PRCTI20221786

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

Mr. Anthony Clark
MasTec Network Solutions
22236 68th Ave S
Kent, WA 98032
(678) 526-3214

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

THE APPROVED CONSTRUCTION PLANS, DOCUMENTS AND ALL ENGINEERING MUST BE POSTED ON THE JOB AT ALL INSPECTIONS IN A VISIBLE AND READILY ACCESSIBLE LOCATION.

FULL SIZED LEDGIBLE COLOR PLANS ARE REQUIRED TO BE PROVIDED BY THE PERMITEE ON SITE FOR INSPECTION

City of Puyallup
Building
ACCEPTED
JMontgomery
01/11/2023
11:08:58 AM

Date: September 12, 2022

Subject: **Structural Modification Report**

AT&T Designation:
Site USID: 75042-A
Site FA: 10038029
Site Name: ORBIT

Turf Vendor Number: WA6413

Site Address: 3310 South Meridian, Puyallup, Pierce County, WA 98373
Site Coordinates: Latitude: 47° 9' 35.06" N, Longitude: 122° 17' 47.76" W
Tower Description: 70 ft – Monopole [Western Utility Telecom] w/ 10 ft Proposed Extension

Morrison Hershfield Project Number: MAS-532R2 / 2200078

Dear Mr. Clark,

Morrison Hershfield is pleased to submit this "**Structural Modification Report**" to determine the integrity of the above mentioned tower structure for the existing and proposed antenna and equipment noted.

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 97 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Our analysis demonstrates that the existing tower and foundation **ARE in conformance** with the requirements of the above noted standards under the effects of loading described, **provided the attached modifications are completed.**

Summary of Results		
Tower Structure	***74.0%***	***Sufficient***
Base Foundation	***52.3%***	***Sufficient***

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

Respectfully submitted by:
Morrison Hershfield

YAN WANG
STATE OF WASHINGTON
44138
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
Digitally signed by Yan Wang
Date: 2022.09.13 16:39:11-04'00'

Yan Wang, S.E. (WA License No. 44138)
Senior Engineer

1.0 INTRODUCTION

This tower is a 70 ft slimline monopole designed by Western Utility Telecom, Inc., in March of 2017. The tower was originally designed for a basic windspeed of 100 mph per ANSI/TIA 222-G. A proposed 10.5 ft tower extension has been considered in this analysis, bringing the total tower height to 80 ft.

2.0 ANALYSIS CRITERIA

The following design parameters have been used in our analysis:

Design Standard:	2018 International Building Code ANSI/TIA-222-H, Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures ASCE 7-16, Minimum Design Loads and Associated Criteria for Buildings and Other Structures AISC 325-15, Manual of Steel Construction ACI 318-14, Building Code Requirements for Structural Concrete ANSI/AWS D1.1-11, Structural Welding Code - Steel
Design Wind Speed:	97 mph (Ultimate 3-sec gust) with no radial ice
Risk Category:	II
Exposure Category:	C
Topographic Factor, K_{zt}:	1.0
Design Ice Thickness:	1.0 in
Wind Speed with Ice:	30 mph (Nominal 3-sec gust) [Neglected]
Seismic S_S:	1.264
Seismic S_1:	0.436
Service Wind Speed:	60 mph (Nominal 3-sec gust)

The structural analysis was based on the following documentation:

Table 1 – Documentation

Document	Description	Source
Geotechnical Report	Adapt Engineering, Project No. WA16-20588-GEO, dated 22/06/2016	Client
Tower & Foundation Design	Western Utility Telecom, Inc., Project No. 16-0539, dated 03/12/2017	Client
Tower Mapping Report	Tower Engineering Professionals, Inc., Project No. 312623.691483, dated 05/23/2022	Client
Design Review	MasTec Network Solutions, Site ID: WA6314, dated 07/22/2020	Client
Structural Analysis Report	Morrison Hershfield, Project No. MAS-532R1 / 2001765, dated 09/11/2020	MH
RF Data Sheet	AT&T Mobility, RFDS Name: WAL03046, dated 06/25/2020	Client
Structural Modification Drawings	**Morrison Hershfield, Project No. MAS-532R2 / 2200078, dated 09/07/2022**	**MH**

3.0 ANALYSIS LOADING

The existing and proposed antennas, transmission cables, antenna mounts and other equipment considered in this analysis were provided by the client and are noted in the attachments.

4.0 ANALYSIS PROCEDURE

tnxTower (Version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is attached at the end of this report.

5.0 ASSUMPTIONS

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

1) Tower and structures were built in accordance with the manufacturer's specifications and the applicable ANSI/TIA/EIA standard.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The tower is assumed to be in good condition and capable of supporting its full design capacity.
4) The foundation was properly designed and constructed for the original design loads.
5) The configuration of antennas, transmission cables, antenna mounts and other appurtenances are as specified in the attached Tower Analysis Summary Form and the referenced documents.
6) All existing/proposed antennas and antenna mounts are assumed to be adequate for the existing/proposed loads. Analysis of these antennas and antenna mounts is considered to be outside of the scope of this analysis. Morrison Hershfield has not performed an analysis of the existing/proposed antennas or antenna mounts.
7) The existing and proposed loading for AT&T Mobility is taken from their RF Data Sheet, RFDS Name: WAL03046, dated 11/18/2021, and from the structural analysis report completed by Morrison Hershfield, Project No. MAS-532R1 / 2001765, dated 09/11/2020, and is considered to be correct.
8) The remaining existing loading on the tower is taken from the structural analysis report completed by Morrison Hershfield, Project No. MAS-532R1 / 2001765, and is considered to be correct.

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

6.0 SUMMARY OF RESULTS

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

The seismic base shear was determined to be more than 50% of base shear due to wind loading, so we performed a full seismic analysis per TIA-222-H. The analysis due to seismic loading is controlling for the overall tower capacity.

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

6.1) Wind Results

Table 2 – Tower Section Capacity

Section No.	*Elevation ft*	*Component Type*	*Size*	*% Capacity*	*Pass Fail*
L1	80 - 70	Pole	Pipe 6.625 x 0.280 (6 STD)	9.3	Pass
L2	70 - 60	Pole	Pipe 8.625" x 0.500" (8 XS)	11.6	Pass
L3	60 - 48	Pole	Pipe 8.625" x 0.500" (8 XS)	27.7	Pass
L4	48 - 1	Pole	P36x0.375	10.9	Pass
				Summary	
			Pole (L3)	27.7	Pass
			RATING =	**27.7**	**Pass**

Table 3 – Capacity of Additional Components

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	70	3.3	Pass
1	Flange Connection	60	15.3	Pass
1	Flange Connection	48	41.2	Pass
1	Anchor Rods	0	25.7	Pass
1	Base Plate		27.0	Pass
1	Base Foundation Soil	0	50.6	Pass
1	Base Foundation Structural		8.8	Pass

6.2) Seismic Results

Table 4 – Tower Section Capacity

Member Label	*Elevation ft*	*Size*	*% Capacity*	*Pass Fail*
M1	80 - 70	Pipe 6.625 x 0.280 (6 STD)	36.1	Pass
M2	70 - 60	Pipe 8.625" x 0.500" (8 XS)	28.1	Pass
M3	60 - 48	Pipe 8.625" x 0.500" (8 XS)	49.3	Pass
M4	48 - 1	P36x0.375	15.0	Pass

Table 5 – Capacity of Additional Components

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	70	18.5	Pass
1	Flange Connection	60	42.0	Pass
1	Flange Connection	48	74.0	Pass
1	Anchor Rods	0	50.8	Pass
1	Base Plate		53.3	Pass
1	Base Foundation Soil	0	52.3	Pass
1	Base Foundation Structural		12.0	Pass

Structure Rating (max from all components) =	74.0%*

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” & “Appendix D – Seismic Calculations" for calculations supporting the % capacity consumed.
2) *Rating per TIA-222-H, Section 15.5.

7.0 RECOMMENDATIONS

1) All assumptions made in this analysis should be carefully reviewed. Morrison Hershfield should be contacted for any discrepancies so that a full assessment may be made to validate the results of this analysis.
2) A post modification inspection of these modifications are later required.

ATTACHMENTS: Tower Loading, Tower Profile, Program Output, Coax Sketch, Additional Calculations, RF Data Sheet and Modification Drawings

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APPENDIX A
TOWER LOADING

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Tower Analysis Summary Form

General Info

Site Name	ORBIT
Site Number	75042-A
FA Number	10038029
Date of Analysis	09/12/2022
Company Performing Analysis	Morrison Hershfield

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	MP	
Tower Height (top of steel AGL)	70' w/ 10' proposed extension	
Tower Manufacturer	Western Utility Telecom	
Tower Model	SlimLine Pole	
Tower Design	Western Utility Telecom, Inc., Project No. 16-0539	03/12/2017
Foundation Design	Western Utility Telecom, Inc., Project No. 16-0539	03/12/2017
Geotech Report	Adapt Engineering, Project No. WA16-20588-GEO	22/06/2016
Tower Mapping	Tower Engineering Professionals, Inc., Project No. 312623.691483	05/23/2022
Previous Structural Analysis	Morrison Hershfield, Project No. MAS-532R1 / 2001765	09/11/2020
Structural Calculations	N/A	
Foundation Mapping	N/A	

Design Parameters

Design Code Used	ANSI/TIA-222-H 2018 IBC / ASCE 7-16
Location of Tower (County, State)	Pierce, WA
Basic Wind Speed (mph)	97 (Ultimate 3-sec)
Ice Thickness (in)	1
Structure Classification (I, II, III)	II
Exposure Category (B, C, D)	C
Topographic Category (1 to 5)	1

Analysis Results (% Maximum Usage)

Existing/Reserved + Proposed Condition	
Pole (%)	74.0%
Anchor Rods / Base Plate (%)	50.8% / 53.3%
Foundation (%)	52.3%
Foundation Adequate?	YES

Steel Yield Strength (ksi)

Pole	42/35
Flange Bolts	A325
Flange Plate/Base Plate	50
Anchor Rods	F1554-55

1) The existing and proposed loading for AT&T Mobility is taken from their RF Data Sheet, RFDS Name: WAL03046, dated 11/18/2021, and from the structural analysis report completed by Morrison Hershfield, Project No. MAS-532R1 / 2001765, dated 09/11/2020, and is considered to be correct.
2) The remaining existing loading on the tower is taken from the structural analysis report completed by Morrison Hershfield, Project No. MAS-532R1 / 2001765, and is considered to be correct.

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Internal/External
AT&T Mobility	64	64	3*	Panel	KMW	800372991	80/200/285	-	-	Inside 36" x 10' Canister	12	Unknown	7/8"	Internal
AT&T Mobility	64	64	6	TMA	Kaelus	TMA2117F00V1-1		-	-	Inside 36" x 10' Canister				
AT&T Mobility	56	56	3*	Panel	KMW	800372991	80/200/285	-	-	Inside 36" x 12' Canister	12	Unknwon	7/8"	Internal
AT&T Mobility	56	56	6	TMA	Kathrein	78211273V02		-	-	Inside 36" x 12' Canister				
Unknown	25	25	2	Light	Unknown	Box Light	-	-	-	-	-	-	-	-

*Note: Existing loading shall be reused.

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Internal/External
AT&T Mobility	79	79	3	Panel	Nokia	AEQK	80/200/285	1	Unknown	10' P6STD Antenna Mast	2	DC Power	3/4"	Internal
AT&T Mobility	79	79	3	Panel	Nokia	AEQU	80/200/285	1	Unknown	Inside 40" x 10' Canister	1	Fiber	3/8"	Internal
AT&T Mobility	79	79	3	Surge	Raycap	DC9-48-60-24-PC16-EV	-	-	-	-	-	-	-	-

Note: Proposed loading is in addition to the remaining existing loading at the given elevation.

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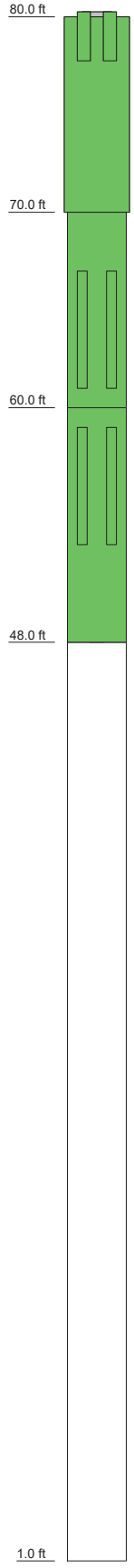
APPENDIX B

tnxTower - WIND ANALYSIS

Section	Size	Length (ft)	Grade	Weight (K)
1	Pipe 6.625 x 0.280 (6 STD)	10.00	A53-B-35	0.2
2	Pipe 8.625" x 0.500" (8 XS)	10.00		0.4
3	Pipe 8.625" x 0.500" (8 XS)	12.00		0.5
4	P36x0.375	47.00	API 5LX42	6.7
				7.9



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DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
AEQK w/ Mount Pipe (P)	79	800372991_TIA w/ Mount Pipe (E)	64
AEQK w/ Mount Pipe (P)	79	(2) TMA2117F00V1-1 (E)	64
AEQK w/ Mount Pipe (P)	79	(2) TMA2117F00V1-1 (E)	64
AEQU w/ Mount Pipe (P)	79	(2) TMA2117F00V1-1 (E)	64
AEQU w/ Mount Pipe (P)	79	800372991_TIA w/ Mount Pipe (E)	56
AEQU w/ Mount Pipe (P)	79	(2) 78211273V02 (E)	56
DC9-48-60-24-PC16-EV (P)	79	(2) 78211273V02 (E)	56
DC9-48-60-24-PC16-EV (P)	79	(2) 78211273V02 (E)	56
DC9-48-60-24-PC16-EV (P)	79	800372991_TIA w/ Mount Pipe (E)	56
40"x10' Canister (P)	75	800372991_TIA w/ Mount Pipe (E)	56
36"x10' Canister (E)	65	36"x12' Canister (E)	54
800372991_TIA w/ Mount Pipe (E)	64	(2) Box Light (Unknown)	26.75
800372991_TIA w/ Mount Pipe (E)	64		

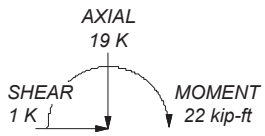
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	API 5LX42	42 ksi	60 ksi

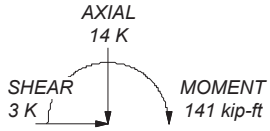
TOWER DESIGN NOTES

1. Tower is located in Pierce County, Washington.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 30 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 27.7%

ALL REACTIONS ARE FACTORED



30 mph WIND - 1.0000 in ICE



TORQUE 0 kip-ft
REACTIONS - 97 mph WIND

Morrison Hershfield
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Job: MAS-532R2 / 2200078			
Project: 75042-A / ORBIT			
Client: MasTec Network Solutions	Drawn by: VG	App'd:	
Code: TIA-222-H	Date: 09/07/22	Scale: NTS	
Path: X:\Reference\Telecom\US Tower Projects\MasTec\MAS-532 - 10038029 - WA6413 Orbit\MAS-532R2 SDD\Analysis\MAS-532R2 SDD.eri		Dwg No. E-1	

PRCTI20221786

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Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Pierce County, Washington.
Tower base elevation above sea level: 438.00 ft.
Basic wind speed of 97 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 30 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

tnxTower

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Project	**Date**
75042-A / ORBIT	19:05:48 09/07/22
Client	**Designed by**
MasTec Network Solutions	VG

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	80.00-70.00	10.00	Pipe 6.625 x 0.280 (6 STD)	A53-B-35 (35 ksi)	
L2	70.00-60.00	10.00	Pipe 8.625" x 0.500" (8 XS)	A53-B-35 (35 ksi)	
L3	60.00-48.00	12.00	Pipe 8.625" x 0.500" (8 XS)	A53-B-35 (35 ksi)	
L4	48.00-1.00	47.00	P36x0.375	API 5LX42 (42 ksi)	

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
AT&T									
7/8" (E-In Conduit)	A	No	No	Inside Pole	64.00 - 1.00	12	No Ice	0.00	0.30
							1/2" Ice	0.00	0.30
							1" Ice	0.00	0.30
6" Conduit (E)	A	No	No	Inside Pole	64.00 - 1.00	3	No Ice	0.00	0.02
							1/2" Ice	0.00	0.02
							1" Ice	0.00	0.02
***									
7/8" (E-In Conduit)	B	No	No	Inside Pole	56.00 - 1.00	12	No Ice	0.00	0.30
							1/2" Ice	0.00	0.30
							1" Ice	0.00	0.30
6" Conduit (E)	B	No	No	Inside Pole	56.00 - 1.00	3	No Ice	0.00	0.02
							1/2" Ice	0.00	0.02
							1" Ice	0.00	0.02
***									
DC Power (3/4") (P)	C	No	No	Inside Pole	79.00 - 1.00	2	No Ice	0.00	0.88
							1/2" Ice	0.00	0.88
							1" Ice	0.00	0.88
Fiber (3/8") (P)	C	No	No	Inside Pole	79.00 - 1.00	1	No Ice	0.00	0.12
							1/2" Ice	0.00	0.12
							1" Ice	0.00	0.12
6" Conduit (P)	C	No	No	Inside Pole	79.00 - 1.00	1	No Ice	0.00	0.02
							1/2" Ice	0.00	0.02
							1" Ice	0.00	0.02
***									

tnxTower

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Job	Page
MAS-532R2 / 2200078	3 of 5
Project	**Date**
75042-A / ORBIT	19:05:48 09/07/22
Client	**Designed by**
MasTec Network Solutions	VG

Discrete Tower Loads

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral ft / Vert ft*	*Azimuth Adjustment °*	*Placement ft*		*C_AA_A Front ft^2*	*C_AA_A Side ft^2*	*Weight K*
Tower									
40"x10' Canister (P)	C	None		0.0000	75.00	No Ice	17.04	17.04	0.60
						1/2" Ice	24.46	24.46	0.89
						1" Ice	25.23	25.23	1.19
36"x10' Canister (E)	C	None		0.0000	65.00	No Ice	15.56	15.56	0.40
						1/2" Ice	22.30	22.30	0.66
						1" Ice	23.04	23.04	0.93
36"x12' Canister (E)	C	None		0.0000	54.00	No Ice	19.20	19.20	0.45
						1/2" Ice	27.25	27.25	0.75
						1" Ice	28.12	28.12	1.07
AT&T									
800372991_TIA w/ Mount Pipe (E)	A	From Leg	0.50 0.00 0.00	0.0000	64.00	No Ice 1/2" Ice 1" Ice	10.89 11.49 12.08	7.29 8.55 9.58	0.11 0.19 0.28
800372991_TIA w/ Mount Pipe (E)	B	From Leg	0.50 0.00 0.00	0.0000	64.00	No Ice 1/2" Ice 1" Ice	10.89 11.49 12.08	7.29 8.55 9.58	0.11 0.19 0.28
800372991_TIA w/ Mount Pipe (E)	C	From Leg	0.50 0.00 0.00	0.0000	64.00	No Ice 1/2" Ice 1" Ice	10.89 11.49 12.08	7.29 8.55 9.58	0.11 0.19 0.28
(2) TMA2117F00V1-1 (E)	A	From Leg	0.50 0.00 0.00	0.0000	64.00	No Ice 1/2" Ice 1" Ice	1.23 1.37 1.51	0.52 0.62 0.73	0.02 0.03 0.04
(2) TMA2117F00V1-1 (E)	B	From Leg	0.50 0.00 0.00	0.0000	64.00	No Ice 1/2" Ice 1" Ice	1.23 1.37 1.51	0.52 0.62 0.73	0.02 0.03 0.04
(2) TMA2117F00V1-1 (E)	C	From Leg	0.50 0.00 0.00	0.0000	64.00	No Ice 1/2" Ice 1" Ice	1.23 1.37 1.51	0.52 0.62 0.73	0.02 0.03 0.04
***									
800372991_TIA w/ Mount Pipe (E)	A	From Leg	0.50 0.00 0.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice	10.89 11.49 12.08	7.29 8.55 9.58	0.11 0.19 0.28
800372991_TIA w/ Mount Pipe (E)	B	From Leg	0.50 0.00 0.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice	10.89 11.49 12.08	7.29 8.55 9.58	0.11 0.19 0.28
800372991_TIA w/ Mount Pipe (E)	C	From Leg	0.50 0.00 0.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice	10.89 11.49 12.08	7.29 8.55 9.58	0.11 0.19 0.28
(2) 78211273V02 (E)	A	From Leg	0.50 0.00 0.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice	0.62 0.72 0.83	0.24 0.31 0.38	0.02 0.02 0.03
(2) 78211273V02 (E)	B	From Leg	0.50 0.00 0.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice	0.62 0.72 0.83	0.24 0.31 0.38	0.02 0.02 0.03
(2) 78211273V02 (E)	C	From Leg	0.50 0.00 0.00	0.0000	56.00	No Ice 1/2" Ice 1" Ice	0.62 0.72 0.83	0.24 0.31 0.38	0.02 0.02 0.03
***									
AEQK w/ Mount Pipe (P)	A	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	4.57 4.89 5.23	3.10 3.53 3.97	0.11 0.15 0.20

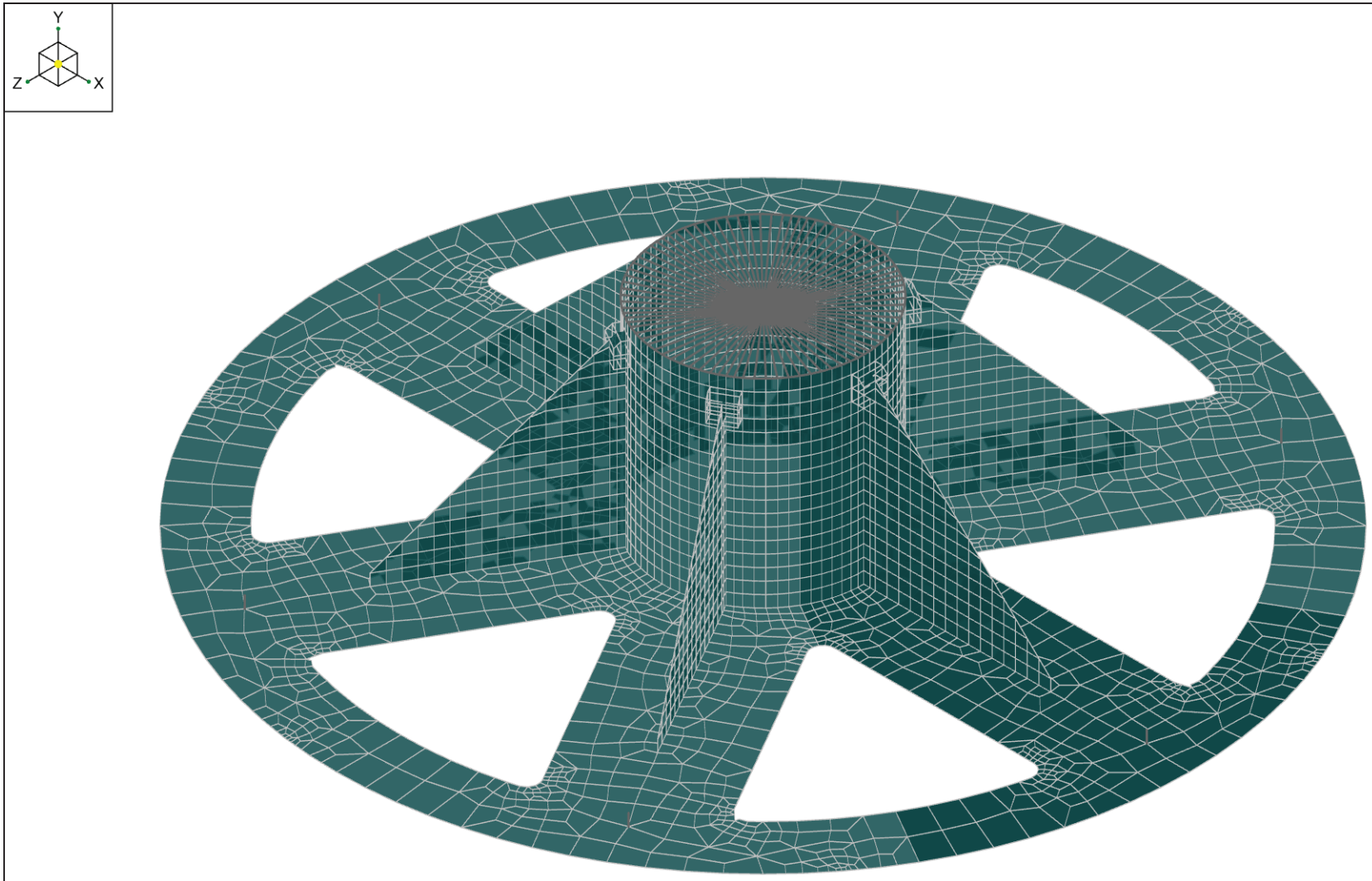
PRCTI20221786

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
AEQK w/ Mount Pipe (P)	B	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	4.57 4.89 5.23	3.10 3.53 3.97	0.11 0.15 0.20
AEQK w/ Mount Pipe (P)	C	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	4.57 4.89 5.23	3.10 3.53 3.97	0.11 0.15 0.20
AEQU w/ Mount Pipe (P)	A	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	4.56 4.88 5.22	3.09 3.52 3.96	0.11 0.15 0.20
AEQU w/ Mount Pipe (P)	B	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	4.56 4.88 5.22	3.09 3.52 3.96	0.11 0.15 0.20
AEQU w/ Mount Pipe (P)	C	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	4.56 4.88 5.22	3.09 3.52 3.96	0.11 0.15 0.20
DC9-48-60-24-PC16-EV (P)	A	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.20	4.78 5.06 5.35	0.03 0.06 0.10
DC9-48-60-24-PC16-EV (P)	B	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.20	4.78 5.06 5.35	0.03 0.06 0.10
DC9-48-60-24-PC16-EV (P)	C	From Leg	0.50 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 1" Ice	2.74 2.96 3.20	4.78 5.06 5.35	0.03 0.06 0.10
***									
(2) Box Light (Unknown)	C	From Leg	1.00 0.00 0.00	0.0000	26.75	No Ice 1/2" Ice 1" Ice	4.00 0.00 0.00	4.00 0.00 0.00	0.04 0.00 0.00
***									

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
L1	80 - 70	Pole	Pipe 6.625 x 0.280 (6 STD)	1	-1.86	184.60	9.3	Pass
L2	70 - 60	Pole	Pipe 8.625" x 0.500" (8 XS)	2	-3.44	422.13	11.6	Pass
L3	60 - 48	Pole	Pipe 8.625" x 0.500" (8 XS)	3	-5.27	422.13	27.7	Pass
L4	48 - 1	Pole	P36x0.375	4	-13.95	1567.24	10.9	Pass
							Summary	
						Pole (L3)	27.7	Pass
						RATING =	**27.7**	**Pass**

PRCTI20221786



Morrison Herhsfield	Site ID#: 75042-A / ORBIT	SK-1
THaile		Sep 12, 2022
MAS-532R2 / 2200078		Spoke Plate Analysis.r3d

Model Settings

Solution
Members

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Wall Panels

Approximate Mesh Size (in)	24
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	No
Maximum Number of Iterations	3

Processor Core Utilization

Single	No
Multiple (Optimum)	Yes
Maximum	No

Axis
Vertical Global Axis

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes

Default Member Orientation

Default Global Plane for z-axis	XZ

Plate Axis

Plate Local Axis Orientation	Nodal

Codes

Hot Rolled Steel	AISC 3rd: LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 14th (360-10): ASD
Cold Formed Steel	None
Stiffness Adjustment	Yes (Iterative)
Wood	None
Temperature	< 100F
Concrete	None
Masonry	TMS 402-16: ASD
Aluminum	AA ADM1-15: ASD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): ASD
Stiffness Adjustment	Yes (Iterative)

Concrete

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	Yes

Model Settings (Continued)

List forces which were ignored for design in the Detail Report	Yes

Rebar

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No

Shear Reinforcement

Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Seismic

RISA-3D Seismic Load Options

Code	ASCE 7-16
Risk Category	I or II
Drift Cat	Other
Base Elevation (ft)	0
Include the weight of the structure in base shear calcs	No

Site Parameters

S_1 (g)	0.436
SD_1 (g)	0.542
SD_S (g)	0.843
T_L (sec)	6

Structure Characteristics

T Z (sec)	
T X (sec)	
C_tZ	0.02
C_tX	0.02
C_tExp. Z	0.75
C_tExp. X	0.75
R Z	1.5
R X	1.5
Ω_0Z	1.5
Ω_0X	1.5
C_dZ	4
C_dX	4
ρ Z	1
ρ X	1

General Materials Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Plate Methodology
1	gen_Conc3NW	3155	1372	0.15	0.6	0.145	Isotropic
2	gen_Conc4NW	3644	1584	0.15	0.6	0.145	Isotropic
3	gen_Conc3LW	2085	906	0.15	0.6	0.11	Isotropic
4	gen_Conc4LW	2408	1047	0.15	0.6	0.11	Isotropic
5	gen_Alum	10100	4077	0.3	1.29	0.173	Isotropic
6	gen_Steel	29000	11154	0.3	0.65	0.49	Isotropic
7	gen_Plywood	1800	38	0	0.3	0.035	Isotropic
8	RIGID	1e+6		0.3	0	0	Isotropic
9	gen_Ortho	N/A	N/A	N/A	0.65	0.49	Orthotropic

Node Loads and Enforced Displacements (BLC 1 : P - F69_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Y	-1.86

Node Loads and Enforced Displacements (BLC 2 : M - I - F69_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MZ	2.59

Node Loads and Enforced Displacements (BLC 3 : V - I - F69_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	X	-0.5

Node Loads and Enforced Displacements (BLC 4 : M - II - F69_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MX	2.59

Node Loads and Enforced Displacements (BLC 5 : V - II - F69_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Z	0.5

Node Loads and Enforced Displacements (BLC 6 : P - F59_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Y	-3.44

Node Loads and Enforced Displacements (BLC 7 : M - I - F59_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MZ	9.82

Node Loads and Enforced Displacements (BLC 8 : V - I - F59_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	X	-0.94

Node Loads and Enforced Displacements (BLC 9 : M - II - F59_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MX	9.82

Node Loads and Enforced Displacements (BLC 10 : V - II - F59_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Z	0.94

Node Loads and Enforced Displacements (BLC 11 : P - F47_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Y	-5.27

Node Loads and Enforced Displacements (BLC 12 : M - I - F47_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MZ	24.04

Node Loads and Enforced Displacements (BLC 13 : V - I - F47_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	X	-1.42

Node Loads and Enforced Displacements (BLC 14 : M - II - F47_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MX	24.04

Node Loads and Enforced Displacements (BLC 15 : V - II - F47_W)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Z	1.42

Basic Load Cases

	BLC Description	Category	Nodal
1	P - F69_W	None	1
2	M - I - F69_W	None	1
3	V - I - F69_W	None	1
4	M - II - F69_W	None	1
5	V - II - F69_W	None	1
6	P - F59_W	None	1
7	M - I - F59_W	None	1
8	V - I - F59_W	None	1
9	M - II - F59_W	None	1
10	V - II - F59_W	None	1
11	P - F47_W	None	1
12	M - I - F47_W	None	1
13	V - I - F47_W	None	1
14	M - II - F47_W	None	1
15	V - II - F47_W	None	1

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	Case I - F69_W	Yes	Y	1	1	2	1	3	1
2	Case II - F69_W	Yes	Y	1	1	4	1	5	1
3	Case I - F59_W	Yes	Y	6	1	7	1	8	1
4	Case II - F59_W	Yes	Y	6	1	9	1	10	1
5	Case I - F47_W	Yes	Y	11	1	12	1	13	1
6	Case II - F47_W	Yes	Y	11	1	14	1	15	1

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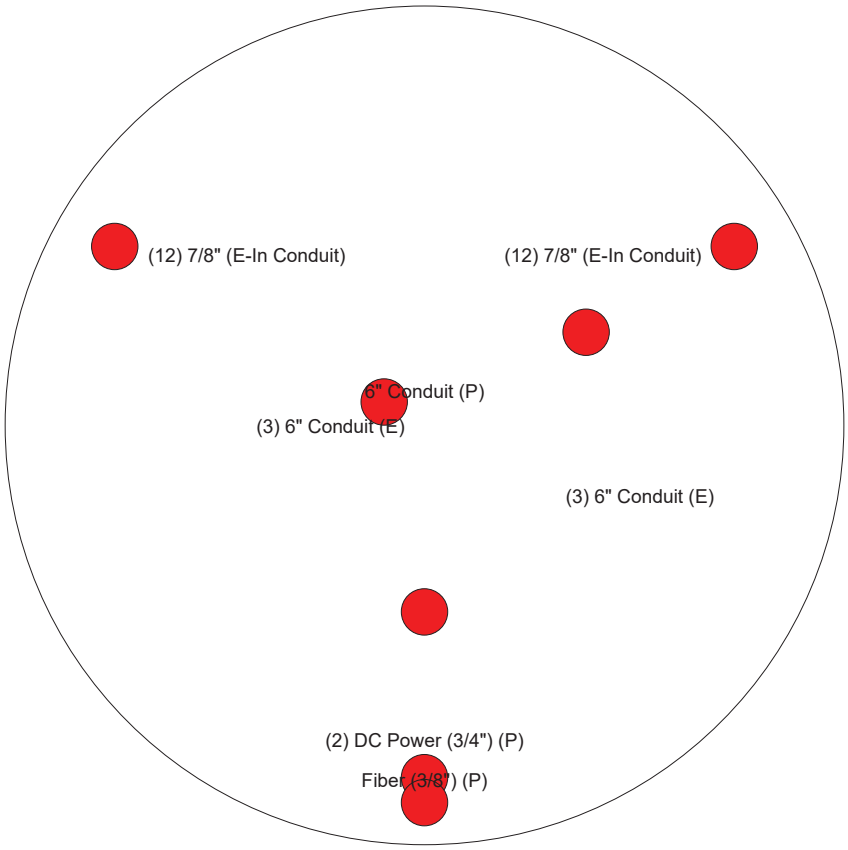
Feed Line Plan



Consulting Engineers

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
Phone: (770) 379-8500
FAX: (770) 379-8501

Job: ***MAS-532R2 / 2200078***			
Project: ***75042-A / ORBIT***			
Client: MasTec Network Solutions	Drawn by: VG	App'd:	
Code: TIA-222-H	Date: 09/07/22	Scale: NTS	
Path: X:\Reference\Telecom\US Tower Projects\MasTec\MAS-532 - 10038029 - WA6413 Orbit\MAS-532R2 SDD\Analysis\MAS-532R2 SDD.eri		Dwg No. E-7	

APPENDIX C
ADDITIONAL CALCUALTIONS

PRCTI20221786

Monopole Flange Plate Connection

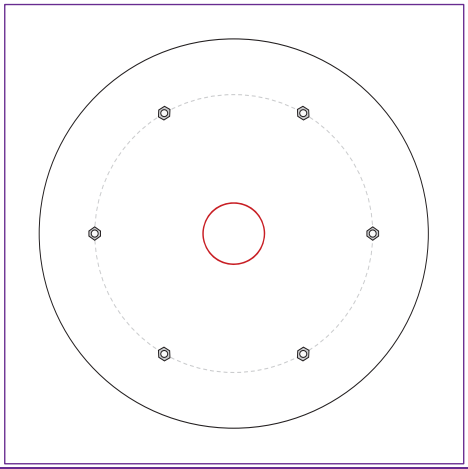
Elevation = 69 ft.

Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078
TIA-222 Revision	H

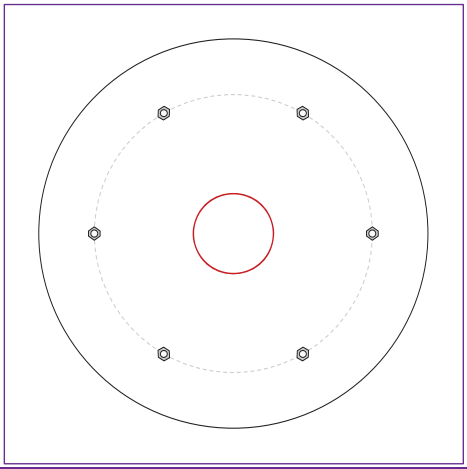
Applied Loads	
Moment (kip-ft)	2.59
Axial Force (kips)	1.86
Shear Force (kips)	0.50

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(6) 3/4" ø bolts (A325 X; Fy=92 ksi, Fu=120 ksi) on 30" BC

Top Plate Data

42" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

42" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

6.625" x 0.28" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

8.625" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	0.38	
Allowable (kips)	30.06	
Stress Rating:	**1.2%**	**Pass**

Analysis Date: 09/07/2022

PRCTI20221786

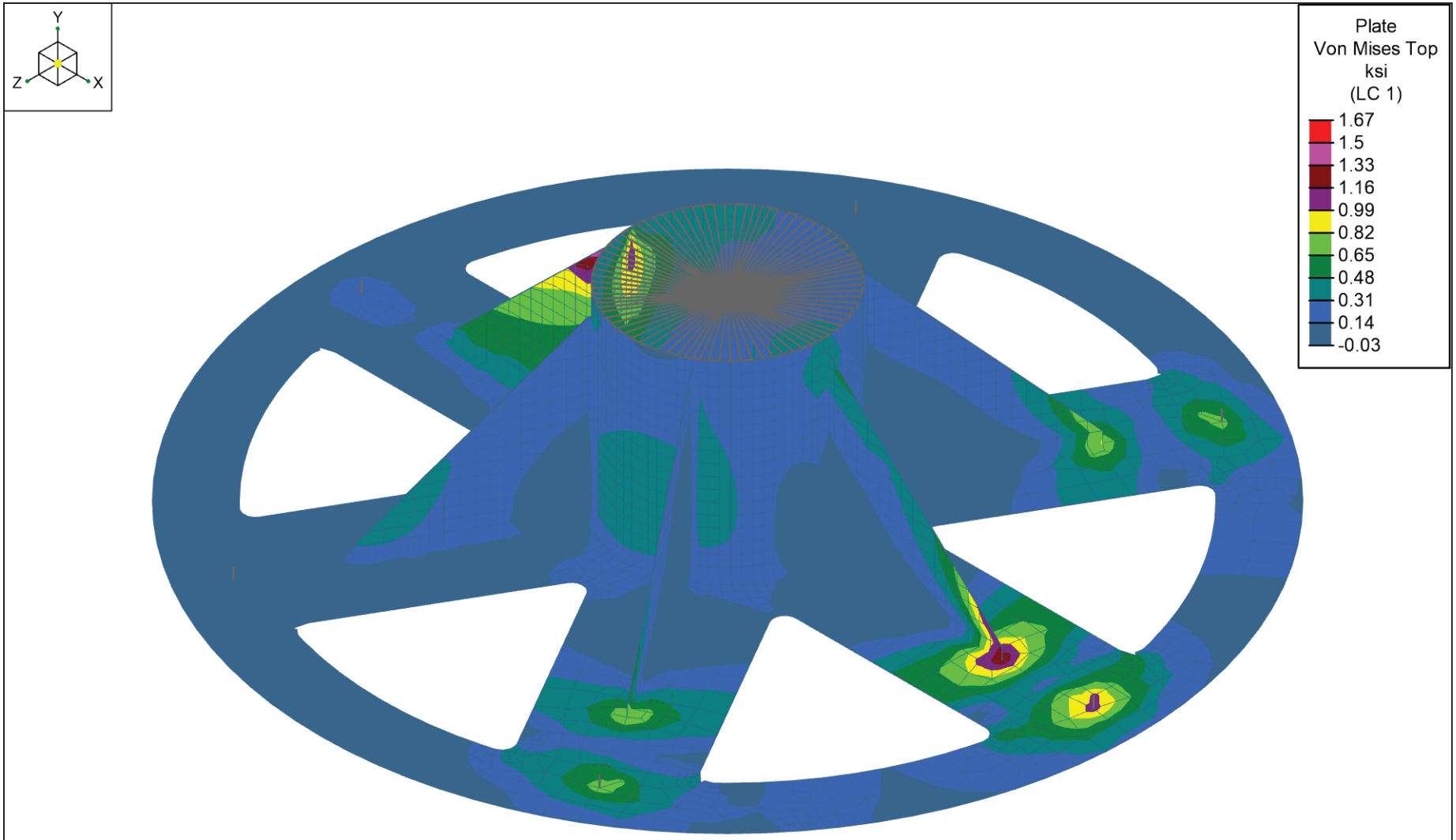


Plate Capacity = 1.67/50 = 3.3%

Results for LC 1, Case I - F69_W

Morrison Herhsfield	Site ID#: 75042-A / ORBIT	SK-2
THaile		Sep 12, 2022
MAS-532R2 / 2200078		Spoke Plate Analysis.r3d

PRCTI20221786

Monopole Flange Plate Connection

Elevation = 59 ft.

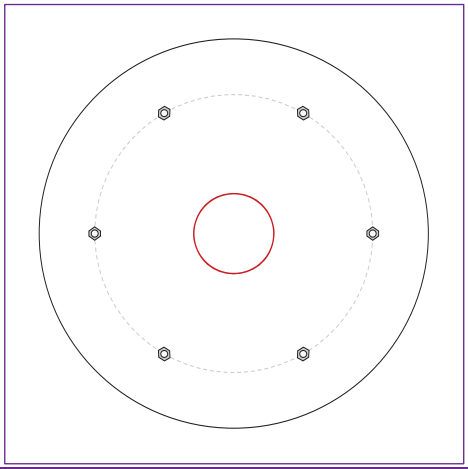
Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078

TIA-222 Revision	H

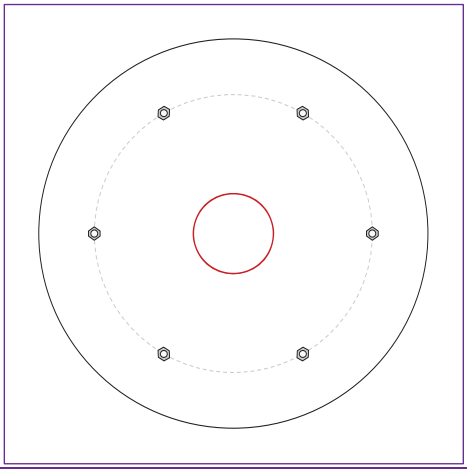
Applied Loads	
Moment (kip-ft)	9.82
Axial Force (kips)	3.44
Shear Force (kips)	0.94

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(6) 3/4" ø bolts (A325 X; Fy=92 ksi, Fu=120 ksi) on 30" BC

Top Plate Data

42" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

42" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

8.625" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

8.625" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

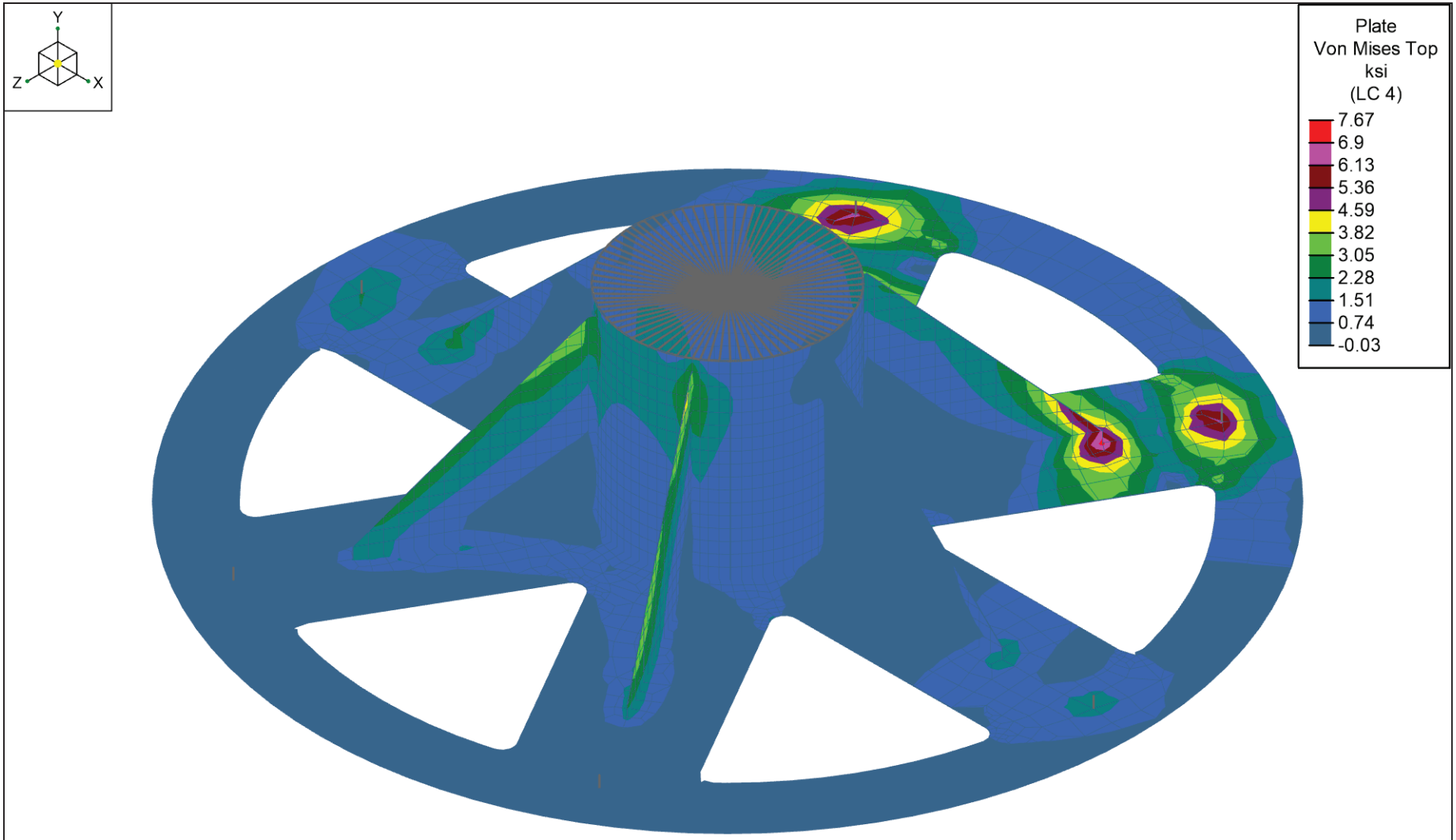
Analysis Results

Bolt Capacity

Max Load (kips)	2.05	
Allowable (kips)	30.06	
Stress Rating:	**6.5%**	**Pass**

Analysis Date: 09/07/2022

PRCTI20221786



Results for LC 4, Case II - F59_W

Morrison Herhsfield	Site ID#: 75042-A / ORBIT	SK-3
THaile		Sep 12, 2022
MAS-532R2 / 2200078		Spoke Plate Analysis.r3d

PRCTI20221786

Monopole Flange Plate Connection

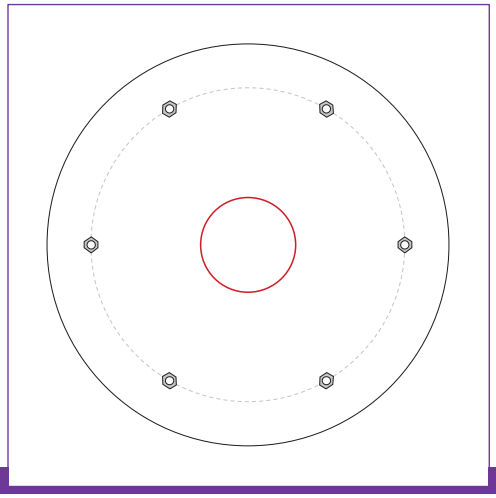
Elevation = 47 ft.

Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078
TIA-222 Revision	H

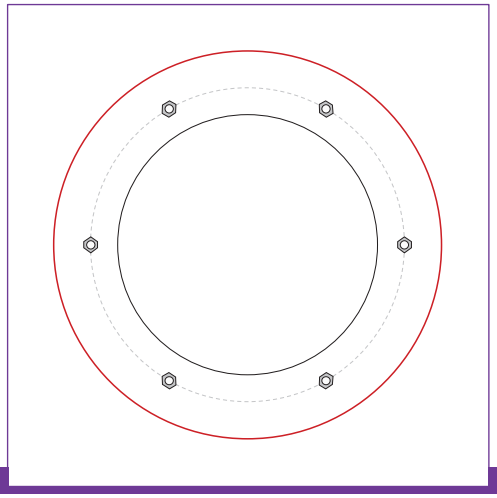
Applied Loads	
Moment (kip-ft)	24.04
Axial Force (kips)	5.27
Shear Force (kips)	1.42

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(6) 3/4" ø bolts (A490 X; Fy=130 ksi, Fu=150 ksi) on 28.5" BC

Top Plate Data

36.5" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

23.625" ID x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

8.625" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

36" x 0.375" round pole (API 5LX42; Fy=42.1 ksi, Fu=60.2 ksi)

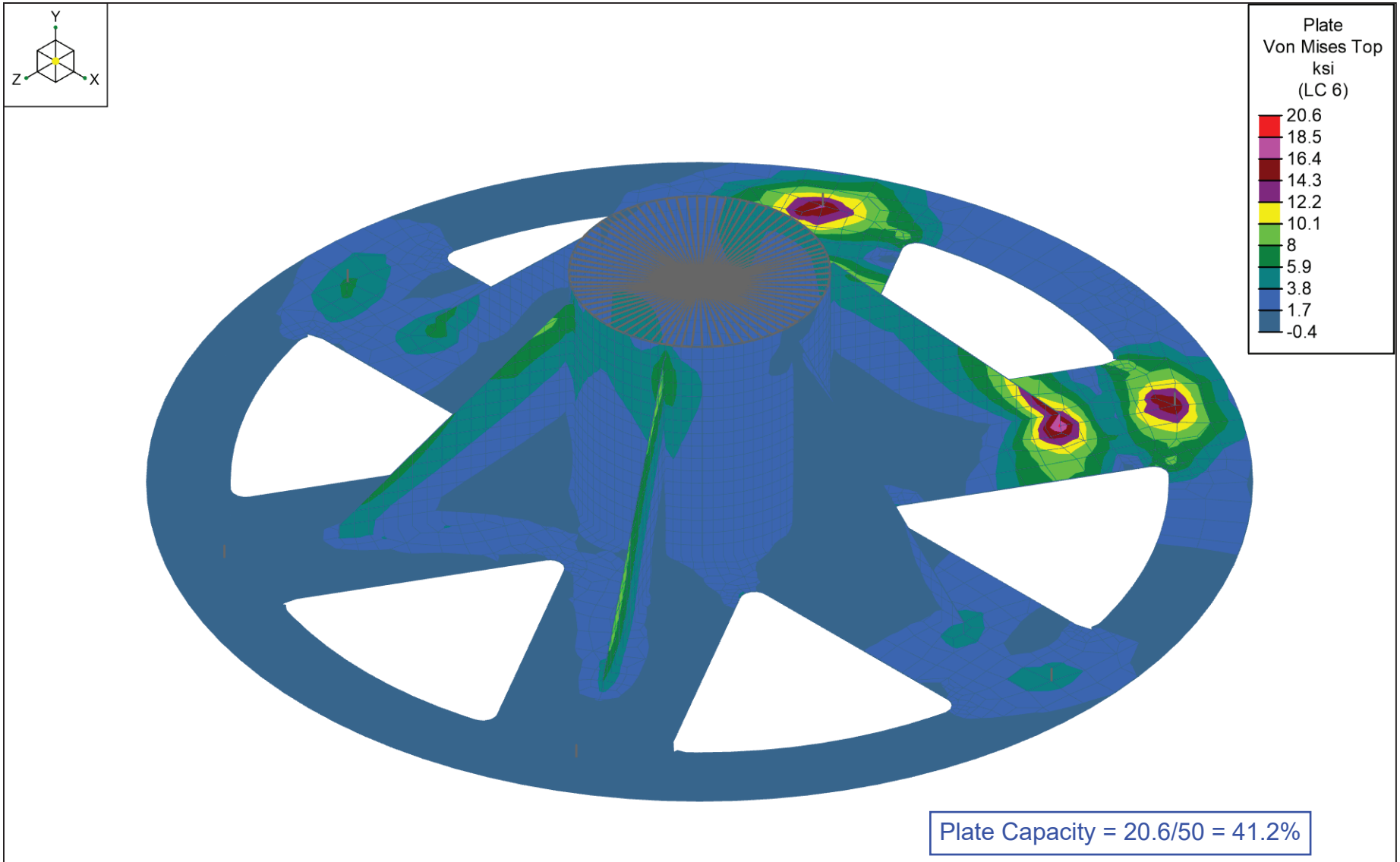
Analysis Results

Bolt Capacity

Max Load (kips)	10.20	
Allowable (kips)	37.57	
Stress Rating:	**25.9%**	Pass

Analysis Date: 09/07/2022

PRCTI20221786



Results for LC 6, Case II - F47_W

Morrison Herhsfield	Site ID#: 75042-A / ORBIT	SK-4
THaile		Sep 12, 2022
MAS-532R2 / 2200078		Spoke Plate Analysis.r3d

PRCTI20221786

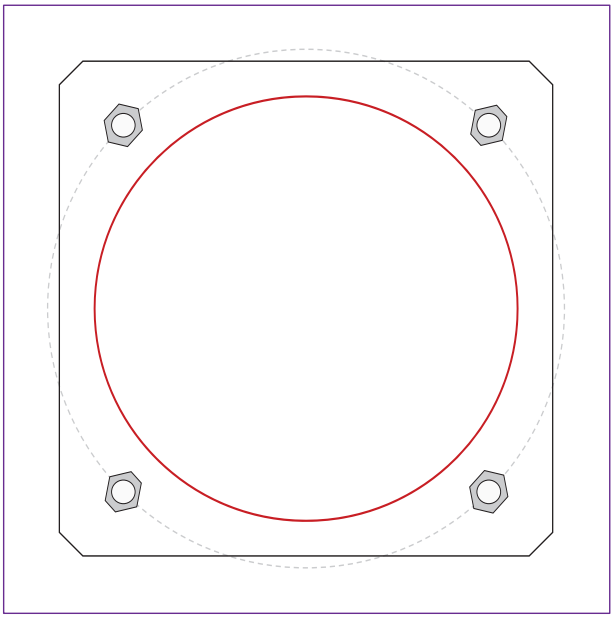
Monopole Base Plate Connection

Site Info	
Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	141.39
Axial Force (kips)	13.95
Shear Force (kips)	3.45

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(4) 2" ø bolts (F1554-55 N; Fy=55 ksi, Fu=75 ksi) on 44" BC

Base Plate Data

42" W x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 2 in

Stiffener Data

N/A

Pole Data

36" x 0.375" round pole (API 5LX42; Fy=42.1 ksi, Fu=60.2 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 42.02	ϕPn_c = 155.51	**Stress Rating**
Vu = 0.86	ϕVn = 69.98	**25.7%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	12.77	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**27.0%**	**Pass**

Analysis Date: 09/07/2022

PRCTI20221786

Drilled Pier Foundation

Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078
TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	141.39	
Axial Force (kips)	13.95	
Shear Force (kips)	3.45	

Material Properties		
Concrete Strength, f'c:	4	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	12.5	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 12.5' below grade		
Pier Diameter	5	ft
Rebar Quantity	12	
Rebar Size	10	
Clear Cover to Ties	4	in
Tie Size	3	
Tie Spacing	4	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	4.11	-
Soil Safety Factor	5.40	-
Max Moment (kip-ft)	153.22	-
Rating	*24.6%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	74.22	-
End Bearing (kips)	44.18	-
Weight of Concrete (kips)	45.95	-
Total Capacity (kips)	118.40	-
Axial (kips)	59.90	-
Rating	*50.6%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	4.16	-
Critical Moment (kip-ft)	153.21	-
Critical Moment Capacity	1739.01	-
Rating	*8.8%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	0.00	-
Critical Shear (kip)	3.45	-
Critical Shear Capacity	301.22	-
Rating	*1.1%*	-

Structural Foundation Rating	**8.8%**
Soil Interaction Rating	**50.6%**

Check Limitation	
Apply TIA-222-H Section 15.5:	☐
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☑
Shear Design Options	
Check Shear along Depth of Pier:	☐
N/A	☐
N/A	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	None	# of Layers	4

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	100	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	4	2	100	150	0	28	0.000	0.000	0.60	0.60			Cohesionless
3	4	9	5	110	150	0	32	0.000	0.000	0.60	0.60			Cohesionless
4	9	12.5	3.5	110	150	0	38	0.000	0.000	0.60	0.60	3		Cohesionless

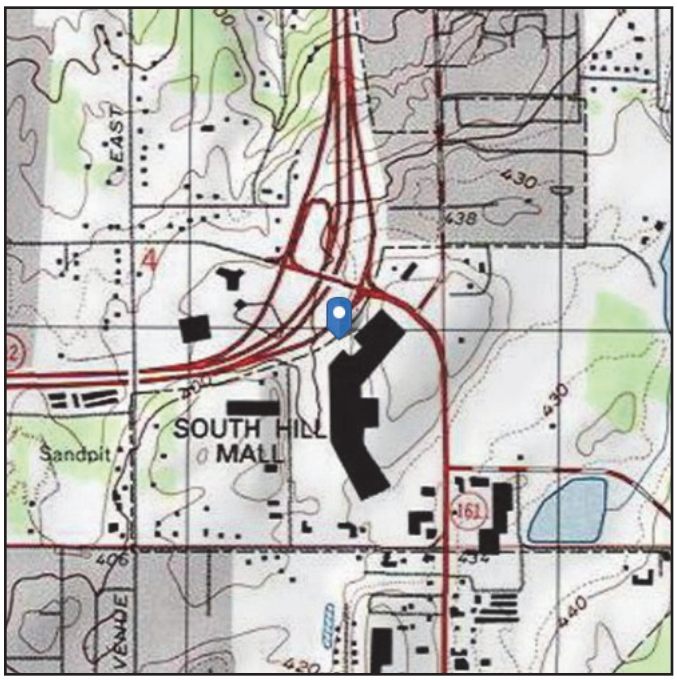
PRCTI20221786

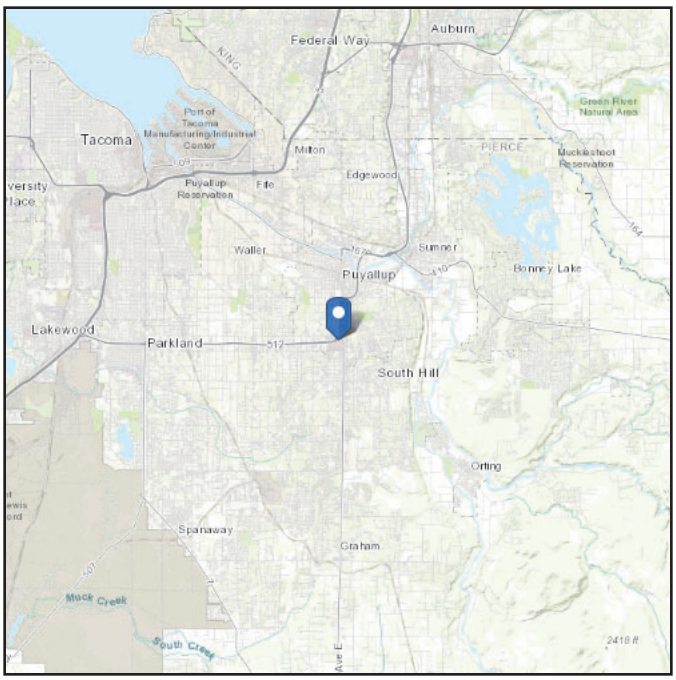
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 438.33 ft (NAVD 88)
Latitude: 47.159739
Longitude: -122.2966





Wind

Results:

Wind Speed	97 Vmph
10-year MRI	67 Vmph
25-year MRI	73 Vmph
50-year MRI	78 Vmph
100-year MRI	83 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon Sep 12 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

PRCTI20221786

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	25 F
Gust Speed	30 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Mon Sep 12 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

PRCTI20221786

APPENDIX D
SEISMIC CALCUALTIONS

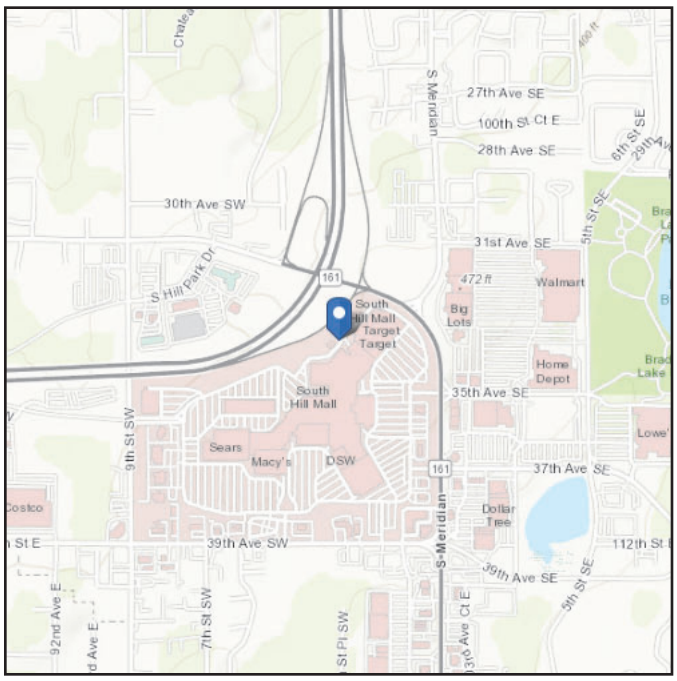
PRCTI20221786

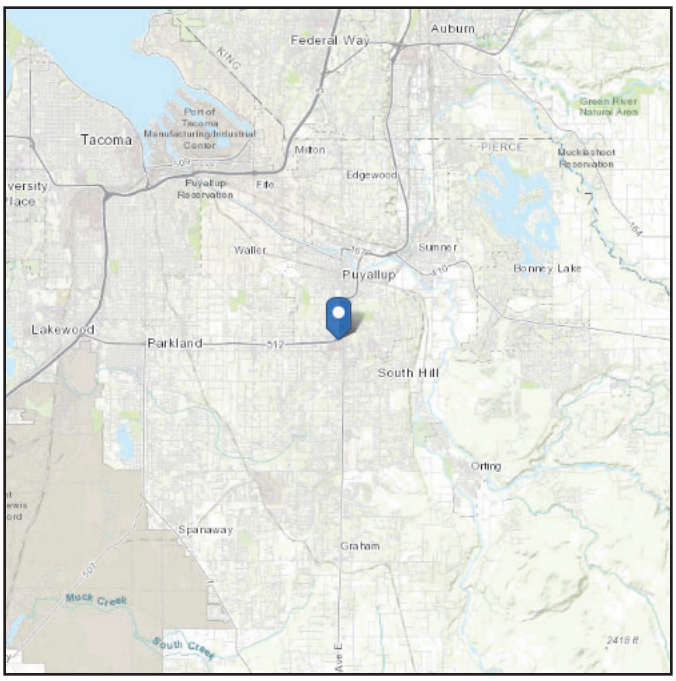
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 438.33 ft (NAVD 88)
Latitude: 47.159739
Longitude: -122.2966





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Seismic

Site Soil Class: D - Stiff Soil

Results:

S_S :	1.264	S_{D1} :	N/A
S_1 :	0.436	T_L :	6
F_a :	1	PGA :	0.5
F_v :	N/A	PGA_M :	0.55
S_{MS} :	1.264	F_{PGA} :	1.1
S_{M1} :	N/A	I_e :	1
S_{DS} :	0.843	C_v :	1.353

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Mon Sep 12 2022

Date Source: USGS Seismic Design Maps

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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PRCTI20221786

Morrison Hershfield	Site ID#: 75042-A / ORBIT	SK-8
thaile		Sep 12, 2022
MAS-532R2 / 2200078		MAS-532R2 SDD_Seismic.r3d

Model Settings

Solution

Members

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Wall Panels

Approximate Mesh Size (in)	24
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	No
Maximum Number of Iterations	3

Processor Core Utilization

Single	No
Multiple (Optimum)	Yes
Maximum	No

Axis

Vertical Global Axis

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes

Default Member Orientation

Default Global Plane for z-axis	XZ

Plate Axis

Plate Local Axis Orientation	Nodal

Codes

Hot Rolled Steel	AISC 3rd: LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 14th (360-10): ASD
Cold Formed Steel	None
Stiffness Adjustment	Yes (Iterative)
Wood	None
Temperature	< 100F
Concrete	None
Masonry	TMS 402-16: ASD
Aluminum	AA ADM1-15: ASD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): ASD
Stiffness Adjustment	Yes (Iterative)

Concrete

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	No
List forces which were ignored for design in the Detail Report	Yes

Rebar

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615

Model Settings (Continued)

Warn if beam-column framing arrangement is not understood	No

Shear Reinforcement

Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Seismic

RISA-3D Seismic Load Options

Code	ASCE 7-16
Risk Category	I or II
Drift Cat	Other
Base Elevation (ft)	0
Include the weight of the structure in base shear calcs	No

Site Parameters

S_1 (g)	1.43
SD_1 (g)	0.54
SD_S (g)	0.84
T_L (sec)	6

Structure Characteristics

T Z (sec)	1.12
T X (sec)	1.12
C_tX	0.02
C_tExp. Z	0.75
C_tExp. X	0.75
R Z	1.5
R X	1.5
Ω_oZ	1.5
Ω_oX	1.5
C_dZ	4
C_dX	4
ρ Z	1
ρ X	1

Dynamic Data

Number Of Modes	24
Load Combination Number	Seismic Weight
Acceleration of Gravity	32.2 (ft/sec^2)
Convergence Tolerance	0.0001

Seismic Load Generator

SEISMIC GENERATION INPUT

Seismic Code: **ASCE 7-16** Risk Category: **I or II** Seismic Weight LC: **LC 1: Seismic Weight**

Base Elevation: **0** ft S_{D1}: **0.54** g S_{DS}: **0.84** g S_1: **1.43** g T_L: **6** sec

Z-Direction Parameters

C_{TZ}: **0.02** T_Z: **1.12** sec

C_{TZ_Exp}: **0.75** R_Z: **1.5**

X-Direction Parameters

C_{TX}: **0.02** T_X: **1.12** sec

C_{TX_Exp}: **0.75** R_X: **1.5**

SEISMIC GENERATION DETAIL RESULTS

Importance Factor: **1** Design Category: **E**

Period Determination:

Z - Direction		X - Direction	
T_{aZ}: **0.53** s		T_{aX}: **0.53** s	
$T_{Z,LIMIT}$: **0.742** s		$T_{X,LIMIT}$: **0.742** s	
T_Z: 1.12 s	*User Input*	**T_X: 1.12** s	*User Input*

Base Shear Determination

C_{SZ}: **0.477** s		C_{SX}: **0.477** s	
V_Z: 3.588 kips	*ASCE Eqn 12.8-6*	**V_X: 3.588 kips**	*ASCE Eqn 12.8-6*

SEISMIC GENERATION FORCE RESULTS

Floor Level	Height (ft)	Weight (kips)	Force Z (kips)	Force X (kips)	CG Z (ft)	CG X (ft)
Diaphragm : 1	79	1.435	0.937	0.937	0	0
Diaphragm : 2	64	1.456	0.721	0.721	0	0
Diaphragm : 3	56	4.636	1.929	1.929	0	0
Total:		7.526	3.588	3.588		

Frequencies and Participation

	Mode	Frequency (Hz)	Period (Sec)	SX Participation	SY Participation	SZ Participation
1	1	0.89	1.123			37.26
2	2	0.89	1.123	37.26		
3	3	2.558	0.391	30.185		
4	4	2.558	0.391			30.185
5	5	6.541	0.153			1.404
6	6	6.541	0.153	1.404		
7	7	17.788	0.056	0.094		
8	8	17.788	0.056			0.094
9	9	34.798	0.029			
10	10	34.798	0.029			
11	11	43.968	0.023		63.212	
12	12	96.246	0.01		5.403	
13	13	130.95	0.008			
14	14	130.95	0.008			
15	15	161.927	0.006		0.332	
16	16	287.687	0.003			
17	17	395.386	0.003			
18	18	395.386	0.003			
19	19	415.741	0.002			
20	20	918.773	0.001			
21	21	3586.861	0			
22	22	1.64588e+10	0	31.046		
23	23	1.64588e+10	0		31.046	
24	24	1.64588e+10	0			31.046
25	Totals:			100	100	100

Spectra Scaling Factor

Seismic Generation Input

Seismic Code:	ASCE 7-16				
C_tZ:	0.02	T Z (sec):	1.12	R Z:	1.5
C_tX:	0.02	T X (sec):	1.12	R X:	1.5
C_tExp. Z:	0.75	C_tExp. X:	0.75	Seismic Weight LC:	0
Risk Category:	I or II	T_L(sec):	6		
SD_1(g):	0.54	SD_S(g):	0.84	S_1(g):	1.43

Seismic Generation Detail Results

T Z Used (sec):	0	T Z Method A:	0	T Z Upper Limit:	0
T X Used (sec):	0	T X Method A:	0	T X Upper Limit:	0
Importance Fac.:	0	Design Cat:			
V Z (k):	-1	Gov. Eqn.:			
V X (k):	-1	Gov. Eqn.:			

Total Seismic

Weight (k):	0

Static Base Shear Z (k):	3.59	Unscaled Base Shear Z (k):	0	Multiplier Z:	1
Static Base Shear X (k):	3.59	Unscaled Base Shear X (k):	0	Multiplier X:	1

Scaling Factor Z:	1	Scaling Factor X:	1	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Seismic Weight			1	1								
2	ASCE Strength 6 (a)	Yes	Y	DL	1.2	Sds*DL	0.2	SX*SF	1	LL	0.5	LLS	1
3	ASCE Strength 6 (b)	Yes	Y	DL	1.2	Sds*DL	0.2	SZ*SF	1	LL	0.5	LLS	1
4	ASCE Strength 6 (c)	Yes	Y	DL	1.2	Sds*DL	0.2	SX*SF	-1	LL	0.5	LLS	1
5	ASCE Strength 6 (d)	Yes	Y	DL	1.2	Sds*DL	0.2	SZ*SF	-1	LL	0.5	LLS	1
6	ASCE Strength 7 (a)	Yes	Y	DL	0.9	Sds*DL	-0.2	SX*SF	1				
7	ASCE Strength 7 (b)	Yes	Y	DL	0.9	Sds*DL	-0.2	SZ*SF	1				
8	ASCE Strength 7 (c)	Yes	Y	DL	0.9	Sds*DL	-0.2	SX*SF	-1				
9	ASCE Strength 7 (d)	Yes	Y	DL	0.9	Sds*DL	-0.2	SZ*SF	-1				
10	ASCE Strength 6 (os-a)	Yes	Y	DL	1.2	Sds*DL	0.2	Om*SX*SF	1	LL	0.5	LLS	1
11	ASCE Strength 6 (os-b)	Yes	Y	DL	1.2	Sds*DL	0.2	Om*SZ*SF	1	LL	0.5	LLS	1
12	ASCE Strength 6 (os-c)	Yes	Y	DL	1.2	Sds*DL	0.2	Om*SX*SF	-1	LL	0.5	LLS	1
13	ASCE Strength 6 (os-d)	Yes	Y	DL	1.2	Sds*DL	0.2	Om*SZ*SF	-1	LL	0.5	LLS	1
14	ASCE Strength 7 (os-a)	Yes	Y	DL	0.9	Sds*DL	-0.2	Om*SX*SF	1				
15	ASCE Strength 7 (os-b)	Yes	Y	DL	0.9	Sds*DL	-0.2	Om*SZ*SF	1				
16	ASCE Strength 7 (os-c)	Yes	Y	DL	0.9	Sds*DL	-0.2	Om*SX*SF	-1				
17	ASCE Strength 7 (os-d)	Yes	Y	DL	0.9	Sds*DL	-0.2	Om*SZ*SF	-1				

Member Detailing Data

	Label	I Cardinal Point	Ix Offset [in]	Iy Offset [in]	Iz Offset [in]	J Cardinal Point	Jx Offset [in]	Jy Offset [in]	Jz Offset [in]
1	M1	10	0	0	0	10	0	0	0
2	M2	10	0	0	0	10	0	0	0
3	M3	10	0	0	0	10	0	0	0
4	M4	10	0	0	0	10	0	0	0

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N5	max	3.814	8	15.921	5	3.814	5	193.018	9	0	9	192.958	8
2		min	-3.814	2	8.519	6	-3.814	7	-193.256	3	0	2	-193.37	2
3	Totals:	max	3.814	8	15.921	5	3.814	5						
4		min	-3.814	2	8.519	6	-3.814	7						

Envelope Node Reactions - Overstrength or Capacity Limit

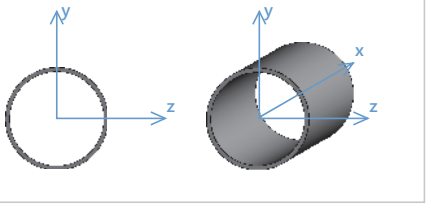
	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N5	max	5.721	16*	15.921	13*	5.721	17*	289.569	17*	0	17*	289.508	16*
2		min	-5.721	10*	8.519	14*	-5.721	11*	-289.807	11*	0	10*	-289.921	10*
3	Totals:	max	5.721	16*	15.921	13*	5.721	17*						
4		min	-5.721	10*	8.519	14*	-5.721	11*						

PRCTI20221786

Company : Morrison Hershfield
Designer : thaile
Job Number : 75042-A / ORBIT
Model Name : MAS-532R2 / 2200078

9/11/2022
10:10:01 PM
Checked By : _____

Detail Report: M1 **Unity Check:** 0.361 (LC 4) **Load Combination:** Envelope



Input Data:

Shape:	'ipe 6.625 x 0.280 (6 STD)	I Node:	N2
Member Type:	Column	J Node:	N1
Length (ft):	10	I Release:	Fixed
Material Type:	Hot Rolled Steel	J Release:	Fixed
Design Rule:	Typical	I Offset (in):	N/A
Number of Internal Sections:	97	J Offset (in):	N/A

Material Properties:

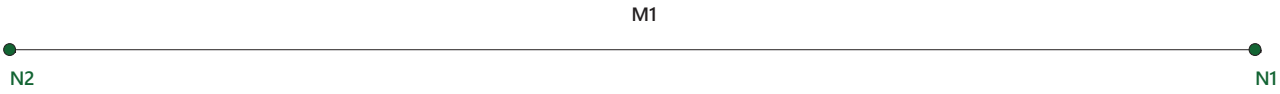
Material:	A53-B-35	Therm. Coeff. ($1e^5°F^{-1}$):	0.65	R_y:	1.5
E (ksi):	29000	Density (k/ft^3):	0.49	F_u (ksi):	58
G (ksi):	11200	F_y (ksi):	35	R_t:	1.2
Nu:	0.29				

Shape Properties:

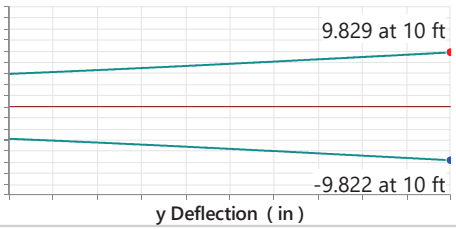
d (in):	6.62	Area (in^2):	5.58	I_{yy} (in^4):	28.14
t (in):	0.28	J (in^4):	56.28	I_{zz} (in^4):	28.14
Z (in^3):	11.28				

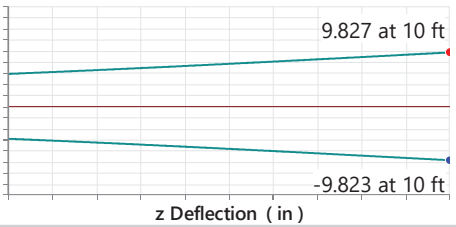
Design Properties:

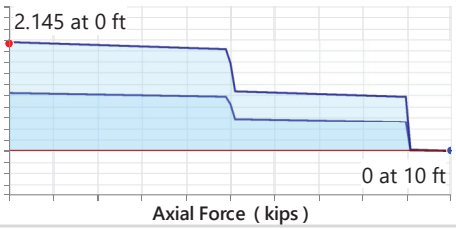
$L_{b\ y-y}$ (ft):	1	K_{y-y}:	N/A	Max Defl Ratio:	L/30
$L_{b\ z-z}$ (ft):	1	K_{z-z}:	N/A	Max Defl Location:	0
$L_{comp\ top}$ (ft):	1	y sway:	No	Span:	N/A
$L_{comp\ bot}$ (ft):	1	z sway:	No		
C_b:	1	Function:	Lateral		
$C_{m\ y-y}$:	30.99	Seismic DR:	None		
$C_{m\ z-z}$:	N/A				

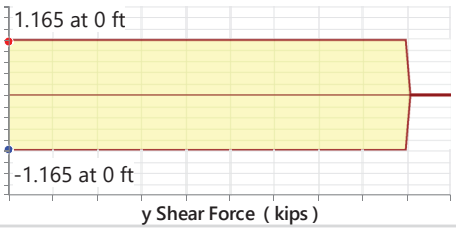


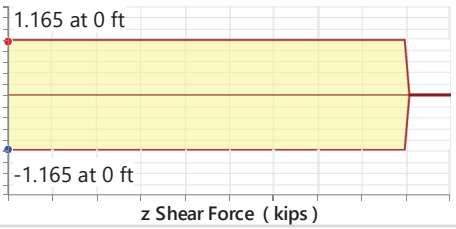
Diagrams:

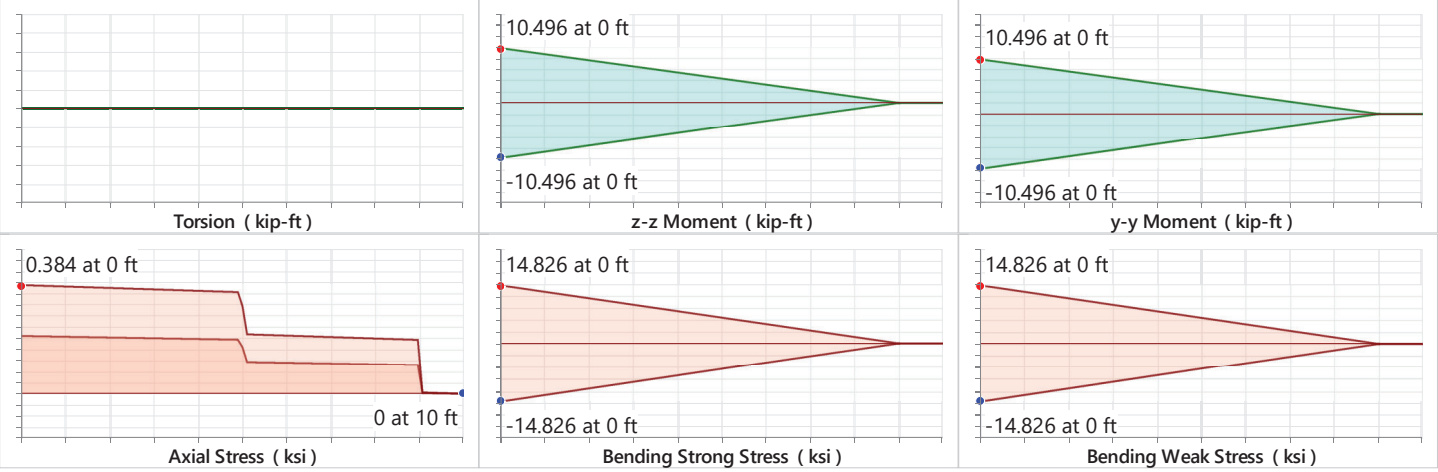












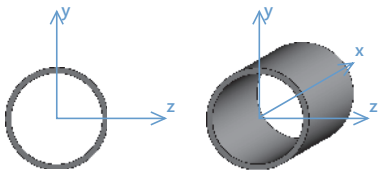
AISC 3rd: LRFD Code Check

Gov Unity Eq:	HSS 7.1-2	Cb:	1	Max Defl Ratio:	L/30
Max Bending Loc:	0 ft	KL/r (y-y):	0		
Max Shear Loc:	8.958 ft	KL/r (z-z):	0		
		L Comp Flange:	1 ft		

NonCompact

Limit State	Gov. LC	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	4	-	-	-	-
Applied Loading - Shear + Torsion	4	-	-	-	-
Axial Tension Analysis		-	175.813 k	-	-
Axial Compression Analysis		-	166.045 k	-	-
Flexural Analysis		-	29.61 k-ft	-	-
Shear Analysis		-	52.744 k	0.022	Pass
Bending & Axial Interaction Check (UC Bending Max)		-	-	0.361	Pass
Torsional Analysis		-	27.888 k-ft	-	-

Detail Report: M2 **Unity Check:** 0.281 (LC 4) **Load Combination:** Envelope



Input Data:

Shape:	ipe 8.625" x 0.500" (8 XS)	I Node:	N3
Member Type:	Column	J Node:	N2
Length (ft):	10	I Release:	Fixed
Material Type:	Hot Rolled Steel	J Release:	Fixed
Design Rule:	Typical	I Offset (in):	N/A
Number of Internal Sections:	97	J Offset (in):	N/A

Material Properties:

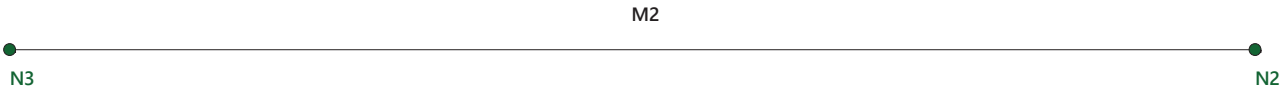
Material:	A53-B-35	Therm. Coeff. ($1e^5°F^{-1}$):	0.65	R_y:	1.5
E (ksi):	29000	Density (k/ft^3):	0.49	F_u (ksi):	58
G (ksi):	11200	F_y (ksi):	35	R_t:	1.2
Nu:	0.29				

Shape Properties:

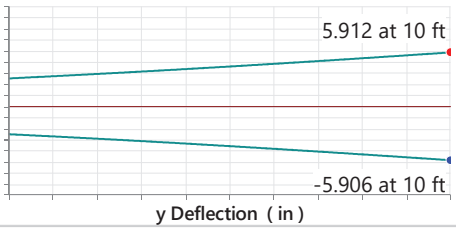
d (in):	8.62	Area (in^2):	12.76	I_{yy} (in^4):	105.72
t (in):	0.5	J (in^4):	211.43	I_{zz} (in^4):	105.72
Z (in^3):	33.05				

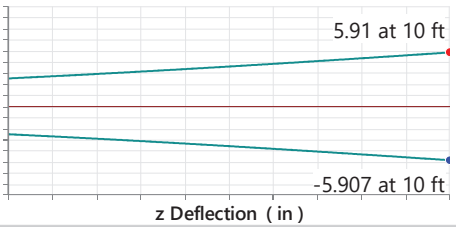
Design Properties:

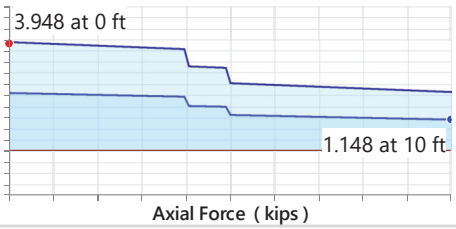
$L_{b\ y-y}$ (ft):	1	K_{y-y}:	N/A	Max Defl Ratio:	L/42
$L_{b\ z-z}$ (ft):	1	K_{z-z}:	N/A	Max Defl Location:	0
$L_{comp\ top}$ (ft):	1	y sway:	No	Span:	N/A
$L_{comp\ bot}$ (ft):	1	z sway:	No		
C_b:	1	Function:	Lateral		
$C_{m\ y-y}$:	90.73	Seismic DR:	None		
$C_{m\ z-z}$:	N/A				

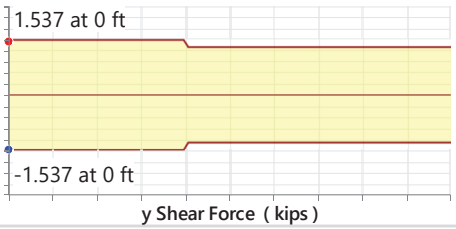


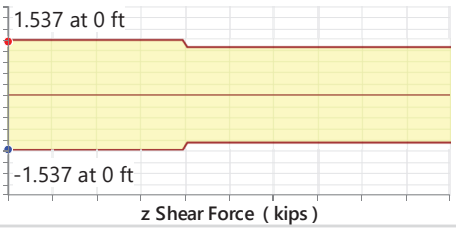
Diagrams:

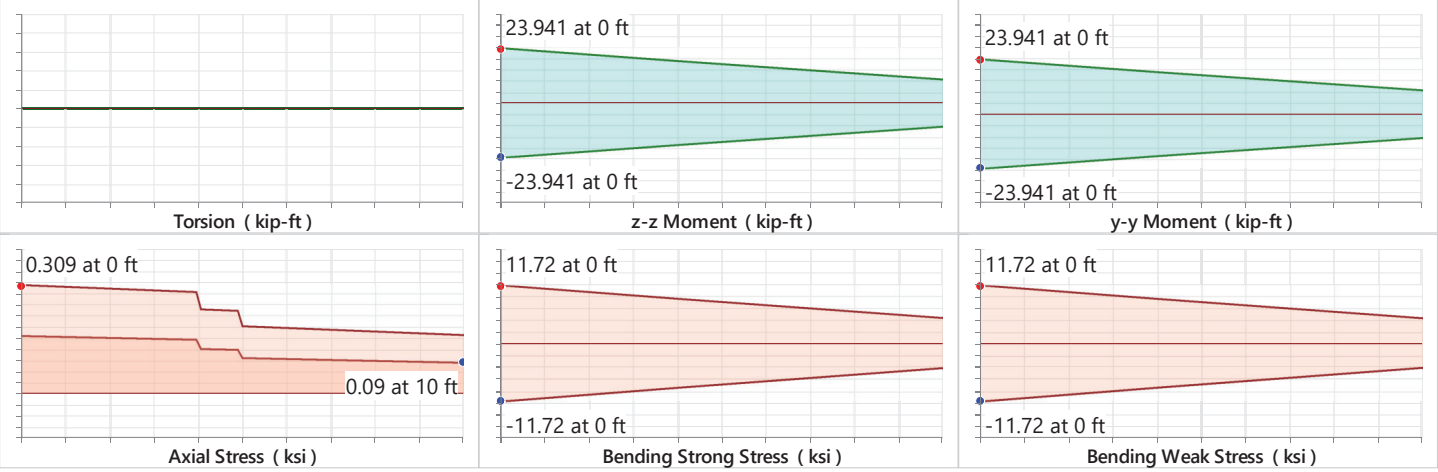












AISC 3rd: LRFD Code Check

Gov Unity Eq:	HSS 7.1-2	Cb:	1	Max Defl Ratio:	L/42
Max Bending Loc:	0 ft	KL/r (y-y):	0		
Max Shear Loc:	3.958 ft	KL/r (z-z):	0		
		L Comp Flange:	1 ft		

NonCompact

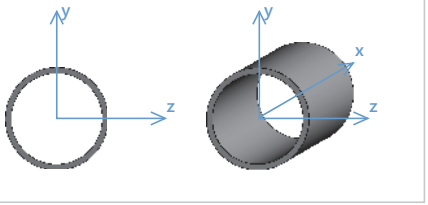
Limit State	Gov. LC	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	4	-	-	-	-
Applied Loading - Shear + Torsion	4	-	-	-	-
Axial Tension Analysis		-	402.026 k	-	-
Axial Compression Analysis		-	379.691 k	-	-
Flexural Analysis		-	86.755 k-ft	-	-
Shear Analysis		-	120.608 k	0.013	Pass
Bending & Axial Interaction Check (UC Bending Max)		-	-	0.281	Pass
Torsional Analysis		-	81.661 k-ft	-	-

PRCTI20221786

Company : Morrison Hershfield
Designer : thaile
Job Number : 75042-A / ORBIT
Model Name : MAS-532R2 / 2200078

9/11/2022
10:23:29 PM
Checked By : _____

Detail Report: M3 **Unity Check:** 0.493 (LC 4) **Load Combination:** Envelope



Input Data:

Shape:	ipe 8.625" x 0.500" (8 XS)	I Node:	N4
Member Type:	Column	J Node:	N3
Length (ft):	12	I Release:	Fixed
Material Type:	Hot Rolled Steel	J Release:	Fixed
Design Rule:	Typical	I Offset (in):	N/A
Number of Internal Sections:	97	J Offset (in):	N/A

Material Properties:

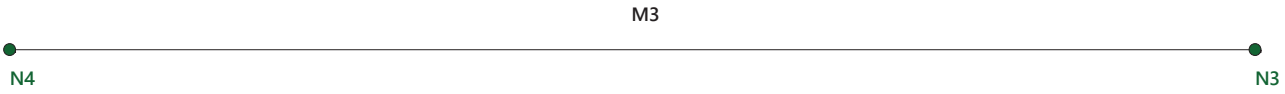
Material:	A53-B-35	Therm. Coeff. ($1e^5°F^{-1}$):	0.65	R_y:	1.5
E (ksi):	29000	Density (k/ft^3):	0.49	F_u (ksi):	58
G (ksi):	11200	F_y (ksi):	35	R_t:	1.2
Nu:	0.29				

Shape Properties:

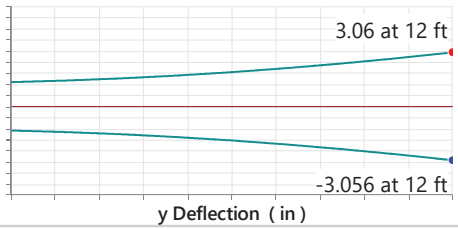
d (in):	8.62	Area (in^2):	12.76	I_{yy} (in^4):	105.72
t (in):	0.5	J (in^4):	211.43	I_{zz} (in^4):	105.72
Z (in^3):	33.05				

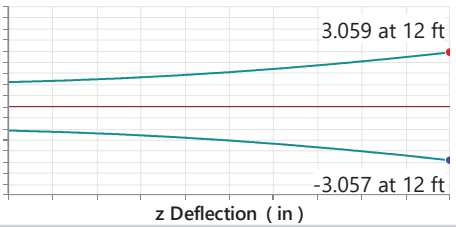
Design Properties:

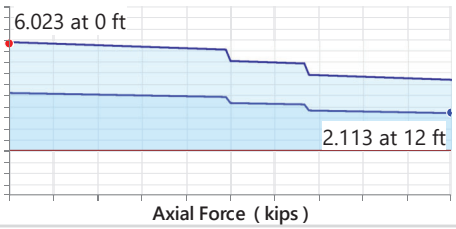
$L_{b\ y-y}$ (ft):	1	K_{y-y}:	N/A	Max Defl Ratio:	L/85
$L_{b\ z-z}$ (ft):	1	K_{z-z}:	N/A	Max Defl Location:	0
$L_{comp\ top}$ (ft):	1	y sway:	No	Span:	N/A
$L_{comp\ bot}$ (ft):	1	z sway:	No		
C_b:	1	Function:	Lateral		
$C_{m\ y-y}$:	90.73	Seismic DR:	None		
$C_{m\ z-z}$:	N/A				

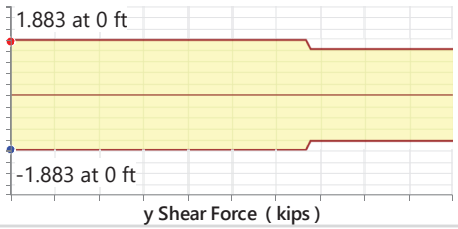


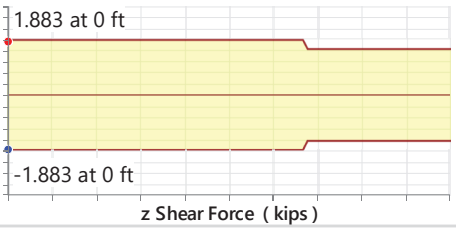
Diagrams:

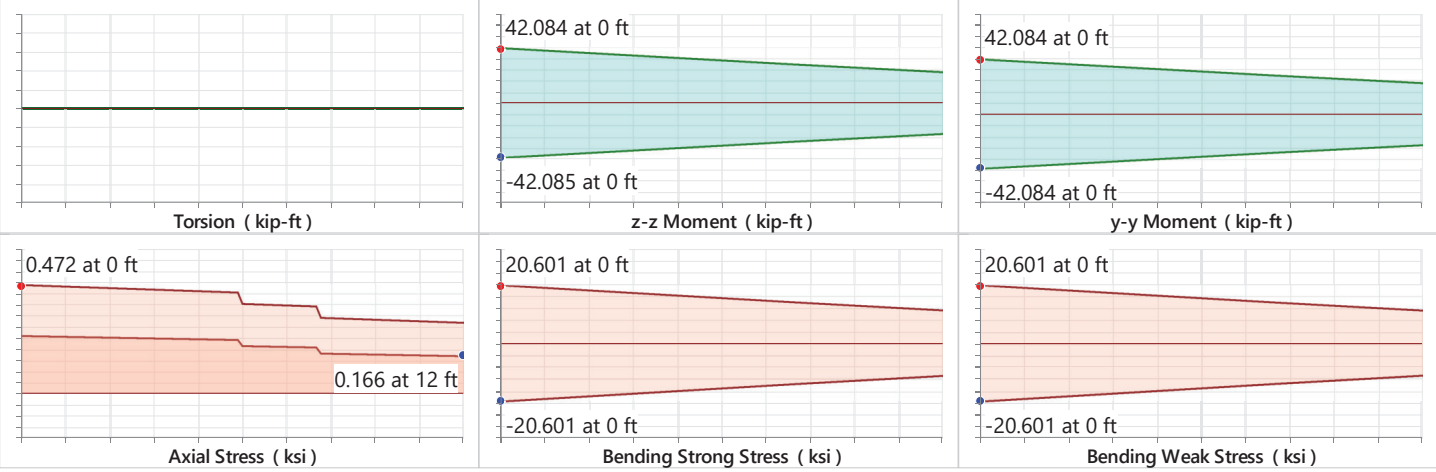












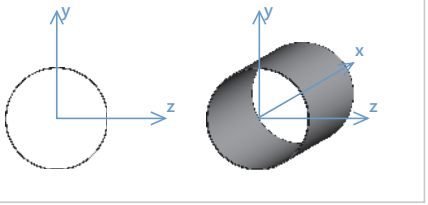
AISC 3rd: LRFD Code Check

Gov Unity Eq:	HSS 7.1-2	Cb:	1	Max Defl Ratio:	L/85
Max Bending Loc:	0 ft	KL/r (y-y):	0		
Max Shear Loc:	8 ft	KL/r (z-z):	0		
		L Comp Flange:	1 ft		

NonCompact

Limit State	Gov. LC	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	4	-	-	-	-
Applied Loading - Shear + Torsion	4	-	-	-	-
Axial Tension Analysis		-	402.026 k	-	-
Axial Compression Analysis		-	379.691 k	-	-
Flexural Analysis		-	86.755 k-ft	-	-
Shear Analysis		-	120.608 k	0.016	Pass
Bending & Axial Interaction Check (UC Bending Max)		-	-	0.493	Pass
Torsional Analysis		-	81.661 k-ft	-	-

Detail Report: M4 **Unity Check:** 0.15 (LC 4) **Load Combination:** Envelope



Input Data:

Shape:	P36x0.375	I Node:	N5
Member Type:	Column	J Node:	N4
Length (ft):	47	I Release:	Fixed
Material Type:	Hot Rolled Steel	J Release:	Fixed
Design Rule:	Typical	I Offset (in):	N/A
Number of Internal Sections:	97	J Offset (in):	N/A

Material Properties:

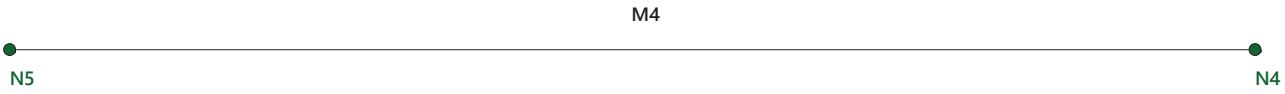
Material:	API 5LX42	Therm. Coeff. ($1e^5°F^{-1}$):	0.65	R_y:	1.3
E (ksi):	29000	Density (k/ft^3):	0.49	F_u (ksi):	58
G (ksi):	11600	F_y (ksi):	42.1	R_t:	1.1
Nu:	0.25				

Shape Properties:

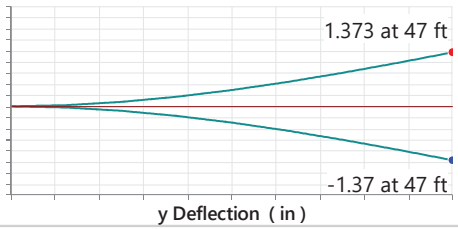
d (in):	36	Area (in^2):	41.97	I_{yy} (in^4):	6658.92
t (in):	0.38	J (in^4):	13317.84	I_{zz} (in^4):	6658.92
Z (in^3):	475.95				

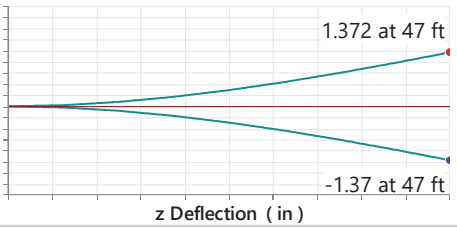
Design Properties:

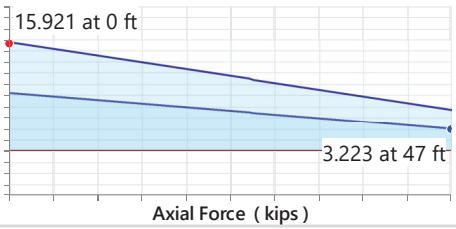
$L_{b\ y-y}$ (ft):	2.35	K_{y-y}:	N/A	Max Defl Ratio:	L/410
$L_{b\ z-z}$ (ft):	2.35	K_{z-z}:	N/A	Max Defl Location:	0
$L_{comp\ top}$ (ft):	2.35	y sway:	No	Span:	N/A
$L_{comp\ bot}$ (ft):	2.35	z sway:	No		
C_b:	1	Function:	Lateral		
$C_{m\ y-y}$:	1573.67	Seismic DR:	None		
$C_{m\ z-z}$:	N/A				

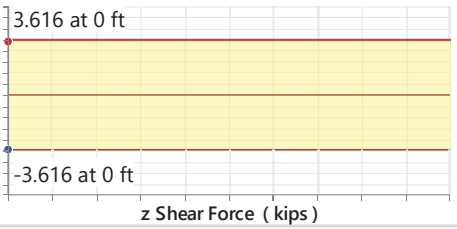


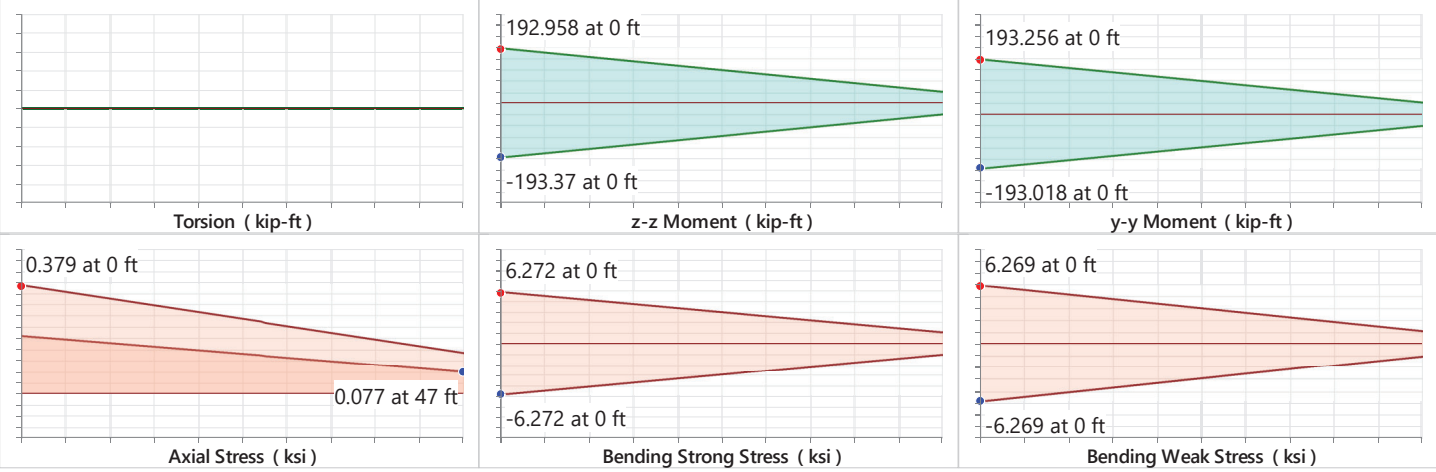
Diagrams:











AISC 3rd: LRFD Code Check

Gov Unity Eq:	HSS 7.1-2	Cb:	1	Max Defl Ratio:	L/410
Max Bending Loc:	0 ft	KL/r (y-y):	0		
Max Shear Loc:	47 ft	KL/r (z-z):	0		
		L Comp Flange:	2.35 ft		

Slender (Qs= 1, Qa= 0.94)

Limit State	Gov. LC	Required	Available	Unity Check	Result
Applied Loading - Bending/Axial	4	-	-	-	-
Applied Loading - Shear + Torsion	4	-	-	-	-
Axial Tension Analysis		-	1590.232 k	-	-
Axial Compression Analysis		-	1410.025 k	-	-
Flexural Analysis		-	1341.582 k-ft	-	-
Shear Analysis		-	477.07 k	0.008	Pass
Bending & Axial Interaction Check (UC Bending Max)		-	-	0.15	Pass
Torsional Analysis		-	1416.301 k-ft	-	-

Model Settings

Solution
Members

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Wall Panels

Approximate Mesh Size (in)	24
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	No
Maximum Number of Iterations	3

Processor Core Utilization

Single	No
Multiple (Optimum)	Yes
Maximum	No

Axis
Vertical Global Axis

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes

Default Member Orientation

Default Global Plane for z-axis	XZ

Plate Axis

Plate Local Axis Orientation	Nodal

Codes

Hot Rolled Steel	AISC 3rd: LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 14th (360-10): ASD
Cold Formed Steel	None
Stiffness Adjustment	Yes (Iterative)
Wood	None
Temperature	< 100F
Concrete	None
Masonry	TMS 402-16: ASD
Aluminum	AA ADM1-15: ASD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): ASD
Stiffness Adjustment	Yes (Iterative)

Concrete

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	Yes

Model Settings (Continued)

List forces which were ignored for design in the Detail Report	Yes

Rebar

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No

Shear Reinforcement

Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Seismic

RISA-3D Seismic Load Options

Code	ASCE 7-16
Risk Category	I or II
Drift Cat	Other
Base Elevation (ft)	0
Include the weight of the structure in base shear calcs	No

Site Parameters

S_1 (g)	0.436
SD_1 (g)	0.542
SD_s (g)	0.843
T_L (sec)	6

Structure Characteristics

T Z (sec)	
T X (sec)	
C_tZ	0.02
C_tX	0.02
C_tExp. Z	0.75
C_tExp. X	0.75
R Z	1.5
R X	1.5
Ω_0Z	1.5
Ω_0X	1.5
C_dZ	4
C_dX	4
ρ Z	1
ρ X	1

General Materials Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Plate Methodology
1	gen_Conc3NW	3155	1372	0.15	0.6	0.145	Isotropic
2	gen_Conc4NW	3644	1584	0.15	0.6	0.145	Isotropic
3	gen_Conc3LW	2085	906	0.15	0.6	0.11	Isotropic
4	gen_Conc4LW	2408	1047	0.15	0.6	0.11	Isotropic
5	gen_Alum	10100	4077	0.3	1.29	0.173	Isotropic
6	gen_Steel	29000	11154	0.3	0.65	0.49	Isotropic
7	gen_Plywood	1800	38	0	0.3	0.035	Isotropic
8	RIGID	1e+6		0.3	0	0	Isotropic
9	gen_Ortho	N/A	N/A	N/A	0.65	0.49	Orthotropic

Node Loads and Enforced Displacements (BLC 16 : P - F69_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Y	-2.145

Node Loads and Enforced Displacements (BLC 17 : M - I - F69_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MZ	10.5

Node Loads and Enforced Displacements (BLC 18 : V - I - F69_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	X	-1.17

Node Loads and Enforced Displacements (BLC 19 : M - II - F69_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MX	10.5

Node Loads and Enforced Displacements (BLC 20 : V - II - F69_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Z	1.17

Node Loads and Enforced Displacements (BLC 21 : P - F59_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Y	-3.95

Node Loads and Enforced Displacements (BLC 22 : M - I - F59_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MZ	23.941

Node Loads and Enforced Displacements (BLC 23 : V - I - F59_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	X	-1.537

Node Loads and Enforced Displacements (BLC 24 : M - II - F59_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MX	23.941

Node Loads and Enforced Displacements (BLC 25 : V - II - F59_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Z	1.537

Node Loads and Enforced Displacements (BLC 26 : P - F47_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Y	-6.023

Node Loads and Enforced Displacements (BLC 27 : M - I - F47_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MZ	42.085

Node Loads and Enforced Displacements (BLC 28 : V - I - F47_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	X	-1.88

Node Loads and Enforced Displacements (BLC 29 : M - II - F47_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	MX	42.084

Node Loads and Enforced Displacements (BLC 30 : V - II - F47_S)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/in, k*s²*in)]
1	LOR	L	Z	1.88

Basic Load Cases

	BLC Description	Category	Nodal
16	P - F69_S	None	1
17	M - I - F69_S	None	1
18	V - I - F69_S	None	1
19	M - II - F69_S	None	1
20	V - II - F69_S	None	1
21	P - F59_S	None	1
22	M - I - F59_S	None	1
23	V - I - F59_S	None	1
24	M - II - F59_S	None	1
25	V - II - F59_S	None	1
26	P - F47_S	None	1
27	M - I - F47_S	None	1
28	V - I - F47_S	None	1
29	M - II - F47_S	None	1
30	V - II - F47_S	None	1

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	Case I - F69_S	Yes	Y	16	1	17	1	18	1
2	Case II - F69_S	Yes	Y	16	1	19	1	20	1
3	Case I - F59_S	Yes	Y	21	1	22	1	23	1
4	Case II - F59_S	Yes	Y	21	1	24	1	25	1
5	Case I - F47_S	Yes	Y	26	1	27	1	28	1
6	Case II - F47_S	Yes	Y	26	1	29	1	30	1

PRCTI20221786

Monopole Flange Plate Connection

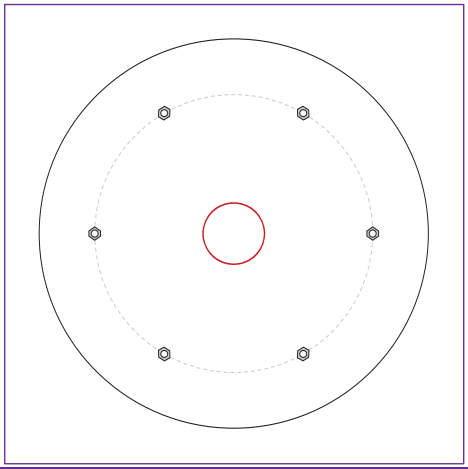
Elevation = 69 ft.

Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078
TIA-222 Revision	H

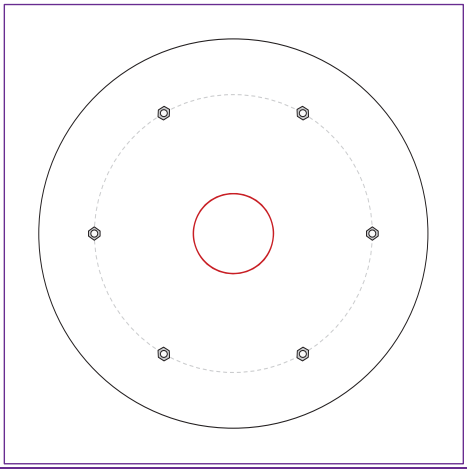
Applied Loads	
Moment (kip-ft)	10.50
Axial Force (kips)	2.15
Shear Force (kips)	1.17

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(6) 3/4" ø bolts (A325 X; Fy=92 ksi, Fu=120 ksi) on 30" BC

Top Plate Data

42" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

42" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

6.625" x 0.28" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

8.625" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	2.44	
Allowable (kips)	30.06	
Stress Rating:	**7.7%**	**Pass**

Analysis Date: 09/12/2022

PRCTI20221786

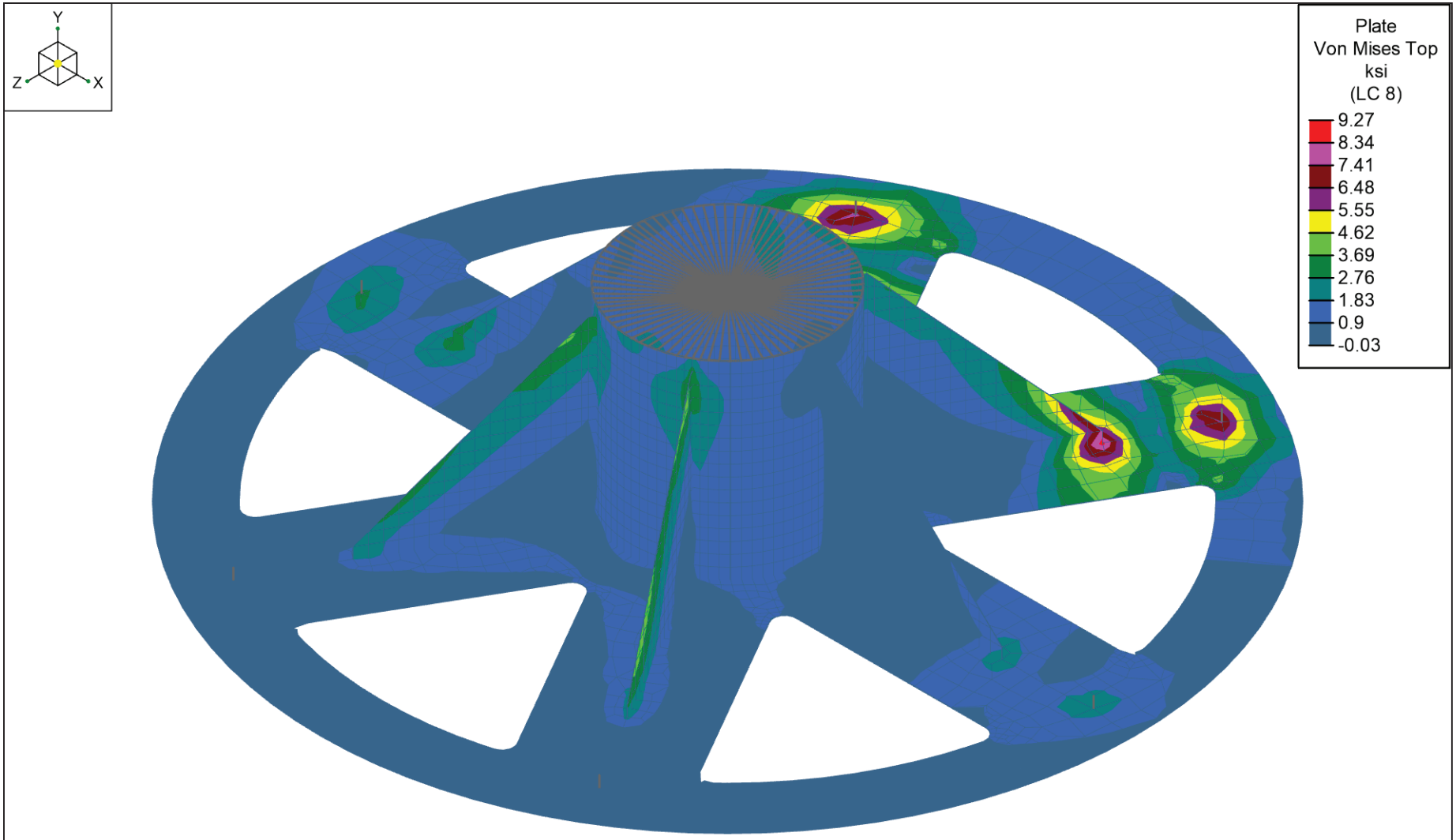


Plate Capacity = 9.27/50 = 18.5%

Results for LC 8, Case II - F69_S

Morrison Herhsfield	Site ID#: 75042-A / ORBIT	SK-5
THaile		Sep 12, 2022
MAS-532R2 / 2200078		Spoke Plate Analysis.r3d

PRCTI20221786

Monopole Flange Plate Connection

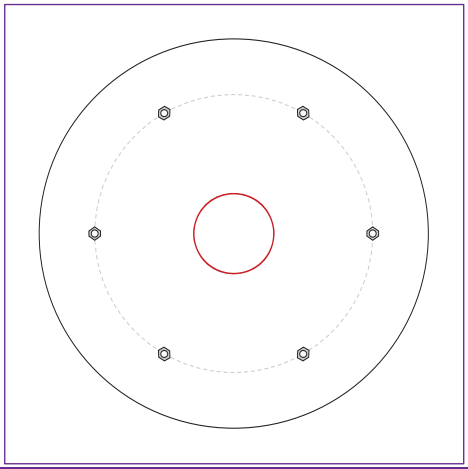
Elevation = 59 ft.

Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078
TIA-222 Revision	H

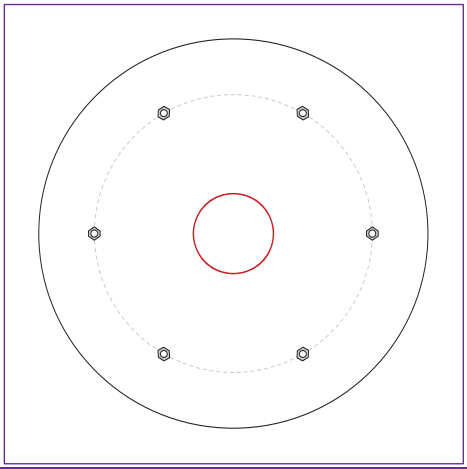
Applied Loads	
Moment (kip-ft)	23.94
Axial Force (kips)	3.95
Shear Force (kips)	1.54

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(6) 3/4" ø bolts (A325 X; Fy=92 ksi, Fu=120 ksi) on 30" BC

Top Plate Data

42" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

42" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

8.625" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

8.625" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	9.15	
Allowable (kips)	30.06	
Stress Rating:	**29.0%**	**Pass**

Analysis Date: 09/12/2022

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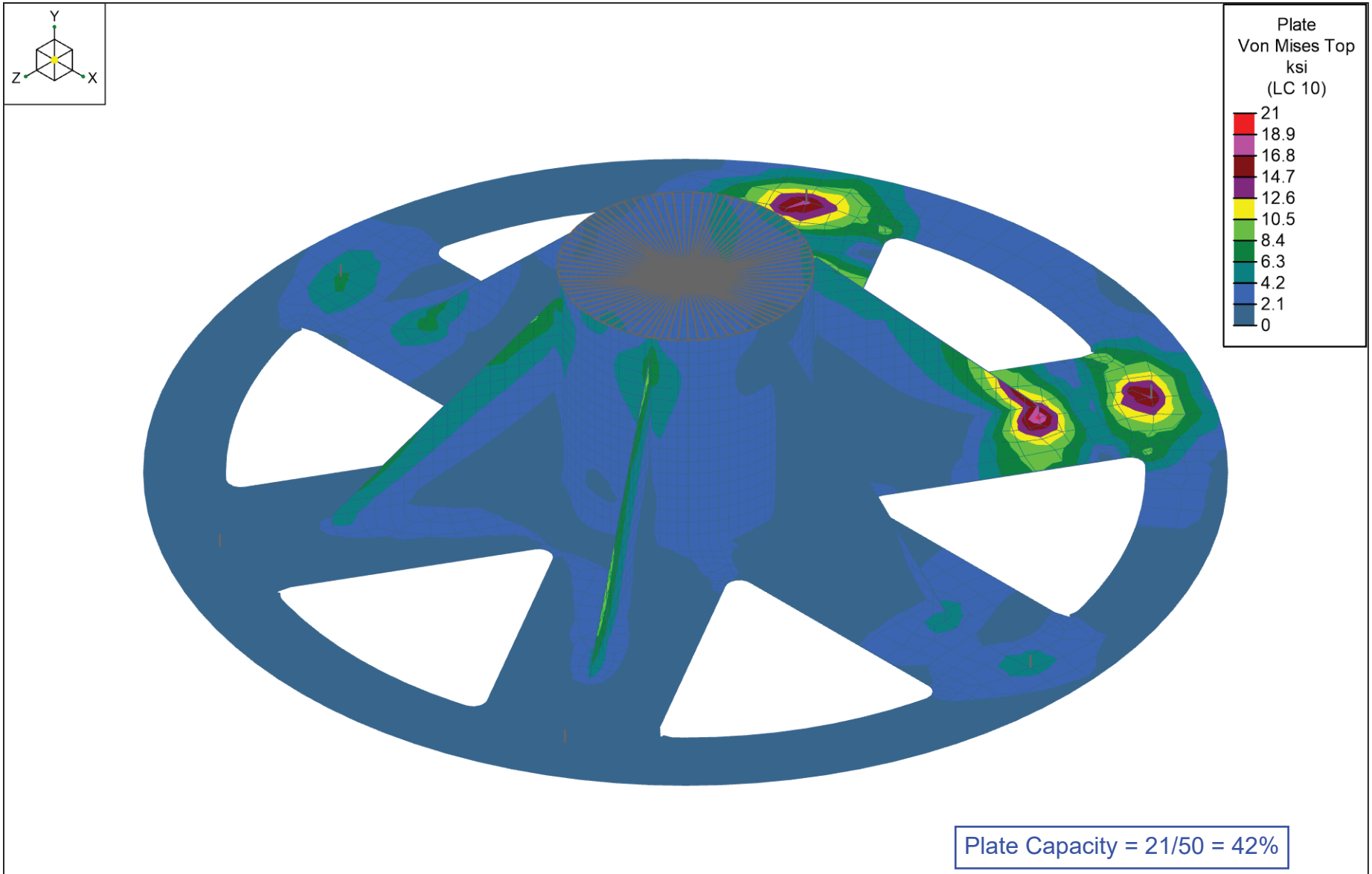


Plate Capacity = 21/50 = 42%

Results for LC 10, Case II - F59_S

Morrison Herhsfield	Site ID#: 75042-A / ORBIT	SK-6
THaile		Sep 12, 2022
MAS-532R2 / 2200078		Spoke Plate Analysis.r3d

PRCTI20221786

Monopole Flange Plate Connection

Elevation = 47 ft.

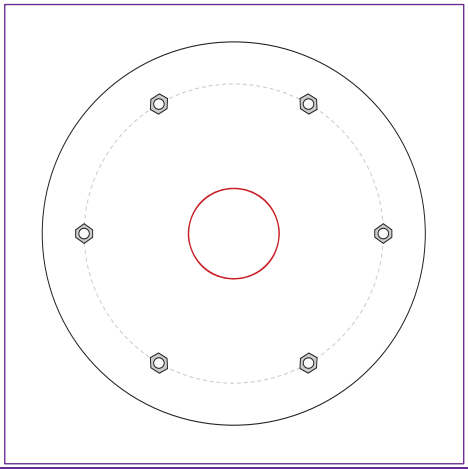
Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078

TIA-222 Revision	H

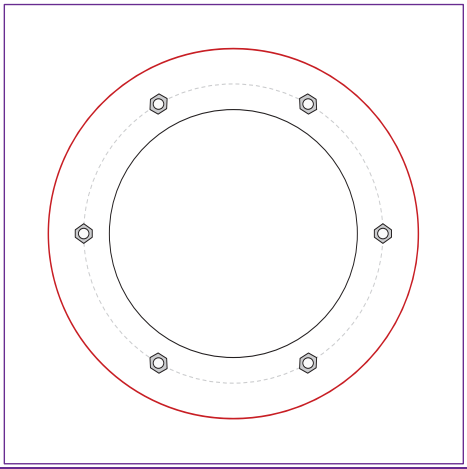
Applied Loads	
Moment (kip-ft)	42.09
Axial Force (kips)	6.02
Shear Force (kips)	1.88

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(6) 1" ø bolts (A490 X; Fy=130 ksi, Fu=150 ksi) on 28.5" BC

Top Plate Data

36.5" OD x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

23.625" ID x 0.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

8.625" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

36" x 0.375" round pole (API 5LX42; Fy=42.1 ksi, Fu=60.2 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	25.20	
Allowable (kips)	68.17	
Stress Rating:	**35.2%**	**Pass**

Analysis Date: 09/12/2022

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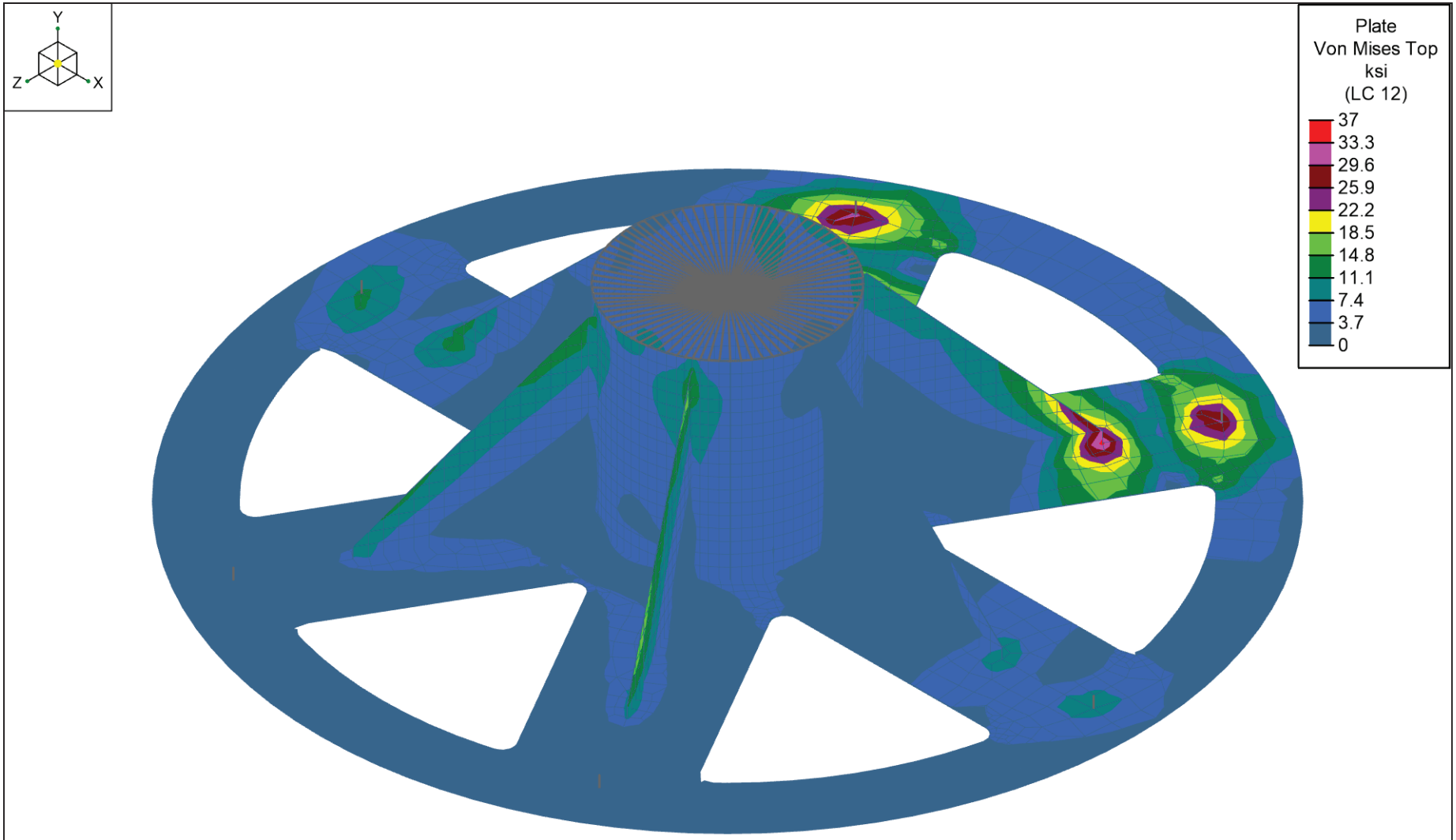


Plate Capacity = 37/50 = 74%

Results for LC 12, Case II - F47_S

Morrison Herhsfield	Site ID#: 75042-A / ORBIT	SK-7
THaile		Sep 12, 2022
MAS-532R2 / 2200078		Spoke Plate Analysis.r3d

PRCTI20221786

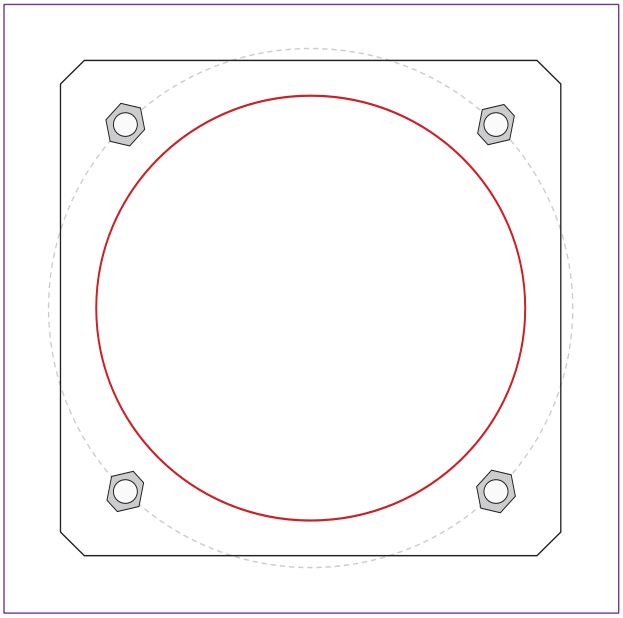
Monopole Base Plate Connection - Seismic

Site Info	
Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	289.81
Axial Force (kips)	15.92
Shear Force (kips)	5.72

**TIA-222-H Section 15.5 Applied*
*** Base Reactions include 1.50 overstrength factor*



Connection Properties

Anchor Rod Data

(4) 2" ø bolts (F1554-55 N; Fy=55 ksi, Fu=75 ksi) on 44" BC

Base Plate Data

42" W x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 2 in

Stiffener Data

N/A

Pole Data

36" x 0.375" round pole (API 5LX42; Fy=42.1 ksi, Fu=60.2 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 82.95	ϕPn_c = 155.51	**Stress Rating**
Vu = 1.43	ϕVn = 69.98	**50.8%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	25.21	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**53.4%**	**Pass**

Analysis Date: 9/11/2022

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Drilled Pier Foundation

Site Info	
Site ID:	75042-A
Site Name:	ORBIT
Project No:	MAS-532R2 / 2200078

TIA-222 Revison: H
Tower Type: Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	193.018	
Axial Force (kips)	15.921	
Shear Force (kips)	3.814	

Material Properties		
Concrete Strength, f'c:	4	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	12.5	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 12.5' below grade		
Pier Diameter	5	ft
Rebar Quantity	12	
Rebar Size	10	
Clear Cover to Ties	4	in
Tie Size	3	
Tie Spacing	4	in

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	3.89	-
Soil Safety Factor	4.07	-
Max Moment (kip-ft)	208.22	-
Rating	*32.7%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	74.22	-
End Bearing (kips)	44.18	-
Weight of Concrete (kips)	45.95	-
Total Capacity (kips)	118.40	-
Axial (kips)	61.87	-
Rating	*52.3%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	3.95	-
Critical Moment (kip-ft)	208.21	-
Critical Moment Capacity	1742.27	-
Rating	*12.0%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	0.00	-
Critical Shear (kip)	3.81	-
Critical Shear Capacity	300.40	-
Rating	*1.3%*	-

Structural Foundation Rating	**12.0%**
Soil Interaction Rating	**52.3%**

Check Limitation	
Apply TIA-222-H Section 15.5:	☐
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☑
Shear Design Options	
Check Shear along Depth of Pier:	☐
N/A	☐
N/A	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	None	# of Layers	4

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	100	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	4	2	100	150	0	28	0.000	0.000	0.60	0.60			Cohesionless
3	4	9	5	110	150	0	32	0.000	0.000	0.60	0.60			Cohesionless
4	9	12.5	3.5	110	150	0	38	0.000	0.000	0.60	0.60	3		Cohesionless

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APPENDIX E
RF DATA SHEET

PRCTI20221786

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	WAL03046	DATE:	03/23/2021	RF DESIGN ENG:	Gisele Lima
ISSUE:		Approved? (Y/N):	Yes	RF DESIGN PHONE:	4259193253
REVISION:	1	RF MANAGER:	Piero Rovani	RF DESIGN EMAIL:	gl013y@us.att.com
INITIATIVE /PROJECT:	V: (11/18/2021) Updated BBU, CellID, Propose CBand/DoD@79'V1: (03/23/2021) Initial RFDSExtend pole, We need 3' separation from C-Band and other Antennas.				

RF PERF ENG:	Aldin Hajiric	RFDS PROGRAM TYPE:	2022 5G NR Radio		
RF PERF PHONE:	4257538163	RFDS TECHNOLOGY:	5G NR 1SR CBAND		
RF PERF EMAIL:	ah263n@us.att.com	STATE/STATUS:	As Built/In Progress		
ADDITIONAL WORKFLOW NOTIFICATIONS:		RFDS ID:	4431681		
RFDS VERSION:	1.00	Created By:	jx615k	Updated By:	jx615k
UMTS FREQUENCY:		Date Created:	3/23/2021 2:27:53 PM	Date Updated:	11/18/2021 9:32:04 PM
LTE FREQUENCY:		Estimated SQIN:	11,312	Expiration :	
5G FREQUENCY:	CBAND, DoD	RER Initiative:		Calculation ID:	20211118212744112
I-PLAN JOB # 1:	WR_-RWOR-21-05275	IPLAN PRD GRP || SUB GRP #1:	5G NR Radio || 5G NR 1SR CBand		
I-PLAN JOB # 2:	WR_-RWOR-21-05271	IPLAN PRD GRP || SUB GRP #2:	5G NR Software Radio || 5G NR Activation		
I-PLAN JOB # 3:	WR_-RWOR-21-05274	IPLAN PRD GRP || SUB GRP #3:	5G NR Radio || 5G NR 1SR CBand		
I-PLAN JOB # 4:	WR_-RWOR-21-05273	IPLAN PRD GRP || SUB GRP #4:	5G NR Software Radio || 5G NR Activation		
I-PLAN JOB # 5:	WR_-RWOR-21-05272	IPLAN PRD GRP || SUB GRP #5:	LTE Software Carrier || LTE 6C		
I-PLAN JOB # 6:		IPLAN PRD GRP || SUB GRP #6:			
I-PLAN JOB # 7:		IPLAN PRD GRP || SUB GRP #7:			
I-PLAN JOB # 8:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 9:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 10:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 11:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 12:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 13:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 14:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 15:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 16:		IPLAN PRD GRP || SUB GRP #8:			

Section 2 - LOCATION INFORMATION

USID:	75042	FA LOCATION CODE:	10038029	LOCATION NAME:	ORBIT
REGION:	WEST	MARKET CLUSTER:	SEATTLE/OREGON/NO. ID	MARKET:	WASHINGTON
ADDRESS:	3310 SOUTH MERIDIAN	CITY:	PUYALLUP	STATE:	WA
ZIP CODE:	98373	COUNTY:	PIERCE	LONG (DEC. DEG.):	-122.2966000
LATITUDE (D-M-S):	47d 9m35.06004s	LONGITUDE (D-M-S):	-122d -17m-47.76s	LAT (DEC. DEG.):	47.1597389
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	SOUTH BOUND TO PUYALLUP EXIT MERIDIAN/HWY161 TOWARDS SOUTH HILL MALL TURN RIGHT (SOUTH) INTO THE MALL AND THEN TURN RIGHT HEADING BACK AROUND THE REAR OF THE TARGET BUILDING ANTENNA IS LIGHT POLE NEAR GREEN MAINT BUILDING EQUIPMENT IS IN THE WHITE BRICK WALLVALIDATED EI6527 28 FEB 2019				

ORACLE PTN # 1:	3801A11XCS	PACE JOB # 1:	MRWOR060367
ORACLE PTN # 2:		PACE JOB # 2:	MRWOR060301
ORACLE PTN # 3:	3801A11X2N	PACE JOB # 3:	MRWOR060363
ORACLE PTN # 4:		PACE JOB # 4:	MRWOR060311
ORACLE PTN # 5:	3801A11Y45	PACE JOB # 5:	MRWOR060361
ORACLE PTN # 6:		PACE JOB # 6:	
ORACLE PTN # 7:		PACE JOB # 7:	
ORACLE PTN # 8:		PACE JOB # 8:	
ORACLE PTN # 9:		PACE JOB # 9:	
ORACLE PTN # 10:		PACE JOB # 10:	
ORACLE PTN # 11:		PACE JOB # 11:	
ORACLE PTN # 12:		PACE JOB # 12:	
ORACLE PTN # 13:		PACE JOB # 13:	
ORACLE PTN # 14:		PACE JOB # 14:	
ORACLE PTN # 15:		PACE JOB # 15:	
ORACLE PTN # 16:		PACE JOB # 16:	
BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:	
AM STUDY REQ'D (Y/N):	No	SEARCH_RING_ID:	
FREQ COORD:		BTA:	MSA / RSA:
		LAC(UMTS):	42996
RF DISTRICT:	17		
RF ZONE:	A	RNC(UMTS):	TACNWADNCRAR10
		MME POOL ID(LTE):	
PARENT NAME(UMTS):	TACOMA - ALU RNC 9370-10		

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:	
CGSA - MINOR FILING NEEDED (Yes/No)::	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:	
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:			

CGSA CALL SIGNS:	

Section 4 - TOWER/REGULATORY INFORMATION

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STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):		STRUCTURE TYPE:	UTILITY	MARKET LOCATION 700 MHz Band:		
ADDITIONAL REGULATORY?:	No	HEIGHT OVERALL (ft):	0.00	FCC ASR NUMBER:		MARKET LOCATION 850 MHz Band:		
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	70.00			MARKET LOCATION 1900 MHz Band:		
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:		
						MARKET LOCATION WCS Band:		
						MARKET LOCATION Future Band:		

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Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A E-911				INTRADO_LNGMONT		0				
SECTOR B				INTRADO_LNGMONT		0				
SECTOR C				INTRADO_LNGMONT		0				
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A E-911				INTRADO_LNGMONT		0				
SECTOR B				INTRADO_LNGMONT		0				
SECTOR C				INTRADO_LNGMONT		0				
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

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SECTION 6/7 - BBU INFORMATION - existing

	BBU 1	BBU 2	BBU 3						
BBU RBS ID:	251947	372249	811476						
TECHNOLOGY:	UMTS	LTE	5G						
BBU NAME:	WATAU3046_2	WAL03046	WAWN003046						
BBU USID:	75042	75042	75042						
CELL ID / BCF:	WATAU3046_2	WAL03046	WAWN003046						
BTA/TID:	413U	413L	413						
4-9 DIGIT SITE ID:	3046	03046	03046						
COW OR TOY?:	No	No	No						
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED						
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL						
BTS LOCATION ID:	GROUND	GROUND	GROUND						
BASE STATION TYPE:	OVERLAY	OVERLAY	OVERLAY						
EQUIPMENT NAME:	ORBIT	ORBIT LTE	ORBIT						
DISASTER PRIORITY:	3	3	0						
EQUIPMENT VENDOR:	ALU	NOKIA	NOKIA						
EQUIPMENT TYPE (Model):	MODULAR CELL OUTDOOR	FSM4 ASIA C1	5GNR ASIK C2						
BASEBAND CONFIGURATION:		xxxxx / 1xAMIA / 3xABIA / 1xASIA	xxxxx / xxxxx / 1xABIL / 1xASIK						
MARKET STATE CODE:		WA	WAW						
NODE B NUMBER:	0	3046	3046						
SIDEHAUL SWITCH VENDOR:									
SIDEHAUL SWITCH MODEL:									
SIDEHAUL SWITCH NAME:									
SIDEHAUL SWITCH ADDITIONAL CARDS:									
CSS - CTS COMMON ID:	WATAU3046_2	WAL03046	WAWN003046						
CSS - SECONDARY FUNCTION ID:									

SECTION 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2	BBU 3						
BBU RBS ID:	251947	372249	811476						
TECHNOLOGY:	UMTS	LTE	5G						
BBU NAME:	WATAU3046_2	WAL03046	WAWN003046						
BBU USID:	75042	75042	75042						
CELL ID / BCF:	WATAU3046_2	WAL03046	WAWN003046						
BTA/TID:	413U	413L	413						
4-9 DIGIT SITE ID:	3046	03046	03046						
COW OR TOY?:	No	No	No						
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED						
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL						
BTS LOCATION ID:	GROUND	GROUND	GROUND						
BASE STATION TYPE:	OVERLAY	OVERLAY	OVERLAY						
EQUIPMENT NAME:	ORBIT	ORBIT LTE	ORBIT						
DISASTER PRIORITY:	3	3	0						
EQUIPMENT VENDOR:	ALU	NOKIA	NOKIA						
EQUIPMENT TYPE (Model):	MODULAR CELL OUTDOOR	FSM4 ASIA C1	FSM4 ASIL C2						
BASEBAND CONFIGURATION:		xxxxx / 1xAMIA / 3xABIA / 1xASIA	xxxxx / xxxxx / 3xABIO / 1xASIL						
MARKET STATE CODE:		WA	WAW						
NODE B NUMBER:	0	3046	3046						
SIDEHAUL SWITCH VENDOR:									
SIDEHAUL SWITCH MODEL:									
SIDEHAUL SWITCH NAME:									
SIDEHAUL SWITCH ADDITIONAL CARDS:									
CSS - CTS COMMON ID:	WATAU3046_2	WAL03046	WAWN003046						
CSS - SECONDARY FUNCTION ID:									

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Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2	BBU 3
CTS Common ID	WATAU3046_2	WAL03046	WAWN003046
Soft Sector IDs	WATAU3046X	WAL03046_2A_1	WAWN003046_N005A_1
	WATAU3046Y	WAL03046_2A_2	WAWN003046_N005B_1
	WATAU3046Z	WAL03046_2B_1	WAWN003046_N005C_1
		WAL03046_2B_2	
		WAL03046_2C_1	
		WAL03046_2C_2	
		WAL03046_3A_1	
		WAL03046_3B_1	
		WAL03046_3C_1	
		WAL03046_7A_1	
		WAL03046_7A_2_F	
		WAL03046_7B_1	
		WAL03046_7B_2_F	
		WAL03046_7C_1	
		WAL03046_7C_2_F	
		WAL03046_9A_1	
		WAL03046_9B_1	
		WAL03046_9C_1	

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3
CTS Common ID	WATAU3046_2	WAL03046	WAWN003046
Soft Sector IDs		WAL03046_2A_1	WAWN003046_N002A_1
		WAL03046_2A_2	WAWN003046_N002B_1
		WAL03046_2B_1	WAWN003046_N002C_1
		WAL03046_2B_2	WAWN003046_N005A_1
		WAL03046_2C_1	WAWN003046_N005B_1
		WAL03046_2C_2	WAWN003046_N005C_1
		WAL03046_3A_1	WAWN003046_N066A_1
		WAL03046_3B_1	WAWN003046_N066B_1
		WAL03046_3C_1	WAWN003046_N066C_1
		WAL03046_7A_1	WAWN003046_N077A_1
		WAL03046_7A_2_F	WAWN003046_N077A_2
		WAL03046_7A_3_E	WAWN003046_N077B_1
		WAL03046_7B_1	WAWN003046_N077B_2
		WAL03046_7B_2_F	WAWN003046_N077C_1
		WAL03046_7B_3_E	WAWN003046_N077C_2
		WAL03046_7C_1	
		WAL03046_7C_2_F	
		WAL03046_7C_3_E	
		WAL03046_9A_1	
		WAL03046_9B_1	
		WAL03046_9C_1	

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Section 9 - SOFT SECTOR ID - existing

	UMTS 1ST 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND													
USEID (excluding Hard Sector)	75042.850.3G.1																								
SECTOR A SOFT SECTOR ID	WATAU3046X	WAL03046_7A_1	WAL03046_9A_1	WAL03046_2A_1	WAL03046_3A_1	WAL03046_7A_2_F	WAL03046_2A_2		WAWN003046_N005A_1																	
SECTOR B	WATAU3046Y	WAL03046_7B_1	WAL03046_9B_1	WAL03046_2B_1	WAL03046_3B_1	WAL03046_7B_2_F	WAL03046_2B_2		WAWN003046_N005B_1																	
SECTOR C	WATAU3046Z	WAL03046_7C_1	WAL03046_9C_1	WAL03046_2C_1	WAL03046_3C_1	WAL03046_7C_2_F	WAL03046_2C_2		WAWN003046_N005C_1																	
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - SOFT SECTOR ID - final

	UMTS 1ST 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND													
USEID (excluding Hard Sector)																									
SECTOR A SOFT SECTOR ID		WAL03046_7A_1	WAL03046_9A_1	WAL03046_2A_1	WAL03046_3A_1	WAL03046_7A_2_F	WAL03046_2A_2	WAL03046_7A_3_E	WAWN003046_N005A_1	WAWN003046_N002A_1	WAWN003046_N066A_1	WAWN003046_N077A_1	WAWN003046_N077A_2													
SECTOR B		WAL03046_7B_1	WAL03046_9B_1	WAL03046_2B_1	WAL03046_3B_1	WAL03046_7B_2_F	WAL03046_2B_2	WAL03046_7B_3_E	WAWN003046_N005B_1	WAWN003046_N002B_1	WAWN003046_N066B_1	WAWN003046_N077B_1	WAWN003046_N077B_2													
SECTOR C		WAL03046_7C_1	WAL03046_9C_1	WAL03046_2C_1	WAL03046_3C_1	WAL03046_7C_2_F	WAL03046_2C_2	WAL03046_7C_3_E	WAWN003046_N005C_1	WAWN003046_N002C_1	WAWN003046_N066C_1	WAWN003046_N077C_1	WAWN003046_N077C_2													
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

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Section 9 - Cell Number - existing

	UMTS 1ST 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND													
USEID (excluding Hard Sector)	75042.850.3G.1																								
SECTOR A CELL NUMBER		15	8	22	149	171	216		25																
SECTOR B		16	9	23	150	172	217		49																
SECTOR C		17	10	24	151	173	218		73																
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - Cell Number - final

	UMTS 1ST 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND													
USEID (excluding Hard Sector)																									
SECTOR A CELL NUMBER		15	8	22	149	171	216	189	25	26	27	28	29												
SECTOR B		16	9	23	150	172	217	190	49	50	51	52	53												
SECTOR C		17	10	24	151	173	218	191	73	74	75	76	77												
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

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Section 10 - CID/SAC - existing

	UMTS 1ST 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND														
SECTOR A CID/SAC	30461																									
SECTOR B	30462																									
SECTOR C	30463																									
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 10 - CID/SAC - final

	UMTS 1ST 850	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND														
SECTOR A CID/SAC																										
SECTOR B																										
SECTOR C																										
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

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Section 15A - CURRENT TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL									800372991		800372991			
ANTENNA VENDOR									Kathrein		Kathrein			
ANTENNA SIZE (H x W x D)									77.9X14.9X6.5		77.9X14.9X6.5			
ANTENNA WEIGHT									75		75			
AZIMUTH									80		80			
MAGNETIC DECLINATION														
RADIATION CENTER (feet)									64		56			
ANTENNA TIP HEIGHT									67.25		59.25			
MECHANICAL DOWNTILT									0		0			
FEEDER AMOUNT									4		4			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)														
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)									2	782 11458	2	782 10788V01		
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)									2	78211273V02	2	TMA2117F00V1-1		
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)									1	AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA				
RRH - 850 band (QTY/MODEL)											1	AirScale RRH 4T4R B5 160W AHCA		
RRH - 1900 band (QTY/MODEL)									1	B25 RRH4X30-4R				
RRH - AWS band (QTY/MODEL)									1	B66A RRH4X45-4R				
RRH - WCS band (QTY/MODEL)											1	RRH4x25-WCS-4R		
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH 7B 1 (QTY/MODEL)														
RRH 7B 2 (QTY/MODEL)														
RRH 7B 3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)									1	2nd FIBER for 700 RRH	1	2nd FIBER for 5G RRH		
Additional Component 2 (QTY/MODEL)									1	2nd FIBER for PCS RRH	1	2nd FIBER for AWS RRH		
Additional Component 3 (QTY/MODEL)											2	DBC0135F3V92-1		
Local Market Note 1	ELECTRICAL TILTS: L7(03) , L7_PS(03) , L2(02) , L2_1(02) , L9(02) , U8(03) , N005(03) , WCS(02) ERP: L7(1428) , L7_PS(1428) , L2(1006) , L2_1(1006) , L9(1422) , U8(485) , N005(306) , WCS(40)													
Local Market Note 2	ANTENNA PORTS: L7(11c+11d+11g+11h) , L7_PS(11c+11d+11g+11h) , L2(11a+11b+11e+11f) , L2_1(11a+11b+11e+11f) , L9(11i+11j+11k+11l) , U8(12c+12d) , N005(12c+12d+12g+12h) , WCS(12a+12b+12e+12f)													
Local Market Note 3	SECTOR NAME: L7(WAL03046_7A_1) , L7_PS(WAL03046_7A_2_F) , L2(WAL03046_2A_1) , L2_1(WAL03046_2A_2) , L9(WAL03046_9A_1) , U8(WATAU3046X) , N005(WAWN003046_N005A_1) , WCS(WAL03046_3A_1)													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 5	PORT 1			WAL03046_7A_1, WAL03046_7A_2_F	WAL03046_7A_1, WAL03046_7A_2_F		LTE 700	800372991_725MHz_025DT	13		2.5	Bottom	Comm 7/8_700	68						2856			
	PORT 2			WAL03046_7A_1, WAL03046_7A_2_F	WAL03046_7A_1, WAL03046_7A_2_F		LTE 700	800372991_725MHz_025DT	13		2.5	Bottom	Comm 7/8_700	68						2856			
	PORT 3			WAL03046_7A_1,	WAL03046_7A_1,		LTE 700	800372991_725MHz_	13		2.5	Bottom	Comm 7/8_700	68						2856			

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				WAL03046_7A_2_F	WAL03046_7A_2_F			025DT															
	PORT 4			WAL03046_7A_1, WAL03046_7A_2_F	WAL03046_7A_1, WAL03046_7A_2_F		LTE 700	800372991_725MHz_025DT	13		2.5	Bottom	Comm 7/8_700	68						2856			
	PORT 5			WAL03046_2A_1	WAL03046_2A_1, WAL03046_2A_2		LTE AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 6			WAL03046_2A_1	WAL03046_2A_1, WAL03046_2A_2		LTE AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 7			WAL03046_2A_1	WAL03046_2A_1, WAL03046_2A_2		LTE AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 8			WAL03046_2A_1	WAL03046_2A_1, WAL03046_2A_2		LTE AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 9			WAL03046_9A_1	WAL03046_9A_1		LTE 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1422			
	PORT 10			WAL03046_9A_1	WAL03046_9A_1		LTE 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1422			
	PORT 11			WAL03046_9A_1	WAL03046_9A_1		LTE 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1422			
	PORT 12			WAL03046_9A_1	WAL03046_9A_1		LTE 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1422			
ANTENNA POSITION 6	**PORT 1**			WATAU3046X, WAWN003046_N005A_1	WATAU3046X, WAWN003046_N005A_1		UMTS 850,5G 850	800372991_850MHz_025DT	15		2.5	Bottom	Comm 7/8_850	68						791			
	PORT 2			WATAU3046X, WAWN003046_N005A_1	WATAU3046X, WAWN003046_N005A_1		UMTS 850,5G 850	800372991_850MHz_025DT	15		2.5	Bottom	Comm 7/8_850	68						791			
	PORT 3			WAWN003046_N005A_1	WAWN003046_N005A_1		5G 850	800372991_850MHz_025DT	15		2.5	Bottom	Comm 7/8_850	68						306			
	PORT 4			WAWN003046_N005A_1	WAWN003046_N005A_1		5G 850	800372991_850MHz_025DT	15		2.5	Bottom	Comm 7/8_850	68						306			
	PORT 5			WAL03046_3A_1	WAL03046_3A_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						40			
	PORT 6			WAL03046_3A_1	WAL03046_3A_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						40			
	PORT 7			WAL03046_3A_1	WAL03046_3A_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						40			
	PORT 8			WAL03046_3A_1	WAL03046_3A_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						40			

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Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL					800372991	800372991	
ANTENNA VENDOR					Kathrein	Kathrein	
ANTENNA SIZE (H x W x D)					77.9X14.9X6.5	77.9X14.9X6.5	
ANTENNA WEIGHT					75	75	
AZIMUTH					200	200	
MAGNETIC DECLINATION							
RADIATION CENTER (feet)					64	56	
ANTENNA TIP HEIGHT					67.25	59.25	
MECHANICAL DOWNTILT					0	0	
FEEDER AMOUNT					4	4	
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)					2 782 11458	2 782 10788V01	
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)					2 78211273V02	2 TMA2117F00V1-1	
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)					1 AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA		
RRH - 850 band (QTY/MODEL)						1 AirScale RRH 4T4R B5 160W AHCA	
RRH - 1900 band (QTY/MODEL)					1 B25 RRH4X30-4R		
RRH - AWS band (QTY/MODEL)					1 B66A RRH4X45-4R		
RRH - WCS band (QTY/MODEL)						1 RRH4x25-WCS-4R	
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)					1 2nd FIBER for 700 RRH	1 2nd FIBER for 5G RRH	
Additional Component 2 (QTY/MODEL)					1 2nd FIBER for PCS RRH	1 2nd FIBER for AWS RRH	
Additional Component 3 (QTY/MODEL)						2 DBC0135F3V92-1	
Local Market Note 1	ELECTRICAL TILTS: L7(12) , L7_PS(12) , L2(03) , L2_1(03) , L9(04) , U8(08) , N005(08) , WCS(03) ERP: L7(1412) , L7_PS(1412) , L2(961) , L2_1(961) , L9(1422) , U8(496) , N005(314) , WCS(872)						
Local Market Note 2	ANTENNA PORTS: L7(17c+17d+17g+17h) , L7_PS(17c+17d+17g+17h) , L2(17a+17b+17e+17f) , L2_1(17a+17b+17e+17f) , L9(17i+17j+17k+17l) , U8(18c+18d) , N005(18c+18d+18g+18h) , WCS(18a+18b+18e+18f)						
Local Market Note 3	SECTOR NAME: L7(WAL03046_7B_1) , L7_PS(WAL03046_7B_2_F) , L2(WAL03046_2B_1) , L2_1(WAL03046_2B_2) , L9(WAL03046_9B_1) , U8(WATAU3046Y) , N005(WAWN003046_N005B_1) , WCS(WAL03046_3B_1)						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 5	PORT 1			WAL03046_7B_1, WAL03046_7B_2_F	WAL03046_7B_1, WAL03046_7B_2_F		LTE 700	800372991_725MHz_115DT	13		11.5	Bottom	Comm 7/8_700	68						2824			
	PORT 2			WAL03046_7B_1, WAL03046_7B_2_F	WAL03046_7B_1, WAL03046_7B_2_F		LTE 700	800372991_725MHz_115DT	13		11.5	Bottom	Comm 7/8_700	68						2824			
	PORT 3			WAL03046_7B_1,	WAL03046_7B_1,		LTE 700	800372991_725MHz_	13		11.5	Bottom	Comm 7/8_700	68						2824			

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				WAL03046_7B_2_F	WAL03046_7B_2_F			115DT															
	PORT 4			WAL03046_7B_1, WAL03046_7B_2_F	WAL03046_7B_1, WAL03046_7B_2_F		LTE 700	800372991_725MHz_115DT	13		11.5	Bottom	Comm 7/8_700	68						2824			
	PORT 5			WAL03046_2B_1	WAL03046_2B_1, WAL03046_2B_2		LTE AWS	800372991_2130MHz_03DT	15		3	Bottom	Comm 7/8_2100	68						1922			
	PORT 6			WAL03046_2B_1	WAL03046_2B_1, WAL03046_2B_2		LTE AWS	800372991_2130MHz_03DT	15		3	Bottom	Comm 7/8_2100	68						1922			
	PORT 7			WAL03046_2B_1	WAL03046_2B_1, WAL03046_2B_2		LTE AWS	800372991_2130MHz_03DT	15		3	Bottom	Comm 7/8_2100	68						1922			
	PORT 8			WAL03046_2B_1	WAL03046_2B_1, WAL03046_2B_2		LTE AWS	800372991_2130MHz_03DT	15		3	Bottom	Comm 7/8_2100	68						1922			
	PORT 9			WAL03046_9B_1	WAL03046_9B_1		LTE 1900	800372991_1930MHz_04DT	16		4	Bottom	Comm 7/8_1900	68						1422			
	PORT 10			WAL03046_9B_1	WAL03046_9B_1		LTE 1900	800372991_1930MHz_04DT	16		4	Bottom	Comm 7/8_1900	68						1422			
	PORT 11			WAL03046_9B_1	WAL03046_9B_1		LTE 1900	800372991_1930MHz_04DT	16		4	Bottom	Comm 7/8_1900	68						1422			
	PORT 12			WAL03046_9B_1	WAL03046_9B_1		LTE 1900	800372991_1930MHz_04DT	16		4	Bottom	Comm 7/8_1900	68						1422			
ANTENNA POSITION 6	**PORT 1**			WATAU3046Y, WAWN003046_N005B_1	WATAU3046Y, WAWN003046_N005B_1		UMTS 850,5G 850	800372991_850MHz_08DT	15		8	Bottom	Comm 7/8_850	68						810			
	PORT 2			WATAU3046Y, WAWN003046_N005B_1	WATAU3046Y, WAWN003046_N005B_1		UMTS 850,5G 850	800372991_850MHz_08DT	15		8	Bottom	Comm 7/8_850	68						810			
	PORT 3			WAWN003046_N005B_1	WAWN003046_N005B_1		5G 850	800372991_850MHz_08DT	15		8	Bottom	Comm 7/8_850	68						314			
	PORT 4			WAWN003046_N005B_1	WAWN003046_N005B_1		5G 850	800372991_850MHz_08DT	15		8	Bottom	Comm 7/8_850	68						314			
	PORT 5			WAL03046_3B_1	WAL03046_3B_1		LTE WCS	800372991_2355MHz_03DT	15		3	Bottom	Comm 7/8_2300	68						872			
	PORT 6			WAL03046_3B_1	WAL03046_3B_1		LTE WCS	800372991_2355MHz_03DT	15		3	Bottom	Comm 7/8_2300	68						872			
	PORT 7			WAL03046_3B_1	WAL03046_3B_1		LTE WCS	800372991_2355MHz_03DT	15		3	Bottom	Comm 7/8_2300	68						872			
	PORT 8			WAL03046_3B_1	WAL03046_3B_1		LTE WCS	800372991_2355MHz_03DT	15		3	Bottom	Comm 7/8_2300	68						872			

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Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL					800372991	800372991	
ANTENNA VENDOR					Kathrein	Kathrein	
ANTENNA SIZE (H x W x D)					77.9X14.9X6.5	77.9X14.9X6.5	
ANTENNA WEIGHT					75	75	
AZIMUTH					285	285	
MAGNETIC DECLINATION							
RADIATION CENTER (feet)					64	56	
ANTENNA TIP HEIGHT					67.25	59.25	
MECHANICAL DOWNTILT					0	0	
FEEDER AMOUNT					4	4	
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)					2 782 11458	2 782 10788V01	
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)					2 78211273V02	2 TMA2117F00V1-1	
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)					1 AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA		
RRH - 850 band (QTY/MODEL)						1 AirScale RRH 4T4R B5 160W AHCA	
RRH - 1900 band (QTY/MODEL)					1 B25 RRH4X30-4R		
RRH - AWS band (QTY/MODEL)					1 B66A RRH4X45-4R		
RRH - WCS band (QTY/MODEL)						1 RRH4x25-WCS-4R	
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)					1 2nd FIBER for 700 RRH	1 2nd FIBER for 5G RRH	
Additional Component 2 (QTY/MODEL)					1 2nd FIBER for PCS RRH	1 2nd FIBER for AWS RRH	
Additional Component 3 (QTY/MODEL)						2 DBC0135F3V92-1	
Local Market Note 1	ELECTRICAL TILTS: L7(05) , L7_PS(05) , L2(02) , L2_1(02) , L9(02) , U8(06) , N005(06) , WCS(02) ERP: L7(1333) , L7_PS(1333) , L2(1006) , L2_1(1006) , L9(1422) , U8(496) , N005(314) , WCS(151)						
Local Market Note 2	ANTENNA PORTS: L7(5c+5d+5g+5h) , L7_PS(5c+5d+5g+5h) , L2(5a+5b+5e+5f) , L2_1(5a+5b+5e+5f) , L9(5i+5j+5k+5l) , U8(6c+6d) , N005(6c+6d+6g+6h) , WCS(6a+6b+6e+6f)						
Local Market Note 3	SECTOR NAME: L7(WAL03046_7C_1) , L7_PS(WAL03046_7C_2_F) , L2(WAL03046_2C_1) , L2_1(WAL03046_2C_2) , L9(WAL03046_9C_1) , U8(WATAU3046Z) , N005(WAWN003046_N005C_1) , WCS(WAL03046_3C_1)						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 5	PORT 1			WAL03046_7C_1, WAL03046_7C_2_F	WAL03046_7C_1, WAL03046_7C_2_F		LTE 700	800372991_725MHz_05DT	13		5	Bottom	Comm 7/8_700	68						2666			
	PORT 2			WAL03046_7C_1, WAL03046_7C_2_F	WAL03046_7C_1, WAL03046_7C_2_F		LTE 700	800372991_725MHz_05DT	13		5	Bottom	Comm 7/8_700	68						2666			
	PORT 3			WAL03046_7C_1,	WAL03046_7C_1,		LTE 700	800372991_725MHz_	13		5	Bottom	Comm 7/8_700	68						2666			

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				WAL03046_7C_2_F	WAL03046_7C_2_F			05DT															
	PORT 4			WAL03046_7C_1, WAL03046_7C_2_F	WAL03046_7C_1, WAL03046_7C_2_F		LTE 700	800372991_725MHz_05DT	13		5	Bottom	Comm 7/8_700	68						2666			
	PORT 5			WAL03046_2C_1	WAL03046_2C_1, WAL03046_2C_2		LTE AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 6			WAL03046_2C_1	WAL03046_2C_1, WAL03046_2C_2		LTE AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 7			WAL03046_2C_1	WAL03046_2C_1, WAL03046_2C_2		LTE AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 8			WAL03046_2C_1	WAL03046_2C_1, WAL03046_2C_2		LTE AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 9			WAL03046_9C_1	WAL03046_9C_1		LTE 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1422			
	PORT 10			WAL03046_9C_1	WAL03046_9C_1		LTE 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1422			
	PORT 11			WAL03046_9C_1	WAL03046_9C_1		LTE 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1422			
	PORT 12			WAL03046_9C_1	WAL03046_9C_1		LTE 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1422			
ANTENNA POSITION 6	**PORT 1**			WATAU3046Z, WAWN003046_N005C_1	WATAU3046Z, WAWN003046_N005C_1		UMTS 850,5G 850	800372991_850MHz_06DT	15		6	Bottom	Comm 7/8_850	68						810			
	PORT 2			WATAU3046Z, WAWN003046_N005C_1	WATAU3046Z, WAWN003046_N005C_1		UMTS 850,5G 850	800372991_850MHz_06DT	15		6	Bottom	Comm 7/8_850	68						810			
	PORT 3			WAWN003046_N005C_1	WAWN003046_N005C_1		5G 850	800372991_850MHz_06DT	15		6	Bottom	Comm 7/8_850	68						314			
	PORT 4			WAWN003046_N005C_1	WAWN003046_N005C_1		5G 850	800372991_850MHz_06DT	15		6	Bottom	Comm 7/8_850	68						314			
	PORT 5			WAL03046_3C_1	WAL03046_3C_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						151			
	PORT 6			WAL03046_3C_1	WAL03046_3C_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						151			
	PORT 7			WAL03046_3C_1	WAL03046_3C_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						151			
	PORT 8			WAL03046_3C_1	WAL03046_3C_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						151			

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Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL							AEQK+AEQU STACKED							
ANTENNA VENDOR							Nokia							
ANTENNA SIZE (H x W x D)														
ANTENNA WEIGHT														
AZIMUTH							80							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)							79							
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT														
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)														
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)							1	DC9-48-60-24-8C-EV						
FIBER TRUNK (QTY/MODEL)							1							
DC TRUNK (QTY/MODEL)							2							
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)														
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)														
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)							1	integrated within: AirScale MAA 64T64R 192AE n77 200W AEQK						
Additional RRH #2 - any band (QTY/MODEL)							1	integrated within: AirScale MAA 64T64R 192AE n77 200W AEQU						
RRH 7B 1 (QTY/MODEL)														
RRH 7B 2 (QTY/MODEL)														
RRH 7B 3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 4	PORT 1						5G CBAND																
	PORT 2						5G CBAND																

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	PORT 3						5G DoD															
	PORT 4						5G DoD															

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Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL				AEQK+AEQU STACKED			
ANTENNA VENDOR				Nokia			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH				200			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)				79			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT							
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQK			
Additional RRH #2 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQU			
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 4	PORT 1						5G CBAND																
	PORT 2						5G CBAND																

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	PORT 3						5G DoD															
	PORT 4						5G DoD															

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Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL				AEQK+AEQU STACKED			
ANTENNA VENDOR				Nokia			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH				285			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)				79			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT							
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQK			
Additional RRH #2 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQU			
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoII)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 4	PORT 1						5G CBAND																
	PORT 2						5G CBAND																

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	PORT 3						5G DoD															
	PORT 4						5G DoD															

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Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL				AEQK+AEQU STACKED	800372991	800372991	
ANTENNA VENDOR				Nokia	Kathrein	Kathrein	
ANTENNA SIZE (H x W x D)				59X17.7X9.5	77.9X14.9X6.5	77.9X14.9X6.5	
ANTENNA WEIGHT				198.4	75	75	
AZIMUTH				80	80	80	
MAGNETIC DECLINATION							
RADIATION CENTER (feet)				79	64	56	
ANTENNA TIP HEIGHT				80.25	67.25	59.25	
MECHANICAL DOWNTILT					0	0	
FEEDER AMOUNT				4	4	4	
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)				24			
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)				24			
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)					2 782 11458	2 782 11458	
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)					2 78211273V02	2 TMA2117F00V1-1	
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)				1 DC9-48-60-24-8C-EV			
FIBER TRUNK (QTY/MODEL)				1			
DC TRUNK (QTY/MODEL)				2			
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)					1 AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA		
RRH - 850 band (QTY/MODEL)						1 AirScale RRH 4T4R B5 160W AHCA	
RRH - 1900 band (QTY/MODEL)					1 B25 RRH4X30-4R		
RRH - AWS band (QTY/MODEL)					1 B66A RRH4X45-4R		
RRH - WCS band (QTY/MODEL)						1 RRH4x25-WCS-4R	
Additional RRH #1 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQK			
Additional RRH #2 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQU			
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	ELECTRICAL TILTS: N077(00) , N077_1(00) , L7(03) , L7_PS(03) , L7_D(03) , L2(02) , L2_1(02) , N066(02) , L9(02) , N002(02) , N005(03) , WCS(02) ERP: N077(34276) , N077_1(34276) , L7(1428) , L7_PS(1428) , L7_D(1428) , L2(1006) , L2_1(1006) , N066(0) , L9(1455) , N002(0) , N005(970) , WCS(872)						
Local Market Note 2	ANTENNA PORTS: N077(10a+10b) , N077_1(10c+10d) , L7(11c+11d+11g+11h) , L7_PS(11c+11d+11g+11h) , L7_D(11c+11d) , L2(11a+11b+11e+11f) , L2_1(11a+11b+11e+11f) , N066(11a+11b+11e+11f) , L9(11i+11j+11k+11l) , N002(11i+11j+11k+11l) , N005(12c+12d+12g+12h) , WCS(12a+12b+12e+12f)						
Local Market Note 3	SECTOR NAME: N077(WAWN003046_N077A_1) , N077_1(WAWN003046_N077A_2) , L7(WAL03046_7A_1) , L7_PS(WAL03046_7A_2_F) , L7_D(WAL03046_7A_3_E) , L2(WAL03046_2A_1) , L2_1(WAL03046_2A_2) , N066(WAWN003046_N066A_1) , L9(WAL03046_9A_1) , N002(WAWN003046_N002A_1) , N005(WAWN003046_N005A_1) , WCS(WAL03046_3A_1)						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 4	PORT 1	75042.A.CBAND.5G.1		WAWN003046_N077A_1	WAWN003046_N077A_1		5G CBAND		24		0	Integrated	FIBER	0						9999			

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	PORT 2	75042.A.CBAND.5G.1		WAWN003046_N077A_1	WAWN003046_N077A_1		5G CBAND		24		0	Integrated	FIBER	0						9999			
	PORT 3	75042.A.CBAND.5G.2		WAWN003046_N077A_2	WAWN003046_N077A_2		5G DoD		24		0	Integrated	FIBER	0						9999			
	PORT 4	75042.A.CBAND.5G.2		WAWN003046_N077A_2	WAWN003046_N077A_2		5G DoD		24		0	Integrated	FIBER	0						9999			
ANTENNA POSITION 5	**PORT 1**	75042.A.700.4G.1, 75042.A.700.4G.3, 75042.A.700.4G.4		WAL03046_7A_1, WAL03046_7A_2_F	WAL03046_7A_1, WAL03046_7A_2_F, WAL03046_7A_3_E		LTE 700	800372991_725MHz_025DT	13		2.5	Bottom	Comm 7/8_700	68						4284			
	PORT 2	75042.A.700.4G.1, 75042.A.700.4G.3, 75042.A.700.4G.4		WAL03046_7A_1, WAL03046_7A_2_F	WAL03046_7A_1, WAL03046_7A_2_F, WAL03046_7A_3_E		LTE 700	800372991_725MHz_025DT	13		2.5	Bottom	Comm 7/8_700	68						4284			
	PORT 3	75042.A.700.4G.1, 75042.A.700.4G.3		WAL03046_7A_1, WAL03046_7A_2_F	WAL03046_7A_1, WAL03046_7A_2_F		LTE 700	800372991_725MHz_025DT	13		2.5	Bottom	Comm 7/8_700	68						2856			
	PORT 4	75042.A.700.4G.1, 75042.A.700.4G.3		WAL03046_7A_1, WAL03046_7A_2_F	WAL03046_7A_1, WAL03046_7A_2_F		LTE 700	800372991_725MHz_025DT	13		2.5	Bottom	Comm 7/8_700	68						2856			
	PORT 5	75042.A.AWS.4G.1, 75042.A.AWS.4G.2, 75042.A.AWS.5G.1		WAL03046_2A_1, WAWN003046_N066A_1	WAL03046_2A_1, WAL03046_2A_2, WAWN003046_N066A_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 6	75042.A.AWS.4G.1, 75042.A.AWS.4G.2, 75042.A.AWS.5G.1		WAL03046_2A_1, WAWN003046_N066A_1	WAL03046_2A_1, WAL03046_2A_2, WAWN003046_N066A_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 7	75042.A.AWS.4G.1, 75042.A.AWS.4G.2, 75042.A.AWS.5G.1		WAL03046_2A_1, WAWN003046_N066A_1	WAL03046_2A_1, WAL03046_2A_2, WAWN003046_N066A_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 8	75042.A.AWS.4G.1, 75042.A.AWS.4G.2, 75042.A.AWS.5G.1		WAL03046_2A_1, WAWN003046_N066A_1	WAL03046_2A_1, WAL03046_2A_2, WAWN003046_N066A_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 9	75042.A.1900.4G.1, 75042.A.1900.5G.1		WAL03046_9A_1, WAWN003046_N002A_1	WAL03046_9A_1, WAWN003046_N002A_1		LTE 1900,5G 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1455			
	PORT 10	75042.A.1900.4G.1, 75042.A.1900.5G.1		WAL03046_9A_1, WAWN003046_N002A_1	WAL03046_9A_1, WAWN003046_N002A_1		LTE 1900,5G 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1455			
	PORT 11	75042.A.1900.4G.1, 75042.A.1900.5G.1		WAL03046_9A_1, WAWN003046_N002A_1	WAL03046_9A_1, WAWN003046_N002A_1		LTE 1900,5G 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1455			
	PORT 12	75042.A.1900.4G.1, 75042.A.1900.5G.1		WAL03046_9A_1, WAWN003046_N002A_1	WAL03046_9A_1, WAWN003046_N002A_1		LTE 1900,5G 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1455			
ANTENNA POSITION 6	**PORT 1**	75042.A.850.5G.1		WAWN003046_N005A_1	WAWN003046_N005A_1		5G 850	800372991_850MHz_025DT	15		2.5	Bottom	Comm 7/8_850	68						970			
	PORT 2	75042.A.850.5G.1		WAWN003046_N005A_1	WAWN003046_N005A_1		5G 850	800372991_850MHz_025DT	15		2.5	Bottom	Comm 7/8_850	68						970			
	PORT 3	75042.A.850.5G.1		WAWN003046_N005A_1	WAWN003046_N005A_1		5G 850	800372991_850MHz_025DT	15		2.5	Bottom	Comm 7/8_850	68						970			
	PORT 4	75042.A.850.5G.1		WAWN003046_N005A_1	WAWN003046_N005A_1		5G 850	800372991_850MHz_025DT	15		2.5	Bottom	Comm 7/8_850	68						970			
	PORT 5	75042.A.WCS.4G.1		WAL03046_3A_1	WAL03046_3A_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						872			
	PORT 6	75042.A.WCS.4G.1		WAL03046_3A_1	WAL03046_3A_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						872			
	PORT 7	75042.A.WCS.4G.1		WAL03046_3A_1	WAL03046_3A_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						872			
	PORT 8	75042.A.WCS.4G.1		WAL03046_3A_1	WAL03046_3A_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						872			

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Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL				AEQK+AEQU STACKED	800372991	800372991	
ANTENNA VENDOR				Nokia	Kathrein	Kathrein	
ANTENNA SIZE (H x W x D)				59X17.7X9.5	77.9X14.9X6.5	77.9X14.9X6.5	
ANTENNA WEIGHT				198.4	75	75	
AZIMUTH				200	200	200	
MAGNETIC DECLINATION							
RADIATION CENTER (feet)				79	64	56	
ANTENNA TIP HEIGHT				80.25	67.25	59.25	
MECHANICAL DOWNTILT					0	0	
FEEDER AMOUNT				4	4	4	
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)				24			
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)				24			
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)					2 782 11458	2 782 11458	
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)					2 78211273V02	2 TMA2117F00V1-1	
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)					1 AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA		
RRH - 850 band (QTY/MODEL)						1 AirScale RRH 4T4R B5 160W AHCA	
RRH - 1900 band (QTY/MODEL)					1 B25 RRH4X30-4R		
RRH - AWS band (QTY/MODEL)					1 B66A RRH4X45-4R		
RRH - WCS band (QTY/MODEL)						1 RRH4x25-WCS-4R	
Additional RRH #1 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQK			
Additional RRH #2 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQU			
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	ELECTRICAL TILTS: N077(00) , N077_1(00) , L7(12) , L7_PS(12) , L7_D(12) , L2(03) , L2_1(03) , N066(02) , L9(04) , N002(03) , N005(08) , WCS(03) ERP: N077(34276) , N077_1(34276) , L7(1412) , L7_PS(1412) , L7_D(1412) , L2(961) , L2_1(961) , N066(0) , L9(1455) , N002(0) , N005(993) , WCS(872)						
Local Market Note 2	ANTENNA PORTS: N077(16a+16b) , N077_1(16c+16d) , L7(17c+17d+17g+17h) , L7_PS(17c+17d+17g+17h) , L7_D(17c+17d) , L2(17a+17b+17e+17f) , L2_1(17a+17b+17e+17f) , N066(17a+17b+17e+17f) , L9(17i+17j+17k+17l) , N002(17i+17j+17k+17l) , N005(18c+18d+18g+18h) , WCS(18a+18b+18e+18f)						
Local Market Note 3	SECTOR NAME: N077(WAWN003046_N077B_1) , N077_1(WAWN003046_N077B_2) , L7(WAL03046_7B_1) , L7_PS(WAL03046_7B_2_F) , L7_D(WAL03046_7B_3_E) , L2(WAL03046_2B_1) , L2_1(WAL03046_2B_2) , N066(WAWN003046_N066B_1) , L9(WAL03046_9B_1) , N002(WAWN003046_N002B_1) , N005(WAWN003046_N005B_1) , WCS(WAL03046_3B_1)						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 4	PORT 1	75042.B.CBAND.5G.1		WAWN003046_N077B_1	WAWN003046_N077B_1		5G CBAND		24		0	Integrated	FIBER	0						9999			

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	PORT 2	75042.B.CBAND.5G.1		WAWN003046_N077B_1	WAWN003046_N077B_1		5G CBAND		24		0	Integrated	FIBER	0						9999			
	PORT 3	75042.B.CBAND.5G.2		WAWN003046_N077B_2	WAWN003046_N077B_2		5G DoD		24		0	Integrated	FIBER	0						9999			
	PORT 4	75042.B.CBAND.5G.2		WAWN003046_N077B_2	WAWN003046_N077B_2		5G DoD		24		0	Integrated	FIBER	0						9999			
ANTENNA POSITION 5	**PORT 1**	75042.B.700.4G.1, 75042.B.700.4G.3, 75042.B.700.4G.4		WAL03046_7B_1, WAL03046_7B_2_F	WAL03046_7B_1, WAL03046_7B_2_F, WAL03046_7B_3_E		LTE 700	800372991_725MHz_115DT	13		11.5	Bottom	Comm 7/8_700	68						4236			
	PORT 2	75042.B.700.4G.1, 75042.B.700.4G.3, 75042.B.700.4G.4		WAL03046_7B_1, WAL03046_7B_2_F	WAL03046_7B_1, WAL03046_7B_2_F, WAL03046_7B_3_E		LTE 700	800372991_725MHz_115DT	13		11.5	Bottom	Comm 7/8_700	68						4236			
	PORT 3	75042.B.700.4G.1, 75042.B.700.4G.3		WAL03046_7B_1, WAL03046_7B_2_F	WAL03046_7B_1, WAL03046_7B_2_F		LTE 700	800372991_725MHz_115DT	13		11.5	Bottom	Comm 7/8_700	68						2824			
	PORT 4	75042.B.700.4G.1, 75042.B.700.4G.3		WAL03046_7B_1, WAL03046_7B_2_F	WAL03046_7B_1, WAL03046_7B_2_F		LTE 700	800372991_725MHz_115DT	13		11.5	Bottom	Comm 7/8_700	68						2824			
	PORT 5	75042.B.AWS.4G.1, 75042.B.AWS.4G.2, 75042.B.AWS.5G.1		WAL03046_2B_1, WAWN003046_N066B_1	WAL03046_2B_1, WAL03046_2B_2, WAWN003046_N066B_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						1922			
	PORT 6	75042.B.AWS.4G.1, 75042.B.AWS.4G.2, 75042.B.AWS.5G.1		WAL03046_2B_1, WAWN003046_N066B_1	WAL03046_2B_1, WAL03046_2B_2, WAWN003046_N066B_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						1922			
	PORT 7	75042.B.AWS.4G.1, 75042.B.AWS.4G.2, 75042.B.AWS.5G.1		WAL03046_2B_1, WAWN003046_N066B_1	WAL03046_2B_1, WAL03046_2B_2, WAWN003046_N066B_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						1922			
	PORT 8	75042.B.AWS.4G.1, 75042.B.AWS.4G.2, 75042.B.AWS.5G.1		WAL03046_2B_1, WAWN003046_N066B_1	WAL03046_2B_1, WAL03046_2B_2, WAWN003046_N066B_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						1922			
	PORT 9	75042.B.1900.4G.1, 75042.B.1900.5G.1		WAL03046_9B_1, WAWN003046_N002B_1	WAL03046_9B_1, WAWN003046_N002B_1		LTE 1900,5G 1900	800372991_1930MHz_03DT	16		3	Bottom	Comm 7/8_1900	68						1455			
	PORT 10	75042.B.1900.4G.1, 75042.B.1900.5G.1		WAL03046_9B_1, WAWN003046_N002B_1	WAL03046_9B_1, WAWN003046_N002B_1		LTE 1900,5G 1900	800372991_1930MHz_03DT	16		3	Bottom	Comm 7/8_1900	68						1455			
	PORT 11	75042.B.1900.4G.1, 75042.B.1900.5G.1		WAL03046_9B_1, WAWN003046_N002B_1	WAL03046_9B_1, WAWN003046_N002B_1		LTE 1900,5G 1900	800372991_1930MHz_03DT	16		3	Bottom	Comm 7/8_1900	68						1455			
	PORT 12	75042.B.1900.4G.1, 75042.B.1900.5G.1		WAL03046_9B_1, WAWN003046_N002B_1	WAL03046_9B_1, WAWN003046_N002B_1		LTE 1900,5G 1900	800372991_1930MHz_03DT	16		3	Bottom	Comm 7/8_1900	68						1455			
ANTENNA POSITION 6	**PORT 1**	75042.B.850.5G.1		WAWN003046_N005B_1	WAWN003046_N005B_1		5G 850	800372991_850MHz_08DT	15		8	Bottom	Comm 7/8_850	68						993			
	PORT 2	75042.B.850.5G.1		WAWN003046_N005B_1	WAWN003046_N005B_1		5G 850	800372991_850MHz_08DT	15		8	Bottom	Comm 7/8_850	68						993			
	PORT 3	75042.B.850.5G.1		WAWN003046_N005B_1	WAWN003046_N005B_1		5G 850	800372991_850MHz_08DT	15		8	Bottom	Comm 7/8_850	68						993			
	PORT 4	75042.B.850.5G.1		WAWN003046_N005B_1	WAWN003046_N005B_1		5G 850	800372991_850MHz_08DT	15		8	Bottom	Comm 7/8_850	68						993			
	PORT 5	75042.B.WCS.4G.1		WAL03046_3B_1	WAL03046_3B_1		LTE WCS	800372991_2355MHz_03DT	15		3	Bottom	Comm 7/8_2300	68						872			
	PORT 6	75042.B.WCS.4G.1		WAL03046_3B_1	WAL03046_3B_1		LTE WCS	800372991_2355MHz_03DT	15		3	Bottom	Comm 7/8_2300	68						872			
	PORT 7	75042.B.WCS.4G.1		WAL03046_3B_1	WAL03046_3B_1		LTE WCS	800372991_2355MHz_03DT	15		3	Bottom	Comm 7/8_2300	68						872			
	PORT 8	75042.B.WCS.4G.1		WAL03046_3B_1	WAL03046_3B_1		LTE WCS	800372991_2355MHz_03DT	15		3	Bottom	Comm 7/8_2300	68						872			

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Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL				AEQK+AEQU STACKED	800372991	800372991	
ANTENNA VENDOR				Nokia	Kathrein	Kathrein	
ANTENNA SIZE (H x W x D)				59X17.7X9.5	77.9X14.9X6.5	77.9X14.9X6.5	
ANTENNA WEIGHT				198.4	75	75	
AZIMUTH				285	285	285	
MAGNETIC DECLINATION							
RADIATION CENTER (feet)				79	64	56	
ANTENNA TIP HEIGHT				80.25	67.25	59.25	
MECHANICAL DOWNTILT					0	0	
FEEDER AMOUNT				4	4	4	
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)				24			
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)				24			
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)					2 782 11458	2 782 11458	
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)					2 78211273V02	2 TMA2117F00V1-1	
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)					1 AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA		
RRH - 850 band (QTY/MODEL)						1 AirScale RRH 4T4R B5 160W AHCA	
RRH - 1900 band (QTY/MODEL)					1 B25 RRH4X30-4R		
RRH - AWS band (QTY/MODEL)					1 B66A RRH4X45-4R		
RRH - WCS band (QTY/MODEL)						1 RRH4x25-WCS-4R	
Additional RRH #1 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQK			
Additional RRH #2 - any band (QTY/MODEL)				1 integrated within: AirScale MAA 64T64R 192AE n77 200W AEQU			
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	ELECTRICAL TILTS: N077(00) , N077_1(00) , L7(05) , L7_PS(05) , L7_D(05) , L2(02) , L2_1(02) , N066(02) , L9(02) , N002(02) , N005(06) , WCS(02) ERP: N077(34276) , N077_1(34276) , L7(1333) , L7_PS(1333) , L7_D(1333) , L2(1006) , L2_1(1006) , N066(0) , L9(1455) , N002(0) , N005(993) , WCS(872)						
Local Market Note 2	ANTENNA PORTS: N077(4a+4b) , N077_1(4c+4d) , L7(5c+5d+5g+5h) , L7_PS(5c+5d+5g+5h) , L7_D(5c+5d) , L2(5a+5b+5e+5f) , L2_1(5a+5b+5e+5f) , N066(5a+5b+5e+5f) , L9(5i+5j+5k+5l) , N002(5i+5j+5k+5l) , N005(6c+6d+6g+6h) , WCS(6a+6b+6e+6f)						
Local Market Note 3	SECTOR NAME: N077(WAWN003046_N077C_1) , N077_1(WAWN003046_N077C_2) , L7(WAL03046_7C_1) , L7_PS(WAL03046_7C_2_F) , L7_D(WAL03046_7C_3_E) , L2(WAL03046_2C_1) , L2_1(WAL03046_2C_2) , N066(WAWN003046_N066C_1) , L9(WAL03046_9C_1) , N002(WAWN003046_N002C_1) , N005(WAWN003046_N005C_1) , WCS(WAL03046_3C_1)						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 4	PORT 1	75042.C.CBAND.5G.1		WAWN003046_N077C_1	WAWN003046_N077C_1		5G CBAND		24		0	Integrated	FIBER	0						9999			

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	PORT 2	75042.C.CBAND.5G.1		WAWN003046_N077C_1	WAWN003046_N077C_1		5G CBAND		24		0	Integrated	FIBER	0						9999			
	PORT 3	75042.C.CBAND.5G.2		WAWN003046_N077C_2	WAWN003046_N077C_2		5G DoD		24		0	Integrated	FIBER	0						9999			
	PORT 4	75042.C.CBAND.5G.2		WAWN003046_N077C_2	WAWN003046_N077C_2		5G DoD		24		0	Integrated	FIBER	0						9999			
ANTENNA POSITION 5	**PORT 1**	75042.C.700.4G.1,75042.C.700.4G.3,75042.C.700.4G.4		WAL03046_7C_1,WAL03046_7C_2_F	WAL03046_7C_1,WAL03046_7C_2_F,WAL03046_7C_3_E		LTE 700	800372991_725MHz_05DT	13		5	Bottom	Comm 7/8_700	68						3999			
	PORT 2	75042.C.700.4G.1,75042.C.700.4G.3,75042.C.700.4G.4		WAL03046_7C_1,WAL03046_7C_2_F	WAL03046_7C_1,WAL03046_7C_2_F,WAL03046_7C_3_E		LTE 700	800372991_725MHz_05DT	13		5	Bottom	Comm 7/8_700	68						3999			
	PORT 3	75042.C.700.4G.1,75042.C.700.4G.3		WAL03046_7C_1,WAL03046_7C_2_F	WAL03046_7C_1,WAL03046_7C_2_F		LTE 700	800372991_725MHz_05DT	13		5	Bottom	Comm 7/8_700	68						2666			
	PORT 4	75042.C.700.4G.1,75042.C.700.4G.3		WAL03046_7C_1,WAL03046_7C_2_F	WAL03046_7C_1,WAL03046_7C_2_F		LTE 700	800372991_725MHz_05DT	13		5	Bottom	Comm 7/8_700	68						2666			
	PORT 5	75042.C.AWS.4G.1,75042.C.AWS.4G.2,75042.C.AWS.5G.1		WAL03046_2C_1,WAWN003046_N066C_1	WAL03046_2C_1,WAL03046_2C_2,WAWN003046_N066C_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 6	75042.C.AWS.4G.1,75042.C.AWS.4G.2,75042.C.AWS.5G.1		WAL03046_2C_1,WAWN003046_N066C_1	WAL03046_2C_1,WAL03046_2C_2,WAWN003046_N066C_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 7	75042.C.AWS.4G.1,75042.C.AWS.4G.2,75042.C.AWS.5G.1		WAL03046_2C_1,WAWN003046_N066C_1	WAL03046_2C_1,WAL03046_2C_2,WAWN003046_N066C_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 8	75042.C.AWS.4G.1,75042.C.AWS.4G.2,75042.C.AWS.5G.1		WAL03046_2C_1,WAWN003046_N066C_1	WAL03046_2C_1,WAL03046_2C_2,WAWN003046_N066C_1		LTE AWS,5G AWS	800372991_2130MHz_02DT	16		2	Bottom	Comm 7/8_2100	68						2012			
	PORT 9	75042.C.1900.4G.1,75042.C.1900.5G.1		WAL03046_9C_1,WAWN003046_N002C_1	WAL03046_9C_1,WAWN003046_N002C_1		LTE 1900,5G 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1455			
	PORT 10	75042.C.1900.4G.1,75042.C.1900.5G.1		WAL03046_9C_1,WAWN003046_N002C_1	WAL03046_9C_1,WAWN003046_N002C_1		LTE 1900,5G 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1455			
	PORT 11	75042.C.1900.4G.1,75042.C.1900.5G.1		WAL03046_9C_1,WAWN003046_N002C_1	WAL03046_9C_1,WAWN003046_N002C_1		LTE 1900,5G 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1455			
	PORT 12	75042.C.1900.4G.1,75042.C.1900.5G.1		WAL03046_9C_1,WAWN003046_N002C_1	WAL03046_9C_1,WAWN003046_N002C_1		LTE 1900,5G 1900	800372991_1930MHz_02DT	16		2	Bottom	Comm 7/8_1900	68						1455			
ANTENNA POSITION 6	**PORT 1**	75042.C.850.5G.1		WAWN003046_N005C_1	WAWN003046_N005C_1		5G 850	800372991_850MHz_06DT	15		6	Bottom	Comm 7/8_850	68						993			
	PORT 2	75042.C.850.5G.1		WAWN003046_N005C_1	WAWN003046_N005C_1		5G 850	800372991_850MHz_06DT	15		6	Bottom	Comm 7/8_850	68						993			
	PORT 3	75042.C.850.5G.1		WAWN003046_N005C_1	WAWN003046_N005C_1		5G 850	800372991_850MHz_06DT	15		6	Bottom	Comm 7/8_850	68						993			
	PORT 4	75042.C.850.5G.1		WAWN003046_N005C_1	WAWN003046_N005C_1		5G 850	800372991_850MHz_06DT	15		6	Bottom	Comm 7/8_850	68						993			
	PORT 5	75042.C.WCS.4G.1		WAL03046_3C_1	WAL03046_3C_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						872			
	PORT 6	75042.C.WCS.4G.1		WAL03046_3C_1	WAL03046_3C_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						872			
	PORT 7	75042.C.WCS.4G.1		WAL03046_3C_1	WAL03046_3C_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						872			
	PORT 8	75042.C.WCS.4G.1		WAL03046_3C_1	WAL03046_3C_1		LTE WCS	800372991_2355MHz_02DT	15		2	Bottom	Comm 7/8_2300	68						872			

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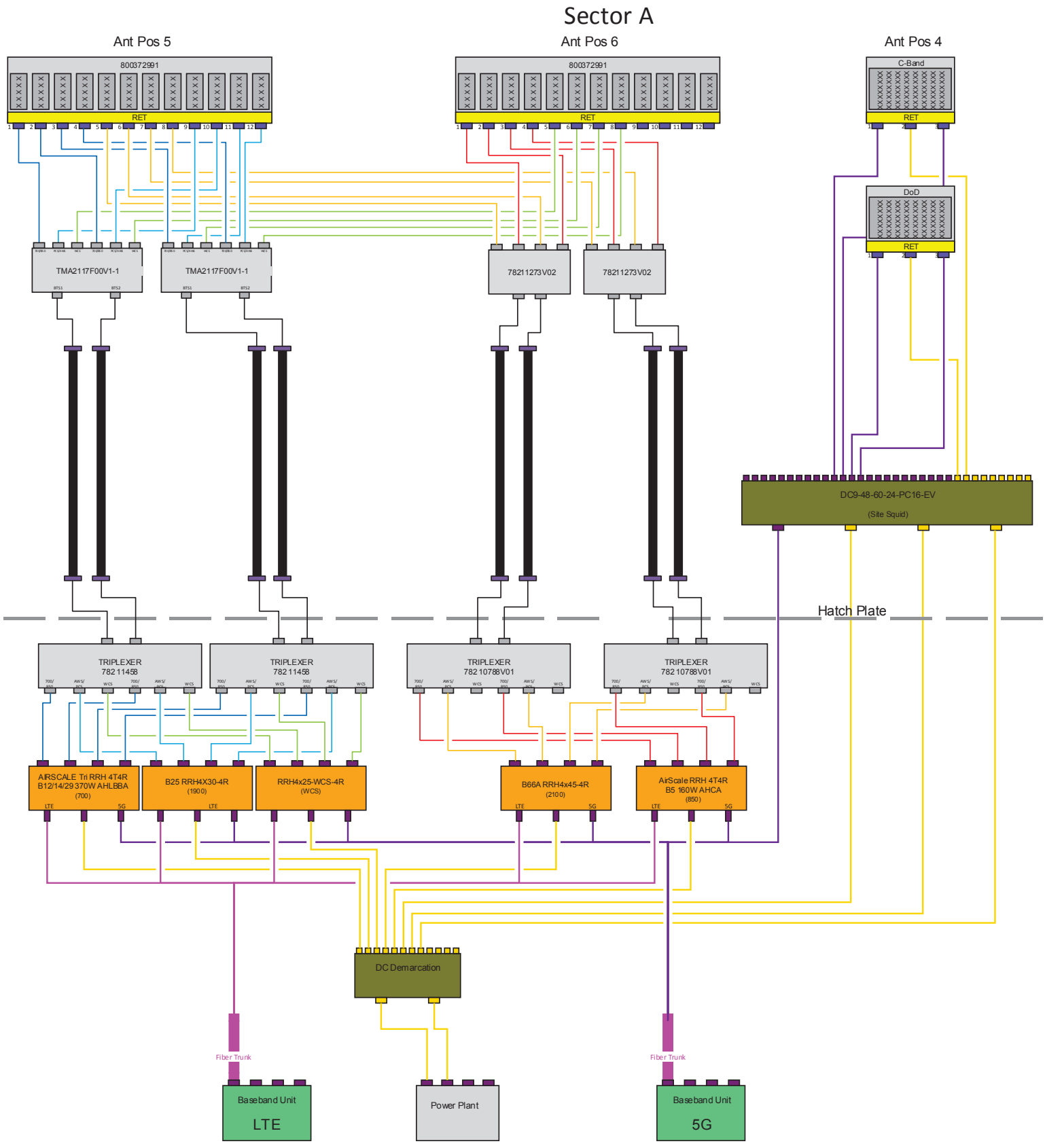
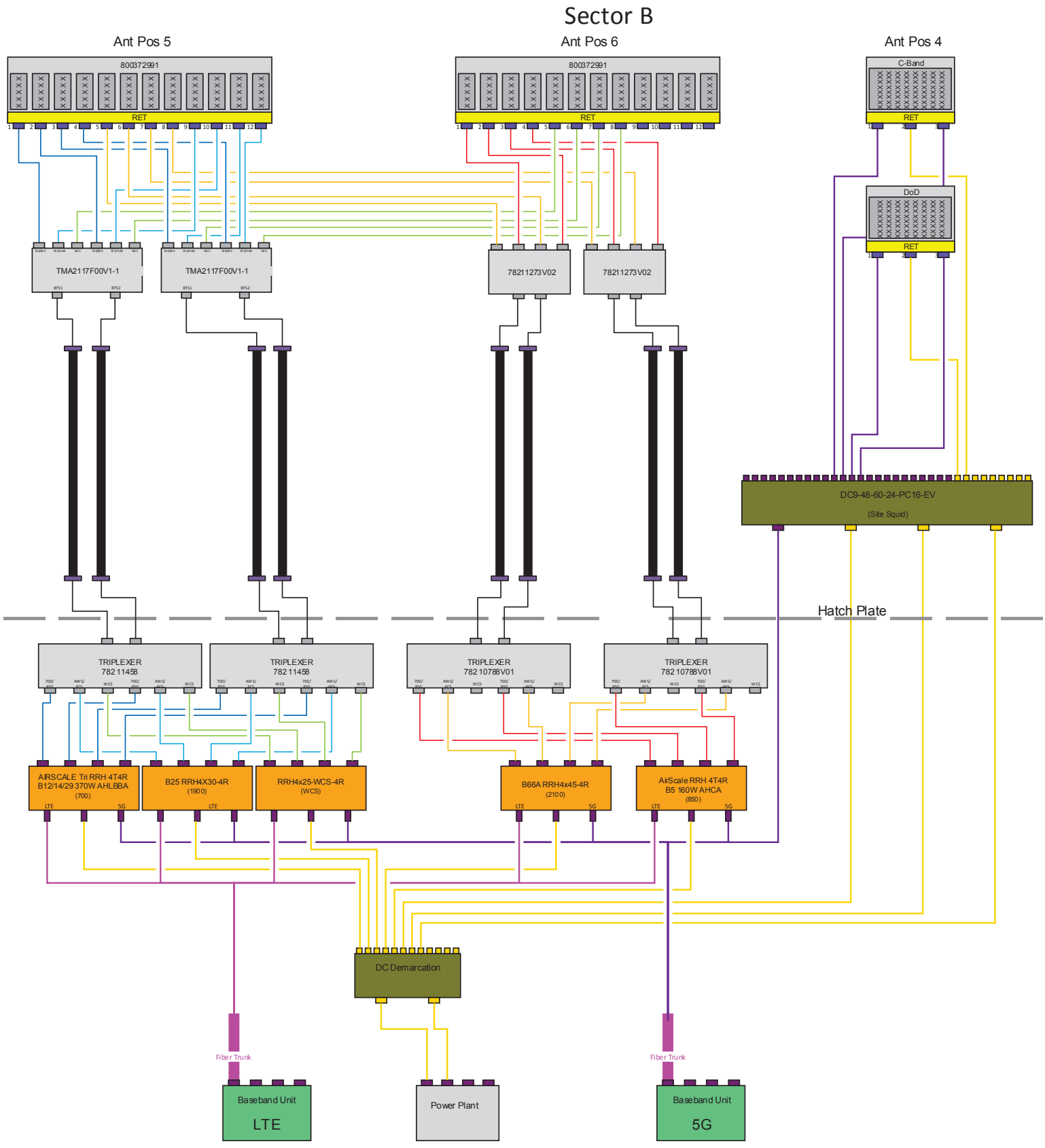
Diagram - Sector	A	Diagram File Name - 10038029_Alpha.vsdx					
Atoll Site Name -	WAL03046	Location Name -	ORBIT	Market -	WASHINGTON	Market Cluster -	SEATTLE/OREGON/NO. ID
Comments:							



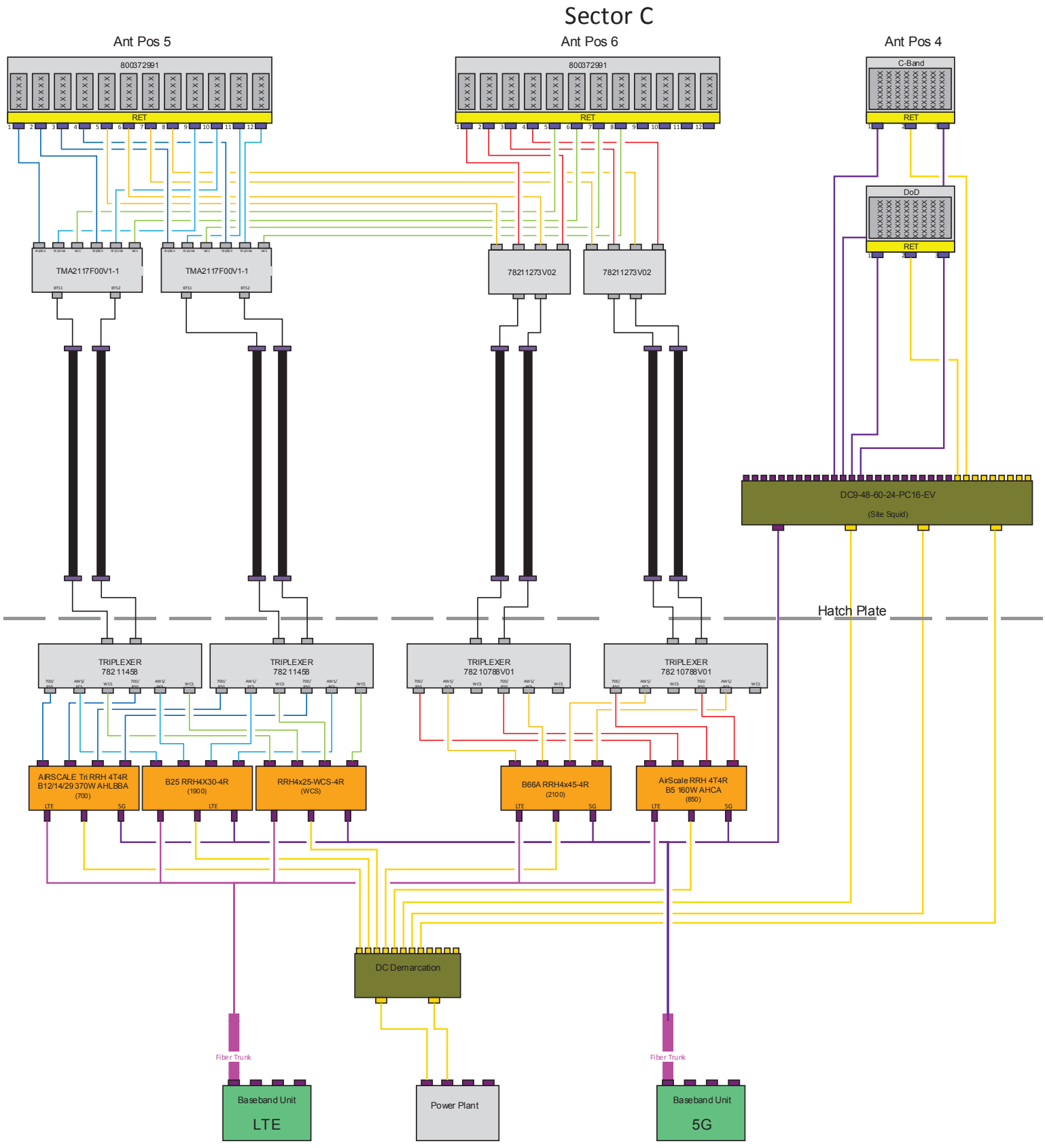
PRCTI20221786

Diagram - Sector	B	Diagram File Name - 10038029_Beta.vsdx					
Atoll Site Name -	WAL03046	Location Name -	ORBIT	Market -	WASHINGTON	Market Cluster -	SEATTLE/OREGON/NO. ID
Comments:							



PRCTI20221786

Diagram - Sector	C	Diagram File Name - 10038029_Gamma.vsdx					
Atoll Site Name -	WAL03046	Location Name -	ORBIT	Market -	WASHINGTON	Market Cluster -	SEATTLE/OREGON/NO. ID
Comments:							



PRCTI20221786

WORKFLOW SUMMARY							
Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments	PACE Status
09/14/2021	Preliminary In Progress	jx615k	Preliminary Submitted for Approval	ml738x	Promote	C-Band RFDS	WR_-RWOR-21-05275 PENDING 09/14/2021 7:23:22 PM WR_-RWOR-21-05271 PENDING 09/14/2021 7:23:22 PM WR_-RWOR-21-05274 PENDING 09/14/2021 7:23:22 PM WR_-RWOR-21-05273 PENDING 09/14/2021 7:23:22 PM WR_-RWOR-21-05272 PENDING 09/14/2021 7:23:22 PM
11/03/2021	Preliminary Submitted for Approval	ml738x	Preliminary Approved	CD846V	Promote		
11/15/2021	Preliminary Approved	CD846V	Final RF Approval	JX615K	Promote		
11/18/2021	Final RF Approval	JX615K	Final Approved	CD846V	Promote	C-Band RFDS	WR_-RWOR-21-05275 MRWOR060367 SUCCESS 11/18/2021 9:30:08 PM WR_-RWOR-21-05271 PENDING 11/18/2021 9:30:08 PM WR_-RWOR-21-05274 MRWOR060363 SUCCESS 11/18/2021 9:30:08 PM WR_-RWOR-21-05273 PENDING 11/18/2021 9:30:08 PM WR_-RWOR-21-05272 PENDING 11/18/2021 9:30:08 PM
04/13/2022	Final Approved	CD846V	Final Approved	SR749X	Reassign		
05/19/2022	Final Approved	SR749X	Final Approved	RP2134	Reassign	Successfully Reassigned	
05/19/2022	Final Approved	RP2134	As Built In Progress	SR749X	Promote		WR_-RWOR-21-05275 PENDING 05/19/2022 3:36:04 PM WR_-RWOR-21-05271 PENDING 05/19/2022 3:36:04 PM WR_-RWOR-21-05274 MRWOR060363 SUCCESS 05/19/2022 3:36:04 PM WR_-RWOR-21-05273 MRWOR060311 SUCCESS 05/19/2022 3:36:04 PM WR_-RWOR-21-05272 MRWOR060361 SUCCESS 05/19/2022 3:36:04 PM

APPENDIX F
MODIFICATION DRAWINGS

PRCTI20221786

MASTEC NETWORK SOLUTIONS
22236 68TH AVE S
KENT, WA 98032

YAN WANG
STATE OF WASHINGTON
44136
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

Digitally signed by Yan Wang
Date: 2022.09.13 16:42:37-04'00'

MasTec Network Solutions

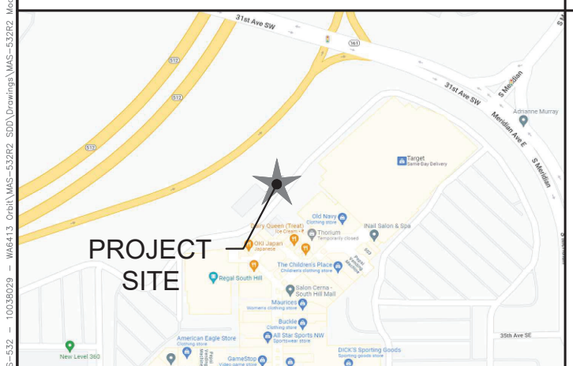
ORBIT
SITE USID: 75042-A
SITE FA: 10038029

3310 SOUTH MERIDIAN
PUYALLUP, WA 98373

No.	Date	Action
7		
6		
5		
4		
3		
2		
1		
0	09/12/22	ISSUED FOR CONSTRUCTION

MORRISON HERSHFIELD
1455 Lincoln Parkway , Suite 500
Atlanta, GA 30346
Tel:770-379-8500 Fax: 770-379-8501
www.morrisonhershfield.com

SITE LOCATION



DIRECTIONS

SEATTLE–TACOMA INTERNATIONAL AIRPORT:

FOLLOW WA–518 E TO I–405 N IN TUKWILA. HEAD SOUTHEAST ON WA–518 E. CONTINUE STRAIGHT TO STAY ON WA–518 E. TAKE WA–167 S TO WA–161 S/31ST AVE SW S IN PUYALLUP. TAKE THE WA–161 S EXIT FROM WA–161 S/WA–512 W. SLIGHT LEFT ONTO I–405 N. TAKE EXIT 2 TO MERGE WITH WA–167 S TOWARD AUBURN. USE THE RIGHT 2 LANES TO TAKE THE WA–512 W EXIT TOWARD WA–161 S/PUYALLUP/OLYMPIA. CONTINUE ONTO WA–161 S/WA–512 W. TAKE THE WA–161 S EXIT TOWARD EATONVILLE. CONTINUE ON WA–161 S TO YOUR DESTINATION. TURN LEFT ONTO WA–161 S/31ST AVE SW S. TURN RIGHT ONTO 35TH AVE SE. TURN RIGHT. DESTINATION WILL BE ON THE RIGHT.

PROJECT CONTACTS

MHC PROJECT ENGINEER

Yan Wang	Senior Engineer (954) 577–4655 ywang@morrisonhershfield.com
Alex Crotty	Project Manager (770) 379–8500 acrotty@morrisonhershfield.com

CLIENT CONTACT

Anthony Clark	Sr. Operations Director (678) 526–3214

PROJECT DATA

TOWER HEIGHT:	70' MONOPOLE W/ 10' EXTENSION
TOWER MAPPING:	TOWER ENGINEERING PROFESSIONALS, INC.
ANALYSIS REPORT:	MH PROJECT NO. 2200078: MAS–532R2 DATED: 09/12/2022

CODE COMPLIANCE

THIS MODIFICATION DESIGN HAS BEEN PERFORMED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:

DESIGN STANDARD:
- 2018 INTERNATIONAL BUILDING CODE
- ANSI/TIA–222–H, STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS AND SMALL WIND TURBINE SUPPORT STRUCTURES
- ASCE 7–16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
- AISC 325–15, MANUAL OF STEEL CONSTRUCTION
- ACI 318–14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- ANSI/AWS D1.1–11, STRUCTURAL WELDING CODE – STEEL

WIND DESIGN:

WIND SPEED:	97 MPH (ULTIMATE 3–SEC GUST) WITH NO RADIAL ICE
RISK CATEGORY:	II
EXPOSURE CATEGORY:	C
TOPO. FACTOR, K_{zt}:	1.0
DESIGN ICE THICKNESS:	1.0 In

EARTHQUAKE DESIGN:

SEISMIC DESIGN CATEGORY:	D
RISK CATEGORY:	II
SITE CLASS:	D – STIFF SOIL
S_s:	1.264g
S_1:	0.436g

LIST OF DRAWINGS

NO.	TITLE	REVISION
T1	COVER SHEET	0
S1	TOWER ELEVATION AND MODIFICATION SCHEDULE	0
S2	NEW CANISTER ELEVATION AND WELDMENT DETAILS	0
S3	NEW CANISTER ELEVATION AND WELDMENT DETAILS	0
S4	SECTIONS & DETAILS	0
S5	SECTIONS & DETAILS	0
N1	REINFORCING NOTES	0

Client:

MasTec Network Solutions

Project:
ORBIT
SITE USID: 75042–A
SITE FA: 10038029
3310 SOUTH MERIDIAN
PUYALLUP, WA 98373

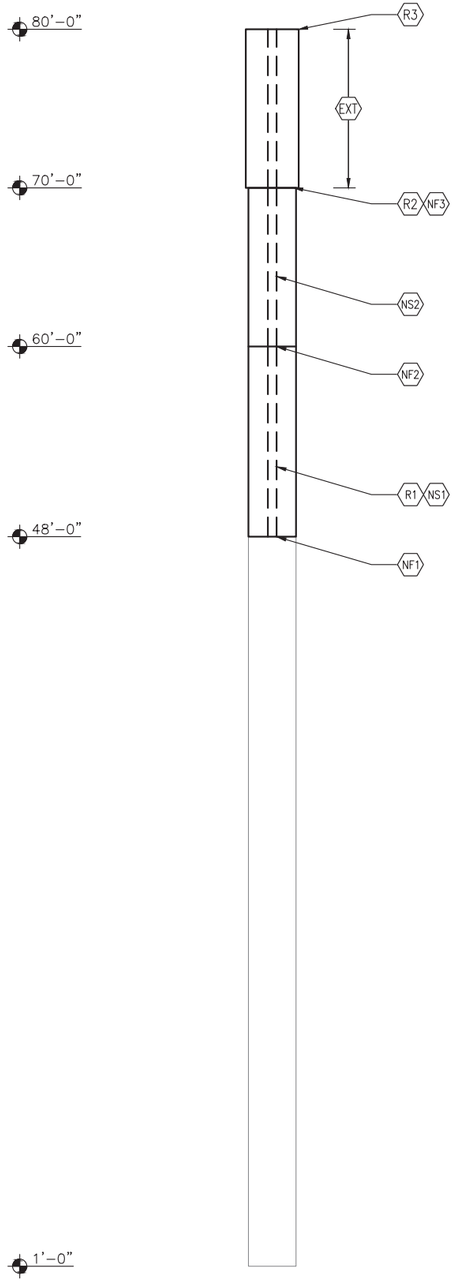
Drawing Title:

COVER SHEET

Project No. 2200078: MAS–532R2	
Designer: VG	Date: 09/12/22
Drawn By: VG	Checked By: YW
PM Review: AC	Client Approval
Issue No. 0	Drawing No. T1

PRCTI20221786

SECTION	LENGTH (FT)	NO. OF SIDES	SOCKET LENGTH (FT)	THICKNESS (IN)	TOP DIA (IN)	BOTTOM DIA (IN)
1	10.00	–	–	0.280	6.625	6.625
2	22.00	–	–	0.280	6.625	6.625
3	47.00	–	–	0.375	36.00	36.00
EXISTING						



1 S1 TOWER ELEVATION

SCALE: N.T.S.

TOWER MODIFICATION NOTES

1. WORK TO BE PERFORMED ONLY DURING CALM DAYS (WINDS LESS THAN 15 MPH).
2. **THE CONTRACTOR SHALL VISIT THE SITE; ANY PROBLEMS WITH ACCESS, INTERFERENCE, ANTENNA FITMENT ISSUES, ETC. SHALL BE RESOLVED WITH EOR PRIOR TO BIDDING.**
3. ALL DIMENSIONS SHOWN SHALL BE FIELD VERIFIED AND ANY DISCREPANCIES RESOLVED WITH THE ENGINEER PRIOR TO BIDDING.
4. CONTRACTOR TO VERIFY THAT EXISTING SHAFT IS SEATED COMPLETELY AT THE JOINTS PRIOR TO ANY CONSTRUCTION MODIFICATIONS.
5. BOLT HOLES SHALL BE DRILLED STRAIGHT WITHOUT ANY DRIFT AND SHALL BE CLEANED AND COLD GALVANIZED PER NOTES ON SHEET N1.
6. REMOVE ALL EXTERNAL FEEDLINE CABLE BANDS (IF PRESENT) AND RE–INSTALL OVER NEW MODIFICATIONS.
7. CONTRACTOR TO VERIFY IF PORTHOLES ARE TO BE ENCOUNTERED. IF PORTHOLES ARE BELIEVED TO BE ENCOUNTERED, CONTACT STRUCTURAL ENGINEER IMMEDIATELY FOR PORTHOLE WORK–AROUND DESIGN.
8. ALL PREVIOUS TOWER MODIFICATIONS ARE ASSUMED TO BE INSTALLED PROPERLY IN ORDER FOR THIS MODIFICATION DESIGN TO BE VALID.
9. REFER TO SHEET N1 FOR GENERAL NOTES.

TOWER PLUMB REQUIREMENTS

CHECK VERTICAL ALIGNMENT AND LEVEL OF BASE TOWER AND CANISTER ASSEMBLY SECTIONS FOR CONFORMANCE TO A PLUMB CONDITION IN ACCORDANCE WITH ANSI/TIA–222H. PLUMB CONDITION IS TO BE DOCUMENTED WITH PROPER NOTES AND PICTURES TO PROVE, AT A MINIMUM, THE FOLLOWING:

1. DEFLECTION CALCULATIONS PER ANSI/TIA–222H
2. MINIMUM AND MAXIMUM (I.E. HOT AND COLD) SURFACE TEMPERATURE READINGS ON BASE MONOPOLE
3. TIME OF DAY MEASUREMENT WAS TAKEN (E.G. DAWN, NOON, DUSK)
4. PICTURES OF A LEVEL OR DIGITAL INCLINOMETER MEASURED AT A MINIMUM OF (3) EQUIDISTANT LOCATIONS AROUND THE BASEPLATE TO PROVE LEVEL CONDITION
5. AZIMUTH OR MONOPOLE FLAT NUMBER OF THE DIRECTION OF THE OUT–OF–PLUMB DEFLECTION

TOWER MODIFICATION SCHEDULE

(R1) REMOVAL OF TOWER SPINE:
ELEV.48'–0"± TO 70'–0"±
REMOVE EXISTING TOWER SPINE AND CANISTER

(R2) REMOVAL OF RAIN CAP:
ELEV.70'–0"±
REMOVE EXISTING RAIN CAP ON TOP OF TOWER.

(NS1) INSTALLATION OF NEW TOWER SPINE:
ELEV. 48'–0"± TO 60'–0"±
INSTALL NEW 8SCH60 TOWER SPINE.
W/ NEW 12'–0" LONG, 36"ø O.D. CANISTER (DESIGNED BY OTHERS)
REFER SHEET S2 FOR DETAILS.

(NS2) INSTALLATION OF NEW TOWER SPINE:
ELEV.60'–0"± TO 70'–0"±
INSTALL NEW 8SCH60 TOWER SPINE.
W/ NEW 10'–0" LONG, 36"ø O.D. CANISTER (DESIGNED BY OTHERS)
REFER SHEET S2 FOR DETAILS.

(NF1) INSTALLATION OF NEW FLANGE PLATE:
ELEV.48'–0"±
INSTALL NEW FLANGE PLATE

(NF2) INSTALLATION OF NEW FLANGE PLATE:
ELEV.60'–0"±
INSTALL NEW FLANGE PLATE

(NF3) INSTALLATION OF NEW FLANGE PATE:
ELEV. 70'–0"±
INSTALL NEW FLANGE PLATE ON TOP OF TOWER.

(EXT) CANISTER EXTENSION:
ELEV. 70'–0" TO 80'–0"±
INSTALL NEW 6SCH40 TOWER SPINE WELDED AT BOTH ENDS W/ NEW 10'–0" LONG, 40"ø O.D. CANISTER (DESIGNED BY OTHERS) INSTALLED ON TOP OF PROPOSED TOWER.
REFER SHEETS S3 FOR DETAILS.

(R3) INSTALLATION OF NEW TOP CAP:
ELEV. 80'–0"±
INSTALL NEW TOP CAP.
TO MATCH EXISTING.

CONTRACTOR SUBMITTALS

THE CONTRACTOR SHALL SUBMIT THE FOLLOWING SUBMITTALS TO THE ENGINEER FOR REVIEW AND APPROVAL:

1. BILL OF MATERIAL AND MATERIAL TEST RESULTS.
2. SHOP DRAWINGS.
3. RIGGING PLAN.
4. WELDERS WPQ'S.
5. ALL APPLICABLE WELDING WPS OR PWPS AND OR PQR.
6. CONTRACTOR'S CWI WELD INSPECTION.
7. TOWER PLUMB REPORT

YAN WANG
STATE OF WASHINGTON
44135
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

Digitally signed by Yan Wang
Date: 2022.09.13 16:42:15-04'00'

No.	Date	Action
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MORRISON HERSHFIELD
1455 Lincoln Parkway , Suite 500
Atlanta, GA 30346
Tel:770-379-8500 Fax: 770-379-8501
www.morrisonhershfield.com

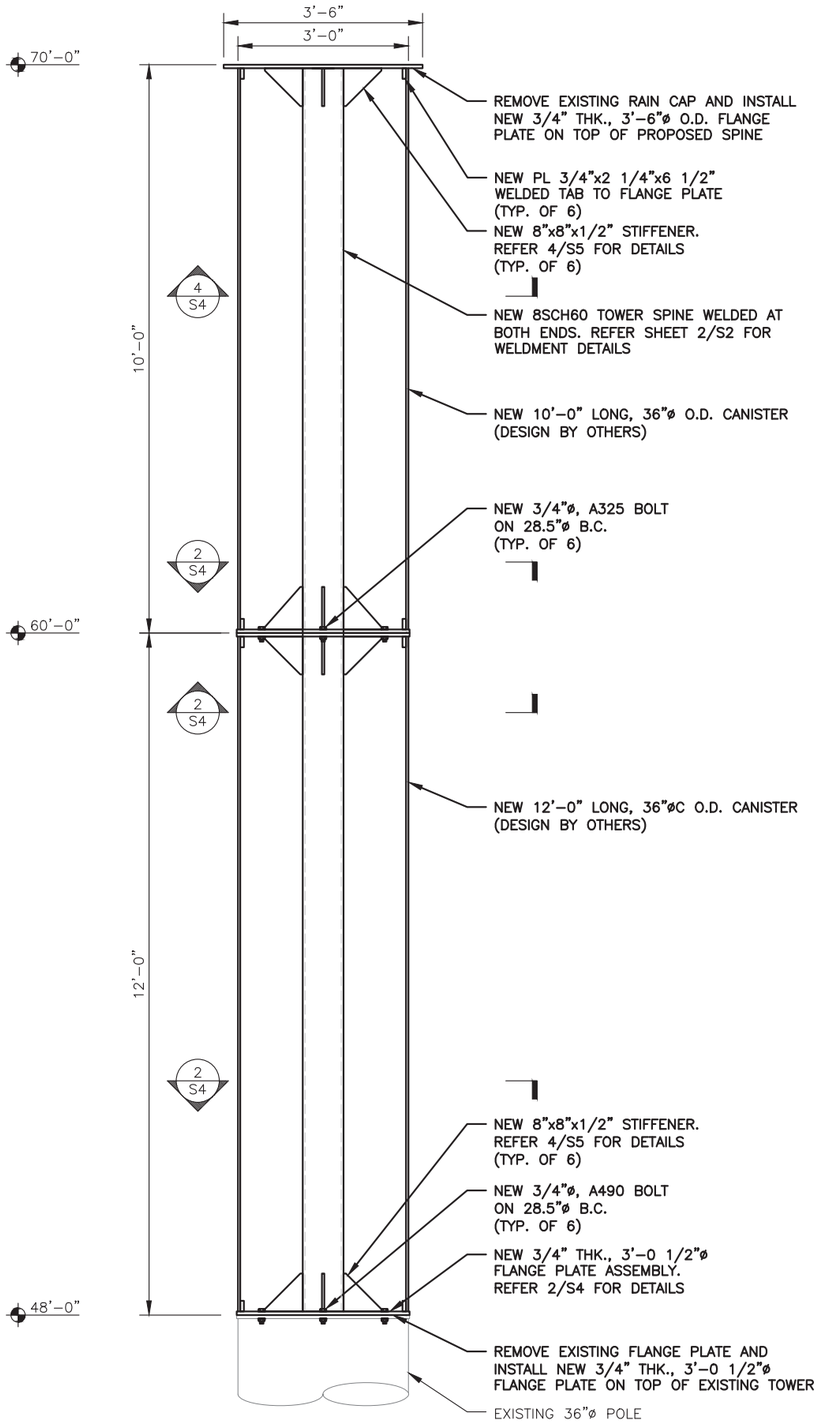
Client: MasTec Network Solutions

Project:
ORBIT
SITE USID: 75042–A
SITE FA: 10038029
3310 SOUTH MERIDIAN
PUYALLUP, WA 98373

Drawing Title:
TOWER ELEVATION AND MODIFICATION SCHEDULE

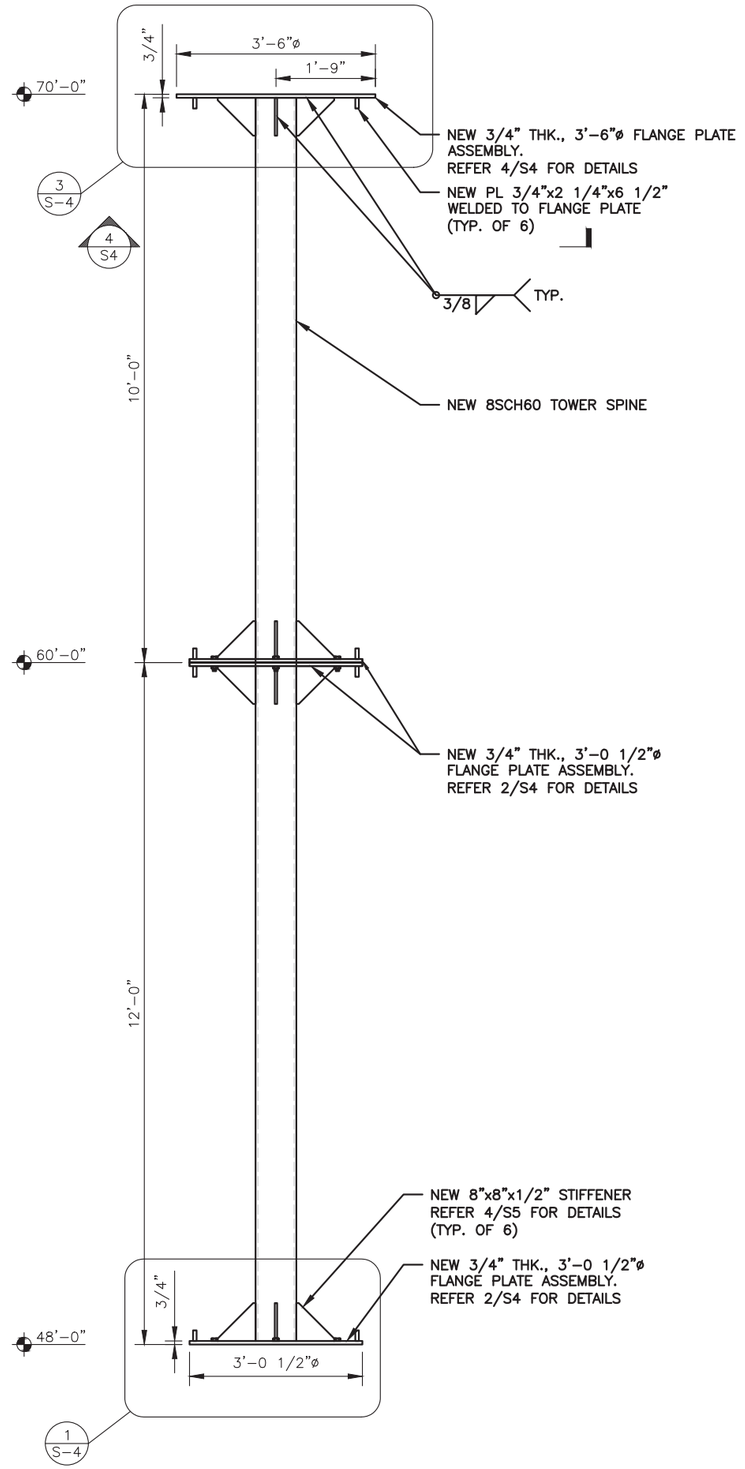
Project No.: 2200078: MAS–532R2	
Designer: VG	Date: 09/12/22
Drawn By: VG	Checked By: YW
PM Review: AC	Client Approval
Issue No.: 0	Drawing No.: S1

PRCTI20221786



1/S2 CANISTER ELEVATION VIEW

SCALE: 3/8" = 1'–0"



2/S2 SPINE WELDMENT DETAIL

SCALE: 3/8" = 1'–0"

YAN WANG
STATE OF WASHINGTON
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
24135

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Date: 2022.09.13 16:41:59-04'00'

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MORRISON HERSHFIELD
1455 Lincoln Parkway , Suite 500
Atlanta, GA 30346
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Client:

MasTec Network Solutions

Project:

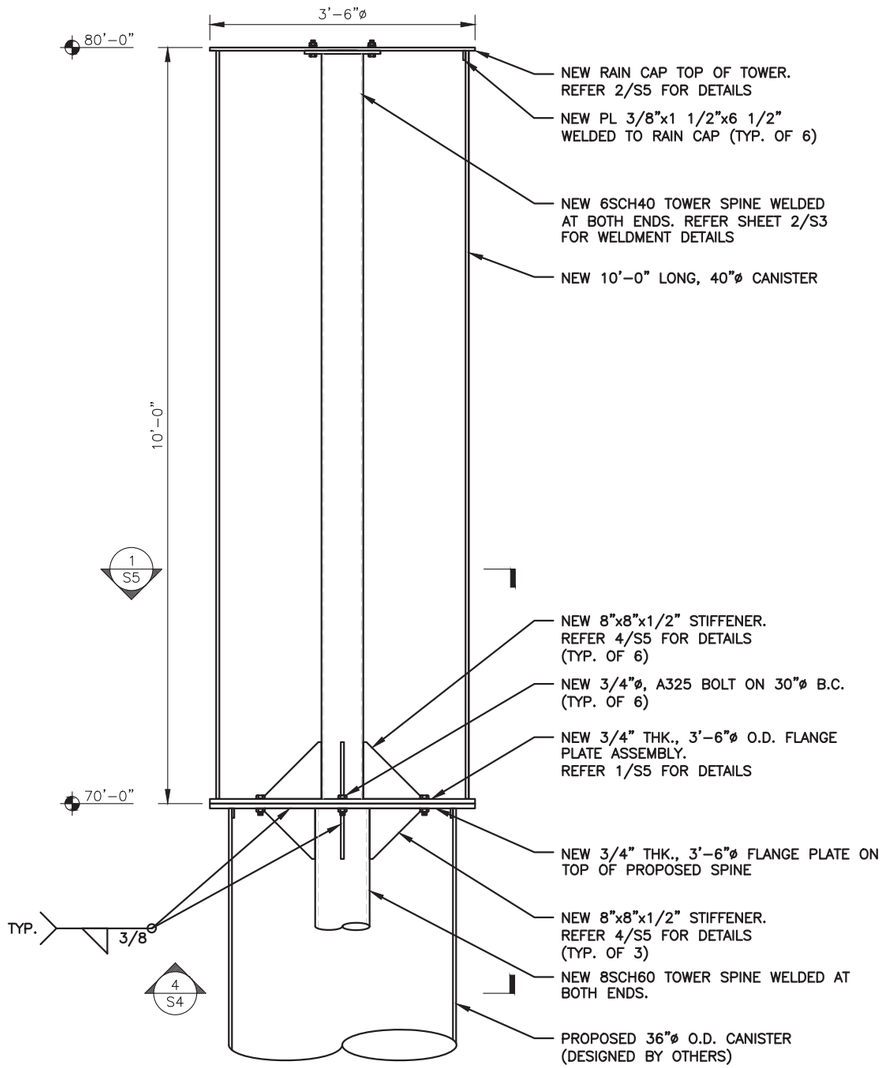
ORBIT
SITE USID: 75042–A
SITE FA: 10038029
3310 SOUTH MERIDIAN
PUYALLUP, WA 98373

Drawing Title:

NEW CANISTER ELEVATION AND DETAILS

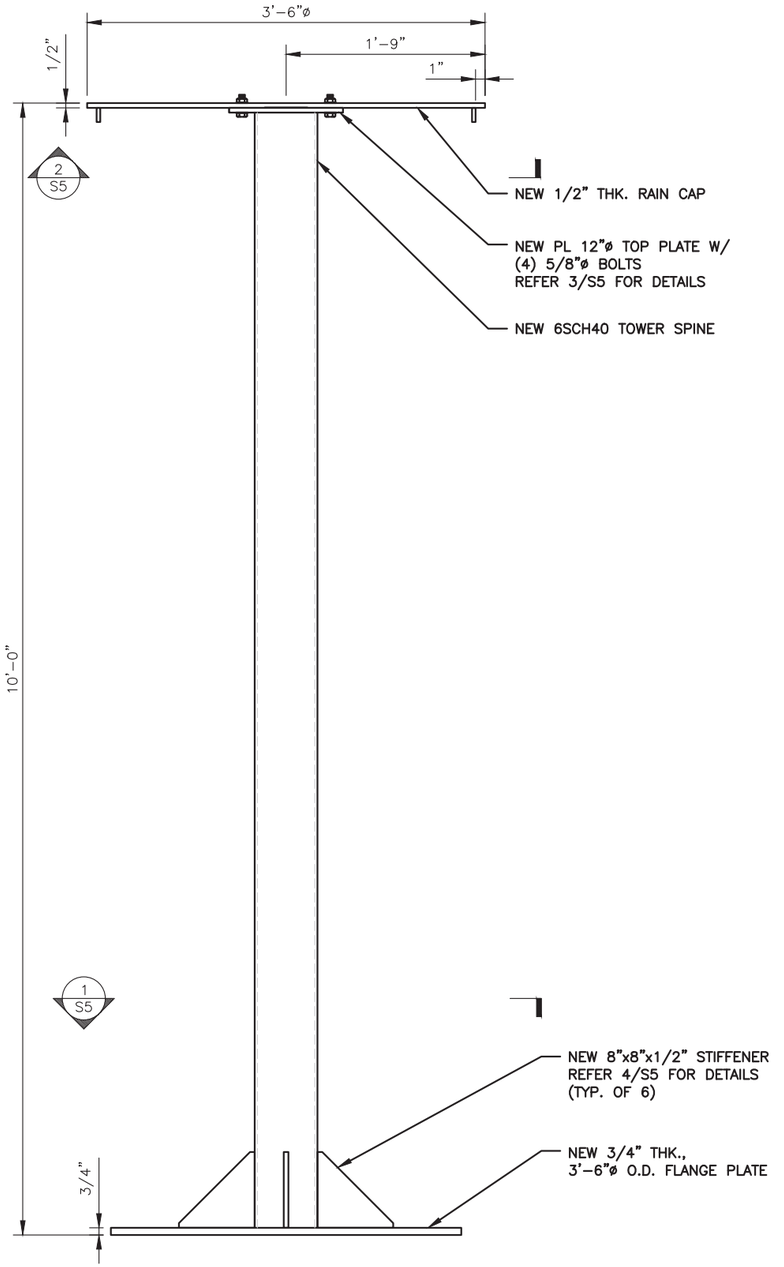
Project No. 2200078: MAS–532R2	
Designer: VG	Date: 09/12/22
Drawn By: VG	Checked By: YW
PM Review: AC	Client Approval
Issue No. 0	Drawing No. S2

PRCTI20221786



1/S3 CANISTER ELEVATION VIEW

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



2/S3 SPINE WELDMENT DETAIL

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

YAN WANG
STATE OF WASHINGTON
44136
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

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MORRISON HERSHFIELD
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Client:

MasTec Network Solutions

Project:

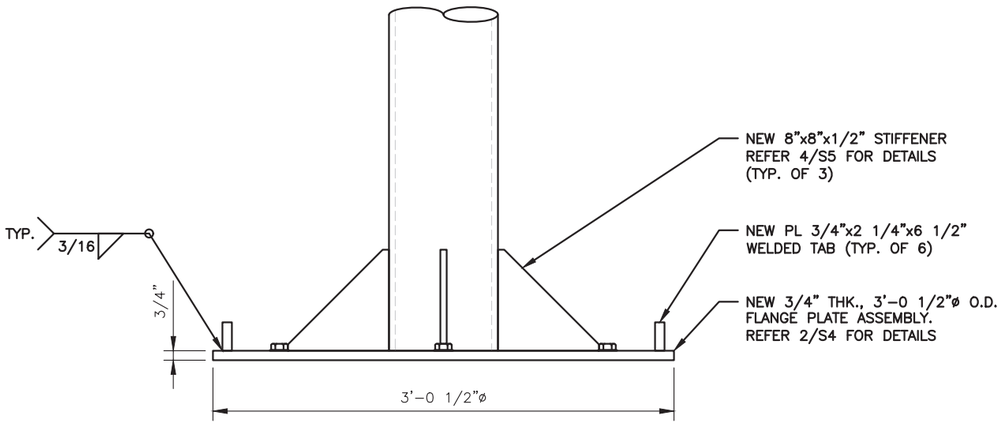
ORBIT
SITE USID: 75042-A
SITE FA: 10038029
3310 SOUTH MERIDIAN
PUYALLUP, WA 98373

Drawing Title:

NEW CANISTER ELEVATION AND DETAILS

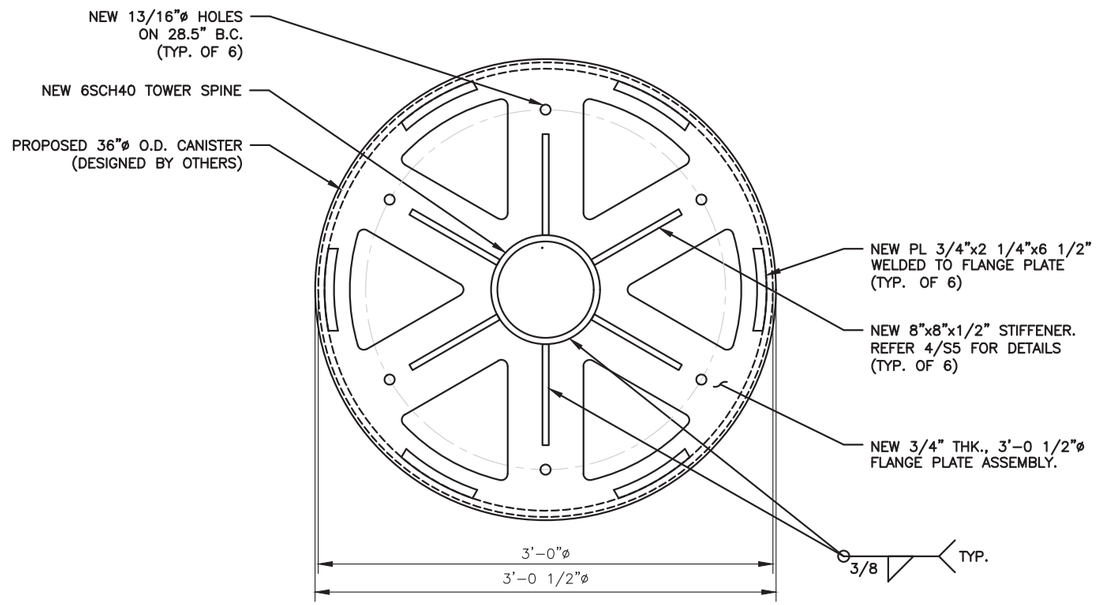
Project No. 2200078: MAS-532R2	
Designer: VG	Date: 09/12/22
Drawn By: VG	Checked By: YW
PM Review: AC	Client Approval
Issue No. 0	Drawing No. S3

PRCTI20221786



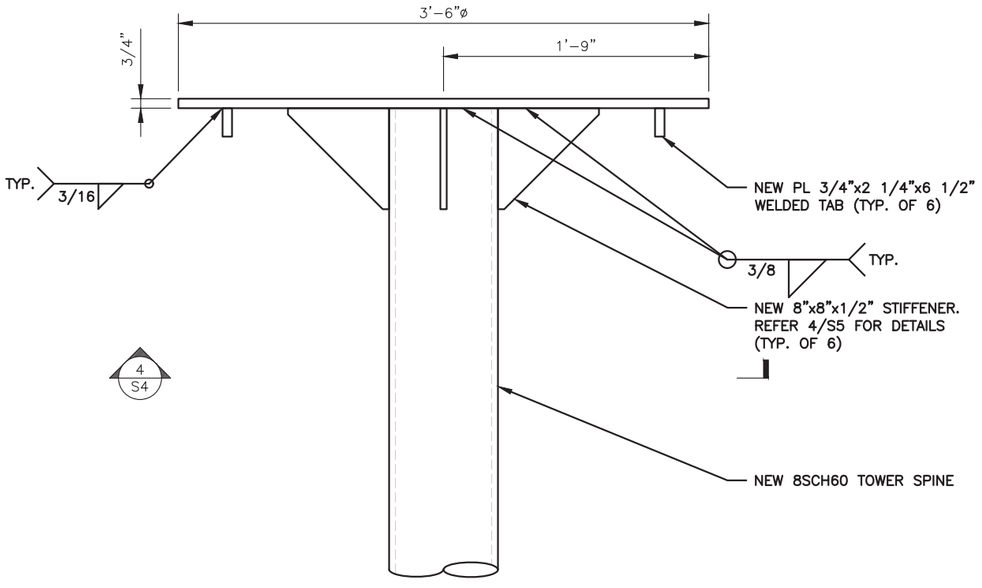
1 S4 SECTION

SCALE: 1" = 1'-0"



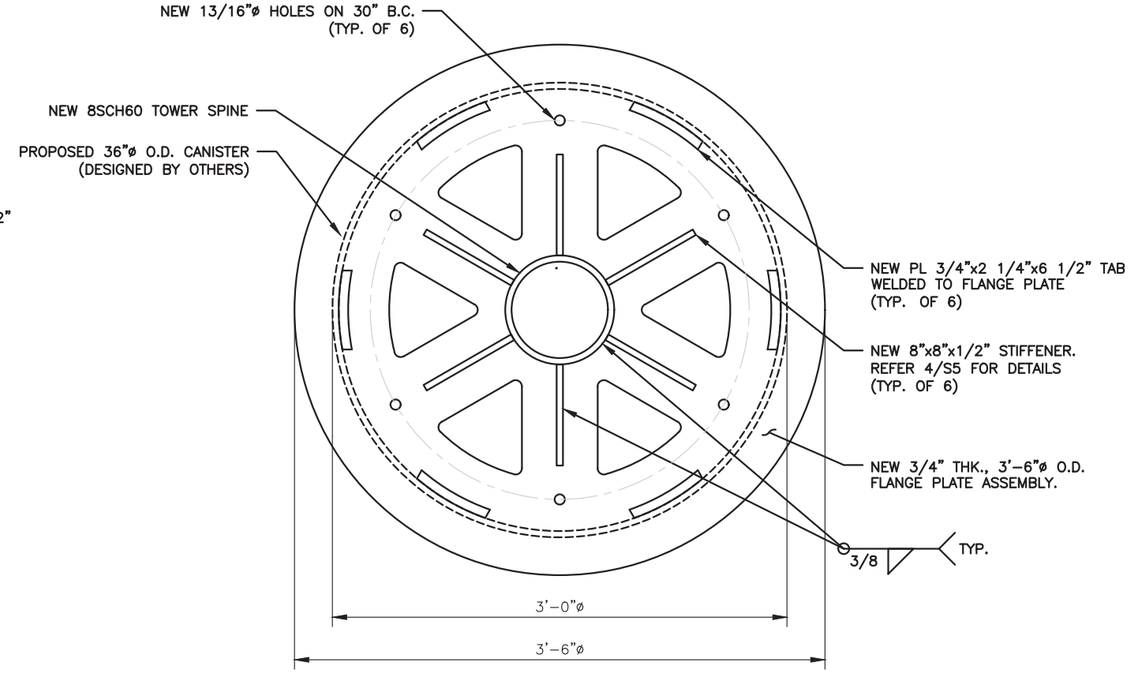
2 S4 FLANGE PLATE DETAIL

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



3 S4 SECTION

SCALE: 1" = 1'-0"



4 S4 FLANGE PLATE DETAIL

SCALE: 1" = 1'-0"

YAN WANG
STATE OF WASHINGTON
44135
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

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Date: 2022.09.13 16:40:11-04'00'

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MORRISON HERSHFIELD
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Client:

MasTec Network Solutions

Project:

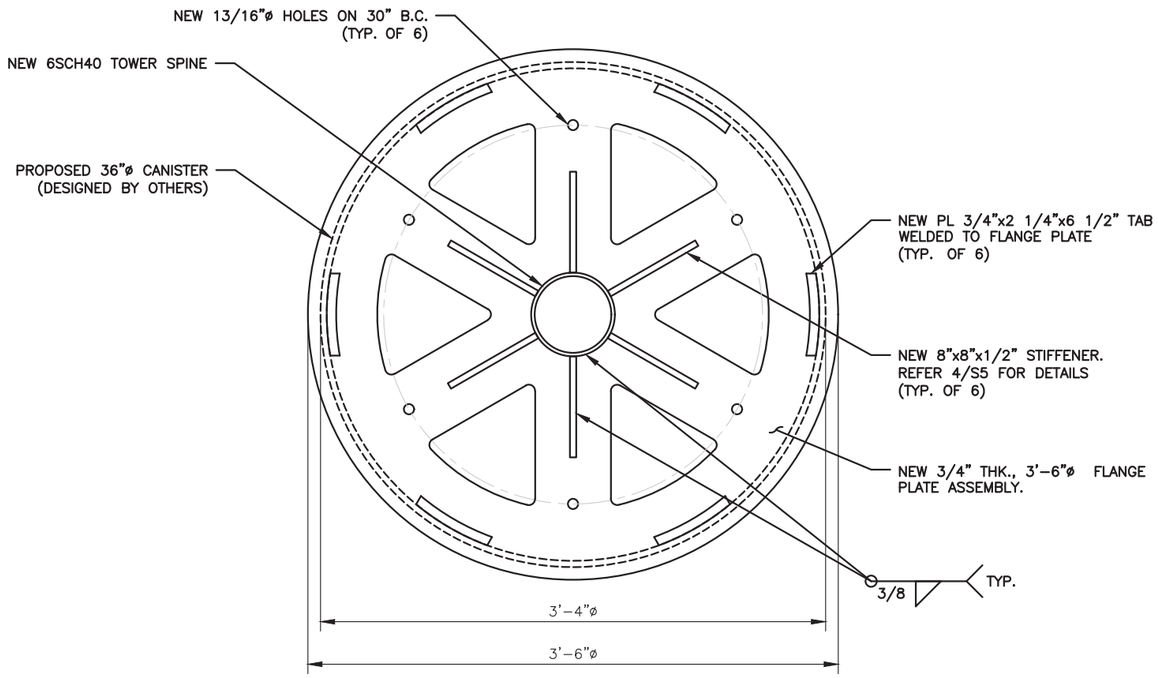
ORBIT
SITE USID: 75042-A
SITE FA: 10038029
3310 SOUTH MERIDIAN
PUYALLUP, WA 98373

Drawing Title:

SECTIONS & DETAILS

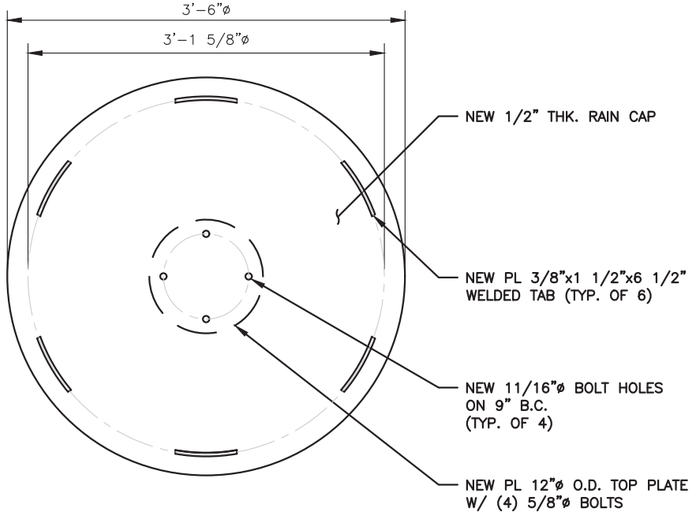
Project No.: 2200078: MAS-532R2	
Designer: VG	Date: 09/12/22
Drawn By: VG	Checked By: YW
PM Review: AC	Client Approval
Issue No.: 0	Drawing No.: S4

PRCTI20221786



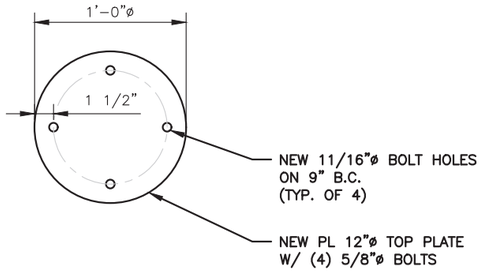
1 S5 FLANGE PLATE DETAIL

SCALE: 1" = 1'-0"



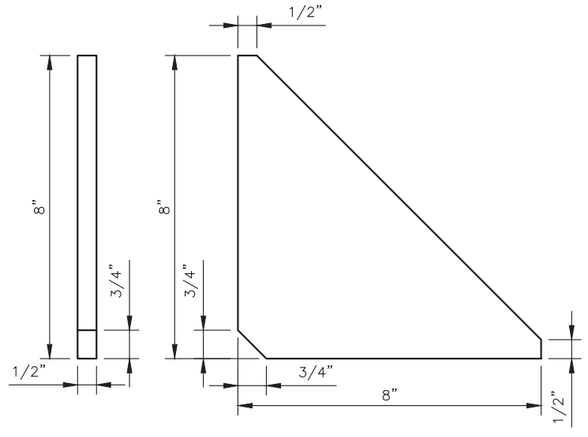
2 S5 RAIN CAP DETAIL

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



3 S5 TOP PLATE DETAIL

SCALE: 1" = 1'-0"



4 S5 STIFFENER DETAIL

SCALE: 3" = 1'-0"

DO NOT SCALE DRAWINGS. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND ADVISE CONSULTANTS OF ANY ERRORS OR OMISSIONS. NO VARIATIONS OR MODIFICATIONS TO WORK SHOWN SHALL BE IMPLEMENTED WITHOUT PRIOR WRITTEN APPROVAL. ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED BY THE LATEST REVISION. ALL DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF MORRISON HERSHFIELD CORPORATION. NEITHER MORRISON HERSHFIELD NOR THE ARCHITECT WILL BE PROVIDING CONSTRUCTION REVIEW OF THIS PROJECT.

YAN WANG
STATE OF WASHINGTON
STRUCTURAL ENGINEER
21133
PROFESSIONAL ENGINEER

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MORRISON HERSHFIELD
1455 Lincoln Parkway , Suite 500
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Client:

MasTec Network Solutions

Project:

ORBIT
SITE USID: 75042-A
SITE FA: 10038029
3310 SOUTH MERIDIAN
PUYALLUP, WA 98373

Drawing Title:

SECTIONS & DETAILS

Project No. 2200078: MAS-532R2	
Designer: VG	Date: 09/12/22
Drawn By: VG	Checked By: YW
PM Review: AC	Client Approval
Issue No. 0	Drawing No. S5

PRCTI20221786

GENERAL:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR	–	MASTEC NETWORK SOLUTIONS
SUBCONTRACTOR	–	GENERAL CONTRACTOR (CONSTRUCTION)
OWNER	–	AT&T MOBILITY
OEM	–	ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. **THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER OF RECORD PRIOR TO FABRICATION OR THE START OF ANY WORK.**
6. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
7. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
8. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PACEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. THE SUBCONTRACTOR SHALL LEACE PREMISES IN CLEAN CONDITION.
12. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.
13. THE SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. THE SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
14. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY THE SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH THE CONTRACTOR. ALSO, WORK MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
15. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
16. THE SUBCONTRACTOR SHALL NOT USE OR INSTALL ANY MATERIAL CONTAINING ASBESTOS OR LEAD PAINT CONTENT. THE USE OF SUCH MATERIAL IS STRICTLY PROHIBITED.

INSTALLER:

1. ALL CONTRACTORS MUST ADHERE TO ALL SITE AND TOWER SAFETY PROCEDURES AND PROVIDE THIS DOCUMENTATION IN WRITING IF REQUESTED TO TOWER OWNER.
2. TOWER OWNER SHALL BE CONTACTED IMMEDIATELY TO EVALUATE ANY EXISTING CONDITIONS THAT WILL AFFECT THE SAFETY AND SCOPE OF WORK.
3. CONTRACTOR TO PROVIDE THE NECESSARY CERTIFICATIONS OF ALL WORKERS ON THE TOWER TO OWNER UPON REQUEST.
4. THE CONTRACTOR SHALL SUPERVISE ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THIS WORK AND MUST PROVIDE WRITTEN DOCUMENTS OF THESE PROCEDURES.
5. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING; NO SITE VISIT HAS BEEN PERFORMED BY MORRISON HERSHFIELD. ALL INFORMATION PROVIDED ABOUT THE TOWER HAS BEEN TAKEN FROM OTHER SOURCES AND HAS BEEN ASSUMED TO BE RELIABLE.
6. EVERY ATTEMPT IS TO BE MADE TO ACOID CARRIER DOWNTIME. ALL COAX AND ITEMS CURRENTLY ON TOWER MUST BE RETURNED TO EQUAL OR BETTER THAN ORIGINAL CONDITION PRIOR TO COMPLETION. ANY DOWNTIME OR CHANGES ARE TO BE COORDINATED IN WRITING WITH TOWER OWNER.
7. WORK IS TO BE CONTAINED TO THE SITE COMPOUND AREA ONLY. ANY OUTSIDE OR ADJACENT PROPERTY NEEDED TO PERFORM ACCESS OR SCOPE OF WORK TO BE REQUESTED IN WRITING TO TOWER OWNER.

STRUCTURAL STEEL:

1. DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO TIA–222–H "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS AND SMALL WIND TURBINE SUPPORT STRUCTURES" AND AISC STEEL MANUAL OF STEEL CONSTRUCTION, UNO.
2. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES AND CONTRACT SPECIFICATIONS.
3. ALL STRUCTURAL STEEL IS TO BE NEW AND CONFORM TO THE FOLLOWING (UNLESS NOTED OTHERWISE ON THE DRAWINGS):

   ALL PLATE STEEL SHALL BE A572 GR 50 (Fy = 50 KSI) UNLESS NOTED OTHERWISE.

   ALL ANGLE STEEL SHALL BE A36 (Fy = 36 KSI) UNLESS NOTED OTHERWISE.

   ALL PIPE STEEL SHALL BE A53–35 (Fy = 35 KSI) UNLESS NOTED OTHERWISE.

   ALL OTHER STEEL SHALL BE A36 (Fy = 36 KSI) UNLESS NOTED OTHERWISE.

   ANY STEEL THAT DOES NOT MEET THE MINIMUM SPECIFIED YIELD STRESS (Fy) SHOWN WILL BE REJECTED.
4. **TOWER GEOMETRY AND MEMBER PROPERTIES WERE OBTAINED FROM THE TOWER MAPPING REPORT BY TOWER ENGINEERING PROFESSIONALS, JOB NO. 312623.691483, DATED: 05/23/2022**
5. ALL THRU BOLTS AND U–BOLTS SHALL BE A325. ALL BOLTS SHALL BE HOT DIP GALVANIZED AND HACE LOCK WASHERS OR LOCKING DEVICES. DO NOT RE–USE BOLTS. ALL U–BOLTS SHALL BE SNUG TIGHT.
6. WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH SPECIFICATIONS. DRAWINGS SHALL BE SEALED BY THE FABRICATOR'S LICENSED ENGINEER.
7. PROVIDE ALL REQUIRED GUSSETS, SPACERS, FILLERS AND BATTEN PLATES.
8. MAKE NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBER OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE WRITTEN APPROVAL BY THE ENGINEER.
9. ALL EXPOSED EXTERIOR STRUCTURAL STEEL (INCLUDING BOLTS, PACK WASHERS, PINS, ETC.) TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 AND A123. FOR ALL WELDED CONNECTIONS TO BE GALVANIZED, PROVIDE WELDS ALL AROUND OR ADD SEAL WELDS WHERE STRUCTURAL WELDS ARE NOT SPECIFIED.
10. ANY SUBSTITUTES IN MATERIAL OR SCOPE OF WORK PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY MORRISON HERSHFIELD ENGINEER.
11. CONTRACTORS SHALL COORDINATE W/ MORRISON HERSHFIELD WITHIN 72 HOURS AFTER 100% COMPLETION OF THE MOUNT MODIFICATION INSTALLATION. PROPOSED LOADING WITHOUT ENGINEER APPROVAL IS PROHIBITED.
12. NO FIELD WELDING PERMITTED, EXCEPT WHERE SPECIFICALLY SHOWN.

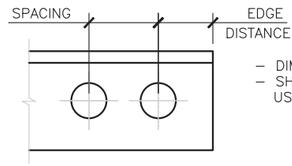
FIELD WELDING NOTES

1. ALL WELDING SHALL BE PERFORMED IN COMPLIANCE WITH THE LATEST EDITION OF AWS D1.1 STRUCTURAL WELDING CODE – STEEL AS WELL AS CROWN ENGINEERING BULLETIN ENG–PLN–10015.
2. ALL WELDS SHALL BE 3/16" FILLET MINIMUM UNLESS NOTED OTHERWISE.
3. ALL ELECTRODES SHALL BE E70XX MINIMUM UNLESS NOTED OTHERWISE.
4. ADEQUATE PREHEAT OF ALL MEMBERS SHALL BE PERFORMED AS REQUIRED BY AWS D1.1 OR BY THE APPLICABLE WELDING PROCEDURE (PWPS AND/OR WPS). PHOTOGRAPHIC EVIDENCE OF PROPER PRE–HEAT SHALL BE SUBMITTED IN THE PMI REPORT.
5. WELDING SHALL BE DONE ONLY WHERE INDICATED ON THE DRAWINGS OR SPECIFICALLY APPROVED BY THE ENGINEER.
6. ALL CUT OR DAMAGED GALVANIZED AREAS AND WELD–AFFECTED AREAS SHALL BE REPAIRED WITH A BRUSHED ON COLD APPLIED GALVANIZING (NO SPRAY ON PRODUCTS SHALL BE PERMITTED) IN ACCORDANCE WITH CROWN ENGINEERING BULLETIN ENG–BUL–10149.
7. THE PWPS (PREQUALIFIED WELDING PROCEDURE SPECIFICATION) AND/OR WPS (WELDING PROCEDURE SPECIFICATION) SHALL BE FURNISHED TO MH FOR APPROVAL PRIOR TO MOBILIZATION OR INSTALLATION.
8. ALL WELDERS SHALL BE QUALIFIED PER AWS D1.1 FOR THE POSITIONS AND ELECTRODE SPECIFICATION ON THE PWPS AND WPS.
9. EACH WELDER'S WPQ (WELDER PERFORMANCE QUALIFICATION) FOR THE POSITIONS AND WELDING PROCEDURE (PWPS OR WPS) SHALL BE FURNISHED TO MH PRIOR TO MOBILIZATION OR INSTALLATION.
10. IF A WPS IS FURNISHED, IT SHALL REFER TO A SUPPORTING PQR (PERFORMANCE QUALIFICATION RECORD).
11. PER AWS D1.1 SECTION 6.6, "THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISUAL INSPECTION AND NECESSARY CORRECTION OF ALL DEFICIENCIES IN MATERIAL AND WORKMANSHIP IN CONFORMANCE WITH THE REQUIREMENTS OF THIS CODE."
12. ALL INSPECTORS SHALL BE QUALIFIED PER AWS D1.1, SECTION 6.4. INSPECTOR QUALIFICATIONS SHALL BE SUBMITTED TO MH PRIOR TO FINAL INSPECTION.
13. A VISUAL INSPECTION REPORT PERFORMED BY A CERTIFIED WELD INSPECTIOR SHALL BE SUBMITTED TO MH FOR APPROVAL PRIOR TO FINAL PMI INSPECTION.

COPING AND GAGE NOTES:

BOLT SCHEDULE

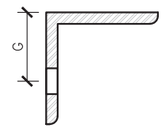
BOLT DIAMETER	STANDARD HOLE	MIN. EDGE DISTANCE	MIN. SPACING
1/2	9/16	7/8	1–1/2
5/8	11/16	1–1/8	1–7/8
3/4	13/16	1–1/4	2–1/4
7/8	15/16	1–1/2	2–5/8"
1	1–1/16	1–3/4	3



– DIMENSIONS GIVEN IN INCHES
– SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED ON THE PLANS

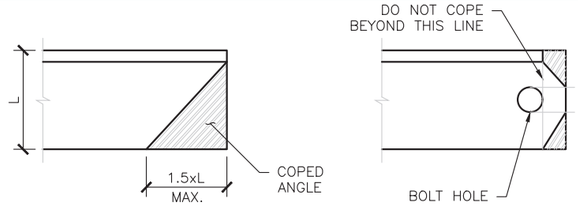
WORKABLE GAGES

LEG	4	3–1/2	3	2–1/2	2	1–3/4
G	2–1/2	2	1–3/4	1–3/8	1–1/8	1



– DIMENSIONS GIVEN IN INCHES
– MATCH EXISTING WHEN APPLICABLE

ALLOWABLE ANGLE COPE



1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENT.

YAN WANG
STATE OF WASHINGTON
44133
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

Digitally signed by Yan Wang
Date: 2022.09.13 16:39:36-04'00'

No.	Date	Action
7		
6		
5		
4		
3		
2		
1		
0	09/12/22	ISSUED FOR CONSTRUCTION

MORRISON HERSHFIELD
1455 Lincoln Parkway , Suite 500
Atlanta, GA 30346
Tel:770-379-8500 Fax: 770-379-8501
www.morrisonhershfield.com

Client:
MasTec Network Solutions

Project:
ORBIT
SITE USID: 75042–A
SITE FA: 10038029
3310 SOUTH MERIDIAN
PUYALLUP, WA 98373

Drawing Title:
COVER SHEET

Project No.
2200078: MAS–532R2

Designer:	Date:
VG	09/12/22
Drawn By:	Checked By:
VG	YW
PM Review:	Client Approval
AC	
Issue No.	Drawing No.
0	N1