



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

July 27, 2018

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

RE: Notice of Exempt Modification for Sprint DO Macro: 876365
Sprint Site ID: CT33XC005
3 Carion Road, Union, CT 06432
Latitude: 41° 59' 16.55"/ Longitude: -72° 06' 48.64"

Dear Ms. Bachman:

Sprint currently maintains six (6) antennas at the 178-foot level of the existing 180-foot monopole tower at 3 Carion Road in Union, CT. The tower is owned by Crown Castle. The property is owned by Sherwood Bauer. Sprint now intends to replace six (6) antennas with six (6) new antennas. These antennas would be installed at the 178-foot level of the tower. Sprint also intends to install twelve (12) RRH's and four (4) hybrid cables.

On July 27, 2018 an inquiry was made with the assessor's office as well as the building department as to the original zoning approval document. We do have the original building permit issued to construct the tower dated 12/27/2000 that was included with my inquiry to the Town of Union.

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

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

Melanie A. Bachman

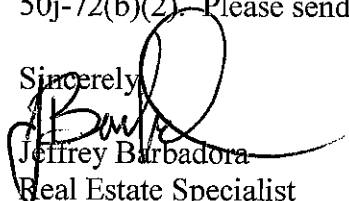
July 27, 2018

Page 2

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,



Jeffrey Barbadora

Real Estate Specialist

12 Gill Street, Suite 5800, Woburn, MA 01801

781-729-0053

Jeff.Barbadora@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes

Tab 2: Exhibit-2: Structural Modification Report

Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: First-Selectman David Eaton
Town of Union
1043 Buckley Hwy
Union, CT 06076

Randy Sherwood Bauer
1 Carion Road
Union, CT 06076

1 CARION RD

Location 1 CARION RD

Mblu 23/ 19/ 005/ /

Acct# 00003600

Owner BAUER SHERWOOD R & JOAN M

Assessment \$309,400

Appraisal \$492,890

PID 241

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2013	\$122,240	\$370,650	\$492,890
Assessment			
Valuation Year	Improvements	Land	Total
2013	\$85,570	\$223,830	\$309,400

Owner of Record

Owner BAUER SHERWOOD R & JOAN M
Co-Owner
Address 1 CARION RD
 UNION, CT 06076

Sale Price \$0
Certificate
Book & Page 64/50
Sale Date 12/09/2015
Instrument 01

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
BAUER SHERWOOD R & JOAN M	\$0		64/50	01	12/09/2015
BAUER SHERWOOD R	\$0		32/638		05/31/1998

Building Information

Building 1 : Section 1

Year Built: 2015
Living Area: 1,008
Replacement Cost: \$122,241
Building Percent 100
Good:
Replacement Cost
Less Depreciation: \$122,240

Building Attributes

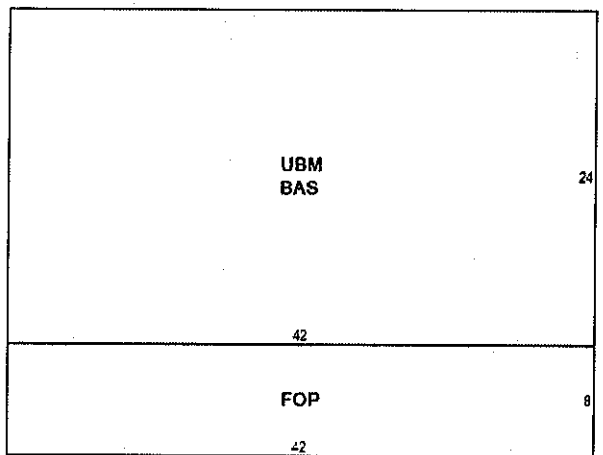
Field	Description
Style	Ranch
Model	Residential
Grade:	C
Stories:	
Occupancy	
Exterior Wall 1	Cedar or Redwd
Exterior Wall 2	
Roof Structure:	Gable or Hip
Roof Cover	Archit Shingle
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Pergo/Laminate
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Forced Air
AC Type:	Central
Total Bedrooms:	2 Bedrooms
Total Bthrms:	1
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	4
Bath Style:	Average
Kitchen Style:	Average

Building Photo



(<http://images.vgsi.com/photos/UnionCTPhotos//default.jpg>)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,008	1,008
FOP	Open Porch	336	0
UBM	Unfinished Basement	1,008	0
		2,352	1,008

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Land Line Valuation

Use Code 1010
Description Single Fam MDL-01
Zone RT
Neighborhood 12
Alt Land Appr No
Category

Size (Acres) 44.50
Frontage 0
Depth 0
Assessed Value \$223,830
Appraised Value \$370,650

Outbuildings

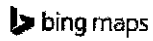
Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2012	\$0	\$424,190	\$424,190
2011	\$0	\$424,190	\$424,190
2010	\$0	\$424,190	\$424,190

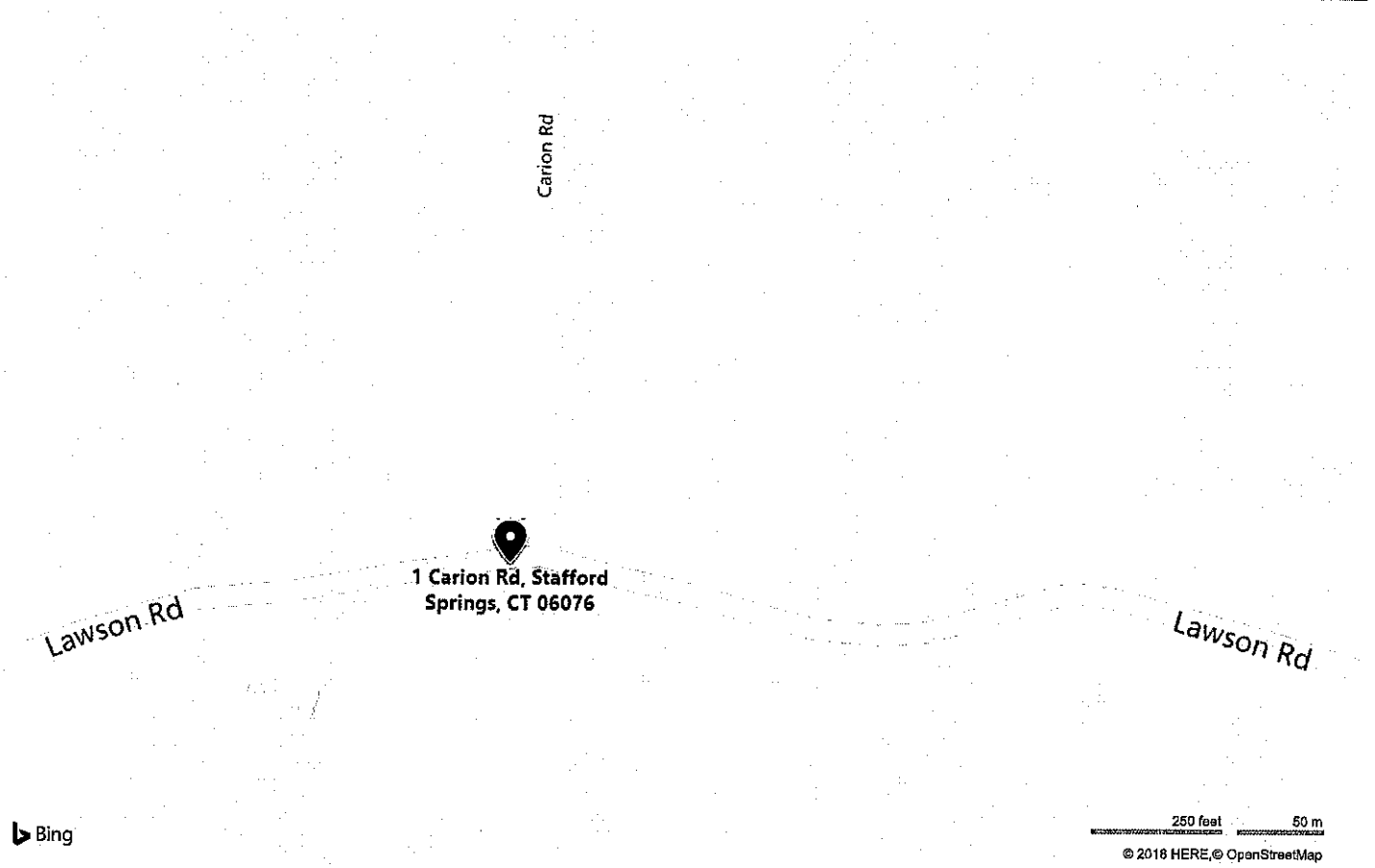
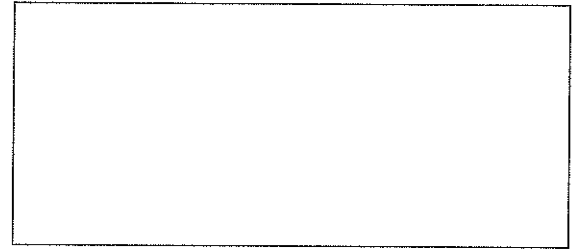
Assessment			
Valuation Year	Improvements	Land	Total
2012	\$0	\$189,920	\$189,920
2011	\$0	\$189,920	\$189,920
2010	\$0	\$189,920	\$189,920

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1 Carion Rd, Stafford Springs, CT 06076

Location: 41.985122, -72.112394



Barbadora, Jeff

From: Barbadora, Jeff
Sent: Friday, July 27, 2018 11:22 AM
To: assessor@union.necoxmail.com
Subject: 1 Carion Road, Map 23-Block 19 - Lot 5
Attachments: Town of Union Building permit #0047-12-27-2000.pdf

Good Afternoon,

I work for Crown Castle and have an inquiry regarding the original zoning documents for a tower and I am hoping you can provide more information.

We are applying for CSC Zoning Approval for Sprint to modify their antennas and new requirements ask that we procure original zoning documents from the jurisdiction, if possible. However, if these documents are not available, please let me know.

The tower is located at 3 or 1 Carion Road and according to lease documents this was approved to construct the cell tower on 12/27/2000. Please see attached building permit. Sherwood Bauern owns the property and signed the lease at that time.

If you have any questions, please don't hesitate to call or e-mail me.

Thanks,

Jeffrey Barbadora
781-970-0053
12 Gill Street, Suite 5800, Woburn, MA 01801
CrownCastle.com

Barbadora, Jeff

From: Barbadora, Jeff
Sent: Friday, July 27, 2018 11:28 AM
To: 'building@unionconnecticut.org'
Subject: FW: 1 Carion Road, Map 23-Block 19 - Lot 5
Attachments: Town of Union Building permit #0047-12-27-2000.pdf

Hi Mr. Pajak,

I work for Crown Castle and have an inquiry regarding the original zoning documents for a tower and I am hoping your office can provide more information.

We are applying for CSC Zoning Approval for Sprint to modify their antennas and new requirements ask that we procure original zoning documents from the jurisdiction, if possible. However, if these documents are not available, please let me know.

The tower is located at 3 or 1 Carion Road and according to lease documents this was approved to construct the cell tower on 12/27/2000. Please see attached building permit. Sherwood Bauern owns the property and signed the lease at that time.

If you have any questions, please don't hesitate to call or e-mail me.

Thanks,

Jeffrey Barbadora
781-970-0053
12 Gill Street, Suite 5800, Woburn, MA 01801
CrownCastle.com

TOWN OF UNION
BUILDING PERMIT

Paid - Check # 25867
 Amt 2530.00
 E. Stoveshki

Date 12/27/00

NO. 00471

Est. Value \$	<u>253,000</u>
Bldg. Permit Fee	<u>2530.00</u>
Land Use	
TOTAL FEE	<u>2,530.00</u>

A PERMIT MUST BE OBTAINED AND FEE PAID BEFORE BEGINNING WORK.
 This card must be kept posted until final inspection has been made and bottom half returned to the Building Inspector's Office before the building is occupied and a Certificate of Occupancy is issued.

The undersigned hereby applies for permit to do work according to the following specifications, same to be in all respects in accordance with the laws and building regulations of the State of Connecticut, Basic Building Code, Land Use regulations and ordinances of the Town of Union, Connecticut. A final inspection is required before the building can be occupied or a Certificate of Use or Occupancy is issued.

APPLICATION MUST BE TYPED OR PRINTED.

Owner Sprint Spectrum L.P. Street 1 International Blvd. Phone (201) 684-4000
 Lot No. 5 House No. 3 Road Casim Road
 Owner of land General Bunker Power Address 3 Casim Road Union CT Phone (860) 974-0000
 Builder Mc. Phee Electric Address 505 Main St. Farmington CT Phone (860) 677-9997
 Architect SEA Consultants Address 2000 Silo. Dennis Highway Phone (860) 563-9995
 Type of building 100' concrete + rebar facility Site 302 Rocky Hill CT Size of building _____
 Floor area 1st floor _____ 2nd floor _____ Total _____

Type of heat: Hot Water Hot Air Steam Electric Wood
 Type of work: Original Alteration Addition Repair Demolish
 Approvals: Septic Perc Wetlands Driveway Fire Marshal Planning
 Signature [Signature] Building Official [Signature]

**DO NOT DESTROY OR MUTILATE.
 POST THIS CARD SO IT IS VISIBLE FROM STREET.
 INSPECTIONS MUST BE APPROVED AND THIS CARD
 RETURNED TO THE BUILDING DEPT. OFFICE
 BEFORE A CERTIFICATE OF OCCUPANCY IS ISSUED.**

Owner of land _____ Address _____ Phone _____

BUILDING INSPECTION APPROVALS	PLUMBING INSPECTION APPROVALS	ELECTRICAL INSPECTION APPROVALS		
1 FOOTINGS	1 ROUGH	1 ROUGH		
2 FOUNDATION	2 FINISH	2 FINISH		
3 FRAMING	HEATING INSPECTION APPROVALS		FIREPLACE CHIMNEYS	
	1 ROUGH	1 ROUGH		
4 INSULATION <u>AS PER PRINT</u>	2 FINISH <u>Town Hall</u>	2 FINISH <u>MT TOWER</u>		

Work shall not proceed until the inspector has approved the various stages of construction. PERMIT WILL BECOME NULL AND VOID IF CONSTRUCTION WORK IS NOT STARTED WITHIN SIX MONTHS OF DATE THE PERMIT IS ISSUED AS NOTED ABOVE. Inspections indicated on this card can be arranged for by telephone or personal written notification.

Building Official

SPRINT PCS

**ATTACHMENT C
TEMPORARY DELEGATION OF APPROVAL AUTHORITY**

To : VP, Controller - Sprint PCS

I

<u>Michael Loucy</u>	<u>Director of Site Development</u>
Authorizing Name (Print/Type)	Title


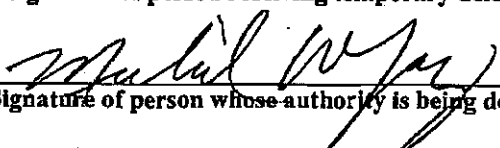
in accordance with Sprint PCS Financial Policy, paragraph 9.1, do hereby delegate my fiscal approval authority to :

<u>Tom Kincaid</u>	<u>145-76-7791</u>	<u>Site Development Manager</u>
Employee Name (Print/Type)	Social Security Number	Title

for the following department(s):

Department Number(s)	
<u>13249</u>	<u>20100/20109</u>
<u>20200/20209</u>	<u>26100/26109</u>
<u>20800/20809</u>	<u>22100/22109</u>
<u>23500/23509</u>	

This delegation is effective for the period DECEMBER 26, 2000 THROUGH DECEMBER 29, 2000 (not to exceed 30 days) and is necessary due to VACATION (reason: e.g. absence, vacation, etc.)

<u></u>	<u>12/22/2000</u>
Signature of person receiving temporary delegation	Date
<u></u>	<u>12/22/2000</u>
Signature of person whose authority is being delegated	Date

A copy of this completed form should accompany all individual financial commitments or expenditure documentation approved under the above temporary delegation.

TOWN OF UNION BUILDING PERMIT

Paid - Check # 25867
AMT 2530.00
E. Stoveshi

Date 12/27/00

NO. 0047

Est. Value \$ 253,000
Bldg. Permit Fee 2530.00
Land Use _____
TOTAL FEE 2,530.00

A PERMIT MUST BE OBTAINED AND FEE PAID BEFORE BEGINNING WORK.
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The undersigned hereby applies for permit to do work according to the following specifications, same to be in all respects in accordance with the laws and building regulations of the State of Connecticut, Basic Building Code, Land Use regulations and ordinances of the Town of Union, Connecticut. A final inspection is required before the building can be occupied or a Certificate of Use or Occupancy is issued.

APPLICATION MUST BE TYPED OR PRINTED

Owner Sprint-Spectrum L.P. Street 1 International Blvd. Phone (201) 684-4000
 Lot No. 5 House No. 3 Road Canyon Road
 Owner of land Skewood Randy Barber Address 3 Canyon Road Union CT Phone (860) 974-0000
 Builder McPhee Electric Address 505 Main St. Farmington CT Phone (860) 677-9797
 Architect SEA Consultants Address 2080 Silas, Danvers Highway Phone (860) 563-7975
 Type of building 180" mangrove + related facility Suite 302 Rocky Hill CT Size of building _____
 Floor area 1st floor _____ 2nd floor _____ Total _____
 Type of heat: Hot Water Hot Air Steam Electric Wood
 Type of work: Original Alteration Addition Repair Demolish
 Approvals: Septic Perc Wetlands Driveway Fire Marshal Planning
 Signature Erin Dixon Agent of Sprint PCS Building Official Edward J. Stoveshi

**DO NOT DESTROY OR MUTILATE.
POST THIS CARD SO IT IS VISIBLE FROM STREET.
INSPECTIONS MUST BE APPROVED AND THIS CARD
RETURNED TO THE BUILDING DEPT. OFFICE
BEFORE A CERTIFICATE OF OCCUPANCY IS ISSUED.**

Owner of land _____ Address _____ Phone _____

BUILDING INSPECTION APPROVALS	PLUMBING INSPECTION APPROVALS	ELECTRICAL INSPECTION APPROVALS	
1 FOOTINGS	1 ROUGH	1 ROUGH	
2 FOUNDATION	2 FINISH	2 FINISH	
3 FRAMING	HEATING INSPECTION APPROVALS		
	1 ROUGH	FIREPLACE	CHIMNEYS
4 INSULATION <u>AS PER PRINT</u>	2 FINISH <u>Town Hall</u>	1 ROUGH	2 FINISH <u>NT TOWER</u>

Work shall not proceed until the inspector has approved the various stages of construction.

PERMIT WILL BECOME NULL AND VOID IF CONSTRUCTION WORK IS NOT STARTED WITHIN SIX MONTHS OF DATE THE PERMIT IS ISSUED AS NOTED ABOVE.

Inspections indicated on this card can be arranged for by telephone or personal written notification.

Building Official

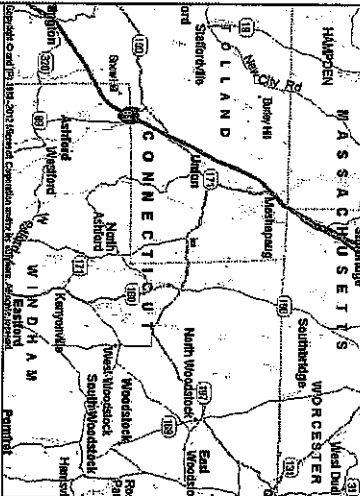


PROJECT: DO MACRO UPGRADE
SITE NAME: KINGSTON W. / BAUER (SSUSA)
SITE CASCADE: CT33XC005
SITE NUMBER: 876365
SITE ADDRESS: 3 CARION HILL ROAD
 UNION, CT 06076
SITE TYPE: MONOPOLE TOWER
MARKET: NORTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER: GROW ATLANTIC COMPANY LLC
 2000 CORPORATE DRIVE
 SUITE 1000
 WASHINGTON, DC 20004
 (703) 462-9800
LATITUDE (NAD83): 41.89241 N
LONGITUDE (NAD83): -72.09484 W
COUNTY: TOLLAND
ZONING JURISDICTION: CONNECTICUT STATE COUNCIL
ZONING DISTRICT: RESIDENTIAL
POWER COMPANY: CONNECTICUT LIGHT & POWER
 (800) 298-0000
SPRINT CONSTRUCTION: TBD
GROW, PA: SCOTT WATKINS
 (201) 285-2235

AREA MAP



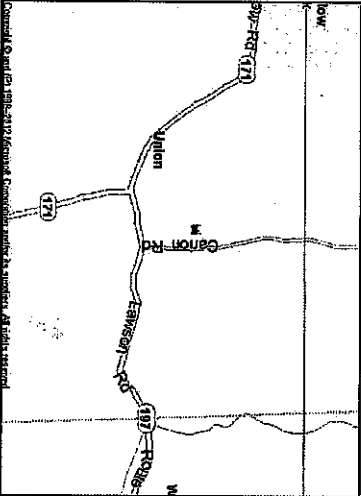
PROJECT DESCRIPTION

- SPRINT PROPOSES TO UPGRADE AN EXISTING UNWIRRED TELECOMMUNICATIONS TOWER.
- INSTALL 25 EQUIPMENT TRAYS EXISTING N.Y. MARS CABINET
- REMOVE (0) EXISTING PANEL ANTENNAS
- INSTALL (0) PANEL ANTENNAS (3 800/1900, 3 2000)
- INSTALL (12) RIBS ON TOWER (6 800, 3 1900, 3 2000)
- REMOVE (0) EXISTING COAX CABLE
- INSTALL (4) HYBRID CABLES

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING TOWER. THE CLIENT HAS PROVIDED ALL NECESSARY PERMITS AND APPROVALS. THE CLIENT HAS REPRESENTED THAT THE SCOPE OF WORK IN THESE PLANS IS ACCORDING TO THE CURRENT EDITIONS OF THE FOLLOWING CODES AND STANDARDS:

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. NFPA 700 - LIGHTNING PROTECTION CODE
3. 2011 NATIONAL ELECTRICAL CODE OR LATEST EDITION
4. ALL OTHER APPLICABLE LOCAL, STATE AND FEDERAL CODES
5. LOCAL BUILDING CODE
6. LOCAL BUILDING CODE
7. CITY/COUNTY ORDINANCES

APPLICABLE CODES



DRAWING INDEX

SHEET NO.	TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SE-1	SPRINT SPECIFICATIONS	0
SE-2	SPRINT SPECIFICATIONS	0
SE-3	SPRINT SPECIFICATIONS	0
M-1	TOWER ELEVATION & CABLE RAY	0
M-2	ANTENNA MOUNT & MOUNTING DETAILS	0
M-3	ESSENTIAL & MOUNTING DETAILS	0
M-4	CIVIL DETAILS	0
M-5	PLUMBING DIAGRAM	0
M-6	ELECTRICAL & GROUNDING DETAILS	0
E-1	ELECTRICAL & GROUNDING DETAILS	0
E-2	ELECTRICAL & GROUNDING DETAILS	0



PLANS PREPARED FOR:

 6500 Sprint Parkway
 Overland Park, Kansas 66201

PLAN PROVIDED BY:

 FROM ZERO TO INFINIGY
 This solution was created
 by INFINIGY
 1033 Westborough
 Westborough, MA 01581
 Phone: 815-858-8222
 Fax: 815-858-8222
 www.infinigy.com

PLAN APPROVED BY:

 CROWN CASTLE

ENGINEERING LICENSE:

 JOSEPH J. SWEENEY
 PROFESSIONAL ENGINEER
 No. 12819
 STATE OF CONNECTICUT

DRAWING NOTES:
 THESE DOCUMENTS ARE PREPARED FOR THE CLIENT'S USE ONLY. THE CLIENT HAS REPRESENTED THAT THE SCOPE OF WORK IN THESE PLANS IS ACCORDING TO THE CURRENT EDITIONS OF THE FOLLOWING CODES AND STANDARDS:

REVISIONS:

DESCRIPTION	DATE	BY	REV.

SITE NAME: KINGSTON W. / BAUER (SSUSA)

SITE CASCADE: CT33XC005

SITE ADDRESS: 3 CARION HILL ROAD
 UNION, CT 06076

SHEET DESCRIPTION: TITLE SHEET & PROJECT DATA
SHEET NUMBER: T-1

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 - SCOPE OF WORK
PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREIN.
- 1.3 PREPARATIONS: SHOULD CONDITIONS OCCUR DURING THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, PREPARATION ON THE NUMBER OF THE DRAWING SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER OF THE OCCURRENCE.
- 1.4 MANUALLY RECOGNIZED CODES AND STANDARDS:
 - A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
 1. 06-03-CORE NETS REQUIREMENTS; PHYSICAL PROTECTION
 2. 06-23-CORE NETS REQUIREMENTS; PHYSICAL PROTECTION AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 3. 06-1000-CORE NETWORK REQUIREMENTS; PHYSICAL PROTECTION AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) (LIFE SAFETY CODE).
 5. NATIONAL ELECTRICAL CODE - NEC® AND NFPA 70E
 6. INSTITUTE OF ELECTRIC AND ELECTRICAL ENGINEERS (IEEE)
 7. AMERICAN CONCRETE INSTITUTE (ACI)
 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
 9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
 11. PORTLAND CEMENT ASSOCIATION (PCA)
 12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
 13. BRICK INDUSTRY ASSOCIATION (BIA)
 14. AMERICAN WELDING SOCIETY (AWS)
 15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
 16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
 17. DOOR AND HARDWARE INSTITUTE (DHI)
 18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
 19. APPLICABLE BUILDING CODES INCLUDING NATIONAL BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.
- 1.5 REFERENCES:
 - A. WORK, THE SUI OF TERMS AND RESPONSIBILITIES DEFINED IN THE CONTRACT DOCUMENTS.
 - B. COMPANY SPRINT CORPORATION
 - C. ENGINEER SYMPOSIUM WITH ARCHITECT & ENGINEER AND "A/E/C" THE DESIGN PROFESSIONAL HANDBOOK PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
 - D. CONTRACTOR CONSTRUCTION CONTRACTORS' CONSTRUCTION VECTOR, BIENNIAL OR QUARTERLY PUBLICATION OF THE NATIONAL ASSOCIATION OF CONTRACTORS.
 - E. THIRD PARTY VENDOR OR AGENCY, A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE CONTRACTOR, OR CONTRACTOR TO PROVIDE MATERIALS OR TO FURNISH SERVICES SHALL BE HELD TO BE NOT INCLUDED IN THE WORK.
 - F. OTHER OWNER FURNISHED CONTRACTOR INSTALLED EQUIPMENT.
6. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

SECTION 01 200 - CONTRACT FURNISHED MATERIAL AND EQUIPMENT
PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREIN.
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 3. 06-1000-CORE NETWORK REQUIREMENTS; PHYSICAL PROTECTION AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) (LIFE SAFETY CODE).
 5. NATIONAL ELECTRICAL CODE - NEC® AND NFPA 70E
 6. INSTITUTE OF ELECTRIC AND ELECTRICAL ENGINEERS (IEEE)
 7. AMERICAN CONCRETE INSTITUTE (ACI)
 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
 9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
 11. PORTLAND CEMENT ASSOCIATION (PCA)
 12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
 13. BRICK INDUSTRY ASSOCIATION (BIA)
 14. AMERICAN WELDING SOCIETY (AWS)
 15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
 16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
 17. DOOR AND HARDWARE INSTITUTE (DHI)
 18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
 19. APPLICABLE BUILDING CODES INCLUDING NATIONAL BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.
- 1.5 REFERENCES:
 - A. WORK, THE SUI OF TERMS AND RESPONSIBILITIES DEFINED IN THE CONTRACT DOCUMENTS.
 - B. COMPANY SPRINT CORPORATION
 - C. ENGINEER SYMPOSIUM WITH ARCHITECT & ENGINEER AND "A/E/C" THE DESIGN PROFESSIONAL HANDBOOK PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
 - D. CONTRACTOR CONSTRUCTION CONTRACTORS' CONSTRUCTION VECTOR, BIENNIAL OR QUARTERLY PUBLICATION OF THE NATIONAL ASSOCIATION OF CONTRACTORS.
 - E. THIRD PARTY VENDOR OR AGENCY, A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE CONTRACTOR, OR CONTRACTOR TO PROVIDE MATERIALS OR TO FURNISH SERVICES SHALL BE HELD TO BE NOT INCLUDED IN THE WORK.
 - F. OTHER OWNER FURNISHED CONTRACTOR INSTALLED EQUIPMENT.
6. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

SECTION 01 300 - CELL SITE CONSTRUCTION, ETC.
PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREIN.
- 1.3 PREPARATIONS: SHOULD CONDITIONS OCCUR DURING THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, PREPARATION ON THE NUMBER OF THE DRAWING SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER OF THE OCCURRENCE.
- 1.4 MANUALLY RECOGNIZED CODES AND STANDARDS:
 - A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
 1. 06-03-CORE NETS REQUIREMENTS; PHYSICAL PROTECTION
 2. 06-23-CORE NETS REQUIREMENTS; PHYSICAL PROTECTION AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 3. 06-1000-CORE NETWORK REQUIREMENTS; PHYSICAL PROTECTION AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) (LIFE SAFETY CODE).
 5. NATIONAL ELECTRICAL CODE - NEC® AND NFPA 70E
 6. INSTITUTE OF ELECTRIC AND ELECTRICAL ENGINEERS (IEEE)
 7. AMERICAN CONCRETE INSTITUTE (ACI)
 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
 9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
 11. PORTLAND CEMENT ASSOCIATION (PCA)
 12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
 13. BRICK INDUSTRY ASSOCIATION (BIA)
 14. AMERICAN WELDING SOCIETY (AWS)
 15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
 16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
 17. DOOR AND HARDWARE INSTITUTE (DHI)
 18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
 19. APPLICABLE BUILDING CODES INCLUDING NATIONAL BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.
- 1.5 REFERENCES:
 - A. WORK, THE SUI OF TERMS AND RESPONSIBILITIES DEFINED IN THE CONTRACT DOCUMENTS.
 - B. COMPANY SPRINT CORPORATION
 - C. ENGINEER SYMPOSIUM WITH ARCHITECT & ENGINEER AND "A/E/C" THE DESIGN PROFESSIONAL HANDBOOK PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
 - D. CONTRACTOR CONSTRUCTION CONTRACTORS' CONSTRUCTION VECTOR, BIENNIAL OR QUARTERLY PUBLICATION OF THE NATIONAL ASSOCIATION OF CONTRACTORS.
 - E. THIRD PARTY VENDOR OR AGENCY, A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE CONTRACTOR, OR CONTRACTOR TO PROVIDE MATERIALS OR TO FURNISH SERVICES SHALL BE HELD TO BE NOT INCLUDED IN THE WORK.
 - F. OTHER OWNER FURNISHED CONTRACTOR INSTALLED EQUIPMENT.
6. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

PLAN PREPARED BY:
Sprint
6800 Spauld Parkway
Overland Park, Kansas 66261

INFINIGY
FROM ZERO TO INFINIGY
4100 North Central Expressway
Suite 1000
Overland Park, KS 66204
Phone: 913-666-2222 | Fax: 913-666-2223
www.infinigy.com

PLAN NUMBER: 01-1000-001

CONTRACTING LICENSE:

CROWN CASTLE

STATE OF CONNECTICUT
REGISTERED PROFESSIONAL ENGINEER
CROWN CASTLE, INC.
1000 STATE STREET
SUITE 200
MIDDLETOWN, CT 06457
PHONE: 860-346-2222
FAX: 860-346-2223
WWW.CROWNCASTLE.COM

DATE: 01/15/2011
TIME: 10:00 AM

THESE DOCUMENTS ARE CONCEPTUAL AND ARE NOT TO BE USED FOR PERMITS OR FOR CONSTRUCTION WITHOUT THE WRITTEN CONSENT OF SPRINT.

REVISION	DESCRIPTION	DATE	BY
1	ISSUED FOR PERMITTING	01/15/2011	0
2	ISSUED FOR CONSTRUCTION	01/15/2011	1

SITE ADDRESS:
3 CARION HILL ROAD
UNION, CT 06096

SITE NAME:
KINGSTON W./BAUER (SUSUA)

SITE COORDINATES:
CT133XC005

DATE: 01/15/2011
TIME: 10:00 AM

THESE DOCUMENTS ARE CONCEPTUAL AND ARE NOT TO BE USED FOR PERMITS OR FOR CONSTRUCTION WITHOUT THE WRITTEN CONSENT OF SPRINT.

CONTRACTOR: SPRINT CORPORATION

ENGINEER: CROWN CASTLE, INC.

DATE: 01/15/2011
TIME: 10:00 AM

CONTRACTOR: SPRINT CORPORATION

ENGINEER: CROWN CASTLE, INC.

DATE: 01/15/2011
TIME: 10:00 AM

CONTRACTOR: SPRINT CORPORATION

ENGINEER: CROWN CASTLE, INC.

DATE: 01/15/2011
TIME: 10:00 AM

SP-1

CONTINUE FROM SP-1

1. PERFORM AIR REQUIRED SITE ENVIRONMENTAL MITIGATION.
 2. PREPARE GRAVITY STOPS, PROVIDE DE-ICEING, AND ROUGH AND FINI GRAVITY, AND CONDUIT SURFACE TREATMENTS.
 3. MAINTAIN AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TIE-IN WORK.
 4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
 5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
 6. PROVIDE NEW HMC INSTALLATIONS AND UNDERPANS.
 7. INSTALL "H-FRAMES", CHIMNEYS AND SHEET PILES AS INDICATED.
 8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
 9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
 10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
 11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
 12. INSTALL CONDUIT PILING, SIGHT STRUCTING, UNDERPASS AND ACCESS BARRIERS.
 13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
 14. CONDUIT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER.
 15. INSTALL FIBER GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
 16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
 17. INSTALL CELL SITE RIGIDS, MICROWAVE, GPS, COAXIAL, MANHOLE, ANTENNAS, ACCESS BARRIERS, TOWER FOR MAINTENANCE, FOR ROSE MAINTENANCE AND MAINTENANCE.
 18. PERFORM DOCUMENT AND CLOSE OUT ANY CONSTRUCTION CONTROL, LOGBOOKS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND NECESSARY CORRECTIONS.
 19. PERSONNEL ANTENNA AND COAX SWEEP TESTING AND WAVE ANY AND ALL NECESSARY CORRECTIONS.
 20. REMAIN ON SITE UNTIL THE THROUGHTFUL HAND-OFF AND INTERSECTION TO BE ASSIGNED TO THE USER. THE SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PAVED ON AIR.
12. GENERAL REQUIREMENTS FOR ONE CONSTRUCTION:
- A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBER, MUFFERS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
 - B. EQUIPMENT ROADS SHALL AT ALL TIMES BE MAINTAINED TYPICAL CLEAR AND CLEAN OF DEBRIS.
 - C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND REMOVE ANY HAZARDOUS CONDITION.
 - D. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH OTHER PERSONS SHOULD BE AWARE OF, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT MANAGER AND THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
 - E. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE ENVIRONMENT TO THE HAZARD.
13. DEMONSTRATIONS:
- A. CONTRACTOR SHALL REVIEW, APPROVE AND SIGNIFY TO SPRINT SHOP DRAWINGS BEFORE CONSTRUCTION BEGINS, BUT NOT LIMITED TO THE FOLLOWING:
 1. PRODUCT PROGRESS REPORTS.
 2. CMA, CONSTRUCTION START DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 3. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).

5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 6. POWER INSTALL DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 7. TIE-IN READY DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 8. PFC (FOR SLEAZED) INSTALL DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 11. SIS AND ROAD EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 12. NETWORK OPERATIONS HANDOFF CHECKLIST (DOC WALK) COMPLETE (UPLOAD FROM IN SIS).
 13. CMA CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SIS AND/OR FORWARD NOTIFICATION).
 14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SIS.
- SECTION 01 400 - SUBSTITUTALS & TESTS
- PART 1 - GENERAL
- 1.1 THE WORK SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
 - 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SECTION.
 - B. SPRINT STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES ARE INCLUDED IN AND MAKE A PART OF THESE SPECIFICATIONS HEREIN.
 - 1.3 SUBSTITUTALS:
 - A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
 - B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL:
 1. CONCRETE MIX-DESIGN FOR TOWER FOUNDATIONS, ANCHORS PILES, AND FOUNDATIONS.
 2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
 3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
 4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
 5. CHEMICAL GROUNDING DESIGN.
 - C. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUFFICIENT FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATIVE PRODUCT.
 - 1.4 TESTS AND INSPECTIONS:
 - A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
 - B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 1. COAX SWEEPS AND FIBER TESTS PER CURRENT VERSION OF SPRINT'S T3-COAX ANTENNA LINE ACCEPTANCE STANDARDS.
 2. ALL ACIALITY AND DOWNTIME USING ELECTRONIC COMMERCIAL MAKE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CONNECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
 - C. REQUIRED CLOSURE DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
 1. INITIAL REPORT, 401 - 1 (R) - REPORT FROM ANTENNA ALIGNMENT TOOL TO SERIAL TASK 465 - INSTALLED ANTENNA, DOWNLINE, AND AIR LINES CONFORM TO THE RF DATA SHEETS, SWEEP AND FIBER TESTS.
 2. SERIALIZED EQUIPMENT.
 3. ALL AVAILABLE DISCREETION INFORMATION.
 4. FOR SOAK OF RESULTS PRODUCED IN FIELD.

5. ELECTRICIAN AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGES IN THE AS-BUILT DRAWINGS SHALL BE IDENTIFIED AS ADDITIONS OR DELETIONS IN GENERAL NOTES INDICATING ADDITIONS IDENTIFIED AS THE "AS-BUILT" COLUMN.
 6. LENS WANDS
 7. FINAL PAVEMENT APPLICATION
 8. REQUIRED FINAL CONSTRUCTION PHOTOS
 9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFECTS
 10. ALL POST NIP TASKS INCLUDING DOCUMENT UPLOADED COMPLETED IN SERIAL (SPRINT DOCUMENT REVISIONS OF RECORD).
 15. COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE WORKS.
 15. AGREEMENT: PERFORM ALL INTERSECTION ACTIVITIES AS REQUIRED BY APPLICABLE WORKS.
- PART 2 - PRODUCTS (NOT USED)
- PART 3 - EXECUTION
- 3.1 REQUIREMENTS FOR TESTING:
 - A. THIRD PARTY TESTING AGENCY:
 1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A PROVEN RECORD OF SUCCESSFUL TESTING OF SIMILAR WORKS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
 2. THE THIRD PARTY TESTING AGENCY IS TO BE PROVIDED WITH THE REQUIRED ASSOCIATED HEALTH AND SAFETY ISSUES.
 3. EMPLOYEE IN SOILS, CONCRETE, MASONRY, ASBESTOS, AND ASPHALT TESTING USING SOIL, MASONRY, AND OTHER METHODS IS NEEDED.
 4. EXPERTISE IN SOILS, CONCRETE, MASONRY, ASBESTOS, AND ASPHALT TESTING USING SOIL, MASONRY, AND OTHER METHODS IS NEEDED.
 - 3.2 REQUIRED TESTS:
 - A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 1. CONCRETE CILINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING, ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SAMPLING, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT AIR ASPHALT PAVING.
 2. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
 3. TESTING REQUIRED UNDER SECTION: APPROPRIATE BASE FOR ACCESS ROADS, PILES AND ANCHOR LOADINGS.
 4. STRUCTURAL BEARITL COMPRESSION TESTS FOR THE TOWER FOUNDATION.
 5. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
 6. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
 7. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS.
 8. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.
 - 3.3 REQUIRED INSPECTIONS:
 - A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE:
 1. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCRETE/ ASPHALT DOCUMENTATION BY DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY AEE OR SPRINT REPRESENTATIVE.
 2. DOCUMENT WITH CONCRETE AND REBAR PLACEMENT PRIOR TO POUR FOR ROADS, PAVES AND ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SAMPLING, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
 3. COMPARISON OF BUREAU OF MATERIALS ASSOCIATE BASE FOR ROADS, PAVES AND ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SAMPLING, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
 4. PRE- AND POST-CONSTRUCTION ROOFER AND STRUCTURAL INSPECTIONS ON EXISTING TOWER SHELTERS.
 5. TOWER ERECTION SECTION DRAWINGS AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
 6. ANTENNA ALIGNMENT, DOWN TILT AND PER STALLING TOOL SANSIGHT INSTRUMENTS - ANTENNA ALIGNMENT TOOL. (MAY)

SP-2 AND PREPARED BY:



6500 Spaul Parkway
Overland Park, Kansas 66201

SP-2 AND PREPARED BY:



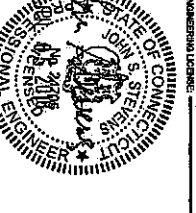
FROM ZERO TO INFINIGY
The solutions one endures
1023 Westwood Square, Suite 100, Kansas City, MO 64111
Phone: 816-452-4444 | Fax: 816-452-4444
www.infingy.com

SP-2 AND PREPARED BY:



1023 Westwood Square, Suite 100, Kansas City, MO 64111
Phone: 816-452-4444 | Fax: 816-452-4444
www.crowncastle.com

SP-2 AND PREPARED BY:



STATE OF KANSAS
BOARD OF PROFESSIONAL ENGINEERS
No. 1023
Professional Engineer
KINGSTON W. BAUER
SSUS(A)

SP-2 AND PREPARED BY:

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DATE	BY	REVISION
02/07/10	SP-2	1
02/07/10	SP-2	2
02/07/10	SP-2	3

ISSUED FOR CONSTRUCTION: 02/07/10
ISSUED FOR ERECT: 02/07/10

SHEET NO: 001 OF 001

SHEET DESCRIPTION:

3 CARON HILL ROAD
UNION, CT 06076

SPRINT SPECIFICATIONS

SHEET NUMBER: SP-2

7. VERTICALLY DOCUMENTED WITH THE ANTENNA CHECKOUT REPORT, BY A/E, SITE OBSERVATION (S/O), OR BY I/E.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HWC) SIGNED FOR SIGNING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO S/S.
9. COAX SHEET AND PEAR TESTING DOCUMENTS SUBMITTED VIA S/S FOR APPROVAL.
10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND UNACCESSIBLE SITUATED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF RESULTS PRODUCED IN FIELD
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO AS A RESULT OF TESTING.
14. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE ORIGINAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE LOCATION AND THE CORRECTIVE MEASURES. PHOTOGRAPHS SHALL BE LABELED WITH THE SITE CHECKOUT NUMBER, SITE NAME, DESCRIPTION AND DATE.
15. DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE S/S AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.
 - A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE:
 1. CONCRETE WALK AND CLIMBER BREAK REPORTS.
 2. STRUCTURAL BACKFILL COMPACTON REPORTS.
 3. SITE RESISTANCE TO EARTH TEST.
 4. ANTENNA ADJUTANT AND DOWN TILT VERIFICATION
 5. TOWER SECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
 6. COAX CABLE SWEEP TESTS PER COMPANY'S ANTENNA LINE ACCEPTANCE STANDARDS.
 7. TEST WELDS AND TENSILES: PHOTOGRAPHS OF ALL TEST WELDS PHOTOGRAPHS SHOWING ALL OPEN REQUIREMENTS AND TENSILES PRIOR TO MOUNTING DEPTH TO A TYPE BEHIND THE EXCAVATIONS.
 8. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING:
 1. TOWER FOUNDATION(S) POUR WITH VISORATOR IN USE (EACH ANCHOR ON GATED TOWERS).
 2. TOWER FOUNDATION(S) - POURS AND STEEL BEFORE POUR (EACH ANCHOR ON GATED TOWERS).
 3. TOWER FOUNDATION(S) POUR WITH VISORATOR IN USE (EACH ANCHOR ON GATED TOWERS).
 4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR ON GATED TOWERS).
 5. PHOTOS OF TOWER SECTION STAKING.
 6. CONCRETE TESTING / SAMPLES.
 7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
 8. BUILDING/WATER TANK FROM ROAD FOR TOWER APPROXIMATIONS OR COMMENTS.
 9. SHEETER FOUNDATION—POURS AND STEEL BEFORE POURING.
 10. SHEETER FOUNDATION POUR WITH VISORATOR IN USE.
 11. COAX CABLE ENTRY INTO SHEETER.
 12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
 13. ROOFING PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
 14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
 15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY STORAGE.
 16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHEETER.
 17. POWER AND TELLER ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELLER TRENCH LOCATIONS INCLUDING LETTERS/DISCONNECTS.
 18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
 19. ELECTRICAL TRENCH(S) WITH FUL-SIZED TYPE BEFORE FURTHER BACKFILL.
 20. TELLER TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
 21. TELLER TRENCH WITH FUL-SIZED TYPE BEFORE FURTHER BACKFILL.
 22. SHEETER GROUND—ING TRENCH WITH GROUND—ING BEFORE BACKFILL (SHOW ALL C/O WELDS AND BEAD ROAD).
 23. TOWER GROUND—ING TRENCH WITH GROUND—ING BEFORE BACKFILL (SHOW ALL C/O WELDS AND BEAD ROAD).

SECTION 01 400 - SUBMITTALS & TESTS

- PART 1 - GENERAL**
- 1.1 THE WORK THESE SPECIFICATIONS SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
 - 1.2 RELATED DOCUMENTS:
 - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
 - B. SPRINT-OWNED CONSTRUCTION DETAILS FOR WIRELESS SITES ARE INCLUDED IN PART 2 - PRODUCTS (NOT USED)
 - 1.3 WEEKLY REPORTS:
 - A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THE STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL COME WITH A CHECKLIST OF ITEMS TO BE COMPLETED EACH WEEK. THE REPORT WILL BE DUE EVERY MONDAY MORNING AT 10:00 AM LOCAL TIME. THE REPORT WILL BE DUE EVERY MONDAY MORNING AT 10:00 AM LOCAL TIME.
 - B. REQUIRED INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS AND FURNISH.
 - 1.4 PROJECT CONFERENCE CALLS:
 - A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, ADDRESS COMPLIANCE AND UPDATING NECESSARY PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.
 - 1.5 PROJECT TRACKING IN S/S:
 - A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE S/S SYSTEM ON A WEEKLY BASIS.
 - 1.6 ADDITIONAL REQUIREMENTS:
 - A. ADDITIONAL OR ALTERNATE REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE NECESSARY BY COMPANY.
 - 1.7 PROJECT PHOTOGRAPHS:
 - A. THE STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL COME WITH A CHECKLIST OF ITEMS TO BE COMPLETED EACH WEEK. THE REPORT WILL BE DUE EVERY MONDAY MORNING AT 10:00 AM LOCAL TIME. THE REPORT WILL BE DUE EVERY MONDAY MORNING AT 10:00 AM LOCAL TIME.
 - B. REQUIRED INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS AND FURNISH.

SECTION 01 400 - SUBMITTALS & TESTS

18. ELECTRICAL TRENCH(S) WITH FUL-SIZED TYPE BEFORE FURTHER BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FUL-SIZED TYPE BEFORE FURTHER BACKFILL.
20. TELLER TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELLER TRENCH WITH FUL-SIZED TYPE BEFORE FURTHER BACKFILL.
22. SHEETER GROUND—ING TRENCH WITH GROUND—ING BEFORE BACKFILL (SHOW ALL C/O WELDS AND BEAD ROAD).
23. TOWER GROUND—ING TRENCH WITH GROUND—ING BEFORE BACKFILL (SHOW ALL C/O WELDS AND BEAD ROAD).
24. EDGE GROUND—ING TRENCH WITH GROUND—ING BEFORE BACKFILL (SHOW ALL C/O WELDS AND BEAD ROAD).
25. ALL SITE GROUND CONNECTIONS.
26. ALL GROUND TEST WELDS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HWC WALK INCLUDING CONDENSERS ON SPURT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAREHOUSE BRIDGE.
32. DOORHOUSE/COLE EXIT FROM ROOF.
33. EDGE SECTION OF ANTENNAS: ONE PHOTOGRAPHY LOOKING AT THE SECTION AND ONE FROM BEHIND SHOWING THE PROTECTED CONCRETE AREA.
34. WASTER BUS BAR.
35. TELLER BOARD AND TILT.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SLAVE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING—TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING—TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING - WHERE APPLICABLE.

PLAN PREPARED BY:
INFINIGY
 FROM ZERO TO INFINIGY
 the solutions are endless
 011 Westfield Street 14, Albany, NY 12208
 Phone 518-435-1100
 Fax 518-435-1100
 www.infinigy.com

PLAN NUMBER: **SP-3**

ENGINEERING LICENSE: **CROWN CASTLE**

STATE OF CONNECTICUT
 PROFESSIONAL ENGINEER
 JOHN S. BAUER
 LICENSE NO. 10280

REVISIONS

NO.	DATE	BY	REVISION
1	07/07/18	BAU	ISSUE FOR CONSTRUCTION
2	07/07/18	BAU	ISSUE FOR REVIEW

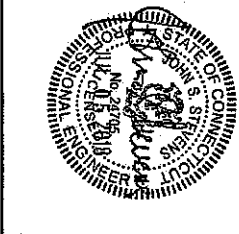
DATE: 07/07/18
 TIME: 10:00 AM
 PROJECT: KINGSTON W. / BAUER (SSUSA)

SITE ADDRESS: 3 CARRION HILL ROAD, UNION, CT 06076

SHEET NUMBER: **SP-3**



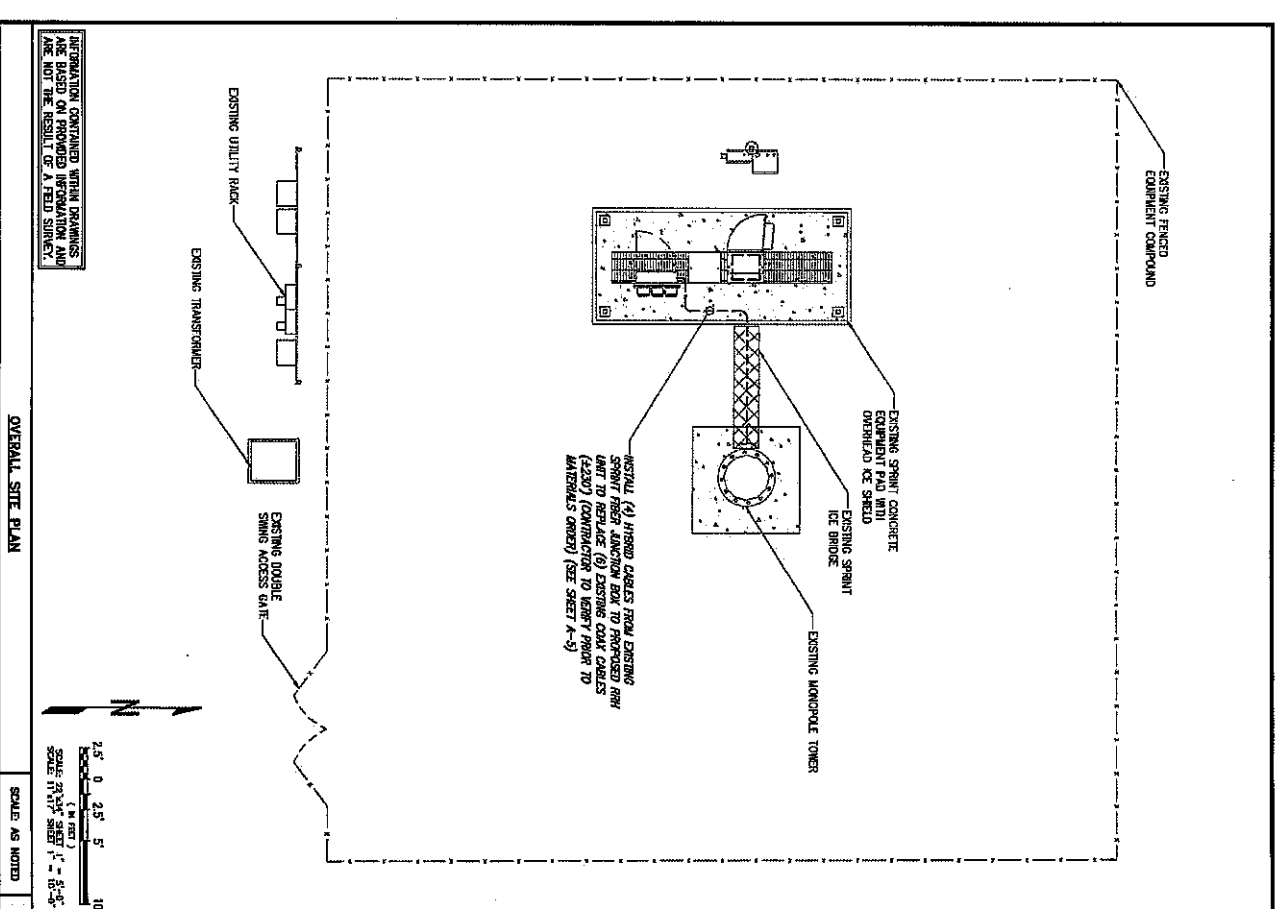
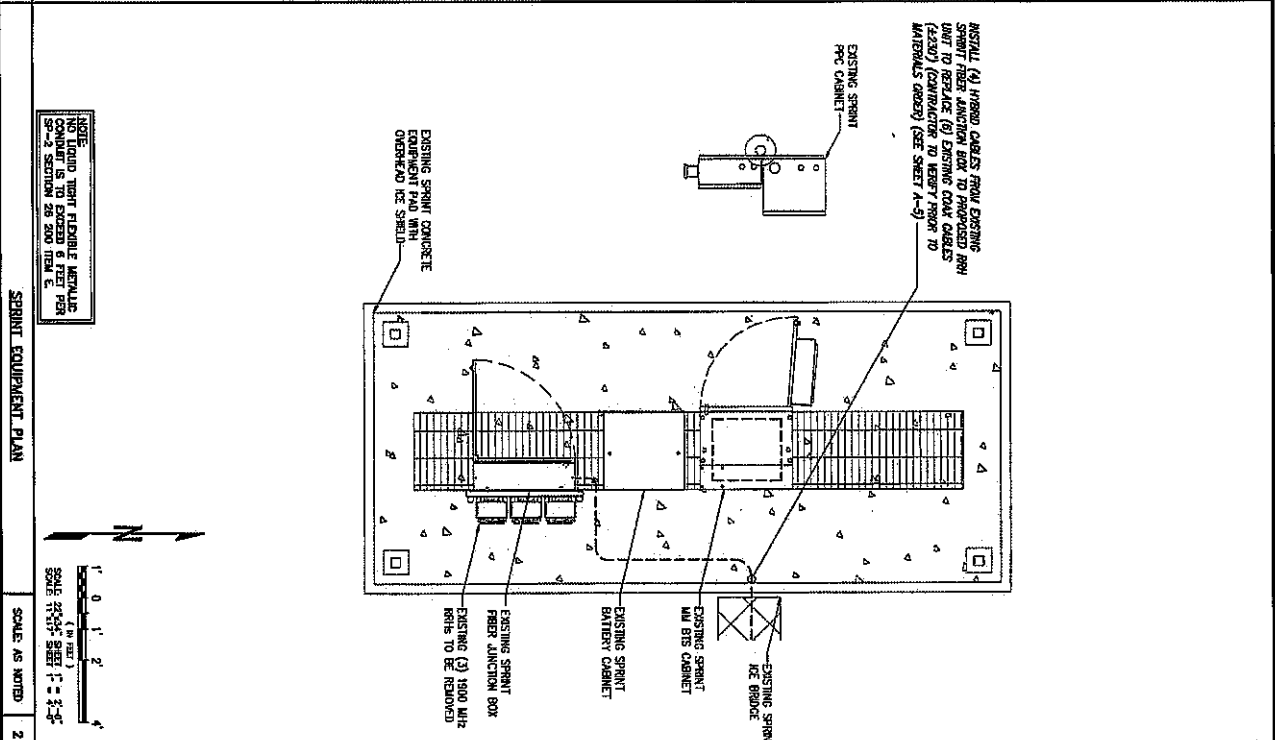
PLANS PREPARED BY:
INFINIGY
 FROM ZERO TO INFINIGY
 The solution you envision
 is our reality.
 1013 Northland Drive
 Overland Park, Kansas 66209
 Phone: 913-492-9272
 Fax: 913-492-9273
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REVISION	DESCRIPTION	DATE	BY	REV
1	ISSUE FOR CONSTRUCTION	02/24/10	BAU	1
2	ISSUE FOR PERMITS	02/24/10	BAU	2

SITE NAME: KINGSTON W. / BAUBIER (SSUSA)
 SITE PACKAGE: CT33XC005
 SITE ADDRESS: 3 CARION HILL ROAD, UNION, CT 06076
 SHEET NUMBER: A-1



INFORMATION CONTAINED WITHIN DRAWINGS ARE NOT TO BE REPRODUCED, COPIED, OR DISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

SCALE AS NOTED 1

SCALE AS NOTED 2

2.5' 0" 2.5' 5' 10' (1" = 10')

SCALE 1/8" = 1'-0"

SCALE 1/4" = 2'-0"

SPRINT
6880 Sprint Parkway
Overland Park, Kansas 66251

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INFINIGY
FROM ZERO TO INFINIGY
The solutions we engineer
1001 N. W. 10th Street, Suite 100
Miami, FL 33136
Phone: 313-586-0798 | Fax: 313-586-0733
www.infinigy.com
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ENGINEERED BY:
CROWN CASTLE

STATE OF CONNECTICUT
JAMES J. BAUER
Professional Engineer
No. 10123
Professional Seal

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REVISION	DATE	BY	REV
1			
2			
3			

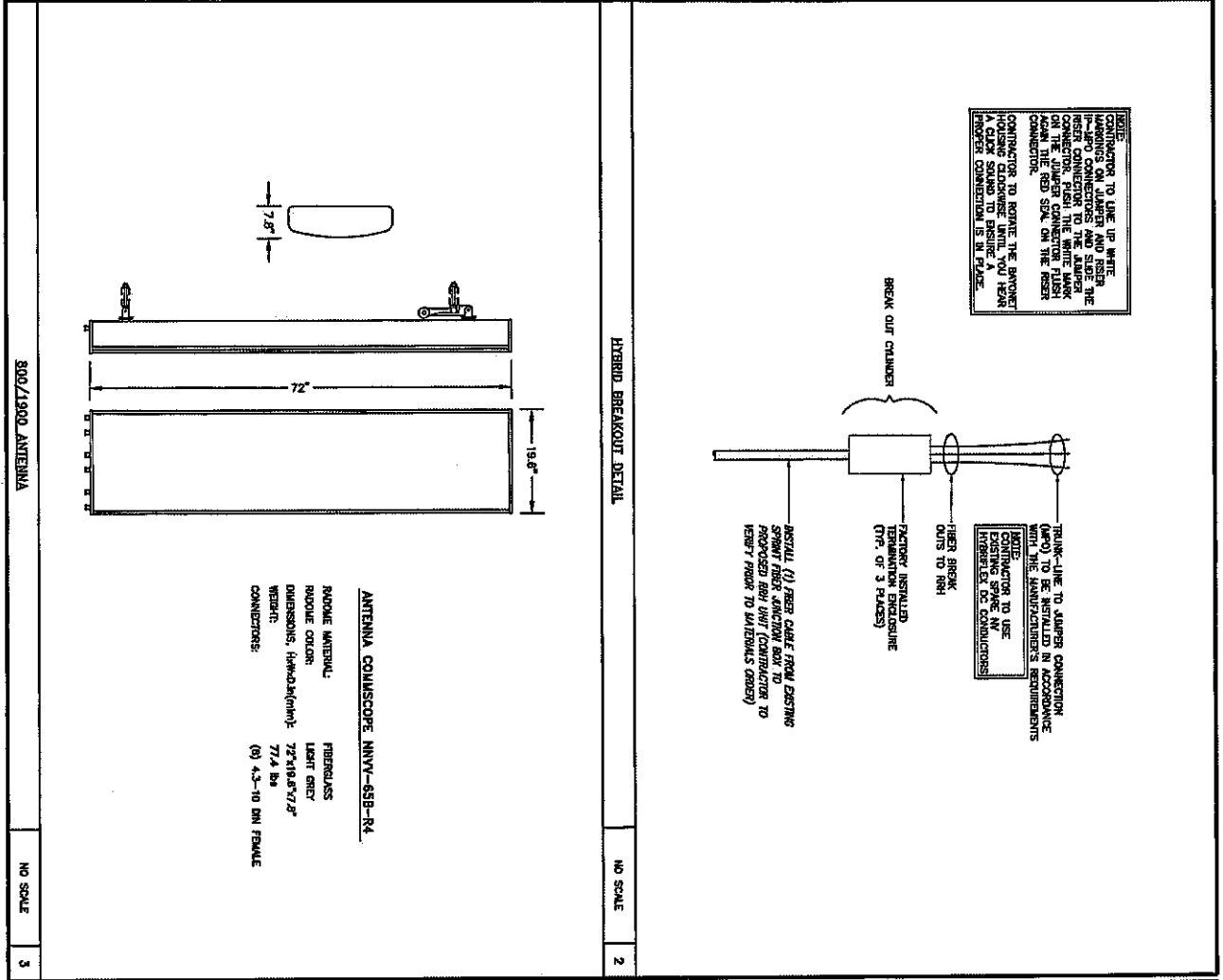
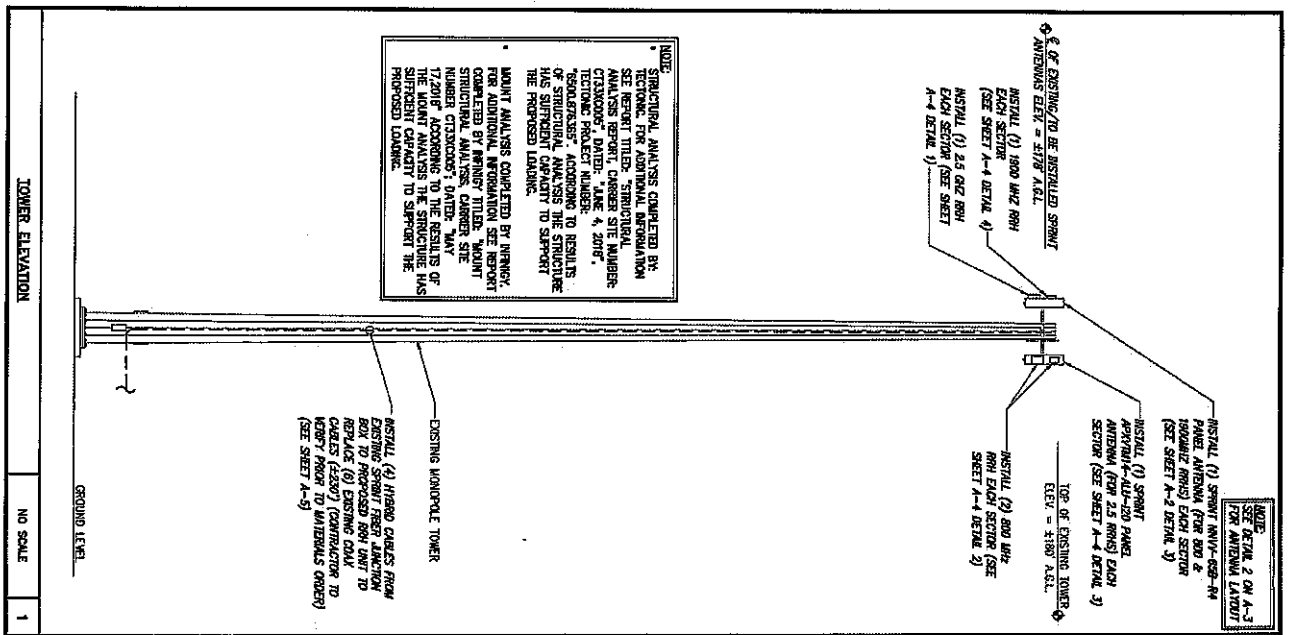
SITE NAME:
KINGSTON W. / BAUER (SSUSA)

SITE CALL NUMBER:
CT33XC005

SITE ADDRESS:
**3 CARON HILL ROAD
UNION, CT 06876**

SHEET DESCRIPTION:
TOWER ELEVATION & CABLE PLAN

SHEET NUMBER:
A-2



300/1900 ANTENNA

NO SCALE 3

TOWER ELEVATION



 8580 Sprint Parkway

 Overland Park, Kansas 66201

11-440 PROVIDED BY:

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 1033 Woodchester Lakes Dr. | Albany, NY 12218

 Phone: 518-862-9700 | Fax: 518-862-9999

 Web: www.infinigy.com

PLAN NUMBER:



PROFESSIONAL ENGINEER

 STATE OF CONNECTICUT

 LICENSE NO. 08028195

 REGISTERED PROFESSIONAL ENGINEER

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REVISION	DESCRIPTION	DATE	BY	REV
01	ISSUED FOR CONSTRUCTION	06/24/10	DSI	0
02	ISSUED FOR CONSTRUCTION	06/24/10	DSI	1

SHEET NAME:

KINGSTON W. / BAUDIER

 (SSUSA)

TITLE CATEGORY:

CT133XC005

SITE ADDRESS:

3 CARLON HILL ROAD

UNION, CT 060976

SHEET DESCRIPTION:

ANTENNA LAYOUT

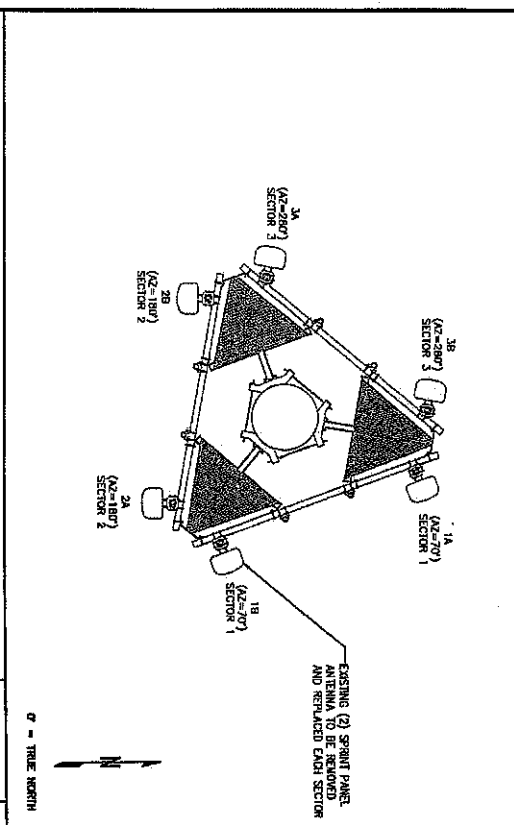
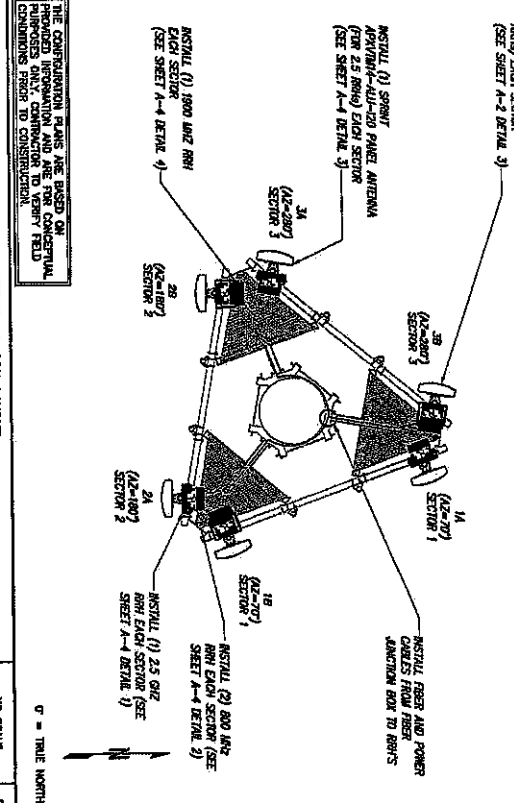
& MOUNTING DETAILS

SHEET NUMBER:

A-3

NOTES:

 ANTENNAS FROM 2.5 RBH TO THE 2.5 RBH ANTENNA CANNOT EXCEED 15 FEET



EXISTING ANTENNA LAYOUT

NO SCALE

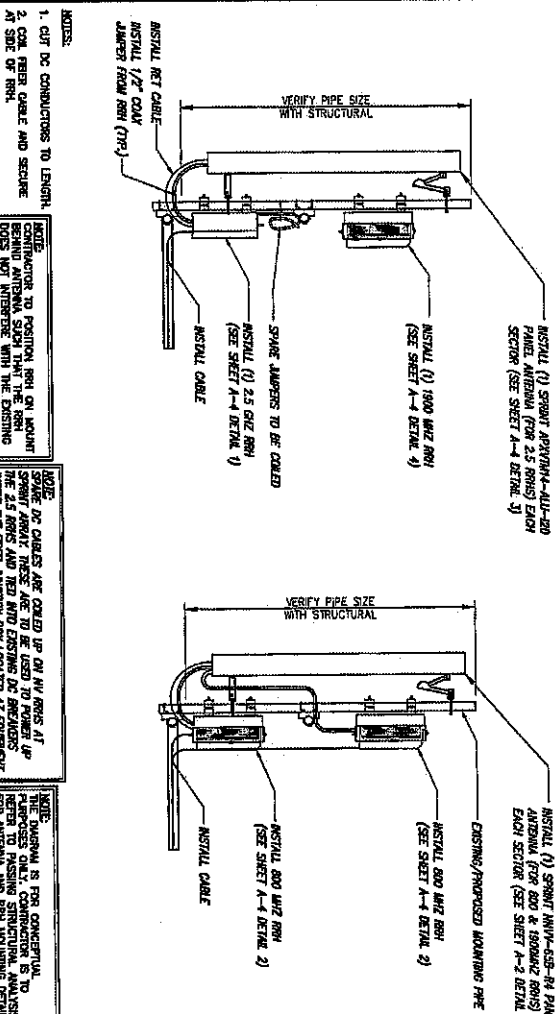
FINAL ANTENNA & RBH LAYOUT

NO SCALE

- NOTES:
1. ALL ANTENNA HEIGHTS ARE TO CENTER OF HORIZONTAL ANTENNA.
 2. VERIFY KAMATHI AND CL HEIGHT WITH AS-BUILT DRAWINGS IF AVAILABLE.
 3. NO OBJECT IS TO BE WITHIN 45 DEGREES OF EDGE-SIGHT OF 2.5G OR ANY OTHER TOWER ANTENNA. ALL OBJECTS ARE TO BE REMOVED OR MARKED WITH A SIGN. ALL OBJECTS WITHIN 100 FEET OF CLEAR LINE OF SIGHT OF EACH OF WORKER SECTOR FOR CLEAR LINE OF SIGHT.
 4. 2.5G ANTENNA MUST BE AT LEAST 6' FROM TOWER ANTENNA, 30' FROM 800MHZ ANTENNA AND 30" FROM DIAL SWAY TOWER AND 800MHZ ANTENNA.
 5. IF ANTENNAS ARE MOUNTED ON A FACE SURFACE SUCH AS A BUILDING WALL, PAPERET WALL, OR OTHER VERTICAL WALL, THE FACE MUST BE ACCOMPANIED BY A SKECH PROVIDED BY THE CONTRACTOR ENGINEER OR ENGINEER IN CHARGE OF WHERE ANTENNA IS TO BE LOCATED. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SKECH IS MISSING.
 6. GENERAL CONTRACTOR TO OBTAIN VERIFY KAMATHI AND CL HEIGHT AND HORIZONTAL DIMENT. IF DIMENT NOT CALLED OUT BELOW, HALL ANTENNA WORK FOR ONE HOUR CALL SPRINT OR ENGINEER OR MANAGER IF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO THE ENGINEER USING CONTACT INFORMATION ABOVE FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT ANSWER, CONTRACTOR TO CALL 2.5G ANTENNA CONTRACTOR AND VERIFY AS-BUILT DRAWINGS WITH CORRECT CL HEIGHT. ALSO EMAIL CONTRACT 1800 RBH AND 800 MHZ ANTENNA CL HEIGHT, KAMATHI AND HORIZONTAL DIMENT TO BE ENGINEER.
 7. ALSO TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND ALSO CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AIS EQUIPMENT INCLUDING ROUTING, 1800RBH AND 2.5G. TEST INCLUDE COMPLETE KAMATHI (OF SPEED TEST SPREADSHEET).
 8. GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS INCLUDES ALL OBJECTS WITHIN 45 DEGREE OF EDGE-SIGHT OF ANTENNA. ALL OBJECTS ARE TO BE REMOVED UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT BY ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5G ANTENNA IS NOT TO BE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON-SPRINT ANTENNAS.
 9. GENERAL CONTRACTOR IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET KAMATHI, ROLL AND DOWNLINE. KAMATHI ALIGNMENT IS TO BE WITHIN 1 DEGREE DOWNLINE AND ROLL LEFT TO RIGHT ALIGNMENT. ROLL ALIGNMENT IS TO BE WITHIN 1 DEGREE DOWNLINE AND ROLL LEFT TO RIGHT ALIGNMENT. AS-BUILT DRAWINGS AND AS-BUILT SPRINT OF DOWNLINE WITH AS-BUILT SETTINGS. USE OF ALIGNMENT TOOL OR EQUIVALENT TOOL. [HTTP://WWW.ZITELTEK.COM/ANTENNA-ALIGNMENT-TOOL/](http://www.ziteltek.com/ANTENNA-ALIGNMENT-TOOL/)

NO SCALE

3



TYPICAL ANTENNA & RBH MOUNTING DETAILS

NO SCALE

- NOTES:
1. CUT DC CONDUCTORS TO LENGTH.
 2. COIL FIBER CABLE AND SECURE AT SIDE OF RBH.
 3. DO NOT EXCEED BEND RADIUS.

NOTE:

 CONTRACTOR TO POSITION RBH ON MOUNTING BRACKET ANTENNA SUCH THAT THE RBH IS CENTERED ON THE MOUNTING BRACKET.

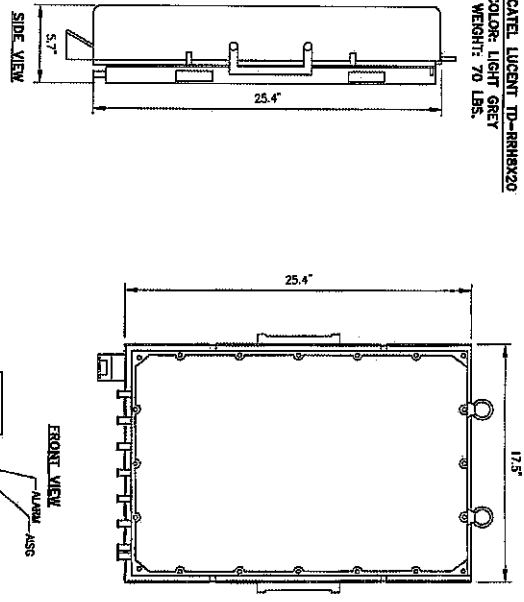
NOTE:

 DC CABLES ARE COILED UP ON HV RINGS AT THE 2.5 RBH AND RED AND GREEN DC CABLES ARE COILED UP ON THE 800MHZ RBH.

NOTE:

 THE ORIGINAL IS FOR CONCEPTUAL DESIGN ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RBH MOUNTING DETAILS.

RRH: ALCATEL LUCENT TD-BRH8X20
 COLOR: LIGHT GREY
 WEIGHT: 70 LBS.

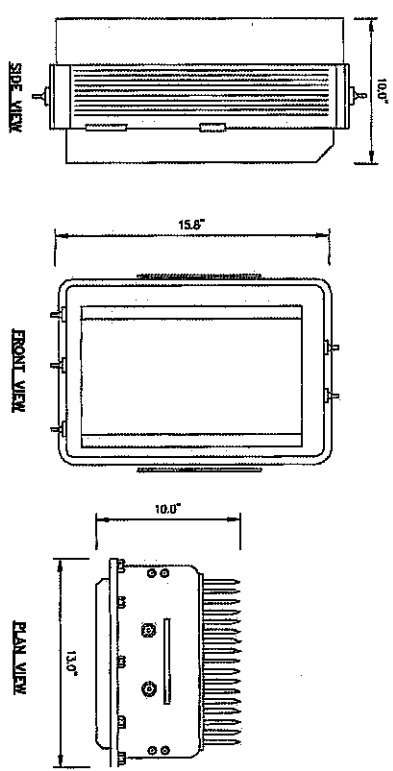


NOTES
 CONSULT WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL PWR'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF THE DATE OF MANUFACTURE. THE MANUFACTURER'S PACKAGING DO NOT OPEN RRH PACKAGES IN THE FIELD.

2.5. BRH'S

NO SCALE 1

RRH: ALCATEL LUCENT BRH 800 MHz 2x50W
 COLOR: LIGHT GREY
 WEIGHT: 53 LBS.



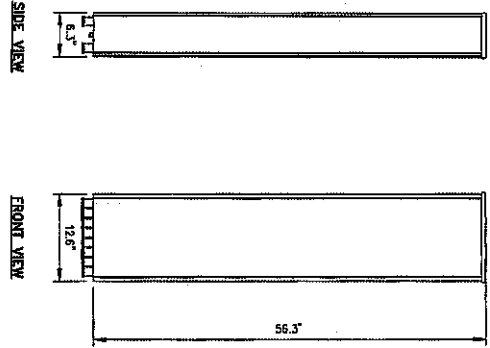
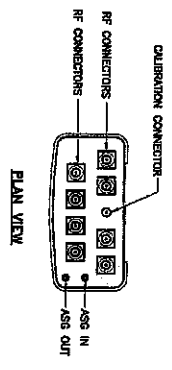
NOTES
 CONSULT WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL PWR'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF THE DATE OF MANUFACTURE. THE MANUFACTURER'S PACKAGING DO NOT OPEN RRH PACKAGES IN THE FIELD.

800 MHz BRH

NO SCALE 2

ANTENNA RFS APYTM14-ALL-120

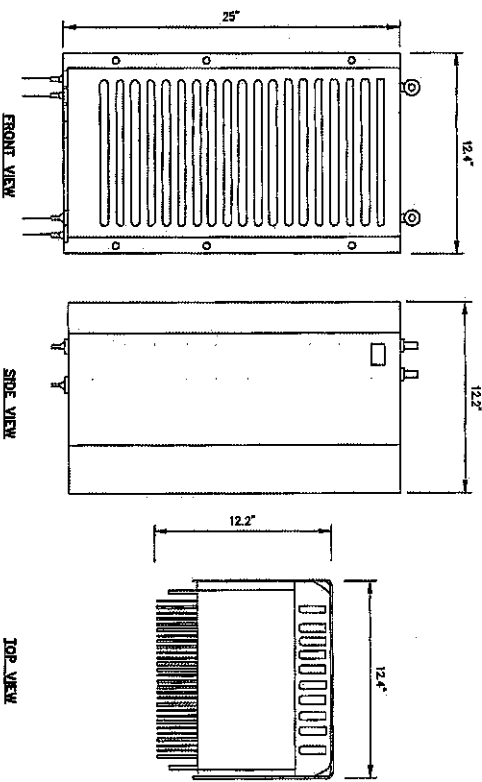
RODUCIE MATERIAL: ASA
 RODUCIE COLOR: LIGHT GREY
 DIMENSIONS: Height (inches): 58.37x12.67x4.37 (1430x320x110mm)
 WEIGHT: 58.2 lbs
 CONNECTORS:
 (2) 41/80 DIN female
 (1) N - CALIBRATION CONNECTOR



2.5. ANTENNA

NO SCALE 3

RRH: ALCATEL LUCENT 1900 MHz
 COLOR: LIGHT GREY
 WEIGHT: 70 LBS.
 (INCLUDING OPTIONAL SOLAR SHIELD)



1900 BRH'S

NO SCALE 4

Plan Prepared For:

 6690 Sprint Parkway
 Overland Park, Kansas 66251

Plan Prepared For:

 FROM ZERO TO INFINIGY
 1033 West 11th Avenue
 Denver, Colorado 80202
 Phone: 303-440-2722 | Fax: 303-440-2722
 www.infingy.com
 08/11/2010 10:20:20

ENGINEERING LICENSE:

 CROWN CASTLE

STATE OF CONNECTICUT
 PROFESSIONAL ENGINEER
 LICENSE NO. 572818

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REVISION	DESCRIPTION	DATE	BY	REV
001	ISSUE FOR PRODUCTION	07/20/10	SPR	1
002	ISSUE FOR REVIEW	07/20/10	SPR	1

SITE NAME:
 KINGSTON W. / BAUER
 (SSUSA)

SITE EQUIPMENT:
 CT333XC005

SITE ADDRESS:
 3 CARION HILL ROAD
 UNION, CT 06076

SHEET DESCRIPTION:
 EQUIPMENT &
 MOUNTING DETAILS

SHEET NUMBER:
 A-4

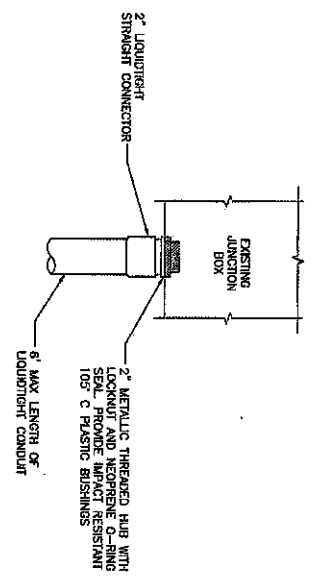
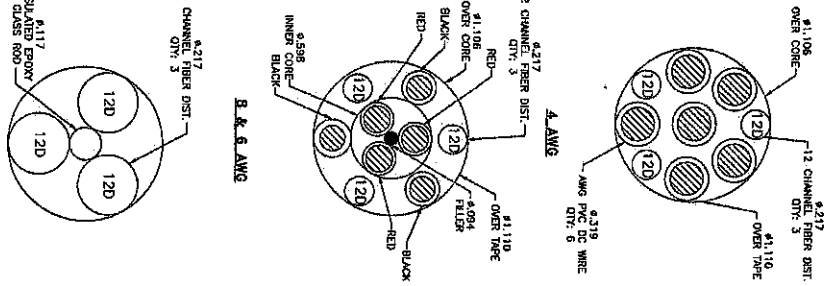
RFS HYBRID EX RISER CABLE SCHEDULE

Power	Notes	Qty
Fiber Only (Existing DC Power)	12 multi-mode fiber pairs, Top: Outdoor protected connection, Bottom: IC Connection, 1/2 Cable, 20' ft	2311
4 AWG Power	Hybrid Ampere cable 12 multi-mode fiber pairs, 12 multi-mode fiber pairs, Outdoor rated connections & IC Connections, 1/2 Cable, 20' ft	1200
6 AWG Power	Hybrid Ampere cable 12 multi-mode fiber pairs, 12 multi-mode fiber pairs, Outdoor rated connections & IC Connections, 1/2 Cable, 20' ft	1200
8 AWG Power	Hybrid Ampere cable 12 multi-mode fiber pairs, 12 multi-mode fiber pairs, Outdoor & IC Connections, 1/2 Cable, 20' ft	1200
Fiber Only	Hybrid Ampere cable 12 multi-mode fiber pairs, 12 multi-mode fiber pairs, Outdoor & IC Connections, 1/2 Cable, 20' ft	1200
4 AWG Power	Hybrid Ampere cable 12 multi-mode fiber pairs, 12 multi-mode fiber pairs, Outdoor & IC Connections, 1/2 Cable, 20' ft	1200
6 AWG Power	Hybrid Ampere cable 12 multi-mode fiber pairs, 12 multi-mode fiber pairs, Outdoor & IC Connections, 1/2 Cable, 20' ft	1200
8 AWG Power	Hybrid Ampere cable 12 multi-mode fiber pairs, 12 multi-mode fiber pairs, Outdoor & IC Connections, 1/2 Cable, 20' ft	1200

NOTE:
 1. SEE RFS HYBRID EX RISER CABLE MODEL NUMBERS IF APPLICABLE.
 2. SEE RFS HYBRID EX RISER CABLE MODEL NUMBERS IF APPLICABLE.
 3. SEE RFS HYBRID EX RISER CABLE MODEL NUMBERS IF APPLICABLE.

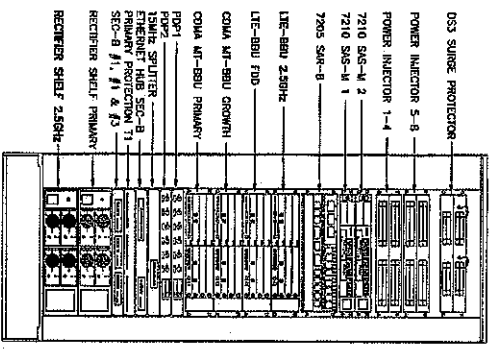
2.5. CABLE CROSS-SECTION DATA

NO SCALE 1



FIBER JUNCTION BOX PENETRATION

NO SCALE 2



CABINET LAYOUT

NO SCALE 3

PLANS PREPARED FOR:
Sprint
 6550 Sprint Parkway
 Overland Park, Kansas 66251

PLANS PREPARED BY:
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 Phone: 973-946-9700 | Fax: 973-946-9733
 Web: www.infigny.com

JCA PARTNER:
CROWN CASTLE

REGISTERED LICENSE:

ROBERT J. KINGSTON
 ENGINEER

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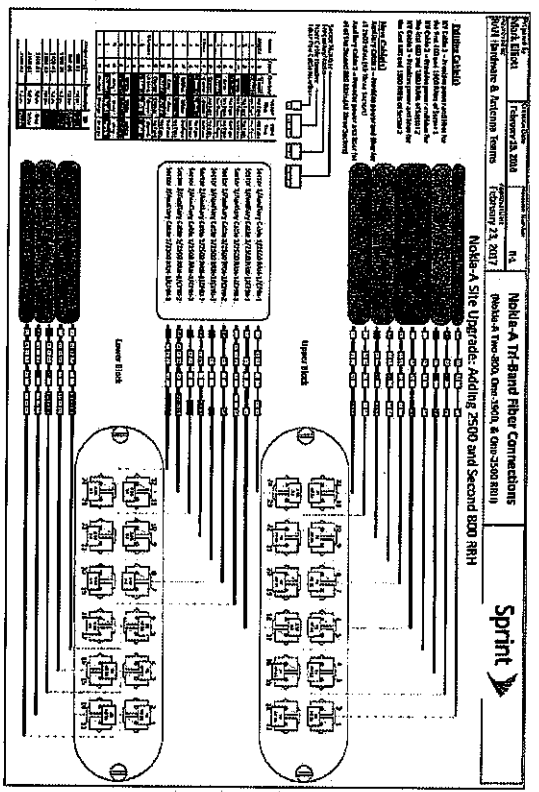
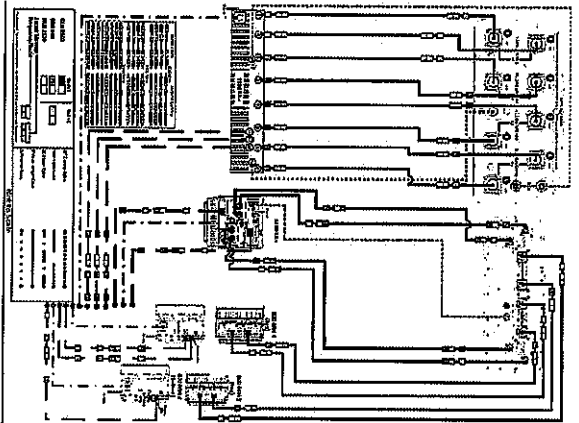
DESCRIPTION	DATE	BY	REV

SITE NAME:
 KINGSTON W. / BAUER
 (SSUSA)

SITE CODE:
 CT33XC005

SITE ADDRESS:
 3 CARLON HILL ROAD
 UNION, CT 06076

CIVIL DETAILS
A-5



PLUMBING DIAGRAM

NO SCALE
1

PLANS RESERVED FOR:

 6930 Spauld Road
 Oxford Park, Kansas 66201

PLANS PROVIDED BY:

 FROM ZERO TO INFINIGY
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 1023 Westport Square #41, Ashburn, VA 20148
 Phone: 515-468-4756 | Fax: 515-468-0533
 400 NORTH 20th ST

DATA PARTNER:

 CROWN
 CASTLE

ENGINEERING LICENSE:

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REVISION	DESCRIPTION	DATE	BY	REV
01	ISSUED FOR CONSTRUCTION	02/07/18	BOB B	0
02	ISSUED FOR PERMITS	06/17/18	BOB B	1

SITE NAME:
 KINGSTON W. / BAUER
 (SSUSA)

SITE ADDRESS:
 CT33XC005

SITE ADDRESS:
 3 CARLON HILL ROAD
 UNION, CT 06076

SHEET REQUIREMENT:
 PLUMBING DIAGRAM

SHEET NUMBER:
 A-6

FINAL EQUIPMENT CONFIGURATION

SECTOR	ANTENNA MANUFACTURER	ANTENNA MODEL	BOA CENTER	ABILITY	RECOMMENDED RADIATOR
1	COMSCAPE	ANV-SSB-AN	178'	70'	(2) ALU-2502Z 2500W
	RFSS	AP7017M-4L14-02	178'	70'	(1) ALU-2502Z 2500W
2	COMSCAPE	ANV-SSB-AN	178'	180'	(2) ALU-2502Z 2500W
	RFSS	AP7017M-4L14-02	178'	180'	(1) ALU-2502Z 2500W
3	COMSCAPE	ANV-SSB-AN	178'	280'	(2) ALU-2502Z 2500W
	RFSS	AP7017M-4L14-02	178'	280'	(1) ALU-2502Z 2500W

FEDER CABLES

MANUFACTURER	MODEL	LENGTH	QTY
RFSS	48714-1000-1-200'	200'	10
RFSS	48714-1000-1-200'	200'	10

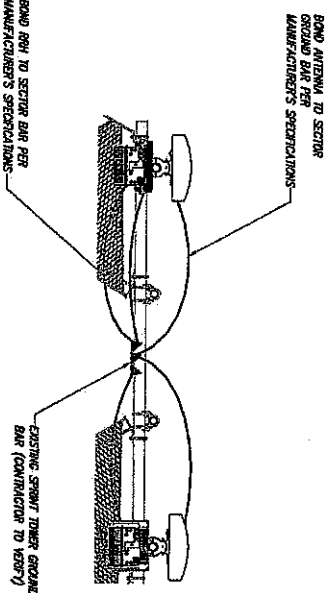
NOTES:
 1. COMPARE TO NEWLY PROPOSED ANTENNA SPECIFICATION IS THE
 MOST CURRENT FROM THE 4TH EDITION.
 2. EXHIBIT OF SUPPLY SHALL BE SUBMITTED TO CONSTRUCTION.

ANTENNA/CABLE SCHEDULE

NO SCALE 1

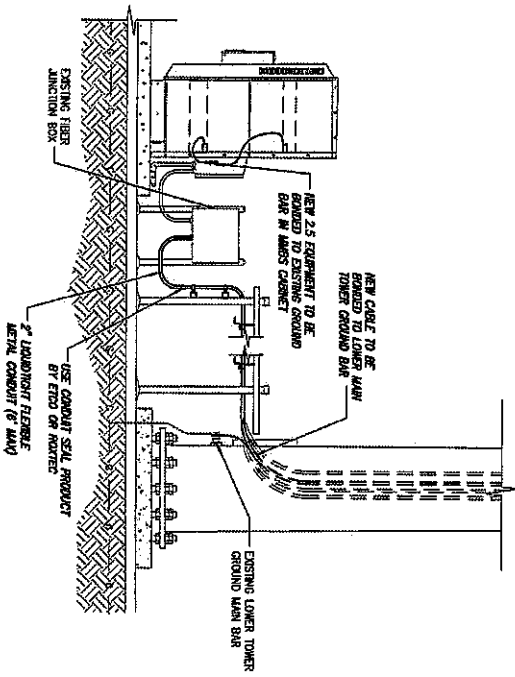
LEGEND:

- 6 — EXISTING GROUND RING
- CANNED CONNECTION (EXOTHERMIC WELD)
- ▲ MECHANICAL CONNECTION
- ⊗ GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION)

NO SCALE 3

PLANS PREPARED BY:
Sprint
 6500 Sprint Parkway
 Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
 FROM ZERO TO INFINIGY
 The solutions are endless
 4323 Waverly Street, Suite 401, Liberty, MO 64542
 Phone: 316-464-0790 | Fax: 316-464-0773
 20 WABER 50-113

MANUFACTURER:
CROWN CASTLE

ENGINEERING LICENSE:

REVISIONS:

NO.	DATE	BY	REV
1	02/14/10	SS	0
2	02/17/10	SS	1

PROJECT NAME:
KINGSTON W. / BAUER (SSUSA)

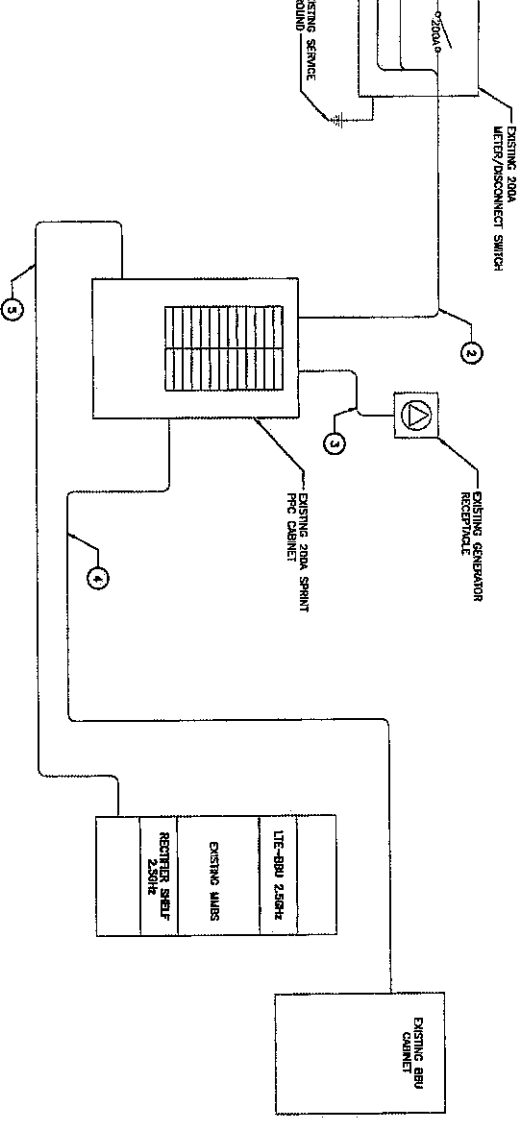
SITE ADDRESS:
**3 CARLTON HILL ROAD
 UNION, CT 06076**

PROJECT NUMBER:
E-1

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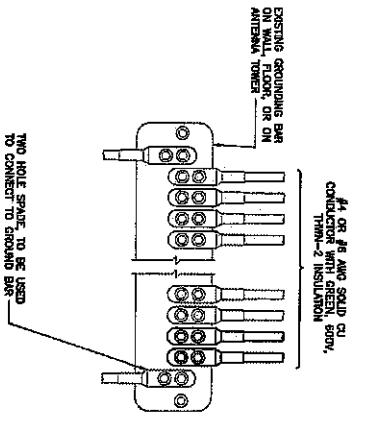
NOTES
 1. ALL SHALL REFER TO ALL SPECS FOR CONNECTIONS TO THE POWER SUPPLY OF THE NEW INSTALLATION DOCUMENTS FOR ALL CONNECTION SPECIFICATIONS.

NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT WIRING	EXISTING

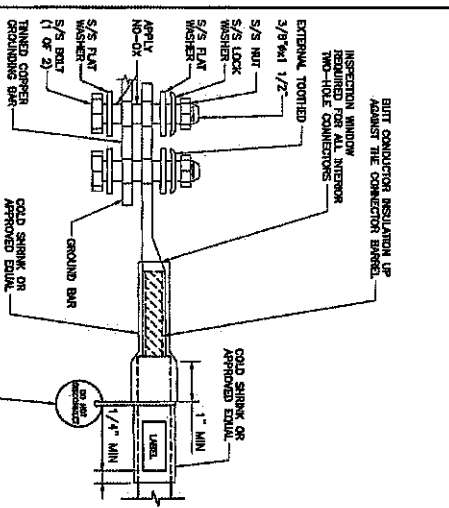


ELECTRICAL ONE-LINE DIAGRAM

NO SCALE 1



NOTES
 1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INSIDE LUG.
 2. IF SPREAD GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.



INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE 2

TWO-HOLE LUG

NO SCALE 3

GROUNDING BUSER DIAGRAM

NO SCALE 4

LEGEND:
 - Existing Ground Ring
 - Grounded Connection (Exothermic Weld)
 - Mechanical Connection
 - Ground Rod
 - Cable Ground Kit

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR CONSTRUCTION	08/01/10	JRB
2	ISSUED FOR REVIEW	07/01/10	JRB

DATE: 08/01/10
PROJECT: KINGSTON W./BAUER (SSUSA)
DRWG. NO.: CT33XC005
DRWG. TITLE: ELECTRICAL & GROUNDING DETAILS
SHEET NUMBER: E-2

Sprint
 6500 South Parkway
 Overland Park, Kansas 66251

INFINIGY
 FROM ZERO TO INFINIGY
 The solutions are endless
 1033 Westinghouse Boulevard, Suite 100
 Overland Park, Kansas 66204
 Phone: 913-666-7777
 Fax: 913-666-7733
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CROWN CASTLE

PROFESSIONAL ENGINEER
 STATE OF CONNECTICUT
 No. 2705
 JAMES RICHARDS FOR

Date: June 4, 2018

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



Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject: Structural Analysis Report

Carrier Designation: **Sprint PCS Co-Locate**
Carrier Site Number: CT33XC005
Carrier Site Name: CT33XC005

Crown Castle Designation: **Crown Castle BU Number:** 876365
Crown Castle Site Name: KINGSTON W. / BAUER (SSUSA)
Crown Castle JDE Job Number: 505914
Crown Castle Work Order Number: 1580555
Crown Castle Order Number: 441414 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1580555

Site Data: **3 Carion Hill Rd., Union, Tolland County, CT**
Latitude 41° 59' 16.56", Longitude -72° 6' 48.96"
180 Foot - Monopole Tower

Dear Denice Nicholson,

Crown Castle is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1580555, in accordance with order 441414, revision 0.

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

LC5: Existing + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing loading, respectively.

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

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

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

Structural analysis prepared by: Joseph Fischels / CD

Respectfully submitted by:

Maham Barimani, P.E.
Senior Project Engineer

tnxTower Report - version 7.0.5.1

06-04-2018

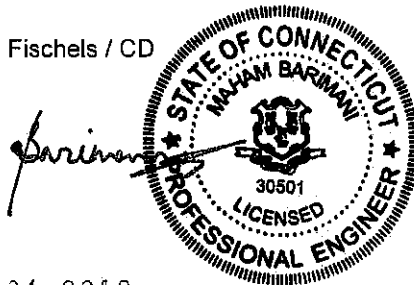


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1) INTRODUCTION

This tower is a 180 ft Monopole tower designed by Engineered Endeavors in December of 2000. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
180.0	178.0	6	alcatel lucent	RRH2X50-800	4	1-1/4	-
		3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ			
		3	alcatel lucent	TD-RRH8X20-25			
		3	commscope	NNVV-65B-R4 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
180.0	180.0	6	decibel	DB980F65E-M w/ Mount Pipe	6	1-5/8	2
		1	tower mounts	Platform Mount [LP 601-1]	-	-	1
76.0	77.0	1	lucent	KS24019-L112A	1	1/2	1
	76.0	1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:

- 1) Existing Equipment
- 2) Equipment To Be Removed; not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
180.0	180.0	12	dapa	48000	-	-
170.0	170.0	12	dapa	48000	-	-
160.0	160.0	12	dapa	48000	-	-
150.0	150.0	12	dapa	48000	-	-
140.0	140.0	12	dapa	48000	-	-
130.0	130.0	12	dapa	48000	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	SEA Consultants	1531937	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Vertical Solutions (Mapping)	2259246	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors	1533008	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	180 - 155.21	Pole	TP24.22x19x0.1875	1	-3.94	967.06	24.3	Pass
L2	155.21 - 124.833	Pole	TP30.11x23.0905x0.3125	2	-7.40	2129.81	25.7	Pass
L3	124.833 - 83.3367	Pole	TP38.09x28.5893x0.4375	3	-15.61	3770.47	25.5	Pass
L4	83.3367 - 40.84	Pole	TP46.03x36.1094x0.5	4	-27.89	5213.38	26.8	Pass
L5	40.84 - 0	Pole	TP53.5x43.7164x0.5625	5	-46.72	7021.87	26.9	Pass
							Summary	
						Pole (L5)	26.9	Pass
						Rating =	26.9	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	26.1	Pass
1	Base Plate	0	35.4	Pass
1	Base Foundation (Structural)	0	29.9	Pass
1	Base Foundation (Soil Interaction)	0	65.8	Pass
Structure Rating (max from all components) =				65.8%

Notes:

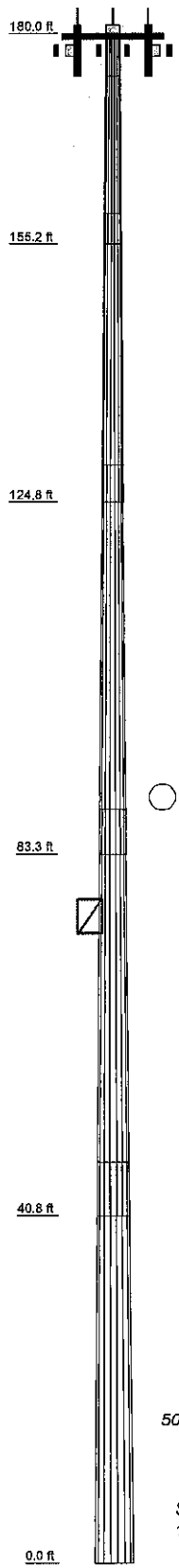
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	5
Length (ft)	24.79	33.96	45.83	47.83	47.17
Number of Sides	18	18	18	18	18
Thickness (in)	0.1875	0.3125	0.4375	0.5000	0.5625
Socket Length (ft)	3.58	4.33	5.33	6.33	43.7164
Top Dia (in)	19.0000	23.0905	28.5893	36.1094	53.5000
Bot Dia (in)	24.2200	30.1100	38.0900	46.0900	53.5000
Grade					
Weight (K)	1.1	3.0	7.1	10.5	13.8



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
6' x 2" Mount Pipe	180	(2) RRH2X50-800	180
6' x 2" Mount Pipe	180	(2) RRH2X50-800	180
6' x 2" Mount Pipe	180	(2) RRH2X50-800	180
Platform Mount [LP 601-1]	180	TD-RRH8X20-25	180
Transition Ladder	180	TD-RRH8X20-25	180
NNV-65B-R4 w/ Mount Pipe	180	TD-RRH8X20-25	180
NNV-65B-R4 w/ Mount Pipe	180	PCS 1900MHZ 4X45W-65MHZ	180
NNV-65B-R4 w/ Mount Pipe	180	PCS 1900MHZ 4X45W-65MHZ	180
APXVTM14-ALU-I20 w/ Mount Pipe	180	PCS 1900MHZ 4X45W-65MHZ	180
APXVTM14-ALU-I20 w/ Mount Pipe	180	KS24019-L112A	76
APXVTM14-ALU-I20 w/ Mount Pipe	180	Side Arm Mount [SO 701-1]	76

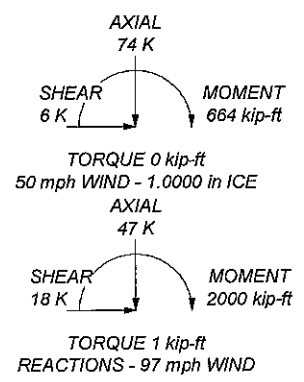
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-G Standard.
2. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 26.9%

ALL REACTIONS ARE FACTORED



<p>CROWN CASTLE The Pathway to Possible</p>	<p>Crown Castle 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724) 416-2000 FAX:</p>		<p>Job: BU 876365</p>
	Project:	Client: Crown Castle	App'd:
	Code: TIA-222-G	Drawn by: Cindy Dostatni	Scale: NTS
	Path:	Date: 06/04/18	Dwg No. E-1
	<p><small>C:\Users\edf\In\Documents\Projects - QAI153 - BU876365 - WC1580555 - XP\Production\876365.dwg</small></p>		

Tower Input Data

There is a pole section.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

- 1) Basic wind speed of 97 mph.
- 2) Structure Class II.
- 3) Exposure Category B.
- 4) Topographic Category 1.
- 5) Crest Height 0.00 ft.
- 6) Nominal ice thickness of 1.0000 in.
- 7) Ice thickness is considered to increase with height.
- 8) Ice density of 56 pcf.
- 9) A wind speed of 50 mph is used in combination with ice.
- 10) Temperature drop of 50 °F.
- 11) Deflections calculated using a wind speed of 60 mph.
- 12) A non-linear (P-delta) analysis was used.
- 13) Pressures are calculated at each section.
- 14) Stress ratio used in pole design is 1.
- 15) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <div style="background-color: #cccccc; padding: 2px; text-align: center; font-weight: bold;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	180.00-155.21	24.79	3.58	18	19.0000	24.2200	0.1875	0.7500	A572-65 (65 ksi)
L2	155.21-124.83	33.96	4.33	18	23.0905	30.1100	0.3125	1.2500	A572-65 (65 ksi)
L3	124.83-83.34	45.83	5.33	18	28.5893	38.0900	0.4375	1.7500	A572-65 (65 ksi)
L4	83.34-40.84	47.83	6.33	18	36.1094	46.0300	0.5000	2.0000	A572-65 (65 ksi)
L5	40.84-0.00	47.17		18	43.7164	53.5000	0.5625	2.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	19.2931	11.1958	500.5935	6.6784	9.6520	51.8642	1001.8456	5.5990	3.0140	16.075
	24.5936	14.3023	1043.6203	8.5315	12.3038	84.8212	2088.6137	7.1525	3.9327	20.975
L2	24.1988	22.5929	1480.9453	8.0862	11.7300	126.2533	2963.8393	11.2986	3.5139	11.245
	30.5745	29.5554	3315.3843	10.5781	15.2959	216.7502	6635.1311	14.7805	4.7494	15.198
L3	29.9425	39.0923	3914.1813	9.9939	14.5234	269.5093	7833.5129	19.5499	4.2617	9.741
	38.6776	52.2852	9364.9159	13.3666	19.3497	483.9820	18742.154	26.1476	5.9338	13.563
L4	37.7897	56.5121	9053.3179	12.6413	18.3436	493.5418	18118.548	28.2614	5.4753	10.951
	46.7401	72.2561	18923.755	16.1632	23.3832	809.2871	37872.411	36.1349	7.2213	14.443
L5	45.7246	77.0459	18127.019	15.3196	22.2079	816.2412	36277.890	38.5302	6.7041	11.918
	54.3253	94.5133	33462.407	18.7928	27.1780	1231.2314	66968.845	47.2656	8.4260	14.98

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 180.00-155.21				1	1	1			
L2 155.21-124.83				1	1	1			
L3 124.83-83.34				1	1	1			
L4 83.34-40.84				1	1	1			
L5 40.84-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	Number Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
				ft			in	r in	r in	k/ft

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C _a A _a	Weight
				ft			ft ² /ft	k/ft
*** 180 ***								
HB114-1-0813U4-M5J(1-1/4)	A	No	Inside Pole	180.00 - 0.00	3	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
HB114-13U3M12-XXXF(1-1/4)	A	No	Inside Pole	180.00 - 0.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
*** 76 ***								
LDF4-50A(1/2)	A	No	Inside Pole	76.00 - 0.00	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00

Description	Face or Leg	Allow or Shield	Component Type	Placement ft	Total Number	C _{AA} ft ² /ft	Weight klf

Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	180.00-155.21	A	0.000	0.000	0.000	0.000	0.11
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	155.21-124.83	A	0.000	0.000	0.000	0.000	0.14
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	124.83-83.34	A	0.000	0.000	0.000	0.000	0.19
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L4	83.34-40.84	A	0.000	0.000	0.000	0.000	0.20
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L5	40.84-0.00	A	0.000	0.000	0.000	0.000	0.19
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	180.00-155.21	A	2.352	0.000	0.000	0.000	0.000	0.11
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	155.21-124.83	A	2.310	0.000	0.000	0.000	0.000	0.14
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	124.83-83.34	A	2.242	0.000	0.000	0.000	0.000	0.19
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L4	83.34-40.84	A	2.130	0.000	0.000	0.000	0.000	0.20
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L5	40.84-0.00	A	1.901	0.000	0.000	0.000	0.000	0.19
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	180.00-155.21	0.0000	0.0000	0.0000	0.0000
L2	155.21-124.83	0.0000	0.0000	0.0000	0.0000
L3	124.83-83.34	0.0000	0.0000	0.0000	0.0000
L4	83.34-40.84	0.0000	0.0000	0.0000	0.0000
L5	40.84-0.00	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _d A _f Front	C _d A _s Side	Weight	
			Horz Lateral	Vert						ft
*** 180 P ***										
6' x 2" Mount Pipe	A	From Leg	4.00	0.00	0.0000	180.00	No Ice	1.43	1.43	0.02
							1/2" Ice	1.92	1.92	0.03
							1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	4.00	0.00	0.0000	180.00	No Ice	1.43	1.43	0.02
							1/2" Ice	1.92	1.92	0.03
							1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Leg	4.00	0.00	0.0000	180.00	No Ice	1.43	1.43	0.02
							1/2" Ice	1.92	1.92	0.03
							1" Ice	2.29	2.29	0.05
Platform Mount [LP 601-1]	C	None			0.0000	180.00	No Ice	28.47	28.47	1.12
							1/2" Ice	33.59	33.59	1.51
							1" Ice	38.71	38.71	1.91
Transition Ladder	B	From Leg	3.00	0.00	0.0000	180.00	No Ice	6.00	6.00	0.16
							1/2" Ice	8.00	8.00	0.24
							1" Ice	10.00	10.00	0.32
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	180.00	No Ice	12.51	7.41	0.10
							1/2" Ice	13.11	8.60	0.19
							1" Ice	13.67	9.50	0.29
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	180.00	No Ice	12.51	7.41	0.10
							1/2" Ice	13.11	8.60	0.19
							1" Ice	13.67	9.50	0.29
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	180.00	No Ice	12.51	7.41	0.10
							1/2" Ice	13.11	8.60	0.19
							1" Ice	13.67	9.50	0.29
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	180.00	No Ice	6.58	4.96	0.08
							1/2" Ice	7.03	5.75	0.13
							1" Ice	7.47	6.47	0.19
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	180.00	No Ice	6.58	4.96	0.08
							1/2" Ice	7.03	5.75	0.13
							1" Ice	7.47	6.47	0.19
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	180.00	No Ice	6.58	4.96	0.08
							1/2" Ice	7.03	5.75	0.13
							1" Ice	7.47	6.47	0.19
(2) RRH2X50-800	A	From Leg	4.00	0.00	0.0000	180.00	No Ice	1.70	1.28	0.05
							1/2" Ice	1.86	1.43	0.07
							1" Ice	2.03	1.58	0.09
(2) RRH2X50-800	B	From Leg	4.00	0.00	0.0000	180.00	No Ice	1.70	1.28	0.05
							1/2" Ice	1.86	1.43	0.07
							1" Ice	2.03	1.58	0.09
(2) RRH2X50-800	C	From Leg	4.00	0.00	0.0000	180.00	No Ice	1.70	1.28	0.05
							1/2" Ice	1.86	1.43	0.07

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz Lateral	Vert					
				-2.00					
TD-RRH8X20-25	A	From Leg	4.00	0.0000	180.00	Ice 1" Ice No Ice	2.03 4.05	1.58 1.53	0.09 0.07
			0.00			1/2"	4.30	1.71	0.10
			-2.00			Ice 1" Ice No Ice	4.56	1.90	0.13
TD-RRH8X20-25	B	From Leg	4.00	0.0000	180.00	Ice 1" Ice No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			-2.00			Ice 1" Ice No Ice	4.56	1.90	0.13
TD-RRH8X20-25	C	From Leg	4.00	0.0000	180.00	Ice 1" Ice No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			-2.00			Ice 1" Ice No Ice	4.56	1.90	0.13
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.00	0.0000	180.00	Ice 1" Ice No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			-2.00			Ice 1" Ice No Ice	2.74	2.65	0.11
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.00	0.0000	180.00	Ice 1" Ice No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			-2.00			Ice 1" Ice No Ice	2.74	2.65	0.11
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.00	0.0000	180.00	Ice 1" Ice No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
			-2.00			Ice 1" Ice No Ice	2.74	2.65	0.11
*** 76 *** KS24019-L112A	C	From Leg	3.00	0.0000	76.00	Ice 1" Ice No Ice	0.10	0.10	0.01
			0.00			1/2"	0.18	0.18	0.01
			1.00			Ice 1" Ice No Ice	0.26	0.26	0.01
Side Arm Mount [SO 701-1]	C	From Leg	1.50	0.0000	76.00	Ice 1" Ice No Ice	0.85	1.67	0.07
			0.00			1/2"	1.14	2.34	0.08
			0.00			Ice 1" Ice	1.43	3.01	0.09

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice

Comb. No.	Description
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	180 - 155.21	Pole	Max Tension	8	0.00	0.00	0.01
			Max. Compression	26	-12.50	-1.96	-1.13
			Max. Mx	8	-3.94	-110.48	-0.35
			Max. My	14	-3.94	-0.61	-110.21
			Max. Vy	8	6.08	-110.48	-0.35
			Max. Vx	14	6.08	-0.61	-110.21
			Max. Torque	16			1.11
L2	155.21 - 124.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.70	-2.03	-1.18
			Max. Mx	8	-7.40	-319.36	-0.37
			Max. My	14	-7.40	-0.64	-319.09
			Max. Vy	8	8.06	-319.36	-0.37
			Max. Vx	14	8.06	-0.64	-319.09
			Max. Torque	16			1.11
L3	124.833 - 83.3367	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.26	-2.04	-1.19
			Max. Mx	8	-15.61	-707.45	-0.39
			Max. My	14	-15.61	-0.66	-707.18
			Max. Vy	8	11.14	-707.45	-0.39
			Max. Vx	14	11.14	-0.66	-707.18
			Max. Torque	16			1.11
L4	83.3367 - 40.84	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.81	-1.60	-1.42
			Max. Mx	8	-27.89	-1238.45	-0.92
			Max. My	14	-27.89	-0.82	-1239.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L5	40.84 - 0	Pole	Max. Vy	8	14.40	-1238.45	-0.92
			Max. Vx	14	14.41	-0.82	-1239.00
			Max. Torque	16			1.11
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.83	-1.59	-1.41
			Max. Mx	8	-46.72	-1995.35	-1.54
			Max. My	14	-46.72	-1.44	-1996.62
			Max. Vy	21	-17.65	1979.29	0.61
			Max. Vx	3	-17.67	0.69	1980.37
			Max. Torque	16			1.01

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	73.83	0.00	0.00
	Max. H _x	21	35.05	17.64	0.01
	Max. H _z	3	35.05	0.01	17.66
	Max. M _x	2	1995.56	0.01	17.65
	Max. M _z	8	1995.35	-17.64	-0.01
	Max. Torsion	16	1.01	8.81	-15.29
	Min. Vert	15	35.05	-0.01	-17.66
	Min. H _x	9	35.05	-17.64	-0.01
	Min. H _z	15	35.05	-0.01	-17.66
	Min. M _x	14	-1996.62	-0.01	-17.65
	Min. M _z	20	-1994.49	17.64	0.01
	Min. Torsion	4	-1.01	-8.81	15.29

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	38.94	-0.00	-0.00	0.42	-0.33	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	46.73	-0.01	-17.65	-1995.56	0.58	0.78
0.9 Dead+1.6 Wind 0 deg - No Ice	35.05	-0.01	-17.66	-1980.37	0.69	0.77
1.2 Dead+1.6 Wind 30 deg - No Ice	46.73	8.81	-15.29	-1729.59	-998.15	1.01
0.9 Dead+1.6 Wind 30 deg - No Ice	35.05	8.82	-15.29	-1715.89	-990.05	1.00
1.2 Dead+1.6 Wind 60 deg - No Ice	46.73	15.28	-8.82	-997.77	-1729.54	0.96
0.9 Dead+1.6 Wind 60 deg - No Ice	35.05	15.28	-8.82	-989.92	-1715.59	0.95
1.2 Dead+1.6 Wind 90 deg - No Ice	46.73	17.64	0.01	1.54	-1995.35	0.66
0.9 Dead+1.6 Wind 90 deg - No Ice	35.05	17.64	0.01	1.40	-1979.92	0.65
1.2 Dead+1.6 Wind 120 deg - No Ice	46.73	15.29	8.84	1000.58	-1730.55	0.18
0.9 Dead+1.6 Wind 120 deg - No Ice	35.05	15.29	8.85	992.45	-1716.59	0.18
1.2 Dead+1.6 Wind 150 deg - No Ice	46.73	8.84	15.31	1731.66	-999.90	-0.35
0.9 Dead+1.6 Wind 150 deg - No Ice	35.05	8.84	15.31	1717.68	-991.79	-0.34
1.2 Dead+1.6 Wind 180 deg - No Ice	46.73	0.01	17.65	1996.62	-1.44	-0.78

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
0.9 Dead+1.6 Wind 180 deg - No Ice	35.05	0.01	17.66	1981.15	-1.32	-0.77
1.2 Dead+1.6 Wind 210 deg - No Ice	46.73	-8.81	15.29	1730.64	997.29	-1.01
0.9 Dead+1.6 Wind 210 deg - No Ice	35.05	-8.82	15.29	1716.67	989.42	-1.00
1.2 Dead+1.6 Wind 240 deg - No Ice	46.73	-15.28	8.82	998.83	1728.68	-0.96
0.9 Dead+1.6 Wind 240 deg - No Ice	35.05	-15.28	8.82	990.70	1714.96	-0.95
1.2 Dead+1.6 Wind 270 deg - No Ice	46.73	-17.64	-0.01	-0.48	1994.49	-0.66
0.9 Dead+1.6 Wind 270 deg - No Ice	35.05	-17.64	-0.01	-0.61	1979.29	-0.65
1.2 Dead+1.6 Wind 300 deg - No Ice	46.73	-15.29	-8.84	-999.52	1729.69	-0.18
0.9 Dead+1.6 Wind 300 deg - No Ice	35.05	-15.29	-8.85	-991.67	1715.96	-0.18
1.2 Dead+1.6 Wind 330 deg - No Ice	46.73	-8.84	-15.31	-1730.60	999.04	0.35
0.9 Dead+1.6 Wind 330 deg - No Ice	35.05	-8.84	-15.31	-1716.89	991.16	0.34
1.2 Dead+1.0 Ice+1.0 Temp	73.83	-0.00	-0.00	1.41	-1.59	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	73.83	-0.01	-5.79	-660.10	-1.23	0.35
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	73.83	2.88	-5.01	-571.20	-331.83	0.46
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	73.83	5.00	-2.89	-328.84	-573.97	0.44
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	73.83	5.78	0.01	2.05	-662.80	0.30
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	73.83	5.01	2.90	332.80	-574.49	0.09
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	73.83	2.89	5.01	574.79	-332.72	-0.15
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	73.83	0.01	5.79	663.18	-2.26	-0.35
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	73.83	-2.88	5.01	574.28	328.33	-0.46
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	73.83	-5.00	2.89	331.91	570.48	-0.44
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	73.83	-5.78	-0.01	1.02	659.30	-0.30
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	73.83	-5.01	-2.90	-329.73	570.99	-0.09
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	73.83	-2.89	-5.01	-571.72	329.22	0.15
Dead+Wind 0 deg - Service	38.94	-0.00	-3.78	-424.63	-0.14	0.17
Dead+Wind 30 deg - Service	38.94	1.88	-3.27	-367.57	-212.58	0.22
Dead+Wind 60 deg - Service	38.94	3.27	-1.89	-211.91	-368.15	0.21
Dead+Wind 90 deg - Service	38.94	3.77	0.00	0.65	-425.17	0.14
Dead+Wind 120 deg - Service	38.94	3.27	1.89	213.16	-368.36	0.04
Dead+Wind 150 deg - Service	38.94	1.89	3.27	368.66	-212.95	-0.07
Dead+Wind 180 deg - Service	38.94	0.00	3.78	425.50	-0.57	-0.17
Dead+Wind 210 deg - Service	38.94	-1.88	3.27	368.45	211.87	-0.22
Dead+Wind 240 deg - Service	38.94	-3.27	1.89	212.78	367.44	-0.21
Dead+Wind 270 deg - Service	38.94	-3.77	-0.00	0.22	424.46	-0.14
Dead+Wind 300 deg - Service	38.94	-3.27	-1.89	-212.28	367.65	-0.04
Dead+Wind 330 deg - Service	38.94	-1.89	-3.27	-367.79	212.24	0.07

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-38.94	0.00	0.00	38.94	0.00	0.000%
2	-0.01	-46.73	-17.67	0.01	46.73	17.65	0.034%
3	-0.01	-35.05	-17.67	0.01	35.05	17.66	0.031%
4	8.82	-46.73	-15.30	-8.81	46.73	15.29	0.004%
5	8.82	-35.05	-15.30	-8.82	35.05	15.29	0.004%
6	15.28	-46.73	-8.82	-15.28	46.73	8.82	0.004%
7	15.28	-35.05	-8.82	-15.28	35.05	8.82	0.004%
8	17.65	-46.73	0.01	-17.64	46.73	-0.01	0.034%
9	17.65	-35.05	0.01	-17.64	35.05	-0.01	0.031%
10	15.30	-46.73	8.85	-15.29	46.73	-8.84	0.005%
11	15.30	-35.05	8.85	-15.29	35.05	-8.85	0.004%
12	8.84	-46.73	15.31	-8.84	46.73	-15.31	0.005%
13	8.84	-35.05	15.31	-8.84	35.05	-15.31	0.004%
14	0.01	-46.73	17.67	-0.01	46.73	-17.65	0.034%
15	0.01	-35.05	17.67	-0.01	35.05	-17.66	0.031%
16	-8.82	-46.73	15.30	8.81	46.73	-15.29	0.004%
17	-8.82	-35.05	15.30	8.82	35.05	-15.29	0.004%
18	-15.28	-46.73	8.82	15.28	46.73	-8.82	0.004%
19	-15.28	-35.05	8.82	15.28	35.05	-8.82	0.004%
20	-17.65	-46.73	-0.01	17.64	46.73	0.01	0.034%
21	-17.65	-35.05	-0.01	17.64	35.05	0.01	0.031%
22	-15.30	-46.73	-8.85	15.29	46.73	8.84	0.004%
23	-15.30	-35.05	-8.85	15.29	35.05	8.85	0.004%
24	-8.84	-46.73	-15.31	8.84	46.73	15.31	0.004%
25	-8.84	-35.05	-15.31	8.84	35.05	15.31	0.004%
26	0.00	-73.83	0.00	0.00	73.83	0.00	0.000%
27	-0.01	-73.83	-5.79	0.01	73.83	5.79	0.005%
28	2.89	-73.83	-5.01	-2.88	73.83	5.01	0.005%
29	5.00	-73.83	-2.89	-5.00	73.83	2.89	0.005%
30	5.78	-73.83	0.01	-5.78	73.83	-0.01	0.005%
31	5.01	-73.83	2.90	-5.01	73.83	-2.90	0.005%
32	2.90	-73.83	5.02	-2.89	73.83	-5.01	0.005%
33	0.01	-73.83	5.79	-0.01	73.83	-5.79	0.005%
34	-2.89	-73.83	5.01	2.88	73.83	-5.01	0.005%
35	-5.00	-73.83	2.89	5.00	73.83	-2.89	0.005%
36	-5.78	-73.83	-0.01	5.78	73.83	0.01	0.005%
37	-5.01	-73.83	-2.90	5.01	73.83	2.90	0.005%
38	-2.90	-73.83	-5.02	2.89	73.83	5.01	0.005%
39	-0.00	-38.94	-3.78	0.00	38.94	3.78	0.008%
40	1.89	-38.94	-3.27	-1.88	38.94	3.27	0.008%
41	3.27	-38.94	-1.89	-3.27	38.94	1.89	0.008%
42	3.78	-38.94	0.00	-3.77	38.94	-0.00	0.008%
43	3.27	-38.94	1.89	-3.27	38.94	-1.89	0.008%
44	1.89	-38.94	3.28	-1.89	38.94	-3.27	0.008%
45	0.00	-38.94	3.78	-0.00	38.94	-3.78	0.008%
46	-1.89	-38.94	3.27	1.88	38.94	-3.27	0.008%
47	-3.27	-38.94	1.89	3.27	38.94	-1.89	0.008%
48	-3.78	-38.94	-0.00	3.77	38.94	0.00	0.008%
49	-3.27	-38.94	-1.89	3.27	38.94	1.89	0.008%
50	-1.89	-38.94	-3.28	1.89	38.94	3.27	0.008%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00068447	0.00074794
3	Yes	6	0.00049183	0.00067395
4	Yes	9	0.00009136	0.00068591
5	Yes	9	0.00006364	0.00059084

6	Yes	9	0.00009137	0.00060346
7	Yes	9	0.00006364	0.00051870
8	Yes	6	0.00068457	0.00061723
9	Yes	6	0.00049189	0.00055795
10	Yes	9	0.00009136	0.00064285
11	Yes	9	0.00006364	0.00055250
12	Yes	9	0.00009136	0.00066266
13	Yes	9	0.00006364	0.00056982
14	Yes	6	0.00068453	0.00075289
15	Yes	6	0.00049186	0.00067813
16	Yes	9	0.00009136	0.00059840
17	Yes	9	0.00006364	0.00051451
18	Yes	9	0.00009136	0.00067897
19	Yes	9	0.00006364	0.00058501
20	Yes	6	0.00068445	0.00061312
21	Yes	6	0.00049182	0.00055454
22	Yes	9	0.00009135	0.00063444
23	Yes	9	0.00006363	0.00054635
24	Yes	9	0.00009135	0.00061653
25	Yes	9	0.00006363	0.00053069
26	Yes	4	0.00000001	0.00002660
27	Yes	8	0.00056372	0.00024794
28	Yes	8	0.00056408	0.00031856
29	Yes	8	0.00056473	0.00030734
30	Yes	8	0.00056545	0.00024976
31	Yes	8	0.00056525	0.00031491
32	Yes	8	0.00056505	0.00031808
33	Yes	8	0.00056492	0.00025098
34	Yes	8	0.00056403	0.00030525
35	Yes	8	0.00056341	0.00031501
36	Yes	8	0.00056324	0.00024523
37	Yes	8	0.00056275	0.00030403
38	Yes	8	0.00056293	0.00030235
39	Yes	6	0.00056489	0.00012255
40	Yes	6	0.00056484	0.00011617
41	Yes	6	0.00056498	0.00010132
42	Yes	6	0.00056527	0.00012127
43	Yes	6	0.00056509	0.00010511
44	Yes	6	0.00056504	0.00010951
45	Yes	6	0.00056515	0.00012314
46	Yes	6	0.00056482	0.00010138
47	Yes	6	0.00056469	0.00011416
48	Yes	6	0.00056479	0.00012051
49	Yes	6	0.00056455	0.00010365
50	Yes	6	0.00056458	0.00010140

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180 - 155.21	14.270	43	0.7935	0.0047
L2	158.793 - 124.833	10.881	43	0.7063	0.0021
L3	129.167 - 83.3367	6.963	44	0.5423	0.0010
L4	88.67 - 40.84	3.156	44	0.3467	0.0004
L5	47.1733 - 0	0.876	44	0.1703	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
-----------------	--------------	-----------------------	------------------	-----------	------------	------------------------------

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
180.00	6' x 2" Mount Pipe	43	14.270	0.7935	0.0047	39099
76.00	KS24019-L112A	44	2.286	0.2908	0.0003	12832

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	180 - 155.21	66.872	12	3.6996	0.0221
L2	158.793 - 124.833	51.052	12	3.3083	0.0098
L3	129.167 - 83.3367	32.691	12	2.5452	0.0045
L4	88.67 - 40.84	14.825	12	1.6286	0.0018
L5	47.1733 - 0	4.112	12	0.7999	0.0007

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
180.00	6' x 2" Mount Pipe	12	66.872	3.6996	0.0222	8603
76.00	KS24019-L112A	12	10.739	1.3663	0.0013	2738

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _c	KI/r	A	P _u	φP _n	Ratio P _u / φP _n
	ft		ft	ft		in ²	K	K	
L1	180 - 155.21 (1)	TP24.22x19x0.1875	24.79	0.00	0.0	13.853	-3.94	967.06	0.004
L2	155.21 - 124.833 (2)	TP30.11x23.0905x0.3125	33.96	0.00	0.0	28.667	-7.40	2129.81	0.003
L3	124.833 - 83.3367 (3)	TP38.09x28.5893x0.4375	45.83	0.00	0.0	50.749	-15.61	3770.47	0.004
L4	83.3367 - 40.84 (4)	TP46.03x36.1094x0.5	47.83	0.00	0.0	70.171	-27.89	5213.38	0.005
L5	40.84 - 0 (5)	TP53.5x43.7164x0.5625	47.17	0.00	0.0	94.513	-46.72	7021.87	0.007

Pole Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{nx}	Ratio M _{ux} / φM _{nx}	M _{uy}	φM _{ny}	Ratio M _{uy} / φM _{ny}
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	180 - 155.21 (1)	TP24.22x19x0.1875	110.68	462.82	0.239	0.00	462.82	0.000
L2	155.21 -	TP30.11x23.0905x0.3125	319.85	1262.08	0.253	0.00	1262.08	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L3	124.833 (2) 124.833 - 83.3367 (3)	TP38.09x28.5893x0.4375	708.48	2822.08	0.251	0.00	2822.08	0.000
L4	83.3367 - 40.84 (4)	TP46.03x36.1094x0.5	1240.92	4724.02	0.263	0.00	4724.02	0.000
L5	40.84 - 0 (5)	TP53.5x43.7164x0.5625	1999.61	7622.86	0.262	0.00	7622.86	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	180 - 155.21 (1)	TP24.22x19x0.1875	6.11	483.53	0.013	0.00	926.77	0.000
L2	155.21 - 124.833 (2)	TP30.11x23.0905x0.3125	8.09	1064.91	0.008	0.00	2527.26	0.000
L3	124.833 - 83.3367 (3)	TP38.09x28.5893x0.4375	11.16	1885.23	0.006	0.00	5651.07	0.000
L4	83.3367 - 40.84 (4)	TP46.03x36.1094x0.5	14.44	2606.69	0.006	0.35	9459.58	0.000
L5	40.84 - 0 (5)	TP53.5x43.7164x0.5625	17.69	3510.93	0.005	0.35	15264.33	0.000

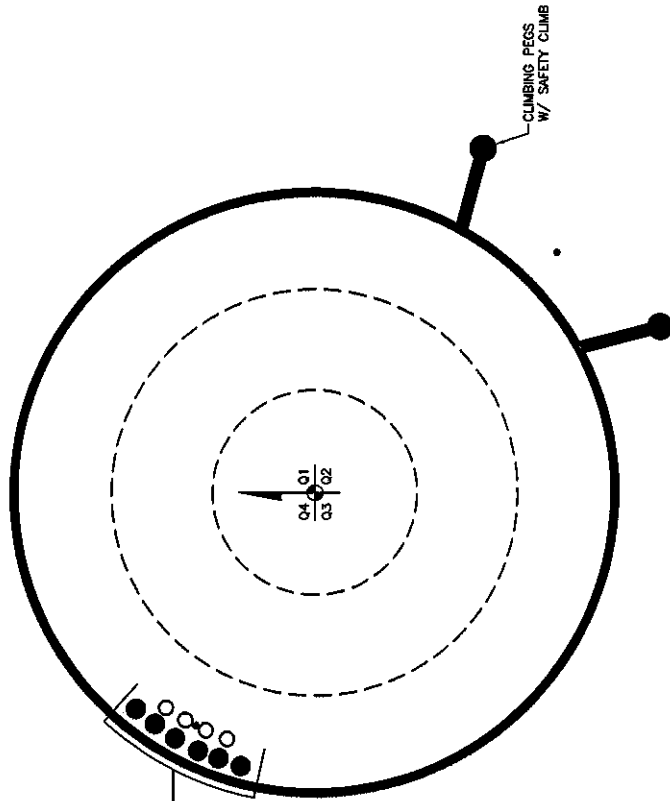
Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L1	180 - 155.21 (1)	0.004	0.239	0.000	0.013	0.000	0.243	1.000	4.8.2
L2	155.21 - 124.833 (2)	0.003	0.253	0.000	0.008	0.000	0.257	1.000	4.8.2
L3	124.833 - 83.3367 (3)	0.004	0.251	0.000	0.006	0.000	0.255	1.000	4.8.2
L4	83.3367 - 40.84 (4)	0.005	0.263	0.000	0.006	0.000	0.268	1.000	4.8.2
L5	40.84 - 0 (5)	0.007	0.262	0.000	0.005	0.000	0.269	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	180 - 155.21	Pole	TP24.22x19x0.1875	1	-3.94	967.06	24.3	Pass
L2	155.21 - 124.833	Pole	TP30.11x23.0905x0.3125	2	-7.40	2129.81	25.7	Pass
L3	124.833 - 83.3367	Pole	TP38.09x28.5893x0.4375	3	-15.61	3770.47	25.5	Pass
L4	83.3367 - 40.84	Pole	TP46.03x36.1094x0.5	4	-27.89	5213.38	26.8	Pass
L5	40.84 - 0	Pole	TP53.5x43.7164x0.5625	5	-46.72	7021.87	26.9	Pass
						Summary		
						Pole (L5)		
						RATING =		26.9
								Pass

APPENDIX B
BASE LEVEL DRAWING



- (PROPOSED)
(4) 1-1/4" TO 180 FT LEVEL
(INSTALLED--TO BE REMOVED)
(6) 1-5/8" TO 180 FT LEVEL
(INSTALLED)
(1) 1/2" TO 78 FT LEVEL

BUSINESS UNIT: 876365 TOWER ID: C_BASELEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

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

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete not exceeding (1)*(Rod Diameter)

Site Data	
BU#:	876365
Site Name:	KINGSTON W. / BAUER (SSUSA)
App #:	441414 Rev. 0
Pole Manufacturer:	Other

Reactions		
Mu:	2000	ft-kips
Axial, Pu:	47	kips
Shear, Vu:	18	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

Anchor Rod Data		
Qty:	24	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	62	in

If No stiffeners, Criteria: **AISC LRFD** <-Only Applicable to Unstiffened Cases

Anchor Rod Results
 Max Rod (Cu+ Vu/η): 67.9 Kips
 Allowable Axial, Φ^*Fu^*Anet : 260.0 Kips
 Anchor Rod Stress Ratio: 26.1% Pass

Rigid
AISC LRFD
ϕ^*Tn

Plate Data		
Diam:	68	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	7.08	in

Base Plate Results
 Base Plate Stress: 19.1 ksi
 Allowable Plate Stress: 54.0 ksi
 Base Plate Stress Ratio: 35.4% Pass

Flexural Check

Rigid
AISC LRFD
ϕ^*Fy
Y.L. Length:
31.33

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

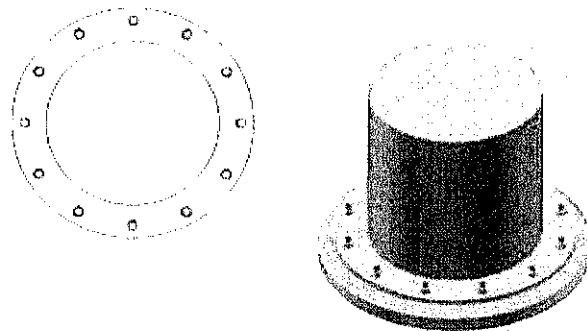
n/a

Stiffener Results
 Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $f_b/F_b+(f_v/F_v)^2$: n/a
 Plate Tension+Shear, $f_t/F_t+(f_v/F_v)^2$: n/a
 Plate Comp. (AISC Bracket): n/a

Pole Results

Pole Punching Shear Check: n/a

Pole Data		
Diam:	53.5	in
Thick:	0.5625	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None



* 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

Pier and Pad Foundation



BU #: 876365
Site Name: KINGSTON W. / B
App. Number: 441414 Rev. 0

TIA-222 Revision: G
Tower Type: Monopole

Block Foundation?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	47	kips
Base Shear, V_{u_comp} :	18	kips
Moment, M_u :	2000	ft-kips
Tower Height, H :	180	ft
BP Dist. Above Fdn, bp_{dist} :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	275.46	18.00	6.5%	Pass
<i>Bearing Pressure (ksf)</i>	6.00	2.89	48.1%	Pass
<i>Overturing (kip*ft)</i>	3263.99	2148.50	65.8%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	6989.31	2090.00	29.9%	Pass
<i>Pier Compression (kip)</i>	34489.26	112.03	0.3%	Pass
<i>Pad Flexure (kip*ft)</i>	3635.36	531.22	14.6%	Pass
<i>Pad Shear - 1-way (kips)</i>	574.53	108.83	18.9%	Pass
<i>Pad Shear - 2-way (ksi)</i>	0.16	0.00	0.0%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	8.5	ft
Ext. Above Grade, E :	0.67	ft
Pier Rebar Size, Sc :	8	
Pier Rebar Quantity, mc :	44	
Pier Tie/Spiral Size, St :	3	
Pier Tie/Spiral Quantity, mt :	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Soil Rating: 65.8%
Structural Rating: 29.9%

Pad Properties		
Depth, D :	7.3	ft
Pad Width, W :	18.5	ft
Pad Thickness, T :	3.0	ft
Pad Rebar Size, Sp :	8	
Pad Rebar Quantity, mp :	34	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60000	psi
Concrete Compressive Strength, F'_c :	3000	psi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	140	pcf
Ultimate Gross Bearing, Q_{ult} :	8.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	38	degrees
SPT Blow Count, N_{blows} :	62	
Base Friction, μ :		
Neglected Depth, N :	4.25	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	9	ft

<--Toggle between Gross and Net

CCISeismic - Design Category

Per 2012/2015 IBC

Site BU: 876365
 Work Order: 1580555
 Application: 441414 Rev. 0



	Degrees	Minutes	Seconds	
Site Latitude =	41	59	16.55	41.9879 degrees
Site Longitude =	-72	6	48.96	-72.1136 degrees
Ground Supported Structure =	Yes			
Structure Class =	II			(Table 2-1)
Site Class =	D - Stiff Soil			(Table 2-11)
Spectral response acceleration short periods, S_s =	0.172			USGS Seismic Tool
Spectral response acceleration 1 s period, S_1 =	0.064			
Importance Factor, I =	1.0			(Table 2-3)
Acceleration-based site coefficient, F_a =	1.6			(Table 2-12)
Velocity-based site coefficient, F_v =	2.4			(Table 2-13)
Design spectral response acceleration short period, S_{DS} =	0.183			(2.7.6)
Design spectral response acceleration 1 s period, S_{D1} =	0.102			(2.7.6)
Seismic Design Category - Short Period Response =	B			ASCE 7-05 Table 11.6-1
Seismic Design Category - 1s Period Response =	B			ASCE 7-05 Table 11.6-2
Worst Case Seismic Design Category =	B			ASCE 7-05 Tables 11.6-1 and 6-2



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

SPRINT Existing Facility

Site ID: CT33XC005

Kingston W. / Bauer (SSUSA)
3 Carion Hill Road
Union, CT 06076

July 25, 2018

EBI Project Number: 6218005223

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	1.86 %



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July 25, 2018

SPRINT

Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT33XC005 – Kingston W. / Bauer (SSUSA)**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **3 Carion Hill Road, Union, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 850 MHz Band is approximately $567 \mu\text{W}/\text{cm}^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is $1000 \mu\text{W}/\text{cm}^2$. 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.



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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 SPRINT Wireless antenna facility located at **3 Carion Hill Road, Union, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT 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) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.
- 3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.
- 4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.



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- 6) 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.
- 7) For the following calculations, the sample point was the top of a 6-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.
- 8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **178 feet** above ground level (AGL) for **Sector A**, **178 feet** above ground level (AGL) for **Sector B** and **178 feet** above ground level (AGL) for Sector C.
- 10) 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 population threshold limits.



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SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	178 feet	Height (AGL):	178 feet	Height (AGL):	178 feet
Frequency Bands:	850 MHz / 1900 MHz (PCS)	Frequency Bands:	850 MHz / 1900 MHz (PCS)	Frequency Bands:	850 MHz / 1900 MHz (PCS)
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%:	1.10 %	Antenna B1 MPE%:	1.10 %	Antenna C1 MPE%:	1.10 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20	Make / Model:	RFS APXVTM14-ALU- I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	178 feet	Height (AGL):	178 feet	Height (AGL):	178 feet
Frequency Bands:	2500 MHz (BRS)	Frequency Bands:	2500 MHz (BRS)	Frequency Bands:	2500 MHz (BRS)
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%:	0.76 %	Antenna B2 MPE%:	0.76 %	Antenna C2 MPE%:	0.76 %

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	1.86 %
No Additional Carriers Located at This Facility	NA
Site Total MPE %:	1.86 %

SPRINT Sector A Total:	1.86 %
SPRINT Sector B Total:	1.86 %
SPRINT Sector C Total:	1.86 %
Site Total:	1.86 %

SPRINT Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	178	0.46	850 MHz	567	0.08%
Sprint 850 MHz LTE	2	941.82	178	2.29	850 MHz	567	0.40%
Sprint 1900 MHz (PCS) CDMA	5	511.82	178	3.11	1900 MHz (PCS)	1000	0.31%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	178	3.11	1900 MHz (PCS)	1000	0.31%
Sprint 2500 MHz (BRS) LTE	8	778.09	178	7.56	2500 MHz (BRS)	1000	0.76%
Total:						1.86%	



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Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	1.86 %
Sector B:	1.86 %
Sector C:	1.86 %
SPRINT Maximum Total (per sector):	1.86 %
Site Total:	1.86 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **1.86 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

ORIGIN ID: BEDA (781) 970-0053
JEFF BARBADORA
CROWN CASTLE
12 GILL STREET
SUITE 5800
WOUBURN, MA 01801
UNITED STATES US

SHIP DATE: 27 JUL 18
ACTWGT: 0.50 LB
CAD: 104924191/NET4040

BILL SENDER

TO FIRST SELECTMAN-DAVID EATON
TOWN OF UNION
1043 BUCKLEY HWY

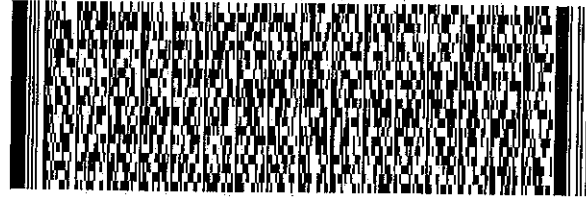
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5521285320CA5



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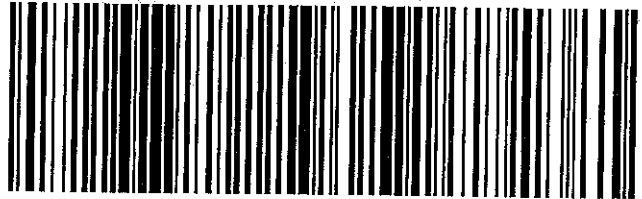
MON - 30 JUL 10:30A

PRIORITY OVERNIGHT

TRK# 7728 3610 1261
0201

SE QCWA

06076
CT-US BDL





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Jeff

772836101261

Delivered
Tuesday 7/31/2018 at 10:25 am

DELIVERED

Signed for by: M.EATON



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FROM
Crown Castle
Jeff Barbadora
Suite 5800
12 Gill Street
WOBURN, MA US 01801
781 970-0053

TO
Town of Union
First Selectman-David Eaton
1043 Buckley Hwy
STAFFORD SPRINGS, CT US 06076
860 684-3812

Travel History

Shipment Facts

7/31/2018 - Tuesday

10:25 am

Delivered

UNION, CT

[Expand History](#)

7/27/2018 - Friday

11:16 am

Shipment information sent to FedEx

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LANGUAGE

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English

ORIGIN ID:BEDA (781) 970-0053
JEFF BARBADORA
CROWN CASTLE
12 GILL STREET
SUITE 5800
WOBBURN, MA 01801
UNITED STATES US

SHIP DATE: 27 JUL 18
ACTWGT: 0.50 LB
CAD: 104924191/INET4040
BILL SENDER

TO **RANDY SHERWOOD BAUER**
BAUER
1 CARION ROAD

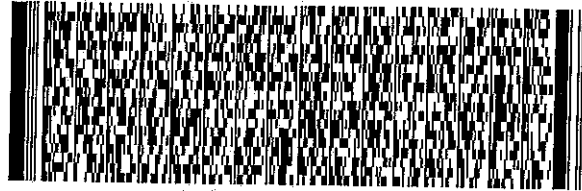
UNION CT 06076

(860) 974-0000
INV:
PO:

REF: 1766.6690

DEPT:

552,12,9532DC45



FedEx
Express



MON - 30 JUL 10:30A

TRK#
0201 7728 3618 4853

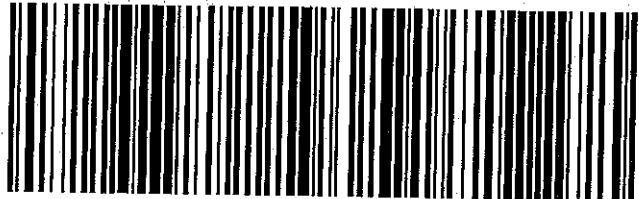
PRIORITY OVERNIGHT

RES

SE QCWA

06076

CT-US BDL





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[Tracking](#)

[Printing Services](#)

[Locations](#)

[Support](#)

Jeff

772836184853

Delivered
Monday 7/30/2018 at 9:49 am

DELIVERED

Signature not required

GET STATUS UPDATES
OBTAIN PROOF OF DELIVERY

FROM

Crown Castle
Jeff Barbadora
Suite 5800
12 Gill Street
WOBURN, MA US 01801
781 970-0053

TO

Bauer
Randy Sherwood Bauer
1 Carion Road
STAFFORD SPRINGS, CT US 06076
860 974-0000

Travel History

Shipment Facts

7/30/2018 - Monday

9:49 am

Delivered

Left at front door. Package delivered to recipient address - release authorized UNION, CT

[Expand History](#)

7/27/2018 - Friday

11:22 am

Shipment information sent to FedEx

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LANGUAGE

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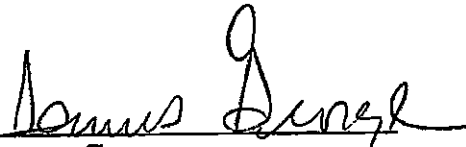
English

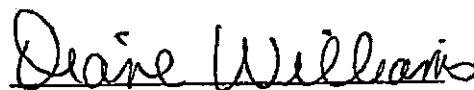
October 4, 2000

WETLAND PERMIT

This is to certify that the Planning and Zoning/Inland Wetland Commission of the Town of Union, Connecticut, acting upon the application of Vanasse Hangen Brustlin, Inc. on behalf of Sprint Spectrum, L.P. does hereby approve and grant said applicant a Wetlands Permit to construct a 12-foot wide gravel access drive for 180-foot monopole tower as shown on plans dated July 14, 2000.

Planning & Zoning
Inland/Wetland Commission
Town of Union, Connecticut


James George
Chairman


Diane Williams
Secretary

PLANNING AND ZONING COMMISSION

TOWN OF UNION, CONNECTICUT

Mail Address: 1043 Buckley Highway, Union, CT 06076

SPECIAL PERMIT

To construct Telecommunications Tower

Description of Premises: Property owned by Sherwood R. Bauer on Carion Road

Nature of Special Permit: To construct a 180' monopole telecommunications Tower for Sprint PCS

With the following conditions:

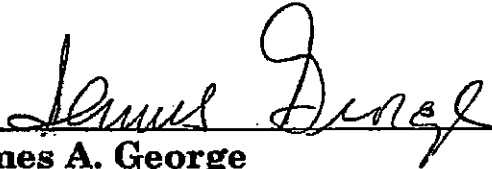
Capable of supporting 6 carriers
Plus a public safety antennae

Applicable Regulation(s): Section 3.11 of Union Planning and Zoning Regulations

Owners of Record: Sherwood Randy Bauer
2 Carion Road
Union CT 06076

Applicant: Sprint Spectrum, LLP
1 International Boulevard
Mahwah NJ 07494
by their agent:
Tom Regan of Brown Rudnick Freed & Gesmer

Date Issued: December 27, 2000



James A. George
Chairman Union Planning & Zoning

APPLICATION FOR SPECIAL PERMIT
(per Zoning Regulations, section 5.03)

2 copies of this application are to be submitted together with 2 copies of application for Zoning Permit (Parts I and II) under section 5.02 for Permitted Use

PART III

NAME OF PROPERTY OWNER(S) Sherwood Randy Bauer
Address 2 Carion Hill Rd. Tel# 860-974-0000
Union, CT. 06076

NAME OF APPLICANT(S) Sprint Spectrum, LLP
Address 1 International Blvd., 8th Floor Tel# 201-684-4000
Mahwah, NJ 07494

1. Please submit completed copy of Application for Zoning Permit (5 copies) which includes all information for a site plan under section 5.02.02.
2. List nature and amount of materials or wastes to be produced, used, stored or disposed of on lot, and the manner in which such production, use, storage or disposal will be carried out.
3. The nature of existing land used on abutting properties.
4. The names of all owners of record of property abutting or within 100 feet of the lot to which the special permit would apply.
5. The location of rock outcroppings, slopes in excess of 15 percent, soil types and forested areas on lot.
6. The location and a description of any measures to be used to prevent soil erosion and sedimentation.
7. The location and a description of any proposed surface or subsurface drainage improvements, facilities or structures.
8. The location of soil test pits and test borings and a description of the soils encountered in such pits or borings.
9. The location of any areas subject to flooding during a 100-year flood, as shown on the most recent Flood Insurance Map prepared by the Federal Emergency Management Agency.

10. The location and nature of any proposed landscaping, buffer areas or screening, and any existing or proposed fences or walls.

11. Each application for a special permit shall also be accompanied by ~~3~~ copies of:

A. A written analysis of the ability of the proposed building, structure or use to meet the Performance and Environmental Standards set forth in Section 2.06 of these regulations.

B. A traffic report indicating existing traffic conditions at normal and peak travel times for, at a minimum any road abutting or passing through the lot affected by the application and any road within three miles of such lot, and also indicating the projected impact of the proposed use on such traffic conditions.

C. The schedule for any construction or other development activities, including but not limited to, erection of or other work on any buildings or structures, grading, removal of vegetation, landscaping and drainage improvements.

WAIVER OF CERTAIN REQUIREMENTS FOR SPECIAL PERMITS 5.03.04.

THE COMMISSION MAY WAIVE ANY OF THE REQUIREMENTS FOR SITE PLANS UNDER SECTION 5.03.03 OF THESE REGULATIONS, IF AND ONLY IF, THE FOLLOWING CONDITIONS ARE MET:

a. The proposed activity does not involve the constructions, erection, alteration, enlargement, removal or other modification of a principal building or structure;

b. The proposed activity will not require the use of wells or sewage disposal facilities;

c. FOR COMMISSION USE ONLY:

The Commission may waive any of the requirements of this application section 5.03.03 (A), (B), and (C) of these regulations if, and only if, the Commission determines that the requirements sought to be waived are not reasonably necessary to a proper disposition of the application.

_____ A waived

_____ B waived

_____ C waived

By the Commission


PART IV

THE COMMISSION MAY, WITHIN 35 DAYS AFTER THE SUBMISSION OF AN APPLICATION FOR A SPECIAL PERMIT, REQUIRE ADDITIONAL INFORMATION TO DETERMINE WHETHER THE PROPOSED BUILDINGS, STRUCTURES OR USES CONFORM TO THESE REGULATIONS. Upon request the information in section 5.03.05 of the Zoning Regulations of

the Town of Union must be submitted. Please refer to section 5.03.06 for Criteria for Evaluation of information submitted.

I hereby certify that the foregoing questions and submissions are true and correct under penalty of the Connecticut State Statutes and the Town of Union, Connecticut.


DATE 8/30/00


Thomas J. Regan, Esq., Brown, Rudnick, Freed & Gesmer
As Agent, 185 Asylum Street, Hartford, CT 06103
(860) 509-6522

DATE _____


DATE _____

DATE 8/31/00


Sherwood Randy Bauer
All property owner(s) and applicant(s)

Property owner and applicant hereby grant permission for members of the Zoning Commission or their duly authorized agents to enter property for necessary inspections to determine conformity with Union Zoning Regulations and all applicable State Public Acts.


DATE 8/30/00


Thomas J. Regan, Esq., Brown, Rudnick, Freed & Gesmer
As Agent, 185 Asylum Street, Hartford, CT 06103
(860) 509-6522

DATE _____

DATE _____

DATE 8/31/00


Sherwood Randy Bauer
All property owner(s) and applicant(s)

FEE: Check to accompany this application payable to "Treasurer, Town of Union" representing the fair market costs as follows: \$200.00 plus \$10.00 for the first thousand (\$1,000.00) dollars, plus \$3.00 additional for each additional \$1,000.00. The fee for site plan approval shall be \$50.00.

PLANNING AND ZONING COMMISSION
TOWN OF UNION, CONNECTICUT

can be used
for site plan
review
Fee \$50.00

Mail Address: 1043 Buckley Highway, Union, CT 06076

APPLICATION FOR ZONING PERMIT

SECTION 5.02

Treasurer,
Town of
Union

Please submit 2 copies of this application and accompanying plot plan.

Part 1: Basic Application Requirements

NAME OF OWNER Sherwood Randy Bauer TEL. NO. 860-974-0000

ADDRESS 2 Carrion Hill Rd., Union, Ct. 06076

NAME OF APPLICANT Sprint Spectrum, LLP TEL. NO. 201-684-4007

ADDRESS 1 International Blvd., 8th floor, Mahwah, NJ 07494

ADDRESS OF PROPERTY FOR WHICH ZONING PERMIT IS REQUESTED. GIVE NEAREST UTILITY POLE NUMBER, STREET INTERSECTION, MAP/BLOCK/LOT NUMBER OR OTHER LANDMARKS.

Carrion Rd., near intersection of Rte. 197 and Carrion Roads. The map block is 28.

ZONE CLASSIFICATION IN WHICH THE PROPOSED PROJECT IS TO BE LOCATED:

Rural Residential , Country Residential , Retail Trade , Commercial , Industrial ,
Other (Specify)

THIS APPLICATION IS FOR A: Single Family Dwelling , Multiple Family Dwelling , Wireless
Garage , Barn , Shed , Commercial/Industrial , Other Telecommunication Facility (Specify)

Alteration/Addition to a N/A

Size of proposed structure N/A N/A Square Feet N/A

Proposed use Communication tower to send and receive telecommunication signals
Other

1. Are there any wetlands or watercourses located within the boundaries of the property? No
2. Has an application been filed with the Wetlands Agency? N/A
3. Is the property located within 500 feet of an adjoining town line? No
4. Has a driveway permit been applied for? Union town road State road N/A
5. Has driveway permit been approved?
6. Has the sanitarian approved this site as suitable for the proposed project? N/A
7. Has the lot been staked showing the location of the proposed project? Yes

For Commission use only:

Date submitted:

Date next regular meeting:

Date officially received:

Disposition:

**APPLICATION FOR ZONING PERMIT
SECTION 5.02**


A site plan scaled at one inch equal to no more than forty feet must be submitted showing the following:

1. The actual shape and dimensions of the lot to be used. If the lot is substantially larger than the area to be developed, an inset map of an increased scale must be provided showing the location of the proposed project within the lot.
2. The location of any Town or State street, road or highway which passes through or adjoins the lot. If no such street, road or highway exists the entire route of vehicular access to the lot must be shown.
3. The size and location of any existing buildings, structures, parking and/or loading areas on the lot.
4. The names of all owners of record of any land abutting the lot to which the zoning permit would apply.
5. The direction of true North.
6. The location of any setback or yard lines.
7. A computation of lot coverage.
8. The location of the required "critical area" as required in section 2.08.02 of the Zoning regulations and a statement from the town Sanitarian indicating that the "critical area" is suitable for the installation of a subsurface sewage system that will meet the minimum standards set by the state and town.
9. The location of any existing or proposed wells and sewage disposal facilities (including principal and reserve leaching areas) showing the precise minimum distances among the wells, sewage disposal facilities, buildings, structures, driveways, parking areas, wetlands and property lines.
10. The location of existing and/or proposed driveways. (A driveway permit is required before any driveway may be constructed or altered.)
11. Location of any areas subject to 100-year flooding.
12. Location of all watercourses and wetlands on the lot.

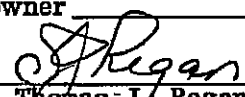
Part II: Additional Application Requirements

The Commission may, within 35 days after the official date of receipt of this application, require additional information to determine whether the proposed building, structure or use conforms to the Zoning regulations.

WE, THE PROPERTY OWNERS AND APPLICANTS, HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE AS PROVIDED UNDER PENALTY OF THE CONNECTICUT STATE STATUTES:

Property owner  Date 8/31/00
Sherwood Randy Bauer


Property owner _____ Date _____

Applicant  Date 9/30/00
Thomas J. Regan, Esq., Brown, Rudnick, Freed & Gesmer, As Agent


Applicant 185 Asylum Street, Hartford, CT 06103 (860) 509-6522 Date _____

**APPLICATION FOR ZONING PERMIT
SECTION 5.02**

The property owner and the applicant hereby grant permission for members of the Zoning Commission or their duly authorized agents to enter the property for the necessary inspections to determine conformity with the Union Zoning Regulations and all applicable State Public Acts.

Property owner  Date 8/31/00
Sherwood Randy Bauer

Property owner _____ Date _____

Applicant  Date 8/30/01
Thomas J. Regan, Esq.; Brown, Rudnick, Freed & Gesmer, As Agent

Applicant 185 Asylum Street, Hartford, CT 06103 (860) 509-6522 Date _____