Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

July 18, 2017

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **Notice of Exempt Modification for AT&T/ LTE 3C Crown Site BU: 876334**
AT&T Site ID: CT5250
625 Spring Street, Southington, CT 06489
Latitude: 41° 37' 56.9"/ Longitude: -72° 53' 39.3"

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 91-foot level of the existing 157-foot self-support tower at 625 Spring Street in Southington, CT. The tower and property is owned by Crown Castle. AT&T now intends to replace two (2) antennas with two (2) new antennas. AT&T also intends to replace three (3) RRU's with three (3) new RRUs.

This facility was approved by the by the Town of Southington Planning and Zoning Department on May 18, 1998. There were no conditions listed in this approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to Mr. Garry Brumback, Town Manager, Town of Southington, as well as the property owner, and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-729-0053
Jeff.Barbadora@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: Mr. Garry Brumback, Town Manager
Town of Southington
75 Main Street
Southington, CT 06489

Planning and Zoning
Municipal Center
196 North Main Street
Southington, CT 06489

5/11/98 ck #1803 Smm

PLANNING AND ZONING DEPARTMENT

P.O. BOX 610 • SOUTHINGTON, CONN. 06489 • 203/276-6248

TOWN FEE: $10.00
STATE FEE: $10.00
TOTAL FEE: $20.00

Z.P. # 5625

ZONING PERMIT APPLICATION

Applicant (please print):

~~Sprint PCS~~
~~9 Barnes Industrial Road~~
~~Wallingford, CT. 06492~~
Telephone: 203-294-5676

Owner (please print):

Josephine Smoron
55 Smoron Drive
Southington, CT. 06489
Telephone: ~~860 628-6243~~

Address of Property: 625 Spring Street Zone: ~~R-40~~
Utilities: Sewer N/A Septic System N/A Well N/A Town Water N/A

Proposed Activity: install Telecommunication Facility
Does proposed activity entail construction or land alteration within 50 feet of a wetland/wet area/waterbody? Yes X No ____

Date of following approvals: Special Permit* 12/9/97 Subdivision ____
Site Plan ~~12/9/97~~ Inland/Wetland ~~12/2/97~~ Filling of Floodplain ____
Variance ____ Special Exception* ____ Home Occupation* ____
Expansion of Non-Conforming Use* ____

Submit 7 set of plans. * NOTE: Provide one copy each of certain approval letters stamped by the Town Clerk and noting the volume and page number of the approval in the land records.

- -

OFFICE USE ONLY	Approved	Denied
Planner/Inland Wetlands:	5/18/98	
Zoning Officer:	5/18/98	
Town Engineer:	5/15/98	
Water Department:	—	
Health Department:	—	

Approved for Zoning Permit. A copy of this approval shall be presented to the Building Official prior to issuance of a Building Permit.

Frank Vance 5/18/98
Zoning Enforcement Officer / Date

- -

CERTIFICATE OF ZONING COMPLIANCE Z.P. # ____

I hereby certify that all improvements were installed in compliance with the Zoning Permit.

	Approved	Denied
Planner/Inland Wetlands:		
Zoning Officer:		
Town Engineer:		
Water Department:		
Health Department:		

Approved for Certificate of Zoning Compliance. A copy of this approval shall be presented to the Building Official prior to issuance of a Certificate of Occupancy.

1/94

Zoning Enforcement Officer Date

** I have received a copy of the ordinance requiring the fencing of pools

Signed ____
Print ____

Hanlon, Dashanna

From: TrackingUpdates@fedex.com
Sent: Monday, July 17, 2017 11:55 AM
To: Hanlon, Dashanna
Subject: FedEx Shipment 779644130850 Delivered

This tracking update has been requested by:

Company Name: Crown Castle
Name: Amanda Goodall
E-mail: dashanna.hanlon@crowncastle.com

Our records indicate that the following shipment has been delivered:

Reference: 1766.6680
Ship date: Jul 14, 2017
Signed for by: K.MOLLAY
Delivery location: SOUTHINGTON, CT
Delivered to: Receptionist/Front Desk
Delivery date: Mon, 7/17/2017 11:43 am
Service type: FedEx Standard Overnight
Packaging type: FedEx Envelope
Number of pieces: 1
Weight: 0.50 lb.
Special handling/Services Direct Signature Required
Deliver Weekday
Standard transit: 7/17/2017 by 3:00 pm

Tracking number: 779644130850

Shipper Information	Recipient Information
Woburn	SOUTHINGTON
MA	CT
US	US

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:55 AM CDT on 07/17/2017.

All weights are estimated.

TOWN OF SOUTHINGTON CONNECTICUT

Geographic & Property Information Network

75 Main Street
Southington, CT 06489
ph (860) 276-6205
eMail: General Information

Property Search

Name: ex. Smith

House No:
625

Street:
SPRING ST

Parcel Id: ex. 100139

GO

Information Updates

GIS Parcel Maps Updated
Annually October 1st

Property Info Data Updated
Nightly

Current Parcel Count
18,307 +/-

Detailed Parcel Information

GIS ID
168020

Unique ID
15908

Account
19111

Owner
GLOBAL SIGNAL
ACQUISITIONS II LLC

Location
625 SPRING ST

MAILING ADDRESS
4017 WASHINGTON RD
PMB 331
CANONSBURG PA 15317

Quick Links: Quick Map Property Card Assessor Tax Map

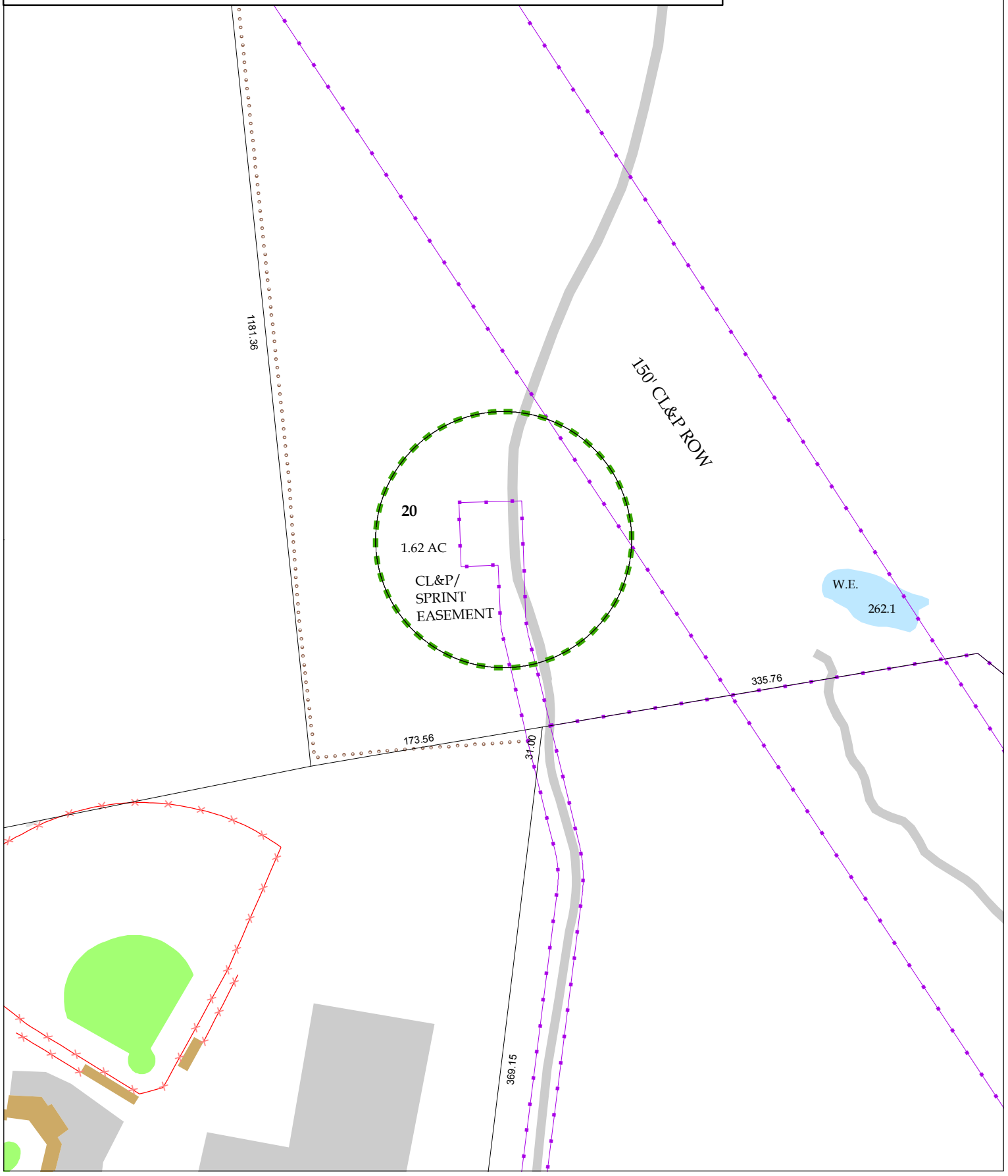
Scroll Down For Complete Property Detail

PARCEL VALUATIONS

	Appraised Value	Assessed Value
Buildings	0	0
Land	206130	144290

Town of Southington, Connecticut - Assessment Parcel Map

Parcel: 168020
Address: 625 SPRING ST



Approximate Scale:

20 0 20 40 60 80 Feet

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

Map Produced May 2016

PROJECT INFORMATION

SCOPE OF WORK:
- (2) EXISTING ANTENNAS PER SECTOR TO REMAIN, FOR A TOTAL OF (6) EXISTING ANTENNAS.
- AT&T RRUs: (1) EXISTING RRU PER SECTOR TO BE REMOVED, FOR A TOTAL OF (3) RRUS TO BE REMOVED; (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (2) EXISTING RRUS PER SECTOR TO REMAIN, FOR A TOTAL OF (6) EXISTING RRUs.

SITE ADDRESS:	626 SPRING STREET SOUTHINGTON, CT 06489
LATITUDE: LONGITUDE:	41.6296919 41° 37' 46.89"N −72.8963989 −72° 53' 47.04"W
USID:	15583
TOWER OWNER:	CROWN CASTLE
TYPE OF SITE:	MONOPOLE/INDOOR EQUIPMENT
MONOPOLE HEIGHT: RAD CENTER:	161'−0"± 157'−0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

		REV.
T−1	TITLE SHEET	0
GN−1	GROUNDING & GENERAL NOTES	0
A−1	COMPOUND LAYOUT	0
A−2	EQUIPMENT LAYOUT	0
A−3	ANTENNA LAYOUTS & ELEVATIONS	0
A−4	DETAILS	0
A−5	ANTENNA MOUNTING DETAILS	0
G−1	GROUNDING, ONE−LINE DIAGRAM & DETAILS	0

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10071248
SITE NUMBER: CT5250
SITE NAME: SOUTHINGTON CT
PROJECT: BWE
CROWN BU: 876334

VICINITY MAP

HEAD EAST ON COCHITUATE RD TOWARD BURR ST (322 FT), TAKE THE RAMP TO I−90 E/MASSPIKE W/SPRINGFIELD/BOSTON (0.6 MI), KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR INTERSTATE 90 W/MASSACHUSETTS TURNPIKE/WORCHESTER/SPRINGFIELD AND MERGE ONTO I−90 W/MASSACHUSETTS TURNPIKE (0.5 MI), MERGE ONTO I−90 W/MASSACHUSETTS TURNPIKE (37.6 MI), TAKE EXIT 9 FOR I−84 TOWARD US−20/HARTFORD/NEW YORK CITY (0.9 MI), CONTINUE ONTO I−84 (59.1 MI), TAKE EXIT 32 FOR CT−10/QUEEN ST (0.3 MI), TURN LEFT ONTO CT−10 S/QUEEN ST (436 FT), TURN LEFT ONTO SPRING ST (1.2 MI), DESTINATION WILL BE ON THE LEFT.

PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617−639−4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617−639−4908
EMAIL: dcooper@empiretelecomm.com

ZONING:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617−639−4908
EMAIL: dcooper@empiretelecomm.com

ENGINEERING:
COMPANY: COM−EX CONSULTANTS, LLC
ADDRESS: 115 ROUTE 46 SUITE E39, MOUNTAIN LAKES, NJ 07046
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862−209−4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:
COMPANY: AT&T MOBILITY − NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD, SUITE 550 13 & 14, FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508−596−7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484−683−1750
EMAIL: gdorman@empiretelecomm.com

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CONNECTICUT ONE CALL SYSTEM, INC. 1-800-922-4455 STOP · CALL BEFORE YOU DIG!

CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800−922−4455 OR DIAL 811

COM−EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5250
SITE NAME: SOUTHINGTON FLORIANS POND
626 SPRING STREET
SOUTHINGTON, CT 06489
HARTFORD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/27/17	ISSUED AS FINAL	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: TB | DRAWN BY: PAV

SEAL: STATE OF CONNECTICUT · NICHOLAS D. BARILE · No. 28643 · REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
17004−EMP	T−1	0

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – EMPIRE TELECOM
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR (EMPIRE TELECOM).

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
    - CONNECTICUT BUILDING CODE 2016 WITH LOCAL & COUNTY AMENDMENTS
    - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
    - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
    - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
    - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
    - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
    - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
    - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
    - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
    - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
    - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

21. FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

23. INFORMATION SHOWN ON THIS SET OF DRAWINGS TAKEN FROM PLANS PREPARED BY HUDSON DESIGN GROUP FOR AT&T DATED APRIL 9, 2013. CONTRACTOR TO NOTIFY ENGINEER IF DISCREPANCIES EXIST PRIOR TO COMMENCEMENT OF CONSTRUCTION.

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5250
SITE NAME: SOUTHINGTON FLORIANS POND

626 SPRING STREET
SOUTHINGTON, CT 06489
HARTFORD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/27/17	ISSUED AS FINAL	KCD	NDB	NDB

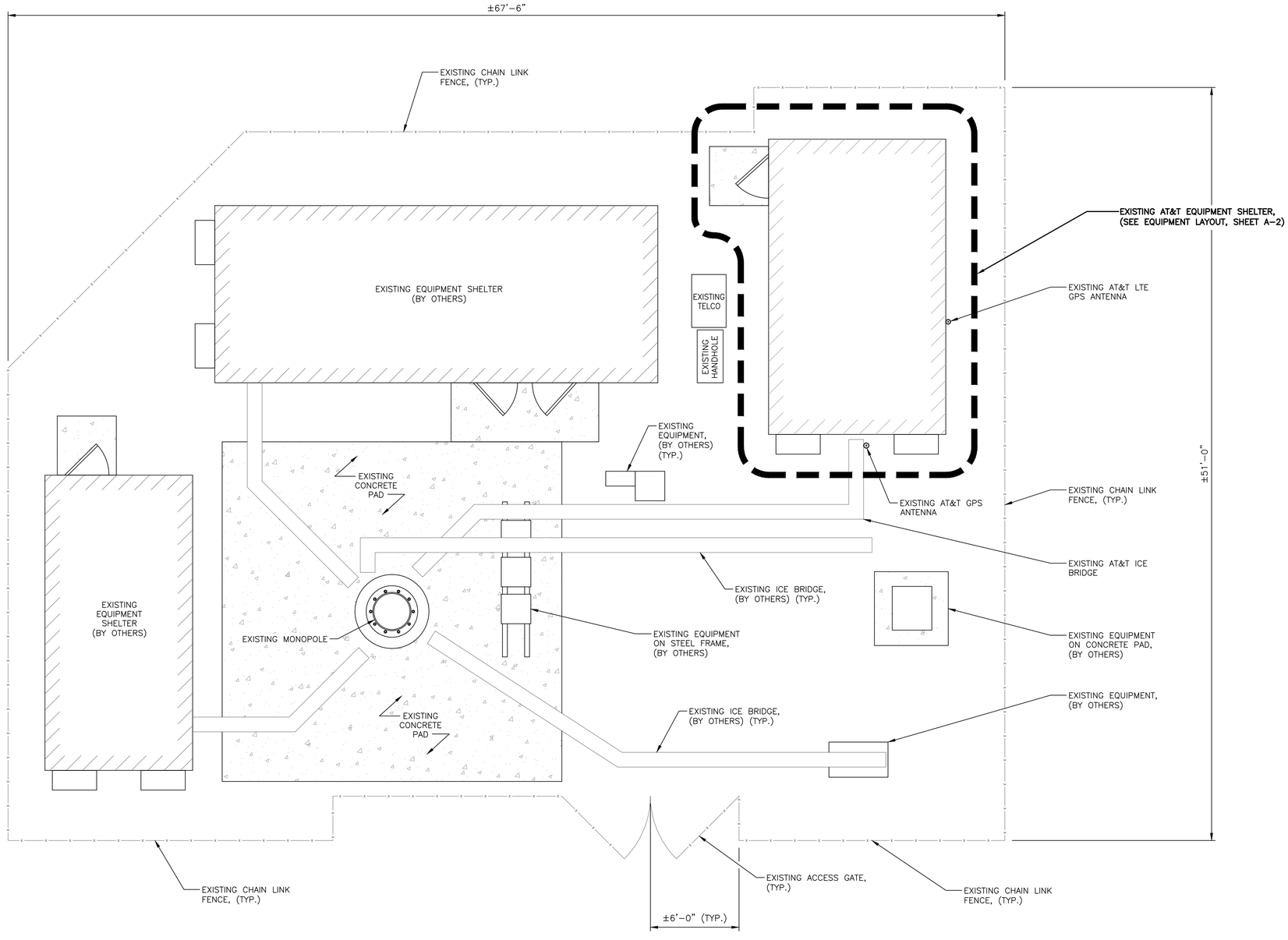
SCALE: AS SHOWN | DESIGNED BY: TB | DRAWN BY: PAV

SEAL: STATE OF CONNECTICUT — THOMAS B. BUSH — No. 28643 — REGISTERED PROFESSIONAL ENGINEER — PROFESSIONAL ENGINEER CT LIC. NO. 28643

AT&T

DRAWING TITLE: GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
17004-EMP	GN-1	0



COMPOUND LAYOUT

SCALE: 1" = 4'-0"

4 0 2 4 8 16

(IN FEET)

1/4 inch = 1 Foot

NORTH

NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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BILLERICA, MA 01821

SITE NUMBER: CT5250
SITE NAME: SOUTHINGTON FLORIANS POND

626 SPRING STREET
SOUTHINGTON, CT 06489
HARTFORD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/27/17	ISSUED AS FINAL	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: TB | DRAWN BY: PAV

SEAL:
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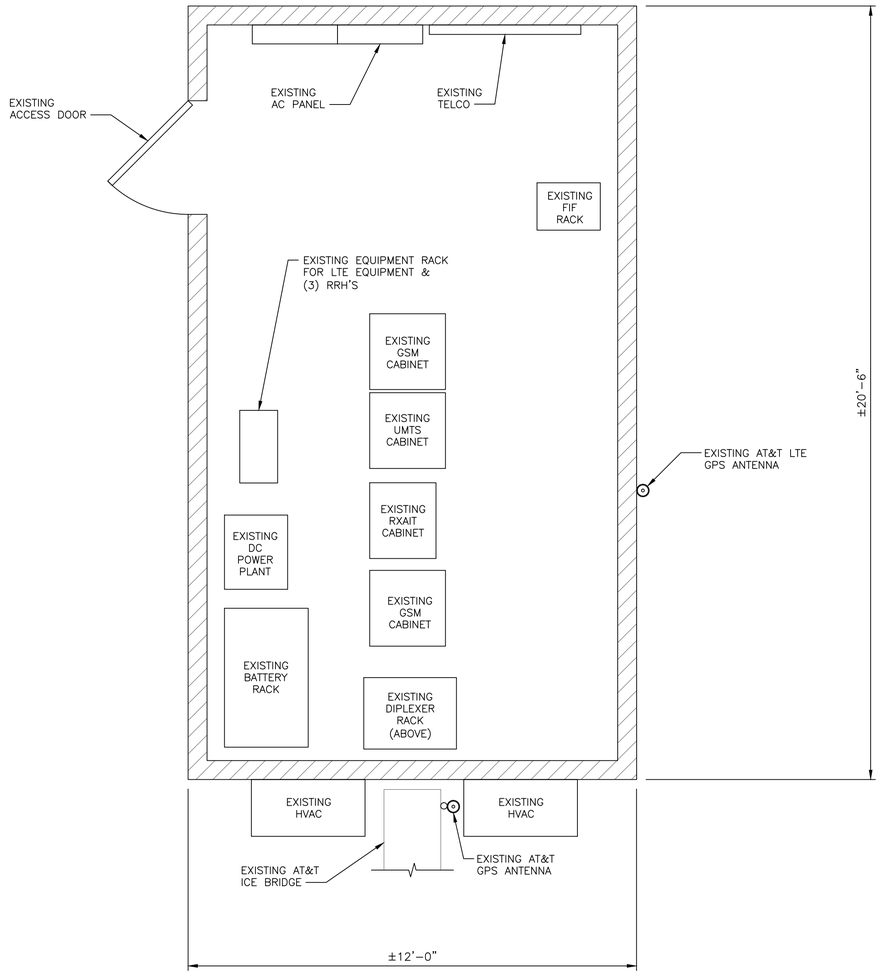
DOUGLAS B. BAUM
No. 28643
REGISTERED
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
17004-EMP	A-1	0



EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

NORTH

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NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/27/17	ISSUED AS FINAL	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: TB | DRAWN BY: PAV

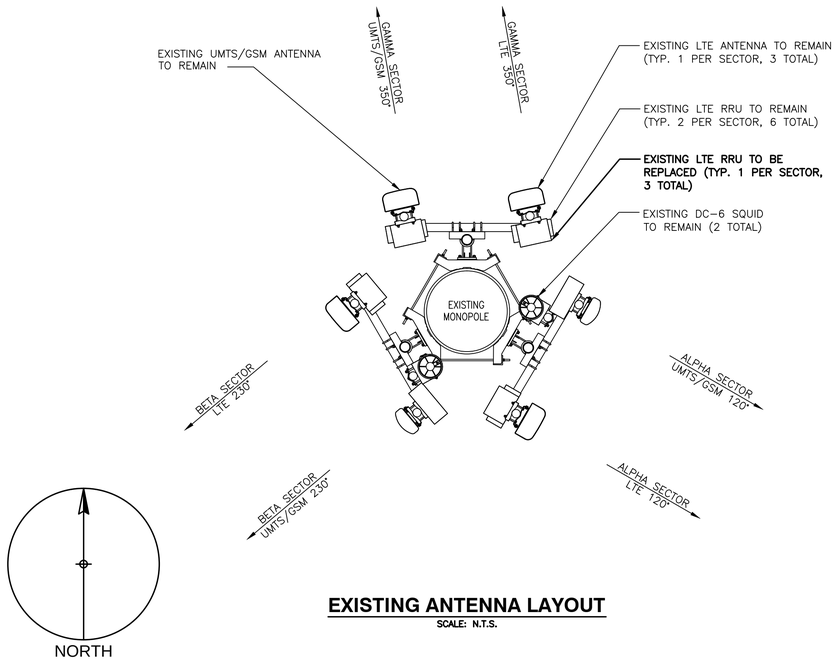
SEAL: STATE OF CONNECTICUT — THOMAS D. BUBLIS — No. 28643 — LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

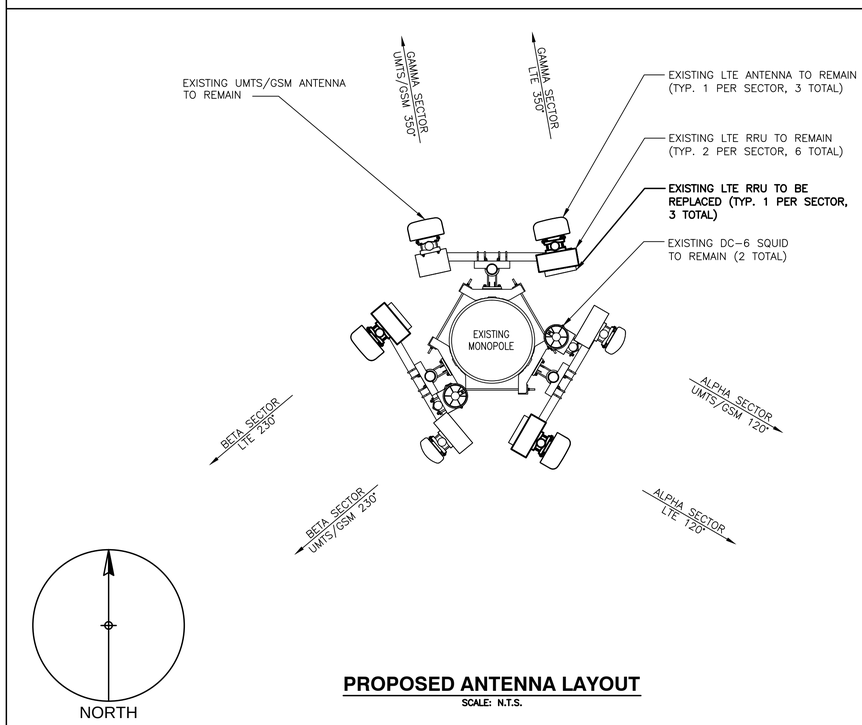
DRAWING TITLE:
EQUIPMENT LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
17004-EMP	A-2	0



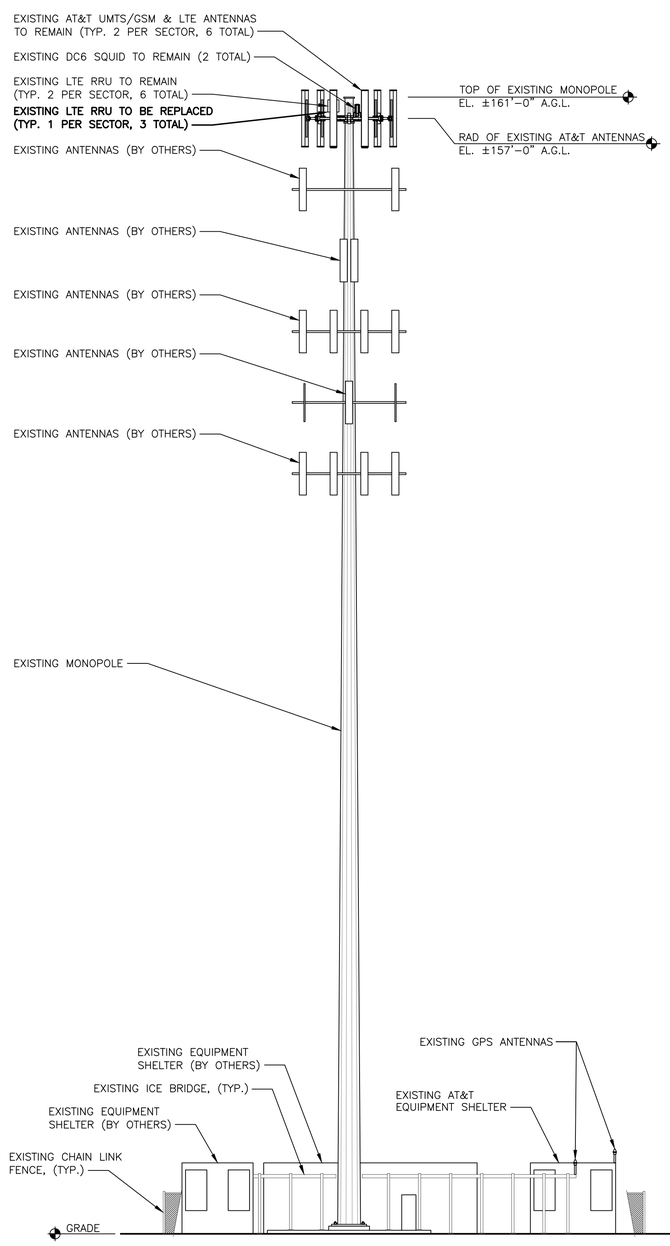
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



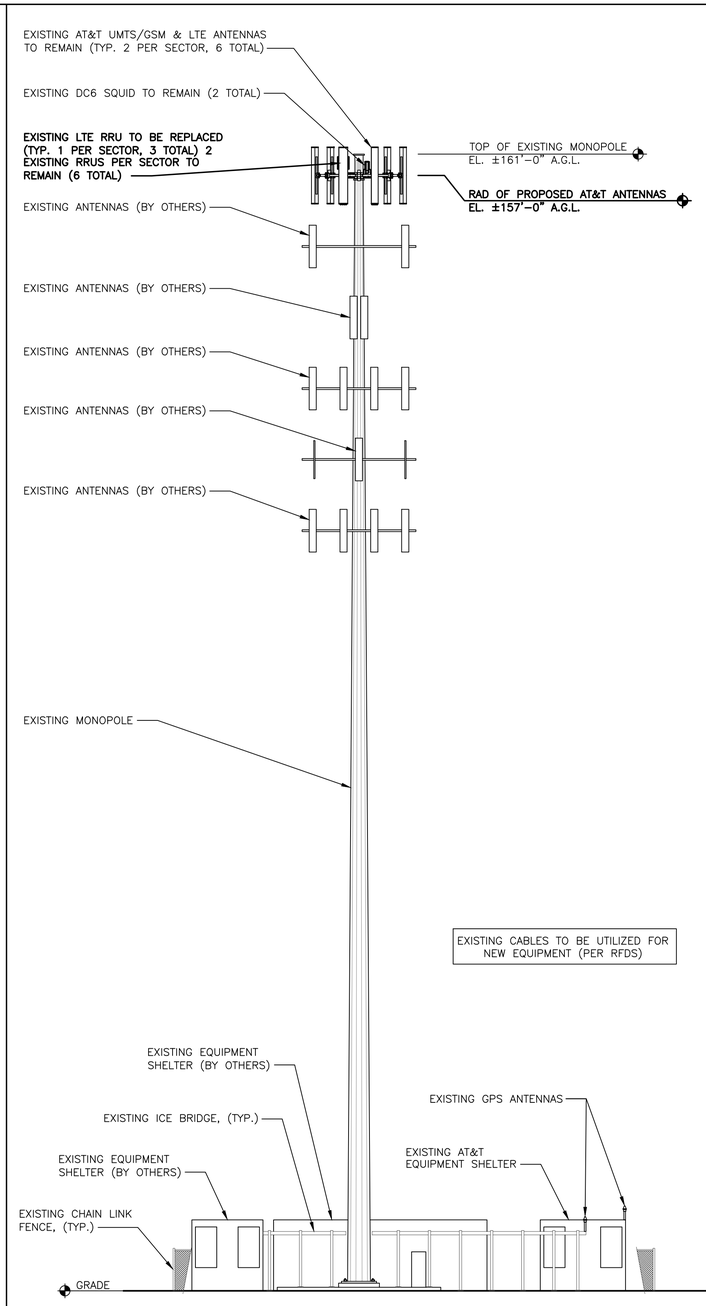
PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS



PROPOSED TOWER ELEVATION

SCALE: NTS

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/27/17	ISSUED AS FINAL	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: TB | DRAWN BY: PAV

SEAL: STATE OF CONNECTICUT — THADDEUS B. BAZA — No. 28643 — REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LIC. NO. 28643

AT&T

DRAWING TITLE: ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
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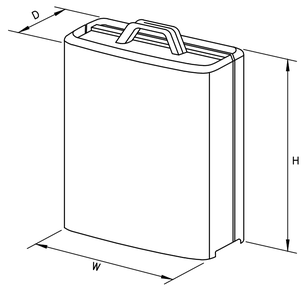

MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
*RRUS-32	29.9" x 13.3" x 9.5"	77 LBS
RRUS-32 B2	27.2" x 12.1" x 7"	60 LBS

* DENOTES EXISTING

RRUS DETAIL

SCALE: N.T.S.

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NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/27/17	ISSUED AS FINAL	KCD	NDB	NDB

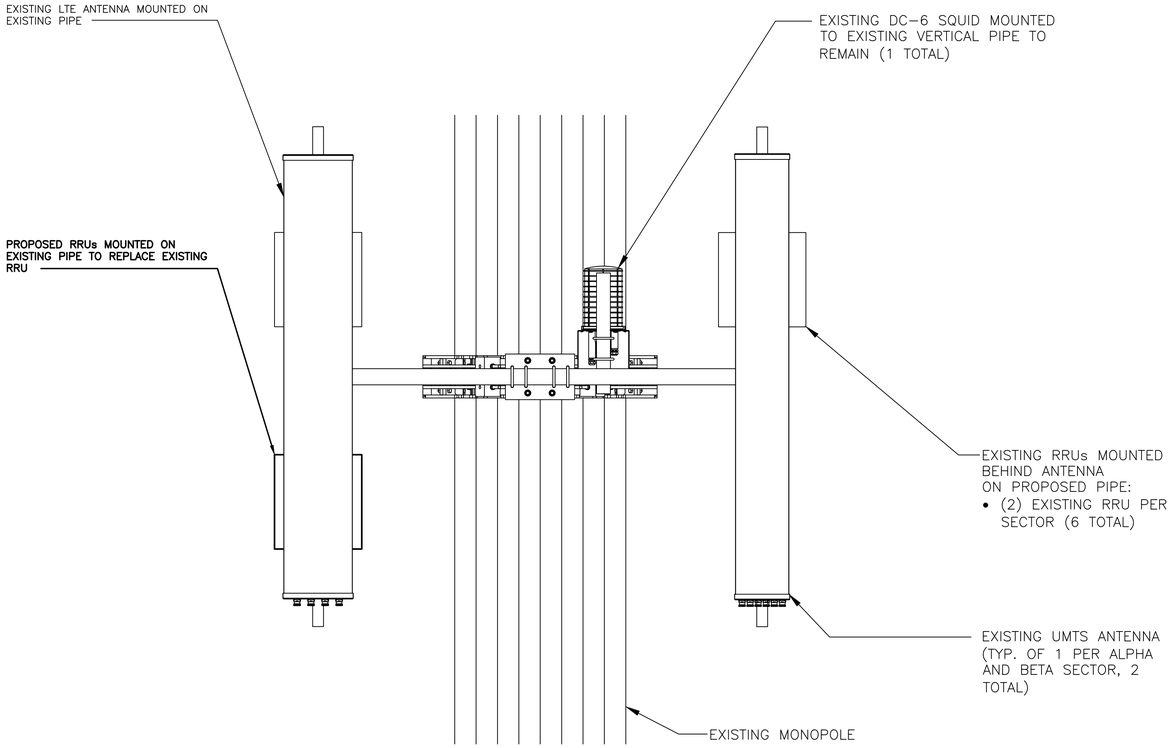
SCALE: AS SHOWN | DESIGNED BY: TB | DRAWN BY: PAV

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BALL
No. 28643
REGISTERED
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

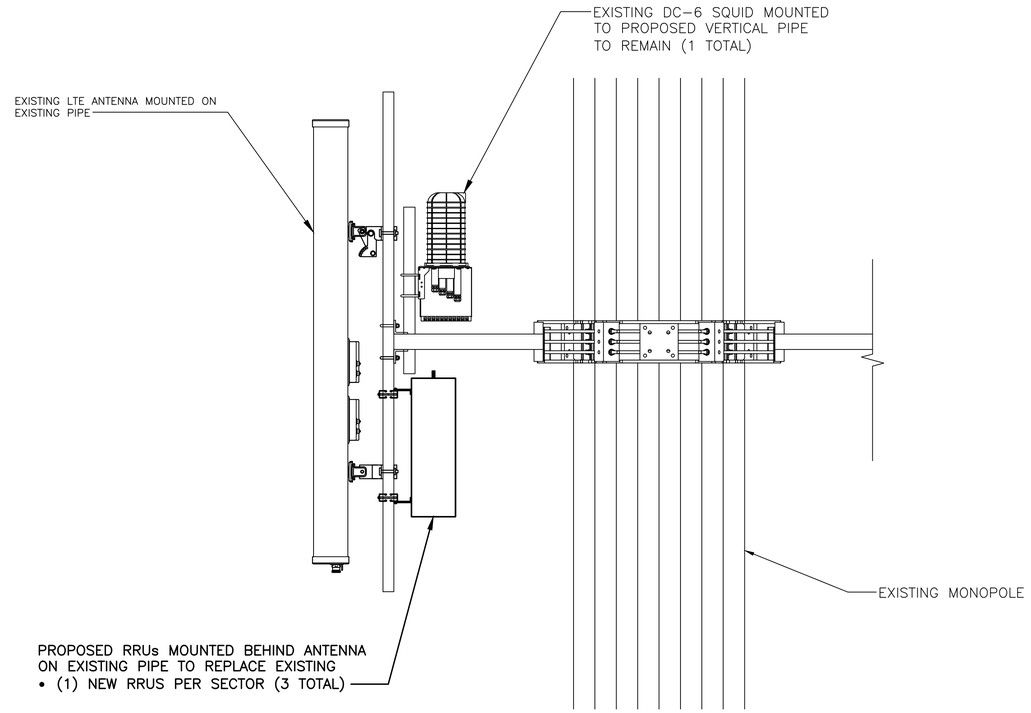
DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
17004-EMP	A-4	0



PROPOSED ANTENNA MOUNTING DETAIL (FRONT VIEW)

SCALE: N.T.S.



PROPOSED ANTENNA MOUNTING DETAIL (SIDE VIEW)

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	ANDREW	SBNH-1D6565C	96.4"x11.9"x7.1"
	A2	–	–	–
	A3	–	–	–
	A4	CCI	TPA-65R-LCUUUU-H8	96"x14.4"x8.6"
BETA	B1	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	B2	–	–	–
	B3	–	–	–
	B4	KATHREIN	800-10798	78.8"x14.8"x6.7"
GAMMA	G1	ANDREW	SBNH-1D6565C	96.4"X11.9"X7.1"
	G2	–	–	–
	G3	–	–	–
	G4	CCI	TPA-65R-LCUUUU-H8	96"X14.4"X8.6"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	ANDREW	SBNH-1D6565C	96.4"x11.9"x7.1"
	A2	–	–	–
	A3	–	–	–
	A4	CCI	TPA-65R-LCUUUU-H8	96"x14.4"x8.6"
BETA	B1	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	B2	–	–	–
	B3	–	–	–
	B4	KATHREIN	800-10798	78.8"x14.8"x6.7"
GAMMA	G1	ANDREW	SBNH-1D6565C	96.4"X11.9"X7.1"
	G2	–	–	–
	G3	–	–	–
	G4	CCI	TPA-65R-LCUUUU-H8	96"X14.4"X8.6"

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-32 (EXISTING)	29.9"x13.3"x9.5"		
	ERICSSON	**RRUS-32 B2**	**27.2"x12.1"x7"**		
BETA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-32 (EXISTING)	29.9"X13.3"X9.5"		
	ERICSSON	**RRUS-32 B2**	**27.2"X12.1"X7"**		
GAMMA	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-32 (EXISTING)	29.9"X13.3"X9.5"		
	ERICSSON	**RRUS-32 B2**	**27.2"X12.1"X7"**		

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NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/27/17	ISSUED AS FINAL	KCD	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: TB | DRAWN BY: PAV

SEAL:
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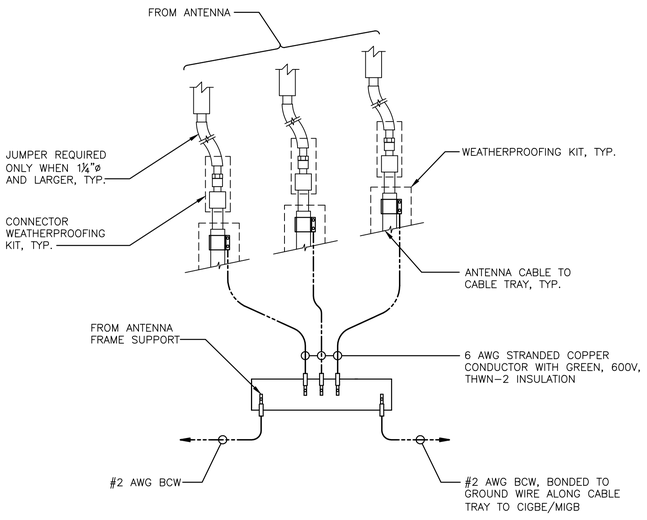
NICHOLAS D. BAKER
No. 28643
REGISTERED
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

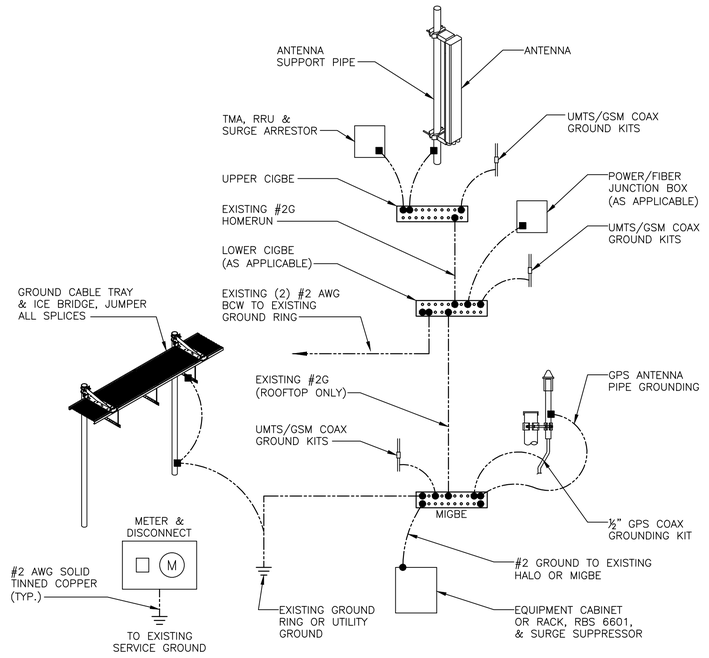
DRAWING TITLE:
ANTENNA MOUNTING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
17004-EMP	A-5	0



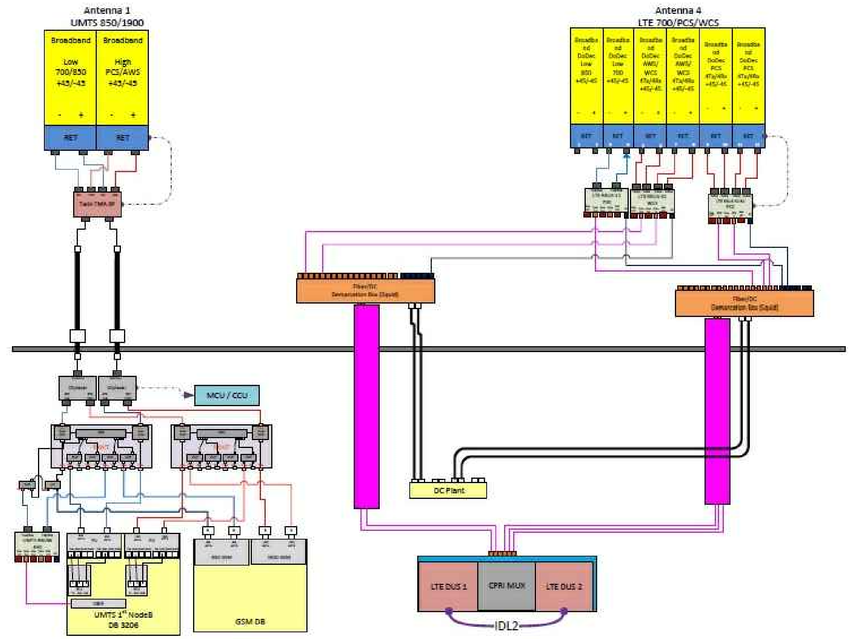
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



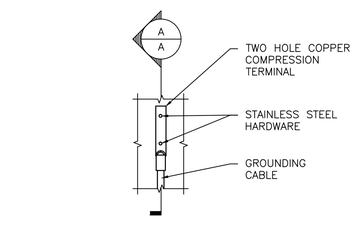
GROUNDING RISER DIAGRAM

SCALE: N.T.S.



TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.

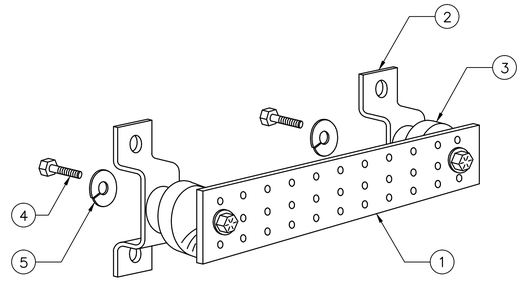


NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

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

SECTION "P" – SURGE PRODUCERS
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- –48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

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SCALE: AS SHOWN | DESIGNED BY: TB | DRAWN BY: PAV

SEAL:
STATE OF CONNECTICUT
NICHOLAS D. BAKER
No. 28643
REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
GROUNDING, ONE–LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
17004–EMP	G–1	0

Date: **July 10, 2017**

Jay Patton
Crown Castle
3530 Torrington Way, Suite 300
Charlotte, NC 28277

JACOBS
Jacobs Engineering Group, Inc.
111 Corning Rd. Suite 200
Cary, NC 27518
919-859-5757

Subject:	**Structural Modification Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	MRCTB019375
	Carrier Site Name:	CT5250
Crown Castle Designation:	**Crown Castle BU Number:**	876334
	Crown Castle Site Name:	SOUTHINGTON, SMORON
	Crown Castle JDE Job Number:	431492
	Crown Castle Work Order Number:	1419941
	Crown Castle Application Number:	384766 Rev. 3
Engineering Firm Designation:	**Jacobs Engineering Group, Inc. Project Number:**	1419941
Site Data:	**625 Spring Street, SOUTHINGTON, Hartford County, CT** **Latitude *41° 37' 56.9"*, Longitude *-72° 53' 39.3"*** **160 Foot - Monopole Tower**	

Dear Jay Patton,

Jacobs Engineering Group, Inc. is pleased to submit this **"Structural Modification Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1048837, in accordance with application 384766, revision 3.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC4.5: Existing + Proposed w/ Proposed Modifications **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with a maximum topographic factor, Kzt, of 1.000 and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Jacobs Engineering Group, Inc.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by:

Kristi Holder

Kristi Holder, E.I.
Tower Structural Engineer

Reviewed by:

Matthew E. Watkins, P.E.
Engineering Project Manager

tnxTower Report - version 7.0.7.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by SUMMIT MANUFACTURING INC. in March of 1998 and mapped by FDH VELOCITEL in March of 2016. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F. The tower has been modified multiple times in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 1-inch ice thickness and 60 mph under service loads, exposure category C with topographic category 1.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
156.0	157.0	1	raycap	DC6-48-60-18-8F	1 2 2	3/8 1-5/8 3/4	-
		2	andrew	SBNHH-1D65C w/ Mount Pipe			
		2	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe			
		3	ericsson	RRUS 11			
		3	ericsson	RRUS 32			
		3	ericsson	RRUS 32 B2			
		1	kathrein	80010798 w/ Mount Pipe			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
156.0	157.0	4	andrew	SBNH-1D6565C w/ Mount Pipe	-	-	2
		1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		3	ericsson	RRUS 11 B12			
		3	ericsson	RRUS 11 B2			
		3	communication components inc.	DTMABP7819VG12A	6 1 2	1-5/8 3/8 3/4	1
		1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts (crown)	T-Arm Mount [TA 703-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
148.0	148.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER	-	-	1
		6	alcatel lucent	PCS 1900MHz 4x45W-65MHz			
		1	tower mounts (crown)	Side Arm Mount [SO 103-3]			
146.0	147.0	3	alcatel lucent	TD-RRH8x20-25	4	1-1/4	1
		1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe			
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			
	146.0	3	rfs celwave	IBC1900BB-1			
		3	rfs celwave	IBC1900HG-2A			
		1	tower mounts (crown)	Platform Mount [LP 1201-1]			
139.0	139.0	3	rfs celwave	APXV18-206517S-C	6	1-5/8	1
		1	tower mounts (crown)	Pipe Mount [PM 501-3]			
132.0	134.0	3	antel	BXA-80080-6CF-EDIN-X w/ Mount Pipe	20	1-5/8	1
	133.0	3	alcatel lucent	RRH2X60-AWS			
		3	alcatel lucent	RRH2X60-PCS			
		3	alcatel lucent	RRH2x60-700			
		6	andrew	SBNHH-1D65B w/ Mount Pipe			
		3	antel	BXA-70063/6CFx2 w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			
	132.0	1	tower mounts (crown)	Platform Mount [LP 712-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
121.0	122.0	1	andrew	VHLP2-18	3 3 3	5/16 1/2 1/4	1
		2	andrew	VHLP800-11			
		2	samsung telecommunications	RRH-2WB			
		1	argus technologies	LLPX310R w/ Mount Pipe			
		3	dragonwave	HORIZON COMPACT			
		1	kathrein	840 10054 w/Mount Pipe			
	121.0	1	argus technologies	LLPX310R w/ Mount Pipe			
		1	samsung telecommunications	RRH-2WB			
		1	tower mounts (crown)	T-Arm Mount [TA 602-3]			
101.0	102.0	1	symmetricom	58532A	1	1/2	1
	101.0	1	tower mounts (crown)	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Equipment To Be Removed; Not Considered In This Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
146.0	146.0	12	Decibel	DB980H PCS	-	-
130.0	130.0	12	Generic	Panel Antennas	-	-
110.0	110.0	12	Generic	Panel Antennas	-	-
100.0	100.0	1	Generic	GPS Antenna w/ Mount	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	Paul J. Ford and Company	1614569	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Paul J. Ford and Company	1999756	CCISITES
4-GEOTECHNICAL REPORTS	FDH Engineering, Inc.	1530919	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford and Company	2588177	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford and Company	3363885	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Engineering, Inc.	5288062	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Velocitel	5755362	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Velocitel	6249238	CCISITES
4-POST-MODIFICATION INSPECTION	Paul J. Ford and Company	2588175	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	3794196	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	5570676	CCISITES
4-POST-MODIFICATION INSPECTION	FDH Velocitel	5888770	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Jacobs Engineering Group, Inc.	Project No. 1419941	Appendix D

3.1) Analysis Method

tnxTower (version 7.0.7.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) Modifications outlined in the Jacobs Engineering Group, Inc. (Project No. 1419941) must be installed for this analysis to be valid.

This analysis may be affected if any assumptions are not valid or have been made in error. Jacobs Engineering Group, Inc. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	160 - 155	Pole	TP16x16x0.375	Pole	4.4%	Pass
L2	155 - 150	Pole	TP16x16x0.375	Pole	15.8%	Pass
L3	150 - 146	Pole	TP16x16x0.375	Pole	27.7%	Pass
L4	146 - 141	Pole	TP22.924x22x0.25	Pole	23.5%	Pass
L5	141 - 136	Pole	TP23.848x22.924x0.25	Pole	33.9%	Pass
L6	136 - 131	Pole	TP24.772x23.848x0.25	Pole	46.2%	Pass
L7	131 - 126	Pole	TP25.696x24.772x0.25	Pole	60.6%	Pass
L8	126 - 121	Pole	TP26.62x25.696x0.25	Pole	74.2%	Pass
L9	121 - 120.1	Pole	TP26.786x26.62x0.25	Pole	77.0%	Pass
L10	120.1 - 119.85	Pole + Reinf.	TP26.833x26.786x0.4875	Reinf. 21 Tension Rupture	54.9%	Pass
L11	119.85 - 117.5	Pole + Reinf.	TP27.267x26.833x0.4875	Reinf. 21 Tension Rupture	59.8%	Pass
L12	117.5 - 117.25	Pole + Reinf.	TP27.313x27.267x0.5	Reinf. 22 Tension Rupture	55.8%	Pass
L13	117.25 - 115.5	Pole + Reinf.	TP27.637x27.313x0.5	Reinf. 22 Tension Rupture	59.1%	Pass
L14	115.5 - 115.25	Pole + Reinf.	TP27.683x27.637x0.6625	Reinf. 1 Tension Rupture	52.2%	Pass
L15	115.25 - 110.25	Pole + Reinf.	TP28.607x27.683x0.65	Reinf. 1 Tension Rupture	60.4%	Pass
L16	110.25 - 103.75	Pole + Reinf.	TP29.808x28.607x0.6375	Reinf. 1 Tension Rupture	64.8%	Pass
L17	103.75 - 102.5	Pole + Reinf.	TP29.539x28.615x0.7	Reinf. 1 Tension Rupture	67.6%	Pass
L18	102.5 - 100.5	Pole + Reinf.	TP29.908x29.539x0.7	Reinf. 1 Tension Rupture	70.3%	Pass
L19	100.5 - 100.25	Pole + Reinf.	TP29.954x29.908x0.6375	Reinf. 23 Tension Rupture	71.8%	Pass
L20	100.25 - 98.5	Pole + Reinf.	TP30.277x29.954x0.625	Reinf. 23 Tension Rupture	74.1%	Pass
L21	98.5 - 98.25	Pole + Reinf.	TP30.324x30.277x0.6	Reinf. 23 Tension Rupture	81.7%	Pass
L22	98.25 - 93.25	Pole + Reinf.	TP31.247x30.324x0.5875	Reinf. 23 Tension Rupture	88.7%	Pass
L23	93.25 - 90.5	Pole + Reinf.	TP31.755x31.247x0.5875	Reinf. 23 Tension Rupture	92.4%	Pass
L24	90.5 - 90.25	Pole + Reinf.	TP31.801x31.755x0.6125	Reinf. 23 Tension Rupture	91.2%	Pass
L25	90.25 - 85.25	Pole + Reinf.	TP32.725x31.801x0.6	Reinf. 23 Tension Rupture	97.6%	Pass
L26	85.25 - 83.5	Pole + Reinf.	TP33.048x32.725x0.6	Reinf. 23 Tension Rupture	99.8%	Pass
L27	83.5 - 83.25	Pole + Reinf.	TP33.094x33.048x0.8625	Reinf. 6 Tension Rupture	70.9%	Pass
L28	83.25 - 80.75	Pole + Reinf.	TP33.556x33.094x0.85	Reinf. 6 Tension Rupture	73.3%	Pass
L29	80.75 - 80.5	Pole + Reinf.	TP33.602x33.556x0.9875	Reinf. 23 Tension Rupture	60.6%	Pass
L30	80.5 - 80.25	Pole + Reinf.	TP33.649x33.602x0.975	Reinf. 11 Tension Rupture	60.8%	Pass
L31	80.25 - 77.5	Pole + Reinf.	TP34.157x33.649x0.9625	Reinf. 11 Tension Rupture	63.0%	Pass
L32	77.5 - 77.25	Pole + Reinf.	TP34.203x34.157x0.6875	Reinf. 11 Tension Rupture	88.2%	Pass
L33	77.25 - 68.5	Pole + Reinf.	TP35.819x34.203x0.6875	Reinf. 11 Tension Rupture	92.5%	Pass
L34	68.5 - 68	Pole + Reinf.	TP35.287x34.363x0.75	Reinf. 11 Tension Rupture	91.2%	Pass
L35	68 - 64.25	Pole + Reinf.	TP35.979x35.287x0.7375	Reinf. 11 Tension Rupture	94.4%	Pass
L36	64.25 - 64	Pole + Reinf.	TP36.026x35.979x0.95	Reinf. 7 Tension Rupture	75.1%	Pass
L37	64 - 60.5	Pole + Reinf.	TP36.672x36.026x0.95	Reinf. 7 Tension Rupture	77.6%	Pass
L38	60.5 - 60.25	Pole + Reinf.	TP36.718x36.672x1	Reinf. 7 Tension Rupture	73.7%	Pass
L39	60.25 - 60.1	Pole + Reinf.	TP36.746x36.718x1	Reinf. 7 Tension Rupture	73.8%	Pass
L40	60.1 - 59.85	Pole + Reinf.	TP36.792x36.746x1.05	Reinf. 7 Tension Rupture	71.6%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L41	59.85 - 59.1	Pole + Reinf.	TP36.931x36.792x1.05	Reinf. 7 Tension Rupture	72.1%	Pass
L42	59.1 - 58.85	Pole + Reinf.	TP36.977x36.931x1.125	Reinf. 7 Tension Rupture	66.2%	Pass
L43	58.85 - 55.4	Pole + Reinf.	TP37.614x36.977x1.1	Reinf. 7 Tension Rupture	68.3%	Pass
L44	55.4 - 55.15	Pole + Reinf.	TP37.661x37.614x1.1	Reinf. 7 Tension Rupture	68.4%	Pass
L45	55.15 - 54.75	Pole + Reinf.	TP37.734x37.661x1.1	Reinf. 7 Tension Rupture	68.6%	Pass
L46	54.75 - 54.5	Pole + Reinf.	TP37.781x37.734x0.825	Reinf. 10 Tension Rupture	90.8%	Pass
L47	54.5 - 49.5	Pole + Reinf.	TP38.704x37.781x0.8125	Reinf. 10 Tension Rupture	94.3%	Pass
L48	49.5 - 44.5	Pole + Reinf.	TP39.628x38.704x0.8	Reinf. 10 Tension Rupture	97.7%	Pass
L49	44.5 - 41.3	Pole + Reinf.	TP40.219x39.628x0.7875	Reinf. 10 Tension Rupture	99.8%	Pass
L50	41.3 - 41.05	Pole + Reinf.	TP40.266x40.219x0.875	Reinf. 10 Tension Rupture	87.6%	Pass
L51	41.05 - 34	Pole + Reinf.	TP41.568x40.266x0.875	Reinf. 10 Tension Rupture	88.8%	Pass
L52	34 - 33	Pole + Reinf.	TP41.003x39.894x1.175	Reinf. 10 Tension Rupture	70.0%	Pass
L53	33 - 31.5	Pole + Reinf.	TP41.28x41.003x1.175	Reinf. 10 Tension Rupture	70.7%	Pass
L54	31.5 - 31.25	Pole + Reinf.	TP41.326x41.28x1.175	Reinf. 10 Tension Rupture	70.3%	Pass
L55	31.25 - 30.5	Pole + Reinf.	TP41.465x41.326x1.175	Reinf. 10 Tension Rupture	70.7%	Pass
L56	30.5 - 30.25	Pole + Reinf.	TP41.511x41.465x1.125	Reinf. 9 Tension Rupture	74.2%	Pass
L57	30.25 - 25.75	Pole + Reinf.	TP42.342x41.511x1.1	Reinf. 9 Tension Rupture	76.3%	Pass
L58	25.75 - 25.5	Pole + Reinf.	TP42.389x42.342x1.05	Reinf. 9 Tension Rupture	81.6%	Pass
L59	25.5 - 24.7	Pole + Reinf.	TP42.536x42.389x1.05	Reinf. 9 Tension Rupture	82.0%	Pass
L60	24.7 - 24.45	Pole + Reinf.	TP42.583x42.536x0.95	Reinf. 9 Tension Rupture	90.0%	Pass
L61	24.45 - 24	Pole + Reinf.	TP42.666x42.583x0.95	Reinf. 9 Tension Rupture	90.3%	Pass
L62	24 - 23.75	Pole + Reinf.	TP42.712x42.666x1.175	Reinf. 9 Tension Rupture	73.1%	Pass
L63	23.75 - 18.75	Pole + Reinf.	TP43.636x42.712x1.15	Reinf. 9 Tension Rupture	75.4%	Pass
L64	18.75 - 14.1	Pole + Reinf.	TP44.495x43.636x1.125	Reinf. 9 Tension Rupture	77.5%	Pass
L65	14.1 - 13.8	Pole + Reinf.	TP44.55x44.495x1.15	Reinf. 9 Tension Rupture	75.5%	Pass
L66	13.8 - 13.65	Pole + Reinf.	TP44.578x44.55x1.15	Reinf. 9 Tension Rupture	75.6%	Pass
L67	13.65 - 10.5	Pole + Reinf.	TP45.16x44.578x1.15	Reinf. 9 Tension Rupture	76.9%	Pass
L68	10.5 - 10.25	Pole + Reinf.	TP45.206x45.16x1.15	Reinf. 9 Tension Rupture	77.0%	Pass
L69	10.25 - 5.25	Pole + Reinf.	TP46.13x45.206x1.125	Reinf. 9 Tension Rupture	79.1%	Pass
L70	5.25 - 3	Pole + Reinf.	TP46.546x46.13x1.125	Reinf. 9 Tension Rupture	80.0%	Pass
L71	3 - 2.9	Pole + Reinf.	TP46.564x46.546x1.075	Reinf. 9 Tension Rupture	82.6%	Pass
L72	2.9 - 2.75	Pole + Reinf.	TP46.592x46.564x1	Reinf. 9 Tension Rupture	91.3%	Pass
L73	2.75 - 2.65	Pole + Reinf.	TP46.61x46.592x1	Reinf. 9 Tension Rupture	91.4%	Pass
L74	2.65 - 2.5	Pole + Reinf.	TP46.638x46.61x1	Reinf. 9 Tension Rupture	91.4%	Pass
L75	2.5 - 2.25	Pole + Reinf.	TP46.684x46.638x0.9875	Reinf. 18 Compression	81.7%	Pass
L76	2.25 - 1.9	Pole + Reinf.	TP46.749x46.684x0.975	Reinf. 18 Compression	81.8%	Pass
L77	1.9 - 1.65	Pole + Reinf.	TP46.795x46.749x0.9375	Reinf. 18 Compression	83.6%	Pass
L78	1.65 - 0	Pole + Reinf.	TP47.1x46.795x0.925	Reinf. 18 Compression	84.2%	Pass
					Summary	
				Pole	77.0%	Pass
				Reinforcement	99.8%	Pass
				Overall	99.8%	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC4.5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	87.2	Pass
1	Base Plate	0	86.5	Pass
1	Welding Capacity (Vertical Weld-Bracket to Tower)	0	92.5	Pass
1	Flange Connection	146	66.7	Pass
1	Base Foundation Structural	0	48.6	Pass
1	Base Foundation Soil Interaction	0	39.7	Pass

Structure Rating (max from all components) =	99.8%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

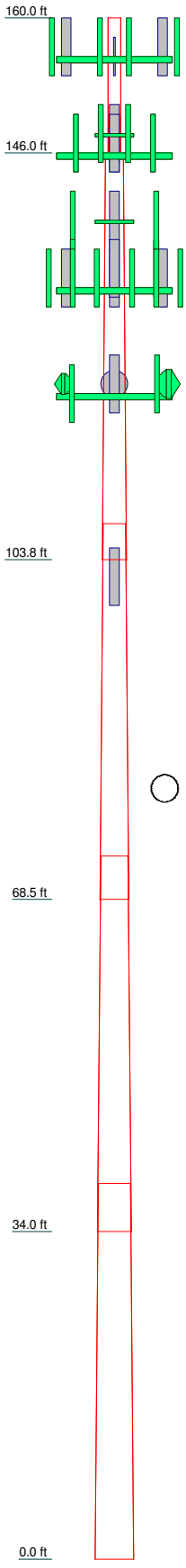
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing and proposed loads, once the proposed modifications are installed.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5
Length (ft)	14.0000	42.2500	39.0000	39.0000	39.0000
Number of Sides	1	12	12	12	12
Thickness (in)	0.3750	0.2500	0.3125	0.3750	0.3750
Socket Length (ft)		3.7500	4.5000	5.0000	
Top Dia (in)	16.0000	22.0000	28.0824	34.3013	39.8864
Bot Dia (in)	16.0000	29.8080	35.8190	41.5680	47.1000
Grade	A53-B-35		A607-60		A607-65
Weight (K)	0.9	3.0	4.2	6.0	6.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	156	6' x 2" Mount Pipe	146
TPA-65R-LCUUUU-H8 w/ Mount Pipe	156	6' x 2" Mount Pipe	146
TPA-65R-LCUUUU-H8 w/ Mount Pipe	156	Platform Mount [LP 1201-1]	146
AM-X-CD-16-65-00T-RET w/ Mount Pipe	156	APXV18-206517S-C	139
DTMABP7819VG12A	156	APXV18-206517S-C	139
DTMABP7819VG12A	156	APXV18-206517S-C	139
DTMABP7819VG12A	156	Pipe Mount [PM 501-3]	139
DC6-48-60-18-8F	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
SBNHH-1D65C w/ Mount Pipe	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
SBNHH-1D65C w/ Mount Pipe	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
80010798 w/ Mount Pipe	156	BXA-70063/6CFx2 w/ Mount Pipe	132
RRUS 11	156	BXA-70063/6CFx2 w/ Mount Pipe	132
RRUS 11	156	BXA-70063/6CFx2 w/ Mount Pipe	132
RRUS 11	156	(2) SBNHH-1D65B w/ Mount Pipe	132
RRUS 32 B2	156	(2) SBNHH-1D65B w/ Mount Pipe	132
RRUS 32 B2	156	(2) SBNHH-1D65B w/ Mount Pipe	132
RRUS 32 B2	156	RRH2X60-AWS	132
RRUS 32	156	RRH2X60-AWS	132
RRUS 32	156	RRH2X60-AWS	132
RRUS 32	156	RRH2x60-700	132
DC6-48-60-18-8F	156	RRH2x60-700	132
T-Arm Mount [TA 703-3]	156	RRH2x60-700	132
(2) PCS 1900MHz 4x45W-65MHz	148	RRH2X60-PCS	132
(2) PCS 1900MHz 4x45W-65MHz	148	RRH2X60-PCS	132
(2) PCS 1900MHz 4x45W-65MHz	148	RRH2X60-PCS	132
800MHz 2X50W RRH W/FILTER	148	DB-T1-6Z-8AB-0Z	132
800MHz 2X50W RRH W/FILTER	148	DB-T1-6Z-8AB-0Z	132
800MHz 2X50W RRH W/FILTER	148	Platform Mount [LP 712-1]	132
(2) 4' x 2" Pipe Mount	148	LLPX310R w/ Mount Pipe	121
(2) 4' x 2" Pipe Mount	148	840 10054 w/Mount Pipe	121
(2) 4' x 2" Pipe Mount	148	LLPX310R w/ Mount Pipe	121
Side Arm Mount [SO 103-3]	148	RRH-2WB	121
APXV9ERR18-C-A20 w/ Mount Pipe	146	RRH-2WB	121
APXVSPP18-C-A20 w/ Mount Pipe	146	RRH-2WB	121
APXVSPP18-C-A20 w/ Mount Pipe	146	HORIZON COMPACT	121
APXVTM14-C-120 w/ Mount Pipe	146	HORIZON COMPACT	121
APXVTM14-C-120 w/ Mount Pipe	146	HORIZON COMPACT	121
APXVTM14-C-120 w/ Mount Pipe	146	7'x2" Antenna Mount Pipe	121
TD-RRH8x20-25	146	7'x2" Antenna Mount Pipe	121
TD-RRH8x20-25	146	7'x2" Antenna Mount Pipe	121
TD-RRH8x20-25	146	T-Arm Mount [TA 602-3]	121
IBC1900HG-2A	146	VHLP800-11	121
IBC1900HG-2A	146	VHLP800-11	121
IBC1900HG-2A	146	VHLP2-18	121
IBC1900BB-1	146	Side Arm Mount [SO 701-1]	101
IBC1900BB-1	146	58532A	101
IBC1900BB-1	146		
6' x 2" Mount Pipe	146		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A607-65	65 ksi	80 ksi
A607-60	60 ksi	75 ksi			

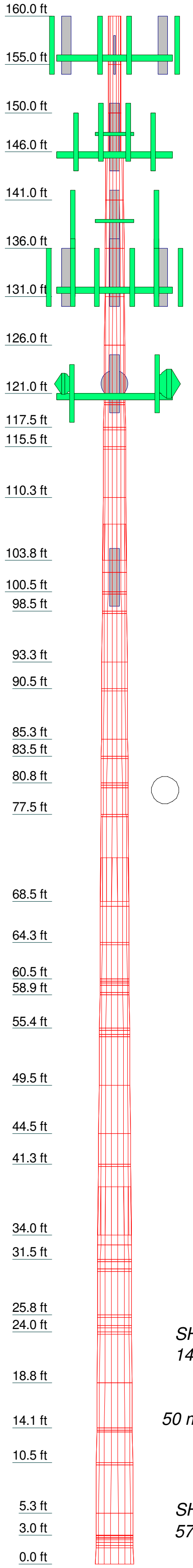
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.0000 ft

Jacobs Engineering Group, Inc.
JACOBS
5449 Bells Ferry Road
Acworth, GA 30102
Phone: 770-701-2500
FAX: 770-701-2501

Job: ***160' MP, SOUTHINGTON, SMORON***		
Project: ***BU 876334_WO 1419941_Original***		
Client: Crown Castle	Drawn by: HolderKG	App'd:
Code: TIA-222-G	Date: 06/26/17	Scale: NTS
Path: \\RALFIL03\Telecom\876334 SOUTHINGTON, SMORON\WO 1419941\ANALYSIS\MODEL\BU 876334_WO 1419941_Original.eri		Dwg No. E-1

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.0000	0	0.3750		16.0000	16.0000	A53-B-35	0.3
2	5.0000	0	0.3750		16.0000	16.0000	A53-B-35	0.3
3	4.0000	0	0.3750		16.0000	16.0000	A53-B-35	0.3
4	5.0000	12	0.2500		22.0000	22.9240		0.3
5	5.0000	12	0.2500		22.9240	23.8480		0.3
6	5.0000	12	0.2500		23.8480	24.7721		0.3
7	5.0000	12	0.2500		24.7721	25.6961		0.3
8–15	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
16	[illegible]	12	0.6375	3.7500	[illegible]	[illegible]		1.2
17–47	[illegible]	12	[illegible]	4.5000	[illegible]	[illegible]	A607-60	[illegible]
48	5.0000	12	0.8000		38.7044	39.6281		1.8
49–78	[illegible]	12	[illegible]	5.0000	[illegible]	[illegible]	A607-65	[illegible]
								47.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	156	6' x 2" Mount Pipe	146
TPA-65R-LCUUUU-H8 w/ Mount Pipe	156	6' x 2" Mount Pipe	146
TPA-65R-LCUUUU-H8 w/ Mount Pipe	156	Platform Mount [LP 1201-1]	146
AM-X-CD-16-65-00T-RET w/ Mount Pipe	156	APXV18-206517S-C	139
DTMABP7819VG12A	156	APXV18-206517S-C	139
DTMABP7819VG12A	156	APXV18-206517S-C	139
DTMABP7819VG12A	156	Pipe Mount [PM 501-3]	139
DC6-48-60-18-8F	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
SBNHH-1D65C w/ Mount Pipe	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
SBNHH-1D65C w/ Mount Pipe	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
80010798 w/ Mount Pipe	156	BXA-70063/6CFx2 w/ Mount Pipe	132
RRUS 11	156	BXA-70063/6CFx2 w/ Mount Pipe	132
RRUS 11	156	BXA-70063/6CFx2 w/ Mount Pipe	132
RRUS 11	156	(2) SBNHH-1D65B w/ Mount Pipe	132
RRUS 32 B2	156	(2) SBNHH-1D65B w/ Mount Pipe	132
RRUS 32 B2	156	(2) SBNHH-1D65B w/ Mount Pipe	132
RRUS 32 B2	156	RRH2X60-AWS	132
RRUS 32	156	RRH2X60-AWS	132
RRUS 32	156	RRH2X60-AWS	132
RRUS 32	156	RRH2x60-700	132
DC6-48-60-18-8F	156	RRH2x60-700	132
T-Arm Mount [TA 703-3]	156	RRH2x60-700	132
(2) PCS 1900MHz 4x45W-65MHz	148	RRH2X60-PCS	132
(2) PCS 1900MHz 4x45W-65MHz	148	RRH2X60-PCS	132
(2) PCS 1900MHz 4x45W-65MHz	148	RRH2X60-PCS	132
800MHz 2X50W RRH W/FILTER	148	DB-T1-6Z-8AB-0Z	132
800MHz 2X50W RRH W/FILTER	148	DB-T1-6Z-8AB-0Z	132
800MHz 2X50W RRH W/FILTER	148	Platform Mount [LP 712-1]	132
(2) 4' x 2" Pipe Mount	148	LLPX310R w/ Mount Pipe	121
(2) 4' x 2" Pipe Mount	148	840 10054 w/Mount Pipe	121
(2) 4' x 2" Pipe Mount	148	LLPX310R w/ Mount Pipe	121
Side Arm Mount [SO 103-3]	148	RRH-2WB	121
APXV9ERR18-C-A20 w/ Mount Pipe	146	RRH-2WB	121
APXVSPP18-C-A20 w/ Mount Pipe	146	RRH-2WB	121
APXVSPP18-C-A20 w/ Mount Pipe	146	HORIZON COMPACT	121
APXVTM14-C-120 w/ Mount Pipe	146	HORIZON COMPACT	121
APXVTM14-C-120 w/ Mount Pipe	146	HORIZON COMPACT	121
APXVTM14-C-120 w/ Mount Pipe	146	7'x2" Antenna Mount Pipe	121
TD-RRH8x20-25	146	7'x2" Antenna Mount Pipe	121
TD-RRH8x20-25	146	7'x2" Antenna Mount Pipe	121
TD-RRH8x20-25	146	T-Arm Mount [TA 602-3]	121
IBC1900HG-2A	146	VHLP800-11	121
IBC1900HG-2A	146	VHLP800-11	121
IBC1900HG-2A	146	VHLP2-18	121
IBC1900BB-1	146	Side Arm Mount [SO 701-1]	101
IBC1900BB-1	146	58532A	101
IBC1900BB-1	146		
6' x 2" Mount Pipe	146		

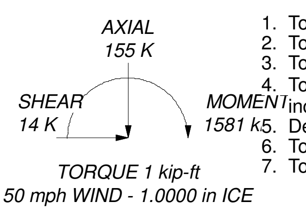
MATERIAL STRENGTH

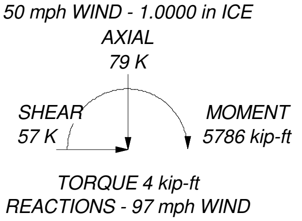
GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A607-65	65 ksi	80 ksi
A607-60	60 ksi	75 ksi			

ALL REACTIONS ARE FACTORED

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.0000 ft





JACOBS
Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
Phone: 770-701-2500
FAX: 770-701-2501

Job: **160' MP, SOUTHINGTON, SMORON**		
Project: **BU 876334_WO 1419941_Mod Model**		
Client: Crown Castle	Drawn by: HolderKG	App'd:
Code: TIA-222-G	Date: 06/26/17	Scale: NTS
Path: \\RALFIL03\Telecom\876334 SOUTHINGTON, SMORON\WO 1419941\ANALYSIS\MODEL\Mod Model\BU876334_WO1419941_Mod Model.eri		Dwg No. E-1

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.0000 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 50 mph is used in combination with ice.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	160.0000-155.0000	5.0000	0.00	Round	16.0000	16.0000	0.3750		A53-B-35 (35 ksi)
L2	155.0000-150.0000	5.0000	0.00	Round	16.0000	16.0000	0.3750		A53-B-35 (35 ksi)
L3	150.0000-146.0	4.0000	0.00	Round	16.0000	16.0000	0.3750		A53-B-35

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
	000								(35 ksi)
L4	146.0000-141.0000	5.0000	0.00	12	22.0000	22.9240	0.2500	1.0000	A607-60 (60 ksi)
L5	141.0000-136.0000	5.0000	0.00	12	22.9240	23.8480	0.2500	1.0000	A607-60 (60 ksi)
L6	136.0000-131.0000	5.0000	0.00	12	23.8480	24.7721	0.2500	1.0000	A607-60 (60 ksi)
L7	131.0000-126.0000	5.0000	0.00	12	24.7721	25.6961	0.2500	1.0000	A607-60 (60 ksi)
L8	126.0000-121.0000	5.0000	0.00	12	25.6961	26.6201	0.2500	1.0000	A607-60 (60 ksi)
L9	121.0000-120.1000	0.9000	0.00	12	26.6201	26.7864	0.2500	1.0000	A607-60 (60 ksi)
L10	120.1000-119.8500	0.2500	0.00	12	26.7864	26.8326	0.4875	1.9500	A607-60 (60 ksi)
L11	119.8500-117.5000	2.3500	0.00	12	26.8326	27.2669	0.4875	1.9500	A607-60 (60 ksi)
L12	117.5000-117.2500	0.2500	0.00	12	27.2669	27.3131	0.5000	2.0000	A607-60 (60 ksi)
L13	117.2500-115.5000	1.7500	0.00	12	27.3131	27.6365	0.5000	2.0000	A607-60 (60 ksi)
L14	115.5000-115.2500	0.2500	0.00	12	27.6365	27.6827	0.6625	2.6500	A607-60 (60 ksi)
L15	115.2500-110.2500	5.0000	0.00	12	27.6827	28.6068	0.6500	2.6000	A607-60 (60 ksi)
L16	110.2500-103.7500	6.5000	3.75	12	28.6068	29.8080	0.6375	2.5500	A607-60 (60 ksi)
L17	103.7500-102.5000	5.0000	0.00	12	28.6150	29.5386	0.7000	2.8000	A607-60 (60 ksi)
L18	102.5000-100.5000	2.0000	0.00	12	29.5386	29.9080	0.7000	2.8000	A607-60 (60 ksi)
L19	100.5000-100.2500	0.2500	0.00	12	29.9080	29.9542	0.6375	2.5500	A607-60 (60 ksi)
L20	100.2500-98.5000	1.7500	0.00	12	29.9542	30.2774	0.6250	2.5000	A607-60 (60 ksi)
L21	98.5000-98.2500	0.2500	0.00	12	30.2774	30.3236	0.6000	2.4000	A607-60 (60 ksi)
L22	98.2500-93.2500	5.0000	0.00	12	30.3236	31.2472	0.5875	2.3500	A607-60 (60 ksi)
L23	93.2500-90.5000	2.7500	0.00	12	31.2472	31.7552	0.5875	2.3500	A607-60 (60 ksi)
L24	90.5000-90.2500	0.2500	0.00	12	31.7552	31.8014	0.6125	2.4500	A607-60 (60 ksi)
L25	90.2500-85.2500	5.0000	0.00	12	31.8014	32.7250	0.6000	2.4000	A607-60 (60 ksi)
L26	85.2500-83.5000	1.7500	0.00	12	32.7250	33.0482	0.6000	2.4000	A607-60 (60 ksi)
L27	83.5000-83.2500	0.2500	0.00	12	33.0482	33.0944	0.8625	3.4500	A607-60 (60 ksi)
L28	83.2500-80.7500	2.5000	0.00	12	33.0944	33.5562	0.8500	3.4000	A607-60 (60 ksi)
L29	80.7500-80.5000	0.2500	0.00	12	33.5562	33.6024	0.9875	3.9500	A607-60 (60 ksi)
L30	80.5000-80.2500	0.2500	0.00	12	33.6024	33.6486	0.9750	3.9000	A607-60 (60 ksi)
L31	80.2500-77.5000	2.7500	0.00	12	33.6486	34.1565	0.9625	3.8500	A607-60 (60 ksi)
L32	77.5000-77.2500	0.2500	0.00	12	34.1565	34.2027	0.6875	2.7500	A607-60 (60 ksi)
L33	77.2500-68.5000	8.7500	4.50	12	34.2027	35.8190	0.6875	2.7500	A607-60 (60 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L34	68.5000-68.0000	5.0000	0.00	12	34.3628	35.2865	0.7500	3.0000	A607-60 (60 ksi)
L35	68.0000-64.2500	3.7500	0.00	12	35.2865	35.9793	0.7375	2.9500	A607-60 (60 ksi)
L36	64.2500-64.0000	0.2500	0.00	12	35.9793	36.0255	0.9500	3.8000	A607-60 (60 ksi)
L37	64.0000-60.5000	3.5000	0.00	12	36.0255	36.6721	0.9500	3.8000	A607-60 (60 ksi)
L38	60.5000-60.2500	0.2500	0.00	12	36.6721	36.7183	1.0000	4.0000	A607-60 (60 ksi)
L39	60.2500-60.1000	0.1500	0.00	12	36.7183	36.7460	1.0000	4.0000	A607-60 (60 ksi)
L40	60.1000-59.8500	0.2500	0.00	12	36.7460	36.7922	1.0500	4.2000	A607-60 (60 ksi)
L41	59.8500-59.1000	0.7500	0.00	12	36.7922	36.9308	1.0500	4.2000	A607-60 (60 ksi)
L42	59.1000-58.8500	0.2500	0.00	12	36.9308	36.9770	1.1250	4.5000	A607-60 (60 ksi)
L43	58.8500-55.4000	3.4500	0.00	12	36.9770	37.6144	1.1000	4.4000	A607-60 (60 ksi)
L44	55.4000-55.1500	0.2500	0.00	12	37.6144	37.6605	1.1000	4.4000	A607-60 (60 ksi)
L45	55.1500-54.7500	0.4000	0.00	12	37.6605	37.7344	1.1000	4.4000	A607-60 (60 ksi)
L46	54.7500-54.5000	0.2500	0.00	12	37.7344	37.7806	0.8250	3.3000	A607-60 (60 ksi)
L47	54.5000-49.5000	5.0000	0.00	12	37.7806	38.7044	0.8125	3.2500	A607-60 (60 ksi)
L48	49.5000-44.5000	5.0000	0.00	12	38.7044	39.6281	0.8000	3.2000	A607-60 (60 ksi)
L49	44.5000-41.3000	3.2000	0.00	12	39.6281	40.2193	0.7875	3.1500	A607-60 (60 ksi)
L50	41.3000-41.0500	0.2500	0.00	12	40.2193	40.2655	0.8750	3.5000	A607-60 (60 ksi)
L51	41.0500-34.0000	7.0500	5.00	12	40.2655	41.5680	0.8750	3.5000	A607-60 (60 ksi)
L52	34.0000-33.0000	6.0000	0.00	12	39.8943	41.0028	1.1750	4.7000	A607-65 (65 ksi)
L53	33.0000-31.5000	1.5000	0.00	12	41.0028	41.2800	1.1750	4.7000	A607-65 (65 ksi)
L54	31.5000-31.2500	0.2500	0.00	12	41.2800	41.3262	1.1750	4.7000	A607-65 (65 ksi)
L55	31.2500-30.5000	0.7500	0.00	12	41.3262	41.4647	1.1750	4.7000	A607-65 (65 ksi)
L56	30.5000-30.2500	0.2500	0.00	12	41.4647	41.5109	1.1250	4.5000	A607-65 (65 ksi)
L57	30.2500-25.7500	4.5000	0.00	12	41.5109	42.3424	1.1000	4.4000	A607-65 (65 ksi)
L58	25.7500-25.5000	0.2500	0.00	12	42.3424	42.3885	1.0500	4.2000	A607-65 (65 ksi)
L59	25.5000-24.7000	0.8000	0.00	12	42.3885	42.5364	1.0500	4.2000	A607-65 (65 ksi)
L60	24.7000-24.4500	0.2500	0.00	12	42.5364	42.5826	0.9500	3.8000	A607-65 (65 ksi)
L61	24.4500-24.0000	0.4500	0.00	12	42.5826	42.6657	0.9500	3.8000	A607-65 (65 ksi)
L62	24.0000-23.7500	0.2500	0.00	12	42.6657	42.7119	1.1750	4.7000	A607-65 (65 ksi)
L63	23.7500-18.7500	5.0000	0.00	12	42.7119	43.6357	1.1500	4.6000	A607-65 (65 ksi)
L64	18.7500-14.100	4.6500	0.00	12	43.6357	44.4948	1.1250	4.5000	A607-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
	0								(65 ksi)
L65	14.1000-13.800	0.3000	0.00	12	44.4948	44.5503	1.1500	4.6000	A607-65
	0								(65 ksi)
L66	13.8000-13.650	0.1500	0.00	12	44.5503	44.5780	1.1500	4.6000	A607-65
	0								(65 ksi)
L67	13.6500-10.500	3.1500	0.00	12	44.5780	45.1600	1.1500	4.6000	A607-65
	0								(65 ksi)
L68	10.5000-10.250	0.2500	0.00	12	45.1600	45.2062	1.1500	4.6000	A607-65
	0								(65 ksi)
L69	10.2500-5.2500	5.0000	0.00	12	45.2062	46.1300	1.1250	4.5000	A607-65
									(65 ksi)
L70	5.2500-3.0000	2.2500	0.00	12	46.1300	46.5457	1.1250	4.5000	A607-65
									(65 ksi)
L71	3.0000-2.9000	0.1000	0.00	12	46.5457	46.5642	1.0750	4.3000	A607-65
									(65 ksi)
L72	2.9000-2.7500	0.1500	0.00	12	46.5642	46.5919	1.0000	4.0000	A607-65
									(65 ksi)
L73	2.7500-2.6500	0.1000	0.00	12	46.5919	46.6104	1.0000	4.0000	A607-65
									(65 ksi)
L74	2.6500-2.5000	0.1500	0.00	12	46.6104	46.6381	1.0000	4.0000	A607-65
									(65 ksi)
L75	2.5000-2.2500	0.2500	0.00	12	46.6381	46.6843	0.9875	3.9500	A607-65
									(65 ksi)
L76	2.2500-1.9000	0.3500	0.00	12	46.6843	46.7490	0.9750	3.9000	A607-65
									(65 ksi)
L77	1.9000-1.6500	0.2500	0.00	12	46.7490	46.7951	0.9375	3.7500	A607-65
									(65 ksi)
L78	1.6500-0.0000	1.6500		12	46.7951	47.1000	0.9250	3.7000	A607-65
									(65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
L2	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
L3	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
L4	22.7761	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	23.7327	18.2526	1197.7540	8.1173	11.8746	100.8665	2426.9743	8.9834	5.4736	21.895
L5	23.7327	18.2526	1197.7540	8.1173	11.8746	100.8665	2426.9743	8.9834	5.4736	21.895
	24.6893	18.9964	1350.2371	8.4481	12.3533	109.3018	2735.9464	9.3495	5.7213	22.885
L6	24.6893	18.9964	1350.2371	8.4481	12.3533	109.3018	2735.9464	9.3495	5.7213	22.885
	25.6459	19.7403	1515.1418	8.7789	12.8319	118.0759	3070.0880	9.7156	5.9689	23.876
L7	25.6459	19.7403	1515.1418	8.7789	12.8319	118.0759	3070.0880	9.7156	5.9689	23.876
	26.6026	20.4841	1692.9543	9.1097	13.3106	127.1887	3430.3845	10.0817	6.2166	24.866
L8	26.6026	20.4841	1692.9543	9.1097	13.3106	127.1887	3430.3845	10.0817	6.2166	24.866
	27.5592	21.2279	1884.1612	9.4405	13.7892	136.6401	3817.8215	10.4477	6.4642	25.857
L9	27.5592	21.2279	1884.1612	9.4405	13.7892	136.6401	3817.8215	10.4477	6.4642	25.857
	27.7314	21.3618	1920.0385	9.5000	13.8754	138.3774	3890.5185	10.5136	6.5088	26.035
L10	27.7314	41.2828	3644.4442	9.4150	13.8754	262.6555	7384.6320	20.3181	5.8723	12.046
	27.7792	41.3553	3663.6853	9.4316	13.8993	263.5876	7423.6197	20.3538	5.8846	12.071
L11	27.7792	41.3553	3663.6853	9.4316	13.8993	263.5876	7423.6197	20.3538	5.8846	12.071
	28.2288	42.0370	3847.8724	9.5870	14.1243	272.4298	7796.8328	20.6893	6.0010	12.31

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L12	28.2288	43.0948	3941.0120	9.5826	14.1243	279.0241	7985.5587	21.2099	5.9675	11.935
	28.2766	43.1691	3961.4544	9.5991	14.1482	279.9970	8026.9807	21.2465	5.9799	11.96
L13	28.2766	43.1691	3961.4544	9.5991	14.1482	279.9970	8026.9807	21.2465	5.9799	11.96
	28.6115	43.6898	4106.5343	9.7149	14.3157	286.8547	8320.9518	21.5028	6.0666	12.133
L14	28.6115	57.5424	5343.9933	9.6567	14.3157	373.2952	10828.3793	28.3206	5.6311	8.5
	28.6593	57.6409	5371.5000	9.6732	14.3397	374.5904	10884.1153	28.3691	5.6435	8.518
L15	28.6593	56.5795	5277.4685	9.6777	14.3397	368.0330	10693.5819	27.8467	5.6770	8.734
	29.6159	58.5135	5837.3552	10.0085	14.8183	393.9286	11828.0643	28.7986	5.9246	9.115
L16	29.6159	57.4139	5732.7812	10.0130	14.8183	386.8716	11616.1690	28.2574	5.9581	9.346
	30.8595	59.8797	6503.5971	10.4430	15.4405	421.2026	13178.0510	29.4710	6.2800	9.851
L17	30.3415	62.9204	6258.2359	9.9936	14.8226	422.2102	12680.8826	30.9675	5.7928	8.275
	30.5806	65.0021	6900.1927	10.3242	15.3010	450.9641	13981.6611	31.9921	6.0403	8.629
L18	30.5806	65.0021	6900.1927	10.3242	15.3010	450.9641	13981.6611	31.9921	6.0403	8.629
	30.9631	65.8349	7168.7893	10.4565	15.4923	462.7309	14525.9107	32.4019	6.1393	8.77
L19	30.9631	60.0850	6570.7195	10.4788	15.4923	424.1267	13314.0591	29.5720	6.3068	9.893
	31.0109	60.1798	6601.8681	10.4954	15.5163	425.4803	13377.1747	29.6187	6.3192	9.913
L20	31.0109	59.0250	6480.7024	10.4999	15.5163	417.6714	13131.6600	29.0503	6.3527	10.164
	31.3455	59.6756	6697.3577	10.6156	15.6837	427.0261	13570.6624	29.3705	6.4394	10.303
L21	31.3455	57.3368	6445.7391	10.6245	15.6837	410.9829	13060.8150	28.2194	6.5064	10.844
	31.3933	57.4260	6475.8757	10.6411	15.7076	412.2756	13121.8798	28.2634	6.5187	10.865
L22	31.3933	56.2533	6348.9649	10.6455	15.7076	404.1960	12864.7241	27.6862	6.5522	11.153
	32.3495	58.0005	6959.1184	10.9762	16.1861	429.9452	14101.0606	28.5461	6.7998	11.574
L23	32.3495	58.0005	6959.1184	10.9762	16.1861	429.9452	14101.0606	28.5461	6.7998	11.574
	32.8754	58.9615	7310.7806	11.1580	16.4492	444.4462	14813.6236	29.0191	6.9359	11.806
L24	32.8754	61.4212	7603.5516	11.1491	16.4492	462.2447	15406.8570	30.2296	6.8689	11.215
	32.9232	61.5123	7637.4263	11.1656	16.4731	463.6298	15475.4963	30.2745	6.8813	11.235
L25	32.9232	60.2811	7490.5595	11.1701	16.4731	454.7143	15177.9044	29.6685	6.9148	11.525
	33.8794	62.0654	8175.6282	11.5007	16.9515	482.2943	16566.0392	30.5467	7.1623	11.937
L26	33.8794	62.0654	8175.6282	11.5007	16.9515	482.2943	16566.0392	30.5467	7.1623	11.937
	34.2140	62.6900	8424.9215	11.6165	17.1190	492.1392	17071.1751	30.8541	7.2489	12.082
L27	34.2140	89.3878	11819.2732	11.5225	17.1190	690.4192	23949.0519	43.9940	6.5454	7.589
	34.2618	89.5161	11870.2206	11.5390	17.1429	692.4278	24052.2851	44.0571	6.5578	7.603
L28	34.2618	88.2529	11711.8039	11.5435	17.1429	683.1868	23731.2899	43.4354	6.5913	7.754
	34.7399	89.5169	12222.2453	11.7088	17.3821	703.1508	24765.5825	44.0575	6.7151	7.9
L29	34.7399	103.5603	14021.0384	11.6596	17.3821	806.6361	28410.4251	50.9692	6.3466	6.427
	34.7877	103.7072	14080.7649	11.6761	17.4060	808.9589	28531.4472	51.0415	6.3589	6.439
L30	34.7877	102.4337	13918.5184	11.6806	17.4060	799.6376	28202.6917	50.4147	6.3924	6.556
	34.8356	102.5786	13977.7013	11.6971	17.4300	801.9357	28322.6125	50.4861	6.4048	6.569
L31	34.8356	101.3023	13814.3429	11.7016	17.4300	792.5634	27991.6039	49.8579	6.4383	6.689
	35.3614	102.8766	14468.4723	11.8835	17.6931	817.7473	29317.0475	50.6327	6.5745	6.831
L32	35.3614	74.0921	10593.6122	11.9819	17.6931	598.7431	21465.5304	36.4659	7.3115	10.635
	35.4093	74.1943	10637.5230	11.9984	17.7170	600.4131	21554.5056	36.5162	7.3238	10.653
L33	35.4093	74.1943	10637.5230	11.9984	17.7170	600.4131	21554.5056	36.5162	7.3238	10.653
	37.0826	77.7724	12251.9327	12.5771	18.5542	660.3305	24825.7374	38.2772	7.7570	11.283
L34	36.4357	81.1748	11706.1986	12.0334	17.7999	657.6548	23719.9321	39.9518	7.1992	9.599
	36.5313	83.4057	12698.0964	12.3641	18.2784	694.7045	25729.7859	41.0497	7.4468	9.929
L35	36.5313	82.0453	12500.0243	12.3685	18.2784	683.8681	25328.4381	40.3802	7.4803	10.143
	37.2485	83.6905	13267.1930	12.6166	18.6373	711.8627	26882.9300	41.1899	7.6660	10.395
L36	37.2485	107.1547	16782.6588	12.5405	18.6373	900.4881	34006.2166	52.7383	7.0965	7.47
	37.2964	107.2960	16849.1319	12.5570	18.6612	902.8957	34140.9092	52.8078	7.1088	7.483
L37	37.2964	107.2960	16849.1319	12.5570	18.6612	902.8957	34140.9092	52.8078	7.1088	7.483
	37.9658	109.2740	17798.2667	12.7885	18.9962	936.9399	36064.1137	53.7813	7.2821	7.665
L38	37.9658	114.8643	18656.4579	12.7706	18.9962	982.1170	37803.0417	56.5327	7.1481	7.148
	38.0136	115.0130	18729.0195	12.7872	19.0201	984.6966	37950.0712	56.6059	7.1605	7.161
L39	38.0136	115.0130	18729.0195	12.7872	19.0201	984.6966	37950.0712	56.6059	7.1605	7.161
	38.0423	115.1022	18772.6466	12.7971	19.0344	986.2460	38038.4716	56.6498	7.1679	7.168
L40	38.0423	120.6883	19628.6808	12.7792	19.0344	1031.2189	39773.0288	59.3991	7.0339	6.699
	38.0901	120.8445	19704.9725	12.7957	19.0584	1033.9274	39927.6166	59.4760	7.0463	6.711
L41	38.0901	120.8445	19704.9725	12.7957	19.0584	1033.9274	39927.6166	59.4760	7.0463	6.711
	38.2336	121.3129	19935.0334	12.8453	19.1301	1042.0742	40393.7823	59.7065	7.0835	6.746
L42	38.2336	129.7065	21225.3070	12.8185	19.1301	1109.5214	43008.2265	63.8376	6.8825	6.118
	38.2814	129.8738	21307.5513	12.8350	19.1541	1112.4293	43174.8757	63.9199	6.8948	6.129

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L43	38.2814	127.0762	20877.6640	12.8440	19.1541	1089.9857	42303.8076	62.5431	6.9618	6.329
	38.9413	129.3339	22010.2799	13.0721	19.4842	1129.6454	44598.7944	63.6542	7.1326	6.484
L44	38.9413	129.3339	22010.2799	13.0721	19.4842	1129.6454	44598.7944	63.6542	7.1326	6.484
	38.9891	129.4975	22093.9087	13.0887	19.5082	1132.5468	44768.2490	63.7347	7.1450	6.495
L45	38.9891	129.4975	22093.9087	13.0887	19.5082	1132.5468	44768.2490	63.7347	7.1450	6.495
	39.0656	129.7592	22228.1549	13.1151	19.5464	1137.1969	45040.2682	63.8635	7.1648	6.513
L46	39.0656	98.0499	17049.3715	13.2136	19.5464	872.2493	34546.6489	48.2572	7.9018	9.578
	39.1134	98.1726	17113.4568	13.2301	19.5704	874.4576	34676.5032	48.3176	7.9142	9.593
L47	39.1134	96.7179	16871.2702	13.2346	19.5704	862.0824	34185.7675	47.6016	7.9477	9.782
	40.0697	99.1346	18167.8575	13.5653	20.0489	906.1786	36813.0048	48.7911	8.1953	10.086
L48	40.0697	97.6417	17906.0612	13.5698	20.0489	893.1207	36282.5345	48.0563	8.2288	10.286
	41.0261	100.0213	19247.3623	13.9005	20.5274	937.6438	39000.3742	49.2274	8.4763	10.595
L49	41.0261	98.4901	18964.9267	13.9049	20.5274	923.8848	38428.0832	48.4738	8.5098	10.806
	41.6381	99.9893	19844.1785	14.1166	20.8336	952.5078	40209.6856	49.2117	8.6683	11.007
L50	41.6381	110.8526	21902.6306	14.0853	20.8336	1051.3122	44380.6676	54.5583	8.4338	9.639
	41.6859	110.9828	21979.8575	14.1018	20.8575	1053.8089	44537.1502	54.6223	8.4462	9.653
L51	41.6859	110.9828	21979.8575	14.1018	20.8575	1053.8089	44537.1502	54.6223	8.4462	9.653
	43.0344	114.6525	24233.1014	14.5681	21.5322	1125.4342	49102.8334	56.4285	8.7952	10.052
L52	42.2580	146.4943	28032.4187	13.8615	20.6652	1356.5021	56801.2803	72.1000	7.5427	6.419
	42.4493	150.6886	30509.8156	14.2584	21.2395	1436.4682	61821.1581	74.1643	7.8398	6.672
L53	42.4493	150.6886	30509.8156	14.2584	21.2395	1436.4682	61821.1581	74.1643	7.8398	6.672
	42.7362	151.7372	31151.1706	14.3576	21.3830	1456.8177	63120.7171	74.6804	7.9140	6.735
L54	42.7362	151.7372	31151.1706	14.3576	21.3830	1456.8177	63120.7171	74.6804	7.9140	6.735
	42.7840	151.9119	31258.9292	14.3741	21.4070	1460.2232	63339.0653	74.7664	7.9264	6.746
L55	42.7840	151.9119	31258.9292	14.3741	21.4070	1460.2232	63339.0653	74.7664	7.9264	6.746
	42.9275	152.4362	31583.6955	14.4237	21.4787	1470.4636	63997.1298	75.0245	7.9635	6.777
L56	42.9275	146.1307	30352.4316	14.4416	21.4787	1413.1388	61502.2554	71.9211	8.0975	7.198
	42.9753	146.2980	30456.8155	14.4582	21.5027	1416.4208	61713.7654	72.0034	8.1099	7.209
L57	42.9753	143.1355	29835.3355	14.4671	21.5027	1387.5184	60454.4785	70.4469	8.1769	7.434
	43.8360	146.0804	31715.0205	14.7648	21.9333	1445.9730	64263.2299	71.8963	8.3998	7.636
L58	43.8360	139.6095	30383.6678	14.7827	21.9333	1385.2731	61565.5484	68.7115	8.5338	8.127
	43.8839	139.7656	30485.7457	14.7992	21.9573	1388.4125	61772.3860	68.7884	8.5461	8.139
L59	43.8839	139.7656	30485.7457	14.7992	21.9573	1388.4125	61772.3860	68.7884	8.5461	8.139
	44.0369	140.2654	30813.9311	14.8521	22.0338	1398.4825	62437.3785	69.0344	8.5857	8.177
L60	44.0369	127.2127	28081.3605	14.8879	22.0338	1274.4654	56900.4496	62.6102	8.8537	9.32
	44.0847	127.3540	28175.0358	14.9045	22.0578	1277.3298	57090.2613	62.6798	8.8661	9.333
L61	44.0847	127.3540	28175.0358	14.9045	22.0578	1277.3298	57090.2613	62.6798	8.8661	9.333
	44.1708	127.6083	28344.1760	14.9342	22.1008	1282.4938	57432.9850	62.8049	8.8884	9.356
L62	44.1708	156.9800	34493.0641	14.8537	22.1008	1560.7136	69892.2994	77.2608	8.2854	7.051
	44.2186	157.1548	34608.3935	14.8702	22.1248	1564.2384	70125.9881	77.3468	8.2978	7.062
L63	44.2186	153.9037	33933.2417	14.8792	22.1248	1533.7227	68757.9475	75.7467	8.3648	7.274
	45.1750	157.3245	36246.6555	15.2099	22.6033	1603.6008	73445.5511	77.4304	8.6124	7.489
L64	45.1750	153.9950	35521.3168	15.2188	22.6033	1571.5108	71975.8182	75.7917	8.6794	7.715
	46.0645	157.1073	37718.8076	15.5264	23.0483	1636.5094	76428.5303	77.3234	8.9096	7.92
L65	46.0645	160.5060	38490.3647	15.5175	23.0483	1669.9850	77991.9141	78.9962	8.8426	7.689
	46.1218	160.7112	38638.2165	15.5373	23.0770	1674.3141	78291.5020	79.0972	8.8575	7.702
L66	46.1218	160.7112	38638.2165	15.5373	23.0770	1674.3141	78291.5020	79.0972	8.8575	7.702
	46.1505	160.8138	38712.2842	15.5472	23.0914	1676.4808	78441.5833	79.1477	8.8649	7.709
L67	46.1505	160.8138	38712.2842	15.5472	23.0914	1676.4808	78441.5833	79.1477	8.8649	7.709
	46.7531	162.9690	40289.6506	15.7556	23.3929	1722.3043	81637.7551	80.2084	9.0209	7.844
L68	46.7531	162.9690	40289.6506	15.7556	23.3929	1722.3043	81637.7551	80.2084	9.0209	7.844
	46.8009	163.1400	40416.6418	15.7721	23.4168	1725.9676	81895.0738	80.2926	9.0333	7.855
L69	46.8009	159.6841	39605.3657	15.7811	23.4168	1691.3226	80251.2086	78.5916	9.1003	8.089
	47.7573	163.0306	42147.9554	16.1118	23.8953	1763.8569	85403.1845	80.2387	9.3478	8.309
L70	47.7573	163.0306	42147.9554	16.1118	23.8953	1763.8569	85403.1845	80.2387	9.3478	8.309
	48.1877	164.5365	43326.7536	16.2606	24.1107	1796.9944	87791.7493	80.9799	9.4593	8.408
L71	48.1877	157.3969	41537.9961	16.2785	24.1107	1722.8049	84167.2417	77.4660	9.5933	8.924
	48.2068	157.4608	41588.6516	16.2851	24.1202	1724.2215	84269.8833	77.4974	9.5982	8.929
L72	48.2068	146.7167	38878.7888	16.3120	24.1202	1611.8734	78778.9667	72.2095	9.7992	9.799
	48.2355	146.8059	38949.7760	16.3219	24.1346	1613.8559	78922.8060	72.2534	9.8066	9.807
L73	48.2355	146.8059	38949.7760	16.3219	24.1346	1613.8559	78922.8060	72.2534	9.8066	9.807
	48.2546	146.8654	38997.1488	16.3285	24.1442	1615.1783	79018.7961	72.2827	9.8116	9.812

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L74	48.2546	146.8654	38997.1488	16.3285	24.1442	1615.1783	79018.7961	72.2827	9.8116	9.812
	48.2833	146.9547	39068.2800	16.3384	24.1585	1617.1628	79162.9272	72.3266	9.8190	9.819
L75	48.2833	145.1575	38611.6356	16.3429	24.1585	1598.2608	78237.6419	71.4421	9.8525	9.977
	48.3311	145.3043	38728.9596	16.3594	24.1825	1601.5311	78475.3721	71.5144	9.8649	9.99
L76	48.3311	143.5043	38270.1079	16.3639	24.1825	1582.5565	77545.6142	70.6284	9.8984	10.152
	48.3981	143.7073	38432.7651	16.3871	24.2160	1587.0843	77875.2017	70.7284	9.9157	10.17
L77	48.3981	138.2933	37045.4806	16.4005	24.2160	1529.7963	75064.1873	68.0638	10.0162	10.684
	48.4459	138.4328	37157.6501	16.4170	24.2399	1532.9137	75291.4731	68.1324	10.0286	10.697
L78	48.4459	136.6242	36692.2034	16.4215	24.2399	1513.7121	74348.3519	67.2423	10.0621	10.878
	48.7615	137.5322	37428.6590	16.5307	24.3978	1534.0998	75840.6105	67.6892	10.1438	10.966

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 160.0000-155.0000				1	1	1			
L2 155.0000-150.0000				1	1	1			
L3 150.0000-146.0000				1	1	1			
L4 146.0000-141.0000				1	1	1			
L5 141.0000-136.0000				1	1	1			
L6 136.0000-131.0000				1	1	1			
L7 131.0000-126.0000				1	1	1			
L8 126.0000-121.0000				1	1	1			
L9 121.0000-120.1000				1	1	1			
L10 120.1000-119.8500				1	1	0.95332			
L11 119.8500-117.5000				1	1	0.946176			
L12 117.5000-117.2500				1	1	1.02661			
L13 117.2500-115.5000				1	1	1.02034			
L14 115.5000-115.2500				1	1	0.930389			
L15 115.2500-110.2500				1	1	0.929227			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L16 110.2500-103.7500				1	1	0.937122			
L17 103.7500-102.5000				1	1	0.937721			
L18 102.5000-100.5000				1	1	0.931507			
L19 100.5000-100.2500				1	1	0.944929			
L20 100.2500-98.5000				1	1	0.958365			
L21 98.5000-98.2500				1	1	1.04903			
L22 98.2500-93.2500				1	1	1.05466			
L23 93.2500-90.5000				1	1	1.04614			
L24 90.5000-90.2500				1	1	1.15411			
L25 90.2500-85.2500				1	1	1.1588			
L26 85.2500-83.5000				1	1	1.15244			
L27 83.5000-83.2500				1	1	1.00897			
L28 83.2500-80.7500				1	1	1.01415			
L29 80.7500-80.5000				1	1	0.97843			
L30 80.5000-80.2500				1	1	0.989648			
L31 80.2500-77.5000				1	1	0.99175			
L32 77.5000-77.2500				1	1	1.13282			
L33 77.2500-68.5000				1	1	1.11729			
L34 68.5000-68.0000				1	1	1.10427			
L35 68.0000-64.25				1	1	1.1105			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
00									
L36				1	1	0.995044			
64.2500-64.00									
00									
L37				1	1	0.984177			
64.0000-60.50									
00									
L38				1	1	0.991061			
60.5000-60.25									
00									
L39				1	1	0.990584			
60.2500-60.10									
00									
L40				1	1	0.9782			
60.1000-59.85									
00									
L41				1	1	0.975802			
59.8500-59.10									
00									
L42				1	1	0.975601			
59.1000-58.85									
00									
L43				1	1	0.985625			
58.8500-55.40									
00									
L44				1	1	0.98481			
55.4000-55.15									
00									
L45				1	1	0.983511			
55.1500-54.75									
00									
L46				1	1	1.05188			
54.7500-54.50									
00									
L47				1	1	1.05292			
54.5000-49.50									
00									
L48				1	1	1.05474			
49.5000-44.50									
00									
L49				1	1	1.06222			
44.5000-41.30									
00									
L50				1	1	1.05337			
41.3000-41.05									
00									
L51				1	1	1.04742			
41.0500-34.00									
00									
L52				1	1	0.943711			
34.0000-33.00									
00									
L53				1	1	0.939395			
33.0000-31.50									
00									
L54				1	1	0.948701			
31.5000-31.25									
00									
L55				1	1	0.946536			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
31.2500-30.5000									
L56				1	1	0.963802			
30.5000-30.2500									
L57				1	1	0.972111			
30.2500-25.7500									
L58				1	1	0.999638			
25.7500-25.5000									
L59				1	1	0.997349			
25.5000-24.7000									
L60				1	1	0.931803			
24.7000-24.4500									
L61				1	1	0.930732			
24.4500-24.0000									
L62				1	1	0.896491			
24.0000-23.7500									
L63				1	1	0.902614			
23.7500-18.7500									
L64				1	1	0.910465			
18.7500-14.1000									
L65				1	1	0.906728			
14.1000-13.8000									
L66				1	1	0.906358			
13.8000-13.6500									
L67				1	1	0.898684			
13.6500-10.5000									
L68				1	1	0.869693			
10.5000-10.2500									
L69				1	1	0.877119			
10.2500-5.2500									
L70				1	1	0.872142			
5.2500-3.0000									
L71				1	1	0.873315			
3.0000-2.9000									
L72				1	1	0.859844			
2.9000-2.7500									
L73				1	1	0.859648			
2.7500-2.6500									
L74				1	1	0.859354			
2.6500-2.5000									
L75				1	1	0.883282			
2.5000-2.2500									
L76				1	1	0.893641			
2.2500-1.9000									
L77				1	1	0.86834			

Tower Elevation *ft*	*Gusset Area (per face)* *ft^2*	*Gusset Thickness* *in*	*Gusset Grade*	*Adjust. Factor A_f*	*Adjust. Factor A_r*	*Weight Mult.*	*Double Angle Stitch Bolt Spacing Diagonals* *in*	*Double Angle Stitch Bolt Spacing Horizontals* *in*	*Double Angle Stitch Bolt Spacing Redundants* *in*
1.9000-1.6500 L78 1.6500-0.0000				1	1	0.876702			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	*Sector*	*Component Type*	*Placement* *ft*	*Total Number*	*Number Per Row*	*Start/End Position*	*Width or Diameter* *in*	*Perimeter* *in*	*Weight* *klf*
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156									
LDF7-50A(1-5/8")	B	Surface Ar (CaAa)	156.0000 - 0.0000	6	4	-0.200 -0.080	1.9800		0.00
LDF7-50A(1-5/8")	B	Surface Ar (CaAa)	156.0000 - 0.0000	2	2	0.350 0.400	1.9800		0.00
2" Rigid Conduit	B	Surface Ar (CaAa)	156.0000 - 0.0000	1	1	-0.063 -0.030	2.0000		0.00
2" Rigid Conduit	B	Surface Ar (CaAa)	156.0000 - 0.0000	1	1	0.000 0.000	2.0000		0.00
146									
HB114-1-08U4-M5J(1-1/4")	B	Surface Ar (CaAa)	146.0000 - 0.0000	4	1	0.100 0.280	1.5400		0.00
***									
***									
132									
561(1-5/8")	A	Surface Ar (CaAa)	132.0000 - 0.0000	12	6	-0.200 -0.100	1.6250		0.00
***									
*									

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
Aero MP305	A	Surface Af (CaAa)	31.5000 - 11.5000	1	1	0.500 0.500	5.3300	14.8400	0.00
Aero MP305	B	Surface Af (CaAa)	30.5000 - 0.0000	1	1	0.500 0.500	5.3300	14.8400	0.00
Aero MP305	C	Surface Af (CaAa)	30.5000 - 0.0000	1	1	0.500 0.500	5.3300	14.8400	0.00
Aero MP304	A	Surface Af (CaAa)	15.5000 - 0.0000	1	1	0.400 0.400	4.7800	12.7800	0.00
Aero MP304	B	Surface Af (CaAa)	15.5000 - 0.0000	1	1	-0.400 -0.400	4.7800	12.7800	0.00
Aero MP304	A	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.500 0.500	4.7800	12.7800	0.00
Aero MP304	B	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.500 0.500	4.7800	12.7800	0.00
Aero MP304	A	Surface Af (CaAa)	61.5000 - 31.0000	1	1	0.500 0.500	4.7800	12.7800	0.00
*									
6" x 1" Flat Plate (G)	A	Surface Af (CaAa)	30.5000 - 0.5000	1	1	0.400 0.400	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	B	Surface Af (CaAa)	30.5000 - 0.5000	1	1	0.500 0.500	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	C	Surface Af (CaAa)	30.5000 - 0.5000	1	1	0.500 0.500	6.0000	14.0000	0.00
6.5" x 1.25" Flat Plate (G)	A	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	B	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.500 0.500	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	C	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.500 0.500	6.5000	15.5000	0.00
6" x 1" Flat Plate (G)	A	Surface Af (CaAa)	100.5000 - 60.5000	1	1	0.400 0.400	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	B	Surface Af (CaAa)	100.5000 - 60.5000	1	1	0.500 0.500	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	C	Surface Af (CaAa)	100.5000 - 60.5000	1	1	0.500 0.500	6.0000	14.0000	0.00
*									
6.5" x 1.25" Flat Plate (G)	A	Surface Af (CaAa)	38.0000 - 23.0000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	B	Surface Af (CaAa)	38.0000 - 23.0000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	C	Surface Af (CaAa)	38.0000 - 23.0000	1	1	0.000 0.000	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	A	Surface Af (CaAa)	67.0000 - 52.0000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	B	Surface Af (CaAa)	67.0000 - 52.0000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	C	Surface Af (CaAa)	67.0000 - 52.0000	1	1	0.000 0.000	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	A	Surface Af (CaAa)	85.5000 - 72.5000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	B	Surface Af (CaAa)	85.5000 - 72.5000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	C	Surface Af (CaAa)	85.5000 - 72.5000	1	1	0.000 0.000	6.5000	15.5000	0.00
*									
6" x 1" Flat Plate (G)	C	Surface Af (CaAa)	10.5000 - 0.5000	1	1	0.400 0.400	6.0000	14.0000	0.00
8.5" x 1.25" Flat Plate (G)	C	Surface Af (CaAa)	45.5000 - 10.5000	1	1	0.400 0.400	8.5000	19.5000	0.00
8.5" x 1.25" Flat Plate (G)	C	Surface Af (CaAa)	85.0000 - 60.0000	1	1	0.400 0.400	8.5000	19.5000	0.00

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
4.5" x 1" Flat Plate (G)	A	Surface Af (CaAa)	117.0000 - 97.0000	1	1	0.400 0.400	4.5000	11.0000	0.00
4.5" x 1" Flat Plate (G)	B	Surface Af (CaAa)	117.0000 - 97.0000	1	1	0.400 0.400	4.5000	11.0000	0.00
4.5" x 1" Flat Plate (G)	C	Surface Af (CaAa)	119.0000 - 99.0000	1	1	0.400 0.400	4.5000	11.0000	0.00
*									
8.5" x 1.25" Flat Plate (G)	A	Surface Af (CaAa)	55.4000 - 20.4000	1	1	-0.400 -0.400	8.5000	19.5000	0.00
8.5" x 1.25" Flat Plate (G)	B	Surface Af (CaAa)	55.4000 - 20.4000	1	1	-0.400 -0.400	8.5000	19.5000	0.00
8.5" x 1.25" Flat Plate (G)	A	Surface Af (CaAa)	90.5000 - 55.5000	1	1	-0.400 -0.400	8.5000	19.5000	0.00
8.5" x 1.25" Flat Plate (G)	B	Surface Af (CaAa)	90.5000 - 55.5000	1	1	-0.400 -0.400	8.5000	19.5000	0.00
6" x 1" Flat Plate (G)	A	Surface Af (CaAa)	122.6000 - 90.6000	1	1	-0.400 -0.400	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	B	Surface Af (CaAa)	122.6000 - 90.6000	1	1	-0.400 -0.400	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	C	Surface Af (CaAa)	122.6000 - 100.6000	1	1	-0.400 -0.400	6.0000	14.0000	0.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
***								
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FB-L98B-002-75000(3/8")	B	No	Inside Pole	156.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
WR-VG86ST-BRD(3/4")	B	No	Inside Pole	156.0000 - 0.0000	2	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
FB-L98B-002-75000(3/8")	B	No	Inside Pole	156.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
WR-VG86ST-BRD(3/4")	B	No	Inside Pole	156.0000 - 0.0000	2	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
***								
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139								
AVA7-50(1-5/8")	B	No	Inside Pole	139.0000 - 0.0000	6	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
561(1-5/8")	A	No	Inside Pole	132.0000 - 0.0000	6	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
HB158-1-08U8-S8J18(1-5/8")	A	No	Inside Pole	132.0000 - 0.0000	2	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
121								
FSJ1-50A(1/4")	A	No	Inside Pole	121.0000 - 0.0000	3	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
FSJ4-50B(1/2")	A	No	Inside Pole	121.0000 - 0.0000	3	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
9207(5/16")	A	No	Inside Pole	121.0000 - 0.0000	3	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
2" Rigid Conduit	A	No	Inside Pole	121.0000 - 0.0000	3	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
101								
LDF4-50A(1/2")	B	No	Inside Pole	101.0000 - 0.0000	1	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.0000-155.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	1.588	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L2	155.0000-150.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	7.940	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.00
L3	150.0000-146.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	6.352	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.00
L4	146.0000-141.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	8.710	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.00
L5	141.0000-136.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	8.710	0.000	0.11
		C	0.000	0.000	0.000	0.000	0.00
L6	136.0000-131.000	A	0.000	0.000	0.975	0.000	0.03
	0	B	0.000	0.000	8.710	0.000	0.12
		C	0.000	0.000	0.000	0.000	0.00
L7	131.0000-126.000	A	0.000	0.000	4.875	0.000	0.13
	0	B	0.000	0.000	8.710	0.000	0.12
		C	0.000	0.000	0.000	0.000	0.00
L8	126.0000-121.000	A	0.000	0.000	6.475	0.000	0.13
	0	B	0.000	0.000	10.310	0.000	0.12
		C	0.000	0.000	1.600	0.000	0.00
L9	121.0000-120.100	A	0.000	0.000	1.778	0.000	0.03
	0	B	0.000	0.000	2.468	0.000	0.02
		C	0.000	0.000	0.900	0.000	0.00
L10	120.1000-119.850	A	0.000	0.000	0.494	0.000	0.01
	0	B	0.000	0.000	0.686	0.000	0.01
		C	0.000	0.000	0.250	0.000	0.00
L11	119.8500-117.500	A	0.000	0.000	4.641	0.000	0.09
	0	B	0.000	0.000	6.444	0.000	0.05
		C	0.000	0.000	3.475	0.000	0.00
L12	117.5000-117.250	A	0.000	0.000	0.494	0.000	0.01

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
	0	B	0.000	0.000	0.686	0.000	0.01
		C	0.000	0.000	0.438	0.000	0.00
L13	117.2500-115.500	A	0.000	0.000	4.581	0.000	0.07
	0	B	0.000	0.000	5.923	0.000	0.04
		C	0.000	0.000	3.063	0.000	0.00
L14	115.5000-115.250	A	0.000	0.000	0.681	0.000	0.01
	0	B	0.000	0.000	0.873	0.000	0.01
		C	0.000	0.000	0.438	0.000	0.00
L15	115.2500-110.250	A	0.000	0.000	13.625	0.000	0.19
	0	B	0.000	0.000	17.460	0.000	0.12
		C	0.000	0.000	8.750	0.000	0.00
L16	110.2500-103.750	A	0.000	0.000	17.712	0.000	0.24
	0	B	0.000	0.000	22.698	0.000	0.15
		C	0.000	0.000	11.375	0.000	0.00
L17	103.7500-102.500	A	0.000	0.000	3.406	0.000	0.05
	0	B	0.000	0.000	4.365	0.000	0.03
		C	0.000	0.000	2.188	0.000	0.00
L18	102.5000-100.500	A	0.000	0.000	5.450	0.000	0.08
	0	B	0.000	0.000	6.984	0.000	0.05
		C	0.000	0.000	3.400	0.000	0.00
L19	100.5000-100.250	A	0.000	0.000	0.931	0.000	0.01
	0	B	0.000	0.000	1.123	0.000	0.01
		C	0.000	0.000	0.438	0.000	0.00
L20	100.2500-98.5000	A	0.000	0.000	6.519	0.000	0.07
		B	0.000	0.000	7.861	0.000	0.04
		C	0.000	0.000	2.688	0.000	0.00
L21	98.5000-98.2500	A	0.000	0.000	0.931	0.000	0.01
		B	0.000	0.000	1.123	0.000	0.01
		C	0.000	0.000	0.250	0.000	0.00
L22	98.2500-93.2500	A	0.000	0.000	15.813	0.000	0.19
		B	0.000	0.000	19.648	0.000	0.12
		C	0.000	0.000	5.000	0.000	0.00
L23	93.2500-90.5000	A	0.000	0.000	8.081	0.000	0.10
		B	0.000	0.000	10.191	0.000	0.06
		C	0.000	0.000	2.750	0.000	0.00
L24	90.5000-90.2500	A	0.000	0.000	0.848	0.000	0.01
		B	0.000	0.000	1.040	0.000	0.01
		C	0.000	0.000	0.250	0.000	0.00
L25	90.2500-85.2500	A	0.000	0.000	17.229	0.000	0.19
		B	0.000	0.000	21.064	0.000	0.12
		C	0.000	0.000	5.271	0.000	0.00
L26	85.2500-83.5000	A	0.000	0.000	7.831	0.000	0.07
		B	0.000	0.000	9.174	0.000	0.04
		C	0.000	0.000	5.771	0.000	0.00
L27	83.5000-83.2500	A	0.000	0.000	1.119	0.000	0.01
		B	0.000	0.000	1.311	0.000	0.01
		C	0.000	0.000	0.875	0.000	0.00
L28	83.2500-80.7500	A	0.000	0.000	11.188	0.000	0.09
		B	0.000	0.000	13.105	0.000	0.06
		C	0.000	0.000	8.750	0.000	0.00
L29	80.7500-80.5000	A	0.000	0.000	1.119	0.000	0.01
		B	0.000	0.000	1.311	0.000	0.01
		C	0.000	0.000	0.875	0.000	0.00
L30	80.5000-80.2500	A	0.000	0.000	1.119	0.000	0.01
		B	0.000	0.000	1.311	0.000	0.01
		C	0.000	0.000	0.875	0.000	0.00
L31	80.2500-77.5000	A	0.000	0.000	12.306	0.000	0.10
		B	0.000	0.000	14.416	0.000	0.06
		C	0.000	0.000	9.625	0.000	0.00
L32	77.5000-77.2500	A	0.000	0.000	1.119	0.000	0.01
		B	0.000	0.000	1.311	0.000	0.01

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.875	0.000	0.00
L33	77.2500-68.5000	A	0.000	0.000	34.823	0.000	0.33
		B	0.000	0.000	41.534	0.000	0.20
		C	0.000	0.000	26.292	0.000	0.00
L34	68.5000-68.0000	A	0.000	0.000	1.696	0.000	0.02
		B	0.000	0.000	2.079	0.000	0.01
		C	0.000	0.000	1.208	0.000	0.00
L35	68.0000-64.2500	A	0.000	0.000	15.698	0.000	0.14
		B	0.000	0.000	18.574	0.000	0.09
		C	0.000	0.000	12.042	0.000	0.00
L36	64.2500-64.0000	A	0.000	0.000	1.119	0.000	0.01
		B	0.000	0.000	1.311	0.000	0.01
		C	0.000	0.000	0.875	0.000	0.00
L37	64.0000-60.5000	A	0.000	0.000	16.459	0.000	0.13
		B	0.000	0.000	18.347	0.000	0.08
		C	0.000	0.000	12.250	0.000	0.00
L38	60.5000-60.2500	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.531	0.000	0.01
		C	0.000	0.000	0.896	0.000	0.00
L39	60.2500-60.1000	A	0.000	0.000	0.923	0.000	0.01
		B	0.000	0.000	0.918	0.000	0.00
		C	0.000	0.000	0.537	0.000	0.00
L40	60.1000-59.8500	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.531	0.000	0.01
		C	0.000	0.000	0.683	0.000	0.00
L41	59.8500-59.1000	A	0.000	0.000	4.614	0.000	0.03
		B	0.000	0.000	4.591	0.000	0.02
		C	0.000	0.000	1.625	0.000	0.00
L42	59.1000-58.8500	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.531	0.000	0.01
		C	0.000	0.000	0.542	0.000	0.00
L43	58.8500-55.4000	A	0.000	0.000	21.082	0.000	0.13
		B	0.000	0.000	20.979	0.000	0.08
		C	0.000	0.000	7.475	0.000	0.00
L44	55.4000-55.1500	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.531	0.000	0.01
		C	0.000	0.000	0.542	0.000	0.00
L45	55.1500-54.7500	A	0.000	0.000	2.461	0.000	0.02
		B	0.000	0.000	2.449	0.000	0.01
		C	0.000	0.000	0.867	0.000	0.00
L46	54.7500-54.5000	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.531	0.000	0.01
		C	0.000	0.000	0.542	0.000	0.00
L47	54.5000-49.5000	A	0.000	0.000	28.050	0.000	0.19
		B	0.000	0.000	27.902	0.000	0.12
		C	0.000	0.000	8.125	0.000	0.00
L48	49.5000-44.5000	A	0.000	0.000	25.342	0.000	0.19
		B	0.000	0.000	25.193	0.000	0.12
		C	0.000	0.000	6.833	0.000	0.00
L49	44.5000-41.3000	A	0.000	0.000	16.219	0.000	0.12
		B	0.000	0.000	16.124	0.000	0.07
		C	0.000	0.000	8.000	0.000	0.00
L50	41.3000-41.0500	A	0.000	0.000	1.267	0.000	0.01
		B	0.000	0.000	1.260	0.000	0.01
		C	0.000	0.000	0.625	0.000	0.00
L51	41.0500-34.0000	A	0.000	0.000	40.065	0.000	0.27
		B	0.000	0.000	39.856	0.000	0.16
		C	0.000	0.000	21.958	0.000	0.00
L52	34.0000-33.0000	A	0.000	0.000	6.152	0.000	0.04
		B	0.000	0.000	6.122	0.000	0.02
		C	0.000	0.000	3.583	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L53	33.0000-31.5000	A	0.000	0.000	9.227	0.000	0.06
		B	0.000	0.000	9.183	0.000	0.03
		C	0.000	0.000	5.375	0.000	0.00
L54	31.5000-31.2500	A	0.000	0.000	1.760	0.000	0.01
		B	0.000	0.000	1.531	0.000	0.01
		C	0.000	0.000	0.896	0.000	0.00
L55	31.2500-30.5000	A	0.000	0.000	4.882	0.000	0.03
		B	0.000	0.000	4.591	0.000	0.02
		C	0.000	0.000	2.688	0.000	0.00
L56	30.5000-30.2500	A	0.000	0.000	1.341	0.000	0.01
		B	0.000	0.000	1.533	0.000	0.01
		C	0.000	0.000	1.097	0.000	0.00
L57	30.2500-25.7500	A	0.000	0.000	24.135	0.000	0.17
		B	0.000	0.000	27.587	0.000	0.10
		C	0.000	0.000	19.747	0.000	0.00
L58	25.7500-25.5000	A	0.000	0.000	1.341	0.000	0.01
		B	0.000	0.000	1.533	0.000	0.01
		C	0.000	0.000	1.097	0.000	0.00
L59	25.5000-24.7000	A	0.000	0.000	4.291	0.000	0.03
		B	0.000	0.000	4.904	0.000	0.02
		C	0.000	0.000	3.511	0.000	0.00
L60	24.7000-24.4500	A	0.000	0.000	1.341	0.000	0.01
		B	0.000	0.000	1.533	0.000	0.01
		C	0.000	0.000	1.097	0.000	0.00
L61	24.4500-24.0000	A	0.000	0.000	2.414	0.000	0.02
		B	0.000	0.000	2.759	0.000	0.01
		C	0.000	0.000	1.975	0.000	0.00
L62	24.0000-23.7500	A	0.000	0.000	1.341	0.000	0.01
		B	0.000	0.000	1.533	0.000	0.01
		C	0.000	0.000	1.097	0.000	0.00
L63	23.7500-18.7500	A	0.000	0.000	19.875	0.000	0.19
		B	0.000	0.000	23.710	0.000	0.12
		C	0.000	0.000	17.337	0.000	0.00
L64	18.7500-14.1000	A	0.000	0.000	14.430	0.000	0.18
		B	0.000	0.000	17.996	0.000	0.11
		C	0.000	0.000	15.368	0.000	0.00
L65	14.1000-13.8000	A	0.000	0.000	1.098	0.000	0.01
		B	0.000	0.000	1.328	0.000	0.01
		C	0.000	0.000	0.992	0.000	0.00
L66	13.8000-13.6500	A	0.000	0.000	0.549	0.000	0.01
		B	0.000	0.000	0.664	0.000	0.00
		C	0.000	0.000	0.496	0.000	0.00
L67	13.6500-10.5000	A	0.000	0.000	10.641	0.000	0.12
		B	0.000	0.000	13.945	0.000	0.07
		C	0.000	0.000	10.411	0.000	0.00
L68	10.5000-10.2500	A	0.000	0.000	0.693	0.000	0.01
		B	0.000	0.000	1.107	0.000	0.01
		C	0.000	0.000	0.722	0.000	0.00
L69	10.2500-5.2500	A	0.000	0.000	13.858	0.000	0.19
		B	0.000	0.000	22.135	0.000	0.12
		C	0.000	0.000	14.442	0.000	0.00
L70	5.2500-3.0000	A	0.000	0.000	6.236	0.000	0.08
		B	0.000	0.000	9.961	0.000	0.05
		C	0.000	0.000	6.499	0.000	0.00
L71	3.0000-2.9000	A	0.000	0.000	0.277	0.000	0.00
		B	0.000	0.000	0.443	0.000	0.00
		C	0.000	0.000	0.289	0.000	0.00
L72	2.9000-2.7500	A	0.000	0.000	0.416	0.000	0.01
		B	0.000	0.000	0.664	0.000	0.00
		C	0.000	0.000	0.433	0.000	0.00
L73	2.7500-2.6500	A	0.000	0.000	0.277	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.443	0.000	0.00
		C	0.000	0.000	0.289	0.000	0.00
L74	2.6500-2.5000	A	0.000	0.000	0.416	0.000	0.01
		B	0.000	0.000	0.664	0.000	0.00
		C	0.000	0.000	0.433	0.000	0.00
L75	2.5000-2.2500	A	0.000	0.000	0.693	0.000	0.01
		B	0.000	0.000	1.107	0.000	0.01
		C	0.000	0.000	0.722	0.000	0.00
L76	2.2500-1.9000	A	0.000	0.000	0.970	0.000	0.01
		B	0.000	0.000	1.549	0.000	0.01
		C	0.000	0.000	1.011	0.000	0.00
L77	1.9000-1.6500	A	0.000	0.000	0.693	0.000	0.01
		B	0.000	0.000	1.107	0.000	0.01
		C	0.000	0.000	0.722	0.000	0.00
L78	1.6500-0.0000	A	0.000	0.000	4.073	0.000	0.06
		B	0.000	0.000	6.805	0.000	0.04
		C	0.000	0.000	3.766	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.0000-155.000	A	2.338	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	3.990	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.00
L2	155.0000-150.000	A	2.331	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	19.914	0.000	0.41
		C		0.000	0.000	0.000	0.000	0.00
L3	150.0000-146.000	A	2.324	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	15.906	0.000	0.33
		C		0.000	0.000	0.000	0.000	0.00
L4	146.0000-141.000	A	2.317	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	22.937	0.000	0.65
		C		0.000	0.000	0.000	0.000	0.00
L5	141.0000-136.000	A	2.308	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	22.891	0.000	0.66
		C		0.000	0.000	0.000	0.000	0.00
L6	136.0000-131.000	A	2.300	0.000	0.000	1.794	0.000	0.06
	0	B		0.000	0.000	22.845	0.000	0.67
		C		0.000	0.000	0.000	0.000	0.00
L7	131.0000-126.000	A	2.291	0.000	0.000	8.958	0.000	0.29
	0	B		0.000	0.000	22.797	0.000	0.66
		C		0.000	0.000	0.000	0.000	0.00
L8	126.0000-121.000	A	2.282	0.000	0.000	11.277	0.000	0.32
	0	B		0.000	0.000	25.077	0.000	0.69
		C		0.000	0.000	2.330	0.000	0.03
L9	121.0000-120.100	A	2.277	0.000	0.000	2.919	0.000	0.08
	0	B		0.000	0.000	5.399	0.000	0.14
		C		0.000	0.000	1.310	0.000	0.02
L10	120.1000-119.850	A	2.276	0.000	0.000	0.811	0.000	0.02
	0	B		0.000	0.000	1.499	0.000	0.04
		C		0.000	0.000	0.364	0.000	0.01
L11	119.8500-117.500	A	2.273	0.000	0.000	7.618	0.000	0.21
	0	B		0.000	0.000	14.086	0.000	0.36
		C		0.000	0.000	5.225	0.000	0.07
L12	117.5000-117.250	A	2.271	0.000	0.000	0.810	0.000	0.02
	0	B		0.000	0.000	1.498	0.000	0.04

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.665	0.000	0.01
L13	117.2500-115.500	A	2.269	0.000	0.000	7.475	0.000	0.18
	0	B		0.000	0.000	12.285	0.000	0.29
		C		0.000	0.000	4.651	0.000	0.07
L14	115.5000-115.250	A	2.267	0.000	0.000	1.111	0.000	0.03
	0	B		0.000	0.000	1.797	0.000	0.04
		C		0.000	0.000	0.664	0.000	0.01
L15	115.2500-110.250	A	2.261	0.000	0.000	22.193	0.000	0.53
	0	B		0.000	0.000	35.906	0.000	0.84
		C		0.000	0.000	13.273	0.000	0.19
L16	110.2500-103.750	A	2.250	0.000	0.000	28.801	0.000	0.68
	0	B		0.000	0.000	46.562	0.000	1.08
		C		0.000	0.000	17.224	0.000	0.24
L17	103.7500-102.500	A	2.241	0.000	0.000	5.539	0.000	0.13
	0	B		0.000	0.000	8.954	0.000	0.21
		C		0.000	0.000	3.312	0.000	0.05
L18	102.5000-100.500	A	2.238	0.000	0.000	8.847	0.000	0.21
	0	B		0.000	0.000	14.291	0.000	0.33
		C		0.000	0.000	5.145	0.000	0.07
L19	100.5000-100.250	A	2.235	0.000	0.000	1.467	0.000	0.03
	0	B		0.000	0.000	2.147	0.000	0.05
		C		0.000	0.000	0.661	0.000	0.01
L20	100.2500-98.5000	A	2.233	0.000	0.000	10.267	0.000	0.22
		B		0.000	0.000	15.024	0.000	0.32
		C		0.000	0.000	4.027	0.000	0.06
L21	98.5000-98.2500	A	2.231	0.000	0.000	1.466	0.000	0.03
		B		0.000	0.000	2.145	0.000	0.05
		C		0.000	0.000	0.362	0.000	0.00
L22	98.2500-93.2500	A	2.225	0.000	0.000	24.818	0.000	0.55
		B		0.000	0.000	38.375	0.000	0.86
		C		0.000	0.000	7.225	0.000	0.10
L23	93.2500-90.5000	A	2.216	0.000	0.000	12.668	0.000	0.29
		B		0.000	0.000	20.102	0.000	0.46
		C		0.000	0.000	3.969	0.000	0.05
L24	90.5000-90.2500	A	2.212	0.000	0.000	1.268	0.000	0.03
		B		0.000	0.000	1.943	0.000	0.04
		C		0.000	0.000	0.361	0.000	0.00
L25	90.2500-85.2500	A	2.205	0.000	0.000	25.668	0.000	0.56
		B		0.000	0.000	39.142	0.000	0.86
		C		0.000	0.000	7.529	0.000	0.10
L26	85.2500-83.5000	A	2.197	0.000	0.000	11.122	0.000	0.23
		B		0.000	0.000	15.825	0.000	0.33
		C		0.000	0.000	7.547	0.000	0.10
L27	83.5000-83.2500	A	2.194	0.000	0.000	1.588	0.000	0.03
		B		0.000	0.000	2.260	0.000	0.05
		C		0.000	0.000	1.144	0.000	0.02
L28	83.2500-80.7500	A	2.191	0.000	0.000	15.877	0.000	0.32
		B		0.000	0.000	22.582	0.000	0.47
		C		0.000	0.000	11.433	0.000	0.16
L29	80.7500-80.5000	A	2.187	0.000	0.000	1.587	0.000	0.03
		B		0.000	0.000	2.257	0.000	0.05
		C		0.000	0.000	1.143	0.000	0.02
L30	80.5000-80.2500	A	2.186	0.000	0.000	1.587	0.000	0.03
		B		0.000	0.000	2.256	0.000	0.05
		C		0.000	0.000	1.143	0.000	0.02
L31	80.2500-77.5000	A	2.182	0.000	0.000	17.447	0.000	0.36
		B		0.000	0.000	24.803	0.000	0.52
		C		0.000	0.000	12.565	0.000	0.17
L32	77.5000-77.2500	A	2.178	0.000	0.000	1.585	0.000	0.03
		B		0.000	0.000	2.253	0.000	0.05
		C		0.000	0.000	1.142	0.000	0.02

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L33	77.2500-68.5000	A	2.165	0.000	0.000	50.244	0.000	1.04
		B		0.000	0.000	73.522	0.000	1.55
		C		0.000	0.000	34.755	0.000	0.46
L34	68.5000-68.0000	A	2.151	0.000	0.000	2.521	0.000	0.05
		B		0.000	0.000	3.851	0.000	0.08
		C		0.000	0.000	1.636	0.000	0.02
L35	68.0000-64.2500	A	2.144	0.000	0.000	22.573	0.000	0.46
		B		0.000	0.000	32.483	0.000	0.67
		C		0.000	0.000	15.957	0.000	0.21
L36	64.2500-64.0000	A	2.137	0.000	0.000	1.594	0.000	0.03
		B		0.000	0.000	2.253	0.000	0.05
		C		0.000	0.000	1.153	0.000	0.02
L37	64.0000-60.5000	A	2.131	0.000	0.000	23.518	0.000	0.46
		B		0.000	0.000	31.506	0.000	0.64
		C		0.000	0.000	16.133	0.000	0.21
L38	60.5000-60.2500	A	2.125	0.000	0.000	2.223	0.000	0.04
		B		0.000	0.000	2.574	0.000	0.05
		C		0.000	0.000	1.172	0.000	0.02
L39	60.2500-60.1000	A	2.124	0.000	0.000	1.334	0.000	0.02
		B		0.000	0.000	1.544	0.000	0.03
		C		0.000	0.000	0.703	0.000	0.01
L40	60.1000-59.8500	A	2.123	0.000	0.000	2.222	0.000	0.04
		B		0.000	0.000	2.573	0.000	0.05
		C		0.000	0.000	0.897	0.000	0.01
L41	59.8500-59.1000	A	2.121	0.000	0.000	6.666	0.000	0.12
		B		0.000	0.000	7.718	0.000	0.15
		C		0.000	0.000	2.142	0.000	0.03
L42	59.1000-58.8500	A	2.120	0.000	0.000	2.221	0.000	0.04
		B		0.000	0.000	2.572	0.000	0.05
		C		0.000	0.000	0.714	0.000	0.01
L43	58.8500-55.4000	A	2.113	0.000	0.000	30.445	0.000	0.55
		B		0.000	0.000	35.265	0.000	0.68
		C		0.000	0.000	9.844	0.000	0.13
L44	55.4000-55.1500	A	2.106	0.000	0.000	2.218	0.000	0.04
		B		0.000	0.000	2.566	0.000	0.05
		C		0.000	0.000	0.713	0.000	0.01
L45	55.1500-54.7500	A	2.105	0.000	0.000	3.547	0.000	0.06
		B		0.000	0.000	4.104	0.000	0.08
		C		0.000	0.000	1.140	0.000	0.02
L46	54.7500-54.5000	A	2.103	0.000	0.000	2.217	0.000	0.04
		B		0.000	0.000	2.565	0.000	0.05
		C		0.000	0.000	0.713	0.000	0.01
L47	54.5000-49.5000	A	2.093	0.000	0.000	40.913	0.000	0.75
		B		0.000	0.000	47.833	0.000	0.94
		C		0.000	0.000	10.874	0.000	0.14
L48	49.5000-44.5000	A	2.072	0.000	0.000	37.438	0.000	0.70
		B		0.000	0.000	44.290	0.000	0.88
		C		0.000	0.000	9.320	0.000	0.12
L49	44.5000-41.3000	A	2.053	0.000	0.000	23.897	0.000	0.44
		B		0.000	0.000	28.243	0.000	0.56
		C		0.000	0.000	10.628	0.000	0.13
L50	41.3000-41.0500	A	2.045	0.000	0.000	1.865	0.000	0.03
		B		0.000	0.000	2.203	0.000	0.04
		C		0.000	0.000	0.829	0.000	0.01
L51	41.0500-34.0000	A	2.026	0.000	0.000	57.802	0.000	1.03
		B		0.000	0.000	67.251	0.000	1.28
		C		0.000	0.000	28.693	0.000	0.35
L52	34.0000-33.0000	A	2.003	0.000	0.000	8.780	0.000	0.15
		B		0.000	0.000	10.120	0.000	0.19
		C		0.000	0.000	4.651	0.000	0.06
L53	33.0000-31.5000	A	1.995	0.000	0.000	13.115	0.000	0.23

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	15.096	0.000	0.28
		C		0.000	0.000	6.951	0.000	0.09
L54	31.5000-31.2500	A	1.990	0.000	0.000	2.506	0.000	0.04
		B		0.000	0.000	2.513	0.000	0.05
		C		0.000	0.000	1.158	0.000	0.01
L55	31.2500-30.5000	A	1.987	0.000	0.000	6.917	0.000	0.12
		B		0.000	0.000	7.536	0.000	0.14
		C		0.000	0.000	3.472	0.000	0.04
L56	30.5000-30.2500	A	1.983	0.000	0.000	1.886	0.000	0.03
		B		0.000	0.000	2.513	0.000	0.05
		C		0.000	0.000	1.457	0.000	0.02
L57	30.2500-25.7500	A	1.967	0.000	0.000	33.881	0.000	0.61
		B		0.000	0.000	45.097	0.000	0.82
		C		0.000	0.000	26.183	0.000	0.32
L58	25.7500-25.5000	A	1.950	0.000	0.000	1.878	0.000	0.03
		B		0.000	0.000	2.498	0.000	0.05
		C		0.000	0.000	1.452	0.000	0.02
L59	25.5000-24.7000	A	1.946	0.000	0.000	6.007	0.000	0.11
		B		0.000	0.000	7.987	0.000	0.14
		C		0.000	0.000	4.643	0.000	0.06
L60	24.7000-24.4500	A	1.942	0.000	0.000	1.876	0.000	0.03
		B		0.000	0.000	2.494	0.000	0.05
		C		0.000	0.000	1.450	0.000	0.02
L61	24.4500-24.0000	A	1.939	0.000	0.000	3.376	0.000	0.06
		B		0.000	0.000	4.487	0.000	0.08
		C		0.000	0.000	2.609	0.000	0.03
L62	24.0000-23.7500	A	1.936	0.000	0.000	1.875	0.000	0.03
		B		0.000	0.000	2.491	0.000	0.04
		C		0.000	0.000	1.449	0.000	0.02
L63	23.7500-18.7500	A	1.914	0.000	0.000	28.779	0.000	0.55
		B		0.000	0.000	41.014	0.000	0.78
		C		0.000	0.000	23.262	0.000	0.27
L64	18.7500-14.1000	A	1.865	0.000	0.000	21.697	0.000	0.45
		B		0.000	0.000	32.883	0.000	0.65
		C		0.000	0.000	20.572	0.000	0.23
L65	14.1000-13.8000	A	1.835	0.000	0.000	1.634	0.000	0.03
		B		0.000	0.000	2.348	0.000	0.04
		C		0.000	0.000	1.322	0.000	0.01
L66	13.8000-13.6500	A	1.832	0.000	0.000	0.817	0.000	0.02
		B		0.000	0.000	1.173	0.000	0.02
		C		0.000	0.000	0.661	0.000	0.01
L67	13.6500-10.5000	A	1.809	0.000	0.000	15.838	0.000	0.32
		B		0.000	0.000	24.515	0.000	0.46
		C		0.000	0.000	13.829	0.000	0.15
L68	10.5000-10.2500	A	1.781	0.000	0.000	1.040	0.000	0.02
		B		0.000	0.000	1.934	0.000	0.04
		C		0.000	0.000	0.926	0.000	0.01
L69	10.2500-5.2500	A	1.730	0.000	0.000	20.635	0.000	0.44
		B		0.000	0.000	38.261	0.000	0.69
		C		0.000	0.000	18.393	0.000	0.21
L70	5.2500-3.0000	A	1.624	0.000	0.000	9.141	0.000	0.19
		B		0.000	0.000	16.823	0.000	0.29
		C		0.000	0.000	8.157	0.000	0.09
L71	3.0000-2.9000	A	1.571	0.000	0.000	0.403	0.000	0.01
		B		0.000	0.000	0.739	0.000	0.01
		C		0.000	0.000	0.360	0.000	0.00
L72	2.9000-2.7500	A	1.564	0.000	0.000	0.604	0.000	0.01
		B		0.000	0.000	1.107	0.000	0.02
		C		0.000	0.000	0.539	0.000	0.01
L73	2.7500-2.6500	A	1.557	0.000	0.000	0.402	0.000	0.01
		B		0.000	0.000	0.737	0.000	0.01

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.359	0.000	0.00
L74	2.6500-2.5000	A	1.550	0.000	0.000	0.603	0.000	0.01
		B		0.000	0.000	1.103	0.000	0.02
		C		0.000	0.000	0.538	0.000	0.01
L75	2.5000-2.2500	A	1.537	0.000	0.000	1.002	0.000	0.02
		B		0.000	0.000	1.833	0.000	0.03
		C		0.000	0.000	0.895	0.000	0.01
L76	2.2500-1.9000	A	1.517	0.000	0.000	1.399	0.000	0.03
		B		0.000	0.000	2.554	0.000	0.04
		C		0.000	0.000	1.250	0.000	0.01
L77	1.9000-1.6500	A	1.493	0.000	0.000	0.996	0.000	0.02
		B		0.000	0.000	1.815	0.000	0.03
		C		0.000	0.000	0.890	0.000	0.01
L78	1.6500-0.0000	A	1.383	0.000	0.000	5.820	0.000	0.12
		B		0.000	0.000	11.035	0.000	0.17
		C		0.000	0.000	4.612	0.000	0.04

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.0000-155.0000	0.3596	-0.2056	0.5295	-0.2706
L2	155.0000-150.0000	1.0160	-0.5809	1.0241	-0.5234
L3	150.0000-146.0000	1.0160	-0.5809	1.0240	-0.5235
L4	146.0000-141.0000	1.2318	-0.6316	1.4379	-0.6305
L5	141.0000-136.0000	1.2491	-0.6401	1.4754	-0.6468
L6	136.0000-131.0000	1.0395	-0.6519	1.2946	-0.6540
L7	131.0000-126.0000	0.3324	-0.6727	0.6463	-0.6418
L8	126.0000-121.0000	0.2831	-0.5726	0.5894	-0.5858
L9	121.0000-120.1000	0.2134	-0.4314	0.4853	-0.4826
L10	120.1000-119.8500	0.2139	-0.4324	0.4866	-0.4840
L11	119.8500-117.5000	-0.0456	-0.3914	0.2615	-0.4489
L12	117.5000-117.2500	-0.1809	-0.3711	0.1428	-0.4317
L13	117.2500-115.5000	0.1262	-0.3469	0.3702	-0.4054
L14	115.5000-115.2500	0.1706	-0.3447	0.4051	-0.4033
L15	115.2500-110.2500	0.1726	-0.3487	0.4102	-0.4086
L16	110.2500-103.7500	0.1769	-0.3572	0.4213	-0.4202
L17	103.7500-102.5000	0.1778	-0.3589	0.4237	-0.4226
L18	102.5000-100.5000	0.1566	-0.3647	0.4096	-0.4287
L19	100.5000-100.2500	-0.3663	-0.3768	-0.0459	-0.4309
L20	100.2500-98.5000	-0.2891	-0.3914	0.0290	-0.4453
L21	98.5000-98.2500	-0.0805	-0.4274	0.2281	-0.4801
L22	98.2500-93.2500	-0.3536	-0.4577	0.0199	-0.5135
L23	93.2500-90.5000	-0.4491	-0.4765	-0.0467	-0.5350
L24	90.5000-90.2500	-0.6263	-0.4586	-0.1705	-0.5239
L25	90.2500-85.2500	-0.5993	-0.4385	-0.1549	-0.5123
L26	85.2500-83.5000	-0.5063	-0.0418	-0.2015	-0.1984
L27	83.5000-83.2500	-0.5700	-0.0362	-0.2563	-0.1928
L28	83.2500-80.7500	-0.5735	-0.0362	-0.2585	-0.1938
L29	80.7500-80.5000	-0.5771	-0.0363	-0.2607	-0.1947
L30	80.5000-80.2500	-0.5777	-0.0363	-0.2612	-0.1949
L31	80.2500-77.5000	-0.5816	-0.0364	-0.2636	-0.1959
L32	77.5000-77.2500	-0.5855	-0.0364	-0.2661	-0.1969
L33	77.2500-68.5000	-0.8512	-0.1797	-0.4368	-0.3174
L34	68.5000-68.0000	-1.2288	-0.3896	-0.6649	-0.4812
L35	68.0000-64.2500	-0.7476	-0.1164	-0.3594	-0.2586

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L36	64.2500-64.0000	-0.6106	-0.0368	-0.2668	-0.1910
L37	64.0000-60.5000	-0.5441	-0.1020	-0.2051	-0.2533
L38	60.5000-60.2500	-0.0812	-0.1691	0.2109	-0.3015
L39	60.2500-60.1000	-0.0812	-0.1693	0.2110	-0.3017
L40	60.1000-59.8500	0.1951	-0.1982	0.4497	-0.3307
L41	59.8500-59.1000	0.3949	-0.2193	0.6203	-0.3518
L42	59.1000-58.8500	0.3957	-0.2197	0.6215	-0.3524
L43	58.8500-55.4000	0.4147	-0.2209	0.6399	-0.3551
L44	55.4000-55.1500	0.4014	-0.2222	0.6300	-0.3568
L45	55.1500-54.7500	0.4019	-0.2224	0.6307	-0.3571
L46	54.7500-54.5000	0.4024	-0.2227	0.6314	-0.3575
L47	54.5000-49.5000	0.2368	-0.3984	0.5240	-0.5059
L48	49.5000-44.5000	-0.0910	-0.5985	0.2951	-0.6690
L49	44.5000-41.3000	-0.5435	-0.5300	-0.0894	-0.6129
L50	41.3000-41.0500	-0.5469	-0.5330	-0.0913	-0.6165
L51	41.0500-34.0000	-0.2682	-0.3193	0.0947	-0.4420
L52	34.0000-33.0000	-0.0893	-0.1815	0.2184	-0.3230
L53	33.0000-31.5000	-0.0897	-0.1822	0.2160	-0.3235
L54	31.5000-31.2500	0.1398	-0.4119	0.4227	-0.5372
L55	31.2500-30.5000	0.0048	-0.2793	0.2970	-0.4096
L56	30.5000-30.2500	-0.5897	-0.0329	-0.2804	-0.1776
L57	30.2500-25.7500	-0.5948	-0.0329	-0.2847	-0.1783
L58	25.7500-25.5000	-0.5998	-0.0330	-0.2890	-0.1789
L59	25.5000-24.7000	-0.6009	-0.0331	-0.2900	-0.1791
L60	24.7000-24.4500	-0.6020	-0.0331	-0.2910	-0.1792
L61	24.4500-24.0000	-0.6028	-0.0331	-0.2917	-0.1793
L62	24.0000-23.7500	-0.6035	-0.0331	-0.2924	-0.1794
L63	23.7500-18.7500	-0.9497	-0.3184	-0.5031	-0.4310
L64	18.7500-14.1000	-0.6961	-0.6139	-0.2530	-0.7017
L65	14.1000-13.8000	-0.6501	-1.0517	-0.2423	-1.0984
L66	13.8000-13.6500	-0.6505	-1.0524	-0.2429	-1.0992
L67	13.6500-10.5000	-0.7722	-0.9665	-0.3472	-1.0238
L68	10.5000-10.2500	-0.8571	-0.8038	-0.3710	-0.8886
L69	10.2500-5.2500	-0.8637	-0.8097	-0.3823	-0.8954
L70	5.2500-3.0000	-0.8729	-0.8178	-0.4038	-0.9041
L71	3.0000-2.9000	-0.8758	-0.8204	-0.4141	-0.9066
L72	2.9000-2.7500	-0.8761	-0.8207	-0.4154	-0.9068
L73	2.7500-2.6500	-0.8764	-0.8209	-0.4167	-0.9070
L74	2.6500-2.5000	-0.8767	-0.8212	-0.4181	-0.9073
L75	2.5000-2.2500	-0.8772	-0.8217	-0.4205	-0.9076
L76	2.2500-1.9000	-0.8780	-0.8223	-0.4243	-0.9081
L77	1.9000-1.6500	-0.8787	-0.8230	-0.4287	-0.9085
L78	1.6500-0.0000	-0.7260	-0.8948	-0.3039	-0.9714

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	84	LDF7-50A(1-5/8")	155.00 - 156.00	1.0000	1.0000
L1	85	LDF7-50A(1-5/8")	155.00 - 156.00	1.0000	1.0000
L1	91	2" Rigid Conduit	155.00 - 156.00	1.0000	1.0000
L1	92	2" Rigid Conduit	155.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			156.00		
L2	84	LDF7-50A(1-5/8")	150.00 - 155.00	1.0000	1.0000
L2	85	LDF7-50A(1-5/8")	150.00 - 155.00	1.0000	1.0000
L2	91	2" Rigid Conduit	150.00 - 155.00	1.0000	1.0000
L2	92	2" Rigid Conduit	150.00 - 155.00	1.0000	1.0000
L3	84	LDF7-50A(1-5/8")	146.00 - 150.00	1.0000	1.0000
L3	85	LDF7-50A(1-5/8")	146.00 - 150.00	1.0000	1.0000
L3	91	2" Rigid Conduit	146.00 - 150.00	1.0000	1.0000
L3	92	2" Rigid Conduit	146.00 - 150.00	1.0000	1.0000
L4	84	LDF7-50A(1-5/8")	141.00 - 146.00	1.0000	1.0000
L4	85	LDF7-50A(1-5/8")	141.00 - 146.00	1.0000	1.0000
L4	91	2" Rigid Conduit	141.00 - 146.00	1.0000	1.0000
L4	92	2" Rigid Conduit	141.00 - 146.00	1.0000	1.0000
L4	94	HB114-1-08U4-M5J(1-1/4")	141.00 - 146.00	1.0000	1.0000
L5	84	LDF7-50A(1-5/8")	136.00 - 141.00	1.0000	1.0000
L5	85	LDF7-50A(1-5/8")	136.00 - 141.00	1.0000	1.0000
L5	91	2" Rigid Conduit	136.00 - 141.00	1.0000	1.0000
L5	92	2" Rigid Conduit	136.00 - 141.00	1.0000	1.0000
L5	94	HB114-1-08U4-M5J(1-1/4")	136.00 - 141.00	1.0000	1.0000
L6	84	LDF7-50A(1-5/8")	131.00 - 136.00	1.0000	1.0000
L6	85	LDF7-50A(1-5/8")	131.00 - 136.00	1.0000	1.0000
L6	91	2" Rigid Conduit	131.00 - 136.00	1.0000	1.0000
L6	92	2" Rigid Conduit	131.00 - 136.00	1.0000	1.0000
L6	94	HB114-1-08U4-M5J(1-1/4")	131.00 - 136.00	1.0000	1.0000
L6	100	561(1-5/8")	131.00 - 132.00	1.0000	1.0000
L7	84	LDF7-50A(1-5/8")	126.00 - 131.00	1.0000	1.0000
L7	85	LDF7-50A(1-5/8")	126.00 - 131.00	1.0000	1.0000
L7	91	2" Rigid Conduit	126.00 - 131.00	1.0000	1.0000
L7	92	2" Rigid Conduit	126.00 - 131.00	1.0000	1.0000
L7	94	HB114-1-08U4-M5J(1-1/4")	126.00 - 131.00	1.0000	1.0000
L7	100	561(1-5/8")	126.00 - 131.00	1.0000	1.0000
L8	84	LDF7-50A(1-5/8")	121.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L8	85	LDF7-50A(1-5/8")	126.00 121.00 - 126.00	1.0000	1.0000
L8	91	2" Rigid Conduit	121.00 - 126.00	1.0000	1.0000
L8	92	2" Rigid Conduit	121.00 - 126.00	1.0000	1.0000
L8	94	HB114-1-08U4-M5J(1-1/4")	121.00 - 126.00	1.0000	1.0000
L8	100	561(1-5/8")	121.00 - 126.00	1.0000	1.0000
L8	153	6" x 1" Flat Plate (G)	121.00 - 122.60	1.0000	1.0000
L8	154	6" x 1" Flat Plate (G)	121.00 - 122.60	1.0000	1.0000
L8	155	6" x 1" Flat Plate (G)	121.00 - 122.60	1.0000	1.0000
L9	84	LDF7-50A(1-5/8")	120.10 - 121.00	1.0000	1.0000
L9	85	LDF7-50A(1-5/8")	120.10 - 121.00	1.0000	1.0000
L9	91	2" Rigid Conduit	120.10 - 121.00	1.0000	1.0000
L9	92	2" Rigid Conduit	120.10 - 121.00	1.0000	1.0000
L9	94	HB114-1-08U4-M5J(1-1/4")	120.10 - 121.00	1.0000	1.0000
L9	100	561(1-5/8")	120.10 - 121.00	1.0000	1.0000
L9	153	6" x 1" Flat Plate (G)	120.10 - 121.00	1.0000	1.0000
L9	154	6" x 1" Flat Plate (G)	120.10 - 121.00	1.0000	1.0000
L9	155	6" x 1" Flat Plate (G)	120.10 - 121.00	1.0000	1.0000
L10	84	LDF7-50A(1-5/8")	119.85 - 120.10	1.0000	1.0000
L10	85	LDF7-50A(1-5/8")	119.85 - 120.10	1.0000	1.0000
L10	91	2" Rigid Conduit	119.85 - 120.10	1.0000	1.0000
L10	92	2" Rigid Conduit	119.85 - 120.10	1.0000	1.0000
L10	94	HB114-1-08U4-M5J(1-1/4")	119.85 - 120.10	1.0000	1.0000
L10	100	561(1-5/8")	119.85 - 120.10	1.0000	1.0000
L10	153	6" x 1" Flat Plate (G)	119.85 - 120.10	1.0000	1.0000
L10	154	6" x 1" Flat Plate (G)	119.85 - 120.10	1.0000	1.0000
L10	155	6" x 1" Flat Plate (G)	119.85 - 120.10	1.0000	1.0000
L11	84	LDF7-50A(1-5/8")	117.50 - 119.85	1.0000	1.0000
L11	85	LDF7-50A(1-5/8")	117.50 - 119.85	1.0000	1.0000
L11	91	2" Rigid Conduit	117.50 - 119.85	1.0000	1.0000
L11	92	2" Rigid Conduit	117.50 - 119.85	1.0000	1.0000
L11	94	HB114-1-08U4-M5J(1-1/4")	117.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L11	100	561(1-5/8")	119.85 117.50 - 119.85	1.0000	1.0000
L11	147	4.5" x 1" Flat Plate (G)	117.50 - 119.00	1.0000	1.0000
L11	153	6" x 1" Flat Plate (G)	117.50 - 119.85	1.0000	1.0000
L11	154	6" x 1" Flat Plate (G)	117.50 - 119.85	1.0000	1.0000
L11	155	6" x 1" Flat Plate (G)	117.50 - 119.85	1.0000	1.0000
L12	84	LDF7-50A(1-5/8")	117.25 - 117.50	1.0000	1.0000
L12	85	LDF7-50A(1-5/8")	117.25 - 117.50	1.0000	1.0000
L12	91	2" Rigid Conduit	117.25 - 117.50	1.0000	1.0000
L12	92	2" Rigid Conduit	117.25 - 117.50	1.0000	1.0000
L12	94	HB114-1-08U4-M5J(1-1/4")	117.25 - 117.50	1.0000	1.0000
L12	100	561(1-5/8")	117.25 - 117.50	1.0000	1.0000
L12	147	4.5" x 1" Flat Plate (G)	117.25 - 117.50	1.0000	1.0000
L12	153	6" x 1" Flat Plate (G)	117.25 - 117.50	1.0000	1.0000
L12	154	6" x 1" Flat Plate (G)	117.25 - 117.50	1.0000	1.0000
L12	155	6" x 1" Flat Plate (G)	117.25 - 117.50	1.0000	1.0000
L13	84	LDF7-50A(1-5/8")	115.50 - 117.25	1.0000	1.0000
L13	85	LDF7-50A(1-5/8")	115.50 - 117.25	1.0000	1.0000
L13	91	2" Rigid Conduit	115.50 - 117.25	1.0000	1.0000
L13	92	2" Rigid Conduit	115.50 - 117.25	1.0000	1.0000
L13	94	HB114-1-08U4-M5J(1-1/4")	115.50 - 117.25	1.0000	1.0000
L13	100	561(1-5/8")	115.50 - 117.25	1.0000	1.0000
L13	145	4.5" x 1" Flat Plate (G)	115.50 - 117.00	1.0000	1.0000
L13	146	4.5" x 1" Flat Plate (G)	115.50 - 117.00	1.0000	1.0000
L13	147	4.5" x 1" Flat Plate (G)	115.50 - 117.25	1.0000	1.0000
L13	153	6" x 1" Flat Plate (G)	115.50 - 117.25	1.0000	1.0000
L13	154	6" x 1" Flat Plate (G)	115.50 - 117.25	1.0000	1.0000
L13	155	6" x 1" Flat Plate (G)	115.50 - 117.25	1.0000	1.0000
L14	84	LDF7-50A(1-5/8")	115.25 - 115.50	1.0000	1.0000
L14	85	LDF7-50A(1-5/8")	115.25 - 115.50	1.0000	1.0000
L14	91	2" Rigid Conduit	115.25 - 115.50	1.0000	1.0000
L14	92	2" Rigid Conduit	115.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L14	94	HB114-1-08U4-M5J(1-1/4")	115.50 115.25 - 115.50	1.0000	1.0000
L14	100	561(1-5/8")	115.25 - 115.50	1.0000	1.0000
L14	145	4.5" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L14	146	4.5" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L14	147	4.5" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L14	153	6" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L14	154	6" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L14	155	6" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L15	84	LDF7-50A(1-5/8")	110.25 - 115.25	1.0000	1.0000
L15	85	LDF7-50A(1-5/8")	110.25 - 115.25	1.0000	1.0000
L15	91	2" Rigid Conduit	110.25 - 115.25	1.0000	1.0000
L15	92	2" Rigid Conduit	110.25 - 115.25	1.0000	1.0000
L15	94	HB114-1-08U4-M5J(1-1/4")	110.25 - 115.25	1.0000	1.0000
L15	100	561(1-5/8")	110.25 - 115.25	1.0000	1.0000
L15	145	4.5" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L15	146	4.5" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L15	147	4.5" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L15	153	6" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L15	154	6" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L15	155	6" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L16	84	LDF7-50A(1-5/8")	103.75 - 110.25	1.0000	1.0000
L16	85	LDF7-50A(1-5/8")	103.75 - 110.25	1.0000	1.0000
L16	91	2" Rigid Conduit	103.75 - 110.25	1.0000	1.0000
L16	92	2" Rigid Conduit	103.75 - 110.25	1.0000	1.0000
L16	94	HB114-1-08U4-M5J(1-1/4")	103.75 - 110.25	1.0000	1.0000
L16	100	561(1-5/8")	103.75 - 110.25	1.0000	1.0000
L16	145	4.5" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L16	146	4.5" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L16	147	4.5" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L16	153	6" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L16	154	6" x 1" Flat Plate (G)	103.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			110.25		
L16	155	6" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L18	84	LDF7-50A(1-5/8")	100.50 - 102.50	1.0000	1.0000
L18	85	LDF7-50A(1-5/8")	100.50 - 102.50	1.0000	1.0000
L18	91	2" Rigid Conduit	100.50 - 102.50	1.0000	1.0000
L18	92	2" Rigid Conduit	100.50 - 102.50	1.0000	1.0000
L18	94	HB114-1-08U4-M5J(1-1/4")	100.50 - 102.50	1.0000	1.0000
L18	100	561(1-5/8")	100.50 - 102.50	1.0000	1.0000
L18	145	4.5" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L18	146	4.5" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L18	147	4.5" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L18	153	6" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L18	154	6" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L18	155	6" x 1" Flat Plate (G)	100.60 - 102.50	1.0000	1.0000
L19	84	LDF7-50A(1-5/8")	100.25 - 100.50	1.0000	1.0000
L19	85	LDF7-50A(1-5/8")	100.25 - 100.50	1.0000	1.0000
L19	91	2" Rigid Conduit	100.25 - 100.50	1.0000	1.0000
L19	92	2" Rigid Conduit	100.25 - 100.50	1.0000	1.0000
L19	94	HB114-1-08U4-M5J(1-1/4")	100.25 - 100.50	1.0000	1.0000
L19	100	561(1-5/8")	100.25 - 100.50	1.0000	1.0000
L19	128	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L19	129	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L19	130	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L19	145	4.5" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L19	146	4.5" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L19	147	4.5" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L19	153	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L19	154	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L20	84	LDF7-50A(1-5/8")	98.50 - 100.25	1.0000	1.0000
L20	85	LDF7-50A(1-5/8")	98.50 - 100.25	1.0000	1.0000
L20	91	2" Rigid Conduit	98.50 - 100.25	1.0000	1.0000
L20	92	2" Rigid Conduit	98.50 - 100.25	1.0000	1.0000
L20	94	HB114-1-08U4-M5J(1-1/4")	98.50 - 100.25	1.0000	1.0000
L20	100	561(1-5/8")	98.50 - 100.25	1.0000	1.0000
L20	128	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	129	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L20	130	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L20	145	4.5" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L20	146	4.5" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L20	147	4.5" x 1" Flat Plate (G)	99.00 - 100.25	1.0000	1.0000
L20	153	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L20	154	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L21	84	LDF7-50A(1-5/8")	98.25 - 98.50	1.0000	1.0000
L21	85	LDF7-50A(1-5/8")	98.25 - 98.50	1.0000	1.0000
L21	91	2" Rigid Conduit	98.25 - 98.50	1.0000	1.0000
L21	92	2" Rigid Conduit	98.25 - 98.50	1.0000	1.0000
L21	94	HB114-1-08U4-M5J(1-1/4")	98.25 - 98.50	1.0000	1.0000
L21	100	561(1-5/8")	98.25 - 98.50	1.0000	1.0000
L21	128	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L21	129	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L21	130	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L21	145	4.5" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L21	146	4.5" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L21	153	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L21	154	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L22	84	LDF7-50A(1-5/8")	93.25 - 98.25	1.0000	1.0000
L22	85	LDF7-50A(1-5/8")	93.25 - 98.25	1.0000	1.0000
L22	91	2" Rigid Conduit	93.25 - 98.25	1.0000	1.0000
L22	92	2" Rigid Conduit	93.25 - 98.25	1.0000	1.0000
L22	94	HB114-1-08U4-M5J(1-1/4")	93.25 - 98.25	1.0000	1.0000
L22	100	561(1-5/8")	93.25 - 98.25	1.0000	1.0000
L22	128	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L22	129	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L22	130	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L22	145	4.5" x 1" Flat Plate (G)	97.00 - 98.25	1.0000	1.0000
L22	146	4.5" x 1" Flat Plate (G)	97.00 - 98.25	1.0000	1.0000
L22	153	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L22	154	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L23	84	LDF7-50A(1-5/8")	90.50 - 93.25	1.0000	1.0000
L23	85	LDF7-50A(1-5/8")	90.50 - 93.25	1.0000	1.0000
L23	91	2" Rigid Conduit	90.50 - 93.25	1.0000	1.0000
L23	92	2" Rigid Conduit	90.50 - 93.25	1.0000	1.0000
L23	94	HB114-1-08U4-M5J(1-1/4")	90.50 - 93.25	1.0000	1.0000
L23	100	561(1-5/8")	90.50 - 93.25	1.0000	1.0000
L23	128	6" x 1" Flat Plate (G)	90.50 - 93.25	1.0000	1.0000
L23	129	6" x 1" Flat Plate (G)	90.50 - 93.25	1.0000	1.0000
L23	130	6" x 1" Flat Plate (G)	90.50 - 93.25	1.0000	1.0000
L23	153	6" x 1" Flat Plate (G)	90.60 - 93.25	1.0000	1.0000
L23	154	6" x 1" Flat Plate (G)	90.60 - 93.25	1.0000	1.0000
L24	84	LDF7-50A(1-5/8")	90.25 - 90.50	1.0000	1.0000
L24	85	LDF7-50A(1-5/8")	90.25 - 90.50	1.0000	1.0000
L24	91	2" Rigid Conduit	90.25 - 90.50	1.0000	1.0000
L24	92	2" Rigid Conduit	90.25 - 90.50	1.0000	1.0000
L24	94	HB114-1-08U4-M5J(1-1/4")	90.25 - 90.50	1.0000	1.0000
L24	100	561(1-5/8")	90.25 - 90.50	1.0000	1.0000
L24	128	6" x 1" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L24	129	6" x 1" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L24	130	6" x 1" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L24	151	8.5" x 1.25" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L24	152	8.5" x 1.25" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L25	84	LDF7-50A(1-5/8")	85.25 - 90.25	1.0000	1.0000
L25	85	LDF7-50A(1-5/8")	85.25 - 90.25	1.0000	1.0000
L25	91	2" Rigid Conduit	85.25 - 90.25	1.0000	1.0000
L25	92	2" Rigid Conduit	85.25 - 90.25	1.0000	1.0000
L25	94	HB114-1-08U4-M5J(1-1/4")	85.25 - 90.25	1.0000	1.0000
L25	100	561(1-5/8")	85.25 - 90.25	1.0000	1.0000
L25	128	6" x 1" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	129	6" x 1" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L25	130	6" x 1" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L25	138	6.5" x 1.25" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L25	139	6.5" x 1.25" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L25	140	6.5" x 1.25" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L25	151	8.5" x 1.25" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L25	152	8.5" x 1.25" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L26	84	LDF7-50A(1-5/8")	83.50 - 85.25	1.0000	1.0000
L26	85	LDF7-50A(1-5/8")	83.50 - 85.25	1.0000	1.0000
L26	91	2" Rigid Conduit	83.50 - 85.25	1.0000	1.0000
L26	92	2" Rigid Conduit	83.50 - 85.25	1.0000	1.0000
L26	94	HB114-1-08U4-M5J(1-1/4")	83.50 - 85.25	1.0000	1.0000
L26	100	561(1-5/8")	83.50 - 85.25	1.0000	1.0000
L26	128	6" x 1" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L26	129	6" x 1" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L26	130	6" x 1" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L26	138	6.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L26	139	6.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L26	140	6.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L26	144	8.5" x 1.25" Flat Plate (G)	83.50 - 85.00	1.0000	1.0000
L26	151	8.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L26	152	8.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L27	84	LDF7-50A(1-5/8")	83.25 - 83.50	1.0000	1.0000
L27	85	LDF7-50A(1-5/8")	83.25 - 83.50	1.0000	1.0000
L27	91	2" Rigid Conduit	83.25 - 83.50	1.0000	1.0000
L27	92	2" Rigid Conduit	83.25 - 83.50	1.0000	1.0000
L27	94	HB114-1-08U4-M5J(1-1/4")	83.25 - 83.50	1.0000	1.0000
L27	100	561(1-5/8")	83.25 - 83.50	1.0000	1.0000
L27	128	6" x 1" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L27	129	6" x 1" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L27	130	6" x 1" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L27	138	6.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L27	139	6.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L27	140	6.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L27	144	8.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L27	151	8.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L27	152	8.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	84	LDF7-50A(1-5/8")	80.75 - 83.25	1.0000	1.0000
L28	85	LDF7-50A(1-5/8")	80.75 - 83.25	1.0000	1.0000
L28	91	2" Rigid Conduit	80.75 - 83.25	1.0000	1.0000
L28	92	2" Rigid Conduit	80.75 - 83.25	1.0000	1.0000
L28	94	HB114-1-08U4-M5J(1-1/4")	80.75 - 83.25	1.0000	1.0000
L28	100	561(1-5/8")	80.75 - 83.25	1.0000	1.0000
L28	128	6" x 1" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L28	129	6" x 1" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L28	130	6" x 1" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L28	138	6.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L28	139	6.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L28	140	6.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L28	144	8.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L28	151	8.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L28	152	8.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	84	LDF7-50A(1-5/8")	80.50 - 80.75	1.0000	1.0000
L29	85	LDF7-50A(1-5/8")	80.50 - 80.75	1.0000	1.0000
L29	91	2" Rigid Conduit	80.50 - 80.75	1.0000	1.0000
L29	92	2" Rigid Conduit	80.50 - 80.75	1.0000	1.0000
L29	94	HB114-1-08U4-M5J(1-1/4")	80.50 - 80.75	1.0000	1.0000
L29	100	561(1-5/8")	80.50 - 80.75	1.0000	1.0000
L29	128	6" x 1" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L29	129	6" x 1" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L29	130	6" x 1" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L29	138	6.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L29	139	6.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L29	140	6.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L29	144	8.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L29	151	8.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L29	152	8.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	84	LDF7-50A(1-5/8")	80.25 - 80.50	1.0000	1.0000
L30	85	LDF7-50A(1-5/8")	80.25 - 80.50	1.0000	1.0000
L30	91	2" Rigid Conduit	80.25 - 80.50	1.0000	1.0000
L30	92	2" Rigid Conduit	80.25 - 80.50	1.0000	1.0000
L30	94	HB114-1-08U4-M5J(1-1/4")	80.25 - 80.50	1.0000	1.0000
L30	100	561(1-5/8")	80.25 - 80.50	1.0000	1.0000
L30	128	6" x 1" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L30	129	6" x 1" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L30	130	6" x 1" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L30	138	6.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L30	139	6.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L30	140	6.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L30	144	8.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L30	151	8.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L30	152	8.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	84	LDF7-50A(1-5/8")	77.50 - 80.25	1.0000	1.0000
L31	85	LDF7-50A(1-5/8")	77.50 - 80.25	1.0000	1.0000
L31	91	2" Rigid Conduit	77.50 - 80.25	1.0000	1.0000
L31	92	2" Rigid Conduit	77.50 - 80.25	1.0000	1.0000
L31	94	HB114-1-08U4-M5J(1-1/4")	77.50 - 80.25	1.0000	1.0000
L31	100	561(1-5/8")	77.50 - 80.25	1.0000	1.0000
L31	128	6" x 1" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L31	129	6" x 1" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L31	130	6" x 1" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L31	138	6.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L31	139	6.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L31	140	6.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L31	144	8.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L31	151	8.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L31	152	8.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L32	84	LDF7-50A(1-5/8")	77.25 - 77.50	1.0000	1.0000
L32	85	LDF7-50A(1-5/8")	77.25 - 77.50	1.0000	1.0000
L32	91	2" Rigid Conduit	77.25 - 77.50	1.0000	1.0000
L32	92	2" Rigid Conduit	77.25 - 77.50	1.0000	1.0000
L32	94	HB114-1-08U4-M5J(1-1/4")	77.25 - 77.50	1.0000	1.0000
L32	100	561(1-5/8")	77.25 - 77.50	1.0000	1.0000
L32	128	6" x 1" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L32	129	6" x 1" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L32	130	6" x 1" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L32	138	6.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L32	139	6.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L32	140	6.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L32	144	8.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L32	151	8.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L32	152	8.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	84	LDF7-50A(1-5/8")	68.50 - 77.25	1.0000	1.0000
L33	85	LDF7-50A(1-5/8")	68.50 - 77.25	1.0000	1.0000
L33	91	2" Rigid Conduit	68.50 - 77.25	1.0000	1.0000
L33	92	2" Rigid Conduit	68.50 - 77.25	1.0000	1.0000
L33	94	HB114-1-08U4-M5J(1-1/4")	68.50 - 77.25	1.0000	1.0000
L33	100	561(1-5/8")	68.50 - 77.25	1.0000	1.0000
L33	128	6" x 1" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L33	129	6" x 1" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L33	130	6" x 1" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L33	138	6.5" x 1.25" Flat Plate (G)	72.50 - 77.25	1.0000	1.0000
L33	139	6.5" x 1.25" Flat Plate (G)	72.50 - 77.25	1.0000	1.0000
L33	140	6.5" x 1.25" Flat Plate (G)	72.50 - 77.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L33	144	8.5" x 1.25" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L33	151	8.5" x 1.25" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L33	152	8.5" x 1.25" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L35	84	LDF7-50A(1-5/8")	64.25 - 68.00	1.0000	1.0000
L35	85	LDF7-50A(1-5/8")	64.25 - 68.00	1.0000	1.0000
L35	91	2" Rigid Conduit	64.25 - 68.00	1.0000	1.0000
L35	92	2" Rigid Conduit	64.25 - 68.00	1.0000	1.0000
L35	94	HB114-1-08U4-M5J(1-1/4")	64.25 - 68.00	1.0000	1.0000
L35	100	561(1-5/8")	64.25 - 68.00	1.0000	1.0000
L35	128	6" x 1" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L35	129	6" x 1" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L35	130	6" x 1" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L35	135	6.5" x 1.25" Flat Plate (G)	64.25 - 67.00	1.0000	1.0000
L35	136	6.5" x 1.25" Flat Plate (G)	64.25 - 67.00	1.0000	1.0000
L35	137	6.5" x 1.25" Flat Plate (G)	64.25 - 67.00	1.0000	1.0000
L35	144	8.5" x 1.25" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L35	151	8.5" x 1.25" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L35	152	8.5" x 1.25" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L36	84	LDF7-50A(1-5/8")	64.00 - 64.25	1.0000	1.0000
L36	85	LDF7-50A(1-5/8")	64.00 - 64.25	1.0000	1.0000
L36	91	2" Rigid Conduit	64.00 - 64.25	1.0000	1.0000
L36	92	2" Rigid Conduit	64.00 - 64.25	1.0000	1.0000
L36	94	HB114-1-08U4-M5J(1-1/4")	64.00 - 64.25	1.0000	1.0000
L36	100	561(1-5/8")	64.00 - 64.25	1.0000	1.0000
L36	128	6" x 1" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L36	129	6" x 1" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L36	130	6" x 1" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L36	135	6.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L36	136	6.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L36	137	6.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L36	144	8.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L36	151	8.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L36	152	8.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	84	LDF7-50A(1-5/8")	60.50 - 64.00	1.0000	1.0000
L37	85	LDF7-50A(1-5/8")	60.50 - 64.00	1.0000	1.0000
L37	91	2" Rigid Conduit	60.50 - 64.00	1.0000	1.0000
L37	92	2" Rigid Conduit	60.50 - 64.00	1.0000	1.0000
L37	94	HB114-1-08U4-M5J(1-1/4")	60.50 - 64.00	1.0000	1.0000
L37	100	561(1-5/8")	60.50 - 64.00	1.0000	1.0000
L37	120	Aero MP304	60.50 - 61.50	1.0000	1.0000
L37	128	6" x 1" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L37	129	6" x 1" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L37	130	6" x 1" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L37	135	6.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L37	136	6.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L37	137	6.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L37	144	8.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L37	151	8.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L37	152	8.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L38	84	LDF7-50A(1-5/8")	60.25 - 60.50	1.0000	1.0000
L38	85	LDF7-50A(1-5/8")	60.25 - 60.50	1.0000	1.0000
L38	91	2" Rigid Conduit	60.25 - 60.50	1.0000	1.0000
L38	92	2" Rigid Conduit	60.25 - 60.50	1.0000	1.0000
L38	94	HB114-1-08U4-M5J(1-1/4")	60.25 - 60.50	1.0000	1.0000
L38	100	561(1-5/8")	60.25 - 60.50	1.0000	1.0000
L38	118	Aero MP304	60.25 - 60.50	1.0000	1.0000
L38	119	Aero MP304	60.25 - 60.50	1.0000	1.0000
L38	120	Aero MP304	60.25 - 60.50	1.0000	1.0000
L38	125	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L38	126	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L38	127	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L38	135	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L38	136	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L38	137	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L38	144	8.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L38	151	8.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L38	152	8.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	84	LDF7-50A(1-5/8")	60.10 - 60.25	1.0000	1.0000
L39	85	LDF7-50A(1-5/8")	60.10 - 60.25	1.0000	1.0000
L39	91	2" Rigid Conduit	60.10 - 60.25	1.0000	1.0000
L39	92	2" Rigid Conduit	60.10 - 60.25	1.0000	1.0000
L39	94	HB114-1-08U4-M5J(1-1/4")	60.10 - 60.25	1.0000	1.0000
L39	100	561(1-5/8")	60.10 - 60.25	1.0000	1.0000
L39	118	Aero MP304	60.10 - 60.25	1.0000	1.0000
L39	119	Aero MP304	60.10 - 60.25	1.0000	1.0000
L39	120	Aero MP304	60.10 - 60.25	1.0000	1.0000
L39	125	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L39	126	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L39	127	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L39	135	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L39	136	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L39	137	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L39	144	8.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L39	151	8.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L39	152	8.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	84	LDF7-50A(1-5/8")	59.85 - 60.10	1.0000	1.0000
L40	85	LDF7-50A(1-5/8")	59.85 - 60.10	1.0000	1.0000
L40	91	2" Rigid Conduit	59.85 - 60.10	1.0000	1.0000
L40	92	2" Rigid Conduit	59.85 - 60.10	1.0000	1.0000
L40	94	HB114-1-08U4-M5J(1-1/4")	59.85 - 60.10	1.0000	1.0000
L40	100	561(1-5/8")	59.85 - 60.10	1.0000	1.0000
L40	118	Aero MP304	59.85 - 60.10	1.0000	1.0000
L40	119	Aero MP304	59.85 - 60.10	1.0000	1.0000
L40	120	Aero MP304	59.85 - 60.10	1.0000	1.0000
L40	125	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L40	126	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L40	127	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L40	135	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L40	136	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L40	137	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L40	144	8.5" x 1.25" Flat Plate (G)	60.00 - 60.10	1.0000	1.0000
L40	151	8.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L40	152	8.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L41	84	LDF7-50A(1-5/8")	59.10 - 59.85	1.0000	1.0000
L41	85	LDF7-50A(1-5/8")	59.10 - 59.85	1.0000	1.0000
L41	91	2" Rigid Conduit	59.10 - 59.85	1.0000	1.0000
L41	92	2" Rigid Conduit	59.10 - 59.85	1.0000	1.0000
L41	94	HB114-1-08U4-M5J(1-1/4")	59.10 - 59.85	1.0000	1.0000
L41	100	561(1-5/8")	59.10 - 59.85	1.0000	1.0000
L41	118	Aero MP304	59.10 - 59.85	1.0000	1.0000
L41	119	Aero MP304	59.10 - 59.85	1.0000	1.0000
L41	120	Aero MP304	59.10 - 59.85	1.0000	1.0000
L41	125	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L41	126	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L41	127	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L41	135	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L41	136	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L41	137	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L41	151	8.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L41	152	8.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L42	84	LDF7-50A(1-5/8")	58.85 - 59.10	1.0000	1.0000
L42	85	LDF7-50A(1-5/8")	58.85 - 59.10	1.0000	1.0000
L42	91	2" Rigid Conduit	58.85 - 59.10	1.0000	1.0000
L42	92	2" Rigid Conduit	58.85 - 59.10	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L42	94	HB114-1-08U4-M5J(1-1/4")	58.85 - 59.10	1.0000	1.0000
L42	100	561(1-5/8")	58.85 - 59.10	1.0000	1.0000
L42	118	Aero MP304	58.85 - 59.10	1.0000	1.0000
L42	119	Aero MP304	58.85 - 59.10	1.0000	1.0000
L42	120	Aero MP304	58.85 - 59.10	1.0000	1.0000
L42	125	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L42	126	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L42	127	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L42	135	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L42	136	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L42	137	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L42	151	8.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L42	152	8.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L43	84	LDF7-50A(1-5/8")	55.40 - 58.85	1.0000	1.0000
L43	85	LDF7-50A(1-5/8")	55.40 - 58.85	1.0000	1.0000
L43	91	2" Rigid Conduit	55.40 - 58.85	1.0000	1.0000
L43	92	2" Rigid Conduit	55.40 - 58.85	1.0000	1.0000
L43	94	HB114-1-08U4-M5J(1-1/4")	55.40 - 58.85	1.0000	1.0000
L43	100	561(1-5/8")	55.40 - 58.85	1.0000	1.0000
L43	118	Aero MP304	55.40 - 58.85	1.0000	1.0000
L43	119	Aero MP304	55.40 - 58.85	1.0000	1.0000
L43	120	Aero MP304	55.40 - 58.85	1.0000	1.0000
L43	125	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L43	126	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L43	127	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L43	135	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L43	136	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L43	137	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L43	151	8.5" x 1.25" Flat Plate (G)	55.50 - 58.85	1.0000	1.0000
L43	152	8.5" x 1.25" Flat Plate (G)	55.50 - 58.85	1.0000	1.0000
L44	84	LDF7-50A(1-5/8")	55.15 - 55.40	1.0000	1.0000
L44	85	LDF7-50A(1-5/8")	55.15 - 55.40	1.0000	1.0000
L44	91	2" Rigid Conduit	55.15 - 55.40	1.0000	1.0000
L44	92	2" Rigid Conduit	55.15 - 55.40	1.0000	1.0000
L44	94	HB114-1-08U4-M5J(1-1/4")	55.15 - 55.40	1.0000	1.0000
L44	100	561(1-5/8")	55.15 - 55.40	1.0000	1.0000
L44	118	Aero MP304	55.15 - 55.40	1.0000	1.0000
L44	119	Aero MP304	55.15 - 55.40	1.0000	1.0000
L44	120	Aero MP304	55.15 - 55.40	1.0000	1.0000
L44	125	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L44	126	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L44	127	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L44	135	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L44	136	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L44	137	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L44	149	8.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L44	150	8.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L45	84	LDF7-50A(1-5/8")	54.75 - 55.15	1.0000	1.0000
L45	85	LDF7-50A(1-5/8")	54.75 - 55.15	1.0000	1.0000
L45	91	2" Rigid Conduit	54.75 - 55.15	1.0000	1.0000
L45	92	2" Rigid Conduit	54.75 - 55.15	1.0000	1.0000
L45	94	HB114-1-08U4-M5J(1-1/4")	54.75 - 55.15	1.0000	1.0000
L45	100	561(1-5/8")	54.75 - 55.15	1.0000	1.0000
L45	118	Aero MP304	54.75 - 55.15	1.0000	1.0000
L45	119	Aero MP304	54.75 - 55.15	1.0000	1.0000
L45	120	Aero MP304	54.75 - 55.15	1.0000	1.0000
L45	125	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L45	126	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L45	127	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L45	135	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L45	136	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L45	137	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L45	149	8.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L45	150	8.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L46	84	LDF7-50A(1-5/8")	54.50 - 54.75	1.0000	1.0000
L46	85	LDF7-50A(1-5/8")	54.50 - 54.75	1.0000	1.0000
L46	91	2" Rigid Conduit	54.50 - 54.75	1.0000	1.0000
L46	92	2" Rigid Conduit	54.50 - 54.75	1.0000	1.0000
L46	94	HB114-1-08U4-M5J(1-1/4")	54.50 - 54.75	1.0000	1.0000
L46	100	561(1-5/8")	54.50 - 54.75	1.0000	1.0000
L46	118	Aero MP304	54.50 - 54.75	1.0000	1.0000
L46	119	Aero MP304	54.50 - 54.75	1.0000	1.0000
L46	120	Aero MP304	54.50 - 54.75	1.0000	1.0000
L46	125	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L46	126	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L46	127	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L46	135	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L46	136	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L46	137	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L46	149	8.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L46	150	8.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L47	84	LDF7-50A(1-5/8")	49.50 - 54.50	1.0000	1.0000
L47	85	LDF7-50A(1-5/8")	49.50 - 54.50	1.0000	1.0000
L47	91	2" Rigid Conduit	49.50 - 54.50	1.0000	1.0000
L47	92	2" Rigid Conduit	49.50 - 54.50	1.0000	1.0000
L47	94	HB114-1-08U4-M5J(1-1/4")	49.50 - 54.50	1.0000	1.0000
L47	100	561(1-5/8")	49.50 - 54.50	1.0000	1.0000
L47	118	Aero MP304	49.50 - 54.50	1.0000	1.0000
L47	119	Aero MP304	49.50 - 54.50	1.0000	1.0000
L47	120	Aero MP304	49.50 - 54.50	1.0000	1.0000
L47	125	6.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L47	126	6.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L47	127	6.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L47	135	6.5" x 1.25" Flat Plate (G)	52.00 - 54.50	1.0000	1.0000
L47	136	6.5" x 1.25" Flat Plate (G)	52.00 - 54.50	1.0000	1.0000
L47	137	6.5" x 1.25" Flat Plate (G)	52.00 - 54.50	1.0000	1.0000
L47	149	8.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L47	150	8.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L48	84	LDF7-50A(1-5/8")	44.50 - 49.50	1.0000	1.0000
L48	85	LDF7-50A(1-5/8")	44.50 - 49.50	1.0000	1.0000
L48	91	2" Rigid Conduit	44.50 - 49.50	1.0000	1.0000
L48	92	2" Rigid Conduit	44.50 - 49.50	1.0000	1.0000
L48	94	HB114-1-08U4-M5J(1-1/4")	44.50 - 49.50	1.0000	1.0000
L48	100	561(1-5/8")	44.50 - 49.50	1.0000	1.0000
L48	118	Aero MP304	44.50 - 49.50	1.0000	1.0000
L48	119	Aero MP304	44.50 - 49.50	1.0000	1.0000
L48	120	Aero MP304	44.50 - 49.50	1.0000	1.0000
L48	125	6.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L48	126	6.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L48	127	6.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L48	143	8.5" x 1.25" Flat Plate (G)	44.50 - 45.50	1.0000	1.0000
L48	149	8.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L48	150	8.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L49	84	LDF7-50A(1-5/8")	41.30 - 44.50	1.0000	1.0000
L49	85	LDF7-50A(1-5/8")	41.30 - 44.50	1.0000	1.0000
L49	91	2" Rigid Conduit	41.30 - 44.50	1.0000	1.0000
L49	92	2" Rigid Conduit	41.30 - 44.50	1.0000	1.0000
L49	94	HB114-1-08U4-M5J(1-1/4")	41.30 - 44.50	1.0000	1.0000
L49	100	561(1-5/8")	41.30 - 44.50	1.0000	1.0000
L49	118	Aero MP304	41.30 - 44.50	1.0000	1.0000
L49	119	Aero MP304	41.30 - 44.50	1.0000	1.0000
L49	120	Aero MP304	41.30 - 44.50	1.0000	1.0000
L49	125	6.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L49	126	6.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L49	127	6.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L49	143	8.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L49	149	8.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L49	150	8.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L50	84	LDF7-50A(1-5/8")	41.05 - 41.30	1.0000	1.0000
L50	85	LDF7-50A(1-5/8")	41.05 - 41.30	1.0000	1.0000
L50	91	2" Rigid Conduit	41.05 - 41.30	1.0000	1.0000
L50	92	2" Rigid Conduit	41.05 - 41.30	1.0000	1.0000
L50	94	HB114-1-08U4-M5J(1-1/4")	41.05 - 41.30	1.0000	1.0000
L50	100	561(1-5/8")	41.05 - 41.30	1.0000	1.0000
L50	118	Aero MP304	41.05 - 41.30	1.0000	1.0000
L50	119	Aero MP304	41.05 - 41.30	1.0000	1.0000
L50	120	Aero MP304	41.05 - 41.30	1.0000	1.0000
L50	125	6.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L50	126	6.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L50	127	6.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L50	143	8.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L50	149	8.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L50	150	8.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L51	84	LDF7-50A(1-5/8")	34.00 - 41.05	1.0000	1.0000
L51	85	LDF7-50A(1-5/8")	34.00 - 41.05	1.0000	1.0000
L51	91	2" Rigid Conduit	34.00 - 41.05	1.0000	1.0000
L51	92	2" Rigid Conduit	34.00 - 41.05	1.0000	1.0000
L51	94	HB114-1-08U4-M5J(1-1/4")	34.00 - 41.05	1.0000	1.0000
L51	100	561(1-5/8")	34.00 - 41.05	1.0000	1.0000
L51	118	Aero MP304	34.00 - 41.05	1.0000	1.0000
L51	119	Aero MP304	34.00 - 41.05	1.0000	1.0000
L51	120	Aero MP304	34.00 - 41.05	1.0000	1.0000
L51	125	6.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L51	126	6.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L51	127	6.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L51	132	6.5" x 1.25" Flat Plate (G)	34.00 - 38.00	1.0000	1.0000
L51	133	6.5" x 1.25" Flat Plate (G)	34.00 - 38.00	1.0000	1.0000
L51	134	6.5" x 1.25" Flat Plate (G)	34.00 - 38.00	1.0000	1.0000
L51	143	8.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L51	149	8.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L51	150	8.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L53	84	LDF7-50A(1-5/8")	31.50 - 33.00	1.0000	1.0000
L53	85	LDF7-50A(1-5/8")	31.50 - 33.00	1.0000	1.0000
L53	91	2" Rigid Conduit	31.50 - 33.00	1.0000	1.0000
L53	92	2" Rigid Conduit	31.50 - 33.00	1.0000	1.0000
L53	94	HB114-1-08U4-M5J(1-1/4")	31.50 - 33.00	1.0000	1.0000
L53	100	561(1-5/8")	31.50 - 33.00	1.0000	1.0000
L53	118	Aero MP304	31.50 - 33.00	1.0000	1.0000
L53	119	Aero MP304	31.50 - 33.00	1.0000	1.0000
L53	120	Aero MP304	31.50 - 33.00	1.0000	1.0000
L53	125	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L53	126	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L53	127	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L53	132	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L53	133	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L53	134	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L53	143	8.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L53	149	8.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L53	150	8.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	84	LDF7-50A(1-5/8")	31.25 - 31.50	1.0000	1.0000
L54	85	LDF7-50A(1-5/8")	31.25 - 31.50	1.0000	1.0000
L54	91	2" Rigid Conduit	31.25 - 31.50	1.0000	1.0000
L54	92	2" Rigid Conduit	31.25 - 31.50	1.0000	1.0000
L54	94	HB114-1-08U4-M5J(1-1/4")	31.25 - 31.50	1.0000	1.0000
L54	100	561(1-5/8")	31.25 - 31.50	1.0000	1.0000
L54	113	Aero MP305	31.25 - 31.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L54	118	Aero MP304	31.25 - 31.50	1.0000	1.0000
L54	119	Aero MP304	31.25 - 31.50	1.0000	1.0000
L54	120	Aero MP304	31.25 - 31.50	1.0000	1.0000
L54	125	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L54	126	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L54	127	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L54	132	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L54	133	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L54	134	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L54	143	8.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L54	149	8.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L54	150	8.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	84	LDF7-50A(1-5/8")	30.50 - 31.25	1.0000	1.0000
L55	85	LDF7-50A(1-5/8")	30.50 - 31.25	1.0000	1.0000
L55	91	2" Rigid Conduit	30.50 - 31.25	1.0000	1.0000
L55	92	2" Rigid Conduit	30.50 - 31.25	1.0000	1.0000
L55	94	HB114-1-08U4-M5J(1-1/4")	30.50 - 31.25	1.0000	1.0000
L55	100	561(1-5/8")	30.50 - 31.25	1.0000	1.0000
L55	113	Aero MP305	30.50 - 31.25	1.0000	1.0000
L55	118	Aero MP304	30.50 - 31.25	1.0000	1.0000
L55	119	Aero MP304	30.50 - 31.25	1.0000	1.0000
L55	120	Aero MP304	31.00 - 31.25	1.0000	1.0000
L55	125	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L55	126	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L55	127	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L55	132	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L55	133	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L55	134	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L55	143	8.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L55	149	8.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L55	150	8.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	84	LDF7-50A(1-5/8")	30.25 - 30.50	1.0000	1.0000
L56	85	LDF7-50A(1-5/8")	30.25 - 30.50	1.0000	1.0000
L56	91	2" Rigid Conduit	30.25 - 30.50	1.0000	1.0000
L56	92	2" Rigid Conduit	30.25 - 30.50	1.0000	1.0000
L56	94	HB114-1-08U4-M5J(1-1/4")	30.25 - 30.50	1.0000	1.0000
L56	100	561(1-5/8")	30.25 - 30.50	1.0000	1.0000
L56	113	Aero MP305	30.25 - 30.50	1.0000	1.0000
L56	114	Aero MP305	30.25 - 30.50	1.0000	1.0000
L56	115	Aero MP305	30.25 - 30.50	1.0000	1.0000
L56	122	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L56	123	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L56	124	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L56	132	6.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L56	133	6.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L56	134	6.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L56	143	8.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L56	149	8.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L56	150	8.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	84	LDF7-50A(1-5/8")	25.75 - 30.25	1.0000	1.0000
L57	85	LDF7-50A(1-5/8")	25.75 - 30.25	1.0000	1.0000
L57	91	2" Rigid Conduit	25.75 - 30.25	1.0000	1.0000
L57	92	2" Rigid Conduit	25.75 - 30.25	1.0000	1.0000
L57	94	HB114-1-08U4-M5J(1-1/4")	25.75 - 30.25	1.0000	1.0000
L57	100	561(1-5/8")	25.75 - 30.25	1.0000	1.0000
L57	113	Aero MP305	25.75 - 30.25	1.0000	1.0000
L57	114	Aero MP305	25.75 - 30.25	1.0000	1.0000
L57	115	Aero MP305	25.75 - 30.25	1.0000	1.0000
L57	122	6" x 1" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L57	123	6" x 1" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L57	124	6" x 1" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L57	132	6.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L57	133	6.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L57	134	6.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L57	143	8.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L57	149	8.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L57	150	8.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	84	LDF7-50A(1-5/8")	25.50 - 25.75	1.0000	1.0000
L58	85	LDF7-50A(1-5/8")	25.50 - 25.75	1.0000	1.0000
L58	91	2" Rigid Conduit	25.50 - 25.75	1.0000	1.0000
L58	92	2" Rigid Conduit	25.50 - 25.75	1.0000	1.0000
L58	94	HB114-1-08U4-M5J(1-1/4")	25.50 - 25.75	1.0000	1.0000
L58	100	561(1-5/8")	25.50 - 25.75	1.0000	1.0000
L58	113	Aero MP305	25.50 - 25.75	1.0000	1.0000
L58	114	Aero MP305	25.50 - 25.75	1.0000	1.0000
L58	115	Aero MP305	25.50 - 25.75	1.0000	1.0000
L58	122	6" x 1" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L58	123	6" x 1" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L58	124	6" x 1" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L58	132	6.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L58	133	6.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L58	134	6.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L58	143	8.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L58	149	8.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L58	150	8.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	84	LDF7-50A(1-5/8")	24.70 - 25.50	1.0000	1.0000
L59	85	LDF7-50A(1-5/8")	24.70 - 25.50	1.0000	1.0000
L59	91	2" Rigid Conduit	24.70 - 25.50	1.0000	1.0000
L59	92	2" Rigid Conduit	24.70 - 25.50	1.0000	1.0000
L59	94	HB114-1-08U4-M5J(1-1/4")	24.70 - 25.50	1.0000	1.0000
L59	100	561(1-5/8")	24.70 - 25.50	1.0000	1.0000
L59	113	Aero MP305	24.70 - 25.50	1.0000	1.0000
L59	114	Aero MP305	24.70 - 25.50	1.0000	1.0000
L59	115	Aero MP305	24.70 - 25.50	1.0000	1.0000
L59	122	6" x 1" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L59	123	6" x 1" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L59	124	6" x 1" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L59	132	6.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L59	133	6.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L59	134	6.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L59	143	8.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L59	149	8.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L59	150	8.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	84	LDF7-50A(1-5/8")	24.45 - 24.70	1.0000	1.0000
L60	85	LDF7-50A(1-5/8")	24.45 - 24.70	1.0000	1.0000
L60	91	2" Rigid Conduit	24.45 - 24.70	1.0000	1.0000
L60	92	2" Rigid Conduit	24.45 - 24.70	1.0000	1.0000
L60	94	HB114-1-08U4-M5J(1-1/4")	24.45 - 24.70	1.0000	1.0000
L60	100	561(1-5/8")	24.45 - 24.70	1.0000	1.0000
L60	113	Aero MP305	24.45 - 24.70	1.0000	1.0000
L60	114	Aero MP305	24.45 - 24.70	1.0000	1.0000
L60	115	Aero MP305	24.45 - 24.70	1.0000	1.0000
L60	122	6" x 1" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L60	123	6" x 1" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L60	124	6" x 1" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L60	132	6.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L60	133	6.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L60	134	6.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L60	143	8.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L60	149	8.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L60	150	8.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	84	LDF7-50A(1-5/8")	24.00 - 24.45	1.0000	1.0000
L61	85	LDF7-50A(1-5/8")	24.00 - 24.45	1.0000	1.0000
L61	91	2" Rigid Conduit	24.00 - 24.45	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L61	92	2" Rigid Conduit	24.00 - 24.45	1.0000	1.0000
L61	94	HB114-1-08U4-M5J(1-1/4")	24.00 - 24.45	1.0000	1.0000
L61	100	561(1-5/8")	24.00 - 24.45	1.0000	1.0000
L61	113	Aero MP305	24.00 - 24.45	1.0000	1.0000
L61	114	Aero MP305	24.00 - 24.45	1.0000	1.0000
L61	115	Aero MP305	24.00 - 24.45	1.0000	1.0000
L61	122	6" x 1" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L61	123	6" x 1" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L61	124	6" x 1" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L61	132	6.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L61	133	6.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L61	134	6.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L61	143	8.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L61	149	8.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L61	150	8.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	84	LDF7-50A(1-5/8")	23.75 - 24.00	1.0000	1.0000
L62	85	LDF7-50A(1-5/8")	23.75 - 24.00	1.0000	1.0000
L62	91	2" Rigid Conduit	23.75 - 24.00	1.0000	1.0000
L62	92	2" Rigid Conduit	23.75 - 24.00	1.0000	1.0000
L62	94	HB114-1-08U4-M5J(1-1/4")	23.75 - 24.00	1.0000	1.0000
L62	100	561(1-5/8")	23.75 - 24.00	1.0000	1.0000
L62	113	Aero MP305	23.75 - 24.00	1.0000	1.0000
L62	114	Aero MP305	23.75 - 24.00	1.0000	1.0000
L62	115	Aero MP305	23.75 - 24.00	1.0000	1.0000
L62	122	6" x 1" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L62	123	6" x 1" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L62	124	6" x 1" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L62	132	6.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L62	133	6.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L62	134	6.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L62	143	8.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L62	149	8.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L62	150	8.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	84	LDF7-50A(1-5/8")	18.75 - 23.75	1.0000	1.0000
L63	85	LDF7-50A(1-5/8")	18.75 - 23.75	1.0000	1.0000
L63	91	2" Rigid Conduit	18.75 - 23.75	1.0000	1.0000
L63	92	2" Rigid Conduit	18.75 - 23.75	1.0000	1.0000
L63	94	HB114-1-08U4-M5J(1-1/4")	18.75 - 23.75	1.0000	1.0000
L63	100	561(1-5/8")	18.75 - 23.75	1.0000	1.0000
L63	113	Aero MP305	18.75 - 23.75	1.0000	1.0000
L63	114	Aero MP305	18.75 - 23.75	1.0000	1.0000
L63	115	Aero MP305	18.75 - 23.75	1.0000	1.0000
L63	122	6" x 1" Flat Plate (G)	18.75 - 23.75	1.0000	1.0000
L63	123	6" x 1" Flat Plate (G)	18.75 - 23.75	1.0000	1.0000
L63	124	6" x 1" Flat Plate (G)	18.75 - 23.75	1.0000	1.0000
L63	132	6.5" x 1.25" Flat Plate (G)	23.00 - 23.75	1.0000	1.0000
L63	133	6.5" x 1.25" Flat Plate (G)	23.00 - 23.75	1.0000	1.0000
L63	134	6.5" x 1.25" Flat Plate (G)	23.00 - 23.75	1.0000	1.0000
L63	143	8.5" x 1.25" Flat Plate (G)	18.75 - 23.75	1.0000	1.0000
L63	149	8.5" x 1.25" Flat Plate (G)	20.40 - 23.75	1.0000	1.0000
L63	150	8.5" x 1.25" Flat Plate (G)	20.40 - 23.75	1.0000	1.0000
L64	84	LDF7-50A(1-5/8")	14.10 - 18.75	1.0000	1.0000
L64	85	LDF7-50A(1-5/8")	14.10 - 18.75	1.0000	1.0000
L64	91	2" Rigid Conduit	14.10 - 18.75	1.0000	1.0000
L64	92	2" Rigid Conduit	14.10 - 18.75	1.0000	1.0000
L64	94	HB114-1-08U4-M5J(1-1/4")	14.10 - 18.75	1.0000	1.0000
L64	100	561(1-5/8")	14.10 - 18.75	1.0000	1.0000
L64	113	Aero MP305	14.10 - 18.75	1.0000	1.0000
L64	114	Aero MP305	14.10 - 18.75	1.0000	1.0000
L64	115	Aero MP305	14.10 - 18.75	1.0000	1.0000
L64	116	Aero MP304	14.10 - 15.50	1.0000	1.0000
L64	117	Aero MP304	14.10 - 15.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L64	122	6" x 1" Flat Plate (G)	14.10 - 18.75	1.0000	1.0000
L64	123	6" x 1" Flat Plate (G)	14.10 - 18.75	1.0000	1.0000
L64	124	6" x 1" Flat Plate (G)	14.10 - 18.75	1.0000	1.0000
L64	143	8.5" x 1.25" Flat Plate (G)	14.10 - 18.75	1.0000	1.0000
L65	84	LDF7-50A(1-5/8")	13.80 - 14.10	1.0000	1.0000
L65	85	LDF7-50A(1-5/8")	13.80 - 14.10	1.0000	1.0000
L65	91	2" Rigid Conduit	13.80 - 14.10	1.0000	1.0000
L65	92	2" Rigid Conduit	13.80 - 14.10	1.0000	1.0000
L65	94	HB114-1-08U4-M5J(1-1/4")	13.80 - 14.10	1.0000	1.0000
L65	100	561(1-5/8")	13.80 - 14.10	1.0000	1.0000
L65	113	Aero MP305	13.80 - 14.10	1.0000	1.0000
L65	114	Aero MP305	13.80 - 14.10	1.0000	1.0000
L65	115	Aero MP305	13.80 - 14.10	1.0000	1.0000
L65	116	Aero MP304	13.80 - 14.10	1.0000	1.0000
L65	117	Aero MP304	13.80 - 14.10	1.0000	1.0000
L65	122	6" x 1" Flat Plate (G)	13.80 - 14.10	1.0000	1.0000
L65	123	6" x 1" Flat Plate (G)	13.80 - 14.10	1.0000	1.0000
L65	124	6" x 1" Flat Plate (G)	13.80 - 14.10	1.0000	1.0000
L65	143	8.5" x 1.25" Flat Plate (G)	13.80 - 14.10	1.0000	1.0000
L66	84	LDF7-50A(1-5/8")	13.65 - 13.80	1.0000	1.0000
L66	85	LDF7-50A(1-5/8")	13.65 - 13.80	1.0000	1.0000
L66	91	2" Rigid Conduit	13.65 - 13.80	1.0000	1.0000
L66	92	2" Rigid Conduit	13.65 - 13.80	1.0000	1.0000
L66	94	HB114-1-08U4-M5J(1-1/4")	13.65 - 13.80	1.0000	1.0000
L66	100	561(1-5/8")	13.65 - 13.80	1.0000	1.0000
L66	113	Aero MP305	13.65 - 13.80	1.0000	1.0000
L66	114	Aero MP305	13.65 - 13.80	1.0000	1.0000
L66	115	Aero MP305	13.65 - 13.80	1.0000	1.0000
L66	116	Aero MP304	13.65 - 13.80	1.0000	1.0000
L66	117	Aero MP304	13.65 - 13.80	1.0000	1.0000
L66	122	6" x 1" Flat Plate (G)	13.65 - 13.80	1.0000	1.0000
L66	123	6" x 1" Flat Plate (G)	13.65 - 13.80	1.0000	1.0000
L66	124	6" x 1" Flat Plate (G)	13.65 - 13.80	1.0000	1.0000
L66	143	8.5" x 1.25" Flat Plate (G)	13.65 - 13.80	1.0000	1.0000
L67	84	LDF7-50A(1-5/8")	10.50 - 13.65	1.0000	1.0000
L67	85	LDF7-50A(1-5/8")	10.50 - 13.65	1.0000	1.0000
L67	91	2" Rigid Conduit	10.50 - 13.65	1.0000	1.0000
L67	92	2" Rigid Conduit	10.50 - 13.65	1.0000	1.0000
L67	94	HB114-1-08U4-M5J(1-1/4")	10.50 - 13.65	1.0000	1.0000
L67	100	561(1-5/8")	10.50 - 13.65	1.0000	1.0000
L67	113	Aero MP305	11.50 - 13.65	1.0000	1.0000
L67	114	Aero MP305	10.50 - 13.65	1.0000	1.0000
L67	115	Aero MP305	10.50 - 13.65	1.0000	1.0000
L67	116	Aero MP304	10.50 - 13.65	1.0000	1.0000
L67	117	Aero MP304	10.50 - 13.65	1.0000	1.0000
L67	122	6" x 1" Flat Plate (G)	10.50 - 13.65	1.0000	1.0000
L67	123	6" x 1" Flat Plate (G)	10.50 - 13.65	1.0000	1.0000
L67	124	6" x 1" Flat Plate (G)	10.50 - 13.65	1.0000	1.0000
L67	143	8.5" x 1.25" Flat Plate (G)	10.50 - 13.65	1.0000	1.0000
L68	84	LDF7-50A(1-5/8")	10.25 - 10.50	1.0000	1.0000
L68	85	LDF7-50A(1-5/8")	10.25 - 10.50	1.0000	1.0000
L68	91	2" Rigid Conduit	10.25 - 10.50	1.0000	1.0000
L68	92	2" Rigid Conduit	10.25 - 10.50	1.0000	1.0000
L68	94	HB114-1-08U4-M5J(1-1/4")	10.25 - 10.50	1.0000	1.0000
L68	100	561(1-5/8")	10.25 - 10.50	1.0000	1.0000
L68	114	Aero MP305	10.25 - 10.50	1.0000	1.0000
L68	115	Aero MP305	10.25 - 10.50	1.0000	1.0000
L68	116	Aero MP304	10.25 - 10.50	1.0000	1.0000
L68	117	Aero MP304	10.25 - 10.50	1.0000	1.0000
L68	122	6" x 1" Flat Plate (G)	10.25 - 10.50	1.0000	1.0000
L68	123	6" x 1" Flat Plate (G)	10.25 - 10.50	1.0000	1.0000
L68	124	6" x 1" Flat Plate (G)	10.25 - 10.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L68	142	6" x 1" Flat Plate (G)	10.25 - 10.50	1.0000	1.0000
L69	84	LDF7-50A(1-5/8")	5.25 - 10.25	1.0000	1.0000
L69	85	LDF7-50A(1-5/8")	5.25 - 10.25	1.0000	1.0000
L69	91	2" Rigid Conduit	5.25 - 10.25	1.0000	1.0000
L69	92	2" Rigid Conduit	5.25 - 10.25	1.0000	1.0000
L69	94	HB114-1-08U4-M5J(1-1/4")	5.25 - 10.25	1.0000	1.0000
L69	100	561(1-5/8")	5.25 - 10.25	1.0000	1.0000
L69	114	Aero MP305	5.25 - 10.25	1.0000	1.0000
L69	115	Aero MP305	5.25 - 10.25	1.0000	1.0000
L69	116	Aero MP304	5.25 - 10.25	1.0000	1.0000
L69	117	Aero MP304	5.25 - 10.25	1.0000	1.0000
L69	122	6" x 1" Flat Plate (G)	5.25 - 10.25	1.0000	1.0000
L69	123	6" x 1" Flat Plate (G)	5.25 - 10.25	1.0000	1.0000
L69	124	6" x 1" Flat Plate (G)	5.25 - 10.25	1.0000	1.0000
L69	142	6" x 1" Flat Plate (G)	5.25 - 10.25	1.0000	1.0000
L70	84	LDF7-50A(1-5/8")	3.00 - 5.25	1.0000	1.0000
L70	85	LDF7-50A(1-5/8")	3.00 - 5.25	1.0000	1.0000
L70	91	2" Rigid Conduit	3.00 - 5.25	1.0000	1.0000
L70	92	2" Rigid Conduit	3.00 - 5.25	1.0000	1.0000
L70	94	HB114-1-08U4-M5J(1-1/4")	3.00 - 5.25	1.0000	1.0000
L70	100	561(1-5/8")	3.00 - 5.25	1.0000	1.0000
L70	114	Aero MP305	3.00 - 5.25	1.0000	1.0000
L70	115	Aero MP305	3.00 - 5.25	1.0000	1.0000
L70	116	Aero MP304	3.00 - 5.25	1.0000	1.0000
L70	117	Aero MP304	3.00 - 5.25	1.0000	1.0000
L70	122	6" x 1" Flat Plate (G)	3.00 - 5.25	1.0000	1.0000
L70	123	6" x 1" Flat Plate (G)	3.00 - 5.25	1.0000	1.0000
L70	124	6" x 1" Flat Plate (G)	3.00 - 5.25	1.0000	1.0000
L70	142	6" x 1" Flat Plate (G)	3.00 - 5.25	1.0000	1.0000
L71	84	LDF7-50A(1-5/8")	2.90 - 3.00	1.0000	1.0000
L71	85	LDF7-50A(1-5/8")	2.90 - 3.00	1.0000	1.0000
L71	91	2" Rigid Conduit	2.90 - 3.00	1.0000	1.0000
L71	92	2" Rigid Conduit	2.90 - 3.00	1.0000	1.0000
L71	94	HB114-1-08U4-M5J(1-1/4")	2.90 - 3.00	1.0000	1.0000
L71	100	561(1-5/8")	2.90 - 3.00	1.0000	1.0000
L71	114	Aero MP305	2.90 - 3.00	1.0000	1.0000
L71	115	Aero MP305	2.90 - 3.00	1.0000	1.0000
L71	116	Aero MP304	2.90 - 3.00	1.0000	1.0000
L71	117	Aero MP304	2.90 - 3.00	1.0000	1.0000
L71	122	6" x 1" Flat Plate (G)	2.90 - 3.00	1.0000	1.0000
L71	123	6" x 1" Flat Plate (G)	2.90 - 3.00	1.0000	1.0000
L71	124	6" x 1" Flat Plate (G)	2.90 - 3.00	1.0000	1.0000
L71	142	6" x 1" Flat Plate (G)	2.90 - 3.00	1.0000	1.0000
L72	84	LDF7-50A(1-5/8")	2.75 - 2.90	1.0000	1.0000
L72	85	LDF7-50A(1-5/8")	2.75 - 2.90	1.0000	1.0000
L72	91	2" Rigid Conduit	2.75 - 2.90	1.0000	1.0000
L72	92	2" Rigid Conduit	2.75 - 2.90	1.0000	1.0000
L72	94	HB114-1-08U4-M5J(1-1/4")	2.75 - 2.90	1.0000	1.0000
L72	100	561(1-5/8")	2.75 - 2.90	1.0000	1.0000
L72	114	Aero MP305	2.75 - 2.90	1.0000	1.0000
L72	115	Aero MP305	2.75 - 2.90	1.0000	1.0000
L72	116	Aero MP304	2.75 - 2.90	1.0000	1.0000
L72	117	Aero MP304	2.75 - 2.90	1.0000	1.0000
L72	122	6" x 1" Flat Plate (G)	2.75 - 2.90	1.0000	1.0000
L72	123	6" x 1" Flat Plate (G)	2.75 - 2.90	1.0000	1.0000
L72	124	6" x 1" Flat Plate (G)	2.75 - 2.90	1.0000	1.0000
L72	142	6" x 1" Flat Plate (G)	2.75 - 2.90	1.0000	1.0000
L73	84	LDF7-50A(1-5/8")	2.65 - 2.75	1.0000	1.0000
L73	85	LDF7-50A(1-5/8")	2.65 - 2.75	1.0000	1.0000
L73	91	2" Rigid Conduit	2.65 - 2.75	1.0000	1.0000
L73	92	2" Rigid Conduit	2.65 - 2.75	1.0000	1.0000
L73	94	HB114-1-08U4-M5J(1-1/4")	2.65 - 2.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L73	100	561(1-5/8")	2.65 - 2.75	1.0000	1.0000
L73	114	Aero MP305	2.65 - 2.75	1.0000	1.0000
L73	115	Aero MP305	2.65 - 2.75	1.0000	1.0000
L73	116	Aero MP304	2.65 - 2.75	1.0000	1.0000
L73	117	Aero MP304	2.65 - 2.75	1.0000	1.0000
L73	122	6" x 1" Flat Plate (G)	2.65 - 2.75	1.0000	1.0000
L73	123	6" x 1" Flat Plate (G)	2.65 - 2.75	1.0000	1.0000
L73	124	6" x 1" Flat Plate (G)	2.65 - 2.75	1.0000	1.0000
L73	142	6" x 1" Flat Plate (G)	2.65 - 2.75	1.0000	1.0000
L74	84	LDF7-50A(1-5/8")	2.50 - 2.65	1.0000	1.0000
L74	85	LDF7-50A(1-5/8")	2.50 - 2.65	1.0000	1.0000
L74	91	2" Rigid Conduit	2.50 - 2.65	1.0000	1.0000
L74	92	2" Rigid Conduit	2.50 - 2.65	1.0000	1.0000
L74	94	HB114-1-08U4-M5J(1-1/4")	2.50 - 2.65	1.0000	1.0000
L74	100	561(1-5/8")	2.50 - 2.65	1.0000	1.0000
L74	114	Aero MP305	2.50 - 2.65	1.0000	1.0000
L74	115	Aero MP305	2.50 - 2.65	1.0000	1.0000
L74	116	Aero MP304	2.50 - 2.65	1.0000	1.0000
L74	117	Aero MP304	2.50 - 2.65	1.0000	1.0000
L74	122	6" x 1" Flat Plate (G)	2.50 - 2.65	1.0000	1.0000
L74	123	6" x 1" Flat Plate (G)	2.50 - 2.65	1.0000	1.0000
L74	124	6" x 1" Flat Plate (G)	2.50 - 2.65	1.0000	1.0000
L74	142	6" x 1" Flat Plate (G)	2.50 - 2.65	1.0000	1.0000
L75	84	LDF7-50A(1-5/8")	2.25 - 2.50	1.0000	1.0000
L75	85	LDF7-50A(1-5/8")	2.25 - 2.50	1.0000	1.0000
L75	91	2" Rigid Conduit	2.25 - 2.50	1.0000	1.0000
L75	92	2" Rigid Conduit	2.25 - 2.50	1.0000	1.0000
L75	94	HB114-1-08U4-M5J(1-1/4")	2.25 - 2.50	1.0000	1.0000
L75	100	561(1-5/8")	2.25 - 2.50	1.0000	1.0000
L75	114	Aero MP305	2.25 - 2.50	1.0000	1.0000
L75	115	Aero MP305	2.25 - 2.50	1.0000	1.0000
L75	116	Aero MP304	2.25 - 2.50	1.0000	1.0000
L75	117	Aero MP304	2.25 - 2.50	1.0000	1.0000
L75	122	6" x 1" Flat Plate (G)	2.25 - 2.50	1.0000	1.0000
L75	123	6" x 1" Flat Plate (G)	2.25 - 2.50	1.0000	1.0000
L75	124	6" x 1" Flat Plate (G)	2.25 - 2.50	1.0000	1.0000
L75	142	6" x 1" Flat Plate (G)	2.25 - 2.50	1.0000	1.0000
L76	84	LDF7-50A(1-5/8")	1.90 - 2.25	1.0000	1.0000
L76	85	LDF7-50A(1-5/8")	1.90 - 2.25	1.0000	1.0000
L76	91	2" Rigid Conduit	1.90 - 2.25	1.0000	1.0000
L76	92	2" Rigid Conduit	1.90 - 2.25	1.0000	1.0000
L76	94	HB114-1-08U4-M5J(1-1/4")	1.90 - 2.25	1.0000	1.0000
L76	100	561(1-5/8")	1.90 - 2.25	1.0000	1.0000
L76	114	Aero MP305	1.90 - 2.25	1.0000	1.0000
L76	115	Aero MP305	1.90 - 2.25	1.0000	1.0000
L76	116	Aero MP304	1.90 - 2.25	1.0000	1.0000
L76	117	Aero MP304	1.90 - 2.25	1.0000	1.0000
L76	122	6" x 1" Flat Plate (G)	1.90 - 2.25	1.0000	1.0000
L76	123	6" x 1" Flat Plate (G)	1.90 - 2.25	1.0000	1.0000
L76	124	6" x 1" Flat Plate (G)	1.90 - 2.25	1.0000	1.0000
L76	142	6" x 1" Flat Plate (G)	1.90 - 2.25	1.0000	1.0000
L77	84	LDF7-50A(1-5/8")	1.65 - 1.90	1.0000	1.0000
L77	85	LDF7-50A(1-5/8")	1.65 - 1.90	1.0000	1.0000
L77	91	2" Rigid Conduit	1.65 - 1.90	1.0000	1.0000
L77	92	2" Rigid Conduit	1.65 - 1.90	1.0000	1.0000
L77	94	HB114-1-08U4-M5J(1-1/4")	1.65 - 1.90	1.0000	1.0000
L77	100	561(1-5/8")	1.65 - 1.90	1.0000	1.0000
L77	114	Aero MP305	1.65 - 1.90	1.0000	1.0000
L77	115	Aero MP305	1.65 - 1.90	1.0000	1.0000
L77	116	Aero MP304	1.65 - 1.90	1.0000	1.0000
L77	117	Aero MP304	1.65 - 1.90	1.0000	1.0000
L77	122	6" x 1" Flat Plate (G)	1.65 - 1.90	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L77	123	6" x 1" Flat Plate (G)	1.65 - 1.90	1.0000	1.0000
L77	124	6" x 1" Flat Plate (G)	1.65 - 1.90	1.0000	1.0000
L77	142	6" x 1" Flat Plate (G)	1.65 - 1.90	1.0000	1.0000
L78	84	LDF7-50A(1-5/8")	0.00 - 1.65	1.0000	1.0000
L78	85	LDF7-50A(1-5/8")	0.00 - 1.65	1.0000	1.0000
L78	91	2" Rigid Conduit	0.00 - 1.65	1.0000	1.0000
L78	92	2" Rigid Conduit	0.00 - 1.65	1.0000	1.0000
L78	94	HB114-1-08U4-M5J(1-1/4")	0.00 - 1.65	1.0000	1.0000
L78	100	561(1-5/8")	0.00 - 1.65	1.0000	1.0000
L78	114	Aero MP305	0.00 - 1.65	1.0000	1.0000
L78	115	Aero MP305	0.00 - 1.65	1.0000	1.0000
L78	116	Aero MP304	0.00 - 1.65	1.0000	1.0000
L78	117	Aero MP304	0.00 - 1.65	1.0000	1.0000
L78	122	6" x 1" Flat Plate (G)	0.50 - 1.65	1.0000	1.0000
L78	123	6" x 1" Flat Plate (G)	0.50 - 1.65	1.0000	1.0000
L78	124	6" x 1" Flat Plate (G)	0.50 - 1.65	1.0000	1.0000
L78	142	6" x 1" Flat Plate (G)	0.50 - 1.65	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
Lightning Rod	A	From Leg	1.0000 0.00 0.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	0.2500 0.6635 0.9732	0.2500 0.6635 0.9732	0.03 0.03 0.04
156									
TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	13.5353 14.2380 14.9495	10.9597 12.4861 14.0367	0.11 0.22 0.33
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	13.5353 14.2380 14.9495	10.9597 12.4861 14.0367	0.11 0.22 0.33
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	8.2619 8.8215 9.3462	6.3042 7.4790 8.3676	0.07 0.14 0.21
DTMABP7819VG12A	A	From Leg	4.0000 0.00 1.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.3387 0.4192 0.5098	0.02 0.03 0.04
DTMABP7819VG12A	B	From Leg	4.0000 0.00 1.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.3387 0.4192 0.5098	0.02 0.03 0.04
DTMABP7819VG12A	C	From Leg	4.0000 0.00 1.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.3387 0.4192 0.5098	0.02 0.03 0.04
DC6-48-60-18-8F	B	From Leg	4.0000 0.00 1.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	0.9167 1.4583 1.6431	0.9167 1.4583 1.6431	0.03 0.05 0.07
SBNHH-1D65C w/ Mount Pipe	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	11.5875 12.3065	9.7931 11.3114	0.10 0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1" Ice	13.0347	12.8538	0.29
SBNHH-1D65C w/ Mount Pipe	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	11.5875 12.3065	9.7931 11.3114	0.10 0.19
			1.00			1" Ice	13.0347	12.8538	0.29
80010798 w/ Mount Pipe	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	10.9246 11.5345	7.4788 8.7492	0.11 0.19
			1.00			1" Ice	12.1217	9.8028	0.28
RRUS 11	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7845 2.9919	1.1872 1.3342	0.05 0.07
			1.00			1" Ice	3.2066	1.4897	0.10
RRUS 11	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7845 2.9919	1.1872 1.3342	0.05 0.07
			1.00			1" Ice	3.2066	1.4897	0.10
RRUS 11	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7845 2.9919	1.1872 1.3342	0.05 0.07
			1.00			1" Ice	3.2066	1.4897	0.10
RRUS 32 B2	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7313 2.9531	1.6681 1.8552	0.05 0.07
			1.00			1" Ice	3.1823	2.0493	0.10
RRUS 32 B2	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7313 2.9531	1.6681 1.8552	0.05 0.07
			1.00			1" Ice	3.1823	2.0493	0.10
RRUS 32 B2	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7313 2.9531	1.6681 1.8552	0.05 0.07
			1.00			1" Ice	3.1823	2.0493	0.10
RRUS 32	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.8571 3.0830	1.7766 1.9677	0.06 0.08
			1.00			1" Ice	3.3163	2.1658	0.10
RRUS 32	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.8571 3.0830	1.7766 1.9677	0.06 0.08
			1.00			1" Ice	3.3163	2.1658	0.10
RRUS 32	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.8571 3.0830	1.7766 1.9677	0.06 0.08
			1.00			1" Ice	3.3163	2.1658	0.10
DC6-48-60-18-8F	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.5667 2.7978	2.5667 2.7978	0.02 0.05
			1.00			1" Ice	3.0377	3.0377	0.09
T-Arm Mount [TA 703-3]	C	None		0.00	156.0000	No Ice 1/2" Ice 1" Ice	14.2000 18.5000 22.8000	14.2000 18.5000 22.8000	0.45 0.65 0.84
*** *** **148**									
(2) PCS 1900MHz 4x45W-65MHz	A	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.3218 2.5266 2.7388	2.2381 2.4407 2.6507	0.06 0.08 0.11
(2) PCS 1900MHz 4x45W-65MHz	B	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.3218 2.5266 2.7388	2.2381 2.4407 2.6507	0.06 0.08 0.11
(2) PCS 1900MHz 4x45W-65MHz	C	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.3218 2.5266 2.7388	2.2381 2.4407 2.6507	0.06 0.08 0.11
800MHz 2X50W RRH W/FILTER	A	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.0583 2.2398 2.4287	1.9317 2.1087 2.2931	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	1.0000 0.00	0.00	148.0000	No Ice 1/2" Ice	2.0583 2.2398	1.9317 2.1087	0.06 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	2.4287	2.2931	0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.0583 2.2398 2.4287	1.9317 2.1087 2.2931	0.06 0.09 0.11
(2) 4' x 2" Pipe Mount	A	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	0.7852 1.0284 1.2809	0.7852 1.0284 1.2809	0.03 0.04 0.04
(2) 4' x 2" Pipe Mount	B	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	0.7852 1.0284 1.2809	0.7852 1.0284 1.2809	0.03 0.04 0.04
(2) 4' x 2" Pipe Mount	C	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	0.7852 1.0284 1.2809	0.7852 1.0284 1.2809	0.03 0.04 0.04
Side Arm Mount [SO 103-3]	C	None		0.00	148.0000	No Ice 1/2" Ice 1" Ice	9.5000 11.8000 14.1000	9.5000 11.8000 14.1000	0.22 0.32 0.41
*** *** **146**									
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	8.2619 8.8215 9.3462	7.4708 8.6564 9.5559	0.09 0.16 0.24
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	8.2619 8.8215 9.3462	6.9458 8.1266 9.0212	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	8.2619 8.8215 9.3462	6.9458 8.1266 9.0212	0.08 0.15 0.23
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	6.5799 7.0306 7.4733	4.9591 5.7544 6.4723	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	6.5799 7.0306 7.4733	4.9591 5.7544 6.4723	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	6.5799 7.0306 7.4733	4.9591 5.7544 6.4723	0.08 0.13 0.19
TD-RRH8x20-25	A	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	4.0455 4.2975 4.5570	1.5326 1.7122 1.8987	0.07 0.10 0.13
TD-RRH8x20-25	B	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	4.0455 4.2975 4.5570	1.5326 1.7122 1.8987	0.07 0.10 0.13
TD-RRH8x20-25	C	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	4.0455 4.2975 4.5570	1.5326 1.7122 1.8987	0.07 0.10 0.13
IBC1900HG-2A	A	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04
IBC1900HG-2A	B	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04
IBC1900HG-2A	C	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04
IBC1900BB-1	A	From Leg	4.0000 0.00	0.00	146.0000	No Ice 1/2" Ice	0.0000 0.0000	0.4635 0.5576	0.02 0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	0.0000	0.6599	0.04
IBC1900BB-1	B	From Leg	4.0000	0.00	146.0000	No Ice	0.0000	0.4635	0.02
			0.00			1/2" Ice	0.0000	0.5576	0.03
			0.00			1" Ice	0.0000	0.6599	0.04
IBC1900BB-1	C	From Leg	4.0000	0.00	146.0000	No Ice	0.0000	0.4635	0.02
			0.00			1/2" Ice	0.0000	0.5576	0.03
			0.00			1" Ice	0.0000	0.6599	0.04
6' x 2" Mount Pipe	A	From Leg	4.0000	0.00	146.0000	No Ice	1.4250	1.4250	0.02
			0.00			1/2" Ice	1.9250	1.9250	0.03
			1.00			1" Ice	2.2939	2.2939	0.05
6' x 2" Mount Pipe	B	From Leg	4.0000	0.00	146.0000	No Ice	1.4250	1.4250	0.02
			0.00			1/2" Ice	1.9250	1.9250	0.03
			1.00			1" Ice	2.2939	2.2939	0.05
6' x 2" Mount Pipe	C	From Leg	4.0000	0.00	146.0000	No Ice	1.4250	1.4250	0.02
			0.00			1/2" Ice	1.9250	1.9250	0.03
			1.00			1" Ice	2.2939	2.2939	0.05
Platform Mount [LP 1201-1]	C	None		0.00	146.0000	No Ice	23.1000	23.1000	2.10
						1/2" Ice	26.8000	26.8000	2.50
						1" Ice	30.5000	30.5000	2.90
***									
***									
139									
APXV18-206517S-C	A	From Leg	4.0000	30.00	139.0000	No Ice	5.1667	3.0375	0.03
			0.00			1/2" Ice	5.6182	3.4693	0.05
			0.00			1" Ice	6.0772	3.9086	0.09
APXV18-206517S-C	B	From Leg	4.0000	30.00	139.0000	No Ice	5.1667	3.0375	0.03
			0.00			1/2" Ice	5.6182	3.4693	0.05
			0.00			1" Ice	6.0772	3.9086	0.09
APXV18-206517S-C	C	From Leg	4.0000	30.00	139.0000	No Ice	5.1667	3.0375	0.03
			0.00			1/2" Ice	5.6182	3.4693	0.05
			0.00			1" Ice	6.0772	3.9086	0.09
Pipe Mount [PM 501-3]	C	None		0.00	139.0000	No Ice	5.7800	5.7800	0.16
						1/2" Ice	7.3700	7.3700	0.18
						1" Ice	8.9600	8.9600	0.20
***									
***									
132									
BXA-80080-6CF-EDIN-X w/ Mount Pipe	A	From Leg	4.0000	0.00	132.0000	No Ice	6.0062	6.2035	0.04
			0.00			1/2" Ice	6.5619	7.3594	0.10
			2.00			1" Ice	7.0826	8.2293	0.16
BXA-80080-6CF-EDIN-X w/ Mount Pipe	B	From Leg	4.0000	0.00	132.0000	No Ice	6.0062	6.2035	0.04
			0.00			1/2" Ice	6.5619	7.3594	0.10
			2.00			1" Ice	7.0826	8.2293	0.16
BXA-80080-6CF-EDIN-X w/ Mount Pipe	C	From Leg	4.0000	0.00	132.0000	No Ice	6.0062	6.2035	0.04
			0.00			1/2" Ice	6.5619	7.3594	0.10
			2.00			1" Ice	7.0826	8.2293	0.16
BXA-70063/6CFx2 w/ Mount Pipe	A	From Leg	4.0000	0.00	132.0000	No Ice	7.8065	5.3981	0.04
			0.00			1/2" Ice	8.3569	6.5465	0.10
			1.00			1" Ice	8.8720	7.4089	0.17
BXA-70063/6CFx2 w/ Mount Pipe	B	From Leg	4.0000	0.00	132.0000	No Ice	7.8065	5.3981	0.04
			0.00			1/2" Ice	8.3569	6.5465	0.10
			1.00			1" Ice	8.8720	7.4089	0.17
BXA-70063/6CFx2 w/ Mount Pipe	C	From Leg	4.0000	0.00	132.0000	No Ice	7.8065	5.3981	0.04
			0.00			1/2" Ice	8.3569	6.5465	0.10
			1.00			1" Ice	8.8720	7.4089	0.17
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.0000	0.00	132.0000	No Ice	8.6228	7.2963	0.07
			0.00			1/2" Ice	9.2840	8.5810	0.14

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1" Ice	9.9143	9.7177	0.22
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	8.6228 9.2840 9.9143	7.2963 8.5810 9.7177	0.07 0.14 0.22
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	8.6228 9.2840 9.9143	7.2963 8.5810 9.7177	0.07 0.14 0.22
RRH2X60-AWS	A	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
RRH2X60-AWS	B	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
RRH2X60-AWS	C	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
RRH2x60-700	A	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
RRH2x60-700	B	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
RRH2x60-700	C	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	3.5002 3.7609 4.0285	1.8157 2.0519 2.2894	0.06 0.08 0.11
RRH2X60-PCS	A	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	2.2000 2.3926 2.5926	1.7233 1.9015 2.0870	0.06 0.08 0.10
RRH2X60-PCS	B	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	2.2000 2.3926 2.5926	1.7233 1.9015 2.0870	0.06 0.08 0.10
RRH2X60-PCS	C	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	2.2000 2.3926 2.5926	1.7233 1.9015 2.0870	0.06 0.08 0.10
DB-T1-6Z-8AB-0Z	B	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	4.8000 5.0704 5.3481	2.0000 2.1926 2.3926	0.04 0.08 0.12
DB-T1-6Z-8AB-0Z	C	From Leg	4.0000 0.00 1.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	4.8000 5.0704 5.3481	2.0000 2.1926 2.3926	0.04 0.08 0.12
Platform Mount [LP 712-1]	C	None		0.00	132.0000	No Ice 1/2" Ice 1" Ice	24.5300 29.9400 35.3500	24.5300 29.9400 35.3500	1.34 1.65 1.96
*** **121** ***									
LLPX310R w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	121.0000	No Ice 1/2" Ice 1" Ice	4.5380 4.8915 5.2541	2.9846 3.5275 4.0872	0.05 0.08 0.13
840 10054 w/Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	121.0000	No Ice 1/2" Ice 1" Ice	5.4091 6.0697 6.5905	3.0236 4.0104 4.7110	0.06 0.10 0.15
LLPX310R w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	121.0000	No Ice 1/2" Ice 1" Ice	4.5380 4.8915 5.2541	2.9846 3.5275 4.0872	0.05 0.08 0.13
RRH-2WB	A	From Leg	4.0000 0.00	0.00	121.0000	No Ice 1/2" Ice	2.3047 2.4961	0.7831 0.9170	0.04 0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1" Ice	2.6949	1.0579	0.08
RRH-2WB	B	From Leg	4.0000	0.00	121.0000	No Ice	2.3047	0.7831	0.04
			0.00			1/2" Ice	2.4961	0.9170	0.06
			1.00			1" Ice	2.6949	1.0579	0.08
RRH-2WB	C	From Leg	4.0000	0.00	121.0000	No Ice	2.3047	0.7831	0.04
			0.00			1/2" Ice	2.4961	0.9170	0.06
			0.00			1" Ice	2.6949	1.0579	0.08
HORIZON COMPACT	A	From Leg	4.0000	0.00	121.0000	No Ice	0.7208	0.3681	0.01
			0.00			1/2" Ice	0.8278	0.4499	0.02
			1.00			1" Ice	0.9422	0.5391	0.03
HORIZON COMPACT	B	From Leg	4.0000	0.00	121.0000	No Ice	0.7208	0.3681	0.01
			0.00			1/2" Ice	0.8278	0.4499	0.02
			1.00			1" Ice	0.9422	0.5391	0.03
HORIZON COMPACT	C	From Leg	4.0000	0.00	121.0000	No Ice	0.7208	0.3681	0.01
			0.00			1/2" Ice	0.8278	0.4499	0.02
			1.00			1" Ice	0.9422	0.5391	0.03
7'x2" Antenna Mount Pipe	A	From Leg	4.0000	0.00	121.0000	No Ice	1.6625	1.6625	0.03
			0.00			1/2" Ice	2.3906	2.3906	0.04
			0.00			1" Ice	2.8252	2.8252	0.06
7'x2" Antenna Mount Pipe	B	From Leg	4.0000	0.00	121.0000	No Ice	1.6625	1.6625	0.03
			0.00			1/2" Ice	2.3906	2.3906	0.04
			0.00			1" Ice	2.8252	2.8252	0.06
7'x2" Antenna Mount Pipe	C	From Leg	4.0000	0.00	121.0000	No Ice	1.6625	1.6625	0.03
			0.00			1/2" Ice	2.3906	2.3906	0.04
			0.00			1" Ice	2.8252	2.8252	0.06
T-Arm Mount [TA 602-3]	C	None		0.00	121.0000	No Ice	11.5900	11.5900	0.26
						1/2" Ice	15.4400	15.4400	0.33
						1" Ice	19.2900	19.2900	0.42
***									
101									
58532A	A	From Leg	3.0000	0.00	101.0000	No Ice	0.1893	0.1893	0.00
			0.00			1/2" Ice	0.2483	0.2483	0.00
			1.00			1" Ice	0.3147	0.3147	0.01
Side Arm Mount [SO 701-1]	A	None		0.00	101.0000	No Ice	0.8500	1.6700	0.07
						1/2" Ice	1.1400	2.3400	0.08
						1" Ice	1.4300	3.0100	0.09
**									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP800-11	A	Paraboloid w/Radome	From Leg	4.0000	0.00		121.0000	2.9167	No Ice	6.6800	0.02
				0.00					1/2" Ice	7.0700	0.06
				1.00					1" Ice	7.4600	0.09
VHLP800-11	B	Paraboloid w/Radome	From Leg	4.0000	30.00		121.0000	2.9167	No Ice	6.6800	0.02
				0.00					1/2" Ice	7.0700	0.06
				1.00					1" Ice	7.4600	0.09

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP2-18	C	Paraboloid w/Radome	From Leg	4.0000 0.00 1.00	-90.00		121.0000	2.1750	No Ice 1/2" Ice 1" Ice	3.7200 4.0100 4.3000	0.03 0.05 0.07
***											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service

Comb. No.	Description
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	24.24	50	1.41	0.01
L2	155 - 150	22.76	50	1.41	0.01
L3	150 - 146	21.29	50	1.40	0.01
L4	146 - 141	20.13	50	1.38	0.00
L5	141 - 136	18.70	50	1.35	0.00
L6	136 - 131	17.31	50	1.31	0.00
L7	131 - 126	15.96	50	1.26	0.00
L8	126 - 121	14.68	50	1.19	0.00
L9	121 - 120.1	13.47	50	1.11	0.00
L10	120.1 - 119.85	13.26	50	1.10	0.00
L11	119.85 - 117.5	13.20	50	1.09	0.00
L12	117.5 - 117.25	12.67	50	1.07	0.00
L13	117.25 - 115.5	12.61	50	1.07	0.00
L14	115.5 - 115.25	12.22	50	1.05	0.00
L15	115.25 - 110.25	12.17	50	1.05	0.00
L16	110.25 - 103.75	11.09	50	1.01	0.00
L17	107.5 - 102.5	10.52	50	0.98	0.00
L18	102.5 - 100.5	9.50	50	0.95	0.00
L19	100.5 - 100.25	9.11	50	0.93	0.00
L20	100.25 - 98.5	9.06	50	0.93	0.00
L21	98.5 - 98.25	8.72	50	0.91	0.00
L22	98.25 - 93.25	8.67	50	0.91	0.00
L23	93.25 - 90.5	7.75	50	0.85	0.00
L24	90.5 - 90.25	7.27	50	0.81	0.00
L25	90.25 - 85.25	7.23	50	0.81	0.00
L26	85.25 - 83.5	6.41	50	0.75	0.00
L27	83.5 - 83.25	6.14	50	0.73	0.00
L28	83.25 - 80.75	6.11	50	0.73	0.00
L29	80.75 - 80.5	5.73	50	0.70	0.00
L30	80.5 - 80.25	5.70	50	0.70	0.00
L31	80.25 - 77.5	5.66	50	0.70	0.00
L32	77.5 - 77.25	5.26	50	0.68	0.00
L33	77.25 - 68.5	5.23	50	0.67	0.00
L34	73 - 68	4.65	50	0.62	0.00
L35	68 - 64.25	4.01	50	0.59	0.00
L36	64.25 - 64	3.57	50	0.55	0.00
L37	64 - 60.5	3.54	50	0.55	0.00
L38	60.5 - 60.25	3.15	50	0.51	0.00
L39	60.25 - 60.1	3.12	50	0.51	0.00
L40	60.1 - 59.85	3.10	50	0.51	0.00
L41	59.85 - 59.1	3.08	50	0.51	0.00
L42	59.1 - 58.85	3.00	50	0.50	0.00
L43	58.85 - 55.4	2.97	50	0.50	0.00
L44	55.4 - 55.15	2.62	50	0.47	0.00
L45	55.15 - 54.75	2.60	50	0.47	0.00
L46	54.75 - 54.5	2.56	50	0.47	0.00
L47	54.5 - 49.5	2.53	50	0.46	0.00
L48	49.5 - 44.5	2.07	50	0.41	0.00
L49	44.5 - 41.3	1.67	50	0.36	0.00
L50	41.3 - 41.05	1.44	50	0.32	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L51	41.05 - 34	1.43	50	0.32	0.00
L52	39 - 33	1.29	50	0.30	0.00
L53	33 - 31.5	0.93	50	0.27	0.00
L54	31.5 - 31.25	0.85	50	0.26	0.00
L55	31.25 - 30.5	0.84	50	0.26	0.00
L56	30.5 - 30.25	0.80	50	0.25	0.00
L57	30.25 - 25.75	0.78	50	0.25	0.00
L58	25.75 - 25.5	0.57	50	0.21	0.00
L59	25.5 - 24.7	0.56	50	0.21	0.00
L60	24.7 - 24.45	0.52	50	0.20	0.00
L61	24.45 - 24	0.51	50	0.20	0.00
L62	24 - 23.75	0.49	50	0.19	0.00
L63	23.75 - 18.75	0.48	50	0.19	0.00
L64	18.75 - 14.1	0.30	50	0.15	0.00
L65	14.1 - 13.8	0.17	50	0.11	0.00
L66	13.8 - 13.65	0.17	50	0.11	0.00
L67	13.65 - 10.5	0.16	50	0.11	0.00
L68	10.5 - 10.25	0.10	50	0.09	0.00
L69	10.25 - 5.25	0.09	50	0.08	0.00
L70	5.25 - 3	0.03	50	0.05	0.00
L71	3 - 2.9	0.01	50	0.03	0.00
L72	2.9 - 2.75	0.01	50	0.03	0.00
L73	2.75 - 2.65	0.01	50	0.03	0.00
L74	2.65 - 2.5	0.01	50	0.02	0.00
L75	2.5 - 2.25	0.01	50	0.02	0.00
L76	2.25 - 1.9	0.00	50	0.02	0.00
L77	1.9 - 1.65	0.00	50	0.02	0.00
L78	1.65 - 0	0.00	50	0.02	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
156.0000	Lightning Rod	50	23.06	1.41	0.01	46630
148.0000	(2) PCS 1900MHz 4x45W-65MHz	50	20.71	1.39	0.00	12024
146.0000	APXV9ERR18-C-A20 w/ Mount Pipe	50	20.13	1.38	0.00	10891
139.0000	APXV18-206517S-C	50	18.14	1.34	0.00	7612
132.0000	BXA-80080-6CF-EDIN-X w/ Mount Pipe	50	16.23	1.27	0.00	5084
122.0000	VHLP800-11	50	13.70	1.13	0.00	3774
121.0000	LLPX310R w/ Mount Pipe	50	13.47	1.11	0.00	3988
101.0000	58532A	50	9.21	0.94	0.00	5955

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	113.59	24	6.63	0.05
L2	155 - 150	106.68	24	6.63	0.05

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L3	150 - 146	99.79	24	6.57	0.04
L4	146 - 141	94.35	24	6.47	0.03
L5	141 - 136	87.66	24	6.34	0.03
L6	136 - 131	81.14	24	6.16	0.03
L7	131 - 126	74.83	24	5.92	0.02
L8	126 - 121	68.81	24	5.60	0.02
L9	121 - 120.1	63.15	24	5.22	0.01
L10	120.1 - 119.85	62.18	24	5.15	0.01
L11	119.85 - 117.5	61.91	24	5.14	0.01
L12	117.5 - 117.25	59.41	24	5.03	0.01
L13	117.25 - 115.5	59.15	24	5.02	0.01
L14	115.5 - 115.25	57.33	24	4.94	0.01
L15	115.25 - 110.25	57.07	24	4.93	0.01
L16	110.25 - 103.75	52.02	24	4.73	0.01
L17	107.5 - 102.5	49.33	24	4.61	0.01
L18	102.5 - 100.5	44.57	24	4.47	0.01
L19	100.5 - 100.25	42.72	24	4.38	0.01
L20	100.25 - 98.5	42.49	24	4.37	0.01
L21	98.5 - 98.25	40.91	24	4.28	0.01
L22	98.25 - 93.25	40.68	24	4.27	0.01
L23	93.25 - 90.5	36.37	24	3.98	0.01
L24	90.5 - 90.25	34.12	24	3.82	0.01
L25	90.25 - 85.25	33.92	24	3.81	0.01
L26	85.25 - 83.5	30.09	24	3.52	0.01
L27	83.5 - 83.25	28.82	24	3.42	0.01
L28	83.25 - 80.75	28.64	24	3.40	0.01
L29	80.75 - 80.5	26.89	24	3.30	0.00
L30	80.5 - 80.25	26.72	24	3.29	0.00
L31	80.25 - 77.5	26.55	24	3.28	0.00
L32	77.5 - 77.25	24.69	24	3.17	0.00
L33	77.25 - 68.5	24.53	24	3.16	0.00
L34	73 - 68	21.82	24	2.93	0.00
L35	68 - 64.25	18.83	24	2.78	0.00
L36	64.25 - 64	16.73	24	2.58	0.00
L37	64 - 60.5	16.59	24	2.57	0.00
L38	60.5 - 60.25	14.77	24	2.41	0.00
L39	60.25 - 60.1	14.64	24	2.40	0.00
L40	60.1 - 59.85	14.57	24	2.40	0.00
L41	59.85 - 59.1	14.44	24	2.39	0.00
L42	59.1 - 58.85	14.07	24	2.36	0.00
L43	58.85 - 55.4	13.94	24	2.35	0.00
L44	55.4 - 55.15	12.30	24	2.22	0.00
L45	55.15 - 54.75	12.18	24	2.21	0.00
L46	54.75 - 54.5	11.99	24	2.19	0.00
L47	54.5 - 49.5	11.88	24	2.18	0.00
L48	49.5 - 44.5	9.73	24	1.93	0.00
L49	44.5 - 41.3	7.84	24	1.68	0.00
L50	41.3 - 41.05	6.77	24	1.51	0.00
L51	41.05 - 34	6.69	24	1.50	0.00
L52	39 - 33	6.07	24	1.41	0.00
L53	33 - 31.5	4.38	24	1.26	0.00
L54	31.5 - 31.25	3.99	24	1.21	0.00
L55	31.25 - 30.5	3.93	24	1.20	0.00
L56	30.5 - 30.25	3.74	24	1.17	0.00
L57	30.25 - 25.75	3.68	24	1.16	0.00
L58	25.75 - 25.5	2.67	24	0.99	0.00
L59	25.5 - 24.7	2.62	24	0.98	0.00
L60	24.7 - 24.45	2.46	24	0.94	0.00
L61	24.45 - 24	2.41	24	0.93	0.00
L62	24 - 23.75	2.32	24	0.91	0.00
L63	23.75 - 18.75	2.27	24	0.90	0.00

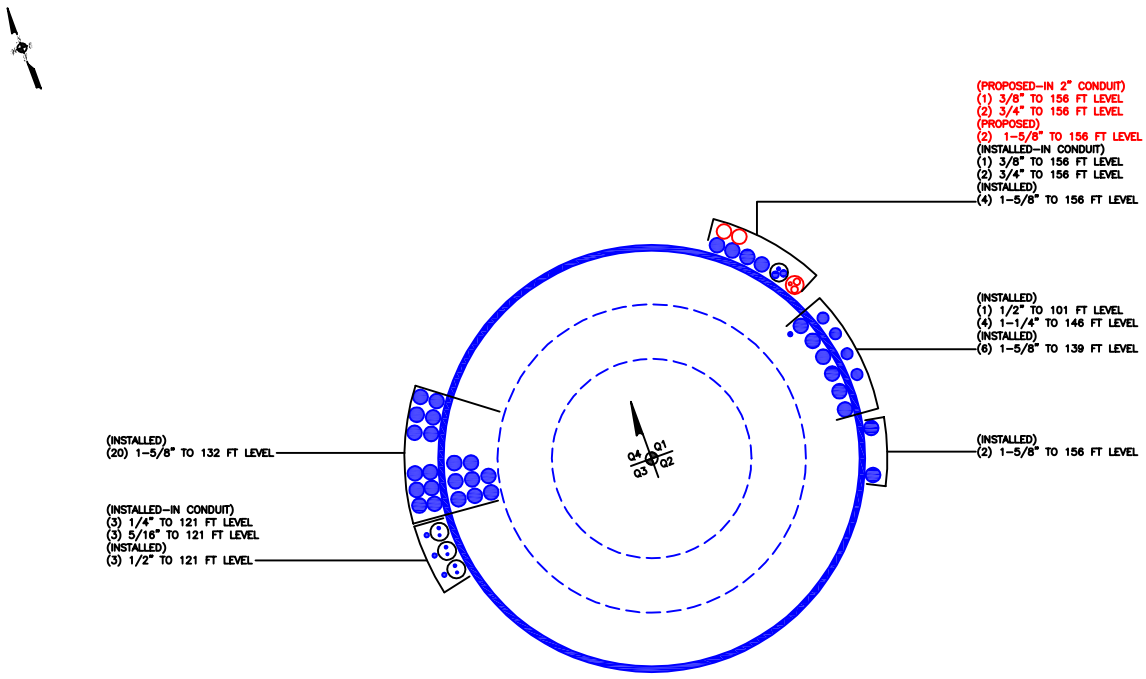
Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L64	18.75 - 14.1	1.43	24	0.72	0.00
L65	14.1 - 13.8	0.82	24	0.54	0.00
L66	13.8 - 13.65	0.78	24	0.53	0.00
L67	13.65 - 10.5	0.77	24	0.52	0.00
L68	10.5 - 10.25	0.46	24	0.41	0.00
L69	10.25 - 5.25	0.44	24	0.40	0.00
L70	5.25 - 3	0.12	24	0.21	0.00
L71	3 - 2.9	0.04	24	0.13	0.00
L72	2.9 - 2.75	0.04	24	0.12	0.00
L73	2.75 - 2.65	0.03	24	0.12	0.00
L74	2.65 - 2.5	0.03	24	0.11	0.00
L75	2.5 - 2.25	0.03	24	0.11	0.00
L76	2.25 - 1.9	0.02	24	0.10	0.00
L77	1.9 - 1.65	0.02	24	0.08	0.00
L78	1.65 - 0	0.01	24	0.07	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
156.0000	Lightning Rod	24	108.06	6.63	0.05	10897
148.0000	(2) PCS 1900MHz 4x45W-65MHz	24	97.06	6.52	0.04	2673
146.0000	APXV9ERR18-C-A20 w/ Mount Pipe	24	94.35	6.47	0.03	2408
139.0000	APXV18-206517S-C	24	85.03	6.28	0.03	1669
132.0000	BXA-80080-6CF-EDIN-X w/ Mount Pipe	24	76.07	5.97	0.02	1112
122.0000	VHLP800-11	24	64.25	5.31	0.02	820
121.0000	LLPX310R w/ Mount Pipe	24	63.15	5.22	0.01	866
101.0000	58532A	24	43.18	4.41	0.01	1285

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876334 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- G

Site BU: 876334

Work Order: 1419941

CROWN CASTLE

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	160	14	0	0	16	16	0.375	n/a	A53-B-35
2	146	42.25	3.75	12	22.00	29.808	0.25	1	A607-60
3	107.5	39	4.5	12	28.61	35.819	0.3125	1.25	A607-60
4	73	39	5	12	34.36	41.568	0.375	1.5	A607-60
5	39	39	0	12	39.89	47.1	0.375	1.5	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	100.5	117.5	plate	CCI-SFP-045100	1				x								
2	98.5	115.5	plate	CCI-SFP-045100	2								x				x
3	64.25	80.75	plate	CCI-AFP-085125	1												x
4	10.5	41.3	plate	CCI-AFP-085125	1												x
5	3	10.5	plate	CCI-AFP-060100	1												x
6	77.5	83.5	plate	MS-600 (1.1875")	3	x			x				x				
7	54.75	64.25	plate	MS-650 (1.1875")	3	x			x				x				
8	25.75	35.25	plate	MS-650 (1.1875")	3	x			x				x				
9	2.5	30.5	plate	MS-600 (1.1875")	3		x			x				x			
10	30.5	60.5	plate	MS-650 (1.1875")	3		x			x				x			
11	60.5	80.5	plate	MS-600 (1.1875")	3		x			x				x			
12	80.5	98.5	plate	MS-600 (1.1875")	2					x				x			
13	1.9	14.1	channel	MP3-04 (1.1875")	2						x		x				
14	2.9	30.5	channel	MP3-05 (1.1875")	2			x								x	
15	30.5	59.1	channel	MP3-04 (1.1875")	2			x								x	
16	13.9	31.5	channel	MP3-05 (1.1875")	1							x					
17	31.5	60.1	channel	MP3-04 (1.1875")	1							x					
18	0	24	plate	TS-5.875"x1.25"	6		x	x			x	x			x	x	
19	24.7	55.4	plate	CCI-AFP-085125	2						x				x		
20	55.4	90.5	plate	CCI-AFP-085125	2						x				x		
21	90.5	120.1	plate	CCI-AFP-060100	2						x				x		
22	100.5	120.1	plate	CCI-AFP-060100	1		x										
23	80.5	100.5	plate	MS-600 (1.1875")	1		x										
24	0	2.5	plate	1.25" x 4"	4	x			x			x			x		
25	24	25.75	plate	TS-5.875"x1.25"	3		p				p				p		
26																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_t (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
2	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
3	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
4	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
5	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
6	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
7	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
8	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
9	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
10	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
11	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
12	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
13	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.593	1.1875	A572-65
14	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
15	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.593	1.1875	A572-65
16	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
17	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.593	1.1875	A572-65
18	1.25	5.875	7.34375	2.9375	n/a	n/a	0.000	7.344	0.0000	A572-65
19	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
20	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
21	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
22	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
23	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
24	1.25	4	5	2	n/a	n/a	0.000	5.000	0.0000	A572-65
25	1.25	5.875	7.34375	2.9375	n/a	n/a	0.000	7.344	0.0000	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	160 - 155	5		0	16.000	16.000	0.375	A53-B-35	1.000
2	155 - 150	5		0	16.000	16.000	0.375	A53-B-35	1.000
3	150 - 146	4	0	0	16.000	16.000	0.375	A53-B-35	1.000
4	146 - 141	5		12	22.000	22.924	0.25	A607-60	1.000
5	141 - 136	5		12	22.924	23.848	0.25	A607-60	1.000
6	136 - 131	5		12	23.848	24.772	0.25	A607-60	1.000
7	131 - 126	5		12	24.772	25.696	0.25	A607-60	1.000
8	126 - 121	5		12	25.696	26.620	0.25	A607-60	1.000
9	121 - 120.1	0.9		12	26.620	26.786	0.25	A607-60	1.000
10	120.1 - 119.85	0.25		12	26.786	26.833	0.4875	A607-60	0.953
11	119.85 - 117.5	2.35		12	26.833	27.267	0.4875	A607-60	0.946
12	117.5 - 117.25	0.25		12	27.267	27.313	0.5	A607-60	1.027
13	117.25 - 115.5	1.75		12	27.313	27.637	0.5	A607-60	1.020
14	115.5 - 115.25	0.25		12	27.637	27.683	0.6625	A607-60	0.930
15	115.25 - 110.25	5		12	27.683	28.607	0.65	A607-60	0.929
16	110.25 - 107.5	6.5	3.75	12	28.607	29.808	0.6375	A607-60	0.937
17	107.5 - 102.5	5		12	28.615	29.539	0.7	A607-60	0.938
18	102.5 - 100.5	2		12	29.539	29.908	0.7	A607-60	0.932
19	100.5 - 100.25	0.25		12	29.908	29.954	0.6375	A607-60	0.945
20	100.25 - 98.5	1.75		12	29.954	30.277	0.625	A607-60	0.958
21	98.5 - 98.25	0.25		12	30.277	30.324	0.6	A607-60	1.049
22	98.25 - 93.25	5		12	30.324	31.247	0.5875	A607-60	1.055
23	93.25 - 90.5	2.75		12	31.247	31.755	0.5875	A607-60	1.046
24	90.5 - 90.25	0.25		12	31.755	31.801	0.6125	A607-60	1.154
25	90.25 - 85.25	5		12	31.801	32.725	0.6	A607-60	1.159
26	85.25 - 83.5	1.75		12	32.725	33.048	0.6	A607-60	1.152
27	83.5 - 83.25	0.25		12	33.048	33.094	0.8625	A607-60	1.009
28	83.25 - 80.75	2.5		12	33.094	33.556	0.85	A607-60	1.014
29	80.75 - 80.5	0.25		12	33.556	33.602	0.9875	A607-60	0.978
30	80.5 - 80.25	0.25		12	33.602	33.649	0.975	A607-60	0.990
31	80.25 - 77.5	2.75		12	33.649	34.157	0.9625	A607-60	0.992
32	77.5 - 77.25	0.25		12	34.157	34.203	0.6875	A607-60	1.133
33	77.25 - 73	8.75	4.5	12	34.203	35.819	0.6875	A607-60	1.117
34	73 - 68	5		12	34.363	35.287	0.75	A607-60	1.104
35	68 - 64.25	3.75		12	35.287	35.979	0.7375	A607-60	1.111
36	64.25 - 64	0.25		12	35.979	36.026	0.95	A607-60	0.995
37	64 - 60.5	3.5		12	36.026	36.672	0.95	A607-60	0.984
38	60.5 - 60.25	0.25		12	36.672	36.718	1	A607-60	0.991
39	60.25 - 60.1	0.15		12	36.718	36.746	1	A607-60	0.991
40	60.1 - 59.85	0.25		12	36.746	36.792	1.05	A607-60	0.978
41	59.85 - 59.1	0.75		12	36.792	36.931	1.05	A607-60	0.976
42	59.1 - 58.85	0.25		12	36.931	36.977	1.125	A607-60	0.976
43	58.85 - 55.4	3.45		12	36.977	37.614	1.1	A607-60	0.986
44	55.4 - 55.15	0.25		12	37.614	37.661	1.1	A607-60	0.985
45	55.15 - 54.75	0.4		12	37.661	37.734	1.1	A607-60	0.984
46	54.75 - 54.5	0.25		12	37.734	37.781	0.825	A607-60	1.052
47	54.5 - 49.5	5		12	37.781	38.704	0.8125	A607-60	1.053
48	49.5 - 44.5	5		12	38.704	39.628	0.8	A607-60	1.055
49	44.5 - 41.3	3.2		12	39.628	40.219	0.7875	A607-60	1.062
50	41.3 - 41.05	0.25		12	40.219	40.266	0.875	A607-60	1.053
51	41.05 - 39	7.05	5	12	40.266	41.568	0.875	A607-60	1.047
52	39 - 33	6		12	39.894	41.003	1.175	A607-65	0.944
53	33 - 31.5	1.5		12	41.003	41.280	1.175	A607-65	0.939
54	31.5 - 31.25	0.25		12	41.280	41.326	1.175	A607-65	0.949
55	31.25 - 30.5	0.75		12	41.326	41.465	1.175	A607-65	0.947
56	30.5 - 30.25	0.25		12	41.465	41.511	1.125	A607-65	0.964
57	30.25 - 25.75	4.5		12	41.511	42.342	1.1	A607-65	0.972
58	25.75 - 25.5	0.25		12	42.342	42.389	1.05	A607-65	1.000
59	25.5 - 24.7	0.8		12	42.389	42.536	1.05	A607-65	0.997
60	24.7 - 24.45	0.25		12	42.536	42.583	0.95	A607-65	0.932
61	24.45 - 24	0.45		12	42.583	42.666	0.95	A607-65	0.931
62	24 - 23.75	0.25		12	42.666	42.712	1.175	A607-65	0.896
63	23.75 - 18.75	5		12	42.712	43.636	1.15	A607-65	0.903
64	18.75 - 14.1	4.65		12	43.636	44.495	1.125	A607-65	0.910
65	14.1 - 13.8	0.3		12	44.495	44.550	1.15	A607-65	0.907
66	13.8 - 13.65	0.15		12	44.550	44.578	1.15	A607-65	0.906
67	13.65 - 10.5	3.15		12	44.578	45.160	1.15	A607-65	0.899
68	10.5 - 10.25	0.25		12	45.160	45.206	1.15	A607-65	0.870
69	10.25 - 5.25	5		12	45.206	46.130	1.125	A607-65	0.877
70	5.25 - 3	2.25		12	46.130	46.546	1.125	A607-65	0.872
71	3 - 2.9	0.1		12	46.546	46.564	1.075	A607-65	0.873
72	2.9 - 2.75	0.15		12	46.564	46.592	1	A607-65	0.860
73	2.75 - 2.65	0.1		12	46.592	46.610	1	A607-65	0.860
74	2.65 - 2.5	0.15		12	46.610	46.638	1	A607-65	0.859
75	2.5 - 2.25	0.25		12	46.638	46.684	0.9875	A607-65	0.883
76	2.25 - 1.9	0.35		12	46.684	46.749	0.975	A607-65	0.894
77	1.9 - 1.65	0.25		12	46.749	46.795	0.9375	A607-65	0.868
78	1.65 - 0	1.65		12	46.795	47.100	0.925	A607-65	0.877

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160 - 155	1.9126	9.7519	5.1019
2	155 - 150	2.2004	36.934	5.8617
3	150 - 146	3.4589	65.024	8.1848
4	146 - 141	6.978	131.32	13.368
5	141 - 136	7.6077	203.63	15.389
6	136 - 131	10.591	295.9	23.087
7	131 - 126	11.309	414.11	24.241
8	126 - 121	12.103	538.79	26.094
9	121 - 120.1	12.903	564.51	27.97
10	120.1 - 119.85	12.977	571.51	28.028
11	119.85 - 117.5	13.516	638.02	28.623
12	117.5 - 117.25	13.591	645.18	28.684
13	117.25 - 115.5	14.019	695.74	29.137
14	115.5 - 115.25	14.11	703.02	29.198
15	115.25 - 110.25	15.552	852.16	30.503
16	110.25 - 107.5	16.362	936.96	31.218
17	107.5 - 102.5	18.771	1096.5	32.625
18	102.5 - 100.5	19.5	1162.3	33.24
19	100.5 - 100.25	19.588	1170.6	33.303
20	100.25 - 98.5	20.116	1229.3	33.77
21	98.5 - 98.25	20.221	1237.8	33.825
22	98.25 - 93.25	21.878	1410.2	35.114
23	93.25 - 90.5	22.807	1507.7	35.821
24	90.5 - 90.25	22.923	1516.7	35.875
25	90.25 - 85.25	24.821	1699.3	37.17
26	85.25 - 83.5	25.485	1764.8	37.637
27	83.5 - 83.25	25.629	1774.2	37.687
28	83.25 - 80.75	26.748	1869.3	38.374
29	80.75 - 80.5	26.887	1878.9	38.436
30	80.5 - 80.25	27.012	1888.5	38.505
31	80.25 - 77.5	28.364	1995.5	39.269
32	77.5 - 77.25	28.487	2005.3	39.326
33	77.25 - 73	30.335	2174.8	40.436
34	73 - 68	34.178	2380.7	41.885
35	68 - 64.25	35.948	2539.6	42.846
36	64.25 - 64	36.102	2550.3	42.895
37	64 - 60.5	37.938	2702.1	43.815
38	60.5 - 60.25	38.093	2713	43.869
39	60.25 - 60.1	38.2	2719.6	43.9
40	60.1 - 59.85	38.3	2730.6	44.0
41	59.85 - 59.1	38.7	2763.7	44.2
42	59.1 - 58.85	38.9	2774.7	44.2
43	58.85 - 55.4	41.0	2928.9	45.1
44	55.4 - 55.15	41.2	2940.2	45.2
45	55.15 - 54.75	41.4	2958.3	45.3
46	54.75 - 54.5	41.5	2969.6	45.4
47	54.5 - 49.5	44.1	3199.5	46.6
48	49.5 - 44.5	46.8	3435.3	47.8
49	44.5 - 41.3	48.5	3589.3	48.5
50	41.3 - 41.05	48.7	3601.4	48.5
51	41.05 - 39	49.9	3701.4	49.0
52	39 - 33	56.2	4000.4	50.6
53	33 - 31.5	57.3	4076.5	50.9
54	31.5 - 31.25	57.5	4089.3	51.0
55	31.25 - 30.5	58.0	4127.6	51.2
56	30.5 - 30.25	58.1	4140.4	51.2
57	30.25 - 25.75	61.2	4373.2	52.3
58	25.75 - 25.5	61.4	4386.3	52.3
59	25.5 - 24.7	61.9	4428.2	52.5
60	24.7 - 24.45	62.0	4441.3	52.5
61	24.45 - 24	62.3	4465.0	52.6
62	24 - 23.75	62.5	4478.1	52.7
63	23.75 - 18.75	65.9	4744.2	53.7
64	18.75 - 14.1	69.0	4996.3	54.7
65	14.1 - 13.8	69.3	5012.7	54.7
66	13.8 - 13.65	69.4	5020.9	54.7
67	13.65 - 10.5	71.6	5194.3	55.4
68	10.5 - 10.25	71.8	5208.1	55.4
69	10.25 - 5.25	75.2	5487.5	56.4
70	5.25 - 3	76.7	5614.8	56.8
71	3 - 2.9	76.8	5620.5	56.8
72	2.9 - 2.75	76.9	5629.0	56.8
73	2.75 - 2.65	77.0	5634.7	56.8
74	2.65 - 2.5	77.1	5643.2	56.8
75	2.5 - 2.25	77.2	5657.4	56.9
76	2.25 - 1.9	77.4	5677.4	57.0
77	1.9 - 1.65	77.6	5691.6	57.0
78	1.65 - 0	78.6	5785.9	57.3

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP16x16x0.375	Pole	4.4%	Pass
155 - 150	Pole	TP16x16x0.375	Pole	15.8%	Pass
150 - 146	Pole	TP16x16x0.375	Pole	27.7%	Pass
146 - 141	Pole	TP22.924x22x0.25	Pole	23.5%	Pass
141 - 136	Pole	TP23.848x22.924x0.25	Pole	33.9%	Pass
136 - 131	Pole	TP24.772x23.848x0.25	Pole	46.2%	Pass
131 - 126	Pole	TP25.696x24.772x0.25	Pole	60.6%	Pass
126 - 121	Pole	TP26.62x25.696x0.25	Pole	74.2%	Pass
121 - 120.1	Pole	TP26.786x26.62x0.25	Pole	77.0%	Pass
120.1 - 119.85	Pole + Reinf.	TP26.833x26.786x0.4875	Reinf. 21 Tension Rupture	54.9%	Pass
119.85 - 117.5	Pole + Reinf.	TP27.267x26.833x0.4875	Reinf. 21 Tension Rupture	59.8%	Pass
117.5 - 117.25	Pole + Reinf.	TP27.313x27.267x0.5	Reinf. 22 Tension Rupture	55.8%	Pass
117.25 - 115.5	Pole + Reinf.	TP27.637x27.313x0.5	Reinf. 22 Tension Rupture	59.1%	Pass
115.5 - 115.25	Pole + Reinf.	TP27.683x27.637x0.6625	Reinf. 1 Tension Rupture	52.2%	Pass
115.25 - 110.25	Pole + Reinf.	TP28.607x27.683x0.65	Reinf. 1 Tension Rupture	60.4%	Pass
110.25 - 107.5	Pole + Reinf.	TP29.808x28.607x0.6375	Reinf. 1 Tension Rupture	64.8%	Pass
107.5 - 102.5	Pole + Reinf.	TP29.539x28.615x0.7	Reinf. 1 Tension Rupture	67.6%	Pass
102.5 - 100.5	Pole + Reinf.	TP29.908x29.539x0.7	Reinf. 1 Tension Rupture	70.3%	Pass
100.5 - 100.25	Pole + Reinf.	TP29.954x29.908x0.6375	Reinf. 23 Tension Rupture	71.8%	Pass
100.25 - 98.5	Pole + Reinf.	TP30.277x29.954x0.625	Reinf. 23 Tension Rupture	74.1%	Pass
98.5 - 98.25	Pole + Reinf.	TP30.324x30.277x0.6	Reinf. 23 Tension Rupture	81.7%	Pass
98.25 - 93.25	Pole + Reinf.	TP31.247x30.324x0.5875	Reinf. 23 Tension Rupture	88.7%	Pass
93.25 - 90.5	Pole + Reinf.	TP31.755x31.247x0.5875	Reinf. 23 Tension Rupture	92.4%	Pass
90.5 - 90.25	Pole + Reinf.	TP31.801x31.755x0.6125	Reinf. 23 Tension Rupture	91.2%	Pass
90.25 - 85.25	Pole + Reinf.	TP32.725x31.801x0.6	Reinf. 23 Tension Rupture	97.6%	Pass
85.25 - 83.5	Pole + Reinf.	TP33.048x32.725x0.6	Reinf. 23 Tension Rupture	99.8%	Pass
83.5 - 83.25	Pole + Reinf.	TP33.094x33.048x0.8625	Reinf. 6 Tension Rupture	70.9%	Pass
83.25 - 80.75	Pole + Reinf.	TP33.556x33.094x0.85	Reinf. 6 Tension Rupture	73.3%	Pass
80.75 - 80.5	Pole + Reinf.	TP33.602x33.556x0.9875	Reinf. 23 Tension Rupture	60.6%	Pass
80.5 - 80.25	Pole + Reinf.	TP33.649x33.602x0.975	Reinf. 11 Tension Rupture	60.8%	Pass
80.25 - 77.5	Pole + Reinf.	TP34.157x33.649x0.9625	Reinf. 11 Tension Rupture	63.0%	Pass
77.5 - 77.25	Pole + Reinf.	TP34.203x34.157x0.6875	Reinf. 11 Tension Rupture	88.2%	Pass
77.25 - 73	Pole + Reinf.	TP35.819x34.203x0.6875	Reinf. 11 Tension Rupture	92.5%	Pass
73 - 68	Pole + Reinf.	TP35.287x34.363x0.75	Reinf. 11 Tension Rupture	91.2%	Pass
68 - 64.25	Pole + Reinf.	TP35.979x35.287x0.7375	Reinf. 11 Tension Rupture	94.4%	Pass
64.25 - 64	Pole + Reinf.	TP36.026x35.979x0.95	Reinf. 7 Tension Rupture	75.1%	Pass
64 - 60.5	Pole + Reinf.	TP36.672x36.026x0.95	Reinf. 7 Tension Rupture	77.6%	Pass
60.5 - 60.25	Pole + Reinf.	TP36.718x36.672x1	Reinf. 7 Tension Rupture	73.7%	Pass
60.25 - 60.1	Pole + Reinf.	TP36.746x36.718x1	Reinf. 7 Tension Rupture	73.8%	Pass
60.1 - 59.85	Pole + Reinf.	TP36.792x36.746x1.05	Reinf. 7 Tension Rupture	71.6%	Pass
59.85 - 59.1	Pole + Reinf.	TP36.931x36.792x1.05	Reinf. 7 Tension Rupture	72.1%	Pass
59.1 - 58.85	Pole + Reinf.	TP36.977x36.931x1.125	Reinf. 7 Tension Rupture	66.2%	Pass
58.85 - 55.4	Pole + Reinf.	TP37.614x36.977x1.1	Reinf. 7 Tension Rupture	68.3%	Pass
55.4 - 55.15	Pole + Reinf.	TP37.661x37.614x1.1	Reinf. 7 Tension Rupture	68.4%	Pass
55.15 - 54.75	Pole + Reinf.	TP37.734x37.661x1.1	Reinf. 7 Tension Rupture	68.6%	Pass
54.75 - 54.5	Pole + Reinf.	TP37.781x37.734x0.825	Reinf. 10 Tension Rupture	90.8%	Pass
54.5 - 49.5	Pole + Reinf.	TP38.704x37.781x0.8125	Reinf. 10 Tension Rupture	94.3%	Pass
49.5 - 44.5	Pole + Reinf.	TP39.628x38.704x0.8	Reinf. 10 Tension Rupture	97.7%	Pass
44.5 - 41.3	Pole + Reinf.	TP40.219x39.628x0.7875	Reinf. 10 Tension Rupture	99.8%	Pass
41.3 - 41.05	Pole + Reinf.	TP40.266x40.219x0.875	Reinf. 10 Tension Rupture	87.6%	Pass
41.05 - 39	Pole + Reinf.	TP41.568x40.266x0.875	Reinf. 10 Tension Rupture	88.8%	Pass
39 - 33	Pole + Reinf.	TP41.003x39.894x1.175	Reinf. 10 Tension Rupture	70.0%	Pass
33 - 31.5	Pole + Reinf.	TP41.28x41.003x1.175	Reinf. 10 Tension Rupture	70.7%	Pass
31.5 - 31.25	Pole + Reinf.	TP41.326x41.28x1.175	Reinf. 10 Tension Rupture	70.3%	Pass
31.25 - 30.5	Pole + Reinf.	TP41.465x41.326x1.175	Reinf. 10 Tension Rupture	70.7%	Pass
30.5 - 30.25	Pole + Reinf.	TP41.511x41.465x1.125	Reinf. 9 Tension Rupture	74.2%	Pass
30.25 - 25.75	Pole + Reinf.	TP42.342x41.511x1.1	Reinf. 9 Tension Rupture	76.3%	Pass
25.75 - 25.5	Pole + Reinf.	TP42.389x42.342x1.05	Reinf. 9 Tension Rupture	81.6%	Pass
25.5 - 24.7	Pole + Reinf.	TP42.536x42.389x1.05	Reinf. 9 Tension Rupture	82.0%	Pass
24.7 - 24.45	Pole + Reinf.	TP42.583x42.536x0.95	Reinf. 9 Tension Rupture	90.0%	Pass
24.45 - 24	Pole + Reinf.	TP42.666x42.583x0.95	Reinf. 9 Tension Rupture	90.3%	Pass
24 - 23.75	Pole + Reinf.	TP42.712x42.666x1.175	Reinf. 9 Tension Rupture	73.1%	Pass
23.75 - 18.75	Pole + Reinf.	TP43.636x42.712x1.15	Reinf. 9 Tension Rupture	75.4%	Pass
18.75 - 14.1	Pole + Reinf.	TP44.495x43.636x1.125	Reinf. 9 Tension Rupture	77.5%	Pass
14.1 - 13.8	Pole + Reinf.	TP44.55x44.495x1.15	Reinf. 9 Tension Rupture	75.5%	Pass
13.8 - 13.65	Pole + Reinf.	TP44.578x44.55x1.15	Reinf. 9 Tension Rupture	75.6%	Pass
13.65 - 10.5	Pole + Reinf.	TP45.16x44.578x1.15	Reinf. 9 Tension Rupture	76.9%	Pass
10.5 - 10.25	Pole + Reinf.	TP45.206x45.16x1.15	Reinf. 9 Tension Rupture	77.0%	Pass
10.25 - 5.25	Pole + Reinf.	TP46.13x45.206x1.125	Reinf. 9 Tension Rupture	79.1%	Pass
5.25 - 3	Pole + Reinf.	TP46.546x46.13x1.125	Reinf. 9 Tension Rupture	80.0%	Pass
3 - 2.9	Pole + Reinf.	TP46.564x46.546x1.075	Reinf. 9 Tension Rupture	82.6%	Pass
2.9 - 2.75	Pole + Reinf.	TP46.592x46.564x1	Reinf. 9 Tension Rupture	91.3%	Pass
2.75 - 2.65	Pole + Reinf.	TP46.61x46.592x1	Reinf. 9 Tension Rupture	91.4%	Pass
2.65 - 2.5	Pole + Reinf.	TP46.638x46.61x1	Reinf. 9 Tension Rupture	91.4%	Pass
2.5 - 2.25	Pole + Reinf.	TP46.684x46.638x0.9875	Reinf. 18 Compression	81.7%	Pass
2.25 - 1.9	Pole + Reinf.	TP46.749x46.684x0.975	Reinf. 18 Compression	81.8%	Pass
1.9 - 1.65	Pole + Reinf.	TP46.795x46.749x0.9375	Reinf. 18 Compression	83.6%	Pass
1.65 - 0	Pole + Reinf.	TP47.1x46.795x0.925	Reinf. 18 Compression	84.2%	Pass
				Summary	
			Pole	77.0%	Pass
			Reinforcement	99.8%	Pass
			Overall	99.8%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity																							
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25
160 - 155	562	n/a	562	18.41	n/a	18.41	4.4%																									
155 - 150	562	n/a	562	18.41	n/a	18.41	15.8%																									
150 - 146	562	n/a	562	18.41	n/a	18.41	27.7%																									
146 - 141	1199	n/a	1199	18.23	n/a	18.23	23.5%																									
141 - 136	1352	n/a	1352	18.97	n/a	18.97	33.9%																									
136 - 131	1517	n/a	1517	19.71	n/a	19.71	46.2%																									
131 - 126	1695	n/a	1695	20.45	n/a	20.45	60.6%																									
126 - 121	1887	n/a	1887	21.20	n/a	21.20	74.2%																									
121 - 120.1	1923	n/a	1923	21.33	n/a	21.33	77.0%																									
120.1 - 119.85	1933	1771	3703	21.37	18.00	39.37	39.3%																					54.9%	54.9%			
119.85 - 117.5	2029	1826	3855	21.72	18.00	39.72	43.0%																					59.8%	59.8%			
117.5 - 117.25	2045	1928	3972	21.75	22.50	44.25	45.1%	49.1%																				55.8%	55.8%			
117.25 - 115.5	2119	1971	4090	22.01	22.50	44.51	48.0%	52.1%																				59.1%	59.1%			
115.5 - 115.25	2124	3279	5403	22.05	31.50	53.55	34.6%	52.2%	52.2%																			47.7%	47.7%			
115.25 - 110.25	2346	3491	5837	22.79	31.50	54.29	40.6%	60.4%	60.4%																			55.2%	55.2%			
110.25 - 107.5	2474	3611	6085	23.20	31.50	54.70	43.9%	64.8%	64.8%																			59.2%	59.2%			
107.5 - 102.5	3211	3712	6922	29.37	31.50	60.87	42.3%	67.6%	67.6%																			61.7%	61.7%			
102.5 - 100.5	3334	3801	7135	29.74	31.50	61.24	44.2%	70.3%	70.3%																			64.2%	64.2%			
100.5 - 100.25	3372	3204	6576	29.78	27.00	56.78	52.8%		71.1%																			71.8%		71.8%		
100.25 - 98.5	3483	3271	6754	30.11	27.00	57.11	54.8%		73.4%																			74.1%		74.1%		
98.5 - 98.25	3541	2974	6515	30.16	30.00	60.16	59.1%												62.7%									67.7%		81.7%		
98.25 - 93.25	3876	3151	7027	31.08	30.00	61.08	64.9%												68.4%									73.7%		88.7%		
93.25 - 90.5	4069	3250	7319	31.59	30.00	61.59	68.0%												71.5%									76.9%		92.4%		
90.5 - 90.25	4194	3641	7835	31.64	39.25	70.89	67.1%												62.3%								59.4%			91.2%		
90.25 - 85.25	4569	3847	8415	32.57	39.25	71.82	72.6%												67.1%								63.9%			97.7%		
85.25 - 83.5	4705	3920	8625	32.89	39.25	72.14	74.5%												68.7%								65.4%			99.8%		
83.5 - 83.25	4632	7339	11971	32.94	57.25	90.19	50.9%						70.9%						55.2%								53.5%			67.5%		
83.25 - 80.75	4829	7536	12366	33.40	57.25	90.65	52.9%						73.3%						57.1%								55.4%			69.8%		
80.75 - 80.5	4752	9225	13977	33.45	67.88	101.32	44.7%			47.4%			58.3%						56.9%								49.8%			60.6%		
80.5 - 80.25	4772	9249	14021	33.50	67.88	101.37	44.8%			47.5%			58.5%					60.8%									50.0%					
80.25 - 77.5	4993	9517	14510	34.01	67.88	101.88	46.7%			49.3%			60.6%					63.0%									51.8%					
77.5 - 77.25	5045	5714	10759	34.05	49.88	83.93	65.5%			59.7%								88.2%									61.2%					
77.25 - 73	5403	5964	11367	34.84	49.88	84.72	69.4%			62.7%								92.5%									64.4%					
73 - 68	6609	6067	12677	42.10	49.88	91.97	64.2%			63.2%								91.2%									64.9%					
68 - 64.25	7010	6295	13304	42.93	49.88	92.81	66.9%			65.5%								94.4%									67.3%					
64.25 - 64	7100	9976	17076	42.99	63.63	106.61	54.0%							75.1%				71.8%									61.5%					
64 - 60.5	7492	10322	17814	43.77	63.63	107.39	56.2%							77.6%				74.2%									63.6%					
60.5 - 60.25	7517	11299	18816	43.82	70.00	113.82	53.4%							73.7%			68.3%										60.4%					
60.25 - 60.1	7534	11316	18850	43.86	70.00	113.86	53.5%							73.8%			68.4%										60.5%					
60.1 - 59.85	7662	12445	20107	43.91	74.13	118.04	51.9%							71.6%			66.8%							55.1%			60.8%					
59.85 - 59.1	7749	12535	20285	44.08	74.13	118.21	52.4%							72.1%			67.3%							55.5%			61.2%					
59.1 - 58.85	7657	13767	21424	44.13	82.39	126.52	48.1%							66.2%			61.7%					61.5%		55.2%			55.0%					
58.85 - 55.4	8063	14225	22288	44.90	82.39	127.29	49.9%							68.3%			63.7%					63.4%		57.0%			56.8%					
55.4 - 55.15	8093	14258	22351	44.96	82.39	127.35	50.0%							68.4%			63.8%					63.5%		57.1%		56.9%						
55.15 - 54.75	8141	14312	22453	45.05	82.39	127.44	50.2%							68.6%			64.1%					63.7%		57.3%		57.1%						
54.75 - 54.5	8242	9014	17256	45.10	58.02	103.12	67.8%										90.8%					78.7%		73.8%		69.1%						
54.5 - 49.5	8864	9442	18306	46.22	58.02	104.23	71.1%										94.3%					81.9%		76.9%		72.0%						
49.5 - 44.5	9516	9881	19397	47.33	58.02	105.35	74.4%										97.7%					84.9%		79.8%		74.7%						
44.5 - 41.3	9950	10167	20117	48.04	58.02	106.06	76.4%										99.8%					86.8%		81.6%		76.5%						
41.3 - 41.05	9829	12262	22091	48.10	68.64	116.74	65.7%				67.7%						87.6%					83.6%		75.7%		69.0%						
41.05 - 39	10112	12483	22595	48.56	68.64	117.20	66.9%				68.7%						88.8%					84.8%		76.8%		70.0%						
39 - 33	10351	20130	30482	48.99	93.02	142.00	48.5%				62.0%				68.9%		70.0%					68.2%		65.4%		63.1%						
33 - 31.5	10565	20392	30957	49.32	93.02	142.34	49.2%				62.6%				69.6%		70.7%					68.8%		66.0%		63.8%						
31.5 - 31.25	10607	20833	31440	49.38	94.54	143.91	50.1%				62.3%				69.7%		70.3%					68.9%	62.4%			63.8%						
31.25 - 30.5	10715	20968	31682	49.54	94.54	144.08	50.4%				62.6%				70.1%		70.7%					69.3%	62.7%			64.1%						
30.5 - 30.25	10747	19803	30549	49.60	91.20	140.80	52.2%				62.7%				72.4%	74.2%					70.1%		65.5%			65.3%						
30.25 - 25.75	11411	20572	31983	50.60	91.20	141.80	54.2%				64.5%				74.4%	76.3%					72.1%		67.4%			67.2%						73.5%
25.75 - 25.5	11477	19222	30699	50.66	88.86	139.51	58.0%				62.4%					81.6%					75.7%		68.1%			64.3%						73.5%
25.5 - 24.7	11598	19347	30945	50.84	88.86	139.69	58.3%				62.8%					82.0%					76.1%		68.4%			64.6%						73.9%
24.7 - 24.45	11619	16392	28011	50.89	67.61	118.50	64.1%				71.8%					90.0%					80.6%		83.6%									79.4%
24.45 - 24	11688	16451	28139	50.99	67.61	118.60	64.3%				72.0%					90.3%					80.9%		83.8%									79.5%
24 - 23.75	11722	23028	34750	51.05	89.64	140.69	52.1%				59.9%					73.1%					65.9%		68.0%		65.8%							
23.75 - 18.75	12506	23947	36453	52.16	89.64	141.80	54.3%				61.8%					75.4%					68.0%		70.1%		67.7%							
18.75 - 14.1	13266	24817	38083	53.20	89.64	142.84	56.3%				63.6%					77.5%					69.8%		72.0%		69.4%							
14.1 - 13.8	13310	25700	39010	53.27	92.25	145.51	54.9%				63.5%					75.5%			73.4%		68.7%				68.3%							
13.8 - 13.65	13335	25729	39064	53.30	92.25	145.55	55.0%				63.6%					75.6%			73.4%		68.8%				68.4%							
13.65 - 10.5	13869	26350	40219	54.00	92.25	146.25	56.3%				64.7%					76.9%			74.7%		70.0%				69.5%							
10.5 - 10.25	13909	26414	40323	54.06	87.62	141.68	55.2%					75.7%				77.0%			74.8%		70.2%				71.0%							
10.25 - 5.25	14787	27418	42204	55.17	87.62	142.79	57.3%					77.8%				79.1%			76.8%		72.0%				72.7%							
5.25 - 3	15193	27876	43069	55.67	87.62	143.29	58.2%					78.7%				80.0%			77.7%		72.9%				73.5%							
3 - 2.9	15209	26253	41462	55.69	81.62	137.32	61.4%									82.6%			81.0%		80.8%				77.8%							
2.9 - 2.75	15306	23821	39127	55.73	70.32	126.05	67.9%									91.3%			83.6%						88.6%							
2.75 - 2.65	15325	23838	39163	55.75	70.32	126.07	68.0%									91.4%			83.6%						88.6%							
2.65 - 2.5	15352	23864	39217	55.78	70.32	126.11	68.1%									91.4%			83.7%						88.6%							
2.5 - 2.25	15352	23418	38771	55.84	72.32	128.16	66.6%												78.8%						81.7%					78.0%		
2.25 - 1.9	15416	23477	38893	55.92	72.32	128.24	66.7%												79.0%						81.8%					78.1%		
1.9 - 1.65	15437	21811	37248	55.97	64.06	120.03	68.1%																		83.6%					80.7%		
1.65 - 0	15744	22066	37809	56.34	64.06	120.40	68.8%																		84.2%					81.3%		

Note: Section capacity checked in 5 degree increments.

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *876334*
Site Name: *SOUTHINGTON, SMORON*
App #: *384766 Rev. 3*

Reactions		
Mu	65.024	ft-kips
Axial, Pu:	3.4589	kips
Shear, Vu:	8.1848	kips
Elevation:	146	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
21.87

Pole Manufacturer:	Other

If No stiffeners, Criteria: TIA G <-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	12		
Diameter (in.):	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle (in.):	19		

Plate Data		
Diam:	24	in
Thick, t:	1.5	in
Grade (Fy):	50	ksi
Strength, Fu:	65	ksi
Single-Rod B-eff:	4.19	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	16	in
Thick:	0.375	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	60	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

Bolt Tension Capacity, φ*Tn,**B1**:	30.06	kips	Rigid: φ*Tn
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	30.05	kips	φTn[(1-(Vu/φVn)^2]^0.5
Max Bolt directly applied Tu:	13.40	Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	0.742	in	
Min PL "treq" for actual **T w/ Pry**:	0.369	in	
Min PL "t1" for actual **T w/o Pry**:	0.496	in	
T allowable w/o Prying:	30.06	kips	α'<0 case
Prying Force, q:	0.00	kips	
Total Bolt Tension=Tu+q:	13.40	kips	
Non-Prying Bolt Stress Ratio, Tu/B:	44.6%	**Pass**	

Exterior Flange Plate Results Flexural Check

Compression Side Plate Stress:	5.5	ksi	Rigid: TIA G
Allowable Plate Stress:	45.0	ksi	φ*Fy
Compression Plate Stress Ratio:	12.3%	**Pass**	Comp. Y.L. Length: 10.25
No Prying			
Tension Side Stress Ratio, (treq/t)^2:	6.1%	**Pass**	

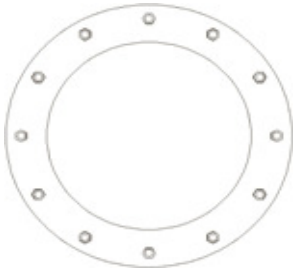
n/a

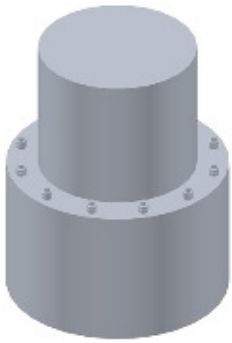
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Interior Flange Plate - Any Bolt Material TIA Rev G

Site Data

BU#: *876334*
Site Name: *SOUTHINGTON, SMORON*
App #: *384766 Rev. 3*

Manufacturer:	Other

Reactions		
Moment:	65.024	ft-kips
Axial:	3.4589	kips
Shear:	8.1848	kips
Exterior Flange Run, T+q:	13.4	kips

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
21.87

Elevation: 146 feet

Bolt Data			
Qty:	12		
Diam:	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:		<-- Disregard	
N/A:		<-- Disregard	
Circle:	19	in	

Plate Data		
Plate Outer Diam:	21.5	in
Plate Inner Diam:	21.5	in (Hole @ Ctr)
Thick:	0.75	in
Grade:	36	ksi
Effective Width:	5.75	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Pole OuterDiam:	22	in
Thick:	0.25	in
Pole Inner Diam:	21.5	in
Grade:	60	ksi
# of Sides:	12	"0" IF Round
Fu	75	ksi

Interior Flange Bolt Results

Maximum Bolt Tension, Tu:	13.4	Kips, Ext. Tu=Interior Tu
Adjusted φ*Tn (due to Vu=Vu/Qty),	30.0	Kips
Bolt Stress Ratio:	44.6%	**Pass**

Interior Flange Plate Results Flexural Check

Controlling Bolt Axial Force:	14.0	Kips, Ext. Cu=Interior Cu
Plate Stress:	21.6	ksi
Allowable Plate Stress, φ*Fy:	32.4	ksi
Plate Stress Ratio:	66.7%	**Pass**

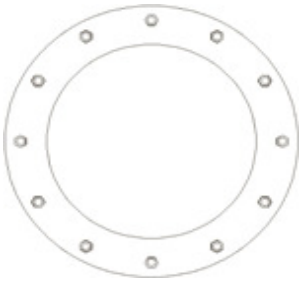
n/a

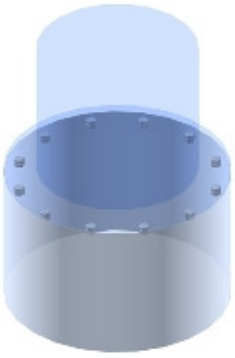
Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a





* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Project Name:	SOUTHINGTON, SMORON	Tool Created On:	6/17/2014
Project Number:	BU# 876334	Checked By:	SMR
Job Number:	WO# 1419941	Revised On:	4/3/2017
Date:	7/10/2017	Revision No.:	3.2

JACOBS
Jacobs Engineering Group, I

Monopole Post-Installed Anchor Rod and Bracket Checks

New Design?	No	
TIA Code:	G	
Moment (M)	5786	kip-ft
Axial (P)	79	kips
Shear (V)	57	kips
Total Anchor Qty	24	

Rod Type Key	
O	Original
PI	Post-Installed
PIBA	Post-Installed w/ Bracket Assembly

x Stress Ra 105.0%

Centroid		
x (in)	y (in)	Distance From Center of Pole (in)
-0.088	0.152	0.176

Max MOI (in^4):	40473.570
Min MOI (in^4):	33862.464

Rod #	Rod Type	Nom. Rod ø (in)	Rod Specification	Fu (ksi)	Thread Type	Gross Area (in^2)	Location (°)	Rod Circle (in)	Max Comp. (kips)	Max Tension (kips)	Comp. w/ Shear (kips)	Capacity (kips)	Capacity Rating (%)
1	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	22.5	55	195.8458	188.7984	200.595761	260.0	77.2%
2	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	34.5	55	202.0616	195.0142	206.81155	260.0	79.5%
3	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	46.5	55	209.3451	202.2977	214.09505	260.0	82.3%
4	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	58.5	55	216.3716	209.3243	221.121616	260.0	85.0%
5	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	121.5	55	219.1234	212.076	223.873379	260.0	86.1%
6	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	133.5	55	212.5959	205.5485	217.345903	260.0	83.6%
7	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	145.5	55	205.1873	198.1399	209.937281	260.0	80.7%
8	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	157.5	55	198.1029	191.0555	202.852887	260.0	78.0%
9	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	202.5	55	195.8541	188.8068	200.604115	260.0	77.2%
10	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	214.5	55	202.6991	195.6518	207.449146	260.0	79.8%
11	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	226.5	55	210.536	203.4887	215.286031	260.0	82.8%
12	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	238.5	55	218.0306	210.9832	222.780574	260.0	85.7%
13	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	301.5	55	221.9067	214.8593	226.656681	260.0	87.2%
14	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	313.5	55	215.3184	208.271	220.068364	260.0	84.6%
15	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	325.5	55	207.7359	200.6885	212.485851	260.0	81.7%
16	O	2.25	A615 Gr. 75	100	Non-Upset	3.98	337.5	55	200.3438	193.2964	205.093758	260.0	78.9%
17	PIBA	1.75	F1554 Gr. 105	125	Non-Upset	2.41	11.0	59.1	124.7847	120.5215	129.534727	190.0	68.2%
18	PIBA	1.75	F1554 Gr. 105	125	Non-Upset	2.41	90.0	59.1	147.102	142.8388	151.852042	190.0	79.9%
19	PIBA	1.75	F1554 Gr. 105	125	Non-Upset	2.41	180.0	59.1	123.781	119.5178	128.530988	190.0	67.6%
20	PIBA	1.75	F1554 Gr. 105	125	Non-Upset	2.41	270.0	59.1	148.5873	144.324	153.33726	190.0	80.7%
21	PIBA	2.25	A193 B7	125	Non-Upset	3.98	46.0	66.8125	253.2997	246.2523	258.049699	325.0	79.4%
22	PIBA	2.25	A193 B7	125	Non-Upset	3.98	136.0	66.8125	255.9515	248.9041	260.70146	325.0	80.2%
23	PIBA	2.25	A193 B7	125	Non-Upset	3.98	224.0	66.8125	252.8749	245.8276	257.624923	325.0	79.3%
24	PIBA	2.25	A193 B7	125	Non-Upset	3.98	314.0	66.8125	260.1393	253.092	264.889331	325.0	81.5%
QTY O:	16					89.14						ontrolling:	87.2%

Horizontal and Vertical Weld to Pole Checks		
Pole Grade		
Fy	65	ksi
Fu	80	ksi
Base Plate Grade		
Fy	50	ksi
Fu	65	ksi
Bracket Plate Grade		
Fy	65	ksi
Fu	80	ksi
Bracket Plate Thickness	1.25	in
Bracket Plate Width	6.5	in
Height of Vertical Weld From Base Plate	30	in
Notch	0	in
Gap Between Base Plate and Pipe	6.5	in
Vertical Fillet Weld Size (Bracket to Pole)	4	x/16 in
Weld Material Grade	80	ksi

Pipe/HSS Checks		
Pipe/HSS	HSS	
Diameter Pipe/Width HSS	5	in
Thickness of Pipe/HSS	0.5	in
Inner Diameter	4	in
Pipe/HSS Fy	50	ksi
Length of Pipe/HSS	33.5	in
Area	7.88	in^2
MOI	26.00	in^4
r	1.82	in
Allowable Bearing	531.90	k
% Capacity	49.8%	
	Pass	
Fa	28.46	ksi
Fe	841.5	ksi
kl/r	18.44	
4.71*√(E/Fy)	113.43	
Fcr	48.77	ksi
øPn	354.60	k
% Capacity	74.7%	
	Pass	

Vertical Weld to Pipe Checks		
Length of Vertical Weld	24.5	in
Vertical Fillet Weld Size (Bracket to Pipe)	6	x/16 in
Weld Material Grade	80	ksi
C1	1.03	
ex	2.5	in
a	0.10	
C	3.72	
Allowable	421.92	k
% Capacity	62.8%	
	Pass	

Bracket Plate Check		
ΦFv	35.1	ksi
ΦVn	1074.938	k
Vn	264.9	k
Bracket Plate Welded to Base Plate?	Yes	
Elastic Section Modulus	125.1	in^3
Plastic Section Modulus	187.6	in^3
ΦMn	10973.3	k-in
M_u	2384.0	k-in
% Capacity	24.6%	
	Pass	

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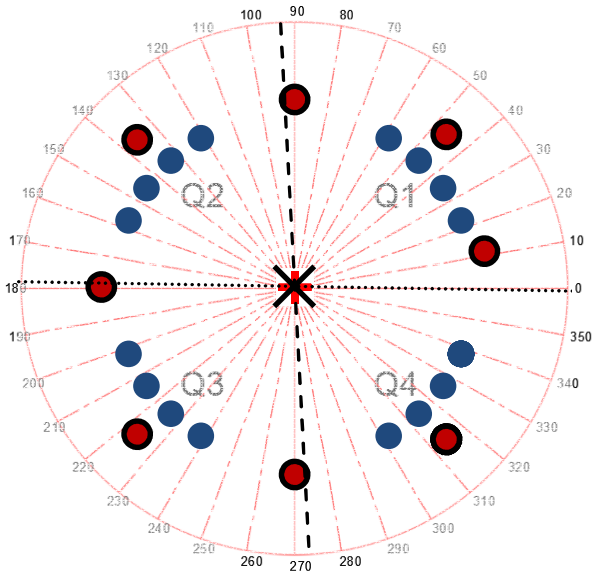
Project Name:	SOUTHINGTON, SMORON
Project Number:	BU# 876334
Job Number:	WO# 1419941
Date:	7/10/2017

Graphic Key		
●	O	Original Anchor Rods
●	PI	Post-Installed Anchor Rods
●	PIBA	Post-Installed Anchor Rods w/ Bracket Assembly
✖	Centroid	Centroid of Anchor Rods
✚	Centroid	Centroid of Pole
	Scaling Factor	70 %



Anchor Rod Assembly Design Summary	
Centroid	
x	-0.09 in
y	0.15 in
Distance from Tower Centroid	0.18 in
Moments of Inertia	
Max MOI	40473.57 in^4
Min MOI	33862.46 in^4
Axis	
Strong Axis	93 °
Weak Axis	179 °
Maximum Forces	
Original Anchor Rod	
Max Compression	221.91 kips
Max Tension	214.86 kips
Compression w/ Shear	226.66 kips

Post-Installed w/ Bracket Assembly	
Max Comp.	260.14 kips
Max Tension	253.09 kips
Compression w/ Shear	264.89 kips

Capacity Rating Summary			
Maximum Rating			
Original Anchor Rods	87.2%	Pass	
Post-Installed w/ Bracket Assembly	81.5%	Pass	
WeldingCapacity	92.5%	Pass	<-Control
Pipe/HSS	74.7%	Pass	
Bracket Plate	24.6%	Pass	

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876334*
Site Name: *SOUTHINGTON, SMORON*
App #: *384766 Rev. 3*

Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	55	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	55	in
Thick:	3	in
Grade:	50	ksi
Clip Distance:	9	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	47.1	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round

Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	3936.85417	ft-kips
Factored Axial, Pu:	79	kips
Factored Shear, Vu:	57	kips

Base Plate Results Flexural Check

Base Plate Stress:	38.9 ksi
PL Design Bending Strength, Φ*Fy:	45.0 ksi
Base Plate Stress Ratio:	86.5% **Pass**

PL Ref. Data
Yield Line (in):
30.68
Max PL Length:
30.68

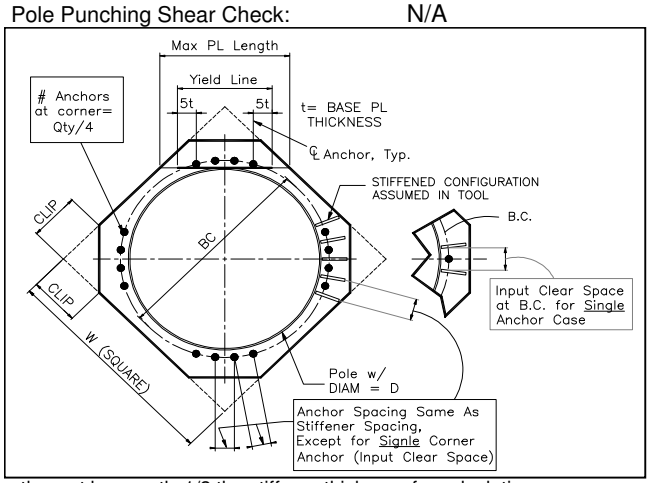
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Project Name:	SOUTHINGTON, SMORON	JACOBS® Jacobs Engineering Group, Inc.	Created On: 8/8/2014
Project Number:	1419941		Checked By: JTE
Job Number:	876334		Revised On:
Date:	7/10/2017		Revision No: 0

Drilled Caisson Foundation with Pad

Analysis Parameters		
Code:	G	
Axial:	79	kip
Shear:	57	kip
Moment:	5786	kip-ft

Soil Parameters		
Unit Weight	110	pcf
Friction Angle	29	degrees
Cohesion	0	psf
Ultimate Bearing Capacity	6	ksf

Foundation Paramaters		
Pad Steel Known?	No	
Concrete Density:	150	pcf
Pad Length	23.083	ft
Pad Thickness	4	ft
Pad Bearing Depth	3	ft
Caisson Diameter	7	ft

Reactions in Pad:		
Axial:	15.985	kip
Shear:	32.931	kip
Moment:	2919.731	kip-ft
Capacity:	100.0%	Pass

Reactions in Caisson:		
Axial:	63.02	kip
Shear:	24.07	kip
Moment:	2866.27	kip-ft

Drilled Pier Foundation

BU # :	876334
Site Name:	SOUTHINGTON, SMO
App. Number:	

TIA-222 Revison:	G
Tower Type:	Monopole

Applied Loads	**Comp.**	**Uplift**
Moment (kip-ft)	2866.27	
Axial Force (kips)	63.02	
Shear Force (kips)	24.07	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	21	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 21		
Pier Diameter	7	ft
Rebar Quantity	32	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	5.57	-
Soil Safety Factor	2.74	-
Max Moment (kip-ft)	2997.59	-
Rating	*48.6%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	719.75	-
End Bearing (kips)	1584.60	-
Weight of Concrete (kips)	148.94	-
Total Capacity (kips)	2304.35	-
Axial (kips)	211.96	-
Rating	*9.2%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	5.39	-
Critical Moment (kip-ft)	2997.27	-
Critical Moment Capacity	7545.18	-
Rating	*39.7%*	-

Soil Interaction Rating	**48.6%**
Structural Foundation Rating	**39.7%**

Soil Profile

Groundwater Depth	n/a	ft	# of Layers: 6

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ultimate Bearing Capacity (ksf)	SPT Blow Count	Soil Classification
1	0	2	2	110	150		0	0.000	0.000	0.00	0.00			Cohesionless
2	2	3.5	1.5	130	150		0	0.000	0.000	0.00	0.00			Cohesionless
3	3.5	6	2.5	130	150		36	0.000	0.000	0.65	0.65			Cohesionless
4	6	8	2	120	150		30	0.000	0.000	0.90	0.90			Cohesionless
5	8	12.4	4.4	130	150		36	0.000	0.000	1.38	1.38			Cohesionless
6	12.4	21	8.6	145	150		40	0.000	0.000	3.97	3.97	54.9		Cohesionless

APPENDIX D

STRUCTURAL MODIFICATION DRAWINGS

TOWER REINFORCEMENT DRAWINGS PREPARED FOR CROWN CASTLE

SITE NAME: SOUTHINGTON, SMORON
BU NUMBER: 876334

SITE ADDRESS:
625 SPRING STREET
SOUTHINGTON, CT 06489
HARTFORD COUNTY, USA

PROJECT CONTACTS:

1. CROWN PROJECT MANAGER
   DAN VADNEY
   518-373-3510
   Dan.Vadney@crowncastle.com

2. CROWN CONSTRUCTION MANAGER
   JASON D'AMICO
   860-209-0104
   Jason.D'Amico@crowncastle.com

3. DESIGN ENGINEER - MAIN RFI CONTACT
   KRISTI HOLDER
   919-859-5757
   Kristi.Holder@jacobs.com

4. ENGINEER OF RECORD
   MATT WATKINS, PE
   5449 BELLS FERRY ROAD
   ACWORTH, GA 30102
   Matt.Watkins@jacobs.com

5. FOR FABRICATION AND CONSTRUCTION RELATED INQUIRIES: CONTACT **MOD_NTP@JACOBS.COM,** DESIGN ENGINEER, AND ENGINEER OF RECORD.

TOWER INFORMATION

TOWER MANUFACTURER / DWG #:	SUMMIT MANUFACTURING/ DWG #: 3376	
TOWER HEIGHT / TYPE:	160 FT MONOPOLE TOWER	
TOWER LOCATION:	LAT:	41° 37′ 56.90″
DATUM: (NAD 1983)	LONG:	-72° 53′ 39.30″
STRUCTURAL DESIGN DRAWING:	JACOBS / WO # 1419941	
STRUCTURAL ANALYSIS REPORT:	JACOBS / WO # 1380663	
STRUCTURAL ANALYSIS DATE:	03/29/17	
APPLICATION ID:	384766 REV. 3	
CCISITES DOCUMENT ID:	6787147	

CODE COMPLIANCE

ANSI/TIA-222-G-2005 WITH ADDENDA 1 THROUGH 4

2016 CONNECTICUT STATE BUILDING CODE

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

DRAWINGS INCLUDED

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
T-1	TITLE SHEET		
N-1	MODIFICATION INSPECTION CHECKLIST		
N-2	NOTES		
N-2A	NOTES (CONTINUED)		
S-1	POLE MODIFICATION SCHEDULE		
S-2	TOWER SECTION VIEW		

NO.	DATE	DESCRIPTION	BY
0	07/10/17	FIRST ISSUE	JMB

REVISIONS

JACOBS
Jacobs Engineering Group. Inc.

STATE OF CONNECTICUT
MATTHEW E. WATKINS
No. 29955
LICENSED
PROFESSIONAL ENGINEER
07/10/17

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

SITE NAME: SOUTHINGTON, SMORON
BU NUMBER: 876334
WO NUMBER: 1419941
SITE ADDRESS:
625 SPRING STREET
SOUTHINGTON, CT 06489
HARTFORD COUNTY, USA

DRAWN BY: JMB
CHECKED BY: KGH
APPROVED BY: MEW
SCALE: N.T.S

TITLE SHEET

T-1 REV 0

MI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWING
X	EOR APPROVED SHOP DRAWINGS
X	FABRICATION INSPECTION
N/A	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF MONOPOLE BASE PLATE PER ENG-SOW-10033
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS
N/A	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

ALL MI'S SHALL BE CONDUCTED BY A CROWN ENGINEERING VENDOR (AEV) OR ENGINEERING SERVICE VENDOR (AESV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CROWN. SEE ENG-BUL-10173 LIST OF APPROVED MI VENDORS.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR CROWN POINT OF CONTACT (POC).

REFER TO ENG-SOW-10007 : MODIFICATION INSPECTION SOW FOR FURTHER DETAILS AND REQUIREMENTS.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO CROWN.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST AND ENG-SOW-10007.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CROWN SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CROWN CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH CROWN TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CROWN'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION

MI VERIFICATION INSPECTIONS

CROWN RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH ENG-SOW-10007.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT AEV/AESV FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN "PASS AS NOTED MI" ACCEPTED REPORT FOR THE ORIGINAL OR PASSING MI" PROJECT.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS (IF APPLICABLE)
  - WELD PREPARATION
  - BOLT INSTALLATION AND TORQUE
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO ENG-SOW-10007.

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REVISIONS

STATE OF CONNECTICUT
MATTHEW E. WATKINS
No. 29955
LICENSED PROFESSIONAL ENGINEER
07/10/17

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

JACOBS
Jacobs Engineering Group. Inc.

SITE NAME: SOUTHINGTON, SMORON

BU NUMBER: 876334

WO NUMBER: 1419941

SITE ADDRESS:
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SOUTHINGTON, CT 06489
HARTFORD COUNTY, USA

DRAWN BY: JMB

CHECKED BY: KGH

APPROVED BY: MEW

SCALE: N.T.S

MODIFICATION INSPECTION CHECKLIST

N-1

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GENERAL NOTES:

1. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE (UNO). THE CONTRACTOR MUST BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED, THAT HE IS PROPERLY LICENSED, AND THAT HE IS PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH THE WORK IS TO BE PERFORMED.

2. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN STANDARD CED-STD-10253 INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA-322 (LATEST EDITION).

3. THE NOTES AND TYPICAL DETAILS ARE APPLICABLE TO ALL PARTS OF THE STRUCTURE AND SHALL BE READ IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS AND PROJECT SPECIFICATIONS. STRUCTURAL DRAWINGS SHALL GOVERN OVER ANY VARIANCE FROM THIS SHEET.

4. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVALS FROM ALL AUTHORITIES HAVING JURISDICTION FOR THIS PROJECT AND SHALL NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY, OR CITY) ENGINEER 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION. FOR JURISDICTIONS THAT LICENSE INDIVIDUAL TRADES, THE TRADESMAN OR SUBCONTRACTORS PERFORMING THOSE TRADES SHALL BE LICENSED, RESEARCH AND COMPLY WITH LICENSING LAWS, PAY LICENSE FEES, AND SELECT AND INFORM SUBCONTRACTORS REGARDING THESE LAWS.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.

6. THE CONTRACTOR SHALL ERECT GUARDS AND BARRIERS PER APPLICABLE LABOR AND CONSTRUCTION SAFETY REGULATIONS.

7. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, POSSIBLE INTERFERENCES, AND DIMENSIONS BEFORE PROCEEDING WITH THE WORK. REPORT ANY AND ALL DISCREPANCIES TO THE JACOBS ENGINEERING ENGINEER OF RECORD (EOR) AND TOWER OWNER FIELD PERSONNEL IMMEDIATELY. ANY AND ALL FIELD CHANGES SHALL BE APPROVED AND DOCUMENTED BY THE EOR PRIOR TO FIELD IMPLEMENTATION. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED DUE TO DIFFERENCES BETWEEN ACTUAL DIMENSIONS OR DIMENSIONS SHOWN ON PLANS. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST OR OF DIFFICULTIES OF CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS GOVERNING THE WORK.

8. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR TWO (2) YEARS FROM THE DATE OF COMPLETED CONSTRUCTION.

9. USE ONLY THE LATEST ISSUES OF ANY APPLICABLE CODES, STANDARDS, OR REGULATIONS MENTIONED IN THE FOLLOWING NOTES AND SPECIFICATIONS, UNO.

10. ALL WORKMANSHIP SHALL BE IN ACCORDANCE WITH ANSI, ASTM, ACI, TIA, AND AISC STANDARDS AS REFERENCED IN THE APPLICABLE CODE.

11. STRUCTURAL ELEMENTS SHOWN ON THESE DRAWINGS ARE DESIGNED IN ACCORDANCE WITH APPLICABLE BUILDING CODES/STANDARDS. ALL CONSTRUCTION, EXCEPT WHERE NOTED OTHERWISE, SHALL COMPLY WITH THOSE CODES/STANDARDS.

12. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS, AND IN CONFORMANCE WITH THE DRAWINGS. ANY AND ALL SUBSTITUTIONS MUST BE DULY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER OF RECORD PRIOR TO FABRICATION AND INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.

13. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION PROCEDURES MEET THE REQUIREMENTS OF OSHA, THE OWNER, AND ALL OTHER APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. THESE REGULATIONS INCLUDE BUT ARE NOT LIMITED TO REGULATIONS DEALING WITH TOWER CONSTRUCTION AND SAFETY, EXCAVATIONS AND TRENCHING, ERECTION OF GUARDS AND BARRIERS, AND WORK IN CONFINED SPACES. ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES DURING CONSTRUCTION.

15. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIAL ACCESS, WITH THE RESIDENT LEASING AGENT.

16. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SAFEGUARD ALL EXISTING STRUCTURES OR BURIED SERVICES AFFECTED BY THIS CONSTRUCTION. CONTRACTOR IS ALSO RESPONSIBLE FOR TEMPORARILY RELOCATING ANY LINES OR STRUTS AS NECESSARY TO COMPLETE THE REQUIRED WORK. THE CONTRACTOR IS COMPLETELY RESPONSIBLE FOR CONTAINMENT OF SEDIMENT AND CONTROL OF EROSION AT THE SITE. ANY DAMAGE TO ADJACENT OR DOWNSTREAM PROPERTIES WILL BE CORRECTED BY THE CONTRACTOR. THE CONTRACTOR IS TO MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES. DO NOT ALLOW WATER TO STAND OR POND. ANY DAMAGE TO STRUCTURES OR WORK ON THE SITE CAUSED BY INADEQUATE MAINTENANCE OF DRAINAGE PROVISIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND ANY COST ASSOCIATED WITH REPAIRS FOR SUCH DAMAGE WILL BE AT THE CONTRACTOR'S EXPENSE.

17. STRUCTURAL DESIGN IS FOR THE COMPLETE CONDITION ONLY. THE CONTRACTOR MUST BE COGNIZANT THAT THE REMOVAL OF ANY STRUCTURAL COMPONENT OF AN EXISTING TOWER HAS THE POTENTIAL TO CAUSE THE PARTIAL OR COMPLETE COLLAPSE OF THE STRUCTURE. ALL NECESSARY PRECAUTIONS MUST BE TAKEN TO ENSURE THE STRUCTURAL INTEGRITY, INCLUDING, BUT NOT LIMITED TO, ENGINEERING ASSESSMENT OF CONSTRUCTION STRESSES WITH INSTALLATION MAXIMUM WIND SPEED AND/OR TEMPORARY BRACING AND SHORING.

18. DO NOT SCALE DRAWINGS.

19. THE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF JACOBS ENGINEERING GROUP, INC. THEY MAY NOT BE REPRODUCED IN ANY FORM WITHOUT THE EXPRESSED WRITTEN CONSENT/PERMISSION OF JACOBS.

20. FOR THIS ANALYSIS AND MODIFICATION, THE TOWER HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY DEFECTS. IF THE CONTRACTOR DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE ENGINEER OF RECORD IMMEDIATELY.

21. MODIFICATION WORK SHALL BE COMPLETED IN CALM WIND CONDITIONS / OR APPROPRIATE WIND SPEED FOR THE TYPE OF MODIFICATION WORK TO BE INSTALLED.

22. THE CLIMBING FACILITIES, SAFETY CLIMB, AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED, OR ALTERED WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE EOR.

23. ANY WORK PERFORMED WITHOUT A PREFABRICATION MAPPING IS DONE AT THE RISK OF THE GENERAL CONTRACTOR AND/OR FABRICATOR.

24. AT THE TIME OF NTP, THE CONTRACTOR IS RESPONSIBLE FOR ENGAGING A MODIFICATION INSPECTOR TO COORDINATE AN INSPECTION SCHEDULE AND ENSURE PROPER DOCUMENTATION IS MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT. FOUNDATION WORK REQUIRES INSPECTION PRIOR TO POURING CONCRETE. SHOP DRAWINGS ARE TO BE SUBMITTED TO THE EOR PRIOR TO FABRICATION.

STRUCTURAL STEEL NOTES:

1. DESIGN, FABRICATION, ERECTION, ALTERATION, AND MAINTENANCE SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE (UNO):

   A. TIA-222: STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

   B. TIA-1019-A: INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS

   C. AISC: MANUAL OF STEEL CONSTRUCTION

2. ALL STRUCTURAL STEEL IS TO BE NEW AND CONFORM TO THE FOLLOWING:

   A. MONOPOLE: ASTM A572-65 (FY = 65 KSI), UNO

   B. SELF SUPPORT TOWER AND GUYED TOWER: ASTM A572-50 (FY = 50 KSI), UNO

3. ALL BOLTS SHALL BE HOT-DIP GALVANIZED ASTM A325 ASSEMBLIES, TO INCLUDE BOLT, ASTM A563 HEAVY HEX NUT, F436 FLAT WASHER, AND SPLIT LOCK WASHER, UNO. BOLT THREADS ARE TO BE EXCLUDED FROM THE SHEAR PLANES. USE BEARING TYPE CONNECTIONS. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.

4. ALL FASTENERS SHALL NOT BE REUSED.

5. DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.

6. ALL EXPOSED EXTERIOR STRUCTURAL STEEL (INCLUDING BOLTS, LOCK WASHERS, PINS, ETC.) SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 AND A123. FOR ALL FABRICATED WELDED ASSEMBLIES TO BE HOT-DIP GALVANIZED, PROVIDE WELDS ALL AROUND OR ADD SEAL WELDS WHERE STRUCTURAL WELDS ARE NOT SPECIFIED. FOR HIGH STRENGTH STEEL FASTENERS WHERE HOT-DIP GALVANIZATION IS NOT PERMITTED, MAGNI 565 COATING SHALL BE USED. ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING TOWER STEEL.

7. WHERE SPECIFIED, THE SEALANT BETWEEN STEEL COMPONENTS IS TO BE SILICONE CAULKING THAT IS EXTERIOR GRADE, ABLE TO BE PAINTED, AND ACCEPTABLE TO THE ENGINEER OF RECORD.

8. FOR A LIST OF CROWN APPROVED COLD GALVANIZING COMPOUNDS, REFER TO CROWN ENG-BUL-10149, " TOWER PROTECTIVE COATINGS BULLETIN".

9. AFTER FINAL INSPECTION, ALL EXPOSED STRUCTURAL STEEL AS THE RESULT OF THIS SCOPE OF WORK INCLUDING WELDS, FIELD DRILLED HOLES, AND SHAFT INTERIORS (WHERE ACCESSIBLE), SHALL BE CLEANED AND COLD GALVANIZING APPLIED BY BRUSH IN ACCORDANCE WITH CROWN ENG-BUL-10149, "TOWER PROTECTIVE COATINGS BULLETIN". PHOTO DOCUMENTATION IS REQUIRED TO BE SUBMITTED TO THE MI INSPECTOR.

10. NO WELDING, TORCH CUTTING, OR OPEN FLAME IS PERMITTED ON THIS CONSTRUCTION SITE UNLESS DIRECTLY SPECIFIED IN THE DRAWINGS.

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REVISIONS

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

JACOBS
Jacobs Engineering Group, Inc.

SITE NAME: SOUTHINGTON, SMORON

BU NUMBER: 876334

WO NUMBER: 1419941

SITE ADDRESS:
625 SPRING STREET
SOUTHINGTON, CT 06489
HARTFORD COUNTY, USA

DRAWN BY: JMB

CHECKED BY: KGH

APPROVED BY: MEW

SCALE: N.T.S

NOTES

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WELDING NOTES:

1. ALL WELDING SHALL BE CARRIED OUT UNDER GOOD OPERATOR CONDITIONS AS DEFINED IN SECTION 5.12 OF AWS D1.1

2. ALL ARC WELDING ON CROWN STRUCTURES SHALL BE DONE IN ACCORDANCE WITH THE CROWN ENG-PLN-10015, "CUTTING AND WELDING SAFETY PLAN" AND AWS D1.1 (LATEST EDITION). THIS SHALL INCLUDE A CERTIFIED WELDING INSPECTOR (CWI) FOR ACCEPTANCE OR REJECTION OF ALL WELDING OPERATIONS, PRE-DURING-POST, USING THE ACCEPTANCE CRITERIA OF AWS D1.1. THE CWI SHALL WORK WITH THE GC ON THE LEVEL OF INTERACTION NEEDED TO CONDUCT THE WELDING INSPECTION. THE CERTIFIED WELDING INSPECTION IS THE RESPONSIBILITY OF THE GC.

3. THE CWI SHALL INDICATE, IN A WRITTEN WELDING REPORT, THAT ALL WELDING OPERATIONS, PRE-DURING-POST, WERE CONDUCTED IN ACCORDANCE WITH AWS D1.1 INCLUDING PHOTOGRAPHS AND DOCUMENTATION SUPPORTING THE ACCEPTANCE OR REJECTION OF ALL WELDING. FOR INFORMATION, SEE CROWN ENG-STD-10069, "GC INSPECTION STANDARD FOR FABRICATION AND FIELD WELDING OF STRUCTURAL STEEL" AND CROWN ENG-SOW-10007, "MODIFICATION INSPECTION SOW'. ALL CWI WELDING INSPECTION DOCUMENTATION AND PHOTOS SHALL BE SUBMITTED TO THE MI INSPECTOR.

4. FOR ALL WELDING, USE E80XX ELECTRODES, UNO.

5. SURFACES TO BE WELDED SHALL BE FREE FROM SCALE, SLAG, RUST, MOISTURE, GREASE OR ANY OTHER FOREIGN MATERIAL THAT WOULD PREVENT PROPER WELDING. GRIND THE SURFACE ADJACENT TO THE WELD FOR A DISTANCE OF 2" MINIMUM ALL AROUND. ENSURE BOTH AREAS ARE 100% FREE OF ALL GALVANIZING.

6. DO NOT WELD IF THE TEMPERATURE OF THE STEEL IN THE VICINITY OF THE WELD AREA IS BELOW 0°F. WHEN THE TEMPERATURE IS BETWEEN 0°F AND 32°F, PREHEAT AND MAINTAIN THE STEEL IN THE VICINITY OF THE WELD AREA AT 70°F DURING THE WELDING PROCESS.

7. DO NOT WELD ON WET OR FROST-COVERED SURFACES AND PROVIDE ADEQUATE PROTECTION FROM HIGH WINDS.

8. WELDING NDE NOTES: "FIELD NDE MINIMUM REQUIREMENTS:

   A. ALL NDE SHALL BE IN ACCORDANCE WITH AWS D1.1.

   B. FOR NEW BASE STIFFENERS (INCLUSIVE OF TRANSITION STIFFENERS) AND ANCHOR ROD BRACKETS, COMPLETE JOINT PENETRATION WELDS SHALL BE 100% INSPECTED BY UT. ALL PARTIAL JOINT PENETRATION AND FILLET WELDS SHALL BE 100% INSPECTED BY MT.

   C. FOR NEW FLAT PLATE REINFORCEMENT AT THE BASE OF THE TOWER, COMPLETE JOINT PENETRATION WELDS SHALL BE 100% INSPECTED BY UT. ALL PARTIAL JOINT PENETRATION AND FILLET WELDS SHALL BE 100% INSPECTED BY MT, BUT MAY BE LIMITED TO A HEIGHT OF 10'-0".

   D. FOR NDE OF THE EXISTING BASE PLATE CIRCUMFERENTIAL WELD, GC SHALL REFERENCE THE MI CHECKLIST FOR APPLICABILITY. PLEASE SEE ENG-SOW-10033: TOWER BASE PLATE NDE, AND ENG-BUL-10051: NDE REQUIREMENTS FOR MONOPOLE BASE PLATE TO PREVENT CONNECTION FAILURE. NOTIFY THE EOR AND CROWN ENGINEERING IMMEDIATELY IF ANY CRACKS ARE SUSPECTED OR HAVE BEEN IDENTIFIED. THE NDE SHALL INCLUDE ALL EXISTING MODIFICATIONS THAT HAVE BEEN WELDED TO THE BASE PLATE.

   E. ALL TESTING LIMITATIONS SHALL BE DETAILED IN THE NDE REPORT."

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STATE OF CONNECTICUT
MATTHEW E. WATKINS
No. 29955
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NOTES (CONTINUED)

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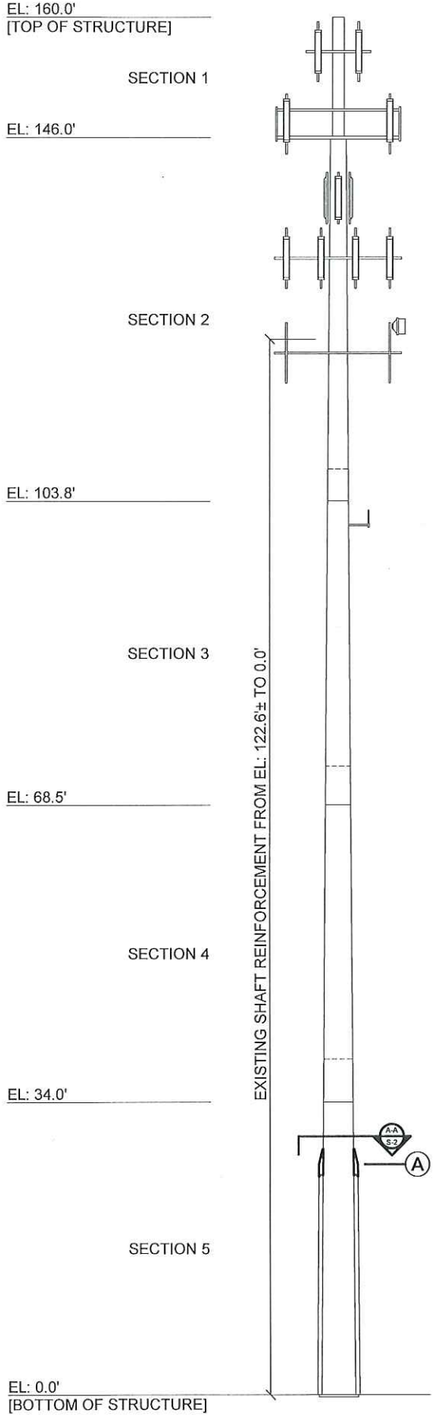


TOWER ELEVATION VIEW

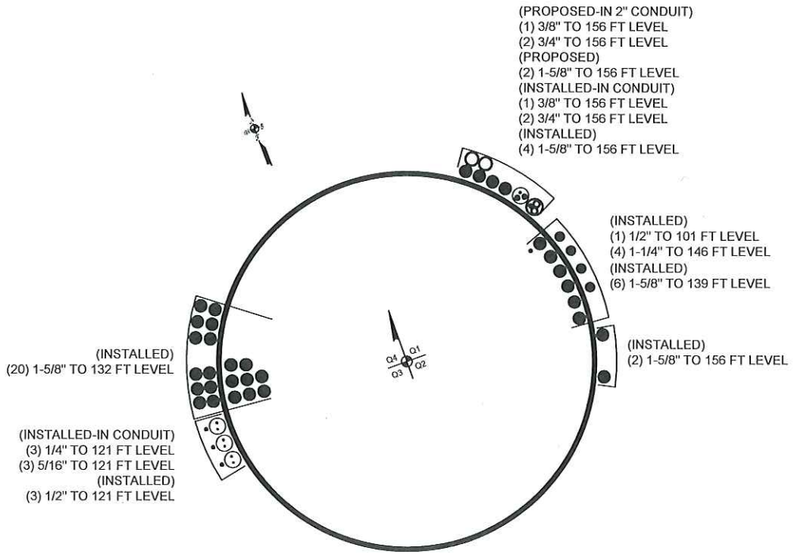
POLE SPECIFICATIONS

POLE SHAPE TYPE:	12-SIDED POLYGON
TAPER:	0.185 IN/FT [EL: 146' TO 0.0'] / N/A 160' TO 146'
SHAFT STEEL:	A607-65 [EL: 39' TO 0'] / A607-60 [EL: 146' TO 39'] / A53-B-35 [EL: 160' TO 146']
BASE PL STEEL:	ASTM A572-50 (50 KSI)
ANCHOR RODS:	2 1/4"Ø #18J ASTM A615 GRADE 75

SHAFT SECTION DATA

SHAFT SECTION	SECTION LENGTH (FT)	PLATE THICKNESS (IN)	LAP SPLICE (IN)	DIAMETER ACROSS FLATS (IN)	
				@ TOP	@ BOTTOM
1	14.00	0.3750	N/A	16.000	16.000
2	42.25	0.2500	45.0	22.000	29.808
3	39.00	0.3125	54.0	28.610	35.819
4	39.00	0.3750	60.0	34.360	41.568
5	39.00	0.3750		39.890	47.100

NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES



TOWER BASE LEVEL VIEW

MODIFICATION SCHEDULE

LETTER	ELEVATION (FT)	TOWER MODIFICATION DESCRIPTION	REFERENCE SHEET
Ⓐ	28.5 TO 25.5	INSTALL NEW BASE TRANSITION STIFFENER EXTENSION	S-2

PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTHS AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY, AND SHALL NOT BE USED FOR FABRICATION.

NO.	DATE	DESCRIPTION	BY
0	07/10/17	FIRST ISSUE	JMB

REVISIONS

JACOBS
Jacobs Engineering Group. Inc.

STATE OF CONNECTICUT
MATTHEW E. WATKINS
No. 29955
LICENSED
PROFESSIONAL ENGINEER
07/10/17

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

SITE NAME: SOUTHINGTON, SMORON

BU NUMBER: 876334

WO NUMBER: 1419941

SITE ADDRESS:
625 SPRING STREET
SOUTHINGTON, CT 06489
HARTFORD COUNTY, USA

DRAWN BY: JMB

CHECKED BY: KGH

APPROVED BY: MEW

SCALE: N.T.S

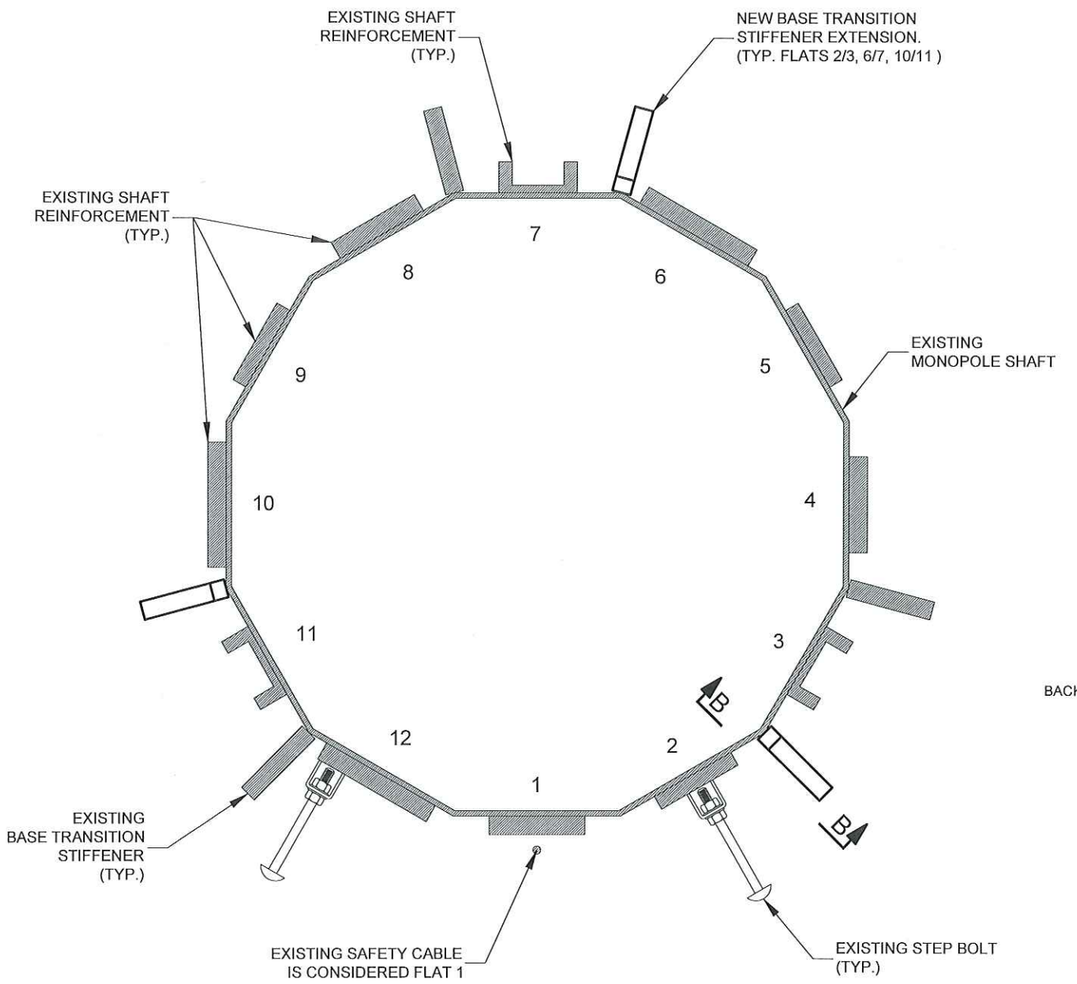
POLE MODIFICATION SCHEDULE

S-1

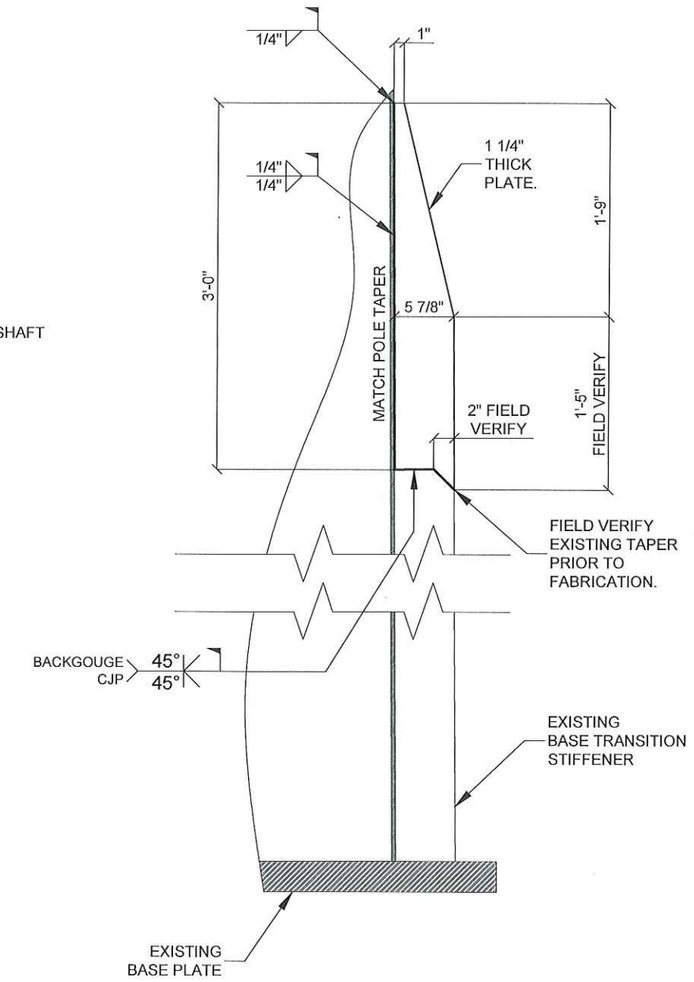
REV 0

BILL OF MATERIAL		
ITEM	QUANTITY	DESCRIPTION
1	3	BASE TRANSITION STIFFENER EXTENSION PL 1 1/4" X 5 7/8" X 3'-0" (ASTM A572-65)

NOTE: ALL MATERIAL TO BE GALVANIZED



A-A / S-2 TOWER SECTION VIEW



SECTION "B-B"
TYPICAL TRANSITION STIFFENER EXTENSION DETAIL
[EXISTING ANCHOR RODS NOT SHOWN FOR CLARITY]

NO.	DATE	DESCRIPTION	BY
0	07/10/17	FIRST ISSUE	JMB

REVISIONS

JACOBS
Jacobs Engineering Group, Inc.

STATE OF CONNECTICUT
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TOWER SECTION VIEW

S-2 | REV 0

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5250

Southington
626 Spring Street
Southington, CT 6489

April 7, 2017

Centerline Communications Project Number: 950006-048

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**9.74 %**

April 7, 2017

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5250 – Southington**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **626 Spring Street, Southington, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **626 Spring Street, Southington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
UMTS	1900 MHz (PCS)	2	30
GSM	850 MHz	2	30
GSM	1900 MHz (PCS)	2	30
LTE	700 MHz	2	60
LTE	2300 MHz (WCS)	2	60
LTE	1900 MHz (PCS)	2	60

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Commscope SBNH-1D6565C	157
A	2	CCI TPA-65R-LCUUUU-H8	157
B	1	KMW AM-X-CD-16-65-00T-RET	157
B	2	Kathrein 800-10798	157
C	1	Commscope SBNH-1D6565C	157
C	2	CCI TPA-65R-LCUUUU-H8	157

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Commscope SBNH-1D6565C	850 MHz / 1900 MHz (PCS)	14.45 / 15.85	8	240	7,958.45	1.66
Antenna A2	CCI TPA-65R-LCUUUU-H8	700 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)	12.95 / 14.45 / 13.75	6	360	8,555.90	1.77
						Sector A Composite MPE%	**3.43**
Antenna B1	KMW AM-X-CD-16-65-00T-RET	850 MHz / 1900 MHz (PCS)	13.85 / 15.25	8	240	6,931.52	1.44
Antenna B2	Kathrein 800-10798	700 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)	13.05 / 15.15 / 14.35	6	360	9,617.37	1.95
						Sector B Composite MPE%	**3.40**
Antenna C1	Commscope SBNH-1D6565C	850 MHz / 1900 MHz (PCS)	14.45 / 15.85	8	240	7,958.45	1.66
Antenna C2	CCI TPA-65R-LCUUUU-H8	700 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)	12.95 / 14.45 / 13.75	6	360	8,555.90	1.77
						Sector C Composite MPE%	**3.43**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, the sectors with the largest calculated MPE% are Sectors A&C. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Sector Value	**3.43 %**
Sprint	0.94 %
MetroPCS	0.69 %
Verizon Wireless	4.20 %
Nextel	0.48 %
Site Total MPE %:	**9.74 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	3.43 %
AT&T Sector B Total:	3.40 %
AT&T Sector C Total:	3.43 %
Site Total:	9.74 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, the sectors with the largest calculated MPE% are Sectors A&C.

AT&T _ Max Values per Frequency Band / Technology (Sectors A&C)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	835.84	157	2.64	850 MHz	567	0.46%
AT&T 1900 MHz (PCS) UMTS	2	1,153.78	157	3.64	1900 MHz (PCS)	1000	0.36%
AT&T 850 MHz GSM	2	835.84	157	2.64	850 MHz	567	0.46%
AT&T 1900 MHz (PCS) GSM	2	1,153.78	157	3.64	1900 MHz (PCS)	1000	0.36%
AT&T 700 MHz LTE	2	1,183.45	157	3.73	700 MHz	467	0.80%
AT&T 2300 MHz (WCS) LTE	2	1,671.67	157	5.27	2300 MHz (WCS)	1000	0.53%
AT&T 1900 MHz (PCS) LTE	2	1,422.82	157	4.49	1900 MHz (PCS)	1000	0.45%
						Total:	**3.43%**

Table 6: AT&T Maximum Sector MPE Power Values

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	3.43 %
Sector B:	3.40 %
Sector C:	3.43 %
AT&T Maximum Total (per sector):	3.43 %
Site Total:	9.74 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.74 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
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Raynham, MA 02767