

KENNETH C. BALDWIN

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Also admitted in Massachusetts

August 27, 2015

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

Re: Notice of Exempt Modification – Facility Modification

189 Boston Post Road, Old Lyme, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains fifteen (15) antennas at the 88-foot level of the existing 110-foot tower at 189 Boston Post Road in Old Lyme, Connecticut (the "Property"). The tower is owned by Crown Castle ("Crown"). The Council approved Cellco's use of this tower in 2009. Cellco now intends to replace nine (9) of its existing antennas with three (3) model LNX-6514DS-VTM, 700 MHz antennas; three (3) model HBXX-9014DS-VTM, 1900 MHz antennas; and three (3) model HBXX-6517DS-VTM, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to install nine (9) remote radio heads ("RRHs") on its antenna platform and two (2) HYBRIFLEXTM fiber optic antenna cables. Included in <u>Attachment 1</u> are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEXTM cables.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Bonnie Reemsnyder, First Selectwoman of the Town of Old Lyme. The Town of Old Lyme is the owner of the Property. A copy of this letter is also being sent to Crown, the tower owner.

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

14105117-v1

Robinson+Cole

Melanie A. Bachman August 27, 2015 Page 2

- 1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be located on its existing platform at the 88-foot level on the tower.
- 2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
- 3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
- 4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case General Power Density table for Cellco's modified facility is included in <u>Attachment 2</u>.
- 5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
- 6. The tower and its foundation, with certain modifications, can support Cellco's proposed modifications. (*See* Structural Modification Report included in <u>Attachment 3</u>).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures Copy to:

Bonnie Reemsnyder, Old Lyme First Selectwoman Crown Castle Tim Parks

ATTACHMENT 1







LNX-6514DS-VTM

Andrew® Antenna, 698-896 MHz, 65° horizontal beamwidth, RET compatible

- Great solution to maximize network coverage and capacity
- Excellent gain, VSWR, front-to-back ratio, and PIM specifications for robust network performance
- Ideal choice for site collocations and tough zoning restrictions
- Excellent solution for site sharing and maximizing capacity
- Fully compatible with Andrew remote electrical tilt system for greater OpEx savings
- The RF connectors are designed for IP67 rating and the radome for IP56 rating

Electrical Specifications

Frequency Band, MHz	698-806	806-896
Gain, dBi	15.8	15.9
Beamwidth, Horizontal, degrees	65	64
Beamwidth, Vertical, degrees	12.4	11.2
Beam Tilt, degrees	0-10	0-10
USLS, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	23	23
CPR at Sector, dB	12	10
Isolation, dB	30	30
VSWR Return Loss, dB	1.4 15.6	1.4 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz Gain by all Beam Tilts, average, dBi Gain by all Beam Tilts Tolerance, dB	698-806 15.6 ±0.4	806-896 15.7 ±0.5
	0 ° 15.7	0 ° 15.9
Gain by Beam Tilt, average, dBi	5 ° 15.7	5° 15.8
	10 ° 15.3	10 ° 15.3
Beamwidth, Horizontal Tolerance, degrees Beamwidth, Vertical Tolerance, degrees	±0.9 ±0.8	±1.4 ±0.6
USLS, dB	18	20
Front-to-Back Total Power at 180° ± 30°, dB	25	23
CPR at Boresight, dB	25	24
CPR at Sector, dB	15	12

^{*} CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol®
Band	Single band
Brand	DualPol® Teletilt®



LNX-6514DS-VTM

698 - 896 MHz

Performance Note Outdoor usage



Mechanical Specifications

Operating Frequency Band

ColorLight grayLightning Protectiondc GroundRadiator MaterialAluminum

Radome Material Fiberglass, UV resistant

RF Connector Interface 7-16 DIN Female

RF Connector Location Bottom
RF Connector Quantity, total 2

Wind Loading, maximum 617.7 N @ 150 km/h 138.9 lbf @ 150 km/h

Wind Speed, maximum 241.0 km/h | 149.8 mph

Dimensions

 Depth
 180.5 mm | 7.1 in

 Length
 1851.0 mm | 72.9 in

 Width
 301.0 mm | 11.9 in

 Net Weight
 14.2 kg | 31.3 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator LNX-6514DS-A1M RET System Teletilt®

Regulatory Compliance/Certifications

Agency

Classification

RoHS 2011/65/EU China RoHS SJ/T 11364-2006 ISO 9001:2008 Compliant by Exemption

Above Maximum Concentration Value (MCV)

Designed, manufactured and/or distributed under this quality management system





Included Products

DB380 — Pipe Mounting Kit for 2.4"-4.5" (60-115mm) OD round members on wide panel antennas. Includes 2 clamp sets and double nuts.

DB5083 — Downtilt Mounting Kit for 2.4"-4.5" (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel downtilt mounting bracket assembly and associated hardware. This kit is compatible with the DB380 pipe mount kit for panel antennas that are equipped with two mounting brackets.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance







HBXX-9014DS-VTM

DualPol® Quad Teletilt® Antenna, 1710-2180 MHz, 90° horizontal beamwidth, RET compatible

- 2x2 MIMO ready
- Two DualPol® antennas under one radome
- High front-to-back ratio aids in minimizing co-channel interference
- Fully compatible with Andrew remote electrical tilt system for greater OpEx savings
- Enhanced control of out-of-sector power improves co-channel interference, reduces softer hand-offs, improves capacity
- Fully supports PCS 1900, GSM 1800, UMTS 2100, and AWS spectrum

Electrical Specifications

Frequency Band, MHz	1710-1880	1850-1990	1920-2180
Gain, dBi	16.0	16.0	16.2
Beamwidth, Horizontal, degrees	90	90	90
Beamwidth, Vertical, degrees	7.4	7.0	6.6
Beam Tilt, degrees	0-10	0-10	0-10
USLS, typical, dB	17	17	18
Front-to-Back Ratio at 180°, dB	30	30	30
Isolation, dB	30	30	30
VSWR Return Loss, dB	1.4:1 15.6	1,4:1 15.6	1.4:1 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-150	-150	-150
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm
Lightning Protection	dc Ground	dc Ground	dc Ground

Mechanical Specifications

Color | Radome Material Connector Interface | Location | Quantity Wind Loading, maximum

Wind Speed, maximum

Light gray | PVC, UV resistant 7-16 DIN Female | Bottom | 4

419.5 N @ 150 km/h 94.3 lbf @ 150 km/h

241.0 km/h | 149.8 mph

Dimensions

 Depth
 166.0 mm | 6.5 in

 Length
 1294.00 mm | 50.94 in

 Width
 305.00 mm | 12.01 in

 Net Weight
 13.50 kg | 29.76 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 1.1 Actuator HBXX-9014DS-R2M Model with Factory Installed AISG 2.0 Actuator HBXX-9014DS-A2M

Regulatory Compliance/Certifications

Agency

Classification

RoHS 2002/95/EC

Compliant by Exemption



HBXX-9014DS-VTM



China RoHS SJ/T 11364-2006 ISO 9001:2008

Above Maximum Concentration Value (MCV)

Designed, manufactured and/or distributed under this quality management system





Included Products

600899A-2 — Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members







Andrew® Quad Port Antenna, 1710–2180 MHz, 65° horizontal beamwidth, RET compatible

 Superior azimuth tracking and pattern symmetry with excellent passive intermodulation suppression



Electrical Specifications

Lietifical Spotifications		4050 1000	1920-2180
Frequency Band, MHz	1710-1880	1850-1990	
Gain, dBi	19.0	19.1	19.2
	67	66	65
Beamwidth, Horizontal, degrees	5.0	4.7	4.4
Beamwidth, Vertical, degrees	0-6	0-6	0-6
Beam Tilt, degrees	18	18	18
USLS, dB	30	30	30
Front-to-Back Ratio at 180°, dB	21	22	21
CPR at Boresight, dB	10	11	9
CPR at Sector, dB	30	30	30
Isolation, dB	1.4 15.6	1.4 15.6	1.4 15.6
VSWR Return Loss, dB	-153	-153	-153
PIM, 3rd Order, 2 x 20 W, dBc		350	350
Input Power per Port, maximum, watts	350		
Polarization	±45°	±45°	±45°
	50 ohm	50 ohm	50 ohm
Impedance			

Electrical Specifications, BASTA*

Electrical Specifications, 2. 10.11			
Frequency Band, MHz Gain by all Beam Tilts, average, dBi Gain by all Beam Tilts Tolerance, dB	1710-1880 18.5 ±0.4	1850-1990 18.6 ±0.3	1920-2180 18.8 ±0.4
Gaill by all bealth this folerance, as	0 ° 18.4	0 ° 18.4	0 ° 18.7
Gain by Beam Tilt, average, dBi	3° 18.7	3 ° 18.7	3° 18.9
Gaill by Beath Tilt, average, abi	6° 18.4	6° 18.5	6 ° 18.6
Beamwidth, Horizontal Tolerance, degrees Beamwidth, Vertical Tolerance, degrees USLS, dB Front-to-Back Total Power at 180° ± 30°, dB CPR at Boresight, dB CPR at Sector, dB	±2.4 ±0.3 18 25 22	±1.7 ±0.3 19 26 23 10	±2.9 ±0.3 19 26 22 9

^{*} CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand Antenna Type Band Brand Operating Frequency Band Andrew®
DualPol® quad
Single band
DualPol® | Teletilt®
1710 - 2180 MHz





HBXX-6517DS-VTM

Performance Note Outdoor usage

Mechanical Specifications

Color Light gray
Lightning Protection dc Ground

Radiator Material Low loss circuit board
Radome Material PVC, UV resistant
RF Connector Interface 7-16 DIN Female

RF Connector Location Bottom
RF Connector Quantity, total 4

Wind Loading, maximum 668.0 N @ 150 km/h 150.2 lbf @ 150 km/h

Wind Speed, maximum 241.0 km/h | 149.8 mph

Dimensions

 Depth
 166.0 mm | 6.5 in

 Length
 1903.0 mm | 74.9 in

 Width
 305.0 mm | 12.0 in

 Net Weight
 19.5 kg | 43.0 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator HBXX-6517DS-A2M RET System Teletilt®

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU China RoHS SJ/T 11364-2006 ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)

Designed, manufactured and/or distributed under this quality management system





Included Products

600899A-2 — Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

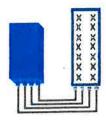
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.



- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R or 2x60W with 2T4R

Can be switched between modes via SW w/o site visit



TECHNICAL SPECIFICATIONS

	Features & performance
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz = 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure - RX Diversity scheme	2 dB typ. (<2.5 dB max) =2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.)	$550 \times 305 \times 230 \ (21.6'' \times 12.0'' \times 9'')$ (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (Ib) (w/a mounting HW)	26 (57.2) (with solar shield)
DC editage range DC power consumption	-40.5 to -57V at full performance, +38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 21x or 4TX mode)
Environmental conditions	-40°C (-40°F) /+55°C (+131°F)
	IP65
Wind load (#150km/h or 93mph)	Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI parts	2 CPRI ports (HW ready for Rate7, 9.8 Gbps)
	SFP single mode dual fiber
AISG Interfaces	1 AISG2.0 output (R\$485) Integrated Smart Bias Tees (X2)
Misc. Laterfocus	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

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PCS RF MODULES

LA6.0.1/13.3

RRH1900 2X60 - HW CHARACTERISTICS

RRH2x60	2x60W	20MHz	2 TX	2 Branch RX – LA6.0.1 4 Branch RX – LR13.3	AISG 2.0 for RET/TMA	Internal Smart Bias-T	-48VDC	2 CPRI Rate 3 Ports	4 External User Alarms	X	GR487 Compliance	7/16 DIN (top mounted)
	RF Output Power	Instantaneous Bandwidth	Transmitter	Receiver 1900 HW version 1900A HW version	Features		Power	CPRI Ports	External Alarms	Monitor Ports	Environmental	RF Connectors

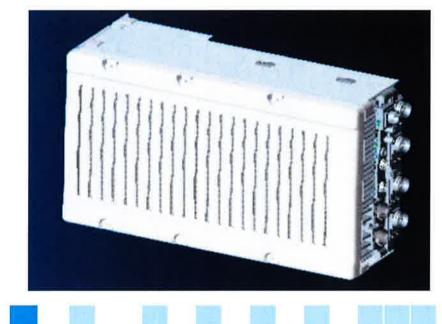


^{**} Not a Verizon Wireless deployed product

NEW PCS RF MODULES FOR VZW RRH2X60 - HW CHARACTERISTICS

LR14.3

RRH2x60	2x60W (4x30W HW Ready)			4 Branch Rx	AISG 2.0 for RET/TMA	-48VDC	Internal Smart Bias-T	2 CPRI Rate 5 Ports	4 External User Alarms	TX, RX	GR487 Compliance	7/16 DIN (downward facing)	
	RF Output Power	Instantaneous Bandwidth	Target Reliability (Annual Return Rate)	Receiver	Features	Power		CPRI Ports	External Alarms	Monitor Ports	Environmental	RF Connectors	Dimensions



^{**-} Includes solar shield but not mounting brackets (8 lbs.)

ALCATEL-LUCENT WIRELESS PRODUCT DATASHEET

RRH2X60-AWS FOR BAND 4 APPLICATIONS

The Alcatel-Lucent RRH2x60-AWS is a high power, small form factor Remote Radio Head operating in the AWS frequency band (3GPP Band 4) for LTE technology. It is designed with an eco-efficient approach, providing operators with the means to achieve high quality and high capacity coverage with minimum site requirements and efficient operation.



A distributed Node B expands the deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radiofrequency (RF) elements. This modular design optimizes available and allows the space main components of a Node B to be installed separately, within the same site or several kilometers apart.

The Alcatel-Lucent RRH2x60-AWS is linked to the BBU by an opticalfiber connection carrying downlink and uplink digital radio signals along with operations, administration maintenance and (OA&M) information.

SUPERIOR RE PERFORMANCE

The Alcatel-Lucent RRH2x60-AWS integrates all the latest technologies. This allows to offer best-in-class characteristics.

It delivers an outstanding 120 watts of total RF power thanks to its two transmit RF paths of 60 W each.

It is ideally suited to support multipleinput multiple-output (MIMO) 2x2 operation.

It includes four RF receivers to natively support 4-way uplink reception diversity. This improves the radio uplink coverage and this can be used to extend the cell radius commensurate with 2x2MIMO 2x60 W for the downlink.

It supports multiple discontinuous LTE carriers within an instantaneous bandwidth of 45 MHz corresponding to the entire AWS B4 spectrum.

The generation latest power amplifiers (PA) used in this product achieve high efficiency (>40%),resultina in improved power consumption figures.

OPTIMIZED TCO

The Alcatel-Lucent RRH2x60-AWS is designed to make available all the benefits of a distributed Node B, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX).

The Alcatel-Lucent RRH2x60-AWS is a very cost-effective solution to deploy LTE MIMO.

EASY INSTALLATION

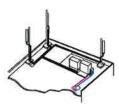
The RRH2x60-AWS includes a reversible mounting bracket which allows for ease of installation behind an antenna, or on a rooftop knee wall while providing easy access to the mid body RF connectors.

The limited space available in some sites may prevent the installation of single-cabinet traditional equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible selection and improved network quality along with greatly reduced installation time and costs.

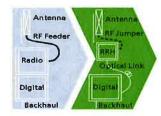
The Alcatel-Lucent RRH2x60-AWS is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

Installation can easily be done by a single person as the Alcatel-Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one dav.

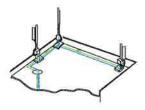




Масго



RRH for space-constrained cell sites



Distributed

FEATURES

- RRH2x60-AWS integrates two power amplifiers of 60W rating (at each antenna connector)
- Support multiple carriers over the entire 3GPP band 4
- RRH2x60-AWS is optimized for LTE operation
- RRH2x60-AWS is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

BENEFITS

- MIMO LTE operation with only one single unit per sector
- Improved uplink coverage with builtin 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and

silent solutions, with minimum impact on the neighborhood, which ease the deployment

 RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

Specifications listed are hardware capabilities. Some capabilities depend on support in a specific software release or future release.

Dimensions and weights

- HxWxD: 510x285x186mm (27 | with solar shield)
- Weight: 20 kg (44 lbs)

Electrical Data

- Power Supply: -48V DC (-40.5 to -57V)
- Power Consumption (ETSI average traffic load reference): 250W @2x60W

RF Characteristics

- Frequency band: 1710-1755, UL / 2110-2155 MHz, DL (3GPP band 4)
- Output power: 2x60W at antenna connectors
- · Technology supported: LTE
- · Instantaneous bandwidth: 45 MHz
- Rx diversity: 2-way and 4-way uplink reception
- Typical sensitivity without Rx diversity:
 -105 dBm for LTE

Connectivity

- Two CPRI optical ports for daisychaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 20km using SM fiber
- TMA/RETA: AISG 2.0 (RS485 connector and internal Bias-Tee)
- Six external alarms
- Surge protection for all external ports (DC and RF)

Environmental specifications

- Operating temperature: -40°C to 55°C including solar load
- Operating relative humidity: 8% to 100%
- Environmental Conditions: ETS 300 019-1-4 class 4.1E
- Ingress Protection: IEC 60529 IP65
- Acoustic Noise: Noiseless (natural convection cooling)

Safety and Regulatory Data

- EMC: 3GPP 25113, EN 301 489-1, EN 301 489-23, GR 1089, GR 3108, OET-65
- Safety: IEC60950-1, EN 60825-1, UL, ANSI/NFPA 70, CAN/CSA-C22.2
- Regulatory: FCC Part 15 Class B, CE Mark – European Directive: 2002/95/EC (ROHS); 2002/96/EC (WEEE); 1999/5/EC (R&TTE)
- Health: EN 50385

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Product Description

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

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Realmes/Benelins

- Aluminum corrugated armor with outstanding bending characteristics minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design Decreases tower loading
- Robust cabling Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket Ensures long-lasting cable protection



Figure 1: HYBRIFLEX Series

Teatrical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
lacket:	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection:	Individual and External Jacket		Yes
Transition of the second			
Weight, Approximate		(kg/m (lb/fu)	19 (1.30)
Minimum Bending Radius,	Single Bending	[mm (in)]	200 (8)
Minimum Bending Radius		[mm (in)]	500 (20)
Recommended/Maximum		[m (ft)]	10/1.2 (3.25/4.0)
Saryles or selfer	SE I DEST H		
DC-Resistance Outer Cond	luctor Armor	(Ω/km (Ω/1000fu)	068 (0.205)
DC-Resistance Power Cabl		[Ω/km (Ω/1000ft)]	
Part Part I		100 TO 10	
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		(µm)	245
Buffer Diameter, Nominal		[um]	900
Secondary Protection, Jack	et. Nominal	[mm (in)]	2.0 (0.08)
Minimum Bending Radius		(mm (in))	104 (4.1)
nsertion Loss @ waveleng	th 850nm	dB/km	3.0
Insertion Loss @ waveleng		dB/km	1,0
Standards (Meets or excee			UL94-V0, UL1666
			RoHS Compliant
and the second of the second	15		
lize (Power)		[mm (AWG)]	8.4 (8)
Quantity, Wire Count (Pow	(er)		16 (8 pairs)
ize (Alarm)		mm (AWG)	0.8 (18)
Quantity, Wire Count (Alar	m)	7.	4 (2 pairs)
ype			UV protected
strands			19
Primary Jacket Diameter, N	ominal	[mm (in _i)]	6.8 (0.27)

Optical cable (pair)
with an internal jacket

Aluminum OC

Alarm cable with
an internal jacket

Alarm cable with
an internal jacket
an internal jacket

Algure 2: Construction Detail

Operation Temperature

* This data is provisional and subject to change

Standards (Meets or exceeds)

Installation Temperature

RF3 The Clear Choice®

HB158-1-09V8-33J13

NFPA 130, ICEA S-95-658 UL Type XHHVV-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4

RoHS Compliant

-40 to +65 (-40 to 149)

-40 to +65 (-40 to 149)

Rev 21

Print Date: 27.5.2012

Radio Frequency Systems

ATTACHMENT 2

	General	Power	Density					
Site Name: Laysville (Old Lyme)								
Tower Height: 110Ft.								
				CALC.		MAX.		
				POWER		PERMISS.	PERMISS. FRACTION	
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	DENS	FREQ.	EXP.	MPE	Total
*Sprint	11	122	6	0.0513	1962.5	1.0000	5.13%	
*MetroPCS	8	444	108	0.0410	2140	1.0000	4.10%	
Verizon PCS	11	372	88	0.1900	1970	1.0000	19.00%	
Verizon Cellular	6	282	88	0.1178	869	0.5793	20.34%	
Verizon AWS	1	2173	88	0.1009	2145	1.0000	10.09%	
Verizon 700	1	1124	88	0.0522	746	0.4973	10.49%	
								69.16%
* Source: Siting Council								

ATTACHMENT 3



Date: July 06, 2015

Timothy Howell Crown Castle 3530 Toringdon Way, Suite 300 Charlotte, NC 28277

Columbus, OH 43215 614.221.6679

Crown Castle Site Name: NE OLD LYME-OLD LYME FIREHOUSE

Paul J Ford and Company

250 E. Broad Street, Suite 600

Subiect:

Structural Modification Report

Carrier Designation:

Verizon Wireless Co-Locate

Carrier Site Number: Carrier Site Name: 181334 Laysville, CT

Crown Castle Designation:

Crown Castle BU Number:

876406

Crown Castle JDE Job Number:

337924 1083624

Crown Castle Work Order Number: Crown Castle Application Number:

300595 Rev. 1

Engineering Firm Designation:

Paul J Ford and Company Project Number: 37515-2177.001.7700

189 Boston Post Road, OLD LYME, New London County, CT

Latitude 41° 20' 56.37", Longitude -72° 17' 43.65"

110 Foot - Monopole Tower

Dear Timothy Howell,

Site Data:

Paul J Ford and Company is pleased to submit this "Structural Modification Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 801718, in accordance with application 300595, revision 1.

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

LC4.5: Modified Structure w/ Existing + Proposed

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

Sufficient Capacity

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code with 2009 Amendments and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

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

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

Respectfully submitted by:

Bob Koors, E.I. **BKK** Structural Designer

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1) INTRODUCTION

This tower is a 110 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in May of 2001. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of the 2005 Connecticut Building Code and the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	alcatel lucent	RRH2X60-AWS			
		3	alcatel lucent	RRH2X60-PCS	2	1-5/8	
		3	alcatel lucent	RRH2x60-700			-
	88.0		commscope	HBXX-6517DS-A2M w/ Mount Pipe			
87.0	00.U	3	commscope	HBXX-9014DS-A2M w/ Mount Pipe			
		3	commscope	LNX-6514DS-A1M w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
	125.0	1	scala	SL11-840/UT4			
		2	decibel	ASP-702		1/2	
	4440	1	decibel	DB222			1
	114.0	1	decibel	DB408			
111.0		1	sinclair	SRL-101A	3		
111.0	112.0	1 decibel DB404		10	7/8		
		1	tower mounts	Platform Mount [LP 712-1]			
	111.0	1	tower mounts	Side Arm Mount [SO 701- 3]			
	108.0	3	kathrein	800 10504 w/ Mount Pipe			
	99.0	6	decibel	DB980F65E-M w/ Mount Pipe			
97.0		1	tower mounts	Platform Mount [LP 712-1]	6	1-5/8	1
	97.0	1	tower mounts	Side Arm Mount [SO 701-			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	antel	BXA-70063/6CF w/ Mount Pipe		:=	2
87.0	88.0	6	antel	LPA-185080/8CF w/ Mount Pipe	-		2
		6	antel	LPA-80080/4CF w/ Mount Pipe	12	1-5/8	1
	87.0	1	tower mounts	Platform Mount [LP 303-1]			
	76.0	1	lucent	KS24019-L112A			
75.0 75	75.0	1	tower mounts	Side Arm Mount [SO 701- 1]	1	1/2	1

Notes:

- Existing Equipment Equipment To Be Removed 1)

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Elevention	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
J∎K	•	뵬	8	¥	- 4	124

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source	
GEOTECHNICAL REPORTS	Criscuolo Shepard Associates, PC	1532996	CCISITES	
TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors Inc.	1603991	CCISITES	
TOWER MANUFACTURER DRAWINGS	Engineered Endeavors Inc.	2070886	CCISITES	
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Structures Inc.	2167834	CCISITES	

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) Monopole was reinforced in conformance with the referenced modification drawings.
- 5) Monopole will be reinforced in conformance with the attached proposed modification drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	110 - 83.08	Pole	TP22,33x16x0,1875	1	-5.94	660.84	66.4	Pass
L2	83.08 - 61	Pole	TP27.0731x21.172x0.25	2	-8.68	1106.50	97.6	Pass
L3	61 - 44.78	Pole	TP30.84x27.0731x0.4113	3	-10,56	1448.18	91.5	Pass
L4	44,78 - 0	Pole	TP40,75x28.9909x0,3125	4	-18,54	2056,10	99.6	Pass
							Summary	
	İ					Pole (L4)	99.6	Pass
		_				Rating =	99.6	Pass

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

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	0	82.6	Pass
1	Base Plate	0	96.2	Pass
1	Base Foundation (Steel)	0	72.0	Pass
1,3	Base Foundation Soil Interaction	0	90.0	Pass

Structure Rating (max from all components) =	99.6%
--	-------

Notes:

- 1) See additional documentation in "Appendix C Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Worst case scenario between existing and post installed anchors.
- Foundation Analysis Notes: According to the procedures prescribed and agreed to by the Crown Castle Engineering Foundation Committee, held in January 2010, the existing caisson foundation was analyzed using the methodology in the software 'PLS-Caisson' (Version 8.10, or newer, by Power Line Systems, Inc.). Per the methods in PLS-Caisson, the soil reactions of cohesive soils are calculated using 8CD independent of the depth of the soil layer. The depth of soil to be ignored at the top of the caisson is the greater of the geotechnical report's recommendation, the frost depth of the site or half of the caisson diameter.

4.1) Recommendations

Install the proposed modifications per the attached drawings

APPENDIX A TNXTOWER OUTPUT

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

- 1) Tower is located in New London County, Connecticut.
- 2) Basic wind speed of 85 mph.
- 3) Nominal ice thickness of 0.7500 in.
- 4) Ice thickness is considered to increase with height.
- 5) Ice density of 56.00 pcf.
- 6) A wind speed of 38 mph is used in combination with ice.
- 7) Temperature drop of 50 °F.
- 8) Deflections calculated using a wind speed of 50 mph.
- 9) A non-linear (P-delta) analysis was used.
- 10) Pressures are calculated at each section.
- 11) Stress ratio used in pole design is 1.333.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification

- √ Use Code Stress Ratios
- √ Use Code Safety Factors Guys
- Escalate Ice
 Always Use Max Kz
 Use Special Wind Profile
 Include Bolts In Member Capacity
 Leg Bolts Are At Top Of Section
 Secondary Horizontal Braces Leg
 Use Diamond Inner Bracing (4 Sided)
 Add IBC .6D+W Combination
- Distribute Leg Loads As Uniform Assume Legs Pinned
- √ Assume Rigid Index Plate
- √ Use Clear Spans For Wind Area
 Use Clear Spans For KL/r
 Retension Guys To Initial Tension
- √ Bypass Mast Stability Checks
- √ Use Azimuth Dish Coefficients
- Project Wind Area of Appurt.
 Autocalc Torque Arm Areas
 SR Members Have Cut Ends
 Sort Capacity Reports By Component
 Triangulate Diamond Inner Bracing
 Use TIA-222-G Tension Splice
 Capacity Exemption

Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation

- √ Consider Feedline Torque Include Angle Block Shear Check Poles
- √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets

Tapered Pole Section Geometry

Section	Elevation #	Section Length	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	110.0000-	26.9200	3.33	18	16.0000	22.3300	0.1875	0.7500	A572-65
LI	83.0800	20.5200	0,00		70.0000	22,0000	0.1070	0000	(65 ksi)
L2	83.0800-	26.4100	0.00	18	21,1720	27.3054	0.2500	1.0000	A572-65
	60.0000								(65 ksi)
L3	60.0000-	15.2200	4.42	18	27.3054	30.8400	0.4113	1.6453	Reinf 47.17 ksi
	44.7800								(47 ksi)
L4	44.7800-	49.2000		18	28,9908	40.7500	0.3125	1.2500	A572-65
	0.0000								(65 ksi)

Tapered Pole Properties

Section	Tip Dia.	Area	1	r	С	I/C	J	lt/Q	W	w/t
	in	in ²	in⁴	in	in	in ³	in⁴	in²	in	
L1	16,2468	9.4104	297.2674	5.6134	8,1280	36.5733	594.9259	4,7061	2.4860	13,259
	22.6745	13.1776	816.2545	7.8606	11.3436	71,9570	1633.5831	6.5900	3.6001	19.2
L2	22.2839	16.6016	918.1058	7.4273	10.7554	85.3626	1837,4197	8.3024	3.2863	13.145
	27.7266	21,4684	1985.3832	9.6047	13.8711	143,1307	3973,3787	10.7363	4.3657	17.463
L3	27,7266	35,1118	3208.5027	9.5474	13.8711	231,3081	6421,2273	17.5592	4.0818	9,923
	31.3158	39.7265	4647.1177	10.8022	15.6667	296,6235	9300.3501	19.8670	4.7039	11.436
L4	30.5108	28.4453	2955.6763	10.1808	14.7274	200,6930	5915.2419	14,2254	4.5524	14.568
	41.3786	40,1089	8286.0450	14.3553	20.7010	400.2727	16582.993	20.0583	6.6220	21.19
							0			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or	Allow Shield	Component Type	Placement	Total Number		C_AA_A	Weight
	Leg			ft			ft²/ft	klf
LDF4-50A(1/2")	С	No	Inside Pole	110.0000 - 0.0000	3	No Ice	0.0000	0_00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
						2" Ice	0.0000	0.00
						4" Ice	0.0000	0.00
LDF5-50A(7/8")	С	No	Inside Pole	110.0000 - 0.0000	4	No Ice	0.0000	0.00
	_					1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
						2" Ice	0.0000	0.00
						4" Ice	0.0000	0.00
FXL 780 PE(7/8)	С	No	CaAa (Out Of	87.0000 - 0.0000	6	No Ice	0.0000	0.00
1 XL 700 FL(770)	C	NO	Face)	07.0000 - 0.0000	Ŭ	1/2" Ice	0.0000	0.00
			race)			1" Ice	0.0000	0.00
						2" Ice	0.0000	0.01
	_		0 4 (0 10)	440.0000	_	4" Ice	0.0000	0.03
FXL 780 PE(7/8)	С	No	CaAa (Out Of	110.0000 -	5	No Ice	0.0000	0.00
			Face)	87.0000		1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
						2" Ice	0.0000	0.01
						4" Ice	0.0000	0.03
FXL 780 PE(7/8)	С	No	CaAa (Out Of	110.0000 -	1	No Ice	0.1090	0.00
			Face)	87.0000		1/2" Ice	0.2090	0.00
						1" Ice	0.3090	0.00
						2" Ice	0.5090	0.01
						4" Ice	0.9090	0.03
FLC 158-50J(1-5/8")	С	No	Inside Pole	97.0000 - 0.0000	6	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
						2" Ice	0.0000	0.00
						4" Ice	0.0000	0.00
**								
FLC 158-50J(1-5/8")	С	No	Inside Pole	87,0000 - 0,0000	12	No Ice	0.0000	0.00
						1/2" Ice	0.0000	0.00
						1" Ice	0.0000	0.00
						2" Ice	0.0000	0.00
						4" Ice	0.0000	0.00
B158-1-08U8-S8J18(С	No	CaAa (Out Of	87.0000 - 0.0000	1	No Ice	0.0000	0.00
1-5/8)			Face)			1/2" Ice	0.0000	0.00
, -,-,			,			1" Ice	0.0000	0.00
						2" Ice	0.0000	0.01
						4" Ice	0.0000	0.03
B158-1-08U8-S8J18(С	No	CaAa (Out Of	87.0000 - 0.0000	1	No Ice	0.1980	0.00
1-5/8)	U	140	Face)	01.0000 0.0000	.50	1/2" Ice	0.2980	0.00
1-3/0/			i ace,			1" Ice	0.3980	0.00
						2" Ice	0.5980	0.01
						4" Ice	0.9980	0.03
						, 100	3.0000	0.00
**				75 0000 0 0000	1	No Ice	0.0000	0.00
** FLC 12-50.J(1/2")	С	No	Inside Pole	75:0000 - 0:0000		140 100	0.0000	0.00
** FLC 12-50J(1/2")	С	No	Inside Pole	75,0000 - 0,0000	'	1/2" Ice	0.0000	0.00
FLC 12-50J(1/2")	С	No	Inside Pole	75:0000 - 0:0000	'	1/2" Ice	0.0000	0.00
FLC 12-50J(1/2")	С	No	Inside Pole	75:0000 - 0:0000	'			

Description	Face	Allow Shield	Component Type	Placement	Total Number		C_AA_A	Weight
	or Shield Leg	Silielu	rype	ft			ft²/ft	klf
••								
1 " Flat Reinforcement	С	No	Inside Pole	61.5000 - 46.5000	1	No Ice	0.0000	0.00
						1/2" lce	0.0000	0.00
						1" Ice	0.0000	0.00
						2" Ice	0.0000	0.00
						4" Ice	0.0000	0.00
						7 100	0.0000	0,00

Feed Line/Linear Appurtenances Section Areas

Tower Sectio	Tower Elevation	Face	A _R	A_F	C _A A _A In Face	C _A A _A Out Face	Weight
n	Elevation ft		ft²	ft ²	ft ²	ft ²	K
L1	110.0000-	A	0.000	0.000	0.000	0.000	0.00
423	83.0800	B	0.000	0.000	0.000	0.000	0.00
	00.000	Ċ	0.000	0.000	0.000	3.283	0.22
L2	83.0800-60.0000	Α	0.000	0.000	0.000	0.000	0.00
		В	0.000	0.000	0.000	0.000	0.00
		С	0.000	0.000	0.000	4,570	0.52
L3	60.0000-44.7800	Α	0.000	0.000	0.000	0.000	0.00
		В	0.000	0.000	0.000	0.000	0.00
		С	0.000	0.000	0.000	3.014	0.36
L4	44.7800-0.0000	Α	0.000	0.000	0.000	0.000	0.00
		В	0.000	0.000	0.000	0.000	0.00
		С	0.000	0.000	0.000	8.866	1.01

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower	Tower	Face	lce	A_R	A_F	$C_A A_A$	$C_A A_A$	Weight
Sectio	Elevation	or	Thickness			In Face	Out Face	
n	ft	Leg	in	ft ²	ft ²	ft ²	ft ²	K
L1	110.0000-	A	0.852	0.000	0.000	0.000	0.000	0.00
	83.0800	В		0.000	0.000	0.000	0.000	0.00
		С		0.000	0.000	0.000	7.872	0.58
L2	83.0800-60.0000	Α	0.822	0.000	0.000	0.000	0.000	0.00
		В		0.000	0.000	0.000	0.000	0.00
		С		0.000	0.000	0.000	8.504	0.95
L3	60.0000-44.7800	Α	0.792	0.000	0.000	0.000	0.000	0.00
		В		0.000	0.000	0.000	0.000	0.00
		С		0.000	0.000	0.000	5.426	0.62
L4	44.7800-0.0000	Α	0.750	0.000	0.000	0.000	0.000	0.00
		В		0.000	0.000	0.000	0.000	0.00
		Č		0.000	0.000	0.000	15.964	1.77

Feed Line Center of Pressure

Section	Elevation	CP _X	CPz	CP _× Ice	CP _z Ice
	ft	in	in	in	in
L1	110.0000-83.0800	-0.1494	0.0863	-0.3005	0.1735
L2	83.0800-60.0000	-0.2346	0.1354	-0.3833	0.2213
L3	60.0000-44.7800	-0.2378	0.1373	-0.3854	0.2225
L4	44.7800-0.0000	-0.2410	0.1392	-0.3973	0.2294

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C _A A _A Front	C _A A _A Side	Weight
			Vert ft ft ft		ft		ft²	ft²	К
DB404	Α	From Leg	4.0000 0.00 1.00	0.0000	111.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.1400 2.0520 2.9640 4.7880 8.4360	1,1400 2,0520 2,9640 4,7880 8,4360	0.01 0.02 0.02 0.03 0.05
DB222	В	From Leg	4.0000 0.00 3.00	0.0000	111.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1,6000 2,8800 4,1600 6,7200 11,8400	1,6000 2,8800 4,1600 6,7200 11,8400	0.02 0.02 0.03 0.04 0.05
DB408	В	From Leg	4.0000 0.00 3.00	0.0000	111.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7475 3.8165 4.8979 7.0977 10.0368	0.0000 1.0528 2.1180 4.2854 8.3585	0.02 0.03 0.04 0.10 0.32
800 10504 w/ Mount Pipe	Α	From Leg	4.0000 0.00 -3.00	0.0000	111.0000	4" Ice No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.5887 4.0069 4.4217 5.3391 7.3849	3,1779 3,9053 4,5808 5,9816 8,9834	0.04 0.07 0.11 0.21 0.51
800 10504 w/ Mount Pipe	В	From Leg	4.0000 0.00 -3.00	0,0000	111,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.5887 4.0069 4.4217 5.3391 7.3849	3.1779 3.9053 4.5808 5.9816 8.9834	0.04 0.07 0.11 0.21 0.51
800 10504 w/ Mount Pipe	С	From Leg	4.0000 0.00 -3.00	0,0000	111,0000	No ice 1/2" Ice 1" ice 2" ice 4" ice	3.5887 4.0069 4.4217 5.3391 7.3849	3.1779 3.9053 4.5808 5.9816 8.9834	0.04 0.07 0.11 0.21 0.51
SL11-840/UT4	Α	From Leg	4.0000 0.00 14.50	0.0000	111.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.5674 5.0977 6.6445 9.7883 14.2095	3.5674 5.0977 6.6445 9.7883 14.2095	0.03 0.05 0.09 0.19 0.52
SRL-101A	С	From Leg	4.0000 0.00 3.00	0.0000	111.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	54.4444 55.5500 56.6667 58.9333 63.6000	54.4444 55.5500 56.6667 58.9333 63.6000	0.02 0.78 1.55 3.15 6.54
ASP-702	Α	From Leg	4.0000 0.00 3.00	0,0000	111.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.6800 2.5450 3.4267 4.5090 6.6959	1.6800 2.5450 3.4267 4.5090 6.6959	0.01 0.02 0.04 0.09 0.27
ASP-702	С	From Leg	4.0000 0.00 3.00	0.0000	111.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.6800 2.5450 3.4267 4.5090 6.6959	1.6800 2.5450 3.4267 4.5090 6.6959	0.01 0.02 0.04 0.09 0.27
Platform Mount [LP 712-1]	С	None		0.0000	111.0000	No Ice 1/2" Ice 1" Ice	24.5300 29.9400 35.3500 46.1700	24,5300 29,9400 35,3500 46,1700	1.34 1.65 1.96 2.58

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C _A A _A Front	C _A A _A Side	Weight
			Vert ft ft ft	o	ft		ft²	ft²	К
						2" Ice	67.8100	67.8100	3.82
Side Arm Mount [SO 701-3]	С	None		0.0000	111.0000	4" Ice No Ice 1/2" Ice	2,8300 3.9200 5.0100	2.8300 3.9200 5.0100	0.20 0.24 0.28
						1" Ice 2" Ice	7.1900 11.5500	7.1900 11.5500	0.36 0.53
(2) 2.375" OD x 6' Mount Pipe	Α	From Face	4.0000 0.00	0.0000	111.0000	4" Ice No Ice 1/2"	1.4250 1.9250	1.4250 1.9250	0.03 0.04
·			0.00			lce 1" lce 2" lce 4" lce	2.2939 3.0596 4.7022	2.2939 3.0596 4.7022	0.05 0.09 0.23
(2) 2.375" OD x 6' Mount	В	From Face	4.0000	0.0000	111.0000	No ice	1.4250	1.4250	0.03
Pipe			0.00			1/2" Ice	1.9250 2.2939	1.9250 2.2939	0.04 0.05
						1" Ice 2" Ice 4" Ice	3.0596 4.7022	3.0596 4.7022	0.09 0.23
(2) 2 375" OD x 6' Mount	С	From Face	4.0000	0.0000	111,0000	No Ice 1/2"	1,4250 1,9250	1.4250 1.9250	0.03 0.04
Pipe			0.00 0.00			Ice	2.2939	2.2939	0.05
**						1" Ice 2" Ice 4" Ice	3.0596 4.7022	3.0596 4.7022	0,09 0,23
(2) DB980F65E-M w/	Α	From Leg	4.0000	0.0000	97.0000	No Ice	4.1333	3.7167	0.03
Mount Pipe			0.00 2.00			1/2" Ice	4.5970 5.0462	4.5791 5.3180	0,07 0.11
						1" Ice 2" Ice 4" Ice	5,9730 8,1730	6.8458 10.1012	0.22 0.56
(2) DB980F65E-M w/ Mount Pipe	В	From Leg	4.0000 0.00	0.0000	97.0000	No Ice 1/2"	4.1333 4.5970	3.7167 4.5791	0.03 0.07
Would ripe			2.00			Ice	5.0462	5.3180	0.11
						1" Ice 2" Ice 4" Ice	5.9730 8.1730	6.8458 10.1012	0.22 0.56
(2) DB980F65E-M w/	С	From Leg	4.0000 0.00	0.0000	97,0000	No Ice 1/2"	4.1333 4.5970	3.7167 4.5791	0.03 0.07
Mount Pipe			2.00			Ice	5.0462	5.3180	0.11
						1" lce 2" lce 4" lce	5.9730 8.1730	6.8458 10.1012	0.22 0.56
Platform Mount [LP 712-1]	С	None		0.0000	97,0000	No Ice 1/2"	24.5300 29.9400	24.5300 29.9400	1.34 1.65
						Ice	35.3500	35.3500	1.96
						1" Ice 2" Ice 4" Ice	46.1700 67.8100	46.1700 67.8100	2.58 3.82
Side Arm Mount [SO 701- 3]	С	None		0,0000	97.0000	No Ice 1/2"	2.8300 3.9200	2,8300 3,9200	0.20 0.24
3]						Ice	5.0100	5.0100	0.28
						1" Ice 2" Ice 4" Ice	7.1900 11.5500	7,1900 11.5500	0.36 0.53
(2) 2.375" OD x 6' Mount Pipe	Α	From Face	4.0000 0.00	0.0000	97.0000	No Ice 1/2"	1.4250 1.9250	1,4250 1,9250	0.03
i ipe			0.00			Ice	2.2939	2.2939	0.05
						1" Ice 2" Ice 4" Ice	3.0596 4.7022	3,0596 4,7022	0.09 0.23
(2) 2.375" OD x 6' Mount Pipe	В	From Face	4.0000 0.00	0.0000	97.0000	No Ice 1/2"	1.4250 1.9250	1.4250 1.9250	0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C _A A _A Front	C _A A _A Side	Weight
			Vert ft ft ft	٥	ft		ft²	ft²	K
			0.00			Ice 1" Ice 2" Ice 4" Ice	2.2939 3.0596 4.7022	2,2939 3,0596 4,7022	0.05 0.09 0.23
(2) 2.375" OD x 6' Mount Pipe	С	From Face	4.0000 0.00 0.00	0,0000	97,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.4250 1.9250 2.2939 3.0596 4.7022	1.4250 1.9250 2.2939 3.0596 4.7022	0.03 0.04 0.05 0.09 0.23
(2) LPA-80080/4CF w/ Mount Pipe	Α	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.8561 3.2195 3.5922 4.4498 6.3182	7,2274 7,9217 8,6338 10,1119 13,3391	0.03 0.08 0.13 0.25 0.61
(2) LPA-80080/4CF w/ Mount Pipe	В	From Leg	4.0000 0.00 1.00	0,0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.8561 3.2195 3.5922 4.4498 6.3182	7.2274 7.9217 8.6338 10.1119 13.3391	0.03 0.08 0.13 0.25 0.61
(2) LPA-80080/4CF w/ Mount Pipe	С	From Leg	4,0000 0,00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2,8561 3,2195 3,5922 4,4498 6,3182	7.2274 7.9217 8.6338 10.1119 13.3391	0.03 0.08 0.13 0.25 0.61
HBXX-9014DS-A2M w/ Mount Pipe	Α	From Leg	4.0000 0.00 1.00	0,0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1758 6.6547 7.1374 8.1341 10.2560	4.5251 5.2049 5.8987 7.3732 10.5560	0.05 0.10 0.15 0.29 0.67
HBXX-9014DS-A2M w/ Mount Pipe	В	From Leg	4.0000 0.00 1.00	0,0000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1758 6.6547 7.1374 8.1341 10.2560	4.5251 5.2049 5.8987 7.3732 10.5560	0.05 0.10 0.15 0.29 0.67
HBXX-9014DS-A2M w/ Mount Pipe	С	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.1758 6.6547 7.1374 8.1341 10.2560	4.5251 5.2049 5.8987 7.3732 10.5560	0.05 0.10 0.15 0.29 0.67
LNX-6514DS-A1M w/ Mount Pipe	Α	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.6485 9.3051 9.9298 11.2040 13.8719	7.0817 8.2729 9.1847 11.0232 15.0629	0.06 0.13 0.21 0.39 0.90
LNX-6514DS-A1M w/ Mount Pipe	В	From Leg	4.0000 0.00 1.00	0,0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.6485 9.3051 9.9298 11.2040 13.8719	7.0817 8.2729 9.1847 11.0232 15.0629	0.06 0.13 0.21 0.39 0.90
LNX-6514DS-A1M w/ Mount Pipe	С	From Leg	4,0000 0,00 1.00	0,0000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.6485 9.3051 9.9298 11.2040 13.8719	7.0817 8.2729 9.1847 11.0232 15.0629	0.06 0.13 0.21 0.39 0.90

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C _A A _A Front	C _A A _A Side	Weight
			Vert ft ft ft	a	ft		ft²	ft²	K
HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8,9758 9,6473 10,2909 11,5946 14,3212	6.9629 8.1817 9.1436 11.0219 15.0267	0.07 0.14 0.21 0.40 0.91
HBXX-6517DS-A2M w/ Mount Pipe	В	From Leg	4,0000 0.00 1.00	0.0000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8,9758 9,6473 10,2909 11,5946 14,3212	6.9629 8.1817 9.1436 11.0219 15.0267	0.07 0.14 0.21 0.40 0.91
HBXX-6517DS-A2M w/ Mount Pipe	С	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8,9758 9,6473 10,2909 11,5946 14,3212	6.9629 8.1817 9.1436 11.0219 15.0267	0.07 0.14 0.21 0.40 0.91
RRH2X60-PCS	Α	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.5667 2.7914 3.0247 3.5173 4.6062	2.0106 2.2184 2.4349 2.8938 3.9152	0.06 0.08 0.10 0.16 0.31
RRH2X60-PCS	В	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.5667 2.7914 3.0247 3.5173 4.6062	2.0106 2.2184 2.4349 2.8938 3.9152	0.06 0.08 0.10 0.16 0.31
RRH2X60-PCS	С	From Leg	4.0000 0.00 1.00	0,0000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.5667 2.7914 3.0247 3.5173 4.6062	2 0106 2 2184 2 4349 2 8938 3.9152	0.06 0.08 0.10 0.16 0.31
RRH2x60-700	Α	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3,9569 4,2724 4,5965 5,2705 6,7224	1.8157 2.0752 2.3603 2.9566 4.2529	0.06 0.08 0.11 0.17 0.35
RRH2x60-700	В	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.9569 4.2724 4.5965 5.2705 6.7224	1.8157 2.0752 2.3603 2.9566 4.2529	0.06 0.08 0.11 0.17 0.35
RRH2x60-700	С	From Leg	4.0000 0.00 1.00	0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.9569 4.2724 4.5965 5.2705 6.7224	1.8157 2.0752 2.3603 2.9566 4.2529	0.06 0.08 0.11 0.17 0.35
RRH2X60-AWS	Α	From Leg	4.0000 0.00 1.00	0.0000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.1904 2.3976 2.6134 3.0710 4.0899	1.4290 1.6109 1.8015 2.2085 3.1263	0.04 0.06 0.08 0.13 0.26
RRH2X60-AWS	В	From Leg	4.0000 0.00 1.00	0,0000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.1904 2.3976 2.6134 3.0710 4.0899	1.4290 1.6109 1.8015 2.2085 3.1263	0.04 0.06 0.08 0.13 0.26

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustmen t	Placement		C₄A₄ Front	C _A A _A Side	Weight
			Vert ft ft ft	iii	ft		ft²	ft²	К
RRH2X60-AWS	С	From Leg	4.0000 0.00 1.00	0,0000	87.0000	4" Ice No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.1904 2.3976 2.6134 3.0710 4.0899	1,4290 1,6109 1,8015 2,2085 3,1263	0.04 0.06 0.08 0.13 0.26
(2) DB-T1-6Z-8AB-0Z	С	From Leg	4.0000 0.00 1.00	0.0000	87.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5,6000 5,9154 6,2395 6,9136 8,3654	2.3333 2.5580 2.7914 3.2840 4.3728	0.04 0.08 0.12 0.21 0.45
Platform Mount [LP 303-1]	С	None		0.0000	87,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	14.6600 18.8700 23.0800 31.5000 48.3400	14.6600 18.8700 23.0800 31.5000 48.3400	1,25 1,48 1,71 2,18 3,10
KS24019-L112A	С	From Leg	4.0000 0.00 1.00	0.0000	75,0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.1556 0.2247 0.3025 0.4840 0.9506	0.1556 0.2247 0.3025 0.4840 0.9506	0.01 0.01 0.01 0.02 0.06
Side Arm Mount [SO 701-1]	С	None		0.0000	75.0000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.8500 1.1400 1.4300 2.0100 3.1700	1.6700 2.3400 3.0100 4.3500 7.0300	0.07 0.08 0.09 0.12 0.18

Tower Pressures - No Ice

 $G_H = 1.690$

Section Elevation	Z	Kz	Q _z	A_G	F	A_F	A_R	Aleg	Leg %	C _A A _A In	C _A A _A Out
ft	ft		ksf	ft²	c e	ft²	ft²	ft²		Face ft²	Face ft²
L1 110.0000-	95.7991	1.356	0.03	42.993	Α	0.000	42.993	42.993	100.00	0.000	0.000
83.0800		70			В	0.000	42.993		100.00	0.000	0.000
34,000					С	0.000	42.993		100,00	0.000	3.283
L2 83.0800-	71.1214	1.245	0.02	47.363	Α	0.000	47.363	47.363	100.00	0.000	0.000
60.0000					В	0.000	47.363		100,00	0.000	0.000
- 1,31111					С	0.000	47.363		100.00	0.000	4.570
L3 60.0000-	52.2358	1.14	0.02	36.874	Α	0.000	36.874	36.874	100.00	0.000	0.000
44.7800		100		131	В	0.000	36.874		100.00	0.000	0.000
.,,					l c	0.000	36.874		100.00	0.000	3.014
L4 44 7800-	21.2751	1	0.02	132.09	A	0.000	132,096	132.096	100.00	0.000	0.000
0.0000				6	В	0.000	132.096		100.00	0.000	0.000
5,000					С	0.000	132.096		100.00	0.000	8.866

Tower Pressure - With Ice

$G_H = 1.690$

Section	Z	Kz	q _z	t _z	A_{G}	F	A_F	A _R	A _{leg}	Leg	$C_A A_A$	$C_A A_A$
Elevation						а				%	_In	Out
		- 0		20	- 0	С	2	2	e.2		Face	Face
ft	ft		ksf	in	ft ²	е	ft ²	ft ²	ft ²		ft²	ft ²
L1 110.0000-	95,7991	1,356	0.00	0.8523	46.818	Α	0.000	46.818	46,818	100.00	0.000	
83.0800		~-	1			В	0.000	46,818		100.00	0.000	0,000
						С	0.000	46,818		100.00	0,000	7.872
L2 83.0800-	71.1214	1.245	0.00	0.8224	50.641	Α	0.000	50.641	50,641	100.00	0.000	0.000
60.0000					33.00	В	0.000	50.641		100.00	0.000	0.000
4,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						С	0.000	50,641		100,00	0.000	8.504
L3 60.0000-	52.2358	1.14	0.00	0,7925	38.884	Α	0.000	38.884	38.884	100.00	0.000	0,000
44.7800						В	0.000	38,884		100.00	0.000	0,000
1,127, 444,						С	0.000	38.884		100.00	0.000	5.426
L4 44.7800-	21.2751	1	0.00	0.7500	138.011	Α	0.000	138,011	138,011	100.00	0.000	0.000
0.0000	,		50- 10	7.0		В	0.000	138,011		100.00	0,000	0.000
						С	0.000	138,011		100.00	0,000	15,964

Tower Pressure - Service

$G_H = 1.690$

Section	Z	Kz	q_z	A _G	F	A_F	A_R	A _{leg}	Leg	C_AA_A	C_AA_A
Elevation					a				%	In	Out
					С	_				Façe	Face
ft	ft		ksf	ft ²	е	ft ²	ft ²	ft ²		ft′	ft ²
L1 110.0000-	95,7991	1.356	0.01	42,993	Α	0.000	42.993	42.993	100.00	0.000	0.000
83.0800	127		92	· C	В	0.000	42,993		100.00	0.000	0.000
					С	0.000	42.993		100.00	0.000	3.283
L2 83.0800-	71.1214	1,245	0.01	47,363	Α	0.000	47.363	47.363	100.00	0.000	0.000
60.0000		~.			В	0.000	47.363		100,00	0.000	0.000
100					С	0.000	47.363		100.00	0.000	4.570
L3 60.0000-	52.2358	1.14	0.01	36,874	Α	0.000	36.874	36.874	100,00	0.000	0.000
44.7800			- 5	_	В	0.000	36.874		100.00	0,000	0.000
					С	0.000	36.874	1	100.00	0.000	3.014
L4 44.7800-	21.2751	1	0.01	132,09	Α	0.000	132.096	132.096	100,00	0.000	0.000
0.0000				6	В	0.000	132.096		100.00	0.000	0.000
100					С	0.000	132.096		100.00	0.000	8.866

Load Combinations

Comb.		Description	
No.			
1	Dead Only		
2	Dead+Wind 0 deg - No Ice		
3	Dead+Wind 30 deg - No Ice		
4	Dead+Wind 60 deg - No Ice		
5	Dead+Wind 90 deg - No Ice		
6	Dead+Wind 120 deg - No Ice		
7	Dead+Wind 150 deg - No Ice		
8	Dead+Wind 180 deg - No Ice		
9	Dead+Wind 210 deg - No Ice		
10	Dead+Wind 240 deg - No Ice		
11	Dead+Wind 270 deg - No Ice		
12	Dead+Wind 300 deg - No Ice		
13	Dead+Wind 330 deg - No Ice		
14	Dead+Ice+Temp		
15	Dead+Wind 0 deg+lce+Temp		
16	Dead+Wind 30 deg+lce+Temp		
17	Dead+Wind 60 deg+lce+Temp		
18	Dead+Wind 90 deg+lce+Temp		
19	Dead+Wind 120 deg+lce+Temp		

Comb.		Description
No.		
20	Dead+Wind 150 deg+lce+Temp	
21	Dead+Wind 180 deg+lce+Temp	
22	Dead+Wind 210 deg+lce+Temp	
23	Dead+Wind 240 deg+Ice+Temp	
24	Dead+Wind 270 deg+Ice+Temp	
25	Dead+Wind 300 deg+lce+Temp	
26	Dead+Wind 330 deg+lce+Temp	
27	Dead+Wind 0 deg - Service	
28	Dead+Wind 30 deg - Service	
29	Dead+Wind 60 deg - Service	
30	Dead+Wind 90 deg - Service	
31	Dead+Wind 120 deg - Service	
32	Dead+Wind 150 deg - Service	
33	Dead+Wind 180 deg - Service	
34	Dead+Wind 210 deg - Service	
35	Dead+Wind 240 deg - Service	
36	Dead+Wind 270 deg - Service	
37	Dead+Wind 300 deg - Service	
38	Dead+Wind 330 deg - Service	

Maximum	Mambar I	Forces
IVIAXIIIIIIII	wenter i	UILES

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	110 - 83.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-14.05	6.74	-3.55
			Max. Mx	11	-5.96	189.97	1.48
			Max. My	8	-6.00	-1.62	-187.78
			Max⊪Vy	11	-15.08	189.97	1.48
			Max. Vx	8	14.87	-1.62	-187.78
			Max. Torque	13			11.69
L2	83.08 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-17.78	7.61	-4.03
			Max. Mx	11	-8.84	609.15	-0.51
			Max. My	8	-8.87	0.66	-601.55
			Max. Vy	11	-16,66	609.15	-0.51
			Max. Vx	8	16.46	0.66	-601.55
			Max. Torque	13			11.71
L3	60 - 44.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-19.88	7.93	-4.22
			Max. Mx	11	-10.58	792.58	-1.29
		Max. My	8	-10,61	1.50	-782.77	
		Max. Vy	11	-17.32	792.58	-1,29	
			Max. Vx	8	17.12	1.50	-782,77
			Max. Torque	13			11.70
L4	44.78 - 0	Pole	Max Tension	1	0.00	0.00	0.00
		Max. Compression	14	-29.93	9.39	-5.05	
		Max. Mx	11	-18.94	1710.51	-4.67	
			Max. My	8	-18.94	5.03	-1690.73
			Max. Vy	11	-19.99	1710.51	-4.67
			Max. Vx	8	19.79	5.03	-1690.73
			Max. Torque	13			11.74

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	29.93	-0.00	0.00
	Max. H _x	11	18.97	19.97	-0.06
	Max. H _z	2	18.97	-0.06	19.77
	Max. M _x	2	1689.99	-0.06	19.77

Location	Condition	Gov.	Vertical	Horizontal, X	Horizontal, Z
		Load	K	K	K
		Comb.			
	Max. M _z	5	1708.97	-19.97	0.06
	Max. Torsion	13	11.74	9.93	17.09
	Min. Vert	11	18.97	19,97	-0.06
	Min. H _x	5	18.97	-19,97	0.06
	$Min_{r}H_{z}$	8	18.97	0.06	-19.77
	Min. M _x	8	-1690.73	0.06	-19.77
	Min. M _z	11	-1710.51	19.97	-0.06
	Min. Torsion	7	-11.70	-9.93	-17.09

Tower Mast Reaction Summary

Load Combination	Vertical	Shear _x	Shear₂	Overturning Moment, M _x	Overturning Moment, M _z	Torque
201112111211	K	K	K	kip-ft	kip-ft	kip-ft
ead Only	18.97	-0.00	0.00	0.36	0.75	0.0
Dead+Wind 0 deg - No Ice	18.97	0.06	-19.77	-1689.99	-3.66	-10.6
Dead+Wind 30 deg - No Ice	18.97	10.04	-17.15	-1465.65	-857.94	-6.6
Dead+Wind 60 deg - No Ice	18.97	17.32	-9.94	-848.54	-1482.10	-0.8
Dead+Wind 90 deg - No Ice	18.97	19.97	-0.06	-4.02	-1708.97	5.1
Dead+Wind 120 deg - No Ice	18.97	17.26	9.83	841.69	-1477,81	9.7
Dead+Wind 150 deg - No Ice	18.97	9.93	17.09	1462.03	-850.46	11.7
Dead+Wind 180 deg - No Ice	18.97	-0.06	19,77	1690.73	5.03	10.5
Dead+Wind 210 deg - No Ice	18,97	-10.04	17-15	1466.44	859.39	6.6
Dead+Wind 240 deg - No Ice	18.97	-17.32	9.94	849.28	1483.64	0.8
Dead+Wind 270 deg - No Ice	18.97	-19.97	0.06	4.67	1710.51	-5.0
Dead+Wind 300 deg - No Ice	18.97	-17.26	-9.83	-841.10	1479.27	-9.7
Dead+Wind 330 deg - No Ice	18.97	-9.93	-17.09	-1461.40	851.83	-11.7
ead+lce+Temp	29.93	0.00	-0.00	5.05	9.39	0.0
Dead+Wind 0	29.93	0.00	-4.77	-422.59	8.50	-2.2
	29,93	0.01	-4,77	-422,09	0,50	-2.2
eg+lce+Temp	20.02	2.42	-4.14	-365.76	-207.23	-1.4
ead+Wind 30	29.93	2.42	-4,14	-305,76	-207.23	-15
eg+lce+Temp	00.00	4.47	0.40	200.57	-364.91	-0,2
ead+Wind 60	29,93	4.17	-2,40	-209.57	-304.91	-0,2
eg+lce+Temp	00.00	4.04	0.04	4.44	400.07	1.0
ead+Wind 90	29.93	4.81	-0.01	4.14	-422,27	1.0
eg+lce+Temp		4.40	0.07	040.40	000.00	0.4
ead+Wind 120	29.93	4.16	2,37	218.10	-363.96	2.0
eg+lce+Temp				07400	205 50	•
ead+Wind 150	29.93	2.39	4.13	374,99	-205.59	2,4
eg+lce+Temp		2.24	4 77	400.70	40.40	0.0
ead+Wind 180	29.93	-0.01	4.77	432.76	10.40	2.2
eg+lce+Temp					000.44	
ead+Wind 210	29.93	-2,42	4.14	375.94	226.14	1.4
eg+lce+Temp						
ead+Wind 240	29.93	-4.17	2.40	219.75	383.81	0.2
eg+lce+Temp						
ead+Wind 270	29.93	-4.81	0.01	6.04	441.18	-1.0
eg+lce+Temp						
ead+Wind 300	29.93	-4.16	-2.37	-207.93	382.86	-2.0
eg+lce+Temp						
ead+Wind 330	29.93	-2,39	-4,13	-364.82	224.49	-2.4
eg+lce+Temp						
ead+Wind 0 deg - Service	18.97	0.02	-6.84	-585.52	-0.74	-3,7
ead+Wind 30 deg - Service	18.97	3.47	-5.93	-507.76	-296.84	-2.3
ead+Wind 60 deg - Service	18.97	5.99	-3.44	-293.87	-513.20	-0.3
ead+Wind 90 deg - Service	18.97	6.91	-0.02	-1.14	-591.84	1.8
ead+Wind 120 deg -	18.97	5.97	3.40	292.01	-511.72	3.4
Service						
ead+Wind 150 deg -	18.97	3.43	5.91	507,01	-294.25	4.
Service						
Dead+Wind 180 deg -	18.97	-0.02	6.84	586.27	2.27	3.1
Service	. 9,10	-151- 	-4/1-	2.250%		
ead+Wind 210 deg -	18.97	-3.47	5.93	508.52	298.40	2.3
	10.01	0.17	5.00			
Service						

tnxTower Report - version 6.1.4.1

Load Combination	Vertical	Vertical Shear _x		Overturning Moment, M _x	Overturning Moment, M ₂	Torque
Combination	K	K	K	kip-ft	kip-ft	kip-ft
Service Dead+Wind 270 deg - Service	18.97	-6,91	0.02	1.87	593.40	-1.79
Dead+Wind 300 deg - Service	18,97	-5.97	-3.40	-291.28	513.26	-3.41
Dead+Wind 330 deg - Service	18.97	-3.43	-5,91	-506.28	295,79	-4.12

Sol	lution	Summ	arv
-00	IULIVII	Vullin	I CHI V

	Sun	of Applied Force	es		Sum of Reactio		
Load	PX	' PY	PZ	PX	PY	PZ	% Error
Comb.	K	K	K	K	K	K	
1	0.00	-18.97	0.00	0,00	18.97	-0.00	0.000%
	0.06	-18.97	-19.77	-0.06	18.97	19.77	0.000%
2 3	10.04	-18.97	-17.15	-10_04	18.97	17:15	0.000%
4	17.32	-18.97	-9.94	-17.32	18.97	9.94	0.000%
5	19.97	-18.97	-0.06	-19.97	18.97	0.06	0.001%
5 6 7	17.26	-18.97	9.83	-17,26	18.97	-9.83	0.000%
7	9.93	-18.97	17.09	-9,93	18.97	-17.09	0.000%
8	-0.06	-18.97	19.77	0.06	18,97	-19.77	0.000%
9	-10.04	-18.97	17.15	10.04	18,97	-17.15	0.000%
10	-17.32	-18.97	9.94	17.32	18.97	-9.94	0.000%
11	-19.97	-18.97	0.06	19,97	18,97	-0.06	0.001%
12	-17.26	-18.97	-9.83	17,26	18.97	9.83	0.000%
13	-9.93	-18.97	-17.09	9.93	18.97	17.09	0.000%
14	0.00	-29.93	0.00	-0.00	29.93	0.00	0.002%
15	0.01	-29.93	-4.77	-0.01	29.93	4.77	0.001%
16	2.42	-29.93	-4.14	-2.42	29.93	4.14	0.001%
17	4.17	-29.93	-2.40	-4:17	29.93	2.40	0.001%
18	4.81	-29.93	-0.01	-4.81	29.93	0.01	0.001%
19	4.16	-29.93	2.37	-4_16	29.93	-2.37	0.001%
20	2.39	-29.93	4.13	-2.39	29.93	-4.13	0.001%
21	-0.01	-29.93	4.77	0.01	29.93	-4.77	0.001%
22	-2.42	-29.93	4.14	2.42	29.93	-4.14	0.001%
23	-4.17	-29.93	2.40	4.17	29.93	-2.40	0.001%
24	-4.81	-29.93	0.01	4.81	29.93	-0.01	0.001%
25	-4.16	-29.93	-2.37	4.16	29.93	2.37	0.001%
26	-2.39	-29.93	-4.13	2.39	29.93	4.13	0.001%
27	0.02	-18.97	-6.84	-0.02	18.97	6.84	0.001%
28	3.47	-18,97	-5.94	-3.47	18.97	5.93	0.002%
29	5.99	-18.97	-3.44	-5.99	18,97	3.44	0.002%
30	6.91	-18.97	-0.02	-6.91	18.97	0.02	0.002%
31	5.97	-18.97	3.40	-5.97	18,97	-3.40	0.001%
32	3.43	-18.97	5.91	-3.43	18.97	-5.91	0.001%
33	-0.02	-18.97	6.84	0.02	18.97	-6.84	0.001%
34	-3.47	-18.97	5.94	3,47	18,97	-5.93	0.001%
35	-5.99	-18.97	3.44	5,99	18.97	-3.44	0.002%
36	-6.91	-18.97	0.02	6.91	18.97	-0.02	0.002%
37	-5.97	-18.97	-3.40	5.97	18.97	3.40	0.001%
38	-3.43	-18.97	-5.91	3,43	18.97	5.91	0.001%

Maximum Tower Deflections - Service Wind

Section	Elevation	Horz.	Gov.	Tilt	Twist
No		Deflection	Load		
	ft	in	Comb.	0	.07
L1	110 - 83.08	28.55	36	2,3630	0.1162
L2	86.41 - 60	17.62	36	1.9830	0.0457
L3	60 - 44.78	8.37	36	1,2939	0.0184
L4	49.2 - 0	5.67	36	1.0909	0,0140

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	(0.00)	0	ft
111.0000	DB404	36	28.55	2.3630	0.1162	10562
97,0000	(2) DB980F65E-M w/ Mount Pipe	36	22.34	2.1836	0.0732	4062
87.0000	(2) LPA-80080/4CF w/ Mount Pipe	36	17.87	1.9963	0.0469	2354
75.0000	KS24019-L112A	36	13.17	1.6853	0.0284	2252

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load	Tilt	Twist
	ft	in	Comb.	٥	۰
L1	110 - 83.08	82.07	11	6.7983	0.3337
L2	86.41 - 60	50.71	11	5.7050	0.1305
L3	60 - 44.78	24.11	11	3.7259	0.0524
L4	49.2 - 0	16.35	11	3:1421	0.0398

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov.	Deflection	Tilt	Twist	Radius of
ft		Load Comb.	in	۰	0	Curvature ft
111.0000	DB404	11	82.07	6.7983	0.3337	3769
97-0000	(2) DB980F65E-M w/ Mount Pipe	11	64.24	6.2818	0.2098	1448
87.0000	(2) LPA-80080/4CF w/ Mount Pipe	11	51.42	5.7432	0.1341	837
75.0000	KS24019-L112A	11	37.91	4.8499	0.0809	794

Compression Checks

Р	ole	Desig	n Data
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Section No.	Elevation	Size	L	Lu	KI/r	Fa	Α	Actual P	Allow P _s	Ratio P
	ft		ft	ft		ksi	in ²	K	K	P _a
L1	110 - 83.08 (1)	TP22.33x16x0,1875	26.9200	0.0000	0.0	39.00	12.7116	-5.98	495.75	0.012
L2	83.08 - 60 (2)	TP27.3054x21.172x0.25	26.4100	0.0000	0.0	39.00	21.4684	-8.84	837.27	0.011
L3 L4	60 - 44.78 (3) 44.78 - 0 (4)	TP30.84x27.3054x0.4113 TP40.75x28.9909x0.3125	15.2200 49.2000	0.0000	0.0	28.30 39.00	38.3864 38.9915	-10.58 -18.16	1086.41 1520.67	0.010 0.012

Pole Bending Design Data

Section No.	Elevation	Size	Actual M _x	Actual f _{bx}	Allow. F _{bx}	Ratio f _{bx}	Actual M _v	Actual f _{bv}	Allow. F _{bv}	Ratio f _{by}
	ft		kip-ft	ksi	ksi	Fbx	kip-ft	ksi	ksi	Fby
L1	110 - 83.08 (1)	TP22,33x16x0.1875	190.47	34,15	39.00	0.876	0.00	0.00	39.00	0.000
L2	83.08 - 60 (2)	TP27.3054x21.172x0.25	609.15	51.07	39.00	1.310	0.00	0.00	39.00	0.000

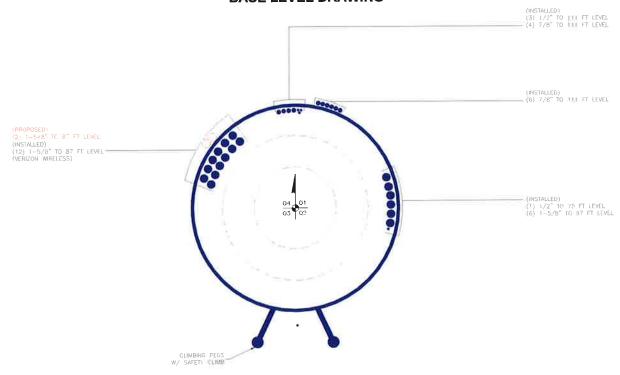
Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio f _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} F _{by}
L3 L4	60 - 44.78 (3) 44.78 - 0 (4)	TP30.84x27.3054x0.4113 TP40.75x28.9909x0.3125	792.58 1617.0	34.36 51.31	28.30 39.00	1.214 1.316	0.00 0.00	0.00 0.00	28.30 39.00	0.000
L4	44.70 - 0 (4)	1740,73820.990980.3123	1012.0	31.31	55,00	1.510	0,00	0.00	00.00	0,0

		Po	le She	ar De	sign	Data				
Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio f _v	Actual T kip-ft	Actual f _{vi} ksi	Allow. F _{vi} ksi	Ratio f _{vt}
L1	110 - 83.08 (1)	TP22.33x16x0.1875	14.97	1.18	26.00	0.091	9.65	0.84	26.00	0.032
L2	83.08 - 60 (2)	TP27.3054x21.172x0.25	16.66	0.78	26.00	0,060	5.05	0.21	26.00	0.008
L3	60 - 44 78 (3)	TP30.84x27.3054x0.4113	17.32	0.45	18.87	0.048	5.05	0.11	18.87	0,006
L4	44.78 - 0 (4)	TP40.75x28.9909x0.3125	19.86	0,51	26.00	0.039	5.07	0.08	26.00	0.003

Pole Interaction Design Data									
Section No.	Elevation	Ratio P	Ratio f _{bx}	Ratio f _{by}	Ratio f _v	Ratio f _{vt}	Comb. Stress	Allow. Stress	Criteria
	ft	P _a	F _{bx}	F _{bv}	F _v	F _{vt}	Ratio	Ratio	
L1	110 - 83.08 (1)	0.012	0.876	0.000	0.091	0.032	0.894	1.333	H1-3+VT 🗸
L2	83.08 - 60 (2)	0.011	1.310	0.000	0.060	0,008	1.321	1.333	H1-3+VT
L3	60 - 44.78 (3)	0.010	1,214	0.000	0.048	0.006	1.225	1.333	H1-3+VT 🗸
L4	44.78 - 0 (4)	0.012	1.316	0.000	0.039	0.003	1,328	1.333	H1-3+VT 🗸

Section Capacity Table								
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
L1	110 - 83.08	Pole	TP22.33x16x0.1875	1	-5.98	660.84	67.0	Pass
L2	83.08 - 60	Pole	TP27.3054x21.172x0.25	2	-8.84	1116.08	99.1	Pass
L3	60 - 44.78	Pole	TP30.84x27.3054x0.4113	3	-10.58	1448.18	91.9	Pass
L4	44.78 - 0	Pole	TP40.75x28.9909x0.3125	4	-18.16	2027.05	99.6	Pass
							Summary	
						Pole (L4)	99.6	Pass
						RATING =	99.6	Pass

APPENDIX B BASE LEVEL DRAWING



APPENDIX C

ADDITIONAL CALCULATIONS

Program Version 6.1.4.1 - 12/17/2013 File:G:/TOWER/375_Crown_Castle/2015/37515-2177_876406_NE OLD LYME-OLD LYME FI/37515-2177.001.7700_SDD_1083624/37515-2177.001.7700_Reinforced.eri

Program Version 6.1.4.1 - 12/17/2013 File:G:/TOWER/375_Crown_Castle/2015/37515-2177_876406_NE OLD LYME-OLD LYME FI/37515-2177.001.7700_SDD_1083624/37515-2177.001.7700_Reinforced.eri

110,0 ft 0 8 83.1 ft 8 26.41 0.2500 8 60.0 ft 9 6 44.8 ft Reinf 47,17 ksi A572-65 18 5,7 SHEAR 5 K SHEAR 0.0 ft Number of Sides Socket Length Thickness (in) Top Dia (in) Bot Dia (in)

DESIGNED APPURTENANCE LOADING

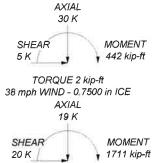
TYPE	ELEVATION	TYPE	ELEVATION	
DB404	111	(2) LPA-80080/4CF w/ Mount Pipe	87	
DB222	111	(2) LPA-80080/4CF w/ Mount Pipe	87	
DB408	111	HBXX-9014DS-A2M w/ Mount Pipe	87	
800 10504 w/ Mount Pipe	111	HBXX-9014DS-A2M w/ Mount Pipe	87	
800 10504 w/ Mount Pipe	111	HBXX-9014DS-A2M w/ Mount Pipe	87	
800 10504 w/ Mount Pipe	111	LNX-6514DS-A1M w/ Mount Pipe	87	
SL11-840/UT4	111	LNX-6514DS-A1M w/ Mount Pipe	87	
SRL-101A	111	LNX-6514DS-A1M w/ Mount Pipe	87	
ASP-702	111	HBXX-6517DS-A2M w/ Mount Pipe	87	
ASP-702	111	HBXX-6517DS-A2M w/ Mount Pipe	87	
Platform Mount [LP 712-1]	111	HBXX-6517DS-A2M w/ Mount Pipe	87	
Side Arm Mount [SO 701-3]	111	RRH2X60-PC\$	87	
(2) 2,375" OD x 6' Mount Pipe	111	RRH2X60-PCS	87	
(2) 2,375" OD x 6' Mount Pipe	111	RRH2X60-PCS	87	
(2) 2,375" OD x 6' Mount Pipe	111	RRH2x60-700	87	
(2) DB980F65E-M w/ Mount Pipe	97	RRH2x60-700	87	
(2) DB980F65E-M w/ Mount Pipe	97	RRH2x60-700	87	
(2) DB980F65E-M w/ Mount Pipe	97	RRH2X60-AWS	87	
Platform Mount [LP 712-1]	97	RRH2X60-AWS	87	
Side Arm Mount [SO 701-3]	97	RRH2X60-AWS	87	
(2) 2,375" OD x 6' Mount Pipe	97	(2) D8-T1-6Z-8AB-0Z	87	
(2) 2.375" OD x 6' Mount Pipe	97	Platform Mount [LP 303-1]	87	
(2) 2.375" OD x 6' Mount Pipe	97	KS24019-L112A	75	
(2) LPA-80080/4CF w/ Mount Pipe	87	Side Arm Mount [SO 701-1]	75	

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	Reinf 47.17 ksi	47 ksi	59 ksi

TOWER DESIGN NOTES

- Tower is located in New London County, Connecticut.
 Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
 Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
- Deflections are based upon a 50 mph wind.
- 5. TOWER RATING: 99.6%



TORQUE 12 kip-ft REACTIONS - 85 mph WIND



111' Monopole / Old Lyme, CT Project: PJF 37515-2177 / BU 876406

Client: Crown Castle Drawn by: Nick Parente, E.I. App'd: Code: TIA/EIA-222-F Date: 07/09/15 Scale: N

Dwg No. | FAX: 614,448,4105

PF PAUL J. FORD & COMPANY 250 E Broad St, Ste 600 • Columbus, OH 43215 Phone 614.221.6679 www.pauljford.com

Date: 7/9/2015

PJF Project: 37515-2177.001.7700

Client Ref. # 876406 Site Name: Site Name

Description: Description Owner: Owner

v4.4 - Effective 7-12-13

Engineer: RMK Asymmetric Anchor Rod Analysis

Moment =	1711	k-ft
Axial =	19.0	kips
Shear =	20.0	kips
Anchor Qty =	12	

TIA Ref. ASIF = 1.3333 Max Ratio = 105.0%

Location = Base Plate η = Threads =

N/A for BP, Rev. G Sect. 4,9,9 N/A for FP, Rev. G

** For Post Installed Anchors: Check anchors for embedment, epoxy/grout bond, and capacity based on proof load. **

	Nominal Anchor Dia,				Location,	Anchor	Area Override,		Max Net Compressio	Max Net Tension,	Load for Capacity	Capacity Override,	Capacity,	Capacity
Item	in	Spec	Fy, ksi	Fu, ksi	degrees	Circle, in	in ²	Area, In ²	n, kips	kips	Calc, kips	kips	kipa	Ratio
1	2.250	#18J A615 Gr 75	75	100	0.0	49.00	0.00	3.98	136,60	132.96	132,96	0.00	195.00	68.2%
2	2.250	#18J A615 Gr 75	75	100	45.0	49.00	0.00	3.98	136.60	132,96	132,96	0.00	195_00	68.2%
3	2,250	#18J A615 Gr 75	75	100	90.0	49.00	0.00	3,98	136,60	132.96	132,96	0.00	195.00	68.2%
4	2.250	#18J A615 Gr 75	75	100	135.0	49.00	0.00	3.98	136,60	132,96	132.96	0.00	195_00	68.2%
5	2.250	#18J A615 Gr 75	75	100	180.0	49.00	0.00	3.98	136.60	132,96	132,96	0.00	195,00	68.2%
6	2.250	#18J A615 Gr 75	75	100	225.0	49,00	0.00	3,98	136,60	132.96	132,96	0.00	195.00	68.2%
7	2.250	#18J A615 Gr 75	75	100	270.0	49.00	0.00	3,98	136.60	132,96	132,96	0.00	195,00	68.2%
8	2,250	#18J A615 Gr 75	75	100	315.0	49.00	0.00	3,98	136,60	132.96	132,96	0.00	195.00	68.2%
9	1.750	A193 Gr B7	105	125	56.0	66.38	0.00	2.41	111,44	109,23	109.23	0.00	132,29	82.6%
10	1,750	A193 Gr B7	105	125	146.0	66.38	0.00	2.41	111.44	109,23	109.23	0.00	132.29	82,6%
11		A193 Gr B7	105	125	236.0	66.38	0.00	2.41	111.44	109,23	109.23	0.00	132,29	82.6%
12	1.750	A193 Gr B7	105	125	326.0	66.38	0.00	2,41	111.44	109.23	109.23	0.00	132,29	82.6%
	41.46													

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

TIA Rev F

Site Data

BU#:

Site Name:

App #:

Pole Manufacturer: Other

Reactions		
Moment:	1100.7	ft-kips
Axial:	14.6	kips
Shear:	15.4	kips

Reactions adjusted to account for additional anchor rods.

AISC ASD <-Only Applcable to Unstiffened Cases

Anchor Rod Data					
Qty:	8				
Diam:	2.25	in			
Rod Material:	A615-J				
Strength (Fu):	100	ksi			
Yield (Fy):	75	ksi			
	40	1:			

Diam:	2.25	in				
Rod Material:	A615-J					
Strength (Fu):	100	ksi				
Yield (Fy):	75	ksi				
Bolt Circle:	49	in				
Plate Data						

Plate Data					
Diam:	55	in			
Thick:	1.5	in			
Grade:	60	ksi			
Single-Rod B-eff:	16.17	in			

Stiffener Da	Stiffener Data (Welding at both sides)						
Config:	3						
Weld Type:	Fillet	,					
Groove Depth:		< Disregard					
Groove Angle:		< Disregard					
Fillet H. Weld:	0.5	in					
Fillet V. Weld:	0.3125	in					
Width:	6.5	in					
Height:	18	in					
Thick:	0.75	in					
Notch:	0.5	in					
Grade:	50	ksi					
Weld str.:	70	ksi					
Clear Space between Stiffeners (b):	9.64	in					

Pole Data					
Diam:	40.75	in			
Thick:	0.3125	in			
Grade:	65	ksi			
# of Sides:	18	"0" IF Round			
Fu	80	ksi			
Reinf. Fillet Weld	0	"0" if None			

Stress Increase Factor									
ASIF:	1.333								

Anchor Rod Results	
Maximum Rod Tension:	133.0 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	68.2% Pass

Base Plate Results	Flexural Check
Base Plate Stress:	57.7 ksi
Allowable Plate Stress:	60.0 ksi
Base Plate Stress Ratio:	96,2% Pass

Stiffened
Service, ASD
0.75*Fy*ASIF
Y.L. Length:
N/A, Roark

Stiffened Service, ASD Fty*ASIF

Stiffener Results

If No stiffeners, Criteria:

Horizontal Weld :	43.6% Pass
Vertical Weld:	26.4% Pass
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	7.4% Pass
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	29.1% Pass
Plate Comp. (AISC Bracket):	34.0% Pass

Pole Results

7.4% Pass Pole Punching Shear Check:





^{* 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

Page 1

Overturning Moment = 1711 ft-k		✓ Pier Projection = 1 ft	, , , , , , , , , , , , , , , , , , ,	Ţ	7 ft square pier
•	Comp Load = 19 kips		Horizontal Load = 20 k	+	2 € weights
		ssion = 19 (kips)	f pier = 20 (kips)		
	Foundation Loads:	Pole weight or tower leg compression =	Horizontal load at top of pier =	Overturning moment at top of pier=	Design criteria:

Design criteria:

Safety factor against overturning =

Soil Properties:

Soil density =
$$\frac{125}{10.67}$$
 (pcf)
Allowable soil bearing = $\frac{10.67}{2}$ (ksf)
Depth to water table = $\frac{2}{10.6}$ (ft)

Footing Depth = 7 ft

Top and Bottom (9) #8 ea way

H E

ΉG

IJÞ

20 k

(30)#8 vert

#4 ties

Water = -124.8 k Conc = 216.8 kSoil = 175.5 k

water table at 2 ft

ħ 8

Dimensions:

Concrete:

2027 psf (net)

286.45k

Ecc = 5.973 ft

20 ft x 20 ft

Reinforcing Steel:

Pad	3 inches	#8 bar	9 (ea direction)
ļ	minimum cover over rebar =	size of pad rebar =	quantity of pad rebar =

Reinforcing Steel:

Pier	#8 bar	30	#4 bar	4.5 inches
	size of vert rebar in pier=	vertical rebar quantity =	size of pier ties =	minimum cover over rebar =

yd
ᇙ.
53.5
Total volume of concrete =

Summary of analysis results	lalysis results
Maximum Net Soil Bearing = 2.027 ksf	Ult Bending Shear Capacity = 126 psi
Allowable Net Soil Bearing = 10.67 ksf	Ult Bending Shear Stress = 26 psi
Soil Bearing Stress Ratio = 0.19 Okay	Bending Shear Stress Ratio = 0.2 Okay
Ftg Overturning Resistance = 2865 ft-kips Overturning Moment = 1711 ft-kips Required Overturning Safety Factor = 1.5 Overturning Safety Factor = 1.674 Ratio = 0.9 Okay	Pad Bending Moment Capacity= 999 ft-k Pad Bending Moment = 718 ft-k Bending Moment Stress Ratio = 0.72 OK

				000	000			0											
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000	200	00		000	000	000	200	0.0	0	000	0 000	00	00	00	00	00	(TM)		

spColumn v4.80 (TM)

Computer program for the Strength Design of Reinforced Concrete Sections
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General Information:

File Name: G:\TOWER\375 Crown Castle\2015\37515-2177 876406 NE OLD LYME-OLD LYME FI\...\spcolumn.col

Column: Code: ACI 318-02 Engineer: Units: English

Run Option: Investigation Run Axis: X-axis

Slenderness: Not considered Column Type: Architectural

Material Properties:

************ f'c = 4 ksiEc = 3605 ksi

fy = 60 ksiEs = 29000 ksi

Ultimate strain = 0.003 in/in

Beta1 = 0.85

Section:

Rectangular: Width = 84 in

Depth = 84 in

Gross section area, Ag = 7056 in^2

 $Ix = 4.14893e+006 in^4$ rx = 24.2487 in

 $Iy = 4.14893e + 006 in^4$

ry = 24.2487 inYo = 0 in

Xo = 0 in

Reinforcement:

Bar Set: ASTM A615

Ba	ar	Set: AST	I Ablo													
S	ize	Diam (ir) Area	a (in^2)	S	ize	Diam	(in)	Area	(in^2)	S	ize	Diam	(in)	Area	(in^2)
											-					
	3	0.3	8	0.11	#	4		0.50		0.20	#	5		0.63		0.31
#	6	0.7	5	0.44	#	7		0.88		0.60	#	8		1.00		0.79
#	9	1.1	.3	1.00	#	10		1.27		1.27	#	11		1.41		1.56
#	14	1.6	9	2.25	#	18		2.26		4.00						

Confinement: Tied; #3 ties with #10 bars, #4 with larger bars.

phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Layout: Circular

Pattern: All Sides Equal (Cover to transverse reinforcement)
Total steel area: As = 23.70 in^2 at rho = 0.34% (Note: rho < 0.50%)

Minimum clear spacing = 6.66 in

Cover = 4.5 in

Factored Loads and Moments with Corresponding Capacities:

	Pu	Mux	PhiMnx	PhiMn/Mu	NA depth	Dt depth	eps_t	Phi
No.	kip	k-ft	k-ft		in	in		
1	19.00	2354.30	3881.02	1.648	11.73	78.63	0.01711	0.900

^{***} End of output ***

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

BU NUMBER; SITE NAME

BU #876406; NE OLD LYME-OLD LYME FIREHOUSE

APP: 300595 REV. 1; WO: 1083624

SITE ADDRESS

189 BOSTON POST ROAD OLD LYME, CT 06371 NEW LONDON COUNTY

PROJECT NOTES

- THESE DRAWINGS WERE PREPARED FROM INFORMATION AND DOCUMENTS PROVIDED BY CROWN CASTLE, THE INFORMATION PROVIDED HAS NOT BEEN FIELD VERIFIED BY THE ENGINEER OF RECORD (EOR) FOR ACCURACY AND THEREFORE DISCREPANCIES BETTHEN THESE DRAWINGS AND ACTUAL SITE CONDITIONS SHOULD BE ANTICIPATED, DETAILED FIELD INFORMATION REGARDING INTERFERENCES AND/OR EXISTING FIELD CONDITIONS MAY BE AVAILABLE ON CROWN CASTLE'S CISITIES AND FROM CONTRACTOR'S PREDICTIONS MAPPING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AND COORDINATE WITH THE AVAILABLE SOURCES OF INFORMATION ABOVE AND WITH THE PROJECT DRAWINGS BEFORE PROCEEDING WITH THE WORK. CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO THE EOR AND CROWN CASTLE FIELD PERSONNEL BEFORE PROCEEDING WITH THE WORK.
- ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIRMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
- ALL STRUCTURAL BOLTS SHALL BE FIELD INSPECTED ACCORDING TO THE REQUIREMENTS
 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS',
 DEC. 31, 2009.
- 4. <u>DTI'S REQUIRED:</u> ALL FORGBOLTS™ SHALL BE INSTALLED USING DIRECT TENSION INDICATORS (DTI'S) AND HARDENED WASHERS. ALL FORGBOLTS™ SHALL BE PRETENSIONED AND TIGHTENED UNTIL THE DTI WASHERS SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED. SEE NOTES AND DETAILS ON SHEET S-2A FOR REQUIREMENTS ON THE USE OF DTI WASHERS WITH THE BOLTS.
- NDE OF THE CIRCUMFERENTIAL WELD OF THE BASE PLATE TO SHAFT CONNECTION IS REQUIRED. SEE CCI DOCUMENTS ENG-SOW-10033 'TOWER BASE PLATE NDE' AND ENG-BUL-10051 'NDE REQUIREMENTS FOR MONOPOLE BASE PLATE TO PREVENT CONNECTION FAILURE'. NOTIFY THE EOR AND CROWN CASTLE ENGINEERING IMMEDIATELY IF ANY CRACKS ARE SUSPECTED OR HAVE BEEN IDENTIFIED. THE NDE SHALL INCLUDE ALL EXISTING REINFORCEMENTS THAT HAVE BEEN WELDED TO THE BASE PLATE. ANY FULL PENETRATION WELDING TO THE BASE PLATE REQUIRED AS PART OF THIS ACTIVE REINFORCEMENT DESIGN SHALL BE INCLUDED IN THE NDE SCOPE OF WORK.
- ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT (800) 788-7011.

PROJECT CONTACT:

MONOPOLE OWNER:

CROWN CASTL

MOD PM: DAN VADNEY AT DAN.VADNEY@CROWNCASTLE.COM PH: (518) 373-3510

MOD CM: JASON D'AMICO AT JASON.D'AMICO, VENDOR@CROWNCASTLE.COM PH: (860) 209-0104

ENGINEER OF RECORD:

PJFMOD@PJFWEB.COM

DESIGN STANDARD

THIS REINFORCEMENT DESIGN IS BASED UPON THE REQUIREMENTS OF THE TIA/EIA-222-F-1996 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, USING A DESIGN BASIC WIND SPEED OF 85 MPH (FASTEST MILE) WITH NO ICE, 38 MPH WITH 3/4 INCH ICE AND 50 MPH SERVICE LOADS,

REFER TO THE POLE DESIGN AND ANTENNA LOADING DOCUMENTED IN THE PJF STRUCTURAL ANALYSIS FOR THIS SITE (PJF#37515-2177.001,7700), DATED 07/06/2015.

THIS PROJECT INCLUDES THE FOLLOWING ITEMS:

SHAFT REINFORCING
REMOVAL OF EXISTING STIFFENERS
FIELD WELDED ANCHOR BRACKETS
POST INSTALLED ANCHOR RODS

SHEET INDEX				
SHEET NUMBER	DESCRIPTION			
T-1	TITLE SHEET			
S-1	GENERAL NOTES			
S-2A	FORGBOLT™ DETAILS			
S-2B	NEXGEN2™ BOLT DETAIL			
S-3	MONOPOLE PROFILE			
S-4	BASE PLATE DETAILS			
S-5	MISC DETAILS			
S-6	MI CHECKLIST			

- GENERAL MOTEB

 1. THE MORPOPULE STRUCTURE IN ITS EXISTING CONDITION DOES NOT HAVE THE STRUCTURAL CAPACITY TO CARRY ALL
 OF THE ANYTENNA AND PLATFORM LOADS SHOWN ON THESE DRAWINGS AT THE REQUIRED MINIMUM WIND SPEEDS. DO
 NOT INSTALL MAY ADDITIONAL OR NEW MATENNA AND PLATFORM LOADS UNTIL THE MONOPOLE REINFORCING SYSTEM
 IS COMPLETELY AND SUCCESSFULLY INSTALLED.
- IN MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED,
- AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SUE INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.
 THIS STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORDING REPAIRS SYSTEM HAS BEEN BLOCKESSPILLY COMPILETED. IT ITS THE CONTRACTOR'S SOLD EREPONSIBILITY TO GINDLINE THE SAFETY AND STABILITY OF THE MONOPOLE AND ITS COMPONENT FARTS DURING FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE MONOPOLE AND ITS COMPONENT FARTS DURING FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE MODIFICATION HAVE BEEN RESEARCH, SUCH MARKETIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT HE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION EXCHANGES OF THE CONTRACTOR SHALL SUPPENIES AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION REASH, THE HORSE OF THE PROPERTY OF THE CONTRACTOR SHALL SUPPENIES AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION REASH, THE PROPERTY OF THE PROPERTY OF THE CONTRACTOR SHALL SUPPENIES AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION FROM THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE CONTRACTOR SHALL SUPPENIES OR THE CONSTRUCTION SHALL SUPPENIES OR THE CONSTRUCTION FOR THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
- BY CHOWN CASTLE AND/ORTHE EORISHAL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OF THE CONSTRUCTION PROCEDURES.

 ANY SUPPORT SERVICES PERFORMED BY THE EOR DURING CONSTRUCTION ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING SEMERAL CONSTRUCTION ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING SEMERAL CONSTRUCTION AS SUPERINGION OF CONSTRUCTION.

 CONSTRUCTION.
- CONSTRUCTION.

 ALL MATERIAS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY A PROPOVED AND AUTHORIZED IN WRITING BY CROWN CASTLE AND DE OF RIGH TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.

 THE CONTRACTOR SHALL BE RESPONSIBLE FOR INTIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION MYTH THE WORK. THE CONTRACTOR SHASLANDIBLE TO ENSURE THAT THIS PROJECT AND RELATED WORK COMPUSES WITH ALL APPLICABLE LOCAL. STATE, AND FEDERAL SAFETY CODES AND DEGULATIONS GOVERNING THIS WORK AS WELL AS CROWN CASTLE SAFETY QUIDELING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW COAXIAL CABLES AND OTHER COLUMENTS.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW COADALA CABLES AND OTHER EQUIPMENT DURING CONSTRUCTION

 ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE POLE THAT MAY INTERFERE WITH THE INSTALLATION OF THE PELIFFORM SYSTEM MLL HAVE TO BE REMOVED AND RELOCATED. REPLACED, OR RE-INSTALLED AS REQUIRED AFTER THE REINFORCING SYSTEM MLL HAVE TO BE REMOVED AND RELOCATED REPLACED, OR RE-INSTALLED AS REQUIRED AFTER THE REINFORCING SYSTEM MLL HAVE TO CONSTRUCT ON WHITH CROWN CASTLE. TESTING AGENCY, AND EGR.

 WAY AND ALL EXSTRING PAIT-FORMS THAT ARE LOCATED IN AREAS OF THE POLE SHAFT WHERE SHAFT REINFORCING MUST BE APPLIED SHALL BE TEMPORABILY REMOVED OR OTHERWING SUPPORTIED TO PERMIT NEW CONTINUOUS REINFORCEMENT TO BE ATTRACED. AFTER THE CONTRUCTOR HAS SUCCESSFULLY INSTALLED THE MONOPOLE REINFORCEMENT SYSTEM, THE CONTRUCTOR SHALL REINSTALL THE PLATFORMS.

 THE CUILMINDS FOR THIS ESPACE TO LIMB AND ALL REINSTALL THE PLATFORMS.

 THE CUIMMING FOR THE REPLACEMENT, RELOCATION OR MODIFICATION OF THE SHAFETY CLIMB AND/OR ANY OF THE MONOPOLE CUIMBING FACILITIES SHALL BE COORDINATED WITH TUF-TUG. CONTRACT DETAILS:

 TUF-TUG PRODUCTS

- TUF-TUG PRODUCTS

3434 ENCRETE LANE MORAINE, OHIO 45439 PHONE: 937-299-1213 EMAIL: TUFTUG@AOL COM

- BIRUCTURAL STEEL
 2.1 STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING REFERENCE STANDARD
 - BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):

 1. "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS."
 - 2.1.1.2 SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS, "AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.

 2.1.1.3 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"

- 21.13 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"

 21.2 BY THE AMERICAN WELDING SCOET YAMS!

 21.2 STANDARD SYMBOLS FOR WELDING, SAND MONDESTRUCTIVE EXAMINATION"

 21.2 STANDARD SYMBOLS FOR WELDING, BRAZING, AND MONDESTRUCTIVE EXAMINATION"

 2. ANY MATERIAL OR WORKMANSHIP WHICH IS OBSERVED TO BE DEFECTIVE OR INCONSISTENT WITH THE CONTRACT DOCUMENTS SHALL BE COPECTED, MODIFIED, OR REPLACED AT THE CONTRACTOR'S EXPENSE.

 3. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS DI.1, ALL WELD ELECTRODES SHALL BE BROX UNILESS NOTED OTHERWISE ON THE DRAWINGS.

 ALL WELDED CONNECTIONS SHALL BE MOSE BY WELDERS CERTIFIED BY ANS. CONTRACTOR SHALL SUBMIT WELDERS CERTIFICATION AND QUALIFICATION DOCUMENTATION TO GROWN CASTLE'S TESTING AGENCY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

 5. STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A572 GRADE 65(FY = 85 KSI MIN.) UNLESS NOTED OTHERWISE.
- STRUCTURAL STEEL PLATES SHALL CONFUNITORS IMPOZE GROUL SOFT = 50 KM MIN JOYLESS FOR TELD UPLINESS OF THE DRAWNISTING STEEL SHALL BE PREPARED AS REQUIRED FOR FIELD WELDING PER AWS. SEE SECTION IN MOTES REGARDING TOLICH IP OF GALVANZED SURFACES DAMAGED DURING TRANSPORTATION OR ESECTION AND ASSEMBLY AS WELL AS FIELD WELDING. NO WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL AND SUPERVISION OF THE TESTING AGENCY.
- - ETENTIAN AGENTAL.

 LIGHTIMA OF STEEL

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 LIGHTIMA CUTTING AND INSTEAD AS THEY CURDENASE. THE CONTRACTOR SHALL FOLLOW ALL CROWN CASTLE

 CUTTING WELLOW, THEY PREVENTION AND MATERIAL CROWN CASTLE CULDENINES. PRIOR TO CONSTRUCTION, THE CONTRACTOR

 CONTRICTOR CONTRACTOR CONTRICTOR CONTRACTOR

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 LIGHT CONTRICTOR AND WELLOWS ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CROWN

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 CASTLE PROJECT CUTTING AND WELLOWS ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CROWN

 CASTLE PROJECT CUTTING AND WELLOWS ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CROWN

 CONTRACTOR SECREPASE. THE INSPECTION TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY

 MONITOR THIS ACTIVITY

 ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWNINS. NO CUTS SHALL

 EXTEND BEYOND THE OUTTING FOR THE DIMENSIONS SHOWN ON THE DRAWNINS. NO CUTS SHALL BE

 CROUND SMOOTH AND DE-SURRED. CUT ECOSES THAT ARE TO BE FIELD WELDED SHALL BE PREPARED FOR FIELD

 WELDING PER AMB DITI AND A SHOWN ON THE DRAWNINS. SHOULT PREPARED FOR FIELD

 WELDING PER AMB DITI AND AS SHOWN ON THE DRAWNINS. SHOULT PREPARED FOR FIELD

 WELDING PER AMB DITI AND AS SHOWN ON THE DRAWNINS. SHOULT PREPARED FOR FIELD

 WELDING PER AMB DITI AND AS SHOWN ON THE DRAWNINS. SHOULT PREPARED FOR FIELD

 WELDING PER AMB DITI AND AS SHOWN ON THE DRAWNINS. SHOULT PROTESTED SHALL BE CONNERS. IT

 MAY BE NECESSARY TO DRILL STATER HOLES AS REQUIRED TO MAKE THE CUTS.

BASE PLATE GROUT-INOY REQUIRED)

- CAST-IN-PLACE CONCRETE- (NOT REQUIRED)

- EPOXY GROUTE O REINFORCING ANCHOR RODS

 1. UNLESS OTD-EYMASE NOTED, REINFORCING ANCHOR RODS SHALL BE 150 KSI ALL-THREAD BARS CONFORMING TO ASTIM A72. RECOMMENDED ANNI-PACTURERISSUPPLIERS OF 150 KSI ALL-THREAD BARS ARE WILLIAMS FORM ENSINEERING CORPORATION AND DYWIDAG SYSTEMS INTERNATIONAL.

 2. ALL REINFORCING ANCHOR ROOS SHALL BE HOT DIP QALVANDED PER ASTIM A123. ALTERNATIVELY, ALL REINFORCING ANCHOR ROOS SHALL BE TO TIPE AND ATTA.

 3. THE CORE-ORILED HOLE SIN THE CONCRETE FOR THE ANCHOR ROOS SHALL BE CLEAN AND DRY, AND OTHERWISE PROPERLY PREPARED ACCORDING TO THE ANCHOR ROOD AND EPOXY. WANUFACTURERS INSTRUCTIONS, PRIOR TO PLACEMENT OF ANCHOR ROOS AND EPOXY. COOTRACTOR SHALL FOLLOW ALL ANCHOR ROOM AND EPOXY MANUFACTURERS RECOMMENDATIONS REGARDING HANDLING OF ROOS. EPOXY, ACCEPTABLE ANBIENT TEMPERATURE RANGE DURING INSTALLATION AND POST-INSTALLATION CURING, THE EFFECT OF TEMPERATURE ON EPOXY CURING
- TIME, PREPARATION OF HOLE, ETC. HILTI HIT RE-500 SD OR ITW RED HEAD EPCON G5 EPOXY SHALL BE USED TO ANCHOR THE BAR IN THE DRILL HOLES.
- HILT HIT RE-900 SD OR TIM RED HEAD EPOCN GS EPOCY SHALL BE USED TO ANCHOR THE BAR IN THE DRILL HOUSE, IF THE DESIGNED DEMECRATING REGERTER THAN 12 FT. CONTRACTOR HAS THE OPTION TO USE PILE ANCHOR GROUT BY ECCHEN AS AN ALTERNATE. IF CONTRACTOR WISHES TO USE A DEFERENT EPOCY, A REQUEST INCLUDING THE EPOCY TECHNICAL DATA SHEETIS SHALL BE SUBMITTED TO THE EOR FOR RENIEWE PRIOR TO CONSTRUCTION ONCE THE REINFORCING ANCHOR RODS HAVE BEEN INSTALLED AND ALL EPOCY AND GROUT HAVE CURED IN BASE PLATE AND/OR BEARING PLATES HAVE BEEN GROUTED PRIOR TO TESTING), ALL REINFORCING ANCHORS SHALL BE LOAD TESTED PER CONOUN CAST LE ENSIMES FIND DECLINENT FERSON FOR CONTRACTOR SHALL BE BRACKET DETAIL ON FOLLOWING SHEETS FOR SPECIFIED ANCHOR ROD TARGET TENSION LOAD.

 ONCE THE REINFORCING ANCHOR RODS HAVE BEEN BUCCESSFULLY LOAD TESTED AN APPROVED THE CONTRACTOR SHALL TIGHTEN ALL HEAVY HEX ANCHOR NOT NOTE.

- TOUCH UP OF GALVANIZING

 7.1. THE CONTRACTOR SHALL TOUCH UP ANY AND ALL AREAS OF GALVANIZING ON THE EXISTING STRUCTURE OR NEW
 COMPONENTS THAT ARE DAMAGED OR ABRADED DURING CONSTRUCTION. GALVANIZED SURFACES DAMAGED DURING
 TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS ANY AND ALL ABRADIONS. CUTS. FIELD DRELLING, AND
 ALL FIELD WELDING SHALL BE TOUCHED UP WITH THY OF COSTA OF 2° 70C ORI DOQUAVARIANG COMPONENT. FAM.
 THEODESIS FOR COAT SHALL BE WELT 30 MILS, DRY 15 MILS, APRILY FOR IREC GAMALT ACTURERS DECOMMENCED.
 PROCEDURES: CONTROL 7.8C AT LEGO 451 2375 FOR PROCOUCT HE ORIGINATION.
 7.2. CONTROL OR SHALL CEAR AND PREPARE ALL FIELD WELDS ON GALVANIZED AND PRIME PAINTED SURFACES FOR
 TOUCH-UP COATING IN ACCORDANCE WITH HAVE DITL. CROWN CASTLES TESTING ACENCY SHALL VERIFY THE
 PREPARED SURFACE PRIOT OF APPLICATION OF THE TOUCH-UP COATING.
 7.3. CROWN CASTLES TESTING ACENCY SHALL TEST AND VERIFY THE COATING THICKNESS AFTER THE CONTRACTOR HAS
 APPLIED THE ZRC COLD GALVANIZING COMPOUND AND IT HAS SUFFICIENTLY DRED. AREAS FOUND TO BE
 ADEQUATELY COATED, SHALL BE RE-COATED BY THE CONTRACTOR AND RE-TESTED BY THE TESTING AGENCY.

- HOT-DIP GALVANIZING
 8.1. HOT-DIP GALVANIZE ALL STRUCTURAL STEEL MEMBERS AND ALL STEEL ACCESSORIES, BOLTS, WASHERS, ETC. PER

- ASTM A 123 OR PER ASTM A 183, AS A PPROPRIATE.
 PROPERLY PREPARE STEEL ITEMS FOR GALVAN/ZING.
 BRILL OR PUNCH WEEP AND/OR PORMINGE HOLES WITH EOR APPROVAL OF LOCATIONS.
 ALL GALVAN/ZING SHALL BE DONE AFTER FABRICATION IS COMPLETED AND PRIOR TO FIELD INSTALLATION.

- PERPETUAL INSPECTION AND MAINTENANCE BY THE OWNER
 AFIER THE CONTRACTOR THAS SUCCESSFILLY COMPLETED THE INSTALLATION OF THE MONOPOLE REINFORCING
 SYSTEM AND THE WORK HAS BEEN ACCEPTED BY CROWN CASTLE, CROWN CASTLE WILL BE RESPONSIBLE FOR THE
 LONG TERM AND PERPETUAL INSPECTION AND MAINTENANCE OF THE POLE AND REINFORCING SYSTEM.
 - LONG TERM AND PERPETUAL INSPECTION AND MAINTENANCE OF THE POLE AND REINFORCING SYSTEM. ANY PIELD WELLOED CONNECTIONS ARE SUBJECT TO CORPOSION DIMAGE AND DETERIORATION IT THEY ARE NOT PROPERLY MAINTAINED AND COVERED WITH CORPOSION PREVENTIVE COATING SUCH AS THE ZRC GALVANIZING COMPOUND SPECIFIED PREVIOUSLY. THE STRUCTURAL LOAD CARRYING CAPACITY OF THE REINFORCE POLE SYSTEM IS DEPENDENT UPON THE INSTRULED SIZE AND QUALITY, MAINTAINED SOUND CONDITION AND STRENGTH OF THESE REID WELLDED CONNECTIONS AND CORPOSION OF DAMAGE TO FATIGLE, PRACTICE, MODICY DETERIORATION OF THESE WELDS AND OTHER LIST THIS OFFICE STRUCTURE AND THE WELDED COMPONENTS WILL RESULT IN THE LOSS OF STRUCTURE AND CORPOSITY AND MAY LEAD TO FRAUER OF THE STRUCTURE AND THE WELDED COMPONENTS WILL RESULT IN THE LOSS OF STRUCTURE AND CORPOSITY AND MAY LEAD TO FRAUER OF THE STRUCTURE SYSTEM. THEFEORE, IT IS IMPRENTED THE TOROW CASTE RESULTING THE UPON THE STRUCTURE STRUCTURE.
- STRUCTURE

 CROWN CASTLE SHALL REFER TO TIA/EIA-222-F-1996, SECTION 14 AND ANNEX E FOR RECOMMENDATIONS FOR CROWN CASTLE SHALL REFER TO THAC 2222-1998, SECTION 14 AND ANDER E FOR RECOMMENDATIONS FOR MAINTENANCE AND INSPECTION. THE FREQUENCY OF THE INSPECTION AND MAINTENANCE INTERVALS IS TO BE DETERMINED BY CROWN CASTLE BASED UPON ACTUAL SITE AND ENVIRONMENTAL CONDITIONS. THE EOR BECOMMENDS THAT A COMPLETE AND THOROUGH INSPECTION OF THE ENTIRE REMOVIRCED MONOCOLE STRUCTURAL SYSTEM BE PERFORMED YEARLY ANDOR AS FREQUENTLY AS CONDITIONS WARRANT, ACCORDING TO THE ALTOR FOR SECTION AS TO THE SETTING THAT THE STRUCTURE BE INSPECTED AFTER SEVER WIND ANDOR ICS STORMS OR OTHER EXTREME LOADING CONDITIONS.

PF PAUL J. FORD & COMPANY 250 E Broad St, Ste 600 Columbus, OH 43215 Phone 614,221,6679 www.paullford.com CROWN CASTLE 3530 TORINGDON WAT SUITE 300 CHARLOTTE,NC 28277 PH: (724) 416-2000

BU #876406: NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT MONOPOLE REINFORCEMENT AND RETROFIT PROJECT PROJECT: 37515-2177.001.7700

CAW CHECKED BY RMK APPROVED BY

DATE

S-1

GENERAL NOTES

FORGBolt™ NOTE SHEET: A325/PC8.8 PORTRAIT VERSION DATE 04/24/2015

ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

FORGBolt™			AISC Group A Material: ASTM A325 and PC8.8 (Tensile Stress, Fu = 120 ksi minimum)						
GROUP	Α	FORGBolt™ Size (mm)	Overall Length (inches)	Estimated Weight Each (lbs)	Grip Range (inch)	Comment	Color Code		
≥ ∞	1	135	5.31	1.3	3/8" to 1"	22:	RED		
토였	2	160	6.30	1.6	3/4" to 1-1/2"	me:	GREEN		
& 조	3	195	7.68	1.9	1-1/4" to 2-1/4"		BLUE		
효 다	4	260	10.24	2.6	2" to 3-1/2"	Splice Bolt	YELLOW		
FORGBolt TM A325 - PC8.8	5	365	14.37	3.6	3-1/2" to 5-1/2"	Flange Jump Bolt	ORANGE		
ĽΫ́	6	440	17.32	4.3	5-1/2" to 8-1/2"	Flange Jump Bolt	BLACK		
DTI									

Squirter DTI that is compatible with a M20-PC8.8 bolt.

FORGBolt™ Installation

Follow all Manufacturer / Distributor Recommendations for Installation, Tightening, and Inspection.

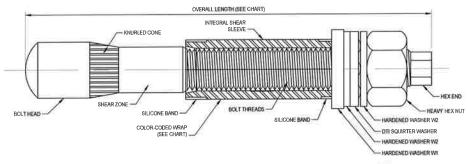
- 1. FIELD DRILL HOLES TO 30 MM DIAMETER.
- SELECT CORRECT BOLT SIZE FOR INSTALLATION GRIP (REFER TO PLANS).
- INSERT BOLT ASSEMBLY THROUGH HOLES IN SHAFT REINFORCING PLATES AND SEAT THE HARDENED WASHER W1 FLUSH AGAINST OUTSIDE OF PLATE,
- HAND TIGHTEN NUT TO FINGER TIGHT.
- TIGHTEN NUT TO PRETENSIONED CONDITION AND
- UNTIL DTI SHOWS PROPER INDICATION.

 6. PROPERLY DOCUMENT AND INSPECT BOLT TIGHTENING PER PLAN REQUIREMENTS.

BOLT HOLE NOTES:

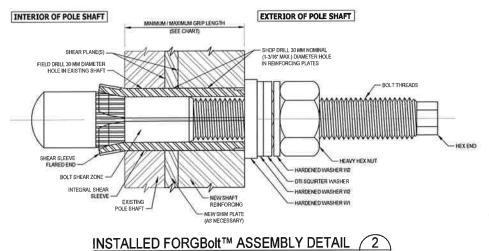
Note

- 1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
- 2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.



PRE-INSTALLED FORGBolt™ ASSEMBLY DETAIL





AISC GROUP A MATERIAL: ASTM A325 AND PC8.8 (Fu = 120 KSI MIN. TENSILE STRESS)

CONTAINS PROPRIETARY INFORMATION **PATENT PENDING**

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FORGBolt™ DETAILS

PRECISION TOWER PRODUCTS

888-926-4857

EMAIL:

CAW.

info@precisiontowerproducts.com www.precisiontowerproducts.com

PROJECT: 37515-2177.001.7700

PAUL J. FORD & COMPANY 250 E Broad St, Ste 600 - Columbus, OH 43215 Phone 614 221 6679 www.pauliford.com ROWN CASTLE

BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

FORGBolt™ DETAILS CHECKED BY R.M.K. APPROVED BY S-2A DATE

NEXGEN2™ BOLT NOTE SHEET: REV. 1.01, 04-15-2015

- NOTES: 1, ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF SECTION 8.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC, 31, 2009. PER SECTION 8.2.3: ALL FASTENER ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS IN AISC SECTION 8.1 WITHOUT SEVERING THE SPLINED END AND WITH WASHERS POSITIONED AS REQUIRED IN AISC SECTION 6.2, PER REQUIREMENTS IN SECTION 8.1: PRIOR TO BOLT PRETENSIONING, THE JOINT SHALL FIRST BE COMPACTED TO THE SNUG-TIGHT CONDITION, SNUG TIGHT IS THE CONDITION THAT EXISTS WHEN ALL OF THE PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND THE BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT THE REMOVAL OF THE NUTS WITHOUT THE USE OF A WRENCH. ONCE THE SNUG TIGHT CONDITION IS ACHIEVED, THEN THE BOLT ASSEMBLY CAN BE TIGHTENED TO THE PRETENSIONED CONDITION.
 - 2, ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF SECTION 9.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. NOTE THAT COMPLETE INSPECTION OF ALL NEXGEN2™ BOLT ASSEMBLIES IS REQUIRED IN ADDITION TO ROUTINE OBSERVATION.

BOLT HOLE NOTES

- 1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16",
- 2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.

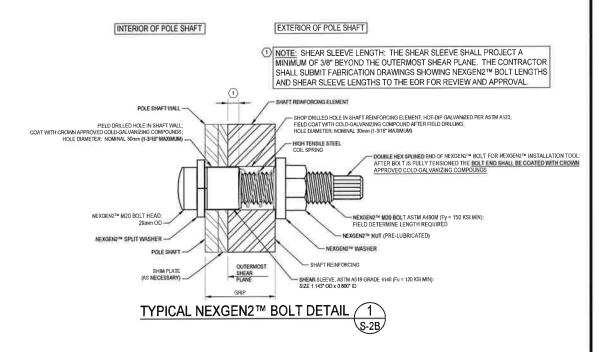
NOTES FOR NEXGEN2™ M20 BLIND BOLTS:

DISTRIBUTOR CONTACT DETAILS:

ALLFASTENERS 15401 COMMERCE PARK DR BROOKPARK, OHIO 44142 PHONE: 440-232-6060

E-MAIL: SALES@ALLFASTENERS.COM

INSPECTION REQUIRED: ALL NEXGEN2™ BOLTS SHALL BE INSPECTED BY A QUALIFIED BOLT INSPECTOR PER NOTES 1 AND 2, ABOVE, DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT: THE SHOP-DRILLED AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE NEXGEN2TH BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION; AND THE CONTRACTOR'S TENSIONING PROCEDURE. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THAT THE DOUBLE HEX SPLINED END OF THE BOLTS HAVE BEEN TWISTED OFF AND COATED WITH CROWN APPROVED COLD-GALVANIZING COMPOUND.



CROWN APPROVED BLIND BOLT

NOTE: NEXGEN2™ BOLT ASSEMBLY SHALL BE MAGNI 565 COATED PER ASTM F2833 AND MANUFACTURER SPECIFICATIONS.

NOTE: INSTALL NEXGEN2™ BOLT ASSEMBLY PER MANUFACTURER'S INSTRUCTIONS.



BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

DATE:



SHAFT	SECTION LENGTH	PLATE THICKNESS	LAP SPLICE (IN)	DIAMETER ACROSS FLATS (IN)		
SECTION	(FT)	(IN)	(IN)	@ 109	@ волгом	
1	26.92	0 1875	40.00	16,000	22.330	
2	41.63	0 2500	40.00	21,172	30 B40	
3	49.20	0.3125	53 04	29.313	40.750	

MODIFICATIONS:

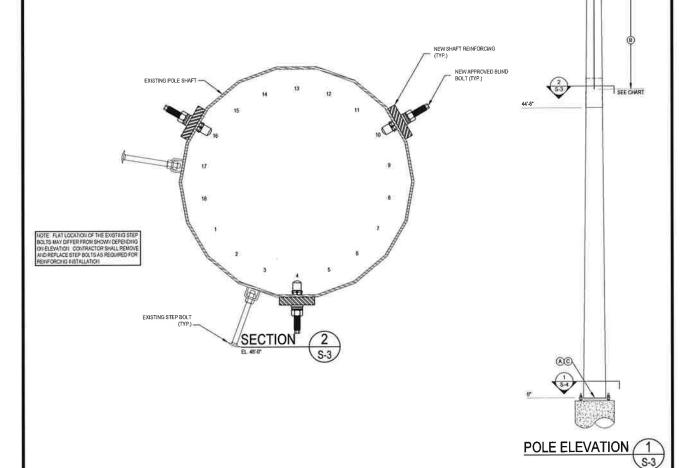
- (A) INSTALL NEW ANCHOR RODS AND BRACKETS AT BASE PLATE. SEE SHEET S-4.
- B INSTALL NEW SHAFT REINFORCING, SEE CHART ON THIS SHEET,
- © REMOVE EXISTING STIFFENERS AS REQUIRED FOR INSTALATION OF NEW ANCHOR BRACKETS.

BOTTOM TOP ELEVATION ELEMENT LEMENT LEMENT COLAMITY BOTTOM DOLTS (FOP) BLEVATION ELEVATION EPARATION BOTTOM COLAMITY BOTTOM DOLTS (FOP) COLAMITY BOTTOM COLAMITY (BOTTOM) NEW CCI FLAT PLATE (65 KSI) REINFORCING SCHEDULE												
16 P. 61 S. F.			DEGREE	EL EMENT			BOLTS PER	TOTAL BOLT	BOLTS	TERMINATION	INTERMEDIATE	TOTAL STEEL WEIGHT
	Æ U	61"-6"	F4 F10 & F16	GOLSEP 04540045	(51)01	3	19	57	б	6:	20*	099183

NOTES

- 1) ALL STEEL SHALL BEHOT DIP ON WAIZED AT TER FARRICATION KLACORDINGS WITH ASTIMATED. ALL TERRATMENTAL I NEW STIFFERER PLATE STEEL REINFORCING MAY BE COLD.

 54. WAIZED AS FOLLOWS APELY A MANMALATOR TWO COATS OF ZRO-BRAND ZILLO BROHOOLD GALWRIZED, COMPOUND FILM THO WISSSFER DOAT SHALL BE WET 30 MLS. DRY
 15.MLS. PREPAYER IZ ROMANNE ACTUATION RECONMITCHED PROCEDURES. CONTIACT ZRO-BT 1500 801/2075 FOR THOOLDIST INFORMATION.
- CYNLE REPORTING SHALL BE SESTIMANT OR BE 3) WELDOSHALL BE BROXNOR GREATER. TERMINATION WELDS SHALL BE 38" FILLET WELDS 4) FORESTOR BOLTS ARE SOMMLYALESS NOTED OTHERWISE.



CROWN CASTLE US PATENT NOS 8,046,972; 8,156,712; 7,849,659; 8,424,269 AND PATENT PENDING

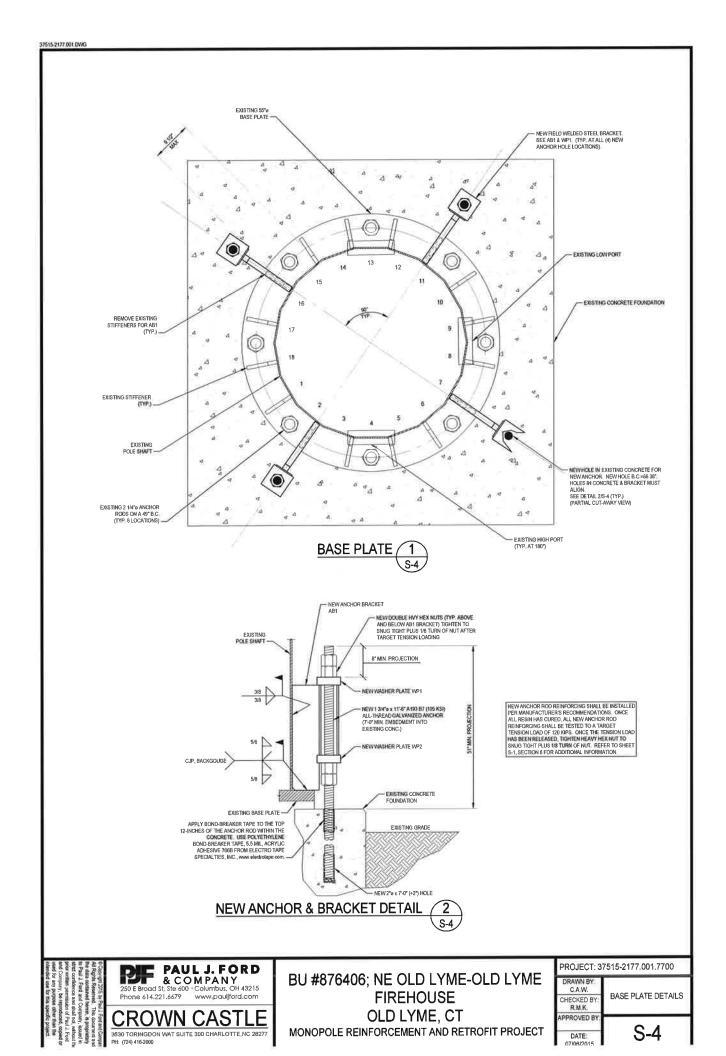
PAUL J. FORD & COMPANY 250 E Broad St, Ste 600 · Columbus, OH 43215 Phone 614.221 6679 www.pauljford.com CROWN CASTLE
3530 TORINGDON WAT SUITE 300 CHARLOTTE NC 28277 PH: (724) 416-2000

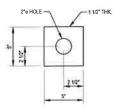
BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

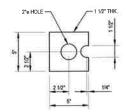
PROJECT: 37515-2177.001.7700 CAW MONOPOLE PROFILE CHECKED BY RMK APPROVED BY DATE: 07/06/2015

111'-0" C/L MOUNT 110'-0" TOP OF POLE

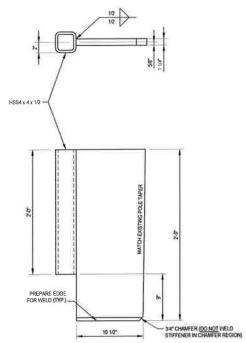




WASHER PLATE MK~WP1



WASHER PLATE MK~WP2



ANCHOR BRACKET MK~AB1

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BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-2177.001.7700 CAW MISC DETAILS CHECKED BY R.M.K. APPROVED BY **S-5** DATE: 07/06/2015

- GENERAL

 1. THE MODIFICATION INSPECTION (M) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWNINGS, AS DESIGNED BY THE EOR, Z. THE MI IS TO CONFIRM INSTALLATION CONSIDERATION AND WORKMASHED POLY, AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN, OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.
- ALL MI'S SHALL BE CONDUCTED BY A CROWN CASTLE ENGINEERING VENDOR (AEV) OR ENGINEERING SERVICE VENDOR
- ALL MIS SHALL BE CONDUCTED BY A GROWN CASTLE ENGINEERING VENDOW (ALV) ON ENGINEERING SERVICE VENDOR (ALSY) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CHOWN CASTLE.

 TO ENQUIE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THIS MISSECTOR BEGIN COMMUNICATION AND COODDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROJECTIVE IN REACHING OUT TO THE OTHER PARTY, IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR CROWN CASTLE POINT OF CONTACT (POR).

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

- MI INSPECTOR

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

 2.1.1. REVIEW THE REQUIREMENTS OF THE MI CHECKLIST.

 2.1.2. WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION
- INSPECTIONS,
 THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GC INSPECTION AND TEST REPORTS, REVIEWING THE
 DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND
 SUBMITTION THE M REPORT TO GROWNO ASTAL.

- GENERAL CONTRACTOR

 3.1. THE GOLS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNWEY PROJECT TO, AT A MINIMUM.

 3.1.1. REVIEW THE REQUIREMENTS OF THE MI CHECKLIST.

 3.1.2. WORK WITH THE MI INSPECTION STO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.

 3.1.3. BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.

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

- RECOMMENDATIONS
 4.1. THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT

- ECTIVENESS OF DELIVERING AN MIT REPORT:
 IT IS SUDDISTED THAT THE OF THE OFFICIAL SET MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLE 10, TO THE MIT SHOODSTED THAT THE OFFICIAL SET MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLE 10, TO THE MIT SHOODSTED THAT SET MINIMUM OF THE OFFICIAL SET MINIMUM OF THE OFFICIAL SET MINIMUM OFFICIAL SOCIEDANT OF CLOSELY THROUGHOUT THE ENTIRE PROJECT.
 WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MINISPECTOR ON-SITE SIMULTANCOUSLY FOR ANY GUY WINE TENSIONS OF RETENSIONING OFFICIAL SOCIEDANT OF THE OFFICIAL SET MINIMUM OF THE OFFICIAL SET MINIMUM OFFI MINIMU

CANCELLATION OF DELAYS W SCHEDULED MS

IF THE GC AND MINERECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR
DELAYS, GROWN CASTLE SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER
PENAL TIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY ETHER PARTY FOR ANY TIME (E.G. TRAVEL AND
LODGING, COSTS OF KERDINE GOLUPHANT ON STIFLETC). IF CONDINCLASTLE CONTRACTS DRECTLY FOR A THAD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAYICANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED

- CORRECTION OF FAILING MS

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

 6.1.1. CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.

 6.1.2. OR WITH CROWN CASTLES APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION PREINFORCEMENT USING THE AS-BUILT CONDITION.

- MI VERIFICATION INSPECTIONS
 7.1. CROWN CASTLE RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTIONS) ON TOWER MODIFICATION PROJECTS.
 7.2. ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH EM-SOVI-10007.
 7.3. VERIFICATION INSPECTION MY DE CONDUCTED BY AN INDEPENDENT ACKNESS YERM AFFER A MODIFICATION PROJECT IS CONFIDENT AS MAD THE DATE OF AN ACCEPTED PRESING MY OR PASS AS NOTED MY REPORT FOR THE

- PHOTOGRAPHS

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

 1. PRECONSTRUCTION GENERAL SITE CONDITION
 2. PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
 3. RAW MATERIALS

- PHOTOS OF ALL CRITICAL DETAILS FOUNDATION MODIFICATIONS
- FOUNDATION MODIFICATIONS
 WELD PREPARATION
 BOLT INSTALLATION AND TORQUE
 FINAL INSTALLED CONDITION
 SURFACE COATING REPAIR
 POST CONSTRUCTION PHOTOGRAPHS
 FINAL INFIELD CONDITION

- PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE. THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO ENG-SOW-10007.

- MORECTION AND TESTING

 ALL WORK SHALL BE SIBJECT TO REVIEW AND OBSERVATION BY CROWN CASTLE'S REPRESENTATIVE AND CROWN

 CASTLE'S AUTHORIZED INDEPENDENT INSPECTION AND TESTING AGENCY.

 CONTRACTOR SERVICES WHACH ARE FURNISHED BY OTHERS ARE STILL REQUIRED WHEN THE EOR PERFORMS SUPPORT SERVICES DURING CONSTRUCTION.

 SERVICES DURING CONSTRUCTION.

 OBSERVED DISCREPANCES SETWEEN THE WORK AND THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.

 AN INDEPENDENT QUALIFIED INSPECTIONAL STINING, DOCUMENTING, AND APPROVING ALL WELDING AND FIELD WORK PERFORMED BY THE CONTRACTOR. TESTING, DOCUMENTING, AND APPROVING ALL WELDING AND FIELD WORK PERFORMED BY THE CONTRACTOR.

 9.4.1 ACCESS TO ANY PLACE WHERE WORK IS BEING DONE SHALL BE PERMITTED AT ALL TIMES.

 9.4.2 THE INSPECTION AGENCY SHALL SO SCHEDULE THIS WORK AS TO CAUSE A MINIMUM OF INTERRUPTION TO, AND COORDINATE WITH, THE WORK IN PROGRESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK SCHEDULE WITH THE TESTING AGENCY. THE CONTRACTOR SHALL ALLOW FOR ADECULATE TIME AND ACCESS FOR THE TESTING AGENCY TO PERFORM THEIR DUTTES.

 15. THE INSPECTION AND TESTING AGENCY YEAR LE RESPONSIBLE TO PERFORM THE FOLLOWING SERVICES AND INSPECT.
- FOR THE TESTING AGENCY TO PERFORM THEIR QUTIES. THE INSPECTION AND TESTING AGENCY SHALL BE RESPONSIBLE TO PERFORM THE FOLLOWING SERVICES AND INSPECT THE FOLLOWING SITEMS IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS. THE TESTING AGENCY SHALL INSPECT THES OTHER SITEMS AND THEIR FLESS AS INCESSARY TO FULFILL. THEIR RESPONSIBILITY. THE TESTING AGENCY SHALL INSPECT UTILIZE EXPERIENCED, TRAINED INSPECTORS INCLUDING AWIS CERTIFIED WELDING INSPECTORS CWIJ). INSPECTORS SHALL HAVE THE TRAINING, CERCHITALS, AND EXPERIENCE APPROPRIATE FOR AND COMMENSURATE WITH THE SCOPE AND TYPE OF INSPECTION WORK TO BE PERFORMED.

9.6.T. PERFORM PERIODIC ON-SITE OBSERVATION, INSPECTION, VERIFICATION, AND TESTING DURING THE TIME THE CONTRACTOR IS WORKING ON-SITE. AGENCY SHALL NOTIFY CROWN CASTLE AND THE EOR IMMEDIATELY WHEN FIELD PROBLEMS OR DISC

8.7. FOUNDATIONS AND SOIL PREPARATION- (NOT REQUIRED)

8.8. CONCRETE TESTING PER ACI- (NOT REQUIRED)

- 9. STRUCTURAL STEEL
 9.9.1. CHECK STEEL ON THE JOB WITH THE PLANS
 9.9.2. CHECK MILL CERTIFICATIONS. CALL FOR LARGORATORY TEST REPORTS WHEN MILL CERTIFICATION IS IN QUESTION.
 9.9.3. CHECK GRADE OF STEEL MEMBERS, AND BOLTS FOR CONFORMANCE WITH DRAWINGS.
 9.9.4. INSPECT STEEL MEMBERS FOR DISTORTION, EXCESSIVE RUST, FLAWS AND BURNED HOLES.
 9.9.5. CHECK STEEL MEMBERS FOR DISTORTION, EXCESSIVE RUST, FLAWS AND BURNED HOLES.
 9.9.5. CHECK STEEL MEMBERS FOR DISTORTION, EXCESSIVE RUST, FLAWS AND BURNED HOLES.

- CHECK THAT BOLTS HAVE BEEN TIGHTENED PROPERLY.
 PRIOR TO ANY FIELD CUTTING THE CONTRACTOR SHALL MARK THE CUTOUT LINES ON THE STEEL AND THE INSPECTION/TESTING AGENCY SHALL VERIFY PROPOSED LAYOUT, LOCATION, AND DIMENSIONS, INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.

- (8,10. WELDING:
 9 (0.1. VERBY FIELD WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS, NOT DEEMED PREQUALIFIED, IN ACCORDANCE WITH AWS D1.1.
 9,10.2. INSPECT FIELD WELDED CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED AND WITH AWS D1.1.

 - 10.2 INSPECT FIELD WELDED CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED AND WITH AWS D.1.1,
 10.3. APPROVE FIELD WELDING SEQUENCES SHALL BE SUBMITTED TO CROWN CASTLE BEFORE WELDING BEGINS,
 10.4. A PROGRAM OF THE APPROVED SEQUENCES SHALL BE SUBMITTED TO CROWN CASTLE BEFORE WELDING SEQUENCES WITH A THE APPROVED SEQUENCES WITH A THE APPROVED SEQUENCES WELDING SEQUENCES WELDING AND STORAGE OF WITH A AND D.1.1,
 10.5. INSPECT WELDED CONNECTIONS AS FOLLOWS AND IN ACCORDANCE WITH AND D.1.1,
 10.5. INSPECT WELDED SEQUENCES AND HANDLING AND STORAGE OF ELECTRODES FOR CONFORMANCE TO SECOFICATIONS.
 10.5.1 INSPECT PREHEATING AND INTERPASS TEMPERATURES FOR CONFORMANCE WITH A AND D.1.1,
 10.5. INSPECT PREHEATING AND INTERPASS TEMPERATURES FOR CONFORMANCE WITH A AND D.1.1,
 10.5. INSPECT PREHEATING AND VERIFY THAT QUALITY OF WELDS MEETS THE REQUIREMENTS OF AWS D.1.1,
 10.5. INSPECT PREHEATING AND VERIFY THAT QUALITY OF WELDS MEETS THE REQUIREMENTS OF AWS D.1.1,
 10.5. SPOOT TEST AT LEAST ONE FILLET WELD OF EACH MEMBER USING MAGNETIC PARTICLE.
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 10.5. SPOOT TEST AT LEAST ONE FILLET WELD AND CONTROL OF THE DRAWINGS.
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- 9.11. REPORTS:

 9.11. OMPILE AND PERIODICALLY SUBMIT DMLY INSPECTION REPORTS TO CROWN CASTLE.

 9.11. OMPILE AND PERIODICALLY SUBMIT DMLY INSPECTION REPORTS TO CROWN CASTLE.

 9.11. OMPILE AND PERIODICALLY SUBMIT DMLY INSPECTION AS A DESCRIPTION OF GENERAL AND SPECIFIC ITEMS OF CONCERN IT IS NOT INTERDED TO BE ALL-INCLUSIVE. IT DOES NOT LIMIT THE TESTING AND INSPECTION A GENCY TO THE ITEMS LISTED, ADDITIONAL TESTING, INSPECTION, AND CHECKING MAY BE REQUIRED AND SHOULDBE ANTICIPATED. THE TESTING AGENCY SHALL LIST EMER PROPESSIONAL JUDGINERY TAKE ON KNOWLEDGE OF THE JOB SITE CONDITIONS AND THE CONTRACTORS PER PER ORBANICE TO DECIDE WHAT OTHER ITEMS REQUIRE ADDITIONAL ATTENTION. THE TESTING AGENCY SUDGEMENT AND PREVAILE OF THE MATERIAL PROPESSIONAL AND TO SECREPANCIES OR PROBLEMS SHALL BE BROUGHT IMMEDIATELY TO CROWN CASTLES RETURN ON TO SECREPANCIES OR PROBLEMS SHALL BE BROUGHT IMMEDIATELY TO CROWN CASTLES ATTENTION. RESOLUTION RESOLUTION RESOLUTION RESOLUTION ARE NOT TO BE MADE WITHOUT CONVINCASTLES TREVIEW AND SPECIFIC WRITTEN CONSENT. CROWN CASTLE IS THE PREPARE A WRITTEN ACCEPTANCE OR REJECTION WHICH WILL BE GIVEN TO THE CONTRACTOR AND FILED AS DAILY REPORTS TO CROWN CASTLE. THIS WINTEN ACTION WHICH WILL BE GIVEN TO THE CONTRACTOR AND FILED AS DAILY REPORTS TO CROWN CASTLE. THIS WRITTEN ACTION WILL GIVE THE CONTRACTOR A LIST OF THE TERMS TO BE CORRECTED, PRICE TO CONTINUANC CONSTRUCTION, AND CONTRACTOR AND FILED AS DAILY REPORTS TO CROWN CASTLE. THIS WRITTEN ACTION WILL GIVE THE CONTRACTOR AND FILED AS DAILY REPORTS TO CONTINUANC CONSTRUCTION, AND CONTRACTORS CONTRACTORS CONTRACTORS CONTRACTORS CONTRACTORS. THE

 - CADAINS OF STRUCTURAL ITEMS

 LOADING OF STRUCTURAL ITEMS

 THE TESTING AGENCY DOES NOT RELIEVE THE CONTRACTOR'S CONTRACTUAL OR STATUTORY OBLIGATIONS. THE

 CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE OFFICIAL CONTRACT DOCUMENTS.

 THE TESTING AGENCY WILL NOT REPLACE THE CONTRACTOR'S QUALITY CONTROL PERSONNEL.

AL OUTOKLIOT

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
	PRE-CONSTRUCTION
X	MI CHECKLIST DRAWINGS
X	EOR REVIEW
X	FABRICATION INSPECTION
X	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
X	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
DDITIONAL TESTING AND INSPECTIONS:	CONSTRUCTION
	CONSTRUCTION
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP STRENGTH AND SLUMP TESTS
X	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION EARTHWORK: PROVIDE PHOTO DOCUMENTATION OF EXCAVATION CUALITY
N/A	TEARTHWORK: PROVIDE PHOTO DOCUMENTATION OF EXCAVATION COALITY
X	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
N/A	MICROPILERIOCK ANCHOR INSTALLERS DRILLING AND INSTALLATION LOGS AND GAIGC DOCUMENTS
DOTTIONAL TESTING AND INSPECTIONS	
	POST-CONSTRUCTION
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
X	POST INSTALLED ANCHOR ROD TARGET TENSION LOAD TESTING
NA	REFER TO MICROPILE/ROCK ANCHOR NOTES FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS.
X	PHOTOGRAPHS

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT

NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

PF PAUL J. FORD & COMPANY 250 E Broad St. Ste 600 · Columbus, OH 43215 Phone 614.221.6679 www.paullford.com **CROWN CASTLE**

3530 TORINGDON WAT SUITE 300 CHARLOTTE, NC 28277

BU #876406: NE OLD LYME-OLD LYME FIREHOUSE OLD LYME, CT MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-2177-001-7700 DRAWN BY CAW MI CHECKLIST CHECKED BY APPROVED BY S-6 DATE

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

BU NUMBER; SITE NAME

BU #876406; NE OLD LYME-OLD LYME FIREHOUSE

APP: 300595 REV. 1; WO: 1083624

SITE ADDRESS

189 BOSTON POST ROAD OLD LYME, CT 06371 NEW LONDON COUNTY

PROJECT NOTES

- I. THESE DRAWINGS WERE PREPARED FROM INFORMATION AND DOCUMENTS PROVIDED BY CROWN CASTLE. THE INFORMATION PROVIDED HAS NOT BEEN FIELD VERIFIED BY THE ENGINEER OF RECORD (EOR) FOR ACCURACY AND THEREFORE DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL SITE CONDITIONS SHOULD BE ANTICIPATED. DETAILED FIELD INFORMATION REGARDING INTERFERENCES AND/OR EXISTING FIELD CONDITIONS MAY BE AVAILABLE ON CROWN CASTLE'S CCISITES AND FROM CONTRACTOR'S PRE-MOD MAPPING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AND COORDINATE WITH THE AVAILABLE SOURCES OF INFORMATION ABOVE AND WITH THE PROJECT DRAWINGS BEFORE PROCEEDING WITH THE WORK. CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO THE EOR AND CROWN CASTLE FIELD PERSONNEL BEFORE PROCEEDING WITH THE WORK.
- ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIRMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
- 3.6 ALL STRUCTURAL BOLTS SHALL BE FIELD INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
- 4. <u>DTI'S REQUIRED:</u> ALL FORGBOLTS™ SHALL BE INSTALLED USING DIRECT TENSION INDICATORS (DTI'S) AND HARDENED WASHERS. ALL FORGBOLTS™ SHALL BE PRETENSIONED AND TIGHTENED UNTIL THE DTI WASHERS SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED. SEE NOTES AND DETAILS ON SHEET S-2A FOR REQUIREMENTS ON THE USE OF DTI WASHERS WITH THE BOLTS.
- 5. NDE OF THE CIRCUMFERENTIAL WELD OF THE BASE PLATE TO SHAFT CONNECTION IS REQUIRED. SEE CCI DOCUMENTS ENG-SOW-10033 'TOWER BASE PLATE NDE AND ENG-BUL-10051 'NDE REQUIREMENTS FOR MONOPOLE BASE PLATE TO PREVENT CONNECTION FAILURE'. NOTIFY THE EOR AND CROWN CASTLE ENGINEERING IMMEDIATELY IF ANY CRACKS ARE SUSPECTED OR HAVE BEEN IDENTIFIED. THE NDE SHALL INCLUDE ALL EXISTING REINFORCEMENTS THAT HAVE BEEN WELDED TO THE BASE PLATE. ANY FULL PENETRATION WELDING TO THE BASE PLATE REQUIRED AS PART OF THIS ACTIVE REINFORCEMENT DESIGN SHALL BE INCLUDED IN THE NDE SCOPE OF WORK.
- ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT (800) 788-7011.

PROJECT CONTACT:

MONOPOLE OWNER:

CROWN CASTLE

MOD PM: DAN VADNEY AT DAN, VADNEY@CROWNCASTLE, COM

PH: (518) 373-3510

MOD CM; JASON D'AMICO AT JASON.D'AMICO.VENDOR@CROWNCASTLE.COM PH: (860) 209-0104

ENGINEER OF RECORD:

PJFMOD@PJFWEB.COM

DESIGN STANDARD

THIS REINFORCEMENT DESIGN IS BASED UPON THE REQUIREMENTS OF THE TIA/EIA-222-F-1996 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, USING A DESIGN BASIC WIND SPEED OF 85 MPH (FASTEST MILE) WITH NO ICE, 38 MPH WITH 3/4 INCH ICE AND 50 MPH SERVICE LOADS.

REFER TO THE POLE DESIGN AND ANTENNA LOADING DOCUMENTED IN THE PJF STRUCTURAL ANALYSIS FOR THIS SITE (PJF#37515-2177.001.7700), DATED 07/08/2015.

THIS PROJECT INCLUDES THE FOLLOWING ITEMS:

SHAFT REINFORCING
REMOVAL OF EXISTING STIFFENERS
FIELD WELDED ANCHOR BRACKETS
POST INSTALLED ANCHOR RODS

SHEET INDEX				
SHEET NUMBER	DESCRIPTION			
T-1	TITLE SHEET			
S-1	GENERAL NOTES			
S-2A	FORGBOLT™ DETAILS			
S-2B	NEXGEN2™ BOLT DETAIL			
S-3	MONOPOLE PROFILE			
S-4	BASE PLATE DETAILS			
S-5	MISC DETAILS			
S-6	MI CHECKLIST			



1-20-2018

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CROWN CASTLE

BU #876406; NE OLD LYME-OLD LYME FIREHOUSE OLD LYME, CT MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 375	15-2177.001.7700 R1			
DRAWN BY: C.A.W.				
CHECKED BY: R.M.K.	TITLE SHEET			
APPROVED BY:	Т 4			
DATE: 07/06/2015	1-1			

CROWN CASTLE PROJECT: BU #876406, NE OLD LYME-OLD LYME FIREHOUSE; OLD LYME, CT MONOPOLE RETROFIT PROJECT MASTER NOTES DOCUMENT (REV. 1, 02/05/2015)

- ORNERAL NOTES

 THE MONOPOLE STRUCTURE IN TIS EXISTING CONDITION DOES NOT HAVE THE STRUCTURAL CAPACITY TO CARRY ALL OF THE ANTENNA AND PLATFORM LOADS SHOWN ON THESE DRAWINGS AT THE REQUIRED MINIMUM WIND SPEEDS. DO NOT INSTITUL ANY ADDITIONAL ON REW ATTENNA AND PLATFORM LOADS UNTIL THE MONOPOLE REPROFICIONS SYSTEM SET OF ANTENNAS, QUARTITIES, STRUCTURE OR SEZE HIDICATED, AND EXCHAPE OR NOTES HAVE BETTER CUMALTY AND OR GREATER QUARTITY, STREWGTH OR SEZE HIDICATED, SPECIFIED OR NOTES SHALL BE PROVIDED.

 THIS STRUCTURE IS DESIGNADED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING NEPARA STRUCTURE IS DESIGNADED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING NEPARA STRUCTURE IS DESIGNADED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING NEPARA STRUCTURE IS DESIGNADED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING NEPARA STRUCTURE. SO EXCENSED TO THE SELF-SUPPORTING AND STABLE AFTER THE ORD MODIFICATIONS. THIS INCLUDES, BUT SO THE MOTE TO THE PROPERTY OF THE MODIFICATION OF WHATEVER TEMPORARY SPACING, QUITS OF THE CONSTRUCTION. THE ATTICKTURE COMPLETED TO THE PROPERTY OF THE MODIFICATION OF WHATEVER TEMPORARY SPACING, QUITS OF THE CONSTRUCTION. THE ATTICKTURE COMPLETED TO THE PROPERTY OF THE MODIFICATION AND SHALL REMANS OF CONSTRUCTION. THE CONSTRUCTION AND SHALL REMANS OF CONSTRUCTION. THE CONSTRUCTION FACE SHALL SUPPRISE AND DESCRIPTION OF THE ACCOUNTAGE TO CONTRACTOR SHALL SUPPRISE AND DESCRIPTIONS OF THE PROPERTY OF THE MODIFICATION AND SHALL DESCRIPTIONS. OBSERVATION VISITS TO THE SITE SY CROWN CASHE AND THE CONSTRUCTION THE CONTRACTOR SHALL SUPPRISE AND DESCRIPTIONS OF THE PROPERTY OF THE P

- CONSTRUCTION PROCEDURES.
 ANY SUPPORT SERVICES PERFORMED BY THE EOR DURING CONSTRUCTION ARE SOLELY FOR THE PURPOSE OF ASSISTION IN CAMAINTY CONTROL AND IN ACHEVING GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUCTED AS SUPERVISION OF CONSTRUCTION.
 ALL MATERIALS AND COUPMENT FURNISHED SHALL BE NEW AND OF GOOD GUALITY, SIRE FROM FAILTS AND OFFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS WIST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY CROWN CASTLE AND EOR PROOF TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE MIND AND QUALITY OF MATERIALS AND ENTIREMENT AREAS SUBSTITUTIONS.

- COUPPIEM TERMS ASSISTED.

 EQUIPPIEM TERMS ASSISTED.

 THE CONTRACTOR SHALL SE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY
 PRECAUTIONS AND PRIOGRAMS OF CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE TO ENSURE
 THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND PEDERAL BAPETY
 CODES AND REGLATIONS GOVERNAM THIS WORK AS WITH ALL AS CROWN CASTLE SAFETY GUIDELINES.

 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXSISTED ASSISTED ASSETY GUIDELINES.

 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXSISTED ASSISTED ASSETY GUIDELINES.

 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXSISTED ASSISTED ASSISTED.

 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND RELOCATED, REPLACED, OR RE-INSTALLED AS REQUIRED ATTENDED AND ATTACHMENTS AND/OR PROJECTIONS ON THE POLE THAT MAY INTERFERE WITH THE INSTALLATION OF THE REINFORCING SHATEM WALL HAVE TO BE REMOVED AND RELOCATED, REPLACED, OR RE-INSTALLED AS REQUIRED ATTENDED FOR THE POLE SHALL BOTHER AND CONSTRUCTION.

 ATTENDED AS A SHALL BE THE PROPORTION OF THE POLE SHALL WHERE SHAFT RESPONCING MUST BE APPLED SHALL BE TEMPORABLY REMOVED OR OTHERWISE SUPPORTED TO PRESTY WHERE SHAFT RESPONCING MUST BE APPLED SHALL BE TEMPORABLY REMOVED OR OTHERWISE SUPPORTED TO PRESTY WHERE SHAFT RESPONCING MUST BE APPLED SHALL BE TEMPORABLY REMOVED OR OTHERWISE SUPPORTED TO PRESTY WHITE SHAFT RESPONCING MUST BE APPLED SHALL BE TEMPORABLY REMOVED OR OTHERWISE SUPPORTED TO PRESTY WHERE SHAFT RESPONCING MUST BE APPLED SHALL BE TEMPORABLY REMOVED OR OTHERWISE SUPPORTED TO PRESTY WHERE SHAFT RESPONCING MUST BE APPLED SHALL BE TEMPORABLY REMOVED OR OTHERWISE SUPPORTED TO PRESTY WHERE SHAFT RESPONCING MUST BE APPLED SHALL BE TEMPORABLY REMOVED OR OTHERWISE SUPPORTED TO PRESTY WHERE SHAFT RESPONCING MUST BE APPLED SHALL BE TEMPORABLY REMOVED OR OTHERWISE SUPPORTED TO PRESTY WHERE SHAFT RESPONCING REMAY AND ALL RESPONSITE TO PRESTY OF THE PRESTY OF THE PRESTY DEBY AND THE ADDRESS ASSESSED.

- WITHOUT THE EXPRESS APPROVAL OF THE EOR.
 ALL SOLUTIONS FOR THE REPLACEMENT, RELOCATION OF MODIFICATION OF THE SAFETY CLUBS AND/OR ANY OF THE MODIFICATION OF THE SAFETY CLUBS AND/OR ANY OF THE MODIFICATION FACULTIES SHALL BE COORDINATED WITH THE FIFU. CONTACT DETAILS:

TUF-TUG PRODUCTS 3434 ENCRETE LANE PHONE: 937-299-1213 EMAIL: TUFTLIG@AQL.COM

- STRUCTURAL STEEL

 2.1. STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKGANSHIP SHALL CONFORM TO THE LATESY EDITION OF THE FOLLOWING REFERENCE STANDARDS:
 - BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
 1, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS."
 - 2.1.1.1. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.*
 21.1.2. SPECIFICATION FOR STRUCTURAL JOHNS USING ASTM HIGH STRENGTH BOLTS," AS APPROVED BY THE RESEARCH COURCE, ON STRUCTURAL CONNECTIONS.
 2.1.1.3. "DODG OF STANDARD PRACTICE OF BY STEEL BUILDINGS AND BRIDGES"
- 2.3.
- 2.1.1.3. "CODE OF STAMMAD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"

 2.1.2. BY THE AMERICAN WILLOWS SOCIETY WASS?

 2.1.2. STAMPARS WAS AND STAMPAD SOCIETY WASS?

 2.1.2. STAMPARS WAS AND STAMPAD STAM
- on the drawning. Surfaces of Existing Steel shall be prepared as required for field welding for aws. See section I Notes regarding touch up of galvanized surfaces damaged during transportation or effection and ASSEMBLY AS WELL AS FIELD WELDING. 2.7.
- NO WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL AND SUPERVISION OF THE TESTING AGENCY.
- - BOOTHMAT CHIEF.

 BOOTHMAT CHIEF.

 BOOTHMAT CHIEF.

 BOOTHMAT CHIEF BOOTHMAT SHAFEY GUIDELINES. THE CONTRACTOR SHALL FOLLOW ALL CROWN CASTLE CULTING, WELDING, RIEF PREVENTION AND SAFEY GUIDELINES. PRICK TO CONSTRUCTION, THE CONTRACTOR MALL GASTLE ADDRESS. PER THE 120-100S CROWN CASTLE DEPOSITION. PER LOCATION CASTLE CONTRACTOR AND MELDING ACTIVITES SHALL BE CONDUCTED IN ACCORDANCE WITH CROWN CASTLE PROPERTY CULTIVIDA AND WELDING ACTIVITES SHALL BE CONDUCTED IN ACCORDANCE WITH CROWN CASTLE PROPERTY CULTIVIDA AND WELDING ACTIVITES, AND CONTRACTOR PROPERTY CHIEF LIFE OF THE PROJECT. ANY DAMAGE TO THE CONTRACTORS SHALL BE REPARRED AT THE CONTRACTOR'S EXPENSE. THE INSPECTION TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY. MONITOR THIS ACTIVITY.
 - MONTOR THIS ACTIVITY.

 ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS, NO CUTS SHALL EXTEND BEYOND THE CUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE GROUND SMOOTH AND DE BURRED. CUT EDGES THAT ARE TO BE RELD WRICED SHALL BE PREPARED FOR FIE WELDING PER LAWS SILL AND AS HOWN ON THE ORAMINGS, CONTRACTOR TO AVOID 90 DECREE CORNIERS. IT MAY BE NECESSARY TO DRILL STATTER HOLES AS REQUIRED TO MAKE THE CUTS.
- HASE PLATE GROUT- (NOT REQUIRED)

- FOUNDATION WORK- (NOT REQUIRED)

- EPOXY OROUTED REINFORCING ANCHOR ROOS

 8.1. UNLESS OTHERWISE NOTED, REINFORCING NACHOR ROOS SHALL BE 150 KSI ALL-THREAD BARS CONFORMING TO ASTIN ARZ, RECOMMENDED MANUFACTURISRSSUPPUERS OF 150 KSI ALL-THREAD BARS ARE WILLIAMS FORM ENGINEERING CORPORATION AND DYMIDAG SYSTESS INTERNATIONAL.

 2. ALL REPROPORTION ANCHOR ROOS SHALL BE HOT DIP GALVANIZED PER ASTIN A123, ALTERNATIVELY, ALL REINFORCING ANCHOR ROOS SHAY 6E EPOXY COATED PER ASTIN A173.

 2. THE CORE CRIRLLED HOLES IN THE COXACTEE FOR THE MICHOR ROOS SHALL BE CLEAN AND DRY, AND OTHERWISE PROPERLY PREPARED ACCORDING TO THE ANCHOR ROO AND EPOXY WANAFACTURERS INSTRUCTIONS, PROOR TO PLACEMENT OF ANCHOR ROOS AND EPOXY. CONTRACTOR SHALL FOLLOW, LANCHOR ROO AND EPOXY MANUFACTURERS RESTRUCTIONS, PROOR TO PLACEMENT OF ANCHOR ROOS AND EPOXY. CONTRACTOR SHALL FOLLOW ALL ANCHOR ROO AND EPOXY MANUFACTURER RECOMMENDATIONS REGARDING HANDLING OF ROOS, EPOXY, ACCEPTABLE AMBIENT TEMPERATURE PARKED RECOMMENDATIONS REGARDING HANDLING OF ROOS, EPOXY, ACCEPTABLE AMBIENT TEMPERATURE PROPERTY CORPORATION OF ROOS.
- TIME, PREPARATION OF NULL ETC.

 HAT HIT RES OS DO RITH WERD LEAD SPOON OS EPOXY SHALL BE USED TO MICHOR THE BAR IN THE ORILL HOLES. IF THE DESIGNED EMBEDIAGH IS GREATER THAN 12 FF, CONTRICTOR HAS THE OPTION TO USE PLE ANCHOR GROUT BY E-CHEM AS AN ATTEMATE. **

 ON ATTEMATE **

 ON CONTRICTOR OF THE ORIGINATION OF THE ORIGINATION OF THE OPTION TO LOCATION OF THE POXY TECHNICAL DATA SHEETIS, SHALL BE SUMMITTED TO THE EOR FOR REVIEW PRIOR TO CONSTRUCTION.

 ONCE THE RENORDOROM ACHOR ROOS HAVE BEEN INSTALLED AND ALL EPOXY AND GROUT HAVE CURED OF BASE PLATE ANDOR BEARING PLATES HAVE BEEN GROUTED PROOR TO TESTING), ALL RENFORCING ANCHORS SHALL BE LOAD TESTED PER CROWIN CASTLE ENVIALEDING DOCUMENT BROUPPECTURE. REFER TO THE VEW MONOR AS BRACKET DETAIL ON FOLLOWING SHEETS FOR SPECIFED ANCHOR ROO TAKED THE TOWN LOAD.

 ONCE THE RENFORCING ANCHOR ROOS HAVE BEEN SUCCESSFALLY LOAD TESTED NOW APPROVED THE CONTRACTOR SHALL TROHTEN ALL HEAVY HEX ANCHOR RUITS TO SMUG TIGHT PLUS 18 TURN OF NUT.

- TOUCHUP OF QALVANIZING

 7.1. THE CONTRACTOR SHALL TOUCHUP ANY AND ALL AREAS OF GALVANIZING ON THE EXISTING STRUCTURE OR NEW COMPONENTS THAT ARE DAMAGED OR ARRADED DURING CONSTRUCTION. CALVANIZIO SUPPAÇES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS ANY AND ALL ARRADIONS, CUTS, FIRE DIRNLING AND ALL FIRE DRIVE BORN GHALL BE TOUCHUP OWNER THAT AND AND THE THE THAT AND ALL FIRE DRIVE BORN GHALL BE TOUCHUP OWNER TO COMPONENT OF TAIL THE CONTRACT OF THE TOWART OF THE PROCEDURE OF THE TOWART OWNER THE CONTRACTOR HAS APPLIED THE ZEG COLD GALVANIZED OWNER OF THE COUNTRY OHION. AREAS FOUND TO BE ADREQUATED THE ZEG COLD GALVANIZED OWNER OWNER OWNER OF THE COUNTRY OHION. AREAS FOUND TO BE ADREQUATED TO THE ZEG COLD GALVANIZED OWNER OWNER OWNER OWNER OF THE TOWART OF THE TOWART OF THE COUNTRY OHION. AREAS FOUND TO BE ADREQUATELY COATED, SHALL BE RE-COATED BY THE CONTRACTOR AND RE-TESTED BY THE TESTING AGENCY.

- HOT-OP CALLYMIZING
 HOT-OP CALLYMIZING
 HOT-OP CALLYMIZE ALL STRUCTURAL STEEL MEMBERS AND ALL STEEL ACCESSORIES, BOLTS, WASHERS, ETC. PER ASTM A152 OR PER ASTM A153, AS APPROPRIATE.
 HELD ACCESSORIES, PERPARE STEEL THEMS FOR CALLYMIZING.
 ALL CALLYMIZENG SHALL SE DONE AFTER FABRICATION IS COMPLETED AND PRIOR TO FIELD INSTALLATION.

- PERPETUAL INSPECTION AND MAINTENANCE BY THE OWNER

 9.1. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMFLETED THE INSTALLATION OF THE MONOPOLE REINFORCING
 SYSTEM AND THE WORK HAS BEEN ACCEPTED BY CROWN CASTLE, CROWN CASTLE WILL BE RESPONSIBLE FOR THE
 LOWG TERM AND PERPETUAL RESPECTION AND MAINTENANCE OF THE POLE AND RESPONSION SYSTEM.

 4. APP FILE UNEDED CONNECTIONS ARE SUBJECT TO CORPOSEN DAMAGE AND DETERIORATION IF THEY ARE NOT
 PROPERLY MAINTAINED AND COVERED WITH CORROSION PREVENTIVE CONTROL SUCH AS THE 2DIG OALVANIZABLE
 COMPOUND STECHED PREVIOUSLY. THE STRUCTURAL LOAD CARRYING CAPACITY OF THE RESPONSED POLE
 SYSTEM IS DEPENDENT UNFOR THE RESTANCED SIZE AND QUALITY, MAINTAINED SOUND CONDITION AND STRENSH OF
 THISS FIELD VIELDED CONNECTIONS. ANY CORROSION OF DAMAGE TO, FATIGUE, FIRACTURE, ANDOR
 DETERORATION OF THIS WILLDS ANDOR THE EXISTING CANADIZED SIZE FOR STRUCTURE AND THE VIELDED
 COMPONENTS WILL RESULT IN TREFERENCE IT IS AMPRAINED AND FIRE FROM THE REGULATIVE AND THE VIELDED
 THE STRUCTURE.

 AND REPAIRS AS DECCESSARY, ALL OF THESE WELDS, CONNECTIONS, AND COMPONENTS FOR THE LIFE OF THE
 STRUCTURE.
- <u>cture.</u> In Castle Shall refer to tweia-222-F-1996, section 14 and annex e for recommendations for CHOWN CASTLE SHALL REFER TO TAVELY 2224-1998, SECTION 14 AND AWNEX E FOR RECOMMEDIDATIONS FOR MANTIENANCE AND RESPECTION. THE FREQUENCY OF THE HISPECTION AND MAINTENANCE WITERVIAS 5 TO BE DETERMINED BY CHOWN CASTLE BASED INFOR METULA. SITE AND ENVIRONMENTAL COMDITIONS. THE EGG SECOMMEND THAT A COMPLETE AND INFORMENT HISPECTION OF THE ENTIRE REPROFECE MONOPCISE STRUCTURAL STREET AT COMPLETE AND INFORMENT HISPECTION OF THE ENTIRE REPROFED MONOPCISE STRUCTURAL STREET AND ENVIRONMENTAL COMMENTAL ACCIONATION OF THE STRUCTURAL STREET AND ENTIRE THE STRUCTURE BE INSPECTED AFTER SEVER WIND AND/OR RESTORMS OR CITICATE ACTIONS OF THE STRUCTURE BE INSPECTED AFTER SEVER WIND AND/OR RESTORMS OR CITICATE ACTIONS.



7-20-2016

PF PAUL J. FORD & COMPANY 250 E Broad SI, Sle 600 · Columbus, OH 43215 Phone 614.221.6679 www.pauliford.com

CROWN CASTLE 3530 TORINGDON WAT BUITE 300 CHARLOTTE,NC 28277 PH: (724) 415-2000

BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

PROJECT: 37515-2177.001.7700 R1 DRAYTN BY CAW.

GENERAL NOTES

PROVED BY BAKE: 07/06/2015

CHECKED BY R.M.K.

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

FORGBolt™ NOTE SHEET: A325/PC8,8 PORTRAIT VERSION DATE 04/24/2015

ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

FORGBolt™			/		p A Material: AST e Stress, Fu = 120		3.8
GROUP	Α	FORGBolt™ Size (mm)	Overall Length (inches)	Estimated Weight Each (lbs)	Grip Range (inch)	Comment	Color Code
FORGBolt™ A325 - PC8.8	1	135	5.31	1.3	3/8" to 1"	_	RED
= 8	2	160	6.30	1.6	3/4" to 1-1/2"	-	GREEN
B A	3	195	7.68	1.9	1-1/4" to 2-1/4"	-	BLUE
5.3	4	260	10.24	2.6	2" to 3-1/2"	Splice Bolt	YELLOW
32 0	5	365	14.37	3.6	3-1/2" to 5-1/2"	Flange Jump Bolt	ORANGE
H A	6	440	17.32	4.3	5-1/2" to 8-1/2"	Flange Jump Bolt	BLACK
DTI Each Group A (A325/PC8.8) FORGBolt™ assembly shall have a							

'Squirter' DTI that is compatible with a M20-PC8.8 bolt.

FORGBolt™ Installation

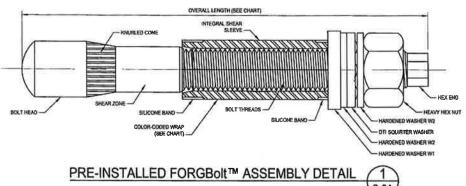
Follow all Manufacturer / Distributor Recommendations for Installation, Tightening, and Inspection.

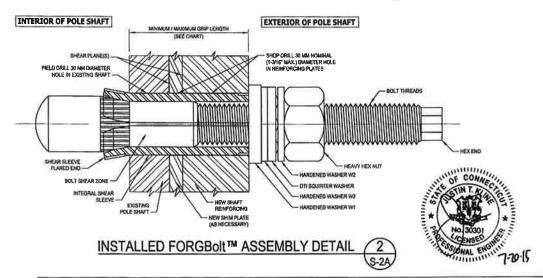
- FIELD DRILL HOLES TO 30 MM DIAMETER.
- 2. SELECT CORRECT BOLT SIZE FOR INSTALLATION GRIP (REFER TO PLANS).
 INSERT BOLT ASSEMBLY THROUGH HOLES IN SHAFT
- REINFORCING PLATES AND SEAT THE HARDENED WASHER W1 FLUSH AGAINST OUTSIDE OF PLATE.
- HAND TIGHTEN NUT TO FINGER TIGHT. TIGHTEN NUT TO PRETENSIONED CONDITION AND
- UNTIL DTI SHOWS PROPER INDICATION. PROPERLY DOCUMENT AND INSPECT BOLT TIGHTENING PER PLAN REQUIREMENTS.

BOLT HOLE NOTES:

Note

- 1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
- 2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.





ASTM A325 AND PC8.8 (Fu = 120 KSI MIN. TENSILE STRESS) AISC GROUP A MATERIAL:

CONTAINS PROPRIETARY INFORMATION **PATENT PENDING**

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FORGBolt™

DETAILS

DISTRIBUTOR CONTACT: PRECISION TOWER PRODUCTS

PHONE: 888-926-4857

EMAIL: info@precisiontowerproducts.com WEB: www.precisiontowerproducts.com

BKK

DATE:

7-20-2016

PF PAUL J. FORD & COMPANY 250 E Broad St, Ste 600 · Columbus, OH 43215 Phone 614.221.6679 www.pauliford.com

CROWN CASTLE

BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-2177.001.7700 R1 C.A.W. FORGBolt™ DETAILS CHECKED BY R.M.K. PPROVED BY

S-2A

NEXGEN2™ BOLT NOTE SHEET: REV. 1.01, 04-15-2015

- NOTES: 1. ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF SECTION 8.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. PER SECTION 8.2.3: ALL FASTENER ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS IN AISC SECTION 8.1 WITHOUT SEVERING THE SPLINED END AND WITH WASHERS POSITIONED AS REQUIRED IN ASC SECTION 6.2. PER REQUIREMENTS IN SECTION 8.1: PRIOR TO BOLT PRETENSIONING, THE JOINT SHALL FIRST BE COMPACTED TO THE SNUG-TIGHT CONDITION, SNUG TIGHT IS THE CONDITION THAT EXISTS WHEN ALL OF THE PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND THE BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT THE REMOVAL OF THE NUTS WITHOUT THE USE OF A WRENCH, ONCE THE SNUG TIGHT CONDITION IS ACHIEVED, THEN THE BOLT ASSEMBLY CAN BE TIGHTENED TO THE PRETENSIONED CONDITION.
 - 2. ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF SECTION 9.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. NOTE THAT COMPLETE INSPECTION OF ALL NEXGEN2™ BOLT ASSEMBLIES IS REQUIRED IN ADDITION TO ROUTINE OBSERVATION.

BOLT HOLE NOTES:

- 1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER, THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
- 2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER, THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.

NOTES FOR NEXGEN2™ M20 BLIND BOLTS:

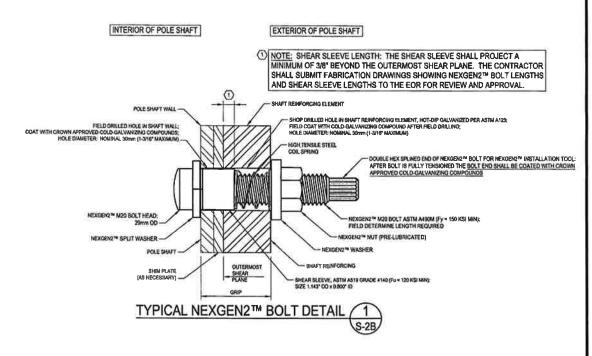
DISTRIBUTOR CONTACT DETAILS: ALLFASTENERS

15401 COMMERCE PARK DR. BROOKPARK, OHIO 44142

PHONE: 440-232-6060

E-MAIL: SALES@ALLFASTENERS.COM

INSPECTION REQUIRED: ALL NEXGEN2™ BOLTS SHALL BE INSPECTED BY A QUALIFIED BOLT INSPECTOR PER NOTES 1 AND 2, ABOVE. DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT: THE SHOP-DRILLED AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE NEXGEN2™ BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION; AND THE CONTRACTOR'S TENSIONING PROCEDURE. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THAT THE DOUBLE HEX SPLINED END OF THE BOLTS HAVE BEEN TWISTED OFF AND COATED WITH CROWN APPROVED COLD-GALVANIZING



CROWN APPROVED BLIND BOLT

NOTE: NEXGEN2™ BOLT ASSEMBLY SHALL BE MAGNI 565 COATED PER ASTM F2833 AND MANUFACTURER SPECIFICATIONS.

NOTE: INSTALL NEXGEN2™ BOLT ASSEMBLY PER MANUFACTURER'S INSTRUCTIONS.



<u>/1</u> 7-20-2015

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CROWN CASTLE

3530 TORINGDON WAT BUITE 300 CHARLOTTE.NC 28277 PH: (724) 418-2000

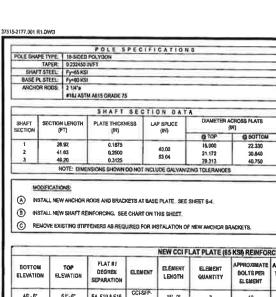
BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT:	37515-2177.	001 7700 R
FIGURE .	9/010-21/1.	001.77001

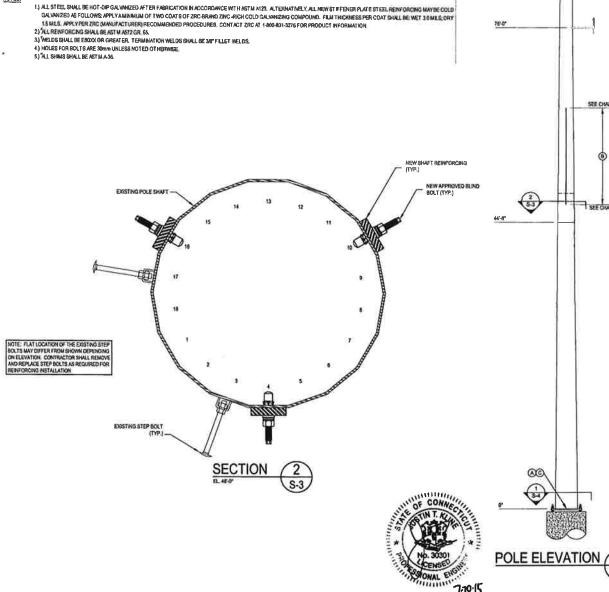
DRAWN BY NEXGEN2™ BOLT CHECKED BY DETAIL RMK

PPROVED BY BKA DATE: S-2B



BOTTOM ELEVATION	TOP ELEVATION	FLAT #1 DEGREE SEPARATION	ELEMENT	ELEMENT LENGTH	ELEMENT QUANTITY	APPROXIMATE BOLYS PER ELEMENT	APPROXIMATE TOTAL BOLT QUARTITY	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAXIMUM INTERMEDIATE BOLT SPACING	TOTAL STEEL
46' - 6"	61-6	F4, F10 & F16	CCISFP- 04510015	16'-0"	3	19	57	6	6	50.	689 LBS.

NOTES:



CROWN CASTLE US PATENT NOS 8,046,072; 8,166,712; 7,849,650; 8,424,260 AND PATENT PENDING



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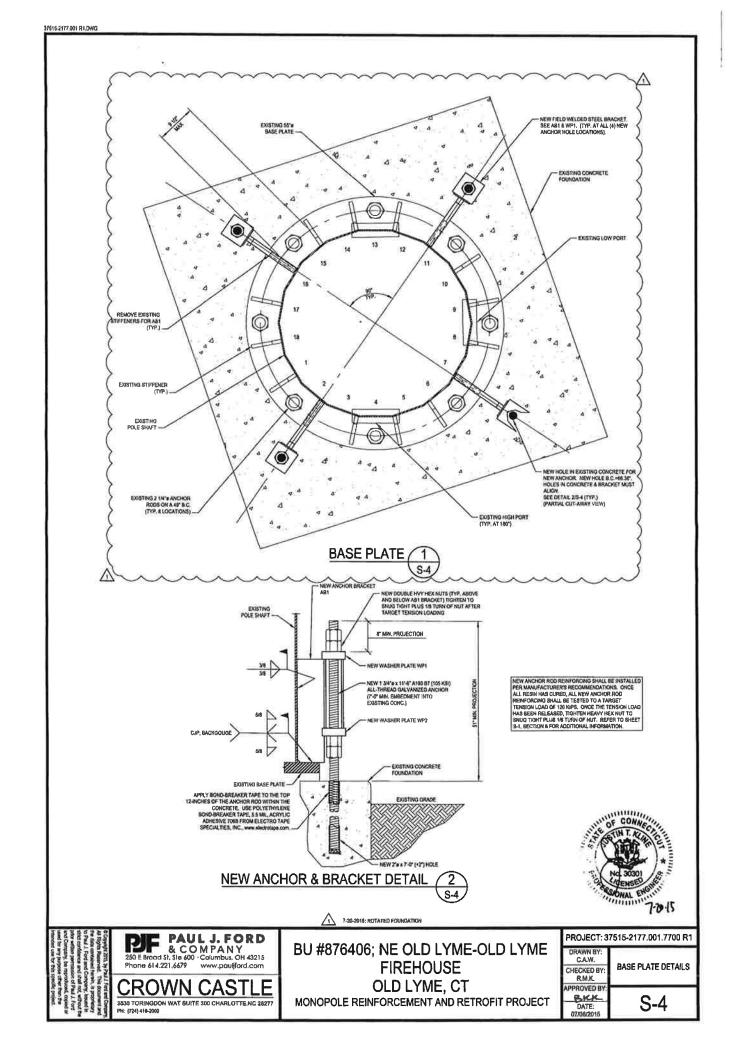
CROWN CASTLE

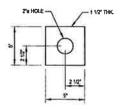
BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

DATE: 07/06/2015

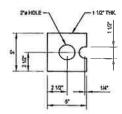
111'0" CAL MOUNT

Ī	PROJECT: 37	7515-2177.001.7700 R1
1	DRAWN BY: C.A.W.	
	CHECKED BY: R.M.K.	MONOPOLE PROFILE
	APPROVED BY:	6.3

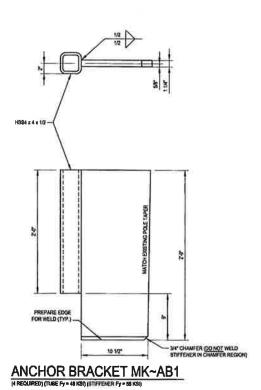




WASHER PLATE MK~WP1



WASHER PLATE MK~WP2



NA. 30001 ENGEL

7-20-2015

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CROWN CASTLE

1830 TORINGDON WAY BUITE 300 CHARLOTTE,NC 28277
PPt (784)416-2000

BU #876406; NE OLD LYME-OLD LYME FIREHOUSE OLD LYME, CT MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-2177.001.7700 R1		
DRAWN BY: C.A.W.		
CHECKED BY: R.M.K.	MISC DETAILS	
APPROVED BY:	0.5	
DATE: 07/08/2016	S-5	

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF

THE MODIFICATION INSPECTION (MI) IS A VISUAL DISPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DO COMPANY, NAMELY THE MODIFICATION DISAMMINS, AS DESIGNED BY THE EXP.

THE MIS TO CONFIRM INSTALLATION CONFERENCIATION AND WOODWARRISHOP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN THE MISTER OF THE MODIFICATION DESIGN THE MODIFICATION DESI

ALL MIS SMALL BE CONDUCTED BY A GROWN CASTLE ENGINEERING VENDOR (AEV) OR ENGINEERING SERVICE VENDO (AESV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CROWN CASTLE

ALL MIS SHALL BE CONDUCTED BY A CROWN CASTLE ENDINGERING VENDOR (AEV) OR ENGINEERING SERVICE VENDOR (AEV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CHOWN CASTLE. TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL, THAT THE GENERAL CONTRACTOR (OC) AND THE MI INSPECTOR BEGEN COMMUNICATION AND COORDINATION AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PASTY WILL BE PROJECTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT REFORMATION IS NOT KNOWN, CONTACT YOUR CROWN CASTLE POINT OF CONTACT (POC). REFER TO ENG-SOW-10007: MODIFICATION INSPECTION SOW FOR FURTHER DETAILS AND REQUIREMENTS.

MINISPECTOR

2.1. THE MINISPECTOR IS REQUIRED TO CONTACT THE DC AS SOON AS RECEIVING A PO FOR THE MITO, AT A MINIMUM:
2.1. REPORT THE REQUIREMENTS OF THE MI CHECKUST.
2.1. REPORT THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
2.1.3. THE MINISPECTOR IS RESPONDIBLE FOR COLLECTING ALL GC INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADMERANCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO CROWN CASTLE.

GENERAL CONTRACTOR

3.1. THE GC IS REQUIRED TO CONTACT THE MI INSPECTION AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNING PROJECT TO, AT A MINIMUM:

3.1.1. REVIEW THE REQUIREMENTS OF THE MI CHECKLIST.

3.1.2. WORK WITH THE MI INSPECTION TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE RISPECTIONS, INCLUDING FOUNDATION INSPECTIONS.

3.1.3. BETTER UNICERSTAND ALL MSPECTION AND TRESTING REQUIREMENTS.

3.1.4. THE OBJUST OF COMMUNITY OF THE MISSING PROPRIEMENTS.

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

RECOMMENDATIONS
4.1. THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND THE FOLLOWING AND AND EFFICIENCY AND REPORT OF THE MIT HE GO PROVIDE A MINIMUM OF S BUSINESS DAYS NOTICE, PREFERABLE 10, TO THE MI INSPECTOR AS TO WHEN THE SETE WILL BE READY FOR THE MIT HE CONDUCTED.
4.1.2. THE GO AND MI INSPECTOR CONCRIDENT EQUELY THROUGHOUT THE ENTIRE PROJECT.
4.1.3. WHEN POSSIBLE, IT IS PREFERABLE TO MAKE THE GO AND MI INSPECTOR ON-SITE SMALTANEOUSLY FOR ANY GLY WIRE TENSIONING OR RE-TENSIONING OR OPERATIONS.
4.1.4. IT MAY BE REFERENCIAL TO INSTALL ALL TOWER MODIFICATIONS PROOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO LOWER OFFICIAL STATE AND THE MIT ONLY EACH OF THE MIT ONLY EACH OFFICE AND CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MIT INSPECTOR IS ON STEELD.

CANCELLATION OR DELAYS IN SCHEDULED MI

5.1. IF THE GC AND MI RESPECTOR AGREE TO A GATE ON WHICH THE MI WILL BE CONDUCTED, AND ETHER PARTY CANCELS OR
DELAYS, GOOWN CASTLE SHALL MOT BE RESPONSIBLE FOR MY COSTS, FEES, LOSS OF DEPOSITS ANDOR OTHER
PENAL TIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY ETHER PARTY FOR MY TIME (E.G. TRAVEL AND
LOGISM, COSTS OF KERNOR GEOLIMBERT ON SHEE ETC.) IF CROWN CASTLE CONTRACTS DESCRIPT FOR A THROUGHT PARTY
ML DECEPTIONS MY DEMONSTRATE WHEN THAT THE DELAYCANCELLATION IS CAUSED BY WEATHER OR OTHER
CONDITIONS THAT MAY COMPROMISE THE ALEPTED OT THE PARTY SE WINCELLATION.

CORRECTION OF FAILING MYS

5.1. IF THE MODERCATION RESTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GIC SHALL WORK WITH CROWN CASTLE TO COCROPANTE A REMEMBING PLAN IN ONE OF TWO WAYS:

6.1.1. CORRECT FAILING ISSUES TO COMPLY WITH THE OPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT OCCURRENTS AND COORDINATE, A SIPPLE FLISHT MI.

6.1.2. OR, WITH CROWN CASTLE'S APPROVAL, THE GO MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION REINFORCEMENT USING THE AS-BUILT CONDITION.

MI VERPICATION INSPECTIONS

7.1. CROWN CASTLE RESERVES THE RIGHT TO CONDUCT A MI VERFICATION INSPECTION TO VERPY THE ACCURACY AND COMPLETIENESS OF PREVIOUSLY COMPLETED MI DISPECTION(S) ON TOWER MODIFICATION PROJECTS.

7.2. ALL VERFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT PROPRIETE AND IN ACCORDANCE WITH METAL PROJECTIONS.

DOCUMENTS AND IN ACCORDANCE WITH ENG-SOW-10007.
VERIFICATION INSPECTION MAY SE CONDUCTED BY AN INDEPENDENT ASVAESY FRIM AFTER A MODIFICATION PROJECT IS
COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING M" OR "PASS AS NOTED M" REPORT FOR THE
ORIGINAL PROJECT.

PHOTOGRAPHS.
8.1. BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A NIMMUM, ARE TO BE TAKEN AND

INCLUDED IN THE MI REPORT:

PRECONSTRUCTION GENERAL SITE CONDITION

PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTIONERECTION AND INSPECTION

RAW MATERIALS

8.1.3. RAW MATERIALS
8.1.4. PROTOS OF ALL CRITICAL DETAILS
8.1.5. COUNDATION MODERCATIONS
8.1.6. WELD PREPARATION
8.1.7. BOLD INSTALLED CONDITION
8.1.7. BOLD INSTALLED CONDITION
8.1.8. SURFACE COATING REPAIR
8.1.10. POST CONSTRUCTION PHOTOGRAPHS
8.1.10. POST CONSTRUCTION PHOTOGRAPHS
8.1.11. FINAL INFELID CONDITION
8.1.12. PHOTOG OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED WADEQUATE.
8.1.13. THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REPER TO ENG-SOW-10007.

8.1.13. THIS IS NOT A COMPLETE LIST OF REQUIRED PRIVILINS, PLEASE REPEATIOLETING PROPERTIES.

9. MAJERCETION AND TESTING.

9. ALL WORK SHALL BE SUBJECT TO REVIEW AND DISSERVATION BY CROWN CASTLE'S REPRESENTATIVE AND CROWN CASTLE'S AUTHORIZED INDEPENDENT INSERCED. AND TESTING AGENCY.

9. INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS ARE STUL REQUIRED WHEN THE EOR PERFORMS SUPPORT SERVICES DURING CONSTRUCTION.

9. CORRESPONDED DISCEMPANCIES BETWEEN THE WORK AND THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTION AT IN A DUDTOUT COST.

9. AND REPORTED DISCEMPANCIES BETWEEN THE WORK AND THE CONTRACTS DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT IN A DUDTOUT COST.

9. AND REPORTED HIS PROPERTIES OF THE CONTRACT IN THE PROPERTIES AND AND PROPOND ALL VIELDING AND FIELD WORK REPORMED BY THE CONTRACTOR SHALL BE CONTRACTED AT ALL TIME.

9. 4. THE RESPECTION AGENCY SHALL SO SCHEDULE THIS WORK AS TO CAUSE AN INHALM OF INTERBUTION TO, AND COMPANY AND THE PROPERTIES AND THE CONTRACTOR RESPONSIBILITY TO COORDINATE THE WORK AS TO CAUSE AN INHALM OF INTERBUTION TO, AND COMMENT OF THE PROPERTIES AND THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME AND ACCESS FOR THE TESTING AGENCY OF PERFORM THESE DULING THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME AND ACCESS FOR THE TESTING AGENCY OF HALL BE RESPONSIBLE TO PERFORM THE FOLLOWING SERVICES AND INSPECT THE FEBTING AGENCY OF PRIVATE THE CONTRACTORS, THE TESTING AGENCY OF MALL BE RESPONSIBLE. TO PERFORM THE TESTING AGENCY OF THE SENSE OF THE TESTING AGENCY OF THE SENSE. THE TESTING AGENCY OF THE SENSE AND THE PROPERTIES. THE TESTING AGENCY OF THE SENSE AND THE PROPERTIES SAYS. THE TESTING AGENCY OF THE SENSE AND THE PROPERTIES SAYS RECESSANT TO PURPLE THE RESPONSIBILITY. THE TESTING AGENCY SHALL BUSINESS.



ORNERAL
 PAPADONA PERIODIC ON-SITE OBSERVATION, INSPECTION, VERIFICATION, AND TESTING DURING THE TIME THE CONTRACTOR IS WORKING ON-SITE. AGENCY SHALL NOTIFY CROWN CASTLE AND THE EOR IMMEDIATELY WHEN FIELD PROBLEMS OR DISCREPANCIES OCCUR.

9.7. FOUNDATIONS AND SOIL PREPARATION-INOT REQUIRED!

D.B. CONCRETE TESTING PER ACI-INOT REQUIRED!

STRUCTURAL STEE.
 9.9.1. OFFICE STEEL ON THE JOB WITH THE PLANS.
 9.9.2. CHECK STEEL ON THE JOB WITH THE PLANS.
 9.9.2. CHECK MILE CRITIFICATIONS. CALL FOR LABORATORY TEST REPORTS WHEN MILL CERTIFICATION IS IN QUESTION.
 9.9.3. CHECK GRUDE OF STEEL MEMBERS, AND BOLTS FOR CONFORMANCE WITH DRAWNOS.
 9.9.4. INSPECT STEEL MEMBERS FOR DISTORTION, EXCESSIVE TRUST, FLANS AND BURNED HOLES.
 9.9.5. CHECK STEEL MEMBERS FOR DISTORTION, EXCESSIVE TRUST, FLANS AND BURNED HOLES.
 9.9.5. CHECK STEEL MEMBERS FOR DISTORTION, EXCESSIVE TRUST, FLANS AND BURNED HOLES.
 9.9.5. CHECK STEEL MEMBERS FOR DISTORTION, EXCESSIVE TRUST, FLANS AND BURNED HOLES.
 9.9.5. CHECK STEEL MEMBERS FOR DISTORTION, EXCESSIVE TRUST, FLANS AND BURNED HOLES.
 9.9.5. CHECK STEEL MEMBERS AND BURNED HOLES.

CHECK STEEL MOMERTS PAYS BLOSS STREEP AND INVESTIGATION. TULEHANCES.
CHECK FOR REPACE FRISHS SECTIONED, CALLVANZED.
CHECK THAT BOLTH HAVE BEEN INSTITUTED PROPERTY.
PROBLET ON ANY EXPEL OUTTINS THE CONTINUED PROPERTY.
PROBLET ON ANY EXPEL OUTTINS THE CONTINUED PROPERTY.
RESPECTIONITESTING AGENCY SHALL CASELY AND CONTINUED AND AND TOTAL THIS ACTIVITY.

8.10. WELDING
9.10.1. VERIFY FIELD WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS, NOT DEGMED PREQUALIFED, IN
ACCORDANCE WITH AWS 01.1.
8.10.2. INSPECT FIELD WELDER CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED AND WITH AWS 01.1.
8.10.3. APPROVE FIELD WELDER SEQUENCES SHALL BE SUBMITTED TO GROWN CASTLE SEFORE WELDING BEGINS.
NO GHANGE IN APPROVED SEQUENCES SHALL BE SUBMITTED TO GROWN CASTLE SEFORE WELDING BEGINS.
NO GHANGE IN APPROVED SEQUENCES SHALL BE SUBMITTED TO GROWN CASTLE.
9.10.5. INSPECT WELDER CONNECTIONS AS FOLLOWS AND IN ACCORDANCE WITH AWS 01.1:
9.10.5.1. INSPECT WELDER CONNECTIONS AS FOLLOWS AND IN ACCORDANCE WITH AWS 01.1:
9.10.5.2. VERSEY SPECIFIED ELECTRODES AND HANDLING AND STORAGE OF ELECTRODES FOR CONFORMANCE TO

\$10.5.1. INSPECT WELDING EQUIPMENT FOR COMPATING AND STORMAGE OF ELECTRODES FOR CONFORMANCE TO SPECIFICATIONS.

\$10.5.2. INSPECT WELD ELECTRODES AND MANQUING AND STORMAGE OF ELECTRODES FOR CONFORMANCE TO SPECIFICATIONS.

\$10.5.4. INSPECT WELDING AND INTERPASS TEMPERATURES FOR COMPORANCE WITH AVE DIT.

\$10.5.2. INSPECT WELDING AND INTERPASS TEMPERATURES FOR COMPORANCE WITH AVE DIT.

\$10.5.3. INSPECT WELDING AND ALL SECTION AND ALL SHEET WELD SERVED WELDING WELDING WELDING WELDING ENDING AND ALL SHEET WELD OF EACH MEMBER USING MAGNETIC PARTICLE.

\$10.5.3. INSPECT FOR SIZE: SEARCIA, TYPE AND LOCATION AS PER APPROVED GRAWMIGS.

\$10.5.3. INSPECT FOR SIZE: SEARCIA, TYPE AND LOCATION AS PER PROPRIED WELDING
	MI CHECKLIST				
CONSTRUCTION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM				
	PRE-CONSTRUCTION				
x	MI CHECKLIST DRAWINGS				
X	EOR REVIEW				
×	FASRICATION INSPECTION				
×	FABRICATOR CERTIFIED WELD INSPECTION				
X	MATERIAL TEST REPORT (MTR)				
N/A	FABRICATOR NOE INSPECTION				
X	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)				
x	PACKING SLIPS				
ADDITIONAL, TESTING AND INSPECTIONS:					
	CONSTRUCTION				
×	CONSTRUCTION INSPECTIONS				
N/A	FOUNDATION INSPECTIONS				
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS				
X	POST INSTALLED ANCHOR ROD VERIFICATION				
NA	BASE PLATE GROUT VERIFICATION CONTRACTOR'S CERTIFIED WELD RISPECTION				
×					
N/A	EARTHWORK PROVIDE PHOTO OCCUMENTATION OF EXCAVATION QUALITY AND COMPACTION				
x	ON SITE COLD GALVANIZING VERIFICATION				
N/A	GUY WIRE TENSION REPORT				
×	GC AS-BUILT DOCUMENTS				
N/A	MICROPILEROCK ANCHOR INSTALLER'S DRILLING AND INSTALLATION LOGS AND CAGO DOCUMENTS				
ADDITIONAL TESTING AND INSPECTIONS:					
	POST-CONSTRUCTION				
×	MI INSPECTOR REDLINE OR RECORD DRAWING(8)				
X	POST INSTALLED ANCHOR ROD TARGET TENSION LOAD TESTING				
NA	REFER TO MICROPLEROCK ANCHOR NOTES FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS.				
X	PHOTOGRAPHS				

<u>/1</u> 7-20-2015

NOTE: X DEHOTES A DOCUMENT NEEDED FOR THE PMI REPORT NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

PJF PAUL J. FORD & COMPANY 250 E 8road St, Sie 400 · Columbus, OH 43215 Phone 614.221,6679 www.pauliford.com **CROWN CASTLE** 3530 TORINGDON WAT SUITE 300 CHARLOTTE,NC 2827

BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT MONOPOLE REINFORCEMENT AND RETROFIT PROJECT PROJECT: 37515-2177.001.7700 R1 CAW MI CHECKLIST CHECKED BY R.M.K. PPROVED BY BKK DATE: 07/06/2018

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

BU NUMBER; SITE NAME

BU #876406; NE OLD LYME-OLD LYME FIREHOUSE

APP: 300595 REV. 1; WO: 1083624

SITE ADDRESS

189 BOSTON POST ROAD OLD LYME, CT 06371 NEW LONDON COUNTY

PROJECT NOTES

- THESE DRAWINGS WERE PREPARED FROM INFORMATION AND DOCUMENTS PROVIDED BY CROWN CASTLE. THE INFORMATION PROVIDED HAS NOT BEEN FIELD VERIFIED BY THE ENGINEER OF RECORD (EOR) FOR ACCURACY AND THEREFORE DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL SITE CONDITIONS SHOULD BE ANTICIPATED. DETAILED FIELD INFORMATION REGARDING INTERFERENCES AND/OR EXISTING FIELD CONDITIONS MAY BE AVAILABLE ON CROWN CASTLE'S CCISITES AND FROM CONTRACTOR'S PRE-MOD MAPPING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AND COORDINATE WITH THE AVAILABLE SOURCES OF INFORMATION ABOVE AND WITH THE PROJECT DRAWINGS BEFORE PROCEEDING WITH THE WORK. CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO THE EOR AND CROWN CASTLE FIELD PERSONNEL BEFORE PROCEEDING WITH THE WORK.
- ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIRMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
- ALL STRUCTURAL BOLTS SHALL BE FIELD INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
- 4. <u>DTI'S REQUIRED:</u> ALL FORGBOLTS™ SHALL BE INSTALLED USING DIRECT TENSION INDICATORS (DTI'S) AND HARDENED WASHERS. ALL FORGBOLTS™ SHALL BE PRETENSIONED AND TIGHTENED UNTIL THE DTI WASHERS SHOW THAT THE PROPER BOLT TENSION HAS BEEN REACHED. SEE NOTES AND DETAILS ON SHEET S-2A FOR REQUIREMENTS ON THE USE OF DTI WASHERS WITH THE BOLTS.
- 5. NDE OF THE CIRCUMFERENTIAL WELD OF THE BASE PLATE TO SHAFT CONNECTION IS REQUIRED. SEE CCI DOCUMENTS ENG-SOW-10033 'TOWER BASE PLATE NDE' AND ENG-BUL-10051 'NDE REQUIREMENTS FOR MONOPOLE BASE PLATE TO PREVENT CONNECTION FAILURE'. NOTIFY THE EOR AND CROWN CASTLE ENGINEERING IMMEDIATELY IF ANY CRACKS ARE SUSPECTED OR HAVE BEEN IDENTIFIED. THE NDE SHALL INCLUDE ALL EXISTING REINFORCEMENTS THAT HAVE BEEN WELDED TO THE BASE PLATE. ANY FULL PENETRATION WELDING TO THE BASE PLATE REQUIRED AS PART OF THIS ACTIVE REINFORCEMENT DESIGN SHALL BE INCLUDED IN THE NDE SCOPE OF WORK.
- ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT (800) 788-7011.

PROJECT CONTACT:

MONOPOLE OWNER:

CROWN CASTLE

MOD PM: DAN VADNEY AT DAN, VADNEY@CROWNCASTLE, COM

PH: (518) 373-3510

MOD CM: JASON D'AMICO AT JASON.D'AMICO.VENDOR@CROWNCASTLE.COM

PH: (860) 209-0104

ENGINEER OF RECORD:

PJFMOD@PJFWEB.COM

DESIGN STANDARD

THIS REINFORCEMENT DESIGN IS BASED UPON THE REQUIREMENTS OF THE TIMEIA-222-F-1996 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, USING A DESIGN BASIC WIND SPEED OF 85 MPH (FASTEST MILE) WITH NO ICE, 38 MPH WITH 3/4 INCH ICE AND 50 MPH SERVICE LOADS.

REFER TO THE POLE DESIGN AND ANTENNA LOADING DOCUMENTED IN THE PJF STRUCTURAL ANALYSIS FOR THIS SITE (PJF#37515-2177.001.7700), DATED 07/08/2015.

THIS PROJECT INCLUDES THE FOLLOWING ITEMS:

SHAFT REINFORCING

REMOVAL OF EXISTING STIFFENERS

FIELD WELDED ANCHOR BRACKETS

POST INSTALLED ANCHOR RODS

SHEET INDEX		
SHEET NUMBER	DESCRIPTION	
T-1	TITLE SHEET	
S-1	GENERAL NOTES	
S-2A	FORGBOLT™ DETAILS	
S-2B	NEXGEN2™ BOLT DETAIL	
S-3	MONOPOLE PROFILE	
S-4	BASE PLATE DETAILS	
S-5	MISC DETAILS	
S-6	MI CHECKLIST	



7-20-2015

PAUL J. FORD
& COMPANY
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CROWN CASTLE

PH: (724) 418-2000

3530 TORINGDON WAT SUITE 300 CHARLOTTE,NC 2627

BU #876406; NE OLD LYME-OLD LYME FIREHOUSE OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-2177.001.7700 R1

DRAWN BY:
C.A.W.
CHECKED BY:
R.M.K.
APPROVED BY:
B.K.K.
DATE:
07082015

CROWN CASTLE PROJECT: BUIM1640R, NEIGLD LYME-OLD LYME FIREHOUSE; DLD LYME, CT MONOPOLE RETROFIT PROJECT MASTER NOTES DOCUMENT (REV. 3. 02/05/2015)

- 1. THE MONOPOLE STRUCTURE IN TIS EXISTING CONDITION DOES NOT HAVE THE STRUCTURAL CAPACITY TO CARRY ALL OF THE AVITEDNA AND PLATFORM LOADS SHOWN ON THESE DRAWINGS AT THE RECUIRED MINIMAN WIND SPECES. DO NOT INSTALL ANY ADDITIONAL OR NEW ATTERNAL AND PLATFORM LOADS BUTH. THE MONOPOLE REPROREING SYSTEM IS COMPLETELY AND SUCCESSFULLY INSTALLED.

 IF ANTERNALS, QUARTITIES, STRENGTHS OR SUZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN ADDRESSHED, QUARTITIES, STRENGTHS OR SUZE INDICATED, SPECIFIED OR NOTES THAT BE EFFECT QUARTITY AND/OR GREATER QUARTITY, STRENGTH OR SUZE INDICATED, SPECIFIED OR NOTES THAT BE EFFECT QUARTITY AND OR GREATER QUARTITY, STRENGTH OR SUZE INDICATED, SPECIFIED OR NOTES THAT BE PROVIDED.

 3. THIS STRUCTURE IS DESIGNADED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING REPARK SYSTEM HAS BEEN SUCCESSFULLY COMPLETED. IT IS THE CONTRACTOR'S SULE RESPONSIBILITY TO ENGURE THE SAFETY AND STABILITY OF THE MONOPOLE AND ITS COMPONENT PARTS DURRISH FIELD MODERATIONS. THIS MICLIDES, BUT IS NOT INDICATED THE METHOD OR THE OWNER THAT ANY SE NECESSARY, SUCH MATERIALS SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETED OF THE PROJECT.

 4. THE STRUCTURAL CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPPRISE AND PROCEDURES. GOSERVATION WISTS TO THE SITE SY GROWN ACCURAGE, MEAN SHE FOR ALL.

 CONTRACTOR SHALL SUPPRISE AND DIRECT THE WORK AND SHALL BE SECULY RESPONSIBLE FOR ALL CONTRACTOR SHALL SUPPRISE AND PROCEDURES.
- ANY SUPPORT SERVICES PERFORMED BY THE ECR DURING CONSTRUCTION ARE SOLELY FOR THE PURPOSE D ASSISTING IN GUALITY CONTROL AND IN ACHIEVING GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
- ASSISTING IN CUALITY CUSTINGS PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF
 CONSTRUCTION.

 ON NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF
 CONSTRUCTION.

 ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD GUALITY, FREE FROM FAILTS AND
 DEFECTS AND IN CONS ORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE
 FRORERLY PREPOVED AND AUTHORIZED IN WRITING BY CROWN CASTLE AND EXPROVED PRIOR TO INSTALLATION. THE
 CONTRACTOR SHALL INVENISH SATISFACTORY EVIDENCE AS TO THE KIND AND GUALITY OF MATERIALS AND
 COUPMENT BEING SUBSTITUTION.

 THE CONTRACTOR SHALL BE RESPONSED FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY
 PRECLUTIONS AND PROCRAMS IN COMMETCION WITH THE WORK. THE CONTRACTOR IS RESPONSED E TO ENSURE
 THAT THIS PROJECT AND RELATED WISEK COMPLES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY
 COCES AND RECOLLATIONS GOVERNOR THES WORK AS WELL AS ECROWN CASTLE SAFETY QUIDCULES.
 THE CONTRACTOR SHALL BE RESPONSED E FOR PROTECTING ALL EXISTING AND NEW COULDILE. AND THE
 PROJECT REVISION OF THE WORK OF THE PROTECTING ALL EXISTING AND NEW COULDILE. AND THE
 PROJECT REVISION OF THE WORK OF THE REPORT OF THE CONTRACTOR SHALL INVESTED AND THE
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TUF-TUG PRODUCTS 3434 ENCRETE LANE PHONE: 937-299-1213 EMAIL: TUFTUG@AQL.COM

- STRUCTURAL STEEL

 2.1 STRUCTURAL STEEL MATERIALS, FABRICATION, DEFAILING, AND WORKGAANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING REFERBICE STANDARDS:

 2.1.1 BY THE AMERICAN RISTITUTE OF STEEL CONSTRUCTION (AISC)

 2.1.1. "SPECIFICATION OF OST STRUCTURAL STEEL SILLONGS."

 2.1.1. "SPECIFICATION OF STRUCTURAL STEEL SILLONGS."

 2.1.1. "SPECIFICATION OF STRUCTURAL STEEL SILLONGS."

 - 2.11.2 SPCCPCATION FOR STRUCTURAL CONDITIONES HIGH STRENGTH BOLTS," AS APPROVED BY THE RESERVICE COUNCIL ON STRUCTURAL CONNECTIONS.
 2.11.3. "COOL OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
- 2.1.1.3. "CODG OF STANDARD PRACTICE OF AT STEEL BUILDINGS AND BINDUCES"
 2.1.2.1. STITU ALREIDAN SOCIETY (ANS):
 2.1.2.1. "STRUCTURAL WELDING SOCIETY (ANS):
 2.1.2. "STRUCTURAL WELDING CODE STIEL DI.1"
 2.1.2. "STRUCTURAL WELDING CODE STIEL DI.1"
 2. ANY MATERIAL OR WORKWASHIP WHICH IS OBSERVED TO BE DEFECTIVE OR INCONSISTENT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED, MODIFIED, OR REPLACED AT THE CONTRACTOR'S EXPENSE.
 3. WELDING CONTROLL CONFORM IN THE ALTEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS DIT. ALL WELD ELECTROCES SHALL BE ERROCK UNLESS NOTED OTHERWISE ON THE DRAWNINGS.
 3. IL HILL PER COMMENTABLE BUILT BETTER THE WEB TO BE AND A TOTAL THE WELL SHALL BUILT BUILT BUILT BUILD BUILT BUI

- DIT. ALL WELD ELECTRODES SHALL BE EBOX LINLESS NOTED OTHERWISE ON THE DRAWNIS.

 ALL WELDED CONNECTIONS SHALL BE MADE BY WELDERS CERTIFIED BY AWB, CONTRACTOR SHALL BUIBBIT WELDERS CERTIFICATION AND CILLIFICATION DOCUMENTATION TO CROWN CASTLE'S TESTING AGENCY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

 STRUCTURAL STELL PLATES SHALL CONFORM TO ASTM ASTS GRADE 66/FY * 85 KSI MM.) UNLESS NOTED OTHERWISE ON THE DRAWNING.

 SURFACES OF EXISTING STELL SHALL BE PREPARED AS REQUIRED FOR FIELD WELDING FOR AWS. SEE SECTION I NOTES REGARDING TOUCH UP OF CALVANIZED SURFACES DIAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS FRELD WELDING. ASSEMBLY AS WELL AS FIELD WELDING.
- 2.7. NO WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL AND SUPERVISION OF
- THE TESTING AGENCY.
 FIELD CUTTING OF STEEL:
- LO CUTTING OF STEEL:

 MPORTANT CUTTING AND WELDING SAFTEY QUIDELINES, THE CONTRACTOR SHALL FOLLOW ALL CROWN CASTLE
 PROPRIATE CUTTING WELDING, FIRE PREVENTION AND QUESTEY QUIDELINES, PRORT TO CONSTRUCTION, THE CONTRACTOR
 SHALL GRAIN A COPY OF THE CURRENT CROWN CASTLE GUIDELINES, PER THE TLOI-ROS CROWN CASTLE
 DRECTIVE: "ALL CUTTING AND WELDING ARE THY THAY COOL ENCOPLINED IN ACOPTOMIC WITH CROWN
 CASTLE POLICY CUTTING AND WELDING ARE THY THAY COOL ENCOPLINED IN AN OHIDIORISMS
 THROUGHOUT THE STRINGLIFE OF THE PROJECT!" ANY DAMAGE OF THE COX CREEK, MODOR OTHER
 EQUIPMENT ANDOR THE STRINGLIFE OF THE PROJECT!" ANY DAMAGE OF THE COX CREEK, MODOR OTHER
 EQUIPMENT ANDOR THE STRINGLIFE IN BEYFECTION TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY
 MONITOR THIS ACTIVITY.
 MONITOR THIS ACTIVITY.

 MONITOR THIS ACTIVITY.

 ALL RECURRED CLOSE SHALL SECULT WITHIN THE DIMENSIONS SHAWN ON THE COMPANIES AND CONTINUOUSLY.
- MONITOR THIS ACTIVITY.

 ALL RECURRED CUTS SHALL BE CLT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS, NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. AND CHARLE PREPARABLE POR FIRE WELDING PEX AVIS D.1. AND AS SHOWN ON THE DRAWINGS. CONTRACTOR TO AVIOLOGO DEGREE CORNERS, IT MAY BE RECENSARY TO DRILL STATEFR HOLDS AS REQUIRED TO MAKE THE CUTS.
- BASE PLATE GROUT- (NOT REQUIRED)

- FOUNDATION WORK- (NOT REQUIRED)

- EPOXY GROUTED REINFORCING ANCHOR RODS

 8.1. UNLESS OTHERWISE NOTED, REINFORCING ANCHOR RODS SHALL BE 160 KGI ALL-THREAD BARS CONFORMING TO ARTH ARZ RECOMMENDED MANUFACTURERSSSUPPLIERS OF 150 KGI ALL-THREAD BARS ARE WILLIAMS FORM ENGREEFINIO CORPORATION AND DYMIDAG SYSTEMS INTERNATIONAL.

 2. ALL REPORCING ANCHOR RODS SHALL BE LET DIE POR ANAMIZED PER ASTM A123. ALTERNATIVELY, ALL REINFORCING ANCHOR RODS SHAY BE PORY COATED PER ASTM A175.

 1. THE CORE-CRELLED FLOED IN THE CONCRETE FOR THE ANCHOR RODS SHALL BE CLEAM AND DRY, AND OTHERWISE SPROFTED FOR THE ANCHOR ROD AND EPOXY MANUFACTURERS INSTRUCTIONS, PROR TO PLACEMENT OF ANCHOR RODS AND EPOXY. CONTRACTORS SHAUL ESCLEAM AND DRYDY MANUFACTURER RECOMMENDATIONS REGISTRATION OF ROD AND EPOXY MANUFACTURER RECOMMENDATIONS REGISTRATION OF ROD AND EPOXY ACCEPTABLE ANBIENT TEMPERATURE OR ANCHOR ROD AND EPOXY MANUFACTURER RECOMMENDATIONS REGISTRATION OF RODS.

 RANGE QUERNING STREAMS AND AND AND AND LANG OF RODS. FEDOXY, ACCEPTABLE ANBIENT TEMPERATURE ON EPOXY CURRING THAT PROPERATURE ON EPOXY CURRING THAT PREPARATION OF HOLE, ETC.
- AMAGE DURNIG INSTALLATION AND POST-INSTALLATION CURRIG, THE EFFECT OF TEMPERATURE ON EPOXY CURRING TIME, PREPARATION OF FOLIC ETC.

 TIME, PREPARATION OF FOLIC ETC.

 THE DESIGNED SHORT HERD PEUD EFFCON GS EPOXY SHALL BE USED TO ANCHOR THE BAR IN THE DRBL. HOLES, IF THE DESIGNED EMBEDIABLY IS GREATER THAN 12 FT, CONTRACTOR HUS THE OFFICION TO USE PILE ANCHOR ORGULT BY E-CHEBA AS AN ATERVATE. FE CONTRACTOR HUS THE OFFICIAN FOLIC AND REQUEST INCLUDING THE POXY TECHNICAL DATA SHEETIS SHALL BE SHEARLED HIS HIS HOUR BEING THE POXY TECHNICAL DATA SHEETIS SHALL BE SHEARLED HIS TALLE BAND ALL PROXY AND GROUT HAVE QUIED OF BASE PLOYED TO THE DATA SHEETIS SHALL BE SHEARLED AND ALL PROXY AND GROUT HAVE QUIED OF BASE PLOYED TO THE DATA SHEETIS SHALL BE SHEARLED AND ALL PROXY AND GROUT HAVE QUIED OF BASE PLOYED TO THE TO THE NEW PACHORS AND AND SHALL BE SHALLED AND ALL PROXY AND GROUT HAVE QUIED OF BASE PLOYED THE CONTRACTOR TO THE SHORT AND ALL REMOVED AND AND SHALL BE BENEFICIAL TO THE THE WAS ANCHOR A BENEFICIAL TO THE THE TOT THE HER MACHOR A BENEFICIAL TO THE THE THE ANCHOR ANCHOR A BENEFICIAL TO AN APPROVED THE CONTRACTOR SHALL TIGHTEN ALL HEAVY HEX ANCHOR NEWS TO SHALL THE TRUNK IN THE ANCHOR AND HER TO THE HER WAS ANCHOR A BENEFICIAL THE THE ALL HEAVY HEX ANCHOR NEWS TO SHALL THE THE THE ANCHOR AND APPROVED THE CONTRACTOR SHALL TIGHTEN ALL HEAVY HEX ANCHOR NITS TO SHALL TIGHT FULLS 18 TURN OF HUT.

- TOUCH UP OF GALVANZING

 7.1. THE CONTRACTOR SHALL TOUCH UP ANY AND ALL AREAS OF GALVANZING ON THE EXISTING STRUCTURE OR NEW COMPONENTS THAT ARE DAMAGED OR ARRADED DIRRING CONSTRUCTION. CALVANIZED SUPFACES DAMAGED DIRRING THAN SPORTATION OF ERECTION AND ASSEMBLY AS WELL AS ANY AND ALL ARRADEOUS, CUTS, FELL DOR LING, AND ALL PREASONS, CUTS, FELL DOR, LING, AND ALL PREASONS, CUTS, FELL DOR, LING, AND THE PROBLEMS SHALL BE TOUCHED BY WITH TWO COLDSTATE OF ZERO COLD ALL VANIZING COMPONENT, FLUTTHER DECOMPRISED SHALL CLEAR AND PREPARE ALL FIELD YELDS ON GALVANIZED AND PRIME PRINTED SURFACES FOR TOUCHED COATROID AND ACCORDANCE WITH AND DIT. CROWN CASTLES INSTITUTED SURFACES FOR TOUCHED COATROID APPLIED TO APPLIED YELDS ON GALVANIZED AND PRIME PRINTED SURFACE PROCESS AFTER THE CONTRACTOR HAS APPLIED THE ZERO CHO CASTLES INSTITUTED SURFACE PROCESS AS THE THE CONTRACTOR HAS APPLIED THE ZERO CHO CANDIZED. APPLIED THE ZERO CHO CANDIZED AND APPLIED THE ZERO CHO CANDIZED AND APPLIED THE ZERO CHO CANDIZED AND ASSEMBLY DEED. AREAS FOUND TO BE ADEQUATED Y COATRO.

 APPLIED THE ZERO COLD GALVANIZANG COMPOUND AND OF THE STOLEMY DEED. AREAS FOUND TO BE ADEQUATED Y COATRO.

- HOT-OP CALVANDING
 NOT-OP CALVANDE ALL STRUCTURAL STEEL MEMBERS AND ALL STEEL ACCESSORIES, BOLTS, WASHERS, ETC. PER ASTM A123 OR PER ASTM A133, AS APPROPRIATE.
 PROPERLY PREPARE STEEL ITEMS FOR GALVANIZING.
- DRILL OR PUNCH WEEP AND/OR DRAINAGE HOLES WITH EOR APPROVAL OF LOCATIONS.
 ALL GALVANIZING SHALL BE DONE AFTER FABRICATION IS COMPLETED AND PRIOR TO FIELD INSTALLATION.

- PERPETUAL HISPECTION AND MAINTENANCE BY THE OWNER

 8.1. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MONOPOLE PENFORCING
 SYSTEM AND THE WORK MAS BEEN ADDOPTED BY COVINI CASTLE, CHOWN CASTLE WILL BE RESPONSEME FOR THE
 LONG TESTA AND PERPETUAL INSPECTION AND MAINTENANCE OF THE POLE AND REPROFICION SYSTEM.

 9.2. ANY FIELD WELDED CONNECTIONS ARE SUBJECT TO COMPOUNCE DAMAGE AND DETERDATION OF THEY ARE NOT
 PROPERTY YAMITATIONS ON COVERED WITH CORROSION PERVENTINE COATHON SUCH AS THE EST GALVANEORY
 COMPOUND SPECIFED PREVIOUSLY. THE STRUCTURAL LOAD CARRYING CAPACITY OF THE RESPONSED POLE
 SYSTEM BO SEPENDENT UPON THE INSTALLED RIZE AND COLLETT, MAINTAINED SOUND COMPITON AND STRENGTH OF
 THESE PIELD VIELDED CONNECTIONS. ANY CORROSION OF, DAMAGE TO FATIOUS, FRACTURE, ANDOR
 DETEROACHING OF THESE WELDS ANDOR THE EXISTING GALVANIZED STEEL PROSE STRUCTURE AND THE WELDED
 COMPONENTS WILL RESEA THE THE LOSS OF STRUCTURAL LOAD CARRYING CAPACITY AND MAY LEAS TO FALLING.
 AND REPAIRS AS DECESSARY, ALL OF THESE WELDS, CONNECTIONS, AND COMPONENTS FOR THE LIFE OF THE
 STRUCTURE.
- AND REPARTS AS RECEIGNAT, ALL UP, INCISE THANKS COUNTY AND ANNEX EFOR RECOMMENDATIONS FOR STRUCTURE.

 CHOWN CASTLE SHALL REFER TO TAKE A 222-F1968, SECTION 14 AND ANNEX EFOR RECOMMENDATIONS FOR CHOWN CASTLE SHALL REFER TO THE PREQUENCY OF THE INSPECTION AND MANTENANCE INTERVALS IS TO BE DETERMINED BY CROWN CASTLE BASED UPON ACTUAL SITE AND ENVIRONMENTAL CONDITIONS. THE EOR RECOMMENDS THAT A COMPLETE AND TROOD, OR INSPECTION OF THE STITURE REPROPRED MORDING ENVIRONMENTAL ACCORDING TO TRACE A 222-F1968 SECTION 14.1, NOTE 1: TIT IS RECOMMENDED THAT THE STRUCTURE SE INSPECTED AFTER SEVER WIND ANDOR ICE STORMS OR OTHER EXTREME LOADING CONDITIONS.



7-20-2015

PAUL J. FORD & COMPANY 250 E Broad St, Sle 600 · Columbus, OH 43215

CROWN CASTLE 3530 YORINGDON WAT SUITE 300 CHARLOTTE,NC 2827

PH: (724) 418-2000

BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

R.M.K. VPPROVED BY DATE:

CAW.

CHECKED BY

07/06/2015

GENERAL NOTES

PROJECT: 37515-2177.001.7700 R1

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

FORGBolt™ NOTE SHEET: A325/PC8.8 PORTRAIT VERSION DATE 04/24/2015

 ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. NOTES:

2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

FOR	(G	Bolt™	AISC Group A Material: ASTM A325 and F (Tensile Stress, Fu = 120 ksi minimum				3.8
GROUF	Α	FORGBolt™ Size (mm)	Overall Length (inches)	Estimated Weight Each (lbs)	Grip Range (inch)	Comment	Color Code
= œ	. 1	135	5.31	1.3	3/8" to 1"		RED
3olt™ PC8.8	2	160	6.30	1.6	3/4" to 1-1/2"	-	GREEN
8 <u>F</u>	3	195	7.68	1.9	1-1/4" to 2-1/4"		BLUE
S -	4	260	10.24	2.6	2" to 3-1/2"	Splice Bolt	YELLOW
FORGBolt™ A325 - PC8.8	5	365	14.37	3.6	3-1/2" to 5-1/2"	Flange Jump Bolt	
HA	6	440	17.32	4.3	5-1/2" to 8-1/2"	Flange Jump Bolt	
DTI		Each Group A	(A325/PC8	3.8) FORGBo	It™ assembly shall ha		

'Squirter' DTI that is compatible with a M20-PC8.8 bolt.

FORGBolt™ Installation

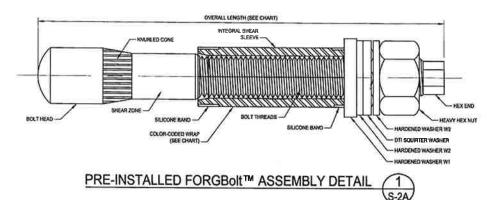
Follow all Manufacturer / Distributor Recommendations for Installation, Tightening, and Inspection.

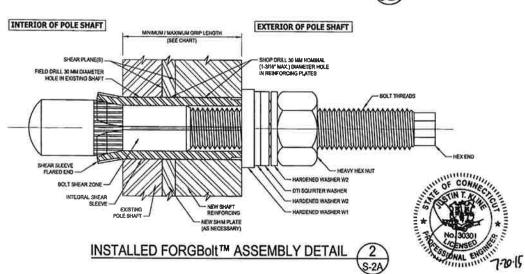
- FIELD DRILL HOLES TO 30 MM DIAMETER.
- SELECT CORRECT BOLT SIZE FOR INSTALLATION GRIP (REFER TO PLANS).
- INSERT BOLT ASSEMBLY THROUGH HOLES IN SHAFT REINFORCING PLATES AND SEAT THE HARDENED WASHER WI FLUSH AGAINST OUTSIDE OF PLATE, HAND TIGHTEN NUT TO FINGER TIGHT.
- TIGHTEN NUT TO PRETENSIONED CONDITION AND UNTIL DTI SHOWS PROPER INDICATION.
- PROPERLY DOCUMENT AND INSPECT BOLT TIGHTENING PER PLAN REQUIREMENTS.

BOLT HOLE NOTES:

Note

- 1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
- 2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.





AISC GROUP A MATERIAL: ASTM A325 AND PC8.8 (Fu = 120 KSI MIN. TENSILE STRESS)

CONTAINS PROPRIETARY INFORMATION **PATENT PENDING**

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FORGBolt[™]

DETAILS

DISTRIBUTOR CONTACT:

PRECISION TOWER PRODUCTS 888-926-4857

PHONE:

EMAIL: info@precisiontowerproducts.com www.precisiontowerproducts.com

7-20-2015

PAUL J. FORD & COMPANY 250 E Broad St. Ste 600 · Columbus, OH 432) 5 www.pauliford.com CROWN CASTLE

3530 TORINGDON WAT BUITE 300 CHARLOTTE,NC 28277

BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-2177.001.7700 R1

DRAWN BY C.A.W. CHECKED BY RMK. PPROVED BY

FORGBoh™ DETAILS

BKK.

S-2A

NEXGEN2™ BOLT NOTE SHEET: REV. 1.01, 04-15-2015

- NOTES: 1. ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF SECTION 8.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. PER SECTION 8.2.3: ALL FASTENER ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS IN AISC SECTION 8.1 WITHOUT SEVERING THE SPLINED END AND WITH WASHERS POSITIONED AS REQUIRED IN AISC SECTION 6.2. PER REQUIREMENTS IN SECTION 8.1: PRIOR TO BOLT PRETENSIONING, THE JOINT SHALL FIRST BE COMPACTED TO THE SNUG-TIGHT CONDITION, SNUG TIGHT IS THE CONDITION THAT EXISTS WHEN ALL OF THE PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND THE BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT THE REMOVAL OF THE NUTS WITHOUT THE USE OF A WRENCH, ONCE THE SNUG TIGHT CONDITION IS ACHIEVED, THEN THE BOLT ASSEMBLY CAN BE TIGHTENED TO THE PRETENSIONED CONDITION.
 - 2. ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF SECTION 9.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. NOTE THAT COMPLETE INSPECTION OF ALL NEXGEN2™ BOLT ASSEMBLIES IS REQUIRED IN ADDITION TO ROUTINE OBSERVATION.

BOLT HOLE NOTES:

- 1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
- 2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER, THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.

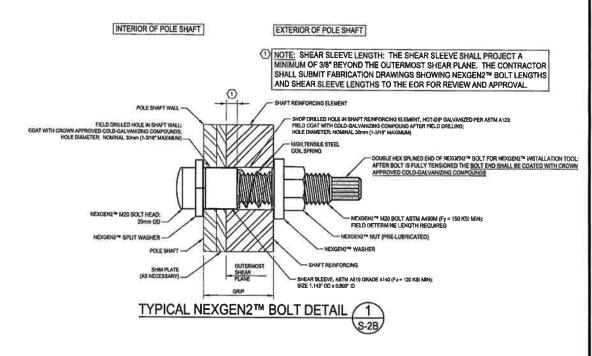
NOTES FOR NEXGEN2™ M20 BLIND BOLTS:

DISTRIBUTOR CONTACT DETAILS: ALLFASTENERS

15401 COMMERCE PARK DR. BROOKPARK, OHIO 44142 PHONE: 440-232-6060

E-MAIL: SALES@ALLFASTENERS.COM

INSPECTION REQUIRED: ALL NEXGEN2™ BOLTS SHALL BE INSPECTED BY A QUALIFIED BOLT INSPECTOR PER NOTES 1 AND 2, ABOVE. DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT: THE SHOP-DRILLED AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE NEXGEN2™ BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION; AND THE CONTRACTOR'S TENSIONING PROCEDURE. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THAT THE DOUBLE HEX SPLINED END OF THE BOLTS HAVE BEEN TWISTED OFF AND COATED WITH CROWN APPROVED COLD-GALVANIZING



CROWN APPROVED BLIND BOLT

NOTE: NEXGEN2™ BOLT ASSEMBLY SHALL BE MAGNI 565 COATED PER ASTM F2833 AND MANUFACTURER SPECIFICATIONS.

NOTE: INSTALL NEXGEN2™ BOLT ASSEMBLY PER MANUFACTURER'S INSTRUCTIONS.



PROJECT: 37515-2177.001.7700 R1

7-20-2016

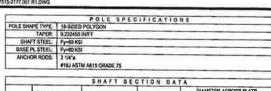
PAUL J. FORD & COMPANY 250 E Broad St, Sle 600 · Columbus, OH 43215 Phone 614.221.6679 www.paufford.com

CROWN CASTLE 3530 TORINGDON WAT SUITE 300 CHARLOTTE,NC 28271 BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

DRAWN BY C.A.W. HECKED BY RMK. PROVED BY BKA DATE:

NEXGEN2™ BOLT DETAIL S-2B

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT



SHAFT SECTION LENGTH SECTION (FT)		PLATE THICKNESS (IN)	LAP SPLICE (IN)	DIAMETER ACROSS FLATS (IVI)		
		577		@ TOP	@ SOTTOM	
1 2	20.92 41.63	0.1875 0.2500	40.00	16.000 21.172	22.330 30.840	
3	3 49.20 0.3125		63.04	29,313	40.750	

MODIFICATIONS:

- INSTALL NEW ANCHOR RODS AND BRACKETS AT BASE PLATE. SEE SHEET 8-4.
- B INSTALL NEW SHAFT REINFORCING, SEE CHART ON THIS SHEET.
- (C) REMOVE EXISTING STIFFENERS AS REQUIRED FOR INSTALATION OF NEW ANCHOR BRACKETS.

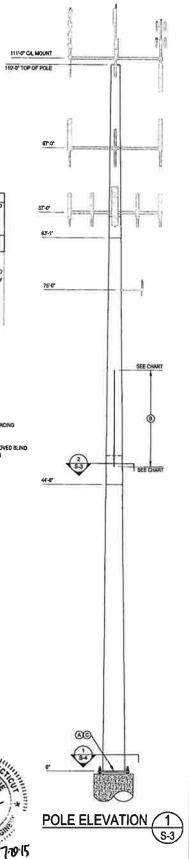
				NEW CCI FI	AT PLATE (6	5 KSI) REINFOR	RCING SCHED	ULE			
BOTTOM ELEVATION	TOP ELEVATION	FLAT #! DEGREE SEPARATION	ELEMENT	ELEMENT LENGTH	ELEMENT QUANTITY	APPROXIMATE BOLTS PER ELEMENT	APPROXIMATE TOTAL BOLT QUANTITY	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAXIMUM INTERMEDIATE BOLT SPACING	TOTAL STEEL WEIGHT
46' - 6"	51.6	F4, F10 & F18	CCI-SFP- 04610015	15'-0"	3	19	57	6	6	50.	689 LBS.

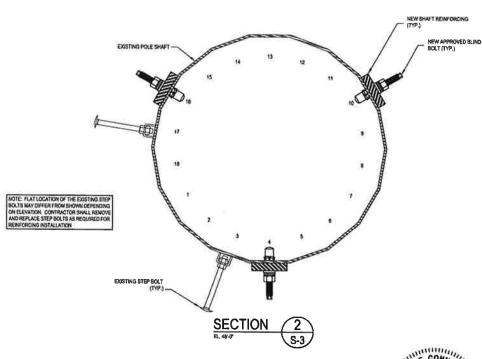
NOTES:

- 1.) ALL STEEL SHALL BEHOT-OP GALWAIZED AFTER FARRICATION IN ACCORDANCE WITH ASTM AIZL ALTERNATIVELY, ALL NEW STIFFENER PLATE STEEL REINFORCING MAY BE COLD GALWAIZED AS FOLLOWS: APPLY AMMINIUM OF TWO COATS OF ZRC-BRAND ZINC-RICH COLD GALWAIZING COUPDUNG. FLUX THECKNESS PER COAT SHALL BE: WET 3.0 MLS; ORY 1.5 MLS. APPLY YERS ZISC (MAY RECTIRED RECOMMENDED PROCEDURES, CONTACT ZRC AT 1.800.831-3276 FOR PRODUCT INFORMATION.
- 2) AL RENTORCOG SIVIL BE ASTM ATZ OR. 5.

 3) WELDS SHALL BE EBOX OR GREATER. TERMINATION WELDS SHALL BE 3/8" FELET WELDS.

 4.) HOLES FOR BOLTS ARE 30mm UNLESS MOTED OTHERWISE.
- 5.) ALL SHIMS SHALL BE AST M A36.





CROWN CASTLE UB PATENT NOS 8,046,972; 8,156,712; 7,849,650; 8,424,269 AND PATENT PENDING

7-20-2015

PF PAUL J. FORD & COMPANY 250 E Broad St, Ste 600 · Columbus, OH 43215 Phone 614.221.6679 www.pauliford.com

CROWN CASTLE 3830 TORINGOON WAT SUITE 300 CHARLOTTE,NC 28277 PH: (724) 415-2000 BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

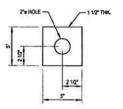
PROJECT: 3	7515-2177.001.7700 R1
DRAWN BY: C.A.W.	
CHECKED BY: R.M.K.	MONOPOLE PROFILE
APPROVED BY:	0.0
DATE: 07/09/2015	S-3

CROWN CASTLE 3530 TORINGDON WAT SUITE 300 CHARLOTTE, NC 25277 PH: (724) 418-2000

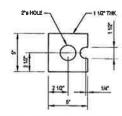
OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

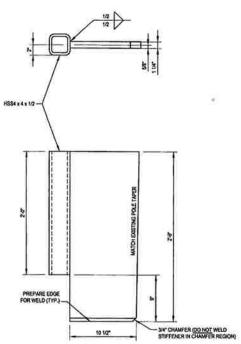
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WASHER PLATE MK~WP1



WASHER PLATE MK~WP2



ANCHOR BRACKET MK~AB1



7-20-2015

PAUL J. FORD & COMPANY 250 E Broad St. Ste 600 · Columbus, OH 43215 Phone 614.221.6679 www.pauliford.com

CROWN CASTLE
3590 TORINGDON WAT SUITE 300 CHARLOTTE,NC 28277
PR: (724) 416-2000

BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT

MONOPOLE REINFORCEMENT AND RETROFIT PROJECT

PROJECT: 37515-2177,001.7700 R1	ı
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PROJECT: 37	515-2177.001.7700 R1	
DRAWN BY: C.A.W.		
CHECKED BY: RLM.K.	MISC DETAILS	
BICK.	C E	
DATE: 07/08/2015	S-3	

MODIFICATION INSPECTION NOTES:

CENERAL

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

1. THE MIST TO COMPRIME INSTALLATION CONFURRATION AND WORKNAMENSIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN THE MI INSPECTION TAXE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN.

CONFESSION OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL

TIMES. ALL MIS SHALL BE CONDUCTED BY A CROWN CASTLE ENGINEERING VENDOR (AEV) OR ENGINEERING SERVICE VENDOR

ALL MIS SHALL BE CONDUCTED BY A GROWN CASTLE ENGINEERING YENDOR (AEV) OR ENGINEERING SERVICE VENDOR LESY) THAT IS APPROVED TO PEUROME BELVATED WORK FOR GROWN CASTLE. TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS YITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGON COMMUNICATION AND COORDONATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR CROWN ASTLE POINT OF CONTACT POOL, REFER TO ENG-SOW-10007; MODIFICATION INSPECTION SOW FOR PURTHER DETAILS AND REQUIREMENTS.

MI INSPECTOR

1. THE MINISPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:
2.1.1. REVIEW THE REQUIREMENTS OF THE MI CHECKLIST.
2.1.2. WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION MSPECTIONS.
2.1.3. THE MINISPECTION IS RESPONSIBLE FOR COLLECTING ALL, GC INSPECTION AND TEST REPORTS, REVIEWING THE OCCUMENTS FOR ADHERBICE TO THE CONTRACT COCUMENTS, CONDUCTING THE IN-FELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO CROWN CASTLE.

QENERAL CONTRACTOR

1. THE GC IS REQUIRED TO CONTACT THE MI INSPECTION AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNING PROJECT TO, AT A MINIMUM.

3.1. REVIEW THE REQUIREMENTS OF THE MI CHECKLET.

REVIEW THE REQUIREMENTS OF THE MICHECKLET.

REVENT THE REQUIREMENTS OF THE MICHECALST.

WORSYMTH THE MINISPECTION TO EVELUP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.

BETTER UNDERSTAND ALL MSPECTION AND TESTING REQUIREMENTS.

THE OC SMALL REFORMAND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE RECOUNDEDURED OF THE MICHECALST AND INSPECTION RESULTS IN ACCORDANCE WITH THE RECOUNDEDURED OF THE MICHECALST AND INSPECTION RESULTS IN ACCORDANCE WITH THE

RECOMMENDATIONS
4.1. THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO EARLANCE THE EFFICIENCY AND

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFCIENCY AND EFFECTIVENESS OF PELLYERING AM IN REPORT.

1.4. IT IS SUGGESTED THAT THE OC PROVINCE A MININUAL OF 5 BUSINESS DAYS NOTICE, PREFERABLE 10, TO THE MI INSPECTION OR 3 TO WHEN THE SITE WILL BE PRADY FOR THE MI TO BE CONDUCTED.

1.2. THE GC AND MI INSPECTIOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.

1.3. WHEN POSSIBLE, IT IS PREFERRED TO MAKE THE GC AND MI INSPECTION ON SITE SMALLTANEOUSLY FOR ANY GLY WHEN TENSIONED OF PROSIDENCE OF STATEMENT ON STATEMENT ON THE COMPUTED ON STATEMENT OF THE FOUNDATION NEWSPECTIONS TO ALLOW FOUNDATION AND INSPECTIONS TO ALLOW FOUNDATION AND MINISPECTIONS TO ALLOW FOUNDATION AND MINISPECTIONS TO ALLOW FOUNDATION AND MINISPECTIONS ON SITE DURING THE MI TO MAKE ANY OFFICIALISES CONNECTED QUINNET THE MILL MILL THERE PEOR, THE GC MAY CHOOSE TO COORDINATE THE MI CARFFULLY TO DISJURGE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR SO NOTE.

CANCELLATION OR DELAYS IN SCHEDULED M.

5.1. IF THE GC AND MINISPECTOR AGREE TO A DATE ON WHICH THE MINIVAL DE CONQUETED, AND EITHER PARTY CANCELS
DELAYS, COWN CASTIE SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FRES, LOSS OF DEPOSITS ANDOR OTHER
PENALTIES DELAYED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G., TRAVEL AND
LOCKIC, COSTS OF KEEPING EQUIPMENT CHAITE (E.C., IF CROWN CASTLE CONTRACTS DIRECTLY FOR A THROP AN
M. EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAYCANCELLATION IS CAUSED BY WEATHER OR OTHER
CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

 $\frac{\text{correction of failing m/s}}{\text{fithe modification installation would fail the migraled Min), the GC shall work with crown castle to }$

COORDINATE A REMEDIATION PLAN IN ORE OF TWO MIXTS:

COORDINATE A REMEDIATION PLAN IN ORE OF TWO MIXTS:

COORDINATE A REMEDIATION PLAN IN ORE OF TWO MIXTS:

COORDINATE A REMEDIATION PLAN IN ORIGINATION OF THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT IN.

CO. WITH CROWN CASTLE'S APPROVAL, THE OR MAY WORK WITH THE EOR TO RE-ANALYZE THE MICEIPLEMENT USING THE AS BUILT CONMITTION.

MIVERPICATION INSPECTIONS

7.1. CROWN CASTLE RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERBY THE ACCURACY AND COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

7.2. ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH ENG-SQN-1007.

7.3. MERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT AEVIAESY PRIM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MY OR "PASS AS NOTED MY REPORT FOR THE ORIGINAL PROJECT.

PHOTOGRAPHS

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

8.1.1 PRECONSTRUCTION GENERAL SITE CONDITION

8.1.2 PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION

8.1.2 RAYM MATERIALS.

8.1.5. PAWMATERALS
6.1.4. PHOTOS OF ALL CHICAL DETAILS
6.1.5. FOUNDATION MODERCATIONS
6.1.5. FOUNDATION MODERCATIONS
6.1.7. POOTOS OF PARTATION
6.1.7. SOLT INSTALLED CONDITION
8.1.9. FINAL INSTALLED CONDITION
8.1.9. FINAL INSTALLED CONDITION
8.1.10. POST CONSTRUCTION PHOTOGRAPHS
8.1.10. POST CONSTRUCTION PHOTOGRAPHS
8.1.11. PAINAL INFELD CONDITION
8.1.12. PHOTOGO OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED WADEQUATE.
8.1.13. THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REPER TO ENG-SOW-1000T.

RISPECTION AND TESTING

1.1 ALL WORK SWALL SE SURJECT TO REVIEW AND OBSERVATION BY CROWN CASTLE'S REPRESENTATIVE AND CROWN
CASTLES AUTHORIZED INDEPENDENT INSPECTION AND TESTING AGENCY.

1.2 INSPECTION SERVICES WHICH ARE INDIVISION OF OTHERS ARE STILL REQUIRED WHEN THE EOR PERFORMS SUPPORT

INSPECTION SERVICES WHICH AME FURNISHED BY OTHERS ARE SITU. REQUIRED WHEN THE EOR PERFORMS SUPPORT SERVICES OURNIC CONSTRUCTION.

SERVICED SIGNING CONSTRUCTION.

SERVICED SIGNING CONSTRUCTION.

CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT HO AGDITIONAL COST.

AN INDEPENDENT GUALIFIED INSPECTING, TESTING, DOCUMENTING, AND APPROVING ALL WELDING AND FIELD WORK PERFORMED BY THE CONTRACTOR.

AS INDEPENDENT GUALIFIED INSPECTING, TESTING, DOCUMENTING, AND APPROVING ALL WELDING AND FIELD WORK PERFORMED BY THE CONTRACTOR.

AS THE INSPECTION AGENCY SHALL SO SCHEDULE THIS WORK AS TO CAUSE A MINIMUM OF INTERRUPTION TO, AND COORDANATE WITH, THE WORK IN PRODRESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDANATE THE WORK SOME CONTRACTOR'S RESPONSIBILITY TO COORDANATE THE WORK OFFICE OF THE TESTING AGENCY. THE CONTRACTOR'S RESPONSIBILITY TO COORDANATE THE WORK OFFICE OF THE TESTING AGENCY THE PRODUCTION OF THE TESTING AGENCY BY THE PRODUCTION OF THE FOLLOWING SERVICES AND INSPECT THE PROFESSION AND TESTING AGENCY SHALL BY SERVICES AND INSPECT THE FOLLOWING THAN BY A COORDANGE WITH THE CONSTRUCTION DRAWNING. THE TESTING AGENCY SHALL BIS SENTING THE PROFESSION TO THE TESTING AGENCY SHALL BIS SENTING THE PROPERTIES AS THE TESTING AGENCY SHALL BIS SENTING THE PROPERTIES AS THE TRANSPARY TO PURPOSE THE PROFESSION. THE TESTING AGENCY SHALL BIS SENTING THE PROPERTIES AND COORDANGE WITH THE CONSTRUCTION DRAWNING. THE TESTING AGENCY SHALL BIS SENTING THE PROPERTIES AND COORDANGE WITH THE CONSTRUCTION PROPERTIES AND COORDANGE WITH THE CONSTRUCTION PROPERTIES AS THE TESTING AGENCY SHALL BIS SENTING THE PROPERTIES AS THE TRANSPARY OF PURPOSE AND THE PROPERTIES. THE PROPERTIES AND COORDANGE WITH THE CONSTRUCTION PROPERTIES AND COORDANGE WITH THE CONSTRUCTION PROPERTIES AND COORDANGE WITH THE SECOND AND COMMENSURATE WITH THE SCOPE AND TYPE OF RESPECTIONS FOR THE TRANSPARY. CHEEDING THE ADDRESS AND COORDANGE WITH THE CONSTRUCTION PROPERTIES AND COORDANGE WITH THE CONSTRUCTION PROP



7-20-2015

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 SENERAL SENERAL PERIODIC ON-SITE OBSERVATION, INSPECTION, VERIFICATION, AND TESTING DURING THE TIME THE CONTRACTOR IS WORKING ON-SITE. AGENCY SHALL NOTIFY CROWN CASTLE AND THE EOR IMMEDIATELY WHEN FIELD PROBLEMS OR DISCREPANCIES OCCUR.

9.7. FOUNDATIONS AND SOIL PREPARATION- (NOT REQUIRED)

9.8. CONCRETE TESTING PER ACL-INOT REQUIRED!

8.9. STRUCTURAL STEEL
8.1. CHECK STEEL ON THE JOB WITH THE PLANS.
8.9.1. CHECK STEEL ON THE JOB WITH THE PLANS.
8.9.1. CHECK MILL CERTIFICATIONS. CALL FOR LAMBGRATORY TEST REPORTS WHEN MILL CERTIFICATION IS IN QUESTION.
8.9.3. CHECK WITH DEPARTMENT OF THE STEEL MEMBERS FOR DISTORTION, EXCESSIVE RUST, FLAWS AND BURNERD HOLES.
8.9.4. CHECK FOR STEEL MEMBERS FOR BUSS, SWEEP AND DIMPRISIONAL TOLERANCES.
8.9.5. CHECK STEEL MEMBERS FOR BUSS, SWEEP AND DIMPRISIONAL TOLERANCES.
8.9.7. CHECK THAT BOLTS HAVE SEEN TICTIFICATION SHALL MARK THE CUTOUT LINES ON THE STEEL AND THE MORE TON THE CONTRACTION SHALL MARK THE CUTOUT LINES ON THE STEEL AND THE INSPECTIONITESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.

8.19. WELDING:
9.19.1. VERIFY FIELD WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS, NOT DEEMED PREQUALIFIED, IN ACCORDANCE WITH AWS D.L.1.
8.10.2. INSPECT FIELD WELDING SECURICES IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED AND WITH AWS D.L.1.
8.10.3. APPROVE FIELD WELDING SECURICES SHALL BE SUBMITTED TO CROWN CASTLE BEFORE WELDING BEGINS.
NO CHANGE IN APPROVED SECURICES SHALL BE SUBMITTED TO CROWN CASTLE.
9.10.3. INSPECT WELDING CONCECTIONS AND IN ACCORDANCE WITH AWS D.L.1.
8.10.5.1. BISPECT WELDING EQUIPMENT FOR CAPACITY, MAINTENANCE, AND WORKING CONDITIONS.
8.10.5.2. VERRY SPECIFIED ELECTRODES AND HANDLING AND STORAGE OF ELECTRODES FOR CONFORMANCE TO SPECIFICATIONS.

8.10.5.2. VERRY SPECIFICO ELECTRODES AND HANDLING AND STORAGE OF ELECTRODES FOR CONFORMANCE TO SPECIFICATIONS.

9.10.5.1. MISSEC PRESIDENTING AND INTERPASS TEMPERATURES FOR CONFORMANCE WITH AWB D1.1.

9.10.5.1. VISUALLY INSPECT ALL WELDS AND VERIET THAT CUMLITY OF YELDS MEETS THE REQUIREMENTS OF AWS D1.1.

OTHER TESTS MY ADO BE PERFORMED ON THE WELDS BY THE TESTIMA AGENCY IN GRORE FOR THEM 10 PERFORM THEIR DUTIES FOR THIS PROJECT.

8.10.5.5. SPOTT TEST AT LEAST LOF PLLET WELD OF EACH MEMBER USING MAGINETIC PARTICLE.

9.10.5.5. SPOTT TEST AT LEAST LOF PLLET WELD OF EACH MEMBER USING MAGINETIC PARTICLE.

9.10.5.6. MISPECT FOR SIZE, SPACING, TYPE AND LOCATION AS PER APPROVED DRAWNINGS.

9.10.5.1. REVIEW THAT THE BASE METAL CONFORMS TO THE DRAWNINGS.

9.10.5.1. REVIEW THAT REPORTS BY TESTING LASS.

9.10.5.1. DISPECT RUST PROTECTION OF WELDS AS PER SPECIFICATIONS.

9.10.5.1. INSPECT RUST PROTECTION OF WELDS AS PER SPECIFICATIONS.

9.10.5.1. PARTIAL PERETATION WELDS ARE CLEARLY MARGED AND HAVE BEEN ADEQUATELY REPAIRED.

9.10.5.1.2. FIJLA PENETRATION WELDS IN THE WICKINTY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 100% NIDE INSPECTED BY UT IN ACCORDANCE WITH ANS 0.1.

9.10.5.13. PARTIAL PEMETRATION AND FILLET WELDS IN THE VICINITY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 50% NOE INSPECTED BY MP IN ACCORDANCE WITH AWS D1.1.

8.11. COMPILE AND PERIODICALLY SUBMIT DAILY INSPECTION REPORTS TO CROWN CASTLE.

8.11.1. COMPILE AND PERIODICALLY SUBMIT DAILY INSPECTION REPORTS TO CROWN CASTLE.

8.11.2. THE INSPECTION PLAN CUITLINED HERREN IS INTENDED AS A DESCRIPTION OF GENERAL AND SPECIFIC TIEMS OF COCKERN. IT IS NOT PREVIOUS THE TODES NOT LIBER THE TESTING AND INSPECTION AGENCY TO THE TIEMS LISTED. ADDITIONAL TESTING, INSPECTION, AND CHECKING MAY BE REQUIRED AND SHOULD BE ANTICIPATED. THE TESTING AGENCY SHALL USE THE PROPERSIONAL JUGORETH AND ROWN ESON OF THE JOB SITE CONDITIONS AND THE CONTRACTOR'S PERPORMANCE TO DECIDE WHAT OTHER TREMS REQUIRE ADDITIONAL ATTENTION. THE TESTING AGENCY SUDDIENT MAIS THE PREVAL OF HERE NOT SPECIFICALLY COVERED. ANY DISCREPANCES OR PROBLEMS SHALL BE BROUGHT MINEDATELY TO COMMIC ASTLES ATTENTION. RESOLUTIONS ARE NOT TO BE MADE WITHOUT CONON CASTLES THEY WAS SECURE WRITTEN COSPERAL. CONVERTED ASTLESS.

8.11.3. AFTER EXCHAINS CENTRAL TO DETERMINE WHETHER OR NOT A RESOLUTION IS ACCEPTABLE.

8.11.3. AFTER EACH INSPECTION, THE TESTING AGENCY MLL PREPARE A WITHER ACCEPTANCE OR REJECTION WHICH WILL BE GIVEN TO THE CONTRACTOR AND PLED AS DALLY REPORTS TO CONTINUED CONSTRUCTION, AND CONTRACTOR'S CONTRACTOR ASTLE THIS WRITTEN ACTION WILL GIVE THE CONTRACTOR ALST OF THE SITES OF SECONDARY TO BE LIEVE THE CONTRACTOR'S CONTRACTUAL OR STATUTORY OBLIGATIONS. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR ANY DEVALUANTS CONTRACTUAL OR STATUTORY OBLIGATIONS. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR ANY DEVALUANTS CONTRACTUAL CONTRACT DOCUMENTS. THE STERMS AGENCY WILL NOT REPLIEVE THE CONTRACTOR'S QUALITY CONTROL PERSONNEL.

MICHECKLICT

	MI CHECKLIST				
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM				
	PRE-CONSTRUCTION				
x	MI CHECKLIST DRAWINGS				
X	EORREVIEW				
×	FABRICATION INSPECTION				
x	FASRICATOR CERTIFIED WILD INSPECTION				
×	MATERIAL TEST REPORT (MTR)				
N/A	FADRICATOR NDE INSPECTION				
x	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)				
X	PACKING SLIPS				
ADDITIONAL TESTING AND INSPECTIONS:					
	CONSTRUCTION				
X	CONSTRUCTION INSPECTIONS				
NIA	FOUNDATION INSPECTIONS				
NIA	CONCRETE COMP. STRENGTH AND SLUMP TESTS				
×	POST INSTALLED ANCHOR ROD VERIFICATION				
NIA	BASE PLATE GROUT VERIFICATION				
X	CONTRACTOR'S CERTIFIED WELD INSPECTION EARTHMORE PROVIDE PHOTO DOCUMENTATION OF EXCAVATION QUALITY AND COMPACTION				
N/A					
×	ON SITE COLD GALVANIZING VERIFICATION				
N/A	OUY WRE TENSION REPORT				
X	GC AS-BUILT DOCUMENTS				
N/A	MICROPILEROCK ANCHOR INSTALLER'S DRILLING AND INSTALLATION LOGS AND GAGO DOCUMENTS				
ADDITIONAL TESTING AND INSPECTIONS:					
	POST-CONSTRUCTION				
×	MI INSPECTOR REDLINE OR RECORD DRAWING(S)				
×	POST INSTALLED ANCHOR ROD TARGET TENSION LOAD TESTING				
NA	REFER TO MICHOPALEROOK ANCHOR NOTES FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS.				
×	PHOTOGRAPHS				

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

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BU #876406; NE OLD LYME-OLD LYME **FIREHOUSE** OLD LYME, CT MONOPOLE REINFORCEMENT AND RETROFIT PROJECT PROJECT: 37515-2177.001,7700 R1 C.A.W. MI CHECKLIST HECKED BY R.M.K. PROVED B OKK DATE 07/06/2015