLAT WASHER–BUSS–LUG–FLAT WASHER–BELLEVILLE WASHER–NUT IN THAT EXACT ORDER. BACK–TO–BACK LUGGING, BOLT–FLAT WASHER–LUG–BUSS–LUG–FLAT WASHER–BELLEVILLE WASHER–NUT, IN THAT EXACT ORDER, IS ACCEPTED WHERE NECESSARY TO CONNECT MANY LUGS TO A BUSS BAR. STACKING OF LUGS, BUSS–LUG–LUG, IS NOT ACCEPTABLE.
6. WHERE CONNECTIONS ARE MADE TO STEEL OR DISSIMILAR METALS, A THOMAS AND BETTS DRAGON TOOTH WASHER MODEL DTWXXX SHALL BE USED BETWEEN THE LUG AND THE STEEL, BOLT–FLAT WASHER–STEEL–DRAGON TOOTH WASHER–LUG–FLAT WASHER–BELEVILE WASHER–NUT.
7. ALL CONNECTIONS, INTERIOR AND EXTERIOR, SHALL BE MADE WITH THOMAS AND BETTS KPOR–SHIELD. COAT ALL WIRES BEFORE LUGGING AND COAT ALL SURFACES BEFORE CONNECTING.
8. THE MINIMUM BEND RADIUS SHALL BE 8 INCHES FOR #6 WIRE AND SMALLER AND 12 INCHES FOR WIRE LARGER THAN #6.
9. ALL CONNECTIONS TO THE GROUND RING SHALL BE EXOTHERMIC WELD.
10. BOND THE FENCE TO THE GROUND RING AT EACH CORNER, AND AT EACH GATE POST WITH #2 SOLID TINNED WIRE. EXOTHERMIC WELD BOTH ENDS.
11. GROUND KITS SHALL BE SOLID COPPER STRAP WITH #6 WIRE 2–HOLE COMPRESSION CRIMPED LUGS AND SHALL BE SEALED ACCORDING TO MANUFACTURER INSTRUCTIONS.
12. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL BE USED.
13. GROUND BARS SHALL BE FURNISHED AND INSTALLED WITH PRE–DRILLED HOLE DIAMETERS AND SPACINGS. GROUND BARS SHALL NEITHER BE FIELD FABRICATED NOR NEW HOLES DRILLED. GROUND LUGS SHALL MATCH THE SPACING ON THE BAR. HARDWARE DIAMETER SHALL BE MINIMUM 3.8 INCH.
14. MGB GROUND CONNECTION SHALL BE EXOTHERMIC WELDED TO THE GROUND SYSTEM.
15. ALL CABLE TRAY AND/OR PLATFORM STEEL SHALL BE BONDED TOGETHER WITH JUMPERS (#6 IN EQUIPMENT ROOM, #2 ELSEWHERE AND HOMERUN).

CABLE TRAY

1. CABLE TRAY SHALL BE MADE OF EITHER CORROSION RESISTANT METAL OR WITH A CORROSION RESISTANT FINISH.
2. CABLE TRAY SHALL BE OF LADDER TRAY TYPE WITH FLAT COVER CLAMPED TO SIDE RAILS.
3. CABLE LADDER SHALL BE SIZED TO FIT ALL CABLES IN ACCORD WITH NEC AND NEMA 11–15–84.
4. CABLE LADDER TRAYS SHALL BE NEMA CLASS 12A BY PW INDUSTRIES, INC OR EQUAL.
5. CABLE LADDER TRAY SHALL BE SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
6. ALL WORKMANSHIP SHALL CONFORM TO THESE REQUIREMENTS AND ALL LOCAL CODES AND STANDARDS TO ENSURE SAFE AND ADEQUATE GROUNDING SYSTEM.

ANTENNA & CABLE NOTES

1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRANSMISSION CABLES, JUMPERS, CONNECTORS, GROUNDING STRAPS, ANTENNAS, MOUNTS AND HARDWARE. ALL MATERIALS SHALL BE INSPECTED BY THE CONTRACTOR FOR DAMAGE UPON DELIVERY. JUMPERS SHALL BE SUPPLIED AT ANTENNAS AND EQUIPMENT INSIDE SHELTER COORDINATE LENGTH OF JUMP CABLES WITH EVERSOURCE. COORDINATE AND VERIFY ALL OF THE MATERIALS TO BE PROVIDED WITH EVERSOURCE PRIOR TO SUBMITTING BID AND ORDERING MATERIALS.
2. AFTER INSTALLATION, THE TRANSMISSION LINE SYSTEM SHALL BE PIM/SWEEP TESTED FOR PROPER INSTALLATION AND DAMAGE WITH ANTENNAS CONNECTED. CONTRACTOR TO OBTAIN LATEST TESTING PROCEDURES FROM EVERSOURCE PRIOR TO BIDDING.
3. ANTENNA CABLES SHALL BE COLOR CODED AT THE FOLLOWING LOCATIONS:
   – AT THE ANTENNAS.
   – AT THE WAVEGUIDE ENTRY PLATE ON BOTH SIDES OF THE EQUIPMENT SHELTER WALL.
   – JUMPER CABLES AT THE EQUIPMENT ENTER.
4. SYSTEM INSTALLATION:
   THE CONTRACTOR SHALL INSTALL ALL CABLES AND ANTENNAS TO THE MANUFACTURER'S SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR THE PROCUREMENT AND INSTALLATION OF THE FOLLOWING:
   – ALL CONNECTORS, ASSOCIATED CABLE MOUNTING, AND GROUNDING HARDWARE.
   – WALL MOUNTS, STANDOFFS, AND ASSOCIATED HARDWARE.
   – 1/2 INCH HELIAX ANTENNA JUMPERS OF APPROPRIATE LENGTHS.
5. MINIMUM BENDING RADIUS FOR COAXIAL CABLES:
   – 7/8 INCH, RMIN = 15 INCHES
   – 1 5/8 INCH, RMIN = 25 INCHES
6. CABLE SHALL BE INSTALLED WITH A MINIMUM NUMBER OF BENDS WHERE POSSIBLE. CABLE SHALL NOT BE LEFT UNTERMINATED AND SHALL BE SEALED IMMEDIATELY AFTER BEING INSTALLED.
7. ALL CABLE CONNECTIONS OUTSIDE SHALL BE COVERED WITH WATERPROOF SPLICING KIT.
8. CONTRACTOR SHALL VERIFY EXACT LENGTH AND DIRECTION OF TRAVEL IN FIELD PRIOR TO CONSTRUCTION.
9. CABLE SHALL BE FURNISHED WITHOUT SPLICES AND WITH CONNECTORS AT EACH END.

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PROJECT NO:	403093
DRAWN BY:	TYW
CHECKED BY:	JR

REV	DATE	DESCRIPTION
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STATE OF CONNECTICUT · JOSHUA J. RILEY · 33208 · LICENSED PROFESSIONAL ENGINEER

03/25/2020

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EAST WINDSOR AWC
112 PROSPECT HILL RD
EAST WINDSOR, CT 06088

SHEET TITLE
NOTES
& SPECIFICATIONS

SHEET NUMBER
N-2

SYMBOLS

●	EXOTHERMIC CONNECTION
■	COMPRESSION CONNECTION
	5/8"ø x 10'-0" COPPER CLAD STEEL GROUND ROD.
	TEST GROUND ROD WITH INSPECTION SLEEVE
	GROUNDING CONDUCTOR
(A)	KEY NOTES
CHAINLINK FENCE	X X X X X
WOOD FENCE	
LEASE AREA	
ICE BRIDGE	
CABLE TRAY	
GAS LINE	G G G G G
UNDERGROUND ELECTRICAL/TELCO	E/T E/T E/T E/T
UNDERGROUND ELECTRICAL/CONTROL	E/C E/C E/C E/C
UNDERGROUND ELECTRICAL	E E E E E
UNDERGROUND TELCO	T T T T T
PROPERTY LINE (PL)	

ABBREVIATIONS

AC	ALTERNATING CURRENT
AIC	AMPERAGE INTERRUPTION CAPACITY
ANI	AUXILIARY NETWORK INTERFACE
ATM	ASYNCHRONOUS TRANSFER MODE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
AWS	ADVANCED WIRELESS SERVICES
BATT	BATTERY
BBU	BASEBAND UNIT
BTC	BARE TINNED COPPER CONDUCTOR
BTS	BASE TRANSCEIVER STATION
CCU	CLIMATE CONTROL UNIT
CDMA	CODE DIVISION MULTIPLE ACCESS
CHG	CHARGING
CLU	CLIMATE UNIT
COMM	COMMON
DC	DIRECT CURRENT
DIA	DIAMETER
DWG	DRAWING
EC	ELECTRICAL CONDUCTOR
EMT	ELECTRICAL METALLIC TUBING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
HVAC	HEAT/VENTILATION/AIR CONDITIONING
ICF	INTERCONNECTION FRAME
IGR	INTERIOR GROUNDING RING (HALO)
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUNDING BAR
MIN	MINIMUM
MW	MICROWAVE
MTS	MANUAL TRANSFER SWITCH
NEC	NATIONAL ELECTRICAL CODE
OC	ON CENTER
PP	POLARIZING PRESERVING
PCU	PRIMARY CONTROL UNIT
PDU	PROTOCOL DATA UNIT
PWR	POWER
RECT	RECTIFIER
RET	REMOTE ELECTRICAL TILT
RMC	RIGID METALLIC CONDUIT
RF	RADIO FREQUENCY
RUC	RACK USER COMMISSIONING
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SFP	SMALL FORM-FACTOR PLUGGABLE
SIAD	SMART INTEGRATED ACCESS DEVICE
SSC	SITE SOLUTIONS CABINET
T1	1544KBPS DIGITAL LINE
TDMA	TIME-DIVISION MULTIPLE ACCESS
TMA	TOWER MOUNT AMPLIFIER
TVSS	TRANSIENT VOLTAGE SUPPRESSION SYSTEM
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATION SYSTEM
UPS	UNINTERRUPTIBLE POWER SUPPLY (DC POWER PLANT)

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STATE OF CONNECTICUT
JOSHUA J. RILEY
33208
LICENSED PROFESSIONAL ENGINEER

Joshua Riley

03/25/2020

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SHEET TITLE

NOTES
& SPECIFICATIONS

SHEET NUMBER

N-3

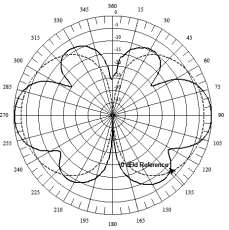
REFERENCE CUTSHEETS

VHF Omni Antennas (160-222 MHz)

		160-174 MHz						217-222 MHz									
	Model Number	DS1G03F36U-N	DS1G03F36U-D	DS1G06F36U-N	DS1G06F36U-D	DS1G03F36D-N	DS1G03F36D-D	DS2C00F36U-N	DS2C00F36U-D	DS2C03F36U-N	DS2C03F36U-D	DS2C06F36U-N	DS2C06F36U-D	DS2C00F36D-N	DS2C00F36D-D	DS2C03F36D-N	DS2C03F36D-D
	Input Connector	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN
	Type	Single		Single		Dual		Single		Single		Single		Dual		Dual	
ELECTRICAL	**Bandwidth**, MHz	14		14		14		5		5		5		5		5	
ELECTRICAL	**Power**, Watts	500		500		350		500		500		500		350		350	
ELECTRICAL	**Gain**, dBd	3		6		3		0		3		6		0		3	
ELECTRICAL	**Horizontal Beamwidth**, degrees	360		360		360		360		360		360		360		360	
ELECTRICAL	**Vertical Beamwidth**, degrees	30		16		30		60		30		16		60		30	
ELECTRICAL	**Beam Tilt**, degrees	0		0		0		0		0		0		0		0	
ELECTRICAL	**Isolation (minimum)**, dB	N/A		N/A		30		N/A		N/A		N/A		30		30	
MECHANICAL	**Number of Connectors**	1		1		2		1		1		1		2		2	
MECHANICAL	**Flat Plate Area**, $ft^2(m^2)$	2.53 (0.24)		4.38 (0.41)		4.5 (0.42)		1.9 (0.18)		1.9 (0.18)		2.58 (0.24)		2.4 (0.22)		4.1 (0.38)	
MECHANICAL	**Lateral Windload Thrust**, lbf(N)	95 (423)		164 (730)		169 (752)		53 (236)		69 (307)		108 (480)		90 (400)		169 (752)	
MECHANICAL	**Survival Wind Speed**																
MECHANICAL	**without ice**, mph(kph)	110 (177)		75 (121)		75 (121)		222 (357)		172 (277)		110 (177)		130 (209)		75 (121)	
MECHANICAL	**with 0.5" radial ice**, mph(kph)	93 (150)		60 (97)		65 (105)		193 (311)		150 (241)		96 (154)		115 (185)		65 (105)	
MECHANICAL	**Mounting Hardware** included	DSH3V3R		DSH3V3N		DSH3V3N		DSH2V3R		DSH2V3R		DSH3V3N		DSH3V3R		DSH3V3N	
DIMENSIONS	**Length**, ft(m)	12.7 (3.9)		21.9 (6.7)		22.3 (6.8)		7.7 (2.3)		9.9 (3)		18.1 (5.5)		13.6 (4.1)		24.3 (7.4)	
DIMENSIONS	**Radome O.D.**, in(cm)	3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)	
DIMENSIONS	**Mast O.D.**, in(cm)	2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)	
DIMENSIONS	**Net Weight** w/o bracket, lb(kg)	37 (16.8)		60 (27.2)		63 (28.6)		19 (8.6)		26 (11.8)		47 (21.3)		40 (18.1)		70 (31.8)	
DIMENSIONS	**Shipping Weight**, lb(kg)	67 (30.4)		90 (40.8)		93 (42.2)		39 (17.7)		56 (25.4)		77 (34.9)		70 (31.8)		100 (45.4)	

VERTICAL PATTERNS

DS1G03F36U-N
DS1G03F36U-D



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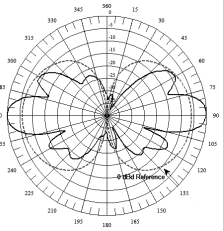

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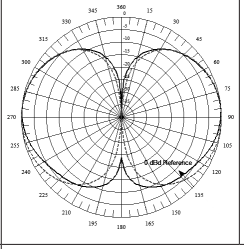

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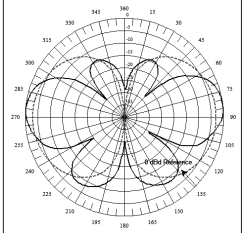

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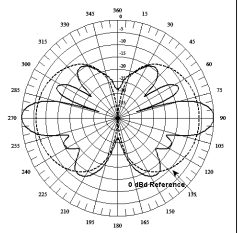

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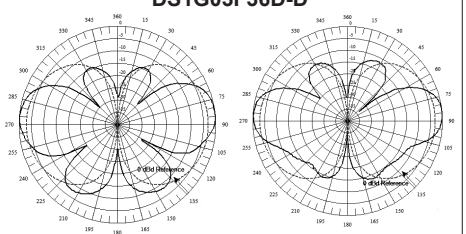

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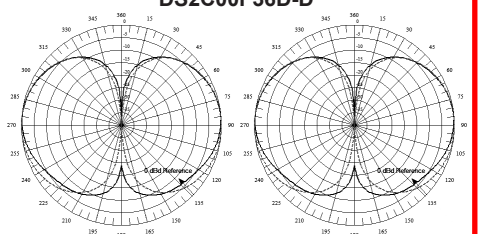

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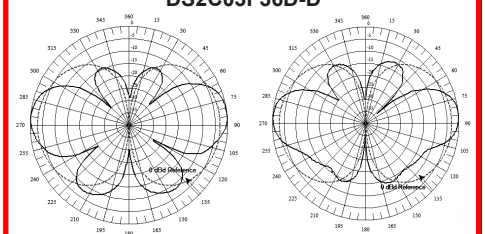
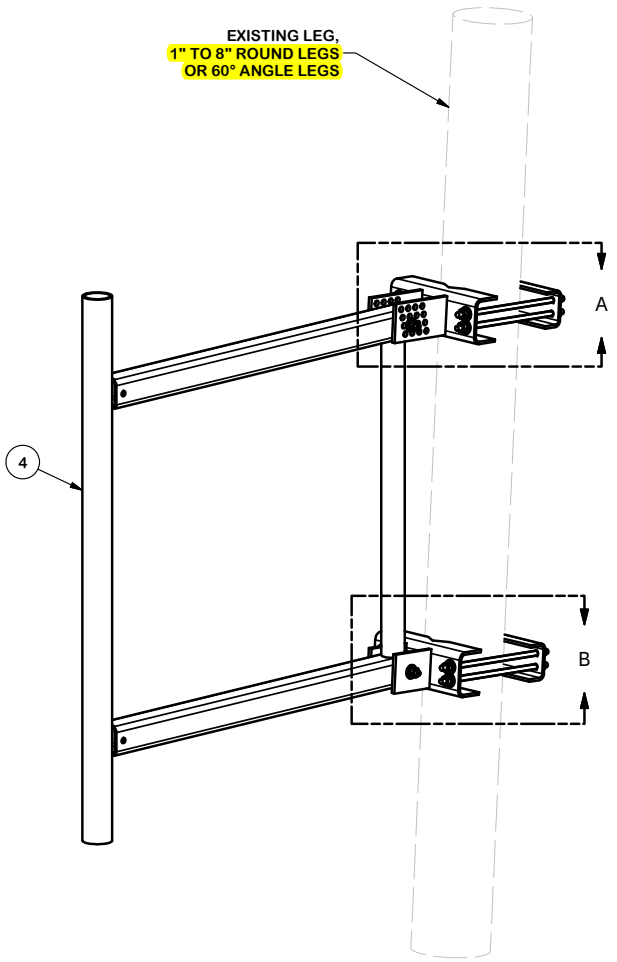
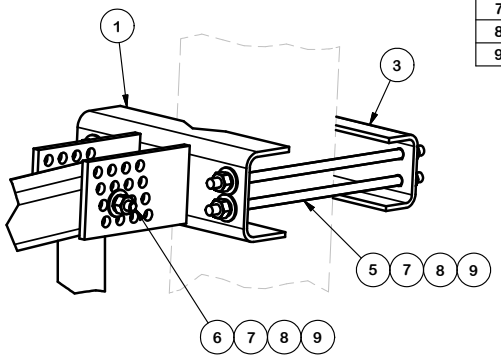


Top Bottom

TOWER/MAST SIZE AT PROPOSED ANTENNA ATTACHMENT = 4-1/2" DIAMETER.

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	CFM	UPPER GATE FOOT WELDMENT		13.90	13.90
2	1	CFS	LOWER GATE FOOT WELDMENT		12.72	12.72
3	2	GBB	GATE BACKING BAR		4.53	9.06
4	1	4PBG	48" PIPE MOUNT STANDOFF ARM		113.96	113.96
5	8	G12R-12	1/2" x 12" GALV. THREADED ROD		0.67	5.35
5	8	G12R-15	1/2" x 15" GALV. THREADED ROD		0.84	6.69
6	2	A1205	1/2" x 5" A325 HDG BOLT		0.34	0.69
7	18	G12FW	1/2" HDG USS FLATWASHER		0.03	0.61
8	18	G12LW	1/2" HDG LOCKWASHER		0.01	0.25
9	18	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.29
					TOTAL WT. #	164.53





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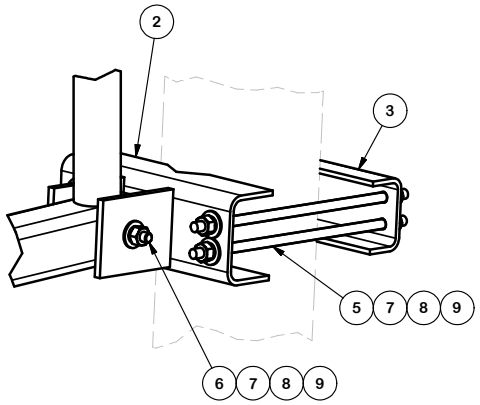

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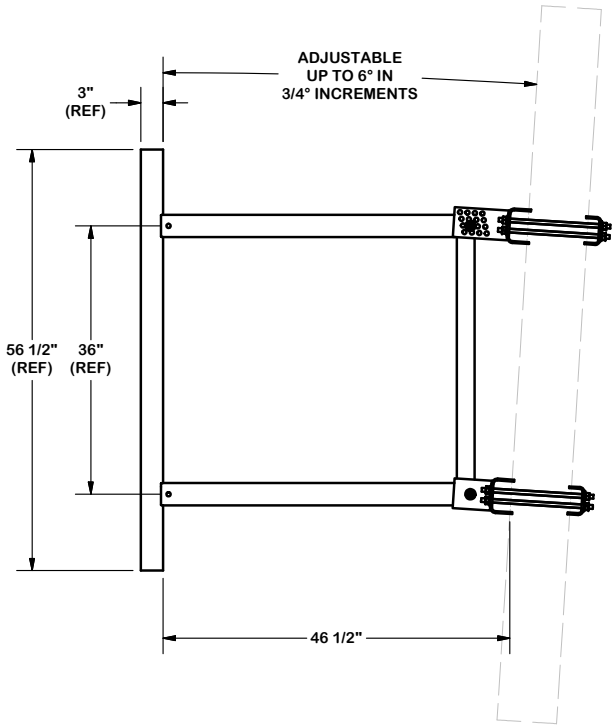


TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

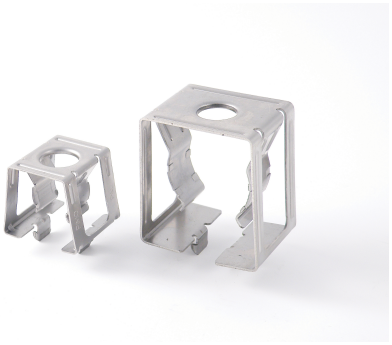
DESCRIPTION: 48" ULTIMATE UNIVERSAL STANDOFF FRAME

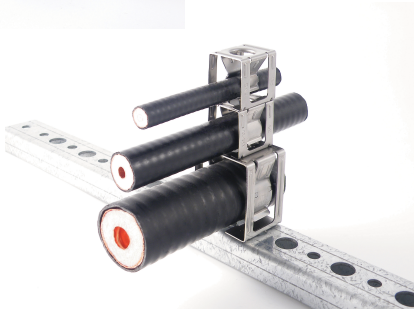
SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	RCH 2/4/2011		USF-4U	1 OF 1

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 2/16/2011	USF-4U

MonoBloc Stackable Snap-In Hangers (SIC1, SIC2, SIC3, SIC4)





Features:

- Allows cable attachment without the need for hardware
- One-hand mounting
- Stack up to four 1/2”, 7/8” or 1-1/4” cables or three 1-5/8” cables

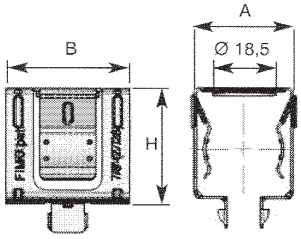
Construction:

- 301 stainless steel

Design Criteria:

- Can be used outdoors or indoors

Part #	AT&T	Cable Size	U of M	A	B	H
SIC1	CEQ.11469	1/2”	10 pack	1-1/4”	1-9/16”	1-1/2”
SIC2	ANT.13860	7/8”	10 pack	1-1/4”	1-9/16”	1-1/2”
SIC3	ANT.13859	1-1/4”	10 pack	2-1/4”	1-3/4”	2-5/8”
SIC4	ANT.12719	1-5/8”	10 pack	2-1/4”	1-3/4”	2-5/8”



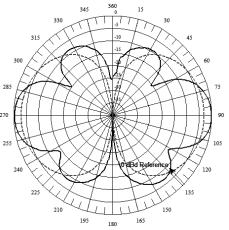
Attachment 2 – Antenna Specifications

VHF Omni Antennas (160-222 MHz)

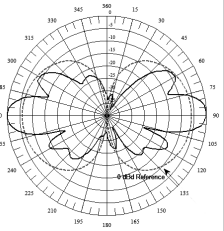
		160-174 MHz						217-222 MHz									
	Model Number	DS1G03F36U-N	DS1G03F36U-D	DS1G06F36U-N	DS1G06F36U-D	DS1G03F36D-N	DS1G03F36D-D	DS2C00F36U-N	DS2C00F36U-D	DS2C03F36U-N	DS2C03F36U-D	DS2C06F36U-N	DS2C06F36U-D	DS2C00F36D-N	DS2C00F36D-D	DS2C03F36D-N	DS2C03F36D-D
	Input Connector	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN
	Type	Single		Single		Dual		Single		Single		Single		Dual		Dual	
ELECTRICAL	**Bandwidth**, MHz	14		14		14		5		5		5		5		5	
ELECTRICAL	**Power**, Watts	500		500		350		500		500		500		350		350	
ELECTRICAL	**Gain**, dBd	3		6		3		0		3		6		0		3	
ELECTRICAL	**Horizontal Beamwidth**, degrees	360		360		360		360		360		360		360		360	
ELECTRICAL	**Vertical Beamwidth**, degrees	30		16		30		60		30		16		60		30	
ELECTRICAL	**Beam Tilt**, degrees	0		0		0		0		0		0		0		0	
ELECTRICAL	**Isolation (minimum)**, dB	N/A		N/A		30		N/A		N/A		N/A		30		30	
MECHANICAL	**Number of Connectors**	1		1		2		1		1		1		2		2	
MECHANICAL	**Flat Plate Area**, $ft^2(m^2)$	2.53 (0.24)		4.38 (0.41)		4.5 (0.42)		1.9 (0.18)		1.9 (0.18)		2.58 (0.24)		2.4 (0.22)		4.1 (0.38)	
MECHANICAL	**Lateral Windload Thrust**, lbf(N)	95 (423)		164 (730)		169 (752)		53 (236)		69 (307)		108 (480)		90 (400)		169 (752)	
MECHANICAL	**Survival Wind Speed**																
MECHANICAL	**without ice**, mph(kph)	110 (177)		75 (121)		75 (121)		222 (357)		172 (277)		110 (177)		130 (209)		75 (121)	
MECHANICAL	**with 0.5" radial ice**, mph(kph)	93 (150)		60 (97)		65 (105)		193 (311)		150 (241)		96 (154)		115 (185)		65 (105)	
MECHANICAL	**Mounting Hardware** included	DSH3V3R		DSH3V3N		DSH3V3N		DSH2V3R		DSH2V3R		DSH3V3N		DSH3V3R		DSH3V3N	
DIMENSIONS	**Length**, ft(m)	12.7 (3.9)		21.9 (6.7)		22.3 (6.8)		7.7 (2.3)		9.9 (3)		18.1 (5.5)		13.6 (4.1)		24.3 (7.4)	
DIMENSIONS	**Radome O.D.**, in(cm)	3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)	
DIMENSIONS	**Mast O.D.**, in(cm)	2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)	
DIMENSIONS	**Net Weight** w/o bracket, lb(kg)	37 (16.8)		60 (27.2)		63 (28.6)		19 (8.6)		26 (11.8)		47 (21.3)		40 (18.1)		70 (31.8)	
DIMENSIONS	**Shipping Weight**, lb(kg)	67 (30.4)		90 (40.8)		93 (42.2)		39 (17.7)		56 (25.4)		77 (34.9)		70 (31.8)		100 (45.4)	

VERTICAL PATTERNS

DS1G03F36U-N
DS1G03F36U-D



DS1G06F36U-N
DS1G06F36U-D



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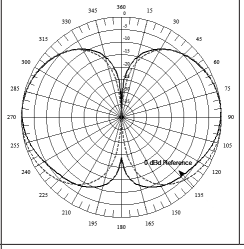
DS2C00F36U-D



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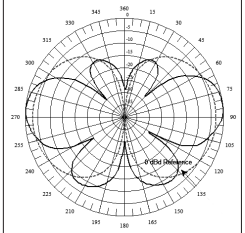

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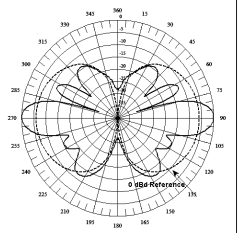

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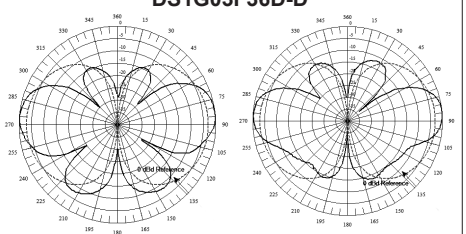
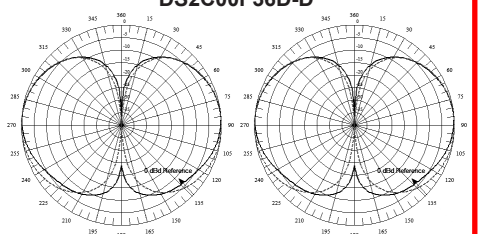
DS1G03F36D-D



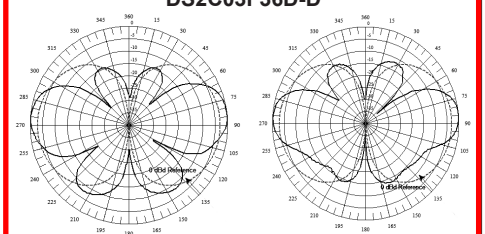
Top Bottom

DS2C00F36D-N
DS2C00F36D-D



Top Bottom

DS2C03F36D-N
DS2C03F36D-D



Top Bottom

Attachment 3 – Structural Analysis

STRUCTURAL ANALYSIS OF PROPOSED ANTENNA MOUNT AND EXISTING BUILDING WALL

EAST WINDSOR AWC
112 PROSPECT HILL ROAD
EAST WINDSOR, CT 06088-9688

B&V PROJECT NO. 403093
PROJECT NAME: LMR EPC PHASE 1.5

PREPARED FOR

EVERSOURCE ENERGY

107 SELDEN STREET
BERLIN, CT 06037

BLACK & VEATCH
Building a world of difference.

BLACK & VEATCH CORPORATION
6800 WEST 115TH ST, SUITE 2292
OVERLAND PARK, KANSAS 66211

March 24, 2020

03/24/2020

TABLE OF CONTENTS

BLACK & VEATCH

Owner:	EVERSOURCE	Computed By:	Nattakit S.
Site Name:	EAST WINDSOR AWC	Date:	2/21/2020
Project No.	403093 File No.	Verified By:	K. Hyun
Title:	STRUCTURAL ANALYSIS OF PROPOSED ANTENNA MOUNT AND EXISTING BUILDING WALL	Date:	2/21/2020

1. PURPOSE

The purpose of this calculation is to evaluate the exisiting antenna mount and building wall under existing and proposed loading.

2. REFERENCES

A. 2018 Connecticut State Building Code

B. International Building Code, IBC 2015

C. Structural Standard for Antenna Supporting Structures and Antennas, TIA-222-H

D. American Society of Civil Engineers, ASCE 7-10

E. American Institute of Steel Construction, 14th Edition

F. Structural Analysis Completed by Natcomm Consulting Engineers, dated 02/04/2010

G. Site Photos

3. ASSUMPTIONS

- For CMU wall analysis, f'm = 1000psi based on type N. mortar (conservative assumption).

4. CONCLUSION

Design Criteria based on: **2018 Connecticut State Building Code**

Wind

Wind Speed:	135	mph
Exposure Category:	C	
Topographic Factor K_{zt}:	1.00	
Risk Category:	III	

Ice

Ice Thickness:	1.00	inch
Ice Wind:	50	mph

Seismic

Seismic Importance Factor:	1.25
Seismic S_{DS}:	0.189g
Seismic Design Category:	B

4.1 Structural Analysis of Existing Antenna Mount

The existing mast pipe shall be replaced with a Pipe 3 xx-Strong of the same length.

Governing Load Combination:	1.2DL + WL (0 DEG)	
Max Stress Ratio on Proposed Pipe Mast: Pipe 3.0 xx-Strong:	99.3%	*
Governing Load Combination:	Envelope	
Max Stress Ratio on Existing Thru-bolts:	29.9%	*
The Existing Antenna Mount Result:	**SUFFICIENT**	

* Note: The % ratio rating per TIA-222-H Section 15.5.

4.2 Structural Analysis of Existing Building Wall

The Existing Building Wall Result: **SUFFICIENT**

By engineering judgement, the proposed loading will not compromise the existing structure, thus the existing structure is deemed sufficient to support the proposed loading.

* Note: The % ratio rating per TIA-222-H Section 15.5.

4. CONCLUSION (CONTINUED)

4.3 Disclaimers

This calculation is based on the loading and equipment position provided by client. If the installed loading and/or equipment position are different from the calculation, the calculation is considered invalid.

This certification assumes that all structural members are in good condition. Contractor shall inspect the condition of all relevant members and connectors and report any perceived deficiencies to the engineer prior to installation of any new equipment.

The contractor shall be responsible for the means and methods of construction. It is contractor's responsibility to provide necessary intermediate or temporary support during construction.

Summary of Final Loading

Eversource's Loading

Final Antenna / Equipment							
Equipment Owner	Equipment Elevation (ft)	Mount Location	Position	Type	Quantity	Manufacturer	Model
Eversource	**40**	**Pipe Mount**	**-**	**Omni**	**1**	**dbSpectra**	**(P) DS2C03F36D-D**

Other Carriers Loading

Final Antenna / Equipment							
Equipment Owner	Equipment Elevation (ft)	Mount Location	Position	Type	Quantity	Manufacturer	Model
Eversource	**36.76**	**Pipe Mount**	**-**	**Whip**	**1**	**Commscope**	**(E) DB586 (2" Ø x 4.38' Tall)**
Yankee Gas	**32.07**	**Pipe Mount**	**-**	**Whip**	**1**	**Telewave**	**(E) ANT150F2 (2.75" Ø x 5' Tall)**

Note:
(E) = Existing Equipment
(P) = Proposed Equipment

REVISED, SUPERSEDED AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED,
INITIALED AND DATED BY THE RESPONSIBLE INDIVIDUAL.

5. ANALYSIS & DESIGN

5.1 Structural Analysis of Existing Antenna Mount

Equipment Dead Load

(P) dbSpectra DS2C03F36D-D	70.0	lbs
(E) Commscope DB586 (2" Ø x 4.38' Tall)	7.9	lbs
(E) Telewave ANT150F2 (2.75" Ø x 5' Tall)	16.0	lbs

Owner:	EVERSOURCE	Computed By:	Nattakit S.
Site Name:	EAST WINDSOR AWC	Date:	2/21/2020
Project No.	403093 File No.	Verified By:	K. Hyun
Title:	STRUCTURAL ANALYSIS OF PROPOSED ANTENNA MOUNT AND EXISTING BUILDING WALL	Date:	2/21/2020

BLACK & VEATCH

Wind Pressure per ASCE 7-10 / IBC 2012 / IBC 2015 / TIA-222-H

	ASCE 7-10 Section #
a. Ultimate Velocity Pressure, $q_{z \text{ or } } q_h$	29.3.2
Basic Wind Speed, Vult = **135** mph	Fig. 26.5-1A
$qz = 0.00256\ Kz\ Kzt\ Kd\ Ke\ Ks\ V^2$	TIA-222-H
= 0.00256 x 1.09 x 1.00 x 0.95 x 1.00 x 1.00 x 135.00^2	Sec. 2.6.11.6
qz = 48.48 psf	
b. Velocity pressure coefficient, Kz	29.3.1
$Kz = 2.01\ (z/z_g)^{2/\alpha}$ Exposure Category = **C**	
= 2.01 (50 / 900^(2/9.5)	
Kz = 1.09 Height above Ground Level, z = **50** ft	Table 29.3-1
α = 9.50 z_g = 900.00 ft	
c. Topographic Factor, Kzt	26.8.2
H = **15** ft	
μ = 0.00	Fig. 26.8-1
γ = 0.00 Hill Shape **Flat Terrain**	
K_1 = 0.00 Crest Type **Upwind**	
$K_2 = (1 - x / \mu\ Lh)$ Distance Upwind of crest, Lh = **15** ft	
= [1 - 15 / (0.0 x 15)]	
K_2 = 0.00 Distance Upwind to Bldg Site, x = **15** ft	
$K_3 = e^{(\gamma z / Lh)}$ $Kzt = [1 + K_1 K_2 K_3]^2$	Eq. 26.8-1
= e^-(0.0 x 50 / 15) = [1 + 0.00 x 0.00 x 0.00]^2	
K_3 = 0.00 Kzt = 1.00	
d. Wind Directionality Factor, Kd	Table 26.6-1
(7) Chimney, Tank & Similar Structures - Round Shape Kd = 0.95	
e. Ground Elevation Factor, Ke Ke = **1.00**	TIA-222-H Table 2-6
f. Rooftop Wind Speed-up Factor, Ks Ks = **1.00**	TIA-222-H Sec. 2.6.7
g. Structure Risk Category **III**	Table 1.5-1
h. Gust Effect Factor, G G = **0.85**	**26.9**

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL.

Wind Load

Wind Velocity Pressure @ z = 50 ft — Q_z = 48.48 psf — **(based on 135 mph wind)**

Gust factor: G = 0.85

Wind Load on Members:

Proposed Pipe Mast: Pipe 3.0 xx-Strong

Depth:	Dp=	3.5 in.		
Force Coefficient:	Ca=	1.2		
Wind Load:	Pp=	Qz*G*Ca*Dp	=	**14.4 plf**

Existing Pipe Mount: Pipe 2.0 STD

Depth:	Dp=	2.38 in.		
Force Coefficient:	Ca=	1.2		
Wind Load:	Pp=	Qz*G*Ca*Dp	=	**9.8 plf**

Existing HSS Bracket

Depth:	Dp=	4 in.		
Force Coefficient:	Ca=	2.0		
Wind Load:	Pp=	Qz*G*Ca*Dp	=	**27.5 plf**

Wind Load (Continued)

Wind Load on Equipment:

(P) dbSpectra DS2C03F36D-D

Dimensions:	B=	0.25	ft.		
	H=	24.30	ft.		
Force Coefficient:	Ca=	1.20			
Wind Load:	Pa=	Qz*G*Ca*B*H		=	**300.4 lbs.**
				=	**12.4 plf**

(E) Commscope DB586 (2" Ø x 4.38' Tall)

Dimensions:	B=	0.17	ft.		
	H=	4.38	ft.		
Force Coefficient:	Ca=	1.20			
Wind Load:	Pa=	Qz*G*Ca*B*H		=	**36.1 lbs.**
				=	**8.2 plf**

(E) Telewave ANT150F2 (2.75" Ø x 5' Tall)

Dimensions:	B=	0.23	ft.		
	H=	5.00	ft.		
Force Coefficient:	Ca=	1.20			
Wind Load:	Pa=	Qz*G*Ca*B*H		=	**56.7 lbs.**
				=	**11.3 plf**

(P) USF-4U Stand-Off

Dimensions:	B=	0.25	ft.		
	H=	4.00	ft.		
Force Coefficient:	Ca=	1.60			
Wind Load:	Pa=	Qz*G*Ca*B*H		=	**65.9 lbs.**
				=	**11.0 plf**

Note:

30° and 60° application of wind load will be considered directly in the load combinations by applying load factors of 0.866 (from cos 30 or sin 60) and 0.5 (from sin 30 or cos 60) 60mph service wind will also be considered directly in the load combinations by applying a reduction factor of **0.198** based on (60mph)^2 / (135mph)^2.

Ice Dead Load

ASCE 7-10 Section #

Design Ice Thickness @ z = 33 ft T_i = **1.00 in.** (Per TIA Annex B) — Fig. 10.2

Note: The design ice thickness shall be escalated with height when calculating the ice weight and wind force on the ice.

Platform and antennas height elevation, Z: 50 ft

Factored Ice Thickness, Tiz at Z for Ice Weight Calculations: — 10.4.6

$T_{iz} = 2.0 * T_i * I_i * f_z * (K_{zt})^{0.35}$ — T_{iz} = **2.61 in** — Eq. 10.4-5

where,

Importance Factor for Ice Thickness, I_i — 10.4.4

Structure Risk Category: III — Table 1.5-1

I_i = 1.25 (multiplier on ice thickness) — Table 1.5-2

Height Factor, f_z — 10.4.3

$f_z = (Z/33)^{0.10}$ = (50 / 33) ^0.10 = 1.04 — Eq. 10.4-4

Topographic Factor, K_{zt} — 10.4.5

$K_{zt} = [1 + K_1 K_2 K_3]^2$ = [1 + 0.00 x 0.00 x 0.00] ^2 = 1.000 — Eq. 26.8-1

K_1 = 0.00 μ = 0.00 γ = 0.00 — Fig. 26.8-1

			(Use same values from wind calcs)
Exposure Category =	C		
Hill Shape =	Flat Terrain		
Crest Type =	Upwind		
Hill Height, H =	15	ft	
Distance Upwind of crest, Lh =	15	ft	
Distance Upwind to Bldg Site, x =	15	ft	

$K_2 = (1 - x / \mu L_h)$ = [1 - 15 / (0.0 x 15)] = 0.00 — Fig. 26.8-1

$K_3 = e^{-(\gamma z / Lh)}$ = e^-(0.0 x 50 / 15) = 0.00 — Fig. 26.8-1

Ice Topographic Factor, $(K_{zt})^{0.35}$ = (1.000) ^0.35 = 1.000 — 10.4.5

The weight of ice shall be based on a unit weight of 56 pcf. (Per TIA-222-G 2.6.8) — 10.4.1

Therefore

W_{ice} = 56pcf * Tiz /12= **12.16 psf**

Ice Dead Load (Continued)

Design Ice Thickness @ z = 33 ft Ti = 1.00 in.

Factored ice thickness @ z = 40 ft Tiz = 2.61 in.

Ice Dead Load on Members:

Proposed Pipe Mast: Pipe 3.0 xx-Strong

Dimensions: Dia= 3.5 in. Dc= 3.50 in.

Ice cross sectional area: Aiz= π Tiz (Dc + Tiz) = 49.99 in.^2

DLice= Aiz * 56pcf * ft2 / 144 in2 = **19.4** **plf**

Existing Pipe Mount: Pipe 2.0 STD

Dimensions: Dia= 2.38 in. Dc= 2.38 in.

Ice cross sectional area: Aiz= π Tiz (Dc + Tiz) = 40.82 in.^2

DLice= Aiz * 56pcf * ft2 / 144 in2 = **15.9** **plf**

Existing HSS Bracket

Dimensions: B= 4 in. Dc= 4.00 in.

W= 0 in.

Ice cross sectional area: Aiz= π Tiz (Dc + Tiz) = 54.09 in.^2

DLice= Aiz * 56pcf * ft2 / 144 in2 = **21.0** **plf**

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL.

Ice Dead Load (Continued)

Ice Dead Load on Equipment:

(P) dbSpectra DS2C03F36D-D

Dimensions w/out ice:	B=	3	in.	W=	3	in.
	H=	291.6	in.	Dc=	4.24	in.
Ice cross sectional area:	Aiz=	π Tiz (Dc + Tiz) =		56.07	in^2	
Ice Dead Load:	DLice=	[Aiz(H+2Tiz)+2Tiz B D]*56pcf /1728 in^3=				**540.9 lbs**
						24.0 plf

(E) Commscope DB586 (2" Ø x 4.38' Tall)

Dimensions w/out ice:	B=	2	in.	W=	2	in.
	H=	52.56	in.	Dc=	2.83	in.
Ice cross sectional area:	Aiz=	π Tiz (Dc + Tiz) =		44.49	in^2	
Ice Dead Load:	DLice=	[Aiz(H+2Tiz)+2Tiz B D]*56pcf /1728 in^3=				**84.0 lbs**
						20.0 plf

(E) Telewave ANT150F2 (2.75" Ø x 5' Tall)

Dimensions w/out ice:	B=	2.75	in.	W=	2.75	in.
	H=	60	in.	Dc=	3.89	in.
Ice cross sectional area:	Aiz=	π Tiz (Dc + Tiz) =		53.18	in^2	
Ice Dead Load:	DLice=	[Aiz(H+2Tiz)+2Tiz B D]*56pcf /1728 in^3=				**113.7 lbs**
						23.0 plf

(P) USF-4U Stand-Off (total perimeter = 11 ft)

Dimensions w/out ice:	B=	3	in.	W=	36	in.
	H=	48	in.	Dc=	36.12	in.
Ice cross sectional area:	Aiz=	π Tiz (Dc + Tiz) =		317.10		
Ice Dead Load:	DLice=	[Aiz(H+2Tiz)+2Tiz B D]*56pcf /1728 in^3=				**565.1 lbs**
						11.0 plf

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL.

Owner:	EVERSOURCE	Computed By:	Nattakit S.
Site Name:	EAST WINDSOR AWC	Date:	2/21/2020
Project No.	403093 File No.	Verified By:	K. Hyun
Title:	STRUCTURAL ANALYSIS OF PROPOSED ANTENNA MOUNT AND EXISTING BUILDING WALL	Date:	2/21/2020

BLACK & VEATCH

Ice Wind Pressure per ASCE 7-10 / IBC 2012 / IBC 2015 / TIA-222-H

ASCE 7-10 Section #

a. Ultimate Velocity Pressure, $q_{z \text{ or } } q_h$ — 29.3.2

Basic Wind Speed, Vult = **50** mph — Fig. 10-2

$qz = 0.00256\ Kz\ Kzt\ Kd\ Ke\ Ks\ V^2$ — TIA-222-H

$= 0.00256 \times 1.09 \times 1.00 \times 0.95 \times 1.00 \times 1.00 \times 50.00^2$ — Sec. 2.6.11.6

$qz =$ 6.65 psf

b. Velocity pressure coefficient, Kz — 29.3.1

$Kz = 2.01\ (z/z_g)^{2/\alpha}$ — Exposure Category = **C**

$= 2.01\ (50 / 900^{(2/9.5)})$

$Kz =$ 1.09 — Height above Ground Level, z = 50 ft — Table 29.3-1

$\alpha =$ 9.50 — $z_g =$ 900.00 ft

c. Topographic Factor, Kzt — 26.8.2

H = 15 ft

$\mu =$ 0.00 — Fig. 26.8-1

$\gamma =$ 0.00 — Hill Shape: Flat Terrain

$K_1 =$ 0.00 — Crest Type: Upwind

$K_2 = (1 - x / \mu\ Lh)$ — Distance Upwind of crest, Lh = 15 ft

$= [1 - 15 / (0.0 \times 15)]$

$K_2 =$ 0.00 — Distance Upwind to Bldg Site, x = 15 ft

$K_3 = e^{(\gamma z / Lh)}$ — $Kzt = [\ 1 + K_1 K_2\ K_3\ ]^2$ — Eq. 26.8-1

$= e^{-(0.0 \times 50 / 15)}$ — $= [1 + 0.00 \times 0.00 \times 0.00]^2$

$K_3 =$ 0.00 — $Kzt =$ 1.00

d. Wind Directionality Factor, Kd — Table 26.6-1

(7) Chimney, Tank & Similar Structures - Round Shape — Kd = 0.95

e. Ground Elevation Factor, Ke — Ke = 1.00 — TIA-222-H Table 2-6

f. Rooftop Wind Speed-up Factor, Ks — Ks = 1.00 — TIA-222-H Sec. 2.6.7

g. Structure Risk Category — III — Table 1.5-1

h. Gust Effect Factor, G — G = 0.85 — **26.9**

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL.

Ice Wind Load

Wind Velocity Pressure @ z = 50 ft — $Q_{z\ ice}$ = 6.65 psf — **(based on 50 mph wind)**
Gust factor: G = 0.85

Ice Wind Load on Members:
Proposed Pipe Mast: Pipe 3.0 xx-Strong

Member Depth:	Dp=	3.5 in. + 2 Tiz =	9	in.
Force Coefficient:	Ca=	1.2		
Ice wind load:	Pp=	Qz ice*G*Ca*Dp =	**4.9**	**plf**

Existing Pipe Mount: Pipe 2.0 STD

Member Depth:	Dp=	2.38 in. + 2 Tiz =	8	in.
Force Coefficient:	Ca=	1.2		
Ice wind load:	Pp=	Qz ice*G*Ca*Dp =	**4.3**	**plf**

Existing HSS Bracket

Member Depth:	Dp=	4 in. + 2 Tiz =	9	in.
Force Coefficient:	Ca=	2.0		
Ice wind load:	Pp=	Qz ice*G*Ca*Dp =	**8.7**	**plf**

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL.

Ice Wind Load (Continued)

Ice Wind Load on Equipment:

(P) dbSpectra DS2C03F36D-D

Dimensions:	B=	0.25	ft + (2 Tiz) / 12	=	0.68	ft.
	H=	24.30	ft + (2 Tiz) / 12	=	24.73	ft.
Force Coefficient:	Ca=	1.20				
Wind Load:	Pa=	Qz ice*G*Ca*B*H =			**114.8**	**lbs.**
				=	**4.6**	**plf**

(E) Commscope DB586 (2" Ø x 4.38' Tall)

Dimensions:	B=	0.17	ft + (2 Tiz) / 12	=	0.60	ft.
	H=	4.38	ft + (2 Tiz) / 12	=	4.81	ft.
Force Coefficient:	Ca=	1.20				
Wind Load:	Pa=	Qz ice*G*Ca*B*H =			**19.6**	**lbs.**
				=	**4.1**	**plf**

(E) Telewave ANT150F2 (2.75" Ø x 5' Tall)

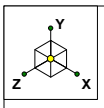
Dimensions:	B=	0.23	ft + (2 Tiz) / 12	=	0.66	ft.
	H=	5.00	ft + (2 Tiz) / 12	=	5.43	ft.
Force Coefficient:	Ca=	1.20				
Wind Load:	Pa=	Qz ice*G*Ca*B*H =			**24.5**	**lbs.**
				=	**4.5**	**plf**

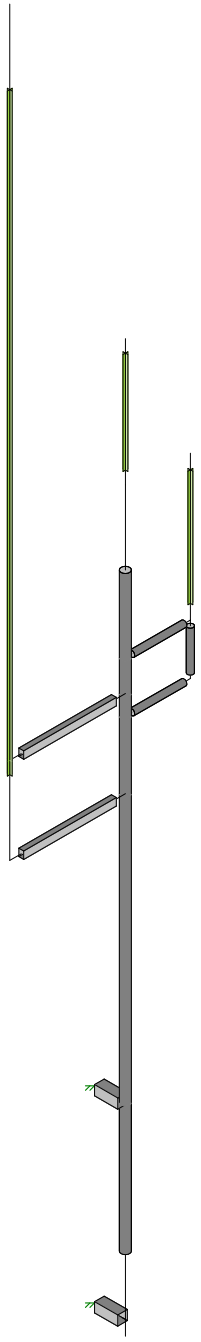
(P) USF-4U Stand-Off

Dimensions:	B=	0.25	ft + (2 Tiz) / 12	=	0.68	ft.
	H=	4.00	ft + (2 Tiz) / 12	=	4.43	ft.
Force Coefficient:	Ca=	1.60				
Wind Load:	Pa=	Qz ice*G*Ca*B*H =			**27.4**	**lbs.**
				=	**5.0**	**plf**

Note:

30° and 60° application of wind load will be considered directly in the load combinations by applying load factors of 0.866 (from cos 30 or sin 60) and 0.5 (from sin 30 or cos 60)





Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 1
Nattakit S.		Mar 4, 2020 at 11:55 AM
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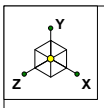

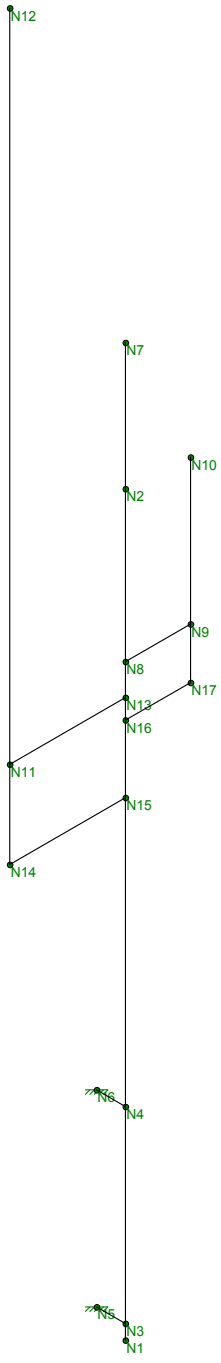

Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 2
Nattakit S.		Mar 4, 2020 at 11:55 AM
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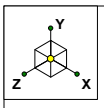

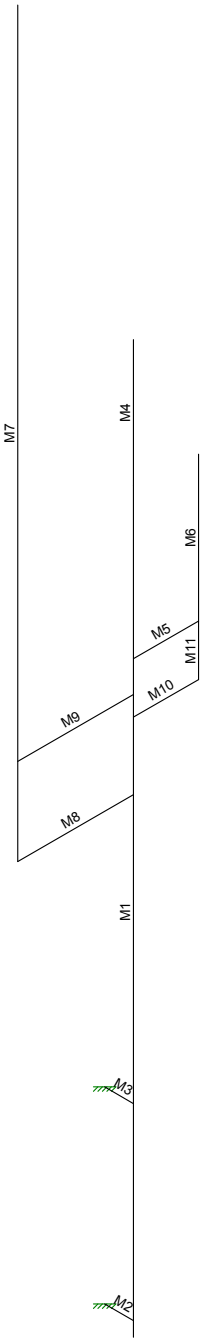

Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 3
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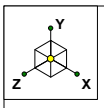
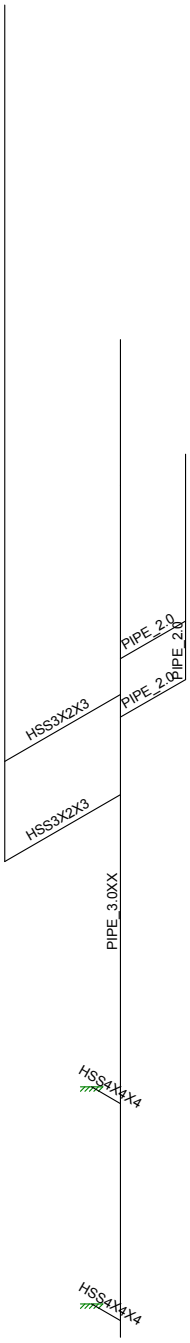
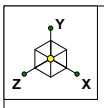
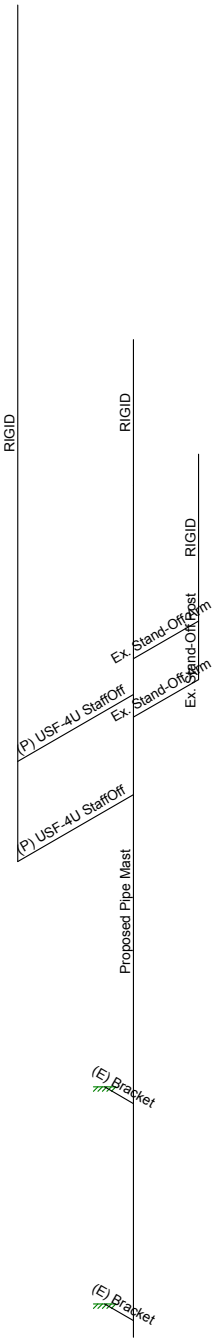


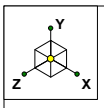


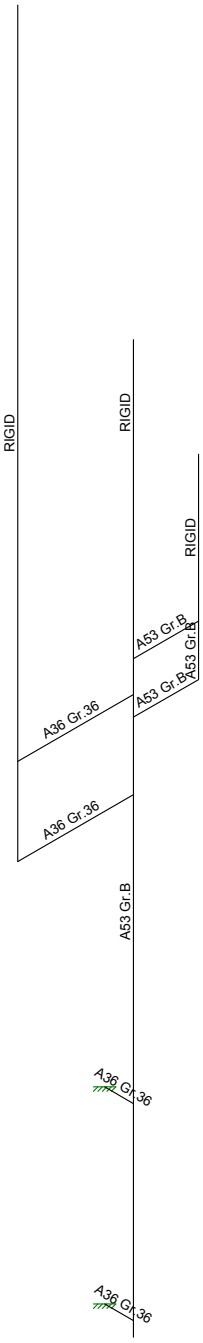
Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 4
Nattakit S.		Mar 4, 2020 at 11:56 AM
403093.2000.2200		EWindsorAWC-Existing & Propose...





Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 5
Nattakit S.		Mar 4, 2020 at 11:57 AM
403093.2000.2200		EWindsorAWC-Existing & Propose...





Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 6
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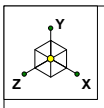
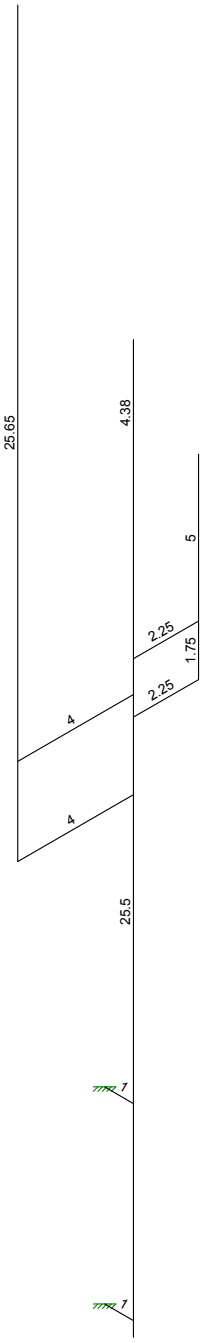
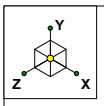
403093.2000.2200		EWindsorAWC-Existing & Propose...

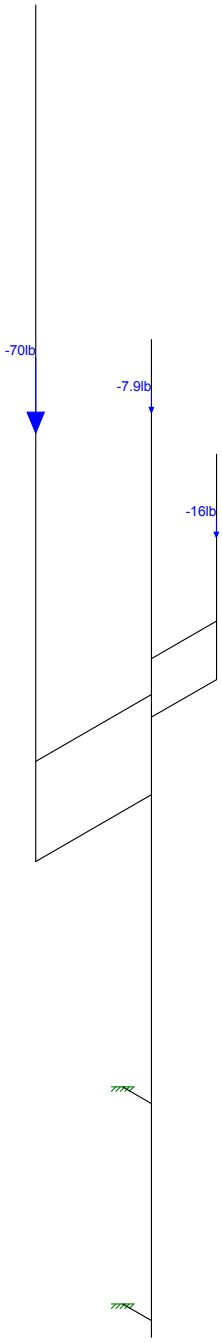




Member Length (ft) Displayed

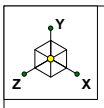
Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 7
Nattakit S.		Mar 4, 2020 at 11:57 AM
403093.2000.2200		EWindsorAWC-Existing & Propose...

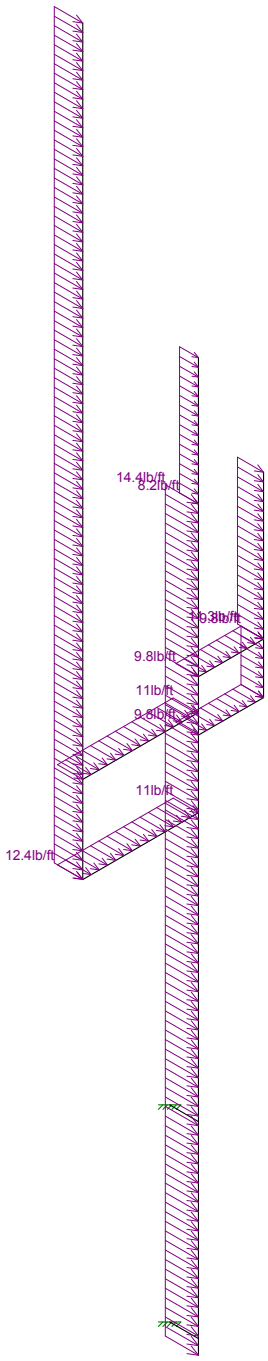




Loads: BLC 1, DL

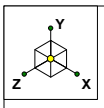
Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 8
Nattakit S.		Mar 4, 2020 at 11:58 AM
403093.2000.2200		EWindsorAWC-Existing & Propose...

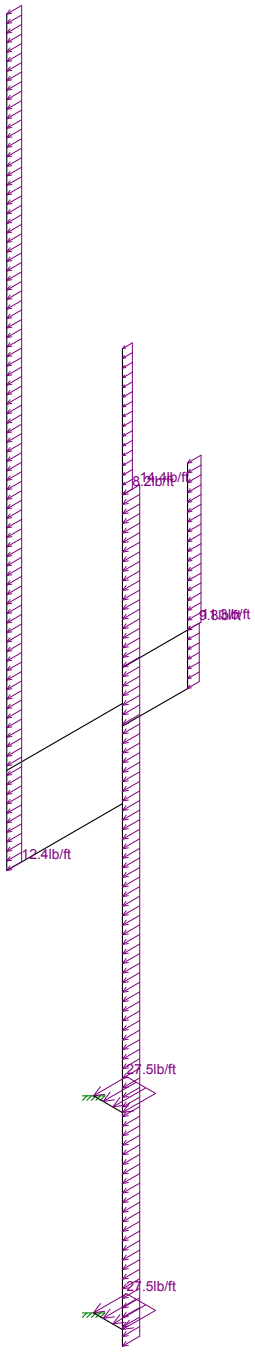




Loads: BLC 3, Wind - 0 Deg (+X)

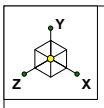
Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 9
Nattakit S.		Mar 4, 2020 at 12:07 PM
403093.2000.2200		EWindsorAWC-Existing & Propose...

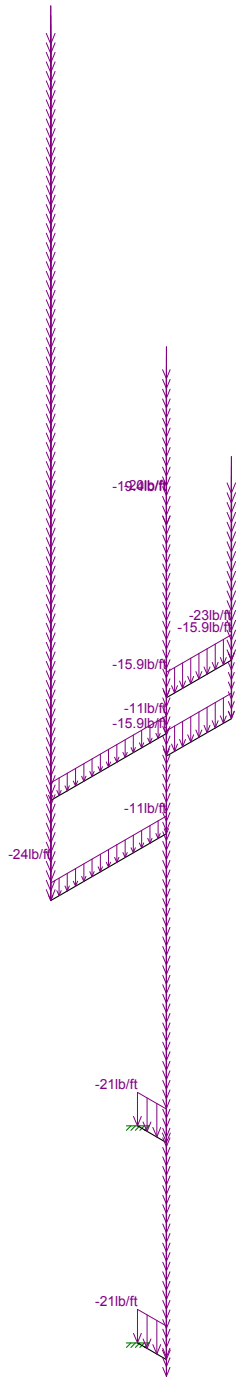




Loads: BLC 4, Wind - 90 Deg (+Z)

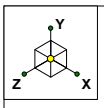
Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 10
Nattakit S.		Mar 4, 2020 at 12:07 PM
403093.2000.2200		EWindsorAWC-Existing & Propose...

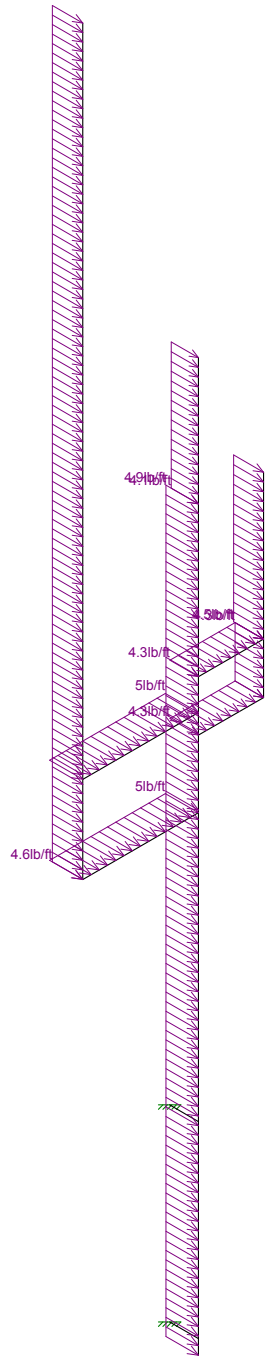




Loads: BLC 5, Ice DL

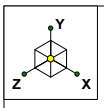
Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 11
Nattakit S.		Mar 4, 2020 at 12:07 PM
403093.2000.2200		EWindsorAWC-Existing & Propose...

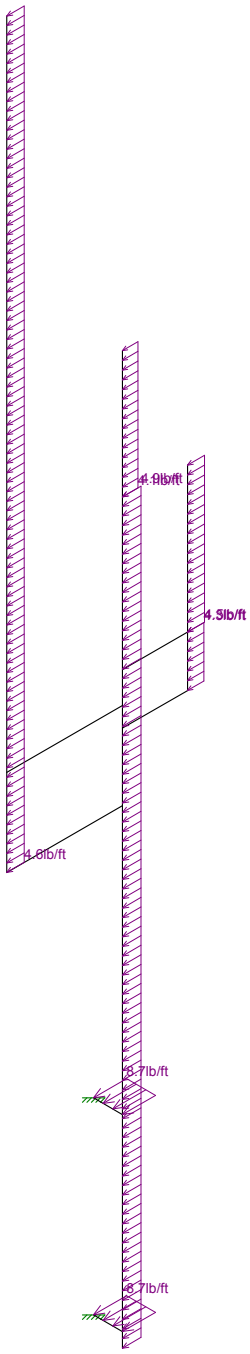




Loads: BLC 6, Ice Wind - 0 Deg (+X)

Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 12
Nattakit S.		Mar 4, 2020 at 12:08 PM
403093.2000.2200		EWindsorAWC-Existing & Propose...





Loads: BLC 7, Ice Wind - 90 Deg (+Z)

Black & Veatch	EWindsorAWC Proposed Antenna Mount Analysis	SK - 13
Nattakit S.		Mar 4, 2020 at 12:08 PM
403093.2000.2200		EWindsorAWC-Existing & Propose...

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	None
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	omni	29000	11154	.3	.65	0	36	1.5	58	1.2

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]
1	gen_Conc3NW	3155	1372	.15	.6	.145
2	gen_Conc4NW	3644	1584	.15	.6	.145
3	gen_Conc3LW	2085	906	.15	.6	.11
4	gen_Conc4LW	2408	1047	.15	.6	.11
5	gen_Alum	10600	4077	.3	1.29	.173
6	gen_Steel	29000	11154	.3	.65	.49
7	RIGID	1e+6		.3	0	0
8	CMU Matl	1050	420	.25	.6	0

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Existing Pipe Mast	PIPE_3.0X	Column	Pipe	A53 Gr.B	Typical	2.83	3.7	3.7	7.4
2	Ex. Stand-Off Arm	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Ex. Stand-Off Post	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	(P) USF-4U StaffOff	HSS3X2X3	Beam	Tube	A500 Gr.B Rect	Typical	1.54	.932	1.77	2.05
5	New Stan-Off Post	PIPE_3.0	Column	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
6	Proposed Pipe Mast	PIPE_3.0XX	Column	Pipe	A53 Gr.B	Typical	5.17	5.79	5.79	11.6
7	(P) DS2C03 F36D-...	PIPE_2.5	Column	Pipe	omni	Typical	1.61	1.45	1.45	2.89
8	(E) DB586	PIPE_2.0	Column	Pipe	omni	Typical	1.02	.627	.627	1.25
9	(E) ANT150F2	PIPE_3.0	Column	Pipe	omni	Typical	2.07	2.85	2.85	5.69
10	(E) Bracket	HSS4X4X4	Beam	RECT	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8

General Section Sets

	Label	Shape	Type	Material	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	GEN1A	RE4X4	Beam	gen_Conc3NW	16	21.333	21.333	31.573
2	RIGID		None	RIGID	1e+6	1e+6	1e+6	1e+6

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	25.5	0	0	
3	N3	0	.5	0	0	
4	N4	0	7	0	0	
5	N5	-1	.5	0	0	
6	N6	-1	7	0	0	
7	N7	0	29.88	0	0	
8	N8	0	20.325	0	0	
9	N9	0	20.325	-2.25	0	
10	N10	0	25.325	-2.25	0	
11	N11	0	19.25	4	0	
12	N12	0	41.9	4	0	
13	N13	0	19.25	0	0	
14	N14	0	16.25	4	0	
15	N15	0	16.25	0	0	
16	N16	0	18.575	0	0	
17	N17	0	18.575	-2.25	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N6	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N2	N1			Proposed Pipe Mast	Column	Pipe	A53 Gr.B	Typical
2	M2	N5	N3			(E) Bracket	Beam	RECT	A500 Gr.B Rect	Typical
3	M3	N6	N4			(E) Bracket	Beam	RECT	A500 Gr.B Rect	Typical
4	M4	N2	N7			RIGID	None	None	RIGID	DR1_1
5	M5	N8	N9			Ex. Stand-Off Arm	Beam	Pipe	A53 Gr.B	Typical
6	M6	N9	N10			RIGID	None	None	RIGID	DR1_1
7	M7	N14	N12			RIGID	None	None	RIGID	DR1_1
8	M8	N15	N14			(P) USF-4U StaffOff	Beam	Tube	A500 Gr.B Rect	Typical
9	M9	N13	N11			(P) USF-4U StaffOff	Beam	Tube	A500 Gr.B Rect	Typical
10	M10	N16	N17			Ex. Stand-Off Arm	Beam	Pipe	A53 Gr.B	Typical
11	M11	N9	N17			Ex. Stand-Off Post	Column	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ratio O...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes				None
3	M3						Yes				None
4	M4						Yes	** NA **			None
5	M5						Yes			Exclude	None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes			Exclude	None
9	M9						Yes	Default		Exclude	None
10	M10						Yes			Exclude	None
11	M11						Yes	** NA **		Exclude	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-tor...	Kyy	Kzz	Cb	Funct...
1	M1	Proposed Pipe Mast	25.5	18.5	18.5	18.5	18.5	18.5				Lateral
2	M2	(E) Bracket	1									Lateral
3	M3	(E) Bracket	1									Lateral
4	M5	Ex. Stand-Off Arm	2.25									Lateral
5	M8	(P) USF-4U StaffOff	4									Lateral
6	M9	(P) USF-4U StaffOff	4									Lateral
7	M10	Ex. Stand-Off Arm	2.25									Lateral
8	M11	Ex. Stand-Off Post	1.75			Lbyy						Lateral

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/ft, l...
No Data to Print ...			

Member Distributed Loads (BLC 3 : Wind - 0 Deg (+X))

	Member Label	Direction	Start Magnitude[lb/ft,F,psf]	End Magnitude[lb...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	14.4	14.4	0	0
2	M7	X	12.4	12.4	0	0
3	M4	X	8.2	8.2	0	0
4	M6	X	11.3	11.3	0	0
5	M5	X	9.8	9.8	0	0
6	M11	X	9.8	9.8	0	0
7	M10	X	9.8	9.8	0	0
8	M9	X	11	11	0	0
9	M8	X	11	11	0	0

Member Distributed Loads (BLC 4 : Wind - 90 Deg (+Z))

	Member Label	Direction	Start Magnitude[lb/ft,F,psf]	End Magnitude[lb...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	14.4	14.4	0	0
2	M7	Z	12.4	12.4	0	0
3	M4	Z	8.2	8.2	0	0
4	M6	Z	11.3	11.3	0	0
5	M3	Z	27.5	27.5	0	0
6	M2	Z	27.5	27.5	0	0
7	M11	Z	9.8	9.8	0	0

Member Distributed Loads (BLC 5 : Ice DL)

	Member Label	Direction	Start Magnitude[lb/ft,F,psf]	End Magnitude[lb...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-19.4	-19.4	0	0
2	M5	Y	-15.9	-15.9	0	0
3	M10	Y	-15.9	-15.9	0	0
4	M11	Y	-15.9	-15.9	0	0
5	M3	Y	-21	-21	0	0
6	M2	Y	-21	-21	0	0
7	M7	Y	-24	-24	0	0
8	M4	Y	-20	-20	0	0
9	M6	Y	-23	-23	0	0
10	M9	Y	-11	-11	0	0
11	M8	Y	-11	-11	0	0

Member Distributed Loads (BLC 6 : Ice Wind - 0 Deg (+X))

Member Label	Direction	Start Magnitude[lb/ft,F,psf]	End Magnitude[lb...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 6 : Ice Wind - 0 Deg (+X)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,F,psf]	End Magnitude[lb...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	4.9	4.9	0	0
2	M5	X	4.3	4.3	0	0
3	M10	X	4.3	4.3	0	0
4	M11	X	4.3	4.3	0	0
5	M7	X	4.6	4.6	0	0
6	M4	X	4.1	4.1	0	0
7	M6	X	4.5	4.5	0	0
8	M9	X	5	5	0	0
9	M8	X	5	5	0	0

Member Distributed Loads (BLC 7 : Ice Wind - 90 Deg (+Z))

	Member Label	Direction	Start Magnitude[lb/ft,F,psf]	End Magnitude[lb...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	4.9	4.9	0	0
2	M11	Z	4.3	4.3	0	0
3	M3	Z	8.7	8.7	0	0
4	M2	Z	8.7	8.7	0	0
5	M7	Z	4.6	4.6	0	0
6	M4	Z	4.1	4.1	0	0
7	M6	Z	4.5	4.5	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distributed	Area(Mem...	Surfa...
1	DL	DL		-1			3			
2	LL	LL								
3	Wind - 0 Deg (+X)	WL						9		
4	Wind - 90 Deg (+Z)	WL						7		
5	Ice DL	None						11		
6	Ice Wind - 0 Deg (+X)	None						9		
7	Ice Wind - 90 Deg (+Z)	None						7		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Factor	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
1	WIND LOAD COMBINATIONS (...																											
2	1.4DL	Yes	Y		1	1.4																						
3	1.2DL + 1.6LL	Yes	Y		1	1.2	2	1.6																				
4	1.2DL + WL (0 DEG, +X)	Yes	Y		1	1.2	3	1																				
5	1.2DL - WL (0 DEG, -X)	Yes	Y		1	1.2	3	-1																				
6	1.2DL + WL (30 DEG)	Yes	Y		1	1.2	3	.8...	4	.5																		
7	1.2DL - WL (30 DEG)	Yes	Y		1	1.2	3	-....	4	-.5																		
8	1.2DL + WL (60 DEG)	Yes	Y		1	1.2	4	.8...	3	.5																		
9	1.2DL - WL (60 DEG)	Yes	Y		1	1.2	4	-....	3	-.5																		
10	1.2DL + WL (90 DEG, +Z)	Yes	Y		1	1.2	4	1																				
11	1.2DL - WL (90 DEG, -Z)	Yes	Y		1	1.2	4	-1																				
12	0.9DL + WL (0 DEG, +X)	Yes	Y		1	.9	3	1																				
13	0.9DL - WL (0 DEG, -X)	Yes	Y		1	.9	3	-1																				
14	0.9DL + WL (30 DEG)	Yes	Y		1	.9	3	.8...	4	.5																		
15	0.9DL - WL (30 DEG)	Yes	Y		1	.9	3	-....	4	-.5																		
16	0.9DL + WL (60 DEG)	Yes	Y		1	.9	4	.8...	3	.5																		
17	0.9DL - WL (60 DEG)	Yes	Y		1	.9	4	-....	3	-.5																		
18	0.9DL + WL (90 DEG, +Z)	Yes	Y		1	.9	4	1																				
19	0.9DL - WL (90 DEG, -Z)	Yes	Y		1	.9	4	-1																				
20																												
21	LOAD COMBINATIONS WITH I...																											

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Factor	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
22	1.2DL + 1.6LL + 0.2Ice DL + 0.5...	Yes	Y		1	1.2	2	1.6	5	.2	8	.5															
23	1.2DL + Ice DL + Ice WL (0 DE...	Yes	Y		1	1.2	5	1	6	1	8	.5															
24	1.2DL + Ice DL - Ice WL (0 DEG...	Yes	Y		1	1.2	5	1	6	-1	8	.5															
25	1.2DL + Ice DL + Ice WL (30 DE...	Yes	Y		1	1.2	5	1	6	.8...	7	.5	8	.5													
26	1.2DL + Ice DL - Ice WL (30 DE...	Yes	Y		1	1.2	5	1	6	-....	7	-.5	8	.5													
27	1.2DL + Ice DL + Ice WL (60 DE...	Yes	Y		1	1.2	5	1	7	.8...	6	.5	8	.5													
28	1.2DL + Ice DL - Ice WL (60 DE...	Yes	Y		1	1.2	5	1	7	-....	6	-.5	8	.5													
29	1.2DL + Ice DL + Ice WL (90 DE...	Yes	Y		1	1.2	5	1	7	1	8	.5															
30	1.2DL + Ice DL - Ice WL (90 DE...	Yes	Y		1	1.2	5	1	7	-1	8	-.5															
31																											
32	ALLOWABLE STRESS DESIGN																										
33	WIND LOAD COMBINATIONS																										
34	DL		Y		1	1																					
35	DL + LL		Y		1	1	2	1																			
36	DL + 0.6WL (0 DEG, +X)		Y		1	1	3	.6																			
37	DL - 0.6WL (0 DEG, -X)		Y		1	1	3	-.6																			
38	DL + 0.6WL (30 DEG)		Y		1	1	3	.52	4	.3																	
39	DL - 0.6WL (30 DEG)		Y		1	1	3	-....	4	-.3																	
40	DL + 0.6WL (60 DEG)		Y		1	1	4	.52	3	.3																	
41	DL - 0.6WL (60 DEG)		Y		1	1	4	-....	3	-.3																	
42	DL + 0.6WL (90 DEG, +Z)		Y		1	1	4	.6																			
43	DL - 0.6WL (90 DEG, -Z)		Y		1	1	4	-.6																			
44	DL + 0.75[0.6WL (0 DEG, +X)] ...		Y		1	1	2	.75	3	.45																	
45	DL - 0.75[0.6WL (0 DEG, -X)] + ...		Y		1	1	2	.75	3	-....																	
46	DL + 0.75[0.6WL (30 DEG)] + 0....		Y		1	1	2	.75	3	.39	4	.2...															
47	DL - 0.75[0.6WL (30 DEG)] + 0....		Y		1	1	2	.75	3	-....	4	-....															
48	DL + 0.75[0.6WL (60 DEG)] + 0....		Y		1	1	2	.75	4	.39	3	.2...															
49	DL - 0.75[0.6WL (60 DEG)] + 0....		Y		1	1	2	.75	4	-....	3	-....															
50	DL + 0.75[0.6WL (90 DEG, +Z)] ...		Y		1	1	2	.75	4	.45																	
51	DL - 0.75[0.6WL (90 DEG, -Z)] ...		Y		1	1	2	.75	4	-....																	
52	0.6DL + 0.6WL (0 DEG, +X)		Y		1	.6	3	.6																			
53	0.6DL - 0.6WL (0 DEG, -X)		Y		1	.6	3	-.6																			
54	0.6DL + 0.6WL (30 DEG)		Y		1	.6	3	.52	4	.3																	
55	0.6DL - 0.6WL (30 DEG)		Y		1	.6	3	-....	4	-.3																	
56	0.6DL + 0.6WL (60 DEG)		Y		1	.6	4	.52	3	.3																	
57	0.6DL - 0.6WL (60 DEG)		Y		1	.6	4	-....	3	-.3																	
58	0.6DL + 0.6WL (90 DEG, +Z)		Y		1	.6	4	.6																			
59	0.6DL - 0.6WL (90 DEG, -Z)		Y		1	.6	4	-.6																			
60																											
61	LOAD COMBS ICE & SNOW (N...																										
62	DL + 0.7IceDL		Y		1	1	5	.7																			
63	DL + 0.7Ice DL + 0.7Ice WL (0 ...		Y		1	1	5	.7	6	.7	8	1															
64	DL + 0.7Ice DL - 0.7Ice WL (0 D...		Y		1	1	5	.7	6	-.7	8	1															
65	DL + 0.7Ice DL + 0.7Ice WL (30 ...		Y		1	1	5	.7	6	.6...	7	.35	8	1													
66	DL + 0.7Ice DL - 0.7Ice WL (30 ...		Y		1	1	5	.7	6	-....	7	-....	8	1													
67	DL + 0.7Ice DL + 0.7Ice WL (60 ...		Y		1	1	5	.7	7	.6...	6	.35	8	1													
68	DL + 0.7Ice DL - 0.7Ice WL (60 ...		Y		1	1	5	.7	7	-....	6	-....	8	1													
69	DL + 0.7Ice DL + 0.7Ice WL (90 ...		Y		1	1	5	.7	7	.7	8	1															
70	DL + 0.7Ice DL - 0.7Ice WL (90 ...		Y		1	1	5	.7	7	-.7	8	1															
71	0.6DL + 0.7Ice DL + 0.7Ice WL (...		Y		1	.6	5	.7	6	.7																	
72	0.6DL + 0.7Ice DL - 0.7Ice WL (...		Y		1	.6	5	.7	6	-.7																	
73	0.6DL + 0.7Ice DL + 0.7 Ice WL ...		Y		1	.6	5	.7	6	.6...	7	.35															
74	0.6DL + 0.7Ice DL - 0.7Ice WL (...		Y		1	.6	5	.7	6	-....	7	-....															
75	0.6DL + 0.7Ice DL + 0.7Ice WL (...		Y		1	.6	5	.7	7	.6...	6	.35															
76	0.6DL + 0.7Ice DL - 0.7 Ice WL (...		Y		1	.6	5	.7	7	-....	6	-....															
77	0.6DL + 0.7Ice DL + 0.7Ice WL (...		Y		1	.6	5	.7	7	.7																	
78	0.6DL + 0.7Ice DL - 0.7Ice WL (...		Y		1	.6	5	.7	7	-.7																	

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [l...	LC	MZ [l...	LC
1	N5	m...	801.737	4	7259.319	4	765.403	10	1355.919	10	637.29	11	5116....	4
2		min	-755.603	5	-6565.556	13	-727.499	11	-1293.221	11	-671....	10	-4583...	13
3	N6	m...	1682.528	5	7312.143	5	1577.324	11	7598.334	11	1493....	10	3453....	4
4		min	-1728.663	4	-6524.924	12	-1615.229	10	-7953.524	10	-1460...	11	-2860...	13
5	Totals:	m...	926.926	13	2303.033	29	849.826	19						
6		min	-926.926	12	570.539	19	-849.826	18						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Mem...	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi...	phi*...	phi*Mn ...	...Eqn
1	M1	PIPE_3.0XX	.993*	18.328	4	.194	9.031		4	26540.705	16...	1283	..12836.25	1 H...
2	M2	HSS4X4X4	.312*	0	4	.219	0	y	6	138935.324	13...	1618	... 16180.5	..H...
3	M3	HSS4X4X4	.786*	1	6	.623	0	z	10	138935.324	13...	1618	... 16180.5	..H...

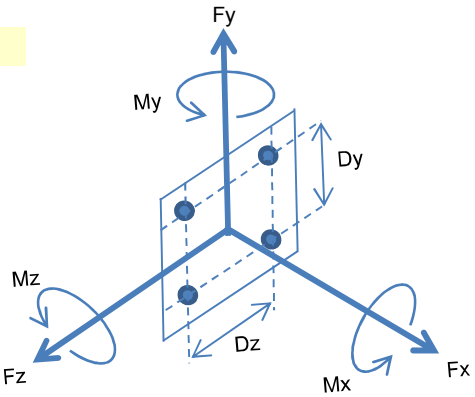
* RATING PER TIA-222-H SECTION 15.5

BLACK & VEATCH	Owner:	EVERSOURCE		Prepared By:	Nattakit S.
	Plant:	EAST WINDSOR AWC		Date:	2/21/2020
	Project No.	403093	File No.	Verified By:	K. Hyun
	Title:	STRUCTURAL ANALYSIS OF EXISTING ANTENNA MOUNT AND BUILDING WALL		Date:	2/21/2020

Anchorage Check (LRFD) - Bolted Thru Existing Wall

AISC 14th Ed.

Load Inputs: Envelope Case



Vertical Force	Fy =	7,313	lbs
Horizontal Force (Tension)	Fx =	1,729	lbs
Horizontal Force	Fz =	1,616	lbs
Moment about Y-Axis	My =	1,494	lbs-ft
Moment about X-Axis	Mx =	7,954	lbs-ft
Moment about Z-Axis	Mz =	5,117	lbs-ft
Force Couple Y-Axis	Dy =	9	in
Force Couple Z-Axis	Dz =	9	in
Number of Anchors	N =	4	

Shear from Fy	Sy =	1828	lbs	Sy = Fy / N
Tension from Fx	Tx =	432	lbs	Tx = Fx / N
Shear from Fz	Sz =	404	lbs	Sz = Fz / N
Tension from My	Tmy =	996	lbs	Tmy = My / Dz / (N/2)
Shear from Mx	Smx =	5303	lbs	Smx = Mx / Dz / (N/2)
Tension from Mz	Tmz =	3411	lbs	Tmz = Mz / Dy / (N/2)
Total Shear	S =	5624	lbs	$S = SQRT(Sx^2 + Sz^2 + Smy^2)$
Total Tension	T =	4840	lbs	T = Ty + Tmx + Tmz

Anchorage Check (LRFD) - Bolted Thru Existing Wall (Continued)

Thru Bolt Steel Analysis

						AISC 14th Ed. Section #
Loads						
Applied Shear Load	V_{ua} =	5,624	lbs	per bolt		
Applied Tensile Load	N_{ua} =	4,840	lbs	per bolt		
Parameters						
Bolt Diameter	d_b =	3/4	in			
Bolt Gross Area	A_b =	0.442	in^2	$\pi d_b^2 / 4$		
Specified Yield Strength of Bolt	f_y =	92	ksi			
Specified Tensile Strength of Bolt	f_{uta} =	120	ksi	A325		
Results						
Strength Resistance Factor	φ =	0.75				J3.2
Nominal Shear Strength	F_{nv} =	54.0	ksi	0.45 x f_{uta}	(ductile)	C-J3-4
Nominal Tensile Strength	F_{nt} =	90.0	ksi	0.75 x F_{ut}	(ductile)	C-J3-2
Design Shear Strength of Bolt	φR_{nv} =	17,892	lbs	φ x F_{nv} x A_b		Eq. J3-1
Design Tensile Strength of Bolt	φR_{nt} =	29,821	lbs	φ x F_{nt} x A_b		Eq. J3-1
Required Shear Stress for Bolt	f_v =	12.7	ksi	V_{ua} / A_b		
Required Tensile Stress for Bolt	f_t =	11.0	ksi	N_{ua} / A_b		
Combined Shear and Tension						
$F'_{nt} = 1.3*F_{nt} - F_{nt}*f_v / F_{nv} / \phi \leq F_{nt}$	F'_{nt} =	88.7	ksi < Fnt	OK		Eq. J3-3a
Available Tensile Strength of Bolt	φR_{nt} =	29,394	lbs	φ x F'nt x Ab		Eq. J3-2
Stress Ratio (Less than 1.0)	SR =	0.165		$N_{ua} / \varphi R_{nt}$	OK	
Available Shear Strength of Bolt	φR_{nv} =	17,892	lbs	φ x F_{nv} x A_b		J3.7
Stress Ratio (Less than 1.0)	SR =	0.314		$V_{ua} / \varphi R_{nv}$	OK	

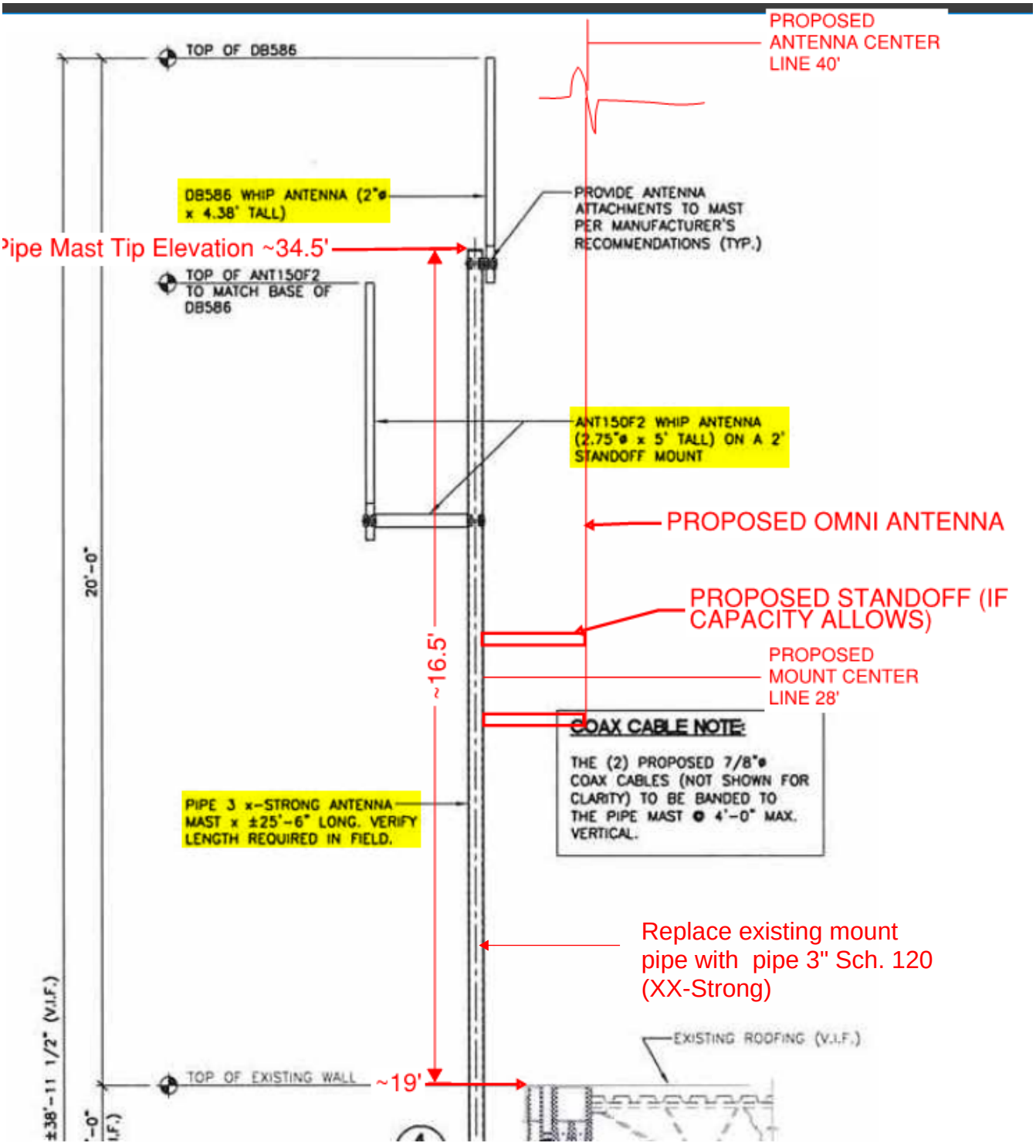
(4) 3/4" dia A325 bolts thru existing wall per stand-off mount are adequate.

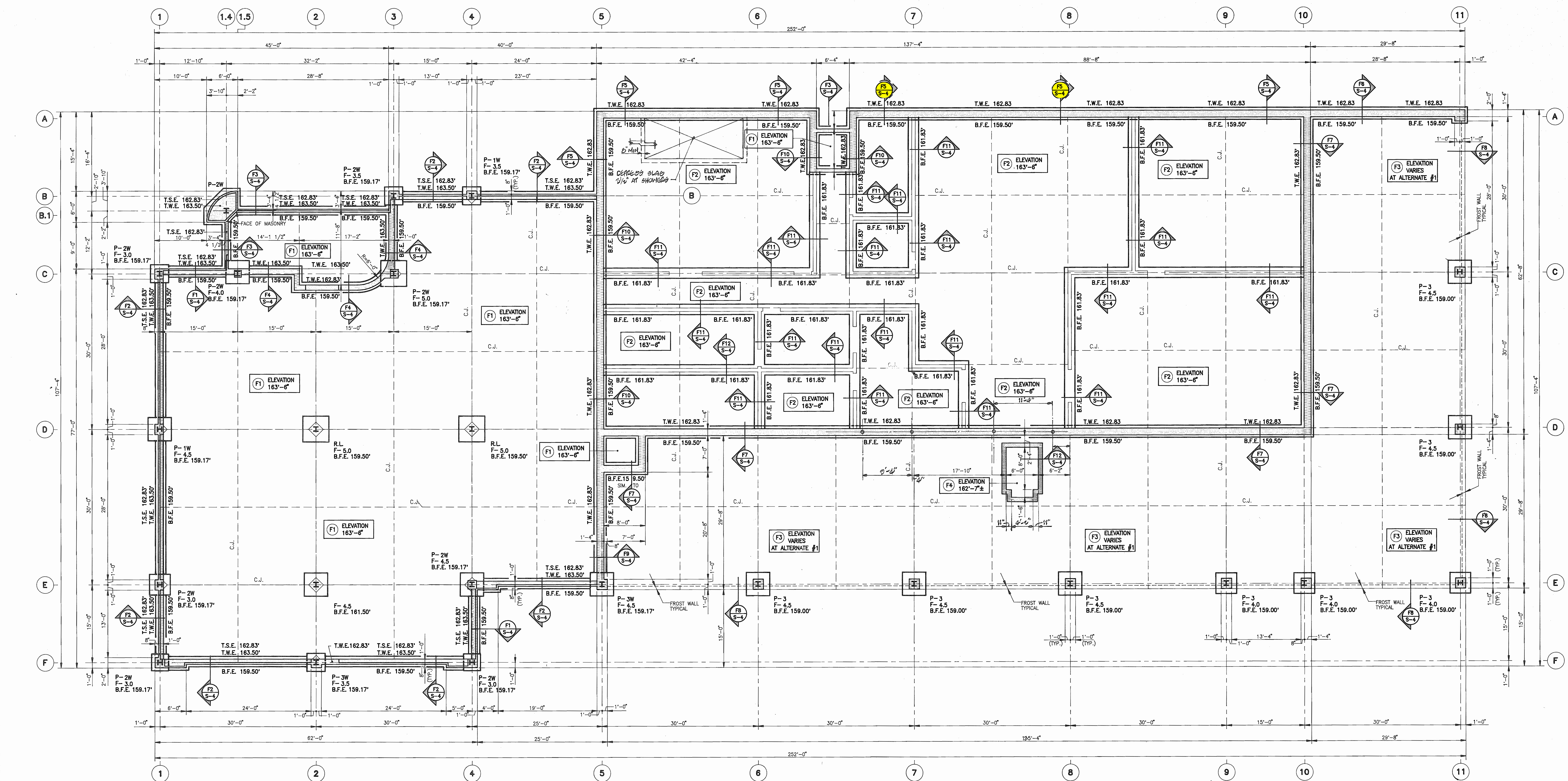
5.2 Structural Analysis of Existing Building Wall

By following structural analysis and engineering judgment, the final configuration of the equipment loading will not have significant adverse effect on the existing building CMU Wall.

6. ATTACHMENTS

MODIFICATION SKETCH





FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

NOTES:

1. (F*) INDICATES CONCRETE SLAB ON 6" MINIMUM BLANKET OF COMPACTED STRUCTURAL FILL. FOR THICKNESS AND REINFORCEMENT REQUIRED SEE SLAB-ON-GRADE SCHEDULE.
2. B.F.E. INDICATES BOTTOM OF FOOTING ELEVATION
3. T.W.E. INDICATES TOP OF WALL ELEVATION. DROP TOP OF WALL ELEVATION TO 8" BELOW FIN. FLOOR ELEVATION AT ALL DOOR OPENING – U.O.N.
4. T.S.E. INDICATES TOP OF MASONRY SHELF ELEVATION.
5. C.J. INDICATES CONTROL JOINT IN CONCRETE SLAB. – SEE DETAIL ON S-1.
6. F.S. INDICATES FOOTING STEP – SEE TYPICAL DETAIL ON DWG S-1.
7. R.L. INDICATES RAIN WATER LEADER – COORDINATE FOUNDATION WALL/PIER DEPRESSIONS WITH MECHANICAL REQUIREMENTS.
8. WHERE UTILITY LINES (i.e. SANITARY, WATER, ETC.) PENETRATE FOUNDATION WALL DROP BOTTOM OF FOOTING ELEVATION AS REQUIRED TO ALLOW UTILITY LINE TO PASS THRU FOUNDATION WALL. COORDINATE LOCATIONS AND ELEVATIONS WITH MECHANICAL AND SITE REQUIREMENTS.
9. PROVIDE #5 X 4'-0" @ 32" O.C. DOWELED 12" MIN. INTO FOUNDATION WALL AT ALL CONCRETE BLOCK MASONRY UNIT WALLS UNLESS OTHERWISE NOTED.

SLAB-ON-GRADE SCHEDULE

MARK	THICKNESS	REINFORCEMENT	REMARKS
F1	4"	6X6 W1.4XW1.4 W.W.F. TOP	
F2	6"	6X6 W2.9XW2.9 W.W.F. TOP	
F3	6"	6X6 W2.9XW2.9 W.W.F. TOP	
F4	10"	#4 @ 12" O/C EA. WAY BOTTOM	

NOTES:

1. ALL SLAB CONCRETE SHALL HAVE 28-DAY STRENGTH: Fc' = 3000 PSI
2. ALL CONCRETE SLABS ON GRADE SHALL BEAR ON MINIMUM 6" BLANKET OF COMPACTED STRUCTURAL FILL.
3. ALL REINFORCEMENT SHALL BE SUPPORTED ON CHAIRS OR CONCRETE BRICK. SINGLE TOP LAYER SHALL BE IN TOP THIRD OF SLAB.
4. WELDED WIRE FABRIC REINFORCEMENT SHALL BE FLAT SHEETS.
5. ALL SAW CUT CONTROL JOINTS SHALL BE MADE WITHIN 24 HRS OF START OF CONCRETE PLACEMENT. SEE TYPICAL DETAILS FOR ADD'L REQM'TS.

FOOTING SCHEDULE

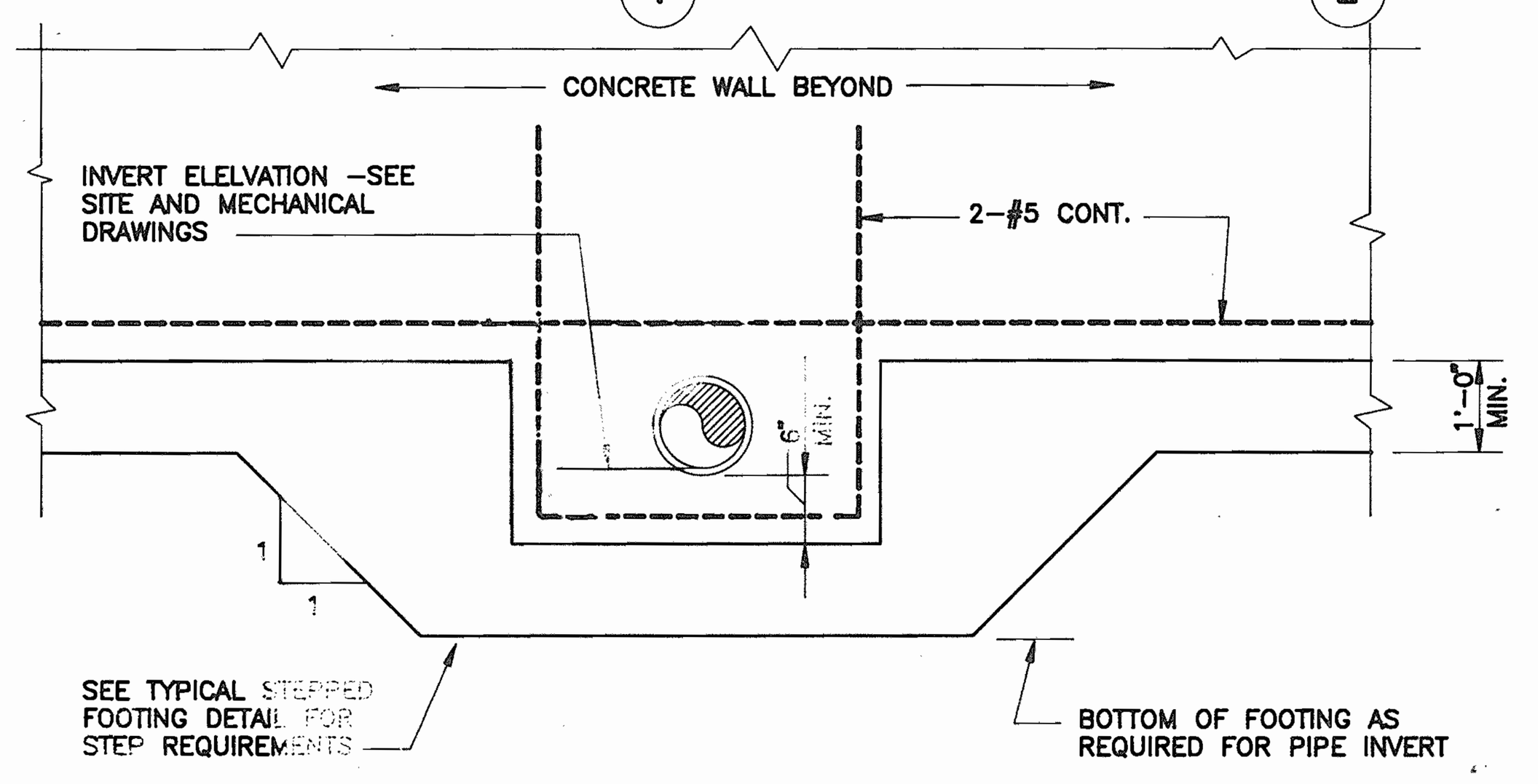
DESIGNATION	SIZE – W X L X D	REINFORCING (EACH WAY – BOTTOM)
F-2.5	2'-6" X 2'-6" X 1'-4"	NONE
F-3.0	3'-0" X 3'-0" X 1'-4"	3-#6
F-3.5	3'-6" X 3'-6" X 1'-4"	4-#6
F-4.0	4'-0" X 4'-0" X 1'-4"	5-#6
F-4.5	4'-6" X 4'-6" X 1'-4"	6-#6
F-5.0	5'-0" X 5'-0" X 1'-4"	7-#6

PIER SCHEDULE

DESIGNATION	SIZE	REINFORCING		REMARKS
		VERTICAL	HORIZONTAL	
P-1	12" X 16"	4-#6	#3 @ 12"	
P-2	12" X 12"	4-#6	#3 @ 12"	
P-3	24" X 24"	8-#6	2-#3@12"	

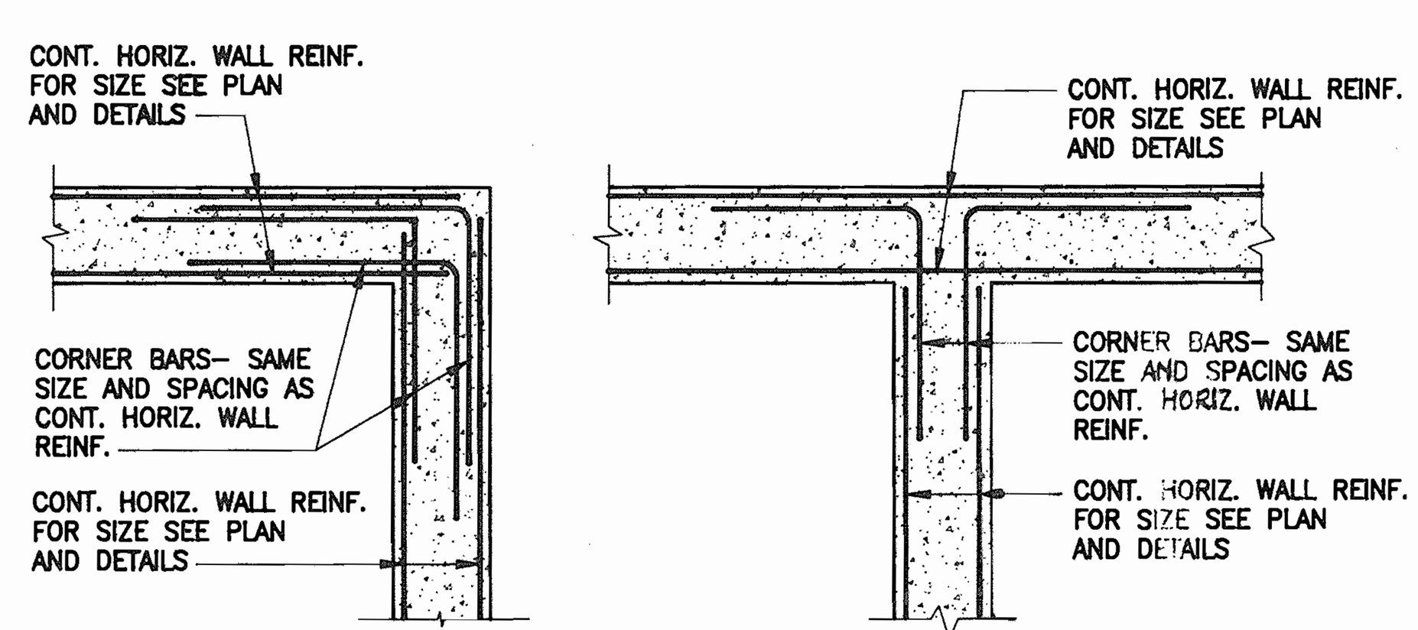
NOTES:

1. ALL VERTICAL PIER REINFORCING SHALL BE DOWELED INTO FOOTING.
2. ALL PIER SIZES INDICATED ARE MINIMUM EFFECTIVE PIER SIZES REQUIRED. FOR ACTUAL PIER SIZE REQUIRED – SEE ARCHITECTURAL DRAWINGS.
3. SUFFIX "...W" INDICATES THAT PIER SHALL BE PLACED MONOLITHIC WITH FOUNDATION WALL.



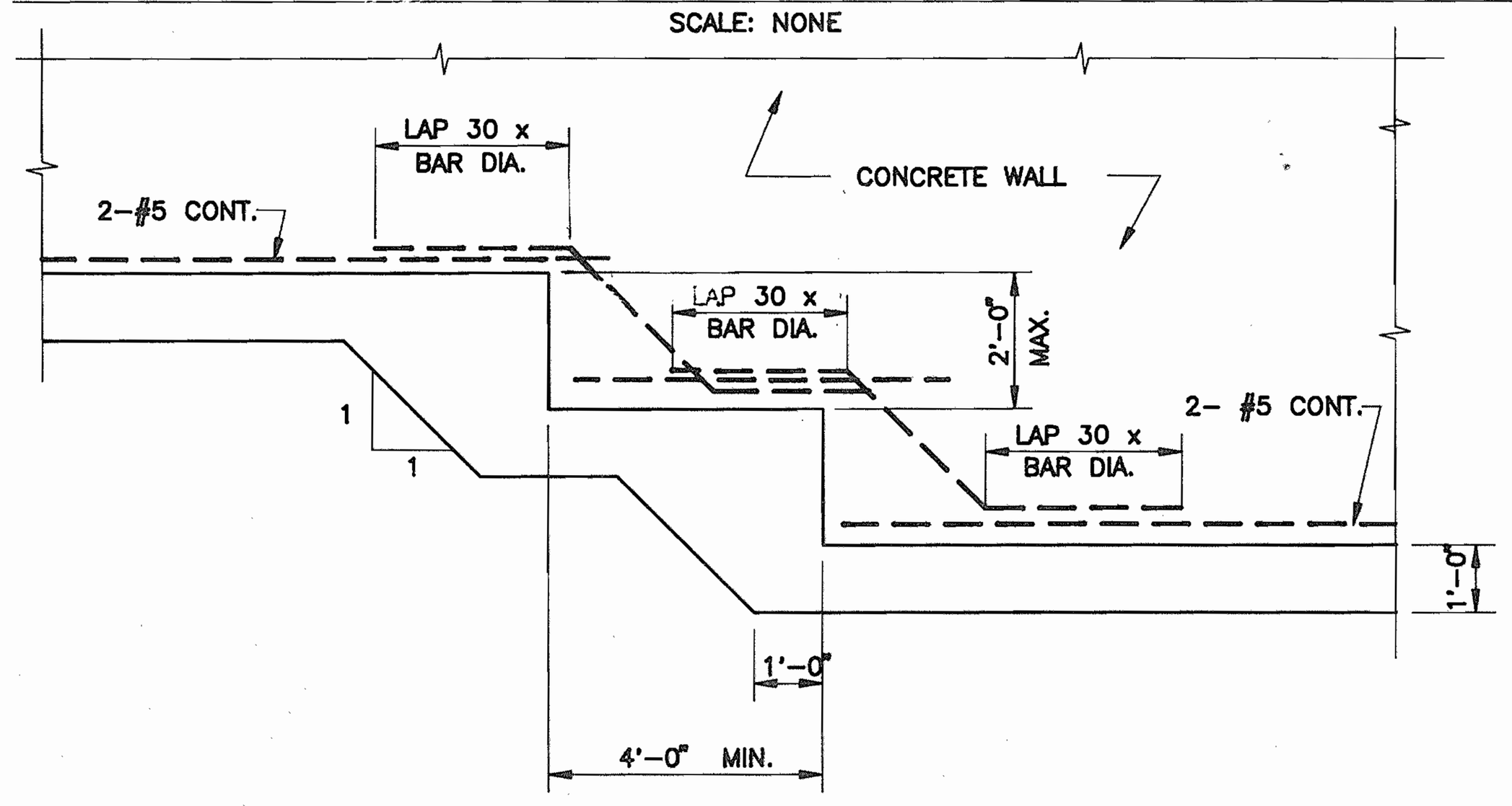
TYPICAL WALL PENETRATION DETAIL

SCALE: NONE



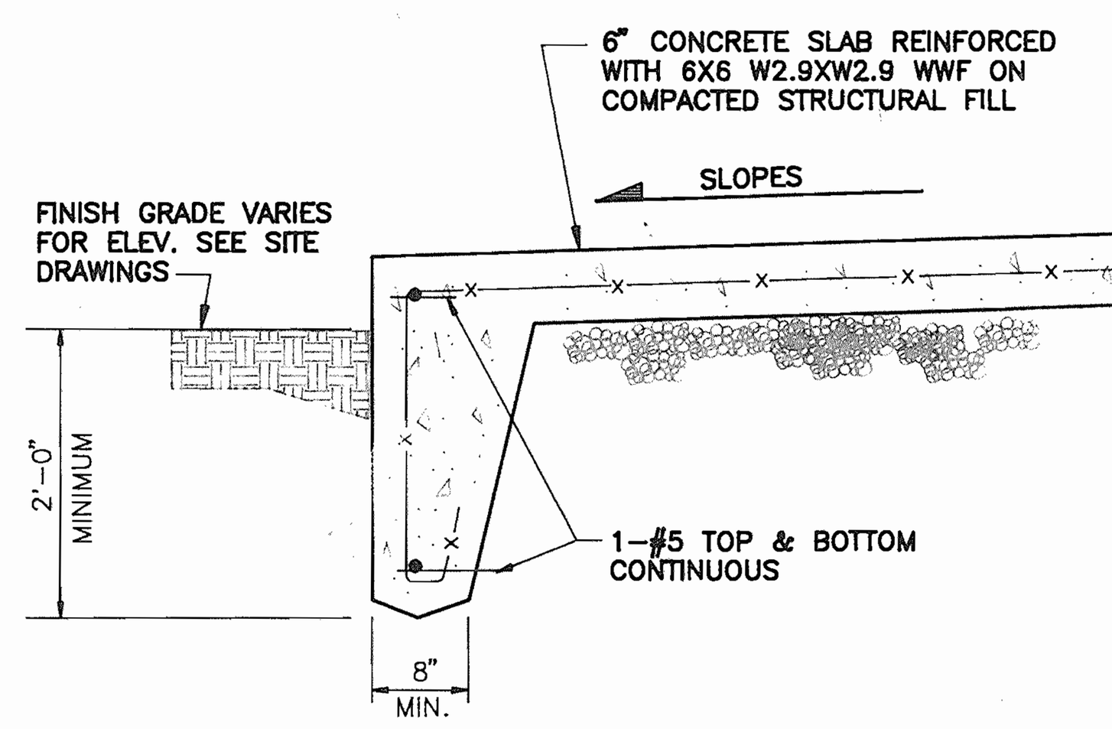
TYPICAL CONCRETE WALL CORNER BAR DETAILS

SCALE: NONE



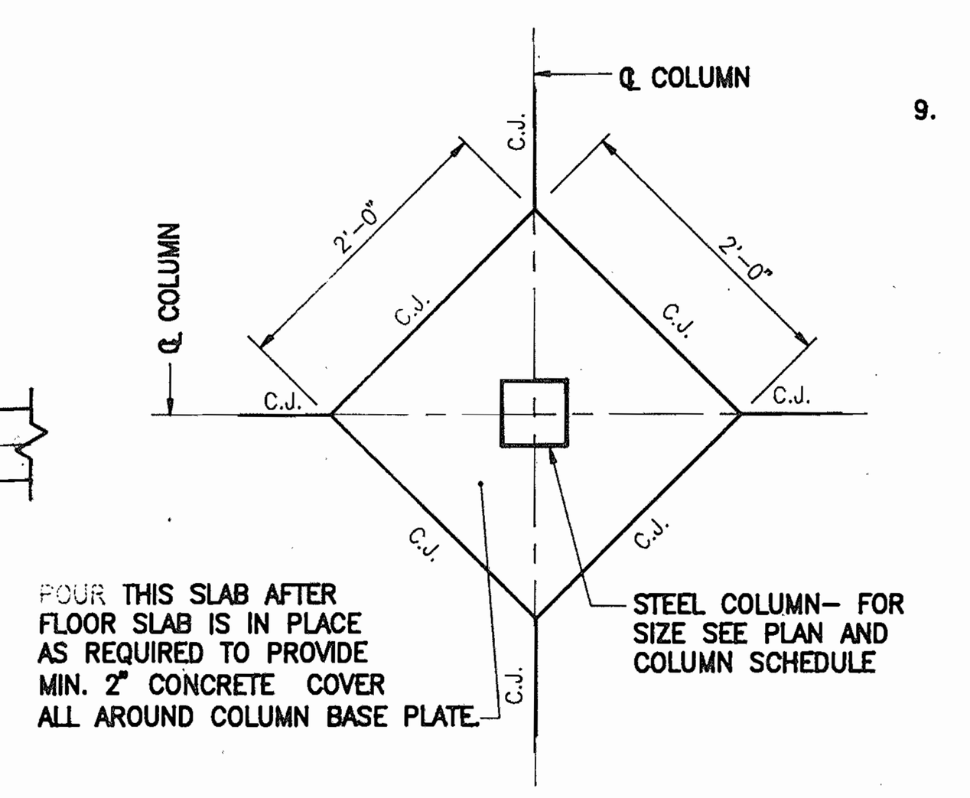
TYPICAL STEPPED FOOTING DETAIL

SCALE: NONE



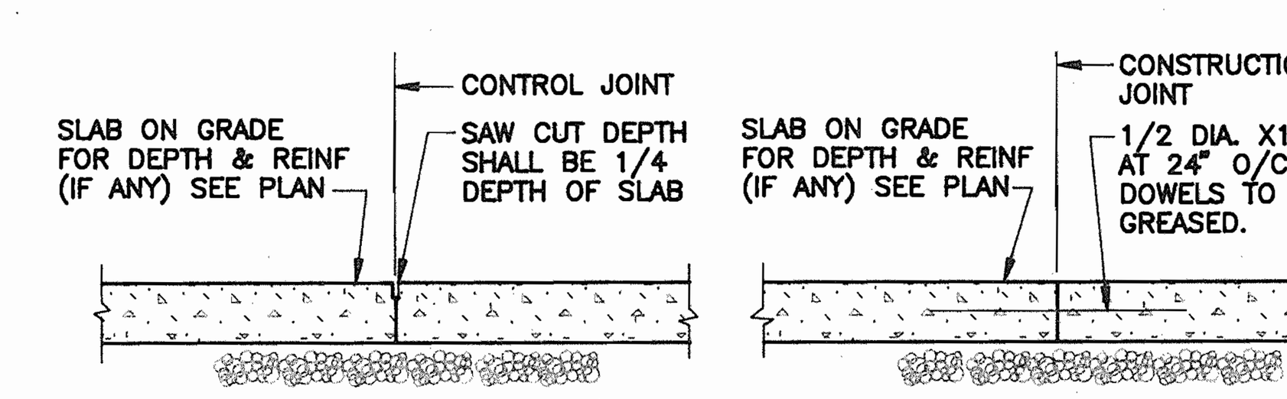
TYPICAL FROST WALL DETAIL

SCALE: NONE



TYPICAL ISOLATION JOINT AT COLUMN DETAIL

SCALE : NONE



TYPICAL CONTROL JOINT DETAILS IN CONCRETE SLAB ON GRADE

SCALE: NONE

FIP Construction, Inc.
10 McKee Place
Cheshire, Connecticut 06410
203/271-0356 203/272-5073(FAX)

EAST WINDSOR AREA WORK CENTER
112 Prospect Hill Road
East Windsor, Connecticut

Yankeegas

CONSULTANTS
SZEWCZAK ASSOCIATES
CONSULTING ENGINEERS
200 Fisher Drive
Avon Park North
Avon, CT 06001
(203) 677-4570

REVISIONS

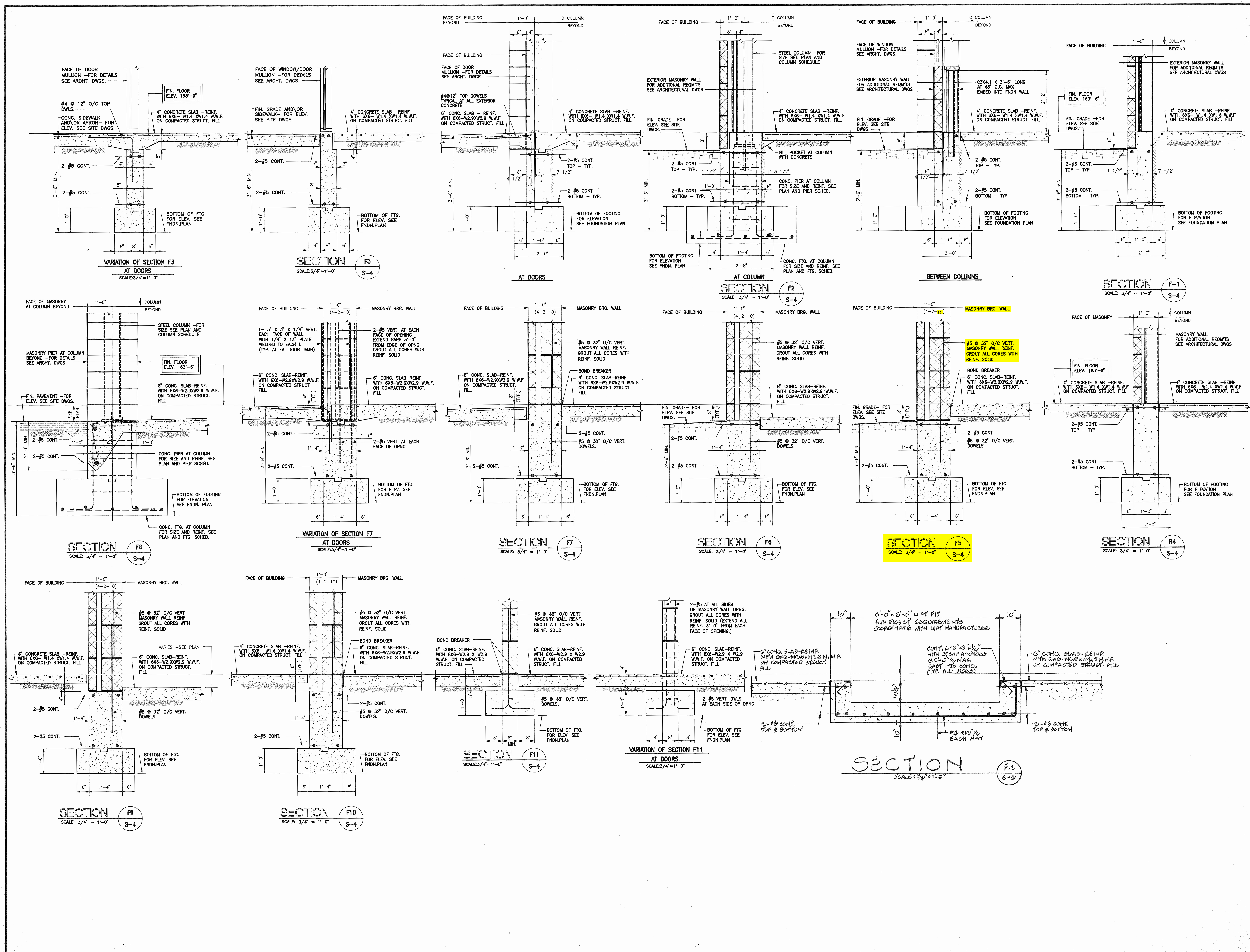
DATE	10/13/93
SCALE	1/8"=1'-0"
FILE	9342
DRAWN BY	R.M.S./S.A.L.

FOUNDATION PLAN

S-1

DEW Architects, P.C.
Bushnell Tower
One Gold Street
Hartford, Conn. 06103

DEW



FIP Construction, Inc.

Yankeegas

EAST WINDSOR AREA WORK CENTER
112 Prospect Hill Road
East Windsor, Connecticut

CONSULTANTS
SZEWCZAK ASSOCIATES

REVISIONS

DATE	10/19/93
SCALE	3/4"=1'-0"
FILE	93420
DRAWN BY	S.A.L.

FOUNDATION DETAILS

S-4

DEW Architects, P.C.
Bushnell Tower
One Gold Street
Hartford, Conn. 06103

DEW

NORTHEAST UTILITIES SYSTEM
WIRELESS COMMUNICATIONS FACILITY

YANKEE GAS EAST WINDSOR
112 PROSPECT HILL ROAD
EAST WINDSOR, CT 06088-9688

SITE DIRECTIONS

FROM: 107 SELDEN STREET, BERLIN, CONNECTICUT **TO:** 112 PROSPECT HILL ROAD, EAST WINDSOR, CONNECTICUT

1. Depart Selden St	0.4 Mi.
2. Turn right onto US-5 North / Berlin Tpke	4.5 Mi.
3. Take ramp for US-5 North toward Hartford	3.4 Mi.
4. Take ramp right for I-91 North toward Hartford / Springfield	14.3 Mi.
5. At exit 45, take ramp right for Ct-140 toward Warehouse PT / Ellington	0.2 Mi.
6. Turn right onto SR-140 / Bridge St	0.1 Mi.
7. Turn right onto US-5 / Prospect Hill Rd	0.1 Mi.
8. Arrive at 112 Prospect Hill Rd, Connecticut 06088	

GENERAL NOTES

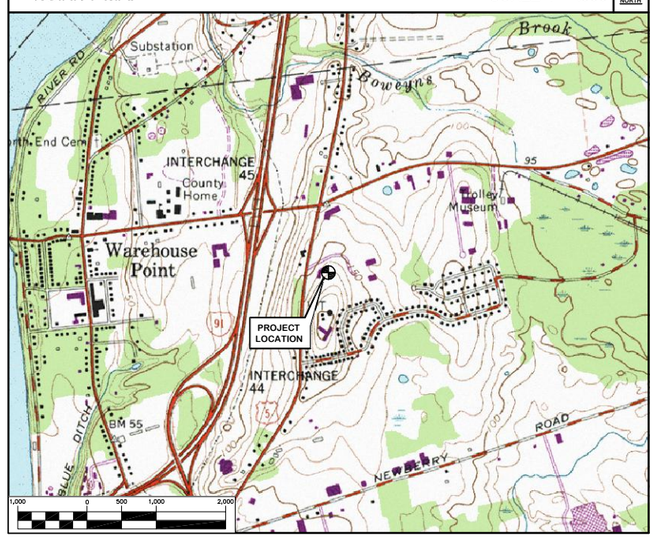
1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY NORTHEAST UTILITIES SYSTEM.

PROJECT SCOPE

1. THE PROPOSED SCOPE OF WORK GENERALLY INCLUDES THE INSTALLATION OF TWO (2) ANTENNAS ON AN PROPOSED PIPE MAST ATTACHED TO THE EXISTING BUILDING.
2. EXISTING NORTHEAST UTILITIES RADIO EQUIPMENT LOCATED WITHIN THE EXISTING BUILDING WILL FEED THE PROPOSED ANTENNAS.
3. NO CHANGES ARE PROPOSED TO THE EXISTING UTILITIES SERVICING THE BUILDING.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

SITE NAME:	YANKEE GAS EAST WINDSOR
SITE ADDRESS:	112 PROSPECT HILL ROAD EAST WINDSOR, CT 06088-9688
LESSEE/ TENANT:	NORTHEAST UTILITIES SYSTEM 107 SELDEN STREET BERLIN, CT 06037
CONTACT PERSON:	JOHN D'AMBRA NORTHEAST UTILITIES SYSTEM (860)665-3437
TOWER COORDINATES:	LATITUDE: 41°-55'-40.34" LONGITUDE: 72°-36'-17.95" COORDINATES TAKEN FROM GOOGLE EARTH SOFTWARE.

SHEET INDEX

DESIGNED BY:
DRAWN BY:
CHK'D BY:

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
01	10/12/09	DEB	CFC	REVISED ANCHOR AT CONNECTION TO WALL
00	8/4/09	DEB	CFC	REVISED ANTENNA HEIGHT ~ ISSUED FOR CONSTRUCTION
A	7/30/09	DEB	CFC	CLIENT REVIEW

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CONSULTING ENGINEERS
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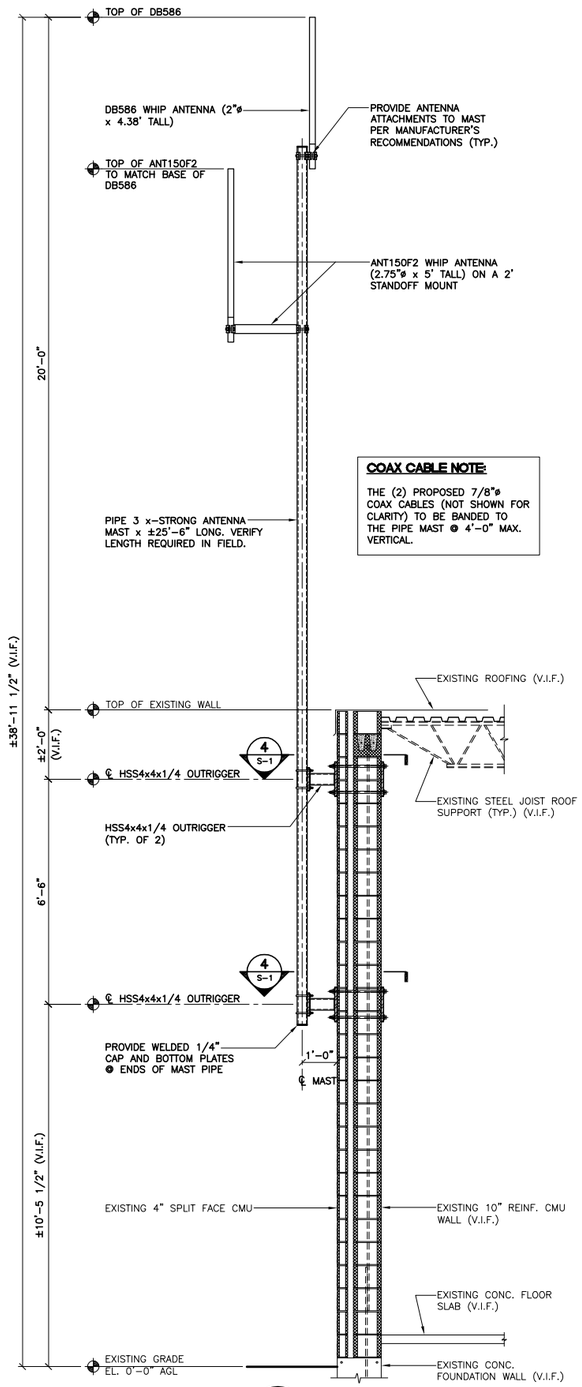
www.natcomm.com
63-2 N. Branford Rd. Branford, CT 06405

NORTHEAST UTILITIES SYSTEM
WIRELESS COMMUNICATIONS FACILITY
YANKEE GAS EAST WINDSOR
112 PROSPECT HILL ROAD
EAST WINDSOR, CT 06088-9668

DATE: 6/19/09
SCALE: AS NOTED
JOB NO. 09050

TITLE SHEET

T-1



COAX CABLE NOTE:

THE (2) PROPOSED 7/8"ø COAX CABLES (NOT SHOWN FOR CLARITY) TO BE BANDED TO THE PIPE MAST @ 4'-0" MAX. VERTICAL.

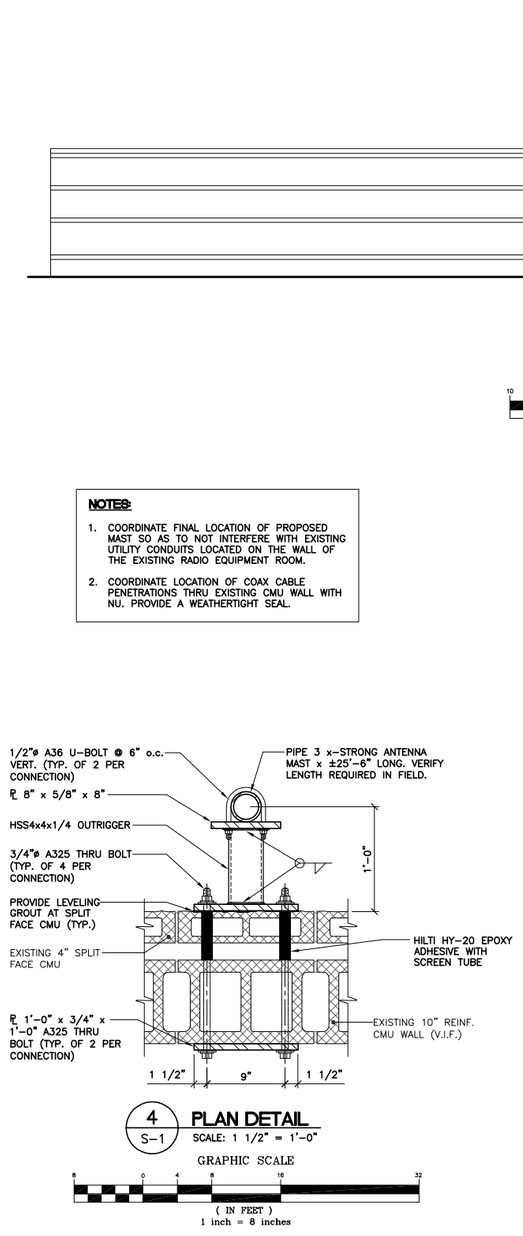
3 S-1 WALL SECTION

SCALE: 1/2" = 1'-0"

GRAPHIC SCALE

24 0 12 24 48 96

(IN FEET)
1 inch = 2 ft.



4 S-1 PLAN DETAIL

SCALE: 1 1/2" = 1'-0"

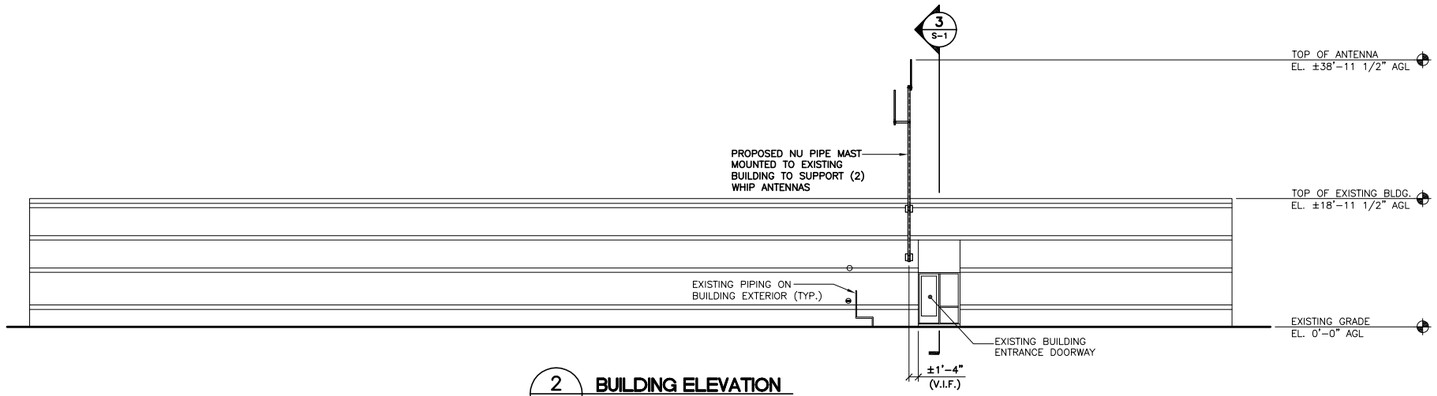
GRAPHIC SCALE

8 0 4 8 16 32

(IN FEET)
1 inch = 8 inches

NOTES:

1. COORDINATE FINAL LOCATION OF PROPOSED MAST SO AS TO NOT INTERFERE WITH EXISTING UTILITY CONDUITS LOCATED ON THE WALL OF THE EXISTING RADIO EQUIPMENT ROOM.
2. COORDINATE LOCATION OF COAX CABLE PENETRATIONS THRU EXISTING CMU WALL WITH NU. PROVIDE A WEATHERTIGHT SEAL.



2 S-1 BUILDING ELEVATION

SCALE: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

1 S-1 SITE ACCESS PLAN

SCALE: 1" = 100'

NORTH

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

DESIGNED BY:	CFC		
DRAWN BY:	DEB		
CHK'D BY:	CFC		

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
01	10/12/09	DEB	CFC	REVISED ANCHOR AT CONNECTION TO WALL
00	8/4/09	DEB	CFC	REVISED ANTENNA HEIGHT ~ ISSUED FOR CONSTRUCTION
A	7/30/09	DEB	CFC	CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

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P: 203.488.0580 F: 203.488.8587
Email: info@natcomm.com
63-2 N. Branford Rd. Branford, CT 06405

NORTHEAST UTILITIES SYSTEM
WIRELESS COMMUNICATIONS FACILITY
YANKEE GAS EAST WINDSOR
112 PROSPECT HILL ROAD
EAST WINDSOR, CT 06088-9668

DATE:	6/19/09
SCALE:	AS NOTED
JOB NO.	09050

PLAN, ELEVATION AND STRUCTURAL DETAILS

S-1

Sheet No. 2 of 3

STRUCTURAL NOTES

DESIGN BASIS

GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT.

1. DESIGN CRITERIA:

   - WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 80 MPH (FASTEST MILE), EQUIVALENT TO 95 MPH (3 SECOND GUST).

GENERAL NOTES

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION TO ENGINEER FOR REVIEW.
2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS SHOWN. REPORT ANY DISCREPANCIES TO ENGINEER.
3. ALL BUILDING CONNECTION POINTS ARE TO BE CENTERED OVER BEARING WALLS/COLUMNS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   B. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   C. PIPE---ASTM A53 (FY = 35 KSI)
   D. CONNECTION BOLTS---ASTM A325-N
   E. U-BOLTS---ASTM A36
   F. ANCHOR RODS---ASTM F 1554
   G. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLET J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 9TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
11. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
12. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
13. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
14. CONNECTIONS SHALL CONFORM TO ALL REQUIREMENTS OF THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR SHELTERS", LATEST EDITION, AND THE "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", LATEST EDITION.
15. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
16. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
17. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
18. FABRICATE BEAMS WITH MILL CAMBER UP.
19. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
20. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
21. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
22. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

DESIGNED BY: CFC
DRAWN BY: DEB
CHK'D BY: CFC

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
01	10/12/09	DEB	CFC	REVISED ANCHOR AT CONNECTION TO WALL
00	8/4/09	DEB	CFC	REVISED ANTENNA HEIGHT ~ ISSUED FOR CONSTRUCTION
A	7/30/09	DEB	CFC	CLIENT REVIEW

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203.488.0580 p 203.488.8587
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63-2 N. Branford Rd. Branford, CT 06405

NORTHEAST UTILITIES SYSTEM

WIRELESS COMMUNICATIONS FACILITY

YANKEE GAS EAST WINDSOR

112 PROSPECT HILL ROAD
EAST WINDSOR, CT 06088-9668

DATE: 6/19/09
SCALE: AS NOTED
JOB NO. 09050

STRUCTURAL NOTES

S-2

Attachment 4 – Wetland Desktop Review

WETLAND DESKTOP REVIEW

February 12, 2020 **APT Project No.: CT578100**

Prepared For: Eversource Energy
107 Selden Street, Berlin, CT 06037

Site Name: East Windsor AWC (ES 271)

Site Address: 112 Prospect Hill Road, East Windsor, Connecticut

Wetlands Identified on Subject Property:	Yes ☒ No ☐	
Nearest Wetland Resource:	±385 feet to the northwest	
Remote Sensing Identification Methods:	Type: CTDEEP Wetland Mapping	Type: Aerial Photograph
Municipal Upland Review Area:	**Wetlands:** 150 feet	**Watercourses:** 150 feet

Conclusion/Recommendation:

The proposed Eversource communication facility does not appear to result in an adverse impact to wetland or watercourse resources or consist of activities within the municipal upland review area. Therefore, no wetland field inspection is recommended based on the results of this desktop review.

Proposed CRAN Equipment Site Conditions:

Developed ☒ Type: Commercial

Paved ☒	Gravel ☐	Maintained Lawn ☒
Agriculture ☐	Cultivated ☐	Hayfield/Pasture ☐
Comments: The proposed facility will be attached to the north exterior wall of the existing building with antenna attached to a pile mast; no ground disturbance is anticipated.		

Nearest Wetland/Watercourse Type:

Emergent ☐	Scrub-shrub ☒	Forested ☒
Open Water ☐	Disturbed ☐	Wet Meadow ☐
Perennial Watercourse ☐	Intermittent Watercourse ☐	Potential Vernal Pool ☐
Comments: None		

Floodplain/Rare Species Habitat/Coastal Boundary:

100-year Floodplain ☐	500-year Floodplain ☐	NDDB Buffer Area ☐
Comments: None		

Attachment

- Environmental Resources Screen

This document is provided as a preliminary determination on the potential presence of wetlands or watercourses on or in proximity to proposed Eversource communications facility. This analysis is based solely on a review of publically available remote sensing resources (i.e., wetland mapping, soil mapping, aerial photographs, hydrology mapping, etc.), recognizing the data precision/ommission limitations inherent in these resources, and does not represent an actual field investigation performed by a qualified soil/wetland scientist.

C:\Users\NicoleCastro\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Black and Veatch\East_Windsor\mxd\EVResourcesScreen_EastWindsor.mxd

Environmental Resources
Proposed Wireless Telecommunications Facility
East Windsor AWC
112 Prospect Hill Road, East Windsor, CT

EVERSOURCE ENERGY

Legend

- Site
- Subject Property
- 5-foot Contour Line
- Natural Diversity Database Area (12/2019)*
- CT NEC Focus Area*
- Critical Habitat (CTDEEP; July 2009)*

Bioscience/CT NWI Wetland Functions 2010

- Freshwater Forested/Shrub Wetland
- Approximate Wetland (not delineated)
- Open Water (CTDEEP)*
- Watercourse (CTDEEP)*
- Approximate Parcel Boundary
- Prime Farmland Soils
- Statewide Important Farmland Soils
- Soils

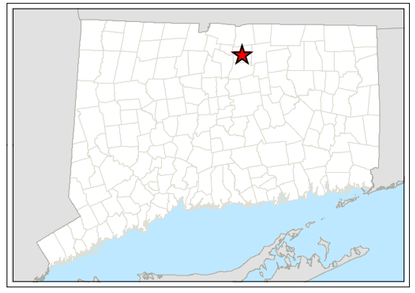
FEMA Flood Zones

- 100-Year Flood Zone*
- 500-Year Flood Zone*
- Floodway*
- Aquifer Protection Area (CTDEEP, Aug 2019)*
- Public Water Supply Watershed*

N W E S

200 100 0 200 Feet

1 inch = 200 feet



ALL-POINTS TECHNOLOGY CORPORATION

Map Sources:

Ortho Base Map: State of Connecticut 2019 aerial imagery with 0.5-foot ground resolution provided by CTECO Map Service

Elevation contours derived from 2016 LiDAR data provided by CTECO

NWI+ wetland data provided by CTECO

Flood Zones obtained from FEMA National Flood Hazard Layer(NFHL) dataset.

CTDEEP's data library (http://www.ct.gov/deep)
Data layers are maintained and updated by CTDEEP and represent the most recent publications.

Map Date: February 2020

PROPOSED WALL MOUNTED ANTENNA AND REPLACEMENT PIPE MAST

+/-385'

PROSPECT HILL ROAD

US HWY 5

CRICKET ROAD

PROSPECT HILL DRIVE

BROADVIEW LANE

EXIT 45

USFW

Attachment 5 – USFWS – NDDB Memo

USFWS & NDDB Compliance Determination

February 18, 2020

Eversource Energy
107 Selden Street
Berlin, Connecticut 06037

Re: Proposed East Windsor AWC Communications Facility
112 Prospect Hill Road, East Windsor, Connecticut
APT Project No. CT578100

On behalf of Eversource Energy ("Eversource"), All-Points Technology Corporation, P.C. ("APT") performed an evaluation with respect to possible federally- and state-listed threatened, endangered or special concern species in order to determine if the proposed referenced communication facility ("Facility") would result in a potential adverse effect to listed species.

APT understands that Eversource proposes to install one (1) new antenna on a replacement mast along the north exterior wall of the existing industrial building located at 112 Prospect Hill Road, East Windsor, Connecticut ("Subject Property").

USFWS

The federal consultation was completed in accordance with Federal Communications Commission ("FCC") rules implementing the National Environmental Policy Act ("NEPA") and Section 7 of the Endangered Species Act through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC"). Based on the results of the IPaC review, one federally-listed[1] threatened species is known to occur in the vicinity of the Subject Property, documented as the northern long-eared bat ("NLEB"; *Myotis septentrionalis*). As a result of this preliminary finding, APT performed an evaluation to determine if the proposed referenced Facility would result in a likely adverse effect to NLEB.

The proposed Facility would be located along the north exterior wall of the existing industrial building and would not require forest clearing or be located adjacent to a forested area that could potentially serve as habitat by NLEB. Consultation with the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division Natural Diversity Data Base ("NDDB") revealed that the proposed Facility is not within 150 feet of a known occupied NLEB maternity roost tree and is not within 0.25 mile of a known NLEB hibernaculum. The nearest NLEB habitat resource to the proposed Facility is located ±6.5 miles to the northwest in East Granby.

[1] Listing under the federal Endangered Species Act

Therefore, the proposed Facility would have no effect on NLEB or its potential habitat and as a result no consultation with USFWS is required. Furthermore, the proposed activity is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

NDDB

No known areas of state-listed species are currently depicted on the most recent CTDEEP NDDB Maps in the location of the proposed Facility or within 0.25 mile to the proposed activity. Please refer to the enclosed NDDB Map which depicts the nearest NDDB buffer ±0.4 mile north of the Subject Property. Since the proposed Facility and Subject Property are not located within a NDDB buffer area, consultation with DEEP is not required in accordance with their review policy[2]. Also, since the NDDB buffer area is located more than a 0.25-mile away, consultation with DEEP is not required in accordance with the Connecticut Siting Council's review policy.

Therefore, the proposed Facility is not anticipated to adversely impact any federal or state threatened, endangered or species of special concern.

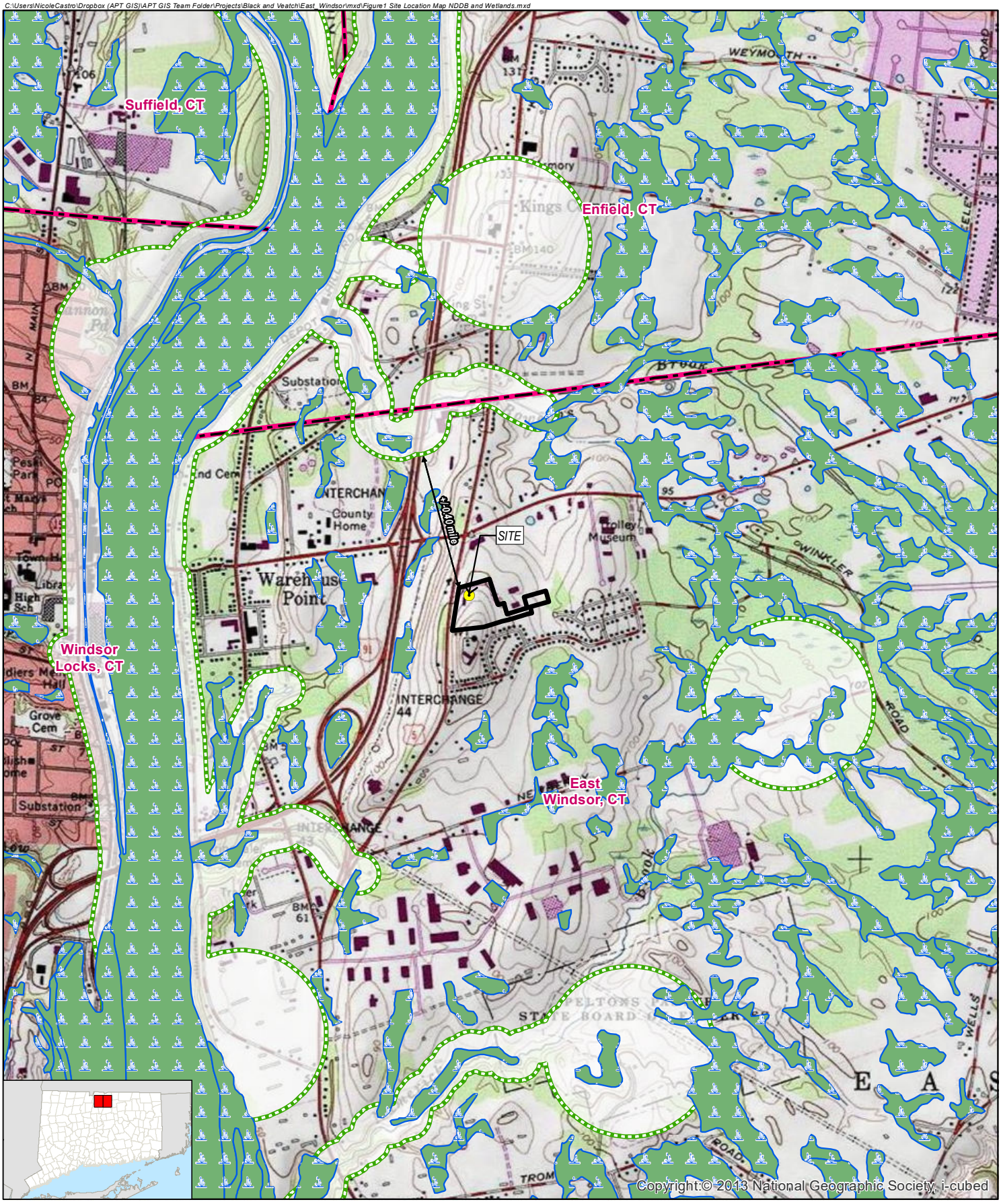
Sincerely,
All-Points Technology Corporation, P.C.

Dean Gustafson
Senior Biologist

Enclosure

[2] DEEP Requests for NDDB State Listed Species Reviews.
http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323466&deepNav_GID=1628%20

NDDB Map



Legend

- Proposed Wall Mounted Antenna and Replacement Pipe Mast
- Subject Property
- Approximate Wetland (not delineated; CTDEEP)
- Natural Diversity Database (updated 12/2019)
- Municipal Boundary

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Broad Brook and Windsor Locks (1984), CT
Map Scale: 1:24,000
Map Date: February 2020

N W E S

1,000 500 0 1,000 Feet

Figure 1
Site Location, Natural Diversity Database, and Wetland Map

Proposed Wireless Telecommunications Facility
East Windsor AWC
112 Prospect Hill Roadi
East Windsor, CT

EVERSOURCE ENERGY
ALL-POINTS TECHNOLOGY CORPORATION

Attachment 6 – Power Density Report

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
603-644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions Report

ES-271

112 Prospect Hill Road

East Windsor, CT 06088

March 26, 2020

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed Eversource addition to its existing facility at 112 Prospect Hill Road in East Windsor, CT.

Eversource is proposing to install one omnidirectional antenna as part of its 220 MHz communications system.

This report considers the proposed antenna configuration as detailed by Eversource along with power density information of existing the antennas to calculate the cumulative % MPE (Maximum Permissible Exposure) of the facility at ground level.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached “FCC Limits for Maximum Permissible Exposure (MPE)” in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. Power Density Calculation Methods

The power density calculation results were generated using the following formula as outlined in FCC bulletin OET 65, and Connecticut Siting Council recommendations:

$$\text{Power Density} = \left(\frac{1.6^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power = 1.64 x ERP

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna

V = Vertical Distance from radiation center of antenna

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and full power, and that all antenna channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not consider actual terrain elevations which could attenuate the signal. As a result, the calculated power density and corresponding % MPE levels reported below are much higher than the actual levels will be from the final installation.

4. Calculated % MPE Results

Table 1 below outlines the power density information for the site. The Eversource omnidirectional antenna has a narrow vertical beamwidth of 30°; therefore, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed Eversource antenna. The calculated result for the proposed Eversource installation in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antenna.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Yankee Gas (Eversource)	32.1	154	1	100	0.0053	0.2000	2.64%
CL&P (Eversource)	36.8	936.9125	2	240	0.0182	0.6246	2.91%
Eversource	38	217	4	124	0.0174	0.2000	8.72%
						Total	**14.27%**

Table 1: Proposed Facility % MPE [1] [2]

[1] Please note that % MPE values listed are rounded to two decimal points and the total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not identically match the total value reflected in the table.

[2] The heights of the existing and proposed antennas are based upon the Black & Veatch Structural Analysis dated March 24, 2020. The proposed antenna consists of two internal antennas. The height listed in the % MPE table is based upon the transmitting antenna height. The antenna heights for any existing entries in the CSC power density databased dated December 13, 2019 have been updated accordingly.

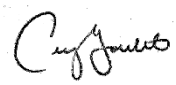
5. Conclusion

The above analysis concludes that RF exposure at ground level with the proposed antenna installation will be below the maximum power density limits as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods discussed herein, the highest expected percent of Maximum Permissible Exposure at ground level with the proposed installation is **14.27% of the FCC General Population/Uncontrolled limit**.

As noted previously, the calculated % MPE levels are more conservative (higher) than the actual levels will be from the finished installation.

6. Statement of Certification

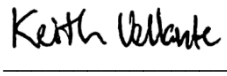
I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in FCC OET Bulletin 65 Edition 97-01, IEEE Std. C95.1, and IEEE Std. C95.3.



March 26, 2019

Report Prepared By: Cory Goulet
Associate RF Engineer
C Squared Systems, LLC

Date



March 26, 2019

Reviewed/Approved By: Keith Vellante
Director of RF Services
C Squared Systems, LLC

Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[3]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[3] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[4] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

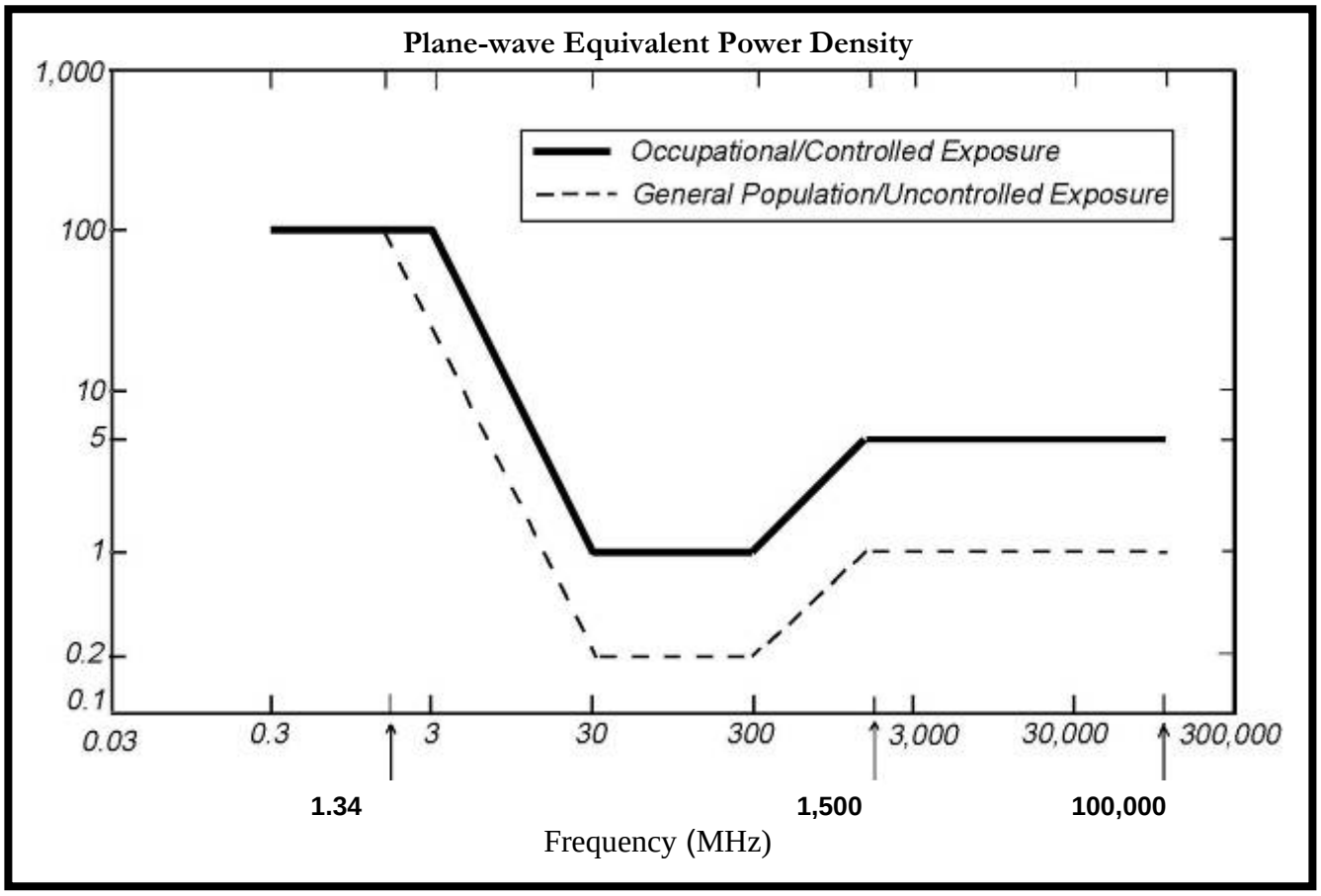


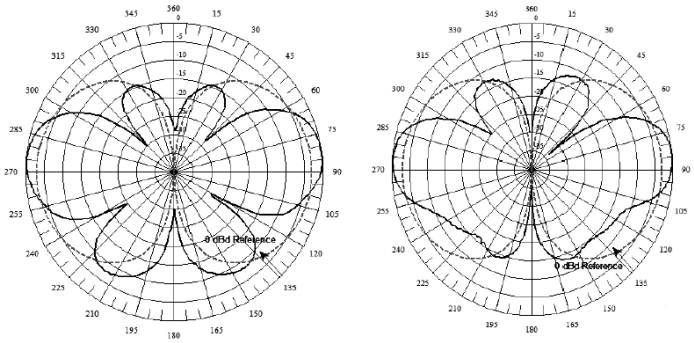
Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Eversource Antenna Data Sheet and Electrical Patterns

217 MHz

Manufacturer:	dbSpectra
Model #:	DS2C03F36D
Frequency Band:	217-222 MHz
Gain:	3.0 dBd
Vertical Beamwidth:	30°
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	24.3’

DS2C03F36D-N
DS2C03F36D-D



Top Bottom

Attachment 7 – Photographic Simulations

EXISTING

PHOTO	LOCATION	ORIENTATION
1	**112 PROSPECT HILL ROAD EAST WINDSOR, CT**	**SOUTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION
1	**112 PROSPECT HILL ROAD EAST WINDSOR, CT**	**SOUTHWEST**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

EXISTING

PHOTO	LOCATION	ORIENTATION
2	**PROSPECT HILL ROAD EAST WINDSOR, CT**	**EAST**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION
2	**PROSPECT HILL ROAD EAST WINDSOR, CT**	**EAST**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

Attachment 8 – Cultural Resource Screen

Cultural Resources Screen
CT578100 - Black & Veatch ES-271 East Windsor CT
January 31, 2020 \ USGS QUAD: Broadbrook

0 500 1,000 2,000 Feet

Prepared for All-Points Technology Corp. by Heritage Consultants, 2020.

Attachment 9 - FAA Determination

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2020-ANE-1401-OE

Issued Date: 04/16/2020

Telecom Manager
Eversource Energy Service Company
PO Box 270
Hartford, CT 06141-0270

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ** (CORRECTION)**

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna - Side Mount East Windsor
Location:	East Windsor, CT
Latitude:	41-55-40.30N NAD 83
Longitude:	72-36-17.90W
Heights:	166 feet site elevation (SE)
	52 feet above ground level (AGL)
	218 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

As a result of this structure being critical to flight safety, it is required that the FAA be kept appraised as to the status of the project. Failure to respond to periodic FAA inquiries could invalidate this determination.

This aeronautical study included evaluation of a structure that exists at this time. Action will be taken to ensure aeronautical charts are updated to reflect the most current coordinates, elevation and height as indicated in the case description.

See attachment for additional condition(s) or information.
Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 2.

This determination expires on 10/16/2021 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination does not constitute authority to transmit on the frequency(ies) identified in this study. The proponent is required to obtain a formal frequency transmit license from the Federal Communications Commission (FCC) or National Telecommunications and Information Administration (NTIA), prior to on-air operations of these frequency(ies).

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact our office at (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1401-OE.

Signature Control No: 431832848-436626493 (DNE)
David Maddox
Specialist

Attachment(s)
Additional Information
Case Description
Frequency Data
Map(s)

cc: FCC

Additional information for ASN 2020-ANE-1401-OE

This correction adds supplemental notice requirement and an expiration date.

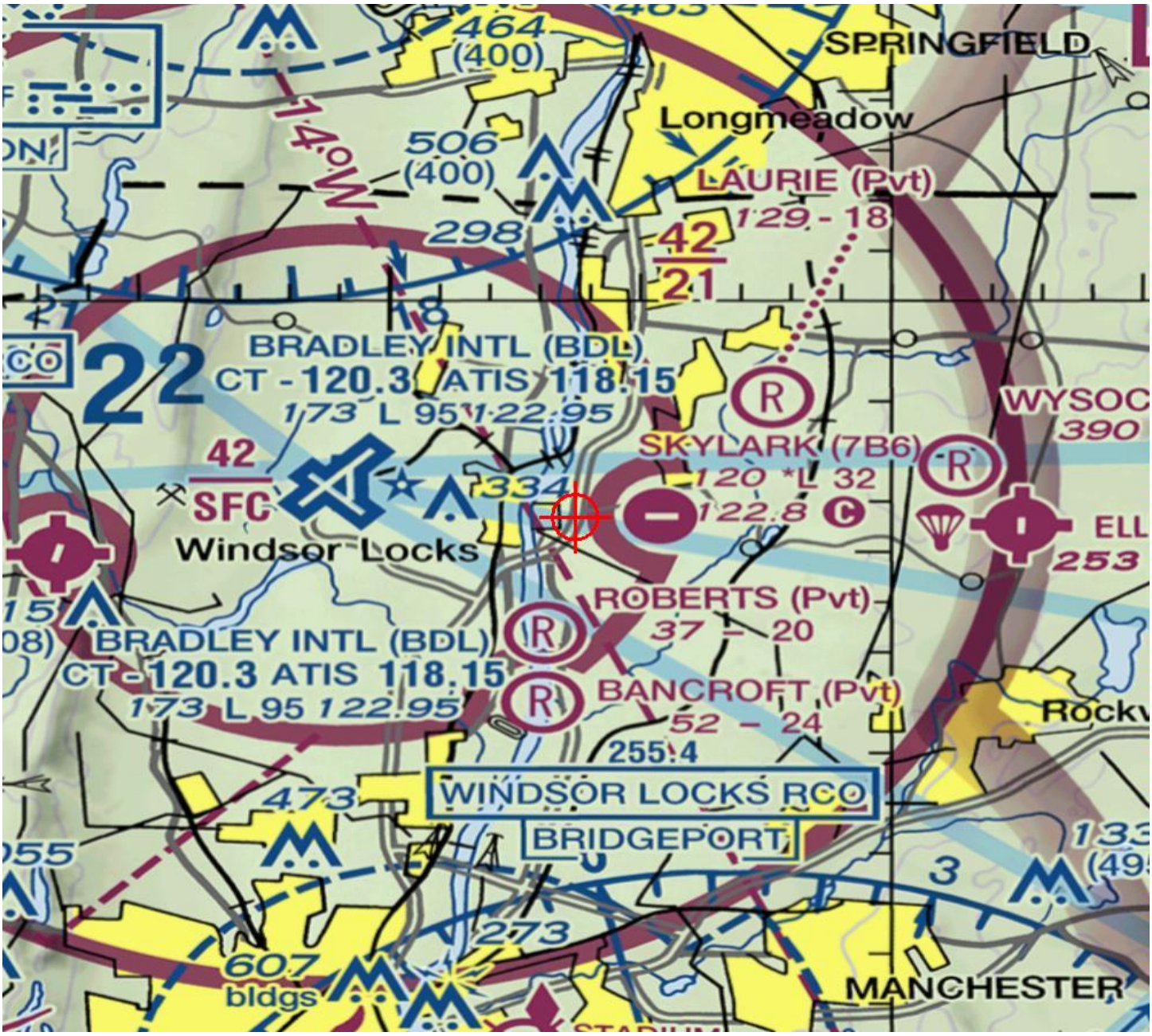
Case Description for ASN 2020-ANE-1401-OE

Applicant seeks a study on construction of an existing building with an existing side-mounted antenna. The existing structure and side-mounted antenna do not require registration. The proposed alteration will bring the overall structure height with appurtenances to 52 feet (AGL).

Frequency Data for ASN 2020-ANE-1401-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
217	222	MHz	500	W

Sectional Map for ASN 2020-ANE-1401-OE



TOWAIR Determination Results

This structure requires FAA notification and FCC registration, based on a check of the coordinates, heights, and structure type you provided. As detailed below, one or more of the determination results produced a "fail slope" result, which means registration is required.

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

FAIL SLOPE (100:1)FAA REQ - 1887.0 Meters(6190.86 Feet) away & exceeds by 15.0 Meters (49.2100 Feet)

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	41-55-42.00N	072-34-56.00W	SKYLARK AIRPARK	HARTFORD WAREHOUSE POINT, CT	36.6	988.20000000000005

PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 6231.63 MTRS (6.23160 KM) AWAY

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	41-56-1.00N	072-40-47.00W	BRADLEY INTL	HARTFORD WINDSOR LOCKS, CT	49.0	2898.5999999999999

PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 6119.77 MTRS (6.11979 KM) AWAY

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	41-57-2.00N	072-40-20.00W	BRADLEY INTL	HARTFORD WINDSOR LOCKS, CT	49.0	2898.5999999999999

PASS SLOPE(100:1)NO FAA REQ - 5833.0 Meters (19136.9 Feet)away & below slope by 36.0 Meters (118.11 Feet)

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	41-55-45.00N	072-40-31.00W	BRADLEY INTL	HARTFORD WINDSOR LOCKS, CT	49.0	2898.5999999999999

Your Specifications

NAD83 Coordinates

Latitude	41-55-40.3 north
Longitude	072-36-17.9 west
Measurements (Meters)	
Overall Structure Height (AGL)	15.8
Support Structure Height (AGL)	5.4
Site Elevation (AMSL)	55.4
Structure Type	
BMAST - Building with Mast	

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW

Attachment 10 – Certification of Notice

EVERSOURCE ENERGY

56 Prospect Street,
P.O. Box 270
Hartford, CT 06103

Kathleen M. Shanley
Manager – Transmission Siting
Tel: (860) 728-4527

June 16, 2020

VIA COURIER

RE: Eversource Energy ("Eversource")
Modification of Wireless Communications Facility
112 Prospect Hill Road, East Windsor, Connecticut

Dear First Selectman Bowsza:

We are writing to you with respect to the above referenced matter and our intent to file a Petition for a declaratory ruling with the State of Connecticut Siting Council (the "Siting Council") for approval of the modification of a wireless communications facility on our existing East Windsor Area Work Center building (the "Facility") at the above referenced property.

Included with this letter please find a copy of the Petition for your review. In accordance with Siting Council requirements, abutting landowners were also sent notice of this filing.

If you have any questions concerning this Petition, please contact the Siting Council or the Kathleen M. Shanley after June 17, 2020, the date that the Petition is expected to be on file.

Sincerely,

Kathleen M. Shanley
Manager – Transmission Siting

Enclosure

EVERSOURCE ENERGY

56 Prospect Street,
P.O. Box 270
Hartford, CT 06103

Kathleen M. Shanley
Manager – Transmission Siting
Tel: (860) 728-4527

June 16, 2020

VIA COURIER

RE: Eversource Energy ("Eversource")
Modification of Wireless Communications Facility
112 Prospect Hill Road, East Windsor, Connecticut

Dear Mr. Ruben Flores-Marzan, AICP:

We are writing to you with respect to the above referenced matter and our intent to file a Petition for a declaratory ruling with the State of Connecticut Siting Council (the "Siting Council") for approval of the modification of a wireless communications facility on our existing East Windsor Area Work Center building (the "Facility") at the above referenced property.

Included with this letter please find a copy of the Petition for your review. In accordance with Siting Council requirements, abutting landowners were also sent notice of this filing.

If you have any questions concerning this Petition, please contact the Siting Council or the Kathleen M. Shanley after June 17, 2020, the date that the Petition is expected to be on file.

Sincerely,

Kathleen M. Shanley
Manager – Transmission Siting

Enclosure

Ref: CT578100 E WINDS Date: 16Jun20
Dep: BL GRAPHICS Wgt: 1.50 LBS

DV: 0.00

SHIPPING:	0.00
SPECIAL:	0.00
HANDLING:	0.00
TOTAL:	0.00

Svcs: PRIORITY OVERNIGHT
TRCK: 1714 2090 4914

ORIGIN ID:RSPA (800) 301-3077
BL GRAPHICS
BL GRAPHICS
355 RESEARCH PARKWAY

MERIDEN, CT 06450
UNITED STATES US

SHIP DATE: 16JUN20
ACTWGT: 1.50 LB MAN
CAD: 0765627/CAFE3311

BILL THIRD PARTY

TO **HONORABLE JASON E. BOWSZA**
TOWN OF EAST WINDSOR
11 RYE STREET

BROAD BROOK CT 06016
REF: CT578100 E WINDSOR
DEPT: BL GRAPHICS

565C1/C70D/0542

FedEx Express

J191219082001av

TRK# 0201 **1714 2090 4914**

WED – 17 JUN 10:30A
PRIORITY OVERNIGHT

00 QCWA

06016
CT – US **BDL**

Ref: CT578100 E WINDS Date: 16Jun20
Dep: BL GRAPHICS Wgt: 1.50 LBS

DV: 0.00

SHIPPING:	0.00
SPECIAL:	0.00
HANDLING:	0.00
TOTAL:	0.00

Svcs: PRIORITY OVERNIGHT
TRCK: 1714 2090 4903

ORIGIN ID:RSPA (800) 301-3077
BL GRAPHICS
BL GRAPHICS
355 RESEARCH PARKWAY

MERIDEN, CT 06450
UNITED STATES US

SHIP DATE: 16JUN20
ACTWGT: 1.50 LB MAN
CAD: 0765627/CAFE3311

BILL THIRD PARTY

TO **RUBEN FLORES – MARZAN,AICP**
TOWN OF EAST WINDSOR
11 RYE STREET

BROAD BROOK CT 06016
REF: CT578100 E WINDSOR
DEPT: BL GRAPHICS

565C1/C70D/0542

FedEx Express

J191219082001av

TRK# 0201 **1714 2090 4903**

WED – 17 JUN 10:30A
PRIORITY OVERNIGHT

00 QCWA

06016
CT – US **BDL**

EVERSOURCE ENERGY

56 Prospect Street,
P.O. Box 270
Hartford, CT 06103

Kathleen M. Shanley
Manager – Transmission Siting
Tel: (860) 728-4527

June 12, 2020

VIA CERTIFIED MAIL/
RETURN RECEIPT REQUESTED

RE: Eversource Energy ("Eversource")
Modification of Wireless Communications Facility
112 Prospect Hill Road, East Windsor, Connecticut

Dear Sir or Madam:

We are writing to you with respect to the above referenced matter and our intent to file a Petition for a declaratory ruling with the State of Connecticut Siting Council (the "Siting Council") for approval of the modification of a wireless communications facility on our existing East Windsor Area Work Center building (the "Facility") at the above referenced property.

State law requires that record owners of property abutting a parcel on which a facility is proposed be sent notice of an applicant's intent to file a Petition with the Siting Council.

Included with this letter please find a Notice of this submission and details of the proposal. Of note, the location, height and other features of the Facility are subject to review and potential change by the Siting Council under the provisions of Connecticut General Statues §16-50g et seq.

If you have any questions concerning this Petition, please contact the Siting Council or the Kathleen M. Shanley after June 17, 2020, the date that the Petition is expected to be on file.

Sincerely,

Kathleen M. Shanley
Manager – Transmission Siting

Enclosure

NOTICE

Notice is hereby given, pursuant to Section 16-50j-40(a) of the Regulations of Connecticut State Agencies, of a Petition being filed with the Connecticut Siting Council ("Siting Council") on or after June 17, 2020 by Eversource Energy ("Eversource"). Eversource seeks a declaratory ruling that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") to modify an existing wireless communications facility on its East Windsor Area Work Center building.

The communications facility is located on a building owned by Eversource at 112 Prospect Hill Road in the Town of East Windsor (the "Property"). Eversource's proposed modifications consist of replacing an existing wall-mounted pipe mast with a new pipe mast to support the addition of one (1) new 24 foot-3-inch-tall omnidirectional antenna and associated equipment. Two (2) existing antennas and cabling would be relocated from the existing pipe mast to the new pipe mast. The proposed modifications are designed to modernize Eversource's communication services to enable the highest level of voice communications under all operating conditions, including during critical emergency and storm restoration activities.

The Petition provides a detailed description of the proposed activities and explains why the proposed modification presents no significant adverse environmental effects. The location, height and other features of the proposal are subject to review and potential change under the provisions of Connecticut General Statutes Sections 16-50g et. seq.

Copies of the Petition will be available for review during normal business hours on or after June 17, 2020 at the following:

Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Town Clerk of East Windsor
Joanne M. Slater, Town Clerk
Town Clerk's Office
11 Rye Street
Broad Brook, CT 06016

A copy of the Petition will also be available on the Connecticut Siting Council website: https://www.ct.gov/csc/site/default.asp under Pending Matters. All inquiries should be addressed to the Connecticut Siting Council or to the undersigned.

Kathleen M. Shanley
Eversource Energy
56 Prospect Street
Hartford, CT 06103
(860) 728 - 4527

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All-Points Technology Corp., P.C. 567 Vauxhall St. Ext., Suite 311 Waterford, CT 06385	5	27	U.S. POSTAGE PAID WESTERLY, RI 02891 JUN 12, 20 AMOUNT $11.61 R2304N117205-96 0000
	Postmaster, per *(name of receiving employee)* Sally A Gouvin		

USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	James C Rovella, Commissioner, DEMSPP Div. of Emergency Mgmt and Homeland Security 1111 Country Club Rd. Middletown, CT 06457				
2.	Conservation Commission 11 Rye St. Broad Brook, CT 06016				
3.	Historical Preservation Commission 11 Rye St. Broad Brook, CT 06016				
4.	State Historic Preservation Office Dept. of Economic and Community Dev. 450 Columbus Blvd., 5th Floor Hartford, CT 06103				
5.	Lyle Wray, Executive Director Capitol Region Council of Governments 241 Main St., 4th Floor Hartord, CT 06106				
6.					

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USPS® Tracking Number Firm-specific Identifier	Address	Postage	Fee	Special Handling	Parcel Airlift
1.	Federal Aviation Administration 800 Independence Ave. SW Washington, DC 20591				
2.	Federal Communications Commission 445 12th St. SW Washington, DC 20554				
3.	Hon. Denise Merrill Secretary of the State 165 Capitol Ave. Hartford, CT 06106				
4.	Hon. Saud Anwar State Senator, District S03 Legislative Office Building, Room 3300 300 Capitol Ave. Hartford, CT 06106				
5.					
6.	Hon. Carol Hall State House Representative, District 59 Legislative Office Building, Room 4200 300 Capitol Ave. Hartford, CT 06106				

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USPS® Tracking Number / Firm-specific Identifier	Address	Postage	Fee	Special Handling	Parcel Airlift
1.	Honorable Jason E. Bowsza First Selectman 11 Rye St., First Selectman's Office Broad Brook, CT 06016				
2.	Ruben Flores-Marzan, AICP Director of Planning and Development 11 Rye St., Planning & Development Dept. Broad Brook, CT 06016				
3.	Planning & Zoning Commission 11 Rye St. Broad Brook, CT 06016				
4.	Inland Wetlands & Watercourses Agency 11 Rye St. Broad Brook, CT 06016				
5.	Joanne M. Slater Town Clerk 11 Rye St. Broad Brook, CT 06016				
6.					

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	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Honorable Richard Blumenthal U.S. Senator 90 State House Square, 10th Floor Hartford, CT 06103				
2.	Hon. Chris Murphy U.S. Senator 120 Huyshope Ave., Suite 401 Hartford, CT 06106				
3.	Hon. John B. Larson U.S. Congressman, 1st District 221 Main St., 4th Floor Hartford, CT 06106				
4.	Hon. William Tong Attorney General 55 Elm St. Hartford, CT 06106				
5.	Katie Dykes, Commissioner Dept. of Energy & Environmental Protection 79 Elm St. Hartford, CT 06106-5127				
6.	Marissa P Gillett, Chairman Public Utilities Regulatory Authority 10 Franklin Square New Britain, CT 06051				

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USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Deidre S. Gifford, MD, MPH, Acting Commissioner Department of Public Health 410 Capitol Ave. Hartford, CT 06134				
2.	Peter B. Hearn, Executive Director Council on Environmental Quality 79 Elm St., 6th Floor Hartford, CT 06106				
3.	Bryan P. Hurlburt, Commissioner Department of Agriculture 450 Columbus Blvd., Suite 701 Hartford, CT 06103				
4.	Melissa McCaw, Secretary Office of Policy and Management 450 Capitol Ave. Hartford, CT 06106				
5.	Joseph Giulietti, Commissioner Department of Transportation 2800 Berlin Turnpike, PO Box 317546 Newington, CT 06111				
6.	David Lehman, Commissioner Dept. of Ec Dev, Comm Dev, Culture and Tourism 450 Columbus Blvd Hartford, CT 06103				