COHEN and WOLF P.C.
ATTORNEYS AT LAW

JULIE D. KOHLER

PLEASE REPLY TO: Bridgeport
WRITER'S DIRECT DIAL: (203) 337-4157
E-Mail Address: jkohler@cohenandwolf.com

June 11, 2015

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification
Amtrak/T-Mobile equipment upgrade
Site ID CT11024B
60 Hosley Avenue, Branford CT

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, Amtrak owns the existing telecommunications tower and related facility at 60 Hosley Avenue, Branford Connecticut (latitude 41.283325/ longitude -72.8494). T-Mobile intends to replace three (3) existing antennas and add six (6) antennas and related equipment at this existing telecommunications facility in Branford ("Branford Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the First Selectman James B. Cosgrove. Amtrak is also the property owner.

The existing Branford Facility consists of a 150 foot tall monopole tower.[1] T-Mobile plans to replace three (3) existing antennas, add three (3) antennas, replace three (3) TMAs (tower mounted amplifiers) and add three (3) RRUs at a centerline of 150 feet and add three (3) antennas at a centerline of 148 feet. T-Mobile will also install fiber and coax cables. Finally, T-Mobile will remove one equipment cabinet and install a 3106 cabinet within the existing compound area. (See the plans revised to June 4, 2015 attached hereto as Exhibit A). With modifications, the existing Branford Facility is structurally capable of supporting T-Mobile's proposed equipment additions and replacements, as indicated in the Structural Analysis Report dated June 4, 2015 ("Report"), attached hereto as Exhibit B. The Report provides that

[1] The Branford Facility is not listed on the Council's online database as being approved via a Docket or Petition but is the subject of notices of intent captioned EM-T-MOBILE-014-101208 and EM-T-MOBILE-014-030916.

the Branford Facility is structurally capable of supporting T-Mobile's installation if the tower is modified in accordance with the proposed Tectonic reinforcement plans dated June 4, 2015. Those reinforcement plans are provided in Exhibit B.[2]

The planned modifications to the Branford Facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the height of the tower. T-Mobile's replacement and proposed antennas will be installed at centerlines of 148 feet and 150 feet. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension of the site boundaries. T-Mobile's equipment will be located entirely within the existing compound area.

3. The proposed modification to the Branford Facility will not increase the noise levels at the existing facility by six decibels or more.

4. The operation of the replacement and additional antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated April 3, 2015, T-Mobile's operations would add 5.82% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 5.82% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and additional antennas and equipment at the Branford Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence construction approximately sixty days from the date of the Council's notice of acknowledgement.

Sincerely,

Julie D. Kohler, Esq.

[2] T-Mobile will not commence installation of its proposed or replacement antennas until the required modifications have been completed.

cc: Town of Branford, First Selectman James B. Cosgrove
Amtrak
Sheldon Freincle, NSS

EXHIBIT A

T-Mobile

NORTHEAST LLC.

SITE NAME: AMTRAK - BRANFORD

SITE ID NUMBER: CT11024B

SITE ADDRESS: HOSLEY AVENUE
BRANFORD, CT 06406

AMTRAK FILE NO.: 626.33

WORK CATEGORY: CABINET, TMA & ANTENNA REPLACEMENT & RRU & COAX ADDITION

PROJECT SUMMARY

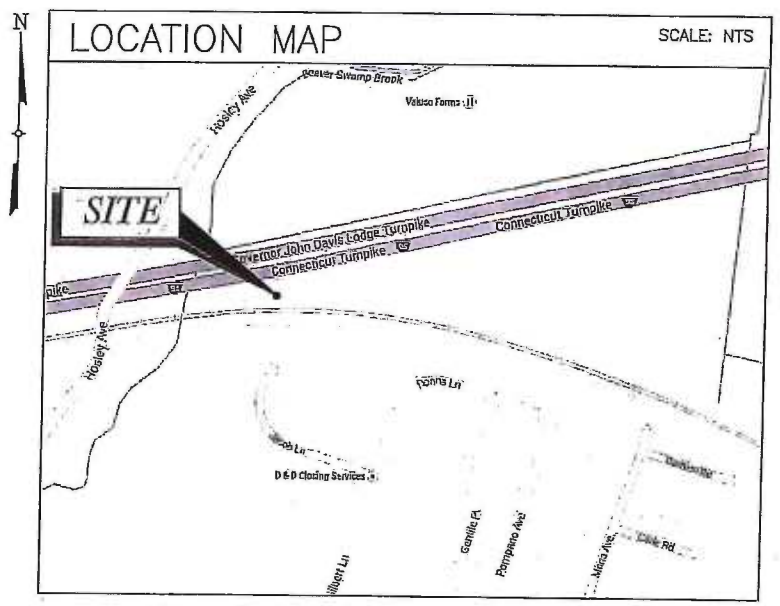
SITE NUMBER:	CT11024B
AMTRAK FILE #:	626.33
MILEPOST:	79.29
SITE NAME:	AMTRAK–BRANFORD
SITE ADDRESS:	60 HOSLEY AVENUE BRANFORD, CT 06406
COUNTY:	MIDDLESEX
PROPERTY OWNER:	AMTRAK (NATIONAL RAILROAD PASSENGER CORPORATION)
APPLICANT:	T–MOBILE NORTHEAST, LLC. 4 SYLVAN WAY PARSIPPANY, NJ 07054 (914) 696–5243
CONTACT: PHONE:	ANDREW STROCK (215) 917–9950
ENGINEER/ SURVEYOR/ STRUCTURAL ENG:	TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. 1279 ROUTE 300 NEWBURGH, NY 12550
CONTACT: PHONE:	MIKE PATEL (845) 567–6656 EXT. 2808
LATITUDE: (NAD 83)	41.283325
LONGITUDE: (NAD 83)	–72.8494

SITE DIRECTIONS

HEAD NORTHWEST ON SYLVAN WAY THEN TURN RIGHT ONTO US–202 N AND CONTINUE ONTO LITTLETON RD. TAKE THE RAMP ONTO I–287 N. TAKE THE I–87 S/I–287/NY THRUWAY EXIT TOWARD TAPPAN ZEE BRIDGE/NYC. MERGE ONTO I–287 E/I–87 S. KEEP LEFT AT THE FORK CONTINUING ON I–287 E. MERGE ONTO I–95 N THEN TAKE EXIT 51 TO MERGE ONTO U.S. 1 TOWARD EAST HAVEN/ FRONTAGE RD. TURN LEFT ONTO HOSLEY AVE, DESTINATION WILL BE ON THE LEFT.

LOCATION MAP

SCALE: NTS



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APPROXIMATE LOCATION OF EXIST T–MOBILE SITE

AERIAL

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • SURVEYING
• ENGINEERING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
1279 ROUTE 300
NEWBURGH, NY 12550
Phone: (845) 567–6656
Fax: (845) 567–8703

T-Mobile
12050 BALTIMORE AVENUE
BELTSVILLE, MD 20705

PROJECT NUMBER	DESIGNED BY
7421.CT11024B	MP

REV	DATE	REVISION	DRAWN BY
0	3/23/15	FOR APPROVAL	KA
1	4/2/15	PER COMMENTS	KA
2	4/15/15	PER COMMENTS	KA
3	5/13/15	PER COMMENTS	KA

ISSUED BY: BW DATE: 6/9/15

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION
CT11024B
AMTRAK–BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T–1

GENERAL NOTES

1. ALL APPLICABLE PERMITS MUST BE OBTAINED AND INSURANCE REQUIREMENTS MUST BE MET PRIOR TO CONSTRUCTION.
2. THESE PROJECT DRAWINGS ARE IN ACCORDANCE WITH AMTRAK STANDARDS AND ENGINEERING PRACTICES. PRIOR TO ENTERING AMTRAK'S PROPERTY, THE CONTRACTOR MUST NOTIFY PAUL DUBUQUE AT 401-413-9681.
3. ALL WORK ASSOCIATED WITH THIS PROJECT WILL BE PERFORMED AT T-MOBILE'S SOLE EXPENSE. THIS INCLUDES 1.) AMTRAK'S SAFETY ORIENTATION CLASS, 2.) WIRE AND TRACK OUTAGES DURING CONSTRUCTION, 3.) MODIFICATIONS TO THE CATENARY AND TRANSMISSION SYSTEMS IF REQUIRED, 4) MODIFICATIONS TO CATENARY POLE GUY WIRE ANCHORS IF REQUIRED.
4. UPGRADE OF EXISTING T-MOBILE TELECOMMUNICATIONS FACILITY. THE PROPOSED T-MOBILE PLANNED WORK INVOLVES THE REMOVAL OF ONE (1) EXIST SB000 CABINET, THE INSTALLATION OF ONE (1) PROPOSED 3106 CABINET, THE REPLACEMENT OF THREE (3) ANTENNAS, THE ADDITION OF SIX (6) ANTENNAS, THE ADDITION OF THREE (3) RRUs. THE REPLACEMENT OF THREE (3) TMAs, AND THE ADDITION OF SIX (6) PROPOSED COAX CABLES AND (1) HYBRID FIBER CABLE ROUTED UP THE EXIST MONOPOLE. NO DIGGING OR SOIL DISTURBANCE WILL OCCUR DURING THE PROJECT. NO MODIFICATIONS TO THE CATENARY AND TRANSMISSION SYSTEMS ARE REQUIRED TO ACCOMMODATE THIS PROJECT.
5. IF MODIFICATIONS TO THE CATENARY AND TRANSMISSION SYSTEMS ARE REQUIRED TO ACCOMMODATE THIS PROJECT A QUALIFIED ELECTRICAL CONSULTANT MUST BE RETAINED TO PERFORM THIS DESIGN.
6. THESE PROJECT DRAWINGS ARE IN COMPLIANCE WITH AED-1; AED-2; CE-4; EP3005-02081A & EP3014-01141A.
7. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE AMTRAK-APPROVED PROJECT DRAWINGS, STATEMENTS OF WORK, PLANS AND SCHEDULES AND ALL OTHER AMTRAK REQUIREMENTS.
8. NO WORK MAY BE PERFORMED UNTIL AMTRAK ENGINEERING HAS APPROVED T-MOBILE'S SITE/JOB SPECIFIC SAFETY WORK PLAN (SSSWP) AND HAZARD ASSESSMENT FOR THE PROJECT.
9. ONCE AMTRAK APPROVES AN APPLICATION AND THE LICENSE AGREEMENT ISSUED, NO VARIANCE FROM THE PLANS, SPECIFICATIONS, METHODS OF CONSTRUCTION, ETC WILL BE CONSIDERED OR PERMITTED WITHOUT RESUBMISSION OF PLANS TO AND RECEIPT OF APPROVAL FROM AMTRAK

CONTRACTOR OPERATIONS AND SAFETY COORDINATION NOTES

1. BEFORE ENTRY OF PERMITTEE AND/OR CONTRACTORS ONTO RAILROAD'S PROPERTY, A PRE-ENTRY MEETING SHALL BE HELD WITH THE AMTRAK RAILROAD PROTECTION PERSONNEL.
2. CONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN COMPLIANCE WITH ALL RULES, REGULATIONS, AND REQUIREMENTS OF RAILROAD WITH RESPECT TO ANY WORK PERFORMED ON, OVER, UNDER, WITHIN OR ADJACENT TO RAILROAD'S PROPERTY. CONTRACTORS SHALL BE RESPONSIBLE FOR ACQUAINTING THEMSELVES WITH SUCH RULES, REGULATIONS AND REQUIREMENTS. ANY VIOLATION OF RAILROAD'S SAFETY RULES, REGULATIONS, OR REQUIREMENTS SHALL BE GROUNDS FOR THE IMMEDIATE SUSPENSION OF THE CONTRACTOR WORK, AND THE RE-TRAINING OF ALL PERSONNEL, AT THE CONTRACTOR'S EXPENSE.
3. CONTRACTOR SHALL KEEP RAILROAD'S PROPERTY CLEAR OF ALL REFUSE AND DEBRIS FROM ITS OPERATIONS. UPON COMPLETION OF THE WORK, THE CONTRACTOR MUST REMOVE ALL MACHINERY, EQUIPMENT, SURPLUS MATERIALS, FALSE WORK, RUBBISH, TEMPORARY STRUCTURES, AND OTHER ITEMS BELONGING TO THE CONTRACTOR FROM RAILROAD'S PROPERTY.
4. IF TRACKS OR OTHER PROPERTY OF RAILROAD ARE ENDANGERED DURING THE WORK, THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH STEPS AS MAY BE DIRECTED BY RAILROAD TO RESTORE SAFE CONDITIONS, AND UPON FAILURE OF THE CONTRACTOR TO IMMEDIATELY CARRY OUT SUCH DIRECTION, RAILROAD MAY TAKE WHATEVER STEPS ARE REASONABLY NECESSARY TO RESTORE SAFE CONDITIONS. ALL COSTS AND EXPENSES OF RESTORING SAFE CONDITIONS, AND OF REPAIRING ANY DAMAGE TO RAILROAD'S TRAINS, TRACKS, RIGHT-OF-WAY OR OTHER PROPERTY CAUSED BY THE OPERATIONS OF CONTRACTORS, SHALL BE PAID BY CONTRACTOR.
5. WHENEVER WORK IS PERFORMED IN THE VICINITY OF ELECTRIFIED TRACKS AND/OR HIGH VOLTAGE WIRES, PARTICULAR CARE MUST BE EXERCISED, AND RAILROAD'S REQUIREMENTS REGARDING CLEARANCE TO BE MAINTAINED BETWEEN EQUIPMENT AND TRACKS AND/OR ENERGIZED WIRES, AND OTHERWISE REGARDING WORK IN THE VICINITY OF ELECTRIFIED TRACKS, MUST BE STRICTLY OBSERVED. NO EMPLOYEES OR EQUIPMENT WILL BE PERMITTED TO WORK NEAR OVERHEAD WIRES, EXCEPT WHEN PROTECTED BY A CLASS "A" EMPLOYEE OF THE RAILROAD. THE CONTRACTORS MUST SUPPLY AN ADEQUATE LENGTH OF GROUNDING CABLE (4/0 COPPER WITH APPROVED CLAMPS) FOR EACH PIECE OF EQUIPMENT WORKING NEAR OR ADJACENT TO ANY OVERHEAD WIRE.
6. NO WORK WILL BE PERMITTED WITHIN TWENTY-FIVE (25) FEET OF THE CENTERLINE OF TRACK OR THE ENERGIZED WIRE OR HAVE POTENTIAL OF GETTING WITHIN TWENTY-FIVE (25) FEET OF TRACK WIRE WITHOUT THE APPROVAL OF THE CHIEF ENGINEER'S REPRESENTATIVE. CONTRACTORS SHALL CONDUCT THEIR WORK SO THAT NO PART OF ANY EQUIPMENT OR MATERIAL SHALL FOUL AN ACTIVE TRACK OR OVERHEAD WIRE WITHOUT THE WRITTEN PERMISSION OF THE CHIEF ENGINEER'S REPRESENTATIVE. ANY EQUIPMENT SHALL BE CONSIDERED TO BE FOULING A TRACK OR OVERHEAD WIRE WHEN LOCATED (A) WITHIN FIFTEEN (15) FEET FROM THE CENTERLINE OF THE TRACK OR WITHIN FIFTEEN (15) FEET FROM THE WIRE, OR (B) IN SUCH A POSITION THAT FAILURE OF SAME, WITH OR WITHOUT A LOAD, WOULD BRING IT WITHIN FIFTEEN (15) FEET FROM THE CENTERLINE OF THE TRACK OR WITHIN FIFTEEN (15) FEET FROM THE WIRE AND REQUIRES THE PRESENCE OF THE PROPER RAILROAD PROTECTION PERSONNEL.
7. DURING CONSTRUCTION, JACKING, BORING OR TUNNELING, TRENCHES SHALL BE FENCED, LIGHTED AND OTHERWISE PROTECTED AS DIRECTED BY AMTRAK DESIGNATED FIELD REPRESENTATIVE.
8. CONTRACTORS SHALL SCHEDULE ALL WORK TO BE PERFORMED IN SUCH A MANNER AS NOT TO INTERFERE WITH RAILROAD OPERATIONS. CONTRACTORS SHALL USE ALL NECESSARY CARE AND PRECAUTION TO AVOID ACCIDENTS, DELAY OR INTERFERENCE WITH RAILROAD'S PROPERTY.
9. THROUGHOUT ALL PHASES OF THE PROJECT (INCLUDING DURING PREPARATION FOR CONSTRUCTION OR INSTALLATION ACTIVITIES, DURING CONSTRUCTION OR INSTALLATION ACTIVITIES, AND, DURING CLEAN UP) ACCESS ROADS, ROUTES OR PATHS TO OR ALONG AMTRAK'S RIGHTS-OF-WAY SHALL REMAIN UNOBSTRUCTED AND IF ANY OBSTRUCTION EXISTS IT SHALL NOT BE EXACERBATED.
10. ALL EQUIPMENT TO BE USED IN THE VICINITY OF OPERATING TRACKS SHALL BE IN "CERTIFIED" FIRST-CLASS CONDITION SO AS TO PREVENT FAILURES THAT MIGHT CAUSE DAMAGE TO RAILROAD'S PROPERTY. NO EQUIPMENT SHALL BE PLACED OR PUT INTO OPERATION NEAR OR ADJACENT TO OPERATING TRACKS AND UNDER NO CIRCUMSTANCES SHALL ANY EQUIPMENT OR MATERIALS BE PLACED OR STORED WITHIN TWENTY-FIVE (25) FEET FROM THE CENTERLINE OF AN OUTSIDE TRACK, EXCEPT AS APPROVED BY THE SITE SPECIFIC SAFETY WORK PLAN. TO INSURE COMPLIANCE WITH THIS REQUIREMENT, CONTRACTORS MUST ESTABLISH A TWENTY-FIVE (25) FOOT FOUL LINE PRIOR TO THE START OF WORK BY TAPING OFF THE AREA.
11. NO MATERIAL OR EQUIPMENT SHALL BE STORED ON RAILROAD'S PROPERTY UNLESS APPROVED BY THE SITE SPECIFIC SAFETY WORK PLAN. ANY SUCH STORAGE WILL BE ON THE CONDITION THAT RAILROAD WILL NOT BE LIABLE FOR LOSS OF OR DAMAGE TO SUCH MATERIALS OR EQUIPMENT FROM ANY CAUSE.
12. PRIOR TO ENTERING ONTO AMTRAK'S PROPERTY, EACH EMPLOYEE OF T-MOBILE AND/OR ITS CONTRACTORS THAT IS TO ENTER ONTO AMTRAK'S PROPERTY WITHIN THE 12 MONTH PERIOD PRIOR TO ENTERING ONTO AMTRAK'S PROPERTY, EACH SHALL HAVE COMPLETED AMTRAK'S SAFETY ORIENTATION CLASS. WHILE ON AMTRAK'S PROPERTY, EACH SHALL BE IN POSSESSION OF A VALID, CURRENT AMTRAK SAFETY TRAINING BADGE AND WHILE ON AMTRAK'S PROPERTY, EACH SHALL FOLLOW ALL SAFETY RULES AND PROCEDURES AS DIRECTED BY AMTRAK (INCLUDING AMTRAK'S ON-SITE REPRESENTATIVE).
13. PRIOR TO COMMENCING WORK, T-MOBILE AND/OR ITS CONTRACTORS WILL LOCATE UNDERGROUND UTILITIES AND ANY OTHER FACILITIES (BELONGING TO AMTRAK AND/OR ANY OTHER PARTY. THROUGHOUT THE ENTIRE PROJECT, INCLUDING ALL PHASES OF CONSTRUCTION, EXCAVATION, TRENCHING, AND/OR BORING ACTIVITIES; T-MOBILE AND/OR ITS CONTRACTOR WILL PROTECT ALL SUCH UNDERGROUND UTILITIES AND OTHER FACILITIES. AMTRAK IS NOT A PART OF THE ONE-CALL SYSTEM AND, THEREFORE, T-MOBILE AND/OR ITS CONTRACTORS MUST WORK DIRECTLY WITH AMTRAK TO IDENTIFY AMTRAK'S BURIED UTILITIES AND FACILITIES.
14. T-MOBILE AND/OR ITS CONTRACTOR IS RESPONSIBLE FOR MAKING THE ONE-CALL. AMTRAK IS NOT PART OF THE ONE-CALL SYSTEM AND THEREFORE AMTRAK UTILITIES AND FACILITIES WILL NOT BE LOCATED OR PROTECTED THROUGH THE ONE-CALL SYSTEM. INSTEAD, T-MOBILE AND/OR ITS CONTRACTOR MUST WORK WITH AMTRAK TO IDENTIFY AND PROTECT ALL BURIED UTILITIES AND FACILITIES. T-MOBILE AND/OR ITS CONTRACTOR MUST IDENTIFY AND PROTECT ALL BURIED UTILITIES AND FACILITIES THROUGHOUT THE ENTIRE PROJECT, INCLUDING ALL PHASES OF CONSTRUCTION, EXCAVATION, TRENCHING AND/OR BORING ACTIVITIES.
15. NO CONSTRUCTION, EXCAVATION, TRENCHING AND/OR BORING ACTIVITIES MAY BE PERFORMED IN CLOSE PROXIMITY TO THE AMTRAK DUCT LINE UNLESS MONITORED BY ON-SITE AMTRAK COMMUNICATIONS AND SIGNAL DEPARTMENT PERSONNEL. HAND DIGGING MAY BE REQUIRED, AS DIRECTED BY AMTRAK THROUGH THE ON-SITE AMTRAK COMMUNICATIONS AND SIGNAL SUPPORT PERSONNEL OR OTHERWISE.
16. EQUIPMENT OR PERSONNEL WORKING CLOSER THAN 15 FEET TO THE CENTERLINE OF AN ADJACENT TRACK SHALL BE CONSIDERED AS FOULING THAT TRACK. INSOFAR AS POSSIBLE, ALL OPERATIONS SHALL BE CONDUCTED NO LESS THAN THIS DISTANCE. OPERATIONS CLOSER THAN 15' TO THE CENTERLINE OF A TRACK SHALL BE CONDUCTED ONLY WITH THE PERMISSION OF, AND AS DIRECTED BY A DULY QUALIFIED AMTRAK EMPLOYEE PRESENT AT THE WORKSITE. SPECIAL ARRANGEMENTS MUST BE MADE AT LEAST 21 WORKING DAYS IN ADVANCE OF THE WORK, WHERE FOULING OF TRACK OR STRUCTURES IS REQUIRED FOR ACCESS. THESE OPERATIONS REQUIRE THE PRIOR APPROVAL OF AMTRAK. CROSSING OF TRACKS AT GRADE BY EQUIPMENT AND PERSONNEL IS PROHIBITED, EXCEPT BY PRIOR ARRANGEMENT WITH, AND AS DIRECTED BY AMTRAK.

LIFT NOTES:

1. THE LIFT PLANS AND THE SOW OUTLINE A COMPLETE PROCEDURE, TIME SCHEDULE, THE ORDER OF LIFTS AND A MANEUVERING ENVELOPE REFLECTING THE AREA ALLOWED FOR THE EQUIPMENT TO REPOSITION IF DESIRED IS INCLUDED.
2. THIS LIFT PLAN IS IN COMPLIANCE WITH SECTION 01142A OF EP-3014 AND THE DOCUMENT CAPTIONED "AMTRAK ELECTRIFIED TERRITORY EQUIPMENT BONDING AND GROUNDING", ATTACHED TO THE SOW. THE CONTRACTOR AND THE OPERATOR ARE RESPONSIBLE FOR ADHERENCE TO ALL BONDING AND GROUNDING REQUIREMENTS. SUBSTITUTIONS TO THE MATERIALS LISTED ARE PROHIBITED
3. UNLESS OTHERWISE APPROVED BY AMTRAK IN WRITING, THE EQUIPMENT SHALL BE POSITIONED SO THAT THE BOOM IS NOT PERPENDICULAR TO THE TRACK, WHILE ALSO MAINTAINING ALL OTHER SAFETY REQUIREMENTS (INCLUDING CLEARANCES, ETC.), AND THE BOOM SHALL BE MECHANICALLY RESTRICTED TO PREVENT IT FROM ENCROACHING UPON AMTRAK'S INFRASTRUCTURE (WHICH INCLUDES, WITHOUT LIMITATION, ANY TRACK AND/OR CATENARY STRUCTURES) ANY MORE THAN WHAT IS ABSOLUTELY NECESSARY FOR THE IMPLEMENTATION OF THE WORK OUTLINED IN THESE PLANS. IDEALLY THE BOOM WILL BE RESTRICTED TO THE 180-DEGREE SEMI-CIRCLE AWAY FROM ALL TRACKS.
4. FINAL EQUIPMENT LOCATION WILL BE WITHIN THE RESTRICTED MANEUVERING ENVELOPE AS OUTLINED IN THIS APPROVED LIFT PLAN.
5. CONTRACTOR TO VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK.
6. THE NOTES HEREIN ARE OFFERED FOR INFORMATION AND GUIDANCE AND ARE NOT TO BE TAKEN TO INFER THE ENGINEER IS IN ANY WAY INVOLVED IN OR IS RESPONSIBLE FOR THE ACTUAL LIFT IN THE FIELD.
7. DO NOT OPERATE IN WINDS OVER 20 MPH.
8. OPERATIONS TO BE CONDUCTED IN ACCORDANCE WITH OSHA AND AMTRAK REGULATIONS AND ALL OTHER APPLICABLE RULES AND CODES.
9. SWING PATH OF BOOM SHALL NOT BE OVER ADJACENT BUILDINGS, WORKERS OR OCCUPIED VEHICLES WHILE LIFTING LOADS.
10. BARRICADES SHALL BE INSTALLED AROUND THE LIFT ZONE AND ANY SWING AREAS AS NECESSARY TO ENSURE OTHERS NOT INVOLVED IN THE LIFT PROCESS DO NOT ENTER INTO THOSE AREAS.
11. THE TOTAL ESTIMATED DURATION OF LIFT ACTIVITIES ON SITE IS ONE EVENT LASTING (8) EIGHT HOURS.
12. CHECK ALL OF THE PARTS OF THE EQUIPMENT EACH NEW WORK SHIFT, INCLUDING ALL OF THE CABLES, EQUIPMENT PARTS AND ENGINE PARTS.
13. THE EQUIPMENT OPERATOR MUST CONFIRM THE HAND SIGNALS THAT WILL BE USED DURING THE LIFT WITH THE SUPPORT GROUND CREW PRIOR TO THE START OF ANY LIFT.
14. ALWAYS INSPECT THE AREA PRIOR TO LIFTING A LOAD TO MAKE SURE THERE ARE NO PEOPLE BELOW.
15. NO SIDE PULLS ALLOWED WHEN PERFORMING A LIFT.
16. EQUIPMENT OPERATOR TO KEEP THE GUY CABLES IN VIEW TO MAKE SURE THEY ARE NOT HIT IN ANY WAY. HIGH VISIBILITY RIBBON SHOULD BE INSTALLED TEMPORARILY TO ASSIST IN KEEPING TRACK OF THE GUY WIRE LOCATIONS.
17. PERMITTEE AND/OR CONTRACTORS SHALL KEEP RAILROAD'S PROPERTY CLEAR OF ALL REFUSE AND DEBRIS FROM ITS OPERATIONS, UPON COMPLETION OF THE WORK, PERMITTEE AND/OR CONTRACTORS SHALL REMOVE FROM RAILROAD'S PROPERTY ALL MACHINERY, EQUIPMENT, SURPLUS MATERIALS, FALSEWORK, RUBBISH, TEMPORARY STRUCTURES, AND OTHER PROPERTY OF THE PERMITTEE AND/OR CONTRACTORS AND SHALL LEAVE RAILROAD'S PROPERTY IN A CONDITION SATISFACTORY TO THE CHIEF ENGINEER.
18. THIS LIFT PLAN INCLUDES THE DESIRED LOCATION OF THE EQUIPMENT, THE OPERATING RADII, AND STAGING/DISPOSAL AREAS. ALL ITEMS HAVE BEEN DIMENSIONED FOR LOCATING THE ELEMENTS IN THE FIELD.
19. THE EQUIPMENT IS CAPABLE OF PICKING 150% OF THE LOAD, WHILE MAINTAINING NORMAL, RECOMMENDED FACTORS OF SAFETY. THE ADEQUACY OF THE EQUIPMENT FOR THE PROPOSED PICK SHALL BE DETERMINED BY USING THE MANUFACTURER'S PUBLISHED LOAD RATING CHARTS AND NOT THE MAXIMUM CAPACITY IF THE BOOM.
20. THE LIFT PLAN OUTLINES THE EXISTING OBSTRUCTIONS AND THE PROPOSED SWING BEING USED FOR THE LIFT. "WALKING" OF LOAD USING TWO PIECES OF EQUIPMENT WILL NOT BE PERMITTED, RATHER, MULTIPLE PICKS AND REPOSITIONING OF THE EQUIPMENT MAY BE PERMITTED TO GET THE LOAD TO THE NEEDED LOCATION FOR THE FINAL PICK, IF NECESSARY.
21. IF THERE ARE OVERHEAD POWER LINES PRESENT. ALL AERIAL WORK WILL BE PERFORMED WITH THE POWER LINES DE-ENERGIZED. NO WORK WILL BE PERFORMED AROUND OR NEAR THE POWER LINES WITHOUT AN AMTRAK E.T. LINEMAN'S AUTHORIZATION.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

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1279 ROUTE 300
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ISSUED BY: BW
DATE: 6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

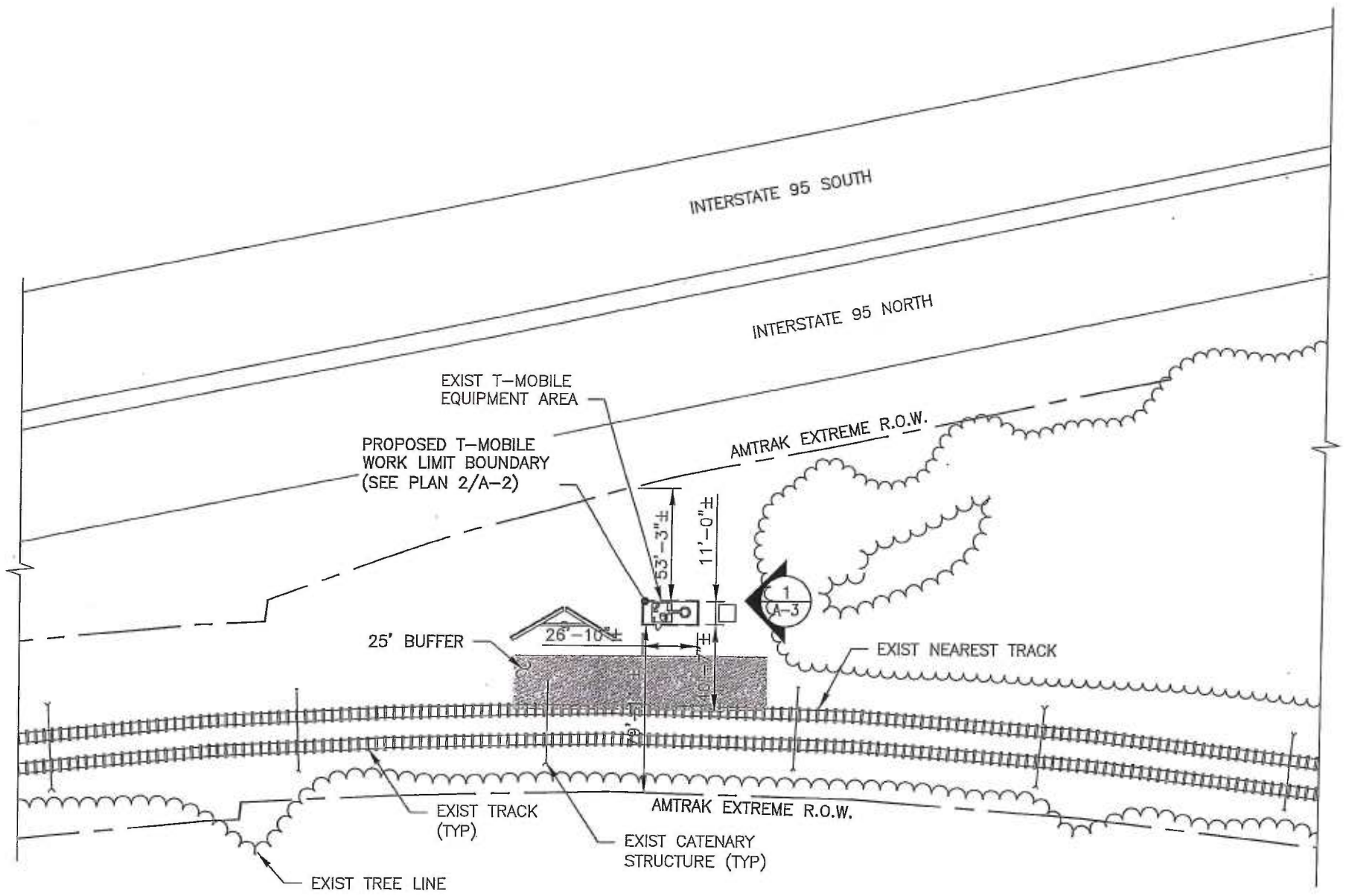
SITE INFORMATION
CT11024B
AMTRAK-BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE
NOTES

SHEET NUMBER
T-2

N

APPROX



1/A-1 SITE PLAN

SCALE: 1/64" = 1'-0"

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC

• PLANNING • SURVEYING
• ENGINEERING • CONSTRUCTION MANAGEMENT

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ISSUED BY: BW
DATE: 6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUATTERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

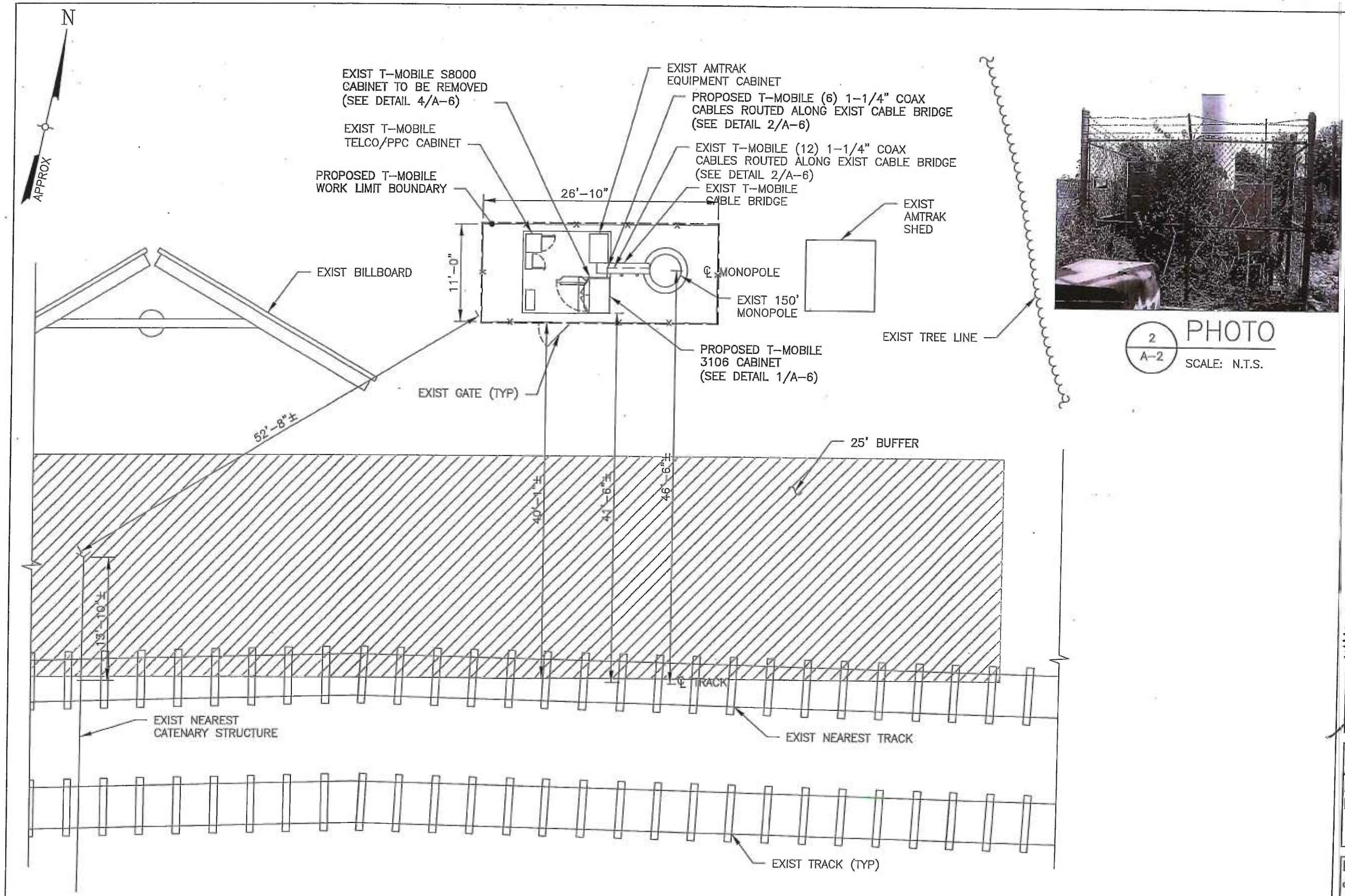
CT11024B
AMTRAK-BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE

SITE PLAN & NOTE

SHEET NUMBER

A-1



1 / A-2 EQUIPMENT PLAN

SCALE: 3/32" = 1'-0'

2 / A-2 PHOTO

SCALE: N.T.S.

0 1 2 3

ORIGINAL SIZE IN INCHES

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TECTONIC Engineering & Surveying Consultants P.C.

1279 ROUTE 300
NEWBURGH, NY 12550
Phone: (845) 567-6858
Fax: (845) 567-8703

T-Mobile

12050 BALTIMORE AVENUE
BELTSVILLE, MD 20705

PROJECT NUMBER: 7421.CT11024B
DESIGNED BY: MP

REV	DATE	REVISION	DRAWN BY
0	3/23/15	FOR APPROVAL	KA
1	4/2/15	PER COMMENTS	KA
2	4/15/15	PER COMMENTS	KA
3	5/13/15	PER COMMENTS	KA

ISSUED BY: GW
DATE: 6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

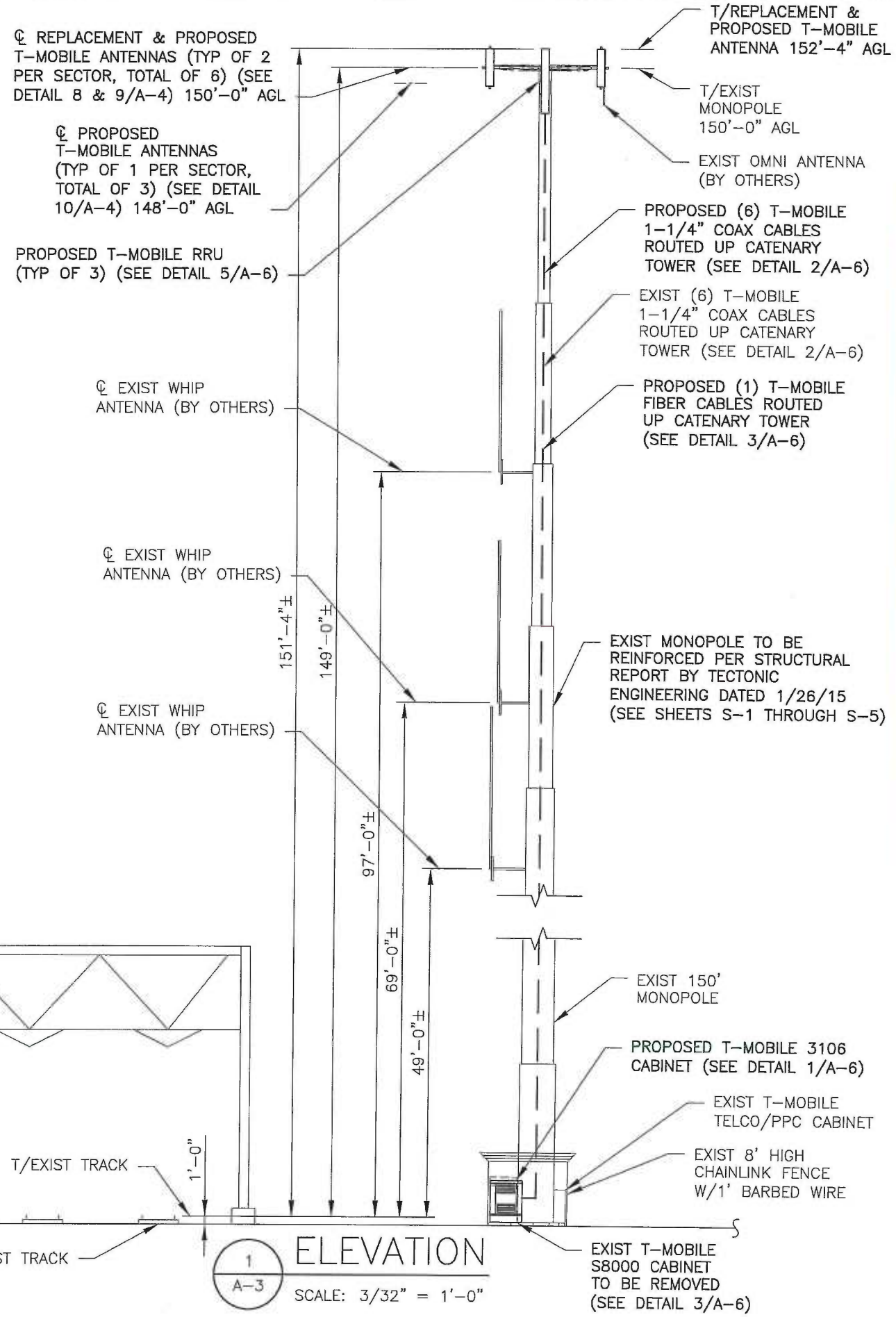
CT11024B
AMTRAK-BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE

EQUIPMENT PLAN & PHOTO

SHEET NUMBER

A-2



1/A–3 ELEVATION

SCALE: 3/32" = 1'–0"

2/A–3 PHOTO

SCALE: N.T.S.

0 1 2 3

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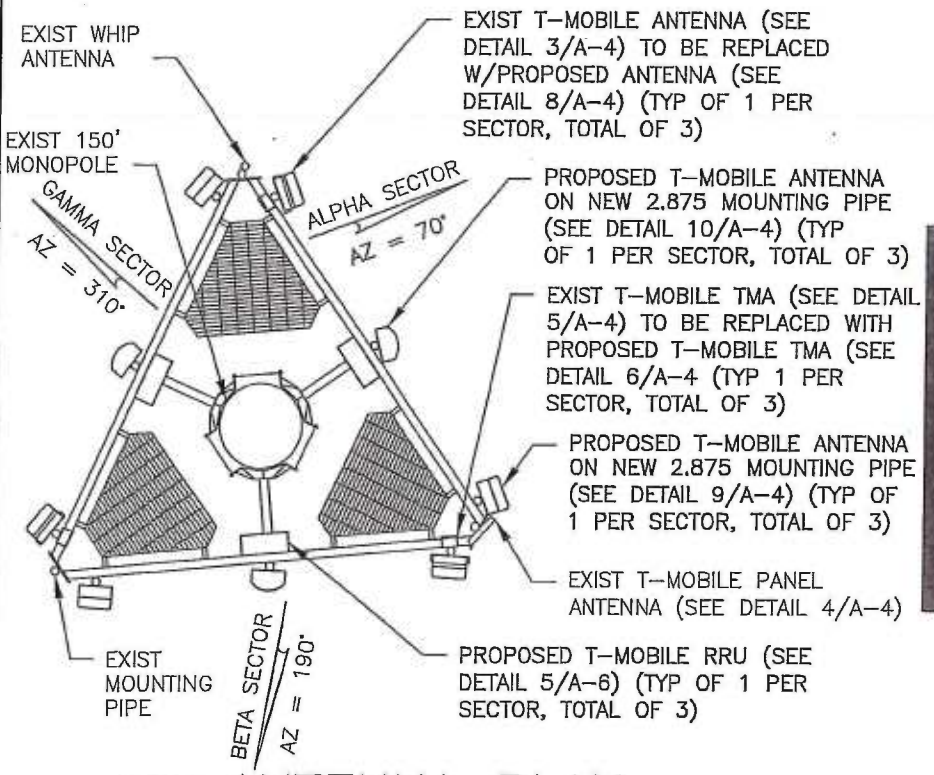
CT11024B
AMTRAK–BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE
ELEVATION & PHOTO

SHEET NUMBER
A–3

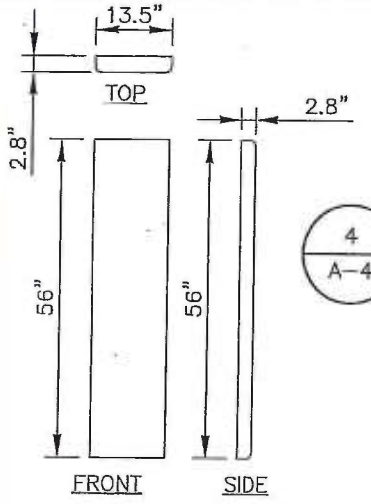


1 / A-4 ANTENNA PLAN

SCALE: 3/8" = 1'-0"

2 / A-4 PHOTO

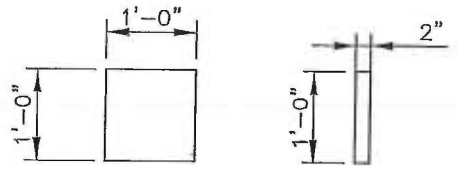
SCALE: N.T.S.



RR901700_P

3 / A-4 ANTENNA (EXIST)

SCALE: 3/8" = 1'-0"

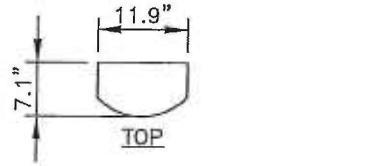


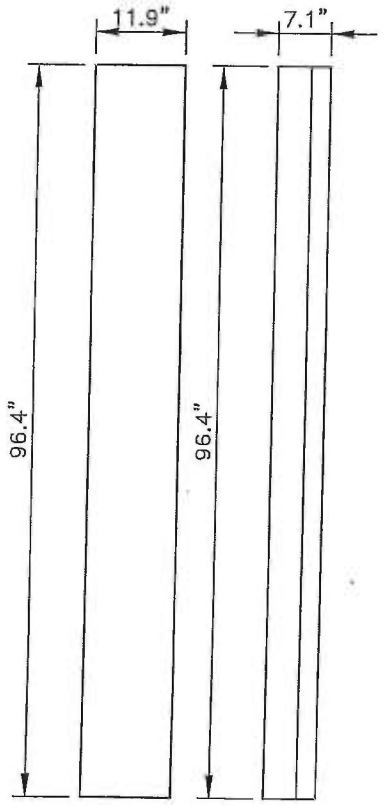
DFPD1-52

-EXIST-

4 / A-4 PANEL ANTENNA (EXIST)

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

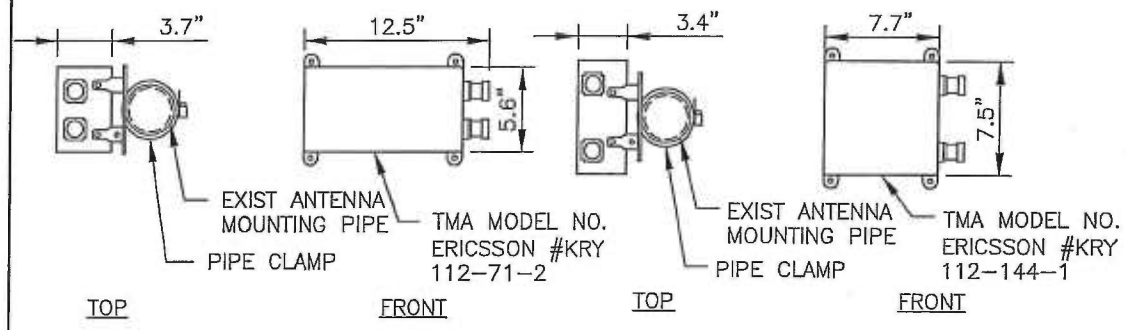




LNX-6515DS-VTM

10 / A-4 ANTENNA (NEW)

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

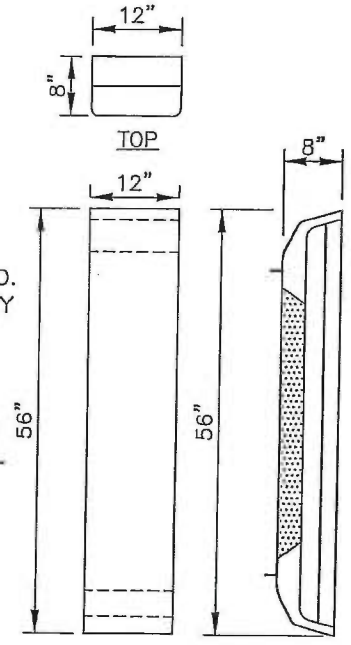


5 / A-4 TMA (EXIST)

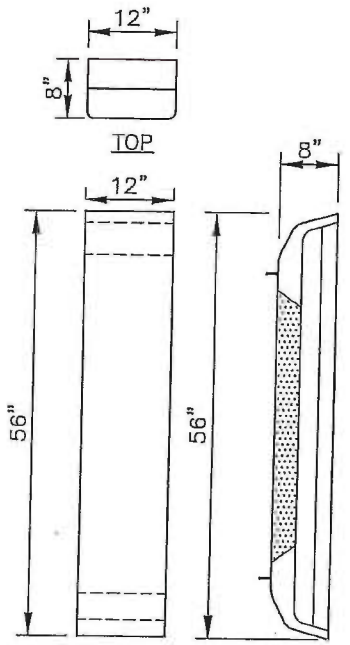
SCALE: 1" = 1'-0"

6 / A-4 TMA (PROPOSED)

SCALE: 1" = 1'-0"



AIR21B2A/B4P



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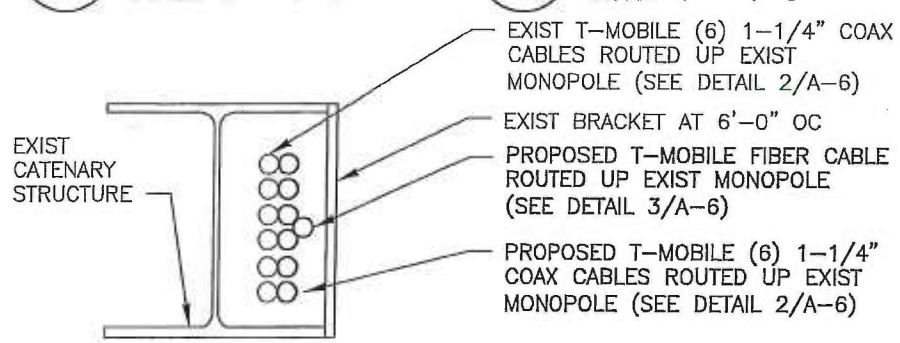

7 / A-4 CABLE MOUNTING DETAIL

SCALE: 1" = 1'-0"

8 / A-4 ANTENNA (NEW)

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

9 / A-4 ANTENNA (NEW)

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

0 1 2 3

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PROJECT NUMBER	DESIGNED BY
7421.CT11024B	MP

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ISSUED BY	DATE
BW	6/4/15

STATE OF CONNECTICUT
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SITE INFORMATION

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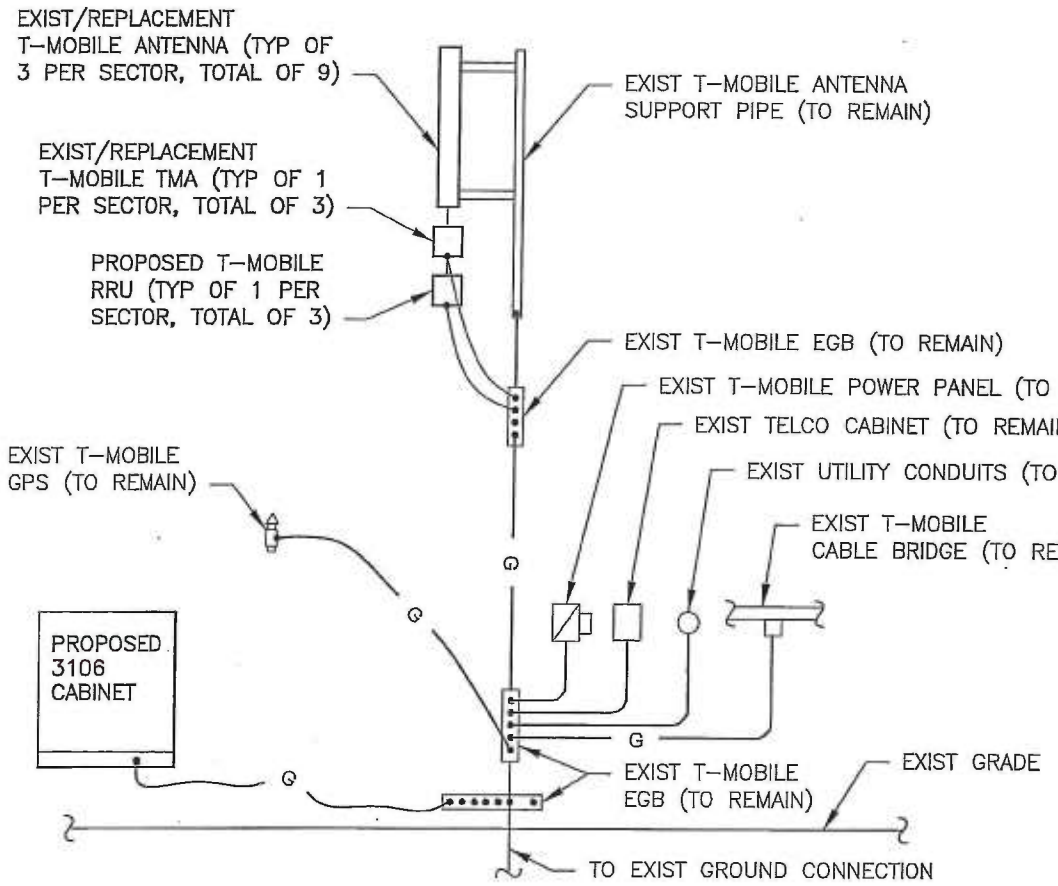
AMTRAK-BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE

ANTENNA PLAN & DETAILS

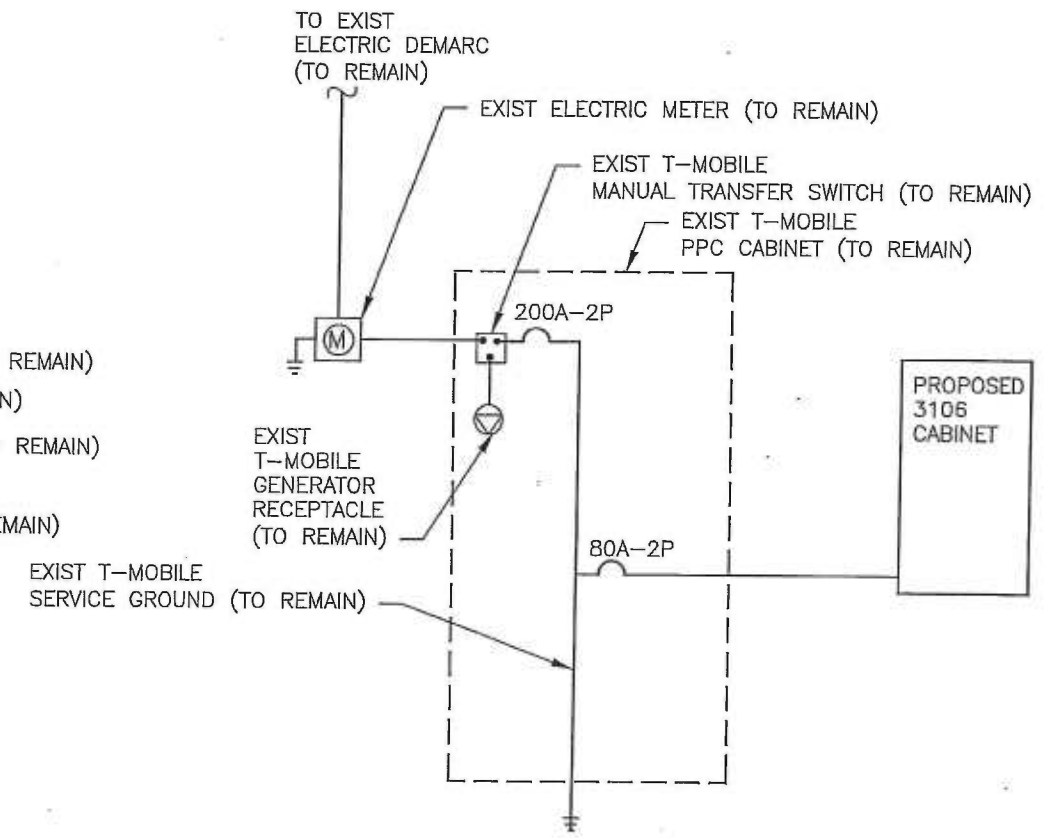
SHEET NUMBER

A-4



1 / A–5 GROUNDING RISER DIAGRAM

SCALE: NTS



2 / A–5 ONE–LINE POWER DIAGRAM

SCALE: NTS

0 1 2 3

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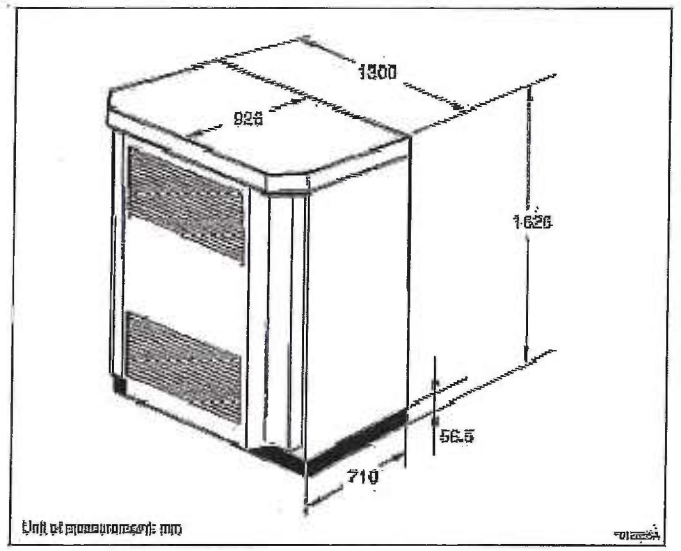
STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED
PROFESSIONAL ENGINEER

SITE INFORMATION
CT11024B
AMTRAK–BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE
WIRING DIAGRAM

SHEET NUMBER
A–5

Unit	Dimensions (mm)
Height (including installation frame)	1628
Width	1300
Depth	710
Depth including door	926



Unit of measurement: mm

3106 CABINET (PROPOSED)

1 / A–6

SCALE: NTS

Technical Specifications

Frequency range
Indoor: 850/1900 MHz GSM / 900 MHz EGSM / 900/1800 MHz GSM / 900 MHz GSM-R
Outdoor: GSM 850/ 1900/ E 900/ 900/ 1800

Receive sensitivity
without diversity: -110 dBm guaranteed (w/o TMA)
with diversity: -115 dBm guaranteed (w/o TMA)

Dimensions
Height: 1700 mm (Indoor) 1600 mm (Outdoor)
Width: 750 mm (Indoor) 1350 mm (Outdoor)
Depth: 450 mm (Indoor) 650 mm (Outdoor)

Weight
Fully Equipped: 250 kg (Indoor) 440 kg (Outdoor)

Capacity
Standard: 8 TRX per radio cabinet, up to 3 radio cabinets

Configuration
Trisectorial: Up to S888
Omnidirectional: up to O16

Amplifier Output Power
Standard: 30W (+/- 0.5 dB)
Optional: 60W (+/- 0.5 dB), frequency dependent

Power Control
Static: 6 steps of 2 dB
Dynamic: 15 steps of 2 dB

Supported Vocoders
Full Rate (FR), Enhanced Full Rate (EFR), Half Rate (AMR HR)

Power Supply
Indoor: Nominal -48V Rate Voltage Range -57V to -40.5V
Outdoor: 230V AC-50/60 Hz

S8000 CABINET (EXIST)

4 / A–6

SCALE: NTS

LDF6-50

Description	Type No.
Cable Ordering Information	
Standard Cable	
1-1/4" Standard Cable, Standard Jacket	LDF6-50
Fire Retardant Cable	
1-1/4" Fire Retardant Jacket (CATVR)	LDF6RN-50
Low VSWR and Specialized Cables	
1-1/4" Low VSWR, specify operating band	LDF6P-50 (**)

** Insert suffix number from "Low VSWR Specifications" table, page 515

Characteristics

Electrical	
Impedance, ohms	50 ± 1
Maximum Frequency, GHz	3.3
Velocity, percent	89
Peak Power Rating, kW	205
dc Resistance, ohms/1000 ft. (1000 m)	
Inner	0.22 (0.72)
Outer	0.19 (0.62)
dc Breakdown, volts	9000
Jacket Spark, volts RMS	10000
Capacitance, pF/ft (m)	22.9 (75.1)
Inductance, µH/ft (m)	0.056 (0.184)
Mechanical	
Outer Conductor	Copper
Inner Conductor	Copper
Diameter over Jacket, in (mm)	1.55 (39.4)
Diameter over Copper Outer Conductor, in (mm)	1.41 (35.8)
Diameter Inner Conductor, in (mm)	0.516 (13.1)
Nominal Inside Transverse Dimensions, cm	3.11
Minimum Bending Radius, in (mm)	15 (380)
Number of Bends, minimum (typical)	15 (40)
Bending Moment, lb-ft (N-m)	30 (40)
Cable Weight, lb/ft (kg/m)	0.81 (0.84)
Tensile Strength, lb (kg)	1300 (600)
Flat Plate Crush Strength, lb/in (kg/mm)	125 (2.2)

Attenuation and Average Power

Frequency MHz	Attenuation dB/100 ft	Attenuation dB/100 m	Average Power, kW
0.5	0.017	0.056	175.0
1	0.024	0.079	123.0
1.8	0.030	0.097	101.0
2	0.034	0.112	87.1
10	0.077	0.253	38.6
20	0.110	0.361	27.1
30	0.135	0.444	22.0
50	0.176	0.579	16.8
88	0.237	0.778	12.6
109	0.264	0.852	11.7
108	0.264	0.867	11.3
150	0.316	1.03	9.47
174	0.340	1.12	8.73
200	0.367	1.20	8.12
300	0.457	1.50	6.52
400	0.535	1.76	5.57
450	0.571	1.87	5.22
500	0.605	1.99	4.82
512	0.616	2.01	4.66
600	0.671	2.20	4.44
700	0.732	2.40	4.07
800	0.789	2.59	3.78
824	0.803	2.63	3.71
894	0.841	2.76	3.54
900	0.876	2.87	3.40
1000	0.937	2.94	3.32
1250	1.02	3.35	2.92
1500	1.14	3.73	2.62
1700	1.22	4.02	2.43
1800	1.27	4.16	2.35
2000	1.35	4.43	2.21
2100	1.39	4.56	2.14
2200	1.43	4.69	2.08
2300	1.47	4.82	2.03
3000	1.74	5.68	1.72
3300	1.84	6.02	1.62

Standard Conditions:
For Attenuation, VSWR 1.0, ambient temperature 20°C (68°F).
For Average Power, VSWR 1.0, ambient temperature 40°C (104°F), inner conductor temperature 100°C (212°F); no solar loading.

COAX CABLE (PROPOSED)

2 / A–6

SCALE: NTS

HELIAX® Coaxial Cables

Product Data Sheet HB158-1-13U6-S6F18 — RFS

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminium corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multimode or single-mode) and power in a single corrugated cable. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable.

Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminium corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- UL-listed, flame-retardant jacket, UV-protected assembly – Allows both indoor and outdoor applications

Technical Specifications

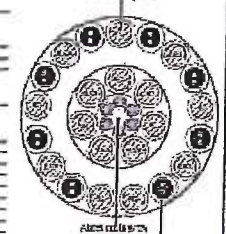


Figure 2: Construction Detail

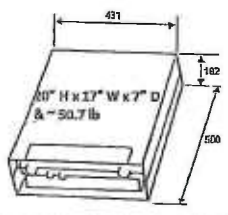
RFS The Clear Choice® | HB158-1-13U6-S6F18 | Rev: F2 | Print Date: 20.3.2013

FIBER CABLE (PROPOSED)

3 / A–6

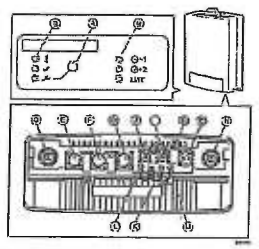
SCALE: NTS

Remote Radio Unit – RRUS11 B12



** RRUS 11 B12 is exactly the same size as RRUS 11 B2 or B4 that T-Mobile is currently using.

Dimensions with Solar Shield and Handle	
Height	500 mm
Width	431 mm
Depth	182 mm
Weight	
RRUS 11	23 kg
Color	
Grey	NCS S2502R



Position/Description	Marking
A Maintenance button	
B Optical indicators	
C –48 V DC power supply	G+1, G+2 UNIT
D –	UNIT
E Optical cable 1	G+1
F Optical cable 2	G+2
G Antenna 1	ANT
H Antenna 2	ANT
I RJ5 (used for a RET unit for example)	RET
J External alarm	EA
K(1) Cross connect RXA	RXA I/O
L (1) RXA co-site	RXA OUT
M (1) Cross connect RXB	RXB I/O
N Grounding	⏚

Unit	Output Power
RRUS 11 B1, B4	2x30 W
	2x40 W
RRUS 11 B2	2x30 W
	2x40 W
RRUS 11 B12	2x30 W

RRU (PROPOSED)

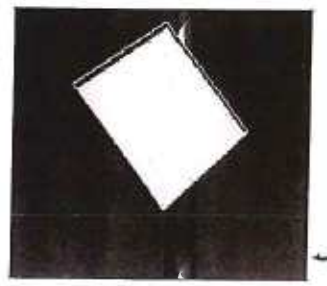
5 / A–6

SCALE: NTS

5 GHz - Spread Spectrum / NII Band Directional Flat Panel Antenna
(for Point-to-Point applications)

Facts & Features

- Gain/Quality and Dependability.
- Lightweight and durable construction.
- Quick and easy installation.
- Feed input, Type N Female connector. (Other types available on request.)
- Input connector positioned on back of antenna assembly.
- Antenna supplied with pole/cable rigid radome.
- All Gabriel antennas meet or exceed Standards EIA-195-C and EIA-222-F.
- Antenna accommodates +/-20° elevation adjustment. (Specific installation limitations may apply.)
- Mini-Mounts accommodate a 1.0 in. to 4.5 in. (25 to 114 mm) O.D. mast pipe. Quick-Align Mounts mount to a 2.375 in. (60 mm) O.D. mast pipe. An optional 1.0 in. (25 mm) to 4.5 in. (114 mm) Mast Clamp Kit is available on request for the Quick-Align Mount.
- *To adapt the Quick Align Mount for use on a 1.9 in. to 4.5 in. O.D. mast pipe order Mast Clamp Kit MCKQA-19-45*
- Special colors and / or logos available on request.
- Dual band models are available on request.



5 GHz Directional Flat Panel Antenna

Electrical Specifications

Frequency GHz	Model Number	Size ft (m)	Mount Type	Gain at Low	Gain at Mid	Gain at High	Nominal Mid-Band Beamwidth -degrees	XPD dB	F/B ratio dB	VSWR max.	(P.L. dB)
Diagonal - Directional Flat Panel - Plane Polarized											
5.250 - 5.850	DFP3.5-52"	0.9 (0.15)	MM	17.5	18.0	18.4	19.0	30	35	1.50	(14.0)
	DFP5-52	1 (0.3)	MM	23.0	23.5	23.9	6.4	32	42	1.50	(14.0)
	DFP21-52 (MI)	1 (0.3)	CAM	25.0	25.5	25.9	5.4	32	43	1.50	(14.0)
	DFP2-52	2 (0.6)	CAM	27.5	28.0	28.4	4.0	30	40	1.50	(14.0)

FLAT PANEL ANTENNA

6 / A–6

SCALE: NTS

0 1 2 3

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DESIGNED BY: MP

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ISSUED BY: BW
DATE: 6/9/15

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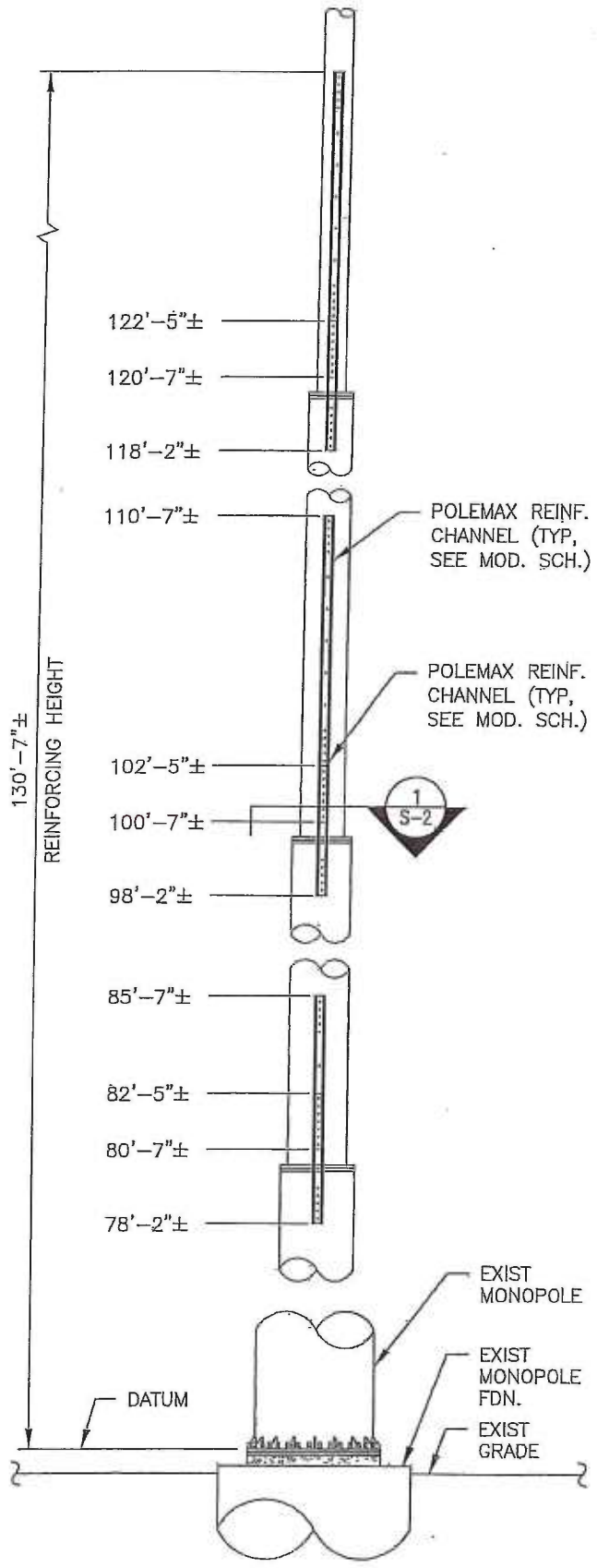
SHEET TITLE
SPECIFICATIONS

SHEET NUMBER
A–6



1/S-1 REINF. ELEVATION

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

MODIFICATION SCHEDULE	
ELEVATION	REINFORCING PART NUMBER
78'-2"± TO 82'-5"±	(3) MP303-5-NSI CHANNELS
80'-7"± TO 85'-7"±	(3) MP303BS-NSI BRIDGE SPLICE ASSY.
98'2"± TO 102'-5"±	(3) MP303-10-NSI CHANNELS
100'-7"± TO 110'-7"±	(3) MP303BS-NSI BRIDGE SPLICE ASSY.
118'-2"± TO 122'-5"±	(3) MP303-10-NSI CHANNELS
120'-7"± TO 130'-7"±	(3) MP303BS-NSI BRIDGE SPLICE ASSY.

NOTES:
1. CONTRACTOR SHALL IDENTIFY EXISTING CABLES, CABLE ATTACHMENTS, ANTENNAS & ANTENNA SUPPORT FRAMES THAT WILL NEED TO BE TEMPORARILY RELOCATED/PROTECTED FOR INSTALLING THE PROPOSED REINFORCEMENT. WRITTEN AUTHORIZATION FROM THE RESPECTIVE CARRIERS OR OWNERS SHALL BE OBTAINED BY THE CONTRACTOR/CLIENT PRIOR TO PROCEEDING WITH THE WORK.
2. THE PROPOSED POLE REINFORCEMENT IS DESIGNED USING PROPRIETARY SYSTEM "POLEMAX SYSTEMS" AS MANUFACTURED BY AEROSOLUTIONS, LLC. CONNECTION DETAILS AS SHOWN ARE BASED ON MANUFACTURER RECOMMENDATIONS. CONTRACTOR SHALL COORDINATE FINAL INSTALLATION METHOD AND PROCEDURE WITH THE MANUFACTURER (CONTACT NUMBER: 1-720-304-6882).
3. PLACEMENT OF PROPOSED REINFORCEMENT IN FIELD SHALL BE BASED ON APPROVED SHOP DRAWINGS PREPARED BY THE MANUFACTURER.
4. REMOVE AND REPLACE EXISTING CLIMBING RUNGS AS REQUIRED TO ALLOW FOR INSTALLATION OF MONOPOLE REINFORCING.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • ENGINEERING • SURVEYING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
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NEWBURGH, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-5703

T-Mobile
12050 BALTIMORE AVENUE
BELTSVILLE, MD 20705

PROJECT NUMBER: 6421.CT11024B
DESIGNED BY: VR

REV	DATE	REVISION	DRAWN BY
0	3/20/15	FOR COMMENT	RT
1	6/4/15	REVISED ANT. ELEVATION	RT

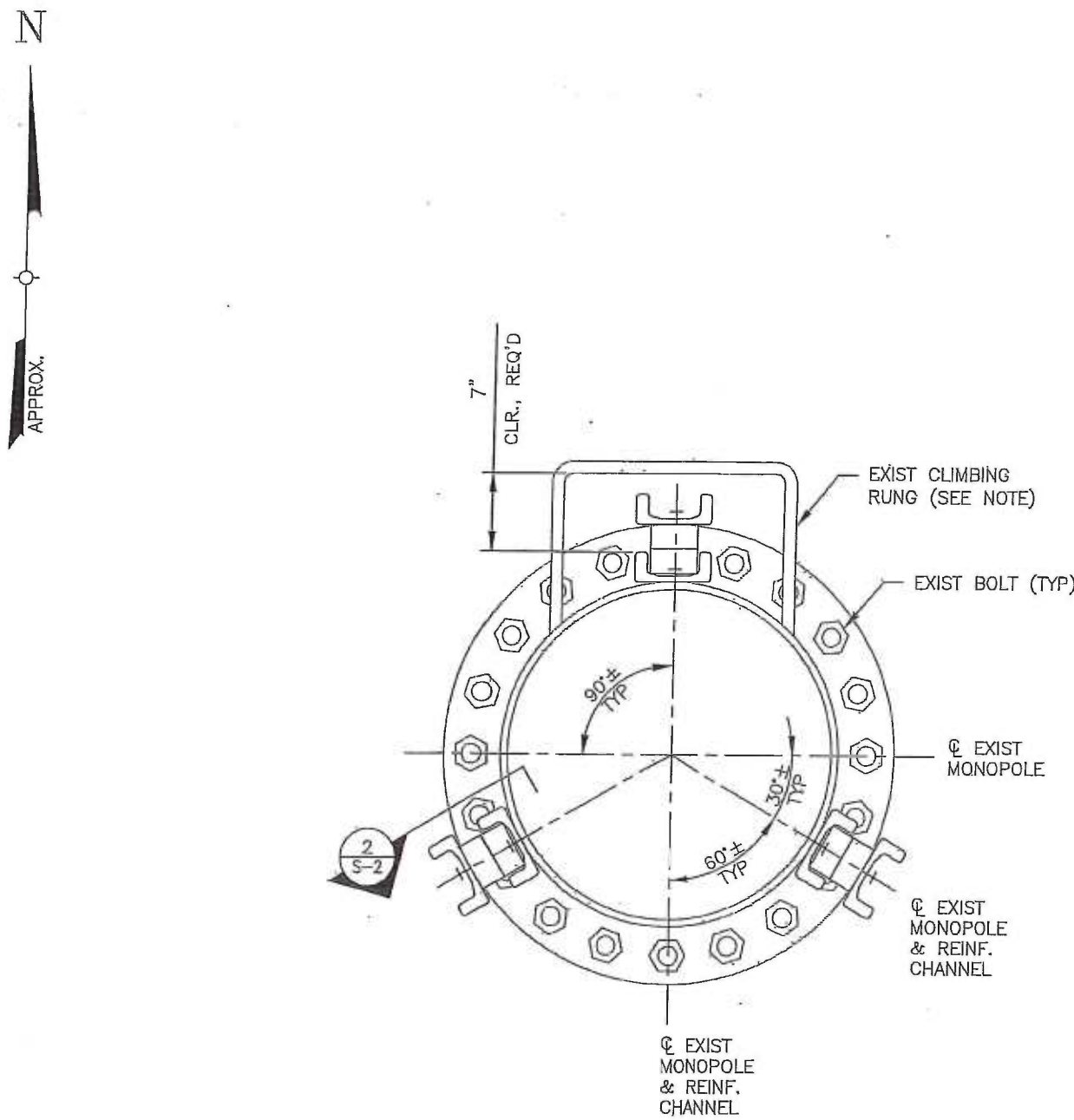
ISSUED BY: VE
DATE: 6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER
6/4/15

SITE INFORMATION
CT11024B
AMTRAK – BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE
ELEVATION & DETAIL

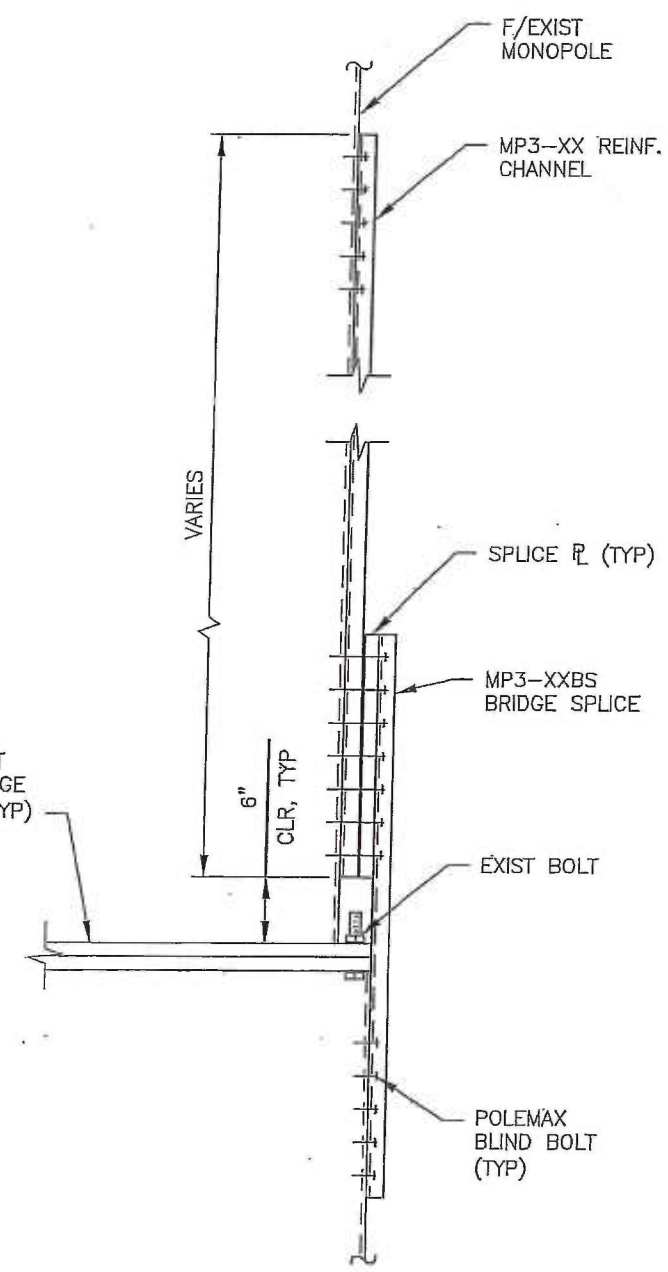
SHEET NUMBER
S-1



NOTE: CONTRACTOR SHALL FIELD VERIFY CLEARANCE BETWEEN EXISTING RUNGS AND PROPOSED REINFORCEMENT. REPLACE RUNG IN LIKE AND KIND, IF REQUIRED CLEARANCE (7") IS NOT AVAILABLE.

1 S-2 BRIDGE SPLICE ASSY. PLAN

SCALE: 1" = 1'-0"



2 S-2 BRIDGE SPLICE ASSY. SECTION

SCALE: 3/4" = 1'-0"

0 1 2 3

ORIGINAL SIZE IN INCHES

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PROJECT NUMBER	DESIGNED BY
6421:CT11024B	VR

REV	DATE	REVISION	DRAWN BY
2	3/20/15	FOR COMMENT	RT
1	6/4/15	REVISED ANT. ELEVATION	RT

ISSUED BY	DATE
VE	6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUILLIEN
No. 25406
LICENSED PROFESSIONAL ENGINEER
6/4/15

SITE INFORMATION

CT11024B
AMTRAK – BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE

BRIDGE SPLICE
PLAN & SECTION

SHEET NUMBER

S-2

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2003 IBC, 2003 IRC (STATE BUILDING CODE, 2005 CT SUPPLEMENT), AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. REINFORCEMENT OF THE EXISTING MONOPOLE HAS BEEN DESIGNED TO SUPPORT THE ANTENNAS AND CABLES LISTED IN THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REVISION 2, DATED 6/4/15.
3. MONOPOLE AND FOUNDATION WAS ANALYZED IN CONFORMANCE TO ANSI/TIA-EIA-222-F, "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
4. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
5. CONTRACTOR SHALL INSPECT THE EXISTING STRUCTURE PRIOR TO STARTING ANY WORK. IF CONDITIONS OR MATERIALS FOUND IN THE FIELD DIFFER FROM THOSE INDICATED, CONTACT THE ENGINEER FOR APPROVAL.
6. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
9. ALL MONOPOLE REINFORCEMENT SHALL BE COMPLETED PRIOR TO INSTALLATION OF PROPOSED ANTENNAS, MOUNTS, AND CABLES.
10. ALL WORK SHALL BE PERFORMED IN CALM WEATHER, WITH WIND GUSTS LESS THAN 10 MPH.
11. PROTECT EXISTING CABLES AND EQUIPMENT FROM DAMAGE DURING INSTALLATION OF ANTENNAS AND REINFORCING.
12. GROUNDING SYSTEM SHALL BE CHECKED AND UPGRADED AS NECESSARY, AS DIRECTED BY THE CONSTRUCTION MANAGER.

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12050 BALTIMORE AYENUE
BELTSVILLE, MD 20705

PROJECT NUMBER	DESIGNED BY
6421.CT11024B	VR

REV	DATE	REVISION	DRAWN BY
0	3/20/15	FOR COMMENT	RT
1	6/4/15	REVISED ANT. ELEVATION	RT

ISSUED BY: VE
DATE: 6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUGLIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER
6/4/15

SITE INFORMATION
CT11024B
AMTRAK – BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
S-3

0 1 2 3
ORIGINAL SIZE IN INCHES

STEEL NOTES

1. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 2005".
2. CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED:

   A) CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THE CITED AISC SPECIFICATION.

   B) STRUCTURAL BOLTS SHALL CONFORM TO THE LATEST ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS".

   C) WHERE THE REACTION VALUES OF BEAMS, BRACING, STRUTS, ETC., ARE NOT SHOWN ON THE DRAWINGS THE CONNECTIONS SHALL BE DESIGNED TO SUPPORT THE END REACTION DERIVED FROM THE TABLES AND FORMULA OF UNIFORM LOAD CONSTANTS IN PART 2, NINTH EDITION, OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN MEMBER SIZE, SPAN, AND YIELD STRENGTH.

   D) MINIMUM 3/16" FILLET E70-XX WELD SHALL APPLY UNLESS NOTED.

   E) MINIMUM 1/2" DIA. A325 BOLTS SHALL APPLY UNLESS NOTED.

   F) MINIMUM SIZE OF CLIP ANGLES SHALL BE L3x3x1/4" UNLESS NOTED.

   G) ALL GUSSET PLATES SHALL BE 3/8" THICK UNLESS NOTED.

   H) ALL HOLES FOR BOLTS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER WITH AN EDGE DISTANCE OF AT LEAST 1 1/2 TIMES THE BOLT DIAMETER AND A SPACING OF AT LEAST 3 TIMES THE BOLT DIAMETER. ALL BOLTS SHALL BE PROVIDED WITH PALNUTS OR LOCK NUTS.
3. STEEL ANGLES AND PLATES SHALL CONFORM TO ASTM A36 "CARBON STRUCTURAL STEEL", UNLESS OTHERWISE INDICATED.
4. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
5. ALL BOLTS SHALL BE HIGH STRENGTH BOLTS (HSB) CONFORMING TO ASTM A325 "STRUCTURAL BOLTS, STEEL, HEAT TREATED, 120/105 KSI MINIMUM TENSILE STRENGTH", WITH THREADS EXCLUDED FROM SHEAR PLANES (TYPE X). FULLY THREADED BOLTS (A325T) SHALL NOT BE USED.
6. U-BOLTS SHALL CONFORM TO ASTM A36 OR A307 "CARBON STEEL BOLTS AND STUDS, 60,000 PSI TENSILE STRENGTH". INSTALL DOUBLE NUTS ON ALL CONNECTIONS.
7. MATCHING NUTS SHALL BE HEAVY HEX TYPE, CONFORMING TO ASTM A563, "CARBON AND ALLOY STEEL NUTS".
8. ALL U-BOLTS SHALL BE 1/2" DIAMETER IN 9/16" DIAMETER HOLES, UNLESS OTHERWISE NOTED.
9. ALL BOLTS, U-BOLTS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
10. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780 "REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS".
11. ALL BOLT HOLES SHALL BE DRILLED OR PUNCHED 1/16" LARGER IN DIAMETER THAN THE CONNECTING BOLT, UNLESS OTHERWISE NOTED. THERMAL CUTTING OF HOLES (ARC OR TORCH) IS NOT PERMITTED.
12. ALL CONNECTIONS TO BE SNUG TIGHT TYPE IN ACCORDANCE WITH THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
13. CONTRACTOR SHALL COMPLY WITH AWS D1.1 "STRUCTURAL WELDING CODE - STEEL" FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES".
14. REMOVE ALL GALVANIZING IN AREAS TO BE WELDED BY GRINDING. AFTER WELDING, PROTECT ALL EXPOSED STEEL AND WELDS BY COLD GALVANIZING.
15. SPACES BETWEEN INTERMITTENT WELDS SHALL BE FILLED USING CHEM-CALK 500 AS MANUFACTURED AND MARKETED BY BOSTIK SEALANTS, MIDDLETON, MA 01949 (800) 523-2678 OR APPROVED EQUAL.
16. ALL WELDING TO THE TOWER SHALL BE PERFORMED WITH E80XX LOW HYDROGEN ELECTRODES, UNLESS OTHERWISE NOTED. LOW HYDROGEN ELECTRODES SHALL BE PURCHASED IN HERMETICALLY SEALED CONTAINERS AND SHALL BE USED WITHIN 4 HOURS AFTER OPENING THE CONTAINER. ELECTRODES NOT USED WITHIN 4 HOURS SHALL BE DISCARDED.
17. ALL FIELD WELDING SHALL BE VISUALLY INSPECTED BY AN AWS CERTIFIED WELDING INSPECTOR PRIOR TO INSTALLATION OF THE PROPOSED ANTENNAS.
18. FIELD VERIFY LENGTHS OF ALL MATERIAL PRIOR TO FABRICATION.
19. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.
20. REINFORCING CHANNEL SHALL BE POLEMAX MP303 AS MANUFACTURED BY AEROSOLUTIONS, LLC. A SHOP DRAWING DETAILING THE PROPOSED REINFORCING SHALL BE SUPPLIED TO THE CONTRACTOR BY THE MANUFACTURER.
21. POLEMAX BLIND BOLT FASTENERS SHALL BE AJAX BOLT ASSEMBLIES AS MANUFACTURED BY AJAX FASTENERS, OR APPROVED EQUAL. UTILIZE 3/4" DIAMETER BOLTS UNLESS NOTED OTHERWISE.
22. AJAX BOLT SLEEVES HAVE BEEN SIZED TO ENGAGE THE POLE SHAFT AND NEW REINFORCEMENT. THE SLEEVES ARE TO BE INSERTED FIRMLY AGAINST SPLIT WASHER INSIDE POLE AND HAVE A 1/8" TO 1/4" GAP BETWEEN THE OUTMOST BOLTING SURFACE AND THE OUTERMOST SURFACE OF THE SLEEVE. THE CONTRACTOR SHALL INCORPORATE THE NECESSARY MEASURES TO ENSURE THAT THE SLEEVES DO NOT SLIDE FORWARD AND THEY REMAIN POSITIONED TOWARD THE BACKSIDE OF THE HOLE ENGAGING BOTH SIDES OF THE SHEAR PLANE BETWEEN THE POLE SHAFT AND THE NEW REINFORCEMENT.
23. BLIND BOLTS SHALL BE INSTALLED, TENSIONED AND INSPECTED IN ACCORDANCE WITH THE AISC "TURN-OF-NUT" METHOD AS SPECIFIED IN THE AISC BOLT SPECIFICATION DATED 12/31/2009.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC

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- ENGINEERING
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T-Mobile

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PROJECT NUMBER	DESIGNED BY
5421.CT11024B	VR

REV	DATE	REVISION	DRAWN BY
0	3/20/15	FOR COMMENT	RT
1	6/4/15	REVISED ANT. ELEVATION	RT

ISSUED BY: VE
DATE: 6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER
6/9/15

SITE INFORMATION

CT11024B
AMTRAK - BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE

STEEL NOTES

SHEET NUMBER

S-4

EXHIBIT B

STRUCTURAL ANALYSIS REPORT – REV 2

(REINFORCEMENT DESIGN)

T-MOBILE UPGRADE

EXISTING 150' MONOPOLE

SITE NAME: BRANFORD/ I-95/ X53/ JCT.

60 HOSLEY AVENUE,

BRANFORD, CT 06405

JUNE 4, 2015

TEC W.O. 6421.CT11024B

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STRUCTURAL ANALYSIS REPORT

Project Information

W.O. Number:	6421.CT11024B	Report Date:	6/4/2015
Client:	T-Mobile	Revision:	2
Site Name:	Branford/ I-95/X53/Jct.		
Owner:	AMTRAK		
Site Address:	60 Hosley Avenue	FCC Regulation Number:	--
City, State:	Branford, CT 06405	County:	New Haven

Structure Information

Structure Type: Monopole — Manufacturer: PiRod
Structure Height: 150 ft. — Year Built: 1998

Original Drawings: Structure: No Foundation: No

Documents provided:

Item	By	No.	Date
Original Pole & Foundation Drawings (17 sheets)	Pirod Inc.	File #: A-114856	7/23/98
Geotechnical Report (10 pages)	French & Parrello	98A012ER2	6/10/98
Structural Analysis Report (9 pages)	Centek	10116.CO2	10/25/10
Network Modernization RFDS v3.0 (via email)	T-Mobile	-	9/12/14
Tower Mapping Report (12 pages)	Vertical Solutions	14131	1/13/15

Inspection

Type: Tower Mapping — Date: 1/13/2015

General Condition:
Pole: Good
Foundation: Good

Observations: Bird's nest at top of pole

Finish: Painted — Condition: Intact

Proposed Installation

T-Mobile is proposing to replace its three (3) existing panel antennas with newer model antennas. In addition, six (6) panel antennas and associated appurtenances are to be installed as part of this upgrade. The final T-Mobile configuration upon this upgrade will be as follows:
Antennas:

Height (ft.)	Carrier	Qty	Manuf.	Model	Mount
150	T-Mobile	3	Ericsson	AIR 21 B2A B4P	Existing 10' Low Profile Platform
		3	Ericsson	AIR 21 B4A B2P	
		3	Ericsson	KRY 112-144-1 TMA's	
		3	Ericsson	RRUS 11 B12	
148		3	Commscope	LNX-6515DS-VTM	

Cables:

Height (ft.)	Qty	Nom. Size	Location / Support
150	6	1-1/4"	Routed along the interior of the pole
150	6	1-1/4"	To be routed along the interior of the pole
150	12	RET Cables	To be routed along the interior of the pole
150	1	Hybriflex Fiber Cable	To be routed along the interior of the pole

STRUCTURAL ANALYSIS REPORT (CONT.)

W.O. Number:	6421.CT11024B	Report Date:	6/4/2015
Client:	T-Mobile	Revision:	2
Site Name:	Branford/ I-95/X53/Jct.		

Analysis Criteria

Design Standard: ANSI/TIA-222-F-1996

Building Code: 2005 Connecticut State Building Code Supplement (IBC 2003)

	Capacity (no ice)	Capacity w/ ice	Service
Wind Speed:	90 mph	78 mph	50 mph
Basic Ice Thickness:	0 inch	0.5 inch	0 inch

Assumptions:

1. The monopole was designed and constructed in accordance with the applicable codes and standards.
2. The foundation was designed and constructed based on site-specific geotechnical information.
3. Wind area and weight of the existing antenna platform has been estimated based on the site specific pictures.
4. The base plate and flange plates have been adequately designed by the manufacturer for the full moment capacity of the unreinforced pole shaft.

Analysis Results

Elevation (ft.)	Pole Shaft Usage (%)	Flange Plate Usage(%)	Flange Bolt Usage (%)
128 - 150	95	57 [b]	61 [b]
120 - 128 [a]	76		
108 - 120	96	80 [b]	62 [b]
100 - 108 [a]	78		
83 - 100	94	79 [b]	62 [b]
80 - 83 [a]	73		
60 - 80	97	97 [c]	93
40 - 60	94	94 [c]	87
20 - 40	92	92 [c]	82
0 - 20	90	--	--

Notes:

a. Portion of the pole shaft to be reinforced.

b. Usage upon installation of the proposed Bridge Splice reinforcement.

c. The flange plates have been adequately designed by the manufacturer for the full moment capacity of the unreinforced pole shaft.

Anchor Bolts: 71% of its capacity

Foundation Reactions (Envelope):

	Design Reactions[1]	Current Analysis	Percentage[2]
Vertical	28.7 kips	26 kips	91%
Shear	15.3 kips	15 kips	98%
Moment	1490 kip-ft.	1433 kip-ft.	96%

1. Based on the Original Design Reactions listed in the previous analysis report referenced herein.
2. For comparison purpose only. Existing foundation has been analyzed.

STRUCTURAL ANALYSIS REPORT (CONT.)

W.O. Number:	6421.CT11024B	Report Date:	6/4/2015
Client:	T-Mobile	Revision:	2
Site Name:	Branford/ I-95/X53/Jct.		

Conclusions

Based on our analysis, once the monopole is reinforced as shown in the drawings prepared by TECTONIC, it will have adequate capacity to support the proposed T-Mobile upgrade as described herein in accordance with current code requirements.

Furthermore, based on our analysis, the existing foundation has adequate capacity to support the additional loads due to the proposed T-Mobile installations.

If the existing conditions are not as represented in this report, the design engineer should be immediately notified prior to construction. Any further changes to the antenna configuration or other appurtenances should be reviewed with respect to their effect on structural loads prior to implementation.

Prepared by: Veronica Elson, EIT
Structural Engineer

Reviewed by: Vinod Ramesh, EIT
Structural Engineer

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED
PROFESSIONAL ENGINEER

Approved by:

Antonio A. Gualtieri, P.E.
Sr. Vice President

Date: 6/4/15

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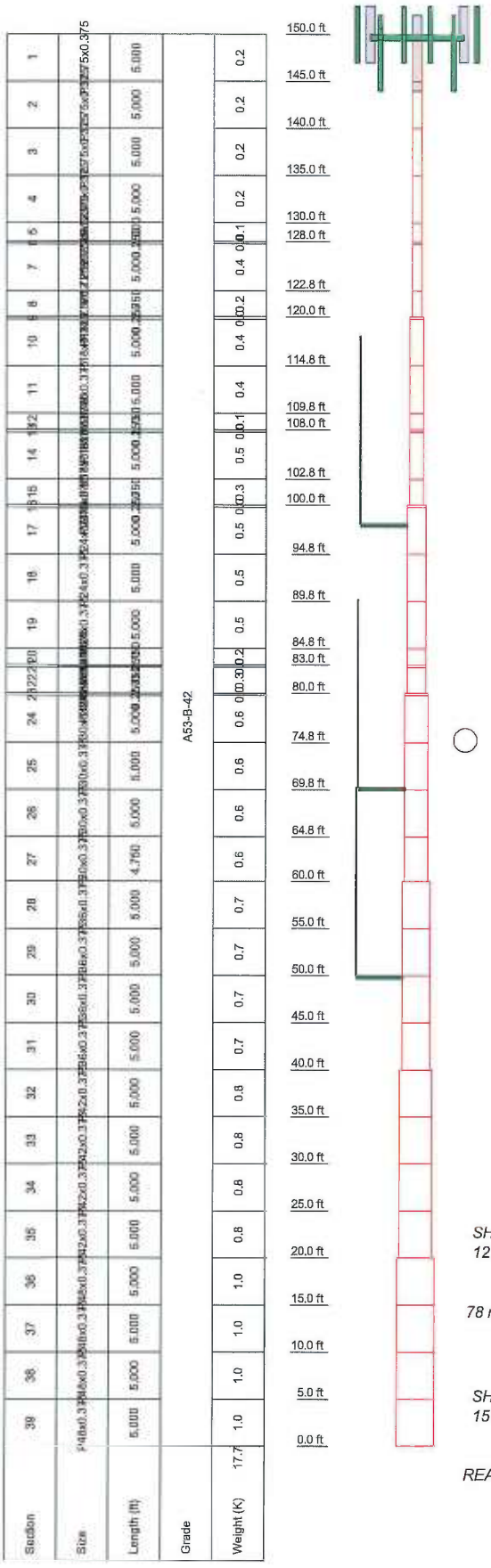
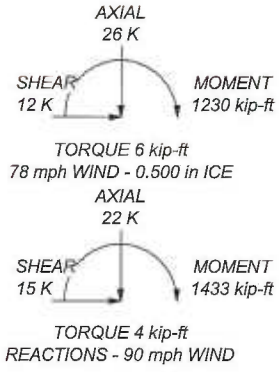
TNX TOWER SUMMARY REPORT





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
10' Low Profile Platform	150	KRY 112 144/1	150
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	150	KRY 112 144/1	150
		KRY 112 144/1	150
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	150	RRUS 11 B12	150
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	150	RRUS 11 B12	150
		RRUS 11 B12	150
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	150	6' x 1.5" Omni Antenna	150
		2" STD Pipe (2.375 OD)x6'-0"	150
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	150	2" STD Pipe (2.375 OD)x6'-0"	150
		DFPD1-52 w/ Mount Pipe	150
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	150	6' Side Arm	98
		PD220	98
LNX-6515DS-VTM w/ Mount Pipe	150	6' Side Arm	70
LNX-6515DS-VTM w/ Mount Pipe	150	PD220	70
LNX-6515DS-VTM w/ Mount Pipe	150	6' Side Arm	50
		PD220	50

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 78 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 97%

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Job: 6421.CT11024B			
Project: Branford/ I-95/ X53/ Jct.			
Client: T-Mobile	Drawn by: Veronica Elson	App'd:	
Code: TIA/EIA-222-F	Date: 06/02/15	Scale: NTS	
Path:		Dwg No. E-1	

TECTONIC Practical Solutions, Exceptional Service	Job 6421.CT11024B	Page 1 of 37
TECTONIC *1279 Route 300* *Newburgh, NY 12550* *Phone: (845) 567-6656* *FAX: (845) 567-8703*	Project Branford/ I-95/ X53/ Jct.	Date 10:38:12 06/02/15
	Client T-Mobile	Designed by Veronica Elson

Tower Input Data

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

Tower is located in New Haven County, Connecticut.
Basic wind speed of 90 mph.
Nominal ice thickness of 0.500 in.
Ice density of 56.000 pcf.
A wind speed of 78 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
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	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	√ Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination	Use TIA-222-G Tension Splice Capacity Exemption	

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	150.000-145.000	5.000	P12.75x0.375	A53-B-42 (42 ksi)	
L2	145.000-140.000	5.000	P12.75x0.375	A53-B-42 (42 ksi)	
L3	140.000-135.000	5.000	P12.75x0.375	A53-B-42 (42 ksi)	
L4	135.000-130.000	5.000	P12.75x0.375	A53-B-42 (42 ksi)	
L5	130.000-128.000	2.000	P12.75x0.375	A53-B-42 (42 ksi)	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L6	128.000-127.750	0.250	P12.75x0.725	A53-B-42 (42 ksi)	
L7	127.750-122.750	5.000	P12.75x0.725	A53-B-42 (42 ksi)	
L8	122.750-120.000	2.750	P12.75x0.725	A53-B-42 (42 ksi)	
L9	120.000-119.750	0.250	P18x0.375	A53-B-42 (42 ksi)	
L10	119.750-114.750	5.000	P18x0.375	A53-B-42 (42 ksi)	
L11	114.750-109.750	5.000	P18x0.375	A53-B-42 (42 ksi)	
L12	109.750-108.000	1.750	P18x0.375	A53-B-42 (42 ksi)	
L13	108.000-107.750	0.250	P18x0.5875	A53-B-42 (42 ksi)	
L14	107.750-102.750	5.000	P18x0.5875	A53-B-42 (42 ksi)	
L15	102.750-100.000	2.750	P18x0.5875	A53-B-42 (42 ksi)	
L16	100.000-99.750	0.250	P24x0.375	A53-B-42 (42 ksi)	
L17	99.750-94.750	5.000	P24x0.375	A53-B-42 (42 ksi)	
L18	94.750-89.750	5.000	P24x0.375	A53-B-42 (42 ksi)	
L19	89.750-84.750	5.000	P24x0.375	A53-B-42 (42 ksi)	
L20	84.750-83.000	1.750	P24x0.375	A53-B-42 (42 ksi)	
L21	83.000-82.750	0.250	P24x0.51875	A53-B-42 (42 ksi)	
L22	82.750-80.000	2.750	P24x0.51875	A53-B-42 (42 ksi)	
L23	80.000-79.750	0.250	P30x0.375	A53-B-42 (42 ksi)	
L24	79.750-74.750	5.000	P30x0.375	A53-B-42 (42 ksi)	
L25	74.750-69.750	5.000	P30x0.375	A53-B-42 (42 ksi)	
L26	69.750-64.750	5.000	P30x0.375	A53-B-42 (42 ksi)	
L27	64.750-60.000	4.750	P30x0.375	A53-B-42 (42 ksi)	
L28	60.000-55.000	5.000	P36x0.375	A53-B-42 (42 ksi)	
L29	55.000-50.000	5.000	P36x0.375	A53-B-42 (42 ksi)	
L30	50.000-45.000	5.000	P36x0.375	A53-B-42 (42 ksi)	
L31	45.000-40.000	5.000	P36x0.375	A53-B-42 (42 ksi)	
L32	40.000-35.000	5.000	P42x0.375	A53-B-42 (42 ksi)	
L33	35.000-30.000	5.000	P42x0.375	A53-B-42 (42 ksi)	
L34	30.000-25.000	5.000	P42x0.375	A53-B-42 (42 ksi)	
L35	25.000-20.000	5.000	P42x0.375	A53-B-42 (42 ksi)	
L36	20.000-15.000	5.000	P48x0.375	A53-B-42	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L37	15.000-10.000	5.000	P48x0.375	(42 ksi) A53-B-42 (42 ksi)	
L38	10.000-5.000	5.000	P48x0.375	A53-B-42 (42 ksi)	
L39	5.000-0.000	5.000	P48x0.375	A53-B-42 (42 ksi)	

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
L1 150.000-145.000				1	1	1		
L2 145.000-140.000				1	1	1		
L3 140.000-135.000				1	1	1		
L4 135.000-130.000				1	1	1		
L5 130.000-128.000				1	1	1		
L6 128.000-127.750				1	1	0.852135		
L7 127.750-122.750				1	1	0.852135		
L8 122.750-120.000				1	1	0.852135		
L9 120.000-119.750				1	1	1		
L10 119.750-114.750				1	1	1		
L11 114.750-109.750				1	1	1		
L12 109.750-108.000				1	1	1		
L13 108.000-107.750				1	1	0.918662		
L14 107.750-102.750				1	1	0.918662		
L15 102.750-100.000				1	1	0.918662		

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
L16 100.000-99.750				1	1	1		
L17 99.750-94.750				1	1	1		
L18 94.750-89.750				1	1	1		
L19 89.750-84.750				1	1	1		
L20 84.750-83.000				1	1	1		
L21 83.000-82.750				1	1	0.956232		
L22 82.750-80.000				1	1	0.956232		
L23 80.000-79.750				1	1	1		
L24 79.750-74.750				1	1	1		
L25 74.750-69.750				1	1	1		
L26 69.750-64.750				1	1	1		
L27 64.750-60.000				1	1	1		
L28 60.000-55.000				1	1	1		
L29 55.000-50.000				1	1	1		
L30 50.000-45.000				1	1	1		
L31 45.000-40.000				1	1	1		
L32 40.000-35.000				1	1	1		
L33 35.000-30.000				1	1	1		
L34 30.000-25.000				1	1	1		
L35 25.000-20.000				1	1	1		
L36 20.000-15.000				1	1	1		
L37 15.000-10.000				1	1	1		
L38 10.000-5.000				1	1	1		
L39 5.000-0.000				1	1	1		

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 plf

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF6-50(1-1/4")	C	No	Inside Pole	150.000 - 0.000	6	No Ice	0.000	0.660
						1/2" Ice	0.000	0.660
LDF6-50(1-1/4")	C	No	Inside Pole	150.000 - 0.000	6	No Ice	0.000	0.660
						1/2" Ice	0.000	0.660
ATCB-B01-003(5/16")	C	No	Inside Pole	150.000 - 0.000	12	No Ice	0.000	0.075
						1/2" Ice	0.000	0.075
HB158-1-13U6-S6F18(1 -5/8) ***	C	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	1.900
						1/2" Ice	0.000	1.900
LDF4-50A(1/2")	C	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.150
						1/2" Ice	0.000	0.150
LDF4-50A(1/2")	C	No	Inside Pole	98.000 - 0.000	1	No Ice	0.000	0.150
						1/2" Ice	0.000	0.150
LDF4-50A(1/2")	C	No	Inside Pole	70.000 - 0.000	1	No Ice	0.000	0.150
						1/2" Ice	0.000	0.150
LDF4-50A(1/2")	C	No	Inside Pole	50.000 - 0.000	1	No Ice	0.000	0.150
						1/2" Ice	0.000	0.150

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	150.000-145.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.054
L2	145.000-140.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.054
L3	140.000-135.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.054
L4	135.000-130.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.054
L5	130.000-128.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.022
L6	128.000-127.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.003
L7	127.750-122.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.054
L8	122.750-120.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.030
L9	120.000-119.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.003
L10	119.750-114.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.054
L11	114.750-109.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.054
L12	109.750-108.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000

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	0.000	0.000	0.019
L13	108.000-107.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.003
L14	107.750-102.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.054
L15	102.750-100.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.030
L16	100.000-99.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.003
L17	99.750-94.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.055
L18	94.750-89.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.055
L19	89.750-84.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.055
L20	84.750-83.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.019
L21	83.000-82.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.003
L22	82.750-80.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.030
L23	80.000-79.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.003
L24	79.750-74.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.055
L25	74.750-69.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.055
L26	69.750-64.750	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.056
L27	64.750-60.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.053
L28	60.000-55.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.056
L29	55.000-50.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.056
L30	50.000-45.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057
L31	45.000-40.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057
L32	40.000-35.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057

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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
L33	35.000-30.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057
L34	30.000-25.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057
L35	25.000-20.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057
L36	20.000-15.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057
L37	15.000-10.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057
L38	10.000-5.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057
L39	5.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.057

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	150.000-145.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.054
L2	145.000-140.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.054
L3	140.000-135.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.054
L4	135.000-130.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.054
L5	130.000-128.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.022
L6	128.000-127.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.003
L7	127.750-122.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.054
L8	122.750-120.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.030
L9	120.000-119.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.003
L10	119.750-114.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.054
L11	114.750-109.750	A	0.500	0.000	0.000	0.000	0.000	0.000

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	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.054
L12	109.750-108.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.019
L13	108.000-107.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.003
L14	107.750-102.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.054
L15	102.750-100.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.030
L16	100.000-99.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.003
L17	99.750-94.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.055
L18	94.750-89.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.055
L19	89.750-84.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.055
L20	84.750-83.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.019
L21	83.000-82.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.003
L22	82.750-80.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.030
L23	80.000-79.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.003
L24	79.750-74.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.055
L25	74.750-69.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.055
L26	69.750-64.750	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.056
L27	64.750-60.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.053
L28	60.000-55.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.056
L29	55.000-50.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.056
L30	50.000-45.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057
L31	45.000-40.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000

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	0.000	0.000	0.057
L32	40.000-35.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057
L33	35.000-30.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057
L34	30.000-25.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057
L35	25.000-20.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057
L36	20.000-15.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057
L37	15.000-10.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057
L38	10.000-5.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057
L39	5.000-0.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.057

Discrete Tower Loads

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
10' Low Profile Platform	C	None		0.000	150.000	No Ice	14.660	14.660	1.250
						1/2" Ice	18.870	18.870	1.481
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	6.825 7.347	5.642 6.480	0.112 0.169
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	6.825 7.347	5.642 6.480	0.112 0.169
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	6.825 7.347	5.642 6.480	0.112 0.169
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	6.825 7.347	5.642 6.480	0.112 0.169
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	6.825 7.347	5.642 6.480	0.112 0.169
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	6.825 7.347	5.642 6.480	0.112 0.169
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	150.000	No Ice 1/2" Ice	11.683 12.404	9.842 11.366	0.083 0.173

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Azimuth Adjustment ° Vert ft	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			-2.000					
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.000 0.000 -2.000	0.000	150.000	No Ice 1/2" Ice	11.683 12.404	9.842 11.366	0.083 0.173
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.000 0.000 -2.000	0.000	150.000	No Ice 1/2" Ice	11.683 12.404	9.842 11.366	0.083 0.173
KRY 112 144/1	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	0.409 0.498	0.166 0.228	0.011 0.014
KRY 112 144/1	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	0.409 0.498	0.166 0.228	0.011 0.014
KRY 112 144/1	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	0.409 0.498	0.166 0.228	0.011 0.014
RRUS 11 B12	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	3.306 3.550	1.361 1.540	0.051 0.072
RRUS 11 B12	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	3.306 3.550	1.361 1.540	0.051 0.072
RRUS 11 B12	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	3.306 3.550	1.361 1.540	0.051 0.072
6' x 1.5" Omni Antenna	B	From Leg	4.000 0.000 -3.000	0.000	150.000	No Ice 1/2" Ice	0.900 1.521	0.900 1.521	0.020 0.027
2" STD Pipe (2.375 OD)x6'-0"	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	1.425 1.925	1.425 1.925	0.022 0.033
2" STD Pipe (2.375 OD)x6'-0"	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	1.425 1.925	1.425 1.925	0.022 0.033
DFPD1-52 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice	1.868 2.108	1.020 1.279	0.022 0.038
***									
6' Side Arm	C	From Leg	3.000 0.000 0.000	0.000	98.000	No Ice 1/2" Ice	1.000 1.250	1.430 2.050	0.027 0.038
PD220	C	From Leg	6.000 0.000 10.000	0.000	98.000	No Ice 1/2" Ice	3.560 7.130	3.560 7.130	0.023 0.046
***									
6' Side Arm	C	From Leg	3.000 0.000 0.000	0.000	70.000	No Ice 1/2" Ice	1.000 1.250	1.430 2.050	0.027 0.038
PD220	C	From Leg	6.000 0.000 10.000	0.000	70.000	No Ice 1/2" Ice	3.560 7.130	3.560 7.130	0.023 0.046
***									
6' Side Arm	C	From Leg	3.000 0.000 0.000	0.000	50.000	No Ice 1/2" Ice	1.000 1.250	1.430 2.050	0.027 0.038
PD220	C	From Leg	6.000 0.000	0.000	50.000	No Ice 1/2" Ice	3.560 7.130	3.560 7.130	0.023 0.046

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft	ft^2	ft^2	K
***			10.000					

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 145	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-3.746	-0.086	-0.075
			Max. Mx	5	-2.046	-24.622	0.060
			Max. My	8	-2.051	0.060	-24.472
			Max. Vy	5	5.734	-24.622	0.060
			Max. Vx	8	5.711	0.060	-24.472
			Max. Torque	15			-0.351
L2	145 - 140	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-4.089	-0.086	-0.075
			Max. Mx	5	-2.344	-53.783	0.158
			Max. My	8	-2.349	0.166	-53.515
			Max. Vy	5	5.930	-53.783	0.158
			Max. Vx	8	5.906	0.166	-53.515
			Max. Torque	15			-0.351
L3	140 - 135	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-4.431	-0.086	-0.075
			Max. Mx	5	-2.660	-83.892	0.255
			Max. My	8	-2.665	0.273	-83.507
			Max. Vy	11	-6.115	83.735	-0.365
			Max. Vx	8	6.092	0.273	-83.507
			Max. Torque	15			-0.351
L4	135 - 130	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-4.774	-0.086	-0.075
			Max. Mx	5	-2.995	-114.892	0.353
			Max. My	8	-2.999	0.381	-114.388
			Max. Vy	11	-6.287	114.735	-0.474
			Max. Vx	8	6.264	0.381	-114.388
			Max. Torque	15			-0.351
L5	130 - 128	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-4.911	-0.086	-0.075
			Max. Mx	5	-3.135	-127.524	0.392
			Max. My	8	-3.139	0.425	-126.974
			Max. Vy	11	-6.352	127.368	-0.518
			Max. Vx	8	6.328	0.425	-126.974
			Max. Torque	15			-0.351
L6	128 - 127.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-4.936	-0.086	-0.075
			Max. Mx	5	-3.165	-129.112	0.397
			Max. My	8	-3.169	0.431	-128.556
			Max. Vy	11	-6.358	128.956	-0.524
			Max. Vx	8	6.334	0.431	-128.556
			Max. Torque	15			-0.351
L7	127.75 - 122.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-5.428	-0.086	-0.075
			Max. Mx	5	-3.641	-161.353	0.495
			Max. My	8	-3.645	0.541	-160.679
			Max. Vy	11	-6.540	161.197	-0.633
			Max. Vx	8	6.516	0.541	-160.679
			Max. Torque	15			-0.351
L8	122.75 - 120	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-5.698	-0.086	-0.075
			Max. Mx	5	-3.908	-179.458	0.549
			Max. My	8	-3.912	0.601	-178.719
			Max. Vy	11	-6.634	179.303	-0.693
			Max. Vx	8	6.611	0.601	-178.719
			Max. Torque	15			-0.352
L9	120 - 119.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-5.722	-0.086	-0.075
			Max. Mx	5	-3.937	-181.117	0.554
			Max. My	8	-3.940	0.607	-180.372

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	11	-6.642	180.961	-0.699
			Max. Vx	8	6.618	0.607	-180.372
			Max. Torque	15			-0.352
L10	119.75 - 114.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-6.186	-0.086	-0.075
			Max. Mx	5	-4.361	-214.907	0.652
			Max. My	8	-4.364	0.718	-214.044
			Max. Vy	11	-6.876	214.753	-0.809
			Max. Vx	8	6.852	0.718	-214.044
			Max. Torque	15			-0.352
L11	114.75 - 109.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-6.650	-0.086	-0.075
			Max. Mx	5	-4.799	-249.825	0.749
			Max. My	8	-4.801	0.830	-248.845
			Max. Vy	11	-7.096	249.672	-0.918
			Max. Vx	8	7.072	0.830	-248.845
			Max. Torque	15			-0.352
L12	109.75 - 108	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-6.812	-0.086	-0.075
			Max. Mx	5	-4.950	-262.301	0.783
			Max. My	8	-4.953	0.869	-261.279
			Max. Vy	11	-7.173	262.148	-0.957
			Max. Vx	8	7.149	0.869	-261.279
			Max. Torque	15			-0.353
L13	108 - 107.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-6.843	-0.086	-0.075
			Max. Mx	5	-4.988	-264.094	0.788
			Max. My	8	-4.991	0.875	-263.066
			Max. Vy	11	-7.178	263.941	-0.963
			Max. Vx	8	7.154	0.875	-263.066
			Max. Torque	15			-0.353
L14	107.75 - 102.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-7.456	-0.086	-0.075
			Max. Mx	5	-5.567	-300.545	0.885
			Max. My	8	-5.569	0.987	-299.400
			Max. Vy	11	-7.405	300.394	-1.072
			Max. Vx	8	7.381	0.987	-299.400
			Max. Torque	15			-0.353
L15	102.75 - 100	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-7.793	-0.086	-0.075
			Max. Mx	5	-5.888	-321.062	0.938
			Max. My	8	-5.890	1.049	-319.852
			Max. Vy	11	-7.525	320.912	-1.133
			Max. Vx	8	7.501	1.049	-319.852
			Max. Torque	15			-0.354
L16	100 - 99.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-7.824	-0.086	-0.075
			Max. Mx	5	-5.921	-322.943	0.943
			Max. My	8	-5.923	1.055	-321.728
			Max. Vy	11	-7.535	322.793	-1.138
			Max. Vx	8	7.511	1.055	-321.728
			Max. Torque	15			-0.354
L17	99.75 - 94.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-8.511	0.325	-0.312
			Max. Mx	11	-6.498	363.912	-1.307
			Max. My	8	-6.500	1.290	-362.663
			Max. Vy	11	-8.054	363.912	-1.307
			Max. Vx	8	8.041	1.290	-362.663

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	26			1.865
L18	94.75 - 89.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-9.114	0.325	-0.312
			Max. Mx	11	-7.049	404.856	-1.371
			Max. My	8	-7.051	1.357	-403.539
			Max. Vy	11	-8.329	404.856	-1.371
			Max. Vx	8	8.315	1.357	-403.539
			Max. Torque	26			1.864
L19	89.75 - 84.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-9.718	0.325	-0.312
			Max. Mx	11	-7.608	447.135	-1.434
			Max. My	8	-7.610	1.423	-445.751
			Max. Vy	11	-8.589	447.135	-1.434
			Max. Vx	8	8.576	1.423	-445.751
			Max. Torque	26			1.863
L20	84.75 - 83	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-9.929	0.325	-0.312
			Max. Mx	11	-7.802	462.235	-1.456
			Max. My	8	-7.804	1.446	-460.828
			Max. Vy	11	-8.681	462.235	-1.456
			Max. Vx	8	8.667	1.446	-460.828
			Max. Torque	26			1.862
L21	83 - 82.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-9.967	0.325	-0.312
			Max. Mx	11	-7.845	464.405	-1.459
			Max. My	8	-7.847	1.449	-462.994
			Max. Vy	11	-8.687	464.405	-1.459
			Max. Vx	8	8.673	1.449	-462.994
			Max. Torque	26			1.861
L22	82.75 - 80	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-10.381	0.325	-0.312
			Max. Mx	11	-8.228	488.491	-1.494
			Max. My	8	-8.229	1.485	-487.043
			Max. Vy	11	-8.835	488.491	-1.494
			Max. Vx	8	8.822	1.485	-487.043
			Max. Torque	26			1.861
L23	80 - 79.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-10.418	0.325	-0.312
			Max. Mx	11	-8.266	490.700	-1.497
			Max. My	8	-8.267	1.488	-489.249
			Max. Vy	11	-8.848	490.700	-1.497
			Max. Vx	8	8.834	1.488	-489.249
			Max. Torque	26			1.861
L24	79.75 - 74.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-11.160	0.325	-0.312
			Max. Mx	11	-8.928	535.759	-1.560
			Max. My	8	-8.929	1.553	-534.241
			Max. Vy	11	-9.178	535.759	-1.560
			Max. Vx	8	9.165	1.553	-534.241
			Max. Torque	26			1.861
L25	74.75 - 69.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-11.986	0.753	-0.560
			Max. Mx	11	-9.639	584.328	-1.734
			Max. My	8	-9.640	1.813	-582.643
			Max. Vy	11	-9.704	584.328	-1.734
			Max. Vx	8	9.700	1.813	-582.643
			Max. Torque	26			3.890
L26	69.75 - 64.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-12.729	0.753	-0.560
			Max. Mx	11	-10.315	633.586	-1.755
			Max. My	8	-10.316	1.837	-631.881

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	11	-10.005	633.586	-1.755
			Max. Vx	8	10.001	1.837	-631.881
			Max. Torque	26			3.890
L27	64.75 - 60	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-13.434	0.753	-0.560
			Max. Mx	11	-10.963	681.737	-1.774
			Max. My	8	-10.963	1.857	-680.013
			Max. Vy	11	-10.277	681.737	-1.774
			Max. Vx	8	10.273	1.857	-680.013
			Max. Torque	26			3.889
L28	60 - 55	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-14.316	0.753	-0.560
			Max. Mx	11	-11.752	733.985	-1.794
			Max. My	8	-11.753	1.878	-732.242
			Max. Vy	11	-10.630	733.985	-1.794
			Max. Vx	8	10.626	1.878	-732.242
			Max. Torque	26			3.888
L29	55 - 50	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-15.197	0.753	-0.560
			Max. Mx	11	-12.543	787.969	-1.813
			Max. My	8	-12.544	1.900	-786.207
			Max. Vy	11	-10.969	787.969	-1.813
			Max. Vx	8	10.966	1.900	-786.207
			Max. Torque	26			3.887
L30	50 - 45	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-16.163	1.200	-0.818
			Max. Mx	11	-13.385	846.304	-1.925
			Max. My	8	-13.386	2.108	-844.458
			Max. Vy	11	-11.485	846.304	-1.925
			Max. Vx	8	11.489	2.108	-844.458
			Max. Torque	26			5.837
L31	45 - 40	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-17.045	1.200	-0.818
			Max. Mx	11	-14.187	904.467	-1.906
			Max. My	8	-14.187	2.089	-902.645
			Max. Vy	11	-11.788	904.467	-1.906
			Max. Vx	8	11.793	2.089	-902.645
			Max. Torque	26			5.837
L32	40 - 35	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-18.066	1.200	-0.818
			Max. Mx	11	-15.099	964.282	-1.886
			Max. My	8	-15.099	2.070	-962.484
			Max. Vy	11	-12.145	964.282	-1.886
			Max. Vx	8	12.150	2.070	-962.484
			Max. Torque	26			5.836
L33	35 - 30	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-19.087	1.200	-0.818
			Max. Mx	11	-16.013	1025.838	-1.866
			Max. My	8	-16.013	2.051	-1024.065
			Max. Vy	11	-12.484	1025.838	-1.866
			Max. Vx	8	12.489	2.051	-1024.065
			Max. Torque	26			5.836
L34	30 - 25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-20.108	1.200	-0.818
			Max. Mx	11	-16.931	1089.070	-1.845
			Max. My	8	-16.931	2.030	-1087.321
			Max. Vy	11	-12.816	1089.070	-1.845
			Max. Vx	8	12.821	2.030	-1087.321
			Max. Torque	26			5.835
L35	25 - 20	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-21.128	1.200	-0.818

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	11	-17.852	1153.942	-1.823
			Max. My	8	-17.852	2.008	-1152.219
			Max. Vy	11	-13.141	1153.942	-1.823
			Max. Vx	8	13.146	2.008	-1152.219
			Max. Torque	26			5.835
L36	20 - 15	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-22.288	1.200	-0.818
			Max. Mx	11	-18.886	1220.592	-1.801
			Max. My	8	-18.886	1.986	-1218.894
			Max. Vy	11	-13.526	1220.592	-1.801
			Max. Vx	8	13.531	1.986	-1218.894
			Max. Torque	26			5.835
L37	15 - 10	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-23.447	1.200	-0.818
			Max. Mx	11	-19.921	1289.161	-1.779
			Max. My	8	-19.921	1.964	-1287.488
			Max. Vy	11	-13.908	1289.161	-1.779
			Max. Vx	8	13.913	1.964	-1287.488
			Max. Torque	26			5.835
L38	10 - 5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-24.606	1.200	-0.818
			Max. Mx	11	-20.960	1359.618	-1.756
			Max. My	8	-20.960	1.940	-1357.971
			Max. Vy	11	-14.283	1359.618	-1.756
			Max. Vx	8	14.288	1.940	-1357.971
			Max. Torque	26			5.835
L39	5 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-25.766	1.200	-0.818
			Max. Mx	11	-22.002	1431.931	-1.732
			Max. My	8	-22.002	1.916	-1430.310
			Max. Vy	11	-14.651	1431.931	-1.732
			Max. Vx	8	14.656	1.916	-1430.310
			Max. Torque	26			5.834

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	21	25.766	-0.019	-12.228
	Max. H_x	11	22.005	14.646	0.005
	Max. H_z	2	22.005	0.005	14.651
	Max. M_x	2	1429.339	0.005	14.651
	Max. M_z	5	1430.589	-14.646	-0.005
	Max. Torsion	26	5.834	6.120	10.600
	Min. Vert	36	22.005	4.520	0.001
	Min. H_x	5	22.005	-14.646	-0.005
	Min. H_z	8	22.005	-0.005	-14.651
	Min. M_x	8	-1430.310	-0.005	-14.651
	Min. M_z	11	-1431.931	14.646	0.005
	Min. Torsion	20	-5.834	-6.120	-10.600

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	22.005	0.000	0.000	0.468	0.653	0.000
Dead+Wind 0 deg - No Ice	22.005	-0.005	-14.651	-1429.339	-0.592	-3.421
Dead+Wind 30 deg - No Ice	22.005	7.319	-12.686	-1238.393	-716.048	-1.861
Dead+Wind 60 deg - No Ice	22.005	12.682	-7.322	-715.505	-1239.457	0.196
Dead+Wind 90 deg - No Ice	22.005	14.646	0.005	-0.775	-1430.589	2.200
Dead+Wind 120 deg - No Ice	22.005	12.686	7.329	714.303	-1238.225	3.617
Dead+Wind 150 deg - No Ice	22.005	7.327	12.691	1238.122	-713.892	4.065
Dead+Wind 180 deg - No Ice	22.005	0.005	14.651	1430.310	1.916	3.423
Dead+Wind 210 deg - No Ice	22.005	-7.319	12.686	1239.368	717.383	1.864
Dead+Wind 240 deg - No Ice	22.005	-12.682	7.322	716.473	1240.801	-0.196
Dead+Wind 270 deg - No Ice	22.005	-14.646	-0.005	1.732	1431.931	-2.203
Dead+Wind 300 deg - No Ice	22.005	-12.686	-7.329	-713.350	1239.557	-3.619
Dead+Wind 330 deg - No Ice	22.005	-7.327	-12.691	-1237.163	715.214	-4.065
Dead+Ice+Temp	25.766	0.000	0.000	0.818	1.200	0.000
Dead+Wind 0 deg+Ice+Temp	25.766	-0.019	-12.228	-1227.841	1.517	-4.928
Dead+Wind 30 deg+Ice+Temp	25.766	6.086	-10.580	-1063.076	-612.695	-2.701
Dead+Wind 60 deg+Ice+Temp	25.766	10.561	-6.097	-613.243	-1062.402	0.249
Dead+Wind 90 deg+Ice+Temp	25.766	12.206	0.019	1.131	-1227.118	3.132
Dead+Wind 120 deg+Ice+Temp	25.766	10.580	6.131	615.439	-1062.705	5.176
Dead+Wind 150 deg+Ice+Temp	25.766	6.120	10.600	1065.078	-613.203	5.834
Dead+Wind 180 deg+Ice+Temp	25.766	0.019	12.228	1229.558	0.947	4.929
Dead+Wind 210 deg+Ice+Temp	25.766	-6.086	10.580	1064.799	615.176	2.703
Dead+Wind 240 deg+Ice+Temp	25.766	-10.561	6.097	614.955	1064.898	-0.249
Dead+Wind 270 deg+Ice+Temp	25.766	-12.206	-0.019	0.561	1229.612	-3.133
Dead+Wind 300 deg+Ice+Temp	25.766	-10.580	-6.131	-613.754	1065.180	-5.178
Dead+Wind 330 deg+Ice+Temp	25.766	-6.120	-10.600	-1063.381	615.664	-5.834
Dead+Wind 0 deg - Service	22.005	-0.001	-4.522	-441.366	0.283	-1.060
Dead+Wind 30 deg - Service	22.005	2.259	-3.915	-382.362	-220.815	-0.576
Dead+Wind 60 deg - Service	22.005	3.914	-2.260	-220.775	-382.565	0.062
Dead+Wind 90 deg - Service	22.005	4.520	0.001	0.098	-441.628	0.683
Dead+Wind 120 deg - Service	22.005	3.915	2.262	221.076	-382.178	1.121
Dead+Wind 150 deg - Service	22.005	2.261	3.917	382.949	-220.143	1.259
Dead+Wind 180 deg - Service	22.005	0.001	4.522	442.340	1.060	1.060
Dead+Wind 210 deg - Service	22.005	-2.259	3.915	383.337	222.159	0.576
Dead+Wind 240 deg - Service	22.005	-3.914	2.260	221.750	383.911	-0.062
Dead+Wind 270 deg - Service	22.005	-4.520	-0.001	0.875	442.974	-0.683
Dead+Wind 300 deg - Service	22.005	-3.915	-2.262	-220.104	383.522	-1.121
Dead+Wind 330 deg - Service	22.005	-2.261	-3.917	-381.975	221.486	-1.259

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-22.005	0.000	0.000	22.005	0.000	0.000%
2	-0.005	-22.005	-14.651	0.005	22.005	14.651	0.000%
3	7.319	-22.005	-12.686	-7.319	22.005	12.686	0.000%
4	12.682	-22.005	-7.322	-12.682	22.005	7.322	0.000%
5	14.646	-22.005	0.005	-14.646	22.005	-0.005	0.000%
6	12.686	-22.005	7.329	-12.686	22.005	-7.329	0.000%
7	7.327	-22.005	12.691	-7.327	22.005	-12.691	0.000%
8	0.005	-22.005	14.651	-0.005	22.005	-14.651	0.000%
9	-7.319	-22.005	12.686	7.319	22.005	-12.686	0.000%
10	-12.682	-22.005	7.322	12.682	22.005	-7.322	0.000%
11	-14.646	-22.005	-0.005	14.646	22.005	0.005	0.000%
12	-12.686	-22.005	-7.329	12.686	22.005	7.329	0.000%
13	-7.327	-22.005	-12.691	7.327	22.005	12.691	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
14	0.000	-25.766	0.000	0.000	25.766	0.000	0.000%
15	-0.019	-25.766	-12.228	0.019	25.766	12.228	0.000%
16	6.086	-25.766	-10.580	-6.086	25.766	10.580	0.000%
17	10.561	-25.766	-6.097	-10.561	25.766	6.097	0.000%
18	12.206	-25.766	0.019	-12.206	25.766	-0.019	0.000%
19	10.580	-25.766	6.131	-10.580	25.766	-6.131	0.000%
20	6.120	-25.766	10.600	-6.120	25.766	-10.600	0.000%
21	0.019	-25.766	12.228	-0.019	25.766	-12.228	0.000%
22	-6.086	-25.766	10.580	6.086	25.766	-10.580	0.000%
23	-10.561	-25.766	6.097	10.561	25.766	-6.097	0.000%
24	-12.206	-25.766	-0.019	12.206	25.766	0.019	0.000%
25	-10.580	-25.766	-6.131	10.580	25.766	6.131	0.000%
26	-6.120	-25.766	-10.600	6.120	25.766	10.600	0.000%
27	-0.001	-22.005	-4.522	0.001	22.005	4.522	0.000%
28	2.259	-22.005	-3.915	-2.259	22.005	3.915	0.000%
29	3.914	-22.005	-2.260	-3.914	22.005	2.260	0.000%
30	4.520	-22.005	0.001	-4.520	22.005	-0.001	0.000%
31	3.915	-22.005	2.262	-3.915	22.005	-2.262	0.000%
32	2.261	-22.005	3.917	-2.261	22.005	-3.917	0.000%
33	0.001	-22.005	4.522	-0.001	22.005	-4.522	0.000%
34	-2.259	-22.005	3.915	2.259	22.005	-3.915	0.000%
35	-3.914	-22.005	2.260	3.914	22.005	-2.260	0.000%
36	-4.520	-22.005	-0.001	4.520	22.005	0.001	0.000%
37	-3.915	-22.005	-2.262	3.915	22.005	2.262	0.000%
38	-2.261	-22.005	-3.917	2.261	22.005	3.917	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00097425
3	Yes	6	0.00000001	0.00034886
4	Yes	6	0.00000001	0.00035542
5	Yes	5	0.00000001	0.00070302
6	Yes	6	0.00000001	0.00038822
7	Yes	6	0.00000001	0.00033198
8	Yes	6	0.00000001	0.00004648
9	Yes	6	0.00000001	0.00037150
10	Yes	6	0.00000001	0.00036464
11	Yes	5	0.00000001	0.00077821
12	Yes	6	0.00000001	0.00033330
13	Yes	6	0.00000001	0.00038989
14	Yes	4	0.00000001	0.00000001
15	Yes	6	0.00000001	0.00024611
16	Yes	6	0.00000001	0.00083084
17	Yes	6	0.00000001	0.00084941
18	Yes	6	0.00000001	0.00021900
19	Yes	6	0.00000001	0.00094631
20	Yes	6	0.00000001	0.00079811
21	Yes	6	0.00000001	0.00024827
22	Yes	6	0.00000001	0.00089735
23	Yes	6	0.00000001	0.00087367
24	Yes	6	0.00000001	0.00022087
25	Yes	6	0.00000001	0.00080035
26	Yes	6	0.00000001	0.00095368

27	Yes	5	0.00000001	0.00015660
28	Yes	5	0.00000001	0.00045630
29	Yes	5	0.00000001	0.00047051
30	Yes	5	0.00000001	0.00011611
31	Yes	5	0.00000001	0.00057886
32	Yes	5	0.00000001	0.00043122
33	Yes	5	0.00000001	0.00016038
34	Yes	5	0.00000001	0.00052213
35	Yes	5	0.00000001	0.00049940
36	Yes	5	0.00000001	0.00011999
37	Yes	5	0.00000001	0.00042972
38	Yes	5	0.00000001	0.00058580

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
L1	150 - 145	28.223	35	2.240	0.004
L2	145 - 140	25.883	35	2.223	0.004
L3	140 - 135	23.584	35	2.161	0.004
L4	135 - 130	21.374	35	2.053	0.004
L5	130 - 128	19.304	35	1.896	0.004
L6	128 - 127.75	18.526	35	1.819	0.004
L7	127.75 - 122.75	18.430	35	1.813	0.004
L8	122.75 - 120	16.597	35	1.684	0.004
L9	120 - 119.75	15.651	35	1.601	0.005
L10	119.75 - 114.75	15.568	35	1.596	0.005
L11	114.75 - 109.75	13.952	35	1.487	0.005
L12	109.75 - 108	12.460	35	1.360	0.005
L13	108 - 107.75	11.971	35	1.311	0.005
L14	107.75 - 102.75	11.902	35	1.306	0.005
L15	102.75 - 100	10.587	35	1.204	0.005
L16	100 - 99.75	9.911	35	1.142	0.005
L17	99.75 - 94.75	9.851	35	1.138	0.005
L18	94.75 - 89.75	8.699	35	1.060	0.005
L19	89.75 - 84.75	7.634	35	0.973	0.004
L20	84.75 - 83	6.666	35	0.876	0.004
L21	83 - 82.75	6.351	35	0.840	0.004
L22	82.75 - 80	6.307	35	0.836	0.004
L23	80 - 79.75	5.839	35	0.792	0.004
L24	79.75 - 74.75	5.797	35	0.789	0.004
L25	74.75 - 69.75	5.002	35	0.730	0.004
L26	69.75 - 64.75	4.271	35	0.665	0.003
L27	64.75 - 60	3.610	35	0.595	0.003
L28	60 - 55	3.053	35	0.523	0.003
L29	55 - 50	2.530	35	0.476	0.002
L30	50 - 45	2.057	35	0.426	0.002
L31	45 - 40	1.640	35	0.372	0.002
L32	40 - 35	1.281	35	0.314	0.001
L33	35 - 30	0.972	35	0.275	0.001
L34	30 - 25	0.706	35	0.233	0.001
L35	25 - 20	0.484	35	0.190	0.001
L36	20 - 15	0.310	35	0.143	0.001
L37	15 - 10	0.177	35	0.110	0.000
L38	10 - 5	0.080	35	0.075	0.000
L39	5 - 0	0.020	35	0.039	0.000

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Project	**Date**
Branford/ I-95/ X53/ Jct.	10:38:12 06/02/15
Client	**Designed by**
T-Mobile	Veronica Elson

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	*°*	*°*	*ft*
150.000	10' Low Profile Platform	35	28.223	2.240	0.004	7288
98.000	6' Side Arm	35	9.439	1.112	0.005	3403
70.000	6' Side Arm	35	4.306	0.669	0.003	4280
50.000	6' Side Arm	35	2.057	0.426	0.002	5477

Maximum Tower Deflections - Design Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load*	*Tilt*	*Twist*
	ft	*in*	*Comb.*	*°*	*°*
L1	150 - 145	90.869	10	7.222	0.018
L2	145 - 140	83.356	10	7.169	0.018
L3	140 - 135	75.973	10	6.970	0.019
L4	135 - 130	68.873	10	6.620	0.019
L5	130 - 128	62.216	10	6.114	0.020
L6	128 - 127.75	59.714	10	5.866	0.020
L7	127.75 - 122.75	59.408	10	5.848	0.020
L8	122.75 - 120	53.511	10	5.432	0.021
L9	120 - 119.75	50.466	10	5.163	0.022
L10	119.75 - 114.75	50.196	10	5.147	0.022
L11	114.75 - 109.75	44.995	10	4.798	0.022
L12	109.75 - 108	40.189	10	4.388	0.023
L13	108 - 107.75	38.613	10	4.229	0.023
L14	107.75 - 102.75	38.392	10	4.214	0.023
L15	102.75 - 100	34.154	10	3.884	0.023
L16	100 - 99.75	31.976	10	3.685	0.024
L17	99.75 - 94.75	31.784	10	3.673	0.024
L18	94.75 - 89.75	28.071	10	3.421	0.023
L19	89.75 - 84.75	24.637	10	3.139	0.021
L20	84.75 - 83	21.514	10	2.826	0.019
L21	83 - 82.75	20.500	10	2.710	0.018
L22	82.75 - 80	20.358	10	2.697	0.018
L23	80 - 79.75	18.846	10	2.556	0.018
L24	79.75 - 74.75	18.713	10	2.547	0.018
L25	74.75 - 69.75	16.146	10	2.356	0.017
L26	69.75 - 64.75	13.787	10	2.148	0.016
L27	64.75 - 60	11.656	10	1.921	0.014
L28	60 - 55	9.860	10	1.689	0.012
L29	55 - 50	8.170	10	1.537	0.011
L30	50 - 45	6.645	10	1.375	0.010
L31	45 - 40	5.296	10	1.200	0.008
L32	40 - 35	4.136	10	1.013	0.007
L33	35 - 30	3.141	10	0.887	0.006
L34	30 - 25	2.281	10	0.754	0.005
L35	25 - 20	1.565	10	0.612	0.004
L36	20 - 15	1.002	10	0.462	0.003
L37	15 - 10	0.573	10	0.356	0.002
L38	10 - 5	0.259	10	0.243	0.001
L39	5 - 0	0.066	10	0.125	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.000	10' Low Profile Platform	10	90.869	7.222	0.018	2348
98.000	6' Side Arm	10	30.455	3.589	0.023	1064
70.000	6' Side Arm	10	13.900	2.158	0.016	1331
50.000	6' Side Arm	10	6.645	1.375	0.010	1700

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	150 - 149	P12.75x0.375	5.000	0.000	0.0	25.200	14.579	-0.909	367.390	0.002
	149 - 148					25.200	14.579	-1.872	367.390	0.005
	148 - 147					25.200	14.579	-1.929	367.390	0.005
	147 - 146					25.200	14.579	-1.986	367.390	0.005
	146 - 145					25.200	14.579	-2.043	367.390	0.006
L2	145 - 144	P12.75x0.375	5.000	0.000	0.0	25.200	14.579	-2.102	367.390	0.006
	144 - 143					25.200	14.579	-2.161	367.390	0.006
	143 - 142					25.200	14.579	-2.220	367.390	0.006
	142 - 141					25.200	14.579	-2.281	367.390	0.006
	141 - 140					25.200	14.579	-2.342	367.390	0.006
L3	140 - 139	P12.75x0.375	5.000	0.000	0.0	25.200	14.579	-2.403	367.390	0.007
	139 - 138					25.200	14.579	-2.466	367.390	0.007
	138 - 137					25.200	14.579	-2.529	367.390	0.007
	137 - 136					25.200	14.579	-2.593	367.390	0.007
	136 - 135					25.200	14.579	-2.658	367.390	0.007
L4	135 - 134	P12.75x0.375	5.000	0.000	0.0	25.200	14.579	-2.723	367.390	0.007
	134 - 133					25.200	14.579	-2.789	367.390	0.008
	133 - 132					25.200	14.579	-2.857	367.390	0.008
	132 - 131					25.200	14.579	-2.924	367.390	0.008
	131 - 130					25.200	14.579	-2.993	367.390	0.008
L5	130 - 129	P12.75x0.375	2.000	0.000	0.0	25.200	14.579	-3.063	367.390	0.008
	129 - 128					25.200	14.579	-3.133	367.390	0.009
L6	128 - 127.75 (6)	P12.75x0.725	0.250	0.000	0.0	25.200	27.389	-3.163	690.198	0.005
L7	127.75 - 126.75	P12.75x0.725	5.000	0.000	0.0	25.200	27.389	-3.255	690.198	0.005
	126.75 - 125.75					25.200	27.389	-3.350	690.198	0.005
	125.75 - 124.75					25.200	27.389	-3.446	690.198	0.005
	124.75 - 123.75					25.200	27.389	-3.542	690.198	0.005
	123.75 - 122.75					25.200	27.389	-3.639	690.198	0.005
L8	122.75 - 121.375	P12.75x0.725	2.750	0.000	0.0	25.200	27.389	-3.771	690.198	0.005
	121.375 - 120					25.200	27.389	-3.906	690.198	0.006
L9	120 - 119.75 (9)	P18x0.375	0.250	0.000	0.0	25.200	20.764	-3.935	523.252	0.008
L10	119.75 - 118.75	P18x0.375	5.000	0.000	0.0	25.200	20.764	-4.017	523.252	0.008
	118.75 - 117.75					25.200	20.764	-4.102	523.252	0.008
	117.75 - 116.75					25.200	20.764	-4.187	523.252	0.008
	116.75 - 115.75					25.200	20.764	-4.273	523.252	0.008
	115.75 - 114.75					25.200	20.764	-4.359	523.252	0.008
L11	114.75 - 113.75	P18x0.375	5.000	0.000	0.0	25.200	20.764	-4.446	523.252	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
	113.75 - 112.75					25.200	20.764	-4.533	523.252	0.009
	112.75 - 111.75					25.200	20.764	-4.621	523.252	0.009
	111.75 - 110.75					25.200	20.764	-4.709	523.252	0.009
	110.75 - 109.75					25.200	20.764	-4.797	523.252	0.009
L12	109.75 - 108 (12)	P18x0.375	1.750	0.000	0.0	25.200	20.764	-4.949	523.252	0.009
L13	108 - 107.75 (13)	P18x0.5875	0.250	0.000	0.0	25.200	32.138	-4.987	809.878	0.006
L14	107.75 - 106.75	P18x0.5875	5.000	0.000	0.0	25.200	32.138	-5.100	809.878	0.006
	106.75 - 105.75					25.200	32.138	-5.216	809.878	0.006
	105.75 - 104.75					25.200	32.138	-5.332	809.878	0.007
	104.75 - 103.75					25.200	32.138	-5.448	809.878	0.007
	103.75 - 102.75					25.200	32.138	-5.565	809.878	0.007
L15	102.75 - 101.375	P18x0.5875	2.750	0.000	0.0	25.200	32.138	-5.725	809.878	0.007
	101.375 - 100					25.200	32.138	-5.887	809.878	0.007
L16	100 - 99.75 (16)	P24x0.375	0.250	0.000	0.0	25.200	27.833	-5.920	701.380	0.008
L17	99.75 - 98.75	P24x0.375	5.000	0.000	0.0	25.200	27.833	-6.026	701.380	0.009
	98.75 - 97.75					25.200	27.833	-6.169	701.380	0.009
	97.75 - 96.75					25.200	27.833	-6.278	701.380	0.009
	96.75 - 95.75					25.200	27.833	-6.387	701.380	0.009
	95.75 - 94.75					25.200	27.833	-6.497	701.380	0.009
L18	94.75 - 93.75	P24x0.375	5.000	0.000	0.0	25.200	27.833	-6.606	701.380	0.009
	93.75 - 92.75					25.200	27.833	-6.716	701.380	0.010
	92.75 - 91.75					25.200	27.833	-6.827	701.380	0.010
	91.75 - 90.75					25.200	27.833	-6.937	701.380	0.010
	90.75 - 89.75					25.200	27.833	-7.048	701.380	0.010
L19	89.75 - 88.75	P24x0.375	5.000	0.000	0.0	25.200	27.833	-7.160	701.380	0.010
	88.75 - 87.75					25.200	27.833	-7.271	701.380	0.010
	87.75 - 86.75					25.200	27.833	-7.383	701.380	0.011
	86.75 - 85.75					25.200	27.833	-7.495	701.380	0.011
	85.75 - 84.75					25.200	27.833	-7.608	701.380	0.011
L20	84.75 - 83 (20)	P24x0.375	1.750	0.000	0.0	25.200	27.833	-7.801	701.380	0.011
L21	83 - 82.75 (21)	P24x0.51875	0.250	0.000	0.0	25.200	38.267	-7.844	964.339	0.008
L22	82.75 - 81.375	P24x0.51875	2.750	0.000	0.0	25.200	38.267	-8.033	964.339	0.008
	81.375 - 80					25.200	38.267	-8.227	964.339	0.009
L23	80 - 79.75 (23)	P30x0.375	0.250	0.000	0.0	25.075	34.901	-8.265	875.146	0.009
L24	79.75 - 78.75	P30x0.375	5.000	0.000	0.0	25.075	34.901	-8.395	875.146	0.010
	78.75 - 77.75					25.075	34.901	-8.528	875.146	0.010
	77.75 - 76.75					25.075	34.901	-8.661	875.146	0.010
	76.75 - 75.75					25.075	34.901	-8.794	875.146	0.010
	75.75 - 74.75					25.075	34.901	-8.927	875.146	0.010
L25	74.75 - 73.75	P30x0.375	5.000	0.000	0.0	25.075	34.901	-9.060	875.146	0.010
	73.75 - 72.75					25.075	34.901	-9.194	875.146	0.011
	72.75 - 71.75					25.075	34.901	-9.328	875.146	0.011
	71.75 - 70.75					25.075	34.901	-9.462	875.146	0.011
	70.75 - 69.75					25.075	34.901	-9.638	875.146	0.011
L26	69.75 - 68.75	P30x0.375	5.000	0.000	0.0	25.075	34.901	-9.773	875.146	0.011
	68.75 - 67.75					25.075	34.901	-9.908	875.146	0.011
	67.75 - 66.75					25.075	34.901	-10.044	875.146	0.011
	66.75 - 65.75					25.075	34.901	-10.179	875.146	0.012
	65.75 - 64.75					25.075	34.901	-10.315	875.146	0.012
L27	64.75 - 63.5625	P30x0.375	4.750	0.000	0.0	25.075	34.901	-10.476	875.146	0.012
	63.5625 - 62.375					25.075	34.901	-10.637	875.146	0.012
	62.375 - 61.1875					25.075	34.901	-10.800	875.146	0.012
	61.1875 - 60					25.075	34.901	-10.962	875.146	0.013
L28	60 - 59	P36x0.375	5.000	0.000	0.0	23.696	41.970	-11.122	994.507	0.011
	59 - 58					23.696	41.970	-11.279	994.507	0.011

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
	58 - 57					23.696	41.970	-11.437	994.507	0.011
	57 - 56					23.696	41.970	-11.594	994.507	0.012
	56 - 55					23.696	41.970	-11.752	994.507	0.012
L29	55 - 54	P36x0.375	5.000	0.000	0.0	23.696	41.970	-11.910	994.507	0.012
	54 - 53					23.696	41.970	-12.068	994.507	0.012
	53 - 52					23.696	41.970	-12.226	994.507	0.012
	52 - 51					23.696	41.970	-12.384	994.507	0.012
	51 - 50					23.696	41.970	-12.543	994.507	0.013
L30	50 - 49	P36x0.375	5.000	0.000	0.0	23.696	41.970	-12.747	994.507	0.013
	49 - 48					23.696	41.970	-12.906	994.507	0.013
	48 - 47					23.696	41.970	-13.066	994.507	0.013
	47 - 46					23.696	41.970	-13.225	994.507	0.013
	46 - 45					23.696	41.970	-13.385	994.507	0.013
L31	45 - 44	P36x0.375	5.000	0.000	0.0	23.696	41.970	-13.545	994.507	0.014
	44 - 43					23.696	41.970	-13.705	994.507	0.014
	43 - 42					23.696	41.970	-13.866	994.507	0.014
	42 - 41					23.696	41.970	-14.026	994.507	0.014
	41 - 40					23.696	41.970	-14.187	994.507	0.014
L32	40 - 39	P42x0.375	5.000	0.000	0.0	22.711	49.038	-14.370	1113.690	0.013
	39 - 38					22.711	49.038	-14.552	1113.690	0.013
	38 - 37					22.711	49.038	-14.734	1113.690	0.013
	37 - 36					22.711	49.038	-14.916	1113.690	0.013
	36 - 35					22.711	49.038	-15.099	1113.690	0.014
L33	35 - 34	P42x0.375	5.000	0.000	0.0	22.711	49.038	-15.281	1113.690	0.014
	34 - 33					22.711	49.038	-15.464	1113.690	0.014
	33 - 32					22.711	49.038	-15.647	1113.690	0.014
	32 - 31					22.711	49.038	-15.830	1113.690	0.014
	31 - 30					22.711	49.038	-16.013	1113.690	0.014
L34	30 - 29	P42x0.375	5.000	0.000	0.0	22.711	49.038	-16.196	1113.690	0.015
	29 - 28					22.711	49.038	-16.380	1113.690	0.015
	28 - 27					22.711	49.038	-16.563	1113.690	0.015
	27 - 26					22.711	49.038	-16.747	1113.690	0.015
	26 - 25					22.711	49.038	-16.930	1113.690	0.015
L35	25 - 24	P42x0.375	5.000	0.000	0.0	22.711	49.038	-17.114	1113.690	0.015
	24 - 23					22.711	49.038	-17.299	1113.690	0.016
	23 - 22					22.711	49.038	-17.483	1113.690	0.016
	22 - 21					22.711	49.038	-17.667	1113.690	0.016
	21 - 20					22.711	49.038	-17.852	1113.690	0.016
L36	20 - 19	P48x0.375	5.000	0.000	0.0	21.972	56.107	-18.059	1232.770	0.015
	19 - 18					21.972	56.107	-18.266	1232.770	0.015
	18 - 17					21.972	56.107	-18.472	1232.770	0.015
	17 - 16					21.972	56.107	-18.679	1232.770	0.015
	16 - 15					21.972	56.107	-18.886	1232.770	0.015
L37	15 - 14	P48x0.375	5.000	0.000	0.0	21.972	56.107	-19.093	1232.770	0.015
	14 - 13					21.972	56.107	-19.299	1232.770	0.016
	13 - 12					21.972	56.107	-19.507	1232.770	0.016
	12 - 11					21.972	56.107	-19.714	1232.770	0.016
	11 - 10					21.972	56.107	-19.921	1232.770	0.016
L38	10 - 9	P48x0.375	5.000	0.000	0.0	21.972	56.107	-20.129	1232.770	0.016
	9 - 8					21.972	56.107	-20.336	1232.770	0.016
	8 - 7					21.972	56.107	-20.544	1232.770	0.017
	7 - 6					21.972	56.107	-20.752	1232.770	0.017
	6 - 5					21.972	56.107	-20.960	1232.770	0.017
L39	5 - 4	P48x0.375	5.000	0.000	0.0	21.972	56.107	-21.168	1232.770	0.017
	4 - 3					21.972	56.107	-21.377	1232.770	0.017
	3 - 2					21.972	56.107	-21.585	1232.770	0.018
	2 - 1					21.972	56.107	-21.793	1232.770	0.018
	1 - 0					21.972	56.107	-22.002	1232.770	0.018

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Project	**Date**
Branford/ I-95/ X53/ Jct.	10:38:12 06/02/15
Client	**Designed by**
T-Mobile	Veronica Elson

Pole Bending Design Data

Section No.	*Elevation* ft	*Size*	*Actual* M_x kip-ft	*Actual* f_{bx} ksi	*Allow.* F_{bx} ksi	*Ratio* $\frac{f_{bx}}{F_{bx}}$	*Actual* M_y kip-ft	*Actual* f_{by} ksi	*Allow.* F_{by} ksi	*Ratio* $\frac{f_{by}}{F_{by}}$
L1	150 - 149	P12.75x0.375	3.698	1.013	27.720	0.037	0.000	0.000	27.720	0.000
	149 - 148		7.593	2.079	27.720	0.075	0.000	0.000	27.720	0.000
	148 - 147		13.237	3.625	27.720	0.131	0.000	0.000	27.720	0.000
	147 - 146		18.922	5.182	27.720	0.187	0.000	0.000	27.720	0.000
	146 - 145		24.648	6.750	27.720	0.244	0.000	0.000	27.720	0.000
L2	145 - 144	P12.75x0.375	30.413	8.329	27.720	0.300	0.000	0.000	27.720	0.000
	144 - 143		36.218	9.919	27.720	0.358	0.000	0.000	27.720	0.000
	143 - 142		42.062	11.519	27.720	0.416	0.000	0.000	27.720	0.000
	142 - 141		47.945	13.130	27.720	0.474	0.000	0.000	27.720	0.000
	141 - 140		53.867	14.752	27.720	0.532	0.000	0.000	27.720	0.000
L3	140 - 139	P12.75x0.375	59.826	16.384	27.720	0.591	0.000	0.000	27.720	0.000
	139 - 138		65.823	18.027	27.720	0.650	0.000	0.000	27.720	0.000
	138 - 137		71.857	19.679	27.720	0.710	0.000	0.000	27.720	0.000
	137 - 136		77.928	21.342	27.720	0.770	0.000	0.000	27.720	0.000
	136 - 135		84.035	23.014	27.720	0.830	0.000	0.000	27.720	0.000
L4	135 - 134	P12.75x0.375	90.178	24.697	27.720	0.891	0.000	0.000	27.720	0.000
	134 - 133		96.356	26.388	27.720	0.952	0.000	0.000	27.720	0.000
	133 - 132		102.568	28.090	27.720	1.013	0.000	0.000	27.720	0.000
	132 - 131		108.814	29.800	27.720	1.075	0.000	0.000	27.720	0.000
	131 - 130		115.093	31.520	27.720	1.137	0.000	0.000	27.720	0.000
L5	130 - 129	P12.75x0.375	121.406	33.249	27.720	1.199	0.000	0.000	27.720	0.000
	129 - 128		127.750	34.986	27.720	1.262	0.000	0.000	27.720	0.000
L6	128 - 127.75 (6)	P12.75x0.725	129.341	19.915	27.720	0.718	0.000	0.000	27.720	0.000
L7	127.75 - 126.75	P12.75x0.725	135.728	20.898	27.720	0.754	0.000	0.000	27.720	0.000
	126.75 - 125.75		142.153	21.887	27.720	0.790	0.000	0.000	27.720	0.000
	125.75 - 124.75		148.613	22.882	27.720	0.825	0.000	0.000	27.720	0.000
	124.75 - 123.75		155.109	23.882	27.720	0.862	0.000	0.000	27.720	0.000
	123.75 - 122.75		161.641	24.888	27.720	0.898	0.000	0.000	27.720	0.000
L8	122.75 - 121.375	P12.75x0.725	170.678	26.279	27.720	0.948	0.000	0.000	27.720	0.000
	121.375 - 120		179.778	27.680	27.720	0.999	0.000	0.000	27.720	0.000
L9	120 - 119.75 (9)	P18x0.375	181.440	24.293	27.720	0.876	0.000	0.000	27.720	0.000
L10	119.75 - 118.75	P18x0.375	188.117	25.187	27.720	0.909	0.000	0.000	27.720	0.000
	118.75 - 117.75		194.840	26.087	27.720	0.941	0.000	0.000	27.720	0.000
	117.75 - 116.75		201.611	26.994	27.720	0.974	0.000	0.000	27.720	0.000
	116.75 - 115.75		208.427	27.906	27.720	1.007	0.000	0.000	27.720	0.000
	115.75 - 114.75		215.289	28.825	27.720	1.040	0.000	0.000	27.720	0.000
L11	114.75 - 113.75	P18x0.375	222.197	29.750	27.720	1.073	0.000	0.000	27.720	0.000
	113.75 - 112.75		229.148	30.681	27.720	1.107	0.000	0.000	27.720	0.000
	112.75 - 111.75		236.144	31.617	27.720	1.141	0.000	0.000	27.720	0.000
	111.75 -		243.184	32.560	27.720	1.175	0.000	0.000	27.720	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	110.75									
	110.75 - 109.75		250.267	33.508	27.720	1.209	0.000	0.000	27.720	0.000
L12	109.75 - 108 (12)	P18x0.375	262.763	35.181	27.720	1.269	0.000	0.000	27.720	0.000
L13	108 - 107.75 (13)	P18x0.5875	264.559	23.432	27.720	0.845	0.000	0.000	27.720	0.000
L14	107.75 - 106.75	P18x0.5875	271.771	24.070	27.720	0.868	0.000	0.000	27.720	0.000
	106.75 - 105.75		279.028	24.713	27.720	0.892	0.000	0.000	27.720	0.000
	105.75 - 104.75		286.331	25.360	27.720	0.915	0.000	0.000	27.720	0.000
	104.75 - 103.75		293.678	26.011	27.720	0.938	0.000	0.000	27.720	0.000
	103.75 - 102.75		301.069	26.665	27.720	0.962	0.000	0.000	27.720	0.000
L15	102.75 - 101.375	P18x0.5875	311.303	27.572	27.720	0.995	0.000	0.000	27.720	0.000
	101.375 - 100		321.618	28.485	27.720	1.028	0.000	0.000	27.720	0.000
L16	100 - 99.75 (16)	P24x0.375	323.503	23.984	27.720	0.865	0.000	0.000	27.720	0.000
L17	99.75 - 98.75	P24x0.375	331.077	24.546	27.720	0.885	0.000	0.000	27.720	0.000
	98.75 - 97.75		340.705	25.259	27.720	0.911	0.000	0.000	27.720	0.000
	97.75 - 96.75		348.621	25.846	27.720	0.932	0.000	0.000	27.720	0.000
	96.75 - 95.75		356.593	26.438	27.720	0.954	0.000	0.000	27.720	0.000
	95.75 - 94.75		364.623	27.033	27.720	0.975	0.000	0.000	27.720	0.000
L18	94.75 - 93.75	P24x0.375	372.708	27.632	27.720	0.997	0.000	0.000	27.720	0.000
	93.75 - 92.75		380.850	28.236	27.720	1.019	0.000	0.000	27.720	0.000
	92.75 - 91.75		389.046	28.843	27.720	1.041	0.000	0.000	27.720	0.000
	91.75 - 90.75		397.296	29.455	27.720	1.063	0.000	0.000	27.720	0.000
	90.75 - 89.75		405.601	30.071	27.720	1.085	0.000	0.000	27.720	0.000
L19	89.75 - 88.75	P24x0.375	413.959	30.691	27.720	1.107	0.000	0.000	27.720	0.000
	88.75 - 87.75		422.369	31.314	27.720	1.130	0.000	0.000	27.720	0.000
	87.75 - 86.75		430.832	31.942	27.720	1.152	0.000	0.000	27.720	0.000
	86.75 - 85.75		439.348	32.573	27.720	1.175	0.000	0.000	27.720	0.000
	85.75 - 84.75		447.913	33.208	27.720	1.198	0.000	0.000	27.720	0.000
L20	84.75 - 83 (20)	P24x0.375	463.026	34.328	27.720	1.238	0.000	0.000	27.720	0.000
L21	83 - 82.75 (21)	P24x0.51875	465.197	25.387	27.720	0.916	0.000	0.000	27.720	0.000
L22	82.75 - 81.375	P24x0.51875	477.200	26.042	27.720	0.939	0.000	0.000	27.720	0.000
	81.375 - 80		489.302	26.702	27.720	0.963	0.000	0.000	27.720	0.000
L23	80 - 79.75 (23)	P30x0.375	491.513	23.103	25.075	0.921	0.000	0.000	25.075	0.000
L24	79.75 - 78.75	P30x0.375	500.400	23.521	25.075	0.938	0.000	0.000	25.075	0.000
	78.75 - 77.75		509.353	23.942	25.075	0.955	0.000	0.000	25.075	0.000
	77.75 - 76.75		518.372	24.366	25.075	0.972	0.000	0.000	25.075	0.000
	76.75 - 75.75		527.456	24.793	25.075	0.989	0.000	0.000	25.075	0.000
	75.75 - 74.75		536.605	25.223	25.075	1.006	0.000	0.000	25.075	0.000
L25	74.75 - 73.75	P30x0.375	545.819	25.656	25.075	1.023	0.000	0.000	25.075	0.000
	73.75 - 72.75		555.097	26.092	25.075	1.041	0.000	0.000	25.075	0.000
	72.75 - 71.75		564.437	26.531	25.075	1.058	0.000	0.000	25.075	0.000
	71.75 - 70.75		573.840	26.973	25.075	1.076	0.000	0.000	25.075	0.000
	70.75 - 69.75		585.244	27.509	25.075	1.097	0.000	0.000	25.075	0.000
L26	69.75 - 68.75	P30x0.375	594.977	27.966	25.075	1.115	0.000	0.000	25.075	0.000
	68.75 - 67.75		604.771	28.427	25.075	1.134	0.000	0.000	25.075	0.000
	67.75 - 66.75		614.625	28.890	25.075	1.152	0.000	0.000	25.075	0.000
	66.75 - 65.75		624.539	29.356	25.075	1.171	0.000	0.000	25.075	0.000
	65.75 - 64.75		634.513	29.825	25.075	1.189	0.000	0.000	25.075	0.000
L27	64.75 - 63.5625	P30x0.375	646.432	30.385	25.075	1.212	0.000	0.000	25.075	0.000
	63.5625 -		658.432	30.949	25.075	1.234	0.000	0.000	25.075	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	62.375									
	62.375 - 61.1875		670.513	31.517	25.075	1.257	0.000	0.000	25.075	0.000
	61.1875 - 60		682.673	32.089	25.075	1.280	0.000	0.000	25.075	0.000
L28	60 - 59	P36x0.375	692.982	22.479	23.696	0.949	0.000	0.000	23.696	0.000
	59 - 58		703.362	22.816	23.696	0.963	0.000	0.000	23.696	0.000
	58 - 57		713.814	23.154	23.696	0.977	0.000	0.000	23.696	0.000
	57 - 56		724.337	23.496	23.696	0.992	0.000	0.000	23.696	0.000
	56 - 55		734.931	23.839	23.696	1.006	0.000	0.000	23.696	0.000
L29	55 - 54	P36x0.375	745.593	24.185	23.696	1.021	0.000	0.000	23.696	0.000
	54 - 53		756.324	24.533	23.696	1.035	0.000	0.000	23.696	0.000
	53 - 52		767.123	24.884	23.696	1.050	0.000	0.000	23.696	0.000
	52 - 51		777.990	25.236	23.696	1.065	0.000	0.000	23.696	0.000
	51 - 50		788.924	25.591	23.696	1.080	0.000	0.000	23.696	0.000
L30	50 - 49	P36x0.375	801.887	26.011	23.696	1.098	0.000	0.000	23.696	0.000
	49 - 48		813.140	26.376	23.696	1.113	0.000	0.000	23.696	0.000
	48 - 47		824.458	26.744	23.696	1.129	0.000	0.000	23.696	0.000
	47 - 46		835.842	27.113	23.696	1.144	0.000	0.000	23.696	0.000
	46 - 45		847.283	27.484	23.696	1.160	0.000	0.000	23.696	0.000
L31	45 - 44	P36x0.375	858.792	27.857	23.696	1.176	0.000	0.000	23.696	0.000
	44 - 43		870.367	28.233	23.696	1.191	0.000	0.000	23.696	0.000
	43 - 42		881.992	28.610	23.696	1.207	0.000	0.000	23.696	0.000
	42 - 41		893.683	28.989	23.696	1.223	0.000	0.000	23.696	0.000
	41 - 40		905.442	29.370	23.696	1.239	0.000	0.000	23.696	0.000
L32	40 - 39	P42x0.375	917.258	21.762	22.711	0.958	0.000	0.000	22.711	0.000
	39 - 38		929.142	22.044	22.711	0.971	0.000	0.000	22.711	0.000
	38 - 37		941.108	22.328	22.711	0.983	0.000	0.000	22.711	0.000
	37 - 36		953.133	22.613	22.711	0.996	0.000	0.000	22.711	0.000
	36 - 35		965.242	22.901	22.711	1.008	0.000	0.000	22.711	0.000
L33	35 - 34	P42x0.375	977.417	23.189	22.711	1.021	0.000	0.000	22.711	0.000
	34 - 33		989.658	23.480	22.711	1.034	0.000	0.000	22.711	0.000
	33 - 32		1001.967	23.772	22.711	1.047	0.000	0.000	22.711	0.000
	32 - 31		1014.342	24.066	22.711	1.060	0.000	0.000	22.711	0.000
	31 - 30		1026.783	24.361	22.711	1.073	0.000	0.000	22.711	0.000
L34	30 - 29	P42x0.375	1039.292	24.658	22.711	1.086	0.000	0.000	22.711	0.000
	29 - 28		1051.875	24.956	22.711	1.099	0.000	0.000	22.711	0.000
	28 - 27		1064.517	25.256	22.711	1.112	0.000	0.000	22.711	0.000
	27 - 26		1077.225	25.558	22.711	1.125	0.000	0.000	22.711	0.000
	26 - 25		1090.000	25.861	22.711	1.139	0.000	0.000	22.711	0.000
L35	25 - 24	P42x0.375	1102.850	26.165	22.711	1.152	0.000	0.000	22.711	0.000
	24 - 23		1115.750	26.472	22.711	1.166	0.000	0.000	22.711	0.000
	23 - 22		1128.725	26.779	22.711	1.179	0.000	0.000	22.711	0.000
	22 - 21		1141.767	27.089	22.711	1.193	0.000	0.000	22.711	0.000
	21 - 20		1154.867	27.400	22.711	1.206	0.000	0.000	22.711	0.000
L36	20 - 19	P48x0.375	1168.033	21.146	21.972	0.962	0.000	0.000	21.972	0.000
	19 - 18		1181.28	21.386	21.972	0.973	0.000	0.000	21.972	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	18 - 17		1194.613	21.627	21.972	0.984	0.000	0.000	21.972	0.000
	17 - 16		1208.017	21.870	21.972	0.995	0.000	0.000	21.972	0.000
	16 - 15		1221.500	22.114	21.972	1.006	0.000	0.000	21.972	0.000
L37	15 - 14	P48x0.375	1235.058	22.359	21.972	1.018	0.000	0.000	21.972	0.000
	14 - 13		1248.692	22.606	21.972	1.029	0.000	0.000	21.972	0.000
	13 - 12		1262.408	22.854	21.972	1.040	0.000	0.000	21.972	0.000
	12 - 11		1276.192	23.104	21.972	1.052	0.000	0.000	21.972	0.000
	11 - 10		1290.058	23.355	21.972	1.063	0.000	0.000	21.972	0.000
L38	10 - 9	P48x0.375	1304.000	23.607	21.972	1.074	0.000	0.000	21.972	0.000
	9 - 8		1318.008	23.861	21.972	1.086	0.000	0.000	21.972	0.000
	8 - 7		1332.100	24.116	21.972	1.098	0.000	0.000	21.972	0.000
	7 - 6		1346.267	24.372	21.972	1.109	0.000	0.000	21.972	0.000
	6 - 5		1360.500	24.630	21.972	1.121	0.000	0.000	21.972	0.000
L39	5 - 4	P48x0.375	1374.817	24.889	21.972	1.133	0.000	0.000	21.972	0.000
	4 - 3		1389.200	25.150	21.972	1.145	0.000	0.000	21.972	0.000
	3 - 2		1403.658	25.412	21.972	1.157	0.000	0.000	21.972	0.000
	2 - 1		1418.192	25.675	21.972	1.169	0.000	0.000	21.972	0.000
	1 - 0		1432.800	25.939	21.972	1.181	0.000	0.000	21.972	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	150 - 149	P12.75x0.375	5.572	0.764	16.800	0.045	0.067	0.009	16.800	0.001
	149 - 148		5.624	0.772	16.800	0.046	0.198	0.027	16.800	0.002
	148 - 147		5.665	0.777	16.800	0.046	0.198	0.027	16.800	0.002
	147 - 146		5.706	0.783	16.800	0.047	0.198	0.027	16.800	0.002
	146 - 145		5.746	0.788	16.800	0.047	0.198	0.027	16.800	0.002
L2	145 - 144	P12.75x0.375	5.786	0.794	16.800	0.047	0.198	0.027	16.800	0.002
	144 - 143		5.825	0.799	16.800	0.048	0.198	0.027	16.800	0.002
	143 - 142		5.864	0.805	16.800	0.048	0.198	0.027	16.800	0.002
	142 - 141		5.903	0.810	16.800	0.048	0.198	0.027	16.800	0.002
	141 - 140		5.942	0.815	16.800	0.049	0.198	0.027	16.800	0.002
L3	140 - 139	P12.75x0.375	5.980	0.820	16.800	0.049	0.198	0.027	16.800	0.002
	139 - 138		6.017	0.825	16.800	0.049	0.198	0.027	16.800	0.002
	138 - 137		6.054	0.831	16.800	0.049	0.198	0.027	16.800	0.002

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	137 - 136		6.091	0.836	16.800	0.050	0.198	0.027	16.800	0.002
	136 - 135		6.127	0.841	16.800	0.050	0.198	0.027	16.800	0.002
L4	135 - 134	P12.75x0.375	6.162	0.845	16.800	0.050	0.198	0.027	16.800	0.002
	134 - 133		6.197	0.850	16.800	0.051	0.198	0.027	16.800	0.002
	133 - 132		6.232	0.855	16.800	0.051	0.198	0.027	16.800	0.002
	132 - 131		6.266	0.860	16.800	0.051	0.198	0.027	16.800	0.002
	131 - 130		6.299	0.864	16.800	0.051	0.198	0.027	16.800	0.002
L5	130 - 129	P12.75x0.375	6.332	0.869	16.800	0.052	0.198	0.027	16.800	0.002
	129 - 128		6.363	0.873	16.800	0.052	0.198	0.027	16.800	0.002
L6	128 - 127.75 (6)	P12.75x0.725	6.371	0.465	16.800	0.028	0.197	0.015	16.800	0.001
L7	127.75 - 126.75	P12.75x0.725	6.408	0.468	16.800	0.028	0.197	0.015	16.800	0.001
	126.75 - 125.75		6.445	0.471	16.800	0.028	0.197	0.015	16.800	0.001
	125.75 - 124.75		6.481	0.473	16.800	0.028	0.197	0.015	16.800	0.001
	124.75 - 123.75		6.517	0.476	16.800	0.028	0.197	0.015	16.800	0.001
	123.75 - 122.75		6.552	0.478	16.800	0.028	0.197	0.015	16.800	0.001
L8	122.75 - 121.375	P12.75x0.725	6.600	0.482	16.800	0.029	0.197	0.015	16.800	0.001
	121.375 - 120		6.646	0.485	16.800	0.029	0.197	0.015	16.800	0.001
L9	120 - 119.75 (9)	P18x0.375	6.655	0.641	16.800	0.038	0.197	0.013	16.800	0.001
L10	119.75 - 118.75	P18x0.375	6.703	0.646	16.800	0.038	0.197	0.013	16.800	0.001
	118.75 - 117.75		6.750	0.650	16.800	0.039	0.197	0.013	16.800	0.001
	117.75 - 116.75		6.796	0.655	16.800	0.039	0.197	0.013	16.800	0.001
	116.75 - 115.75		6.842	0.659	16.800	0.039	0.197	0.013	16.800	0.001
	115.75 - 114.75		6.888	0.663	16.800	0.039	0.197	0.013	16.800	0.001
L11	114.75 - 113.75	P18x0.375	6.933	0.668	16.800	0.040	0.197	0.013	16.800	0.001
	113.75 - 112.75		6.977	0.672	16.800	0.040	0.197	0.013	16.800	0.001
	112.75 - 111.75		7.021	0.676	16.800	0.040	0.197	0.013	16.800	0.001
	111.75 - 110.75		7.065	0.680	16.800	0.041	0.197	0.013	16.800	0.001
	110.75 - 109.75		7.108	0.685	16.800	0.041	0.197	0.013	16.800	0.001
L12	109.75 - 108 (12)	P18x0.375	7.184	0.692	16.800	0.041	0.197	0.013	16.800	0.001
L13	108 - 107.75 (13)	P18x0.5875	7.191	0.447	16.800	0.027	0.197	0.009	16.800	0.001
L14	107.75 - 106.75	P18x0.5875	7.238	0.450	16.800	0.027	0.197	0.009	16.800	0.001
	106.75 - 105.75		7.283	0.453	16.800	0.027	0.197	0.009	16.800	0.001
	105.75 - 104.75		7.328	0.456	16.800	0.027	0.197	0.009	16.800	0.001
	104.75 - 103.75		7.373	0.459	16.800	0.027	0.197	0.009	16.800	0.001
	103.75 - 102.75		7.417	0.462	16.800	0.027	0.197	0.009	16.800	0.001

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L15	102.75 - 101.375	P18x0.5875	7.477	0.465	16.800	0.028	0.197	0.009	16.800	0.001
	101.375 - 100		7.536	0.469	16.800	0.028	0.197	0.009	16.800	0.001
L16	100 - 99.75 (16)	P24x0.375	7.547	0.542	16.800	0.032	0.197	0.007	16.800	0.000
L17	99.75 - 98.75	P24x0.375	7.606	0.547	16.800	0.033	0.197	0.007	16.800	0.000
	98.75 - 97.75		7.890	0.567	16.800	0.034	0.197	0.007	16.800	0.000
	97.75 - 96.75		7.947	0.571	16.800	0.034	0.197	0.007	16.800	0.000
	96.75 - 95.75		8.004	0.575	16.800	0.034	0.196	0.007	16.800	0.000
	95.75 - 94.75		8.061	0.579	16.800	0.034	0.196	0.007	16.800	0.000
L18	94.75 - 93.75	P24x0.375	8.117	0.583	16.800	0.035	0.196	0.007	16.800	0.000
	93.75 - 92.75		8.172	0.587	16.800	0.035	0.196	0.007	16.800	0.000
	92.75 - 91.75		8.227	0.591	16.800	0.035	0.196	0.007	16.800	0.000
	91.75 - 90.75		8.281	0.595	16.800	0.035	0.196	0.007	16.800	0.000
	90.75 - 89.75		8.335	0.599	16.800	0.036	0.196	0.007	16.800	0.000
L19	89.75 - 88.75	P24x0.375	8.388	0.603	16.800	0.036	0.196	0.007	16.800	0.000
	88.75 - 87.75		8.441	0.607	16.800	0.036	0.196	0.007	16.800	0.000
	87.75 - 86.75		8.493	0.610	16.800	0.036	0.196	0.007	16.800	0.000
	86.75 - 85.75		8.545	0.614	16.800	0.037	0.196	0.007	16.800	0.000
	85.75 - 84.75		8.596	0.618	16.800	0.037	0.196	0.007	16.800	0.000
L20	84.75 - 83 (20)	P24x0.375	8.687	0.624	16.800	0.037	0.196	0.007	16.800	0.000
L21	83 - 82.75 (21)	P24x0.51875	8.694	0.454	16.800	0.027	0.196	0.005	16.800	0.000
L22	82.75 - 81.375	P24x0.51875	8.770	0.458	16.800	0.027	0.196	0.005	16.800	0.000
	81.375 - 80		8.842	0.462	16.800	0.028	0.196	0.005	16.800	0.000
L23	80 - 79.75 (23)	P30x0.375	8.855	0.507	16.800	0.030	0.196	0.005	15.644	0.000
L24	79.75 - 78.75	P30x0.375	8.923	0.511	16.800	0.030	0.196	0.005	15.644	0.000
	78.75 - 77.75		8.989	0.515	16.800	0.031	0.196	0.005	15.644	0.000
	77.75 - 76.75		9.054	0.519	16.800	0.031	0.196	0.005	15.644	0.000
	76.75 - 75.75		9.120	0.523	16.800	0.031	0.196	0.005	15.644	0.000
	75.75 - 74.75		9.185	0.526	16.800	0.031	0.196	0.005	15.644	0.000
L25	74.75 - 73.75	P30x0.375	9.249	0.530	16.800	0.032	0.196	0.005	15.644	0.000
	73.75 - 72.75		9.312	0.534	16.800	0.032	0.196	0.005	15.644	0.000
	72.75 - 71.75		9.375	0.537	16.800	0.032	0.196	0.005	15.644	0.000
	71.75 - 70.75		9.438	0.541	16.800	0.032	0.196	0.005	15.644	0.000
	70.75 - 69.75		9.706	0.556	16.800	0.033	0.196	0.005	15.644	0.000
L26	69.75 - 68.75	P30x0.375	9.767	0.560	16.800	0.033	0.196	0.005	15.644	0.000
	68.75 - 67.75		9.828	0.563	16.800	0.034	0.196	0.005	15.644	0.000
	67.75 - 66.75		9.888	0.567	16.800	0.034	0.196	0.005	15.644	0.000
	66.75 - 65.75		9.948	0.570	16.800	0.034	0.196	0.005	15.644	0.000
	65.75 - 64.75		10.007	0.573	16.800	0.034	0.196	0.005	15.644	0.000
L27	64.75 - 63.5625	P30x0.375	10.077	0.577	16.800	0.034	0.196	0.005	15.644	0.000
	63.5625 - 62.375		10.145	0.581	16.800	0.035	0.196	0.005	15.644	0.000
	62.375 - 61.1875		10.212	0.585	16.800	0.035	0.196	0.005	15.644	0.000
	61.1875 - 60		10.279	0.589	16.800	0.035	0.196	0.005	15.644	0.000
L28	60 - 59	P36x0.375	10.348	0.493	16.800	0.029	0.196	0.003	11.901	0.000
	59 - 58		10.419	0.497	16.800	0.030	0.196	0.003	11.901	0.000
	58 - 57		10.490	0.500	16.800	0.030	0.196	0.003	11.901	0.000
	57 - 56		10.561	0.503	16.800	0.030	0.196	0.003	11.901	0.000
	56 - 55		10.632	0.507	16.800	0.030	0.196	0.003	11.901	0.000
L29	55 - 54	P36x0.375	10.700	0.510	16.800	0.030	0.196	0.003	11.901	0.000
	54 - 53		10.768	0.513	16.800	0.031	0.196	0.003	11.901	0.000
	53 - 52		10.836	0.516	16.800	0.031	0.196	0.003	11.901	0.000
	52 - 51		10.904	0.520	16.800	0.031	0.196	0.003	11.901	0.000
	51 - 50		10.971	0.523	16.800	0.031	0.196	0.003	11.901	0.000
L30	50 - 49	P36x0.375	11.225	0.535	16.800	0.032	0.196	0.003	11.901	0.000
	49 - 48		11.290	0.538	16.800	0.032	0.196	0.003	11.901	0.000
	48 - 47		11.354	0.541	16.800	0.032	0.196	0.003	11.901	0.000

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
	47 - 46		11.418	0.544	16.800	0.032	0.196	0.003	11.901	0.000
	46 - 45		11.482	0.547	16.800	0.033	0.196	0.003	11.901	0.000
L31	45 - 44	P36x0.375	11.544	0.550	16.800	0.033	0.196	0.003	11.901	0.000
	44 - 43		11.605	0.553	16.800	0.033	0.196	0.003	11.901	0.000
	43 - 42		11.665	0.556	16.800	0.033	0.196	0.003	11.901	0.000
	42 - 41		11.726	0.559	16.800	0.033	0.196	0.003	11.901	0.000
	41 - 40		11.786	0.562	16.800	0.033	0.196	0.003	11.901	0.000
L32	40 - 39	P42x0.375	11.856	0.484	16.800	0.029	0.196	0.002	9.978	0.000
	39 - 38		11.928	0.486	16.800	0.029	0.196	0.002	9.978	0.000
	38 - 37		12.000	0.489	16.800	0.029	0.196	0.002	9.978	0.000
	37 - 36		12.071	0.492	16.800	0.029	0.196	0.002	9.978	0.000
	36 - 35		12.143	0.495	16.800	0.029	0.196	0.002	9.978	0.000
L33	35 - 34	P42x0.375	12.211	0.498	16.800	0.030	0.196	0.002	9.978	0.000
	34 - 33		12.279	0.501	16.800	0.030	0.196	0.002	9.978	0.000
	33 - 32		12.347	0.504	16.800	0.030	0.196	0.002	9.978	0.000
	32 - 31		12.414	0.506	16.800	0.030	0.196	0.002	9.978	0.000
	31 - 30		12.481	0.509	16.800	0.030	0.196	0.002	9.978	0.000
L34	30 - 29	P42x0.375	12.548	0.512	16.800	0.030	0.196	0.002	9.978	0.000
	29 - 28		12.615	0.514	16.800	0.031	0.196	0.002	9.978	0.000
	28 - 27		12.681	0.517	16.800	0.031	0.196	0.002	9.978	0.000
	27 - 26		12.748	0.520	16.800	0.031	0.196	0.002	9.978	0.000
	26 - 25		12.813	0.523	16.800	0.031	0.196	0.002	9.978	0.000
L35	25 - 24	P42x0.375	12.879	0.525	16.800	0.031	0.196	0.002	9.978	0.000
	24 - 23		12.944	0.528	16.800	0.031	0.196	0.002	9.978	0.000
	23 - 22		13.009	0.531	16.800	0.032	0.196	0.002	9.978	0.000
	22 - 21		13.074	0.533	16.800	0.032	0.196	0.002	9.978	0.000
	21 - 20		13.138	0.536	16.800	0.032	0.196	0.002	9.978	0.000
L36	20 - 19	P48x0.375	13.215	0.471	16.800	0.028	0.196	0.002	9.027	0.000
	19 - 18		13.292	0.474	16.800	0.028	0.196	0.002	9.027	0.000
	18 - 17		13.370	0.477	16.800	0.028	0.196	0.002	9.027	0.000
	17 - 16		13.447	0.479	16.800	0.029	0.196	0.002	9.027	0.000
	16 - 15		13.524	0.482	16.800	0.029	0.196	0.002	9.027	0.000
L37	15 - 14	P48x0.375	13.601	0.485	16.800	0.029	0.196	0.002	9.027	0.000
	14 - 13		13.677	0.488	16.800	0.029	0.196	0.002	9.027	0.000
	13 - 12		13.753	0.490	16.800	0.029	0.196	0.002	9.027	0.000
	12 - 11		13.829	0.493	16.800	0.029	0.196	0.002	9.027	0.000
	11 - 10		13.905	0.496	16.800	0.030	0.196	0.002	9.027	0.000
L38	10 - 9	P48x0.375	13.981	0.498	16.800	0.030	0.196	0.002	9.027	0.000
	9 - 8		14.056	0.501	16.800	0.030	0.196	0.002	9.027	0.000
	8 - 7		14.131	0.504	16.800	0.030	0.196	0.002	9.027	0.000
	7 - 6		14.206	0.506	16.800	0.030	0.196	0.002	9.027	0.000
	6 - 5		14.280	0.509	16.800	0.030	0.196	0.002	9.027	0.000
L39	5 - 4	P48x0.375	14.354	0.512	16.800	0.030	0.196	0.002	9.027	0.000
	4 - 3		14.428	0.514	16.800	0.031	0.196	0.002	9.027	0.000
	3 - 2		14.502	0.517	16.800	0.031	0.196	0.002	9.027	0.000
	2 - 1		14.575	0.520	16.800	0.031	0.196	0.002	9.027	0.000
	1 - 0		14.648	0.522	16.800	0.031	0.196	0.002	9.027	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 149	0.002	0.037	0.000	0.045	0.001	0.041 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	149 - 148	0.005	0.075	0.000	0.046	0.002	0.082 ✔	1.333	H1-3+VT ✔
	148 - 147	0.005	0.131	0.000	0.046	0.002	0.138 ✔	1.333	H1-3+VT ✔
	147 - 146	0.005	0.187	0.000	0.047	0.002	0.195 ✔	1.333	H1-3+VT ✔
	146 - 145	0.006	0.244	0.000	0.047	0.002	0.251 ✔	1.333	H1-3+VT ✔
L2	145 - 144	0.006	0.300	0.000	0.047	0.002	0.309 ✔	1.333	H1-3+VT ✔
	144 - 143	0.006	0.358	0.000	0.048	0.002	0.366 ✔	1.333	H1-3+VT ✔
	143 - 142	0.006	0.416	0.000	0.048	0.002	0.424 ✔	1.333	H1-3+VT ✔
	142 - 141	0.006	0.474	0.000	0.048	0.002	0.482 ✔	1.333	H1-3+VT ✔
	141 - 140	0.006	0.532	0.000	0.049	0.002	0.541 ✔	1.333	H1-3+VT ✔
L3	140 - 139	0.007	0.591	0.000	0.049	0.002	0.600 ✔	1.333	H1-3+VT ✔
	139 - 138	0.007	0.650	0.000	0.049	0.002	0.660 ✔	1.333	H1-3+VT ✔
	138 - 137	0.007	0.710	0.000	0.049	0.002	0.719 ✔	1.333	H1-3+VT ✔
	137 - 136	0.007	0.770	0.000	0.050	0.002	0.780 ✔	1.333	H1-3+VT ✔
	136 - 135	0.007	0.830	0.000	0.050	0.002	0.840 ✔	1.333	H1-3+VT ✔
L4	135 - 134	0.007	0.891	0.000	0.050	0.002	0.901 ✔	1.333	H1-3+VT ✔
	134 - 133	0.008	0.952	0.000	0.051	0.002	0.962 ✔	1.333	H1-3+VT ✔
	133 - 132	0.008	1.013	0.000	0.051	0.002	1.024 ✔	1.333	H1-3+VT ✔
	132 - 131	0.008	1.075	0.000	0.051	0.002	1.086 ✔	1.333	H1-3+VT ✔
	131 - 130	0.008	1.137	0.000	0.051	0.002	1.148 ✔	1.333	H1-3+VT ✔
L5	130 - 129	0.008	1.199	0.000	0.052	0.002	1.211 ✔	1.333	H1-3+VT ✔
	129 - 128	0.009	1.262	0.000	0.052	0.002	1.274 ✔	1.333	H1-3+VT ✔
L6	128 - 127.75 (6)	0.005	0.718	0.000	0.028	0.001	0.724 ✔	1.333	H1-3+VT ✔
L7	127.75 - 126.75	0.005	0.754	0.000	0.028	0.001	0.759 ✔	1.333	H1-3+VT ✔
	126.75 - 125.75	0.005	0.790	0.000	0.028	0.001	0.795 ✔	1.333	H1-3+VT ✔
	125.75 - 124.75	0.005	0.825	0.000	0.028	0.001	0.831 ✔	1.333	H1-3+VT ✔
	124.75 - 123.75	0.005	0.862	0.000	0.028	0.001	0.868 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	123.75 - 122.75	0.005	0.898	0.000	0.028	0.001	0.904 ✔	1.333	H1-3+VT ✔
L8	122.75 - 121.375	0.005	0.948	0.000	0.029	0.001	0.954 ✔	1.333	H1-3+VT ✔
	121.375 - 120	0.006	0.999	0.000	0.029	0.001	1.005 ✔	1.333	H1-3+VT ✔
L9	120 - 119.75 (9)	0.008	0.876	0.000	0.038	0.001	0.885 ✔	1.333	H1-3+VT ✔
L10	119.75 - 118.75	0.008	0.909	0.000	0.038	0.001	0.918 ✔	1.333	H1-3+VT ✔
	118.75 - 117.75	0.008	0.941	0.000	0.039	0.001	0.950 ✔	1.333	H1-3+VT ✔
	117.75 - 116.75	0.008	0.974	0.000	0.039	0.001	0.983 ✔	1.333	H1-3+VT ✔
	116.75 - 115.75	0.008	1.007	0.000	0.039	0.001	1.016 ✔	1.333	H1-3+VT ✔
	115.75 - 114.75	0.008	1.040	0.000	0.039	0.001	1.050 ✔	1.333	H1-3+VT ✔
L11	114.75 - 113.75	0.008	1.073	0.000	0.040	0.001	1.083 ✔	1.333	H1-3+VT ✔
	113.75 - 112.75	0.009	1.107	0.000	0.040	0.001	1.117 ✔	1.333	H1-3+VT ✔
	112.75 - 111.75	0.009	1.141	0.000	0.040	0.001	1.151 ✔	1.333	H1-3+VT ✔
	111.75 - 110.75	0.009	1.175	0.000	0.041	0.001	1.185 ✔	1.333	H1-3+VT ✔
	110.75 - 109.75	0.009	1.209	0.000	0.041	0.001	1.220 ✔	1.333	H1-3+VT ✔
L12	109.75 - 108 (12)	0.009	1.269	0.000	0.041	0.001	1.280 ✔	1.333	H1-3+VT ✔
L13	108 - 107.75 (13)	0.006	0.845	0.000	0.027	0.001	0.852 ✔	1.333	H1-3+VT ✔
L14	107.75 - 106.75	0.006	0.868	0.000	0.027	0.001	0.875 ✔	1.333	H1-3+VT ✔
	106.75 - 105.75	0.006	0.892	0.000	0.027	0.001	0.899 ✔	1.333	H1-3+VT ✔
	105.75 - 104.75	0.007	0.915	0.000	0.027	0.001	0.922 ✔	1.333	H1-3+VT ✔
	104.75 - 103.75	0.007	0.938	0.000	0.027	0.001	0.946 ✔	1.333	H1-3+VT ✔
	103.75 - 102.75	0.007	0.962	0.000	0.027	0.001	0.970 ✔	1.333	H1-3+VT ✔
L15	102.75 - 101.375	0.007	0.995	0.000	0.028	0.001	1.003 ✔	1.333	H1-3+VT ✔
	101.375 - 100	0.007	1.028	0.000	0.028	0.001	1.036 ✔	1.333	H1-3+VT ✔
L16	100 - 99.75 (16)	0.008	0.865	0.000	0.032	0.000	0.875 ✔	1.333	H1-3+VT ✔
L17	99.75 - 98.75	0.009	0.885	0.000	0.033	0.000	0.895 ✔	1.333	H1-3+VT ✔
	98.75 - 97.75	0.009	0.911	0.000	0.034	0.000	0.921 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	97.75 - 96.75	0.009	0.932	0.000	0.034	0.000	0.943 ✔	1.333	H1-3+VT ✔
	96.75 - 95.75	0.009	0.954	0.000	0.034	0.000	0.964 ✔	1.333	H1-3+VT ✔
	95.75 - 94.75	0.009	0.975	0.000	0.034	0.000	0.986 ✔	1.333	H1-3+VT ✔
L18	94.75 - 93.75	0.009	0.997	0.000	0.035	0.000	1.007 ✔	1.333	H1-3+VT ✔
	93.75 - 92.75	0.010	1.019	0.000	0.035	0.000	1.029 ✔	1.333	H1-3+VT ✔
	92.75 - 91.75	0.010	1.041	0.000	0.035	0.000	1.052 ✔	1.333	H1-3+VT ✔
	91.75 - 90.75	0.010	1.063	0.000	0.035	0.000	1.074 ✔	1.333	H1-3+VT ✔
	90.75 - 89.75	0.010	1.085	0.000	0.036	0.000	1.096 ✔	1.333	H1-3+VT ✔
L19	89.75 - 88.75	0.010	1.107	0.000	0.036	0.000	1.119 ✔	1.333	H1-3+VT ✔
	88.75 - 87.75	0.010	1.130	0.000	0.036	0.000	1.141 ✔	1.333	H1-3+VT ✔
	87.75 - 86.75	0.011	1.152	0.000	0.036	0.000	1.164 ✔	1.333	H1-3+VT ✔
	86.75 - 85.75	0.011	1.175	0.000	0.037	0.000	1.187 ✔	1.333	H1-3+VT ✔
	85.75 - 84.75	0.011	1.198	0.000	0.037	0.000	1.210 ✔	1.333	H1-3+VT ✔
L20	84.75 - 83 (20)	0.011	1.238	0.000	0.037	0.000	1.251 ✔	1.333	H1-3+VT ✔
L21	83 - 82.75 (21)	0.008	0.916	0.000	0.027	0.000	0.925 ✔	1.333	H1-3+VT ✔
L22	82.75 - 81.375	0.008	0.939	0.000	0.027	0.000	0.949 ✔	1.333	H1-3+VT ✔
	81.375 - 80	0.009	0.963	0.000	0.028	0.000	0.973 ✔	1.333	H1-3+VT ✔
L23	80 - 79.75 (23)	0.009	0.921	0.000	0.030	0.000	0.932 ✔	1.333	H1-3+VT ✔
L24	79.75 - 78.75	0.010	0.938	0.000	0.030	0.000	0.949 ✔	1.333	H1-3+VT ✔
	78.75 - 77.75	0.010	0.955	0.000	0.031	0.000	0.966 ✔	1.333	H1-3+VT ✔
	77.75 - 76.75	0.010	0.972	0.000	0.031	0.000	0.983 ✔	1.333	H1-3+VT ✔
	76.75 - 75.75	0.010	0.989	0.000	0.031	0.000	1.000 ✔	1.333	H1-3+VT ✔
	75.75 - 74.75	0.010	1.006	0.000	0.031	0.000	1.017 ✔	1.333	H1-3+VT ✔
L25	74.75 - 73.75	0.010	1.023	0.000	0.032	0.000	1.035 ✔	1.333	H1-3+VT ✔
	73.75 - 72.75	0.011	1.041	0.000	0.032	0.000	1.052 ✔	1.333	H1-3+VT ✔
	72.75 - 71.75	0.011	1.058	0.000	0.032	0.000	1.070 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	71.75 - 70.75	0.011	1.076	0.000	0.032	0.000	1.088 ✔	1.333	H1-3+VT ✔
	70.75 - 69.75	0.011	1.097	0.000	0.033	0.000	1.109 ✔	1.333	H1-3+VT ✔
L26	69.75 - 68.75	0.011	1.115	0.000	0.033	0.000	1.128 ✔	1.333	H1-3+VT ✔
	68.75 - 67.75	0.011	1.134	0.000	0.034	0.000	1.146 ✔	1.333	H1-3+VT ✔
	67.75 - 66.75	0.011	1.152	0.000	0.034	0.000	1.165 ✔	1.333	H1-3+VT ✔
	66.75 - 65.75	0.012	1.171	0.000	0.034	0.000	1.184 ✔	1.333	H1-3+VT ✔
	65.75 - 64.75	0.012	1.189	0.000	0.034	0.000	1.202 ✔	1.333	H1-3+VT ✔
L27	64.75 - 63.5625	0.012	1.212	0.000	0.034	0.000	1.225 ✔	1.333	H1-3+VT ✔
	63.5625 - 62.375	0.012	1.234	0.000	0.035	0.000	1.248 ✔	1.333	H1-3+VT ✔
	62.375 - 61.1875	0.012	1.257	0.000	0.035	0.000	1.270 ✔	1.333	H1-3+VT ✔
	61.1875 - 60	0.013	1.280	0.000	0.035	0.000	1.293 ✔	1.333	H1-3+VT ✔
L28	60 - 59	0.011	0.949	0.000	0.029	0.000	0.961 ✔	1.333	H1-3+VT ✔
	59 - 58	0.011	0.963	0.000	0.030	0.000	0.975 ✔	1.333	H1-3+VT ✔
	58 - 57	0.011	0.977	0.000	0.030	0.000	0.990 ✔	1.333	H1-3+VT ✔
	57 - 56	0.012	0.992	0.000	0.030	0.000	1.004 ✔	1.333	H1-3+VT ✔
	56 - 55	0.012	1.006	0.000	0.030	0.000	1.019 ✔	1.333	H1-3+VT ✔
L29	55 - 54	0.012	1.021	0.000	0.030	0.000	1.034 ✔	1.333	H1-3+VT ✔
	54 - 53	0.012	1.035	0.000	0.031	0.000	1.048 ✔	1.333	H1-3+VT ✔
	53 - 52	0.012	1.050	0.000	0.031	0.000	1.063 ✔	1.333	H1-3+VT ✔
	52 - 51	0.012	1.065	0.000	0.031	0.000	1.078 ✔	1.333	H1-3+VT ✔
	51 - 50	0.013	1.080	0.000	0.031	0.000	1.094 ✔	1.333	H1-3+VT ✔
L30	50 - 49	0.013	1.098	0.000	0.032	0.000	1.112 ✔	1.333	H1-3+VT ✔
	49 - 48	0.013	1.113	0.000	0.032	0.000	1.127 ✔	1.333	H1-3+VT ✔
	48 - 47	0.013	1.129	0.000	0.032	0.000	1.143 ✔	1.333	H1-3+VT ✔
	47 - 46	0.013	1.144	0.000	0.032	0.000	1.159 ✔	1.333	H1-3+VT ✔
	46 - 45	0.013	1.160	0.000	0.033	0.000	1.174 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L31	45 - 44	0.014	1.176	0.000	0.033	0.000	1.190 ✔	1.333	H1-3+VT ✔
	44 - 43	0.014	1.191	0.000	0.033	0.000	1.206 ✔	1.333	H1-3+VT ✔
	43 - 42	0.014	1.207	0.000	0.033	0.000	1.222 ✔	1.333	H1-3+VT ✔
	42 - 41	0.014	1.223	0.000	0.033	0.000	1.239 ✔	1.333	H1-3+VT ✔
	41 - 40	0.014	1.239	0.000	0.033	0.000	1.255 ✔	1.333	H1-3+VT ✔
L32	40 - 39	0.013	0.958	0.000	0.029	0.000	0.972 ✔	1.333	H1-3+VT ✔
	39 - 38	0.013	0.971	0.000	0.029	0.000	0.985 ✔	1.333	H1-3+VT ✔
	38 - 37	0.013	0.983	0.000	0.029	0.000	0.997 ✔	1.333	H1-3+VT ✔
	37 - 36	0.013	0.996	0.000	0.029	0.000	1.010 ✔	1.333	H1-3+VT ✔
	36 - 35	0.014	1.008	0.000	0.029	0.000	1.023 ✔	1.333	H1-3+VT ✔
L33	35 - 34	0.014	1.021	0.000	0.030	0.000	1.036 ✔	1.333	H1-3+VT ✔
	34 - 33	0.014	1.034	0.000	0.030	0.000	1.049 ✔	1.333	H1-3+VT ✔
	33 - 32	0.014	1.047	0.000	0.030	0.000	1.062 ✔	1.333	H1-3+VT ✔
	32 - 31	0.014	1.060	0.000	0.030	0.000	1.075 ✔	1.333	H1-3+VT ✔
	31 - 30	0.014	1.073	0.000	0.030	0.000	1.088 ✔	1.333	H1-3+VT ✔
L34	30 - 29	0.015	1.086	0.000	0.030	0.000	1.101 ✔	1.333	H1-3+VT ✔
	29 - 28	0.015	1.099	0.000	0.031	0.000	1.115 ✔	1.333	H1-3+VT ✔
	28 - 27	0.015	1.112	0.000	0.031	0.000	1.128 ✔	1.333	H1-3+VT ✔
	27 - 26	0.015	1.125	0.000	0.031	0.000	1.141 ✔	1.333	H1-3+VT ✔
	26 - 25	0.015	1.139	0.000	0.031	0.000	1.155 ✔	1.333	H1-3+VT ✔
L35	25 - 24	0.015	1.152	0.000	0.031	0.000	1.168 ✔	1.333	H1-3+VT ✔
	24 - 23	0.016	1.166	0.000	0.031	0.000	1.182 ✔	1.333	H1-3+VT ✔
	23 - 22	0.016	1.179	0.000	0.032	0.000	1.196 ✔	1.333	H1-3+VT ✔
	22 - 21	0.016	1.193	0.000	0.032	0.000	1.210 ✔	1.333	H1-3+VT ✔
	21 - 20	0.016	1.206	0.000	0.032	0.000	1.224 ✔	1.333	H1-3+VT ✔
L36	20 - 19	0.015	0.962	0.000	0.028	0.000	0.978 ✔	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	19 - 18	0.015	0.973	0.000	0.028	0.000	0.989 ✔	1.333	H1-3+VT ✔
	18 - 17	0.015	0.984	0.000	0.028	0.000	1.000 ✔	1.333	H1-3+VT ✔
	17 - 16	0.015	0.995	0.000	0.029	0.000	1.011 ✔	1.333	H1-3+VT ✔
	16 - 15	0.015	1.006	0.000	0.029	0.000	1.023 ✔	1.333	H1-3+VT ✔
L37	15 - 14	0.015	1.018	0.000	0.029	0.000	1.034 ✔	1.333	H1-3+VT ✔
	14 - 13	0.016	1.029	0.000	0.029	0.000	1.045 ✔	1.333	H1-3+VT ✔
	13 - 12	0.016	1.040	0.000	0.029	0.000	1.057 ✔	1.333	H1-3+VT ✔
	12 - 11	0.016	1.052	0.000	0.029	0.000	1.068 ✔	1.333	H1-3+VT ✔
	11 - 10	0.016	1.063	0.000	0.030	0.000	1.080 ✔	1.333	H1-3+VT ✔
L38	10 - 9	0.016	1.074	0.000	0.030	0.000	1.092 ✔	1.333	H1-3+VT ✔
	9 - 8	0.016	1.086	0.000	0.030	0.000	1.103 ✔	1.333	H1-3+VT ✔
	8 - 7	0.017	1.098	0.000	0.030	0.000	1.115 ✔	1.333	H1-3+VT ✔
	7 - 6	0.017	1.109	0.000	0.030	0.000	1.127 ✔	1.333	H1-3+VT ✔
	6 - 5	0.017	1.121	0.000	0.030	0.000	1.139 ✔	1.333	H1-3+VT ✔
L39	5 - 4	0.017	1.133	0.000	0.030	0.000	1.151 ✔	1.333	H1-3+VT ✔
	4 - 3	0.017	1.145	0.000	0.031	0.000	1.163 ✔	1.333	H1-3+VT ✔
	3 - 2	0.018	1.157	0.000	0.031	0.000	1.175 ✔	1.333	H1-3+VT ✔
	2 - 1	0.018	1.169	0.000	0.031	0.000	1.187 ✔	1.333	H1-3+VT ✔
	1 - 0	0.018	1.181	0.000	0.031	0.000	1.199 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	150 - 145	Pole	P12.75x0.375	1	-2.043	489.731	18.9	Pass
L2	145 - 140	Pole	P12.75x0.375	2	-2.342	489.731	40.6	Pass
L3	140 - 135	Pole	P12.75x0.375	3	-2.658	489.731	63.0	Pass
L4	135 - 130	Pole	P12.75x0.375	4	-2.993	489.731	86.1	Pass
L5	130 - 128	Pole	P12.75x0.375	5	-3.133	489.731	95.5	Pass
L6	128 - 127.75	Pole	P12.75x0.725	6	-3.163	920.034	54.3	Pass

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Job	Page
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Project	**Date**
Branford/ I-95/ X53/ Jct.	10:38:12 06/02/15
Client	**Designed by**
T-Mobile	Veronica Elson

Section No.	*Elevation ft*	*Component Type*	*Size*	*Critical Element*	*P K*	*SF*P$_{allow}$ K*	*% Capacity*	*Pass Fail*
L7	127.75 - 122.75	Pole	P12.75x0.725	7	-3.639	920.034	67.8	Pass
L8	122.75 - 120	Pole	P12.75x0.725	8	-3.906	920.034	75.4	Pass
L9	120 - 119.75	Pole	P18x0.375	9	-3.935	697.495	66.4	Pass
L10	119.75 - 114.75	Pole	P18x0.375	10	-4.359	697.495	78.8	Pass
L11	114.75 - 109.75	Pole	P18x0.375	11	-4.797	697.495	91.5	Pass
L12	109.75 - 108	Pole	P18x0.375	12	-4.949	697.495	96.1	Pass
L13	108 - 107.75	Pole	P18x0.5875	13	-4.987	1079.567	63.9	Pass
L14	107.75 - 102.75	Pole	P18x0.5875	14	-5.565	1079.567	72.7	Pass
L15	102.75 - 100	Pole	P18x0.5875	15	-5.887	1079.567	77.7	Pass
L16	100 - 99.75	Pole	P24x0.375	16	-5.920	934.940	65.6	Pass
L17	99.75 - 94.75	Pole	P24x0.375	17	-6.497	934.940	73.9	Pass
L18	94.75 - 89.75	Pole	P24x0.375	18	-7.048	934.940	82.2	Pass
L19	89.75 - 84.75	Pole	P24x0.375	19	-7.608	934.940	90.8	Pass
L20	84.75 - 83	Pole	P24x0.375	20	-7.801	934.940	93.8	Pass
L21	83 - 82.75	Pole	P24x0.51875	21	-7.844	1285.464	69.4	Pass
L22	82.75 - 80	Pole	P24x0.51875	22	-8.227	1285.464	73.0	Pass
L23	80 - 79.75	Pole	P30x0.375	23	-8.265	1166.570	69.9	Pass
L24	79.75 - 74.75	Pole	P30x0.375	24	-8.927	1166.570	76.3	Pass
L25	74.75 - 69.75	Pole	P30x0.375	25	-9.638	1166.570	83.2	Pass
L26	69.75 - 64.75	Pole	P30x0.375	26	-10.315	1166.570	90.2	Pass
L27	64.75 - 60	Pole	P30x0.375	27	-10.962	1166.570	97.0	Pass
L28	60 - 55	Pole	P36x0.375	28	-11.752	1325.678	76.4	Pass
L29	55 - 50	Pole	P36x0.375	29	-12.543	1325.678	82.0	Pass
L30	50 - 45	Pole	P36x0.375	30	-13.385	1325.678	88.1	Pass
L31	45 - 40	Pole	P36x0.375	31	-14.187	1325.678	94.1	Pass
L32	40 - 35	Pole	P42x0.375	32	-15.099	1484.549	76.7	Pass
L33	35 - 30	Pole	P42x0.375	33	-16.013	1484.549	81.6	Pass
L34	30 - 25	Pole	P42x0.375	34	-16.930	1484.549	86.6	Pass
L35	25 - 20	Pole	P42x0.375	35	-17.852	1484.549	91.8	Pass
L36	20 - 15	Pole	P48x0.375	36	-18.886	1643.282	76.7	Pass
L37	15 - 10	Pole	P48x0.375	37	-19.921	1643.282	81.0	Pass
L38	10 - 5	Pole	P48x0.375	38	-20.960	1643.282	85.4	Pass
L39	5 - 0	Pole	P48x0.375	39	-22.002	1643.282	90.0	Pass
							Summary	
						Pole (L27)	97.0	Pass
						RATING =	**97.0**	**Pass**

FOUNDATION CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

WO#: *6421.CT11024b*
Site Name: *Branford/I-95/X53/JCT.*

Pole Manufacturer:	*Pirod*

Anchor Rod Data		
Qty:	36	
Diam:	1	in
Rod Material:	Other	
Strength (Fu):	150	ksi
Yield (Fy):	105	ksi
Bolt Circle:	51	in

Plate Data		
Diam:	54	in
Thick:	1.25	in
Grade:	36	ksi
Single-Rod B-eff:	4.19	in

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

Pole Data		
Diam:	48	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Reactions		
Moment:	1433	ft-kips
Axial:	22	kips
Shear:	15	kips

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Anchor Rod Results

Maximum Rod Tension:	36.8 Kips	Rigid
Allowable Tension:	51.8 Kips	Service, ASD
Anchor Rod Stress Ratio:	71.1% **Pass**	Fty*ASIF

Base Plate Results

	Flexural Check	Rigid
Base Plate Stress:	Rohn/Pirod, OK	Service ASD
Allowable Plate Stress:	36.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	Rohn/Pirod, OK	Y.L. Length: 17.23

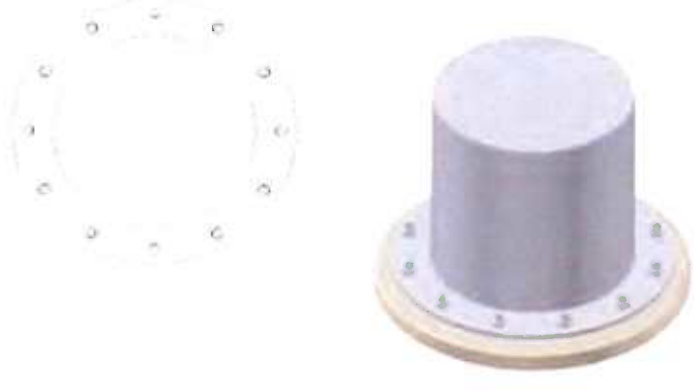
n/a

Stiffener Results N/A for Rohn / Pirod

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

Analysis Date: 6/2/2015

Project Title: 6421.CT11024B
Project Notes:

Calculation Method: Full 8CD

******* I N P U T D A T A

Pier Properties

Diameter (ft)	Distance of Top of Pier above Ground (ft)	Concrete Strength (ksi)	Steel Yield Strength (ksi)
5.50	0.50	4.50	60.00

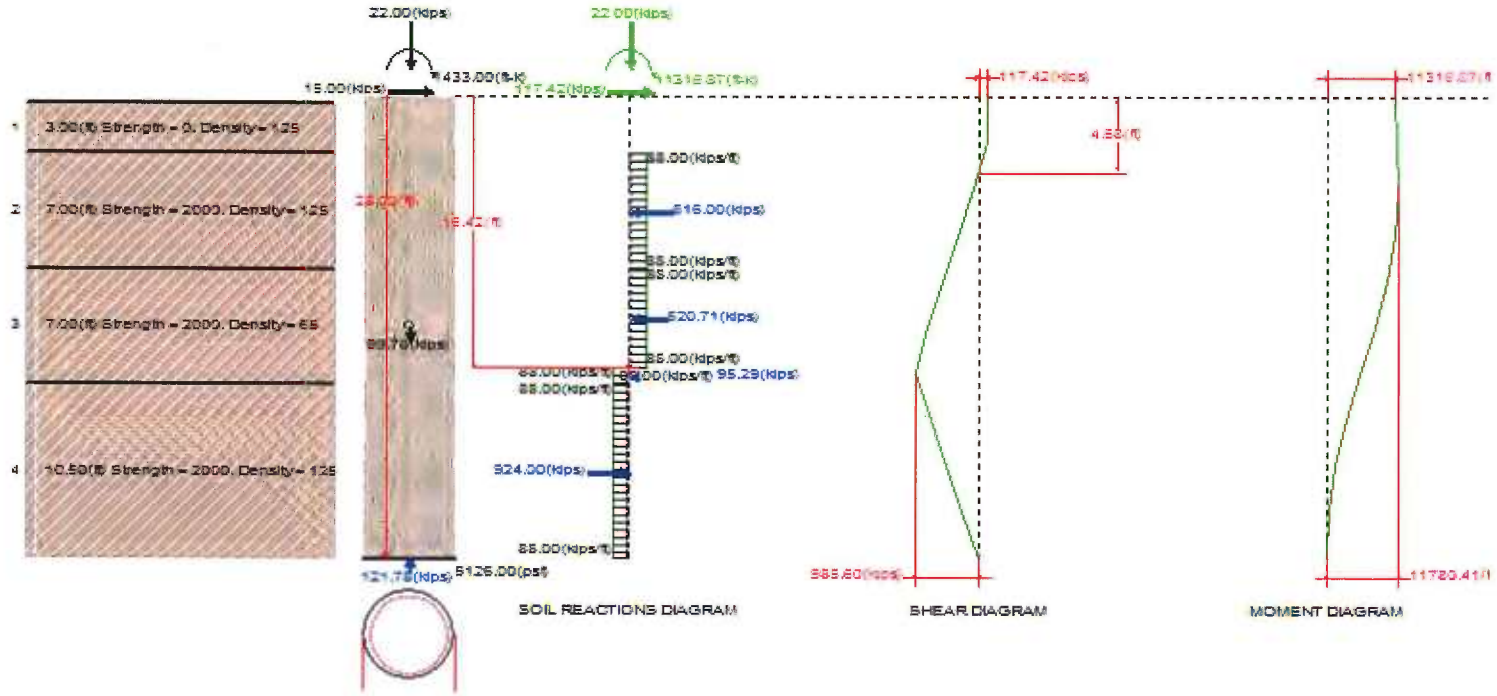
Soil Properties

Layer	Type	Thickness (ft)	Depth at Top of Layer (ft)	Density (lbs/ft^3)	CU (psf)	KP	PHI (deg)
1	Clay	3.00	0.00	125.0			
2	Clay	7.00	3.00	125.0	2000.0		
3	Clay	7.00	10.00	65.0	2000.0		
4	Clay	10.50	17.00	125.0	2000.0		

Design (Factored) Loads at Top of Pier

Moment (ft-k)	Axial Load (kips)	Shear Load (kips)	Additional Safety Factor Against Soil Failure
1433.0	22.0	15.00	7.80--> Approximate Lateral Capacity = 25.6%

******* R E S U L T S



Calculated Pier Properties

Length (ft)	Weight (kips)	Pressure Due To Axial Load (psf)	Pressure Due To Weight (psf)	Total End-Bearing Pressure (psf)
28.000	99.785	926.0	4200.0	5126.0

Ultimate Resisting Forces Along Pier

Type	Distance of Top of Layer to Top of Pier (ft)	Thickness (ft)	Density (lbs/ft^3)	CU (psf)	KP	Force (kips)	Arm (ft)
Clay	0.50	3.00	125.0			0.00	2.00
Clay	3.50	7.00	125.0	2000.0		616.00	7.00
Clay	10.50	5.92	65.0	2000.0		520.71	13.46
Clay	16.42	1.08	65.0	2000.0		-95.29	16.96
Clay	17.50	10.50	125.0	2000.0		-924.00	22.75

Shear and Moments Along Pier

Distance below Top of Pier (ft)	Shear (with Safety Factor) (kips)	Moment (with Safety Factor) (ft-k)	Shear (without Safety Factor) (kips)	Moment (without Safety Factor) (ft-k)
0.00	117.4	11316.9	15.1	1450.9
2.80	117.4	11645.7	15.1	1493.0
5.60	-67.4	11780.4	-8.6	MAX MOMENT 1510.3
8.40	-313.8	11246.8	-40.2	1441.9
11.20	-560.2	10023.3	-71.8	1285.0
14.00	-806.6	8109.8	-103.4	1039.7
16.80	-985.6	5519.4	-126.4	707.6
19.60	-739.2	3104.6	-94.8	398.0
22.40	-492.8	1379.8	-63.2	176.9
25.20	-246.4	345.0	-31.6	44.2
28.00	-0.0	-0.0	-0.0	-0.0

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

WO#: *6421.CT11024B*
Site Name: *Branford/I-95/X53/JCT.*

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Pier Properties

Concrete:

Pier Diameter =	5.5	ft
Concrete Area =	3421.2	in^2

Reinforcement:

Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	5	
Vert. Cage Diameter =	4.78	ft
Vert. Cage Diameter =	57.34	in
Vertical Bar Size =	11	
Bar Diameter =	1.41	in
Bar Area =	1.56	in^2
Number of Bars =	25	
As Total=	39	in^2
A s/ Aconc, Rho:	0.0114	1.14%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:

(3)*(Sqrt(f'c)/Fy:	0.0027
200 / Fy:	0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	1.14%	OK

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	5701.59	kips
at Mu=(ϕ=0.65)Mn=	2668.42	ft-kips
Max Tu, (φ=0.9) Tn =	2106	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	F	
Max. Service Shaft M:	1510.3	ft-kips (* **Note**)
Max. Service Shaft P:	22	kips
Max Axial Force Type:	Comp.	

(*) **Note:** Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Load Factor	**Shaft Factored Loads**		
1.30	Mu:	1963.39	ft-kips
1.30	Pu:	28.6	kips

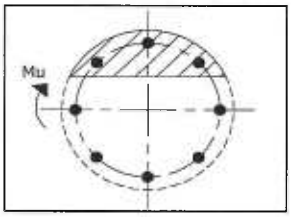
Material Properties

Concrete Comp. strength, f'c =	3000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	
ACI 318 Code		
Select Analysis ACI Code=	2005	
Seismic Properties		
Seismic Design Category =	B	
Seismic Risk =	**Low**	

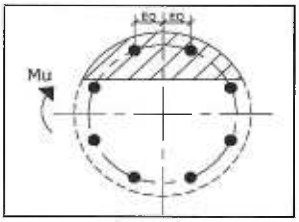
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **2**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**14.66**	in
Extreme Steel Strain, εt:	**0.0096**	
εt > 0.0050, Tension Controlled		
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	28.60	kips
Drilled Shaft Moment Capacity, φMn:	**4434.95**	ft-kips
Drilled Shaft Superimposed Mu:	**1963.39**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**44.3%**

Analysis Date: 6/2/2015

ADDITIONAL CALCULATIONS

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

Site Data

W.O.#: *6421.CT11024B*
Site Name: *Branford/I-95/X53/JCT.*

Pole Manufacturer:	Pirod

Bolt Data			
Qty:	24		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	Bolt Fty:
N/A:	75	<-- Disregard	44.00
Circle (in.):	33		

Plate Data		
Diam:	36	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.93	in

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

Pole Data		
Diam:	30	in
Thick:	0.375	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Reactions		
Moment:	682.67	ft-kips
Axial:	10.96	kips
Shear:	10.28	kips
Elevation:	60	feet

If No stiffeners, Criteria: AISC ASD <-Only Applcable to Unstiffened Cases

Flange Bolt Results

		Rigid
Bolt Tension Capacity, **B**:	46.07 kips	Service, ASD
Max Bolt directly applied T:	40.92 Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	1.398 in	
Min PL "treq" for actual **T w/ Pry**:	1.140 in	
Min PL "t1" for actual **T w/o Pry**:	1.318 in	
T allowable with Prying:	42.98 kips	0≤α'≤1 case
Prying Force, Q:	2.06 kips	
Total Bolt Tension=T+Q:	42.97 kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	93.3% **Pass**	

Exterior Flange Plate Results	Flexural Check	Rigid
Compression Side Plate Stress:	Rohn/Piroc OK	Service ASD
Allowable Plate Stress:	36.0 ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	Rohn/Piroc OK	Comp. Y.L. Length: 13.75
Prying Occurs, PL Check:		
Tension Side Stress Ratio, (treq/t)^2:	Rohn/Pirod OK	

n/a

Stiffener Results	N/A for Rohn / Pirod
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

Analysis Date: 6/2/2015

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

Site Data

W.O.#: *6421.CT11024B*
Site Name: *Branford/I-95/X53/JCT.*

Pole Manufacturer:	Other

Bolt Data			
Qty:	20		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	Bolt Fty:
N/A:	75	<-- Disregard	44.00
Circle (in.):	27		

Plate Data		
Diam:	30	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.77	in

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

Pole Data		
Diam:	24	in
Thick:	0.51875	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Reactions		
Moment:	327.60	ft-kips
Axial:	8.23	kips
Shear:	8.84	kips
Elevation:	80	feet

If No stiffeners, Criteria: AISC ASD <-Only Applcable to Unstiffened Cases

Flange Bolt Results

		Rigid
Bolt Tension Capacity, **B**:	46.07 kips	Service, ASD
Max Bolt directly applied T:	28.71 Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	1.427 in	
Min PL "treq" for actual **T w/ Pry:**	0.860 in	
Min PL "t1" for actual **T w/o Pry**:	1.127 in	
T allowable with Prying:	42.49 kips	0≤α'≤1 case
Prying Force, Q:	0.00 kips	
Total Bolt Tension=T+Q:	28.71 kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	62.3% **Pass**	

Exterior Flange Plate Results Flexural Check

		Rigid
Compression Side Plate Stress:	28.4 ksi	Service ASD
Allowable Plate Stress:	36.0 ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	78.9% **Pass**	Comp. Y.L. Length: 12.37
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	47.3% **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

Analysis Date: 6/2/2015

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

Site Data

W.O.#: *6421.CT11024B*
Site Name: *Branford/I-95/X53/JCT.*

Pole Manufacturer:	Other

Bolt Data			
Qty:	16		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	Bolt Fty:
N/A:	75	<-- Disregard	44.00
Circle (in.):	21		

Plate Data		
Diam:	24	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.53	in

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

Pole Data		
Diam:	18	in
Thick:	0.5875	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Reactions		
Moment:	201.30	ft-kips
Axial:	5.89	kips
Shear:	7.54	kips
Elevation:	100	feet

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Flange Bolt Results

		Rigid
Bolt Tension Capacity, **B**:	46.07 kips	Service, ASD
Max Bolt directly applied T:	28.39 Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	1.474 in	
Min PL "treq" for actual **T w/ Pry**:	0.888 in	
Min PL "t1" for actual **T w/o Pry**:	1.157 in	
T allowable with Prying:	41.75 kips	0≤α'≤1 case
Prying Force, Q:	0.00 kips	
Total Bolt Tension=T+Q:	28.39 kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	61.6% **Pass**	

Exterior Flange Plate Results

	Flexural Check	Rigid
Compression Side Plate Stress:	28.9 ksi	Service ASD
Allowable Plate Stress:	36.0 ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	80.3% **Pass**	Comp. Y.L. Length:
No Prying		10.82
Tension Side Stress Ratio, (treq/t)^2:	50.4% **Pass**	

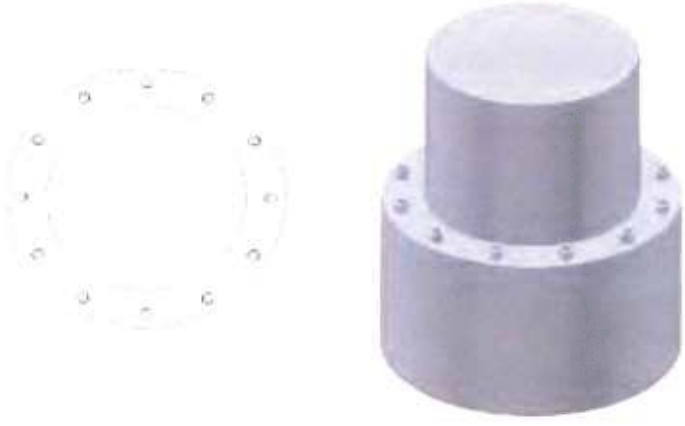
n/a

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

Analysis Date: 6/2/2015

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

Site Data

W.O.#: *6421.CT11024B*
Site Name: *Branford/I-95/X53/JCT.*

Pole Manufacturer:	Other

Bolt Data			
Qty:	10		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	Bolt Fty:
N/A:	75	<-- Disregard	44.00
Circle (in.):	15		

Plate Data		
Diam:	18	in
Thick, t:	1.25	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	4.01	in

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

Pole Data		
Diam:	12.75	in
Thick:	0.725	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Reactions		
Moment:	89.50	ft-kips
Axial:	3.91	kips
Shear:	6.65	kips
Elevation:	120	feet

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Flange Bolt Results

		Rigid
Bolt Tension Capacity, **B**:	46.07 kips	Service, ASD
Max Bolt directly applied T:	28.25 Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	1.095 in	
Min PL "treq" for actual **T w/ Pry**:	0.651 in	
Min PL "t1" for actual **T w/o Pry**:	0.857 in	
T allowable w/o Prying:	46.07 kips	α'<0 case
Prying Force, Q:	0.00 kips	
Total Bolt Tension=T+Q:	28.25 kips	
Non-Prying Bolt Stress Ratio, T/B:	61.3% **Pass**	

Exterior Flange Plate Results

	Flexural Check	Rigid
Compression Side Plate Stress:	20.4 ksi	Service ASD
Allowable Plate Stress:	36.0 ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	56.6% **Pass**	Comp. Y.L. Length:
No Prying		7.90
Tension Side Stress Ratio, (treq/t)^2:	27.1% **Pass**	

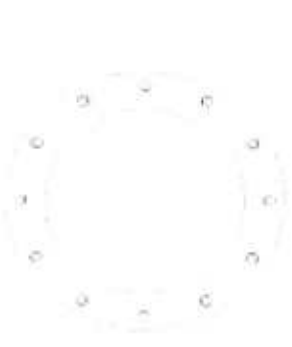
n/a

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

Analysis Date: 6/2/2015

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	150 - 145	2.0434	24.648	5.746
2	145 - 140	2.3418	53.867	5.9418
3	140 - 135	2.6577	84.035	6.1271
4	135 - 130	2.9932	115.09	6.299
5	130 - 128	3.1333	127.75	6.3634
6	128 - 127.75	3.163	129.34	6.3707
7	127.75 - 122.75	3.6392	161.64	6.5517
8	122.75 - 120	3.9065	179.78	6.646
9	120 - 119.75	3.9347	181.44	6.6548
10	119.75 - 114.75	4.3593	215.29	6.888
11	114.75 - 109.75	4.7972	250.27	7.1078
12	109.75 - 108	4.9489	262.76	7.1844
13	108 - 107.75	4.9868	264.56	7.1906
14	107.75 - 102.75	5.5653	301.07	7.4168
15	102.75 - 100	5.8869	321.62	7.5361
16	100 - 99.75	5.9198	323.5	7.5471
17	99.75 - 94.75	6.4966	364.62	8.061
18	94.75 - 89.75	7.0483	405.6	8.3354
19	89.75 - 84.75	7.6076	447.91	8.5962
20	84.75 - 83	7.8014	463.03	8.6874
21	83 - 82.75	7.8445	465.2	8.6941
22	82.75 - 80	8.2271	489.3	8.8421
23	80 - 79.75	8.265	491.51	8.855
24	79.75 - 74.75	8.9268	536.61	9.1852
25	74.75 - 69.75	9.6383	585.24	9.7065
26	69.75 - 64.75	10.315	634.51	10.007
27	64.75 - 60	10.962	682.67	10.279
28	60 - 55	11.752	734.93	10.632
29	55 - 50	12.543	788.92	10.971
30	50 - 45	13.385	847.29	11.482
31	45 - 40	14.187	905.44	11.786
32	40 - 35	15.099	965.24	12.143
33	35 - 30	16.013	1026.8	12.481
34	30 - 25	16.93	1090	12.813
35	25 - 20	17.852	1154.9	13.138
36	20 - 15	18.886	1221.5	13.524
37	15 - 10	19.921	1290.1	13.905
38	10 - 5	20.96	1360.5	14.28
39	5 - 0	22.0	1432.8	14.6

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP12.75x12.75x0.375	Pole	18.6%	Pass
145 - 140	Pole	TP12.75x12.75x0.375	Pole	40.3%	Pass
140 - 135	Pole	TP12.75x12.75x0.375	Pole	62.8%	Pass
135 - 130	Pole	TP12.75x12.75x0.375	Pole	85.8%	Pass
130 - 128	Pole	TP12.75x12.75x0.375	Pole	95.2%	Pass
128 - 127.75	Pole + Reinf.	TP12.75x12.75x0.725	Pole	54.5%	Pass
127.75 - 122.75	Pole + Reinf.	TP12.75x12.75x0.725	Pole	68.0%	Pass
122.75 - 120	Pole + Reinf.	TP12.75x12.75x0.725	Pole	75.7%	Pass
120 - 119.75	Pole	TP18x18x0.375	Pole	66.2%	Pass
119.75 - 114.75	Pole	TP18x18x0.375	Pole	78.6%	Pass
114.75 - 109.75	Pole	TP18x18x0.375	Pole	91.3%	Pass
109.75 - 108	Pole	TP18x18x0.375	Pole	95.8%	Pass
108 - 107.75	Pole + Reinf.	TP18x18x0.5875	Pole	64.2%	Pass
107.75 - 102.75	Pole + Reinf.	TP18x18x0.5875	Pole	73.0%	Pass
102.75 - 100	Pole + Reinf.	TP18x18x0.5875	Pole	78.0%	Pass
100 - 99.75	Pole	TP24x24x0.375	Pole	65.5%	Pass
99.75 - 94.75	Pole	TP24x24x0.375	Pole	73.8%	Pass
94.75 - 89.75	Pole	TP24x24x0.375	Pole	82.0%	Pass
89.75 - 84.75	Pole	TP24x24x0.375	Pole	90.6%	Pass
84.75 - 83	Pole	TP24x24x0.375	Pole	93.6%	Pass
83 - 82.75	Pole + Reinf.	TP24x24x0.5188	Pole	69.2%	Pass
82.75 - 80	Pole + Reinf.	TP24x24x0.5188	Pole	72.8%	Pass
80 - 79.75	Pole	TP30x30x0.375	Pole	69.8%	Pass
79.75 - 74.75	Pole	TP30x30x0.375	Pole	76.2%	Pass
74.75 - 69.75	Pole	TP30x30x0.375	Pole	83.1%	Pass
69.75 - 64.75	Pole	TP30x30x0.375	Pole	90.1%	Pass
64.75 - 60	Pole	TP30x30x0.375	Pole	96.9%	Pass
60 - 55	Pole	TP36x36x0.375	Pole	76.3%	Pass
55 - 50	Pole	TP36x36x0.375	Pole	81.9%	Pass
50 - 45	Pole	TP36x36x0.375	Pole	88.0%	Pass
45 - 40	Pole	TP36x36x0.375	Pole	94.0%	Pass
40 - 35	Pole	TP42x42x0.375	Pole	76.6%	Pass
35 - 30	Pole	TP42x42x0.375	Pole	81.5%	Pass
30 - 25	Pole	TP42x42x0.375	Pole	86.5%	Pass
25 - 20	Pole	TP42x42x0.375	Pole	91.7%	Pass
20 - 15	Pole	TP48x48x0.375	Pole	76.6%	Pass
15 - 10	Pole	TP48x48x0.375	Pole	80.9%	Pass
10 - 5	Pole	TP48x48x0.375	Pole	85.4%	Pass
5 - 0	Pole	TP48x48x0.375	Pole	89.9%	Pass
				Summary	
			Pole	96.9%	Pass
			Reinforcement	70.1%	Pass
			Overall	96.9%	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
150 - 145	279	n/a	279	14.58	n/a	14.58	18.6%			
145 - 140	279	n/a	279	14.58	n/a	14.58	40.3%			
140 - 135	279	n/a	279	14.58	n/a	14.58	62.8%			
135 - 130	279	n/a	279	14.58	n/a	14.58	85.8%			
130 - 128	279	n/a	279	14.58	n/a	14.58	95.2%			
128 - 127.75	279	215	495	14.58	8.76	23.34	54.5%		50.2%	
127.75 - 122.75	279	215	495	14.58	8.76	23.34	68.0%		62.7%	
122.75 - 120	279	215	495	14.58	8.76	23.34	75.7%		69.7%	
120 - 119.75	807	n/a	807	20.76	n/a	20.76	66.2%			
119.75 - 114.75	807	n/a	807	20.76	n/a	20.76	78.6%			
114.75 - 109.75	807	n/a	807	20.76	n/a	20.76	91.3%			
109.75 - 108	807	n/a	807	20.76	n/a	20.76	95.8%			
108 - 107.75	807	406	1212	20.76	8.76	29.52	64.2%	57.7%		
107.75 - 102.75	807	406	1212	20.76	8.76	29.52	73.1%	65.6%		
102.75 - 100	807	406	1212	20.76	8.76	29.52	78.0%	70.1%		
100 - 99.75	1942	n/a	1942	27.83	n/a	27.83	65.5%			
99.75 - 94.75	1942	n/a	1942	27.83	n/a	27.83	73.8%			
94.75 - 89.75	1942	n/a	1942	27.83	n/a	27.83	82.0%			
89.75 - 84.75	1942	n/a	1942	27.83	n/a	27.83	90.6%			
84.75 - 83	1942	n/a	1942	27.83	n/a	27.83	93.6%			
83 - 82.75	1942	697	2639	27.83	8.76	36.59	69.2%			61.2%
82.75 - 80	1942	697	2639	27.83	8.76	36.59	72.8%			64.4%
80 - 79.75	3829	n/a	3829	34.90	n/a	34.90	69.8%			
79.75 - 74.75	3829	n/a	3829	34.90	n/a	34.90	76.2%			
74.75 - 69.75	3829	n/a	3829	34.90	n/a	34.90	83.1%			
69.75 - 64.75	3829	n/a	3829	34.90	n/a	34.90	90.1%			
64.75 - 60	3829	n/a	3829	34.90	n/a	34.90	96.9%			
60 - 55	6659	n/a	6659	41.97	n/a	41.97	76.3%			
55 - 50	6659	n/a	6659	41.97	n/a	41.97	81.9%			
50 - 45	6659	n/a	6659	41.97	n/a	41.97	88.0%			
45 - 40	6659	n/a	6659	41.97	n/a	41.97	94.0%			
40 - 35	10622	n/a	10622	49.04	n/a	49.04	76.6%			
35 - 30	10622	n/a	10622	49.04	n/a	49.04	81.5%			
30 - 25	10622	n/a	10622	49.04	n/a	49.04	86.5%			
25 - 20	10622	n/a	10622	49.04	n/a	49.04	91.7%			
20 - 15	15908	n/a	15908	56.11	n/a	56.11	76.6%			
15 - 10	15908	n/a	15908	56.11	n/a	56.11	80.9%			
10 - 5	15908	n/a	15908	56.11	n/a	56.11	85.3%			
5 - 0	15908	n/a	15908	56.11	n/a	56.11	89.9%			

Note: Section capacity checked in 5 degree increments.

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W.O.	6421.CT11024B	Report Date:	6/4/2015
Client:	T-Mobile	Revision:	2
Site Name:	Branford/I-95/X53/JCT.	Prepared By:	VE
Owner:	Amtrak		
Site Address:	Hosley Avenue		
City, State:	Branford, CT		

MOMENT DISTRIBUTION FOR FLANGE CONNECTION CHECK

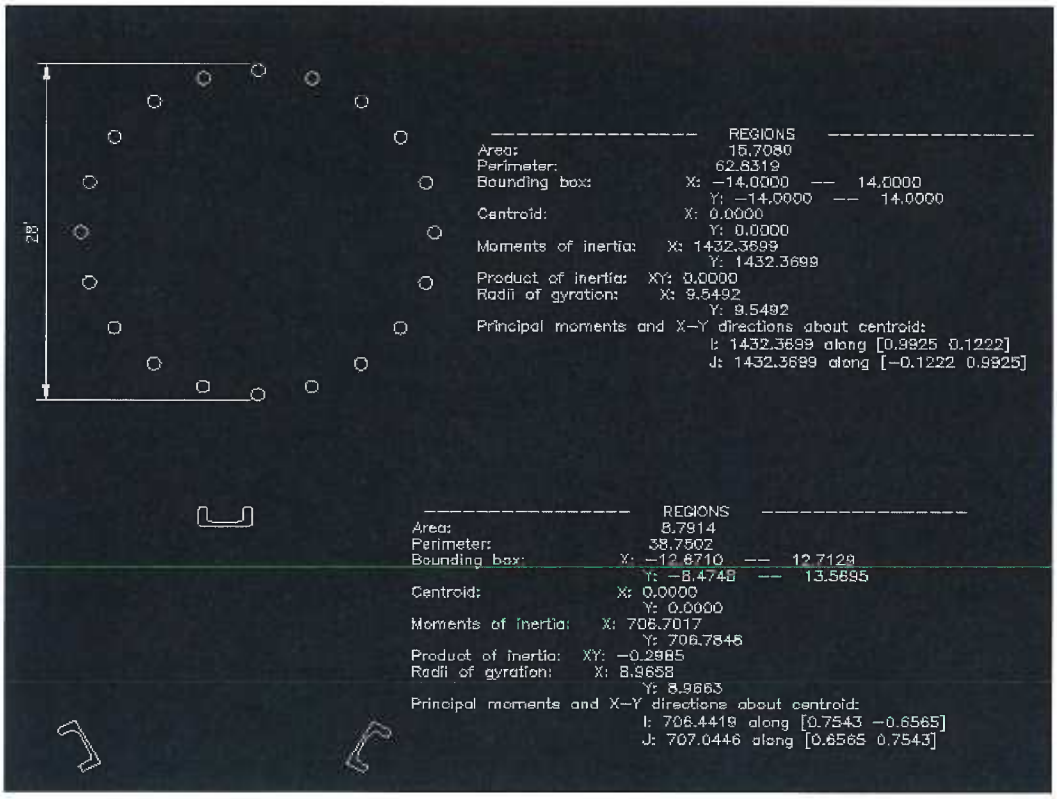
SECTION	80'			
Fy	42 ksi	Reinf. Channel	MP3-03	
Moment @ Base	5871.6 kip-in	Area of Channel	2.92	in^2
		Channel Capacity	128.212	kips
Y_{BOLT} @ Bottom	14.00 in			
Y_{REINF} @ Bottom	12.79 in			

POLE ELEVATION	Moment of Inertia (in^4)		
	Bolts	w/Channel	Channel
Base	1432	2139	707

Moment distribution within the flange connection bolts and the reinforcing Channels

AT BASE	Ratios of the moments	Approx Moment Distribution (kip-in)	Axial Force in Channel (kips)
Flange connection	0.67	3932	
Reinforcing Channel	0.33	1940	102

Moment resisted by the bolts @ 80' level flange connection = 327.6 kip-ft



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W.O.	6421.CT11024B	Report Date:	6/4/2015
Client:	T-Mobile	Revision:	2
Site Name:	Branford/I-95/X53/JCT.	Prepared By:	VE
Owner:	Amtrak		
Site Address:	Hosley Avenue		
City, State:	Branford, CT		

MOMENT DISTRIBUTION FOR FLANGE CONNECTION CHECK

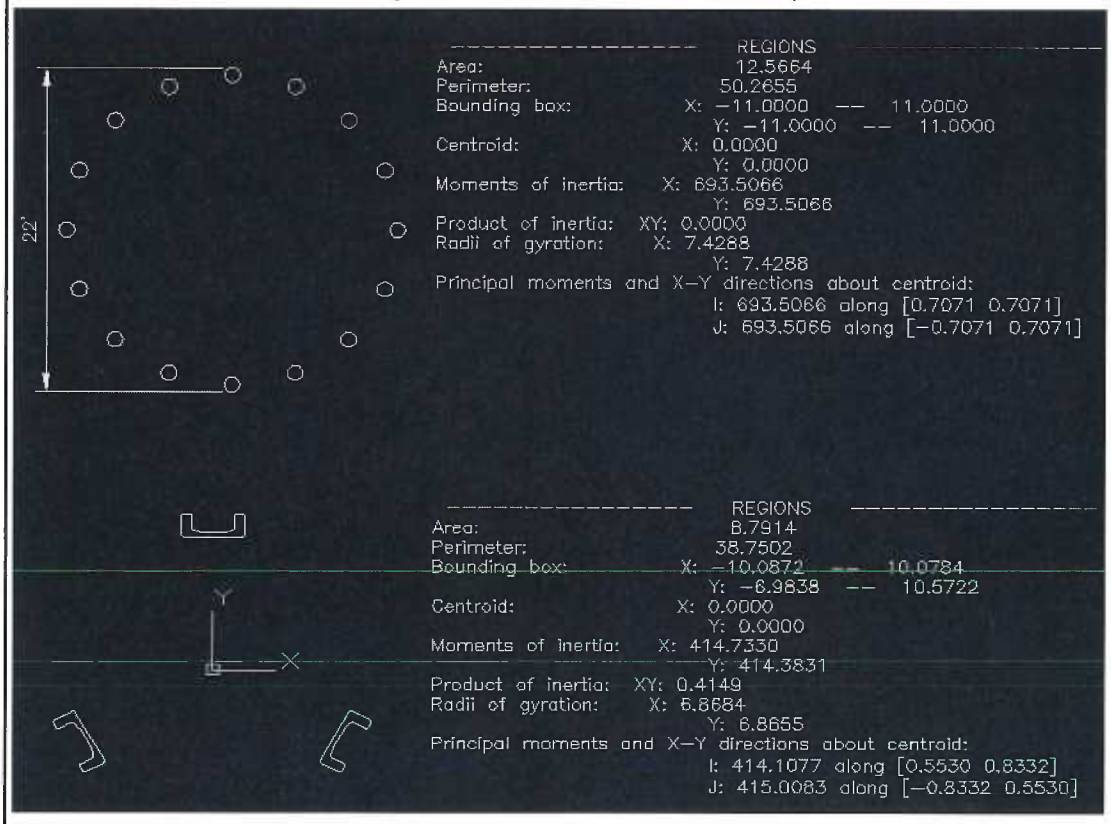
SECTION	100'			
Fy	42 ksi	Reinf. Channel	MP3-03	
Moment @ Base	3859.44 kip-in	Area of Channel	2.92	in^2
		Channel Capacity	128.212	kips
Y_{BOLT} @ Bottom	11.00 in			
Y_{REINF} @ Bottom	9.79 in			

POLE ELEVATION	Moment of Inertia (in^4)		
	Bolts	w/Channel	Channel
Base	694	1108	415

Moment distribution within the flange connection bolts and the reinforcing Channels

AT BASE	Ratios of the moments	Approx Moment Distribution (kip-in)	Axial Force in Channel (kips)
Flange connection	0.63	2415	
Reinforcing Channel	0.37	1444	100

Moment resisted by the bolts @ 80' level flange connection = 201.3 kip-ft



TECTONIC
Practical Solutions, Exceptional Service

W.O.	6421.CT11024B	Report Date:	6/4/2015
Client:	T-Mobile	Revision:	2
Site Name:	Branford/I-95/X53/JCT.	Prepared By:	VE
Owner:	Amtrak		
Site Address:	Hosley Avenue		
City, State:	Branford, CT		

MOMENT DISTRIBUTION FOR FLANGE CONNECTION CHECK

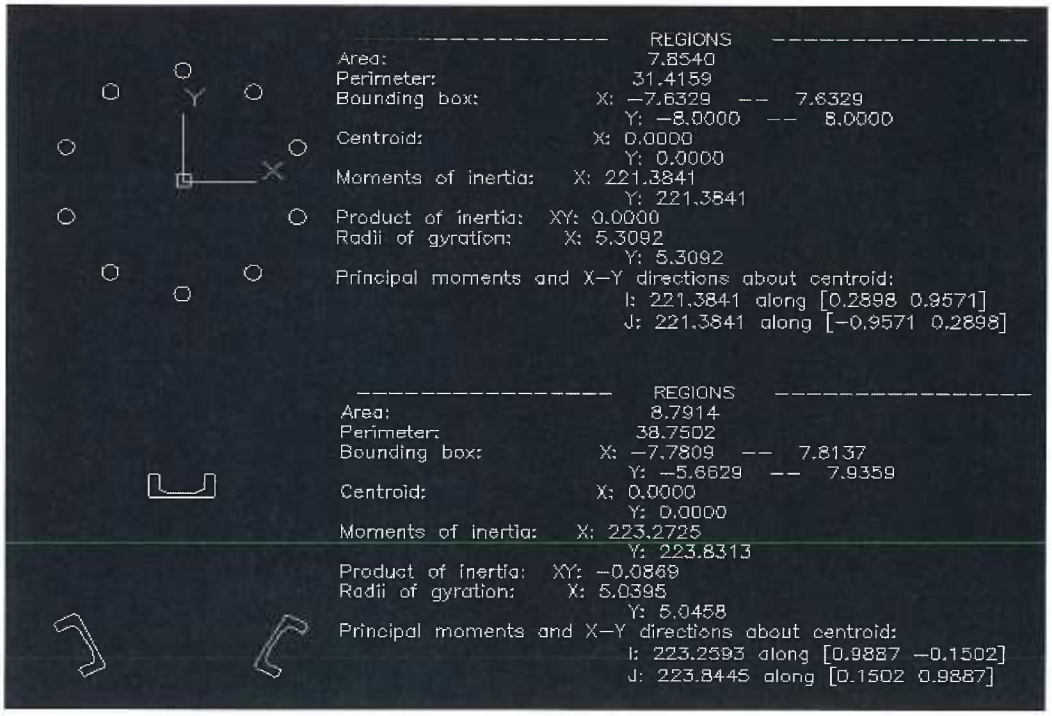
SECTION	120'			
Fy	42 ksi	Reinf. Channel	MP3-03	
Moment @ Base	2157.36 kip-in	Area of Channel	2.92	in^2
		Channel Capacity	128.212	kips
Y_{BOLT} @ Bottom	7.50 in			
Y_{REINF} @ Bottom	7.16 in			

POLE ELEVATION	Moment of Inertia (in^4)		
	Bolts	w/Channel	Channel
Base	221	445	223

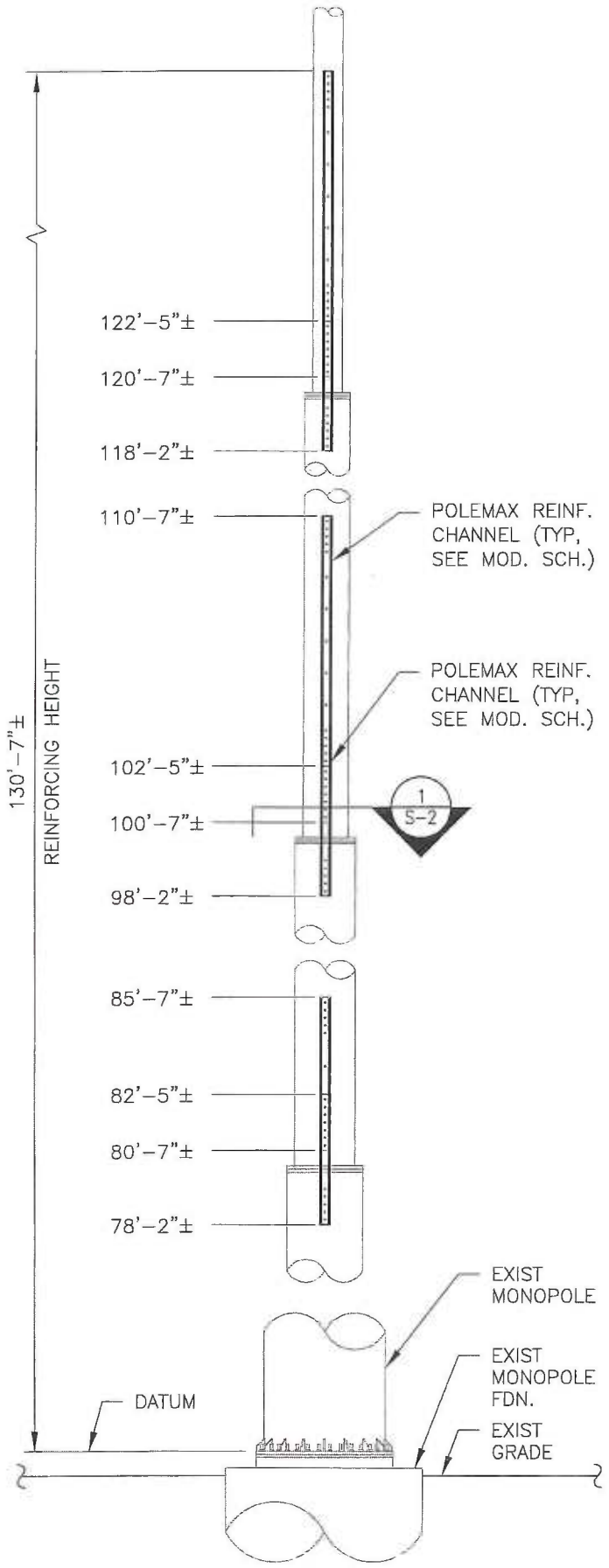
Moment distribution within the flange connection bolts and the reinforcing Channels

AT BASE	Ratios of the moments	Approx Moment Distribution (kip-in)	Axial Force in Channel (kips)
Flange connection	0.50	1074	
Reinforcing Channel	0.50	1083	101

Moment resisted by the bolts @ 80' level flange connection = 89.5 kip-ft



REINFORCEMENT DRAWINGS



1 / S-1 REINF. ELEVATION

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

MODIFICATION SCHEDULE

ELEVATION	REINFORCING PART NUMBER
78'-2"± TO 82'-5"±	(3) MP303-5-NSI CHANNELS
80'-7"± TO 85'-7"±	(3) MP303BS-NSI BRIDGE SPLICE ASSY.
98'2"± TO 102'-5"±	(3) MP303-10-NSI CHANNELS
100'-7"± TO 110'-7"±	(3) MP303BS-NSI BRIDGE SPLICE ASSY.
118'-2"± TO 122'-5"±	(3) MP303-10-NSI CHANNELS
120'-7"± TO 130'-7"±	(3) MP303BS-NSI BRIDGE SPLICE ASSY.

NOTES:
1. CONTRACTOR SHALL IDENTIFY EXISTING CABLES, CABLE ATTACHMENTS, ANTENNAS & ANTENNA SUPPORT FRAMES THAT WILL NEED TO BE TEMPORARILY RELOCATED/PROTECTED FOR INSTALLING THE PROPOSED REINFORCEMENT. WRITTEN AUTHORIZATION FROM THE RESPECTIVE CARRIERS OR OWNERS SHALL BE OBTAINED BY THE CONTRACTOR/CLIENT PRIOR TO PROCEEDING WITH THE WORK.
2. THE PROPOSED POLE REINFORCEMENT IS DESIGNED USING PROPRIETARY SYSTEM "POLEMAX SYSTEMS" AS MANUFACTURED BY AEROSOLUTIONS, LLC. CONNECTION DETAILS AS SHOWN ARE BASED ON MANUFACTURER RECOMMENDATIONS. CONTRACTOR SHALL COORDINATE FINAL INSTALLATION METHOD AND PROCEDURE WITH THE MANUFACTURER (CONTACT NUMBER: 1-720-304-6882).
3. PLACEMENT OF PROPOSED REINFORCEMENT IN FIELD SHALL BE BASED ON APPROVED SHOP DRAWINGS PREPARED BY THE MANUFACTURER.
4. REMOVE AND REPLACE EXISTING CLIMBING RUNGS AS REQUIRED TO ALLOW FOR INSTALLATION OF MONOPOLE REINFORCING.

0 1 2 3

ORIGINAL SIZE IN INCHES

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BELTSVILLE, MD 20705

PROJECT NUMBER	DESIGNED BY
6421.CT11024B	VR

REV	DATE	REVISION	DRAWN BY
0	3/20/15	FOR COMMENT	RT
1	6/4/15	REVISED ANT. ELEVATION	RT

ISSUED BY: VE DATE: 6/4/15

STATE OF CONNECTICUT ANTONIO A. GUALTIERI No. 25406 LICENSED PROFESSIONAL ENGINEER 6/4/15

SITE INFORMATION
CT11024B
AMTRAK – BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE
ELEVATION & DETAIL

SHEET NUMBER
S-1

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2003 IBC, 2003 IRC (STATE BUILDING CODE, 2005 CT SUPPLEMENT), AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
2. REINFORCEMENT OF THE EXISTING MONOPOLE HAS BEEN DESIGNED TO SUPPORT THE ANTENNAS AND CABLES LISTED IN THE STRUCTURAL ANALYSIS REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REVISION 2, DATED 6/4/15.
3. MONOPOLE AND FOUNDATION WAS ANALYZED IN CONFORMANCE TO ANSI/TIA-EIA-222-F, "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
4. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
5. CONTRACTOR SHALL INSPECT THE EXISTING STRUCTURE PRIOR TO STARTING ANY WORK. IF CONDITIONS OR MATERIALS FOUND IN THE FIELD DIFFER FROM THOSE INDICATED, CONTACT THE ENGINEER FOR APPROVAL.
6. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
9. ALL MONOPOLE REINFORCEMENT SHALL BE COMPLETED PRIOR TO INSTALLATION OF PROPOSED ANTENNAS, MOUNTS, AND CABLES.
10. ALL WORK SHALL BE PERFORMED IN CALM WEATHER, WITH WIND GUSTS LESS THAN 10 MPH.
11. PROTECT EXISTING CABLES AND EQUIPMENT FROM DAMAGE DURING INSTALLATION OF ANTENNAS AND REINFORCING.
12. GROUNDING SYSTEM SHALL BE CHECKED AND UPGRADED AS NECESSARY, AS DIRECTED BY THE CONSTRUCTION MANAGER.

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12050 BALTIMORE AVENUE
BELTSVILLE, MD 20705

PROJECT NUMBER	DESIGNED BY
6421.CT11024B	VR

REV	DATE	REVISION	DRAWN BY
0	3/20/15	FOR COMMENT	RT
1	6/4/15	REVISED ANT. ELEVATION	RT

ISSUED BY	DATE
VE	6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUGLIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER
6/4/15

SITE INFORMATION

CT11024B
AMTRAK – BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

S-3

0 1 2 3
ORIGINAL SIZE IN INCHES

STEEL NOTES

1. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 2005".
2. CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED:

   A) CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THE CITED AISC SPECIFICATION.

   B) STRUCTURAL BOLTS SHALL CONFORM TO THE LATEST ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS".

   C) WHERE THE REACTION VALUES OF BEAMS, BRACING, STRUTS, ETC., ARE NOT SHOWN ON THE DRAWINGS THE CONNECTIONS SHALL BE DESIGNED TO SUPPORT THE END REACTION DERIVED FROM THE TABLES AND FORMULA OF UNIFORM LOAD CONSTANTS IN PART 2, NINTH EDITION, OF THE AISC MANUAL OF STEEL CONSTRUCTION FOR THE GIVEN MEMBER SIZE, SPAN, AND YIELD STRENGTH.

   D) MINIMUM 3/16" FILLET E70–XX WELD SHALL APPLY UNLESS NOTED.

   E) MINIMUM 1/2" DIA. A325 BOLTS SHALL APPLY UNLESS NOTED.

   F) MINIMUM SIZE OF CLIP ANGLES SHALL BE L3x3x1/4" UNLESS NOTED.

   G) ALL GUSSET PLATES SHALL BE 3/8" THICK UNLESS NOTED.

   H) ALL HOLES FOR BOLTS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER WITH AN EDGE DISTANCE OF AT LEAST 1 1/2 TIMES THE BOLT DIAMETER AND A SPACING OF AT LEAST 3 TIMES THE BOLT DIAMETER. ALL BOLTS SHALL BE PROVIDED WITH PALNUTS OR LOCK NUTS.
3. STEEL ANGLES AND PLATES SHALL CONFORM TO ASTM A36 "CARBON STRUCTURAL STEEL", UNLESS OTHERWISE INDICATED.
4. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT–DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
5. ALL BOLTS SHALL BE HIGH STRENGTH BOLTS (HSB) CONFORMING TO ASTM A325 "STRUCTURAL BOLTS, STEEL, HEAT TREATED, 120/105 KSI MINIMUM TENSILE STRENGTH", WITH THREADS EXCLUDED FROM SHEAR PLANES (TYPE X). FULLY THREADED BOLTS (A325T) SHALL NOT BE USED.
6. U–BOLTS SHALL CONFORM TO ASTM A36 OR A307 "CARBON STEEL BOLTS AND STUDS, 60,000 PSI TENSILE STRENGTH". INSTALL DOUBLE NUTS ON ALL CONNECTIONS.
7. MATCHING NUTS SHALL BE HEAVY HEX TYPE, CONFORMING TO ASTM A563, "CARBON AND ALLOY STEEL NUTS".
8. ALL U–BOLTS SHALL BE 1/2" DIAMETER IN 9/16" DIAMETER HOLES, UNLESS OTHERWISE NOTED.
9. ALL BOLTS, U–BOLTS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT–DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
10. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780 "REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT–DIP GALVANIZED COATINGS".
11. ALL BOLT HOLES SHALL BE DRILLED OR PUNCHED 1/16" LARGER IN DIAMETER THAN THE CONNECTING BOLT, UNLESS OTHERWISE NOTED. THERMAL CUTTING OF HOLES (ARC OR TORCH) IS NOT PERMITTED.
12. ALL CONNECTIONS TO BE SNUG TIGHT TYPE IN ACCORDANCE WITH THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
13. CONTRACTOR SHALL COMPLY WITH AWS D1.1 "STRUCTURAL WELDING CODE – STEEL" FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES".
14. REMOVE ALL GALVANIZING IN AREAS TO BE WELDED BY GRINDING. AFTER WELDING, PROTECT ALL EXPOSED STEEL AND WELDS BY COLD GALVANIZING.
15. SPACES BETWEEN INTERMITTENT WELDS SHALL BE FILLED USING CHEM–CALK 500 AS MANUFACTURED AND MARKETED BY BOSTIK SEALANTS, MIDDLETON, MA 01949 (800) 523–2678 OR APPROVED EQUAL.
16. ALL WELDING TO THE TOWER SHALL BE PERFORMED WITH E80XX LOW HYDROGEN ELECTRODES, UNLESS OTHERWISE NOTED. LOW HYDROGEN ELECTRODES SHALL BE PURCHASED IN HERMETICALLY SEALED CONTAINERS AND SHALL BE USED WITHIN 4 HOURS AFTER OPENING THE CONTAINER. ELECTRODES NOT USED WITHIN 4 HOURS SHALL BE DISCARDED.
17. ALL FIELD WELDING SHALL BE VISUALLY INSPECTED BY AN AWS CERTIFIED WELDING INSPECTOR PRIOR TO INSTALLATION OF THE PROPOSED ANTENNAS.
18. FIELD VERIFY LENGTHS OF ALL MATERIAL PRIOR TO FABRICATION.
19. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.
20. REINFORCING CHANNEL SHALL BE POLEMAX MP303 AS MANUFACTURED BY AEROSOLUTIONS, LLC. A SHOP DRAWING DETAILING THE PROPOSED REINFORCING SHALL BE SUPPLIED TO THE CONTRACTOR BY THE MANUFACTURER.
21. POLEMAX BLIND BOLT FASTENERS SHALL BE AJAX BOLT ASSEMBLIES AS MANUFACTURED BY AJAX FASTENERS, OR APPROVED EQUAL. UTILIZE 3/4" DIAMETER BOLTS UNLESS NOTED OTHERWISE.
22. AJAX BOLT SLEEVES HAVE BEEN SIZED TO ENGAGE THE POLE SHAFT AND NEW REINFORCEMENT. THE SLEEVES ARE TO BE INSERTED FIRMLY AGAINST SPLIT WASHER INSIDE POLE AND HAVE A 1/8" TO 1/4" GAP BETWEEN THE OUTMOST BOLTING SURFACE AND THE OUTERMOST SURFACE OF THE SLEEVE. THE CONTRACTOR SHALL INCORPORATE THE NECESSARY MEASURES TO ENSURE THAT THE SLEEVES DO NOT SLIDE FORWARD AND THEY REMAIN POSITIONED TOWARD THE BACKSIDE OF THE HOLE ENGAGING BOTH SIDES OF THE SHEAR PLANE BETWEEN THE POLE SHAFT AND THE NEW REINFORCEMENT.
23. BLIND BOLTS SHALL BE INSTALLED, TENSIONED AND INSPECTED IN ACCORDANCE WITH THE AISC "TURN–OF–NUT" METHOD AS SPECIFIED IN THE AISC BOLT SPECIFICATION DATED 12/31/2009.

0 1 2 3

ORIGINAL SIZE IN INCHES

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12050 BALTIMORE AVENUE
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PROJECT NUMBER: 8421.CT11024B
DESIGNED BY: VR

REV	DATE	REVISION	DRAWN BY
0	3/20/15	FOR COMMENT	RT
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ISSUED BY: VE
DATE: 6/4/15

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER
6/4/15

SITE INFORMATION
CT11024B
AMTRAK – BRANFORD
HOSLEY AVENUE
BRANFORD, CT 06406

SHEET TITLE
STEEL NOTES

SHEET NUMBER
S–4

EXHIBIT C

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11024B

Branford/ I-95/ X53/ Jct.
60 Hosley Avenue
Branford, CT 06405

April 3, 2015

EBI Project Number: 6215002086

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	5.82 %

21 B Street Burlington, MA 01803 Tel: (781) 273.2500 Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

April 3, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11024B – Branford/ I-95/ X53/ Jct.**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **60 Hosley Avenue, Branford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile 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 public 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 public 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is 467 $\mu W/cm^2$, and the general population exposure limit for the PCS and AWS 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 done for the proposed T-Mobile Wireless antenna facility located at **60 Hosley Avenue, Branford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile 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.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. 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. This is rarely the case, and if so, is never continuous.

6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antennas used in this modeling are the **Ericsson AIR21 B4A/B2P & B2A/B4P)** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B4A/B2P & B2A/B4P)** have a maximum gain of **15.9 dBd** at their main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. 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.

8) The antenna mounting height centerline of the proposed antennas is **150 feet** above ground level (AGL).

9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P	Make / Model:	Ericsson AIR21 B4A/B2P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	120	Total TX Power:	120	# AWS Channels:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE%	0.81	Antenna B1 MPE%	0.81	Antenna C1 MPE%	0.81
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B2A/B4P□	Make / Model:	Ericsson AIR21 B2A/B4P□	Make / Model:	Ericsson AIR21 B2A/B4P□
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	120	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE%	0.81	Antenna B2 MPE%	0.81	Antenna C2 MPE%	0.81
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	150	Height (AGL):	150	Height (AGL):	150
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.32	Antenna B3 MPE%	0.32	Antenna C3 MPE%	0.32

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**5.82**
No Additional Carriers Per CSC Database	
Site Total MPE %:	**5.82 %**

T-Mobile Sector 1 Total:	1.94 %
T-Mobile Sector 2 Total:	1.94 %
T-Mobile Sector 3 Total:	1.94 %
Site Total:	5.82 %

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Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.94 %
Sector 2:	1.94 %
Sector 3 :	1.94 %
T-Mobile Total:	5.82 %
Site Total:	5.82 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **5.82%** of the allowable FCC established general public 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.

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