RESOLUTION NO. 2017-79

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA, APPROVING THE TERMS AND AUTHORIZING THE COUNTY ADMINISTRATOR, OR DESIGNEE, TO EXECUTE AMENDMENT NO. 7 TO THE TOWER ATTACHMENT COMMUNICATION SITE AGREEMENT WITH SPRINTCOM, INC., AS SUCCESSOR IN INTEREST TO NEXTEL SOUTH CORP. FOR MODIFICATIONS TO THEIR EQUIPMENT ON THE PONTE VEDRA ANNEX TOWER.

RECITALS

WHEREAS, St. Johns County and SprintCom, Inc., as successor in interest to Nextel South Corp. entered into a Tower Attachment Communication Site Agreement ("Agreement"), dated October 21, 1998, and approved in Resolution 98-159, on the Ponte Vedra Annex tower on Palm Valley Road; and,

WHEREAS, SprintCom will be modifying their equipment on the tower to enhance their service in the area.

NOW THEREFORE BE IT RESOLVED by the Board of County Commissioners of St. Johns County, Florida, as follows:

Section 1. The above Recitals are incorporated by reference into the body of the Resolution and such Recitals are adopted as findings of fact.

Section2. The Board of County Commissioners hereby approves and authorizes the County Administrator, or designee, to execute two originals of Amendment No. 7 the Agreement, attached hereto as Exhibit "A", incorporated by reference and made a part hereof, in substantially the form attached hereto, and any future amendments to the Agreement that do not substantially change the material terms and conditions of the Agreement.

Section 3. To the extent that there are typographical errors that do not change the tone, tenor, or concept of this Resolution, then this Resolution may be revised without subsequent approval by the Board of County Commissioners.

Section 4. The Clerk is instructed to record the Amendment No. 7 to the Agreement in the Public Records of St. Johns County, Florida.

PASSED AND ADOPTED by the Board of County Commissioners of St. Johns County, Florida, this 7th day of March, 2017.

BOARD OF COUNTY COMMISSIONERS
OF ST. JOHNS COUNTY, FLORIDA

By: _____
James K. Johns, Chair

ATTEST: Hunter S. Conrad, Clerk
By: Pam Halterman
Deputy Clerk

RENDITION DATE 3/9/17

Site Name: Ponte Vedra **Site ID #: FL7041-A**
(JA73XC004)

AMENDMENT NO. 7 TO TOWER ATTACHMENT COMMUNICATIONS SITE AGREEMENT

This Amendment No. 7 to Tower Attachment Communications Site Agreement (this "**Amendment**"), effective as of the date last signed below ("**Effective Date**"), amends a certain Tower Attachment Communications Site Agreement between SprintCom, Inc., a Kansas corporation, as successor in interest to Nextel South Corp., a Georgia corporation, ("**Lessee**"), and St. Johns County, a political subdivision of the State of Florida, through its Board of County Commissioners, ("**Lessor**"), dated October 21, 1998 (the "Lease"), as amended by First Amendment to Tower Attachment Communications Site Agreement dated March 18, 2002, and amended by Second Amendment to Tower Attachment Communications Site Agreement dated May 5, 2006, and amended by Amendment No. 3 to Tower Attachment Communications Site Agreement dated November 27, 2006, and amended by Amendment No. 4 to Tower Attachment Communications Site Agreement dated March 8, 2007, and amended by Amendment No. 5 to Tower Attachment Communications Site Agreement dated May 15, 2013, and further amended by Amendment No. 6 to Tower Attachment Communications Site Agreement dated August 22, 2015 (collectively, the "**Agreement**").

BACKGROUND

WHEREAS, Lessee desires to modify its installation on the Premises by adding or swapping out antennas and other equipment on the Tower, as more particularly described in Exhibit C-5 annexed hereto, and Lessee and Lessor desire to modify the provisions of the Agreement as provided below.

AGREEMENT

For good and valuable consideration the receipt and sufficiency of which are acknowledged, Lessor and Lessee agree as follows:

1. **Modification to the Premises.** Exhibit C-2, Exhibit C-3and Exhibit C-4 to the Agreement are hereby amended to include the modifications identified on Exhibit C-5 (the "Modifications"), attached hereto and made a part hereof. Exhibit C-5 supplements Exhibit C-2, Exhibit C-3 and Exhibit C-4 to the Agreement, and shall not be deemed to supersede or otherwise modify Exhibit C-2, Exhibit C-3 or Exhibit C-4 or any part thereof except to the extent specifically set forth in Exhibit C-5. Upon full execution of this Amendment, Lessee is permitted to do all work necessary to prepare, maintain and alter the Site to install or otherwise modify the Premises, all as more fully described and contemplated in Exhibit C-5.

2. **General Terms and Conditions**.

a. All capitalized terms used in this Amendment, unless otherwise defined herein, will have the same meaning as the terms contained in the Agreement.

b. In case of any inconsistencies between the terms and conditions contained in the Agreement and the terms and conditions contained in this Amendment, the terms and conditions herein will control. Except as set forth below, all provisions of the Agreement are ratified and remain unchanged and in full force and effect.

c. This Amendment may be executed in duplicate counterparts, each of which will be deemed an original.

d. Each of the parties represents and warrants that it has the right, power, legal capacity and authority to enter into and perform its respective obligations under this Amendment.

*****SIGNATURES ON FOLLOWING PAGE*****

Site Name: Ponte Vedra **Site ID #: FL7041-A**
(JA73XC004)

The parties have executed this Amendment as of the Effective Date.

Lessee

SprintCom, Inc.
a Kansas corporation

Signed, sealed and delivered in the presence of :

_____

Printed Name: _____

_____

Printed Name: _____

By: _____

Printed Name: _____

Title: _____

Date: _____

(Date must be completed)

Lessor

St. Johns County,
a political subdivision of the State of Florida,
through its Board of County Commissioners

Signed, sealed and delivered in the presence of :

_____

Printed Name: _____

_____

Printed Name: _____

By: _____

Printed Name: _____

Title: _____

Date: _____

(Date must be completed)

Exhibit C-4

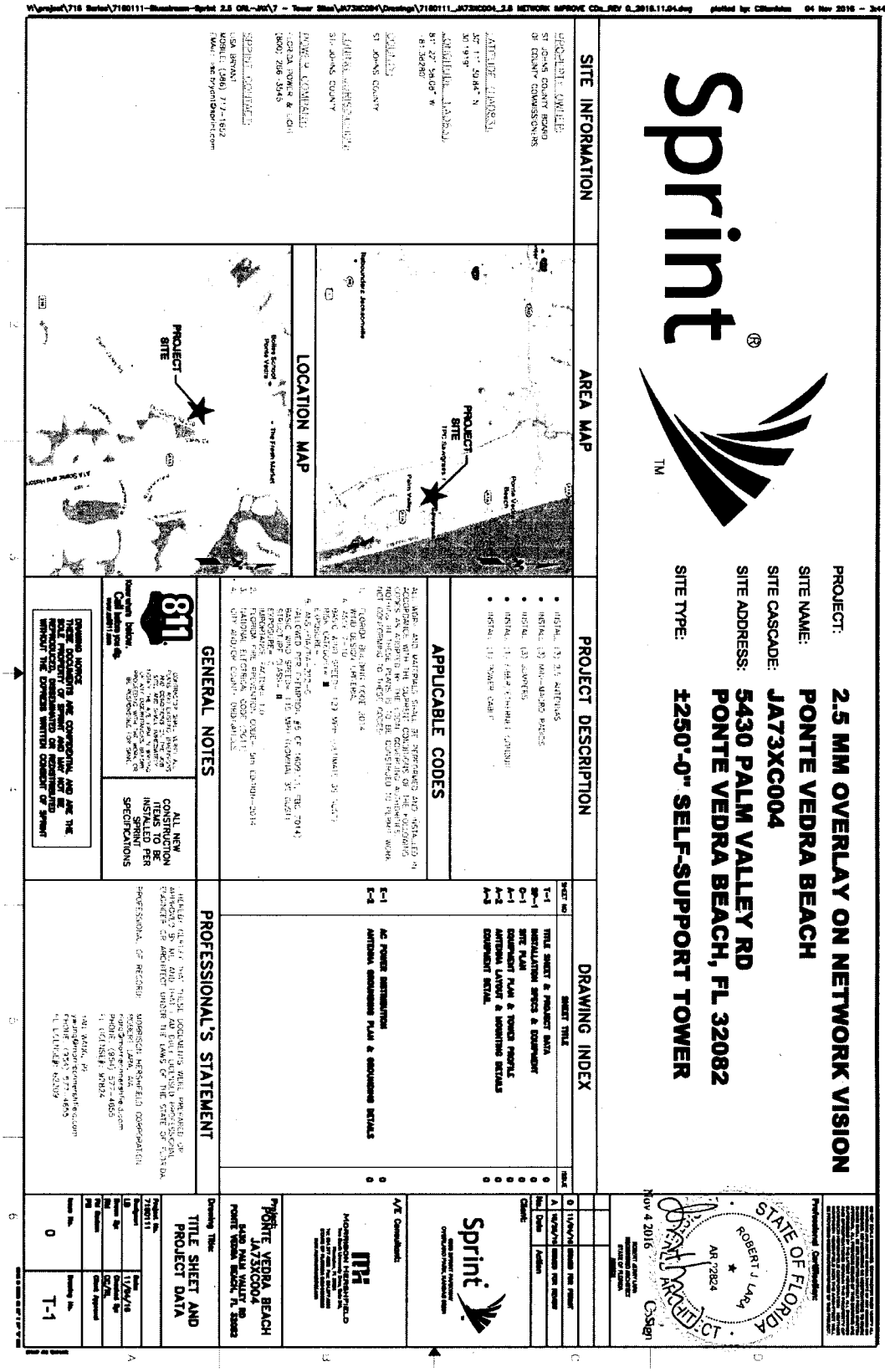
Schedule of Equipment

Existing Equipment
3 RFS APXVERR18-C Antennas
3 H+S TSZ 999 066/xxxM 1 1/4" lines
3 Ericsson 800 ESMR Filters
9 Ericsson ACU-A20-N RETS
3 Ericsson RRUS 11 @ 800 MHz
3 Ericsson RRU 31 @ 1900 MhZ

Equipment to be Removed:
N/A

Equipment to be Added
3 Alpha Wireless AW3286 Panel Antenna
3 Nokia FWHR TMA
Conduit with 3 Fiber and 3 Cat5e
1 SOOW power cable

Final Equipment Configuration:
3 RFS APXVERR18-C Antennas
3 H+S TSZ 999 066/xxxM 1 1/4" lines
3 Ericsson 800 ESMR Filters
9 Ericsson ACU-A20-N RETS
3 Ericsson RRUS 11 @ 800 MHz
3 Ericsson RRUS 31 @ 1900 MHz
3 Alpha Wireless AW3286 Panel Antenna
3 Nokia FWHR TMA
1" Conduit with 3 Fiber and 3 Cat5e
1 SOOW power cable


PROJECT: 2.5 MM OVERLAY ON NETWORK VISION
SITE NAME: PONTE VEDRA BEACH
SITE CASCADE: JA73XC004
SITE ADDRESS: 5430 PALM VALLEY RD PONTE VEDRA BEACH, FL 32082
SITE TYPE: ±250'-0" SELF-SUPPORT TOWER
SITE INFORMATION
AREA MAP
PROJECT DESCRIPTION
DRAWING INDEX
LOCATION MAP
APPLICABLE CODES
GENERAL NOTES
PROFESSIONAL'S STATEMENT
TITLE SHEET AND PROJECT DATA
PONTE VEDRA BEACH
JA73XC004
PONTE VEDRA BEACH, FL 32082
T-1

REV. 0 7/28/16

SPRINT CONSTRUCTION SPECIFICATIONS
MAJOR MODIFIED CELL SITES

1. BASIC REQUIREMENTS
a) MEET ALL REQUIREMENTS OF JURISDICTIONS.
b) IF EQUIPMENT FURNISHED BY COMPANY DOES NOT MATCH THE EQUIPMENT LISTED ON THE PLANS AND SHOWN ON THE PERMITTING DRAWINGS, RESOLVE DISCREPANCY THROUGH INSTALLER'S CONSTRUCTION MANAGER AND COMPANY'S POINT OF CONTACT.
c) CABLE INSTALLATIONS
i) ALL CABLES MUST BE OUTDOOR RATED AND HAVE UV RESISTANT OUTER JACKETS.
ii) CABLE BENDS MUST NOT EXCEED MANUFACTURER'S ALLOWABLE CABLE BEND RADII.
iii) AT RADIOS INSTALL SERVICE LOOPS FOR POWER, FIBER AND ETHERNET SECURED AT LEAST TWICE AT 180 TO THE STRUCTURE.
iv) SPARE FIBERS MUST BE ENGAGED IN A LOW PROFILE WEATHERTIGHT ASSEMBLY
d) FIBERS MUST BE FIELD-TERMINATED WITH LC-TYPE CONNECTORS.
e) CONDUITS IN EARTH: PROVIDE PVC. CONDUITS EXPOSED AND IN FACILITIES: PROVIDE RGS. HAND DIG TRENCHES IN COMPOUNDS.
f)SECURE AND SUPPORT CONDUITS AND CABLES ON NO MORE THAN 48"INTERVALS.
g) ON TOWER SITES RGS CONDUITS MAY BE SURFACE MOUNTED AWAY FROM WALKWAYS AND ACCESS/EGRESS PATHS IF INSTALLATIONS IN WALKWAYS AND ACCESS/EGRESS PATHS CANNOT BE AVOIDED, IDENTIFY THE CONDUIT ENVELOPE / TRIP HAZARD BY ALTERNATING YELLOW AND BLACK STRIPES PAINTED ON CONCRETE AND CONDUIT.

2 SPRINT-FURNISHED EQUIPMENT
a) INSTALL THE FOLLOWING EQUIPMENT AT LOCATIONS AND AZIMUTHS SHOWN ON THE CONSTRUCTION DRAWINGS.
i) PANEL ANTENNAS
ii) RADIOS
iii) GPS ANTENNAS
iv) FILTERS
v)120 VOLT DIN-RAIL CIRCUIT BREAKER ASSEMBLY

3 TOWER INSTALLATIONS
a) MEET ALL REQUIREMENTS OF THE TOWER OWNER.
b) INSTALL CORRUGATED FLEXIBLE CONDUIT UP THE TOWER TO COMPANY'S RAD CENTER.
c) PROVIDE HANGING GRIPS OR CONDUIT CLAMPS AND ENSURE CONDUITS AS WELL AS INNER CABLES ARE SUPPORTED.
d) CONDUIT RISERS: AT TOP OF TOWER TURN CONDUIT DOWN AND PROVIDE CABLE TERMINATION FITTINGS. EXTEND CABLES TO RADIOS EXPOSED AND SECURED TO STRUCTURE. AT CONDUIT EXIT FROM TOWER, PROVIDE DRIP LOOPS AND WEEP HOLES.
e) A" ICE BRIDGE RUN CABLES IN RGS CONDUIT. UTILIZE CONDULETS TO MAKE COMPACT 90 DEGREE TURNS.

4 AC POWER TIE-IN
a) INSTALL SPRINT'S 120 VOLT DIN-RAIL CIRCUIT BREAKER ASSEMBLY IN THE EXISTING POWER PROTECTION CABINET TELCO SECTION.
b) INSTALL A 20 AMPERE MOLDED CASE CIRCUIT BREAKER IN AVAILABLE SPACE IN THE ADJACENT PPC POWER SECTION LOAD CENTER.

5 GROUNDING
a) 120 VOLT CIRCUITS: POWER CABLES MUST BE 3-WIRE WITH EQUIPMENT GROUNDING CONDUCTOR.
b) SUPPLEMENTAL GROUNDING: ALL GROUNDING HARDWARE MUST BE UL STAMPED AS SUITABLE FOR GROUNDING HARDWARE.
c) RADIOS: BOND RADIO TO THE TOWER TOP OR SECTION GROUND BAR WITH #6 BARE TINNED COPPER WIRE (GREEN INSULATED ON ROOFTOPS).
d) DIN-RAIL CIRCUIT BREAKER ASSEMBLY: BOND SURGE ARRESTOR TO PPC TELCO BOARD GROUND BAR.

6 MINOR DETAILS
a) CONDUIT
b) i) RIGID GALVANIZED STEEL CONDUIT (RGS): UL LISTED, COMPLIANT WITH ANSI STANDARD C80, HOT-DIP GALVANIZED, WITH THREADED FITTINGS. MANUFACTURERS: ALLIED REPUBLIC, WHEATLAND, OR EQUAL.
ii) CORRUGATED FLEXIBLE CONDUIT: DURALINE OR EQUAL.
iii) LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC): UL LABELED, UV RESISTANT, FLAME RETARDANT PVC JACKET; HOT-DIP GALVANIZED, CRDC; MANUFACTURERS: AFC, ANACONDA, SOUTHWIRE OR EQUAL.
iv) PVC CONDUIT: SCHEDULE 40. CARLON OR EQUAL.
v) CABINET HUBS AND CABLE TERMINATION FITTINGS: OZ GEDNEY OR ROXTEC
b) COAXIAL CABLE JUMPERS: ¼" LDF-4 MANUFACTURERS: COMMSCOPE, RFS OR FCI.
c) FASTENERS AND HARDWARE
i) TO SECURE RACEWAYS, UTILIZE NON CORRODING NON-MAGNETIC METALLIC FASTENERS AND HARDWARE SUITABLE FOR THE PURPOSE
ii) POWER CABLES - 3/C #12 SOOW BY SOUTHWIRE OR EQUAL.
iii) ETHERNET CABLES AND CONNECTORS: OUTDOOR RATED, CAT 5E BELDEN OR EQUAL.
iv) FIBER CABLES: CORNING "FREEDOM FAN OUT"OUTDOOR RISER CABLE, 4F, SINGLE MODE, OR EQUAL.
v) RF TRANSPARENT PAINT FOR ANTENNA CONCEALMENT: SELECT NO/LOW CARBON PAINTS, WITH NO/LOW TITANIUM DIOXIDE AND WITHOUT SUSPENDED METAL PARTICLES (ALUMINUM, ZINC, COPPER, ETC.)

7. COLOR CODING
a) COLOR CODE CABLES AND CONDUITS AS REQUIRED BY SPRINT STANDARD TS-0200.

8. TESTING AND CONSTRUCTION COMPLETE
a) SWEEP ALL COAXIAL CABLES ACCORDING TO SPRINT STANDARD TS-0200.
b) PANEL ANTENNA ALIGNMENT - USING ELECTRONIC ALIGNMENT TOOL AZIMUTH/DOWNTILT +/- 1 DEGREE.
c) LEAVE EQUIPMENT DE-ENERGIZED UNTIL INSTRUCTED BY THE COMMISSIONING AND INTEGRATION TEAM TO ENERGIZE.
d) OTHER REQUIREMENTS AND DELIVERABLES MAY BE REQUIRED BEFORE THE CONSTRUCTION COMPLETE MILESTONE CAN BE ACTUALIZED IN SITEAMA (SPRINT'S DATABASE-OF-RECORD).

ANTENNA

RADOME MATERIAL: NA, UV-STABILISED PVC
RADOME COLOR: RAL 7035
DIMENSIONS, HxWxD,in (mm): 57.4x6.2"x3.3" (1460x160x85 mm)
WEIGHT: 17.6 lbs
CONNECTORS: (2)

CALIBRATION CONNECTOR
RF CONNECTORS
ASSY.
ANTENNA SPACE
SECTION VIEW
SIDE VIEW
FRONT VIEW
3.3"
6.2"
57.4"

MAIN MOUNTING FRAME
SIDE VIEW
6.3"
FRONT VIEW
12.83"
RADIO SPACE
SIDE VIEW
9.66"

Professional Certification

STATE OF FLORIDA
ROBERT J. LARA
AR 22824
Nov 4 2016

A/E Consultant

No.	Date	Action
0	10/04/16	ISSUED FOR PERMIT
A	10/20/16	ISSUED FOR REVIEW

Client

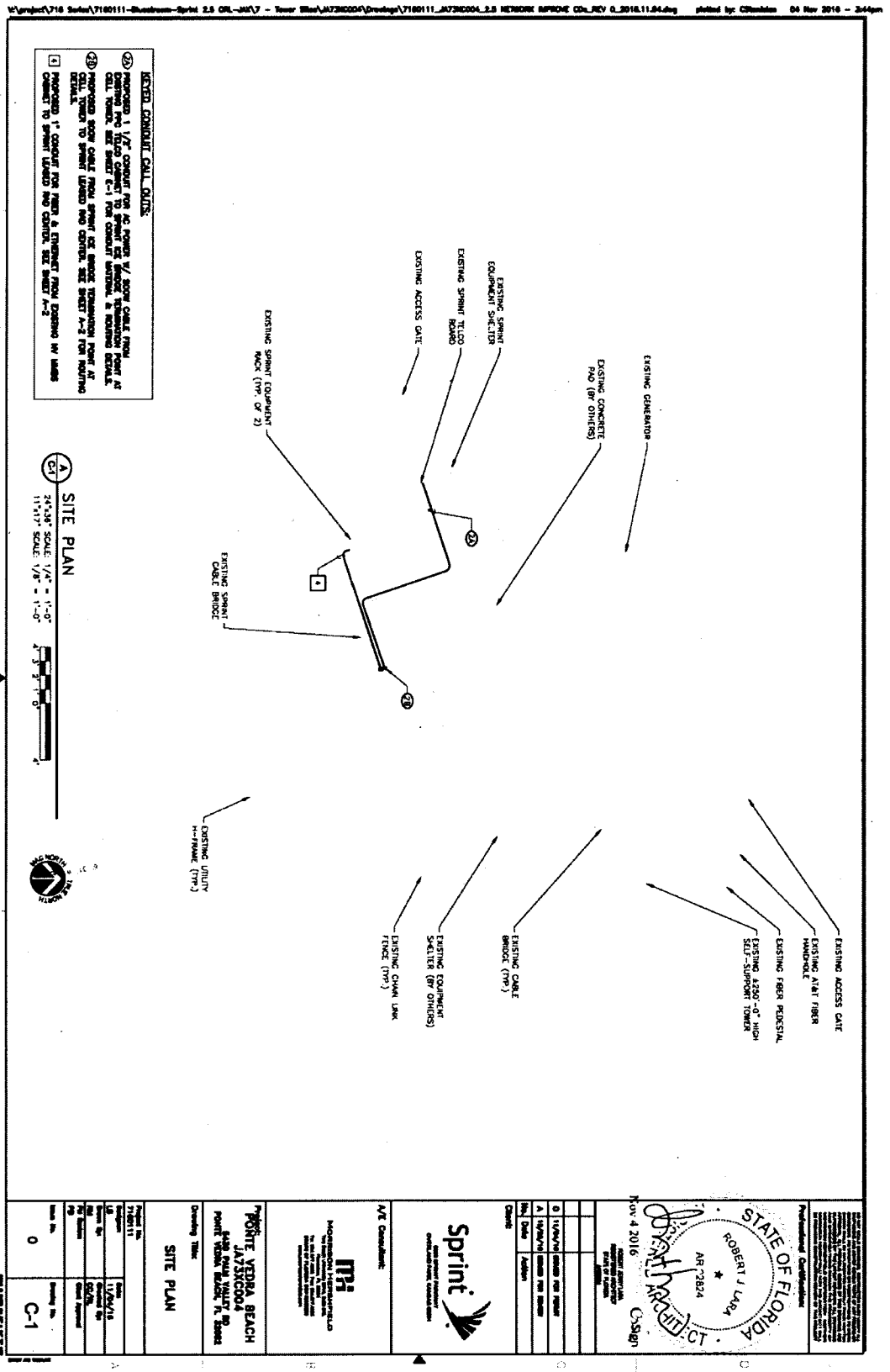
Project
PONTE VEDRA BEACH
JA73XC004
Address
PONTE VEDRA BEACH, FL 32082

Drawing Title
INSTALLATION SPECS & EQUIPMENT

Project No.	
7160111	
Drawn By	Date
CJ	10/04/16
Checked By	Date
RJL	10/04/16
Approved By	
PM	

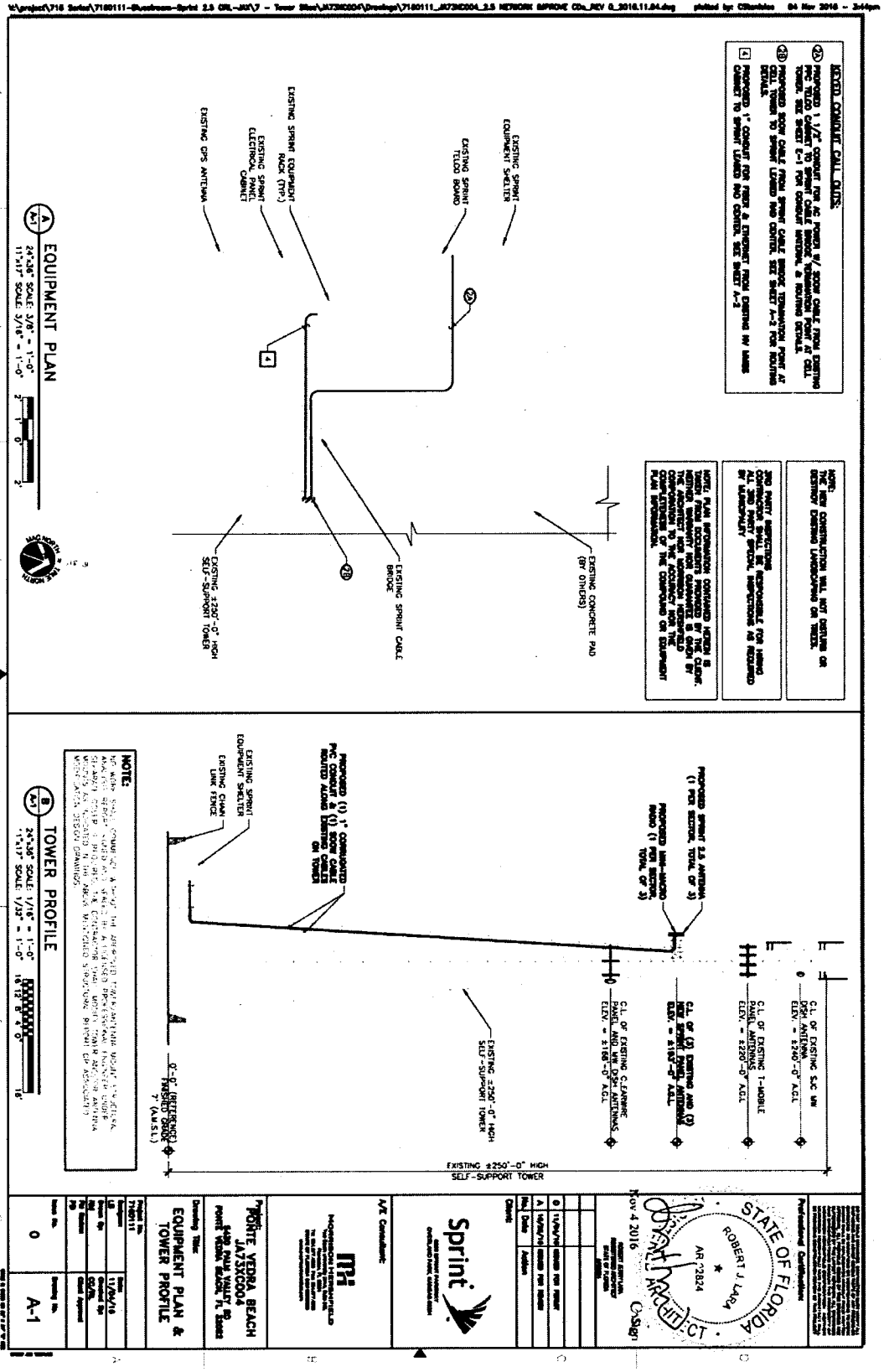
Issue No. 0

Drawing No. SP-1


KEYED CONDUIT CALL OUTS:
PROPOSED 1 1/4" CONDUIT FOR AC POWER W/ BOOM CABLE FROM EXISTING PPC TELCO CABINET TO SPRINT ICE BRIDGE TERMINATION POINT AT CELL TOWER. SEE SHEET E-1 FOR CONDUIT MATERIAL & ROUTING DETAILS.
PROPOSED BOOM CABLE FROM SPRINT ICE BRIDGE TERMINATION POINT AT CELL TOWER TO SPRINT LEASED RAD CENTER. SEE SHEET A-2 FOR ROUTING DETAILS.
PROPOSED 1" CONDUIT FOR FIBER & ETHERNET FROM EXISTING MW RADIO CABINET TO SPRINT LEASED RAD CENTER. SEE SHEET A-2
SITE PLAN
24"x36" SCALE: 1/4" = 1'-0"
11"x17" SCALE: 1/8" = 1'-0"
EXISTING ACCESS GATE
EXISTING AT&T FIBER HANDHOLE
EXISTING FIBER PEDESTAL
EXISTING 420'-0" HIGH SELF-SUPPORT TOWER
EXISTING GENERATOR
EXISTING CONCRETE PAD (BY OTHERS)
EXISTING SPRINT EQUIPMENT SHELTER
EXISTING SPRINT TELCO BOARD
EXISTING ACCESS GATE
EXISTING SPRINT EQUIPMENT RACK (TYP. OF 2)
EXISTING SPRINT CABLE BRIDGE
EXISTING UTILITY H-FRAME (TYP.)
EXISTING CHAIN LINK FENCE (TYP.)
EXISTING EQUIPMENT SHELTER (BY OTHERS)
EXISTING CABLE BRIDGE (TYP.)
STATE OF FLORIDA
ROBERT J LARA
AR 23824
REGISTERED ARCHITECT
Nov 4 2016
C-Sign
Professional Certification
Sprint
A/E Consultants:
PONTE VEDRA BEACH
JA73XC004
SITE PLAN
Drawing Title:
C-1

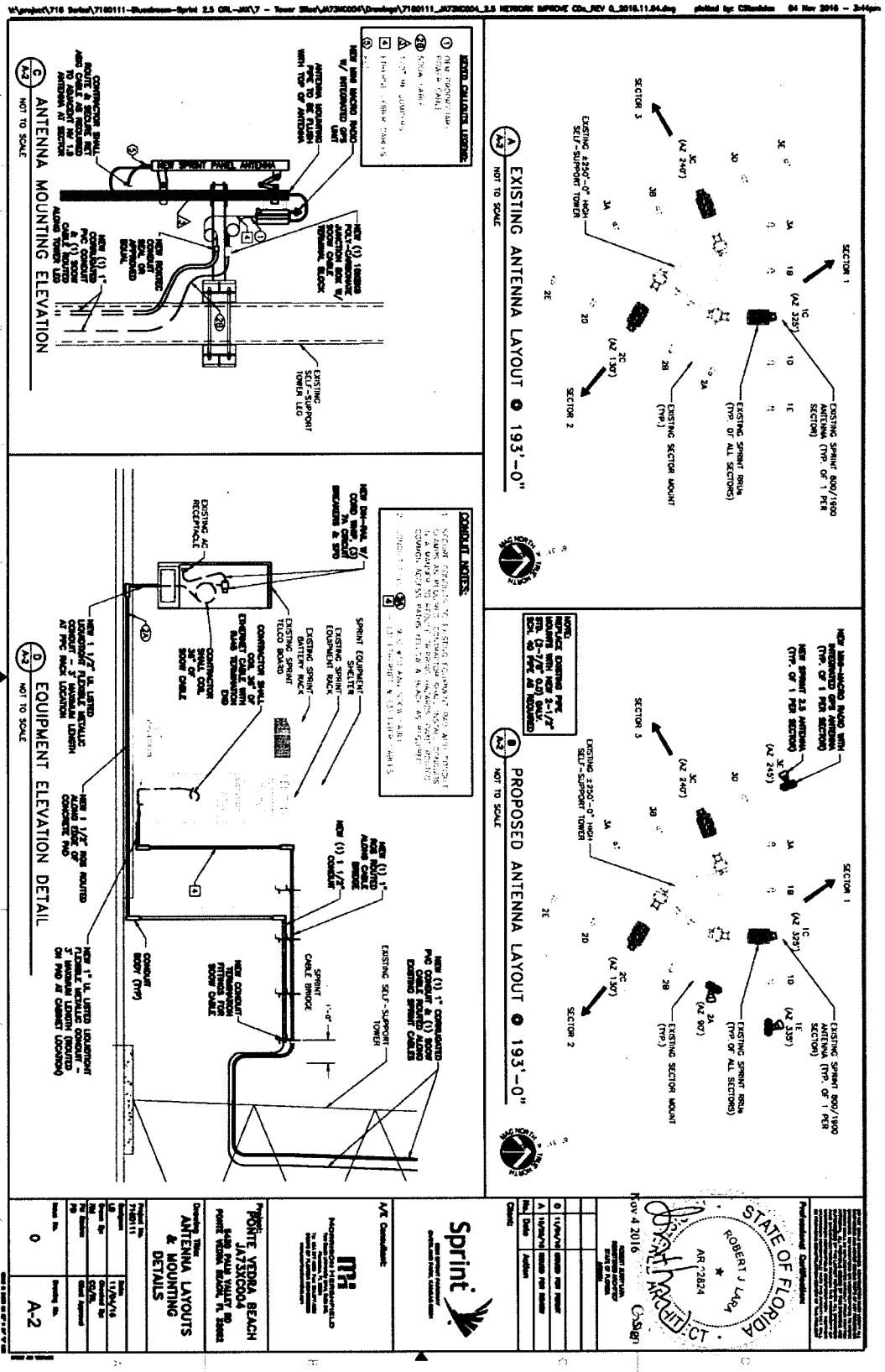
Site Name: Ponte Vedra (JA73XC004)

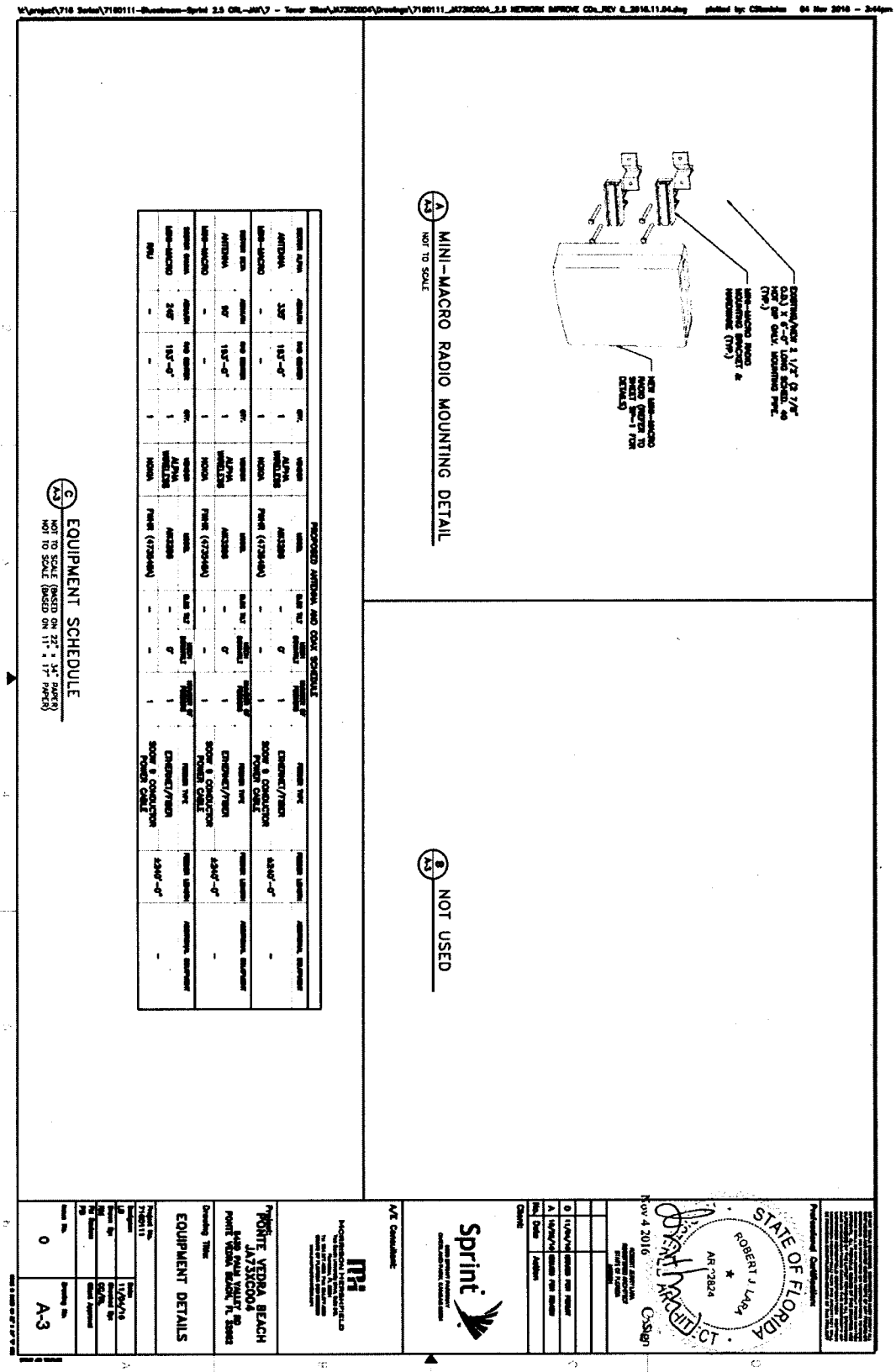
Site ID #: FL7041-A



Site Name: Ponte Vedra
(JA73XC004)

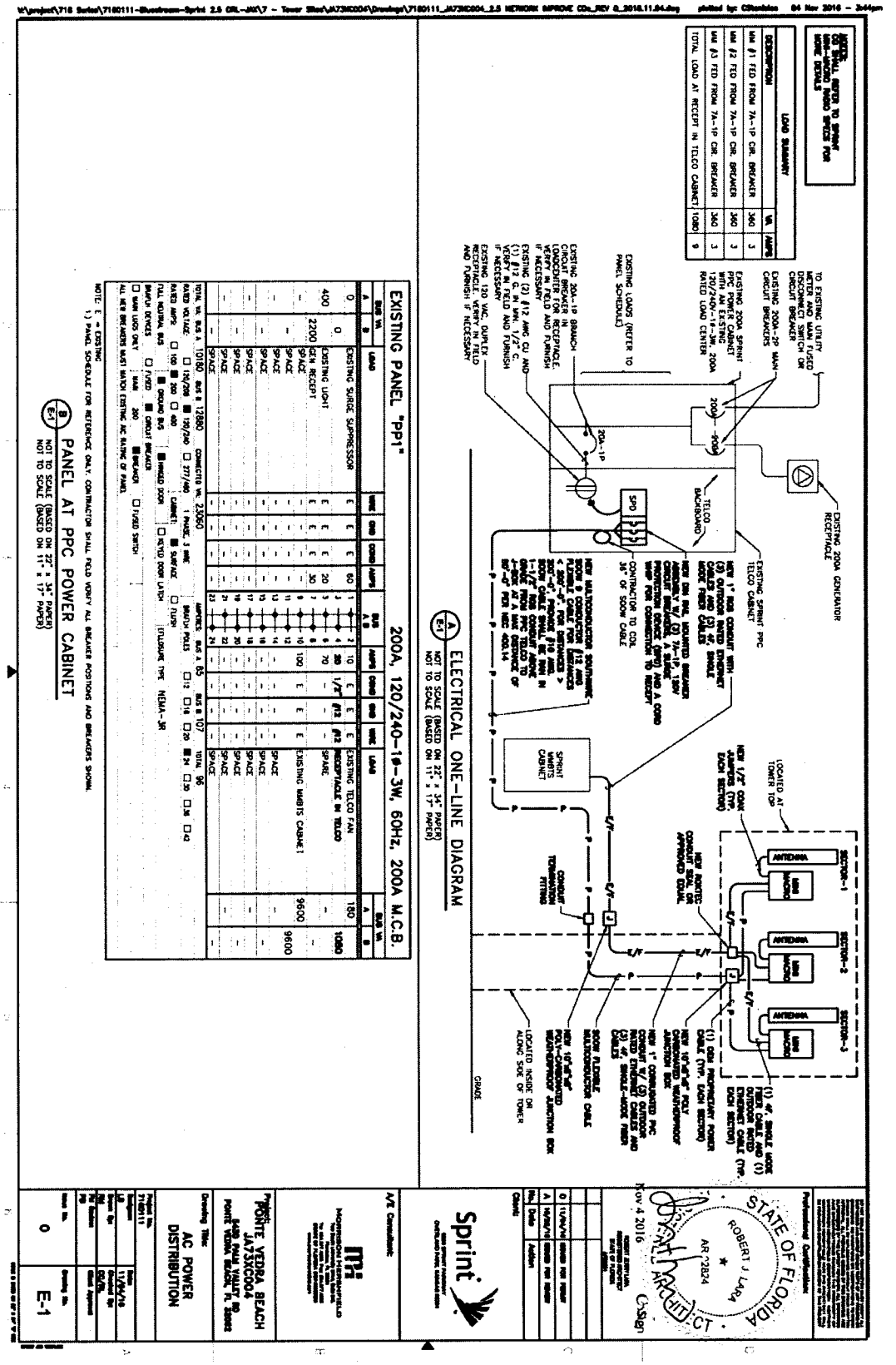
Site ID #: FL7041-A

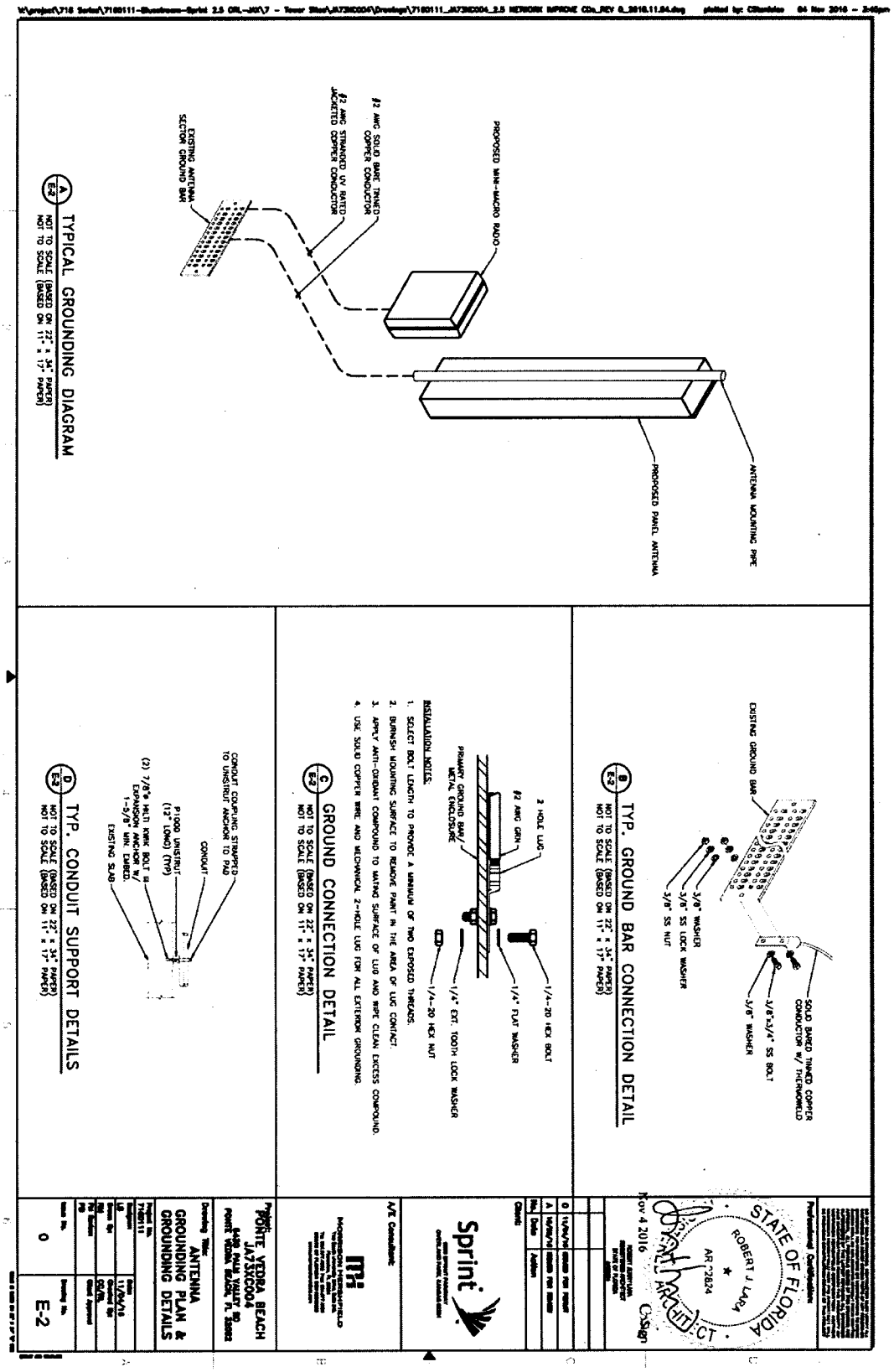



MINI-MACRO RADIO MOUNTING DETAIL
NOT TO SCALE
NOT USED
EQUIPMENT SCHEDULE
NOT TO SCALE (BASED ON 22" x 34" PAPER)
NOT TO SCALE (BASED ON 11" x 17" PAPER)
STATE OF FLORIDA
ROBERT J LARA
AR 2824
Nov 4 2016
Sprint
PONTE VEDRA BEACH
JA73XC004
EQUIPMENT DETAILS
A-3

Site Name: Ponte Vedra (JA73XC004)

Site ID #: FL7041-A




PROPOSED PANEL ANTENNA
ANTENNA MOUNTING PIPE
PROPOSED MINI-MACRO RADIO
#2 AWG SOLID BARE TINNED COPPER CONDUCTOR
#2 AWG STRANDED UV RATED JACKETED COPPER CONDUCTOR
EXISTING ANTENNA SECTOR GROUND BAR
TYPICAL GROUNDING DIAGRAM
NOT TO SCALE (BASED ON 22" x 34" PAPER)
NOT TO SCALE (BASED ON 11" x 17" PAPER)
SOLID BARED TINNED COPPER CONDUCTOR w/ THERMOWELD
EXISTING GROUND BAR
3/8"x3/4" SS BOLT
3/8" WASHER
3/8" SS LOCK WASHER
3/8" SS NUT
TYP. GROUND BAR CONNECTION DETAIL
NOT TO SCALE (BASED ON 22" x 34" PAPER)
NOT TO SCALE (BASED ON 11" x 17" PAPER)
2 HOLE LUG
#2 AWG GRN
1/4"x-20 HEX BOLT
1/4" FLAT WASHER
PRIMARY GROUND BAR/ METAL ENCLOSURE
1/4" EXT. TOOTH LOCK WASHER
1/4"x-20 HEX NUT
INSTALLATION NOTES:
1. SELECT BOLT LENGTH TO PROVIDE A MINIMUM OF TWO EXPOSED THREADS.
2. BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF LUG CONTACT.
3. APPLY ANTI-OXIDANT COMPOUND TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS COMPOUND.
4. USE SOLID COPPER WIRE AND MECHANICAL 2-HOLE LUG FOR ALL EXTERIOR GROUNDING.
GROUND CONNECTION DETAIL
NOT TO SCALE (BASED ON 22" x 34" PAPER)
NOT TO SCALE (BASED ON 11" x 17" PAPER)
CONDUIT COUPLING STRAPPED TO UNISTRUT ANCHOR TO PAD
CONDUIT
P1000 UNISTRUT (12' LONG) (TYP.)
(2) 7/8"ø MULTI WORK BOLT W/ EXPANSION ANCHOR W/ 1-5/8" MIN. EMBED.
EXISTING SLAB
TYP. CONDUIT SUPPORT DETAILS
NOT TO SCALE (BASED ON 22" x 34" PAPER)
NOT TO SCALE (BASED ON 11" x 17" PAPER)
STATE OF FLORIDA
ROBERT J. LARA
AR 72824
LICENSED ARCHITECT
Nov 4 2016
Professional Certification
Sprint
A/E Consultants
PONTE VEDRA BEACH
JA73XC004
ANTENNA GROUNDING PLAN & GROUNDING DETAILS
E-2
0

Ms. Kristen Beyer
BlueStream
Project Manager II
(321) 262-4599

Morrison Hershfield Corporation
1455 Lincoln Parkway, Suite 500S
Atlanta, GA 30346
(770) 379-8500

Date: October 27, 2016

Subject: **Structural Feasibility Report**

Carrier:	Sprint
Carrier Site ID:	JA73XC004
Carrier Site Name:	Ponte Vedra Beach
Site Address:	5430 Palm Valley Rd., Ponte Veda Beach, St. Johns County, FL 32082
Site Coordinates:	Latitude 30° 11' 30.84", Longitude -81° 22' 58.08"
Tower Description:	250 ft – Self-Support Tower

Morrison Hershfield Project Number: NEV-539 / 7160111

Dear Ms. Fowler,

Morrison Hershfield Corporation has carried out a structural feasibility analysis of the above referenced structure for the existing and proposed antenna and equipment noted in Table 2. This feasibility analysis has been performed in accordance with the 2014 Florida Building Code, 5th Edition, based upon an ultimate 3-second gust wind speed of 142 mph converted to a nominal 3-second gust wind speed of 110 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with a maximum topographic factor, Kzt, of 1.0 and Risk Category II were used in this analysis.

Our analysis demonstrates that the existing tower **IS in conformance (tower at 87.2%)** with the requirements of the above noted standards under the effects of loading described. The capacity of the foundation CANNOT be determined. We recommend a foundation investigation to determine the as-built foundations be conducted so that an analysis of the foundation capacity can be completed.

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

Sincerely,
Morrison Hershfield Corporation

G. LANCE COOKE LICENSE No 68787 STATE OF FLORIDA PROFESSIONAL ENGINEER
Lance Cooke
Oct. 27, 2016 12:17 PM
CoSign

G. Lance Cooke, P.E. (FL License No. 68787)
Senior Engineer

Certification of Authorization # 8508

Morrison Hershfield

INTRODUCTION

This tower is a 250 ft guyed tower, and the original drawings are not available. The tower geometry and member sizes have been obtained from the previous structural analysis completed by SSOE Group, Project No. 014-01555-00, dated 10/23/2014 and are considered to be accurate.

This feasibility analysis was performed in accordance with the requirements of the 2014 Florida Building Code, 5th Edition, based upon an ultimate 3-second gust wind speed of 142 mph converted to a nominal 3- second gust wind speed of 110 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception # 5 of Section 1609.1.1. Exposure Category C, Topographic Category 1 and Risk Category II were used in this analysis. The design spectral response accelerations of S_{DS} = 0.116 and S_{D1} = 0.090 for Site Soil Class D were considered in this analysis.

Seismic design factors have been considered in this analysis. The seismic spectral response acceleration at short periods (S_s = 0.109) was determined to be less than 1.00; therefore as per ANSI/TIA-222-G Section 2.7.3 seismic effects have not been considered in this analysis.

The structural analysis was based on the following documentation:

Table 1 – Documentation

Document	Description	Source
Modification Drawings	Paul J. Ford and Co, Project No. 06406-0005, dated 09/05/2006	Client
Previous Structural Analysis	Paul J. Ford and Company, Project No. 06406-0005 Revision #2, dated 02/06/2007	Client
Previous Structural Analysis	SSOE Group, Project No. 014-01555-00, dated 10/23/2014	Client
As-Built Drawings	CLS Group, Site No. JA73XC004, dated 11/03/2015	Client
Proposed Loading	RFDS, Sprint Site No. JA73XC004, dated 10/20/2016	Sprint

1.0 ANALYSIS LOADING

The existing and proposed antennas, transmission lines, and other equipment considered in this analysis were provided by the client and are noted in Table

Table 2 – Antenna Loads

Elev. (ft)	QTY.	Antenna/Appurtenance Description	Carrier	QTY.	TX-Lines	Notes
PROPOSED						
193.0	3	Alpha Wireless AW3286 Panel Antenna	Sprint	1 1 3 3	SOOW Power 1" Conduit Cat 5e Fiber Cable	1
	3	Nokia FWHR TMA				
EXISTING						
256.0	4	RFS/Celwave BMR12A Omni	SJC	1 1 3	3/4" Conduit 1/2" 7/8"	2
251.0	1	Decibel DB589 Omni				
	1	Decibel DB220-A Omni				
246.0	4	Amphenol TTA TMA				
	3	Side Arm Mount	SJC	-	-	2
240.0	1	2' Dish				
	1	Pipe Mount				
230.0	3	RFS/Celwave BMR10 Omni		3	1-5/8"	
	3	Side Arm Mount				

Elev. (ft)	QTY.	Antenna/Appurtenance Description	Carrier	QTY.	TX-Lines	Notes
EXISTING [Cont'd]						
220.0	10	Andrew TMBXX-6517-R2M Panel Antenna	T-Mobile	12	1-5/8"	2
	3	Nokia FRIG TMA				
	3	Nokia FXFB TMA				
	3	Sector Mount				
193.0	3	RFS/Celwave APXVSPP18-C Panel Antenna	Sprint	3	1/2"	2
	3	Ericsson RRU-11 RRU				
	3	Ericsson RRU-31 RRU				
	3	Sector Mount				
168.0	6	Kathrein 840-10054 Panel Antenna	Clearwire	12	1-5/8"	2
	2	2' Dish				
	1	2.5' Dish				
	3	Sector Mount				
160.0	1	2' Dish	JEA	1	7/8"	2
	1	Pipe Mount				
	1	Andrew PAR6 Dish	SJC	1	EW63	2
	1	Pipe Mount				
150.0	1	Amphenol BCD-87010 Omni		1	7/8"	2
	1	Side Arm Mount				
90.0	1	Scala TY-900 Yagi	JEA	1	1/2"	2
	1	Side Arm Mount				

Notes:
1) Proposed equipment is in addition to the existing equipment at given elevation.
2) Existing loading is to remain on the tower.

ANALYSIS PROCEDURE

tnxTower Version 7.0.7.0, a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is attached at the end of this report.

2.0 ASSUMPTIONS

The analysis provided by Morrison Hershfield is based on the theoretical capacity of the structure and is not a condition assessment of the tower. Morrison Hershfield has not performed an engineering inspection of the tower and the analysis was completed based on information supplied by the client. Morrison Hershfield has not made any independent determination of the accuracy of the information provided.

1) Tower and structures were built in accordance with the manufacturer's specifications and the applicable ANSI/TIA/EIA standard.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The tower is assumed to be in good condition and capable of supporting its full design capacity.
4) The foundation was properly designed and constructed for the original design loads.
5) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 2.

6) All existing/proposed antennas and antenna mounts are assumed to be adequate for the existing/proposed loads. Analysis of these antennas and antenna mounts is considered to be outside of the scope of this analysis. Morrison Hershfield has not performed an analysis of the existing/proposed antennas or antenna mounts.
7) The existing loading was taken from previous structural analysis by SSOE Group, Project No. 014-01555-00, dated 10/23/2014 and As-built Drawings by CLS Group, Site No. JA73XC004, dated 11/03/2015, and is considered to be correct.
8) The proposed loading was taken from RF Data Sheet, Sprint Site No. JA73XC004, dated 10/20/2016, and is considered to be correct.

If any assumptions are not valid or have been made in error, this analysis is invalid. Morrison Hershfield Corporation should be notified to determine the effect on the structural integrity of the tower.

3.0 SUMMARY OF RESULTS

The following tables summarize the location and utilized percentage of available capacity for each component of the tower. With consideration to the appropriate safety factors, 100% represents the full capacity of the component. Percentages below 100% indicate available capacity and conformance of the component. Percentages between 100% and 105% indicate an acceptable capacity. Percentages above 105% indicate an overstressed situation requiring structural modification to ensure conformance with the applicable codes and standards.

Based on our analysis results, the **tower is within capacity** to support the loads under the current loading scenario.

Table 3 – Tower Section Capacity

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
T1	250 - 230	Leg	ROHN 3 STD	15.2	Pass
T2	230 - 210	Leg	ROHN 4 STD	29.2	Pass
T3	210 - 203.333	Leg	ROHN 5 STD	26.7	Pass
T4	203.333 - 196.667	Leg	ROHN 5 STD	30.2	Pass
T5	196.667 - 190	Leg	ROHN 5 STD	32.7	Pass
T6	190 - 170	Leg	ROHN 5 STD	62.2	Pass
T7	170 - 150	Leg	ROHN 6 X-STR	40.1	Pass
T8	150 - 130	Leg	ROHN 8 X-STR	31.0	Pass
				36.7 (b)	
T9	130 - 110	Leg	ROHN 8 X-STR	37.9	Pass
T10	110 - 90	Leg	ROHN 10 X-STR	33.8	Pass
				33.9 (b)	
T11	90 - 70	Leg	ROHN 10 X-STR	38.5	Pass
T12	70 - 50	Leg	ROHN 12 EH	36.3	Pass
T13	50 - 30	Leg	ROHN 12 EH	40.6	Pass
T14	30 - 0	Leg	ROHN 12.75 EHS	37.9	Pass
T1	250 - 230	Diagonal	ROHN 2 STD	28.3	Pass
T2	230 - 210	Diagonal	ROHN 2 STD	61.1	Pass
T3	210 - 203.333	Diagonal	ROHN 2 STD	58.5	Pass
T4	203.333 - 196.667	Diagonal	ROHN 2 STD	61.3	Pass
T5	196.667 - 190	Diagonal	ROHN 2 STD	73.9	Pass
T6	190 - 170	Diagonal	ROHN 3 STD	37.1	Pass
T7	170 - 150	Diagonal	ROHN 3.5 STD	29.6	Pass
T8	150 - 130	Diagonal	ROHN 3.5 STD	35.5	Pass
T9	130 - 110	Diagonal	ROHN 3.5 STD	41.3	Pass
T10	110 - 90	Diagonal	ROHN 3.5 STD	51.0	Pass
T11	90 - 70	Diagonal	ROHN 3.5 STD	45.3	Pass
T12	70 - 50	Diagonal	ROHN 3.5 STD	51.4	Pass
T13	50 - 30	Diagonal	ROHN 3.5 X-STR	43.5	Pass
				48.0 (b)	
T14	30 - 0	Diagonal	ROHN 3.5 X-STR	48.6	Pass
T1	250 - 230	Horizontal	ROHN 1.5 STD	14.4	Pass
T2	230 - 210	Horizontal	ROHN 1.5 STD	36.0	Pass
T3	210 - 203.333	Horizontal	ROHN 2 STD	22.9	Pass
				23.5 (b)	
T4	203.333 - 196.667	Horizontal	ROHN 2 STD	24.0	Pass
T5	196.667 - 190	Horizontal	ROHN 2 STD	27.5	Pass
T6	190 - 170	Horizontal	ROHN 2 X-STR	26.5	Pass

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
				28.9 (b)	
T7	170 - 150	Horizontal	ROHN 2.5 STD	26.8	Pass
T8	150 - 130	Horizontal	ROHN 3 STD	21.9	Pass
				28.3 (b)	
T9	130 - 110	Horizontal	ROHN 3 STD	26.8	Pass
				30.1 (b)	
T10	110 - 90	Horizontal	ROHN 3 STD	35.4	Pass
T11	90 - 70	Horizontal	ROHN 3 STD	40.3	Pass
T12	70 - 50	Horizontal	ROHN 3 X-STR	42.3	Pass
T13	50 - 30	Horizontal	ROHN 3.5 STD	44.9	Pass
T14	30 - 0	Horizontal	ROHN 3.5 X-STR	44.0	Pass
				47.5 (b)	
T1	250 - 230	Top Girt	ROHN 1.5 STD	10.6	Pass
T5	196.667 - 190	Redund Horz 1 Bracing	L2x2x3/16	6.7	Pass
T11	90 - 70	Redund Horz 1 Bracing	ROHN 1.5 STD	32.1	Pass
T12	70 - 50	Redund Horz 1 Bracing	ROHN 1.5 STD	42.0	Pass
T13	50 - 30	Redund Horz 1 Bracing	ROHN 2 STD	28.8	Pass
T14	30 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	38.3	Pass
T14	30 - 0	Redund Horz 2 Bracing	ROHN 2 X-STR	49.3	Pass
T5	196.667 - 190	Redund Diag 1 Bracing	L2x2x3/16	7.5	Pass
T11	90 - 70	Redund Diag 1 Bracing	2L2x2x3/16x3/8	49.5	Pass
T12	70 - 50	Redund Diag 1 Bracing	2L2x2x3/16x3/8	55.4	Pass
T13	50 - 30	Redund Diag 1 Bracing	2L2x2x3/16x3/8	63.7	Pass
T14	30 - 0	Redund Diag 1 Bracing	2L2x2x3/16x3/8	70.5	Pass
T14	30 - 0	Redund Diag 2 Bracing	2L2x2x3/16x3/8	87.2	Pass
T11	90 - 70	Redund Hip 1 Bracing	ROHN 1.5 STD	0.3	Pass
T12	70 - 50	Redund Hip 1 Bracing	ROHN 1.5 STD	0.3	Pass
T13	50 - 30	Redund Hip 1 Bracing	ROHN 1.5 STD	0.4	Pass
T14	30 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	0.5	Pass
T14	30 - 0	Redund Hip 2 Bracing	ROHN 2 STD	0.5	Pass
T11	90 - 70	Redund Hip Diagonal 1 Bracing	ROHN 3 STD	0.5	Pass
T12	70 - 50	Redund Hip Diagonal 1 Bracing	ROHN 3 STD	0.5	Pass
T13	50 - 30	Redund Hip Diagonal 1 Bracing	ROHN 3 STD	0.5	Pass
T14	30 - 0	Redund Hip Diagonal 1 Bracing	ROHN 3 STD	0.7	Pass
T14	30 - 0	Redund Hip Diagonal 2 Bracing	ROHN 3 STD	0.6	Pass
T1	250 - 230	Inner Bracing	L2x2x1/8	0.5	Pass
T2	230 - 210	Inner Bracing	L2x2x1/8	0.1	Pass
T3	210 - 203.333	Inner Bracing	L2x2x1/8	0.1	Pass
T4	203.333 - 196.667	Inner Bracing	L2x2x1/8	0.2	Pass
T5	196.667 - 190	Inner Bracing	L2x2x1/8	0.2	Pass
T6	190 - 170	Inner Bracing	L2x2x1/8	0.3	Pass
T7	170 - 150	Inner Bracing	L2 1/2x2 1/2x3/16	0.2	Pass
T8	150 - 130	Inner Bracing	L3x3x3/16	0.2	Pass
T9	130 - 110	Inner Bracing	L3 1/2x3 1/2x1/4	0.2	Pass
T10	110 - 90	Inner Bracing	L3 1/2x3 1/2x1/4	0.2	Pass
T11	90 - 70	Inner Bracing	ROHN 3 STD	0.2	Pass
T12	70 - 50	Inner Bracing	ROHN 3 STD	0.3	Pass
T13	50 - 30	Inner Bracing	ROHN 3 STD	0.3	Pass
T14	30 - 0	Inner Bracing	ROHN 3 STD	0.3	Pass
				Summary	
			Leg (T6)	62.2	Pass
			Diagonal (T5)	73.9	Pass
			Horizontal (T14)	47.5	Pass
			Top Girt (T1)	10.6	Pass
			Redund Horz 1 Bracing (T12)	42.0	Pass
			Redund Horz 2 Bracing (T14)	49.3	Pass
			Redund Diag 1 Bracing (T14)	70.5	Pass
			Redund Diag 2 Bracing (T14)	87.2	Pass
			Redund Hip 1 Bracing (T14)	0.5	Pass
			Redund Hip 2 Bracing (T14)	0.5	Pass
			Redund Hip Diagonal 1 Bracing (T14)	0.7	Pass
			Redund Hip Diagonal 2 Bracing (T14)	0.6	Pass
			Inner Bracing (T1)	0.5	Pass
			Bolt Checks	48.0	Pass
			RATING =	87.2	Pass

Capacity of Additional Components

Component	*% Capacity*	*Pass/Fail*
Anchor Rods	31.1	Pass

4.0 RECOMMENDATIONS

1. All assumptions made in this analysis should be carefully reviewed. Morrison Hershfield should be contacted for any discrepancies so that a full assessment may be made to validate the results of this analysis.
2. Morrison Hershfield strongly recommends that a foundation investigation to determine the as-built foundations be conducted so that the foundation can be properly analyzed prior to installing any additional equipment or make any other changes to the structure.

ATTACHMENTS: Tower Profile, Program Output, Coax Sketch and Additional Calculations.

THE REMAINING PAGES OF THE 23 PAGE STRUCTURAL FEASIBILITY REPORT DATED OCTOBER 27, 2016, IS ON FILE AT THE ST. JOHNS COUNTY REAL ESTATE DIVISION, 500 SAN SEBASTIAN VIEW, ST. AUGUSTINE, FLORIDA 32084.