



THE SUNRISE CITY
FORT PIERCE
PLANNING DEPARTMENT *Florida*

DEVELOPMENT REVIEW

Property address or Location 2006 ORANGE AVENUE
Parcel ID #(s) 2409-605-0008-000-4
Project description New Communication tower w/ compound

Lesley Phillips / Abdel Jebbar Elbakkari RG Towers, LLC

Property Owner(s)
2006 Orange Ave
Street Address
Ft Pierce FL 34950
City State Zip
772-595-8129

Phone Number
amal0012012@gmail.com
Email Address

Applicant/Representative, Title, Company
2141 Alternate A1AS Ste 440
Street Address
Jupiter, FL 33477
City State Zip
561-748-0302

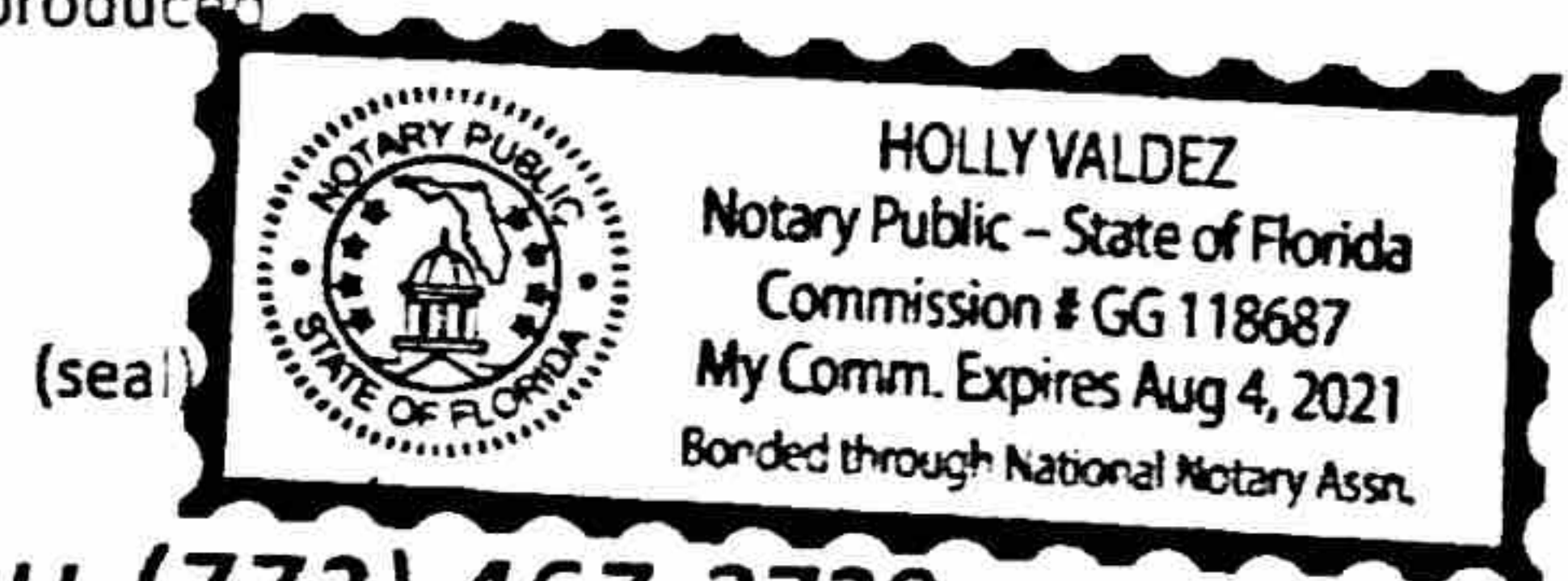
Phone Number
hvaldez@rgpartners.com
Email Address

Property Owner(s) Acknowledgements: - This application will not be considered complete without the signature of all property owners of record, which shall serve as an acknowledgement of the submission of this application. The property owner's signature below shall also authorize the Applicant (if other than the property owner) and/or Representative to act in his/her behalf for the purposes of seeking approval for the application described herein. The undersigned consents to inspection and photographing of the subject property by the Planning staff for purposes of consideration of this Application and/or presentation to the Planning Board and City Commission.

Lesley Phillips 6/14/18
Property Owner(s) Signature(s)

STATE OF FLORIDA -- COUNTY
The foregoing instrument was acknowledged before me this 14th day of June, 2018, by
Lesley Phillips who is personally known to me or has produced
as identification.

Holly Valdez
Signature of Notary



INTAKE MEETINGS ARE REQUIRED FOR ALL SUBMITTALS. CALL (772) 467-3729

TO BE COMPLETED BY STAFF

Zoning	Future Land Use	Total Acres	Historic District	Historic Designation
				Contributing Individual Non-Contributing None

Pre-Application Meeting Date _____ Fees _____ Control # _____ B. Permit # _____

Intake Planner _____

Planner Assigned _____

Approved By _____ Date _____

Comments _____

Intake Date Stamp

DEVELOPMENT REVIEW

General Information

- Incomplete application packets cannot be accepted.
- Site Plan approval is valid for one (1) year following City Commission approval. In order to maintain site plan approval, vertical improvements, permitted by the Building Department must commence prior to the 12-month expiration date, and building permits must be maintained until site plan is completed, per plans, or approval shall lapse.

Choose Application Type:

Application Type		
<input checked="" type="checkbox"/> Site Plan	<input type="checkbox"/> Conditional Use with New Const.	<input type="checkbox"/> Major Amendment
<input type="checkbox"/> Conceptual Development Plan	<input type="checkbox"/> Minor Amendment	

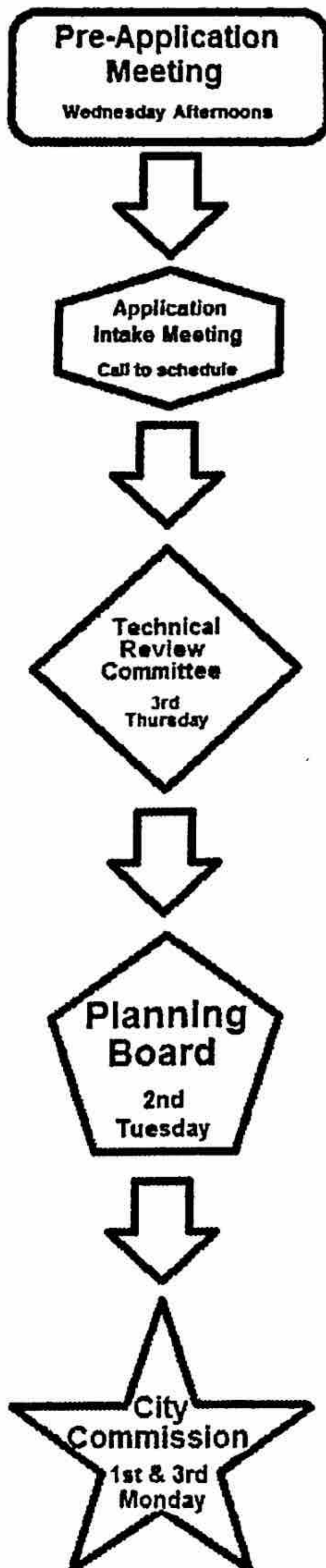
Site Information:

Non-Residential: Proposed Sq. Ft.: 2000 Residential: Proposed Units: 0

Surrounding Uses: (i.e. single family home, retail, industrial, etc.)

North	South	East	West
R3	C3	C3	C3

Application Outlook



Site Plan submittal requirements:

Submit one (1) original & thirteen (13) hard copies and one (1) CD of the following. Additional copies will be required of subsequent submittals.

- Complete notarized application
- Warranty Deed
- SLC Property Record Card
- Statements of ownership & control of proposed development. Statement describing in detail: character & intended use.
- General location map (see Section 22-58.d.2)
- Survey (see Section 22-58.d.3)
- Site Plan (see Section 22-58.d.4)
- Landscaping Plan (see Section 22-187)
- Storm Drainage Plan (see Section 22-58.d.6)
- Environmental Impact Report
- Beach/Dune System protection plan, if applicable (see Section 22-58.d.7)
- Lighting Plan (see Section 22-58.d.8)
- Design Review submittals (see Design Review application) **NA**
- Traffic Impact Report **NA**
- Concurrency Review submittals (see Concurrency Review application) **NA**



5/10/18

RE: Zoning Review Section 22-159-B 7
Letter of intent. RG Towers Ft Pierce Orange Ave TC11

Dear Sir/ Madam:

RG Towers, LLC is applying for approvals to build a 130' stealth communications tower, which will be available for collocation in St Lucie County. The following information is provided pursuant to the requirements of the City of Fort Pierce Land Development Regulations Section 22-159 and notices have been provided to all major carriers.

-

Tower Height/Type	130' Stealth communications tower
Address	2006 Orange Ave, Fort Pierce, FL 34950
Coordinates	Approximately 27.447636, -80.345960
General Rate	Dependent upon height, loading and ground space required
Tentative Construction date	Q3, 2018

RG Towers, LLC and its successors will agree to the shared use of the tower if an additional user agrees, in writing, to meet reasonable terms and conditions for shared use

.

Sincerely,

Scott Richards
CEO
RG Towers, LLC



RG Towers, LLC

5-10-18

RE: RG Towers-Ft Pierce- Orange Ave Relevant Easements

Per the requirement of code Section 22-159 (b) 6 "Copies of Relevant Easements", we report that there are no relevant easements to this application per the title report dated 10/18/17.

- US TITLE SOLUTIONS FILE NO.58394-FL1710-5030
REFERENCE NO. TC11 SITE NAME Ft Pierce- Orange Ave

Sincerely,

Holly Valdez
V.P. Operations
RG Towers, LLC



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

Aeronautical Study No.
 2017-ASO-25626-OE

Issued Date: 01/03/2018

Scott Richards
 RG Towers, LLC
 2141 Alternate A1A, South
 Suite 440
 Jupiter, FL 33477

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

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

Structure: Monopole ORANGE AVENUE
 Location: Ft. Pierce, FL
 Latitude: 27-26-51.58N NAD 83
 Longitude: 80-20-45.15W
 Heights: 20 feet site elevation (SE)
 150 feet above ground level (AGL)
 170 feet above mean sea level (AMSL)

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

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

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

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 1.

This determination expires on 07/03/2019 unless:

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

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

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

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

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

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

If we can be of further assistance, please contact our office at (404) 305-6462, or mike.blaich@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ASO-25626-OE.

Signature Control No: 351367066-352287243

(DNE)

Michael Blaich
Specialist

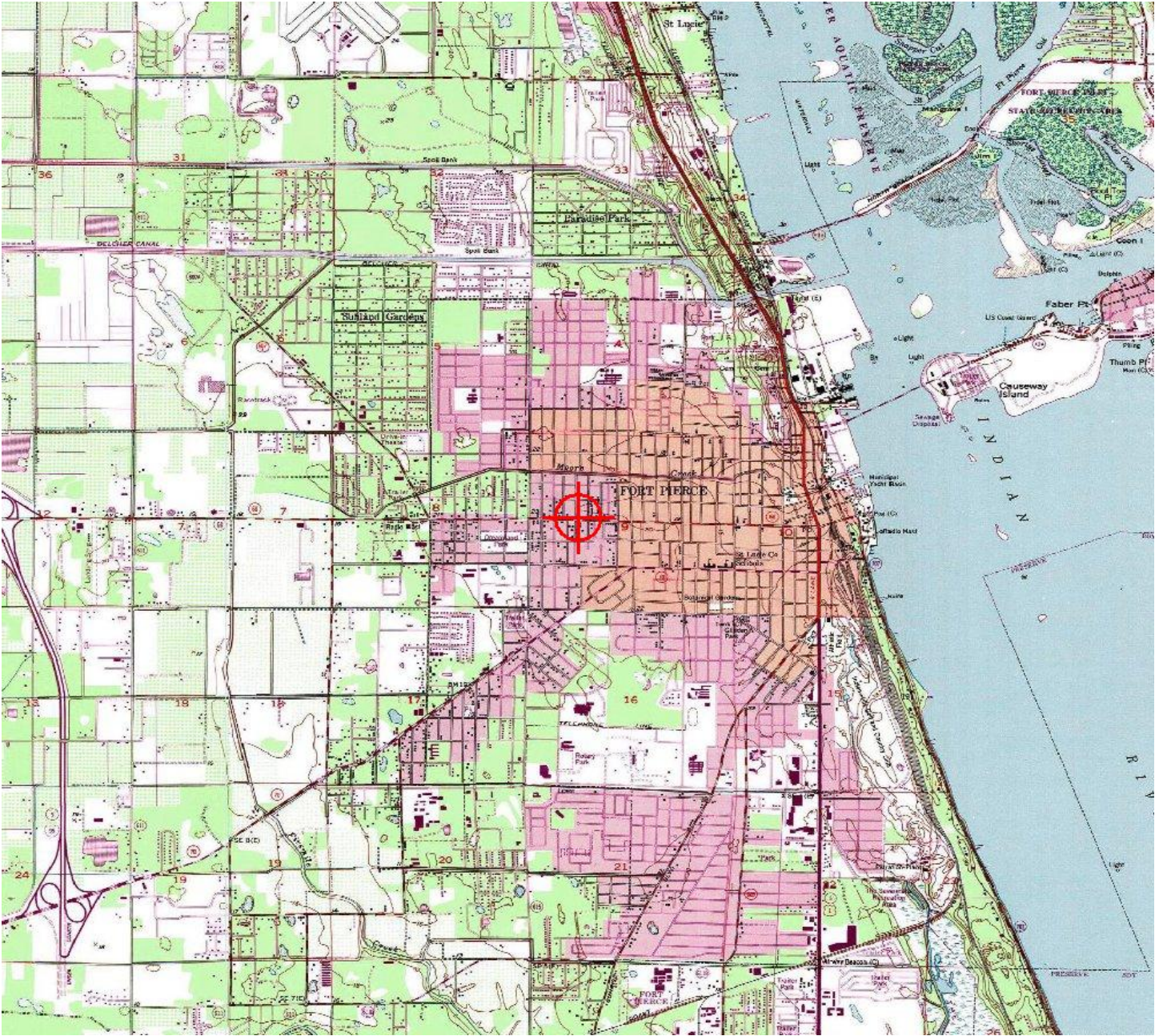
Attachment(s)
Frequency Data
Map(s)

cc: FCC

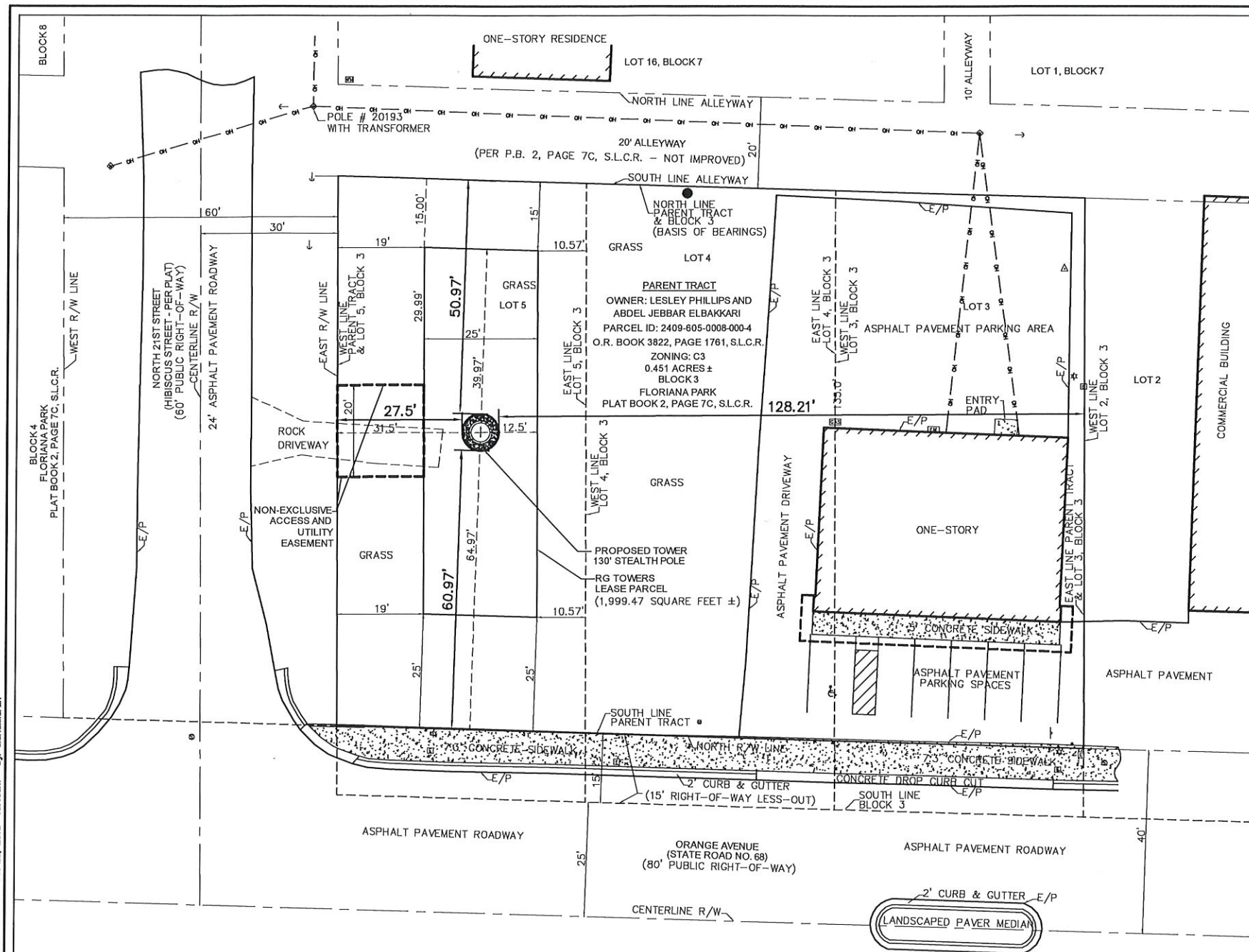
Frequency Data for ASN 2017-ASO-25626-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
929	932	MHz	3500	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W

TOPO Map for ASN 2017-ASO-25626-OE



Drawing name: K:\WP9_Civil\CELL_SITES\RGF Towers\144042047 Ft Pierce- 2008 Orange Ave\04\Site Plan.DWG 1 of 3 Oct 23, 2018 10:16am by: Mario.Martin



OVERALL SITE PLAN

ADJACENT ZONING CLASSIFICATIONS	ZONING/LAND USE CLASSIFICATION
ZONING TO EAST	C-3/GENERAL COMMERCIAL
ZONING TO SOUTH	C-3/GENERAL COMMERCIAL
ZONING TO WEST	C-3/GENERAL COMMERCIAL
ZONING TO NORTH	R3/SINGLE FAMILY MODERATE DENSITY

STRUCTURE	SETBACKS TO PROPERTY LINE			
	NORTH PROPERTY LINE (FT)	SOUTH PROPERTY LINE (FT)	EAST PROPERTY LINE (FT)	WEST PROPERTY LINE (FT)
TOWER (EDGE)	50.97	60.97	128.21	27.5

PROJECT DESCRIPTION

THIS PROJECT IS FOR THE CONSTRUCTION OF AN UNMANNED TELECOMMUNICATIONS FACILITY CONSISTING OF THE INSTALLATION OF A 130' STEALTH POLE COMMUNICATIONS TOWER AND FUTURE WIRELESS BASE STATION EQUIPMENT IN ORDER TO PROVIDE RADIO TRANSMISSION SERVICES FOR PERSONAL COMMUNICATIONS AS WELL AS EMERGENCY 911 SERVICE. PROJECT SIZE IS 1,999.47 SF COMPOUND.

COORDINATES: (CENTER OF 130' STEALTH POLE)
 LAT: 27°26'51.584" N (NAD 83/2011)
 LONG: 80°20'45.150" W (NAD 83/2011)
 ELEVATION: 19.8'± NAVD 88 (PER SURVEY)
 FOLIO NUMBER: 2409-605-0008-000-4

PROJECT APPLICANT

RG TOWERS, LLC
 2141 ALTERNATE A1A SOUTH, SUITE 440
 JUPITER, FL 33477
 561-748-0302 ATTN: SCOTT RICHARDS

PROPERTY OWNER

LESLEY PHILLIPS
 ABDEL JEBBAR ELBAKKARI
 2006 ORANGE AVE
 FORT PIERCE, FL 34950

UTILITIES

THIS PROJECT WILL REQUIRE POWER AND TELEPHONE SERVICE ONLY, NO WET UTILITIES OR GARBAGE COLLECTION WILL BE NEEDED TO SUPPORT THIS PROJECT

HANDICAP ACCESS

THIS FACILITIES IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS IS NOT REQUIRED

IMPERVIOUS COVERAGE

PROPOSED IMPERVIOUS SURFACE COVERAGE IS EQUAL TO FUTURE BUILDING (EQUIPMENT SLABS) AND TOWER FOOTPRINTS (650 SF MAX)

PROJECT DENSITY

THERE ARE NO RESIDENTIAL UNITS FOR THIS PROJECT. PROJECT DENSITY IS N/A.

DRAINAGE REQUIREMENTS

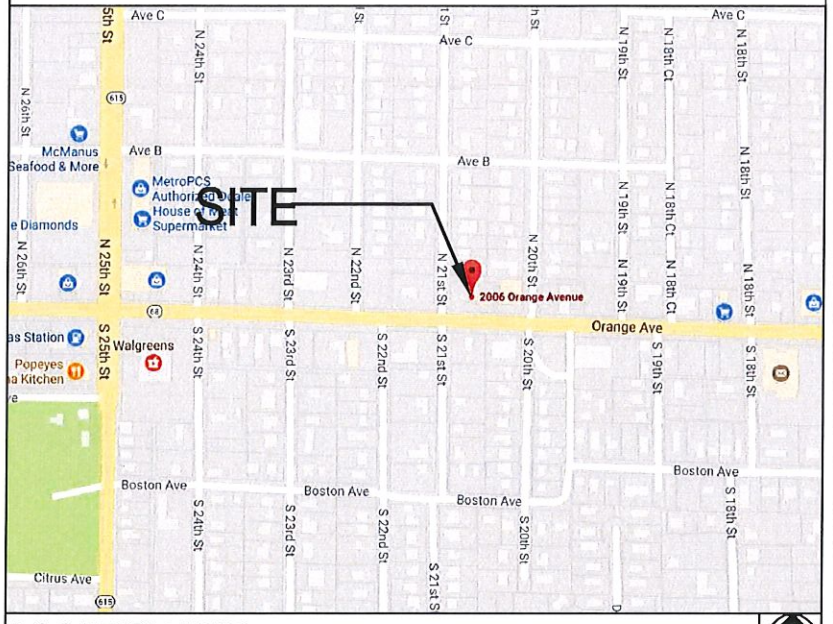
THE FIRST 1" OF STORMWATER RUNOFF IS TO BE RETAINED ON SITE PRIOR TO DISCHARGE TO THE OVERALL MASTER DRAINAGE SYSTEM FOR THE PARENT TRACT.

LANDSCAPING REQUIREMENTS

PERIMETER LANDSCAPING AROUND COMPOUND TO BE IN COMPLIANCE WITH CITY OF FORT PIERCE CODE.

NOTES:

- FCC REQUIRES SIGNS TO BE PROVIDED AND INSTALLED AS NECESSARY.
- "HIGH VOLTAGE-DANGER" SIGN INSTALLED ON GATE AND SIGN SHALL NOT EXCEED 1 SF IN AREA.
- 6' HIGH WOOD FENCE AND LOCKED ENTRY GATE.
- ALL CONSTRUCTION WILL COMPLY WITH SECTIONS 17 AND 22 OF THE CITY OF FORT PIERCE CODE OF ORDINANCES.



LOCATION MAP

RG Towers, LLC
 2141 Alternate A1A South, Suite 440
 Jupiter, FL 33477

PROJECT INFORMATION:

FT PIERCE-ORANGE AVE
 2006 ORANGE AVE
 FORT PIERCE, FL 34950
 ST LUCIE COUNTY

CURRENT ISSUE DATE:

OCTOBER 2018

ISSUED FOR:

SITE PLAN REVIEW

REV.: DATE: DESCRIPTION:

REV.	DATE	DESCRIPTION
1	10-19-18	PER CITY COMMENTS



Kimley-Horn
 © 2017 KIMLEY-HORN AND ASSOCIATES, INC.
 1920 WEKIVA WAY, SUITE 200
 WEST PALM BEACH, FLORIDA 33411
 (561) 845-0665
 FBPE CA0000696

PROVIDER:

Blank space for provider information.

DRAWN BY: CHK.: APV.:
 MM LF MM

LICENSURE:
 MARIA VICTORIA MARTIN PE 72397

SHEET TITLE:

SITE PLAN

SHEET NUMBER: REVISION:

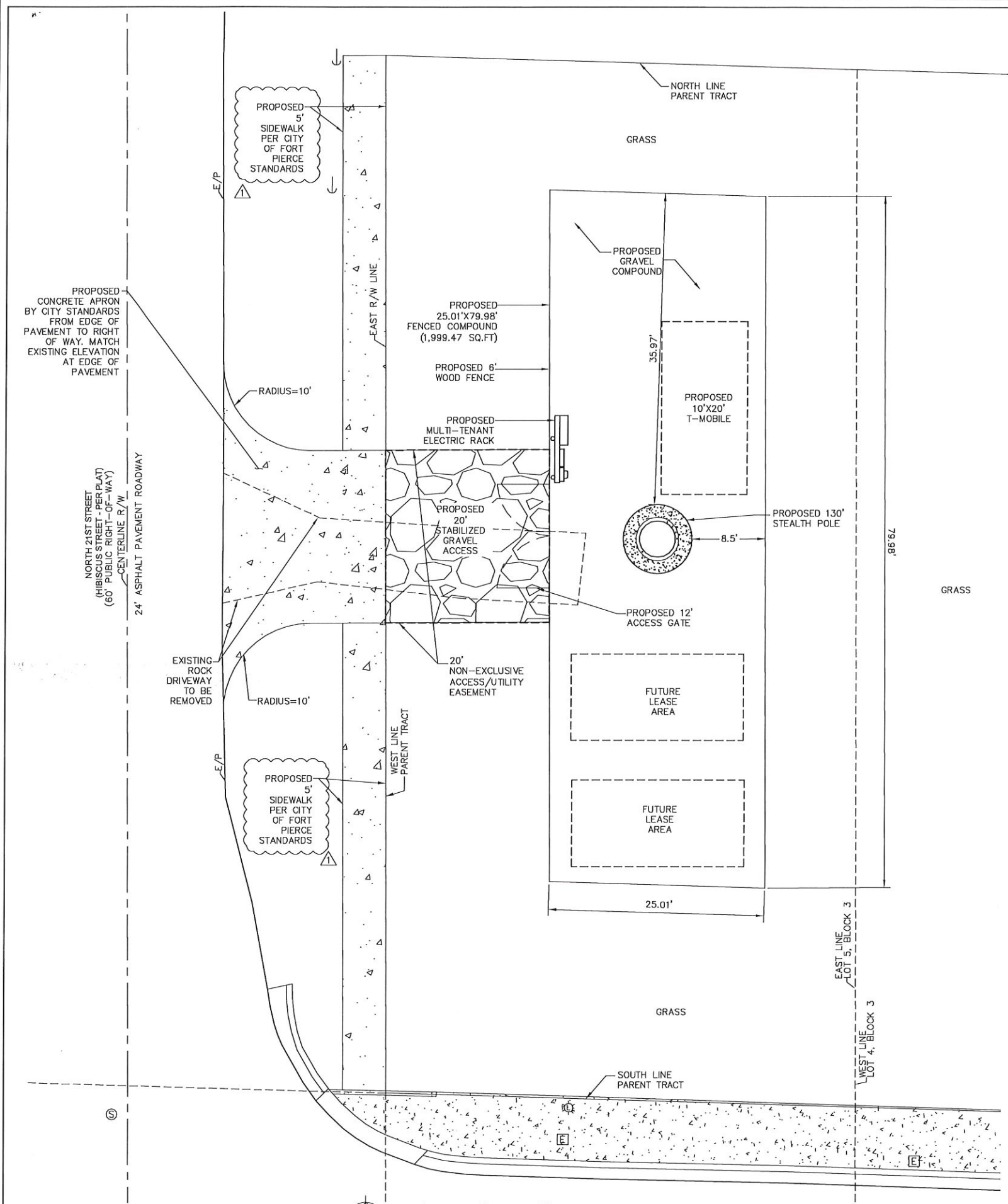
1/3

KHA Job #:

144042047

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Drawing name: K:\WPB_Civil\CELL_SITES\Towers\144042047 Ft Pierce- 2006 Orange Ave\ad\Zda\Sis Plan.DWG 2 of 3 Oct 19, 2018 11:01am by MariaMartin

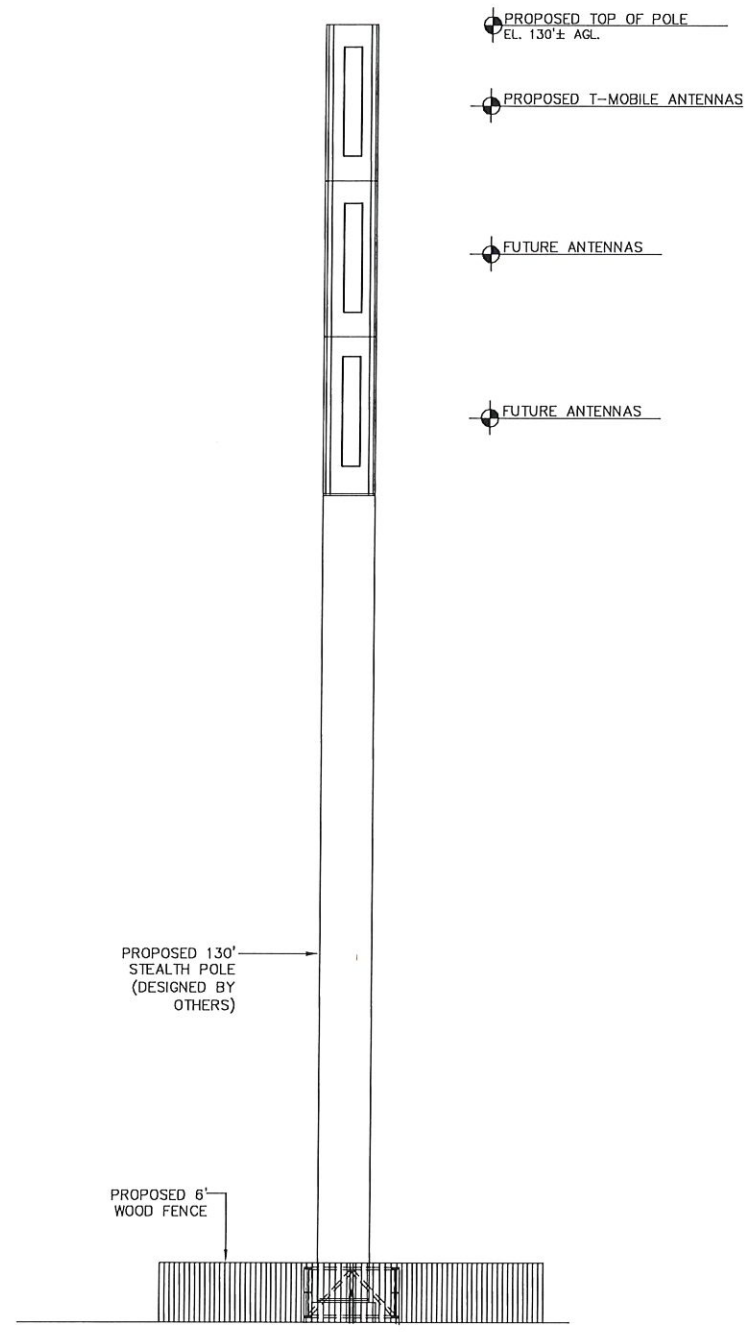


RG TOWERS COMPOUND PLAN



This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Review of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

FLOOD ZONE INFORMATION					
COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION
120286	0178	J	02/16/2012	X	N/A



TOWER ELEVATION
N.T.S.

- NOTE:
1. ALL PROPOSED ATTACHMENTS TO TOWER BASED ON STRUCTURAL ANALYSIS BY OTHERS.
 2. TOWER IS DESIGNED FOR A TOTAL OF THREE WIRELESS SERVICE PROVIDERS. LOCATION OF FUTURE PROVIDERS IS APPROXIMATE.
 3. CONTRACTOR TO COORDINATE ANTENNA MOUNTS W/ OWNER.
 4. CONTRACTOR TO REFER TO STRUCTURAL ANALYSIS (BY OTHERS).
 5. POLE TO BE GALVANIZED STEEL WITH NO LIGHTING AND NO FLAG TO BE FLOWN
 6. TOWER WILL HAVE A ZERO FALL ZONE

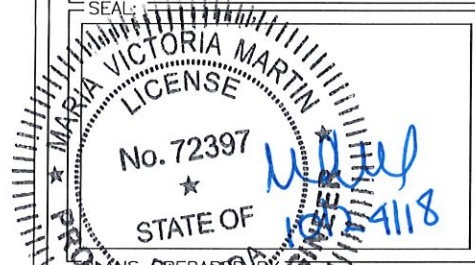
RG Towers, LLC
2141 Alternate A1A South, Suite 440
Jupiter, FL 33477

PROJECT INFORMATION:
FT PIERCE-ORANGE AVE
2006 ORANGE AVE
FORT PIERCE, FL 34950
ST LUCIE COUNTY

CURRENT ISSUE DATE:
OCTOBER 2018

ISSUED FOR:
SITE PLAN REVIEW

REV. DATE	DESCRIPTION
10-19-18	PER CITY COMMENTS



Kimley-Horn
© 2017 KIMLEY-HORN AND ASSOCIATES, INC.
1920 WEKIVA WAY, SUITE 200
WEST PALM BEACH, FLORIDA 33411
(561) 845-0665
FBPE CA00000696

PROVIDER:
DRAWN BY: **MM** CHK.: **LF** APV.: **MM**

LICENSURE:
MARIA VICTORIA MARTIN PE 72397

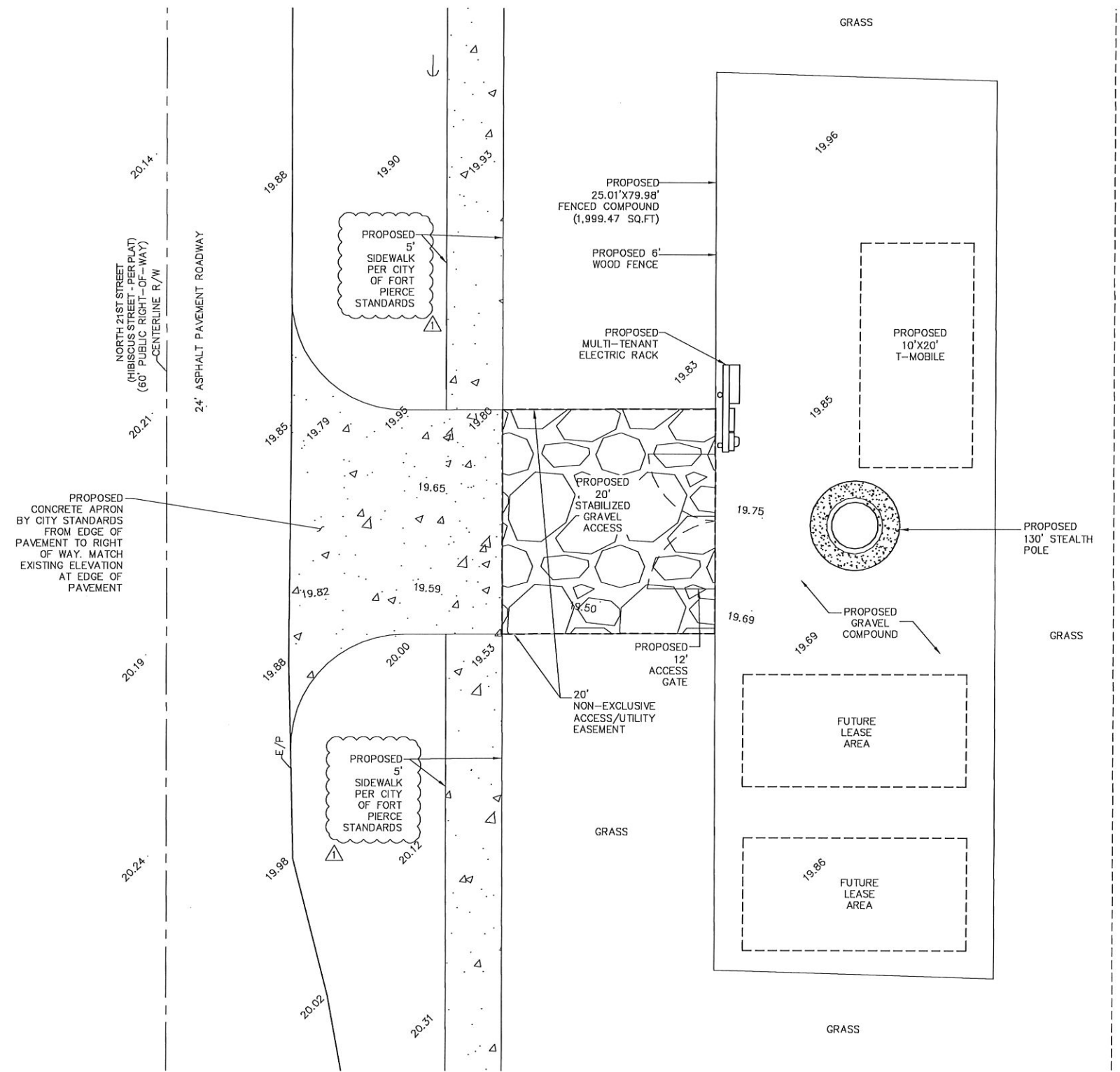
SHEET TITLE:
**RG TOWERS COMPOUND
PLAN & TOWER ELEVATION**

SHEET NUMBER: **2/3** REVISION:

KHA Job #: **144042047**

FLOOD ZONE INFORMATION					
COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION
120286	0178	J	02/16/2012	X	N/A

19.83 EXISTING GRADES NAVD 88



DRAINAGE CALCULATIONS:

I. GENERAL SITE PLAN INFORMATION:

GRAVEL COMPOUND AREA: 1,999.47 SF
 IMPERVIOUS AREA:
 PROPOSED TOWER FOUNDATION = 50 SF
 PROPOSED FUTURE EQUIPMENT SLABS: 450 SF
 EQUIPMENT SLABS, 3 CARRIER @ 150 SF EACH

TOTAL IMPERVIOUS AREA: 500 SF

TOTAL PERVIOUS AREA: 1,499.47 SF

II. CALCULATE REQUIRED STORAGE RUNOFF:

1. 1" OF RUNOFF OVER TOTAL SITE
 $Q = 1,999.47 \text{ SF} \times 1" \times 1'/12"$
 $Q = 166.6 \times 50\% \text{ (ALLOWABLE REDUCTION)}$
 $Q = 83.3 \text{ CF}$

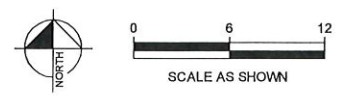
III. STORAGE VOLUME PROVIDED:

No. 57 STONE COMPOUND, 4" LAYER, 1,999.47 SF
 COMPOUND. ASSUME 40% VOIDS RATIO.

RETENTION VOLUME PROVIDED = $(1,999.47 \text{ SF} - 500 \text{ SF}) \times 0.4 \times 4"/12" = 199.9 \text{ CF}$

RETENTION VOLUME PROVIDED = 199.9 CF

RETENTION VOLUME PROVIDED IS GREATER THAN REQUIRED VOLUME



STORM DRAINAGE PLAN

NOTE:
 ALL STORM DRAINAGE FACILITIES SHALL CONFORM TO CHAPTERS 17 AND 18 OF THE FORT PIERCE CODE OF ORDINANCES AND THE "STANDARD SPECIFICATIONS" ADOPTED BY THE CITY COMMISSION ON FEBRUARY 13, 1973.

RG Towers, LLC
 2141 Alternate A1A South, Suite 440
 Jupiter, FL 33477

PROJECT INFORMATION:
FT PIERCE-ORANGE AVE
 2006 ORANGE AVE
 FORT PIERCE, FL 34950
 ST LUCIE COUNTY

CURRENT ISSUE DATE:
OCTOBER 2018

ISSUED FOR:
SITE PLAN REVIEW

REV. DATE	DESCRIPTION
10-19-18	PER CITY COMMENTS

SEAL:
 MARIA VICTORIA MARTIN
 LICENSE
 No. 72397
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER

DESIGNED BY:
Kimley-Horn
 © 2017 KIMLEY-HORN AND ASSOCIATES, INC.
 1920 WEKIVA WAY, SUITE 200
 WEST PALM BEACH, FLORIDA 33411
 (561) 845-0665
 FBPE CA00000696

PROVIDER:
 DRAWN BY: MM CHK.: LF APV.: MM

LICENSURE:
 MARIA VICTORIA MARTIN PE 72397

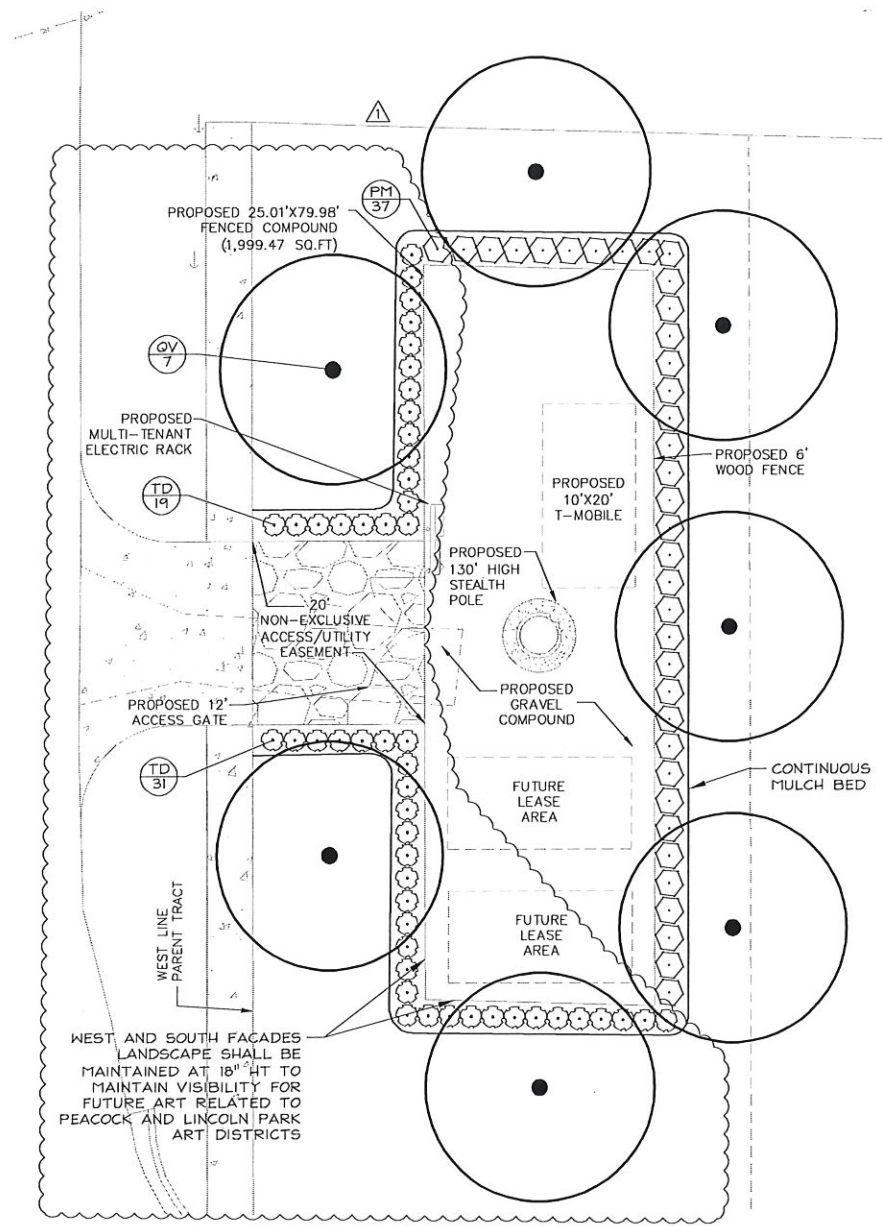
SHEET TITLE:
STORM DRAINAGE PLAN

SHEET NUMBER: **3/3** REVISION:

KHA Job #:
144042047

Drawing name: K:\WPB_Civil\CELL SITES\RG Towers\144042047 Ft. Pierce-2006 Orange Ave\add\20a\Site Plan.dwg 3 of 3 Oct 19, 2018 11:01am by: MariaMartin

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

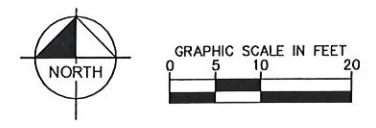


PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	CONT	CAL.	SIZE	QTY
QV	Quercus virginiana	Southern Live Oak	30 gal	3" Cal.	10'HT X 5'SPR	7
SHRUBS	BOTANICAL NAME	COMMON NAME	CONT	O.C.	SIZE	QTY
PM	Podocarpus macrophyllus	Podocarpus	7 gal	36" O.C.	6'H 1'in	37
TD	Tripsacum floridanum	'Dwarf' Florida Gamagrass	Cont.	30" O.C.	18" HT	50

CODE COMPLIANCE SUMMARY:

PERIMETER BUFFER REQUIRED:	PROVIDED:
SHADE TREES 1/30 LF 190 LF / 30 LF = 7 SHADE TREES	7 SHADE TREES
CONTINUOUS HEDGE 6' H	CONTINUOUS HEDGE



- PLANTING NOTES:**
1. CONTRACTOR SHALL REFER TO THE LANDSCAPE PLANTING DETAILS, PLANT LIST, GENERAL NOTES AND ALL CONTRACT DOCUMENTS FOR FURTHER AND COMPLETE INSTRUCTIONS.
 2. PLANT LIST QUANTITIES ARE PROVIDED FOR CONVENIENCE. IN THE EVENT OF QUANTITY DISCREPANCIES THE DRAWING SHALL TAKE PRECEDENCE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BIDDING.
 3. PLANT SIZES LISTED ARE THE MINIMUM SIZE THAT WILL BE ACCEPTED FOR THAT PLANT.
 4. ANY SUBSTITUTION IN SIZE AND/OR PLANT MATERIAL MUST BE APPROVED BY THE LANDSCAPE ARCHITECT IN WRITING. ALL PLANTS WILL BE SUBJECT TO APPROVAL BY LANDSCAPE ARCHITECT AND/OR OWNERS REPRESENTATIVE BEFORE PLANTING CAN BEGIN.
 5. CONTRACTOR SHALL FIELD ADJUST LOCATION OF PLANT MATERIAL AS NECESSARY TO AVOID DAMAGE TO EXISTING UNDERGROUND UTILITIES AND/OR INTERFERE WITH EXISTING ABOVE GROUND ELEMENTS. ALL CHANGES REQUIRED SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE AND SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AND THE LANDSCAPE ARCHITECT.
 6. THE CONTRACTOR SHALL BEAR ALL COSTS OF TESTING OF SOILS, AMENDMENTS, ETC. ASSOCIATED WITH THE WORK AND INCLUDED IN THE SPECIFICATIONS.
 7. CONTRACTOR SHALL FAMILIARIZE HIM/HERSELF WITH THE LIMITS OF WORK AND EXISTING CONDITIONS AND VERIFY ALL INFORMATION. IF DISCREPANCIES EXIST, CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE IN WRITING WITHIN SEVEN CALENDAR DAYS OF NOTICE TO PROCEED.
 8. ALL NEW AND TRANSPLANTED PLANT MATERIAL SHALL BE IRRIGATED BY TYING INTO THE EXISTING AUTOMATIC UNDERGROUND IRRIGATION SYSTEM.

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

RG Towers, LLC
2141 Alternate A1A South, Suite 440
Jupiter, FL 33477

PROJECT INFORMATION:
FT PIERCE-ORANGE AVE
2006 ORANGE AVE
FORT PIERCE, FL 34950
ST LUCIE COUNTY

CURRENT ISSUE DATE:
OCTOBER 2018

ISSUED FOR:
LANDSCAPE PLANS

REV.: DATE: DESCRIPTION:

△	10-19-18	PER CITY COMMENTS



PLANS PREPARED BY:
Kimley»Horn
© 2017 KIMLEY-HORN AND ASSOCIATES, INC.
1920 WEKIVA WAY, SUITE 200
WEST PALM BEACH, FLORIDA 33411
(561) 845-0665
FBPE CA0000696

PROVIDER:

DRAWN BY: CHK.: APV.:

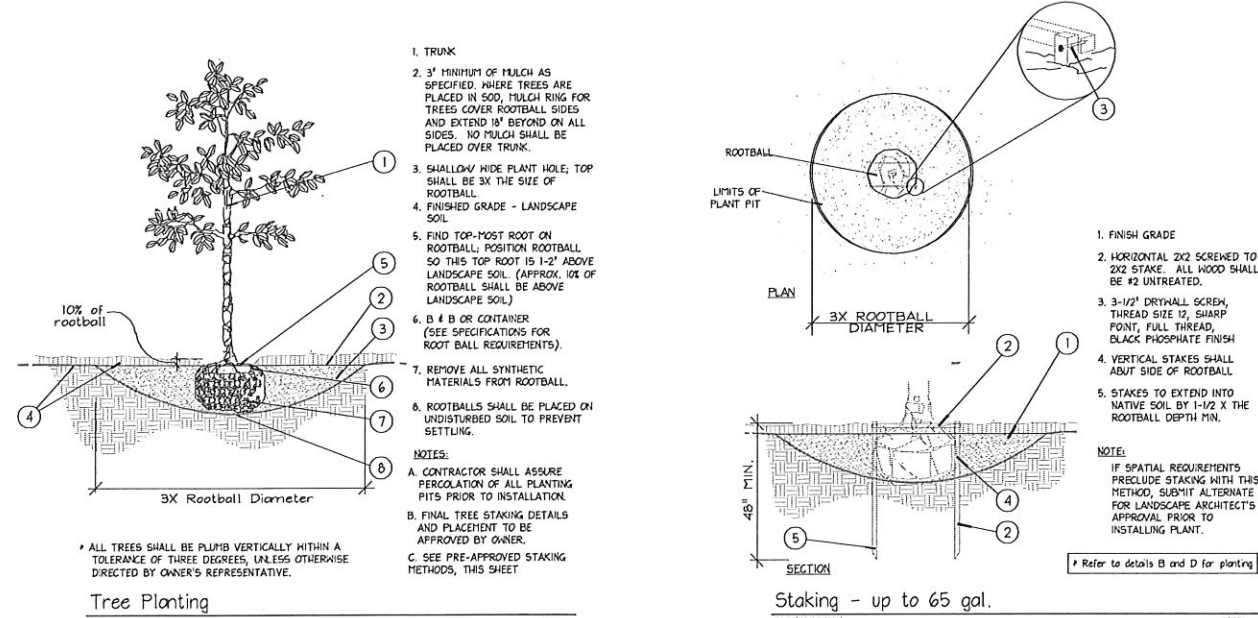
MM	LF	MM
----	----	----

LICENSURE:
JONATHAN D. HAIGH, PLA LA#6666795

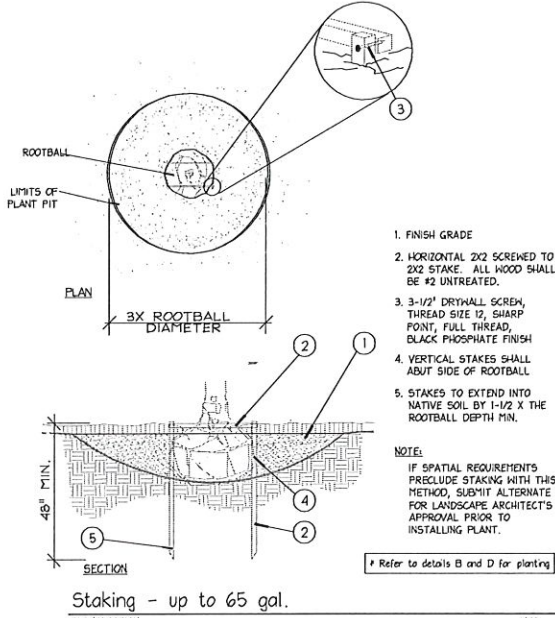
SHEET TITLE:
LANDSCAPE PLANS

SHEET NUMBER: REVISION:
L-1

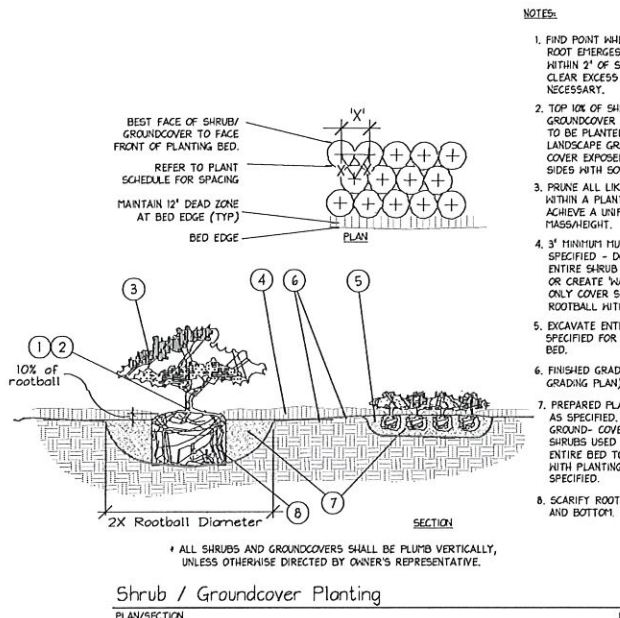
KHA Job #:
144042047



Tree Planting
SECTION
NTS



Staking - up to 65 gal.
PLAN/SECTION
NTS



Shrub / Groundcover Planting
PLAN/SECTION
NTS

- NOTES:**
1. FIND POINT WHERE TOPMOST ROOT EMERGES FROM TRUNK WITHIN 2' OF SURFACE. CLEAR EXCESS SOIL IF NECESSARY.
 2. TOP 10% OF SHRUB AND GROUNDCOVER ROOTBALLS TO BE PLANTED ABOVE THE LANDSCAPE GRADE TO NOT COVER EXPOSED 10% ON SIDES WITH SOIL.
 3. PRUNE ALL LIKE SHRUBS WITHIN A PLANTED MASS TO ACHIEVE A UNIFORM MASS/HEIGHT.
 4. 3' MINIMUM MULCH AS SPECIFIED - DO NOT COVER ENTIRE SHRUB ROOTBALL OR CREATE 'WATER RINGS' ONLY COVER SIDES OF ROOTBALL WITH MULCH.
 5. EXCAVATE ENTIRE BED SPECIFIED FOR GROUNDCOVER BED.
 6. FINISHED GRADE (SEE GRADING PLAN).
 7. PREPARED PLANTING SOIL AS SPECIFIED. NOTE WHEN GROUND-COVERS AND SHRUBS USED IN MASSES, ENTIRE BED TO BE ATTENDED WITH PLANTING SOIL MIX AS SPECIFIED.
 8. SCARIFY ROOTBALL SIDES AND BOTTOM.

- A. SCOPE OF WORK**
1. THE WORK CONSISTS OF: FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT AS SHOWN ON THE DRAWINGS, AS INCLUDED IN THE PLANT LIST, AND AS HEREIN SPECIFIED.
 2. WORK SHALL INCLUDE MAINTENANCE AND WATERING OF ALL CONTRACT PLANTING AREAS UNTIL CERTIFICATION OF ACCEPTABILITY BY THE OWNER.
- B. PROTECTION OF EXISTING STRUCTURES**
- ALL EXISTING BUILDINGS, WALLS, PAVING, PIPING, OTHER SITE CONSTRUCTION ITEMS, AND PLANTING ALREADY COMPLETED OR ESTABLISHED SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. ALL DAMAGE RESULTING FROM NEGLIGENCE SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER, AT NO COST TO THE OWNER.
- C. PROTECTION OF EXISTING PLANT MATERIALS OUTSIDE LIMIT OF WORK**
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNAUTHORIZED CUTTING OR DAMAGE TO TREES AND SHRUBS EXISTING OR OTHERWISE, CAUSED BY CARELESS EQUIPMENT OPERATION, MATERIAL STOCKPILING, ETC. THIS SHALL INCLUDE COMPACTION BY DRIVING OR PARKING INSIDE THE DRIP-LINE AND SPILLING OIL, GASOLINE, OR OTHER DELETERIOUS MATERIALS WITHIN THE DRIP-LINE. NO MATERIALS SHALL BE BURNED WHERE HEAT WILL DAMAGE ANY PLANT. EXISTING TREES KILLED OR DAMAGED SO THAT THEY ARE UNSHAPEN AND/OR UNSUITABLE SHALL BE REPLACED AT THE COST TO THE CONTRACTOR OF ONE HUNDRED DOLLARS (\$100) PER CALIPER INCH ON AN ESCALATING SCALE WHICH ADDS AN ADDITIONAL TWENTY (20) PERCENT PER INCH OVER FOUR (4) INCHES CALIPER AS FIXED AND AGREED LIQUIDATED DAMAGES. CALIPER SHALL BE MEASURED SIX (6) INCHES ABOVE GROUND LEVEL FOR TREES UP TO AND INCLUDING FOUR (4) INCHES IN CALIPER AND TWELVE (12) INCHES ABOVE GROUND LEVEL FOR TREES OVER FOUR (4) INCHES IN CALIPER.
- D. MATERIALS**
- 1. PLANT MATERIALS**
- A. PLANT SPECIES AND SIZE SHALL CONFORM TO THOSE INDICATED ON THE DRAWINGS. NOMENCLATURE SHALL CONFORM TO STANDARDIZED PLANT NAMES, 1942 EDITION. ALL NURSERY STOCK SHALL BE IN ACCORDANCE WITH GRADING AND STANDARDS FOR NURSERY PLANTS, LATEST EDITION, PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES. ALL PLANTS SHALL BE FLORIDA GRADE NO. 1 OR BETTER AS DETERMINED BY THE FLORIDA DIVISION OF PLANT INDUSTRY. ALL PLANTS SHALL BE HEALTHY, VIGOROUS, SOUND, WELL-BRANCHED, AND FREE OF DISEASE AND INSECTS, INSECT EGGS AND LARVAE AND SHALL HAVE ADEQUATE ROOT SYSTEMS. TREES FOR PLANTING IN ROWS SHALL BE UNIFORM IN SIZE AND SHAPE. ALL MATERIALS SHALL BE SUBJECT TO APPROVAL BY THE OWNER. WHERE ANY REQUIREMENTS ARE OMITTED FROM THE PLANT LIST, THE PLANTS FURNISHED SHALL BE NORMAL FOR THE VARIETY. PLANTS SHALL BE PRUNED PRIOR TO DELIVERY ONLY WITH APPROVAL FROM OWNER OR OWNER'S REPRESENTATIVE. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN PERMISSION FROM THE OWNER'S REPRESENTATIVE.
- B. MEASUREMENTS: THE HEIGHT AND/OR WIDTH OF TREES SHALL BE MEASURED FROM THE GROUND OR ACROSS THE NORMAL SPREAD OF BRANCHES WITH THE PLANTS IN THEIR NORMAL POSITION. THIS MEASUREMENT SHALL NOT INCLUDE THE IMMEDIATE TERMINAL GROWTH. PLANTS LARGER IN SIZE THAN THOSE SPECIFIED IN THE PLANT LIST MAY BE USED IF APPROVED BY THE OWNER. IF THE USE OF LARGER PLANTS IS APPROVED, THE BALL OF EARTH OR SPREAD OF ROOTS SHALL BE INCREASED IN PROPORTION TO THE SIZE OF THE PLANT.
- C. INSPECTION: PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH OR UPON DELIVERY TO THE SITE, AS DETERMINED BY THE OWNER, FOR QUALITY, SIZE, AND VARIETY. SUCH APPROVAL SHALL NOT IMPAIR THE RIGHT OF INSPECTION AND REJECTION AT THE SITE DURING PROGRESS OF THE WORK OR AFTER COMPLETION FOR SIZE AND CONDITION OF ROOT BALLS OR ROOTS, LATENT DEFECTS OR INJURIES. REJECTED PLANTS SHALL BE REMOVED IMMEDIATELY FROM THE SITE. NOTICE REQUESTING INSPECTION SHALL BE SUBMITTED IN WRITING BY THE CONTRACTOR AT LEAST ONE (1) WEEK PRIOR TO ANTICIPATED DATE.

- E. SOIL MIXTURE (PLANTING MEDIUM, PLANTING MIX, TOPSOIL MIX)**
1. SOIL MIXTURE (PLANTING MEDIUM FOR PLANT PITS) SHALL CONSIST OF TWO PARTS OF TOPSOIL AND ONE PART SAND, AS DESCRIBED BELOW.
 2. TOPSOIL FOR USE IN PREPARING SOIL MIXTURE FOR BACKFILLING PLANT PITS SHALL BE FERTILE, FRIABLE, AND OF A LOAMY CHARACTER; REASONABLY FREE OF SUBSOIL, CLAY LUMPS, BRUSH WEEDS AND OTHER LITTER; FREE OF ROOTS, STUMPS, STONES LARGER THAN 2" IN ANY DIRECTION, AND OTHER EXTRANEUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH. IT SHALL CONTAIN THREE (3) TO FIVE (5) PERCENT DECOMPOSED ORGANIC MATTER AND A PH BETWEEN 5.5 AND 7.0 - SUBMIT SAMPLE AND PH TESTING RESULTS FOR APPROVAL.
 3. SAND SHALL BE COARSE, CLEAN, WELL-DRAINING, NATIVE SAND. CONTRACTOR SHALL SUBMIT RESULTS OF SOIL TESTS FOR TOPSOIL AND SAND PROPOSED FOR USE UNDER THIS CONTRACT FOR APPROVAL BY THE OWNER.
 4. TREES SHALL BE PLANTED IN THE EXISTING NATIVE SOIL ON SITE, UNLESS DETERMINED TO BE UNSUITABLE - AT WHICH POINT THE CONTRACTOR SHALL CONTACT LANDSCAPE ARCHITECT TO DISCUSS ALTERNATE RECOMMENDATION PRIOR TO PLANTING.
 5. CONTRACTOR TO SUBMIT SAMPLES OF SOIL MIXTURE FOR OWNER'S REPRESENTATIVE APPROVAL PRIOR TO PLANT INSTALLATION OPERATIONS COMMENCE.
- F. WATER**
- WATER NECESSARY FOR PLANTING AND MAINTENANCE SHALL BE OF SATISFACTORY QUALITY TO SUSTAIN AN ADEQUATE PLANT GROWTH AND SHALL NOT CONTAIN HARMFUL, NATURAL OR MAN-MADE ELEMENTS TO PLANTS. WATER MEETING THE ABOVE STANDARD SHALL BE OBTAINED ON THE SITE FROM THE OWNER, IF AVAILABLE, AND THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE ARRANGEMENTS FOR ITS USE BY HIS TANKS, HOSES, SPRINKLERS, ETC.. IF SUCH WATER IS NOT AVAILABLE AT THE SITE, THE CONTRACTOR SHALL PROVIDE SATISFACTORY WATER FROM SOURCES OF THE SITE AT NO ADDITIONAL COST TO THE OWNER.
- G. WATERING/IRRIGATION RESTRICTIONS MAY APPLY - REFER TO PROPERTY'S JURISDICTIONAL AUTHORITY.**
- H. FERTILIZER**
- CONTRACTOR SHALL PROVIDE FERTILIZER APPLICATION SCHEDULE TO OWNER, AS APPLICABLE TO SOIL TYPE, PLANT INSTALLATION TYPE, AND SITE'S PROPOSED USE. SUGGESTED FERTILIZER TYPES SHALL BE ORGANIC OR OTHERWISE NATURALLY-DERIVED.
- I. FERTILIZER RESTRICTIONS MAY APPLY - REFER TO PROPERTY'S JURISDICTIONAL AUTHORITY.**
- J. MULCH**
- MULCH MATERIAL SHALL BE MOISTENED AT THE TIME OF APPLICATION TO PREVENT WIND DISPLACEMENT, AND APPLIED AT A MINIMUM DEPTH OF 3 INCHES. CLEAR MULCH FROM EACH PLANT'S CROWN (BASE). TYPE OF MATERIAL: PINE STRAW.
- K. PLANTING PROCEDURES**
1. CLEANING UP BEFORE COMMENCING WORK: THE CONTRACTOR SHALL CLEAN WORK AND SURROUNDING AREAS OF ALL RUBBISH OR OBJECTIONABLE MATTER. ALL HORTAR, CEMENT, AND TOXIC MATERIAL SHALL BE REMOVED FROM THE SURFACE OF ALL PLANT BEDS. THESE MATERIALS SHALL NOT BE MIXED WITH THE SOIL. SHOULD THE CONTRACTOR FIND SUCH SOIL CONDITIONS BENEATH THE SOIL WHICH WILL IN ANY WAY ADVERSELY AFFECT THE PLANT GROWTH, HE SHALL IMMEDIATELY CALL IT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. FAILURE TO DO SO BEFORE PLANTING SHALL MAKE THE CONTRACTOR MEASURES THE RESPONSIBILITY OF THE CONTRACTOR.
 2. VERIFY LOCATIONS OF ALL UTILITIES, CONDUITS, SUPPLY LINES AND CABLES, INCLUDING BUT NOT LIMITED TO: ELECTRIC, GAS (LINES AND TANKS), WATER, SANITARY SEWER, STORMWATER SYSTEMS, CABLE, AND TELEPHONE. PROPERLY MAINTAIN AND PROTECT EXISTING UTILITIES. CALL NATIONAL ONE CALL - 811 - TO LOCATE UTILITIES.
 3. SUBGRADE EXCAVATION: CONTRACTOR IS RESPONSIBLE TO REMOVE ALL EXISTING AND IMPORTED LIMEROCK AND LIMEROCK SUB-BASE FROM ALL LANDSCAPE PLANTING AREAS TO A MINIMUM DEPTH OF 3". CONTRACTOR IS RESPONSIBLE TO BACKFILL THESE PLANTING AREAS TO ROUGH FINISHED GRADE WITH CLEAN TOPSOIL FROM AN ON-SITE SOURCE OR AN IMPORTED SOURCE. IF LIMEROCK OR OTHER ADVERSE CONDITIONS OCCUR IN PLANTED AREAS AFTER 3" DEEP EXCAVATION BY THE CONTRACTOR, AND POSITIVE DRAINAGE CAN NOT BE ACHIEVED, CONTRACTOR SHALL UTILIZE PLANTING DETAIL THAT ADDRESSES POOR DRAINAGE.

- L. LAWN SODDING**
1. THE WORK CONSISTS OF LAWN BED PREPARATION, SOIL PREPARATION, AND SODDING COMPLETE, IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND THE APPLICABLE DRAWINGS TO PRODUCE A TURF GRASS LAWN ACCEPTABLE TO THE OWNER.
 2. LAWN BED PREPARATION: ALL AREAS THAT ARE TO BE SODDED SHALL BE CLEARED OF ANY ROUGH GRASS, WEEDS, AND DEBRIS, AND THE GROUND BROUGHT TO AN EVEN GRADE. THE ENTIRE SURFACE SHALL BE ROLLED WITH A ROLLER WEIGHING NOT MORE THAN ONE-HUNDRED (100) POUNDS PER FOOT OF WIDTH. DURING THE ROLLING, ALL DEPRESSIONS CAUSED BY SETTLEMENT SHALL BE FILLED WITH ADDITIONAL SOIL, AND THE SURFACE SHALL BE REGRADED AND ROLLED UNTIL PRESENTING A SMOOTH AND EVEN FINISH TO THE REQUIRED GRADE.
 3. SOIL PREPARATION: PREPARE LOOSE BED FOUR (4) INCHES DEEP. HAND RAKE UNTIL ALL BUMPS AND DEPRESSIONS ARE REMOVED. MET PREPARED AREA THROUGHOUT.
 4. SODDING
 - A. THE CONTRACTOR SHALL SOD ALL AREAS THAT ARE NOT PAVED OR PLANTED AS DESIGNATED ON THE DRAWINGS WITHIN THE CONTRACT LIMITS, UNLESS SPECIFICALLY NOTED OTHERWISE.
 - B. THE SOD SHALL BE CERTIFIED TO MEET FLORIDA STATE PLANT BOARD SPECIFICATIONS, ABSOLUTELY TRUE TO VARIETAL TYPE, AND FREE FROM WEEDS, FUNGUS, INSECTS AND DISEASE OF ANY KIND.
 - C. SOD PANELS SHALL BE LAID TIGHTLY TOGETHER SO AS TO MAKE A SOD SODDED LAWN AREA. SOD SHALL BE LAID UNFORMALLY AGAINST THE EDGES OF ALL CURBS AND OTHER HARDSCAPE ELEMENTS. PAVED AND PLANTED AREAS ADJACENT TO BUILDINGS, A 24 INCH STONE MULD STRIP SHALL BE PROVIDED - REFER TO DETAILS. IMMEDIATELY FOLLOWING SOD LAYING, THE LAWN AREAS SHALL BE ROLLED WITH A LAWN ROLLER CUSTOMARILY USED FOR SUCH PURPOSES, AND THEN THOROUGHLY IRRIGATED. IF, IN THE OPINION OF THE OWNER, TOP-DRESSING IS NECESSARY AFTER ROLLING TO FILL THE VOIDS BETWEEN THE SOD PANELS AND TO EVEN OUT INCONSISTENCIES IN THE SOD, CLEAN SAND, AS APPROVED BY THE OWNER'S REPRESENTATIVE, SHALL BE UNIFORMLY SPREAD OVER THE ENTIRE SURFACE OF THE SOD AND THOROUGHLY WATERED IN. FERTILIZE INSTALLED SOD AS ALLOWED BY PROPERTY'S JURISDICTIONAL AUTHORITY.
 5. DURING DELIVERY, PRIOR TO, AND DURING THE PLANTING OF THE LAWN AREAS, THE SOD PANELS SHALL AT ALL TIMES BE PROTECTED FROM EXCESSIVE DRYING AND UNNECESSARY EXPOSURE OF THE ROOTS TO THE SUN. ALL SOD SHALL BE STACKED SO AS NOT TO BE DAMAGED BY SHEATHING OR EXCESSIVE HEAT AND MOISTURE.
 6. LAWN MAINTENANCE:
 - A. WITHIN THE CONTRACT LIMITS, THE CONTRACTOR SHALL PRODUCE A DENSE, WELL ESTABLISHED LAWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND RE-SODDING OF ALL ERODED, SUNKEN OR BARE SPOTS (LARGER THAN 12"x12") UNTIL CERTIFICATION OF ACCEPTABILITY BY THE OWNER'S REPRESENTATIVE. REPAIRED SODDING SHALL BE ACCOMPLISHED AS IN THE ORIGINAL WORK (INCLUDING REGRADING IF NECESSARY).
 - B. CONTRACTOR RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SOD/LAWN UNTIL ACCEPTANCE BY THE OWNER'S REPRESENTATIVE. PRIOR TO AND UPON ACCEPTANCE, CONTRACTOR TO PROVIDE WATERING/IRRIGATION SCHEDULE TO OWNER. OBSERVE ALL APPLICABLE WATERING RESTRICTIONS AS SET FORTH BY THE PROPERTY'S JURISDICTIONAL AUTHORITY.
- M. CLEANUP**
- UPON COMPLETION OF ALL PLANTING WORK AND BEFORE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL MATERIAL, EQUIPMENT, AND DEBRIS RESULTING FROM HIS WORK. ALL PAVED AREAS SHALL BE BROOM-CLEANED AND THE SITE LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE.

- N. PLANT MATERIAL MAINTENANCE**
- ALL PLANTS AND PLANTING INCLUDED UNDER THIS CONTRACT SHALL BE MAINTAINED BY WATERING, CULTIVATING, SPRAYING, AND ALL OTHER OPERATIONS (SUCH AS RE-STAKING OR REPAIRING GUY SUPPORTS) NECESSARY TO INSURE A HEALTHY PLANT CONDITION BY THE CONTRACTOR UNTIL CERTIFICATION OF ACCEPTABILITY BY THE OWNER'S REPRESENTATIVE. MAINTENANCE AFTER THE CERTIFICATION OF ACCEPTABILITY SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS IN THIS SECTION. CONTRACTORS ARE REQUESTED TO PROVIDE A BID ESTIMATE TO COVER LANDSCAPE AND IRRIGATION MAINTENANCE FOR A PERIOD OF 90 CALENDAR DAYS COMMENCING AFTER ACCEPTANCE.
- O. FINAL INSPECTION AND ACCEPTANCE OF WORK**
- FINAL INSPECTION AT THE END OF THE WARRANTY PERIOD SHALL BE ON PLANTING, CONSTRUCTION AND ALL OTHER INCIDENTAL WORK PERTAINING TO THIS CONTRACT. ANY REPLACEMENT AT THIS TIME SHALL BE SUBJECT TO THE SAME ONE (1) YEAR WARRANTY (OR AS SPECIFIED BY THE LANDSCAPE ARCHITECT OR OWNER IN WRITING) BEGINNING WITH THE TIME OF REPLACEMENT AND ENDING WITH THE SAME INSPECTION AND ACCEPTANCE HEREIN DESCRIBED.
- PROVIDER:**
- | | | |
|----|----|----|
| MM | LF | MM |
|----|----|----|
- LICENSURE:**
- JONATHAN D. HAIGH, PLA LA#666795
- SHEET TITLE:**
- LANDSCAPE DETAILS
- SHEET NUMBER:** L-2 **REVISION:**
- KHA Job #:** 144042047

RG Towers, LLC
2141 Alternate A1A South, Suite 440
Jupiter, FL 33477

PROJECT INFORMATION:

FT PIERCE-ORANGE AVE

2006 ORANGE AVE
FORT PIERCE, FL 34950
ST LUCIE COUNTY

CURRENT ISSUE DATE:

OCTOBER 2018

ISSUED FOR:

LANDSCAPE PLANS

REV.:-DATE:-DESCRIPTION:



PLANS PREPARED BY:

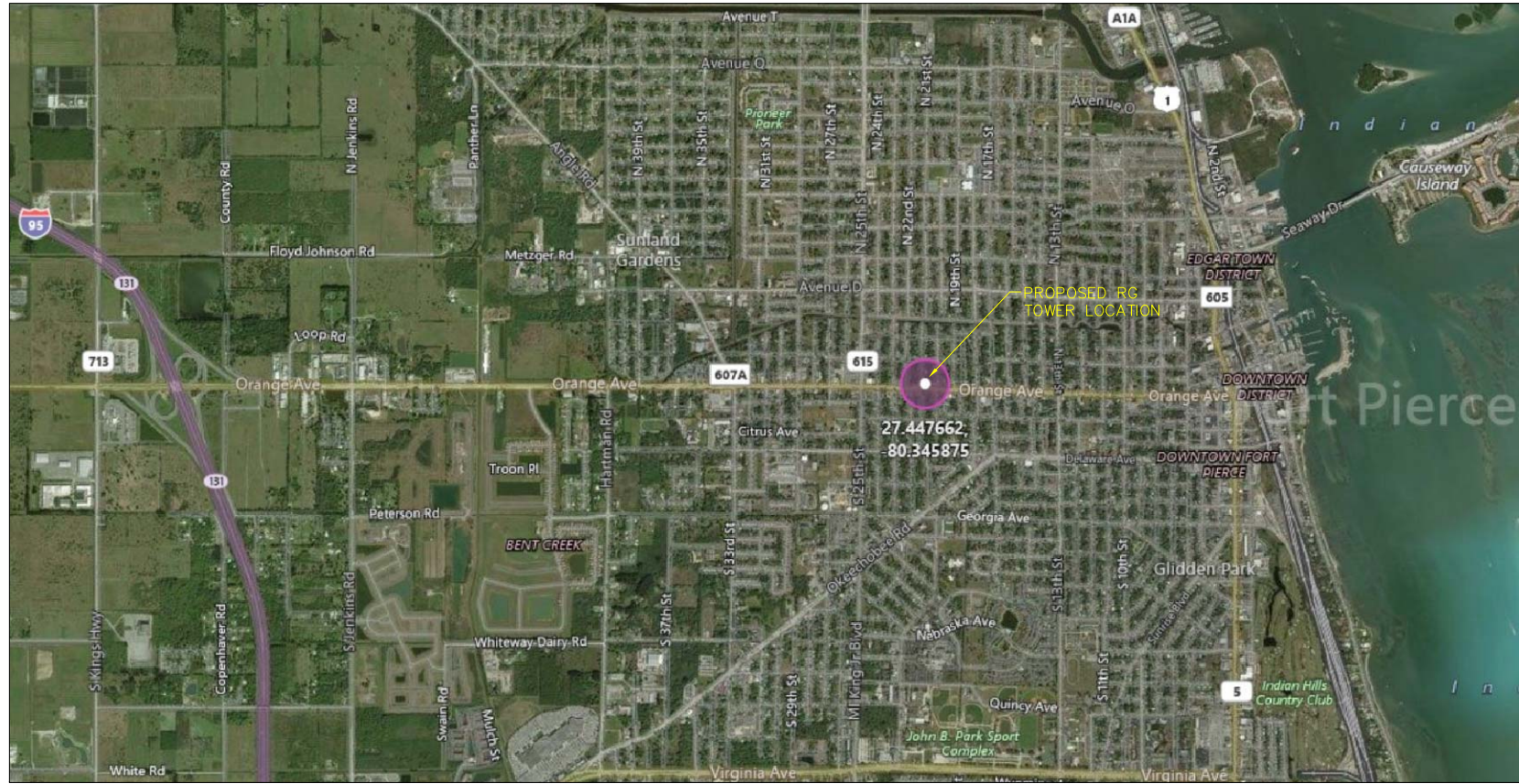
Kimley-Horn

© 2017 KIMLEY-HORN AND ASSOCIATES, INC.

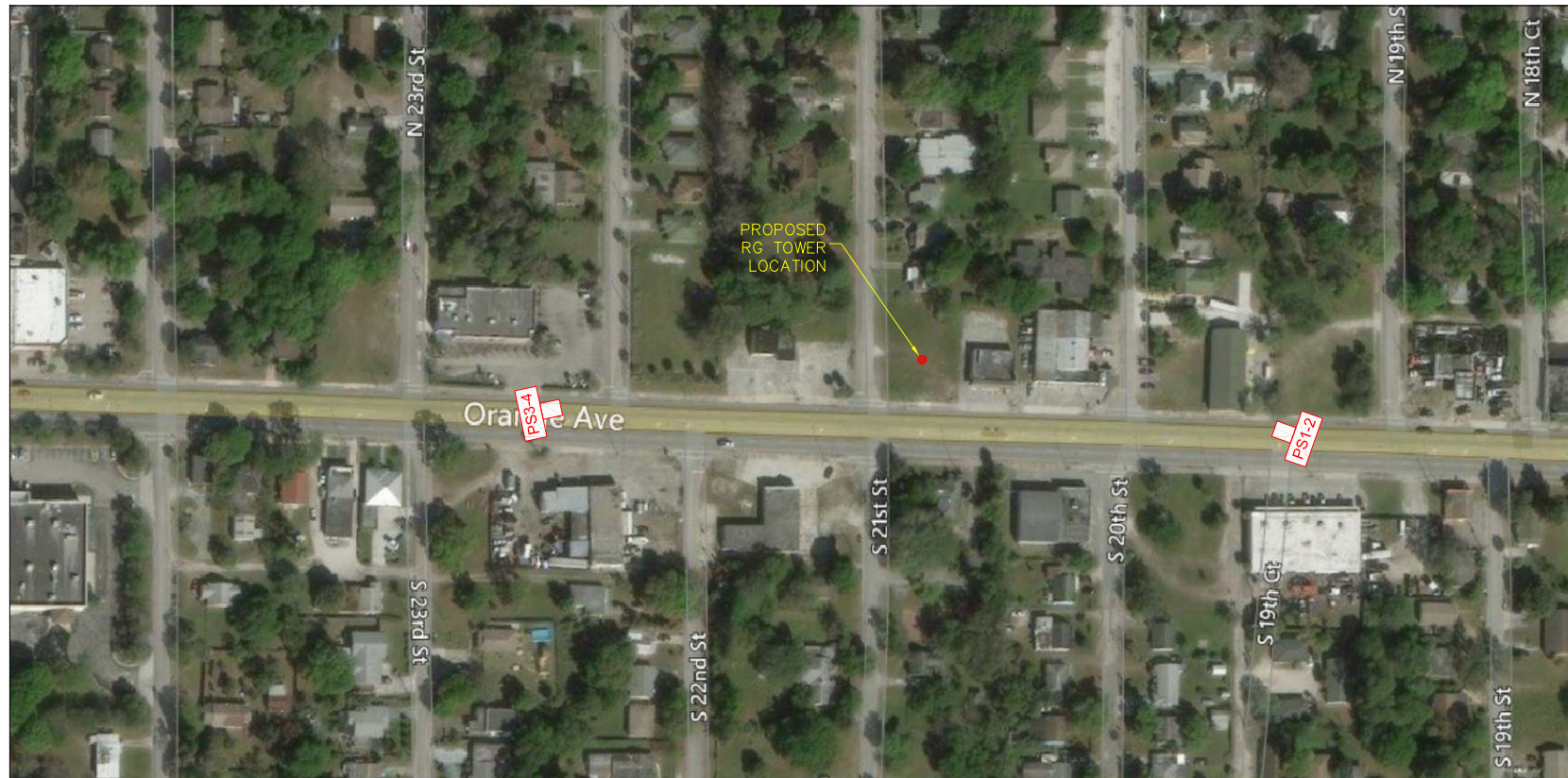
1920 WEKIVA WAY, SUITE 200
WEST PALM BEACH, FLORIDA 33411
(561) 845-0665
FBPE CA00000696

This document, together with the concepts and designs presented herein, is an instrument of service, it is intended only for the specific purpose and client for which it was prepared. Should it be used for any other purpose without the written authorization and adoption by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

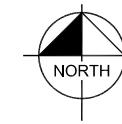
Drawing name: K:\WPB_Civil\CELL_SITES\RG\Tower\144042047 FT Pierce- 2006 Orange Ave\PhotoSim\FT Pierce 2006 Orange Ave PS_1_1_0609.DWG PS Oct 23, 2018 11:06am by: ron.owens



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.



RG Towers, LLC
2141 Alternate A1A South, Suite 440
Jupiter, FL 33477

PROJECT INFORMATION:
FT PIERCE-ORANGE AVE
2006 ORANGE AVE
FORT PIERCE, FL 34950
ST LUCIE COUNTY

CURRENT ISSUE DATE:
OCTOBER 2018

ISSUED FOR:
PHOTO SIM

REV.:	DATE:	DESCRIPTION:

SEAL:

PLANS PREPARED BY:
Kimley»Horn
© 2018 KIMLEY-HORN AND ASSOCIATES, INC.
1920 WEKIVA WAY, SUITE 200
WEST PALM BEACH, FLORIDA 33411
(561) 845-0665
FBPE CA00000696

PROVIDER:

DRAWN BY: MM CHK.: LF APV.: MM

LICENSURE:
MARIA VICTORIA MARTIN PE 72397

SHEET TITLE:
PHOTO SIMULATION
PHOTO LOCATIONS

SHEET NUMBER: **PS** REVISION:

KHA Job #:
144042047

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Drawing name: K:\WPB_Civil\CELL_SITES\RGF_Towers\144042047 Ft. Pierce- 2006 Orange Ave\cadd\PhotoSim\Ft. Pierce- 2006 Orange Ave_PS_1_1_0609.DWG PS1 Unipole Oct 23, 2018 11:08am by: rca.owens



Elevation before installing 130' Unipole.

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

RG Towers, LLC
 2141 Alternate A1A South, Suite 440
 Jupiter, FL 33477

PROJECT INFORMATION:

FT PIERCE-ORANGE AVE
 2006 ORANGE AVE
 FORT PIERCE, FL 34950
 ST LUCIE COUNTY

CURRENT ISSUE DATE:

OCTOBER 2018

ISSUED FOR:

PHOTO SIM

REV.: DATE: DESCRIPTION:

REV.	DATE	DESCRIPTION

SEAL:



PLANS PREPARED BY:

Kimley»Horn
 © 2018 KIMLEY-HORN AND ASSOCIATES, INC.
 1920 WEKIVA WAY, SUITE 200
 WEST PALM BEACH, FLORIDA 33411
 (561) 845-0665
 FBPE CA00000696

PROVIDER:



DRAWN BY: CHK.: APV.:

MM LF MM

LICENSURE:

MARIA VICTORIA MARTIN PE 72397

SHEET TITLE:

PHOTO SIMULATION
 LOOKING EAST BEFORE

SHEET NUMBER: REVISION:

PS1

KHA Job #:

144042047

Drawing name: K:\WPB_Civil\CELL_SITES\RGPS_Tower\144042047 Ft. Pierce- 2006 Orange Ave\Loc\PhotoSim\Ft. Pierce- 2006 Orange Ave PS_1_1_0609.DWG PS2 Unipole Oct 24, 2018 8:46am by: rmcowens



PROPOSED RG TOWERS
130' UNIPOLE

RG Towers, LLC
2141 Alternate A1A South, Suite 440
Jupiter, FL 33477

PROJECT INFORMATION:

FT PIERCE-ORANGE AVE
2006 ORANGE AVE
FORT PIERCE, FL 34950
ST LUCIE COUNTY

CURRENT ISSUE DATE:

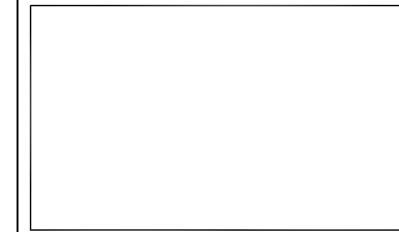
OCTOBER 2018

ISSUED FOR:

PHOTO SIM

REV.: DATE: DESCRIPTION:

SEAL:



PLANS PREPARED BY:

Kimley»Horn
© 2018 KIMLEY-HORN AND ASSOCIATES, INC.
1920 WEKIVA WAY, SUITE 200
WEST PALM BEACH, FLORIDA 33411
(561) 845-0665
FBPE CA00000696

PROVIDER:



DRAWN BY: CHK.: APV.:

MM LF MM

LICENSURE:

MARIA VICTORIA MARTIN PE 72397

SHEET TITLE:

PHOTO SIMULATION
LOOKING EAST AFTER

SHEET NUMBER: REVISION:

PS2

KHA Job #:

144042047

Elevation after installing 130' Unipole.

This document, together with the concepts and designs presented herein, is an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



Elevation before installing 130' Unipole.

RG Towers, LLC
 2141 Alternate A1A South, Suite 440
 Jupiter, FL 33477

PROJECT INFORMATION:
 FT PIERCE-ORANGE AVE
 2006 ORANGE AVE
 FORT PIERCE, FL 34950
 ST LUCIE COUNTY

CURRENT ISSUE DATE:
 OCTOBER 2018

ISSUED FOR:
 PHOTO SIM

REV.:	DATE:	DESCRIPTION:

SEAL:

PLANS PREPARED BY:
Kimley»Horn
 © 2018 KIMLEY-HORN AND ASSOCIATES, INC.
 1920 WEKIVA WAY, SUITE 200
 WEST PALM BEACH, FLORIDA 33411
 (561) 845-0665
 FBPE CA0000696

PROVIDER:

DRAWN BY: MM CHK.: LF APV.: MM

LICENSURE:
 MARIA VICTORIA MARTIN PE 72397

SHEET TITLE:
 PHOTO SIMULATION
 LOOKING WEST BEFORE

SHEET NUMBER: **PS3** REVISION:

KHA Job #:
 144042047

Drawing name: K:\WPB_Civil\CELL_SITES\RG_Towers\144042047_FT_Pierce-2006_Orange_Ave\Cell\PhotoSim\FT_Pierce_2006_Orange_Ave_PS_1_1_0609.DWG PS3 Unipole Oct 23, 2018 11:09am by: ron.owens

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Drawing name: K:\WPB_Civil\CELL_SITES\RGPS_Towers\144042047 Ft. Pierce- 2006 Orange Ave\Cell\PhotoSim\Ft. Pierce 2006 Orange Ave PS_1_1_0609.DWG PS4 Unipole Oct. 24, 2018 9:47am by: rmcowens



PROPOSED RG TOWERS
130' UNIPOLE

RG Towers, LLC

2141 Alternate A1A South, Suite 440
Jupiter, FL 33477

PROJECT INFORMATION:

FT PIERCE-ORANGE AVE

2006 ORANGE AVE
FORT PIERCE, FL 34950
ST LUCIE COUNTY

CURRENT ISSUE DATE:

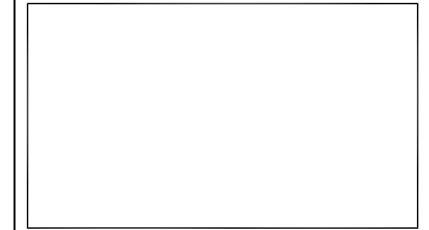
OCTOBER 2018

ISSUED FOR:

PHOTO SIM

REV.: DATE: DESCRIPTION:

SEAL:



PLANS PREPARED BY:

Kimley»Horn

© 2018 KIMLEY-HORN AND ASSOCIATES, INC.

1920 WEKIVA WAY, SUITE 200
WEST PALM BEACH, FLORIDA 33411
(561) 845-0665
FBPE CA00000696

PROVIDER:



DRAWN BY: CHK.: APV.:

MM LF MM

LICENSURE:

MARIA VICTORIA MARTIN PE 72397

SHEET TITLE:

PHOTO SIMULATION
LOOKING EAST AFTER

SHEET NUMBER: REVISION:

PS4

KHA Job #:

144042047

Elevation after installing 130' Unipole.

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



RG Towers, LLC

Ft Pierce Planning and Zoning
100 N. U.S. Highway 1
Fort Pierce, FL 34950

RE: RG Towers - Ft Pierce- Orange Ave

Attached please find the following documents **(one original and ten copies and one CD)** to complete our submittal for a new communication tower per the code Sec. 22-159 (B) - Antenna support structure

- | | |
|---|---|
| (1) Application and fee 250.00 | (8) Notice of Shared Use |
| (2) 24 x 36 Site and landscape plan | (9) Propagation Maps |
| (3) An elevation as part of the plans | (10) RF Report |
| (4) FAA compliance | (11) Structural calculations. |
| (5) FCC Compliance <u>To be filed upon approval</u> | (12) Affidavit re: section 22-163 Removal |
| (6) Relevant easements. | (13) A lease agreement- T-Mobile |
| (7) Intent of Shared Use. | (14) PE letter |
| | (15) Copy of previously submitted bond |

Also, please find the following per the Site plan submittal requirements per the Developmental review application:

- A Warranty Deed
- B SLC Property Record Card
- C Character and intended use statement
- D General location map
- E Survey
- F Storm Drainage plan (part of plans)
- G Beach/Dune System protection letter
- H Lighting Plan letter

Please let me know if you have any questions.

Sincerely,

Holly Valdez
RG Towers, LLC
V.P. Operations



RG Towers, LLC

5-10-18

RE: RG Towers-Ft Pierce- Orange Ave Lighting Plan- Section 22-58-D.8

There is no proposed lighting at the proposed development and hence section 22.58.D.8 below is not applicable

(8)

A lighting plan which shows illumination of all interior and immediately adjoining streets as follows:

a.

At least one (1) average foot-candle for streets classified as collector classified as collector, arterial or higher;

b.

At least five-tenths average foot-candle for streets other than as described in the immediately foregoing subsection;

c.

At least one (1) average foot-candle for specially designated pedestrian walkways.

The uniformity ratio for lighting required by this section shall be an average/minimum ratio of ten (10) to one (1). There shall be included with the lighting plan a statement of a registered engineer or architect showing calculations demonstrating compliance with this section to the city engineer and such statement shall be subject to the city engineer's approval. Subsequently a certificate of occupancy may not be issued until there is filed with the director a certificate from a registered engineer or architect of design that the lighting installation meets the requirements of this section.

Sincerely,

Holly Valdez
V.P. Operations
RG Towers, LLC



RG Towers, LLC

5-10-18

RE: RG Towers-FT Pierce Orange Ave Beach Dune Protection Plan- Section 22-58-D.7

The proposed development is greater than three miles to the beach and hence section 22.58.D.7 below is not applicable

(7)

A plan providing, where applicable, for the protection of the beach and dune system. The plan shall include these requirements:

a.

Demonstration of compliance with the coastal construction control line established pursuant to Chapter 161, Florida Statutes;

b.

All beach access points are to be provided as beach/dune walkovers in accordance with the requirements of the Florida Department of Natural Resources;

c.

No construction which threatens the stability of the primary dune or beach itself shall be permitted;

d.

No rigid shore protection structures shall be permitted except when used as part of a comprehensive plan for beach restoration and when nonstructural alternatives are unavailable;

e.

Demonstration of dune restoration measures conforming to the requirements of the Florida Department of Natural Resources.

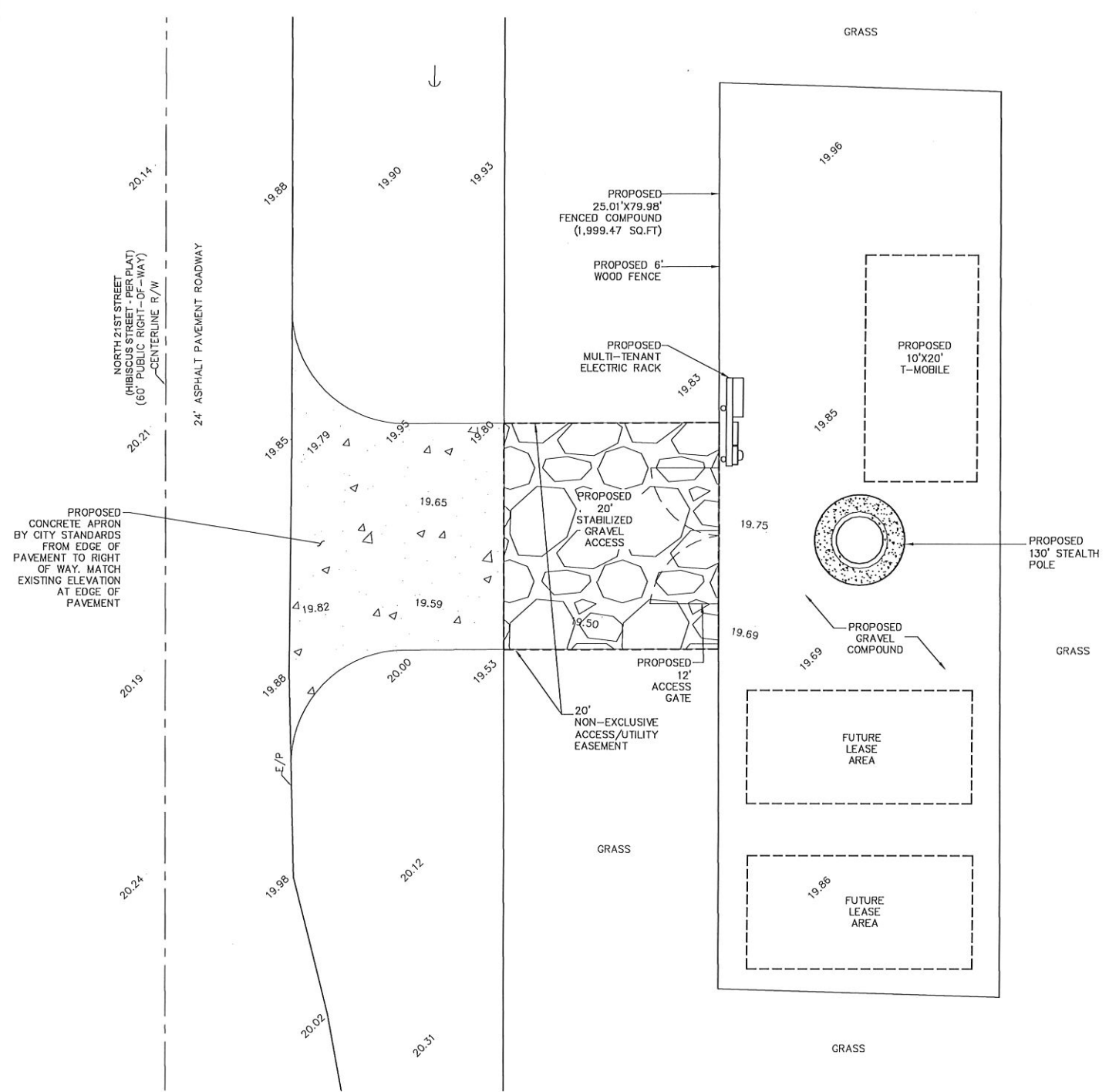
Sincerely,

Holly Valdez
V.P. Operations
RG Towers, LLC

FLOOD ZONE INFORMATION

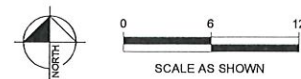
COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION
120286	017B	J	02/16/2012	X	N/A

19.83 EXISTING GRADES NAVD 88



DRAINAGE CALCULATIONS:

- I. GENERAL SITE PLAN INFORMATION:
 - GRAVEL COMPOUND AREA: 1,999.47 SF
 - IMPERVIOUS AREA:
 - PROPOSED TOWER FOUNDATION = 50 SF
 - PROPOSED FUTURE EQUIPMENT SLABS: 450 SF
 - EQUIPMENT SLABS, 3 CARRIER @ 150 SF EACH
 - TOTAL IMPERVIOUS AREA: 500 SF
 - TOTAL PERVIOUS AREA: 1,499.47 SF
- II. CALCULATE REQUIRED STORAGE RUNOFF:
 1. 1" OF RUNOFF OVER TOTAL SITE
 - Q = 1,999.47 SF X 1" X 1"/12"
 - Q = 166.6 X 50% (ALLOWABLE REDUCTION)
 - Q = 83.3 CF
- III. STORAGE VOLUME PROVIDED:
 - No. 57 STONE COMPOUND, 4" LAYER, 1,999.47 SF COMPOUND. ASSUME 40% VOIDS RATIO.
 - RETENTION VOLUME PROVIDED = (1,999.47 SF - 500 SF) X 0.4 X 4"/12" = 199.9 CF
 - RETENTION VOLUME PROVIDED = 199.9 CF
 - RETENTION VOLUME PROVIDED IS GREATER THAN REQUIRED VOLUME



STORM DRAINAGE PLAN

NOTE: ALL STORM DRAINAGE FACILITIES SHALL CONFORM TO CHAPTERS 17 AND 18 OF THE FORT PIERCE CODE OF ORDINANCES AND THE "STANDARD SPECIFICATIONS" ADOPTED BY THE CITY COMMISSION ON FEBRUARY 13, 1973.

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and approval by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

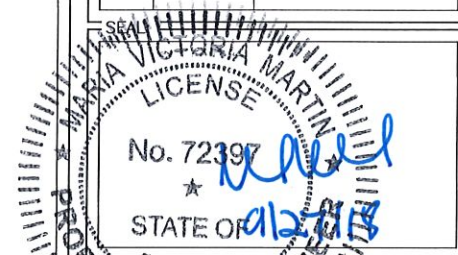
RG Towers, LLC
2141 Alternate A1A South, Suite 440
Jupiter, FL 33477

PROJECT INFORMATION:
FT PIERCE--ORANGE AVE
2006 ORANGE AVE
FORT PIERCE, FL 34950
ST LUCIE COUNTY

CURRENT ISSUE DATE:
SEPTEMBER 2018

ISSUED FOR:
SITE PLAN REVIEW

REV. DATE	DESCRIPTION



PLANS PREPARED BY
Kimley-Horn
KIMLEY-HORN AND ASSOCIATES, INC.
1920 WEKIVA WAY, SUITE 200
WEST PALM BEACH, FLORIDA 33411
(561) 845-0665
FBPE CA00006596

PROVIDER:

DRAWN BY: CHK. APV.:
MM LF MM

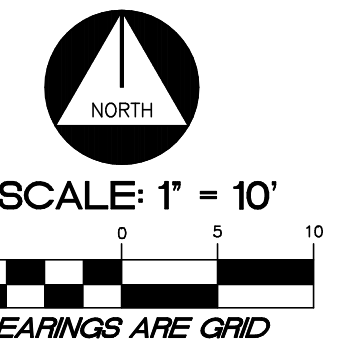
LICENSURE:
MARIA VICTORIA MARTIN PE 72397

SHEET TITLE:
STORM DRAINAGE PLAN

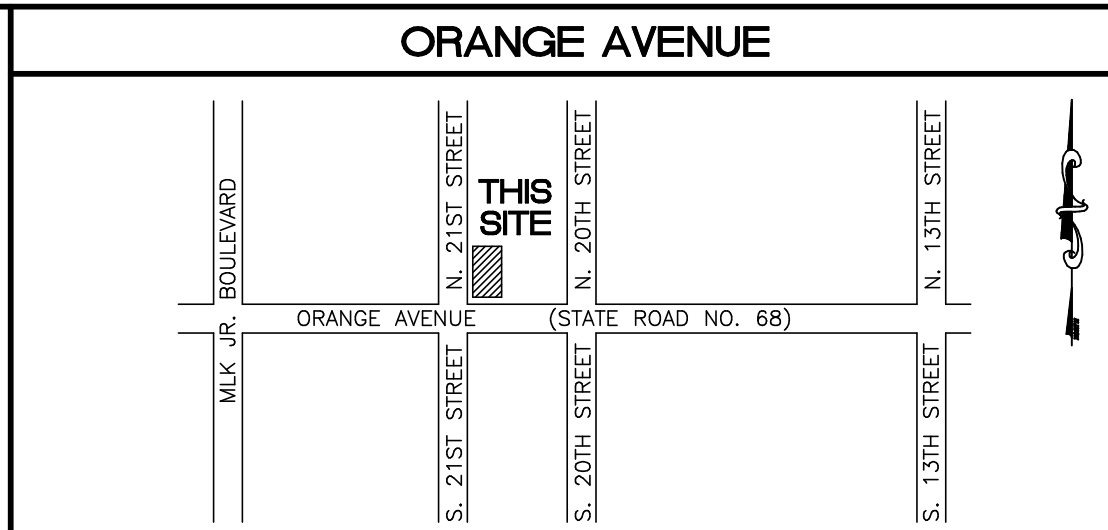
SHEET NUMBER: REVISION:
3/3

KHA Job #:
144042047

**SKETCH OF PARENT TRACT BOUNDARY
DETAIL OF RG TOWERS LEASE PARCEL
NON-EXCLUSIVE ACCESS AND UTILITY EASEMENT
2006 ORANGE AVENUE, FORT PIERCE, FL 34950
ORANGE AVENUE**



BEARING NOTE
THE BEARINGS SHOWN HEREON ARE GRID NORTH AND RELATIVE TO THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) FLORIDA PERMANENT REFERENCE NETWORK (FPRN) THAT IS RELATIVE TO THE NORTH AMERICAN DATUM OF 1983/2011 (NAD83/2011), AS PROJECTED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM (EAST ZONE).
THE BEARING REFERENCE LINE IS THE NORTH LINE OF BLOCK 3, FLORIANA PARK, PLAT BOOK 2, PAGE 7, SAINT LUCIE COUNTY PUBLIC RECORDS, HAVING A GRID BEARING OF S88°19'00"E.



LOCATION SKETCH
SECTION 09-T355-R40E
NOT TO SCALE

LEGEND

P.O.C.	POINT OF COMMENCEMENT	WM	WATER METER
P.O.B.	POINT OF BEGINNING	SM	SANITARY MANHOLE
S.L.C.R.	ST. LUCIE COUNTY RECORDS	AW	GUY ANCHOR WIRE
R/W	RIGHT-OF-WAY	EP	SANITARY CLEANOUT
E/P	EDGE OF PAVEMENT	FD	FIRE HYDRANT
O.R.	OFFICIAL RECORD	B	BOLLARD
(P)	PLAT	ES	ELECTRIC SERVICE
SPOT ELEVATION		LP	LAMP POST
PINE TREE		EM	ELECTRIC METER
HANDICAP PARKING		GS	GAS METER
WOOD UTILITY POLE		ST	STORE SIGN
OH	OVERHEAD UTILITY		

DESCRIPTION OF PARENT TRACT
(PER OFFICIAL RECORD BOOK 3822, PAGE 1761 OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA)

LOTS 3, 4 AND 5, LESS THE SOUTH 15 FEET THEREOF, BLOCK 3 OF FLORIANA PARK, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 2, PAGE 7C, OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA.

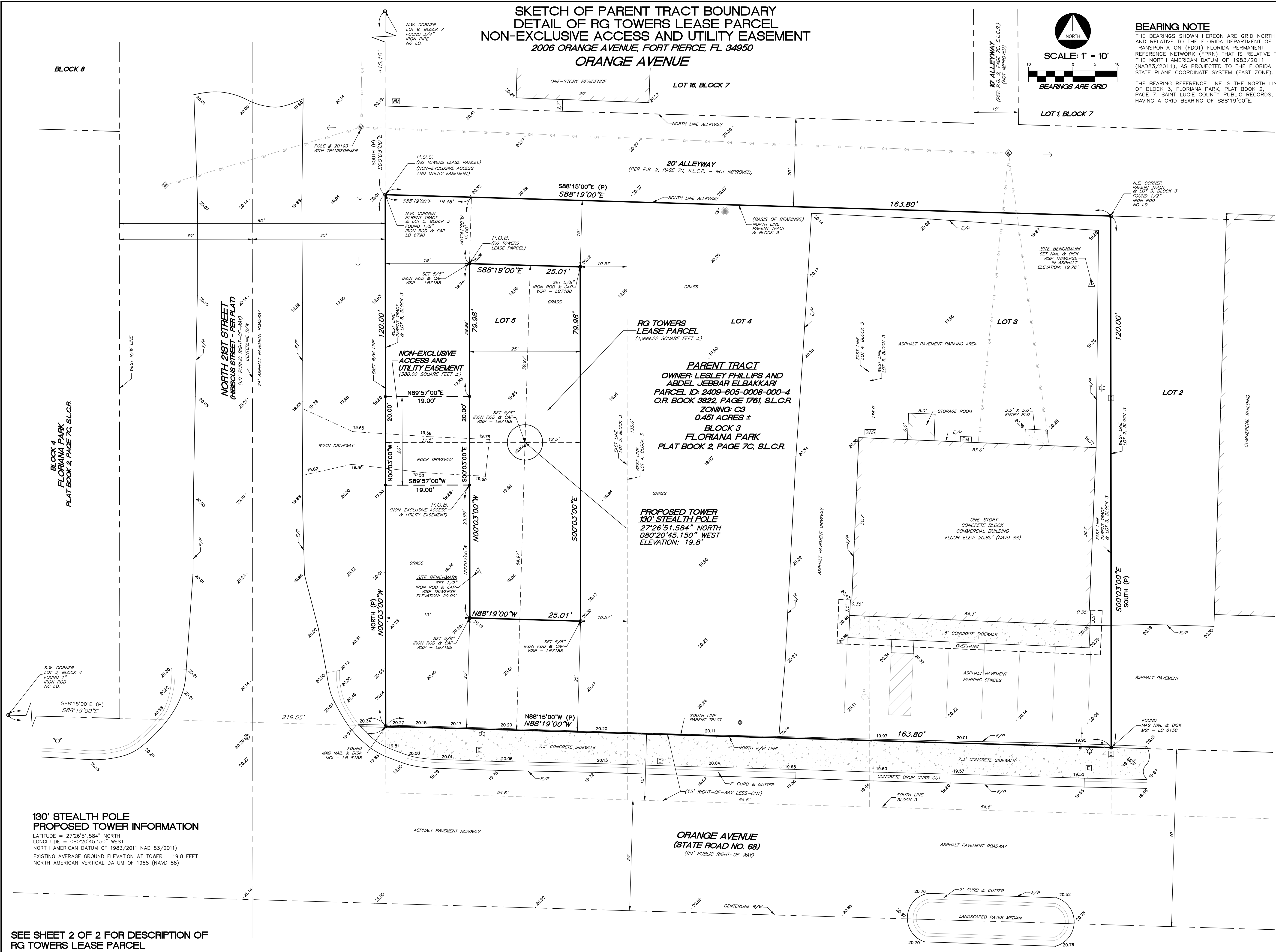
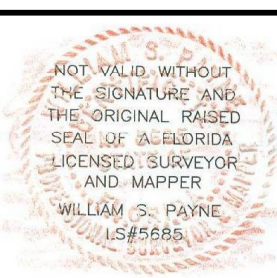
REPORT OF BOUNDARY AND TOPOGRAPHIC SURVEY

1. THE PARENT TRACT SHOWN HEREON IS BASED ON A SEARCH CONDUCTED BY WSP CONSULTANTS, INC. OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA, THE REPORT OF TITLE PREPARED BY U.S. TITLE SOLUTIONS, DATED OCTOBER 14, 2017, FILE NO. 58394-FL1710-5030.
2. UNLESS OTHERWISE NOTED HEREON RECORD AND MEASURED VALUES (SHOWN) ARE IN SUBSTANTIAL AGREEMENT.
3. THE PURPOSE OF THIS SURVEY IS TO LOCATE THE EXISTING FEATURES WITHIN THE PARENT TRACT FOR THE FUTURE INSTALLATION OF A COMMUNICATIONS FACILITY.
4. THE EXPECTED USE OF THE SURVEY AND MAP IS FOR THE PREPARATION OF LEASE AGREEMENTS, DESIGN PLANS, PERMITTING SETS AND CONSTRUCTION OF A MONOPOLE TOWER ON THE PARENT TRACT.
5. THIS SURVEY IS CLASSIFIED AS COMMERCIAL/HIGH RISK AND EXCEEDS THE MINIMUM RELATIVE DISTANCE ACCURACY OF 1 FOOT IN 10,000 FEET AS REQUIRED BY THE FLORIDA STANDARDS OF PRACTICE (5J-17.051 THROUGH 5J-17.053 F.A.C.). THE ACCURACY OBTAINED BY MEASUREMENT AND CALCULATION OF A CLOSED GEOMETRIC FIGURE WAS FOUND TO EXCEED THIS REQUIREMENT.
6. ALL MEASUREMENTS ARE IN ACCORDANCE WITH THE UNITED STATES STANDARD, IN FEET.
7. THE HORIZONTAL FEATURES SHOWN HEREON ARE PLOTTED TO WITHIN 1/20 OF THE MAP SCALE.
8. HORIZONTAL AND VERTICAL DATA SHOWN HEREON WAS OBTAINED UTILIZING A "LEICA TORP1205+" TOTAL STATION AND "ALLEGRO MX CARLSON" DATA COLLECTION SYSTEM.
9. ELEVATIONS OF WELL-IDENTIFIED FEATURES CONTAINED IN THIS SURVEY AND MAP HAVE BEEN MEASURED TO AN ESTIMATED VERTICAL ACCURACY OF 0.1'.
10. HORIZONTAL FEATURE LOCATION IS TO THE CENTER OF THE SYMBOL AND MAY BE ENLARGED FOR CLARITY.
11. UNDERGROUND FOUNDATIONS AND/OR UTILITIES HAVE NOT BEEN LOCATED.
12. FLOOD ZONE INFORMATION SHOWN HEREON WAS OBTAINED FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), FLOOD INSURANCE RATE MAP (FIRM).
13. THE ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND ARE REFERENCED TO THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) FLORIDA PERMANENT REFERENCE NETWORK (FPRN), THE MEASUREMENTS WERE OBTAINED UTILIZING A "HEMISPHERE S320 GNSS" RTK GPS RECEIVER.
14. THE VALUES FOR THE LATITUDE, LONGITUDE AND ELEVATIONS SHOWN HEREON ARE WITHIN THE ALLOWABLE TOLERANCES FOR THE FEDERAL AVIATION ADMINISTRATION 1-A LETTER.
15. THE LATITUDE AND LONGITUDE SHOWN HEREON WERE OBTAINED UTILIZING THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) FLORIDA PERMANENT REFERENCE NETWORK (FPRN) THAT IS RELATIVE TO THE NORTH AMERICAN DATUM OF 1983/2011 (NAD83/2011), AS PROJECTED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM (EAST ZONE). THE MEASUREMENTS WERE OBTAINED UTILIZING A "HEMISPHERE S320 GNSS" RTK GPS RECEIVER.
16. THE RG TOWERS LEASE PARCEL SHOWN IN THIS SURVEY LIES ENTIRELY WITHIN THE DESCRIBED PARENT TRACT.
17. THE SURVEYOR HAS REVIEWED THE REPORT OF TITLE PREPARED BY U.S. TITLE SOLUTIONS, DATED OCTOBER 14, 2017, FILE NO. 58394-FL1710-5030. ALL PLOTTABLE MATTERS OF RECORD IDENTIFIED IN THE REPORT OF TITLE THAT ARE PERTINENT TO THE RG TOWERS LEASE PARCEL AND ITS ACCESS AND UTILITY EASEMENT, IF APPLICABLE, HAVE BEEN SHOWN OR NOTED ON THIS SURVEY. THE SURVEYOR RELIES SOLELY UPON THAT REPORT OF TITLE WITH RESPECT TO EASEMENTS, RIGHTS-OF-WAY, SETBACK LINES AGREEMENTS, RESERVATIONS AND OTHER SIMILAR MATTERS.
18. BASED UPON THE REPORT OF TITLE, THE RG TOWERS LEASE PARCEL HAS ACCESS TO N. 21ST STREET, A PUBLIC RIGHT-OF-WAY, BY MEANS OF THE ACCESS AND UTILITY EASEMENT DEPICTED HEREON. THE EASEMENT LIES ENTIRELY WITHIN THE LANDS OF THE OWNER(S) OF THE PARCEL DESCRIBED IN SAID REPORT OF TITLE AND NO EASEMENTS OR RIGHTS OF OTHER THIRD PARTIES DISCLOSED BY THAT REPORT OF TITLE WOULD PRECLUDE ACCESS OVER THE PARENT TRACT FROM THE RG TOWERS LEASE PARCEL TO THAT PUBLIC RIGHT-OF-WAY.
19. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
20. SURVEY DATE: FIELD SURVEY WAS COMPLETED OCTOBER 10, 2017, WHICH IS THE DATE OF DATA ACQUISITION.

CERTIFICATE

I, WILLIAM S. PAYNE, DO HEREBY STATE THAT THIS MAP OF BOUNDARY AND TOPOGRAPHIC SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION AND IS ACCURATE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER STATE THAT THIS MAP OF BOUNDARY AND TOPOGRAPHIC SURVEY WAS COMPLETED IN ACCORDANCE WITH THE STANDARDS OF PRACTICE FOR SURVEYING AND MAPPING STATED IN RULES 5J-17.051 THROUGH 5J-17.053 OF THE FLORIDA ADMINISTRATIVE CODE, PURSUANT TO FLORIDA STATUTES CHAPTER 472.027.

W. Payne
WILLIAM S. PAYNE
PROFESSIONAL SURVEYOR AND MAPPER #LS 5685
WSP CONSULTANTS, INC. #LB 7188
STATE OF FLORIDA



**130' STEALTH POLE
PROPOSED TOWER INFORMATION**
LATITUDE = 27°26'51.584" NORTH
LONGITUDE = 080°20'45.150" WEST
NORTH AMERICAN DATUM OF 1983/2011 NAD 83(2011)
EXISTING AVERAGE GROUND ELEVATION AT TOWER = 19.8 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

SEE SHEET 2 OF 2 FOR DESCRIPTION OF
RG TOWERS LEASE PARCEL
NON-EXCLUSIVE ACCESS AND UTILITY EASEMENT
SEE SHEET 2 OF 2 FOR REVIEW OF TITLE SEARCH REPORT

FLOOD ZONE INFORMATION

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION
120286	0178	J	02/16/2012	X	N/A

FIELD SURVEY DATE:	10/10/2017				
DRAWN:	WSP				
CHECKED:	WSP	2	06/25/2018	UPDATE TOWER HEIGHT / TYPE AND REVISE LEASE / EASEMENT DESCRIPTION	WSP
MANAGER:	WSP	1	01/23/2018	REVISE SURVEY TO ADDRESS ST. LUCIE COUNTY SURVEYOR COMMENTS	WSP
DWG FILE:	17-1404.DWG	No.	DATE	REVISION	BY

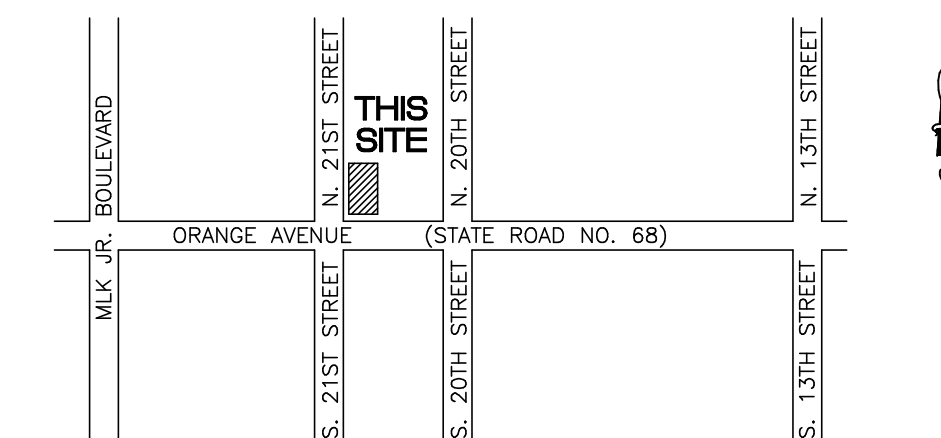
WSP Consultants, Inc.
SURVEYORS & MAPPERS
18815 ANNELIS DRIVE, LUTZ, FL 33548
PHONE (813) 909-2420
PROFESSIONAL SURVEYING & MAPPING CERTIFICATE OF AUTHORIZATION:
LB 7188, STATE OF FLORIDA

MAP OF BOUNDARY AND TOPOGRAPHIC SURVEY
ORANGE AVENUE
PREPARED FOR:
RG Towers, LLC
LOCATED IN:
ST. LUCIE COUNTY, FLORIDA

PROJECT NO:
17-1404

SHEET NO:
1 OF 2

ORANGE AVENUE



LOCATION SKETCH
SECTION 09-T355-R40E
NOT TO SCALE

130' STEALTH POLE
PROPOSED TOWER INFORMATION

LATITUDE = 27°26'51.584" NORTH
LONGITUDE = 080°20'45.150" WEST
NORTH AMERICAN DATUM OF 1983/2011 NAD 83/2011
EXISTING AVERAGE GROUND ELEVATION AT TOWER = 19.8 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

DESCRIPTION OF RG TOWERS LEASE PARCEL

A PARCEL OF LAND BEING A PORTION OF LOT 5, BLOCK 3, FLORIANA PARK, AS RECORDED IN PLAT BOOK 2, PAGE 7C OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF SAID LOT 5, BLOCK 3;
THENCE ON A GRID BEARING OF S88°19'00"E ALONG THE NORTH LINE OF LOT 5, BLOCK 3, A DISTANCE OF 19.46 FEET;
THENCE S01°41'00"W A DISTANCE OF 15.00 FEET TO A POINT ON A LINE 15.00 FEET SOUTH OF AND PARALLEL WITH THE NORTH LINE OF SAID LOT 5, BLOCK 3, SAID POINT ALSO BEING THE POINT OF BEGINNING;
THENCE S88°19'00"E ALONG SAID PARALLEL LINE, A DISTANCE OF 25.01 FEET;
THENCE S00°03'00"E A DISTANCE OF 79.98 FEET TO A POINT ON A LINE 25.00 FEET NORTH OF AND PARALLEL WITH THE NORTH RIGHT-OF-WAY LINE OF ORANGE AVENUE (80 FOOT PUBLIC RIGHT-OF-WAY);
THENCE N88°19'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 25.01 FEET TO A POINT ON A LINE 19.00 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF SAID LOT 5, BLOCK 3;
THENCE N00°03'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 79.98 FEET TO THE POINT OF BEGINNING;
SAID PARCEL OF LAND SITUATE WITHIN ST. LUCIE COUNTY, FLORIDA CONTAINING 1,999.22 SQUARE FEET MORE OR LESS.

DESCRIPTION OF NON-EXCLUSIVE ACCESS AND UTILITY EASEMENT

A PARCEL OF LAND BEING A PORTION OF LOT 5, BLOCK 3, FLORIANA PARK, AS RECORDED IN PLAT BOOK 2, PAGE 7C OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF SAID LOT 5, BLOCK 3;
THENCE ON A GRID BEARING OF S88°19'00"E ALONG THE NORTH LINE OF LOT 5, BLOCK 3, A DISTANCE OF 19.46 FEET;
THENCE S01°41'00"W A DISTANCE OF 15.00 FEET TO A POINT ON A LINE 15.00 FEET SOUTH OF AND PARALLEL WITH THE NORTH LINE OF SAID LOT 5, BLOCK 3;
THENCE S88°19'00"E ALONG SAID PARALLEL LINE, A DISTANCE OF 25.01 FEET;
THENCE S00°03'00"E A DISTANCE OF 79.98 FEET TO A POINT ON A LINE 25.00 FEET NORTH OF AND PARALLEL WITH THE NORTH RIGHT-OF-WAY LINE OF ORANGE AVENUE (80 FOOT PUBLIC RIGHT-OF-WAY);
THENCE N88°19'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 25.01 FEET TO A POINT ON A LINE 19.00 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF SAID LOT 5, BLOCK 3;
THENCE N00°03'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 29.99 FEET TO THE POINT OF BEGINNING;
THENCE S89°57'00"W A DISTANCE OF 19.00 FEET TO A POINT ON THE WEST LINE OF SAID LOT 5, BLOCK 3, SAID POINT ALSO BEING ON THE EAST RIGHT-OF-WAY LINE OF NORTH 21ST STREET (60 FOOT PUBLIC RIGHT-OF-WAY);
THENCE N00°03'00"W ALONG SAID WEST LINE AND EAST RIGHT-OF-WAY LINE, A DISTANCE OF 20.00 FEET;
THENCE N89°57'00"E A DISTANCE OF 19.00 FEET;
THENCE S00°03'00"E A DISTANCE OF 20.00 FEET TO THE POINT OF BEGINNING;
SAID PARCEL OF LAND SITUATE WITHIN ST. LUCIE COUNTY, FLORIDA CONTAINING 380.00 SQUARE FEET MORE OR LESS.

REVIEW OF TITLE SEARCH REPORT

I HAVE REVIEWED THE REPORT OF TITLE PREPARED BY U.S. TITLE SOLUTIONS, DATED OCTOBER 14, 2017, FILE NO. 58394-FL1710-5030, AND FIND AS FOLLOWS WITH RESPECT TO MATTERS OF RECORDS LISTED IN SAID REPORT.

- TAXES, TAX LIENS, TAX SALES, WATER RATES, SEWER AND ASSESSMENTS SET FORTH IN SCHEDULE HEREIN.
- MORTGAGES RETURNED HEREIN. (-3-). SEE SEPARATE MORTGAGE SCHEDULE.
- ANY STATE OF FACTS WHICH AN ACCURATE SURVEY MIGHT SHOW OR SURVEY EXCEPTIONS SET FORTH HEREIN.
- RIGHTS OF TENANTS OR PERSON IN POSSESSION.
(JUDGMENTS, LIENS AND UCC)
- NONE WITHIN PERIOD SEARCHED
(COVENANTS/RESTRICTIONS)
- NONE WITHIN PERIOD SEARCHED
(EASEMENTS AND RIGHTS OF WAY)
- NONE WITHIN PERIOD SEARCHED
(OTHER FILED DOCUMENTS)
- PLAT OF FORT PIERCE FARMS IN BOOK 2, PAGE 7-A.
- PARENT TRACT DOES NOT LIE WITHIN SAID PLAT.
- PLAT OF OAKLAND PARK IN BOOK 2, PAGE 7-B.
- PARENT TRACT DOES NOT LIE WITHIN SAID PLAT.
- PLAT OF FLORIANA PARK IN BOOK 2, PAGE 7-C.
- BLANKET IN NATURE - PARENT TRACT LIES COMPLETELY WITHIN SAID PLAT.
- THERE ARE NO EASEMENTS, RESTRICTIONS AND / OR SETBACKS DEPICTED ON SAID PLAT, NOTHING TO PLOT.
- CERTIFICATION OF TRUST BETWEEN JOHN C. WALKER TRUST DATED JULY 26, 1994 AND JOHN C. WALKER, TRUSTEE OF THE JOHN C. WALKER TRUST DATED JULY 26, 1994 DATED 12/24/2015 RECORDED 12/31/2015 IN BOOK 3822, PAGE 1764.
- BLANKET IN NATURE - DESCRIBES PARENT TRACT.
- SAID TRUST IS NO LONGER THE OWNER OF THE PARENT TRACT.
- MEMORANDUM OF WIRELESS COMMUNICATIONS FACILITY LEASE BETWEEN LESLEY PHILLIPS & ABDEL JEBBAR ELBAKARRI, A MARRIED COUPLE AND RG TOWERS, LLC, A DELAWARE LIMITED LIABILITY COMPANY DATED 9/27/2017 RECORDED 10/2/2017 IN BOOK 4047, PAGE 36.
- BLANKET IN NATURE - DESCRIBES PARENT TRACT.

SEE SHEET 1 OF 2 FOR DETAIL OF
RG TOWERS LEASE PARCEL
NON-EXCLUSIVE ACCESS AND UTILITY EASEMENT

FLOOD ZONE INFORMATION					
COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION
120286	0178	J	02/16/2012	X	N/A

FIELD SURVEY DATE: 10/10/2017					
DRAWN: WSP					
CHECKED: WSP	2	06/25/2018	UPDATE TOWER HEIGHT / TYPE AND REVISE LEASE / EASEMENT DESCRIPTION		
MANAGER: WSP	1	01/23/2018	REVISE SURVEY TO ADDRESS ST. LUCIE COUNTY SURVEYOR COMMENTS		
DWG FILE: 17-1404.DWG	No.	DATE		REVISION	BY

WSP Consultants, Inc.
SURVEYORS & MAPPERS
18815 ANNELIS DRIVE, LUTZ, FL 33548
PHONE (813) 909-2420
PROFESSIONAL SURVEYING & MAPPING CERTIFICATE OF AUTHORIZATION:
LB 7188, STATE OF FLORIDA

MAP OF BOUNDARY AND TOPOGRAPHIC SURVEY
ORANGE AVENUE
PREPARED FOR:
RG Towers, LLC
LOCATED IN:
ST. LUCIE COUNTY, FLORIDA

PROJECT NO:
17-1404
SHEET NO:
2 OF 2

ORANGE AVENUE

PARENT TRACT

(PER OFFICIAL RECORD BOOK 3822, PAGE 1761 OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA)

LOTS 3, 4 AND 5, LESS THE SOUTH 15 FEET THEREOF, BLOCK 3 OF FLORIANA PARK, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 2, PAGE 7C, OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA.

RG TOWERS LEASE PARCEL

A PARCEL OF LAND BEING A PORTION OF LOT 5, BLOCK 3, FLORIANA PARK, AS RECORDED IN PLAT BOOK 2, PAGE 7C OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF SAID LOT 5, BLOCK 3;

THENCE ON A GRID BEARING OF S88°19'00"E ALONG THE NORTH LINE OF LOT 5, BLOCK 3, A DISTANCE OF 19.46 FEET;

THENCE S01°41'00"W A DISTANCE OF 15.00 FEET TO A POINT ON A LINE 15.00 FEET SOUTH OF AND PARALLEL WITH THE NORTH LINE OF SAID LOT 5, BLOCK 3, SAID POINT ALSO BEING THE POINT OF BEGINNING;

THENCE S88°19'00"E ALONG SAID PARALLEL LINE, A DISTANCE OF 25.01 FEET;

THENCE S00°03'00"E A DISTANCE OF 79.98 FEET TO A POINT ON A LINE 25.00 FEET NORTH OF AND PARALLEL WITH THE NORTH RIGHT-OF-WAY LINE OF ORANGE AVENUE (80 FOOT PUBLIC RIGHT-OF-WAY);

THENCE N88°19'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 25.01 FEET TO A POINT ON A LINE 19.00 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF SAID LOT 5, BLOCK 3;

THENCE N00°03'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 79.98 FEET TO THE POINT OF BEGINNING;

SAID PARCEL OF LAND SITUATE WITHIN ST. LUCIE COUNTY, FLORIDA CONTAINING 1,999.22 SQUARE FEET MORE OR LESS.

NON-EXCLUSIVE ACCESS AND UTILITY EASEMENT

A PARCEL OF LAND BEING A PORTION OF LOT 5, BLOCK 3, FLORIANA PARK, AS RECORDED IN PLAT BOOK 2, PAGE 7C OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA, SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF SAID LOT 5, BLOCK 3;

THENCE ON A GRID BEARING OF S88°19'00"E ALONG THE NORTH LINE OF LOT 5, BLOCK 3, A DISTANCE OF 19.46 FEET;

THENCE S01°41'00"W A DISTANCE OF 15.00 FEET TO A POINT ON A LINE 15.00 FEET SOUTH OF AND PARALLEL WITH THE NORTH LINE OF SAID LOT 5, BLOCK 3;

THENCE S88°19'00"E ALONG SAID PARALLEL LINE, A DISTANCE OF 25.01 FEET;

THENCE S00°03'00"E A DISTANCE OF 79.98 FEET TO A POINT ON A LINE 25.00 FEET NORTH OF AND PARALLEL WITH THE NORTH RIGHT-OF-WAY LINE OF ORANGE AVENUE (80 FOOT PUBLIC RIGHT-OF-WAY);

THENCE N88°19'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 25.01 FEET TO A POINT ON A LINE 19.00 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF SAID LOT 5, BLOCK 3;

THENCE N00°03'00"W ALONG SAID PARALLEL LINE, A DISTANCE OF 29.99 FEET TO THE POINT OF BEGINNING;

THENCE S89°57'00"W A DISTANCE OF 19.00 FEET TO A POINT ON THE WEST LINE OF SAID LOT 5, BLOCK 3, SAID POINT ALSO BEING ON THE EAST RIGHT-OF-WAY LINE OF NORTH 21ST STREET (60 FOOT PUBLIC RIGHT-OF-WAY);

THENCE N00°03'00"W ALONG SAID WEST LINE AND EAST RIGHT-OF-WAY LINE, A DISTANCE OF 20.00 FEET;

THENCE N89°57'00"E A DISTANCE OF 19.00 FEET;

THENCE S00°03'00"E A DISTANCE OF 20.00 FEET TO THE POINT OF BEGINNING;

SAID PARCEL OF LAND SITUATE WITHIN ST. LUCIE COUNTY, FLORIDA CONTAINING 380.00 SQUARE FEET MORE OR LESS.

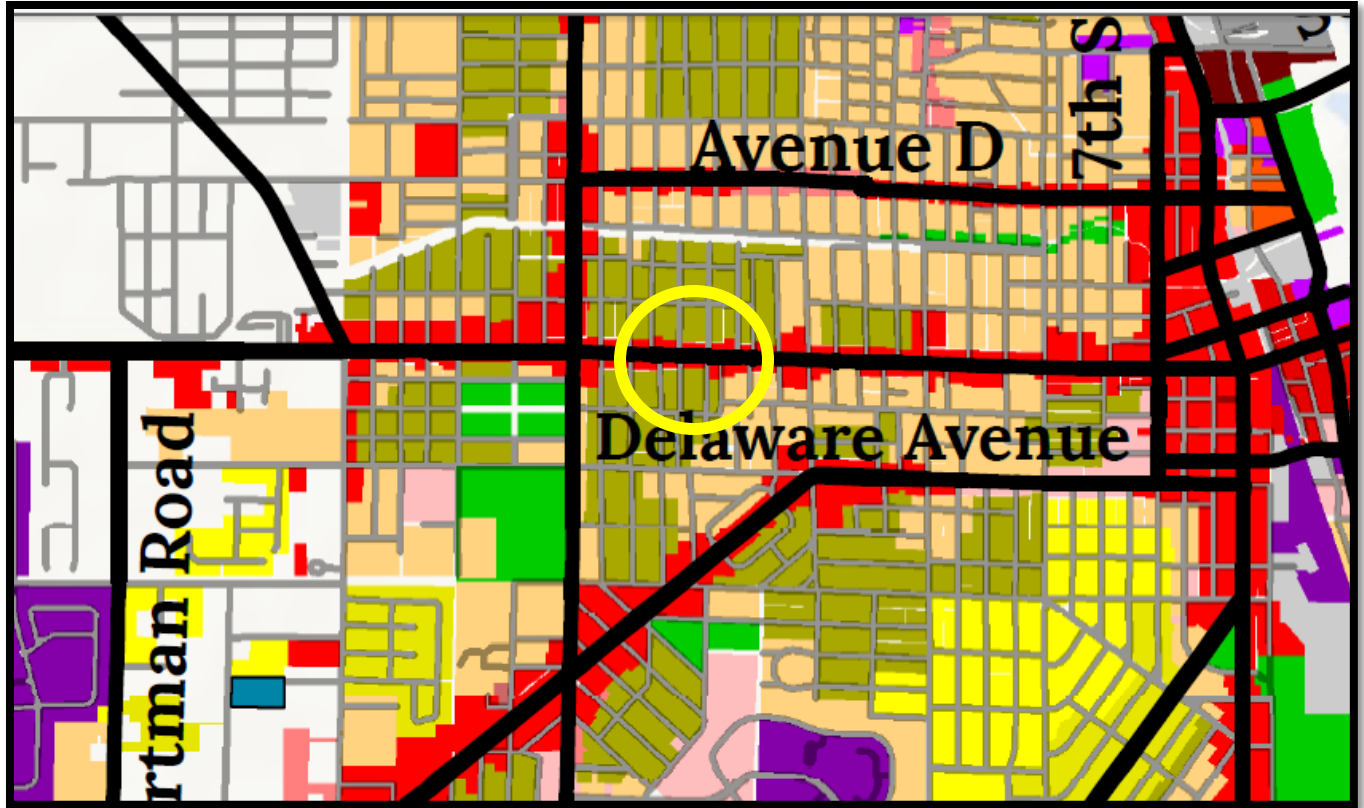


Section 22- 58.d.2

(2)

A general location map which shows the approximate location of streets, street signals and vehicular access points to streets along streets abutting the proposed development, rights-of-way, zoning districts, existing land uses and important physical features (including drainage ways) within five hundred (500) feet of property proposed for development.





Zoning Districts

<p>Residential Zoning</p> <ul style="list-style-type: none"> E1, Single Family Estate Density E2, Residential Single Family, 2 Units/Acre E3, Residential Single Family, 3 Units/Acre R1, Single Family Low Density R2, Single Family Intermediate Density R3, Single Family Moderate Density R4, Medium Density Residential R4A, Hutchinson Island Medium Density Residential R5, High Density Residential <p>Open Space Zoning</p> <ul style="list-style-type: none"> OS1, General and Recreational Open Space OS2, Conservation Open Space <p>Planned Development Zoning</p> <ul style="list-style-type: none"> PD, Planned Development PUR, Planned Urban Redevelopment 	<p>Commercial Zoning</p> <ul style="list-style-type: none"> C1, Office Commercial C2, Neighborhood Commercial C3, General Commercial C4, Central Commercial C5, Tourist Commercial C6, Marine Commercial CP1, Commercial Parkway <p>Industrial Zoning</p> <ul style="list-style-type: none"> I1, Light Industrial I2, Marine Industrial I3, Heavy Industrial <p>Agriculture Zoning (County)</p> <ul style="list-style-type: none"> AR1, Agriculture, Residential - 1 AG1, Agriculture - 1 AG2.5, Agriculture - 2.5
--	--

**City of Fort Pierce
Planning Department**
Created By: Brandon Creagan
Date Created: July 25, 2017



RG Towers, LLC

Ft Pierce Planning and Zoning
100 N. U.S. Highway 1
Fort Pierce, FL 34950

RE: RG Towers - Ft Pierce Orange Ave Character and Intended Use Statement

RG Towers, LLC is applying for approval to build a 130' stealth communications tower at the location shown below.

Tower Height/Type	130' Stealth communications tower
Address	2006 Orange Ave, Ft Pierce FL 34950
Coordinates	Approximately 27.447636, -80.345960

The parcel is currently owned by Lesley Phillips and Abdel Jebbar Elbakkari. RG Towers, LLC entered into a Lease Agreement dated 9/27/17.

The character of the parcel is completely commercial as seen in the attached photographs. The intended use will be the development of a 130' communication tower with a fenced compound to enclose the auxiliary equipment. The fenced compound will be landscaped to exceed the code. This is to be an unmanned facility with only semiannual visits for maintenance outside of initial construction.

Please let me know if you have any questions.

Sincerely,

Scott Richards
RG Towers, LLC
CEO

Michelle Franklin, CFA -- Saint Lucie County Property Appraiser -- All rights reserved.

Property Identification

Site Address: 2006 ORANGE AVE
 Sec/Town/Range: 09/35S/40E
 Map ID: 24/09N
 Zoning: C3

Parcel ID: 2409-605-0008-000-4
 Account #: 22018
 Use Type: 1100
 Jurisdiction: Fort Pierce

Ownership

Lesley Phillips
 Abdel Jebbar Elbakkari
 2006 Orange AVE
 Fort Pierce, FL 34950



Legal Description

FLORIANA PARK BLK 3 LOTS 3, 4 AND
 5-LESS S 15 FT FOR ST- (OR 3822-1761)

Current Values

Just/Market Value: \$84,600
 Assessed Value: \$84,600
 Exemptions: \$0
 Taxable Value: \$84,600
 Taxes for this parcel: SLC Tax Collector's
 Office [📄](#)
 Download TRIM for this parcel: [Download PDF](#) [📄](#)

Total Areas

Finished/Under Air (SF):	2,160
Gross Area (SF):	2,430
Land Size (acres):	0.45
Land Size (SF):	19,656

Sale History

Date	Book/Page	Sale Code	Deed	Grantor	Price
Dec 24, 2015	3822 / 1761	0002	WD	Walker (TR) John C	\$83,600
Nov 5, 2015	3805 / 1827	0111	CT	LeDain Marie M	\$100
Jun 25, 2014	3652 / 2867	0137	WD	Walker (TR),John C	\$120,000
Jun 3, 2014	3638 / 1302	0111	CT	LeDain,Marie M	\$60,300
May 25, 2005	2255 / 2189	XX01	QC	Blanc,Jean C	\$100

Apr 30, 2004	1971 / 3007	XX00	WD	Dunn Brothers Inc,	\$120,000
Nov 1, 1981	0366 / 2466	XX00	CV		\$125,000

Building Information (1 of 1)

Finished Area: 2,160 SF

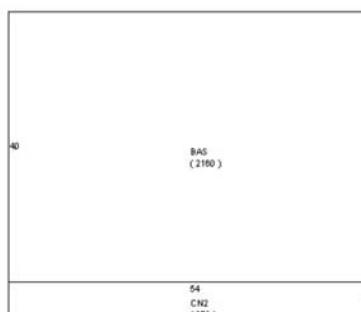
Gross Total Area: 2,430 SF

Exterior Data

View:	Roof Cover: Tar & Gravel	Roof Structure: Flat/Shed
Building Type: STRL	Year Built: 1957	Frame:
Grade: Y_C	Effective Year: 1970	Primary Wall: Conc Block
Story Height: 1 Story	No. Units: 2	Secondary Wall:

Interior Data

Bedrooms: 0	Electric: MAXIMUM	Primary Int Wall:
Full Baths: 0	Heat Type: FrcdHotAir	Avg Hgt/Floor: 0
Half Baths: 0	Heat Fuel: ELEC	Primary Floors: Vinyl Tiles
A/C %: 100%	Heated %: 100%	Sprinkled %: 0%



Sketch Area Legend

Sub Area	Description	Area	Fin. Area	Perimeter
BAS	BASE AREA	2160	2160	188
CN2	CANOPY	270	0	118

Special Features and Yard Items

Type	Qty	Units	Year Blt
CEMENT CURB	1	42	1970
ASP2 LOW	1	5409	1970

Current Year Values

Current Values Breakdown


Building:	\$40,400
Land:	\$44,200
Just/Market:	\$84,600
Ag Credit:	\$0
Save Our Homes or 10% Cap:	\$0
Assessed:	\$84,600
Exemption(s):	\$0
Taxable:	\$84,600

Current Year Exemption Value Breakdown

Tax Year	Grant Year	Code	Description	Amount
----------	------------	------	-------------	--------

Current Year Special Assessment Breakdown

Start Year	AssessCode	Units	Description	Amount
1999	0041	4.9	Fort Pierce Stormwater Charge	\$264.60

This does not necessarily represent the total Special Assesments that could be charged against this property. The total amount charged for special assessments is reflected on the most current tax statement and information is available with the SLC Tax Collector's Office .

Historical Values

Year	Just/Market	Assessed	Exemptions	Taxable
2017	\$84,600	\$84,600	\$0	\$84,600
2016	\$84,300	\$84,300	\$0	\$84,300
2015	\$105,200	\$105,200	\$0	\$105,200

Permits

Number	Issue Date	Description	Amount	Fee
BP2006-90	Jan 25, 2006	Roof	\$5,000	\$50
F900001019	Aug 7, 1990	Roof	\$900	\$900
0900025541	Nov 16, 2007	Sprinkler System	\$0	\$50
BP11-1029	Jun 9, 2011	Electric	\$104	\$155
BP16-1588	Jun 23, 2016	Alterations/Remodeling	\$4,000	\$0

Notice: This does not necessarily represent all the permits for this property.
Click the following link to check for additional permit data in Fort Pierce

This information is believed to be correct at this time but it is subject to change and is not warranted.
© Copyright 2017 Saint Lucie County Property Appraiser. All rights reserved.

Prepared by
Kimberly Douglas, an employee of
First American Title Insurance Company
729 South Federal Highway, Ste 103
Stuart, Florida 34994
(772)286-0850

Return to: Grantee

File No.: 2071-2258822
Consideration: \$83,600.00

WARRANTY DEED

This indenture made on **December 30, 2015** A.D., by

John C. Walker, as Trustee of the John C. Walker Trust dated July 26, 1994

whose address is: **364 River Edge Road, Jupiter, FL 33477**
hereinafter called the "grantor", to

Lesley Phillips and Abdel Jebbar ElBakkari, wife and husband

whose address is: **2006 Orange Ave, Fort Pierce, FL 34950**
hereinafter called the "grantee":

(Which terms "Grantor" and "Grantee" shall include singular or plural, corporation or individual, and either sex, and shall include heirs, legal representatives, successors and assigns of the same)

Witnesseth, that the grantor, for and in consideration of the sum of Ten Dollars, (\$10.00) and other valuable considerations, receipt whereof is hereby acknowledged, hereby grants, bargains, sells, aliens, remises, releases, conveys and confirms unto the grantee, all that certain land situate in **St. Lucie County, Florida**, to-wit:

Lots 3, 4 and 5 less the South 15 feet thereof, Block 3 of FLORIANA PARK, according to the Plat thereof as recorded in Plat Book 2, page 7C, of the Public Records of St. Lucie County, Florida.

Parcel Identification Number: **2409-605-0008-000/4**

Subject to all reservations, covenants, conditions, restrictions and easements of record and to all applicable zoning ordinances and/or restrictions imposed by governmental authorities, if any.

TOGETHER WITH all singular the tenements, hereditaments and appurtenances belonging to or in anywise appertaining to that real property.

AND the party of the first part does covenant to and with the party of the second part, their heirs and assigns, that in all things preliminary to and in and about the sale and this conveyance the Laws of Florida have been followed and complied with in all respects. .

In Witness Whereof, the parties of the first part have hereunto set their hand(s) and seal(s) the day and year first above written.

John C. Walker
John C. Walker, individually and as Trustee of the John C. Walker Trust dated July 26, 1994

Signed, sealed and delivered in the presence of these witnesses:

Kim Douglas
Witness Signature

Print Name: *Kim Douglas*

Toni Lynn Turner
Witness Signature

Print Name: *Toni-Lynn Turner*

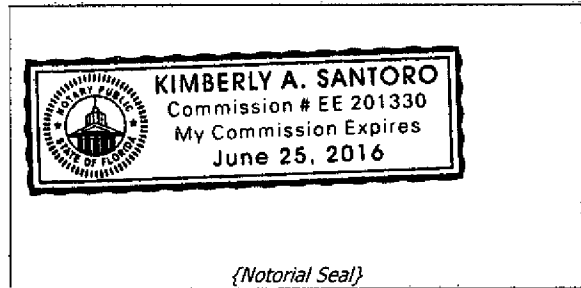
State of **Florida**

County of **Martin**

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED before me on **December 24th, 2015**, by **John C. Walker, a single man, individually and as Trustee of the John C. Walker Trust dated July 26, 1994** who is/are personally known to me or has/have produced a valid driver's license as identification.

Kimberly A. Santoro
Notary Public

Kimberly A. Santoro
(Printed Name)



My Commission expires: _____

Tower Removal Bond

KNOW ALL PERSONS BY THESE PRESENTS: That we RG Towers, LLC, a corporation duly organized under the laws of the State of DE, as Principal and The Hanover Insurance Company, as Surety, are held and firmly bound unto City of Fort Pierce, Florida as Obligee, in the amount of Eight Thousand Dollars and 00/100 (\$8,000.00) for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents, the liability of the Surety being limited to the penal sum of this bond regardless of the number of years the bond is in effect.

Whereas, the Principal has obtained written approval from the Obligee for the construction and erection of a wireless communication tower located at 2006 Orange Ave, Fort Pierce, Florida 34950, Tax Parcel Number 2409-605-0008-000-4. Now, therefore if the principal well and truly complies with the maintenance, replacement, removal or relocation of the tower from the aforementioned address within 30 days upon receipt of written notice from the Obligee, to remove, replace, modify, or relocate the tower from said premises then this obligation is void otherwise to remain in full force and effect unless cancelled as set forth below:

1. It shall be a condition precedent to any right of recovery hereunder that, in the event of any default on the part of the Principal, a written statement of the particular facts of such default shall be, within Thirty (30) days, delivered to Surety at it Home Office located at 440 Lincoln Street, Worcester, MA 01653 by registered mail to the Surety and the Surety shall not be obligated to perform Principals obligation until sixty (60) days after Surety's receipt of such statement.
2. The Surety may cancel this bond at any time by giving Thirty (30) days notice, by registered mail or overnight courier service to Planning Department, 100 North US 1, PO Box 1480, Fort Pierce, FL 34950 (Obligee). Such termination shall not affect liability incurred under this obligation prior to the effective date of such termination.
3. No action, suit, or proceeding shall be maintained against the Surety on this bond unless the action is brought within twelve (12) months of the cancellation date of this bond.
4. Regardless of the number of years this bond may be renewed; in no event shall the liability of the Surety exceed the penal sum of this bond.
5. It is understood that the non-renewal of this bond by the Surety, or failure or inability of the Principal to file a replacement bond shall not constitute a loss recoverable by the Obligee under this bond.

Signed, sealed, and witnessed this 26th day of January, 2018.

Holly Valdez
Witness

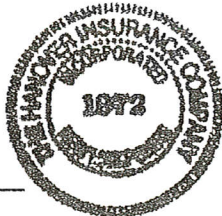
RG Towers, LLC
Principal

By: S. Peh

The Hanover Insurance Company
Surety

By: Richard A. Montgomery, Attorney-in-Fact

LeeAnne K. Michaud
Witness LeeAnne K. Michaud



**THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA**

*POWERS OF ATTORNEY
CERTIFIED COPY*

KNOW ALL MEN BY THESE PRESENTS: That THE HANOVER INSURANCE COMPANY and MASSACHUSETTS BAY INSURANCE COMPANY, both being corporations organized and existing under the laws of the State of New Hampshire, and CITIZENS INSURANCE COMPANY OF AMERICA, a corporation organized and existing under the laws of the State of Michigan, do hereby constitute and appoint

Richard A. Montgomery

of Columbia, MD and each is a true and lawful Attorney(s)-in-fact to sign, execute, seal, acknowledge and deliver for, and on its behalf, and as its act and deed any place within the United States, or, if the following line be filled in, only within the area therein designated

any and all bonds, recognizances, undertakings, contracts of indemnity or other writings obligatory in the nature thereof, as follows:

Surety Bond Number: 1066222
Principal: RG Towers, LLC
Obligee: City of Fort Pierce, Florida

and said companies hereby ratify and confirm all and whatsoever said Attorney(s)-in-fact may lawfully do in the premises by virtue of these presents. These appointments are made under and by authority of the following Resolution passed by the Board of Directors of said Companies which resolutions are still in effect:

"RESOLVED, That the President or any Vice President, in conjunction with any Vice President, be and they are hereby authorized and empowered to appoint Attorneys-in-fact of the Company, in its name and as its acts, to execute and acknowledge for and on its behalf as Surety any and all bonds, recognizances, contracts of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by such Attorneys-in-fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

IN WITNESS WHEREOF, THE HANOVER INSURANCE COMPANY, MASSACHUSETTS BAY INSURANCE COMPANY and CITIZENS INSURANCE COMPANY OF AMERICA have caused these presents to be sealed with their respective corporate seals, duly attested by two Vice Presidents, this 6th day of **October 2011**.



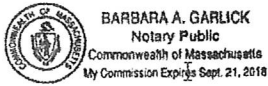
**THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA**

Robert Thomas
Robert Thomas, Vice President

Mary Fitzgerald
Mary Fitzgerald, Vice President

THE COMMONWEALTH OF MASSACHUSETTS)
COUNTY OF WORCESTER) ss.

On this 6th day of **October 2011** before me came the above named Vice Presidents of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, to me personally known to be the individuals and officers described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, respectively, and that the said corporate seals and their signatures as officers were duly affixed and subscribed to said instrument by the authority and direction of said Corporations.



Barbara A. Garlick
Barbara A. Garlick, Notary Public
My Commission Expires September 21, 2018

I, the undersigned Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, hereby certify that the above and foregoing is a full, true and correct copy of the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Powers of Attorney are still in force and effect.

This Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America.

"RESOLVED, That any and all Powers of Attorney and Certified Copies of such Powers of Attorney and certification in respect thereto, granted and executed by the President or any Vice President in conjunction with any Vice President of the Company, shall be binding on the Company to the same extent as if all signatures therein were manually affixed, even though one or more of any such signatures thereon may be facsimile." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

GIVEN under my hand and the seals of said Companies, at Worcester, Massachusetts, this 26th day of **January** 2018 .

**THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA**

Glenn Margosian
Glenn Margosian, Vice President



Project Number: U0142-705-181

September 14, 2018

STEALTH® Concealment Solutions
3034-A Ashley Phosphate Rd
North Charleston, SC 29418

REFERENCE: **Ft. Pierce Orange Ave RG18-01105W-05R1;
Fall Zone Letter for 130'-0" Concealment Pole**

To Whom It May Concern:

It is our understanding that a 130 ft concealment monopole has been proposed for this site.

The above-mentioned pole has been designed in accordance with the Florida Building Code, 2017 Edition (2015 IBC) and the ANSI TIA222-G "Structural Standard for Antenna Supporting Structures and Antennas". Additionally, all steel members and connections have been designed to meet the requirements of the AISC Steel Construction Manual.

The pole will be designed for the following criteria:

1. Wind speed (V): 159 mph (3-second gust) per the ASCE 7-10
2. Ice: 0" radial ice (nominal) with concurrent 30 mph wind (3-second gust)
3. Basic wind speed of 60 mph (3-second gust) for the service condition (deflection limitations only)
4. Structure Class II, Exposure C, Topographic Category 1 with a crest height of 0 ft.

It has been requested that the proposed monopole be designed for a fall zone of 0-ft.

Please note that "fall zone" is a term not defined in the standards listed above. Our approach to the fall zone design is described in the preceding paragraph and is our best attempt to meet what we believe to be the intent of the fall zone request. Current code does not address failure mechanics. It is difficult to impossible to predict the behavior of a failing structure. Physics of a fall during a wind event, including possible bouncing or rolling, may place all or part of the ruptured pole section outside of the intended fall zone. Nonstructural components attached to the steel structure are outside of our scope. Nonstructural components may break free from the structure and fall outside of the fall zone even at loads below code-specified magnitudes if the components and their attachments are not properly designed and installed.

We hope this meets your needs. If you have any questions or require additional information, please call this office at your convenience.

Very truly yours,
VECTOR STRUCTURAL ENGINEERING, LLC

Russell N. Emery, P.E.
Principal Engineer

RNE/djf



09/18/2018

SITE LICENSE AGREEMENT

This Site License Agreement ("SLA") is entered into this 10th day of January, 2018 ("SLA Effective Date") between RG Towers, LLC, hereinafter designated as LICENSOR, and T-Mobile South LLC, hereinafter designated as LICENSEE.

1. Integration with Master Lease Agreement: This SLA is entered into pursuant to that certain Master License Agreement between T-MOBILE CENTRAL LLC, T-MOBILE SOUTH LLC, T-MOBILE WEST LLC, T-MOBILE PUERTO RICO LLC, and POWERTEL/MEMPHIS, Inc. and RG Towers, LLC dated October 1, 2012 ("MLA"). All of the terms and conditions of the MLA are incorporated herein by this reference and made a part hereof without the necessity of repeating or attaching the MLA. Except as set forth in the MLA, in the event of a contradiction, modification or inconsistency between the terms of the MLA and this SLA, the terms of the MLA shall govern. Capitalized terms used in this SLA shall have the same meaning described for them in the MLA unless otherwise indicated herein.

2. Site Number and Name (if applicable):

LICENSOR:TC11 Fort Pierce Orange Ave

LICENSEE: A2P0227B Fort Pierce Orange Ave

3. Site Address and Legal Description: More particularly described in Attachment 1, attached hereto and incorporated herein.

4. Site Latitude and Longitude: 27.447662, -80.345875

5. Description of Antenna Facilities: LICENSEE Antenna Facilities to be placed on the Property and the location of the Premises are detailed in and shall be consistent with Attachment 2, attached hereto and incorporated herein.

6. Term: The term of this SLA shall be as set forth in Section 2(b) of the MLA and commence upon either [check one box]:

The earlier of (i) two hundred seventy (270) days after the SLA Effective Date; or (ii) the date of the Notice to Proceed under Section 10(a) of the MLA; or

_____, 2018

7. Rent Commencement: The first payment of Rent shall be due on the SLA Commencement Date.

8. Rent Amount: The monthly Rent for the initial term of this SLA shall be _____ to be paid on the first day of the month, in advance, to LICENSOR at the following address: 2141 Alternate A1A South, Suite 440, Jupiter, FL 33477; or to such other person, firm or place as LICENSOR may, from time to time, designate in writing at least thirty (30) days in advance of any rental payment date.

9. Prime Lease. If the Property is subject to a Prime Lease, a copy of such agreement is attached hereto as Attachment 3. If consent is required from the Owner, it is attached hereto as Attachment 4.

10. Licensor Contact for Emergency (not for legal notices): RG Towers, LLC

11. Licensee Contact for Emergency (not for legal notices): T-Mobile NOC 866-482-8890

12. Special Provisions (insert any special provisions):

IN WITNESS WHEREOF, the Parties hereto have set their hands and affixed their respective seals the day and year first above written.

DocuSigned by:
Holly Valdez

33D74A227BFA407...

WITNESS

DocuSigned by:
Harlan Ginn

7B842542F6F64EB...

WITNESS

LICENSOR: RG Towers, LLC

DocuSigned by:
BY: Scott Richards

F23977ED6FA2490...
PRINT NAME: Scott Richards

TITLE: CEO

DATE: 1/10/2018

DocuSigned by:
Erin Foltz

C12EA6527858485...

WITNESS

DocuSigned by:
Amy O'Rourke

BB3F601BD34346F...

WITNESS

LICENSEE: T-Mobile South LLC

DocuSigned by:
BY: Harlan J. Kickhoefer

9818B5EEB66D4BF...
PRINT NAME: Harlan J. Kickhoefer

TITLE: Sr. Director, Network Engineering & Operations

DATE: 1/2/2018

ATTACHMENTS:

- Attachment 1: Legal Description of Land
- Attachment 2: Licensor's Application Form Completed by Licensee
- Attachment 3: Prime Lease
- Attachment 4: Owner's Consent
- Attachment 5: Memorandum of Site License Agreement
- Attachment 6: Approved Plans

Attachment 1: Legal Description of Land

Legal Description of Land

PARENT TRACT

(PER OFFICIAL RECORD BOOK 3822, PAGE 1761 OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA)

LOTS 3, 4 AND 5, LESS THE SOUTH 15 FEET THEREOF, BLOCK 3 OF FLORIANA PARK, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 2, PAGE 7C, OF THE PUBLIC RECORDS OF ST. LUCIE COUNTY, FLORIDA.



RG Towers, LLC

5-10-18

RE: RG Towers-Ft Pierce- Orange Ave Affidavit 22-163-An affidavit from the property owner or applicant acknowledging acceptance of the requirements of section 22-163

RG Towers, LLC., applicant for the construction of a new communication tower, acknowledges the requirement per Section 22-163 for the removal of abandoned antenna support structure.

It is understood that prior to building permit we shall submit required documentation.

(a)

At time of building permit the applicant shall enter into a contractually enforceable agreement with the city which requires the applicant or the owner of the antenna support structure to remove the antenna support structure upon its abandonment.

(b)

Prior to issuance of any permit in accordance with this article, the property owner or tower operator shall submit a bond, surety or other financial guaranty for the use and benefit of the city, to ensure the removal of abandoned communication towers. The form of surety shall be subject to approval by the director of planning and the city attorney. The required surety shall be irrevocable, unless released by the city. The surety shall be utilized to cover the costs of removal and disposal of abandoned towers and shall consist of the following:

(1)

Submittals of an estimate from a certified structural engineer indicating the costs to remove and dispose of the tower;

(2)

A surety equivalent to one hundred (100) per cent of the estimated costs to remove and dispose of the tower.

The planning director, subject to review by the city attorney, may accept documentation from a tower operator or property owner that adequate resources or irrevocable contract obligations are available to remove obsolete or abandoned communication towers.

(c)

In the event all legally approved use of any antenna support structure has been discontinued for a period of one hundred eighty (180) consecutive days, the antenna support structure shall be deemed abandoned. Determination of the date of abandonment shall be made by the department of code enforcement, which may request suitable documentation from the owner of the antenna support structure regarding any matter relating to whether the antenna support structure is currently being used or not;

(d)

At such time as the department of code enforcement determines that an antenna support structure is abandoned, it shall provide the antenna support structure owner with written notice of an abandonment determination by certified mail. Failure or refusal by the owner to respond within sixty (60) days of receipt of such notice, shall constitute prima facie evidence that the antenna support structure has been abandoned.

(e)

If the owner of the antenna support structure fails to respond or fails to demonstrate that the antenna support structure is not abandoned, the antenna support structure shall be considered abandoned and the owner of the antenna support structure shall have an additional one hundred twenty (120) days within which to:

(1)

Reactivate the use of the antenna support structure or transfer the antenna support structure to another owner who makes actual use of the antenna support structure within the one hundred twenty (120) day period; or

(2)

Dismantle and remove the antenna support structure. At the earlier of one hundred twenty-one (121) days from the date of abandonment without reactivation or upon completion of dismantling and removal, any special exception approval for the antenna support structure shall automatically expire.

(Ord. No. J-452, § 1, 9-21-98)

Sincerely,

Scott Richards
CEO
RG Towers, LLC



STRUCTURAL CALCULATIONS
for
FT. PIERCE ORANGE AVE
TOP SECTION
at
2006 ORANGE AVENUE
FT. PIERCE, FL 34950
for
RG TOWERS
&
STEALTH® CONCEALMENT SOLUTIONS (RG18-01105W-05R1)



BY: RUSSELL N. EMERY, P.E.
PROJECT ENGINEER

FL Firm License Number: COA 26626

PROJECT #: U0142-705-181

DATE: September 13, 2018

DESIGNED BY DJF; CHECKED BY RNE

NOTE:

The calculations presented in this package are intended for a single use at the location indicated above, for the client listed above. These calculations shall not be reproduced, reused, "card filed", sold to a third party, or altered in any way without the written authorization of Vector Structural Engineering, LLC and STEALTH® Concealment Solutions.



JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Design Criteria:

Code: Structural design is based on the Florida Building Code, 2017 Edition (2015 IBC)

Wind: Basic wind speed = 159 mph (3-second gust) per the ASCE 7-10 standard
Risk category / Structure class: II
Wind exposure: C
Topographic category: 1
Crest height: 0 ft

Ice: None per the TIA-222-G standard

General Notes:

- 1 The contractor shall verify dimensions, conditions and elevations before starting work. The engineer shall be notified immediately if any discrepancies are found.
- 2 The typical notes and details shall apply in all cases unless specifically detailed elsewhere. Where no detail is shown, the construction shall be as shown for other similar work and as required by the building code.
- 3 These calculations are limited to the structural members shown in these calculations only.
- 4 The contractor shall be responsible for compliance with local construction safety orders. Approval of shop drawings by the architect or structural engineer shall not be construed as accepting this responsibility.
- 5 All structural framing members shall be adequately shored and braced during erection and until full lateral and vertical support is provided by adjoining members.

Structural Steel:

- 1 All structural steel code checks based on the AISC-LRFD, 3rd Edition per the TIA-222-G standard
- 2 All steel round tubes (HSS) to be per ASTM A500 GR. B (42 KSI), U.N.O.
- 3 All other structural steel shapes & plates shall be per ASTM A36, U.N.O.
- 4 All bolts for steel-to-steel connections shall be per ASTM F3125 GR. A325 U.N.O.
- 5 All bolted connections shall be tightened per the "turn-of-nut" method as defined by AISC.
- 6 All welding shall be performed by certified welders in accordance with the latest edition of the American Welding Society (AWS) D1.1
- 7 All steel surfaces shall be galvanized in accordance with ASTM A123 and ASTM F2329 standards, thoroughly coated with a zinc-rich primer, or otherwise protected as noted on the structural drawings.



JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

User Forces

Ice Thickness[in]:	0.00
Ice Density [pcf]:	56
Cylinder Shape:	18-Sided
Shape Factor:	0.65 (supercritical)
	1.20 (subcritical)

Elev. @ Top of Base Pole [ft]:	82.0
Elev. @ Bottom of Base Pole [ft]:	1.0

Cylinder	Length [ft]	Diameter [in]		Plates	Weight [lb]		CaAc [ft ²]	
		No Ice	w/ Ice		No Ice	w/ Ice	No Ice	w/ Ice
				Top Plate	370	370	16.5	30.5
1	12.0	50	50.00					
				Bulkhead	520	520	33.0	60.9
2	12.0	50	50.00					
				Bulkhead	520	520	33.0	60.9
3	12.0	50	50.00					
				Bulkhead	520	520	33.0	60.9
4	12.0	50	50.00					
				Bottom Plate	370	370	16.5	30.5
					0	0	0.0	0.0
					0	0	0.0	0.0
					0	0	0.0	0.0
					0	0	0.0	0.0
					0	0	0.0	0.0

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Top Plate	130	(3) Generic Panel 100# (enclosed)	100
(3) Generic Equipment (Enclosed)	124	(3) Generic Equipment (Enclosed)	100
(3) Generic Panel 105# (enclosed)	124	Bulkhead	94
Bulkhead	118	(3) Generic Equipment (Enclosed)	88
(3) Generic Panel 100# (enclosed)	112	(3) Generic Panel 100# (enclosed)	88
(3) Generic Equipment (Enclosed)	112	Bottom Plate	82
Bulkhead	106		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-42	42 ksi	58 ksi			

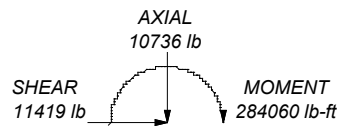
TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 159 mph basic wind in accordance with the TIA-222-G Standard.
3. Deflections are based upon a 60 mph wind.
4. Tower Risk Category II.
5. Topographic Category 1 with Crest Height of 0.00 ft
6. TOWER RATING: 66.9%

Section	1				130.0 ft
Size	P12x.562 13th				
Length (ft)	36.00				
Grade	A500-42				
Weight (lb)	2656.2				
					94.0 ft
Section	2				
Size	P16x.656 13th				
Length (ft)	12.00				
Grade					
Weight (lb)	1300.6				
					82.0 ft



ALL REACTIONS ARE FACTORED



Vector Structural Engineering
 651 West Galena Park BLVD
 Draper, UT 84020
 Phone: (801) 990-1775
 FAX:

Job: **Ft. Pierce Orange Ave**
 Project: **U0142-705-181**
 Client: **STEALTH® Concealment Solutions** Drawn by: **dfoulger** App'd:
 Code: **TIA-222-G** Date: **09/13/18** Scale: **NTS**
 Path: Dwg No. **E-1**

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 5 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

ASCE 7-10 Wind Data is used.

Basic wind speed of 159 mph.

Risk Category II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	130.00-94.00	36.00	P12x .562 13th	A500-42 (42 ksi)	
L2	94.00-82.00	12.00	P16x.656 13th	A500-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 130.00-94.00				0	0	1.08			
L2 94.00-82.00				0	0	1.08			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A	Weight
						ft ² /ft	plf
1 5/8 Coax	C	No	Inside Pole	124.00 - 82.00	12	No Ice	0.72
1 5/8 Coax	C	No	Inside Pole	112.00 - 82.00	12	No Ice	0.72
1 5/8 Coax	C	No	Inside Pole	100.00 - 82.00	12	No Ice	0.72
1 5/8 Coax	C	No	Inside Pole	88.00 - 82.00	12	No Ice	0.72

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 6 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Feed Line/Linear Appurtenances Section Areas

Tower Section	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 lb
L1	130.00-94.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	466.56
L2	94.00-82.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	362.88

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
---------------	----------------------	-------------	-------------------------	-----------------	--------------

User Defined Loads

Description	Elevation ft	Offset From Centroid ft	Azimuth Angle °	Weight lb	F_x lb	F_z lb	Wind Force lb	C_{AC} ft^2
Top Plate	130.00	0.00	0.0000	No Ice	370.00	0.00	0.00	1492.54
				Service	370.00	0.00	0.00	190.16
Bulkhead	118.00	0.00	0.0000	No Ice	520.00	0.00	0.00	2924.83
				Service	520.00	0.00	0.00	372.65
Bulkhead	106.00	0.00	0.0000	No Ice	520.00	0.00	0.00	2859.53
				Service	520.00	0.00	0.00	364.33
Bulkhead	94.00	0.00	0.0000	No Ice	520.00	0.00	0.00	2788.11
				Service	520.00	0.00	0.00	355.23
Bottom Plate	82.00	0.00	0.0000	No Ice	370.00	0.00	0.00	1354.54
				Service	370.00	0.00	0.00	172.58

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C_{AA} Front ft^2	C_{AA} Side ft^2	Weight lb	
(3) Generic Panel 105# (enclosed)	C	None		0.0000	124.00	No Ice	0.00	0.00	105.00
(3) Generic Panel 100# (enclosed)	C	None		0.0000	112.00	No Ice	0.00	0.00	105.00
(3) Generic Panel 100# (enclosed)	C	None		0.0000	100.00	No Ice	0.00	0.00	105.00
(3) Generic Panel 100# (enclosed)	C	None		0.0000	88.00	No Ice	0.00	0.00	105.00
(3) Generic Equipment (Enclosed)	C	None		0.0000	124.00	No Ice	0.00	0.00	50.00

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orange Ave	Page 7 of 29
	Project	U0142-705-181	Date
	Client	STEALTH® Concealment Solutions	Designed by
			dfoulger

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			ft ft ft	°	ft	ft ²	ft ²	lb	
(3) Generic Equipment (Enclosed)	C	None		0.0000	112.00	No Ice	0.00	0.00	50.00
(3) Generic Equipment (Enclosed)	C	None		0.0000	100.00	No Ice	0.00	0.00	50.00
(3) Generic Equipment (Enclosed)	C	None		0.0000	88.00	No Ice	0.00	0.00	50.00

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		psf	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1 130.00-94.00	112.15	1.297	80	38.250	A	0.000	0.000	0.000	0.00	0.000	0.000
					B	0.000	0.000		0.00	0.000	0.000
					C	0.000	0.000		0.00	0.000	0.000
L2 94.00-82.00	88.00	1.232	76	16.000	A	0.000	0.000	0.000	0.00	0.000	0.000
					B	0.000	0.000		0.00	0.000	0.000
					C	0.000	0.000		0.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		psf	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1 130.00-94.00	112.15	1.297	10	38.250	A	0.000	0.000	0.000	0.00	0.000	0.000
					B	0.000	0.000		0.00	0.000	0.000
					C	0.000	0.000		0.00	0.000	0.000
L2 94.00-82.00	88.00	1.232	10	16.000	A	0.000	0.000	0.000	0.00	0.000	0.000
					B	0.000	0.000		0.00	0.000	0.000
					C	0.000	0.000		0.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb	e			psf			ft ²	lb	plf	
L1	466.56	2656.21	A	0	0.6	80	1	1	0.000	0.00	0.00	C

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orange Ave	Page 8 of 29
	Project	U0142-705-181	Date 10:59:10 09/13/18
	Client	STEALTH® Concealment Solutions	Designed by dfoulger

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
130.00-94.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
L2	362.88	1300.64	A	0	0.6	76	1	1	0.000	0.00	0.00	C
94.00-82.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
Sum Weight:	829.44	3956.86						OTM	0.00 lb-ft	0.00		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1	466.56	2656.21	A	0	0.6	80	1	1	0.000	0.00	0.00	C
130.00-94.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
L2	362.88	1300.64	A	0	0.6	76	1	1	0.000	0.00	0.00	C
94.00-82.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
Sum Weight:	829.44	3956.86						OTM	0.00 lb-ft	0.00		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1	466.56	2656.21	A	0	0.6	80	1	1	0.000	0.00	0.00	C
130.00-94.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
L2	362.88	1300.64	A	0	0.6	76	1	1	0.000	0.00	0.00	C
94.00-82.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
Sum Weight:	829.44	3956.86						OTM	0.00 lb-ft	0.00		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1	466.56	2656.21	A	0	0.6	80	1	1	0.000	0.00	0.00	C
130.00-94.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orange Ave	Page 9 of 29
	Project	U0142-705-181	Date
	Client	STEALTH® Concealment Solutions	Designed by
			dfoulger

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L2	362.88	1300.64	A	0	0.6	76	1	1	0.000	0.00	0.00	C
94.00-82.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
Sum Weight:	829.44	3956.86						OTM	0.00 lb-ft	0.00		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1	466.56	2656.21	A	0	0.6	10	1	1	0.000	0.00	0.00	C
130.00-94.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
L2	362.88	1300.64	A	0	0.6	10	1	1	0.000	0.00	0.00	C
94.00-82.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
Sum Weight:	829.44	3956.86						OTM	0.00 lb-ft	0.00		

Tower Forces - Service - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1	466.56	2656.21	A	0	0.6	10	1	1	0.000	0.00	0.00	C
130.00-94.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
L2	362.88	1300.64	A	0	0.6	10	1	1	0.000	0.00	0.00	C
94.00-82.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
Sum Weight:	829.44	3956.86						OTM	0.00 lb-ft	0.00		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1	466.56	2656.21	A	0	0.6	10	1	1	0.000	0.00	0.00	C
130.00-94.00			B	0	0.6		1	1	0.000			
			C	0	0.6		1	1	0.000			
L2	362.88	1300.64	A	0	0.6	10	1	1	0.000	0.00	0.00	C
94.00-82.00			B	0	0.6		1	1	0.000			

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orange Ave	Page 10 of 29
	Project	U0142-705-181	Date
	Client	STEALTH® Concealment Solutions	Designed by
			dfoulger

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
Sum Weight:	829.44	3956.86	C	0	0.6		1	1 OTM	0.000 0.00 lb-ft	0.00		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 130.00-94.00	466.56	2656.21	A B C	0 0 0	0.6 0.6 0.6	10	1 1 1	1 1 1	0.000 0.000 0.000	0.00	0.00	C
L2 94.00-82.00	362.88	1300.64	A B C	0 0 0	0.6 0.6 0.6	10	1 1 1	1 1 1	0.000 0.000 0.000	0.00	0.00	C
Sum Weight:	829.44	3956.86						1 OTM	0.00 lb-ft	0.00		

Discrete Appurtenance Pressures - No Ice G_H = 1.100

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _A A _C Front ft ²	C _A A _C Side ft ²
Generic Panel 105# (enclosed)	0.0000	315.00	0.00	0.00	124.00	1.324	81	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	112.00	1.296	80	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	100.00	1.266	78	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	88.00	1.232	76	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	124.00	1.324	81	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	112.00	1.296	80	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	100.00	1.266	78	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	88.00	1.232	76	0.00	0.00
Sum Weight:		1860.00							

Discrete Appurtenance Pressures - Service G_H = 1.100

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _A A _C Front ft ²	C _A A _C Side ft ²
-------------	------------------	-----------	------------------------	------------------------	------	----------------	--------------------	---	--

Job	Ft. Pierce Orange Ave	Page 11 of 29
Project	U0142-705-181	Date 10:59:10 09/13/18
Client	STEALTH® Concealment Solutions	Designed by dfoulger

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
Generic Panel 105# (enclosed)	0.0000	315.00	0.00	0.00	124.00	1.324	10	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	112.00	1.296	10	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	100.00	1.266	10	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	88.00	1.232	10	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	124.00	1.324	10	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	112.00	1.296	10	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	100.00	1.266	10	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	88.00	1.232	10	0.00	0.00
Sum Weight:		1860.00							

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M _x lb-ft	Sum of Overturning Moments, M _z lb-ft	Sum of Torques lb-ft
Leg Weight	3956.86					
Bracing Weight	0.00					
Total Member Self-Weight	3956.86			0.00	0.00	
Total Weight	8946.30			0.00	0.00	
Wind 0 deg - No Ice		0.00	-11419.55	-279021.74	0.00	0.00
Wind 30 deg - No Ice		5709.78	-9889.62	-241639.91	-139510.87	0.00
Wind 45 deg - No Ice		8074.84	-8074.84	-197298.16	-197298.16	0.00
Wind 60 deg - No Ice		9889.62	-5709.78	-139510.87	-241639.91	0.00
Wind 90 deg - No Ice		11419.55	0.00	0.00	-279021.74	0.00
Wind 120 deg - No Ice		9889.62	5709.78	139510.87	-241639.91	0.00
Wind 135 deg - No Ice		8074.84	8074.84	197298.16	-197298.16	0.00
Wind 150 deg - No Ice		5709.78	9889.62	241639.91	-139510.87	0.00
Wind 180 deg - No Ice		0.00	11419.55	279021.74	0.00	0.00
Wind 210 deg - No Ice		-5709.78	9889.62	241639.91	139510.87	0.00
Wind 225 deg - No Ice		-8074.84	8074.84	197298.16	197298.16	0.00
Wind 240 deg - No Ice		-9889.62	5709.78	139510.87	241639.91	0.00
Wind 270 deg - No Ice		-11419.55	0.00	0.00	279021.74	0.00
Wind 300 deg - No Ice		-9889.62	-5709.78	-139510.87	241639.91	0.00
Wind 315 deg - No Ice		-8074.84	-8074.84	-197298.16	197298.16	0.00
Wind 330 deg - No Ice		-5709.78	-9889.62	-241639.91	139510.87	0.00
Total Weight	8946.30			0.00	0.00	
Wind 0 deg - Service		0.00	-1454.97	-35550.16	0.00	0.00
Wind 30 deg - Service		727.48	-1260.04	-30787.35	-17775.08	0.00
Wind 45 deg - Service		1028.82	-1028.82	-25137.76	-25137.76	0.00
Wind 60 deg - Service		1260.04	-727.48	-17775.08	-30787.35	0.00
Wind 90 deg - Service		1454.97	0.00	0.00	-35550.16	0.00
Wind 120 deg - Service		1260.04	727.48	17775.08	-30787.35	0.00
Wind 135 deg - Service		1028.82	1028.82	25137.76	-25137.76	0.00
Wind 150 deg - Service		727.48	1260.04	30787.35	-17775.08	0.00
Wind 180 deg - Service		0.00	1454.97	35550.16	0.00	0.00
Wind 210 deg - Service		-727.48	1260.04	30787.35	17775.08	0.00
Wind 225 deg - Service		-1028.82	1028.82	25137.76	25137.76	0.00
Wind 240 deg - Service		-1260.04	727.48	17775.08	30787.35	0.00

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 12 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Wind 270 deg - Service		-1454.97	0.00	0.00	35550.16	0.00
Wind 300 deg - Service		-1260.04	-727.48	-17775.08	30787.35	0.00
Wind 315 deg - Service		-1028.82	-1028.82	-25137.76	25137.76	0.00
Wind 330 deg - Service		-727.48	-1260.04	-30787.35	17775.08	0.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 45 deg - No Ice
7	0.9 Dead+1.0 Wind 45 deg - No Ice
8	1.2 Dead+1.0 Wind 60 deg - No Ice
9	0.9 Dead+1.0 Wind 60 deg - No Ice
10	1.2 Dead+1.0 Wind 90 deg - No Ice
11	0.9 Dead+1.0 Wind 90 deg - No Ice
12	1.2 Dead+1.0 Wind 120 deg - No Ice
13	0.9 Dead+1.0 Wind 120 deg - No Ice
14	1.2 Dead+1.0 Wind 135 deg - No Ice
15	0.9 Dead+1.0 Wind 135 deg - No Ice
16	1.2 Dead+1.0 Wind 150 deg - No Ice
17	0.9 Dead+1.0 Wind 150 deg - No Ice
18	1.2 Dead+1.0 Wind 180 deg - No Ice
19	0.9 Dead+1.0 Wind 180 deg - No Ice
20	1.2 Dead+1.0 Wind 210 deg - No Ice
21	0.9 Dead+1.0 Wind 210 deg - No Ice
22	1.2 Dead+1.0 Wind 225 deg - No Ice
23	0.9 Dead+1.0 Wind 225 deg - No Ice
24	1.2 Dead+1.0 Wind 240 deg - No Ice
25	0.9 Dead+1.0 Wind 240 deg - No Ice
26	1.2 Dead+1.0 Wind 270 deg - No Ice
27	0.9 Dead+1.0 Wind 270 deg - No Ice
28	1.2 Dead+1.0 Wind 300 deg - No Ice
29	0.9 Dead+1.0 Wind 300 deg - No Ice
30	1.2 Dead+1.0 Wind 315 deg - No Ice
31	0.9 Dead+1.0 Wind 315 deg - No Ice
32	1.2 Dead+1.0 Wind 330 deg - No Ice
33	0.9 Dead+1.0 Wind 330 deg - No Ice
34	Dead+Wind 0 deg - Service
35	Dead+Wind 30 deg - Service
36	Dead+Wind 45 deg - Service
37	Dead+Wind 60 deg - Service
38	Dead+Wind 90 deg - Service
39	Dead+Wind 120 deg - Service
40	Dead+Wind 135 deg - Service
41	Dead+Wind 150 deg - Service
42	Dead+Wind 180 deg - Service
43	Dead+Wind 210 deg - Service
44	Dead+Wind 225 deg - Service
45	Dead+Wind 240 deg - Service
46	Dead+Wind 270 deg - Service
47	Dead+Wind 300 deg - Service

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 13 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Comb. No.	Description
48	Dead+Wind 315 deg - Service
49	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	130 - 94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-6987.89	-114856.88	114856.88
			Max. Mx	10	-6987.89	-162432.08	0.00
			Max. My	2	-6987.89	0.00	162432.08
			Max. Vy	10	7455.15	-82202.87	0.00
			Max. Vx	2	-7455.15	0.00	82202.87
			Max. Torque	4			-0.00
L2	94 - 82	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-10726.45	-200861.07	200861.07
			Max. Mx	10	-10726.45	-284060.40	0.00
			Max. My	2	-10726.45	0.00	284060.40
			Max. Vy	10	11428.00	-284060.40	0.00
			Max. Vx	2	-11428.00	0.00	284060.40
			Max. Torque	4			-0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	6	10735.55	-8074.77	8074.77
	Max. H _x	26	10735.55	11419.45	0.00
	Max. H _z	2	10735.55	0.00	11419.45
	Max. M _x	2	284060.40	0.00	11419.45
	Max. M _z	10	284060.40	-11419.45	0.00
	Max. Torsion	16	0.00	-5709.72	-9889.53
	Min. Vert	3	8051.66	0.00	11419.17
	Min. H _x	10	10735.55	-11419.45	0.00
	Min. H _z	18	10735.55	0.00	-11419.45
	Min. M _x	18	-284060.40	0.00	-11419.45
	Min. M _z	26	-284060.40	11419.45	0.00
	Min. Torsion	4	-0.00	-5709.72	9889.53

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	8946.30	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	10735.55	0.00	-11419.45	-284060.40	0.00	0.00
0.9 Dead+1.0 Wind 0 deg - No Ice	8051.66	0.00	-11419.17	-282743.67	0.00	0.00

Job	Ft. Pierce Orange Ave	Page 14 of 29
Project	U0142-705-181	Date 10:59:10 09/13/18
Client	STEALTH® Concealment Solutions	Designed by dfoulger

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
1.2 Dead+1.0 Wind 30 deg - No Ice	10735.55	5709.72	-9889.53	-246003.55	-142030.24	0.00
0.9 Dead+1.0 Wind 30 deg - No Ice	8051.67	5709.74	-9889.56	-244873.51	-141377.81	0.00
1.2 Dead+1.0 Wind 45 deg - No Ice	10735.55	8074.77	-8074.77	-200861.07	-200861.07	0.00
0.9 Dead+1.0 Wind 45 deg - No Ice	8051.67	8074.79	-8074.79	-199938.40	-199938.40	0.00
1.2 Dead+1.0 Wind 60 deg - No Ice	10735.55	9889.53	-5709.72	-142030.24	-246003.55	-0.00
0.9 Dead+1.0 Wind 60 deg - No Ice	8051.67	9889.56	-5709.74	-141377.81	-244873.51	-0.00
1.2 Dead+1.0 Wind 90 deg - No Ice	10735.55	11419.45	0.00	0.00	-284060.40	0.00
0.9 Dead+1.0 Wind 90 deg - No Ice	8051.66	11419.17	0.00	0.00	-282743.67	0.00
1.2 Dead+1.0 Wind 120 deg - No Ice	10735.55	9889.53	5709.72	142030.24	-246003.55	0.00
0.9 Dead+1.0 Wind 120 deg - No Ice	8051.67	9889.56	5709.74	141377.81	-244873.51	0.00
1.2 Dead+1.0 Wind 135 deg - No Ice	10735.55	8074.77	8074.77	200861.07	-200861.07	0.00
0.9 Dead+1.0 Wind 135 deg - No Ice	8051.67	8074.79	8074.79	199938.40	-199938.40	0.00
1.2 Dead+1.0 Wind 150 deg - No Ice	10735.55	5709.72	9889.53	246003.55	-142030.24	-0.00
0.9 Dead+1.0 Wind 150 deg - No Ice	8051.67	5709.74	9889.56	244873.51	-141377.81	-0.00
1.2 Dead+1.0 Wind 180 deg - No Ice	10735.55	0.00	11419.45	284060.40	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	8051.66	0.00	11419.17	282743.67	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice	10735.55	-5709.72	9889.53	246003.55	142030.24	0.00
0.9 Dead+1.0 Wind 210 deg - No Ice	8051.67	-5709.74	9889.56	244873.51	141377.81	0.00
1.2 Dead+1.0 Wind 225 deg - No Ice	10735.55	-8074.77	8074.77	200861.07	200861.07	0.00
0.9 Dead+1.0 Wind 225 deg - No Ice	8051.67	-8074.79	8074.79	199938.40	199938.40	0.00
1.2 Dead+1.0 Wind 240 deg - No Ice	10735.55	-9889.53	5709.72	142030.24	246003.55	-0.00
0.9 Dead+1.0 Wind 240 deg - No Ice	8051.67	-9889.56	5709.74	141377.81	244873.51	-0.00
1.2 Dead+1.0 Wind 270 deg - No Ice	10735.55	-11419.45	0.00	0.00	284060.40	0.00
0.9 Dead+1.0 Wind 270 deg - No Ice	8051.66	-11419.17	0.00	0.00	282743.67	0.00
1.2 Dead+1.0 Wind 300 deg - No Ice	10735.55	-9889.53	-5709.72	-142030.24	246003.55	0.00
0.9 Dead+1.0 Wind 300 deg - No Ice	8051.67	-9889.56	-5709.74	-141377.81	244873.51	0.00
1.2 Dead+1.0 Wind 315 deg - No Ice	10735.55	-8074.77	-8074.77	-200861.07	200861.07	0.00
0.9 Dead+1.0 Wind 315 deg - No Ice	8051.67	-8074.79	-8074.79	-199938.40	199938.40	0.00
1.2 Dead+1.0 Wind 330 deg - No Ice	10735.55	-5709.72	-9889.53	-246003.55	142030.24	-0.00
0.9 Dead+1.0 Wind 330 deg - No Ice	8051.67	-5709.74	-9889.56	-244873.51	141377.81	-0.00
Dead+Wind 0 deg - Service	8946.30	0.00	-1454.72	-36083.48	0.00	0.00

Job	Ft. Pierce Orange Ave	Page 15 of 29
Project	U0142-705-181	Date 10:59:10 09/13/18
Client	STEALTH® Concealment Solutions	Designed by dfoulger

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead+Wind 30 deg - Service	8946.30	727.36	-1259.82	-31249.21	-18041.74	0.00
Dead+Wind 45 deg - Service	8946.30	1028.64	-1028.64	-25514.88	-25514.88	0.00
Dead+Wind 60 deg - Service	8946.30	1259.82	-727.36	-18041.74	-31249.21	-0.00
Dead+Wind 90 deg - Service	8946.30	1454.72	0.00	0.00	-36083.48	0.00
Dead+Wind 120 deg - Service	8946.30	1259.82	727.36	18041.74	-31249.21	0.00
Dead+Wind 135 deg - Service	8946.30	1028.64	1028.64	25514.88	-25514.88	0.00
Dead+Wind 150 deg - Service	8946.30	727.36	1259.82	31249.21	-18041.74	-0.00
Dead+Wind 180 deg - Service	8946.30	0.00	1454.72	36083.48	0.00	0.00
Dead+Wind 210 deg - Service	8946.30	-727.36	1259.82	31249.21	18041.74	0.00
Dead+Wind 225 deg - Service	8946.30	-1028.64	1028.64	25514.88	25514.88	0.00
Dead+Wind 240 deg - Service	8946.30	-1259.82	727.36	18041.74	31249.21	-0.00
Dead+Wind 270 deg - Service	8946.30	-1454.72	0.00	0.00	36083.48	0.00
Dead+Wind 300 deg - Service	8946.30	-1259.82	-727.36	-18041.74	31249.21	0.00
Dead+Wind 315 deg - Service	8946.30	-1028.64	-1028.64	-25514.88	25514.88	0.00
Dead+Wind 330 deg - Service	8946.30	-727.36	-1259.82	-31249.21	18041.74	-0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-8946.30	0.00	0.00	8946.30	0.00	0.000%
2	0.00	-10735.56	-11419.55	0.00	10735.55	11419.45	0.001%
3	0.00	-8051.67	-11419.55	0.00	8051.66	11419.17	0.003%
4	5709.78	-10735.56	-9889.62	-5709.72	10735.55	9889.53	0.001%
5	5709.78	-8051.67	-9889.62	-5709.74	8051.67	9889.56	0.001%
6	8074.84	-10735.56	-8074.84	-8074.77	10735.55	8074.77	0.001%
7	8074.84	-8051.67	-8074.84	-8074.79	8051.67	8074.79	0.001%
8	9889.62	-10735.56	-5709.78	-9889.53	10735.55	5709.72	0.001%
9	9889.62	-8051.67	-5709.78	-9889.56	8051.67	5709.74	0.001%
10	11419.55	-10735.56	0.00	-11419.45	10735.55	0.00	0.001%
11	11419.55	-8051.67	0.00	-11419.17	8051.66	0.00	0.003%
12	9889.62	-10735.56	5709.78	-9889.53	10735.55	-5709.72	0.001%
13	9889.62	-8051.67	5709.78	-9889.56	8051.67	-5709.74	0.001%
14	8074.84	-10735.56	8074.84	-8074.77	10735.55	-8074.77	0.001%
15	8074.84	-8051.67	8074.84	-8074.79	8051.67	-8074.79	0.001%
16	5709.78	-10735.56	9889.62	-5709.72	10735.55	-9889.53	0.001%
17	5709.78	-8051.67	9889.62	-5709.74	8051.67	-9889.56	0.001%
18	0.00	-10735.56	11419.55	0.00	10735.55	-11419.45	0.001%
19	0.00	-8051.67	11419.55	0.00	8051.66	-11419.17	0.003%
20	-5709.78	-10735.56	9889.62	5709.72	10735.55	-9889.53	0.001%
21	-5709.78	-8051.67	9889.62	5709.74	8051.67	-9889.56	0.001%
22	-8074.84	-10735.56	8074.84	8074.77	10735.55	-8074.77	0.001%
23	-8074.84	-8051.67	8074.84	8074.79	8051.67	-8074.79	0.001%
24	-9889.62	-10735.56	5709.78	9889.53	10735.55	-5709.72	0.001%
25	-9889.62	-8051.67	5709.78	9889.56	8051.67	-5709.74	0.001%
26	-11419.55	-10735.56	0.00	11419.45	10735.55	0.00	0.001%
27	-11419.55	-8051.67	0.00	11419.17	8051.66	0.00	0.003%
28	-9889.62	-10735.56	-5709.78	9889.53	10735.55	5709.72	0.001%
29	-9889.62	-8051.67	-5709.78	9889.56	8051.67	5709.74	0.001%
30	-8074.84	-10735.56	-8074.84	8074.77	10735.55	8074.77	0.001%
31	-8074.84	-8051.67	-8074.84	8074.79	8051.67	8074.79	0.001%
32	-5709.78	-10735.56	-9889.62	5709.72	10735.55	9889.53	0.001%
33	-5709.78	-8051.67	-9889.62	5709.74	8051.67	9889.56	0.001%
34	0.00	-8946.30	-1454.97	0.00	8946.30	1454.72	0.003%
35	727.48	-8946.30	-1260.04	-727.36	8946.30	1259.82	0.003%
36	1028.82	-8946.30	-1028.82	-1028.64	8946.30	1028.64	0.003%
37	1260.04	-8946.30	-727.48	-1259.82	8946.30	727.36	0.003%

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 16 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
38	1454.97	-8946.30	0.00	-1454.72	8946.30	0.00	0.003%
39	1260.04	-8946.30	727.48	-1259.82	8946.30	-727.36	0.003%
40	1028.82	-8946.30	1028.82	-1028.64	8946.30	-1028.64	0.003%
41	727.48	-8946.30	1260.04	-727.36	8946.30	-1259.82	0.003%
42	0.00	-8946.30	1454.97	0.00	8946.30	-1454.72	0.003%
43	-727.48	-8946.30	1260.04	727.36	8946.30	-1259.82	0.003%
44	-1028.82	-8946.30	1028.82	1028.64	8946.30	-1028.64	0.003%
45	-1260.04	-8946.30	727.48	1259.82	8946.30	-727.36	0.003%
46	-1454.97	-8946.30	0.00	1454.72	8946.30	0.00	0.003%
47	-1260.04	-8946.30	-727.48	1259.82	8946.30	727.36	0.003%
48	-1028.82	-8946.30	-1028.82	1028.64	8946.30	1028.64	0.003%
49	-727.48	-8946.30	-1260.04	727.36	8946.30	1259.82	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	10	0.00000001	0.00003736
3	Yes	9	0.00000001	0.00012900
4	Yes	10	0.00000001	0.00011385
5	Yes	10	0.00000001	0.00008987
6	Yes	10	0.00000001	0.00012922
7	Yes	10	0.00000001	0.00010190
8	Yes	10	0.00000001	0.00011385
9	Yes	10	0.00000001	0.00008987
10	Yes	10	0.00000001	0.00003736
11	Yes	9	0.00000001	0.00012900
12	Yes	10	0.00000001	0.00011385
13	Yes	10	0.00000001	0.00008987
14	Yes	10	0.00000001	0.00012922
15	Yes	10	0.00000001	0.00010190
16	Yes	10	0.00000001	0.00011385
17	Yes	10	0.00000001	0.00008987
18	Yes	10	0.00000001	0.00003736
19	Yes	9	0.00000001	0.00012900
20	Yes	10	0.00000001	0.00011385
21	Yes	10	0.00000001	0.00008987
22	Yes	10	0.00000001	0.00012922
23	Yes	10	0.00000001	0.00010190
24	Yes	10	0.00000001	0.00011385
25	Yes	10	0.00000001	0.00008987
26	Yes	10	0.00000001	0.00003736
27	Yes	9	0.00000001	0.00012900
28	Yes	10	0.00000001	0.00011385
29	Yes	10	0.00000001	0.00008987
30	Yes	10	0.00000001	0.00012922
31	Yes	10	0.00000001	0.00010190
32	Yes	10	0.00000001	0.00011385
33	Yes	10	0.00000001	0.00008987
34	Yes	8	0.00000001	0.00010603
35	Yes	8	0.00000001	0.00010463
36	Yes	8	0.00000001	0.00010416
37	Yes	8	0.00000001	0.00010463
38	Yes	8	0.00000001	0.00010603
39	Yes	8	0.00000001	0.00010463

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orange Ave	Page 17 of 29
	Project	U0142-705-181	Date 10:59:10 09/13/18
	Client	STEALTH® Concealment Solutions	Designed by dfoulger

40	Yes	8	0.00000001	0.00010416
41	Yes	8	0.00000001	0.00010463
42	Yes	8	0.00000001	0.00010603
43	Yes	8	0.00000001	0.00010463
44	Yes	8	0.00000001	0.00010416
45	Yes	8	0.00000001	0.00010463
46	Yes	8	0.00000001	0.00010603
47	Yes	8	0.00000001	0.00010463
48	Yes	8	0.00000001	0.00010416
49	Yes	8	0.00000001	0.00010463

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 94	2.092	34	0.3100	0.0000
L2	94 - 82	0.152	34	0.1107	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	Top Plate	34	2.092	0.3100	0.0000	33522
124.00	(3) Generic Panel 105# (enclosed)	34	1.678	0.2849	0.0000	27935
118.00	Bulkhead	34	1.280	0.2583	0.0000	13967
112.00	(3) Generic Panel 100# (enclosed)	34	0.913	0.2291	0.0000	9312
106.00	Bulkhead	34	0.592	0.1956	0.0000	6984
100.00	(3) Generic Panel 100# (enclosed)	34	0.333	0.1566	0.0000	5587
94.00	Bulkhead	34	0.152	0.1107	0.0000	5131
88.00	(3) Generic Panel 100# (enclosed)	36	0.053	0.0574	0.0000	9311
82.00	Bottom Plate	0	0.000	0.0000	0.0000	11174

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 94	16.479	10	2.4430	0.0000
L2	94 - 82	1.195	2	0.8719	0.0000

Critical Deflections and Radius of Curvature - Design Wind

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

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 18 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	Top Plate	10	16.479	2.4430	0.0000	4267
124.00	(3) Generic Panel 105# (enclosed)	10	13.221	2.2446	0.0000	3556
118.00	Bulkhead	2	10.084	2.0354	0.0000	1777
112.00	(3) Generic Panel 100# (enclosed)	10	7.192	1.8044	0.0000	1184
106.00	Bulkhead	2	4.665	1.5407	0.0000	888
100.00	(3) Generic Panel 100# (enclosed)	10	2.625	1.2335	0.0000	710
94.00	Bulkhead	2	1.195	0.8719	0.0000	651
88.00	(3) Generic Panel 100# (enclosed)	6	0.415	0.4523	0.0000	1182
82.00	Bottom Plate	0	0.000	0.0000	0.0000	1418

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	130 - 128.2	P12x .562 13th	36.00	0.00	0.0	20.0771	-567.22	758915.00	0.001
	128.2 - 126.4					20.0771	-754.51	758915.00	0.001
	126.4 - 124.6					20.0771	-941.91	758915.00	0.001
	124.6 - 122.8					20.0771	-1686.91	758915.00	0.002
	122.8 - 121					20.0771	-1874.52	758915.00	0.002
	121 - 119.2					20.0771	-2062.24	758915.00	0.003
	119.2 - 117.4					20.0771	-2752.94	758915.00	0.004
	117.4 - 115.6					20.0771	-2942.48	758915.00	0.004
	115.6 - 113.8					20.0771	-3132.87	758915.00	0.004
	113.8 - 112					20.0771	-3324.16	758915.00	0.004
	112 - 110.2					20.0771	-4073.94	758915.00	0.005
	110.2 - 108.4					20.0771	-4267.06	758915.00	0.006
	108.4 - 106.6					20.0771	-4461.08	758915.00	0.006
	106.6 - 104.8					20.0771	-5183.62	758915.00	0.007
	104.8 - 103					20.0771	-5385.46	758915.00	0.007
	103 - 101.2					20.0771	-5589.67	758915.00	0.007
	101.2 - 99.4					20.0771	-6354.04	758915.00	0.008
99.4 - 97.6	20.0771	-6563.00	758915.00	0.009					
97.6 - 95.8	20.0771	-6774.29	758915.00	0.009					
95.8 - 94	20.0771	-6987.89	758915.00	0.009					
L2	94 - 93	P16x.656 13th	12.00	0.00	0.0	29.4930	-7754.40	1114830.00	0.007
	93 - 92					29.4930	-7930.71	1114830.00	0.007
	92 - 91					29.4930	-8107.60	1114830.00	0.007
	91 - 90					29.4930	-8285.08	1114830.00	0.007
	90 - 89					29.4930	-8463.14	1114830.00	0.008
	89 - 88					29.4930	-8641.77	1114830.00	0.008
	88 - 87					29.4930	-9378.96	1114830.00	0.008
	87 - 86					29.4930	-9558.75	1114830.00	0.009
	86 - 85					29.4930	-9739.10	1114830.00	0.009
	85 - 84					29.4930	-9920.02	1114830.00	0.009
	84 - 83					29.4930	-10101.50	1114830.00	0.009
83 - 82	29.4930	-10283.50	1114830.00	0.009					

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 19 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux}	ϕM_{ux}	Ratio	M_{uy}	ϕM_{uy}	Ratio
			lb-ft	lb-ft	$\frac{M_{ux}}{\phi M_{ux}}$	lb-ft	lb-ft	$\frac{M_{uy}}{\phi M_{uy}}$
L1	130 - 128.2	P12x .562 13th	2726.04	246296.67	0.011	0.00	246296.67	0.000
	128.2 - 126.4		5465.67	246296.67	0.022	0.00	246296.67	0.000
	126.4 - 124.6		8219.42	246296.67	0.033	0.00	246296.67	0.000
	124.6 - 122.8		11015.33	246296.67	0.045	0.00	246296.67	0.000
	122.8 - 121		13838.83	246296.67	0.056	0.00	246296.67	0.000
	121 - 119.2		16675.25	246296.67	0.068	0.00	246296.67	0.000
	119.2 - 117.4		21293.33	246296.67	0.086	0.00	246296.67	0.000
	117.4 - 115.6		29460.08	246296.67	0.120	0.00	246296.67	0.000
	115.6 - 113.8		37636.67	246296.67	0.153	0.00	246296.67	0.000
	113.8 - 112		45821.50	246296.67	0.186	0.00	246296.67	0.000
	112 - 110.2		54051.08	246296.67	0.219	0.00	246296.67	0.000
	110.2 - 108.4		62283.75	246296.67	0.253	0.00	246296.67	0.000
	108.4 - 106.6		70517.25	246296.67	0.286	0.00	246296.67	0.000
	106.6 - 104.8		82203.25	246296.67	0.334	0.00	246296.67	0.000
	104.8 - 103		95609.17	246296.67	0.388	0.00	246296.67	0.000
	103 - 101.2		109004.17	246296.67	0.443	0.00	246296.67	0.000
	101.2 - 99.4		122390.83	246296.67	0.497	0.00	246296.67	0.000
L2	99.4 - 97.6	P16x.656 13th	135770.83	246296.67	0.551	0.00	246296.67	0.000
	97.6 - 95.8		149120.00	246296.67	0.605	0.00	246296.67	0.000
	95.8 - 94		162432.50	246296.67	0.659	0.00	246296.67	0.000
	94 - 93		172611.67	455350.00	0.379	0.00	455350.00	0.000
	93 - 92		182785.00	455350.00	0.401	0.00	455350.00	0.000
	92 - 91		192953.33	455350.00	0.424	0.00	455350.00	0.000
	91 - 90		203114.17	455350.00	0.446	0.00	455350.00	0.000
	90 - 89		213267.50	455350.00	0.468	0.00	455350.00	0.000
	89 - 88		223411.67	455350.00	0.491	0.00	455350.00	0.000
	88 - 87		233551.67	455350.00	0.513	0.00	455350.00	0.000
	87 - 86		243680.00	455350.00	0.535	0.00	455350.00	0.000
	86 - 85		253795.83	455350.00	0.557	0.00	455350.00	0.000
	85 - 84		263899.17	455350.00	0.580	0.00	455350.00	0.000
	84 - 83		273987.50	455350.00	0.602	0.00	455350.00	0.000
	83 - 82		284060.83	455350.00	0.624	0.00	455350.00	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u lb	lb	$\frac{V_u}{\phi V_n}$	T_u lb-ft	lb-ft	$\frac{T_u}{\phi T_n}$
L1	130 - 128.2	P12x .562 13th	1518.86	379457.00	0.004	0.00	371474.17	0.000
	128.2 - 126.4		1526.78	379457.00	0.004	0.00	371474.17	0.000
	126.4 - 124.6		1534.62	379457.00	0.004	0.00	371474.17	0.000
	124.6 - 122.8		1565.88	379457.00	0.004	0.00	371474.17	0.000
	122.8 - 121		1573.28	379457.00	0.004	0.00	371474.17	0.000
	121 - 119.2		1580.44	379457.00	0.004	0.00	371474.17	0.000
	119.2 - 117.4		4535.39	379457.00	0.012	0.00	371474.17	0.000
	117.4 - 115.6		4541.57	379457.00	0.012	0.00	371474.17	0.000
	115.6 - 113.8		4546.96	379457.00	0.012	0.00	371474.17	0.000
	113.8 - 112		4551.44	379457.00	0.012	0.00	371474.17	0.000
	112 - 110.2		4576.11	379457.00	0.012	0.00	371474.17	0.000
	110.2 - 108.4		4577.70	379457.00	0.012	0.00	371474.17	0.000
	108.4 - 106.6		4577.92	379457.00	0.012	0.00	371474.17	0.000
	106.6 - 104.8		7455.52	379457.00	0.020	0.00	371474.17	0.000
104.8 - 103	7451.23	379457.00	0.020	0.00	371474.17	0.000		

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 20 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L2	103 - 101.2	P16x.656 13th	7444.40	379457.00	0.020	0.00	371474.17	0.000
	101.2 - 99.4		7449.79	379457.00	0.020	0.00	371474.17	0.000
	99.4 - 97.6		7435.68	379457.00	0.020	0.00	371474.17	0.000
	97.6 - 95.8		7418.28	379457.00	0.020	0.00	371474.17	0.000
	95.8 - 94		7397.38	379457.00	0.019	0.00	371474.17	0.000
	94 - 93		10180.60	557417.00	0.018	0.00	688712.50	0.000
	93 - 92		10175.20	557417.00	0.018	0.00	688712.50	0.000
	92 - 91		10169.10	557417.00	0.018	0.00	688712.50	0.000
	91 - 90		10162.10	557417.00	0.018	0.00	688712.50	0.000
	90 - 89		10154.20	557417.00	0.018	0.00	688712.50	0.000
	89 - 88		10145.50	557417.00	0.018	0.00	688712.50	0.000
	88 - 87		10140.30	557417.00	0.018	0.00	688712.50	0.000
	87 - 86		10129.00	557417.00	0.018	0.00	688712.50	0.000
	86 - 85		10116.60	557417.00	0.018	0.00	688712.50	0.000
	85 - 84		10103.20	557417.00	0.018	0.00	688712.50	0.000
	84 - 83		10088.70	557417.00	0.018	0.00	688712.50	0.000
	83 - 82		10073.10	557417.00	0.018	0.00	688712.50	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 128.2	0.001	0.011	0.000	0.004	0.000	0.012	1.000	4.8.2 ✓
	128.2 - 126.4	0.001	0.022	0.000	0.004	0.000	0.023	1.000	4.8.2 ✓
	126.4 - 124.6	0.001	0.033	0.000	0.004	0.000	0.035	1.000	4.8.2 ✓
	124.6 - 122.8	0.002	0.045	0.000	0.004	0.000	0.047	1.000	4.8.2 ✓
	122.8 - 121	0.002	0.056	0.000	0.004	0.000	0.059	1.000	4.8.2 ✓
	121 - 119.2	0.003	0.068	0.000	0.004	0.000	0.070	1.000	4.8.2 ✓
	119.2 - 117.4	0.004	0.086	0.000	0.012	0.000	0.090	1.000	4.8.2 ✓
	117.4 - 115.6	0.004	0.120	0.000	0.012	0.000	0.124	1.000	4.8.2 ✓
	115.6 - 113.8	0.004	0.153	0.000	0.012	0.000	0.157	1.000	4.8.2 ✓
	113.8 - 112	0.004	0.186	0.000	0.012	0.000	0.191	1.000	4.8.2 ✓
	112 - 110.2	0.005	0.219	0.000	0.012	0.000	0.225	1.000	4.8.2 ✓
	110.2 - 108.4	0.006	0.253	0.000	0.012	0.000	0.259	1.000	4.8.2 ✓
	108.4 - 106.6	0.006	0.286	0.000	0.012	0.000	0.292	1.000	4.8.2 ✓
	106.6 - 104.8	0.007	0.334	0.000	0.020	0.000	0.341	1.000	4.8.2 ✓

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orange Ave	Page 21 of 29
	Project U0142-705-181	Date 10:59:10 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

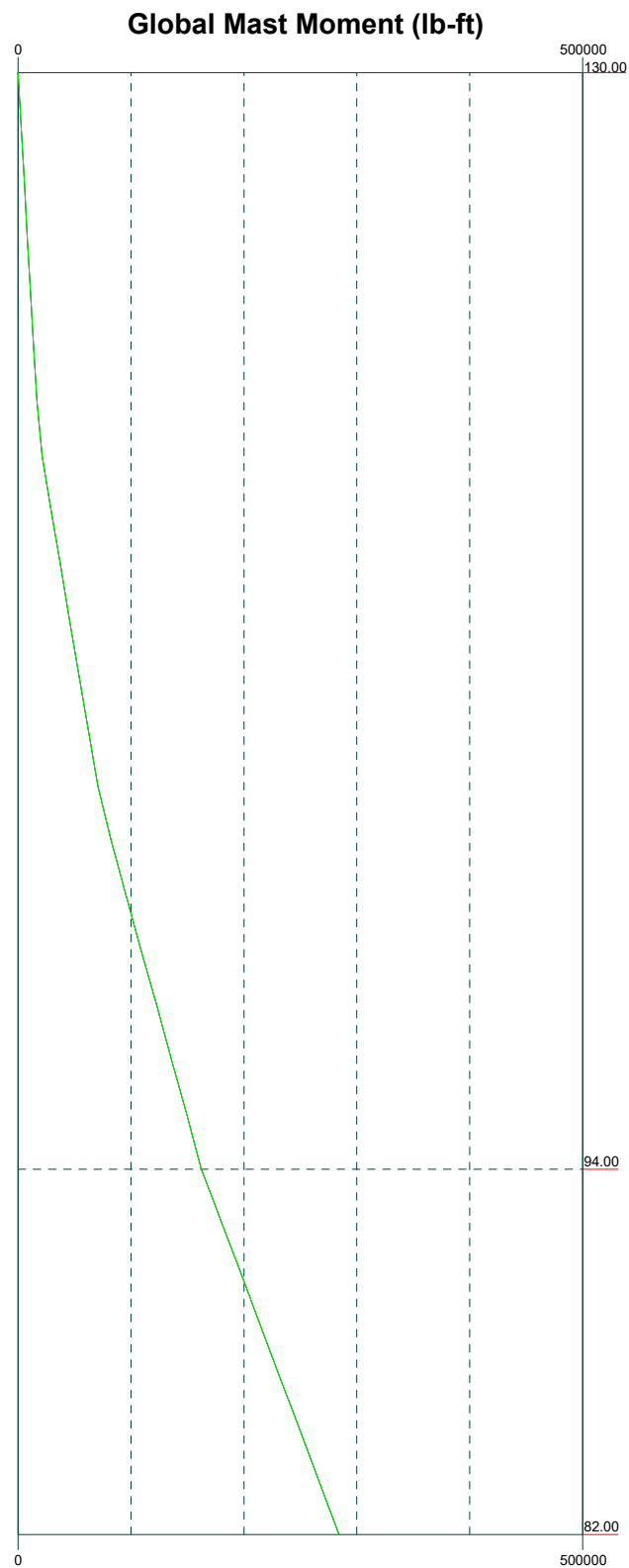
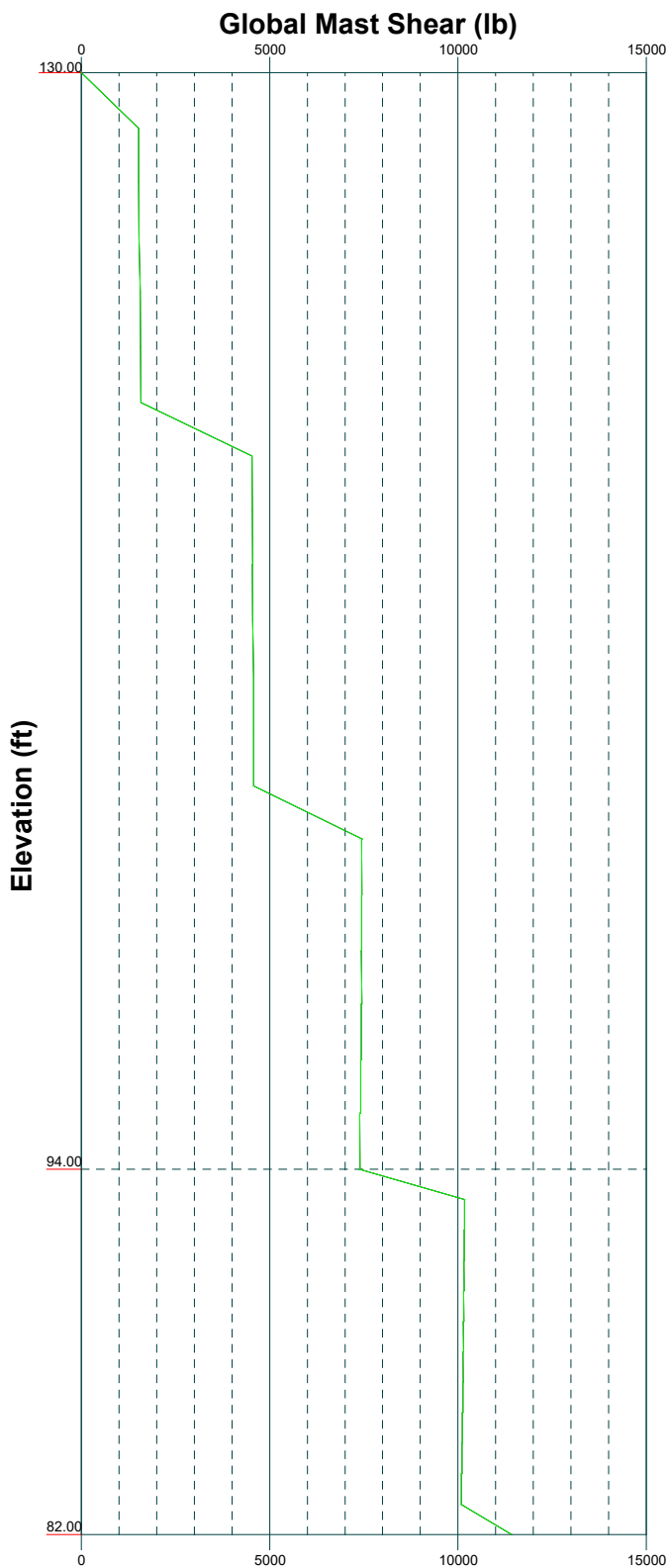
Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	104.8 - 103	0.007	0.388	0.000	0.020	0.000	0.396	1.000	4.8.2 ✓
	103 - 101.2	0.007	0.443	0.000	0.020	0.000	0.450	1.000	4.8.2 ✓
	101.2 - 99.4	0.008	0.497	0.000	0.020	0.000	0.506	1.000	4.8.2 ✓
	99.4 - 97.6	0.009	0.551	0.000	0.020	0.000	0.560	1.000	4.8.2 ✓
	97.6 - 95.8	0.009	0.605	0.000	0.020	0.000	0.615	1.000	4.8.2 ✓
	95.8 - 94	0.009	0.659	0.000	0.019	0.000	0.669	1.000	4.8.2 ✓
L2	94 - 93	0.007	0.379	0.000	0.018	0.000	0.386	1.000	4.8.2 ✓
	93 - 92	0.007	0.401	0.000	0.018	0.000	0.409	1.000	4.8.2 ✓
	92 - 91	0.007	0.424	0.000	0.018	0.000	0.431	1.000	4.8.2 ✓
	91 - 90	0.007	0.446	0.000	0.018	0.000	0.454	1.000	4.8.2 ✓
	90 - 89	0.008	0.468	0.000	0.018	0.000	0.476	1.000	4.8.2 ✓
	89 - 88	0.008	0.491	0.000	0.018	0.000	0.499	1.000	4.8.2 ✓
	88 - 87	0.008	0.513	0.000	0.018	0.000	0.522	1.000	4.8.2 ✓
	87 - 86	0.009	0.535	0.000	0.018	0.000	0.544	1.000	4.8.2 ✓
	86 - 85	0.009	0.557	0.000	0.018	0.000	0.566	1.000	4.8.2 ✓
	85 - 84	0.009	0.580	0.000	0.018	0.000	0.589	1.000	4.8.2 ✓
	84 - 83	0.009	0.602	0.000	0.018	0.000	0.611	1.000	4.8.2 ✓
	83 - 82	0.009	0.624	0.000	0.018	0.000	0.633	1.000	4.8.2 ✓


Section Capacity Table

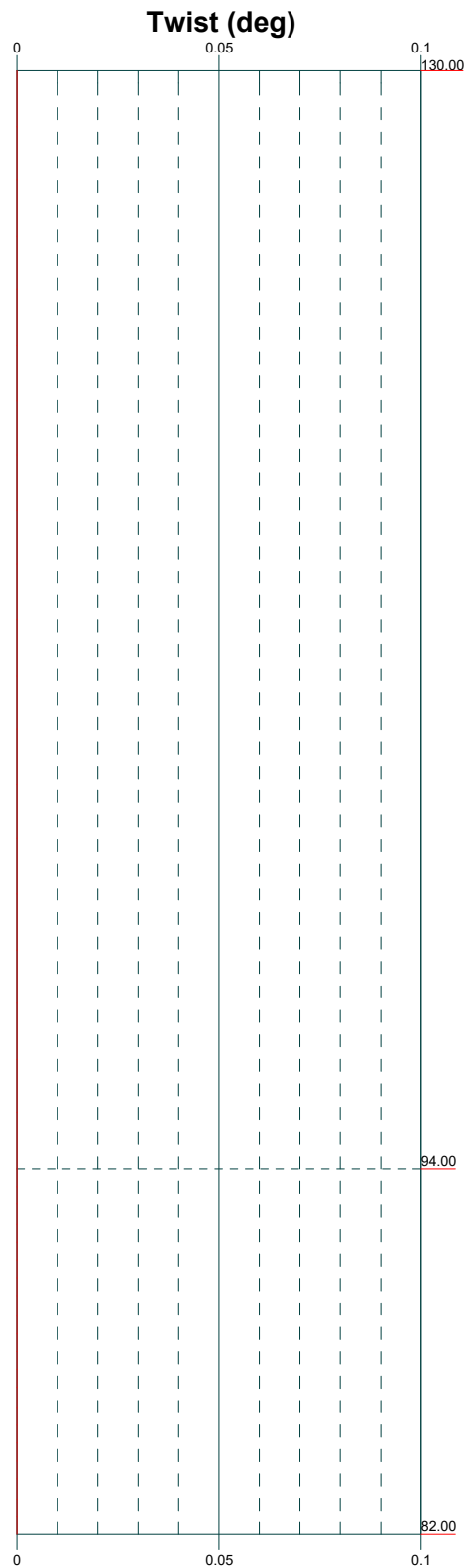
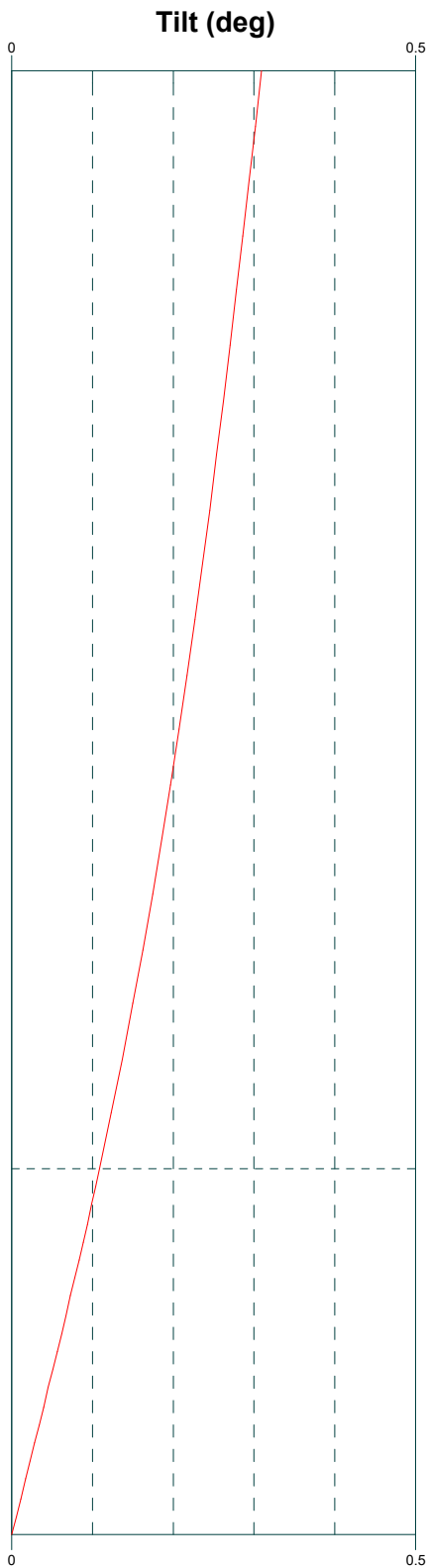
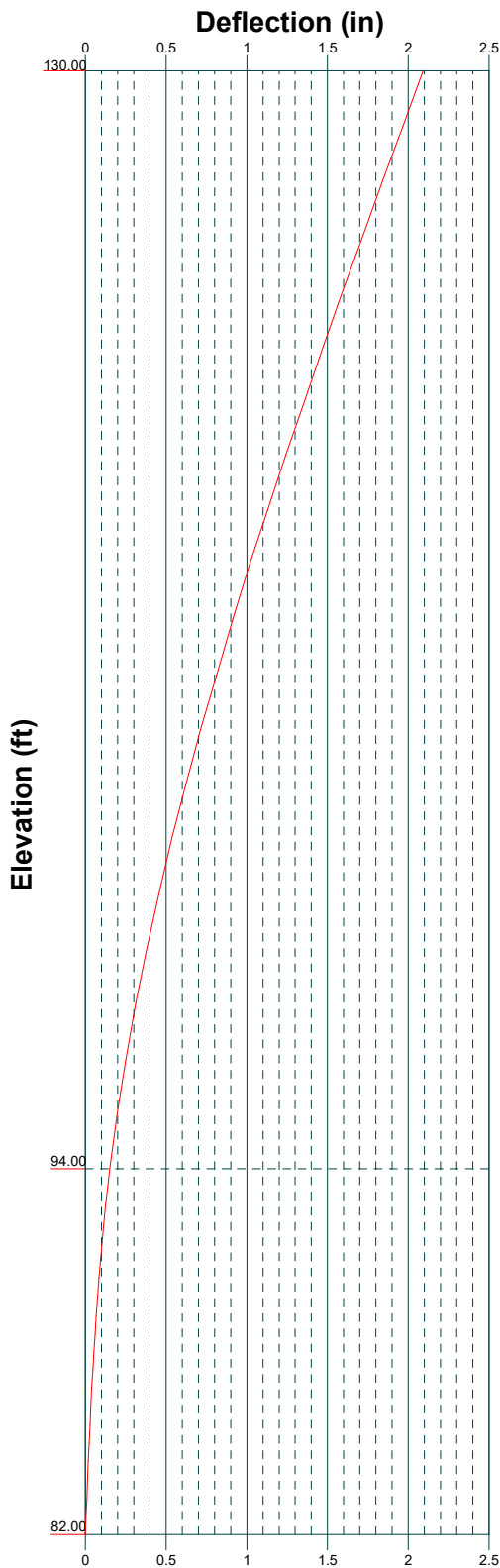
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	130 - 94	Pole	P12x .562 13th	1	-6987.89	758915.00	66.9	Pass
L2	94 - 82	Pole	P16x.656 13th	2	-10283.50	1114830.00	63.3	Pass
Summary								
Pole (L1)							66.9	Pass
RATING =							66.9	Pass

Vx Vz

Mx Mz



 Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job: Ft. Pierce Orange Ave		
	Project: U0142-705-181		
	Client: STEALTH® Concealment Solutions	Drawn by: dfoulger	App'd:
	Code: TIA-222-G	Date: 09/13/18	Scale: NTS
	Path:		Dwg No. E-4



 Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job: Ft. Pierce Orange Ave		
	Project: U0142-705-181		
	Client: STEALTH® Concealment Solutions	Drawn by: dfoulger	App'd:
	Code: TIA-222-G	Date: 09/13/18	Scale: NTS
	Path:		Dwg No. E-5

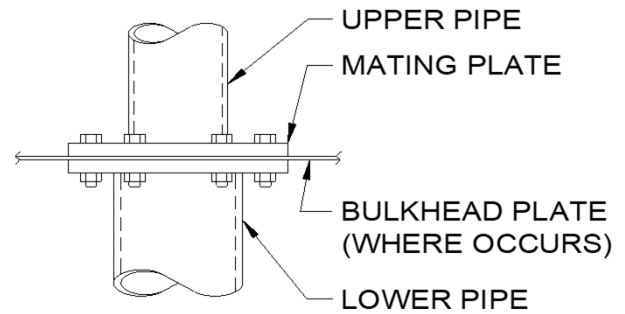


JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Bolted Annular Plates

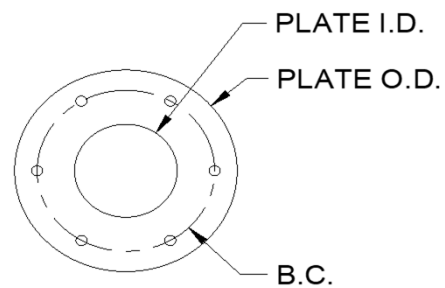
Plate F_y (ksi)	50
Upper Pipe Outer Diameter (in)	12.75
Upper Pipe Thickness t_1 (in)	0.562
Lower Pipe Thickness t_2 (in)	0.656
Lower Pipe Outer Diameter (in)	16
Moment @ Splice M_u (kip-ft)	162.4
Axial @ Splice P_u (kips)	7.0
Shear @ Splice V_u (kips)	7.5



Bolt Design

Bolt Circle Diameter BC (in)	19.75
Number of Bolts, n	6
T_u / Bolt (kips)	65.8
V_u / Bolt (kips)	1.2
Bolt Designation	A325
Bolt Diameter (in)	1 1/4
ϕT_n (kips)	82.8
ϕV_n (kips)	44.2
Combined Tension and Shear	0.79

79%



$$T_u = \frac{2M_u}{nr_b}$$

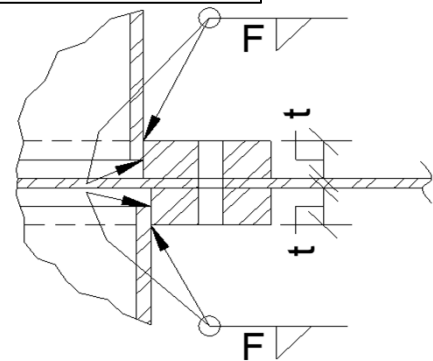
$$t = \sqrt{\frac{M_u(r_b - r_p)}{\phi F_y r_p r_b}}$$

Plate Design

Upper Plate Hole Radius, r_p (in)	6.4375
Lower Plate Hole Radius, r_p (in)	8.0625
Bolt Circle Radius, r_b (in)	9.875
Plate OD (in)	23.25
ϕ_{plate}	0.9
Req'd Upper Plate Thickness, t (in)	1.75
Req'd Lower Plate Thickness, t (in)	1.50

76%

58%



Welds

Fillet Weld Size F (in)	5/16
Weld Strength, ϕR_n (k/in)	10.4
Weld Stress, R_u (k/in)	7.7

74%



JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Gusset Calculation

Pipe Steel Grade	ASTM A500 Gr. B (42 KSI)
Gusset Plate F_y (ksi)	36
Pipe Outer Diameter (in)	12.75
Pipe Thickness (in)	0.562
Moment @ Splice M_u (kip-ft)	162
Axial @ Splice P_u (kips)	7.0
Shear @ Splice V_u (kips)	7.5

Bearing Plate Information

Bearing Plate Connected to Pipe?	Yes
Bolt Circle BC (in)	19.75
Bolt Diameter (in)	1 1/4
Plate O.D. (in)	23.25
Plate Thickness (in)	1.75
Weld Size Around O.D. of Pipe (in)	0.3125

Gusset Design

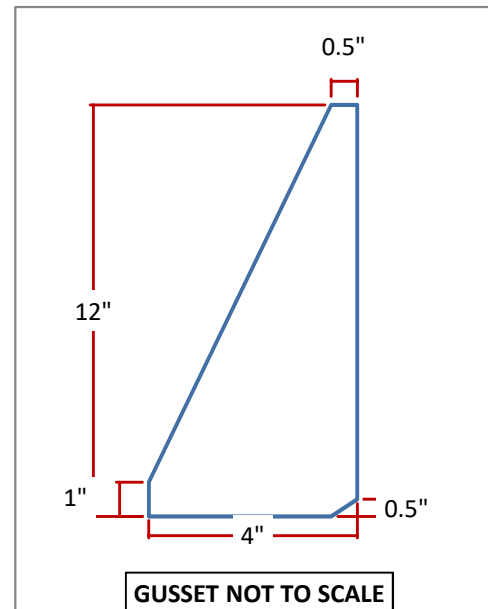
Gusset Quantity	6
Gusset Thickness (in)	0.75
Gusset Height (in)	12
Gusset Width (in)	4
Gusset Notch Vert. (in)	0.5
Gusset Notch Horiz. (in)	0.5

Gusset Loading

P_r / Gusset (kips)	49.5
e (in):	2.8

Gusset Capacity Checks

Gusset to Pipe Thickness Check	Okay
Flexural Yielding Check	16% Okay
Shear Yielding Check	31% Okay
Gusset Buckling Check	65% Okay
Pipe Wall Plastification Check	N/A Okay
Combined Tension & Shear Check	66% Okay



Fit Checks

Washer to Pipe Weld Gap (in)	1.94
Washer to Gusset Weld Gap (in)	2.81

Gusset Welds

Vert. Weld Size (in)	3/8	30%
Horiz. Weld Size (in)	1/2	74%



JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Bolted Annular & Spoked Plates

Reactions

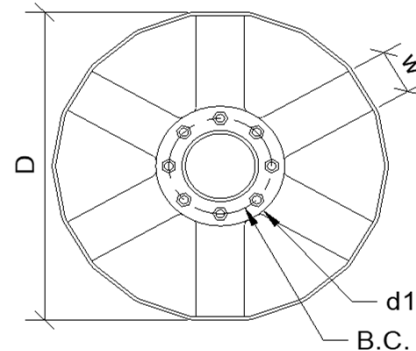
Moment @ Splice M_u (kip-ft)	284.1
Axial @ Splice P_u (kips)	11.1
Shear @ Splice V_u (kips)	12.7

Upper Pipe

Upper Pipe Outer Dia. (in)	16
Upper Pipe Thickness, t_2 (in)	0.656
Monopole Flat - Flat (in)	50
Monopole Thickness, t_1 (in)	0.3125

Bolt Design

Bolt Circle Diameter BC (in)	20	
Number of Bolts	10	
Number of Spokes	6	
T_u / Bolt (kips)	68.2	
V_u / Bolt (kips)	1.3	
Bolt Designation	A325	
Bolt Diameter (in)	1.375	
ϕT_n (kips)	100.2	
ϕV_n (kips)	53.5	
Combined Tension and Shear	0.68	68%



$$T_u = \frac{2M_u}{nr_b}$$

$$T1 = \sqrt{\frac{M_u(r_b - r_p)}{\phi F_y r_p r_b}}$$

$$M_u = \frac{T_u b(a - b)}{a + b} + \frac{P_u b}{n}$$

Upper Annular Plate

Plate F_y (ksi)	50.0	
Has Gussets?	Yes	
Plate Hole Radius, r_p (in)	8.0625	
Bolt Circle Radius, r_b (in)	10	
Plate OD d_1 (in)	23.75	
ϕ_{plate}	0.9	
Required Plate Thickness, T_1 (in)	1.75	59%

Lower Spoked Plate

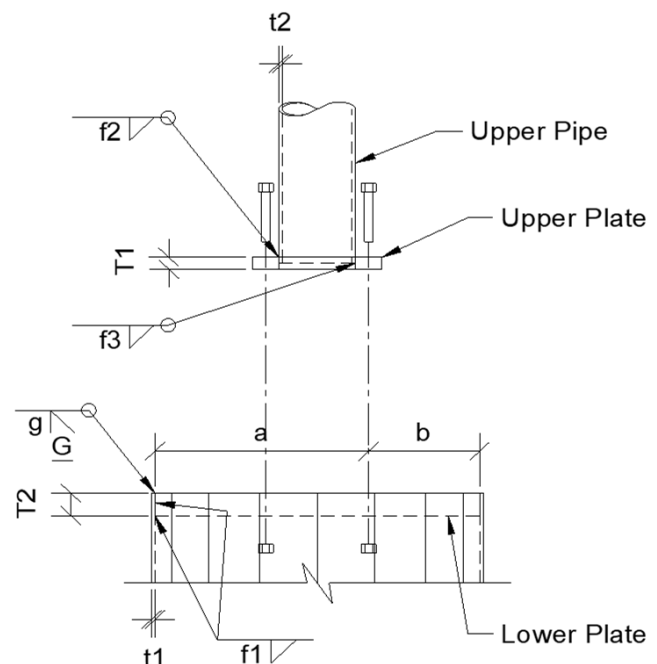
Plate F_y (ksi)	50.0	
Plate Thickness, T_2 (in)	3.25	
Spoke Width, w (in)	8	
Inside Flat Length (in)	8.27	
distance, a (in)	34.69	
distance, b (in)	14.69	
Plate Moment M_u (kip-in)	703.3	
Edge Reaction (kip)	47.881	
ϕM_p (kip-in)	951	74%

Upper Plate Weld

Upper Fillet Weld Size, f_2 (in)	6/16	
Lower Fillet Weld Size, f_3 (in)	6/16	
Weld Strength, ϕR_n (k/in)	25.1	
Weld Stress, R_u (k/in)	17.2	69%

Lower Plate Weld

Side & Underneath Fillet Size, f_1 (in)	4/16	
Fillet Length (in)	14.5	
Top Groove Weld Eff. Throat, g (in)	4/16	
Weld Strength (kips)	143.7	33%





JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Gusset Calculation

Pipe Steel Grade	ASTM A500 Gr. B (42 KSI)
Gusset Plate F_y (ksi)	36
Pipe Outer Diameter (in)	16
Pipe Thickness (in)	0.656
Moment @ Splice M_u (kip-ft)	284
Axial @ Splice P_u (kips)	11.1
Shear @ Splice V_u (kips)	12.7

Bearing Plate Information

Bearing Plate Connected to Pipe?	Yes
Bolt Circle BC (in)	20
Bolt Diameter (in)	1 3/8
Plate O.D. (in)	23.75
Plate Thickness (in)	1.75
Weld Size Around O.D. of Pipe (in)	0.3125

Gusset Design

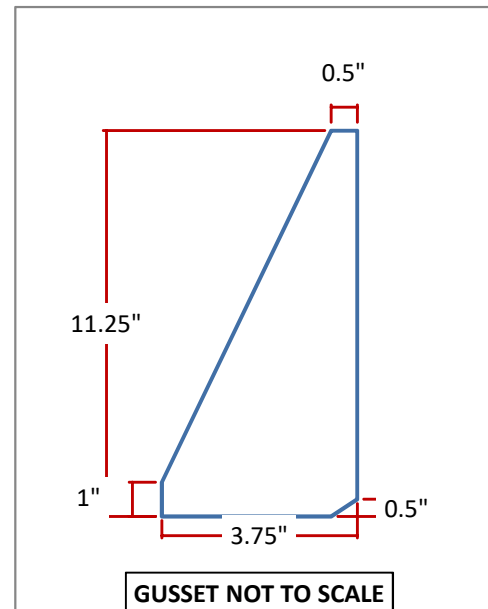
Gusset Quantity	10
Gusset Thickness (in)	0.5
Gusset Height (in)	11.25
Gusset Width (in)	3.75
Gusset Notch Vert. (in)	0.5
Gusset Notch Horiz. (in)	0.5

Gusset Loading

P_r / Gusset (kips)	35.0
e (in):	2.7

Gusset Capacity Checks

Gusset to Pipe Thickness Check	Okay
Flexural Yielding Check	18% Okay
Shear Yielding Check	36% Okay
Gusset Buckling Check	73% Okay
Pipe Wall Plastification Check	N/A Okay
Combined Tension & Shear Check	78% Okay



Fit Checks

Washer to Pipe Weld Gap (in)	0.31
Washer to Gusset Weld Gap (in)	1.09

Gusset Welds

Vert. Weld Size (in)	1/4	34%
Horiz. Weld Size (in)	3/8	75%

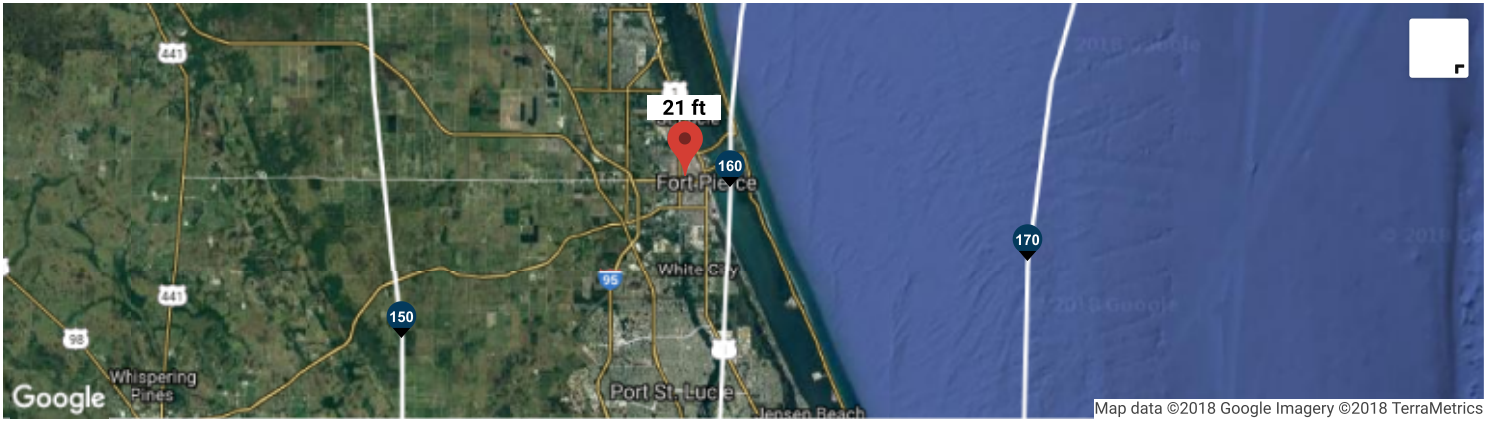
⚠ This is a beta release of the new ATC Hazards by Location website. Please contact us with feedback.

ATC Hazards by Location

Search Information

Coordinates: 27.4475, -80.3455
Timestamp: 2018-09-10T23:38:46.258Z
Hazard Type: Wind

Map Results



Text Results

ASCE 7-16

- MRI 10-Year 88 mph
- MRI 25-Year 107 mph
- MRI 50-Year 119 mph
- MRI 100-Year **⚠** 131 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

- Risk Category I **⚠** 147 mph

You are in a wind-borne debris region.

- Risk Category II **⚠** 159 mph

You are in a wind-borne debris region.

- Risk Category III **⚠** 170 mph

If the structure under consideration is a healthcare facility, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

- Risk Category IV **⚠** 182 mph

You are in a wind-borne debris region.

ASCE 7-10

- MRI 10-Year 88 mph
- MRI 25-Year 107 mph
- MRI 50-Year 119 mph

MRI 100-Year

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

Risk Category I

▲ 147 mph

You are in a wind-borne debris region.

Risk Category II

▲ 159 mph

You are in a wind-borne debris region.

Risk Category III-IV

▲ 170 mph

If the structure under consideration is a healthcare facility, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

ASCE 7-05

ASCE 7-05 Wind Speed

▲ 140 mph

You are in a wind-borne debris region.

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.



STEALTH[®]
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 / F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM
PROJECT MANAGER:
CAROLINE WATSON ; (843)-574-9626

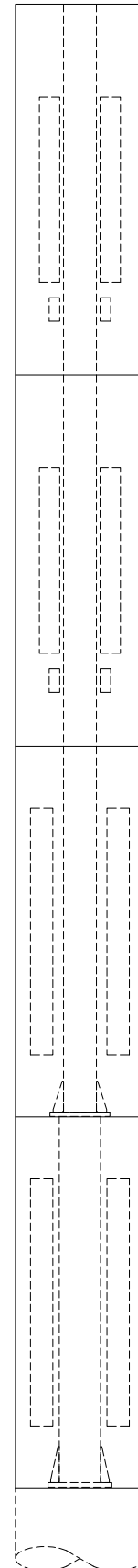
FINAL ENGINEERING

RG TOWERS
FT. PIERCE ORANGE AVE
TOP SECTION
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

STEALTH JOB #: RG18-01105W-05R1

DRAWING INDEX

T1	TITLE SHEET
N1-N2	NOTES & SPECIFICATIONS
S1	ELEVATIONS
S2-S5	DETAILS



09/17/2018



T1	REVISION
	0
9/17/18	

DESIGN NOTES:

STRUCTURAL DESIGN IS BASED ON THE FLORIDA BUILDING CODE, 2017 EDITION (2015 IBC) & THE TIA-222-G STANDARD.

DESIGN LOADS:

WIND:
BASIC WIND SPEED: 159 MPH (3-SEC GUST) PER ASCE 7-10 STANDARD
STRUCTURE CLASS: II
EXPOSURE: C
TOPOGRAPHIC CATEGORY: 1
CREST HEIGHT: 0 FT

ICE: NONE

ESTIMATED WEIGHT:

9.3 k (1.0 DEAD)

REACTIONS:

SHEAR, V = ---- k (1.0 WIND)
AXIAL, P = ---- k (1.2 DEAD)
MOMENT, M = ---- k-ft (1.0 WIND)

THE REACTIONS V & M LISTED ABOVE SHALL BE CONSIDERED TO ACT IN ANY HORIZONTAL DIRECTION. ANALYSIS OF THE MONOPOLE SUPPORT STRUCTURE TO RESIST THE DESIGN REACTIONS LISTED ABOVE IS THE RESPONSIBILITY OF OTHERS.

DESIGN:

1. ENGINEERING AND DESIGN CALCULATIONS FOR STEALTH® POLE AND TOWER PRODUCTS ARE PREPARED IN ACCORDANCE WITH THE TIA-222-G. OTHER STRUCTURES ARE DESIGNED IN ACCORDANCE WITH APPLICABLE LOCAL OR NATIONAL STANDARDS AND PER CLIENT INPUT.

DISCLAIMERS:

1. ALL STRUCTURAL COMPONENTS TO BE CONNECTED TOGETHER SHALL BE COMPLETELY FIT UP ON THE GROUND OR OTHERWISE VERIFIED FOR COMPATIBILITY PRIOR TO LIFTING ANY COMPONENT INTO PLACE. REPAIRS REQUIRED DUE TO FIT-UP OR CONNECTION COMPATIBILITY PROBLEMS AFTER PARTIAL ERECTION ARE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.
2. ALTHOUGH RARE, EXCESSIVE DEFLECTION SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN SLIM LINE OR MONOPOLE STRUCTURES AT LOW WIND SPEEDS. BECAUSE THE PHENOMENON IS INFLUENCED BY MANY INTERACTING VARIABLES, MOVEMENT AND OSCILLATIONS ARE GENERALLY UNPREDICTABLE. THE TOWER OWNER MUST PERIODICALLY OBSERVE THE STRUCTURE FOR EXCESSIVE DEFLECTION AND ANY RESULTING STRUCTURAL DAMAGE OR BOLT LOOSENING. IN THE EVENT OF EXCESSIVE MOVEMENT, VECTOR STRUCTURAL ENGINEERS MUST BE NOTIFIED IMMEDIATELY. MODIFICATIONS TO THE STRUCTURE MAY BE REQUIRED AT THE OWNER'S EXPENSE. THE CHANGES MAY ALTER THE AESTHETIC APPEARANCE OF THE STRUCTURE.

GENERAL

1. THE TYPICAL NOTES SHALL APPLY FOR ALL CASES UNLESS OTHERWISE SPECIFICALLY DETAILED WITHIN THE DRAWINGS. SOME NOTES MAY NOT BE APPLICABLE IN PART OR IN WHOLE FOR EVERY PROJECT.
2. ANY ITEMS REFERENCED AS BEING ON "HOLD" ARE TO BE INCLUDED IN THE WORK AS SHOWN. HOWEVER, CONSTRUCTION OR FABRICATION IS NOT TO BEGIN UNTIL THE "HOLD" REFERENCE IS REMOVED.
3. DIMENSIONS CONTAINED WITHIN MUST BE FIELD VERIFIED AND CUSTOMER APPROVED PRIOR TO FABRICATION OF MATERIALS.
4. THE MODIFICATIONS DEPICTED IN THESE DRAWINGS ARE INTENDED TO PROVIDE STRUCTURAL SUPPORT FOR THE ADDITION OF THE ANTENNA SCREENING SYSTEMS OUTLINED WITHIN. THE EXISTING STRUCTURE OR BUILDING SHALL BE ANALYZED AND RETROFITTED AS REQUIRED, BY OTHERS, TO WITHSTAND THE LOADS IMPOSED BY THE NEW STEALTH® ENCLOSURE SHOWN ON THE DRAWINGS.
5. ANTENNA CONCEALMENT PRODUCTS SHALL BE INSTALLED BY A CONTRACTOR EXPERIENCED IN SIMILAR WORK. CARE SHALL BE TAKEN IN THE INSTALLATION OF ANY AND ALL MEMBERS IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS AND PROCEDURES. ALL APPLICABLE OSHA SAFETY GUIDELINES ARE TO BE FOLLOWED. STEALTH® IS NOT PROVIDING FIELD INSTALLATION SUPERVISION.
6. THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK THE CONTRACTOR SHOULD SURVEY THE JOB SITE THOROUGHLY TO MINIMIZE FIELD PROBLEMS.
7. PROTECTION OF EXISTING STRUCTURES DURING THE COURSE OF THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
8. THE STRUCTURAL INTEGRITY OF THIS STRUCTURE IS DESIGNED TO BE ATTAINED IN ITS COMPLETED STATE. WHILE UNDER CONSTRUCTION ANY TEMPORARY BRACING OR SHORING WHICH MAY BE REQUIRED TO MAINTAIN STABILITY PRIOR TO COMPLETION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
9. THE PLANS AND DETAILS WITHIN DO NOT INCLUDE DETAILS OR DESIGN FOR DRAINAGE FROM OR WATERPROOFING OF EXTERIOR OR INTERIOR SURFACES OF THE EXISTING BUILDING OR STRUCTURE. THESE DETAILS MUST BE COMPLETED BY OTHERS.
10. CONTRACTOR TO SHIM BASEPLATE AS REQUIRED TO ENSURE LEVEL SURFACE.

SPECIAL INSPECTIONS & STRUCTURAL OBSERVATION:

1. STEEL FABRICATION SHALL BE DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED AS REQUIRED BY THE BUILDING CODE TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION.
2. NO FIELD WELDING SHALL BE PERMITTED.
3. THE FOLLOWING SPECIAL INSPECTIONS (WHERE APPLICABLE) SHALL BE REQUIRED PER CHAPTER 17 OF THE BUILDING CODE.
 - PERIODIC SPECIAL INSPECTION OF HIGH-STRENGTH BOLTING
4. SPECIAL INSPECTION IS NOT REQUIRED FOR WORK OF A MINOR NATURE OR AS WARRANTED BY CONDITIONS IN THE JURISDICTION AS APPROVED BY THE BUILDING OFFICIAL. THUS, SPECIAL INSPECTION ITEMS ABOVE MAY BE WAIVED AS DEEMED APPROPRIATE BY THE BUILDING OFFICIAL.
5. NO STRUCTURAL OBSERVATION IS REQUIRED.

MATERIAL NOTES:

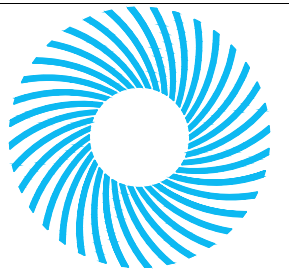
1. ALL STEEL PIPES SHALL CONFORM w/ ASTM A500 GR. B (42 KSI MIN. YIELD STRENGTH).
2. ALL OTHER STRUCTURAL STEEL SHAPES & PLATES SHALL CONFORM TO ASTM A36, U.N.O.
3. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND PROCEDURES OF THE AMERICAN WELDING SOCIETY (AWS) BY CERTIFIED WELDERS PER AWS D1.1 FOR STEEL AND AWS D1.2 FOR ALUMINUM. ALL WELDING SHALL BE PREFORMED IN A SHOP APPROVED BY THE BUILDING OFFICIAL. STEEL WELDS SHALL BE BY E70XX LOW HYDROGEN ELECTRODES.
4. ALL STEEL SURFACES TO BE THOROUGHLY COATED WITH A ZINC-RICH PRIMER OR EQUIVALENT COATING, U.N.O.
5. ALL BOLTS FOR STEEL-TO-STEEL CONNECTIONS SHALL CONFORM TO ASTM F3125 GRADE A325 SPECIFICATIONS, U.N.O. A325N AND A325X ALLOWED.
6. ALL BOLTS SHALL BE GALVANIZED IN ACCORDANCE W/ ASTM F2329 SPECIFICATIONS.
7. ALL BOLTED CONNECTIONS SHALL BE TIGHTENED PER THE "TURN-OF-NUT" METHOD AS DEFINED BY AISC.

STEALTHSKIN PANELS

1. FASTENER HOLES IN STEALTHSKIN FOAM COMPOSITE PANELS ARE NOT FACTORY DRILLED AND MUST BE DRILLED IN THE FIELD.
2. PANEL FASTENERS TO BE SPACED 12" O.C. MAX. AND LOCATED 6" MAX. HORIZONTALLY FROM EACH EDGE AT TOP AND BOTTOM OF PANEL, UNLESS NOTED OTHERWISE. MAINTAIN 1 1/2" MIN. EDGE DISTANCE FROM ALL EDGES. 4' WIDE PANELS REQUIRE (4) FASTENERS TOP AND BOTTOM. 5' WIDE PANELS REQUIRE (5) FASTENERS TOP AND BOTTOM.
3. WHEN FASTENER BOLT HEAD OR NUT BEARS DIRECTLY ON SURFACE OF STEALTHSKIN PANEL, TIGHTEN PANEL BOLTS ONLY 1/2 TURN PAST SNUG. APPLY THREAD LOCK COMPOUND TO THE THREADS OF METAL BOLTS. USE THIN BEAD OF EPOXY TO LOCK THE NUTS OF FRP BOLTS AND STEALTH® STAINLESS STEEL PANEL BOLTS. USE WASHER OR FLANGED HEAD BOLT, OR FASTENER WITH LARGE BEARING SURFACE.
4. PANELS WILL EXPAND AND CONTRACT DUE TO TEMPERATURE. WHEN INSTALLING PANELS IN COLD TEMPERATURES, EVENLY SPACE PANELS ALONG LENGTH OF SCREEN WALL WITH EQUAL GAPS BETWEEN PANELS TO ALLOW FOR EXPANSION DURING WARM TEMPERATURES.
5. ADJACENT FLAT PANELS ARE JOINED BY A VERTICAL FOAM SPLINE THAT IS INSERTED INTO GROOVES CUT INTO THE SIDE OF EACH PANEL. DO NOT LIFT PANELS BY GROOVES. PANELS MUST BE LIFTED WITH FORCE DIRECTED ONTO PANEL SURFACE.
6. ADJACENT RADIUS PANELS ARE JOINED BY A VERTICAL H-CHANNEL. INSERT PANELS INTO EACH SIDE OF H-CHANNEL.
7. RADIUS PANELS MUST BE EVENLY SPACED ALONG RADIUS SUPPORT. CONTRACTOR TO MEASURE LENGTH OF RADIUS SUPPORT AND DIVIDE BY THE NUMBER OF RADIUS PANELS TO DETERMINE PROPER SPACING. H-CHANNEL CONNECTORS ARE USED TO COVER THE GAP BETWEEN PANELS AND TO ALLOW FOR PANEL EXPANSION AND CONTRACTION.
8. SURFACES OF PANELS SHALL BE COATED WITH SUITABLE PAINT FOR UV PROTECTION. TOP EDGE OF PANEL MUST BE COVERED TO PREVENT WATER TRAVEL BETWEEN PANELS. USE SHERWIN WILLIAMS "COROTHANE II" OR PRE APPROVED EQUIVALENT.
9. EXPOSED TOP AND SIDE FOAM EDGES OF PANELS MUST BE COVERED OR COATED FOR UV PROTECTION. STEALTH® WILL PROVIDE PANEL EDGE CAPS (VERTICAL AND HORIZONTAL) TO BE FIELD APPLIED FOR THIS PURPOSE FOR MOST APPLICATIONS. HORIZONTAL AND VERTICAL PANEL EDGE CAPS TO BE SECURED TO THE EXPOSED EDGES OF THE PANELS WITH PROVIDED TEK SCREWS INSTALLED @ 12" MAXIMUM SPACING ON THE INSIDE FACE OF THE PANEL. IN RF SENSITIVE LOCATIONS, CONTRACTOR WILL APPLY (2) BEADS OF ADHESIVE TO EACH INSIDE CORNER OF THE EDGE CAP AND SECURE CAP TO PANEL WITH TAPE WHILE ADHESIVE CURES.
10. AT CORNER APPLICATIONS, VERTICAL PANEL EDGE CAPS ARE TO BE USED TO CAP BOTH EXPOSED EDGES (1 PER CUT EDGE OF PANELS). THESE EDGE CAPS ARE TO BE CUT 1" SHORTER THAN THE PANEL AND LEAVE 1" GAP AT THE TOP TO ALLOW ROOM FOR THE THE HORIZONTAL PANEL EDGE CAP AT THE TOP. CONTRACTOR TO APPLY (2) BEADS OF ADHESIVE TO EACH EDGE CAP (INSIDE CORNERS OF CAP), AND SECURE WITH TAPE AND/OR PROVIDED SCREWS (16 TOTAL PER CORNER) WHILE THE ADHESIVE CURES. IF CORNERS ARE IN NON-RF AREAS, EDGE CAP SCREWS CAN BE LEFT IN PLACE.
11. AT CORNER APPLICATIONS WITH SSV PANEL ONLY, CORNER CHANNELS ARE TO BE USED TO JOIN PANELS TOGETHER. BOTH ADJOINING PANELS WILL BE INSTERTED INTO THE CORNER CHANNEL AND SECURED USING PROVIDED NYLON PUSHPIINS. THE PUSHPIINS ARE TO BE PLACED ON THE INSIDE OF ONE OF THE PANELS ONLY @ 12" MAXIMUM SPACING.

COAX NOTE:

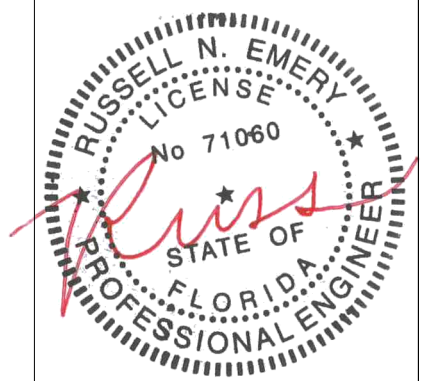
ROUTING THE LARGE QUANTITY OF COAX CABLES THROUGH THE CONCEALMENT BULKHEADS IS POSSIBLE (WHEN LAID OUT ON PAPER), BUT WILL BE VERY DIFFICULT IN REAL WORLD FIELD CONDITIONS. WHILE THE CABLES MAY PHYSICALLY FIT THROUGH THE BASE FLANGE ON TOP OF THE MONOPOLE AND THE SUBSEQUENT STEEL BULKHEADS ABOVE, ROUTING THEM PAST THE ANTENNAS IS UNPREDICTABLE, DEPENDING ON THE ANTENNA MOUNTING HARDWARE EMPLOYED, COAX CONNECTOR TYPE(S) USED, COAX ROUTING, AND RELATIVE AZIMUTH DIRECTIONS OF THE ANTENNAS IN THE POLE. STEALTH® CAN NOT GUARANTEE THAT ALL OF THE COAX CAN BE ROUTED WITHOUT INTERFERENCE TO SOME OR ALL ANTENNAS. IT IS HIGHLY RECOMMENDED THAT THE INSTALLER MOCK UP THE COAX RUNS WITHIN THE CONCEALMENT AND DEVELOP A COAX ROUTING PLAN PRIOR TO INSTALLATION.



STEALTH®
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO STEALTH® CONCEALMENT SOLUTIONS, INC IS STRICTLY PROHIBITED.



09/17/2018

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES
TOLERANCES
DECIMALS X ± 1/16"
.XXX ± 0.01" ANGULAR X ± 0.5°

NOTES & SPECIFICATIONS

RG TOWERS
FT. PIERCE ORANGE AVE
TOP SECTION
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

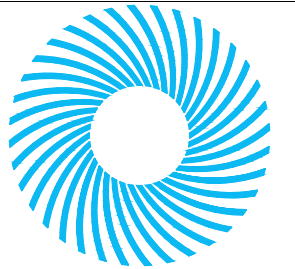
N1

REVISION

9/17/18

0

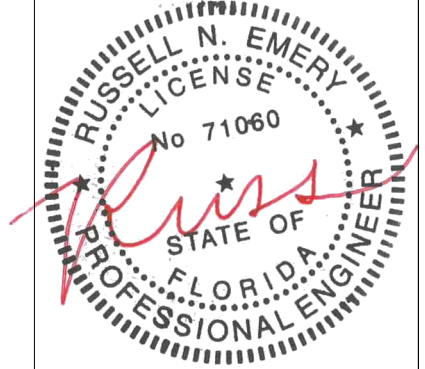




STEALTH[®]
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS
DRAWING SET IS PROPRIETARY & CONFIDENTIAL
BY NATURE. ANY USE OR DISCLOSURE OTHER
THAN THAT WHICH RELATES TO
STEALTH® CONCEALMENT SOLUTIONS, INC
IS STRICTLY PROHIBITED.



09/17/2018

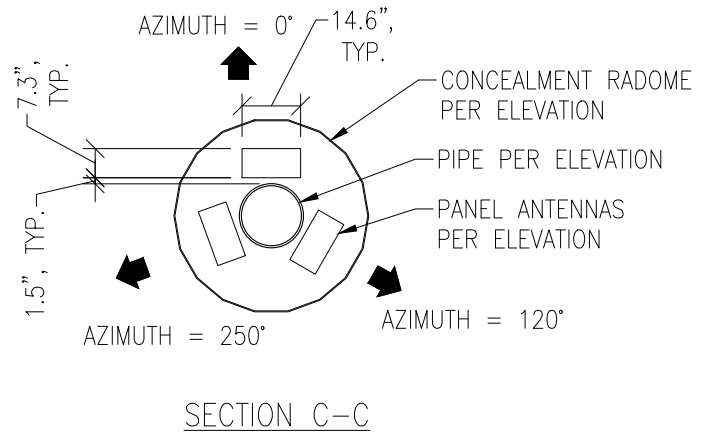
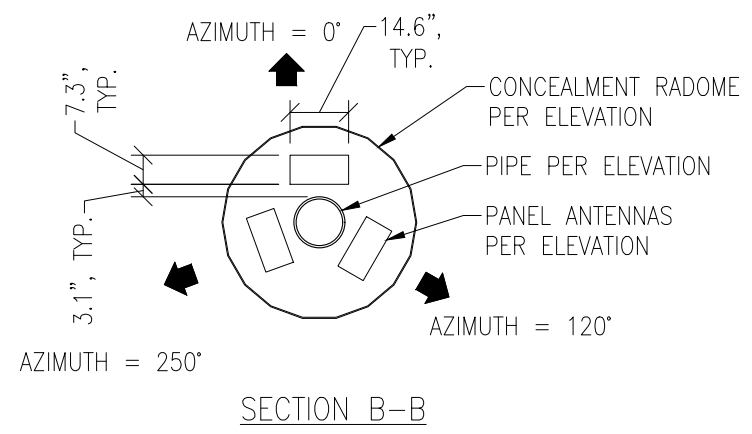
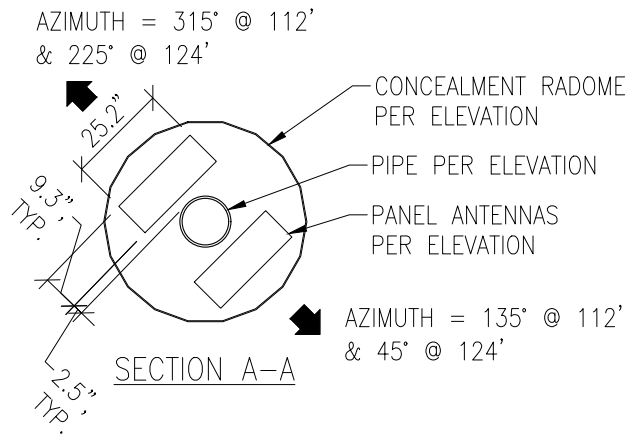
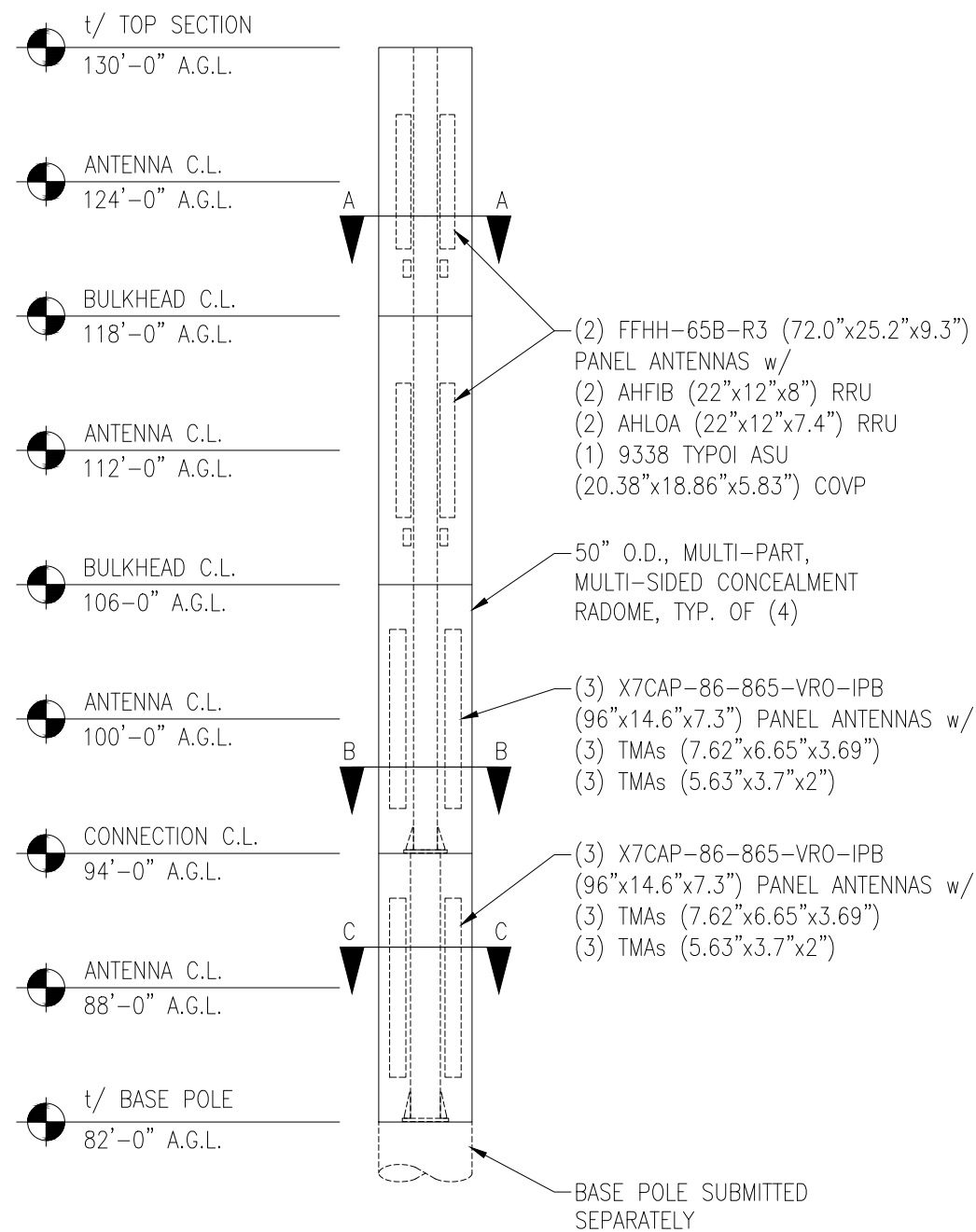
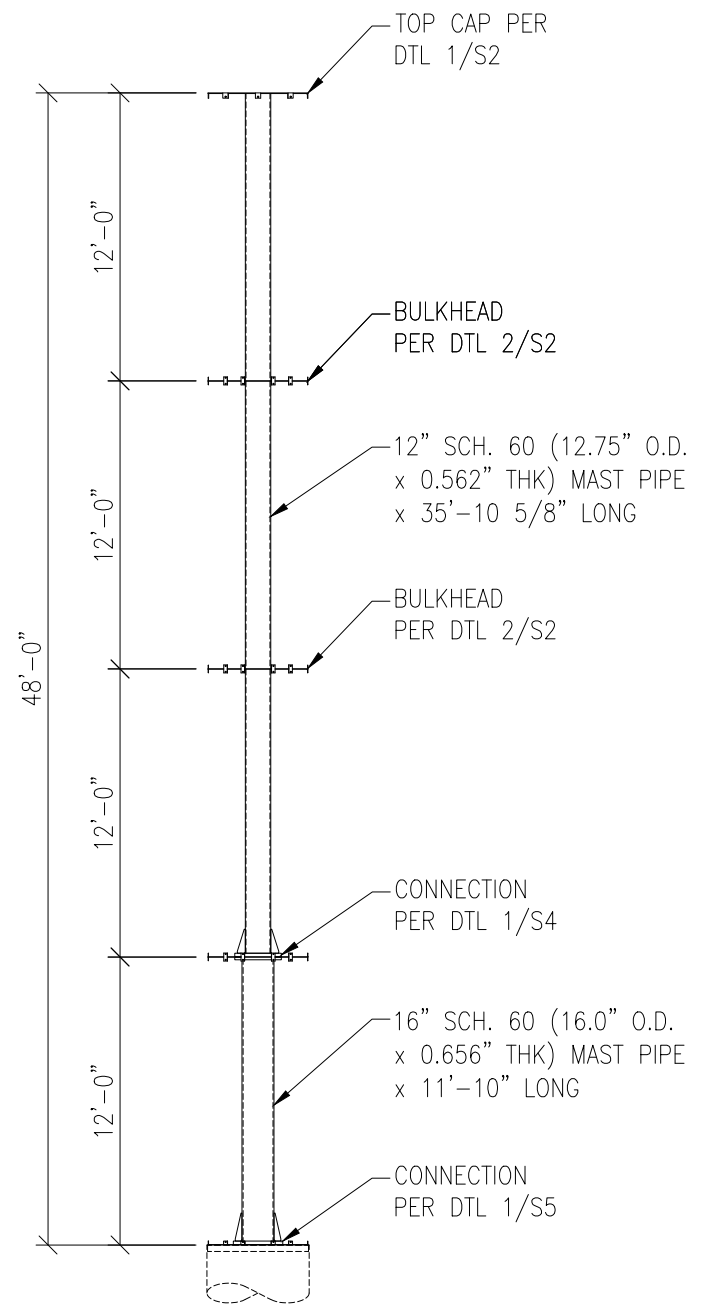
DRAWING NOT TO SCALE. UNLESS SPECIFIED
OTHERWISE DIMENSIONS SHOWN ARE IN INCHES
TOLERANCES
DECIMALS X ± 1/16"
.XXX ± 0.01"
ANGULAR X ± 0.5°

ELEVATIONS
RG TOWERS
FT. PIERCE ORANGE AVE
TOP SECTION
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

S1
9/17/18
REVISION
0

NOTE: POLE DESIGNED
FOR 0'-0" FALL ZONE

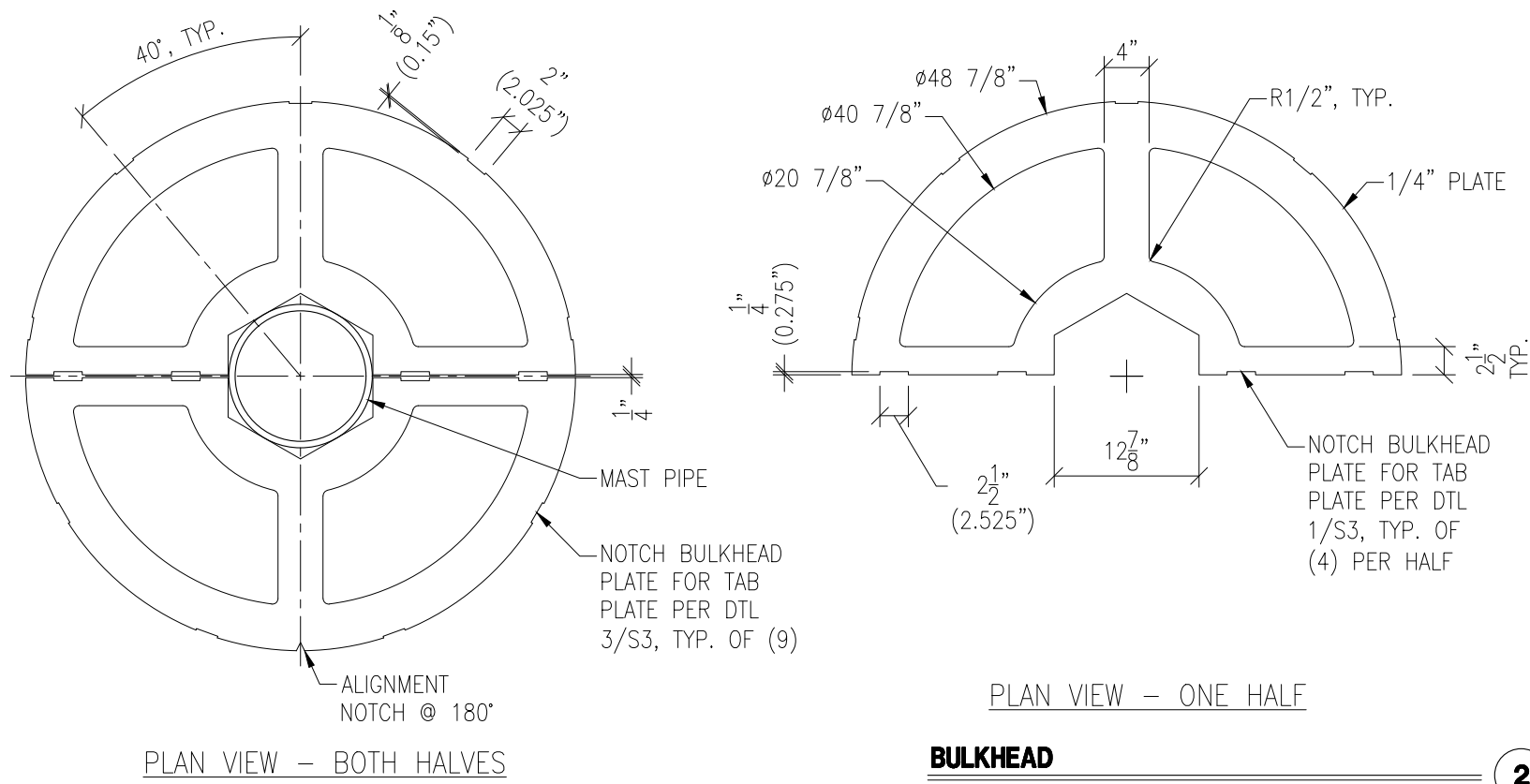


VECTOR ENGINEERS
651 W. GALENA PARK BLVD., SUITE 101
DRAPER, UT 84020
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-705-181
FL FIRM LICENSE NUMBER: COA 26626

ELEVATION VIEWS

N.T.S.

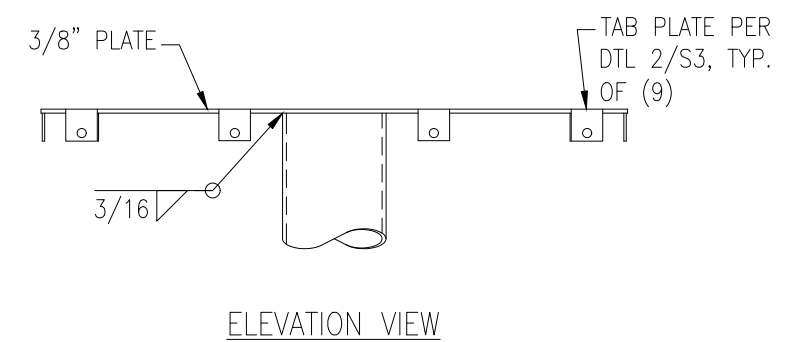
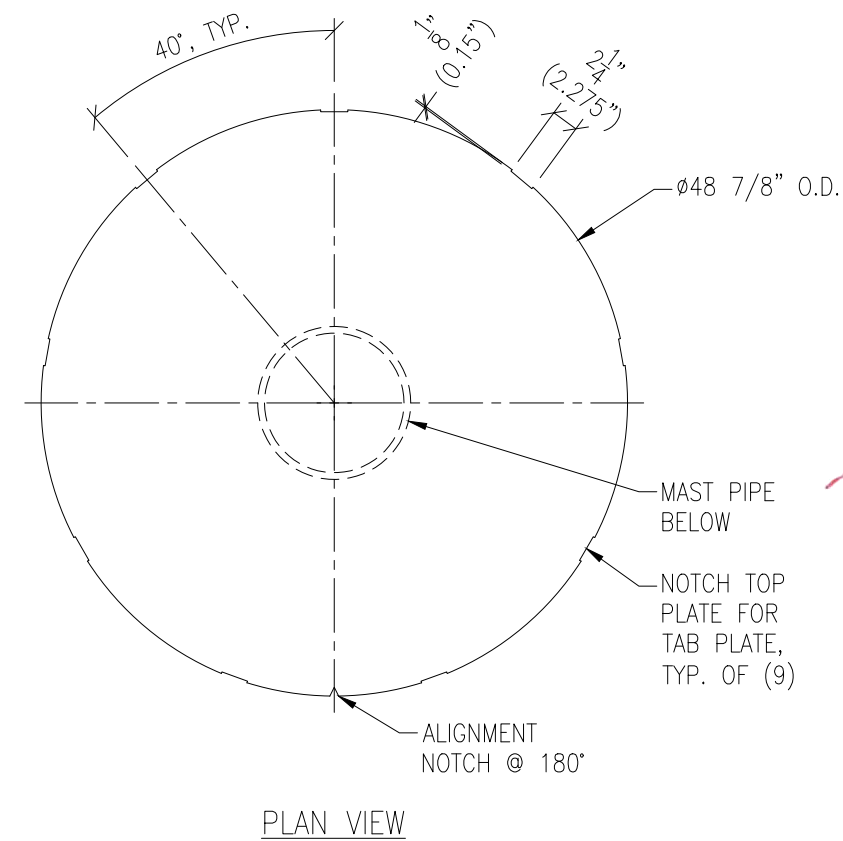
1



BULKHEAD

N.T.S.

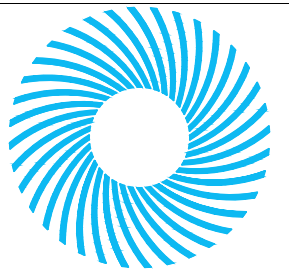
2



TOP PLATE

N.T.S.

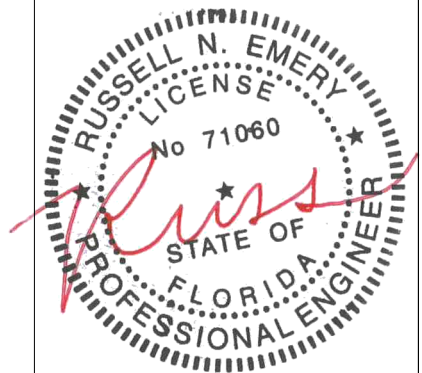
1



STEALTH[®]
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO STEALTH® CONCEALMENT SOLUTIONS, INC IS STRICTLY PROHIBITED.



09/17/2018

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES	
DECIMALS	ANGULAR
X ± 1/16"	X ± 0.5°
.XXX ± 0.01"	

DETAILS

RG TOWERS
FT. PIERCE ORANGE AVE
TOP SECTION
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

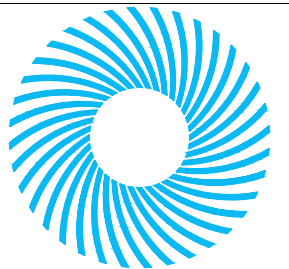
S2

9/17/18

REVISION

0

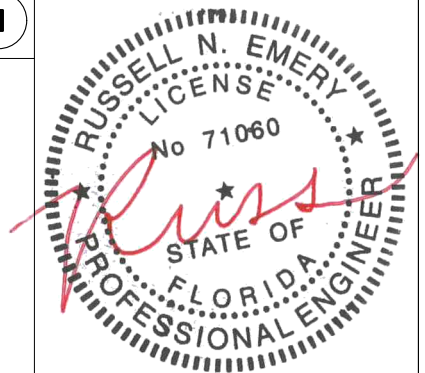




STEALTH[®]
GO UNNOTICED[™]

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS
DRAWING SET IS PROPRIETARY & CONFIDENTIAL
BY NATURE. ANY USE OR DISCLOSURE OTHER
THAN THAT WHICH RELATES TO
STEALTH[®] CONCEALMENT SOLUTIONS, INC
IS STRICTLY PROHIBITED.



09/17/2018

DRAWING NOT TO SCALE. UNLESS SPECIFIED
OTHERWISE DIMENSIONS SHOWN ARE IN INCHES
TOLERANCES
DECIMALS X ± 1/16"
.XXX ± 0.01" ANGULAR X ± 0.5°

DETAILS

RG TOWERS
FT. PIERCE ORANGE AVE
TOP SECTION
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

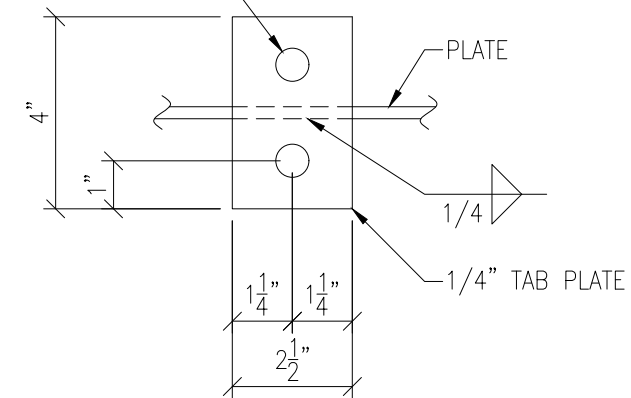
S3

9/17/18

REVISION

0

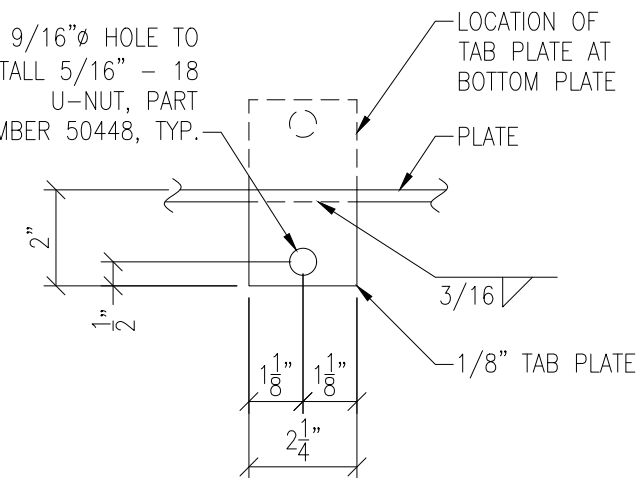
11/16"Ø HOLE TO
INSTALL 5/8"Ø
A325N BOLT, TYP.



N.T.S.

1

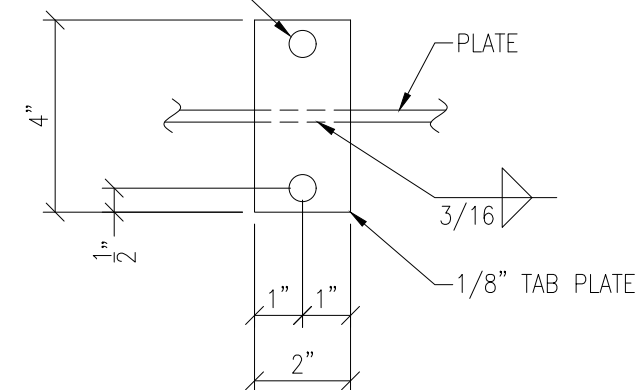
9/16"Ø HOLE TO
INSTALL 5/16" - 18
U-NUT, PART
NUMBER 50448, TYP.



N.T.S.

2

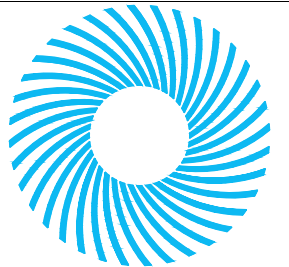
9/16"Ø HOLE TO
INSTALL 5/16" - 18
U-NUT, PART
NUMBER 50448, TYP.



N.T.S.

3

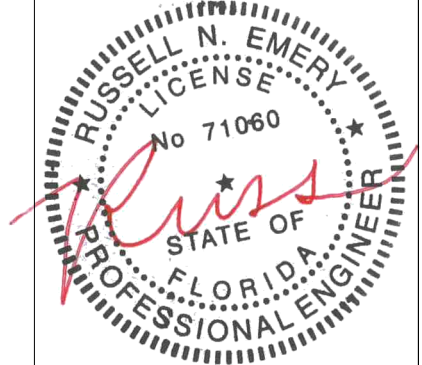
VECTOR
ENGINEERS
651 W. GALENA PARK BLVD., SUITE 101
DRAPER, UT 84020
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-705-181
FL FIRM LICENSE NUMBER: COA 26626



STEALTH[®]
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS
DRAWING SET IS PROPRIETARY & CONFIDENTIAL
BY NATURE. ANY USE OR DISCLOSURE OTHER
THAN THAT WHICH RELATES TO
STEALTH® CONCEALMENT SOLUTIONS, INC
IS STRICTLY PROHIBITED.



09/17/2018

DRAWING NOT TO SCALE. UNLESS SPECIFIED
OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES	
DECIMALS	ANGULAR
X ± 1/16"	X ± 0.5°
.XXX ± 0.01"	

DETAILS

RG TOWERS
FT. PIERCE ORANGE AVE
TOP SECTION
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1

DRAWN: LSB-VSE

DESIGNED: DJF-VSE

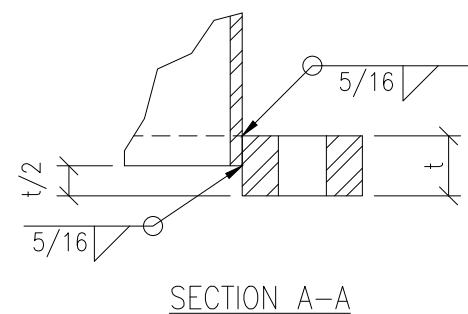
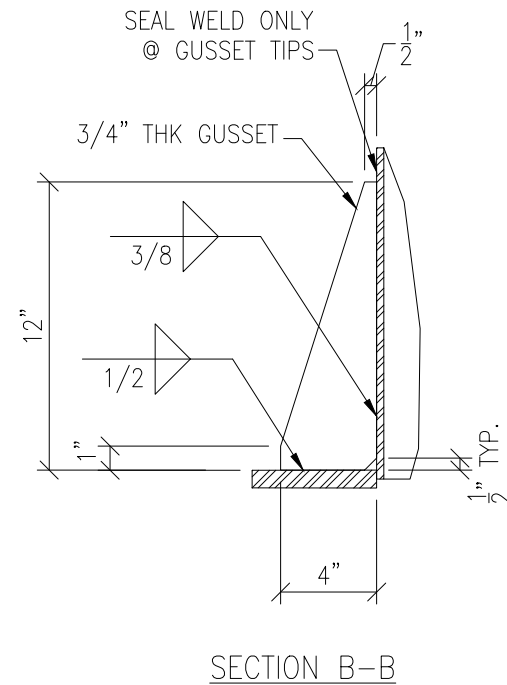
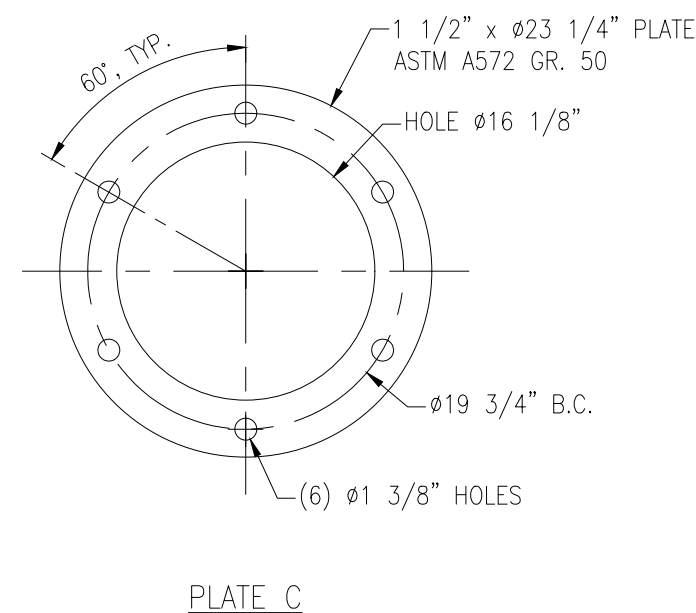
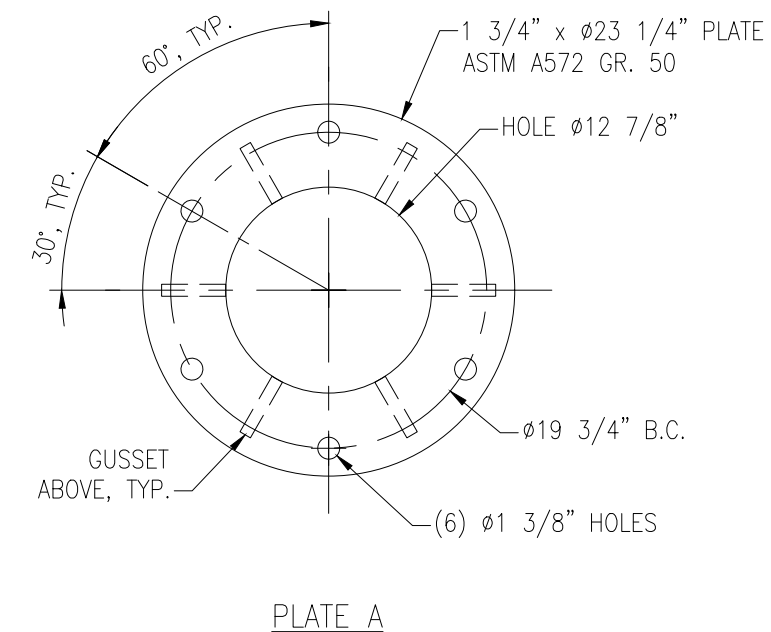
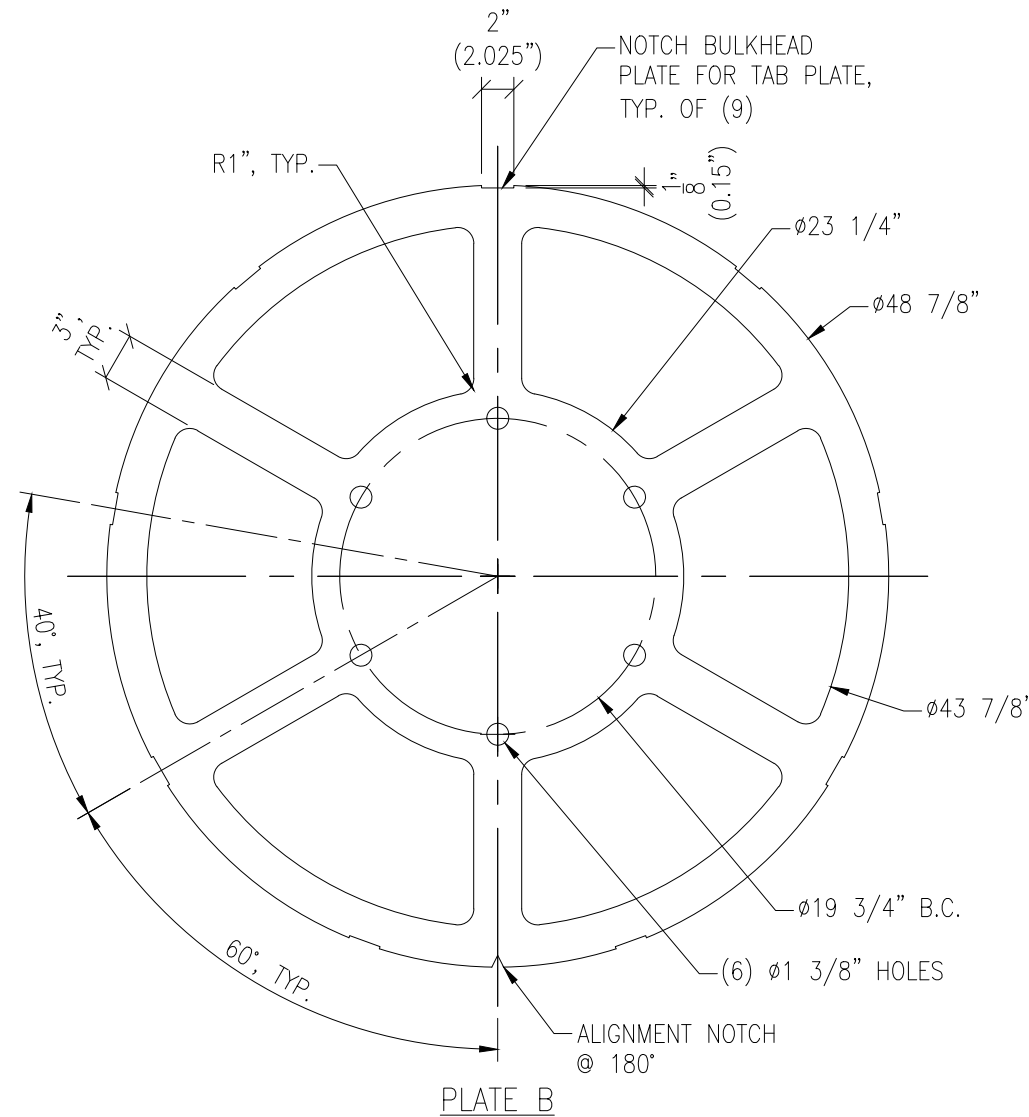
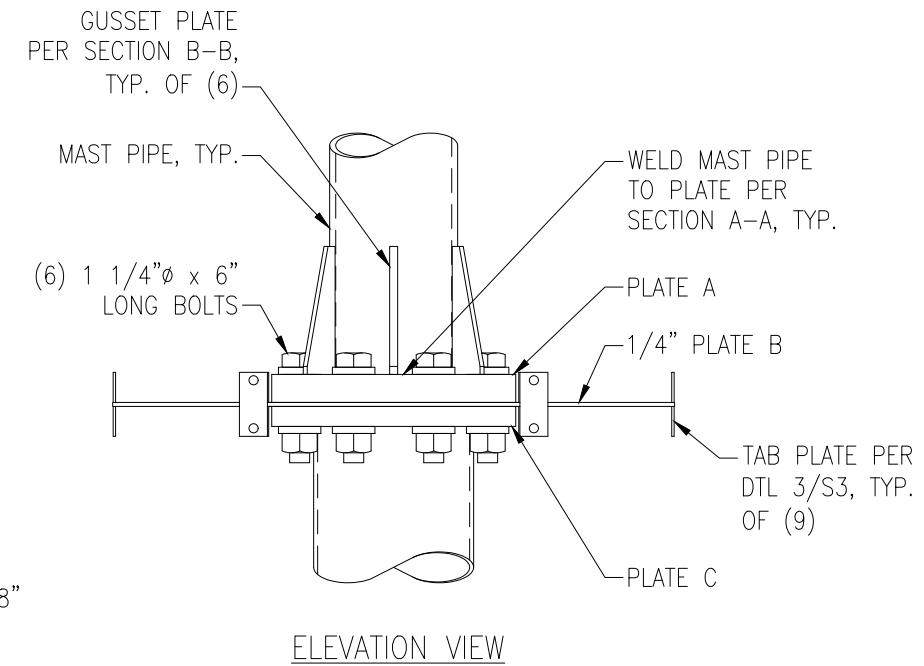
REVISED:

S4

9/17/18

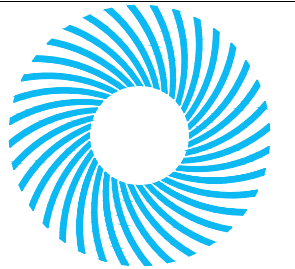
REVISION

0



N.T.S.

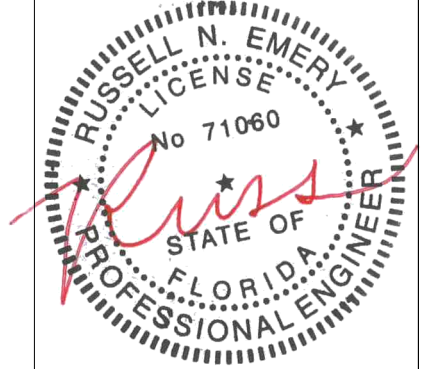
1



STEALTH[®]
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO STEALTH® CONCEALMENT SOLUTIONS, INC IS STRICTLY PROHIBITED.



09/17/2018

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES
TOLERANCES
DECIMALS X ± 1/16"
.XXX ± 0.01" ANGULAR X ± 0.5°

DETAILS

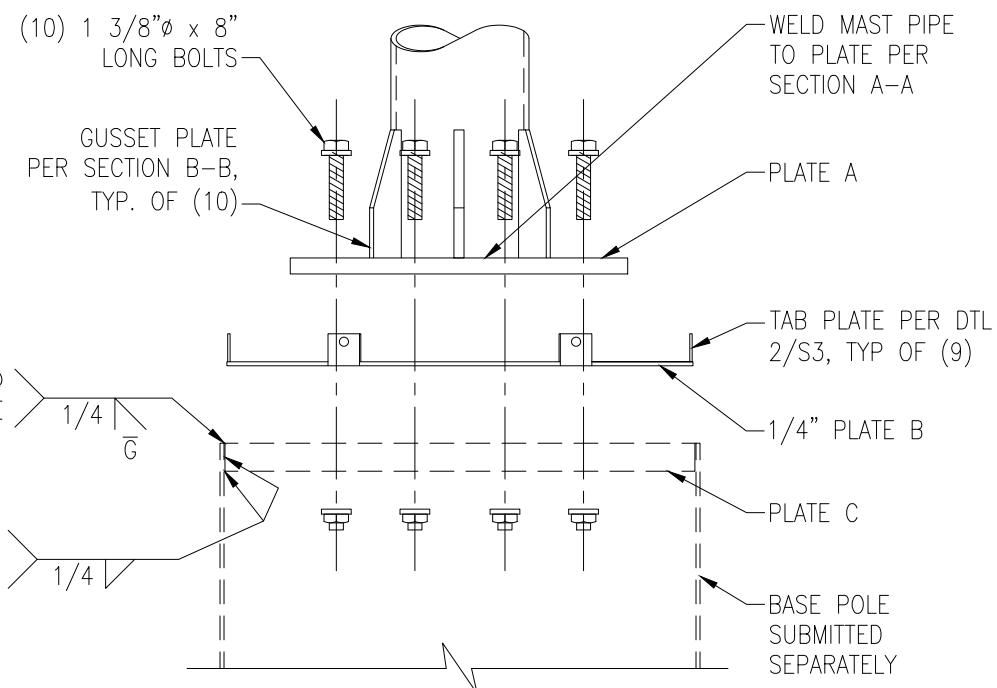
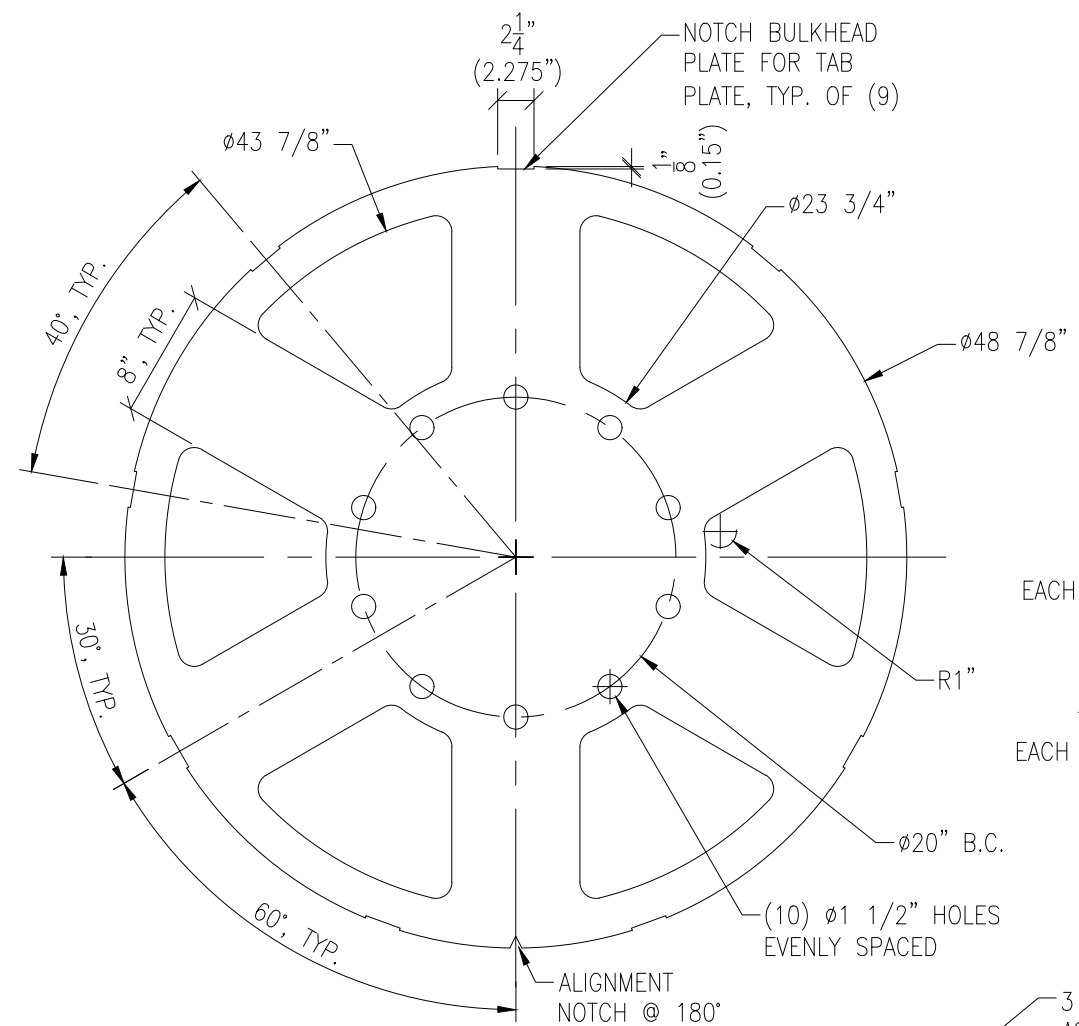
RG TOWERS
FT. PIERCE ORANGE AVE
TOP SECTION
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

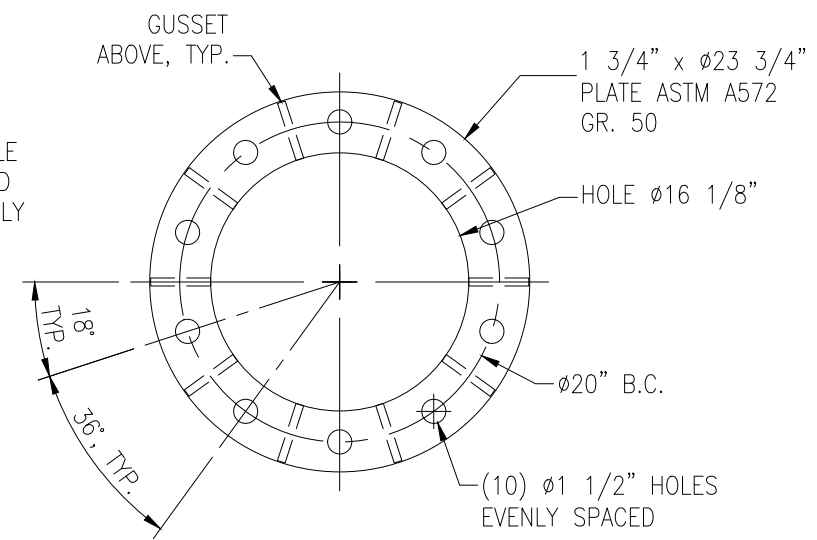
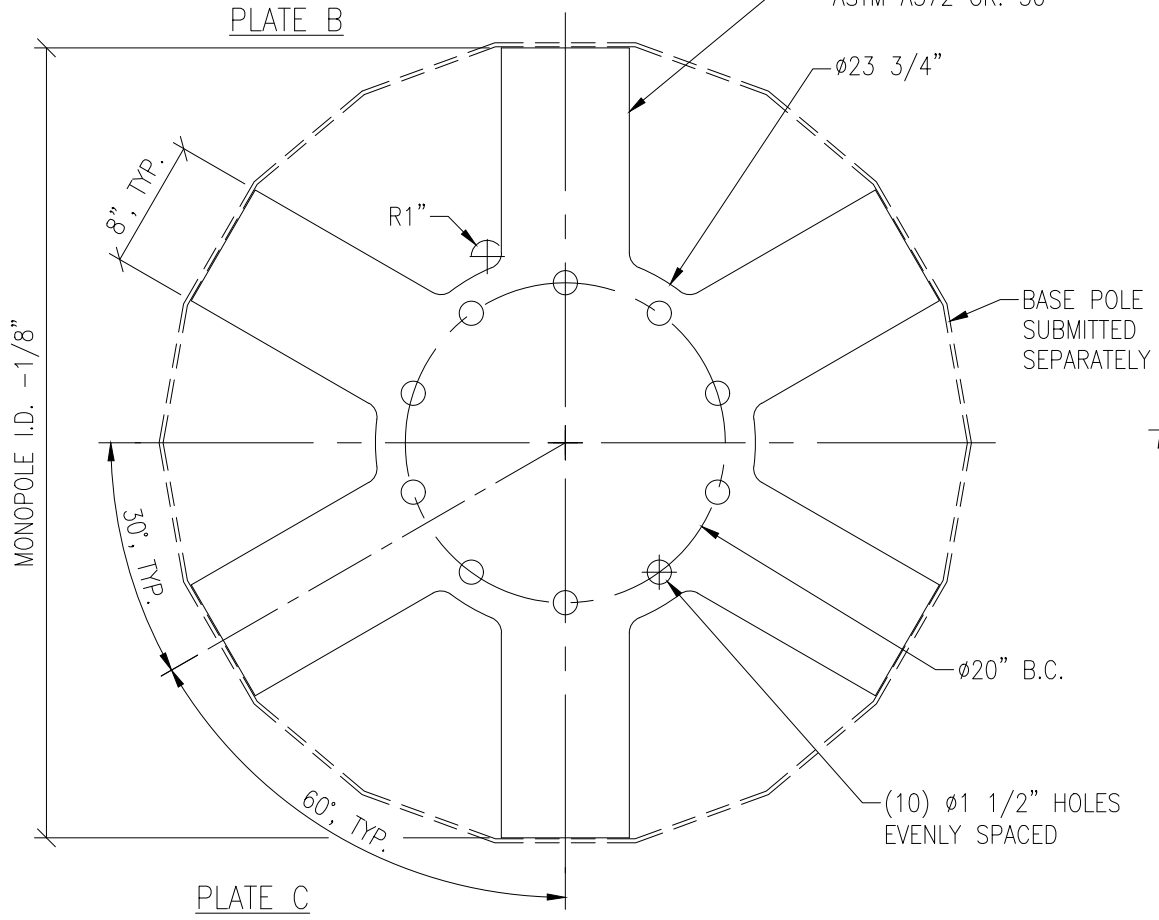
S5

9/17/18

REVISION
0

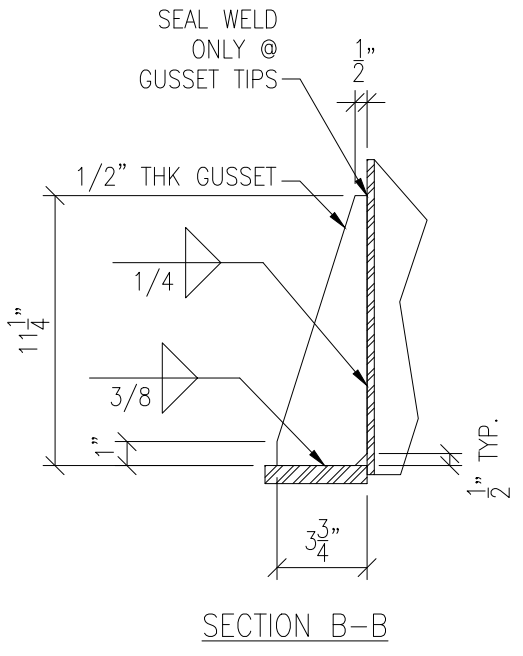


EXPLODED ELEVATION VIEW

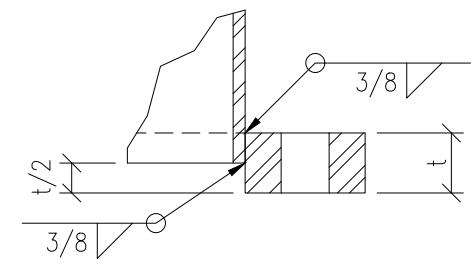


N.T.S.

1



SECTION B-B

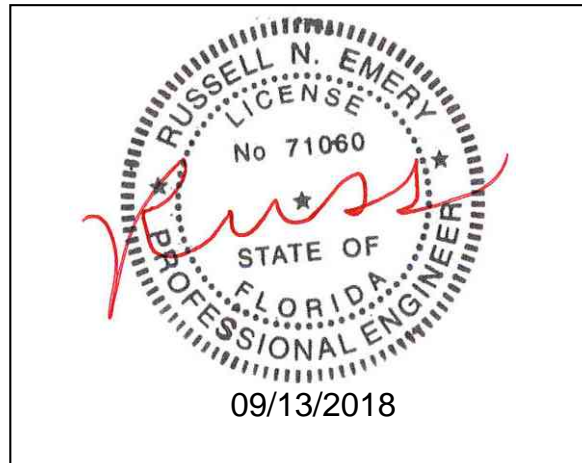


SECTION A-A

VECTOR ENGINEERS
651 W. GALENA PARK BLVD., SUITE 101
DRAPER, UT 84020
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-705-181
FL FIRM LICENSE NUMBER: COA 26626



STRUCTURAL CALCULATIONS
for
FT. PIERCE ORANGE AVE
82'-0" TALL BASE POLE
at
2006 ORANGE AVENUE
FT. PIERCE, FL 34950
for
RG TOWERS
&
STEALTH® CONCEALMENT SOLUTIONS (RG18-01105W-05R1)



BY: RUSSELL N. EMERY, P.E.
PROJECT ENGINEER

FL Firm License Number: COA 26626

PROJECT #: U0142-705-181

DATE: September 13, 2018

DESIGNED BY DJF; CHECKED BY RNE

NOTE:

The calculations presented in this package are intended for a single use at the location indicated above, for the client listed above. These calculations shall not be reproduced, reused, "card filed", sold to a third party, or altered in any way without the written authorization of Vector Structural Engineering, LLC and STEALTH® Concealment Solutions.



JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Design Criteria:

Code: Structural design is based on the Florida Building Code, 2017 Edition (2015 IBC)

Wind: Basic wind speed = 159 mph (3-second gust) per the ASCE 7-10 standard
Risk category / Structure class: II
Wind exposure: C
Topographic category: 1
Crest height: 0 ft

Ice: None per the TIA-222-G standard

General Notes:

- 1 The contractor shall verify dimensions, conditions and elevations before starting work. The engineer shall be notified immediately if any discrepancies are found.
- 2 The typical notes and details shall apply in all cases unless specifically detailed elsewhere. Where no detail is shown, the construction shall be as shown for other similar work and as required by the building code.
- 3 These calculations are limited to the structural members shown in these calculations only.
- 4 The contractor shall be responsible for compliance with local construction safety orders. Approval of shop drawings by the architect or structural engineer shall not be construed as accepting this responsibility.
- 5 All structural framing members shall be adequately shored and braced during erection and until full lateral and vertical support is provided by adjoining members.

Structural Steel:

- 1 All structural steel code checks based on the AISC-LRFD, 3rd Edition per the TIA-222-G standard
- 2 All 18-sided, tapered shaft steel to be per ASTM A572 GR. 65, U.N.O.
- 3 The design length of slip splices is equal to 1.67 times the inside width of the base of the upper section. Slip splice length tolerance is equal to $\pm 10\%$ of the design slip splice length.
- 4 All other structural steel shapes & plates shall be per ASTM A36, U.N.O.
- 5 All anchor bolts shall be per ASTM A615 GR. 75, U.N.O.
- 6 All bolts for steel-to-steel connections shall be per ASTM F3125 GR. A325 U.N.O.
- 7 All bolted connections shall be tightened per the "turn-of-nut" method as defined by AISC.
- 8 All welding shall be performed by certified welders in accordance with the latest edition of the American Welding Society (AWS) D1.1
- 9 All steel surfaces shall be galvanized in accordance with ASTM A123 and ASTM F2329 standards, thoroughly coated with a zinc-rich primer, or otherwise protected as noted on the structural drawings.



JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Foundation / Concrete:

- 1 All concrete mixing, placement, forming, and reinforcing installation shall be performed in accordance with the requirements of "Building Code Requirements for Reinforced Concrete", ACI 318-14. Foundation installation shall be in accordance with the requirements of "Standard Specifications for the Construction of Drilled Piers", ACI 336, latest edition
- 2 All concrete shall have a minimum compressive strength of 4000 psi at 28 days.
- 3 Cement for all concrete shall be Type II with 6% (+/- 1.5%) entrained air. Maximum aggregate size shall be ¾".
- 4 Reinforcing steel shall be per ASTM A615 Gr. 60, U.N.O.
- 5 Foundation design is based upon the project soils report prepared by:

Geotech: Environmental Corporation of America
Report No: T4300
Date: 22-Aug-18



JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

User Forces

Ice Thickness[in]:	0.00
Ice Density [pcf]:	56
Cylinder Shape:	18-Sided
Shape Factor:	0.65 (supercritical)
	1.20 (subcritical)

Elev. @ Top of Base Pole [ft]:	82.0
Elev. @ Bottom of Base Pole [ft]:	1.0

Cylinder	Length [ft]	Diameter [in]		Plates	Weight [lb]		CaAc [ft ²]	
		No Ice	w/ Ice		No Ice	w/ Ice	No Ice	w/ Ice
				Top Plate	370	370	16.5	30.5
1	12.0	50	50.00	Bulkhead	520	520	33.0	60.9
2	12.0	50	50.00	Bulkhead	520	520	33.0	60.9
3	12.0	50	50.00	Bulkhead	520	520	33.0	60.9
4	12.0	50	50.00	Bottom Plate	370	370	16.5	30.5
					0	0	0.0	0.0
					0	0	0.0	0.0
					0	0	0.0	0.0
					0	0	0.0	0.0

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Top Plate	130	(3) Generic Panel 100# (enclosed)	100
(3) Generic Equipment (Enclosed)	124	(3) Generic Equipment (Enclosed)	100
(3) Generic Panel 105# (enclosed)	124	Bulkhead	94
Bulkhead	118	(3) Generic Equipment (Enclosed)	88
(3) Generic Panel 100# (enclosed)	112	(3) Generic Panel 100# (enclosed)	88
(3) Generic Equipment (Enclosed)	112	Bottom Plate	82
Bulkhead	106	Coax_Mast	82

MATERIAL STRENGTH

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

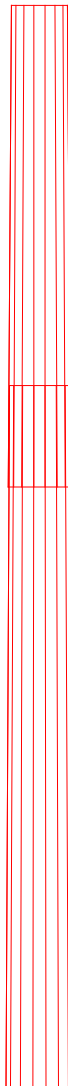
TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 159 mph basic wind in accordance with the TIA-222-G Standard.
3. Deflections are based upon a 60 mph wind.
4. Tower Risk Category II.
5. Topographic Category 1 with Crest Height of 0.00 ft
6. TOWER RATING: 46.9%

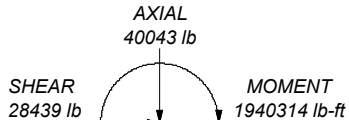
82.0 ft

46.0 ft

1.0 ft




ALL REACTIONS
ARE FACTORED



REACTIONS - 159 mph WIND

Section	1	2
Length (ft)	36.00	52.58
Number of Sides	18	18
Thickness (in)	0.3125	0.3125
Socket Length (ft)	7.58	
Top Dia (in)	50.0000	53.3538
Bot Dia (in)	55.0400	60.7150
Grade	A572-65	A572-65
Weight (lb)	6343.5	10066.2
		16,409.6

Vector Structural Engineering

 651 West Galena Park BLVD
 Draper, UT 84020
 Phone: (801) 990-1775
 FAX:

Job: **Ft. Pierce Orave Ave**
 Project: **U0142-705-181**
 Client: **STEALTH® Concealment Solutions** Drawn by: **dfoulger** App'd:
 Code: **TIA-222-G** Date: **09/13/18** Scale: **NTS**
 Path: Dwg No. **E-1**

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 1 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

ASCE 7-10 Wind Data is used.

Basic wind speed of 159 mph.

Risk Category II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

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	82.00-46.00	36.00	7.58	18	50.0000	55.0400	0.3125	1.2500	A572-65 (65 ksi)
L2	46.00-1.00	52.58		18	53.3538	60.7150	0.3125	1.2500	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	It/Q in ²	w in	w/t
L1	50.7231	49.2838	15372.1931	17.6391	25.4000	605.2045	30764.6134	24.6466	8.2500	26.4
L2	55.8409	54.2828	20540.5100	19.4283	27.9603	734.6307	41108.0478	27.1466	9.1370	29.239
	61.6034	59.9117	27615.8959	21.4429	30.8432	895.3636	55268.1294	29.9616	10.1358	32.435

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 82.00-46.00				1	1	1			
L2 46.00-1.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 2 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total		C _A A _A ft ² /ft	Weight plf
					Number	No Ice		
1 5/8 Coax	C	No	Inside Pole	82.00 - 1.00	12	No Ice	0.00	0.72
1 5/8 Coax	C	No	Inside Pole	82.00 - 1.00	12	No Ice	0.00	0.72
1 5/8 Coax	C	No	Inside Pole	82.00 - 1.00	12	No Ice	0.00	0.72
1 5/8 Coax	C	No	Inside Pole	82.00 - 1.00	12	No Ice	0.00	0.72

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight lb
			ft ²	ft ²	ft ²	ft ²	
L1	82.00-46.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1244.16
L2	46.00-1.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1555.20

Shielding Factor Ka

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

User Defined Loads

Description	Elevation ft	Offset From Centroid ft	Azimuth Angle °	Weight lb	F _x lb	F _z lb	Wind Force lb	C _A A _C	
								ft ²	
Top Plate	130.00	0.00	0.0000	No Ice	370.00	0.00	0.00	1492.54	16.50
				Service	370.00	0.00	0.00	190.16	16.50
Bulkhead	118.00	0.00	0.0000	No Ice	520.00	0.00	0.00	2924.83	33.00
				Service	520.00	0.00	0.00	372.65	33.00
Bulkhead	106.00	0.00	0.0000	No Ice	520.00	0.00	0.00	2859.53	33.00
				Service	520.00	0.00	0.00	364.33	33.00
Bulkhead	94.00	0.00	0.0000	No Ice	520.00	0.00	0.00	2788.11	33.00
				Service	520.00	0.00	0.00	355.23	33.00
Bottom Plate	82.00	0.00	0.0000	No Ice	370.00	0.00	0.00	1354.54	16.50
				Service	370.00	0.00	0.00	172.58	16.50
Coax & Mast	82.00	0.00	0.0000	No Ice	10000.00	0.00	0.00	0.00	0.00
				Service	10000.00	0.00	0.00	0.00	0.00

Discrete Tower Loads

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 3 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	
(3) Generic Panel 105# (enclosed)	C	None			0.0000	124.00	No Ice	0.00	0.00	105.00
(3) Generic Panel 100# (enclosed)	C	None			0.0000	112.00	No Ice	0.00	0.00	105.00
(3) Generic Panel 100# (enclosed)	C	None			0.0000	100.00	No Ice	0.00	0.00	105.00
(3) Generic Panel 100# (enclosed)	C	None			0.0000	88.00	No Ice	0.00	0.00	105.00
(3) Generic Equipment (Enclosed)	C	None			0.0000	124.00	No Ice	0.00	0.00	50.00
(3) Generic Equipment (Enclosed)	C	None			0.0000	112.00	No Ice	0.00	0.00	50.00
(3) Generic Equipment (Enclosed)	C	None			0.0000	100.00	No Ice	0.00	0.00	50.00
(3) Generic Equipment (Enclosed)	C	None			0.0000	88.00	No Ice	0.00	0.00	50.00

Tower Pressures - No Ice

$$G_H = 1.100$$

Section Elevation	z	K _Z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		psf	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1 82.00-46.00	63.98	1.152	71	159.846	A	0.000	159.846	159.846	100.00	0.000	0.000
					B	0.000	159.846		100.00	0.000	0.000
					C	0.000	159.846		100.00	0.000	0.000
L2 46.00-1.00	24.07	0.938	57	219.018	A	0.000	219.018	219.018	100.00	0.000	0.000
					B	0.000	219.018		100.00	0.000	0.000
					C	0.000	219.018		100.00	0.000	0.000

Tower Pressure - Service

$$G_H = 1.100$$

Section Elevation	z	K _Z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		psf	ft ²	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1 82.00-46.00	63.98	1.152	9	159.846	A	0.000	159.846	159.846	100.00	0.000	0.000
					B	0.000	159.846		100.00	0.000	0.000
					C	0.000	159.846		100.00	0.000	0.000
L2 46.00-1.00	24.07	0.938	7	219.018	A	0.000	219.018	219.018	100.00	0.000	0.000
					B	0.000	219.018		100.00	0.000	0.000
					C	0.000	219.018		100.00	0.000	0.000

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 4 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 82.00-46.00	1244.16	6343.48	A	1	0.65	71	1	1	159.846	8074.74	224.30	C
			B	1	0.65		1	1	159.846			
			C	1	0.65		1	1	159.846			
L2 46.00-1.00	1555.20	10066.16	A	1	0.65	57	1	1	219.018	8944.69	198.77	C
			B	1	0.65		1	1	219.018			
			C	1	0.65		1	1	219.018			
Sum Weight:	2799.36	16409.64						OTM	714921.05 lb-ft	17019.43		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 82.00-46.00	1244.16	6343.48	A	1	0.65	71	1	1	159.846	8074.74	224.30	C
			B	1	0.65		1	1	159.846			
			C	1	0.65		1	1	159.846			
L2 46.00-1.00	1555.20	10066.16	A	1	0.65	57	1	1	219.018	8944.69	198.77	C
			B	1	0.65		1	1	219.018			
			C	1	0.65		1	1	219.018			
Sum Weight:	2799.36	16409.64						OTM	714921.05 lb-ft	17019.43		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 82.00-46.00	1244.16	6343.48	A	1	0.65	71	1	1	159.846	8074.74	224.30	C
			B	1	0.65		1	1	159.846			
			C	1	0.65		1	1	159.846			
L2 46.00-1.00	1555.20	10066.16	A	1	0.65	57	1	1	219.018	8944.69	198.77	C
			B	1	0.65		1	1	219.018			
			C	1	0.65		1	1	219.018			
Sum Weight:	2799.36	16409.64						OTM	714921.05 lb-ft	17019.43		

Tower Forces - No Ice - Wind 90 To Face

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orave Ave	Page	5 of 20
	Project	U0142-705-181	Date	13:51:24 09/13/18
	Client	STEALTH® Concealment Solutions	Designed by	dfoulger

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 82.00-46.00	1244.16	6343.48	A	1	0.65	71	1	1	159.846	8074.74	224.30	C
			B	1	0.65		1	1	159.846			
			C	1	0.65		1	1	159.846			
L2 46.00-1.00	1555.20	10066.16	A	1	0.65	57	1	1	219.018	8944.69	198.77	C
			B	1	0.65		1	1	219.018			
			C	1	0.65		1	1	219.018			
Sum Weight:	2799.36	16409.64						OTM	714921.05	17019.43		
									lb-ft			

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 82.00-46.00	1244.16	6343.48	A	1	0.65	9	1	1	159.846	1028.80	28.58	C
			B	1	0.65		1	1	159.846			
			C	1	0.65		1	1	159.846			
L2 46.00-1.00	1555.20	10066.16	A	1	0.65	7	1	1	219.018	1139.64	25.33	C
			B	1	0.65		1	1	219.018			
			C	1	0.65		1	1	219.018			
Sum Weight:	2799.36	16409.64						OTM	91088.10	2168.45		
									lb-ft			

Tower Forces - Service - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 82.00-46.00	1244.16	6343.48	A	1	0.65	9	1	1	159.846	1028.80	28.58	C
			B	1	0.65		1	1	159.846			
			C	1	0.65		1	1	159.846			
L2 46.00-1.00	1555.20	10066.16	A	1	0.65	7	1	1	219.018	1139.64	25.33	C
			B	1	0.65		1	1	219.018			
			C	1	0.65		1	1	219.018			
Sum Weight:	2799.36	16409.64						OTM	91088.10	2168.45		
									lb-ft			

Tower Forces - Service - Wind 60 To Face

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 6 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 82.00-46.00	1244.16	6343.48	A B C	1 1 1	0.65 0.65 0.65	9	1 1 1	1 1 1	159.846 159.846 159.846	1028.80	28.58	C
L2 46.00-1.00	1555.20	10066.16	A B C	1 1 1	0.65 0.65 0.65	7	1 1 1	1 1 1	219.018 219.018 219.018	1139.64	25.33	C
Sum Weight:	2799.36	16409.64						OTM	91088.10 lb-ft	2168.45		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 82.00-46.00	1244.16	6343.48	A B C	1 1 1	0.65 0.65 0.65	9	1 1 1	1 1 1	159.846 159.846 159.846	1028.80	28.58	C
L2 46.00-1.00	1555.20	10066.16	A B C	1 1 1	0.65 0.65 0.65	7	1 1 1	1 1 1	219.018 219.018 219.018	1139.64	25.33	C
Sum Weight:	2799.36	16409.64						OTM	91088.10 lb-ft	2168.45		

Discrete Appurtenance Pressures - No Ice G_H = 1.100

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
Generic Panel 105# (enclosed)	0.0000	315.00	0.00	0.00	124.00	1.324	81	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	112.00	1.296	80	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	100.00	1.266	78	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	88.00	1.232	76	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	124.00	1.324	81	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	112.00	1.296	80	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	100.00	1.266	78	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	88.00	1.232	76	0.00	0.00
Sum Weight:		1860.00							

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 7 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Discrete Appurtenance Pressures - Service $G_H = 1.100$

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{Ac} Front ft ²	C _{Ac} Side ft ²
Generic Panel 105# (enclosed)	0.0000	315.00	0.00	0.00	124.00	1.324	10	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	112.00	1.296	10	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	100.00	1.266	10	0.00	0.00
Generic Panel 100# (enclosed)	0.0000	315.00	0.00	0.00	88.00	1.232	10	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	124.00	1.324	10	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	112.00	1.296	10	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	100.00	1.266	10	0.00	0.00
Generic Equipment (Enclosed)	0.0000	150.00	0.00	0.00	88.00	1.232	10	0.00	0.00
Sum Weight:		1860.00							

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M _x lb-ft	Sum of Overturning Moments, M _z lb-ft	Sum of Torques lb-ft
Leg Weight	16409.64					
Bracing Weight	0.00					
Total Member Self-Weight	16409.64			0.00	0.00	
Total Weight	33369.00			0.00	0.00	
Wind 0 deg - No Ice		0.00	-28438.98	-1918926.52	0.00	0.00
Wind 30 deg - No Ice		14219.49	-24628.88	-1661839.12	-959463.26	0.00
Wind 45 deg - No Ice		20109.40	-20109.40	-1356885.96	-1356885.96	0.00
Wind 60 deg - No Ice		24628.88	-14219.49	-959463.26	-1661839.12	0.00
Wind 90 deg - No Ice		28438.98	0.00	0.00	-1918926.52	0.00
Wind 120 deg - No Ice		24628.88	14219.49	959463.26	-1661839.12	0.00
Wind 135 deg - No Ice		20109.40	20109.40	1356885.96	-1356885.96	0.00
Wind 150 deg - No Ice		14219.49	24628.88	1661839.12	-959463.26	0.00
Wind 180 deg - No Ice		0.00	28438.98	1918926.52	0.00	0.00
Wind 210 deg - No Ice		-14219.49	24628.88	1661839.12	959463.26	0.00
Wind 225 deg - No Ice		-20109.40	20109.40	1356885.96	1356885.96	0.00
Wind 240 deg - No Ice		-24628.88	14219.49	959463.26	1661839.12	0.00
Wind 270 deg - No Ice		-28438.98	0.00	0.00	1918926.52	0.00
Wind 300 deg - No Ice		-24628.88	-14219.49	-959463.26	1661839.12	0.00
Wind 315 deg - No Ice		-20109.40	-20109.40	-1356885.96	1356885.96	0.00
Wind 330 deg - No Ice		-14219.49	-24628.88	-1661839.12	959463.26	0.00
Total Weight	33369.00			0.00	0.00	
Wind 0 deg - Service		0.00	-3623.41	-244490.46	0.00	0.00
Wind 30 deg - Service		1811.71	-3137.97	-211734.95	-122245.23	0.00
Wind 45 deg - Service		2562.14	-2562.14	-172880.86	-172880.86	0.00
Wind 60 deg - Service		3137.97	-1811.71	-122245.23	-211734.95	0.00
Wind 90 deg - Service		3623.41	0.00	0.00	-244490.46	0.00
Wind 120 deg - Service		3137.97	1811.71	122245.23	-211734.95	0.00
Wind 135 deg - Service		2562.14	2562.14	172880.86	-172880.86	0.00
Wind 150 deg - Service		1811.71	3137.97	211734.95	-122245.23	0.00

<p style="text-align: center;">tnxTower</p> <p>Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:</p>	<p>Job</p> <p style="text-align: center;">Ft. Pierce Orave Ave</p>	<p>Page</p> <p style="text-align: center;">8 of 20</p>
	<p>Project</p> <p style="text-align: center;">U0142-705-181</p>	<p>Date</p> <p style="text-align: center;">13:51:24 09/13/18</p>
	<p>Client</p> <p style="text-align: center;">STEALTH® Concealment Solutions</p>	<p>Designed by</p> <p style="text-align: center;">dfoulger</p>

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Wind 180 deg - Service		0.00	3623.41	244490.46	0.00	0.00
Wind 210 deg - Service		-1811.71	3137.97	211734.95	122245.23	0.00
Wind 225 deg - Service		-2562.14	2562.14	172880.86	172880.86	0.00
Wind 240 deg - Service		-3137.97	1811.71	122245.23	211734.95	0.00
Wind 270 deg - Service		-3623.41	0.00	0.00	244490.46	0.00
Wind 300 deg - Service		-3137.97	-1811.71	-122245.23	211734.95	0.00
Wind 315 deg - Service		-2562.14	-2562.14	-172880.86	172880.86	0.00
Wind 330 deg - Service		-1811.71	-3137.97	-211734.95	122245.23	0.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 45 deg - No Ice
7	0.9 Dead+1.0 Wind 45 deg - No Ice
8	1.2 Dead+1.0 Wind 60 deg - No Ice
9	0.9 Dead+1.0 Wind 60 deg - No Ice
10	1.2 Dead+1.0 Wind 90 deg - No Ice
11	0.9 Dead+1.0 Wind 90 deg - No Ice
12	1.2 Dead+1.0 Wind 120 deg - No Ice
13	0.9 Dead+1.0 Wind 120 deg - No Ice
14	1.2 Dead+1.0 Wind 135 deg - No Ice
15	0.9 Dead+1.0 Wind 135 deg - No Ice
16	1.2 Dead+1.0 Wind 150 deg - No Ice
17	0.9 Dead+1.0 Wind 150 deg - No Ice
18	1.2 Dead+1.0 Wind 180 deg - No Ice
19	0.9 Dead+1.0 Wind 180 deg - No Ice
20	1.2 Dead+1.0 Wind 210 deg - No Ice
21	0.9 Dead+1.0 Wind 210 deg - No Ice
22	1.2 Dead+1.0 Wind 225 deg - No Ice
23	0.9 Dead+1.0 Wind 225 deg - No Ice
24	1.2 Dead+1.0 Wind 240 deg - No Ice
25	0.9 Dead+1.0 Wind 240 deg - No Ice
26	1.2 Dead+1.0 Wind 270 deg - No Ice
27	0.9 Dead+1.0 Wind 270 deg - No Ice
28	1.2 Dead+1.0 Wind 300 deg - No Ice
29	0.9 Dead+1.0 Wind 300 deg - No Ice
30	1.2 Dead+1.0 Wind 315 deg - No Ice
31	0.9 Dead+1.0 Wind 315 deg - No Ice
32	1.2 Dead+1.0 Wind 330 deg - No Ice
33	0.9 Dead+1.0 Wind 330 deg - No Ice
34	Dead+Wind 0 deg - Service
35	Dead+Wind 30 deg - Service
36	Dead+Wind 45 deg - Service
37	Dead+Wind 60 deg - Service
38	Dead+Wind 90 deg - Service
39	Dead+Wind 120 deg - Service
40	Dead+Wind 135 deg - Service
41	Dead+Wind 150 deg - Service
42	Dead+Wind 180 deg - Service
43	Dead+Wind 210 deg - Service

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 9 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Comb. No.	Description
44	Dead+Wind 225 deg - Service
45	Dead+Wind 240 deg - Service
46	Dead+Wind 270 deg - Service
47	Dead+Wind 300 deg - Service
48	Dead+Wind 315 deg - Service
49	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	82 - 46	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-23874.76	-702982.05	0.00
			Max. Mx	10	-23874.76	-702982.05	0.00
			Max. My	2	-23874.76	0.00	702982.05
			Max. Vy	10	18116.24	-702982.05	0.00
			Max. Vx	2	-18116.24	0.00	702982.05
			Max. Torque	8			0.00
L2	46 - 1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-40031.09	-1372009.3	1372009.36
			Max. Mx	10	-40031.08	-1940294.5	0.00
			Max. My	2	-40031.08	0.00	1940294.57
			Max. Vy	10	28455.17	-1940294.5	0.00
			Max. Vx	2	-28455.17	0.00	1940294.57
			Max. Torque	4			-0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb	
Pole	Max. Vert	6	40042.80	-20109.38	20109.38	
	Max. H _x	27	30032.10	28438.77	0.00	
	Max. H _z	3	30032.10	0.00	28438.77	
	Max. M _x	2	1940294.57	0.00	28438.69	
	Max. M _z	10	1940294.57	-28438.69	0.00	
	Max. Torsion	16	0.00	-14219.48	-24628.86	
	Min. Vert	11	30032.10	-28438.77	0.00	
	Min. H _x	11	30032.10	-28438.77	0.00	
	Min. H _z	19	30032.10	0.00	-28438.77	
	Min. M _x	18	-1940294.57	0.00	-28438.69	
	Min. M _z	26	-1940294.57	28438.69	0.00	
	Min. Torsion	4		-0.00	-14219.48	24628.86

Tower Mast Reaction Summary

<p style="text-align: center;">tnxTower</p> <p>Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:</p>	Job	Ft. Pierce Orave Ave	Page	10 of 20
	Project	U0142-705-181	Date	13:51:24 09/13/18
	Client	STEALTH® Concealment Solutions	Designed by	dfoulger

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	33369.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	40042.80	0.00	-28438.69	-1940294.57	0.00	0.00
0.9 Dead+1.0 Wind 0 deg - No Ice	30032.10	0.00	-28438.77	-1934878.87	0.00	0.00
1.2 Dead+1.0 Wind 30 deg - No Ice	40042.80	14219.48	-24628.86	-1680361.42	-970157.12	0.00
0.9 Dead+1.0 Wind 30 deg - No Ice	30032.10	14219.48	-24628.87	-1675666.28	-967446.38	0.00
1.2 Dead+1.0 Wind 45 deg - No Ice	40042.80	20109.38	-20109.38	-1372009.36	-1372009.36	0.00
0.9 Dead+1.0 Wind 45 deg - No Ice	30032.10	20109.39	-20109.39	-1368175.79	-1368175.79	0.00
1.2 Dead+1.0 Wind 60 deg - No Ice	40042.80	24628.86	-14219.48	-970157.12	-1680361.42	-0.00
0.9 Dead+1.0 Wind 60 deg - No Ice	30032.10	24628.87	-14219.48	-967446.38	-1675666.28	-0.00
1.2 Dead+1.0 Wind 90 deg - No Ice	40042.80	28438.69	0.00	0.00	-1940294.57	0.00
0.9 Dead+1.0 Wind 90 deg - No Ice	30032.10	28438.77	0.00	0.00	-1934878.87	0.00
1.2 Dead+1.0 Wind 120 deg - No Ice	40042.80	24628.86	14219.48	970157.12	-1680361.42	0.00
0.9 Dead+1.0 Wind 120 deg - No Ice	30032.10	24628.87	14219.48	967446.38	-1675666.28	0.00
1.2 Dead+1.0 Wind 135 deg - No Ice	40042.80	20109.38	20109.38	1372009.36	-1372009.36	0.00
0.9 Dead+1.0 Wind 135 deg - No Ice	30032.10	20109.39	20109.39	1368175.79	-1368175.79	0.00
1.2 Dead+1.0 Wind 150 deg - No Ice	40042.80	14219.48	24628.86	1680361.42	-970157.12	-0.00
0.9 Dead+1.0 Wind 150 deg - No Ice	30032.10	14219.48	24628.87	1675666.28	-967446.38	-0.00
1.2 Dead+1.0 Wind 180 deg - No Ice	40042.80	0.00	28438.69	1940294.57	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	30032.10	0.00	28438.77	1934878.87	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice	40042.80	-14219.48	24628.86	1680361.42	970157.12	0.00
0.9 Dead+1.0 Wind 210 deg - No Ice	30032.10	-14219.48	24628.87	1675666.28	967446.38	0.00
1.2 Dead+1.0 Wind 225 deg - No Ice	40042.80	-20109.38	20109.38	1372009.36	1372009.36	0.00
0.9 Dead+1.0 Wind 225 deg - No Ice	30032.10	-20109.39	20109.39	1368175.79	1368175.79	0.00
1.2 Dead+1.0 Wind 240 deg - No Ice	40042.80	-24628.86	14219.48	970157.12	1680361.42	-0.00
0.9 Dead+1.0 Wind 240 deg - No Ice	30032.10	-24628.87	14219.48	967446.38	1675666.28	-0.00
1.2 Dead+1.0 Wind 270 deg - No Ice	40042.80	-28438.69	0.00	0.00	1940294.57	0.00
0.9 Dead+1.0 Wind 270 deg - No Ice	30032.10	-28438.77	0.00	0.00	1934878.87	0.00
1.2 Dead+1.0 Wind 300 deg - No Ice	40042.80	-24628.86	-14219.48	-970157.12	1680361.42	0.00
0.9 Dead+1.0 Wind 300 deg - No Ice	30032.10	-24628.87	-14219.48	-967446.38	1675666.28	0.00
1.2 Dead+1.0 Wind 315 deg - No Ice	40042.80	-20109.38	-20109.38	-1372009.36	1372009.36	0.00
0.9 Dead+1.0 Wind 315 deg - No Ice	30032.10	-20109.39	-20109.39	-1368175.79	1368175.79	0.00

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orave Ave	Page	11 of 20
	Project	U0142-705-181	Date	13:51:24 09/13/18
	Client	STEALTH® Concealment Solutions	Designed by	dfoulger

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.0 Wind 330 deg - No Ice	40042.80	-14219.48	-24628.86	-1680361.42	970157.12	-0.00
0.9 Dead+1.0 Wind 330 deg - No Ice	30032.10	-14219.48	-24628.87	-1675666.28	967446.38	-0.00
Dead+Wind 0 deg - Service	33369.00	0.00	-3623.09	-246740.29	0.00	0.00
Dead+Wind 30 deg - Service	33369.00	1811.55	-3137.69	-213683.36	-123370.14	0.00
Dead+Wind 45 deg - Service	33369.00	2561.91	-2561.91	-174471.73	-174471.73	0.00
Dead+Wind 60 deg - Service	33369.00	3137.69	-1811.55	-123370.14	-213683.36	-0.00
Dead+Wind 90 deg - Service	33369.00	3623.09	0.00	0.00	-246740.29	0.00
Dead+Wind 120 deg - Service	33369.00	3137.69	1811.55	123370.14	-213683.36	0.00
Dead+Wind 135 deg - Service	33369.00	2561.91	2561.91	174471.73	-174471.73	0.00
Dead+Wind 150 deg - Service	33369.00	1811.55	3137.69	213683.36	-123370.14	-0.00
Dead+Wind 180 deg - Service	33369.00	0.00	3623.09	246740.29	0.00	0.00
Dead+Wind 210 deg - Service	33369.00	-1811.55	3137.69	213683.36	123370.14	0.00
Dead+Wind 225 deg - Service	33369.00	-2561.91	2561.91	174471.73	174471.73	0.00
Dead+Wind 240 deg - Service	33369.00	-3137.69	1811.55	123370.14	213683.36	-0.00
Dead+Wind 270 deg - Service	33369.00	-3623.09	0.00	0.00	246740.29	0.00
Dead+Wind 300 deg - Service	33369.00	-3137.69	-1811.55	-123370.14	213683.36	0.00
Dead+Wind 315 deg - Service	33369.00	-2561.91	-2561.91	-174471.73	174471.73	0.00
Dead+Wind 330 deg - Service	33369.00	-1811.55	-3137.69	-213683.36	123370.14	-0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-33369.00	0.00	0.00	33369.00	0.00	0.000%
2	0.00	-40042.80	-28438.98	0.00	40042.80	28438.69	0.001%
3	0.00	-30032.10	-28438.98	0.00	30032.10	28438.77	0.001%
4	14219.49	-40042.80	-24628.88	-14219.48	40042.80	24628.86	0.000%
5	14219.49	-30032.10	-24628.88	-14219.48	30032.10	24628.87	0.000%
6	20109.40	-40042.80	-20109.40	-20109.38	40042.80	20109.38	0.000%
7	20109.40	-30032.10	-20109.40	-20109.39	30032.10	20109.39	0.000%
8	24628.88	-40042.80	-14219.49	-24628.86	40042.80	14219.48	0.000%
9	24628.88	-30032.10	-14219.49	-24628.87	30032.10	14219.48	0.000%
10	28438.98	-40042.80	0.00	-28438.69	40042.80	0.00	0.001%
11	28438.98	-30032.10	0.00	-28438.77	30032.10	0.00	0.001%
12	24628.88	-40042.80	14219.49	-24628.86	40042.80	-14219.48	0.000%
13	24628.88	-30032.10	14219.49	-24628.87	30032.10	-14219.48	0.000%
14	20109.40	-40042.80	20109.40	-20109.38	40042.80	-20109.38	0.000%
15	20109.40	-30032.10	20109.40	-20109.39	30032.10	-20109.39	0.000%
16	14219.49	-40042.80	24628.88	-14219.48	40042.80	-24628.86	0.000%
17	14219.49	-30032.10	24628.88	-14219.48	30032.10	-24628.87	0.000%
18	0.00	-40042.80	28438.98	0.00	40042.80	-28438.69	0.001%
19	0.00	-30032.10	28438.98	0.00	30032.10	-28438.77	0.001%
20	-14219.49	-40042.80	24628.88	14219.48	40042.80	-24628.86	0.000%
21	-14219.49	-30032.10	24628.88	14219.48	30032.10	-24628.87	0.000%
22	-20109.40	-40042.80	20109.40	20109.38	40042.80	-20109.38	0.000%
23	-20109.40	-30032.10	20109.40	20109.39	30032.10	-20109.39	0.000%
24	-24628.88	-40042.80	14219.49	24628.86	40042.80	-14219.48	0.000%
25	-24628.88	-30032.10	14219.49	24628.87	30032.10	-14219.48	0.000%
26	-28438.98	-40042.80	0.00	28438.69	40042.80	0.00	0.001%
27	-28438.98	-30032.10	0.00	28438.77	30032.10	0.00	0.001%
28	-24628.88	-40042.80	-14219.49	24628.86	40042.80	14219.48	0.000%
29	-24628.88	-30032.10	-14219.49	24628.87	30032.10	14219.48	0.000%
30	-20109.40	-40042.80	-20109.40	20109.38	40042.80	20109.38	0.000%
31	-20109.40	-30032.10	-20109.40	20109.39	30032.10	20109.39	0.000%
32	-14219.49	-40042.80	-24628.88	14219.48	40042.80	24628.86	0.000%

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 12 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
33	-14219.49	-30032.10	-24628.88	14219.48	30032.10	24628.87	0.000%
34	0.00	-33369.00	-3623.41	0.00	33369.00	3623.09	0.001%
35	1811.71	-33369.00	-3137.97	-1811.55	33369.00	3137.69	0.001%
36	2562.14	-33369.00	-2562.14	-2561.91	33369.00	2561.91	0.001%
37	3137.97	-33369.00	-1811.71	-3137.69	33369.00	1811.55	0.001%
38	3623.41	-33369.00	0.00	-3623.09	33369.00	0.00	0.001%
39	3137.97	-33369.00	1811.71	-3137.69	33369.00	-1811.55	0.001%
40	2562.14	-33369.00	2562.14	-2561.91	33369.00	-2561.91	0.001%
41	1811.71	-33369.00	3137.97	-1811.55	33369.00	-3137.69	0.001%
42	0.00	-33369.00	3623.41	0.00	33369.00	-3623.09	0.001%
43	-1811.71	-33369.00	3137.97	1811.55	33369.00	-3137.69	0.001%
44	-2562.14	-33369.00	2562.14	2561.91	33369.00	-2561.91	0.001%
45	-3137.97	-33369.00	1811.71	3137.69	33369.00	-1811.55	0.001%
46	-3623.41	-33369.00	0.00	3623.09	33369.00	0.00	0.001%
47	-3137.97	-33369.00	-1811.71	3137.69	33369.00	1811.55	0.001%
48	-2562.14	-33369.00	-2562.14	2561.91	33369.00	2561.91	0.001%
49	-1811.71	-33369.00	-3137.97	1811.55	33369.00	3137.69	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	7	0.00000001	0.00004645
3	Yes	7	0.00000001	0.00004259
4	Yes	8	0.00000001	0.00004973
5	Yes	8	0.00000001	0.00004139
6	Yes	8	0.00000001	0.00005732
7	Yes	8	0.00000001	0.00004770
8	Yes	8	0.00000001	0.00004973
9	Yes	8	0.00000001	0.00004139
10	Yes	7	0.00000001	0.00004645
11	Yes	7	0.00000001	0.00004259
12	Yes	8	0.00000001	0.00004973
13	Yes	8	0.00000001	0.00004139
14	Yes	8	0.00000001	0.00005732
15	Yes	8	0.00000001	0.00004770
16	Yes	8	0.00000001	0.00004973
17	Yes	8	0.00000001	0.00004139
18	Yes	7	0.00000001	0.00004645
19	Yes	7	0.00000001	0.00004259
20	Yes	8	0.00000001	0.00004973
21	Yes	8	0.00000001	0.00004139
22	Yes	8	0.00000001	0.00005732
23	Yes	8	0.00000001	0.00004770
24	Yes	8	0.00000001	0.00004973
25	Yes	8	0.00000001	0.00004139
26	Yes	7	0.00000001	0.00004645
27	Yes	7	0.00000001	0.00004259
28	Yes	8	0.00000001	0.00004973
29	Yes	8	0.00000001	0.00004139
30	Yes	8	0.00000001	0.00005732
31	Yes	8	0.00000001	0.00004770
32	Yes	8	0.00000001	0.00004973
33	Yes	8	0.00000001	0.00004139
34	Yes	6	0.00000001	0.00005744

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orave Ave	Page	13 of 20
	Project	U0142-705-181	Date	13:51:24 09/13/18
	Client	STEALTH® Concealment Solutions	Designed by	dfoulger

35	Yes	6	0.0000001	0.00005685
36	Yes	6	0.0000001	0.00005666
37	Yes	6	0.0000001	0.00005685
38	Yes	6	0.0000001	0.00005744
39	Yes	6	0.0000001	0.00005685
40	Yes	6	0.0000001	0.00005666
41	Yes	6	0.0000001	0.00005685
42	Yes	6	0.0000001	0.00005744
43	Yes	6	0.0000001	0.00005685
44	Yes	6	0.0000001	0.00005666
45	Yes	6	0.0000001	0.00005685
46	Yes	6	0.0000001	0.00005744
47	Yes	6	0.0000001	0.00005685
48	Yes	6	0.0000001	0.00005666
49	Yes	6	0.0000001	0.00005685

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	82 - 46	1.300	34	0.1260	0.0000
L2	53.58 - 1	0.624	34	0.0981	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	Top Plate	34	1.300	0.1260	0.0000	154361
124.00	(3) Generic Panel 105# (enclosed)	34	1.300	0.1260	0.0000	154361
118.00	Bulkhead	34	1.300	0.1260	0.0000	154361
112.00	(3) Generic Panel 100# (enclosed)	34	1.300	0.1260	0.0000	154361
106.00	Bulkhead	34	1.300	0.1260	0.0000	154361
100.00	(3) Generic Panel 100# (enclosed)	34	1.300	0.1260	0.0000	154361
94.00	Bulkhead	34	1.300	0.1260	0.0000	154361
88.00	(3) Generic Panel 100# (enclosed)	34	1.300	0.1260	0.0000	154361
82.00	Bottom Plate	34	1.300	0.1260	0.0000	154361

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	82 - 46	10.226	10	0.9911	0.0000
L2	53.58 - 1	4.907	10	0.7717	0.0000

Critical Deflections and Radius of Curvature - Design Wind

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orave Ave	Page	14 of 20
	Project	U0142-705-181	Date	13:51:24 09/13/18
	Client	STEALTH® Concealment Solutions	Designed by	dfoulger

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
130.00	Top Plate	10	10.226	0.9911	0.0000	19635
124.00	(3) Generic Panel 105# (enclosed)	10	10.226	0.9911	0.0000	19635
118.00	Bulkhead	10	10.226	0.9911	0.0000	19635
112.00	(3) Generic Panel 100# (enclosed)	10	10.226	0.9911	0.0000	19635
106.00	Bulkhead	10	10.226	0.9911	0.0000	19635
100.00	(3) Generic Panel 100# (enclosed)	10	10.226	0.9911	0.0000	19635
94.00	Bulkhead	10	10.226	0.9911	0.0000	19635
88.00	(3) Generic Panel 100# (enclosed)	10	10.226	0.9911	0.0000	19635
82.00	Bottom Plate	10	10.226	0.9911	0.0000	19635

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio
	ft		ft	ft		in ²	lb	lb	$\frac{P_u}{\phi P_n}$
L1	82 - 80.5042	TP55.04x50x0.3125	36.00	0.00	0.0	49.4915	-17150.60	3127360.00	0.005
	80.5042 - 79.0084					49.6992	-17511.50	3134280.00	0.006
	79.0084 - 77.5126					49.9069	-17873.80	3141150.00	0.006
	77.5126 - 76.0168					50.1146	-18237.60	3147970.00	0.006
	76.0168 - 74.5211					50.3223	-18602.90	3154730.00	0.006
	74.5211 - 73.0253					50.5300	-18969.60	3161450.00	0.006
	73.0253 - 71.5295					50.7378	-19337.90	3168110.00	0.006
	71.5295 - 70.0337					50.9455	-19707.60	3174720.00	0.006
	70.0337 - 68.5379					51.1532	-20078.80	3181270.00	0.006
	68.5379 - 67.0421					51.3609	-20451.50	3187780.00	0.006
	67.0421 - 65.5463					51.5686	-20825.70	3194230.00	0.007
	65.5463 - 64.0505					51.7763	-21201.40	3200640.00	0.007
	64.0505 - 62.5547					51.9840	-21578.70	3206990.00	0.007
	62.5547 - 61.0589					52.1917	-21957.50	3213280.00	0.007
	61.0589 - 59.5632					52.3994	-22337.80	3219530.00	0.007
	59.5632 - 58.0674					52.6071	-22719.70	3225720.00	0.007
	58.0674 - 56.5716					52.8148	-23103.20	3231870.00	0.007
	56.5716 - 55.0758					53.0226	-23488.20	3237960.00	0.007
	55.0758 -					53.2303	-23874.70	3244000.00	0.007

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job	Ft. Pierce Orave Ave	Page	15 of 20
	Project	U0142-705-181	Date	13:51:24 09/13/18
	Client	STEALTH® Concealment Solutions	Designed by	dfoulger

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
L2	53.58 - 46	TP60.715x53.3538x0.3125	52.58	0.00	0.0	54.2828	-13894.20	3273800.00	0.004
	53.58 - 46					53.6629	-13589.70	3256410.00	0.004
	46 - 43.6316					53.9918	-28109.00	3265690.00	0.009
	43.6316 - 41.2632					54.3207	-28735.50	3274850.00	0.009
	41.2632 - 38.8947					54.6496	-29366.20	3283870.00	0.009
	38.8947 - 36.5263					54.9785	-30001.00	3292770.00	0.009
	36.5263 - 34.1579					55.3073	-30640.00	3301530.00	0.009
	34.1579 - 31.7895					55.6362	-31283.20	3310170.00	0.009
	31.7895 - 29.4211					55.9651	-31930.60	3318670.00	0.010
	29.4211 - 27.0526					56.2940	-32582.20	3327050.00	0.010
	27.0526 - 24.6842					56.6229	-33238.00	3335290.00	0.010
	24.6842 - 22.3158					56.9518	-33898.10	3343410.00	0.010
	22.3158 - 19.9474					57.2807	-34562.40	3351390.00	0.010
	19.9474 - 17.5789					57.6095	-35231.00	3359240.00	0.010
	17.5789 - 15.2105					57.9384	-35903.90	3366970.00	0.011
	15.2105 - 12.8421					58.2673	-36581.00	3374560.00	0.011
	12.8421 - 10.4737					58.5962	-37262.50	3382030.00	0.011
10.4737 - 8.10526	58.9251	-37948.20	3389360.00	0.011					
8.10526 - 5.73684	59.2540	-38638.20	3396570.00	0.011					
5.73684 - 3.36842	59.5828	-39332.50	3403640.00	0.012					
3.36842 - 1	59.9117	-40031.10	3410580.00	0.012					

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} lb-ft	φM _{ux} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} lb-ft	φM _{uy} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	82 - 80.5042	TP55.04x50x0.3125	296793.33	3213908.33	0.092	0.00	3213908.33	0.000
	80.5042 - 79.0084		315070.83	3234616.67	0.097	0.00	3234616.67	0.000
	79.0084 - 77.5126		333853.33	3255341.67	0.103	0.00	3255341.67	0.000
	77.5126 - 76.0168		353142.50	3276066.67	0.108	0.00	3276066.67	0.000
	76.0168 - 74.5211		372936.67	3296800.00	0.113	0.00	3296800.00	0.000
	74.5211 - 73.0253		393235.83	3317533.33	0.119	0.00	3317533.33	0.000

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 16 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{rx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M_{uy} lb-ft	ϕM_{ry} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
	73.0253 - 71.5295		414040.83	3338275.00	0.124	0.00	3338275.00	0.000
	71.5295 - 70.0337		435350.00	3359016.67	0.130	0.00	3359016.67	0.000
	70.0337 - 68.5379		457163.33	3379758.33	0.135	0.00	3379758.33	0.000
	68.5379 - 67.0421		479481.67	3400500.00	0.141	0.00	3400500.00	0.000
	67.0421 - 65.5463		502303.33	3421250.00	0.147	0.00	3421250.00	0.000
	65.5463 - 64.0505		525629.17	3442000.00	0.153	0.00	3442000.00	0.000
	64.0505 - 62.5547		549458.33	3462741.67	0.159	0.00	3462741.67	0.000
	62.5547 - 61.0589		573790.83	3483491.67	0.165	0.00	3483491.67	0.000
	61.0589 - 59.5632		598625.83	3504233.33	0.171	0.00	3504233.33	0.000
	59.5632 - 58.0674		623963.33	3524975.00	0.177	0.00	3524975.00	0.000
	58.0674 - 56.5716		649802.50	3545716.67	0.183	0.00	3545716.67	0.000
	56.5716 - 55.0758		676144.17	3566450.00	0.190	0.00	3566450.00	0.000
	55.0758 - 53.58		702986.67	3587175.00	0.196	0.00	3587175.00	0.000
L2	53.58 - 46	TP60.715x53.3538x0.3125	431321.67	3692133.33	0.117	0.00	3692133.33	0.000
	53.58 - 46		415533.33	3630341.67	0.114	0.00	3630341.67	0.000
	46 - 43.6316		894450.00	3663133.33	0.244	0.00	3663133.33	0.000
	43.6316 - 41.2632		943216.67	3695908.33	0.255	0.00	3695908.33	0.000
	41.2632 - 38.8947		993150.00	3728658.33	0.266	0.00	3728658.33	0.000
	38.8947 - 36.5263		1044233.33	3761383.33	0.278	0.00	3761383.33	0.000
	36.5263 - 34.1579		1096450.00	3794083.33	0.289	0.00	3794083.33	0.000
	34.1579 - 31.7895		1149800.00	3826750.00	0.300	0.00	3826750.00	0.000
	31.7895 - 29.4211		1204266.67	3859391.67	0.312	0.00	3859391.67	0.000
	29.4211 - 27.0526		1259825.00	3891991.67	0.324	0.00	3891991.67	0.000
	27.0526 - 24.6842		1316483.33	3924550.00	0.335	0.00	3924550.00	0.000
	24.6842 - 22.3158		1374225.00	3957075.00	0.347	0.00	3957075.00	0.000
	22.3158 - 19.9474		1433025.00	3989558.33	0.359	0.00	3989558.33	0.000
	19.9474 - 17.5789		1492875.00	4021991.67	0.371	0.00	4021991.67	0.000
	17.5789 - 15.2105		1553775.00	4054375.00	0.383	0.00	4054375.00	0.000
	15.2105 - 12.8421		1615700.00	4086708.33	0.395	0.00	4086708.33	0.000
	12.8421 - 10.4737		1678641.67	4118991.67	0.408	0.00	4118991.67	0.000
	10.4737 - 8.10526		1742591.67	4151216.67	0.420	0.00	4151216.67	0.000
	8.10526 -		1807525.00	4183375.00	0.432	0.00	4183375.00	0.000

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 17 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{rx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M_{uy} lb-ft	ϕM_{ry} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
	5.73684							
	5.73684 - 3.36842		1873433.33	4215483.33	0.444	0.00	4215483.33	0.000
	3.36842 - 1		1940316.67	4247516.67	0.457	0.00	4247516.67	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	82 - 80.5042	TP55.04x50x0.3125	12051.60	1563680.00	0.008	0.00	6441758.00	0.000
	80.5042 - 79.0084		12389.90	1567140.00	0.008	0.00	6483250.00	0.000
	79.0084 - 77.5126		12728.10	1570580.00	0.008	0.00	6524758.00	0.000
	77.5126 - 76.0168		13066.20	1573980.00	0.008	0.00	6566274.67	0.000
	76.0168 - 74.5211		13404.10	1577370.00	0.008	0.00	6607800.00	0.000
	74.5211 - 73.0253		13741.90	1580720.00	0.009	0.00	6649341.33	0.000
	73.0253 - 71.5295		14079.50	1584050.00	0.009	0.00	6690883.33	0.000
	71.5295 - 70.0337		14417.00	1587360.00	0.009	0.00	6732424.67	0.000
	70.0337 - 68.5379		14754.30	1590640.00	0.009	0.00	6773983.33	0.000
	68.5379 - 67.0421		15091.50	1593890.00	0.009	0.00	6815533.33	0.000
	67.0421 - 65.5463		15428.40	1597120.00	0.010	0.00	6857091.33	0.000
	65.5463 - 64.0505		15765.20	1600320.00	0.010	0.00	6898650.00	0.000
	64.0505 - 62.5547		16101.80	1603490.00	0.010	0.00	6940208.00	0.000
	62.5547 - 61.0589		16438.10	1606640.00	0.010	0.00	6981766.67	0.000
	61.0589 - 59.5632		16774.30	1609770.00	0.010	0.00	7023316.67	0.000
	59.5632 - 58.0674		17110.20	1612860.00	0.011	0.00	7064858.00	0.000
	58.0674 - 56.5716		17445.80	1615930.00	0.011	0.00	7106400.00	0.000
	56.5716 - 55.0758		17781.20	1618980.00	0.011	0.00	7147933.33	0.000
	55.0758 - 53.58		18116.40	1622000.00	0.011	0.00	7189450.00	0.000
L2	53.58 - 46	TP60.715x53.3538x0.3125	10520.50	1636900.00	0.006	0.00	7399683.33	0.000
	53.58 - 46		9335.75	1628200.00	0.006	0.00	7275908.00	0.000
	46 - 43.6316		20351.30	1632850.00	0.012	0.00	7341591.33	0.000
	43.6316 - 41.2632		20845.10	1637420.00	0.013	0.00	7407233.33	0.000
	41.2632 - 38.8947		21333.90	1641940.00	0.013	0.00	7472833.33	0.000
	38.8947 - 36.5263		21817.80	1646380.00	0.013	0.00	7538383.33	0.000

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 18 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
	36.5263 - 34.1579		22296.70	1650770.00	0.014	0.00	7603883.33	0.000
	34.1579 - 31.7895		22770.50	1655080.00	0.014	0.00	7669316.67	0.000
	31.7895 - 29.4211		23239.20	1659340.00	0.014	0.00	7734691.33	0.000
	29.4211 - 27.0526		23702.90	1663520.00	0.014	0.00	7799991.33	0.000
	27.0526 - 24.6842		24161.30	1667650.00	0.014	0.00	7865216.67	0.000
	24.6842 - 22.3158		24614.60	1671700.00	0.015	0.00	7930358.00	0.000
	22.3158 - 19.9474		25062.70	1675690.00	0.015	0.00	7995408.00	0.000
	19.9474 - 17.5789		25505.60	1679620.00	0.015	0.00	8060374.67	0.000
	17.5789 - 15.2105		25943.10	1683480.00	0.015	0.00	8125241.33	0.000
	15.2105 - 12.8421		26375.30	1687280.00	0.016	0.00	8190000.00	0.000
	12.8421 - 10.4737		26802.20	1691010.00	0.016	0.00	8254650.00	0.000
	10.4737 - 8.10526		27223.70	1694680.00	0.016	0.00	8319191.33	0.000
	8.10526 - 5.73684		27639.70	1698280.00	0.016	0.00	8383583.33	0.000
	5.73684 - 3.36842		28050.30	1701820.00	0.016	0.00	8447916.67	0.000
	3.36842 - 1		28455.40	1705290.00	0.017	0.00	8512083.33	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	82 - 80.5042	0.005	0.092	0.000	0.008	0.000	0.098	1.000	4.8.2 ✓
	80.5042 - 79.0084	0.006	0.097	0.000	0.008	0.000	0.103	1.000	4.8.2 ✓
	79.0084 - 77.5126	0.006	0.103	0.000	0.008	0.000	0.108	1.000	4.8.2 ✓
	77.5126 - 76.0168	0.006	0.108	0.000	0.008	0.000	0.114	1.000	4.8.2 ✓
	76.0168 - 74.5211	0.006	0.113	0.000	0.008	0.000	0.119	1.000	4.8.2 ✓
	74.5211 - 73.0253	0.006	0.119	0.000	0.009	0.000	0.125	1.000	4.8.2 ✓
	73.0253 - 71.5295	0.006	0.124	0.000	0.009	0.000	0.130	1.000	4.8.2 ✓
	71.5295 - 70.0337	0.006	0.130	0.000	0.009	0.000	0.136	1.000	4.8.2 ✓
	70.0337 -	0.006	0.135	0.000	0.009	0.000	0.142	1.000	4.8.2 ✓

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 19 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
	68.5379						✓		
	68.5379 - 67.0421	0.006	0.141	0.000	0.009	0.000	0.148	1.000	4.8.2 ✓
	67.0421 - 65.5463	0.007	0.147	0.000	0.010	0.000	0.153	1.000	4.8.2 ✓
	65.5463 - 64.0505	0.007	0.153	0.000	0.010	0.000	0.159	1.000	4.8.2 ✓
	64.0505 - 62.5547	0.007	0.159	0.000	0.010	0.000	0.166	1.000	4.8.2 ✓
	62.5547 - 61.0589	0.007	0.165	0.000	0.010	0.000	0.172	1.000	4.8.2 ✓
	61.0589 - 59.5632	0.007	0.171	0.000	0.010	0.000	0.178	1.000	4.8.2 ✓
	59.5632 - 58.0674	0.007	0.177	0.000	0.011	0.000	0.184	1.000	4.8.2 ✓
	58.0674 - 56.5716	0.007	0.183	0.000	0.011	0.000	0.191	1.000	4.8.2 ✓
	56.5716 - 55.0758	0.007	0.190	0.000	0.011	0.000	0.197	1.000	4.8.2 ✓
	55.0758 - 53.58	0.007	0.196	0.000	0.011	0.000	0.203	1.000	4.8.2 ✓
	53.58 - 46	0.004	0.117	0.000	0.006	0.000	0.121	1.000	4.8.2 ✓
L2	53.58 - 46	0.004	0.114	0.000	0.006	0.000	0.119	1.000	4.8.2 ✓
	46 - 43.6316	0.009	0.244	0.000	0.012	0.000	0.253	1.000	4.8.2 ✓
	43.6316 - 41.2632	0.009	0.255	0.000	0.013	0.000	0.264	1.000	4.8.2 ✓
	41.2632 - 38.8947	0.009	0.266	0.000	0.013	0.000	0.275	1.000	4.8.2 ✓
	38.8947 - 36.5263	0.009	0.278	0.000	0.013	0.000	0.287	1.000	4.8.2 ✓
	36.5263 - 34.1579	0.009	0.289	0.000	0.014	0.000	0.298	1.000	4.8.2 ✓
	34.1579 - 31.7895	0.009	0.300	0.000	0.014	0.000	0.310	1.000	4.8.2 ✓
	31.7895 - 29.4211	0.010	0.312	0.000	0.014	0.000	0.322	1.000	4.8.2 ✓
	29.4211 - 27.0526	0.010	0.324	0.000	0.014	0.000	0.334	1.000	4.8.2 ✓
	27.0526 - 24.6842	0.010	0.335	0.000	0.014	0.000	0.346	1.000	4.8.2 ✓
	24.6842 - 22.3158	0.010	0.347	0.000	0.015	0.000	0.358	1.000	4.8.2 ✓
	22.3158 - 19.9474	0.010	0.359	0.000	0.015	0.000	0.370	1.000	4.8.2 ✓
	19.9474 - 17.5789	0.010	0.371	0.000	0.015	0.000	0.382	1.000	4.8.2 ✓
	17.5789 - 15.2105	0.011	0.383	0.000	0.015	0.000	0.394	1.000	4.8.2 ✓
	15.2105 -	0.011	0.395	0.000	0.016	0.000	0.406	1.000	4.8.2 ✓

tnxTower Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job Ft. Pierce Orave Ave	Page 20 of 20
	Project U0142-705-181	Date 13:51:24 09/13/18
	Client STEALTH® Concealment Solutions	Designed by dfoulger

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	12.8421						✓		
	12.8421 - 10.4737	0.011	0.408	0.000	0.016	0.000	0.419	1.000	4.8.2 ✓
	10.4737 - 8.10526	0.011	0.420	0.000	0.016	0.000	0.431	1.000	4.8.2 ✓
	8.10526 - 5.73684	0.011	0.432	0.000	0.016	0.000	0.444	1.000	4.8.2 ✓
	5.73684 - 3.36842	0.012	0.444	0.000	0.016	0.000	0.456	1.000	4.8.2 ✓
	3.36842 - 1	0.012	0.457	0.000	0.017	0.000	0.469	1.000	4.8.2 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail	
L1	82 - 46	Pole	TP55.04x50x0.3125	1	-23874.70	3244000.00	20.3	Pass	
L2	46 - 1	Pole	TP60.715x53.3538x0.3125	2	-40031.10	3410580.00	46.9	Pass	
							Summary		
							Pole (L2)	46.9	Pass
							RATING =	46.9	Pass

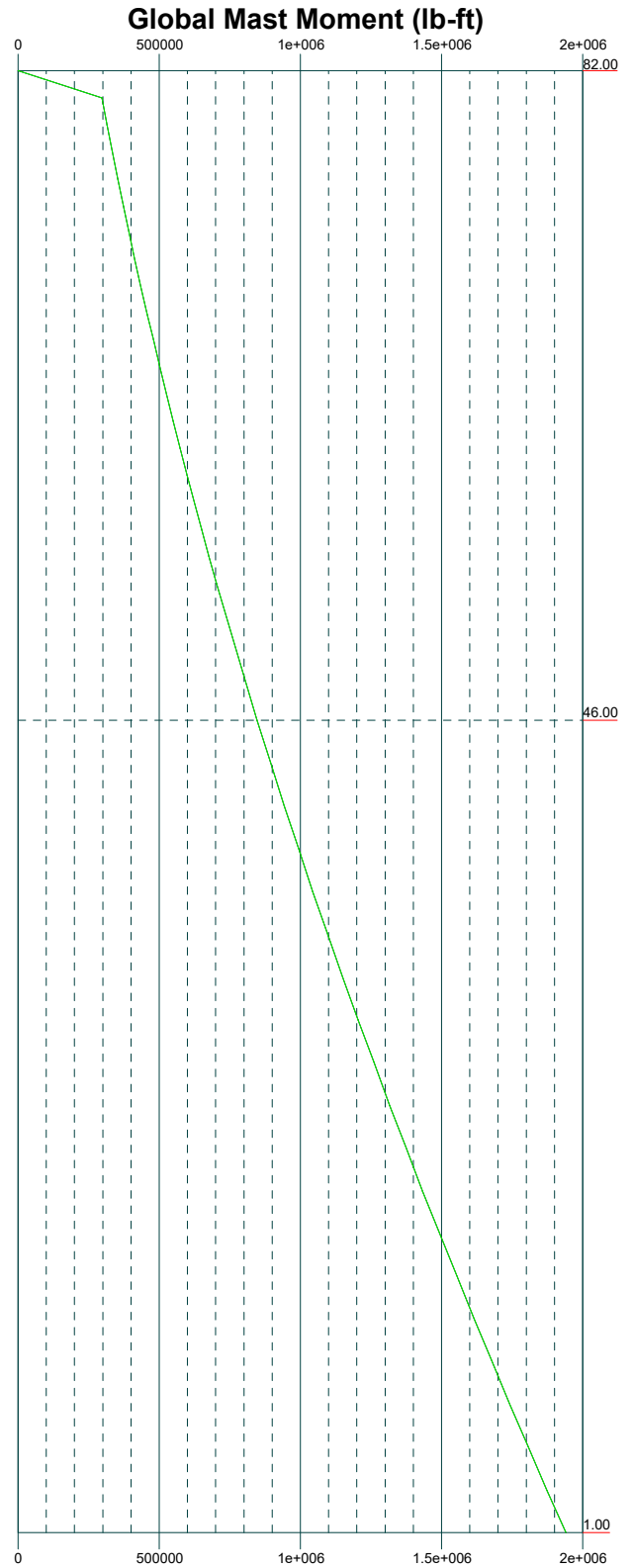
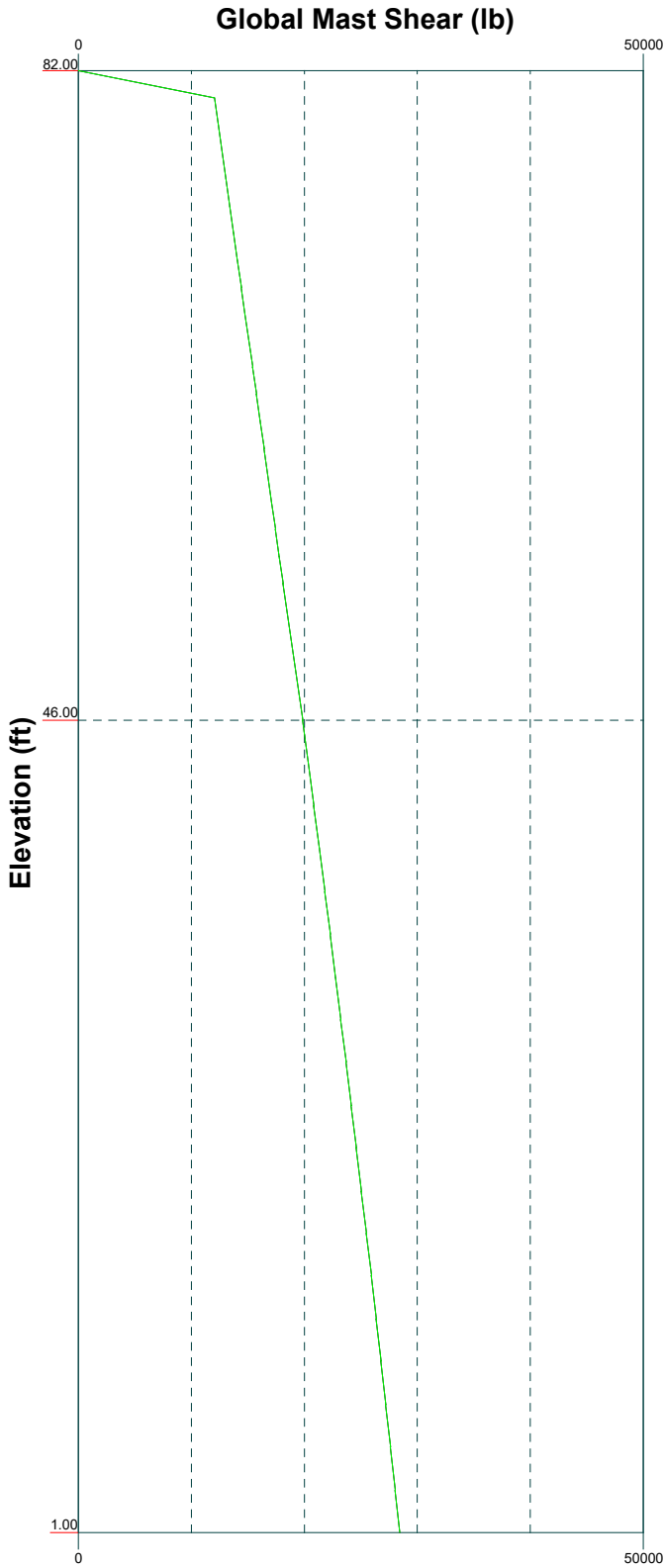
Program Version 8.0.2.1 - 5/2/2018 File://vectordc.vector.local/projects\$/2018 Projects/U0142 STEALTH/U0142-705-181 Ft. Pierce Orange Ave. RG18-01105W-05 (FL, top section, base pole, FND, FZ letter)/ENG/Base Pole and FND/Tower/Ft. Pierce Orange Ave BP.eri

Vx

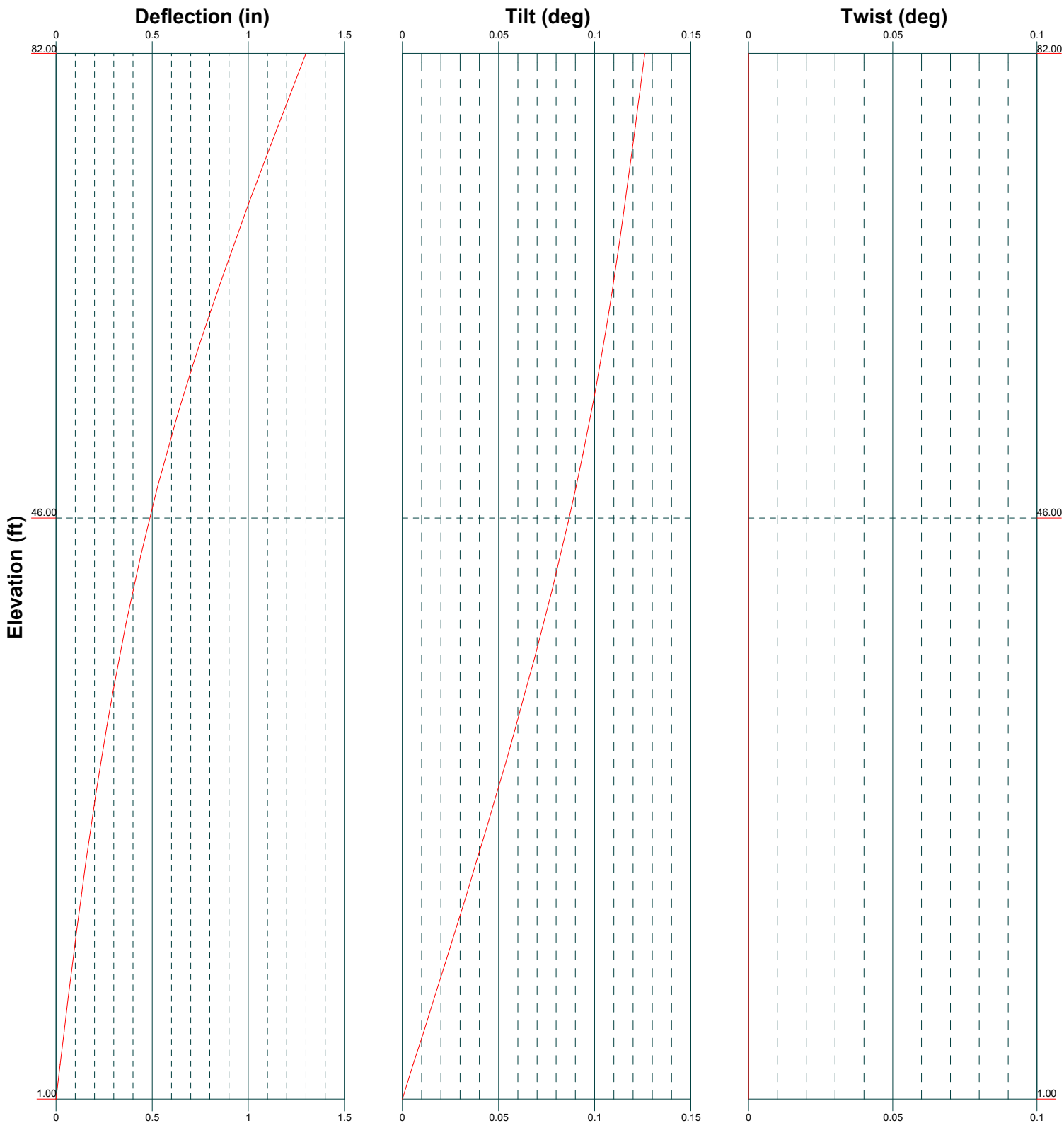
Vz


Mx

Mz



Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job: Ft. Pierce Orave Ave		
	Project: U0142-705-181		
	Client: STEALTH® Concealment Solutions	Drawn by: dfoulger	App'd:
	Code: TIA-222-G	Date: 09/13/18	Scale: NTS
	Path:		Dwg No. E-4



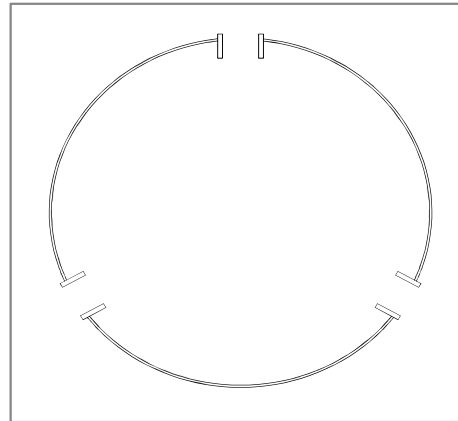
 Vector Structural Engineering 651 West Galena Park BLVD Draper, UT 84020 Phone: (801) 990-1775 FAX:	Job: Ft. Pierce Orave Ave		
	Project: U0142-705-181		
	Client: STEALTH® Concealment Solutions	Drawn by: dfoulger	App'd:
	Code: TIA-222-G	Date: 09/13/18	Scale: NTS
	Path:		Dwg No. E-5

PROJECT: FT. PIERCE ORANGE AVE

Label: Ports at 80 ft A.G.L.

Geometry Input

Pole Diameter	50.35	in
Pole Thickness	0.3125	in
Pole Yield Strength	65	ksi
Effective Reinforcing Rims?	No	
Rim Yield Strength	50	ksi
# of Ports	3	



	<u>Port 1</u>	<u>Port 2</u>	<u>Port 3</u>
Azimuth (°)	0	120	240
Height (in)	12	12	12
Width (in)	6	6	6
Depth (in)	3.5	3.5	3.5
Thickness (in)	0.625	0.625	0.625
Projection (in)	0.5	0.5	0.5
Port Weight (lbs)	48		

Composite Section Properties

	<u>Original</u>	<u>w/ ports</u>	
A	49	43	in2
Ixx	15375	13567	in4
Iyy	15375	13567	in4
Smin	611	528	in3

Port Check

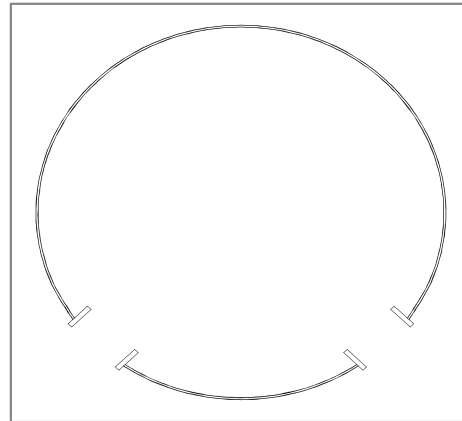
Pole unity at port location		
from tower model:	11%	(optional)
Rim Fy Reduction:	100%	(rims not considered in section properties)
Result:	12%	

PROJECT: FT. PIERCE ORANGE AVE

Label: Ports at 8 ft A.G.L.

Geometry Input

Pole Diameter	59.88	in
Pole Thickness	0.3125	in
Pole Yield Strength	65	ksi
Effective Reinforcing Rims?	Yes	
Rim Yield Strength	50	ksi
# of Ports	2	



	<u>Port 1</u>	<u>Port 2</u>
Azimuth (°)	135	225
Height (in)	25	25
Width (in)	10.5	10.5
Depth (in)	4	4
Thickness (in)	0.75	0.75
Projection (in)	0.5	0.5
Port Weight (lbs)	72	

Composite Section Properties

	<u>Original</u>	<u>w/ ports</u>	
A	58	64	in ²
Ixx	25940	27770	in ⁴
Iyy	25940	27650	in ⁴
Smin	866	908	in ³

Port Check

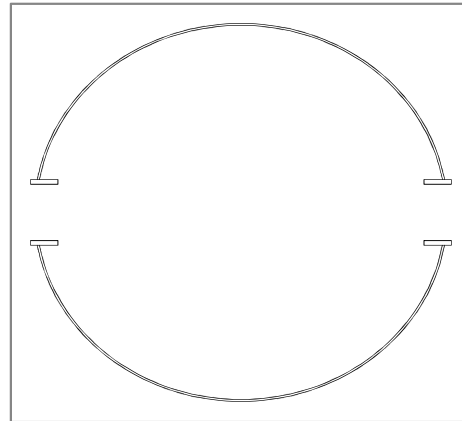
Pole unity at port location	
from tower model:	45% (optional)
Rim Fy Reduction:	77%
Result:	55%

PROJECT: FT. PIERCE ORANGE AVE

Label: Ports at 4 ft A.G.L.

Geometry Input

Pole Diameter	60.44	in
Pole Thickness	0.3125	in
Pole Yield Strength	65	ksi
Effective Reinforcing Rims?	Yes	
Rim Yield Strength	50	ksi
# of Ports	2	



	<u>Port 1</u>	<u>Port 2</u>
Azimuth (°)	90	270
Height (in)	25	25
Width (in)	10.5	10.5
Depth (in)	4	4
Thickness (in)	0.75	0.75
Projection (in)	0.5	0.5
Port Weight (lbs)	73	

Composite Section Properties

	<u>Original</u>	<u>w/ ports</u>	
A	59	64	in2
Ixx	26678	26720	in4
Iyy	26678	30539	in4
Smin	883	870	in3

Port Check

Pole unity at port location	
from tower model:	47% (optional)
Rim Fy Reduction:	77%
Result:	62%

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

TIA Rev G

Site Data

Project #: U0142-705-181
 Site Name: FT. PIERCE ORANGE AVE

Pole Manufacturer: **Other**

Reactions		
Mu:	1954	ft-kips
Axial, Pu:	40.0	kips
Shear, Vu:	28.5	kips

Anchor Rod Data		
Qty:	8	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	68	in

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

Anchor Rod Results

Max Rod (Cu+ Vu/η): 184.6 Kips
 Allowable Axial, Φ^*Fu^*Anet : 260.0 Kips
 Anchor Rod Stress Ratio: 71.0% **Pass**

Rigid
AISC LRFD
ϕ^*Tn

Plate Data		
Diam:	74	in
Thick:	2	in
Grade:	50	ksi
Single-Rod B-eff:	16.82	in

Base Plate Results

Base Plate Stress: 32.3 ksi
 Allowable Plate Stress: 45.0 ksi
 Base Plate Stress Ratio: 71.8% **Pass**

Flexural Check

Rigid
AISC LRFD
ϕ^*Fy
Y.L. Length: 20.00

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

n/a

Stiffener Results

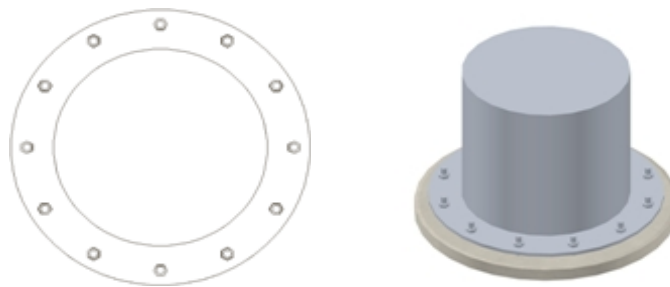
Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $fb/Fb+(fv/Fv)^2$: n/a
 Plate Tension+Shear, $ft/Ft+(fv/Fv)^2$: n/a
 Plate Comp. (AISC Bracket): n/a

Pole Results

Pole Punching Shear Check: n/a

Note: images below are for illustration only and may not reflect actual bolt quantity, etc.

Pole Data		
Diam:	60.715	in
Thick:	0.3125	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0.25	"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



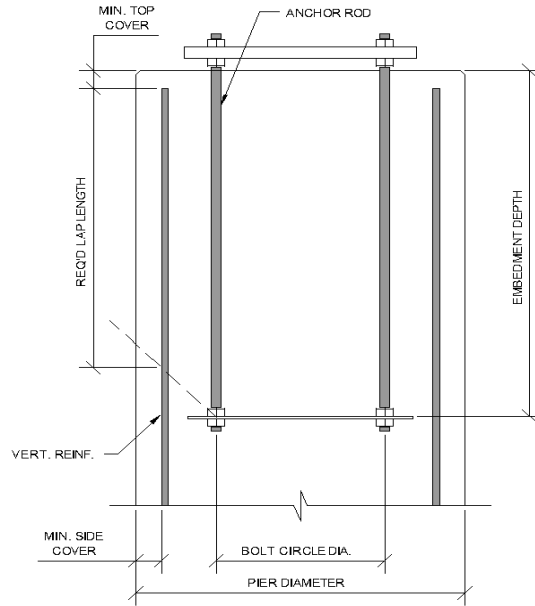
JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Foundation Design

Anchorage Embedment Design

Vertical Bar Size:	#8	
Conc. Comp. Strength:	4000	psi
Pier Diameter:	7.5	ft
Pier Depth:	35	ft
Top of Pier Elevation:	6	inches
Concrete Volume	58.1	yards
Side Conc. Cover:	4	inches
Top Conc. Cover:	3	inches
Bolt Circle Dia.:	68	inches
Horizontal Tie Size:	#4	
# Anchor Rods:	8	
Anchor Rod Dia:	2.25	inches
ψ_t (bar loc. factor):	1.0	ACI 12.2.4a
ψ_e (epoxy coating factor):	1.0	ACI 12.2.4b
ψ_s (bar size factor):	1.0	ACI 12.2.4.c
λ (concrete type factor):	1.0	ACI 12.2.4.d
Bar Diameter:	1.0	in
Horiz. Tie Diameter:	0.5	in
Min.Clr Dist. Btwn Anchor & Vert:	4.4	in
Req'd Lap Length:	37.0	in ACI 12.2.2
Min. Required Embedment Depth:	46.0	in

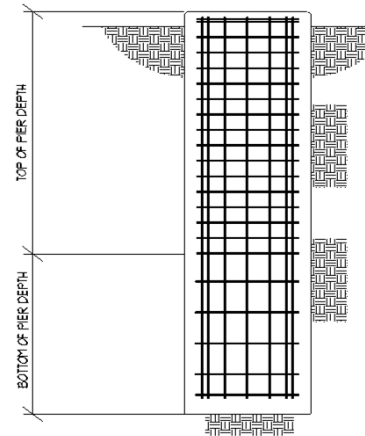


Required Lap Length + Max distance between anchor and rod + 0.5*Bar diameter + 0.5*Anchor diameter + Top cover

Transverse Reinforcement Design

(see IBC Sections 1810.3.9.4.1 and 1810.3.9.4.2)

Seismic Design Category:	A	
Site Class:	D	
Type of Transverse Reinforcement:	Spiral	
Transverse f_{yt} :	60	ksi
Seismic Hooks Required?	No	
Tie Size OK?	Yes	
Spacing at Top of Pier:	6	in
Spacing at Bottom of Pier:	16	in
Total Pier Length	35.5	ft
Top Pier Length:	22.5	ft
Bottom Pier Length:	13	ft





JOB NO.: U0142-705-181

PROJECT: FT. PIERCE ORANGE AVE

Drilled Pier Design

Design Methodology:

LRFD

Design Loads:

For ASD methodology, input ASD loads.

For LRFD methodology, input LRFD loads divided by $\Phi_s = 0.75$

Design Loads:

Max. Shear, V =

37.9 k

Max. Down, P_{down} =

53.4 k

Max. Moment, M =

2,605.8 k-ft

Max. Uplift, P_{uplift} (opt'l) =

0.0 k

Pier Properties:

Pier Shape

Round

Pier Diameter, b:

7.5 ft

Volume of Concrete:

1568 ft³

Min. Pier Diameter, b_{min} (opt'l):

Volume of Concrete:

58.1 yd³

Top of Pier Elevation:

0.50 ft

Weight of Concrete:

235.3 k

Pier Depth, d:

35.0 ft

Soil Properties:

Allow. Bearing Pressure:

3,500 psf

Factor of Safety:

5

1/3 increase for short term loads?

No

Optional Parameters for Uplift:

Skin Friction:

170 psf

Factor of Safety:

2

Top Length to Ignore:

6.0 ft

1/3 increase for short term loads?

No

Combine w/ Bearing:

Yes

Check Bearing:

Bearing Capacity:

1,005.4 k

Bearing capacity OK.

Check Uplift:

Uplift Capacity:

444.0 k

Uplift capacity OK.

Check Lateral Bearing:

See Lpile analysis

lpileInputFile.lp10o

LPIle for Windows, Version 2018-10.006

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
© 1985-2018 by Ensoft, Inc.
All Rights Reserved

This copy of LPile is being used by:

Vector Structural Engineers
651 West Galena Park Blvd, STE 101, Draper, UT 84020

Serial Number of Security Device: 151268600

This copy of LPile is licensed for exclusive use by:

Vector Structural Engineering, D

Use of this program by any entity other than Vector Structural Engineering, D
is a violation of the software license agreement.

Files Used for Analysis

Path to file locations:
\\vectordc.vector.local\projects\$\2018 Projects\U0142 STEALTH\U0142-705-181 Ft.
Pierce Orange Ave. RG18-01105W-05 (FL, top section, base pole, FND, FZ
letter)\ENG\Base Pole and FND\

Name of input data file:
lpileInputFile.lp10

Name of output report file:
lpileInputFile.lp10

Name of plot output file:
lpileInputFile.lp10

Name of runtime message file:
lpileInputFile.lp10

lpileInputFile.lp10o

Date and Time of Analysis

Date: September 13, 2018 Time: 13:56:32

Problem Title

Project Name: FT. PIERCE ORANGE AVE

Job Number: U0142-705-181

Client: STEALTH® Concealment Solutions

Engineer: DJF

Description: 0

Program Options and Settings

Computational Options:
- Use unfactored loads in computations (conventional analysis)
Engineering Units Used for Data Input and Computations:
- US Customary System Units (pounds, feet, inches)

Analysis Control Options:
- Maximum number of iterations allowed = 500
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 100.0000 in

lpileInputFile.lp100
- Number of pile increments = 100

Loading Type and Number of Cycles of Loading:
- Static loading specified

- Use of p-y modification factors for p-y curves not selected
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined = 1
Total length of pile = 35.500 ft
Depth of ground surface below top of pile = 0.5000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	90.0000
2	35.500	90.0000

Input Structural Properties for Pile Sections:

lpileInputFile.lp100

Pile Section No. 1:

Section 1 is a round drilled shaft, bored pile, or CIDH pile

Length of section = 35.500000 ft
Shaft Diameter = 90.000000 in
Shear capacity of section = 0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians
Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 6 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 0.500000 ft
Distance from top of pile to bottom of layer = 3.250000 ft
Effective unit weight at top of layer = 110.000000 pcf
Effective unit weight at bottom of layer = 110.000000 pcf
Friction angle at top of layer = 30.000000 deg.
Friction angle at bottom of layer = 30.000000 deg.
Subgrade k at top of layer = 35.000000 pci
Subgrade k at bottom of layer = 35.000000 pci

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 3.250000 ft
Distance from top of pile to bottom of layer = 6.500000 ft
Effective unit weight at top of layer = 47.600000 pcf
Effective unit weight at bottom of layer = 47.600000 pcf
Friction angle at top of layer = 30.000000 deg.
Friction angle at bottom of layer = 30.000000 deg.

lpileInputFile.lp10o

Subgrade k at top of layer = 35.000000 pci
 Subgrade k at bottom of layer = 35.000000 pci

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 6.500000 ft
 Distance from top of pile to bottom of layer = 18.500000 ft
 Effective unit weight at top of layer = 52.600000 pcf
 Effective unit weight at bottom of layer = 52.600000 pcf
 Friction angle at top of layer = 32.000000 deg.
 Friction angle at bottom of layer = 32.000000 deg.
 Subgrade k at top of layer = 100.000000 pci
 Subgrade k at bottom of layer = 100.000000 pci

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.500000 ft
 Distance from top of pile to bottom of layer = 28.500000 ft
 Effective unit weight at top of layer = 47.600000 pcf
 Effective unit weight at bottom of layer = 47.600000 pcf
 Friction angle at top of layer = 30.000000 deg.
 Friction angle at bottom of layer = 30.000000 deg.
 Subgrade k at top of layer = 170.000000 pci
 Subgrade k at bottom of layer = 170.000000 pci

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 28.500000 ft
 Distance from top of pile to bottom of layer = 38.500000 ft
 Effective unit weight at top of layer = 47.600000 pcf
 Effective unit weight at bottom of layer = 47.600000 pcf
 Friction angle at top of layer = 30.000000 deg.
 Friction angle at bottom of layer = 30.000000 deg.
 Subgrade k at top of layer = 240.000000 pci
 Subgrade k at bottom of layer = 240.000000 pci

Layer 6 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 38.500000 ft
 Distance from top of pile to bottom of layer = 50.500000 ft
 Effective unit weight at top of layer = 62.600000 pcf
 Effective unit weight at bottom of layer = 62.600000 pcf
 Friction angle at top of layer = 34.000000 deg.
 Friction angle at bottom of layer = 34.000000 deg.

lpileInputFile.lp10o

Subgrade k at top of layer = 415.000000 pci
 Subgrade k at bottom of layer = 415.000000 pci

(Depth of the lowest soil layer extends 15.000 ft below the pile tip)

 Summary of Input Soil Properties

Layer Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Angle of Friction deg.	kpy pci
1	Sand (Reese, et al.)	0.5000 3.2500	110.0000 110.0000	30.0000 30.0000	35.0000 35.0000
2	Sand (Reese, et al.)	3.2500 6.5000	47.6000 47.6000	30.0000 30.0000	35.0000 35.0000
3	Sand (Reese, et al.)	6.5000 18.5000	52.6000 52.6000	32.0000 32.0000	100.0000 100.0000
4	Sand (Reese, et al.)	18.5000 28.5000	47.6000 47.6000	30.0000 30.0000	170.0000 170.0000
5	Sand (Reese, et al.)	28.5000 38.5000	47.6000 47.6000	30.0000 30.0000	240.0000 240.0000
6	Sand (Reese, et al.)	38.5000 50.5000	62.6000 62.6000	34.0000 34.0000	415.0000 415.0000

 Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

 Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 3

Load Compute Top y No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs
				vs. Pile Length

lpileInputFile.lp10o

1	1	V =	47437. lbs	M =	39087000. in-lbs	66738.
No						
2	1	V =	21347. lbs	M =	17589150. in-lbs	41711.
No						
3	1	V =	9065. lbs	M =	7452106. in-lbs	80673.
No						

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	35.500000 ft
Shaft Diameter	=	90.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	4.500000 in
Number of Reinforcing Bars	=	42 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	6362. sq. in.
Total Area of Reinforcing Steel	=	33.180000 sq. in.
Area Ratio of Steel Reinforcement	=	0.52 percent
Edge-to-Edge Bar Spacing	=	4.978407 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	6.64
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

lpileInputFile.lp10o

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	23507.853 kips
Tensile Load for Cracking of Concrete	=	-2743.114 kips
Nominal Axial Tensile Capacity	=	-1990.800 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.000000	0.790000	40.000000	0.000000
2	1.000000	0.790000	39.553233	5.961691
3	1.000000	0.790000	38.222912	11.790207
4	1.000000	0.790000	36.038755	17.355350
5	1.000000	0.790000	33.049551	22.532802
6	1.000000	0.790000	29.322075	27.206910
7	1.000000	0.790000	24.939592	31.273259
8	1.000000	0.790000	20.000000	34.641016
9	1.000000	0.790000	14.613641	37.234950
10	1.000000	0.790000	8.900837	38.997116
11	1.000000	0.790000	2.989204	39.888152
12	1.000000	0.790000	-2.989204	39.888152
13	1.000000	0.790000	-8.900837	38.997116
14	1.000000	0.790000	-14.613641	37.234950
15	1.000000	0.790000	-20.000000	34.641016
16	1.000000	0.790000	-24.939592	31.273259
17	1.000000	0.790000	-29.322075	27.206910
18	1.000000	0.790000	-33.049551	22.532802
19	1.000000	0.790000	-36.038755	17.355350
20	1.000000	0.790000	-38.222912	11.790207
21	1.000000	0.790000	-39.553233	5.961691
22	1.000000	0.790000	-40.000000	0.000000
23	1.000000	0.790000	-39.553233	-5.961691
24	1.000000	0.790000	-38.222912	-11.790207
25	1.000000	0.790000	-36.038755	-17.355350
26	1.000000	0.790000	-33.049551	-22.532802
27	1.000000	0.790000	-29.322075	-27.206910
28	1.000000	0.790000	-24.939592	-31.273259
29	1.000000	0.790000	-20.000000	-34.641016
30	1.000000	0.790000	-14.613641	-37.234950
31	1.000000	0.790000	-8.900837	-38.997116
32	1.000000	0.790000	-2.989204	-39.888152
33	1.000000	0.790000	2.989204	-39.888152
34	1.000000	0.790000	8.900837	-38.997116
35	1.000000	0.790000	14.613641	-37.234950

lpileInputFile.lp10o				
36	1.000000	0.790000	20.000000	-34.641016
37	1.000000	0.790000	24.939592	-31.273259
38	1.000000	0.790000	29.322075	-27.206910
39	1.000000	0.790000	33.049551	-22.532802
40	1.000000	0.790000	36.038755	-17.355350
41	1.000000	0.790000	38.222912	-11.790207
42	1.000000	0.790000	39.553233	-5.961691

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 4.978 inches
between bars 1 and 42.

Ratio of bar spacing to maximum aggregate size = 6.64

Concrete Properties:

Compressive Strength of Concrete	=	4000. psi
Modulus of Elasticity of Concrete	=	3604997. psi
Modulus of Rupture of Concrete	=	-474.341649 psi
Compression Strain at Peak Stress	=	0.001886
Tensile Strain at Fracture of Concrete	=	-0.0001154
Maximum Coarse Aggregate Size	=	0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 3

Number	Axial Thrust Force kips
1	41.711
2	66.738
3	80.673

Definitions of Run Messages and Notes:

- C = concrete in section has cracked in tension.
- Y = stress in reinforcing steel has reached yield stress.
- T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
- Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

lpileInputFile.lp10o

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = 41.711 kips

Bending Max Conc Curvature Stress rad/in. ksi	Bending Max Steel Moment Stress in-kip ksi	Bending Run Stiffness Msg kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in
3.12500E-07	4464.	1.42833E+10	49.8156169	0.00001557	-0.00001256
0.0651600	0.4473759				
6.25000E-07	8906.	1.42496E+10	47.4151964	0.00002963	-0.00002662
0.1235235	0.8512442				
9.37500E-07	13327.	1.42155E+10	46.6150960	0.00004370	-0.00004067
0.1814512	1.2551135				
0.00000125	17727.	1.41813E+10	46.2150707	0.00005777	-0.00005473
0.2389429	1.6589838				
0.00000156	22105.	1.41471E+10	45.9750745	0.00007184	-0.00006879
0.2959986	2.0628549				
0.00000188	26462.	1.41128E+10	45.8150929	0.00008590	-0.00008285
0.3526183	2.4667269				
0.00000219	30797.	1.40786E+10	45.7008339	0.00009997	-0.00009690
0.4088021	2.8705998				
0.00000250	35111.	1.40443E+10	45.6151517	0.0001140	-0.0001110
0.4645499	3.2744735				
0.00000281	35111.	1.24838E+10	20.5681908	0.00005785	-0.0001953
0.2363765	-5.6263288 C				
0.00000313	35111.	1.12355E+10	20.3076974	0.00006346	-0.0002178
0.2588580	-6.2750837 C				
0.00000344	35111.	1.02141E+10	20.0869130	0.00006905	-0.0002403
0.2811646	-6.9246015 C				
0.00000375	35111.	9362887490.	19.9010461	0.00007463	-0.0002629
0.3033758	-7.5743237 C				
0.00000406	35111.	8642665375.	19.7444608	0.00008021	-0.0002854
0.3255318	-8.2239651 C				
0.00000438	35111.	8025332134.	19.6108840	0.00008580	-0.0003080
0.3476325	-8.8735253 C				
0.00000469	35111.	7490309992.	19.4957157	0.00009139	-0.0003305
0.3696778	-9.5230043 C				
0.00000500	35111.	7022165618.	19.3955055	0.00009698	-0.0003530

lpileInputFile.lp10o

1.8368219	-57.3899149	C							
0.00002844	50450.	1774049677.	18.4006484	0.0005233	-0.0020361				
1.8720469	-58.6759809	C							
0.00002906	51515.	1772564879.	18.4053564	0.0005349	-0.0020807				
1.9070306	-59.9615950	C							
0.00002969	52580.	1771114057.	18.4103949	0.0005466	-0.0021253				
1.9417721	-60.0000000	CY							
0.00003031	53644.	1769694940.	18.4157469	0.0005582	-0.0021699				
1.9762705	-60.0000000	CY							
0.00003094	54707.	1768305440.	18.4213972	0.0005699	-0.0022145				
2.0105249	-60.0000000	CY							
0.00003156	55664.	1763605241.	18.4155198	0.0005812	-0.0022594				
2.0434288	-60.0000000	CY							
0.00003219	56482.	1754789259.	18.3950072	0.0005921	-0.0023048				
2.0746509	-60.0000000	CY							
0.00003281	57209.	1743505569.	18.3653922	0.0006026	-0.0023505				
2.1046752	-60.0000000	CY							
0.00003344	57894.	1731399158.	18.3326624	0.0006130	-0.0023964				
2.1340546	-60.0000000	CY							
0.00003406	58519.	1717978095.	18.2947163	0.0006232	-0.0024425				
2.1625762	-60.0000000	CY							
0.00003469	59089.	1703460576.	18.2523630	0.0006331	-0.0024887				
2.1903068	-60.0000000	CY							
0.00003531	59655.	1689333240.	18.2113357	0.0006431	-0.0025350				
2.2178093	-60.0000000	CY							
0.00003594	60175.	1674443763.	18.1669238	0.0006529	-0.0025815				
2.2446153	-60.0000000	CY							
0.00003656	60638.	1658485149.	18.1178119	0.0006624	-0.0026282				
2.2705842	-60.0000000	CY							
0.00003719	61101.	1643053522.	18.0705841	0.0006720	-0.0026749				
2.2963837	-60.0000000	CY							
0.00003969	62718.	1580290132.	17.8729791	0.0007093	-0.0028625				
2.3951307	-60.0000000	CY							
0.00004219	64101.	1519436274.	17.6769522	0.0007457	-0.0030511				
2.4885284	-60.0000000	CY							
0.00004469	65238.	1459880702.	17.4741378	0.0007809	-0.0032410				
2.5758802	-60.0000000	CY							
0.00004719	66234.	1403636747.	17.2704303	0.0008149	-0.0034319				
2.6580389	-60.0000000	CY							
0.00004969	67087.	1350179964.	17.0729498	0.0008483	-0.0036236				
2.7360666	-60.0000000	CY							
0.00005219	67897.	1301029259.	16.8913751	0.0008815	-0.0038154				
2.8113938	-60.0000000	CY							
0.00005469	68537.	1253255736.	16.7078269	0.0009137	-0.0040082				
2.8821305	-60.0000000	CY							
0.00005719	69157.	1209296538.	16.5313178	0.0009454	-0.0042015				
2.9495778	-60.0000000	CY							
0.00005969	69762.	1168784560.	16.3655354	0.0009768	-0.0043951				

lpileInputFile.lp10o

3.0144166	-60.0000000	CY							
0.00006219	70219.	1129154989.	16.1949388	0.0010071	-0.0045898				
3.0748901	-60.0000000	CY							
0.00006469	70658.	1092297368.	16.0366604	0.0010374	-0.0047845				
3.1333383	-60.0000000	CY							
0.00006719	71095.	1058154050.	15.8914527	0.0010677	-0.0049792				
3.1900451	-60.0000000	CY							
0.00006969	71529.	1026430290.	15.7579003	0.0010981	-0.0051737				
3.2449922	-60.0000000	CY							
0.00007219	71873.	995649181.	15.6118467	0.0011270	-0.0053699				
3.2952168	-60.0000000	CY							
0.00007469	72168.	966265886.	15.4688951	0.0011553	-0.0055665				
3.3428562	-60.0000000	CY							
0.00007719	72461.	938767406.	15.3362250	0.0011838	-0.0057631				
3.3889594	-60.0000000	CY							
0.00007969	72753.	912976090.	15.2128789	0.0012123	-0.0059596				
3.4335131	-60.0000000	CY							
0.00008219	73043.	888735901.	15.0980161	0.0012409	-0.0061560				
3.4765039	-60.0000000	CY							
0.00008469	73332.	865909219.	14.9908951	0.0012695	-0.0063523				
3.5179182	-60.0000000	CY							
0.00008719	73566.	843764897.	14.8825669	0.0012976	-0.0065493				
3.5567218	-60.0000000	CY							
0.00008969	73760.	822413964.	14.7683890	0.0013245	-0.0067473				
3.5924553	-60.0000000	CY							
0.00009219	73946.	802130888.	14.6571716	0.0013512	-0.0069457				
3.6263012	-60.0000000	CY							
0.00009469	74132.	782907359.	14.5526048	0.0013779	-0.0071439				
3.6587714	-60.0000000	CY							
0.00009719	74316.	764661452.	14.4541830	0.0014048	-0.0073421				
3.6898539	-60.0000000	CY							
0.00009969	74498.	747319460.	14.3614516	0.0014317	-0.0075402				
3.7195367	-60.0000000	CY							
0.0001022	74680.	730814885.	14.2740006	0.0014586	-0.0077383				
3.7478077	-60.0000000	CY							
0.0001047	74861.	715087577.	14.1914595	0.0014857	-0.0079362				
3.7746544	-60.0000000	CY							
0.0001072	75025.	699945982.	14.1108833	0.0015125	-0.0081344				
3.7997989	-60.0000000	CY							
0.0001097	75180.	685404448.	14.0331516	0.0015393	-0.0083326				
3.8233754	-60.0000000	CY							
0.0001122	75302.	671219679.	13.9539371	0.0015655	-0.0085314				
3.8450124	-60.0000000	CY							
0.0001147	75413.	657549534.	13.8694511	0.0015907	-0.0087312				
3.8644560	-60.0000000	CY							
0.0001172	75522.	644451897.	13.7887112	0.0016159	-0.0089310				
3.8826089	-60.0000000	CY							
0.0001197	75630.	631894301.	13.7119400	0.0016411	-0.0091307				

lpileInputFile.lp10o					
3.8995053	-60.0000000	CY			
0.0001222	75737.		619843500.	13.6389001	0.0016665
3.9151339	-60.0000000	CY			-0.0093304
0.0001247	75844.		608268909.	13.5693733	0.0016919
3.9294835	-60.0000000	CY			-0.0095299
0.0001272	75949.		597142349.	13.5031587	0.0017174
3.9425425	-60.0000000	CY			-0.0097294
0.0001297	76054.		586437810.	13.4400713	0.0017430
3.9542992	-60.0000000	CY			-0.0099289
0.0001322	76157.		576131249.	13.3799398	0.0017687
3.9647417	-60.0000000	CY			-0.0101282
0.0001347	76260.		566200405.	13.3226064	0.0017944
3.9738577	-60.0000000	CY			-0.0103275
0.0001372	76362.		556624515.	13.2679208	0.0018202
3.9816347	-60.0000000	CY			-0.0105267
0.0001522	76813.		504726205.	12.9494098	0.0019707
3.9949889	-60.0000000	CY			-0.0117261
0.0001672	77130.		461336464.	12.6617596	0.0021169
3.9984594	-60.0000000	CY			-0.0129300
0.0001822	77420.		424946994.	12.4369309	0.0022659
3.9989652	60.0000000	CY			-0.0141310
0.0001972	77677.		393924707.	12.2566839	0.0024169
3.9907828	60.0000000	CY			-0.0153300
0.0002122	77857.		366923256.	12.0873613	0.0025648
3.9968254	60.0000000	CY			-0.0165321
0.0002272	77967.		343181880.	11.9190820	0.0027079
3.9890894	60.0000000	CY			-0.0177390
0.0002422	78071.		322355717.	11.7773068	0.0028523
3.9997533	60.0000000	CY			-0.0189446
0.0002572	78165.		303920571.	11.6597117	0.0029987
3.9777862	60.0000000	CY			-0.0201481
0.0002722	78254.		287498954.	11.5594953	0.0031464
3.9914420	60.0000000	CYT			-0.0213505
0.0002872	78338.		272777754.	11.4736030	0.0032951
3.9998166	60.0000000	CYT			-0.0225518
0.0003022	78410.		259474355.	11.3996081	0.0034448
3.9803357	60.0000000	CYT			-0.0237521
0.0003172	78472.		247399530.	11.3332118	0.0035948
3.9756853	60.0000000	CYT			-0.0249521
0.0003322	78521.		236376659.	11.2775944	0.0037463
3.9922007	60.0000000	CYT			-0.0261506
0.0003472	78531.		226191870.	11.2152783	0.0038938
3.9993784	60.0000000	CYT			-0.0273531

Axial Thrust Force = 66.738 kips

Bending Bending Bending Depth to Max Comp Max Tens

lpileInputFile.lp10o						
Max Conc	Max Steel	Run	Stiffness	N Axis	Strain	Strain
Curvature	Moment	Msg	kip-in2	in	in/in	in/in
rad/in.	in-kip					
ksi	ksi					
3.12500E-07	4463.	1.42818E+10	52.7052183	0.00001647	-0.00001165	
0.0689575	0.4735629					
6.25000E-07	8905.	1.42488E+10	48.8643650	0.00003054	-0.00002571	
0.1273042	0.8775104					
9.37500E-07	13327.	1.42149E+10	47.5841670	0.00004461	-0.00003976	
0.1852150	1.2814602					
0.00000125	17726.	1.41809E+10	46.9441122	0.00005868	-0.00005382	
0.2426897	1.6854116					
0.00000156	22104.	1.41467E+10	46.5601110	0.00007275	-0.00006787	
0.2997284	2.0893644					
0.00000188	26461.	1.41126E+10	46.3041365	0.00008682	-0.00008193	
0.3563310	2.4933187					
0.00000219	30796.	1.40784E+10	46.1213196	0.0001009	-0.00009598	
0.4124975	2.8972743					
0.00000250	35110.	1.40441E+10	45.9842261	0.0001150	-0.0001100	
0.4682280	3.3012314					
0.00000281	35110.	1.24837E+10	22.1180073	0.00006221	-0.0001909	
0.2542872	-5.4999220 C					
0.00000313	35110.	1.12353E+10	21.7225604	0.00006788	-0.0002134	
0.2769712	-6.1468617 C					
0.00000344	35110.	1.02139E+10	21.3970091	0.00007355	-0.0002358	
0.2995582	-6.7940013 C					
0.00000375	35110.	9362753767.	21.1251917	0.00007922	-0.0002583	
0.3220685	-7.4411979 C					
0.00000406	35110.	8642541939.	20.8848624	0.00008484	-0.0002808	
0.3443400	-8.0896115 C					
0.00000438	35110.	8025217514.	20.6794920	0.00009047	-0.0003033	
0.3665549	-8.7379457 C					
0.00000469	35110.	7490203013.	20.5020902	0.00009610	-0.0003258	
0.3887131	-9.3862002 C					
0.00000500	35110.	7022065325.	20.3474141	0.0001017	-0.0003483	
0.4108146	-10.0343749 C					
0.00000531	35110.	6609002659.	20.2093356	0.0001074	-0.0003708	
0.4328143	-10.6827961 C					
0.00000563	35110.	6241835844.	20.0823483	0.0001130	-0.0003933	
0.4546509	-11.3319107 C					
0.00000594	35110.	5913318168.	19.9692073	0.0001186	-0.0004158	
0.4764317	-11.9809427 C					
0.00000625	35110.	5617652260.	19.8678370	0.0001242	-0.0004383	
0.4981567	-12.6298920 C					
0.00000656	35110.	5350145010.	19.7765568	0.0001298	-0.0004608	

lpileInputFile.lp10o					
3.9697281	-60.0000000	CY			
0.0001347	77128.		572645074.	13.4195071	0.0018074
3.9781411	-60.0000000	CY			
0.0001372	77229.		562946166.	13.3634421	0.0018333
3.9852076	-60.0000000	CY			
0.0001522	77697.		510533218.	13.0531483	0.0019865
3.9900391	-60.0000000	CY			
0.0001672	78009.		466595208.	12.7592962	0.0021332
3.9933468	-60.0000000	CY			
0.0001822	78295.		429752311.	12.5285360	0.0022825
3.9997905	60.0000000	CY			
0.0001972	78553.		398366217.	12.3449249	0.0024343
3.9939849	60.0000000	CY			
0.0002122	78740.		371088719.	12.1837546	0.0025852
3.9904128	60.0000000	CY			
0.0002272	78853.		347081846.	12.0174230	0.0027302
3.9934771	60.0000000	CY			
0.0002422	78954.		326002341.	11.8717125	0.0028752
3.9974761	60.0000000	CY			
0.0002572	79045.		307344109.	11.7506395	0.0030221
3.9788281	60.0000000	CYT			
0.0002722	79132.		290727110.	11.6468955	0.0031701
3.9954726	60.0000000	CYT			
0.0002872	79214.		275828424.	11.5583892	0.0033194
3.9963707	60.0000000	CYT			
0.0003022	79286.		262374611.	11.4827239	0.0034699
3.9724611	60.0000000	CYT			
0.0003172	79347.		250158436.	11.4135214	0.0036202
3.9833790	60.0000000	CYT			
0.0003322	79393.		239001587.	11.3604087	0.0037738
3.9965018	60.0000000	CYT			
0.0003472	79408.		228716765.	11.3064882	0.0039255
3.9974436	60.0000000	CYT			

Axial Thrust Force = 80.673 kips

Bending Max Conc Curvature Stress rad/in. ksi	Bending Max Steel Moment Stress in-kip ksi	Bending Run Stiffness Msg kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in
3.12500E-07	4463.	1.42807E+10	54.3142638	0.00001697	-0.00001115
0.0710714	0.4881449				
6.25000E-07	8905.	1.42482E+10	49.6712903	0.00003104	-0.00002521

lpileInputFile.lp10o					
0.1294085	0.8921359				
9.37500E-07	13326.	1.42145E+10	48.1237582	0.00004512	-0.00003926
0.1873099	1.2961303				
0.00000125	17726.	1.41806E+10	47.3500491	0.00005919	-0.00005331
0.2447752	1.7001268				
0.00000156	22104.	1.41465E+10	46.8858638	0.00007326	-0.00006737
0.3018043	2.1041251				
0.00000188	26461.	1.41124E+10	46.5764385	0.00008733	-0.00008142
0.3583974	2.5081251				
0.00000219	30796.	1.40782E+10	46.3554477	0.0001014	-0.00009547
0.4145543	2.9121268				
0.00000250	35110.	1.40440E+10	46.1897282	0.0001155	-0.0001095
0.4702751	3.3161303				
0.00000281	35110.	1.24835E+10	22.9274320	0.00006448	-0.0001886
0.2636246	-5.4339032 C				
0.00000313	35110.	1.12352E+10	22.4671824	0.00007021	-0.0002110
0.2864863	-6.0793803 C				
0.00000344	35110.	1.02138E+10	22.0913941	0.00007594	-0.0002334
0.3092889	-6.7247798 C				
0.00000375	35110.	9362652629.	21.7653403	0.00008162	-0.0002559
0.3318247	-7.3715817 C				
0.00000406	35110.	8642448580.	21.4883562	0.00008730	-0.0002783
0.3542736	-8.0185124 C				
0.00000438	35110.	8025130824.	21.2515601	0.00009298	-0.0003008
0.3766646	-8.6653645 C				
0.00000469	35110.	7490122103.	21.0414635	0.00009863	-0.0003232
0.3988946	-9.3128792 C				
0.00000500	35110.	7021989471.	20.8534856	0.0001043	-0.0003457
0.4209731	-9.9609946 C				
0.00000531	35110.	6608931267.	20.6881434	0.0001099	-0.0003682
0.4429948	-10.6090298 C				
0.00000563	35110.	6241768419.	20.5416655	0.0001155	-0.0003907
0.4649596	-11.2569846 C				
0.00000594	35110.	5913254292.	20.4110744	0.0001212	-0.0004132
0.4868674	-11.9048587 C				
0.00000625	35110.	5617591577.	20.2939881	0.0001268	-0.0004357
0.5087181	-12.5526521 C				
0.00000656	35110.	5350087216.	20.1850804	0.0001325	-0.0004582
0.5304236	-13.2010112 C				
0.00000688	35110.	5106901434.	20.0842852	0.0001381	-0.0004807
0.5520131	-13.8497269 C				
0.00000719	35110.	4884862241.	19.9926558	0.0001437	-0.0005032
0.5735464	-14.4983589 C				
0.00000750	35110.	4681326314.	19.9090477	0.0001493	-0.0005257
0.5950237	-15.1469071 C				
0.00000781	35110.	4494073262.	19.8324991	0.0001549	-0.0005482
0.6164447	-15.7953713 C				
0.00000813	35110.	4321224290.	19.7621965	0.0001606	-0.0005707

lpileInputFile.lp10o

0.6378094	-16.4437512	C							
0.00000844	35110.		4161178946.	19.6974468	0.0001662	-0.0005932			
0.6591177	-17.0920466	C							
0.00000875	35110.		4012565412.	19.6376559	0.0001718	-0.0006157			
0.6803696	-17.7402573	C							
0.00000906	35110.		3874201088.	19.5823117	0.0001775	-0.0006382			
0.7015650	-18.3883831	C							
0.00000938	35110.		3745061051.	19.5309703	0.0001831	-0.0006606			
0.7227037	-19.0364237	C							
0.00000969	35110.		3624252630.	19.4832452	0.0001887	-0.0006831			
0.7437858	-19.6843789	C							
0.00001000	35110.		3510994736.	19.4387982	0.0001944	-0.0007056			
0.7648111	-20.3322485	C							
0.00001031	35110.		3404600956.	19.3973319	0.0002000	-0.0007281			
0.7857796	-20.9800323	C							
0.00001063	35110.		3304465634.	19.3585842	0.0002057	-0.0007506			
0.8066911	-21.6277300	C							
0.00001094	35110.		3210052330.	19.3207114	0.0002113	-0.0007731			
0.8274791	-22.2758524	C							
0.00001125	35110.		3120884210.	19.2847476	0.0002170	-0.0007955			
0.8481909	-22.9240386	C							
0.00001156	35110.		3036535988.	19.2509974	0.0002226	-0.0008180			
0.8688465	-23.5721343	C							
0.00001188	35110.		2956627146.	19.2192869	0.0002282	-0.0008405			
0.8894460	-24.2201393	C							
0.00001219	35110.		2880816193.	19.1894599	0.0002339	-0.0008630			
0.9099892	-24.8680534	C							
0.00001281	35110.		2740288574.	19.1349079	0.0002452	-0.0009080			
0.9509063	-26.1636076	C							
0.00001344	35110.		2612833292.	19.0863722	0.0002565	-0.0009529			
0.9915973	-27.4587949	C							
0.00001406	35110.		2496707368.	19.0430558	0.0002678	-0.0009978			
1.0320614	-28.7536131	C							
0.00001469	35110.		2390464501.	19.0042975	0.0002791	-0.0010427			
1.0722980	-30.0480601	C							
0.00001531	35110.		2292894521.	18.9695441	0.0002905	-0.0010877			
1.1123063	-31.3421336	C							
0.00001594	35110.		2202977089.	18.9383293	0.0003018	-0.0011325			
1.1520858	-32.6358315	C							
0.00001656	35110.		2119845878.	18.9102569	0.0003132	-0.0011774			
1.1916357	-33.9291515	C							
0.00001719	35110.		2042760574.	18.8849889	0.0003246	-0.0012223			
1.2309553	-35.2220914	C							
0.00001781	35110.		1971084764.	18.8622344	0.0003360	-0.0012671			
1.2700439	-36.5146489	C							
0.00001844	35110.		1904268331.	18.8417420	0.0003474	-0.0013120			
1.3089008	-37.8068216	C							
0.00001906	35408.		1857468721.	18.8232936	0.0003588	-0.0013568			

lpileInputFile.lp10o

1.3475253	-39.0986073	C							
0.00001969	36485.		1853202383.	18.8066985	0.0003703	-0.0014016			
1.3859166	-40.3900036	C							
0.00002031	37561.		1849159986.	18.7917899	0.0003817	-0.0014464			
1.4240741	-41.6810081	C							
0.00002094	38636.		1845321170.	18.7784205	0.0003932	-0.0014912			
1.4619968	-42.9716189	C							
0.00002156	39711.		1841668261.	18.7664604	0.0004047	-0.0015360			
1.4996843	-44.2618325	C							
0.00002219	40785.		1838185240.	18.7557945	0.0004161	-0.0015807			
1.5371357	-45.5516469	C							
0.00002281	41858.		1834857956.	18.7463200	0.0004277	-0.0016255			
1.5743502	-46.8410598	C							
0.00002344	42930.		1831673765.	18.7379454	0.0004392	-0.0016702			
1.6113270	-48.1300685	C							
0.00002406	44001.		1828621335.	18.7305887	0.0004507	-0.0017149			
1.6480655	-49.4186706	C							
0.00002469	45072.		1825690481.	18.7241761	0.0004623	-0.0017596			
1.6845648	-50.7068634	C							
0.00002531	46141.		1822872020.	18.7186413	0.0004738	-0.0018043			
1.7208241	-51.9946443	C							
0.00002594	47210.		1820157653.	18.7139243	0.0004854	-0.0018490			
1.7568426	-53.2820107	C							
0.00002656	48278.		1817539860.	18.7099709	0.0004970	-0.0018936			
1.7926196	-54.5689599	C							
0.00002719	49346.		1815011813.	18.7067318	0.0005086	-0.0019383			
1.8281543	-55.8554893	C							
0.00002781	50412.		1812567293.	18.7041622	0.0005202	-0.0019829			
1.8634458	-57.1415960	C							
0.00002844	51478.		1810200626.	18.7022215	0.0005318	-0.0020275			
1.8984932	-58.4272773	C							
0.00002906	52542.		1807906627.	18.7008723	0.0005435	-0.0020721			
1.9332959	-59.7125304	C							
0.00002969	53606.		1805680543.	18.7000806	0.0005552	-0.0021167			
1.9678529	-60.0000000	CY							
0.00003031	54669.		1803518013.	18.6998151	0.0005668	-0.0021613			
2.0021634	-60.0000000	CY							
0.00003094	55731.		1801415026.	18.7000473	0.0005785	-0.0022058			
2.0362265	-60.0000000	CY							
0.00003156	56727.		1797299363.	18.6938616	0.0005900	-0.0022506			
2.0694008	-60.0000000	CY							
0.00003219	57558.		1788219343.	18.6711617	0.0006010	-0.0022959			
2.1007168	-60.0000000	CY							
0.00003281	58309.		1777027531.	18.6412546	0.0006117	-0.0023415			
2.1310090	-60.0000000	CY							
0.00003344	58996.		1764379457.	18.6063086	0.0006221	-0.0023872			
2.1604655	-60.0000000	CY							
0.00003406	59647.		1751112078.	18.5690769	0.0006325	-0.0024331			

lpileInputFile.lp10o

3.9999796	60.0000000	CY	79040.	400837893.	12.3945631	0.0024441	-0.0153028
3.9954870	60.0000000	CY	79228.	373388942.	12.2320014	0.0025955	-0.0165014
3.9872031	60.0000000	CY	79346.	349251950.	12.0729472	0.0027428	-0.0177041
3.9954586	60.0000000	CY	79445.	328029537.	11.9253416	0.0028882	-0.0189087
3.9934040	60.0000000	CY	79535.	309249221.	11.8019799	0.0030353	-0.0201116
3.9827063	60.0000000	CYT	79621.	292523402.	11.6962683	0.0031836	-0.0213133
3.9971871	60.0000000	CYT	79702.	277524699.	11.6065386	0.0033333	-0.0225136
3.9920353	60.0000000	CYT	79774.	263988631.	11.5296797	0.0034841	-0.0237127
3.9680124	60.0000000	CYT	79834.	251693724.	11.4589111	0.0036346	-0.0249123
3.9870820	60.0000000	CYT	79876.	240455871.	11.4063810	0.0037891	-0.0261078
3.9981550	60.0000000	CYT	79876.	230067138.	11.4798940	0.0039857	-0.0272612
3.9785681	60.0000000	CYT					

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003 or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	41.711	78165.337	0.00300000
2	66.738	79031.309	0.00300000
3	80.673	79513.340	0.00300000

Note that the values of moment capacity in the table above are not factored by a strength reduction factor (ϕ -factor).

In ACI 318, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, Section 9.3.2.2 or the value required by the design standard being followed.

lpileInputFile.lp10o

The following table presents factored moment capacities and corresponding bending stiffnesses computed for common resistance factor values used for reinforced concrete sections.

Axial Load No.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in ²
1	0.65	78165.	27.112150	50807.	1.7736E+09
2	0.65	79031.	43.379700	51370.	1.7968E+09
3	0.65	79513.	52.437450	51684.	1.8098E+09
1	0.70	78165.	29.197700	54716.	1.7683E+09
2	0.70	79031.	46.716600	55322.	1.7897E+09
3	0.70	79513.	56.471100	55659.	1.8016E+09
1	0.75	78165.	31.283250	58624.	1.7153E+09
2	0.75	79031.	50.053500	59273.	1.7386E+09
3	0.75	79513.	60.504750	59635.	1.7514E+09

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.5000	0.00	N.A.	No	0.00	25934.
2	3.2500	2.7500	Yes	No	25934.	83511.
3	6.5000	6.1691	Yes	No	109445.	771881.
4	18.5000	20.3826	Yes	No	881326.	970175.
5	28.5000	31.2080	Yes	No	1851501.	1014835.
6	38.5000	38.0000	No	No	2866336.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

lpileInputFile.lp10o

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 47437.0 lbs
 Applied moment at pile head = 39087000.0 in-lbs
 Axial thrust load on pile head = 66738.0 lbs

Depth	Deflect.	Bending	Shear	Slope	Total	Bending	Soil
Res. Soil	Spr. Distrib.	Moment	Force	S	Stress	Stiffness	p
X	y						
Es*h	Lat. Load						
feet	inches	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch					
0.00	0.6121	3.91E+07	47437.	-0.00501	0.00	1.83E+12	
0.00	0.00	0.00					
0.3550	0.5910	3.93E+07	47437.	-0.00492	0.00	1.83E+12	
0.00	0.00	0.00					
0.7100	0.5703	3.95E+07	47330.	-0.00482	0.00	1.82E+12	
-50.2968	375.7320	0.00					
1.0650	0.5499	3.97E+07	46945.	-0.00473	0.00	1.82E+12	
-130.4929	1011.	0.00					
1.4200	0.5300	3.99E+07	46231.	-0.00464	0.00	1.82E+12	
-204.7730	1646.	0.00					
1.7750	0.5104	4.01E+07	45212.	-0.00454	0.00	1.82E+12	
-273.3148	2281.	0.00					
2.1300	0.4912	4.03E+07	43914.	-0.00445	0.00	1.82E+12	
-336.2975	2916.	0.00					
2.4850	0.4725	4.05E+07	42359.	-0.00436	0.00	1.82E+12	
-393.9014	3552.	0.00					
2.8400	0.4541	4.06E+07	40569.	-0.00426	0.00	1.82E+12	
-446.3077	4187.	0.00					
3.1950	0.4362	4.08E+07	38567.	-0.00417	0.00	1.82E+12	
-493.6991	4822.	0.00					
3.5500	0.4186	4.10E+07	36373.	-0.00407	0.00	1.82E+12	
-536.2591	5457.	0.00					
3.9050	0.4015	4.11E+07	34008.	-0.00397	0.00	1.82E+12	
-574.1721	6092.	0.00					
4.2600	0.3848	4.13E+07	31490.	-0.00388	0.00	1.82E+12	
-607.6234	6727.	0.00					
4.6150	0.3685	4.14E+07	28840.	-0.00378	0.00	1.82E+12	
-636.7990	7363.	0.00					

lpileInputFile.lp10o

4.9700	0.3526	4.15E+07	26074.	-0.00368	0.00	1.82E+12	
-661.8857	7998.	0.00					
5.3250	0.3371	4.16E+07	23209.	-0.00359	0.00	1.82E+12	
-683.0708	8633.	0.00					
5.6800	0.3220	4.17E+07	20262.	-0.00349	0.00	1.82E+12	
-700.5421	9268.	0.00					
6.0350	0.3073	4.18E+07	17248.	-0.00339	0.00	1.82E+12	
-714.4877	9903.	0.00					
6.3900	0.2931	4.19E+07	14181.	-0.00329	0.00	1.82E+12	
-725.0959	10538.	0.00					
6.7450	0.2793	4.19E+07	9508.	-0.00319	0.00	1.82E+12	
-1469.	22404.	0.00					
7.1000	0.2659	4.20E+07	3169.	-0.00310	0.00	1.82E+12	
-1507.	24148.	0.00					
7.4550	0.2529	4.20E+07	-3327.	-0.00300	0.00	1.82E+12	
-1543.	25985.	0.00					
7.8100	0.2404	4.19E+07	-9968.	-0.00290	0.00	1.82E+12	
-1575.	27918.	0.00					
8.1650	0.2282	4.19E+07	-16746.	-0.00280	0.00	1.82E+12	
-1607.	30004.	0.00					
8.5200	0.2165	4.18E+07	-23656.	-0.00270	0.00	1.82E+12	
-1637.	32208.	0.00					
8.8750	0.2052	4.17E+07	-30685.	-0.00261	0.00	1.82E+12	
-1663.	34531.	0.00					
9.2300	0.1943	4.15E+07	-37819.	-0.00251	0.00	1.82E+12	
-1686.	36976.	0.00					
9.5850	0.1838	4.13E+07	-45046.	-0.00241	0.00	1.82E+12	
-1706.	39549.	0.00					
9.9400	0.1737	4.11E+07	-52351.	-0.00231	0.00	1.82E+12	
-1723.	42252.	0.00					
10.2950	0.1641	4.09E+07	-59721.	-0.00222	0.00	1.82E+12	
-1737.	45090.	0.00					
10.6500	0.1548	4.06E+07	-67141.	-0.00212	0.00	1.82E+12	
-1747.	48065.	0.00					
11.0050	0.1460	4.03E+07	-74598.	-0.00203	0.00	1.82E+12	
-1754.	51179.	0.00					
11.3600	0.1376	4.00E+07	-82078.	-0.00193	0.00	1.82E+12	
-1758.	54433.	0.00					
11.7150	0.1295	3.96E+07	-89534.	-0.00184	0.00	1.82E+12	
-1743.	57331.	0.00					
12.0700	0.1219	3.92E+07	-96851.	-0.00175	0.00	1.82E+12	
-1692.	59146.	0.00					
12.4250	0.1146	3.88E+07	-103948.	-0.00166	0.00	1.83E+12	
-1640.	60961.	0.00					
12.7800	0.1077	3.84E+07	-110823.	-0.00157	0.00	1.83E+12	
-1588.	62775.	0.00					
13.1350	0.1012	3.79E+07	-117474.	-0.00148	0.00	1.83E+12	
-1535.	64590.	0.00					

lpileInputFile.lp10o

13.4900	0.09513	3.74E+07	-123903.	-0.00139	0.00	1.83E+12
-1483.	66405.	0.00				
13.8450	0.08939	3.68E+07	-130110.	-0.00131	0.00	1.83E+12
-1431.	68220.	0.00				
14.2000	0.08401	3.62E+07	-136101.	-0.00122	0.00	1.83E+12
-1381.	70034.	0.00				
14.5550	0.07898	3.57E+07	-141880.	-0.00114	0.00	1.84E+12
-1332.	71849.	0.00				
14.9100	0.07432	3.50E+07	-147455.	-0.00109	0.00	8.85E+12
-1285.	73664.	0.00				
15.2650	0.06972	3.44E+07	-152823.	-0.00107	0.00	1.40E+13
-1235.	75479.	0.00				
15.6200	0.06516	3.37E+07	-157972.	-0.00106	0.00	1.41E+13
-1182.	77293.	0.00				
15.9750	0.06066	3.31E+07	-162890.	-0.00105	0.00	1.41E+13
-1126.	79108.	0.00				
16.3300	0.05619	3.23E+07	-167563.	-0.00104	0.00	1.41E+13
-1067.	80923.	0.00				
16.6850	0.05176	3.16E+07	-171977.	-0.00103	0.00	1.41E+13
-1005.	82738.	0.00				
17.0400	0.04738	3.09E+07	-176122.	-0.00102	0.00	1.41E+13
-940.3752	84552.	0.00				
17.3950	0.04303	3.01E+07	-179983.	-0.00102	0.00	1.41E+13
-872.4775	86367.	0.00				
17.7500	0.03873	2.93E+07	-183549.	-0.00101	0.00	1.41E+13
-801.6819	88182.	0.00				
18.1050	0.03446	2.86E+07	-186807.	-9.98E-04	0.00	1.41E+13
-728.0164	89997.	0.00				
18.4600	0.03023	2.78E+07	-189746.	-9.89E-04	0.00	1.41E+13
-651.5072	91812.	0.00				
18.8150	0.02603	2.69E+07	-193205.	-9.81E-04	0.00	1.41E+13
-972.7029	159165.	0.00				
19.1700	0.02187	2.61E+07	-197052.	-9.73E-04	0.00	1.41E+13
-833.0870	162250.	0.00				
19.5250	0.01775	2.53E+07	-200293.	-9.65E-04	0.00	1.41E+13
-688.7477	165335.	0.00				
19.8800	0.01365	2.44E+07	-202910.	-9.58E-04	0.00	1.41E+13
-539.7144	168420.	0.00				
20.2350	0.00959	2.35E+07	-204882.	-9.50E-04	0.00	1.41E+13
-386.0125	171505.	0.00				
20.5900	0.00555	2.27E+07	-206189.	-9.43E-04	0.00	1.41E+13
-227.6638	174590.	0.00				
20.9450	0.00155	2.18E+07	-206811.	-9.37E-04	0.00	1.41E+13
-64.6865	177675.	0.00				
21.3000	-0.00243	2.09E+07	-206730.	-9.30E-04	0.00	1.42E+13
102.9049	180760.	0.00				
21.6550	-0.00637	2.00E+07	-205925.	-9.24E-04	0.00	1.42E+13
275.0989	183845.	0.00				

lpileInputFile.lp10o

22.0100	-0.01030	1.91E+07	-204376.	-9.18E-04	0.00	1.42E+13
451.8872	186931.	0.00				
22.3650	-0.01420	1.83E+07	-202065.	-9.13E-04	0.00	1.42E+13
633.2647	190016.	0.00				
22.7200	-0.01807	1.74E+07	-199051.	-9.07E-04	0.00	1.42E+13
781.8986	184302.	0.00				
23.0750	-0.02193	1.66E+07	-195611.	-9.02E-04	0.00	1.42E+13
832.8856	161818.	0.00				
23.4300	-0.02576	1.58E+07	-191972.	-8.97E-04	0.00	1.42E+13
875.8930	144856.	0.00				
23.7850	-0.02957	1.49E+07	-188162.	-8.93E-04	0.00	1.42E+13
912.5862	131468.	0.00				
24.1400	-0.03336	1.42E+07	-184207.	-8.88E-04	0.00	1.42E+13
944.0687	120542.	0.00				
24.4950	-0.03714	1.34E+07	-180128.	-8.84E-04	0.00	1.42E+13
971.1124	111392.	0.00				
24.8500	-0.04090	1.26E+07	-175942.	-8.80E-04	0.00	1.42E+13
994.2794	103570.	0.00				
25.2050	-0.04464	1.19E+07	-171664.	-8.77E-04	0.00	1.42E+13
1014.	96769.	0.00				
25.5600	-0.04836	1.12E+07	-167309.	-8.73E-04	0.00	1.42E+13
1031.	90774.	0.00				
25.9150	-0.05208	1.05E+07	-162890.	-8.70E-04	0.00	1.42E+13
1044.	85426.	0.00				
26.2700	-0.05578	9772877.	-158418.	-8.67E-04	0.00	1.42E+13
1055.	80605.	0.00				
26.6250	-0.05946	9107840.	-153903.	-8.64E-04	0.00	1.42E+13
1064.	76222.	0.00				
26.9800	-0.06314	8462111.	-149358.	-8.61E-04	0.00	1.43E+13
1070.	72205.	0.00				
27.3350	-0.06680	7835801.	-144791.	-8.59E-04	0.00	1.43E+13
1074.	68499.	0.00				
27.6900	-0.07046	7228984.	-140211.	-8.57E-04	0.00	1.43E+13
1076.	65060.	0.00				
28.0450	-0.07410	6641693.	-135627.	-8.55E-04	0.00	1.43E+13
1076.	61850.	0.00				
28.4000	-0.07774	6073926.	-130978.	-8.53E-04	0.00	1.43E+13
1107.	60655.	0.00				
28.7550	-0.08137	5526244.	-126118.	-8.51E-04	0.00	1.43E+13
1175.	61522.	0.00				
29.1100	-0.08499	4999887.	-121027.	-8.49E-04	0.00	1.43E+13
1215.	60896.	0.00				
29.4650	-0.08860	4495577.	-115767.	-8.48E-04	0.00	1.43E+13
1255.	60326.	0.00				
29.8200	-0.09221	4014036.	-110337.	-8.47E-04	0.00	1.43E+13
1295.	59805.	0.00				
30.1750	-0.09582	3555988.	-104737.	-8.46E-04	0.00	1.43E+13
1334.	59328.	0.00				

```

lpileInputFile.lp100
30.5300 -0.09942 3122156. -98968. -8.45E-04 0.00 1.43E+13
1374. 58890. 0.00
30.8850 -0.1030 2713265. -93028. -8.44E-04 0.00 1.43E+13
1414. 58487. 0.00
31.2400 -0.1066 2330040. -86917. -8.43E-04 0.00 1.43E+13
1454. 58117. 0.00
31.5950 -0.1102 1973208. -80636. -8.42E-04 0.00 1.43E+13
1495. 57775. 0.00
31.9500 -0.1138 1643497. -74184. -8.42E-04 0.00 1.43E+13
1535. 57460. 0.00
32.3050 -0.1174 1341638. -67560. -8.41E-04 0.00 1.43E+13
1575. 57169. 0.00
32.6600 -0.1210 1068363. -60764. -8.41E-04 0.00 1.43E+13
1616. 56900. 0.00
33.0150 -0.1245 824405. -53796. -8.41E-04 0.00 1.43E+13
1656. 56650. 0.00
33.3700 -0.1281 610501. -46654. -8.41E-04 0.00 1.43E+13
1697. 56419. 0.00
33.7250 -0.1317 427389. -39339. -8.40E-04 0.00 1.43E+13
1738. 56205. 0.00
34.0800 -0.1353 275808. -31850. -8.40E-04 0.00 1.43E+13
1778. 56007. 0.00
34.4350 -0.1389 156503. -24186. -8.40E-04 0.00 1.43E+13
1820. 55823. 0.00
34.7900 -0.1424 70219. -16347. -8.40E-04 0.00 1.43E+13
1861. 55652. 0.00
35.1450 -0.1460 17701. -8298. -8.40E-04 0.00 1.43E+13
1918. 55973. 0.00
35.5000 -0.1496 0.00 0.00 -8.40E-04 0.00 1.43E+13
1977. 28152. 0.00

```

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection = 0.61213711 inches
Computed slope at pile head = -0.00500684 radians
Maximum bending moment = 41950786. inch-lbs
Maximum shear force = -206811. lbs
Depth of maximum bending moment = 7.45500000 feet below pile head
Depth of maximum shear force = 20.94500000 feet below pile head
Number of iterations = 95

```

```

lpileInputFile.lp100
Number of zero deflection points = 1

```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

Pile-head conditions are Shear and Moment (Loading Type 1)

```

Shear force at pile head = 21347.0 lbs
Applied moment at pile head = 17589150.0 in-lbs
Axial thrust load on pile head = 41711.0 lbs

```

Depth	Deflect.	Bending	Shear	Slope	Total	Bending	Soil
Res. Soil	Spr. Distrib.	Moment	Force	S	Stress	Stiffness	p
X	y						
Es*h	Lat. Load						
feet	inches	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch					
0.00	0.1363	1.76E+07	21347.	-6.75E-04	0.00	1.42E+13	
0.00	0.00	0.00					
0.3550	0.1334	1.77E+07	21347.	-6.70E-04	0.00	1.42E+13	
0.00	0.00	0.00					
0.7100	0.1306	1.78E+07	21322.	-6.65E-04	0.00	1.42E+13	
-11.5166	375.7320	0.00					
1.0650	0.1278	1.79E+07	21233.	-6.59E-04	0.00	1.42E+13	
-30.3161	1011.	0.00					
1.4200	0.1250	1.80E+07	21066.	-6.54E-04	0.00	1.42E+13	
-48.2834	1646.	0.00					
1.7750	0.1222	1.80E+07	20824.	-6.48E-04	0.00	1.42E+13	
-65.4290	2281.	0.00					
2.1300	0.1194	1.81E+07	20510.	-6.43E-04	0.00	1.42E+13	
-81.7632	2916.	0.00					
2.4850	0.1167	1.82E+07	20129.	-6.38E-04	0.00	1.42E+13	
-97.2965	3552.	0.00					
2.8400	0.1140	1.83E+07	19683.	-6.32E-04	0.00	1.42E+13	
-112.0392	4187.	0.00					
3.1950	0.1113	1.84E+07	19176.	-6.27E-04	0.00	1.42E+13	
-126.0020	4822.	0.00					
3.5500	0.1087	1.85E+07	18611.	-6.21E-04	0.00	1.42E+13	
-139.1955	5457.	0.00					
3.9050	0.1060	1.85E+07	17992.	-6.15E-04	0.00	1.42E+13	
-151.6303	6092.	0.00					
4.2600	0.1034	1.86E+07	17321.	-6.10E-04	0.00	1.42E+13	

lpileInputFile.lp10o

-163.3173	6727.	0.00					
4.6150	0.1008	1.87E+07	16602.	-6.04E-04	0.00	1.42E+13	
-174.2671	7363.	0.00					
4.9700	0.09827	1.88E+07	15838.	-5.99E-04	0.00	1.42E+13	
-184.4907	7998.	0.00					
5.3250	0.09573	1.88E+07	15031.	-5.93E-04	0.00	1.42E+13	
-193.9988	8633.	0.00					
5.6800	0.09322	1.89E+07	14186.	-5.87E-04	0.00	1.42E+13	
-202.8025	9268.	0.00					
6.0350	0.09073	1.89E+07	13305.	-5.82E-04	0.00	1.42E+13	
-210.9127	9903.	0.00					
6.3900	0.08826	1.90E+07	12391.	-5.76E-04	0.00	1.42E+13	
-218.3405	10538.	0.00					
6.7450	0.08582	1.91E+07	10556.	-5.70E-04	0.00	1.42E+13	
-643.1337	31924.	0.00					
7.1000	0.08340	1.91E+07	7779.	-5.64E-04	0.00	1.42E+13	
-660.5506	33739.	0.00					
7.4550	0.08101	1.91E+07	4932.	-5.59E-04	0.00	1.42E+13	
-676.1124	35554.	0.00					
7.8100	0.07864	1.91E+07	2022.	-5.53E-04	0.00	1.42E+13	
-689.8506	37369.	0.00					
8.1650	0.07630	1.91E+07	-941.9470	-5.47E-04	0.00	1.42E+13	
-701.7967	39183.	0.00					
8.5200	0.07398	1.91E+07	-3953.	-5.41E-04	0.00	1.42E+13	
-711.9821	40998.	0.00					
8.8750	0.07169	1.91E+07	-7004.	-5.36E-04	0.00	1.42E+13	
-720.4378	42813.	0.00					
9.2300	0.06942	1.91E+07	-10088.	-5.30E-04	0.00	1.42E+13	
-727.1950	44628.	0.00					
9.5850	0.06717	1.90E+07	-13196.	-5.24E-04	0.00	1.42E+13	
-732.2844	46443.	0.00					
9.9400	0.06495	1.90E+07	-16323.	-5.19E-04	0.00	1.42E+13	
-735.7364	48257.	0.00					
10.2950	0.06275	1.89E+07	-19462.	-5.13E-04	0.00	1.42E+13	
-737.5813	50072.	0.00					
10.6500	0.06058	1.88E+07	-22604.	-5.07E-04	0.00	1.42E+13	
-737.8488	51887.	0.00					
11.0050	0.05843	1.87E+07	-25745.	-5.02E-04	0.00	1.42E+13	
-736.5685	53702.	0.00					
11.3600	0.05631	1.86E+07	-28877.	-4.96E-04	0.00	1.42E+13	
-733.7692	55516.	0.00					
11.7150	0.05420	1.84E+07	-31993.	-4.90E-04	0.00	1.42E+13	
-729.4796	57331.	0.00					
12.0700	0.05213	1.83E+07	-35089.	-4.85E-04	0.00	1.42E+13	
-723.7277	59146.	0.00					
12.4250	0.05007	1.81E+07	-38156.	-4.79E-04	0.00	1.42E+13	
-716.5411	60961.	0.00					
12.7800	0.04804	1.80E+07	-41191.	-4.74E-04	0.00	1.42E+13	

lpileInputFile.lp10o

-707.9467	62775.	0.00					
13.1350	0.04603	1.78E+07	-44185.	-4.69E-04	0.00	1.42E+13	
-697.9709	64590.	0.00					
13.4900	0.04405	1.76E+07	-47134.	-4.63E-04	0.00	1.42E+13	
-686.6393	66405.	0.00					
13.8450	0.04209	1.74E+07	-50032.	-4.58E-04	0.00	1.42E+13	
-673.9771	68220.	0.00					
14.2000	0.04015	1.72E+07	-52874.	-4.53E-04	0.00	1.42E+13	
-660.0087	70034.	0.00					
14.5550	0.03823	1.69E+07	-55653.	-4.48E-04	0.00	1.42E+13	
-644.7577	71849.	0.00					
14.9100	0.03633	1.67E+07	-58365.	-4.43E-04	0.00	1.42E+13	
-628.2471	73664.	0.00					
15.2650	0.03446	1.64E+07	-61003.	-4.38E-04	0.00	1.42E+13	
-610.4990	75479.	0.00					
15.6200	0.03260	1.62E+07	-63563.	-4.33E-04	0.00	1.42E+13	
-591.5347	77293.	0.00					
15.9750	0.03077	1.59E+07	-66040.	-4.28E-04	0.00	1.42E+13	
-571.3749	79108.	0.00					
16.3300	0.02896	1.56E+07	-68429.	-4.23E-04	0.00	1.42E+13	
-550.0390	80923.	0.00					
16.6850	0.02716	1.53E+07	-70724.	-4.19E-04	0.00	1.42E+13	
-527.5461	82738.	0.00					
17.0400	0.02539	1.50E+07	-72921.	-4.14E-04	0.00	1.42E+13	
-503.9139	84552.	0.00					
17.3950	0.02363	1.47E+07	-75015.	-4.10E-04	0.00	1.42E+13	
-479.1596	86367.	0.00					
17.7500	0.02190	1.44E+07	-77001.	-4.05E-04	0.00	1.42E+13	
-453.2991	88182.	0.00					
18.1050	0.02018	1.40E+07	-78875.	-4.01E-04	0.00	1.42E+13	
-426.3478	89997.	0.00					
18.4600	0.01848	1.37E+07	-80632.	-3.97E-04	0.00	1.42E+13	
-398.3199	91812.	0.00					
18.8150	0.01680	1.34E+07	-82817.	-3.93E-04	0.00	1.42E+13	
-627.6886	159165.	0.00					
19.1700	0.01514	1.30E+07	-85382.	-3.89E-04	0.00	1.42E+13	
-576.4467	162250.	0.00					
19.5250	0.01349	1.26E+07	-87724.	-3.85E-04	0.00	1.42E+13	
-523.4372	165335.	0.00					
19.8800	0.01185	1.22E+07	-89838.	-3.81E-04	0.00	1.42E+13	
-468.6776	168420.	0.00					
20.2350	0.01024	1.19E+07	-91714.	-3.78E-04	0.00	1.42E+13	
-412.1832	171505.	0.00					
20.5900	0.00864	1.15E+07	-93346.	-3.74E-04	0.00	1.42E+13	
-353.9677	174590.	0.00					
20.9450	0.00705	1.11E+07	-94726.	-3.71E-04	0.00	1.42E+13	
-294.0428	177675.	0.00					
21.3000	0.00548	1.07E+07	-95847.	-3.68E-04	0.00	1.42E+13	

lpileInputFile.lp10o

-232.4186	180760.	0.00					
21.6550	0.00392	1.02E+07	-96703.	-3.64E-04	0.00	1.42E+13	
-169.1032	183845.	0.00					
22.0100	0.00237	9836549.	-97285.	-3.61E-04	0.00	1.42E+13	
-104.1030	186931.	0.00					
22.3650	8.39E-04	9421236.	-97586.	-3.59E-04	0.00	1.42E+13	
-37.4228	190016.	0.00					
22.7200	-6.82E-04	9005243.	-97600.	-3.56E-04	0.00	1.42E+13	
30.9343	193101.	0.00					
23.0750	-0.00219	8589811.	-97319.	-3.53E-04	0.00	1.43E+13	
100.9669	196186.	0.00					
23.4300	-0.00369	8176211.	-96736.	-3.51E-04	0.00	1.43E+13	
172.6748	199271.	0.00					
23.7850	-0.00518	7765744.	-95844.	-3.48E-04	0.00	1.43E+13	
246.0594	202356.	0.00					
24.1400	-0.00666	7359742.	-94636.	-3.46E-04	0.00	1.43E+13	
321.1233	205441.	0.00					
24.4950	-0.00813	6959568.	-93105.	-3.44E-04	0.00	1.43E+13	
397.8704	208526.	0.00					
24.8500	-0.00959	6566613.	-91243.	-3.42E-04	0.00	1.43E+13	
476.3057	211611.	0.00					
25.2050	-0.01104	6182302.	-89128.	-3.40E-04	0.00	1.43E+13	
516.4270	199259.	0.00					
25.5600	-0.01249	5807363.	-86899.	-3.38E-04	0.00	1.43E+13	
529.8760	180798.	0.00					
25.9150	-0.01392	5442039.	-84620.	-3.36E-04	0.00	1.43E+13	
540.1544	165283.	0.00					
26.2700	-0.01535	5086517.	-82303.	-3.35E-04	0.00	1.43E+13	
547.6771	151975.	0.00					
26.6250	-0.01678	4740934.	-79959.	-3.33E-04	0.00	1.43E+13	
552.7627	140370.	0.00					
26.9800	-0.01819	4405383.	-77598.	-3.32E-04	0.00	1.43E+13	
555.6640	130113.	0.00					
27.3350	-0.01960	4079914.	-75229.	-3.31E-04	0.00	1.43E+13	
556.5865	120943.	0.00					
27.6900	-0.02101	3764547.	-72860.	-3.30E-04	0.00	1.43E+13	
555.7017	112666.	0.00					
28.0450	-0.02241	3459264.	-70498.	-3.29E-04	0.00	1.43E+13	
553.1554	105135.	0.00					
28.4000	-0.02381	3164019.	-68105.	-3.28E-04	0.00	1.43E+13	
570.4550	102060.	0.00					
28.7550	-0.02520	2879126.	-65603.	-3.27E-04	0.00	1.43E+13	
604.1503	102112.	0.00					
29.1100	-0.02659	2605197.	-62982.	-3.26E-04	0.00	1.43E+13	
626.5747	100368.	0.00					
29.4650	-0.02798	2342639.	-60265.	-3.25E-04	0.00	1.43E+13	
648.7929	98777.	0.00					
29.8200	-0.02936	2091855.	-57454.	-3.24E-04	0.00	1.43E+13	

lpileInputFile.lp10o

670.8280	97320.	0.00					
30.1750	-0.03075	1853244.	-54550.	-3.24E-04	0.00	1.43E+13	
692.6998	95979.	0.00					
30.5300	-0.03212	1627204.	-51553.	-3.23E-04	0.00	1.43E+13	
714.4252	94741.	0.00					
30.8850	-0.03350	1414130.	-48463.	-3.23E-04	0.00	1.43E+13	
736.0187	93594.	0.00					
31.2400	-0.03487	1214412.	-45282.	-3.23E-04	0.00	1.43E+13	
757.4930	92528.	0.00					
31.5950	-0.03625	1028441.	-42010.	-3.22E-04	0.00	1.43E+13	
778.8589	91534.	0.00					
31.9500	-0.03762	856604.	-38646.	-3.22E-04	0.00	1.43E+13	
800.1256	90604.	0.00					
32.3050	-0.03899	699287.	-35193.	-3.22E-04	0.00	1.43E+13	
821.3013	89733.	0.00					
32.6600	-0.04036	556875.	-31649.	-3.21E-04	0.00	1.43E+13	
842.3927	88913.	0.00					
33.0150	-0.04173	429751.	-28016.	-3.21E-04	0.00	1.43E+13	
863.4056	88141.	0.00					
33.3700	-0.04310	318295.	-24293.	-3.21E-04	0.00	1.43E+13	
884.3449	87412.	0.00					
33.7250	-0.04447	222888.	-20481.	-3.21E-04	0.00	1.43E+13	
905.2144	86722.	0.00					
34.0800	-0.04583	143908.	-16581.	-3.21E-04	0.00	1.43E+13	
926.0173	86067.	0.00					
34.4350	-0.04720	81733.	-12592.	-3.21E-04	0.00	1.43E+13	
946.7562	85445.	0.00					
34.7900	-0.04857	36740.	-8515.	-3.21E-04	0.00	1.43E+13	
967.4328	84852.	0.00					
35.1450	-0.04994	9303.	-4326.	-3.21E-04	0.00	1.43E+13	
999.2344	85242.	0.00					
35.5000	-0.05130	0.00	0.00	-3.21E-04	0.00	1.43E+13	
1032.	42826.	0.00					

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 2:

Pile-head deflection	=	0.13628181 inches
Computed slope at pile head	=	-0.00067523 radians
Maximum bending moment	=	19137200. inch-lbs
Maximum shear force	=	-97600. lbs

lpileInputFile.lp10o
 Depth of maximum bending moment = 8.16500000 feet below pile head
 Depth of maximum shear force = 22.72000000 feet below pile head
 Number of iterations = 10
 Number of zero deflection points = 1

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 3

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 9065.0 lbs
 Applied moment at pile head = 7452106.0 in-lbs
 Axial thrust load on pile head = 80673.0 lbs

Depth Res. Soil	Deflect. Spr. Distrib.	Bending Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X Es*h feet lb/inch	y Lat. Load inches lb/inch	in-lbs lb/inch	lbs	radians	psi*	in-lb^2	
0.00	0.00	0.00	9065.	-2.60E-04	0.00	1.43E+13	
0.00	0.3550	7490812.	9065.	-2.58E-04	0.00	1.43E+13	
0.00	0.00	0.00	9056.	-2.56E-04	0.00	1.43E+13	
-4.4324	0.7100	7529517.	9056.	-2.56E-04	0.00	1.43E+13	
-11.6681	1.0650	7568141.	9021.	-2.53E-04	0.00	1.43E+13	
-18.5842	1.4200	7606552.	8957.	-2.51E-04	0.00	1.43E+13	
-25.1852	1.7750	7644626.	8864.	-2.49E-04	0.00	1.43E+13	
-31.4753	2.1300	7682241.	8743.	-2.46E-04	0.00	1.43E+13	
-37.4590	2.4850	7719285.	8596.	-2.44E-04	0.00	1.43E+13	
-43.1407	2.8400	7755648.	8424.	-2.42E-04	0.00	1.43E+13	
-48.5249	3.1950	7791227.	8229.	-2.40E-04	0.00	1.43E+13	
-53.6160	3.5500	7825925.	8012.	-2.37E-04	0.00	1.43E+13	

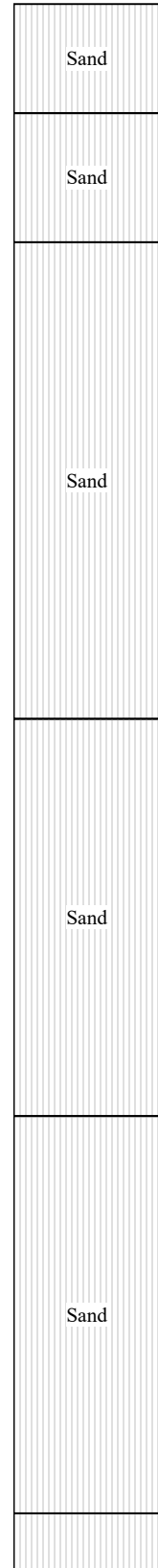
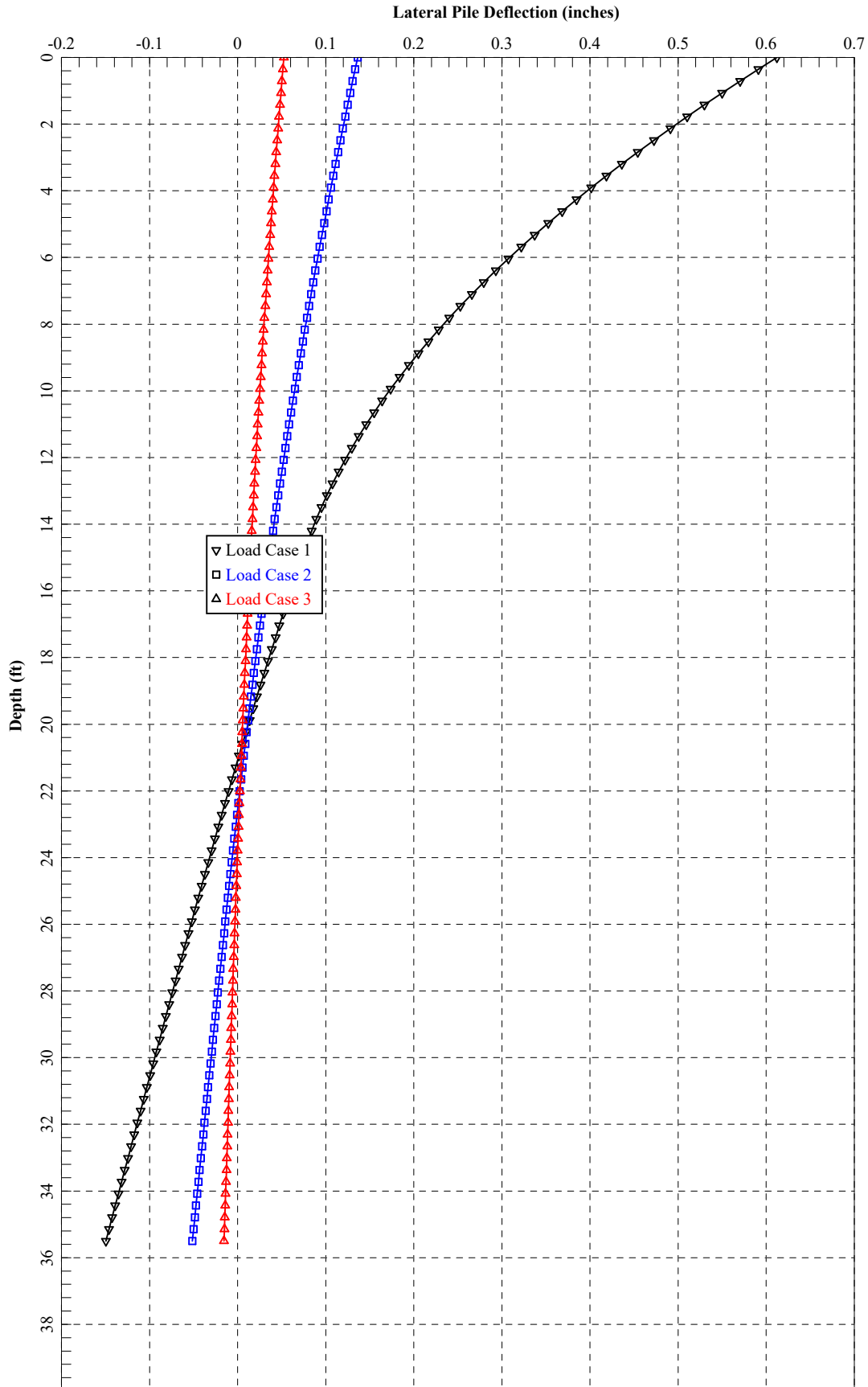
		lpileInputFile.lp10o				
3.9050	0.04085	7859649.	7773.	-2.35E-04	0.00	1.43E+13
-58.4185	6092.	0.00				
-62.9369	4.2600	7892312.	7514.	-2.33E-04	0.00	1.43E+13
-67.1759	6727.	0.00				
-71.1399	4.6150	7923832.	7237.	-2.30E-04	0.00	1.43E+13
-74.8336	-67.1759	7363.	0.00			
-78.2615	4.9700	7954132.	6943.	-2.28E-04	0.00	1.43E+13
-81.4284	-71.1399	7998.	0.00			
-84.3388	5.3250	7983140.	6632.	-2.25E-04	0.00	1.43E+13
-248.5639	-74.8336	8633.	0.00			
-255.4539	5.6800	8010790.	6306.	-2.23E-04	0.00	1.43E+13
-261.6511	-78.2615	9268.	0.00			
-267.1690	6.0350	8037018.	5966.	-2.21E-04	0.00	1.43E+13
-272.0208	-81.4284	9903.	0.00			
-276.2199	6.3900	8061768.	5612.	-2.18E-04	0.00	1.43E+13
-279.7794	-84.3388	10538.	0.00			
-282.7126	6.7450	8084987.	4903.	-2.16E-04	0.00	1.43E+13
-285.0325	-248.5639	31924.	0.00			
-286.7520	7.1000	8103693.	3830.	-2.13E-04	0.00	1.43E+13
-287.8841	-255.4539	33739.	0.00			
-287.8841	7.4550	8117764.	2728.	-2.11E-04	0.00	1.43E+13
-287.8841	-261.6511	35554.	0.00			
-287.8841	7.8100	8127085.	1602.	-2.09E-04	0.00	1.43E+13
-287.8841	-267.1690	37369.	0.00			
-287.8841	8.1650	8131556.	453.5488	-2.06E-04	0.00	1.43E+13
-287.8841	-272.0208	39183.	0.00			
-287.8841	8.5200	8131090.	-714.2038	-2.04E-04	0.00	1.43E+13
-287.8841	-276.2199	40998.	0.00			
-287.8841	8.8750	8125611.	-1898.	-2.01E-04	0.00	1.43E+13
-287.8841	-279.7794	42813.	0.00			
-287.8841	9.2300	8115054.	-3097.	-1.99E-04	0.00	1.43E+13
-287.8841	-282.7126	44628.	0.00			
-287.8841	9.5850	8099365.	-4306.	-1.96E-04	0.00	1.43E+13
-287.8841	-285.0325	46443.	0.00			
-287.8841	9.9400	8078502.	-5524.	-1.94E-04	0.00	1.43E+13
-287.8841	-286.7520	48257.	0.00			
-287.8841	10.2950	8052435.	-6748.	-1.92E-04	0.00	1.43E+13
-287.8841	-287.8841	50072.	0.00			
-287.8841	10.6500	8021143.	-7975.	-1.89E-04	0.00	1.43E+13
-287.8841	-288.4416	51887.	0.00			
-287.8841	11.0050	7984616.	-9204.	-1.87E-04	0.00	1.43E+13
-287.8841	-288.4369	53702.	0.00			
-287.8841	11.3600	7942853.	-10432.	-1.84E-04	0.00	1.43E+13
-287.8841	-287.8825	55516.	0.00			
-287.8841	11.7150	7895865.	-11656.	-1.82E-04	0.00	1.43E+13
-287.8841	-286.7908	57331.	0.00			
-287.8841	12.0700	7843671.	-12874.	-1.80E-04	0.00	1.43E+13
-287.8841	-285.1738	59146.	0.00			

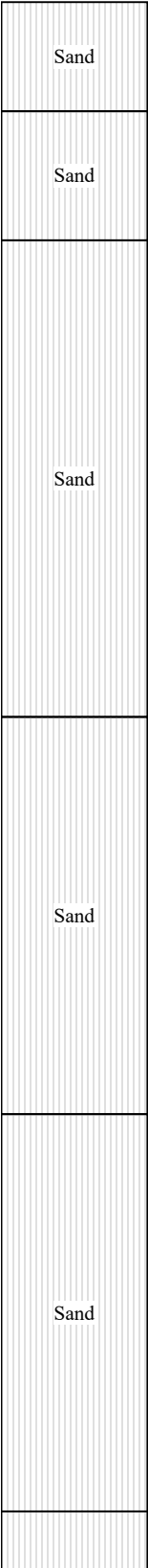
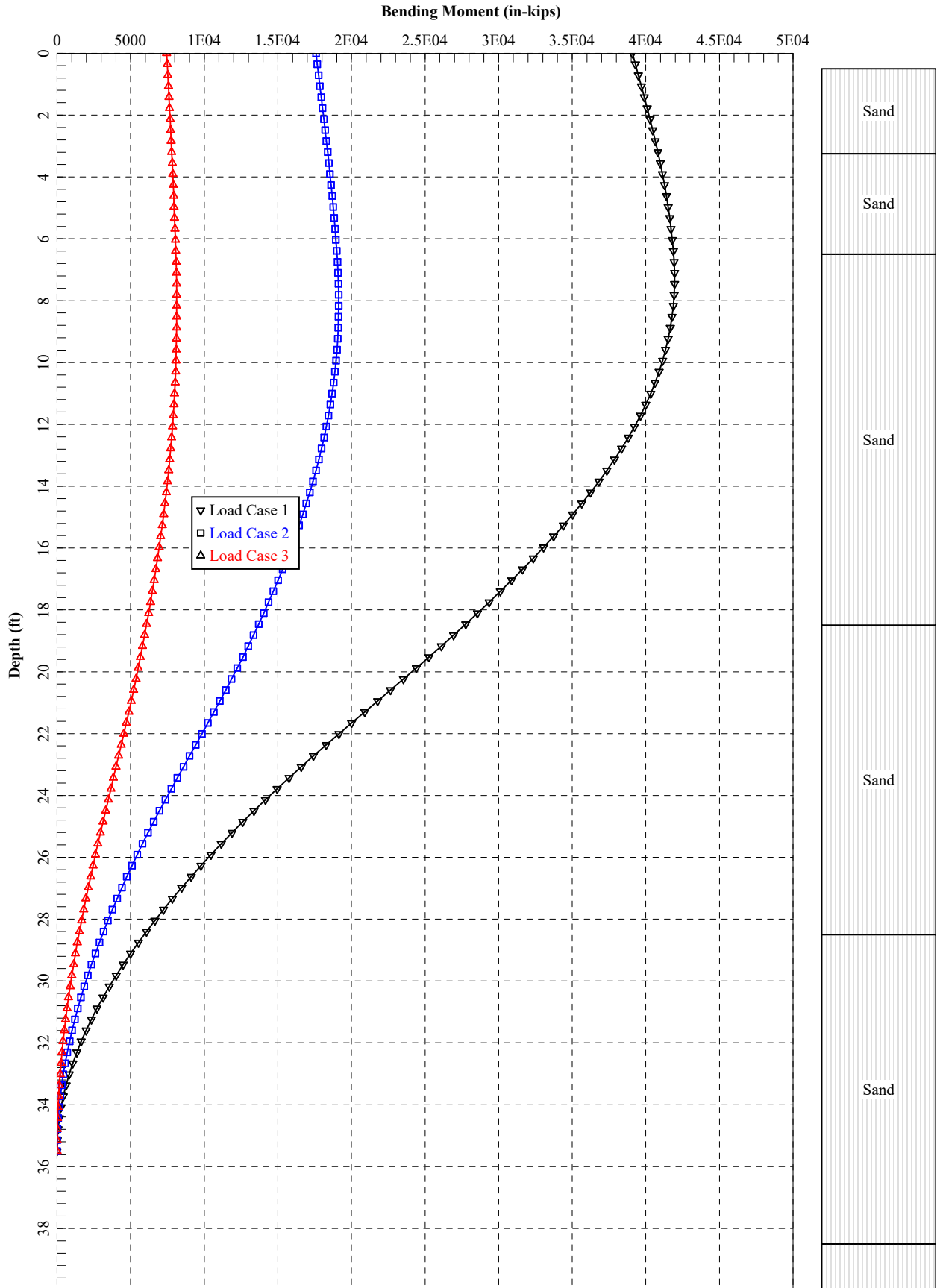
lpileInputFile.lp10o

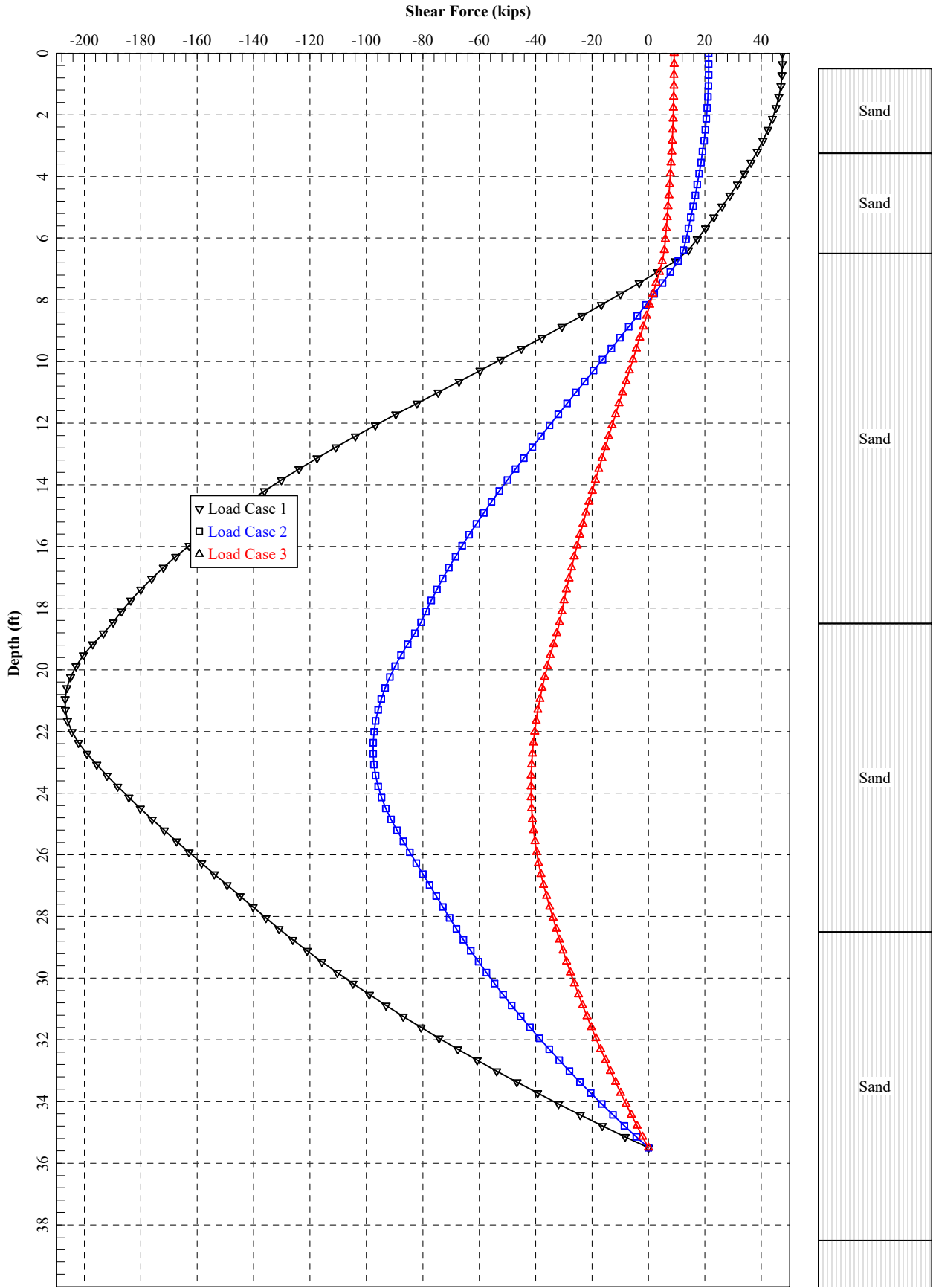
12.4250	0.01978	7786302.	-14084.	-1.77E-04	0.00	1.43E+13
-283.0434	60961.	0.00				
12.7800	0.01903	7723795.	-15284.	-1.75E-04	0.00	1.43E+13
-280.4112	62775.	0.00				
13.1350	0.01829	7656199.	-16472.	-1.73E-04	0.00	1.43E+13
-277.2889	64590.	0.00				
13.4900	0.01756	7583569.	-17646.	-1.70E-04	0.00	1.43E+13
-273.6875	66405.	0.00				
13.8450	0.01684	7505972.	-18803.	-1.68E-04	0.00	1.43E+13
-269.6180	68220.	0.00				
14.2000	0.01612	7423482.	-19942.	-1.66E-04	0.00	1.43E+13
-265.0912	70034.	0.00				
14.5550	0.01542	7336180.	-21061.	-1.64E-04	0.00	1.43E+13
-260.1175	71849.	0.00				
14.9100	0.01473	7244156.	-22157.	-1.62E-04	0.00	1.43E+13
-254.7070	73664.	0.00				
15.2650	0.01405	7147510.	-23230.	-1.59E-04	0.00	1.43E+13
-248.8697	75479.	0.00				
15.6200	0.01337	7046346.	-24277.	-1.57E-04	0.00	1.43E+13
-242.6150	77293.	0.00				
15.9750	0.01271	6940779.	-25296.	-1.55E-04	0.00	1.43E+13
-235.9521	79108.	0.00				
16.3300	0.01205	6830930.	-26286.	-1.53E-04	0.00	1.43E+13
-228.8901	80923.	0.00				
16.6850	0.01140	6716925.	-27246.	-1.51E-04	0.00	1.43E+13
-221.4373	82738.	0.00				
17.0400	0.01076	6598902.	-28172.	-1.49E-04	0.00	1.43E+13
-213.6022	84552.	0.00				
17.3950	0.01013	6477001.	-29065.	-1.47E-04	0.00	1.43E+13
-205.3925	86367.	0.00				
17.7500	0.00951	6351372.	-29921.	-1.45E-04	0.00	1.43E+13
-196.8157	88182.	0.00				
18.1050	0.00889	6222171.	-30741.	-1.43E-04	0.00	1.43E+13
-187.8791	89997.	0.00				
18.4600	0.00829	6089560.	-31521.	-1.42E-04	0.00	1.43E+13
-178.5893	91812.	0.00				
18.8150	0.00769	5953707.	-32513.	-1.40E-04	0.00	1.43E+13
-287.2196	159165.	0.00				
19.1700	0.00710	5812642.	-33701.	-1.38E-04	0.00	1.43E+13
-270.2583	162250.	0.00				
19.5250	0.00651	5666671.	-34815.	-1.36E-04	0.00	1.43E+13
-252.7273	165335.	0.00				
19.8800	0.00593	5516113.	-35853.	-1.35E-04	0.00	1.43E+13
-234.6352	168420.	0.00				
20.2350	0.00536	5361296.	-36813.	-1.33E-04	0.00	1.43E+13
-215.9899	171505.	0.00				
20.5900	0.00480	5202559.	-37692.	-1.31E-04	0.00	1.43E+13
-196.7987	174590.	0.00				

lpileInputFile.lp10o

20.9450	0.00425	5040251.	-38488.	-1.30E-04	0.00	1.43E+13
-177.0678	177675.	0.00				
21.3000	0.00370	4874728.	-39199.	-1.28E-04	0.00	1.43E+13
-156.8030	180760.	0.00				
21.6550	0.00315	4706359.	-39823.	-1.27E-04	0.00	1.43E+13
-136.0088	183845.	0.00				
22.0100	0.00261	4535522.	-40357.	-1.26E-04	0.00	1.43E+13
-114.6895	186931.	0.00				
22.3650	0.00208	4362603.	-40799.	-1.24E-04	0.00	1.43E+13
-92.8482	190016.	0.00				
22.7200	0.00156	4187998.	-41147.	-1.23E-04	0.00	1.43E+13
-70.4875	193101.	0.00				
23.0750	0.00103	4012114.	-41399.	-1.22E-04	0.00	1.43E+13
-47.6093	196186.	0.00				
23.4300	5.18E-04	3835365.	-41552.	-1.21E-04	0.00	1.43E+13
-24.2146	199271.	0.00				
23.7850	6.40E-06	3658177.	-41604.	-1.19E-04	0.00	1.43E+13
-0.3038	202356.	0.00				
24.1400	-5.00E-04	3480982.	-41553.	-1.18E-04	0.00	1.43E+13
24.1232	205441.	0.00				
24.4950	-0.00100	3304225.	-41397.	-1.17E-04	0.00	1.43E+13
49.0676	208526.	0.00				
24.8500	-0.00150	3128359.	-41134.	-1.16E-04	0.00	1.43E+13
74.5307	211611.	0.00				
25.2050	-0.00199	2953844.	-40761.	-1.16E-04	0.00	1.43E+13
100.5147	214696.	0.00				
25.5600	-0.00248	2781153.	-40276.	-1.15E-04	0.00	1.43E+13
127.0224	217781.	0.00				
25.9150	-0.00297	2610767.	-39678.	-1.14E-04	0.00	1.43E+13
154.0570	220867.	0.00				
26.2700	-0.00345	2443177.	-38963.	-1.13E-04	0.00	1.43E+13
181.6221	223952.	0.00				
26.6250	-0.00394	2278882.	-38129.	-1.12E-04	0.00	1.43E+13
209.7219	227037.	0.00				
26.9800	-0.00441	2118393.	-37175.	-1.12E-04	0.00	1.43E+13
238.3609	230122.	0.00				
27.3350	-0.00489	1962230.	-36104.	-1.11E-04	0.00	1.43E+13
264.2786	230361.	0.00				
27.6900	-0.00536	1810862.	-34980.	-1.11E-04	0.00	1.43E+13
263.5459	209481.	0.00				
28.0450	-0.00583	1664277.	-33862.	-1.10E-04	0.00	1.43E+13
261.5283	191120.	0.00				
28.4000	-0.00630	1522438.	-32728.	-1.10E-04	0.00	1.43E+13
270.8220	183209.	0.00				
28.7550	-0.00676	1385513.	-31541.	-1.09E-04	0.00	1.43E+13
286.3347	180360.	0.00				
29.1100	-0.00723	1253785.	-30296.	-1.09E-04	0.00	1.43E+13
298.2266	175787.	0.00				

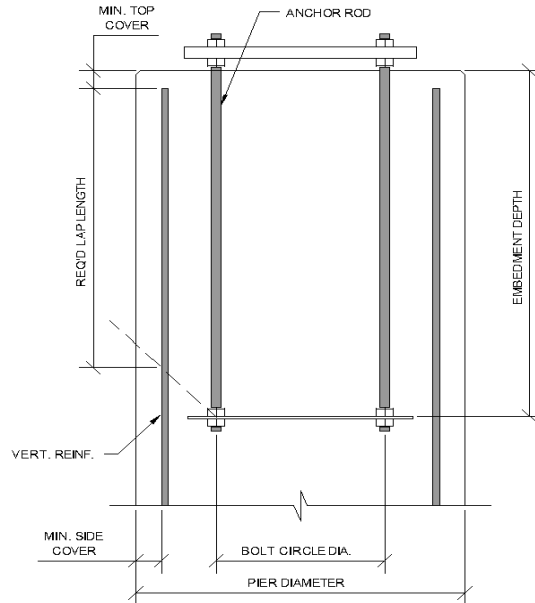






Anchorage Embedment Design

Vertical Bar Size:	#8	
Conc. Comp. Strength:	4000	psi
Pier Diameter:	7.5	ft
Pier Depth:	6	ft
Top of Pier Elevation:	6	inches
Concrete Volume	10.6	yards
Side Conc. Cover:	4	inches
Top Conc. Cover:	3	inches
Bolt Circle Dia.:	68	inches
Horizontal Tie Size:	#4	
# Anchor Rods:	8	
Anchor Rod Dia:	2.25	inches
ψ_t (bar loc. factor):	1.0	ACI 12.2.4a
ψ_e (epoxy coating factor):	1.0	ACI 12.2.4b
ψ_s (bar size factor):	1.0	ACI 12.2.4.c
λ (concrete type factor):	1.0	ACI 12.2.4.d
Bar Diameter:	1.0	in
Horiz. Tie Diameter:	0.5	in
Min. Clr Dist. Btw Anchor & Vert:	4.4	in
Req'd Lap Length:	37.0	in ACI 12.2.2
Min. Required Embedment Depth:	46.0	in

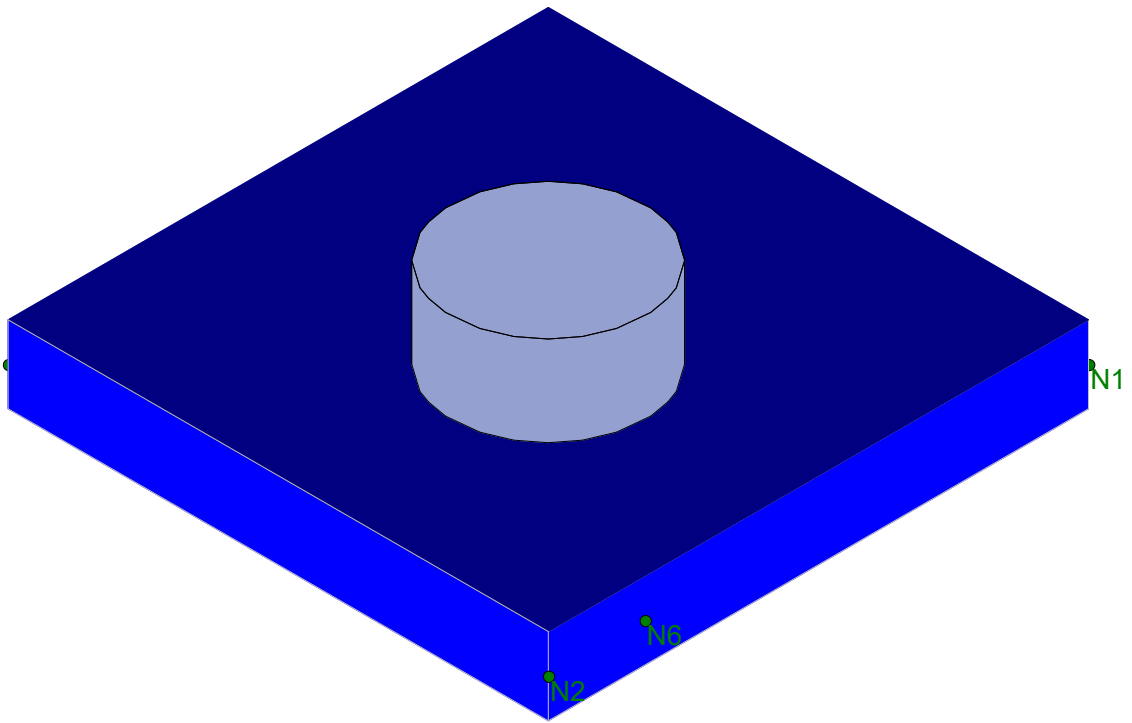
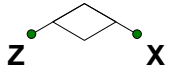


Required Lap Length + Max distance between anchor and rod + 0.5*Bar diameter + 0.5*Anchor diameter + Top cover

Transverse Reinforcement Design

(see IBC Sections 1810.3.9.4.1 and 1810.3.9.4.2)

Seismic Design Category:	A	
Site Class:	D	
Type of Transverse Reinforcement:	Spiral	
Transverse f_{yt} :	60	ksi
Seismic Hooks Required?	No	
Tie Size OK?	Yes	
Tie Spacing:	6	in
Total Pier Length	6.5	ft



Results for LC 2, D

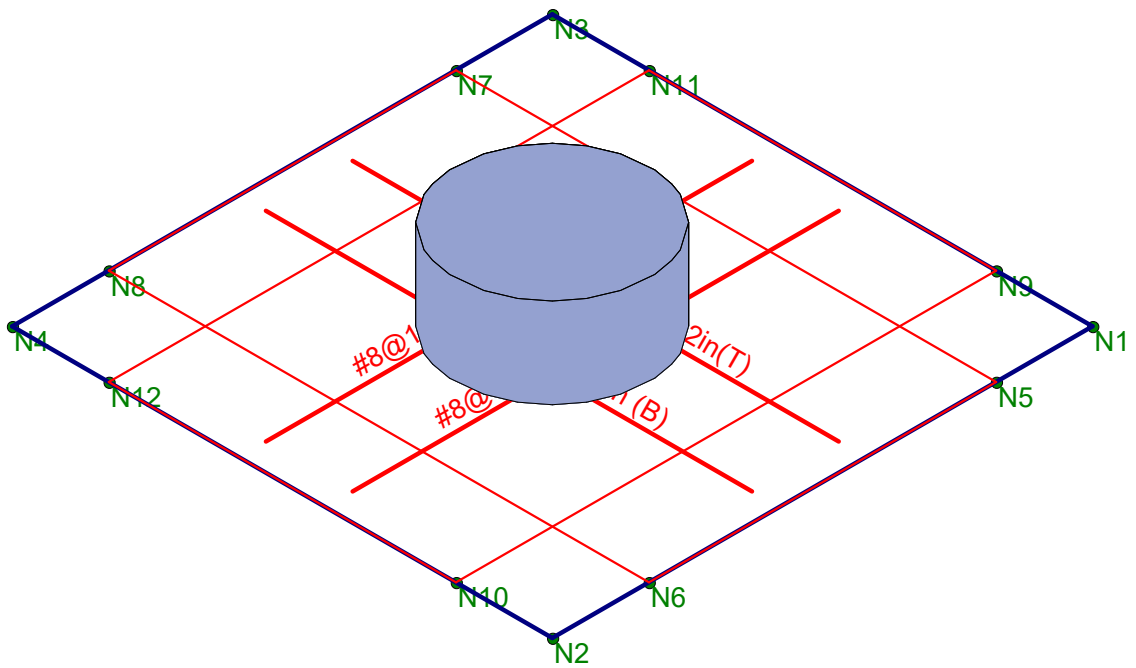
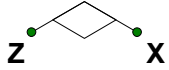
Vector Structural Engineeri...
dfoulger
U0142-705-181

Ft. Pierce Orave Ave

SK - 1

Sept 13, 2018 at 3:03 PM

Ft. Pierce Orange Ave BP.rt3



Results for LC 2, D

Vector Structural Engineeri...	Ft. Pierce Orave Ave	SK - 2
dfoulger		Sept 13, 2018 at 3:03 PM
U0142-705-181		Ft. Pierce Orange Ave BP.rt3



(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	100
Mesh Size (in)	12
Max Iterations	10
Merge Tolerance (in)	.12
Solver	Sparse Accelerated
Coefficient of Friction	.25
No. of Shear Regions	4
Shear Region Spacing Increment (in)	4
Min 1 Bar Dia Spacing for Beams?	No
Optimize footings for OTM / Sliding?	No
Parme Beta Factor	.65
Pile Safety Factor	3
Concrete Stress Block	Rectangular
Concrete Rebar Set	ASTM A615
Concrete Code	ACI 318-14
HR Steel Pile Code	AISC 3rd: LRFD
Wood Pile Code	None

Concrete Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1/E...)	Density[k/ft...]	f'c[ksi]	Lambda	Flex Steel[...]	Shear Stee...
1	Conc3000NW	3156	1372	.15	.6	.145	3	1	60	60
2	Conc3500NW	3409	1482	.15	.6	.145	3.5	1	60	60
3	Conc4000NW	3644	1584	.15	.6	.145	4	1	60	60
4	Conc3000LW	2085	907	.15	.6	.11	3	.75	60	60
5	Conc3500LW	2252	979	.15	.6	.11	3.5	.75	60	60
6	Conc4000LW	2408	1047	.15	.6	.11	4	.75	60	60

General Design Parameters

	Label	Max Bending Chk	Max Shear Chk	Top Cover[in]	Bottom Cover[in]
1	Typical	.8	.8	3	3

Slab Rebar Parameters

	Label	Top Bar	Bottom Bar	Max Top Bar S...	Min Top Bar S...	Max Bot Bar S...	Min Bot Bar S...	Spacing In...	Rebar Options
1	Typical	#8	#8	12	6	12	6	1	Force Top and Bottom

Pedestal/Pile Rebar Parameters

	Label	Longitudinal Bar	Shear Tie	Bar Cover[in]
1	Typical	#8	#4	3

Soil Definitions

	Label	Subgrade Modulus[k/ft^3]	Allowable Bearing[k/ksf]	Depth Properties	Default?
1	Default	100	3.69	None	Yes

Point Loads and Moments (Cat 1 : DL)

	Label	Direction	Magnitude[k,k-ft]
1	R3D_N22	Y	-15.242
2	R3D_N22	Y	33.369

Point Loads and Moments (Cat 16 : OL1)

	Label	Direction	Magnitude[k,k-ft]
--	-------	-----------	-------------------



Company : Vector Structural Engineering
 Designer : dfoulger
 Job Number : U0142-705-181
 Model Name : Ft. Pierce Orave Ave

Sept 13, 2018
 3:03 PM
 Checked By: _____

Load Combinations (Continued)

Label	So	Se	A	SF	Cat	Fac	Cat	Fac	Cat	Fac	Cat	Fac	Cat	Fac	Cat	Fac	Cat	Fac	Cat	Fac
4	0.6D+0.6	Yes	Yes	1	DL	.6	OL1	.6												
5	D+0.6(30	Yes	Yes	1	DL	1	OL2	.6												
6	0.6D+0.6	Yes	Yes	1	DL	.6	OL2	.6												
7	D+0.6(45	Yes	Yes	1	DL	1	OL3	.6												
8	0.6D+0.6	Yes	Yes	1	DL	.6	OL3	.6												
9	D+0.6(60	Yes	Yes	1	DL	1	OL4	.6												
10	0.6D+0.6	Yes	Yes	1	DL	.6	OL4	.6												
11	D+0.6(90	Yes	Yes	1	DL	1	OL5	.6												
12	0.6D+0.6	Yes	Yes	1	DL	.6	OL5	.6												
13	D+0.6(18	Yes	Yes	1	DL	1	OL6	.6												
14	0.6D+0.6	Yes	Yes	1	DL	.6	OL6	.6												
15	D+0.6(27	Yes	Yes	1	DL	1	OL7	.6												
16	0.6D+0.6	Yes	Yes	1	DL	.6	OL7	.6												
17																				
18	Strength																			
19	1.4D	Yes			DL	1.4														
20	1.2D+1.0	Yes			DL	1.2	OL1	1												
21	0.9D+1.0	Yes			DL	.9	OL1	1												
22	1.2D+1.0	Yes			DL	1.2	OL2	1												
23	0.9D+1.0	Yes			DL	.9	OL2	1												
24	1.2D+1.0	Yes			DL	1.2	OL3	1												
25	0.9D+1.0	Yes			DL	.9	OL3	1												
26	1.2D+1.0	Yes			DL	1.2	OL4	1												
27	0.9D+1.0	Yes			DL	.9	OL4	1												
28	1.2D+1.0	Yes			DL	1.2	OL5	1												
29	0.9D+1.0	Yes			DL	.9	OL5	1												
30	1.2D+1.0	Yes			DL	1.2	OL6	1												
31	0.9D+1.0	Yes			DL	.9	OL6	1												
32	1.2D+1.0	Yes			DL	1.2	OL7	1												
33	0.9D+1.0	Yes			DL	.9	OL7	1												

Design Strips

Label	Rebar Angle from Pl...	No. of Design Cuts	Design Rule	
1	DS1	0	50	Typical
2	DS2	90	50	Typical

Pedestals/Posts

Label	Type	Shape	Material	Design Rules	Angle(deg)	Height[in]	Pedestal Layout	Shear Layout	
1	R3D_N22	Pedestal	CRND90	Conc4000NW	Typical	0	42	Use Design Rule	Use Design Rule

Strip Reinforcing

Label	UC Top	LC	Top Bars	Governin...	UC Bot	LC	Bot Bars/...	Governin...	UC Shear	LC	Governin...	
1	DS1	.52	20	#8@12in	DS1-X26	.685	31	#8@12in	DS1-X26	.343	30	DS1-X27
2	DS2	.532	32	#8@12in	DS2-X26	.697	29	#8@12in	DS2-X26	.345	28	DS2-X26

Pedestals/Posts Design Values

Label	UC	Gov LC	Shear UC	Gov LC	Dir	Phi Used	Vertical Reinf	Shear Reinf	
1	R3D_N22	.354	22	.034	28	x	.9	42#8	#4@16 in

Pedestals/Posts Punching Shear Values

Label	UC	Gov LC	Location	Vuy[k]	Muz[k-ft]	Mux[k-ft]	Total Stress[...]	Phi*Vny[ksi]	
1	R3D_N22	.17	25	INTERIOR	33.287	-1467.281	-1467.281	.032	.19



Company : Vector Structural Engineering
 Designer : dfoulger
 Job Number : U0142-705-181
 Model Name : Ft. Pierce Orave Ave

Sept 13, 2018
 3:03 PM
 Checked By: _____

Slab Overturning Safety Factors

LC	Slab	Angle[deg]	Mo-xx[k-ft]	Ms-xx[k-ft]	Mo-zz[k-ft]	Ms-zz[k-ft]	Ms-xx/Mo-xx	Ms-zz/Mo-zz
1	2	S1	0	0	0	4037.54	9.999+	9.999+
2	3	S1	0	1270.646	4037.54	0	3.178	9.999+
3	4	S1	0	1270.646	2422.524	0	1.907	9.999+
4	5	S1	0	1100.412	4037.54	635.323	3.669	6.355
5	6	S1	0	1100.412	2422.524	635.323	2.201	3.813
6	7	S1	0	898.482	4037.54	898.482	4.494	4.494
7	8	S1	0	898.482	2422.524	898.482	2.696	2.696
8	9	S1	0	635.323	4037.54	1100.412	6.355	3.669
9	10	S1	0	635.323	2422.524	1100.412	3.813	2.201
10	11	S1	0	0	4037.54	1270.646	9.999+	3.178
11	12	S1	0	0	2422.524	1270.646	9.999+	1.907
12	13	S1	0	1270.646	4037.54	0	3.178	9.999+
13	14	S1	0	1270.646	2422.524	0	1.907	9.999+
14	15	S1	0	0	4037.54	1270.646	9.999+	3.178
15	16	S1	0	0	2422.524	1270.646	9.999+	1.907

Slab Sliding Safety Factors

LC	Slab	Angle[deg]	Va-xx[k]	Vr-xx[k]	Va-zz[k]	Vr-zz[k]	SR-xx	SR-zz
1	2	S1	0	0	0	96.132	9.999+	9.999+
2	3	S1	0	0	96.132	17.077	9.999+	5.629
3	4	S1	0	0	57.679	17.077	9.999+	3.378
4	5	S1	0	8.539	96.132	14.789	9.999+	6.5
5	6	S1	0	8.539	57.679	14.789	6.755	3.9
6	7	S1	0	12.075	96.132	12.075	7.961	7.961
7	8	S1	0	12.075	57.679	12.075	4.777	4.777
8	9	S1	0	14.789	96.132	8.539	6.5	9.999+
9	10	S1	0	14.789	57.679	8.539	3.9	6.755
10	11	S1	0	17.077	96.132	0	5.629	9.999+
11	12	S1	0	17.077	57.679	0	3.378	9.999+
12	13	S1	0	0	96.132	17.077	9.999+	5.629
13	14	S1	0	0	57.679	17.077	9.999+	3.378
14	15	S1	0	17.077	96.132	0	5.629	9.999+
15	16	S1	0	17.077	57.679	0	3.378	9.999+

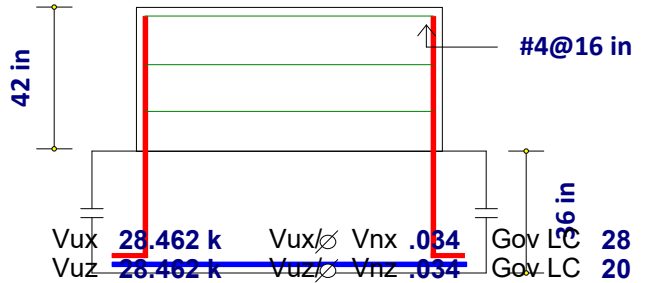
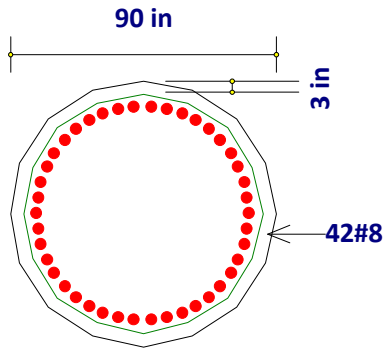
Envelope Slab Soil Pressures

Label	UC	LC	Soil Pressure[ksf]	Allowable Bearing[ksf]	Point	
1	S1	.534	7	1.97	3.69	N1

Pedestal: **R3D_N22**
 Shape: **CRND90**
 Material: **Conc4000NW**
 Height: **42 in**
 Location: **(0 , 0) ft**

Tension Bar Fy: **60 ksi**
 Shear Bar Fy: **60 ksi**
 Pedestal Cover: **3 in**
 Rebar Set: **ASTM A615**

Stress Block: **Rectangular**
 Design Rule: **Typical**
 Design Code: **ACI 318-14**



Design Results

Shear Check Results (Envelope)

Along xx Vcx **979.041 k** Vsx **126.645 k**
 Along zz Vcz **979.041 k** Vsx **126.645 k**
 Shear Ties **#4 @ 16 in**

Bending Check Results

Unity Check	.354	Phi	.9	Parme Beta	.65
Pu	0 k	Mux	0 k-ft	Muz	-2032.358 k-ft
Pn	0 k	Mnx	NA	Mnz	6377.51 k-ft
Gov LC	22	Mnox	NA	Mnoz	NA
Long. Bars	42 #8	% Steel	.519		

Compression Development Length for Longitudinal Bars

Lrequired **18.974 in** Lprovided **30 in** Lreq./Lpro. **.632**

Punching Shear Check Results

Punching Shear Values

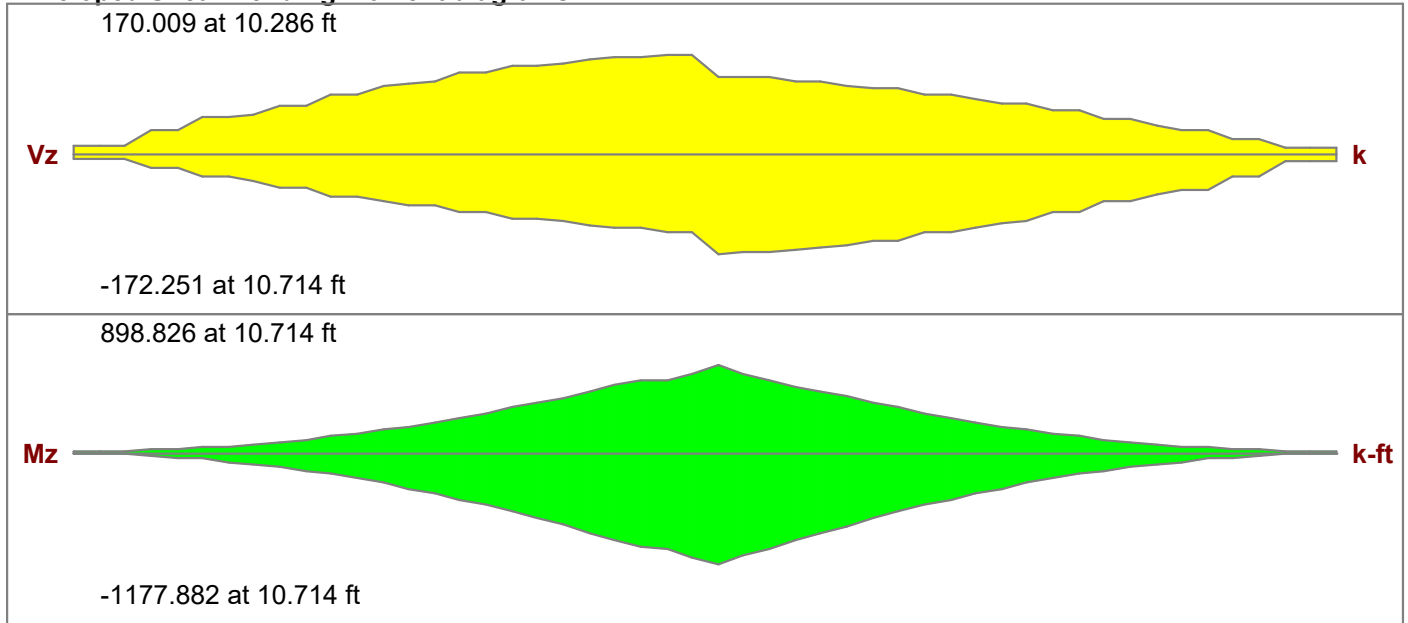
Unity Check	.17	Vuy	33.287 k	Total Stress	.032 ksi
Location	INTERIOR	Mux	-1467.281 k-ft	∅ vny	.19 ksi
Gov LC	25	Muz	1467.281 k-ft		

Punching Shear Geometries

Effective depth	32.5 in	Polar Moment Ixx	2.439e+7 in^4	Gamma xx	.4
L1 along zz	103.186 in	Polar Moment Izz	2.439e+7 in^4	Gamma zz	.4
L2 along xx	103.186 in				

Strip:	DS2	Max Top bar Spac.:	12 in	Stress Block:	Rectangular
Material:	Conc4000NW	Min Top bar Spac.:	6 in	Rebar Orientation:	90
Strip Width:	162 in	Max Bot bar Spac.:	12 in	Rebar Spacing Inc:	1 in
Total Cuts:	50	Min Bot bar Spac.:	6 in	Design Rule:	Typical

Enveloped Shear/Bending Moment diagrams



ACI 318-14 Code Check

Top Bending Check	0.532	Bot Bending Check	0.697	1 Way Shear Check	0.345
Gov Mu Top	898.826 k-ft	Gov Mu Bot	-1177.882 k-ft	Gov Vu	172.251 k
phi*Mn Top	1688.95 k-ft	phi*Mn Bot	1688.95 k-ft	phi*Vn	499.482 k
Governing Cut	DS2-X26	Governing Cut	DS2-X26	Governing Cut	DS2-X26
Governing LC	32	Governing LC	29	Governing LC	28
Tension Bar Fy	60 ksi	Concrete Weight	.145 k/ft^3	Top Cover	3 in
Shear Bar Fy	60 ksi	λ	1	Bottom Cover	3 in
F'c	4 ksi	E_Concrete	3644 ksi	Rho Top Prvd	0.00224
Flex. Rebar Set	ASTM A615	Rho Bot Prvd	0.00224	Prvd Top Bar Spac.	#8@12in
		Prvd Bot Bar Spac.	#8@12in		

Bending Steel Reqd/Prvd, Units: in^2)

Cut Label	Top As Reqd	Top As Prvd	Bot As Reqd	Bot As Prvd	Rho Reqd(T/S)	Rho Reqd(Flex)	Rho Prvd(Gross)
DS2-X26	7.784	11.781	10.243	11.781	0.00180	0.00180	0.00404

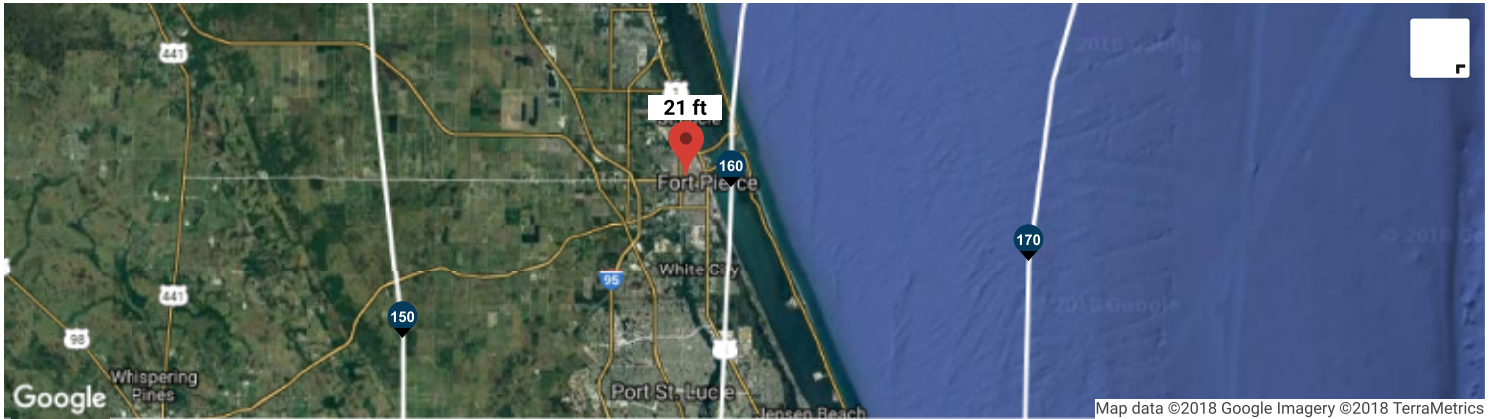
⚠ This is a beta release of the new ATC Hazards by Location website. Please contact us with feedback.

ATC Hazards by Location

Search Information

Coordinates: 27.4475, -80.3455
 Timestamp: 2018-09-10T23:38:46.258Z
 Hazard Type: Wind

Map Results



Text Results

ASCE 7-16

- MRI 10-Year 88 mph
- MRI 25-Year 107 mph
- MRI 50-Year 119 mph
- MRI 100-Year ⚠ 131 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

- Risk Category I ⚠ 147 mph

You are in a wind-borne debris region.

- Risk Category II ⚠ 159 mph

You are in a wind-borne debris region.

- Risk Category III ⚠ 170 mph

If the structure under consideration is a healthcare facility, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

- Risk Category IV ⚠ 182 mph

You are in a wind-borne debris region.

ASCE 7-10

- MRI 10-Year 88 mph
- MRI 25-Year 107 mph
- MRI 50-Year 119 mph

MRI 100-Year  131 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

Risk Category I  147 mph

You are in a wind-borne debris region.

Risk Category II  159 mph

You are in a wind-borne debris region.

Risk Category III-IV  170 mph

If the structure under consideration is a healthcare facility, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

ASCE 7-05

ASCE 7-05 Wind Speed  140 mph

You are in a wind-borne debris region.

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.



STEALTH[®]
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 / F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM
PROJECT MANAGER:
CAROLINE WATSON ; (843)-574-9626

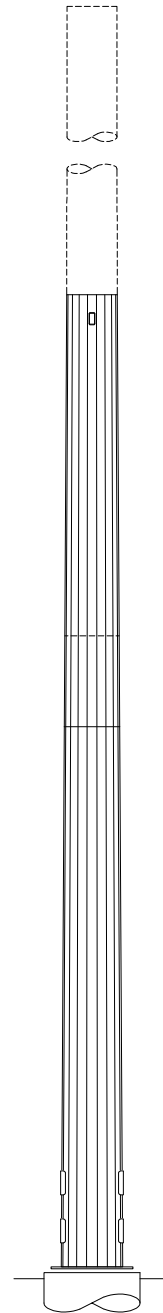
FINAL ENGINEERING

RG TOWERS
FT. PIERCE ORANGE AVE
BASE POLE
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

STEALTH JOB #: RG18-01105W-05R1

DRAWING INDEX

T1	TITLE SHEET
N1-N2	NOTES & SPECIFICATIONS
S1	ELEVATION
S2-S3	DETAILS
S4	DRILLED PIER FOUNDATION
S5	MAT FOUNDATION



09/13/2018



T1	REVISION
	0
9/13/18	

DESIGN NOTES:

STRUCTURAL DESIGN IS BASED ON THE FLORIDA BUILDING CODE, 2017 EDITION (2015 IBC) & THE TIA-222-G STANDARD.

DESIGN LOADS:

WIND:
BASIC WIND SPEED: 159 MPH (3-SEC GUST) PER ASCE 7-10 STANDARD
IMPORTANCE FACTOR: 1.00
STRUCTURE CLASS: II
EXPOSURE: C
TOPOGRAPHIC CATEGORY: 1
CREST HEIGHT: 0 FT

ICE: NONE

ESTIMATED WEIGHT:

33.4 k (1.0 DEAD)

REACTIONS:

SHEAR, V = 28.4 k (1.0 WIND)
AXIAL, P = 40.0 k (1.2 DEAD)
MOMENT, M = 1,940 k-ft (1.0 WIND)

THE REACTIONS V & M LISTED ABOVE SHALL BE CONSIDERED TO ACT IN ANY HORIZONTAL DIRECTION.

DESIGN:

1. ENGINEERING AND DESIGN CALCULATIONS FOR STEALTH® POLE AND TOWER PRODUCTS ARE PREPARED IN ACCORDANCE WITH THE TIA-222-G. OTHER STRUCTURES ARE DESIGNED IN ACCORDANCE WITH APPLICABLE LOCAL OR NATIONAL STANDARDS AND PER CLIENT INPUT.

SPECIAL INSPECTIONS & STRUCTURAL OBSERVATION:

- STEEL FABRICATION SHALL BE DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED AS REQUIRED BY THE BUILDING CODE TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION.
- NO FIELD WELDING SHALL BE PERMITTED.
- THE FOLLOWING SPECIAL INSPECTIONS (WHERE APPLICABLE) SHALL BE REQUIRED PER CHAPTER 17 OF THE BUILDING CODE.
 - PERIODIC SPECIAL INSPECTION OF HIGH-STRENGTH BOLTING (WHEN APPLICABLE)
 - PERIODIC SPECIAL INSPECTION OF PLACEMENT OF REINFORCING STEEL
 - CONTINUOUS SPECIAL INSPECTION OF ANCHOR BOLTS PRIOR TO AND DURING CONCRETE PLACEMENT
 - CONTINUOUS SPECIAL INSPECTION OF CONCRETE PLACEMENT
 - CONTINUOUS SPECIAL INSPECTION OF DRILLING OPERATIONS FOR PIER FOUNDATIONS
 - CONTINUOUS SPECIAL INSPECTION TO VERIFY LOCATION, PLUMBNESS, DIAMETER, AND LENGTH OF PIER FOUNDATIONS
 - PERIODIC SPECIAL INSPECTION OF FORM WORK SHAPE, LOCATION & DIMENSIONS
 - PERIODIC SPECIAL INSPECTION OF SOILS PER CHAPTER 17 OF BUILDING CODE
- SPECIAL INSPECTION IS NOT REQUIRED FOR WORK OF A MINOR NATURE OR AS WARRANTED BY CONDITIONS IN THE JURISDICTION AS APPROVED BY THE BUILDING OFFICIAL. THUS, SPECIAL INSPECTION ITEMS ABOVE MAY BE WAIVED AS DEEMED APPROPRIATE BY THE BUILDING OFFICIAL.
- NO STRUCTURAL OBSERVATION IS REQUIRED.

GENERAL

- THE TYPICAL NOTES SHALL APPLY FOR ALL CASES UNLESS OTHERWISE SPECIFICALLY DETAILED WITHIN THE DRAWINGS. SOME NOTES MAY NOT BE APPLICABLE IN PART OR IN WHOLE FOR EVERY PROJECT.
- ANY ITEMS REFERENCED AS BEING ON "HOLD" ARE TO BE INCLUDED IN THE WORK AS SHOWN. HOWEVER, CONSTRUCTION OR FABRICATION IS NOT TO BEGIN UNTIL THE "HOLD" REFERENCE IS REMOVED.
- DIMENSIONS CONTAINED WITHIN MUST BE FIELD VERIFIED AND CUSTOMER APPROVED PRIOR TO FABRICATION OF MATERIALS.
- THE MODIFICATIONS DEPICTED IN THESE DRAWINGS ARE INTENDED TO PROVIDE STRUCTURAL SUPPORT FOR THE ADDITION OF THE ANTENNA SCREENING SYSTEMS OUTLINED WITHIN. THE EXISTING STRUCTURE OR BUILDING SHALL BE ANALYZED AND RETROFITTED AS REQUIRED, BY OTHERS, TO WITHSTAND THE LOADS IMPOSED BY THE NEW STEALTH® ENCLOSURE SHOWN ON THE DRAWINGS.
- ANTENNA CONCEALMENT PRODUCTS SHALL BE INSTALLED BY A CONTRACTOR EXPERIENCED IN SIMILAR WORK. CARE SHALL BE TAKEN IN THE INSTALLATION OF ANY AND ALL MEMBERS IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS AND PROCEDURES. ALL APPLICABLE OSHA SAFETY GUIDELINES ARE TO BE FOLLOWED. STEALTH® IS NOT PROVIDING FIELD INSTALLATION SUPERVISION.
- THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK THE CONTRACTOR SHOULD SURVEY THE JOB SITE THOROUGHLY TO MINIMIZE FIELD PROBLEMS.
- PROTECTION OF EXISTING STRUCTURES DURING THE COURSE OF THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- THE STRUCTURAL INTEGRITY OF THIS STRUCTURE IS DESIGNED TO BE ATTAINED IN ITS COMPLETED STATE. WHILE UNDER CONSTRUCTION ANY TEMPORARY BRACING OR SHORING WHICH MAY BE REQUIRED TO MAINTAIN STABILITY PRIOR TO COMPLETION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- THE PLANS AND DETAILS WITHIN DO NOT INCLUDE DETAILS OR DESIGN FOR DRAINAGE FROM OR WATERPROOFING OF EXTERIOR OR INTERIOR SURFACES OF THE EXISTING BUILDING OR STRUCTURE. THESE DETAILS MUST BE COMPLETED BY OTHERS.
- CONTRACTOR TO SHIM BASEPLATE AS REQUIRED TO ENSURE LEVEL SURFACE.

MATERIAL NOTES:

- 18-SIDED MONOPOLE SHAFT STEEL SHALL CONFORM w/ ASTM A572 GR. 65, U.N.O.
- BASE PLATE STEEL SHALL CONFORM w/ ASTM A572, GR. 50, U.N.O.
- REINFORCED ACCESS PORT STEEL SHALL CONFORM w/ ASTM A572 GR. 50 MIN., U.N.O.
- ALL OTHER STRUCTURAL STEEL SHAPES & PLATES SHALL CONFORM TO ASTM A36, U.N.O.
- ALL BOLTS FOR STEEL-TO-STEEL CONNECTIONS SHALL CONFORM TO ASTM F3125 GRADE A325 SPECIFICATIONS, U.N.O. A325N AND A325X ALLOWED.
- ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH THE LATEST VERSION OF THE AMERICAN WELDING SOCIETY (AWS) D1.1. ALL WELDING SHALL BE PERFORMED IN A SHOP APPROVED BY THE BUILDING OFFICIAL. STEEL WELDS SHALL BE BY E70XX LOW HYDROGEN ELECTRODES.
- ALL STEEL SURFACES SHALL BE GALVANIZED IN ACCORDANCE w/ ASTM A123 OR F2329 STANDARDS.
- ALL BOLTED CONNECTIONS SHALL BE TIGHTENED PER THE "TURN-OF-NUT" METHOD AS DEFINED BY AISC.

COAX NOTE:

ROUTING THE LARGE QUANTITY OF COAX CABLES THROUGH THE CONCEALMENT BULKHEADS IS POSSIBLE (WHEN LAID OUT ON PAPER), BUT WILL BE VERY DIFFICULT IN REAL WORLD FIELD CONDITIONS. WHILE THE CABLES MAY PHYSICALLY FIT THROUGH THE BASE FLANGE ON TOP OF THE MONOPOLE AND THE SUBSEQUENT STEEL BULKHEADS ABOVE, ROUTING THEM PAST THE ANTENNAS IS UNPREDICTABLE, DEPENDING ON THE ANTENNA MOUNTING HARDWARE EMPLOYED, COAX CONNECTOR TYPE(S) USED, COAX ROUTING, AND RELATIVE AZIMUTH DIRECTIONS OF THE ANTENNAS IN THE POLE. STEALTH® CAN NOT GUARANTEE THAT ALL OF THE COAX CAN BE ROUTED WITHOUT INTERFERENCE TO SOME OR ALL ANTENNAS. IT IS HIGHLY RECOMMENDED THAT THE INSTALLER MOCK UP THE COAX RUNS WITHIN THE CONCEALMENT AND DEVELOP A COAX ROUTING PLAN PRIOR TO INSTALLATION.

STEALTHSKIN PANELS

- FASTENER HOLES IN STEALTHSKIN FOAM COMPOSITE PANELS ARE NOT FACTORY DRILLED AND MUST BE DRILLED IN THE FIELD.
- PANEL FASTENERS TO BE SPACED 12" O.C. MAX. AND LOCATED 6" MAX. HORIZONTALLY FROM EACH EDGE AT TOP AND BOTTOM OF PANEL, UNLESS NOTED OTHERWISE. MAINTAIN 1 1/2" MIN. EDGE DISTANCE FROM ALL EDGES. 4' WIDE PANELS REQUIRE (4) FASTENERS TOP AND BOTTOM. 5' WIDE PANELS REQUIRE (5) FASTENERS TOP AND BOTTOM.
- WHEN FASTENER BOLT HEAD OR NUT BEARS DIRECTLY ON SURFACE OF STEALTHSKIN PANEL, TIGHTEN PANEL BOLTS ONLY 1/2 TURN PAST SNUG. APPLY THREAD LOCK COMPOUND TO THE THREADS OF METAL BOLTS. USE THIN BEAD OF EPOXY TO LOCK THE NUTS OF FRP BOLTS AND STEALTH® STAINLESS STEEL PANEL BOLTS. USE WASHER OR FLANGED HEAD BOLT, OR FASTENER WITH LARGE BEARING SURFACE.
- PANELS WILL EXPAND AND CONTRACT DUE TO TEMPERATURE. WHEN INSTALLING PANELS IN COLD TEMPERATURES, EVENLY SPACE PANELS ALONG LENGTH OF SCREEN WALL WITH EQUAL GAPS BETWEEN PANELS TO ALLOW FOR EXPANSION DURING WARM TEMPERATURES.
- ADJACENT FLAT PANELS ARE JOINED BY A VERTICAL FOAM SPLINE THAT IS INSERTED INTO GROOVES CUT INTO THE SIDE OF EACH PANEL. DO NOT LIFT PANELS BY GROOVES. PANELS MUST BE LIFTED WITH FORCE DIRECTED ONTO PANEL SURFACE.
- ADJACENT RADIUS PANELS ARE JOINED BY A VERTICAL H-CHANNEL. INSERT PANELS INTO EACH SIDE OF H-CHANNEL.
- RADIUS PANELS MUST BE EVENLY SPACED ALONG RADIUS SUPPORT. CONTRACTOR TO MEASURE LENGTH OF RADIUS SUPPORT AND DIVIDE BY THE NUMBER OF RADIUS PANELS TO DETERMINE PROPER SPACING. H-CHANNEL CONNECTORS ARE USED TO COVER THE GAP BETWEEN PANELS AND TO ALLOW FOR PANEL EXPANSION AND CONTRACTION.
- SURFACES OF PANELS SHALL BE COATED WITH SUITABLE PAINT FOR UV PROTECTION. TOP EDGE OF PANEL MUST BE COVERED TO PREVENT WATER TRAVEL BETWEEN PANELS. USE SHERWIN WILLIAMS "COROTHANE II" OR PRE APPROVED EQUIVALENT.
- EXPOSED TOP AND SIDE FOAM EDGES OF PANELS MUST BE COVERED OR COATED FOR UV PROTECTION. STEALTH® WILL PROVIDE PANEL EDGE CAPS (VERTICAL AND HORIZONTAL) TO BE FIELD APPLIED FOR THIS PURPOSE FOR MOST APPLICATIONS. HORIZONTAL AND VERTICAL PANEL EDGE CAPS TO BE SECURED TO THE EXPOSED EDGES OF THE PANELS WITH PROVIDED TEK SCREWS INSTALLED @ 12" MAXIMUM SPACING ON THE INSIDE FACE OF THE PANEL. IN RF SENSITIVE LOCATIONS, CONTRACTOR WILL APPLY (2) BEADS OF ADHESIVE TO EACH INSIDE CORNER OF THE EDGE CAP AND SECURE CAP TO PANEL WITH TAPE WHILE ADHESIVE CURES.
- AT CORNER APPLICATIONS, VERTICAL PANEL EDGE CAPS ARE TO BE USED TO CAP BOTH EXPOSED EDGES (1 PER CUT EDGE OF PANELS). THESE EDGE CAPS ARE TO BE CUT 1" SHORTER THAN THE PANEL AND LEAVE 1" GAP AT THE TOP TO ALLOW ROOM FOR THE THE HORIZONTAL PANEL EDGE CAP AT THE TOP. CONTRACTOR TO APPLY (2) BEADS OF ADHESIVE TO EACH EDGE CAP (INSIDE CORNERS OF CAP), AND SECURE WITH TAPE AND/OR PROVIDED SCREWS (16 TOTAL PER CORNER) WHILE THE ADHESIVE CURES. IF CORNERS ARE IN NON-RF AREAS, EDGE CAP SCREWS CAN BE LEFT IN PLACE.
- AT CORNER APPLICATIONS WITH SSV PANEL ONLY, CORNER CHANNELS ARE TO BE USED TO JOIN PANELS TOGETHER. BOTH ADJOINING PANELS WILL BE INSTERTED INTO THE CORNER CHANNEL AND SECURED USING PROVIDED NYLON PUSHpins. THE PUSHpins ARE TO BE PLACED ON THE INSIDE OF ONE OF THE PANELS ONLY @ 12" MAXIMUM SPACING.

DISCLAIMERS:

- ALL STRUCTURAL COMPONENTS TO BE CONNECTED TOGETHER SHALL BE COMPLETELY FIT UP ON THE GROUND OR OTHERWISE VERIFIED FOR COMPATIBILITY PRIOR TO LIFTING ANY COMPONENT INTO PLACE. REPAIRS REQUIRED DUE TO FIT-UP OR CONNECTION COMPATIBILITY PROBLEMS AFTER PARTIAL ERECTION ARE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.
- ALTHOUGH RARE, EXCESSIVE DEFLECTION SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN SLIM LINE OR MONOPOLE STRUCTURES AT LOW WIND SPEEDS. BECAUSE THE PHENOMENON IS INFLUENCED BY MANY INTERACTING VARIABLES, MOVEMENT AND OSCILLATIONS ARE GENERALLY UNPREDICTABLE. THE TOWER OWNER MUST PERIODICALLY OBSERVE THE STRUCTURE FOR EXCESSIVE DEFLECTION AND ANY RESULTING STRUCTURAL DAMAGE OR BOLT LOOSENING. IN THE EVENT OF EXCESSIVE MOVEMENT, VECTOR STRUCTURAL ENGINEERS MUST BE NOTIFIED IMMEDIATELY. MODIFICATIONS TO THE STRUCTURE MAY BE REQUIRED AT THE OWNER'S EXPENSE. THE CHANGES MAY ALTER THE AESTHETIC APPEARANCE OF THE STRUCTURE.



STEALTH®
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO STEALTH® CONCEALMENT SOLUTIONS, INC IS STRICTLY PROHIBITED.



09/13/2018

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES	
DECIMALS X ± 1/16"	ANGULAR X ± 0.5°
.XXX ± 0.01"	

NOTES & SPECIFICATIONS

RG TOWERS
FT. PIERCE ORANGE AVE
BASE POLE
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

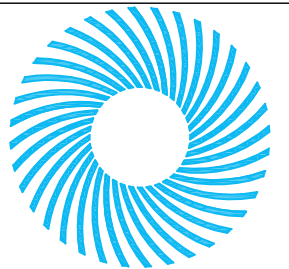
N1

9/13/18

REVISION

0





STEALTH[®]
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS
DRAWING SET IS PROPRIETARY & CONFIDENTIAL
BY NATURE. ANY USE OR DISCLOSURE OTHER
THAN THAT WHICH RELATES TO
STEALTH® CONCEALMENT SOLUTIONS, INC
IS STRICTLY PROHIBITED.



09/13/2018

DRAWING NOT TO SCALE, UNLESS SPECIFIED
OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES	
DECIMALS X ± 1/16"	ANGULAR X ± 0.5°
.XXX ± 0.01"	

ELEVATION

RG TOWERS
FT. PIERCE ORANGE AVE
BASE POLE
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

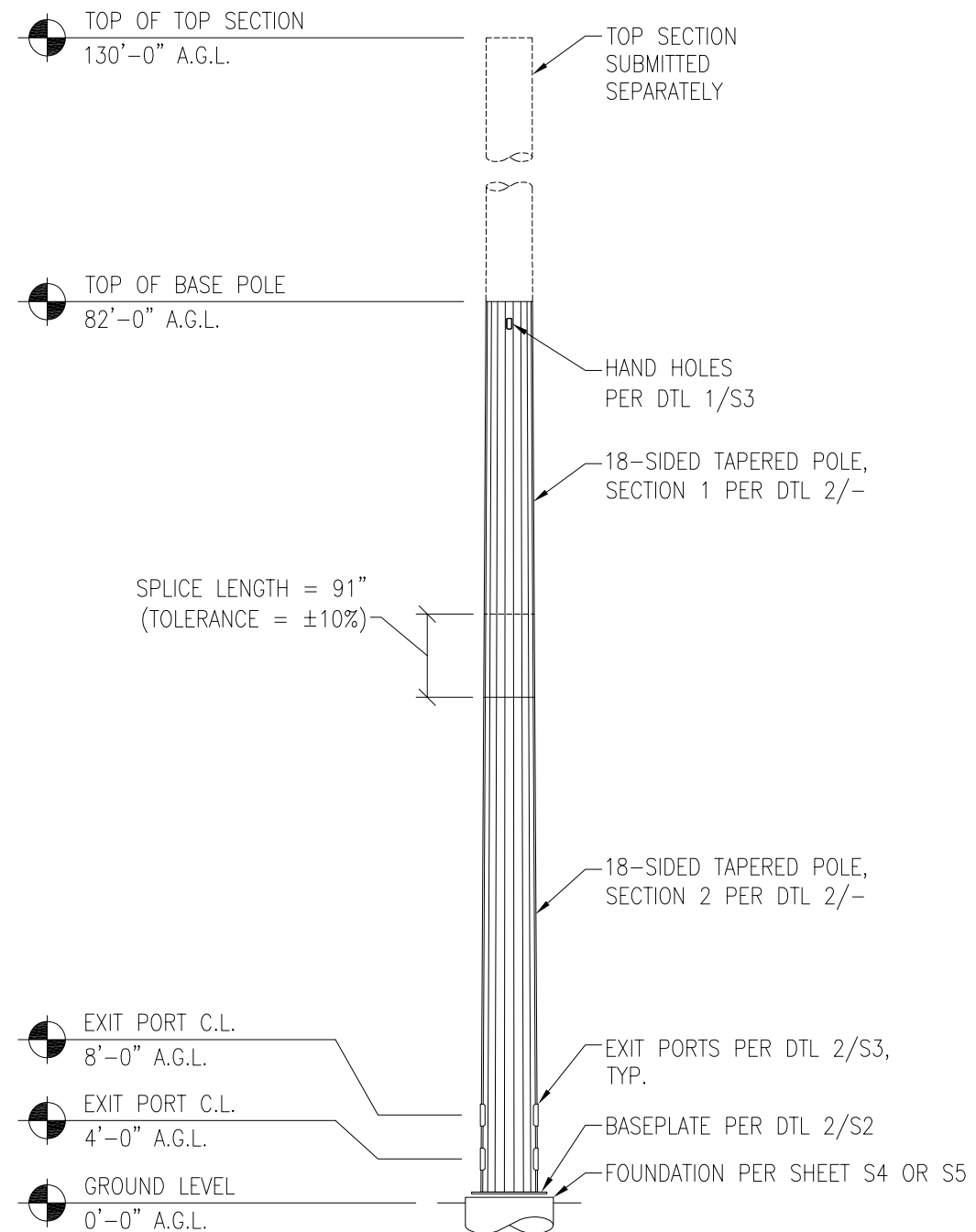
JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

S1

9/13/18

REVISION

0



ELEVATION VIEW

N.T.S.

1

MONOPOLE SECTION CHART²

SECTION	LENGTH	TOP ⁴ Ø	BOTTOM ⁴ Ø	THICKNESS	WEIGHT ^{1,3}
1	36'-0"	50.00"	55.04"	5/16"	6.6 K
2	52'-7"	53.35"	60.72"	5/16"	12.2 K

NOTES:

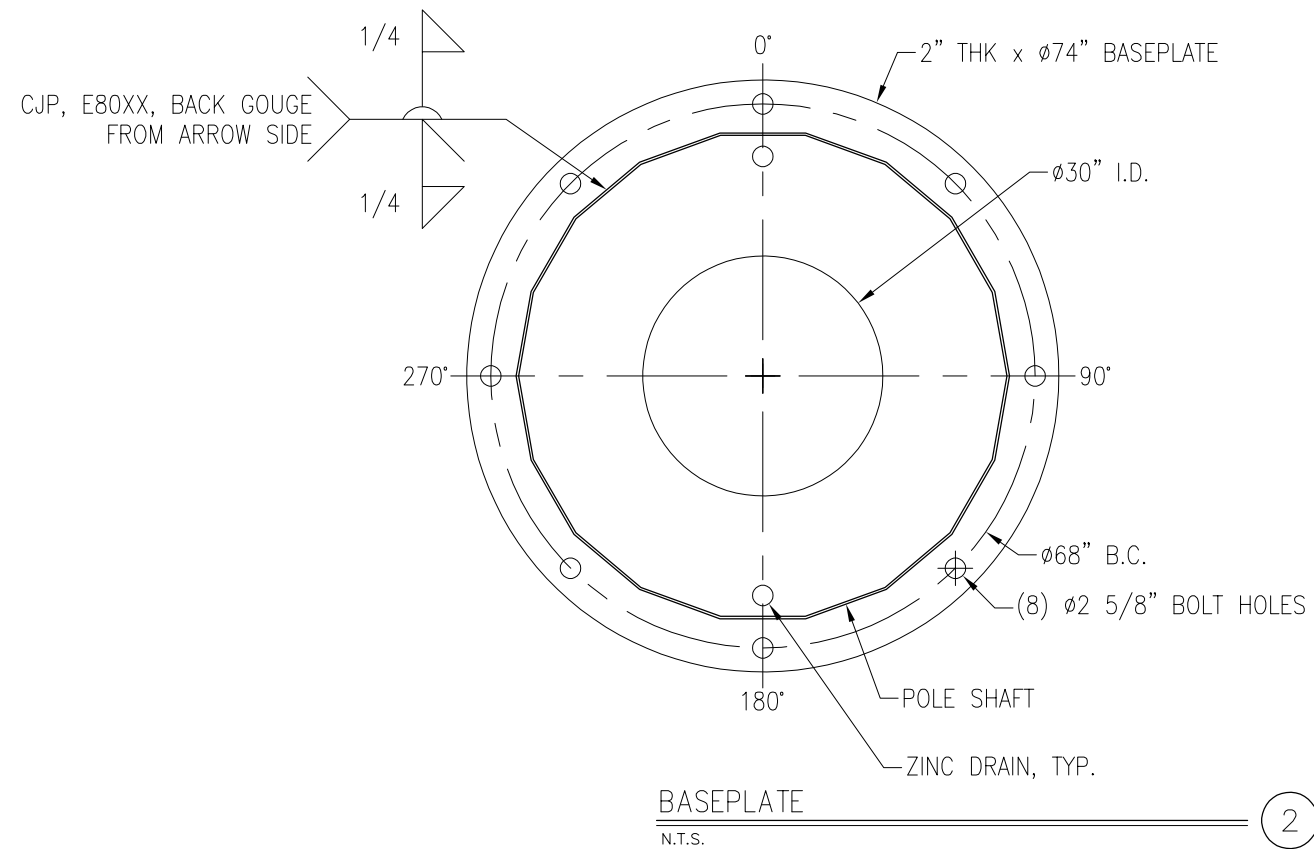
- SECTION WEIGHT INCLUDES PORTS. LOWEST SECTION WEIGHT INCLUDES BASEPLATE WEIGHT.
- DESIGN TAPER = 0.14 in/ft.
- WEIGHTS LISTED IN THIS CHART ARE RAW STEEL WEIGHTS. FINAL WEIGHTS MAY BE UP TO 22% GREATER DUE TO GALVANIZING AND OTHER MISCELLANEOUS ITEMS.
- DIAMETER OF POLE SECTIONS AT LAP SPLICES MAY BE ADJUSTED BY UP TO 0.06" TO ACCOUNT FOR THE THICKNESS OF COATINGS.

POLE SECTIONS

N.T.S.

2





DESIGN LOADING:

- ANTENNA C.L. @ 124'-0" & 112'-0" A.G.L.:
- (2) 72.0"x25.2"x9.3" PANEL ANTENNAS
 - (2) 22"x12"x8" RRU's
 - (2) 22"x12"x7.4" RRU's
 - (1) 20.38"x18.86"x5.83" COVP
- ANTENNA C.L. @ 100'-0" & 88'-0" A.G.L.:
- (3) 96"x14.6"x7.3" PANEL ANTENNAS
 - (3) 7.62"x6.65"x3.69" TMAs
 - (3) 5.63"x3.7"x2" TMAs

NOTE: ALL EQUIPMENT TO BE ENCLOSED IN 50" RADOMES

APPURTENANCES

N.T.S.

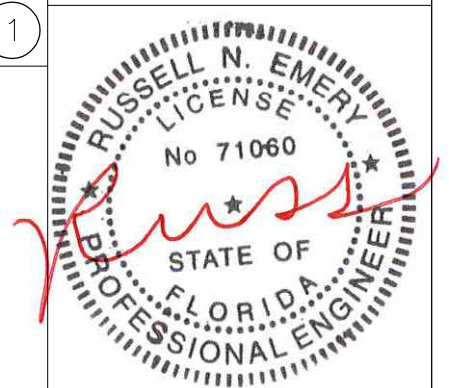
1



STEALTH[®]
GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS
DRAWING SET IS PROPRIETARY & CONFIDENTIAL
BY NATURE. ANY USE OR DISCLOSURE OTHER
THAN THAT WHICH RELATES TO
STEALTH® CONCEALMENT SOLUTIONS, INC
IS STRICTLY PROHIBITED.



09/13/2018

DRAWING NOT TO SCALE, UNLESS SPECIFIED
OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES	
DECIMALS	ANGULAR
X ± 1/16"	X ± 0.5°
.XXX ± 0.01"	

DETAILS

RG TOWERS
FT. PIERCE ORANGE AVE
BASE POLE
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

S2

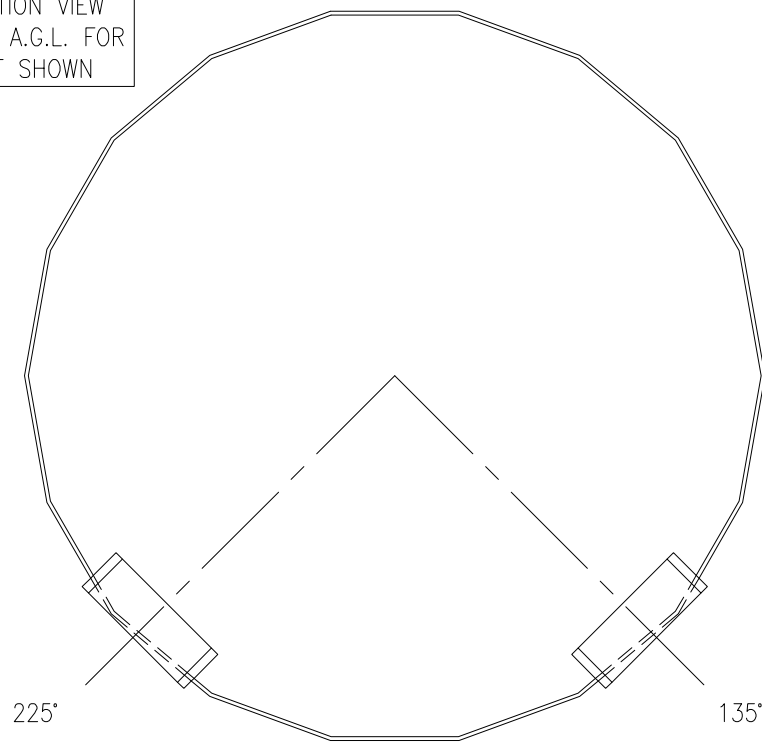
9/13/18

REVISION

0

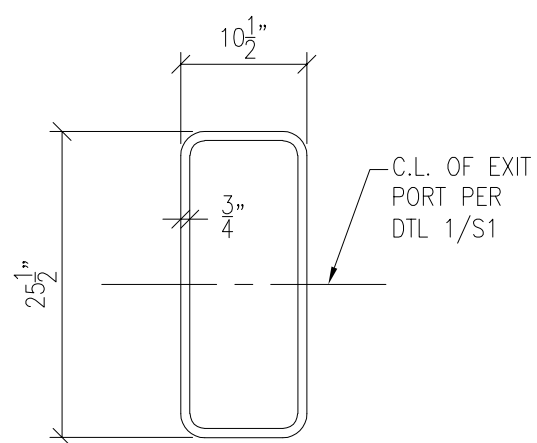


SEE SECTION VIEW
@ 4'-0" A.G.L. FOR
INFO NOT SHOWN

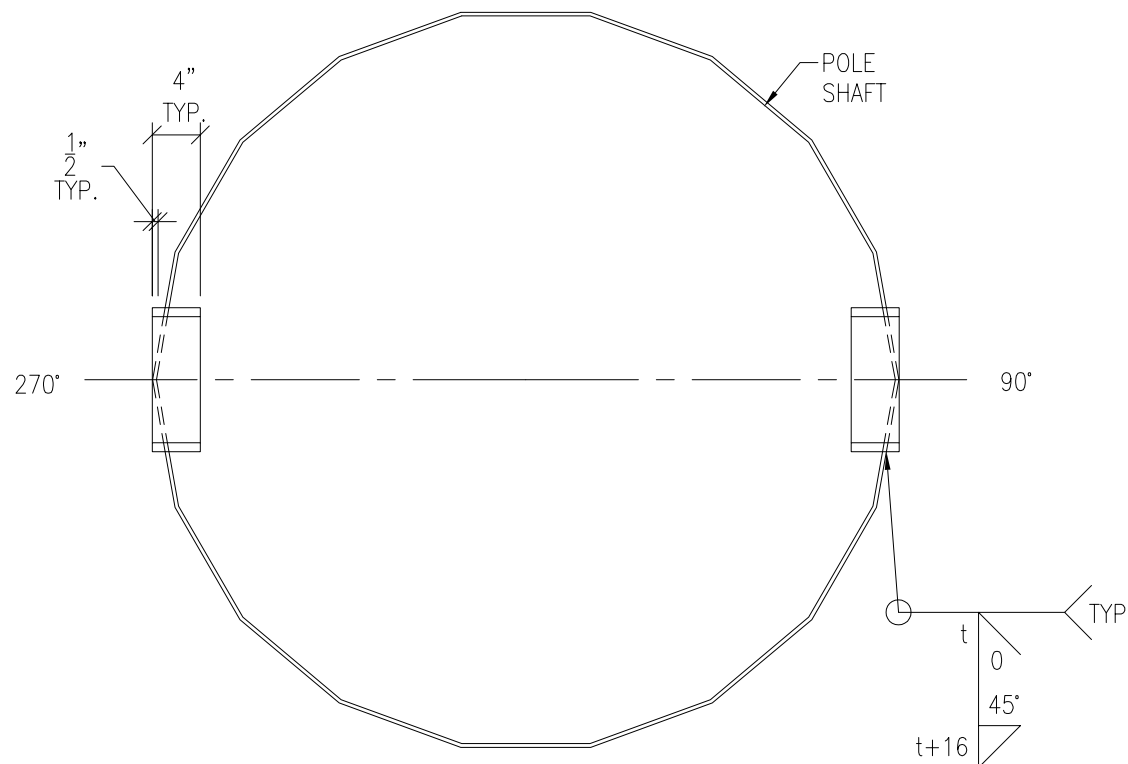


SECTION VIEW @ 8'-0" A.G.L.

NOTE: AZIMUTHS TO
BE VERIFIED PRIOR
TO FABRICATION



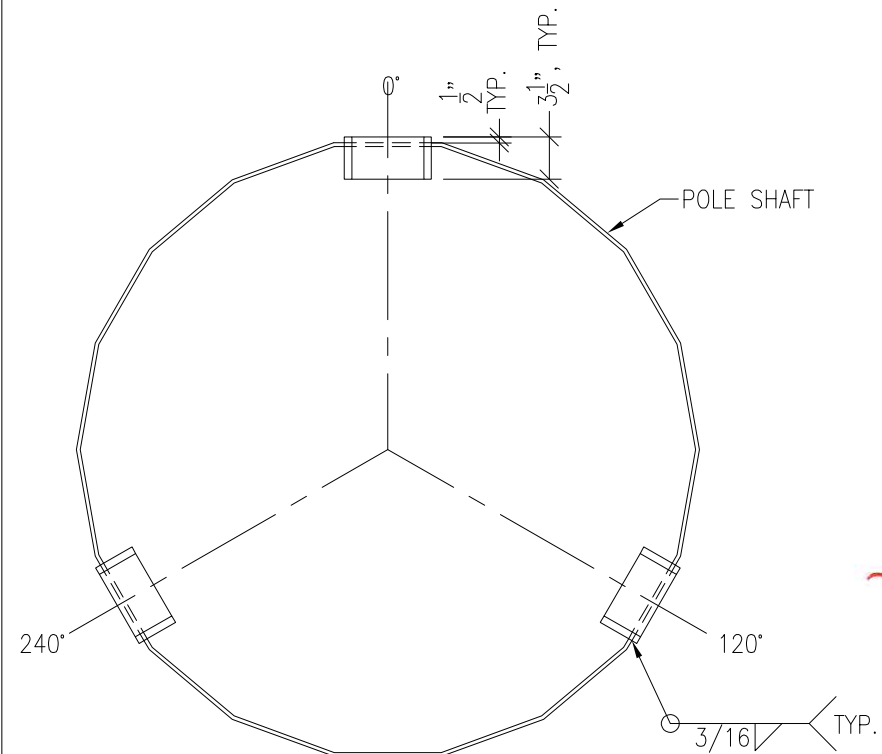
ELEVATION VIEW



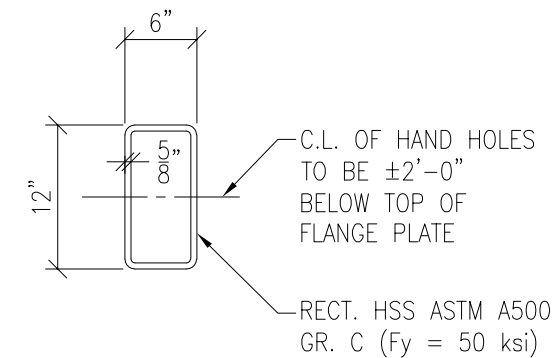
SECTION VIEW @ 4'-0" A.G.L.

REINFORCED EXIT PORTS
N.T.S.

2



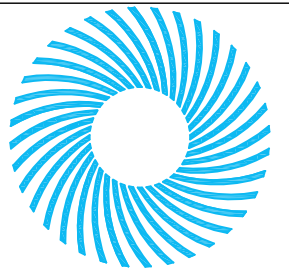
SECTION VIEW



ELEVATION VIEW

HAND HOLES
N.T.S.

1



STEALTH[®]
GO UNNOTICED[™]

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS
DRAWING SET IS PROPRIETARY & CONFIDENTIAL
BY NATURE. ANY USE OR DISCLOSURE OTHER
THAN THAT WHICH RELATES TO
STEALTH[®] CONCEALMENT SOLUTIONS, INC
IS STRICTLY PROHIBITED.



09/13/2018

DRAWING NOT TO SCALE, UNLESS SPECIFIED
OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES	
DECIMALS	ANGULAR
X ± 1/16"	X ± 0.5°
.XXX ± 0.01"	

DETAILS

RG TOWERS
FT. PIERCE ORANGE AVE
BASE POLE
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

S3

9/13/18

REVISION

0

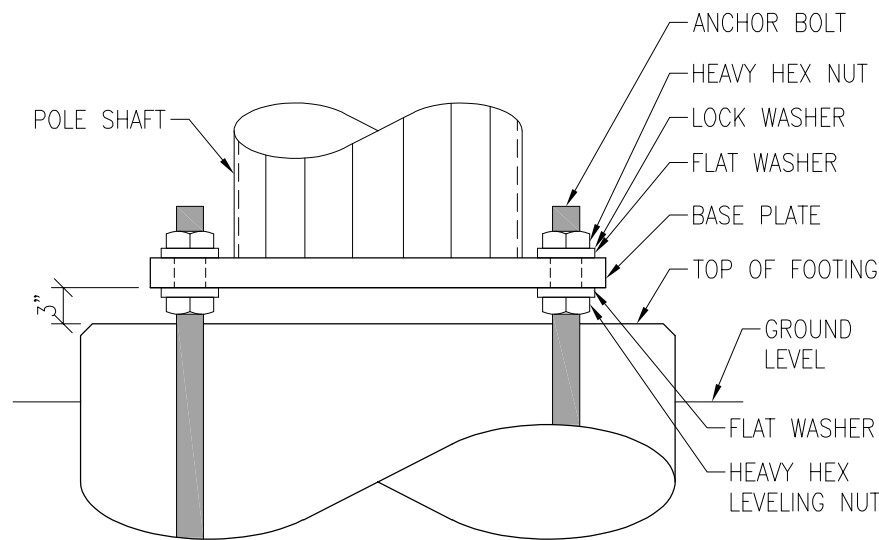


FOUNDATION NOTES:

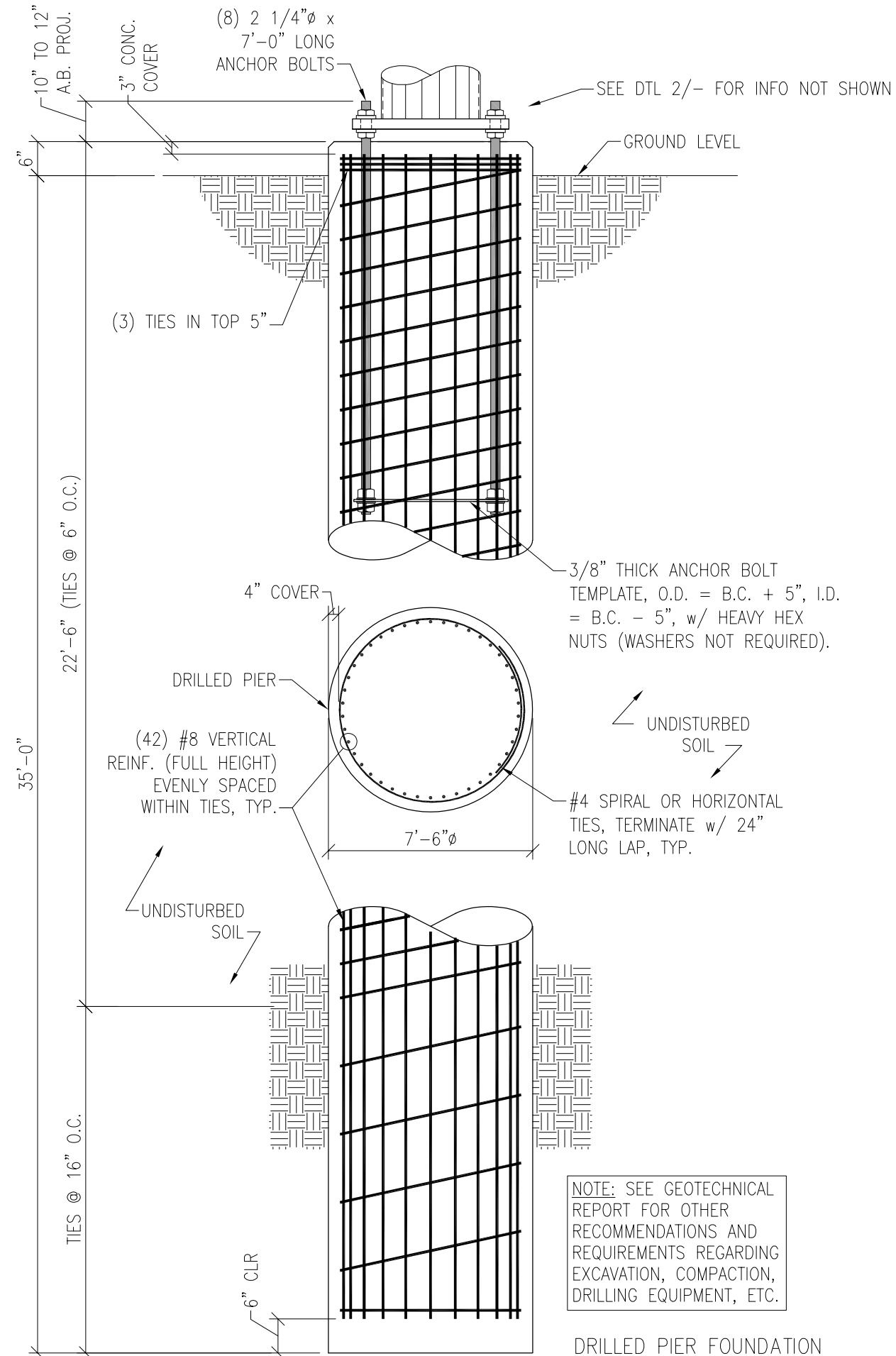
1. FOUNDATION DESIGN IS BASED ON THE FOLLOWING GEOTECHNICAL REPORT:

ENVIRONMENTAL CORPORATION OF AMERICA
 REPORT: T4300
 DATE: AUGUST 22, 2018

- ALL CONCRETE SHALL USE PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF PSI AT 28 DAYS. CONCRETE SHALL HAVE A MINIMUM OF 6% ENTRAINED AIR (WHERE FROST DEPTH > 0"). CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.50. CONCRETE SHALL HAVE A SLUMP OF 5" (±1") UNLESS OTHERWISE SPECIFIED IN THE GEOTECHNICAL REPORT. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," ACI 318-11. FOUNDATION INSTALLATION SHALL BE IN ACCORDANCE WITH ACI 336, "STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF DRILLED PIERS," LATEST EDITION.
- REINFORCING STEEL SHALL CONFORM WITH THE REQUIREMENTS OF ASTM A-615, GRADE 60. ALL REINFORCING DETAILS SHALL CONFORM TO "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," ACI 315, LATEST EDITION, UNLESS DETAILED OTHERWISE ON THIS DRAWING.
- INSTALLATION OF FOUNDATION MUST BE OBSERVED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER FIRM. GEOTECHNICAL ENGINEER TO PROVIDE A NOTICE OF INSPECTION FOR THE BUILDING INSPECTOR FOR REVIEW AND RECORD PURPOSES.
- CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT FOR INFORMATION REGARDING INSTALLATION METHOD, REQUIRED INSTALLATION EQUIPMENT, AND ALL OTHER REQUIREMENTS RELATED TO THE INSTALLATION OF THE PIER.
- ALL ALL ANCHOR BOLTS SHALL CONFORM w/ ASTM A615 GR. 75, GALVANIZED U.N.O.



N.T.S. 2



NOTE: SEE GEOTECHNICAL REPORT FOR OTHER RECOMMENDATIONS AND REQUIREMENTS REGARDING EXCAVATION, COMPACTION, DRILLING EQUIPMENT, ETC.

DRILLED PIER FOUNDATION
 N.T.S. 1



STEALTH[®]
 GO UNNOTICED™

3034-A ASHLEY PHOSPHATE RD.
 NORTH CHARLESTON, SC 29418
 P: (800)-755-0689 F: (843)-207-0207
 WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
 THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO STEALTH® CONCEALMENT SOLUTIONS, INC IS STRICTLY PROHIBITED.



09/13/2018

DRAWING NOT TO SCALE. UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES	
DECIMALS	ANGULAR
X ± 1/16"	X ± 0.5°
.XXX ± 0.01"	

DRILLED PIER FOUNDATION

RG TOWERS
 FT. PIERCE ORANGE AVE
 BASE POLE
 2006 ORANGE AVENUE
 FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
 DRAWN: LSB-VSE
 DESIGNED: DJF-VSE
 REVISED:

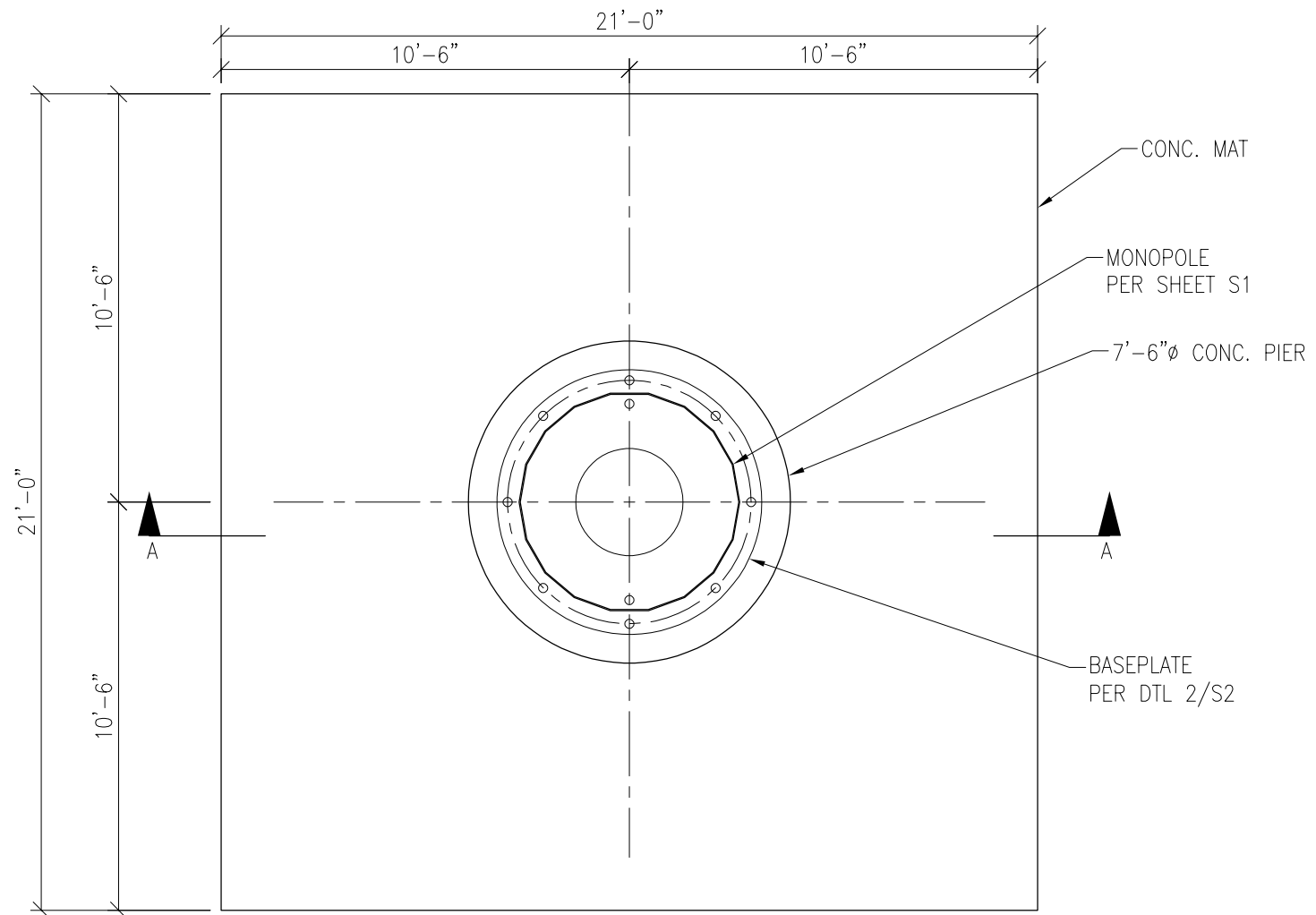
S4

9/13/18

REVISION
 0

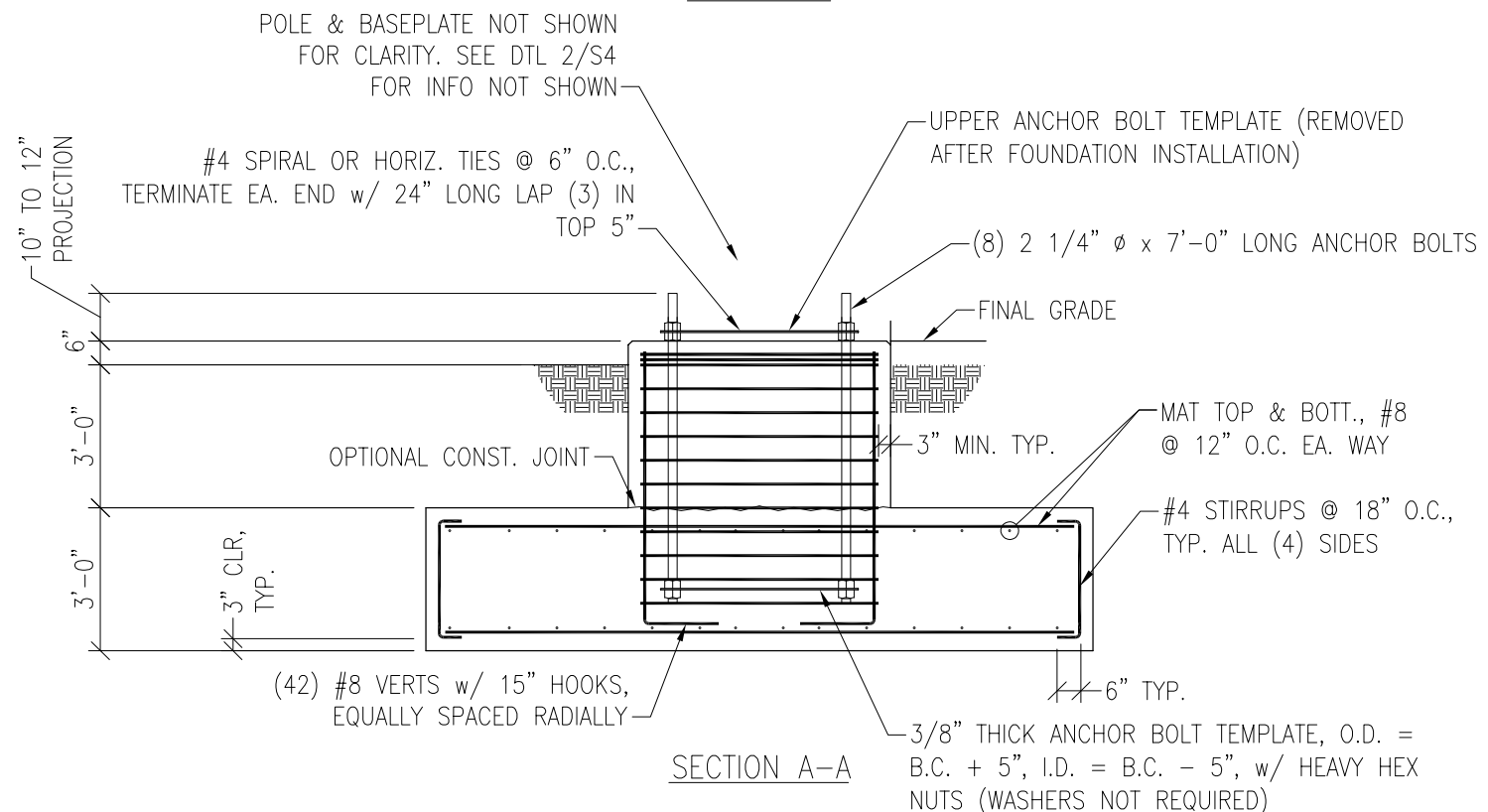


FOUNDATION NOTES:
SEE SHEET S4 FOR FOUNDATION NOTES



PLAN VIEW

POLE & BASEPLATE NOT SHOWN FOR CLARITY. SEE DTL 2/S4 FOR INFO NOT SHOWN



SECTION A-A

MAT FOUNDATION

N.T.S.



STEALTH[®]
GO UNNOTICED[™]

3034-A ASHLEY PHOSPHATE RD.
NORTH CHARLESTON, SC 29418
P: (800)-755-0689 F: (843)-207-0207
WWW.STEALTHCONCEALMENT.COM

PROPRIETARY INFORMATION
THE INFORMATION CONTAINED WITHIN THIS DRAWING SET IS PROPRIETARY & CONFIDENTIAL BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO STEALTH[®] CONCEALMENT SOLUTIONS, INC IS STRICTLY PROHIBITED.



09/13/2018

DRAWING NOT TO SCALE, UNLESS SPECIFIED OTHERWISE DIMENSIONS SHOWN ARE IN INCHES

TOLERANCES	
DECIMALS	ANGULAR
X ± 1/16"	X ± 0.5°
.XXX ± 0.01"	

MAT FOUNDATION

RG TOWERS
FT. PIERCE ORANGE AVE
BASE POLE
2006 ORANGE AVENUE
FT. PIERCE, FL 34950

JOB #: RG18-01105W-05R1
DRAWN: LSB-VSE
DESIGNED: DJF-VSE
REVISED:

S5

9/13/18

REVISION

0



A2P0227A
Ft Pierce- Orange Ave
Wireless Telecommunication
Facility

Radio Frequency (RF) Engineering Report

Last Updated	8/10/2018
Revision Number	V1.1

Table of Contents

Search Ring Area.....	3
Current Cell Site Coverage and Predicted Improvements.....	5
Certification Statement of Non-interference	6

Search Ring Area

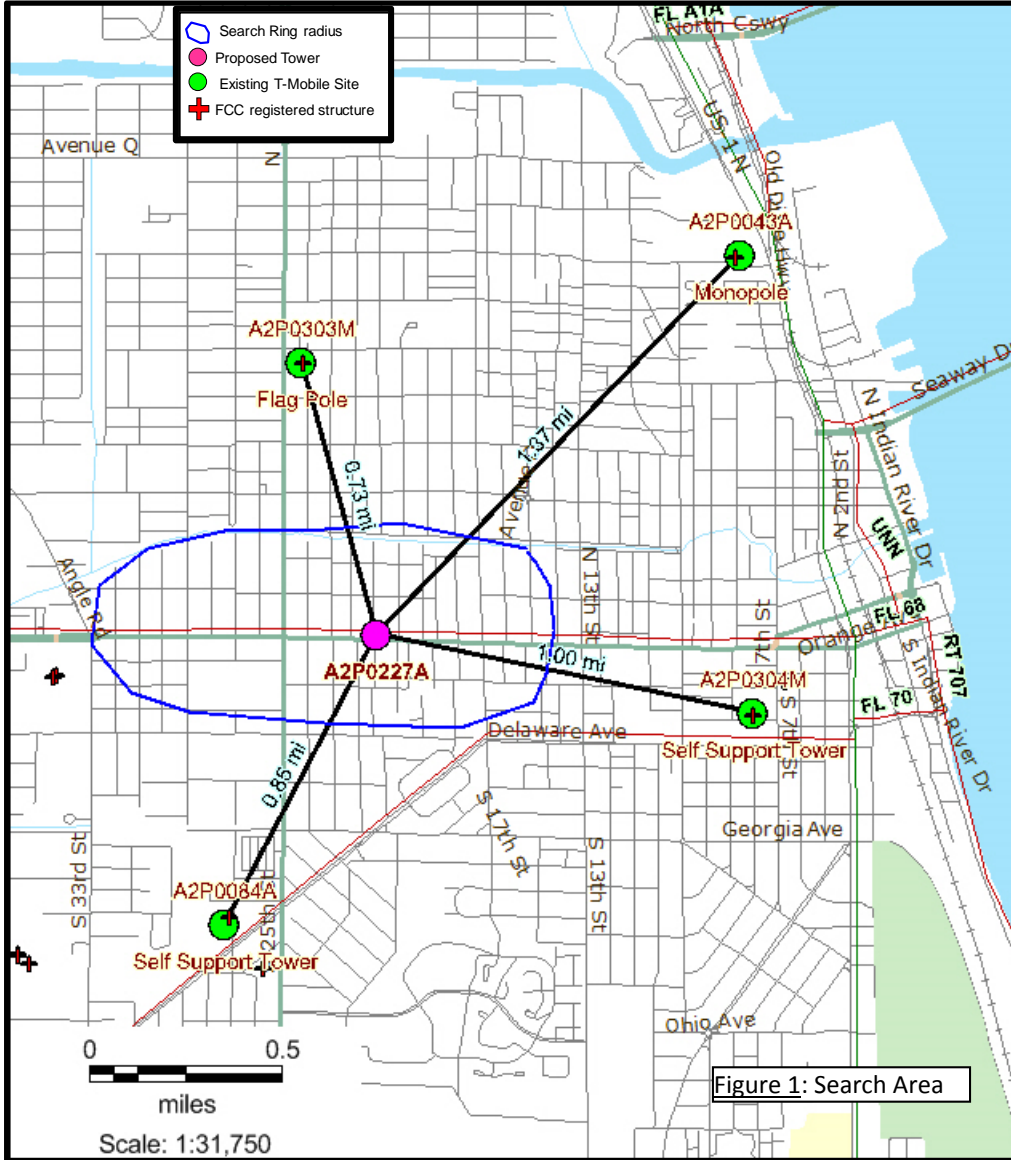


Figure 1: Search Area

As part of T-Mobile’s commitment to improve service in the south Florida market a number of “search rings” have been issued to address coverage deficiencies in the cellular network. Each search ring is in an area where service levels are inadequate to provide the necessary cell phone coverage or capacity. Within the search ring existing towers or structures of sufficient height are sought with the goal of deploying radio transceivers and antennas to improve the local area service levels.

Due to the dramatic increase in cell phone traffic and the popularity of wireless data applications over the last few years, significant demands have been placed on network coverage and capacity. One such area in need of improved services is in the city of Ft Pierce from Canal Terrace in the north to Havana Ave in the south and from S 25th St in the west to 13th St in the east. Coverage levels are too low to support the capacity and coverage needs for this part of the network. Users placing calls indoors and especially during network busy hours may experience dropped calls, ineffective network attempts and slow data application speeds. In the worst-case a user may not be able to place a E911 call.

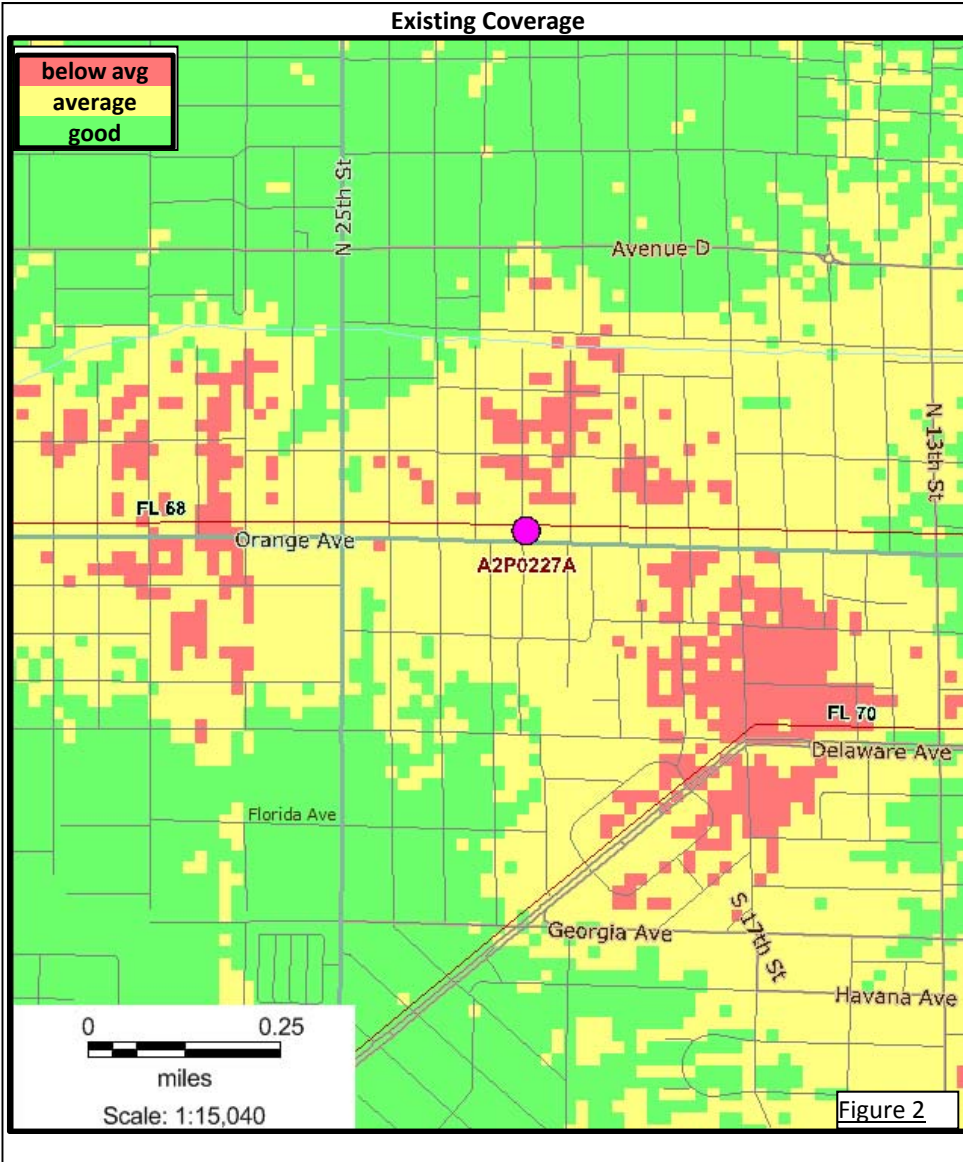
There were no towers or structures of sufficient height within the T-Mobile search area that could accommodate the addition of new facility that would provide an adequate coverage improvement. The surrounding facilities have undergone extensive upgrades over the last decade with no appreciable improvement in service levels in the area of concern.

Shown above in Figure 1 is the T-Mobile search ring and the proposed location surrounded by existing T-Mobile cellular facilities (“cell sites”).

Site_ID	Site_Name	Site_Class_Desc	Antenna Elevation (ft)	Address	City	Distance (mi)
A2P0303M	FT. PIERCE FL1512	Flag Pole	145	910 N. 25th Street	Fort Pierce	0.7
A2P0084A	SBA 27TH STREET	Self Support Tower	140	111 S. 27th Street	Ft. Pierce	0.9
A2P0304M	Crown Citrus Ave	Self Support Tower	120	712 Citrus Ave.	Fort Pierce	1.0
A2P0043A	Crown	Monopole	180	710 Avenue M	Fort Pierce	1.4

Current Cell Site Coverage and Predicted Improvements

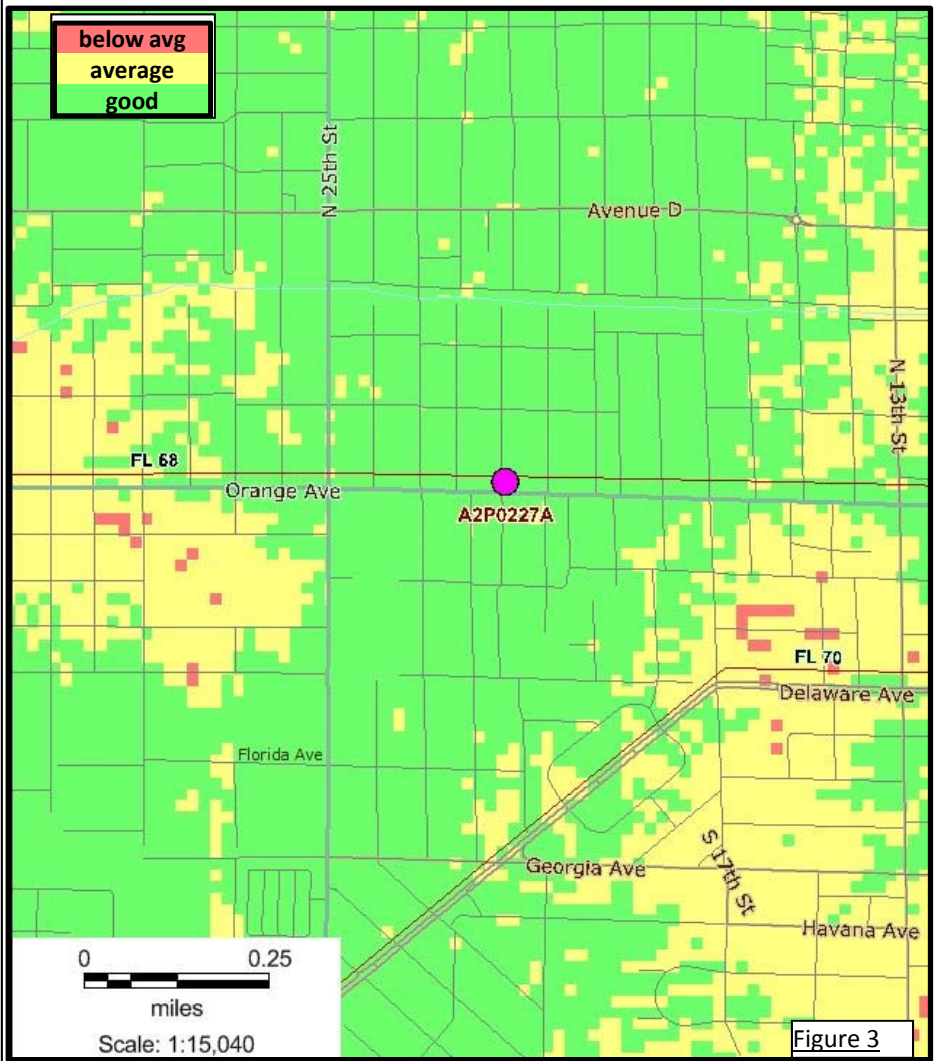
Good (reliable indoor service)	Average (reliable outdoor service)	below average (poor service)
Signal power levels able to support a wide range of wireless services both indoors and outdoors. These services include voice calls and high speed data.	Users may experience call quality issues depending on the signal power levels at their specific location. These issues could include dropped calls, ineffective attempts (blocked calls) or slow data speeds. Service in outdoor locations would be markedly better than indoors in many instances.	A user would encounter call quality issues especially indoors or during network busy hours due to low signal power levels. These issues could include dropped calls, ineffective attempts (blocked calls) and slow data speeds. Service may only be available in outdoor locations. In the worst case a user may not be able to place an emergency (E911) call.



As part of T-Mobile’s design and development process a number of engineering studies are completed to ensure a best-fit approach for cell site additions in the network. Propagation or prediction plots are one of the most important of these and are used extensively to determine if a new proposal is adequate.

In Figure 2 the cell site propagation is shown as shades of color which represent signal power levels that a user would experience at a particular location. The propagation model is based on a predictive computer simulator application that is derived from proprietary methodologies. Green areas indicate signal power levels able to support a wide range of wireless services both indoors and outdoors. These services include voice calls and high speed data. The yellow color indicates areas where a user may experience call quality issues due to inconsistent signal power levels. This may depend on their specific location. For instance, a person may be able to use the cell phone on one side of their house near a window but unable to connect in another part of the house. The red areas represent where a user would encounter call quality issues due to low or unusable signal power levels. This would be especially true indoors or during network busy hours. These issues could include dropped calls, ineffective attempts and slow data speeds. In the worst case a user may not be able to place an emergency (E911) call.

Predicted Coverage with New Facility



The propagation map shown in Figure 3 depicts the predicted signal power levels for the proposed tower when added to the existing network. As can be seen almost all the residential areas have a minimum of average service levels. This is especially important for users who are transitioning from one geographic area to another due to a more consistent coverage overlay. Users indoors will also benefit tremendously due to the closer proximity to the antenna locations. Areas where below average signal power levels still exist can sometimes be alleviated through network optimization methods after the new site comes on line. (These processes are iterative and require a more medium to long term engineering approach)

In summary, T-Mobile has recognized the demand for advanced telecommunication services in these communities. The existing T-Mobile facilities cannot provide these services through upgrade or expansion, due to the distances from the existing tower facilities and cell phone users in this area. Further, no towers or structures of sufficient height were identified in the search ring that could provide the necessary improvements to the network coverage.

These propagation maps graphically demonstrate T-Mobile's business needs based upon existing and predicted customer demands. T-Mobile's goal is to provide reliable wireless service in the areas shown as defined by proprietary QOS (Quality of Service) design parameters.

Certification Statement of Non-interference

This letter provides information about the proposed T-Mobile transceiving equipment on the proposed facility at 2006 Orange Ave, Ft Peirce and its potential interference with communication facilities located nearby; as well as the FCC rules governing the human exposure to radio frequency energy (OET 65 guidelines). T-Mobile shall comply with all FCC rules regarding interference to other radio services and T-Mobile shall comply with all FCC rules regarding human exposure to radio frequency energy. The proposed tower facilities, and reception and transmission functions will not interfere with the visual and customary transmission or reception of radio, television or similar services as well as other wireless services enjoyed by surrounding properties.

T-Mobile radio signals are transmitted on exclusively assigned channels within the E, F and C bands in the PCS spectrum and the D, E, F1 and F2 in the AWS spectrum and A Band in 700MHz. In the future AWS-3 Block H and B, C and D blocks in 600 MHz will be active. The Federal Communication Commission (FCC) has allocated these frequencies exclusively for use by cellular service providers. Each cellular service provider is assigned specific frequencies (channels) on which to transmit and receive radio signals.

Cellular transmitters must be type-accepted by the FCC to ensure compliance with technical standards that limit the frequencies, output power, radio frequency emissions, spurious radio noise and other technical parameters. Cellular licensees like T-Mobile owns are required to use type-accepted equipment. The assignment of frequencies and FCC rules keep cellular radio signals from interfering with or being interfered with by other radio transmissions and provide guidelines outlining the limits for permissible human RF exposure. In the event of a complaint of interference or other concerns about cellular antenna facilities, the FCC has a resolution process to determine the source of interference and whether a facility is in compliance with FCC rules.

In the event of interference or other known issues with the transmission facility contact with the T-Mobile Network Operations Center (NOC) can be established 24 hours a day, 7 days a week 365/366 days per year at the following numbers: (877) 611-5868 (DAY), (877) 611-5868 (NIGHT)

Name Patrick Keane

Title T-Mobile RF Engineer



Signature _____

7017 0190 0000 0262 7657

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

BOCA RATON FL 33431

OFFICIAL USE

Certified Mail Fee	\$3.35	
\$		0420
Extra Services & Fees (check box, add fee as appropriate)	\$0.00	16
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.49	
\$		Postmark Here
Total Postage and Fees	\$3.84	OCT 19 2017
\$		10/19/2017

Sent To: Mark Baesch
 Street and Apt. No., or PO Box No.: 4700 Exchange Ct Ste 100
 City, State, ZIP+4®: Boca Raton FL 33431

PS Form 3800, April 2015 PSN 7530-02-000-9047. See Reverse for Instructions

7017 0190 0000 0262 7671

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

FORT LAUDERDALE FL 33309

OFFICIAL USE

Certified Mail Fee	\$3.35	
\$		0420
Extra Services & Fees (check box, add fee as appropriate)	\$0.00	16
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.49	
\$		Postmark Here
Total Postage and Fees	\$3.84	OCT 19 2017
\$		10/19/2017

Sent To: Matt Spiak
 Street and Apt. No., or PO Box No.: 6700 N Andrews Ave Ste 700
 City, State, ZIP+4®: Ft Lauderdale FL 33309

PS Form 3800, April 2015 PSN 7530-02-000-9047. See Reverse for Instructions

7017 0190 0000 0262 7640

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

LAKE MARY FL 32746

OFFICIAL USE

Certified Mail Fee	\$3.35	
\$		0420
Extra Services & Fees (check box, add fee as appropriate)	\$0.00	16
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$0.49	
\$		Postmark Here
Total Postage and Fees	\$3.84	OCT 19 2017
\$		10/19/2017

Sent To: Connie Chapman
 Street and Apt. No., or PO Box No.: 3210 Lake Emma Rd
 City, State, ZIP+4®: Lake Mary FL 32746

PS Form 3800, April 2015 PSN 7530-02-000-9047. See Reverse for Instructions



Ft Pierce Planning and Zoning
100 N. U.S. Highway 1
Fort Pierce, FL 34950

5-10-18

RE: RG Towers - Ft Pierce- Orange Ave Design Review Application Checklist- Section i. Accurate color rendering of proposed signs showing dimensions, type of lettering, materials and actual color samples that demonstrates cohesiveness with the project design.

Please allow the photograph below to represent the signage proposed for our proposed new communication tower to be located at 2006 Orange Ave.



Please let me know if you have any questions.

Sincerely

Holly Valdez
V.P. Operations
RG Towers LLC



RG Towers, LLC

Ft Pierce Planning and Zoning
100 N. U.S. Highway 1
Fort Pierce, FL 34950

5-10-18

RE: RG Towers - Ft Pierce Orange Ave Design Review Section f. Photographs of all existing structures located on the property. If existing structures on the property are more than fifty (50) years of age, documentation of these structures with data from the Florida Master Site File form is also required.



Please let me know if you have any questions.

Sincerely,

Holly Valdez

Holly Valdez
RG Towers, LLC
V.P. Operations

2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com

Ft Pierce Planning and Zoning
 100 N. U.S. Highway 1
 Fort Pierce, FL 34950

RE: RG Towers - Ft Pierce- Orange Ave Design Review Application Checklist- Section e.

Please allow the photographs below to serve as a precedent for the proposed building design of the new proposed communication tower to be located at Orange Ave. These are all local towers within two miles of the proposed area of development.

Str Reg #	Tower Owner	Distance	Type	Colocations	Height	Address
1270020	American Towers, LLC.	0.79	flagpole	flagpole	150ft	Fl1512 Ft. Pierce - 910 N 25th St Structure City: Fort Pierce, FL
1028726	BellSouth Telecommunications, LLC	1.03	rooftop	rooftop	141ft	712 Citrus Ave Structure City: Fort Pierce, FL
1027499	FLORIDA POWER & LIGHT COMPANY	0.86	guyed	3	300ft	South 33rd Street At Hwy 68 Structure City: Fort Pierce, FL
1227259	Crown Communication LLC	1.43	monopole	3	191ft	710 Ave "m Structure City: Fort Pierce, FL
1036166	SBA Properties, LLC	0.77	SST	2 or 3	350ft	St. Lucie County Structure City: Ft. Pierce, FL
1203992	Daves Communications Inc	0.9	granted	granted	161ft	2530 Okeechobee Rd Structure City: Ft. Pierce, FL
1257640	American Towers, LLC	1.18	unipole	unipole	205ft	37th Street (#75126-shielded) Structure City: Ft. Pierce, FL
1035334	r INDIAN RIVER STATE COLLEGE	1.85	SST	2	500	3209 Virginia Avenue Structure City: Ft. Pierce, FL



THE SUNRISE CITY
FORT PIERCE
PLANNING DEPARTMENT *Florida*

Design Review

Property address or Location 2006 Orange Ave
 Parcel ID #(s) 2409-605-0008-000-4
 Project Description New Communication tower w/compound

Abdel Jebbar Elbak Kari *Leslie Phillips*
 Property Owner(s)
2006 Orange Ave.
 Street Address
Ft Pierce FL 34950
 City State Zip
772-595-8129
 Phone Number
amal6012012@gmail.com
 Email Address

RG Towers, LLC
 Applicant/Representative, Title, Company
2141 Alt. A1AS. Ste 440
 Street Address
Jupiter FL 33477
 City State Zip
561-748-0302
 Phone Number
hvaldez@rgpartners.com
 Email Address

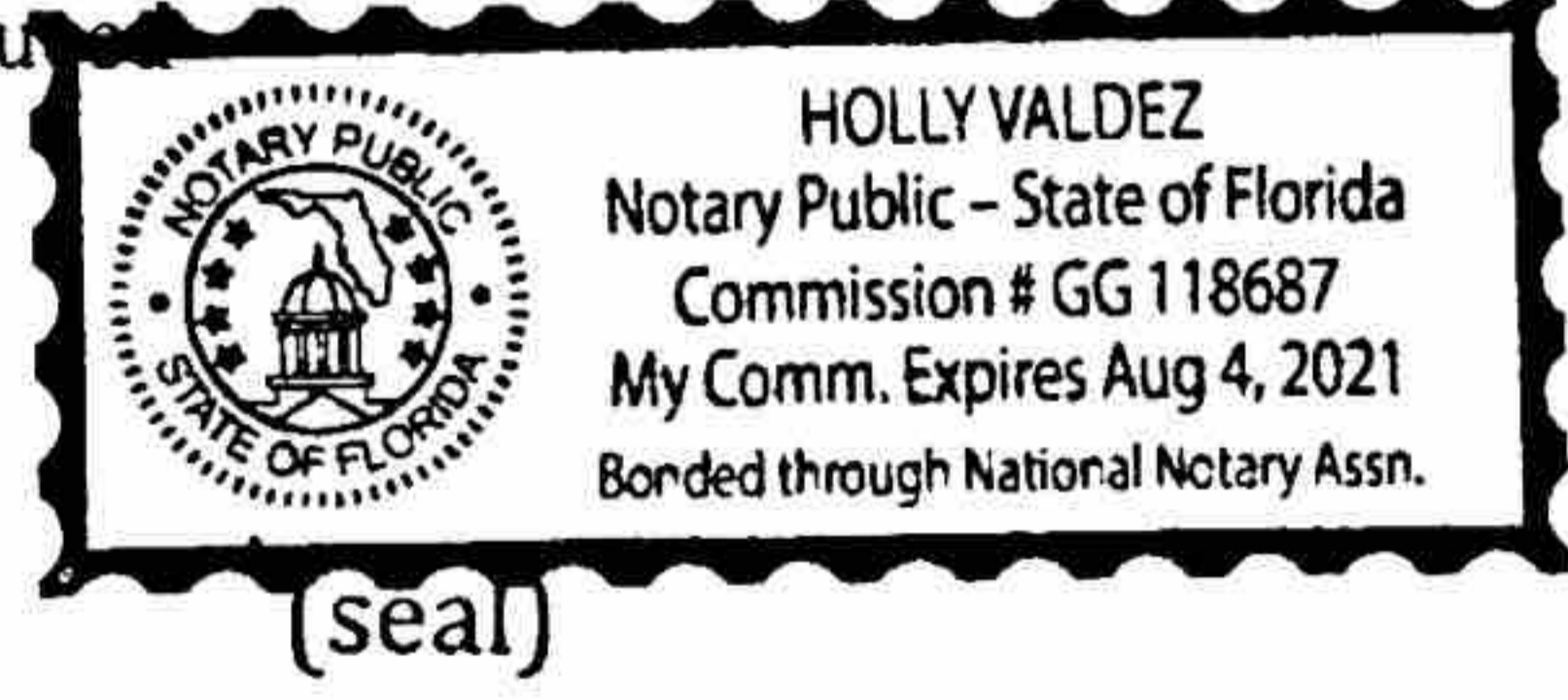
Property Owner(s) Acknowledgements: - This application will not be considered complete without the signature of all property owners of record, which shall serve as an acknowledgement of the submission of this application. The property owner's signature below shall also authorize the Application (if other than the property owner) and/or Representative to act in his/her behalf for the purposes of seeking approval for the application described herein.

Leslie Phillips 6/14/18
 Property Owner(s) Signature(s)

STATE OF FLORIDA -- COUNTY
 The foregoing instrument was acknowledged before me this 14th day of June, 2018, by

Leslie Phillips who is personally known to me or has produced _____ as identification.

Holly Valdez
 Signature of Notary



TO BE COMPLETED BY STAFF

Zoning	Future Land Use	Total Acres	Historic Districts	Historic Designation

Pre-Application Meeting Date _____ Fees _____ Control # _____ B. Permit _____
 Intake Planner _____
 Planner Assigned _____
 Approved _____ Date _____
 Comments _____

Intake Date Stamp

1270020



1028726



1027499



1227259



1036166



1203992



1257640



1035334



RG Towers, LLC built a monopole tower located at 2551 Jenkins Rd, Ft Pierce FL 34947 in 2016.

1297991



Please let me know if you have any questions.

Sincerely

Holly Valdez
V.P. Operations
RG Towers LLC



RG Towers, LLC

Ft Pierce Planning and Zoning
100 N. U.S. Highway 1
Fort Pierce, FL 34950

5-10-18

RE: RG Towers - Ft Pierce Orange Ave Design Review Section D Context photographs of neighboring uses and architectural styles.





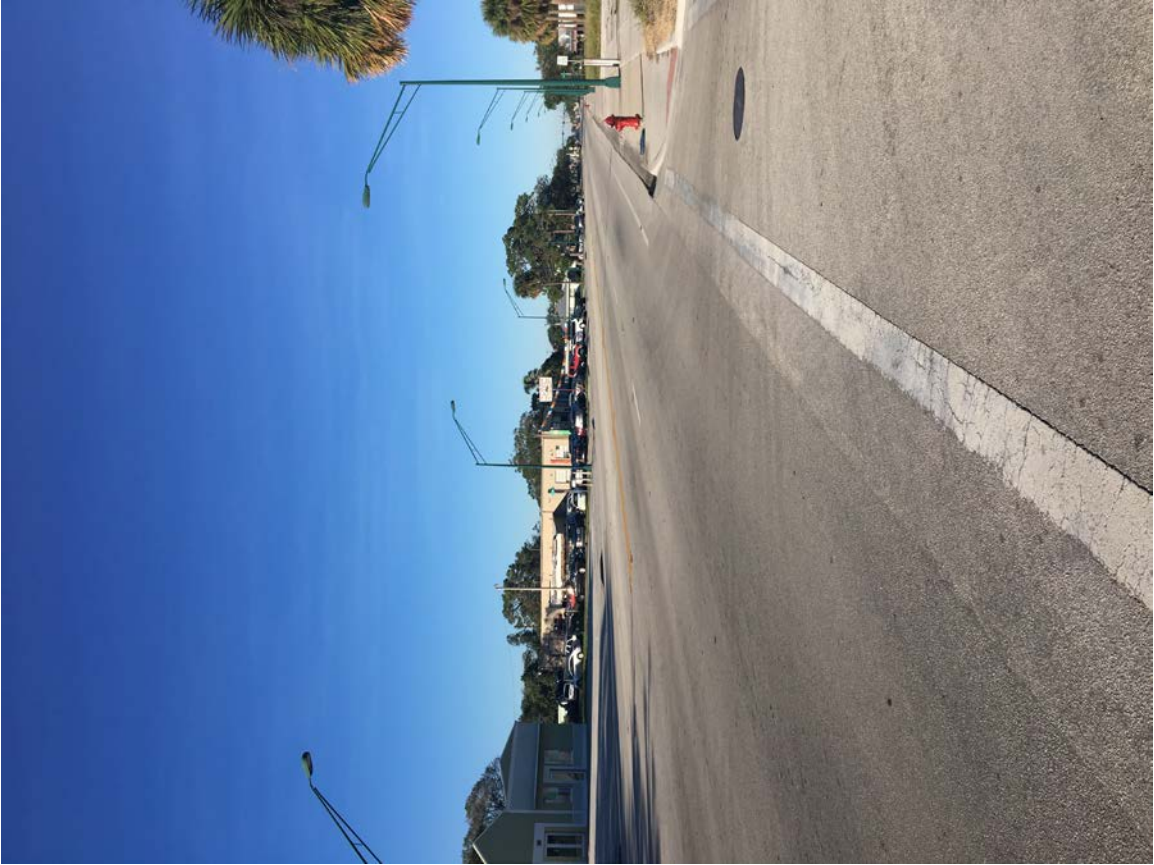
2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



Please let me know if you have any questions.

Sincerely,

Holly Valdez
RG Towers, LLC
V.P. Operations

2141 Alternate A1A South, Suite 440
Jupiter, FL 33477
Phone: 561-748-0302 Fax: 561-748-0303 Web: www.rgtowers.com



RG Towers, LLC

Ft Pierce Planning and Zoning
100 N. U.S. Highway 1
Fort Pierce, FL 34950

5-10-18

RE: RG Towers - Ft Pierce Orange Ave Design Review Section c. A draft written narrative describing the design intent of the project, its goals and objectives and how it reflects the site analysis study results.

Coverage levels in this area are too low to support the capacity and coverage needs for this part of T-Mobile’s network. Users placing calls indoors and especially during network busy hours may experience dropped calls, ineffective network attempts and slow data application speeds. In the worst-case a user may not be able to place a E911 call. For this reason, RG Towers, LLC is applying for approval to build a 130’ communications tower at the location shown below.

Tower Height/Type 130’ Stealth Communication Tower
Address 2006 Orange Ave, Ft Pierce FL 34950
Coordinates Approximately 27.447636, -80.345960

The parcel is currently owned by Lesley Phillips and Abdel Jebbar Elbakkari. RG Towers, LLC entered into a Lease Agreement dated 9/27/17.

The character of this undeveloped parcel is commercial with no existing vegetation in the proposed lease area and is among primarily commercial zones as seen in the attached photographs. The surrounding zones are as follows;

<u>ADJACENT ZONING CLASSIFICATIONS</u>	<u>ZONING/LAND USE CLASSIFICATION</u>
ZONING TO EAST	C-3/GENERAL COMMERCIAL
ZONING TO SOUTH	C-3/GENERAL COMMERCIAL
ZONING TO WEST	C-3/GENERAL COMMERCIAL
ZONING TO NORTH	R3/SINGLE FAMILY MODERATE DENSITY

The intended use will be the development of a 130’ stealth communication tower with a 6’ wooden fenced compound to enclose the auxiliary equipment. The fenced compound will be

landscaped per the code to be made up of live oaks and podocarpus on the east and north sides and on the west and south sides the fence will be left intentionally blank for future artwork related to the Peacock and Lincoln Park Districts . In addition to the fencing and landscaping, RG Towers will install a concrete apron access off N. 21st Street.

This is to be an unmanned facility with only semiannual visits for maintenance outside of initial construction.



Please let me know if you have any questions.

Sincerely,

Holly Valdez
RG Towers, LLC
V.P. Operations



RG Towers, LLC

Ft Pierce Planning and Zoning
100 N. U.S. Highway 1
Fort Pierce, FL 34950

RE: RG Towers – Ft Pierce- Orange Ave Design Review Application Checklist (City Code of Ordinances 22-59)

Attached please find the following for review and approval:

Signed Application Design Review

- a. A survey -submitted with Development Review application
- b. A site analysis study – please refer to the landscape plan submitted with Development Review application
- c. A draft written narrative describing the design intent of the project, its goals and objectives and how it reflects the site analysis study results.
- d. Context photographs of neighboring uses and architectural styles.
- e. Photographs and/or drawings of architectural buildings or objects that serve as a precedent for the proposed building design. Models should be taken from local exemplary buildings, either existing or demolished. Documentation of such buildings is available in the city's planning department.
- f. Photographs of all existing structures located on the property. If existing structures on the property are more than fifty (50) years of age, documentation of these structures with data from the Florida Master Site File form is also required.
- g. Conceptual site plan- submitted with Development Review application
- h. Landscape plan, at the same scale as the site plan - submitted with Development Review application
- i. Accurate color rendering of proposed signs showing dimensions, type of lettering, materials and actual color samples that demonstrates cohesiveness with the project design.
- j. Exterior elevations showing architectural character, external architectural features and streetscape of the proposed development, including materials, colors, shadow lines and landscaping- elevation submitted with Development Review application
- k. Design review concurrent with conceptual development plan procedure according to subsection 22-58(e) is also available.

Submittal for Board Approval

- a. A written narrative describing how the project conforms to administrative approval and design review guidelines of this section.
- b. A final site plan meeting the requirements of section 22-58- submitted with Development Review application
- c. A final site lighting plan that meets the requirements of subsection 22-58(d)(8)- NA

- d. A final landscape plan that meets the requirements of Article XII, Landscaping and Trees. - submitted with Development Review application
- e. Final floor plans and elevation drawings (1/8" = 1'-0" minimum scale), as detailed under administrative approval, showing exterior building materials and colors with architectural sections and details to adequately describe the project. - submitted with Development Review application
- f. A color board (11"x17" maximum) containing actual color samples of all exterior finishes, keyed to the elevations, and indicating the manufacturer's name and color designation- no color-galvanized steel

Please let me know if you have any questions.

Sincerely,

Holly Valdez
RG Towers, LLC
V.P. Operations